FCC Test Report

Equipment	:	**HERO3 Black Edition**
Brand Name	:	**GoPro**
Model No.	:	**CHDHX-301**
FCC ID	:	**CNFCHDHX301**
Standard	:	**47 CFR FCC Part 15.247**
Applicant	:	**Woodman Labs, Inc (dba GoPro)** **3000 Clearview Way, Building E, San Mateo, CA. 94402**
Manufacturer	:	**Chicony Electronics (Mainland China II) Co., Ltd.** **San Zhong Gong Li Qu, Qingxi, Dongguan, China**

The product sample received on Sep. 06, 2012 and completely tested on Sep. 14, 2012. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Wayne Hsu / Assistant Manager

Testing Laboratory
1190

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Summary of Test Result

Conformance Test Specifications					
Report Clause	**Ref. Std. Clause**	**Description**	**Measured**	**Limit**	**Result**
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	3.96MHz: 21.36dBuV (24.64dB) - AV 37.14dBuV (18.86dB) - QP	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth Unit [MHz] 2412-2462MHz: 10.26-DSSS 2412-2462MHz: 16.42OFDM	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm] 2412-2462MHz: 21.31-DSSS 2412-2462MHz: 22.13-OFDM	Power [dBm] 2412-2462MHz: 30 2422-2452MHz: 30	Complied
3.4	15.247(d)	Power Spectral Density	PSD [dBm/3kHz] 2412-2462MHz: -12.10-DSSS 2412-2462MHz: -15.56-OFDM	PSD [dBm/3kHz] 2412-2462MHz: 8 2422-2452MHz: 8	Complied
3.5	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2398.14MHz: 27.9dB Restricted Bands [dBuV/m at 3m]: 2483.50MHz: 67.58 (Margin 6.42dB) - PK 53.00 (Margin 1.00dB) - AV	Non-Restricted Bands: > 20 dB Restricted Bands: FCC 15.209	Complied
3.6	15.247(c)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 4874MHz: 50.85 (Margin 3.15dB) - PK	Non-Restricted Bands: > 20 dB Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR290420	Rev. 01	Initial issue of report	Oct. 03, 2012

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**RF Output Power (dBm)**
2400-2483.5	b	2412-2462	1-11 [11]	21.31
2400-2483.5	g	2412-2462	1-11 [11]	22.13
Note 1: IEEE Std. 802.11-2007 modulation consists of IEEE Std. 802.11g-2003 and IEEE Std. 802.11b-1999. Note 2: RF output power specifies that Maximum Peak Conducted Output Power.				

Transmitter Chains & Receiver Chains Information					
IEEE Std. 802.11 Protocol	**Number of Transmit Chains (N_{TX})**	**Number of Receive Chains (N_{RX})**	**Correlation Signals with Multiple N_{TX}**	**99% Emission Bandwidth (MHz)**	**Co-location**
b	1	1	N/A	14.21	N/A
g	1	1	N/A	17.51	N/A
Note 1: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)					

1.1.2 Antenna Information

Antenna Category	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
	☐ Temporary RF connector provided
	☒ No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.

Antenna General Information							
Transmit Chains Power Distribution				☒ symmetrical distribution ☐ asymmetrical distribution			
Ant. No.	**Ant. Port** [Ant No. *X* connect to Ant. Port *Y*]	**Ant. Cat.**	**Ant. Array**	**Ant. Type**	**Brand**	**Model**	**G_{ANT}** (dBi)
1	1	Integral	Parasitic	Monopole	Amphenol	CY5324-12-001-C-FB00	2.28

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) = G_{ANT} + 10 log(N) dBi
All transmit signals are completely uncorrelated, Directional Gain (DG)= G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) =
$10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N]$ dBi
All transmit signals are completely uncorrelated, Directional Gain (DG) =
$10 \log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]$ dBi

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	☐ Production ; ☒ Pre-Production ; ☐ Prototype

Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: …
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: …
☐	Other:

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle		
☐ Operated normally mode for worst duty cycle		
☒ Operated test mode for worst duty cycle		
Test Signal Duty Cycle (x)	**Power Duty Factor [dB] – (10 log 1/x)**	**Voltage Duty Factor [dB] – (20 log 1/x)**
☒ 100% - IEEE 802.11b	0	0
☒ 100% - IEEE 802.11g	0	0

1.1.5 EUT Operational Condition

Supply Voltage	☒ AC mains	☒ DC	
Type of DC Source	☐ Internal DC supply	☒ External DC adapter	☒ Battery

1.2 Accessories

Accessories Information				
Switching Adapter	Brand Name	Sunny	Model Name	SYS1421-0605-W2
	Power Rating	I/P: 100-240Vac, 50/60Hz, 0.5A; O/P: 5Vdc 1.2A		
Battery	Brand Name	GoPro	Model Name	601-01017-00A
	Power Rating	3.7Vdc, 1050 mAh	Type	Li-ion
HDMI Cable	Brand Name	Gopro	Model Name	602-01210-000
	Signal Line	6 feet, shielded cable, w/o ferrite core		
USB Cable	Brand Name	Gopro	Model Name	602-01654-000
	Signal Line	18 inches, shielded cable, w/o ferrite core		
AV Cable	Brand Name	Gopro	Model Name	602-01212-000
	Signal Line	1 foot, non-shielded cable, w/ ferrite core		

1.3 Support Equipment

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**Serial No.**
1	Test Fixture	-	-	-

1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2009
- FCC KDB 558074
- FCC KDB 662911
- FCC KDB 412172

1.5 Testing Location Information

Testing Location					
☒	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C		
		TEL :	886-3-327-3456	FAX :	886-3-327-0973

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Conducted Emission	CO04-HY	Alan	21°C / 45%	14-Sep-12
RF Conducted	TH01-HY	Shiming	24.7°C / 67%	14-Sep-12
Radiated Emission	03CH02-HY	Hsiao	23.7°C / 58%	12-Sep-12

1.6 Measurement Uncertainty

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

Measurement Uncertainty			
Test Item		**Uncertainty**	**Limit**
AC power-line conducted emissions		±2.26 dB	N/A
Emission bandwidth, 6dB bandwidth		±1.42 %	N/A
RF output power, conducted		±0.63 dB	N/A
Power density, conducted		±0.81 dB	N/A
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	± 2.54 dB	N/A
	1 – 18 GHz	±3.59 dB	N/A
	18 – 40 GHz	±3.82 dB	N/A
	40 – 200 GHz	N/A	N/A
Temperature		±0.8 °C	N/A
Humidity		±3 %	N/A
DC and low frequency voltages		±3 %	N/A
Time		±1.42 %	N/A
Duty Cycle		±1.42 %	N/A

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing						
Power Level		1				
IEEE 802.11 Protocol	**Number of Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**	**Worst Modulation Mode**	**RF Output Power (dBm)**	**Power Spectral Density (dBm/3kHz)**
b	1	1-11 Mbps	11 Mbps	11B-20M	21.31	-12.10
g	1	6-54 Mbps	6 Mbps	11G-20M	22.13	-15.56
Note 1: Modulation modes consist of 11B-20M, 11G-20M:11B: IEEE 802.11b, 11G: IEEE 802.11g Note 2: RF output power specifies that Maximum Peak Conducted Output Power. Note 3: EUT operating mode that using same power level between 1 transmit chains and 1 transmit chain. Then EUT with 1 transmit chains which does not change its (per transmit chain) RF output power based on the number of active chains, need not undergo repeat testing for all the transmit chains.						

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration		
IEEE 802.11 Protocol	**Worst Modulation Mode**	**Test Channel Frequencies (MHz) – FX (Frequencies Abbreviations)**
b	11B-20M	2412-(F1), 2437-(F2), 2462-(F3)
g	11G-20M	2412-(F1), 2437-(F2), 2462-(F3)

2.3 The Case Power Setting Parameter

The Power Setting Parameter						
Test Software Version		HyperTerminal				
Modulation Mode	**Channel No.**	**Frequency (MHz)**	**Power Setting**	**Data Rate / MCS**	**Peak Output Power (dBm)**	**Average Output Power (dBm)**
11B-20M	1	2412	17.5	11 Mbps	20.81	14.92
	2	2417	17.5	11 Mbps	21.19	15.32
	3	2422	17.5	11 Mbps	20.94	15
	4	2427	17.5	11 Mbps	21.46	15.55
	5	2432	17.5	11 Mbps	21.47	15.53
	6	2437	17.5	11 Mbps	21.49	15.62
	7	2442	17.5	11 Mbps	21.39	15.44
	8	2447	17.5	11 Mbps	21.29	15.32
	9	2452	17.5	11 Mbps	21.26	15.27
	10	2457	17.5	11 Mbps	21.1	15.17
	11	2462	17.5	11 Mbps	21.06	15.13
11G-20M	1	2412	10	6 Mbps	16.48	9.3
	2	2417	10.5	6 Mbps	16.96	9.84
	3	2422	13	6 Mbps	19.3	12.12
	4	2427	15.5	6 Mbps	21.16	14
	5	2432	18	6 Mbps	22.51	15.39
	6	2437	18	6 Mbps	22.36	15.27
	7	2442	18	6 Mbps	22.39	15.26
	8	2447	15.5	6 Mbps	20.93	13.78
	9	2452	13	6 Mbps	19.08	11.89
	10	2457	10.5	6 Mbps	16.95	9.78
	11	2462	10	6 Mbps	16.19	9.07

2.4 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	**Operating Mode Description**
1	Transmitter Mode

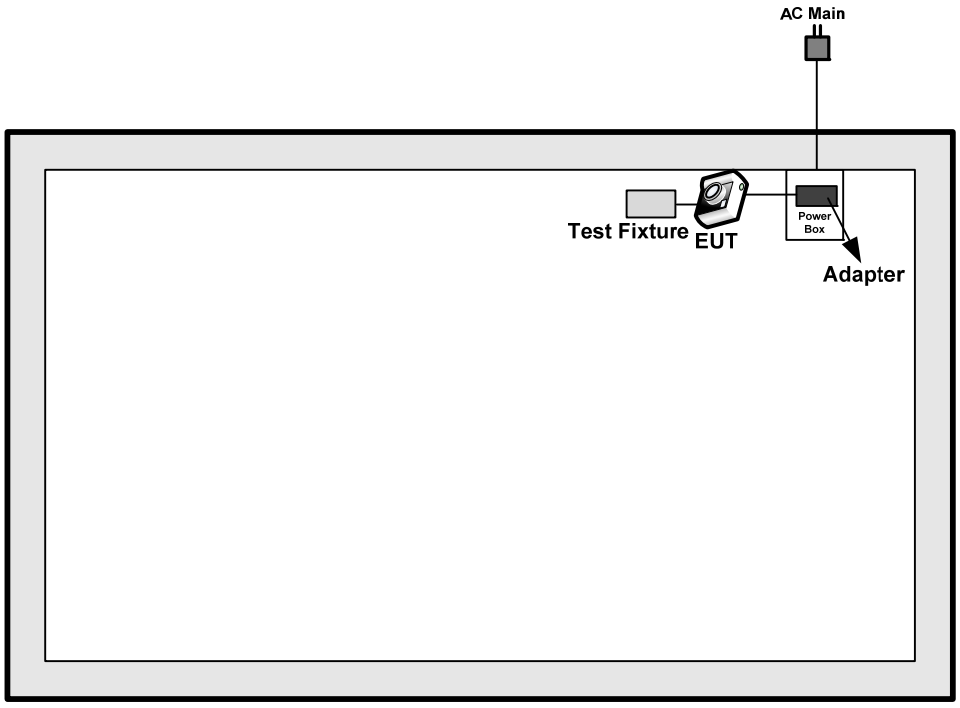
The Worst Case Mode for Following Conformance Tests				
Tests Item	RF Output Power Power Spectral Density 6 dB Bandwidth			
Test Condition	Conducted measurement at transmit chains			
Worst Modulation Mode	**Number of Transmit Chains (N_{TX})**	**Worst Data Rate / MCS**	**Test Frequency**	**Power Level**
11B-20M	1	11 Mbps	F1, F2, F3	1
11G-20M	1	6 Mbps	F1, F2, F3	1

The Worst Case Mode for Following Conformance Tests				
Tests Item	Transmitter Radiated Bandedge Emissions			
Test Condition	Radiated measurement			
Worst Modulation Mode	**Number of Transmit Chains (N_{TX})**	**Worst Data Rate / MCS**	**Test Frequency**	**Power Level**
11B-20M	1	11 Mbps	F1, F3	1
11G-20M	1	6 Mbps	F1, F3	1

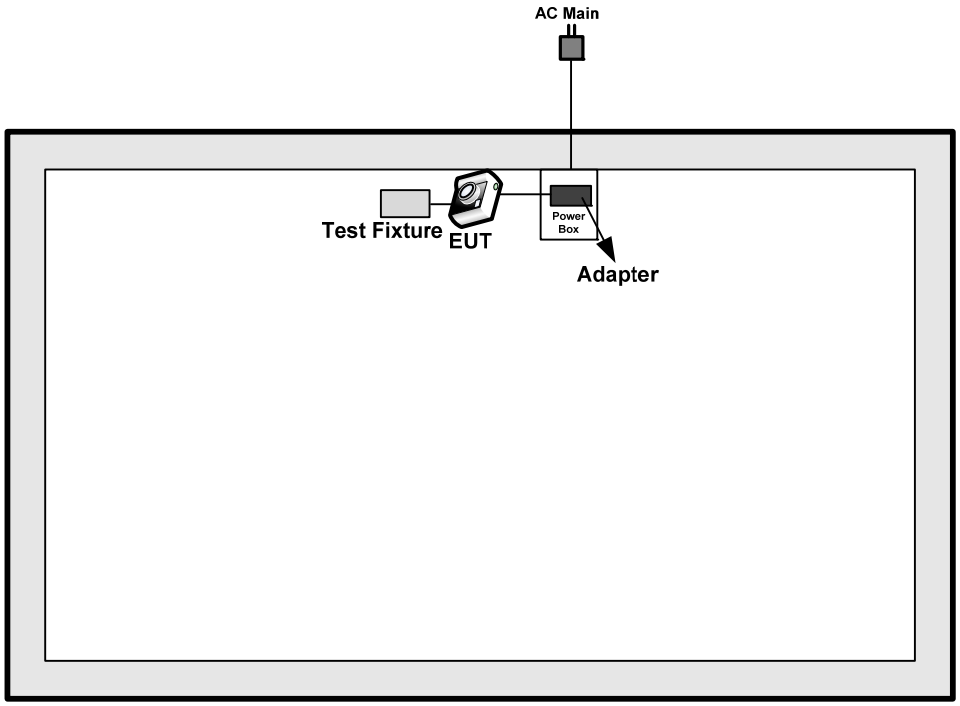
The Worst Case Mode for Following Conformance Tests						
Tests Item	Transmitter Radiated Unwanted Emissions					
Test Condition	Radiated measurement					
User Position	☒ EUT will be placed in fixed position.					
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two or three orthogonal planes.					
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes.					
Operating Mode < 1GHz	☒ 1. Transmitter Mode					
Worst Modulation Mode	**Number of Transmit Chains (N_{TX})**	**Worst Data Rate / MCS**	**Test Frequency**	**Power Level**	**Ant No.**	**Worst Orthogonal Planes of EUT**
11B-20M	1	11 Mbps	F1, F2, F3	1	1	Z Plane
11G-20M	1	6 Mbps	F1, F2, F3	1	1	Z Plane
Orthogonal Planes of EUT	**X Plane**		**Y Plane**		**Z Plane**	
						

2.5 Test Setup Diagram

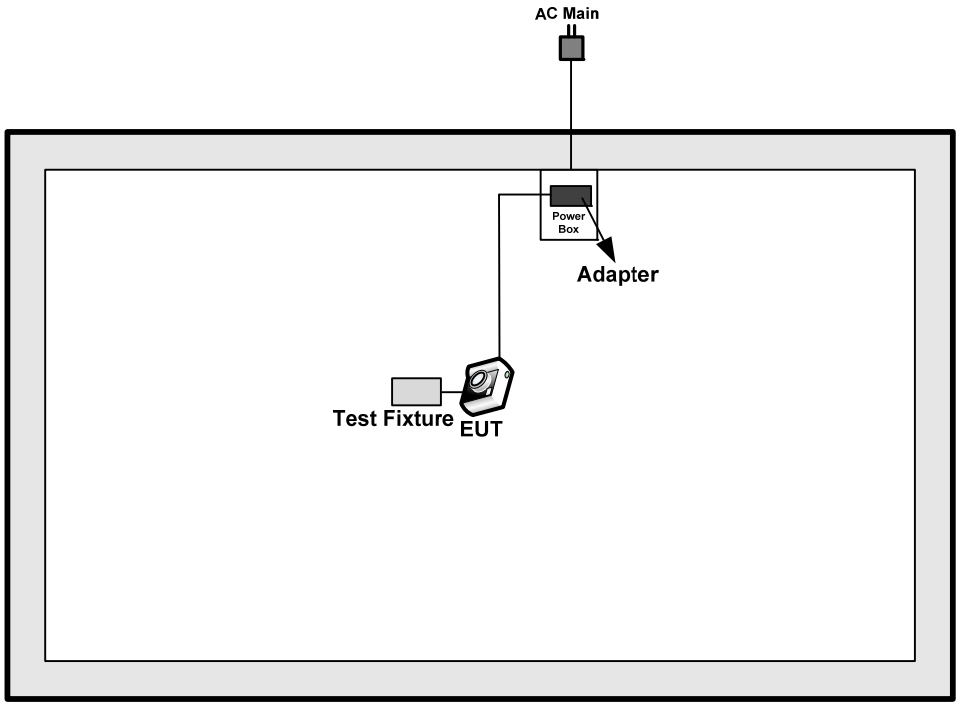
Test Setup Diagram – AC Line Conducted Emission Test	
Operating Mode	Transmitter Mode



Test Setup Diagram - Radiated Test	
Operating Mode	**Transmitter Mode (Below 1GHz)**



Operating Mode	**Transmitter Mode (Above 1GHz)**



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

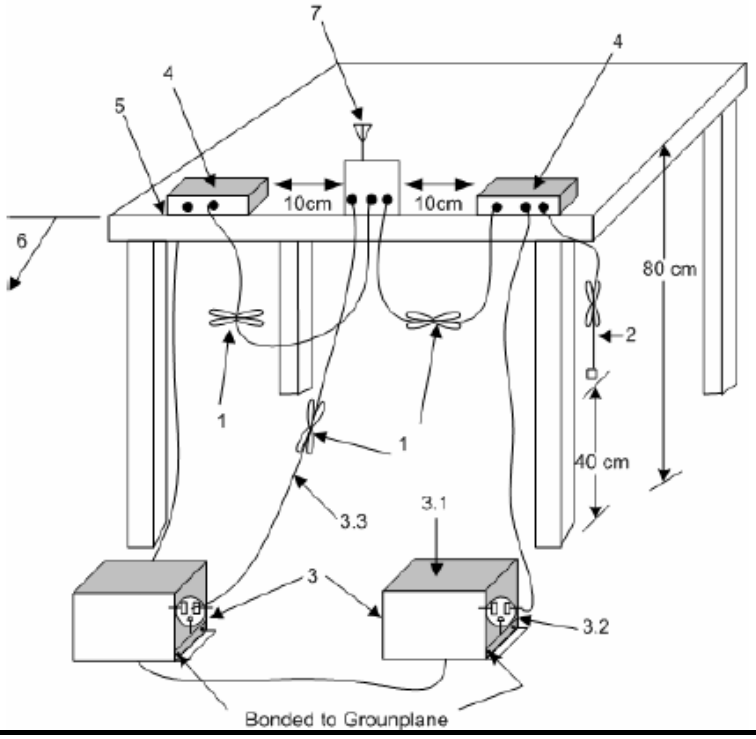
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

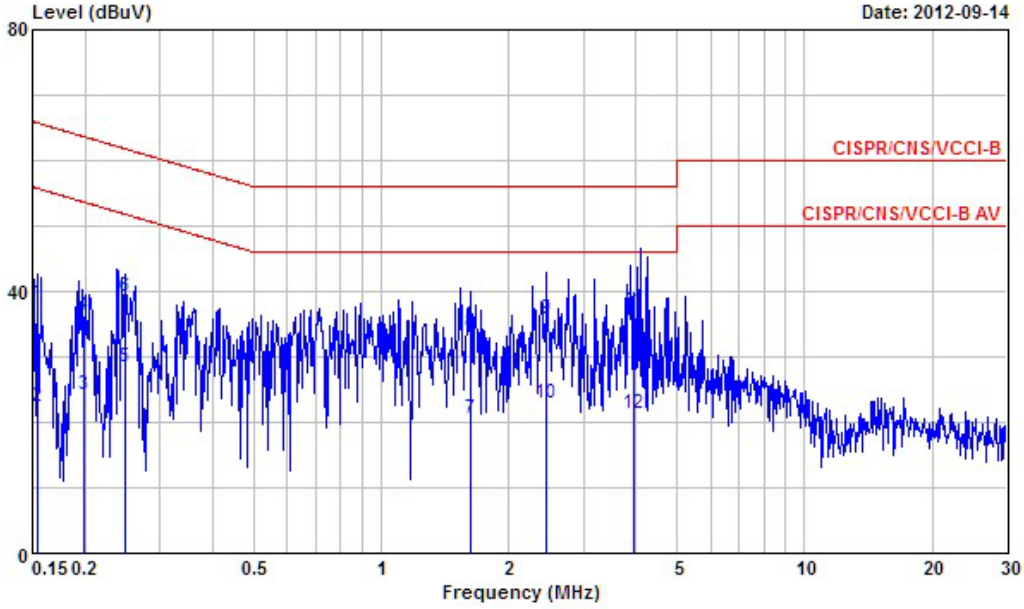
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

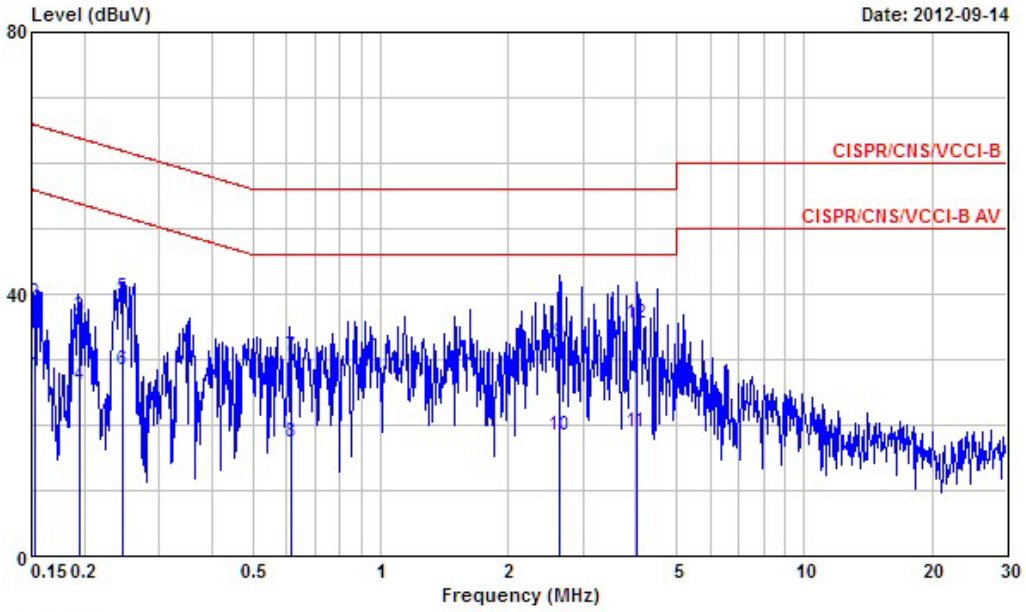
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Transmitter Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1548450	38.20	-27.54	65.74	37.66	0.24	0.30	QP
2	0.1548450	22.38	-33.36	55.74	21.84	0.24	0.30	Average
3	0.1983130	24.21	-29.47	53.68	23.68	0.23	0.30	Average
4	0.1983130	36.28	-27.40	63.68	35.75	0.23	0.30	QP
5	0.2481360	28.55	-23.27	51.82	28.02	0.23	0.30	Average
6	0.2481360	39.22	-22.60	61.82	38.69	0.23	0.30	QP
7	1.626	20.54	-25.46	46.00	19.93	0.24	0.37	Average
8	1.626	33.62	-22.38	56.00	33.01	0.24	0.37	QP
9	2.460	35.69	-20.31	56.00	35.06	0.26	0.37	QP
10	2.460	23.01	-22.99	46.00	22.38	0.26	0.37	Average
11	3.960	37.14	-18.86	56.00	36.55	0.29	0.30	QP
12	3.960	21.36	-24.64	46.00	20.77	0.29	0.30	Average

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Transmitter Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1532930	27.70	-28.12	55.82	27.29	0.11	0.30	Average
2	0.1532930	38.63	-27.19	65.82	38.22	0.11	0.30	QP
3	0.1944150	36.62	-27.23	63.85	36.21	0.11	0.30	QP
4	0.1944150	26.02	-27.83	53.85	25.61	0.11	0.30	Average
5	0.2460980	39.52	-22.37	61.89	39.11	0.11	0.30	QP
6	0.2460980	28.30	-23.59	51.89	27.89	0.11	0.30	Average
7	0.6123760	30.54	-25.46	56.00	30.14	0.10	0.30	QP
8	0.6123760	17.43	-28.57	46.00	17.03	0.10	0.30	Average
9	2.635	32.63	-23.37	56.00	32.13	0.14	0.36	QP
10	2.635	18.43	-27.57	46.00	17.93	0.14	0.36	Average
11	4.010	19.01	-26.99	46.00	18.56	0.15	0.30	Average
12	4.010	35.47	-20.53	56.00	35.02	0.15	0.30	QP

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)

3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
☒ 6 dB bandwidth ≥ 500 kHz.

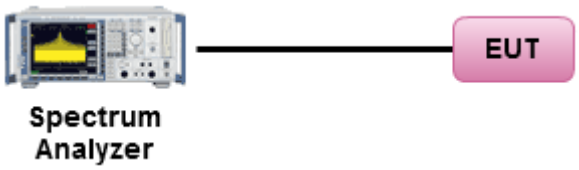
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method			
☒	For the emission bandwidth shall be measured using one of the options below:		
	☒	Refer as FCC KDB 558074, clause 5.1.1 Option 1 for 6 dB bandwidth measurement.	
	☐	Refer as FCC KDB 558074, clause 5.1.2 Option 2 for 6 dB bandwidth measurement.	
	☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.	
☒	For conducted measurement.		
	☒	For conducted measurements on devices with multiple transmit chains using options given below:	
		☐	Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1.
		☒	Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains.
		☐	Option 3: A power splitter/combiner shall be used to combine all the transmit chains (antenna outputs) into a single test point and record a single test point EBW.
☐	For radiated measurement. The equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted power level.		

3.2.4 Test Setup

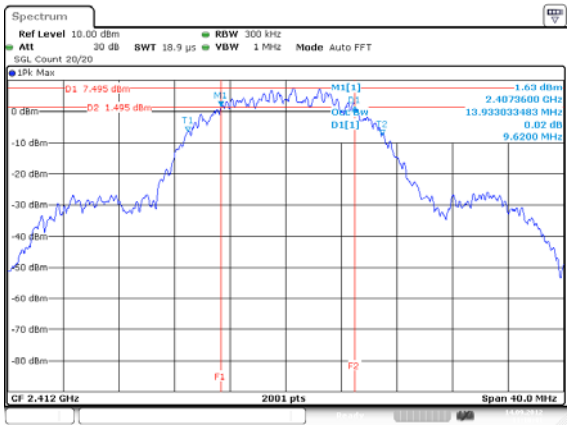
Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

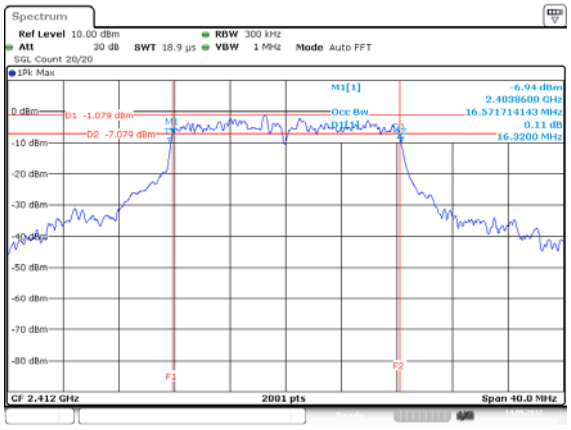
Emission Bandwidth Result										
Power Level	1		Emission Bandwidth (MHz)							
Modulation Mode	N_{TX}	Freq. (MHz)	99% Bandwidth				6dB Bandwidth			
			Chain-Port 1	-	-	-	Chain-Port 1	-	-	-
11B-20M	1	2412	13.93	-	-	-	9.62	-	-	-
11B-20M	1	2437	14.21	-	-	-	10.26	-	-	-
11B-20M	1	2462	14.19	-	-	-	9.52	-	-	-
11G-20M	1	2412	16.57	-	-	-	16.32	-	-	-
11G-20M	1	2437	17.51	-	-	-	16.30	-	-	-
11G-20M	1	2462	16.75	-	-	-	16.42	-	-	-
Limit			N/A				≥500 kHz			
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

Emission Bandwidth Plots

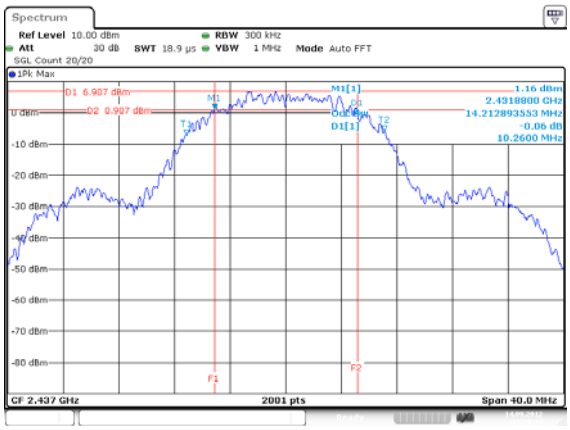
11B-20M – F1 [Port 1]



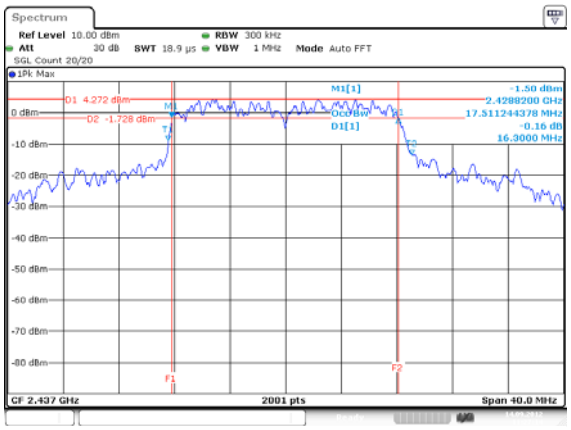
11G-20M – F1 [Port 1]



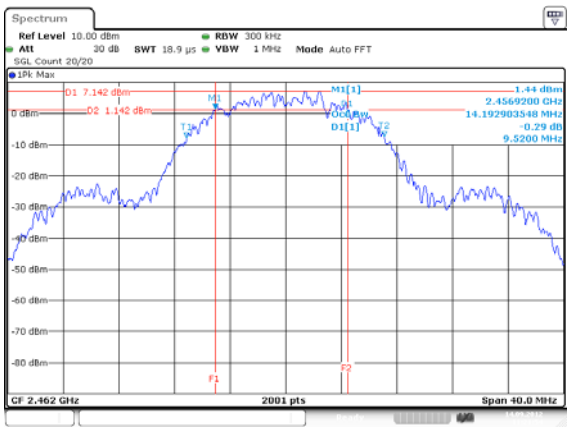
11B-20M – F2 [Port 1]



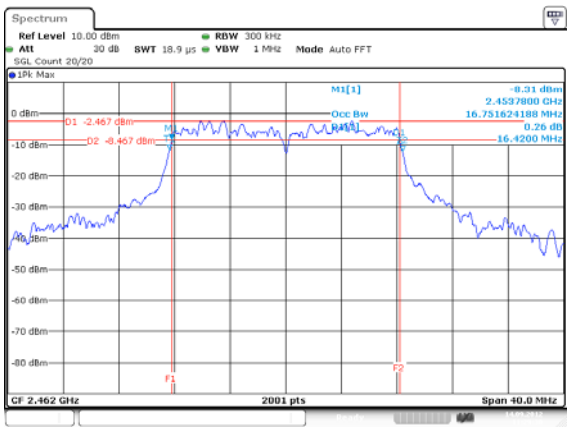
11G-20M – F2 [Port 1]



11B-20M – F3 [Port 1]



11G-20M – F3 [Port 1]



3.3 RF Output Power

3.3.1 RF Output Power Limit

RF Output Power Limit			
Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit			
☐	902-928 MHz Band:		
	☐	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	☐	If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
☒	2400-2483.5 MHz Band:		
	☒	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	☐	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
	☐	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
	☐	Smart antenna system (SAS):	
		☐	Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		☐	Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		☐	Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
☐	5725-5850 MHz Band:		
	☐	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	☐	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
	☐	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30$ dBm	
e.i.r.p. Power Limit:			
☐	902-928 MHz Band: $P_{eirp} \leq 36$ dBm (4 W)		
☒	2400-2483.5 MHz Band		
	☒	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)	
	☐	Point-to-point systems (P2P): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm	
	☐	Smart antenna system (SAS)	
		☐	Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		☐	Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		☐	Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ dBm
☐	5725-5850 MHz Band		
	☐	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)	
	☐	Point-to-point systems (P2P): N/A	
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi. **P_{eirp}** = e.i.r.p. Power in dBm.			

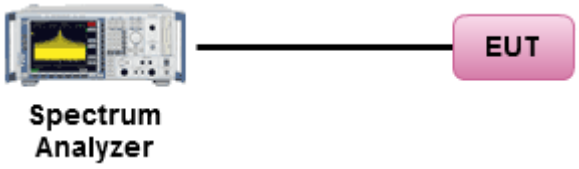
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
☒	Maximum Peak Conducted Output Power
☐	Refer as FCC KDB 558074, clause 5.2.1.1 Option 1 (RBW ≥ EBW method).
☒	Refer as FCC KDB 558074, clause 5.2.1.2 Option 2 (integrated band power method).
☐	Refer as ANSI C63.10, clause 6.10.2.1 a) for peak power meter.
☐	Refer as ANSI C63.10, clause 6.10.2.1 a) for spectrum analyzer - (RBW ≥ EBW).
☐	Refer as ANSI C63.10, clause 6.10.2.1 b) for spectrum analyzer - BW correction factor.
☒	Maximum Conducted (Average) Output Power
☐	Refer as FCC KDB 558074, clause 5.2.2.1 Option 1 (RMS detection with slow sweep speed).
☒	Refer as FCC KDB 558074, clause 5.2.2.2 Option 2 (spectral trace averaging).
☐	Refer as ANSI C63.10, clause 6.10.3.1 for spectrum analyzer - Method 1 (trace averaging).
☐	Refer as ANSI C63.10, clause 6.10.3.2 for spectrum analyzer - Method 2 (zero-span averaging).
☐	Refer as ANSI C63.10, clause 6.10.3.2 for spectrum analyzer - Method 3 (band power max-hold).
☒	Refer as FCC KDB 558074, clause 2 for conducted measurement.
☐	The EUT supports single transmit chain and measurements performed on this transmit chain.
☒	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
☒	For conducted measurements on devices with multiple transmit chains: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
☒	If multiple transmit chains, EIRP calculation could be following as methods:
☐	Method 1: $EIRP_1 = P_1 + G_{ANT1}$; $EIRP_2 = P_2 + G_{ANT2}$; … $EIRP_n = Pn + G_{ANTn}$ $EIRP_{total} = EIRP_1 + EIRP_2 + … + EIRP_n$ (calculated in linear unit [mW] and transfer to log unit [dBm])
☒	Method 2: $P_{total} = P_1 + P_2 + … + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$
☐	Refer as FCC KDB 558074, clause 2 for radiated measurement.

3.3.4 Test Setup

RF Output Power (Spectrum Analyzer)


3.3.5 Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result										
Power Level		1	RF Output Power (dBm)							
Directional Gain (dBi)		2.28								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Sum Chain	Power Limit	EIRP Power	EIRP Limit
11B-20M	1	2412	20.91	-	-	-	20.91	30.0	23.19	36.0
11B-20M	1	2437	21.31	-	-	-	21.31	30.0	23.59	36.0
11B-20M	1	2462	20.94	-	-	-	20.94	30.0	23.22	36.0
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

Maximum Peak Conducted Output Power Result										
Power Level		1	RF Output Power (dBm)							
Directional Gain (dBi)		2.28								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Sum Chain	Power Limit	EIRP Power	EIRP Limit
11G-20M	1	2412	16.02	-	-	-	16.02	30.0	18.30	36.0
11G-20M	1	2437	22.13	-	-	-	22.13	30.0	24.41	36.0
11G-20M	1	2462	16.32	-	-	-	16.32	30.0	18.60	36.0
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

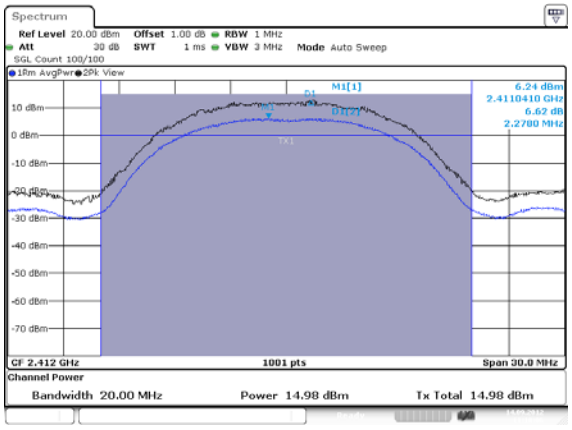
3.3.6 Test Result of Maximum Conducted (Average) Output Power

Maximum Conducted (Average) Output Power Result										
Power Level		1	RF Output Power (dBm)							
Directional Gain (dBi)		2.28								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Sum Chain	Power Limit	EIRP Power	EIRP Limit
11B-20M	1	2412	14.98	-	-	-	14.98	30.0	17.26	36.0
11B-20M	1	2437	15.38	-	-	-	15.38	30.0	17.66	36.0
11B-20M	1	2462	15.02	-	-	-	15.02	30.0	17.30	36.0
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

Maximum Conducted (Average) Output Power Result										
Power Level		1	RF Output Power (dBm)							
Directional Gain (dBi)		2.28								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Sum Chain	Power Limit	EIRP Power	EIRP Limit
11G-20M	1	2412	8.82	-	-	-	8.82	30.0	11.10	36.0
11G-20M	1	2437	14.94	-	-	-	14.94	30.0	17.22	36.0
11G-20M	1	2462	9.14	-	-	-	9.14	30.0	11.42	36.0
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

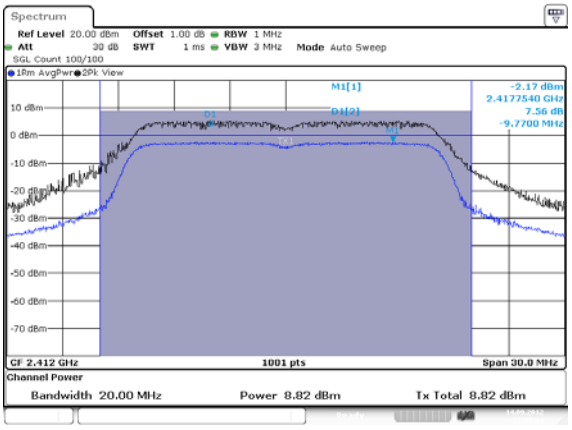
Maximum Peak Conducted Output Power and Maximum Conducted Output Power Plots

11B-20M – F1 [Port 1]



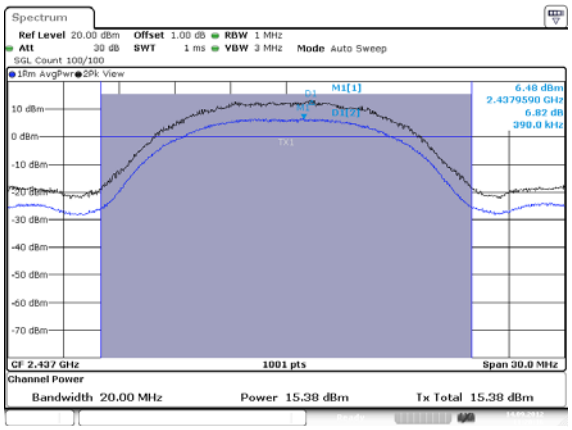
Date: 14.SEP.2012 11:18:06

11G-20M – F1 [Port 1]



Date: 14.SEP.2012 11:30:34

11B-20M – F2 [Port 1]



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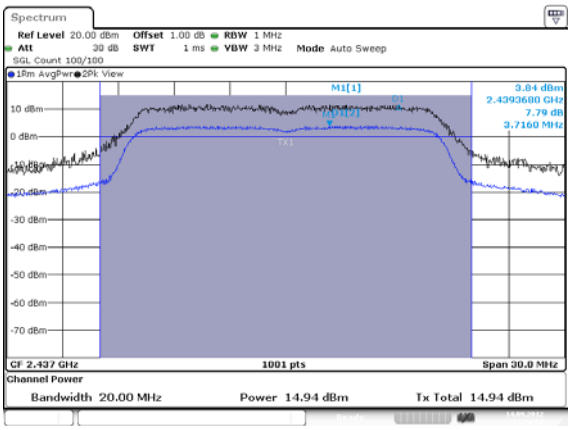
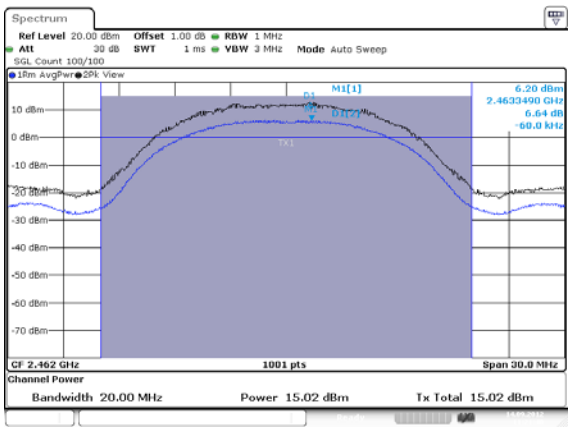
11G-20M – F2 [Port 1]



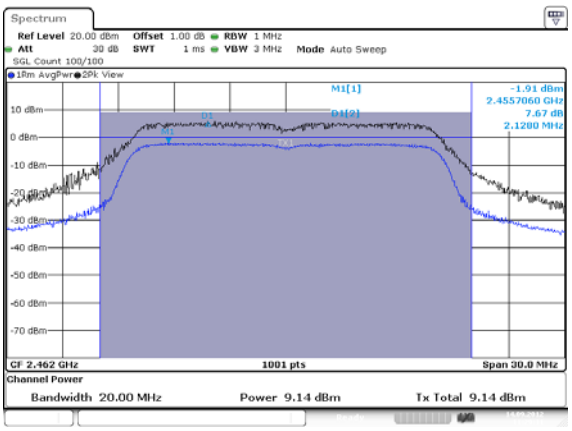
Date: 14.SEP.2012 11:26:57

11B-20M – F3 [Port 1]



Date: 14.SEP.2012 11:21:40

11G-20M – F3 [Port 1]



Date: 14.SEP.2012 11:29:11

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
☒ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

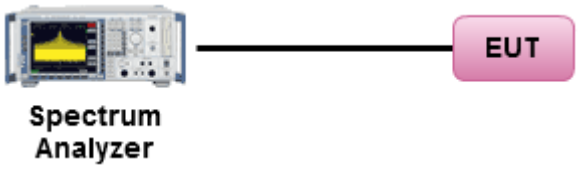
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method			
☒	Power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the power spectral density. In addition, the use of a peak PSD procedure will always result in a “worst-case” measured level for comparison to the limit. Therefore, whenever the DTS bandwidth exceeds 500 kHz, it is acceptable to utilize the peak PSD procedure to demonstrate compliance to the PSD limit, regardless of how the fundamental output power was measured. For the power spectral density shall be measured using below options:		
	☒	Refer as FCC KDB 558074, clause 5.3.1 Option 1 (peak PSD; BWCF=-15.2dB).	
	☐	Refer as FCC KDB 558074, clause 5.3.2 Option 2 (average PSD; BWCF=-15.2dB).	
	☐	Refer as ANSI C63.10, clause 6.11.2.3 for PSD for DTS - (RBW=3kHz; sweep=100s).	
	☐	Refer as ANSI C63.10, clause 6.11.2.4 for Alternative PSD for DTS - (RBW=3kHz; average=100)	
☒	Refer as FCC KDB 558074, clause 2 for conducted measurement.		
	☒	For conducted measurements on devices with multiple transmit chains using options given below:	
		☒	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the N_{TX} output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. The new data trace samples added 100 kHz segment and found the highest value of each 100 kHz segments. Add the bandwidth correction factor (BWCF) [-15.2 dB] adjusting in power spectral density per 3kHz.
		☐	Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
☐	Refer as FCC KDB 558074, clause 2 for radiated measurement.		

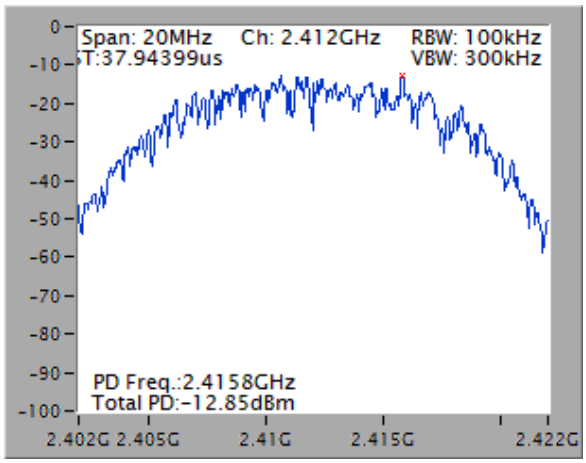
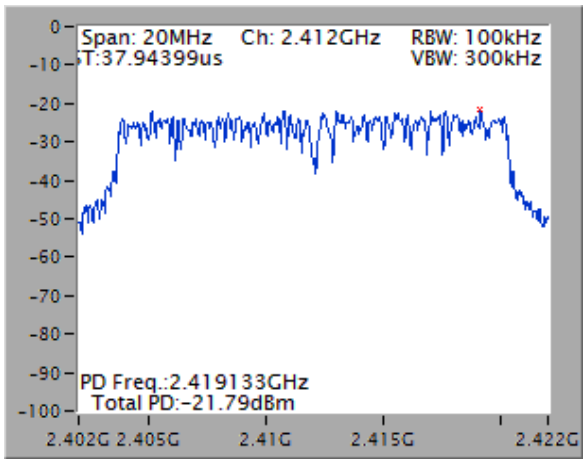
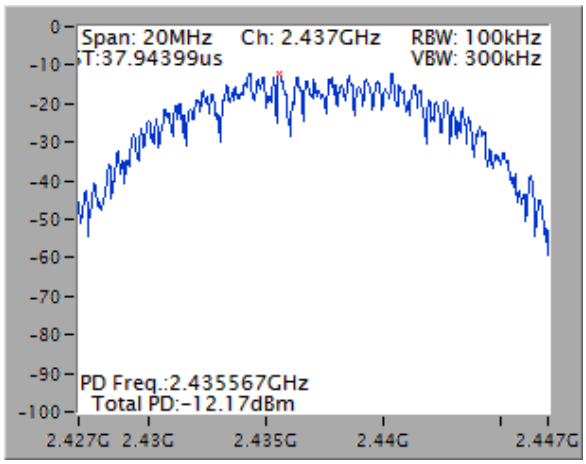
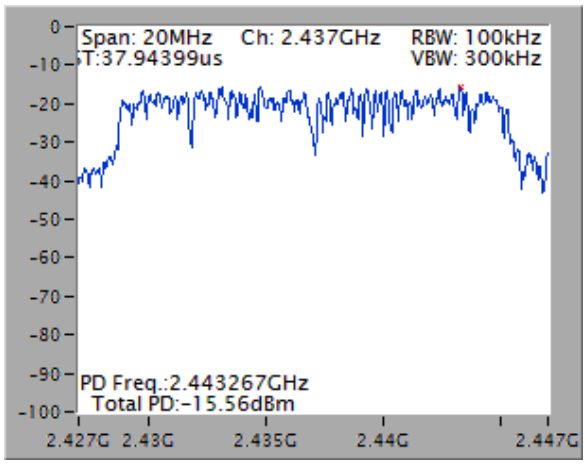
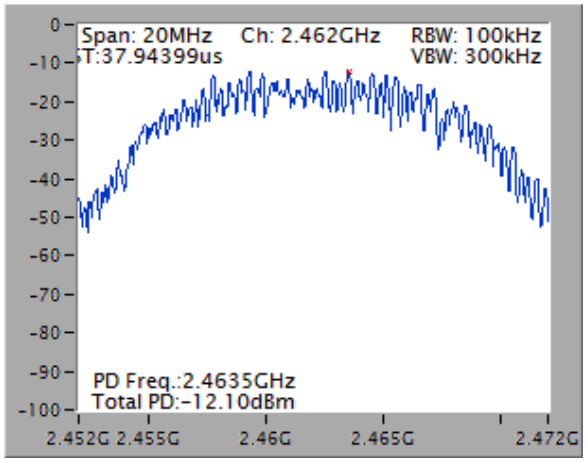
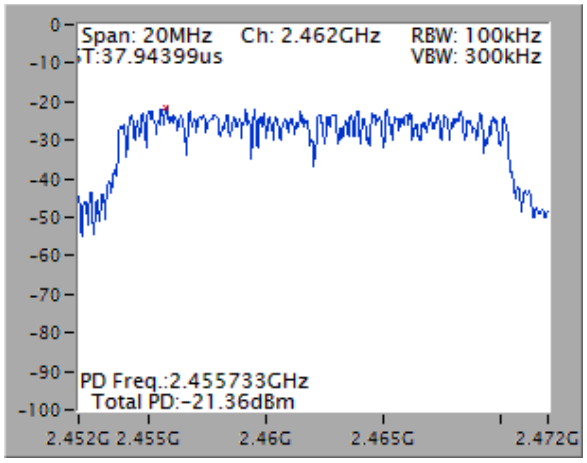
3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Power Spectral Density Result							
Power Level		1	Power Spectral Density (dBm/3kHz)				
Directional Gain (dBi)		2.28					
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	PSD Limit
11B-20M	1	2412	-12.85	-	-	-	8.0
11B-20M	1	2437	-12.17	-	-	-	8.0
11B-20M	1	2462	-12.10	-	-	-	8.0
Result			Complied				
Note 1: N_{TX} = Number of Transmit Chains							

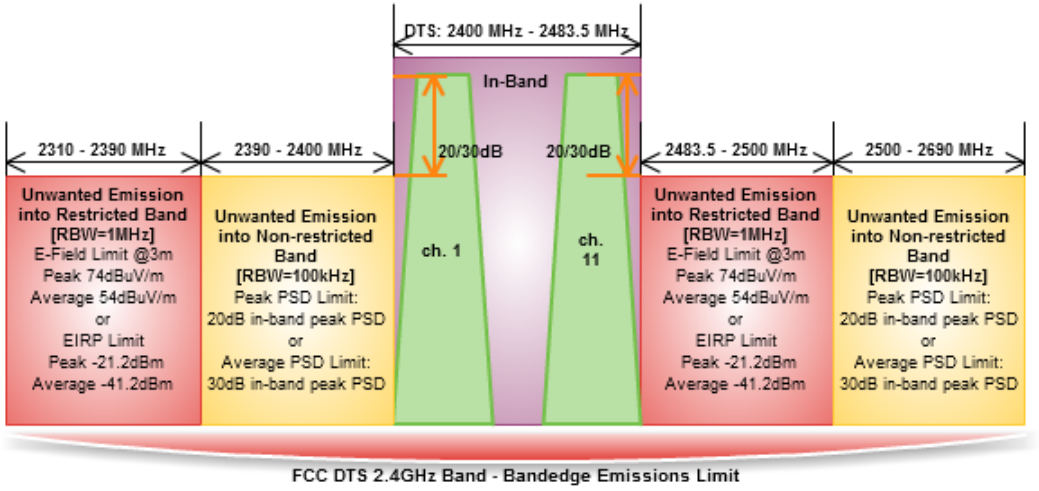
Power Spectral Density Result							
Power Level		1	Power Spectral Density (dBm/3kHz)				
Directional Gain (dBi)		2.28					
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	PSD Limit
11G-20M	1	2412	-21.79	-	-	-	8.0
11G-20M	1	2437	-15.56	-	-	-	8.0
11G-20M	1	2462	-21.36	-	-	-	8.0
Result			Complied				
Note 1: N_{TX} = Number of Transmit Chains							

Power Spectral Density Plots	
11B-20M – F1 [Port 1]	**11G-20M – F1 [Port 1]**
	
11B-20M – F2 [Port 1]	**11G-20M – F2 [Port 1]**
	
11B-20M – F3 [Port 1]	**11G-20M – F3 [Port 1]**
	

3.5 Transmitter Radiated Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit

Transmitter Radiated Bandedge Emissions Limit



3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

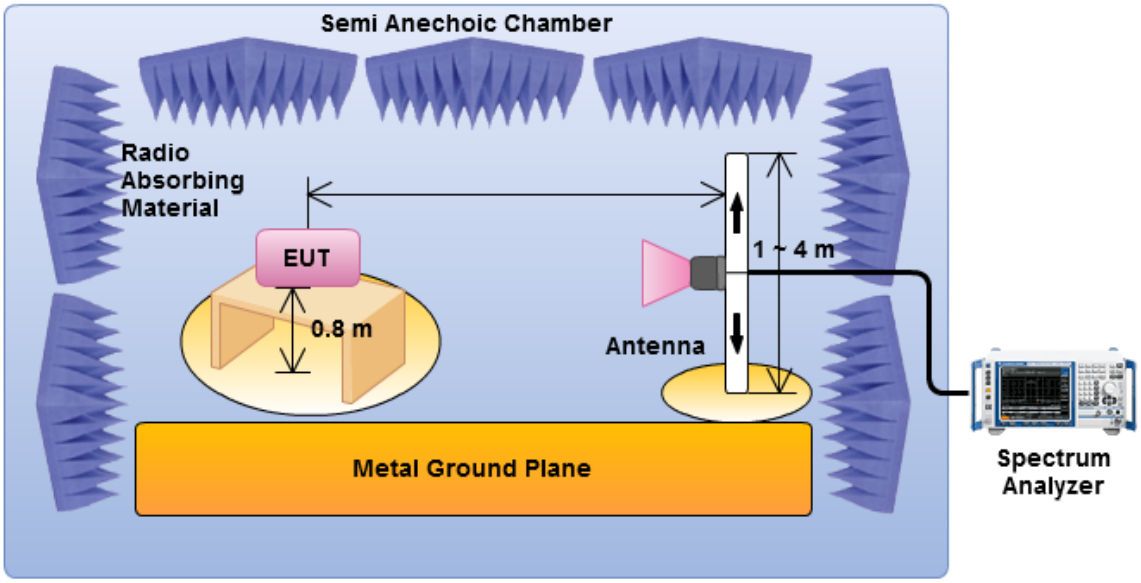
3.5.3 Test Procedures

Test Method – General Information		
☒	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].	
☒	Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
☒	For the transmitter unwanted emissions shall be measured using following options below:	
	☒	Refer as FCC KDB 558074, clause 5.4.1 for unwanted emissions into non-restricted bands.
	☒	Refer as FCC KDB 558074, clause 5.4.2 for unwanted emissions into restricted bands.
		☐ Refer as FCC KDB 558074, clause 5.4.2.2.2.1 Option 1 (Power Averaging).
		☐ Refer as FCC KDB 558074, clause 5.4.2.2.2.2 Option 2 (Trace Averaging).
		☒ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). – Duty cycle ≥ 98%.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒ Refer as FCC KDB 558074, clause 5.4.2.2.1.1 measurement procedure peak limit.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
☒	For the transmitter bandedge emissions shall be measured using following options below:	
	☐	Refer as FCC KDB 558074, clause 5.4.2.2.4 for narrower resolution bandwidth using the band power and summing the spectral levels (i.e., 100 kHz or 1 MHz).
	☒	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
	☐	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.

Test Method				
☐	Refer as FCC KDB 558074, clause 2 for conducted measurement.			
	☐	For unwanted emissions into non-restricted bands (relative emission limits).		
		☐	For conducted measurements on devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.	
	☐	For unwanted emissions into restricted bands. Test conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation).		
		☐	Refer as FCC KDB 558074, clause 5.4.2.2.1 unwanted emissions in restricted bands on frequencies ≤ 1000 MHz	
		☐	Refer as FCC KDB 558074, clause 5.4.2.2.2 unwanted emissions in restricted bands on frequencies > 1000 MHz	
		☐	For conducted measurements on devices with multiple transmit chains using options given below:	
			☐	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, out-of-band and spurious emission measurement. The trace data for each transmit chain has to be individually recorded and each transmit chain trace data shall be added and compared with the limit.
			☐	Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
☒	Refer as FCC KDB 558074, clause 2 for radiated measurement.			
	☐	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.		
	☐	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.		
	☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.		

3.5.4 Test Setup

Transmitter Radiated Bandedge Emissions

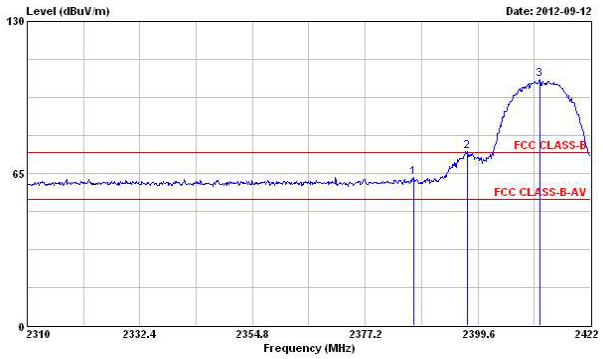


Electric field tests shall be performed in transmitter bandedge emissions using a calibrated horn antenna.

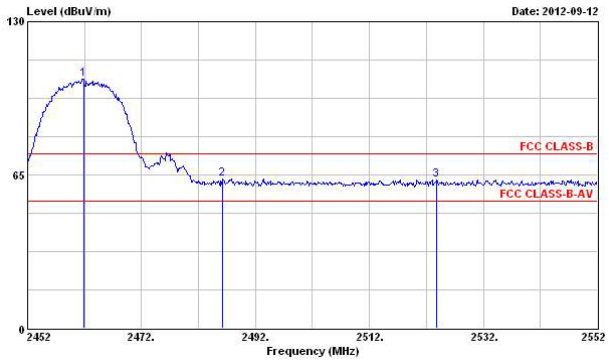
3.5.5 Test Result of Transmitter Radiated Bandedge Emissions

Transmitter Radiated Bandedge Emissions Result									
Power Level	1	Gain (dBi)	2.28	Non-restricted Band Emissions					
Modulation	11B-20M								
Non-restricted Band (MHz)	N_{TX}	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
2390-2400	1	2412	105.28	2386.83	63.45	41.83	20	PK	V
2500-2690	1	2462	105.59	2523.80	63.07	42.52	20	PK	V

Low Band



Up Band



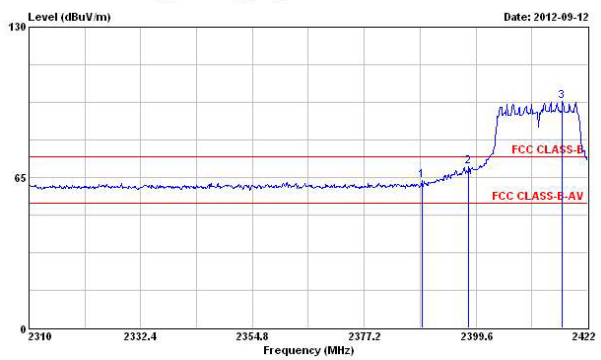
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)

Transmitter Radiated Bandedge Emissions Result									
Power Level	1	Gain (dBi)	2.28	Restricted Band Emissions					
Modulation	11B-20M								
Restricted Band (MHz)	N_{TX}	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	1	2412	111.89	2386.83	3	64.34	74	PK	V
2310-2390	1	2412	101.55	2387.39	3	52.61	54	AV	V
2483.5-2500	1	2462	112.13	2487.00	3	65.36	74	PK	V
2483.5-2500	1	2462	102.12	2487.50	3	51.96	54	AV	V

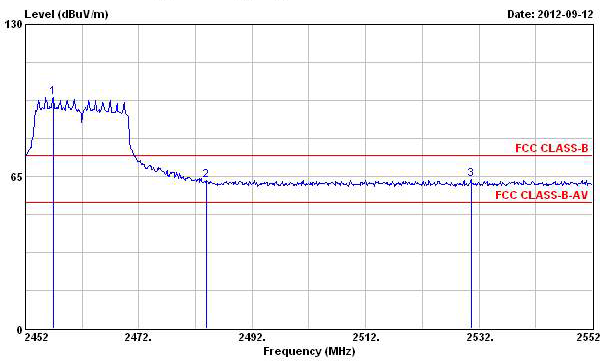
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

Transmitter Radiated Bandedge Emissions Result									
Power Level	1	Gain (dBi)	2.28	Non-restricted Band Emissions					
Modulation	11G-20M								
Non-restricted Band (MHz)	N_{TX}	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
2390-2400	1	2412	97.79	2398.14	69.89	27.9	20	PK	V
2500-2690	1	2462	98.73	2530.60	63.71	35.02	20	PK	V

Low Band



Up Band



Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)

Transmitter Radiated Bandedge Emissions Result									
Power Level	1	Gain (dBi)	2.28	Restricted Band Emissions					
Modulation	11G-20M								
Restricted Band (MHz)	N_{TX}	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	1	2412	103.19	2390.00	3	69.03	74	PK	V
2310-2390	1	2412	92.49	2390.00	3	52.86	54	AV	V
2483.5-2500	1	2462	104.12	2483.50	3	67.58	74	PK	V
2483.5-2500	1	2462	92.98	2483.50	3	53.00	54	AV	V

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

3.6 Transmitter Radiated Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Un-restricted Band Emissions Limit	
RF output power procedure	**Limit (dB)**
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

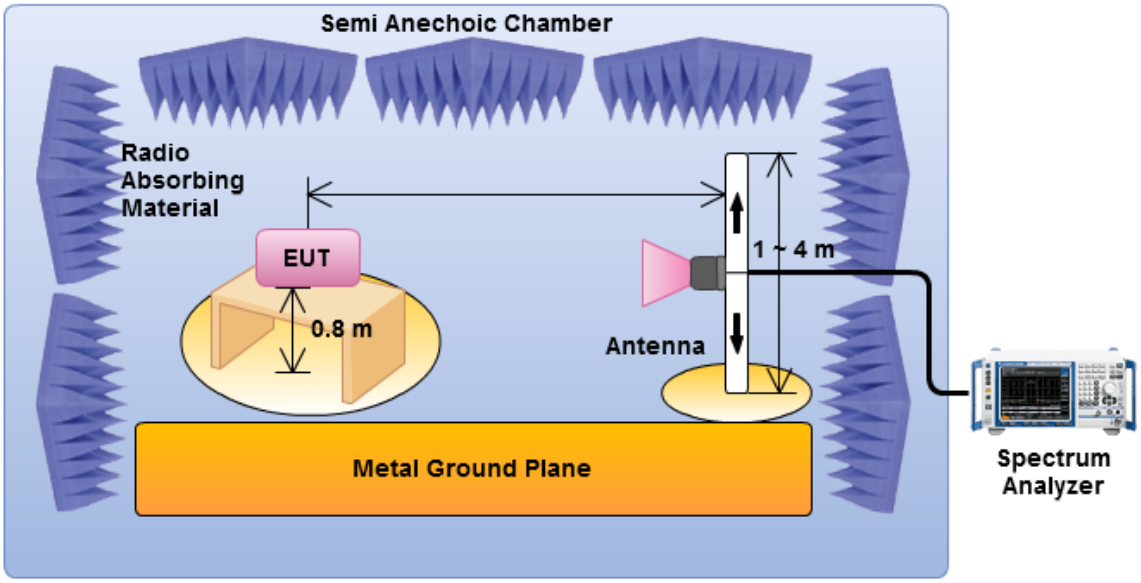
3.6.3 Test Procedures

Test Method – General Information			
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).		
	☒	Measurements in the frequency range 10 GHz - 18GHz are typically made at a closer distance 1m, because the instrumentation noise floor is typically close to the radiated emission limit.	
	☒	Measurements in the frequency range above 18 GHz - 25GHz are typically made at a closer distance 0.5m, because the instrumentation noise floor is typically close to the radiated emission limit.	
☒	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].		
☒	For the transmitter unwanted emissions shall be measured using following options below:		
	☒	Refer as FCC KDB 558074, clause 5.4.1 for unwanted emissions into non-restricted bands.	
	☒	Refer as FCC KDB 558074, clause 5.4.2 for unwanted emissions into restricted bands.	
		☐	Refer as FCC KDB 558074, clause 5.4.2.2.2.1 Option 1 (Power Averaging).
		☐	Refer as FCC KDB 558074, clause 5.4.2.2.2.2 Option 2 (Trace Averaging).
		☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle ≥ 98%.
		☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒	Refer as FCC KDB 558074, clause 5.4.2.2.1.1 measurement procedure peak limit.
		☐	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.

Test Method				
☐ Refer as FCC KDB 558074, clause 2 for conducted measurement.				
	☐ For unwanted emissions into non-restricted bands (relative emission limits).			
		☐ For conducted measurements on devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.		
	☐ For unwanted emissions into restricted bands. Test conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation).			
		☐ Refer as FCC KDB 558074, clause 5.4.2.2.1 unwanted emissions in restricted bands on frequencies ≤ 1000 MHz		
		☐ Refer as FCC KDB 558074, clause 5.4.2.2.2 unwanted emissions in restricted bands on frequencies > 1000 MHz		
		☐ For conducted measurements on devices with multiple transmit chains using options given below:		
			☐ Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, out-of-band and spurious emission measurement. The trace data for each transmit chain has to be individually recorded and each transmit chain trace data shall be added and compared with the limit.	
			☐ Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.	
☒ For radiated measurement.				
	☒ Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.			
	☒ Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.			
	☒ Refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.			

3.6.4 Test Setup

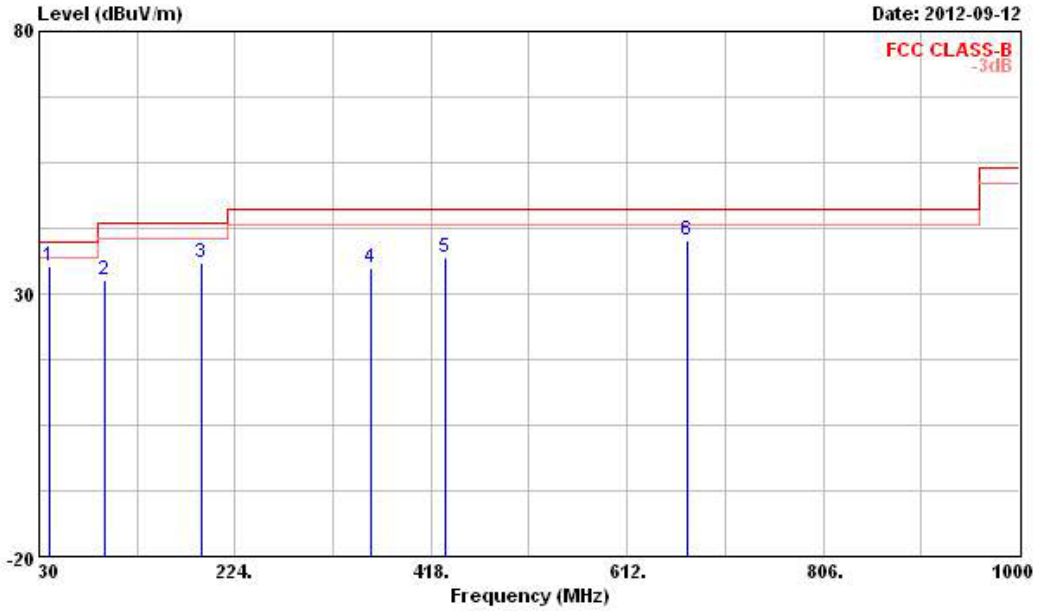
Transmitter Radiated Unwanted Emissions



Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

3.6.5 Test Result of Transmitter Radiated Unwanted Emissions (Below 1GHz)

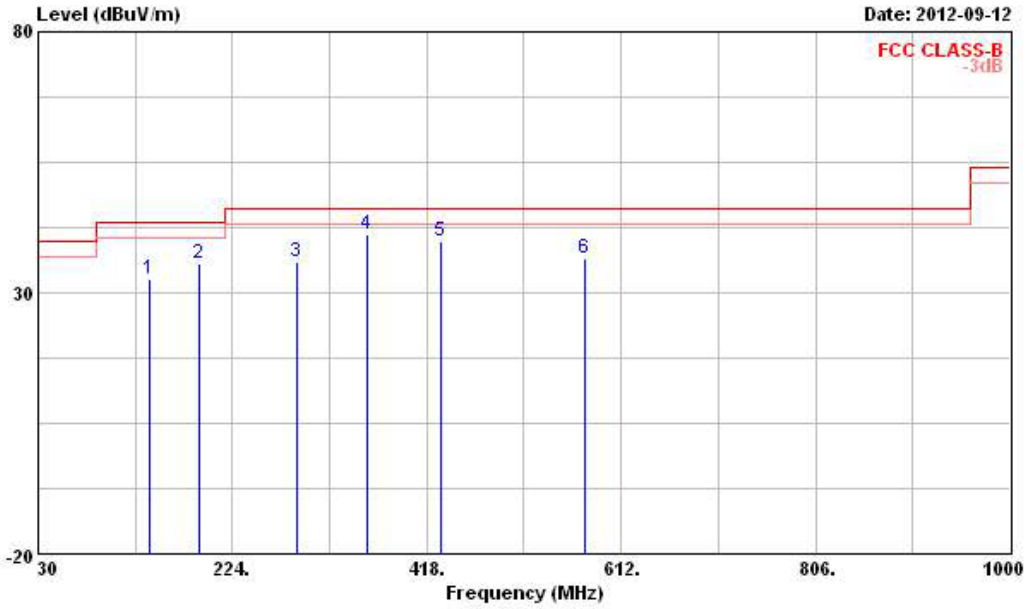
Transmitter Radiated Unwanted Emissions (Below 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Mode	1	**Ant. No.**	1	**Polarization**	V
Operating Function	Transmitter Mode				



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	40.670	35.40	-4.60	40.00	49.24	13.01	1.05	27.90	Peak	---	---
2	94.990	32.75	-10.75	43.50	48.66	10.34	1.60	27.85	Peak	---	---
3 @	191.020	35.87	-7.63	43.50	50.25	10.70	2.37	27.45	Peak	---	---
4	358.830	34.81	-11.19	46.00	44.55	14.61	3.22	27.57	Peak	---	---
5 @	431.580	37.04	-8.96	46.00	45.66	15.90	3.51	28.03	Peak	---	---
6 @	672.140	40.34	-5.66	46.00	45.00	19.22	4.45	28.33	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Transmitter Radiated Unwanted Emissions (Below 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Mode	1	**Ant. No.**	1	**Polarization**	H
Operating Function	Transmitter Mode				

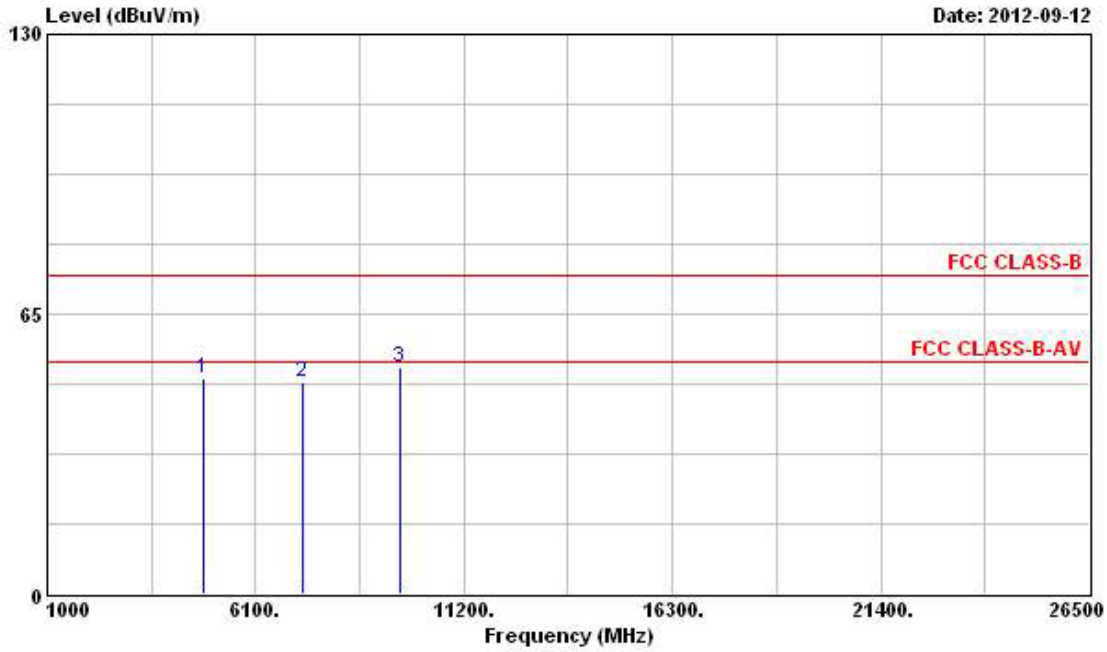


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	141.550	32.68	-10.82	43.50	46.57	11.78	2.00	27.67	Peak	---	---
2 @	191.020	35.67	-7.83	43.50	50.05	10.70	2.37	27.45	Peak	---	---
3	288.020	35.81	-10.19	46.00	46.54	13.54	2.92	27.19	Peak	---	---
4 @	358.830	41.09	-4.91	46.00	50.83	14.61	3.22	27.57	Peak	---	---
5 @	431.580	40.01	-5.99	46.00	48.63	15.90	3.51	28.03	Peak	---	---
6	576.110	36.44	-9.56	46.00	41.25	19.48	4.15	28.44	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.6.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11B-20M

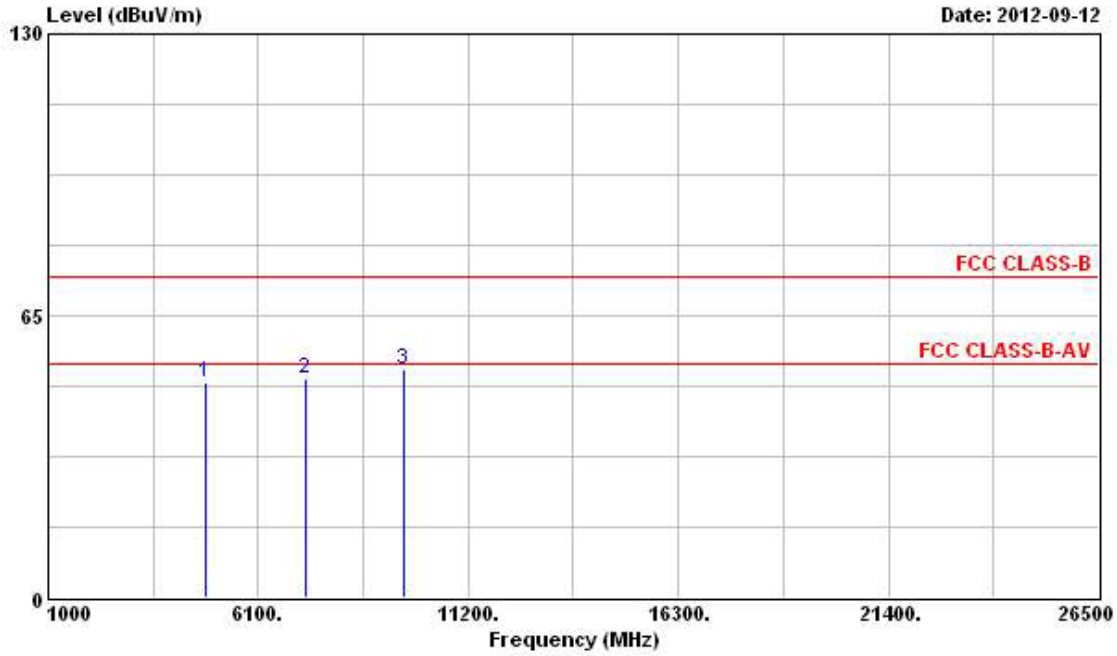
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F1
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4824.000	50.22	-3.78	54.00	45.31	35.13	4.58	34.80	PK	---	---
2	7236.000	49.14			41.69	36.90	5.63	35.08	Peak	---	---
3	9648.000	52.75			43.29	38.59	6.34	35.47	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

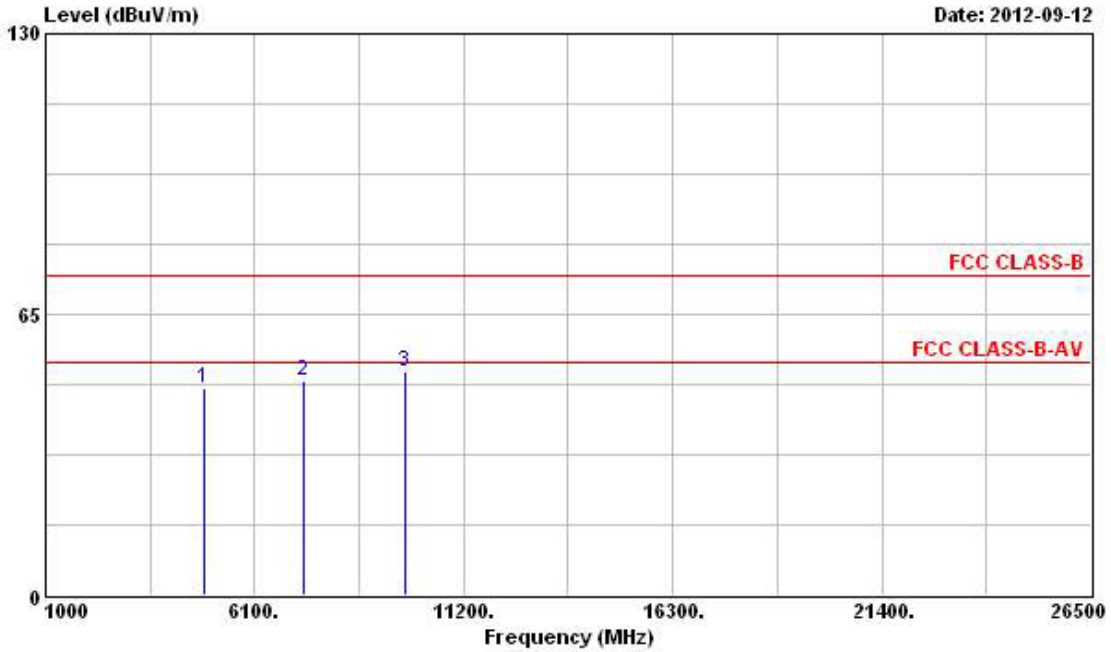
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F1
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4824.000	49.81	-4.19	54.00	44.27	35.76	4.58	34.80	PK	---	---
2	7236.000	50.44			42.04	37.85	5.63	35.08	Peak	---	---
3	9648.000	52.51			42.25	39.39	6.34	35.47	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

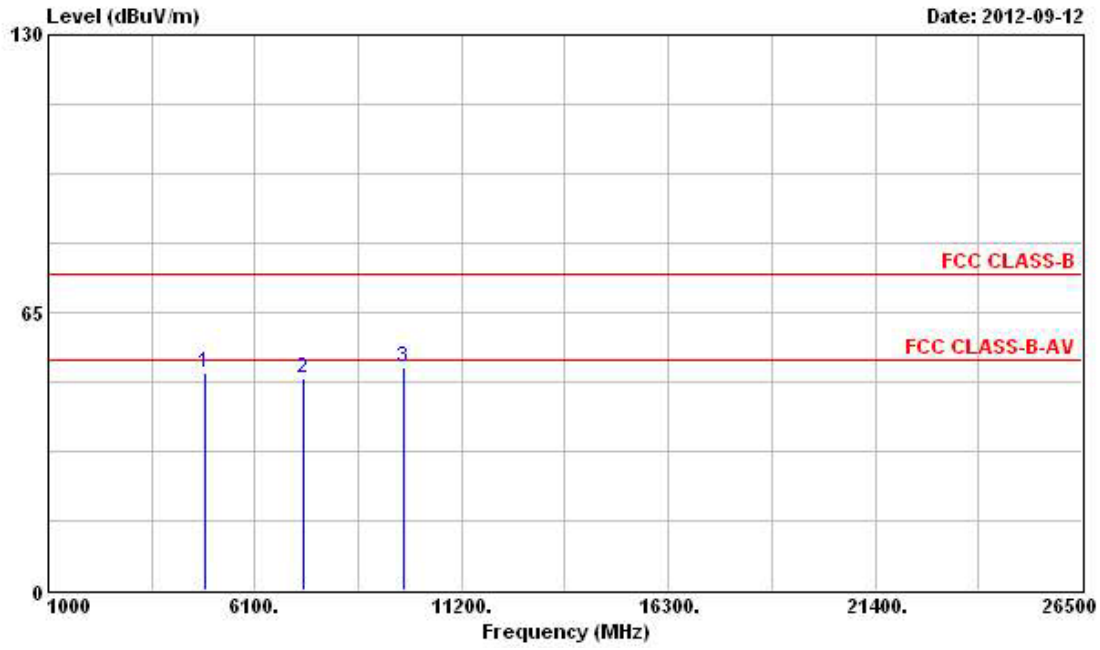
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4874.000	47.99	-6.01	54.00	42.98	35.18	4.61	34.78	PK	---	---
2 @	7311.000	49.78	-4.22	54.00	42.32	36.92	5.64	35.10	PK	---	---
3	9748.000	51.59			42.00	38.71	6.36	35.48	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

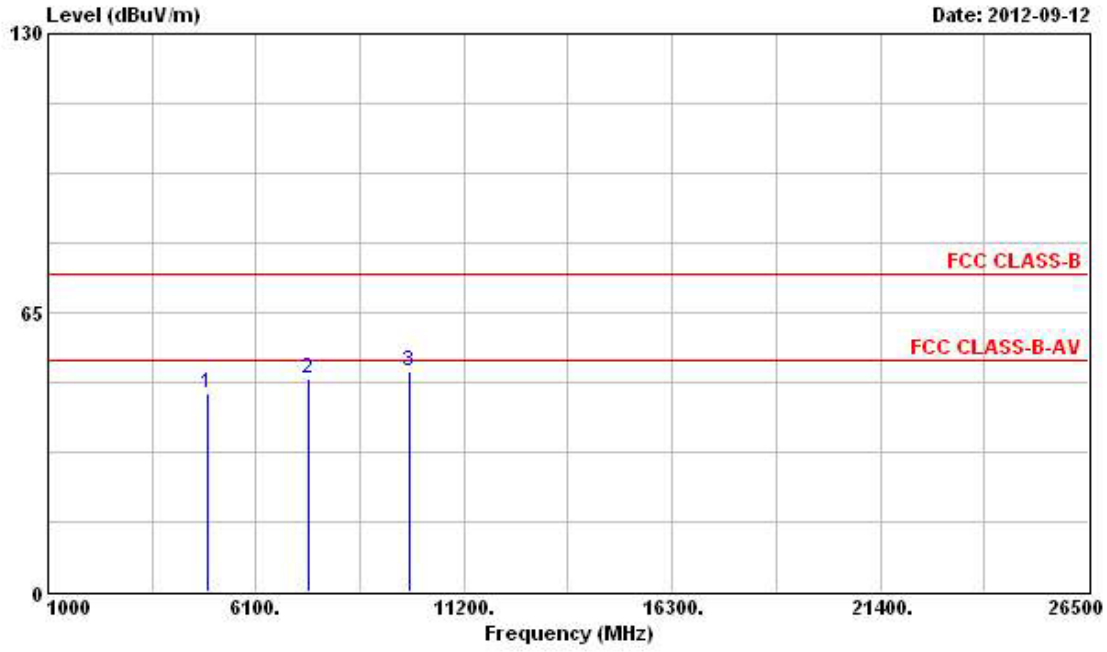
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4874.000	50.85	-3.15	54.00	45.19	35.83	4.61	34.78	PK	---	---
2 @	7311.000	49.66	-4.34	54.00	41.26	37.86	5.64	35.10	PK	---	---
3	9748.000	51.98			41.59	39.51	6.36	35.48	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

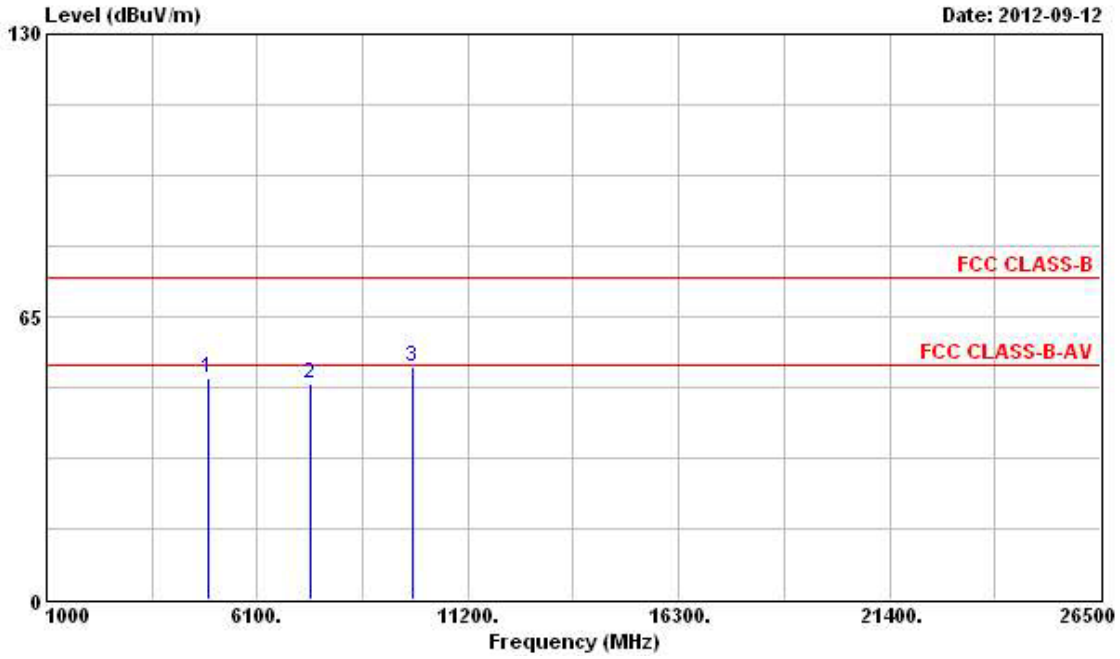
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F3
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4924.000	46.33	-7.67	54.00	41.19	35.23	4.68	34.77	PK	---	---
2 @	7386.000	49.62	-4.38	54.00	42.13	36.96	5.65	35.12	PK	---	---
3	9848.000	51.40			41.70	38.81	6.38	35.49	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11B-20M	**Power Level**	1	**Test Freq. (FX)**	F3
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H

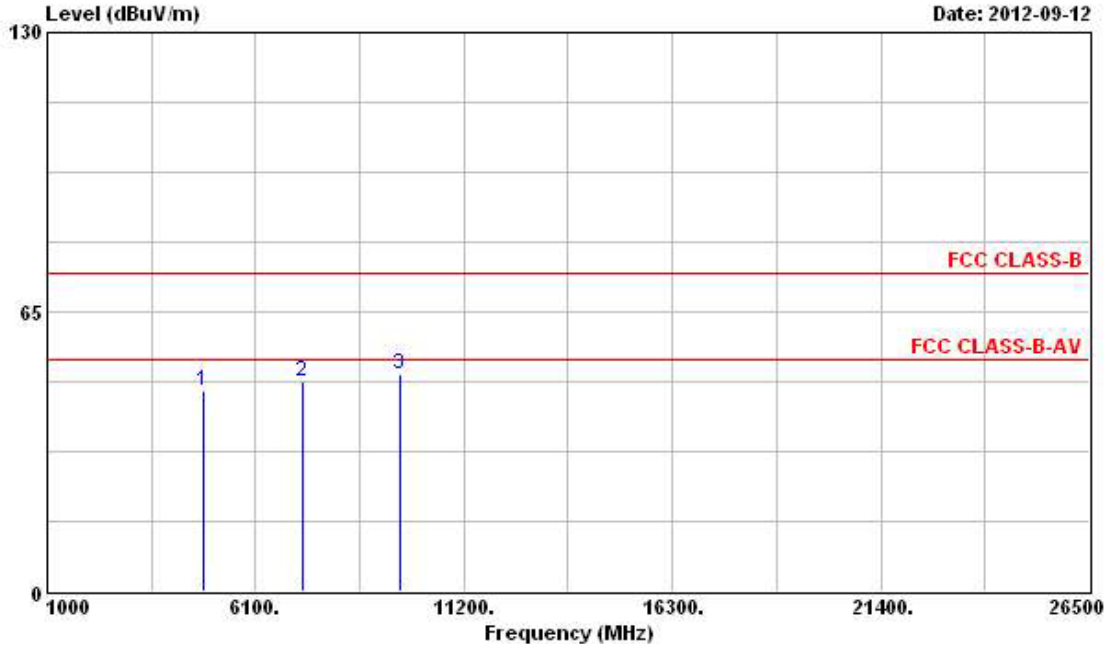


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4924.000	50.78	-3.22	54.00	44.97	35.90	4.68	34.77	PK	---	---
2 @	7386.000	49.81	-4.19	54.00	41.40	37.88	5.65	35.12	PK	---	---
3	9848.000	53.31			42.81	39.61	6.38	35.49	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11G-20M

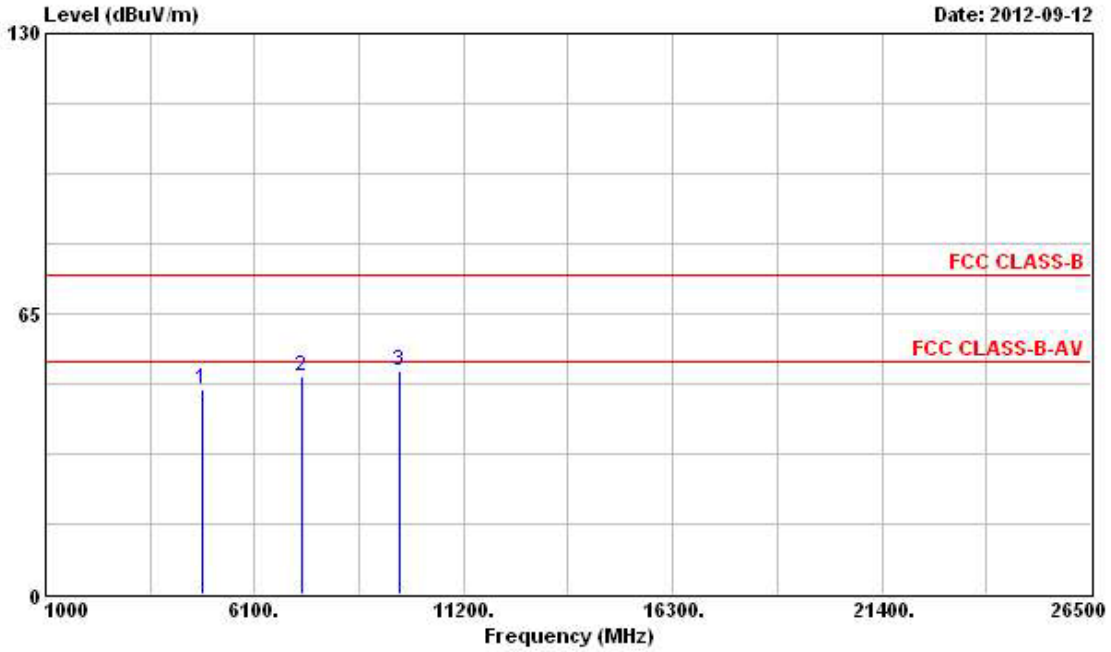
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F1
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4824.000	46.44	-7.56	54.00	41.53	35.13	4.58	34.80	PK	---	---
2	7236.000	48.76			41.31	36.90	5.63	35.08	Peak	---	---
3	9648.000	50.66			41.20	38.59	6.34	35.47	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

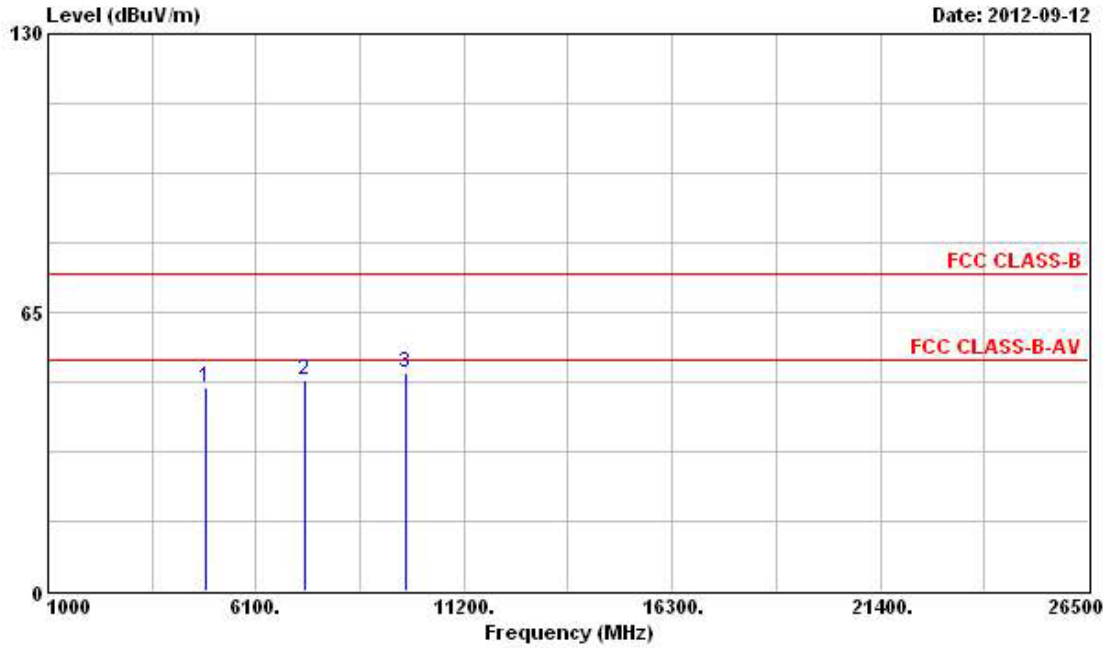
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F1
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4824.000	47.42	-6.58	54.00	41.88	35.76	4.58	34.80	PK	---	---
2	7236.000	50.31			41.91	37.85	5.63	35.08	Peak	---	---
3	9648.000	51.89			41.63	39.39	6.34	35.47	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

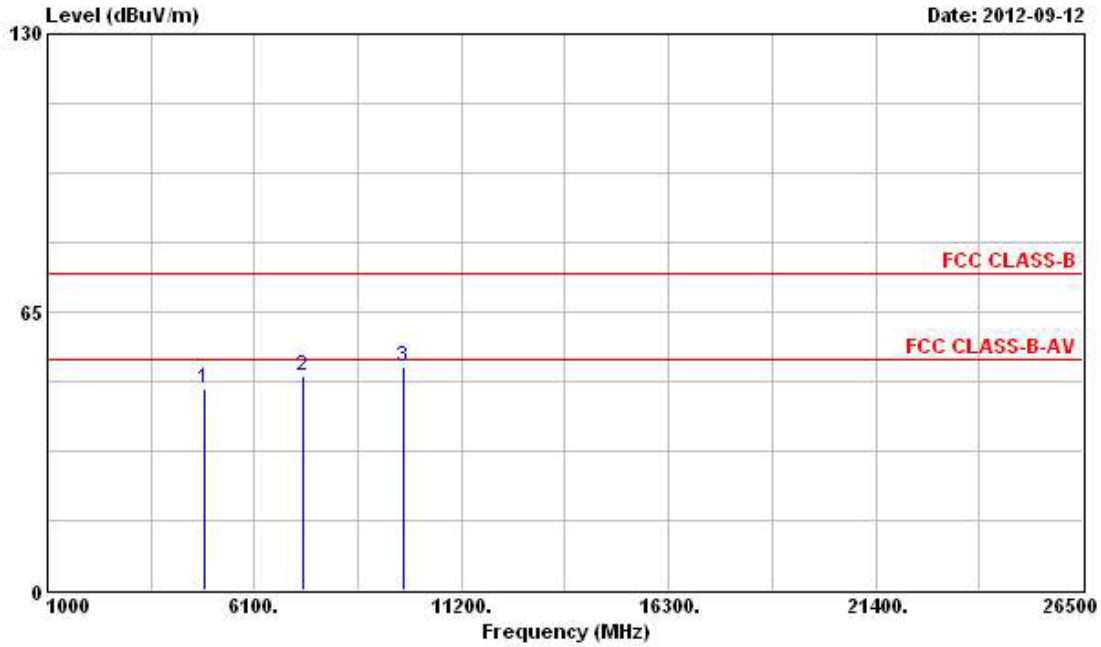
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4874.000	47.38	-6.62	54.00	42.37	35.18	4.61	34.78	PK	---	---
2 @	7311.000	48.98	-5.02	54.00	41.52	36.92	5.64	35.10	PK	---	---
3	9748.000	51.08			41.49	38.71	6.36	35.48	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

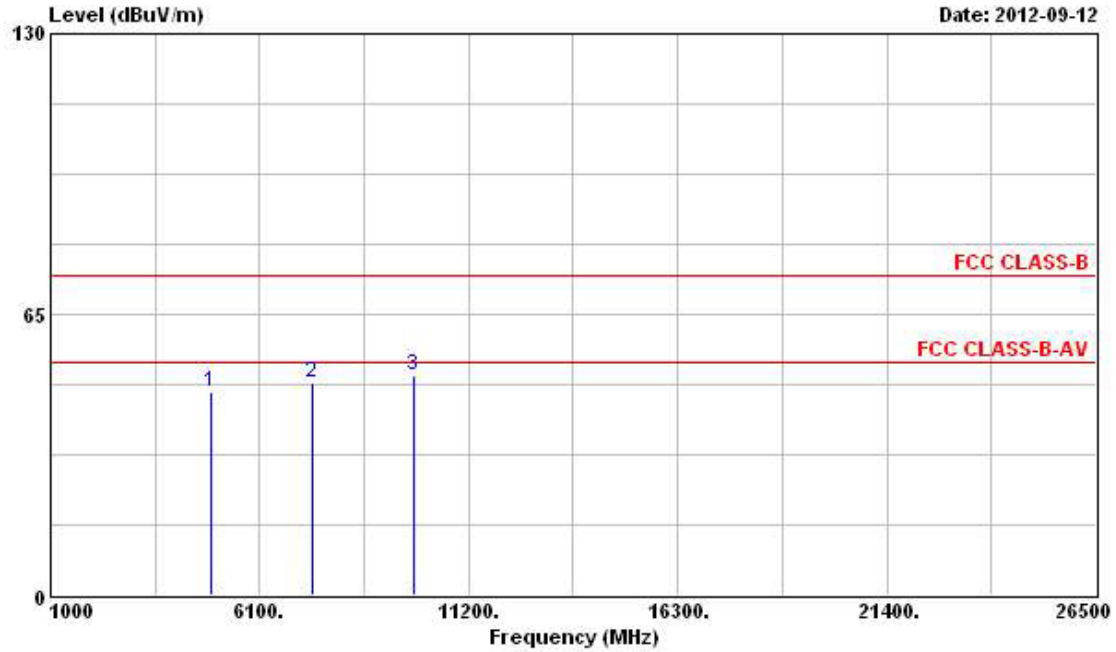
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4874.000	46.93	-7.07	54.00	41.27	35.83	4.61	34.78	PK	---	---
2 @	7311.000	50.06	-3.94	54.00	41.66	37.86	5.64	35.10	PK	---	---
3	9748.000	52.11			41.72	39.51	6.36	35.48	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

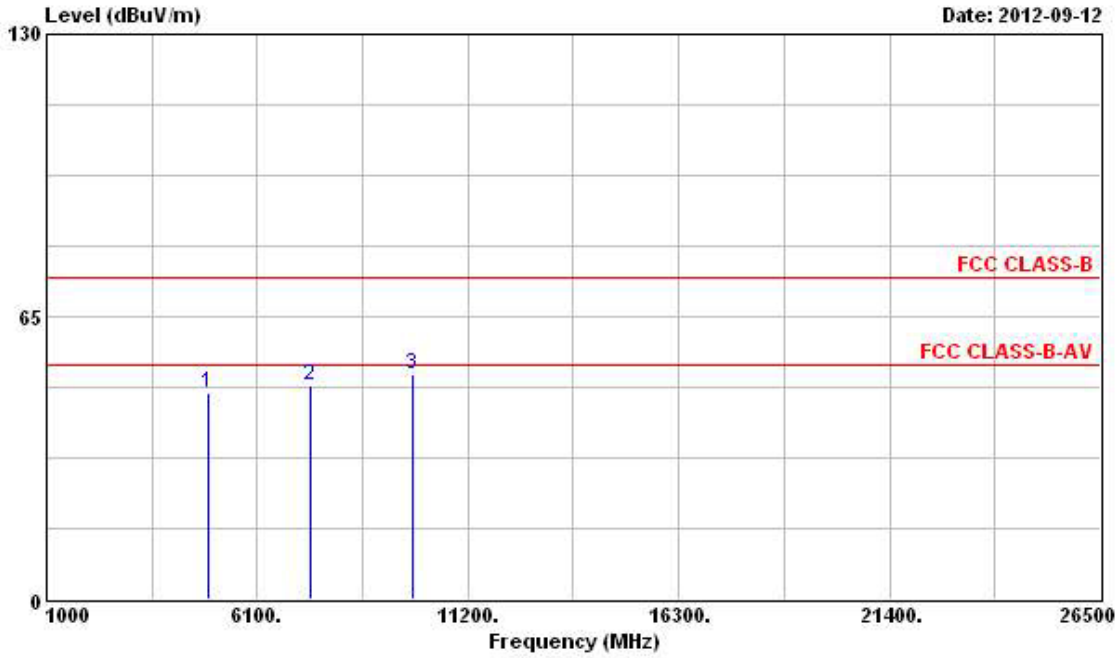
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F3
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4924.000	46.92	-7.08	54.00	41.78	35.23	4.68	34.77	PK	---	---
2 @	7386.000	49.00	-5.00	54.00	41.51	36.96	5.65	35.12	PK	---	---
3	9848.000	50.99			41.29	38.81	6.38	35.49	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	11G-20M	**Power Level**	1	**Test Freq. (FX)**	F3
Operating Function	Transmit	**Ant. No.**	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4924.000	47.33	-6.67	54.00	41.52	35.90	4.68	34.77	PK	---	---
2 @	7386.000	49.37	-4.63	54.00	40.96	37.88	5.65	35.12	PK	---	---
3	9848.000	51.61			41.11	39.61	6.38	35.49	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 23, 2012	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Feb. 08, 2012	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz ~ 30MHz	Apr. 20, 2012	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9kHz ~ 30MHz	Apr. 25, 2012	Conduction (CO04-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 40	100305	9KHz~40GHz	Feb. 21, 2012	Conducted (TH01-HY)
Spectrum Analyzer	R&S	FSV 40	15195-01-00	9KHz~40GHz	Jan. 06, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 19, 2012	Conducted (TH01-HY)
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 02, 2012	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100℃	Dec. 07, 2011	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100302	10MHz ~ 40GHz	Nov. 22, 2011	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Jan. 12, 2012	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Jan. 12, 2012	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345672/4	1GHz ~ 26.5GHz	Dec. 03, 2011	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345668/4	1GHz ~ 26.5GHz	Dec. 03, 2011	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Sep. 14, 2012	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 10, 2012	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 23, 2012	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 10, 2012	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 06, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/0001	9 kHz - 30 MHz	Jul. 03, 2012*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5 Certification of TAF Accreditation

Certificate No. : L1190-120405

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2010 to January 09, 2013
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date:April 05, 2012

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