FCC RADIO TEST REPORT

Applicant	:	Ubiquiti Inc.
Address	:	685 Third Avenue, New York, New York 10017, USA
Equipment	:	G3 Touch Wall
Model No.	:	UTP-G3-Touch-Wall
Trade Name	:	UBIQUITI
FCC ID	:	SWX-UG3W

I HEREBY CERTIFY THAT :

The sample was received on Feb. 20, 2023 and the testing was completed on Mar. 10, 2023 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:

Mark Liao / Supervisor

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory

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History of this test report

Report No.	Issued Date	Description
23020207-TRFCC02	Mar. 25, 2023	Original
23020207-TRFCC02-A	Dec. 13, 2023	Device category Mobile (>20cm separation)

1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

FCC Rule	. Description of Test	Result
15.203	. Antenna Requirement	PASS
15.247(a)(1)	.Pseudorandom Frequency Hopping Sequence	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)(1)	. Channel Carrier Frequencies Separation	PASS
15.247(a)(1)	. 20dB Bandwidth	PASS
15.247(a)(1)	. Dwell Time	PASS
15.247(b)	. Number of Hopping Channels	PASS
15.247(b)	. Output Power	PASS
2.1091	. Radio Frequency Exposure	PASS

* The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Operation Frequency Range	BT / BLE: 2400-2483.5MHz
Center Frequency Range	BT / BLE: 2402-2480MHz
Modulation Type	BT: GFSK, π/4-DQPSK, 8DPSK BLE: GFSK
Modulation Technology	FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, π/4-DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps
Antenna Type	ANT B :PIFA Antenna ANT C :Chip Antenna
Antenna Gain	2400MHz~2483.5MHz: ANT B :4.9dBi, For BLE 2400MHz~2483.5MHz: ANT C :2.7dBi .For BT / BLE

Note:For more details, please refer to the User's manual of the EUT.

For Chip:Nordic Only Support BLE, use ANT B

For Chip:WCN3680 Support BT and BLE, use ANT C

2.2 Carrier Frequency of Channes

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
***00**	**2402**	20	2422	40	2442	60	2462
01	2403	21	2423	41	2443	61	2463
02	2404	22	2424	42	2444	62	2464
03	2405	23	2425	43	2445	63	2465
04	2406	24	2426	44	2446	64	2466
05	2407	25	2427	45	2447	65	2467
06	2408	26	2428	46	2448	66	2468
07	2409	27	2429	47	2449	67	2469
08	2410	28	2430	48	2450	68	2470
09	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	***78**	**2480**
19	2421	***39**	**2441**	59	2461	---	---

Note: Channels remarked * are selected to perform test.

2.3 Test Mode & Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10
b. The complete test system included Notebook and EUT for RF test.
c. An executive program, " QRCT ver. 4.0.00201.0" under Windows OS system was executed to transmit and receive data via Bluetooth.
d. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	GFSK (1Mbps) , Power from Adapter
2	π/4-DQPSK (2Mbps) , Power from Adapter
3	8DPSK (3Mbps) , Power from Adapter
4	GFSK (1Mbps) , Power from PoE
5	π/4-DQPSK (2Mbps) , Power from PoE
6	8DPSK (3Mbps) , Power from PoE
caused "Test Mode 4" generated the worst case, it was reported as the final data.	
Radiation Emissions (BELOW 1G)	
Test Mode	Operating Description
1	GFSK (1Mbps) , Power from Adapter,
2	π/4-DQPSK (2Mbps) , Power from Adapter
3	8DPSK (3Mbps) , Power from Adapter
4	GFSK (1Mbps) , Power from PoE
5	π/4-DQPSK (2Mbps) , Power from PoE
6	8DPSK (3Mbps) , Power from PoE
caused "Test Mode 1" generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	GFSK (1Mbps) , From System
2	π/4-DQPSK (2Mbps) , From System
3	8DPSK (3Mbps) , From System
caused "Test Mode 1~3" generated the worst case, they were reported as the final data.	

1. There are two kinds of test voltage: AC 120V / 60Hz and AC 240V / 60Hz.
AC Power Line Conducted Emission &Radiated Spurious Emission(BELOW 1G)
AC 120V / 60Hz is worst case.

Modulation Type	TX CONFIGURATION
GFSK	1TX
π /4-DQPSK	1TX
8DPSK	1TX

2.4 Description of Test System

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	Lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
Type-C USB Cable (Blue)	kolin	KEX-DLCP08	1m / NS	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
POE	UBIQUITI	GP-H480-050G	N/A	0.6m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A
Adapter	hoda	TC-03	N/A	N/A
Type-C USB Cable (Blue)	kolin	KEX-DLCP08	1m / NS	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
POE	UBIQUITI	GP-H480-050G	N/A	0.6m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A
Adapter	hoda	TC-03	N/A	N/A
Type-C USB Cable (Blue)	kolin	KEX-DLCP08	1m / NS	N/A

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	
	FCC	TW1439, TW1079
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication test C-4663 for Conducted emission test R-4218 for Radiated emission test G-10812, G-10813 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.	

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON02-NK	2023/03/03	22.6℃ / 53%	Leon Huang
Radiated Emissions	3M03-NK	2023/03/09	22℃ / 58%	Leon Huang
AC Power Line Conducted Emission	CON02-NK	2023/03/10	22℃ / 55%	Leon Huang

2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.28dB
Radiated Spurious Emission(9KHz~30MHz)	±3.4dB
Radiated Spurious Emission(30MHz~1GHz)	±5.7dB
Radiated Spurious Emission(1GHz~25GHz)	±6.8dB
Conducted Spurious Emission	±1.8dB
6dB Bandwidth	±4.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.4%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±1.2%
Power Spectral Density	±1.8dB
Duty Cycle	±1.2%

3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room (3M03-NK)				
Instrument	**Manufacturer**	**Model No**	**Serial No**	**Calibration Date**	**Valid Date**
Bilog Antenna	Sunol	JB1	A051717	2022/07/22	2023/07/21
Active Loop Antenna	EMCO	6507	40855	2022/05/25	2023/05/24
Horn Anrenna	EMCO	3116	31974	2022/10/06	2023/10/05
Double Ridged Guide Horn Antenna	RF SPAN	DRH18-E	210309A18-ES	2022/08/24	2023/08/23
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2022/08/16	2023/08/15
EMI Receiver	ROHDE & SCHWARZ	ESR 7	101906	2022/05/17	2023/05/16
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	101329	2022/07/20	2023/07/19
Preamplifier	EM Electronics corp.	EM01G18G	60700	2022/09/05	2023/09/04
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2022/11/11	2023/11/10
Preamplifier	EM Electronics corp.	EM330	60644	2022/09/05	2023/09/04
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130605	2022/09/06	2023/09/05
Cable-10m(30M-1G)	HARBOUR INDUSTRIES	RG-214	01126M	2022/04/22	2023/04/21
Cable-1m(30M-1G)	HARBOUR INDUSTRIES	RG-214	01099M	2022/04/22	2023/04/21
Cable-1.5m(30M-1G)	HARBOUR INDUSTRIES	RG-214	00420M	2022/06/21	2023/06/20
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2022/4/9	2023/04/08
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2022/4/9	2023/04/08
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50 314	2022/4/9	2023/04/08
Cable-3m(1G-40G)	Rapidtek	40GHZ 300CM	38MS-38MS30 0314	2022/4/9	2023/04/08
Cable-0.5m(1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2022/5/26	2023/05/25
Cable-3m(1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2022/5/26	2023/05/25
Cable-8m(10M-26.5G)	HUBER SUHNER	SF126E	587396/126E	2022/10/7	2023/10/06
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON02-NK				
Instrument	**Manufacturer**	**Model No**	**Serial No**	**Calibration Date**	**Valid Date**
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2022/11/29	2023/11/28
Attenuator	KEYSIGHT	8491B	MY39250705	2022/10/06	2023/10/05
Power Meter	Anritsu	ML2495A	2034001	2022/10/06	2023/10/05
Power Sensor	Anritsu	MA2411B	1911175	2022/10/06	2023/10/05

Test Item	AC Power Line Conducted Emission				
Test Site	CON02-NK				
Instrument	**Manufacturer**	**Model No**	**Serial No**	**Calibration Date**	**Valid Date**
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2022/07/05	2023/07/04
TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	102185	2022/08/24	2022/08/17
Cable-4m(9k-3G)	EMEC	RG-223	18274M	2022/07/27	2023/07/26
E3	AUDIX	v8.2014-8-6	RK-000536	NA	NA

4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Antenna Construction and Directional Gain

Antenna Type	Chip Antenna
Antenna Gain	2400MHz~2483.5MHz: ANT C :2.7dBi

5. Frequency Hopping System Requirements

5.1 Frequency Hopping Requirement

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

5.2 EUT Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.
This deviceuses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480MHz) in the range 2,400-2,483.5 MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for thepiconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must knowthe master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFHidentifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

5.3 Pseudorandom Frequency Hopping Sequence

Pseudorandom Frequency Hopping Sequence Table as below:
Channel number:

63	32	66	8	2	57	10	11	72	48
43	74	16	12	70	14	64	75	75	25
1	69	61	67	40	62	20	67	73	65
61	43	9	26	21	73	55	69	65	2

etc.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

6. Test of AC Power Line Conducted Emission

6.1 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 C63.10-2013. 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.

