




FCC RADIO TEST REPORT

Applicant : Elo Touch Solutions, Inc.
Address : 670 N. McCarthy Blvd., Suite 100, Milpitas,
CA 95035, USA
Equipment : Touch All-in-One Computer
Model No. : ESY10I1D
Trade Name : Elo or 
FCC ID : RBWESY10I1D

I HEREBY CERTIFY THAT :

The sample was received on Dec. 19, 2022 and the testing was completed on Dec. 21, 2022 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 / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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History of this test report

Report No.	Issued Date	Description
21030198-TRFCC03	Dec. 23, 2022	Original

Report Type	Description
<input type="checkbox"/> Original report	NA
<input checked="" type="checkbox"/> Derivative Report	<p>Both ESY10I1D (CerpPASS project Number: 21030198) and ESY22I1D (CerpPASS project Number: 21030199) use the same RF component design.</p> <p>Compared with ESY22I1D, ESY10I1D has smaller size and fewer electronic components.</p> <p>After verification pretest data of ESY10I1D, ESY22I1D by the laboratory, ESY22I1D is the worst case in terms of EMC and RF data.</p> <p>Therefore, all test data perform from ESY22I1D.</p>



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
15.207	. 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

*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

Operation Frequency Range	BT / BLE: 2400-2483.5MHz 802.11b/g/n: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5250-5350MHz, 5470-5725MHz, 5725-5850MHz
Center Frequency Range	BT / BLE: 2402MHz-2480MHz 802.11b/g/n: 2412MHz-2462MHz 802.11a/n/ac: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz
Modulation Type	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK WLAN: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM, FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	Dipole Antenna
Antenna Gain	For BT / BLE: 2400-2480MHz: ANT A: 3.53dBi For WLAN: 2400-2500MHz: ANT A: 3.53dBi, ANT B: 2.11dBi 5150-5250MHz: ANT A: 4.23dBi, ANT B: 2.96dBi 5250-5350MHz: ANT A: 3.94dBi, ANT B: 3.32dBi 5470-5725MHz: ANT A: 3.71dBi, ANT B: 3.67dBi 5725-5850MHz: ANT A: 3.35dBi, ANT B: 3.24dBi
Adapter	Brand: DELTA Model: ADP-65JH HB

Note:

1. EUT support TPC Function.
2. EUT support Client Mode.
3. EUT WLAN 2.4GHz 802.11b and 802.11g 1TX diversity
4. WLAN and BT can simultaneously transmission.
5. For more details, please refer to the User's manual of the EUT.



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	---	---

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 C63.10.
- b. The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
- c. An executive program, " QRCT ver.4.0.00193.0" under Windows OS system was executed to transmit and receive data via WLAN.
- d. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	802.11b (1Mbps) , From Adapter , ANT A
2	802.11g (6Mbps) , From Adapter , ANT A
3	802.11b (1Mbps) , From Adapter , ANT B
4	802.11g (6Mbps) , From Adapter , ANT B
5	802.11n HT20 (6.5Mbps) From Adapter

caused "Test Mode 5" generated the worst case, it was reported as the final data.

Radiation Emissions (Below 1GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps) , From Adapter , ANT A
2	802.11g (6Mbps) , From Adapter , ANT A
3	802.11b (1Mbps) , From Adapter , ANT B
4	802.11g (6Mbps) , From Adapter , ANT B
5	802.11n HT20 (6.5Mbps) From Adapter

caused "Test Mode 5" generated the worst case, they were reported as the final data.

Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps) , From Adapter , ANT A
2	802.11g (6Mbps) , From Adapter , ANT A
3	802.11b (1Mbps) , From Adapter , ANT B
4	802.11g (6Mbps) , From Adapter , ANT B
5	802.11n HT20 (6.5Mbps) From Adapter

caused "Test Mode 3~5" generated the worst case, they were reported as the final data.

Note: There are two kinds of test voltage: AC 120V / 60Hz and AC 240V / 60Hz.

For AC Power Line Conducted Emission, AC 120V / 60Hz is worst case.

For Radiated Spurious Emission, AC 120V / 60Hz is worst case.

The EUT incorporates a MIMO function

Modulation Type	TX CONFIGURATION
802.11b	1TX diversity
802.11g	1TX diversity
802.11n HT20	2TX



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
USB cable	BENEVO	E210567AWM	N/A	0.6m / NS
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
USB cable	BENEVO	E210567AWM	N/A	0.6m / NS
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	Adapter / 1.8m / NS
USB cable	BENEVO	E210567AWM	N/A	0.6m / NS



2.5 General Information of Test

Test Site	CerpPASS 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	TW1079, TW1439
	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	RFCON01-NK	2022/12/21	23.5°C / 55%	Leon Huang
Radiated Emissions	3M02-NK	2022/12/19	16°C / 44%	Leon Huang
AC Power Line Conducted Emission	CON01-NK	2022/12/20	21°C / 66%	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)	±3.12dB
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(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	369	2022/04/22	2023/04/21
Active Loop Antenna	EMCO	6507	40855	2022/05/25	2023/05/24
Horn Antenna	EMCO	3115	31601	2022/10/12	2023/10/11
Horn Antenna	EMCO	3116	31970	2022/03/18	2023/03/17
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2022/07/05	2023/07/04
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2022/08/19	2023/08/18
Preamplifier	Agilent	8449B	3008A01954	2022/03/17	2023/03/16
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2022/11/11	2023/11/10
Preamplifier	EM Electronics corp.	EM330	60660	2022/04/08	2023/04/07
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130605	2022/09/06	2023/09/05
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2022/03/21	2023/03/20
Cable-0.5m(1G-40G)	HUBER SUHNER	SUCOFLEX 104	805443/4	2022/01/11	2023/01/10
Cable-3m(1G-40G)	HUBER SUHNER	SUCOFLEX 104	805796/4	2022/01/11	2023/01/10
Cable-8m(1G-26.5G)	WOKEN	WCBA-WCA203SM	CCE1374	2022/04/25	2023/04/24
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2022/4/9	2023/4/8
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2022/4/9	2023/4/8
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2022/4/9	2023/4/8
Cable-3m(1G-40G)	Rapidtek	40GHZ 300CM	38MS-38MS300314	2022/4/9	2023/4/8
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2022/11/29	2023/11/28
Power Meter	Anritsu	ML2495A	1224005	2022/04/12	2023/04/11
Power Sensor	Anritsu	MA2411B	1207295	2022/04/12	2023/04/11
Attenuator	KEYSIGHT	8491B	MY39250703	2022/04/12	2023/04/11



Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	101200	2022/08/22	2023/08/21
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-740	2022/08/21	2023/08/20
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101934	2022/03/21	2023/03/20
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2022/03/21	2023/03/20
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



4. Antenna Requirements

4.1 Antenna Construction and Directional Gain

Antenna Type	Dipole Antenna
Antenna Gain	2400-2500MHz: ANT A: 3.53 dBi, ANT B: 2.11 dBi

2400-2500MHz

802.11b and 802.11g

For Power directional gain= $G_{ant}= 2.11$ dBi

For PSD directional gain = $G_{ant}=3.53$ dBi

802.11nHT20

For Power directional gain= $G_{ant}= 2.11$ dBi

For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$
= 5.86 dBi

*MIMO type: Cyclic Delay Diversity (CDD) mode.



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 C63.10-2013. 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

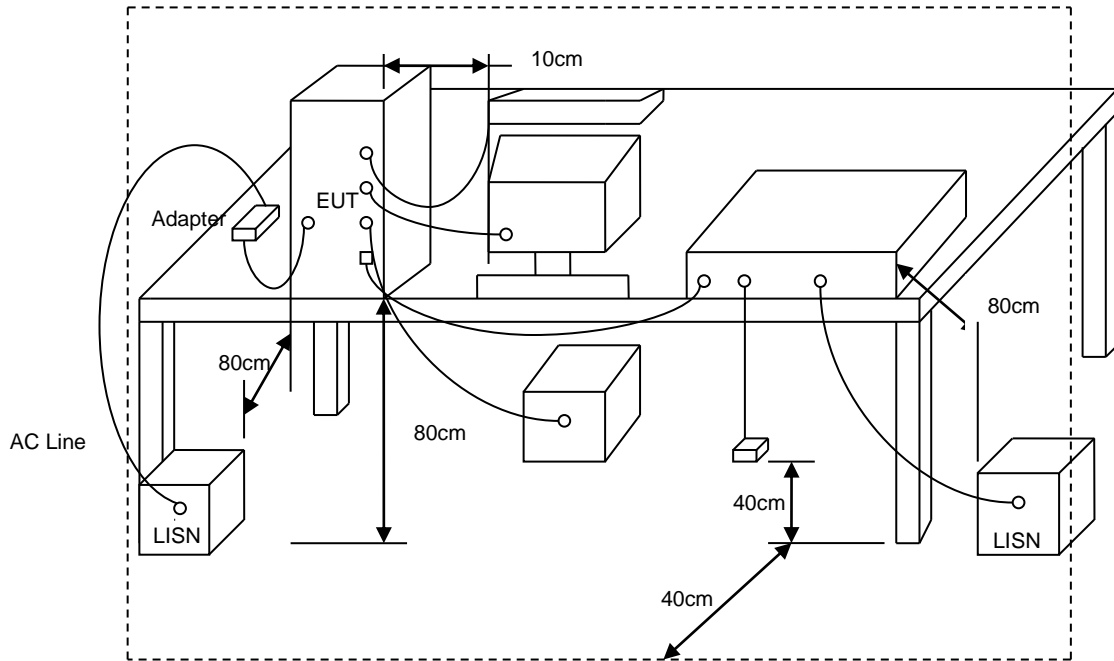
*Decreases with the logarithm of the frequency.

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.



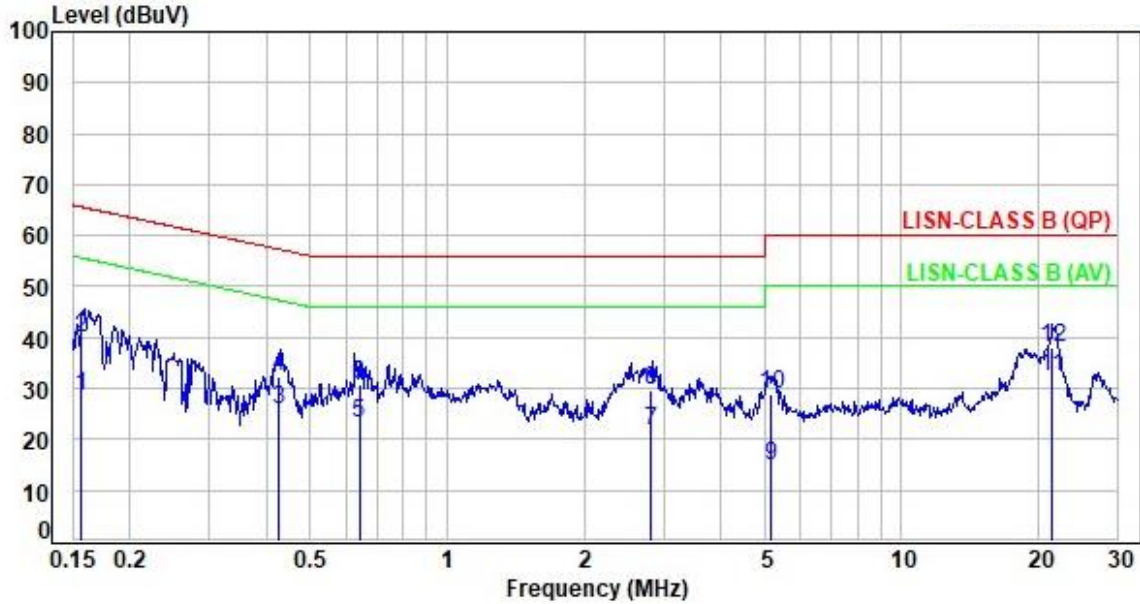
5.3 Typical Test Setup





5.4 Test Result and Data

Power	: From Adapter (AC 120V / 60Hz)	Pol/Phase	: LINE
Test Mode	: Mode 5		:

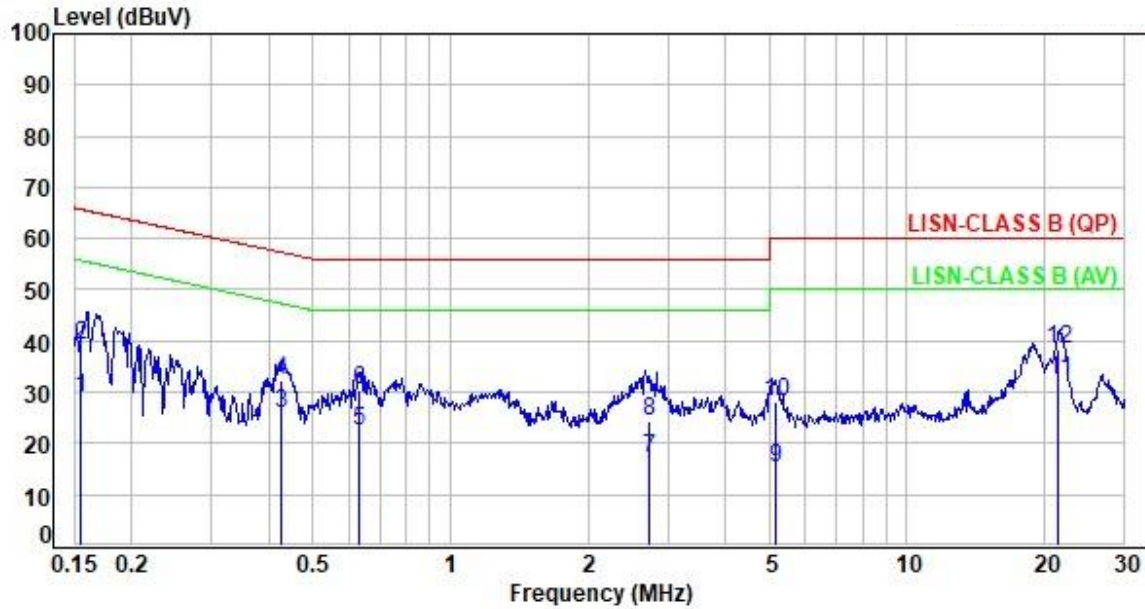


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	19.47	8.99	28.46	55.66	-27.20	Average	P
2	0.16	19.47	20.44	39.91	65.66	-25.75	QP	P
3	0.43	19.44	6.54	25.98	47.33	-21.35	Average	P
4	0.43	19.44	12.90	32.34	57.33	-24.99	QP	P
5	0.64	19.44	3.85	23.29	46.00	-22.71	Average	P
6	0.64	19.44	11.39	30.83	56.00	-25.17	QP	P
7	2.80	19.38	2.16	21.54	46.00	-24.46	Average	P
8	2.80	19.38	10.22	29.60	56.00	-26.40	QP	P
9	5.17	19.38	-4.51	14.87	50.00	-35.13	Average	P
10	5.17	19.38	9.41	28.79	60.00	-31.21	QP	P
11	21.46	19.37	13.00	32.37	50.00	-17.63	Average	P
12	21.46	19.37	18.76	38.13	60.00	-21.87	QP	P

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



Power	: From Adapter (AC 120V / 60Hz)	Pol/Phase	: NEUTRAL
Test Mode	: Mode 5		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	19.47	9.57	29.04	55.71	-26.67	Average	P
2	0.16	19.47	19.58	39.05	65.71	-26.66	QP	P
3	0.43	19.44	6.59	26.03	47.32	-21.29	Average	P
4	0.43	19.44	13.01	32.45	57.32	-24.87	QP	P
5	0.63	19.43	3.10	22.53	46.00	-23.47	Average	P
6	0.63	19.43	11.13	30.56	56.00	-25.44	QP	P
7	2.72	19.37	-2.07	17.30	46.00	-28.70	Average	P
8	2.72	19.37	4.96	24.33	56.00	-31.67	QP	P
9	5.17	19.35	-4.21	15.14	50.00	-34.86	Average	P
10	5.17	19.35	8.81	28.16	60.00	-31.84	QP	P
11	21.53	19.40	12.99	32.39	50.00	-17.61	Average	P
12	21.53	19.40	18.86	38.26	60.00	-21.74	QP	P

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



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 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.

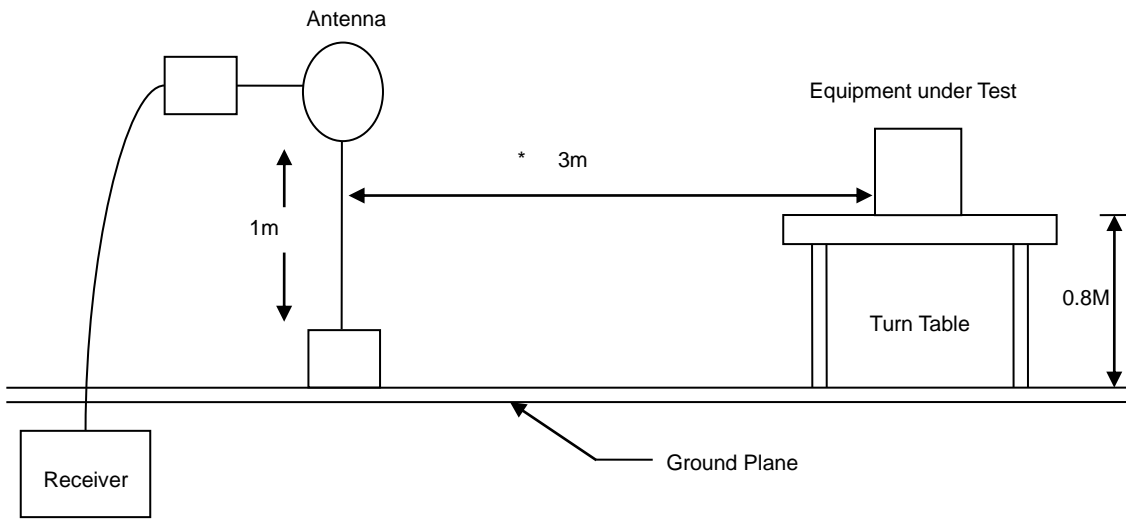
Note:

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

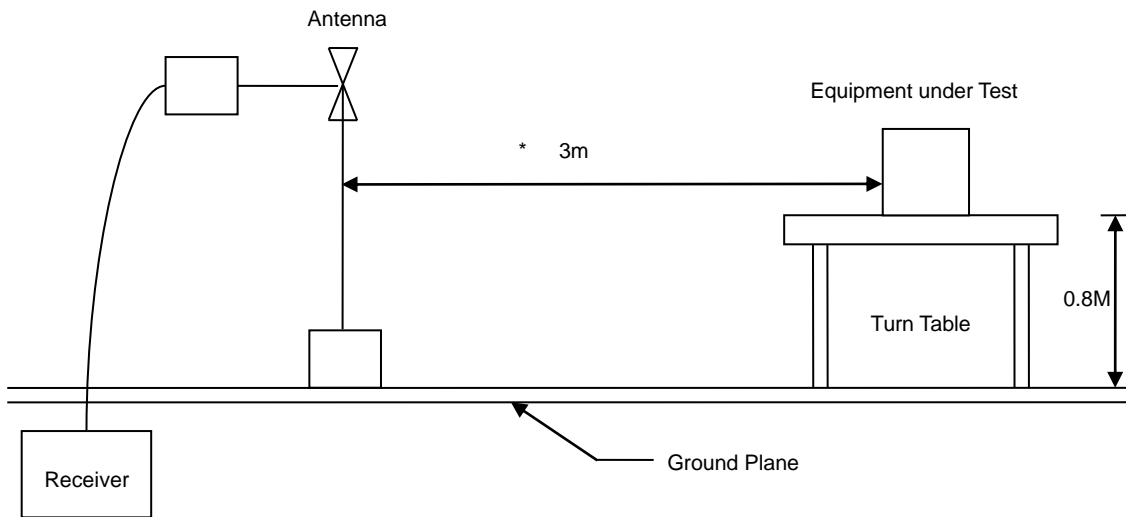


6.3 Typical Test Setup

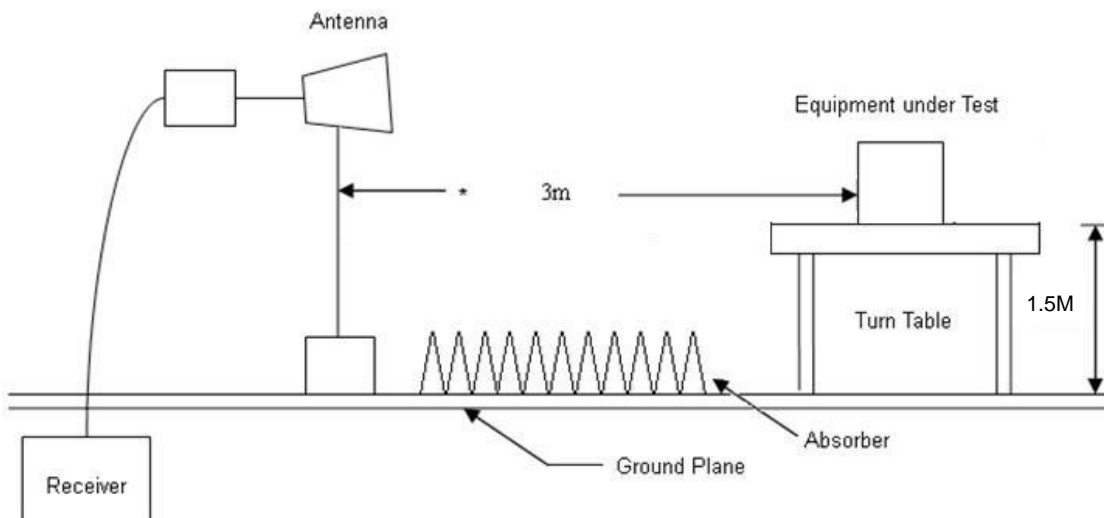
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



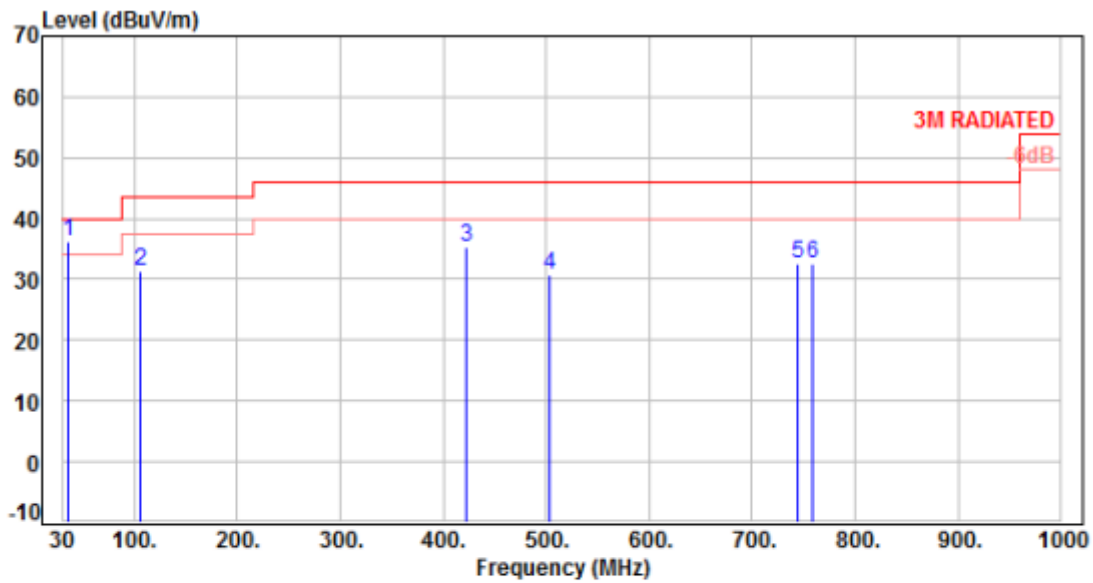


6.4 Test Result and Data (9KHz ~ 30MHz)

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

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

Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5		:	

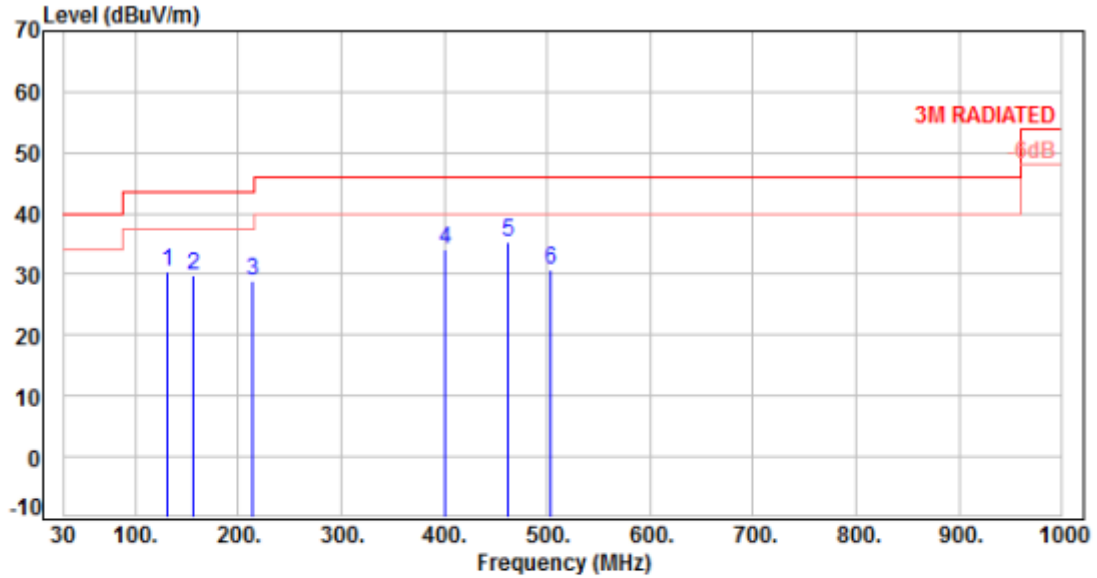


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	35.82	-9.23	45.51	36.28	40.00	-3.72	QP	100	48	P
2	105.66	-12.68	44.06	31.38	43.50	-12.12	Peak	100	360	P
3	421.88	-4.87	40.11	35.24	46.00	-10.76	Peak	100	360	P
4	503.36	-3.37	34.18	30.81	46.00	-15.19	Peak	100	360	P
5	743.92	1.43	31.01	32.44	46.00	-13.56	Peak	100	360	P
6	759.44	1.87	30.86	32.73	46.00	-13.27	Peak	100	360	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5		:	



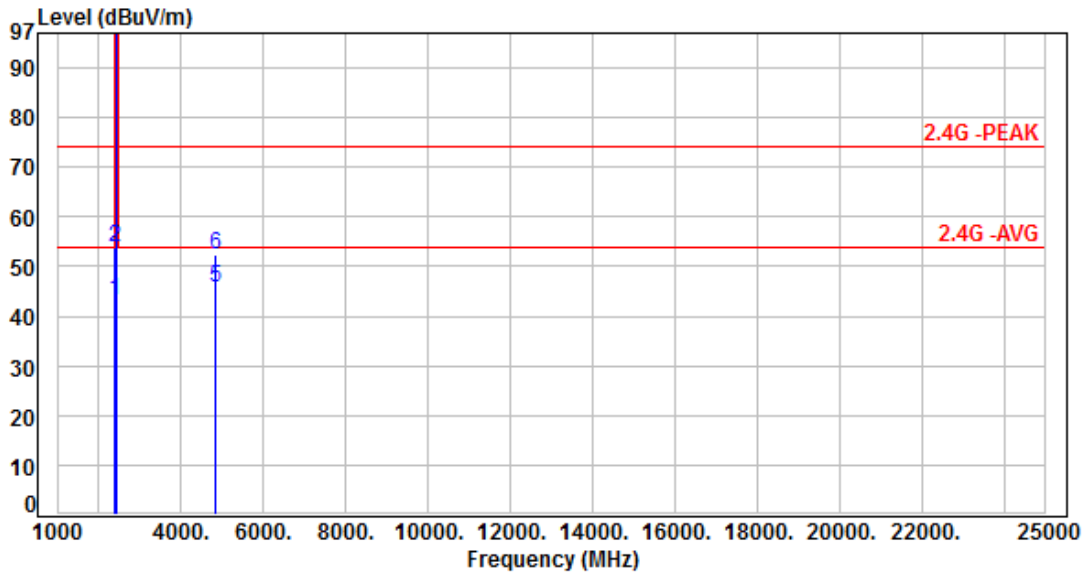
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	130.88	-10.22	40.56	30.34	43.50	-13.16	Peak	100	0	P
2	156.10	-9.28	39.10	29.82	43.50	-13.68	Peak	100	0	P
3	214.30	-11.66	40.60	28.94	43.50	-14.56	Peak	100	0	P
4	400.54	-5.55	39.52	33.97	46.00	-12.03	Peak	100	0	P
5	462.62	-4.09	39.42	35.33	46.00	-10.67	Peak	100	0	P
6	503.36	-3.37	34.00	30.63	46.00	-15.37	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	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH01		:	

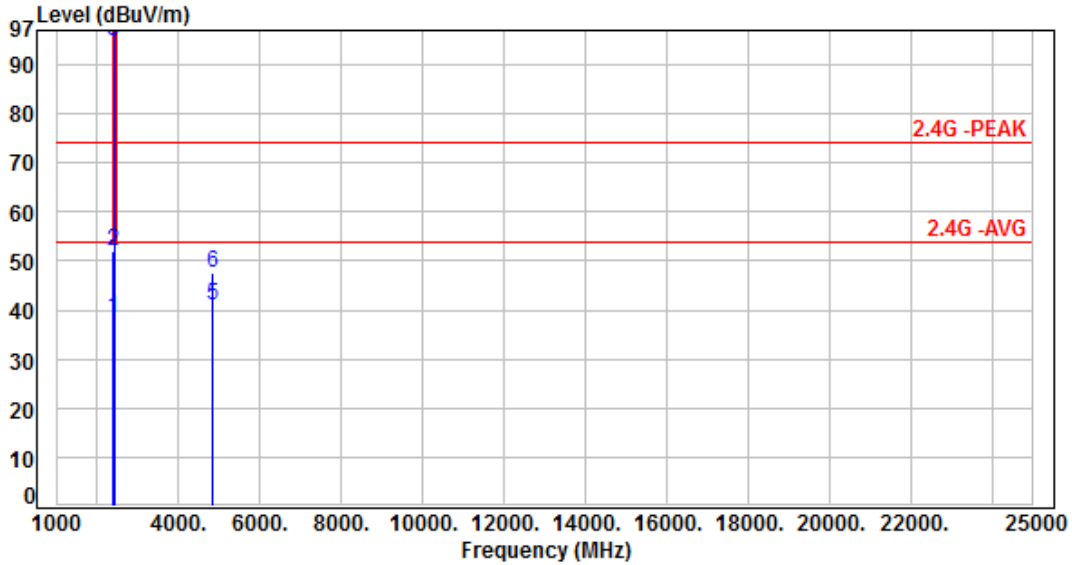


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	46.29	43.07	54.00	-10.93	Average	100	105	P
2	2390.00	-3.22	57.03	53.81	74.00	-20.19	Peak	100	105	P
3	2412.00	-3.18	105.49	102.31	200.00	-97.69	Average	100	105	P
4	2412.00	-3.18	109.16	105.98	200.00	-94.02	Peak	100	105	P
5	4824.00	5.28	40.58	45.86	54.00	-8.14	Average	100	161	P
6	4824.00	5.28	47.16	52.44	74.00	-21.56	Peak	100	161	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH01		:	

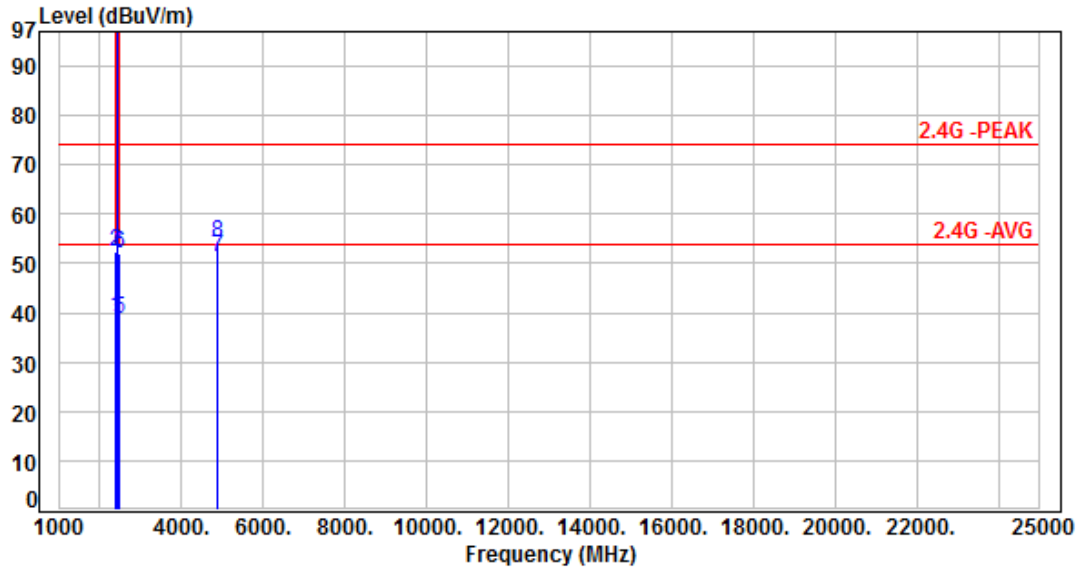


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	41.47	38.25	54.00	-15.75	Average	100	220	P
2	2390.00	-3.22	55.37	52.15	74.00	-21.85	Peak	100	220	P
3	2412.00	-3.18	98.00	94.82	200.00	-105.18	Average	100	220	P
4	2412.00	-3.18	100.84	97.66	200.00	-102.34	Peak	100	220	P
5	4824.00	5.28	35.57	40.85	54.00	-13.15	Average	100	237	P
6	4824.00	5.28	42.41	47.69	74.00	-26.31	Peak	100	237	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH06		:	

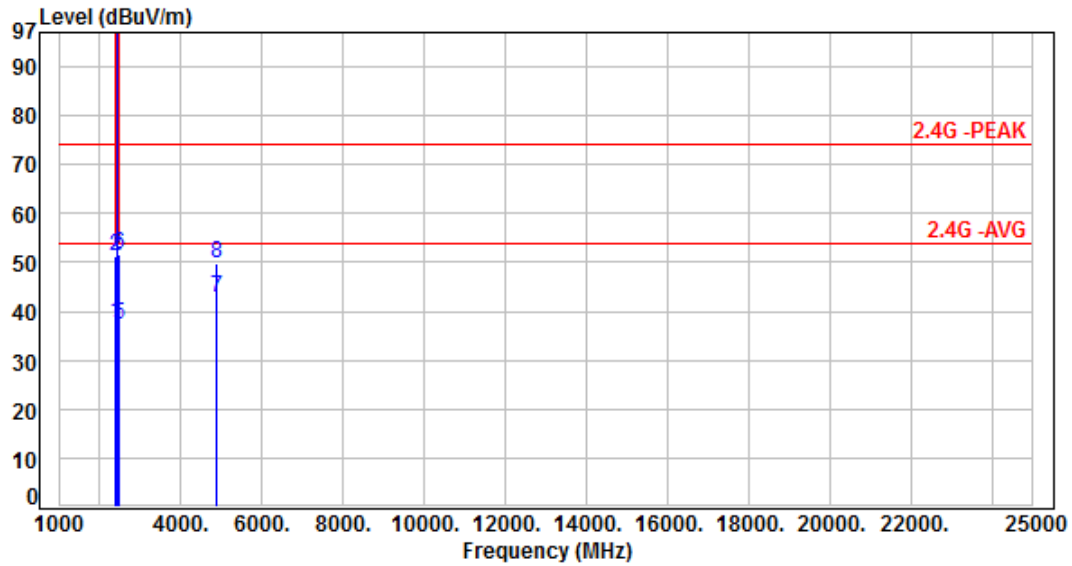


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	42.44	39.22	54.00	-14.78	Average	100	107	P
2	2390.00	-3.22	55.73	52.51	74.00	-21.49	Peak	100	107	P
3	2437.00	-2.70	106.52	103.82	200.00	-96.18	Average	100	107	P
4	2437.00	-2.70	109.11	106.41	200.00	-93.59	Peak	100	107	P
5	2483.50	-2.35	41.13	38.78	54.00	-15.22	Average	100	107	P
6	2483.50	-2.35	54.23	51.88	74.00	-22.12	Peak	100	107	P
7	4874.00	5.48	45.70	51.18	54.00	-2.82	Average	100	162	P
8	4874.00	5.48	48.82	54.30	74.00	-19.70	Peak	100	162	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH06		:	

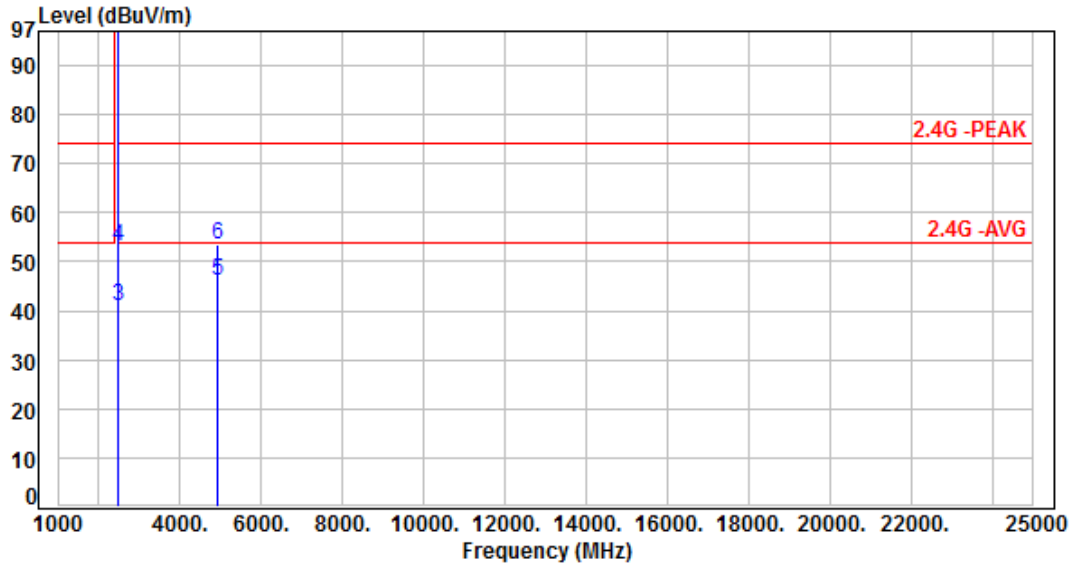


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	40.72	37.50	54.00	-16.50	Average	100	216	P
2	2390.00	-3.22	54.52	51.30	74.00	-22.70	Peak	100	216	P
3	2437.00	-2.70	99.35	96.65	200.00	-103.35	Average	100	216	P
4	2437.00	-2.70	101.93	99.23	200.00	-100.77	Peak	100	216	P
5	2483.50	-2.35	39.75	37.40	54.00	-16.60	Average	100	216	P
6	2483.50	-2.35	54.13	51.78	74.00	-22.22	Peak	100	216	P
7	4874.00	5.48	37.26	42.74	54.00	-11.26	Average	100	239	P
8	4874.00	5.48	44.16	49.64	74.00	-24.36	Peak	100	239	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH11		:	

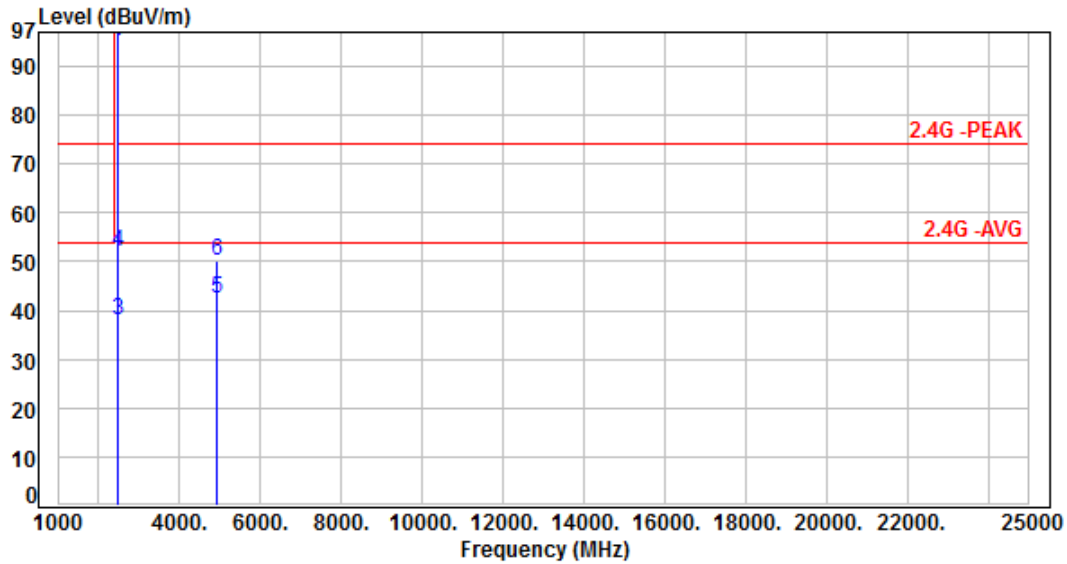


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	105.38	102.96	200.00	-97.04	Average	100	99	P
2	2462.00	-2.42	107.94	105.52	200.00	-94.48	Peak	100	99	P
3	2483.50	-2.35	43.26	40.91	54.00	-13.09	Average	100	99	P
4	2483.50	-2.35	55.28	52.93	74.00	-21.07	Peak	100	99	P
5	4924.00	5.59	40.49	46.08	54.00	-7.92	Average	100	159	P
6	4924.00	5.59	47.83	53.42	74.00	-20.58	Peak	100	159	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH11		:	

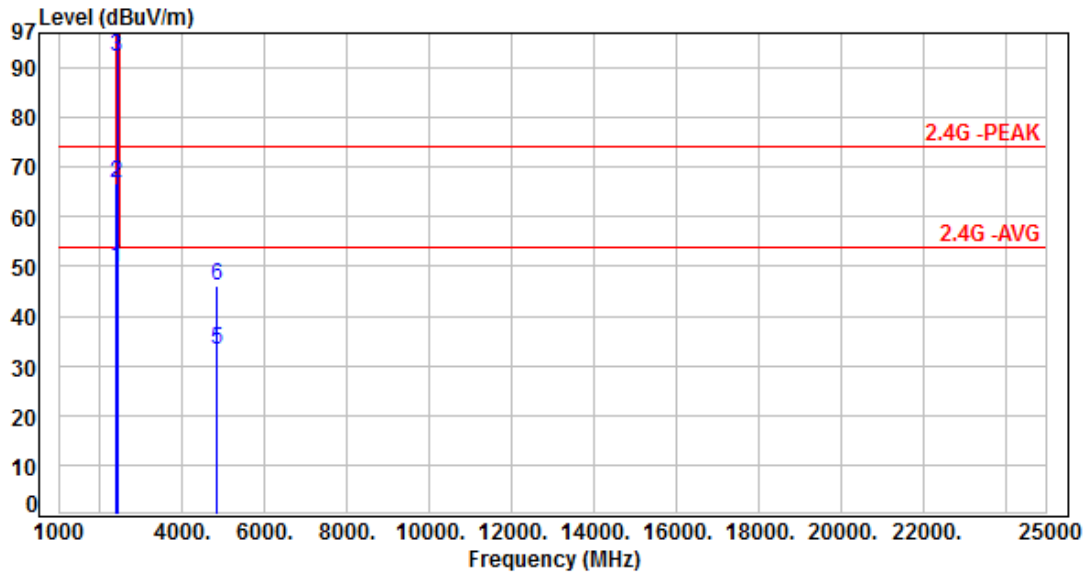


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	97.72	95.30	200.00	-104.70	Average	100	222	P
2	2462.00	-2.42	100.17	97.75	200.00	-102.25	Peak	100	222	P
3	2483.50	-2.35	40.42	38.07	54.00	-15.93	Average	100	222	P
4	2483.50	-2.35	54.41	52.06	74.00	-21.94	Peak	100	222	P
5	4924.00	5.59	36.75	42.34	54.00	-11.66	Average	100	229	P
6	4924.00	5.59	44.58	50.17	74.00	-23.83	Peak	100	229	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH01		:	

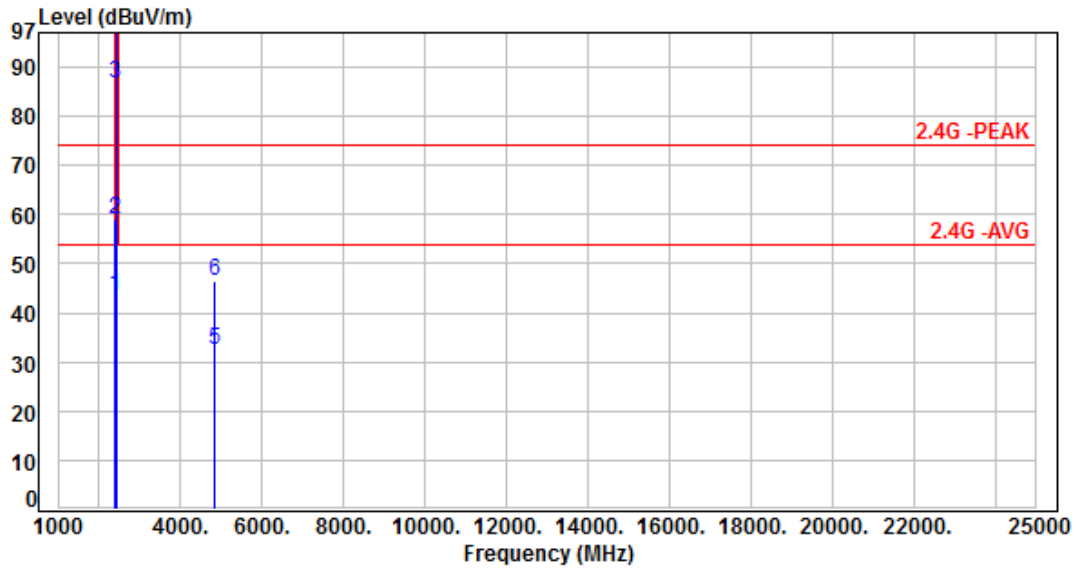


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	53.16	49.94	54.00	-4.06	Average	100	102	P
2	2390.00	-3.22	69.94	66.72	74.00	-7.28	Peak	100	102	P
3	2412.00	-3.18	95.43	92.25	200.00	-107.75	Average	100	102	P
4	2412.00	-3.18	107.04	103.86	200.00	-96.14	Peak	100	102	P
5	4824.00	5.28	27.81	33.09	54.00	-20.91	Average	100	164	P
6	4824.00	5.28	41.00	46.28	74.00	-27.72	Peak	100	164	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH01		:	

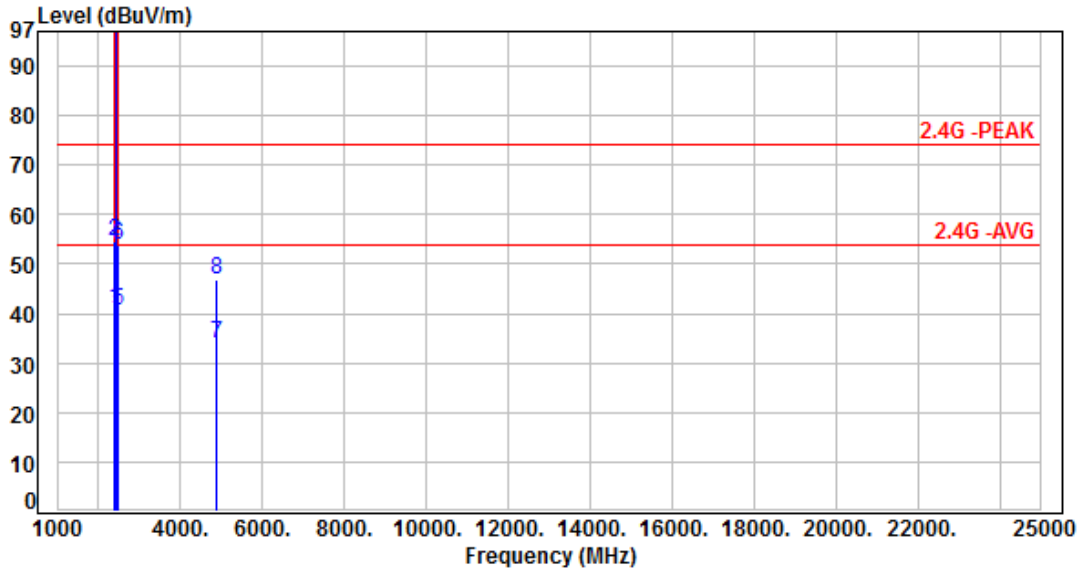


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	46.82	43.60	54.00	-10.40	Average	100	218	P
2	2390.00	-3.22	62.06	58.84	74.00	-15.16	Peak	100	218	P
3	2412.00	-3.18	89.88	86.70	200.00	-113.30	Average	100	218	P
4	2412.00	-3.18	101.27	98.09	200.00	-101.91	Peak	100	218	P
5	4824.00	5.28	27.10	32.38	54.00	-21.62	Average	100	226	P
6	4824.00	5.28	41.28	46.56	74.00	-27.44	Peak	100	226	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH06		:	



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	-3.22	44.26	41.04	54.00	-12.96	Average	105	110	P
2	2390.00	-3.22	57.63	54.41	74.00	-19.59	Peak	105	110	P
3	2437.00	-2.70	99.46	96.76	200.00	-103.24	Average	105	110	P
4	2437.00	-2.70	111.05	108.35	200.00	-91.65	Peak	105	110	P
5	2483.50	-2.35	42.74	40.39	54.00	-13.61	Average	105	110	P
6	2483.50	-2.35	56.23	53.88	74.00	-20.12	Peak	105	110	P
7	4874.00	5.48	28.46	33.94	54.00	-20.06	Average	100	167	P
8	4874.00	5.48	41.28	46.76	74.00	-27.24	Peak	100	167	P

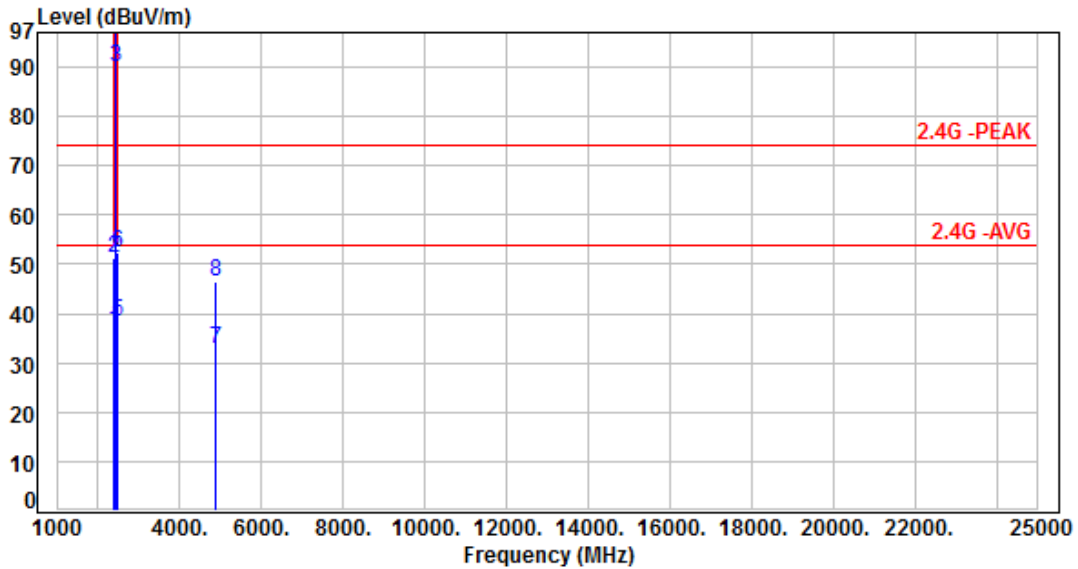
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH06		:	

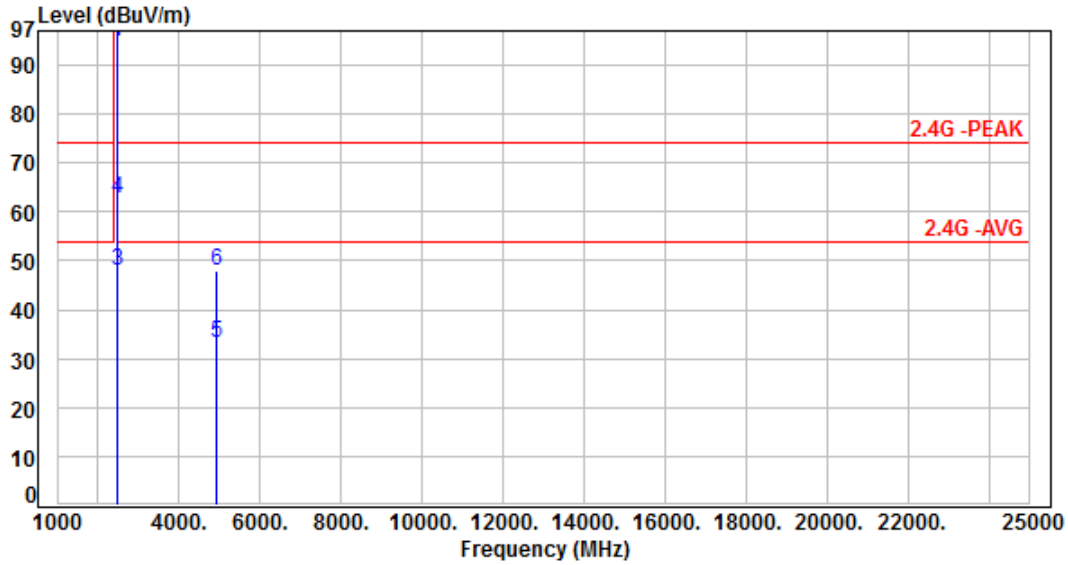


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	39.78	36.56	54.00	-17.44	Average	100	219	P
2	2390.00	-3.22	54.63	51.41	74.00	-22.59	Peak	100	219	P
3	2437.00	-2.70	92.83	90.13	200.00	-109.87	Average	100	219	P
4	2437.00	-2.70	104.37	101.67	200.00	-98.33	Peak	100	219	P
5	2483.50	-2.35	40.58	38.23	54.00	-15.77	Average	100	219	P
6	2483.50	-2.35	54.82	52.47	74.00	-21.53	Peak	100	219	P
7	4874.00	5.48	27.17	32.65	54.00	-21.35	Average	100	235	P
8	4874.00	5.48	40.93	46.41	74.00	-27.59	Peak	100	235	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH11		:	

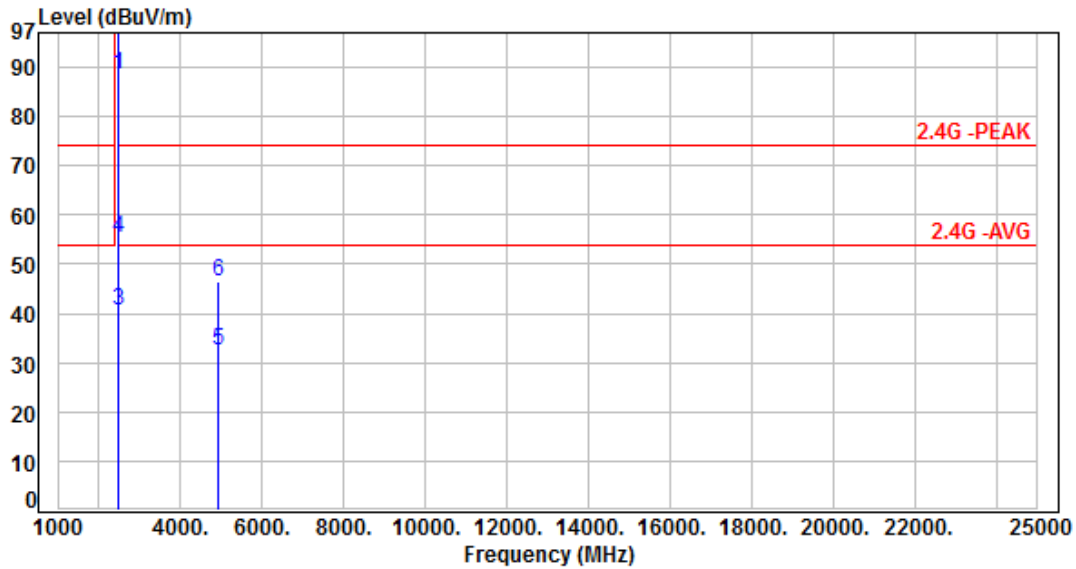


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	97.26	94.84	200.00	-105.16	Average	100	111	P
2	2462.00	-2.42	108.43	106.01	200.00	-93.99	Peak	100	111	P
3	2483.50	-2.35	50.42	48.07	54.00	-5.93	Average	100	111	P
4	2483.50	-2.35	64.93	62.58	74.00	-11.42	Peak	100	111	P
5	4924.00	5.59	27.52	33.11	54.00	-20.89	Average	100	159	P
6	4924.00	5.59	42.29	47.88	74.00	-26.12	Peak	100	159	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH11		:	

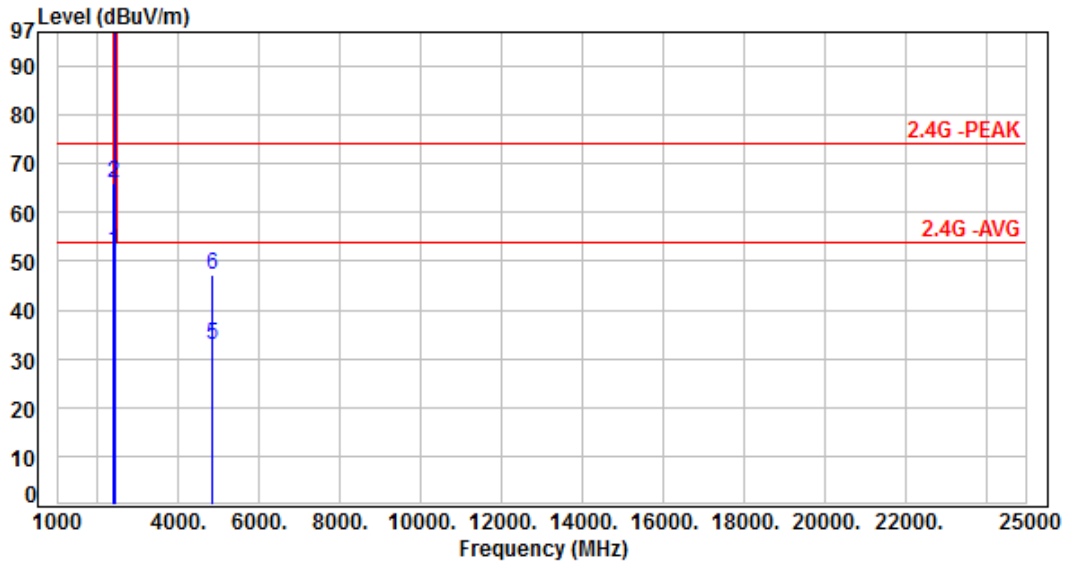


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	90.83	88.41	200.00	-111.59	Average	100	212	P
2	2462.00	-2.42	101.78	99.36	200.00	-100.64	Peak	100	212	P
3	2483.50	-2.35	42.83	40.48	54.00	-13.52	Average	100	212	P
4	2483.50	-2.35	57.80	55.45	74.00	-18.55	Peak	100	212	P
5	4924.00	5.59	27.04	32.63	54.00	-21.37	Average	100	234	P
6	4924.00	5.59	40.82	46.41	74.00	-27.59	Peak	100	234	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5, CH01		:	

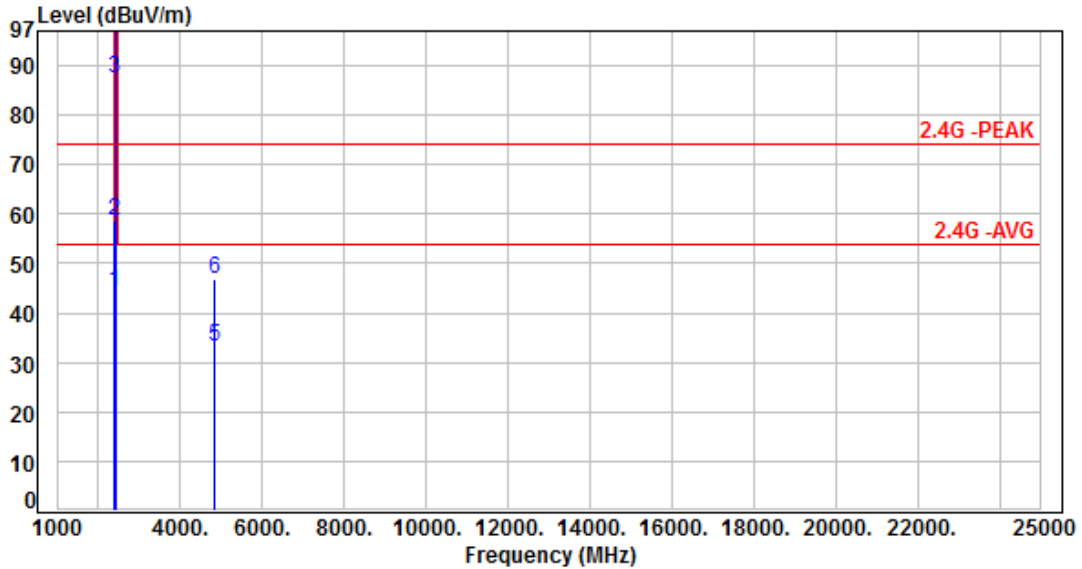


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	55.28	52.06	54.00	-1.94	Average	100	107	P
2	2390.00	-3.22	69.42	66.20	74.00	-7.80	Peak	100	107	P
3	2412.00	-3.18	99.10	95.92	200.00	-104.08	Average	100	107	P
4	2412.00	-3.18	109.14	105.96	200.00	-94.04	Peak	100	107	P
5	4824.00	5.28	27.47	32.75	54.00	-21.25	Average	100	164	P
6	4824.00	5.28	42.09	47.37	74.00	-26.63	Peak	100	164	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, CH01		:	

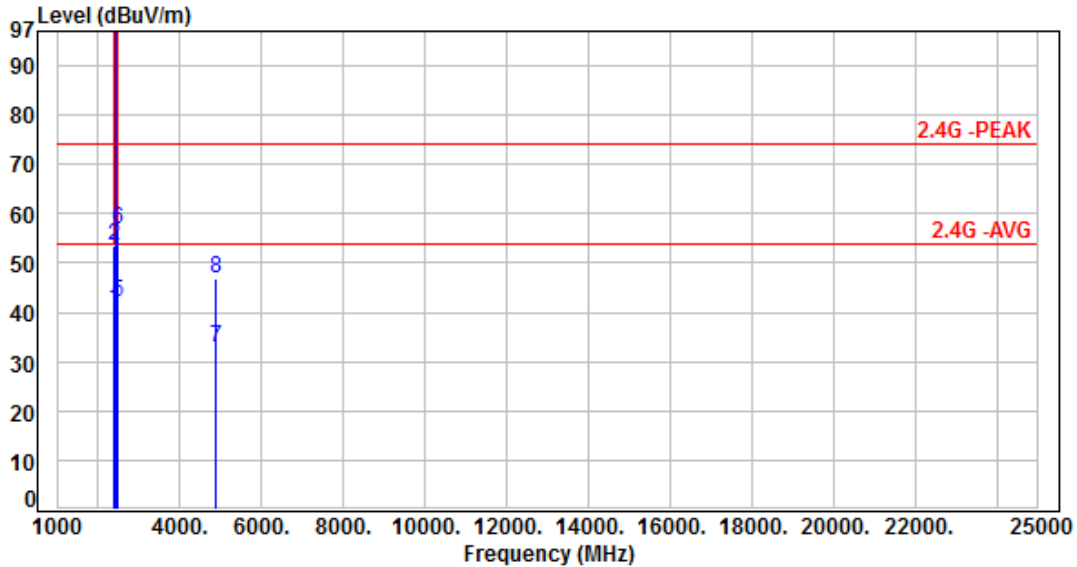


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	47.52	44.30	54.00	-9.70	Average	100	216	P
2	2390.00	-3.22	61.80	58.58	74.00	-15.42	Peak	100	216	P
3	2412.00	-3.18	90.72	87.54	200.00	-112.46	Average	100	216	P
4	2412.00	-3.18	101.28	98.10	200.00	-101.90	Peak	100	216	P
5	4824.00	5.28	27.87	33.15	54.00	-20.85	Average	100	231	P
6	4824.00	5.28	41.55	46.83	74.00	-27.17	Peak	100	231	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5, CH06		:	

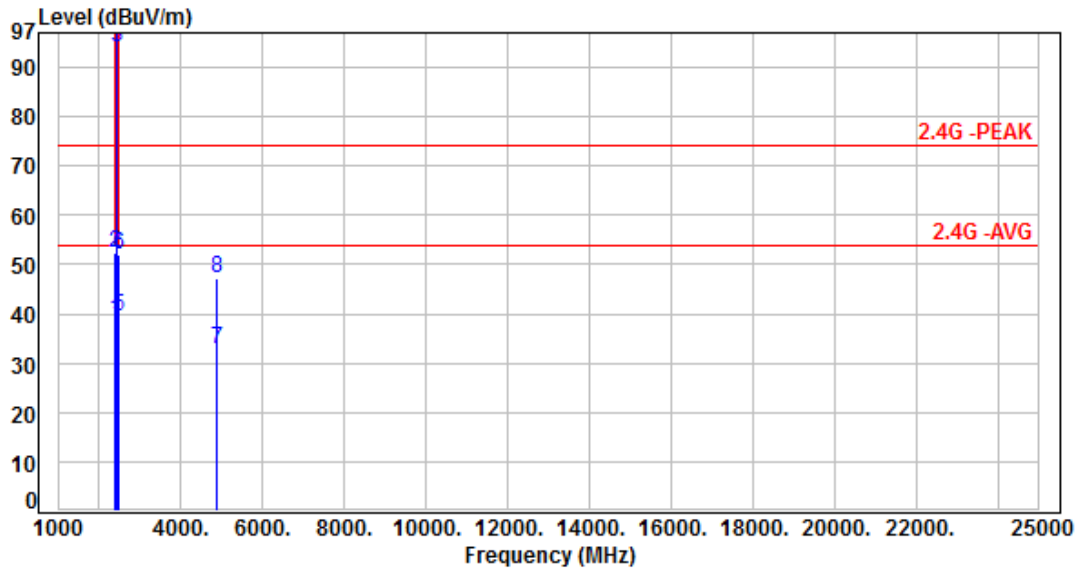


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.22	43.62	40.40	54.00	-13.60	Average	100	105	P
2	2390.00	-3.22	56.72	53.50	74.00	-20.50	Peak	100	105	P
3	2437.00	-2.70	103.44	100.74	200.00	-99.26	Average	100	105	P
4	2437.00	-2.70	113.93	111.23	200.00	-88.77	Peak	100	105	P
5	2483.50	-2.35	44.28	41.93	54.00	-12.07	Average	100	105	P
6	2483.50	-2.35	59.19	56.84	74.00	-17.16	Peak	100	105	P
7	4874.00	5.48	27.36	32.84	54.00	-21.16	Average	100	166	P
8	4874.00	5.48	41.52	47.00	74.00	-27.00	Peak	100	166	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, CH06		:	



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	-3.22	41.93	38.71	54.00	-15.29	Average	100	217	P
2	2390.00	-3.22	55.41	52.19	74.00	-21.81	Peak	100	217	P
3	2437.00	-2.70	96.73	94.03	200.00	-105.97	Average	100	217	P
4	2437.00	-2.70	106.66	103.96	200.00	-96.04	Peak	100	217	P
5	2483.50	-2.35	41.76	39.41	54.00	-14.59	Average	100	217	P
6	2483.50	-2.35	54.49	52.14	74.00	-21.86	Peak	100	217	P
7	4874.00	5.48	27.51	32.99	54.00	-21.01	Average	100	227	P
8	4874.00	5.48	41.70	47.18	74.00	-26.82	Peak	100	227	P

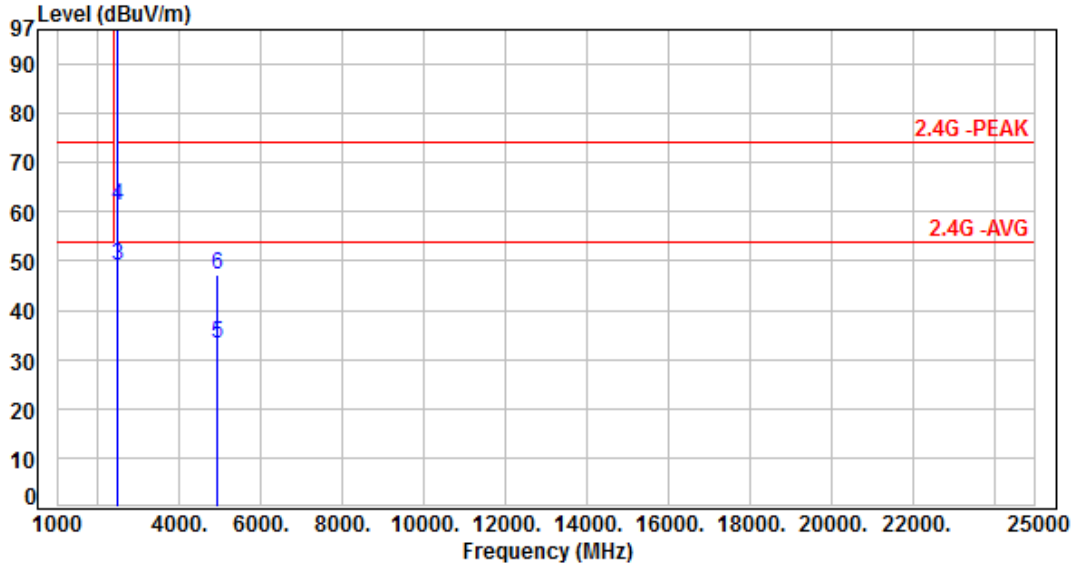
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5, CH11		:	

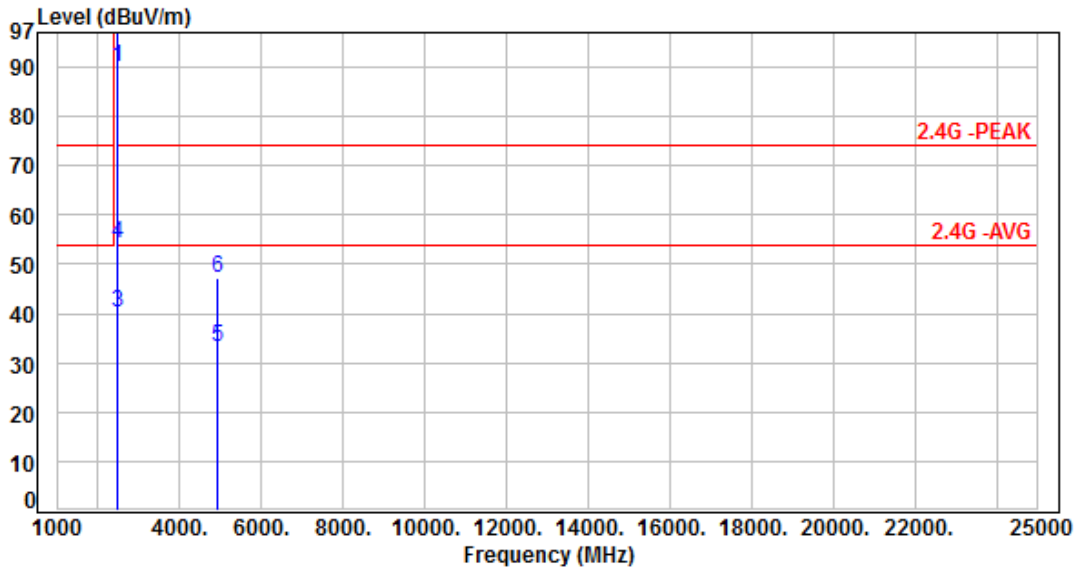


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	105.23	102.81	200.00	-97.19	Average	100	104	P
2	2462.00	-2.42	116.49	114.07	200.00	-85.93	Peak	100	104	P
3	2483.50	-2.35	51.26	48.91	54.00	-5.09	Average	100	104	P
4	2483.50	-2.35	63.72	61.37	74.00	-12.63	Peak	100	104	P
5	4924.00	5.59	27.58	33.17	54.00	-20.83	Average	100	162	P
6	4924.00	5.59	41.49	47.08	74.00	-26.92	Peak	100	162	P

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



Power	:	From Adapter (AC 120V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, CH11		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2462.00	-2.42	92.59	90.17	200.00	-109.83	Average	100	218	P
2	2462.00	-2.42	102.42	100.00	200.00	-100.00	Peak	100	218	P
3	2483.50	-2.35	42.37	40.02	54.00	-13.98	Average	100	218	P
4	2483.50	-2.35	56.52	54.17	74.00	-19.83	Peak	100	218	P
5	4924.00	5.59	27.43	33.02	54.00	-20.98	Average	100	236	P
6	4924.00	5.59	41.52	47.11	74.00	-26.89	Peak	100	236	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



7. Test of Conducted Spurious Emission

7.1 Test Limit

According to the methods defined in ANSI C63.10-2013 Section 11.11.1

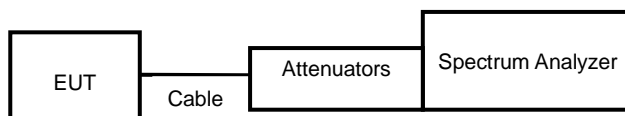
Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.11.2 & 11.11.3

- a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

7.3 Test Setup Layout



7.4 Test Result and Data

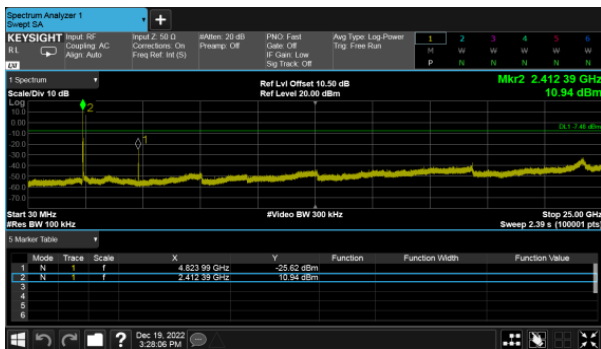
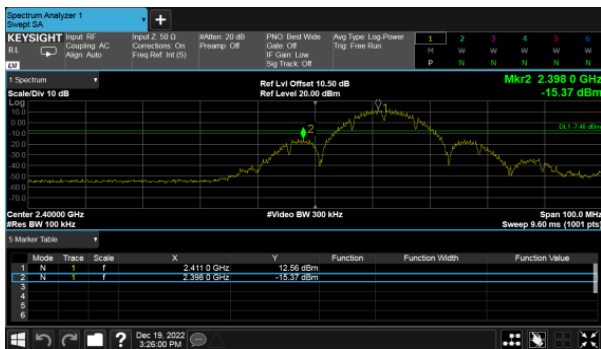
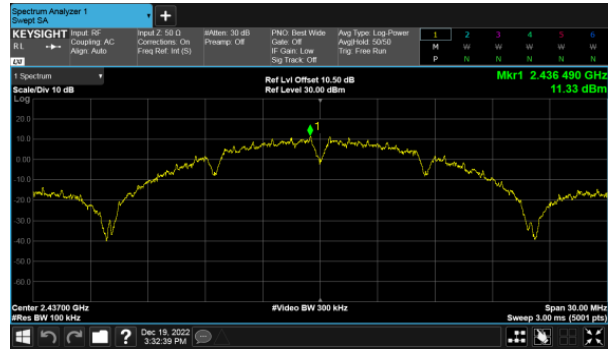
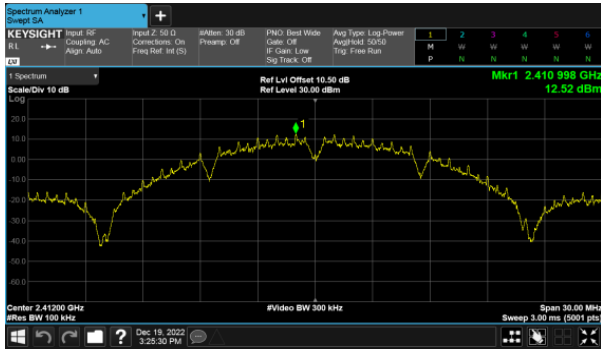
Note: Test plots refers to the following pages.



ANT B

Modulation Type: 802.11b, CH 01

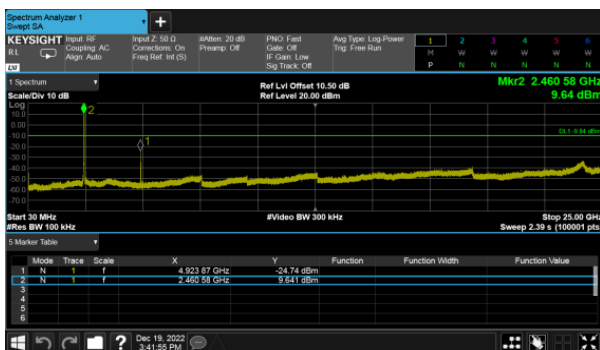
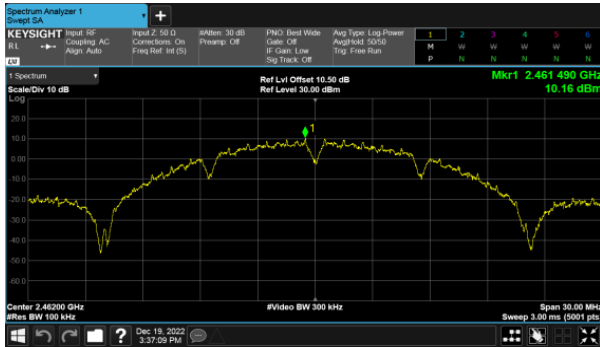
Modulation Type: 802.11b, CH 06





ANT B

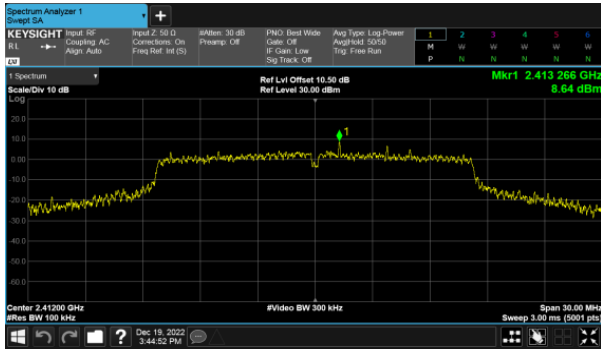
Modulation Type: 802.11b, CH 11



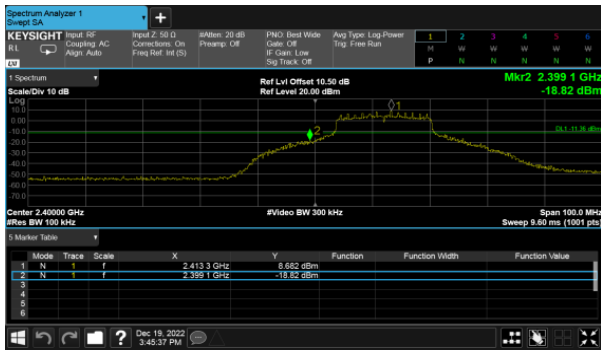
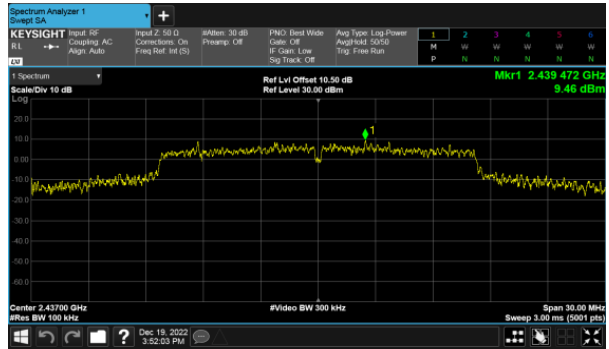


ANT B

Modulation Type: 802.11g, CH01



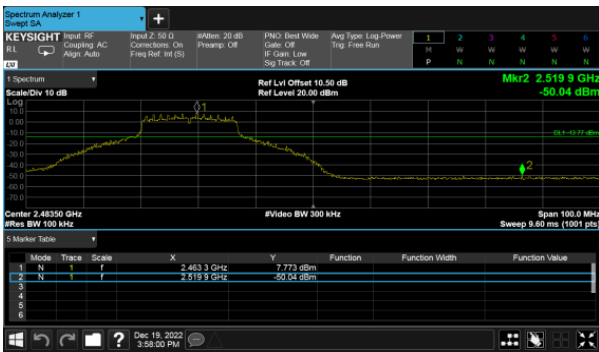
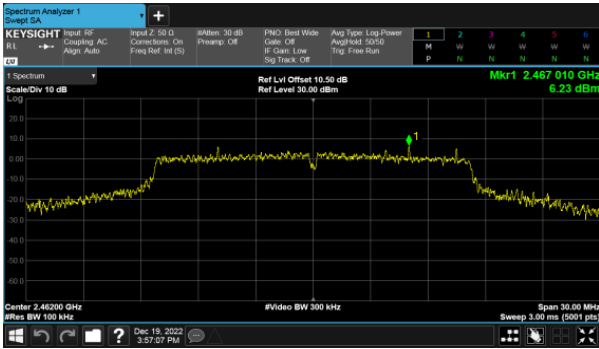
Modulation Type: 802.11g, CH06





ANT B

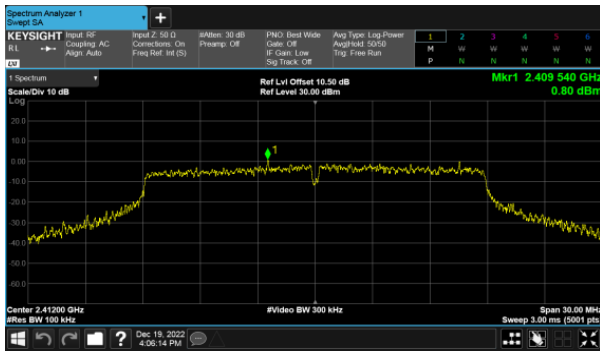
Modulation Type: 802.11g, CH11



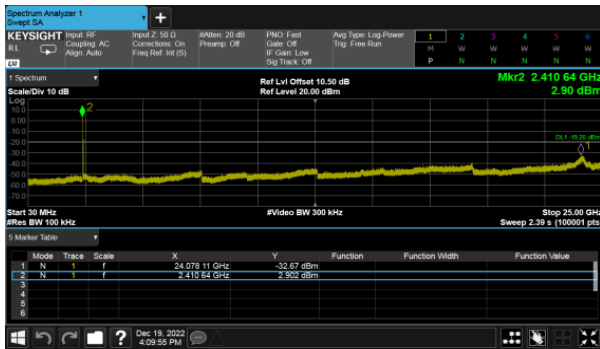
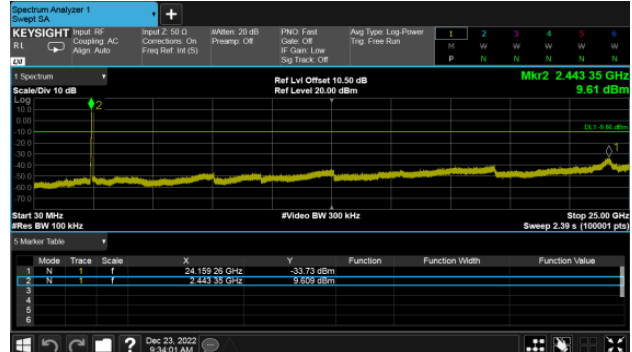
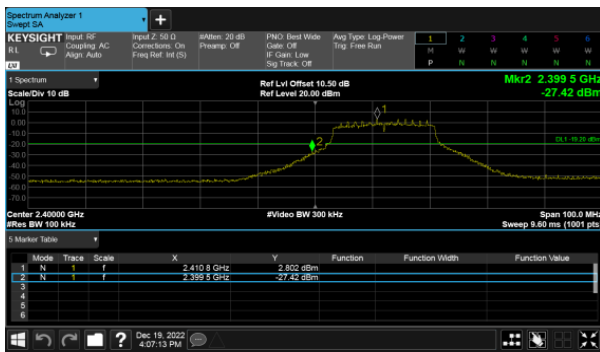
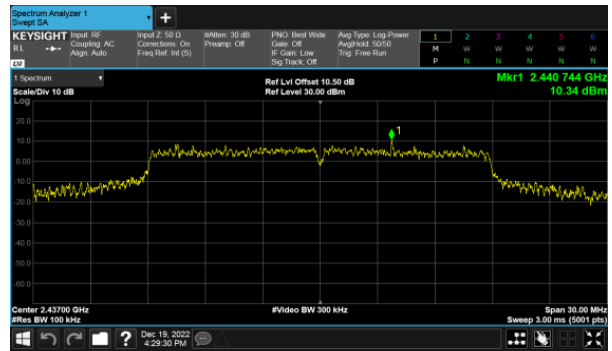


ANT A

Modulation Type: 802.11n HT20, CH01

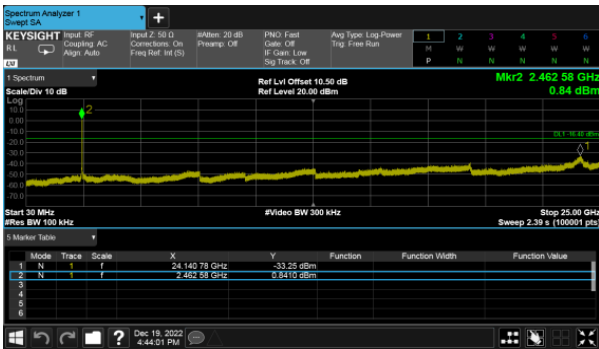
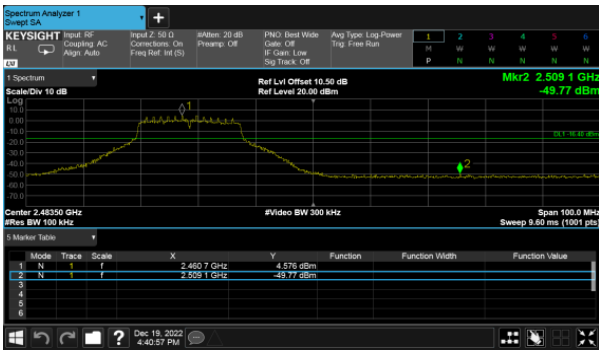
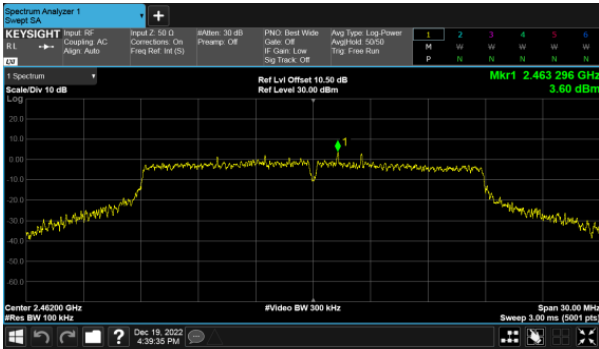


Modulation Type: 802.11n HT20, CH06





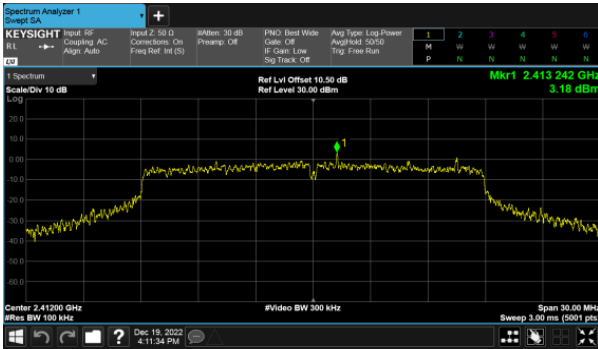
Modulation Type: 802.11n HT20, CH11



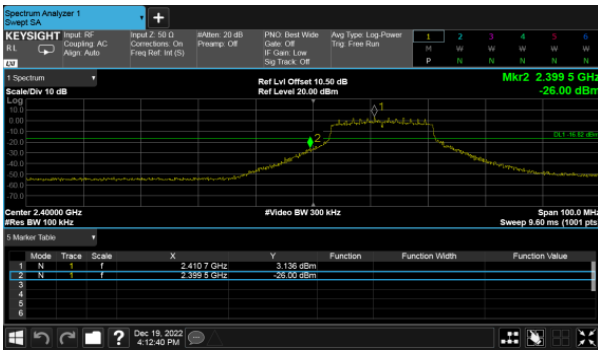
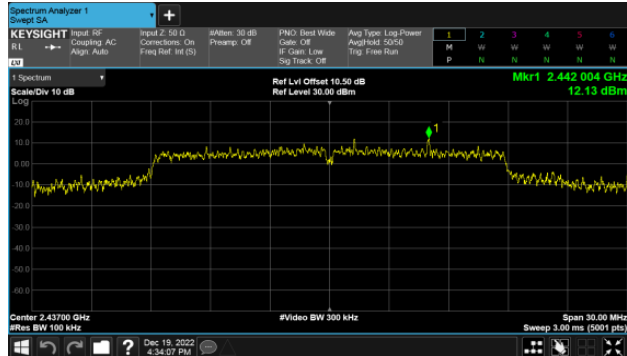


ANT B

Modulation Type: 802.11n HT20, CH01

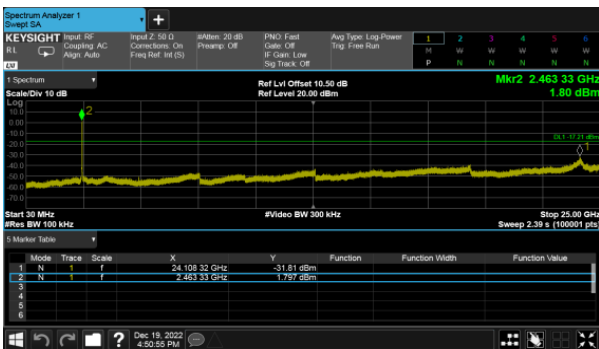
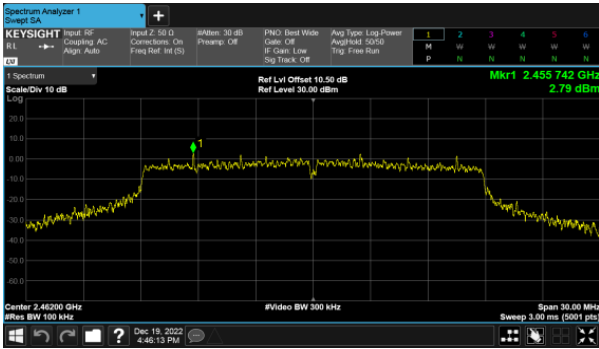


Modulation Type: 802.11n HT20, CH06





Modulation Type: 802.11n HT20, CH11





8. On Time, Duty Cycle and Measurement methods

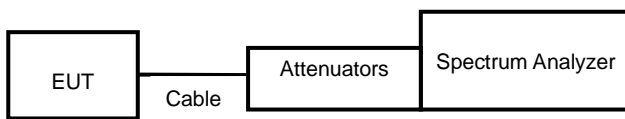
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.6
Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout

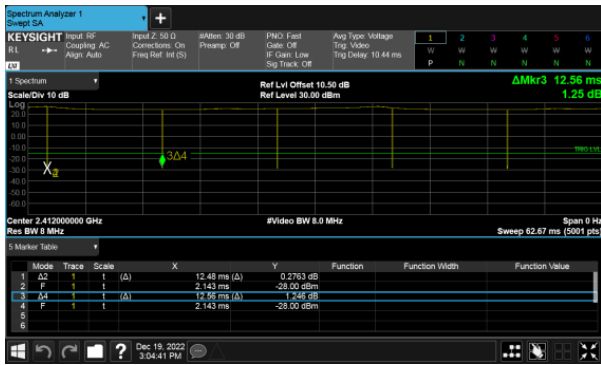


8.4 Test Result and Data

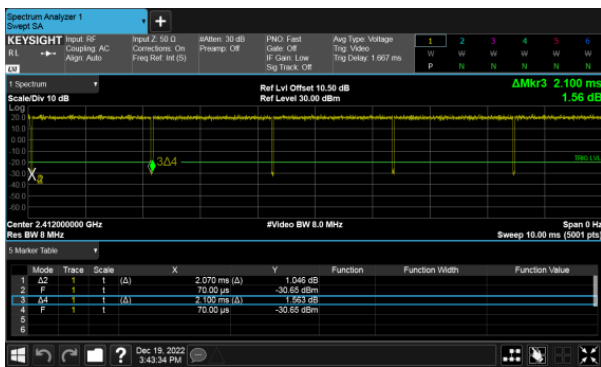
Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11b	12.48	12.56	99.36%
802.11g	2.07	2.10	98.57%
802.11n HT20	1.93	1.96	98.37%



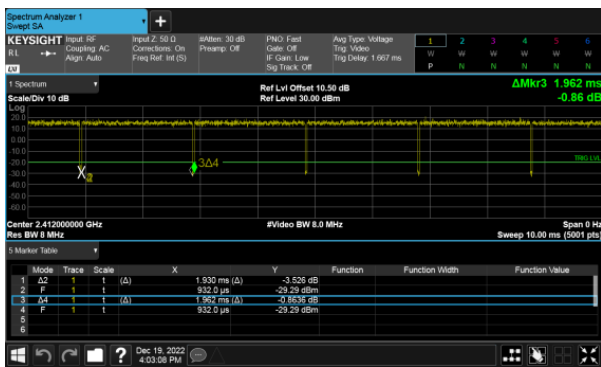
Modulation Type: 802.11b(1Mbps)



Modulation Type: 802.11g(6Mbps)



Modulation Type: 802.11n HT20(6.5Mbps)





9. 6dB Bandwidth Measurement Data

9.1 Test Limit

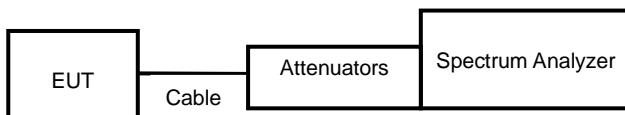
The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.8

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
- c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- d. The 6dB Bandwidth was measured and recorded.

9.3 Test Setup Layout



9.4 Test Result and Data

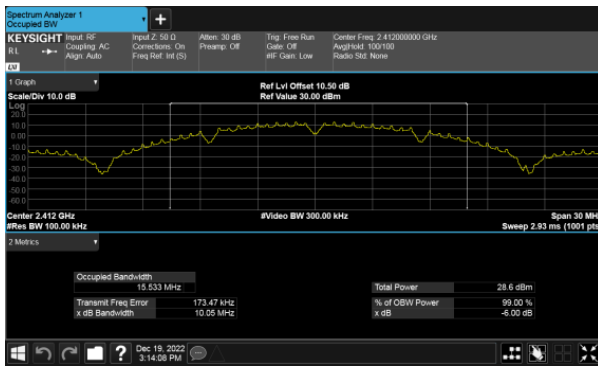
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (MHz)
			ANT B		
11b	01	2412	10.05		0.5
	06	2437	10.08		0.5
	11	2462	10.07		0.5
11g	01	2412	15.16		0.5
	06	2437	16.32		0.5
	11	2462	15.19		0.5

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (MHz)
			ANT A	ANT B	
11n HT20	01	2412	15.72	15.17	0.5
	06	2437	17.26	17.19	0.5
	11	2462	15.98	15.99	0.5

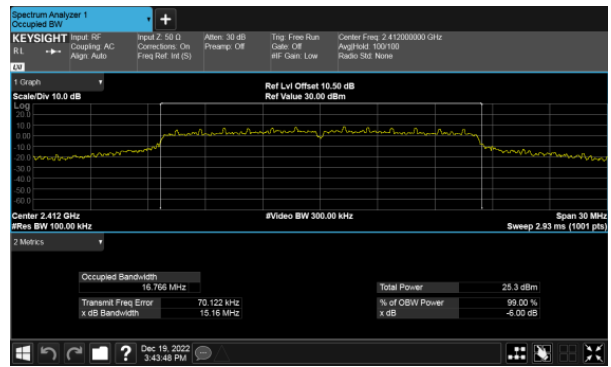


ANT B

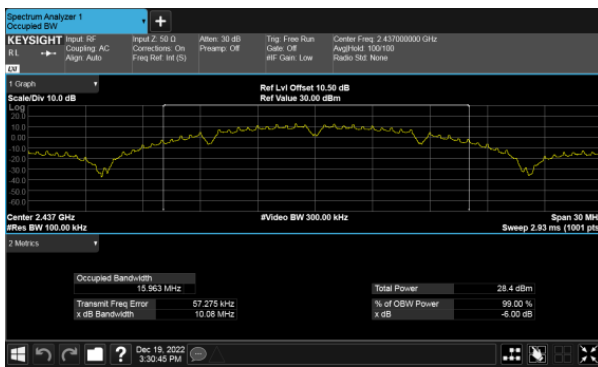
Modulation Type: 802.11b
CH01



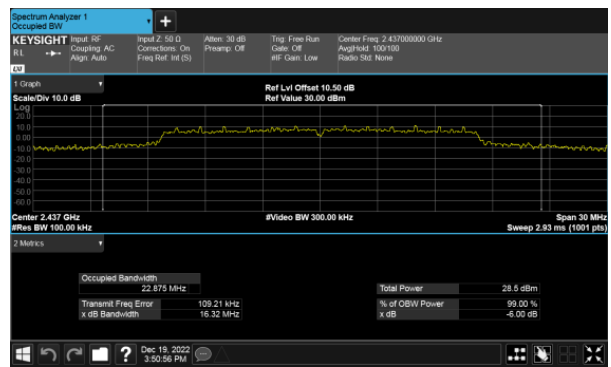
Modulation Type: 802.11g
CH01



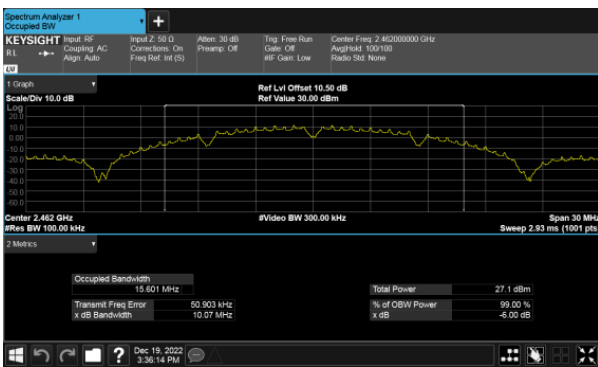
CH06



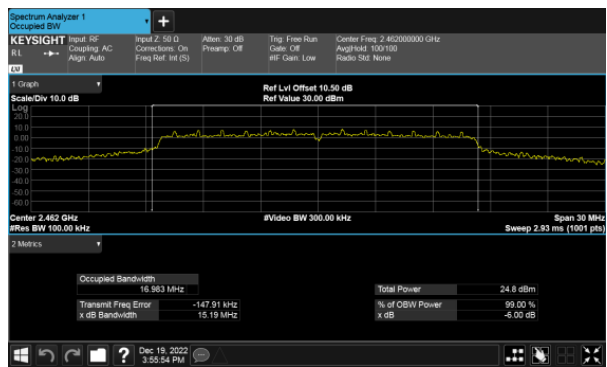
CH06



CH11



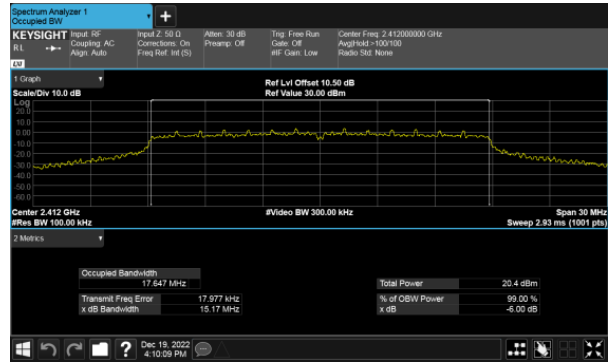
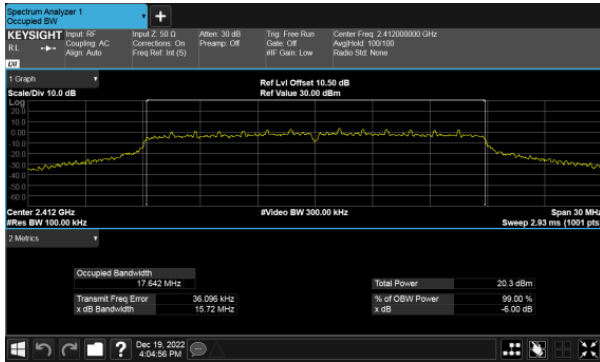
CH11





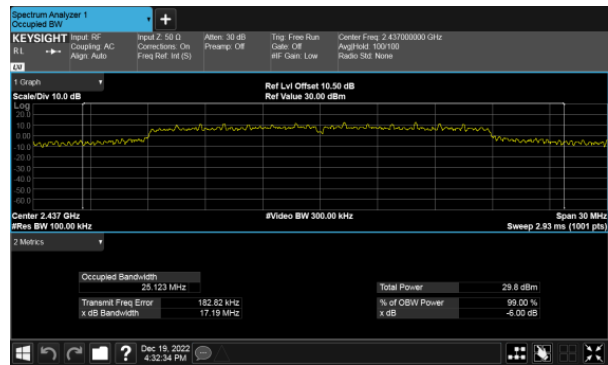
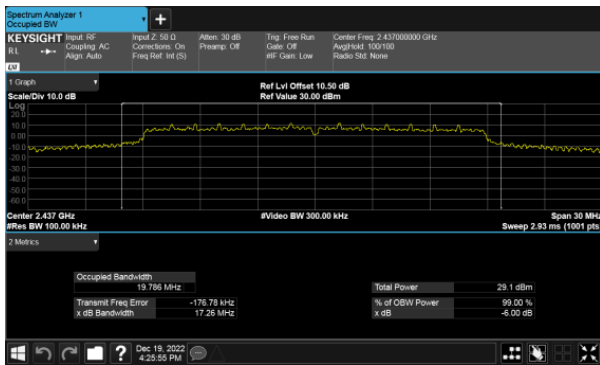
ANT A
Modulation Type: 802.11n HT20
CH01

ANTB
Modulation Type: 802.11n HT20
CH01



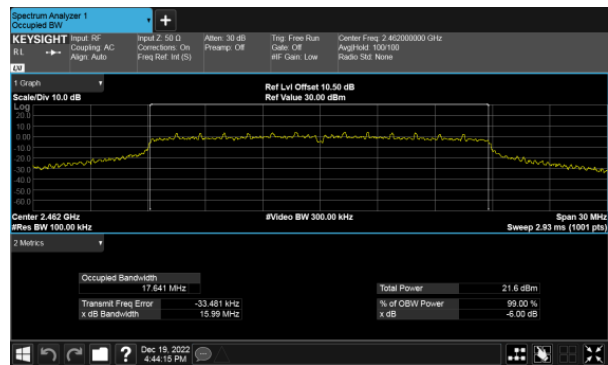
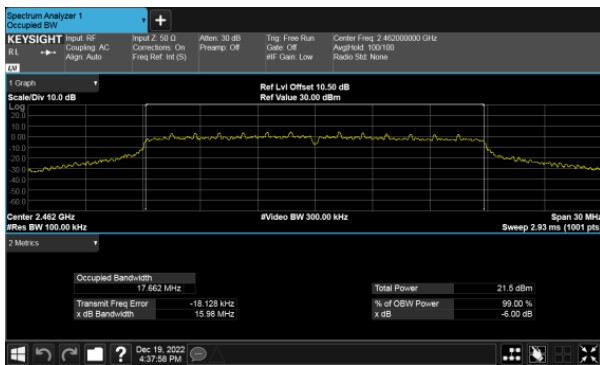
CH06

CH06



CH11

CH11





10. Maximum Peak and Average Output Power

10.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

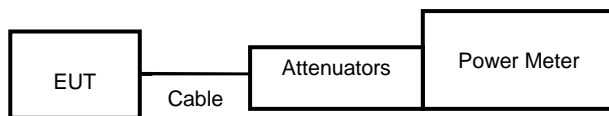
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

10.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.9.2.3.2

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

10.3 Test Setup Layout





10.4 Test Result and Data

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)		Total PK power (dBm)	Total PK power (mW)	Powe Limit (dBm)
				ANT B				
21	11b	1	2412	23.26		23.26	211.836	30.00
21.5		6	2437	23.09		23.09	203.704	30.00
19.5		11	2462	21.85		21.85	153.109	30.00
18.5	11g	1	2412	21.74		21.74	149.279	30.00
22.5		6	2437	23.58		23.58	228.034	30.00
17.5		11	2462	20.74		20.74	118.577	30.00

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)		Total PK power (dBm)	Total PK power (mW)	Powe Limit (dBm)
				ANT A	ANT B			
13	11n HT20	1	2412	17.70	17.56	20.64	115.901	30.00
22.5		6	2437	24.28	24.32	27.31	538.313	30.00
14.5		11	2462	18.69	18.64	21.68	147.074	30.00

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)		Total AV power (dBm)	Total AV power (mW)	Powe Limit (dBm)
				ANT B				
21	11b	1	2412	21.49		21.49	140.929	NA
21.5		6	2437	21.53		21.53	142.233	NA
19.5		11	2462	20.01		20.01	100.231	NA
18.5	11g	1	2412	17.81		17.81	60.395	NA
22.5		6	2437	21.89		21.89	154.525	NA
17.5		11	2462	17.27		17.27	53.333	NA

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)		Total AV power (dBm)	Total AV power (mW)	Powe Limit (dBm)
				ANT A	ANT B			
13	11n HT20	1	2412	13.06	12.90	15.99	39.729	NA
22.5		6	2437	21.47	21.91	24.71	295.520	NA
14.5		11	2462	14.02	14.16	17.10	51.296	NA

Note: Average power is for reference only.



11. Power Spectral Density

11.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

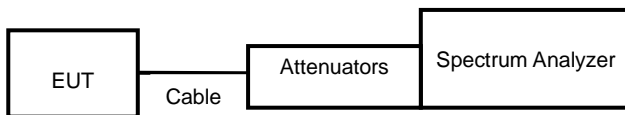
If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

11.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.10

- a. The transmitter output was connected to spectrum analyzer.
- b. The spectrum analyzer's resolution bandwidth were set at 3kHz RBW and 10KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
- c. The power spectral density was measured and recorded.

11.3 Test Setup Layout





11.4 Test Result and Data

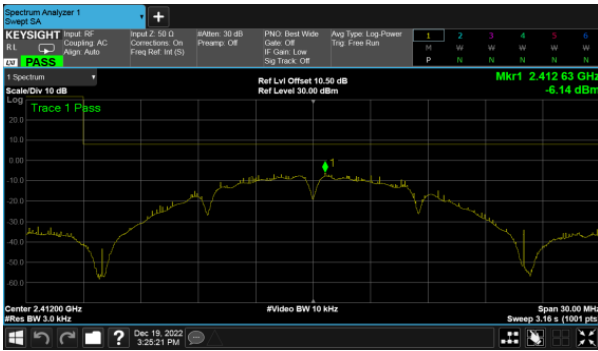
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)		Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT B					
11b	1	2412	-6.14		-6.14	0.00	-6.14	8.00
	6	2437	-4.61		-4.61	0.00	-4.61	8.00
	11	2462	-5.75		-5.75	0.00	-5.75	8.00
11g	1	2412	-9.62		-9.62	0.00	-9.62	8.00
	6	2437	-6.47		-6.47	0.00	-6.47	8.00
	11	2462	-9.56		-9.56	0.00	-9.56	8.00

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)		Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT A	ANT B				
11n HT20	1	2412	-14.48	-13.81	-11.12	0.00	-11.12	8.00
	6	2437	-4.7	-4.56	-1.62	0.00	-1.62	8.00
	11	2462	-13.11	-11.48	-9.21	0.00	-9.21	8.00

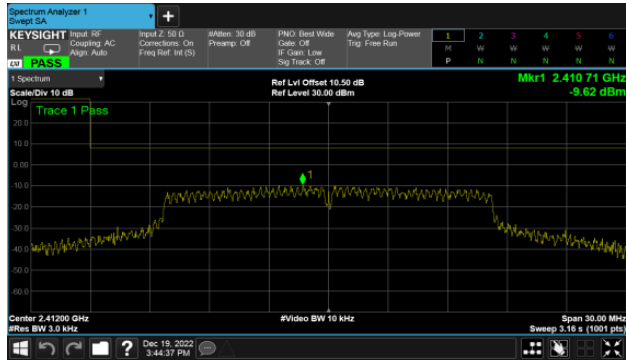


ANT B

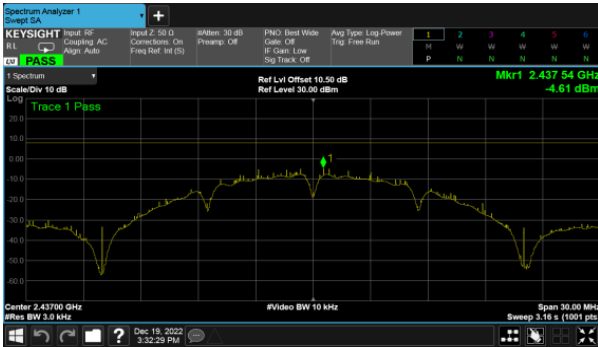
Modulation Type: 802.11b
CH01



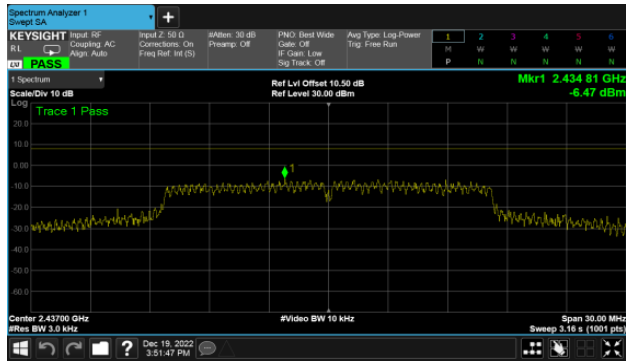
Modulation Type: 802.11g
CH01



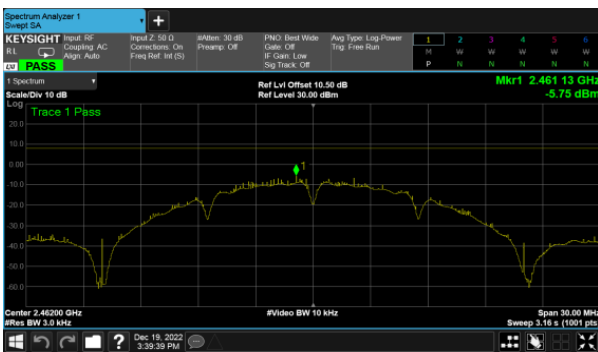
CH06



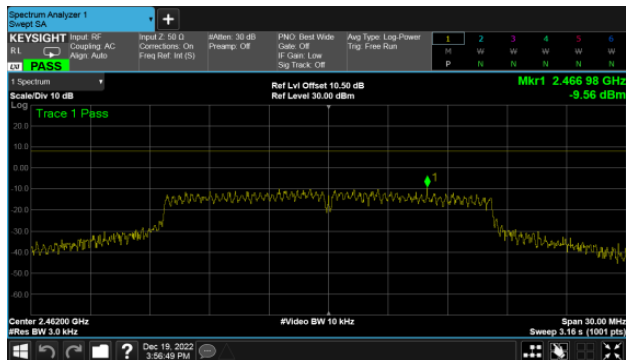
CH06



CH11



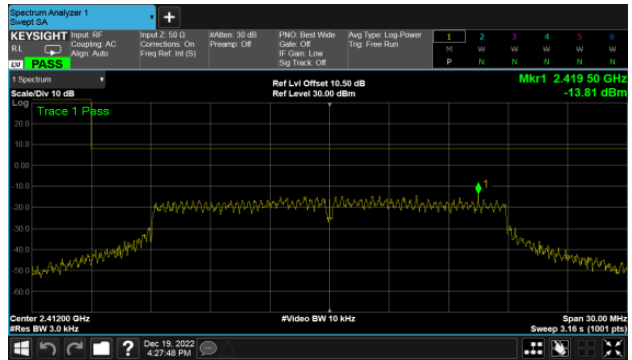
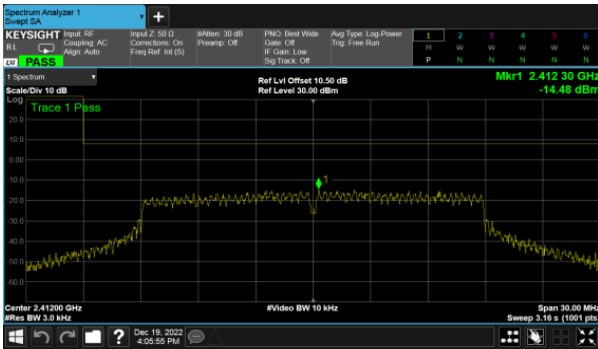
CH11





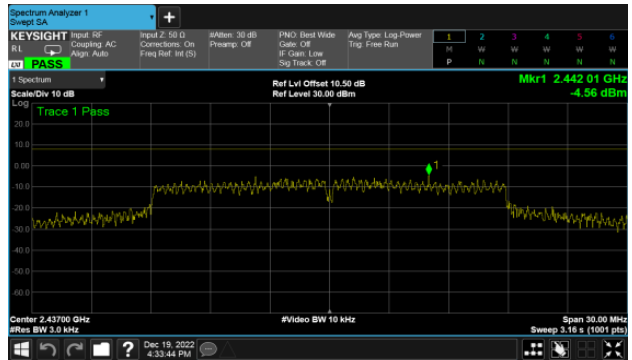
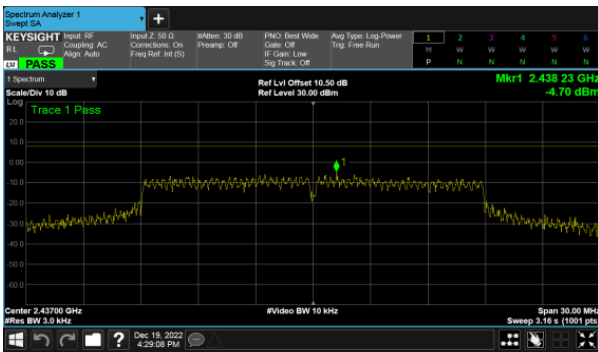
ANT A
Modulation Type: 802.11n HT20
CH01

ANT B
Modulation Type: 802.11n HT20
CH01



CH06

CH06



CH11

CH11

