

CE EMC TEST REPORT

for

Power Supply

MODEL: TF3000A12K; TF3000A15K; TF3000A24K;
TF3000A30K; TF3000A36K; TF3000A48K; TF3000A60K

Issued to:

SL POWER ELECTRONICS CORP

BLDG A 6050 KING DR VENTURA, CA 93003 USA

Issued by:

Compliance Certification Services Inc.

Xindian Lab.

**No.163-1, Jhongsheng Rd., Xindian Dist.,
New Taipei City, 23151 Taiwan.**

TEL: 886-2-22170894

FAX: 886-2-22171029

Issued Date: January 21, 2019

Note: This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, A2LA, NIST or any government agencies.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部分複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms_and_conditions.htm and for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 15, 2018	Initial Issue	ALL	Lucy Hsu
01	January 21, 2019	Copy Report	ALL	Lucy Hsu

TABLE OF CONTENTS

1	TEST CERTIFICATION	4
2	TEST RESULT SUMMARY	5
3	EUT DESCRIPTION	6
4	TEST METHODOLOGY	7
	4.1. DECISION OF FINAL TEST MODE	7
	4.2. EUT SYSTEM OPERATION	8
5	SETUP OF EQUIPMENT UNDER TEST	8
	5.1. DESCRIPTION OF SUPPORT UNITS	8
	5.2. CONFIGURATION OF SYSTEM UNDER TEST	8
6	FACILITIES AND ACCREDITATIONS	9
	6.1. FACILITIES	9
	6.2. ACCREDITATIONS	9
	6.3. MEASUREMENT UNCERTAINTY	9
7	EMISSION TEST	10
	7.1. CONDUCTED EMISSION MEASUREMENT	10
	7.2. REQUIREMENTS FOR ASYMMETRIC MODE CONDUCTED EMISSIONS	69
	7.3. RADIATED EMISSION MEASUREMENT	72
	7.4. CONDUCTED DIFFERENTIAL VOLTAGE EMISSIONS FROM CLASS B EQUIPMENT	135
	7.5. HARMONICS CURRENT MEASUREMENT	138
	7.6. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT	161
8	IMMUNITY TEST	169
	8.1. GENERAL DESCRIPTION	169
	8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION	170
	8.3. ELECTROSTATIC DISCHARGE (ESD)	171
	8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)	182
	8.5. ELECTRICAL FAST TRANSIENT (EFT)	185
	8.6. SURGE IMMUNITY TEST	188
	8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)	190
	8.8. POWER FREQUENCY MAGNETIC FIELD	193
	8.9. VOLTAGE DIPS & VOLTAGE INTERRUPTIONS	196
9	PHOTOGRAPHS OF THE TEST CONFIGURATION	198
	APPENDIX 1 - PHOTOGRAPHS OF EUT	A1-1

Report No.: T190110D07-E

Ref No.: T180921D04-E

1 TEST CERTIFICATION

Product: Power Supply

Brand: SL POWER

Model: TF3000A12K; TF3000A15K; TF3000A24K; TF3000A30K; TF3000A36K;
TF3000A48K; TF3000A60K

Applicant: **SL POWER ELECTRONICS CORP**
BLDG A 6050 KING DR VENTURA, CA 93003 USA

Manufacturer: **SL POWER ELECTRONICS CORP**
BLDG A 6050 KING DR VENTURA, CA 93003 USA

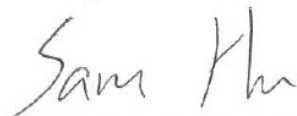
Tested: July 13, 2018 ~ October 3, 2018

Applicable Standards:	EN 55032: 2015 / AC: 2016, Class A	EN 55024: 2010 + A1: 2015
	CISPR 32: 2015 (Ed 2.0) / C1: 2016	IEC 61000-4-2: 2008
	EN 61000-3-2: 2014	IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010
	EN 61000-3-3: 2013	IEC 61000-4-4: 2012
		IEC 61000-4-5: 2014 + A1: 2017
		IEC 61000-4-6: 2013
		IEC 61000-4-8: 2009
		IEC 61000-4-11: 2004 + A1: 2017

Deviation from Applicable Standard
None


The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements of technical standards specified above under the EMC Directive 2014/30/EU. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:



Sam Hu
Assistant Manager

Reviewed by:



Eva Fan
Supervisor of report document dept.

Report No.: T190110D07-E

Ref No.: T180921D04-E

2 TEST RESULT SUMMARY

EMISSION			
Standard	Item	Result	Remarks
EN 55032: 2015 / AC: 2016 CISPR 32: 2015 (Ed 2.0) / C1: 2016	Conducted (Power Port)	PASS	Meet Class A limit
	Conducted (Telecom port)	N/A	Please see the page 71
	Radiated	PASS	Meet Class A limit
	Radiated emissions from FM receivers	N/A	Please see the page 134
	Conducted differential voltage emissions from Class B equipment	N/A	Please see the page 137
EN 61000-3-2: 2014	Harmonic current emissions	PASS	Meet Class A limit
EN 61000-3-3: 2013	Voltage fluctuations & flicker	PASS	Meets the requirements

IMMUNITY [EN 55024: 2010 + A1: 2015]			
Standard	Item	Result	Remarks
IEC 61000-4-2: 2008	ESD	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010	RS	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-4: 2012	EFT	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-5: 2014 + A1: 2017	Surge	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-6: 2013	CS	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-8: 2009	PFMF	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-11: 2004 + A1: 2017	Voltage dips & voltage variations	PASS	Meets the requirements of Voltage Dips: 1) >95% reduction Performance Criterion A 2) 30% reduction Performance Criterion A Voltage Interruptions: 1) >95% reduction Performance Criterion B

- Note:**
- The statements of test result on the above are decided by the request of test standard only; the measurement uncertainties are not factored into this compliance determination.
 - The information of measurement uncertainty is available upon the customer's request.

Report No.: T190110D07-E

Ref No.: T180921D04-E

3 EUT DESCRIPTION

Product	Power Supply
Brand Name	SL POWER
Model	TF3000A12K; TF3000A15K; TF3000A24K; TF3000A30K; TF3000A36K; TF3000A48K; TF3000A60K
Applicant	SL POWER ELECTRONICS CORP
Housing material	Metal case
Identify Number	T180921D04
Received Date	September 21, 2018
EUT Power Rating	Please see the model differences
AC Power During Test	110VAC / 50Hz & 230VAC / 50Hz

Model Differences

Model Name	Difference		Tested (Checked)
	Input	Output	
TF3000A12K	115-180VAC 47/63Hz 19.7A (Max. output power 2000W) 200-240VAC 47/63Hz 14.5A (Max. output power 3000W)	+12VDC, 200A	<input checked="" type="checkbox"/>
TF3000A15K		+15VDC, 160A	<input checked="" type="checkbox"/>
TF3000A24K		+24VDC, 125A	<input checked="" type="checkbox"/>
TF3000A30K		+30VDC, 100A	<input checked="" type="checkbox"/>
TF3000A36K		+36VDC, 83.5A	<input checked="" type="checkbox"/>
TF3000A48K		+48VDC, 62.5A	<input checked="" type="checkbox"/>
TF3000A60K		+60VDC, 50A	<input checked="" type="checkbox"/>

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH

Note: None.

Report No.: T190110D07-E

Ref No.: T180921D04-E

4 TEST METHODOLOGY

4.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The test configuration/ modes are as the following:

Modes:

No.	Model	Operate State		
		DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
1	TF3000A12K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
2			Full Rated Load Mode	230VAC / 50Hz
3		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
4			Full Rated Load Mode	230VAC / 50Hz
5	TF3000A15K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
6			Full Rated Load Mode	230VAC / 50Hz
7		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
8			Full Rated Load Mode	230VAC / 50Hz
9	TF3000A24K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
10			Full Rated Load Mode	230VAC / 50Hz
11		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
12			Full Rated Load Mode	230VAC / 50Hz
13	TF3000A30K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
14			Full Rated Load Mode	230VAC / 50Hz
15		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
16			Full Rated Load Mode	230VAC / 50Hz
17	TF3000A36K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
18			Full Rated Load Mode	230VAC / 50Hz
19		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
20			Full Rated Load Mode	230VAC / 50Hz
21	TF3000A48K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
22			Full Rated Load Mode	230VAC / 50Hz
23		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
24			Full Rated Load Mode	230VAC / 50Hz
25	TF3000A60K	DC-CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
26			Full Rated Load Mode	230VAC / 50Hz
27		DC-NOT CONNECTED TO FG	Full Rated Load Mode	110VAC / 50Hz
28			Full Rated Load Mode	230VAC / 50Hz

Worst:

Conduction: Mode 3

Radiation: Mode 24

Report No.: T190110D07-E

Ref No.: T180921D04-E

4.2. EUT SYSTEM OPERATION

1. All peripherals connect EUT to test full rated load mode.

Note: Test program is self-repeating throughout the test.

5 SETUP OF EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

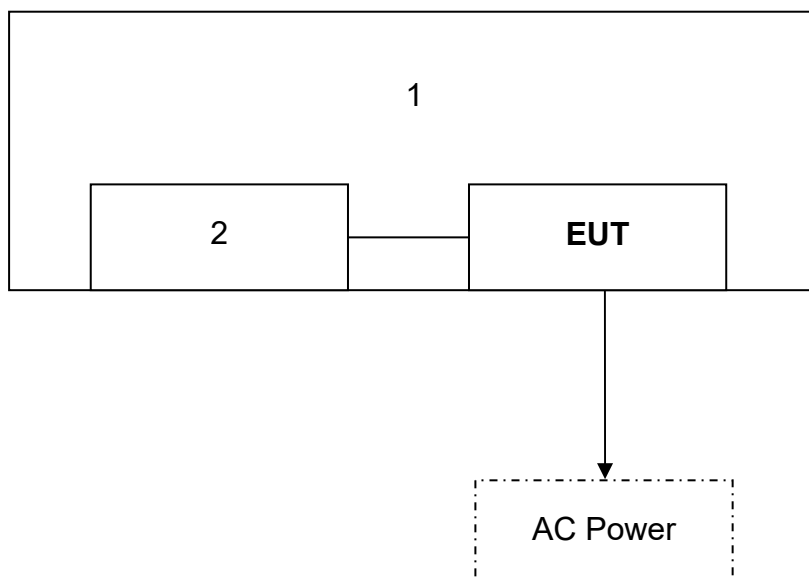
Peripherals Devices:

No.	Equipment	Model No.	Serial No.	FCC ID / BSMI ID	Brand Name	Data Cable	Power Cord
1	Metal Board	N/A	N/A	N/A	N/A	N/A	N/A
2	Load	N/A	N/A	N/A	N/A	N/A	Unshielded, 0.5m

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. CONFIGURATION OF SYSTEM UNDER TEST



6 FACILITIES AND ACCREDITATIONS

6.1. FACILITIES

All measurement facilities (exclude facilities Harmonic/Flicker of EN 61000-3-2/-3) used to collect the measurement data are located at CCSrf Taiwan Xindian Lab. at No.163-1, Jhongsheng Rd., Xindian Dist., New Taipei City, 23151 Taiwan.

The measurement facilities Harmonic/Flicker of EN 61000-3-2/-3 are located at at SGS Taiwan LTD. Electronics & Communication Laboratory at No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.).

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4 and CISPR 16-1-5.

6.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF
USA	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccsrf.com>

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	0.15MHz ~ 30MHz	± 2.8
Radiated emissions	30MHz ~ 1000MHz	± 5.2

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Consistent with industry standard (e.g. CISPR 22: 2005, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.

The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.6dB and 5.2dB respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

7 EMISSION TEST

7.1. CONDUCTED EMISSION MEASUREMENT

7.1.1. LIMITS

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE:

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.1.2. TEST INSTRUMENTS

Conducted Emission room # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
BNC CABLE	EMEC	EMG178	BNC#A9	03/26/2019
EMI Test Receiver	R&S	ESCI	101201	09/25/2019
LISN	Schwarzbeck	NNLK 8129	8129-286	08/09/2019
LISN(EUT)	Schwarzbeck	NSLK 8127	8127527	08/09/2019
Pulse Limiter	R&S	ESH3Z2	SD-C002	08/15/2019
Thermo-Hygro Meter	Wisewind	201A	No. 02	05/06/2019
Test S/W	EZ-EMC			

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. N.C.R = No Calibration Request.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.1.3. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-031 & PA-041)**Procedure of Preliminary Test**

- The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55032 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- All I/O cables were positioned to simulate typical actual usage as per EN 55032.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment power received from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

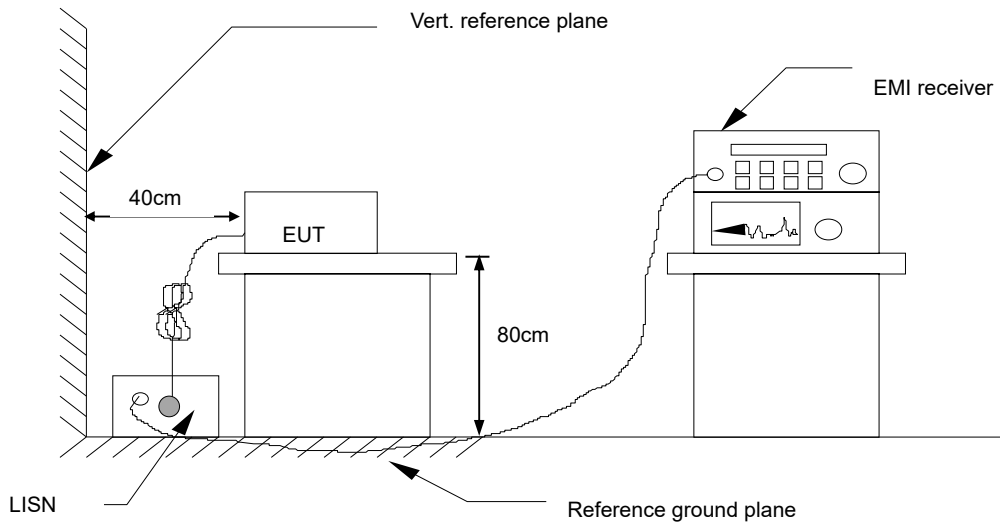
Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.1.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.1.5. DATA SAMPLE

Freq. (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
x.xx	42.95	0.55	43.50	73	-29.50	Q	L1

- Freq. = Emission frequency in MHz
- Reading = Uncorrected Analyzer/Receiver reading
- Factor = Insertion loss of LISN + Cable Loss + Pulse Limit
- Result = Reading + Factor
- Limit = Limit stated in standard
- Margin = Reading in reference to limit
- P = Peak Reading
- Q = Quasi-peak Reading
- A = Average Reading
- L1 = Hot side
- L2 = Neutral side

Calculation Formula

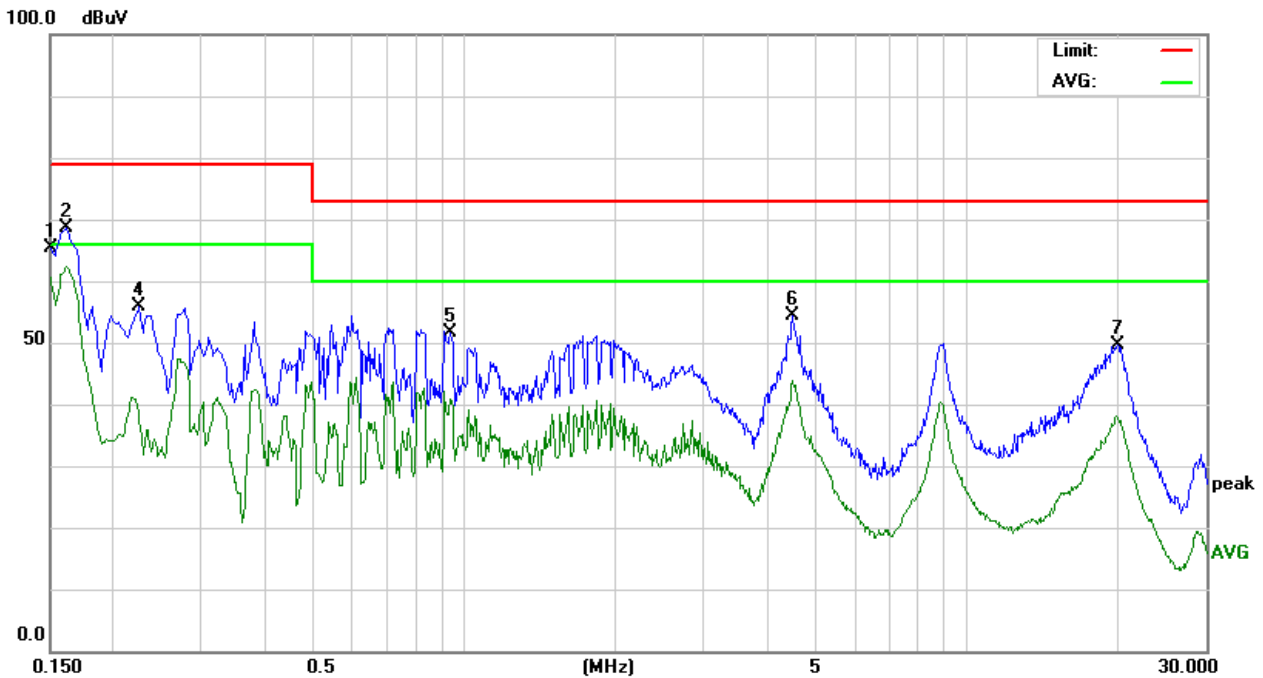
$$\text{Margin (dB)} = \text{Result (dBUV)} - \text{Limit (dBUV)}$$

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.1.6. TEST RESULTS

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 1
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



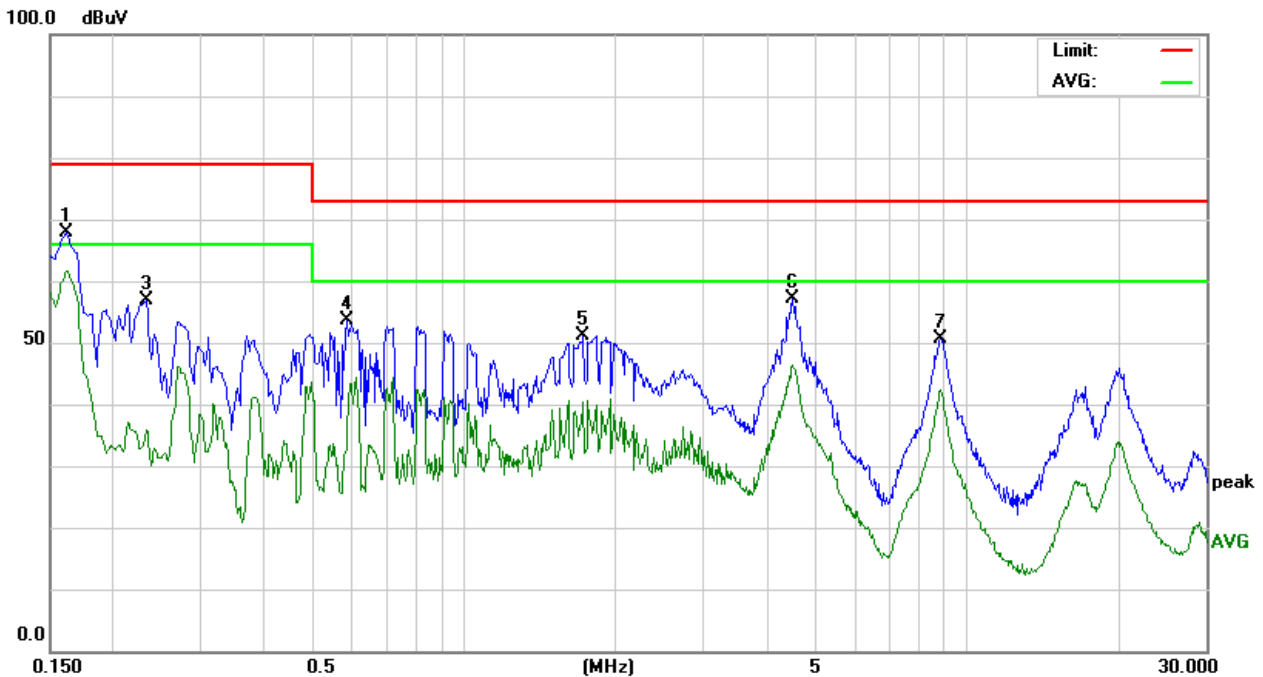
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	55.44	9.99	65.43	79.00	-13.57	P	L1
0.1620	58.71	9.99	68.70	79.00	-10.30	P	L1
0.1620	52.34	9.99	62.33	66.00	-3.67	A	L1
0.2260	45.77	10.00	55.77	79.00	-23.23	P	L1
0.9420	41.52	10.06	51.58	73.00	-21.42	P	L1
4.5140	44.09	10.23	54.32	73.00	-18.68	P	L1
19.9780	38.68	10.92	49.60	73.00	-23.40	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 1
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



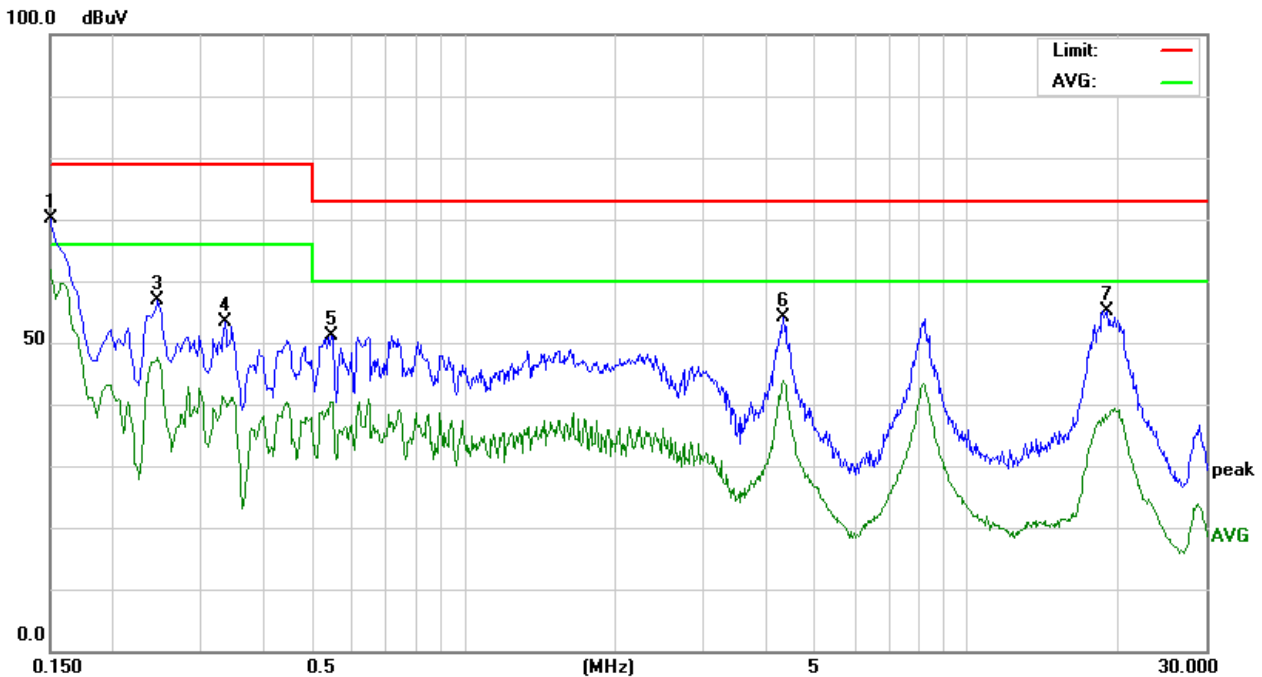
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1620	57.97	10.00	67.97	79.00	-11.03	P	L2
0.1620	51.49	10.00	61.49	66.00	-4.51	A	L2
0.2340	46.86	10.01	56.87	79.00	-22.13	P	L2
0.5860	43.64	10.02	53.66	73.00	-19.34	P	L2
1.7300	41.08	10.08	51.16	73.00	-21.84	P	L2
4.5100	46.84	10.24	57.08	73.00	-15.92	P	L2
8.9100	40.05	10.48	50.53	73.00	-22.47	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 2
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



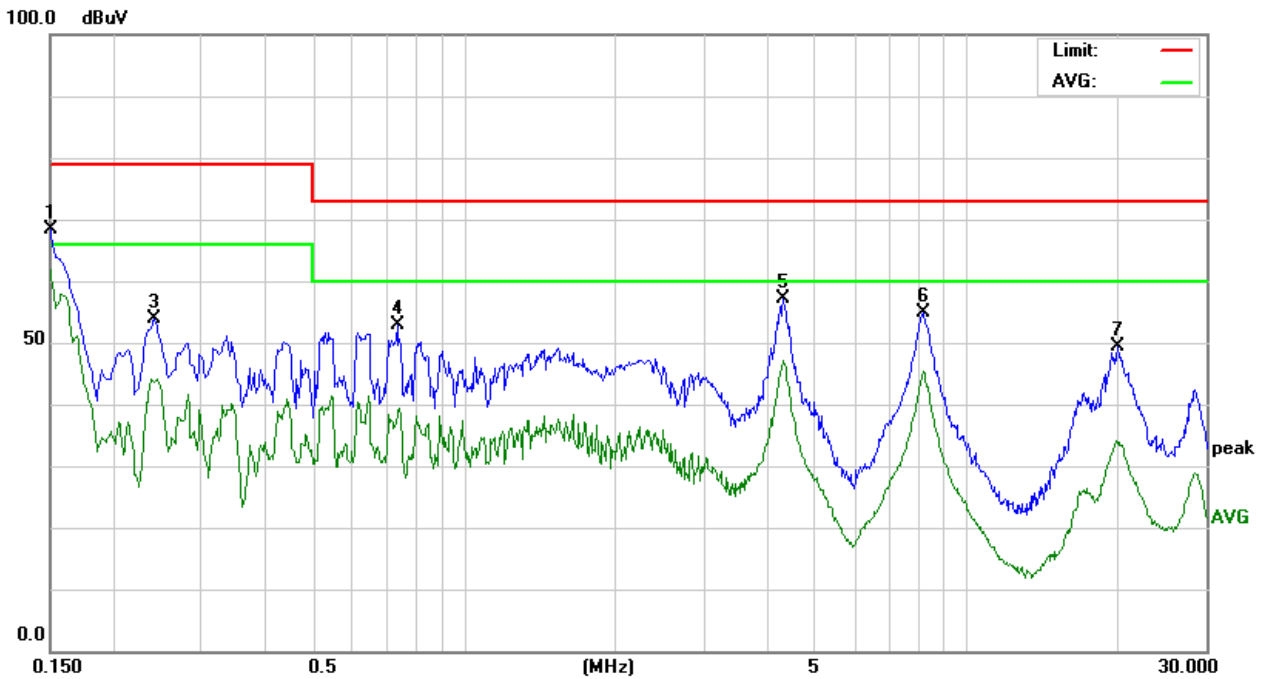
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	60.17	9.99	70.16	79.00	-8.84	P	L1
0.1500	52.04	9.99	62.03	66.00	-3.97	A	L1
0.2460	46.93	10.00	56.93	79.00	-22.07	P	L1
0.3339	43.26	10.01	53.27	79.00	-25.73	P	L1
0.5460	41.15	10.02	51.17	73.00	-21.83	P	L1
4.3340	43.91	10.22	54.13	73.00	-18.87	P	L1
19.0459	44.26	10.88	55.14	73.00	-17.86	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 2
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



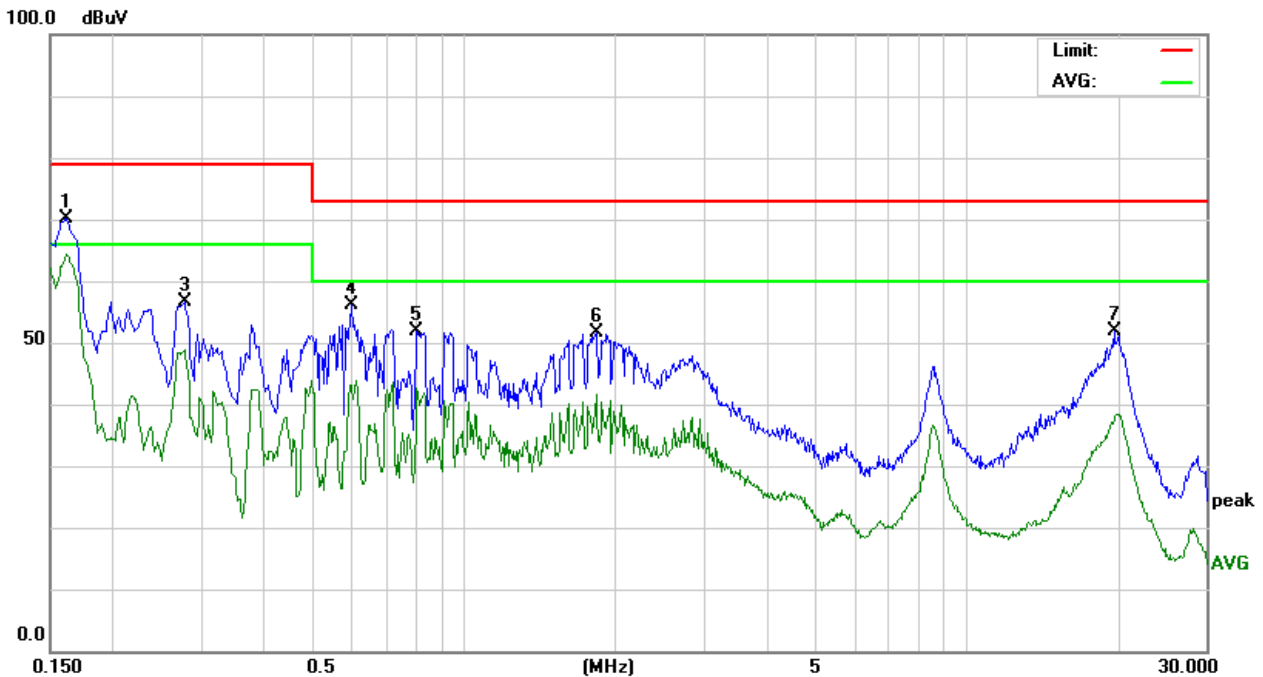
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	58.44	10.00	68.44	79.00	-10.56	P	L2
0.1500	50.46	10.00	60.46	66.00	-5.54	A	L2
0.2420	43.86	10.01	53.87	79.00	-25.13	P	L2
0.7380	42.90	10.04	52.94	73.00	-20.06	P	L2
4.3300	46.92	10.23	57.15	73.00	-15.85	P	L2
8.2100	44.49	10.46	54.95	73.00	-18.05	P	L2
20.0300	38.38	10.97	49.35	73.00	-23.65	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 3 / Worst
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



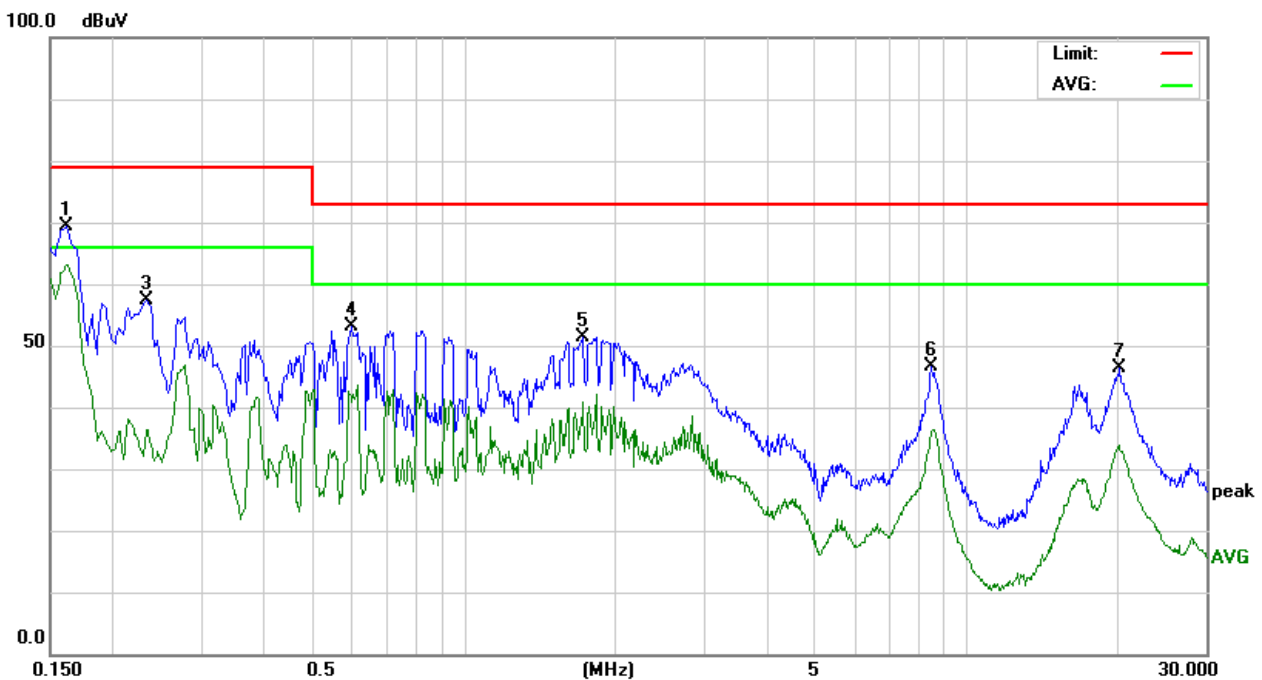
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1620	60.21	9.99	70.20	79.00	-8.80	P	L1
0.1620	53.80	9.99	63.79	66.00	-2.21	A	L1
0.2779	46.62	10.00	56.62	79.00	-22.38	P	L1
0.5980	46.00	10.02	56.02	73.00	-16.98	P	L1
0.8059	41.72	10.05	51.77	73.00	-21.23	P	L1
1.8380	41.49	10.10	51.59	73.00	-21.41	P	L1
19.7139	40.98	10.91	51.89	73.00	-21.11	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 3 / Worst
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



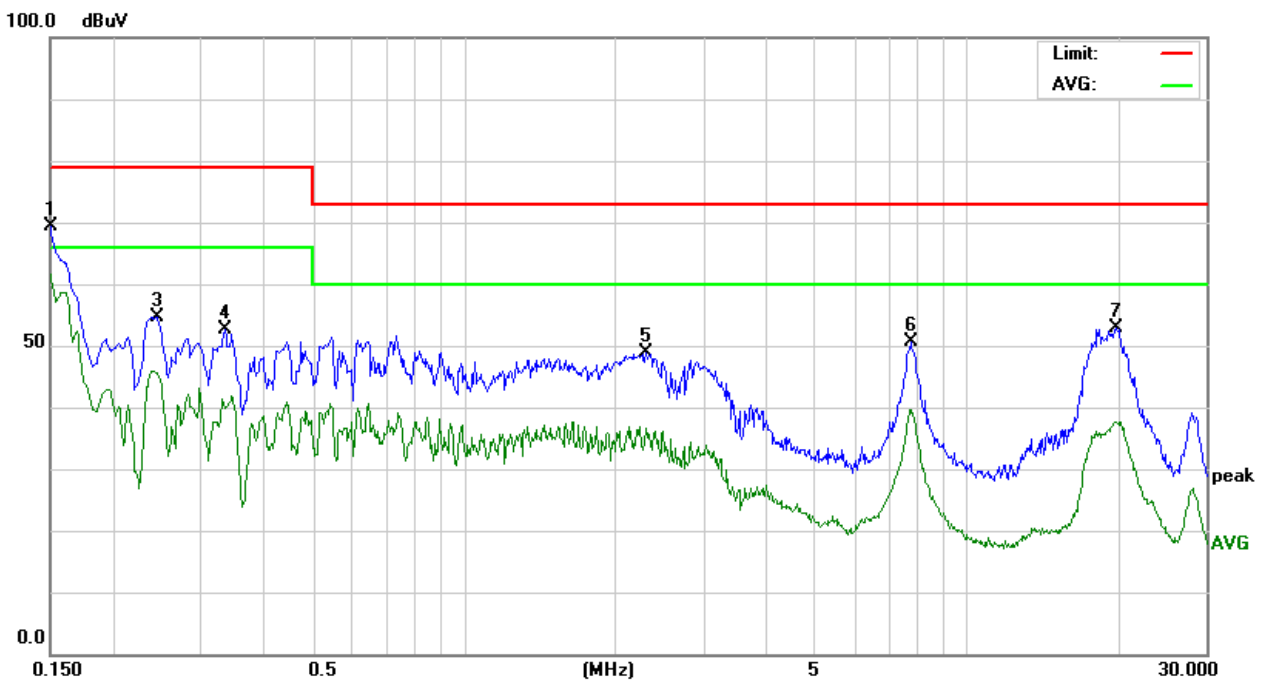
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1620	59.32	10.00	69.32	79.00	-9.68	P	L2
0.1620	52.92	10.00	62.92	66.00	-3.08	A	L2
0.2340	47.25	10.01	57.26	79.00	-21.74	P	L2
0.5980	43.12	10.02	53.14	73.00	-19.86	P	L2
1.7260	41.36	10.08	51.44	73.00	-21.56	P	L2
8.5420	36.11	10.47	46.58	73.00	-26.42	P	L2
20.2180	35.41	10.97	46.38	73.00	-26.62	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 4
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



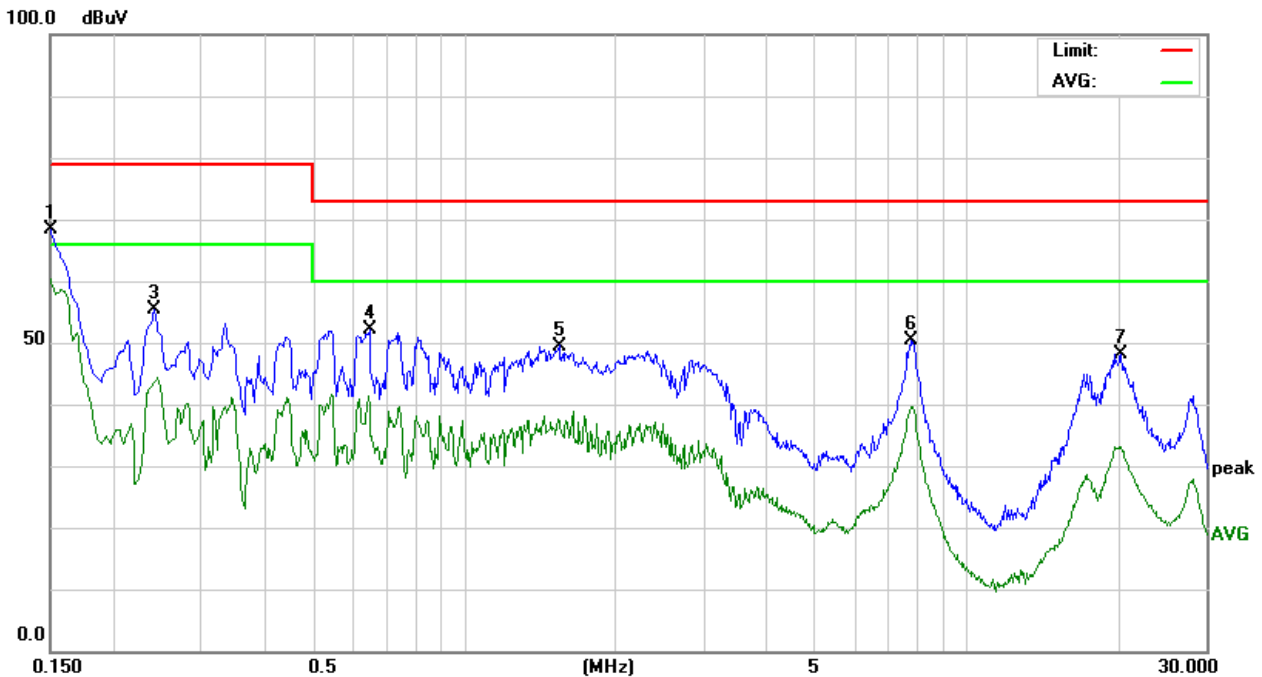
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	59.29	9.99	69.28	79.00	-9.72	P	L1
0.1500	51.40	9.99	61.39	66.00	-4.61	A	L1
0.2460	44.62	10.00	54.62	79.00	-24.38	P	L1
0.3339	42.58	10.01	52.59	79.00	-26.41	P	L1
2.3060	38.71	10.11	48.82	73.00	-24.18	P	L1
7.7460	40.24	10.41	50.65	73.00	-22.35	P	L1
19.9220	41.92	10.92	52.84	73.00	-20.16	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 4
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



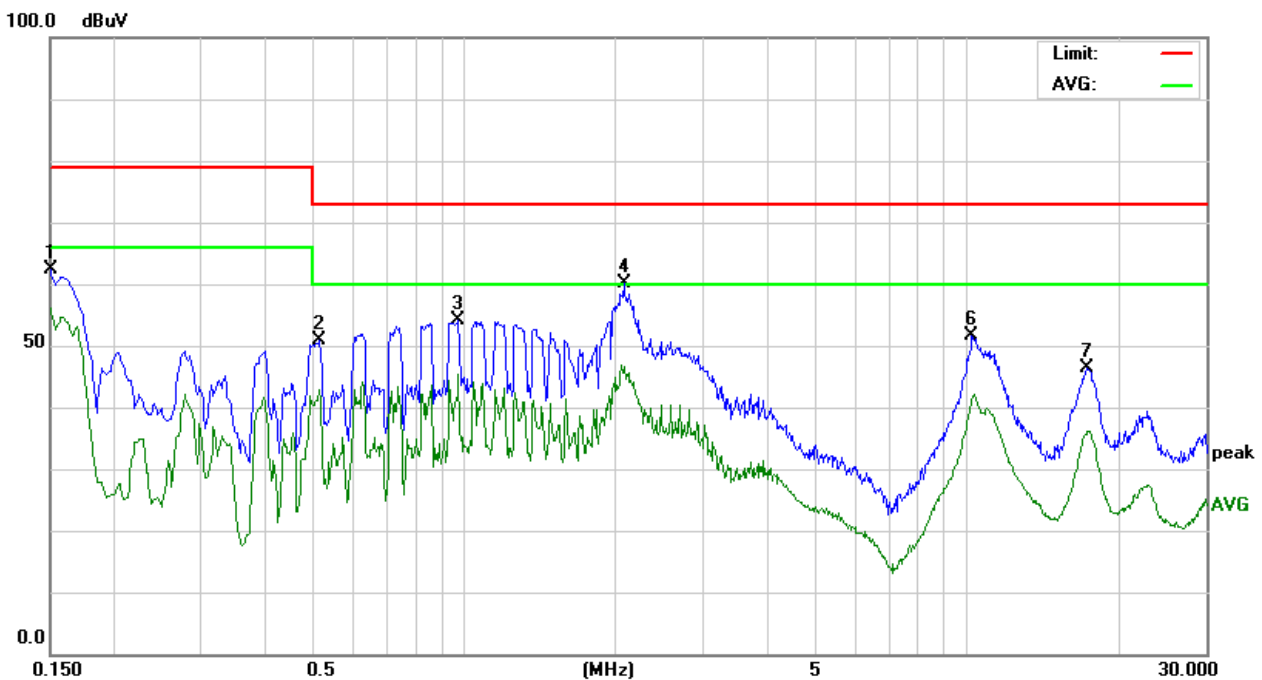
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	58.34	10.00	68.34	79.00	-10.66	P	L2
0.1500	51.27	10.00	61.27	66.00	-4.73	A	L2
0.2420	45.28	10.01	55.29	79.00	-23.71	P	L2
0.6500	41.99	10.03	52.02	73.00	-20.98	P	L2
1.5460	39.42	10.08	49.50	73.00	-23.50	P	L2
7.7820	39.86	10.43	50.29	73.00	-22.71	P	L2
20.3180	37.10	10.98	48.08	73.00	-24.92	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 5
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



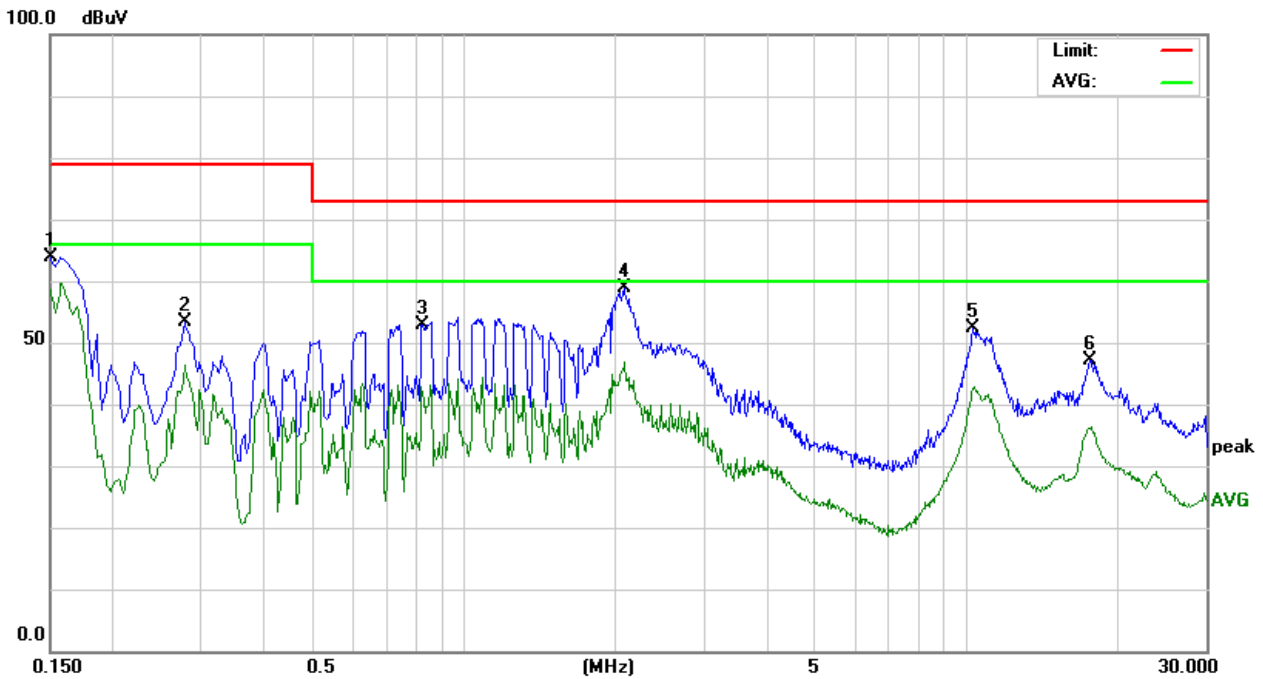
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	52.34	9.99	62.33	79.00	-16.67	P	L1
0.5180	40.81	10.02	50.83	73.00	-22.17	P	L1
0.9740	44.06	10.06	54.12	73.00	-18.88	P	L1
2.0860	49.93	10.10	60.03	73.00	-12.97	P	L1
2.0860	37.12	10.10	47.22	60.00	-12.78	A	L1
10.2739	40.99	10.53	51.52	73.00	-21.48	P	L1
17.3380	35.67	10.81	46.48	73.00	-26.52	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 5
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



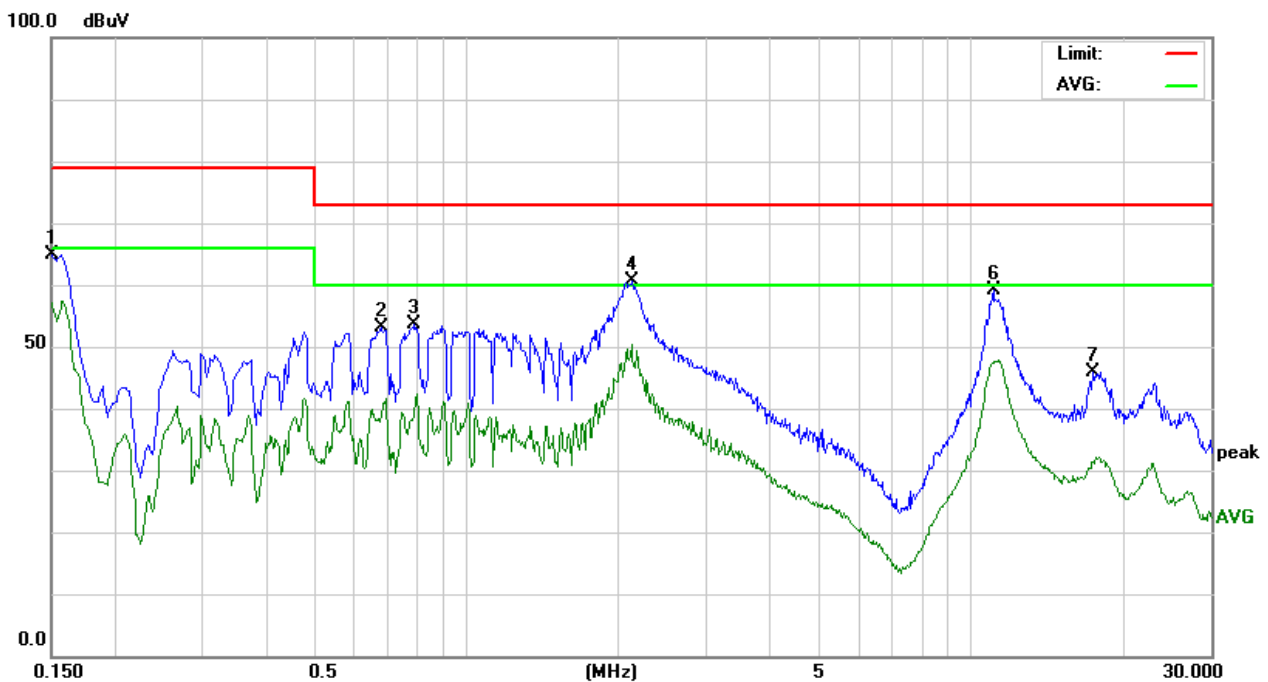
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.90	10.00	63.90	79.00	-15.10	P	L2
0.2779	43.31	10.01	53.32	79.00	-25.68	P	L2
0.8260	42.79	10.05	52.84	73.00	-20.16	P	L2
2.0860	48.86	10.10	58.96	73.00	-14.04	P	L2
10.3380	41.78	10.56	52.34	73.00	-20.66	P	L2
17.6460	36.29	10.88	47.17	73.00	-25.83	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 6
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



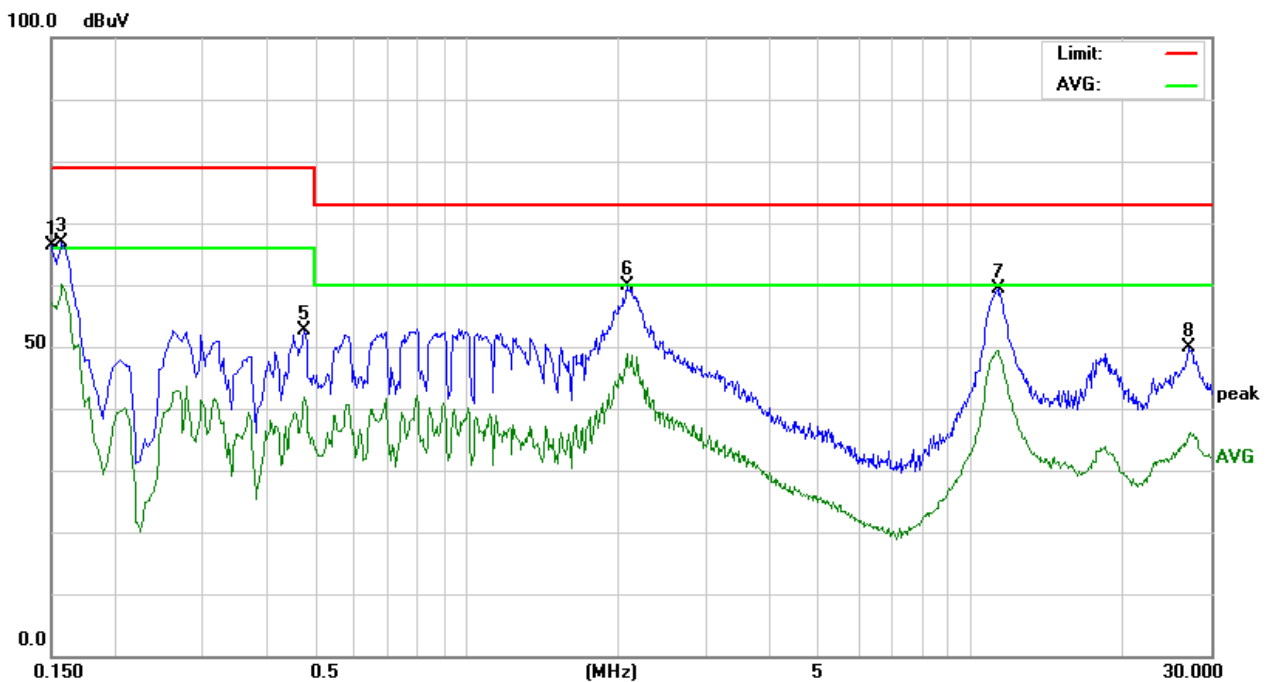
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	54.96	9.99	64.95	79.00	-14.05	P	L1
0.6780	43.16	10.03	53.19	73.00	-19.81	P	L1
0.7900	43.59	10.05	53.64	73.00	-19.36	P	L1
2.1340	50.46	10.10	60.56	73.00	-12.44	P	L1
2.1340	39.29	10.10	49.39	60.00	-10.61	A	L1
11.1020	48.57	10.57	59.14	73.00	-13.86	P	L1
17.4860	35.18	10.82	46.00	73.00	-27.00	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 6
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



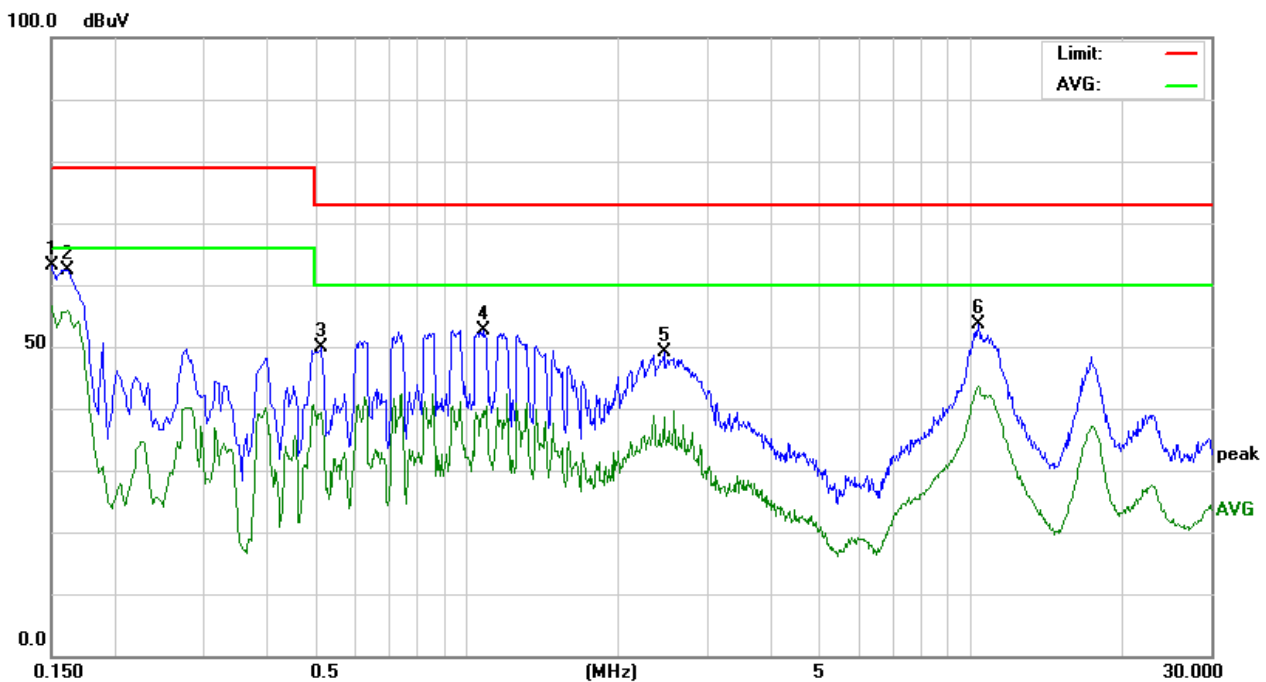
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	56.33	10.00	66.33	79.00	-12.67	P	L2
0.1500	47.98	10.00	57.98	66.00	-8.02	A	L2
0.1580	56.95	10.00	66.95	79.00	-12.05	P	L2
0.1580	49.77	10.00	59.77	66.00	-6.23	A	L2
0.4780	42.65	10.02	52.67	79.00	-26.33	P	L2
2.0780	49.85	10.10	59.95	73.00	-13.05	P	L2
11.3340	48.68	10.61	59.29	73.00	-13.71	P	L2
27.0540	38.56	11.21	49.77	73.00	-23.23	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 7
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



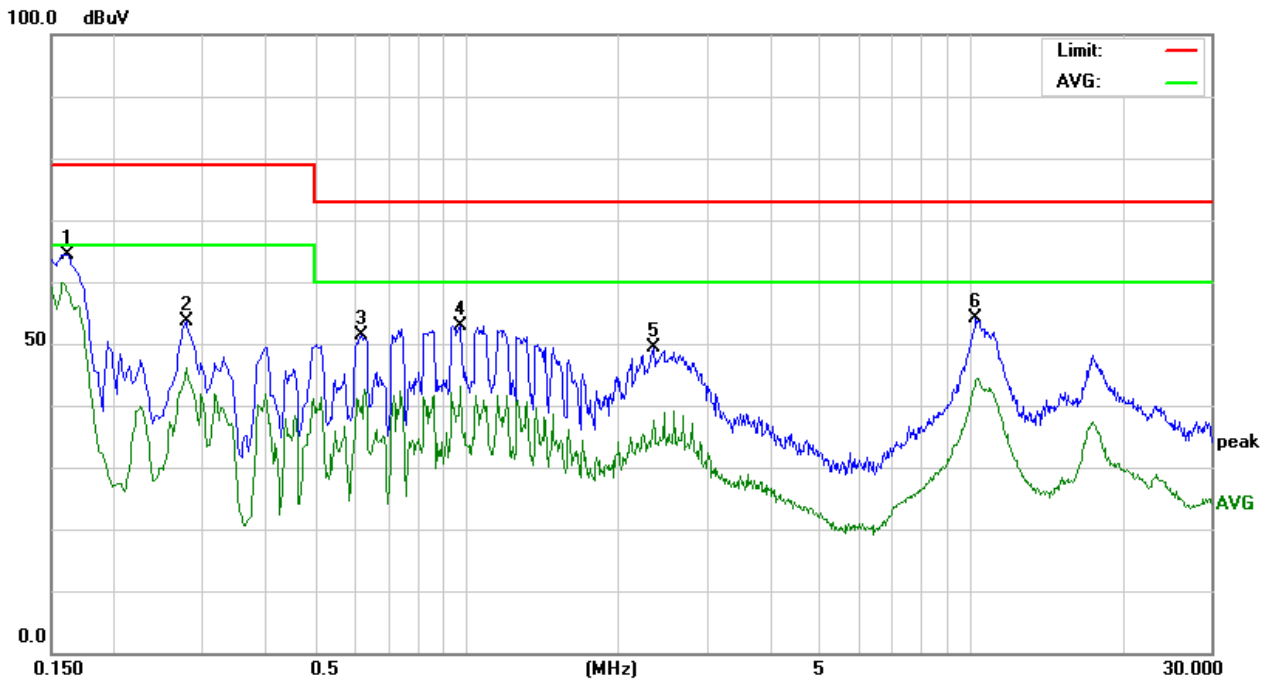
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.10	9.99	63.09	79.00	-15.91	P	L1
0.1620	52.49	9.99	62.48	79.00	-16.52	P	L1
0.5180	39.78	10.02	49.80	73.00	-23.20	P	L1
1.0820	42.55	10.06	52.61	73.00	-20.39	P	L1
2.4660	39.05	10.12	49.17	73.00	-23.83	P	L1
10.3740	43.06	10.53	53.59	73.00	-19.41	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 7
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



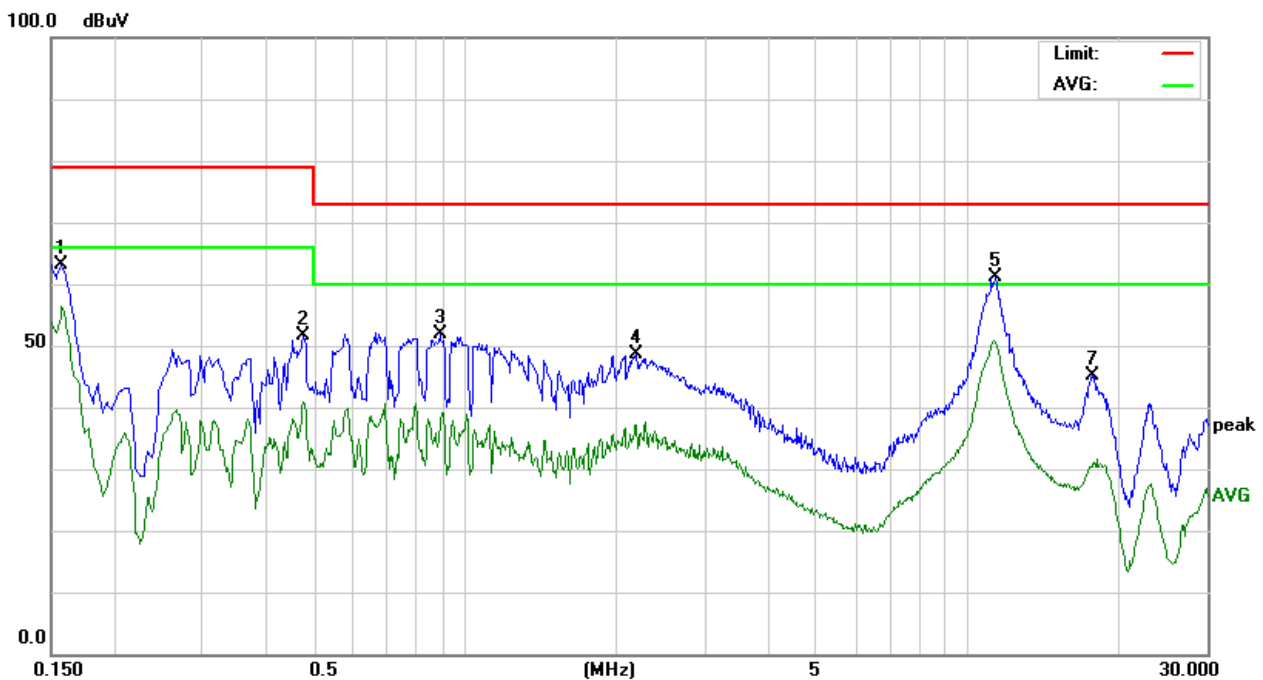
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1620	54.43	10.00	64.43	79.00	-14.57	P	L2
0.2779	43.70	10.01	53.71	79.00	-25.29	P	L2
0.6180	41.27	10.02	51.29	73.00	-21.71	P	L2
0.9700	42.79	10.06	52.85	73.00	-20.15	P	L2
2.3540	39.21	10.12	49.33	73.00	-23.67	P	L2
10.2660	43.51	10.56	54.07	73.00	-18.93	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 8
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



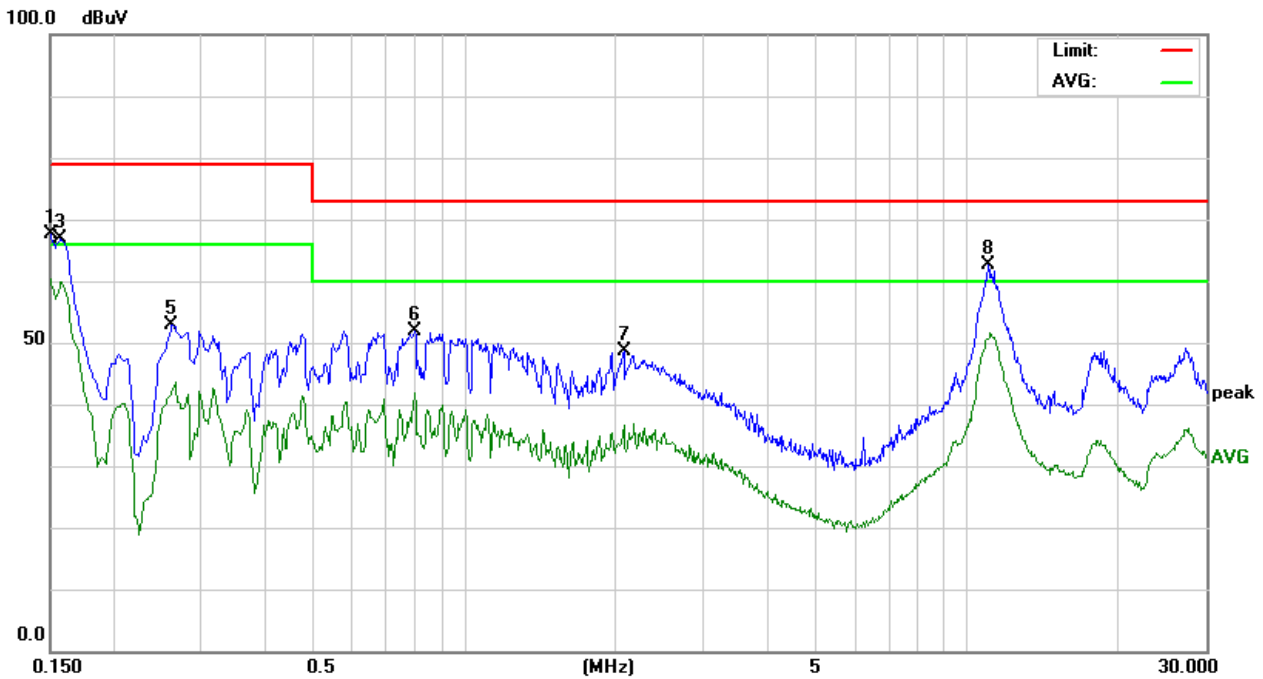
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	53.25	9.99	63.24	79.00	-15.76	P	L1
0.4780	41.50	10.02	51.52	79.00	-27.48	P	L1
0.8940	41.75	10.06	51.81	73.00	-21.19	P	L1
2.1900	38.47	10.11	48.58	73.00	-24.42	P	L1
11.3900	50.53	10.57	61.10	73.00	-11.90	P	L1
11.3900	38.87	10.57	49.44	60.00	-10.56	A	L1
17.7300	34.39	10.83	45.22	73.00	-27.78	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 8
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



