FCC RADIO TEST REPORT

Applicant	:	D-Link Corporation
Address	:	No. 289, Sinhu 3rd., Neihu District, Taipei City 114, Taiwan, R.O.C.
Tel	:	886-2-66000123
Fax	:	886-2-55509988
Equipment	:	Unified AC Selectable Dual-band PoE Access Point
Model No.	:	DWL-3610AP
Trade Name	:	D-Link
FCC ID.	:	KA2WL3610APA1

I HEREBY CERTIFY THAT :

The sample was received on Apr. 07, 2017 and the testing was carried out on Apr. 13, 2017 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by: Tested by:

Mark Liao / Assistant Manager Spree Yei / Engineer

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory

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History of this test report

Report No.	Issue Date	Description
TEFI1607046	Apr. 17, 2017	Original

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

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

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	Unified AC Selectable Dual-band PoE Access Point
Model No.	DWL-3610AP
Brand Name	D-Link
Product Description	Please refer to User's Manual.
AC ADAPTER	Adapter Brand: D-Link Model No.: AMS135-1201000FU I/P: AC 100-240V~, 50/60Hz, 0.5A ; O/P: DC 12V, 1.0A
Connecting I/O Port(s)	Please refer to User's Manual.
Frequency Range	802.11b/g/n/ac: 2412-2462 MHz 802.11a/an/ac: 5150MHz-5250MHz, 5725MHz -5850MHz
Modulation Type	OFDM, DSSS, FHSS
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type/ gain	PIFA antenna 2412-2462MHz: ANT 1: 2.8dBi; ANT 2: 3dBi 5150MHz-5250MHz: ANT 1: 3dBi; ANT 2: 3dBi 5725MHz -5850MHz: ANT 1: 2.9dBi; ANT 2: 2.8dBi

Note:
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Band 5G 802.11ac VHT20, VHT40 and VHT80 support beamforming.

2.2 Carrier Frequency of Channels

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

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

802.11n HT40 (2422MHz~2452MHz)

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

Note: Channels remarked * are selected to perform test.

2.3 Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b. The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
c. An executive program, ”Mtool 2.0.3.2” under WIN 7 was executed to transmit and receive data via WLAN.
d. 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 5” generated the worst case, it was reported as the final data.
   For radiation test (below 1GHz), caused “Test Mode 5” 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.

2.4 Description of Test System

Device	Manufacturer	Model No.	Description
Remote workstation			
Notebook	DELL	Vostro 3560	Power Cable, Unshielding, 1.8m

Use Cable:

Cable	Quantity	Description
Network	1	Unshielding, 10m

2.5 General Information of Test

Test Site	**Cerpass Technology Corporation Test Laboratory** 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	2016/05/11	2017/05/10
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	PIFA Antenna
Antenna Gain	2412-2462MHz: ANT 1: 2.8dBi; ANT 2: 3dBi 5150MHz-5250MHz: ANT 1: 3dBi; ANT 2: 3dBi 5725MHz -5850MHz: ANT 1: 2.9dBi; ANT 2: 2.8dBi

For Non-Beamforming

2412-2462MHz

For Power directional gain= G_{ant}= 3 dBi

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

= 5.91 (dBi)

5150MHz-5250MHz

For Power directional gain= G_{ant}= 3 dBi

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

= 6.01 (dBi)

5725MHz -5850MHz

For Power directional gain= G_{ant}= 2.9 dBi

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

= 5.86 (dBi)

For Beamforming

5150MHz-5250MHz

For Power directional gain= G_{ant}= 6.01 dBi

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

= 6.01 (dBi)

5725MHz -5850MHz

For Power directional gain= G_{ant}= 5.86 dBi

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

= 5.86 (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.

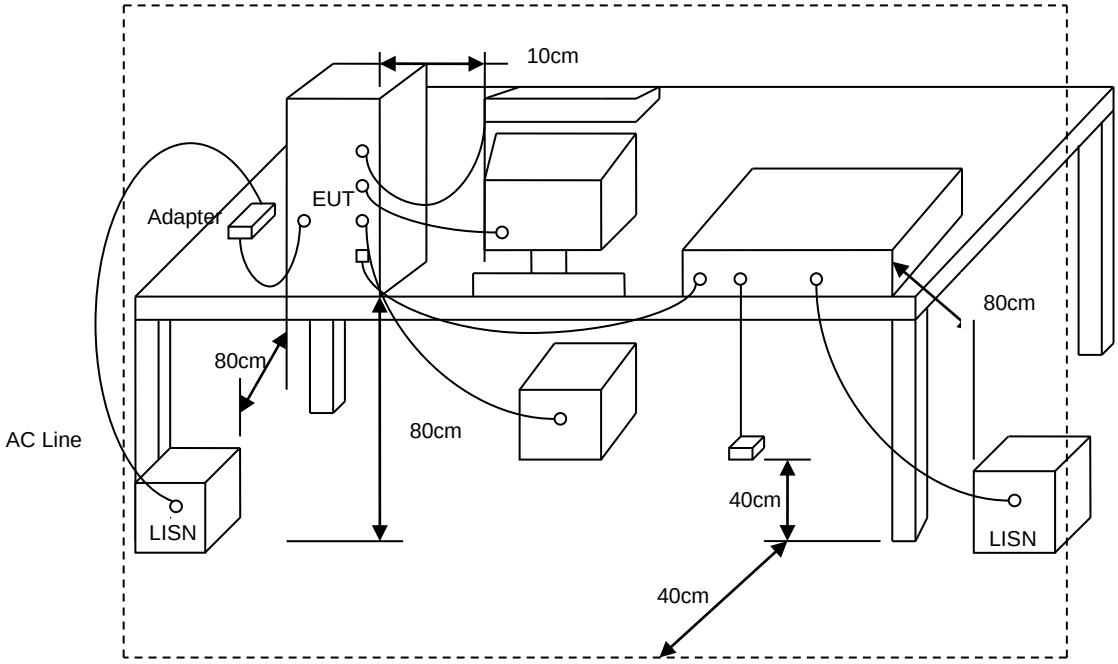
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2 Test Procedures

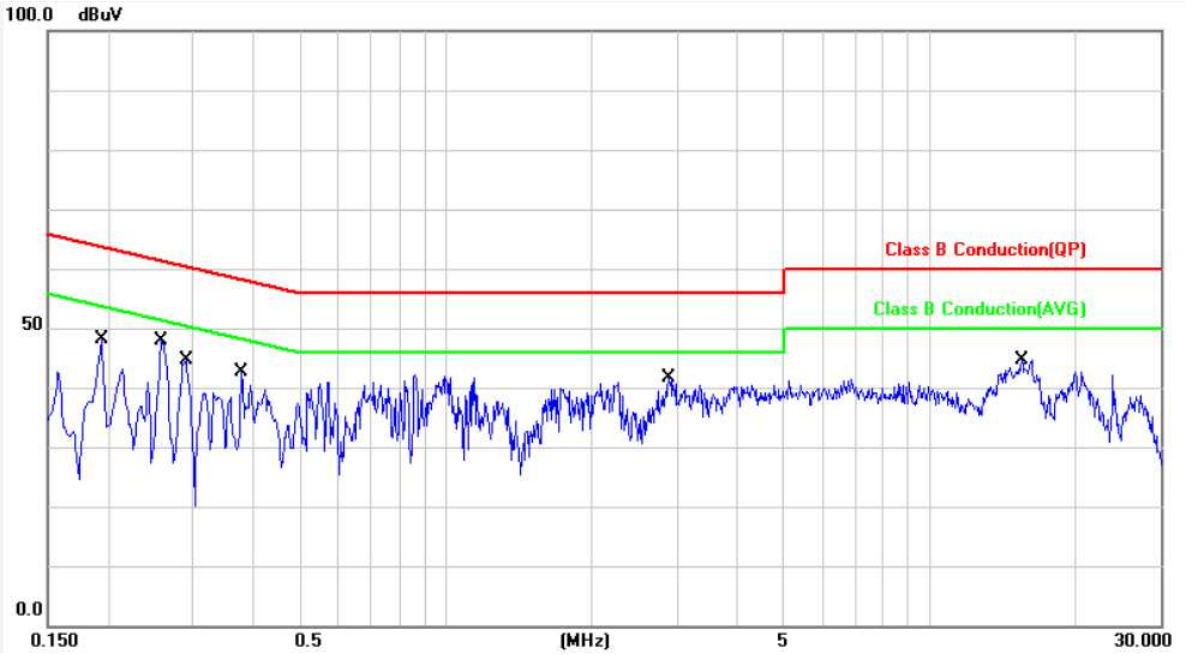
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
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