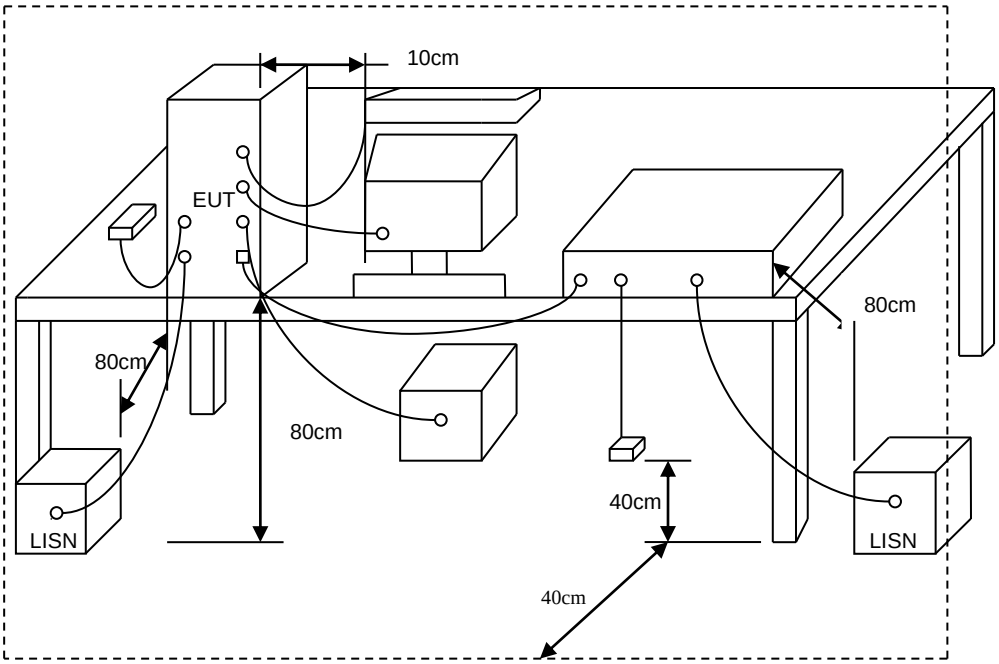
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

6.2 Test Procedures

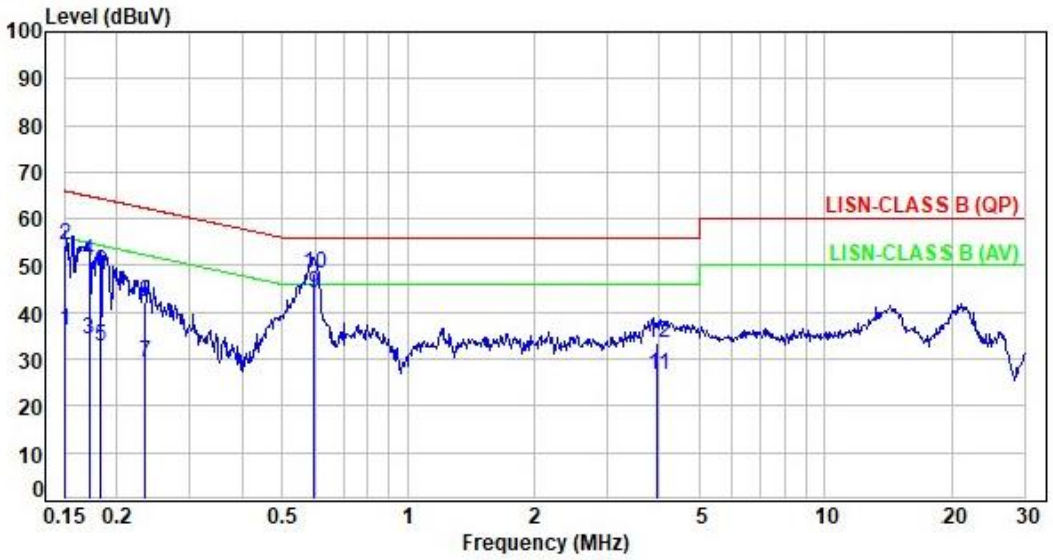
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.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

6.3 Typical Test Setup



6.4 Test Result and Data

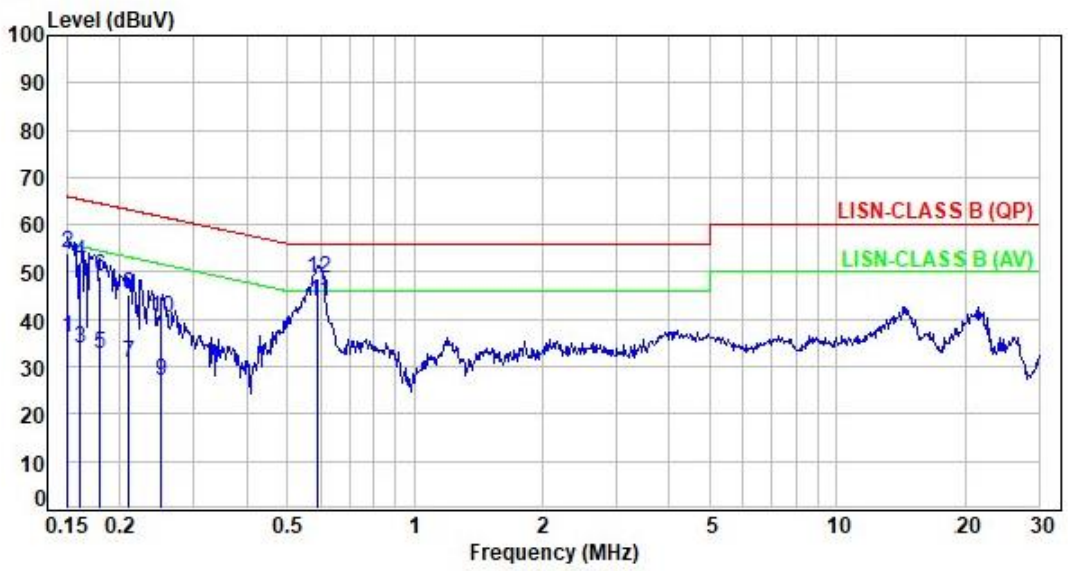
Power	:	AC 120V / 60Hz	Pol/Phase	:	LINE
Test Mode	:	Mode 4		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.62	26.53	36.15	56.00	-19.85	Average	P
2	0.15	9.62	44.71	54.33	66.00	-11.67	QP	P
3	0.17	9.62	24.71	34.33	54.88	-20.55	Average	P
4	0.17	9.62	41.18	50.80	64.88	-14.08	QP	P
5	0.18	9.61	22.98	32.59	54.32	-21.73	Average	P
6	0.18	9.61	39.00	48.61	64.32	-15.71	QP	P
7	0.23	9.62	19.80	29.42	52.28	-22.86	Average	P
8	0.23	9.62	32.52	42.14	62.28	-20.14	QP	P
9	0.59	9.63	34.43	44.06	46.00	-1.94	Average	P
10	0.59	9.63	38.59	48.22	56.00	-7.78	QP	P
11	3.98	9.74	16.69	26.43	46.00	-19.57	Average	P
12	3.98	9.74	23.74	33.48	56.00	-22.52	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss

Power	:	AC 120V / 60Hz		Pol/Phase	:	NEUTRAL	
Test Mode	:	Mode 4			:		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.63	26.57	36.20	55.99	-19.79	Average	P
2	0.15	9.63	44.55	54.18	65.99	-11.81	QP	P
3	0.16	9.63	24.18	33.81	55.38	-21.57	Average	P
4	0.16	9.63	42.60	52.23	65.38	-13.15	QP	P
5	0.18	9.62	22.93	32.55	54.50	-21.95	Average	P
6	0.18	9.62	39.57	49.19	64.50	-15.31	QP	P
7	0.21	9.62	21.04	30.66	53.19	-22.53	Average	P
8	0.21	9.62	35.71	45.33	63.19	-17.86	QP	P
9	0.25	9.63	17.19	26.82	51.74	-24.92	Average	P
10	0.25	9.63	30.59	40.22	61.74	-21.52	QP	P
11	0.59	9.63	34.11	43.74	46.00	-2.26	Average	P
12	0.59	9.63	39.15	48.78	56.00	-7.22	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss

7. Test of Radiated Spurious Emission

7.1 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

7.2 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 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.

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.

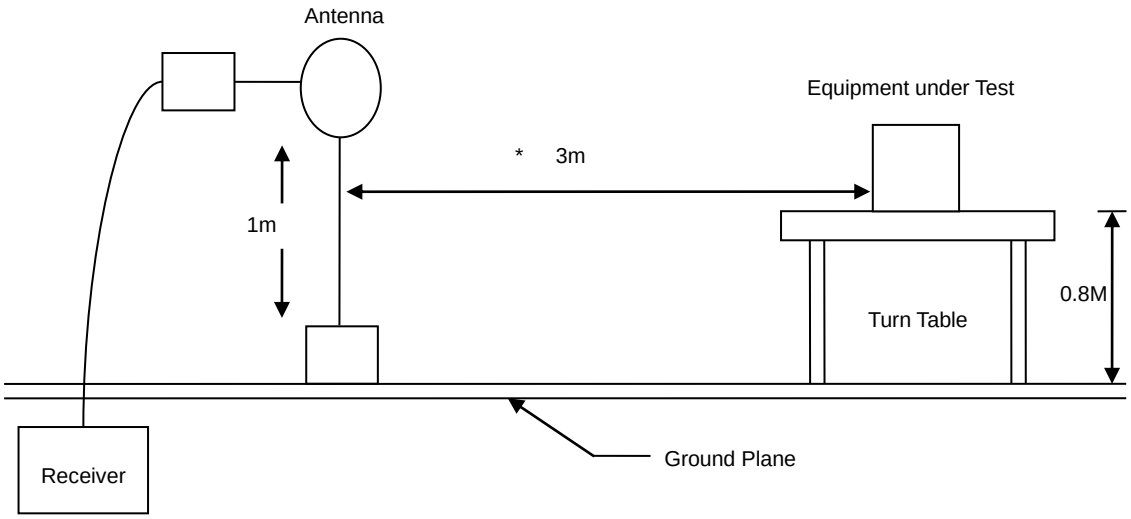
Note:

1.The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.

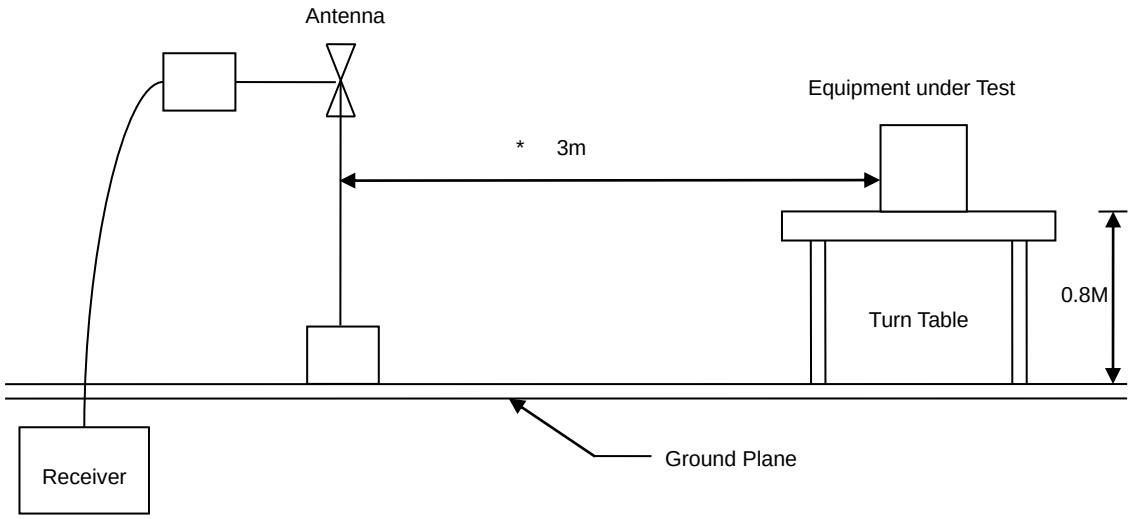
2.Due to the test software function limit the operation band setting(200dBuV/m). There's no corresponding limitation in the actual test item.

7.3 Typical Test Setup

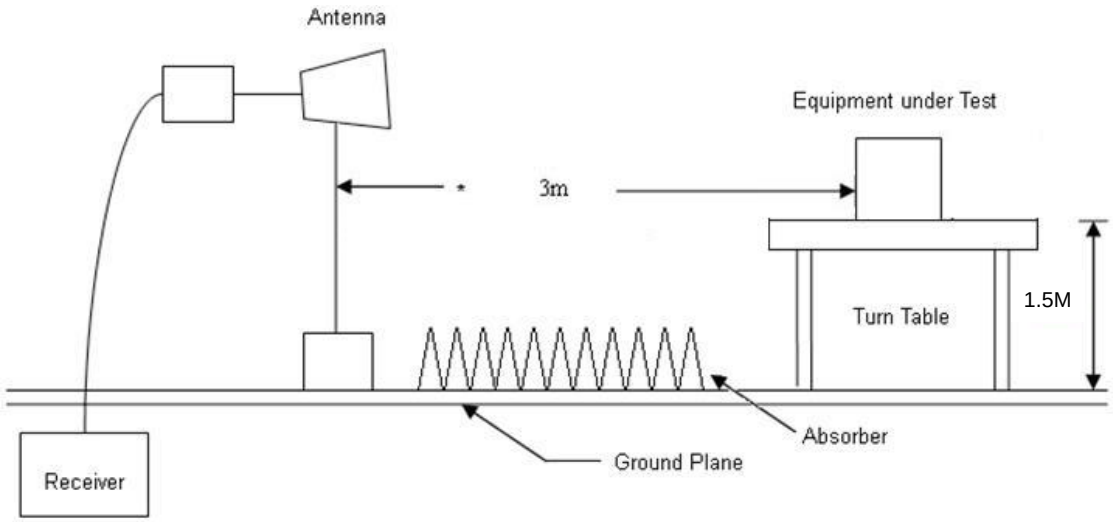
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

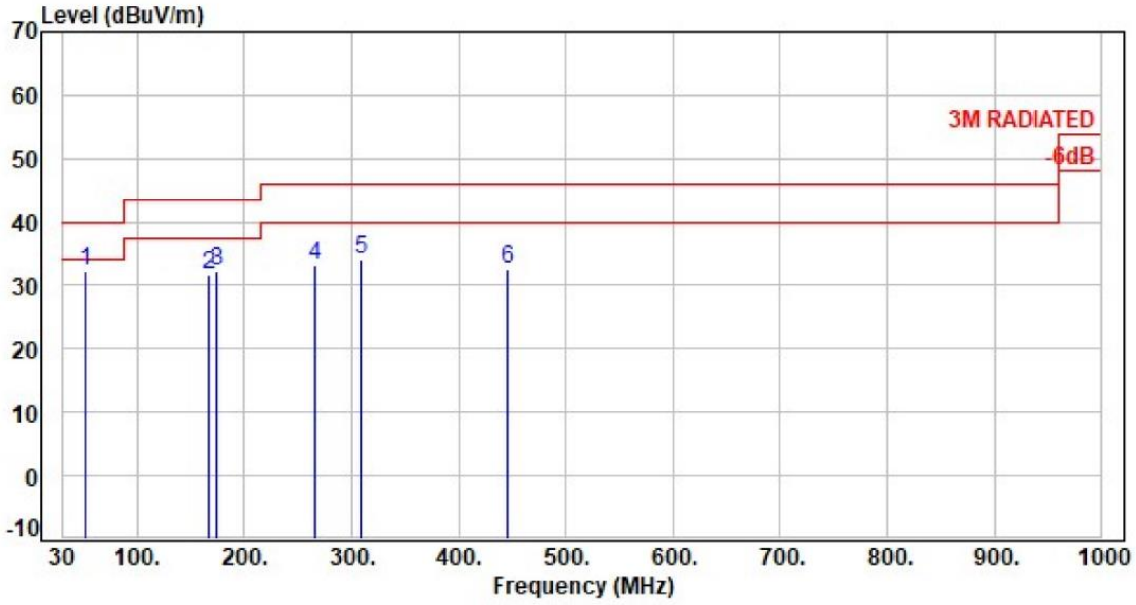


7.4 Test Result and Data (9kHz ~ 30MHz)

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

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

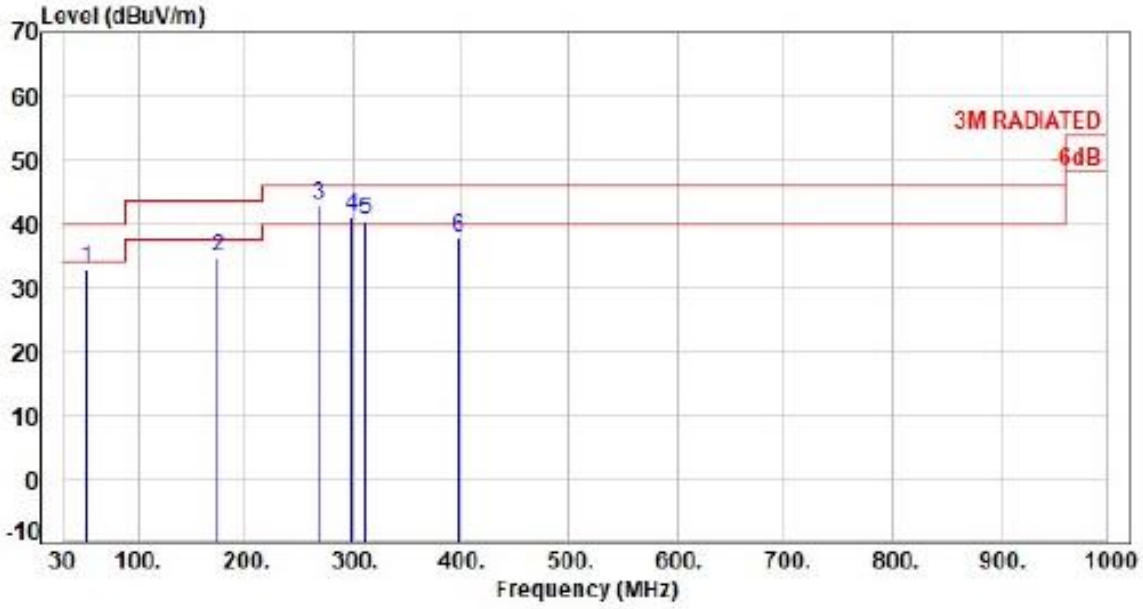
Power	:	AC 120V / 60Hz		Pol/Phase	:	VERTICAL	
Test Mode	:	Mode 1			:		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	52.31	-16.52	48.82	32.30	40.00	-7.70	Peak	100	360	P
2	166.77	-11.28	42.92	31.64	43.50	-11.86	Peak	100	360	P
3	173.56	-11.77	43.97	32.20	43.50	-11.30	Peak	100	360	P
4	265.71	-9.70	42.88	33.18	46.00	-12.82	Peak	100	360	P
5	309.36	-8.73	42.85	34.12	46.00	-11.88	Peak	100	360	P
6	445.16	-5.25	37.78	32.53	46.00	-13.47	Peak	100	360	P

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

Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1		:	

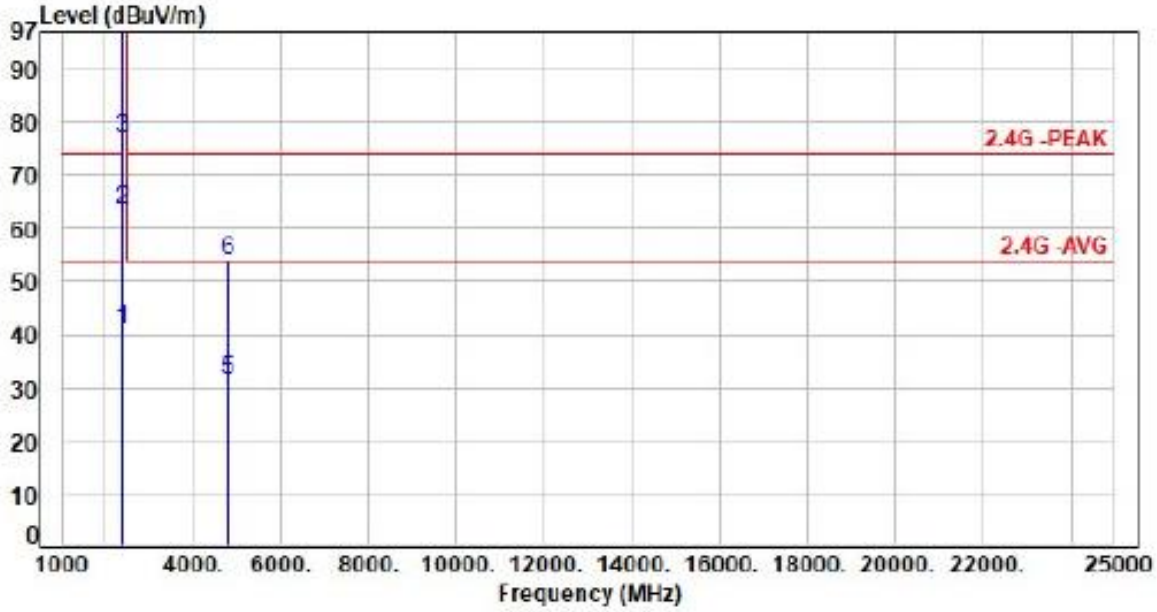


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	52.31	-16.52	49.53	33.01	40.00	-6.99	Peak	100	360	P
2	173.56	-11.77	46.56	34.79	43.50	-8.71	Peak	100	360	P
3	268.62	-9.62	52.42	42.80	46.00	-3.20	Peak	100	360	P
4	298.69	-9.14	50.26	41.12	46.00	-4.88	Peak	100	360	P
5	311.30	-8.65	49.01	40.36	46.00	-5.64	Peak	100	360	P
6	396.66	-6.47	44.24	37.77	46.00	-8.23	Peak	100	360	P

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

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

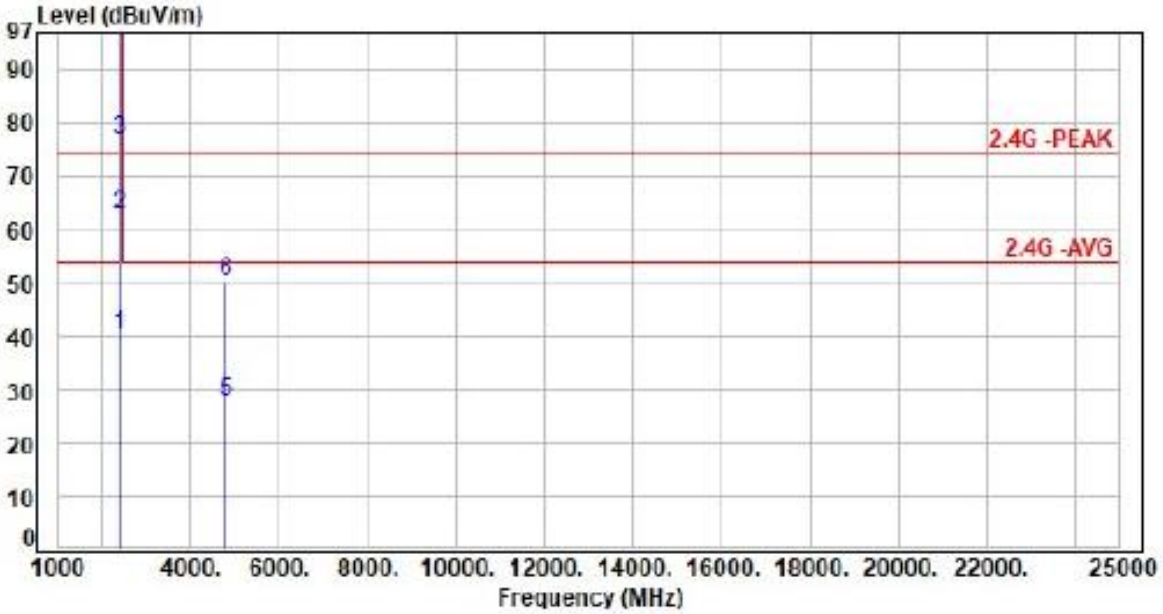
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	72.42	41.05	54.00	-12.95	Average	100	328	P
2	2390.00	-31.37	94.92	63.55	74.00	-10.45	Peak	100	328	P
3	2402.00	-31.40	108.30	76.90	200.00	-123.10	Average	100	328	P
4	2402.00	-31.40	130.80	99.40	200.00	-100.60	Peak	100	328	P
5	4804.00	-24.19	55.65	31.46	54.00	-22.54	Average	373	207	P
6	4804.00	-24.19	78.15	53.96	74.00	-20.04	Peak	373	207	P