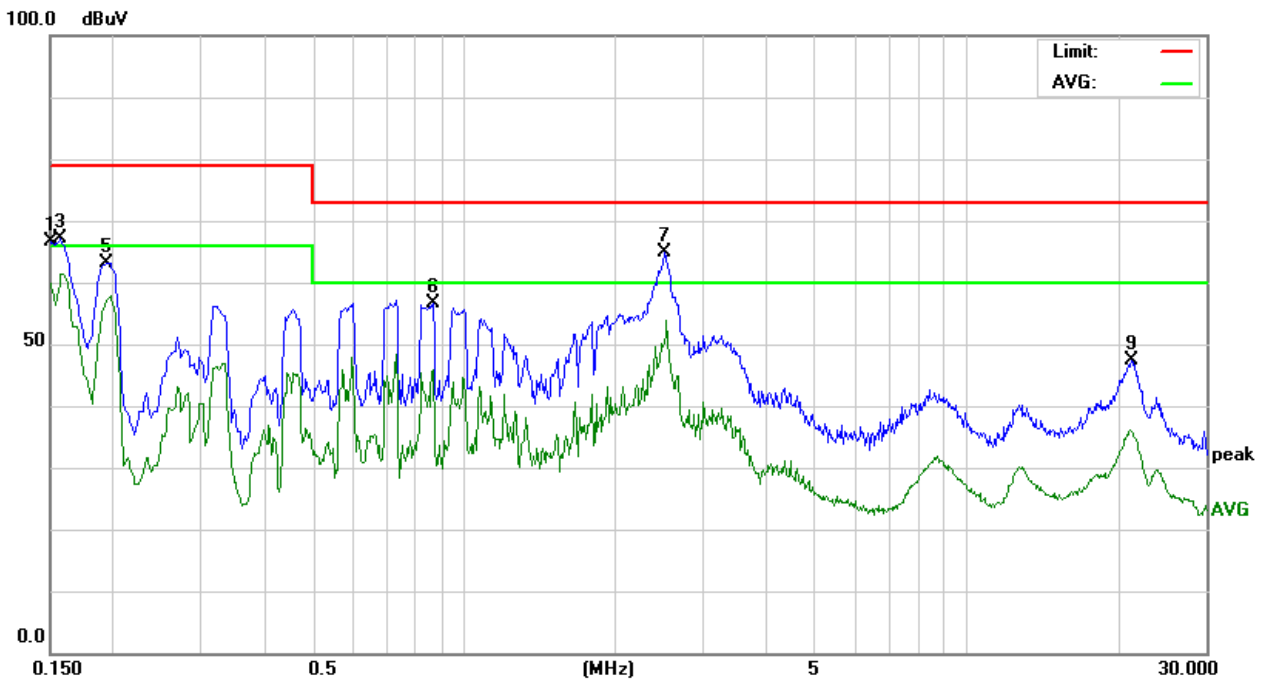
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	57.63	10.00	67.63	79.00	-11.37	P	L2
0.1500	48.08	10.00	58.08	66.00	-7.92	A	L2
0.1580	56.82	10.00	66.82	79.00	-12.18	P	L2
0.1580	49.88	10.00	59.88	66.00	-6.12	A	L2
0.2620	42.90	10.01	52.91	79.00	-26.09	P	L2
0.7980	41.71	10.05	51.76	73.00	-21.24	P	L2
2.0820	38.64	10.10	48.74	73.00	-24.26	P	L2
11.0740	51.93	10.60	62.53	73.00	-10.47	P	L2
11.0740	37.47	10.60	48.07	60.00	-11.93	A	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 9
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



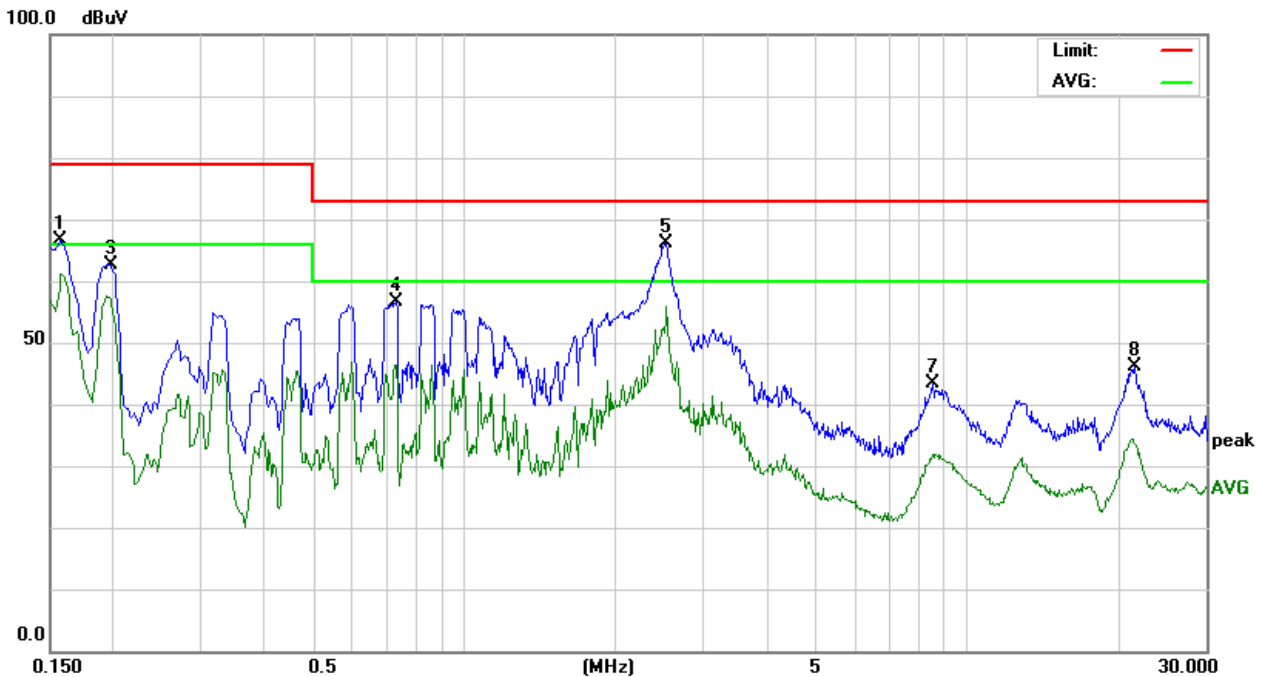
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	56.55	9.99	66.54	79.00	-12.46	P	L1
0.1500	49.74	9.99	59.73	66.00	-6.27	A	L1
0.1580	57.11	9.99	67.10	79.00	-11.90	P	L1
0.1580	51.57	9.99	61.56	66.00	-4.44	A	L1
0.1940	53.15	10.00	63.15	79.00	-15.85	P	L1
0.8700	46.54	10.05	56.59	73.00	-16.41	P	L1
2.5059	54.82	10.13	64.95	73.00	-8.05	P	L1
2.5059	39.63	10.13	49.76	60.00	-10.24	A	L1
21.3100	36.36	10.97	47.33	73.00	-25.67	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 9
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



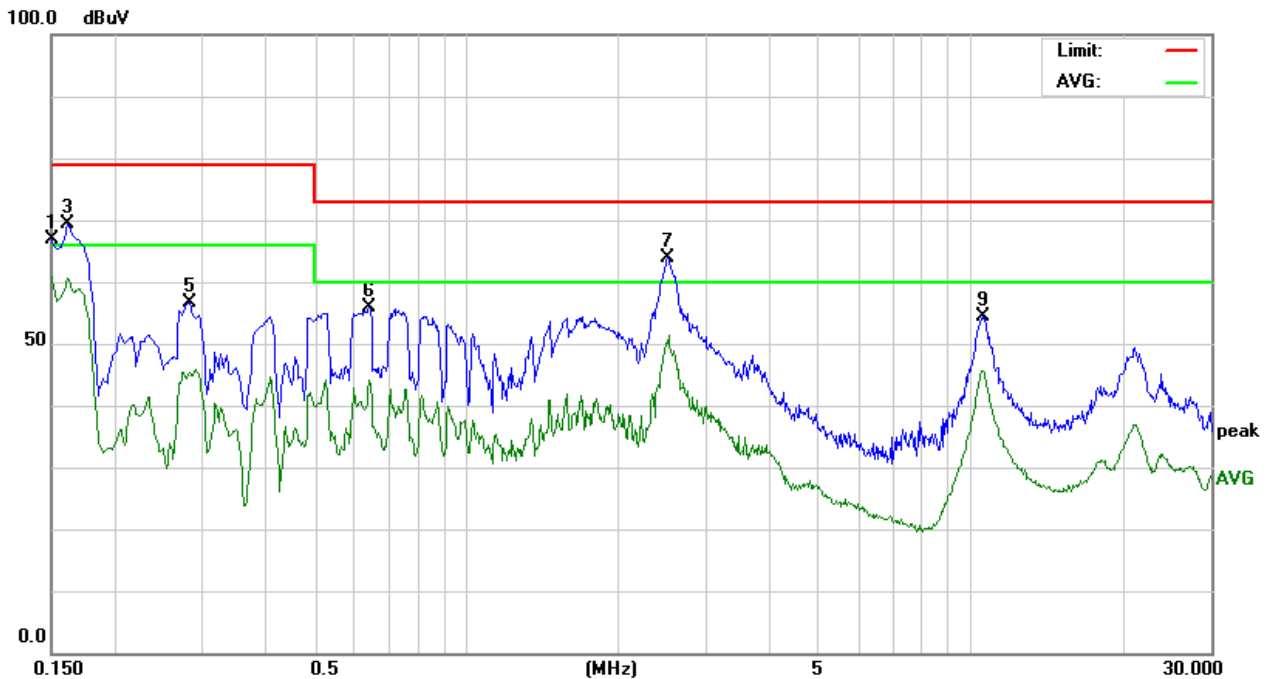
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	56.66	10.00	66.66	79.00	-12.34	P	L2
0.1580	50.08	10.00	60.08	66.00	-5.92	A	L2
0.1980	52.62	10.01	62.63	79.00	-16.37	P	L2
0.7340	46.56	10.04	56.60	73.00	-16.40	P	L2
2.5260	55.93	10.14	66.07	73.00	-6.93	P	L2
2.5260	43.64	10.14	53.78	60.00	-6.22	A	L2
8.5860	32.81	10.47	43.28	73.00	-29.72	P	L2
21.6299	35.09	11.03	46.12	73.00	-26.88	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 10
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



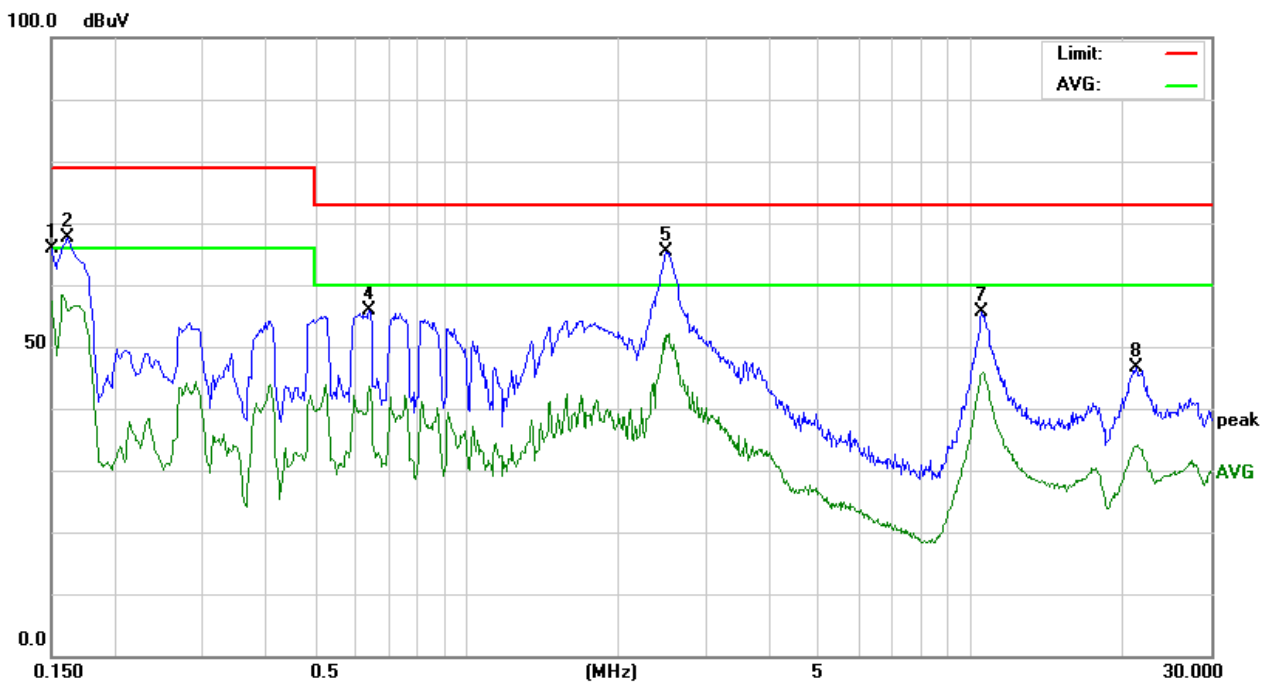
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	56.79	9.99	66.78	79.00	-12.22	P	L1
0.1500	47.48	9.99	57.47	66.00	-8.53	A	L1
0.1620	59.49	9.99	69.48	79.00	-9.52	P	L1
0.1620	49.76	9.99	59.75	66.00	-6.25	A	L1
0.2819	46.63	10.00	56.63	79.00	-22.37	P	L1
0.6419	45.78	10.03	55.81	73.00	-17.19	P	L1
2.5020	53.64	10.13	63.77	73.00	-9.23	P	L1
2.5020	39.60	10.13	49.73	60.00	-10.27	A	L1
10.6180	43.84	10.55	54.39	73.00	-18.61	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 10
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



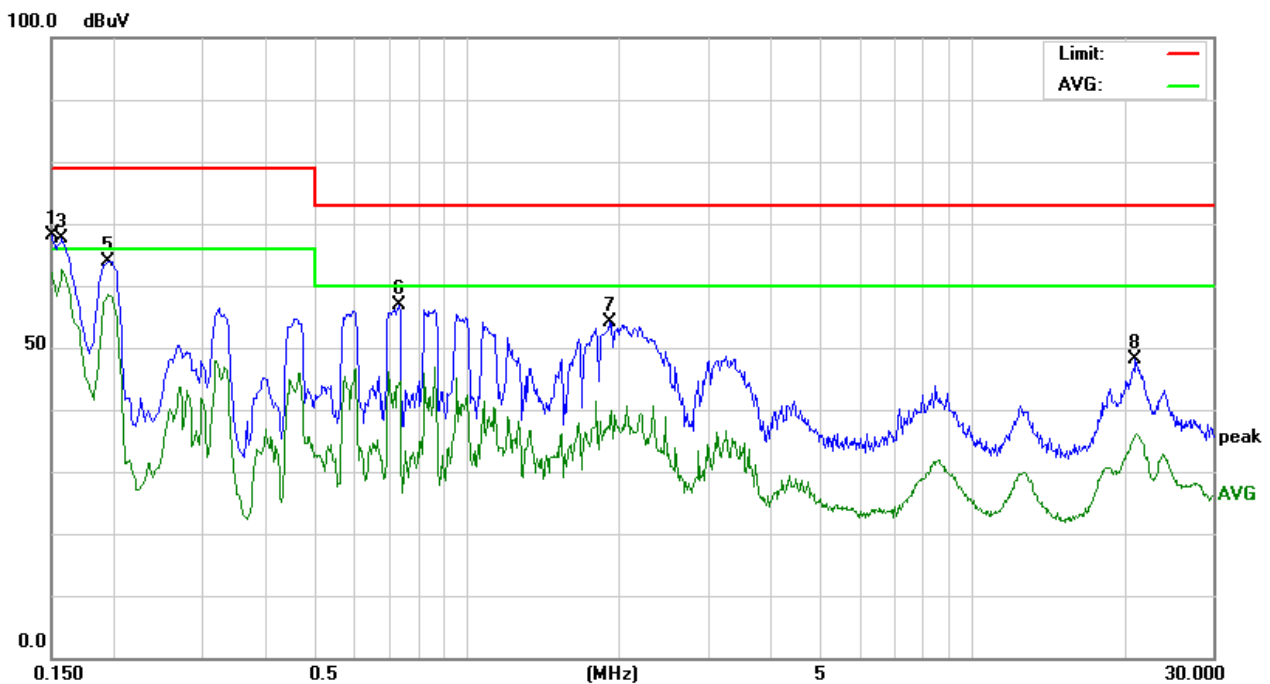
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	55.92	10.00	65.92	79.00	-13.08	P	L2
0.1620	57.68	10.00	67.68	79.00	-11.32	P	L2
0.1620	47.67	10.00	57.67	66.00	-8.33	A	L2
0.6419	45.91	10.03	55.94	73.00	-17.06	P	L2
2.4900	55.25	10.12	65.37	73.00	-7.63	P	L2
2.4900	41.73	10.12	51.85	60.00	-8.15	A	L2
10.5620	45.06	10.58	55.64	73.00	-17.36	P	L2
21.2780	35.63	11.02	46.65	73.00	-26.35	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 11
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



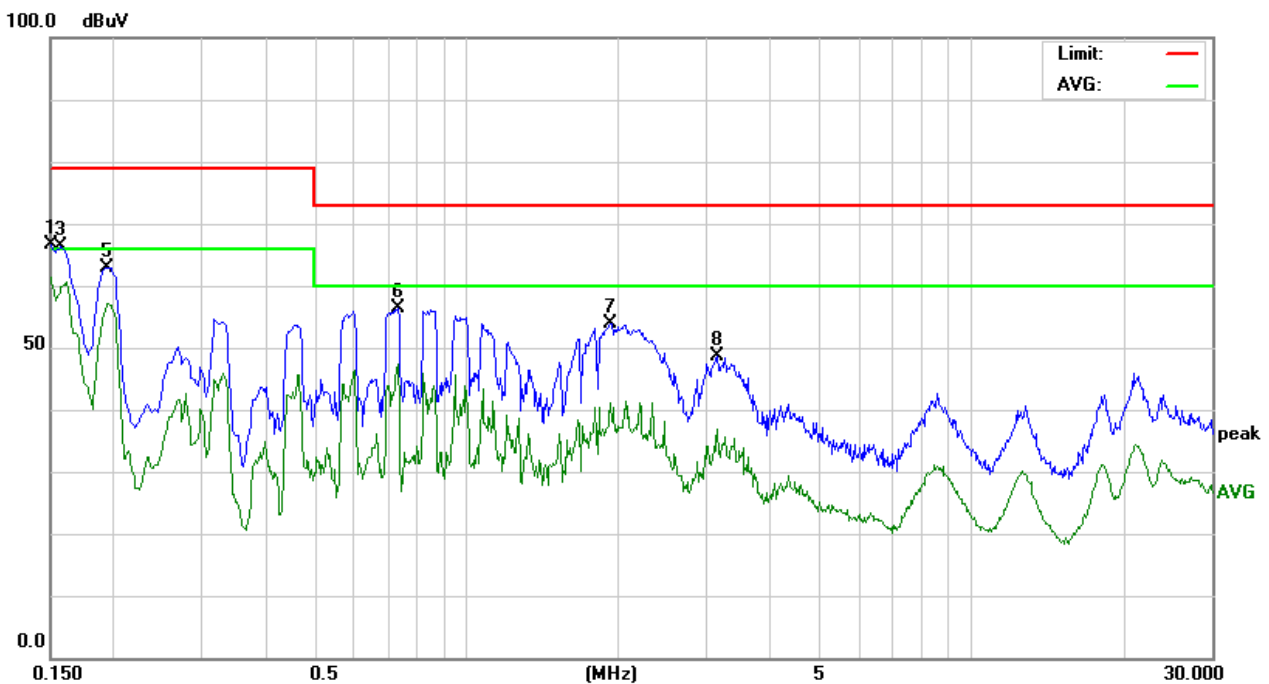
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	58.22	9.99	68.21	79.00	-10.79	P	L1
0.1500	49.64	9.99	59.63	66.00	-6.37	A	L1
0.1580	57.52	9.99	67.51	79.00	-11.49	P	L1
0.1580	51.70	9.99	61.69	66.00	-4.31	A	L1
0.1940	53.89	10.00	63.89	79.00	-15.11	P	L1
0.7340	46.94	10.04	56.98	73.00	-16.02	P	L1
1.9100	44.03	10.10	54.13	73.00	-18.87	P	L1
21.0740	37.28	10.94	48.22	73.00	-24.78	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 11
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



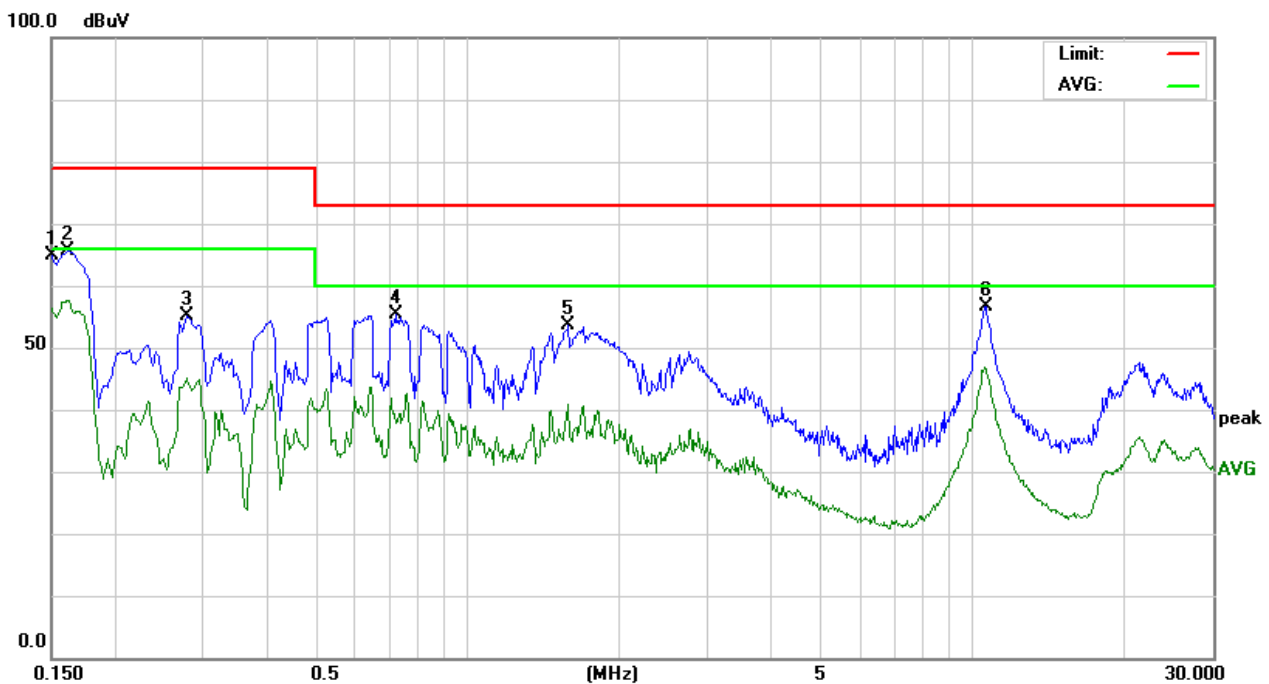
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	56.72	10.00	66.72	79.00	-12.28	P	L2
0.1500	48.32	10.00	58.32	66.00	-7.68	A	L2
0.1580	56.31	10.00	66.31	79.00	-12.69	P	L2
0.1580	50.44	10.00	60.44	66.00	-5.56	A	L2
0.1940	52.97	10.01	62.98	79.00	-16.02	P	L2
0.7340	46.37	10.04	56.41	73.00	-16.59	P	L2
1.9340	43.83	10.10	53.93	73.00	-19.07	P	L2
3.1420	38.40	10.16	48.56	73.00	-24.44	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 12
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



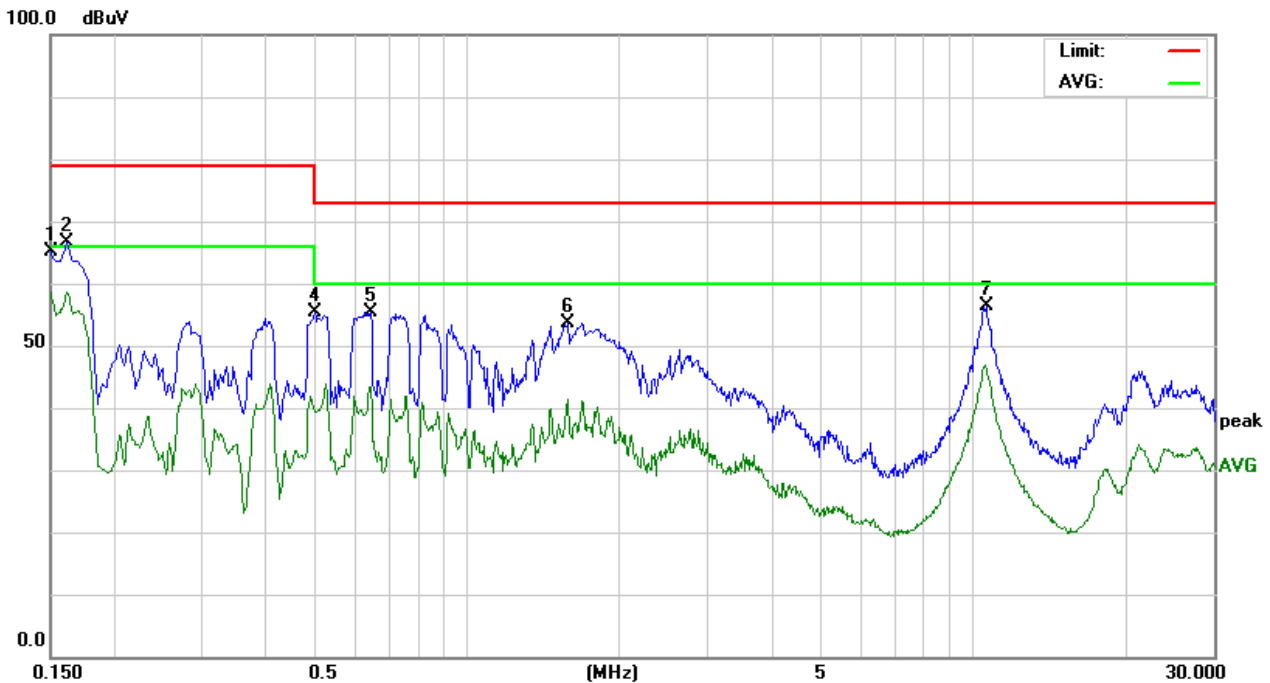
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	54.80	9.99	64.79	79.00	-14.21	P	L1
0.1620	55.64	9.99	65.63	79.00	-13.37	P	L1
0.2779	45.16	10.00	55.16	79.00	-23.84	P	L1
0.7220	45.38	10.04	55.42	73.00	-17.58	P	L1
1.5859	43.67	10.08	53.75	73.00	-19.25	P	L1
10.6420	45.97	10.55	56.52	73.00	-16.48	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 12
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



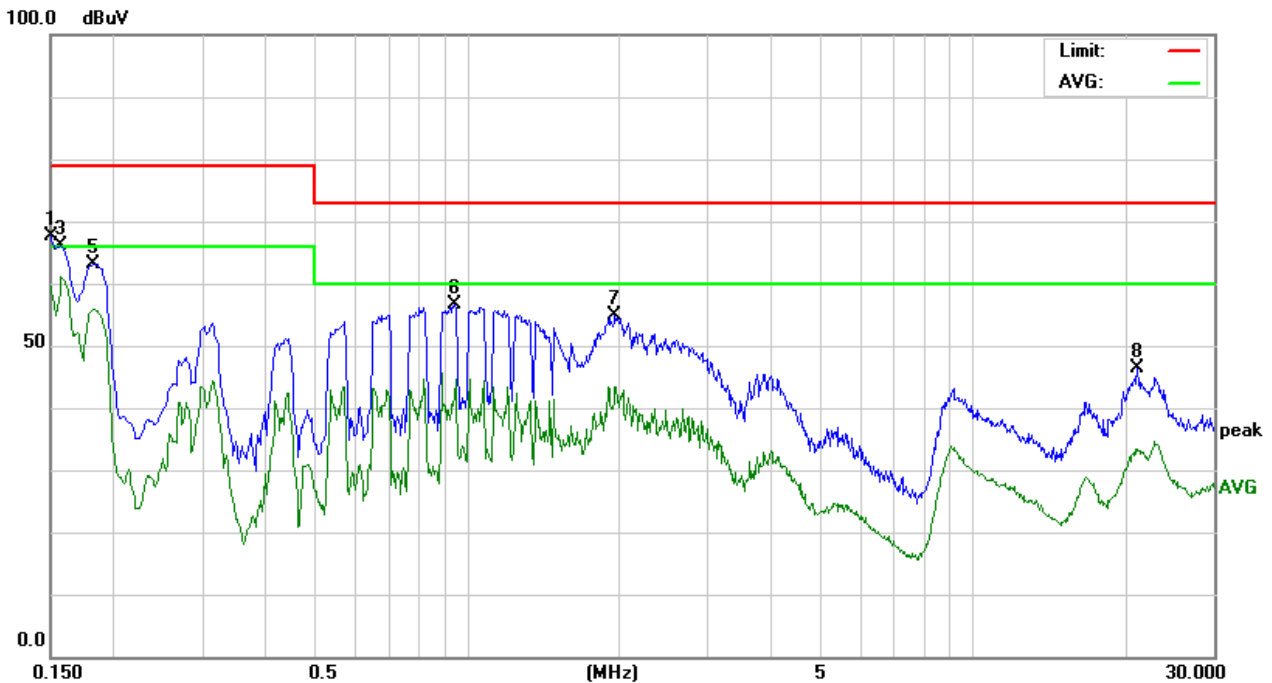
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	55.23	10.00	65.23	79.00	-13.77	P	L2
0.1620	56.54	10.00	66.54	79.00	-12.46	P	L2
0.1620	46.61	10.00	56.61	66.00	-9.39	A	L2
0.5020	45.29	10.02	55.31	73.00	-17.69	P	L2
0.6460	45.31	10.03	55.34	73.00	-17.66	P	L2
1.5859	43.66	10.08	53.74	73.00	-19.26	P	L2
10.6660	45.69	10.58	56.27	73.00	-16.73	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 13
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



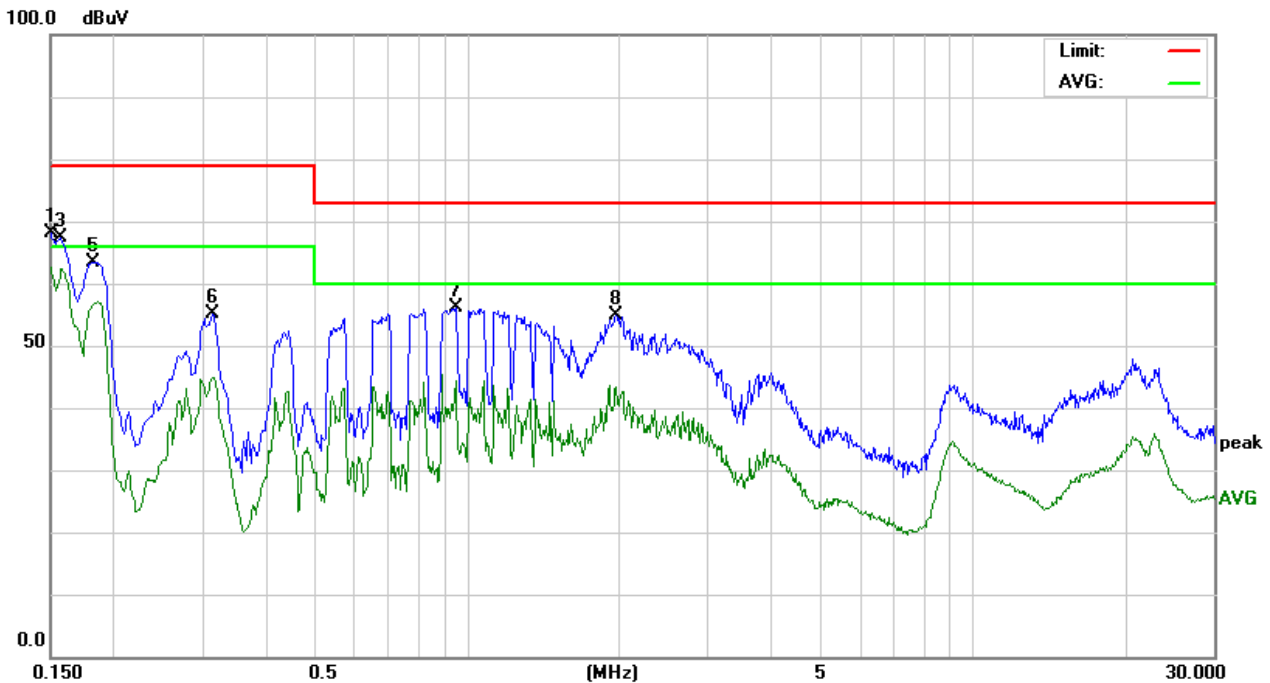
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	57.67	9.99	67.66	79.00	-11.34	P	L1
0.1500	49.36	9.99	59.35	66.00	-6.65	A	L1
0.1580	56.22	9.99	66.21	79.00	-12.79	P	L1
0.1580	50.73	9.99	60.72	66.00	-5.28	A	L1
0.1819	53.08	10.00	63.08	79.00	-15.92	P	L1
0.9460	46.52	10.06	56.58	73.00	-16.42	P	L1
1.9660	44.73	10.10	54.83	73.00	-18.17	P	L1
21.1740	35.34	10.95	46.29	73.00	-26.71	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 13
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



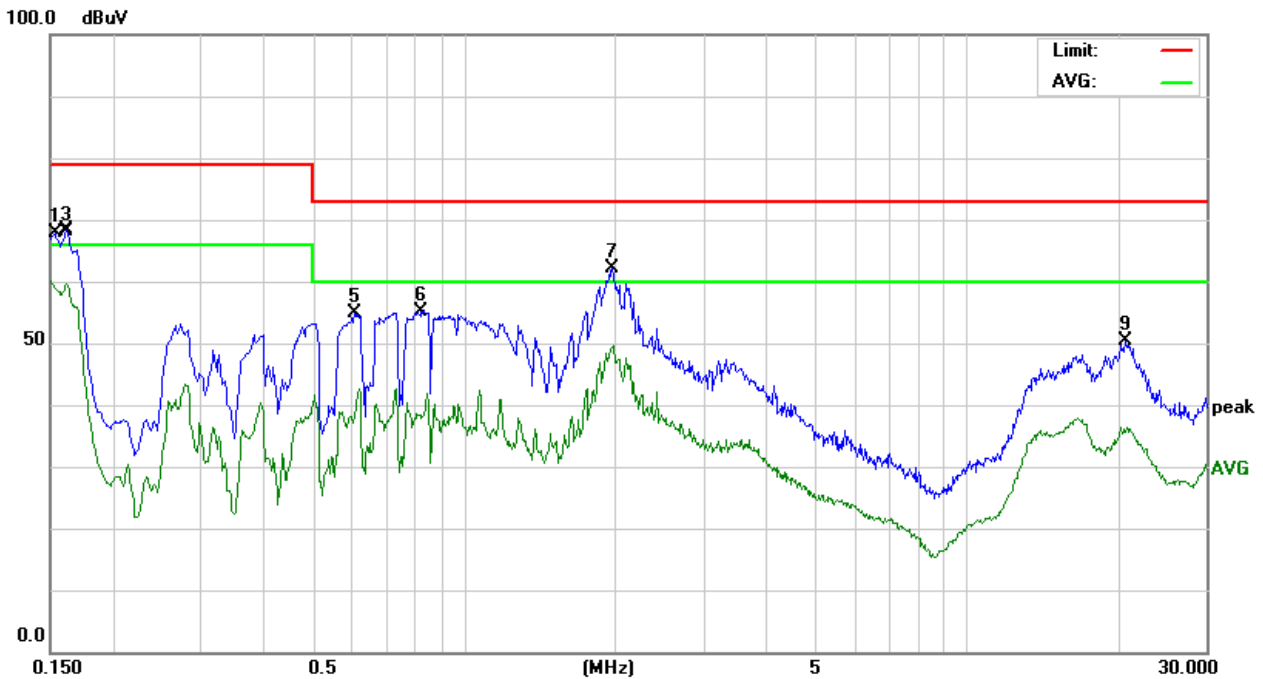
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	58.02	10.00	68.02	79.00	-10.98	P	L2
0.1500	50.34	10.00	60.34	66.00	-5.66	A	L2
0.1580	57.46	10.00	67.46	79.00	-11.54	P	L2
0.1580	51.79	10.00	61.79	66.00	-4.21	A	L2
0.1825	53.43	10.01	63.44	79.00	-15.56	P	L2
0.3140	45.05	10.01	55.06	79.00	-23.94	P	L2
0.9500	46.02	10.06	56.08	73.00	-16.92	P	L2
1.9740	44.86	10.10	54.96	73.00	-18.04	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 14
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



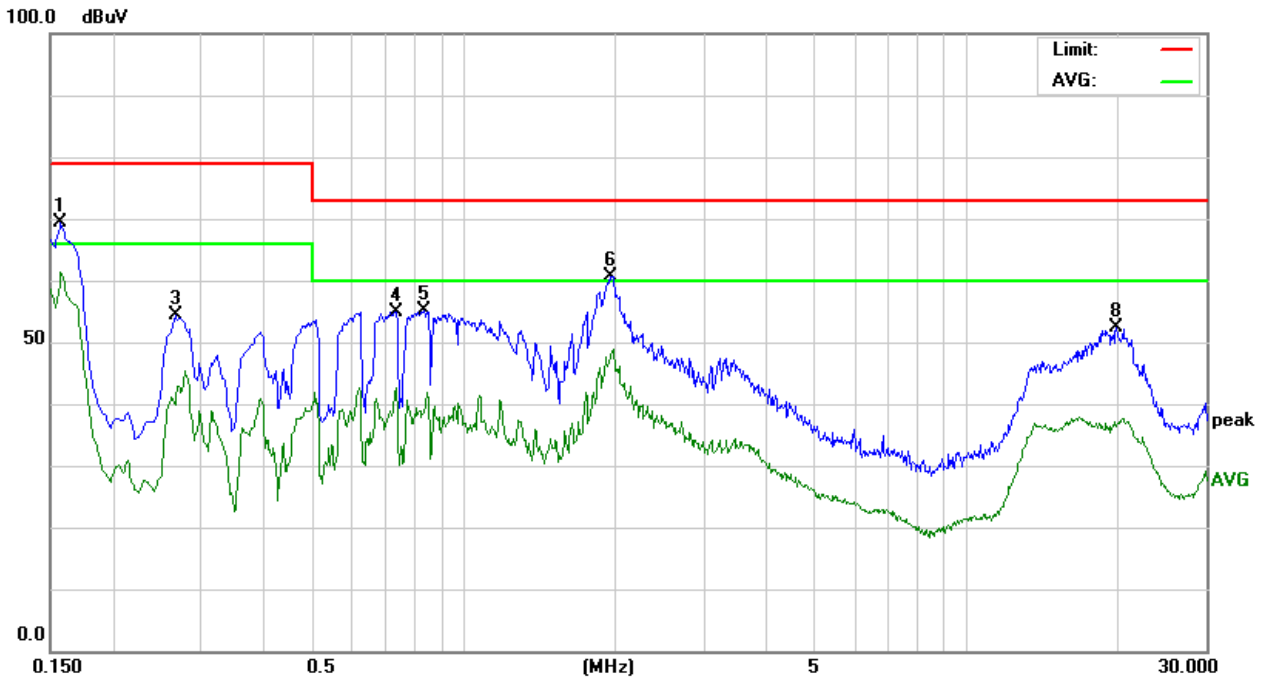
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	57.87	9.99	67.86	79.00	-11.14	P	L1
0.1539	47.52	9.99	57.51	66.00	-8.49	A	L1
0.1620	58.26	9.99	68.25	79.00	-10.75	P	L1
0.1620	47.82	9.99	57.81	66.00	-8.19	A	L1
0.6060	44.77	10.02	54.79	73.00	-18.21	P	L1
0.8260	44.97	10.05	55.02	73.00	-17.98	P	L1
1.9740	52.13	10.10	62.23	73.00	-10.77	P	L1
1.9740	39.08	10.10	49.18	60.00	-10.82	A	L1
20.7780	39.37	10.94	50.31	73.00	-22.69	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 14
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



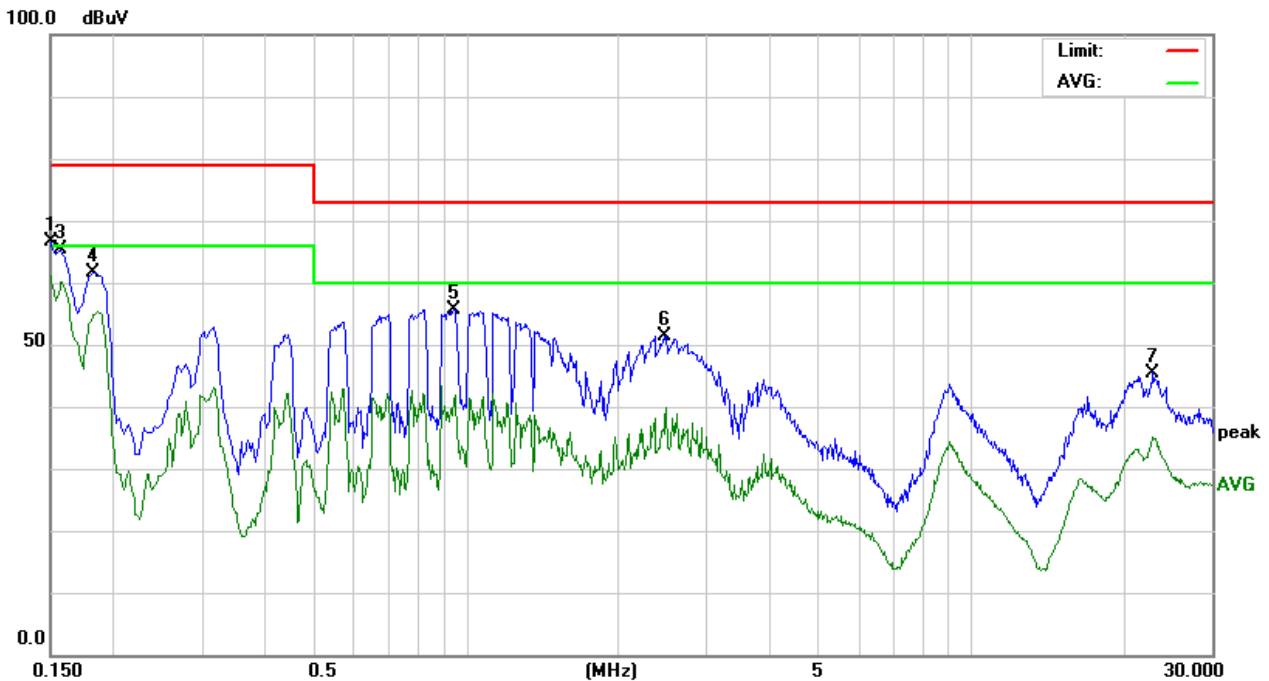
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	59.33	10.00	69.33	79.00	-9.67	P	L2
0.1580	50.34	10.00	60.34	66.00	-5.66	A	L2
0.2660	44.41	10.01	54.42	79.00	-24.58	P	L2
0.7340	44.85	10.04	54.89	73.00	-18.11	P	L2
0.8340	44.96	10.05	55.01	73.00	-17.99	P	L2
1.9500	50.58	10.10	60.68	73.00	-12.32	P	L2
1.9500	37.36	10.10	47.46	60.00	-12.54	A	L2
19.8460	41.47	10.97	52.44	73.00	-20.56	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 15
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



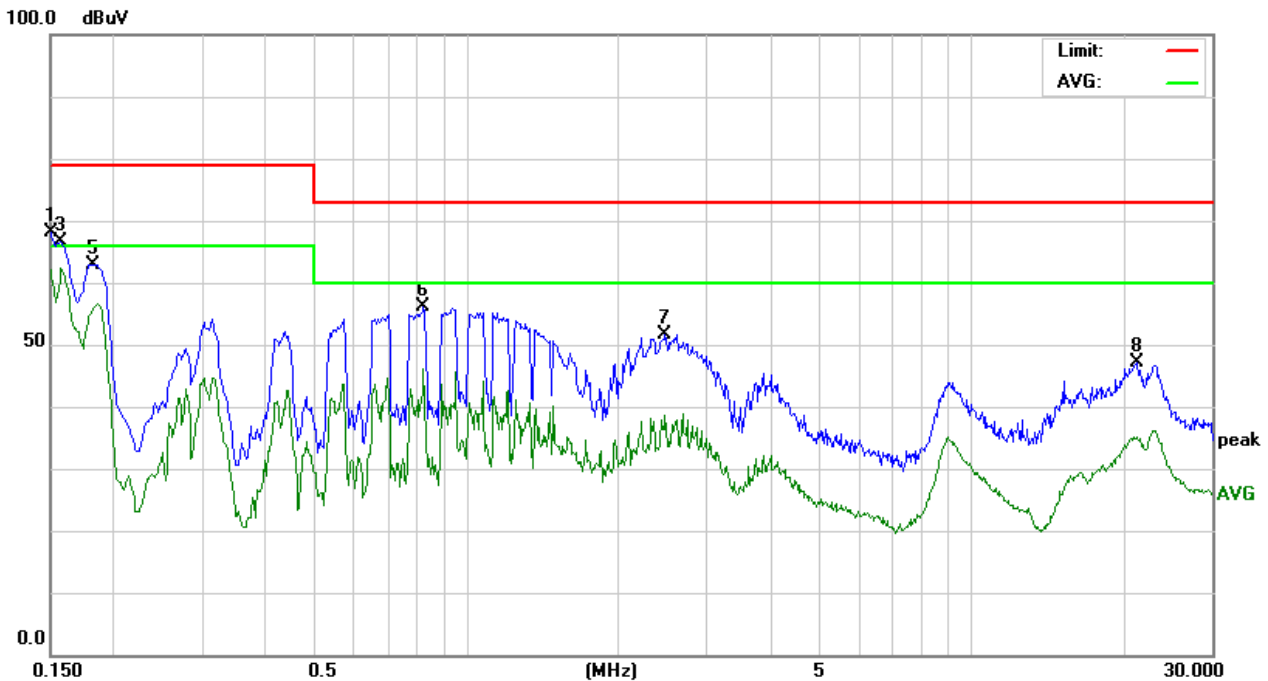
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	56.71	9.99	66.70	79.00	-12.30	P	L1
0.1500	48.33	9.99	58.32	66.00	-7.68	A	L1
0.1580	55.41	9.99	65.40	79.00	-13.60	P	L1
0.1819	51.69	10.00	61.69	79.00	-17.31	P	L1
0.9460	45.66	10.06	55.72	73.00	-17.28	P	L1
2.4620	41.35	10.12	51.47	73.00	-21.53	P	L1
22.9540	34.49	11.01	45.50	73.00	-27.50	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 15
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



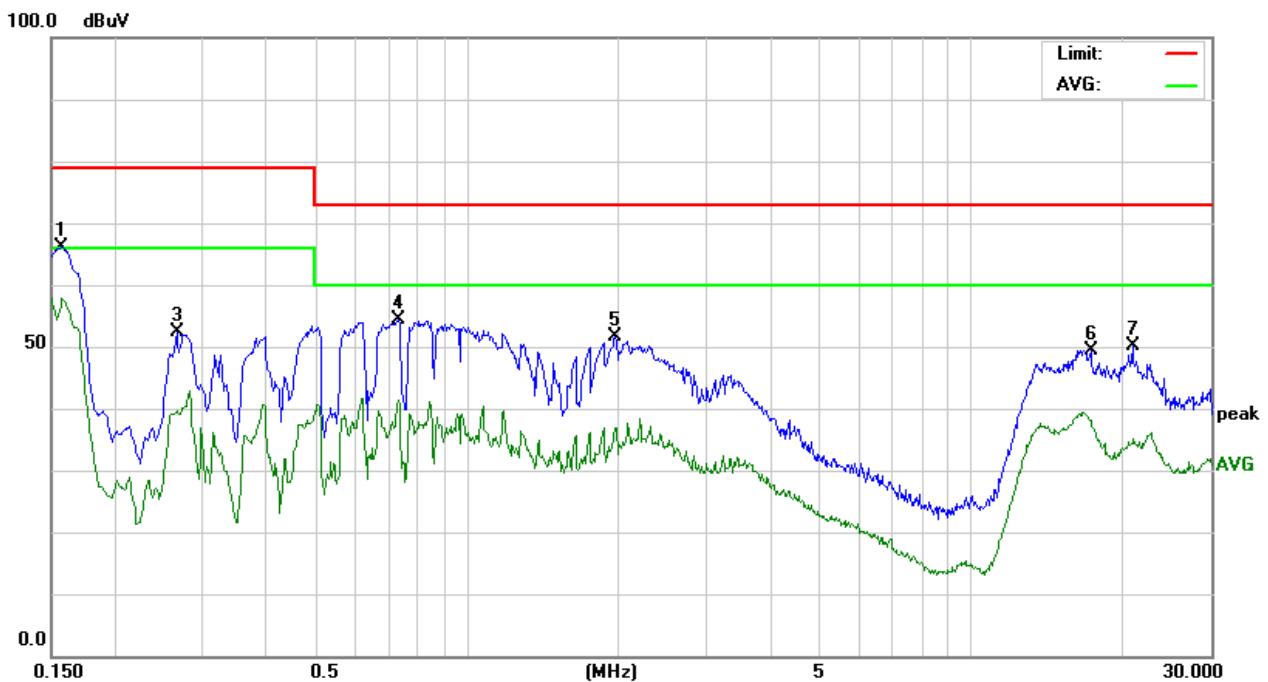
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	58.08	10.00	68.08	79.00	-10.92	P	L2
0.1500	50.19	10.00	60.19	66.00	-5.81	A	L2
0.1580	56.74	10.00	66.74	79.00	-12.26	P	L2
0.1580	51.55	10.00	61.55	66.00	-4.45	A	L2
0.1819	52.96	10.01	62.97	79.00	-16.03	P	L2
0.8260	45.97	10.05	56.02	73.00	-16.98	P	L2
2.4820	41.58	10.12	51.70	73.00	-21.30	P	L2
21.3180	36.00	11.02	47.02	73.00	-25.98	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 16
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



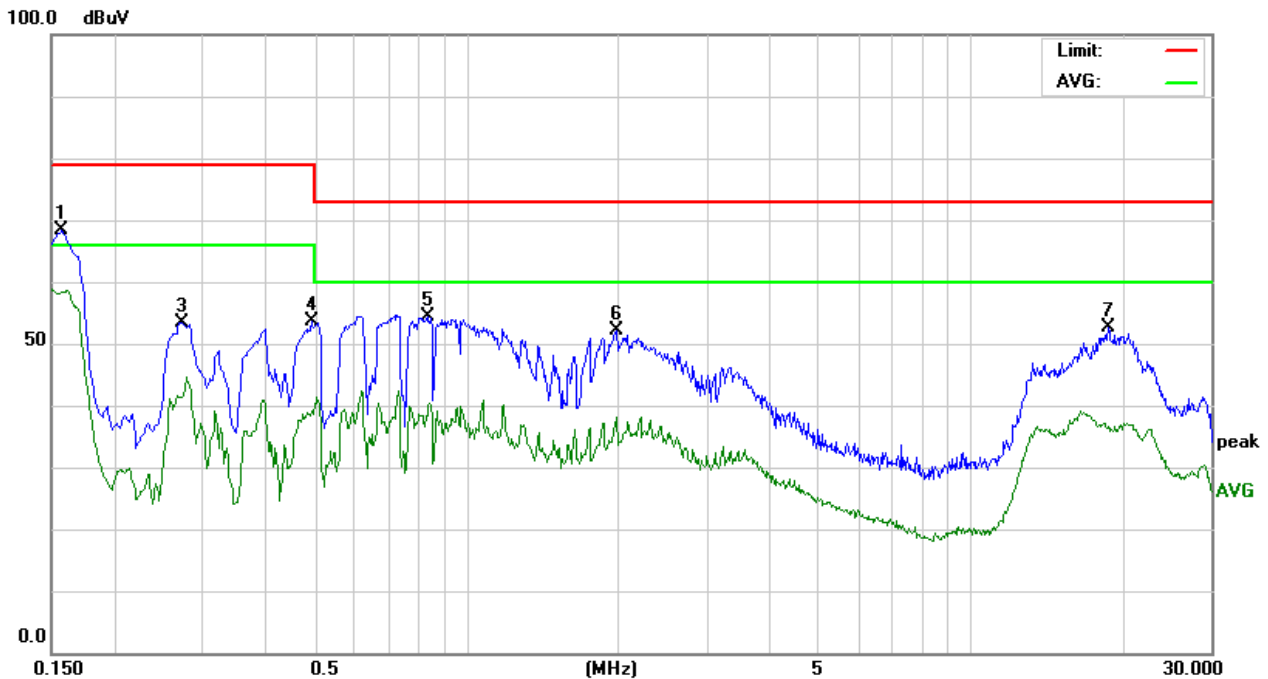
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	56.20	9.99	66.19	79.00	-12.81	P	L1
0.1580	48.11	9.99	58.10	66.00	-7.90	A	L1
0.2660	42.29	10.00	52.29	79.00	-26.71	P	L1
0.7340	44.42	10.04	54.46	73.00	-18.54	P	L1
1.9780	41.45	10.10	51.55	73.00	-21.45	P	L1
17.3060	38.57	10.81	49.38	73.00	-23.62	P	L1
20.9619	39.15	10.94	50.09	73.00	-22.91	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 16
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



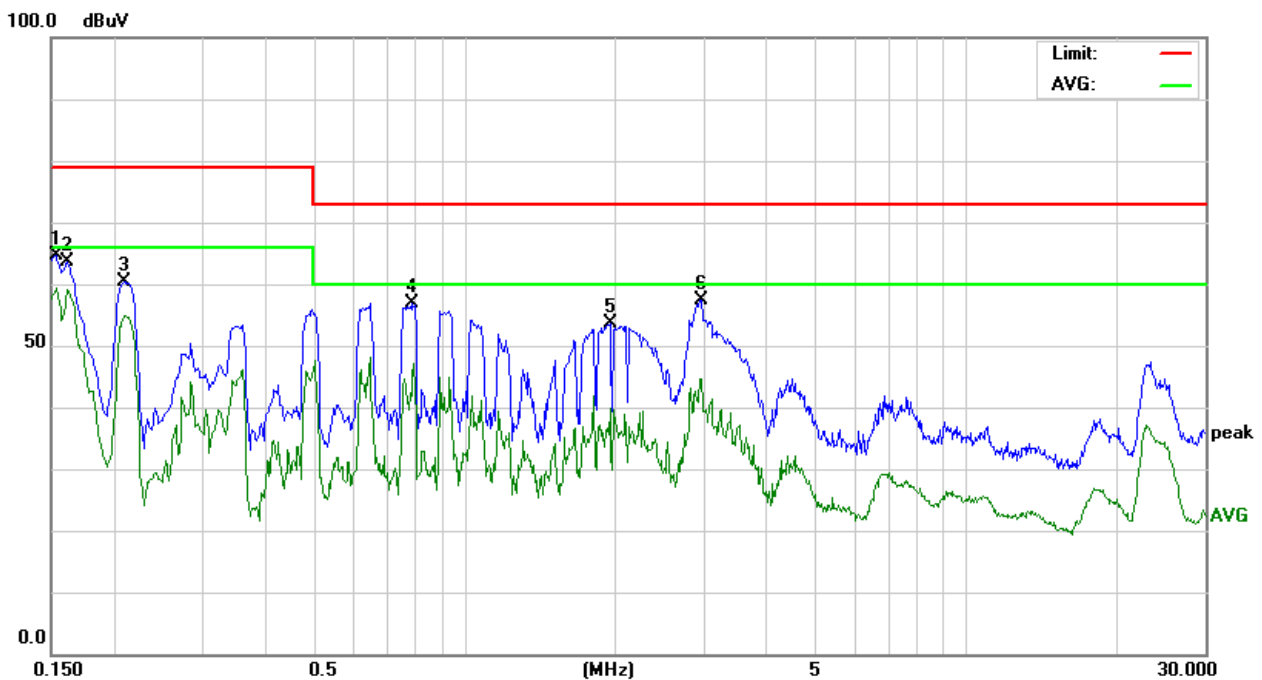
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	58.39	10.00	68.39	79.00	-10.61	P	L2
0.1580	49.76	10.00	59.76	66.00	-6.24	A	L2
0.2740	43.49	10.01	53.50	79.00	-25.50	P	L2
0.4940	43.61	10.02	53.63	79.00	-25.37	P	L2
0.8380	44.40	10.05	54.45	73.00	-18.55	P	L2
1.9860	42.07	10.10	52.17	73.00	-20.83	P	L2
18.7700	41.60	10.92	52.52	73.00	-20.48	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 17
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



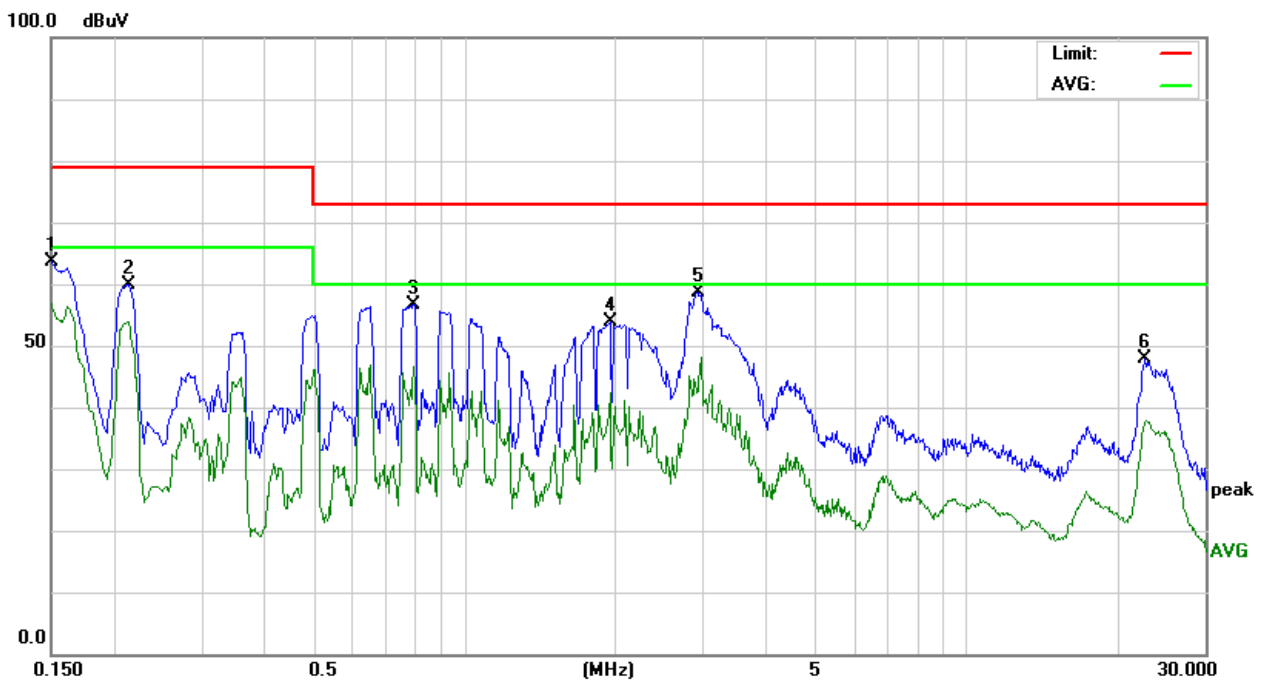
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	54.71	9.99	64.70	79.00	-14.30	P	L1
0.1620	53.52	9.99	63.51	79.00	-15.49	P	L1
0.2100	50.33	10.00	60.33	79.00	-18.67	P	L1
0.7900	46.93	10.05	56.98	73.00	-16.02	P	L1
1.9500	43.56	10.10	53.66	73.00	-19.34	P	L1
2.9620	47.31	10.15	57.46	73.00	-15.54	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 17
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



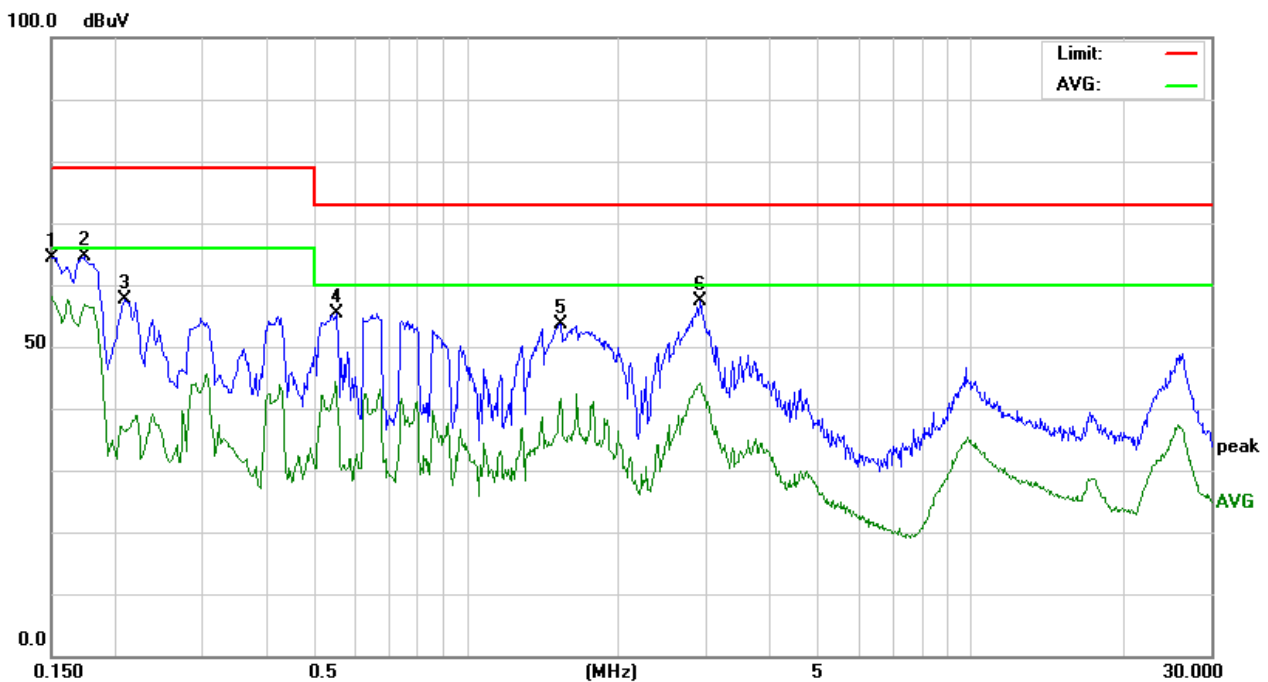
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.72	10.00	63.72	79.00	-15.28	P	L2
0.2140	49.82	10.01	59.83	79.00	-19.17	P	L2
0.7940	46.52	10.05	56.57	73.00	-16.43	P	L2
1.9540	43.83	10.10	53.93	73.00	-19.07	P	L2
2.9180	48.39	10.16	58.55	73.00	-14.45	P	L2
22.7340	36.89	11.06	47.95	73.00	-25.05	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 18
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



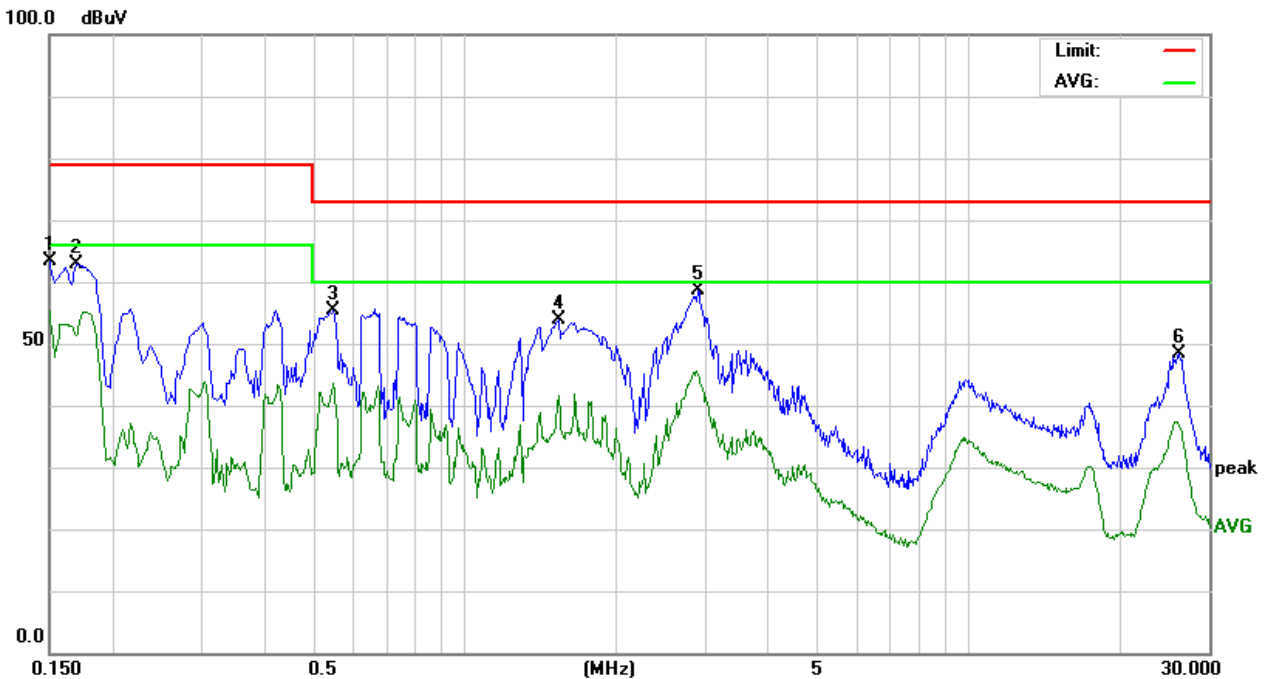
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	54.41	9.99	64.40	79.00	-14.60	P	L1
0.1740	54.59	9.99	64.58	79.00	-14.42	P	L1
0.2100	47.51	10.00	57.51	79.00	-21.49	P	L1
0.5540	45.34	10.02	55.36	73.00	-17.64	P	L1
1.5380	43.57	10.08	53.65	73.00	-19.35	P	L1
2.9100	47.31	10.15	57.46	73.00	-15.54	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 18
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



