



TEST REPORT

FCC ID: V2V-3000, IC:7607A-3000

Applicant : LigoWave LLC

Address : 138 Mountain Brook Dr Canton, GA 30115 United States

Equipment under Test (EUT):

Name : Broadband Digital Transmission System
Model : FWBD-3000

Standards : FCC PART 15, SUBPART C : 2015 (Section 15.247)
RSS-247 ISSUE 1 MAY 2015
ANSI C63.4:2014 ; ANSI C63.10:2013

Report No. : T1851860 05

Date of Test : March 01, 2016- April 28, 2016

Date of Issue : March 29, 2016

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

(Mark Zhu)
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Alpha Product Testing Co., Ltd. Or test done by Shenzhen Alpha Product Testing Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Alpha Product Testing Co., Ltd. Approvals in writing.

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TEST REPORT VERIFICATION

Applicant : LigoWave LLC
Manufacturer : LigoWave LLC
EUT Description : Broadband Digital Transmission System

(A) Model No. : FWBD-3000
(B) Trademark : N/A
(C) Ratings Supply : DC 48V Supply by POE adaptor with 120V/60Hz input
(D) Test Voltage : DC 48V Supply by POE adaptor with 120V/60Hz input

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C 2015, ANSI C63.4-2014; ANSI C63.10-2013

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Eric Huang
Test Engineer

.....

.....

Approved by (name + signature).....:

Simple Guan
Project Manager

.....

.....

Date of issue.....

March 29, 2016

1 General Information

1.1 Description of Device (EUT)

Trade Name	: N/A
EUT	: Broadband Digital Transmission System
Model No.	FWBD-3000
DIFF.	: N/A
Antenna Type :	LigoDLB PRO sector antenna : 16dBi Directional gain of LigoDLB PRO sector antenna= $16+10\log 2=19.01\text{dBi}$ 2*Omni antenna : 3 dBi Directional gain of Omni antenna= $3+10\log 2=6.01\text{dBi}$
Operation Frequency	IEEE 802.11b/g: 2412MHz-2462MHz : IEEE 802.11n HT20: 2412MHz-2462MHz IEEE 802.11n HT40: 2422MHz-2452MHz IEEE 802.11b/g: 11Channels
Channel number	: IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7Channels IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
Modulation type	: IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK)
Power Supply	: DC 48V Supply by POE adaptor with 120V/60Hz input
Adapter	Model No.: GRT-POE20-480050A, G0720-480-050
Applicant	: LigoWave LLC
Address	: 138 Mountain Brook Dr Canton, GA 30115 United States
Manufacturer	: LigoWave LLC
Address	: 138 Mountain Brook Dr Canton, GA 30115 United States

NOTE:

LigoDLB PRO sector antenna mode

Operation Frequency :

IEEE 802.11b/g: 2412MHz-2462MHz (MIMO mode)

IEEE 802.11n HT20: 2412MHz-2462MHz (MIMO mode)

IEEE 802.11n HT40: 2422MHz-2452MHz (MIMO mode)

2*Omni antenna mode

Operation Frequency :

IEEE 802.11b/g: 2412MHz-2462MHz (SISO and MIMO mode)

IEEE 802.11n HT20: 2412MHz-2462MHz (MIMO mode)

IEEE 802.11n HT40: 2422MHz-2452MHz (MIMO mode)

1.2 Description of Test Facility

Shenzhen Alpha Product Testing Co., Ltd
Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,
Bao'an, Shenzhen, China

August 11, 2014 File on Federal Communication Commission
Registration Number: 203110

July 18, 2014 Certificated by IC
Registration Number: 12135A

2 EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal. Due to	Cal Interval
3m Semi-Anechoic	CHENYU	N/A	N/A	2018.01.18	2Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2017.01.16	1Year
Receiver	R&S	ESPI	101873	2017.01.16	1Year
Receiver	R&S	ESCI	101165	2017.01.16	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	VULB9168-438	2018.01.18	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2017.01.20	2Year
Cable	Resenberger	N/A	No.1	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.2	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.3	2017.01.16	1Year
Pre-amplifier	HP	HP8347A	2834A00455	2017.01.18	1Year
Pre-amplifier	Agilent	8449B	3008A02664	2017.01.18	1Year
vector Signal Generator	Agilent	N5182A	MY49060042	2016.11.16	1 Year
vector Signal Generator	Agilent	E4438C	US44271917	2016.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	2016.11.16	1 Year

X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	2016.11.16	1 Year
Signal Analyzer	Agilent	N9020A	MY48030494	2016.11.16	1 Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2017.01.16	1 Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	101043	2017.01.16	1 Year

3 Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a 50 μ H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25°C with a humidity of 58%.

RADIATION INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS

33.20 dBuV + 10.36 dB + 0.9 dB= 44.46 dBuV/m @ 3m

ANSI STANDARD ANSI C63.4:2014 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard ANSI C63.4:2014 10.1.7 with the EUT 40 cm from the vertical ground wall.

4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15 : 2014 & IC RSS-247	Section 15.247&15.209 & RSS-247 Section 5.5	Compliance
Conduction Emission	FCC PART 15 : 2015 & IC RSS Gen	Section 15.207&7.2.4	Compliance
Bandwidth Test	FCC PART 15 : 2015 & IC RSS-247	Section 15.247& RSS-247 5.1(2)	Compliance
Peak Power	FCC PART 15 : 2015 & IC RSS-247	Section 15.247 & RSS-247 5.4(2)	Compliance
Power Density	FCC PART 15 : 2015 & IC RSS-247	Section 15.247 & Section 5.2(2)	Compliance
Band Edge	FCC PART 15 : 2015 & IC RSS-247	Section 15.247 & Section 5.5	Compliance
Antenna Requirement	FCC PART 15 : 2015 & IC RSS Gen	Section 15.203&7.1.4	Compliance

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (The adapter be used during Test)

4.2 Test connection



4.3 Assistant equipment used for test

Description	:	Adapter
Manufacturer	:	N/A
Model No.	:	GRT-POE20-480050A

Description	:	Adapter
Manufacturer	:	N/A
Model No.	:	G0720-480-050

4.4 Test mode

Dutycycle :100% Keeping TX			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11 n/HT20 with 2.4G	6.5	Low :CH1	2412
	6.5	Middle: CH6	2437
	6.5	High: CH11	2462
IEEE 802.11 n/HT40 with 2.4G	13.5	Low :CH3	2422
	13.5	Middle:CH6	2437
	13.5	High:CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.			
Note2: All mode with 2 different kind of antennas has been tested, and only worst data of Omni antenna is listed.			

4.5 Channel list

For IEEE 802.11b/g and IEEE 802.11n/HT20 with 2.4G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH1	2412	CH5	2432	CH9	2452
CH2	2417	CH6	2437	CH10	2457

CH3	2422	CH7	2442	CH11	2462
CH4	2427	CH8	2447		

For IEEE 802.11n/HT40 with 2.4G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH1	/	CH5	2432	CH9	2452
CH2	/	CH6	2437	/	/
CH3	2422	CH7	2442	/	/
CH4	2427	CH8	2447	/	/

4.6 Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

4.7 Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10 ⁻⁹	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2°C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

5 Spurious Emission

5.1 Radiation Emission

5.1.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/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

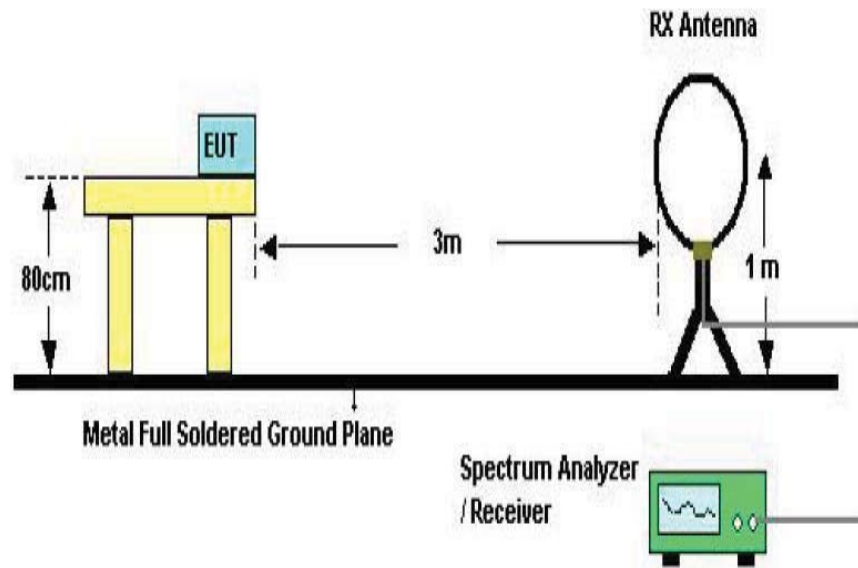
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

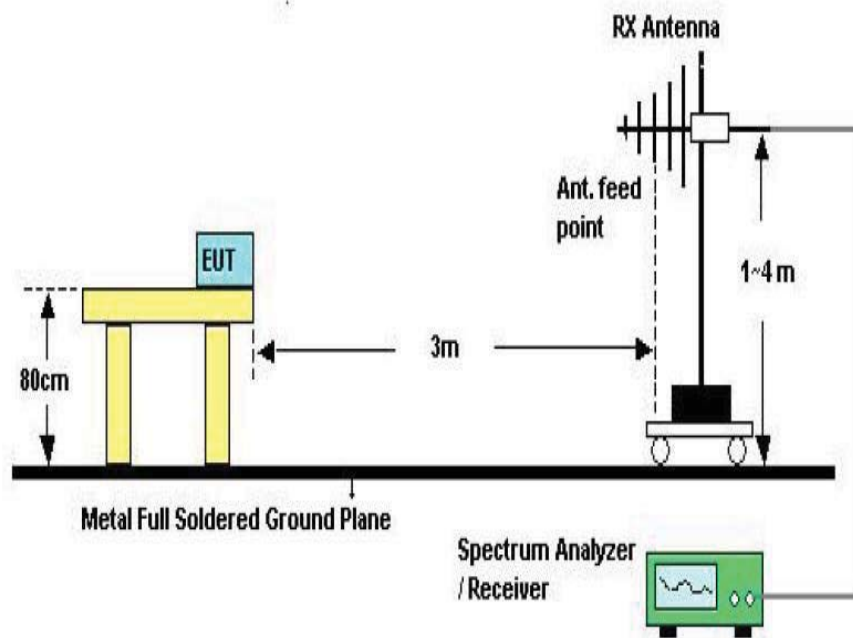
- The tighter limit applies at the band edges.
- Emission Level(dB uV/m)=20log Emission Level(Uv/m)

5.1.2 Test Setup

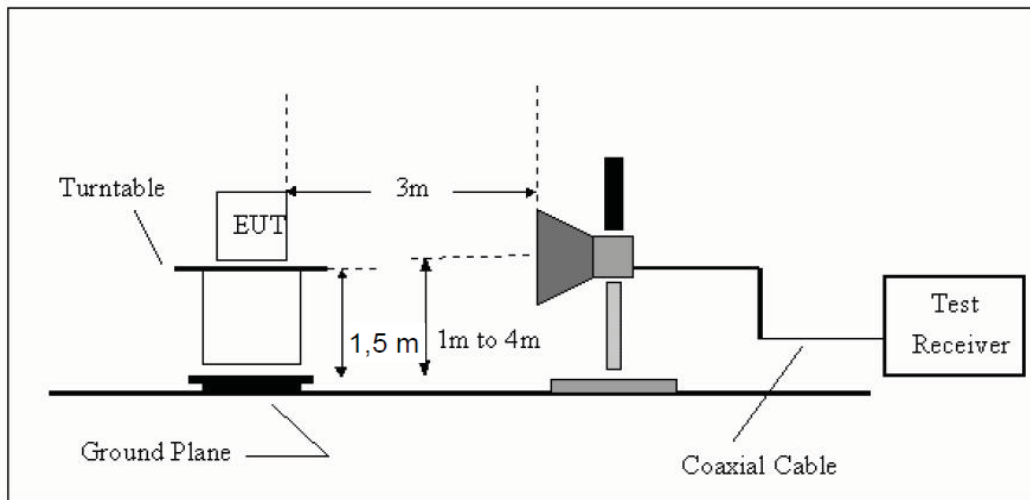
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

- a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
- b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
- c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
- d) If Peak value comply with QP limit Below 1GHz. The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
- e) For the actual test configuration, please see the test setup photo.

5.1.4 Test Equipment Setting For emission test Result

9KHz~150KHz	RBW 200Hz	VBW1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHz~1GHz	RBW 120KHz	VBW 300KHz
Above 1GHz	RBW 1MHz	VBW 3MHz

5.1.5 Test Condition

Continual Transmitting in maximum power.

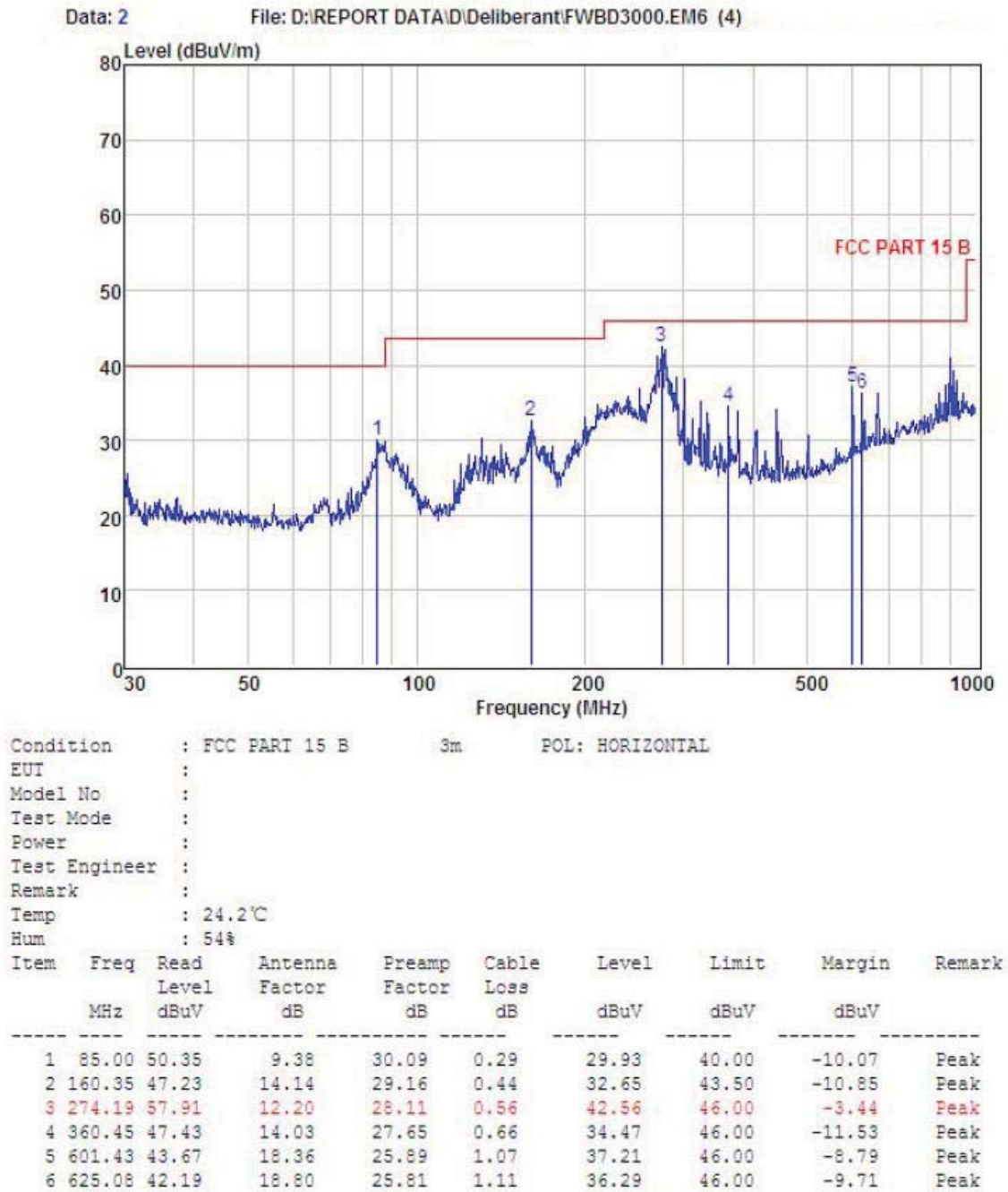
5.1.6 Test Result

We have scanned the 9KHz from 25GHz to the EUT.
Detailed information please see the following page.

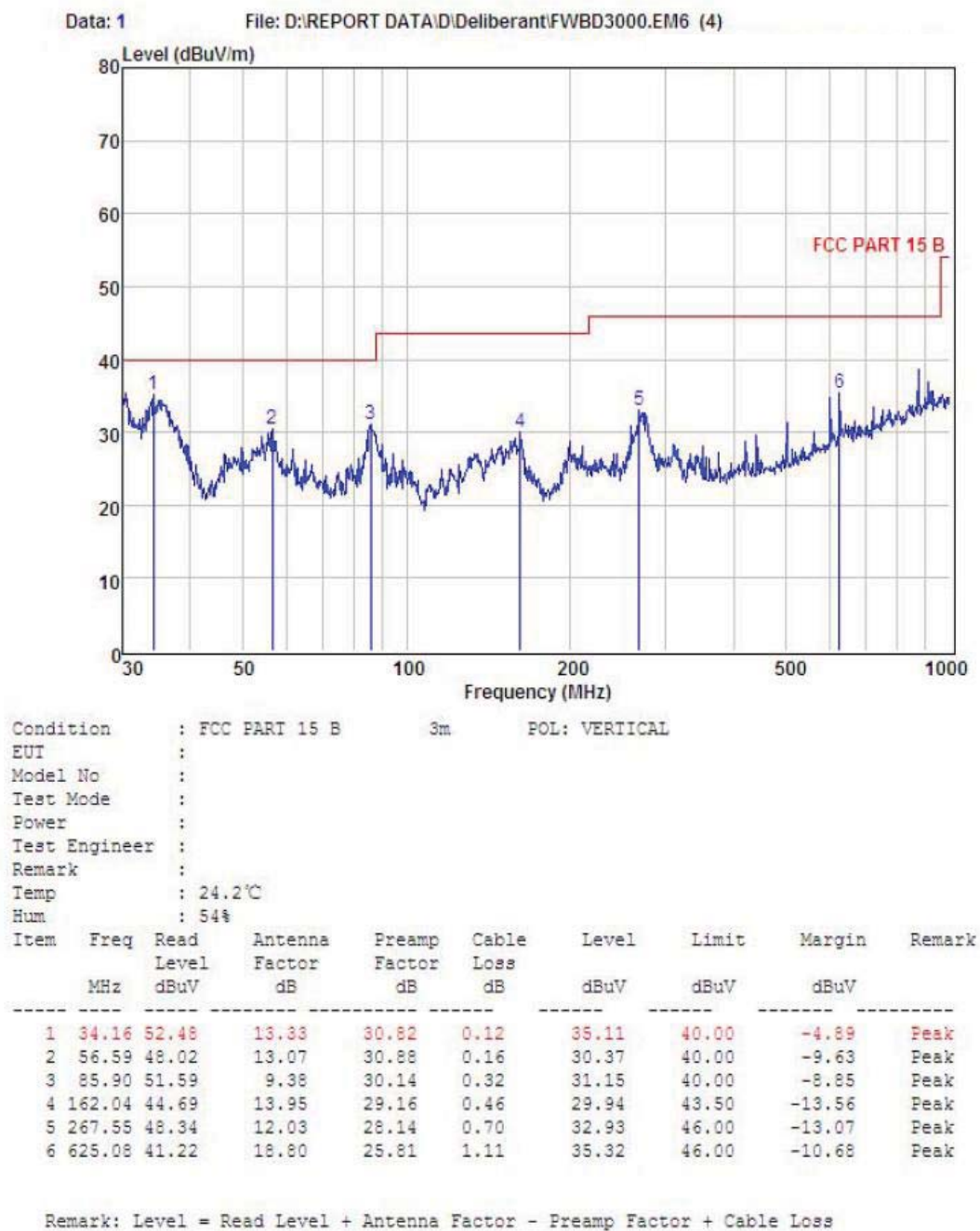
From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Data with GRT-POE20-480050A adapter



Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



Remark: All modes and channels have been tested and only worst data of 802.11b, 2412MHz with ant 1 chain is listed in this report.

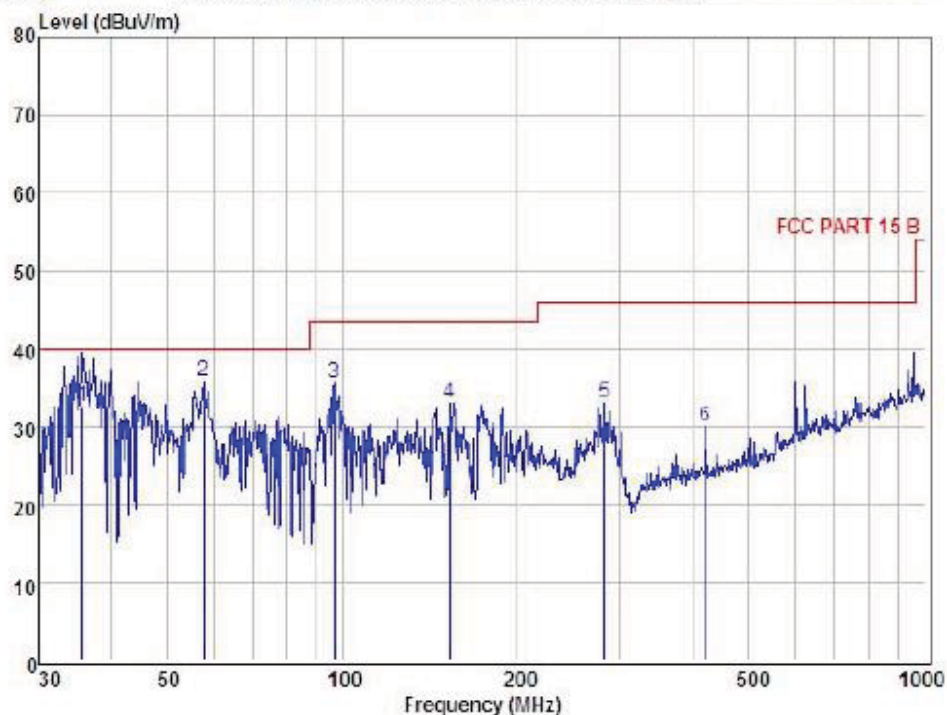
Data with G0720-480-050 adapter



Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Data: 10

File: D:\Test Data 2016\G\GaoSiBao\2016.03.28.EM6 (12)



Condition : FCC PART 15 B 3m POL: VERTICAL
 EUI :
 Model No :
 Test Mode :
 Power : AC 120V/60Hz
 Test Engineer :
 Remark :
 Temp : 24.2°C
 Hum : 54%

Item	Freq MHz	Read Level dBuV	Antenna Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	35.75	49.81	13.39	30.82	0.11	32.49	40.00	-7.51	QP
2	57.90	53.50	12.91	30.89	0.23	35.75	40.00	-4.25	Peak
3	96.77	55.33	10.01	30.19	0.35	35.80	43.50	-8.00	Peak
4	153.20	47.92	14.16	29.36	0.41	33.13	43.50	-10.37	Peak
5	281.99	48.16	12.41	28.08	0.47	32.96	46.00	-13.04	Peak
6	420.58	41.16	15.23	27.12	0.61	30.06	46.00	-15.92	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Remark: All modes and channels have been tested and only worst data of 802.11b, 2412MHz with ant 1 chain is listed in this report.

19dBi LigoDLB PRO sector antenna

From 1G-25GHz

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

IEEE 802.11b

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	44.74	---	-11.24	33.5	---	74	54	40.5	Peak
4824	V	37.12	---	0.64	37.76	---	74	54	36.24	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	44.26	---	-11.24	33.02	---	74	54	40.98	Peak
4824	H	36.85	---	0.64	37.49	---	74	54	36.51	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.71	---	-11.24	32.47	---	74	54	41.53	Peak
4874	V	39.45	---	0.76	40.21	---	74	54	33.79	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.87	---	-11.24	32.63	---	74	54	41.37	Peak
4874	H	40.45	---	0.76	41.21	---	74	54	32.79	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.66	---	-11.24	32.42	---	74	54	41.58	Peak
4924	V	35.08	---	0.87	35.95	---	74	54	38.05	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	44.07	---	-11.24	32.83	---	74	54	41.17	Peak
4924	H	33.92	---	0.87	34.79	---	74	54	39.21	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11 g:

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1145	V	44.54	---	-11.24	33.3	---	74	54	40.7	Peak
2586	V	46.61	---	-7.13	39.48	---	74	54	34.52	Peak
3062	V	44.67	---	-5.74	38.93	---	74	54	35.07	Peak
4824	V	44.27	---	0.64	44.91	---	74	54	29.09	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1294	H	43.88	---	-10.96	32.92	---	74	54	41.08	Peak
2038	H	44.07	---	-8.58	35.49	---	74	54	38.51	Peak
3483	H	42.97	---	-4.95	38.02	---	74	54	35.98	Peak
4824	H	41.77	---	0.64	42.41	---	74	54	31.59	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1374	V	44.07	---	-10.43	33.64	---	74	54	40.36	Peak
2589	V	44.66	---	-7.13	37.53	---	74	54	36.47	Peak
3365	V	44.04	---	-5.18	38.86	---	74	54	35.14	Peak
4874	V	43.26	---	0.76	44.02	---	74	54	29.98	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1321	H	44.07	---	-10.84	33.23	---	74	54	40.77	Peak
2314	H	44.77	---	-7.46	37.31	---	74	54	36.69	Peak
3577	H	43.06	---	-4.76	38.3	---	74	54	35.7	Peak
4874	H	40.77	---	0.76	41.53	---	74	54	32.47	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1302	V	44.07	---	-10.84	33.23	---	74	54	40.77	Peak
2982	V	44.61	---	-5.86	38.75	---	74	54	35.25	Peak
3831	V	43.67	---	-3.96	39.71	---	74	54	34.29	Peak
4924	V	42.07	---	0.87	42.94	---	74	54	31.06	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1446	H	44.25	---	-10.29	33.96	---	74	54	40.04	Peak
2198	H	43.07	---	-8.24	34.83	---	74	54	39.17	Peak
3905	H	44.17	---	-3.68	40.49	---	74	54	33.51	Peak
4924	H	41.65	---	0.87	42.52	---	74	54	31.48	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 2.4G

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1492	V	44.25	---	-10.27	33.98	---	74	54	40.02	Peak
2671	V	43.84	---	-6.94	36.9	---	74	54	37.1	Peak
3948	V	44.03	---	-3.68	40.35	---	74	54	33.65	Peak
4824	V	42.78	---	0.64	43.42	---	74	54	30.58	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1451	H	44.28	---	-10.27	34.01	---	74	54	39.99	Peak
2839	H	44.55	---	-6.17	38.38	---	74	54	35.62	Peak
3607	H	44.12	---	-4.52	39.6	---	74	54	34.4	Peak
4824	H	43.04	---	0.64	43.68	---	74	54	30.32	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1262	V	43.97	---	-10.96	33.01	---	74	54	40.99	Peak
2013	V	44.41	---	-8.58	35.83	---	74	54	38.17	Peak
3798	V	43.65	---	-4.07	39.58	---	74	54	34.42	Peak
4874	V	42.77	---	0.76	43.53	---	74	54	30.47	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1511	H	43.87	---	-10.14	33.73	---	74	54	40.27	Peak
2353	H	44.03	---	-7.59	36.44	---	74	54	37.56	Peak
3266	H	44.3	---	-5.39	38.91	---	74	54	35.09	Peak
4874	H	43.04	---	0.76	43.8	---	74	54	30.2	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1477	V	45.3	---	-10.27	35.03	---	74	54	38.97	Peak
2703	V	44.18	---	-6.43	37.75	---	74	54	36.25	Peak
3561	V	44.07	---	-4.76	39.31	---	74	54	34.69	Peak
4924	V	42.9	---	0.87	43.77	---	74	54	30.23	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1503	H	43.85	---	-10.14	33.71	---	74	54	40.29	Peak
3588	H	44.15	---	-4.96	39.19	---	74	54	34.81	Peak
4153	H	43.96	---	-2.48	41.48	---	74	54	32.52	Peak
4924	H	42.01	---	0.87	42.88	---	74	54	31.12	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 2.4G

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1551	V	44.31	---	-10.07	34.24	---	74	54	39.76	Peak
2695	V	44.18	---	-6.94	37.24	---	74	54	36.76	Peak
3463	V	43.47	---	-4.95	38.52	---	74	54	35.48	Peak
4844	V	42.06	---	0.64	42.7	---	74	54	31.3	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1542	H	44.08	---	-10.14	33.94	---	74	54	40.06	Peak
2358	H	43.94	---	-7.59	36.35	---	74	54	37.65	Peak
3096	H	44.35	---	-5.74	38.61	---	74	54	35.39	Peak
4844	H	42.75	---	0.64	43.39	---	74	54	30.61	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1628	V	44.64	---	-9.84	34.8	---	74	54	39.2	Peak
2593	V	44.06	---	-7.13	36.93	---	74	54	37.07	Peak
3301	V	44.2	---	-5.31	38.89	---	74	54	35.11	Peak
4874	V	43.05	---	0.76	43.81	---	74	54	30.19	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1564	H	44.27	---	-10.07	34.2	---	74	54	39.8	Peak
2248	H	44.61	---	-8.13	36.48	---	74	54	37.52	Peak
3159	H	43.57	---	-5.52	38.05	---	74	54	35.95	Peak
4874	H	42.82	---	0.76	43.58	---	74	54	30.42	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1645	V	44.7	---	-9.84	34.86	---	74	54	39.14	Peak
2590	V	44.23	---	-7.13	37.1	---	74	54	36.9	Peak
3851	V	43.65	---	-3.84	39.81	---	74	54	34.19	Peak
4904	V	42	---	0.87	42.87	---	74	54	31.13	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1792	H	44.37	---	-9.27	35.1	---	74	54	38.9	Peak
2804	H	44.55	---	-6.17	38.38	---	74	54	35.62	Peak
3743	H	44.91	---	-4.24	40.67	---	74	54	33.33	Peak
4904	H	43.34	---	0.87	44.21	---	74	54	29.79	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

Omni antenna MODE

Ant0:

From 1G-25GHz

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

IEEE 802.11b

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	44.64	---	-11.24	33.4	---	74	54	40.6	Peak
4824	V	37.02	---	0.64	37.66	---	74	54	36.34	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	44.16	---	-11.24	32.92	---	74	54	41.08	Peak
4824	H	36.75	---	0.64	37.39	---	74	54	36.61	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.61	---	-11.24	32.37	---	74	54	41.63	Peak
4874	V	39.35	---	0.76	40.11	---	74	54	33.89	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.77	---	-11.24	32.53	---	74	54	41.47	Peak
4874	H	40.35	---	0.76	41.11	---	74	54	32.89	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.56	---	-11.24	32.32	---	74	54	41.68	Peak
4924	V	34.98	---	0.87	35.85	---	74	54	38.15	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.97	---	-11.24	32.73	---	74	54	41.27	Peak
4924	H	33.82	---	0.87	34.69	---	74	54	39.31	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11 g:

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1145	V	44.44	---	-11.24	33.2	---	74	54	40.8	Peak
2586	V	46.51	---	-7.13	39.38	---	74	54	34.62	Peak
3062	V	44.57	---	-5.74	38.83	---	74	54	35.17	Peak
4824	V	44.17	---	0.64	44.81	---	74	54	29.19	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1294	H	43.78	---	-10.96	32.82	---	74	54	41.18	Peak
2038	H	43.97	---	-8.58	35.39	---	74	54	38.61	Peak
3483	H	42.87	---	-4.95	37.92	---	74	54	36.08	Peak
4824	H	41.67	---	0.64	42.31	---	74	54	31.69	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1374	V	43.97	---	-10.43	33.54	---	74	54	40.46	Peak
2589	V	44.56	---	-7.13	37.43	---	74	54	36.57	Peak
3365	V	43.94	---	-5.18	38.76	---	74	54	35.24	Peak
4874	V	43.16	---	0.76	43.92	---	74	54	30.08	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1321	H	43.97	---	-10.84	33.13	---	74	54	40.87	Peak
2314	H	44.67	---	-7.46	37.21	---	74	54	36.79	Peak
3577	H	42.96	---	-4.76	38.2	---	74	54	35.8	Peak
4874	H	40.67	---	0.76	41.43	---	74	54	32.57	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1302	V	43.97	---	-10.84	33.13	---	74	54	40.87	Peak
2982	V	44.51	---	-5.86	38.65	---	74	54	35.35	Peak
3831	V	43.57	---	-3.96	39.61	---	74	54	34.39	Peak
4924	V	41.97	---	0.87	42.84	---	74	54	31.16	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1446	H	44.15	---	-10.29	33.86	---	74	54	40.14	Peak
2198	H	42.97	---	-8.24	34.73	---	74	54	39.27	Peak
3905	H	44.07	---	-3.68	40.39	---	74	54	33.61	Peak
4924	H	41.55	---	0.87	42.42	---	74	54	31.58	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

Ant1

From 1G-25GHz

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

IEEE 802.11b

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	44.52	---	-11.24	33.28	---	74	54	40.72	Peak
4824	V	36.9	---	0.64	37.54	---	74	54	36.46	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	44.04	---	-11.24	32.8	---	74	54	41.2	Peak
4824	H	36.63	---	0.64	37.27	---	74	54	36.73	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.49	---	-11.24	32.25	---	74	54	41.75	Peak
4874	V	39.23	---	0.76	39.99	---	74	54	34.01	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.65	---	-11.24	32.41	---	74	54	41.59	Peak
4874	H	40.23	---	0.76	40.99	---	74	54	33.01	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.44	---	-11.24	32.2	---	74	54	41.8	Peak
4924	V	34.86	---	0.87	35.73	---	74	54	38.27	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.85	---	-11.24	32.61	---	74	54	41.39	Peak
4924	H	33.7	---	0.87	34.57	---	74	54	39.43	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11 g:

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1145	V	44.32	---	-11.24	33.08	---	74	54	40.92	Peak
2586	V	46.39	---	-7.13	39.26	---	74	54	34.74	Peak
3062	V	44.45	---	-5.74	38.71	---	74	54	35.29	Peak
4824	V	44.05	---	0.64	44.69	---	74	54	29.31	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1294	H	43.66	---	-10.96	32.7	---	74	54	41.3	Peak
2038	H	43.85	---	-8.58	35.27	---	74	54	38.73	Peak
3483	H	42.75	---	-4.95	37.8	---	74	54	36.2	Peak
4824	H	41.55	---	0.64	42.19	---	74	54	31.81	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1374	V	43.85	---	-10.43	33.42	---	74	54	40.58	Peak
2589	V	44.44	---	-7.13	37.31	---	74	54	36.69	Peak
3365	V	43.82	---	-5.18	38.64	---	74	54	35.36	Peak
4874	V	43.04	---	0.76	43.8	---	74	54	30.2	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX Middle		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1321	H	43.85	---	-10.84	33.01	---	74	54	40.99	Peak
2314	H	44.55	---	-7.46	37.09	---	74	54	36.91	Peak
3577	H	42.84	---	-4.76	38.08	---	74	54	35.92	Peak
4874	H	40.55	---	0.76	41.31	---	74	54	32.69	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1302	V	43.85	---	-10.84	33.01	---	74	54	40.99	Peak
2982	V	44.39	---	-5.86	38.53	---	74	54	35.47	Peak
3831	V	43.45	---	-3.96	39.49	---	74	54	34.51	Peak
4924	V	41.85	---	0.87	42.72	---	74	54	31.28	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	SISO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1446	H	44.03	---	-10.29	33.74	---	74	54	40.26	Peak
2198	H	42.85	---	-8.24	34.61	---	74	54	39.39	Peak
3905	H	43.95	---	-3.68	40.27	---	74	54	33.73	Peak
4924	H	41.43	---	0.87	42.3	---	74	54	31.7	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

From 1G-25GHz

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

IEEE 802.11b

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	44.2	---	-11.24	32.96	---	74	54	41.04	Peak
4824	V	36.09	---	0.64	36.73	---	74	54	37.27	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.63	---	-11.24	32.39	---	74	54	41.61	Peak
4824	H	35.87	---	0.64	36.51	---	74	54	37.49	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.17	---	-11.24	31.93	---	74	54	42.07	Peak
4874	V	38.42	---	0.76	39.18	---	74	54	34.82	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.24	---	-11.24	32	---	74	54	42	Peak
4874	H	39.47	---	0.76	40.23	---	74	54	33.77	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	V	43.12	---	-11.24	31.88	---	74	54	42.12	Peak
4924	V	34.05	---	0.87	34.92	---	74	54	39.08	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1103	H	43.44	---	-11.24	32.2	---	74	54	41.8	Peak
4924	H	32.94	---	0.87	33.81	---	74	54	40.19	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11 g:

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1145	V	43.52	---	-11.24	32.28	---	74	54	41.72	Peak
2586	V	45.59	---	-7.13	38.46	---	74	54	35.54	Peak
3062	V	43.65	---	-5.74	37.91	---	74	54	36.09	Peak
4824	V	43.25	---	0.64	43.89	---	74	54	30.11	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1294	H	42.86	---	-10.96	31.9	---	74	54	42.1	Peak
2038	H	43.05	---	-8.58	34.47	---	74	54	39.53	Peak
3483	H	41.95	---	-4.95	37	---	74	54	37	Peak
4824	H	40.75	---	0.64	41.39	---	74	54	32.61	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1374	V	43.05	---	-10.43	32.62	---	74	54	41.38	Peak
2589	V	43.64	---	-7.13	36.51	---	74	54	37.49	Peak
3365	V	43.02	---	-5.18	37.84	---	74	54	36.16	Peak
4874	V	42.24	---	0.76	43	---	74	54	31	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1321	H	43.71	---	-10.84	32.87	---	74	54	41.13	Peak
2314	H	44.41	---	-7.46	36.95	---	74	54	37.05	Peak
3577	H	42.7	---	-4.76	37.94	---	74	54	36.06	Peak
4874	H	40.41	---	0.76	41.17	---	74	54	32.83	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1302	V	43.71	---	-10.84	32.87	---	74	54	41.13	Peak
2982	V	44.25	---	-5.86	38.39	---	74	54	35.61	Peak
3831	V	43.31	---	-3.96	39.35	---	74	54	34.65	Peak
4924	V	41.71	---	0.87	42.58	---	74	54	31.42	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1446	H	43.77	---	-10.29	33.48	---	74	54	40.52	Peak
2198	H	42.59	---	-8.24	34.35	---	74	54	39.65	Peak
3905	H	43.69	---	-3.68	40.01	---	74	54	33.99	Peak
4924	H	41.17	---	0.87	42.04	---	74	54	31.96	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 2.4G

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1492	V	43.77	---	-10.27	33.5	---	74	54	40.5	Peak
2671	V	43.36	---	-6.94	36.42	---	74	54	37.58	Peak
3948	V	43.55	---	-3.68	39.87	---	74	54	34.13	Peak
4824	V	42.3	---	0.64	42.94	---	74	54	31.06	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1451	H	43.8	---	-10.27	33.53	---	74	54	40.47	Peak
2839	H	44.07	---	-6.17	37.9	---	74	54	36.1	Peak
3607	H	43.64	---	-4.52	39.12	---	74	54	34.88	Peak
4824	H	42.56	---	0.64	43.2	---	74	54	30.8	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1262	V	43.49	---	-10.96	32.53	---	74	54	41.47	Peak
2013	V	43.93	---	-8.58	35.35	---	74	54	38.65	Peak
3798	V	43.17	---	-4.07	39.1	---	74	54	34.9	Peak
4874	V	42.29	---	0.76	43.05	---	74	54	30.95	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1511	H	43.39	---	-10.14	33.25	---	74	54	40.75	Peak
2353	H	43.55	---	-7.59	35.96	---	74	54	38.04	Peak
3266	H	43.82	---	-5.39	38.43	---	74	54	35.57	Peak
4874	H	42.56	---	0.76	43.32	---	74	54	30.68	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1477	V	44.82	---	-10.27	34.55	---	74	54	39.45	Peak
2703	V	43.7	---	-6.43	37.27	---	74	54	36.73	Peak
3561	V	43.59	---	-4.76	38.83	---	74	54	35.17	Peak
4924	V	42.42	---	0.87	43.29	---	74	54	30.71	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1503	H	43.37	---	-10.14	33.23	---	74	54	40.77	Peak
3588	H	43.67	---	-4.96	38.71	---	74	54	35.29	Peak
4153	H	43.48	---	-2.48	41	---	74	54	33	Peak
4924	H	41.53	---	0.87	42.4	---	74	54	31.6	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 2.4G

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1551	V	43.83	---	-10.07	33.76	---	74	54	40.24	Peak
2695	V	43.7	---	-6.94	36.76	---	74	54	37.24	Peak
3463	V	42.99	---	-4.95	38.04	---	74	54	35.96	Peak
4844	V	41.58	---	0.64	42.22	---	74	54	31.78	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1542	H	43.6	---	-10.14	33.46	---	74	54	40.54	Peak
2358	H	43.46	---	-7.59	35.87	---	74	54	38.13	Peak
3096	H	43.87	---	-5.74	38.13	---	74	54	35.87	Peak
4844	H	42.27	---	0.64	42.91	---	74	54	31.09	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1628	V	44.16	---	-9.84	34.32	---	74	54	39.68	Peak
2593	V	43.58	---	-7.13	36.45	---	74	54	37.55	Peak
3301	V	43.72	---	-5.31	38.41	---	74	54	35.59	Peak
4874	V	42.57	---	0.76	43.33	---	74	54	30.67	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1564	H	43.79	---	-10.07	33.72	---	74	54	40.28	Peak
2248	H	44.13	---	-8.13	36	---	74	54	38	Peak
3159	H	43.09	---	-5.52	37.57	---	74	54	36.43	Peak
4874	H	42.34	---	0.76	43.1	---	74	54	30.9	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1645	V	44.22	---	-9.84	34.38	---	74	54	39.62	Peak
2590	V	43.75	---	-7.13	36.62	---	74	54	37.38	Peak
3851	V	43.17	---	-3.84	39.33	---	74	54	34.67	Peak
4904	V	41.52	---	0.87	42.39	---	74	54	31.61	Peak

EUT	Broadband Digital Transmission System	Model Name	FWBD-3000
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1792	H	43.89	---	-9.27	34.62	---	74	54	39.38	Peak
2804	H	44.07	---	-6.17	37.9	---	74	54	36.1	Peak
3743	H	44.43	---	-4.24	40.19	---	74	54	33.81	Peak
4904	H	42.86	---	0.87	43.73	---	74	54	30.27	Peak

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

6 POWER LINE CONDUCTED EMISSION

6.1 Conducted Emission Limits(15.207)

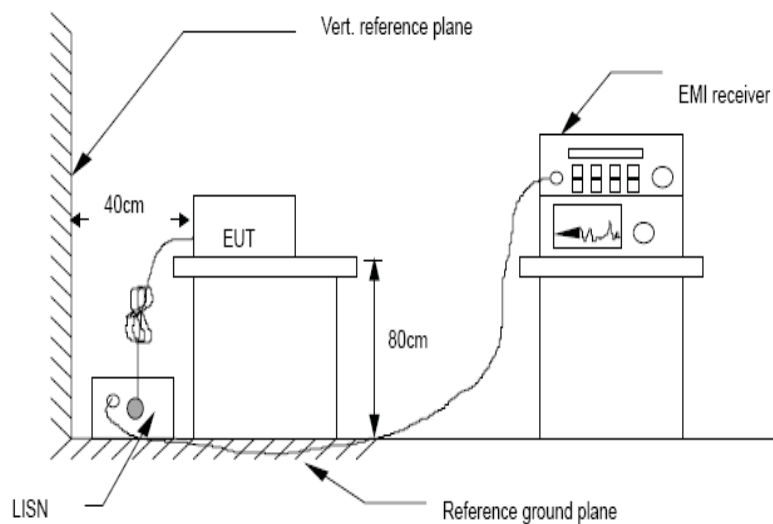
Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3. The limit decreases in line with the logarithm of the frequency in the rang of 0.15 to 0.50 MHz.

6.2 Test Setup



6.3 Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4:2014 on Conducted Emission Measurement. The bandwidth of test receiver is set at 9 kHz.

6.4 Test Results

Worse case is reported only

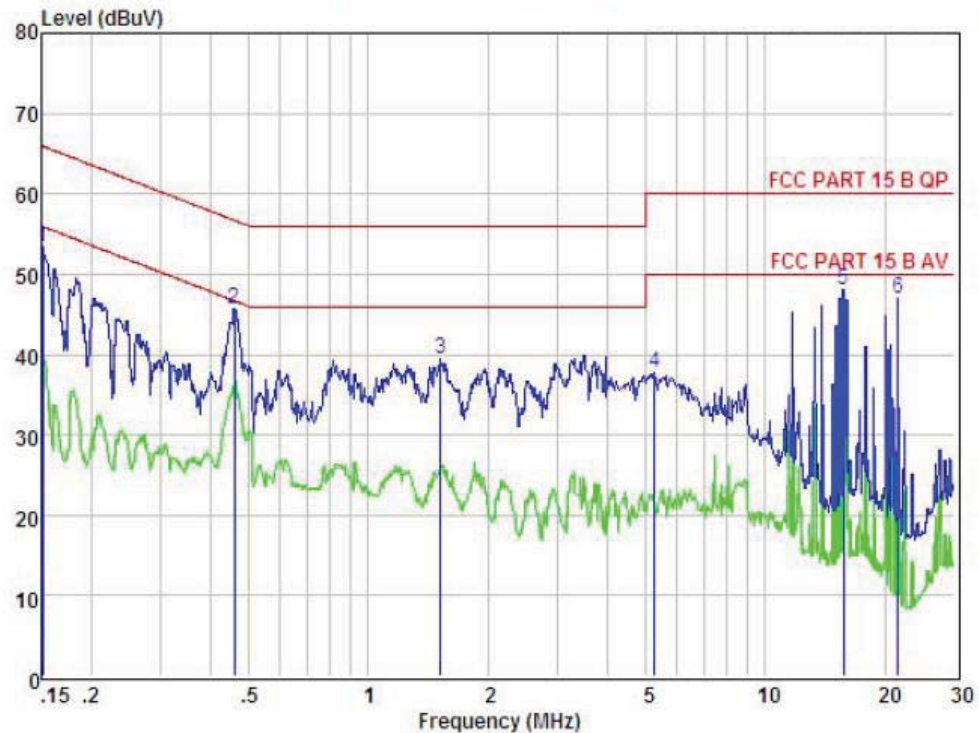
PASS

Detailed information please see the following page.

Data with GRT-POE20-480050A adapter

Data: 13

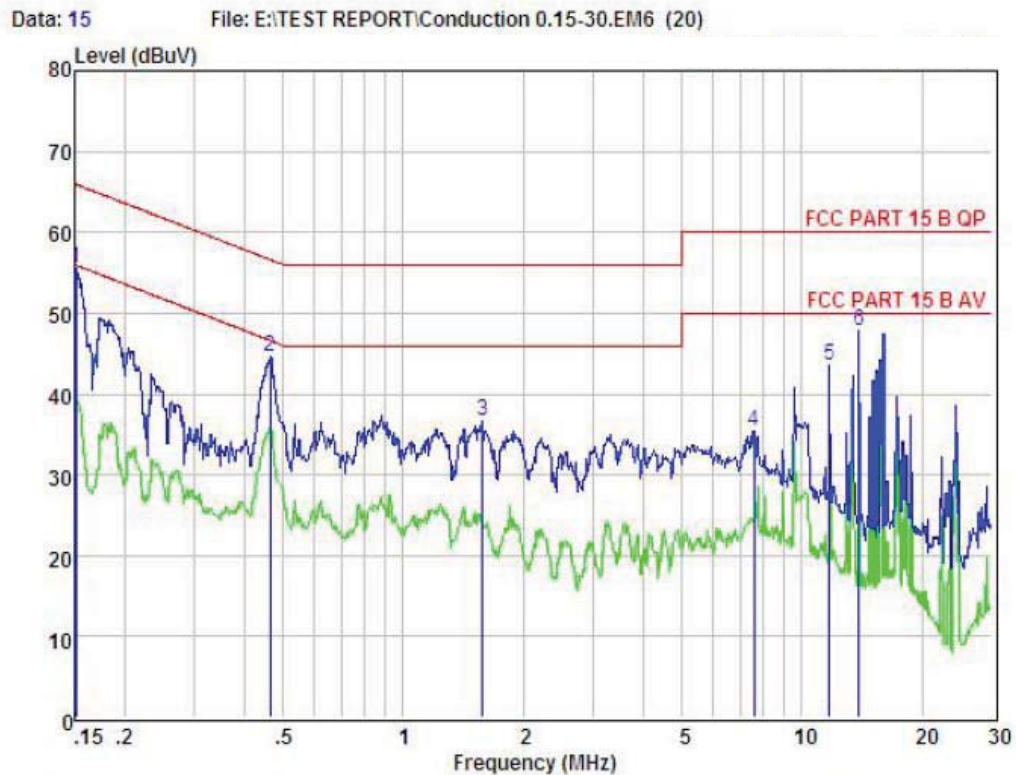
File: E:\TEST REPORT\Conduction 0.15-30.EM6 (20)



Condition : FCC PART 15 B QP POL: LINE Temp:25.7 °C Hum:51 %
 EUT :
 Model No :
 Test Mode :
 Power :
 Test Engineer:
 Remark :

Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.151	43.70	0.03	-9.49	0.08	53.30	65.96	-12.66	Peak
2	0.459	36.09	0.03	-9.58	0.08	45.78	56.71	-10.93	Peak
3	1.519	29.57	0.05	-9.68	0.10	39.40	56.00	-16.60	Peak
4	5.277	27.45	0.10	-9.94	0.17	37.66	60.00	-22.34	Peak
5	15.801	37.63	0.25	-9.83	0.28	47.99	60.00	-12.01	Peak
6	21.600	36.33	0.37	-9.81	0.47	46.98	60.00	-13.02	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:25.7 °C Hum:51 %
 EUT :
 Model No :
 Test Mode :
 Power :
 Test Engineer:
 Remark :

Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.151	46.01	0.03	-9.49	0.08	55.61	65.96	-10.35	Peak
2	0.464	34.96	0.03	-9.58	0.08	44.65	56.63	-11.98	Peak
3	1.585	26.84	0.05	-9.69	0.10	36.68	56.00	-19.32	Peak
4	7.606	25.08	0.14	-9.96	0.19	35.37	60.00	-24.63	Peak
5	11.745	33.23	0.25	-9.90	0.20	43.58	60.00	-16.42	Peak
6	13.915	37.40	0.23	-9.87	0.25	47.75	60.00	-12.25	Peak

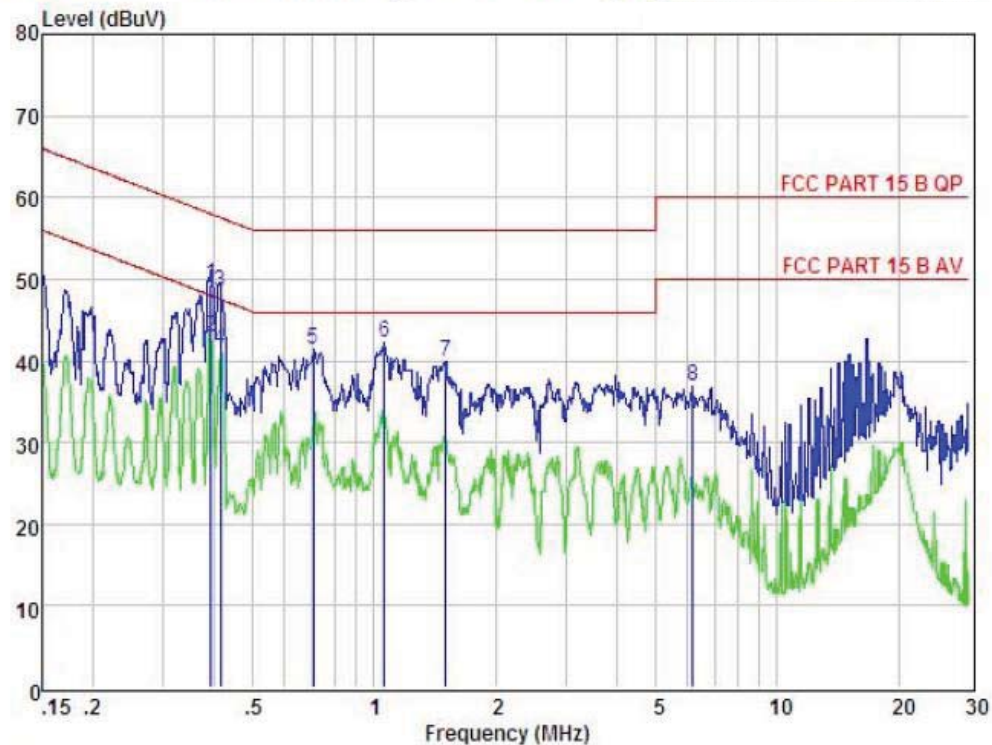
Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

Remark: All modes and channels have been tested and only worst data of 802.11b, 2412MHz with ant 1 chain is listed in this report.

Data with G0720-480-050 adapter

Data: 110

File: E:\TEST REPORT\yj\2016.03.22 CE.EM6 (121)

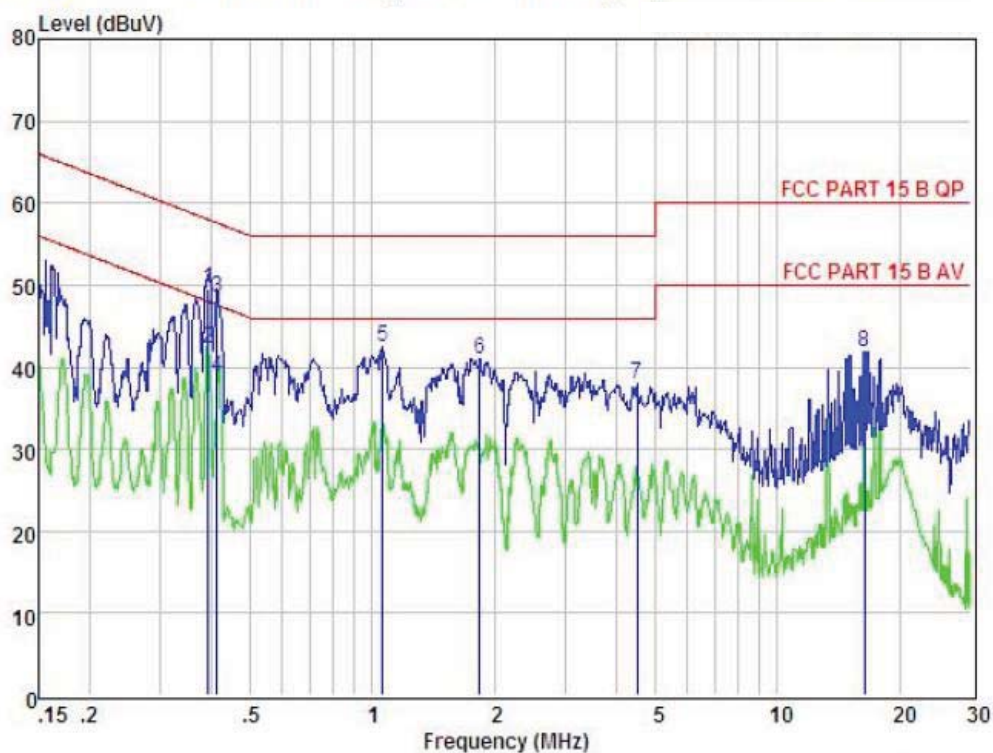


Condition : FCC PART 15 B QP POL: LINE Temp: 25.7 °C Hum: 51 %
 EUT :
 Model No :
 Test Mode :
 Power : AC 120V/60Hz
 Test Engineer :
 Remark :

Item	Freq MHz	Read Level dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.393	39.60	0.03	-9.57	0.10	49.30	57.99	-8.69	QP
2	0.393	33.30	0.03	-9.57	0.10	43.00	47.99	-4.99	Average
3	0.415	38.85	0.03	-9.57	0.10	48.55	57.55	-9.00	QP
4	0.415	31.60	0.03	-9.57	0.10	41.30	47.55	-6.25	Average
5	0.708	31.56	0.04	-9.59	0.10	41.29	56.00	-14.71	Peak
6	1.060	32.40	0.04	-9.64	0.10	42.18	56.00	-13.82	Peak
7	1.503	30.16	0.05	-9.68	0.10	39.99	56.00	-16.01	Peak
8	6.186	26.64	0.11	-9.97	0.14	36.86	60.00	-23.14	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss

Data: 112 File: E:\TEST REPORT\yj\2016.03.22 CE.EM6 (121)



Condition : FCC PART 15 B QP POL: NEUTRAL Temp: 25.7 °C Hum: 51 %
 EUI :
 Model No :
 Test Mode :
 Power : AC 120V/60Hz
 Test Engineer :
 Remark :

Item	Freq MHz	Read Level dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.393	39.80	0.03	-9.57	0.10	49.50	57.99	-8.49	QP
2	0.393	32.50	0.03	-9.57	0.10	42.20	47.99	-5.79	Average
3	0.413	38.79	0.03	-9.57	0.10	48.49	57.59	-9.10	QP
4	0.413	29.10	0.03	-9.57	0.10	38.80	47.59	-8.79	Average
5	1.060	32.59	0.04	-9.64	0.10	42.37	56.00	-13.63	Peak
6	1.839	31.09	0.05	-9.70	0.10	40.94	56.00	-15.06	Peak
7	4.501	27.86	0.09	-9.90	0.12	37.97	56.00	-18.03	Peak
8	16.398	31.55	0.26	-9.83	0.28	41.92	60.00	-18.08	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss

Remark: All modes and channels have been tested and only worst data of 802.11b, 2412MHz with ant 1 chain is listed in this report.

7 Conducted Maximum Output Power

7.1 Test limit

Please refer section 15.247.

Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1W(30dBm)

7.2 Test Procedure

Details see the KDB558074 Meas Guidance V03

7.2.1 Place the EUT on the table and set it in transmitting mode.

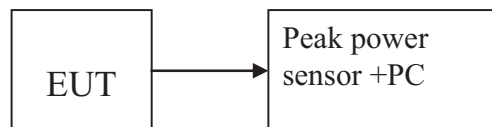
7.2.2 Connected the EUT's antenna port to peak power meter by 20dB attenuator.

7.2.3 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.

Details see the KDB558074 DTS Meas Guidance V03

7.3 Test Setup



7.4 Test Results

PASS

Detailed information please see the following page.

19dBi LigoDLB PRO sector antenna

MIMO mode

EUT: Broadband Digital Transmission System			M/N: FWBD-3000		
Test date: 2016-03-22		Test site: RF site		Tested by: Simple Guan	
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)
IEEE 802.11 b	CH1: 2412	0	21.95	25.07	25.67
		1	22.16		
	CH6: 2437	0	21.41	24.58	25.67
		1	21.72		
	CH11: 2462	0	22.14	24.91	25.67
		1	21.64		
IEEE 802.11 g	CH1: 2412	0	21.87	24.88	25.67
		1	21.87		
	CH6: 2437	0	21.21	24.24	25.67
		1	21.24		
	CH11: 2462	0	21.91	24.84	25.67
		1	21.75		
IEEE 802.11 n/HT20 with 2.4G	CH1: 2412	0	21.37	24.42	25.67
		1	21.45		
	CH6: 2437	0	20.88	23.74	25.67
		1	20.58		
	CH11: 2462	0	21.28	24.28	25.67
		1	21.25		
IEEE 802.11 n/HT40 with 2.4G	CH1: 2422	0	20.82	23.77	25.67
		1	20.69		
	CH4: 2437	0	20.54	23.59	25.67
		1	20.62		
	CH7: 2452	0	20.82	23.80	25.67
		1	20.76		
Conclusion: PASS					

2*Omni antenna MODE
SISO mode

EUT: Broadband Digital Transmission System				M/N: FWBD-3000		
Test date: 2016-03-22		Test site: RF site		Tested by: Simple Guan		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Margin (dB)
IEEE 802.11 b	CH1: 2412	0	28.16	28.16	30	1.84
		1	28.35	28.35	30	1.65
	CH6: 2437	0	28.09	28.09	30	1.91
		1	28.41	28.41	30	1.59
	CH11: 2462	0	28.23	28.23	30	1.77
		1	28.38	28.38	30	1.62
IEEE 802.11 g	CH1: 2412	0	28.42	28.42	30	1.58
		1	28.55	28.55	30	1.45
	CH6: 2437	0	28.03	28.03	30	1.97
		1	28.32	28.32	30	1.68
	CH11: 2462	0	28.17	28.17	30	1.83
		1	28.35	28.35	30	1.65
Conclusion: PASS						

2*Omni antenna MODE

MIMO mode

EUT: Broadband Digital Transmission System			M/N: FWBD-3000		
Test date: 2016-03-22		Test site: RF site		Tested by: Simple Guan	
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)
IEEE 802.11 b	CH1: 2412	0	26.37	29.26	29.99
		1	26.13		
	CH6: 2437	0	25.68	28.61	29.99
		1	25.51		
	CH11: 2462	0	26.72	29.78	29.99
		1	26.82		
IEEE 802.11 g	CH1: 2412	0	26.31	29.54	29.99
		1	26.74		
	CH6: 2437	0	25.11	28.57	29.99
		1	25.97		
	CH11: 2462	0	25.98	29.43	29.99
		1	26.82		
IEEE 802.11 n/HT20 with 2.4G	CH1: 2412	0	26.31	29.30	29.99
		1	26.26		
	CH6: 2437	0	25.79	28.73	29.99
		1	25.54		
	CH11: 2462	0	25.61	29.00	29.99
		1	26.34		
IEEE 802.11 n/HT40 with 2.4G	CH1: 2422	0	25.95	28.86	29.99
		1	25.74		
	CH4: 2437	0	25.34	28.35	29.99
		1	25.34		
	CH7: 2452	0	25.73	28.81	29.99
		1	25.86		
Conclusion: PASS					

8 PEAK POWER SPECTRAL DENSITY

8.1 Test limit

8.1.1 Please refer section 15.247.

8.1.2 For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

8.1.3 The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

8.2 Method of measurement

Details see the KDB558074 DTS Meas Guidance V03

8.2.1 Place the EUT on the table and set it in transmitting mode.

8.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

8.2.3 Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, span=5-30%EBW, detail see the test plot.

8.2.4 Record the max reading.

8.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

8.3 Test Setup



8.4 Test Results

PASS.

All modes have been tested, and according chapter 7.4, only worst data of EUT with 2*Omni antenna MODE was listed in report.

Detailed information please see the following page.

SISO mode

EUT: Broadband Digital Transmission System				M/N: FWBD-3000		
Test date: 2016-03-22		Test site: RF site		Tested by: Simple Guan		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 b	CH1: 2412	0	-3.638	-3.638	8	PASS
		1	-3.104	-3.104	8	
	CH6: 2437	0	-2.881	-2.881	8	PASS
		1	-0.744	-0.744	8	
	CH11: 2462	0	-2.920	-2.920	8	PASS
		1	-0.901	-0.901	8	
IEEE 802.11 g	CH1: 2412	0	-3.824	-3.824	8	PASS
		1	-3.254	-3.254	8	
	CH6: 2437	0	-1.482	-1.482	8	PASS
		1	-1.211	-1.211	8	
	CH11: 2462	0	-2.848	-2.848	8	PASS
		1	-2.481	-2.481	8	
Conclusion: PASS						

MIMO mode

EUT: Broadband Digital Transmission System				M/N: FWBD-3000		
Test date: 2016-03-22		Test site: RF site		Tested by: Simple Guan		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 b	CH1: 2412	0	-3.048	-0.03	8	PASS
		1	-3.037			
	CH6: 2437	0	-3.408	-0.09	8	PASS
		1	-2.805			
	CH11: 2462	0	-1.153	1.44	8	PASS
		1	-2.042			
IEEE 802.11 g	CH1: 2412	0	-3.863	-1.06	8	PASS
		1	-4.292			
	CH6: 2437	0	-3.613	-0.32	8	PASS
		1	-3.068			
	CH11: 2462	0	-3.425	0.01	8	PASS
		1	-2.616			
IEEE 802.11 n/HT20 with 2.4G	CH1: 2412	0	-4.222	-0.92	8	PASS
		1	-3.650			
	CH6: 2437	0	-4.881	-1.06	8	PASS
		1	-3.379			
	CH11: 2462	0	-3.867	0.23	8	PASS
		1	-1.914			
IEEE 802.11 n/HT40 with 2.4G	CH1: 2422	0	-6.213	-3.44	8	PASS
		1	-6.703			
	CH4: 2437	0	-8.057	-3.39	8	PASS
		1	-5.200			
	CH7: 2452	0	-7.931	-4.61	8	PASS
		1	-7.332			
Conclusion: PASS						

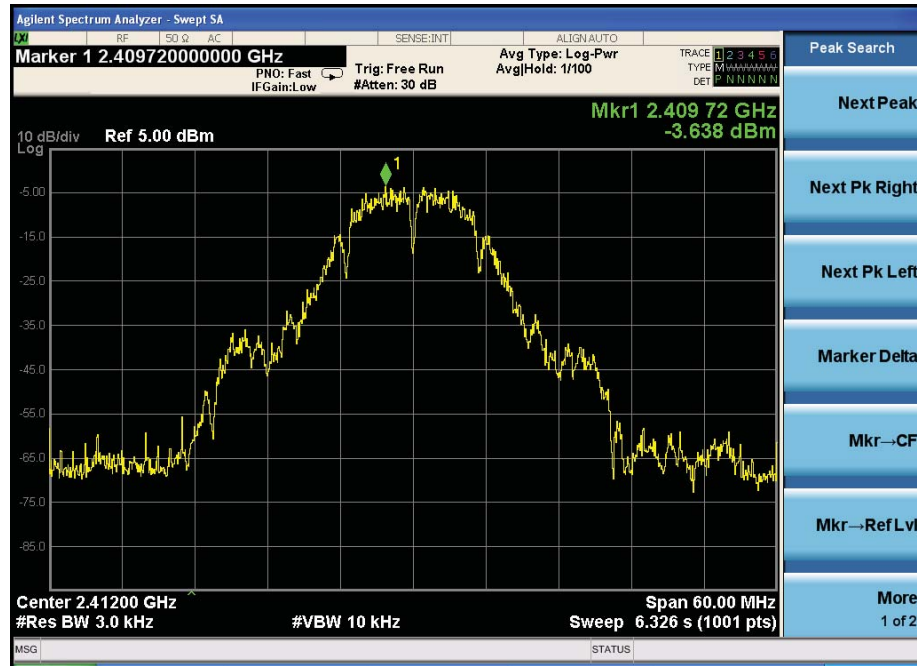
2*Omni antenna MODE

SISO mode

Port 0 antenna

IEEE 802.11b :

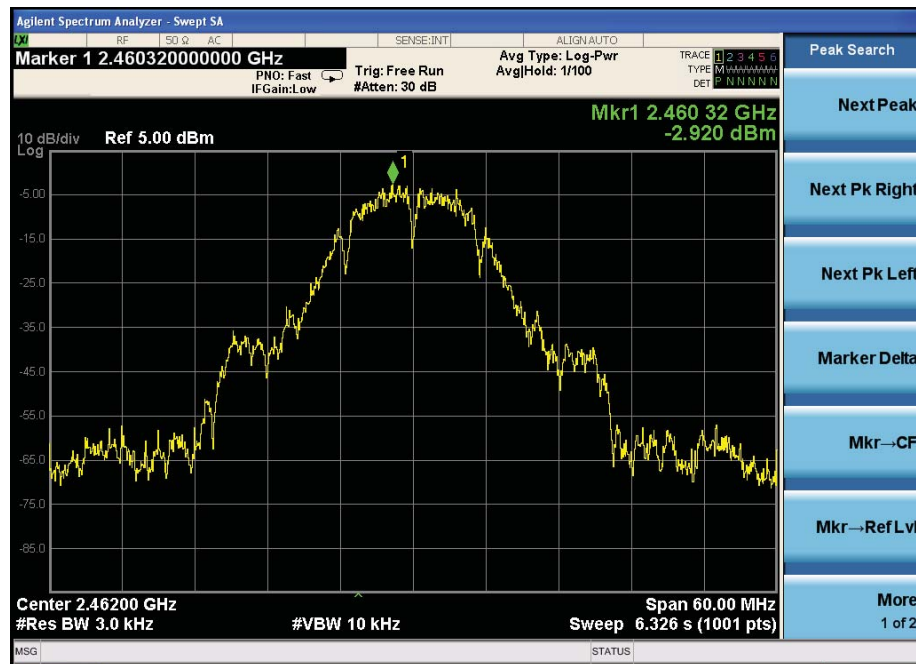
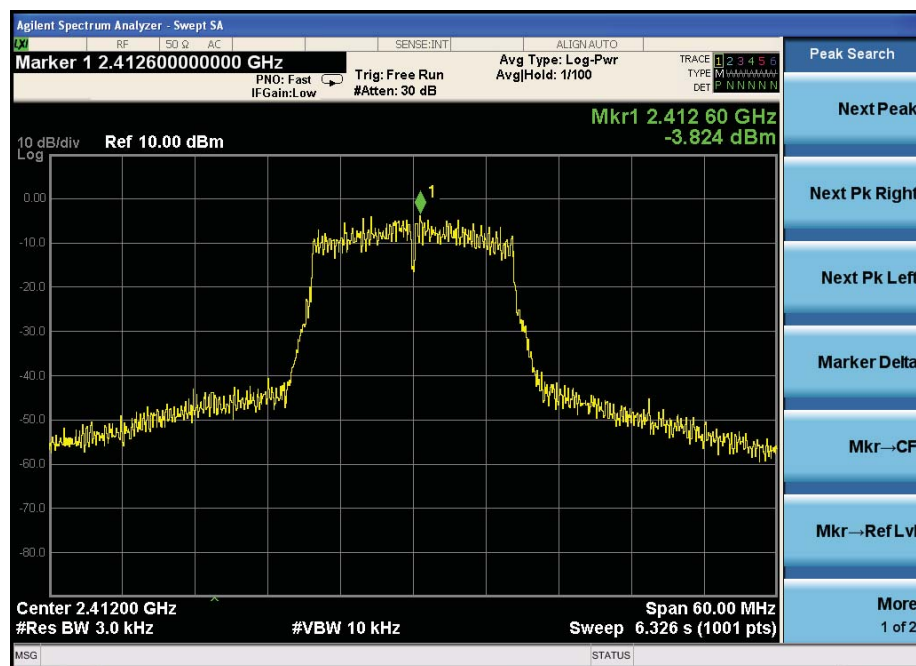
CH Low :



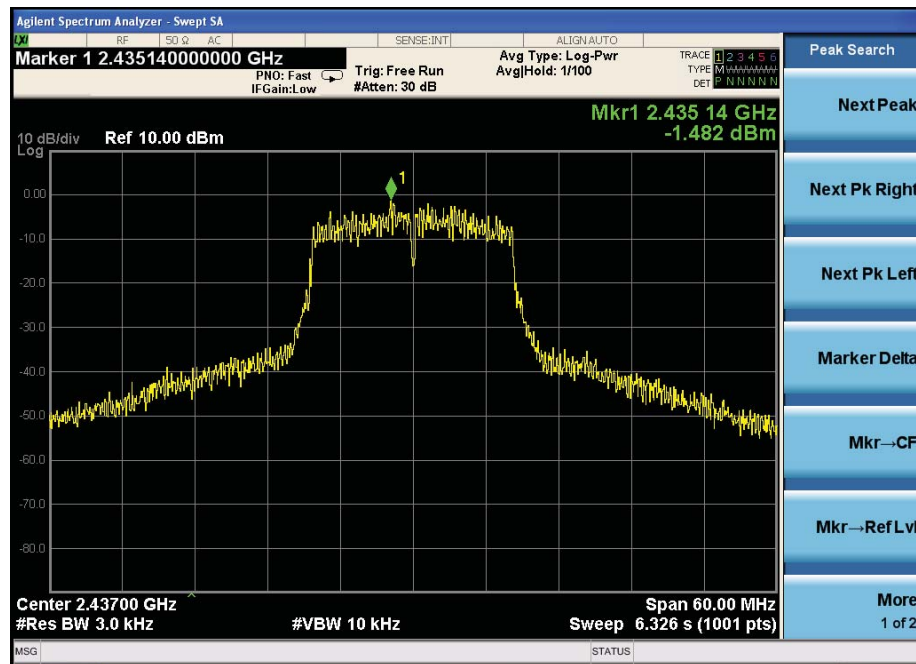
CH Mid:



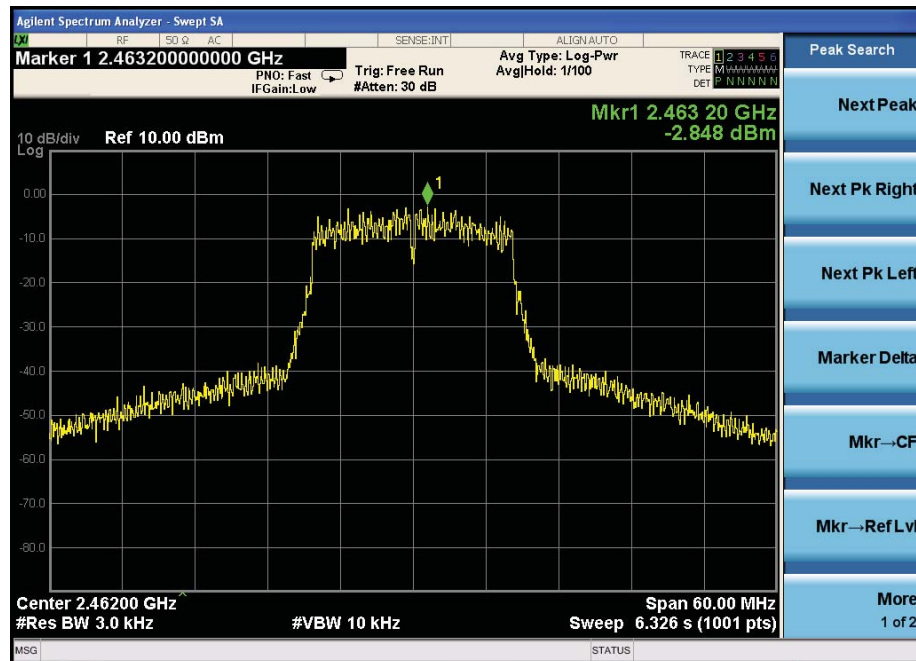
CH Hig:

IEEE 802.11g :
CH Low

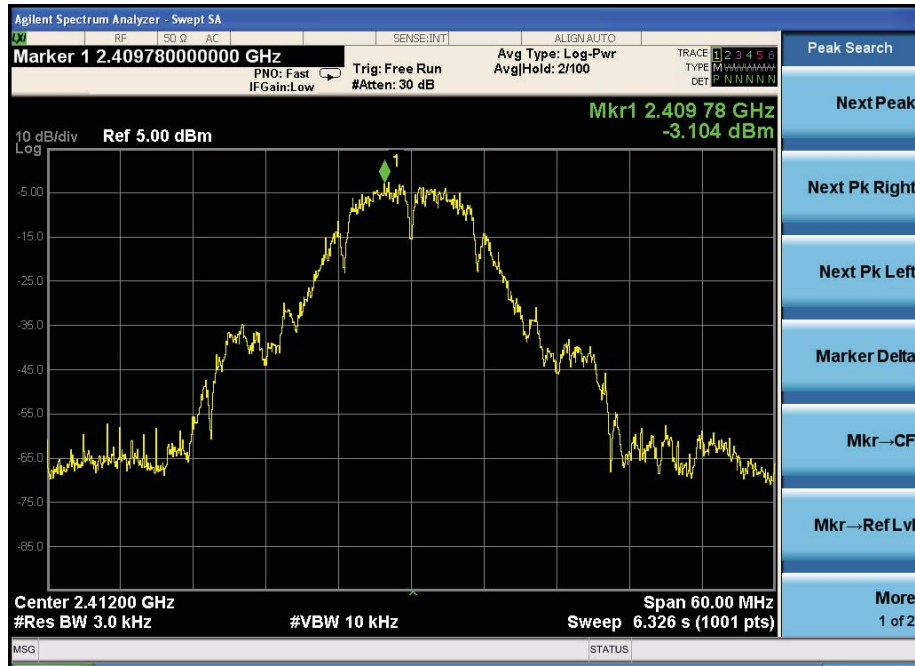
CH Mid:



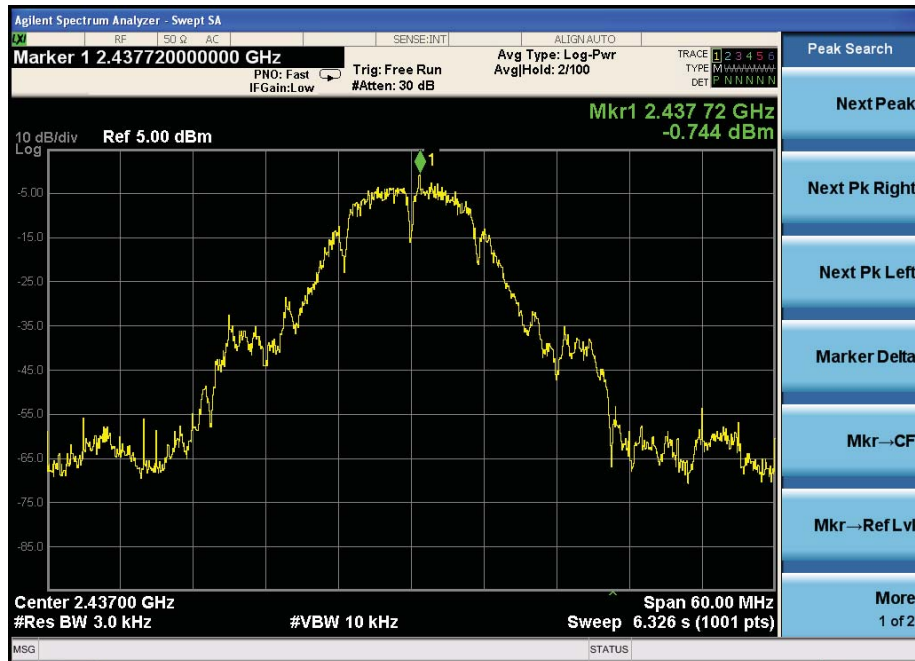
CH Hig:



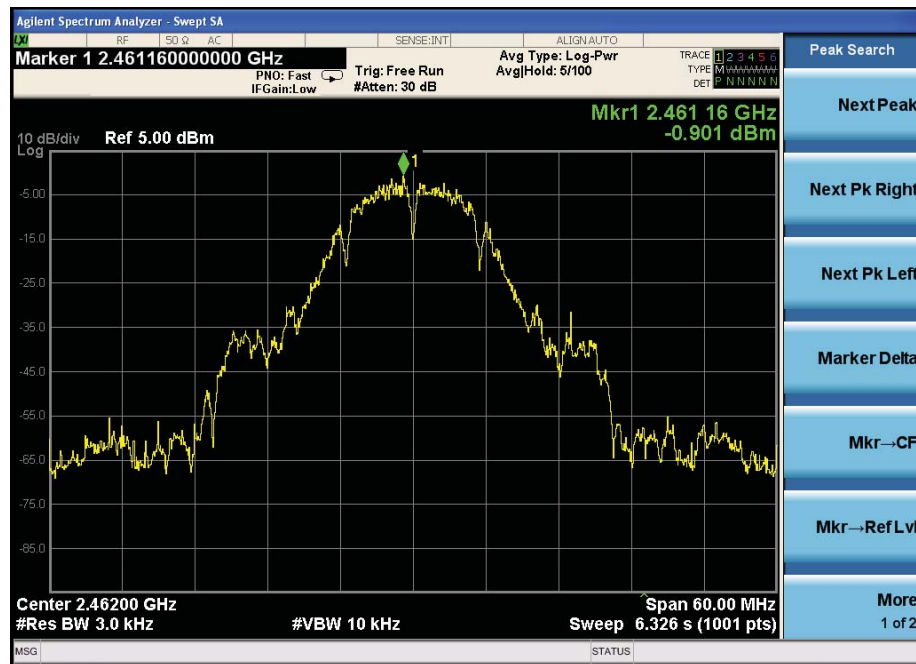
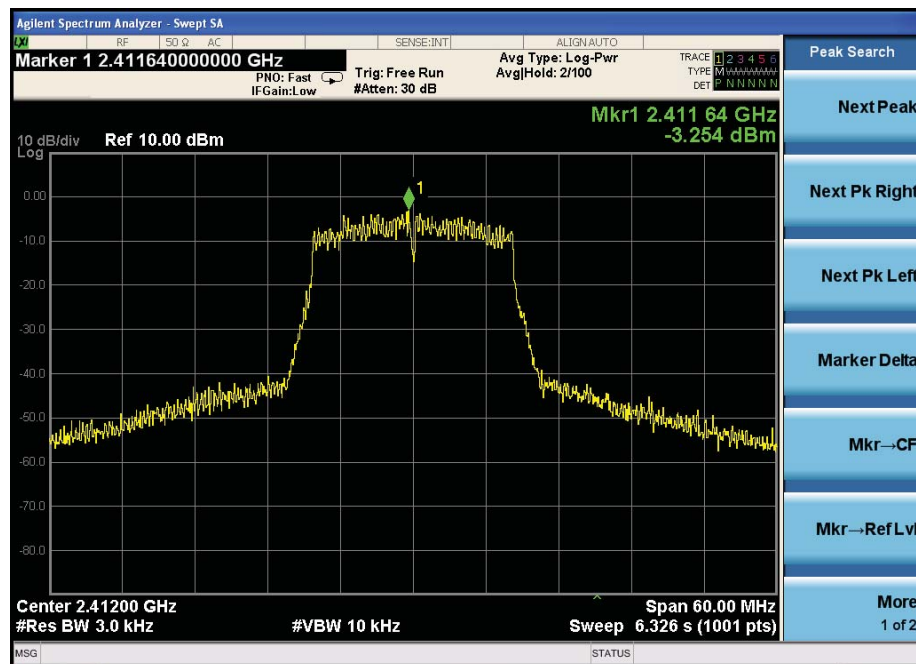
Port 1 antenna
IEEE 802.11b :
CH Low :



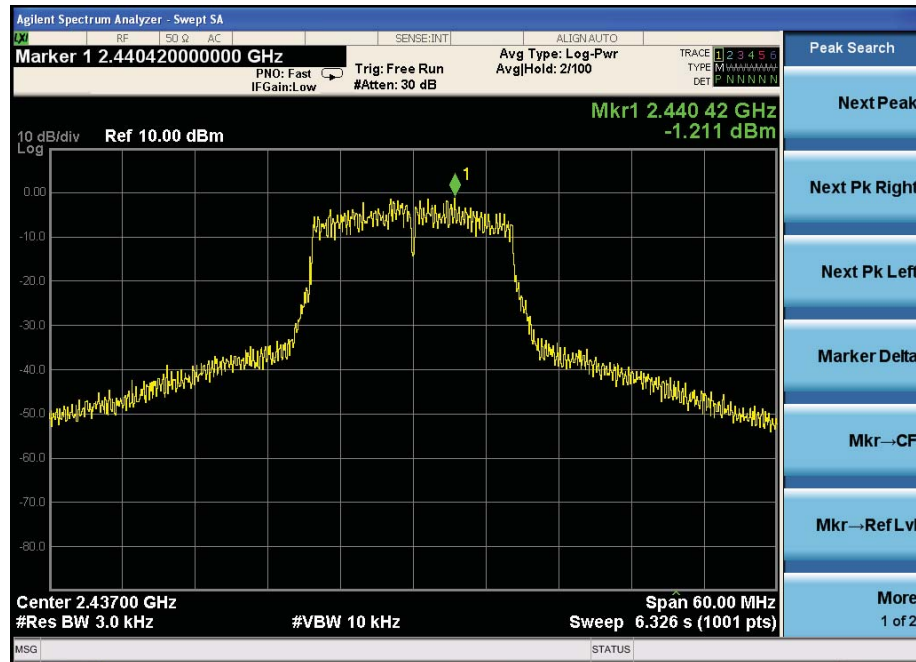
CH Mid:



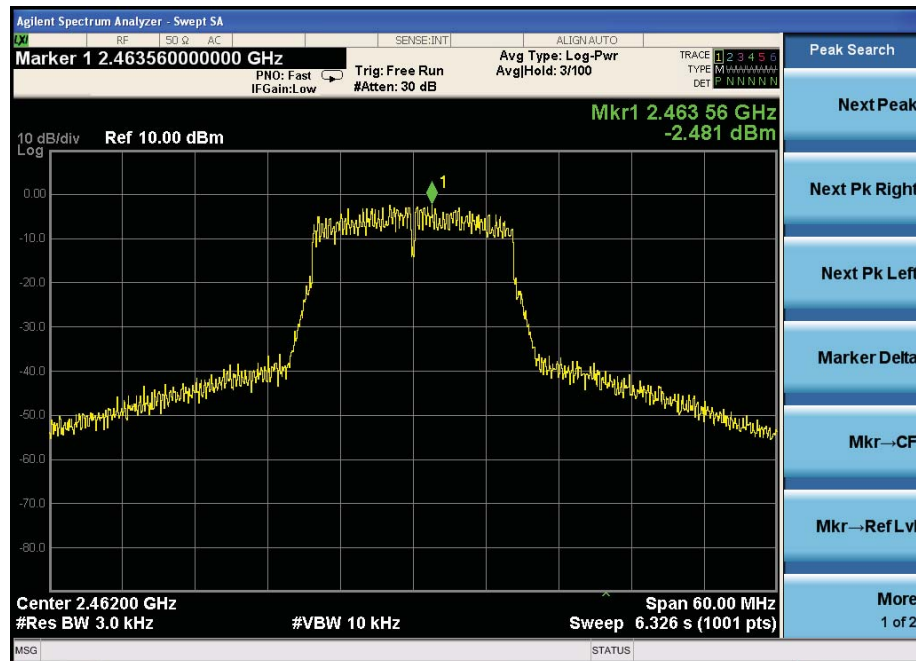
CH Hig:

IEEE 802.11g :
CH Low

CH Mid:



CH Hig:



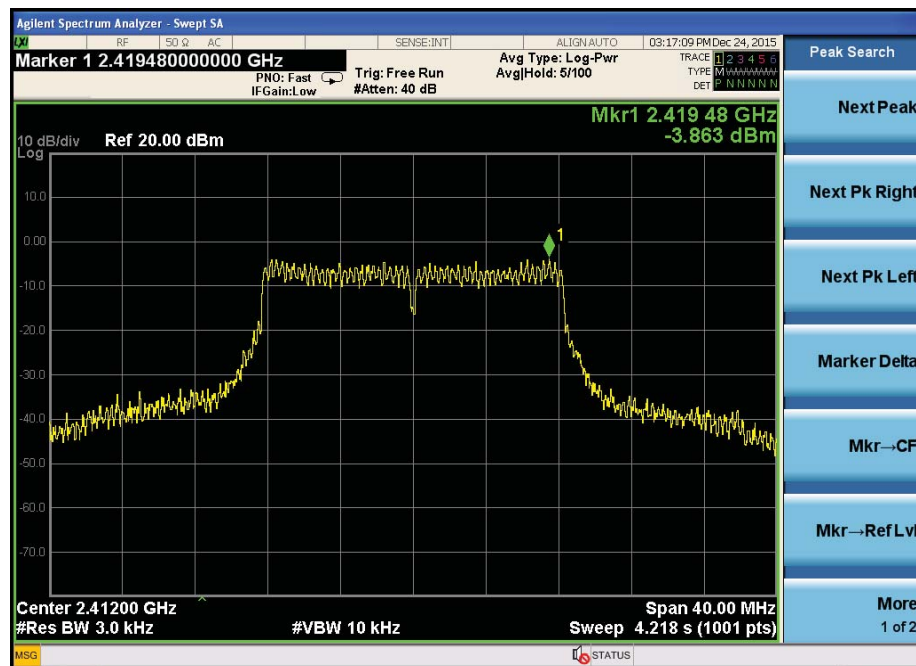
MIMO mode
Port 0 antenna
IEEE 802.11b :
CH Low :



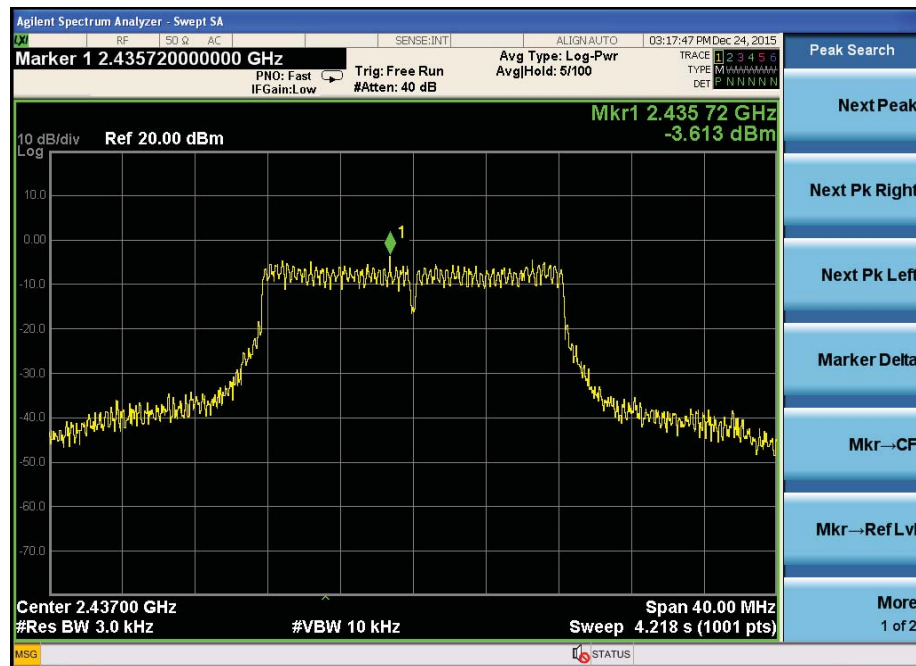
CH Mid:



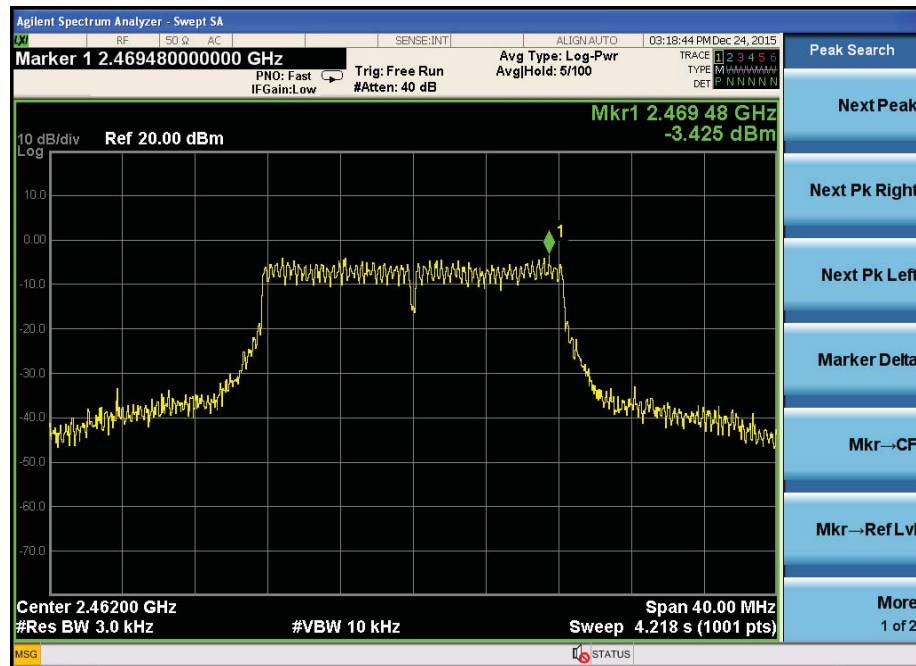
CH Hig:

IEEE 802.11g :
CH Low

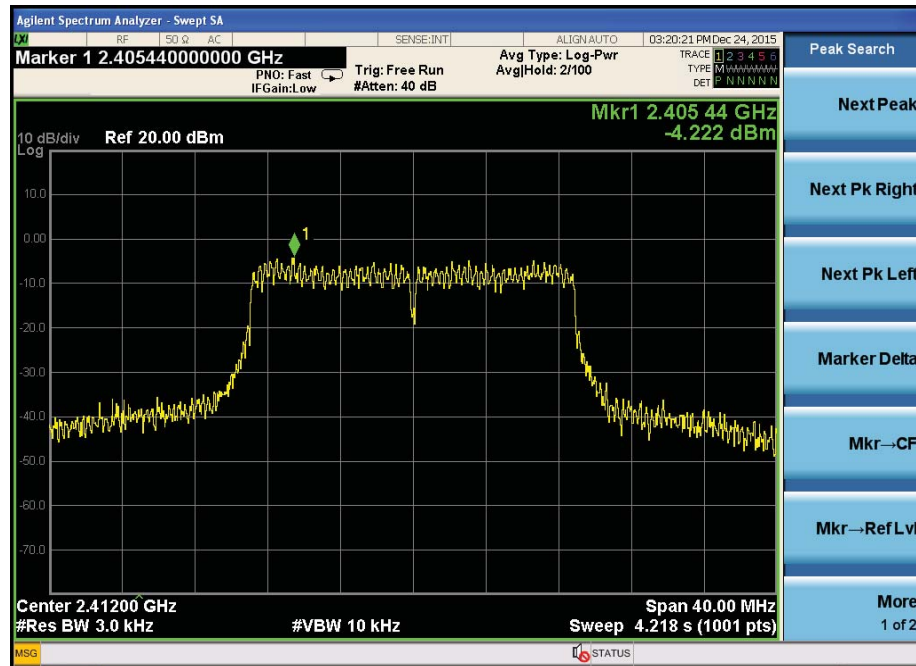
CH Mid:



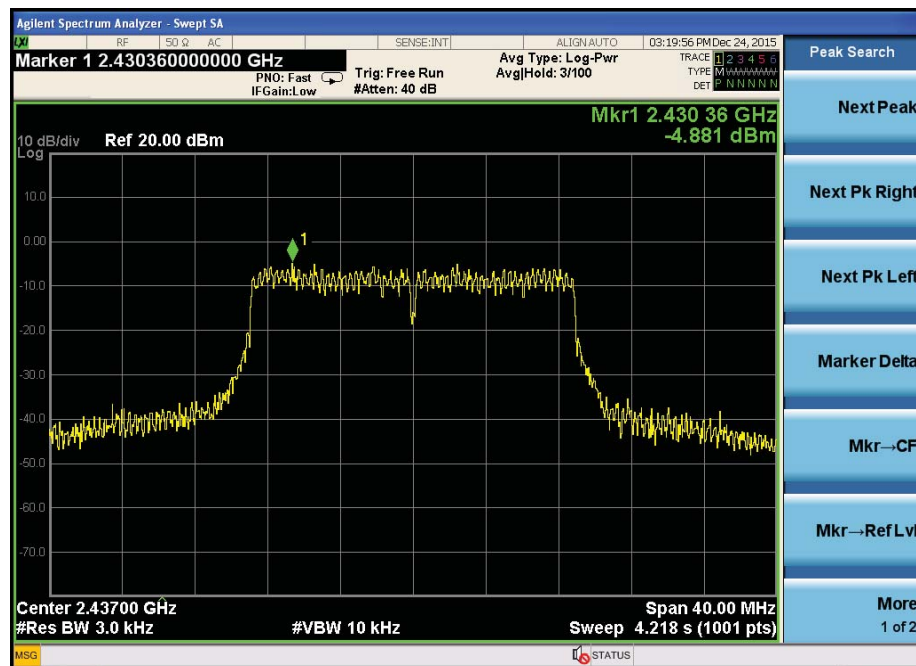
CH Hig:



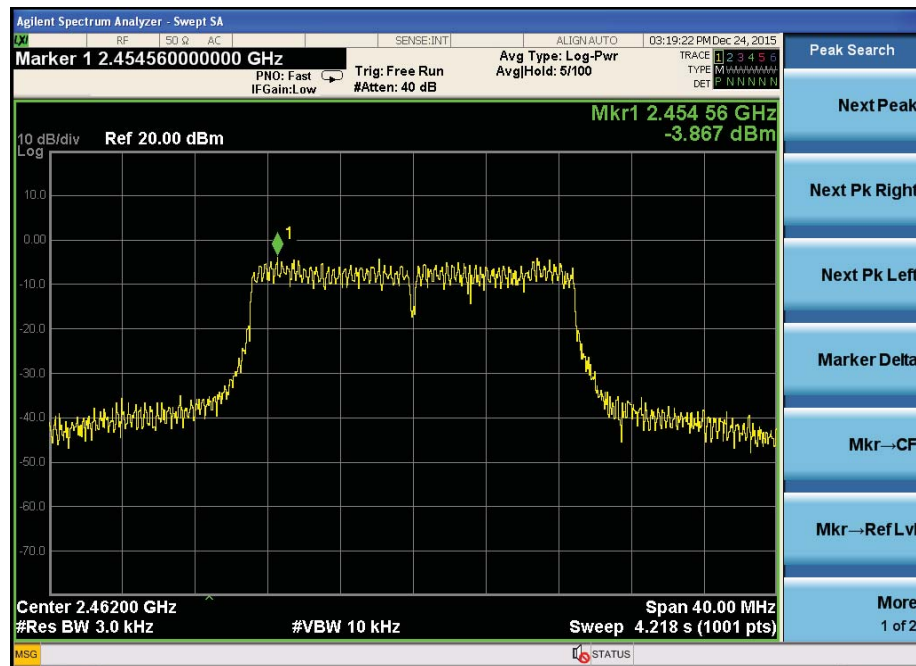
IEEE 802.11n HT20 :
CH Low :



CH Mid:

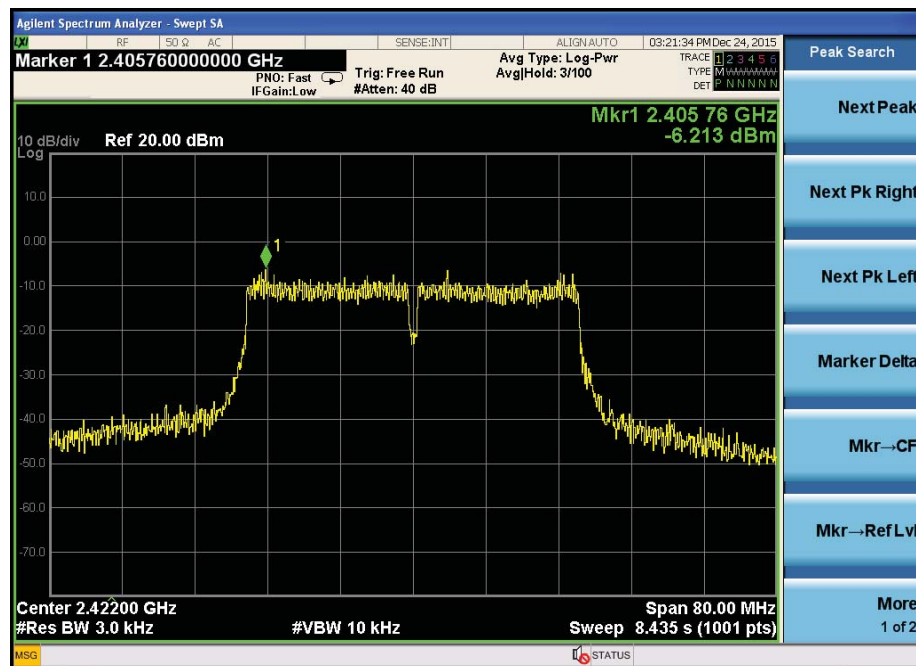


CH Hig:

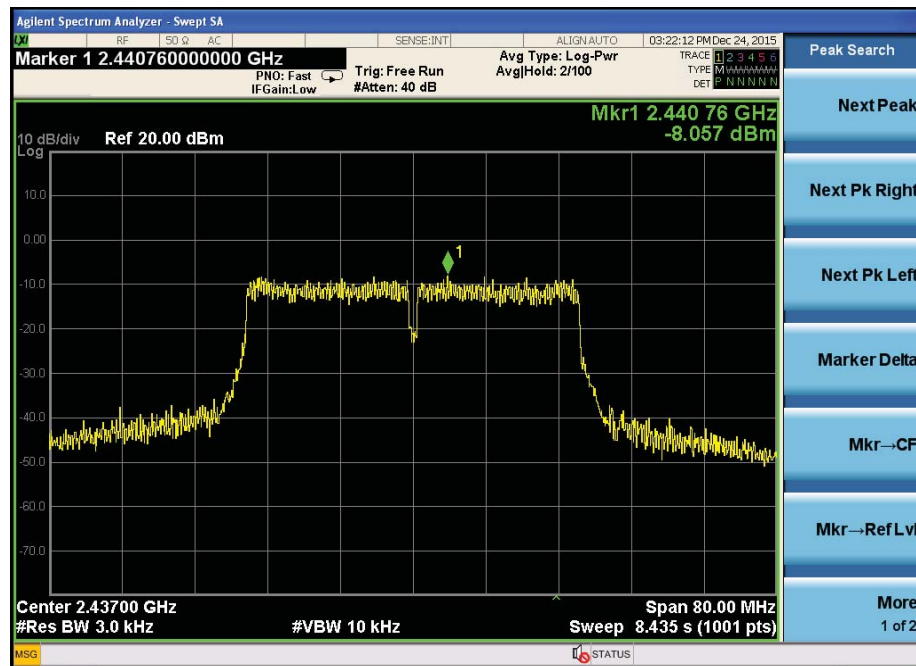


IEEE 802.11n HT40 :

CH Low :



CH Mid:



CH Hig:

