



FCC RADIO TEST REPORT

Applicant : Frontiir Pte (with Frontiir Co LTD, Myanmar)
Address : 809 Yakima Drive, Fremont, California 94539,
United States
Equipment : 802.11ac 2x2 dual-band AP
Model No. : LCA-C
Trade Name : FRONTiir
FCC ID. : 2AQLFLCC

I HEREBY CERTIFY THAT :

The sample was received on Feb. 14, 2020 and the testing was completed on Mar. 17, 2020 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:

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





Contents

1. Summary of Test Procedure and Test Results.....	5
1.1 Applicable Standards	5
2. Test Configuration of Equipment under Test.....	6
2.1 Feature of Equipment.....	6
2.2 Carrier Frequency of Channels.....	7
2.3 Test Mode and Test Software	8
2.4 Description of Test System.....	9
2.5 General Information of Test.....	10
2.6 Measurement Uncertainty	10
3. Test Equipment and Ancillaries Used for Tests	11
4. Antenna Requirements.....	13
4.1 Antenna Construction and Directional Gain.....	13
5. Test of AC Power Line Conducted Emission	14
5.1 Test Limit	14
5.2 Test Procedures	14
5.3 Typical Test Setup	15
5.4 Test Result and Data.....	16
5.5 Test Photographs	20
6. Test of Radiated Spurious Emission.....	22
6.1 Test Limit	22
6.2 Test Procedures	22
6.3 Typical Test Setup	23
6.4 Test Result and Data (9KHz ~ 30MHz)	24
6.5 Test Result and Data (30MHz ~ 1GHz).....	24
6.6 Test Result and Data (1GHz ~ 25GHz).....	28
6.7 Restricted Bands of Operation	52
6.8 Test Photographs (30MHz ~ 1GHz)	53
6.9 Test Photographs (1GHz ~ 25GHz)	55
7. Test of Conducted Spurious Emission	56
7.1 Test Limit	56
7.2 Test Procedure	56
7.3 Test Setup Layout	56
7.4 Test Result and Data.....	56
8. On Time, Duty Cycle and Measurement methods	73
8.1 Test Limit	73
8.2 Test Procedure	73
8.3 Test Setup Layout	73
8.4 Test Result and Data.....	73
9. 6dB Bandwidth Measurement Data	75
9.1 Test Limit	75
9.2 Test Procedures	75
9.3 Test Setup Layout	75



9.4	Test Result and Data	75
10.	Maximum Peak and Average Output Power	80
10.1	Test Limit	80
10.2	Test Procedures	80
10.3	Test Setup Layout	80
10.4	Test Result and Data	81
11.	Power Spectral Density	82
11.1	Test Limit	82
11.2	Test Procedures	82
11.3	Test Setup Layout	82
11.4	Test Result and Data	82
12.	Radio Frequency Exposure	87
12.1	Applicable Standards	87
12.2	EUT Specification	87
12.3	Test Results	88
12.4	Calculation	88
12.5	Maximum Permissible Exposure	89



History of this test report

Report No.	Issue Date	Description
TEF12002077	Mar. 24, 2020	Original



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 lowered the uncertainty risk of test equipment, environment, and staff technicians according to ISO-IEC17025. Therefore we define test result as compliant when it complies with the standard without further evaluation of test result uncertainty.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(TEFD2002077).



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment

Frequency Range	802.11b/g/n: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5725-5850MHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g/n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM
Data Rate	WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	Internal Antenna
Antenna Gain	2400-2483.5MHz: ANT A: 4.6dBi, ANT B: 5.3dBi 5150-5250MHz: ANT A: 4.5dBi, ANT B: 4.7dBi 5725-5850MHz: ANT A: 4.5dBi, ANT B: 4.7dBi

Note:

- 1.For more details, please refer to the User's manual of the EUT.
- 2.MIMO operational in 5GHz and 2.4GHz.



2.2 Carrier Frequency of Channels

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

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

802.11n HT40 (2422MHz~2452MHz)

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

Note: Channels remarked * are selected to perform test.



2.3 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
- An executive program, "ART2-GUI ver.2.3" under Windows OS system was executed to transmit and receive data via WLAN.
- 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) , Power from Adapter
2	802.11g (6Mbps) , Power from Adapter
3	802.11nHT20 (6.5Mbps) , Power from Adapter
4	802.11nHT40 (13.5Mbps) , Power from Adapter
5	802.11b (1Mbps) , Power from PoE
6	802.11g (6Mbps) , Power from PoE
7	802.11nHT20 (6.5Mbps) , Power from PoE
8	802.11nHT40 (13.5Mbps) , Power from PoE
caused "Test Mode 3, 7" generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps) , Power from Adapter
2	802.11g (6Mbps) , Power from Adapter
3	802.11nHT20 (6.5Mbps) , Power from Adapter
4	802.11nHT40 (13.5Mbps) , Power from Adapter
5	802.11b (1Mbps) , Power from PoE
6	802.11g (6Mbps) , Power from PoE
7	802.11nHT20 (6.5Mbps) , Power from PoE
8	802.11nHT40 (13.5Mbps) , Power from PoE
caused "Test Mode 3, 7" generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps)
2	802.11g (6Mbps)
3	802.11nHT20 (6.5Mbps)
4	802.11nHT40 (13.5Mbps)
caused "Test Mode 1~4" generated the worst case, they were reported as the final data.	

**2.4 Description of Test System**

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	Vostro 3560	N/A	Adapter / 1.8m / NS
Adapter	APD	WA-36A12U	1.5m / NS	N/A
RJ45 Cable	N/A	N/A	1.2m / NS	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Adapter	APD	WA-36A12U	1.5m / NS	N/A
POE	Gospower	G0720-240-100	N/A	N/A
RJ45 Cable	N/A	N/A	1.2m / 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
Adapter	APD	WA-36A12U	1.5m / NS	N/A
POE	Gospower	G0720-240-100	N/A	N/A
RJ45 Cable	N/A	N/A	1.2m / NS	N/A
RJ45 Cable	N/A	N/A	1.2m / 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	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	Finish Date	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2020/03/14	22°C / 60%	Nick Guan
Radiated Emissions	3M02-NK	2020/03/17	22°C / 48%	Vic Yeh
AC Power Line Conducted Emission	CON01-NK	2020/02/29	22°C / 49%	Leon Huang

2.6 Measurement Uncertainty

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±1.60dB
Radiated Spurious Emission(9KHz~30MHz)	±3.405dB
Radiated Spurious Emission(30MHz~1GHz)	±5.326dB
Radiated Spurious Emission(1GHz~25GHz)	±5.918dB
Conducted Spurious Emission	±2.156dB
6dB Bandwidth	±4.401%
20dB Bandwidth	±4.40%
Occupied Bandwidth	±4.41%
Peak Output Power(Conducted Power Meter)	±1.31dB
Dwell Time	±0.11%
Power Spectral Density	±2.146dB
Duty Cycle	±0.17%



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	275	2019/09/24	2020/09/23
Bilog Antenna	Schwarzbeck	VULB9168	369	2019/03/29	2020/03/28
Active Loop Antenna	EMCO	6507	40855	2019/05/24	2020/05/23
Horn Antenna	EMCO	3115	31589	2019/04/01	2020/03/31
Horn Antenna	EMCO	3116	31974	2019/09/17	2020/09/16
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2019/05/14	2020/05/13
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2019/07/22	2020/07/21
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2019/08/02	2020/08/01
Preamplifier	EM Electronics corp.	EM330	60660	2020/03/16	2021/03/15
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2019/09/20	2020/09/19
Preamplifier	Agilent	8449B	3008A01954	2020/03/16	2021/03/15
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2019/11/07	2020/11/06
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2019/04/09	2020/04/08
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1316	2019/09/20	2020/09/19
Cable-0.5m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805443/4	2019/05/20	2020/05/19
Cable-3m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805796/4	2019/05/20	2020/05/19
Cable-8m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805795/4	2019/05/20	2020/05/19
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
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2019/03/28	2020/03/27
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2019/08/02	2020/08/01
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Attenuator	KEYSIGHT	8491B	MY39250703	2019/09/12	2020/09/11
TEMP & HUMI CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2019/08/28	2020/08/27
Power Meter	Anritsu	ML2495A	1224005	2019/04/11	2020/04/10
Power Sensor	Anritsu	MA2411B	1207295	2019/04/09	2020/04/08



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	100821	2019/09/16	2020/09/15
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-568	2019/03/15	2020/03/14
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101934	2019/03/12	2020/03/11
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2019/03/14	2020/03/13
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



4. Antenna Requirements

4.1 Antenna Construction and Directional Gain

Antenna Type	Internal Antenna
Antenna Gain	2.4GHz: ANT A: 4.6 dBi ; ANT B: 5.3 dBi 5150MHz-5250MHz: ANT A: 4.5 dBi ; ANT B: 4.7 dBi 5725MHz-5850MHz: ANT A: 4.5 dBi ; ANT B: 4.7 dBi

2412-2462MHz
For Power directional gain= $G_{ant}= 5.30$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 7.97 (dBi)
5150MHz -5250MHz
For Power directional gain= $G_{ant}= 4.70$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 7.61 (dBi)
5725MHz -5850MHz
For Power directional gain= $G_{ant}= 4.70$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 7.61 (dBi)



5. Test of AC Power Line Conducted Emission

5.1 Test Limit

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

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

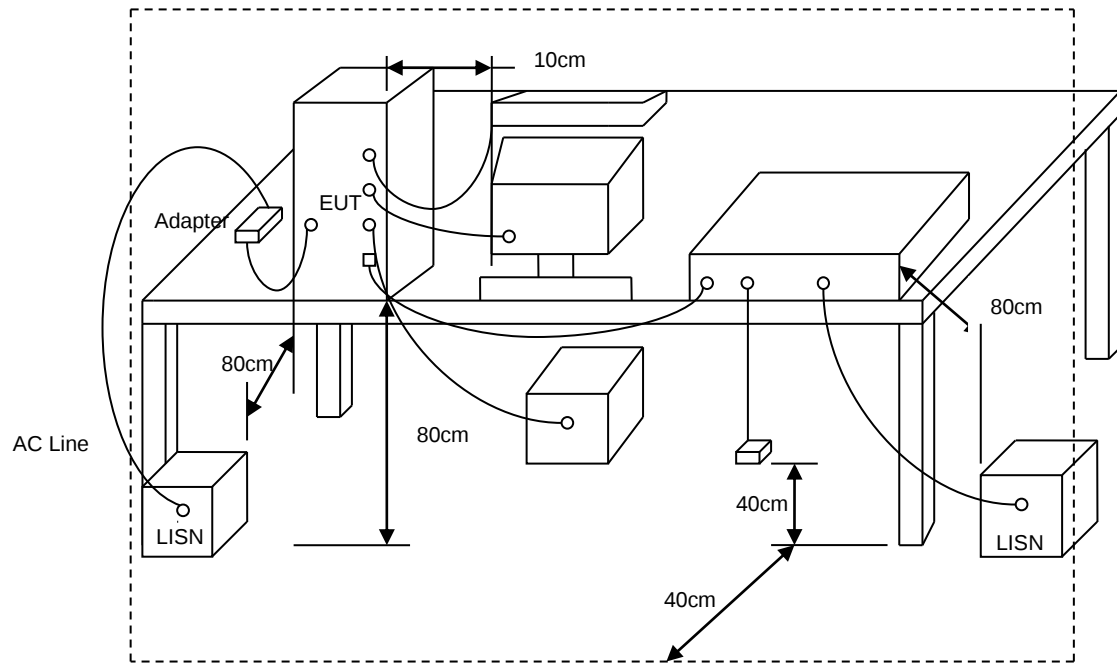
*Decreases with the logarithm of the frequency.

5.2 Test Procedures

- 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.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



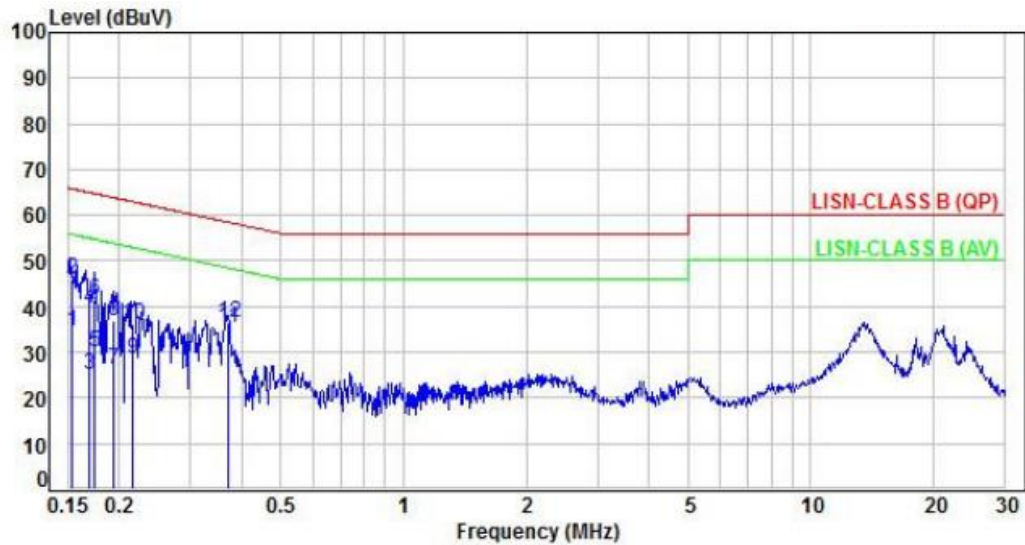
5.3 Typical Test Setup





5.4 Test Result and Data

Power	: AC 120V / 60Hz	Pol/Phase	: LINE
Test Mode	: Mode 3, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.15	9.92	24.54	34.46	55.82	-21.36	Average	P
2	0.15	9.92	36.09	46.01	65.82	-19.81	QP	P
3	0.17	9.92	15.25	25.17	54.98	-29.81	Average	P
4	0.17	9.92	29.72	39.64	64.98	-25.34	QP	P
5	0.17	9.92	19.93	29.85	54.79	-24.94	Average	P
6	0.17	9.92	31.58	41.50	64.79	-23.29	QP	P
7	0.19	9.92	16.35	26.27	53.89	-27.62	Average	P
8	0.19	9.92	26.98	36.90	63.89	-26.99	QP	P
9	0.22	9.92	18.55	28.47	52.92	-24.45	Average	P
10	0.22	9.92	26.13	36.05	62.92	-26.87	QP	P
11	0.37	9.94	25.53	35.47	48.49	-13.02	Average	P
12	0.37	9.94	26.70	36.64	58.49	-21.85	QP	P

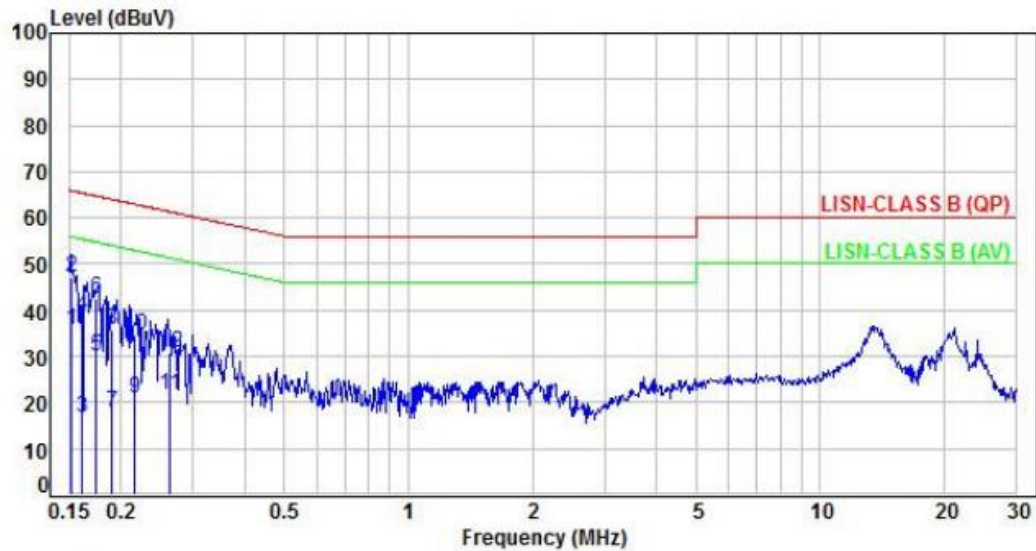
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: AC 120V / 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: Mode 3, CH06		:

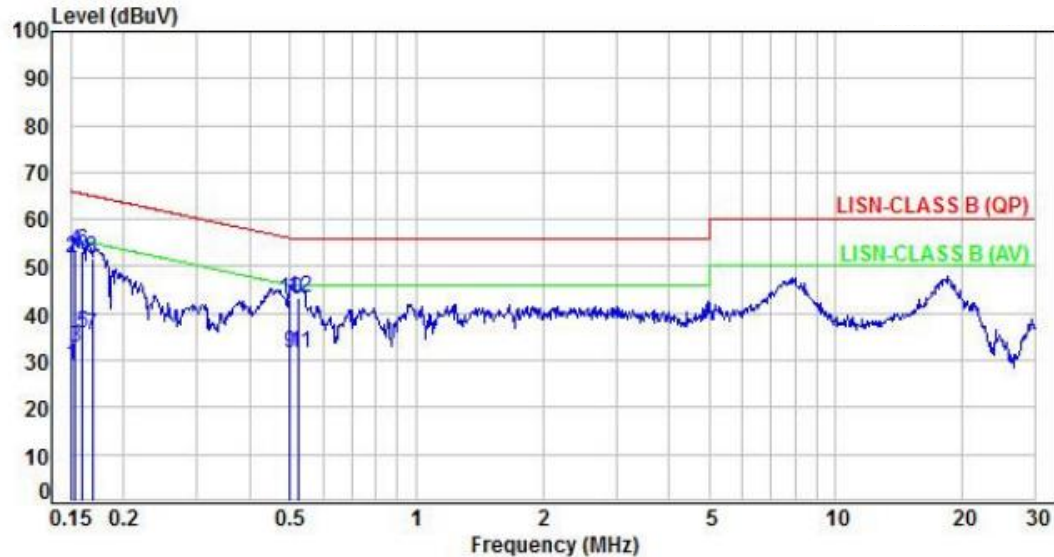


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.95	25.88	35.83	55.88	-20.05	Average	P
2	0.15	9.95	37.23	47.18	65.88	-18.70	QP	P
3	0.16	9.95	6.74	16.69	55.40	-38.71	Average	P
4	0.16	9.95	28.79	38.74	65.40	-26.66	QP	P
5	0.17	9.95	19.96	29.91	54.74	-24.83	Average	P
6	0.17	9.95	32.82	42.77	64.74	-21.97	QP	P
7	0.19	9.95	7.83	17.78	54.04	-36.26	Average	P
8	0.19	9.95	25.92	35.87	64.04	-28.17	QP	P
9	0.22	9.95	10.95	20.90	52.99	-32.09	Average	P
10	0.22	9.95	24.58	34.53	62.99	-28.46	QP	P
11	0.26	9.95	11.70	21.65	51.32	-29.67	Average	P
12	0.26	9.95	20.87	30.82	61.32	-30.50	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	: LINE
Test Mode	: Mode 7, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.92	18.86	28.78	55.97	-27.19	Average	P
2	0.15	9.92	41.84	51.76	65.97	-14.21	QP	P
3	0.15	9.92	22.76	32.68	55.86	-23.18	Average	P
4	0.15	9.92	43.34	53.26	65.86	-12.60	QP	P
5	0.16	9.92	25.74	35.66	55.45	-19.79	Average	P
6	0.16	9.92	43.34	53.26	65.45	-12.19	QP	P
7	0.17	9.92	25.61	35.53	55.04	-19.51	Average	P
8	0.17	9.92	41.70	51.62	65.04	-13.42	QP	P
9	0.50	9.94	21.52	31.46	46.05	-14.59	Average	P
10	0.50	9.94	32.91	42.85	56.05	-13.20	QP	P
11	0.53	9.95	21.67	31.62	46.00	-14.38	Average	P
12	0.53	9.95	33.21	43.16	56.00	-12.84	QP	P

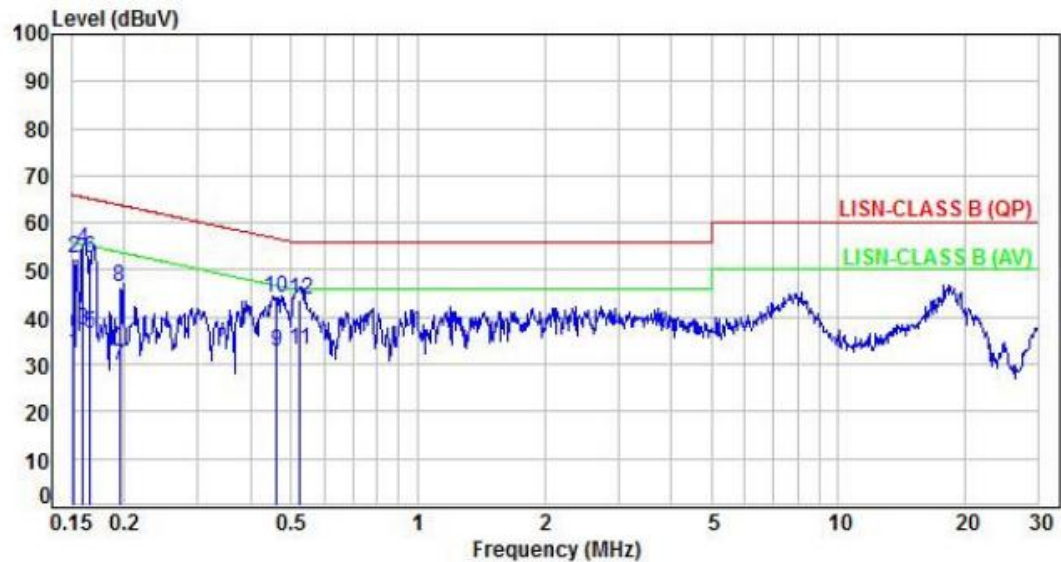
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: AC 120V / 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: Mode 7, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.95	22.36	32.31	55.88	-23.57	Average	P
2	0.15	9.95	42.40	52.35	65.88	-13.53	QP	P
3	0.16	9.95	27.32	37.27	55.53	-18.26	Average	P
4	0.16	9.95	44.43	54.38	65.53	-11.15	QP	P
5	0.17	9.95	26.40	36.35	55.19	-18.84	Average	P
6	0.17	9.95	42.60	52.55	65.19	-12.64	QP	P
7	0.20	9.95	19.67	29.62	53.82	-24.20	Average	P
8	0.20	9.95	36.57	46.52	63.82	-17.30	QP	P
9	0.46	9.96	22.88	32.84	46.72	-13.88	Average	P
10	0.46	9.96	34.13	44.09	56.72	-12.63	QP	P
11	0.52	9.96	22.94	32.90	46.00	-13.10	Average	P
12	0.52	9.96	33.94	43.90	56.00	-12.10	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