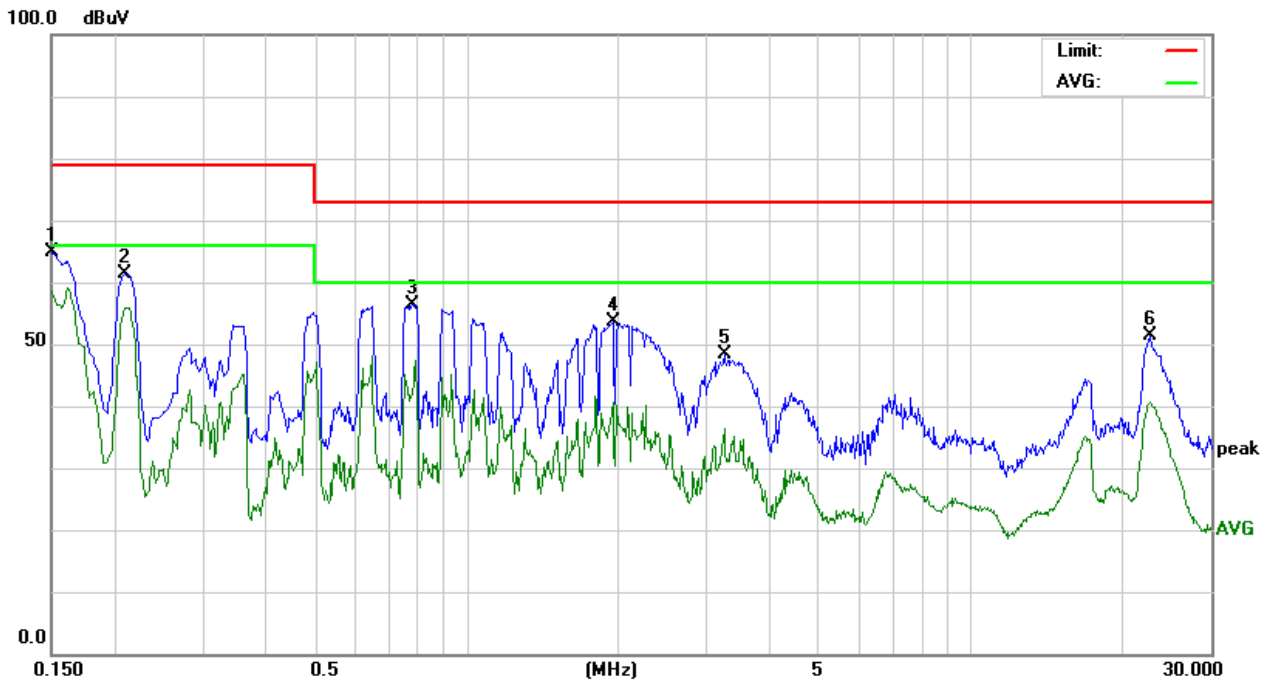
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.31	10.00	63.31	79.00	-15.69	P	L2
0.1700	52.89	10.00	62.89	79.00	-16.11	P	L2
0.5500	45.42	10.02	55.44	73.00	-17.56	P	L2
1.5380	43.76	10.08	53.84	73.00	-19.16	P	L2
2.9140	48.39	10.16	58.55	73.00	-14.45	P	L2
26.1860	37.23	11.18	48.41	73.00	-24.59	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 19
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



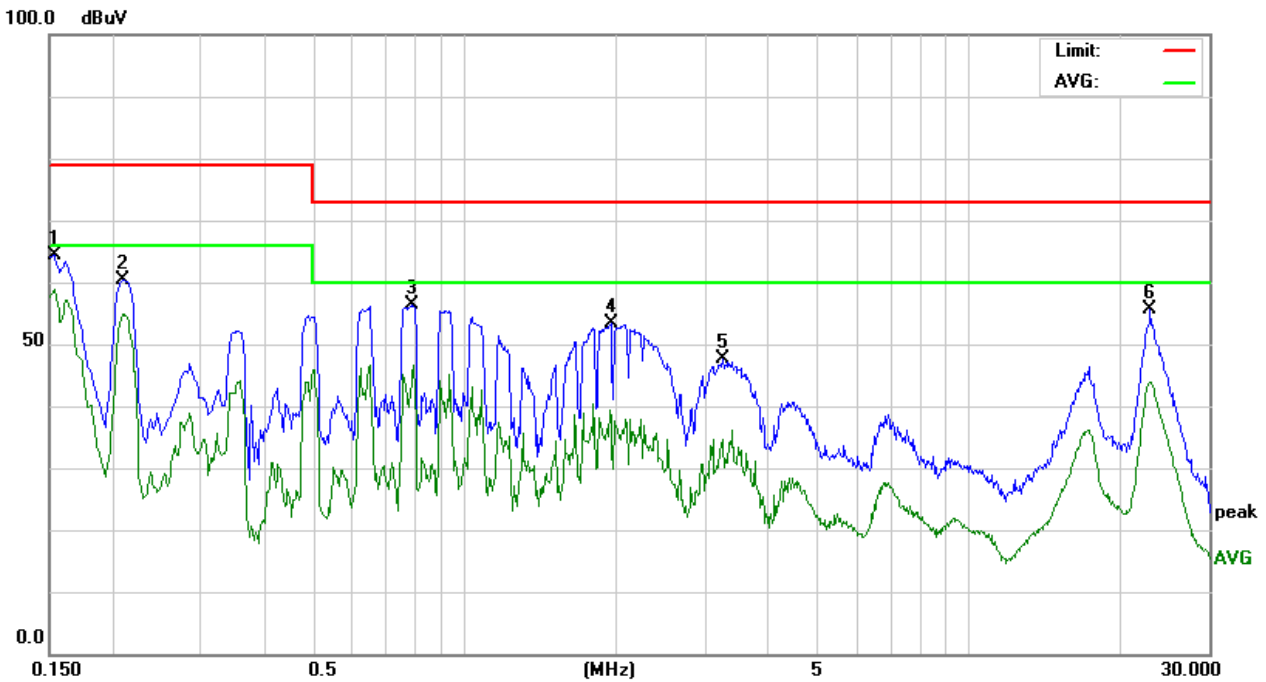
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	54.95	9.99	64.94	79.00	-14.06	P	L1
0.2100	51.28	10.00	61.28	79.00	-17.72	P	L1
0.7820	46.21	10.05	56.26	73.00	-16.74	P	L1
1.9500	43.50	10.10	53.60	73.00	-19.40	P	L1
3.2540	38.15	10.17	48.32	73.00	-24.68	P	L1
22.7260	40.33	11.00	51.33	73.00	-21.67	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 19
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



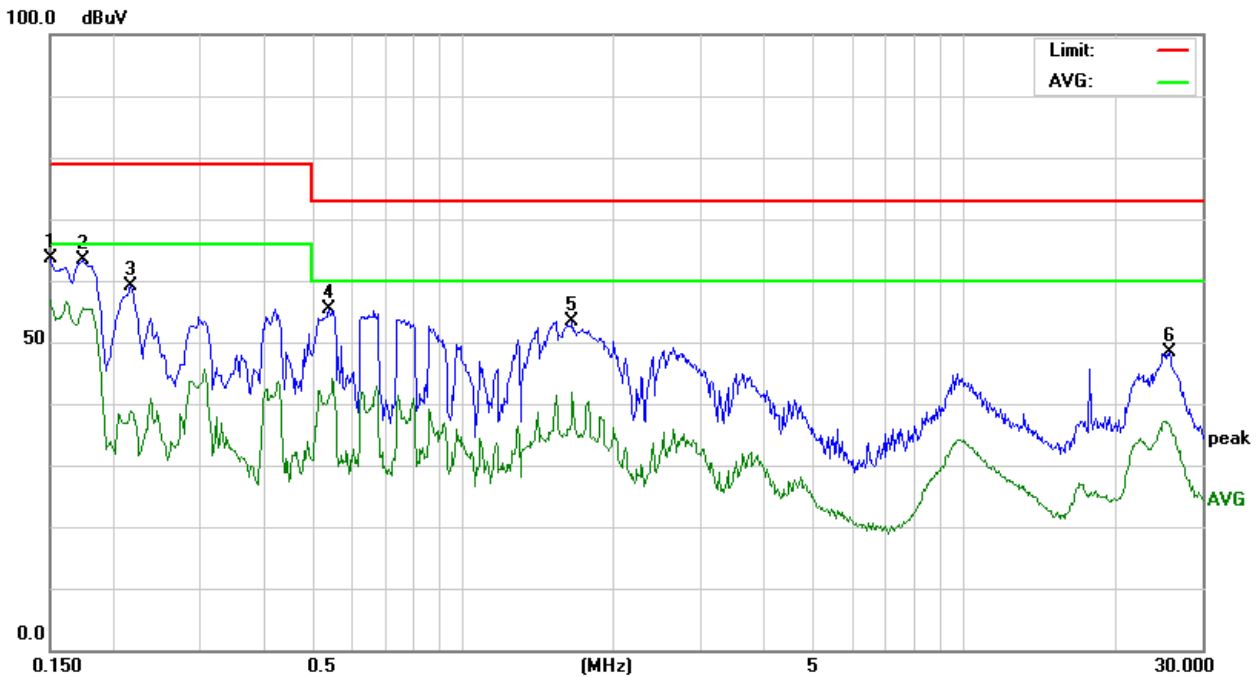
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	54.35	10.00	64.35	79.00	-14.65	P	L2
0.2100	50.34	10.01	60.35	79.00	-18.65	P	L2
0.7900	46.30	10.05	56.35	73.00	-16.65	P	L2
1.9540	43.30	10.10	53.40	73.00	-19.60	P	L2
3.2620	37.35	10.18	47.53	73.00	-25.47	P	L2
22.9660	44.67	11.07	55.74	73.00	-17.26	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 20
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



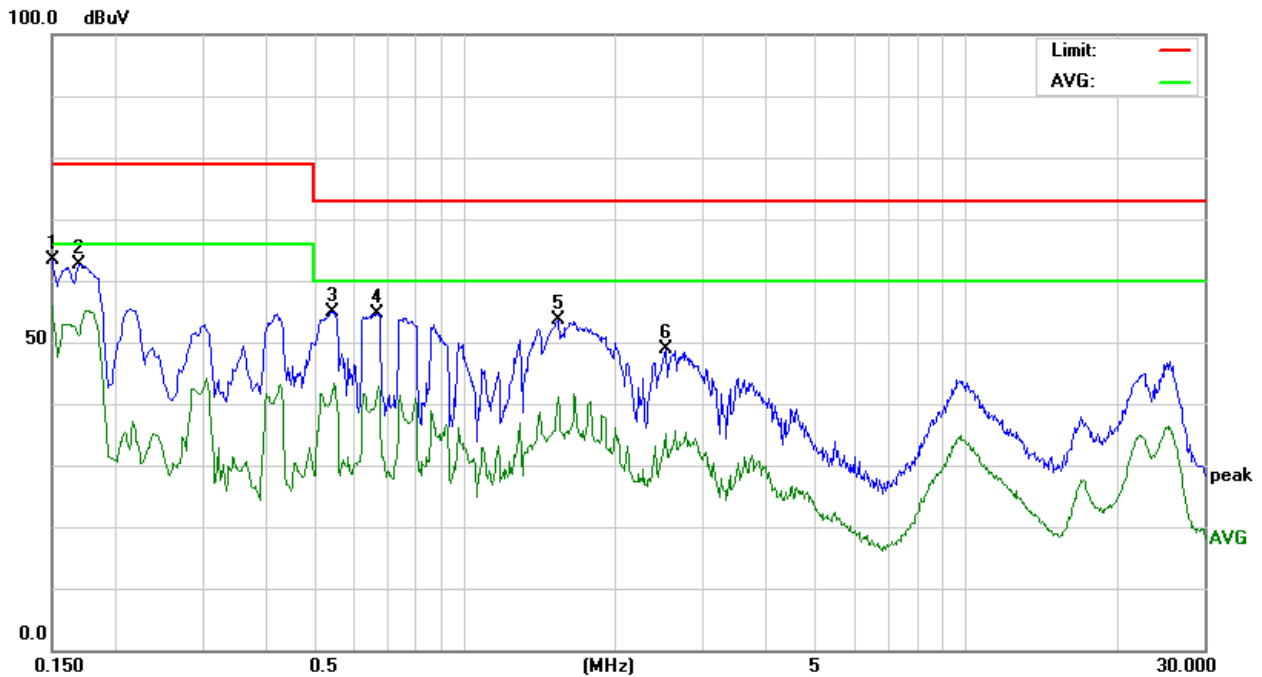
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.73	9.99	63.72	79.00	-15.28	P	L1
0.1740	53.32	9.99	63.31	79.00	-15.69	P	L1
0.2180	49.05	10.00	59.05	79.00	-19.95	P	L1
0.5420	45.30	10.02	55.32	73.00	-17.68	P	L1
1.6580	43.28	10.08	53.36	73.00	-19.64	P	L1
25.7740	37.32	11.09	48.41	73.00	-24.59	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	6dB Bandwidth	9 kHz
Environmental Conditions	27°C, 62% RH	Test Mode	Mode 20
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



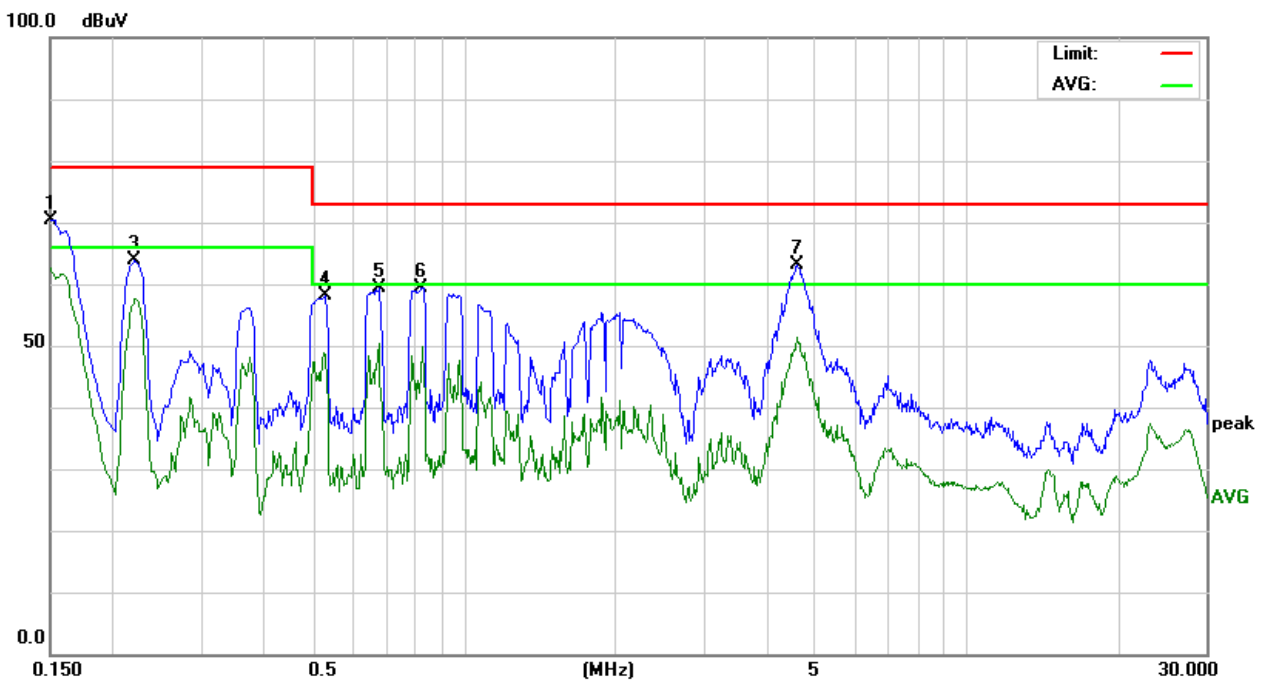
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	53.45	10.00	63.45	79.00	-15.55	P	L2
0.1700	52.58	10.00	62.58	79.00	-16.42	P	L2
0.5460	44.89	10.02	54.91	73.00	-18.09	P	L2
0.6700	44.69	10.03	54.72	73.00	-18.28	P	L2
1.5420	43.47	10.08	53.55	73.00	-19.45	P	L2
2.5260	38.81	10.14	48.95	73.00	-24.05	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 21
Tested by	Jim Lian	Phase	L1
Standard	EN 55032 CLASS A		



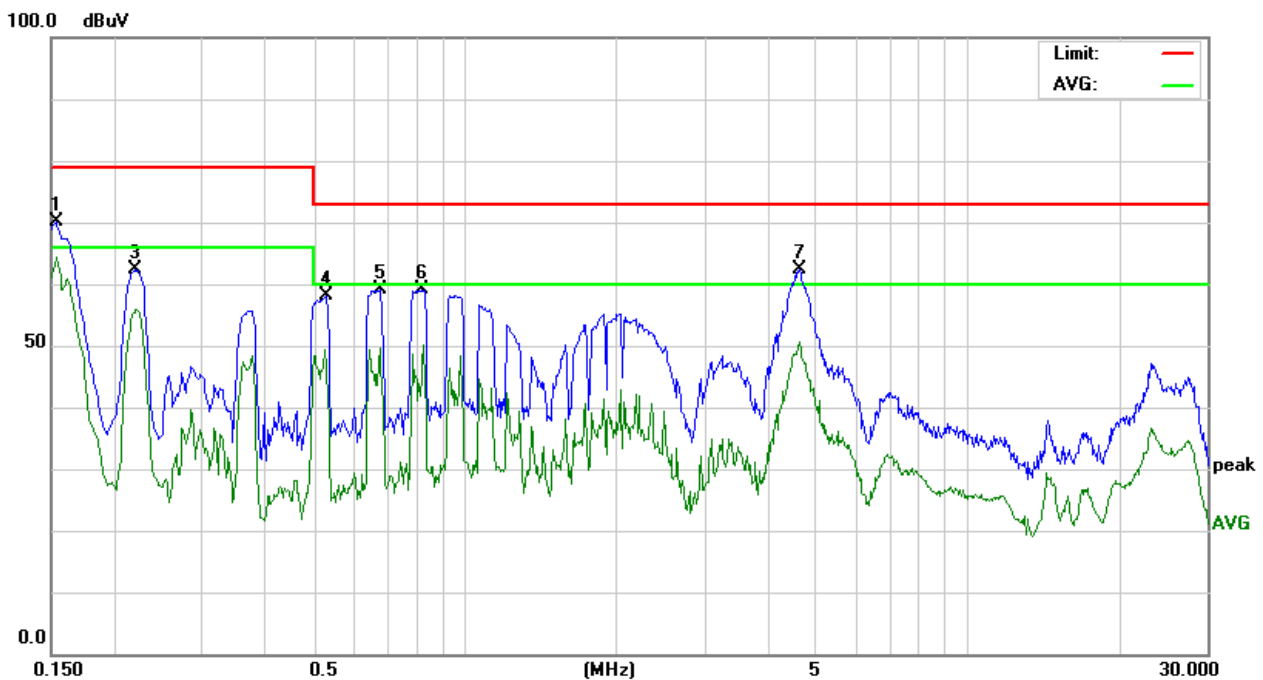
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1500	60.34	9.99	70.33	79.00	-8.67	P	L1
0.1500	52.74	9.99	62.73	66.00	-3.27	A	L1
0.2220	53.82	10.00	63.82	79.00	-15.18	P	L1
0.5299	48.01	10.02	58.03	73.00	-14.97	P	L1
0.6820	49.27	10.03	59.30	73.00	-13.70	P	L1
0.8260	49.32	10.05	59.37	73.00	-13.63	P	L1
4.6140	52.97	10.23	63.20	73.00	-9.80	P	L1
4.6140	41.27	10.23	51.50	60.00	-8.50	A	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 21
Tested by	Jim Lian	Phase	L2
Standard	EN 55032 CLASS A		



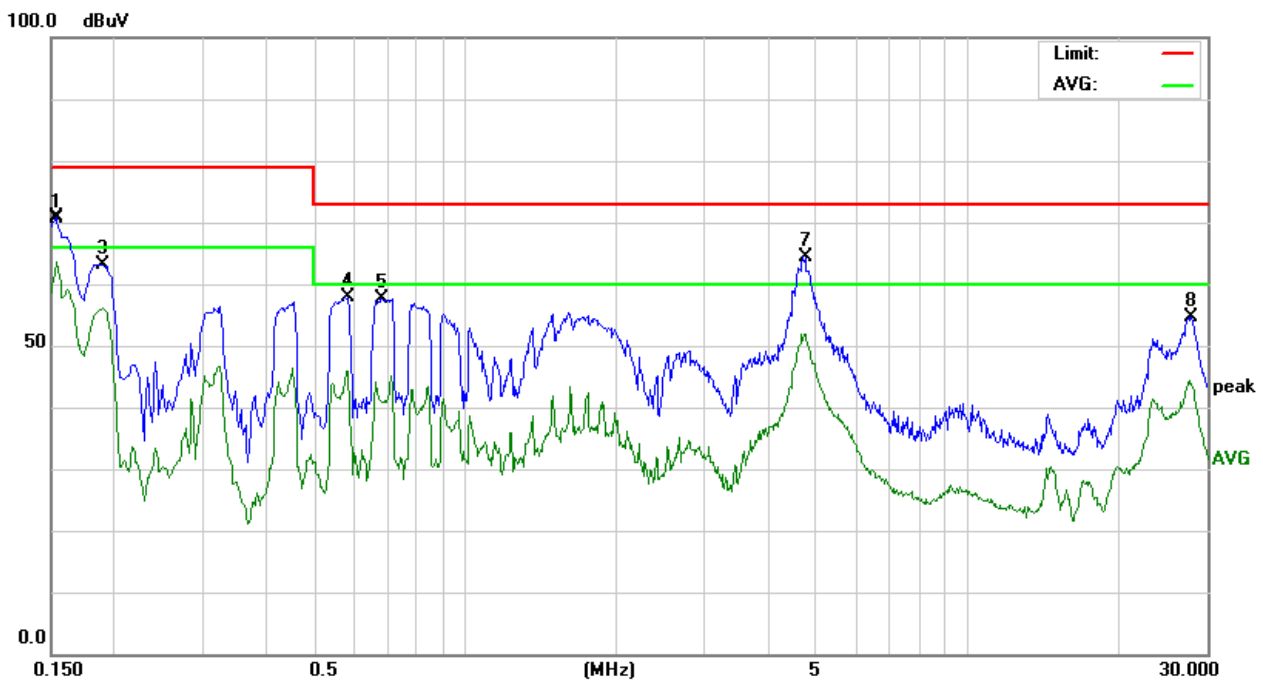
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	60.08	10.00	70.08	79.00	-8.92	P	L2
0.1539	53.16	10.00	63.16	66.00	-2.84	A	L2
0.2220	52.35	10.01	62.36	79.00	-16.64	P	L2
0.5299	48.09	10.02	58.11	73.00	-14.89	P	L2
0.6780	49.15	10.03	59.18	73.00	-13.82	P	L2
0.8260	49.04	10.05	59.09	73.00	-13.91	P	L2
4.6420	52.15	10.26	62.41	73.00	-10.59	P	L2
4.6420	40.24	10.26	50.50	60.00	-9.50	A	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 22
Tested by	Jim Lian	Phase	L1
Standard	EN 55032 CLASS A		



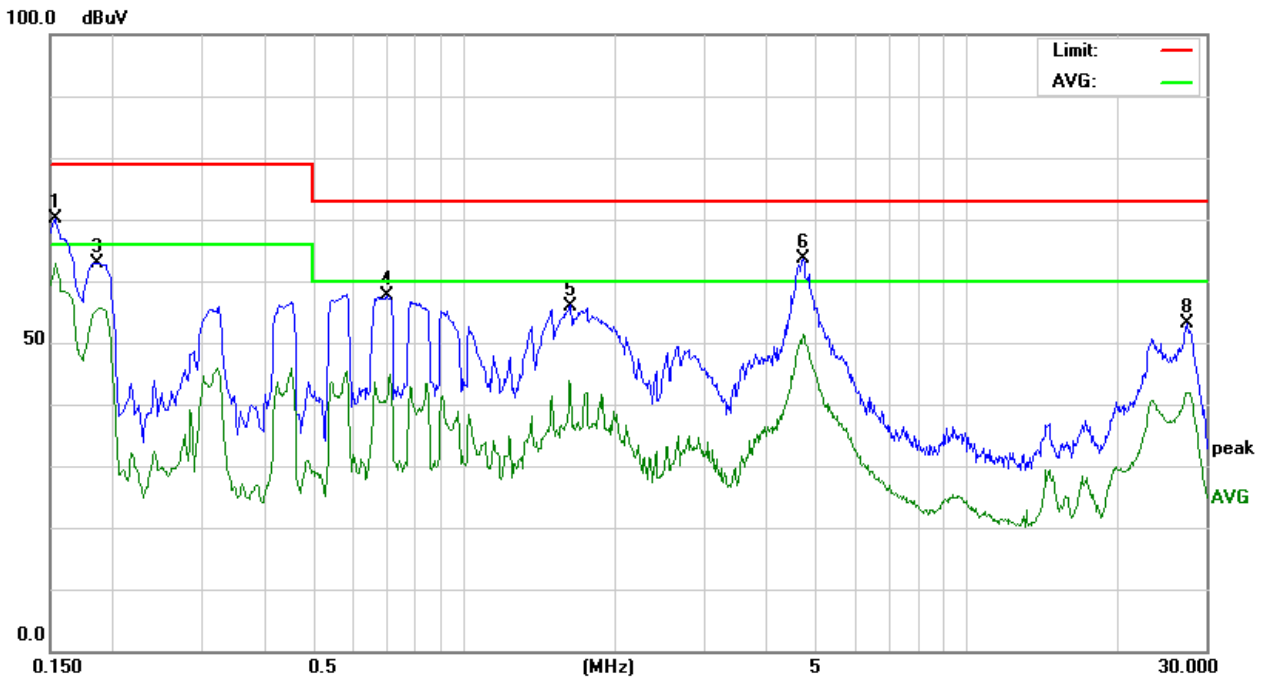
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	60.76	9.99	70.75	79.00	-8.25	P	L1
0.1539	51.08	9.99	61.07	66.00	-4.93	A	L1
0.1900	53.09	10.00	63.09	79.00	-15.91	P	L1
0.5860	47.83	10.02	57.85	73.00	-15.15	P	L1
0.6860	47.51	10.03	57.54	73.00	-15.46	P	L1
4.7460	41.62	10.25	51.87	60.00	-8.13	A	L1
4.7540	54.12	10.25	64.37	73.00	-8.63	P	L1
27.8740	43.44	11.15	54.59	73.00	-18.41	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 22
Tested by	Jim Lian	Phase	L2
Standard	EN 55032 CLASS A		



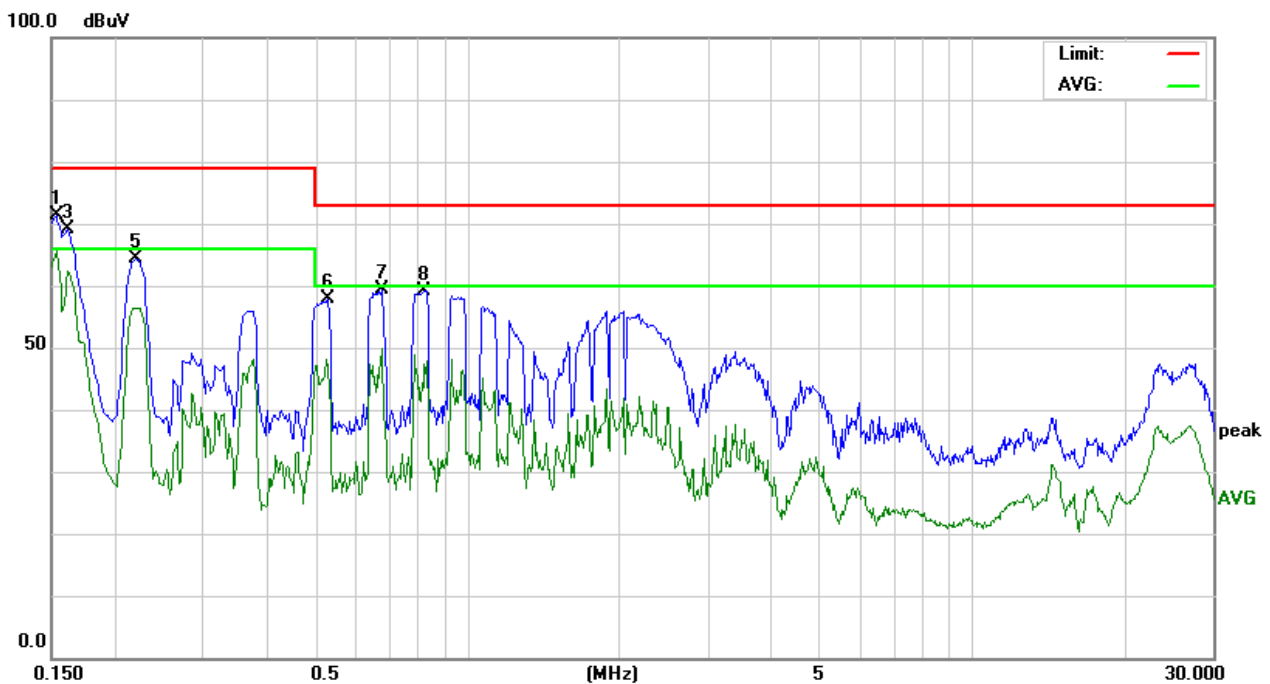
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	60.18	10.00	70.18	79.00	-8.82	P	L2
0.1539	52.77	10.00	62.77	66.00	-3.23	A	L2
0.1860	52.90	10.01	62.91	79.00	-16.09	P	L2
0.7019	47.63	10.04	57.67	73.00	-15.33	P	L2
1.6300	45.92	10.08	56.00	73.00	-17.00	P	L2
4.7460	53.33	10.26	63.59	73.00	-9.41	P	L2
4.7460	41.06	10.26	51.32	60.00	-8.68	A	L2
27.5300	42.00	11.23	53.23	73.00	-19.77	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 23
Tested by	Jim Lian	Phase	L1
Standard	EN 55032 CLASS A		



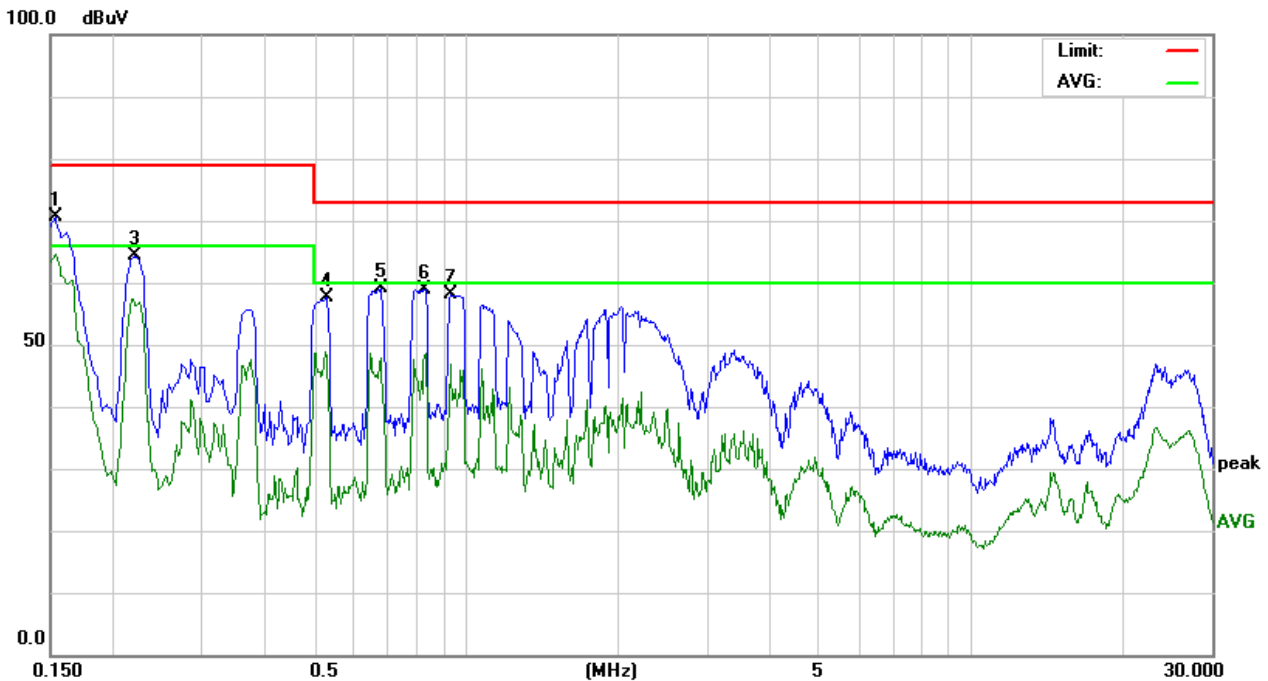
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	61.36	9.99	71.35	79.00	-7.65	P	L1
0.1539	53.33	9.99	63.32	66.00	-2.68	A	L1
0.1620	59.04	9.99	69.03	79.00	-9.97	P	L1
0.1620	52.48	9.99	62.47	66.00	-3.53	A	L1
0.2220	54.48	10.00	64.48	79.00	-14.52	P	L1
0.5299	47.77	10.02	57.79	73.00	-15.21	P	L1
0.6820	49.25	10.03	59.28	73.00	-13.72	P	L1
0.8260	49.15	10.05	59.20	73.00	-13.80	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 23
Tested by	Jim Lian	Phase	L2
Standard	EN 55032 CLASS A		



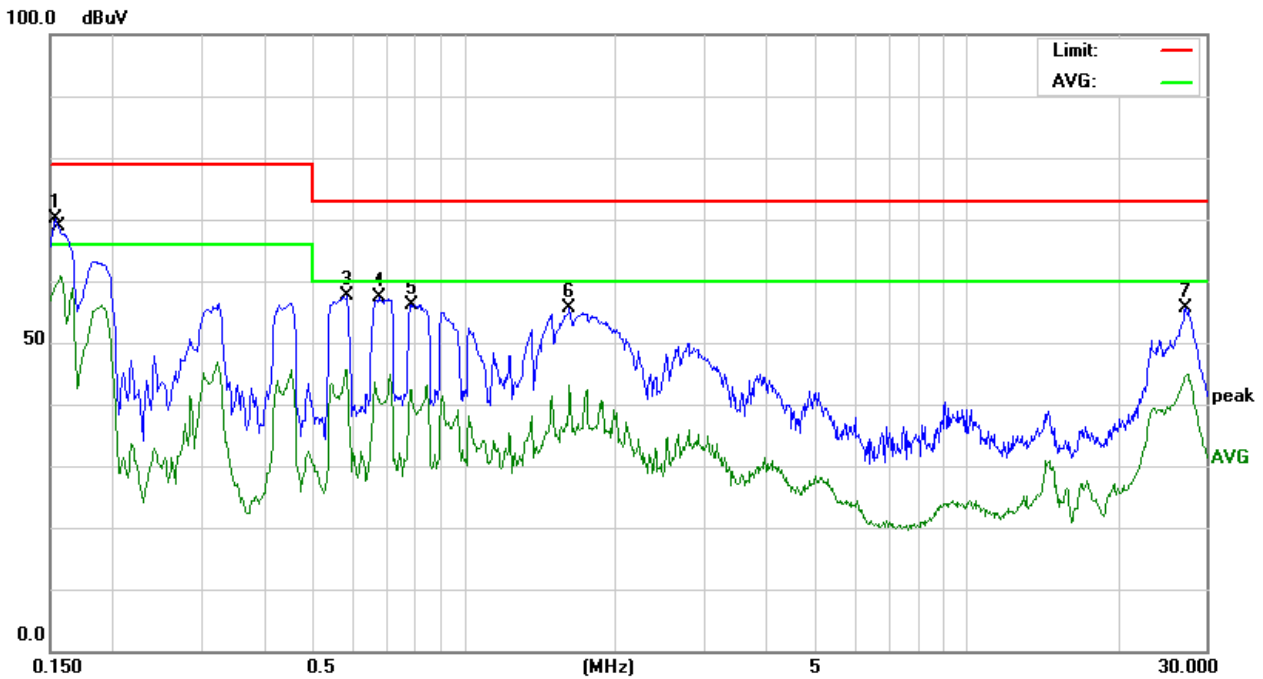
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	60.53	10.00	70.53	79.00	-8.47	P	L2
0.1539	53.54	10.00	63.54	66.00	-2.46	A	L2
0.2220	54.32	10.01	64.33	79.00	-14.67	P	L2
0.5299	47.57	10.02	57.59	73.00	-15.41	P	L2
0.6780	49.00	10.03	59.03	73.00	-13.97	P	L2
0.8300	48.88	10.05	58.93	73.00	-14.07	P	L2
0.9300	48.13	10.06	58.19	73.00	-14.81	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 24
Tested by	Jim Lian	Phase	L1
Standard	EN 55032 CLASS A		



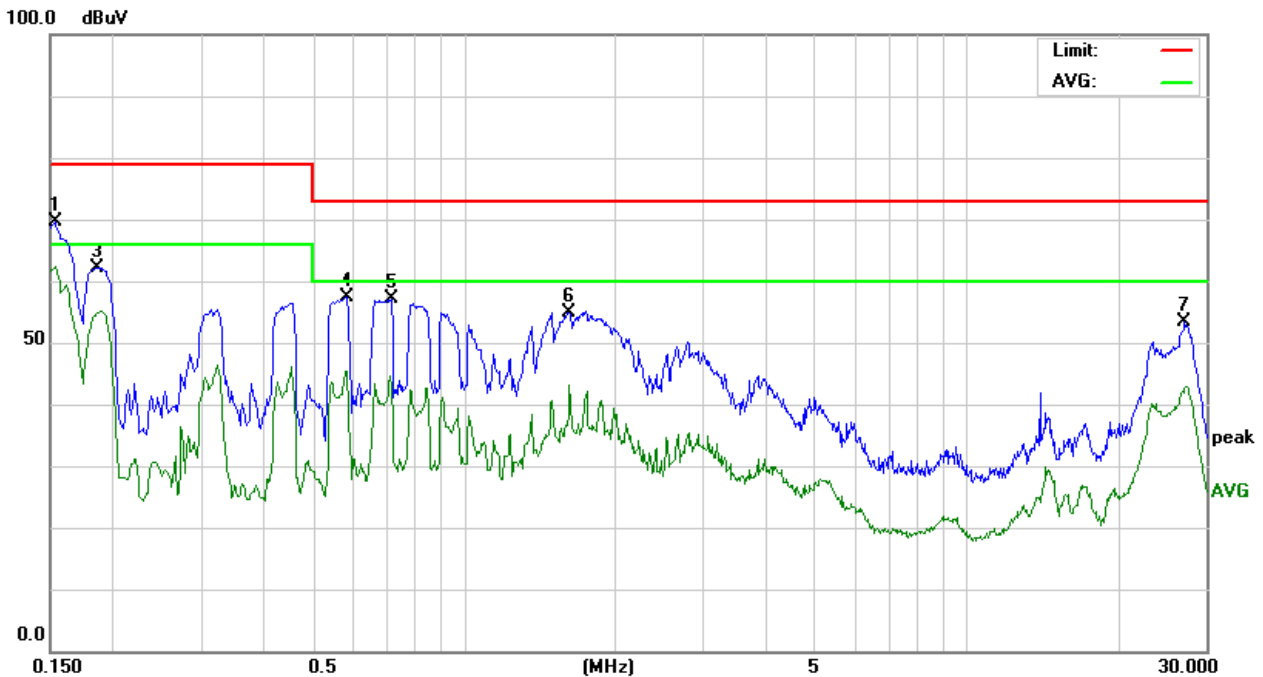
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	60.25	9.99	70.24	79.00	-8.76	P	L1
0.1580	50.88	9.99	60.87	66.00	-5.13	A	L1
0.5860	47.66	10.02	57.68	73.00	-15.32	P	L1
0.6780	47.24	10.03	57.27	73.00	-15.73	P	L1
0.7860	46.18	10.05	56.23	73.00	-16.77	P	L1
1.6260	45.45	10.08	55.53	73.00	-17.47	P	L1
27.3980	44.57	11.13	55.70	73.00	-17.30	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 44% RH	Test Mode	Mode 24
Tested by	Jim Lian	Phase	L2
Standard	EN 55032 CLASS A		



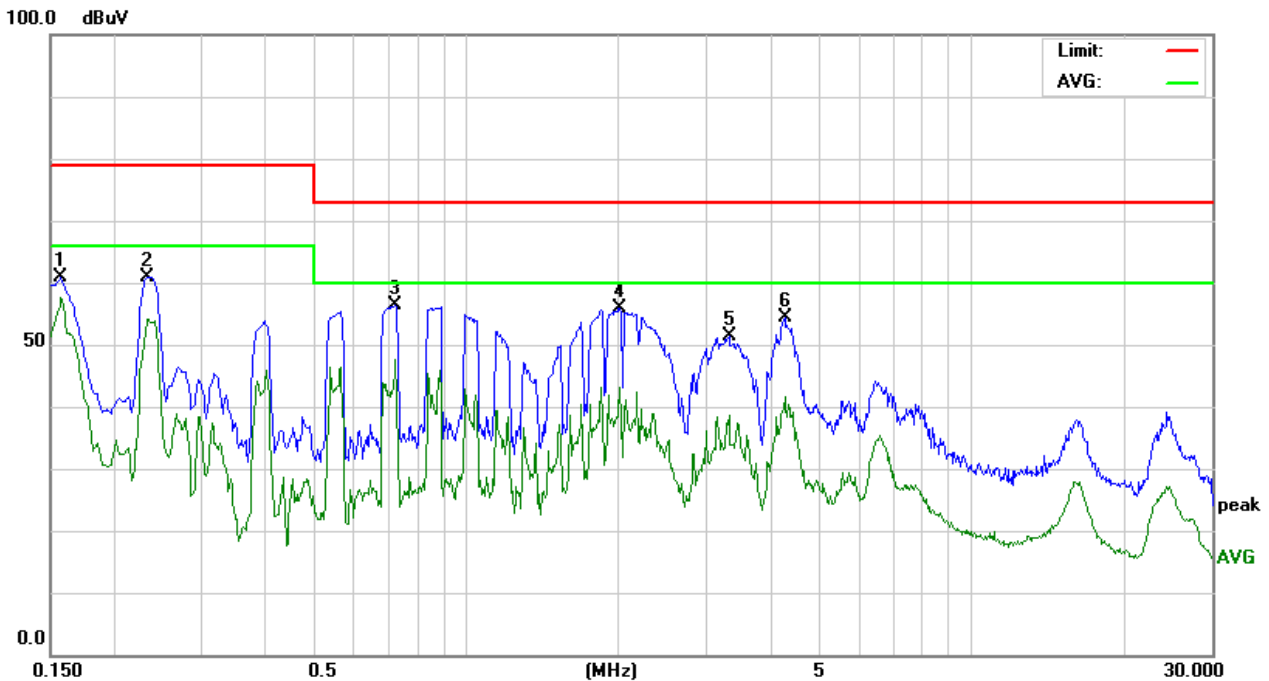
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1539	59.57	10.00	69.57	79.00	-9.43	P	L2
0.1539	52.45	10.00	62.45	66.00	-3.55	A	L2
0.1860	52.13	10.01	62.14	79.00	-16.86	P	L2
0.5860	47.46	10.02	57.48	73.00	-15.52	P	L2
0.7180	46.99	10.04	57.03	73.00	-15.97	P	L2
1.6260	44.91	10.08	54.99	73.00	-18.01	P	L2
27.2500	42.28	11.21	53.49	73.00	-19.51	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 25
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



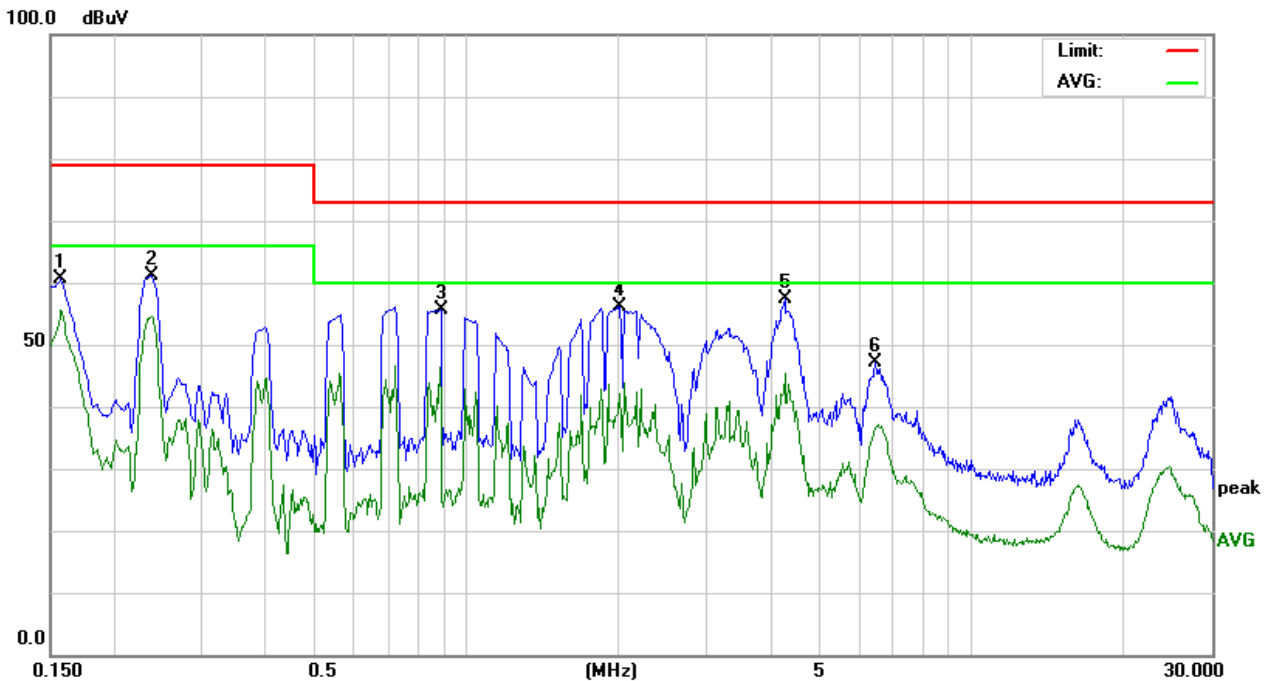
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	50.78	9.99	60.77	79.00	-18.23	P	L1
0.2340	50.95	10.00	60.95	79.00	-18.05	P	L1
0.7260	46.36	10.04	56.40	73.00	-16.60	P	L1
2.0180	45.83	10.10	55.93	73.00	-17.07	P	L1
3.3140	41.21	10.17	51.38	73.00	-21.62	P	L1
4.2900	44.23	10.22	54.45	73.00	-18.55	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 25
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



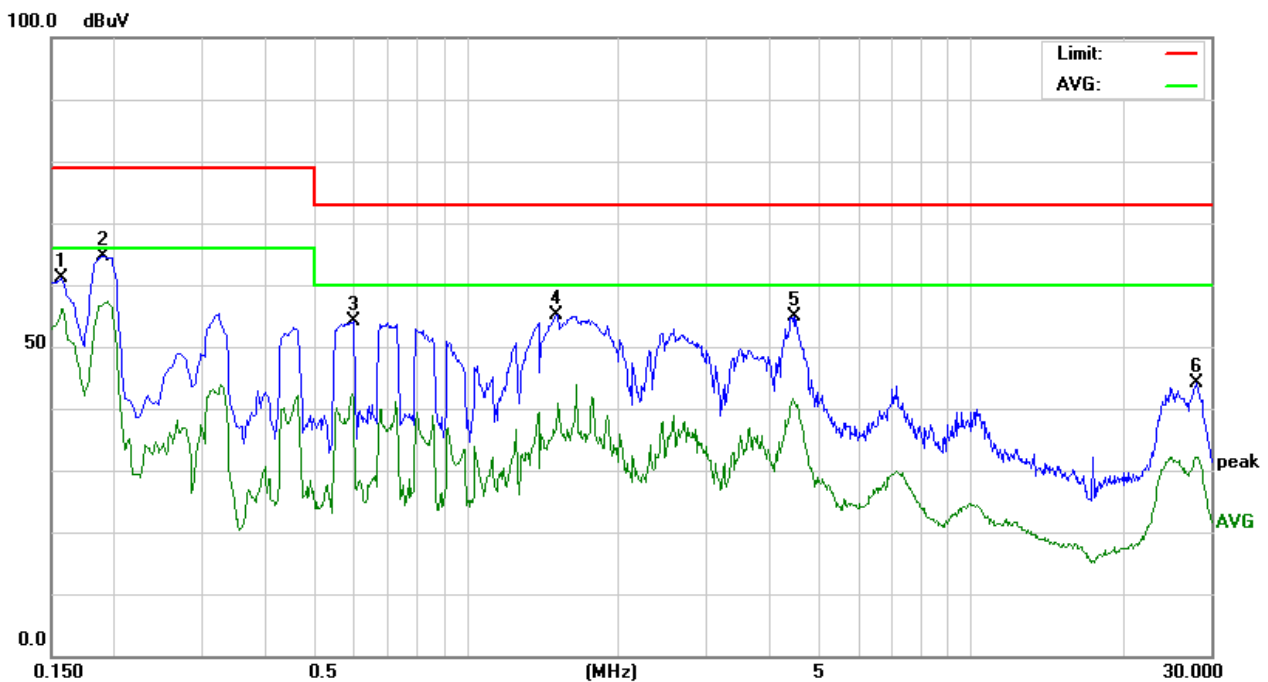
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	50.72	10.00	60.72	79.00	-18.28	P	L2
0.2380	51.01	10.01	61.02	79.00	-17.98	P	L2
0.8900	45.61	10.06	55.67	73.00	-17.33	P	L2
2.0220	46.06	10.10	56.16	73.00	-16.84	P	L2
4.2819	47.05	10.23	57.28	73.00	-15.72	P	L2
6.4860	36.69	10.36	47.05	73.00	-25.95	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 26
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



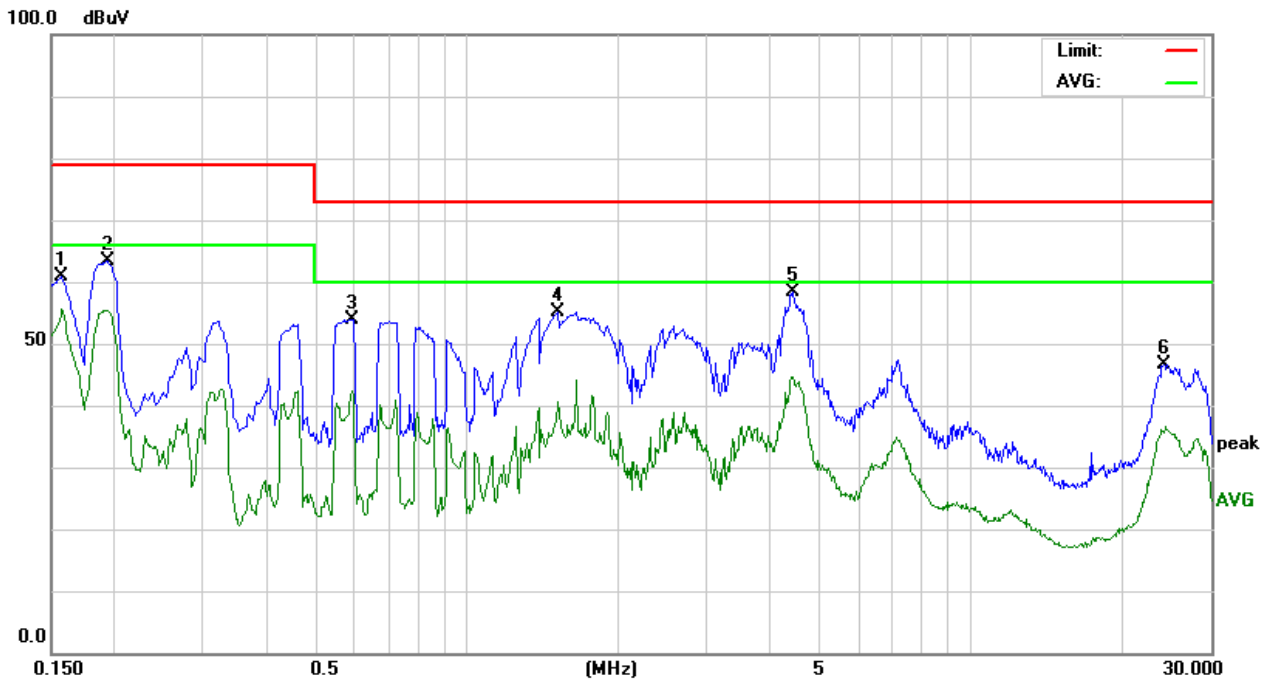
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	51.20	9.99	61.19	79.00	-17.81	P	L1
0.1900	54.69	10.00	64.69	79.00	-14.31	P	L1
0.5980	44.06	10.02	54.08	73.00	-18.92	P	L1
1.5060	45.06	10.08	55.14	73.00	-17.86	P	L1
4.4980	44.61	10.23	54.84	73.00	-18.16	P	L1
28.1300	33.08	11.16	44.24	73.00	-28.76	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 26
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



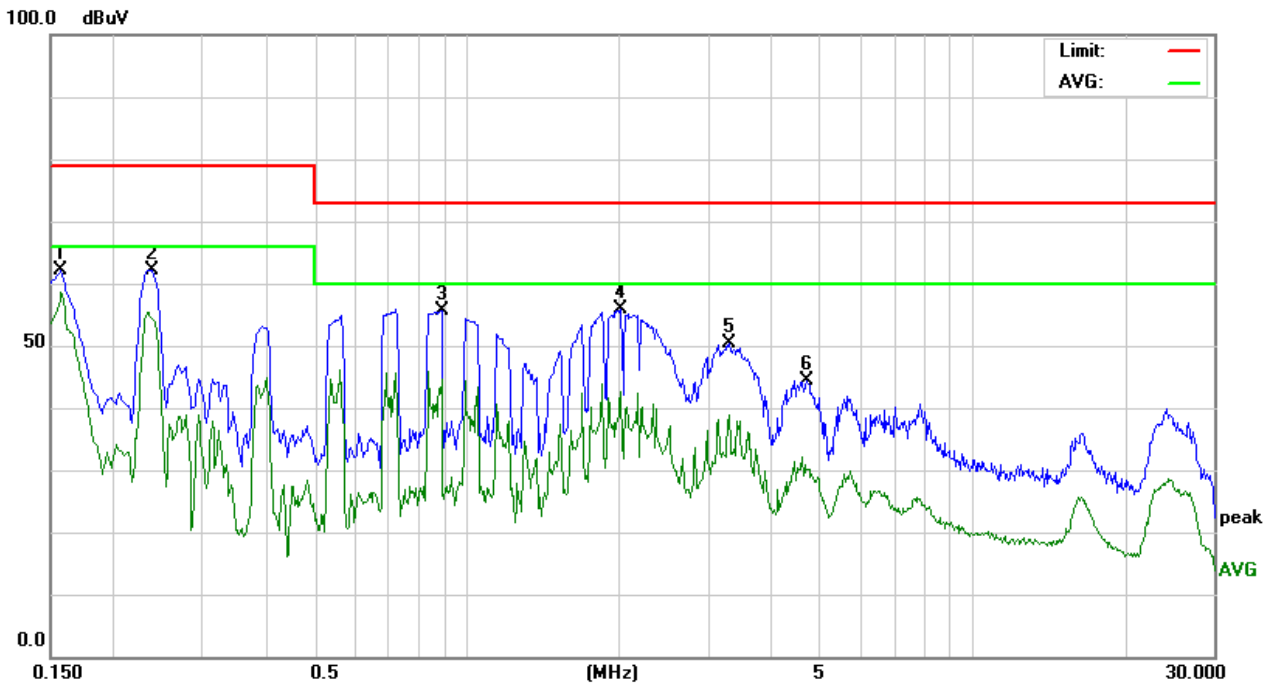
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	50.95	10.00	60.95	79.00	-18.05	P	L2
0.1940	53.45	10.01	63.46	79.00	-15.54	P	L2
0.5940	43.90	10.02	53.92	73.00	-19.08	P	L2
1.5260	45.03	10.08	55.11	73.00	-17.89	P	L2
4.4420	48.11	10.24	58.35	73.00	-14.65	P	L2
24.2139	35.55	11.12	46.67	73.00	-26.33	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 27
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



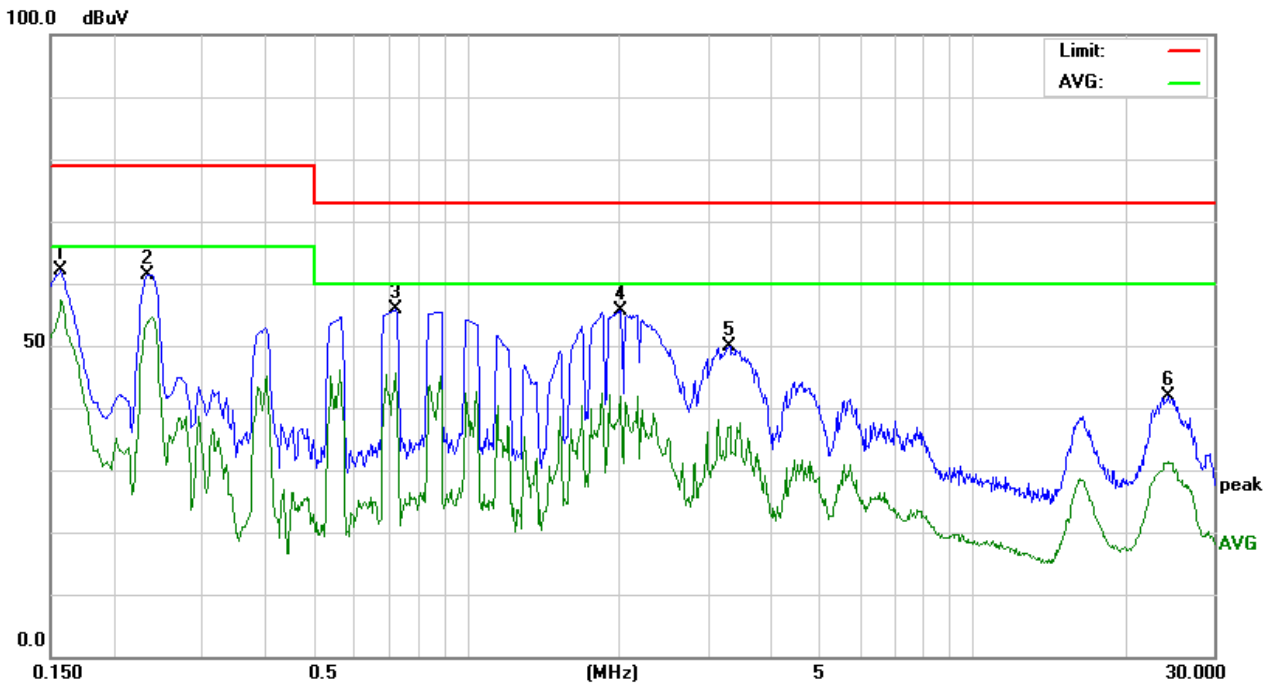
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	52.11	9.99	62.10	79.00	-16.90	P	L1
0.2380	52.13	10.00	62.13	79.00	-16.87	P	L1
0.8900	45.53	10.06	55.59	73.00	-17.41	P	L1
2.0180	45.67	10.10	55.77	73.00	-17.23	P	L1
3.3100	40.22	10.17	50.39	73.00	-22.61	P	L1
4.6979	34.08	10.25	44.33	73.00	-28.67	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 27
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



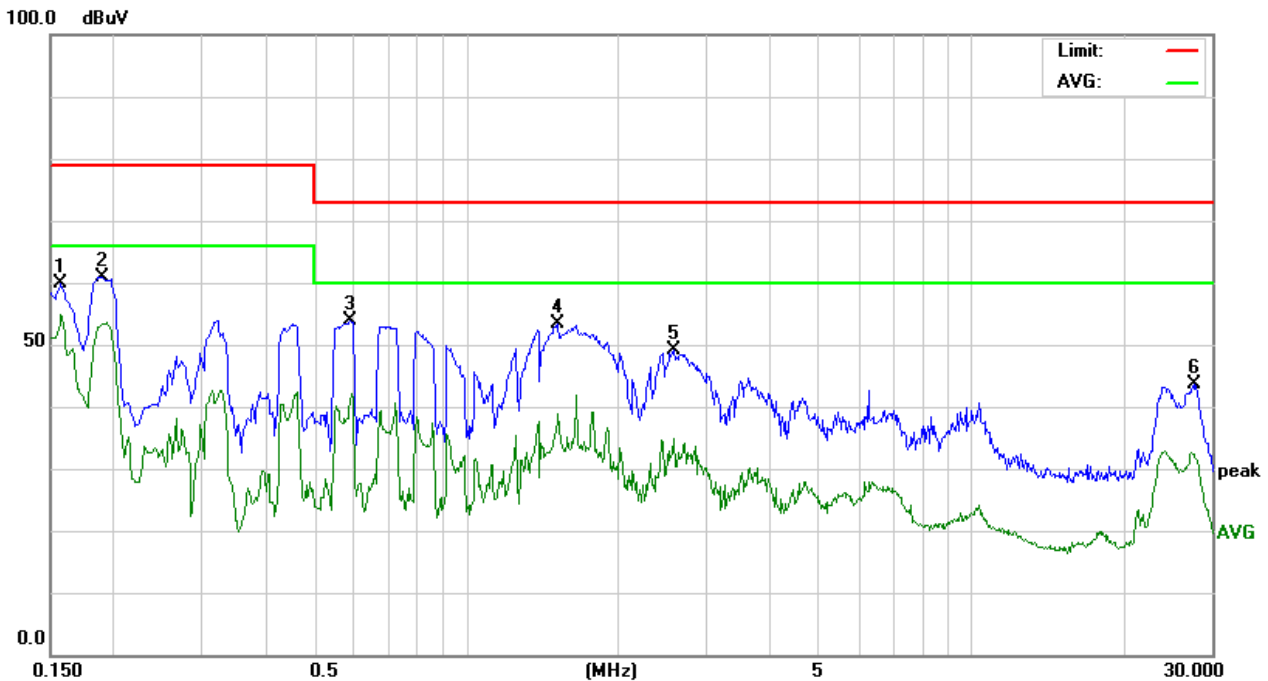
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	52.16	10.00	62.16	79.00	-16.84	P	L2
0.2340	51.41	10.01	61.42	79.00	-17.58	P	L2
0.7260	45.73	10.04	55.77	73.00	-17.23	P	L2
2.0140	45.58	10.10	55.68	73.00	-17.32	P	L2
3.3100	39.80	10.18	49.98	73.00	-23.02	P	L2
24.3580	30.84	11.12	41.96	73.00	-31.04	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 28
Tested by	Kevin Chang	Phase	L1
Standard	EN 55032 CLASS A		



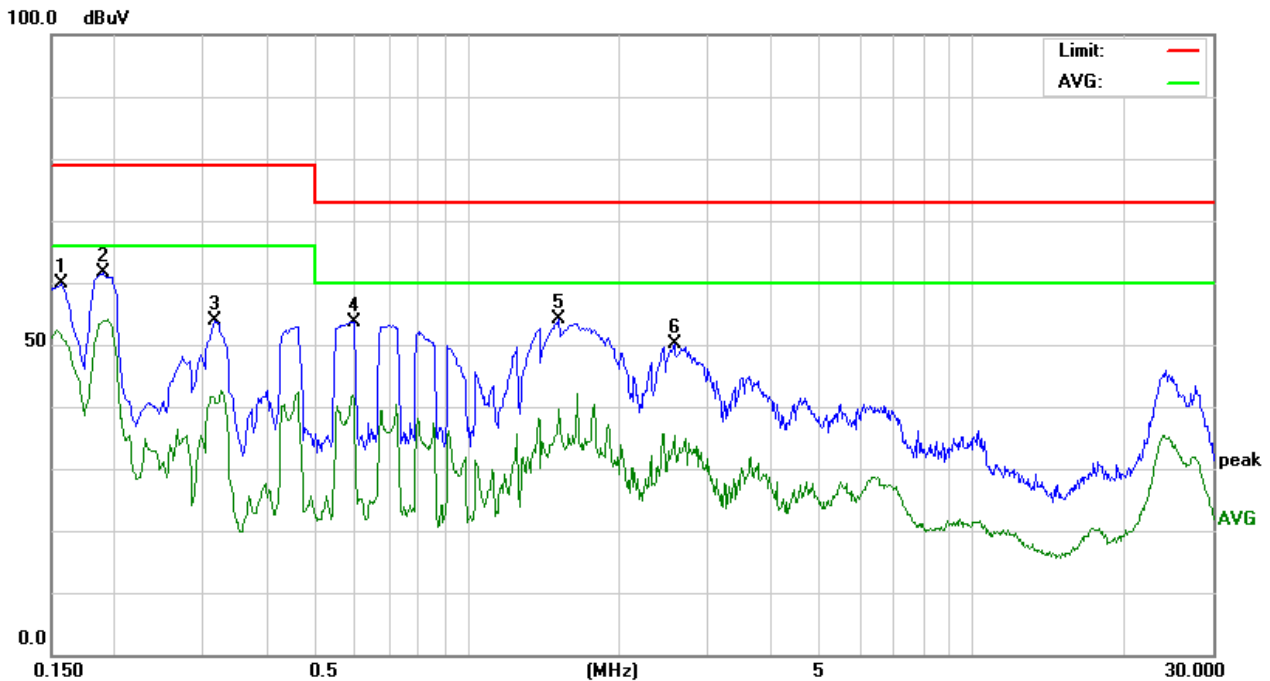
Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	49.89	9.99	59.88	79.00	-19.12	P	L1
0.1900	50.97	10.00	60.97	79.00	-18.03	P	L1
0.5899	43.85	10.02	53.87	73.00	-19.13	P	L1
1.5180	43.33	10.08	53.41	73.00	-19.59	P	L1
2.5780	39.11	10.14	49.25	73.00	-23.75	P	L1
27.7340	32.39	11.15	43.54	73.00	-29.46	P	L1

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	6dB Bandwidth	9 kHz
Environmental Conditions	28°C, 57% RH	Test Mode	Mode 28
Tested by	Kevin Chang	Phase	L2
Standard	EN 55032 CLASS A		



Conducted Emission Readings							
Frequency Range Investigated				150 kHz to 30 MHz			
Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)	Line (L1/L2)
0.1580	49.77	10.00	59.77	79.00	-19.23	P	L2
0.1900	51.52	10.01	61.53	79.00	-17.47	P	L2
0.3180	43.90	10.01	53.91	79.00	-25.09	P	L2
0.5980	43.58	10.02	53.60	73.00	-19.40	P	L2
1.5180	43.97	10.08	54.05	73.00	-18.95	P	L2
2.5740	40.05	10.14	50.19	73.00	-22.81	P	L2

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.2. REQUIREMENTS FOR ASYMMETRIC MODE CONDUCTED EMISSIONS

7.2.1. LIMITS

For Class A Equipment

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	97 ~ 87	84 ~ 74	53 ~ 43	40 ~ 30
0.5 ~ 30.0	87	74	43	30

NOTE: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

For Class B Equipment

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 ~ 74	74 ~ 64	40 ~ 30	30 ~ 20
0.5 - 30.0	74	64	30	20

NOTE: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

7.2.2. TEST INSTRUMENTS

Conducted Emission room #				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.2.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-031)

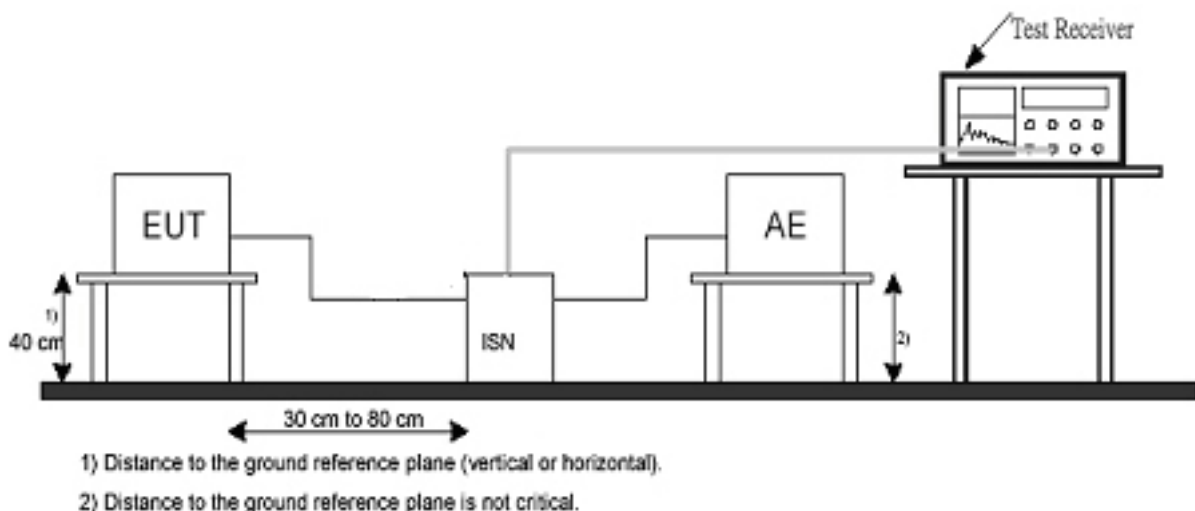
- Selecting AAN for unscreened cable or a current probe for screened cable to take measurement.
- The port of the EUT was connected to the remote side support equipment through the AAN/Current Probe and communication in normal condition.
- Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.
- Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- In case of measuring on the screened cable, the current limit shall be applied; otherwise the voltage limit should be applied.
- The following test modes was scanned during the preliminary test:

N/A

- After the preliminary scan, we found the following test mode(s) producing the highest emission level and test data of the worst case was recorded.