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

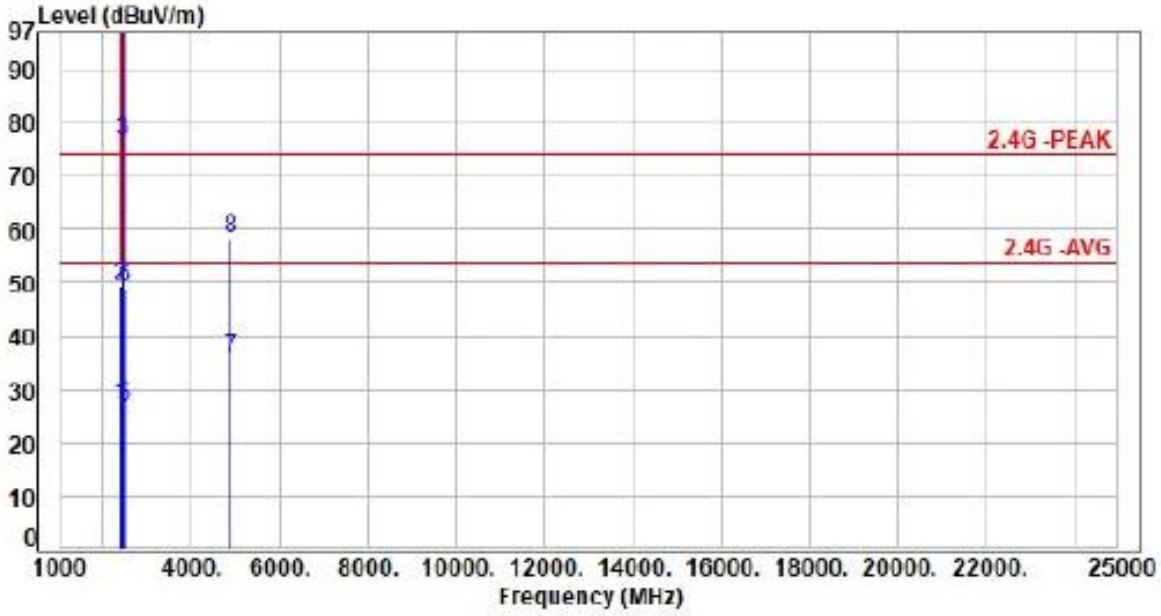
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	71.51	40.14	54.00	-13.86	Average	212	159	P
2	2390.00	-31.37	94.01	62.64	74.00	-11.36	Peak	212	159	P
3	2402.00	-31.40	108.10	76.70	200.00	-123.30	Average	212	159	P
4	2402.00	-31.40	130.60	99.20	200.00	-100.80	Peak	212	159	P
5	4804.00	-24.19	51.97	27.78	54.00	-26.22	Average	100	129	P
6	4804.00	-24.19	74.47	50.28	74.00	-23.72	Peak	100	129	P

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

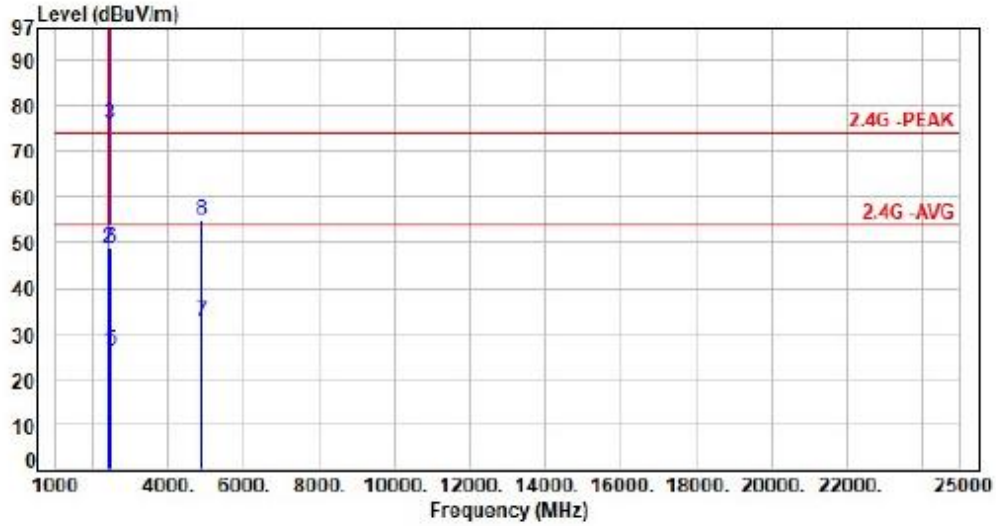
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	58.42	27.05	54.00	-26.95	Average	100	300	P
2	2390.00	-31.37	80.92	49.55	74.00	-24.45	Peak	100	300	P
3	2441.00	-31.45	108.17	76.72	200.00	-123.28	Average	100	300	P
4	2441.00	-31.45	130.67	99.22	200.00	-100.78	Peak	100	300	P
5	2483.50	-31.51	58.15	26.64	54.00	-27.36	Average	100	300	P
6	2483.50	-31.51	80.65	49.14	74.00	-24.86	Peak	100	300	P
7	4882.00	-23.84	59.69	35.85	54.00	-18.15	Average	372	209	P
8	4882.00	-23.84	82.19	58.35	74.00	-15.65	Peak	372	209	P

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

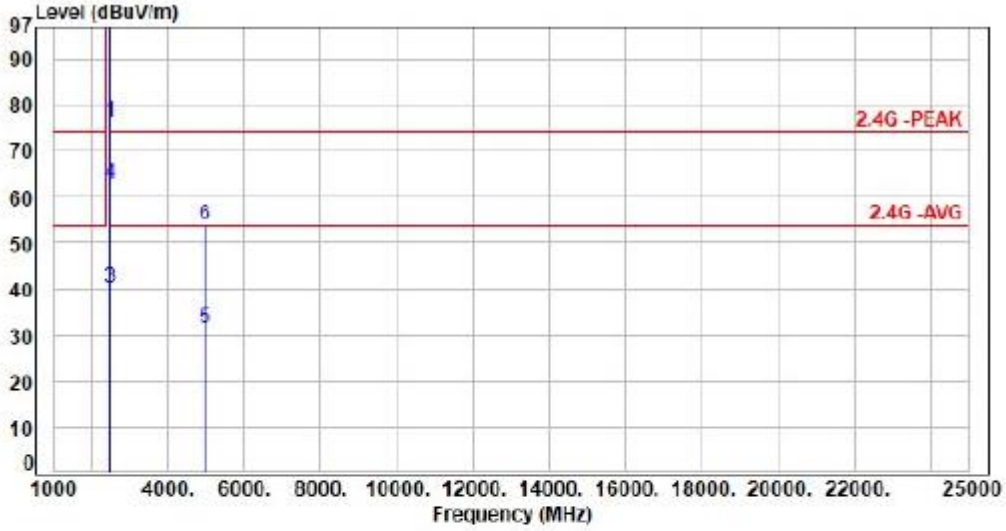
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	57.53	26.16	54.00	-27.84	Average	208	162	P
2	2390.00	-31.37	80.03	48.66	74.00	-25.34	Peak	208	162	P
3	2441.00	-31.45	107.48	76.03	200.00	-123.97	Average	208	162	P
4	2441.00	-31.45	129.90	98.53	200.00	-101.47	Peak	208	162	P
5	2483.50	-31.51	57.70	26.19	54.00	-27.81	Average	208	162	P
6	2483.50	-31.51	80.20	48.69	74.00	-25.31	Peak	208	162	P
7	4882.00	-23.84	56.23	32.39	54.00	-21.61	Average	100	122	P
8	4882.00	-23.84	78.73	54.89	74.00	-19.11	Peak	100	122	P

