FCC Test Report

Equipment	:	**USB WLAN Module**
Brand Name	:	**ASKEY**
Model No.	:	**WLU5053-D4(ROHS)**
FCC ID	:	**H8N-WLU5053**
Standard	:	**47 CFR FCC Part 15.407**
Operating Band	:	**5150 MHz – 5250 MHz** **5250 MHz – 5350 MHz** **5470 MHz – 5725 MHz**
Equipment Class	:	**NII**
Applicant	:	**Askey Computer Corp.** **10F, No. 119, Chienkang Rd., Chung-Ho, Taiwan, R.O.C.**
Manufacturer	:	**Askey Computer Corp.** **10F, No. 119, Chienkang Rd., Chung-Ho, Taiwan, R.O.C.** **ASKEY TECHNOLOGY (JIANG SU) LTD.** **No. 1388, Jiao Tong Road,** **Wujiang Economic-Technological Development Area,** **Jiangsu Province, P.R. China**
Operate Mode	:	**Client without radar detection**

The product sample received on Sep. 27, 2012 and completely tested on Nov. 08, 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
2.7	15.207	AC Power-line Conducted Emissions	[dBuV]: 4.550MHz 29.15 (Margin 16.85dB) - AV 35.37 (Margin 20.63dB) - QP	FCC 15.207	Complied
2.8	15.407(a)	Emission Bandwidth	Bandwidth [MHz] 20M: 19.62 / 40M: 40.24	Information only	Complied
2.9	15.407(a)	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 5150-5250MHz: 16.43 5250-5350MHz: 17.10 5470-5725MHz: 16.79	Power [dBm] 5150-5250MHz:17 5250-5350MHz:24 5470-5725MHz:24	Complied
2.10	15.407(a)	Peak Power Spectral Density	PPSD [dBm/MHz] 5150-5250MHz: 3.69 5250-5350MHz: 6.81 5470-5725MHz: 6.49	PPSD [dBm/MHz] 5150-5250MHz:4 5250-5350MHz:11 5470-5725MHz:11	Complied
2.11	15.407(a)	Peak Excursion	8.58 dB	13 dB	Complied
2.12	15.407(b)	Transmitter Radiated Bandedge Emissions	Restricted Bands [dBuV/m at 1m]: 5350.00MHz 82.50 (Margin 1.04dB) - PK 62.50 (Margin 1.02dB) - AV	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
2.13	15.407(b)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 1m]: 10640MHz 60.53 (Margin 3.01dB) - PK	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
2.14	15.407(g)	Frequency Stability	5.21 ppm	Signal shall remain in-band	Complied

Revision History

Report No.	Version	Description	Issued Date
FR292625AN	Rev. 01	Initial issue of report	Dec. 12, 2012

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information						
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**RF Output Power (dBm)**	**Co-location**
5150-5250	a	5180-5240	36-48 [4]	1	13.76	N/A
5250-5350		5260-5320	52-64 [4]	1	14.67	
5470-5725		5500-5700	100-140 [8]	1	14.41	
5150-5250	n (HT-20)	5180-5240	36-48 [4]	1/ 2	14.02	N/A
5250-5350		5260-5320	52-64 [4]	1 / 2	17.10	
5470-5725		5500-5700	100-140 [8]	1 / 2	16.63	
5150-5250	n (HT-40)	5190-5230	38-46 [2]	1 / 2	16.43	N/A
5250-5350		5270-5310	54-62 [2]	1 / 2	16.76	
5470-5725		5510-5670	102-134 [3]	1 / 2	16.79	

Note 1: RF output power specifies that Maximum Conducted Output Power.
Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
Note 3: 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.
☐	External antenna (dedicated antennas)
	☐ Single power level with corresponding antenna(s).
	☐ Multiple power level and corresponding antenna(s).
	☐ RF connector provided
	☐ Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type…)
	☐ Standard antenna connector. (e.g., SMA, N, BNC, and TNC type…)

Antenna General Information			
No.	**Ant. Cat.**	**Ant. Type**	**Gain (dBi)**
1	Integral	PIFA	3.37
2	Integral	PIFA	3.01

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)**
☒ 97.33% - IEEE 802.11a	0.12
☒ 96.40% - IEEE 802.11n (HT-20)	0.16
☒ 92.95% - IEEE 802.11n (HT-40)	0.32

Note 1: RF Output Power Plots w/o Duty Factor Note 1: Power Density Plots w/o Duty Factor

1.1.5 EUT Operational Condition

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

1.2 DFS and TPC Information

The DFS Related Operating Mode(s) of the Equipment			
☐ Master			
☐ Slave with radar detection			
☒ Slave without radar detection			
Software / Firmware Version		5.102.98.23	
Communication Mode		☒ IP Based (Load Based)	☐ Frame Based
IEEE Std. 802.11 Protocol	**Frequency Range (MHz)**	**TPC (Transmit Power Control)**	**Passive Scan**
a	☒ 5250-5350	No	Yes
n (HT20)	☒ 5470-5725	No	Yes
n (HT40)	☐ 5600-5650	No	Yes

1.3 Support Equipment

Support Equipment AC Line Conducted Emission And Radiated Below 1GHz Test				
No.	**Equipment**	**Brand Name**	**Model Name**	**Serial No.**
1	Notebook	DELL	E5500	DoC
2	iPod nano	Apple	A1199	DoC
3	Mouse	Microsoft	1004	DoC

Support Equipment Radiated Above 1GHz Test				
No.	**Equipment**	**Brand Name**	**Model Name**	**Serial No.**
1	Notebook	DELL	E5500	DoC

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 789033
- 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**
RF Conducted		TH01-HY	Shiming	22.1°C / 61%	16-Oct.-12 02-Nov.-12
AC Conduction		CO04-HY	Richard Lo	23.5°C / 45%	08-Nov.-12
Radiated Emission		03CH02-HY	Hsiao	23.6°C / 55%	08-Oct.-12 ~ 11-Oct.-12 25-Oct.-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		±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	±2.56 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 (5150-5250MHz)				
Modulation Mode	**Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**	**Output Power (dBm)**
11a,6-54Mbps	1	6-54Mbps	6 Mbps	13.76
HT-20,M0-15	2	M0-15	MCS 0	14.02
HT-40,M0-15	2	M0-15	MCS 0	16.43
Worst Modulation Used for Conformance Testing (5250-5350MHz)				
Modulation Mode	**Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**	**Output Power (dBm)**
11a,6-54Mbps	1	6-54Mbps	6 Mbps	14.67
HT-20,M0-15	2	M0-15	MCS 0	17.10
HT-40,M0-15	2	M0-15	MCS 0	16.76
Worst Modulation Used for Conformance Testing (5470-5725MHz)				
Modulation Mode	**Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**	**Output Power (dBm)**
11a,6-54Mbps	1	6-54Mbps	6 Mbps	14.41
HT-20,M0-15	2	M0-15	MCS 0	16.63
HT-40,M0-15	2	M0-15	MCS 0	16.79

Note 1: IEEE Std. 802.11n modulation consists of HT-20 and HT-40 (HT: High Throughput). Then EUT support HT-20 and HT-40. Worst modulation mode of Guard Interval (GI) is 800ns.
Note 2: Modulation modes consist of below configuration:
11a: IEEE 802.11a, HT-20/HT-40: IEEE 802.11n.

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration		
Frequency Range (MHz)	**IEEE Std. 802.11**	**Test Channel Freq. (MHz) – FX (Frequencies Abbreviations)**
5150-5250	a, n (HT-20)	5180-(F1), 5200-(F2), 5240-(F3)
5250-5350	a, n (HT-20)	5260-(F4), 5300-(F5), 5320-(F6)
5470-5725	a, n (HT-20)	5500-(F7), 5580-(F8), 5700-(F9)
5150-5250	n (HT-40)	5190-(F1'), 5230-(F2')
5250-5350	n (HT-40)	5270-(F4'), 5310-(F5')
5470-5725	n (HT-40)	5510-(F7'), 5550-(F8'), 5670-(F9')

2.3 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (5150-5250 MHz band)							
Test Software Version	Mtool ver. 1.0.0.9						
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**					
		NCB: 20MHz			**NCB: 40MHz**		
		5180	**5200**	**5240**	**5190**	**5230**	**-**
11a,6-54Mbps	1	58	58	59	-	-	-
HT-20,M0-M7	1	58	58	59	-	-	-
HT-20,M8-M15	2	48	48	48	-	-	-
HT-40,M0-M7	1	-	-	-	57	60	-
HT-40,M8-M15	2	-	-	-	55	60	-

The Worst Case Power Setting Parameter (5250-5350 MHz band)							
Test Software Version	Mtool ver. 1.0.0.9						
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**					
		NCB: 20MHz			**NCB: 40MHz**		
		5260	**5300**	**5320**	**5270**	**5310**	**-**
11a,6-54Mbps	1	62	62	62	-	-	-
HT-20,M0-M7	1	62	62	62	-	-	-
HT-20,M8-M15	2	60	60	60	-	-	-
HT-40,M0-M7	1	-	-	-	60	61	-
HT-40,M8-M15	2	-	-	-	60	54	-

The Worst Case Power Setting Parameter (5470-5725 MHz band)							
Test Software Version	Mtool ver. 1.0.0.9						
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**					
		NCB: 20MHz			**NCB: 40MHz**		
		5500	**5580**	**5700**	**5510**	**5550**	**5670**
11a,6-54Mbps	1	57	62	57	-	-	-
HT-20,M0-M7	1	56	62	55	-	-	-
HT-20,M8-M15	2	56	60	58	-	-	-
HT-40,M0-M7	1	-	-	-	43	60	60
HT-40,M8-M15	2	-	-	-	38	60	61

2.4 The Worst Case Measurement Configuration

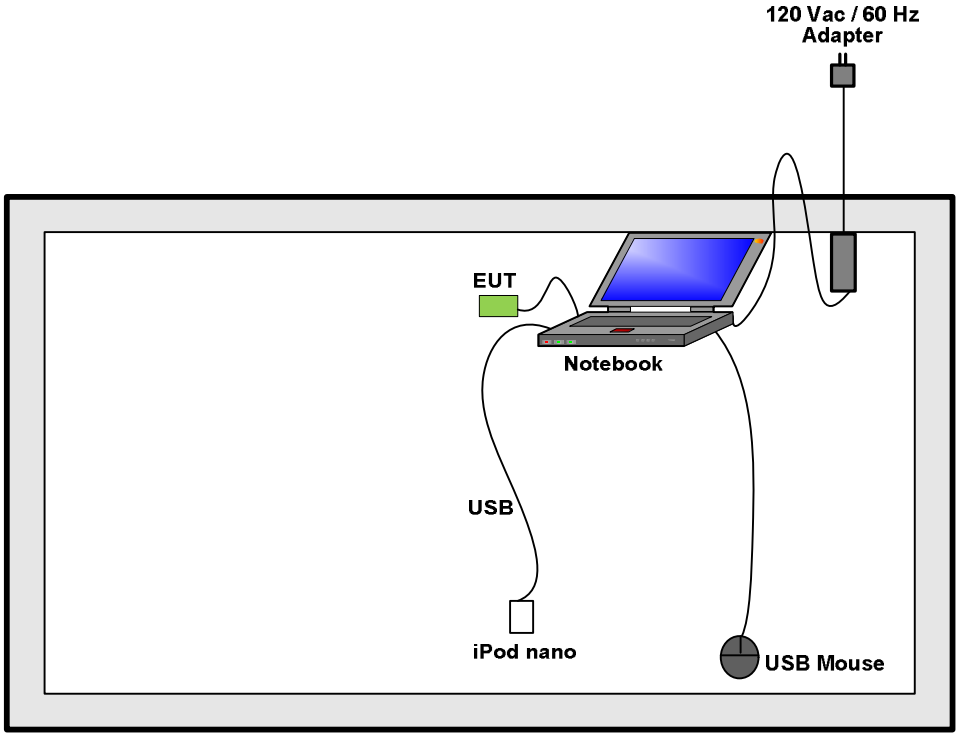
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	AC Power & Radio link (WLAN)

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, Peak Power Spectral Density, Emission Bandwidth, Peak Excursion
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT-20, HT-40

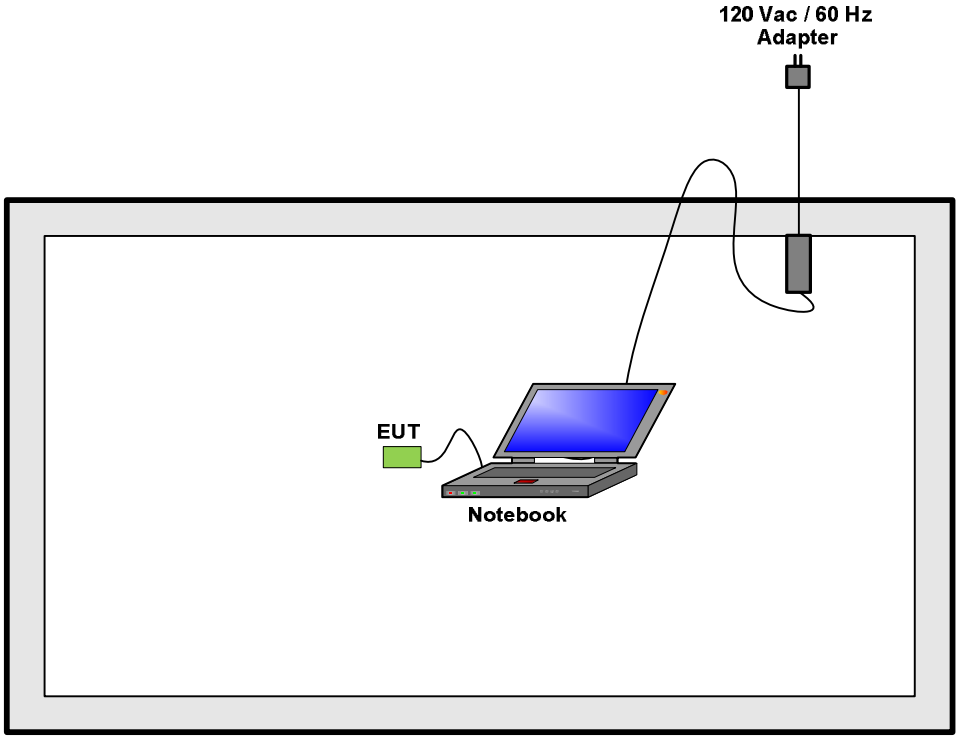
The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
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 orthogonal planes. The worst planes is X.		
	☐ 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. AC Power & Radio link (WLAN)		
Modulation Mode	11b, 11g, HT-20, HT-40		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
			

2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission And Radiated Below 1GHz Test	
Operating Mode 1	AC Power & Radio link (WLAN)



Test Setup Diagram - Radiated Above 1GHz Test	
Operating Mode 1	AC Power & Radio link (WLAN)



2.6 Transmitter Test Result

2.7 AC Power-line Conducted Emissions

2.7.1 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.		

2.7.2 Measuring Instruments

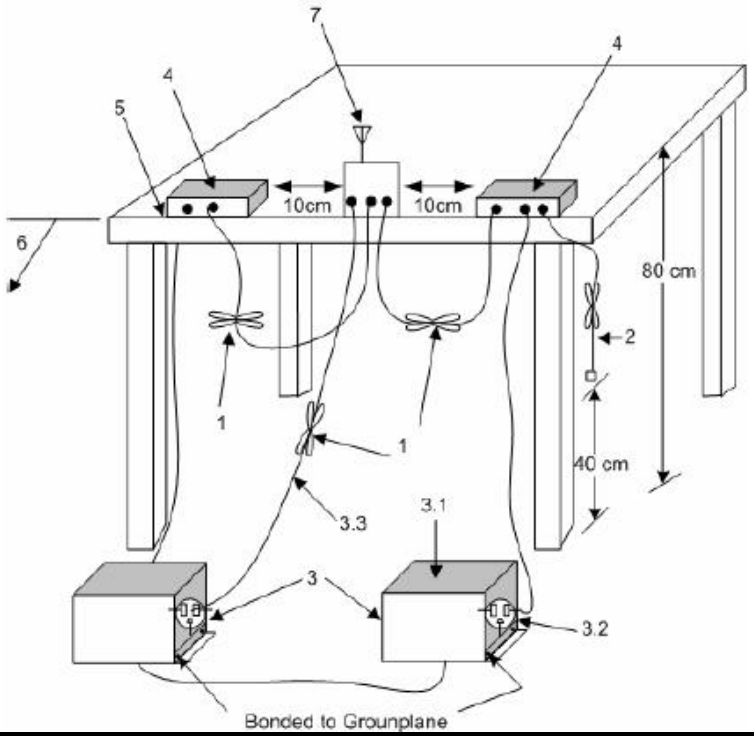
Refer a test equipment and calibration data table in this test report.

2.7.3 Test Procedures

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

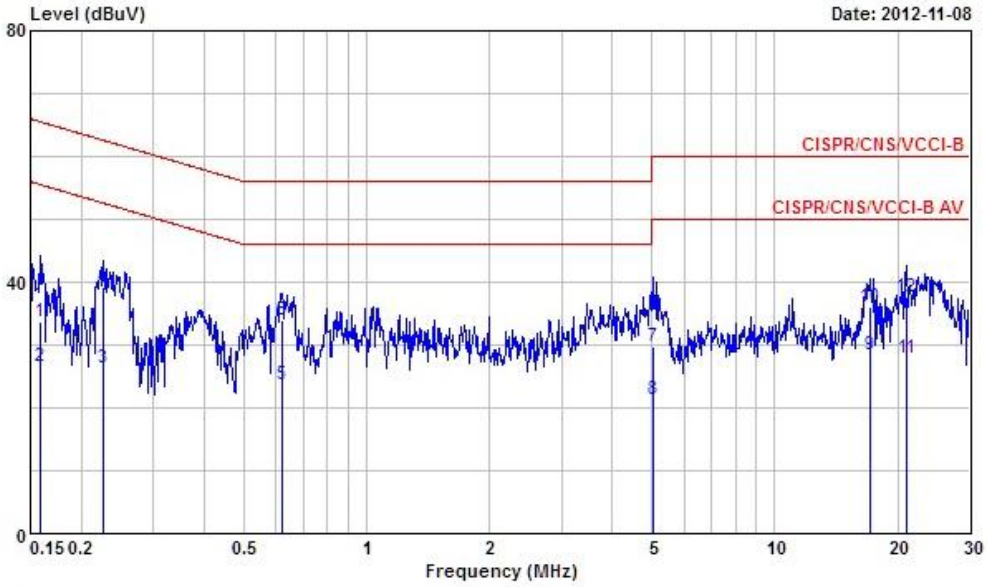
2.7.4 Test Setup

AC Power-line Conducted Emissions



2.7.5 Test Result of AC Power-line Conducted Emissions

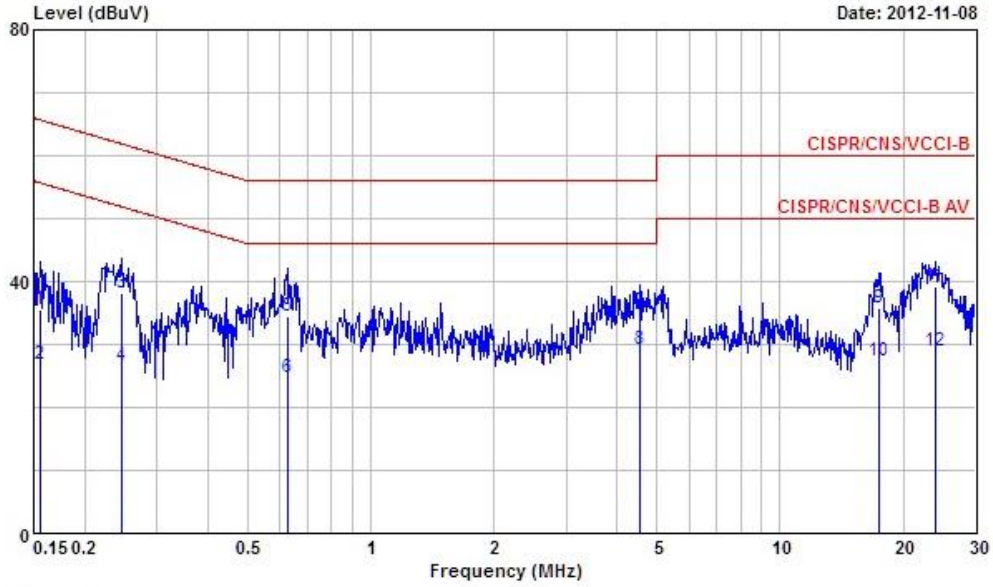
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	AC Power & Radio link (WLAN)		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1581620	33.79	-31.77	65.56	33.38	0.11	0.30	QP
2	0.1581620	26.48	-29.08	55.56	26.07	0.11	0.30	Average
3	0.2255640	26.21	-26.40	52.61	25.80	0.11	0.30	Average
4	0.2255640	39.33	-23.28	62.61	38.92	0.11	0.30	QP
5	0.6205370	23.59	-22.41	46.00	23.19	0.10	0.30	Average
6	0.6205370	33.98	-22.02	56.00	33.58	0.10	0.30	QP
7	5.030	29.72	-30.28	60.00	29.23	0.17	0.32	QP
8	5.030	21.21	-28.79	50.00	20.72	0.17	0.32	Average
9 @	17.110	28.37	-21.63	50.00	27.73	0.29	0.35	Average
10	17.110	35.97	-24.03	60.00	35.33	0.29	0.35	QP
11	21.040	27.98	-22.02	50.00	27.36	0.32	0.30	Average
12	21.040	37.72	-22.28	60.00	37.10	0.32	0.30	QP

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

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	AC Power & Radio link (WLAN)		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1556680	35.46	-30.23	65.69	34.92	0.24	0.30	QP
2	0.1556680	26.86	-28.83	55.69	26.32	0.24	0.30	Average
3	0.2468240	38.19	-23.67	61.86	37.66	0.23	0.30	QP
4	0.2468240	26.60	-25.26	51.86	26.07	0.23	0.30	Average
5 @	0.6238330	34.52	-21.48	56.00	34.00	0.22	0.30	QP
6 @	0.6238330	24.66	-21.34	46.00	24.14	0.22	0.30	Average
7 @	4.550	35.37	-20.63	56.00	34.75	0.31	0.31	QP
8 @	4.550	29.15	-16.85	46.00	28.53	0.31	0.31	Average
9	17.380	35.90	-24.10	60.00	35.02	0.53	0.35	QP
10	17.380	27.28	-22.72	50.00	26.40	0.53	0.35	Average
11 @	23.890	39.09	-20.91	60.00	38.16	0.63	0.30	QP
12 @	23.890	28.82	-21.18	50.00	27.89	0.63	0.30	Average

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

2.8 Emission Bandwidth

2.8.1 Emission Bandwidth (EBW) Limit

Emission Bandwidth (EBW) Limit
UNII Devices
☒ For the 5.15-5.25 GHz band, the maximum conducted output power shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
☒ For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
☒ For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
☒ For the 5.725-5.825 GHz band, the maximum conducted output power shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz
LE-LAN Devices
☒ For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☒ For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☒ For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☒ For the 5.725-5.825 GHz band, the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

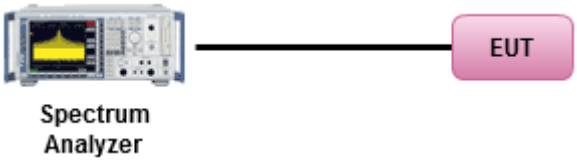
2.8.2 Measuring Instruments

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

2.8.3 Test Procedures

Test Method			
☒	For the emission bandwidth shall be measured using one of the options below:		
	☒	Refer as FCC KDB 789033, clause D for EBW measurement.	
	☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.	
	☒	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.	
☒	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.	
	☒	The EUT supports 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.

2.8.4 Test Setup

Emission Bandwidth


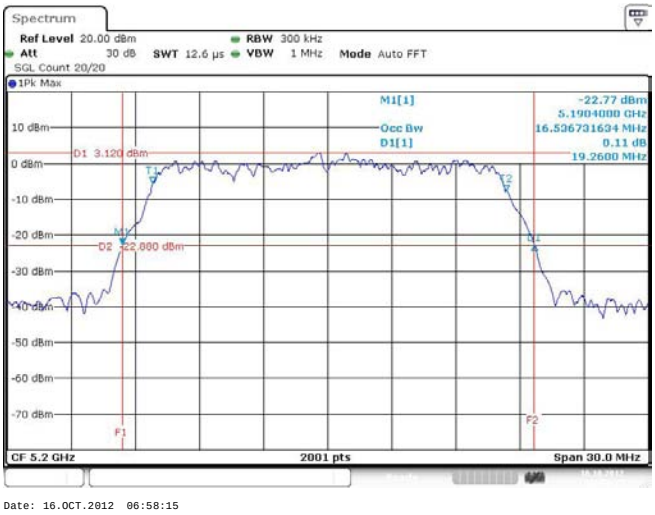
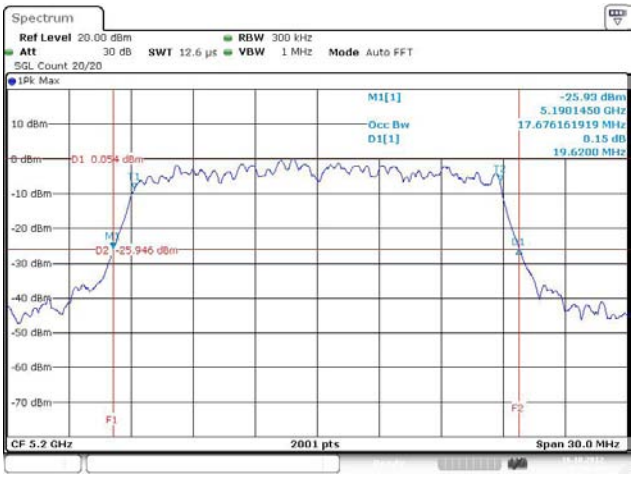
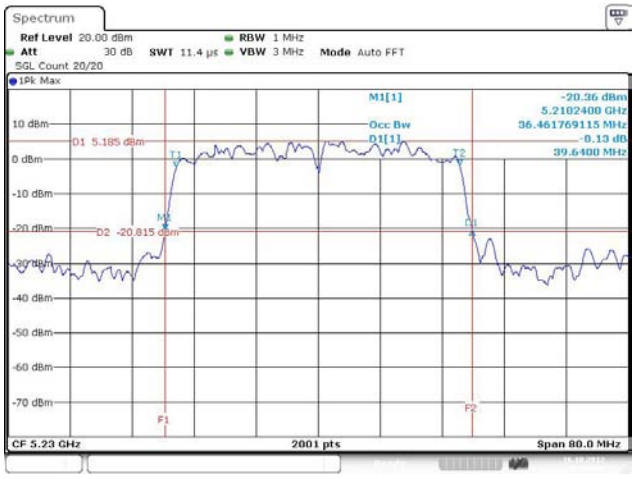
2.8.5 Test Result of Emission Bandwidth

UNII Emission Bandwidth Result (5150-5250MHz band)												
Condition			Emission Bandwidth (MHz)									
Modulation Mode	N_{TX}	Freq. (MHz)	99% Bandwidth				26dB Bandwidth				Power Limit	
			Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	99% BW	26dB BW
11a	1	5180	16.52	-	-	-	19.25	-	-	-	16.18	16.84
11a	1	5200	16.54	-	-	-	19.26	-	-	-	16.18	16.85
11a	1	5240	16.46	-	-	-	19.13	-	-	-	16.16	16.82
HT-20	1	5180	17.51	-	-	-	19.35	-	-	-	16.43	16.87
HT-20	1	5200	17.56	-	-	-	19.20	-	-	-	16.44	16.83
HT-20	1	5240	17.48	-	-	-	19.25	-	-	-	16.43	16.84
HT-20	2	5180	17.62	17.53	-	-	19.37	19.37	-	-	16.44	16.87
HT-20	2	5200	17.54	17.68	-	-	19.38	19.62	-	-	16.44	16.87
HT-20	2	5240	17.51	17.53	-	-	19.11	19.13	-	-	16.43	16.81
HT-40	1	5190	36.46	-	-	-	39.36	-	-	-	17.00	17.00
HT-40	1	5230	36.50	-	-	-	39.60	-	-	-	17.00	17.00
HT-40	2	5190	36.54	36.30	-	-	39.32	39.12	-	-	17.00	17.00
HT-40	2	5230	36.46	36.98	-	-	39.64	39.28	-	-	17.00	17.00
Result			Complied									

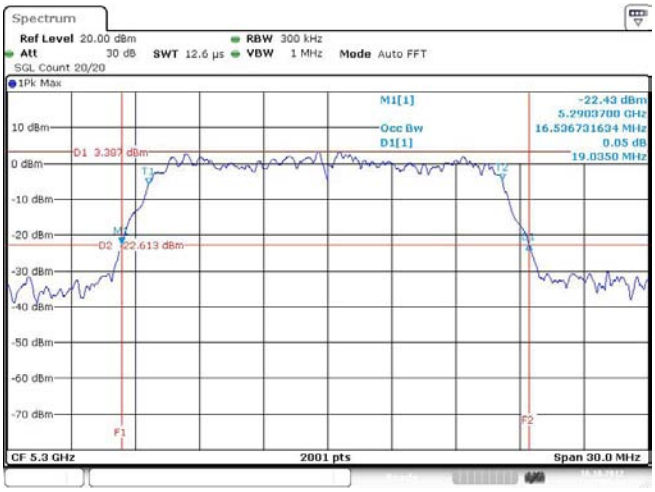
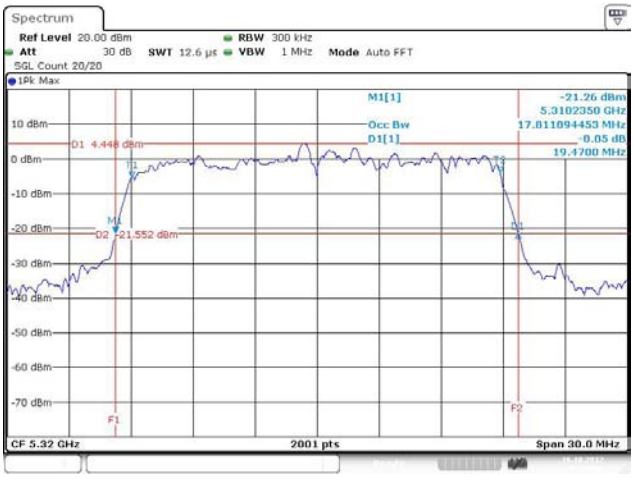
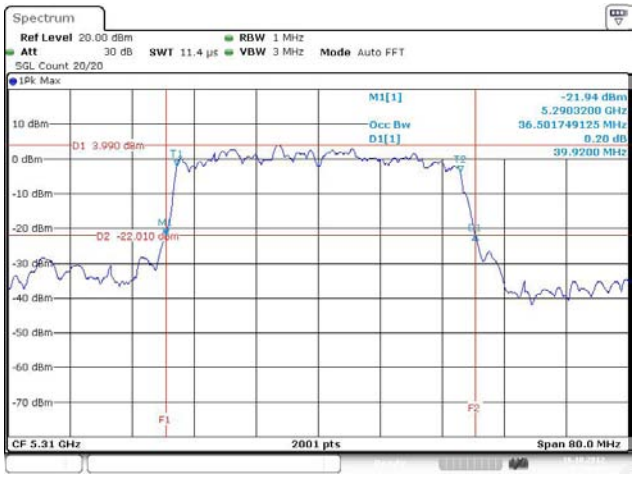
UNII Emission Bandwidth Result (5250-5350MHz band)												
Condition			Emission Bandwidth (MHz)									
Modulation Mode	N_{TX}	Freq. (MHz)	99% Bandwidth				26dB Bandwidth				Power Limit	
			Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	99% BW	26dB BW
11a	1	5260	16.27	-	-	-	18.77	-	-	-	23.11	23.73
11a	1	5300	16.54	-	-	-	19.04	-	-	-	23.18	23.80
11a	1	5320	16.34	-	-	-	18.60	-	-	-	23.13	23.70
HT-20	1	5260	17.69	-	-	-	19.29	-	-	-	23.48	23.85
HT-20	1	5300	17.51	-	-	-	19.11	-	-	-	23.43	23.81
HT-20	1	5320	17.53	-	-	-	19.32	-	-	-	23.44	23.86
HT-20	2	5260	17.44	17.69	-	-	19.13	19.47	-	-	23.41	23.82
HT-20	2	5300	17.59	17.54	-	-	19.29	19.19	-	-	23.44	23.83
HT-20	2	5320	17.53	17.81	-	-	19.37	19.47	-	-	23.44	23.87
HT-40	1	5270	36.78	-	-	-	39.88	-	-	-	24.00	24.00
HT-40	1	5310	36.34	-	-	-	38.56	-	-	-	24.00	24.00
HT-40	2	5270	36.34	36.18	-	-	39.12	38.64	-	-	24.00	24.00
HT-40	2	5310	36.50	36.30	-	-	39.92	39.64	-	-	24.00	24.00
Result			Complied									

UNII Emission Bandwidth Result (5470-5725MHz band)												
Condition			Emission Bandwidth (MHz)									
Modulation Mode	N_{TX}	Freq. (MHz)	99% Bandwidth				26dB Bandwidth				Power Limit	
			Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	99% BW	26dB BW
11a	1	5500	16.37	-	-	-	18.90	-	-	-	23.14	23.76
11a	1	5580	16.69	-	-	-	19.44	-	-	-	23.22	23.89
11a	1	5700	16.48	-	-	-	19.01	-	-	-	23.17	23.79
HT-20	1	5500	17.50	-	-	-	19.20	-	-	-	23.43	23.83
HT-20	1	5580	17.68	-	-	-	19.53	-	-	-	23.47	23.91
HT-20	1	5700	17.63	-	-	-	19.44	-	-	-	23.46	23.89
HT-20	2	5500	17.60	17.53	-	-	19.44	19.32	-	-	23.44	23.86
HT-20	2	5580	17.60	17.57	-	-	19.29	19.35	-	-	23.45	23.85
HT-20	2	5700	17.62	17.56	-	-	19.34	19.14	-	-	23.44	23.82
HT-40	1	5510	36.46	-	-	-	39.24	-	-	-	24.00	24.00
HT-40	1	5550	36.74	-	-	-	40.04	-	-	-	24.00	24.00
HT-40	1	5670	36.58	-	-	-	40.24	-	-	-	24.00	24.00
HT-40	2	5510	36.38	36.34	-	-	38.76	39.84	-	-	24.00	24.00
HT-40	2	5550	36.38	36.62	-	-	39.12	40.24	-	-	24.00	24.00
HT-40	2	5670	36.26	36.66	-	-	39.52	39.88	-	-	24.00	24.00
Result			Complied									

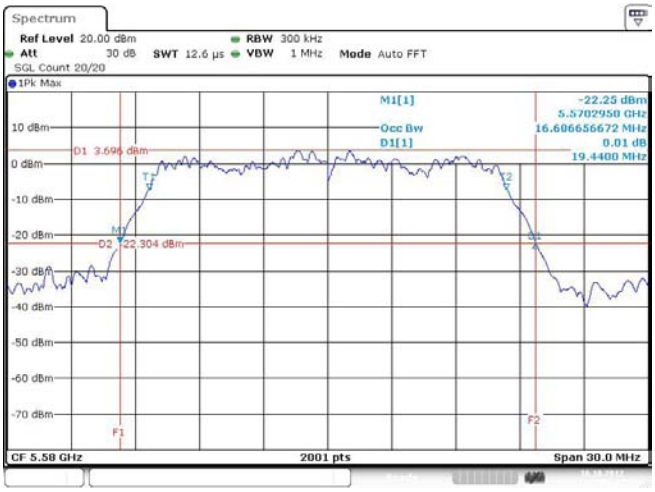
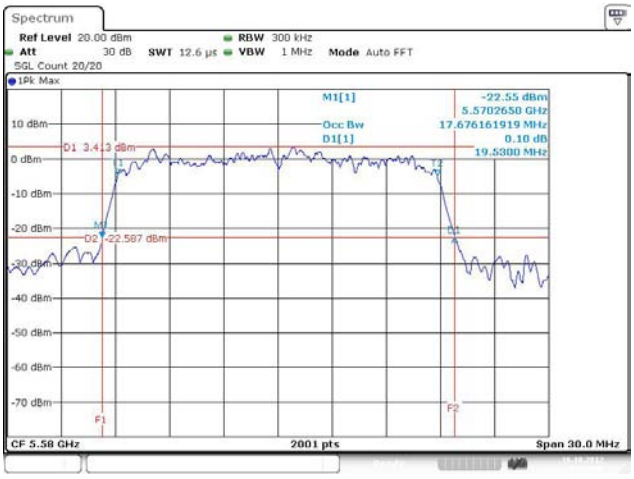
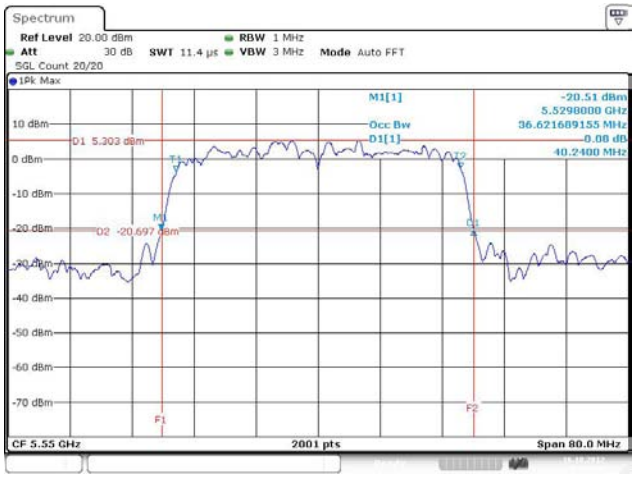
5150-5250MHz

Worst Emission Bandwidth Plots	
11a	
	
HT-20	HT-40
	

5250-5350MHz

Worst Emission Bandwidth Plots	
11a	
	
HT-20	HT-40
	

5470-5725MHz

Worst Emission Bandwidth Plots	
11a	
 Date: 16.OCT.2012 07:08:27	
HT-20	HT-40
 Date: 16.OCT.2012 07:19:20	 Date: 16.OCT.2012 07:51:37

2.9 RF Output Power

2.9.1 RF Output Power Limit

Maximum Conducted Output Power Limit	
UNII Devices	
☒	For the 5.15-5.25 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 17 – (G_{TX} – 6).
☒	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
☒	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
☐	For the 5.725-5.825 GHz band:
	☐ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6).
	☐ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 23 dBi, then P_{Out} = 30 – (G_{TX} – 23).
LE-LAN Devices	
☒	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☒	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☒	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.725-5.825 GHz band, the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	☐ Point-to-multipoint systems (P2M): the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	☐ Point-to-point systems (P2P): the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. If e.i.r.p. > 36 dBm, $G_{TX} \leq P_{Out}$
P_{Out} = maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi.	

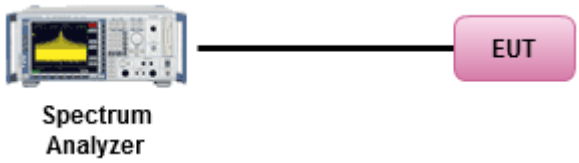
2.9.2 Measuring Instruments

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

2.9.3 Test Procedures

Test Method	
☒	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
	☐ Refer as FCC KDB 789033, clause C Method SA-1 (spectral trace averaging).
	☐ Refer as FCC KDB 789033, clause C Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
	☐ Refer as FCC KDB 789033, clause C Method SA-2 (spectral trace averaging).
	☐ Refer as FCC KDB 789033, clause C Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
	☐ Refer as FCC KDB 789033, clause C Method PM (using an RF average power meter).
☒	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.
	☒ The EUT supports multiple transmit chains using options given below: 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

2.9.4 Test Setup

RF Output Power (Spectrum Analyzer)


2.9.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2		-
Maximum G_{ANT} (dBi)		3.37	3.01		-
Modulation Mode	**DG (dBi)**	**N_{TX}**	**N_{SS}**	**STBC**	**Array Gain (dB)**
11a,6-54Mbps	3.37	1	1	-	-
HT-20,M0-M7	3.37	1	1	-	-
HT-20,M0-M7	3.19	2	1		
HT-20,M8-15	3.19	2	2	-	-
HT-40,M0-M7	3.37	1	1	-	-
HT-40,M0-M7	3.19	2	1		
HT-40,M8-M15	3.19	2	2	-	-

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 = $G_{ANT} + 10 \log(N_{TX})$
All transmit signals are completely uncorrelated, Directional Gain = 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 =$10 \log[(10^{G1/20} +\ldots + 10^{GN/20})^2 /N_{TX}]$
All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G1/10} +\ldots + 10^{GN/10)}/N_{TX}]$
Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$,
where Nss = the number of independent spatial streams data.
Note 4: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = G_{ANT} + Array Gain, where Array Gain is as follows:
Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX};

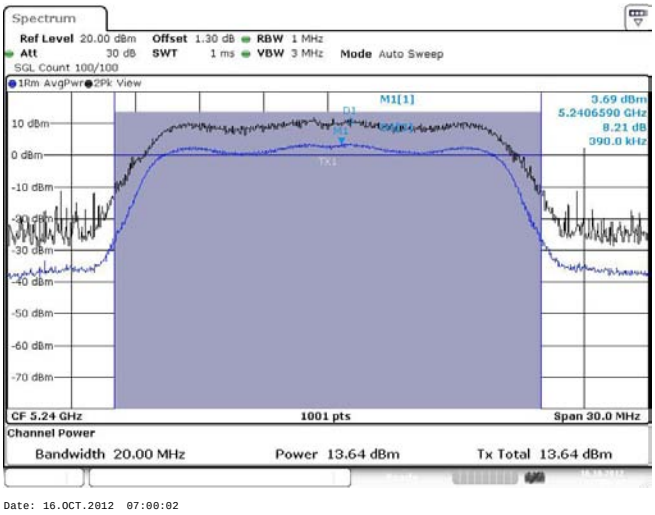
2.9.6 Test Result of Maximum Conducted Output Power

Maximum Conducted Output Power (5150-5250MHz band)											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11a	1	5180	13.66	-	-	-	13.66	16.84	3.37	17.03	22.18
11a	1	5200	13.49	-	-	-	13.49	16.85	3.37	16.86	22.18
11a	1	5240	13.76	-	-	-	13.76	16.82	3.37	17.13	22.16
HT-20	1	5180	13.54	-	-	-	13.54	16.87	3.37	16.91	22.43
HT-20	1	5200	13.55	-	-	-	13.55	16.83	3.37	16.92	22.44
HT-20	1	5240	13.76	-	-	-	13.76	16.84	3.37	17.13	22.43
HT-20	2	5180	11.20	10.68	-	-	13.96	16.87	3.19	17.15	22.44
HT-20	2	5200	11.30	10.70	-	-	14.02	16.87	3.19	17.21	22.44
HT-20	2	5240	11.34	10.52	-	-	13.96	16.81	3.19	17.15	22.43
HT-40	1	5190	12.63	-	-	-	12.63	17.00	3.37	16.00	23.00
HT-40	1	5230	13.45	-	-	-	13.45	17.00	3.37	16.82	23.00
HT-40	2	5190	12.18	12.50	-	-	15.35	17.00	3.19	18.54	23.00
HT-40	2	5230	13.45	13.40	-	-	16.43	17.00	3.19	19.63	23.00
Result			Complied								

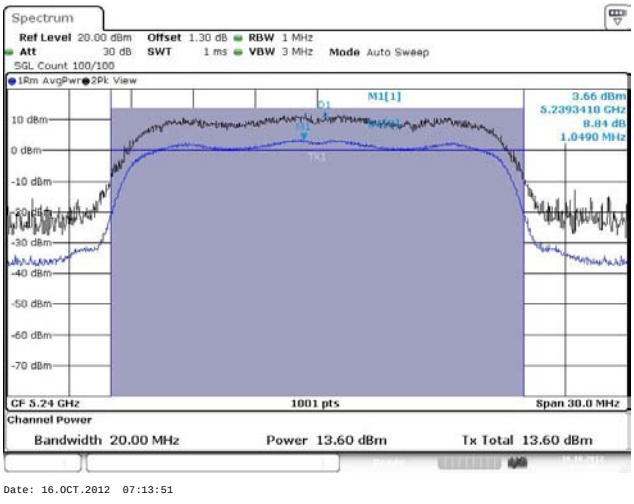
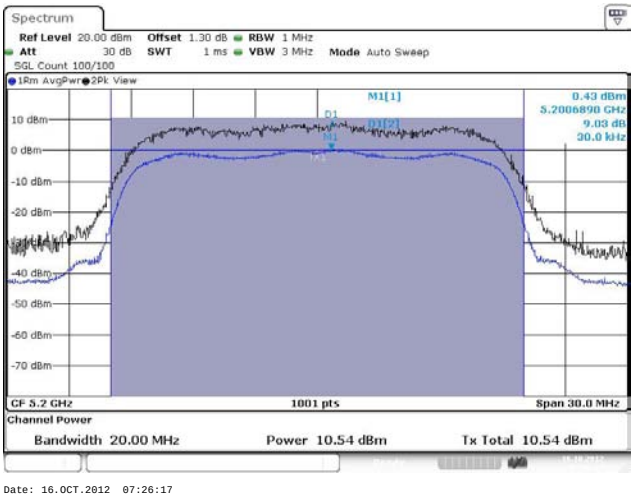
Maximum Conducted Output Power (5250-5350MHz band)											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11a	1	5260	14.67	-	-	-	14.67	23.73	3.37	18.04	29.11
11a	1	5300	14.62	-	-	-	14.62	23.80	3.37	17.99	29.18
11a	1	5320	14.56	-	-	-	14.56	23.70	3.37	17.93	29.13
HT-20	1	5260	14.62	-	-	-	14.62	23.85	3.37	17.99	29.48
HT-20	1	5300	14.64	-	-	-	14.64	23.81	3.37	18.01	29.43
HT-20	1	5320	14.57	-	-	-	14.57	23.86	3.37	17.94	29.44
HT-20	2	5260	14.02	13.64	-	-	16.84	23.82	3.19	20.04	29.41
HT-20	2	5300	14.11	14.07	-	-	17.10	23.83	3.19	20.29	29.44
HT-20	2	5320	14.00	13.80	-	-	16.91	23.87	3.19	20.10	29.44
HT-40	1	5270	13.64	-	-	-	13.64	24.00	3.37	17.01	30.00
HT-40	1	5310	13.74	-	-	-	13.74	24.00	3.37	17.11	30.00
HT-40	2	5270	13.68	13.83	-	-	16.76	24.00	3.19	19.96	30.00
HT-40	2	5310	12.07	12.43	-	-	15.26	24.00	3.19	18.46	30.00
Result			Complied								

Maximum Conducted Output Power (5470-5725MHz band)											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11a	1	5500	14.41	-	-	-	14.41	23.76	3.37	17.78	29.14
11a	1	5580	14.32	-	-	-	14.32	23.89	3.37	17.69	29.22
11a	1	5700	13.54	-	-	-	13.54	23.79	3.37	16.91	29.17
HT-20	1	5500	14.06	-	-	-	14.06	23.83	3.37	17.43	29.43
HT-20	1	5580	14.40	-	-	-	14.40	23.91	3.37	17.77	29.47
HT-20	1	5700	12.99	-	-	-	12.99	23.89	3.37	16.36	29.46
HT-20	2	5500	14.01	12.82	-	-	16.47	23.86	3.19	19.66	29.44
HT-20	2	5580	13.81	13.32	-	-	16.58	23.85	3.19	19.78	29.45
HT-20	2	5700	13.95	13.26	-	-	16.63	23.82	3.19	19.82	29.44
HT-40	1	5510	10.99	-	-	-	10.99	24.00	3.37	14.36	30.00
HT-40	1	5550	13.14	-	-	-	13.14	24.00	3.37	16.51	30.00
HT-40	1	5670	13.32	-	-	-	13.32	24.00	3.37	16.69	30.00
HT-40	2	5510	9.48	9.41	-	-	12.45	24.00	3.19	15.65	30.00
HT-40	2	5550	13.22	13.35	-	-	16.29	24.00	3.19	19.49	30.00
HT-40	2	5670	13.70	13.86	-	-	16.79	24.00	3.19	19.98	30.00
Result			Complied								

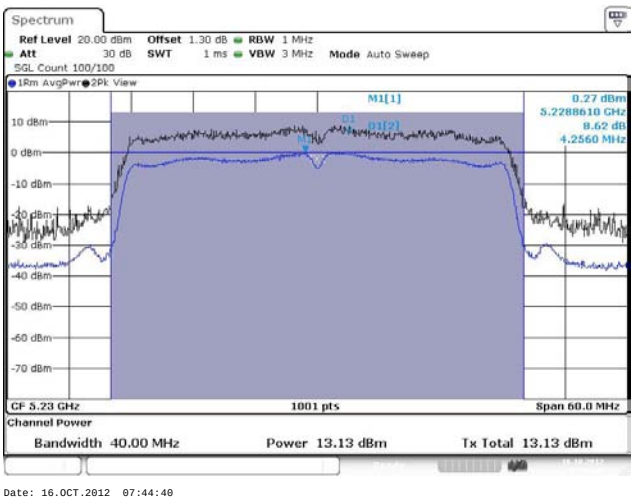
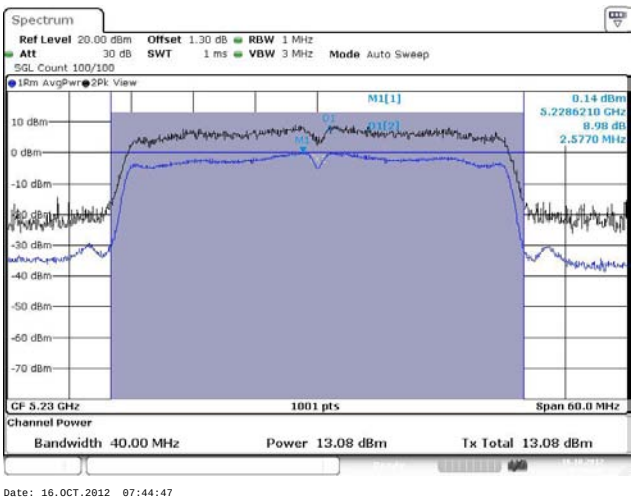
5150-5250MHz

Worst RF Output Power and Peak Excursion Plots
11a [Port 1]


Note 1: RF Output Power Plots w/o Duty Factor

Worst RF Output Power and Peak Excursion Plots	
HT-20 [Port 1]	HT-20 [Port 2]
	

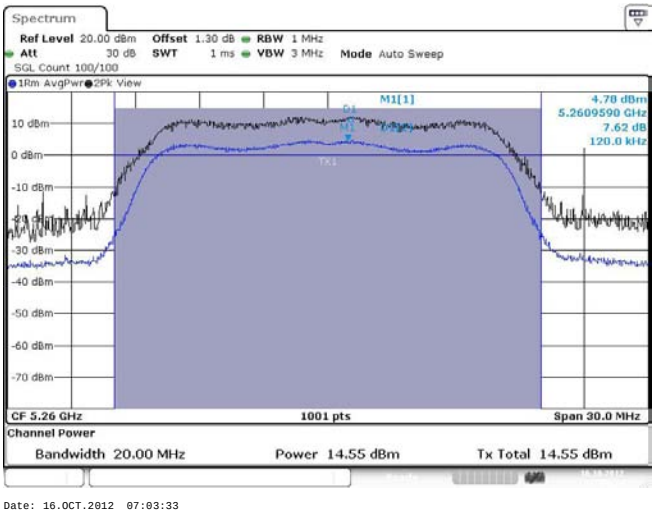
Note 1: RF Output Power Plots w/o Duty Factor

Worst RF Output Power and Peak Excursion Plots	
HT-40 [Port 1]	**HT-40 [Port 2]**
	

Note 1: RF Output Power Plots w/o Duty Factor

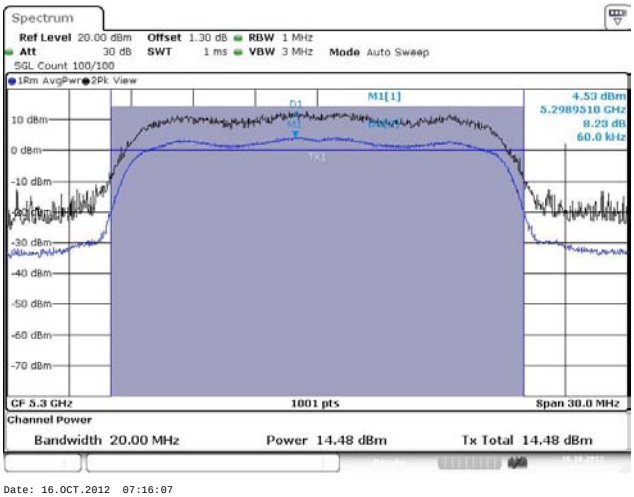
5250-5350MHz

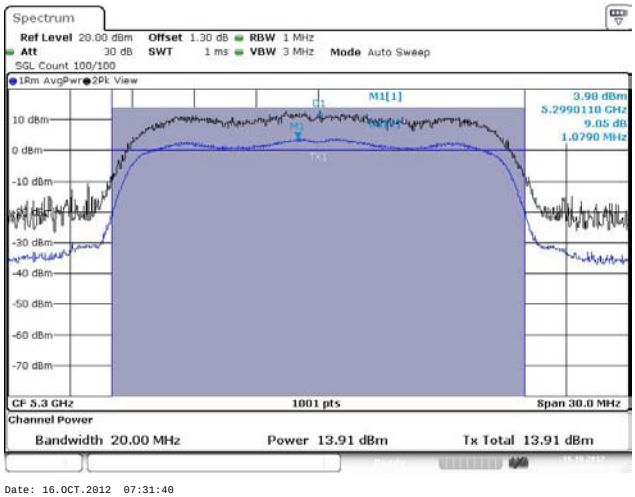
Worst Maximum Conducted Output Power and Peak Excursion Plots
11a [Port 1]



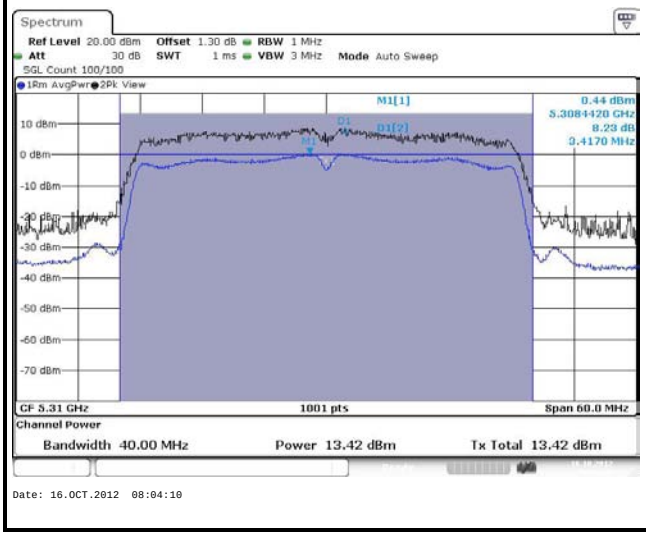
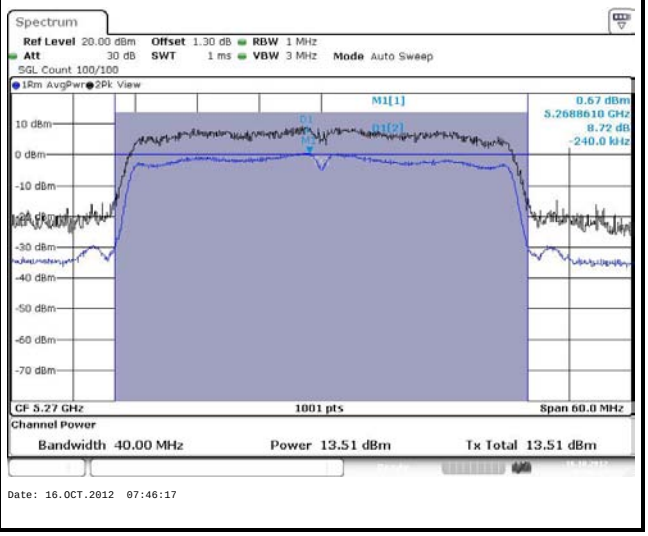
Note 1: RF Output Power Plots w/o Duty Factor

Worst Maximum Conducted Output Power and Peak Excursion Plots	
HT-20 [Port 1]	HT-20 [Port 2]





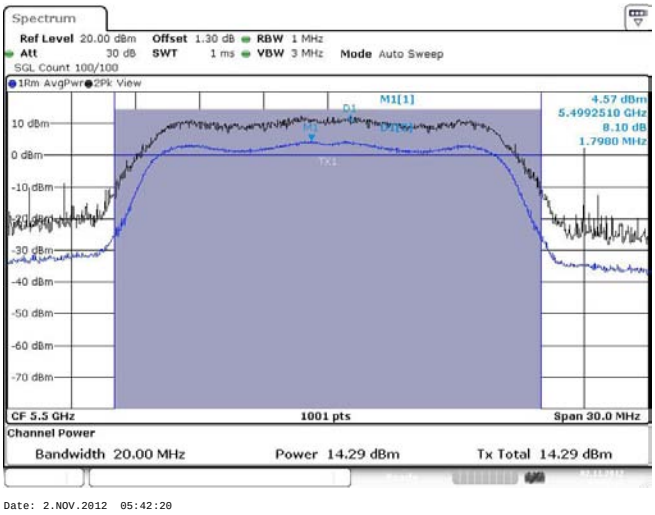
Note 1: RF Output Power Plots w/o Duty Factor

Worst Maximum Conducted Output Power and Peak Excursion Plots	
HT-40 [Port 1]	HT-40 [Port 2]
	

Note 1: RF Output Power Plots w/o Duty Factor

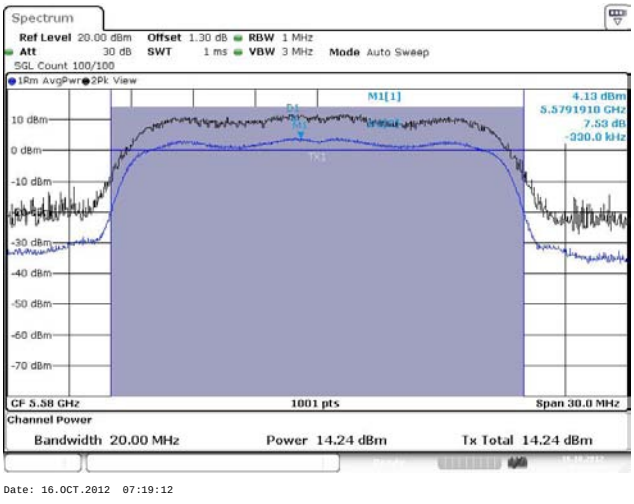
5470-5725MHz

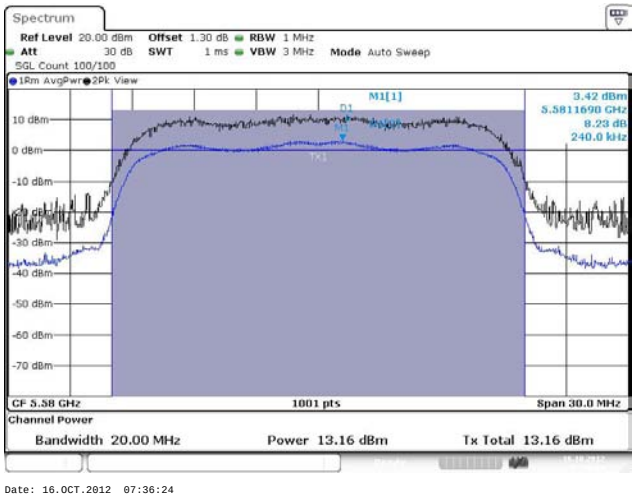
Worst Maximum Conducted Output Power and Peak Excursion Plots
11a [Port 1]



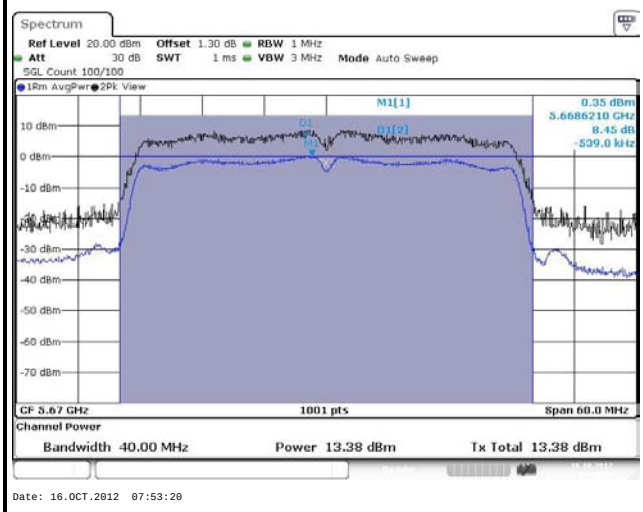
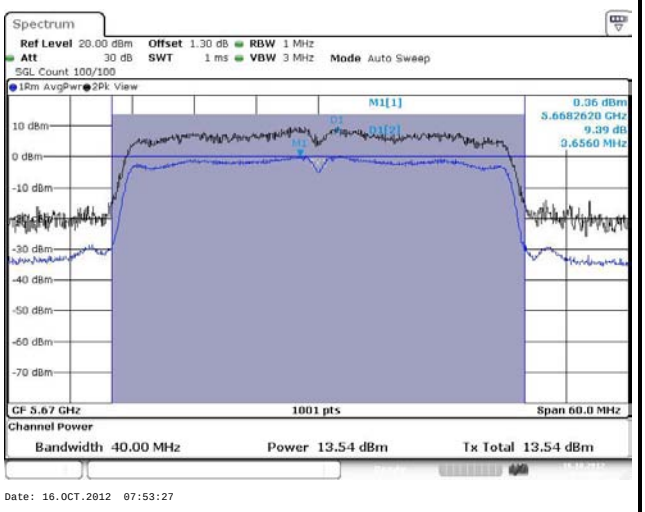
Note 1: RF Output Power Plots w/o Duty Factor

Worst Maximum Conducted Output Power and Peak Excursion Plots	
HT-20 [Port 1]	HT-20 [Port 2]





Note 1: RF Output Power Plots w/o Duty Factor

Worst Maximum Conducted Output Power and Peak Excursion Plots	
HT-40 [Port 1]	HT-40 [Port 2]
	

Note 1: RF Output Power Plots w/o Duty Factor

2.10 Peak Power Spectral Density

2.10.1 Peak Power Spectral Density Limit

Peak Power Spectral Density Limit	
UNII Devices	
☒	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) ≤ 4 dBm/MHz. If G_{TX} > 6 dBi, then PPSD = 4 – (G_{TX} – 6).
☒	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If G_{TX} > 6 dBi, then PPSD= 11 – (G_{TX} – 6).
☒	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If G_{TX} > 6 dBi, then PPSD= 11 – (G_{TX} – 6).
☐	For the 5.725-5.825 GHz band:
☐	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 17 dBm/MHz. If G_{TX} > 6 dBi, then PPSD= 17 – (G_{TX} – 6).
☐	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 17 dBm/MHz. If G_{TX} > 23 dBi, then PPSD = 17 – (G_{TX} – 23).
LE-LAN Devices	
☒	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) ≤ 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.
☒	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
☒	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
☐	For the 5.725-5.825 GHz band, the peak power spectral density (PPSD) ≤ 17 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 23 dBm/MHz.
PPSD = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz **G_{TX}** = the maximum transmitting antenna directional gain in dBi.	

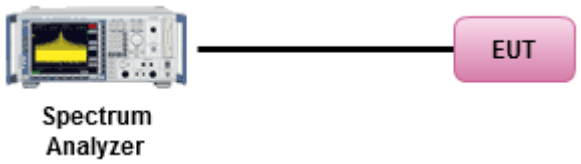
2.10.2 Measuring Instruments

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

2.10.3 Test Procedures

Test Method		
☒	Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:	
	☐	Refer as FCC KDB 789033, E)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
	[duty cycle ≥ 98% or external video / power trigger]	
	☐	Refer as FCC KDB 789033, clause C Method SA-1 (spectral trace averaging).
	☐	Refer as FCC KDB 789033, clause C Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor	
	☐	Refer as FCC KDB 789033, clause C Method SA-2 (spectral trace averaging).
	☐	Refer as FCC KDB 789033, clause C Method SA-2 Alt. (RMS detection with slow sweep speed)
☒	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.
	☒	The EUT supports 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 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.
		☐ 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.
	☒	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \ldots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$
	☒	Each individually PPSD plots refer as test report clause 3.3.5 with each individually PPSD plots.

2.10.4 Test Setup

Power Spectral Density


2.10.5 Directional Gain for Power Spectral Density Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		3.37	3.01	-	-
Modulation Mode	**DG (dBi)**	**N_{TX}**	**N_{SS}**	**STBC**	**Array Gain (dB)**
11a,6-54Mbps	3.37	1	1	-	-
HT-20,M0-M7	3.37	1	1	-	-
HT-20,M0-M7	6.20	2	1		
HT-20,M8-15	3.19	2	2	-	-
HT-40,M0-M7	3.37	1	1	-	-
HT-40,M0-M7	6.20	2	1		
HT-40,M8-M15	3.19	2	2	-	-

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 = $G_{ANT} + 10 \log(N_{TX})$
All transmit signals are completely uncorrelated, Directional Gain = 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 =$10 \log[(10^{G1/20} + \ldots + 10^{GN/20})^2 / N_{TX}]$
All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G1/10} + \ldots + 10^{GN/10})/N_{TX}]$

Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$,
where Nss = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power spectral density measurements:
Directional Gain (DG) = G_{ANT} + Array Gain, where Array Gain is as follows:
Array Gain = $10 \log(N_{TX}/N_{SS})$;

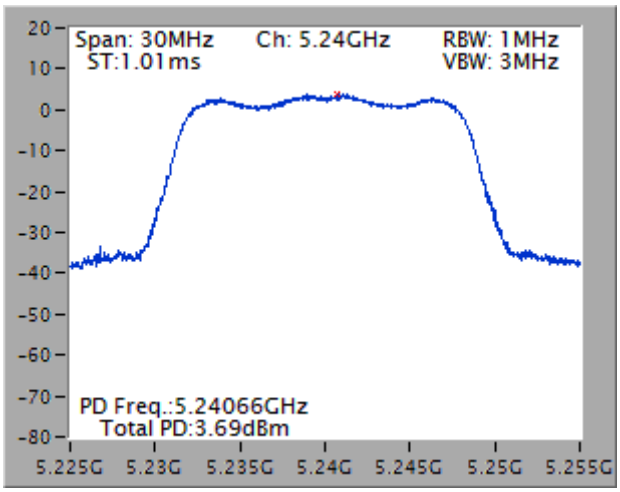
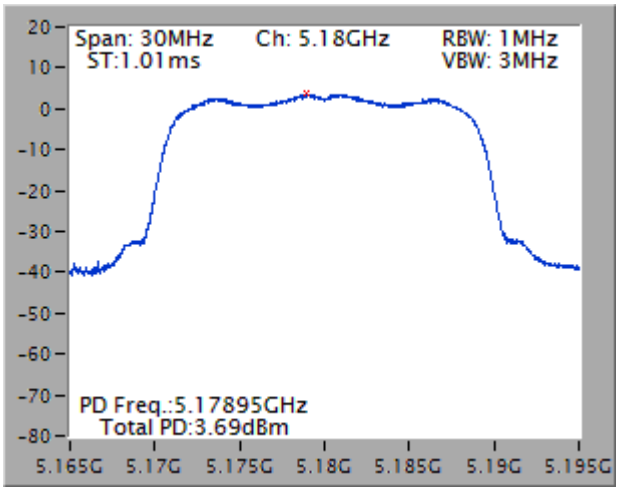
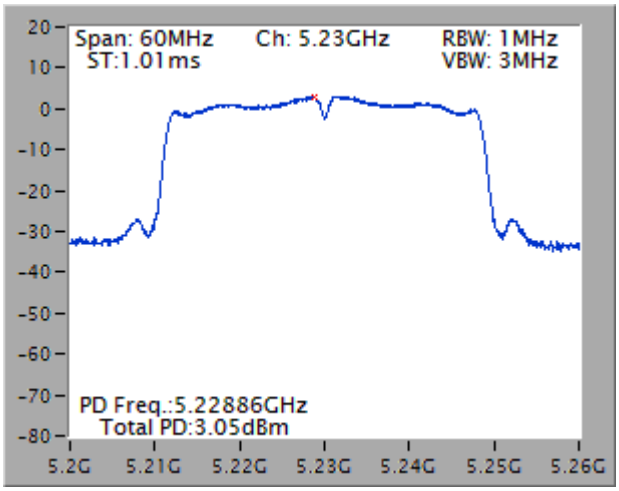
2.10.6 Test Result of Peak Power Spectral Density

Peak Power Spectral Density Result (5150-5250MHz band)											
Condition			Peak Power Spectral Density (dBm/MHz)								
Modulation Mode	N_{TX}	Freq. (MHz)	-	-	-	-	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
11a	1	5180	-	-	-	-	3.59	4.00	3.37	6.96	10.00
11a	1	5200	-	-	-	-	3.45	4.00	3.37	6.82	10.00
11a	1	5240	-	-	-	-	3.69	4.00	3.37	7.06	10.00
HT-20	1	5180	-	-	-	-	3.41	4.00	3.37	6.78	10.00
HT-20	1	5200	-	-	-	-	3.47	4.00	3.37	6.84	10.00
HT-20	1	5240	-	-	-	-	3.66	4.00	3.37	7.03	10.00
HT-20	2	5180	-	-	-	-	3.69	3.80	6.20	9.89	10.00
HT-20	2	5200	-	-	-	-	3.68	3.80	6.20	9.88	10.00
HT-20	2	5240	-	-	-	-	3.52	3.80	6.20	9.72	10.00
HT-40	1	5190	-	-	-	-	-0.78	4.00	3.37	3.37	10.00
HT-40	1	5230	-	-	-	-	-0.23	4.00	3.37	3.37	10.00
HT-40	2	5190	-	-	-	-	1.80	3.80	6.20	8.00	10.00
HT-40	2	5230	-	-	-	-	3.05	3.80	6.20	9.25	10.00
Result			Complied								

Peak Power Spectral Density Result (5250-5350MHz band)											
Condition			Peak Power Spectral Density (dBm/MHz)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
11a	1	5260	-	-	-	-	4.78	11.00	3.37	7.92	17.00
11a	1	5300	-	-	-	-	4.48	11.00	3.37	7.90	17.00
11a	1	5320	-	-	-	-	4.50	11.00	3.37	7.77	17.00
HT-20	1	5260	-	-	-	-	4.55	10.80	6.20	12.68	17.00
HT-20	1	5300	-	-	-	-	4.53	10.80	6.20	13.01	17.00
HT-20	1	5320	-	-	-	-	4.40	10.80	6.20	12.79	17.00
HT-20	2	5260	-	-	-	-	6.48	11.00	3.37	3.78	17.00
HT-20	2	5300	-	-	-	-	6.81	11.00	3.37	3.81	17.00
HT-20	2	5320	-	-	-	-	6.59	10.80	6.20	9.49	17.00
HT-40	1	5270	-	-	-	-	0.41	10.80	6.20	7.91	17.00
HT-40	1	5310	-	-	-	-	0.44	11.00	3.37	7.92	17.00
HT-40	2	5270	-	-	-	-	3.29	11.00	3.37	7.90	17.00
HT-40	2	5310	-	-	-	-	1.71	11.00	3.37	7.77	17.00
Result			Complied								

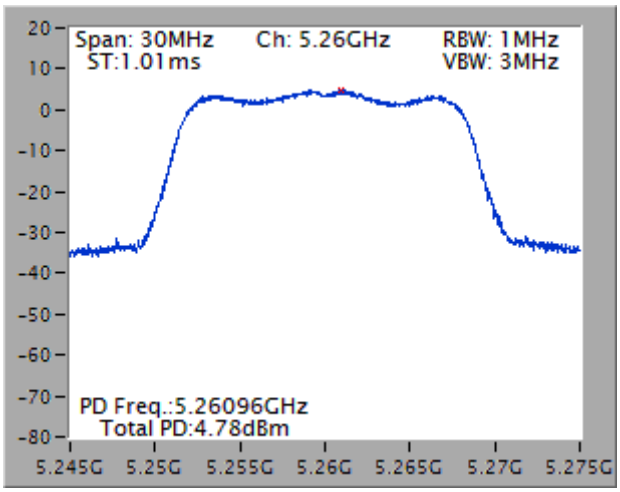
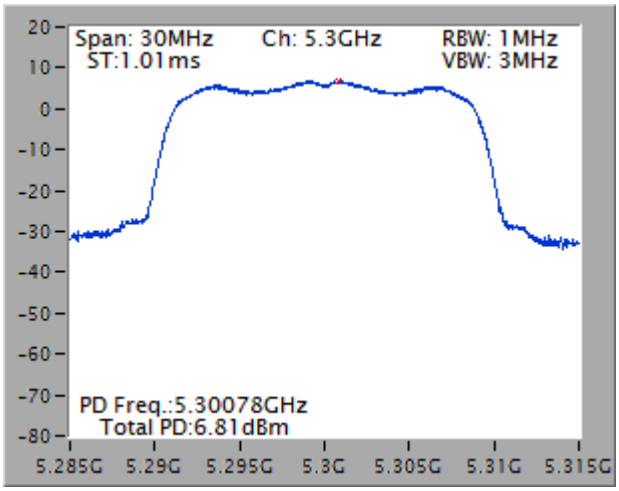
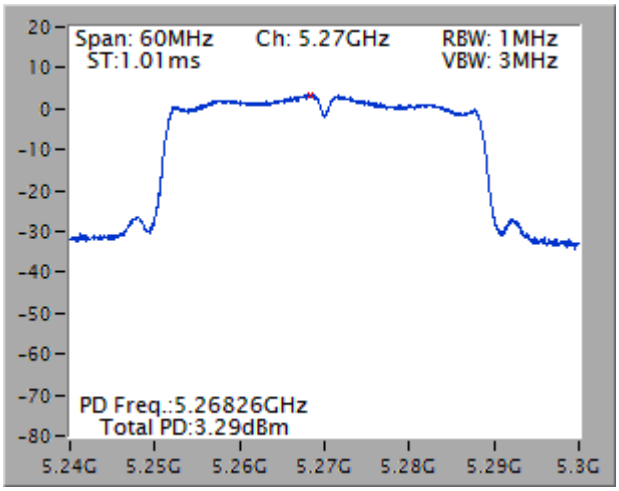
Peak Power Spectral Density Result (5470-5725MHz band)											
Condition			Peak Power Spectral Density (dBm/MHz)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
11a	1	5500	-	-	-	-	4.57	11.00	3.37	7.94	17.00
11a	1	5580	-	-	-	-	4.45	11.00	3.37	7.82	17.00
11a	1	5700	-	-	-	-	3.64	11.00	3.37	7.01	17.00
HT-20	1	5500	-	-	-	-	3.85	11.00	3.37	7.22	17.00
HT-20	1	5580	-	-	-	-	4.13	11.00	3.37	7.50	17.00
HT-20	1	5700	-	-	-	-	2.78	11.00	3.37	6.15	17.00
HT-20	2	5500	-	-	-	-	6.10	10.80	6.20	12.30	17.00
HT-20	2	5580	-	-	-	-	6.38	10.80	6.20	12.58	17.00
HT-20	2	5700	-	-	-	-	6.49	10.80	6.20	12.69	17.00
HT-40	1	5510	-	-	-	-	-2.25	11.00	3.37	3.37	17.00
HT-40	1	5550	-	-	-	-	-0.47	11.00	3.37	3.37	17.00
HT-40	1	5670	-	-	-	-	0.03	11.00	3.37	3.40	17.00
HT-40	2	5510	-	-	-	-	-1.04	10.80	6.20	12.30	17.00
HT-40	2	5550	-	-	-	-	2.84	10.80	6.20	12.58	17.00
HT-40	2	5670	-	-	-	-	3.26	10.80	6.20	12.69	17.00
Result			Complied								

5150-5250MHz

Worst Power Spectral Density Plots	
11a	
	
HT-20	HT-40
	

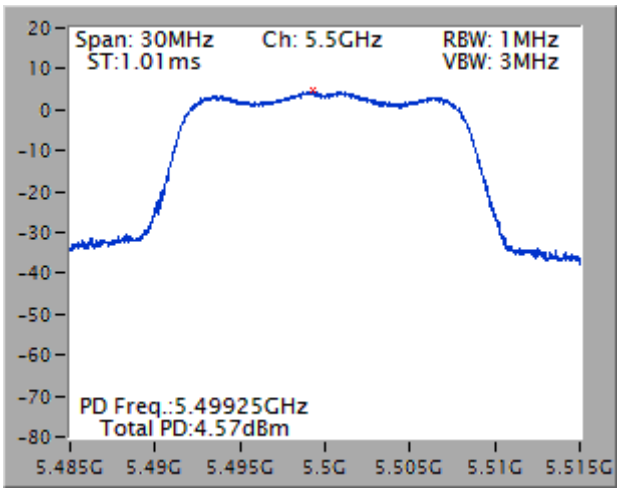
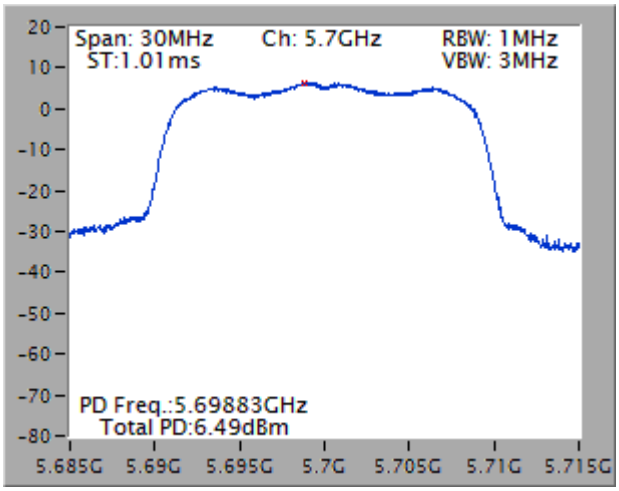
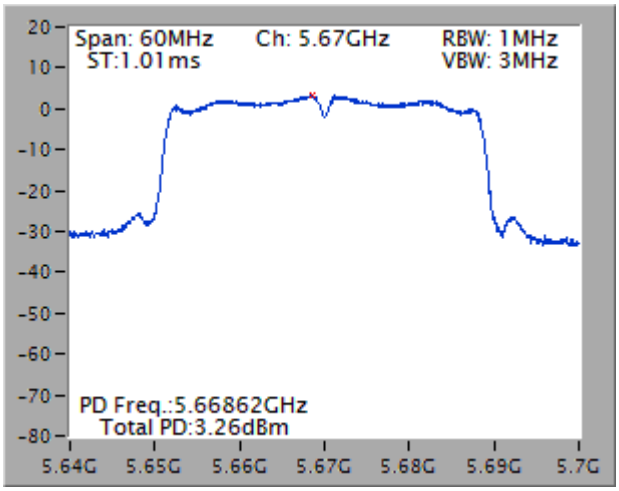
Note 1: Power Density Plots w/o Duty Factor

5250-5350MHz

Worst Power Spectral Density Plots	
11a	
	
HT-20	HT-40
	

Note 1: Power Density Plots w/o Duty Factor

5470-5725MHz

Worst Power Spectral Density Plots	
11a	
	
HT-20	HT-40
	

Note 1: Power Density Plots w/o Duty Factor

2.11 Peak Excursion

2.11.1 Peak Excursion Limit

Peak Excursion Limit
UNII Devices
☒ Peak excursion ≤ 13 dB. The ratio of the maximum of the peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission does not exceed 13 dB. (Earlier procedures that required computing the ratio of the two spectra at each frequency across the emission bandwidth can lead to unintended failures at band edges and will no longer be required.)
LE-LAN Devices
☒ N/A

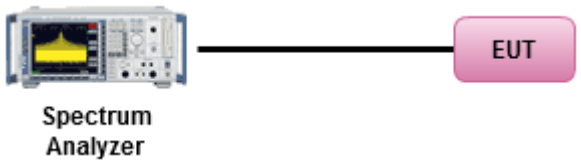
2.11.2 Measuring Instruments

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

2.11.3 Test Procedures

Test Method	
☒	Refer as FCC KDB 789033, clause F peak excursion method.
☒	Testing each modulation mode on a single channel is sufficient to demonstrate compliance with the peak excursion requirement
☒	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.
☒	The EUT supports multiple transmit chains using given below method: Refer as FCC KDB 662911, when testing in-band (peak to average ratio) against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N).
☒	Test result plots refer as test report clause 3.3.5 with peak excursion ratio of the maximum of the peak-max-hold spectrum to the maximum of the average spectrum.

2.11.4 Test Setup

Peak Excursion


2.11.5 Test Result of Peak Excursion

UNII Peak Excursion Result (5150-5250MHz band)							
Condition			Peak Excursion (dB)				
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Limit
11a	1	5180	7.94	-	-	-	13.0
HT-20	2	5180	7.90	7.94	-	-	13.0
HT-40	2	5190	7.95	8.09	-	-	13.0
Result			Complied				

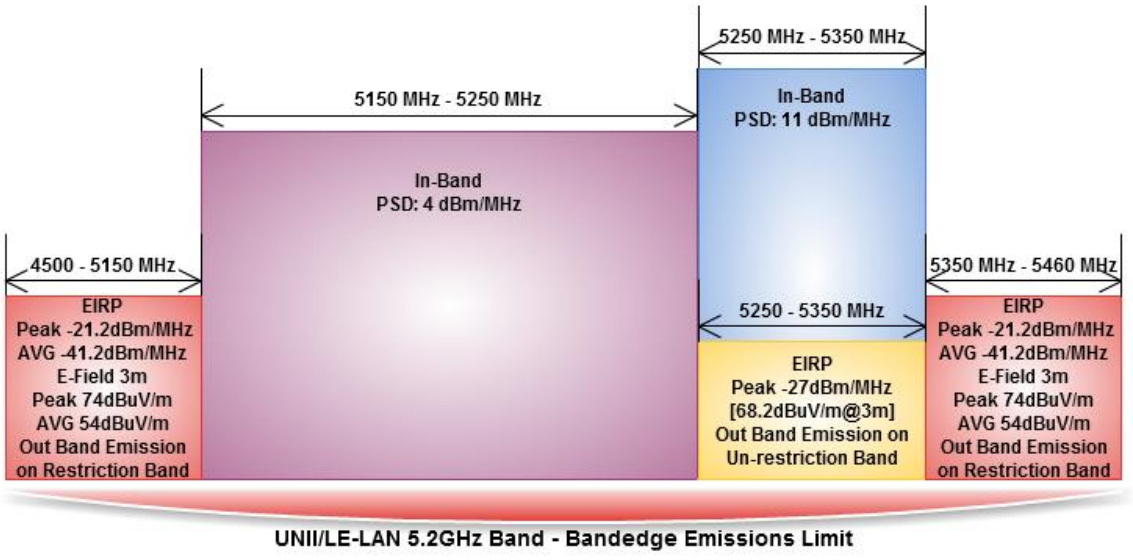
UNII Peak Excursion Result (5250-5350MHz band)							
Condition			Peak Excursion (dB)				
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Limit
11a	1	5260	7.50	-	-	-	13.0
HT-20	2	5260	7.92	7.74	-	-	13.0
HT-40	2	5270	8.04	8.00	-	-	13.0
Result			Complied				

UNII Peak Excursion Result (5470-5725MHz band)							
Condition			Peak Excursion (dB)				
Modulation Mode	N_{TX}	Freq. (MHz)	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Limit
11a	1	5500	7.98	-	-	-	13.0
HT-20	2	5500	8.24	8.58	-	-	13.0
HT-40	2	5510	7.49	7.72	-	-	13.0
Result			Complied				

2.12 Transmitter Radiated Bandedge Emissions

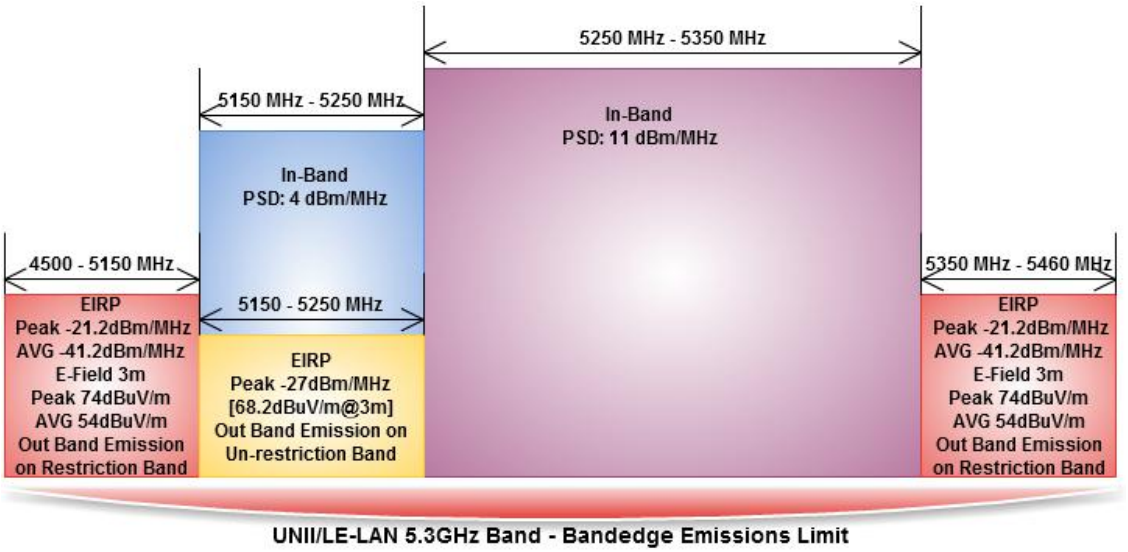
2.12.1 Transmitter Radiated Bandedge Emissions Limit

Transmitter Radiated Bandedge Emissions Limit for 5.2GHz band: 5.15-5.25 GHz band



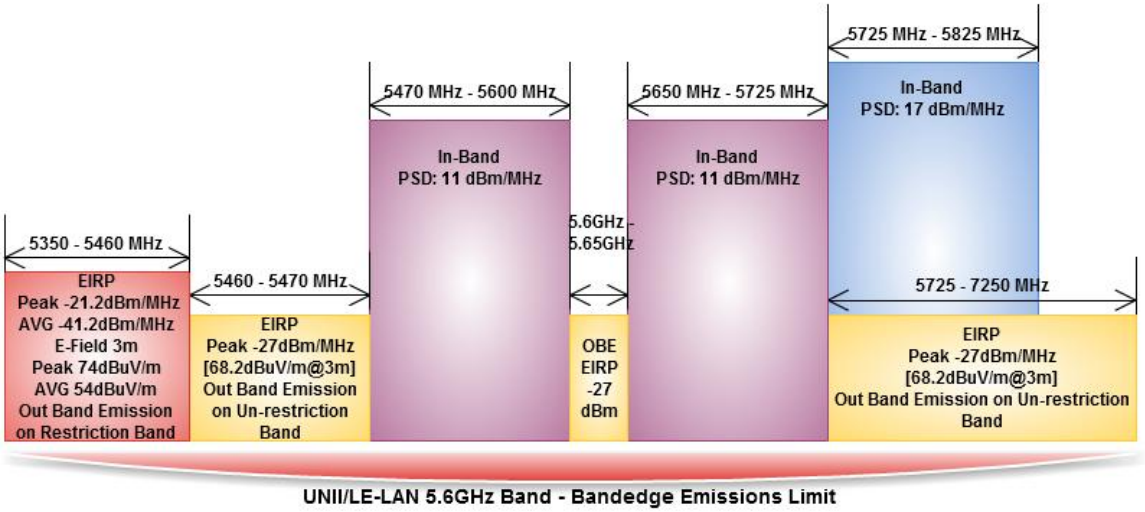
Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.

Transmitter Radiated Bandedge Emissions Limit for 5.3GHz band: 5.25-5.35 GHz band



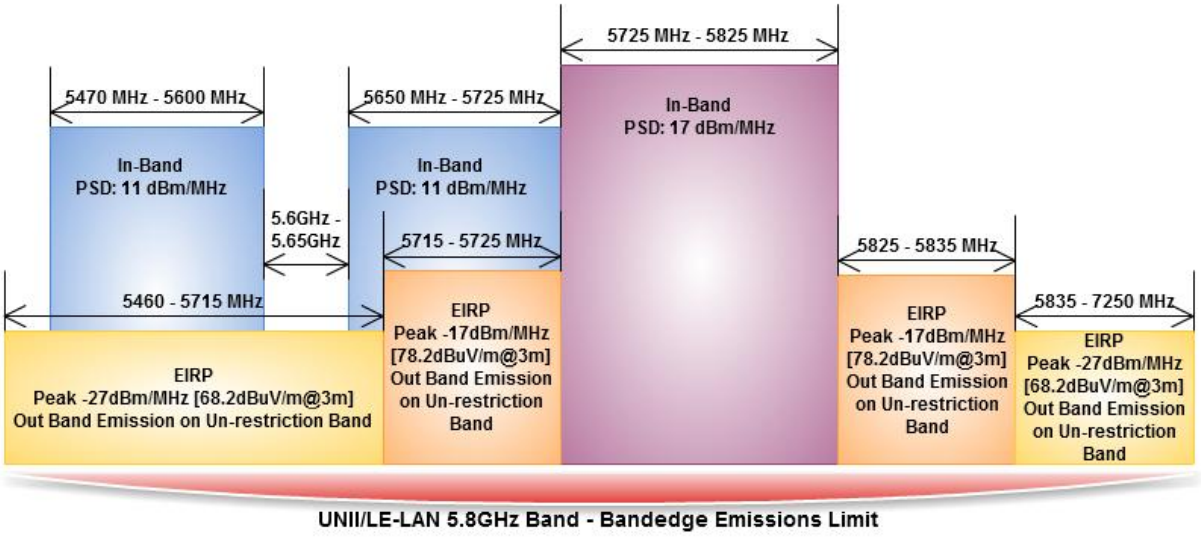
Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.

Transmitter Radiated Bandedge Emissions Limit for 5.6GHz band: 5.47-5.725 GHz band



Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.

Transmitter Radiated Bandedge Emissions Limit for 5.8GHz band: 5.725-5.825 GHz band



Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.

2.12.2 Measuring Instruments

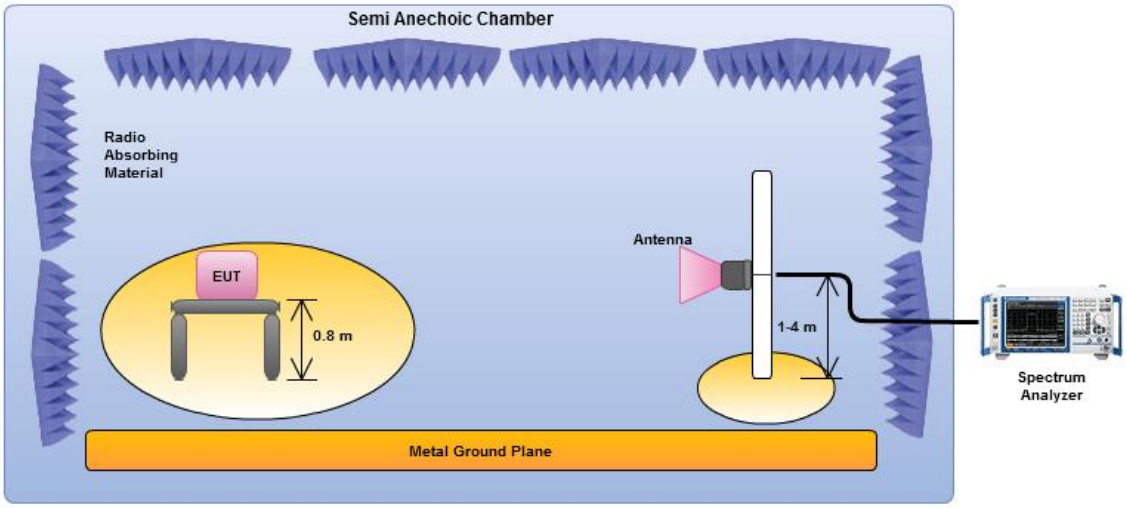
Refer a test equipment and calibration data table in this test report.

2.12.3 Test Procedures

Test Method			
☒	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 bandedge are typically made at a closer distance 1m, 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].		
☒	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.		
	☐	If EUT operate in adjacent contiguous bands, bandedge testing performed at the lowest frequency channel at lower-band and highest frequency channel at higher-band. Transmitter in-band emissions will consist of adjacent contiguous bands (e.g., IEEE 802.11ac VHT160 The lowest frequency channel at lower-band and highest frequency channel at higher-band in-band emissions will consist of two adjacent contiguous bands.)	
		☐	Operating in 5.15-5.25 GHz band (lower-band) and 5.25-5.35 GHz band (higher-band).
		☐	Operating in 5.47-5.725 GHz band (lower-band) and 5.725-5.825 GHz band (higher-band).
	☐	If EUT operate in individual non-contiguous bands, bandedge testing performed at the lowest frequency channel and highest frequency channel within lower-band and higher-band. (e.g., (e.g., IEEE 802.11ac VHT160)	
		☐	Operating in 5.25-5.35 GHz band (lower-band) and 5.47-5.725 GHz band (higher-band).
		☐	Operating in 5.15-5.25 GHz band (lower-band) and 5.725-5.825 GHz band (higher-band).
☒	For the transmitter unwanted emissions shall be measured using following options below:		
	☒	Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.	
	☒	Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.	
		☐	Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
		☐	Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
		☒	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 789033, clause G)5) 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 789033, clause G)3)d) marker-delta method for band-edge measurements.	
	☒	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.	
☒	For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.		

2.12.4 Test Setup

Transmitter Radiated Bandedge Emissions

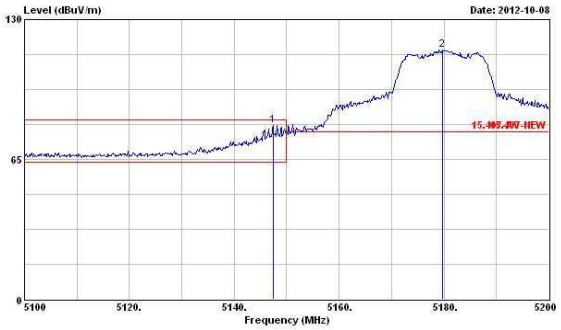


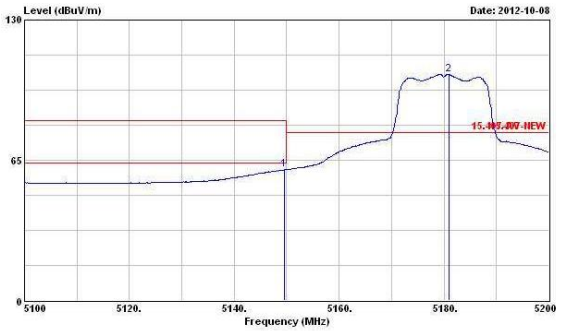
Electric field tests shall be performed in transmitter bandedge emissions using a calibrated horn antenna.

2.12.5 Test Result of Transmitter Radiated Bandedge Emissions

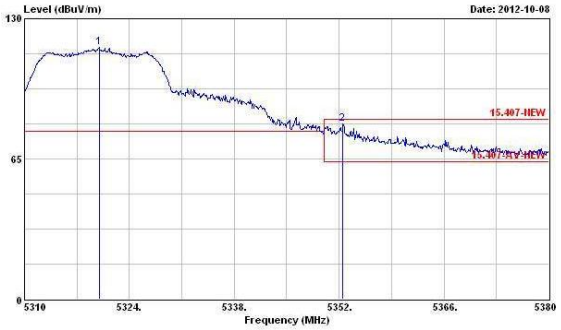
Transmitter Radiated Bandedge Emissions Result								
Modulation	11a		**N_{TX}**	1				
Restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**RBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
4500-5150	5180	116.04	5147.40	1	80.95	83.54	PK	V
4500-5150	5180	104.85	5149.50	1	60.70	63.54	AV	V
5350-5460	5320	116.53	5352.49	1	81.40	83.54	PK	V
5350-5460	5320	104.93	5350.00	1	61.04	63.54	AV	V

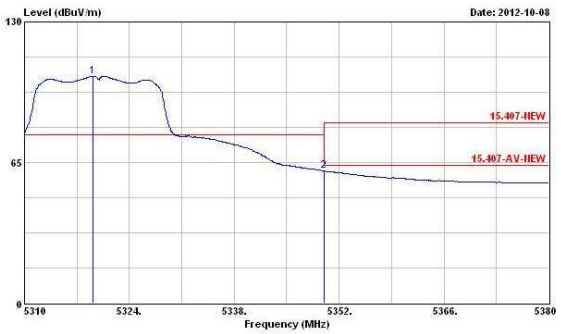
5.2GHz Lower-band (Lowest Ch.)





5.3GHz Higher-band (Highest Ch.)

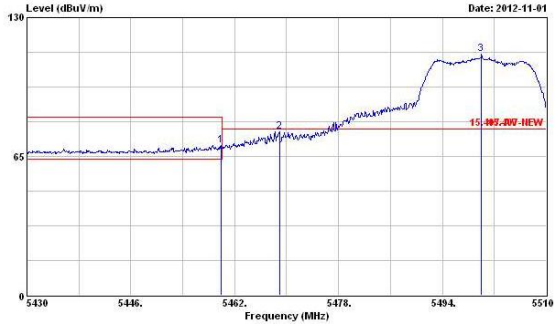


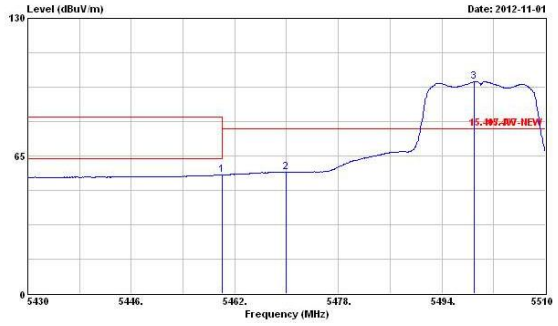


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

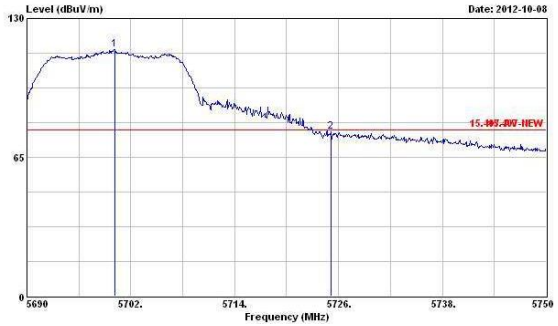
Transmitter Radiated Bandedge Emissions Result								
Modulation	11a		**N_{TX}**	1				
Non-restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**NBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
5350-5470	5500	112.95	5468.88	1	76.44	77.84	PK	V
5350-5470	5500	100.18	5469.92	1	57.32	77.84	AV	V
5725-7250	5700	115.38	5725.16	1	76.81	77.84	PK	V
5725-7250	5700	103.71	5729.72	1	60.26	77.84	AV	V

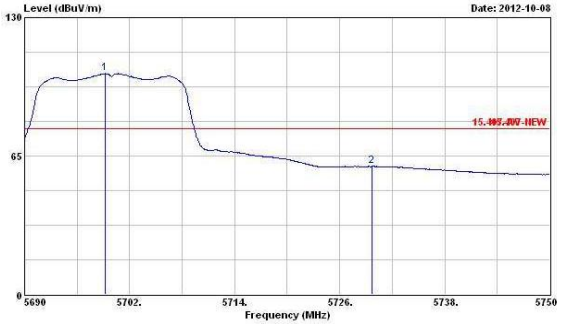
5.6GHz band (Lowest Ch.)





5.6GHz band (Highest Ch.)

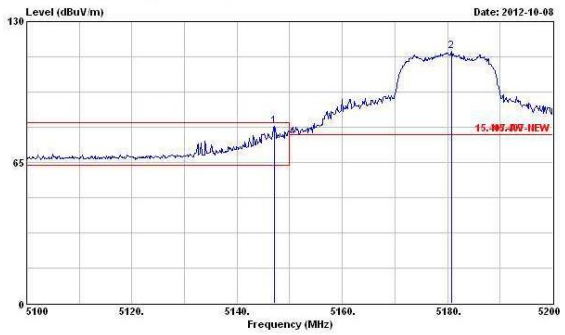


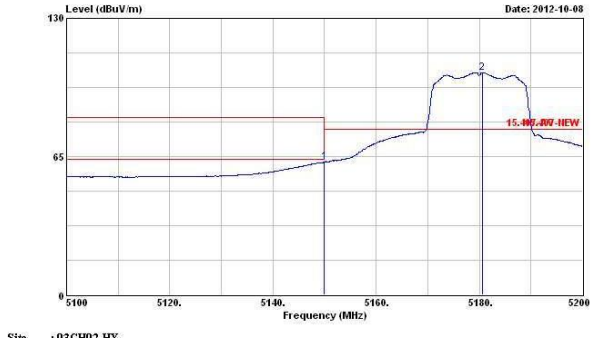


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

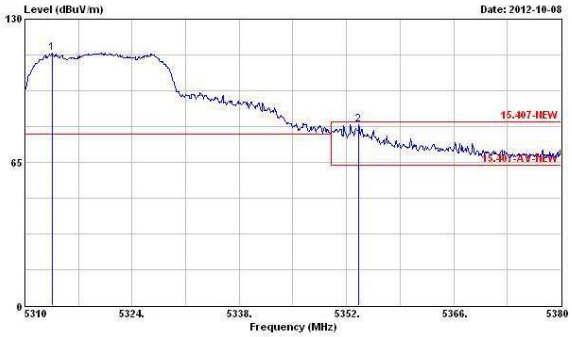
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		**N_{TX}**	1				
Restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**RBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
4500-5150	5180	116.23	5147.10	1	81.48	83.54	PK	V
4500-5150	5180	104.51	5150.00	1	62.43	63.54	AV	V
5350-5460	5320	114.66	5353.61	1	82.31	83.54	PK	V
5350-5460	5320	103.88	5350.18	1	62.10	63.54	AV	V

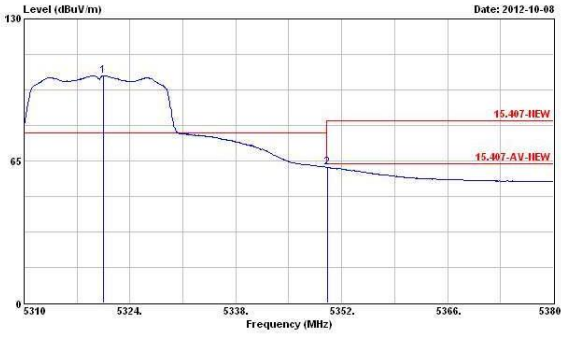
5.2GHz Lower-band (Lowest Ch.)





5.3GHz Higher-band (Highest Ch.)

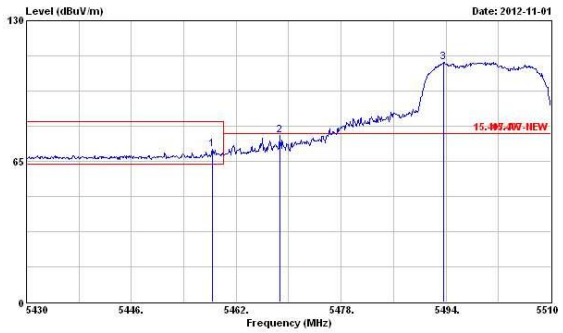




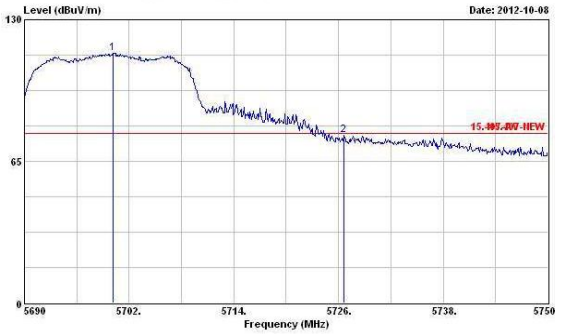
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

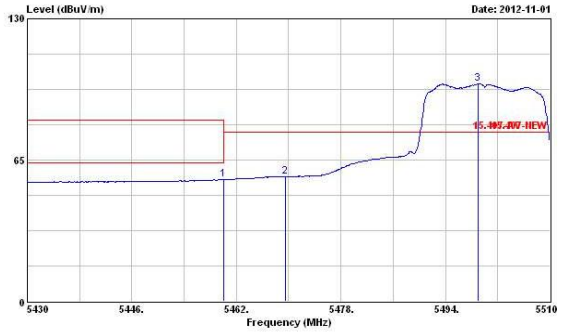
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		**N_{TX}**	1				
Non-restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**NBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
5350-5470	5500	110.75	5468.64	1	76.79	77.84	PK	V
5350-5470	5500	100.14	5469.52	1	57.46	77.84	AV	V
5725-7250	5700	114.64	5726.66	1	76.78	77.84	PK	V
5725-7250	5700	103.62	5729.30	1	60.18	77.84	AV	V

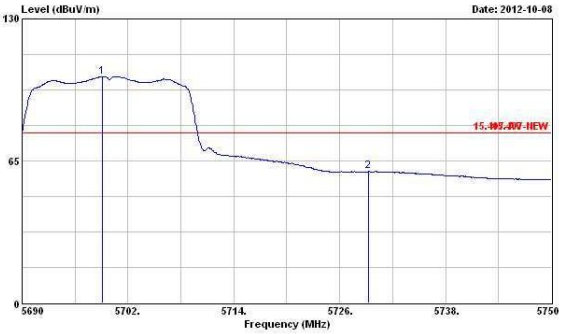
5.6GHz band (Lowest Ch.)



5.6GHz band (Highest Ch.)



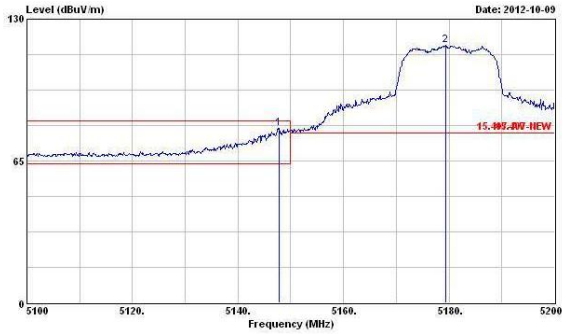


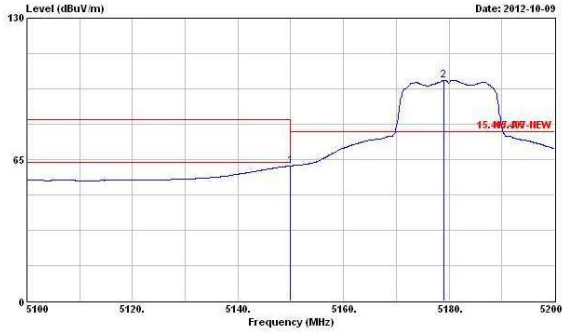


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

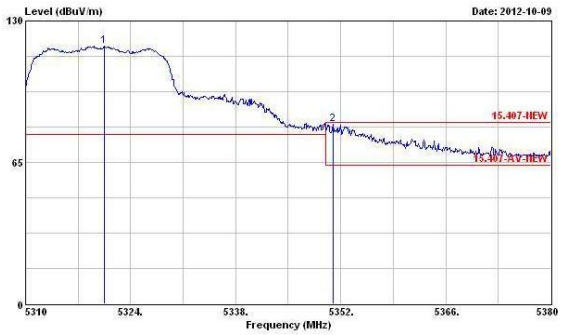
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		**N_{TX}**	2				
Restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**RBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
4500-5150	5180	117.82	5147.80	1	79.89	83.54	PK	V
4500-5150	5180	101.47	5150.00	1	62.10	63.54	AV	V
5350-5460	5320	118.36	5351.02	1	82.50	83.54	PK	V
5350-5460	5320	101.94	5350.00	1	62.52	63.54	AV	V

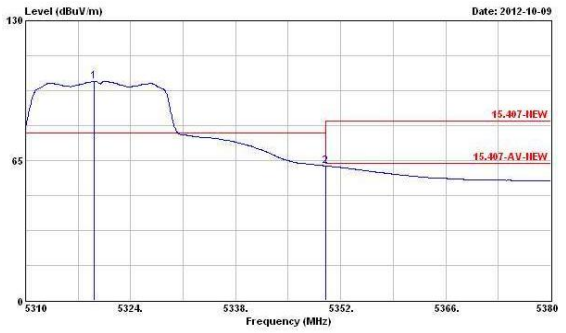
5.2GHz Lower-band (Lowest Ch.)





5.3GHz Higher-band (Highest Ch.)

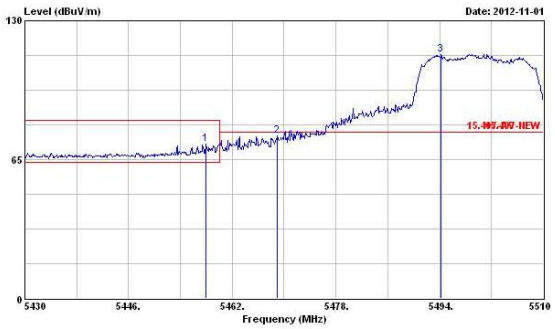


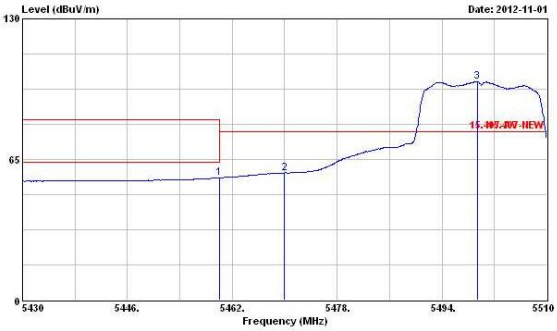


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

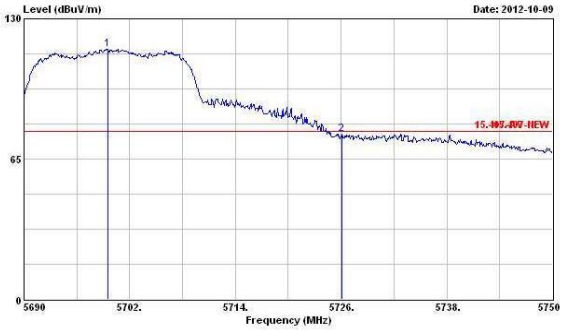
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		**N_{TX}**	2				
Non-restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**NBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
5350-5470	5500	114.35	5468.96	1	75.99	77.84	PK	V
5350-5470	5500	101.08	5470.00	1	58.73	77.84	AV	V
5725-7250	5700	116.07	5726.12	1	76.73	77.84	PK	V
5725-7250	5700	99.48	5725.00	1	57.77	77.84	AV	V

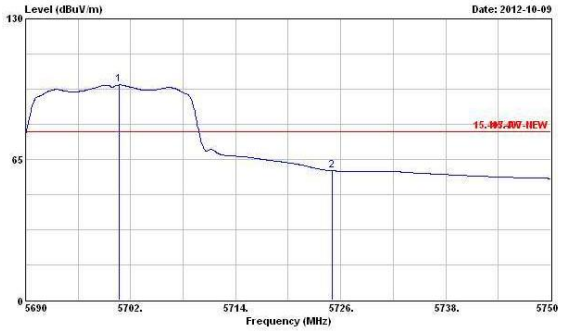
5.6GHz band (Lowest Ch.)





5.6GHz band (Highest Ch.)

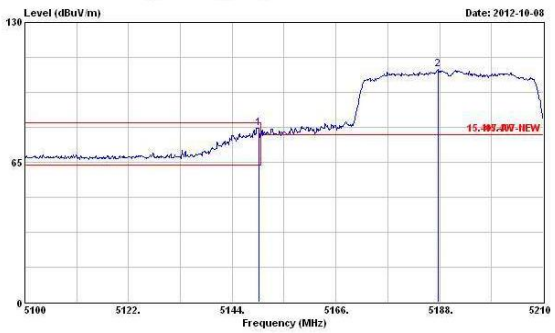


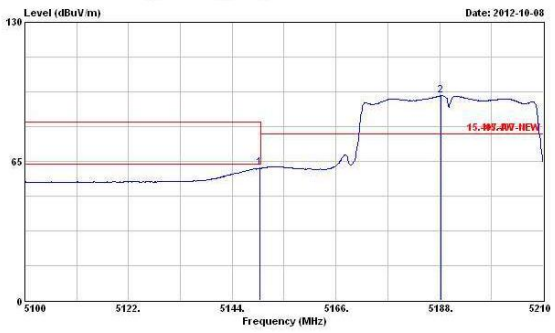


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

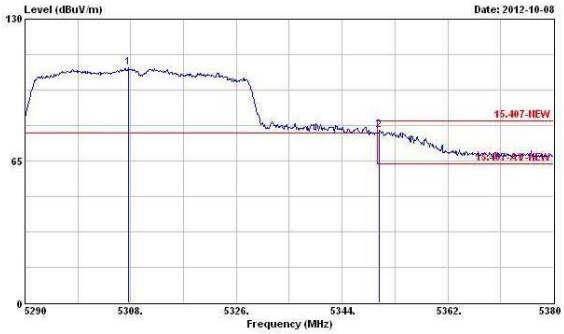
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		**N_{TX}**	1				
Restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**RBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
4500-5150	5190	108.08	5149.61	1	80.80	83.54	PK	V
4500-5150	5190	95.73	5149.94	1	61.82	63.54	AV	V
5350-5460	5310	107.75	5350.39	1	79.12	83.54	PK	V
5350-5460	5310	95.11	5350.03	1	62.01	63.54	AV	V

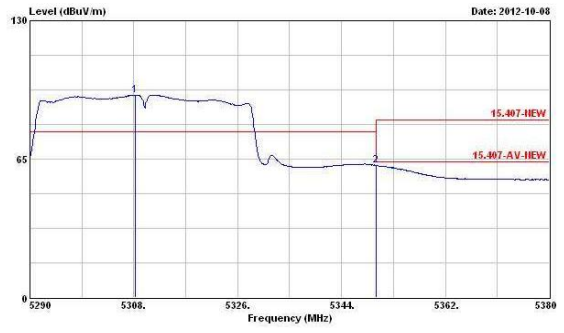
5.2GHz Lower-band (Lowest Ch.)





5.3GHz Higher-band (Highest Ch.)

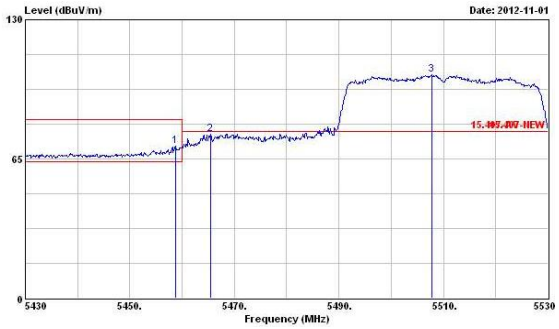


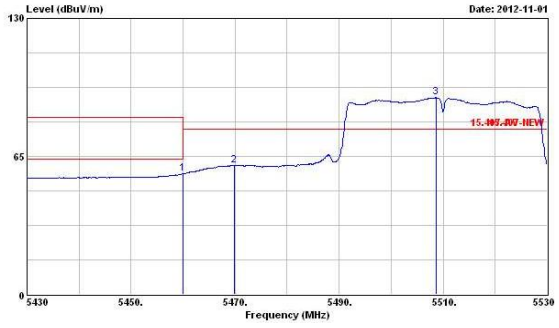


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

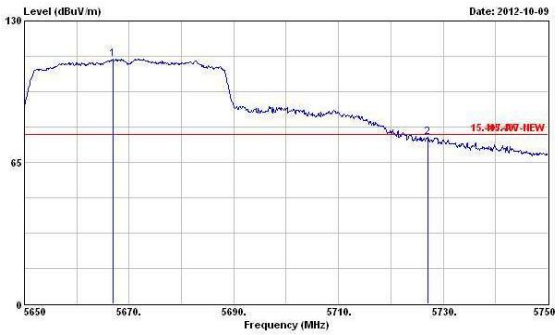
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		**N_{TX}**	1				
Non-restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**NBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
5350-5470	5510	104.55	5465.50	1	76.70	77.84	PK	V
5350-5470	5510	92.69	5469.80	1	60.76	77.84	AV	V
5725-7250	5670	112.57	5727.00	1	76.66	77.84	PK	V
5725-7250	5670	97.41	5725.00	1	59.71	77.84	AV	V

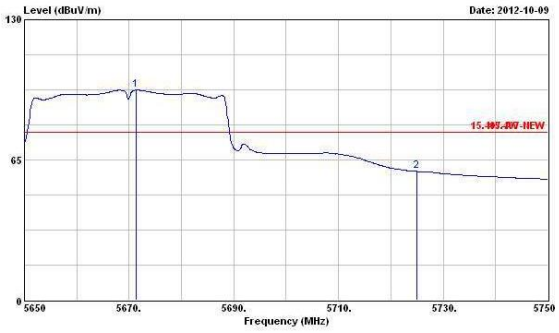
5.6GHz band (Lowest Ch.)





5.6GHz band (Highest Ch.)

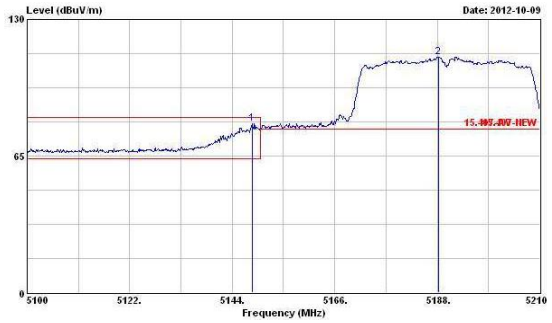


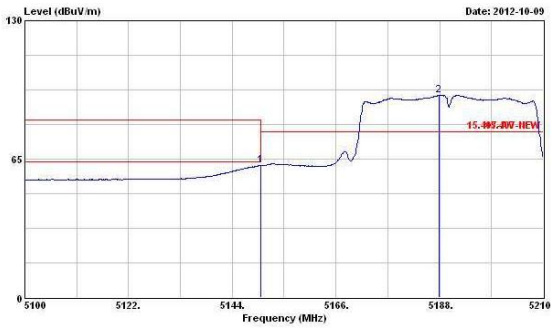


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

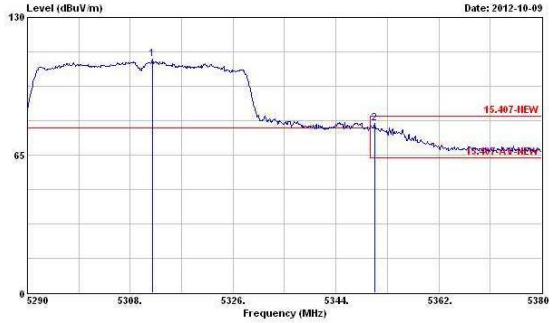
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		**N_{TX}**	2				
Restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**RBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
4500-5150	5190	111.98	5148.29	1	80.42	83.54	PK	V
4500-5150	5190	94.93	5150.00	1	61.99	63.54	AV	V
5350-5460	5310	110.29	5350.75	1	79.95	83.54	PK	V
5350-5460	5310	93.26	5350.03	1	62.00	63.54	AV	V

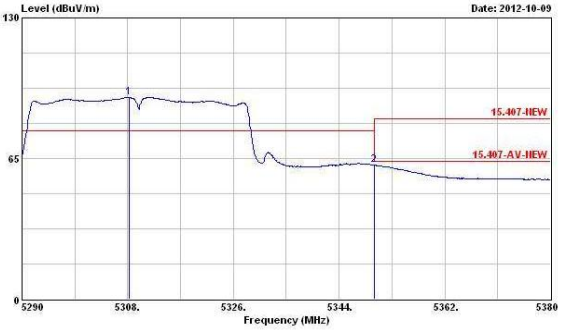
5.2GHz Lower-band (Lowest Ch.)





5.3GHz Higher-band (Highest Ch.)

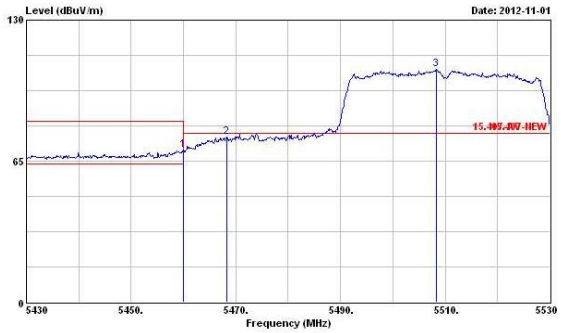


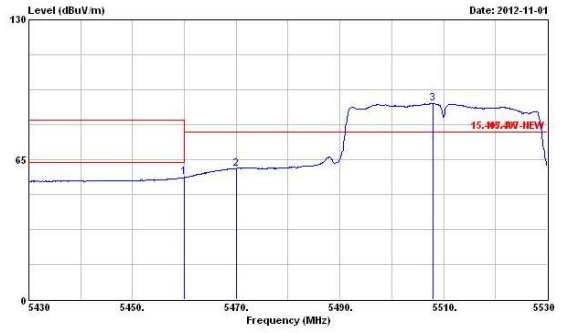


Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

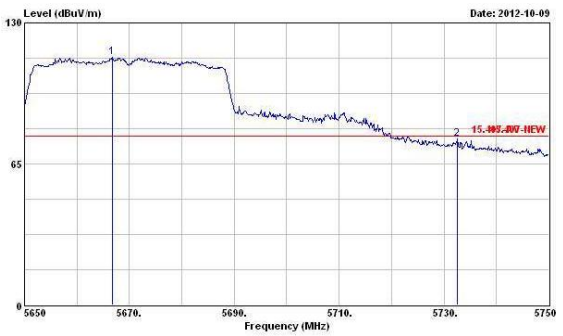
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		**N_{TX}**	2				
Non-restricted Band (MHz)	**Test Ch. Freq. (MHz)**	**In-band PSD [i] (dBuV/1MHz)**	**NBE Freq. (MHz)**	**Measure Distance (m)**	**Out-Band Level (dBuV/m)**	**Limit (dBuV/m)**	**Level Type**	**Pol. note 1**
5350-5470	5510	107.44	5468.30	1	76.26	77.84	PK	V
5350-5470	5510	91.14	5470.00	1	60.84	77.84	AV	V
5725-7250	5670	114.24	5732.60	1	76.49	77.84	PK	V
5725-7250	5670	97.20	5725.00	1	60.22	77.84	AV	V

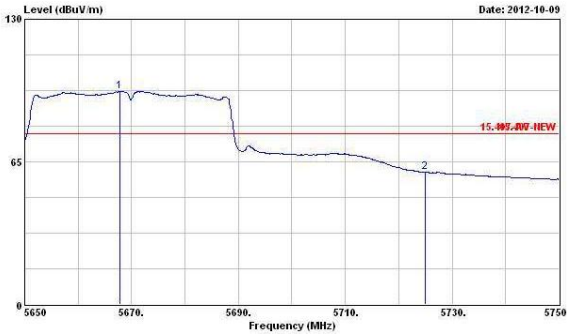
5.6GHz band (Lowest Ch.)





5.6GHz band (Highest Ch.)





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

2.13 Transmitter Radiated Unwanted Emissions

2.13.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz 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 above 1GHz Limit	
Operating Band	**Limit**
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.825 GHz	5.715 5.725 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] 5.825 5.835 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

Note 1: 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).

2.13.2 Measuring Instruments

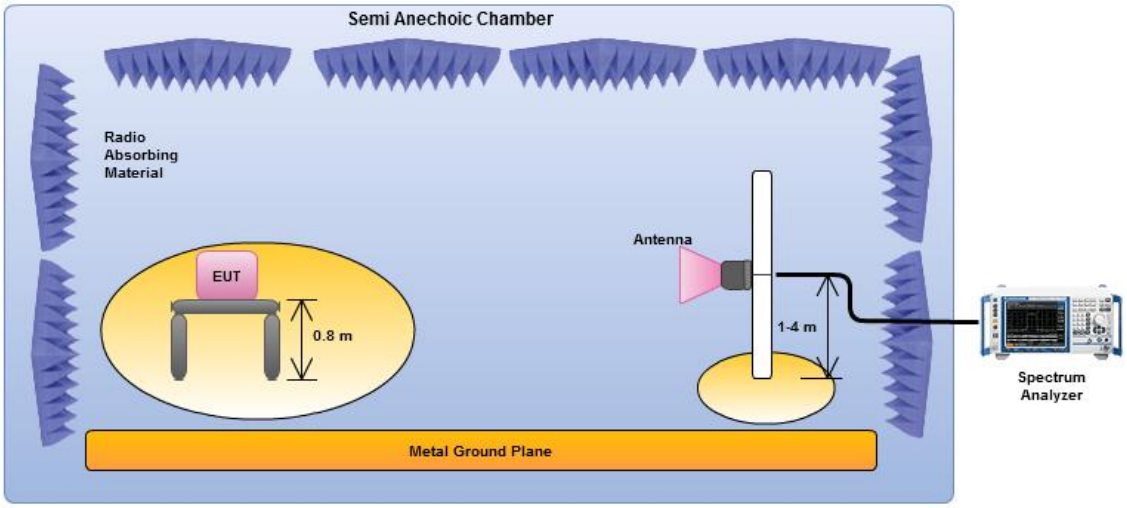
Refer a test equipment and calibration data table in this test report.

2.13.3 Test Procedures

Test Method			
☒	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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. 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 5 GHz - 10GHz are typically made at a closer distance 1.5m, because the instrumentation noise floor is typically close to the radiated emission limit.	
	☒	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 - 40GHz 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 789033, clause G)2) for unwanted emissions into non-restricted bands.	
	☒	Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.	
		☐	Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
		☐	Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
		☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty ≥ 98%.
		☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒	Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.
		☐	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak 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 6.6 for radiated emissions from above 1 GHz.	

2.13.4 Test Setup

Transmitter Radiated Unwanted Emissions



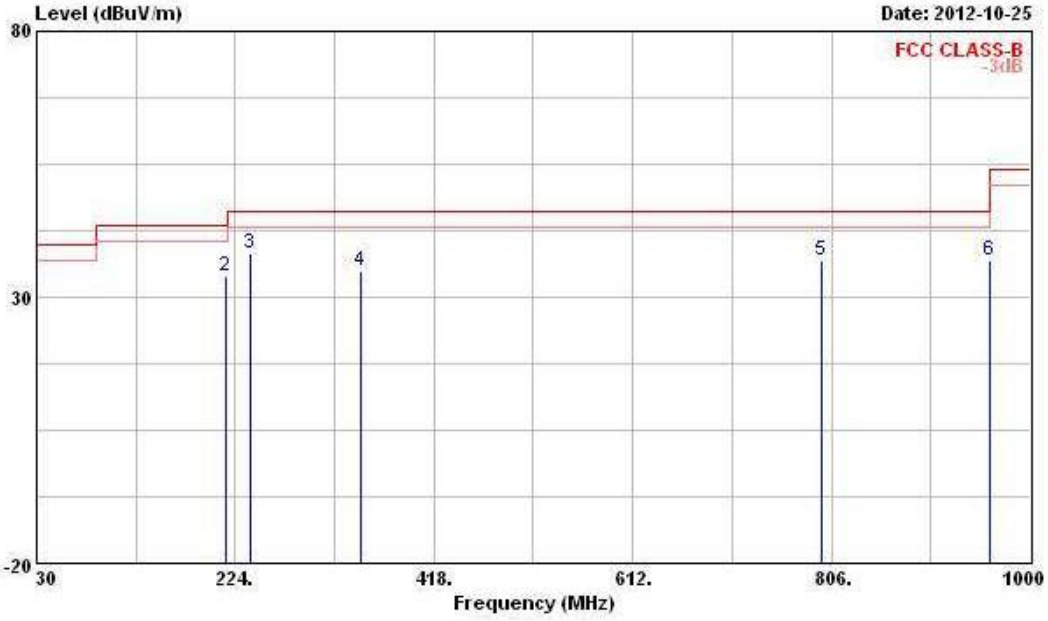
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn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

2.13.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

2.13.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

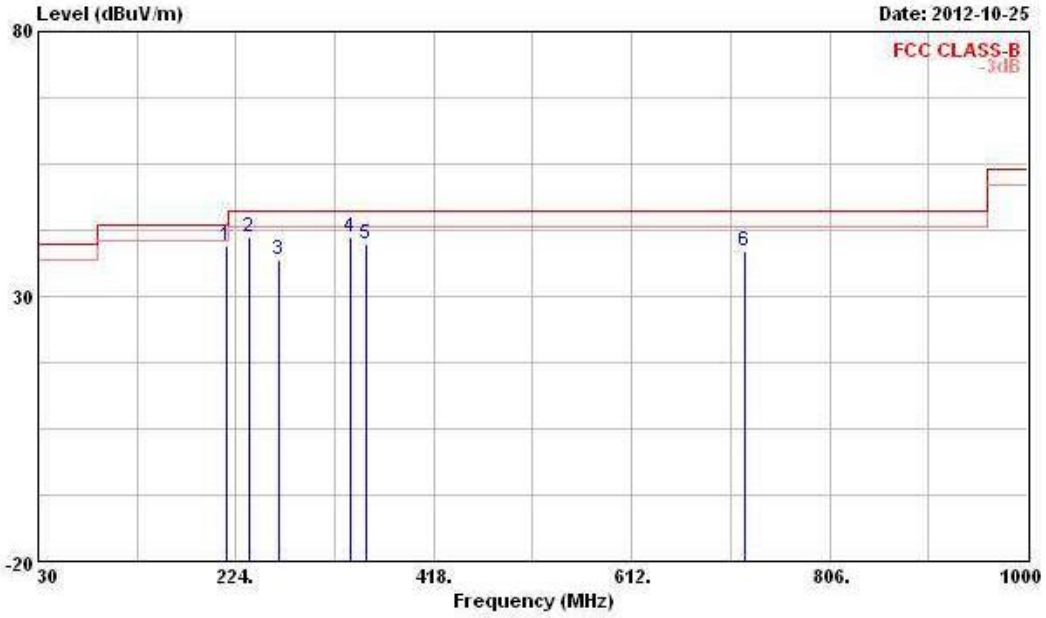
Radiated Emissions (Below 1GHz)			
Operating Mode	1	**Polarization**	V
Operating Function	AC Power & Radio link (WLAN)		



	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 @	30.000	32.57	-7.43	40.00	43.41	16.22	0.89	27.95	QP	---	---
2	214.300	34.07	-9.43	43.50	47.08	11.83	2.53	27.37	Peak	---	---
3	238.550	38.24	-7.76	46.00	50.24	12.62	2.69	27.31	Peak	---	---
4	347.190	34.94	-11.06	46.00	44.83	14.43	3.17	27.49	Peak	---	---
5	796.300	36.81	-9.19	46.00	39.67	20.21	4.88	27.95	Peak	---	---
6	960.230	36.80	-17.20	54.00	37.09	21.52	5.56	27.37	Peak	---	---

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

Radiated Emissions (Below 1GHz)			
Operating Mode	1	**Polarization**	H
Operating Function	AC Power & Radio link (WLAN)		

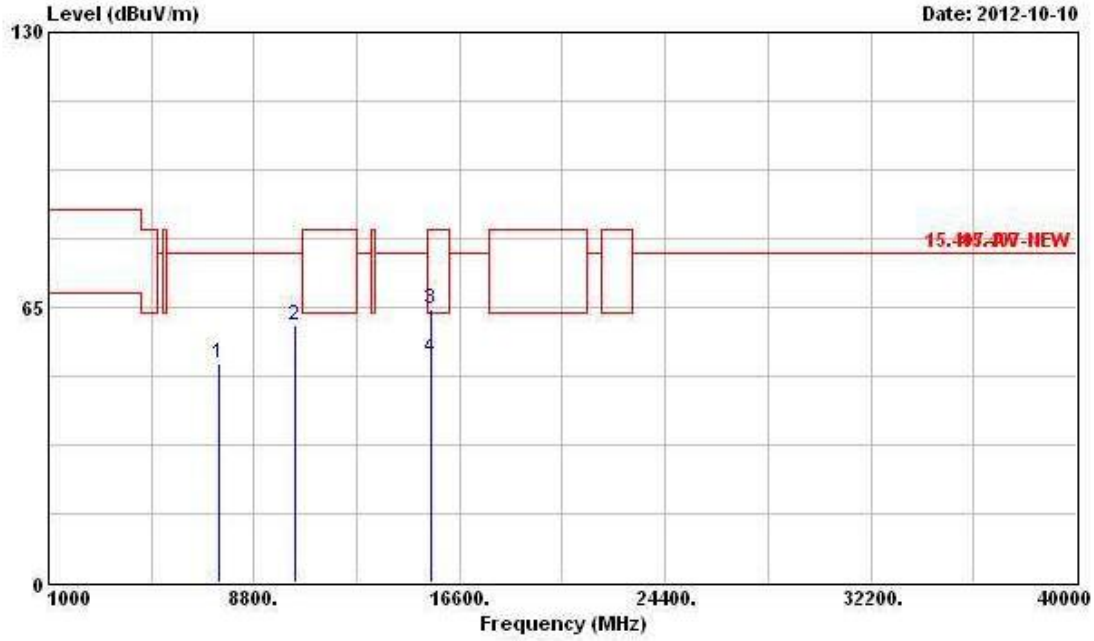


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	214.300	39.68	-3.82	43.50	52.69	11.83	2.53	27.37	Peak	---	---
2 @	237.580	41.25	-4.75	46.00	53.29	12.59	2.69	27.32	QP	---	---
3	265.710	37.04	-8.96	46.00	48.23	13.22	2.84	27.25	Peak	---	---
4 @	335.550	41.15	-4.85	46.00	51.18	14.26	3.12	27.41	Peak	---	---
5 @	351.070	39.71	-6.29	46.00	49.56	14.49	3.18	27.52	Peak	---	---
6	722.580	38.53	-7.47	46.00	42.94	19.17	4.62	28.20	QP	---	---

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

2.13.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

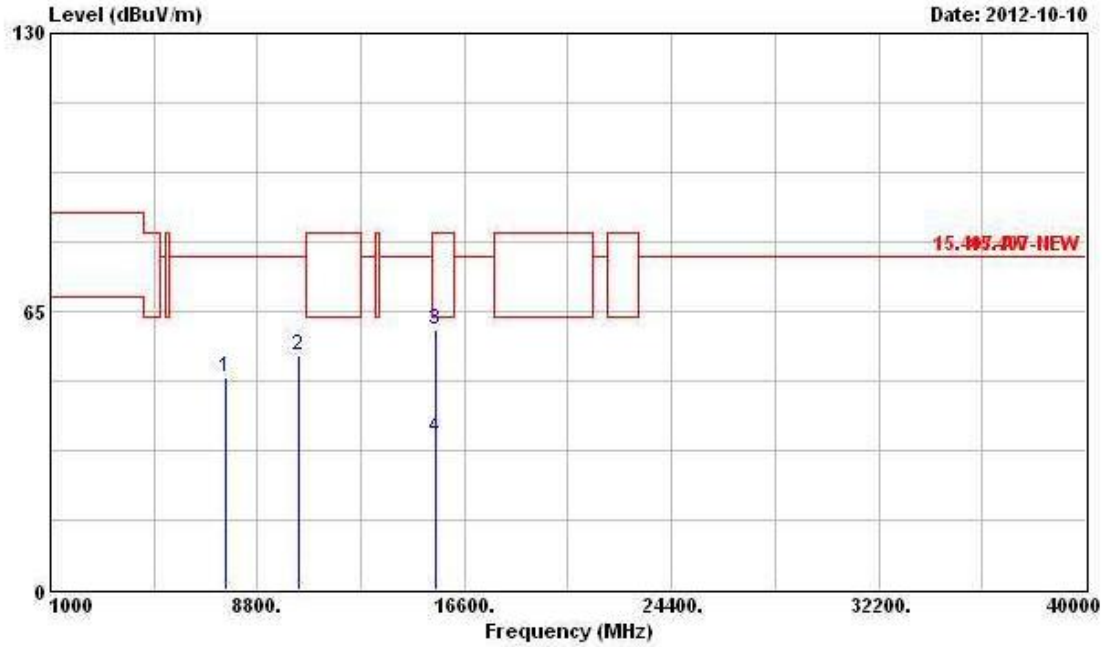
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F1
N_{TX}	1	**Polarization**	V



	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	7478.000	51.61	-26.23	77.84	45.29	35.80	5.66	35.14	Peak	---	---
2	10360.000	60.78	-17.06	77.84	51.07	38.22	6.71	35.22	Peak	---	---
3	15540.000	64.75	-18.79	83.54	50.52	40.81	8.45	35.03	Peak	---	---
4	15540.000	52.93	-10.61	63.54	38.70	40.81	8.45	35.03	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.)
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.

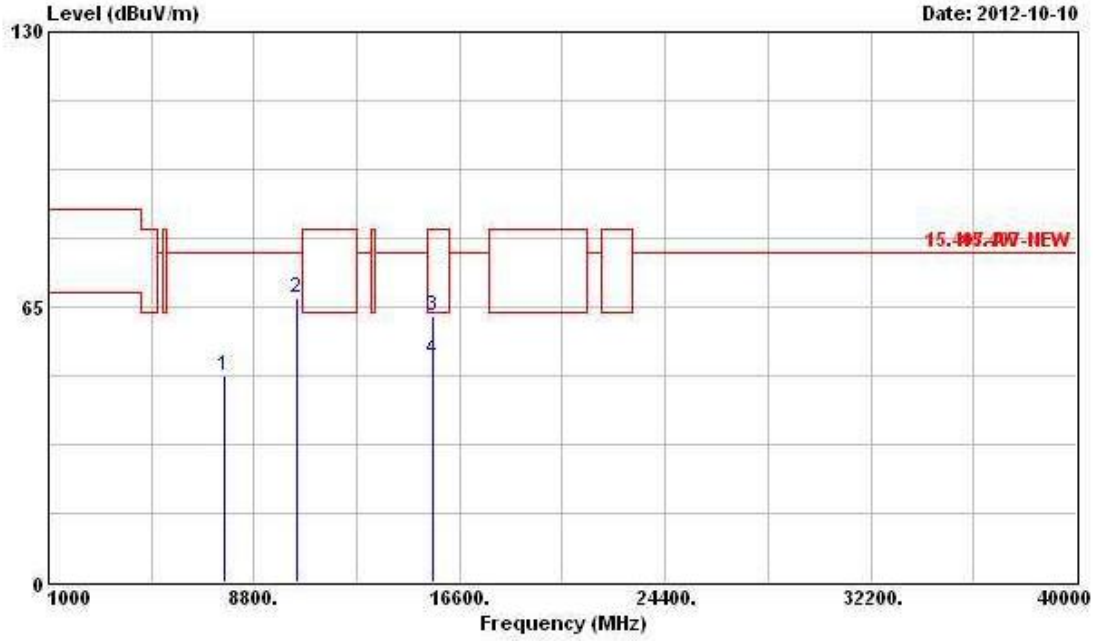
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F1
N_{TX}	1	**Polarization**	H



	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	7612.000	49.76	-28.08	77.84	43.42	35.82	5.69	35.17	Peak	---	---
2	10360.000	54.57	-23.27	77.84	44.86	38.22	6.71	35.22	Peak	---	---
3	15540.000	60.78	-22.76	83.54	46.55	40.81	8.45	35.03	Peak	---	---
4	15540.000	35.55	-27.99	63.54	21.32	40.81	8.45	35.03	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.)
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.

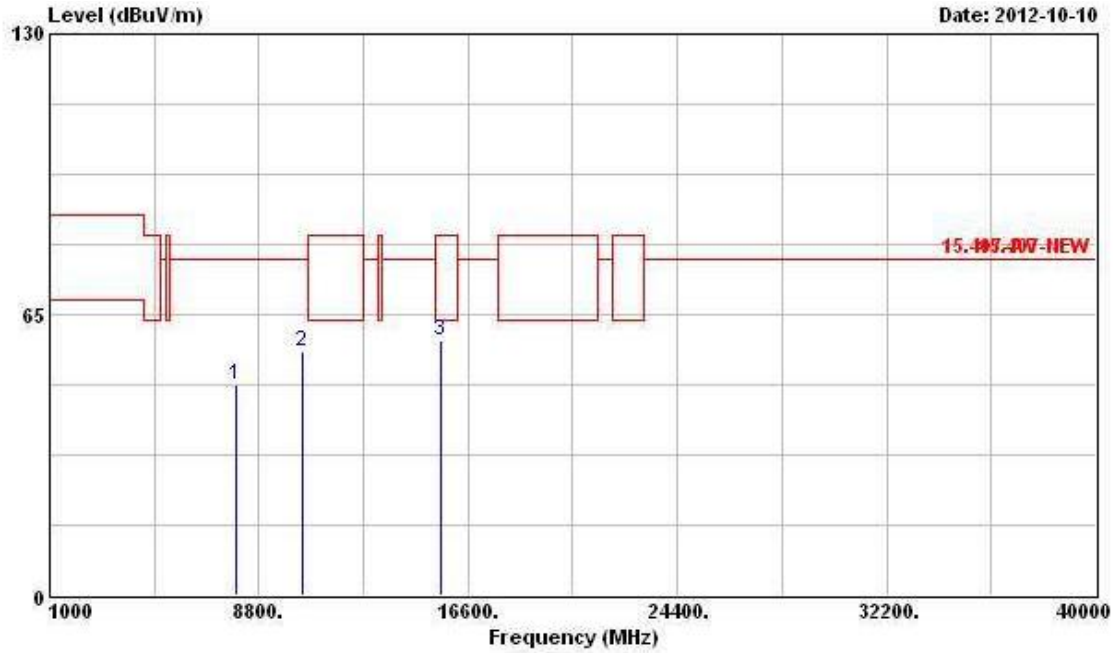
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F2
N_{TX}	1	**Polarization**	V



	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	7704.000	48.79	-29.05	77.84	42.43	35.84	5.72	35.20	Peak	---	---
2	10400.000	66.97	-10.87	77.84	57.16	38.24	6.75	35.18	Peak	---	---
3	15600.000	63.05	-20.49	83.54	48.86	40.84	8.45	35.10	Peak	---	---
4	15600.000	52.50	-11.04	63.54	38.31	40.84	8.45	35.10	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.)
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.

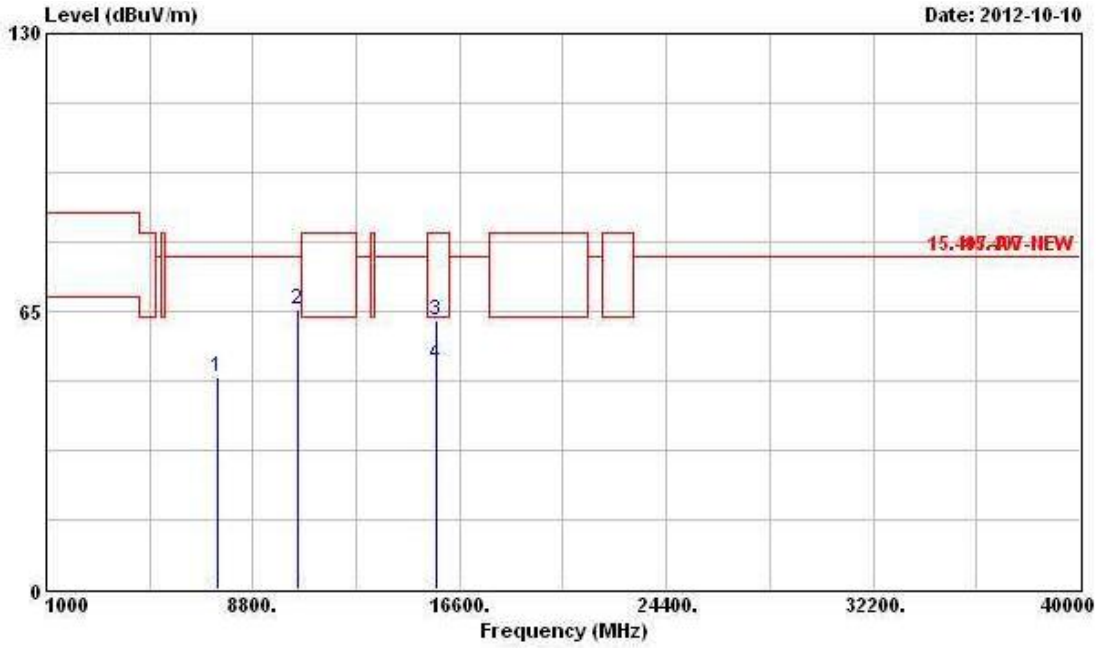
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F2
N_{TX}	1	**Polarization**	H



	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	7956.000	48.86	-28.98	77.84	42.44	35.89	5.79	35.26	Peak	---	---
2	10400.000	56.52	-21.32	77.84	46.71	38.24	6.75	35.18	Peak	---	---
3	@15600.000	58.99	-4.55	63.54	44.80	40.84	8.45	35.10	PK	---	---

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.

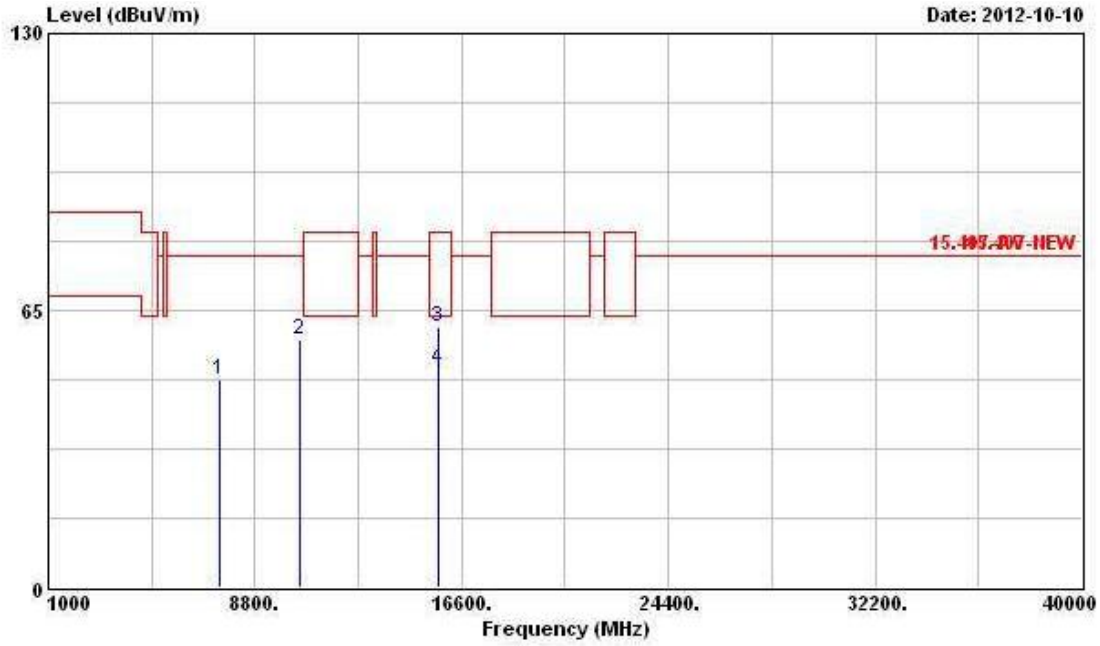
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F3
N_{TX}	1	**Polarization**	V



	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	7464.000	49.45	-28.39	77.84	43.12	35.81	5.66	35.14	Peak	---	---
2	10480.000	65.56	-12.28	77.84	55.57	38.29	6.82	35.12	Peak	---	---
3	15720.000	62.73	-20.81	83.54	48.58	40.89	8.46	35.20	Peak	---	---
4	15720.000	52.65	-10.89	63.54	38.50	40.89	8.46	35.20	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.)
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.

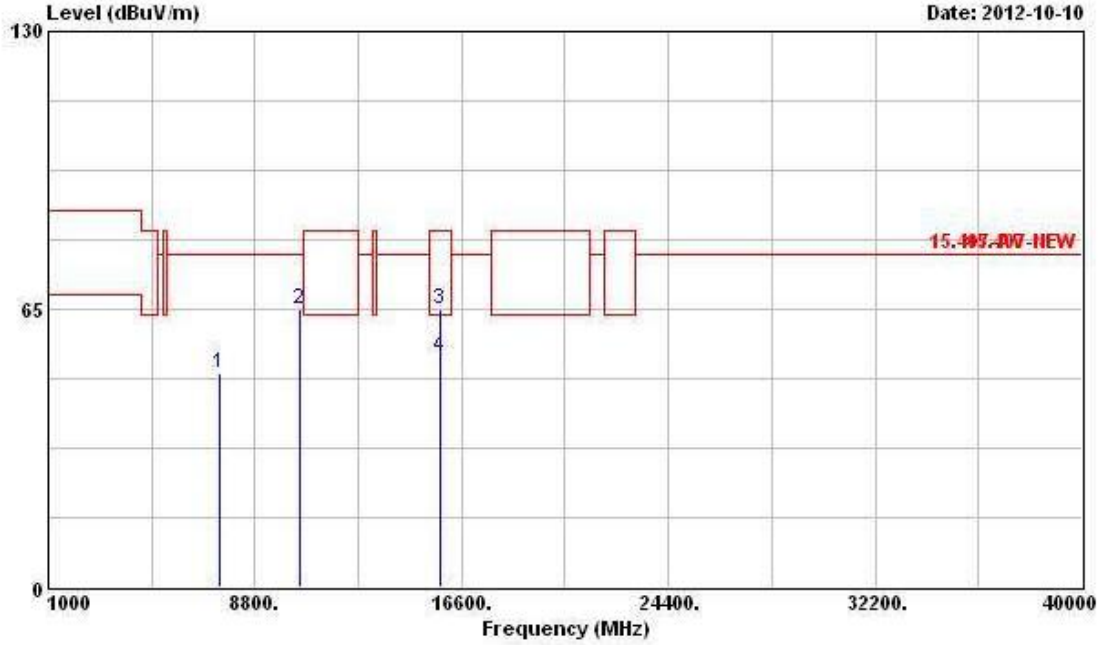
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F3
N_{TX}	1	**Polarization**	H



	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	7476.000	48.61	-29.23	77.84	42.29	35.80	5.66	35.14	Peak	---	---
2	10480.000	58.11	-19.73	77.84	48.12	38.29	6.82	35.12	Peak	---	---
3	15720.000	61.15	-22.39	83.54	47.00	40.89	8.46	35.20	Peak	---	---
4	15720.000	51.34	-12.20	63.54	37.19	40.89	8.46	35.20	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.)
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.

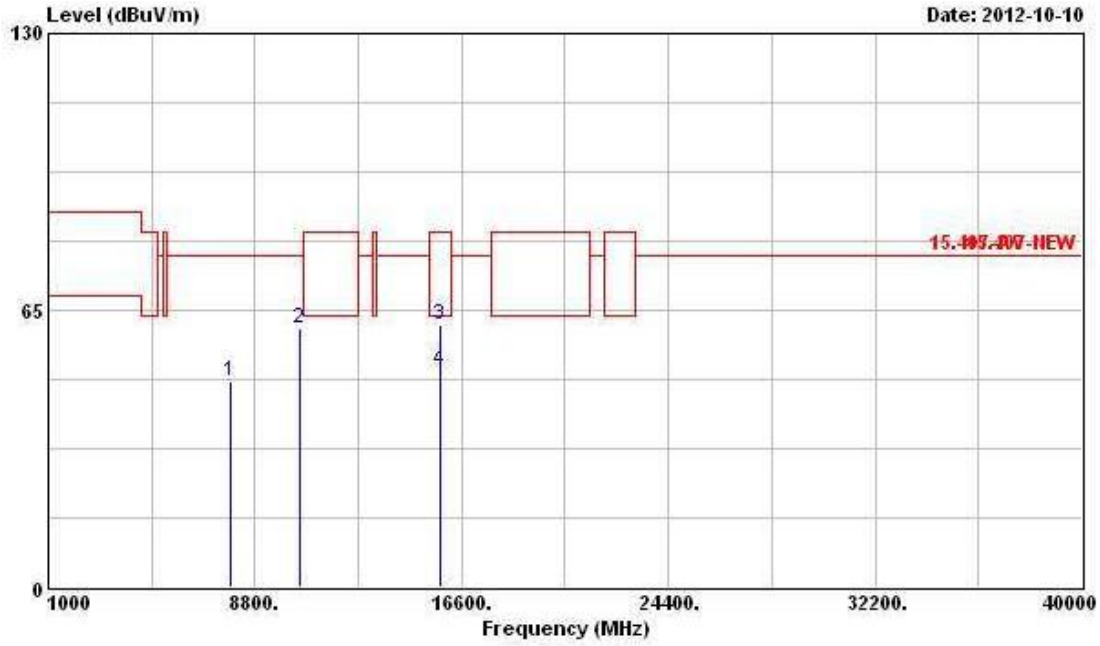
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F4
N_{TX}	1	**Polarization**	V



	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	7476.000	50.04	-27.80	77.84	43.72	35.80	5.66	35.14	Peak	---	---
2	10520.000	64.91	-12.93	77.84	54.85	38.31	6.85	35.10	Peak	---	---
3	15780.000	65.12	-18.42	83.54	51.03	40.91	8.46	35.28	Peak	---	---
4	15780.000	53.74	-9.80	63.54	39.65	40.91	8.46	35.28	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.)
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.

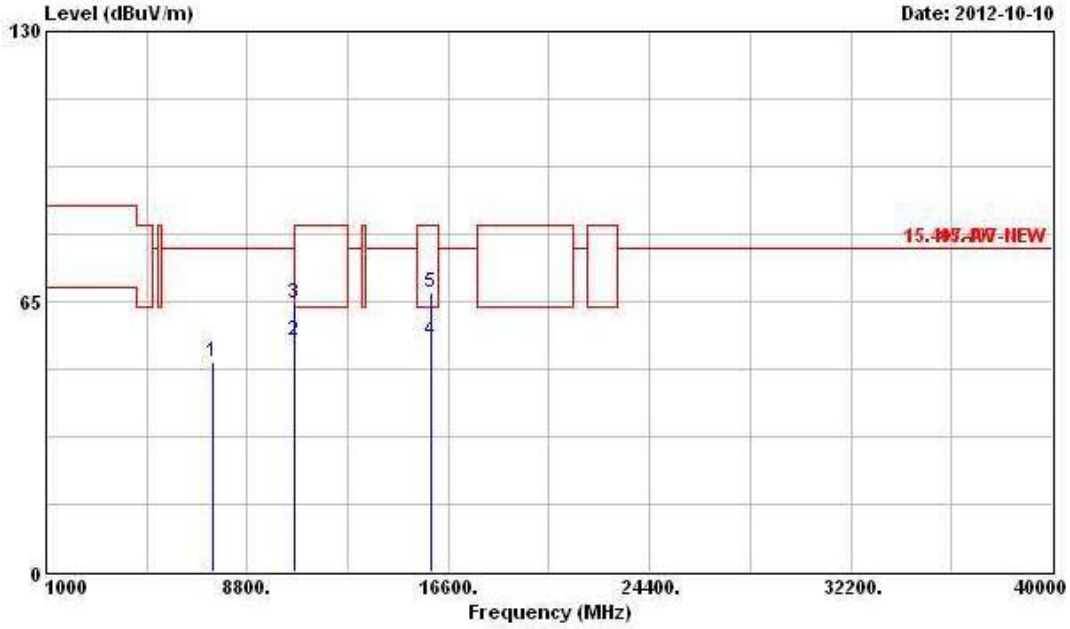
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F4
N_{TX}	1	**Polarization**	H



	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	7860.000	48.43	-29.41	77.84	42.02	35.87	5.77	35.23	Peak	---	---
2	10520.000	60.68	-17.16	77.84	50.62	38.31	6.85	35.10	Peak	---	---
3	15780.000	61.76	-21.78	83.54	47.67	40.91	8.46	35.28	Peak	---	---
4	15780.000	50.88	-12.66	63.54	36.79	40.91	8.46	35.28	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.)
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.

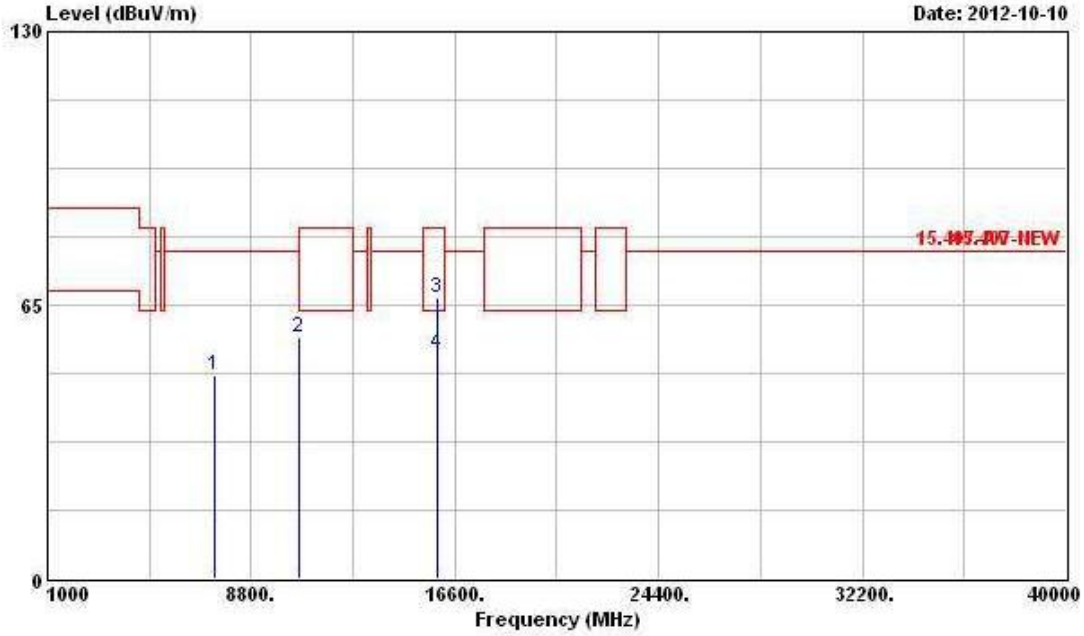
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F5
N_{TX}	1	**Polarization**	V



	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	7464.000	50.55	-27.29	77.84	44.22	35.81	5.66	35.14	Peak	---	---
2	10600.000	55.49	-8.05	63.54	45.27	38.36	6.90	35.04	Average	---	---
3	10600.000	64.76	-18.78	83.54	54.54	38.36	6.90	35.04	Peak	---	---
4	15900.000	55.57	-7.97	63.54	41.52	40.96	8.47	35.38	Average	---	---
5	15900.000	67.05	-16.49	83.54	53.00	40.96	8.47	35.38	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.

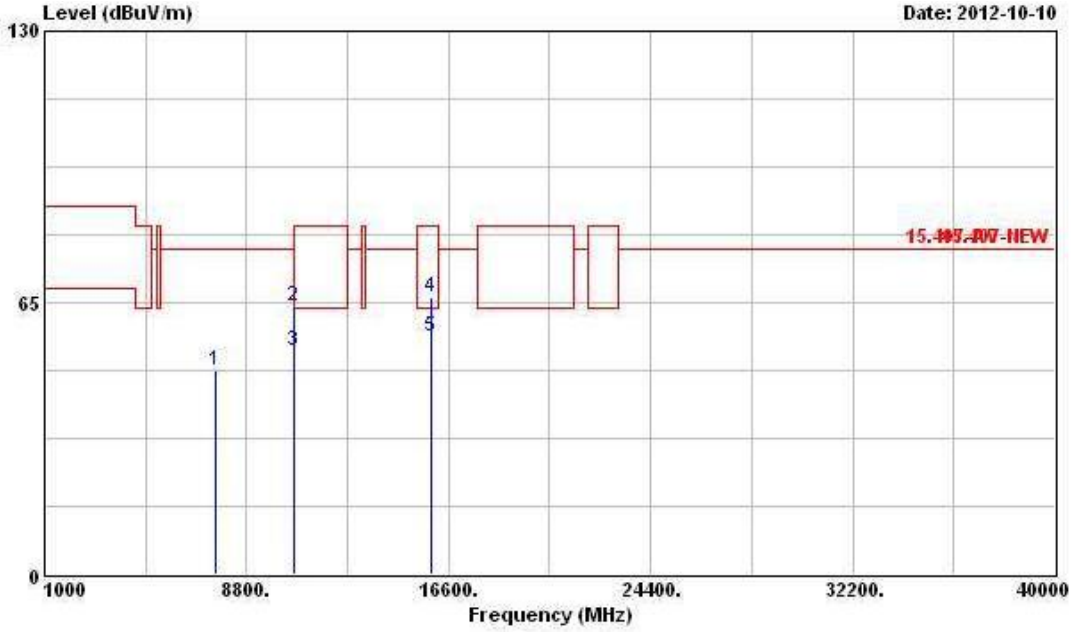
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F5
N_{TX}	1	**Polarization**	H



	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	7380.000	48.23	-29.61	77.84	41.88	35.82	5.65	35.12	Peak	---	---
2	@10600.000	57.24	-6.30	63.54	47.02	38.36	6.90	35.04	PK	---	---
3	15900.000	66.63	-16.91	83.54	52.58	40.96	8.47	35.38	Peak	---	---
4	15900.000	53.56	-9.98	63.54	39.51	40.96	8.47	35.38	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.)
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.

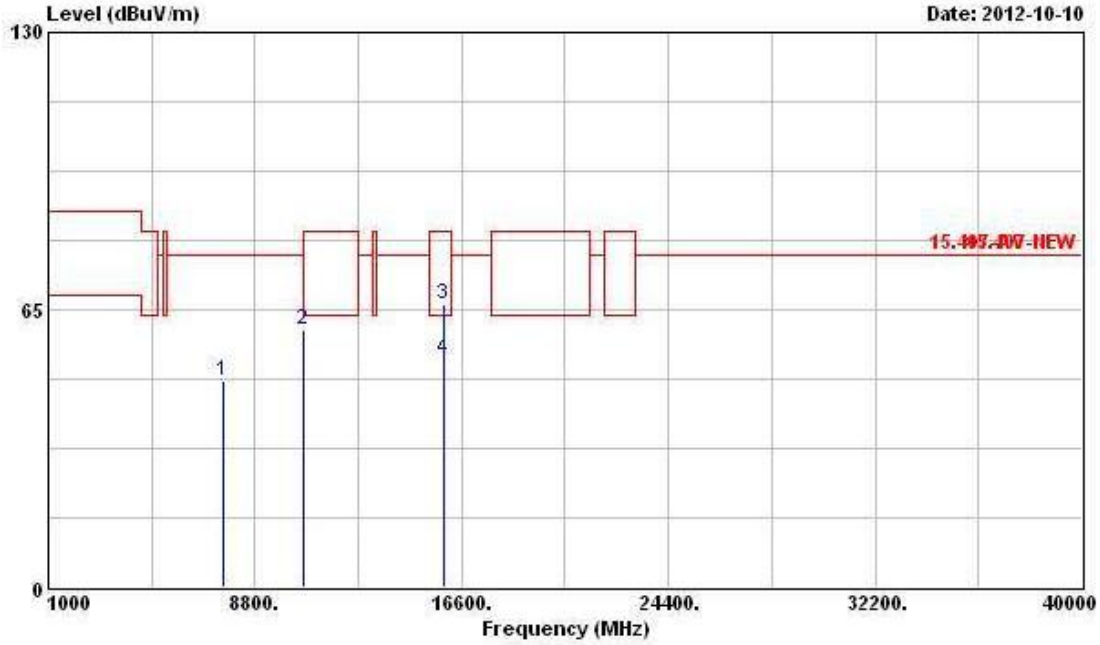
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F6
N_{TX}	1	**Polarization**	V



	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	7608.000	48.61	-29.23	77.84	42.28	35.82	5.68	35.17	Peak	---	---
2	10640.000	64.13	-19.41	83.54	53.82	38.38	6.93	35.00	Peak	---	---
3	10640.000	53.59	-9.95	63.54	43.28	38.38	6.93	35.00	Average	---	---
4	15960.000	66.42	-17.12	83.54	52.41	40.99	8.47	35.45	Peak	---	---
5	@15960.000	56.81	-6.73	63.54	42.80	40.99	8.47	35.45	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.)
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.

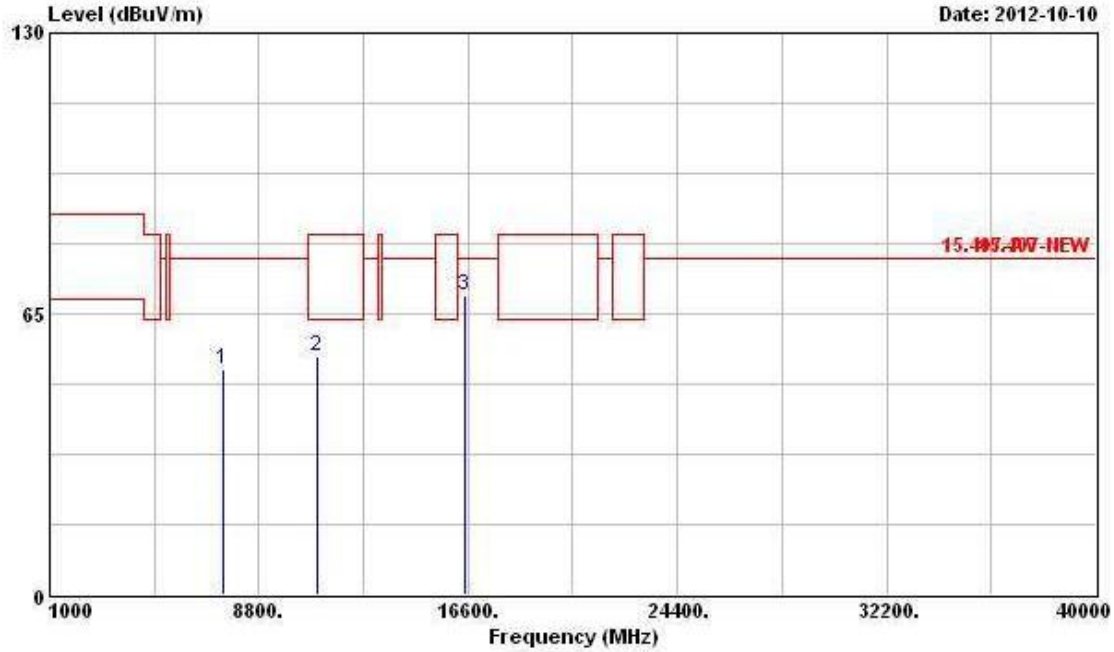
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F6
N_{TX}	1	**Polarization**	H



	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	7608.000	48.30	-29.54	77.84	41.97	35.82	5.68	35.17	Peak	---	---
2	@10640.000	60.25	-3.29	63.54	49.94	38.38	6.93	35.00	PK	---	---
3	15960.000	66.10	-17.44	83.54	52.09	40.99	8.47	35.45	Peak	---	---
4	15960.000	53.52	-10.02	63.54	39.51	40.99	8.47	35.45	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.)
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.

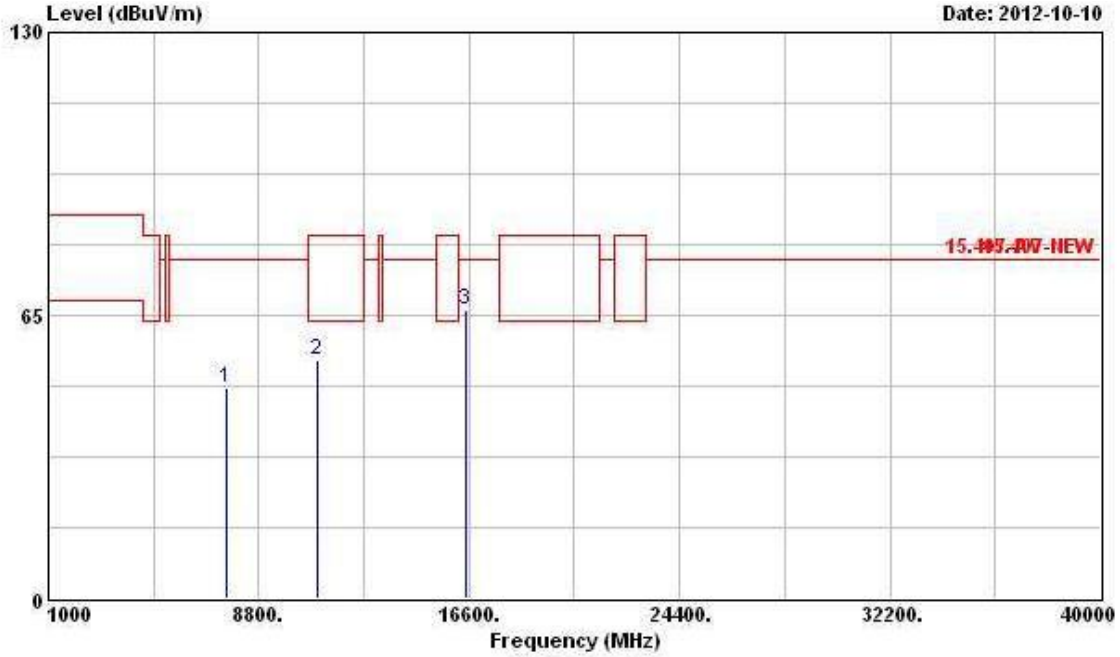
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F7
N_{TX}	1	**Polarization**	V



	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	7464.000	52.09	-25.75	77.84	45.76	35.81	5.66	35.14	Peak	---	---
2	11000.000	55.15	-8.39	63.54	44.10	38.60	7.17	34.72	PK	---	---
3	16500.000	69.23	-8.61	77.84	53.98	42.00	8.24	34.99	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.

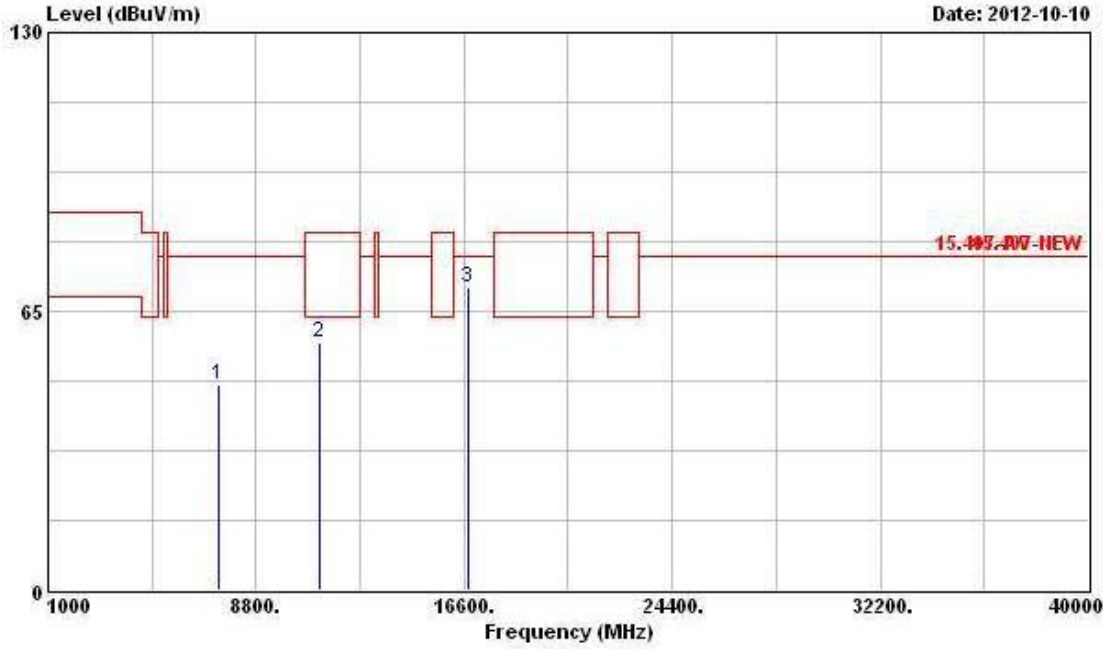
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F7
N_{TX}	1	**Polarization**	H



	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	7620.000	48.42	-29.42	77.84	42.09	35.82	5.69	35.18	Peak	---	---
2	11000.000	54.86	-8.68	63.54	43.81	38.60	7.17	34.72	PK	---	---
3	16500.000	66.33	-11.51	77.84	51.08	42.00	8.24	34.99	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.

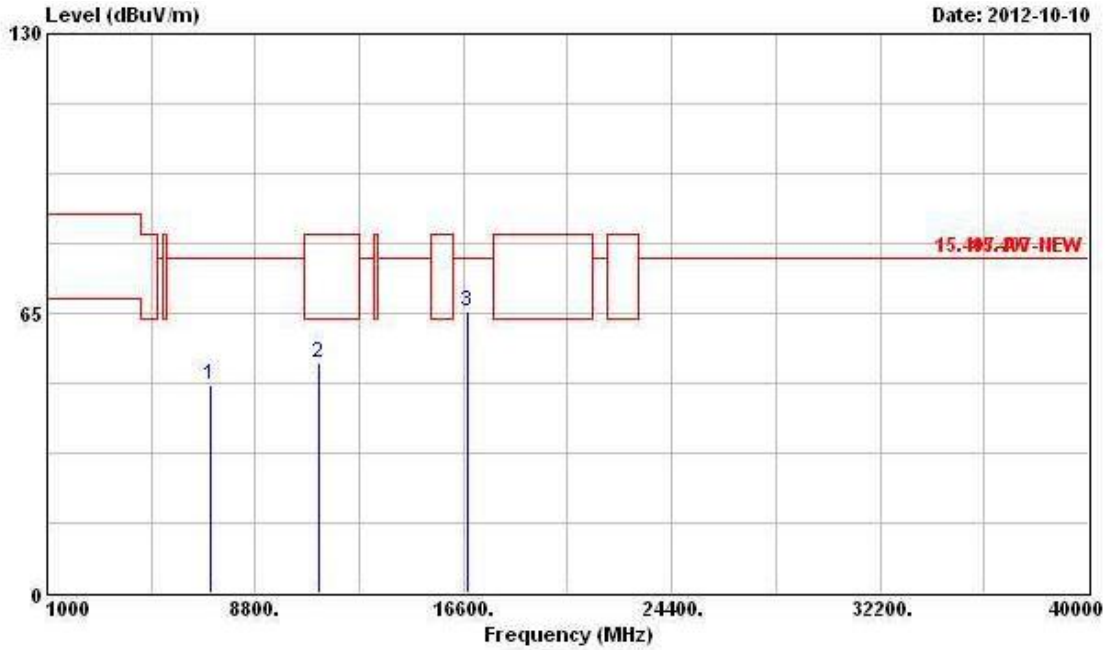
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F8
N_{TX}	1	**Polarization**	V



	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	7380.000	47.97	-29.87	77.84	41.62	35.82	5.65	35.12	Peak	---	---
2	@11160.000	57.84	-5.70	63.54	46.90	38.70	6.96	34.72	PK	---	---
3	16740.000	70.35	-7.49	77.84	54.53	41.86	8.47	34.51	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.

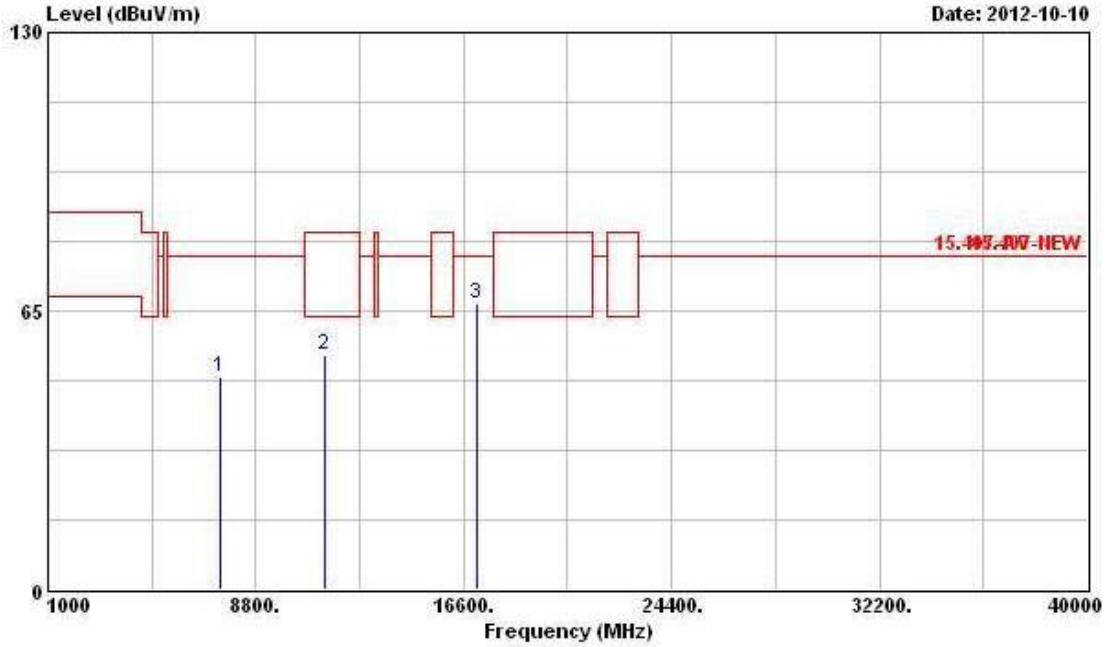
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F8
N_{TX}	1	**Polarization**	H



	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	7140.000	48.26	-29.58	77.84	41.84	35.87	5.61	35.06	Peak	---	---
2	11160.000	53.44	-10.10	63.54	42.50	38.70	6.96	34.72	PK	---	---
3	16740.000	65.29	-12.55	77.84	49.47	41.86	8.47	34.51	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.

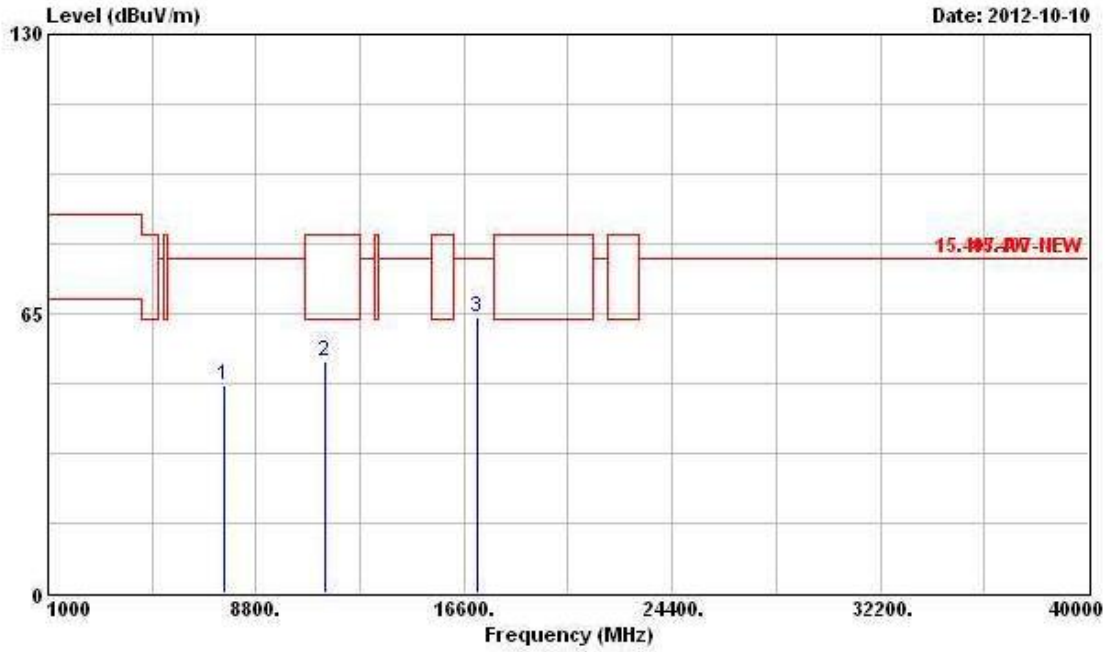
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F9
N_{TX}	1	**Polarization**	V



	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	7476.000	49.71	-28.13	77.84	43.39	35.80	5.66	35.14	Peak	---	---
2	11400.000	54.81	-8.73	63.54	43.98	38.84	6.71	34.72	PK	---	---
3	17100.000	66.69	-11.15	77.84	50.40	41.66	8.61	33.98	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.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	**Test Freq. (FX)**	F9
N_{TX}	1	**Polarization**	H

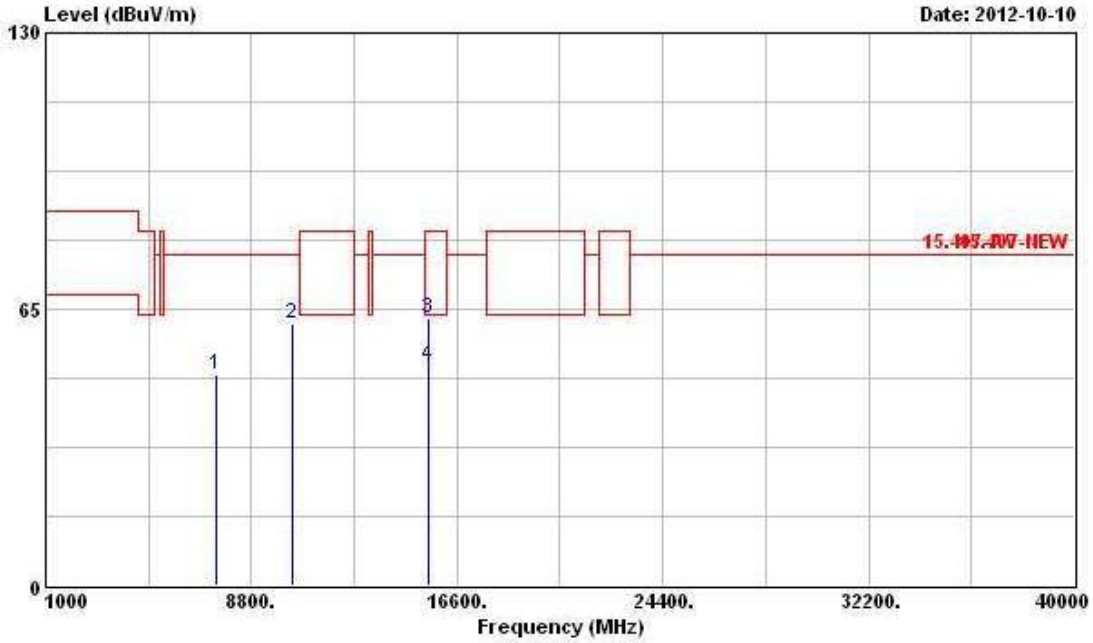


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7620.000	48.37	-29.47	77.84	42.04	35.82	5.69	35.18	Peak	---	---
2	11400.000	53.97	-9.57	63.54	43.14	38.84	6.71	34.72	PK	---	---
3	17100.000	64.34	-13.50	77.84	48.05	41.66	8.61	33.98	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.

2.13.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT-20

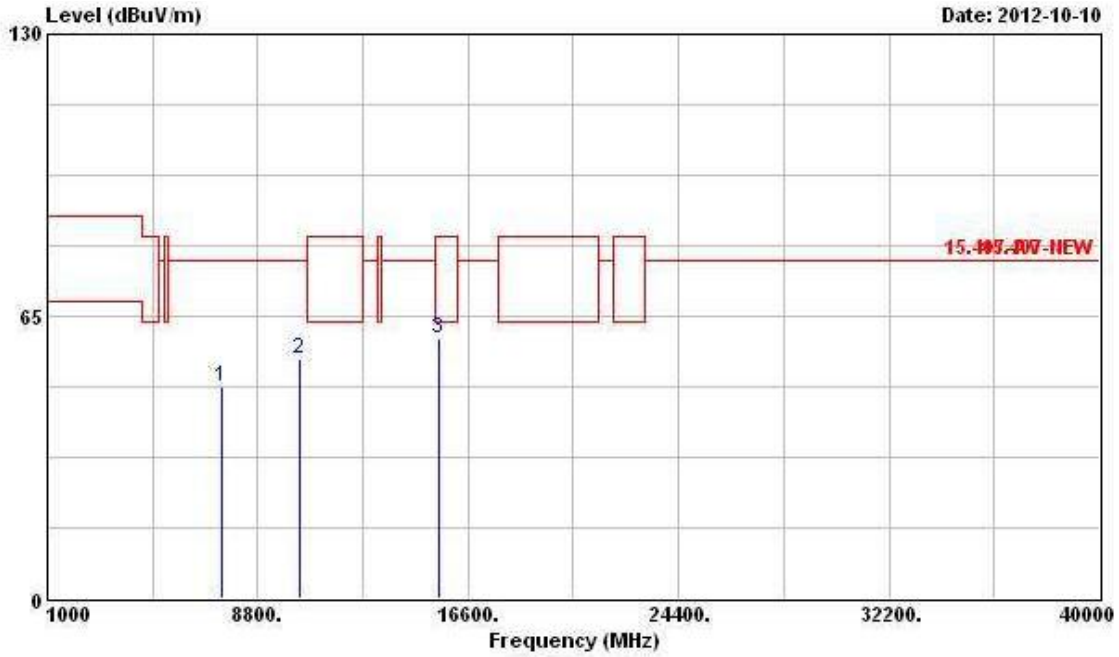
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT-20	**Test Freq. (FX)**	F1
N_{TX}	1	**Polarization**	V



	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	7464.000	49.46	-28.38	77.84	43.13	35.81	5.66	35.14	Peak	---	---
2	10360.000	61.38	-16.46	77.84	51.67	38.22	6.71	35.22	Peak	---	---
3	15540.000	62.78	-20.76	83.54	48.55	40.81	8.45	35.03	Peak	---	---
4	15540.000	51.80	-11.74	63.54	37.57	40.81	8.45	35.03	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.)
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.

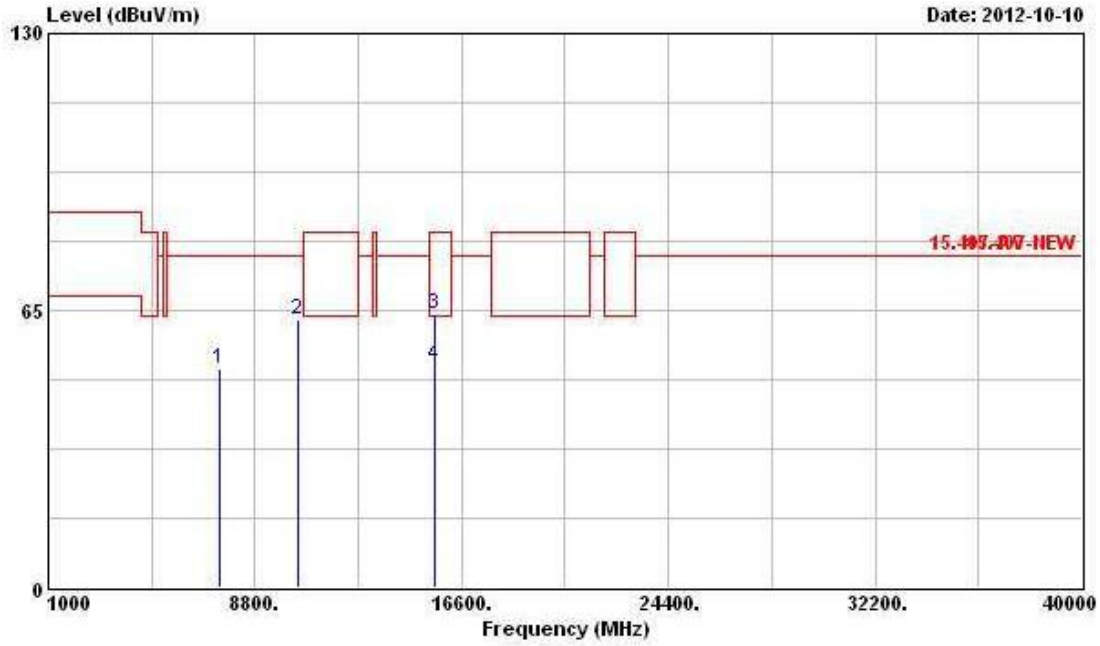
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT-20	**Test Freq. (FX)**	F1
N_{TX}	1	**Polarization**	H



	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	7464.000	48.86	-28.98	77.84	42.53	35.81	5.66	35.14	Peak	---	---
2	10360.000	55.05	-22.79	77.84	45.34	38.22	6.71	35.22	Peak	---	---
3	@15540.000	59.78	-3.76	63.54	45.55	40.81	8.45	35.03	PK	---	---

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.

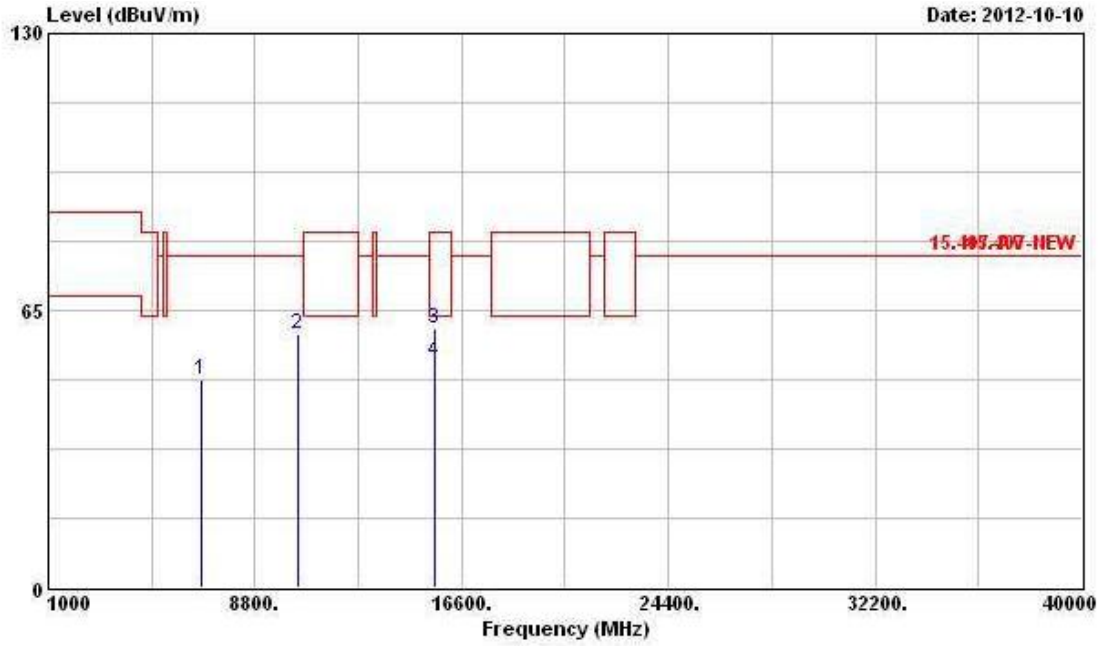
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT-20	**Test Freq. (FX)**	F2
N_{TX}	1	**Polarization**	V



	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	7464.000	51.13	-26.71	77.84	44.80	35.81	5.66	35.14	Peak	---	---
2	10400.000	62.72	-15.12	77.84	52.91	38.24	6.75	35.18	Peak	---	---
3	15600.000	64.03	-19.51	83.54	49.84	40.84	8.45	35.10	Peak	---	---
4	15600.000	52.27	-11.27	63.54	38.08	40.84	8.45	35.10	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.)
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.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT-20	**Test Freq. (FX)**	F2
N_{TX}	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	6756.000	48.58	-29.26	77.84	42.18	35.80	5.55	34.95	Peak	---	---
2	10400.000	59.57	-18.27	77.84	49.76	38.24	6.75	35.18	Peak	---	---
3	15600.000	60.92	-22.62	83.54	46.73	40.84	8.45	35.10	Peak	---	---
4	15600.000	52.94	-10.60	63.54	38.75	40.84	8.45	35.10	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.)
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.