N/A

7.2.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.2.5. DATA SAMPLE

Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector (P/Q/A)
x.xx	62.95	0.55	63.50	87	-23.50	Q

Freq. = Emission frequency in MHz
 Reading = Uncorrected Analyzer/Receiver reading
 Factor = Insertion loss of LISN + Cable Loss + Pulse Limit
 Result = Reading + Factor
 Limit = Limit stated in standard
 Margin = Reading in reference to limit
 P = Peak Reading
 Q = Quasi-peak Reading
 A = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

7.2.6. TEST RESULTS

Model No.	N/A	6dB Bandwidth	N/A
Environmental Conditions	N/A	Test Mode	N/A
Tested by	N/A		

Note: No applicable, the EUT doesn't have LAN Port or Modem port.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.3. RADIATED EMISSION MEASUREMENT

7.3.1. LIMITS

Below 1GHz

FREQUENCY (MHz)	dBuV/m (At 10m)		dBuV/m (At 3m)	
	Class A	Class B	Class A	Class B
30 ~ 230	40	30	50	40
230 ~ 1000	47	37	57	47

Above 1GHz

Frequency (MHz)	Class A (dBuV/m) (At 3m)		Class B (dBuV/m) (At 3m)	
	Average	Peak	Average	Peak
1000 ~ 3000	56	76	50	70
3000 ~ 6000	60	80	54	74

NOTE: The lower limit shall apply at the transition frequencies.

According to EN 55032: 2015 / AC: 2016 Table 1 the measurement frequency range shown in the following table:

Table 1 – Required highest frequency for radiated measurement

Highest internal frequency (F_x)	Highest internal frequency
$F_x \leq 108$ MHz	1 GHz
108 MHz < $F_x \leq 500$ MHz	2 GHz
500 MHz < $F_x \leq 1$ GHz	5 GHz
$F_x > 1$ GHz	$5 \times F_x$ up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.	
NOTE 2 F_x is defined in 3.1.19.	

Where F_x is unknown, the radiated emission measurements shall be performed up to 6 GHz.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Radiated emissions from FM receivers

Frequency range MHz	Measurement		Class B limit dB(μ V/m)	
	Distance m	Detector type / bandwidth	Fundamental	Harmonics
			OATS / SAC (see Table A.1)	OATS / SAC (see Table A.1)
30 – 230	10	Quasi peak/ 120kHz	50	42
230 – 300				42
300 – 1000				46
30 – 230	3		60	52
230 – 300				52
300 – 1000				56

These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the local oscillator. Signals at all other frequencies shall be compliant with the limits given in 7.3.1 Class B Limit

7.3.2. TEST INSTRUMENTS

Open Area Test Site # E				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Bilog Antenna	Sunol	JB1	A100209-3	08/16/2018
Cable	EMEC	CFD400NL-LW	N-Type#E3	03/26/2019
Cable	EMEC	CFD400NL-LW	N-Type#E4	03/26/2019
EMI Test Receiver	R&S	ESCI	101299	01/02/2019
Pre-Amplifier	HP	8447D	2944A08282	03/26/2019
Thermo-Hygro Meter	Wisewind	201A	SD-R038	07/11/2019
Test S/W	EZ-EMC			

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.3.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-031 & PA-041)**Procedure of Preliminary Test**

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 15 cm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55032.
- All I/O cables were positioned to simulate typical usage as per EN 55032.
- The EUT received AC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- The antenna was placed at 3 or 10 meter away from the EUT as stated in EN 55032. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 6000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 4.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

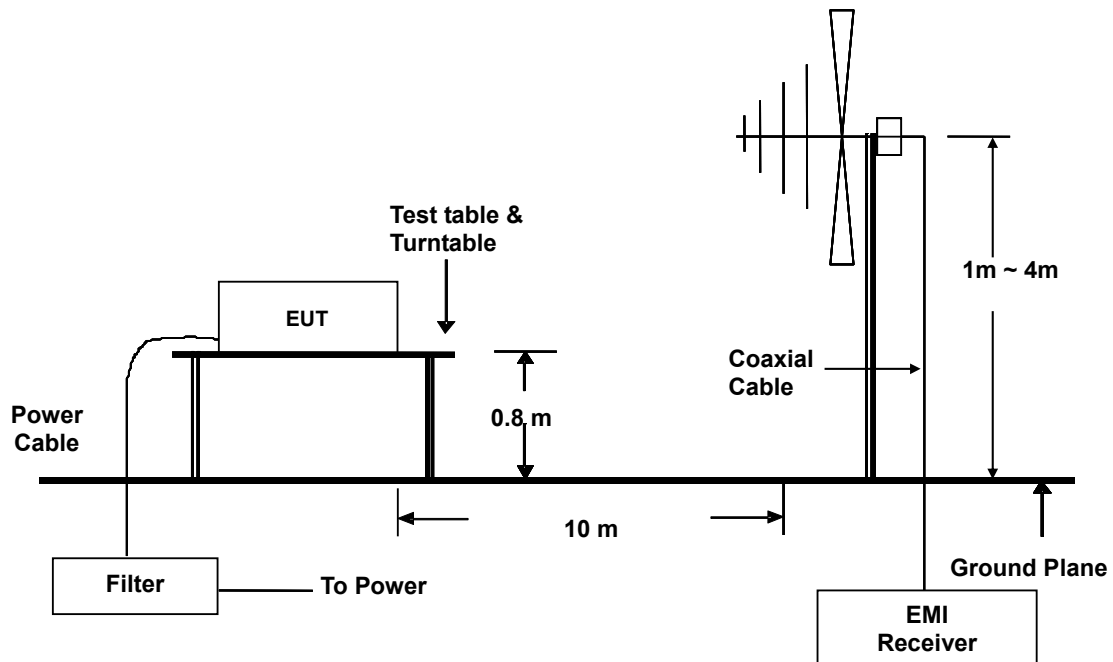
- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 6000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. Below 1GHz the Q.P. reading and above 1GHz the Peak and Average reading are presented.
- The test data of the worst-case condition(s) was recorded.

Report No.: T190110D07-E

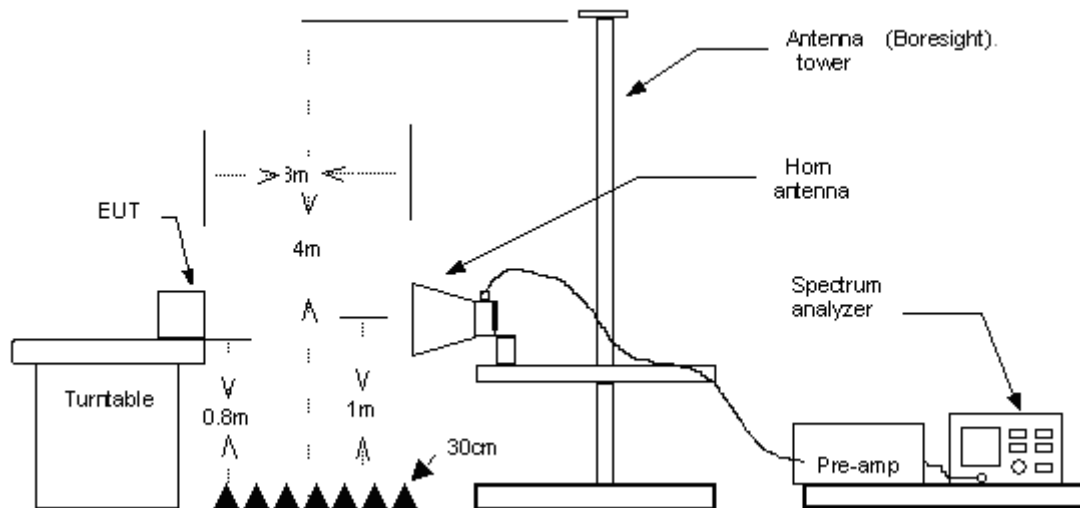
Ref No.: T180921D04-E

7.3.4. TEST SETUP

Below 1GHz



Above 1GHz



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.3.5. DATA SAMPLE

Below 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
x.xx	14.0	12.2	26.2	40	-13.8	Q	H

Above 1GHz

Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/A)	Pol. (H/V)
x.xx	42.95	0.55	43.50	60	-16.50	A	H

- Freq. = Emission frequency in MHz
 Reading = Uncorrected Analyzer/Receiver reading
 Factor = Antenna Factor + Cable Loss - Amplifier Gain
 Result = Reading + Factor
 Limit = Limit stated in standard
 Margin = Reading in reference to limit
 P = Peak Reading
 Q = Quasi-peak Reading
 A = Average Reading
 H = Antenna Polarization: Horizontal
 V = Antenna Polarization: Vertical

Calculation Formula

Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)

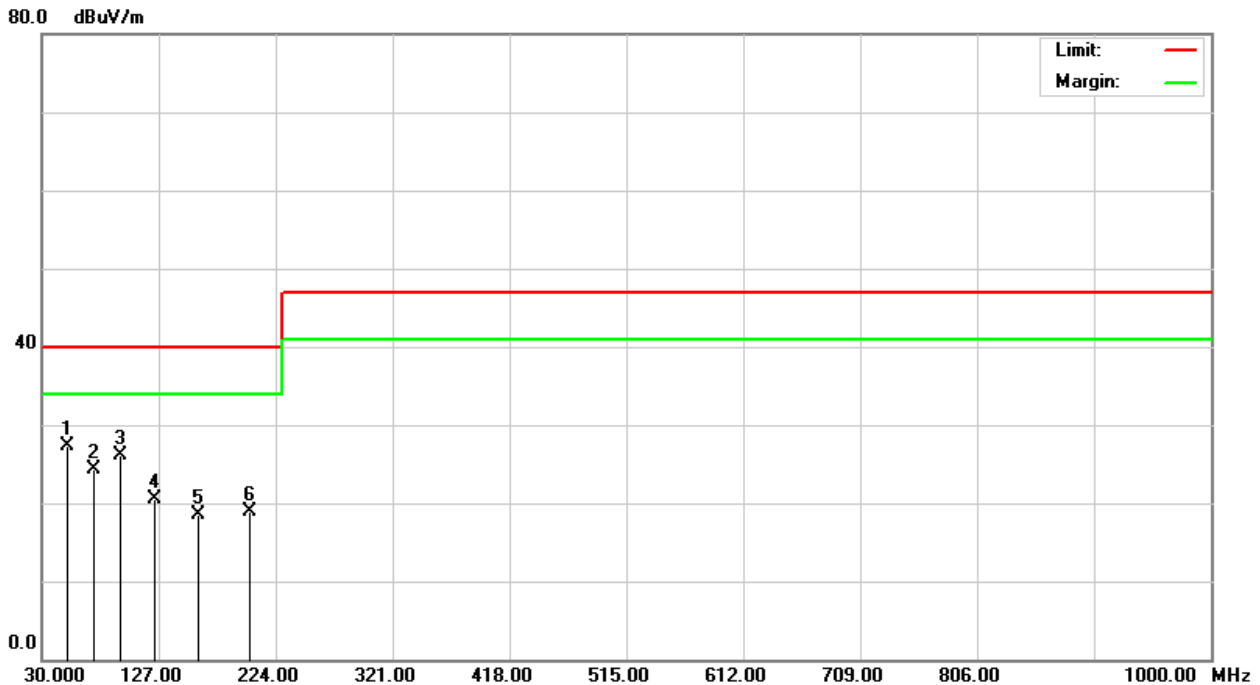
Report No.: T190110D07-E

Ref No.: T180921D04-E

7.3.6. TEST RESULTS

Below 1GHz

Model No.	TF3000A12K	Test Mode	Mode 1
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



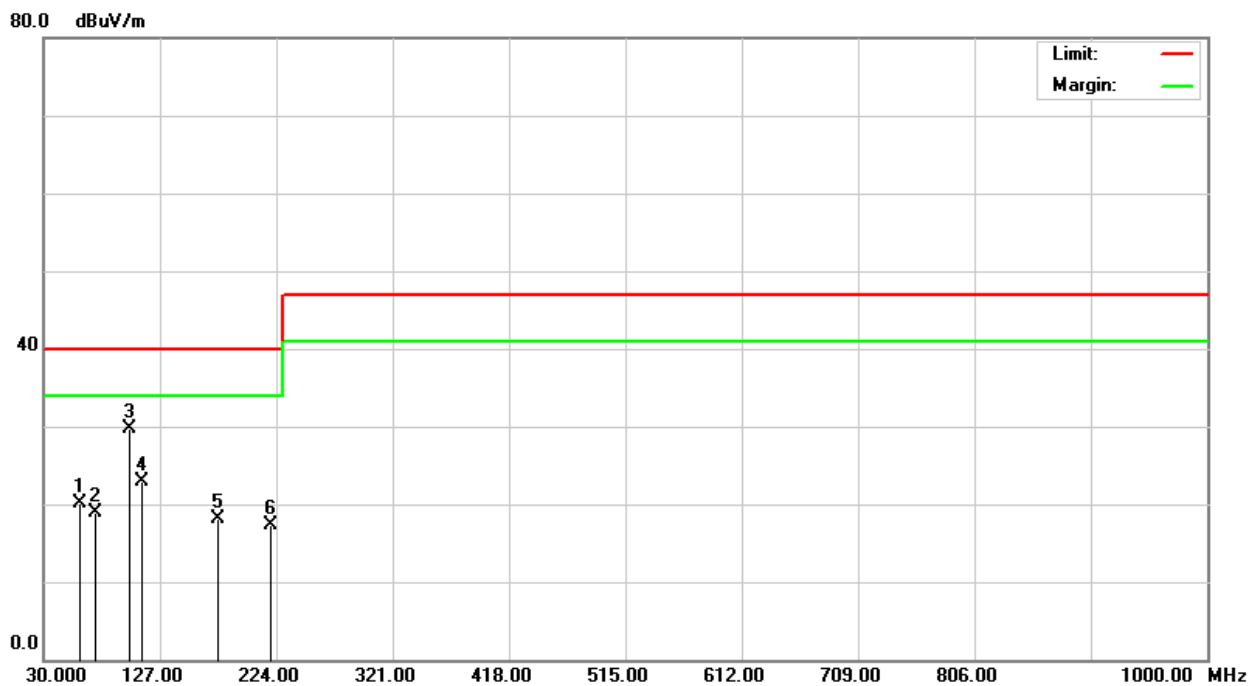
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
51.6600	41.50	-14.24	27.26	40.00	-12.74	Q	V
73.8000	39.50	-15.25	24.25	40.00	-15.75	Q	V
95.2800	37.60	-11.53	26.07	40.00	-13.93	Q	V
123.5000	29.70	-9.28	20.42	40.00	-19.58	Q	V
160.4000	29.60	-11.10	18.50	40.00	-21.50	Q	V
202.5000	30.11	-11.27	18.84	40.00	-21.16	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 1
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



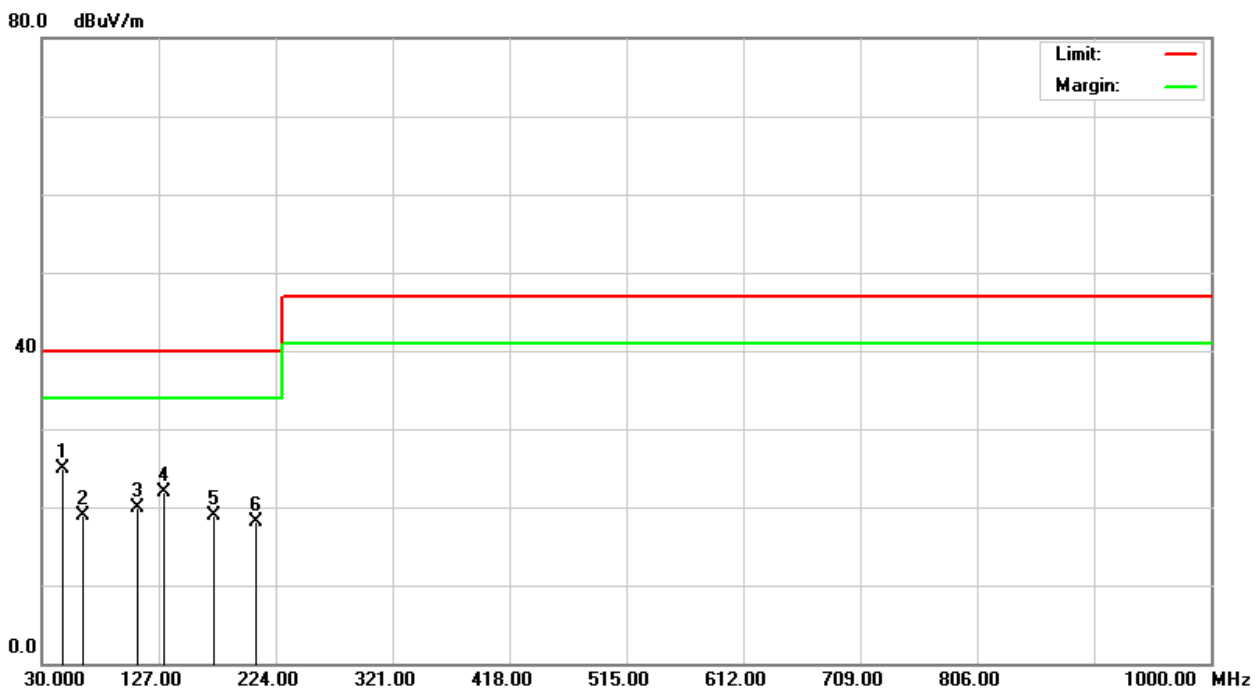
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
60.1800	35.70	-15.63	20.07	40.00	-19.93	Q	H
73.1400	34.20	-15.28	18.92	40.00	-21.08	Q	H
101.1800	40.30	-10.50	29.80	40.00	-10.20	Q	H
112.5800	32.40	-9.47	22.93	40.00	-17.07	Q	H
175.8000	29.50	-11.44	18.06	40.00	-21.94	Q	H
219.0000	28.70	-11.31	17.39	40.00	-22.61	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 2
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



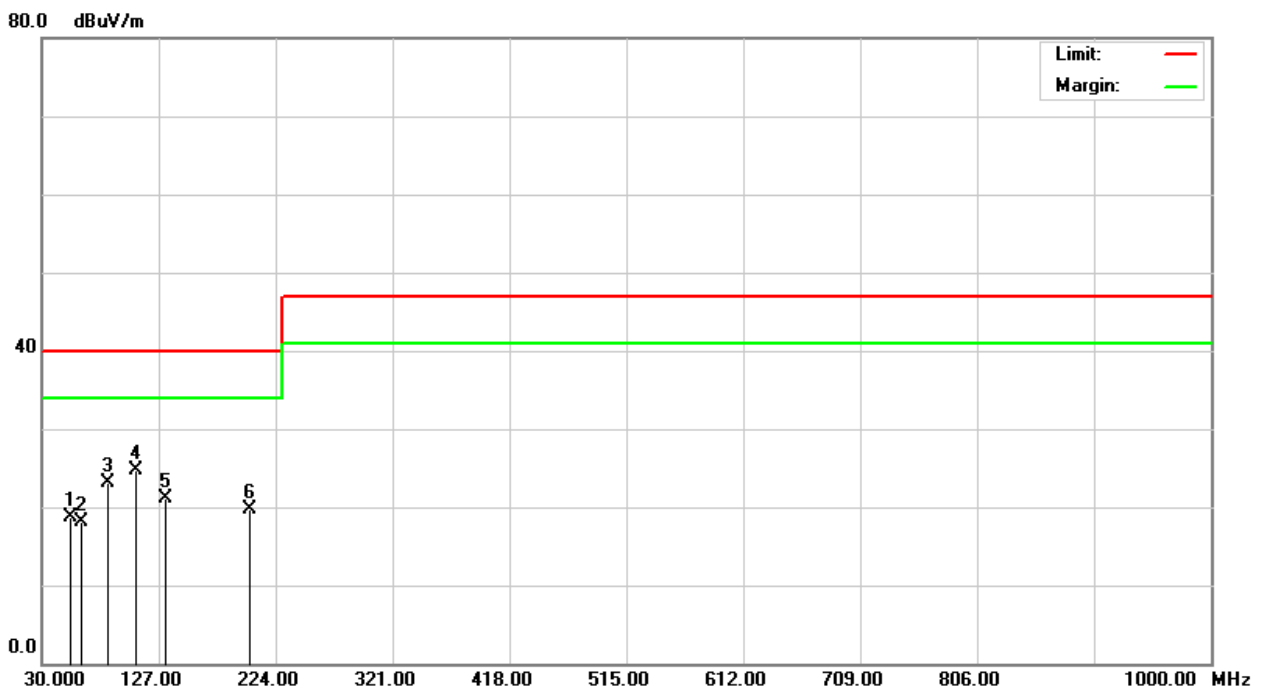
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.2300	37.50	-12.53	24.97	40.00	-15.03	Q	V
63.7000	34.50	-15.67	18.83	40.00	-21.17	Q	V
109.5500	29.60	-9.64	19.96	40.00	-20.04	Q	V
131.2000	31.50	-9.51	21.99	40.00	-18.01	Q	V
172.3000	30.20	-11.33	18.87	40.00	-21.13	Q	V
208.3000	29.40	-11.28	18.12	40.00	-21.88	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 2
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



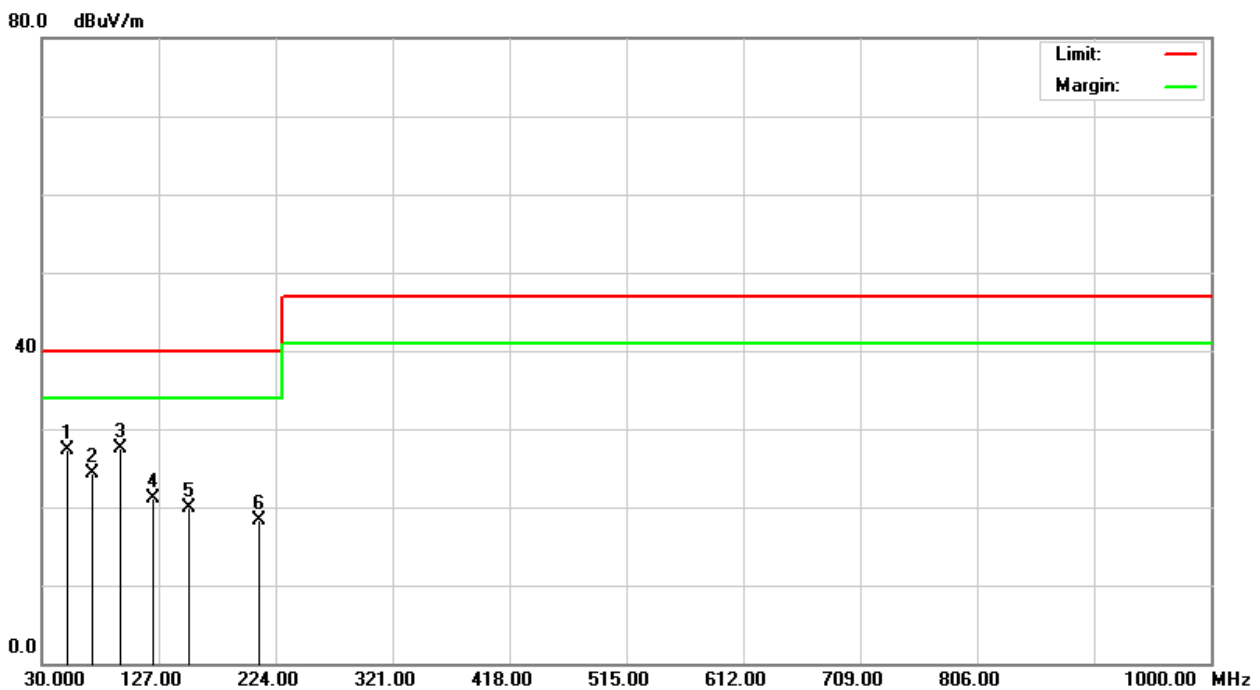
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
53.4600	33.50	-14.73	18.77	40.00	-21.23	Q	H
62.8000	33.70	-15.66	18.04	40.00	-21.96	Q	H
85.4400	36.70	-13.57	23.13	40.00	-16.87	Q	H
108.8100	34.50	-9.70	24.80	40.00	-15.20	Q	H
132.7500	30.70	-9.58	21.12	40.00	-18.88	Q	H
203.1500	31.00	-11.27	19.73	40.00	-20.27	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 3
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



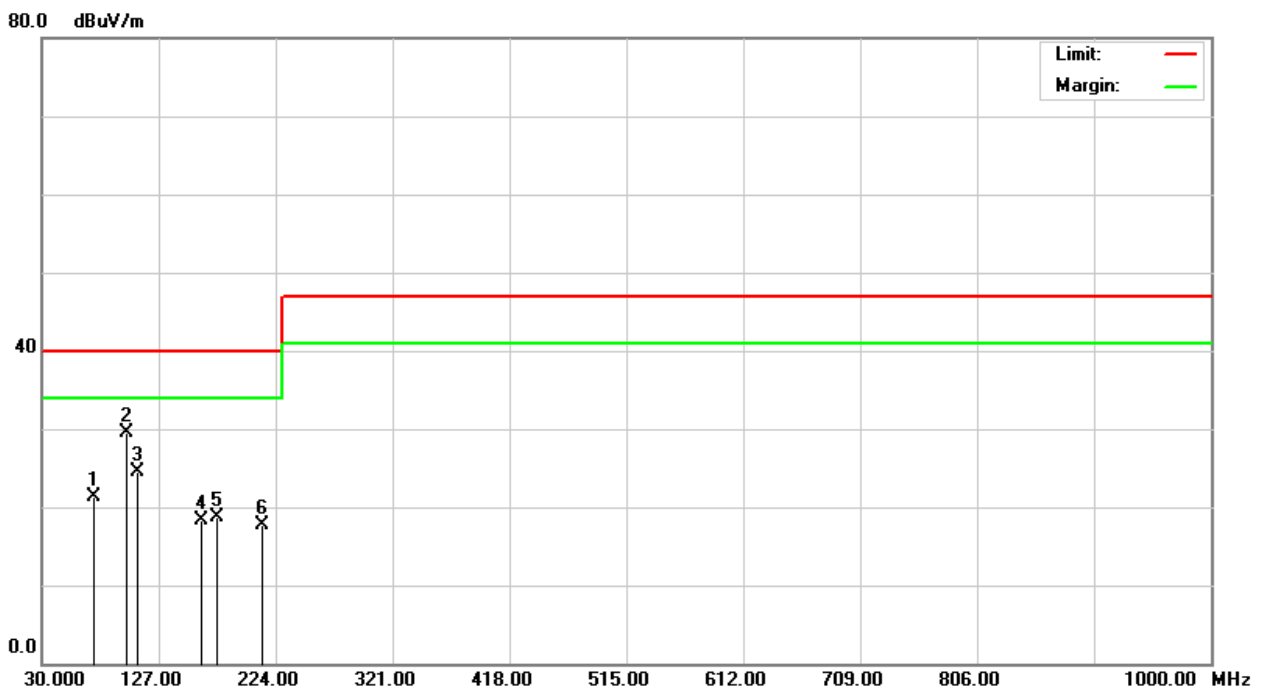
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
51.4000	41.50	-14.16	27.34	40.00	-12.66	Q	V
72.6500	39.60	-15.32	24.28	40.00	-15.72	Q	V
94.8800	39.20	-11.61	27.59	40.00	-12.41	Q	V
122.5000	30.40	-9.28	21.12	40.00	-18.88	Q	V
152.6000	30.60	-10.79	19.81	40.00	-20.19	Q	V
210.5000	29.50	-11.29	18.21	40.00	-21.79	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 3
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



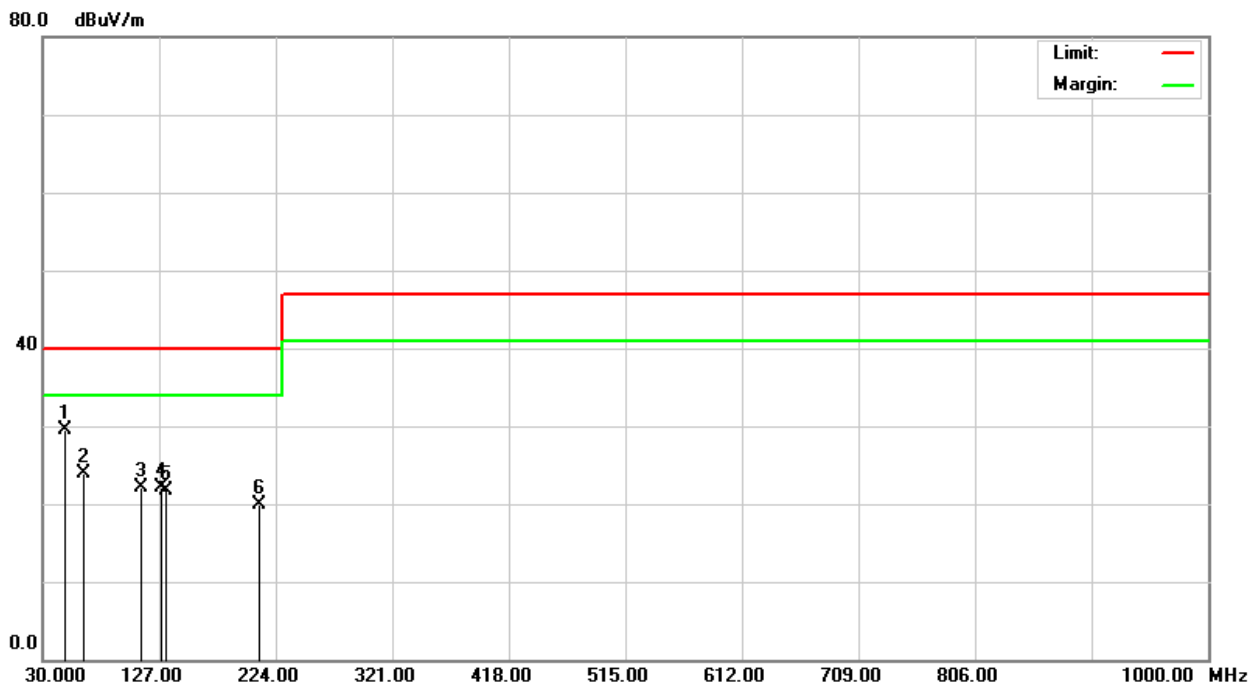
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
73.6300	36.50	-15.26	21.24	40.00	-18.76	Q	H
100.2000	40.10	-10.63	29.47	40.00	-10.53	Q	H
109.8000	34.20	-9.62	24.58	40.00	-15.42	Q	H
162.3000	29.40	-11.14	18.26	40.00	-21.74	Q	H
174.9000	30.20	-11.41	18.79	40.00	-21.21	Q	H
213.0200	29.10	-11.30	17.80	40.00	-22.20	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 4
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



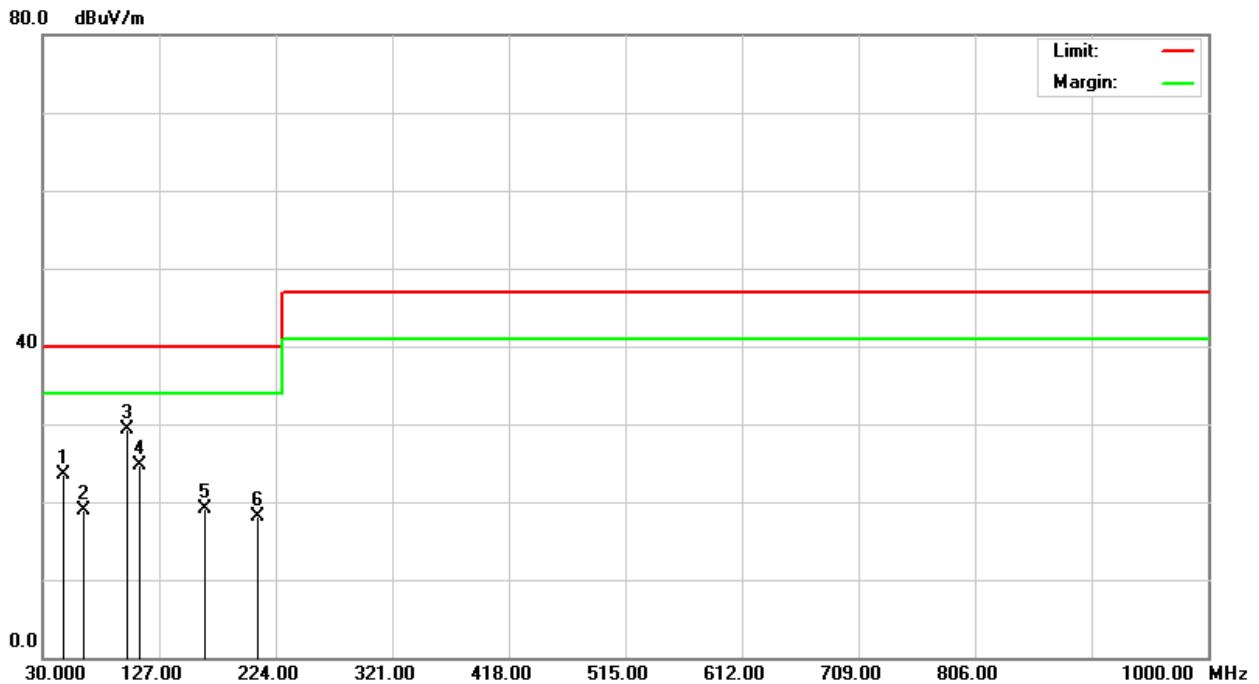
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
48.7000	42.60	-13.19	29.41	40.00	-10.59	Q	V
64.2000	39.60	-15.68	23.92	40.00	-16.08	Q	V
112.0400	31.60	-9.50	22.10	40.00	-17.90	Q	V
129.4000	31.50	-9.43	22.07	40.00	-17.93	Q	V
132.5000	31.20	-9.57	21.63	40.00	-18.37	Q	V
210.1400	31.20	-11.29	19.91	40.00	-20.09	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A12K	Test Mode	Mode 4
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



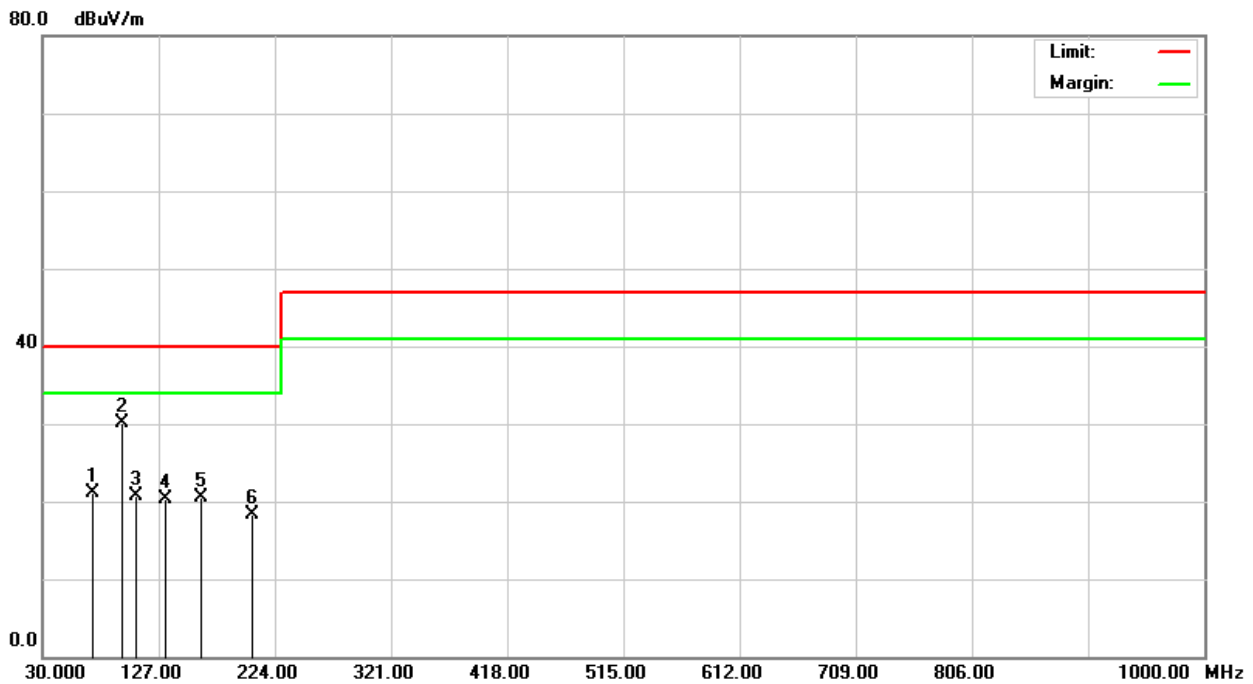
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.7200	36.20	-12.75	23.45	40.00	-16.55	Q	H
63.7900	34.50	-15.67	18.83	40.00	-21.17	Q	H
100.1600	40.00	-10.63	29.37	40.00	-10.63	Q	H
110.6500	34.20	-9.57	24.63	40.00	-15.37	Q	H
164.9500	30.20	-11.19	19.01	40.00	-20.99	Q	H
209.3500	29.40	-11.29	18.11	40.00	-21.89	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 5
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



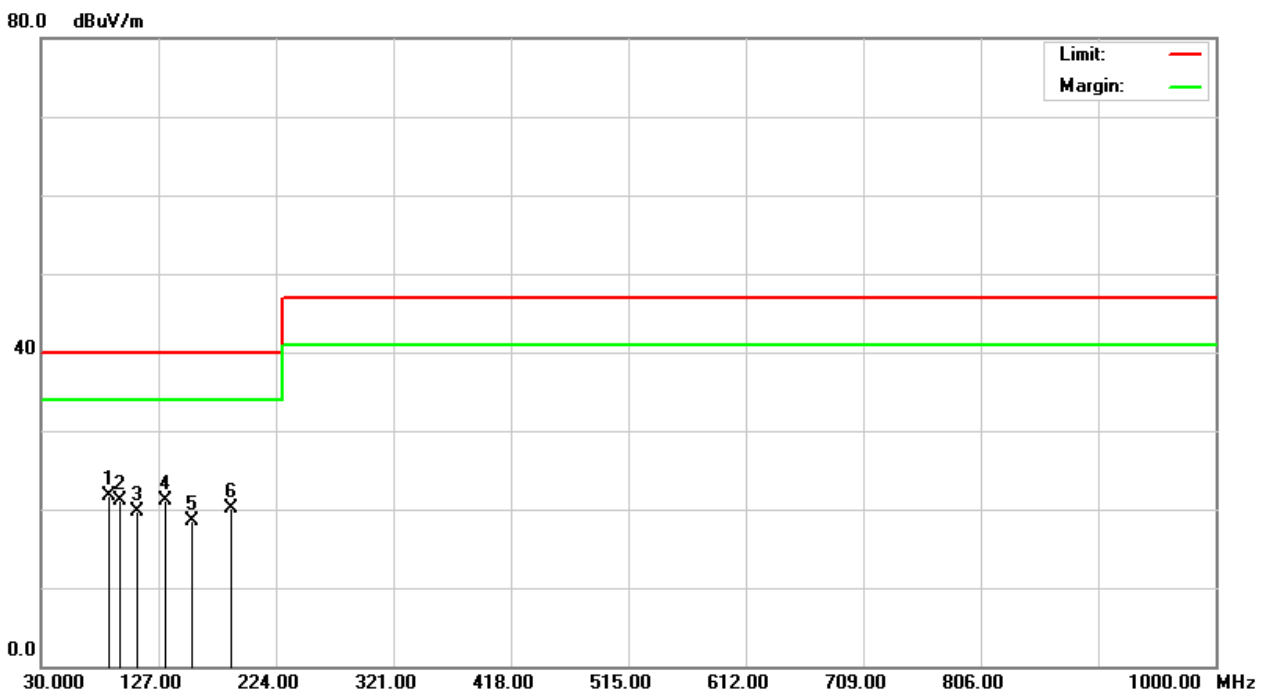
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
72.1000	36.50	-15.35	21.15	40.00	-18.85	Q	V
96.7600	41.30	-11.26	30.04	40.00	-9.96	Q	V
108.7000	30.50	-9.71	20.79	40.00	-19.21	Q	V
132.6000	29.80	-9.57	20.23	40.00	-19.77	Q	V
162.8000	31.60	-11.15	20.45	40.00	-19.55	Q	V
205.7000	29.60	-11.27	18.33	40.00	-21.67	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 5
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



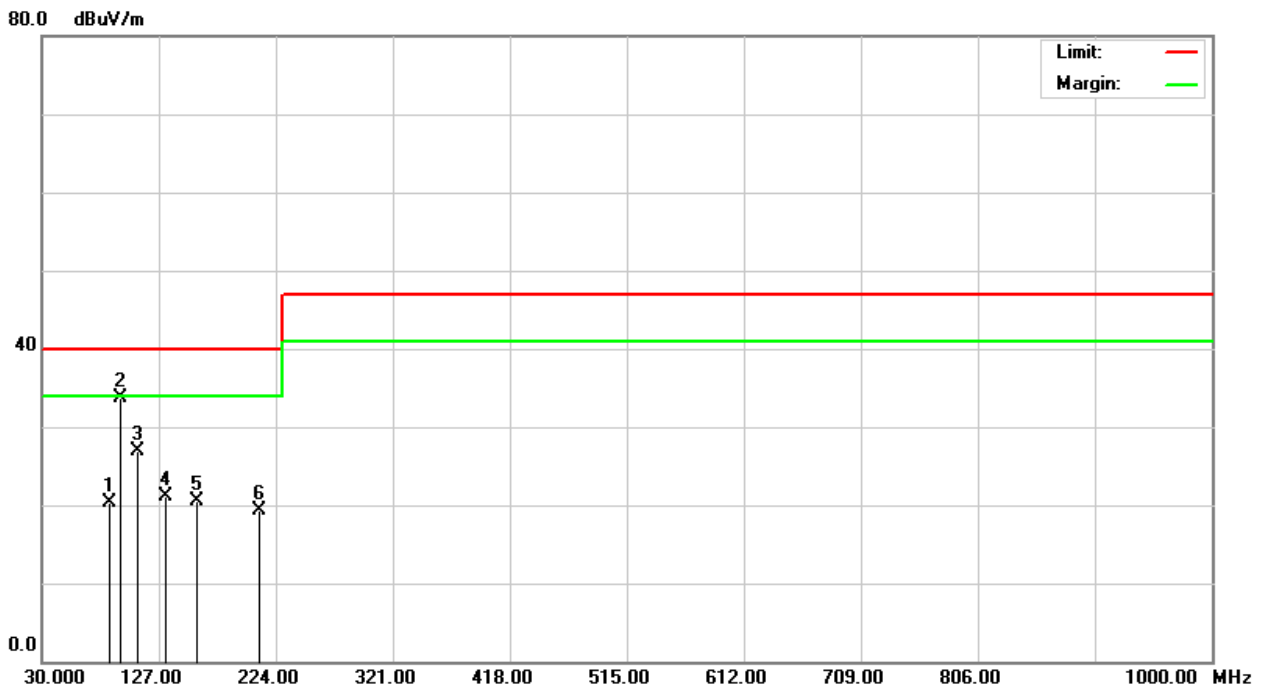
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
85.7699	35.20	-13.51	21.69	40.00	-18.31	Q	H
95.6100	32.60	-11.48	21.12	40.00	-18.88	Q	H
109.2000	29.40	-9.67	19.73	40.00	-20.27	Q	H
132.6799	30.70	-9.58	21.12	40.00	-18.88	Q	H
154.7000	29.40	-10.88	18.52	40.00	-21.48	Q	H
186.9700	31.80	-11.70	20.10	40.00	-19.90	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 6
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



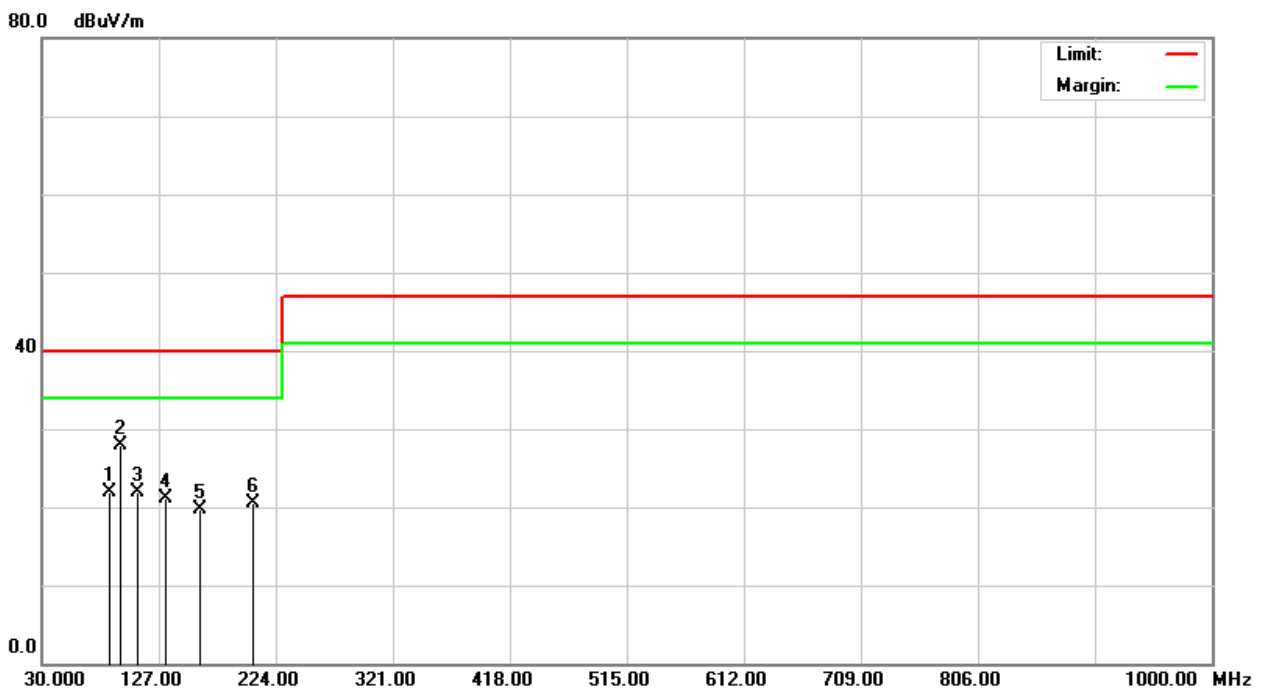
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
86.2000	33.80	-13.41	20.39	40.00	-19.61	Q	V
95.3900	45.30	-11.51	33.79	40.00	-6.21	Q	V
109.3300	36.50	-9.66	26.84	40.00	-13.16	Q	V
132.5000	30.60	-9.57	21.03	40.00	-18.97	Q	V
158.4000	31.60	-11.03	20.57	40.00	-19.43	Q	V
210.3000	30.60	-11.29	19.31	40.00	-20.69	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 6
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



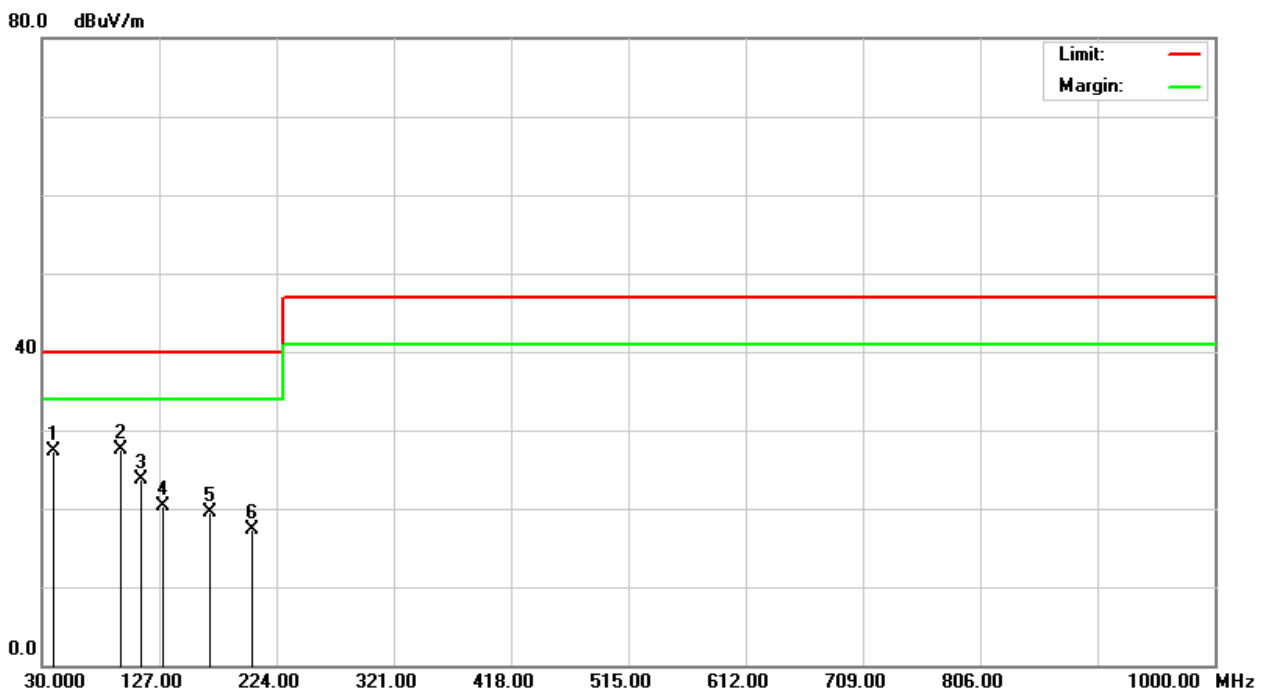
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
86.9000	35.20	-13.27	21.93	40.00	-18.07	Q	H
95.5700	39.30	-11.48	27.82	40.00	-12.18	Q	H
109.6700	31.60	-9.63	21.97	40.00	-18.03	Q	H
133.2500	30.80	-9.61	21.19	40.00	-18.81	Q	H
160.7400	30.90	-11.11	19.79	40.00	-20.21	Q	H
204.6200	31.70	-11.28	20.42	40.00	-19.58	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 7
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



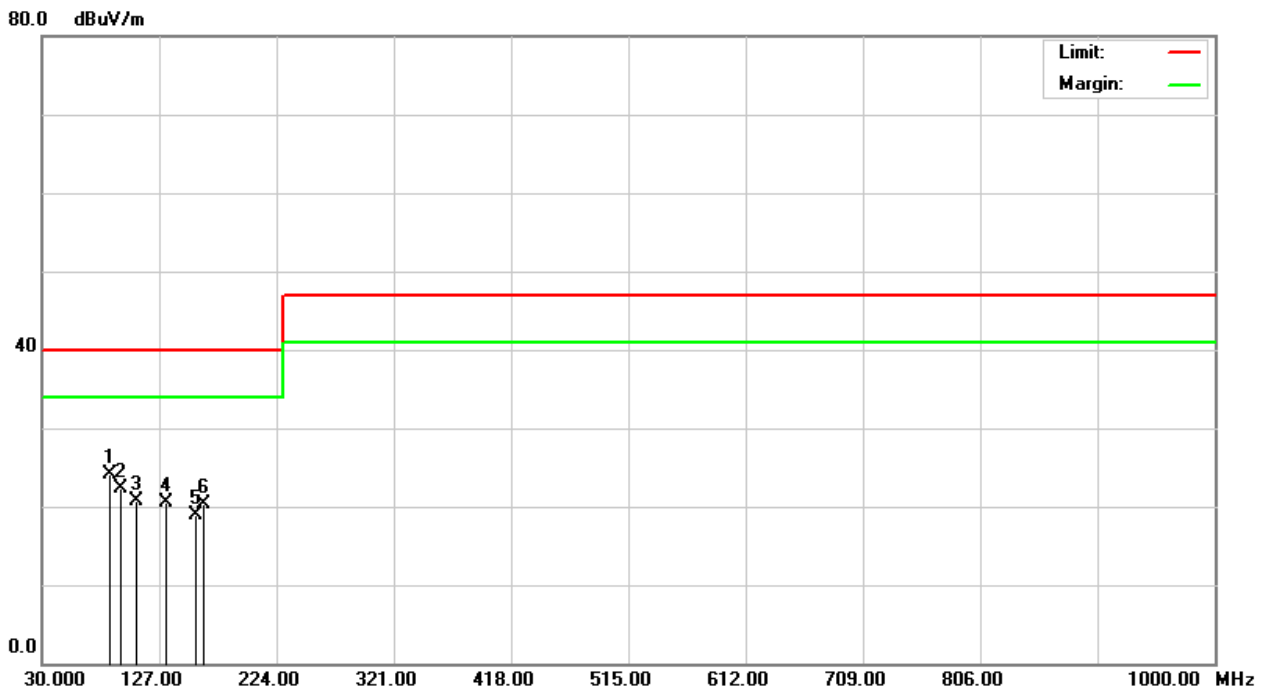
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
40.2000	36.20	-8.94	27.26	40.00	-12.74	Q	V
95.2000	39.00	-11.55	27.45	40.00	-12.55	Q	V
112.5800	33.20	-9.47	23.73	40.00	-16.27	Q	V
130.2500	29.80	-9.45	20.35	40.00	-19.65	Q	V
168.9000	30.70	-11.25	19.45	40.00	-20.55	Q	V
204.1600	28.60	-11.27	17.33	40.00	-22.67	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 7
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



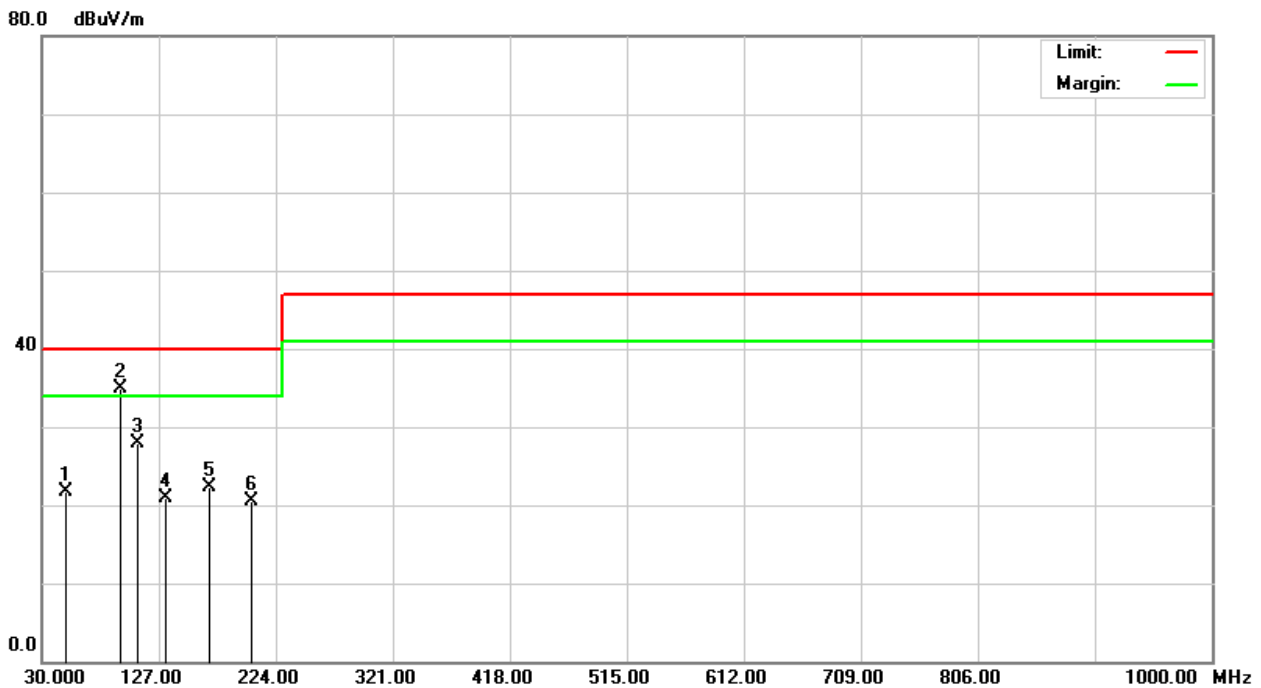
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
86.4200	37.40	-13.37	24.03	40.00	-15.97	Q	H
95.1300	33.80	-11.56	22.24	40.00	-17.76	Q	H
108.4000	30.50	-9.74	20.76	40.00	-19.24	Q	H
132.5700	30.10	-9.57	20.53	40.00	-19.47	Q	H
156.9400	29.80	-10.97	18.83	40.00	-21.17	Q	H
163.4900	31.50	-11.16	20.34	40.00	-19.66	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 8
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



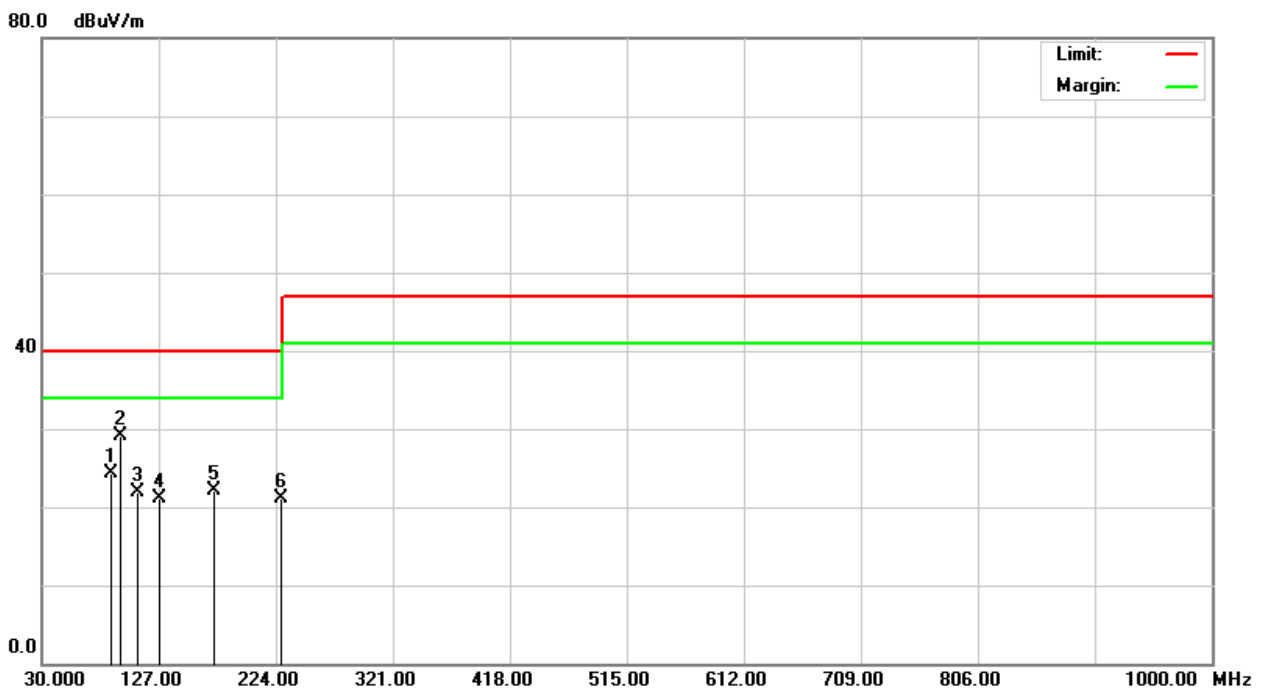
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
50.0600	35.60	-13.80	21.80	40.00	-18.20	Q	V
95.1700	46.50	-11.55	34.95	40.00	-5.05	Q	V
109.4400	37.50	-9.65	27.85	40.00	-12.15	Q	V
132.4000	30.50	-9.56	20.94	40.00	-19.06	Q	V
169.3000	33.50	-11.26	22.24	40.00	-17.76	Q	V
204.0000	31.70	-11.27	20.43	40.00	-19.57	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A15K	Test Mode	Mode 8
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



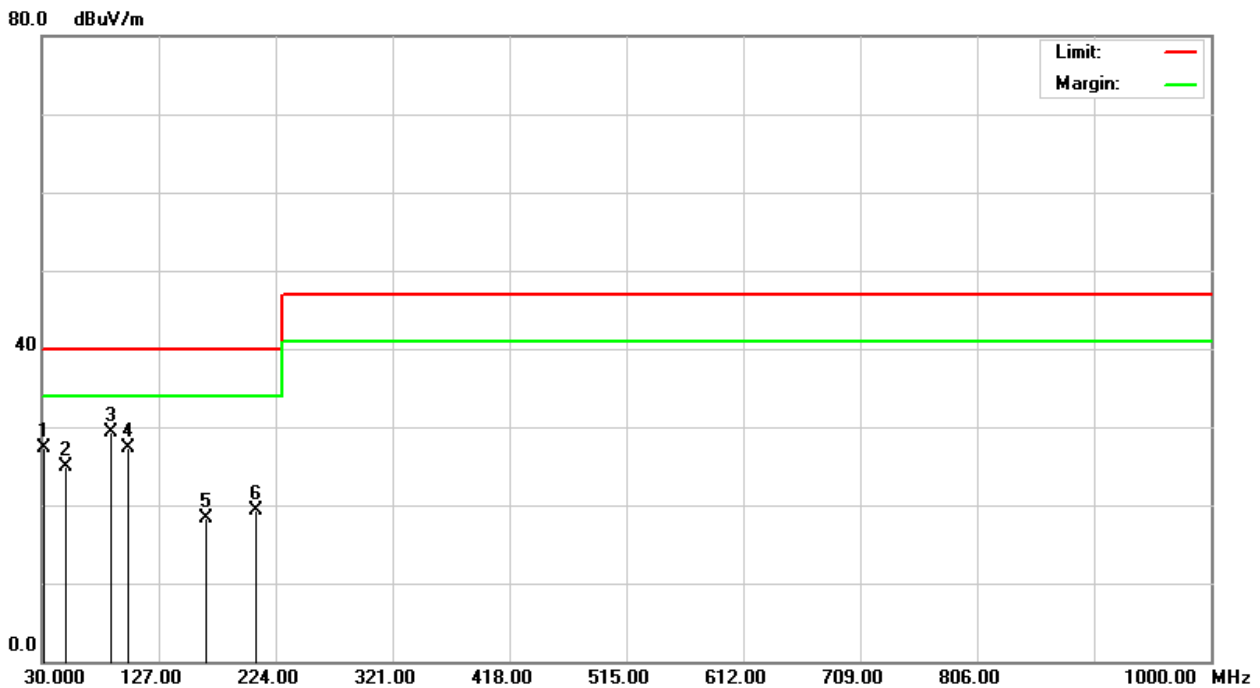
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
87.0800	37.60	-13.23	24.37	40.00	-15.63	Q	H
94.8600	40.70	-11.62	29.08	40.00	-10.92	Q	H
108.9000	31.50	-9.69	21.81	40.00	-18.19	Q	H
127.7600	30.40	-9.38	21.02	40.00	-18.98	Q	H
172.7600	33.40	-11.35	22.05	40.00	-17.95	Q	H
228.5600	31.50	-10.42	21.08	40.00	-18.92	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 9
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