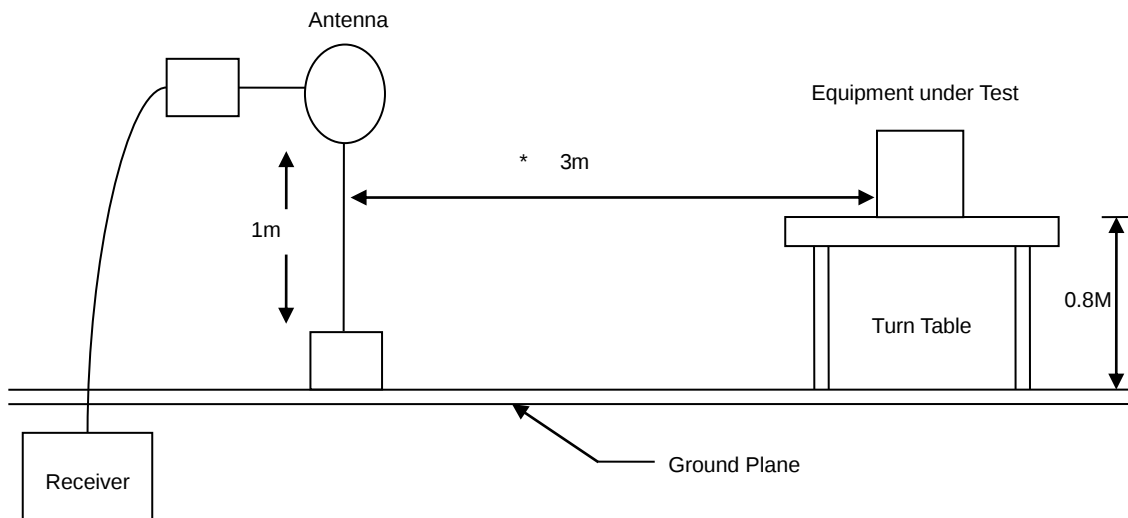
6.2 Test Procedures

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

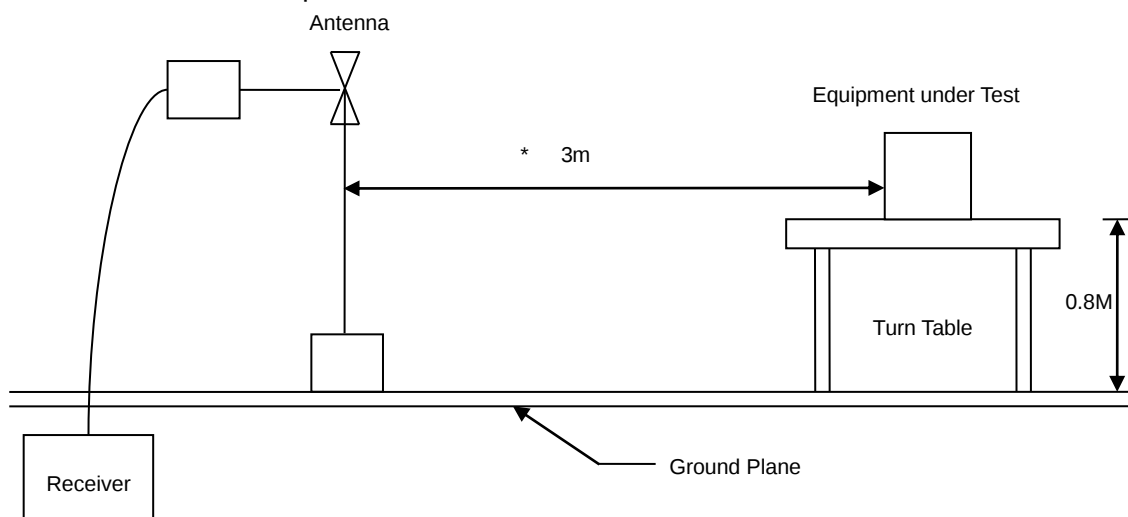


6.3 Typical Test Setup

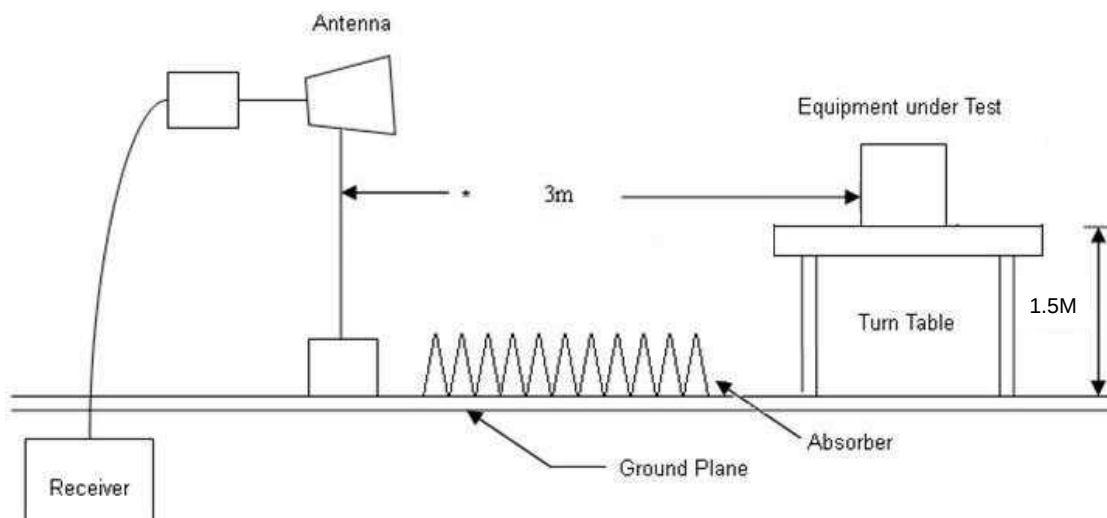
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



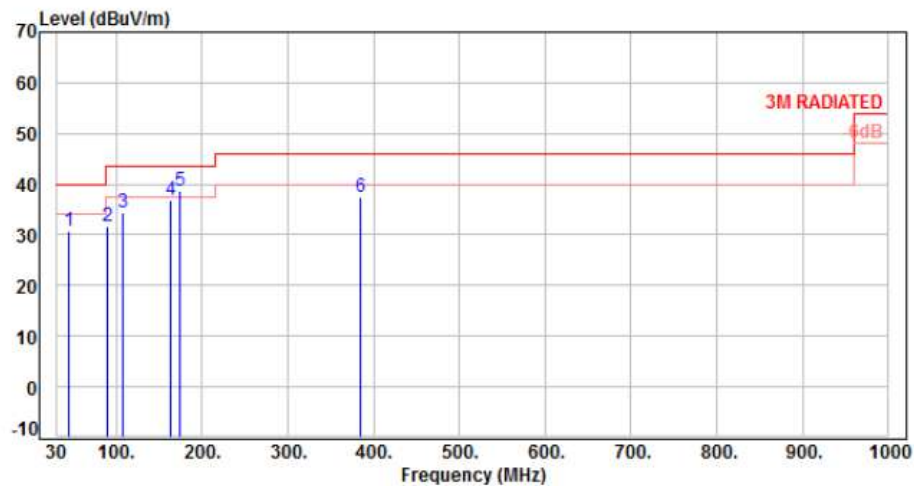


6.4 Test Result and Data (9KHz ~ 30MHz)

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

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

Power	:	AC 120V / 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	45.52	-9.33	40.19	30.86	40.00	-9.14	Peak	400	0	P
2	89.17	-15.53	47.17	31.64	43.50	-11.86	Peak	400	0	P
3	108.57	-12.65	47.17	34.52	43.50	-8.98	Peak	400	0	P
4	162.89	-9.42	46.35	36.93	43.50	-6.57	Peak	400	0	P
5	173.56	-10.10	48.88	38.78	43.50	-4.72	Peak	400	0	P
6	384.05	-6.10	43.51	37.41	46.00	-8.59	Peak	400	0	P

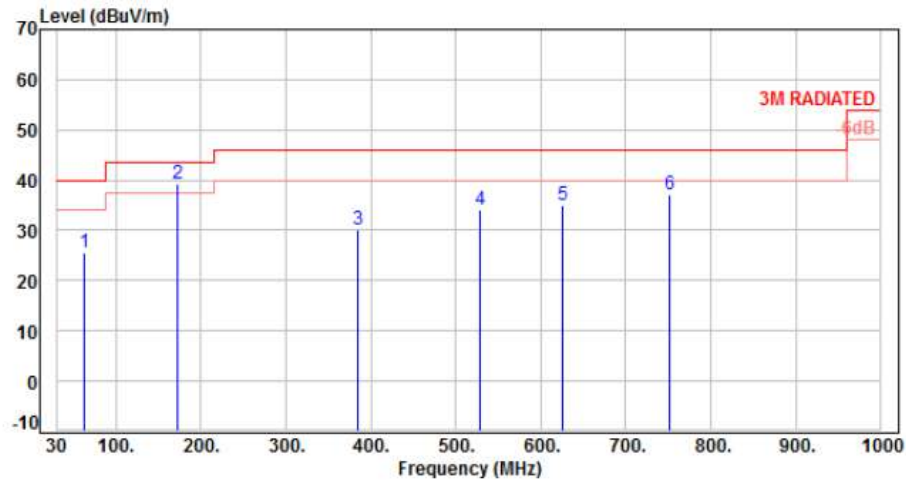
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	62.98	-10.48	35.98	25.50	40.00	-14.50	Peak	100	0	P
2	171.62	-9.90	49.15	39.25	43.50	-4.25	Peak	100	0	P
3	384.05	-6.10	36.38	30.28	46.00	-15.72	Peak	100	0	P
4	528.58	-2.89	37.10	34.21	46.00	-11.79	Peak	100	0	P
5	625.58	-0.71	35.83	35.12	46.00	-10.88	Peak	100	0	P
6	750.71	1.13	36.09	37.22	46.00	-8.78	Peak	100	0	P

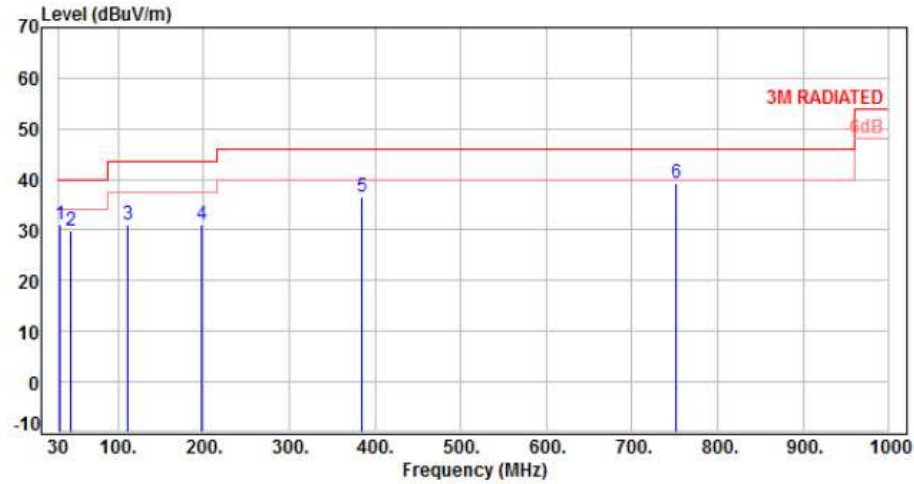
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 7, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.25	41.16	30.91	40.00	-9.09	Peak	400	0	P
2	44.55	-9.37	39.13	29.76	40.00	-10.24	Peak	400	0	P
3	111.48	-12.39	43.54	31.15	43.50	-12.35	Peak	400	0	P
4	197.81	-12.03	43.05	31.02	43.50	-12.48	Peak	400	0	P
5	384.05	-6.10	42.49	36.39	46.00	-9.61	Peak	400	0	P
6	750.71	1.13	38.19	39.32	46.00	-6.68	Peak	400	0	P

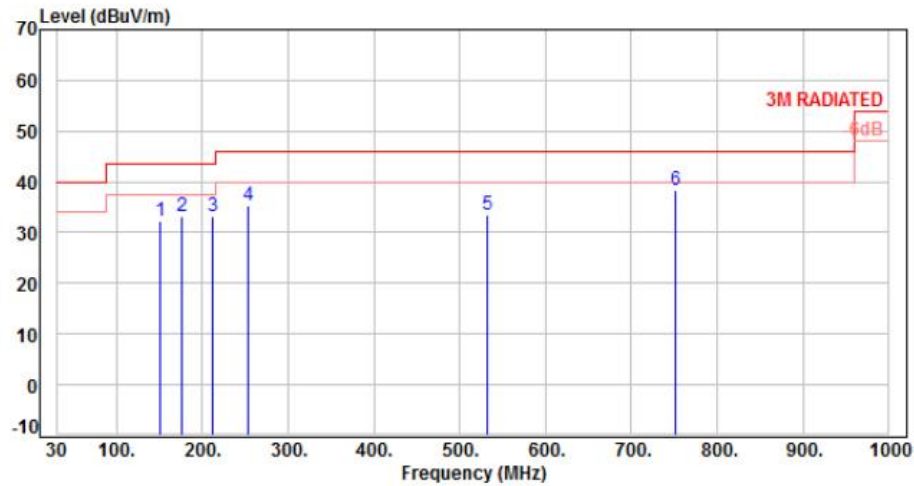
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 7, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	151.25	-9.50	41.73	32.23	43.50	-11.27	Peak	100	0	P
2	175.50	-10.29	43.48	33.19	43.50	-10.31	Peak	100	0	P
3	212.36	-12.01	45.32	33.31	43.50	-10.19	Peak	100	0	P
4	254.07	-10.20	45.52	35.32	46.00	-10.68	Peak	100	0	P
5	532.46	-2.85	36.24	33.39	46.00	-12.61	Peak	100	0	P
6	750.71	1.13	37.13	38.26	46.00	-7.74	Peak	100	0	P

Note: Level=Reading+Factor

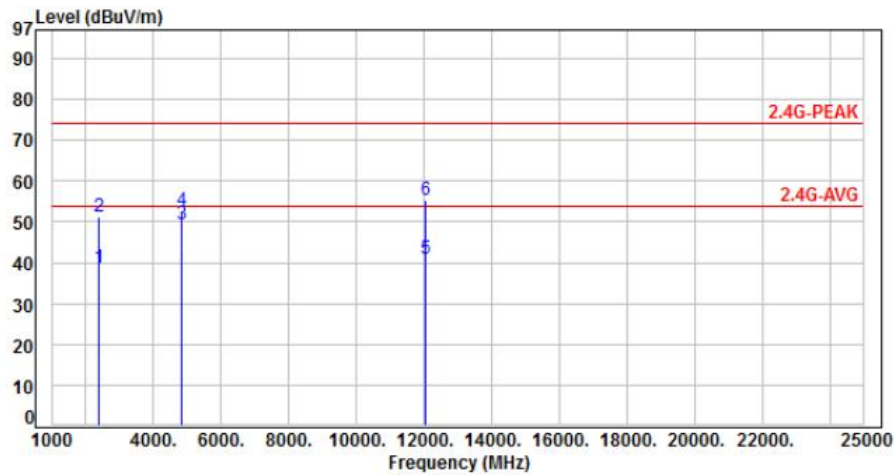
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, 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	-3.64	42.36	38.72	54.00	-15.28	Average	100	136	P
2	2390.00	-3.64	55.04	51.40	74.00	-22.60	Peak	100	136	P
3	4824.00	3.76	45.60	49.36	54.00	-4.64	Average	105	65	P
4	4824.00	3.76	49.16	52.92	74.00	-21.08	Peak	105	65	P
5	12060.00	13.45	27.48	40.93	54.00	-13.07	Average	100	181	P
6	12060.00	13.45	41.81	55.26	74.00	-18.74	Peak	100	181	P

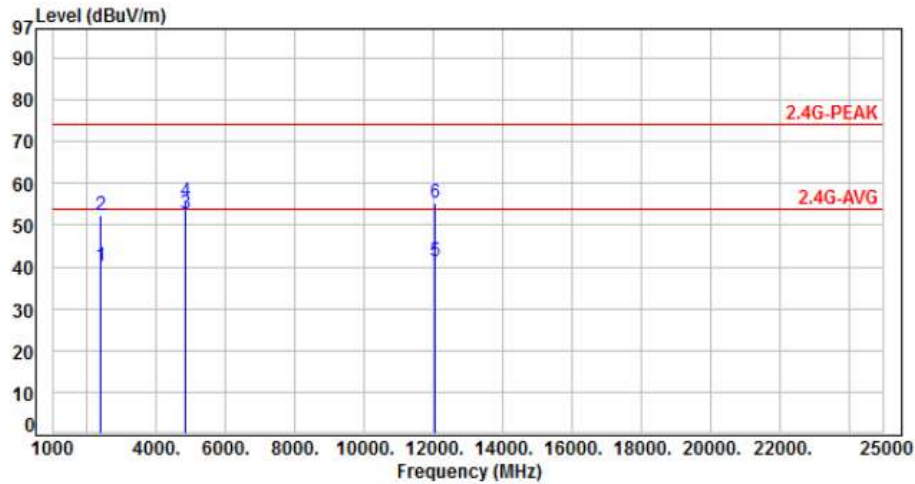
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, 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	-3.64	44.01	40.37	54.00	-13.63	Average	100	330	P
2	2390.00	-3.64	56.07	52.43	74.00	-21.57	Peak	100	330	P
3	4824.00	3.76	48.82	52.58	54.00	-1.42	Average	175	355	P
4	4824.00	3.76	51.94	55.70	74.00	-18.30	Peak	175	355	P
5	12060.00	13.45	28.00	41.45	54.00	-12.55	Average	100	171	P
6	12060.00	13.45	41.71	55.16	74.00	-18.84	Peak	100	171	P

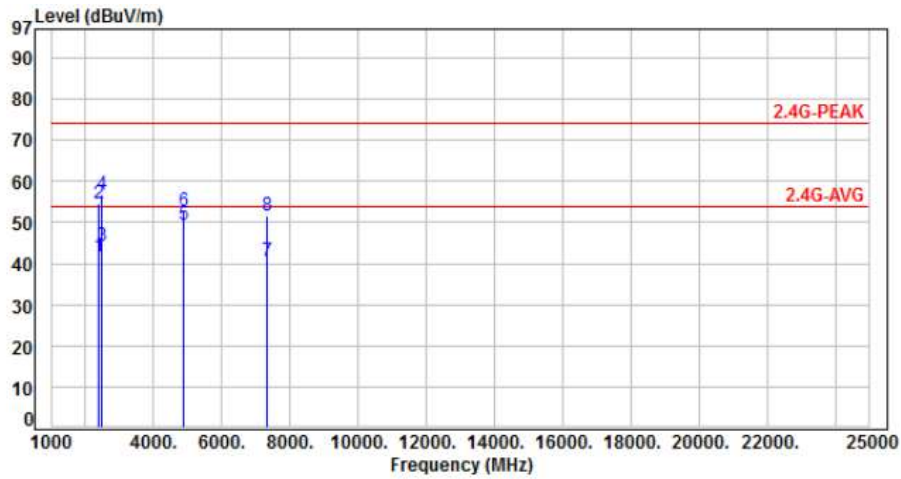
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, 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	-3.64	45.39	41.75	54.00	-12.25	Average	190	0	P
2	2390.00	-3.64	58.29	54.65	74.00	-19.35	Peak	190	0	P
3	2483.50	-3.30	47.53	44.23	54.00	-9.77	Average	140	0	P
4	2483.50	-3.30	60.27	56.97	74.00	-17.03	Peak	140	0	P
5	4874.00	3.95	45.54	49.49	54.00	-4.51	Average	100	357	P
6	4874.00	3.95	48.74	52.69	74.00	-21.31	Peak	100	357	P
7	7311.00	8.84	31.89	40.73	54.00	-13.27	Average	100	190	P
8	7311.00	8.84	42.88	51.72	74.00	-22.28	Peak	100	190	P

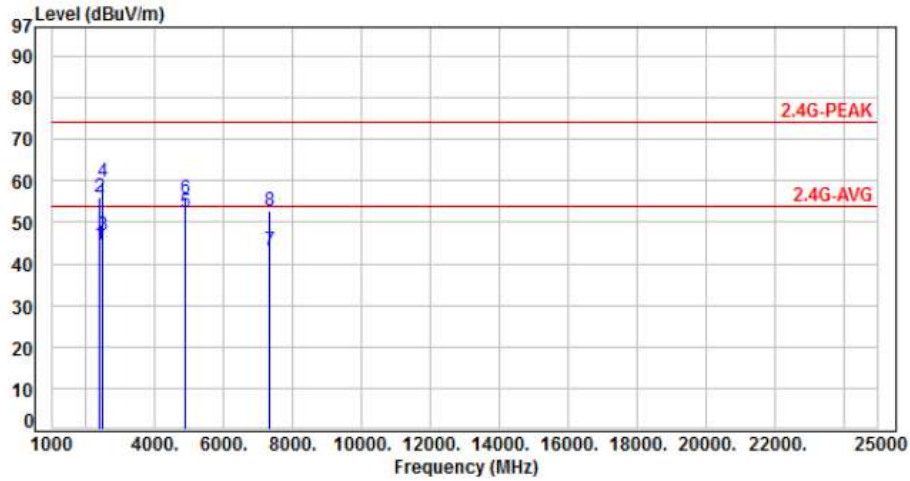
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, 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	-3.64	48.15	44.51	54.00	-9.49	Average	100	310	P
2	2390.00	-3.64	59.82	56.18	74.00	-17.82	Peak	100	310	P
3	2483.50	-3.30	50.05	46.75	54.00	-7.25	Average	100	320	P
4	2483.50	-3.30	63.15	59.85	74.00	-14.15	Peak	100	320	P
5	4874.00	3.95	48.55	52.50	54.00	-1.50	Average	195	350	P
6	4874.00	3.95	51.59	55.54	74.00	-18.46	Peak	195	350	P
7	7311.00	8.84	34.25	43.09	54.00	-10.91	Average	335	165	P
8	7311.00	8.84	43.76	52.60	74.00	-21.40	Peak	335	165	P

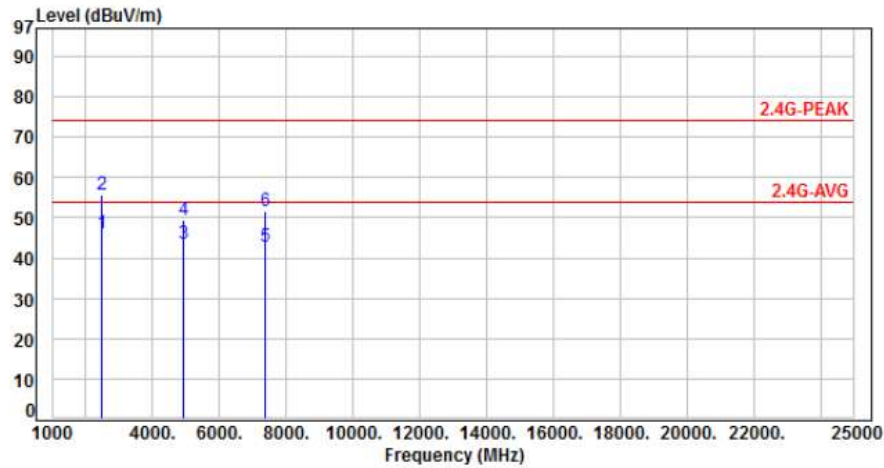
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	49.58	46.28	54.00	-7.72	Average	130	355	P
2	2483.50	-3.30	59.14	55.84	74.00	-18.16	Peak	130	355	P
3	4924.00	4.10	39.47	43.57	54.00	-10.43	Average	100	320	P
4	4924.00	4.10	45.44	49.54	74.00	-24.46	Peak	100	320	P
5	7386.00	8.94	33.84	42.78	54.00	-11.22	Average	100	353	P
6	7386.00	8.94	42.63	51.57	74.00	-22.43	Peak	100	353	P

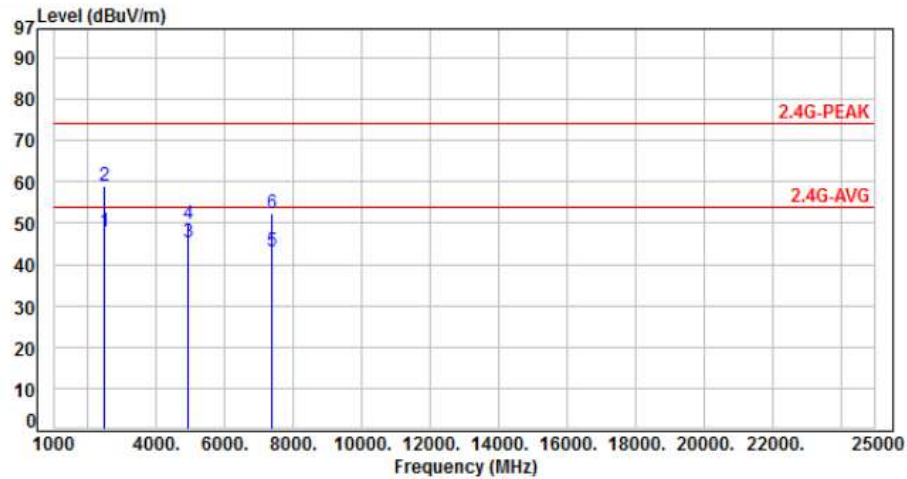
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	51.28	47.98	54.00	-6.02	Average	195	320	P
2	2483.50	-3.30	62.45	59.15	74.00	-14.85	Peak	195	320	P
3	4924.00	4.10	41.31	45.41	54.00	-8.59	Average	205	65	P
4	4924.00	4.10	45.53	49.63	74.00	-24.37	Peak	205	65	P
5	7386.00	8.94	34.10	43.04	54.00	-10.96	Average	170	165	P
6	7386.00	8.94	43.34	52.28	74.00	-21.72	Peak	170	165	P

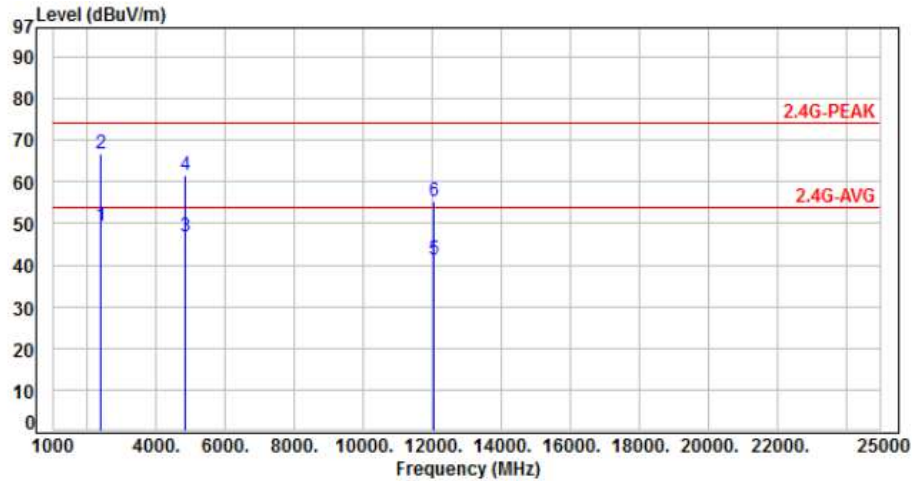
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, 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	-3.64	53.08	49.44	54.00	-4.56	Average	100	280	P
2	2390.00	-3.64	70.23	66.59	74.00	-7.41	Peak	100	280	P
3	4824.00	3.76	43.00	46.76	54.00	-7.24	Average	170	355	P
4	4824.00	3.76	57.98	61.74	74.00	-12.26	Peak	170	355	P
5	12060.00	13.45	27.77	41.22	54.00	-12.78	Average	100	177	P
6	12060.00	13.45	41.99	55.44	74.00	-18.56	Peak	100	177	P

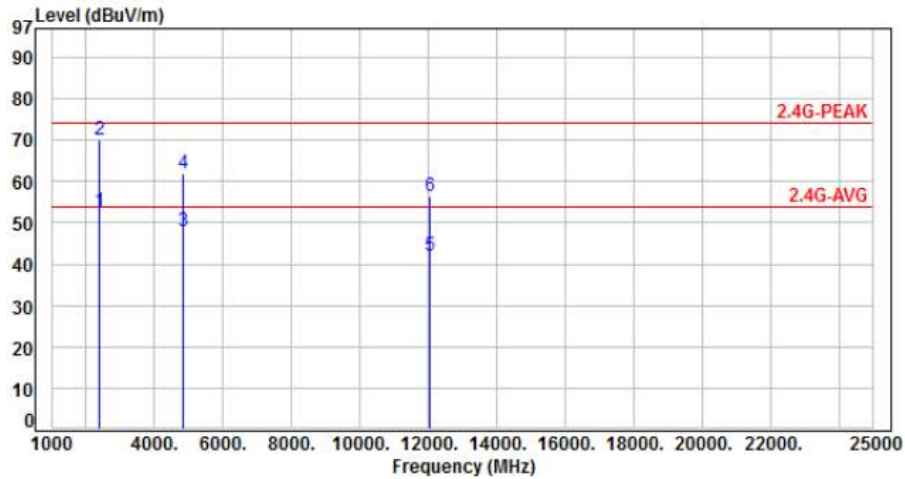
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, 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	-3.64	56.55	52.91	54.00	-1.09	Average	235	315	P
2	2390.00	-3.64	73.82	70.18	74.00	-3.82	Peak	235	315	P
3	4824.00	3.76	44.01	47.77	54.00	-6.23	Average	250	0	P
4	4824.00	3.76	58.09	61.85	74.00	-12.15	Peak	250	0	P
5	12060.00	13.45	28.67	42.12	54.00	-11.88	Average	100	192	P
6	12060.00	13.45	42.95	56.40	74.00	-17.60	Peak	100	192	P

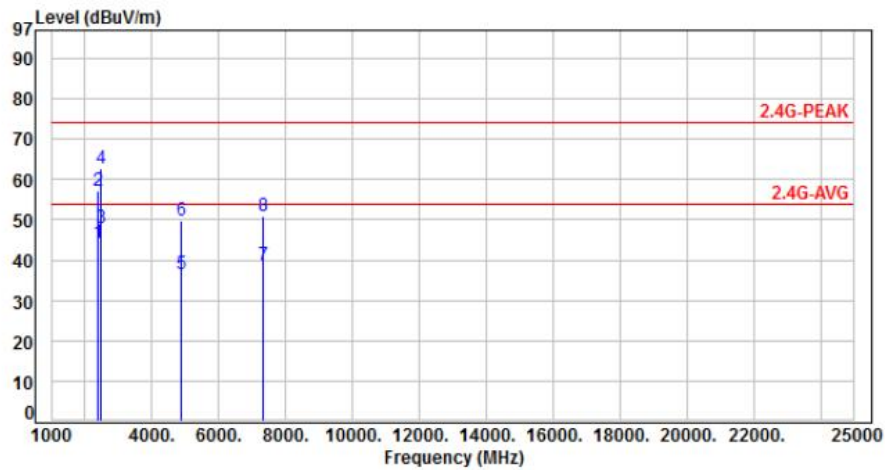
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, 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	-3.64	47.72	44.08	54.00	-9.92	Average	100	0	P
2	2390.00	-3.64	60.66	57.02	74.00	-16.98	Peak	100	0	P
3	2483.50	-3.30	51.33	48.03	54.00	-5.97	Average	150	300	P
4	2483.50	-3.30	65.99	62.69	74.00	-11.31	Peak	150	300	P
5	4874.00	3.95	32.41	36.36	54.00	-17.64	Average	100	35	P
6	4874.00	3.95	45.88	49.83	74.00	-24.17	Peak	100	35	P
7	7311.00	8.84	29.83	38.67	54.00	-15.33	Average	100	184	P
8	7311.00	8.84	42.03	50.87	74.00	-23.13	Peak	100	184	P

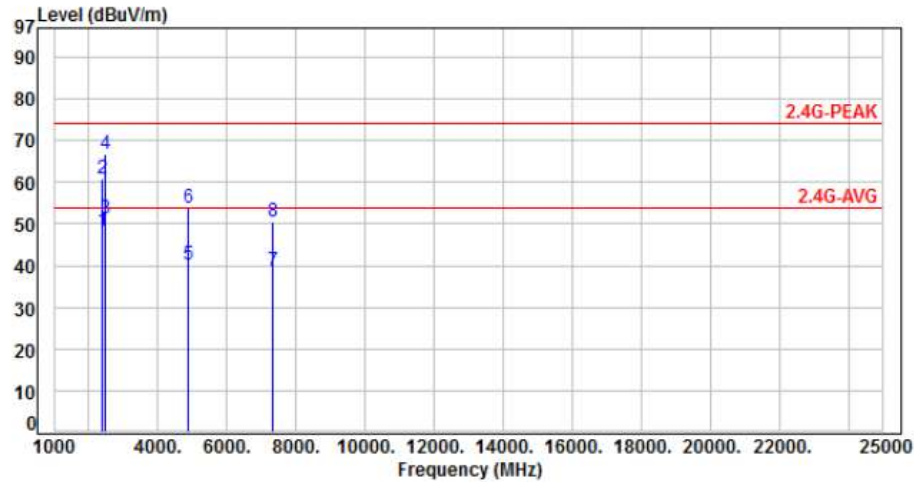
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, 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	-3.64	51.99	48.35	54.00	-5.65	Average	160	325	P
2	2390.00	-3.64	64.59	60.95	74.00	-13.05	Peak	160	325	P
3	2483.50	-3.30	54.64	51.34	54.00	-2.66	Average	190	315	P
4	2483.50	-3.30	70.01	66.71	74.00	-7.29	Peak	190	315	P
5	4874.00	3.95	36.27	40.22	54.00	-13.78	Average	100	355	P
6	4874.00	3.95	49.87	53.82	74.00	-20.18	Peak	100	355	P
7	7311.00	8.84	29.71	38.55	54.00	-15.45	Average	100	172	P
8	7311.00	8.84	41.76	50.60	74.00	-23.40	Peak	100	172	P

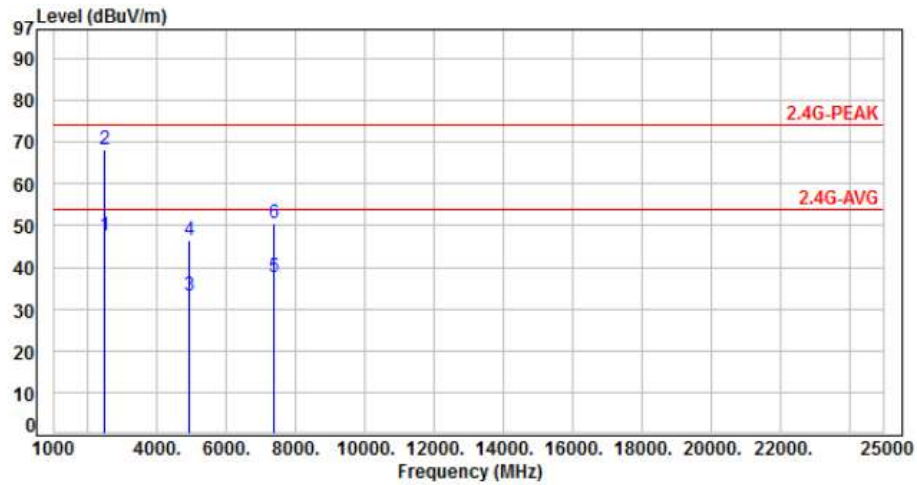
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	50.71	47.41	54.00	-6.59	Average	150	300	P
2	2483.50	-3.30	71.60	68.30	74.00	-5.70	Peak	150	300	P
3	4924.00	4.10	29.18	33.28	54.00	-20.72	Average	100	127	P
4	4924.00	4.10	42.27	46.37	74.00	-27.63	Peak	100	127	P
5	7386.00	8.94	28.59	37.53	54.00	-16.47	Average	100	159	P
6	7386.00	8.94	41.73	50.67	74.00	-23.33	Peak	100	159	P

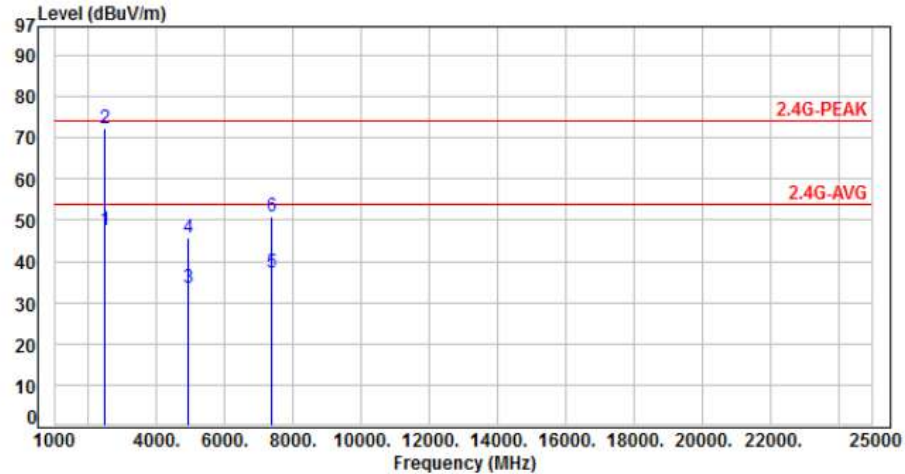
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH11		:

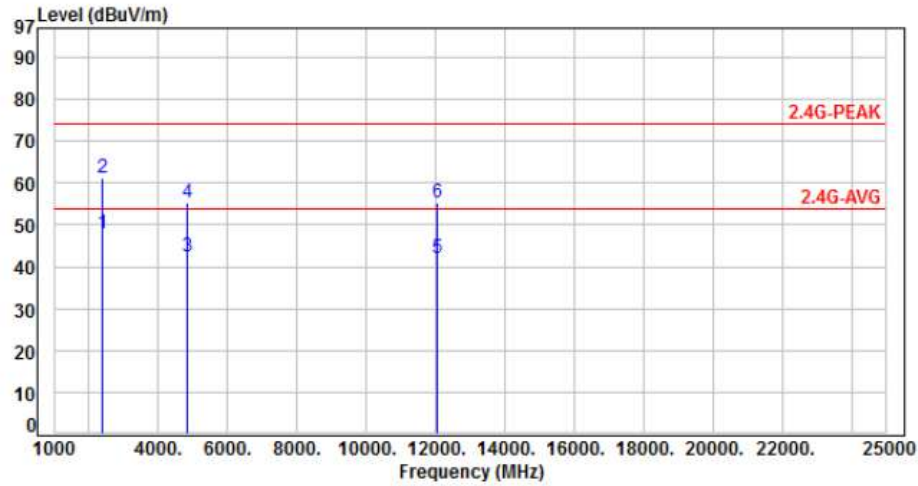


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	50.72	47.42	54.00	-6.58	Average	250	305	P
2	2483.50	-3.30	75.41	72.11	74.00	-1.89	Peak	250	305	P
3	4924.00	4.10	29.32	33.42	54.00	-20.58	Average	100	132	P
4	4924.00	4.10	41.50	45.60	74.00	-28.40	Peak	100	132	P
5	7386.00	8.94	28.25	37.19	54.00	-16.81	Average	100	105	P
6	7386.00	8.94	42.05	50.99	74.00	-23.01	Peak	100	105	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, 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	-3.64	51.53	47.89	54.00	-6.11	Average	100	15	P
2	2390.00	-3.64	64.71	61.07	74.00	-12.93	Peak	100	15	P
3	4824.00	3.76	38.74	42.50	54.00	-11.50	Average	100	345	P
4	4824.00	3.76	51.56	55.32	74.00	-18.68	Peak	100	345	P
5	12060.00	13.45	28.70	42.15	54.00	-11.85	Average	100	360	P
6	12060.00	13.45	42.04	55.49	74.00	-18.51	Peak	100	360	P

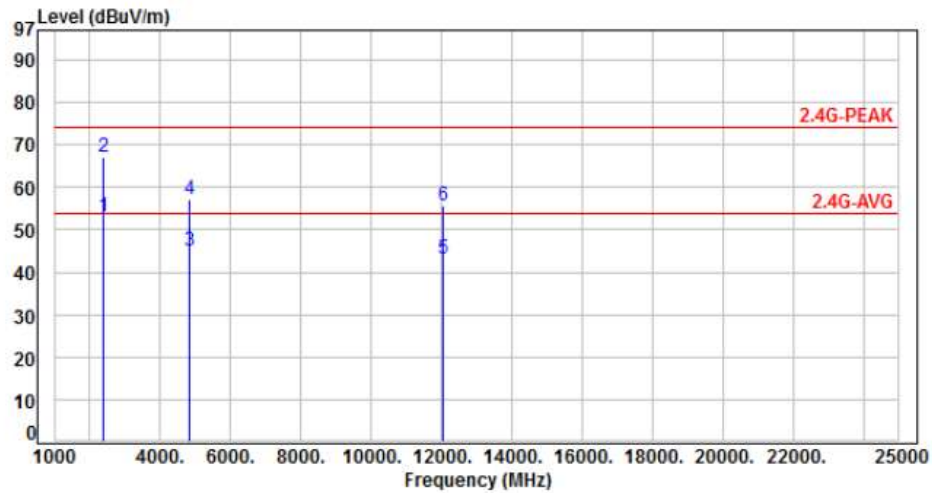
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 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	-3.64	56.73	53.09	54.00	-0.91	Average	235	305	P
2	2390.00	-3.64	70.61	66.97	74.00	-7.03	Peak	235	305	P
3	4824.00	3.76	41.19	44.95	54.00	-9.05	Average	290	0	P
4	4824.00	3.76	53.52	57.28	74.00	-16.72	Peak	290	0	P
5	12060.00	13.45	29.69	43.14	54.00	-10.86	Average	100	0	P
6	12060.00	13.45	42.06	55.51	74.00	-18.49	Peak	100	0	P

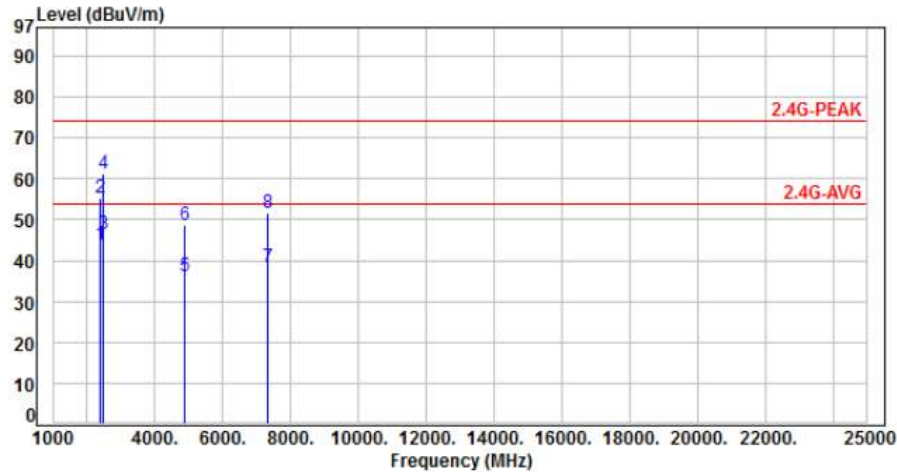
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, 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	-3.64	47.53	43.89	54.00	-10.11	Average	115	0	P
2	2390.00	-3.64	59.04	55.40	74.00	-18.60	Peak	115	0	P
3	2483.50	-3.30	49.91	46.61	54.00	-7.39	Average	130	305	P
4	2483.50	-3.30	64.37	61.07	74.00	-12.93	Peak	130	305	P
5	4874.00	3.95	32.04	35.99	54.00	-18.01	Average	100	104	P
6	4874.00	3.95	44.62	48.57	74.00	-25.43	Peak	100	104	P
7	7311.00	8.84	29.40	38.24	54.00	-15.76	Average	100	141	P
8	7311.00	8.84	42.65	51.49	74.00	-22.51	Peak	100	141	P

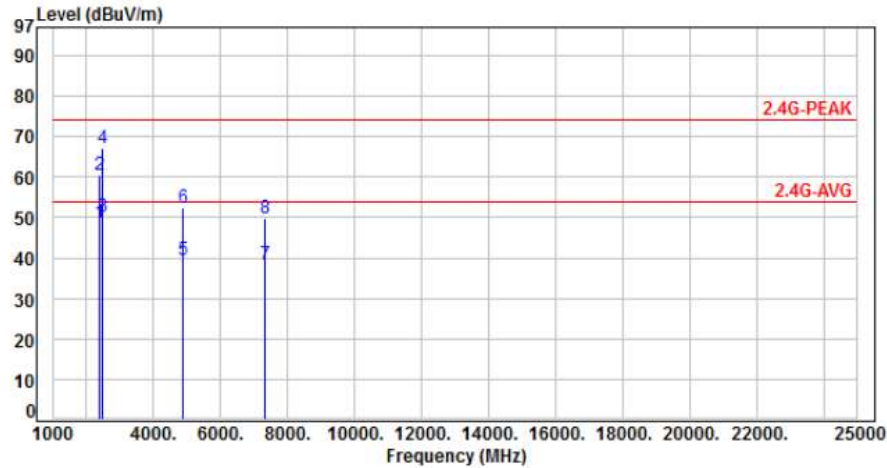
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, 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	-3.64	52.42	48.78	54.00	-5.22	Average	235	320	P
2	2390.00	-3.64	63.94	60.30	74.00	-13.70	Peak	235	320	P
3	2483.50	-3.30	53.36	50.06	54.00	-3.94	Average	100	315	P
4	2483.50	-3.30	70.40	67.10	74.00	-6.90	Peak	100	315	P
5	4874.00	3.95	35.51	39.46	54.00	-14.54	Average	100	355	P
6	4874.00	3.95	48.45	52.40	74.00	-21.60	Peak	100	355	P
7	7311.00	8.84	29.59	38.43	54.00	-15.57	Average	100	106	P
8	7311.00	8.84	40.93	49.77	74.00	-24.23	Peak	100	106	P

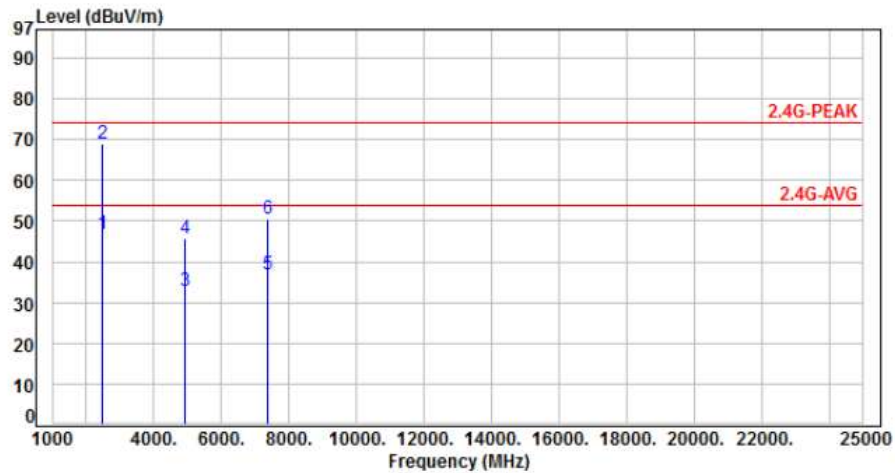
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	50.14	46.84	54.00	-7.16	Average	100	350	P
2	2483.50	-3.30	72.16	68.86	74.00	-5.14	Peak	100	350	P
3	4924.00	4.10	28.90	33.00	54.00	-21.00	Average	100	190	P
4	4924.00	4.10	41.49	45.59	74.00	-28.41	Peak	100	190	P
5	7386.00	8.94	28.11	37.05	54.00	-16.95	Average	100	111	P
6	7386.00	8.94	41.41	50.35	74.00	-23.65	Peak	100	111	P

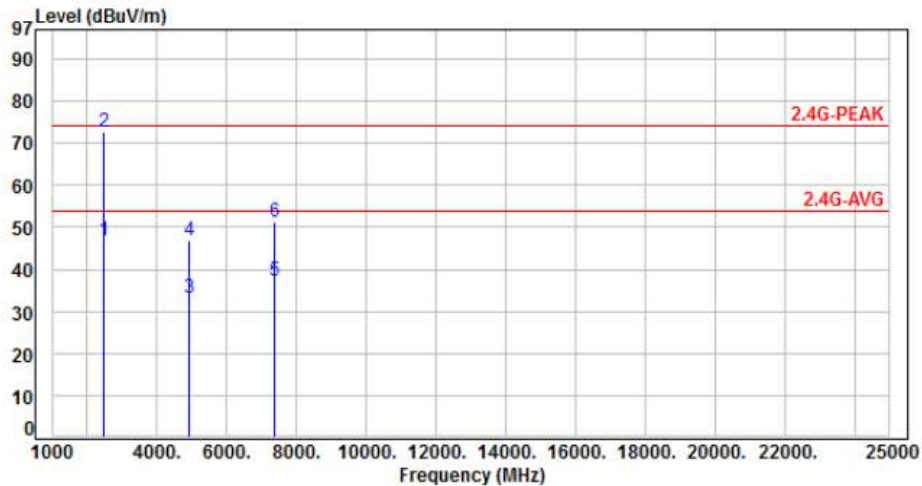
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	49.97	46.67	54.00	-7.33	Average	100	310	P
2	2483.50	-3.30	75.88	72.58	74.00	-1.42	Peak	100	310	P
3	4924.00	4.10	29.03	33.13	54.00	-20.87	Average	100	161	P
4	4924.00	4.10	42.61	46.71	74.00	-27.29	Peak	100	161	P
5	7386.00	8.94	28.33	37.27	54.00	-16.73	Average	100	110	P
6	7386.00	8.94	42.23	51.17	74.00	-22.83	Peak	100	110	P

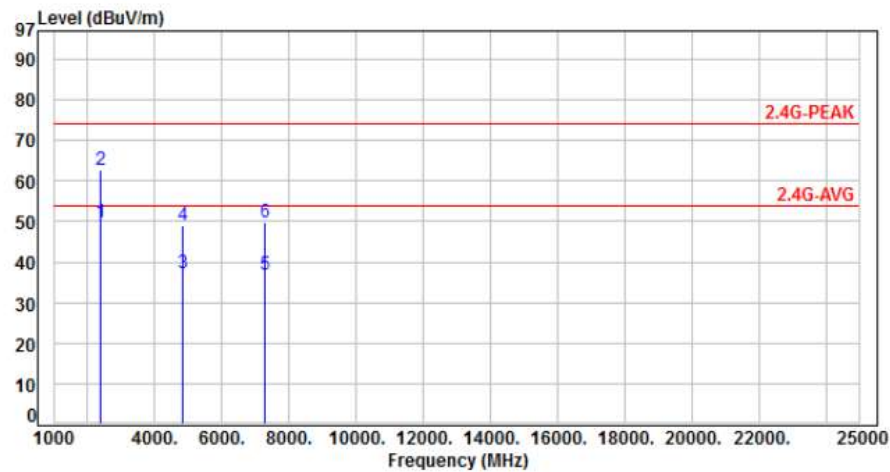
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH03		:



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	-3.64	53.38	49.74	54.00	-4.26	Average	100	30	P
2	2390.00	-3.64	66.17	62.53	74.00	-11.47	Peak	100	30	P
3	4844.00	3.85	33.45	37.30	54.00	-16.70	Average	100	145	P
4	4844.00	3.85	45.15	49.00	74.00	-25.00	Peak	100	145	P
5	7266.00	8.62	28.11	36.73	54.00	-17.27	Average	100	103	P
6	7266.00	8.62	41.29	49.91	74.00	-24.09	Peak	100	103	P

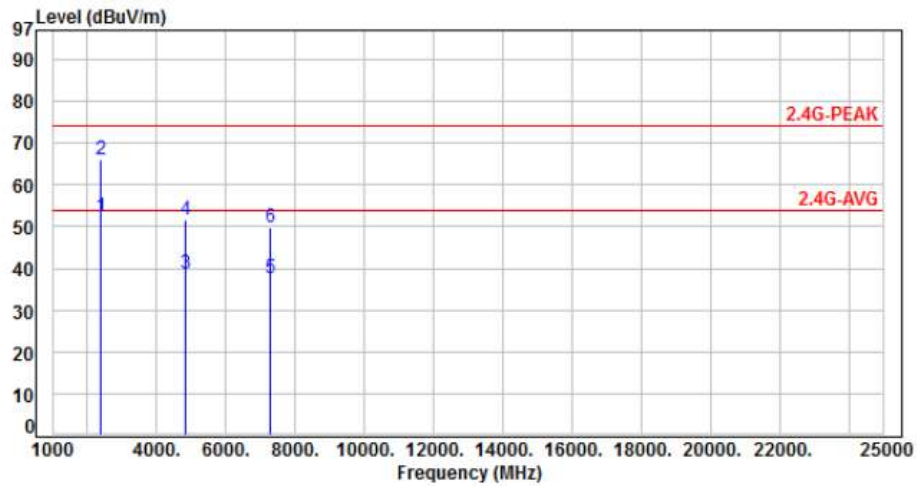
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH03		:



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	-3.64	56.03	52.39	54.00	-1.61	Average	220	315	P
2	2390.00	-3.64	69.50	65.86	74.00	-8.14	Peak	220	315	P
3	4844.00	3.85	34.88	38.73	54.00	-15.27	Average	290	0	P
4	4844.00	3.85	47.72	51.57	74.00	-22.43	Peak	290	0	P
5	7266.00	8.62	29.05	37.67	54.00	-16.33	Average	100	130	P
6	7266.00	8.62	41.05	49.67	74.00	-24.33	Peak	100	130	P

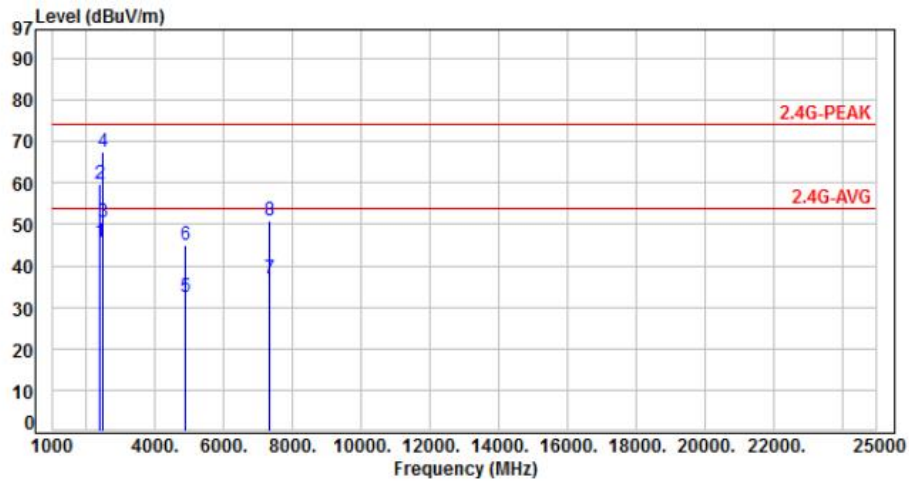
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 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	-3.64	49.19	45.55	54.00	-8.45	Average	100	0	P
2	2390.00	-3.64	63.23	59.59	74.00	-14.41	Peak	100	0	P
3	2483.50	-3.30	53.80	50.50	54.00	-3.50	Average	180	345	P
4	2483.50	-3.30	70.64	67.34	74.00	-6.66	Peak	180	345	P
5	4874.00	3.95	28.35	32.30	54.00	-21.70	Average	100	135	P
6	4874.00	3.95	41.13	45.08	74.00	-28.92	Peak	100	113	P
7	7311.00	8.84	28.18	37.02	54.00	-16.98	Average	100	151	P
8	7311.00	8.84	42.01	50.85	74.00	-23.15	Peak	100	151	P

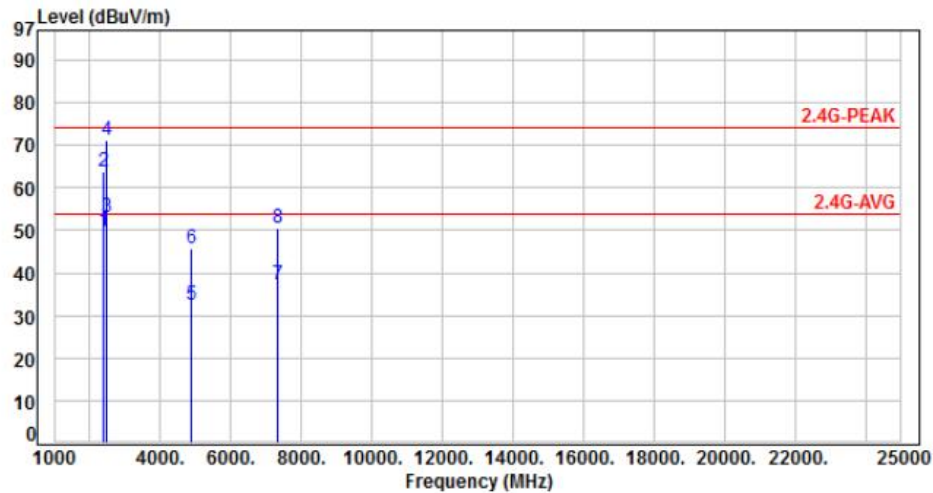
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 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	-3.64	53.27	49.63	54.00	-4.37	Average	230	65	P
2	2390.00	-3.64	67.30	63.66	74.00	-10.34	Peak	230	65	P
3	2483.50	-3.30	56.29	52.99	54.00	-1.01	Average	210	315	P
4	2483.50	-3.30	74.34	71.04	74.00	-2.96	Peak	210	315	P
5	4874.00	3.95	28.34	32.29	54.00	-21.71	Average	100	162	P
6	4874.00	3.95	41.62	45.57	74.00	-28.43	Peak	100	162	P
7	7311.00	8.84	28.27	37.11	54.00	-16.89	Average	100	128	P
8	7311.00	8.84	41.55	50.39	74.00	-23.61	Peak	100	128	P

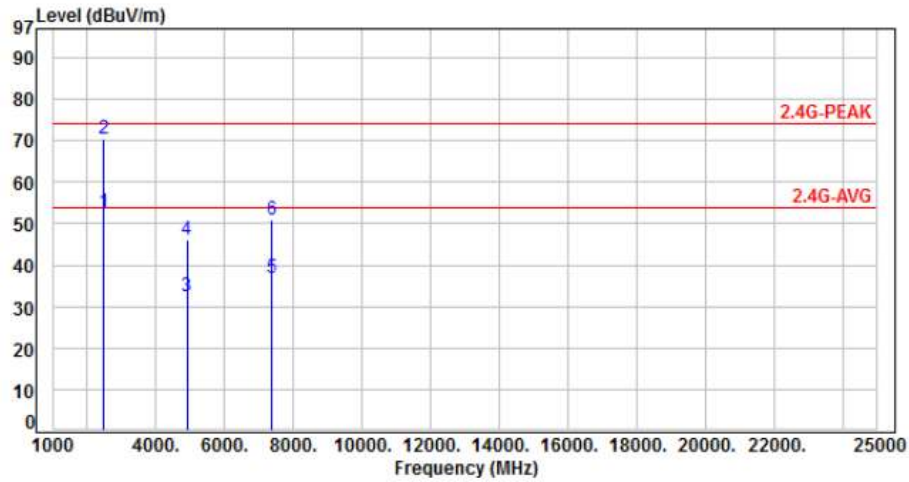
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH09		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	56.17	52.87	54.00	-1.13	Average	180	0	P
2	2483.50	-3.30	73.69	70.39	74.00	-3.61	Peak	180	0	P
3	4904.00	4.05	28.33	32.38	54.00	-21.62	Average	100	134	P
4	4904.00	4.05	42.06	46.11	74.00	-27.89	Peak	100	134	P
5	7356.00	8.86	28.11	36.97	54.00	-17.03	Average	100	111	P
6	7356.00	8.86	41.96	50.82	74.00	-23.18	Peak	100	111	P

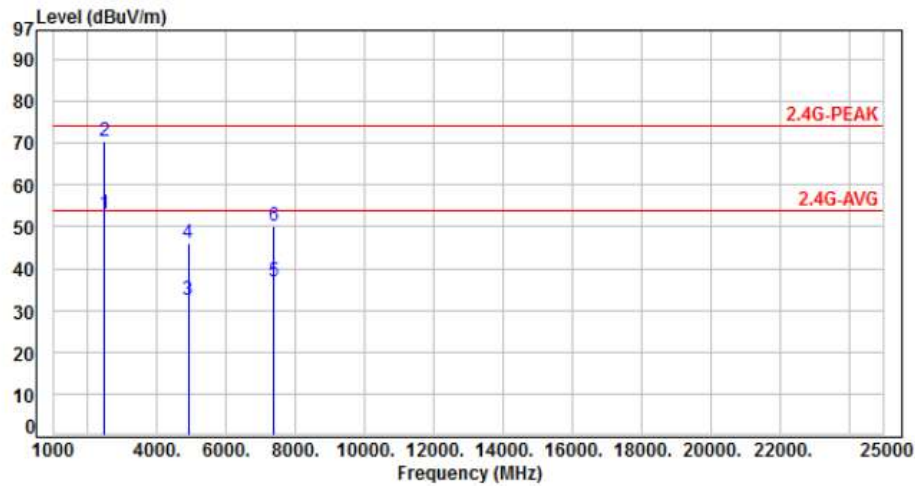
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH09		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	56.44	53.14	54.00	-0.86	Average	235	60	P
2	2483.50	-3.30	73.79	70.49	74.00	-3.51	Peak	235	60	P
3	4904.00	4.05	28.54	32.59	54.00	-21.41	Average	100	0	P
4	4904.00	4.05	42.20	46.25	74.00	-27.75	Peak	100	0	P
5	7356.00	8.86	28.18	37.04	54.00	-16.96	Average	100	0	P
6	7356.00	8.86	41.23	50.09	74.00	-23.91	Peak	100	0	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

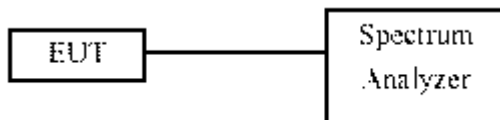
7.1 Test Limit

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

7.2 Test Procedure

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 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.
- 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.
- The band edges was measured and recorded.

7.3 Test Setup Layout



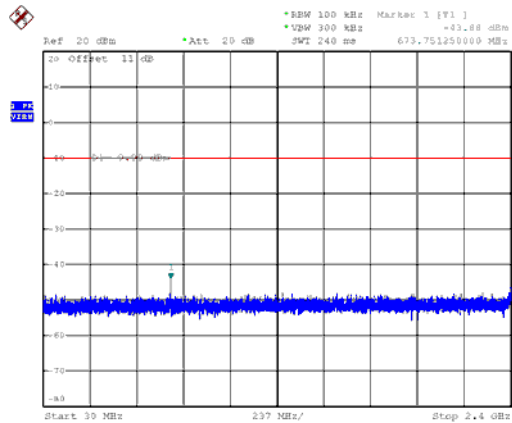
7.4 Test Result and Data

Note: Test plots refers to the following pages.

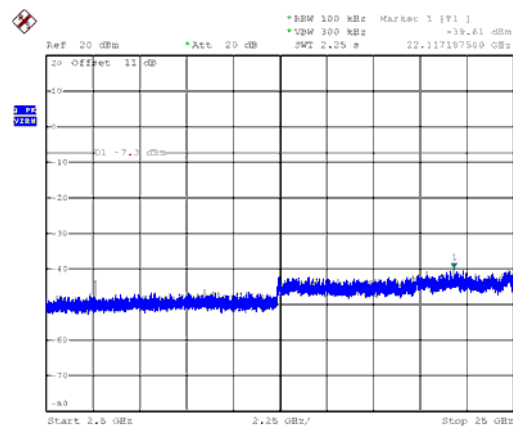
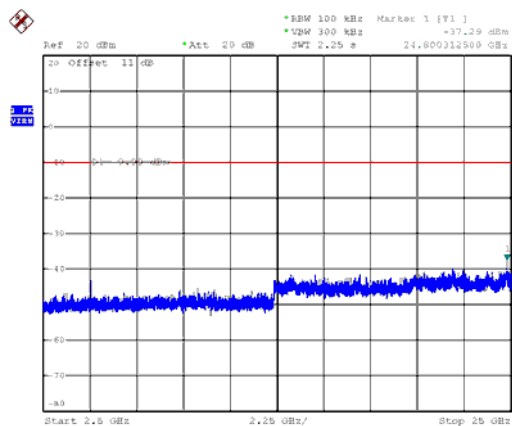
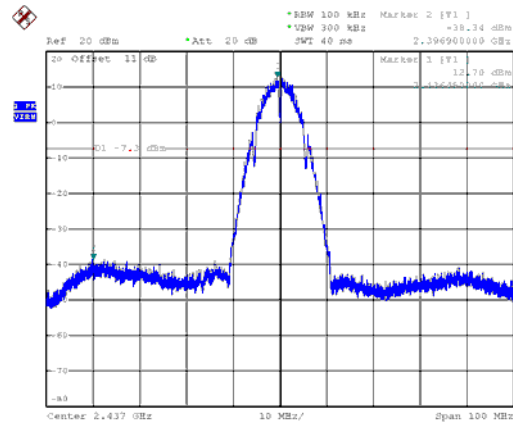
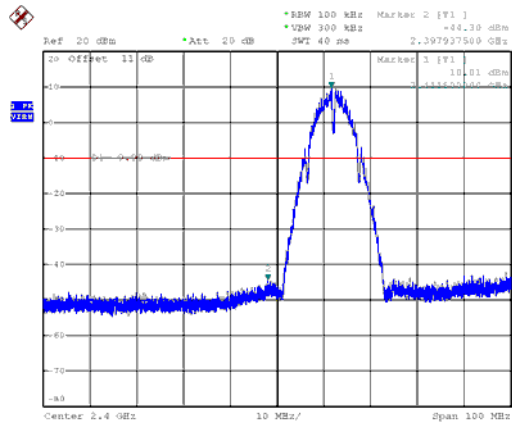
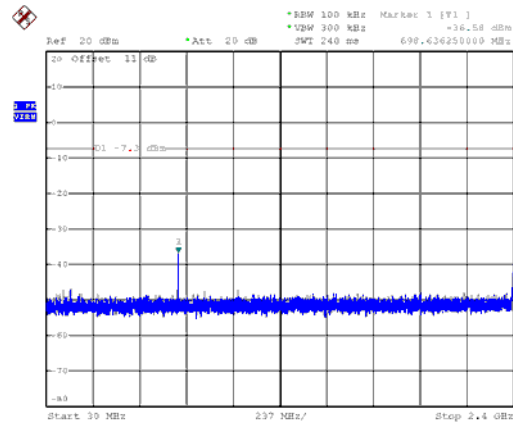


ANT A

Modulation Type: 802.11b, CH 01



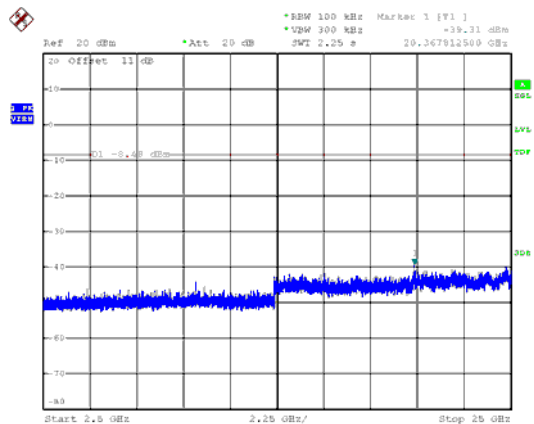
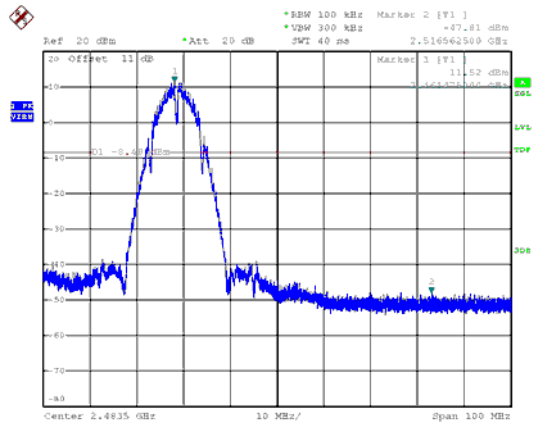
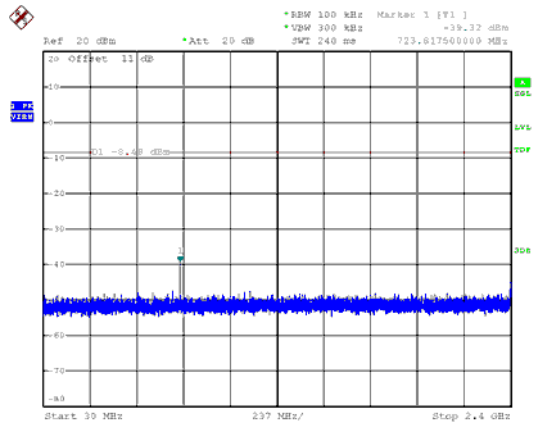
Modulation Type: 802.11b, CH 06





ANT A

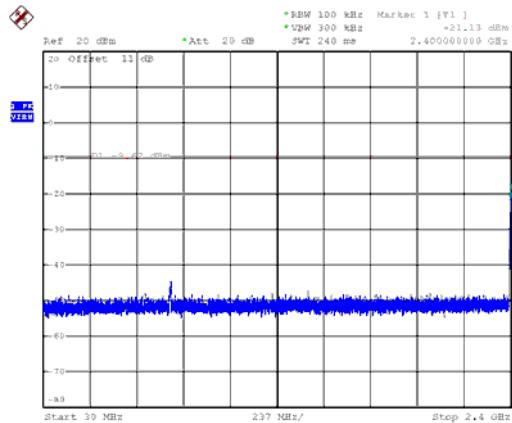
Modulation Type: 802.11b, CH 11



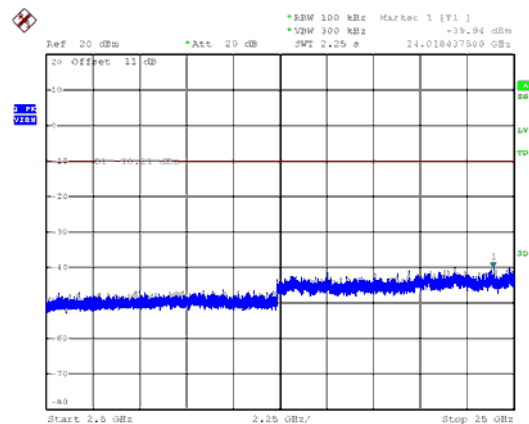
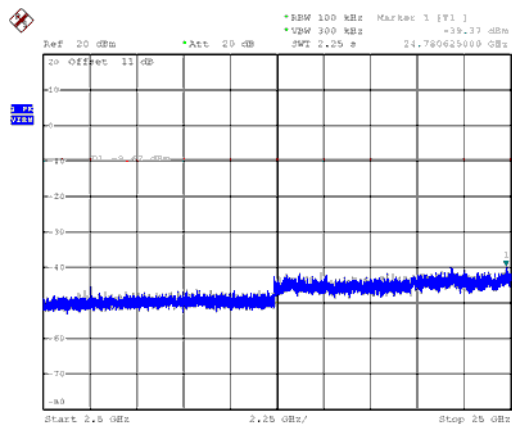
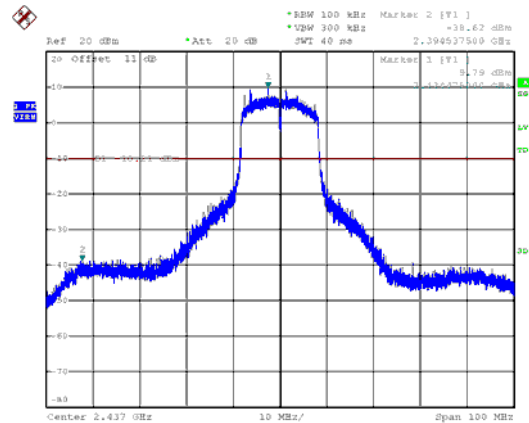
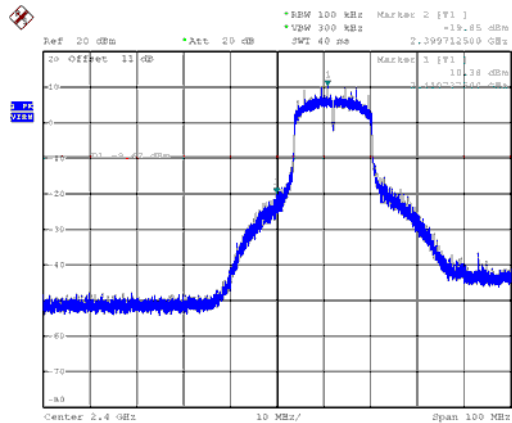
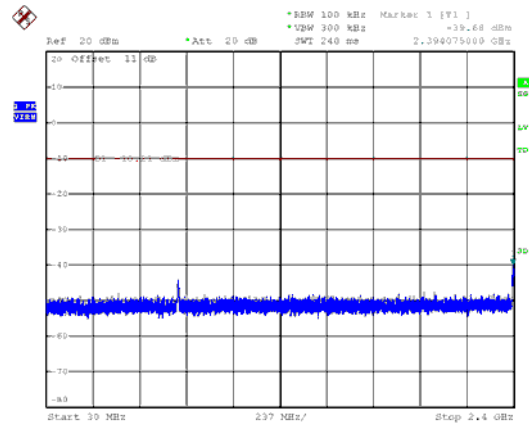


ANT A

Modulation Type: 802.11g, CH 01



Modulation Type: 802.11g, CH 06

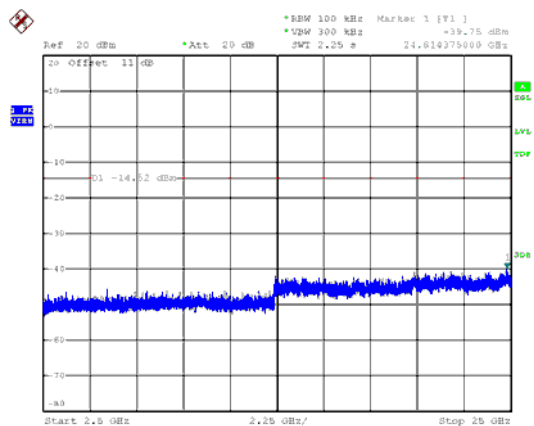
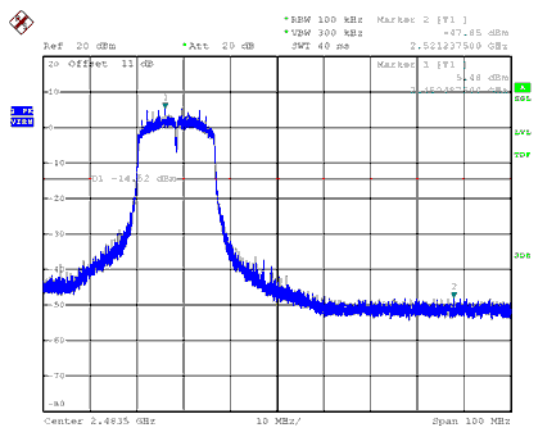




The screenshot shows the Spectrum Analyzer window with the following settings:

- Ref**: 20 dBm
- Att**: 20 dB
- BW**: 100 kHz
- VBW**: 300 kHz
- SMT**: 240 ms
- Marker 1 [F1]**: =47.15 dBm
- Freq**: 2.394075000 GHz

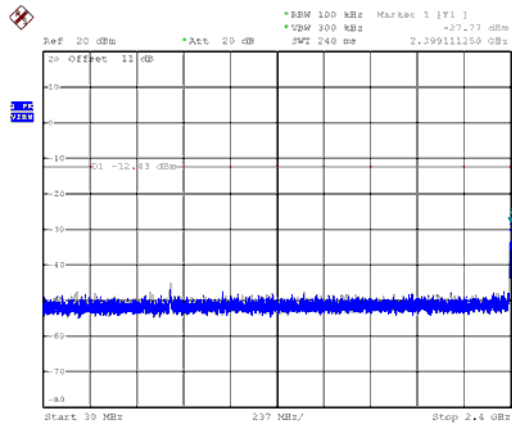
The vertical axis (dBm) ranges from -80 to 20. The horizontal axis (MHz) ranges from Start 39 MHz to Stop 2.4 GHz. A red cursor labeled "D1" is positioned at -14.62 dBm. The plot area displays a noisy baseline around -50 dBm.



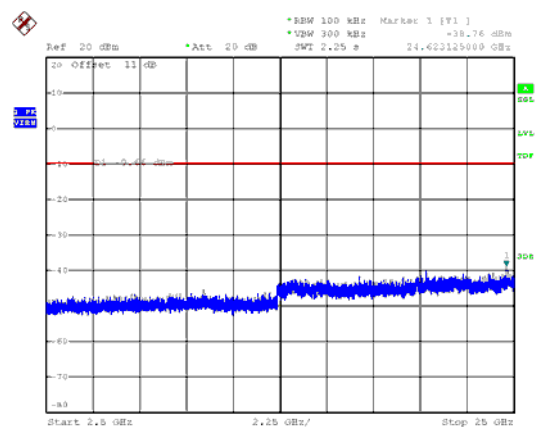
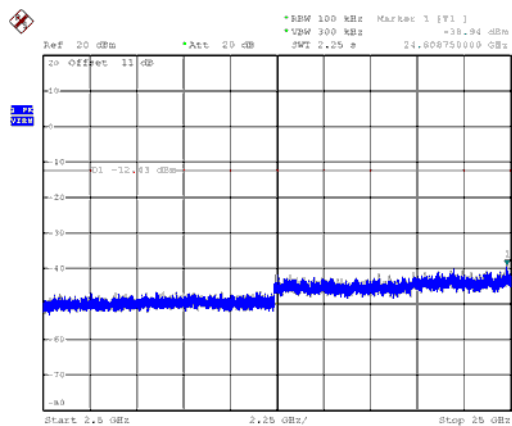
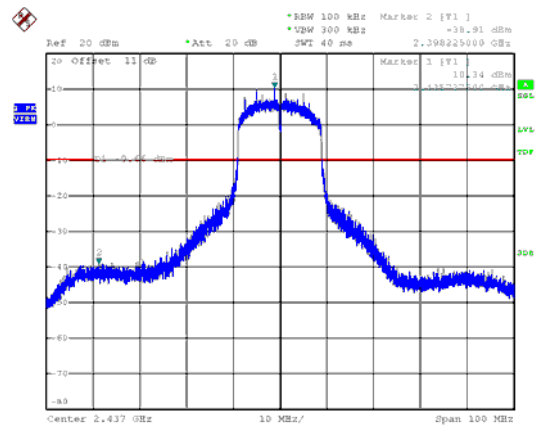
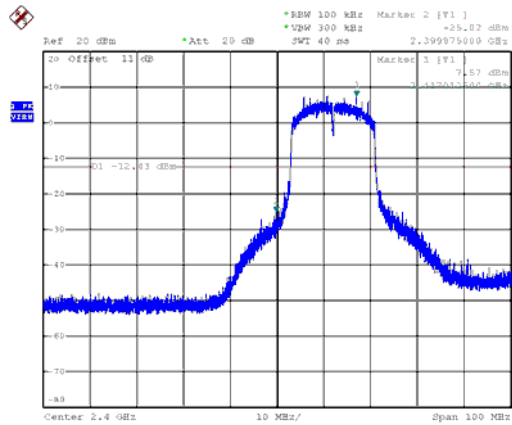
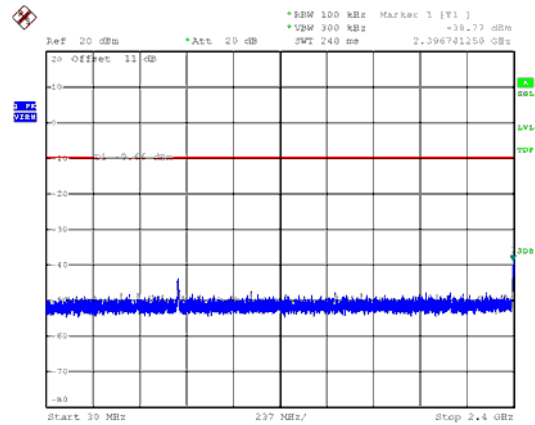


ANT A

Modulation Type: 802.11n HT20, CH01



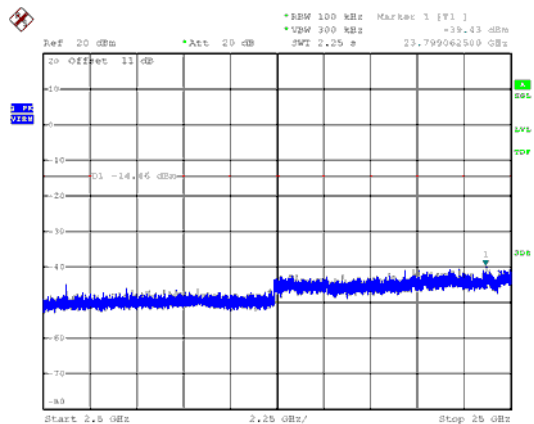
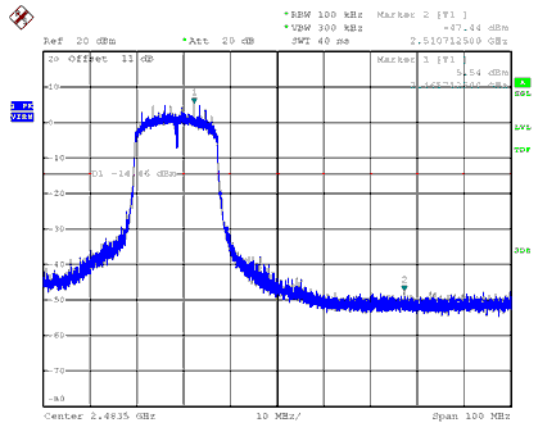
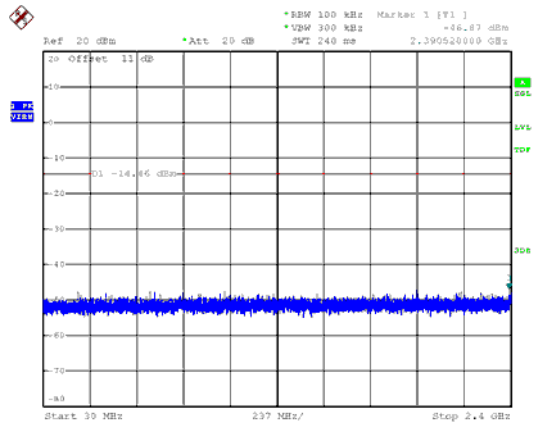
Modulation Type: 802.11n HT20, CH06





ANT A

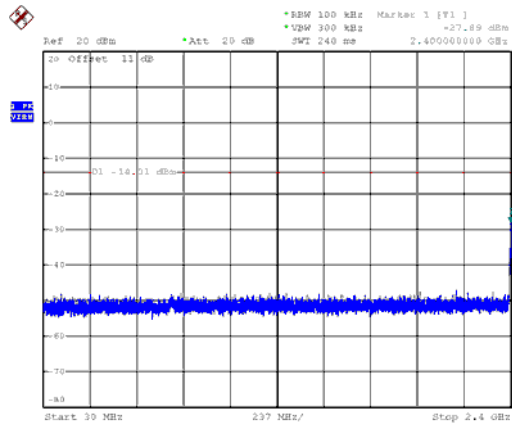
Modulation Type: 802.11n HT20, CH11



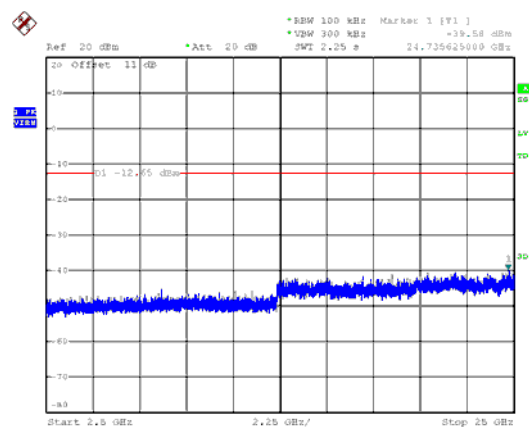
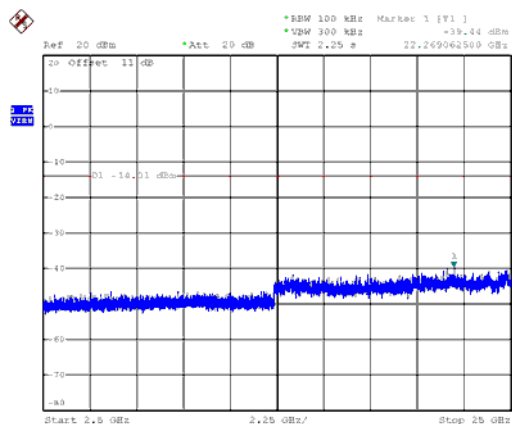
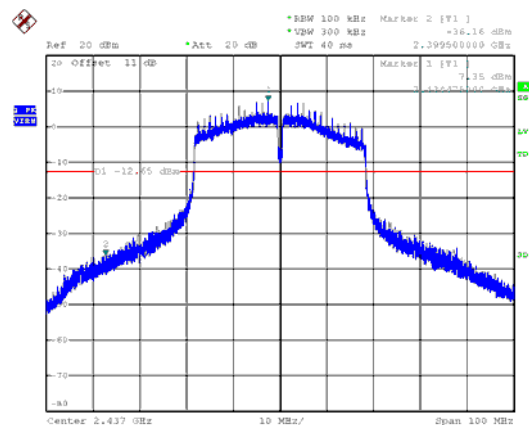
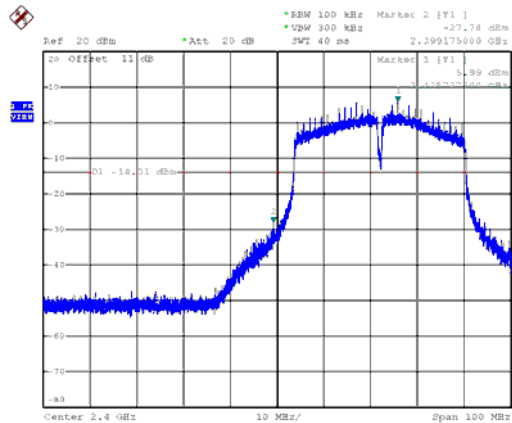
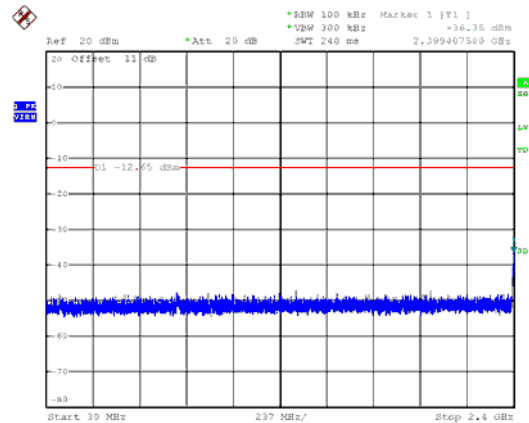


ANT A

Modulation Type: 802.11n HT40, CH03



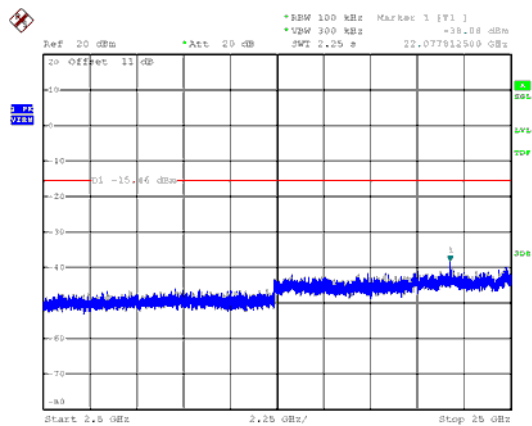
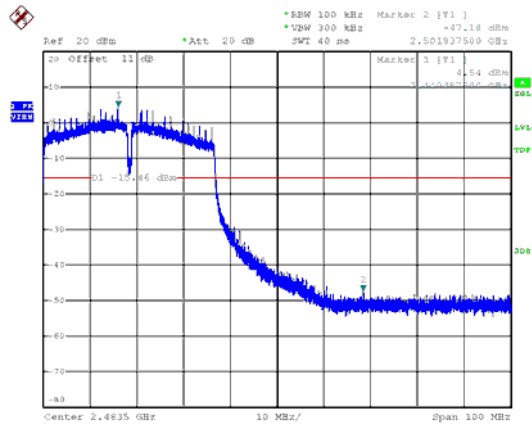
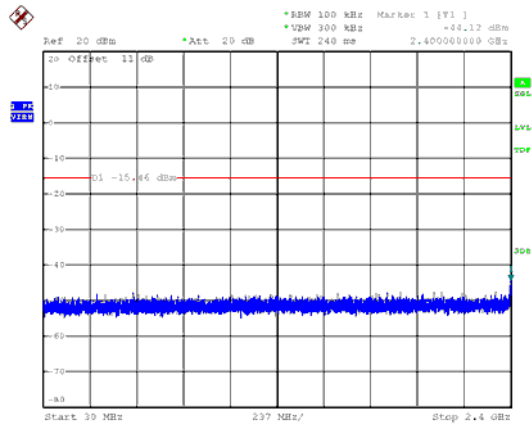
Modulation Type: 802.11n HT40, CH06





ANT A

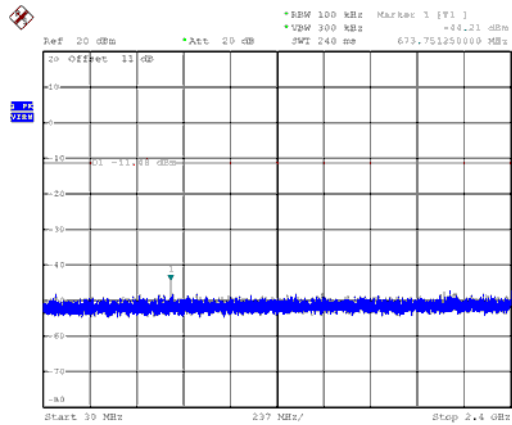
Modulation Type: 802.11n HT40, CH09



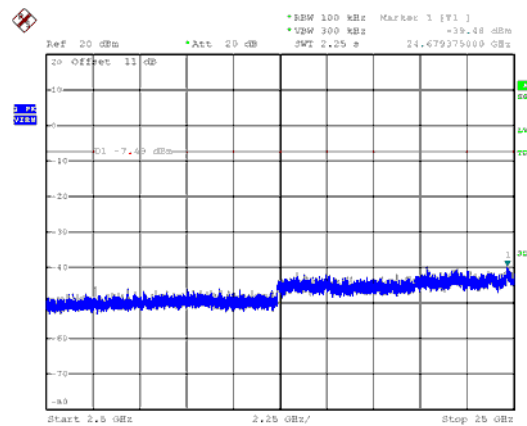
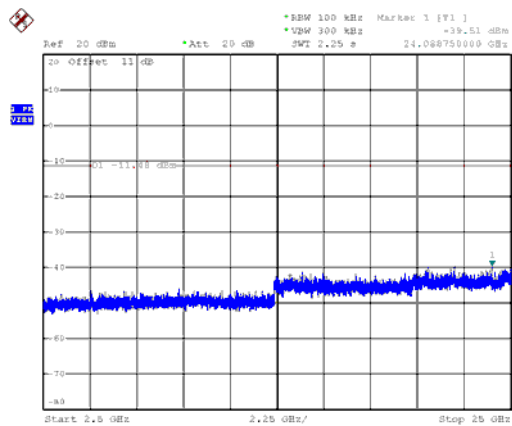
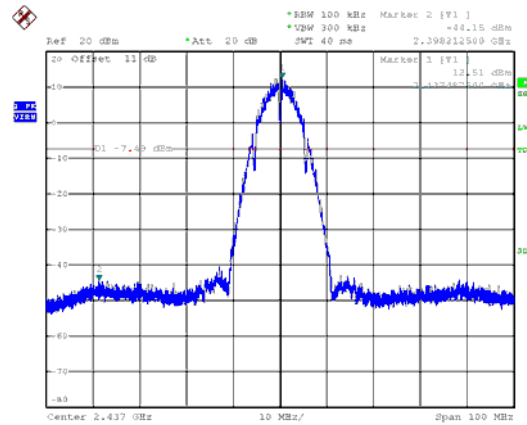
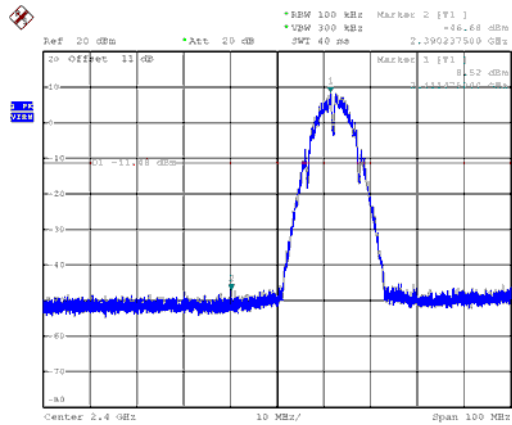
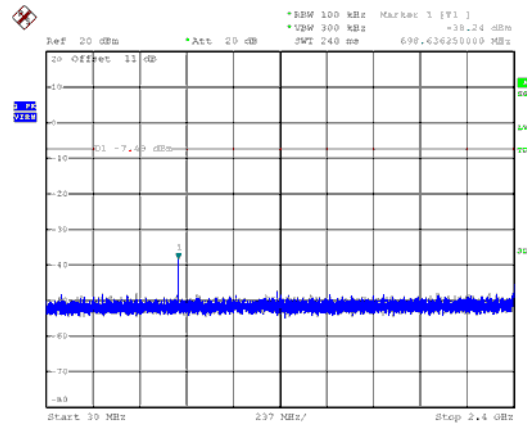


ANT B

Modulation Type: 802.11b, CH 01



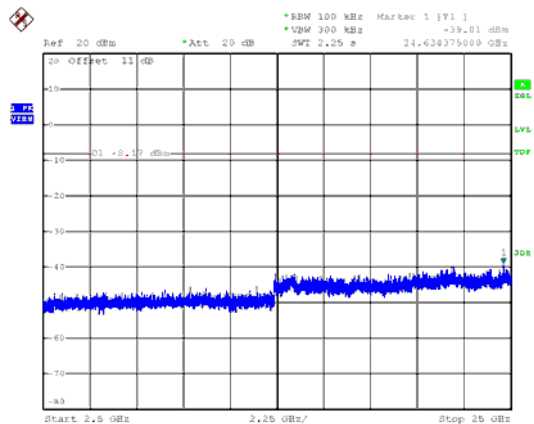
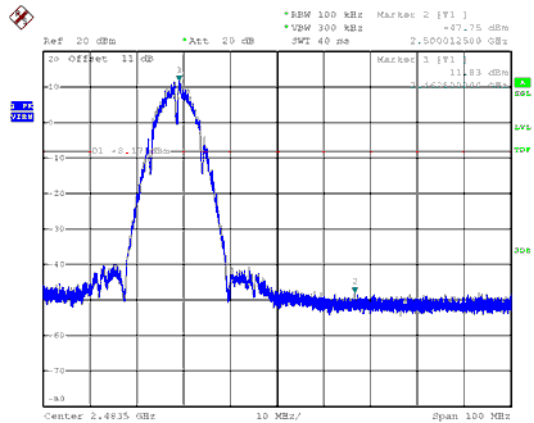
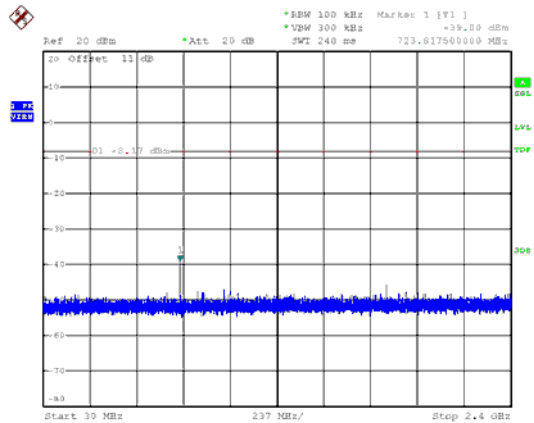
Modulation Type: 802.11b, CH 06





ANT B

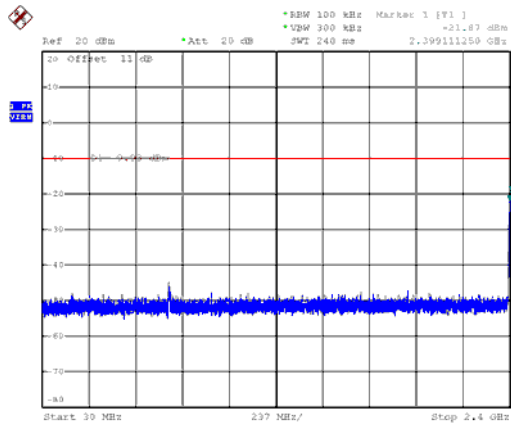
Modulation Type: 802.11b, CH 11



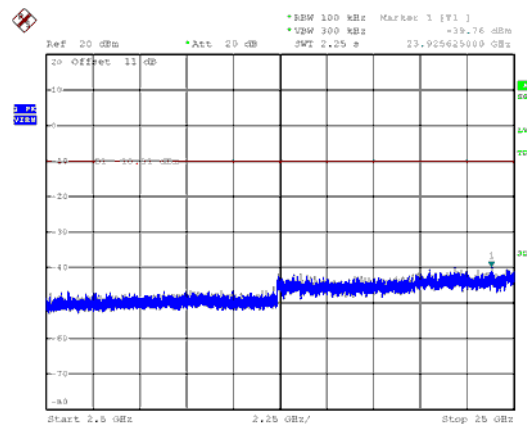
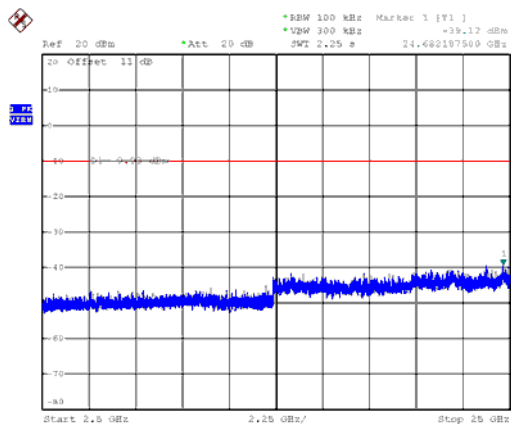
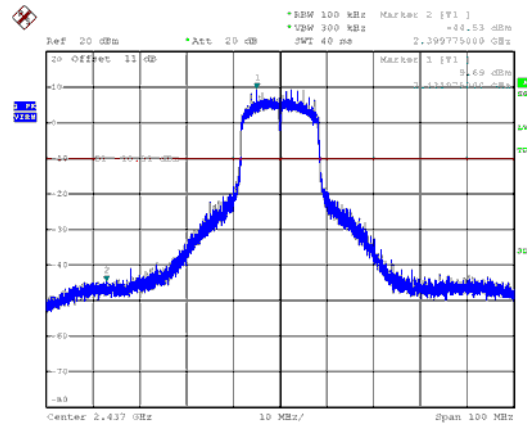
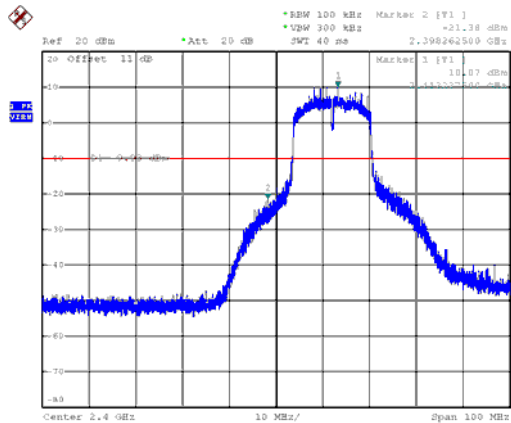
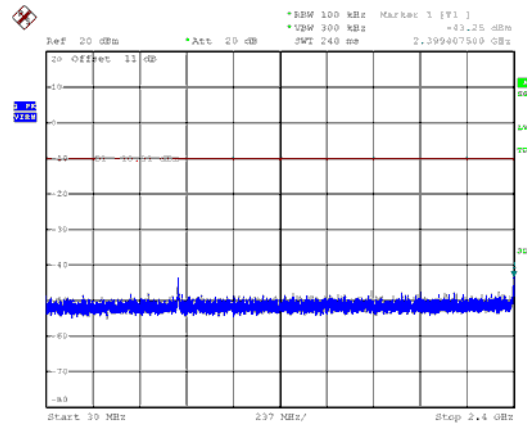


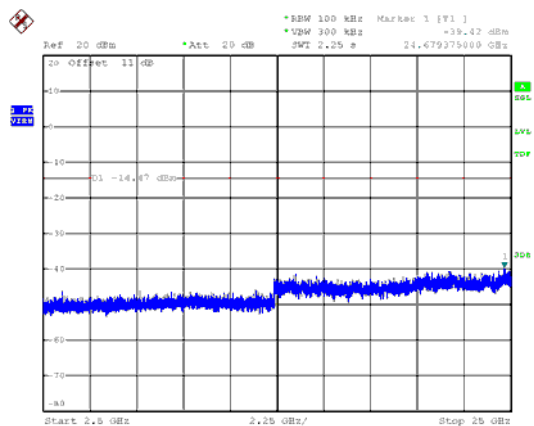
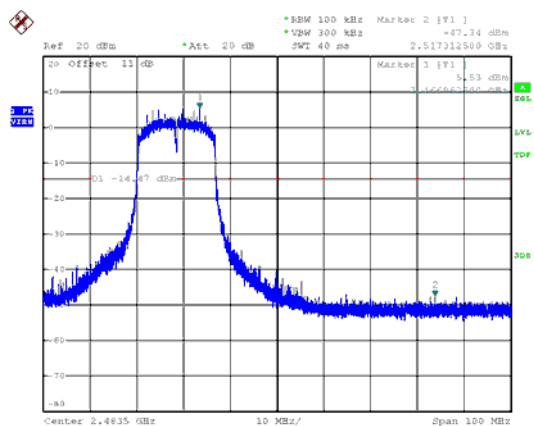
ANT B

Modulation Type: 802.11g, CH 01



Modulation Type: 802.11g, CH 06

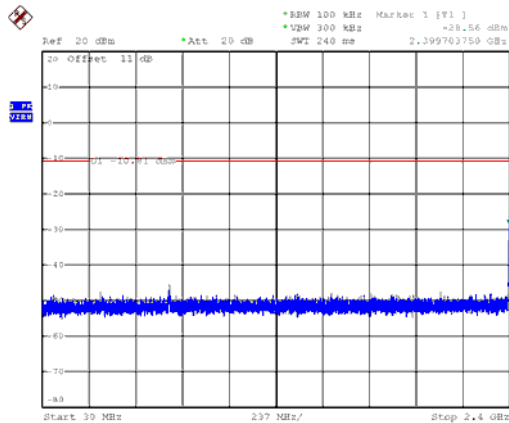


[illegible]

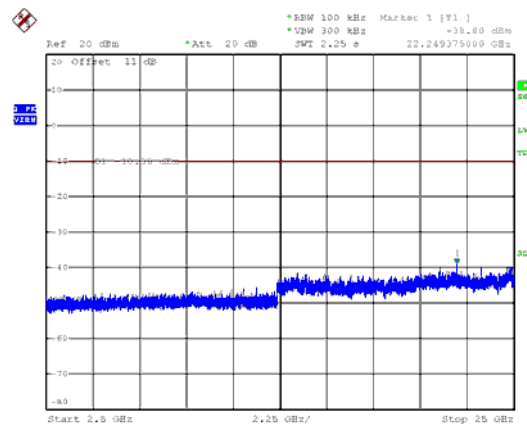
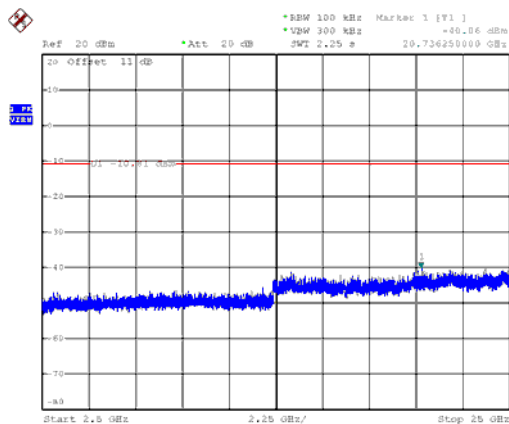
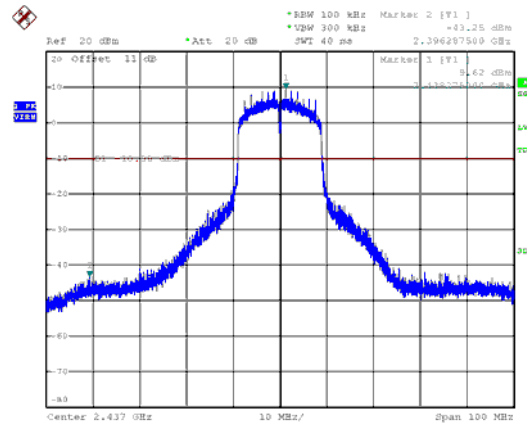
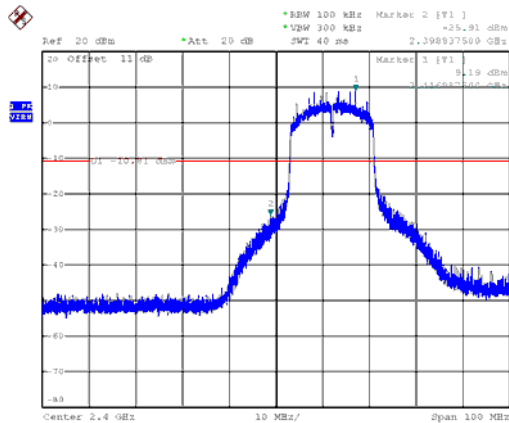
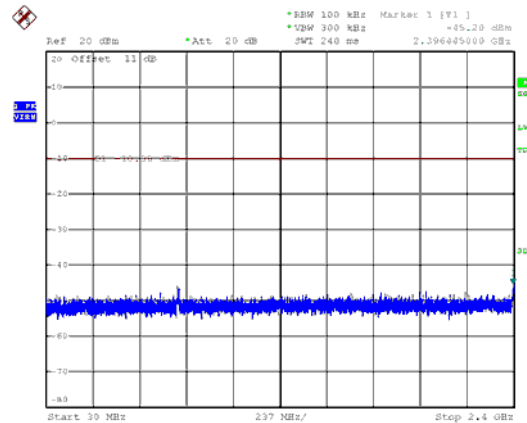


ANT B

Modulation Type: 802.11n HT20, CH01



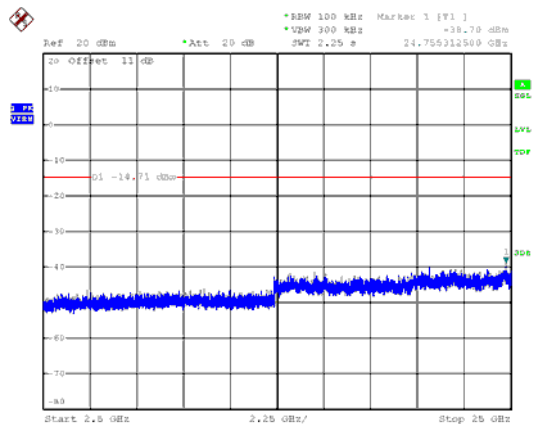
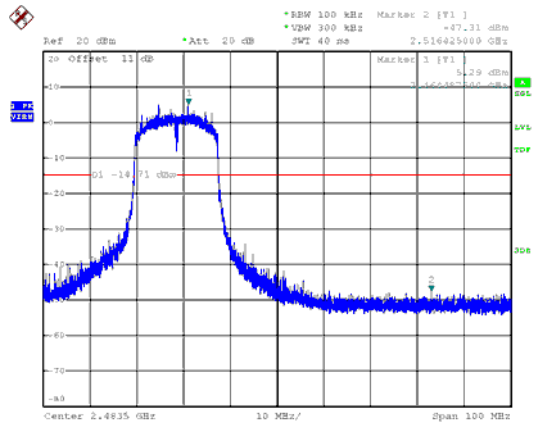
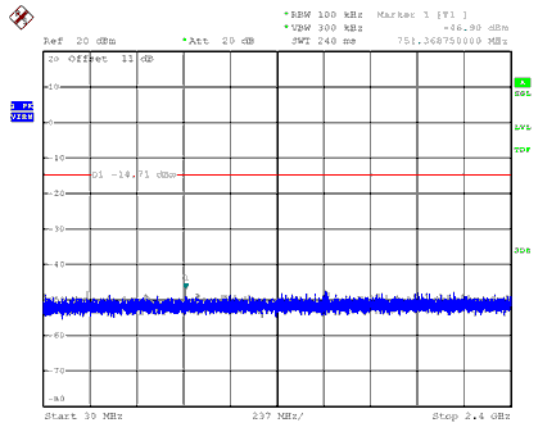
Modulation Type: 802.11n HT20, CH06





ANT B

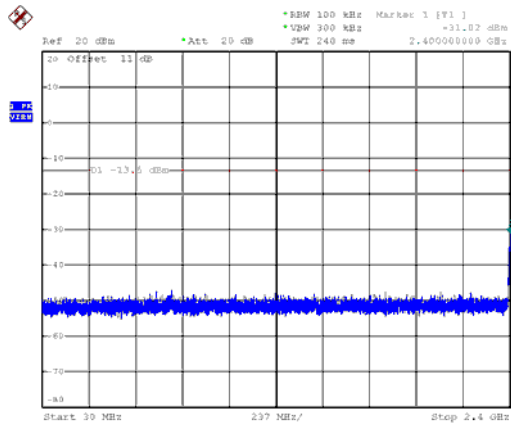
Modulation Type: 802.11n HT20, CH11



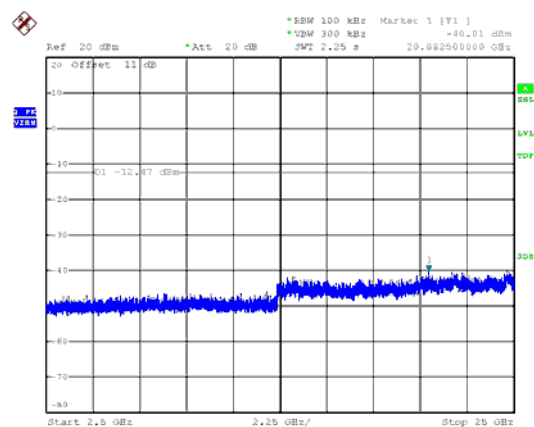
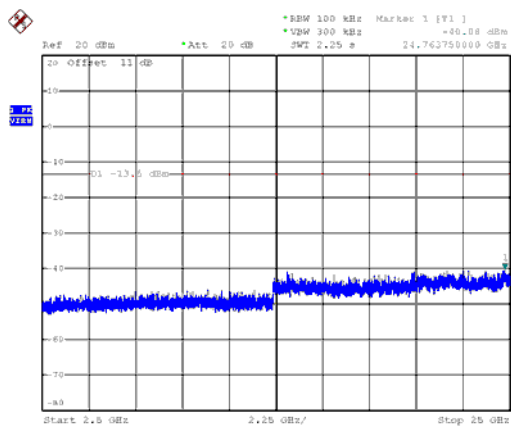
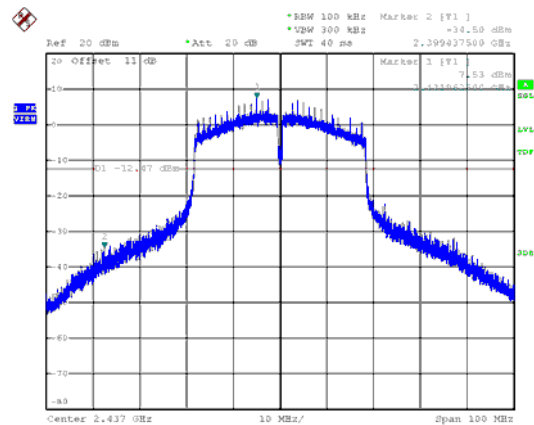
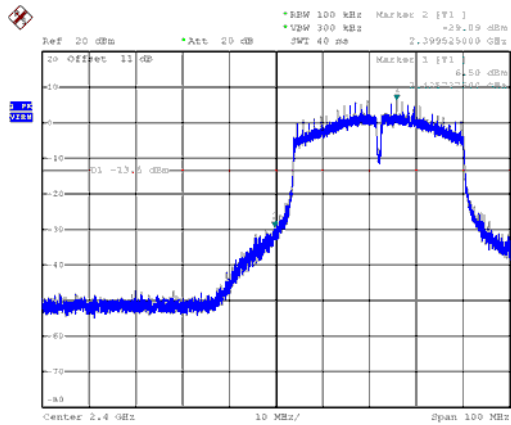
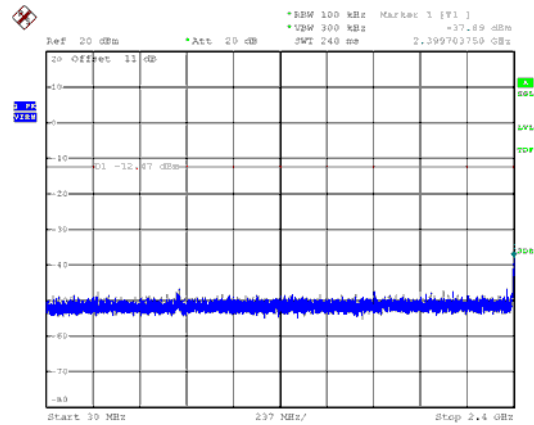


ANT B

Modulation Type: 802.11n HT40, CH03



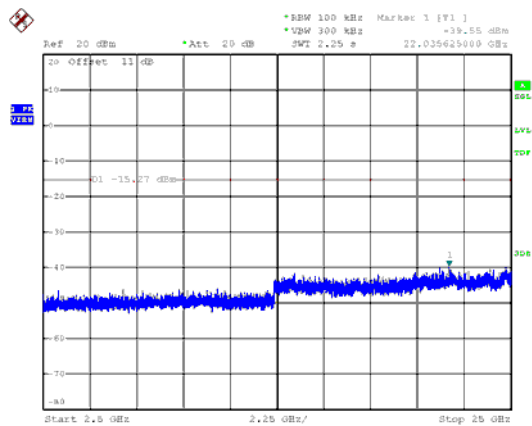
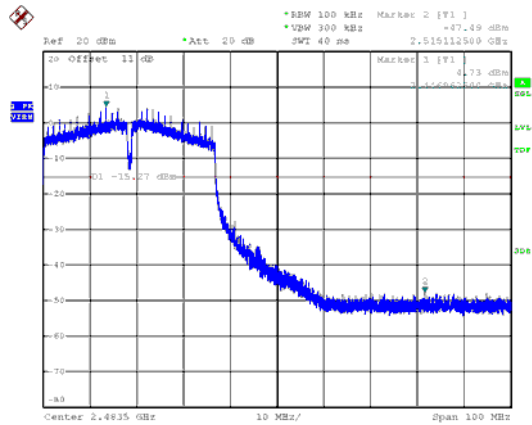
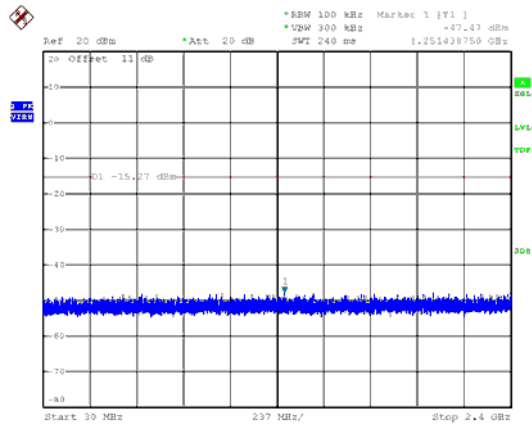
Modulation Type: 802.11n HT40, CH06





ANT B

Modulation Type: 802.11n HT40, CH09





8. On Time, Duty Cycle and Measurement methods

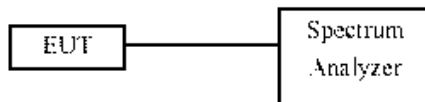
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout

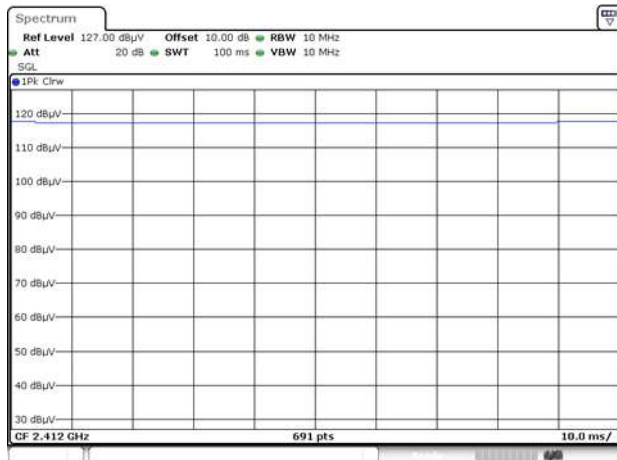


8.4 Test Result and Data

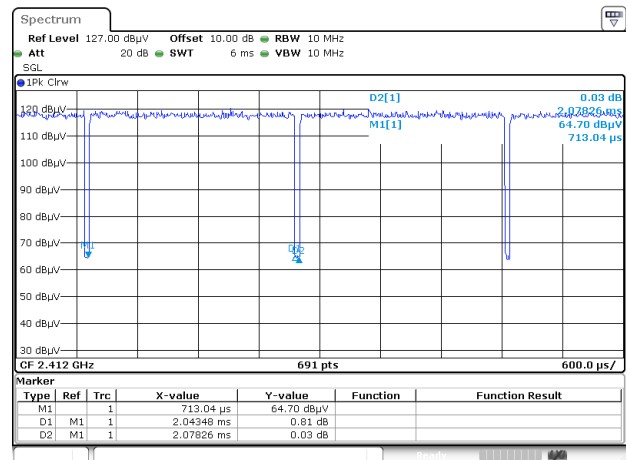
Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
11b,1M	100.00	100.00	100.00%
11g,6M	2.04	2.08	98.33%
11n HT20	1.91	1.95	97.82%
11n HT40	0.94	0.97	96.85%



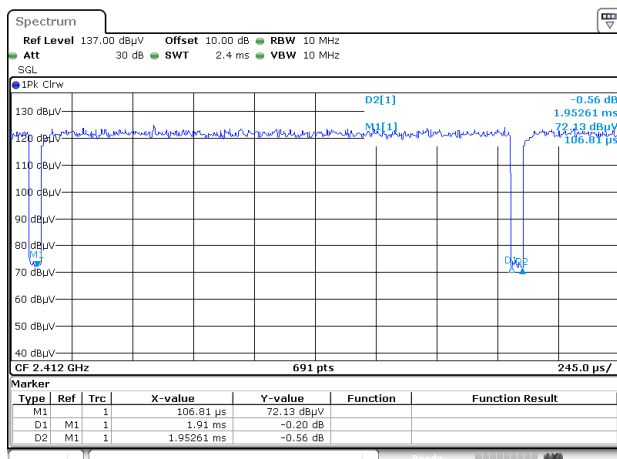
Modulation Type: 802.11b (1Mbps)



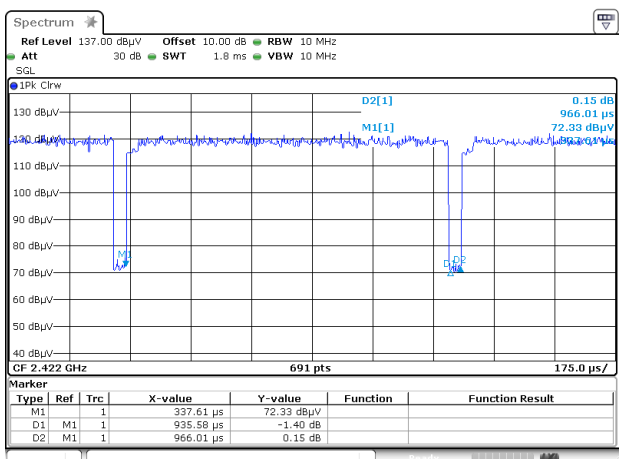
Modulation Type: 802.11g (6Mbps)



Modulation Type: 802.11n HT20 (6.5Mbps)



Modulation Type: 802.11n HT40 (13.5Mbps)





9. 6dB Bandwidth Measurement Data

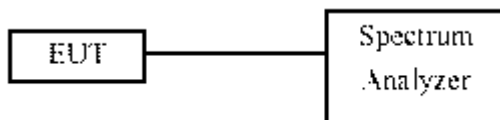
9.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

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

9.3 Test Setup Layout

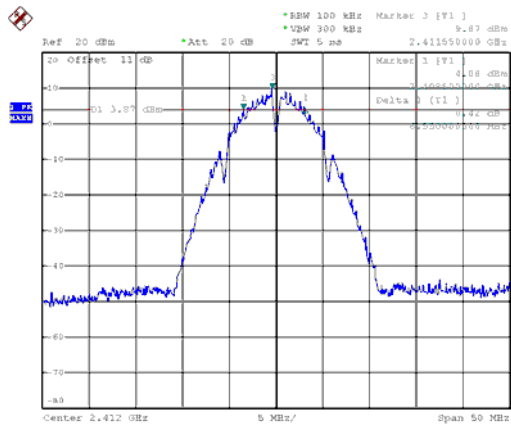
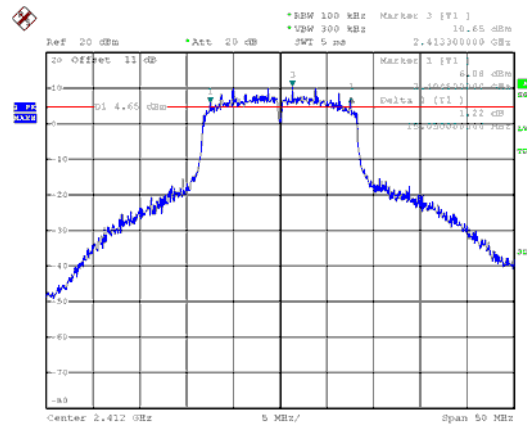


9.4 Test Result and Data

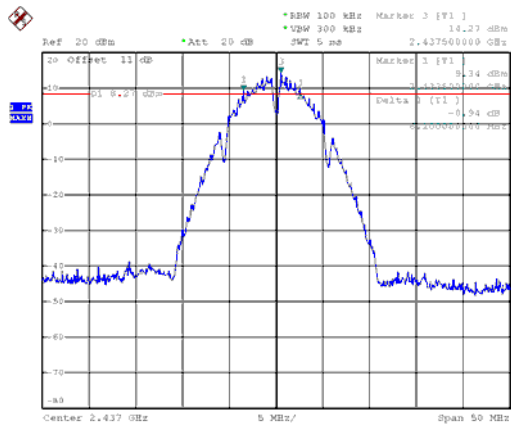
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (MHz)
			ANT A	ANT B	
11b	1	2412	6.55	6.60	0.5
	6	2437	6.10	7.00	0.5
	11	2462	7.55	7.00	0.5
11g	1	2412	15.05	15.10	0.5
	6	2437	15.15	15.05	0.5
	11	2462	15.05	15.10	0.5
11n HT20	1	2412	15.30	15.20	0.5
	6	2437	13.20	15.05	0.5
	11	2462	15.35	15.10	0.5
11n HT40	3	2422	33.80	32.50	0.5
	6	2437	30.00	31.30	0.5
	9	2452	32.50	35.00	0.5



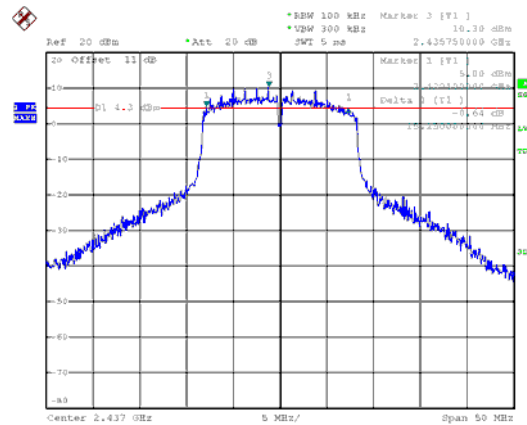
ANT A

Modulation Type: 802.11b
CH01Modulation Type: 802.11g
CH01

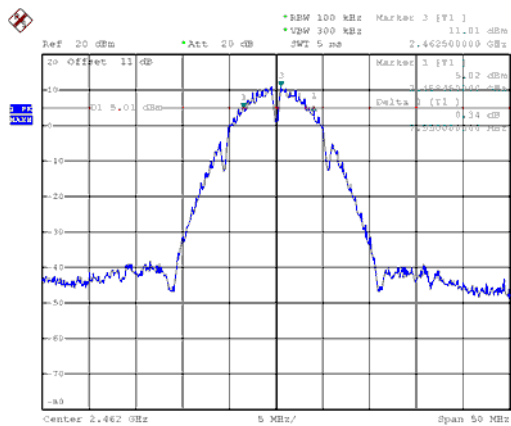
CH06



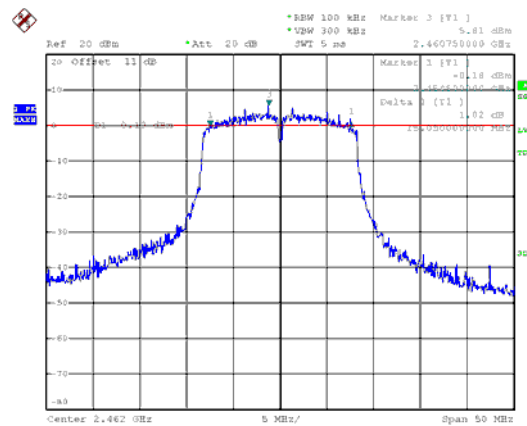
CH06



CH11

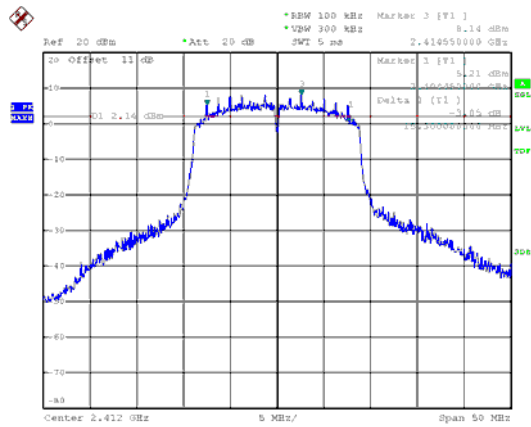
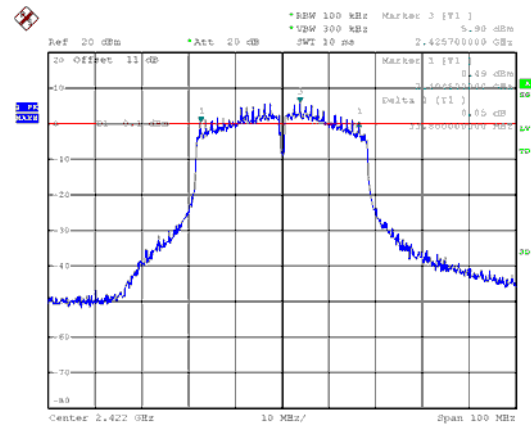


CH11

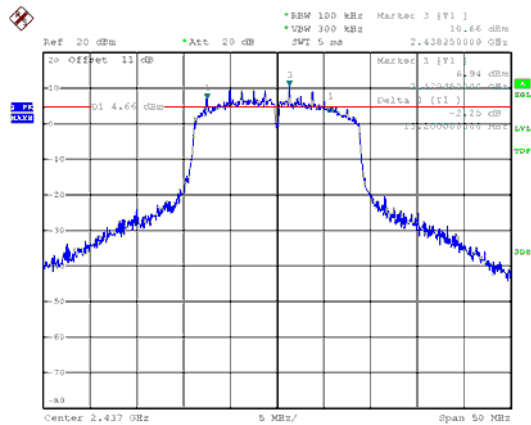




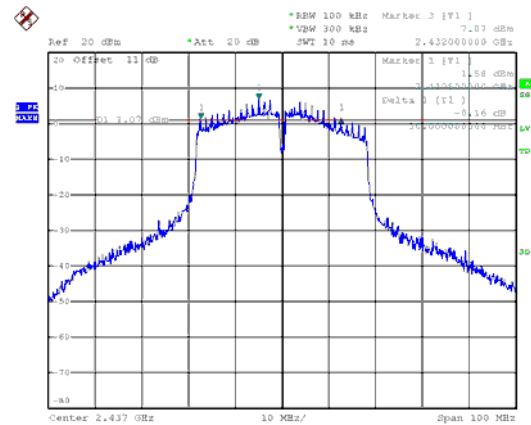
ANT A

Modulation Type: 802.11n HT20
CH01Modulation Type: 802.11n HT40
CH03

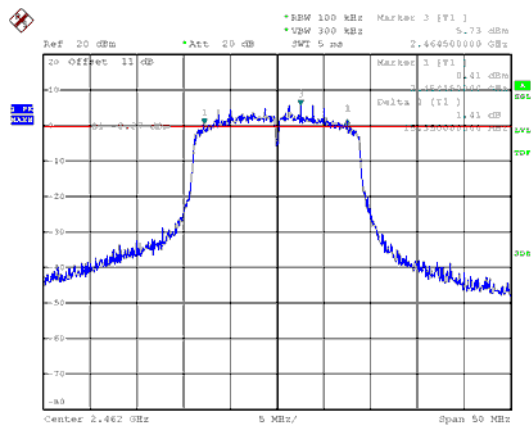
CH06



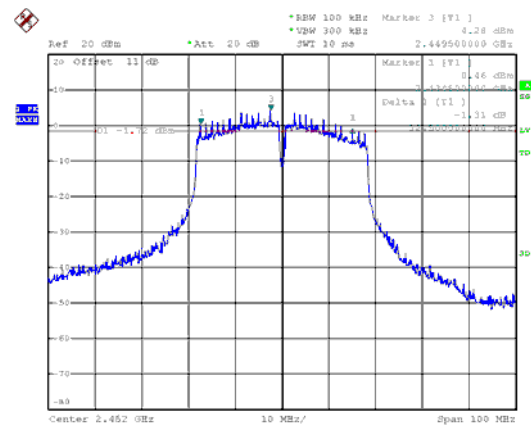
CH06



CH11

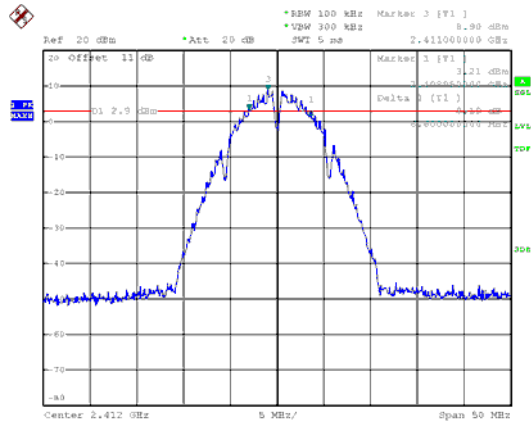


CH09

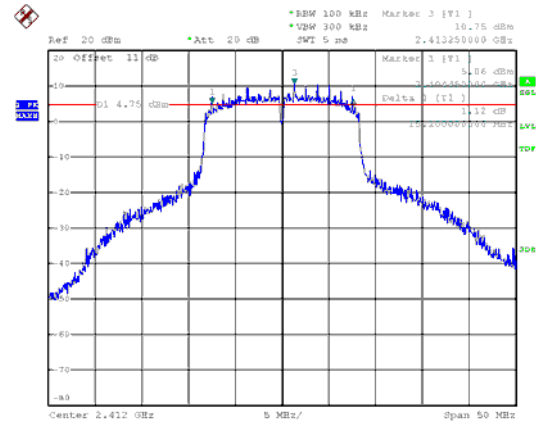




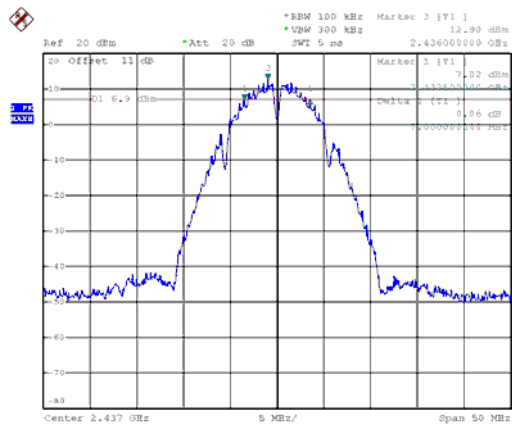
ANT B
Modulation Type: 802.11b
CH01



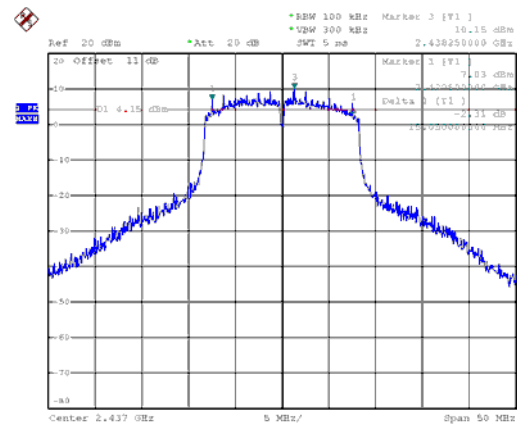
Modulation Type: 802.11g
CH01



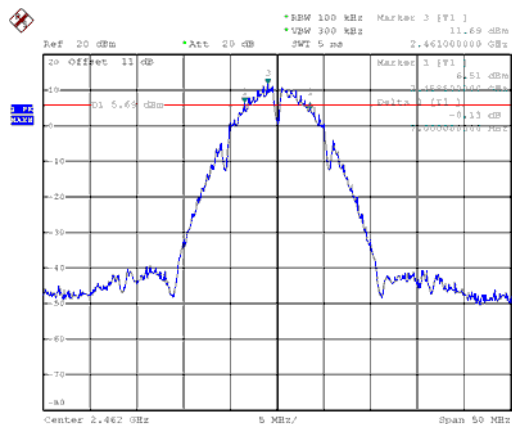
CH06



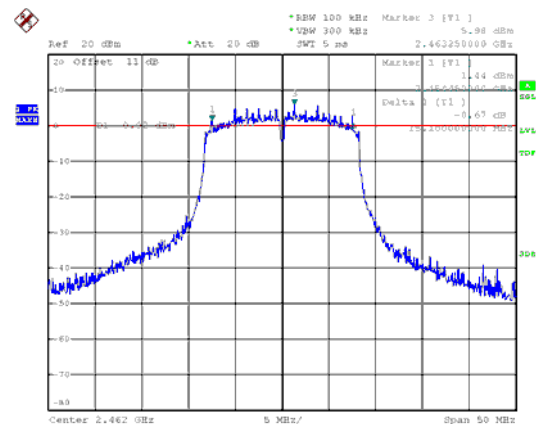
CH06



CH11



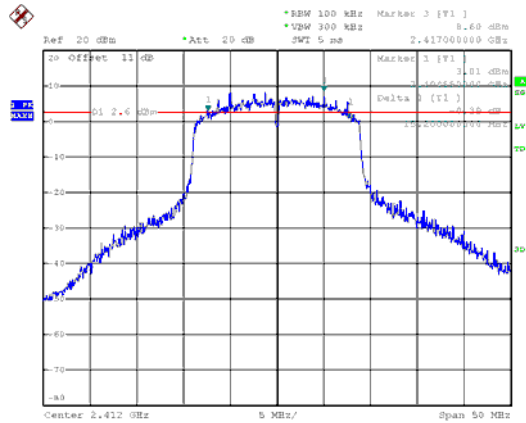
CH11



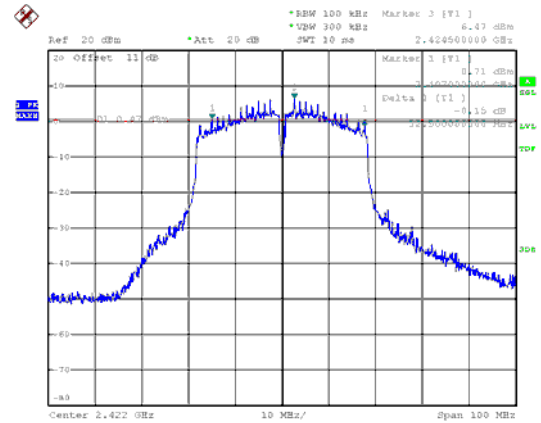


ANT B

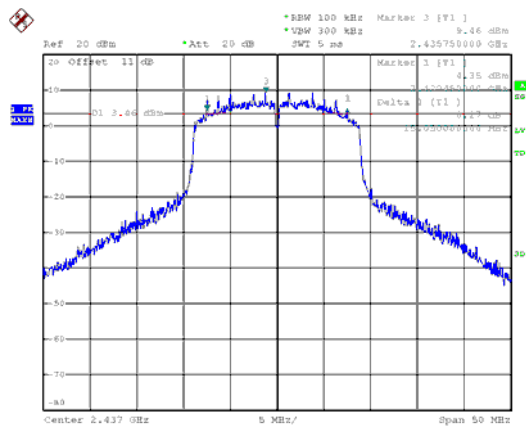
Modulation Type: 802.11n HT20
CH01



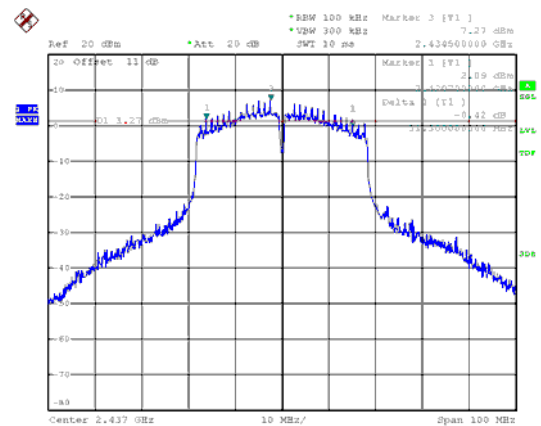
Modulation Type: 802.11n HT40
CH03



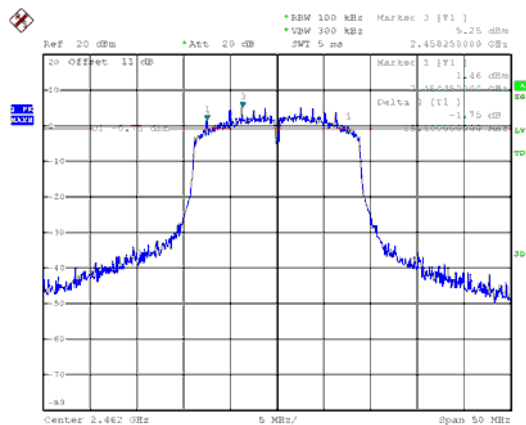
CH06



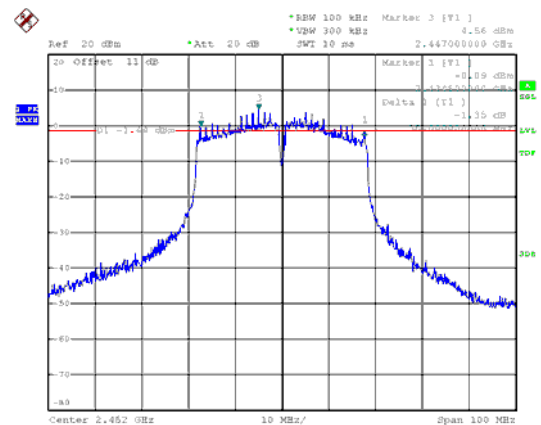
CH06



CH11



CH09





10. Maximum Peak and Average Output Power

10.1 Test Limit

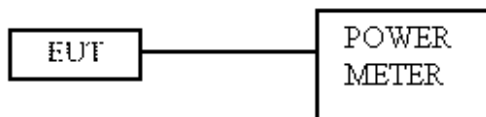
The Maximum Peak Output Power Measurement is 30dBm.

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

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)	Power Limit (dBm)
				ANT A	ANT B			
15.5	11b	1	2412	20.08	19.87	22.99	198.910	30.00
20		6	2437	24.31	23.71	27.03	504.737	30.00
20		11	2462	22.84	22.89	25.88	386.845	30.00
20	11g	1	2412	26.81	26.77	29.80	955.069	30.00
20		6	2437	27.01	26.87	29.95	988.750	30.00
17		11	2462	24.22	24.12	27.18	522.467	30.00
18.5	11n HT20	1	2412	26.28	26.01	29.16	823.644	30.00
20		6	2437	26.97	26.94	29.97	992.048	30.00
17		11	2462	24.11	24.02	27.08	509.980	30.00
17.5	11n HT40	3	2422	25.84	25.94	28.90	776.352	30.00
19		6	2437	26.41	26.49	29.46	883.178	30.00
17.5		9	2452	24.15	24.54	27.36	544.462	30.00

Power Set	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)		Total AV power (dBm)	Total AV power (mW)	Power Limit (dBm)
				ANT A	ANT B			
15.5	11b	1	2412	16.92	16.76	19.85	96.628	NA
20		6	2437	21.21	20.59	23.92	246.681	NA
20		11	2462	19.78	19.81	22.81	190.780	NA
20	11g	1	2412	21.12	21.07	24.11	257.358	NA
20		6	2437	20.89	20.62	23.77	238.089	NA
17		11	2462	16.84	16.81	19.84	96.279	NA
18.5	11n HT20	1	2412	19.82	19.72	22.78	189.696	NA
20		6	2437	20.72	20.68	23.71	234.982	NA
17		11	2462	16.82	16.67	19.76	94.535	NA
17.5	11n HT40	3	2422	18.71	19.03	21.88	154.285	NA
19		6	2437	19.79	19.93	22.87	193.681	NA
17.5		9	2452	17.01	17.53	20.29	106.858	NA

Note: Average power is for reference only.



11. Power Spectral Density

11.1 Test Limit

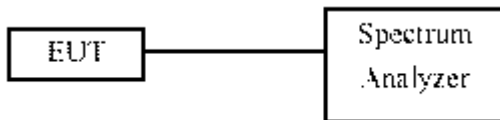
The Maximum of Power Spectral Density Measurement is 8dBm.

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

- The transmitter output was connected to spectrum analyzer.
- 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.
- The power spectral density was measured and recorded.

11.3 Test Setup Layout

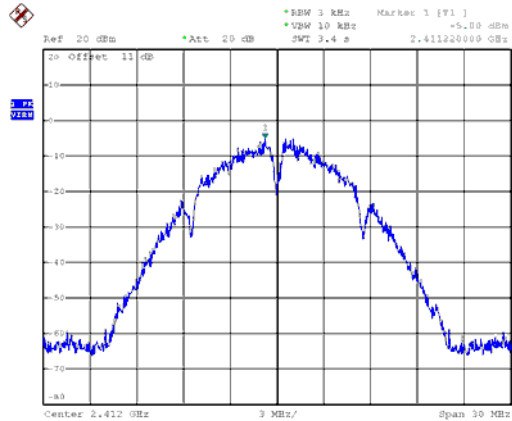


11.4 Test Result and Data

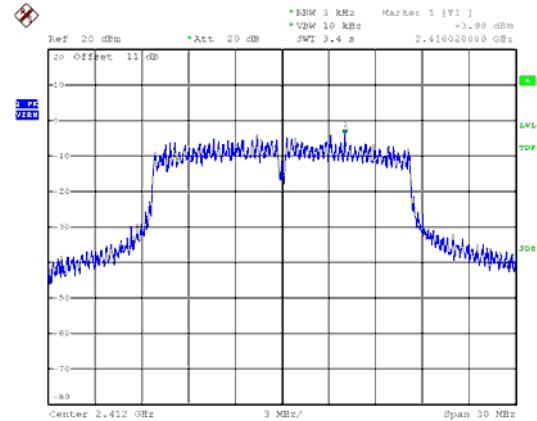
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)		Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT A	ANT B				
11b	1	2412	-5.00	-5.70	-2.33	0.00	-2.33	6.03
	6	2437	-1.24	-2.06	1.38	0.00	1.38	6.03
	11	2462	-2.79	-2.41	0.41	0.00	0.41	6.03
11g	1	2412	-3.90	-2.75	-0.28	0.00	-0.28	6.03
	6	2437	-4.19	-3.88	-1.02	0.00	-1.02	6.03
	11	2462	-7.05	-7.67	-4.34	0.00	-4.34	6.03
11n HT20	1	2412	-5.21	-5.41	-2.30	0.00	-2.30	6.03
	6	2437	-3.17	-4.25	-0.67	0.00	-0.67	6.03
	11	2462	-8.23	-9.43	-5.78	0.00	-5.78	6.03
11n HT40	3	2422	-8.31	-8.97	-5.62	0.00	-5.62	6.03
	6	2437	-7.79	-8.49	-5.12	0.00	-5.12	6.03
	9	2452	-9.89	-10.62	-7.23	0.00	-7.23	6.03



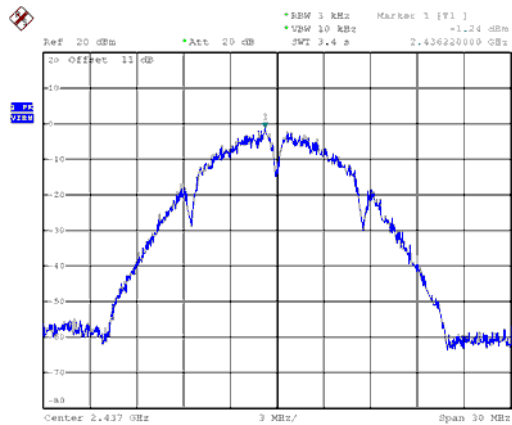
ANT A
Modulation Type: 802.11b
CH01



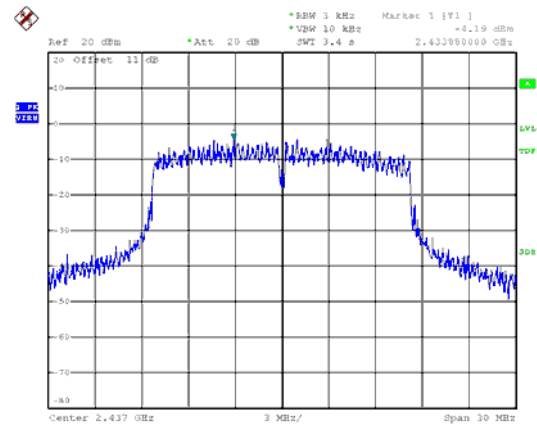
Modulation Type: 802.11g
CH01



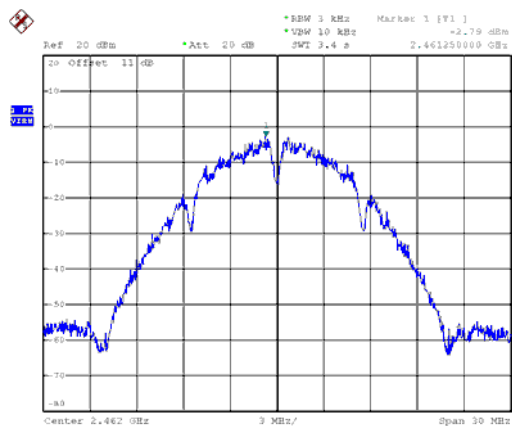
CH06



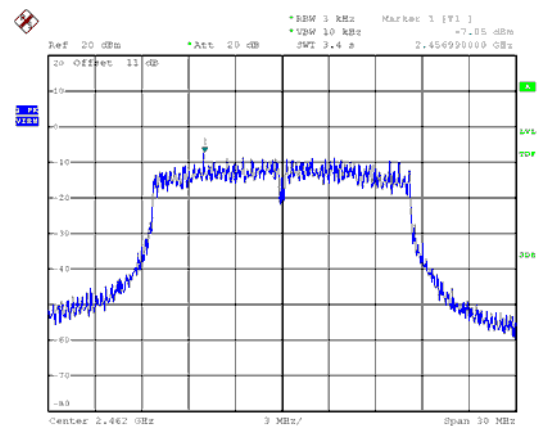
CH06



CH11

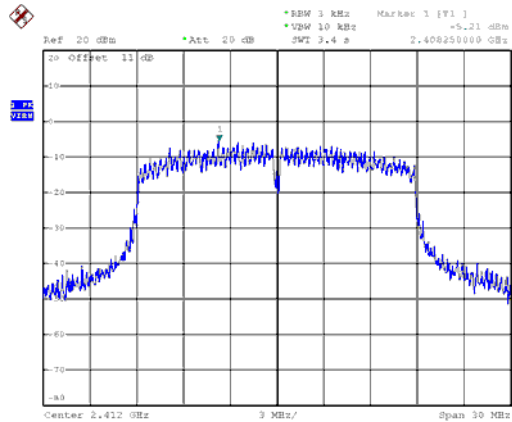


CH11

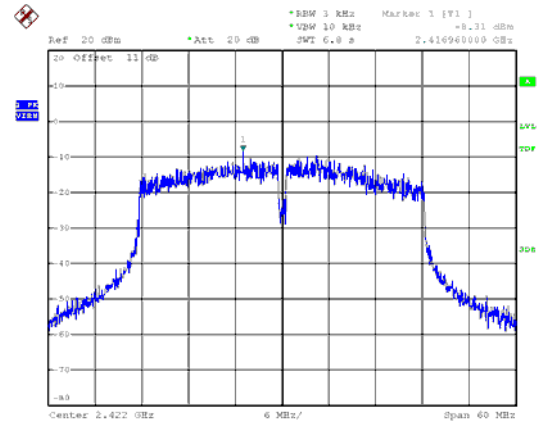




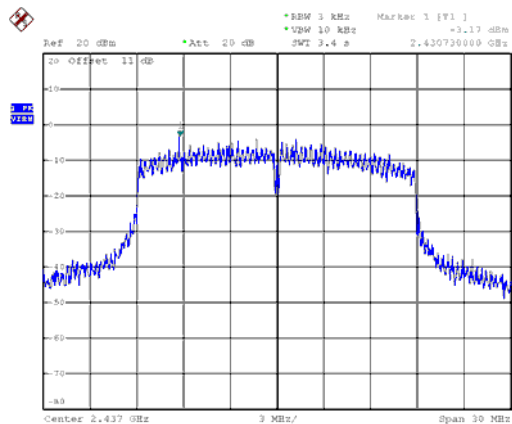
ANT A
Modulation Type: 802.11n HT20
CH01



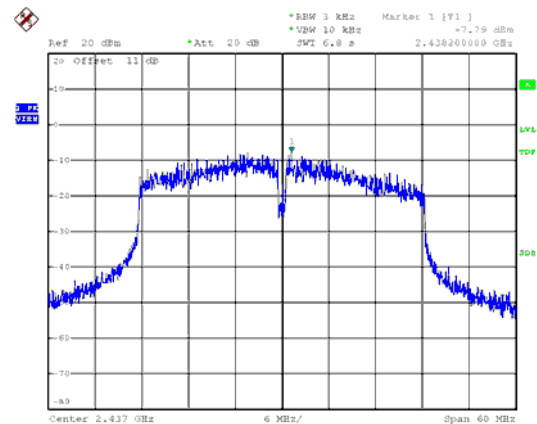
Modulation Type: 802.11n HT40
CH03



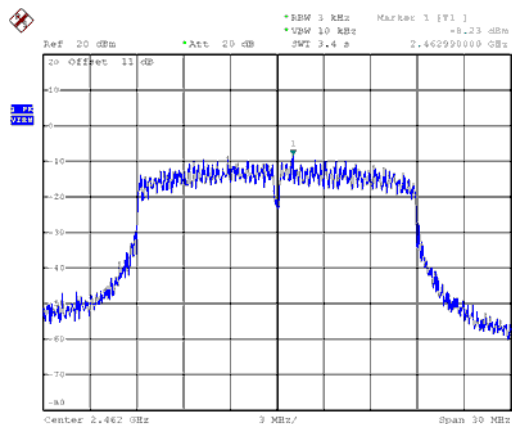
CH06



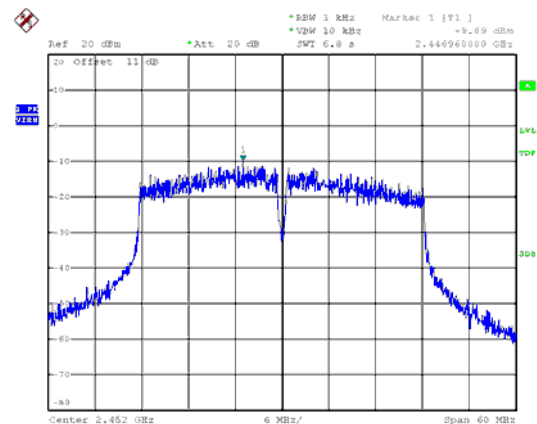
CH06



CH11

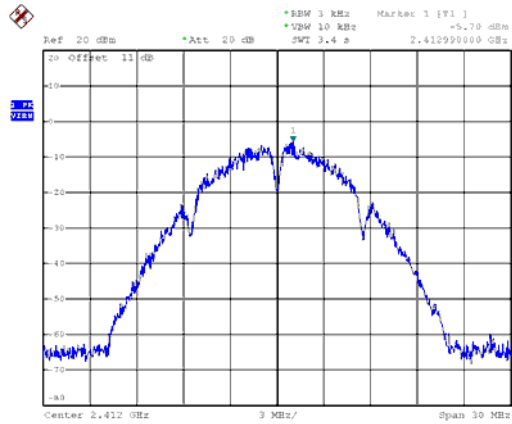


CH09

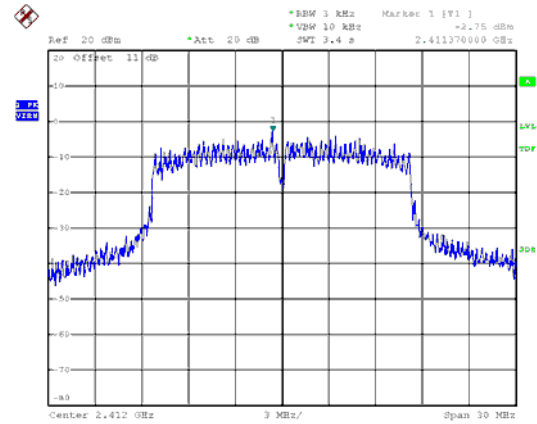




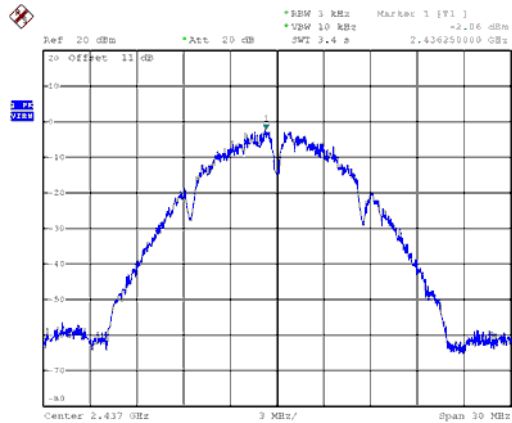
ANT B
Modulation Type: 802.11b
CH01



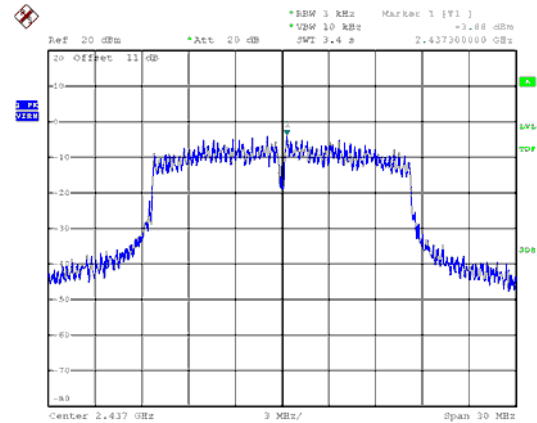
Modulation Type: 802.11g
CH01



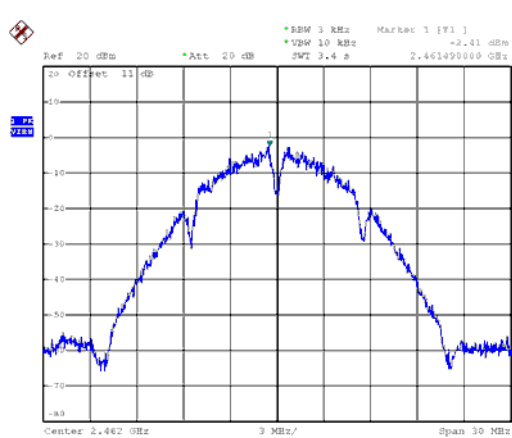
CH06



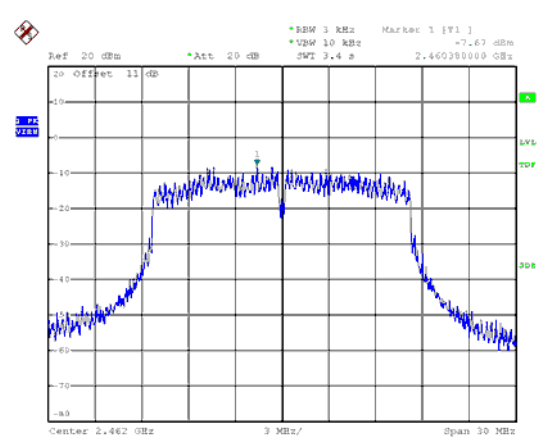
CH06



CH11

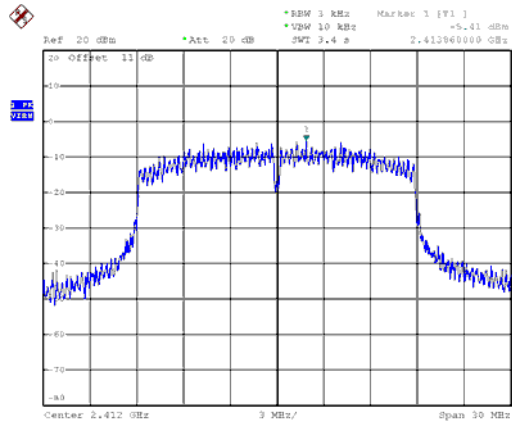


CH11

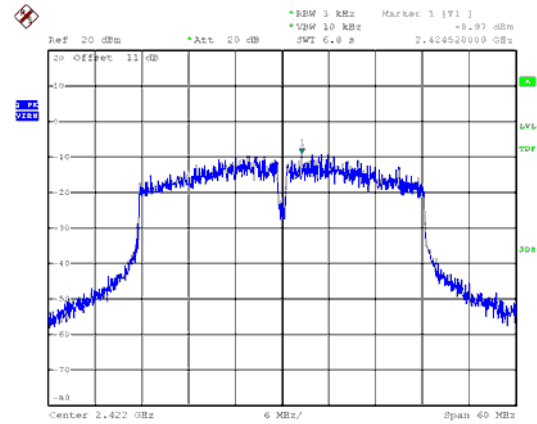




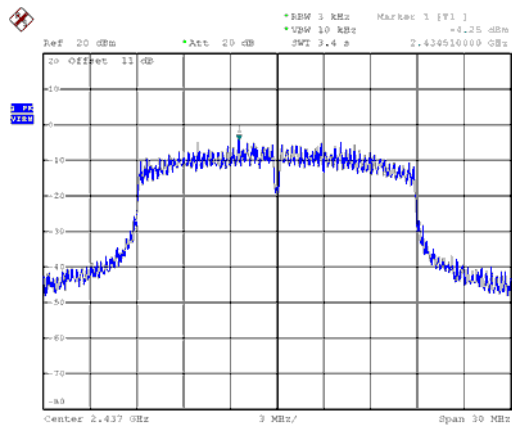
ANT B
Modulation Type: 802.11n HT20
CH01



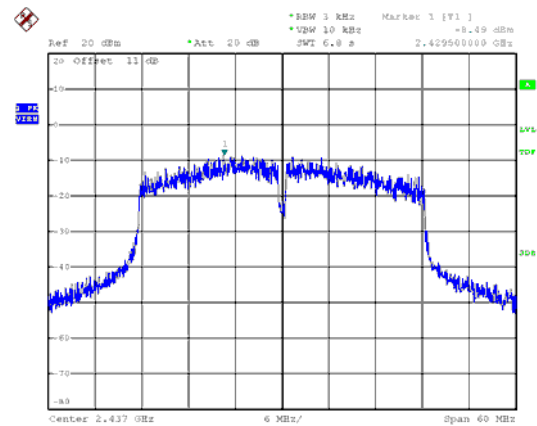
Modulation Type: 802.11n HT40
CH03



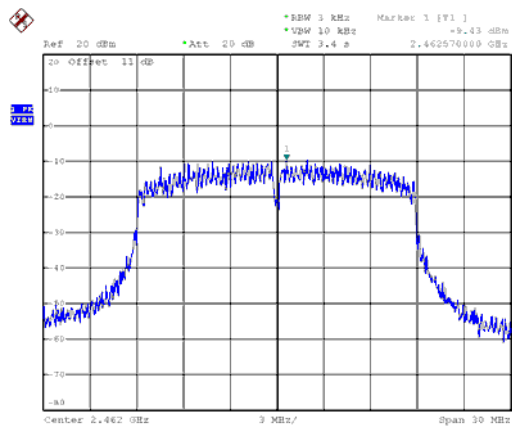
CH06



CH06



CH11



CH09

