



# FCC RADIO TEST REPORT

Applicant : TRENDnet, Inc.  
Address : 20675 Manhattan Place, Torrance, CA 90501 U.S.A.  
Equipment : AC2600 MU-MIMO WiFi Router  
Model No. : TEW-827DRU  
Trade Name : TRENDnet  
FCC ID. : XU8TEW827DRUV2

**I HEREBY CERTIFY THAT :**

The sample was received on Jun. 08, 2017 and the testing was carried out on Jul. 24, 2017 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Assistant Manager

Tested by:

Spree Yei / Engineer

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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# 1. Summary of Test Procedure and Test Results

## 1.1 Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

KDB558074

KDB662911

KDB447498

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. AC Power Line Conducted Emission	Pass
15.209 15.205	. Radiated Spurious Emission	Pass
15.247(d)	. Conducted Spurious Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak and Average Output Power	Pass
15.247(e)	. Power Spectral Density	Pass
2.1091	. Radio Frequency Exposure	Pass

This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report.



## 2. Test Configuration of Equipment under Test

### 2.1 Feature of Equipment

Equipment	AC2600 MU-MIMO WiFi Router
Model No.	TEW-827DRU
Brand Name	TRENDnet
Product Description	Please refer to User's Manual.
AC Adapter	Adapter Brand: CWT Model No.: 2ABB018F US Input: 100-240V~ 50/60Hz, 0.6A Output: 12V, 1.5A
	Adapter Brand: LEI Model No.: MU18A2120150-A1 Input: 100-240V~ 50/60Hz, 0.5A Output: 12V, 1.5A
	Adapter Brand: TOPOW Model No.: TPA158K-18120-US Input: 100-240V~ 50/60Hz, 0.8A Output: 12V, 1.5A
	Adapter Brand: CWT Model No.: 2ABL024F US Input: 100-240V~ 50/60Hz, 0.6A Output: 12V, 2A
	Adapter Brand: APD Model No.: WA-24Q12R Input: 100-240V~ 50-60Hz, 0.7A Max. Output: 12V, 2A
Connecting I/O Port(s)	Please refer to User's Manual.
Memo	V2.0R
Frequency Range	802.11b/g/n/ac: 2412-2462 MHz 802.11a/an/ac: 5150MHz-5250MHz, 5725MHz -5850MHz
Modulation Type	OFDM, DSSS
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS23, HT20/40 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type/ gain	Dipole antenna 2412-2462MHz: ANT 0~3: 3dBi 5150MHz-5250MHz: ANT 0~3: 5dBi 5725MHz -5850MHz: ANT 0~3: 5dBi

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. 802.11ac VHT20, VHT40 and VHT80 support beamforming.



## 2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT20, 802.11ac VHT20 (2412MHz~2462MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
<b>*01</b>	<b>2412</b>	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	<b>*11</b>	<b>2462</b>
<b>*06</b>	<b>2437</b>	---	---

802.11n HT40, 802.11ac VHT40 (2422MHz~2452MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
<b>*03</b>	<b>2422</b>	<b>*09</b>	<b>2452</b>
04	2427	---	---
05	2432	---	---
<b>*06</b>	<b>2437</b>	---	---

Note: Channels remarked \* are selected to perform test.

## 2.3 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
- An executive program, "QA Tool:v0.0.1.71" under WIN 7 was executed to transmit and receive data via WLAN.
- The following test modes were performed for the test:
  - Test Mode 1. 802.11b (1Mbps)
  - Test Mode 2. 802.11g (6Mbps)
  - Test Mode 3. 802.11n HT20 (6.5Mbps)
  - Test Mode 4: 802.11n HT40 (13.5Mbps)
  - Test Mode 5. 802.11ac VHT20 (6.5Mbps)
  - Test Mode 6: 802.11ac VHT40 (13.5Mbps)

For conduction test, caused "Test Mode 2" generated the worst case, it was reported as the final data.  
 For radiation test (below 1GHz), caused "Test Mode 2" generated the worst case, it was reported as the final data.  
 For radiation test (above 1GHz), caused "Test Mode 1,2,5,6" generated the worst case, they were reported as the final data.  
 Note: Non-Beamforming was the worst case, so it was used for the test result.



### 2.4 Description of Test System

Device	Manufacturer	Model No.	Description
Remote workstation			
Notebook	DELL	LatitudeE5450	Power Cable, Unshielding, 1.8m

Use Cable:

Cable	Quantity	Description
Network	1	Unshielding, 15m





## 2.5 General Information of Test

Test Site	<b>CerpPASS Technology Corporation Test Laboratory</b> Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582	
	FCC	TW1079, TW1061, 390316, 228391, 641184
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 25,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

## 2.6 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	Line / Neutral	±2.9076 dB
Radiated Emission	9 kHz ~ 25,000 MHz	Vertical / Horizontal	±0.948 dB
Spurious Emission (Conducted)	-	-	±4.011 dB
Maximum Peak and Average Output Power	-	-	±0.322 dB
Power Spectral Density	-	-	±0.322 dB
Bandwidth	-	-	74.224Hz



### 3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2017/03/07	2018/03/06
LISN	Schwarzbeck	NSLK 8127	8127-740	2016/08/30	2017/08/29
LISN	Schwarzbeck	NSLK 8127	8127-516	2016/09/06	2017/09/05
Pulse Limiter	R&S	ESH3-Z2	101934	2017/02/14	2018/02/13
Bilog Antenna	Schwarzbeck	VULB9168	369	2017/03/15	2018/03/14
Active Loop Antenna	EMCO	6507	40855	2017/05/15	2018/05/14
Horn Antenna	EMCO	3115	31601	2016/09/05	2017/09/04
Horn Antenna	EMCO	3116	31970	2017/03/29	2018/03/28
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2017/03/17	2018/03/16
Preamplifier	EM	EM330	60660	2017/02/25	2018/02/24
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2016/09/13	2017/09/12
Preamplifier	Agilent	8449B	3008A01954	2017/02/09	2018/02/08
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2016/11/04	2017/11/03
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2017/03/17	2018/03/16
Spectrum Analyzer	R&S	FSP40	100219	2016/09/01	2017/08/31
Bluetooth Tester	R&S	CBT	101133	2017/03/10	2018/03/09
Attenuator	KEYSIGHT	8491B	MY39250703	2017/03/07	2018/03/06
Rotary Attenuator	Agilent	8495B	MY42146680	2017/03/13	2018/03/12
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2016/09/05	2017/09/04
Series Power Meter	Anritsu	ML2495A	1224005	2017/03/01	2018/02/28
Power Sensor	Anritsu	MA2411B	1207295	2017/03/01	2018/02/28
Cable	HUBER SUHNER	SUCOFLEX 102	28422/2	2017/02/25	2018/02/24
Cable	HUBER SUHNER	SUCOFLEX 102	28418/2	2017/02/25	2018/02/24
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	v2.0.0.1	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A



### 4. Antenna Requirements

#### 4.1 Antenna Construction and Directional Gain

Antenna Type	Dipole Antenna
Antenna Gain	2412-2462MHz: ANT 0~3: 3dBi 5150MHz-5250MHz: ANT 0~3: 5dBi 5725MHz -5850MHz: ANT 0~3: 5dBi

2412-2462MHz

For Power directional gain=  $G_{ant}= 3 \text{ dBi}$

For PSD directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$   
= 9.02 (dBi)

5150MHz-5250MHz

For Power directional gain=  $G_{ant}= 5 \text{ dBi}$

For PSD directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$   
= 11.02 (dBi)

5725MHz -5850MHz

For Power directional gain=  $G_{ant}= 5 \text{ dBi}$

For PSD directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$   
= 11.02 (dBi)



## 5. Test of AC Power Line Conducted Emission

### 5.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

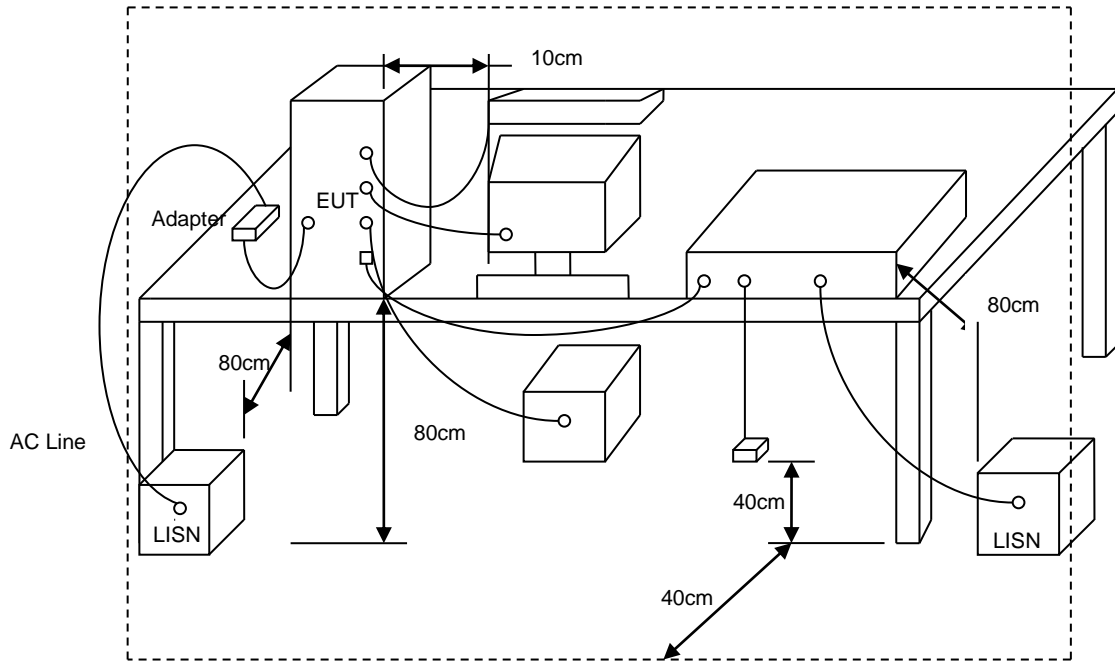
\*Decreases with the logarithm of the frequency.

### 5.2 Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



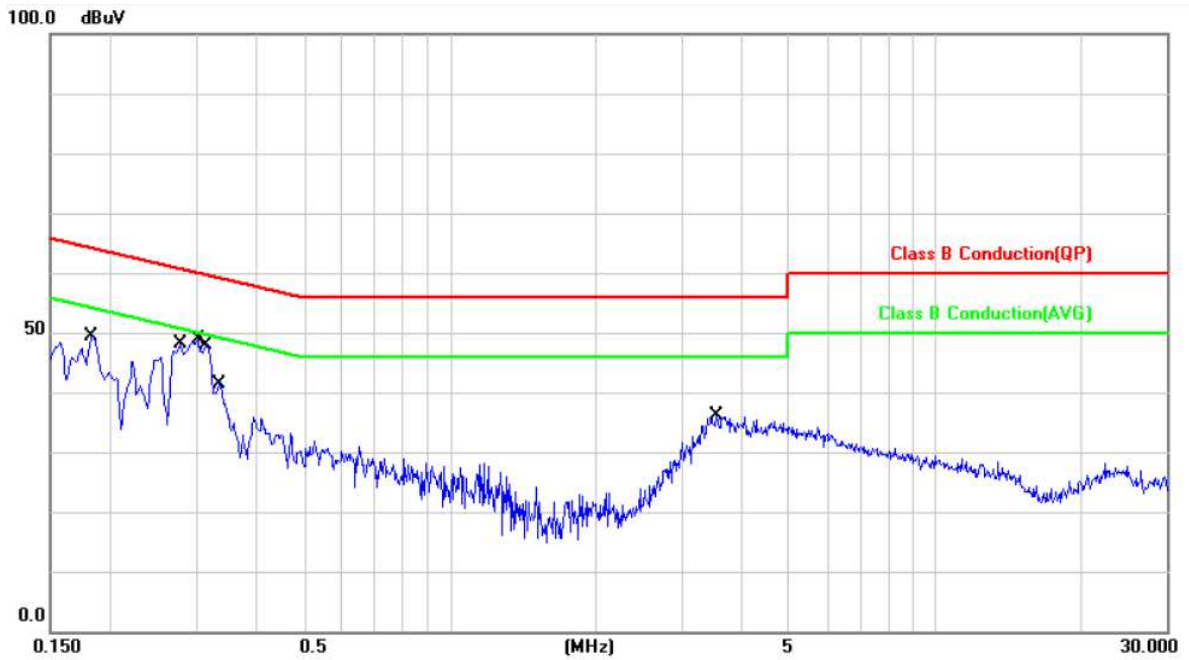
### 5.3 Typical Test Setup





5.4 Test Result and Data

Power	: AC 120V (2ABB018F US)	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1819	9.91	36.68	46.59	64.39	-17.80	QP	P
2	0.1819	9.91	29.13	39.04	54.39	-15.35	AVG	P
3	0.2779	9.91	36.77	46.68	60.88	-14.20	QP	P
4	0.2779	9.91	32.86	42.77	50.88	-8.11	AVG	P
5	0.3020	9.92	35.40	45.32	60.19	-14.87	QP	P
6	0.3020	9.92	25.38	35.30	50.19	-14.89	AVG	P
7	0.3140	9.92	36.57	46.49	59.86	-13.37	QP	P
8	0.3140	9.92	31.82	41.74	49.86	-8.12	AVG	P
9	0.3339	9.92	30.46	40.38	59.35	-18.97	QP	P
10	0.3339	9.92	21.51	31.43	49.35	-17.92	AVG	P
11	3.5580	10.12	21.84	31.96	56.00	-24.04	QP	P
12	3.5580	10.12	15.12	25.24	46.00	-20.76	AVG	P

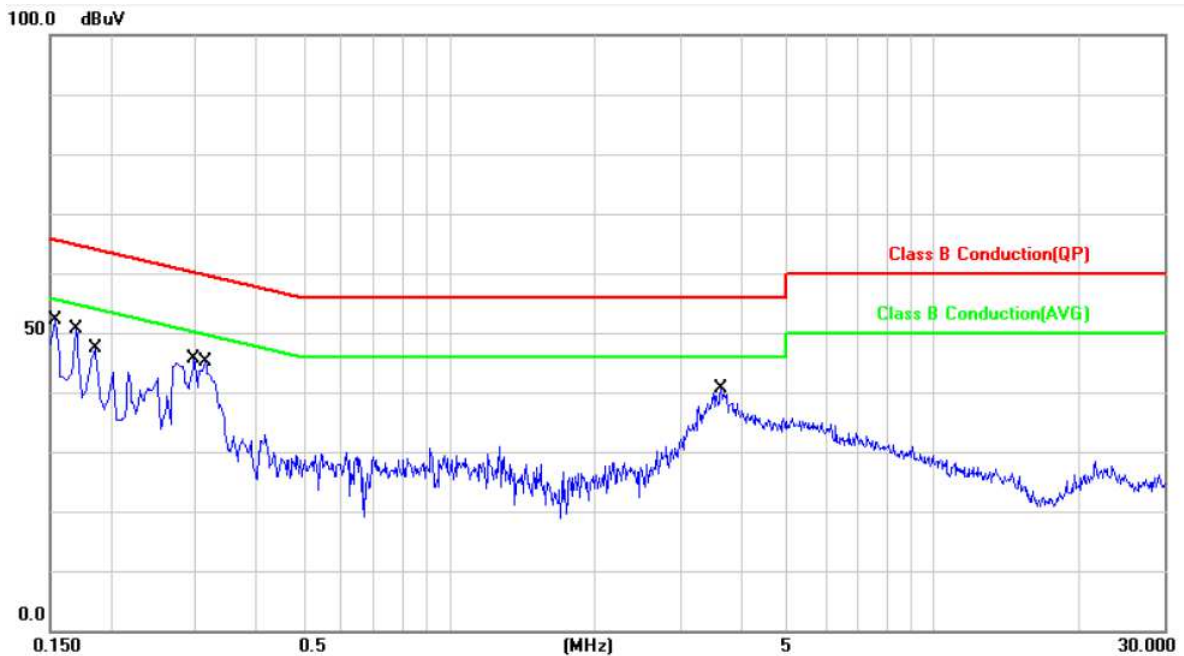
Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (2ABB018F US)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %

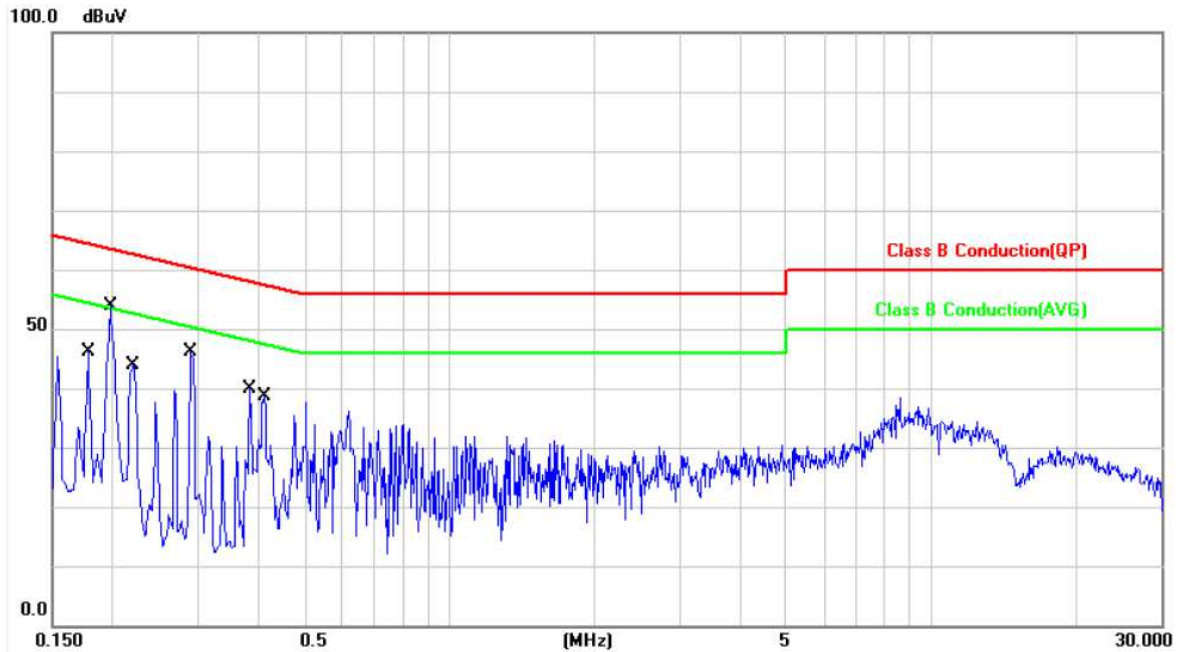


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1539	9.88	37.61	47.49	65.78	-18.29	QP	P
2	0.1539	9.88	27.19	37.07	55.78	-18.71	AVG	P
3	0.1700	9.88	34.51	44.39	64.96	-20.57	QP	P
4	0.1700	9.88	24.90	34.78	54.96	-20.18	AVG	P
5	0.1860	9.88	33.98	43.86	64.21	-20.35	QP	P
6	0.1860	9.88	25.45	35.33	54.21	-18.88	AVG	P
7	0.2980	9.88	33.15	43.03	60.30	-17.27	QP	P
8	0.2980	9.88	17.96	27.84	50.30	-22.46	AVG	P
9	0.3140	9.88	34.05	43.93	59.86	-15.93	QP	P
10	0.3140	9.88	29.02	38.90	49.86	-10.96	AVG	P
11	3.6460	10.06	26.26	36.32	56.00	-19.68	QP	P
12	3.6460	10.06	19.03	29.09	46.00	-16.91	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (TPA158K-18120-US)	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %



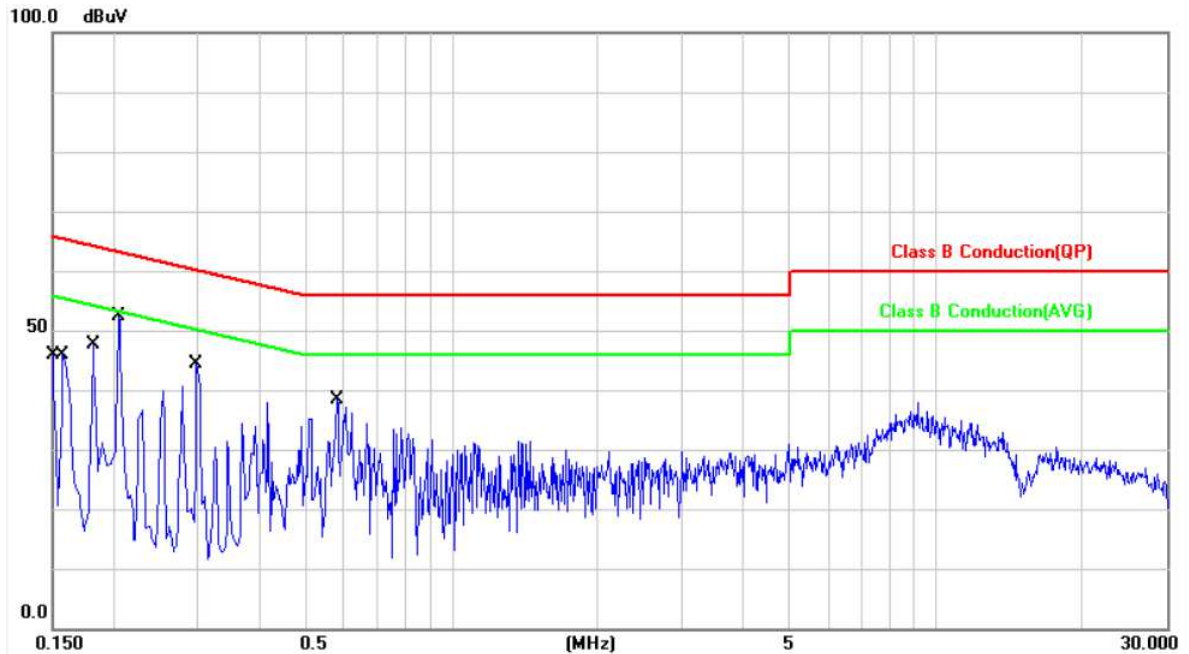
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1780	9.91	29.39	39.30	64.57	-25.27	QP	P
2	0.1780	9.91	9.17	19.08	54.57	-35.49	AVG	P
3	0.1980	9.91	40.72	50.63	63.69	-13.06	QP	P
4	0.1980	9.91	22.04	31.95	53.69	-21.74	AVG	P
5	0.2220	9.91	26.22	36.13	62.74	-26.61	QP	P
6	0.2220	9.91	6.57	16.48	52.74	-36.26	AVG	P
7	0.2900	9.91	32.09	42.00	60.52	-18.52	QP	P
8	0.2900	9.91	11.59	21.50	50.52	-29.02	AVG	P
9	0.3860	9.93	25.10	35.03	58.15	-23.12	QP	P
10	0.3860	9.93	8.28	18.21	48.15	-29.94	AVG	P
11	0.4140	9.93	24.25	34.18	57.57	-23.39	QP	P
12	0.4140	9.93	9.50	19.43	47.57	-28.14	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator





Power	: AC 120V (TPA158K-18120-US)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %

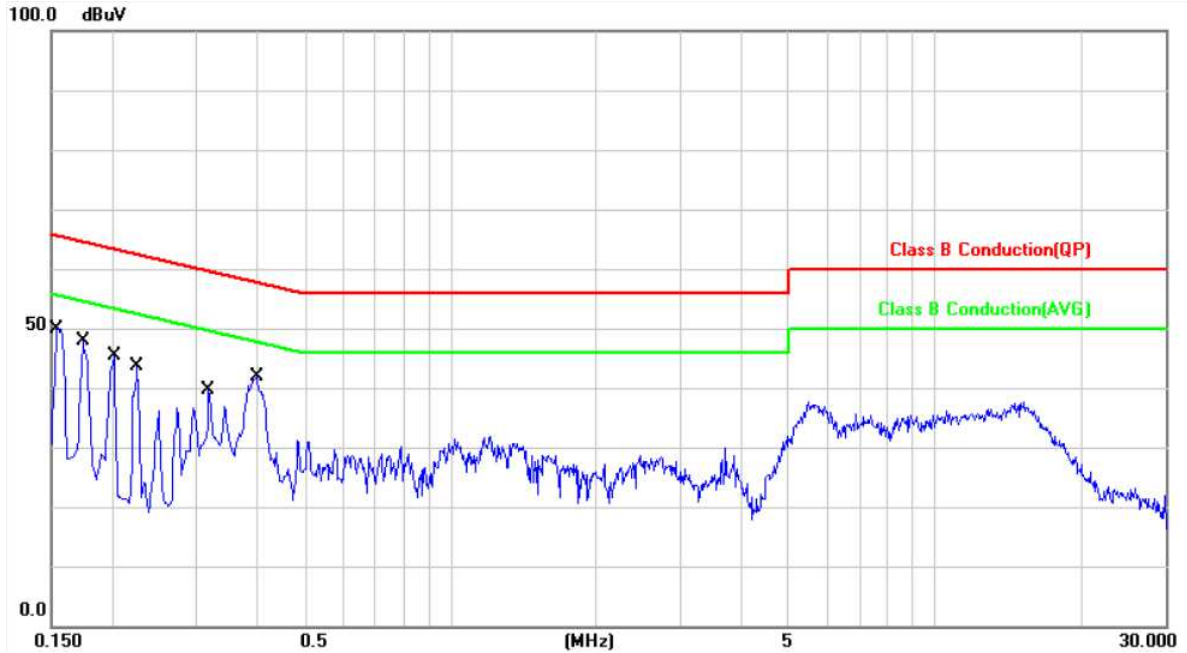


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.88	32.01	41.89	65.99	-24.10	QP	P
2	0.1500	9.88	10.04	19.92	55.99	-36.07	AVG	P
3	0.1580	9.88	30.76	40.64	65.56	-24.92	QP	P
4	0.1580	9.88	8.93	18.81	55.56	-36.75	AVG	P
5	0.1819	9.88	29.97	39.85	64.39	-24.54	QP	P
6	0.1819	9.88	10.65	20.53	54.39	-33.86	AVG	P
7	0.2060	9.88	39.14	49.02	63.36	-14.34	QP	P
8	0.2060	9.88	20.54	30.42	53.36	-22.94	AVG	P
9	0.2980	9.88	30.27	40.15	60.30	-20.15	QP	P
10	0.2980	9.88	9.99	19.87	50.30	-30.43	AVG	P
11	0.5820	9.90	23.69	33.59	56.00	-22.41	QP	P
12	0.5820	9.90	10.59	20.49	46.00	-25.51	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (MU18A2120150-A1)	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1539	9.91	37.49	47.40	65.78	-18.38	QP	P
2	0.1539	9.91	20.93	30.84	55.78	-24.94	AVG	P
3	0.1740	9.91	34.30	44.21	64.76	-20.55	QP	P
4	0.1740	9.91	17.33	27.24	54.76	-27.52	AVG	P
5	0.2020	9.91	30.28	40.19	63.52	-23.33	QP	P
6	0.2020	9.91	13.01	22.92	53.52	-30.60	AVG	P
7	0.2260	9.91	27.13	37.04	62.59	-25.55	QP	P
8	0.2260	9.91	10.87	20.78	52.59	-31.81	AVG	P
9	0.3180	9.92	20.35	30.27	59.76	-29.49	QP	P
10	0.3180	9.92	8.06	17.98	49.76	-31.78	AVG	P
11	0.3980	9.93	30.39	40.32	57.89	-17.57	QP	P
12	0.3980	9.93	27.81	37.74	47.89	-10.15	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (MU18A2120150-A1)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jun. 10, 2017	Humidity	: 40 %

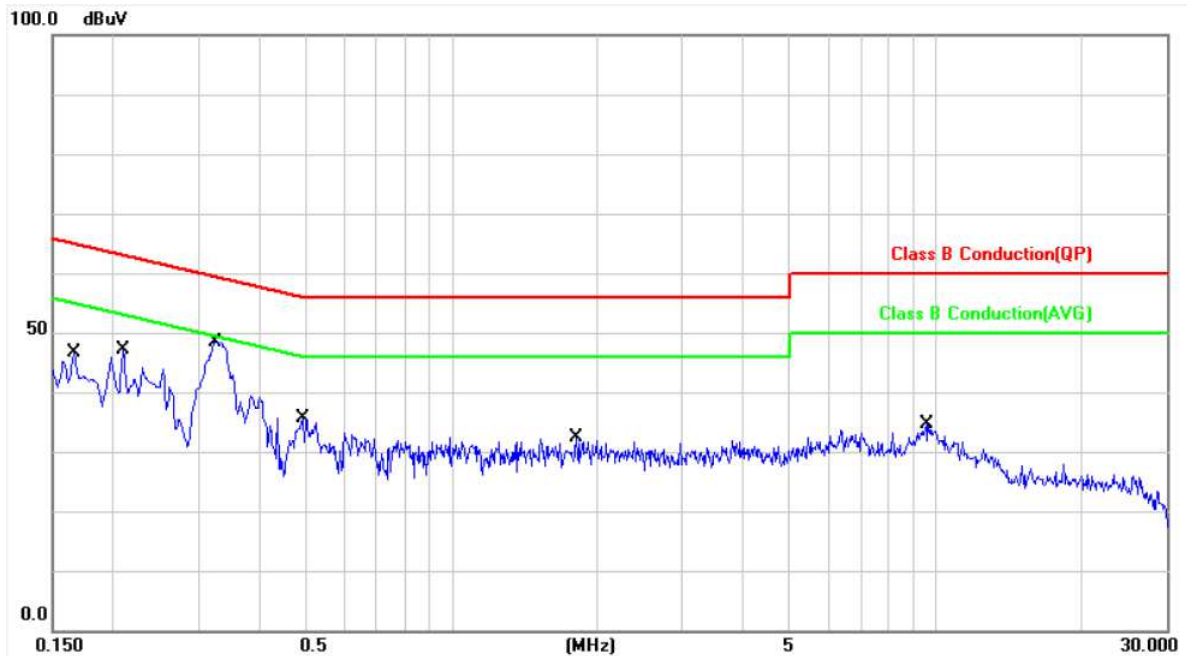


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1660	9.88	38.22	48.10	65.15	-17.05	QP	P
2	0.1660	9.88	23.00	32.88	55.15	-22.27	AVG	P
3	0.1860	9.88	32.99	42.87	64.21	-21.34	QP	P
4	0.1860	9.88	17.37	27.25	54.21	-26.96	AVG	P
5	0.2140	9.88	29.22	39.10	63.04	-23.94	QP	P
6	0.2140	9.88	11.97	21.85	53.04	-31.19	AVG	P
7	0.2380	9.88	26.57	36.45	62.16	-25.71	QP	P
8	0.2380	9.88	10.44	20.32	52.16	-31.84	AVG	P
9	0.2580	9.88	25.38	35.26	61.49	-26.23	QP	P
10	0.2580	9.88	13.94	23.82	51.49	-27.67	AVG	P
11	0.4020	9.89	30.56	40.45	57.81	-17.36	QP	P
12	0.4020	9.89	27.02	36.91	47.81	-10.90	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (2ABL024F US)	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jul. 22, 2017	Humidity	: 40 %