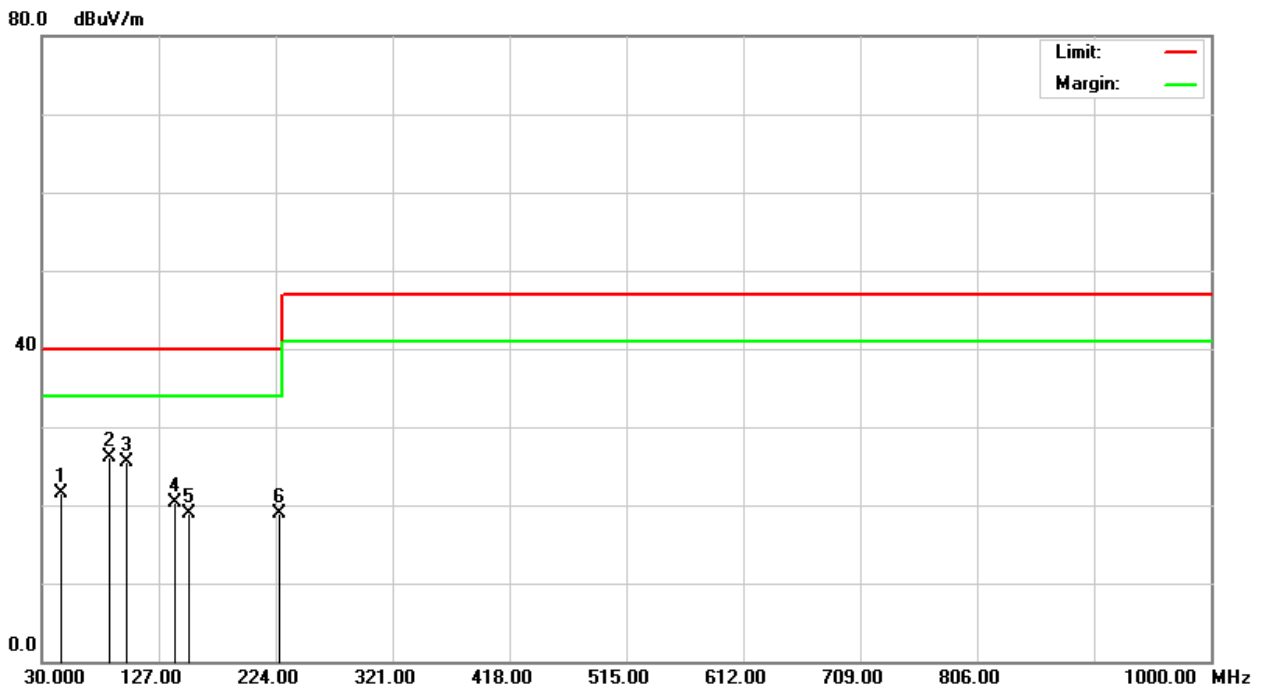
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
31.3000	31.50	-4.20	27.30	40.00	-12.70	Q	V
50.0200	38.60	-13.79	24.81	40.00	-15.19	Q	V
87.2400	42.50	-13.20	29.30	40.00	-10.70	Q	V
101.1800	37.90	-10.50	27.40	40.00	-12.60	Q	V
166.6000	29.50	-11.22	18.28	40.00	-21.72	Q	V
207.3000	30.50	-11.28	19.22	40.00	-20.78	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 9
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



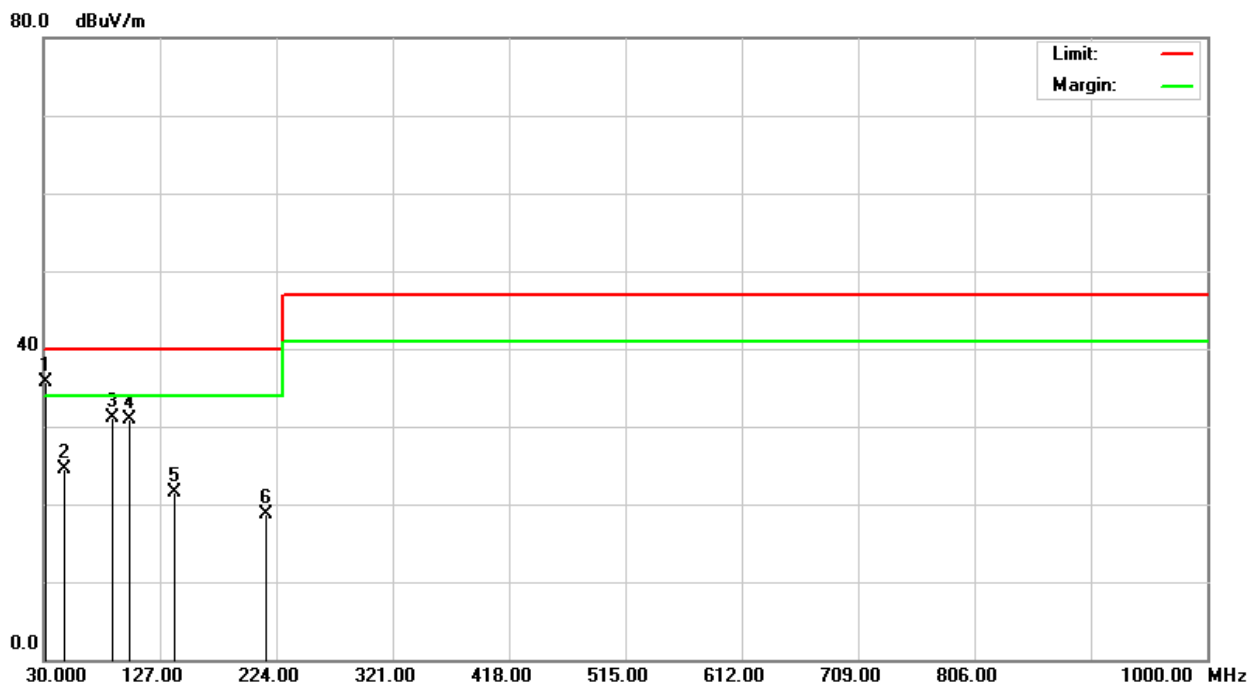
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.2000	33.50	-12.06	21.44	40.00	-18.56	Q	H
85.7699	39.60	-13.51	26.09	40.00	-13.91	Q	H
100.3600	36.20	-10.61	25.59	40.00	-14.41	Q	H
141.1600	30.50	-10.10	20.40	40.00	-19.60	Q	H
152.6000	29.70	-10.79	18.91	40.00	-21.09	Q	H
226.6000	29.50	-10.63	18.87	40.00	-21.13	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 10
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



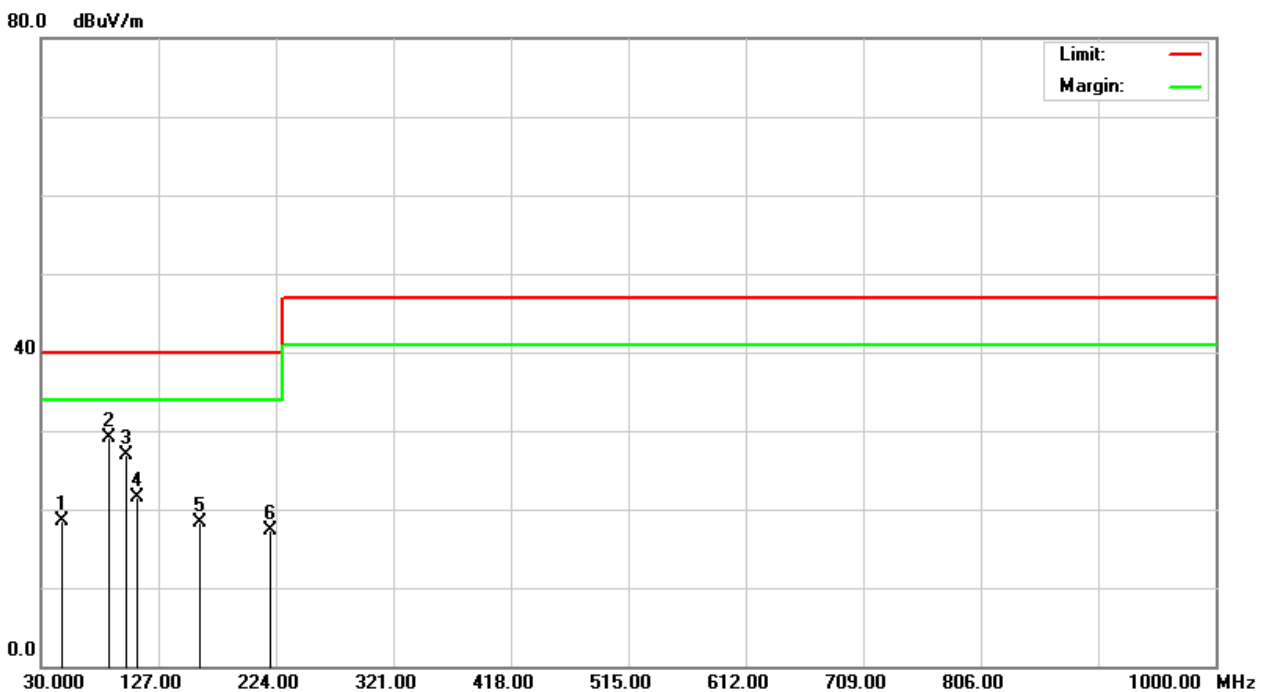
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
31.8000	40.10	-4.45	35.65	40.00	-4.35	Q	V
47.0600	37.00	-12.45	24.55	40.00	-15.45	Q	V
87.2400	44.30	-13.20	31.10	40.00	-8.90	Q	V
101.1400	41.40	-10.50	30.90	40.00	-9.10	Q	V
138.9000	31.50	-9.93	21.57	40.00	-18.43	Q	V
215.3000	30.00	-11.30	18.70	40.00	-21.30	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 10
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



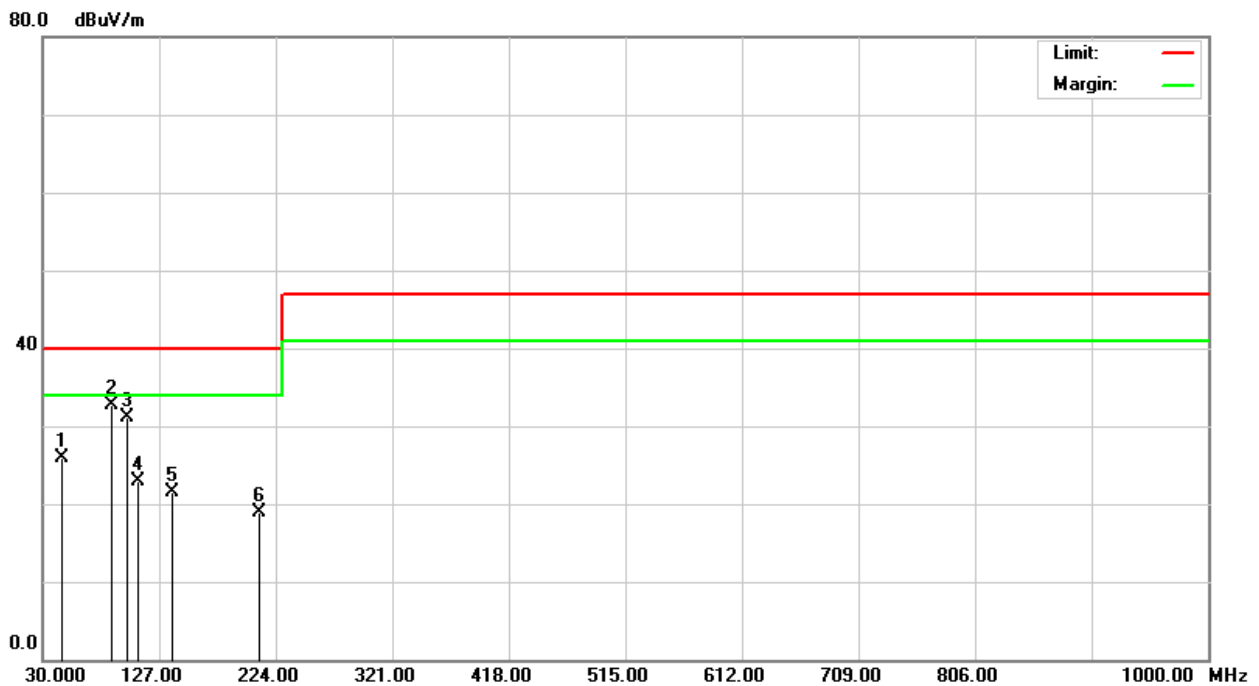
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.3900	31.20	-12.60	18.60	40.00	-21.40	Q	H
86.5899	42.50	-13.34	29.16	40.00	-10.84	Q	H
100.1400	37.50	-10.63	26.87	40.00	-13.13	Q	H
109.6000	31.20	-9.64	21.56	40.00	-18.44	Q	H
161.5000	29.50	-11.12	18.38	40.00	-21.62	Q	H
219.2000	28.70	-11.31	17.39	40.00	-22.61	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 11
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



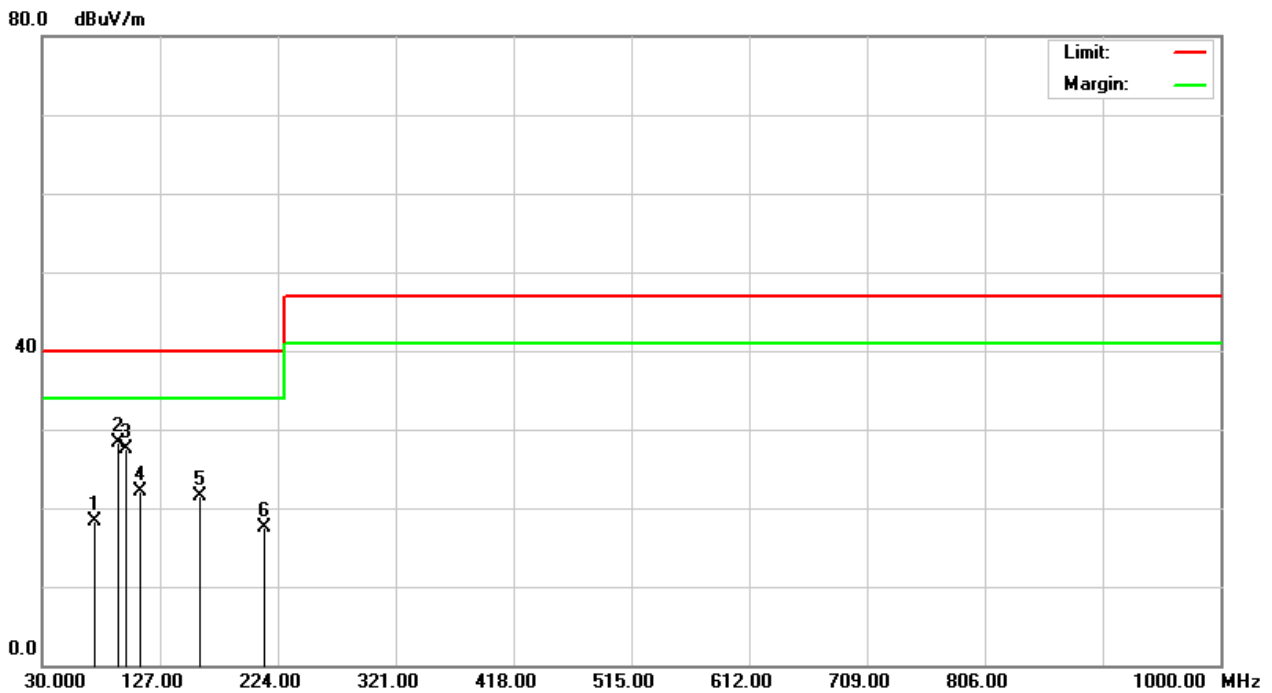
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.7000	38.20	-12.28	25.92	40.00	-14.08	Q	V
87.2400	45.90	-13.20	32.70	40.00	-7.30	Q	V
100.2000	41.80	-10.63	31.17	40.00	-8.83	Q	V
109.7000	32.50	-9.63	22.87	40.00	-17.13	Q	V
137.9000	31.40	-9.88	21.52	40.00	-18.48	Q	V
210.8000	30.20	-11.30	18.90	40.00	-21.10	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 11
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



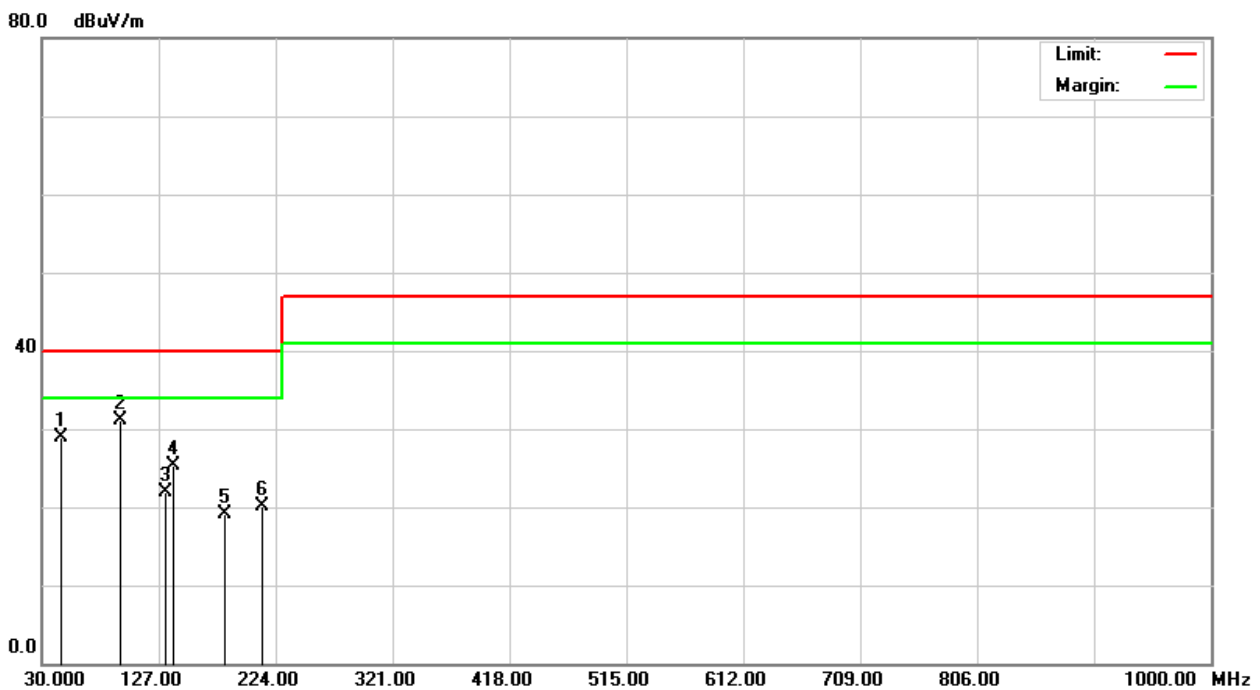
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
73.1400	33.50	-15.28	18.22	40.00	-21.78	Q	H
92.4000	40.50	-12.12	28.38	40.00	-11.62	Q	H
99.2200	38.20	-10.79	27.41	40.00	-12.59	Q	H
111.3500	31.60	-9.53	22.07	40.00	-17.93	Q	H
160.2500	32.70	-11.10	21.60	40.00	-18.40	Q	H
212.4500	28.90	-11.30	17.60	40.00	-22.40	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 12
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



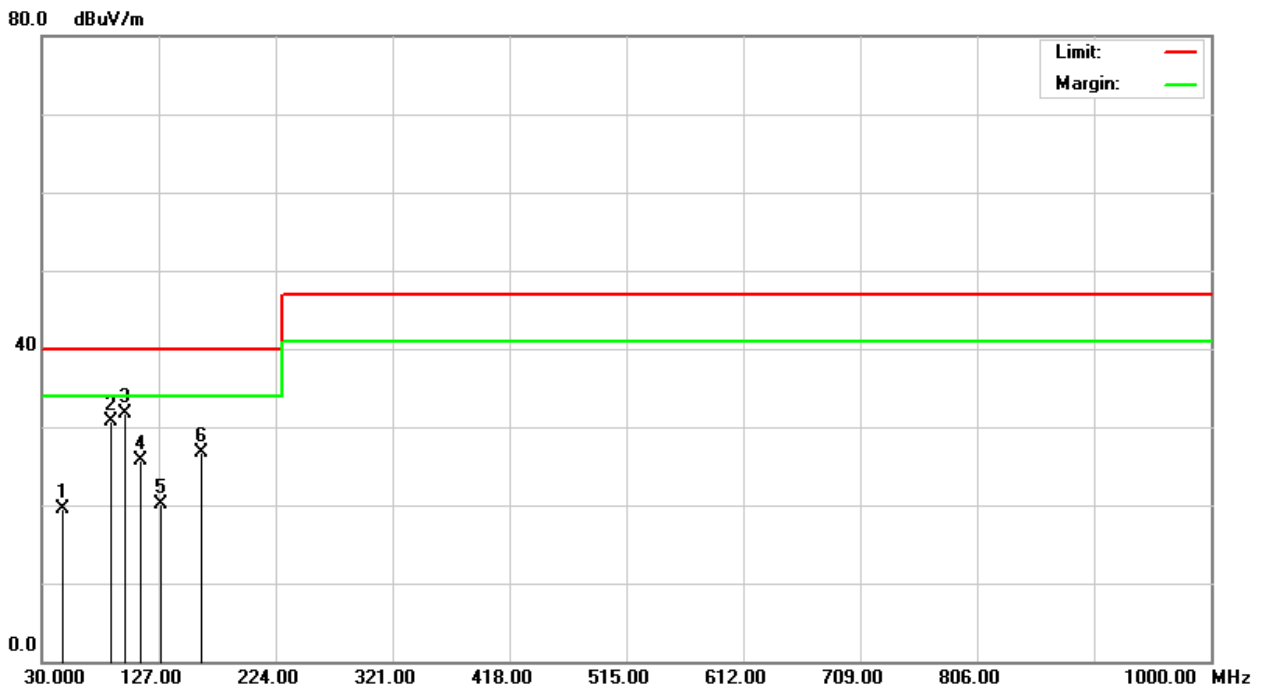
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.6500	41.20	-12.26	28.94	40.00	-11.06	Q	V
95.5300	42.60	-11.49	31.11	40.00	-8.89	Q	V
132.6000	31.50	-9.57	21.93	40.00	-18.07	Q	V
139.2000	35.20	-9.95	25.25	40.00	-14.75	Q	V
182.6000	30.70	-11.64	19.06	40.00	-20.94	Q	V
213.2000	31.50	-11.31	20.19	40.00	-19.81	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A24K	Test Mode	Mode 12
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



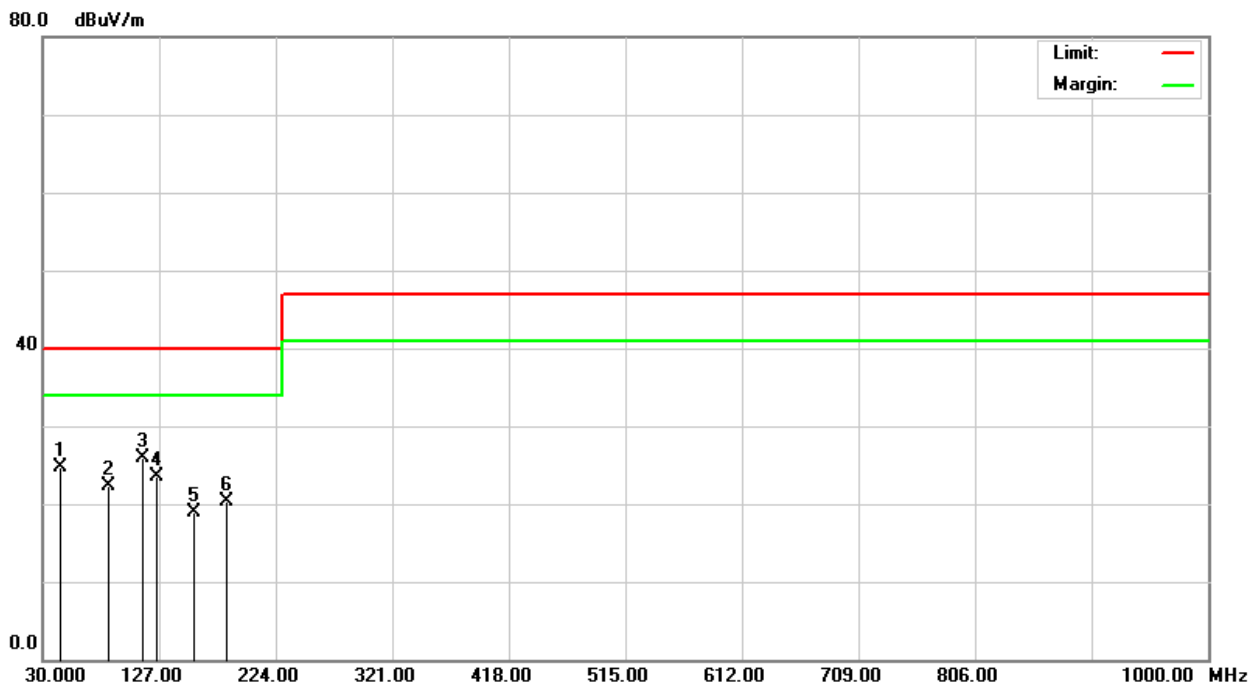
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
48.0500	32.50	-12.90	19.60	40.00	-20.40	Q	H
87.5700	43.90	-13.14	30.76	40.00	-9.24	Q	H
99.3800	42.50	-10.77	31.73	40.00	-8.27	Q	H
111.8000	35.20	-9.51	25.69	40.00	-14.31	Q	H
129.2000	29.60	-9.42	20.18	40.00	-19.82	Q	H
162.2000	37.80	-11.13	26.67	40.00	-13.33	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 13
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



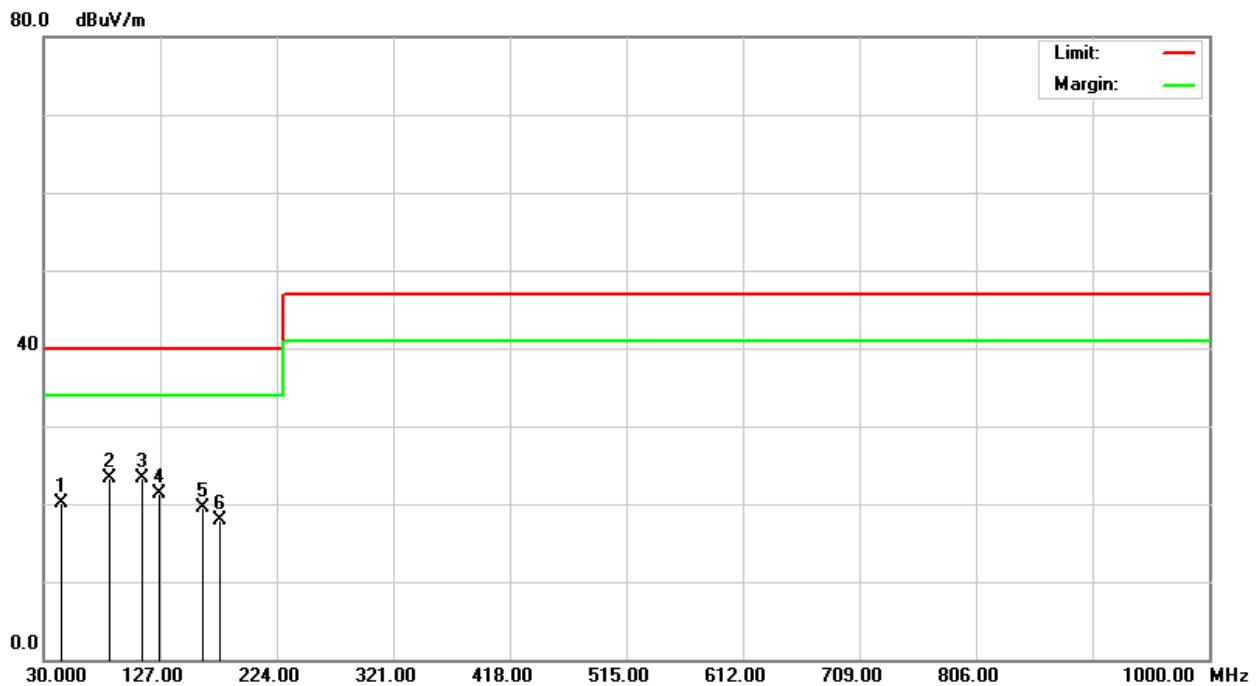
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
45.4600	36.50	-11.73	24.77	40.00	-15.23	Q	V
85.4600	35.80	-13.57	22.23	40.00	-17.77	Q	V
113.4200	35.40	-9.43	25.97	40.00	-14.03	Q	V
125.0300	32.80	-9.29	23.51	40.00	-16.49	Q	V
156.7000	29.80	-10.96	18.84	40.00	-21.16	Q	V
182.6400	31.90	-11.64	20.26	40.00	-19.74	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 13
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



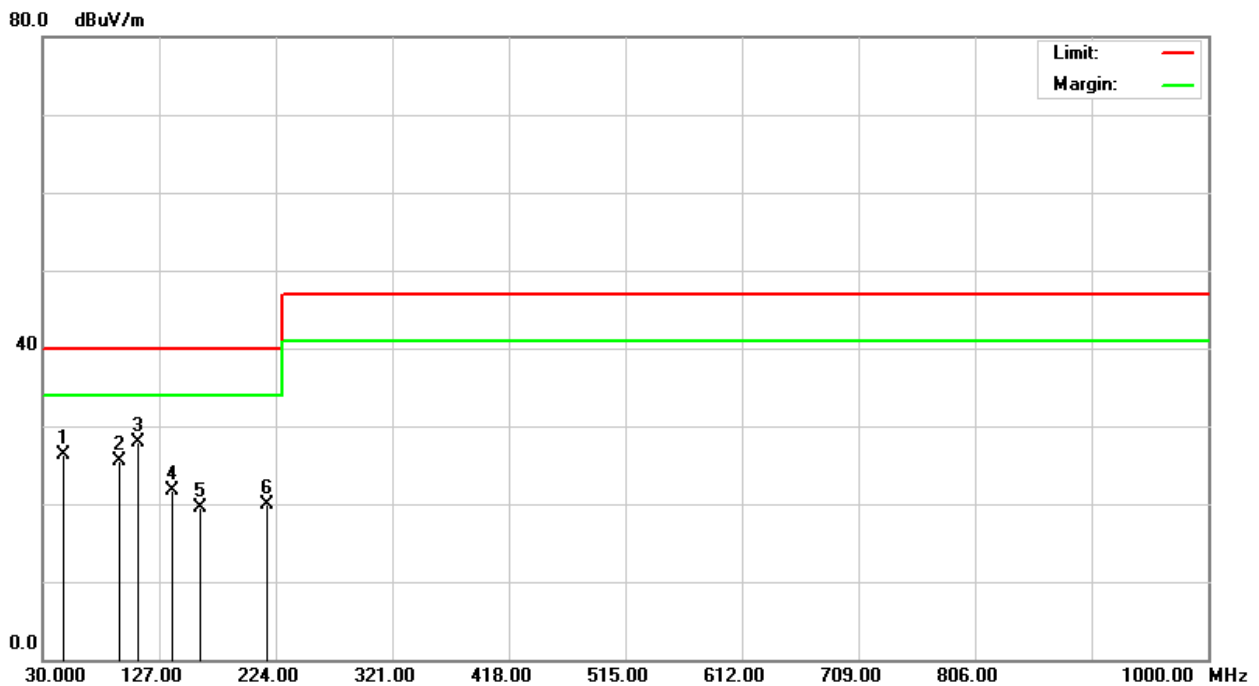
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
45.2599	31.80	-11.64	20.16	40.00	-19.84	Q	H
85.2000	36.90	-13.62	23.28	40.00	-16.72	Q	H
112.4000	32.80	-9.47	23.33	40.00	-16.67	Q	H
126.4200	30.70	-9.33	21.37	40.00	-18.63	Q	H
162.4000	30.70	-11.13	19.57	40.00	-20.43	Q	H
177.2600	29.40	-11.48	17.92	40.00	-22.08	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 14
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



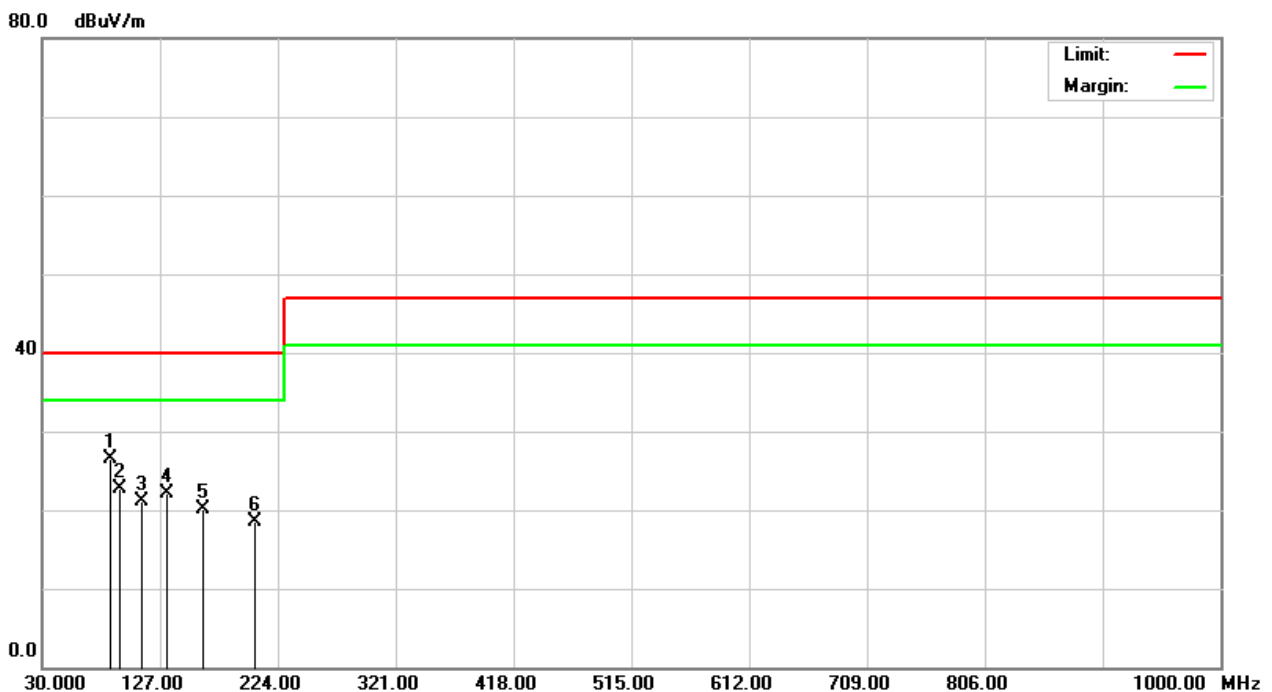
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.8200	38.70	-12.34	26.36	40.00	-13.64	Q	V
93.9900	37.30	-11.80	25.50	40.00	-14.50	Q	V
109.0200	37.60	-9.68	27.92	40.00	-12.08	Q	V
138.4000	31.60	-9.91	21.69	40.00	-18.31	Q	V
161.5000	30.70	-11.12	19.58	40.00	-20.42	Q	V
216.5000	31.20	-11.31	19.89	40.00	-20.11	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 14
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



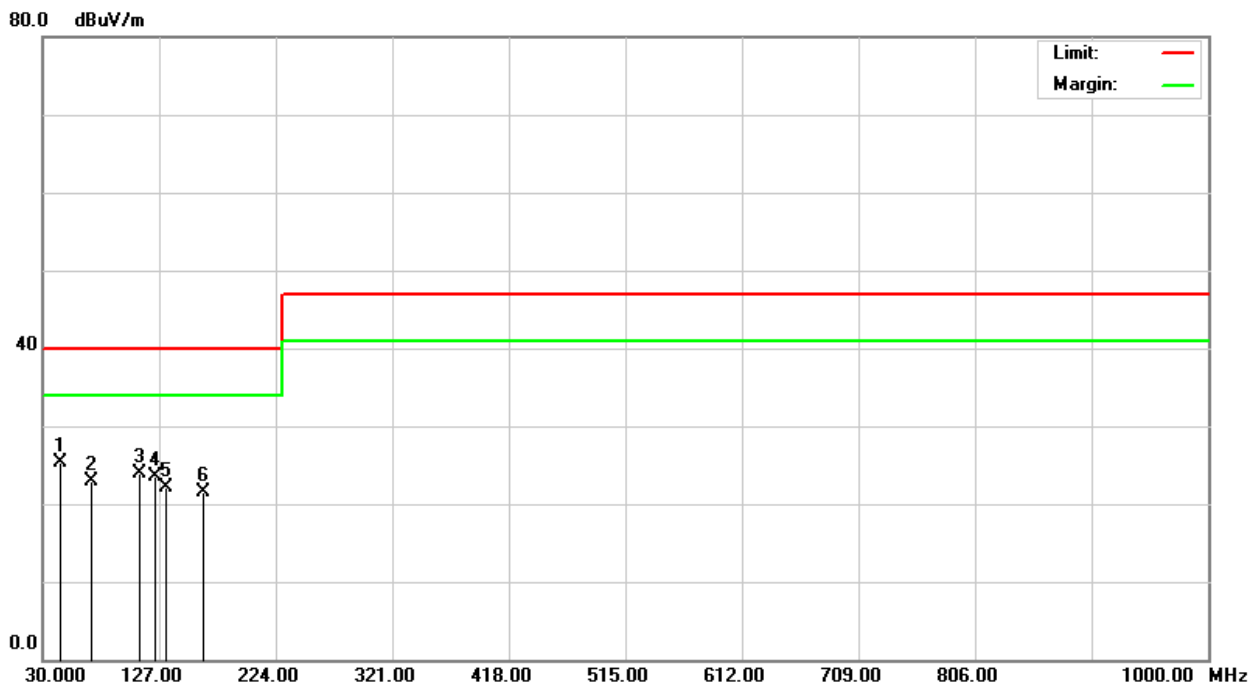
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
86.7500	39.80	-13.31	26.49	40.00	-13.51	Q	H
94.6300	34.40	-11.66	22.74	40.00	-17.26	Q	H
112.2000	30.49	-9.48	21.01	40.00	-18.99	Q	H
132.6000	31.70	-9.57	22.13	40.00	-17.87	Q	H
162.4500	31.20	-11.13	20.07	40.00	-19.93	Q	H
204.6000	29.80	-11.28	18.52	40.00	-21.48	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 15
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



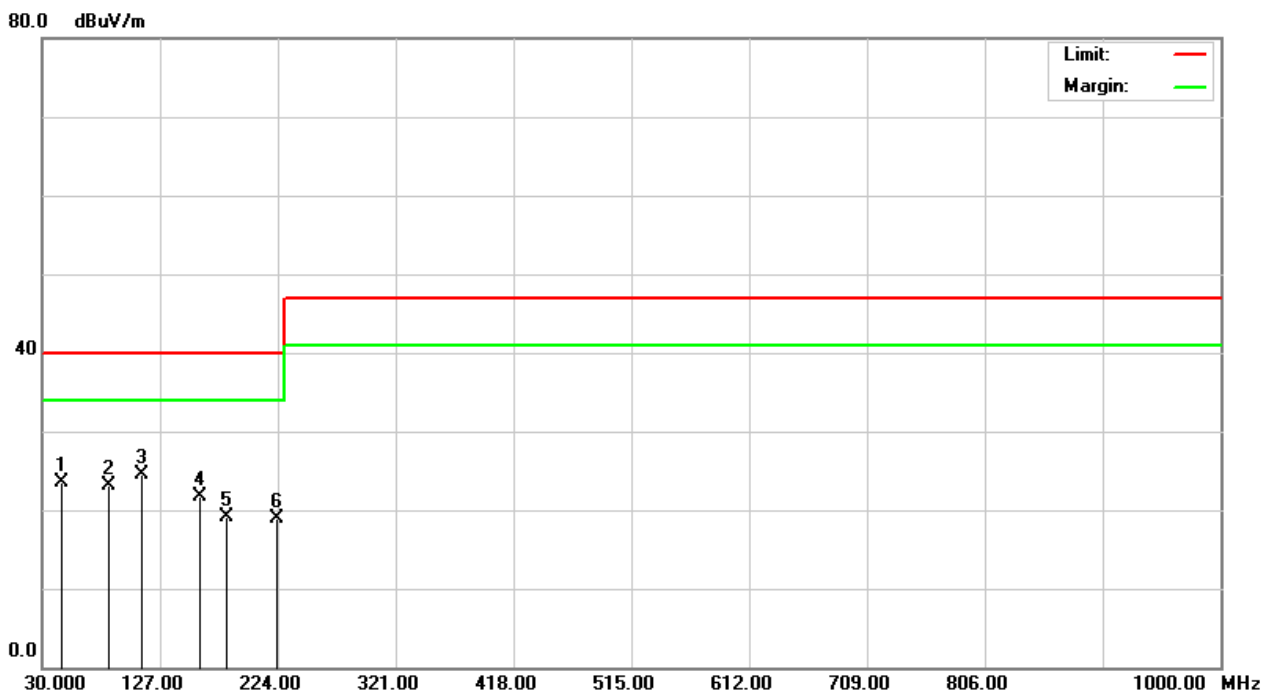
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
44.8000	36.80	-11.41	25.39	40.00	-14.61	Q	V
71.2500	38.40	-15.41	22.99	40.00	-17.01	Q	V
110.2000	33.50	-9.59	23.91	40.00	-16.09	Q	V
123.5000	32.80	-9.28	23.52	40.00	-16.48	Q	V
133.2000	31.70	-9.61	22.09	40.00	-17.91	Q	V
163.4000	32.70	-11.16	21.54	40.00	-18.46	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 15
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



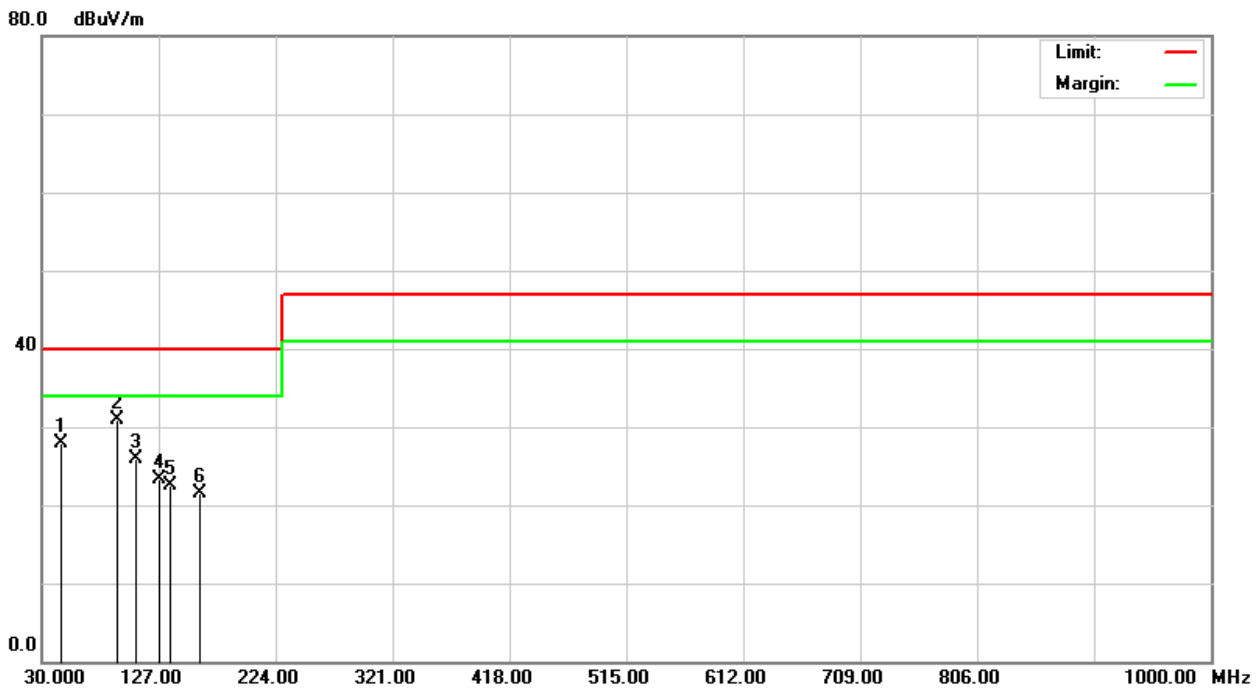
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.2300	35.60	-12.08	23.52	40.00	-16.48	Q	H
85.6000	36.70	-13.54	23.16	40.00	-16.84	Q	H
112.4000	33.90	-9.47	24.43	40.00	-15.57	Q	H
159.6000	32.70	-11.07	21.63	40.00	-18.37	Q	H
182.6000	30.70	-11.64	19.06	40.00	-20.94	Q	H
223.4000	29.80	-10.96	18.84	40.00	-21.16	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 16
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



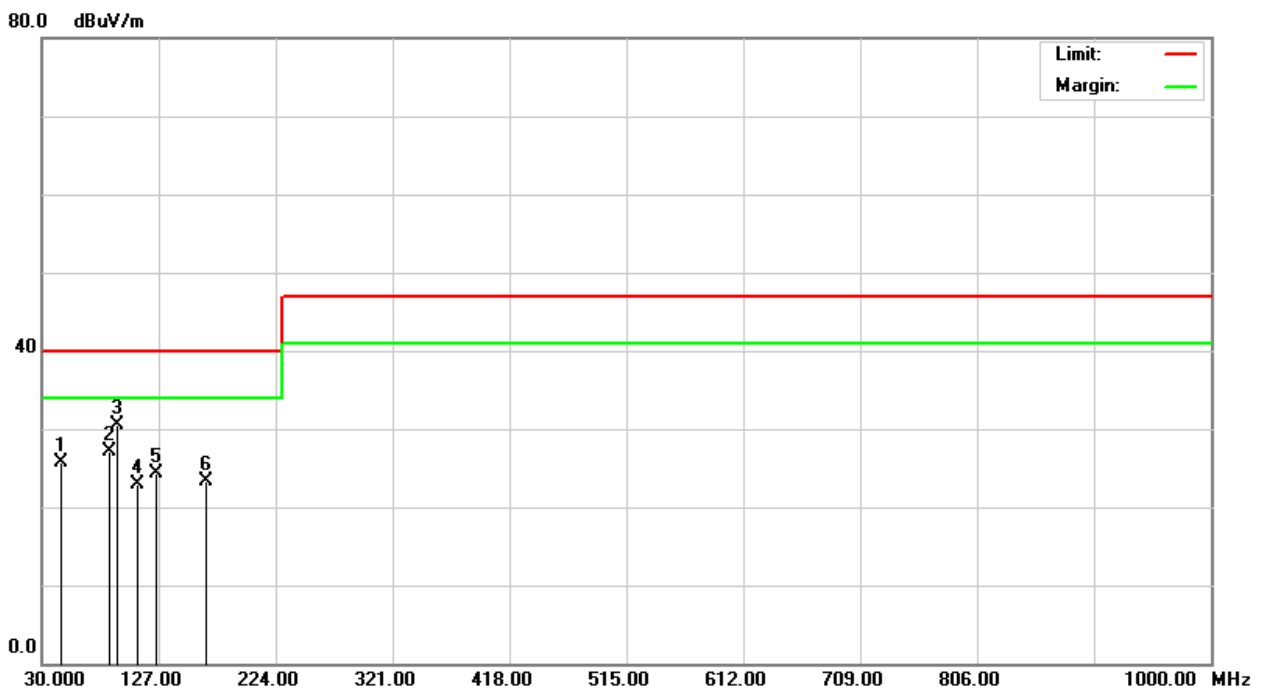
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.7900	40.20	-12.32	27.88	40.00	-12.12	Q	V
92.4300	43.10	-12.12	30.98	40.00	-9.02	Q	V
108.7600	35.71	-9.71	26.00	40.00	-14.00	Q	V
128.1000	32.60	-9.38	23.22	40.00	-16.78	Q	V
136.9000	32.40	-9.81	22.59	40.00	-17.41	Q	V
161.9000	32.70	-11.12	21.58	40.00	-18.42	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A30K	Test Mode	Mode 16
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



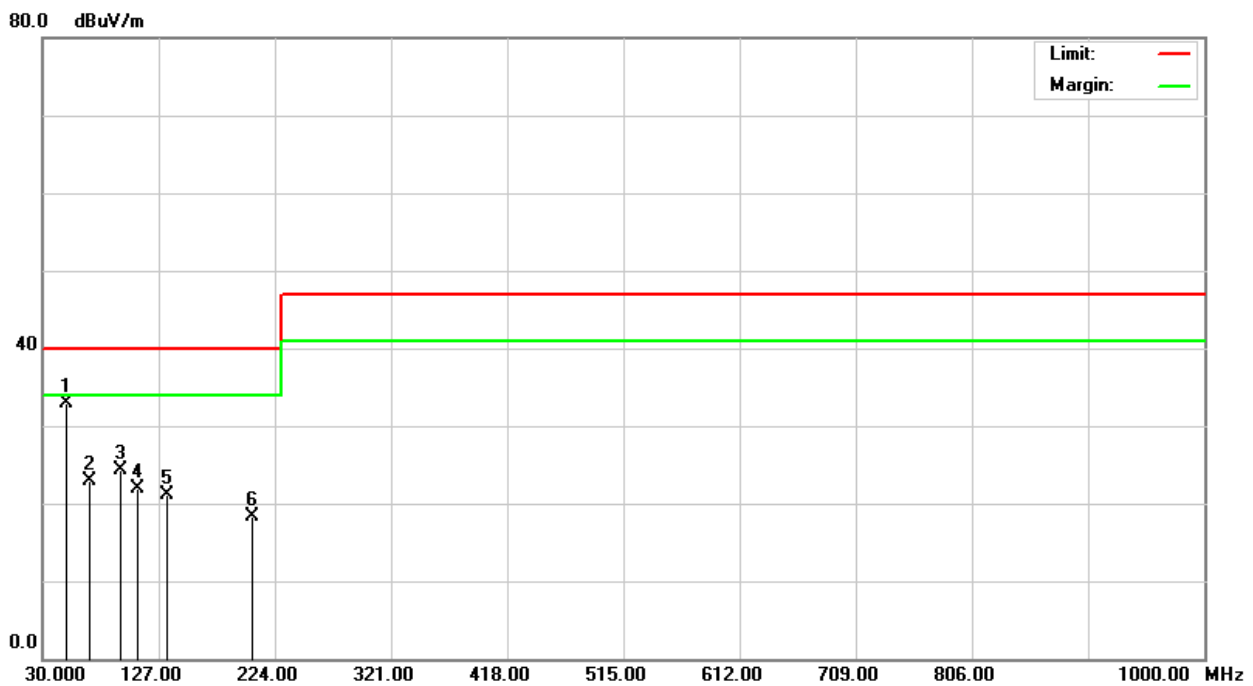
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.2000	37.80	-12.06	25.74	40.00	-14.26	Q	H
86.7500	40.50	-13.31	27.19	40.00	-12.81	Q	H
92.4200	42.70	-12.12	30.58	40.00	-9.42	Q	H
108.9000	32.50	-9.69	22.81	40.00	-17.19	Q	H
125.6400	33.70	-9.31	24.39	40.00	-15.61	Q	H
166.4200	34.60	-11.21	23.39	40.00	-16.61	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 17
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



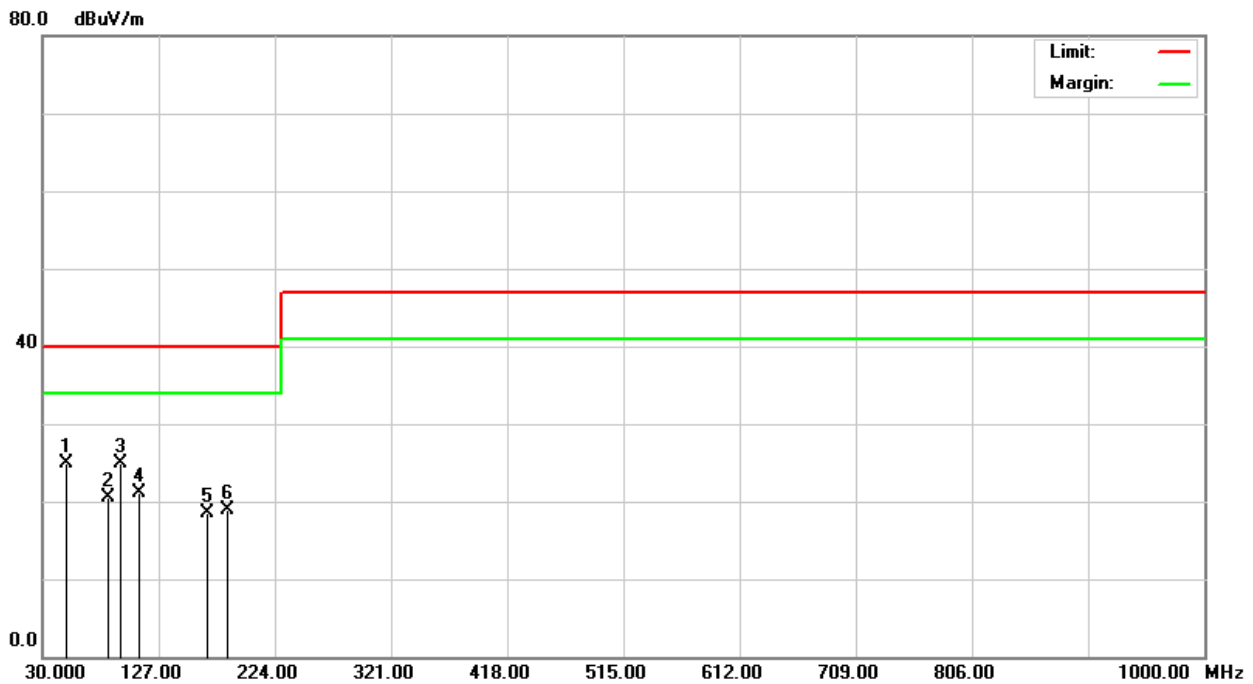
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
49.9300	46.60	-13.75	32.85	40.00	-7.15	Q	V
69.6100	38.40	-15.50	22.90	40.00	-17.10	Q	V
95.3600	35.80	-11.52	24.28	40.00	-15.72	Q	V
109.7900	31.50	-9.63	21.87	40.00	-18.13	Q	V
134.6500	30.70	-9.67	21.03	40.00	-18.97	Q	V
204.9200	29.50	-11.28	18.22	40.00	-21.78	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 17
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



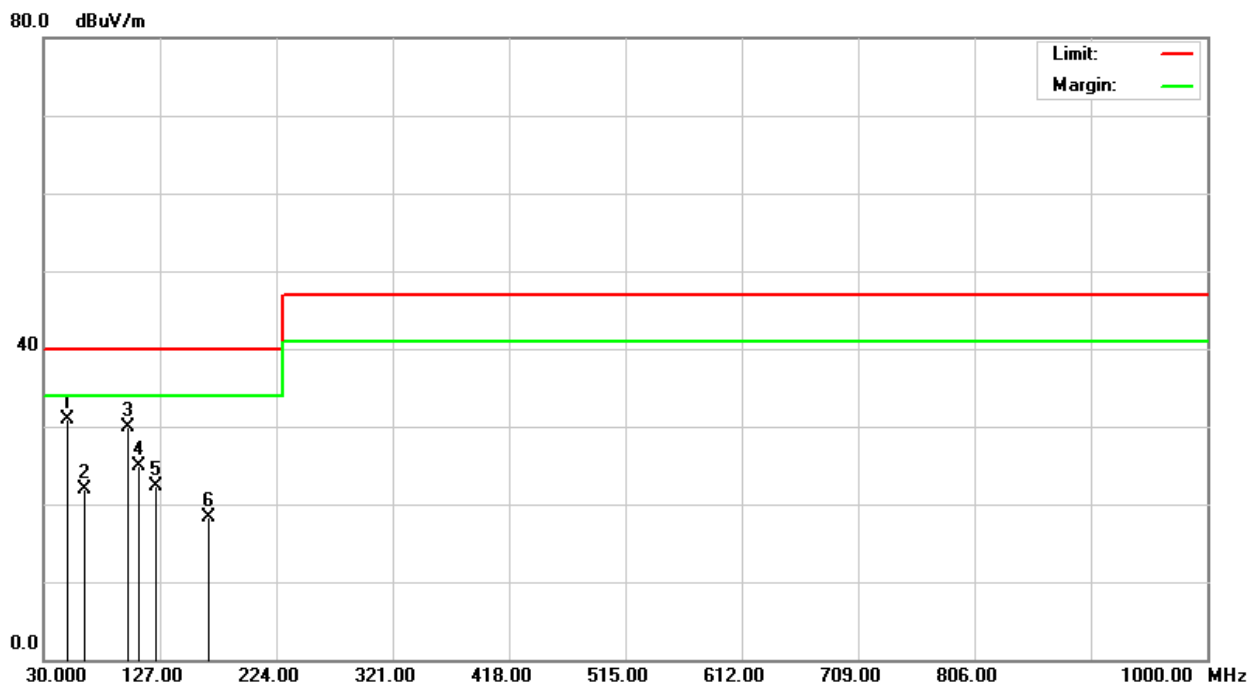
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
49.5200	38.40	-13.56	24.84	40.00	-15.16	Q	H
85.2800	34.10	-13.61	20.49	40.00	-19.51	Q	H
95.2800	36.40	-11.53	24.87	40.00	-15.13	Q	H
111.2000	30.60	-9.55	21.05	40.00	-18.95	Q	H
168.2000	29.80	-11.24	18.56	40.00	-21.44	Q	H
184.7600	30.50	-11.69	18.81	40.00	-21.19	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 18
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



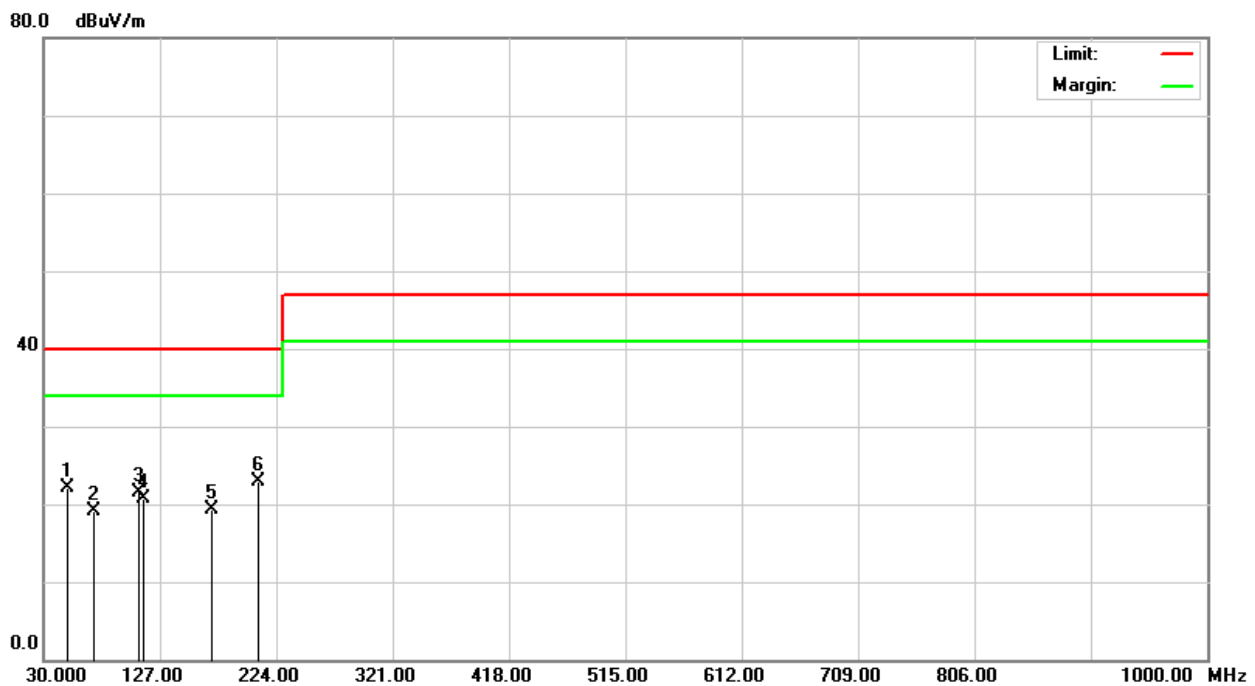
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
49.8500	44.60	-13.71	30.89	40.00	-9.11	Q	V
63.6300	37.50	-15.67	21.83	40.00	-18.17	Q	V
100.0400	40.50	-10.65	29.85	40.00	-10.15	Q	V
109.1000	34.60	-9.67	24.93	40.00	-15.07	Q	V
123.5000	31.60	-9.28	22.32	40.00	-17.68	Q	V
168.2000	29.60	-11.24	18.36	40.00	-21.64	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 18
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



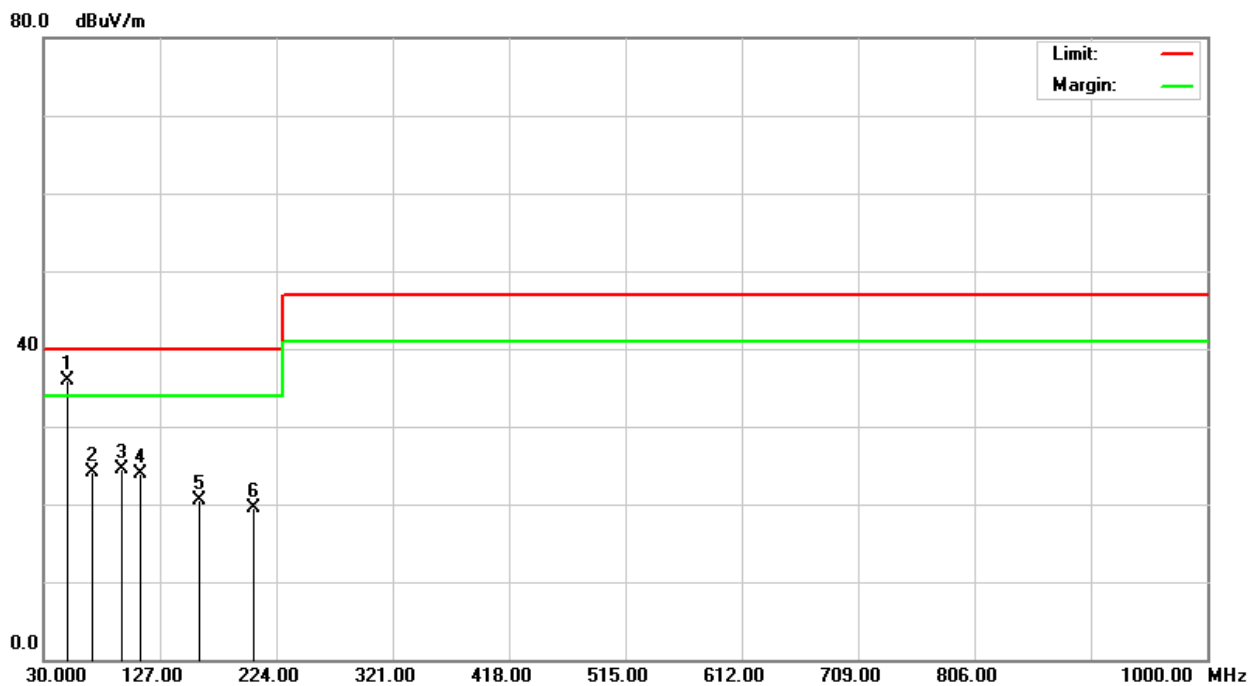
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
50.0200	35.80	-13.79	22.01	40.00	-17.99	Q	H
71.5000	34.50	-15.40	19.10	40.00	-20.90	Q	H
109.6000	31.20	-9.64	21.56	40.00	-18.44	Q	H
113.8600	30.20	-9.40	20.80	40.00	-19.20	Q	H
170.8000	30.60	-11.29	19.31	40.00	-20.69	Q	H
208.9600	34.20	-11.29	22.91	40.00	-17.09	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 19
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



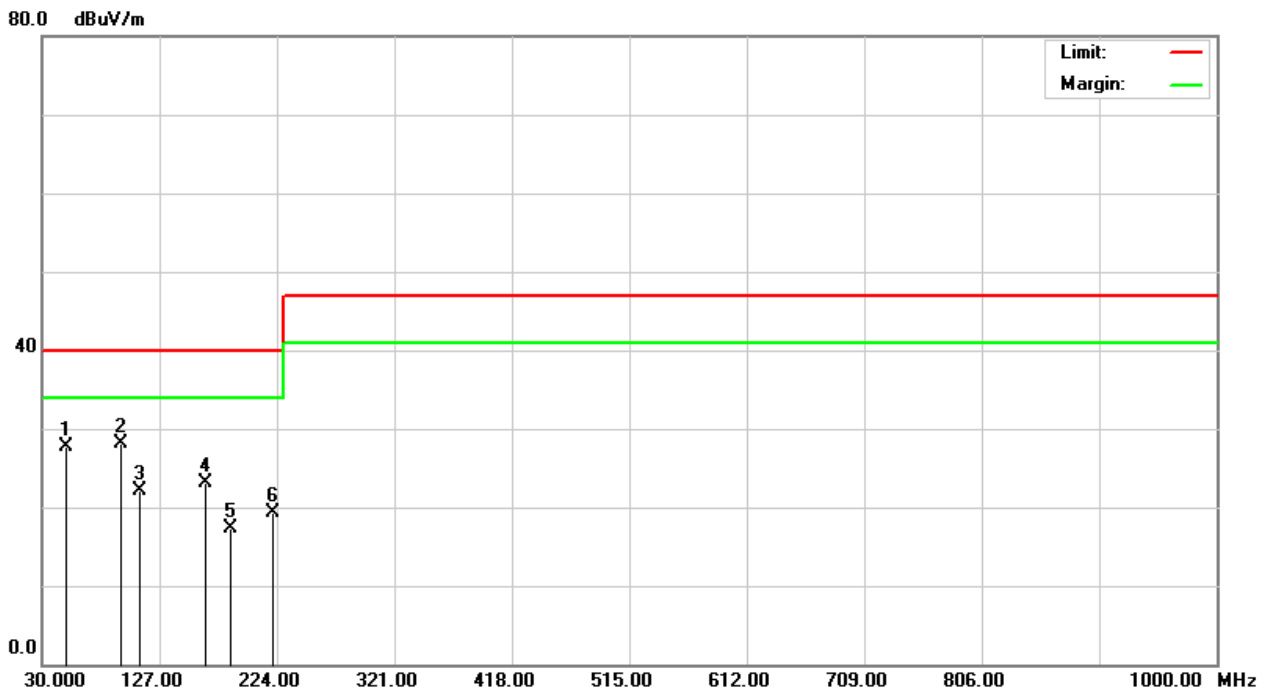
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
49.9300	49.60	-13.75	35.85	40.00	-4.15	Q	V
70.6000	39.50	-15.45	24.05	40.00	-15.95	Q	V
95.5300	35.90	-11.49	24.41	40.00	-15.59	Q	V
110.2900	33.40	-9.59	23.81	40.00	-16.19	Q	V
159.7000	31.50	-11.08	20.42	40.00	-19.58	Q	V
204.6100	30.70	-11.28	19.42	40.00	-20.58	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 19
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