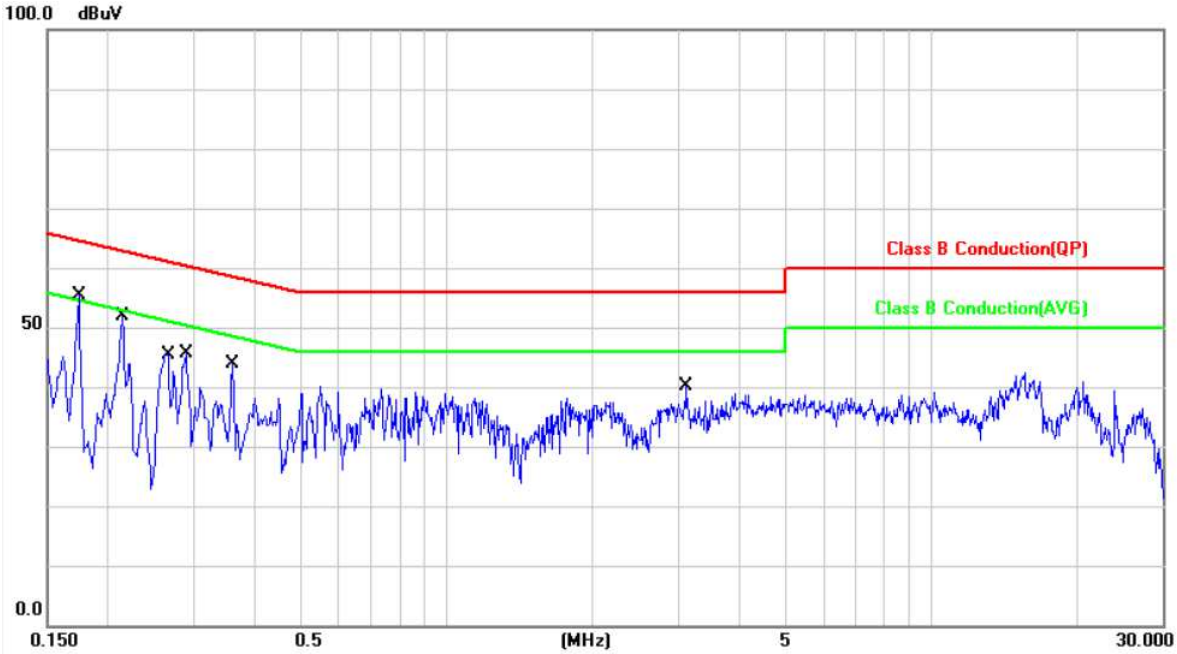
Power :	AC 120V	Pol/Phase :	LINE
Test Mode :	Mode 5	Temperature :	23 °C
Test date :	Apr. 07, 2017	Humidity :	48 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1940	9.95	32.72	42.67	63.86	-21.19	QP	P
2	0.1940	9.95	16.97	26.92	53.86	-26.94	AVG	P
3	0.2580	9.95	36.76	46.71	61.49	-14.78	QP	P
4	0.2580	9.95	31.76	41.71	51.49	-9.78	AVG	P
5	0.2900	9.95	34.01	43.96	60.52	-16.56	QP	P
6	0.2900	9.95	28.50	38.45	50.52	-12.07	AVG	P
7	0.3780	9.96	25.15	35.11	58.32	-23.21	QP	P
8	0.3780	9.96	15.64	25.60	48.32	-22.72	AVG	P
9	2.8980	10.09	26.67	36.76	56.00	-19.24	QP	P
10	2.8980	10.09	19.08	29.17	46.00	-16.83	AVG	P
11	15.5220	10.51	31.88	42.39	60.00	-17.61	QP	P
12	15.5220	10.51	25.95	36.46	50.00	-13.54	AVG	P

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

Power :	AC 120V	Pol/Phase :	NEUTRAL
Test Mode :	Mode 5	Temperature :	23 °C
Test date :	Apr. 07, 2017	Humidity :	48 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1740	9.95	39.86	49.81	64.76	-14.95	QP	P
2	0.1740	9.95	16.48	26.43	54.76	-28.33	AVG	P
3	0.2140	9.94	36.66	46.60	63.04	-16.44	QP	P
4	0.2140	9.94	22.35	32.29	53.04	-20.75	AVG	P
5	0.2660	9.94	31.34	41.28	61.24	-19.96	QP	P
6	0.2660	9.94	25.16	35.10	51.24	-16.14	AVG	P
7	0.2900	9.94	30.41	40.35	60.52	-20.17	QP	P
8	0.2900	9.94	25.20	35.14	50.52	-15.38	AVG	P
9	0.3620	9.95	21.61	31.56	58.68	-27.12	QP	P
10	0.3620	9.95	14.50	24.45	48.68	-24.23	AVG	P
11	3.1300	10.10	22.65	32.75	56.00	-23.25	QP	P
12	3.1300	10.10	14.17	24.27	46.00	-21.73	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

a. The EUT was placed on a rotatable table top 0.8 meter above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband ANT 1nd 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 ANT 1re set to make the measurement.

e. 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.

f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

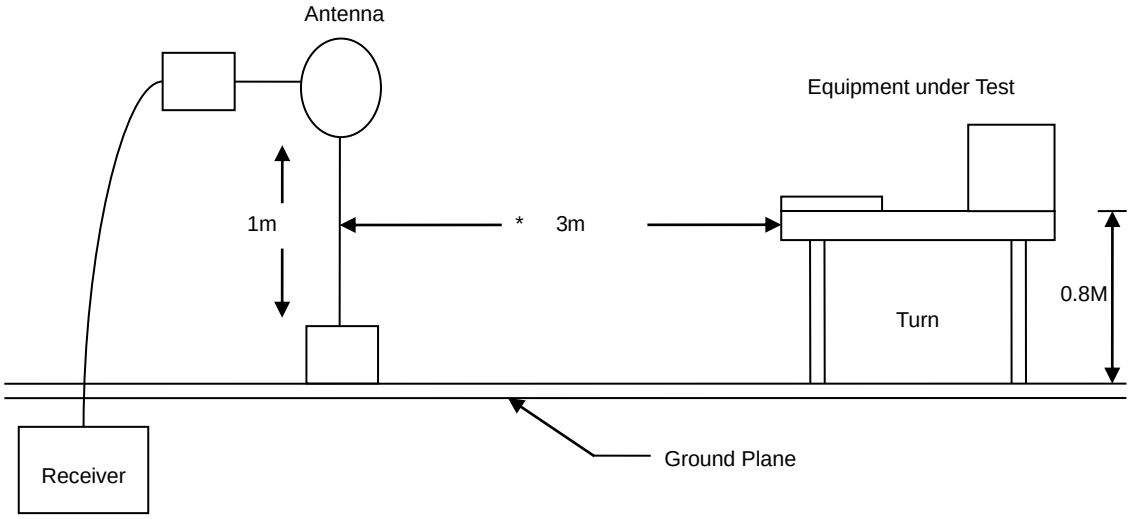
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

h. 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.

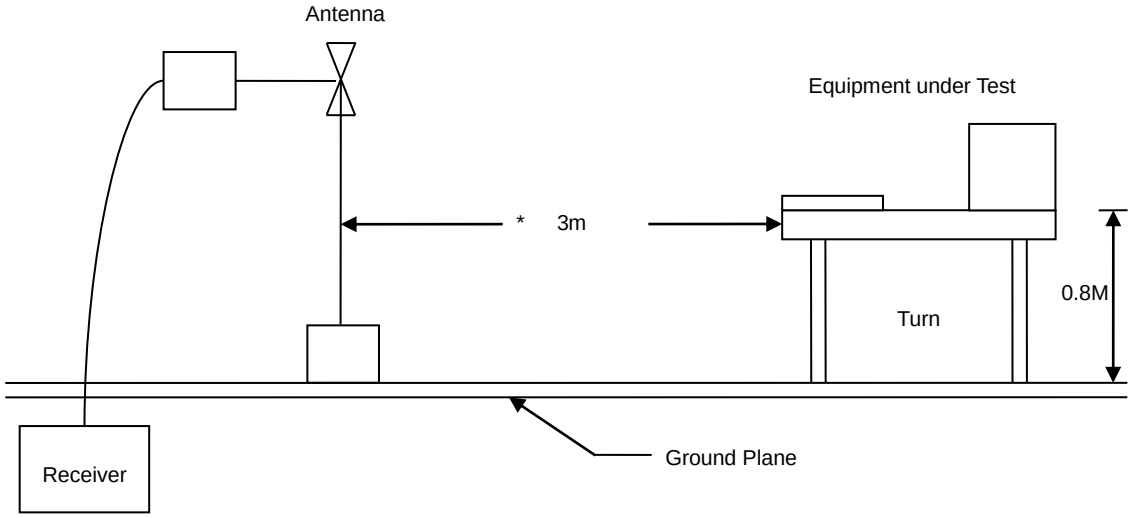
i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

6.3 Typical Test Setup

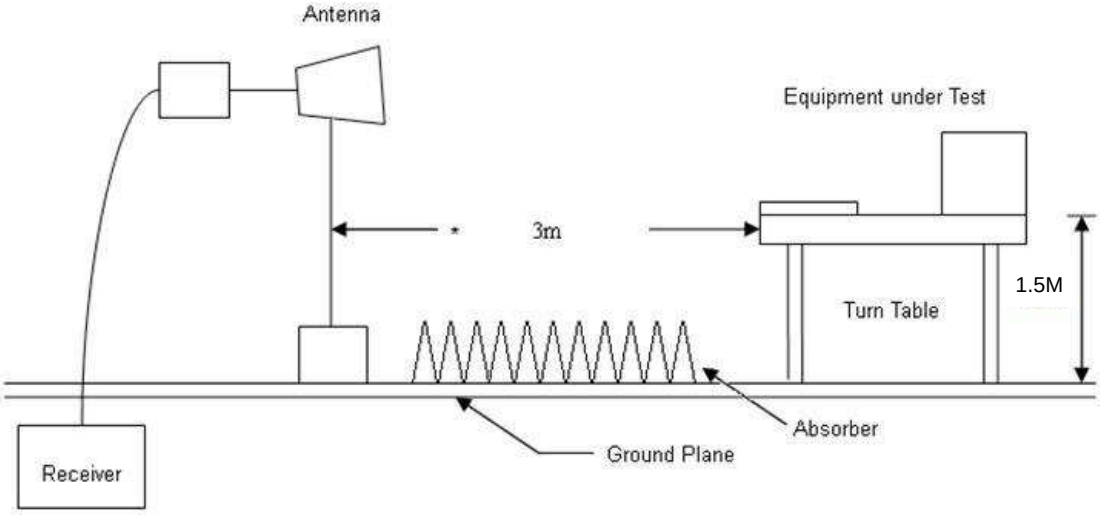
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