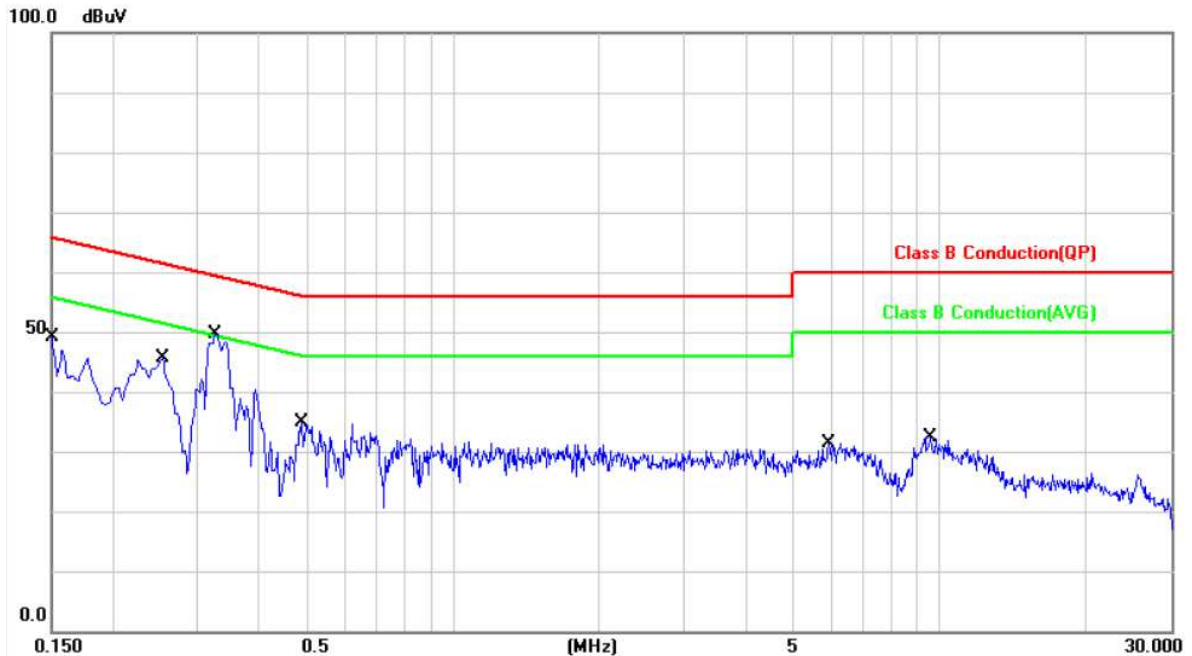


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1660	9.91	35.11	45.02	65.15	-20.13	QP	P
2	0.1660	9.91	23.98	33.89	55.15	-21.26	AVG	P
3	0.2100	9.91	29.58	39.49	63.20	-23.71	QP	P
4	0.2100	9.91	19.60	29.51	53.20	-23.69	AVG	P
5	0.3260	9.92	38.49	48.41	59.55	-11.14	QP	P
6	0.3260	9.92	32.31	42.23	49.55	-7.32	AVG	P
7	0.4940	9.93	22.89	32.82	56.10	-23.28	QP	P
8	0.4940	9.93	16.63	26.56	46.10	-19.54	AVG	P
9	1.8180	10.03	17.40	27.43	56.00	-28.57	QP	P
10	1.8180	10.03	12.10	22.13	46.00	-23.87	AVG	P
11	9.5659	10.33	19.46	29.79	60.00	-30.21	QP	P
12	9.5659	10.33	14.61	24.94	50.00	-25.06	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (2ABL024F US)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jul. 22, 2017	Humidity	: 40 %



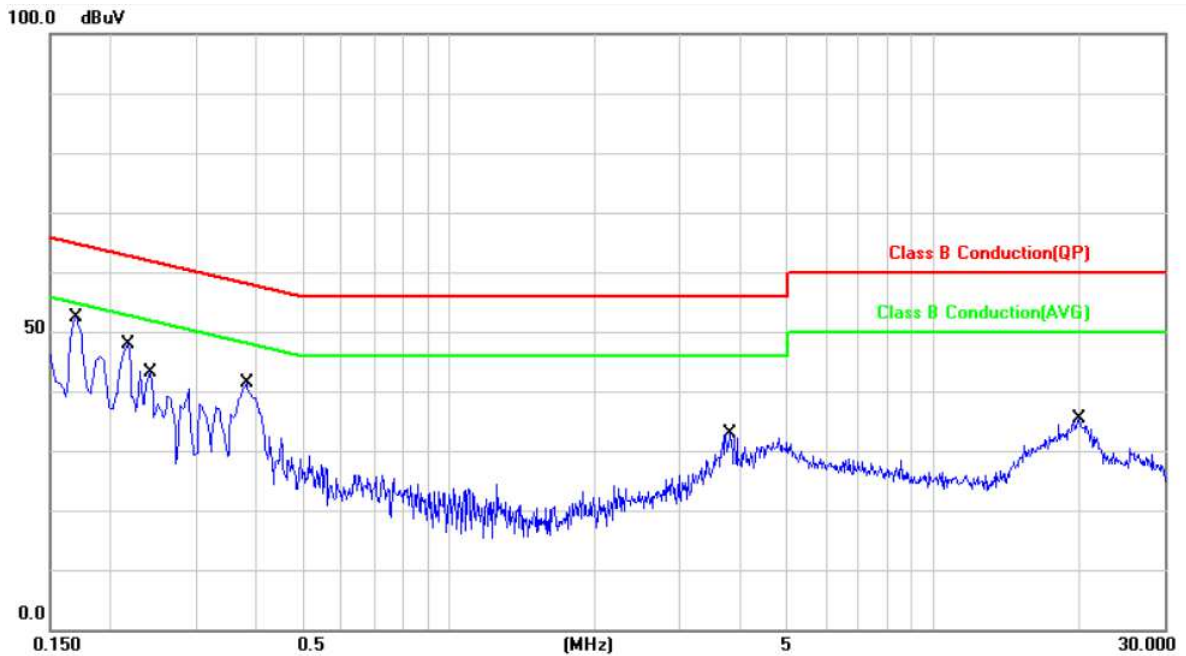
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.88	38.53	48.41	65.99	-17.58	QP	P
2	0.1500	9.88	26.25	36.13	55.99	-19.86	AVG	P
3	0.2540	9.88	31.66	41.54	61.62	-20.08	QP	P
4	0.2540	9.88	22.50	32.38	51.62	-19.24	AVG	P
5	0.3260	9.88	39.50	49.38	59.55	-10.17	QP	P
6	0.3260	9.88	33.41	43.29	49.55	-6.26	AVG	P
7	0.4900	9.89	23.00	32.89	56.17	-23.28	QP	P
8	0.4900	9.89	16.63	26.52	46.17	-19.65	AVG	P
9	5.9340	10.17	15.55	25.72	60.00	-34.28	QP	P
10	5.9340	10.17	9.79	19.96	50.00	-30.04	AVG	P
11	9.6100	10.31	17.80	28.11	60.00	-31.89	QP	P
12	9.6100	10.31	12.91	23.22	50.00	-26.78	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator





Power	: AC 120V (WA-24Q12R)	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jul. 22, 2017	Humidity	: 40 %

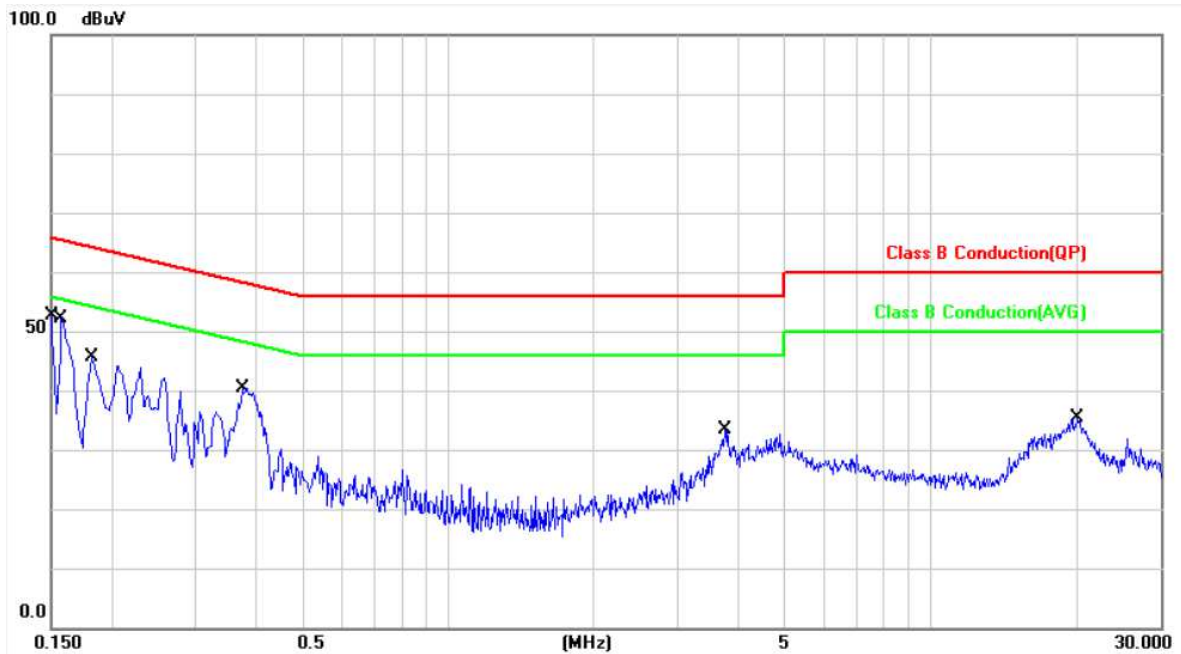


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1700	9.91	35.97	45.88	64.96	-19.08	QP	P
2	0.1700	9.91	23.42	33.33	54.96	-21.63	AVG	P
3	0.2180	9.91	33.02	42.93	62.89	-19.96	QP	P
4	0.2180	9.91	23.35	33.26	52.89	-19.63	AVG	P
5	0.2420	9.91	30.98	40.89	62.02	-21.13	QP	P
6	0.2420	9.91	21.69	31.60	52.02	-20.42	AVG	P
7	0.3820	9.93	29.64	39.57	58.23	-18.66	QP	P
8	0.3820	9.93	22.97	32.90	48.23	-15.33	AVG	P
9	3.8180	10.14	18.62	28.76	56.00	-27.24	QP	P
10	3.8180	10.14	9.27	19.41	46.00	-26.59	AVG	P
11	20.0380	10.61	19.08	29.69	60.00	-30.31	QP	P
12	20.0380	10.61	11.78	22.39	50.00	-27.61	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V (WA-24Q12R)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Jul. 22, 2017	Humidity	: 40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.88	40.39	50.27	65.99	-15.72	QP	P
2	0.1500	9.88	26.95	36.83	55.99	-19.16	AVG	P
3	0.1580	9.88	38.89	48.77	65.56	-16.79	QP	P
4	0.1580	9.88	25.93	35.81	55.56	-19.75	AVG	P
5	0.1825	9.88	33.87	43.75	64.37	-20.62	QP	P
6	0.1825	9.88	22.30	32.18	54.37	-22.19	AVG	P
7	0.3740	9.89	29.87	39.76	58.41	-18.65	QP	P
8	0.3740	9.89	24.66	34.55	48.41	-13.86	AVG	P
9	3.7540	10.07	17.59	27.66	56.00	-28.34	QP	P
10	3.7540	10.07	8.99	19.06	46.00	-26.94	AVG	P
11	20.2139	10.64	18.95	29.59	60.00	-30.41	QP	P
12	20.2139	10.64	11.80	22.44	50.00	-27.56	AVG	P

Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



## 6. Test of Radiated Spurious Emission

### 6.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

### 6.2 Test Procedures

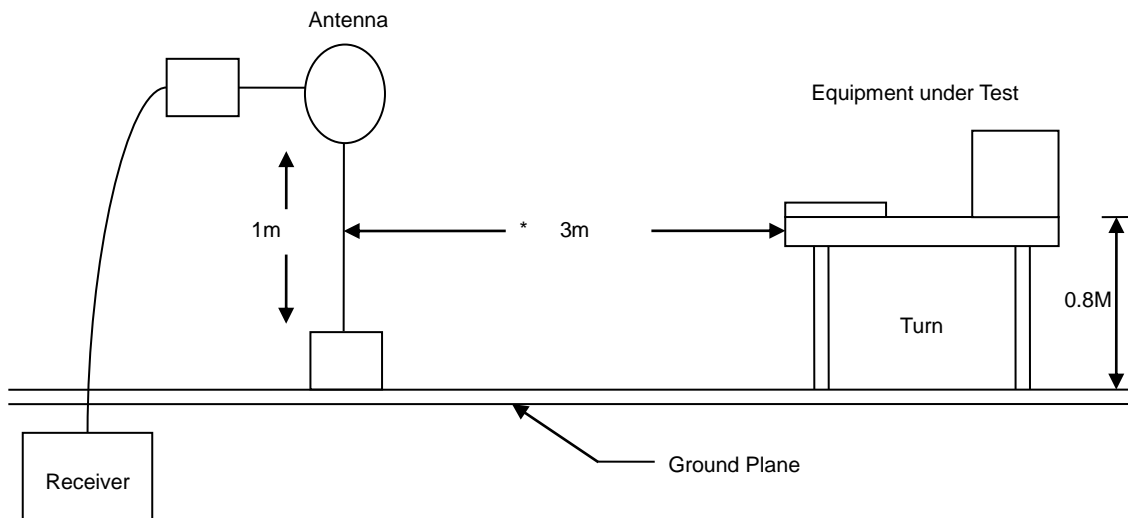
- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.



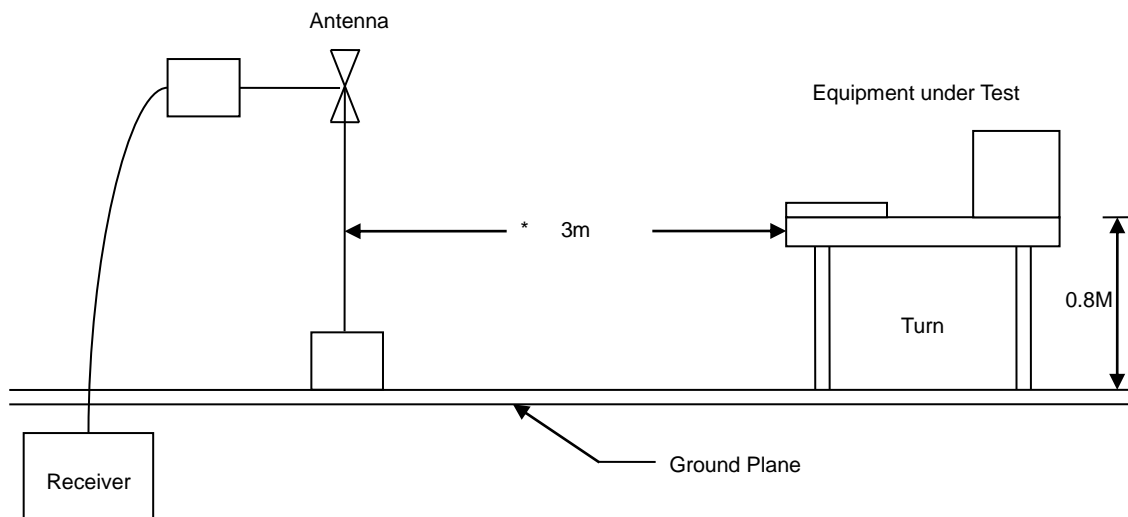


### 6.3 Typical Test Setup

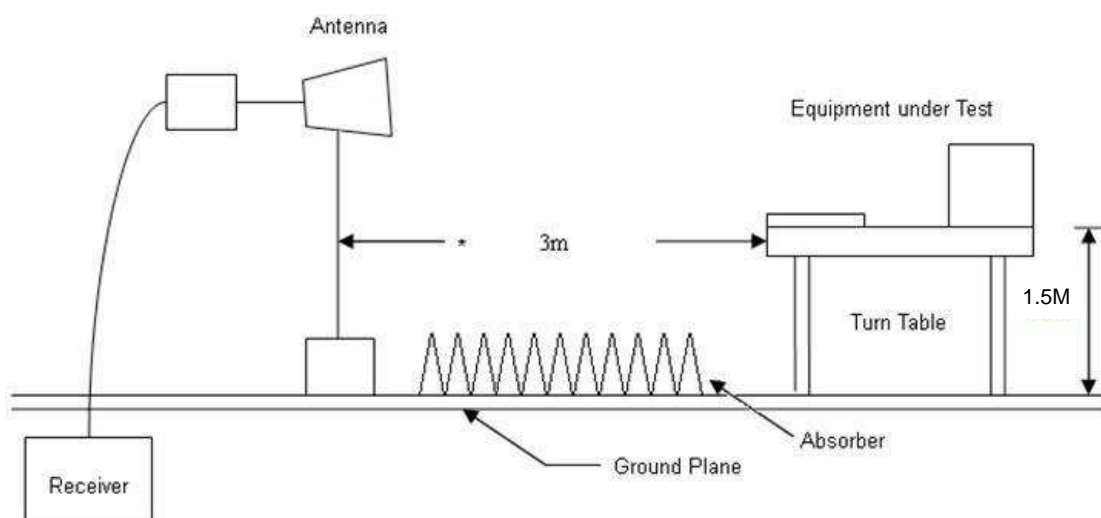
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



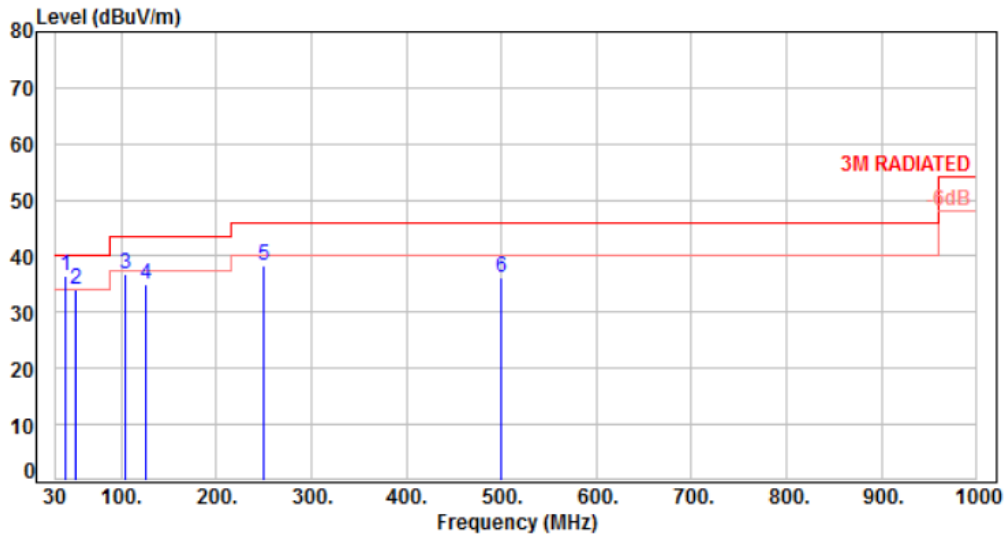


**6.4 Test Result and Data (9KHz ~ 30MHz)**

The 9kHz - 30MHz spurious emission is under limit 20dB more.