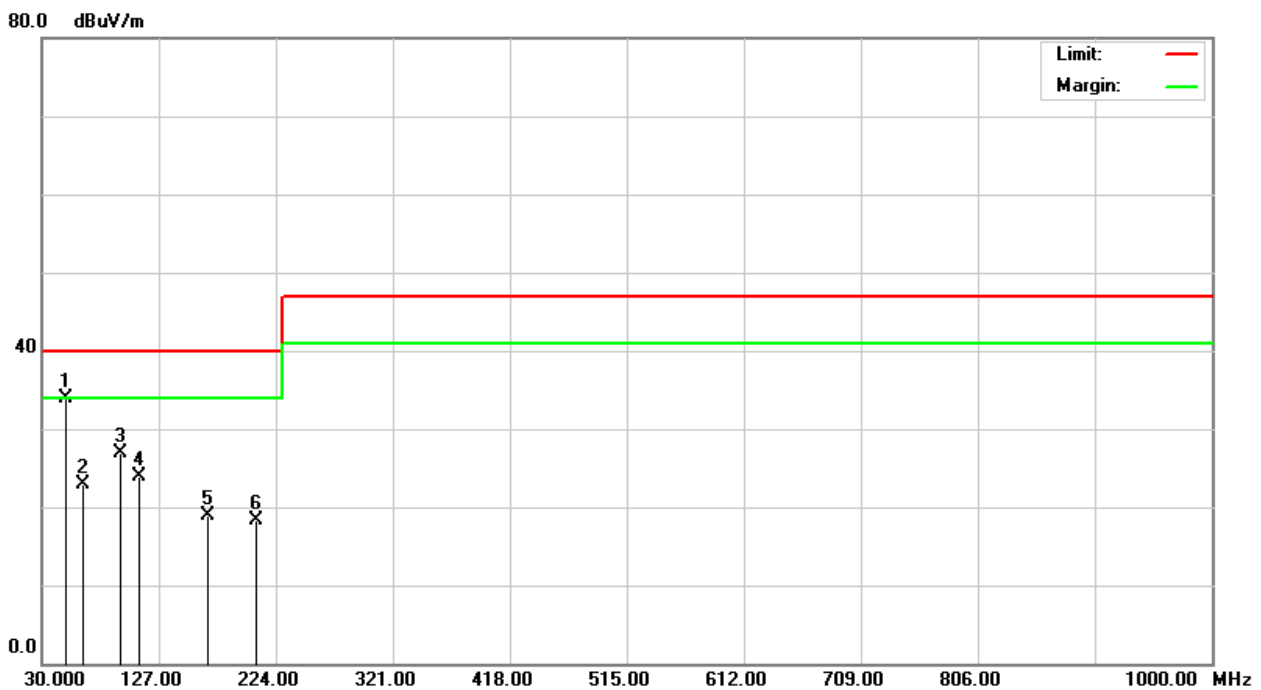
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
50.1800	41.60	-13.83	27.77	40.00	-12.23	Q	H
95.1200	39.60	-11.56	28.04	40.00	-11.96	Q	H
110.2500	31.60	-9.59	22.01	40.00	-17.99	Q	H
165.7500	34.20	-11.19	23.01	40.00	-16.99	Q	H
186.4000	29.07	-11.70	17.37	40.00	-22.63	Q	H
220.5400	30.60	-11.27	19.33	40.00	-20.67	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 20
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



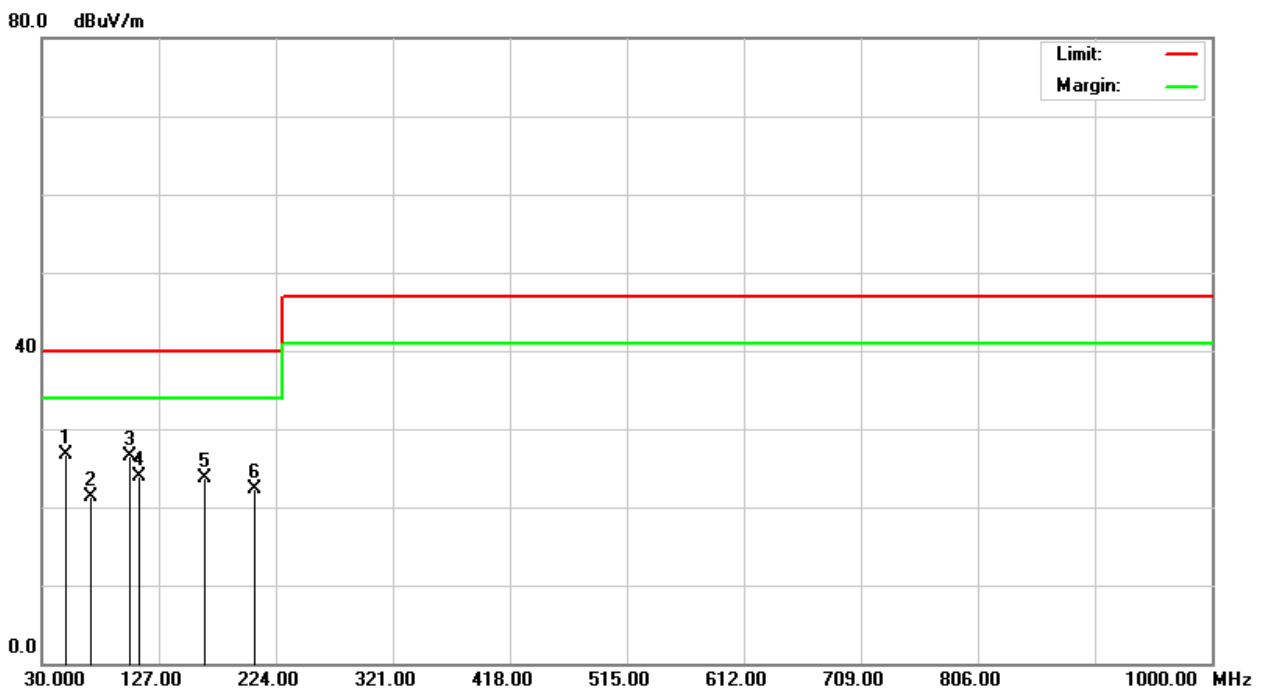
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
50.0099	47.70	-13.78	33.92	40.00	-6.08	Q	V
63.8800	38.50	-15.67	22.83	40.00	-17.17	Q	V
95.5300	38.40	-11.49	26.91	40.00	-13.09	Q	V
110.6000	33.40	-9.57	23.83	40.00	-16.17	Q	V
167.6100	30.20	-11.23	18.97	40.00	-21.03	Q	V
208.1000	29.60	-11.28	18.32	40.00	-21.68	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A36K	Test Mode	Mode 20
Environmental Conditions	31°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



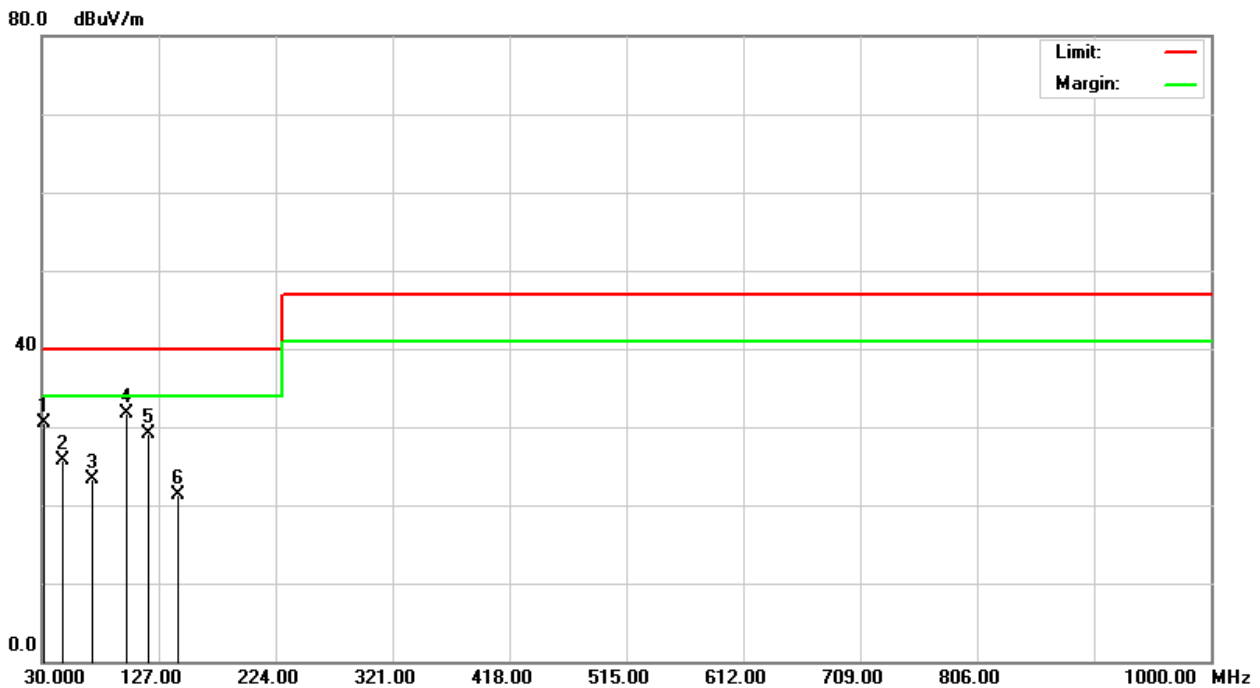
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
50.3000	40.50	-13.86	26.64	40.00	-13.36	Q	H
70.3300	36.80	-15.47	21.33	40.00	-18.67	Q	H
102.6600	36.80	-10.31	26.49	40.00	-13.51	Q	H
110.3700	33.40	-9.58	23.82	40.00	-16.18	Q	H
164.6700	34.80	-11.18	23.62	40.00	-16.38	Q	H
206.4000	33.50	-11.27	22.23	40.00	-17.77	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 21
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



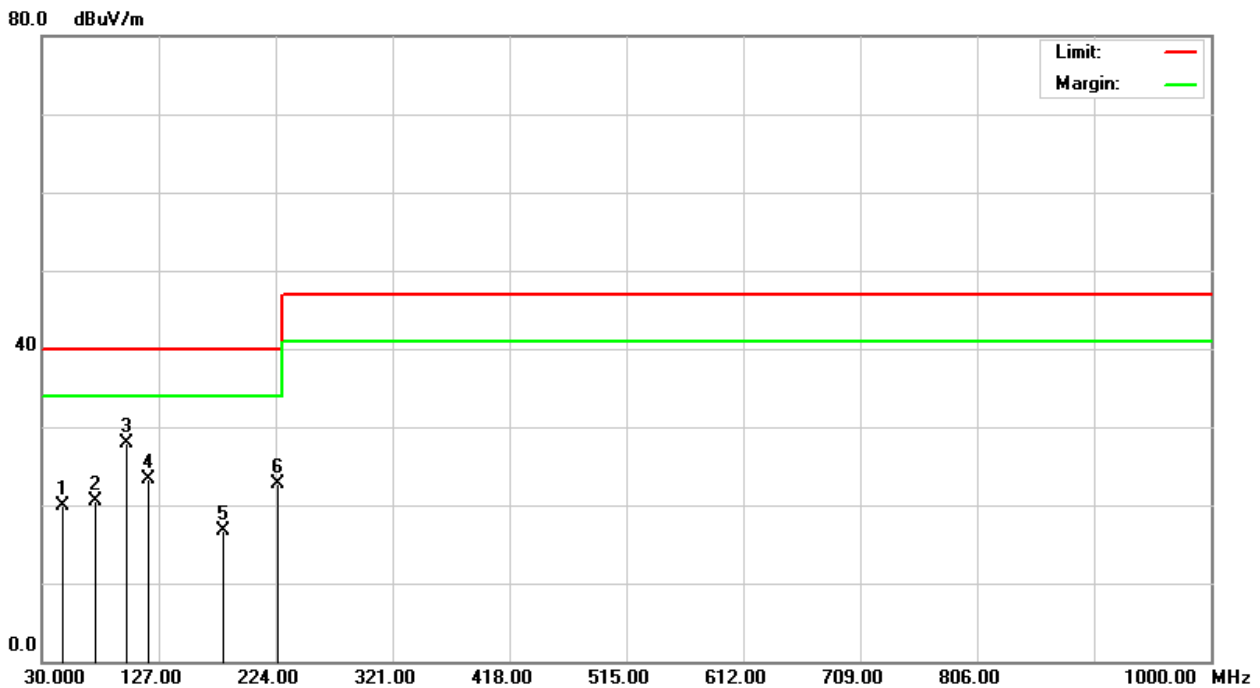
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
31.8900	35.00	-4.49	30.51	40.00	-9.49	Q	V
47.4700	38.40	-12.64	25.76	40.00	-14.24	Q	V
71.9000	38.60	-15.36	23.24	40.00	-16.76	Q	V
100.2800	42.30	-10.62	31.68	40.00	-8.32	Q	V
118.8800	38.39	-9.28	29.11	40.00	-10.89	Q	V
143.7800	31.50	-10.29	21.21	40.00	-18.79	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 21
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



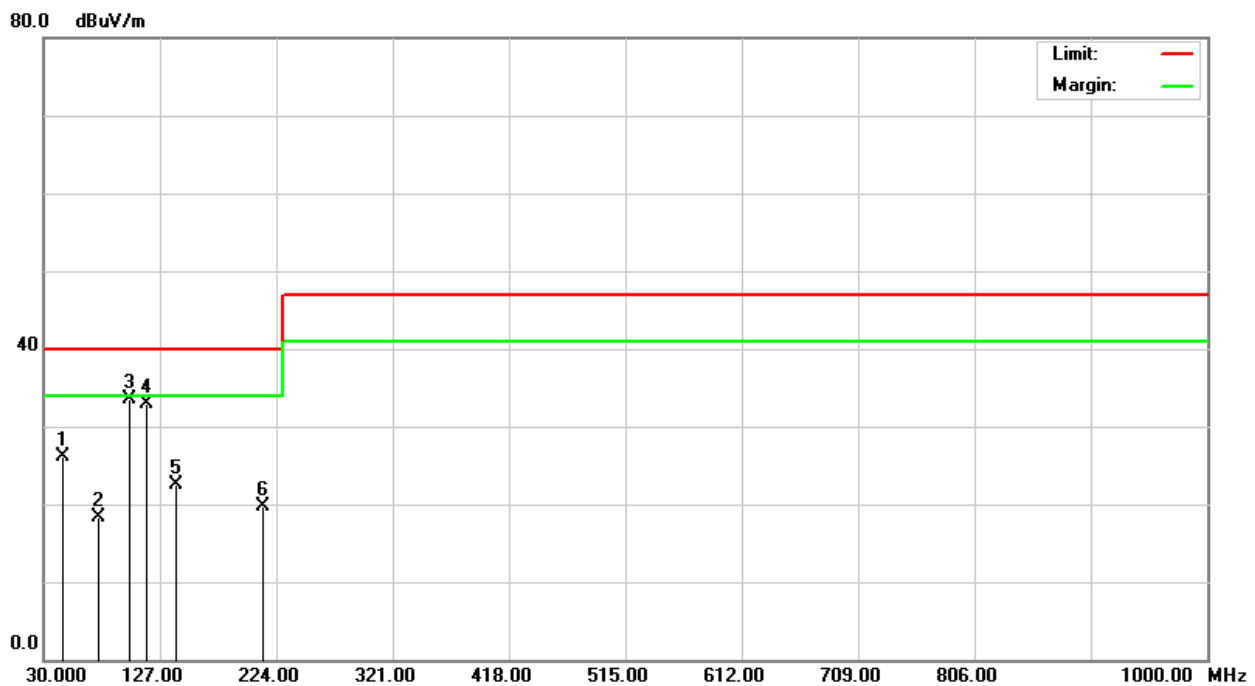
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.3100	32.50	-12.56	19.94	40.00	-20.06	Q	H
74.2000	35.80	-15.21	20.59	40.00	-19.41	Q	H
101.1000	38.39	-10.51	27.88	40.00	-12.12	Q	H
118.8000	32.50	-9.29	23.21	40.00	-16.79	Q	H
180.9000	28.40	-11.60	16.80	40.00	-23.20	Q	H
225.3000	33.40	-10.77	22.63	40.00	-17.37	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 22
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



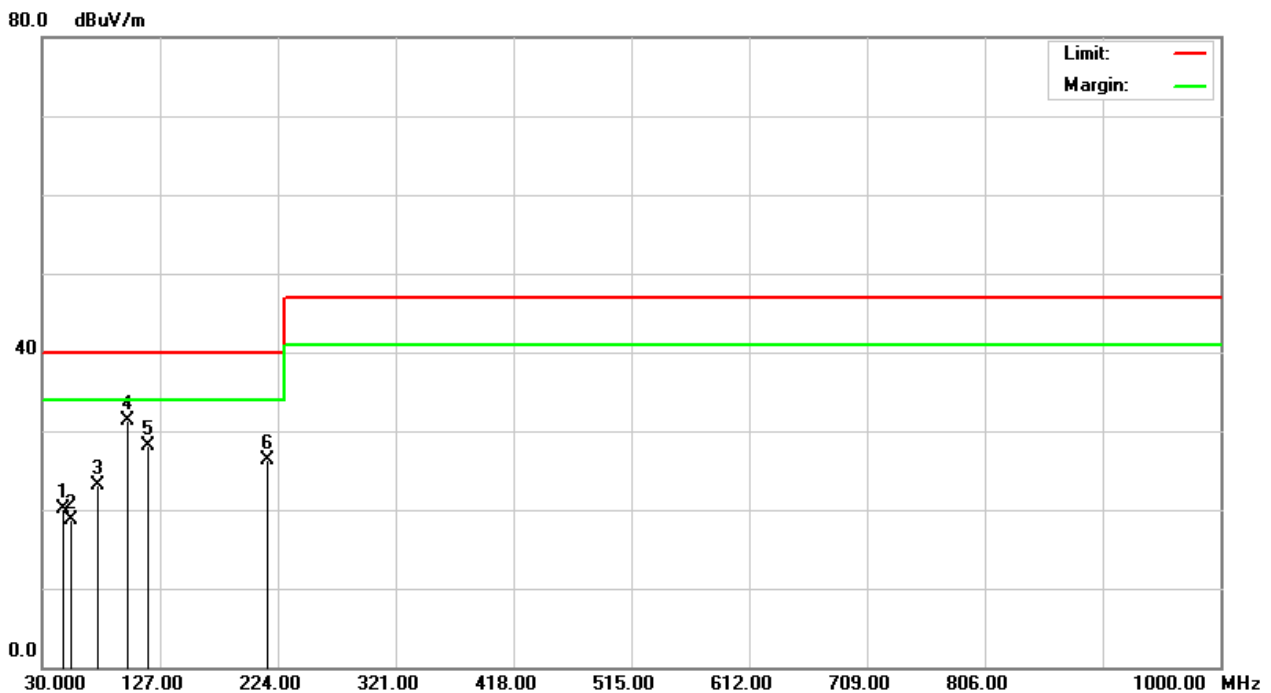
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.6000	38.30	-12.24	26.06	40.00	-13.94	Q	V
75.6000	33.40	-15.09	18.31	40.00	-21.69	Q	V
101.2699	44.00	-10.48	33.52	40.00	-6.48	Q	V
116.6500	42.29	-9.31	32.98	40.00	-7.02	Q	V
140.6500	32.50	-10.06	22.44	40.00	-17.56	Q	V
213.2500	31.00	-11.31	19.69	40.00	-20.31	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 22
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



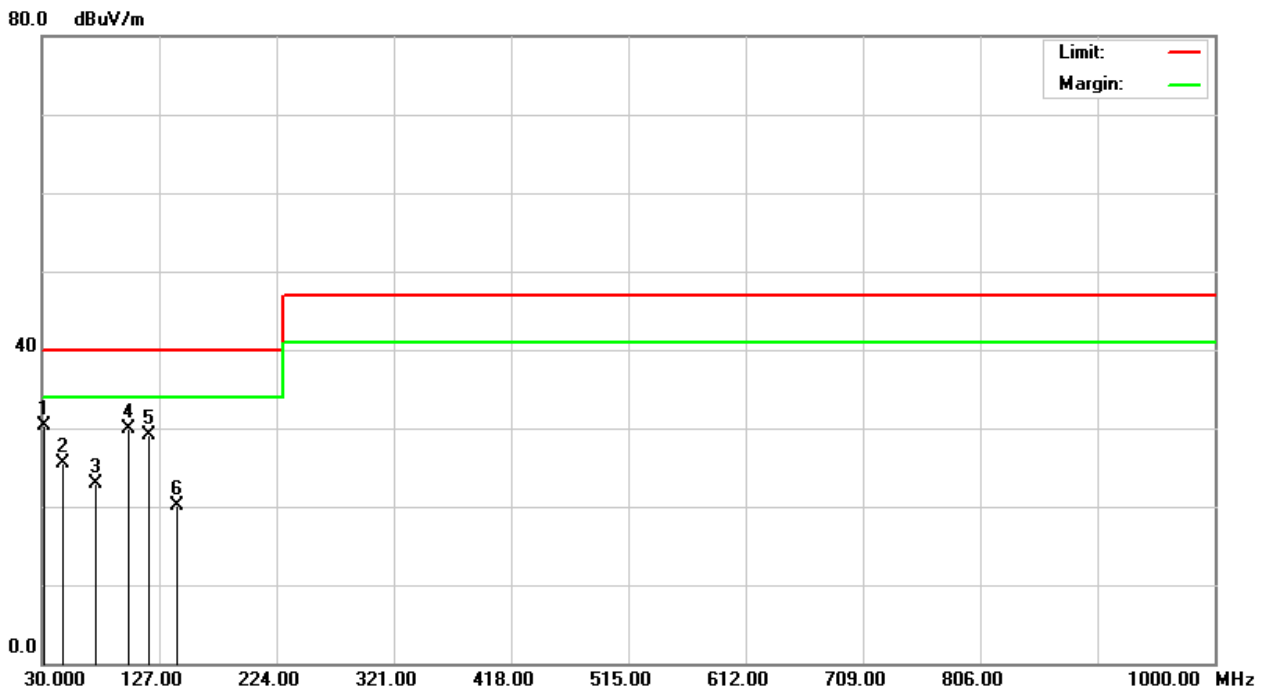
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.5000	32.80	-12.65	20.15	40.00	-19.85	Q	H
53.6000	33.40	-14.77	18.63	40.00	-21.37	Q	H
75.6000	38.10	-15.09	23.01	40.00	-16.99	Q	H
100.0400	42.00	-10.65	31.35	40.00	-8.65	Q	H
117.0500	37.50	-9.31	28.19	40.00	-11.81	Q	H
215.7500	37.60	-11.31	26.29	40.00	-13.71	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 23
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



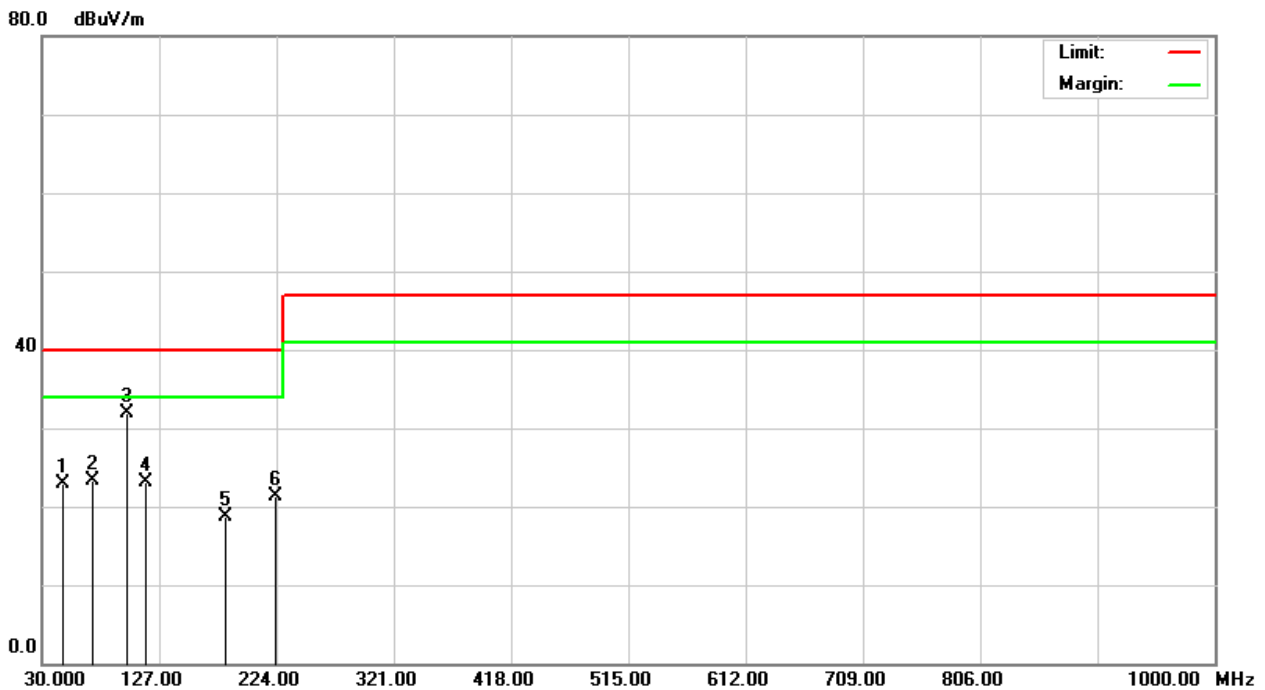
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
32.3000	35.00	-4.70	30.30	40.00	-9.70	Q	V
48.0500	38.40	-12.90	25.50	40.00	-14.50	Q	V
74.2900	38.20	-15.21	22.99	40.00	-17.01	Q	V
101.3500	40.30	-10.47	29.83	40.00	-10.17	Q	V
118.2000	38.40	-9.30	29.10	40.00	-10.90	Q	V
141.6000	30.20	-10.12	20.08	40.00	-19.92	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 23
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



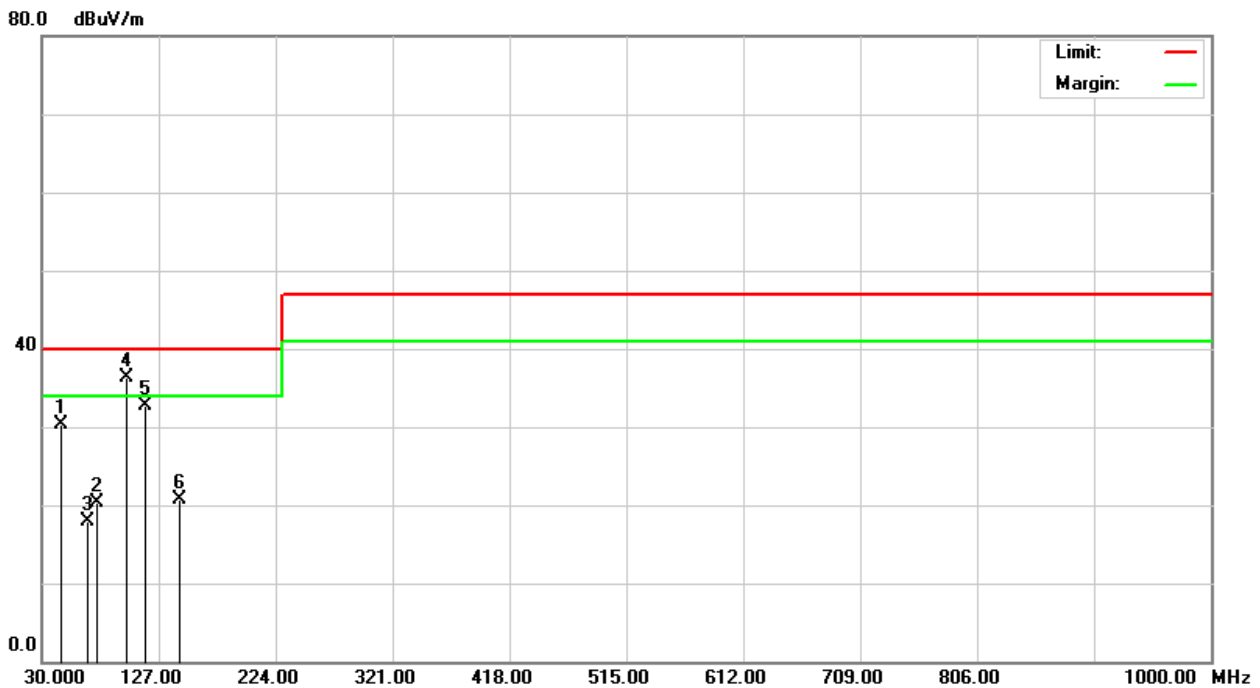
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
48.0500	35.80	-12.90	22.90	40.00	-17.10	Q	H
72.4000	38.60	-15.34	23.26	40.00	-16.74	Q	H
100.2000	42.60	-10.63	31.97	40.00	-8.03	Q	H
116.1000	32.50	-9.33	23.17	40.00	-16.83	Q	H
181.5000	30.40	-11.60	18.80	40.00	-21.20	Q	H
222.9000	32.40	-11.01	21.39	40.00	-18.61	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 24 / Worst
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



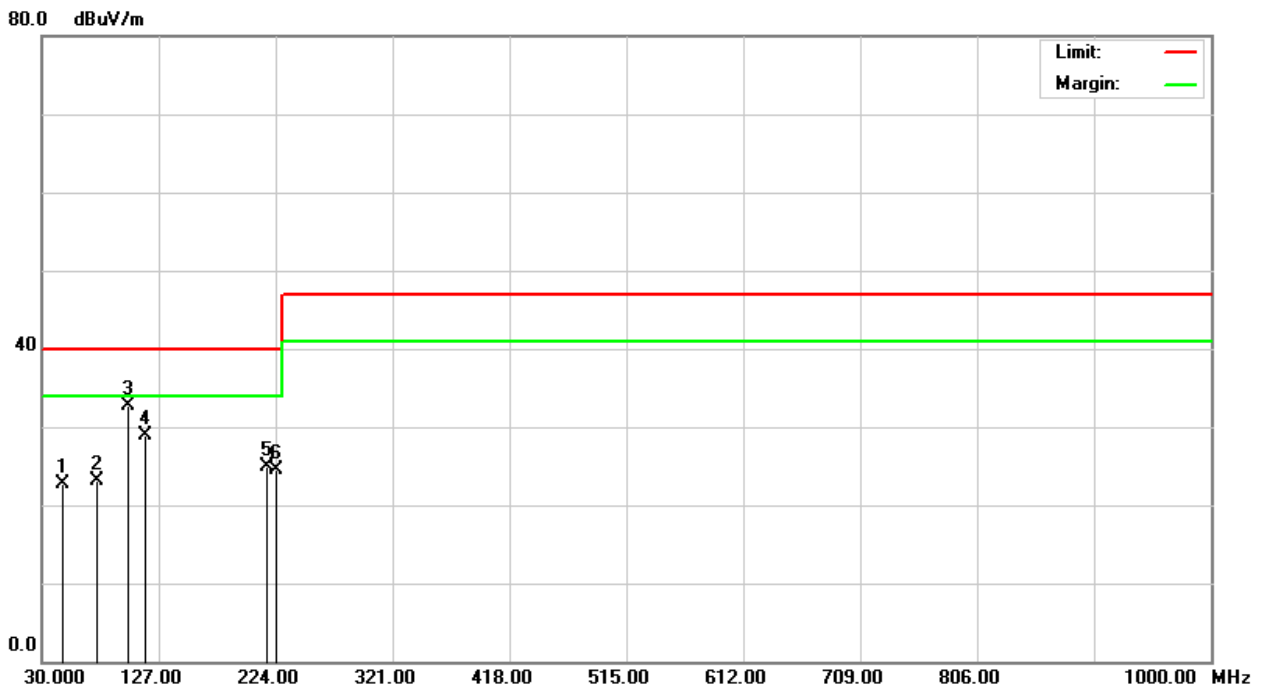
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
46.6500	42.60	-12.26	30.34	40.00	-9.66	Q	V
76.1000	35.40	-15.04	20.36	40.00	-19.64	Q	V
67.6500	33.50	-15.58	17.92	40.00	-22.08	Q	V
100.1980	47.00	-10.63	36.37	40.00	-3.63	Q	V
116.1000	42.00	-9.33	32.67	40.00	-7.33	Q	V
144.0900	31.00	-10.32	20.68	40.00	-19.32	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A48K	Test Mode	Mode 24 / Worst
Environmental Conditions	28°C, 60% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



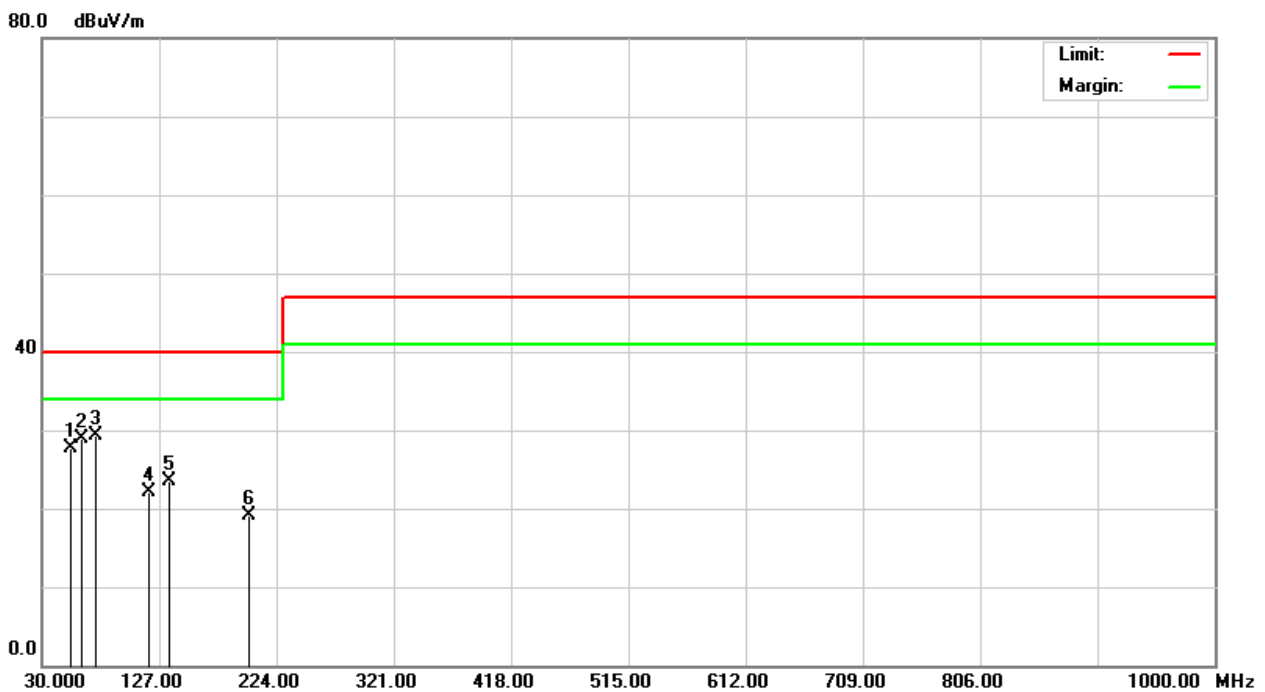
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
47.7200	35.40	-12.75	22.65	40.00	-17.35	Q	H
76.0899	38.20	-15.04	23.16	40.00	-16.84	Q	H
101.3500	43.20	-10.47	32.73	40.00	-7.27	Q	H
115.7500	38.20	-9.34	28.86	40.00	-11.14	Q	H
217.1500	36.20	-11.31	24.89	40.00	-15.11	Q	H
224.6500	35.40	-10.83	24.57	40.00	-15.43	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 25
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



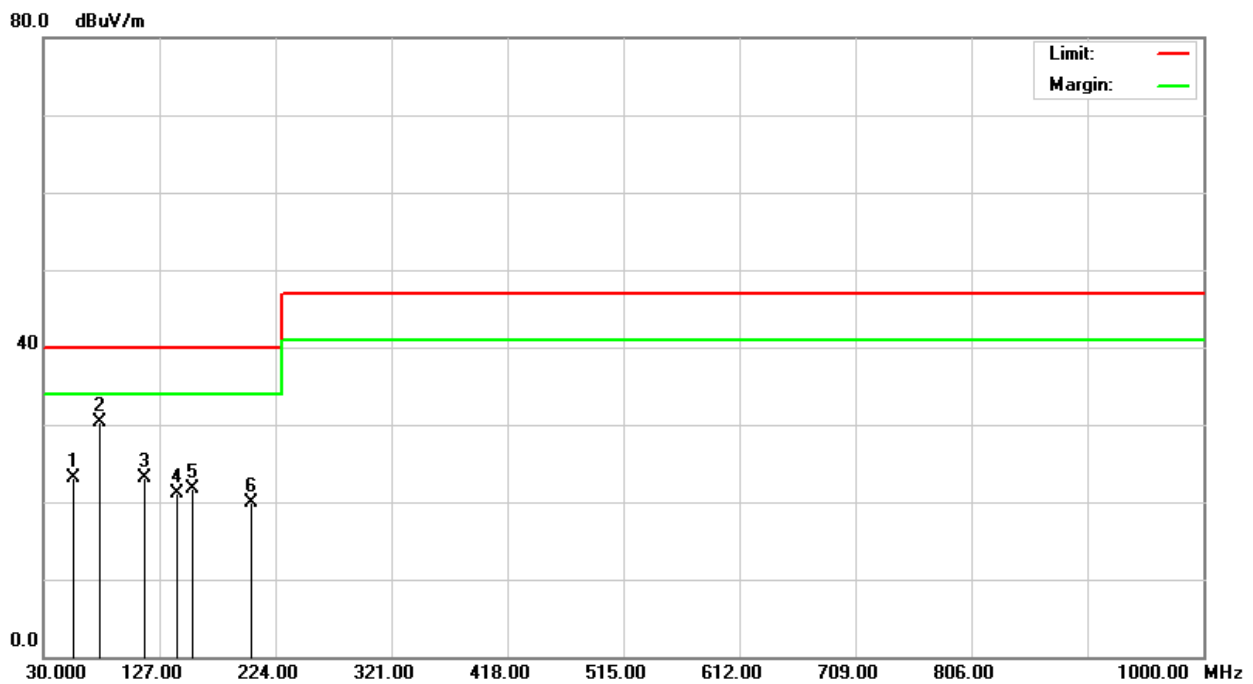
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
54.5300	42.70	-15.02	27.68	40.00	-12.32	Q	V
63.5500	44.60	-15.67	28.93	40.00	-11.07	Q	V
74.0400	44.50	-15.22	29.28	40.00	-10.72	Q	V
118.1000	31.50	-9.30	22.20	40.00	-17.80	Q	V
135.2000	33.20	-9.70	23.50	40.00	-16.50	Q	V
201.4000	30.40	-11.25	19.15	40.00	-20.85	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 25
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



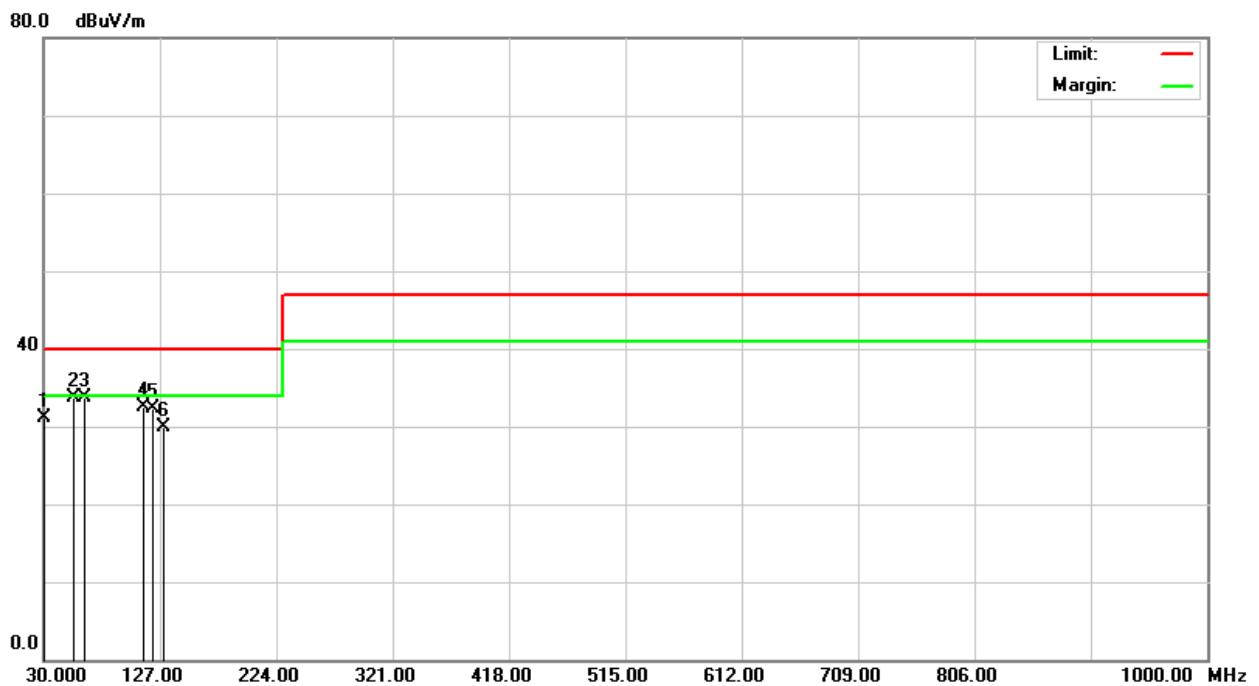
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
54.7700	38.20	-15.09	23.11	40.00	-16.89	Q	H
76.5800	45.20	-14.97	30.23	40.00	-9.77	Q	H
114.9000	32.40	-9.34	23.06	40.00	-16.94	Q	H
141.9000	31.20	-10.15	21.05	40.00	-18.95	Q	H
154.8000	32.60	-10.89	21.71	40.00	-18.29	Q	H
204.1500	31.20	-11.27	19.93	40.00	-20.07	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 26
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



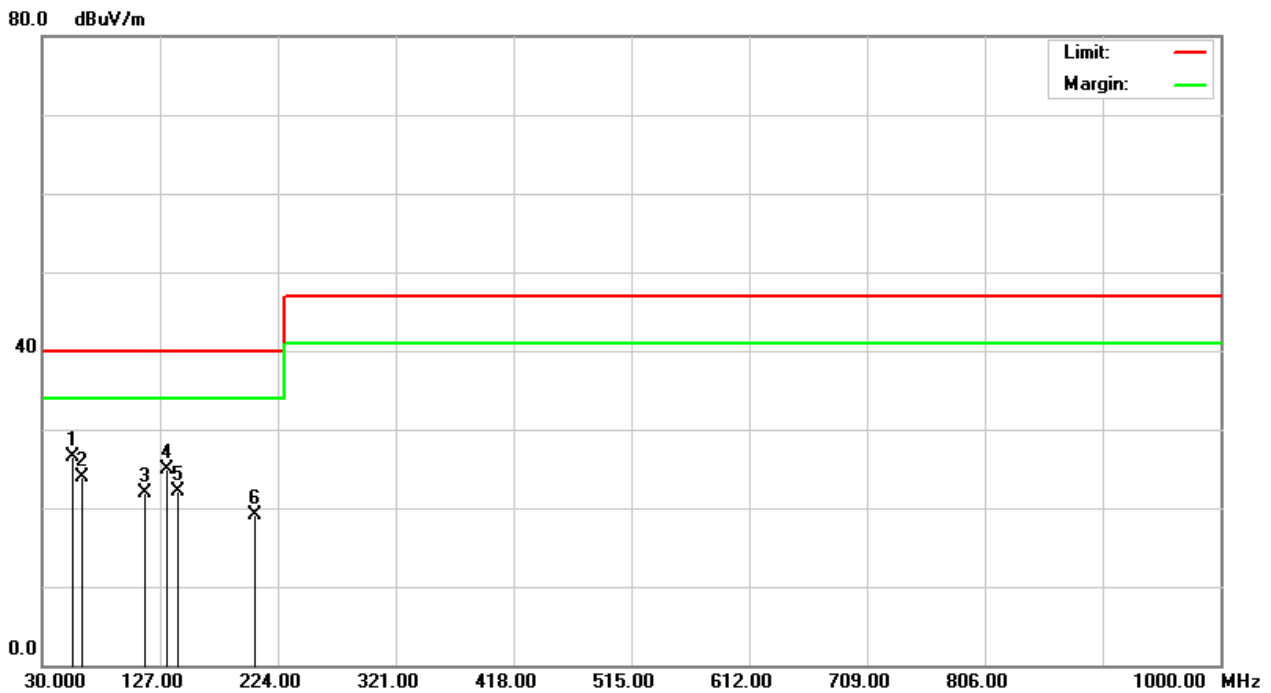
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
30.0000	34.60	-3.55	31.05	40.00	-8.95	Q	V
55.2600	48.80	-15.16	33.64	40.00	-6.36	Q	V
63.7900	49.30	-15.67	33.63	40.00	-6.37	Q	V
113.0000	41.90	-9.45	32.45	40.00	-7.55	Q	V
121.7000	41.60	-9.27	32.33	40.00	-7.67	Q	V
130.7000	39.30	-9.48	29.82	40.00	-10.18	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 26
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



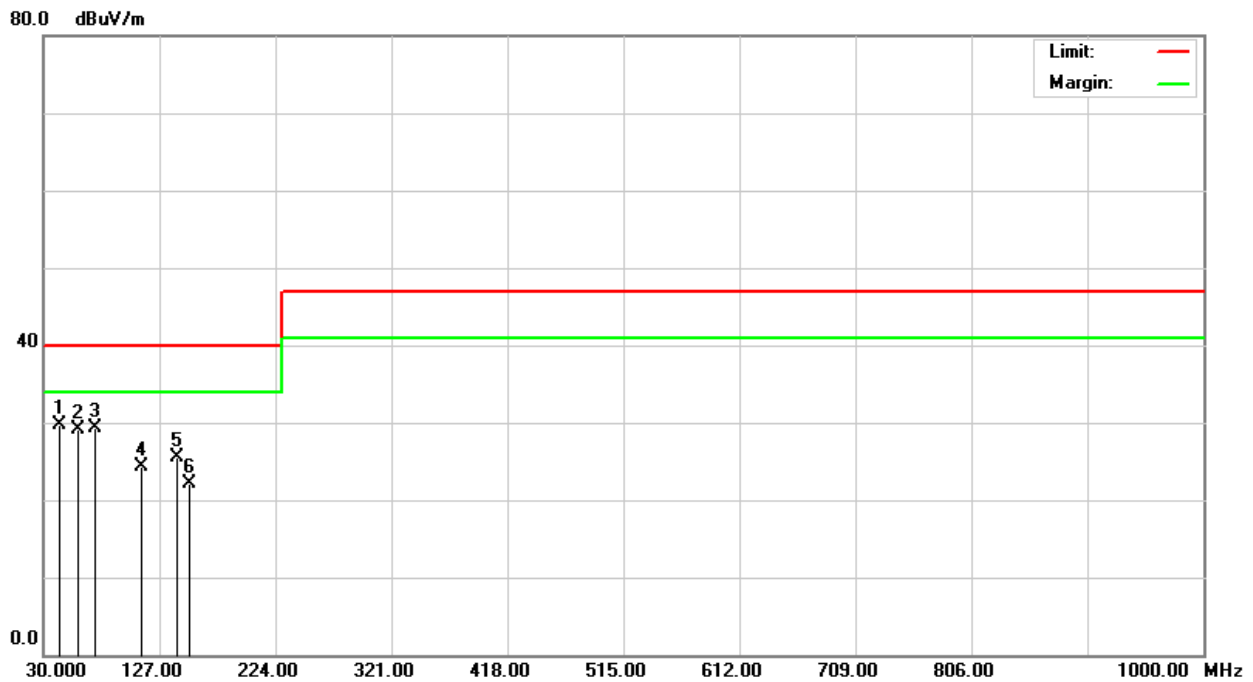
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
55.1000	41.60	-15.14	26.46	40.00	-13.54	Q	H
63.3000	39.60	-15.67	23.93	40.00	-16.07	Q	H
114.2800	31.30	-9.38	21.92	40.00	-18.08	Q	H
132.8000	34.50	-9.58	24.92	40.00	-15.08	Q	H
141.9400	32.30	-10.15	22.15	40.00	-17.85	Q	H
205.1000	30.40	-11.27	19.13	40.00	-20.87	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 27
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



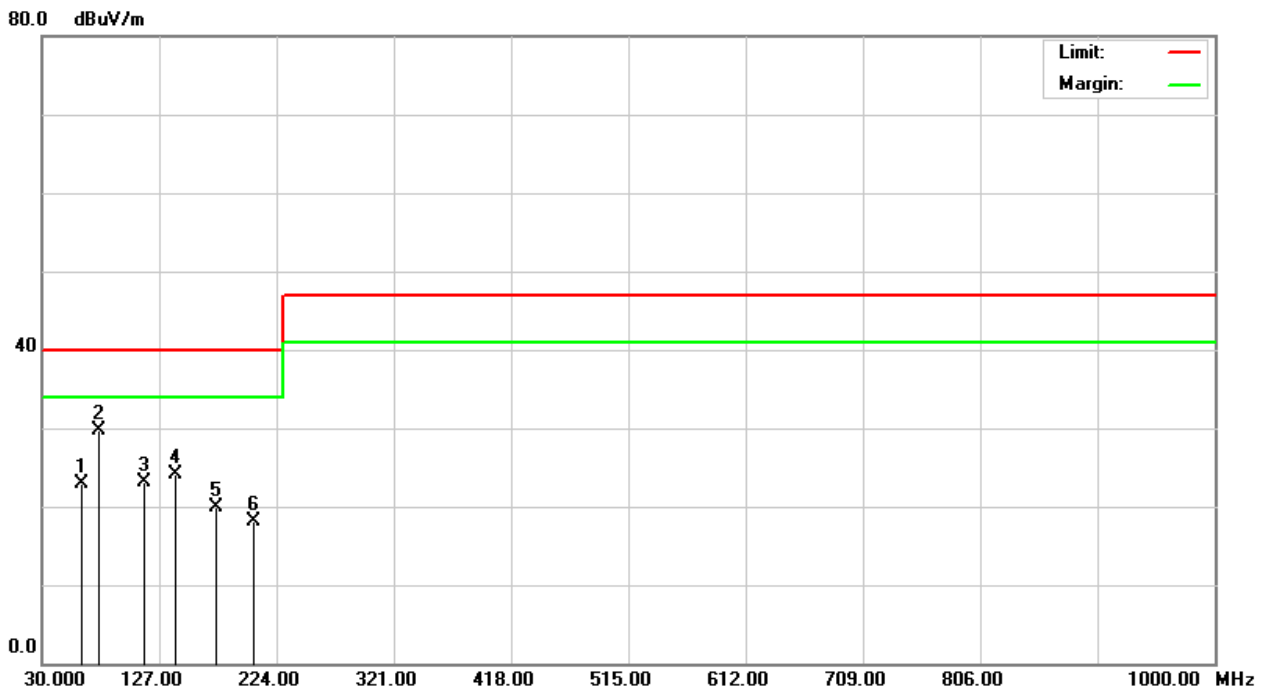
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
43.1300	40.20	-10.51	29.69	40.00	-10.31	Q	V
58.5000	44.60	-15.48	29.12	40.00	-10.88	Q	V
73.4700	44.50	-15.27	29.23	40.00	-10.77	Q	V
112.4000	33.80	-9.47	24.33	40.00	-15.67	Q	V
142.1000	35.60	-10.16	25.44	40.00	-14.56	Q	V
152.6000	32.80	-10.79	22.01	40.00	-17.99	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 27
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



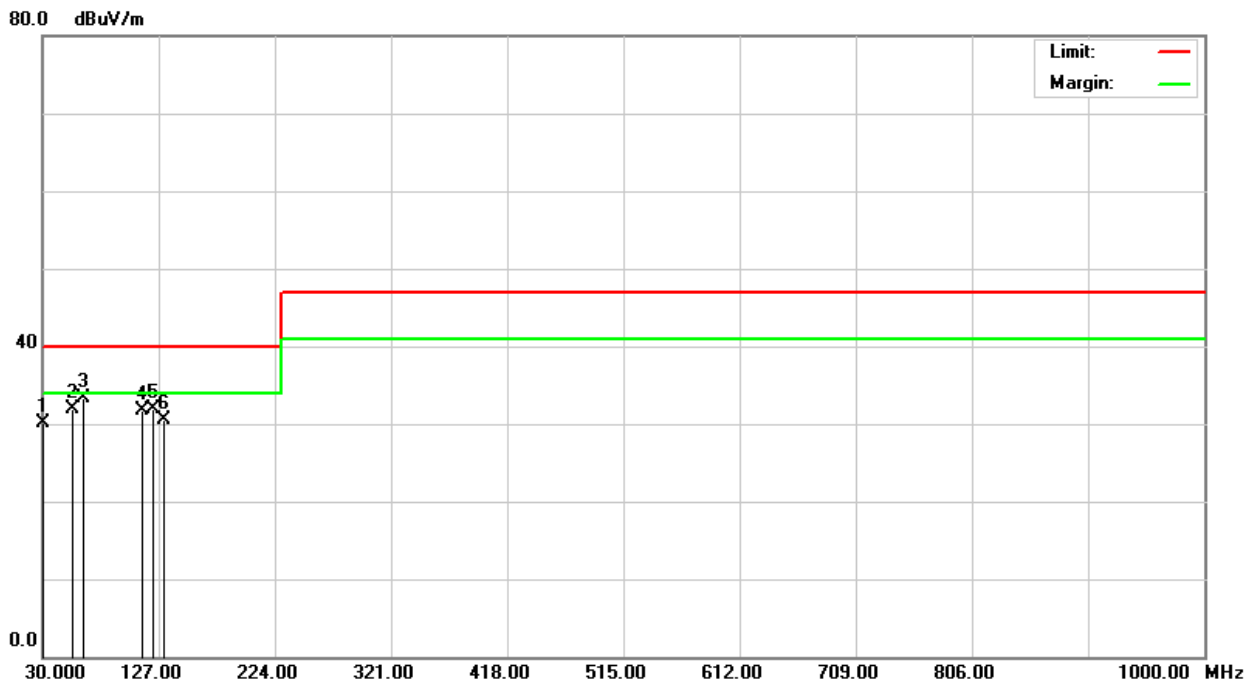
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
62.6400	38.50	-15.66	22.84	40.00	-17.16	Q	H
77.4000	44.50	-14.87	29.63	40.00	-10.37	Q	H
115.2000	32.50	-9.34	23.16	40.00	-16.84	Q	H
140.7000	34.20	-10.07	24.13	40.00	-15.87	Q	H
173.7000	31.20	-11.37	19.83	40.00	-20.17	Q	H
205.1000	29.30	-11.27	18.03	40.00	-21.97	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 28
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Vertical	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



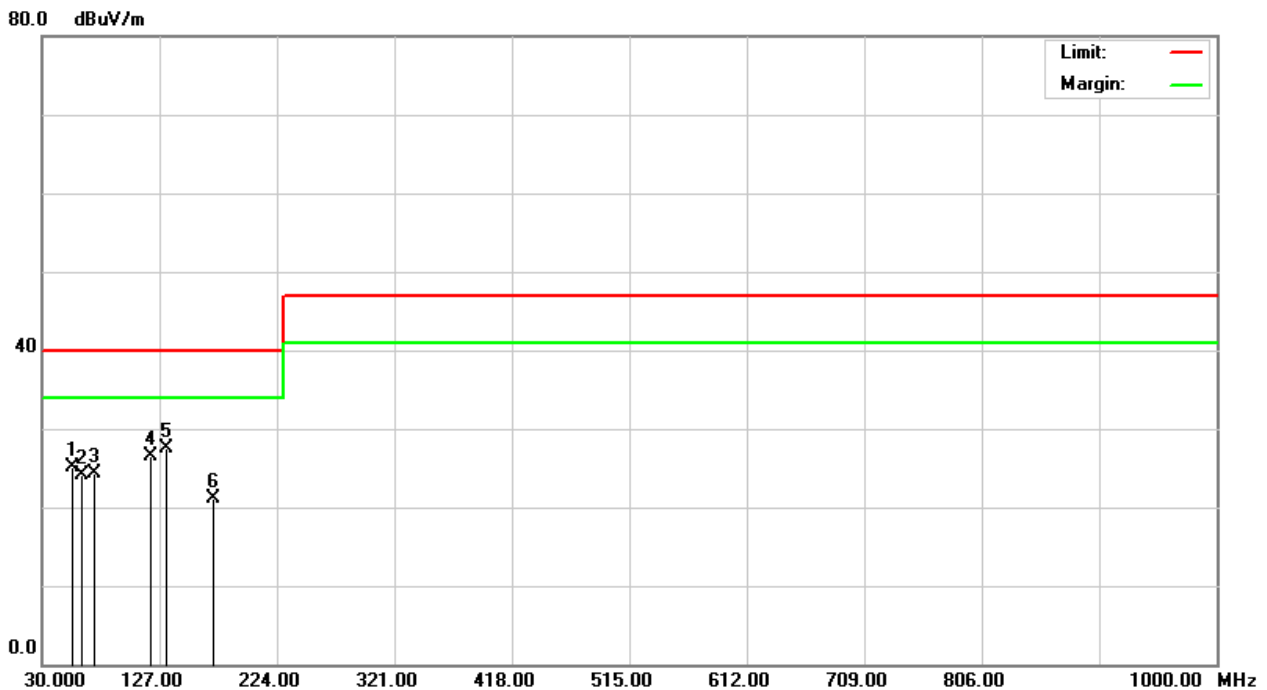
Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
30.0000	33.60	-3.55	30.05	40.00	-9.95	Q	V
55.2000	47.00	-15.15	31.85	40.00	-8.15	Q	V
64.2000	48.90	-15.68	33.22	40.00	-6.78	Q	V
113.0000	41.20	-9.45	31.75	40.00	-8.25	Q	V
122.0000	41.20	-9.27	31.93	40.00	-8.07	Q	V
131.3000	40.00	-9.51	30.49	40.00	-9.51	Q	V

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model No.	TF3000A60K	Test Mode	Mode 28
Environmental Conditions	32°C, 61% RH	6dB Bandwidth	120 kHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Kevin Chang
Standard	EN 55032 CLASS A		



Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (P/Q)	Pol. (H/V)
55.1000	40.20	-15.14	25.06	40.00	-14.94	Q	H
62.4800	39.80	-15.65	24.15	40.00	-15.85	Q	H
73.9600	39.50	-15.23	24.27	40.00	-15.73	Q	H
119.3000	35.80	-9.27	26.53	40.00	-13.47	Q	H
133.4000	37.20	-9.62	27.58	40.00	-12.42	Q	H
171.2000	32.50	-11.30	21.20	40.00	-18.80	Q	H

Note: 1. P= Peak Reading; Q= Quasi-peak Reading.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Above 1GHz

Model No.	N/A	Test Mode	N/A
Environmental Conditions	N/A	6dB Bandwidth	N/A
Antenna Pole	N/A	Antenna Distance	N/A
Highest frequency generated or used	<108MHz	Upper frequency	See note
Detector Function	N/A	Tested by	N/A

Note: No applicable, when the highest frequency of the internal sources of the EUT is less than 108MHz, the measurement shall only be made up to 1 GHz.

Radiated emissions from FM receivers

Model No.	N/A	Test Mode	N/A
Environmental Conditions	N/A	6dB Bandwidth	N/A
Antenna Pole	N/A	Antenna Distance	N/A
Detector Function	N/A	Tested by	N/A

Note: No applicable, the EUT doesn't have FM port.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.4. CONDUCTED DIFFERENTIAL VOLTAGE EMISSIONS FROM CLASS B EQUIPMENT

Applicable to				
1. TV broadcast receiver tuner ports with an accessible connector				
2. RF modulator output ports				
3. FM broadcast receiver tuner ports with an accessible connector				
Frequency range MHz	Class B limits DB(μ V) 75 Ω			Applicability
	other	Local Oscillator Fundamental	Local Oscillator Harmonics	
30 – 950	46	46	46	See a)
950 – 2 150	46	54	54	
950 – 2 150	46	54	54	See b)
30 – 300	46	54	50	See c)
300 – 1 000			52	
30 – 300	46	66	59	See d)
300 – 1 000			52	
30 – 950	46	76	46	See e)
950 – 2 150		n/a	54	

a) Television receivers (analogue or digital), video recorders and PC TV broadcast receiver tuner cards working in channels between 30 MHz and 1 GHz, and digital audio receivers.

b) Tuner units (not the LNB) for satellite signal reception.

c) Frequency modulation audio receivers and PC tuner cards.

d) Frequency modulation car radios.

e) Applicable to EUTs with RF modulator output ports (for example DVD equipment, video recorders, camcorders and decoders etc.) designed to connect to TV broadcast receiver tuner ports.

Testing is required at only one EUT supply voltage and frequency.

The term 'other' refers to all emissions other than the fundamental and the harmonics of the local oscillator.

The test shall be performed with the device operating at each reception channel.

The test shall cover the entire frequency range.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.4.1. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-041)**Procedure of Preliminary Test**

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. The EUT was placed on a wooden table with a height of 0.8 meters was used that was placed on the ground plane.
- Support equipment, if needed, was placed as per EN 55032.
- All I/O cables were positioned to simulate typical usage as per EN 55032.
- The EUT received AC power source, from the outlet socket. All support equipment received power was from another socket.
- Added a $75 \longleftrightarrow 50 \Omega$ matching network, between EUT and EMI test receiver to get impedance match condition during the test.
- The output level of the auxiliary signal generator shall be set to give the value of 60 dB (μ V) for FM receiver or 70 dB (μ V) for TV and VCR to the input of the frequency-modulation or television receiver (or video recorder) respectively, on a 75Ω impedance. An additional amplifier should be inserted at the generator output, if necessary.
- The output level of the auxiliary signal generator shall be a standard TV color bar Move signal for TV receivers and video recorders with sound carrier that defined in Table A12 of EN 55032. An additional amplifier should be inserted at the generator output, if necessary.
- The results shall be expressed in the terms of the substitution voltage in decibels (μ V), as supplied by the standard signal generator. The specified source impedance of the receiver shall be stated with the results.
- When measurements are made at the antenna terminals of the EUT, an auxiliary signal generator shall be used to feed the equipment under test input with a standard test signal (see Table A.12 of CISPR 32/ EN 55032) at the receiver tuning frequency (30MHz to 2150MHz).
- The test mode(s) described in Item 4.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 4.1 producing the highest emission level.
- The EUT and cable configuration of the above highest emission levels were recorded for the final test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

Procedure of Final Test

- EUT and support equipment were set up on the table as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 2150MHz. recorded the value, the local frequency, amplitude, were recorded in which correction factors were used to calculate the emission level and compare reading to the applicable limit, and only Q.P reading will record in this report.
- Recorded at least the six highest emissions. Emission frequencies, amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

7.4.2. DATA SAMPLE

Freq. (MHz)	Matching Factor (dB)	Spectrum Reading (dBuV)	SG Level (dBuV)	Emission (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Note (F/H/O)
x.xx	12.2	14.0	38.4	26.2	46	-19.8	F

Freq. = Emission frequency in MHz
 Matching Factor = Matching network(50/75Ω) attenuation
 Spectrum Reading= Spectrum analyzer reading
 S.G. Level = Standard S.G. output level
 Emission = SG Level - Matching Factor
 Limit Line = Limit stated in standard
 Over Limit = Reading in reference to limit
 F = Fundamental
 H = Harmonics
 O = Other

Calculation Formula

Over Limit (dB) = Emission (dBμV) – Limit Line (dBμV)

7.4.3. TEST RESULTS

Model No.	N/A	6dB Bandwidth	N/A
Environmental Conditions	N/A	Test Mode	N/A
Tested by	N/A		

NOTE: No applicable, the EUT doesn't have tuner port.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.5. HARMONICS CURRENT MEASUREMENT

7.5.1. LIMITS OF HARMONICS CURRENT MEASUREMENT

Limits for Class A equipment		Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current A	Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics		Odd Harmonics only		
3	2.30	3	3.4	2.30
5	1.14	5	1.9	1.14
7	0.77	7	1.0	0.77
9	0.40	9	0.5	0.40
11	0.33	11	0.35	0.33
13	0.21	13	0.30	0.21
15<=n<=39	0.15x15/n	15<=n<=39	3.85/n	0.15x15/n
Even harmonics				
2	1.08			
4	0.43			
6	0.30			
8<=n<=40	0.23x8/n			

- NOTE:** 1. Class A and Class D are classified according to item 7.5.3.
2. According to section 7 of EN 61000-3-2, the above limits for all equipment except for lighting equipment having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

7.5.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Analyzer	TESEQ	CCN 1000-1	1504A02654	03/22/2019
AC Power Source	TESEQ	NSG 1007	1504A02654	03/22/2019
Software	Win2100 V4			

- NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.5.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-029)

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- The classification of EUT is according to section 5 of EN 61000-3-2.
- The EUT is classified as follows:

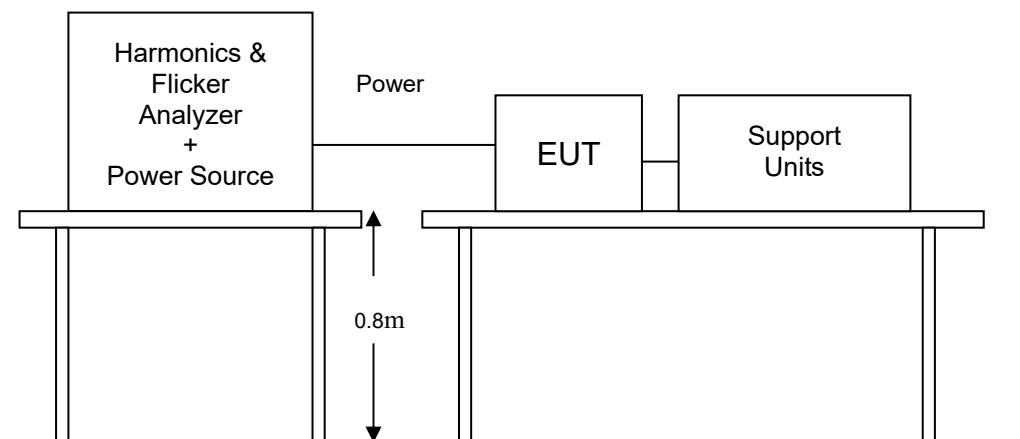
Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B: Portable tools; Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors; television receivers and refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).

- The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

7.5.4. TEST SETUP

- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.5.5. TEST RESULTS

Model: TF3000A12K

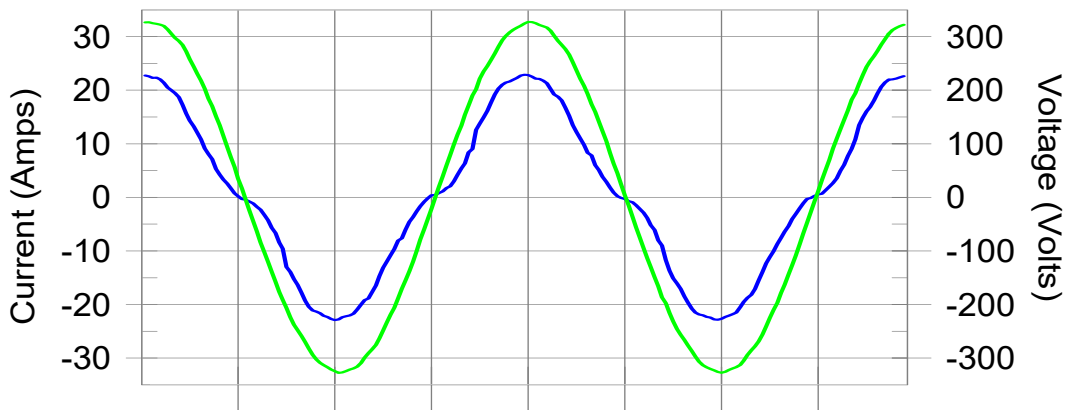
Power Consumption	3379.2W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

NOTE: 1. Limits classified according to item 7.5.1.

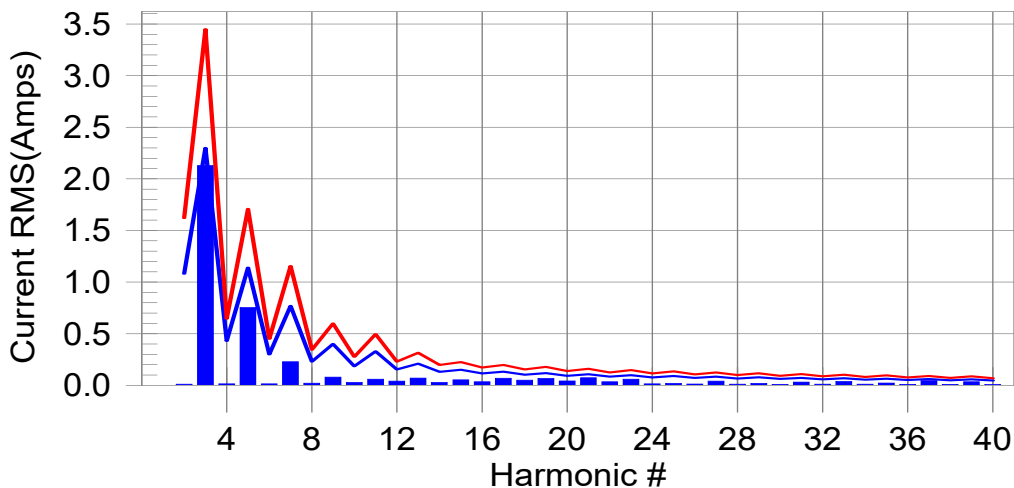
Test result of EN 61000-3-2

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H3-61.9% of 150% limit, H3-92.6% of 100% limit

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
 THC(A): 2.283 I-THD(%): 15.6 POHC(A): 0.132 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	230.90	Frequency(Hz):	50.00
I_Peak (Amps):	23.114	I_RMS (Amps):	14.821
I_Fund (Amps):	14.646	Crest Factor:	1.563
Power (Watts):	3379.2	Power Factor:	0.988

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.010	1.080	N/A	0.019	1.620	N/A	Pass
3	2.129	2.300	92.6	2.134	3.450	61.9	Pass
4	0.015	0.430	N/A	0.022	0.645	N/A	Pass
5	0.754	1.140	66.1	0.762	1.710	44.6	Pass
6	0.015	0.300	N/A	0.028	0.450	N/A	Pass
7	0.229	0.770	29.8	0.236	1.155	20.4	Pass
8	0.020	0.230	N/A	0.037	0.345	N/A	Pass
9	0.079	0.400	N/A	0.099	0.600	N/A	Pass
10	0.028	0.184	N/A	0.045	0.276	N/A	Pass
11	0.059	0.330	N/A	0.070	0.495	N/A	Pass
12	0.041	0.153	N/A	0.077	0.230	N/A	Pass
13	0.070	0.210	N/A	0.101	0.315	N/A	Pass
14	0.028	0.131	N/A	0.070	0.197	N/A	Pass
15	0.053	0.150	N/A	0.087	0.225	N/A	Pass
16	0.035	0.115	N/A	0.072	0.173	N/A	Pass
17	0.068	0.132	N/A	0.091	0.198	N/A	Pass
18	0.049	0.102	N/A	0.086	0.153	N/A	Pass
19	0.067	0.118	N/A	0.100	0.178	N/A	Pass
20	0.042	0.092	N/A	0.105	0.138	N/A	Pass
21	0.073	0.107	N/A	0.125	0.161	N/A	Pass
22	0.035	0.084	N/A	0.064	0.125	N/A	Pass
23	0.059	0.098	N/A	0.076	0.147	N/A	Pass
24	0.015	0.077	N/A	0.036	0.115	N/A	Pass
25	0.018	0.090	N/A	0.033	0.135	N/A	Pass
26	0.013	0.071	N/A	0.023	0.107	N/A	Pass
27	0.041	0.083	N/A	0.047	0.125	N/A	Pass
28	0.012	0.066	N/A	0.018	0.099	N/A	Pass
29	0.020	0.078	N/A	0.029	0.116	N/A	Pass
30	0.010	0.061	N/A	0.017	0.092	N/A	Pass
31	0.031	0.073	N/A	0.037	0.109	N/A	Pass
32	0.012	0.058	N/A	0.015	0.086	N/A	Pass
33	0.038	0.068	N/A	0.043	0.102	N/A	Pass
34	0.011	0.054	N/A	0.017	0.081	N/A	Pass
35	0.021	0.064	N/A	0.026	0.096	N/A	Pass
36	0.010	0.051	N/A	0.014	0.077	N/A	Pass
37	0.046	0.061	N/A	0.048	0.091	N/A	Pass
38	0.010	0.048	N/A	0.012	0.073	N/A	Pass
39	0.034	0.058	N/A	0.036	0.087	N/A	Pass
40	0.007	0.046	N/A	0.010	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.90	Frequency(Hz):	50.00
I_Peak (Amps):	23.114	I_RMS (Amps):	14.821
I_Fund (Amps):	14.646	Crest Factor:	1.563
Power (Watts):	3379.2	Power Factor:	0.988

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.086	0.462	18.67	OK
3	0.580	2.078	27.89	OK
4	0.053	0.462	11.42	OK
5	0.177	0.923	19.19	OK
6	0.101	0.462	21.78	OK
7	0.120	0.693	17.33	OK
8	0.054	0.462	11.70	OK
9	0.217	0.462	47.00	OK
10	0.149	0.462	32.24	OK
11	0.186	0.231	80.38	OK
12	0.166	0.231	71.80	OK
13	0.362	0.231	156.83	Dist.
14	0.262	0.231	113.30	Dist.
15	0.253	0.231	109.67	Marg.
16	0.103	0.231	44.46	OK
17	0.285	0.231	123.30	Dist.
18	0.262	0.231	113.44	Dist.
19	0.489	0.231	211.84	Dist.
20	0.452	0.231	195.80	Dist.
21	0.499	0.231	215.97	Dist.
22	0.154	0.231	66.66	OK
23	0.265	0.231	114.61	Dist.
24	0.160	0.231	69.44	OK
25	0.141	0.231	60.88	OK
26	0.124	0.231	53.64	OK
27	0.120	0.231	51.84	OK
28	0.054	0.231	23.40	OK
29	0.106	0.231	45.99	OK
30	0.069	0.231	30.08	OK
31	0.078	0.231	33.62	OK
32	0.064	0.231	27.71	OK
33	0.100	0.231	43.52	OK
34	0.099	0.231	42.97	OK
35	0.112	0.231	48.56	OK
36	0.031	0.231	13.55	OK
37	0.101	0.231	43.88	OK
38	0.049	0.231	21.32	OK
39	0.076	0.231	32.87	OK
40	0.037	0.231	15.86	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A15K

Power Consumption	3410.9W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

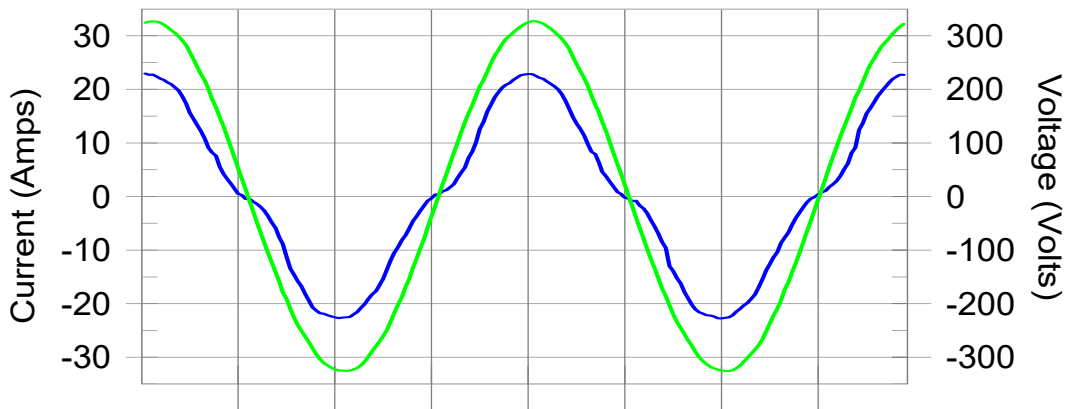
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

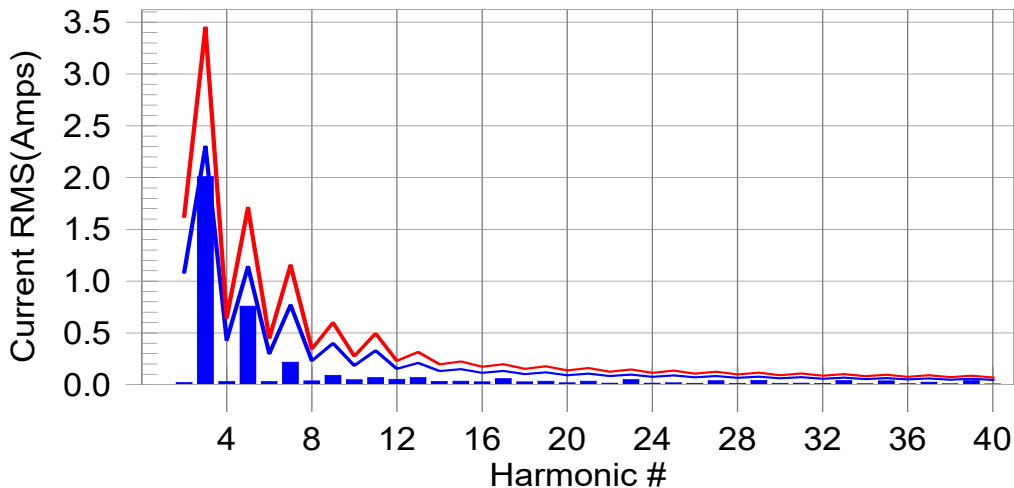
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass **Worst harmonics H3-58.4% of 150% limit, H3-87.4% of 100% limit**

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
THC(A): 2.171 I-THD(%): 14.7 POHC(A): 0.112 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	230.89	Frequency(Hz):	50.00
I_Peak (Amps):	23.066	I_RMS (Amps):	14.940
I_Fund (Amps):	14.781	Crest Factor:	1.547
Power (Watts):	3410.9	Power Factor:	0.989

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.022	1.080	N/A	0.028	1.620	N/A	Pass
3	2.010	2.300	87.4	2.015	3.450	58.4	Pass
4	0.031	0.430	N/A	0.045	0.645	N/A	Pass
5	0.760	1.140	66.6	0.769	1.710	45.0	Pass
6	0.030	0.300	N/A	0.043	0.450	N/A	Pass
7	0.218	0.770	28.3	0.224	1.155	19.4	Pass
8	0.038	0.230	N/A	0.045	0.345	N/A	Pass
9	0.092	0.400	23.0	0.104	0.600	17.3	Pass
10	0.048	0.184	N/A	0.063	0.276	N/A	Pass
11	0.069	0.330	N/A	0.091	0.495	N/A	Pass
12	0.052	0.153	N/A	0.094	0.230	N/A	Pass
13	0.069	0.210	N/A	0.078	0.315	N/A	Pass
14	0.033	0.131	N/A	0.049	0.197	N/A	Pass
15	0.035	0.150	N/A	0.042	0.225	N/A	Pass
16	0.028	0.115	N/A	0.037	0.173	N/A	Pass
17	0.058	0.132	N/A	0.071	0.198	N/A	Pass
18	0.028	0.102	N/A	0.062	0.153	N/A	Pass
19	0.034	0.118	N/A	0.043	0.178	N/A	Pass
20	0.018	0.092	N/A	0.023	0.138	N/A	Pass
21	0.034	0.107	N/A	0.040	0.161	N/A	Pass
22	0.016	0.084	N/A	0.038	0.125	N/A	Pass
23	0.049	0.098	N/A	0.052	0.147	N/A	Pass
24	0.016	0.077	N/A	0.019	0.115	N/A	Pass
25	0.019	0.090	N/A	0.023	0.135	N/A	Pass
26	0.014	0.071	N/A	0.020	0.107	N/A	Pass
27	0.039	0.083	N/A	0.043	0.125	N/A	Pass
28	0.012	0.066	N/A	0.017	0.099	N/A	Pass
29	0.042	0.078	N/A	0.046	0.116	N/A	Pass
30	0.014	0.061	N/A	0.016	0.092	N/A	Pass
31	0.015	0.073	N/A	0.020	0.109	N/A	Pass
32	0.012	0.058	N/A	0.017	0.086	N/A	Pass
33	0.040	0.068	N/A	0.043	0.102	N/A	Pass
34	0.010	0.054	N/A	0.011	0.081	N/A	Pass
35	0.038	0.064	N/A	0.041	0.096	N/A	Pass
36	0.009	0.051	N/A	0.013	0.077	N/A	Pass
37	0.025	0.061	N/A	0.027	0.091	N/A	Pass
38	0.009	0.048	N/A	0.010	0.073	N/A	Pass
39	0.039	0.058	N/A	0.041	0.087	N/A	Pass
40	0.008	0.046	N/A	0.009	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.89	Frequency(Hz):	50.00
I_Peak (Amps):	23.066	I_RMS (Amps):	14.940
I_Fund (Amps):	14.781	Crest Factor:	1.547
Power (Watts):	3410.9	Power Factor:	0.989

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.092	0.462	19.88	OK
3	0.603	2.078	29.02	OK
4	0.111	0.462	24.10	OK
5	0.141	0.923	15.29	OK
6	0.127	0.462	27.49	OK
7	0.126	0.693	18.14	OK
8	0.119	0.462	25.70	OK
9	0.157	0.462	33.94	OK
10	0.160	0.462	34.60	OK
11	0.200	0.231	86.57	OK
12	0.278	0.231	120.51	Dist.
13	0.142	0.231	61.37	OK
14	0.130	0.231	56.41	OK
15	0.099	0.231	42.70	OK
16	0.097	0.231	42.04	OK
17	0.133	0.231	57.80	OK
18	0.194	0.231	84.18	OK
19	0.079	0.231	34.30	OK
20	0.062	0.231	26.74	OK
21	0.078	0.231	33.71	OK
22	0.127	0.231	54.85	OK
23	0.079	0.231	34.41	OK
24	0.059	0.231	25.70	OK
25	0.056	0.231	24.41	OK
26	0.068	0.231	29.60	OK
27	0.069	0.231	29.76	OK
28	0.065	0.231	28.36	OK
29	0.073	0.231	31.44	OK
30	0.061	0.231	26.54	OK
31	0.056	0.231	24.08	OK
32	0.060	0.231	26.13	OK
33	0.051	0.231	22.15	OK
34	0.030	0.231	12.89	OK
35	0.051	0.231	22.26	OK
36	0.046	0.231	19.97	OK
37	0.046	0.231	19.89	OK
38	0.025	0.231	10.99	OK
39	0.060	0.231	26.00	OK
40	0.044	0.231	19.21	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A24K

Power Consumption	3296.6W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

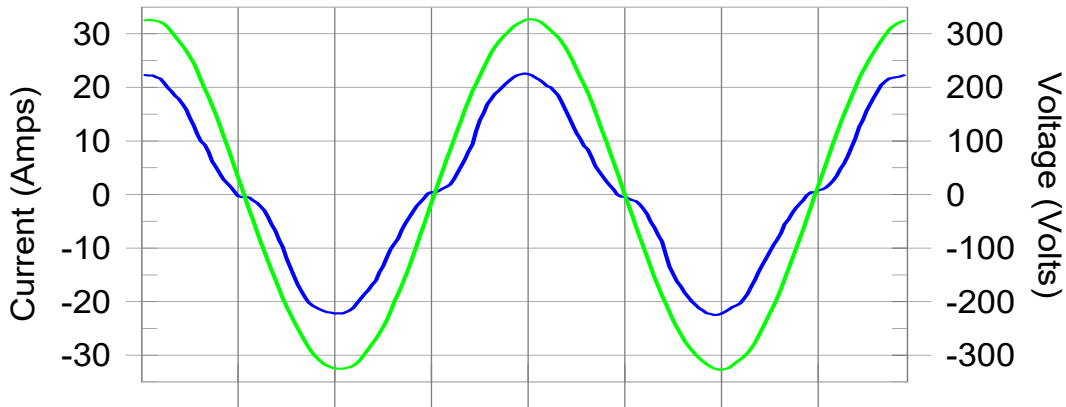
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

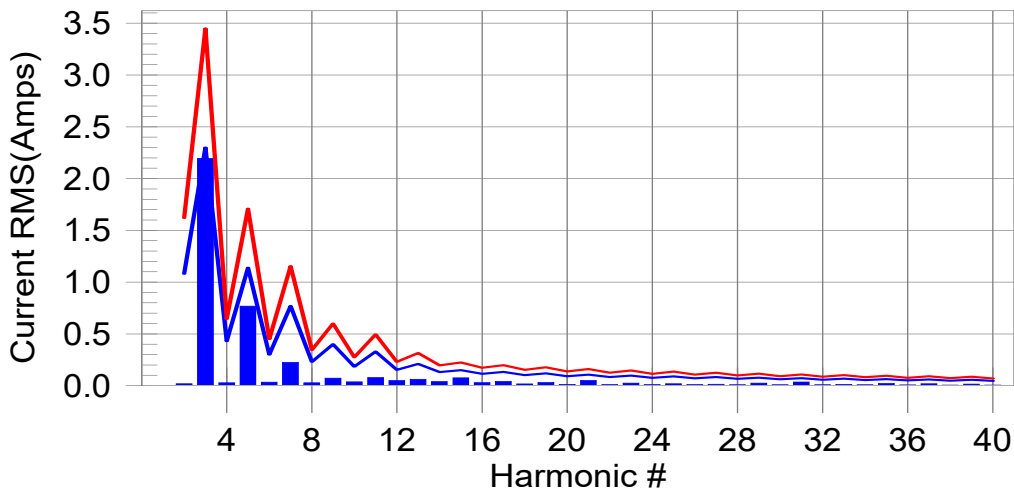
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: **Pass** **Worst harmonics H3-64.0% of 150% limit, H3-95.4% of 100% limit**

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
THC(A): 2.345 I-THD(%): 16.4 POHC(A): 0.085 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.89	Frequency(Hz): 50.00
I_Peak (Amps): 22.710	I_RMS (Amps): 14.474
I_Fund (Amps): 14.287	Crest Factor: 1.570
Power (Watts): 3296.6	Power Factor: 0.987

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.019	1.080	N/A	0.034	1.620	N/A	Pass
3	2.195	2.300	95.4	2.209	3.450	64.0	Pass
4	0.028	0.430	N/A	0.039	0.645	N/A	Pass
5	0.768	1.140	67.3	0.784	1.710	45.8	Pass
6	0.035	0.300	N/A	0.068	0.450	N/A	Pass
7	0.226	0.770	29.4	0.241	1.155	20.9	Pass
8	0.028	0.230	N/A	0.059	0.345	N/A	Pass
9	0.072	0.400	N/A	0.090	0.600	N/A	Pass
10	0.037	0.184	N/A	0.066	0.276	N/A	Pass
11	0.079	0.330	N/A	0.097	0.495	N/A	Pass
12	0.050	0.153	N/A	0.091	0.230	N/A	Pass
13	0.062	0.210	N/A	0.108	0.315	N/A	Pass
14	0.040	0.131	N/A	0.102	0.197	N/A	Pass
15	0.075	0.150	N/A	0.093	0.225	N/A	Pass
16	0.029	0.115	N/A	0.052	0.173	N/A	Pass
17	0.042	0.132	N/A	0.058	0.198	N/A	Pass
18	0.017	0.102	N/A	0.039	0.153	N/A	Pass
19	0.031	0.118	N/A	0.038	0.178	N/A	Pass
20	0.012	0.092	N/A	0.025	0.138	N/A	Pass
21	0.052	0.107	N/A	0.057	0.161	N/A	Pass
22	0.011	0.084	N/A	0.027	0.125	N/A	Pass
23	0.026	0.098	N/A	0.030	0.147	N/A	Pass
24	0.011	0.077	N/A	0.018	0.115	N/A	Pass
25	0.019	0.090	N/A	0.024	0.135	N/A	Pass
26	0.011	0.071	N/A	0.017	0.107	N/A	Pass
27	0.014	0.083	N/A	0.017	0.125	N/A	Pass
28	0.009	0.066	N/A	0.014	0.099	N/A	Pass
29	0.026	0.078	N/A	0.031	0.116	N/A	Pass
30	0.009	0.061	N/A	0.014	0.092	N/A	Pass
31	0.036	0.073	N/A	0.041	0.109	N/A	Pass
32	0.009	0.058	N/A	0.011	0.086	N/A	Pass
33	0.013	0.068	N/A	0.016	0.102	N/A	Pass
34	0.008	0.054	N/A	0.012	0.081	N/A	Pass
35	0.022	0.064	N/A	0.025	0.096	N/A	Pass
36	0.007	0.051	N/A	0.010	0.077	N/A	Pass
37	0.019	0.061	N/A	0.022	0.091	N/A	Pass
38	0.007	0.048	N/A	0.010	0.073	N/A	Pass
39	0.017	0.058	N/A	0.019	0.087	N/A	Pass
40	0.006	0.046	N/A	0.009	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.89	Frequency(Hz):	50.00
I_Peak (Amps):	22.710	I_RMS (Amps):	14.474
I_Fund (Amps):	14.287	Crest Factor:	1.570
Power (Watts):	3296.6	Power Factor:	0.987

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.147	0.462	31.83	OK
3	0.615	2.077	29.61	OK
4	0.132	0.462	28.69	OK
5	0.274	0.923	29.67	OK
6	0.241	0.462	52.17	OK
7	0.237	0.693	34.28	OK
8	0.232	0.462	50.19	OK
9	0.217	0.462	47.08	OK
10	0.228	0.462	49.48	OK
11	0.268	0.231	116.06	Dist.
12	0.300	0.231	130.00	Dist.
13	0.369	0.231	159.89	Dist.
14	0.437	0.231	189.18	Dist.
15	0.230	0.231	99.47	OK
16	0.193	0.231	83.69	OK
17	0.183	0.231	79.46	OK
18	0.162	0.231	70.31	OK
19	0.081	0.231	35.23	OK
20	0.085	0.231	36.83	OK
21	0.092	0.231	39.93	OK
22	0.118	0.231	51.14	OK
23	0.067	0.231	29.15	OK
24	0.059	0.231	25.73	OK
25	0.081	0.231	35.05	OK
26	0.078	0.231	33.65	OK
27	0.055	0.231	23.96	OK
28	0.050	0.231	21.57	OK
29	0.053	0.231	23.07	OK
30	0.037	0.231	16.14	OK
31	0.068	0.231	29.25	OK
32	0.036	0.231	15.53	OK
33	0.045	0.231	19.59	OK
34	0.039	0.231	16.94	OK
35	0.056	0.231	24.21	OK
36	0.058	0.231	25.06	OK
37	0.050	0.231	21.84	OK
38	0.039	0.231	16.92	OK
39	0.054	0.231	23.49	OK
40	0.051	0.231	22.30	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A30K

Power Consumption	3411.6W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

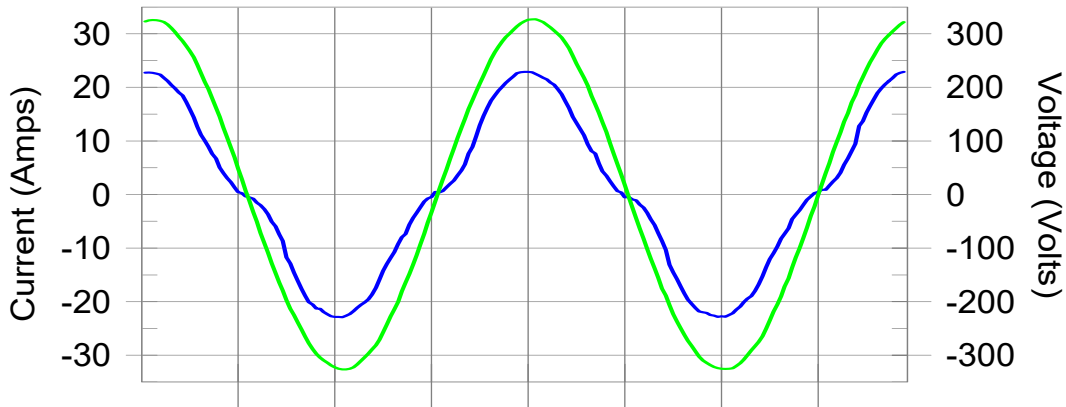
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

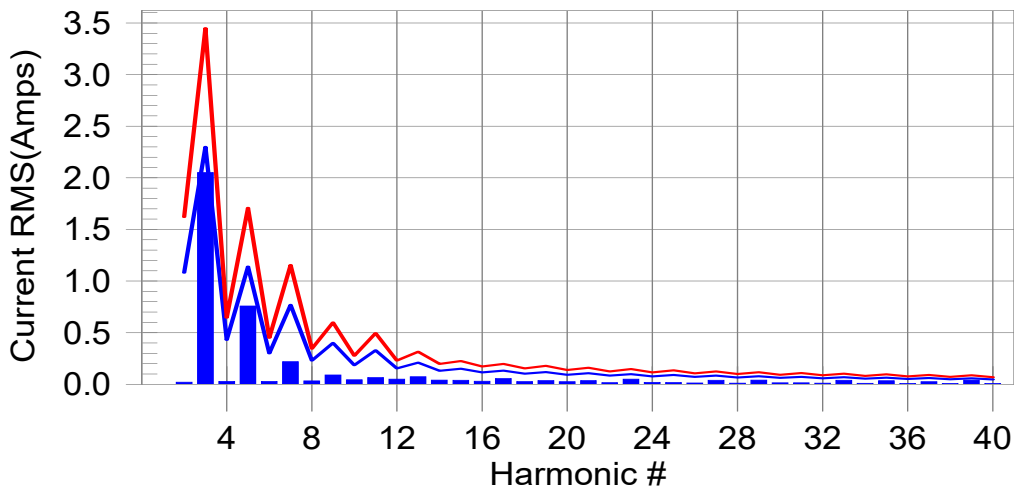
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass **Worst harmonics H3-59.8% of 150% limit, H3-89.2% of 100% limit**

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
THC(A): 2.210 I-THD(%): 14.9 POHC(A): 0.112 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.88	Frequency(Hz): 50.00
I_Peak (Amps): 23.153	I_RMS (Amps): 14.949
I_Fund (Amps): 14.785	Crest Factor: 1.551
Power (Watts): 3411.6	Power Factor: 0.989

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.020	1.080	N/A	0.029	1.620	N/A	Pass
3	2.053	2.300	89.2	2.062	3.450	59.8	Pass
4	0.029	0.430	N/A	0.045	0.645	N/A	Pass
5	0.758	1.140	66.5	0.768	1.710	44.9	Pass
6	0.027	0.300	N/A	0.042	0.450	N/A	Pass
7	0.219	0.770	28.4	0.226	1.155	19.6	Pass
8	0.033	0.230	N/A	0.046	0.345	N/A	Pass
9	0.090	0.400	22.5	0.102	0.600	16.9	Pass
10	0.044	0.184	N/A	0.057	0.276	N/A	Pass
11	0.065	0.330	N/A	0.081	0.495	N/A	Pass
12	0.050	0.153	N/A	0.086	0.230	N/A	Pass
13	0.073	0.210	N/A	0.118	0.315	N/A	Pass
14	0.040	0.131	N/A	0.095	0.197	N/A	Pass
15	0.039	0.150	N/A	0.068	0.225	N/A	Pass
16	0.030	0.115	N/A	0.062	0.173	N/A	Pass
17	0.057	0.132	N/A	0.070	0.198	N/A	Pass
18	0.026	0.102	N/A	0.052	0.153	N/A	Pass
19	0.036	0.118	N/A	0.069	0.178	N/A	Pass
20	0.024	0.092	N/A	0.073	0.138	N/A	Pass
21	0.036	0.107	N/A	0.062	0.161	N/A	Pass
22	0.016	0.084	N/A	0.028	0.125	N/A	Pass
23	0.050	0.098	N/A	0.060	0.147	N/A	Pass
24	0.018	0.077	N/A	0.038	0.115	N/A	Pass
25	0.017	0.090	N/A	0.030	0.135	N/A	Pass
26	0.013	0.071	N/A	0.018	0.107	N/A	Pass
27	0.039	0.083	N/A	0.046	0.125	N/A	Pass
28	0.012	0.066	N/A	0.018	0.099	N/A	Pass
29	0.041	0.078	N/A	0.047	0.116	N/A	Pass
30	0.014	0.061	N/A	0.016	0.092	N/A	Pass
31	0.015	0.073	N/A	0.019	0.109	N/A	Pass
32	0.012	0.058	N/A	0.016	0.086	N/A	Pass
33	0.039	0.068	N/A	0.043	0.102	N/A	Pass
34	0.009	0.054	N/A	0.014	0.081	N/A	Pass
35	0.035	0.064	N/A	0.037	0.096	N/A	Pass
36	0.009	0.051	N/A	0.011	0.077	N/A	Pass
37	0.026	0.061	N/A	0.028	0.091	N/A	Pass
38	0.009	0.048	N/A	0.014	0.073	N/A	Pass
39	0.040	0.058	N/A	0.042	0.087	N/A	Pass
40	0.007	0.046	N/A	0.009	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.88	Frequency(Hz):	50.00
I_Peak (Amps):	23.153	I_RMS (Amps):	14.949
I_Fund (Amps):	14.785	Crest Factor:	1.551
Power (Watts):	3411.6	Power Factor:	0.989

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.095	0.462	20.65	OK
3	0.590	2.078	28.40	OK
4	0.102	0.462	22.00	OK
5	0.149	0.923	16.17	OK
6	0.134	0.462	29.05	OK
7	0.114	0.693	16.50	OK
8	0.135	0.462	29.20	OK
9	0.191	0.462	41.29	OK
10	0.196	0.462	42.43	OK
11	0.161	0.231	69.84	OK
12	0.257	0.231	111.33	Dist.
13	0.350	0.231	151.84	Dist.
14	0.402	0.231	174.19	Dist.
15	0.171	0.231	73.91	OK
16	0.216	0.231	93.37	OK
17	0.108	0.231	46.95	OK
18	0.154	0.231	66.58	OK
19	0.238	0.231	103.01	Marg.
20	0.310	0.231	134.27	Dist.
21	0.085	0.231	37.03	OK
22	0.104	0.231	45.14	OK
23	0.164	0.231	71.06	OK
24	0.201	0.231	87.05	OK
25	0.060	0.231	25.82	OK
26	0.057	0.231	24.82	OK
27	0.095	0.231	41.06	OK
28	0.062	0.231	26.85	OK
29	0.088	0.231	38.21	OK
30	0.074	0.231	31.88	OK
31	0.057	0.231	24.60	OK
32	0.063	0.231	27.33	OK
33	0.096	0.231	41.40	OK
34	0.074	0.231	31.92	OK
35	0.056	0.231	24.46	OK
36	0.039	0.231	16.76	OK
37	0.062	0.231	26.85	OK
38	0.074	0.231	32.23	OK
39	0.068	0.231	29.48	OK
40	0.043	0.231	18.56	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A36K

Power Consumption	3298.1W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

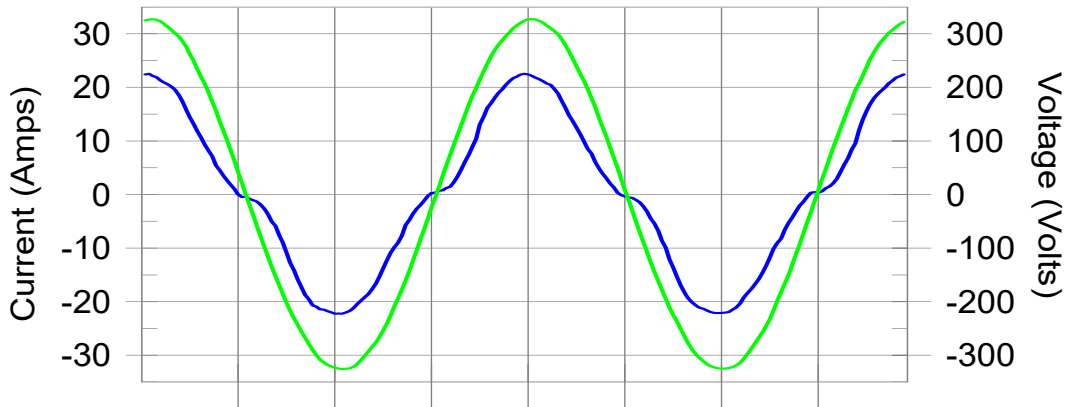
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

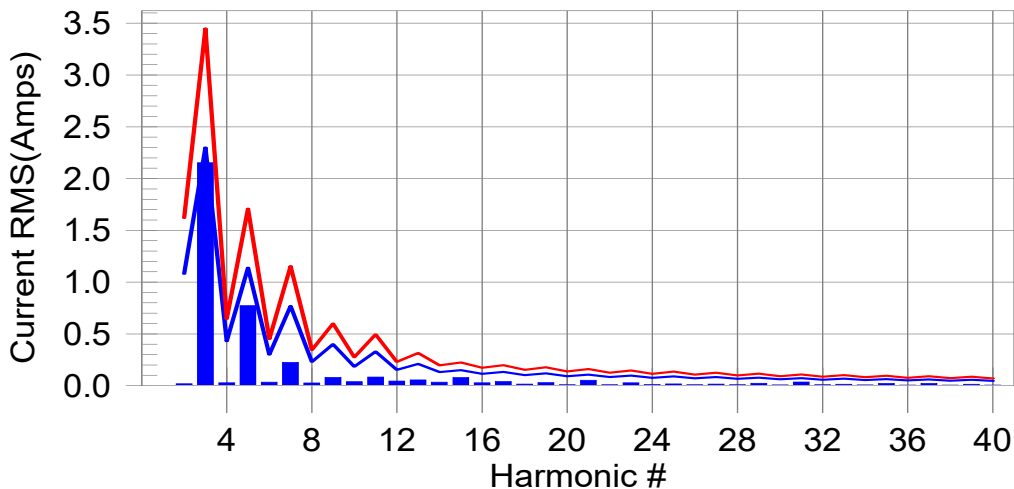
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonics H3-62.8% of 150% limit, H3-93.6% of 100% limit

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
THC(A): 2.307 I-THD(%): 16.1 POHC(A): 0.085 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.89	Frequency(Hz): 50.00
I_Peak (Amps): 22.668	I_RMS (Amps): 14.475
I_Fund (Amps): 14.289	Crest Factor: 1.567
Power (Watts): 3298.1	Power Factor: 0.987

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.019	1.080	N/A	0.041	1.620	N/A	Pass
3	2.153	2.300	93.6	2.165	3.450	62.8	Pass
4	0.028	0.430	N/A	0.042	0.645	N/A	Pass
5	0.772	1.140	67.8	0.788	1.710	46.1	Pass
6	0.034	0.300	N/A	0.070	0.450	N/A	Pass
7	0.226	0.770	29.4	0.235	1.155	20.3	Pass
8	0.026	0.230	N/A	0.042	0.345	N/A	Pass
9	0.080	0.400	N/A	0.097	0.600	N/A	Pass
10	0.039	0.184	N/A	0.073	0.276	N/A	Pass
11	0.084	0.330	N/A	0.102	0.495	N/A	Pass
12	0.045	0.153	N/A	0.094	0.230	N/A	Pass
13	0.055	0.210	N/A	0.070	0.315	N/A	Pass
14	0.034	0.131	N/A	0.048	0.197	N/A	Pass
15	0.078	0.150	N/A	0.092	0.225	N/A	Pass
16	0.028	0.115	N/A	0.052	0.173	N/A	Pass
17	0.041	0.132	N/A	0.045	0.198	N/A	Pass
18	0.015	0.102	N/A	0.023	0.153	N/A	Pass
19	0.030	0.118	N/A	0.035	0.178	N/A	Pass
20	0.010	0.092	N/A	0.017	0.138	N/A	Pass
21	0.053	0.107	N/A	0.057	0.161	N/A	Pass
22	0.009	0.084	N/A	0.013	0.125	N/A	Pass
23	0.028	0.098	N/A	0.032	0.147	N/A	Pass
24	0.011	0.077	N/A	0.018	0.115	N/A	Pass
25	0.018	0.090	N/A	0.021	0.135	N/A	Pass
26	0.010	0.071	N/A	0.016	0.107	N/A	Pass
27	0.016	0.083	N/A	0.019	0.125	N/A	Pass
28	0.009	0.066	N/A	0.011	0.099	N/A	Pass
29	0.023	0.078	N/A	0.027	0.116	N/A	Pass
30	0.008	0.061	N/A	0.012	0.092	N/A	Pass
31	0.036	0.073	N/A	0.040	0.109	N/A	Pass
32	0.009	0.058	N/A	0.011	0.086	N/A	Pass
33	0.014	0.068	N/A	0.017	0.102	N/A	Pass
34	0.008	0.054	N/A	0.011	0.081	N/A	Pass
35	0.022	0.064	N/A	0.025	0.096	N/A	Pass
36	0.007	0.051	N/A	0.009	0.077	N/A	Pass
37	0.021	0.061	N/A	0.026	0.091	N/A	Pass
38	0.007	0.048	N/A	0.010	0.073	N/A	Pass
39	0.014	0.058	N/A	0.016	0.087	N/A	Pass
40	0.006	0.046	N/A	0.007	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.89	Frequency(Hz):	50.00
I_Peak (Amps):	22.668	I_RMS (Amps):	14.475
I_Fund (Amps):	14.289	Crest Factor:	1.567
Power (Watts):	3298.1	Power Factor:	0.987

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.150	0.462	32.44	OK
3	0.604	2.078	29.08	OK
4	0.101	0.462	21.97	OK
5	0.266	0.923	28.80	OK
6	0.220	0.462	47.71	OK
7	0.108	0.693	15.63	OK
8	0.096	0.462	20.69	OK
9	0.242	0.462	52.36	OK
10	0.219	0.462	47.53	OK
11	0.290	0.231	125.71	Dist.
12	0.322	0.231	139.58	Dist.
13	0.177	0.231	76.88	OK
14	0.182	0.231	78.79	OK
15	0.236	0.231	102.36	Marg.
16	0.201	0.231	87.27	OK
17	0.094	0.231	40.62	OK
18	0.064	0.231	27.76	OK
19	0.072	0.231	31.08	OK
20	0.069	0.231	29.78	OK
21	0.082	0.231	35.70	OK
22	0.054	0.231	23.32	OK
23	0.073	0.231	31.64	OK
24	0.069	0.231	30.08	OK
25	0.049	0.231	21.09	OK
26	0.055	0.231	23.95	OK
27	0.061	0.231	26.52	OK
28	0.031	0.231	13.43	OK
29	0.049	0.231	21.39	OK
30	0.041	0.231	17.61	OK
31	0.047	0.231	20.48	OK
32	0.021	0.231	9.01	OK
33	0.045	0.231	19.45	OK
34	0.044	0.231	19.13	OK
35	0.042	0.231	18.35	OK
36	0.025	0.231	10.83	OK
37	0.057	0.231	24.55	OK
38	0.042	0.231	18.29	OK
39	0.030	0.231	13.07	OK
40	0.029	0.231	12.45	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A48K

Power Consumption	3269.8W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

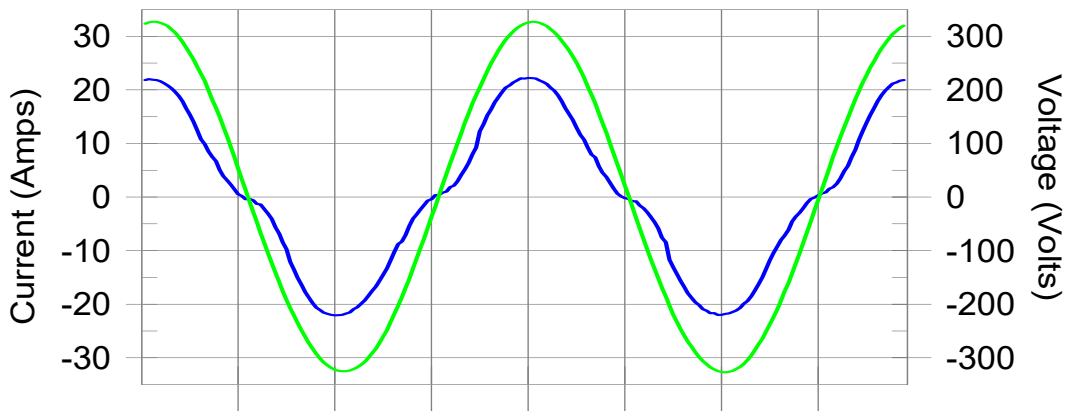
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

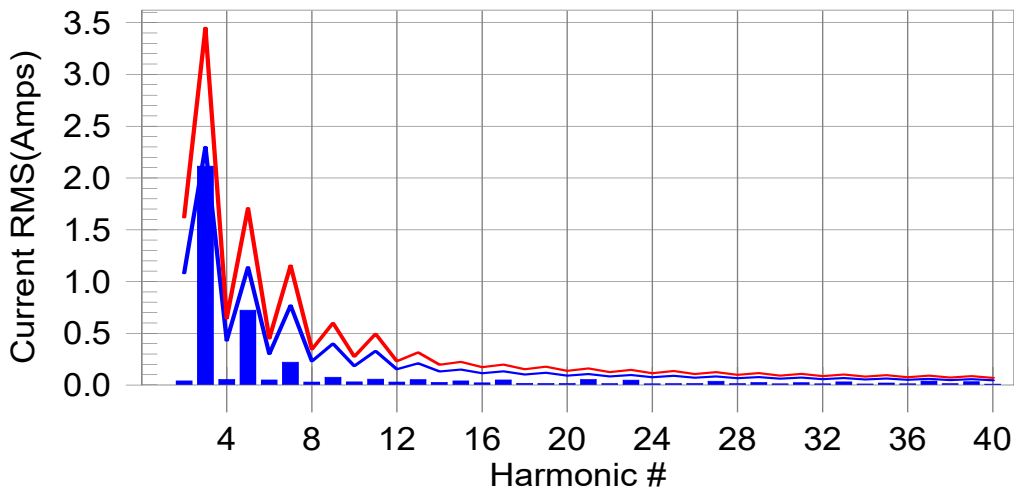
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonics H3-61.8% of 150% limit, H3-91.9% of 100% limit

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Normal
 THC(A): 2.255 I-THD(%): 15.9 POHC(A): 0.109 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.85	Frequency(Hz): 50.00
I_Peak (Amps): 22.489	I_RMS (Amps): 14.349
I_Fund (Amps): 14.187	Crest Factor: 1.569
Power (Watts): 3269.8	Power Factor: 0.987

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.041	1.080	N/A	0.058	1.620	N/A	Pass
3	2.114	2.300	91.9	2.131	3.450	61.8	Pass
4	0.054	0.430	N/A	0.079	0.645	N/A	Pass
5	0.724	1.140	63.5	0.734	1.710	42.9	Pass
6	0.050	0.300	N/A	0.071	0.450	N/A	Pass
7	0.220	0.770	28.6	0.229	1.155	19.8	Pass
8	0.029	0.230	N/A	0.036	0.345	N/A	Pass
9	0.076	0.400	N/A	0.082	0.600	N/A	Pass
10	0.030	0.184	N/A	0.038	0.276	N/A	Pass
11	0.058	0.330	N/A	0.067	0.495	N/A	Pass
12	0.029	0.153	N/A	0.036	0.230	N/A	Pass
13	0.052	0.210	N/A	0.059	0.315	N/A	Pass
14	0.026	0.131	N/A	0.034	0.197	N/A	Pass
15	0.040	0.150	N/A	0.052	0.225	N/A	Pass
16	0.021	0.115	N/A	0.034	0.173	N/A	Pass
17	0.049	0.132	N/A	0.057	0.198	N/A	Pass
18	0.017	0.102	N/A	0.030	0.153	N/A	Pass
19	0.015	0.118	N/A	0.037	0.178	N/A	Pass
20	0.015	0.092	N/A	0.032	0.138	N/A	Pass
21	0.053	0.107	N/A	0.062	0.161	N/A	Pass
22	0.014	0.084	N/A	0.031	0.125	N/A	Pass
23	0.048	0.098	N/A	0.054	0.147	N/A	Pass
24	0.013	0.077	N/A	0.031	0.115	N/A	Pass
25	0.014	0.090	N/A	0.032	0.135	N/A	Pass
26	0.016	0.071	N/A	0.024	0.107	N/A	Pass
27	0.037	0.083	N/A	0.042	0.125	N/A	Pass
28	0.014	0.066	N/A	0.019	0.099	N/A	Pass
29	0.024	0.078	N/A	0.028	0.116	N/A	Pass
30	0.012	0.061	N/A	0.016	0.092	N/A	Pass
31	0.023	0.073	N/A	0.028	0.109	N/A	Pass
32	0.013	0.058	N/A	0.016	0.086	N/A	Pass
33	0.032	0.068	N/A	0.035	0.102	N/A	Pass
34	0.011	0.054	N/A	0.014	0.081	N/A	Pass
35	0.021	0.064	N/A	0.024	0.096	N/A	Pass
36	0.013	0.051	N/A	0.015	0.077	N/A	Pass
37	0.039	0.061	N/A	0.043	0.091	N/A	Pass
38	0.014	0.048	N/A	0.017	0.073	N/A	Pass
39	0.033	0.058	N/A	0.036	0.087	N/A	Pass
40	0.009	0.046	N/A	0.011	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230.85	Frequency(Hz):	50.00
I_Peak (Amps):	22.489	I_RMS (Amps):	14.349
I_Fund (Amps):	14.187	Crest Factor:	1.569
Power (Watts):	3269.8	Power Factor:	0.987

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.209	0.462	45.18	OK
3	0.610	2.077	29.38	OK
4	0.219	0.462	47.40	OK
5	0.164	0.923	17.78	OK
6	0.215	0.462	46.59	OK
7	0.125	0.692	18.12	OK
8	0.081	0.462	17.63	OK
9	0.094	0.462	20.33	OK
10	0.112	0.462	24.30	OK
11	0.104	0.231	45.05	OK
12	0.112	0.231	48.38	OK
13	0.086	0.231	37.24	OK
14	0.093	0.231	40.14	OK
15	0.093	0.231	40.08	OK
16	0.091	0.231	39.33	OK
17	0.084	0.231	36.55	OK
18	0.073	0.231	31.42	OK
19	0.079	0.231	34.12	OK
20	0.079	0.231	34.03	OK
21	0.088	0.231	38.02	OK
22	0.082	0.231	35.32	OK
23	0.097	0.231	42.09	OK
24	0.083	0.231	35.89	OK
25	0.083	0.231	35.94	OK
26	0.071	0.231	30.63	OK
27	0.077	0.231	33.46	OK
28	0.063	0.231	27.23	OK
29	0.056	0.231	24.36	OK
30	0.043	0.231	18.45	OK
31	0.047	0.231	20.26	OK
32	0.044	0.231	19.25	OK
33	0.055	0.231	23.65	OK
34	0.035	0.231	15.27	OK
35	0.046	0.231	19.94	OK
36	0.034	0.231	14.81	OK
37	0.065	0.231	28.31	OK
38	0.032	0.231	13.95	OK
39	0.062	0.231	26.70	OK
40	0.037	0.231	16.02	OK

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A60K

Power Consumption	3417.6W	Test Results	PASS
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Class <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Test Mode	Operating	Tested by	Bonny Tsai

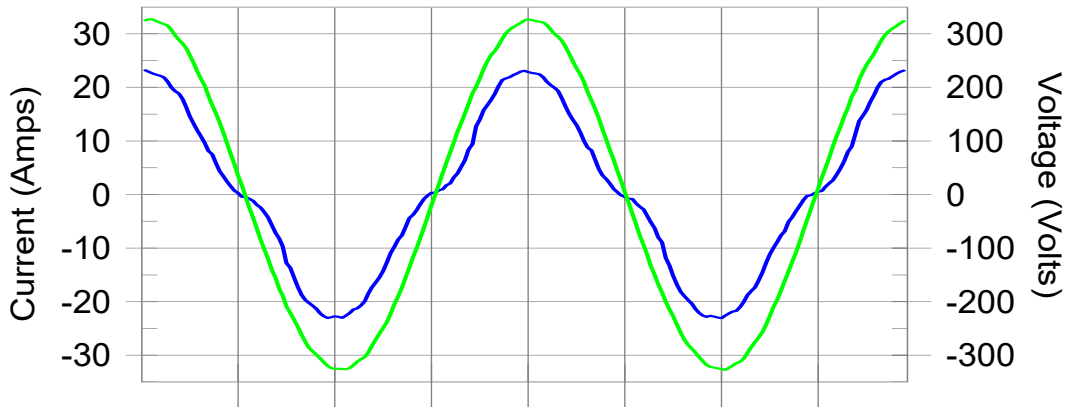
NOTE: 1. Limits classified according to item 7.5.1.

Test result of EN 61000-3-2

Test Result: Pass

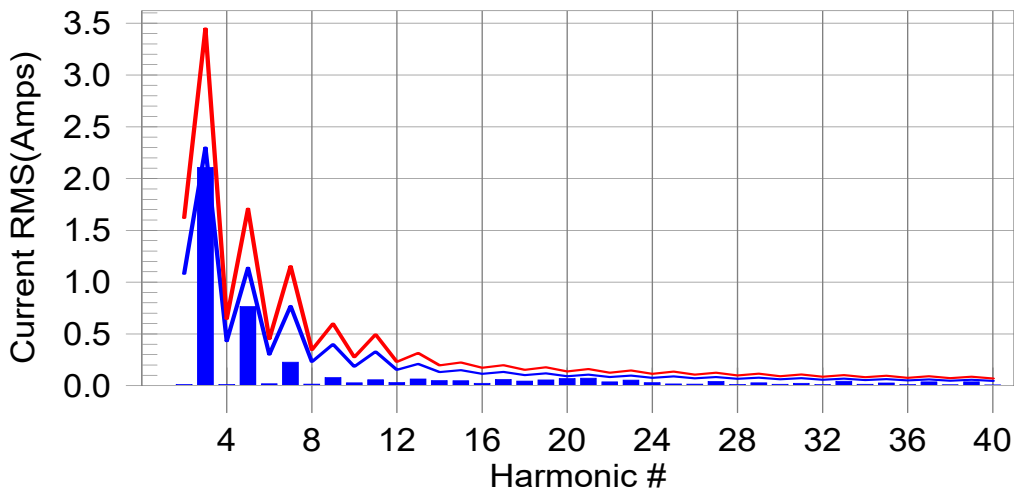
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass **Worst harmonics H3-61.3% of 150% limit, H3-91.6% of 100% limit**

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass Source qualification: Distorted
 THC(A): 2.266 I-THD(%): 15.3 POHC(A): 0.130 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.85	Frequency(Hz): 50.00
I_Peak (Amps): 23.313	I_RMS (Amps): 14.988
I_Fund (Amps): 14.814	Crest Factor: 1.556
Power (Watts): 3417.6	Power Factor: 0.988

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.012	1.080	N/A	0.020	1.620	N/A	Pass
3	2.108	2.300	91.6	2.113	3.450	61.3	Pass
4	0.013	0.430	N/A	0.018	0.645	N/A	Pass
5	0.766	1.140	67.2	0.769	1.710	45.0	Pass
6	0.018	0.300	N/A	0.027	0.450	N/A	Pass
7	0.228	0.770	29.6	0.232	1.155	20.1	Pass
8	0.016	0.230	N/A	0.024	0.345	N/A	Pass
9	0.078	0.400	N/A	0.088	0.600	N/A	Pass
10	0.028	0.184	N/A	0.043	0.276	N/A	Pass
11	0.057	0.330	N/A	0.069	0.495	N/A	Pass
12	0.031	0.153	N/A	0.047	0.230	N/A	Pass
13	0.064	0.210	N/A	0.092	0.315	N/A	Pass
14	0.050	0.131	N/A	0.077	0.197	N/A	Pass
15	0.048	0.150	N/A	0.078	0.225	N/A	Pass
16	0.023	0.115	N/A	0.063	0.173	N/A	Pass
17	0.061	0.132	N/A	0.085	0.198	N/A	Pass
18	0.045	0.102	N/A	0.070	0.153	N/A	Pass
19	0.056	0.118	N/A	0.091	0.178	N/A	Pass
20	0.069	0.092	N/A	0.105	0.138	N/A	Pass
21	0.072	0.107	N/A	0.125	0.161	N/A	Pass
22	0.036	0.084	N/A	0.103	0.125	N/A	Pass
23	0.055	0.098	N/A	0.073	0.147	N/A	Pass
24	0.030	0.077	N/A	0.045	0.115	N/A	Pass
25	0.017	0.090	N/A	0.034	0.135	N/A	Pass
26	0.016	0.071	N/A	0.035	0.107	N/A	Pass
27	0.042	0.083	N/A	0.053	0.125	N/A	Pass
28	0.012	0.066	N/A	0.021	0.099	N/A	Pass
29	0.028	0.078	N/A	0.038	0.116	N/A	Pass
30	0.014	0.061	N/A	0.025	0.092	N/A	Pass
31	0.023	0.073	N/A	0.033	0.109	N/A	Pass
32	0.011	0.058	N/A	0.016	0.086	N/A	Pass
33	0.043	0.068	N/A	0.046	0.102	N/A	Pass
34	0.014	0.054	N/A	0.019	0.081	N/A	Pass
35	0.026	0.064	N/A	0.032	0.096	N/A	Pass
36	0.011	0.051	N/A	0.019	0.077	N/A	Pass
37	0.037	0.061	N/A	0.040	0.091	N/A	Pass
38	0.010	0.048	N/A	0.013	0.073	N/A	Pass
39	0.038	0.058	N/A	0.041	0.087	N/A	Pass
40	0.008	0.046	N/A	0.011	0.069	N/A	Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Test Result: Pass

Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.85	Frequency(Hz):	50.00
I_Peak (Amps):	23.313	I_RMS (Amps):	14.988
I_Fund (Amps):	14.814	Crest Factor:	1.556
Power (Watts):	3417.6	Power Factor:	0.988

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.094	0.462	20.45	OK
3	0.547	2.077	26.33	OK
4	0.052	0.462	11.22	OK
5	0.117	0.923	12.63	OK
6	0.113	0.462	24.40	OK
7	0.124	0.692	17.91	OK
8	0.066	0.462	14.22	OK
9	0.076	0.462	16.38	OK
10	0.179	0.462	38.88	OK
11	0.168	0.231	72.77	OK
12	0.167	0.231	72.28	OK
13	0.183	0.231	79.14	OK
14	0.332	0.231	143.78	Dist.
15	0.269	0.231	116.72	Dist.
16	0.116	0.231	50.38	OK
17	0.118	0.231	51.09	OK
18	0.287	0.231	124.54	Dist.
19	0.335	0.231	145.06	Dist.
20	0.479	0.231	207.74	Dist.
21	0.530	0.231	229.61	Dist.
22	0.206	0.231	89.08	OK
23	0.121	0.231	52.33	OK
24	0.209	0.231	90.44	OK
25	0.162	0.231	70.28	OK
26	0.115	0.231	49.80	OK
27	0.174	0.231	75.31	OK
28	0.037	0.231	16.08	OK
29	0.110	0.231	47.67	OK
30	0.093	0.231	40.51	OK
31	0.098	0.231	42.35	OK
32	0.058	0.231	25.28	OK
33	0.107	0.231	46.30	OK
34	0.101	0.231	43.82	OK
35	0.121	0.231	52.23	OK
36	0.051	0.231	21.92	OK
37	0.059	0.231	25.51	OK
38	0.067	0.231	28.86	OK
39	0.095	0.231	41.07	OK
40	0.046	0.231	19.82	OK

7.6. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.6.1. LIMITS OF VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

TEST ITEM	LIMIT	REMARK
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

7.6.2. TEST INSTRUMENTS

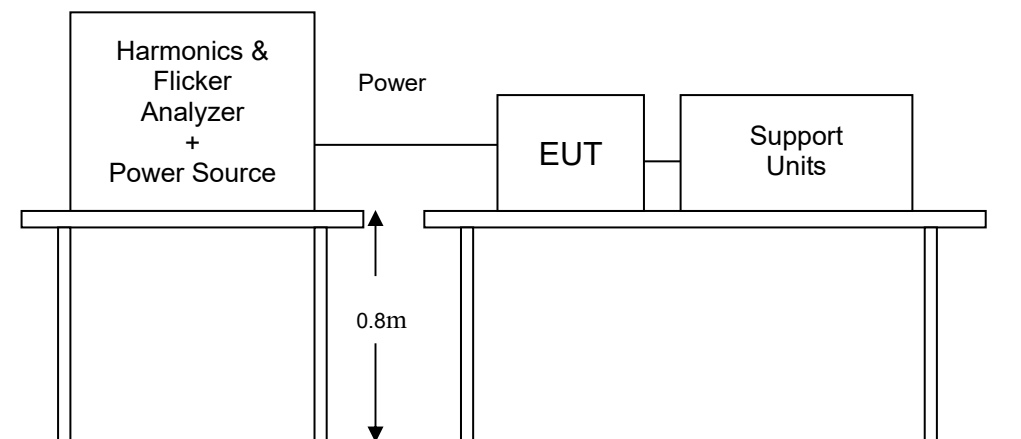
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Analyzer	TESEQ	CCN 1000-1	1504A02654	03/22/2019
AC Power Source	TESEQ	NSG 1007	1504A02654	03/22/2019
Software	Win2100 V4			

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

7.6.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-030)

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.
- During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

7.6.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Report No.: T190110D07-E

Ref No.: T180921D04-E

7.6.5. TEST RESULTS

Model: TF3000A12K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.250	1.0	PASS
P _{lt}	0.109	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	0	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

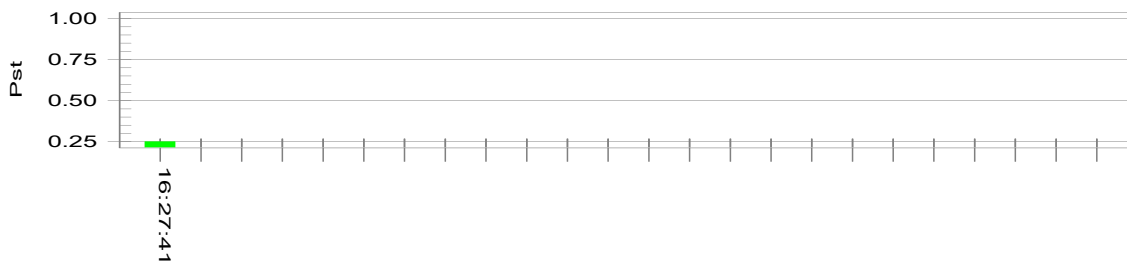
Test result of EN 61000-3-3

Test Result: Pass

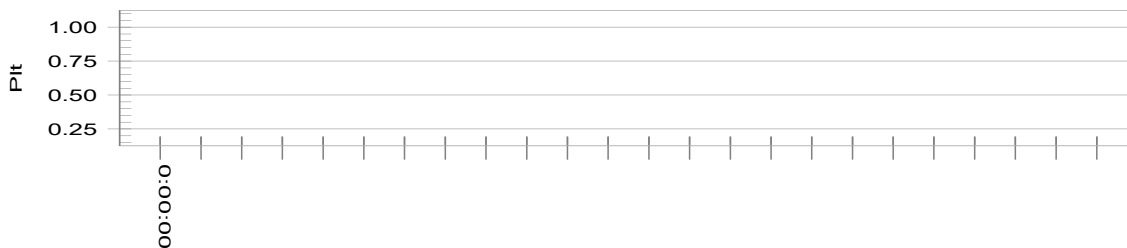
Status: Test Completed

P_{st}i and limit line

European Limits



P_{lt}i and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	224.98		
Highest dt (%):	0.24	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.250	Test limit:	1.000 Pass
Highest P _{lt} (2 hr. period):	0.109	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A15K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.411	1.0	PASS
P _{It}	0.180	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	0.43	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

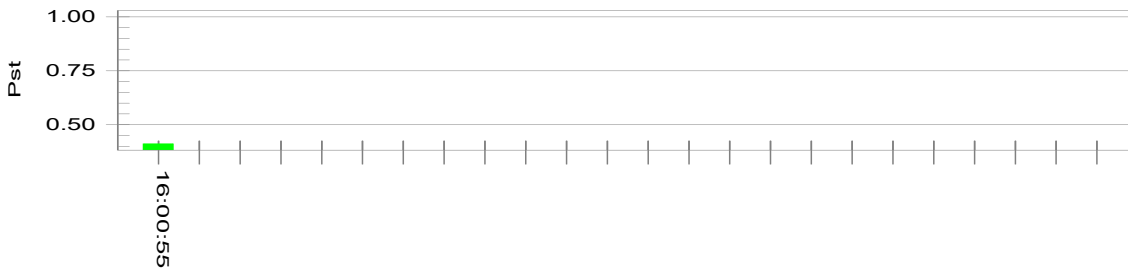
Test result of EN 61000-3-3

Test Result: Pass

Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	224.75	Test limit (%):	N/A	N/A
Highest dt (%):	0.71	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	0.43	Test limit:	1.000	Pass
Highest P _{st} (10 min. period):	0.411	Test limit:	0.650	Pass
Highest P _{It} (2 hr. period):	0.180			

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A24K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.569	1.0	PASS
P _{It}	0.249	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	-0.40	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

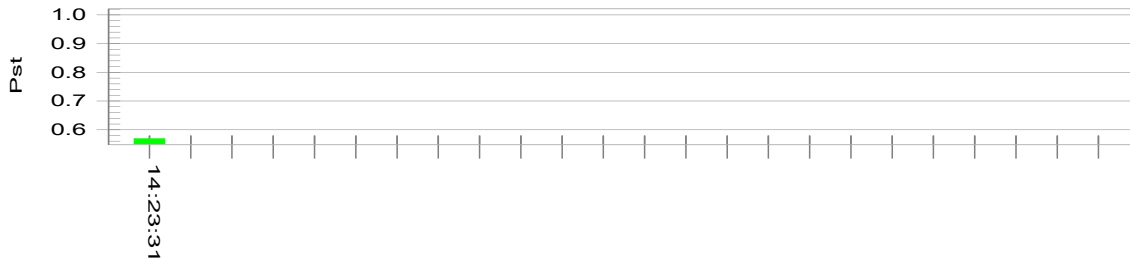
Test result of EN 61000-3-3

Test Result: Pass

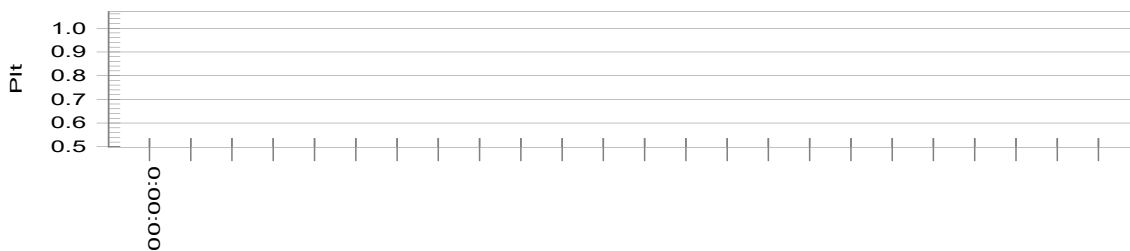
Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	224.87		
Highest dt (%):	0.65	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	-0.40	Test limit (%):	4.00 Pass
Highest P _{st} (10 min. period):	0.569	Test limit:	1.000 Pass
Highest P _{It} (2 hr. period):	0.249	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A30K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.407	1.0	PASS
P _{It}	0.178	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	-0.41	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

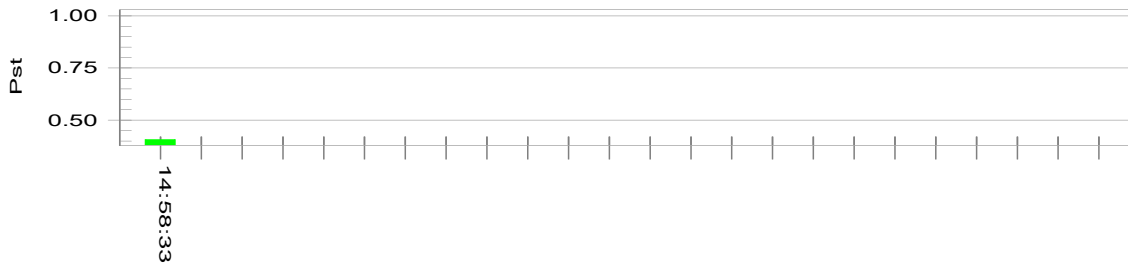
Test result of EN 61000-3-3

Test Result: Pass

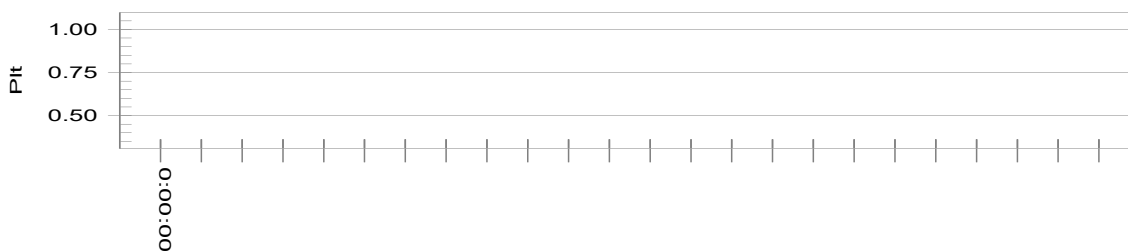
Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	225.05		
Highest dt (%):	0.58	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	-0.41	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.407	Test limit:	1.000 Pass
Highest PIt (2 hr. period):	0.178	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A36K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.461	1.0	PASS
P _{It}	0.201	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	0.51	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

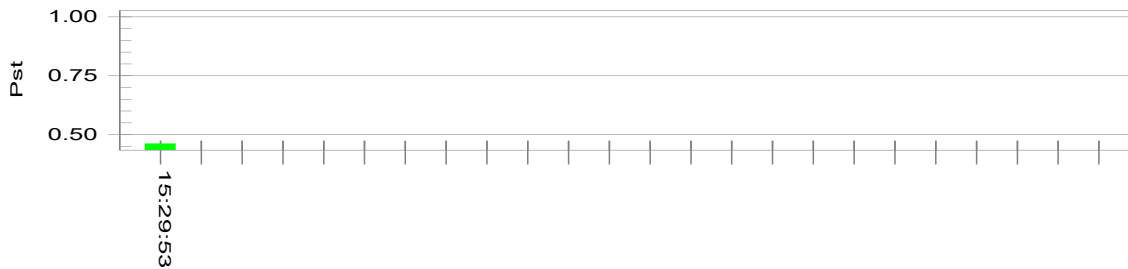
Test result of EN 61000-3-3

Test Result: Pass

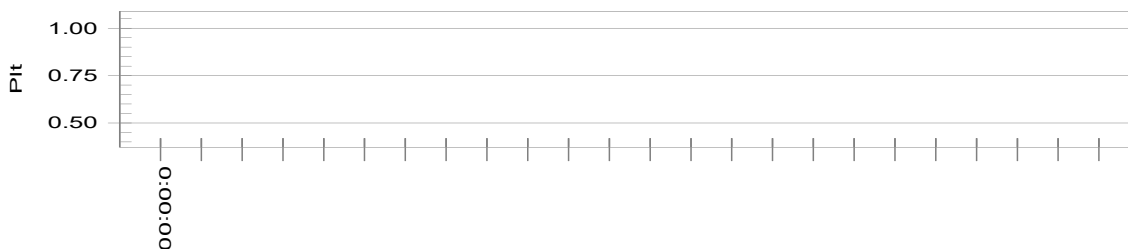
Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	224.99		
Highest dt (%):	-0.66	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.51	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.461	Test limit:	1.000 Pass
Highest PIt (2 hr. period):	0.201	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A48K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.462	1.0	PASS
P _{It}	0.202	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	-0.30	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

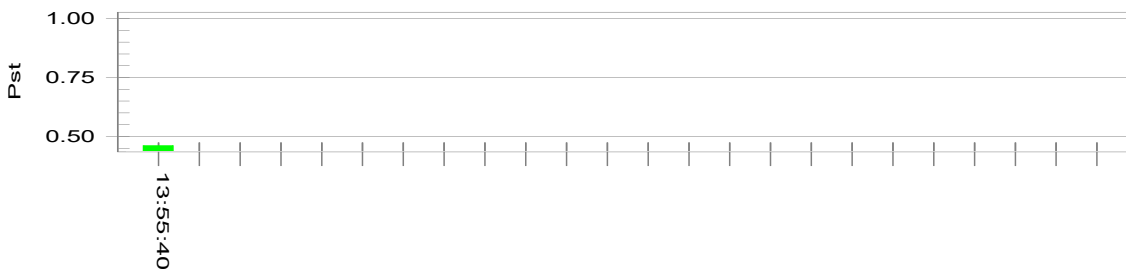
Test result of EN 61000-3-3

Test Result: Pass

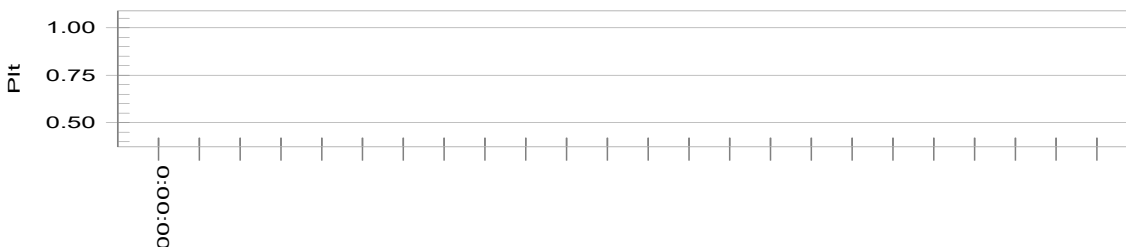
Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	225.16		
Highest dt (%):	0.44	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	-0.30	Test limit (%):	4.00 Pass
Highest P _{st} (10 min. period):	0.462	Test limit:	1.000 Pass
Highest P _{It} (2 hr. period):	0.202	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A60K

Observation Period (Tp)	10mins	Test Mode	Operating
Environmental Conditions	22°C, 52% RH, 1009mbar	Tested by	Bonny Tsai

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARK
P _{st}	0.221	1.0	PASS
P _{It}	0.097	0.65	PASS
T _{dt} (ms)	0	500	PASS
d _{max} (%)	0	4%	PASS
dc (%)	0	3.3%	PASS

NOTE: None.

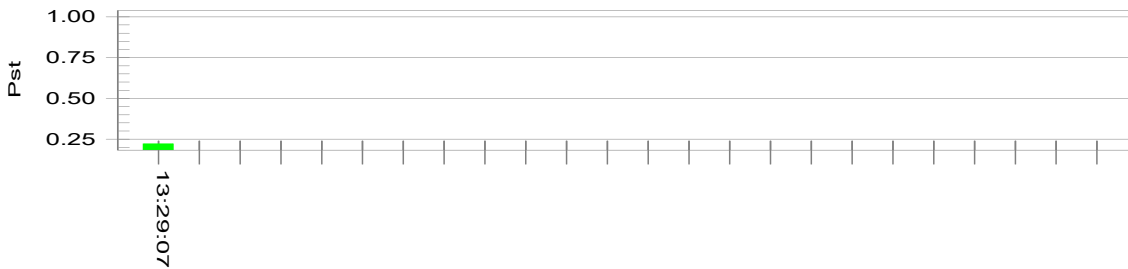
Test result of EN 61000-3-3

Test Result: Pass

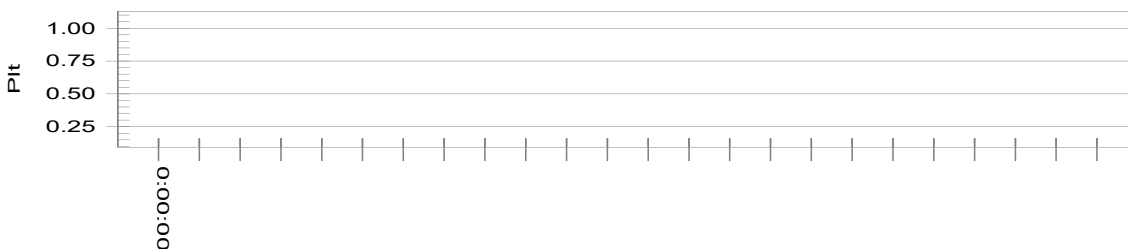
Status: Test Completed

P_{st} and limit line

European Limits



P_{It} and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	224.86		
Highest dt (%):	0.00	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.221	Test limit:	1.000 Pass
Highest PIt (2 hr. period):	0.097	Test limit:	0.650 Pass

Report No.: T190110D07-E

Ref No.: T180921D04-E

8 IMMUNITY TEST

8.1. GENERAL DESCRIPTION

Product Standard	EN 55024: 2010 + A1: 2015	
	Test Type	Minimum Requirement
Basic Standard, Specification, and Performance Criterion required	IEC 61000-4-2	Electrostatic Discharge - ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test - RS: 80 ~1000 MHz, 3V/m, 80% AM(1kHz), Performance Criterion A
	IEC 61000-4-4	Electrical Fast Transient/Burst - EFT, AC Power Port: 1kV DC Power Port: 0.5kV Signal Ports and Telecommunication Ports: 0.5kV Performance Criterion B
	IEC 61000-4-5	Surge Immunity Test: 1.2/50 μ s Open Circuit Voltage, 8/20 μ s Short Circuit Current, AC Power Port ~ line to line: 1kV, line to ground: 2kV DC Power Port ~ line to ground: 0.5kV Signal Ports and Telecommunication Ports ~ line to ground: 1kV Performance Criterion B 10/700 μ s Open Circuit Voltage, Performance Criterion C
	IEC 61000-4-6	Conducted Radio Frequency Disturbances Test - CS: 0.15 ~ 80 MHz, 3Vrms, 80% AM, 1kHz, Performance Criterion A
	IEC 61000-4-8	Power frequency magnetic field immunity test 50 Hz or 60 Hz, 1A/m, Performance Criterion A
	IEC 61000-4-11	Voltage Dips: i) >95% reduction for 0.5 period, Performance Criterion B ii) 30% reduction for 25 period, Performance Criterion C Voltage Interruptions: >95% reduction for 250 period Performance Criterion C

8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION

<p>Criteria A:</p>	<p>The apparatus shell continues to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the manufacturer does not specify the minimum performance level or the permissible performance loss, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
<p>Criteria B:</p>	<p>After test, the apparatus shell continues to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance.</p> <p>During the test, degradation of performance is however allowed. However, no change of operating state if stored data is allowed to persist after the test. If the manufacturer does not specify the minimum performance level or the permissible performance loss, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
<p>Criteria C:</p>	<p>Temporary loss of function is allowed, provided the functions is self-recoverable or can be restored by the operation of controls by the user in accordance with the manufacturer instructions.</p> <p>Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.3. ELECTROSTATIC DISCHARGE (ESD)

8.3.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge: 2 ; 4 ; 8 kV (Direct) Contact Discharge: 2 ; 4 kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 10 times at each test point for each polarity Contact Discharge: min. 200 times in total
Discharge Mode:	Single Discharge 1 second minimum

8.3.2. TEST INSTRUMENT

IMMUNITY SHIELDED ROOM				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Aneroid Barometer	SATO	7610-20	89090	09/19/2019
ESD Simulator	Teseq	NSG 437	1189	10/05/2018
Thermo-Hygro Meter	Wisewind	N/A	SD-S017	09/26/2019

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.3.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-022)

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the **Horizontal Coupling Plane (HCP)**. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

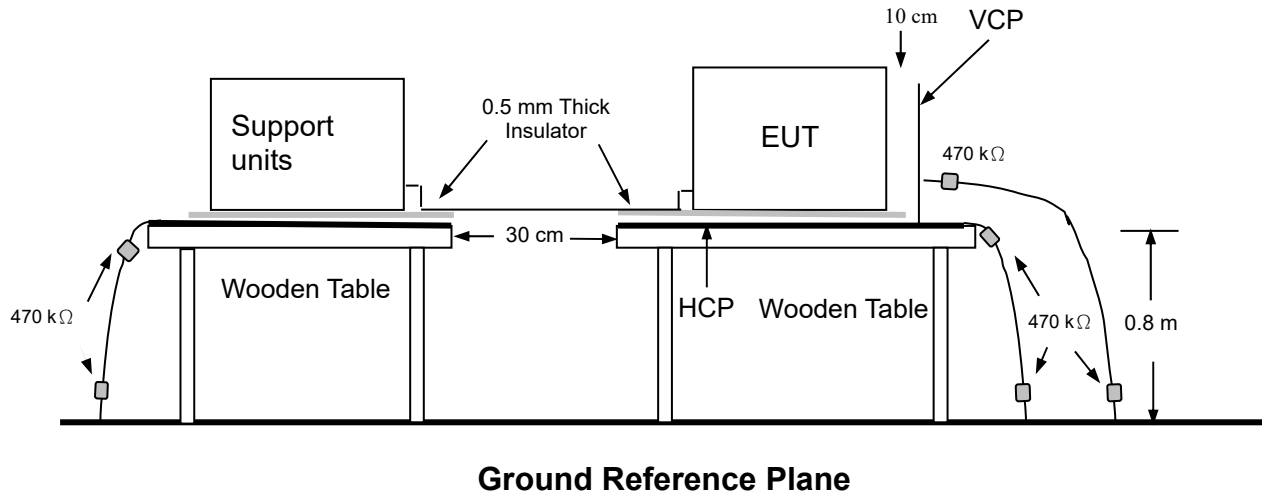
b) Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

- a) The EUT was located 0.1 m minimum from all side of the **HCP** (dimensions 1.6m x 0.8m).
- b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
- c) The time interval between two successive single discharges was at least 1 second.
- d) Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each **HCP** opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the **HCP** and perpendicular to its front edge during the discharge.
- g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **Vertical Coupling Plane (VCP)** in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

8.3.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **Ground Reference Plane**. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **Horizontal Coupling Plane** (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940k Ohm total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.3.5. TEST RESULTS

Model: TF3000A12K

Temperature	19°C	Humidity	43% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Air Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Contact Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Horizontal Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Vertical Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

NOTE: 1. There was no change compared with initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

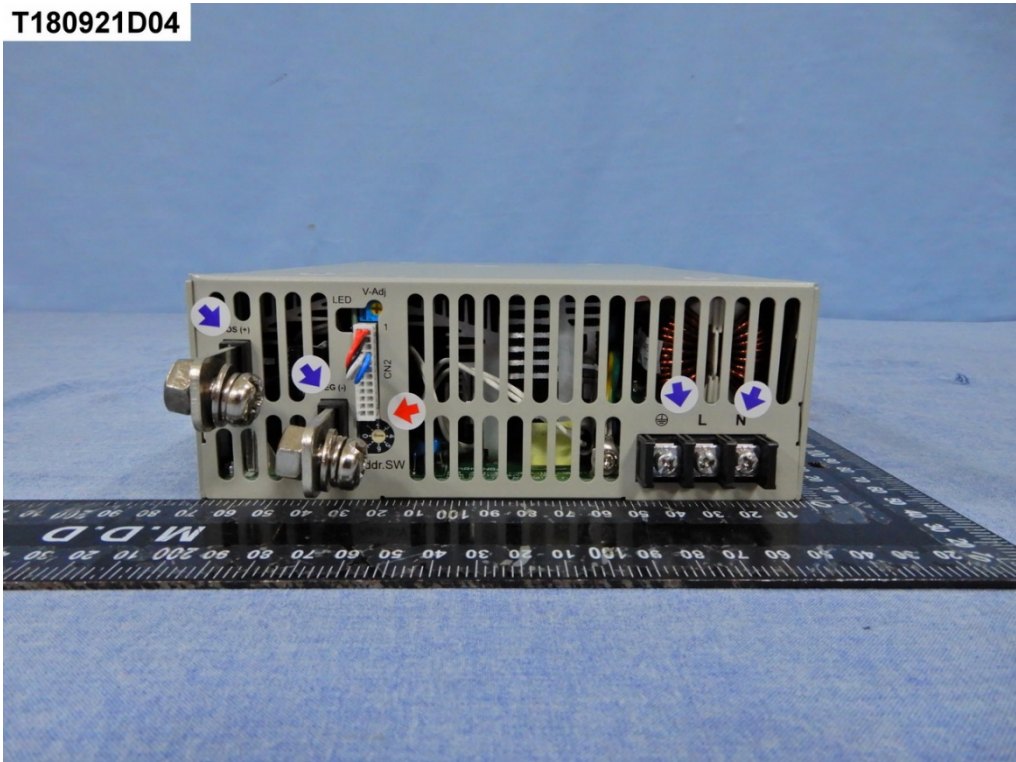
The Photo for Discharge Points of EUT Front

T180921D04



Back

T180921D04

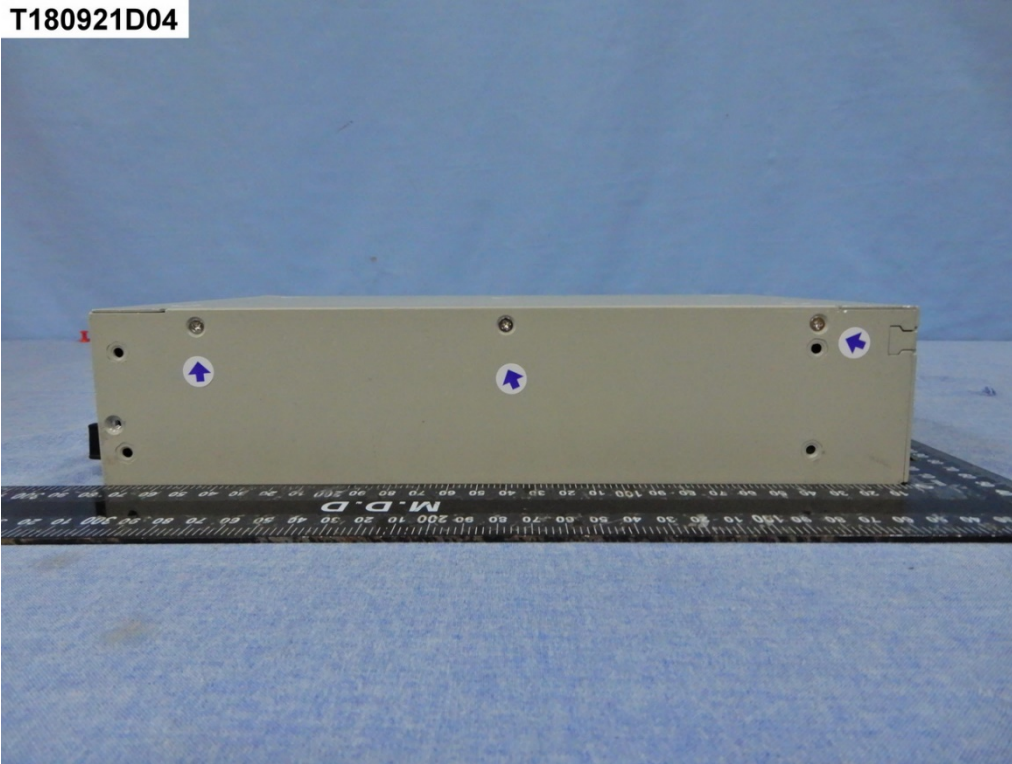


Red Dot —Air Discharged
Blue Dot —Contact Discharged

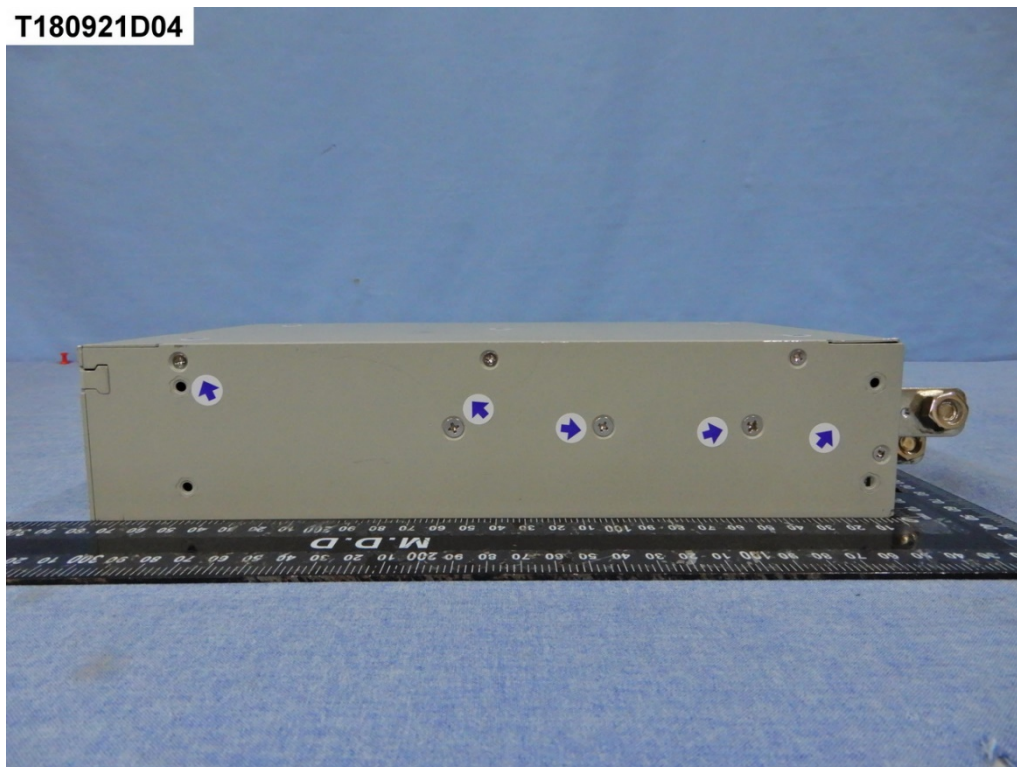
Report No.: T190110D07-E

Ref No.: T180921D04-E

Left



Right

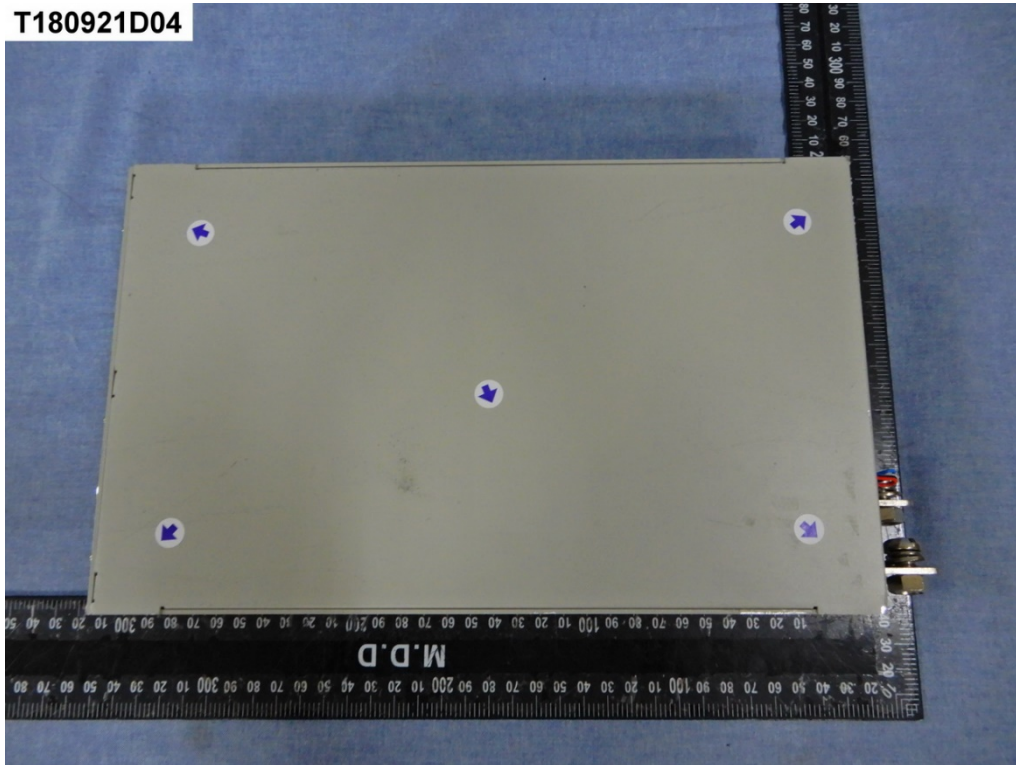


Red Dot —Air Discharged
Blue Dot —Contact Discharged

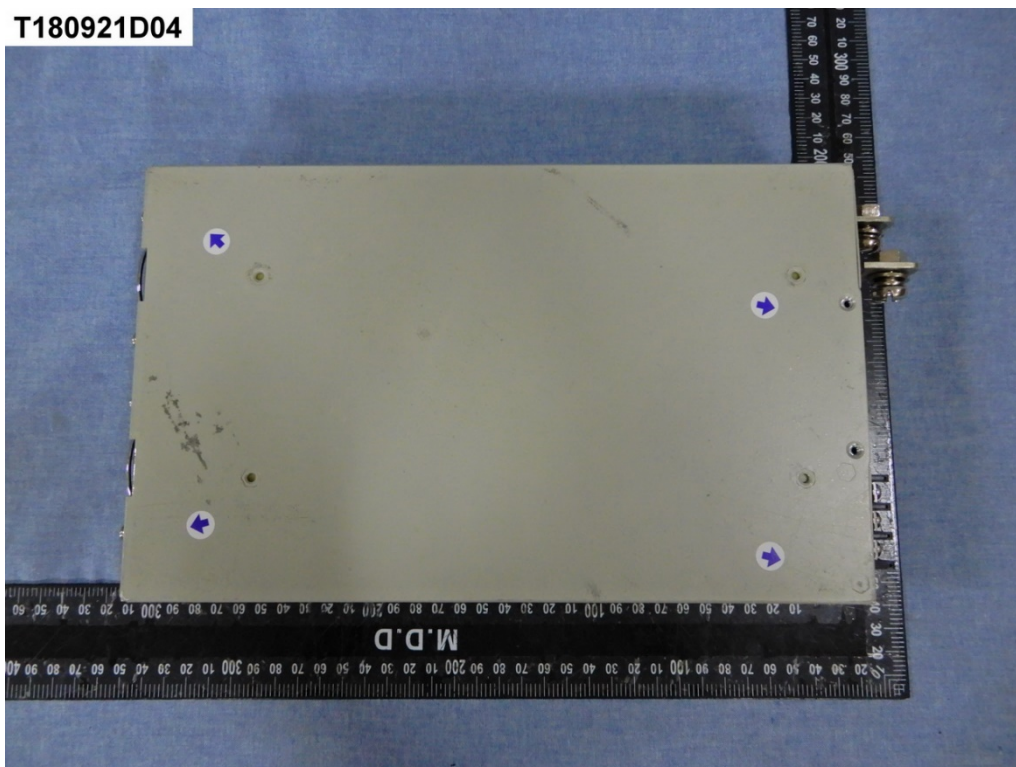
Report No.: T190110D07-E

Ref No.: T180921D04-E

Top



Bottom



Red Dot —Air Discharged
Blue Dot —Contact Discharged

Report No.: T190110D07-E

Ref No.: T180921D04-E

Model: TF3000A60K

Temperature	19°C	Humidity	43% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Air Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Contact Discharge							
Test Points	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Horizontal Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

Discharge To Vertical Coupling Plane							
Side of EUT	Test Levels			Results			
	± 2 kV	± 4 kV	± 8 kV	Pass	Fail	Performance Criterion	Observation
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2

NOTE: 1. There was no change compared with initial operation during the test.

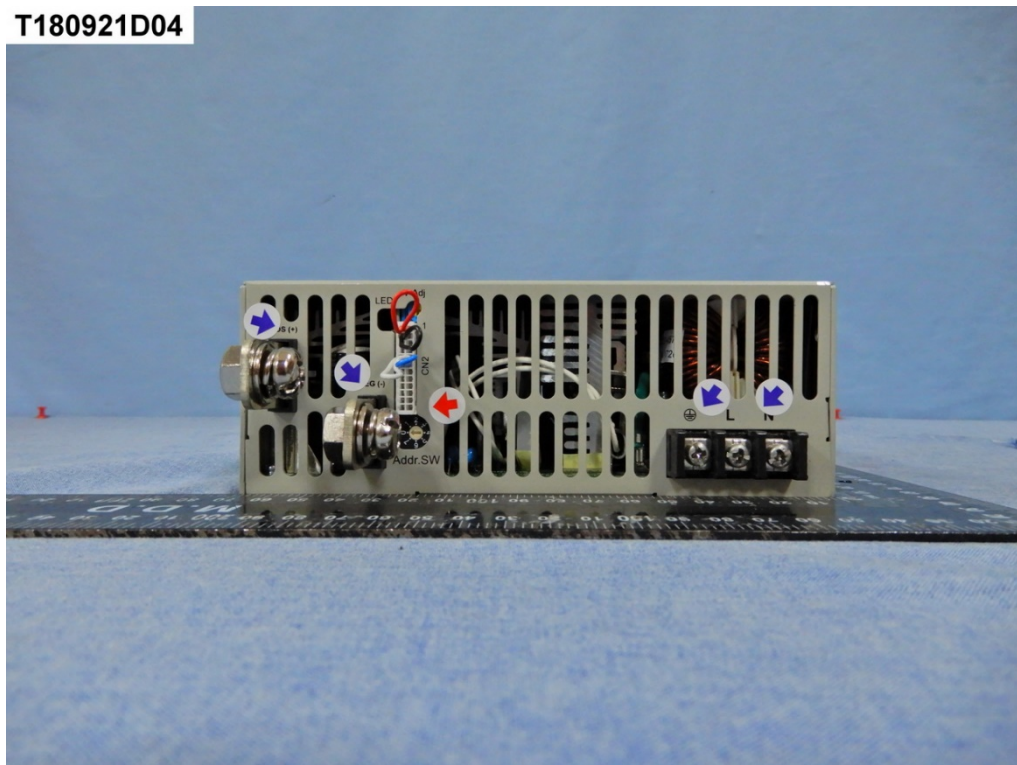
Report No.: T190110D07-E

Ref No.: T180921D04-E

The Photo for Discharge Points of EUT Front



Back

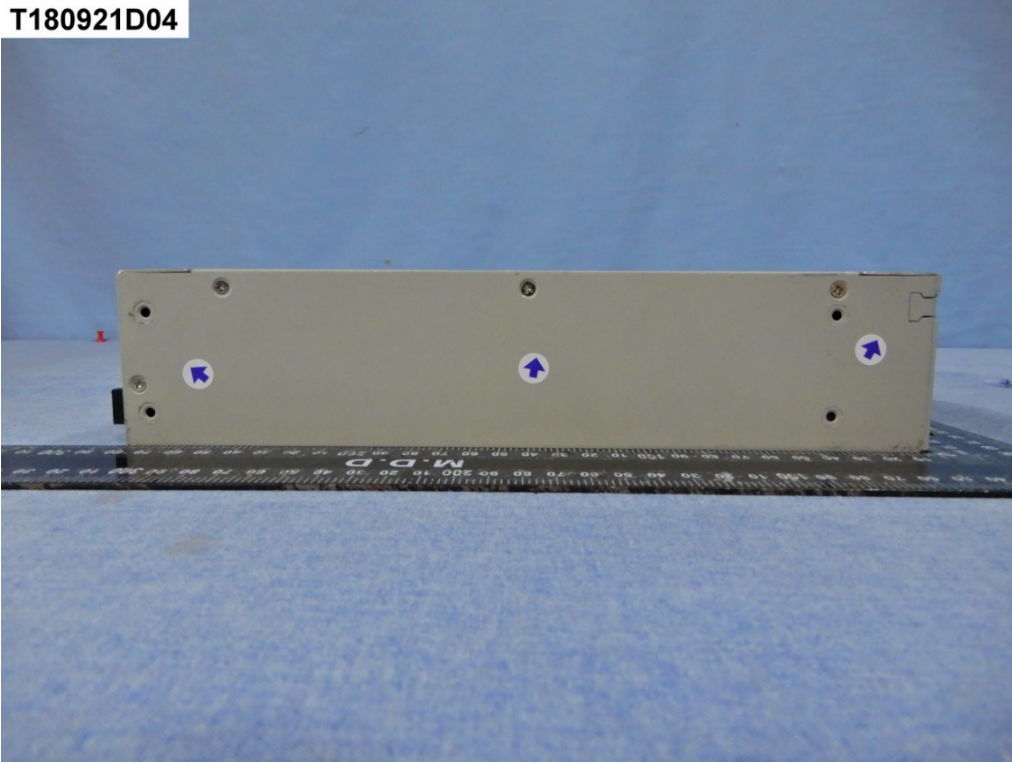


Red Dot —Air Discharged
Blue Dot —Contact Discharged

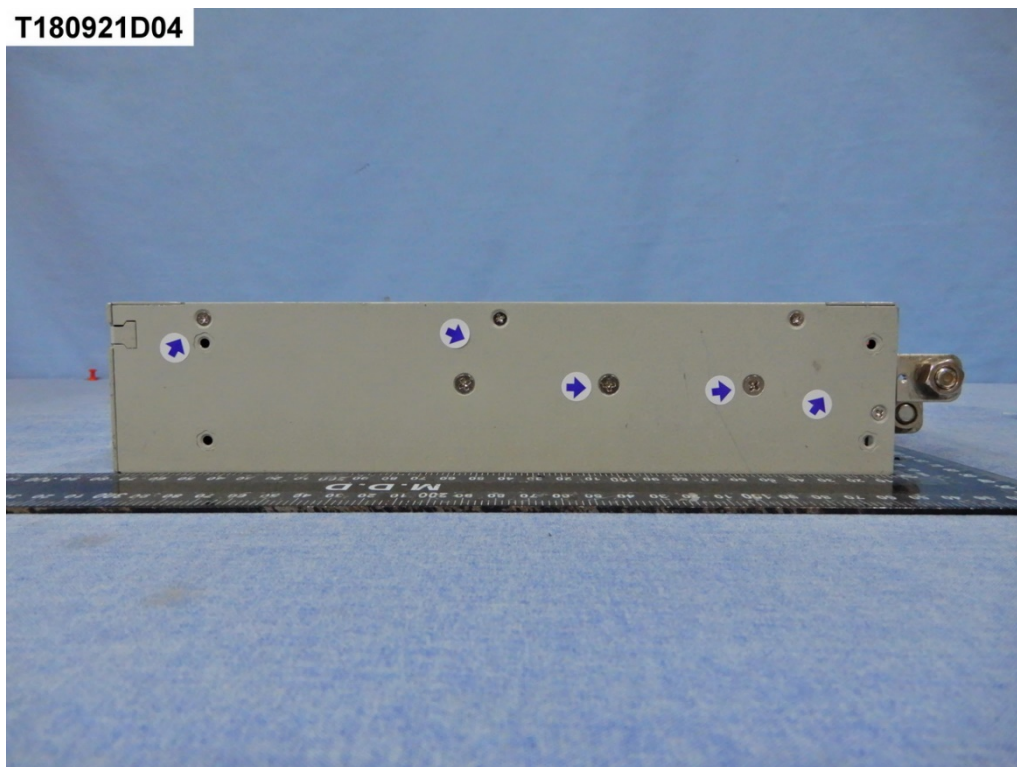
Report No.: T190110D07-E

Ref No.: T180921D04-E

Left



Right

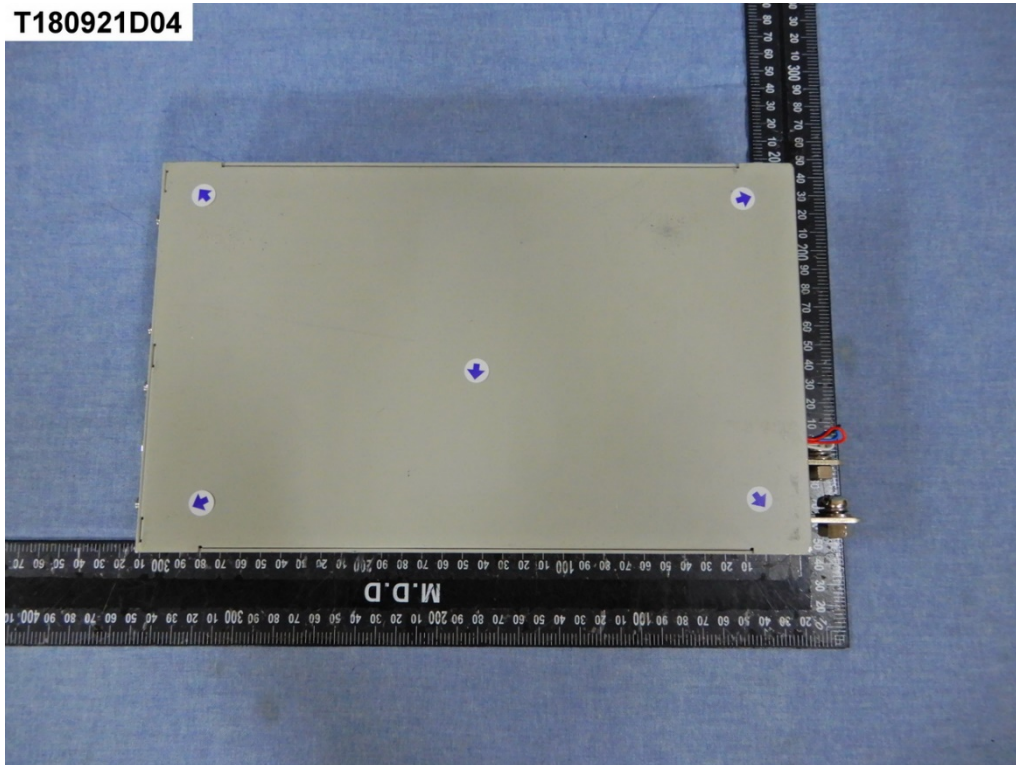


Red Dot —Air Discharged
Blue Dot —Contact Discharged

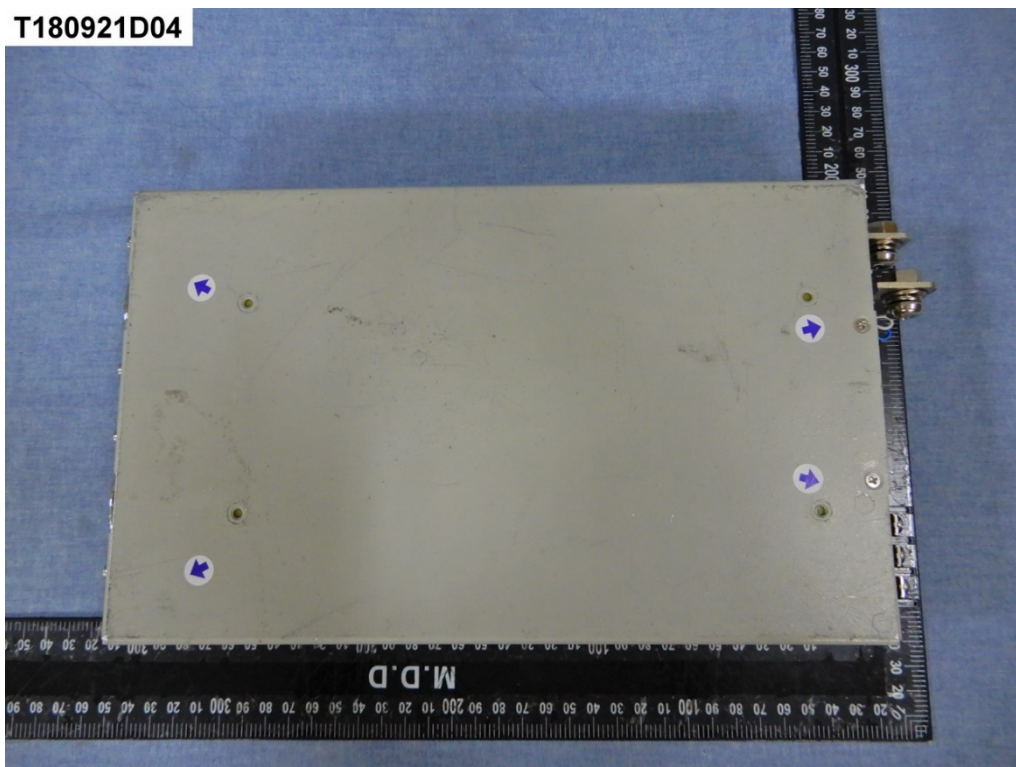
Report No.: T190110D07-E

Ref No.: T180921D04-E

Top



Bottom



Red Dot —Air Discharged
Blue Dot —Contact Discharged

8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

8.4.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	80 MHz ~1000 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5m

8.4.2. TEST INSTRUMENT

844 RS Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Electric Field Probe	AR	FL7006	0338955	04/03/2019
Field of Calibration	CCS	Chamber#RS	80-1000MHz	05/01/2019
Power Sensor	Boonton	51013-4E	35812	02/08/2019
RF Power Meter	Boonton	4242-01-02	14357	02/08/2019
Thermo-Hygro Meter	Wisewind	N/A	SD-S018	11/06/2018
Broadband Antenna	AR	AT1080	311819	N.C.R
Power Amplifier	Milmega	80RF1000-600	1079361	N.C.R
Signal Generator	Agilent	N5181A	MY47421336	11/23/2018
Software	Emcware Ver. 2.6.0.16			

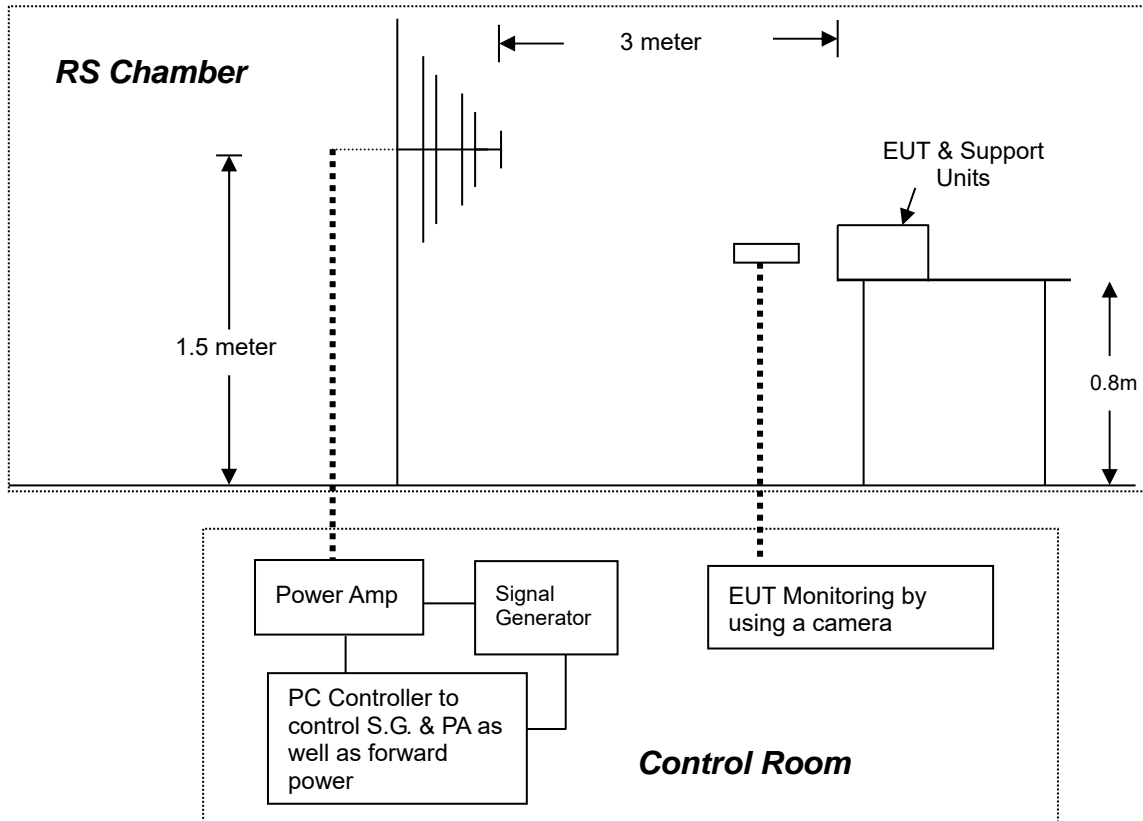
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.4.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-023)

The test procedure was in accordance with IEC 61000-4-3

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

8.4.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.4.5. TEST RESULTS

Model: TF3000A12K

Temperature	23°C	Humidity	60% RH
Pressure	1010mbar	Dwell Time	3 sec.
Tested By	Bonny Tsai	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

Model: TF3000A60K

Temperature	23°C	Humidity	60% RH
Pressure	1010mbar	Dwell Time	3 sec.
Tested By	Bonny Tsai	Required Passing Performance	Criterion A

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Performance Criterion	Observation	Result
80 ~ 1000	V&H	0	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	90	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	180	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
80 ~ 1000	V&H	270	3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with the initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.5. ELECTRICAL FAST TRANSIENT (EFT)

8.5.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4
Test Voltage:	AC Power Port: 1kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave-shape:	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

8.5.2. TEST INSTRUMENT

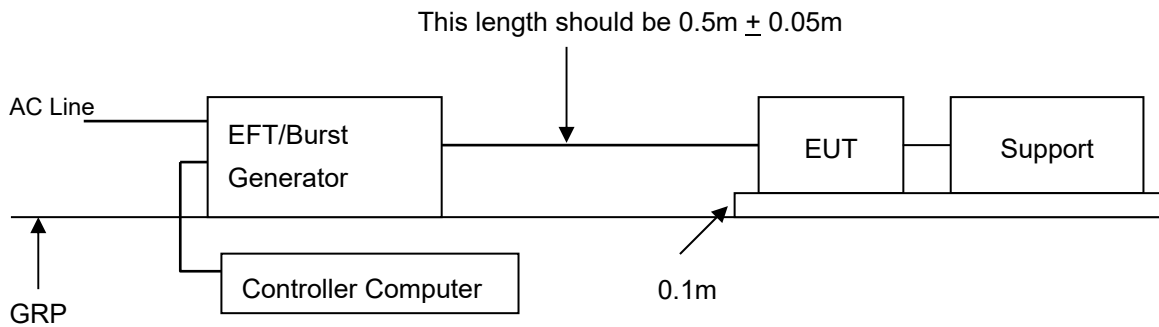
Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Capacitive Clamp	EMC-Partner	CN-EFT1000	589	07/08/2019
EMC Test System	Teseq	NSG 3060	1718	11/07/2018
Software	WIN 3000Ver. 1.3.2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.5.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-024)

- All types of cables, including their length, and the interface port of the EUT to which they were connected.
- Both positive and negative polarity discharges were applied.
- The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 0.5 meter.
- The duration time of each test sequential was 1 minute.
- The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.

8.5.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The configuration consisted of a wooden table (0.1m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.5.5. TEST RESULTS

Model: TF3000A12K

Temperature	20°C	Humidity	50% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Model: TF3000A60K

Temperature	20°C	Humidity	50% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - N - PE	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.6. SURGE IMMUNITY TEST

8.6.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-5
Wave-Shape:	Combination Wave 1.2/50 μ s Open Circuit Voltage 8/20 μ s Short Circuit Current
Test Voltage:	AC Power Port~ line to line: 1kV, line to ground: 2kV
Surge Input/Output:	AC Power Line: L-N / L-PE / N-PE
Generator Source Impedance:	2 ohm between networks 12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0° / 90° / 180° / 270°
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

8.6.2. TEST INSTRUMENT

Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
CDN	EMC-Partner	CDN-UTP8	1505	02/06/2019
EMC Test System	Teseq	NSG 3060	1718	11/07/2018
Software	WIN 3000Ver. 1.3.2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

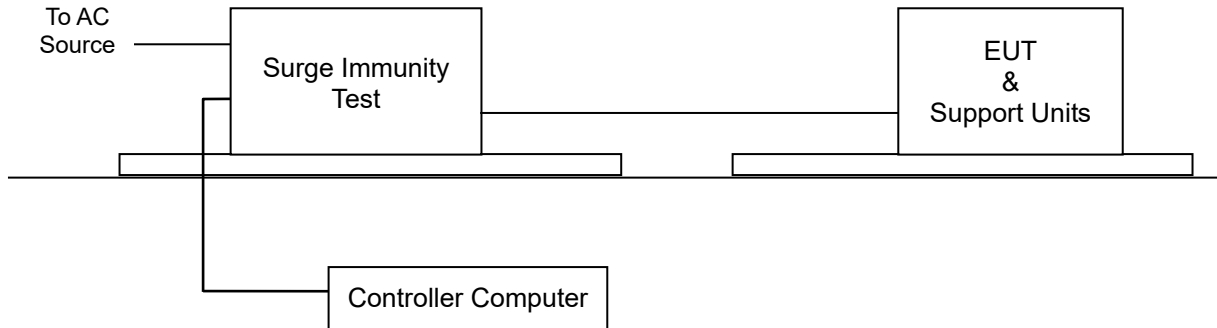
8.6.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-025)

- a) For EUT power supply:
The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- b) For test applied to unshielded un-symmetrically operated interconnection lines of EUT:
The surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- c) For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:
The surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrester were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.6.4. TEST SETUP



- For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

8.6.5. TEST RESULTS

Model: TF3000A12K

Temperature	20°C	Humidity	50% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Model: TF3000A60K

Temperature	20°C	Humidity	50% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion B	

Test Point	Polarity	Test Level (kV)	Performance Criterion	Observation	Result
L - N	+/-	1	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
L - PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
N - PE	+/-	2	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

8.7.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-6
Frequency Range:	0.15 MHz ~ 80 MHz
Field Strength:	3 Vrms
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of preceding frequency value
Coupled cable:	AC Power Mains, Unshielded
Coupling device:	CDN-M3 (3 wires)

8.7.2. TEST INSTRUMENT

CS Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Attenuator	EMCI	SA3NL	10006F	N.C.R
CDN	Teseq	CDN M016	35820	02/05/2019
CDN	Teseq	CDN M016	35821	02/05/2019
Continuous Wave Simulator	EM Test	CWS 500N1.4	P1446143188	02/04/2019
CDN	SCHAFFNER	CDN M325	17457	12/07/2018
Software	icd.controlVer. 5.3.5			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.7.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-026)

The EUT shall be tested within its intended operating and climatic conditions.

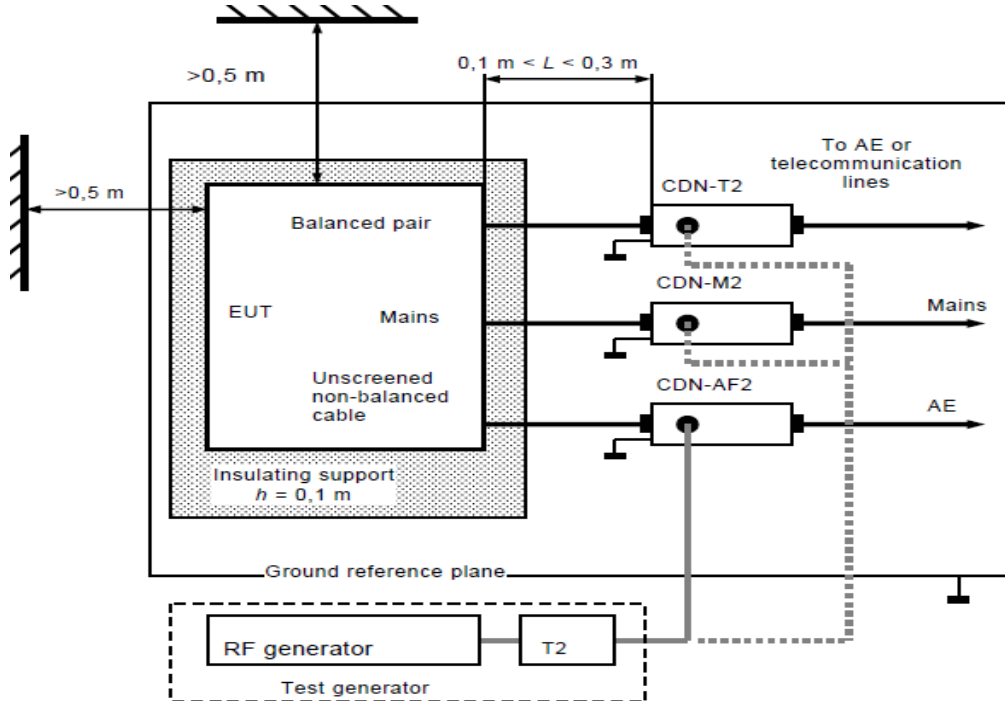
The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

The frequency range was swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal was modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate was 1.5×10^{-3} decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value from 150 kHz to 80 MHz.

The dwell time at each frequency was less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequency(ies) and harmonics or frequencies of dominant interest, was analyzed separately.

Attempts were made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

8.7.4. TEST SETUP



Note: 1. The CDNs and / or EM clamp used for real test depends on ports and cables configuration of EUT.
2. The EUT clearance from any metallic obstacles shall be at least 0.5m

- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP AND FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.7.5. TEST RESULTS

Model: TF3000A12K

Temperature	21°C	Humidity	60% RH
Pressure	1009mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	AC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Model: TF3000A60K

Temperature	21°C	Humidity	60% RH
Pressure	1009mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion A	

Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	AC Power Line (0.3m)	CDN-M3	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.8. POWER FREQUENCY MAGNETIC FIELD

8.8.1. TEST SPECIFICATION

Basic Standard:	IEC 61000-4-8
Frequency Range:	50Hz
Field Strength:	1 A/m
Observation Time:	1 minute
Inductance Coil:	Rectangular type, 1mx1m

8.8.2. TEST INSTRUMENT

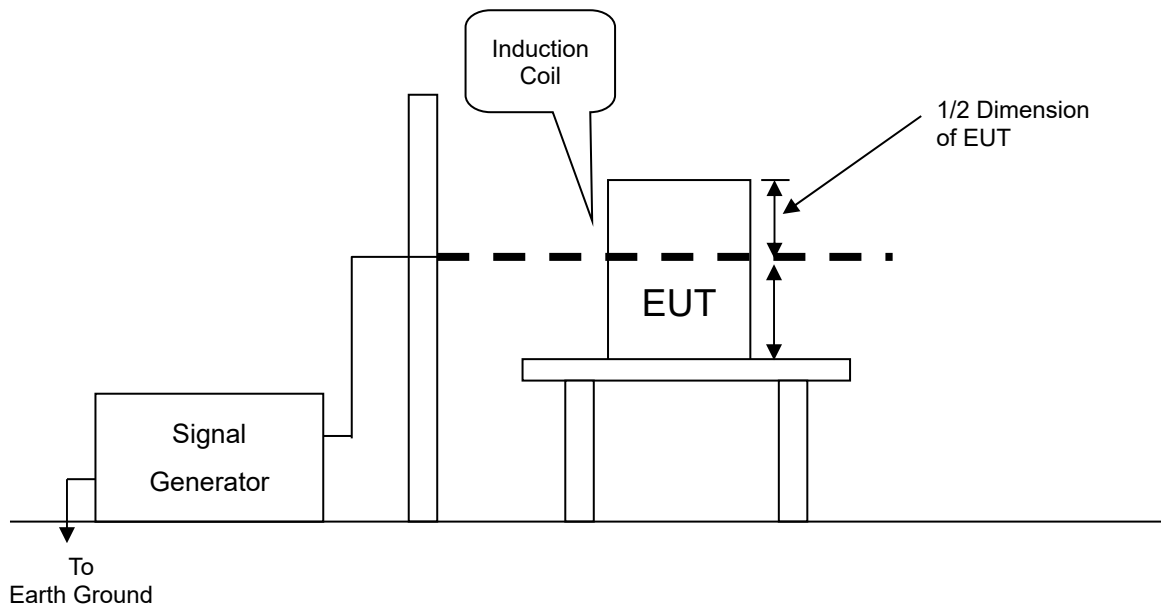
Immunity Shield Room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
AC/DC Clamp Meter	Fluke	353	33360025	07/03/2019
Magnetic Field Coil	Teseq	INA 703 W/ 2141	1976 / 1413	04/08/2019
Magnetic Field Meter	Sypris	4080	0247	01/03/2019
5kVA Power Source	Teseq	5001IX-208-TSQ	1207A03643	04/08/2019
Software	Win2120Ver. 5.0			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.8.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-027)

- The equipment is configured and connected to satisfy its functional requirements. It shall be placed on the GRP with the interposition of a 0.1m-thick insulating support.
- The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

8.8.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.8.5. TEST RESULTS

Model: TF3000A12K

Temperature	18°C	Humidity	48% RH
Pressure	1009mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	1	A	Note	PASS
Y	1	A	Note	PASS
Z	1	A	Note	PASS

NOTE: There was no change compared with the initial operation during the test.

Model: TF3000A60K

Temperature	18°C	Humidity	48% RH
Pressure	1009mbar	Tested By	Bonny Tsai
Required Passing Performance		Criterion A	

DIRECTION	Field Strength (A/m)	Performance Criterion	OBSERVATION	RESULTS
X	1	A	Note	PASS
Y	1	A	Note	PASS
Z	1	A	Note	PASS

NOTE: There was no change compared with the initial operation during the test.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.9. VOLTAGE DIPS & VOLTAGE INTERRUPTIONS

8.9.1. TEST SPECIFICATION

Basic Standard: IEC 61000-4-11

Test duration time: Minimum three test events in sequence

Interval between event: Minimum 10 seconds

Phase Angle: 0° / 180°

Test cycle: 3 times

8.9.2. TEST INSTRUMENT

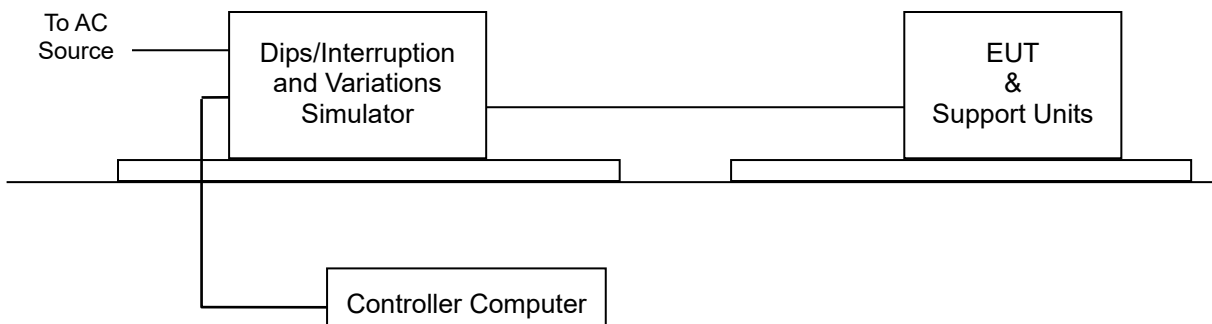
Immunity shielded room				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
AC/DC Clamp Meter	Lutron	CM-9930R	I.200121	05/21/2019
EMC Test System	Teseq	NSG 3060	1718	11/07/2018
Software	WIN 3000Ver. 1.3.2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R.= No Calibration required.

8.9.3. TEST PROCEDURE (please refer to measurement standard or CCS SOP PA-028)

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. Setting the parameter of tests and then perform the test software of test simulator.
3. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
4. Recording the test result in test record form.

8.9.4. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Report No.: T190110D07-E

Ref No.: T180921D04-E

8.9.5. TEST RESULTS

Model: TF3000A12K

Temperature	20°C	Humidity	59% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance	Criterion B: >95% reduction 0.5 period Criterion C: 30% reduction 25 period & >95% reduction 250 period		

Test Power: 230Vac, 50Hz				
Voltage (% Reduction)	Duration (Period)	Performance Criterion	Observation	Test Result
>95	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
30	25	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
>95	250	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during and after the test. No unintentional response was found during the test.
2. EUT shut down but EUT can be auto recovered after power turn on.

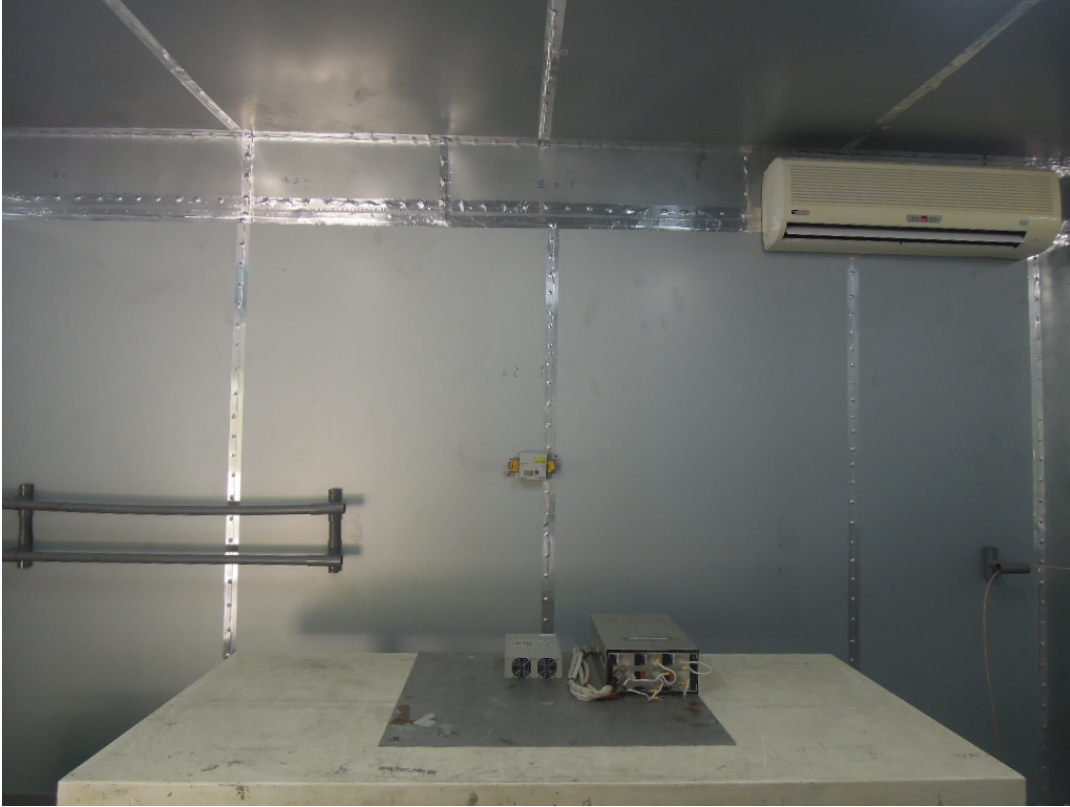
Model: TF3000A60K

Temperature	20°C	Humidity	59% RH
Pressure	1010mbar	Tested By	Bonny Tsai
Required Passing Performance	Criterion B: >95% reduction 0.5 period Criterion C: 30% reduction 25 period & >95% reduction 250 period		

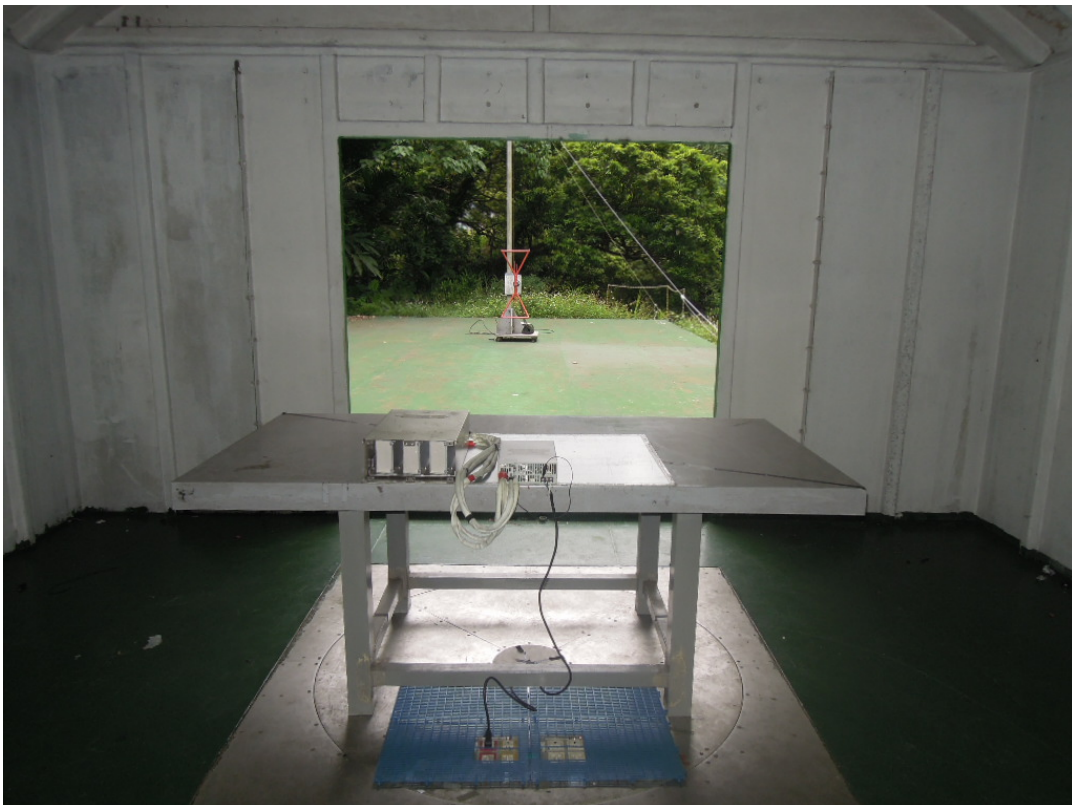
Test Power: 230Vac, 50Hz				
Voltage (% Reduction)	Duration (Period)	Performance Criterion	Observation	Test Result
>95	0.5	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
30	25	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	Note <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	PASS
>95	250	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C	Note <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	PASS

NOTE: 1. There was no change compared with initial operation during and after the test. No unintentional response was found during the test.
2. EUT shut down but EUT can be auto recovered after power turn on.

9 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



Harmonic & Flicker Test



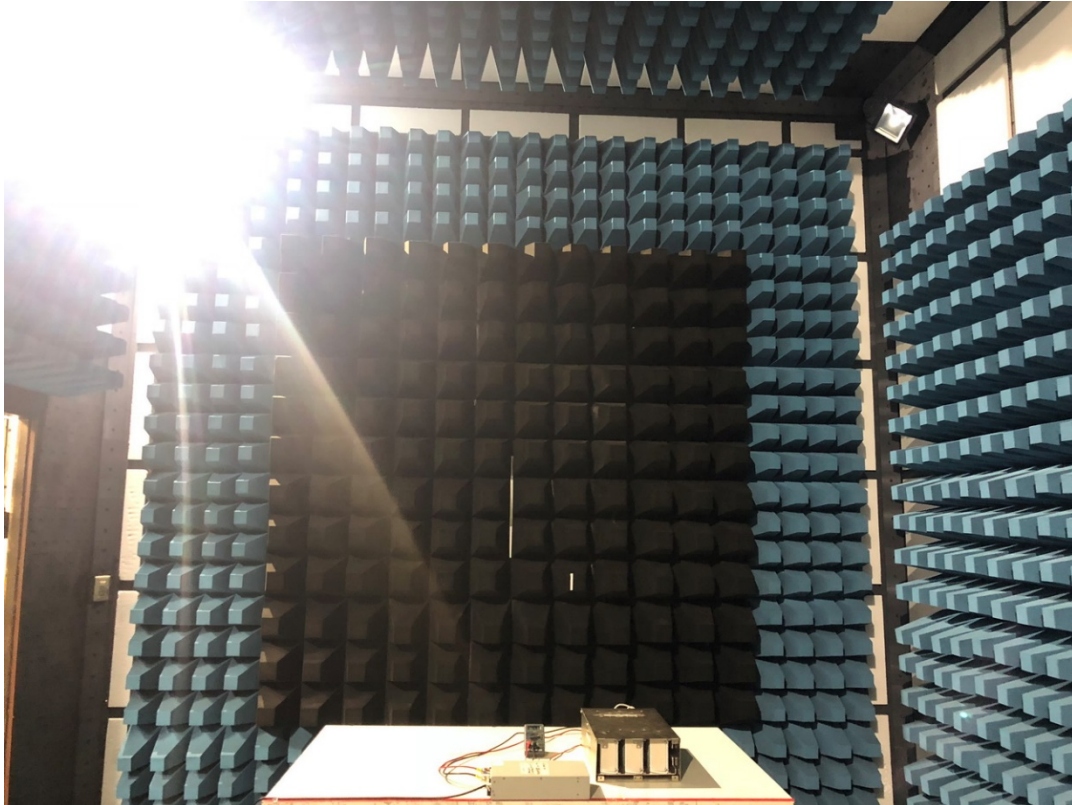
ESD Test



Report No.: T190110D07-E

Ref No.: T180921D04-E

RS Test



EFT Test



Report No.: T190110D07-E

Ref No.: T180921D04-E

Surge Test



CS Test



PFMF Test



Voltage Dips / Interruptions Test