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

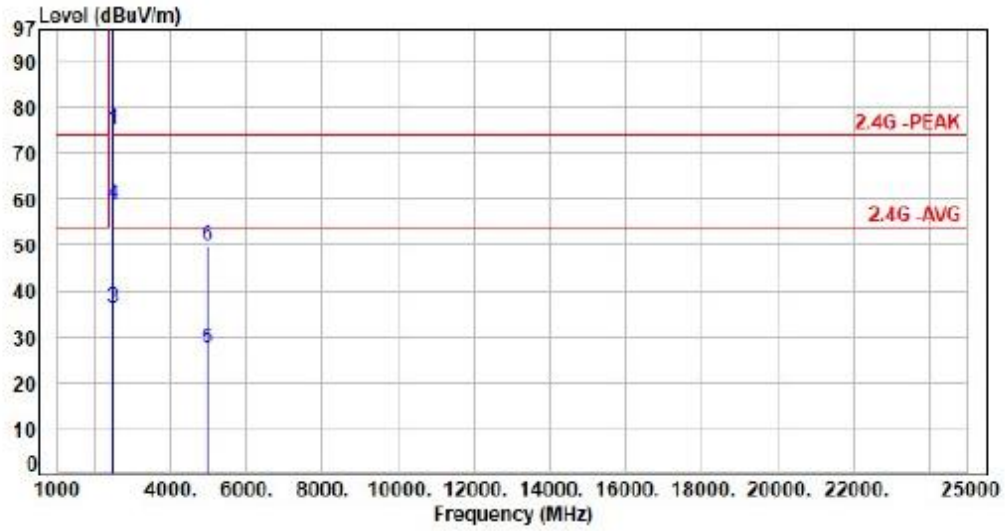
Power	:	AC 120V / 60Hz		Pol/Phase	:	VERTICAL	
Test Mode	:	Mode 1, CH78			:		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-31.50	107.79	76.29	200.00	-123.71	Average	100	350	P
2	2480.00	-31.50	130.29	98.79	200.00	-101.21	Peak	100	350	P
3	2483.50	-31.51	71.66	40.15	54.00	-13.85	Average	100	350	P
4	2483.50	-31.51	94.16	62.65	74.00	-11.35	Peak	100	350	P
5	4960.00	-23.60	55.09	31.49	54.00	-22.51	Average	380	209	P
6	4960.00	-23.60	77.59	53.99	74.00	-20.01	Peak	380	209	P

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

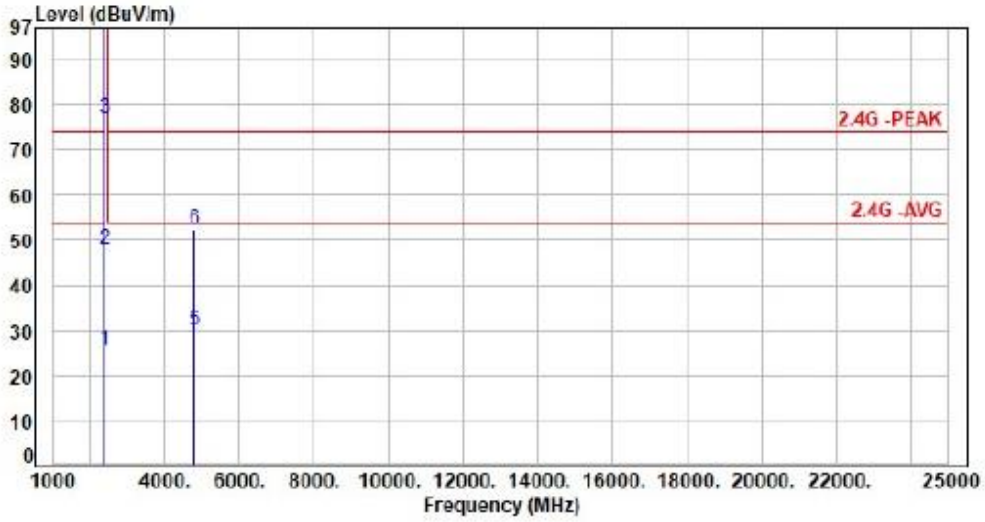
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH78		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-31.50	106.80	75.30	200.00	-124.70	Average	200	168	P
2	2480.00	-31.50	129.30	97.80	200.00	-102.20	Peak	200	168	P
3	2483.50	-31.51	67.51	36.00	54.00	-18.00	Average	200	168	P
4	2483.50	-31.51	90.01	58.50	74.00	-15.50	Peak	200	168	P
5	4960.00	-23.60	50.85	27.25	54.00	-26.75	Average	100	123	P
6	4960.00	-23.60	73.35	49.75	74.00	-24.25	Peak	100	123	P

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

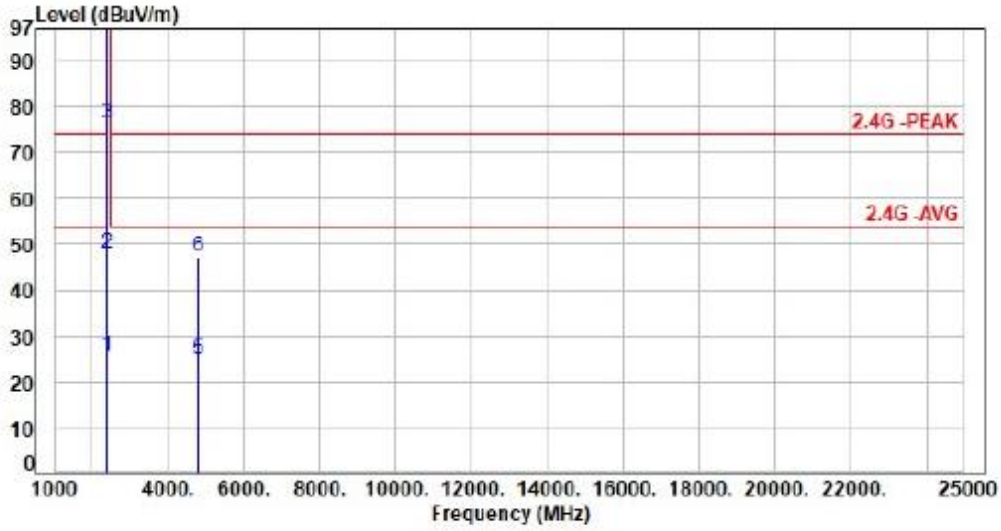
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	56.89	25.52	54.00	-28.48	Average	100	347	P
2	2390.00	-31.37	79.39	48.02	74.00	-25.98	Peak	100	347	P
3	2402.00	-31.40	108.40	77.00	200.00	-123.00	Average	100	347	P
4	2402.00	-31.40	130.90	99.50	200.00	-100.50	Peak	100	347	P
5	4804.00	-24.19	54.03	29.84	54.00	-24.16	Average	365	209	P
6	4804.00	-24.19	76.53	52.34	74.00	-21.66	Peak	365	209	P

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

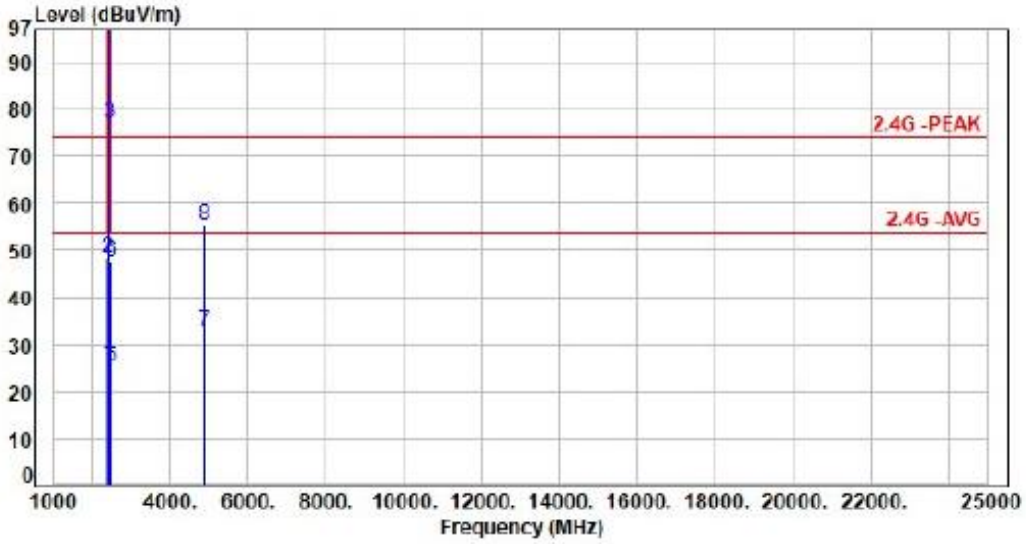
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	56.67	25.30	54.00	-28.70	Average	214	160	P
2	2390.00	-31.37	79.17	47.80	74.00	-26.20	Peak	214	160	P
3	2402.00	-31.40	107.78	76.38	200.00	-123.62	Average	214	160	P
4	2402.00	-31.40	130.28	98.88	200.00	-101.12	Peak	214	160	P
5	4804.00	-24.19	48.99	24.80	54.00	-29.20	Average	100	124	P
6	4804.00	-24.19	71.49	47.30	74.00	-26.70	Peak	100	124	P

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

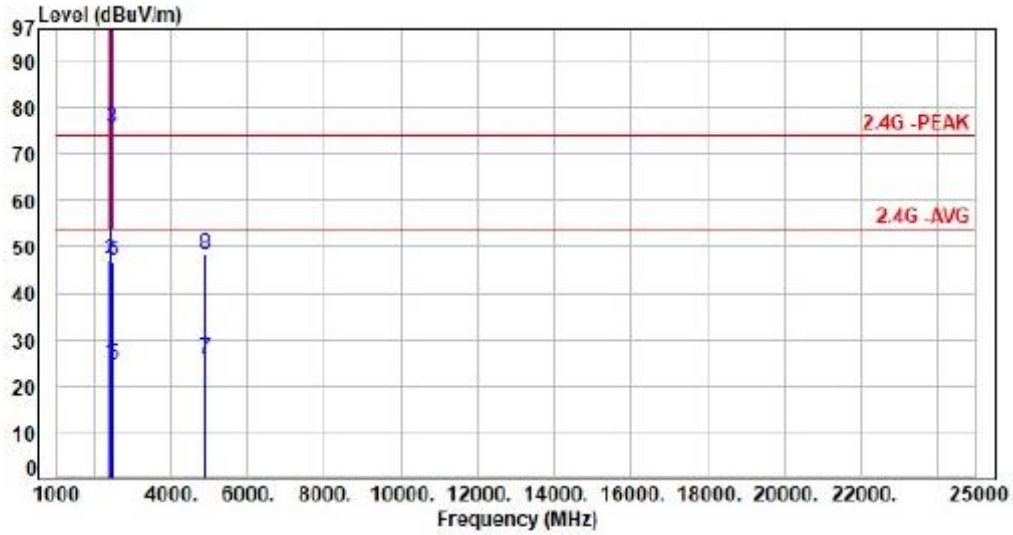
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	57.15	25.78	54.00	-28.22	Average	100	358	P
2	2390.00	-31.37	79.65	48.28	74.00	-25.72	Peak	100	358	P
3	2441.00	-31.45	108.36	76.91	200.00	-123.09	Average	100	358	P
4	2441.00	-31.45	130.86	99.41	200.00	-100.59	Peak	100	358	P
5	2483.50	-31.51	56.57	25.06	54.00	-28.94	Average	100	358	P
6	2483.50	-31.51	79.08	47.57	74.00	-26.43	Peak	100	358	P
7	4882.00	-23.84	56.56	32.72	54.00	-21.28	Average	373	207	P
8	4882.00	-23.84	79.06	55.22	74.00	-18.78	Peak	373	207	P

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

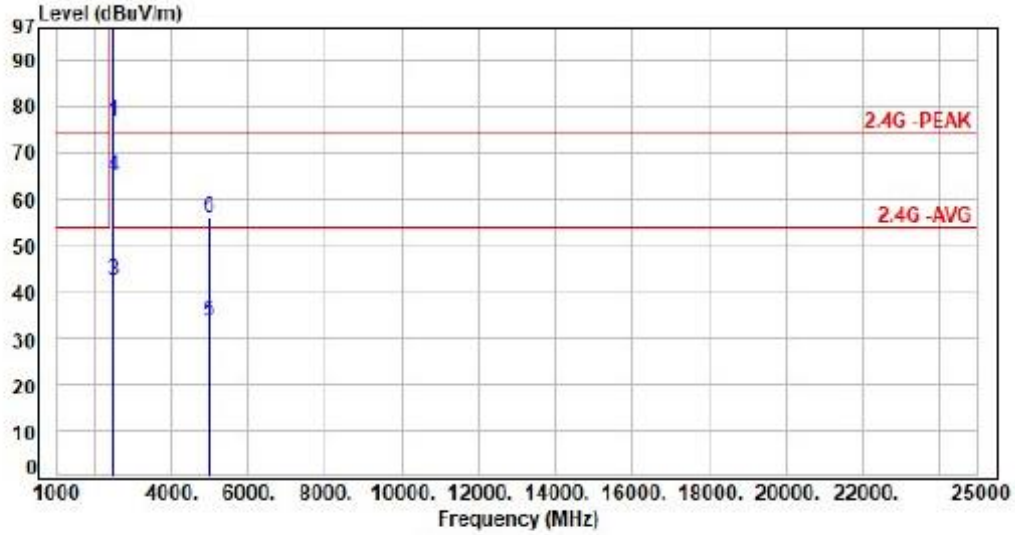
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	56.12	24.75	54.00	-29.25	Average	210	163	P
2	2390.00	-31.37	78.62	47.25	74.00	-26.75	Peak	210	163	P
3	2441.00	-31.45	107.08	75.63	200.00	-124.37	Average	210	163	P
4	2441.00	-31.45	129.58	98.13	200.00	-101.87	Peak	210	163	P
5	2483.50	-31.51	56.00	24.49	54.00	-29.51	Average	210	163	P
6	2483.50	-31.51	78.50	46.99	74.00	-27.01	Peak	210	163	P
7	4882.00	-23.84	49.57	25.73	54.00	-28.27	Average	100	129	P
8	4882.00	-23.84	72.07	48.23	74.00	-25.77	Peak	100	129	P

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

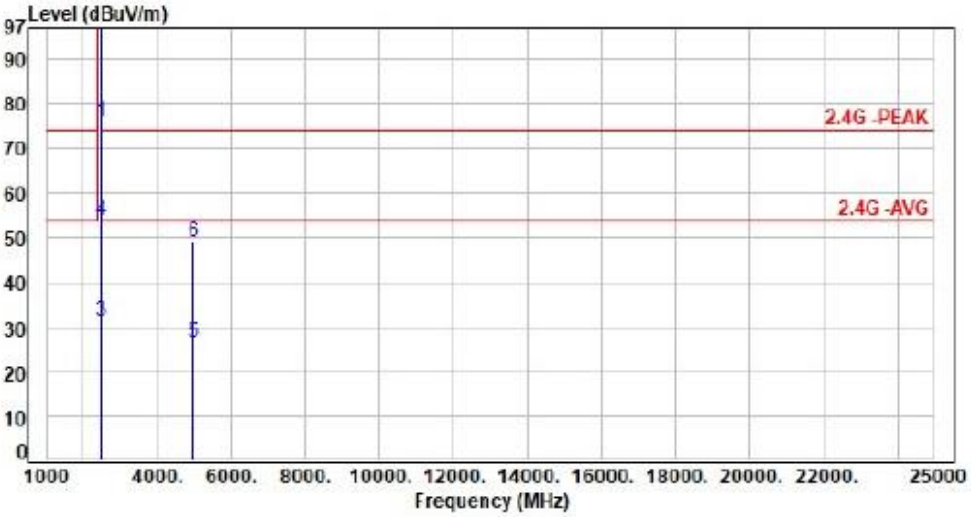
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH78		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-31.50	108.37	76.87	200.00	-123.13	Average	100	353	P
2	2480.00	-31.50	130.87	99.37	200.00	-100.63	Peak	100	353	P
3	2483.50	-31.51	73.99	42.48	54.00	-11.52	Average	100	353	P
4	2483.50	-31.51	96.49	64.98	74.00	-9.02	Peak	100	353	P
5	4960.00	-23.60	57.23	33.63	54.00	-20.37	Average	368	206	P
6	4960.00	-23.60	79.73	56.13	74.00	-17.87	Peak	368	206	P

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

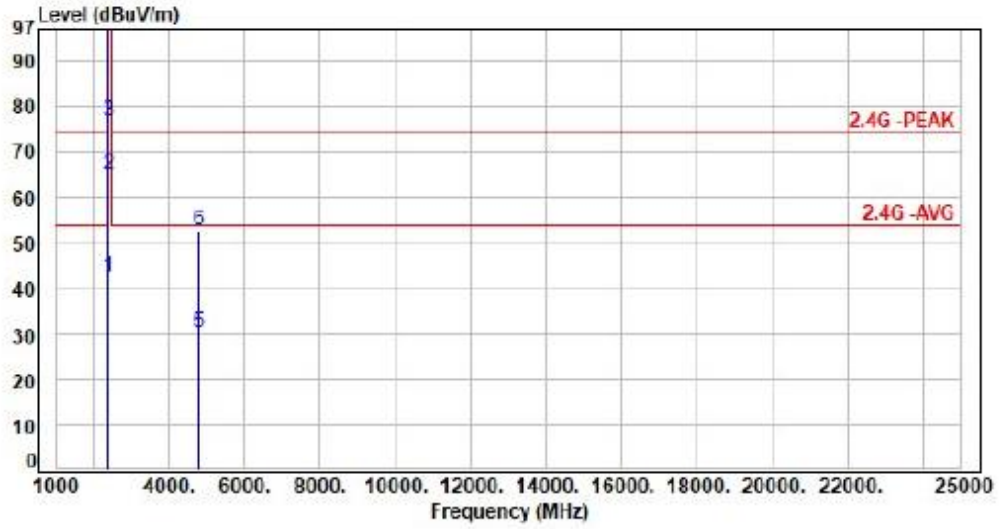
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH78		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-31.50	107.40	75.90	200.00	-124.10	Average	207	163	P
2	2480.00	-31.50	129.90	98.40	200.00	-101.60	Peak	207	163	P
3	2483.50	-31.51	62.98	31.47	54.00	-22.53	Average	207	163	P
4	2483.50	-31.51	85.48	53.97	74.00	-20.03	Peak	207	163	P
5	4960.00	-23.60	50.27	26.67	54.00	-27.33	Average	100	128	P
6	4960.00	-23.60	72.77	49.17	74.00	-24.83	Peak	100	128	P

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

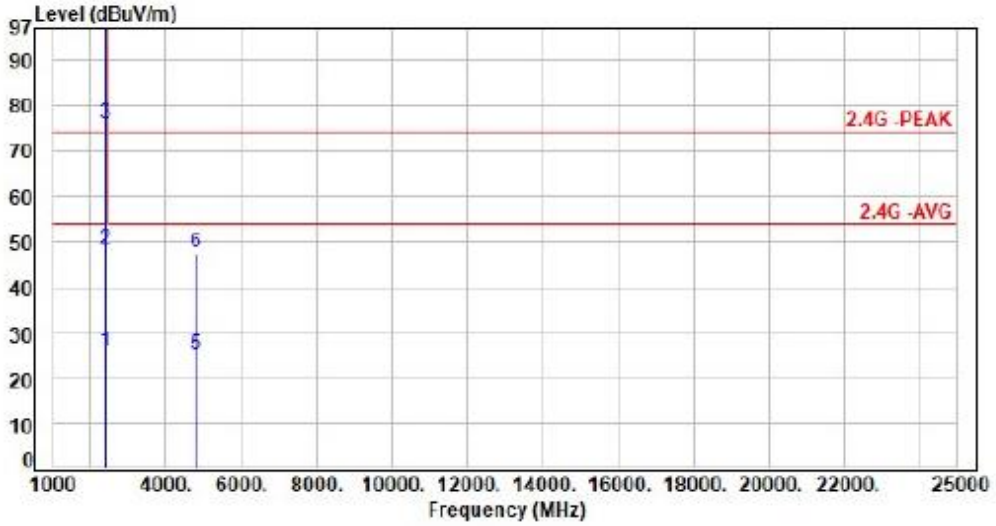
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	73.89	42.52	54.00	-11.48	Average	100	342	P
2	2390.00	-31.37	96.39	65.02	74.00	-8.98	Peak	100	342	P
3	2402.00	-31.40	108.25	76.85	200.00	-123.15	Average	100	342	P
4	2402.00	-31.40	130.75	99.35	200.00	-100.65	Peak	100	342	P
5	4804.00	-24.19	54.38	30.19	54.00	-23.81	Average	363	208	P
6	4804.00	-24.19	76.88	52.69	74.00	-21.31	Peak	363	208	P

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

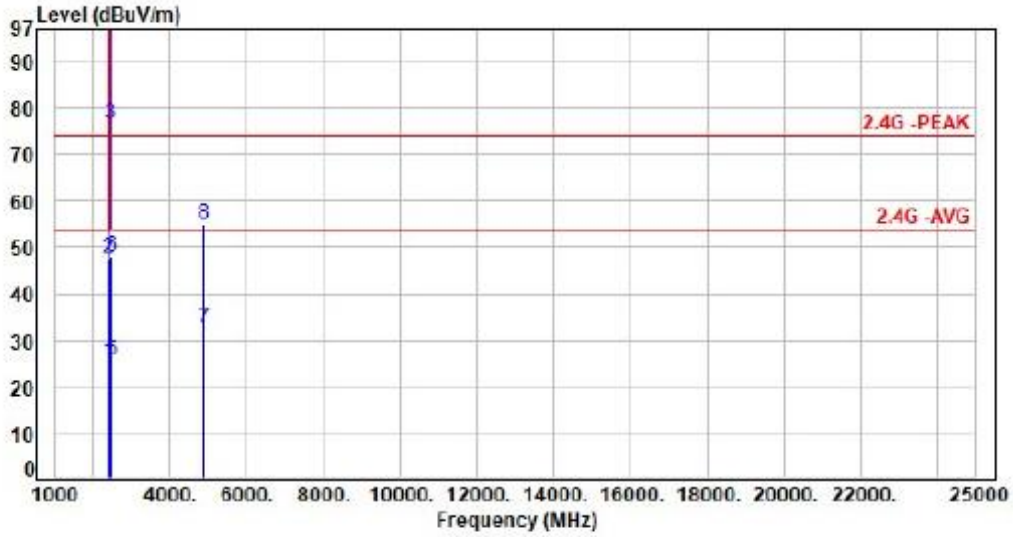
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	57.01	25.64	54.00	-28.36	Average	200	159	P
2	2390.00	-31.37	79.51	48.14	74.00	-25.86	Peak	200	159	P
3	2402.00	-31.40	107.44	76.04	200.00	-123.96	Average	200	159	P
4	2402.00	-31.40	129.94	98.54	200.00	-101.46	Peak	200	159	P
5	4804.00	-24.19	49.44	25.25	54.00	-28.75	Average	100	131	P
6	4804.00	-24.19	71.94	47.75	74.00	-26.25	Peak	100	131	P

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

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-31.37	56.57	25.20	54.00	-28.80	Average	100	352	P
2	2390.00	-31.37	79.07	47.70	74.00	-26.30	Peak	100	352	P
3	2441.00	-31.45	108.31	76.86	200.00	-123.14	Average	100	352	P
4	2441.00	-31.45	130.81	99.36	200.00	-100.64	Peak	100	352	P
5	2483.50	-31.51	57.14	25.63	54.00	-28.37	Average	100	352	P
6	2483.50	-31.51	79.64	48.13	74.00	-25.87	Peak	100	352	P
7	4882.00	-23.84	56.34	32.50	54.00	-21.50	Average	367	211	P
8	4882.00	-23.84	78.84	55.00	74.00	-19.00	Peak	367	211	P

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