**6.5 Test Result and Data (30MHz ~ 1GHz)**

Power	: AC 120V (2ABB018F US)	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

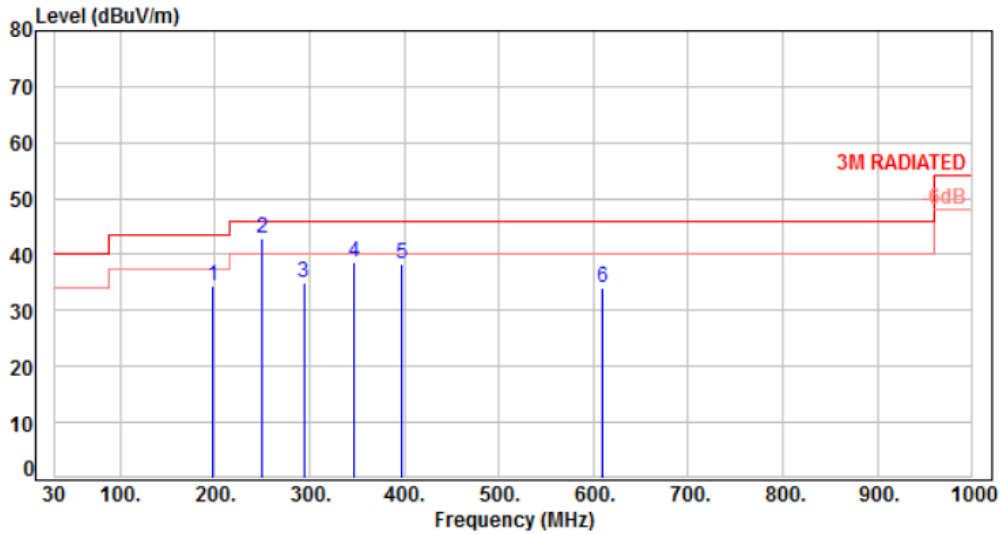


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	41.64	-9.80	46.35	36.55	40.00	-3.45	QP	100	148	P
2	51.34	-9.66	43.64	33.98	40.00	-6.02	QP	100	187	P
3	103.72	-14.07	50.96	36.89	43.50	-6.61	Peak	100	0	P
4	125.06	-11.45	46.28	34.83	43.50	-8.67	Peak	100	0	P
5	249.22	-10.62	49.08	38.46	46.00	-7.54	Peak	100	0	P
6	499.48	-3.97	40.15	36.18	46.00	-9.82	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (2ABB018F US)	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

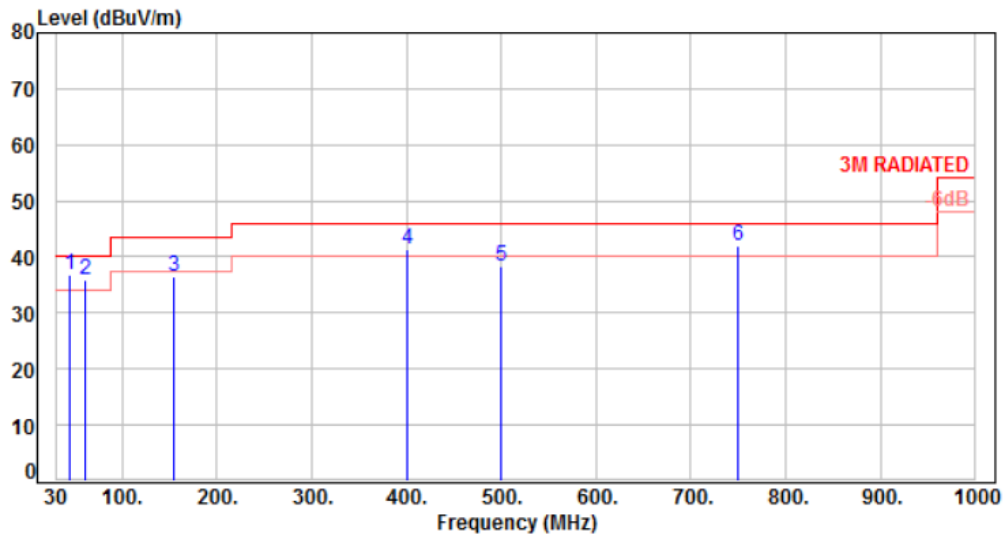


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	196.84	-12.27	46.66	34.39	43.50	-9.11	Peak	100	0	P
2	249.22	-10.62	53.39	42.77	46.00	-3.23	Peak	100	0	P
3	293.84	-8.90	43.95	35.05	46.00	-10.95	Peak	100	0	P
4	346.22	-7.72	46.45	38.73	46.00	-7.27	Peak	100	0	P
5	396.66	-6.34	44.53	38.19	46.00	-7.81	Peak	100	0	P
6	610.06	-1.72	35.78	34.06	46.00	-11.94	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (TPA158K-18120-US)	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

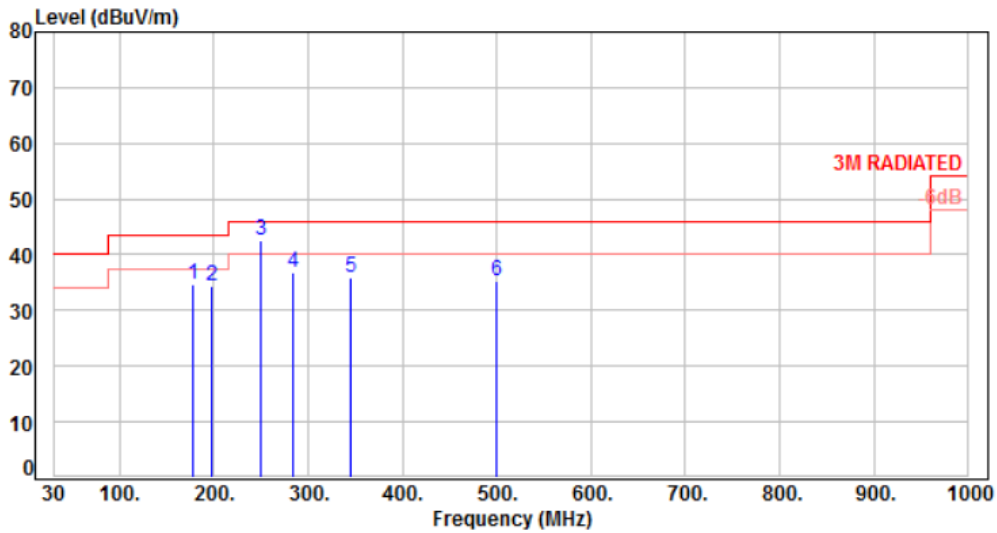


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	44.55	-9.53	46.37	36.84	40.00	-3.16	QP	100	167	P
2	61.04	-10.64	46.55	35.91	40.00	-4.09	QP	100	182	P
3	154.16	-9.91	46.45	36.54	43.50	-6.96	Peak	100	0	P
4	400.54	-6.23	47.51	41.28	46.00	-4.72	Peak	100	0	P
5	499.48	-3.97	42.34	38.37	46.00	-7.63	Peak	100	0	P
6	749.74	0.44	41.63	42.07	46.00	-3.93	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (TPA158K-18120-US)	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

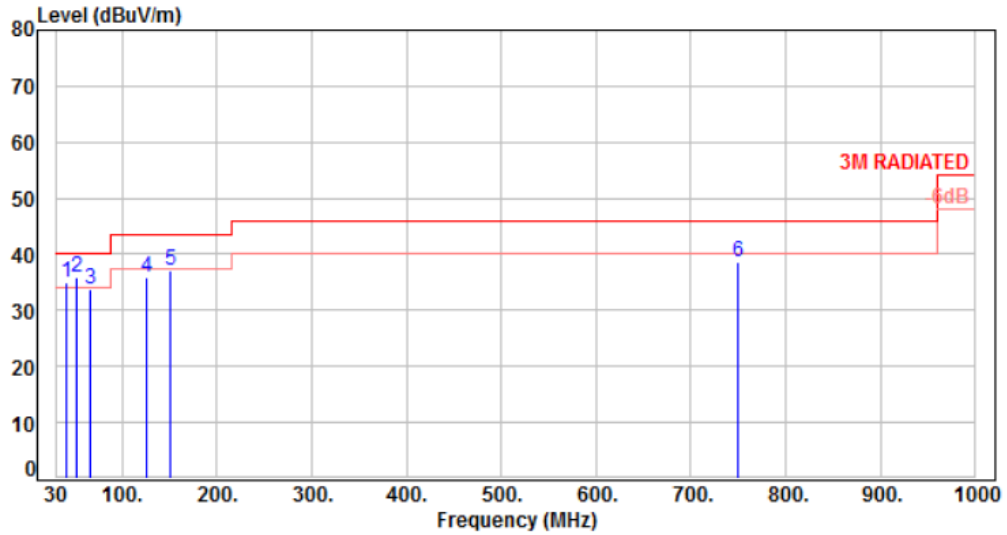


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	177.44	-10.93	45.47	34.54	43.50	-8.96	Peak	100	0	P
2	196.84	-12.27	46.60	34.33	43.50	-9.17	Peak	100	0	P
3	249.22	-10.62	53.07	42.45	46.00	-3.55	Peak	100	0	P
4	284.14	-9.15	45.88	36.73	46.00	-9.27	Peak	100	0	P
5	344.28	-7.75	43.57	35.82	46.00	-10.18	Peak	100	0	P
6	499.48	-3.97	39.19	35.22	46.00	-10.78	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (MU18A2120150-A1)	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

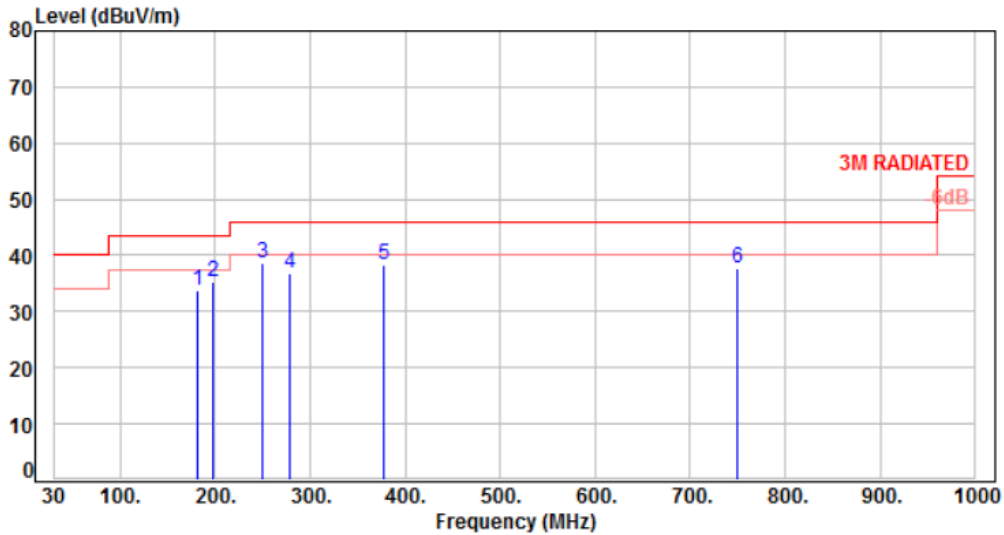


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	41.64	-9.80	44.83	35.03	40.00	-4.97	QP	100	194	P
2	51.34	-9.66	45.58	35.92	40.00	-4.08	QP	100	188	P
3	66.86	-11.53	45.40	33.87	40.00	-6.13	QP	100	186	P
4	125.06	-11.45	47.48	36.03	43.50	-7.47	Peak	100	0	P
5	150.28	-10.06	47.15	37.09	43.50	-6.41	Peak	100	0	P
6	749.74	0.44	38.29	38.73	46.00	-7.27	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (MU18A2120150-A1)	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jun. 08, 2017	Humidity	: 66 %

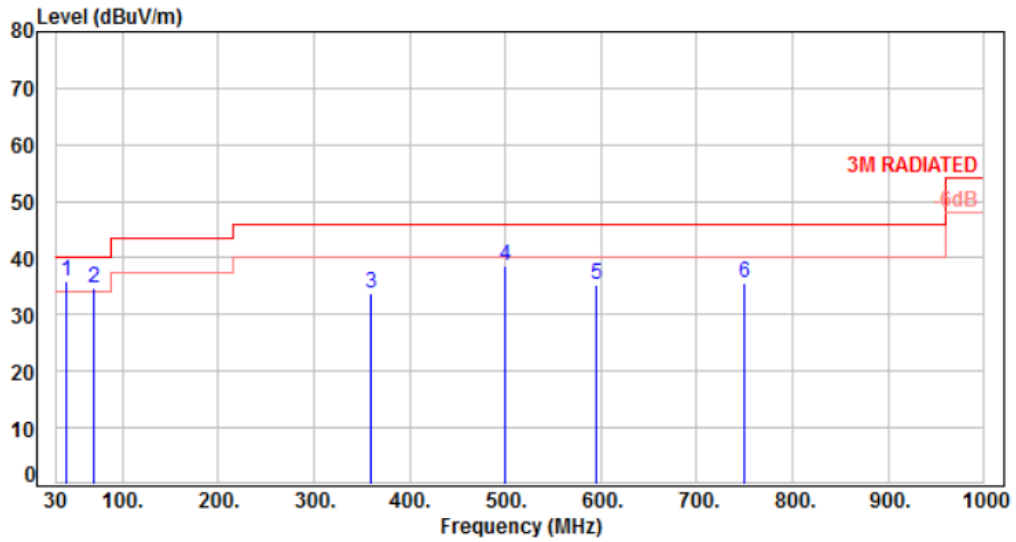


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	181.32	-11.34	44.99	33.65	43.50	-9.85	Peak	100	0	P
2	196.84	-12.27	47.66	35.39	43.50	-8.11	Peak	100	0	P
3	249.22	-10.62	49.23	38.61	46.00	-7.39	Peak	100	0	P
4	278.32	-9.34	46.11	36.77	46.00	-9.23	Peak	100	0	P
5	377.26	-6.88	45.14	38.26	46.00	-7.74	Peak	100	0	P
6	749.74	0.44	37.32	37.76	46.00	-8.24	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (2ABL024F US)	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