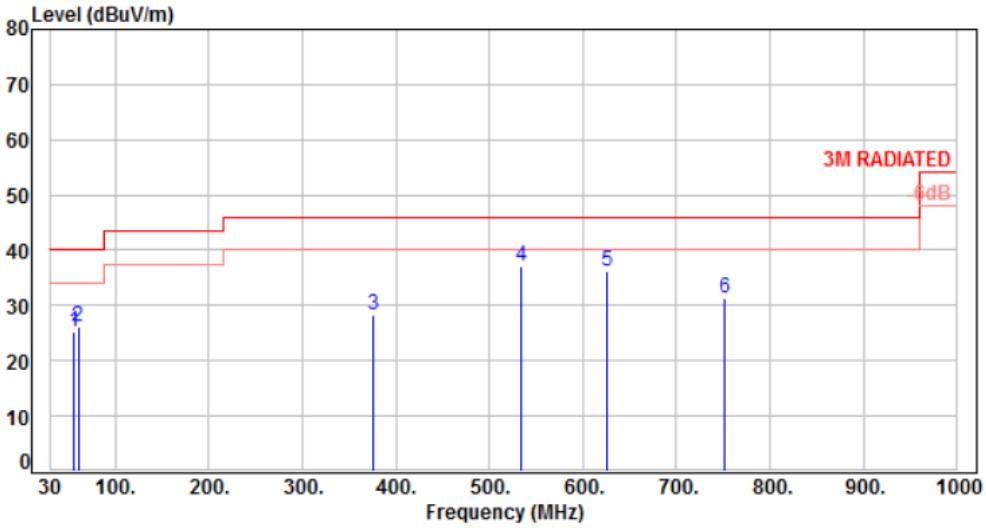


6.4 Test Result and Data (9KHz ~ 30MHz)

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

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

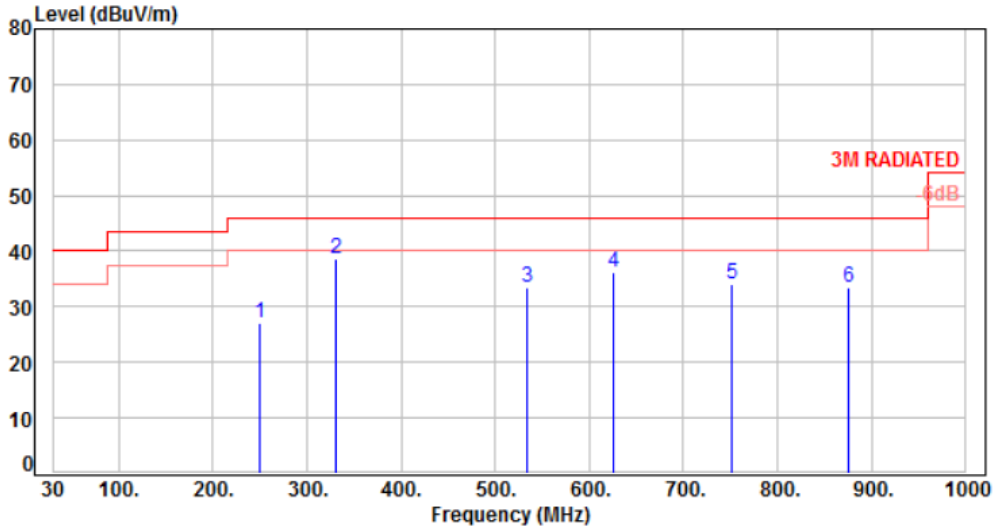
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	55.22	20.77	4.38	25.15	40.00	-14.85	QP	105	25	P
2	60.07	20.39	5.91	26.30	40.00	-13.70	QP	100	37	P
3	375.32	23.62	4.74	28.36	46.00	-17.64	Peak	100	0	P
4	533.43	26.84	10.16	37.00	46.00	-9.00	Peak	100	0	P
5	625.58	28.68	7.54	36.22	46.00	-9.78	Peak	100	0	P
6	750.71	30.60	0.81	31.41	46.00	-14.59	Peak	100	0	P

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

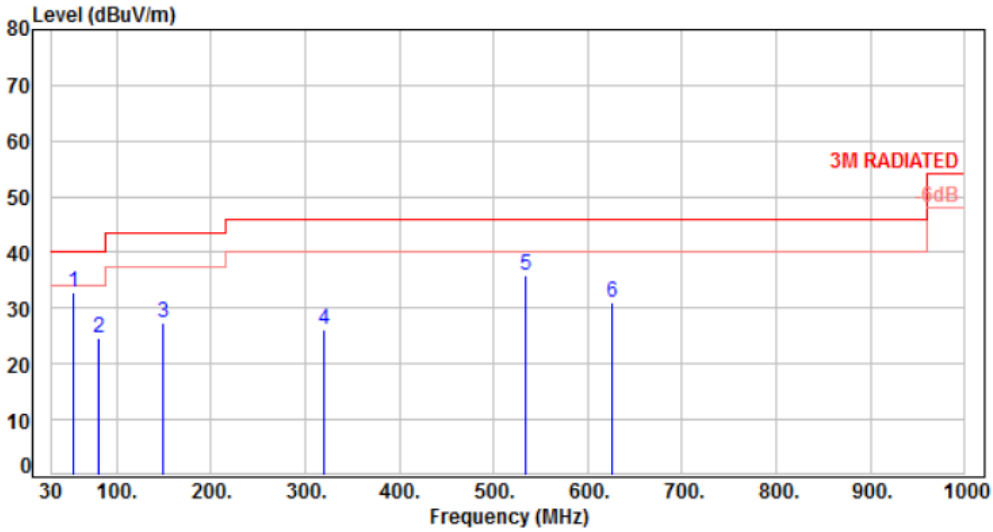
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	250.19	19.85	7.26	27.11	46.00	-18.89	Peak	100	0	P
2	330.70	22.46	16.19	38.65	46.00	-7.35	Peak	100	0	P
3	533.43	26.84	6.50	33.34	46.00	-12.66	Peak	100	0	P
4	625.58	28.68	7.59	36.27	46.00	-9.73	Peak	100	0	P
5	750.71	30.60	3.59	34.19	46.00	-11.81	Peak	100	0	P
6	875.84	31.91	1.43	33.34	46.00	-12.66	Peak	100	0	P

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

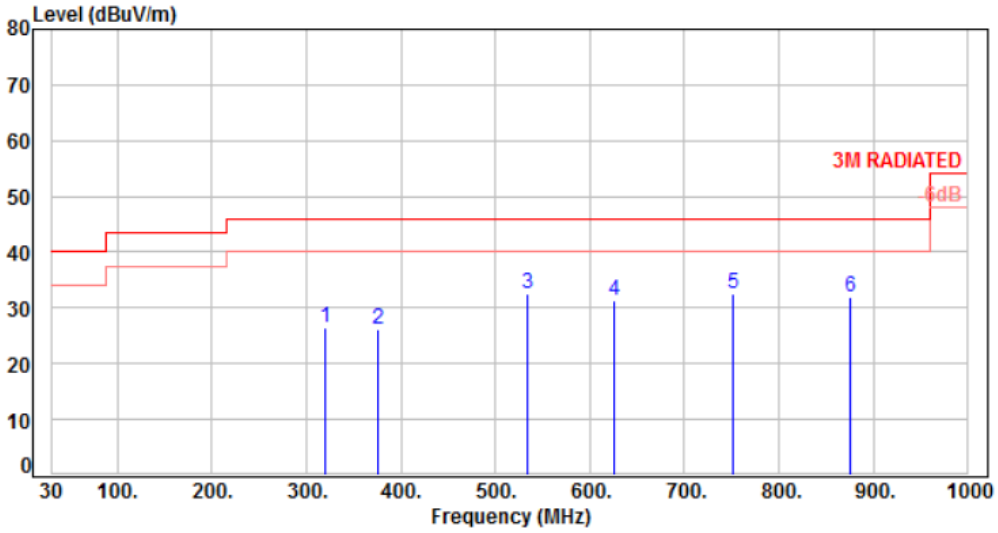
Power :	PoE	Pol/Phase :	VERTICAL
Test Mode :	Mode 5	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	54.25	20.85	12.10	32.95	40.00	-7.05	Peak	100	0	P
2	80.44	15.97	8.70	24.67	40.00	-15.33	QP	100	334	P
3	148.34	20.81	6.48	27.29	43.50	-16.21	Peak	100	0	P
4	320.03	22.18	4.12	26.30	46.00	-19.70	Peak	100	0	P
5	533.43	26.84	9.16	36.00	46.00	-10.00	Peak	100	0	P
6	625.58	28.68	2.47	31.15	46.00	-14.85	Peak	100	0	P

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

Power :	PoE	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %

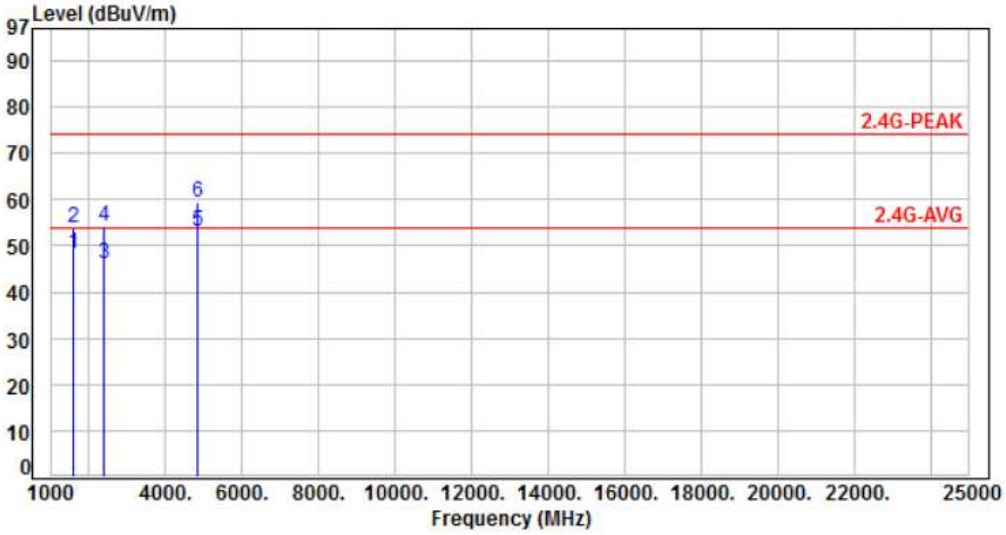


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	320.03	22.18	4.41	26.59	46.00	-19.41	Peak	100	0	P
2	375.32	23.62	2.48	26.10	46.00	-19.90	Peak	100	0	P
3	533.43	26.84	5.75	32.59	46.00	-13.41	Peak	100	0	P
4	625.58	28.68	2.62	31.30	46.00	-14.70	Peak	100	0	P
5	750.71	30.60	1.98	32.58	46.00	-13.42	Peak	100	0	P
6	875.84	31.91	0.17	32.08	46.00	-13.92	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)

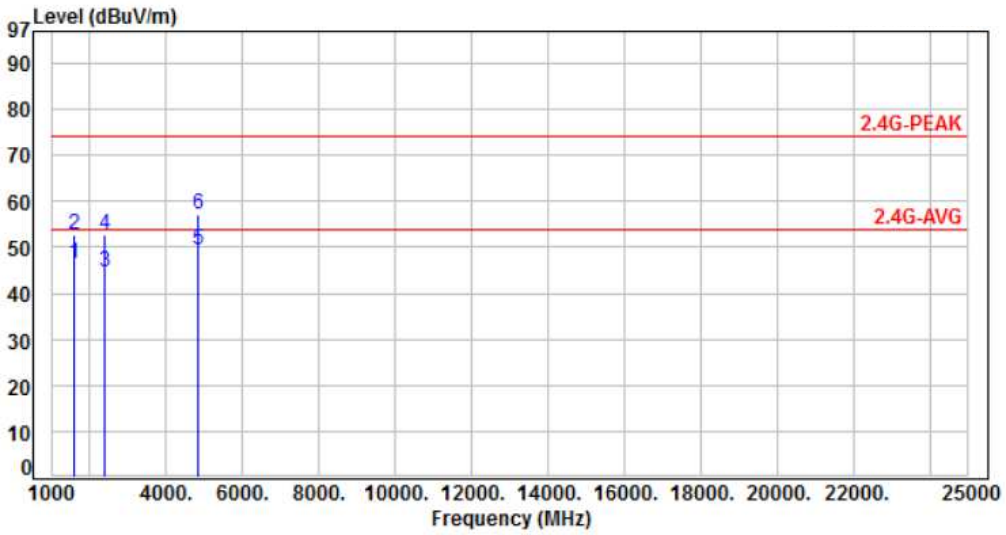
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 1, CH01	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.06	48.14	54.00	-5.86	Average	162	173	P
2	1600.00	-4.92	58.66	53.74	74.00	-20.26	Peak	162	173	P
3	2387.00	-0.96	46.95	45.99	54.00	-8.01	Average	292	133	P
4	2387.28	-0.96	55.26	54.30	74.00	-19.70	Peak	292	133	P
5	4824.00	7.95	45.00	52.95	54.00	-1.05	Average	195	138	P
6	4824.00	7.95	51.43	59.38	74.00	-14.62	Peak	195	138	P

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

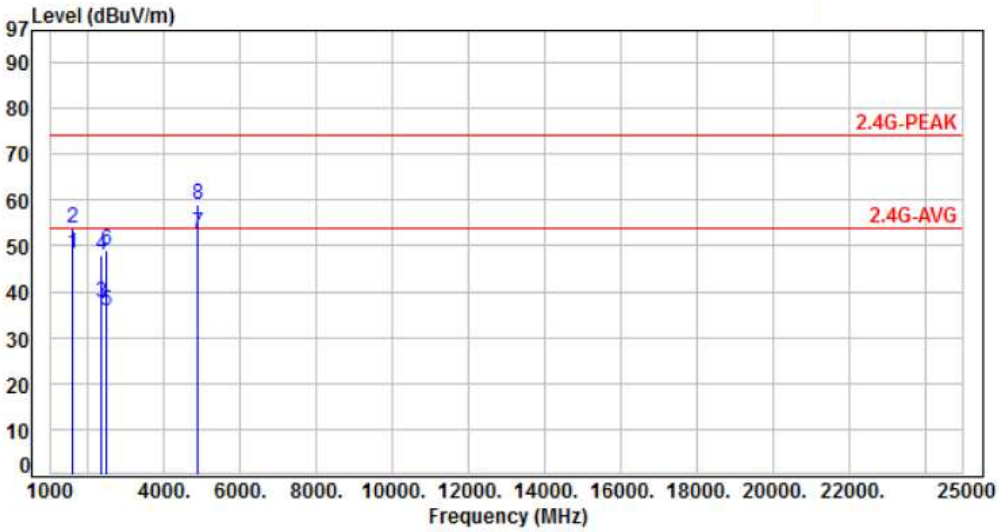
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 1, CH01	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.38	46.46	54.00	-7.54	Average	106	212	P
2	1600.00	-4.92	57.52	52.60	74.00	-21.40	Peak	106	212	P
3	2387.00	-0.96	45.42	44.46	54.00	-9.54	Average	366	309	P
4	2387.00	-0.96	53.67	52.71	74.00	-21.29	Peak	366	309	P
5	4824.00	7.95	41.30	49.25	54.00	-4.75	Average	154	128	P
6	4824.00	7.95	49.11	57.06	74.00	-16.94	Peak	154	128	P

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

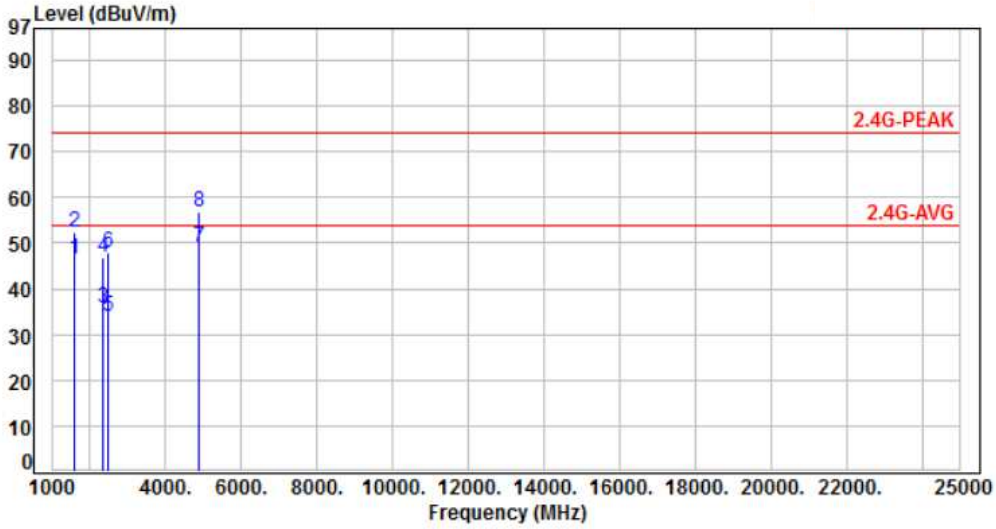
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 1, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.12	48.20	54.00	-5.80	Average	172	180	P
2	1600.00	-4.92	58.67	53.75	74.00	-20.25	Peak	172	180	P
3	2356.00	-1.05	38.79	37.74	54.00	-16.26	Average	314	71	P
4	2356.00	-1.05	48.95	47.90	74.00	-26.10	Peak	314	71	P
5	2483.50	-0.64	36.34	35.70	54.00	-18.30	Average	325	267	P
6	2483.50	-0.64	49.55	48.91	74.00	-25.09	Peak	325	267	P
7	4874.00	8.19	44.46	52.65	54.00	-1.35	Average	167	142	P
8	4874.00	8.19	50.94	59.13	74.00	-14.87	Peak	167	142	P

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

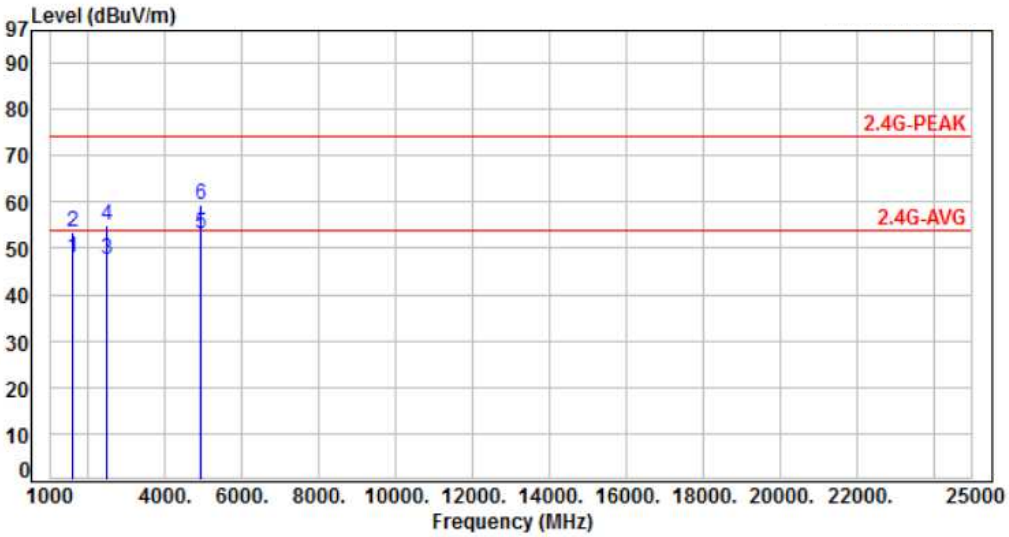
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 1, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.30	46.38	54.00	-7.62	Average	106	212	P
2	1600.00	-4.92	57.44	52.52	74.00	-21.48	Peak	106	212	P
3	2356.00	-1.05	36.68	35.63	54.00	-18.37	Average	238	244	P
4	2356.00	-1.05	48.03	46.98	74.00	-27.02	Peak	238	244	P
5	2483.50	-0.64	34.70	34.06	54.00	-19.94	Average	179	247	P
6	2483.50	-0.64	48.53	47.89	74.00	-26.11	Peak	179	247	P
7	4874.00	8.19	40.76	48.95	54.00	-5.05	Average	194	128	P
8	4874.00	8.19	48.58	56.77	74.00	-17.23	Peak	194	128	P

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

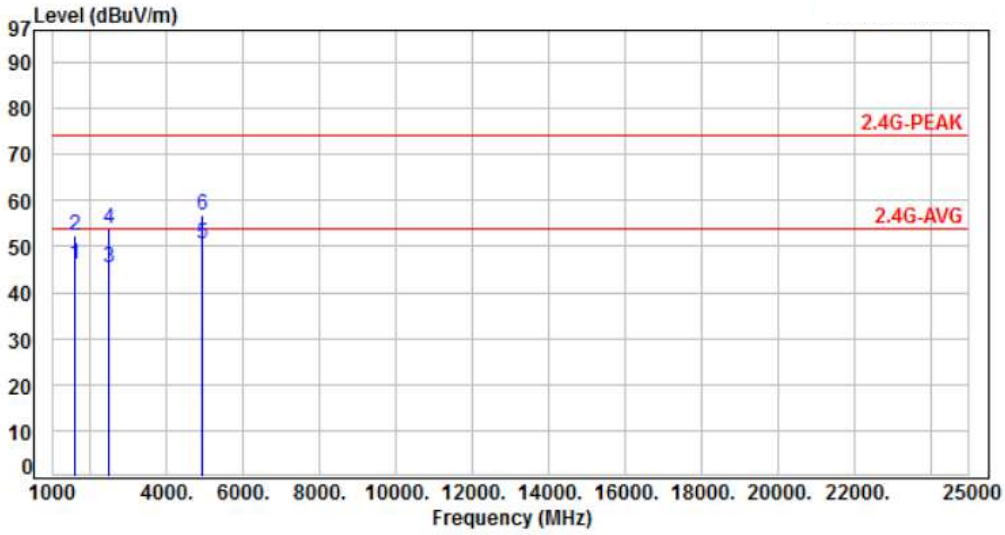
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 1, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.02	48.10	54.00	-5.90	Average	165	175	P
2	1600.00	-4.92	58.40	53.48	74.00	-20.52	Peak	165	175	P
3	2483.50	-0.64	48.25	47.61	54.00	-6.39	Average	324	256	P
4	2483.50	-0.64	55.71	55.07	74.00	-18.93	Peak	324	256	P
5	4924.00	8.44	44.53	52.97	54.00	-1.03	Average	191	143	P
6	4924.00	8.44	50.83	59.27	74.00	-14.73	Peak	191	143	P

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

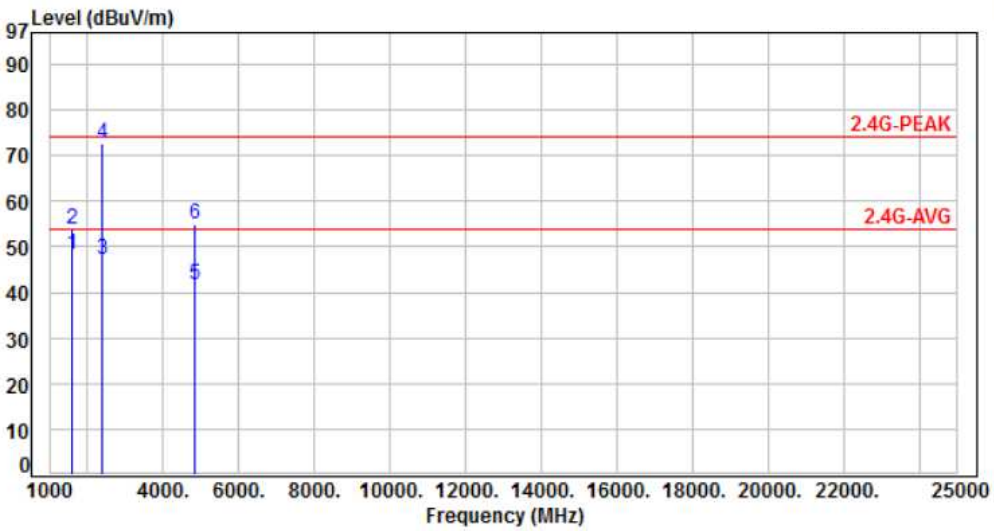
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 1, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.16	46.24	54.00	-7.76	Average	114	205	P
2	1600.00	-4.92	57.31	52.39	74.00	-21.61	Peak	114	205	P
3	2483.50	-0.64	46.02	45.38	54.00	-8.62	Average	256	187	P
4	2483.50	-0.64	54.31	53.67	74.00	-20.33	Peak	256	187	P
5	4924.00	8.44	42.03	50.47	54.00	-3.53	Average	148	116	P
6	4924.00	8.44	48.31	56.75	74.00	-17.25	Peak	148	116	P

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

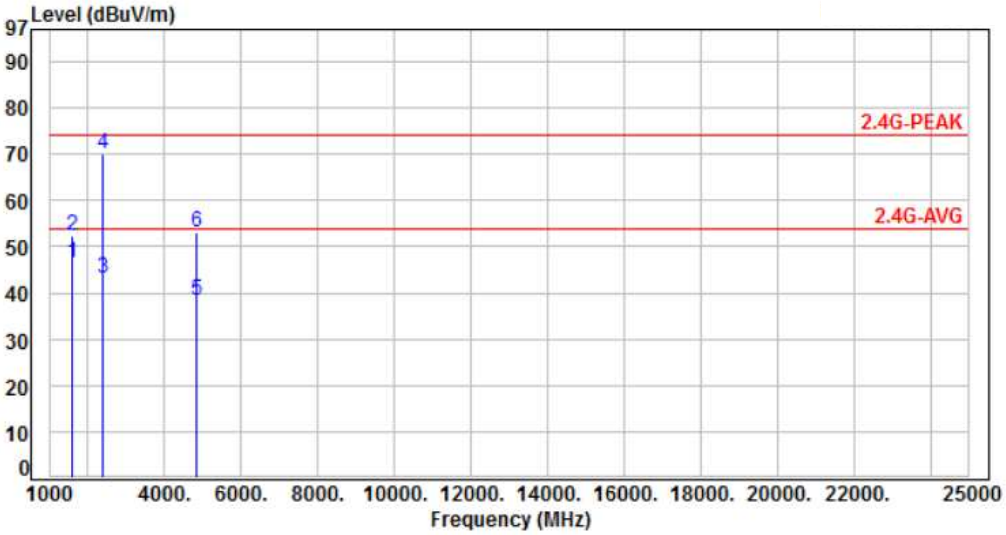
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 2, CH01	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.36	48.44	54.00	-5.56	Average	167	174	P
2	1600.00	-4.92	58.77	53.85	74.00	-20.15	Peak	167	174	P
3	2390.00	-0.94	48.05	47.11	54.00	-6.89	Average	394	276	P
4	2390.00	-0.94	73.76	72.82	74.00	-1.18	Peak	394	276	P
5	4824.00	7.95	33.61	41.56	54.00	-12.44	Average	165	152	P
6	4824.00	7.95	47.08	55.03	74.00	-18.97	Peak	165	152	P

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

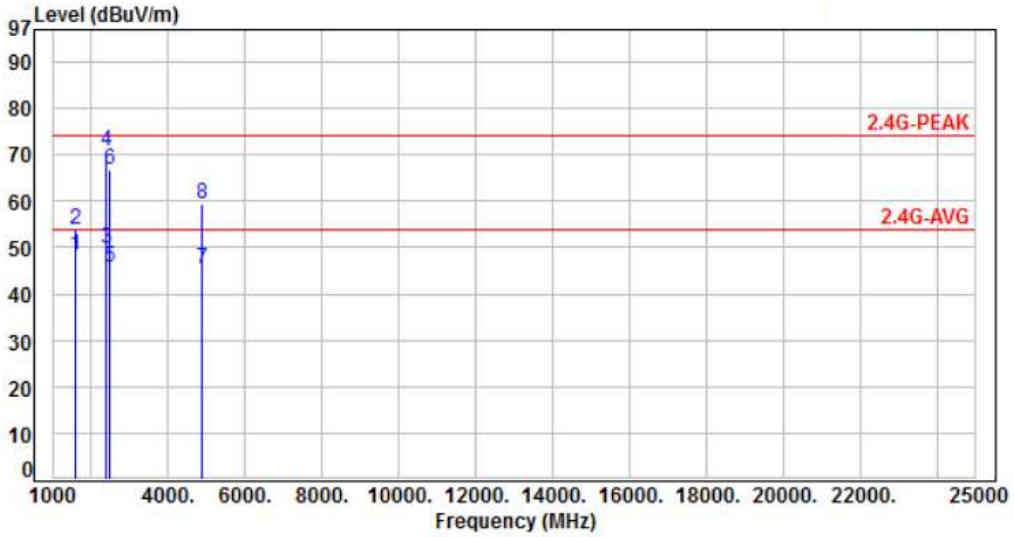
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 2, CH01	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.34	46.42	54.00	-7.58	Average	102	200	P
2	1600.00	-4.92	57.36	52.44	74.00	-21.56	Peak	102	200	P
3	2390.00	-0.94	44.18	43.24	54.00	-10.76	Average	100	27	P
4	2390.00	-0.94	71.19	70.25	74.00	-3.75	Peak	100	27	P
5	4824.00	7.95	30.51	38.46	54.00	-15.54	Average	112	193	P
6	4824.00	7.95	45.00	52.95	74.00	-21.05	Peak	112	193	P

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

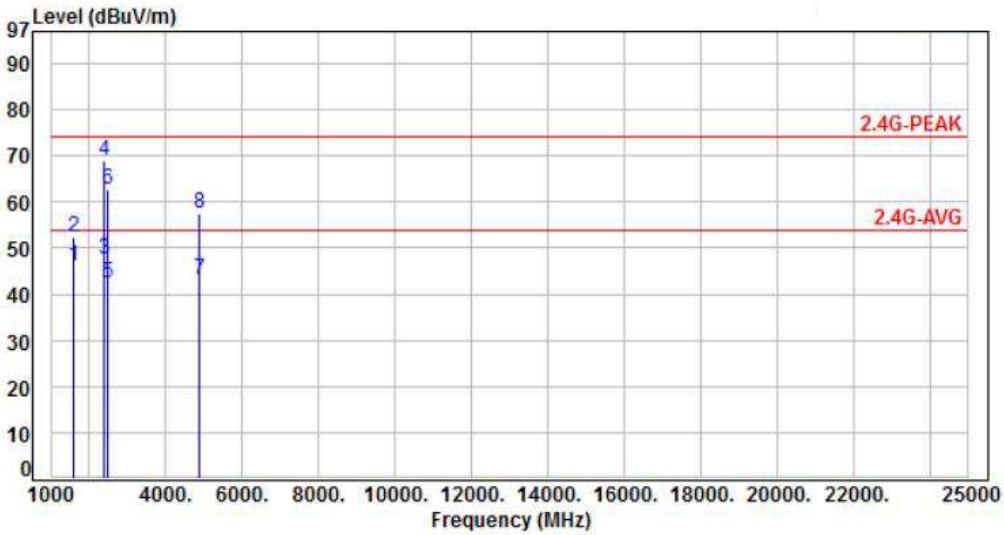
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 2, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.29	48.37	54.00	-5.63	Average	176	152	P
2	1600.00	-4.92	58.88	53.96	74.00	-20.04	Peak	176	152	P
3	2390.00	-0.94	50.84	49.90	54.00	-4.10	Average	297	128	P
4	2390.00	-0.94	71.76	70.82	74.00	-3.18	Peak	297	128	P
5	2483.50	-0.64	46.20	45.56	54.00	-8.44	Average	296	290	P
6	2483.50	-0.64	67.31	66.67	74.00	-7.33	Peak	296	290	P
7	4874.00	8.19	37.12	45.31	54.00	-8.69	Average	112	157	P
8	4874.00	8.19	51.26	59.45	74.00	-14.55	Peak	112	157	P

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

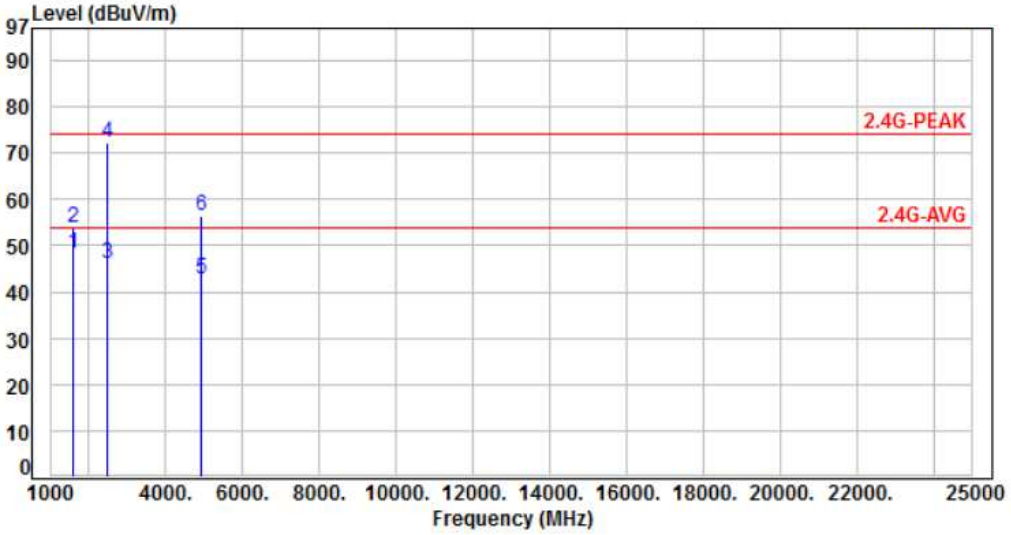
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 2, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.05	46.13	54.00	-7.87	Average	100	192	P
2	1600.00	-4.92	57.28	52.36	74.00	-21.64	Peak	100	192	P
3	2390.00	-0.94	48.50	47.56	54.00	-6.44	Average	368	26	P
4	2390.00	-0.94	69.80	68.86	74.00	-5.14	Peak	368	26	P
5	2483.50	-0.64	43.11	42.47	54.00	-11.53	Average	372	289	P
6	2483.50	-0.64	63.47	62.83	74.00	-11.17	Peak	372	289	P
7	4874.00	8.19	34.82	43.01	54.00	-10.99	Average	297	186	P
8	4874.00	8.19	49.52	57.71	74.00	-16.29	Peak	297	186	P

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

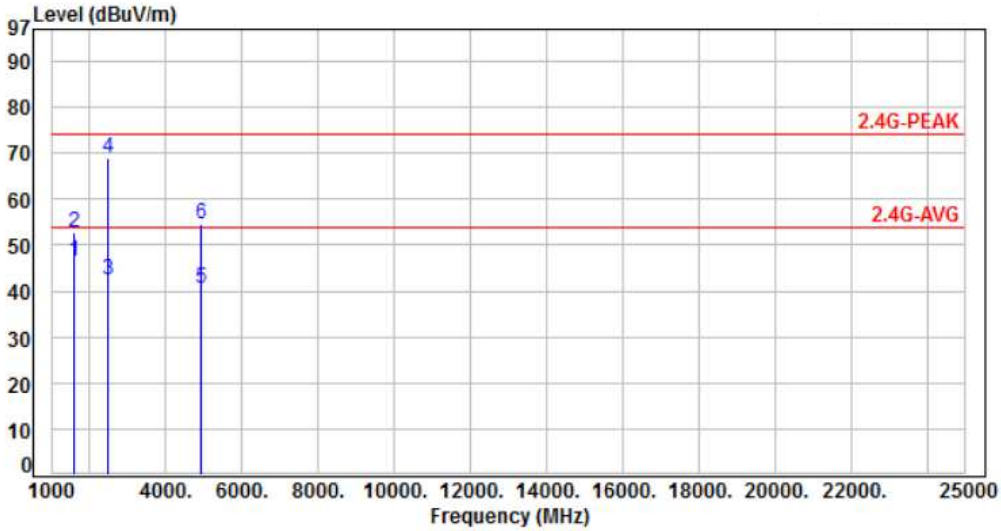
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 2, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.41	48.49	54.00	-5.51	Average	166	159	P
2	1600.00	-4.92	58.90	53.98	74.00	-20.02	Peak	166	159	P
3	2483.50	-0.64	46.59	45.95	54.00	-8.05	Average	368	54	P
4	2483.50	-0.64	72.95	72.31	74.00	-1.69	Peak	368	54	P
5	4924.00	8.44	34.49	42.93	54.00	-11.07	Average	138	145	P
6	4924.00	8.44	48.01	56.45	74.00	-17.55	Peak	138	145	P

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

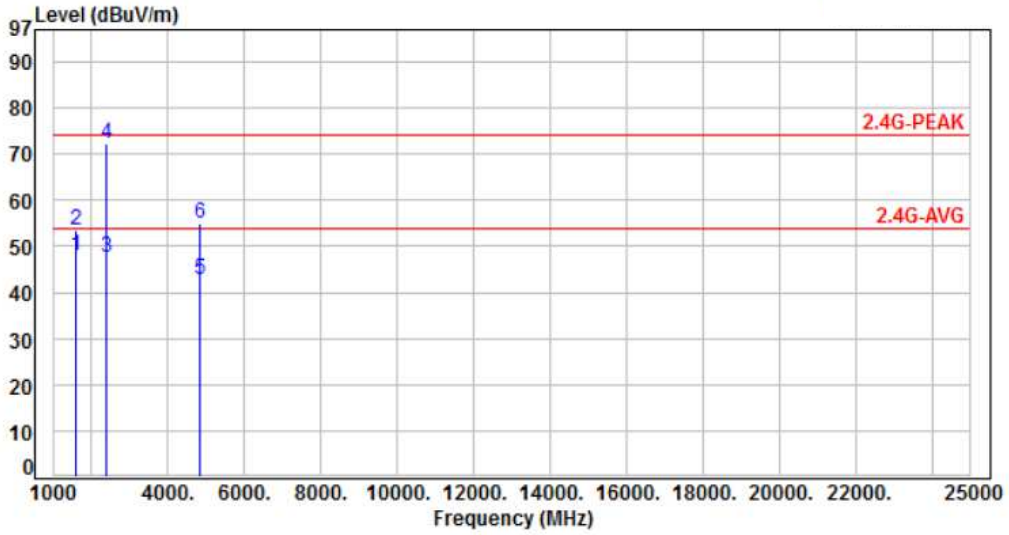
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 2, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.56	46.64	54.00	-7.36	Average	107	212	P
2	1600.00	-4.92	57.58	52.66	74.00	-21.34	Peak	107	212	P
3	2483.50	-0.64	43.00	42.36	54.00	-11.64	Average	366	321	P
4	2483.50	-0.64	69.48	68.84	74.00	-5.16	Peak	366	321	P
5	4924.00	8.44	32.19	40.63	54.00	-13.37	Average	103	202	P
6	4924.00	8.44	46.27	54.71	74.00	-19.29	Peak	103	202	P

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

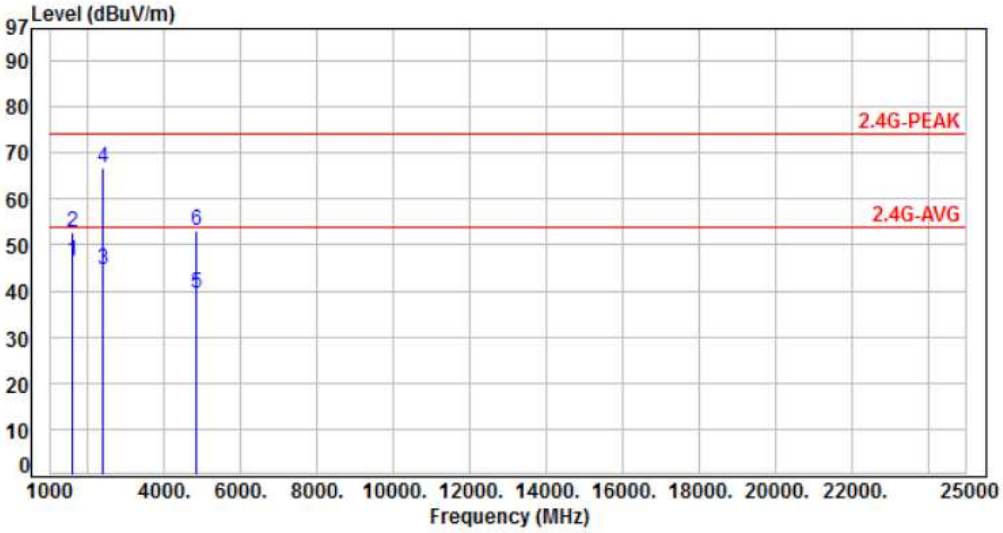
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH01	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	52.95	48.03	54.00	-5.97	Average	170	175	P
2	1600.00	-4.92	58.52	53.60	74.00	-20.40	Peak	170	175	P
3	2390.00	-0.94	48.48	47.54	54.00	-6.46	Average	374	36	P
4	2390.00	-0.94	73.38	72.44	74.00	-1.56	Peak	374	36	P
5	4824.00	7.95	34.84	42.79	54.00	-11.21	Average	157	149	P
6	4824.00	7.95	47.01	54.96	74.00	-19.04	Peak	157	149	P

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

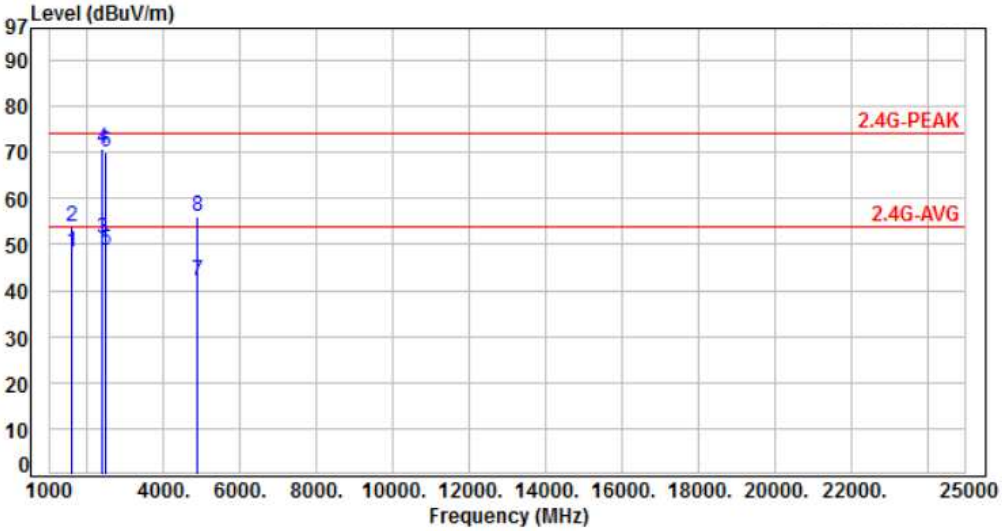
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, CH01	Temperature	:	24 °C
Test Date	:	Apr. 10, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.50	46.58	54.00	-7.42	Average	100	204	P
2	1600.00	-4.92	57.56	52.64	74.00	-21.36	Peak	100	204	P
3	2390.00	-0.94	45.64	44.70	54.00	-9.30	Average	152	292	P
4	2390.00	-0.94	67.85	66.91	74.00	-7.09	Peak	152	292	P
5	4824.00	7.95	31.62	39.57	54.00	-14.43	Average	100	195	P
6	4824.00	7.95	45.22	53.17	74.00	-20.83	Peak	100	195	P

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

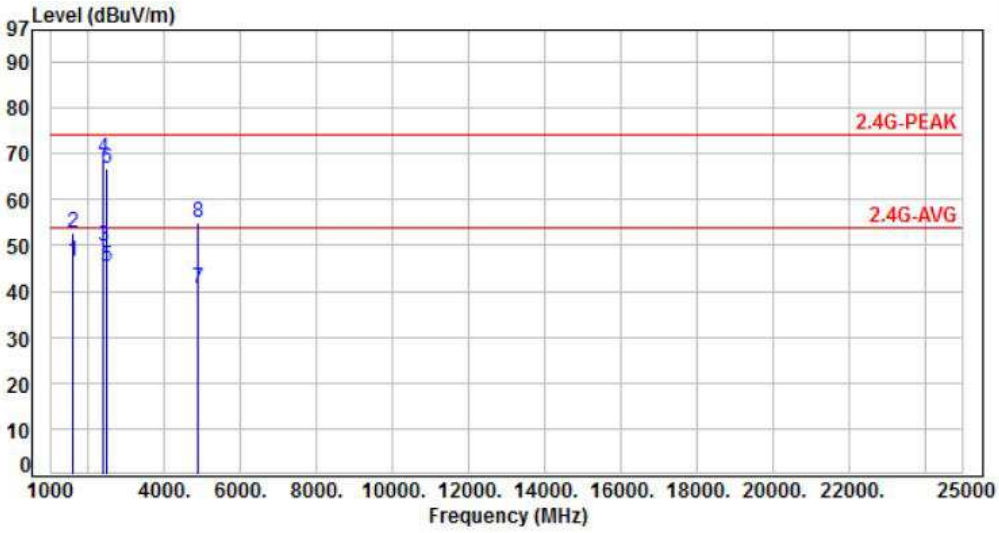
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	53.25	48.33	54.00	-5.67	Average	179	182	P
2	1600.00	-4.92	58.86	53.94	74.00	-20.06	Peak	179	182	P
3	2390.00	-0.94	52.04	51.10	54.00	-2.90	Average	172	190	P
4	2390.00	-0.94	71.57	70.63	74.00	-3.37	Peak	172	190	P
5	2483.50	-0.64	49.37	48.73	54.00	-5.27	Average	368	267	P
6	2483.50	-0.64	70.54	69.90	74.00	-4.10	Peak	368	267	P
7	4874.00	8.19	34.01	42.20	54.00	-11.80	Average	242	157	P
8	4874.00	8.19	48.04	56.23	74.00	-17.77	Peak	242	157	P

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

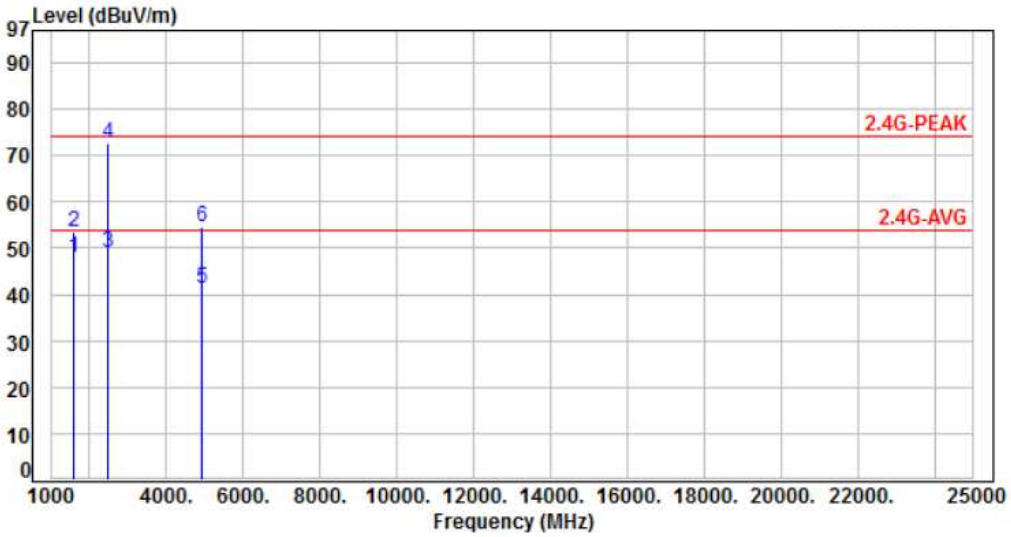
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5, CH06	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.27	46.35	54.00	-7.65	Average	103	200	P
2	1600.00	-4.92	57.60	52.68	74.00	-21.32	Peak	103	200	P
3	2390.00	-0.94	50.72	49.78	54.00	-4.22	Average	298	52	P
4	2390.00	-0.94	69.83	68.89	74.00	-5.11	Peak	298	52	P
5	2483.50	-0.64	46.12	45.48	54.00	-8.52	Average	312	198	P
6	2483.50	-0.64	67.29	66.65	74.00	-7.35	Peak	312	198	P
7	4874.00	8.19	32.52	40.71	54.00	-13.29	Average	305	216	P
8	4874.00	8.19	46.67	54.86	74.00	-19.14	Peak	305	216	P

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

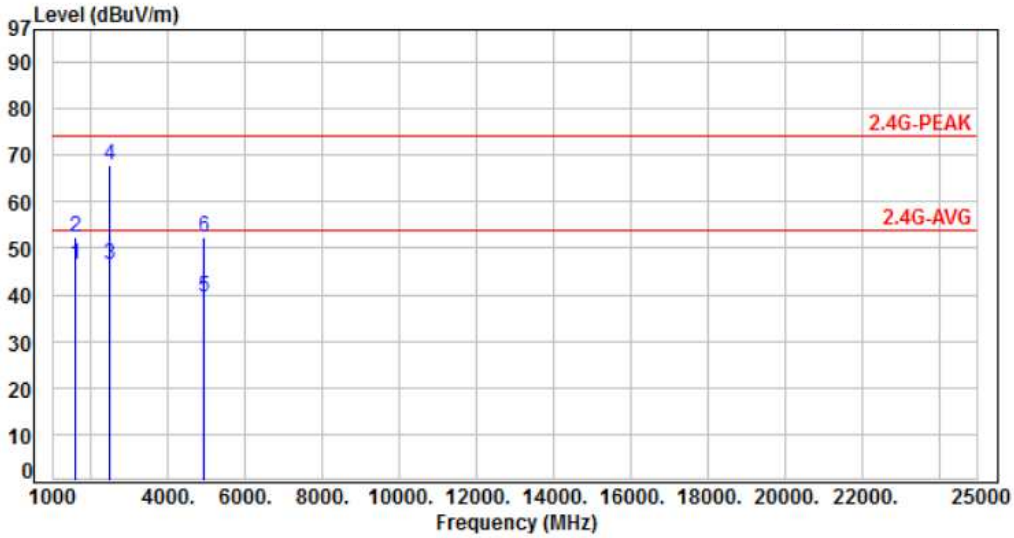
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	52.90	47.98	54.00	-6.02	Average	170	172	P
2	1600.00	-4.92	58.40	53.48	74.00	-20.52	Peak	170	172	P
3	2483.50	-0.64	49.64	49.00	54.00	-5.00	Average	395	42	P
4	2483.50	-0.64	73.46	72.82	74.00	-1.18	Peak	395	42	P
5	4924.00	8.44	32.94	41.38	54.00	-12.62	Average	115	140	P
6	4924.00	8.44	46.13	54.57	74.00	-19.43	Peak	115	140	P

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

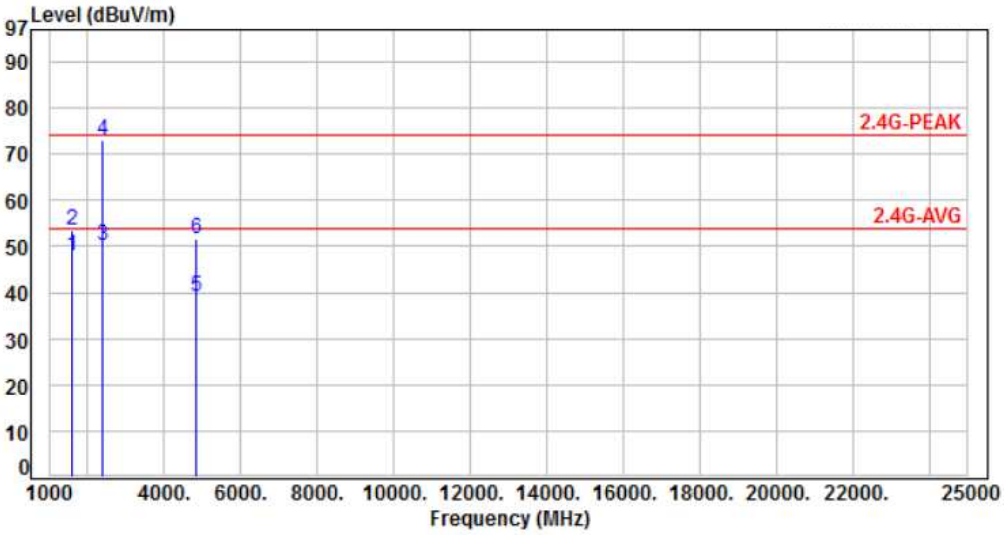
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5, CH11	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.30	46.38	54.00	-7.62	Average	100	202	P
2	1600.00	-4.92	57.40	52.48	74.00	-21.52	Peak	100	202	P
3	2483.50	-0.64	47.02	46.38	54.00	-7.62	Average	386	308	P
4	2483.50	-0.64	68.66	68.02	74.00	-5.98	Peak	386	308	P
5	4924.00	8.44	30.85	39.29	54.00	-14.71	Average	100	195	P
6	4924.00	8.44	44.05	52.49	74.00	-21.51	Peak	100	195	P

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

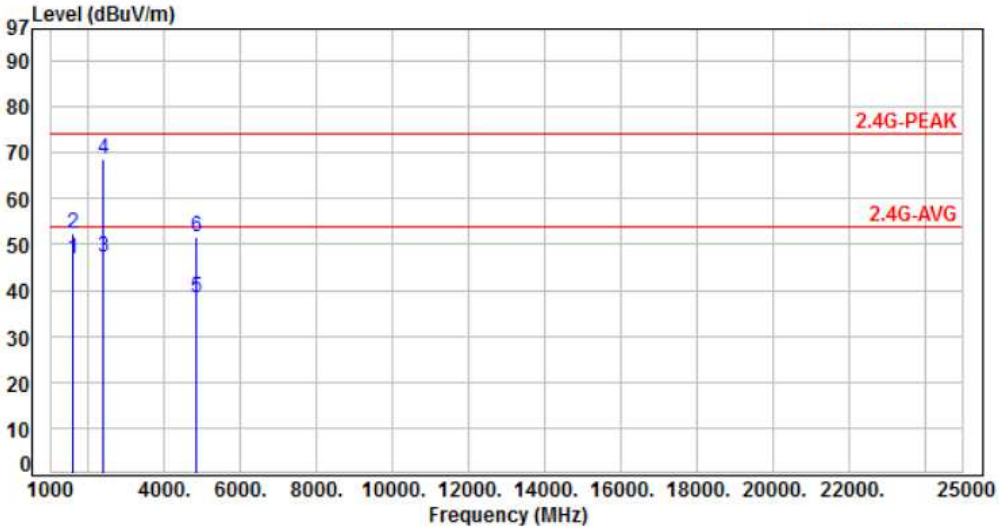
Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 6, CH03	Temperature :	24 °C
Test Date :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	52.85	47.93	54.00	-6.07	Average	171	174	P
2	1600.00	-4.92	58.46	53.54	74.00	-20.46	Peak	171	174	P
3	2390.00	-0.94	51.18	50.24	54.00	-3.76	Average	377	37	P
4	2390.00	-0.94	73.80	72.86	74.00	-1.14	Peak	377	37	P
5	4844.00	8.05	31.21	39.26	54.00	-14.74	Average	160	150	P
6	4844.00	8.05	43.75	51.80	74.00	-22.20	Peak	160	150	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 :	Apr. 10, 2017	Humidity :	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1600.00	-4.92	51.60	46.68	54.00	-7.32	Average	100	203	P
2	1600.00	-4.92	57.20	52.28	74.00	-21.72	Peak	100	203	P
3	2390.00	-0.94	48.14	47.20	54.00	-6.80	Average	152	299	P
4	2390.00	-0.94	69.38	68.44	74.00	-5.56	Peak	152	299	P
5	4844.00	8.05	30.22	38.27	54.00	-15.73	Average	100	201	P
6	4844.00	8.05	43.66	51.71	74.00	-22.29	Peak	100	201	P

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