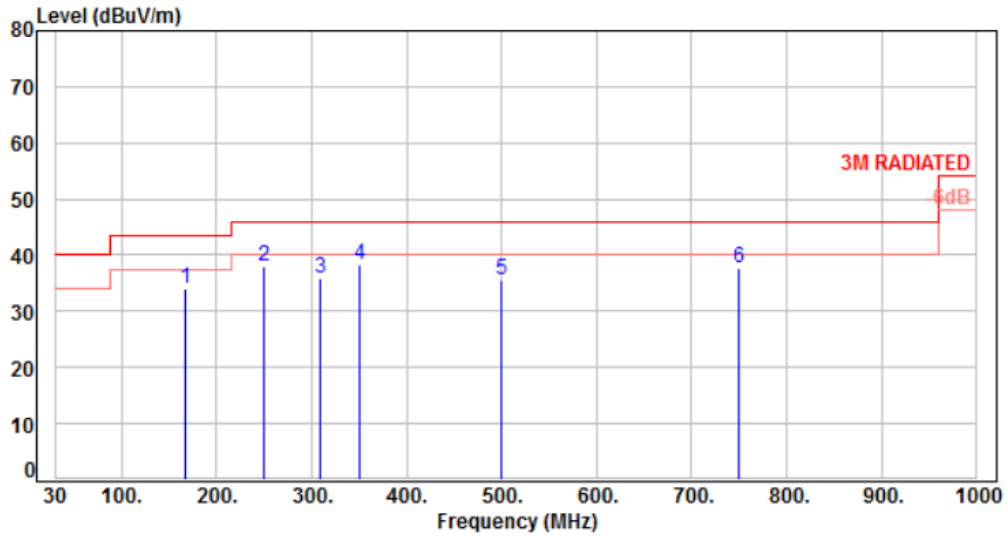
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	41.64	-9.80	45.67	35.87	40.00	-4.13	Peak	100	0	P
2	70.74	-12.16	46.75	34.59	40.00	-5.41	QP	100	173	P
3	359.80	-7.35	41.22	33.87	46.00	-12.13	Peak	100	0	P
4	499.48	-3.97	42.51	38.54	46.00	-7.46	Peak	100	0	P
5	594.54	-1.93	37.33	35.40	46.00	-10.60	Peak	100	0	P
6	749.74	0.44	35.13	35.57	46.00	-10.43	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V (2ABL024F US)	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

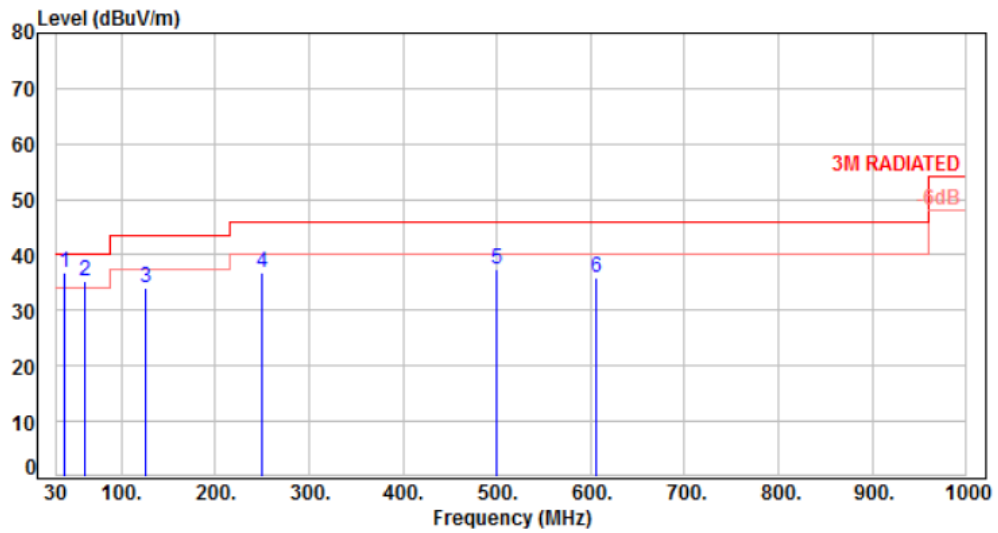


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	167.74	-10.00	44.08	34.08	43.50	-9.42	Peak	100	0	P
2	249.22	-10.62	48.77	38.15	46.00	-7.85	Peak	100	0	P
3	309.36	-8.54	44.39	35.85	46.00	-10.15	Peak	100	0	P
4	350.10	-7.63	46.11	38.48	46.00	-7.52	Peak	100	0	P
5	499.48	-3.97	39.62	35.65	46.00	-10.35	Peak	100	0	P
6	749.74	0.44	37.28	37.72	46.00	-8.28	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (WA-24Q12R)	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

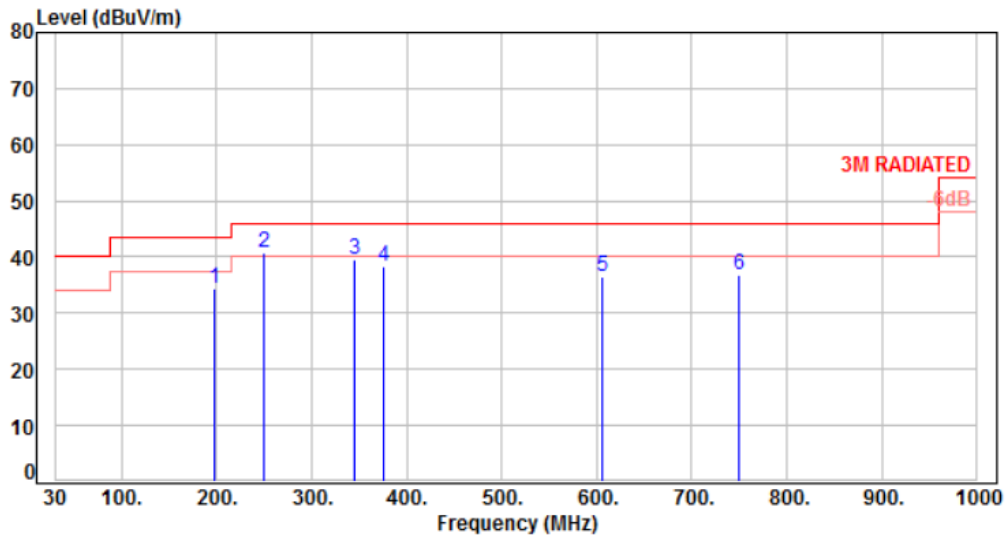


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	39.70	-10.00	46.68	36.68	40.00	-3.32	QP	100	172	P
2	61.04	-10.64	46.05	35.41	40.00	-4.59	QP	100	177	P
3	125.06	-11.45	45.63	34.18	43.50	-9.32	Peak	100	0	P
4	249.22	-10.62	47.30	36.68	46.00	-9.32	Peak	100	0	P
5	499.48	-3.97	41.40	37.43	46.00	-8.57	Peak	100	0	P
6	606.18	-1.76	37.61	35.85	46.00	-10.15	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V (WA-24Q12R)	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



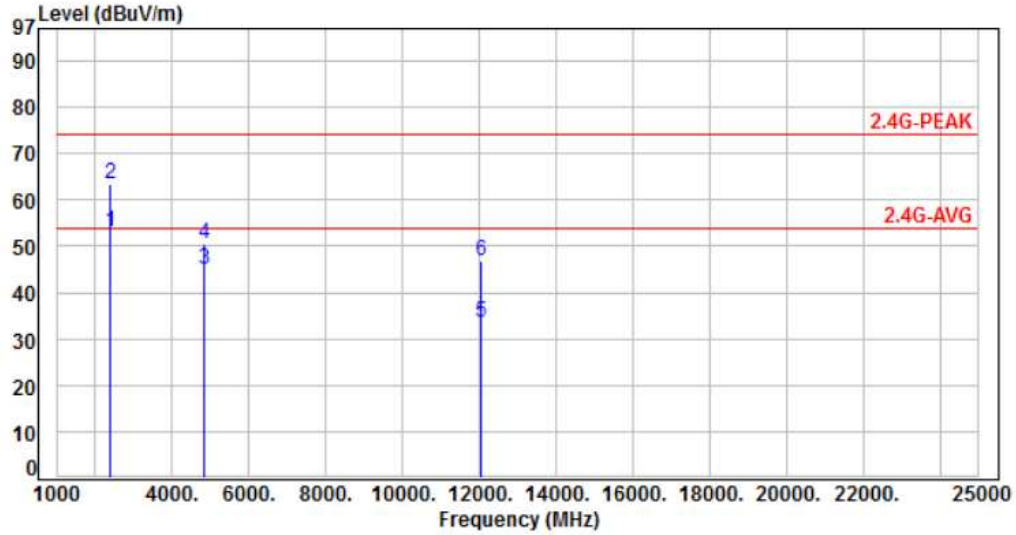
No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	196.84	-12.27	46.64	34.37	43.50	-9.13	Peak	100	0	P
2	249.22	-10.62	51.50	40.88	46.00	-5.12	Peak	100	0	P
3	344.28	-7.75	47.30	39.55	46.00	-6.45	Peak	100	0	P
4	375.32	-6.92	45.25	38.33	46.00	-7.67	Peak	100	0	P
5	606.18	-1.76	38.11	36.35	46.00	-9.65	Peak	100	0	P
6	749.74	0.44	36.40	36.84	46.00	-9.16	Peak	100	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



6.6 Test Result and Data (1GHz ~ 25GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

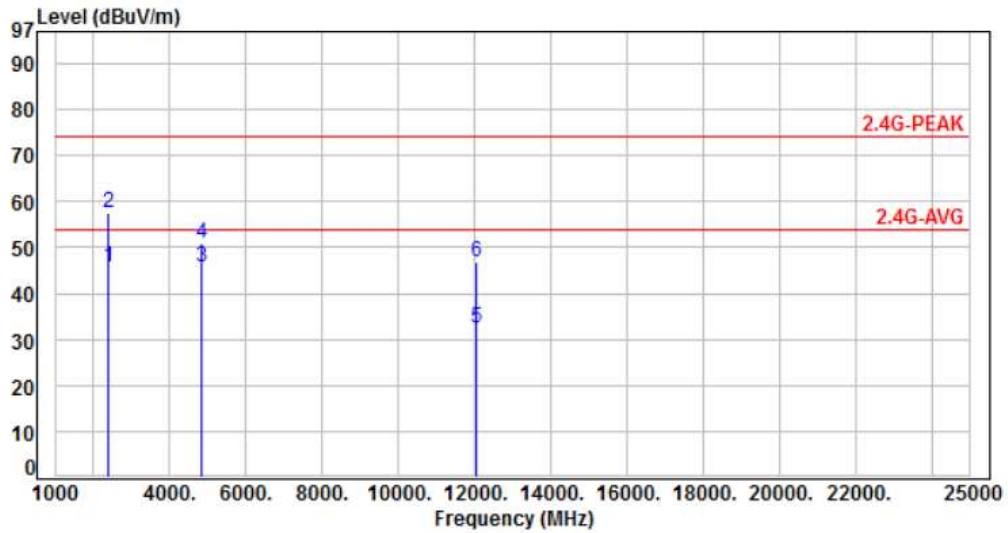


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	71.97	52.94	54.00	-1.06	Average	220	301	P
2	2390.00	-19.03	82.62	63.59	74.00	-10.41	Peak	220	301	P
3	4824.00	-13.33	58.34	45.01	54.00	-8.99	Average	370	203	P
4	4824.00	-13.33	63.85	50.52	74.00	-23.48	Peak	370	203	P
5	12060.00	-6.06	39.72	33.66	54.00	-20.34	Average	100	253	P
6	12060.00	-6.06	52.88	46.82	74.00	-27.18	Peak	100	253	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

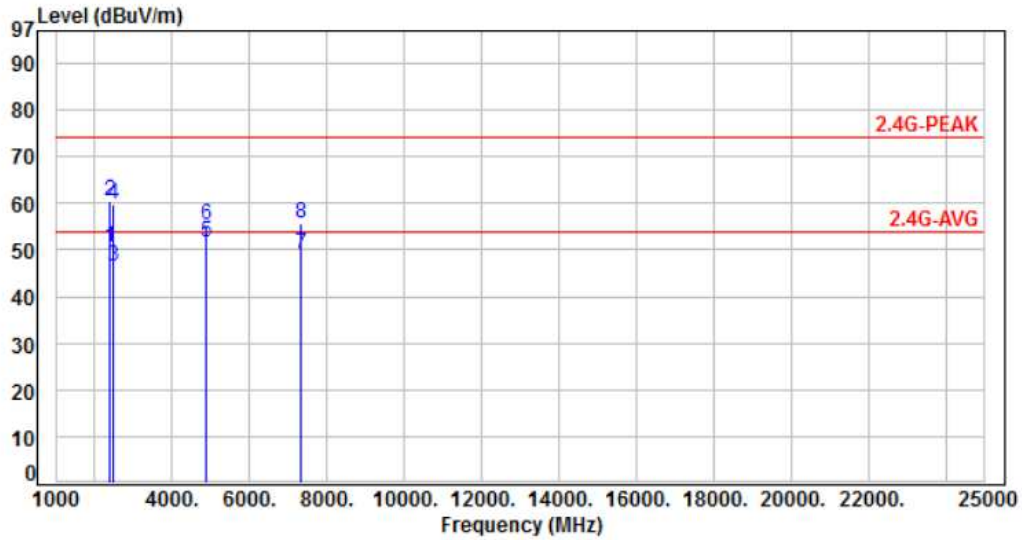


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	64.65	45.62	54.00	-8.38	Average	146	311	P
2	2390.00	-19.03	76.65	57.62	74.00	-16.38	Peak	146	311	P
3	4824.00	-13.33	59.13	45.80	54.00	-8.20	Average	109	128	P
4	4824.00	-13.33	64.23	50.90	74.00	-23.10	Peak	109	128	P
5	12060.00	-6.06	38.60	32.54	54.00	-21.46	Average	100	149	P
6	12060.00	-6.06	52.80	46.74	74.00	-27.26	Peak	100	149	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

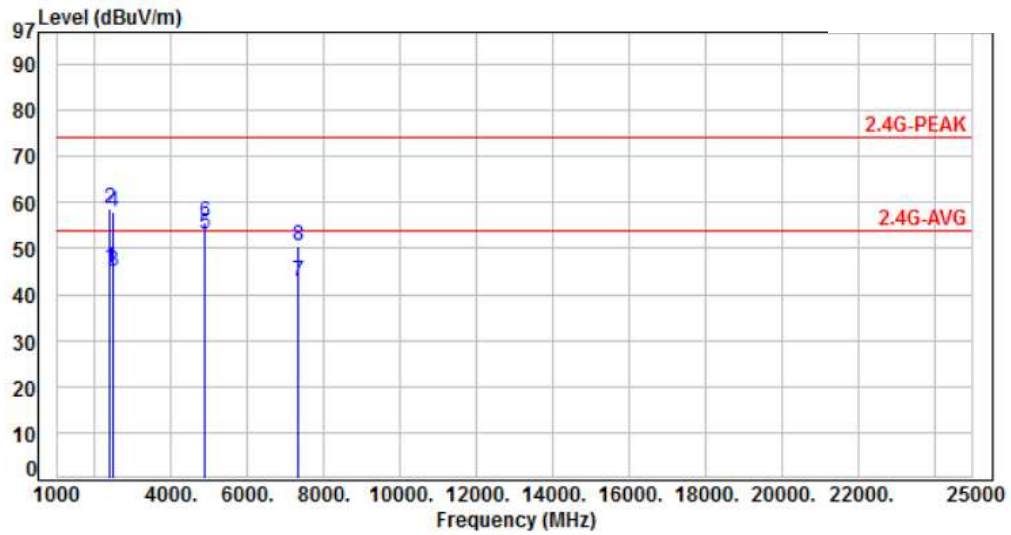


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	69.72	50.69	54.00	-3.31	Average	244	44	P
2	2390.00	-19.03	79.66	60.63	74.00	-13.37	Peak	244	44	P
3	2483.50	-18.81	65.13	46.32	54.00	-7.68	Average	244	44	P
4	2483.50	-18.81	78.61	59.80	74.00	-14.20	Peak	244	44	P
5	4874.00	-13.24	64.91	51.67	54.00	-2.33	Average	383	207	P
6	4874.00	-13.24	68.67	55.43	74.00	-18.57	Peak	383	207	P
7	7311.00	-10.19	59.29	49.10	54.00	-4.90	Average	104	59	P
8	7311.00	-10.19	65.79	55.60	74.00	-18.40	Peak	104	59	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



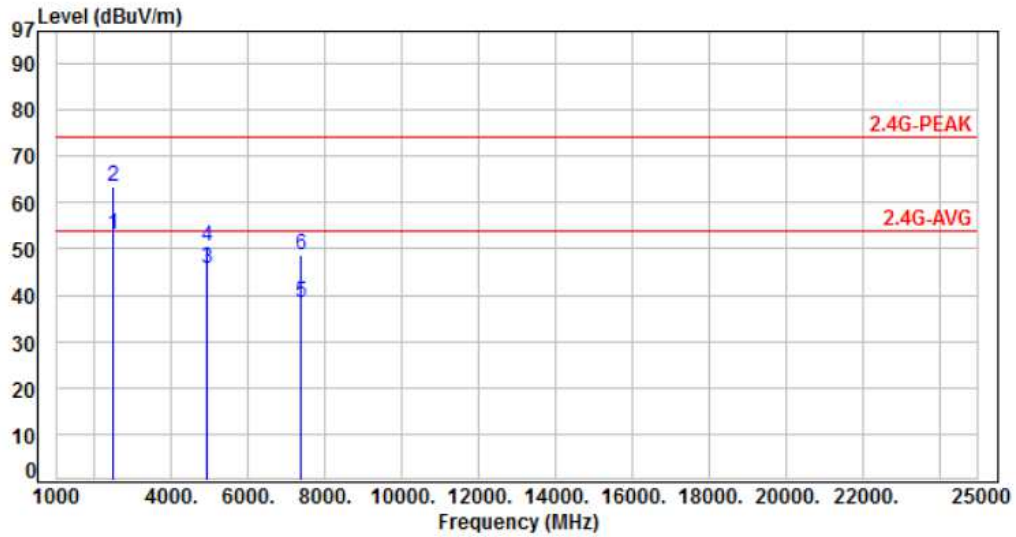
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	64.78	45.75	54.00	-8.25	Average	220	149	P
2	2390.00	-19.03	77.61	58.58	74.00	-15.42	Peak	220	149	P
3	2483.50	-18.81	63.77	44.96	54.00	-9.04	Average	220	149	P
4	2483.50	-18.81	76.82	58.01	74.00	-15.99	Peak	220	149	P
5	4874.00	-13.24	66.18	52.94	54.00	-1.06	Average	112	127	P
6	4874.00	-13.24	68.93	55.69	74.00	-18.31	Peak	112	127	P
7	7311.00	-10.19	53.04	42.85	54.00	-11.15	Average	100	35	P
8	7311.00	-10.19	60.80	50.61	74.00	-23.39	Peak	100	35	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



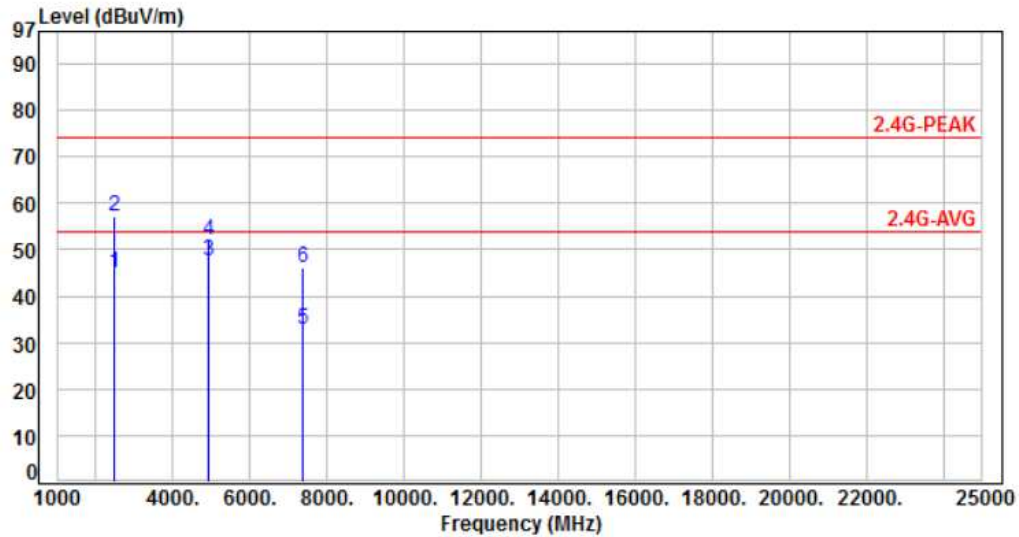
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	71.83	53.02	54.00	-0.98	Average	235	330	P
2	2483.50	-18.81	82.34	63.53	74.00	-10.47	Peak	235	330	P
3	4924.00	-13.14	58.75	45.61	54.00	-8.39	Average	393	116	P
4	4924.00	-13.14	63.55	50.41	74.00	-23.59	Peak	393	116	P
5	7386.00	-10.01	48.43	38.42	54.00	-15.58	Average	100	58	P
6	7386.00	-10.01	58.51	48.50	74.00	-25.50	Peak	100	58	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

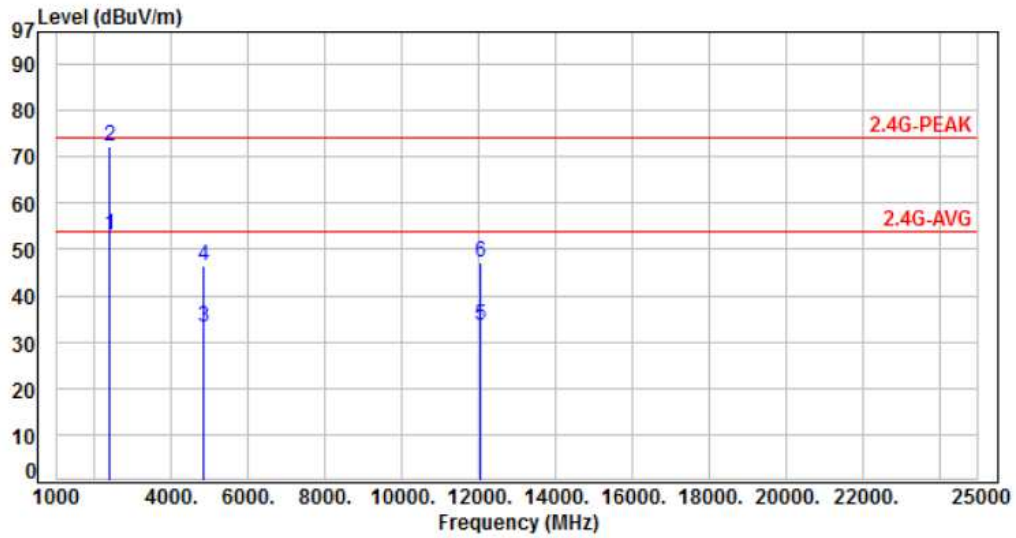


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	63.69	44.88	54.00	-9.12	Average	144	302	P
2	2483.50	-18.81	75.96	57.15	74.00	-16.85	Peak	144	302	P
3	4924.00	-13.14	60.57	47.43	54.00	-6.57	Average	108	113	P
4	4924.00	-13.14	65.12	51.98	74.00	-22.02	Peak	108	113	P
5	7386.00	-10.01	42.77	32.76	54.00	-21.24	Average	100	37	P
6	7386.00	-10.01	56.11	46.10	74.00	-27.90	Peak	100	37	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

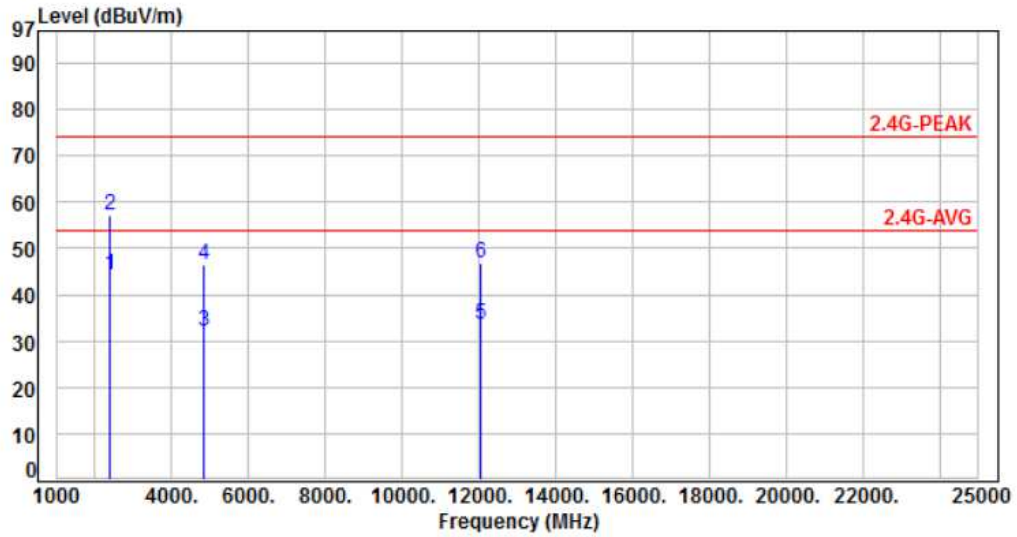


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	72.22	53.19	54.00	-0.81	Average	265	216	P
2	2390.00	-19.03	91.30	72.27	74.00	-1.73	Peak	265	216	P
3	4824.00	-13.33	46.54	33.21	54.00	-20.79	Average	366	112	P
4	4824.00	-13.33	59.93	46.60	74.00	-27.40	Peak	366	112	P
5	12060.00	-6.06	39.78	33.72	54.00	-20.28	Average	100	256	P
6	12060.00	-6.06	53.37	47.31	74.00	-26.69	Peak	100	256	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

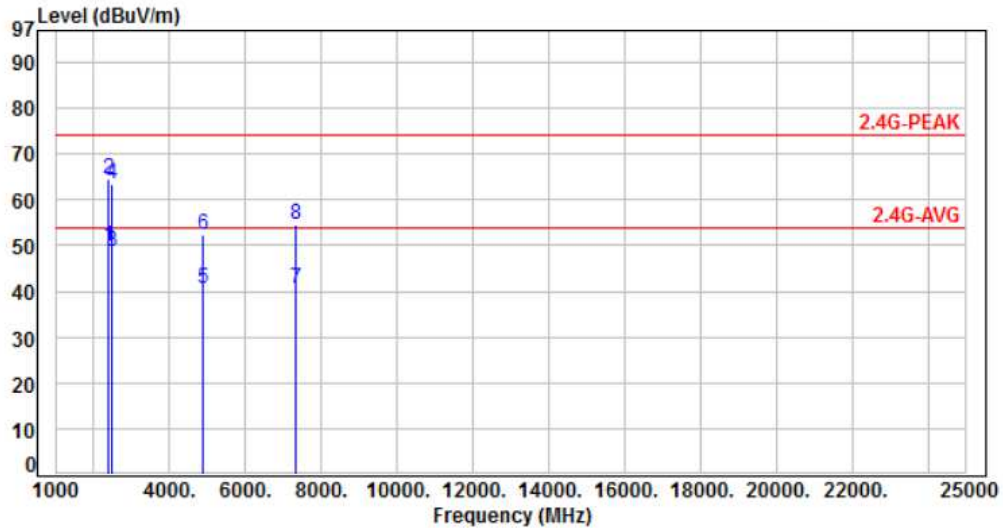


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	63.33	44.30	54.00	-9.70	Average	147	286	P
2	2390.00	-19.03	76.37	57.34	74.00	-16.66	Peak	147	286	P
3	4824.00	-13.33	45.35	32.02	54.00	-21.98	Average	100	110	P
4	4824.00	-13.33	59.88	46.55	74.00	-27.45	Peak	100	110	P
5	12060.00	-6.06	39.64	33.58	54.00	-20.42	Average	100	152	P
6	12060.00	-6.06	52.84	46.78	74.00	-27.22	Peak	100	152	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

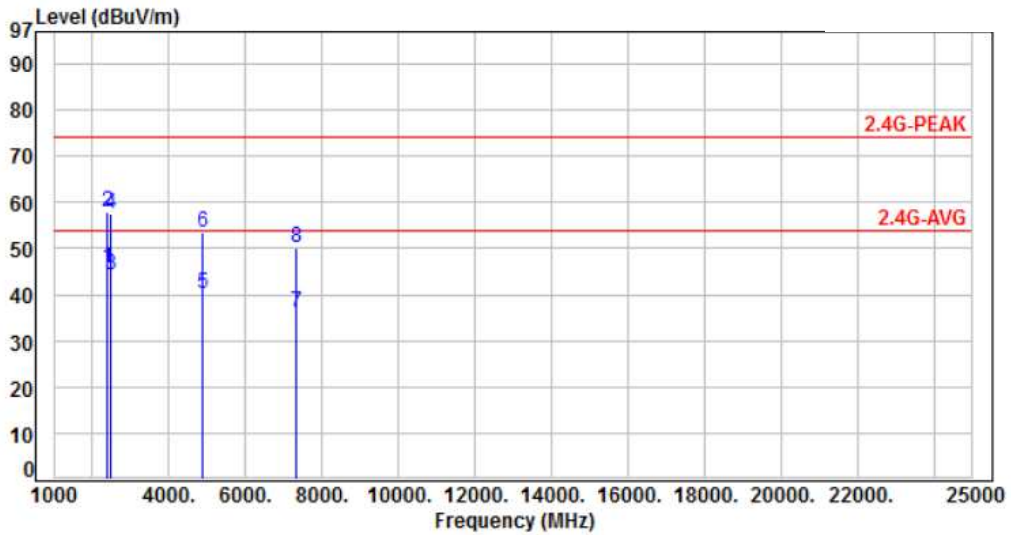


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	68.76	49.73	54.00	-4.27	Average	263	185	P
2	2390.00	-19.03	83.48	64.45	74.00	-9.55	Peak	263	185	P
3	2483.50	-18.81	67.54	48.73	54.00	-5.27	Average	263	185	P
4	2483.50	-18.81	82.07	63.26	74.00	-10.74	Peak	263	185	P
5	4874.00	-13.24	53.90	40.66	54.00	-13.34	Average	383	207	P
6	4874.00	-13.24	65.73	52.49	74.00	-21.51	Peak	383	207	P
7	7311.00	-10.19	50.77	40.58	54.00	-13.42	Average	116	57	P
8	7311.00	-10.19	64.69	54.50	74.00	-19.50	Peak	116	57	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

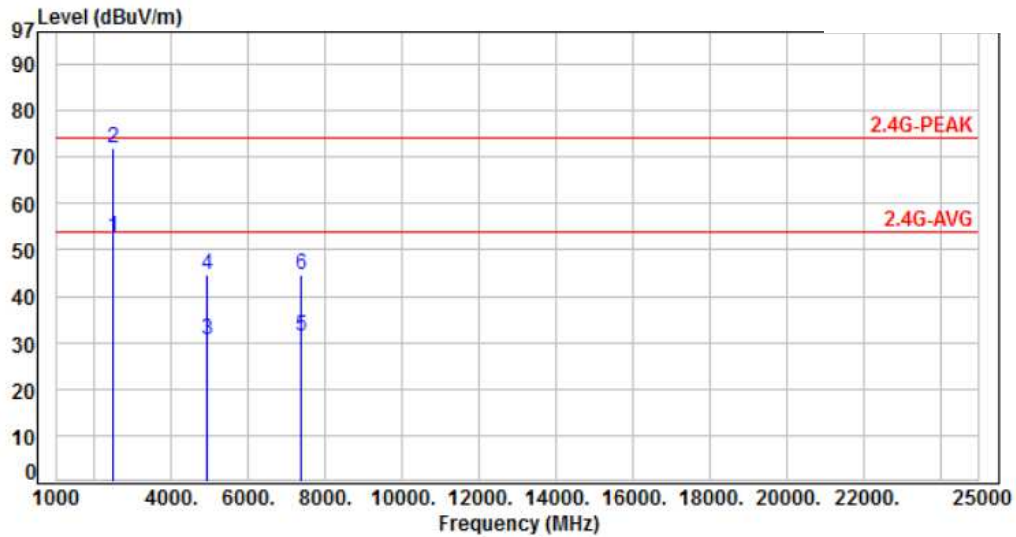


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	64.77	45.74	54.00	-8.26	Average	144	308	P
2	2390.00	-19.03	76.79	57.76	74.00	-16.24	Peak	144	308	P
3	2483.50	-18.81	63.01	44.20	54.00	-9.80	Average	144	308	P
4	2483.50	-18.81	76.28	57.47	74.00	-16.53	Peak	144	308	P
5	4874.00	-13.24	53.61	40.37	54.00	-13.63	Average	100	120	P
6	4874.00	-13.24	66.80	53.56	74.00	-20.44	Peak	100	120	P
7	7311.00	-10.19	46.39	36.20	54.00	-17.80	Average	115	2	P
8	7311.00	-10.19	60.23	50.04	74.00	-23.96	Peak	115	2	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



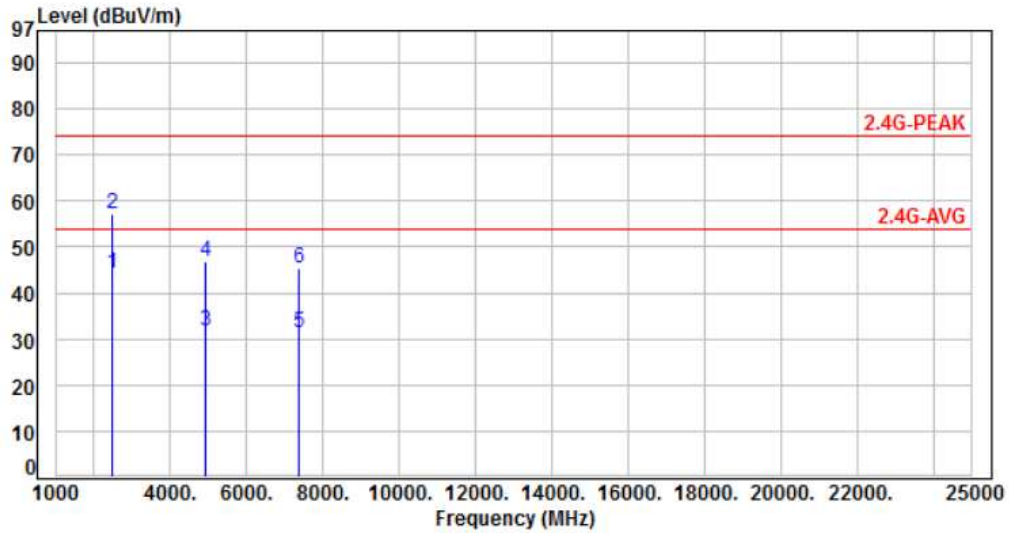
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	71.72	52.91	54.00	-1.09	Average	218	287	P
2	2483.50	-18.81	90.62	71.81	74.00	-2.19	Peak	218	287	P
3	4924.00	-13.14	43.85	30.71	54.00	-23.29	Average	371	118	P
4	4924.00	-13.14	57.67	44.53	74.00	-29.47	Peak	371	118	P
5	7386.00	-10.01	41.32	31.31	54.00	-22.69	Average	118	53	P
6	7386.00	-10.01	54.52	44.51	74.00	-29.49	Peak	118	53	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

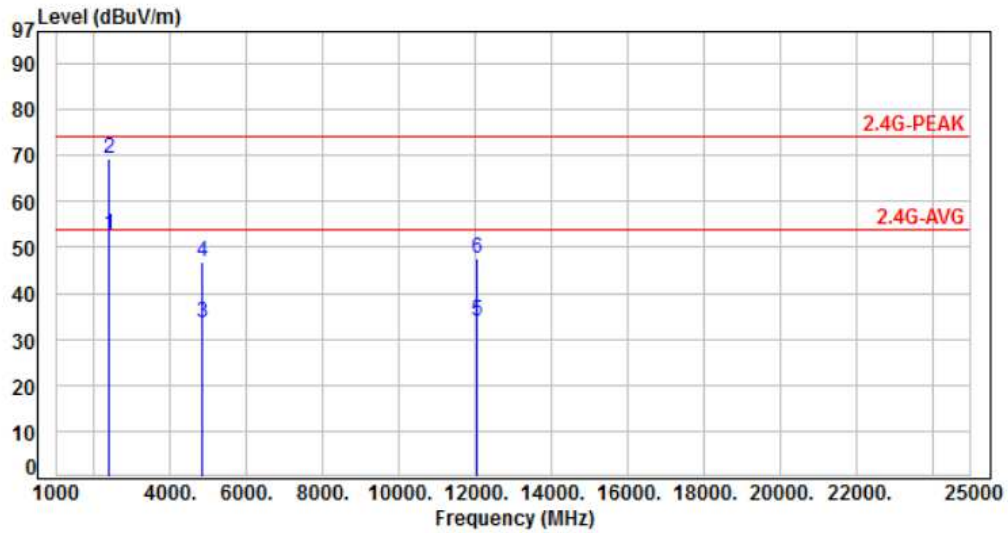


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	63.23	44.42	54.00	-9.58	Average	146	298	P
2	2483.50	-18.81	76.12	57.31	74.00	-16.69	Peak	146	298	P
3	4924.00	-13.14	44.76	31.62	54.00	-22.38	Average	100	122	P
4	4924.00	-13.14	60.06	46.92	74.00	-27.08	Peak	100	122	P
5	7386.00	-10.01	41.35	31.34	54.00	-22.66	Average	100	33	P
6	7386.00	-10.01	55.29	45.28	74.00	-28.72	Peak	100	33	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



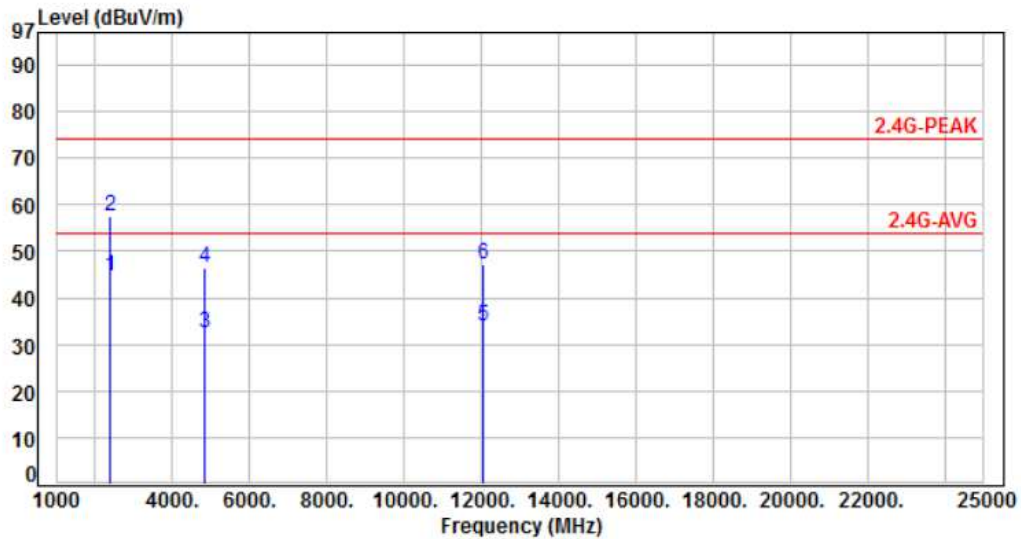
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	71.94	52.91	54.00	-1.09	Average	237	225	P
2	2390.00	-19.03	88.28	69.25	74.00	-4.75	Peak	237	225	P
3	4824.00	-13.33	46.75	33.42	54.00	-20.58	Average	358	109	P
4	4824.00	-13.33	60.23	46.90	74.00	-27.10	Peak	358	109	P
5	12060.00	-6.06	39.97	33.91	54.00	-20.09	Average	100	253	P
6	12060.00	-6.06	53.66	47.60	74.00	-26.40	Peak	100	253	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH01	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

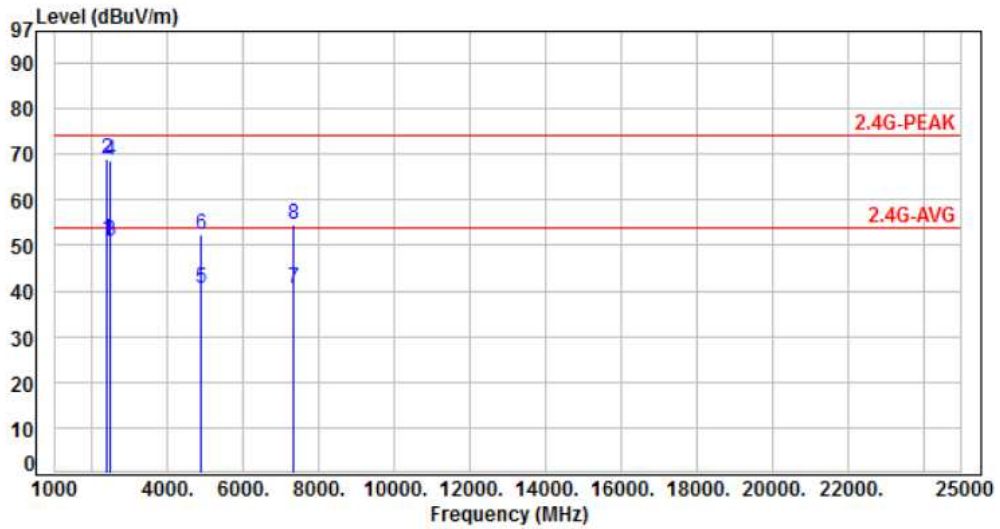


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	63.69	44.66	54.00	-9.34	Average	138	277	P
2	2390.00	-19.03	76.61	57.58	74.00	-16.42	Peak	138	277	P
3	4824.00	-13.33	45.75	32.42	54.00	-21.58	Average	100	121	P
4	4824.00	-13.33	59.97	46.64	74.00	-27.36	Peak	100	121	P
5	12060.00	-6.06	39.88	33.82	54.00	-20.18	Average	100	157	P
6	12060.00	-6.06	53.11	47.05	74.00	-26.95	Peak	100	157	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

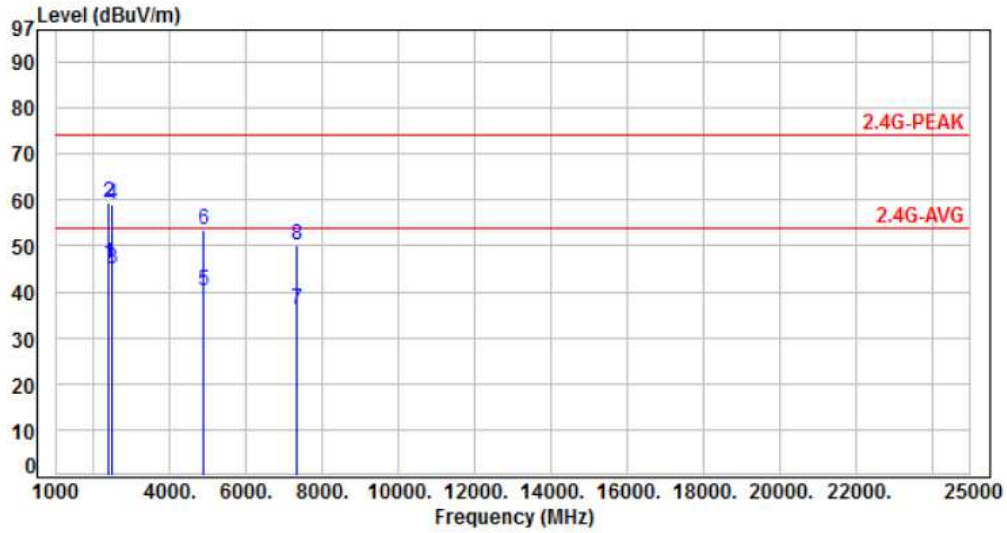


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	70.26	51.23	54.00	-2.77	Average	238	197	P
2	2390.00	-19.03	88.15	69.12	74.00	-4.88	Peak	238	197	P
3	2483.50	-18.81	69.79	50.98	54.00	-3.02	Average	238	197	P
4	2483.50	-18.81	87.26	68.45	74.00	-5.55	Peak	238	197	P
5	4874.00	-13.24	53.90	40.66	54.00	-13.34	Average	383	207	P
6	4874.00	-13.24	65.73	52.49	74.00	-21.51	Peak	383	207	P
7	7311.00	-10.19	50.77	40.58	54.00	-13.42	Average	116	57	P
8	7311.00	-10.19	64.69	54.50	74.00	-19.50	Peak	116	57	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

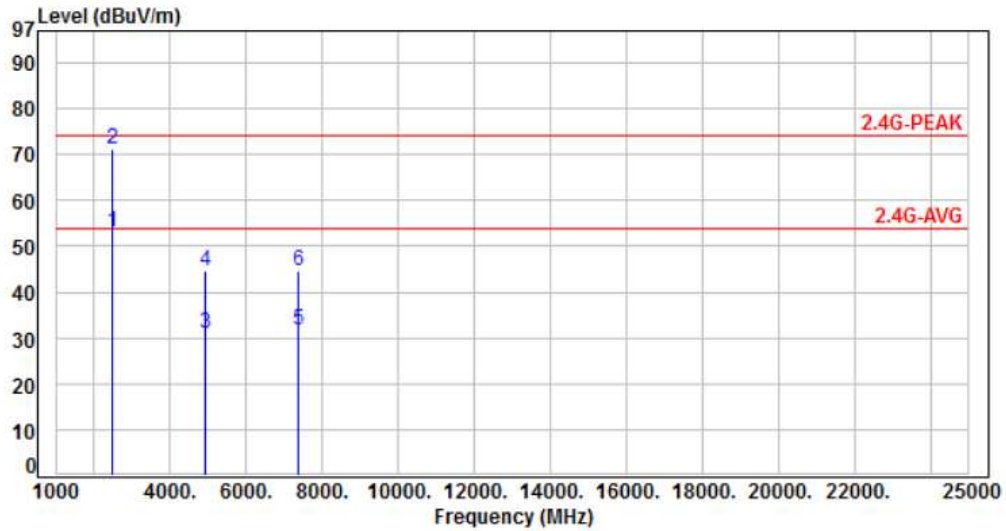


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.03	65.13	46.10	54.00	-7.90	Average	138	296	P
2	2390.00	-19.03	78.24	59.21	74.00	-14.79	Peak	138	296	P
3	2483.50	-18.81	63.91	45.10	54.00	-8.90	Average	138	296	P
4	2483.50	-18.81	77.73	58.92	74.00	-15.08	Peak	138	296	P
5	4874.00	-13.24	53.61	40.37	54.00	-13.63	Average	100	120	P
6	4874.00	-13.24	66.80	53.56	74.00	-20.44	Peak	100	120	P
7	7311.00	-10.19	46.39	36.20	54.00	-17.80	Average	115	2	P
8	7311.00	-10.19	60.23	50.04	74.00	-23.96	Peak	115	2	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

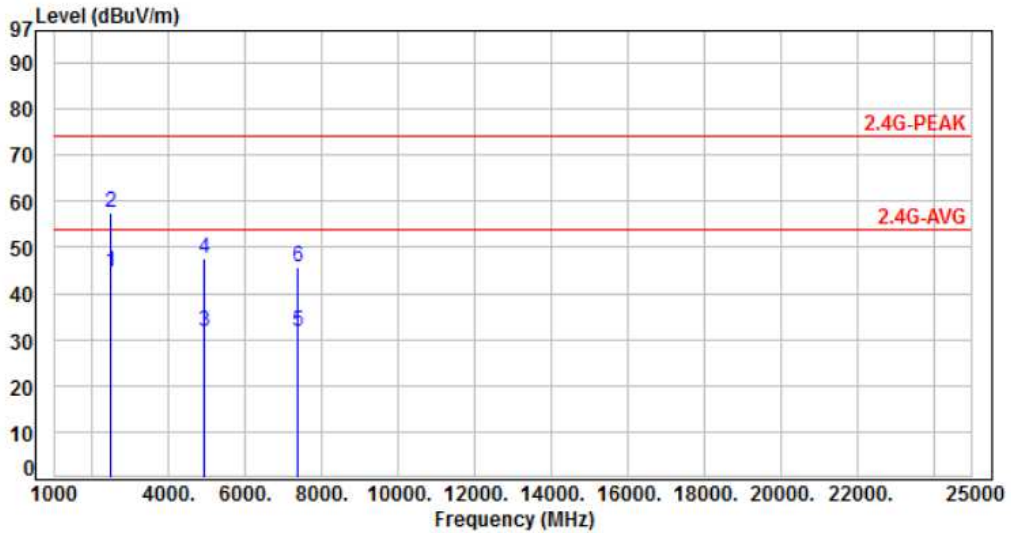


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	71.79	52.98	54.00	-1.02	Average	226	219	P
2	2483.50	-18.81	90.07	71.26	74.00	-2.74	Peak	226	219	P
3	4924.00	-13.14	43.97	30.83	54.00	-23.17	Average	368	121	P
4	4924.00	-13.14	57.85	44.71	74.00	-29.29	Peak	368	121	P
5	7386.00	-10.01	41.73	31.72	54.00	-22.28	Average	115	56	P
6	7386.00	-10.01	54.78	44.77	74.00	-29.23	Peak	115	56	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH11	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

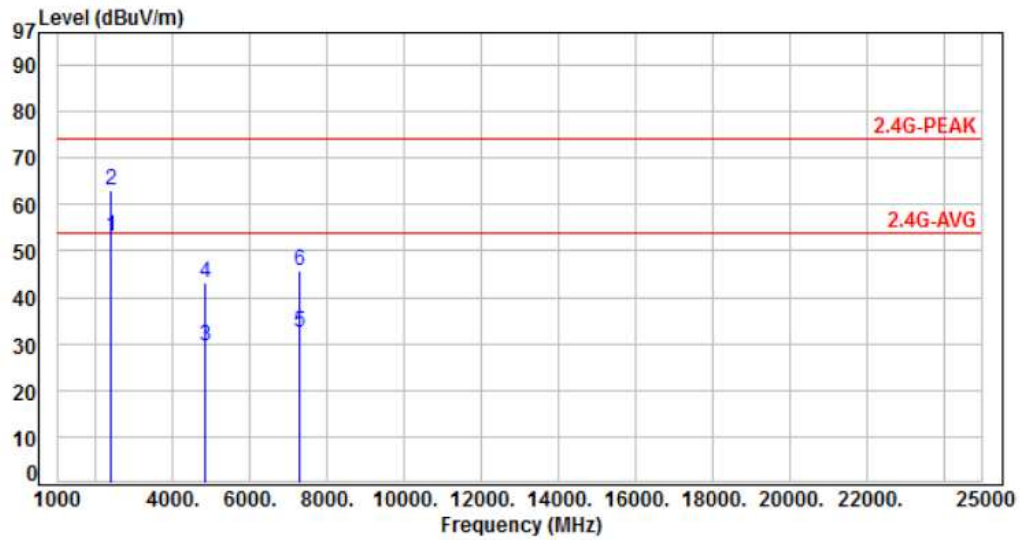


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.81	63.49	44.68	54.00	-9.32	Average	129	301	P
2	2483.50	-18.81	76.52	57.71	74.00	-16.29	Peak	129	301	P
3	4924.00	-13.14	44.94	31.80	54.00	-22.20	Average	100	119	P
4	4924.00	-13.14	60.61	47.47	74.00	-26.53	Peak	100	119	P
5	7386.00	-10.01	41.75	31.74	54.00	-22.26	Average	100	38	P
6	7386.00	-10.01	55.77	45.76	74.00	-28.24	Peak	100	38	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH03	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



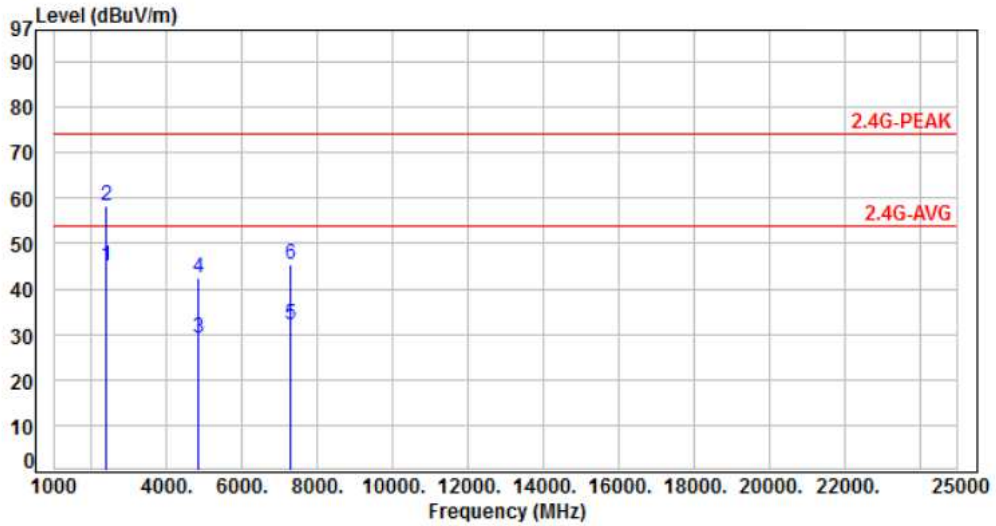
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.02	72.10	53.08	54.00	-0.92	Average	235	270	P
2	2390.00	-19.02	82.05	63.03	74.00	-10.97	Peak	235	270	P
3	4844.00	-13.26	42.85	29.59	54.00	-24.41	Average	362	137	P
4	4844.00	-13.26	56.41	43.15	74.00	-30.85	Peak	362	137	P
5	7266.00	-10.26	42.68	32.42	54.00	-21.58	Average	118	52	P
6	7266.00	-10.26	55.94	45.68	74.00	-28.32	Peak	118	52	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH03	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

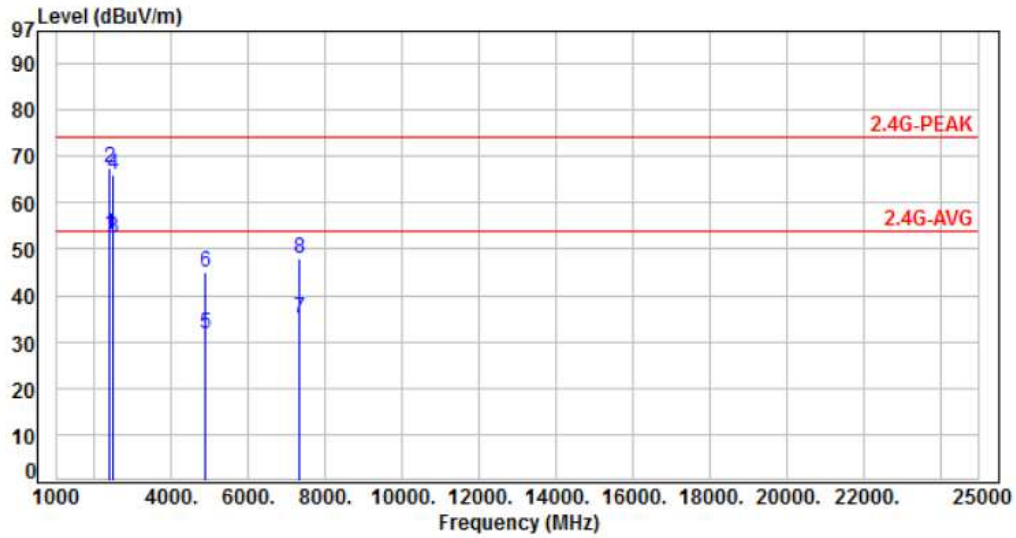


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.02	63.91	44.89	54.00	-9.11	Average	137	298	P
2	2390.00	-19.02	77.12	58.10	74.00	-15.90	Peak	137	298	P
3	4844.00	-13.26	42.58	29.32	54.00	-24.68	Average	100	134	P
4	4844.00	-13.26	55.79	42.53	74.00	-31.47	Peak	100	134	P
5	7266.00	-10.26	42.17	31.91	54.00	-22.09	Average	102	36	P
6	7266.00	-10.26	55.49	45.23	74.00	-28.77	Peak	102	36	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



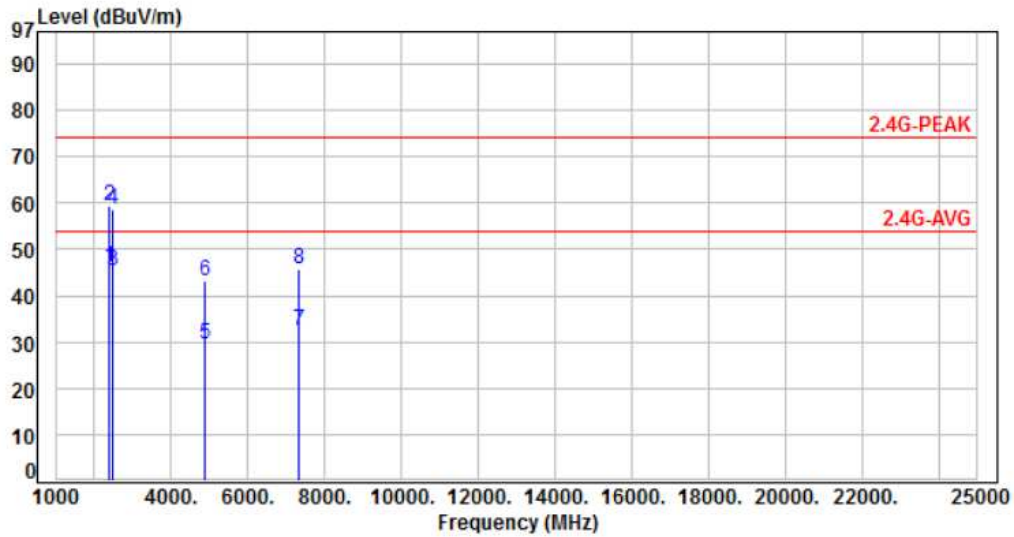
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.02	72.05	53.03	54.00	-0.97	Average	247	190	P
2	2390.00	-19.02	86.44	67.42	74.00	-6.58	Peak	247	190	P
3	2483.50	-18.80	71.24	52.44	54.00	-1.56	Average	249	196	P
4	2483.50	-18.80	84.99	66.19	74.00	-7.81	Peak	249	196	P
5	4874.00	-13.21	44.93	31.72	54.00	-22.28	Average	369	142	P
6	4874.00	-13.21	58.13	44.92	74.00	-29.08	Peak	369	142	P
7	7311.00	-10.15	45.22	35.07	54.00	-18.93	Average	113	58	P
8	7311.00	-10.15	58.03	47.88	74.00	-26.12	Peak	113	58	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH06	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

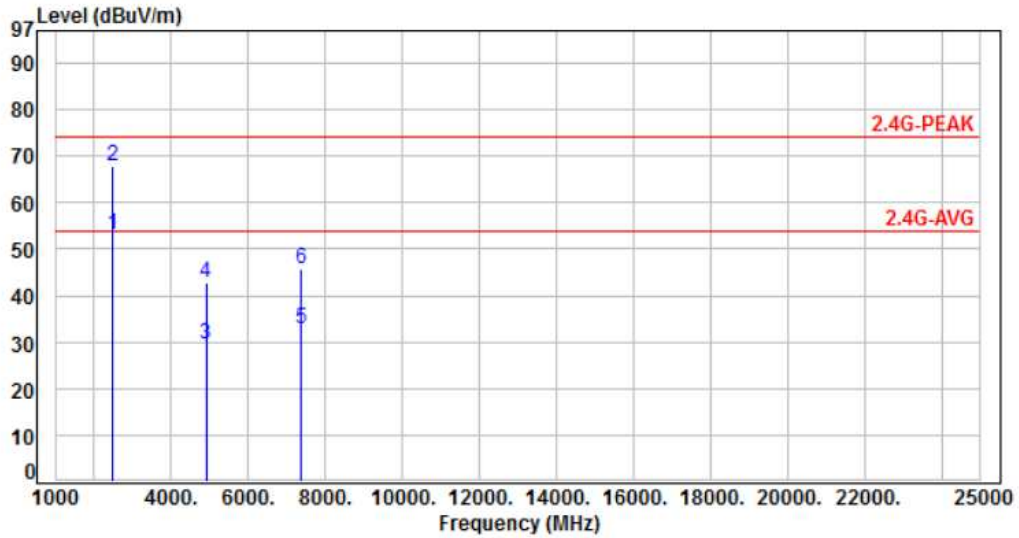


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-19.02	64.94	45.92	54.00	-8.08	Average	137	302	P
2	2390.00	-19.02	78.24	59.22	74.00	-14.78	Peak	137	302	P
3	2483.50	-18.80	64.25	45.45	54.00	-8.55	Average	137	302	P
4	2483.50	-18.80	77.36	58.56	74.00	-15.44	Peak	137	302	P
5	4874.00	-13.21	42.60	29.39	54.00	-24.61	Average	100	128	P
6	4874.00	-13.21	56.50	43.29	74.00	-30.71	Peak	100	128	P
7	7311.00	-10.15	42.70	32.55	54.00	-21.45	Average	100	31	P
8	7311.00	-10.15	55.85	45.70	74.00	-28.30	Peak	100	31	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH09	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %

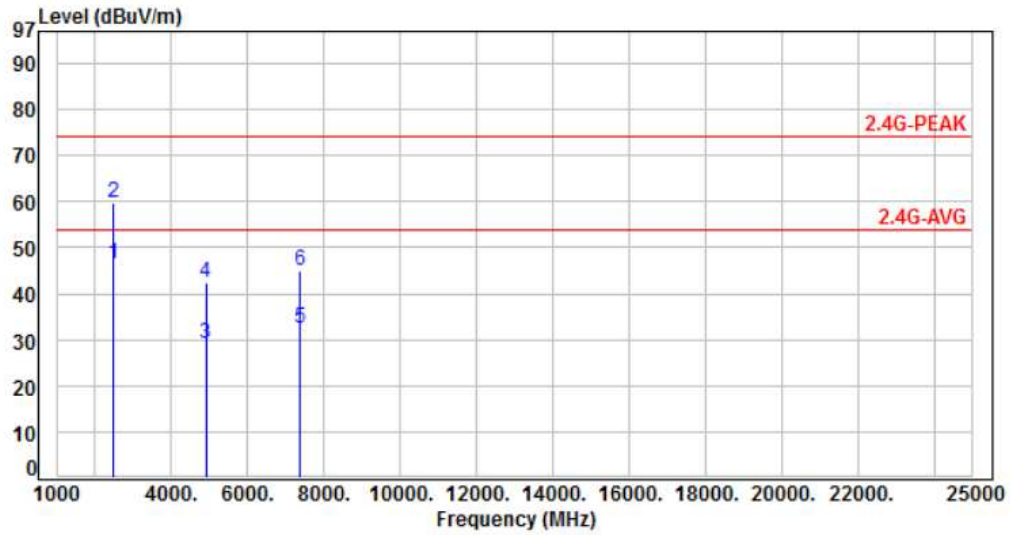


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.80	71.98	53.18	54.00	-0.82	Average	251	360	P
2	2483.50	-18.80	86.69	67.89	74.00	-6.11	Peak	251	360	P
3	4904.00	-13.14	42.77	29.63	54.00	-24.37	Average	361	152	P
4	4904.00	-13.14	55.85	42.71	74.00	-31.29	Peak	361	152	P
5	7356.00	-10.03	42.69	32.66	54.00	-21.34	Average	126	63	P
6	7356.00	-10.03	55.84	45.81	74.00	-28.19	Peak	126	63	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH09	Temperature	: 24 °C
Test Date	: Jul. 17, 2017	Humidity	: 66 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.80	65.26	46.46	54.00	-7.54	Average	134	288	P
2	2483.50	-18.80	78.63	59.83	74.00	-14.17	Peak	134	288	P
3	4904.00	-13.14	42.25	29.11	54.00	-24.89	Average	100	137	P
4	4904.00	-13.14	55.39	42.25	74.00	-31.75	Peak	100	137	P
5	7356.00	-10.03	42.37	32.34	54.00	-21.66	Average	100	42	P
6	7356.00	-10.03	55.12	45.09	74.00	-28.91	Peak	100	42	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



### 6.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

\*\* : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz