

FCC Test Report

Equipment : Personal Computer
Brand Name : SONY
Model No. : SVT212A11L
FCC ID : AK8SVT212A11L
Standard : 47 CFR FCC Part 15.407
Operating Band : 5150 MHz – 5250 MHz
5250 MHz – 5350 MHz
5470 MHz – 5725 MHz
FCC Classification : NII
Applicant : Sony Corporation
Manufacturer : 1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan
Operate Mode : Client without radar detection

The product sample received on Jun. 07, 2013 and completely tested on Jul. 28, 2013. 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

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Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.1873850MHz 36.30 (Margin 17.85dB) - AV 53.30 (Margin 10.85dB) - QP	FCC 15.207	Complied
3.2	15.407(a)	Emission Bandwidth	Bandwidth [MHz] VHT20M:20.20 VHT 40M:41.20 VHT 80M: 79.68	Information only	Complied
3.3	15.407(a)	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 5150-5250MHz:15.33 5250-5350MHz:15.57 5470-5725MHz:16.87	Power [dBm] 5150-5250MHz:17 5250-5350MHz:24 5470-5725MHz:24	Complied
3.4	15.407(a)	Peak Power Spectral Density	PPSD [dBm/MHz] 5150-5250MHz:3.89 5250-5350MHz:4.14 5470-5725MHz:5.32	PPSD [dBm/MHz] 5150-5250MHz:4 5250-5350MHz:11 5470-5725MHz:11	Complied
3.5	15.407(a)	Peak Excursion	9.39 dB	13 dB	Complied
3.6	15.407(b)	Transmitter Bandedge Emissions	Restricted Bands [dBuV/m at 1.0m]: 5470.000MHz 79.03 (Margin 4.51dB) - PK 62.53 (Margin 1.01dB) - AV	Non-Restricted Bands: ≤ -27dBm (77.84dBuV/m@1m) Restricted Bands: FCC 15.209	Complied
3.7	15.407(b)	Transmitter Unwanted Emissions	Restricted Bands [dBuV/m at 1.0m]: 863.230MHz 35.86 (Margin 10.14dB) - PK	Non-Restricted Bands: ≤ -27dBm (77.84dBuV/m@1m) Restricted Bands: FCC 15.209	Complied
3.8	15.407(g)	Frequency Stability	4.0132 ppm	Signal shall remain in-band	Complied



SPORTON INTERNATIONAL INC.
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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	ac (VHT20)	5180-5240	36-48 [3]	1	15.33	Yes
5250-5350		5260-5320	52-64 [4]	1	15.57	
5470-5725		5500-5720	100-144 [4]	1	16.57	
straddle 5725		5720	144	1	9.84	
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	1	15.24	Yes
5250-5350		5270-5310	54-62 [2]	1	11.49	
5470-5725		5510-5710	102-142 [4]	1	16.58	
straddle 5725		5710	142	1	2.35	
5150-5250	ac (VHT80)	5210	48 [1]	1	8.11	Yes
5250-5350		5290	58 [1]	1	10.90	
5470-5725		5530-5690	106-138 [3]	1	13.46	
straddle 5725		5690	138	1	-4.03	
5150-5250	ac (VHT20)	5180-5240	36-48 [3]	2	13.34	Yes
5250-5350		5260-5320	52-64 [4]	2	13.78	
5470-5725		5500-5720	100-144 [4]	2	16.57	
straddle 5725		5720	144	2	7.45	
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	2	13.16	Yes
5250-5350		5270-5310	54-62 [2]	2	9.58	
5470-5725		5510-5710	102-142 [4]	2	16.85	
straddle 5725		5710	142	2	1.12	
5150-5250	ac (VHT80)	5210	48 [1]	2	6.51	Yes
5250-5350		5290	58 [1]	2	9.68	
5470-5725		5530-5690	106-138 [3]	2	16.87	
straddle 5725		5690	138	2	-5.11	

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: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
 Note 4: 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.)
 Note 5: Straddle 5725 means that straddle the boundary between 5470-5725MHz band and 5725-5825MHz band. The maximum conducted output power within each band of operation shall comply with the limits for that band. (e.g., XX / XX = (5470-5725MHz band power / 5725-5825MHz band power).
 Note 6: 802.11ac support straddle channel between 5470-5725MHz band and 5725-5825MHz band.

1.1.2 Antenna Information

Antenna Category	
☒	Integral antenna (antenna permanently attached)
☒	Temporary RF connector provided
☐	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	Integral	PIFA	-5.42

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)
☒ 100.00% - IEEE 802.11ac (VHT20)	0
☒ 100.00% - IEEE 802.11ac (VHT40)	0
☒ 100.00% - IEEE 802.11ac (VHT80)	0

1.1.5 EUT Operational Condition

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

1.1.6 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		16.0.2.1	
Communication Mode		☒ IP Based	☐ Frame Based
IEEE Std. 802.11	Frequency Range (MHz)	TPC (Transmit Power Control)	Passive Scan
ac (VHT20)	☒ 5250-5350	No	Yes
ac (VHT40)			
ac (VHT80)	☒ 5470-5725	No	Yes

1.1.7 Operation under 15.247 and 15.407 above 5.725 GHz

Limitations on simultaneous operation under 15.247 and 15.407 above 5.725 GHz
☒ Simultaneous operation in the 5.725 - 5.825 GHz band under FCC 15.407 and the 5.725 - 5.850 GHz band under FCC 15.247 are prohibited. At any given time all operations above 5.725 GHz must be under a single rule section (FCC 15.247 or FCC 15.407)
☒ For operations above 5.725 GHz, in-band measurements and out-of-band and spurious emissions measurements refer as FCC KDB 644545 D02 were performed U-NII 3 limits and procedures. In the 5.725 - 5.850 GHz band test result were reported in 5.8GHz DTS report.

1.2 Accessories

Accessories Information				
AC Adapter	Brand Name	SONY	Model Name	VGP-AC19V48
	Power Rating	I/P: 100-240V ~ 1.5A 50/60Hz ; O/P: 19.5V $\overline{\overline{=}}$ 3.3A		
Li-ion Battery	Brand Name	SONY	Model Name	VGP-BPS34
	Power Rating	11.4V $\overline{\overline{=}}$ / 3780 mAh / 43 Wh		
2.4G RF receiver	Brand Name	SONY	Model Name	VGP-WRC7

Reminder: Regarding to more detail and other information, please refer to user manual.

1.3 Support Equipment

Support Equipment- AC Line Conducted Emission Test				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Keyboard (Client Provide)	SONY	VGP-WKB15	DoC
2	Mouse (Client Provide)	SONY	VGP-WMS21	DoC
3	(USB) Printer	EPSON	STYLUS C61	DoC
4	iPod Nano	Apple	A1199	DoC
5	Identity Badge	-	-	-
6	SD Card (Insert into EUT)	Transcend	4GB	N/A
7	Wireless AP (Remote Workstation)	ZO TECH	WR110B	DoC
8	Bluetooth Headset (Remote Workstation)	SONY	Z354	DoC

Support Equipment- Radiated Emission Test				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Keyboard (Client Provide)	SONY	VGP-WKB15	DoC
2	Mouse (Client Provide)	SONY	VGP-WMS21	DoC
3	(USB) Printer	EPSON	C61	DoC
4	iPod Nano	Apple	A1199	DoC
5	Identity Badge	-	-	-
6	SD Card (Insert into EUT)	Transcend	4GB	N/A

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 644545 D01
- ◆ FCC KDB 644545 D02
- ◆ FCC KDB 662911
- ◆ FCC KDB 412172

1.5 Testing Location Information

Testing Location				
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st 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
AC Conduction	CO04-HY	Zeus	22.1°C / 54%	Jul. 24, 2013
RF Conducted	TH06-HY	Shiming	22.1°C / 61%	Jul. 10, 2013 ~Jul. 17, 2013
Radiated Emission	03CH03-HY	Daniel	25°C / 56%	Jul. 02, 2013~ Jul. 28, 2013
DFS Site	DF01-HY	Ben	22.3°C / 62%	Jun. 16, 2013

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			
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS
VHT20,M0-8	1	M0-8	M0
VHT40,M0-9	1	M0-9	M0
VHT80,M0-9	1	M0-9	M0
VHT20,M0-8	2	M0-8	M0
VHT40,M0-9	2	M0-9	M0
VHT80,M0-9	2	M0-9	M0

2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (5150-5250MHz band)							
Test Software Version	DRTU_1.6.3-704						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		NCB: 80MHz
		5180	5200	5240	5190	5230	5210
VHT20,M0-8	1	30	30	30	-	-	-
VHT40,M0-9	1	-	-	-	25	30.5	-
VHT80,M0-9	1	-	-	-	-	-	22
VHT20,M0-8	2	26.5/27.5	27/28	26.5/27.5	-	-	-
VHT40,M0-9	2	-	-	-	25.5/26.5	25.5/26.5	-
VHT80,M0-9	2	-	-	-	-	-	20/21

The Worst Case Power Setting Parameter (5250-5350MHz band)							
Test Software Version	DRTU_1.6.3-704						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		NCB: 80MHz
		5260	5300	5320	5270	5310	5290
VHT20,M0-8	1	30	30	30	-	-	-
VHT40,M0-9	1	-	-	-	26	26.5	-
VHT80,M0-9	1	-	-	-	-	-	26.5
VHT20,M0-8	2	27/28	27/28	27.5/28	-	-	-
VHT40,M0-9	2	-	-	-	21.5/22.5	22/23	-
VHT80,M0-9	2	-	-	-	-	-	23/24

The Worst Case Power Setting Parameter (5470-5725MHz band)									
Test Software Version	DRTU_1.6.3-704								
Modulation Mode	N _{TX}	Test Frequency (MHz)							
		NCB: 20MHz			NCB: 40MHz			NCB: 80MHz	
		5500	5580	5700	5510	5550	5670	5530	5610
VHT20,M0-8	1	31.5	31.5	29	-	-	-	-	-
VHT40,M0-9	1	-	-	-	26	31.5	33	-	-
VHT80,M0-9	1	-	-	-	-	-	-	24	29
VHT20,M0-8	2	30/30	31/31	30/30	-	-	-	-	-
VHT40,M0-9	2	-	-	-	27.5/27.5	31.5/31.5	32.5/32.5	-	-
VHT80,M0-9	2	-	-	-	-	-	-	25/25	31.5/31.5

The Worst Case Power Setting Parameter (5470-5725MHz band)				
Test Software Version	DRTU_1.6.3-704			
Modulation Mode	N _{TX}	Test Frequency (MHz)		
		NCB: 20MHz	NCB: 40MHz	NCB: 80MHz
		5720	5710	5690
VHT20,M0-8	1	34	-	-
VHT40,M0-9	1	-	32	-
VHT80,M0-9	1	-	-	30
VHT20,M0-8	2	29/29	-	-
VHT40,M0-9	2	-	29/29	-
VHT80,M0-9	2	-	-	27/27

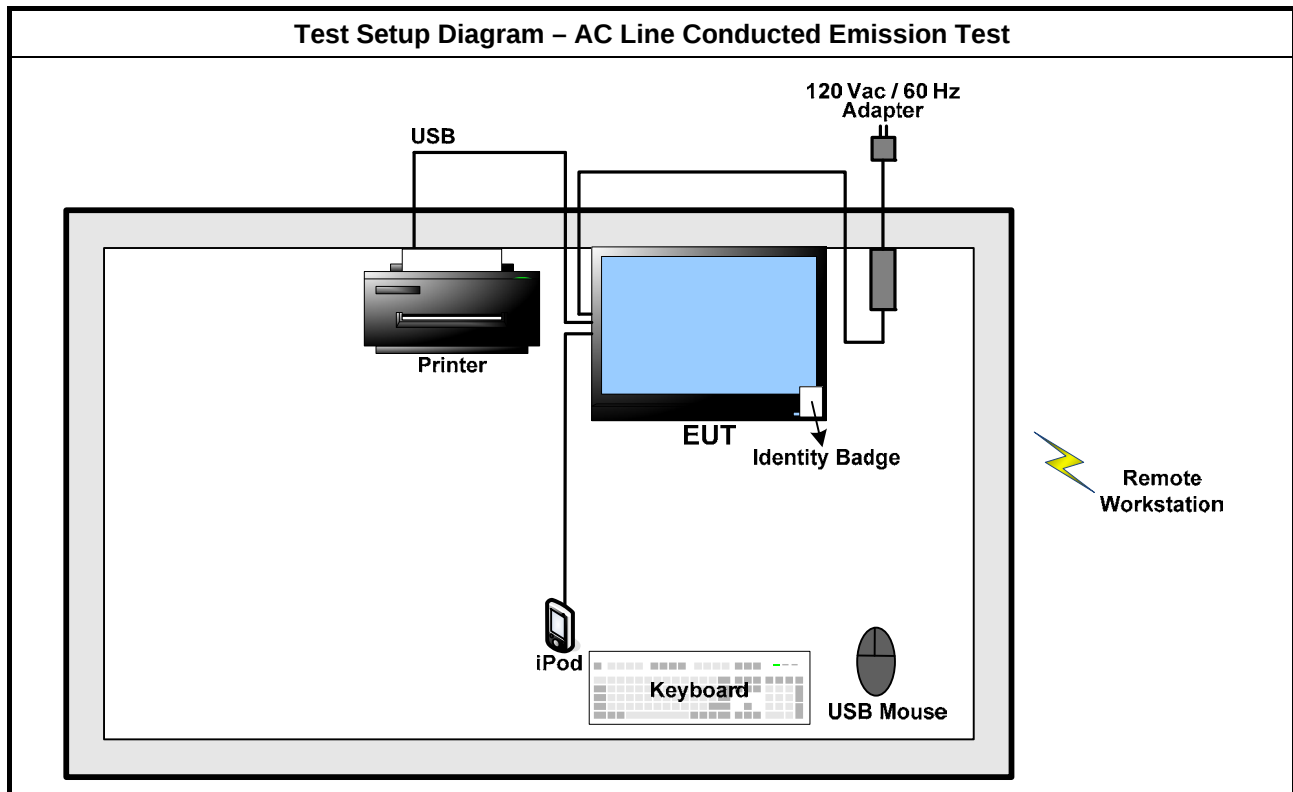
2.3 The Worst Case Measurement Configuration

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, Transmitter Conducted Unwanted Emissions Transmitter Conducted Bandedge Emissions
Test Condition	Conducted measurement at transmit chains
Modulation Mode	VHT20, VHT40, VHT80

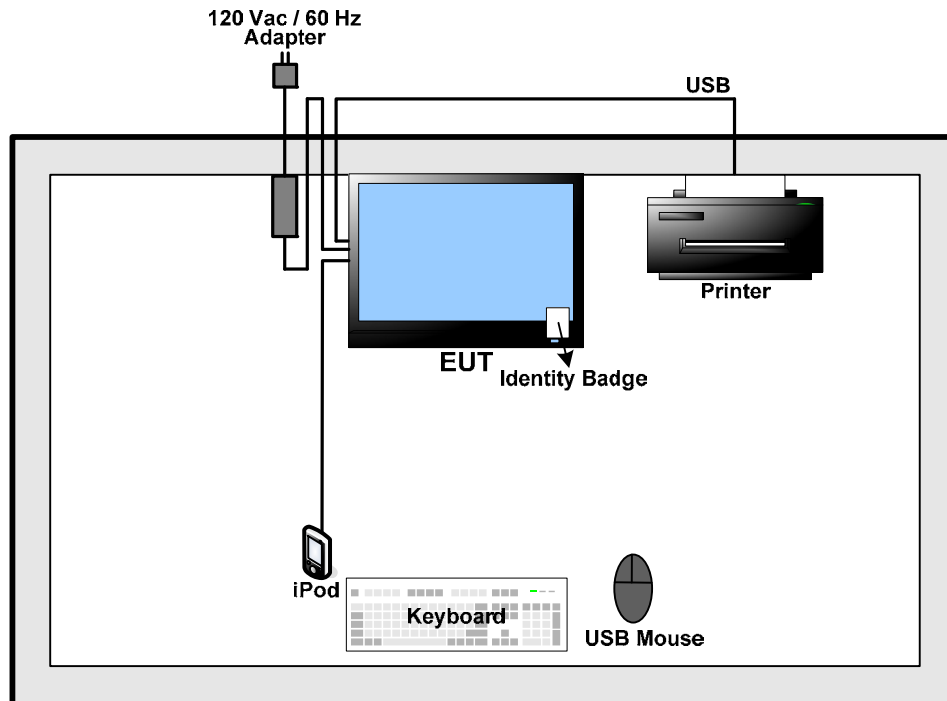
The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO 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.		
	☐ 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	VHT20, VHT40, VHT80		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

2.4 Test Setup Diagram



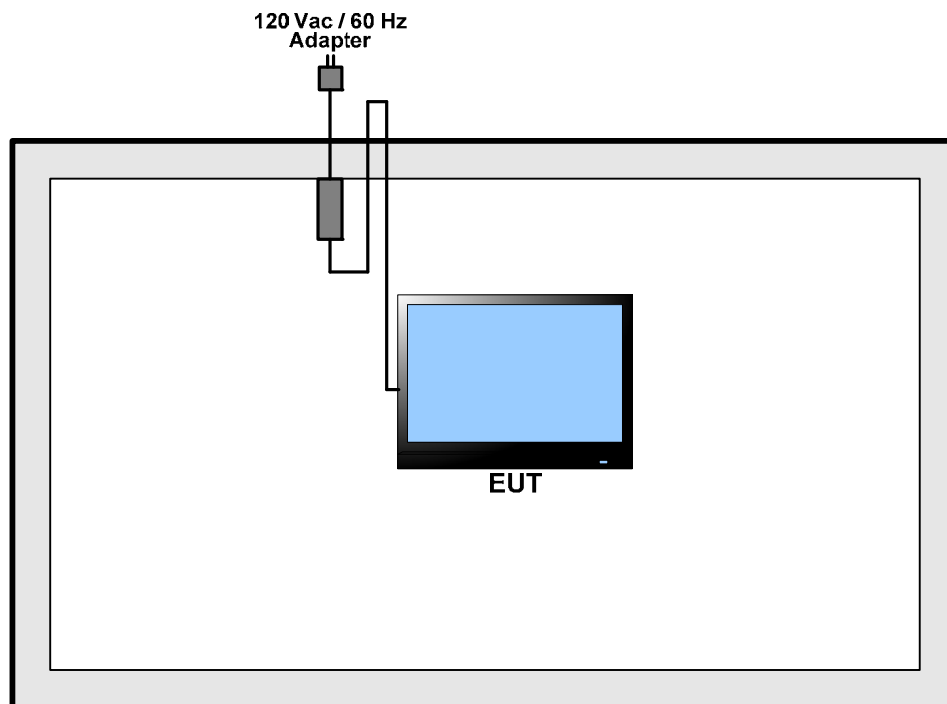
Test Setup Diagram - Radiated Below 1GHz Test

Operating Mode 1 | **AC Power & Radio link (WLAN)**



Test Setup Diagram - Radiated Above 1GHz Test

Operating Mode 1 | **AC Power & Continuous Transmitting**



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

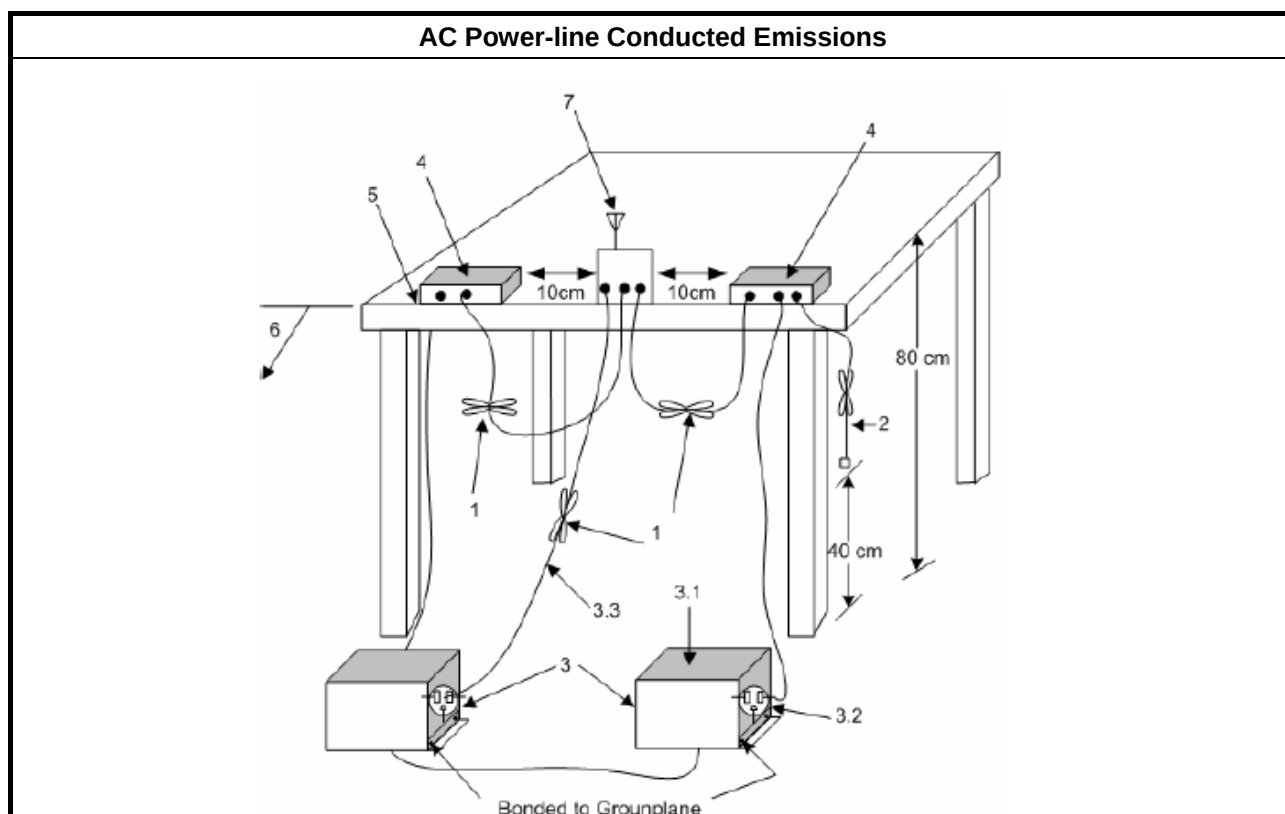
3.1.2 Measuring Instruments

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

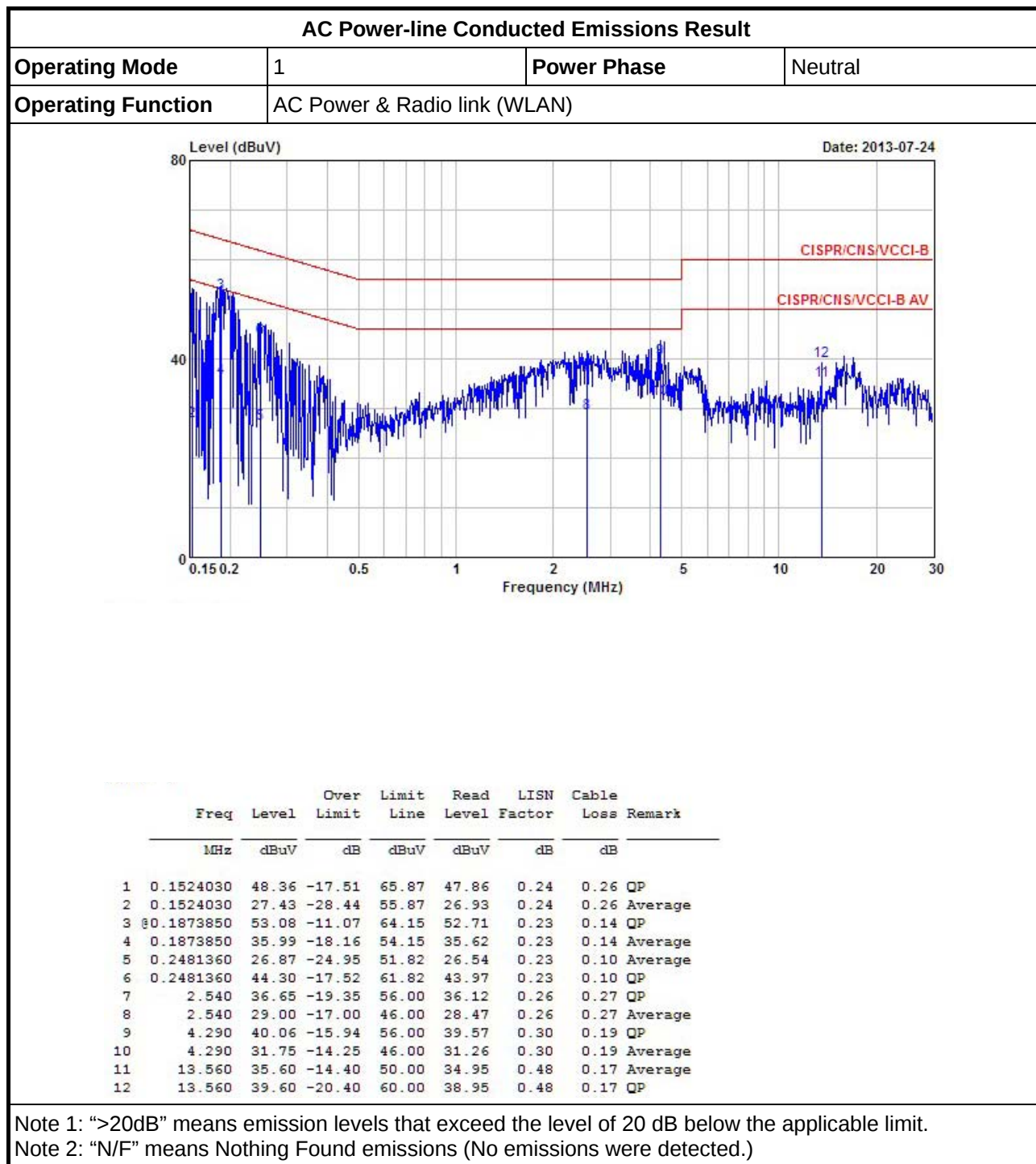
3.1.3 Test Procedures

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

3.1.4 Test Setup

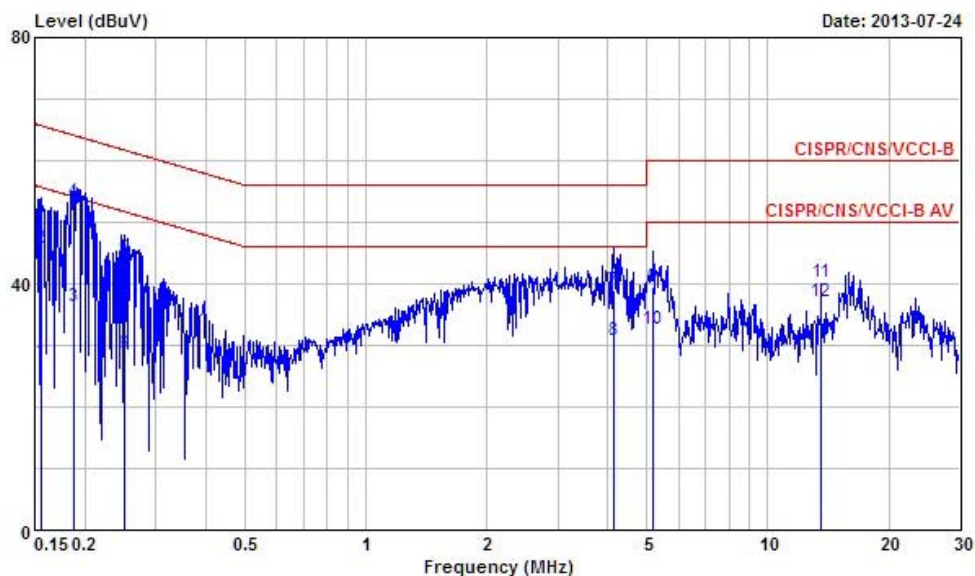


3.1.5 Test Result of AC Power-line Conducted Emissions



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	27.30	-28.39	55.69	26.94	0.11	0.25	Average
2	0.1556680	45.87	-19.82	65.69	45.51	0.11	0.25	QP
3	0.1873850	36.30	-17.85	54.15	36.05	0.11	0.14	Average
4	0.1873850	53.30	-10.85	64.15	53.05	0.11	0.14	QP
5	0.2507790	44.33	-17.40	61.73	44.12	0.11	0.10	QP
6	0.2507790	28.69	-23.04	51.73	28.48	0.11	0.10	Average
7	4.140	38.89	-17.11	56.00	38.54	0.15	0.20	QP
8	4.140	30.91	-15.09	46.00	30.56	0.15	0.20	Average
9	5.190	39.43	-20.57	60.00	39.08	0.18	0.17	QP
10	5.190	32.58	-17.42	50.00	32.23	0.18	0.17	Average
11	13.560	40.34	-19.66	60.00	39.90	0.27	0.17	QP
12	13.560	37.18	-12.82	50.00	36.74	0.27	0.17	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.)

3.2 Emission Bandwidth

3.2.1 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 $4 \text{ dBm} + 10 \log B$, 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 $11 \text{ dBm} + 10 \log B$, 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 $11 \text{ dBm} + 10 \log B$, 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 $17 \text{ dBm} + 10 \log B$, 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.

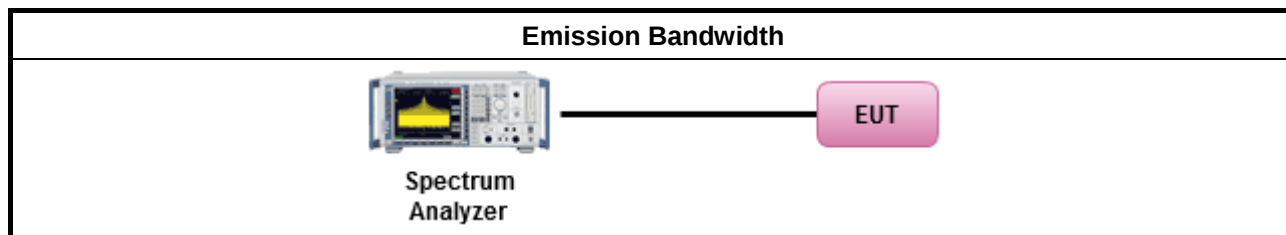
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
☒	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW 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.

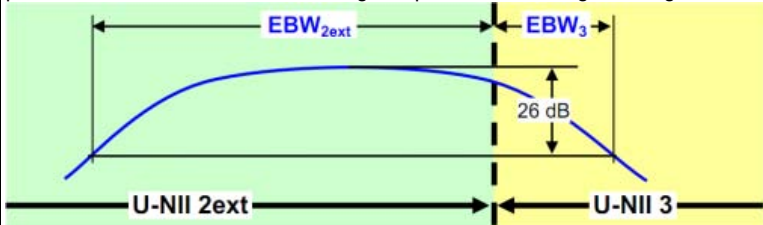
3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

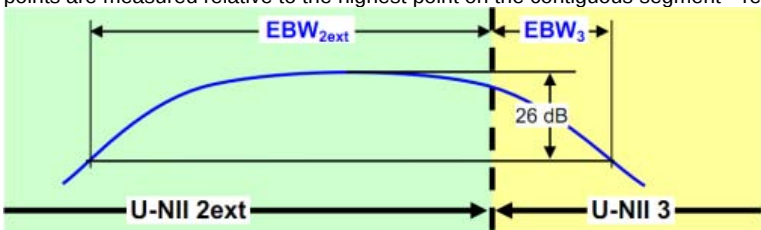
UNII Emission Bandwidth Result (5150-5250MHz band)								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth		26dB Bandwidth		Power Limit	
			Chain- Port 1	Chain- Port 2	Chain- Port 1	Chain- Port 2	99% BW	26dB BW
VHT20,M0	1	5180	17.91	-	23.50	-	16.53	17.71
VHT20,M0	1	5200	17.97	-	21.81	-	16.55	17.39
VHT20,M0	1	5240	18.15	-	22.57	-	16.59	17.54
VHT40,M0	1	5190	36.14	-	45.04	-	19.58	20.54
VHT40,M0	1	5230	36.14	-	43.48	-	19.58	20.38
VHT80,M0	1	5210	74.84	-	80.40	-	22.74	23.05
VHT20,M0	2	5180	18.05	17.76	25.56	21.60	16.49	17.34
VHT20,M0	2	5200	17.64	17.79	20.20	20.88	16.46	17.05
VHT20,M0	2	5240	17.69	17.99	22.02	23.29	16.48	17.43
VHT40,M0	2	5190	36.06	36.02	43.40	41.64	19.57	20.20
VHT40,M0	2	5230	36.14	36.06	43.48	42.36	19.57	20.27
VHT80,M0	2	5210	74.84	74.76	80.16	79.76	22.74	23.02
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 1	Chain- Port 2	99% BW	26dB BW
VHT20,M0	1	5260	18.14	-	22.90	-	20.59	21.60
VHT20,M0	1	5300	17.75	-	21.76	-	20.49	21.38
VHT20,M0	1	5320	17.85	-	22.30	-	20.52	21.48
VHT40,M0	1	5270	36.06	-	41.64	-	23.57	24.20
VHT40,M0	1	5310	36.10	-	41.48	-	23.58	24.18
VHT80,M0	1	5290	74.84	-	80.32	-	26.74	27.05
VHT20,M0	2	5260	17.73	17.85	21.39	22.35	20.49	21.30
VHT20,M0	2	5300	17.85	17.91	21.19	21.69	20.52	21.26
VHT20,M0	2	5320	17.91	18.00	22.03	21.90	20.53	21.40
VHT40,M0	2	5270	36.06	36.02	41.20	42.48	23.57	24.15
VHT40,M0	2	5310	36.10	35.98	42.88	41.44	23.56	24.17
VHT80,M0	2	5290	74.52	74.92	79.84	79.76	26.72	27.02
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 1	Chain- Port 2	99% BW	26dB BW
VHT20,M0	1	5500	18.14	-	24.78	-	20.59	21.94
VHT20,M0	1	5580	17.88	-	23.44	-	20.52	21.70
VHT20,M0	1	5700	17.84	-	25.03	-	20.51	21.98
VHT40,M0	1	5510	36.18	-	45.00	-	23.58	24.53
VHT40,M0	1	5550	36.22	-	43.92	-	23.59	24.43
VHT40,M0	1	5670	36.18	-	44.56	-	23.58	24.49
VHT80,M0	1	5530	74.84	-	79.92	-	26.74	27.03
VHT80,M0	1	5610	74.76	-	80.32	-	26.74	27.05
VHT20,M0	2	5500	17.96	17.99	23.23	21.48	20.59	21.32
VHT20,M0	2	5580	17.85	17.72	22.54	21.54	20.52	21.33
VHT20,M0	2	5700	18.02	17.72	21.88	22.35	20.51	21.40
VHT40,M0	2	5510	36.18	36.02	44.60	43.00	23.58	24.33
VHT40,M0	2	5550	36.18	36.14	41.92	42.36	23.59	24.22
VHT40,M0	2	5670	36.06	36.06	41.36	41.48	23.58	24.17
VHT80,M0	2	5530	74.92	74.84	80.32	79.76	26.74	27.02
VHT80,M0	2	5610	74.84	75.00	80.80	79.76	26.74	27.02
Result			Complied					
* = Band-crossing channel. For an emission that crosses the boundary between two adjacent U-NII bands, the boundary frequency between the bands serves as one edge for defining the portion of the EBW that falls within a particular U-NII band; however, the -26 dB points are measured relative to the highest point on the contiguous segment—regardless of which band contains that highest point. 								

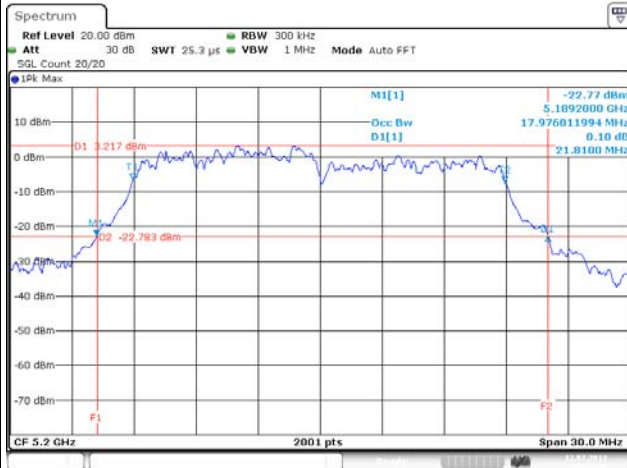
UNII Emission Bandwidth Result (Straddle 5725 MHz band)								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth		26dB Bandwidth		Power Limit	
			Chain- Port 1	Chain- Port 2	Chain- Port 1	Chain- Port 2	99% BW	26dB BW
VHT20,M0	1	5720*	18.08	-	24.79	-	29.57	30.94
VHT40,M0	1	5710*	36.18	-	44.52	-	32.58	33.49
VHT80,M0	1	5690*	75.00	-	80.08	-	35.75	36.04
VHT20,M0	2	5720*	17.84	17.84	23.35	21.97	29.51	30.42
VHT40,M0	2	5710*	36.10	36.02	42.52	42.44	32.57	33.28
VHT80,M0	2	5690*	74.68	75.08	80.40	79.68	35.73	36.01
Result			Complied					

* = Band-crossing channel. For an emission that crosses the boundary between two adjacent U-NII bands, the boundary frequency between the bands serves as one edge for defining the portion of the EBW that falls within a particular U-NII band; however, the -26 dB points are measured relative to the highest point on the contiguous segment—regardless of which band contains that highest point.



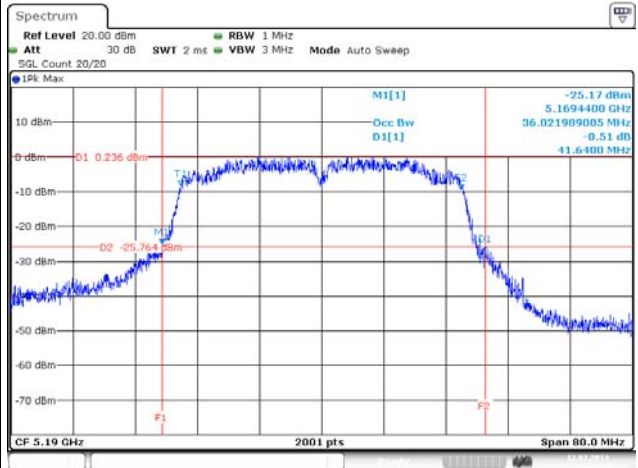
5150-5250MHz - Worst Emission Bandwidth Plots

VHT20



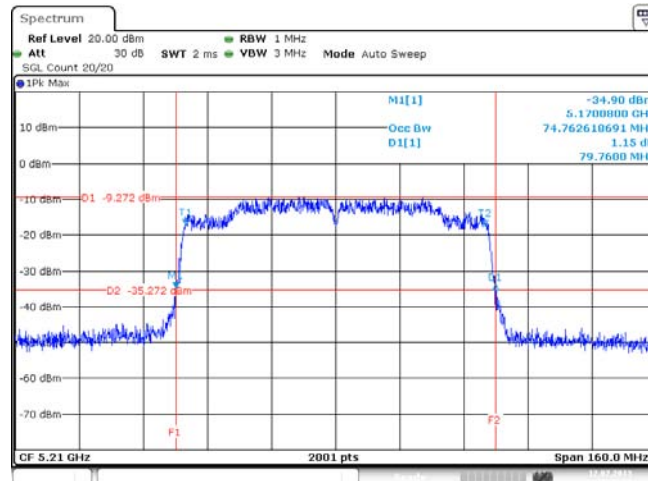
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VHT40



Date: 12.JUL.2013 11:17:31

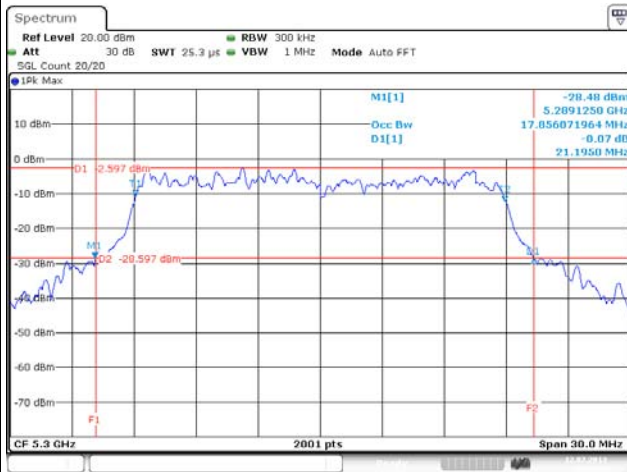
VHT80



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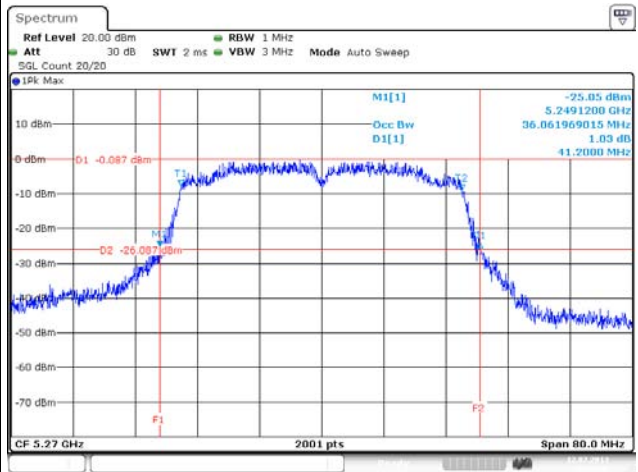
5250-5350MHz - Worst Emission Bandwidth Plots

VHT20



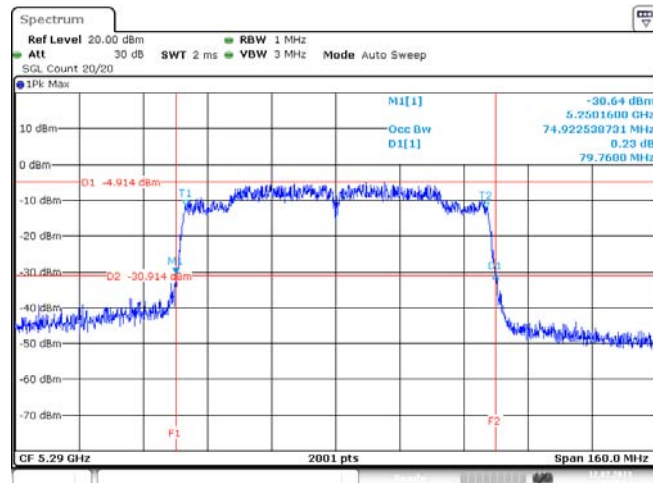
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VHT40



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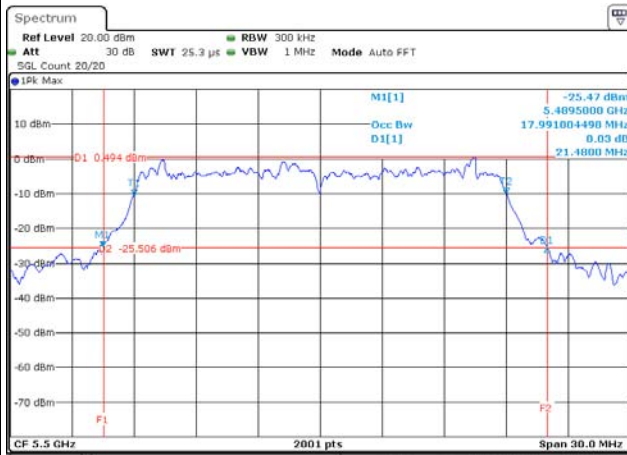
VHT80



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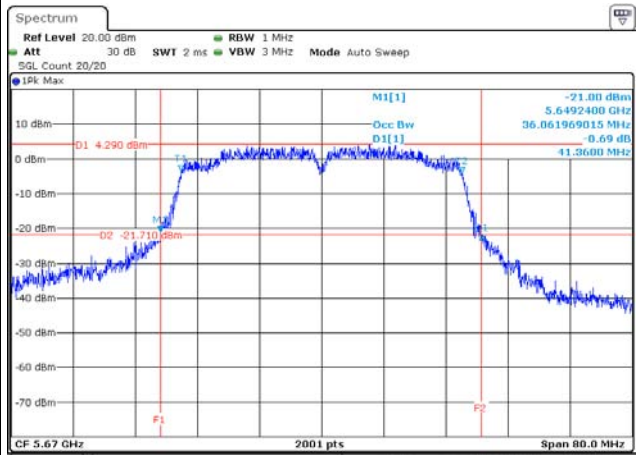
5470-5725MHz - Worst Emission Bandwidth Plots

VHT20



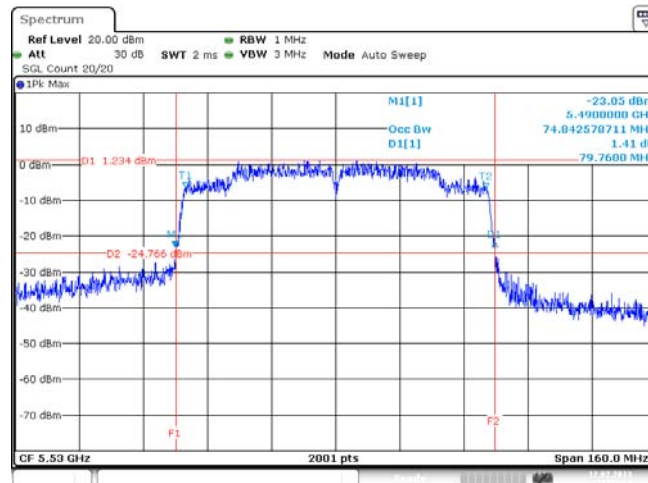
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VHT40



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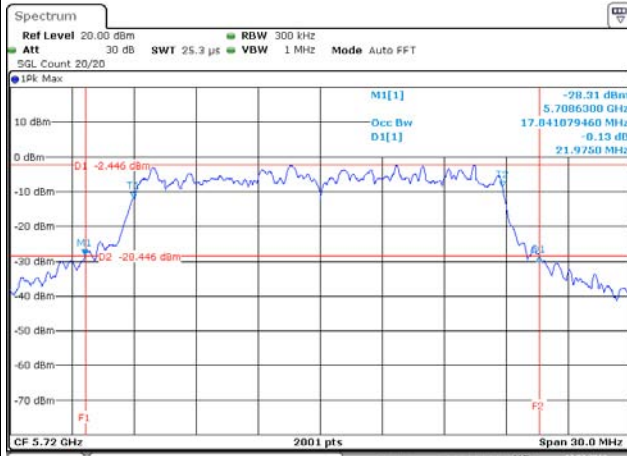
VHT80



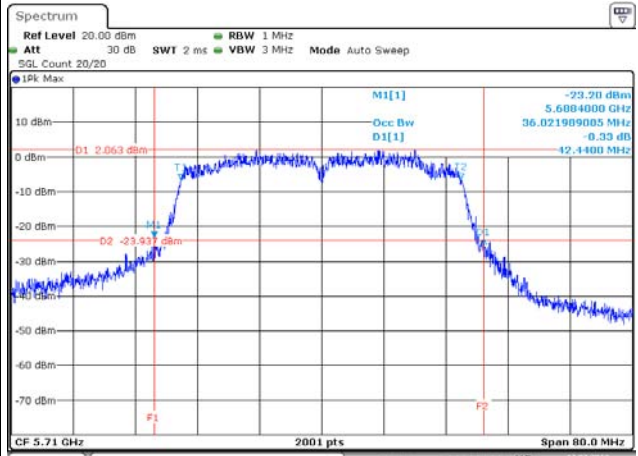
Date: 12.JUL.2013 11:52:23

Straddle 5725 MHz - Worst Emission Bandwidth Plots

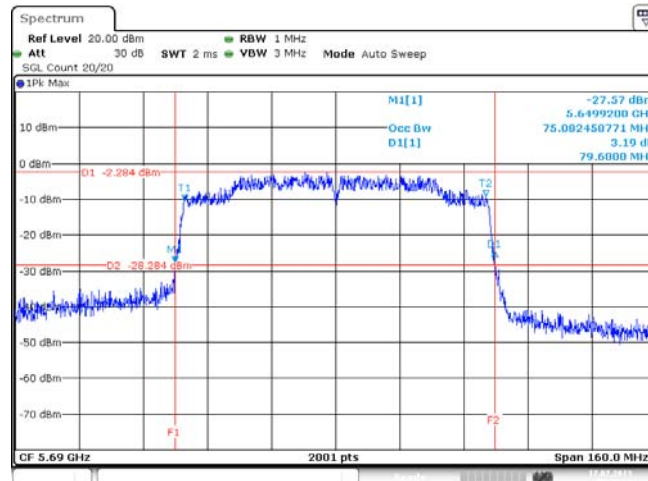
VHT20



VHT40



VHT80



3.3 RF Output Power

3.3.1 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 $4 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, 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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, 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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, 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 $17 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, 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 $17 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 23 \text{ dBi}$, 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. $> 36 \text{ dBm}$, $G_{TX} \leq P_{Out}$
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

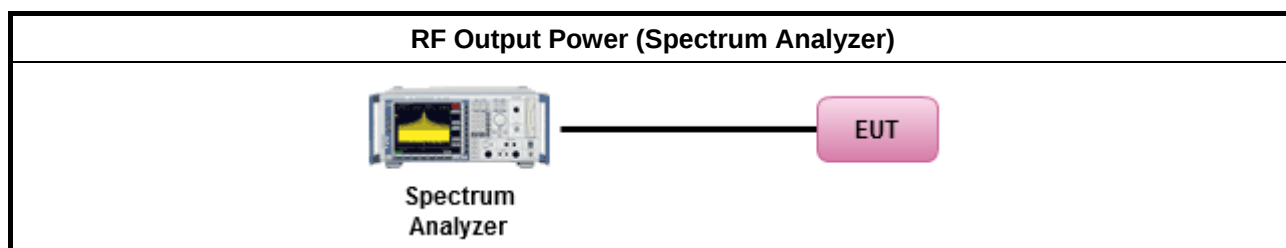
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
☒	Maximum Conducted Output Power
	[duty cycle $\geq 98\%$ or external video / power trigger]
☒	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E 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 E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E 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 E 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: $P_{\text{total}} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$

3.3.4 Test Setup



3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		-5.42	-5.42	-	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS} (Min.)	STBC	Array Gain (dB)
VHT20,M0-8	-5.42	1	1	-	-
VHT40,M0-9	-5.42	1	1	-	-
VHT80,M0-9	-5.42	1	1	-	-
VHT20,M0-8	-5.42	2	2	-	-
VHT40,M0-9	-5.42	2	2	-	-
VHT80,M0-9	-5.42	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 = $10 \log[(10^{G_{1/20}} + \dots + 10^{G_{N/20}})^2 / N_{TX}]$ All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G_{1/10}} + \dots + 10^{G_{N/10}}) / N_{TX}]$ Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$, where N_{SS} = the number of independent spatial streams data. Note 4: For CDD transmissions, directional gain is calculated as power measurements: Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, 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};					

3.3.6 Test Result of Maximum Conducted (Average) Output Power

Maximum Conducted (Average) Output Power (5150-5250MHz band)									
Condition			RF Output Power (dBm)						
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5180	15.02	-	15.02	17.0	-5.42	9.60	22.53
VHT20,M0	1	5200	15.16	-	15.16	17.0	-5.42	9.74	22.55
VHT20,M0	1	5240	15.33	-	15.33	17.0	-5.42	9.91	22.59
VHT40,M0	1	5190	11.33	-	11.33	17.0	-5.42	5.91	23.00
VHT40,M0	1	5230	15.24	-	15.24	17.0	-5.42	9.82	23.00
VHT80,M0	1	5210	8.11	-	8.11	17.0	-5.42	2.69	23.00
VHT20,M0	2	5180	10.36	10.30	13.34	17.0	-5.42	7.92	22.49
VHT20,M0	2	5200	10.11	10.03	13.08	17.0	-5.42	7.66	22.46
VHT20,M0	2	5240	10.24	10.19	13.23	17.0	-5.42	7.81	22.48
VHT40,M0	2	5190	10.13	10.16	13.16	17.0	-5.42	7.74	23.00
VHT40,M0	2	5230	9.67	9.51	12.60	17.0	-5.42	7.18	23.00
VHT80,M0	2	5210	3.48	3.52	6.51	17.0	-5.42	1.09	23.00
Result			Complied						

Maximum Conducted (Average) Output Power (5250-5350MHz band)									
Condition			RF Output Power (dBm)						
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5260	15.50	-	15.50	21.60	-5.42	10.08	26.59
VHT20,M0	1	5300	15.57	-	15.57	21.38	-5.42	10.15	26.49
VHT20,M0	1	5320	15.03	-	15.03	21.48	-5.42	9.61	26.52
VHT40,M0	1	5270	11.49	-	11.49	24.00	-5.42	6.07	27.00
VHT40,M0	1	5310	11.23	-	11.23	24.00	-5.42	5.81	27.00
VHT80,M0	1	5290	10.90	-	10.90	24.00	-5.42	5.48	27.00
VHT20,M0	2	5260	10.54	10.57	13.57	21.30	-5.42	8.15	26.49
VHT20,M0	2	5300	10.86	10.67	13.78	21.26	-5.42	8.36	26.52
VHT20,M0	2	5320	10.46	10.61	13.55	21.40	-5.42	8.13	26.53
VHT40,M0	2	5270	6.54	6.60	9.58	24.00	-5.42	4.16	27.00
VHT40,M0	2	5310	6.26	6.71	9.50	24.00	-5.42	4.08	27.00
VHT80,M0	2	5290	6.52	6.81	9.68	24.00	-5.42	4.26	27.00
Result			Complied						

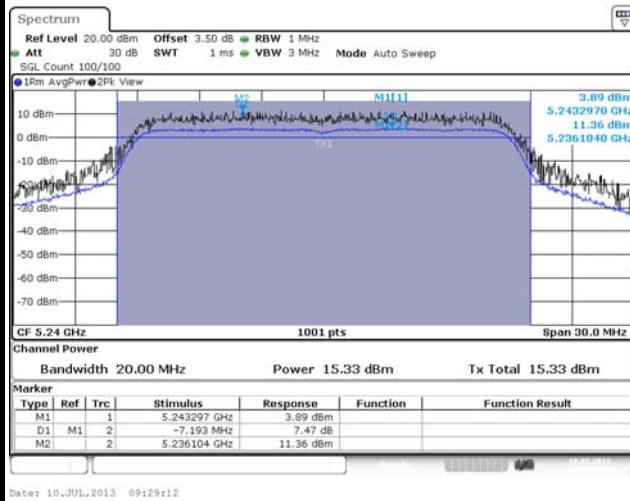
Maximum Conducted (Average) Output Power (Straddle 5725 MHz band)									
Condition			RF Output Power (dBm)						
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5500	16.57	-	16.57	21.00	-5.42	11.15	26.59
VHT20,M0	1	5580	16.32	-	16.32	21.00	-5.42	10.90	26.52
VHT20,M0	1	5700	15.21	-	15.21	21.00	-5.42	9.79	26.51
VHT20,M0	1	5720*	15.64	-	15.64	21.00	-5.42	10.22	26.57
VHT40,M0	1	5510	12.57	-	12.57	21.00	-5.42	7.15	27.00
VHT40,M0	1	5550	16.58	-	16.58	21.00	-5.42	11.16	27.00
VHT40,M0	1	5670	16.53	-	16.53	21.00	-5.42	11.11	27.00
VHT40,M0	1	5710*	15.50	-	15.50	21.00	-5.42	10.08	27.00
VHT80,M0	1	5530	10.60	-	10.60	21.00	-5.42	5.18	27.00
VHT80,M0	1	5610	13.37	-	13.37	21.00	-5.42	7.95	27.00
VHT80,M0	1	5690*	13.46	-	13.46	21.00	-5.42	8.04	27.00
VHT20,M0	2	5500	13.63	13.48	16.57	21.00	-5.42	11.15	26.54
VHT20,M0	2	5580	13.26	13.02	16.15	21.00	-5.42	10.73	26.48
VHT20,M0	2	5700	12.04	11.73	14.90	21.00	-5.42	9.48	26.48
VHT20,M0	2	5720*	9.86	9.71	12.80	21.00	-5.42	7.38	26.51
VHT40,M0	2	5510	12.18	11.89	15.05	21.00	-5.42	9.63	27.00
VHT40,M0	2	5550	13.90	13.77	16.85	21.00	-5.42	11.43	27.00
VHT40,M0	2	5670	13.54	13.65	16.61	21.00	-5.42	11.19	27.00
VHT40,M0	2	5710*	12.57	12.17	15.38	21.00	-5.42	9.96	27.00
VHT80,M0	2	5530	9.25	9.00	12.14	21.00	-5.42	6.72	27.00
VHT80,M0	2	5610	13.90	13.81	16.87	21.00	-5.42	11.45	27.00
VHT80,M0	2	5690*	9.68	9.45	12.58	21.00	-5.42	7.16	27.00
Result			Complied						
* = Band-crossing channel. The conducted output power within each band of operation shall comply with the limits for that band.									



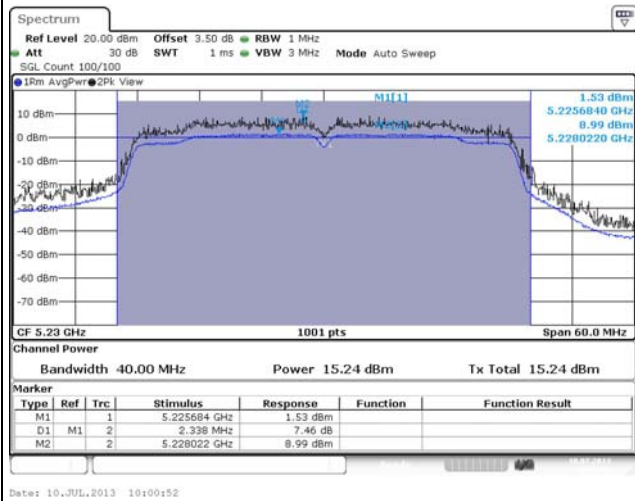
Maximum Conducted (Average) Output Power (Straddle 5725 MHz band)									
Condition			RF Output Power (dBm)						
Modulation Mode	N _{Tx}	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5720*	9.84	-	9.84	30.00	-5.42	4.42	35.57
VHT40,M0	1	5710*	2.35	-	2.35	30.00	-5.42	-3.07	36.00
VHT80,M0	1	5690*	-4.03	-	-4.03	30.00	-5.42	-9.45	36.00
VHT20,M0	2	5720*	4.42	4.46	7.45	30.00	-5.42	2.03	35.51
VHT40,M0	2	5710*	-1.89	-1.89	1.12	30.00	-5.42	-4.30	36.00
VHT80,M0	2	5690*	-8.06	-8.18	-5.11	30.00	-5.42	-10.53	36.00
Result			Complied						
* = Band-crossing channel. The conducted output power within each band of operation shall comply with the limits for that band.									

5150-5250MHz - Worst RF Output Power Plots

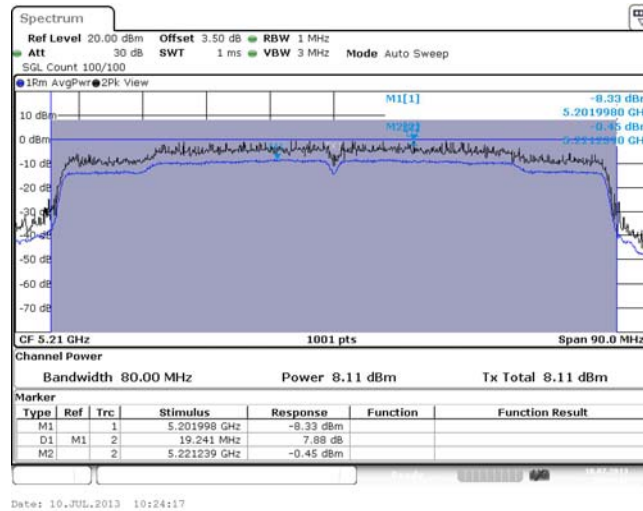
VHT20



VHT40

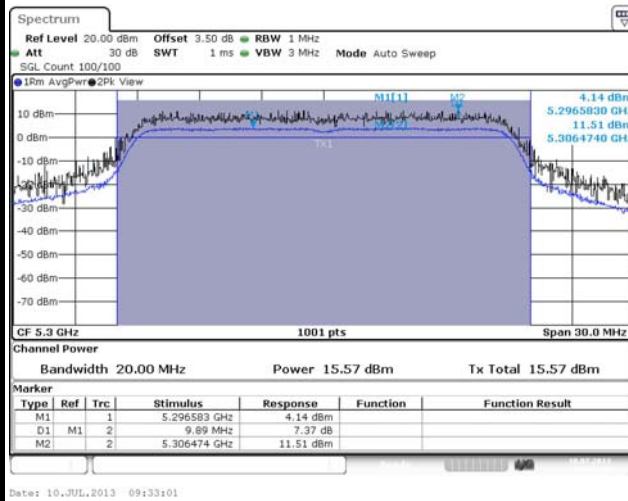


VHT80

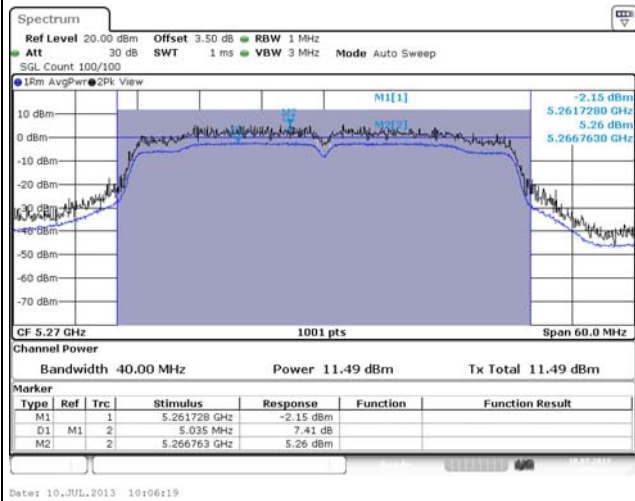


5250-5350MHz - Worst RF Output Power Plots

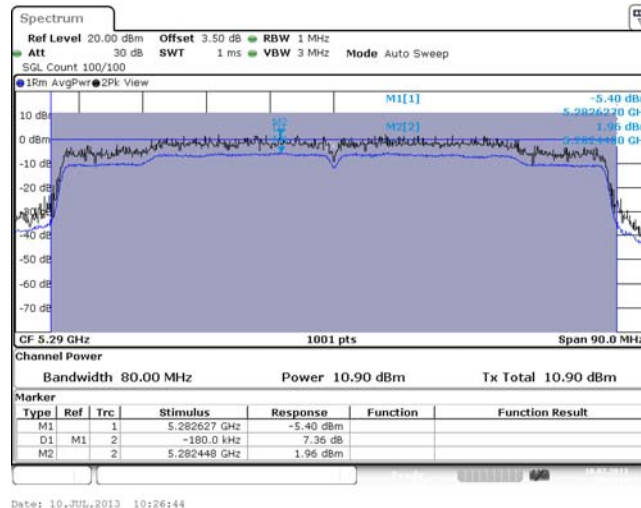
VHT20



VHT40

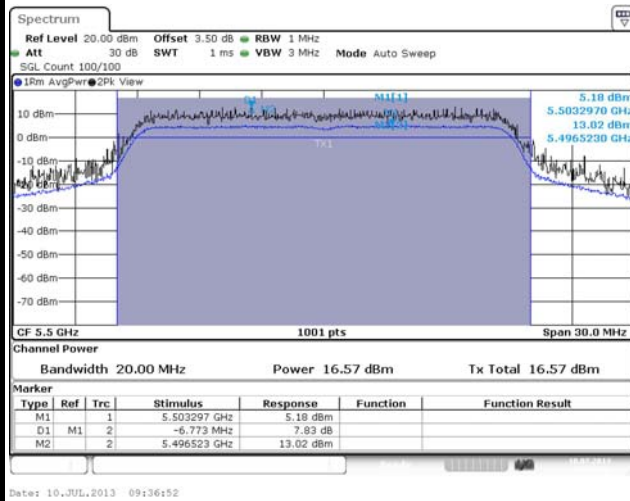


VHT80

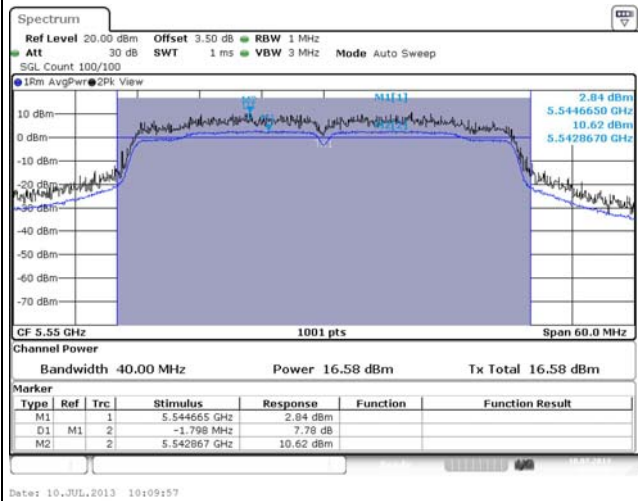


5470-5725MHz - Worst RF Output Power Plots

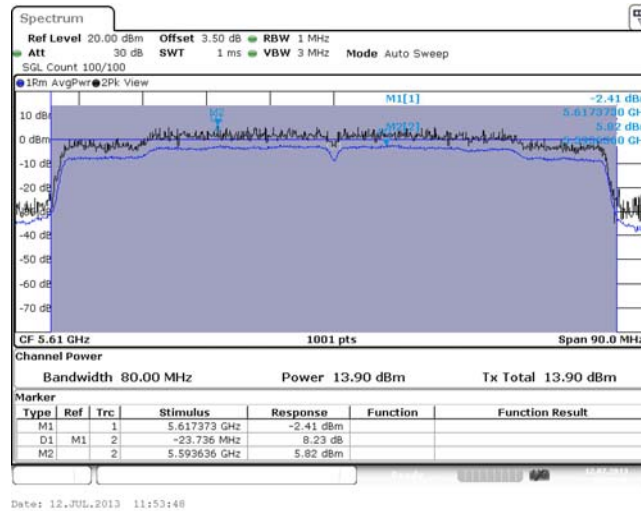
VHT20



VHT40



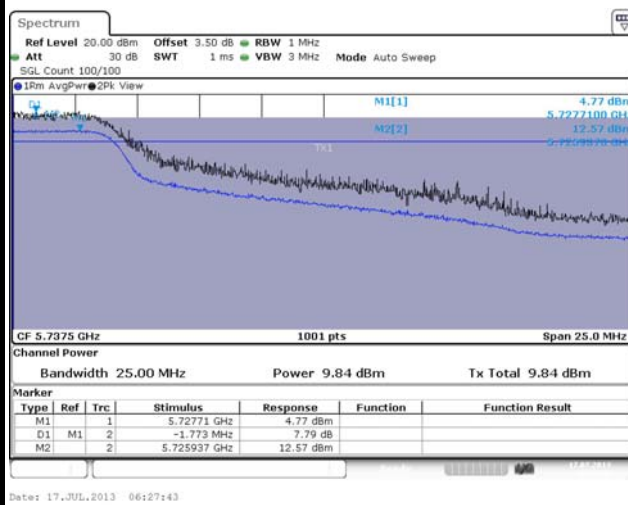
VHT80



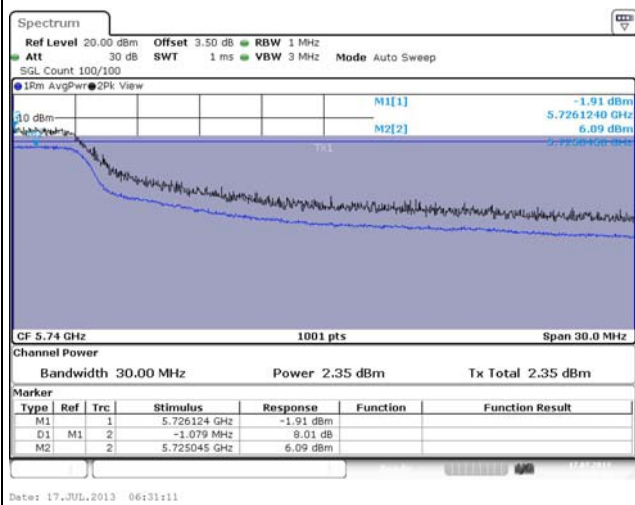


5725-5825MHz - Worst RF Output Power Plots

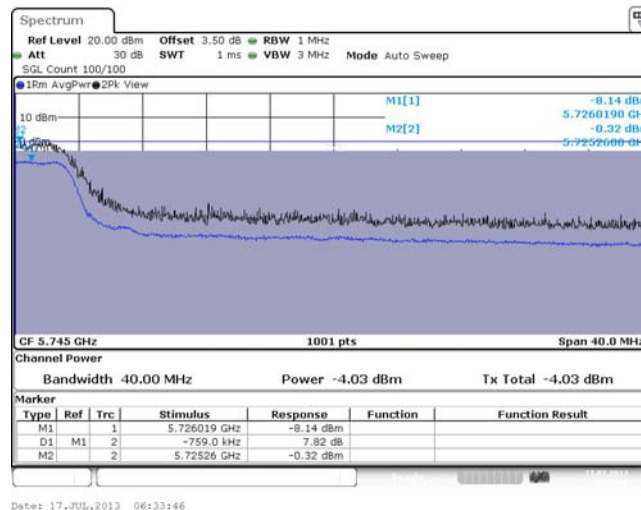
VHT20



VHT40



VHT80



3.4 Peak Power Spectral Density

3.4.1 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.	

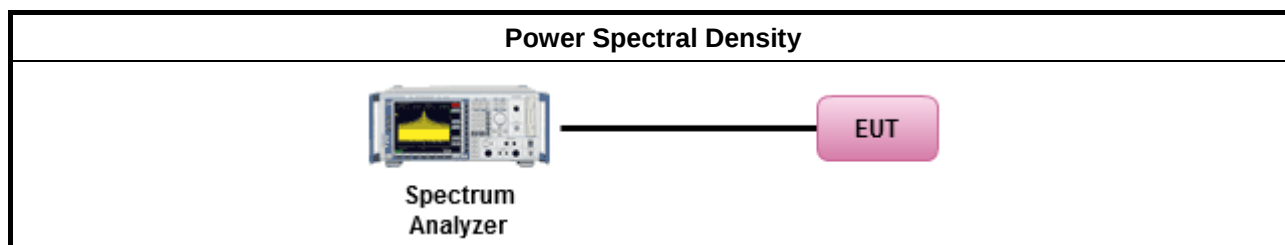
3.4.2 Measuring Instruments

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

3.4.3 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, F5) 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 E Method SA-1 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E 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 E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E 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: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (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.

3.4.4 Test Setup



3.4.5 Directional Gain for Power Spectral Density Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		-5.42	-5.42	-	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS} (Min.)	STBC	Array Gain (dB)
VHT20,M0-8	-5.42	1	1	-	-
VHT40,M0-9	-5.42	1	1	-	-
VHT80,M0-9	-5.42	1	1	-	-
VHT20,M0-8	-5.42	2	2	-	-
VHT40,M0-9	-5.42	2	2	-	-
VHT80,M0-9	-5.42	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 = $10 \log[(10^{G_{1/20}} + \dots + 10^{G_{N/20}})^2 / N_{TX}]$ All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G_{1/10}} + \dots + 10^{G_{N/10}}) / N_{TX}]$ Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$, where N_{SS} = the number of independent spatial streams data. Note 4: For CDD transmissions, directional gain is calculated as power spectral density measurements: Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows: Array Gain = $10 \log(N_{TX}/N_{SS})$;					

3.4.6 Test Result of Peak Power Spectral Density

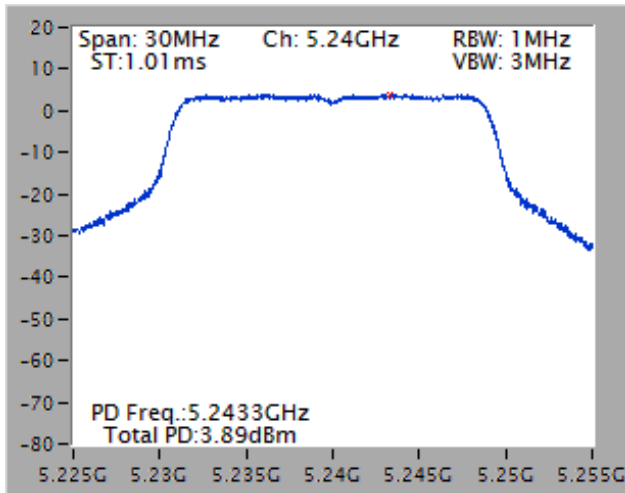
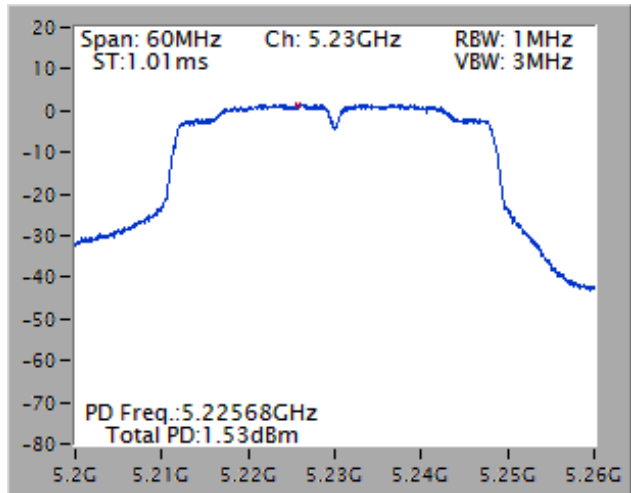
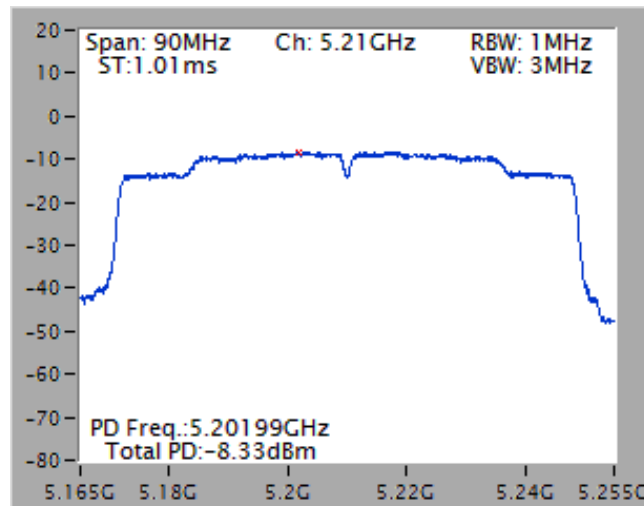
Peak Power Spectral Density Result (5150-5250MHz band)							
Condition			Peak Power Spectral Density (dBm/MHz)				
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
VHT20,M0	1	5180	3.71	4.00	-5.42	-1.71	10.00
VHT20,M0	1	5200	3.76	4.00	-5.42	-1.66	10.00
VHT20,M0	1	5240	3.89	4.00	-5.42	-1.53	10.00
VHT40,M0	1	5190	-2.41	4.00	-5.42	-7.83	10.00
VHT40,M0	1	5230	1.53	4.00	-5.42	-3.89	10.00
VHT80,M0	1	5210	-8.33	4.00	-5.42	-13.75	10.00
VHT20,M0	2	5180	1.86	4.00	-5.42	-3.56	10.00
VHT20,M0	2	5200	1.42	4.00	-5.42	-4.00	10.00
VHT20,M0	2	5240	1.67	4.00	-5.42	-3.75	10.00
VHT40,M0	2	5190	-0.59	4.00	-5.42	-6.01	10.00
VHT40,M0	2	5230	-1.26	4.00	-5.42	-6.68	10.00
VHT80,M0	2	5210	-9.92	4.00	-5.42	-15.34	10.00
Result			Complied				

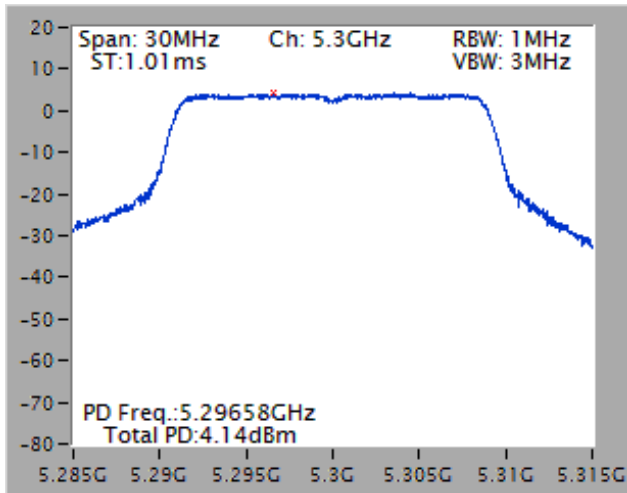
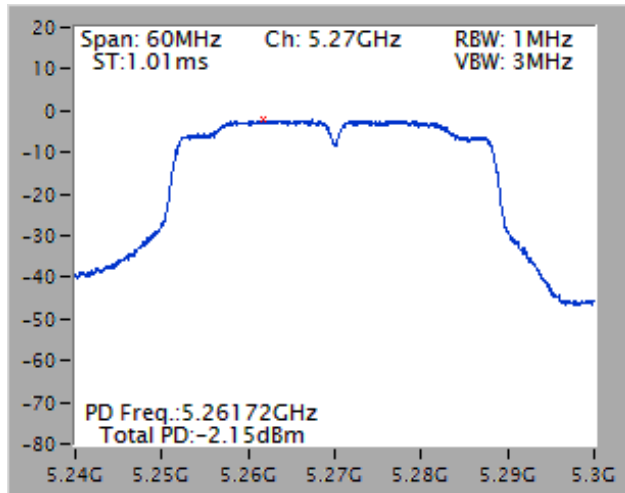
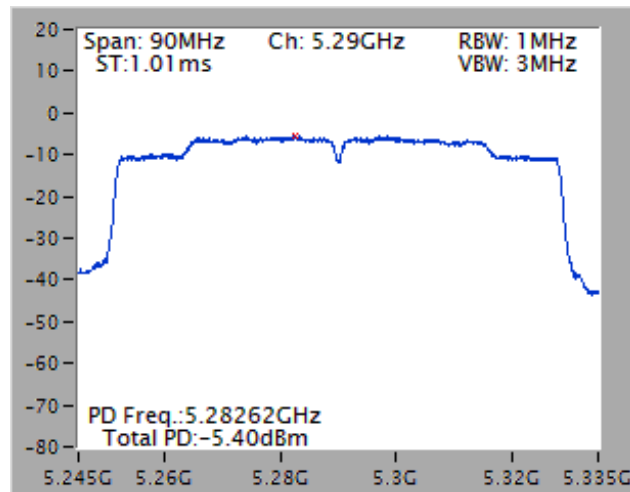
Peak Power Spectral Density Result (5250-5350MHz band)							
Condition			Peak Power Spectral Density (dBm/MHz)				
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
VHT20,M0	1	5260	4.06	11.00	-5.42	-1.36	17.00
VHT20,M0	1	5300	4.14	11.00	-5.42	-1.28	17.00
VHT20,M0	1	5320	3.75	11.00	-5.42	-1.67	17.00
VHT40,M0	1	5270	-2.15	11.00	-5.42	-7.57	17.00
VHT40,M0	1	5310	-2.41	11.00	-5.42	-7.83	17.00
VHT80,M0	1	5290	-5.40	11.00	-5.42	-10.82	17.00
VHT20,M0	2	5260	1.96	11.00	-5.42	-3.46	17.00
VHT20,M0	2	5300	2.34	11.00	-5.42	-3.08	17.00
VHT20,M0	2	5320	2.15	11.00	-5.42	-3.27	17.00
VHT40,M0	2	5270	-4.10	11.00	-5.42	-9.52	17.00
VHT40,M0	2	5310	-4.26	11.00	-5.42	-9.68	17.00
VHT80,M0	2	5290	-6.82	11.00	-5.42	-12.24	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)	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
VHT20,M0	1	5500	5.18	11.00	-5.42	-0.24	17.00
VHT20,M0	1	5580	4.96	11.00	-5.42	-0.46	17.00
VHT20,M0	1	5700	4.09	11.00	-5.42	-1.33	17.00
VHT20,M0	1	5720*	5.32	11.00	-5.42	-0.10	17.00
VHT40,M0	1	5510	-1.06	11.00	-5.42	-6.48	17.00
VHT40,M0	1	5550	2.84	11.00	-5.42	-2.58	17.00
VHT40,M0	1	5670	2.97	11.00	-5.42	-2.45	17.00
VHT40,M0	1	5710*	2.00	11.00	-5.42	-3.42	17.00
VHT80,M0	1	5530	-5.78	11.00	-5.42	-11.20	17.00
VHT80,M0	1	5610	-3.07	11.00	-5.42	-8.49	17.00
VHT80,M0	1	5690*	-2.60	11.00	-5.42	-8.02	17.00
VHT20,M0	2	5500	5.15	11.00	-5.42	-0.27	17.00
VHT20,M0	2	5580	4.70	11.00	-5.42	-0.72	17.00
VHT20,M0	2	5700	3.43	11.00	-5.42	-1.99	17.00
VHT20,M0	2	5720*	2.21	11.00	-5.42	-3.21	17.00
VHT40,M0	2	5510	1.27	11.00	-5.42	-4.15	17.00
VHT40,M0	2	5550	2.94	11.00	-5.42	-2.48	17.00
VHT40,M0	2	5670	2.95	11.00	-5.42	-2.47	17.00
VHT40,M0	2	5710*	1.82	11.00	-5.42	-3.60	17.00
VHT80,M0	2	5530	-4.24	11.00	-5.42	-9.66	17.00
VHT80,M0	2	5610	0.48	11.00	-5.42	-4.94	17.00
VHT80,M0	2	5690*	-3.56	11.00	-5.42	-8.98	17.00
Result			Complied				
* = Band-crossing channel. The PSD within each band of operation shall comply with the limits for that band.							



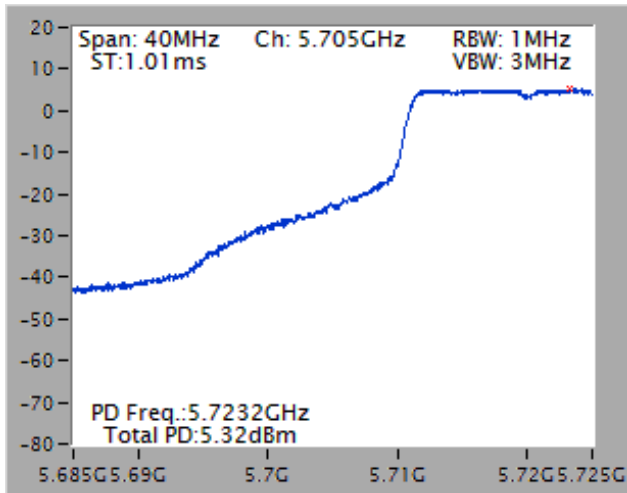
Peak Power Spectral Density Result (5725-5825MHz band)							
Condition			Peak Power Spectral Density (dBm/MHz)				
Modulation Mode	N _{Tx}	Freq. (MHz)	Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
VHT20,M0	1	5720*	4.77	17.00	-5.42	-0.65	23.00
VHT40,M0	1	5710*	-1.91	17.00	-5.42	-7.33	23.00
VHT80,M0	1	5690*	-8.14	17.00	-5.42	-13.56	23.00
VHT20,M0	2	5720*	2.46	17.00	-5.42	-2.96	23.00
VHT40,M0	2	5710*	-3.21	17.00	-5.42	-8.63	23.00
VHT80,M0	2	5690*	-9.67	17.00	-5.42	-15.09	23.00
Result			Complied				
* = Band-crossing channel. The PSD within each band of operation shall comply with the limits for that band.							

5150-5250MHz - Worst Power Spectral Density Plots
VHT20

VHT40

VHT80


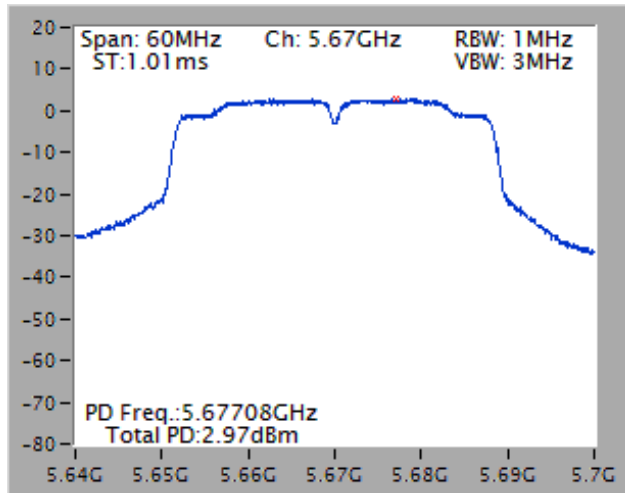
5250-5350MHz - Worst Power Spectral Density Plots
VHT20

VHT40

VHT80


5470-5725MHz - Worst Power Spectral Density Plots

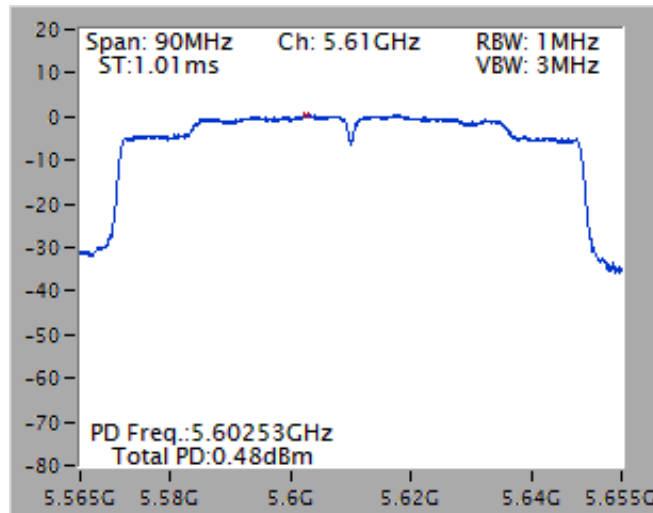
VHT20

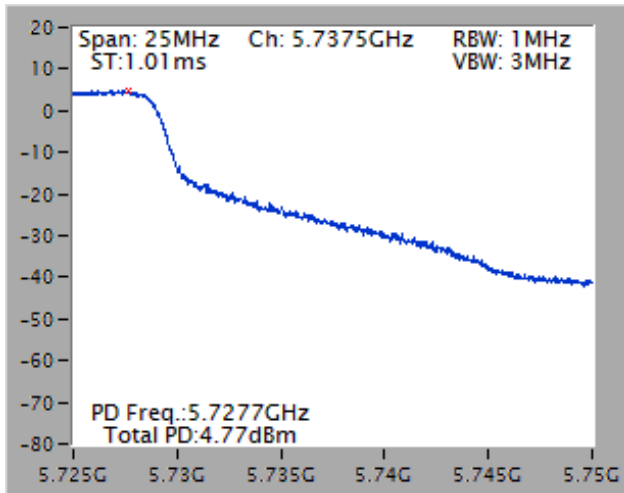
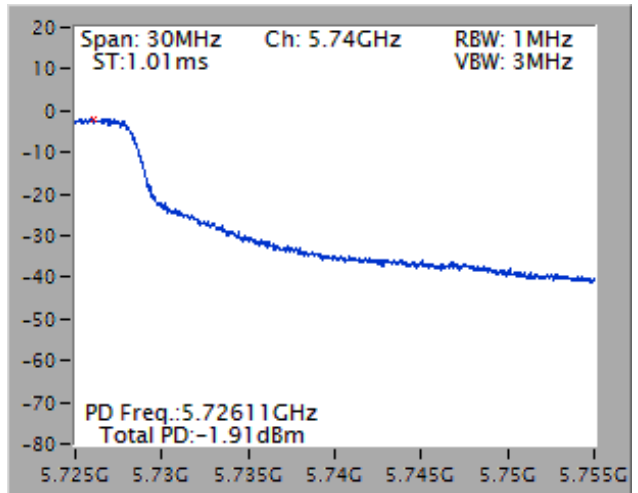
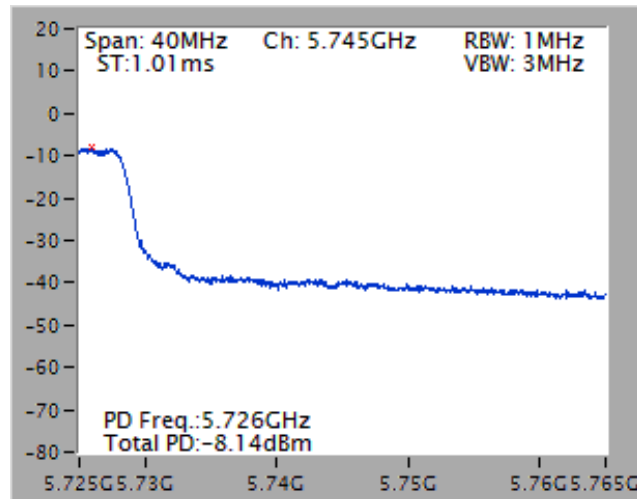


VHT40



VHT80



5725-5825MHz - Worst Power Spectral Density Plots
VHT20

VHT40

VHT80


3.5 Peak Excursion

3.5.1 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

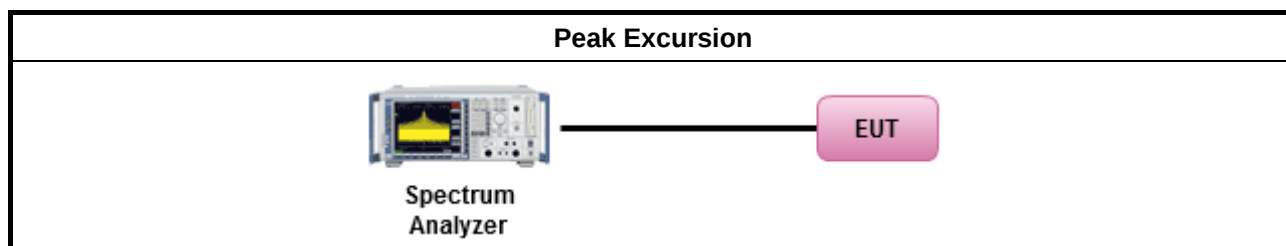
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
☒	Refer as FCC KDB 789033, clause G peak excursion method.
☒	Testing each modulation mode on a single channel is sufficient to demonstrate compliance with the peak excursion requirement
☒	For conducted measurement.
☐	☒ Testing a single output port is sufficient to demonstrate compliance with the peak excursion.

3.5.4 Test Setup

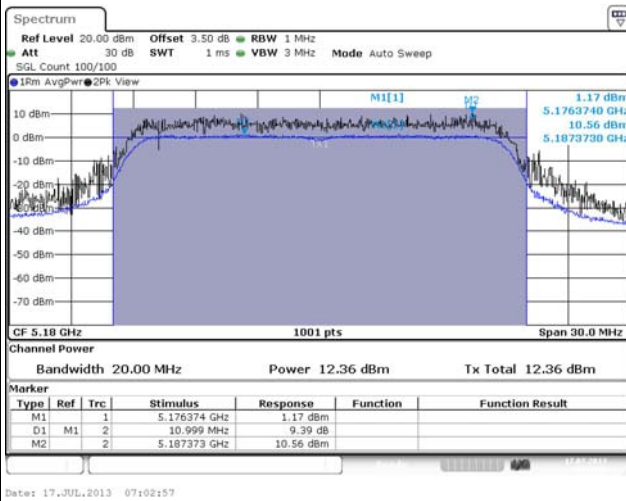


3.5.5 Test Result of Peak Excursion

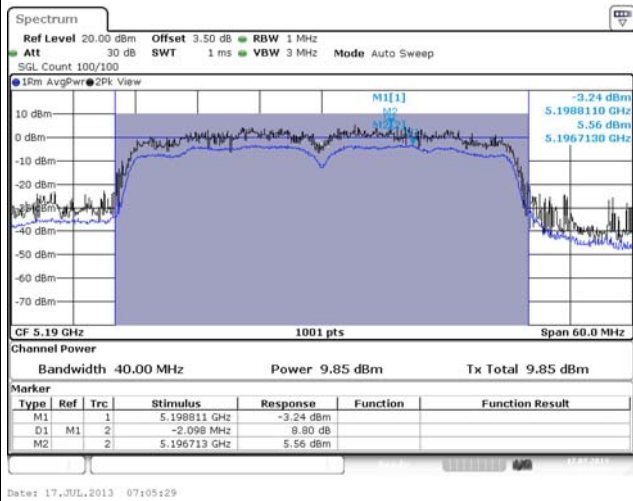
UNII Peak Excursion Result									
Condition			Peak Excursion (dB)						
Modulation Mode	N _{TX}	Freq. (MHz)	Duty Factor	BPSK	QPSK	16QAM	64QAM	256QAM	Limit
VHT20,M0	1	5180	0	8.18	8.86	7.96	8.65	7.75	13
VHT40,M0	1	5190	0	7.92	8.51	8.31	7.82	8.05	13
VHT80,M0	1	5190	0	7.88	8.04	8.12	7.92	8.80	13
VHT20,M0	2	5180	0	7.59	7.41	8.10	9.39	8.32	13
VHT40,M0	2	5190	0	8.65	7.68	7.73	8.06	8.80	13
VHT80,M0	2	5190	0	8.24	8.03	8.93	7.82	9.11	13
Result			Complied						

Peak Excursion Plots (w/o duty factor)

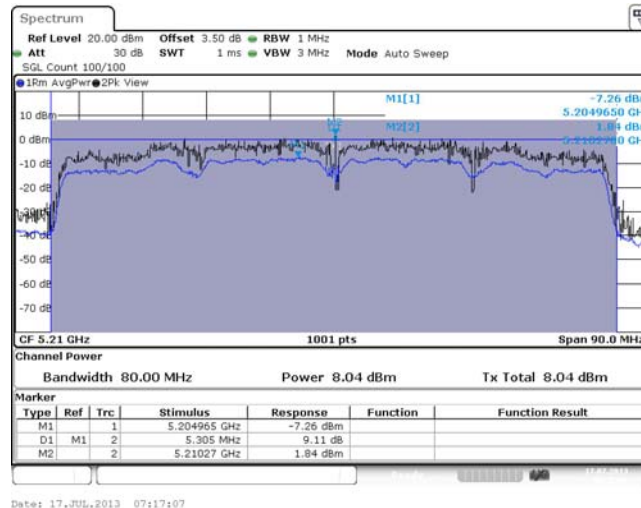
VHT20



VHT40

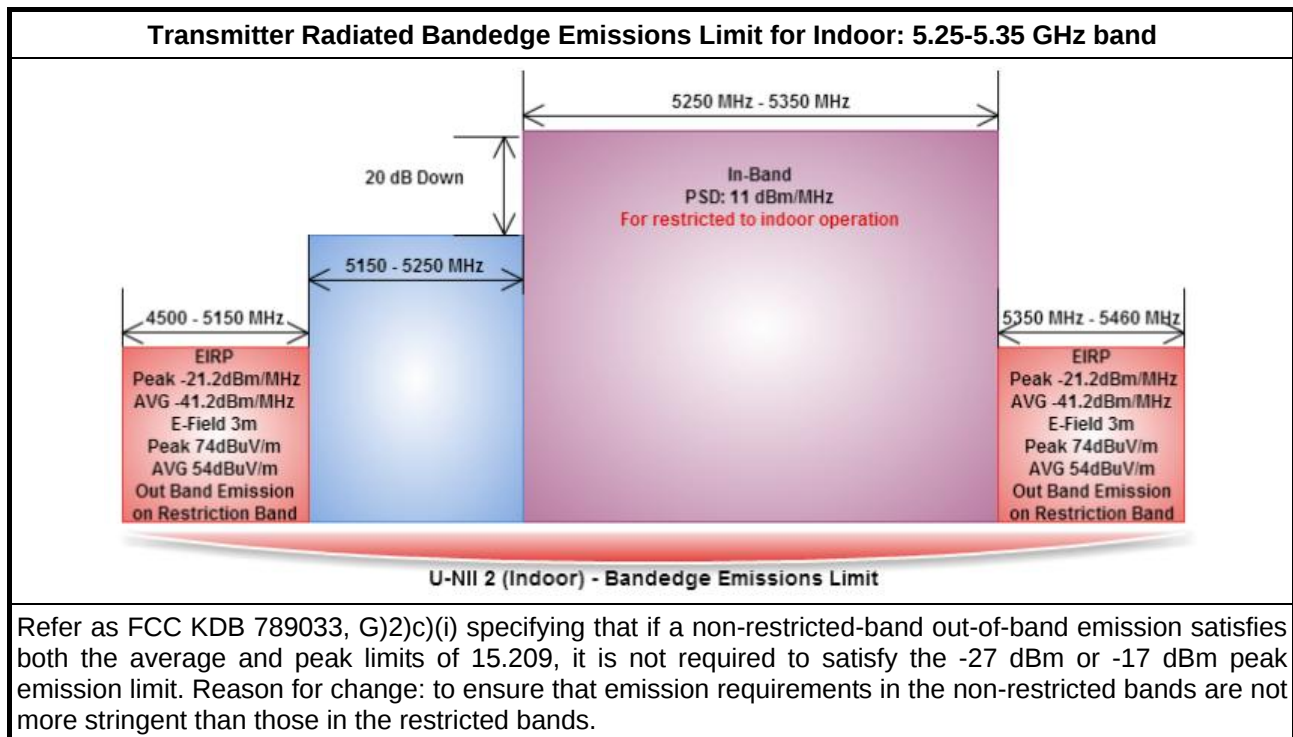
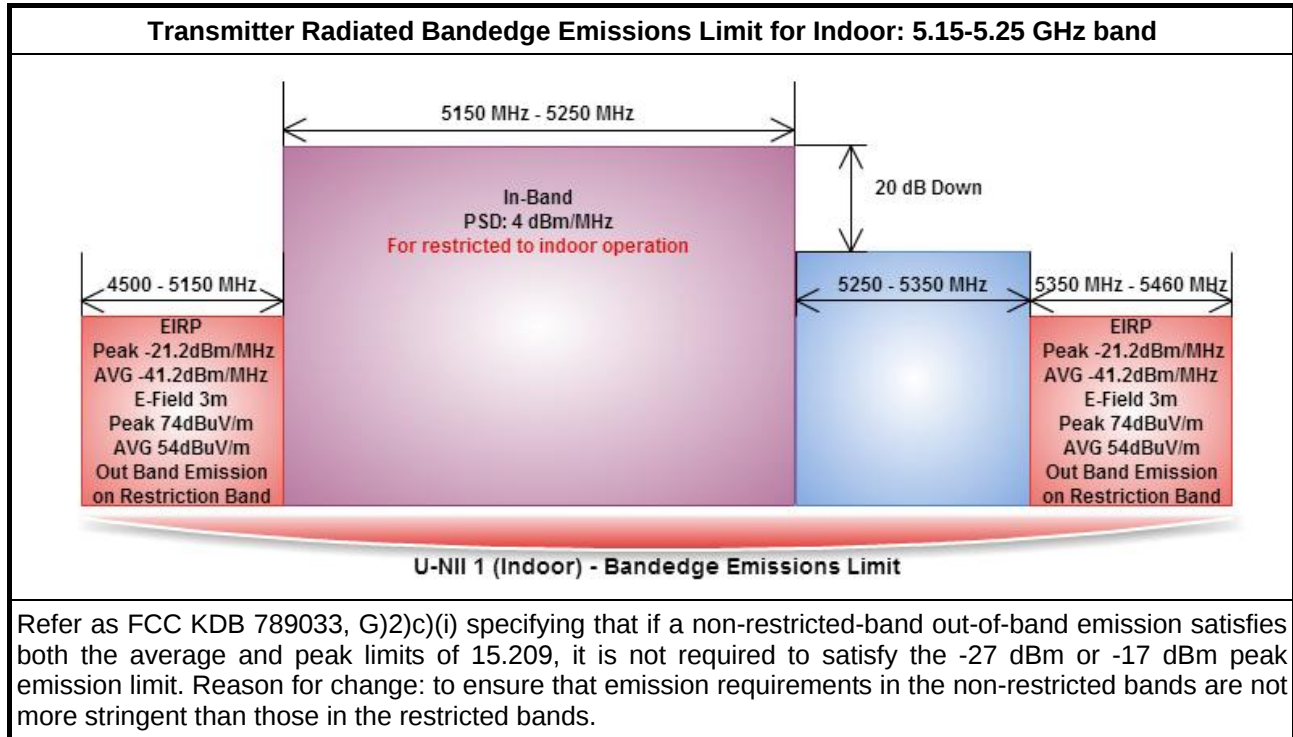


VHT80

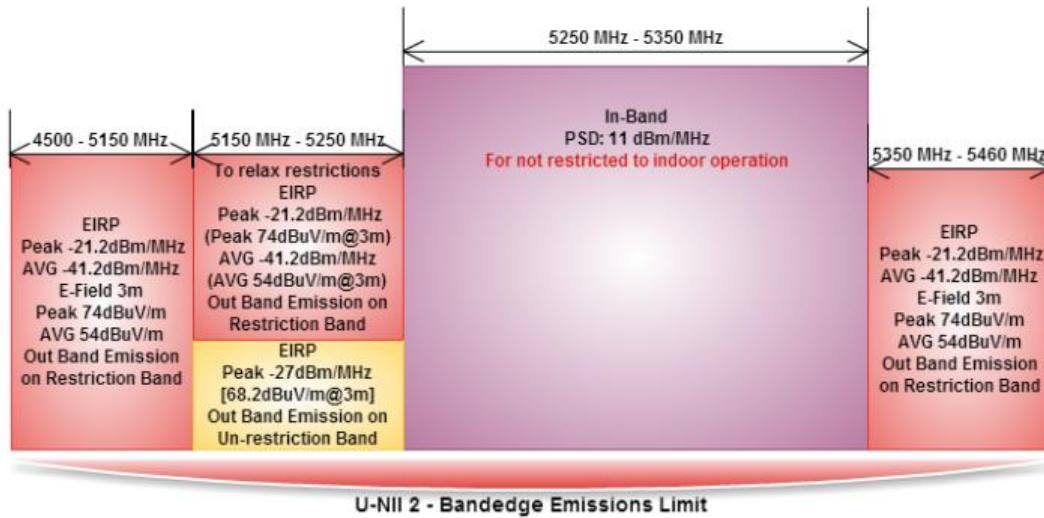


3.6 Transmitter Bandedge Emissions

3.6.1 Transmitter Radiated Bandedge Emissions Limit

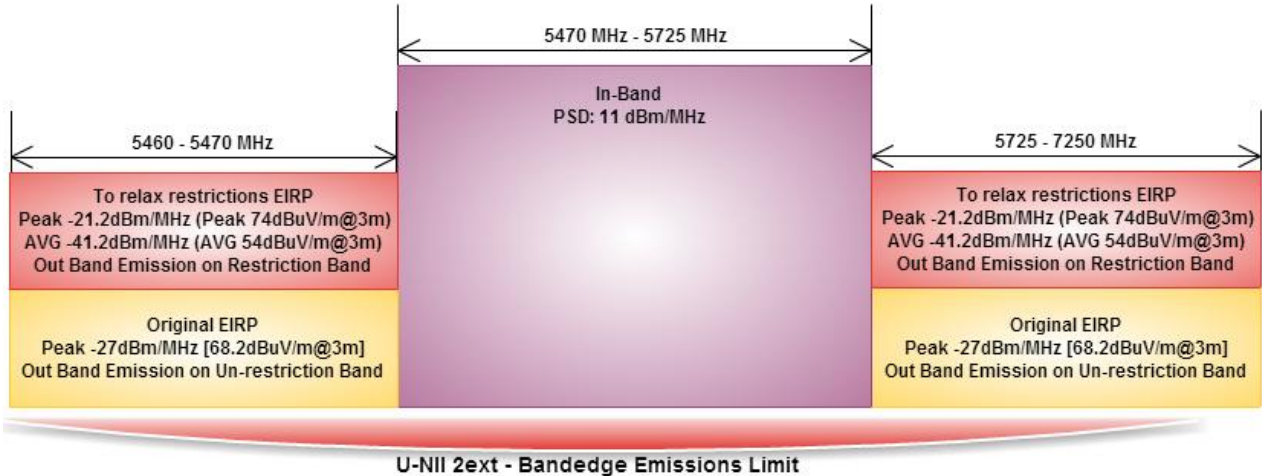


Transmitter Radiated Bandedge Emissions Limit for indoor/outdoor: 5.25-5.35 GHz band



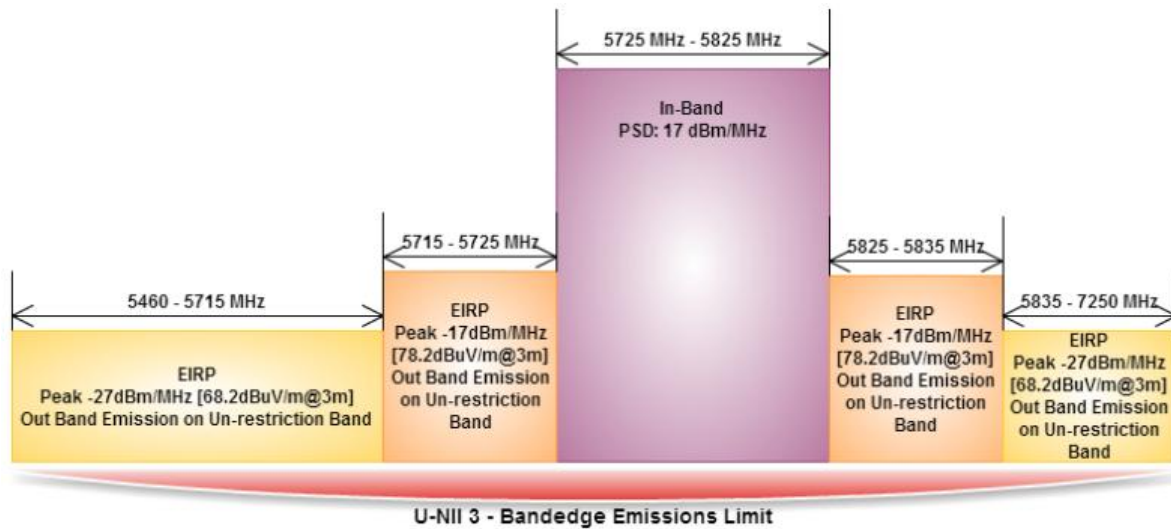
Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted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

Transmitter Radiated Bandedge Emissions Limit: 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.

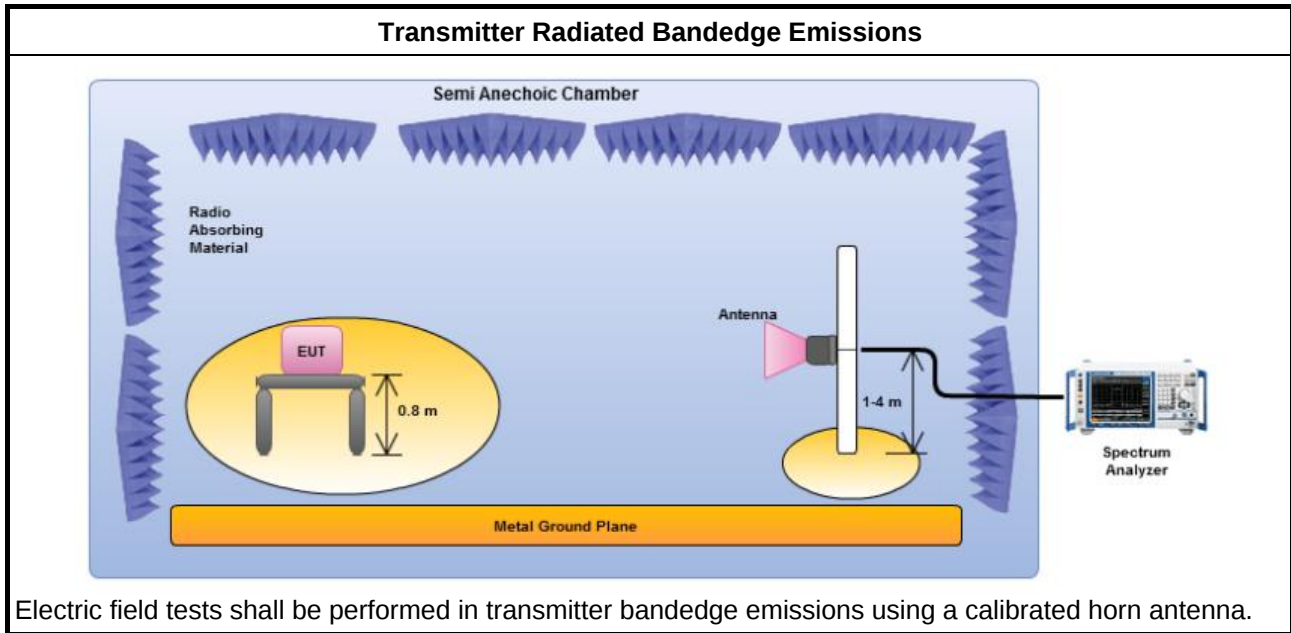
3.6.2 Measuring Instruments

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

3.6.3 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 1.5m, because the instrumentation noise floor is typically close to the radiated emission limit.
☒	The average emission levels shall be measured in [duty cycle $\geq$ 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 H)2) for unwanted emissions into non-restricted bands.
☒	Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
☐	☐ Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
☐	☐ Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
☒	☒ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
☐	☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
☒	☒ Refer as FCC KDB 789033, clause H)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 H)3)d) for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
☒	☒ Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
☐	☐ Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
☒	For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.

3.6.4 Test Setup



3.6.5 Transmitter Radiated Bandedge Emissions (with Antenna)

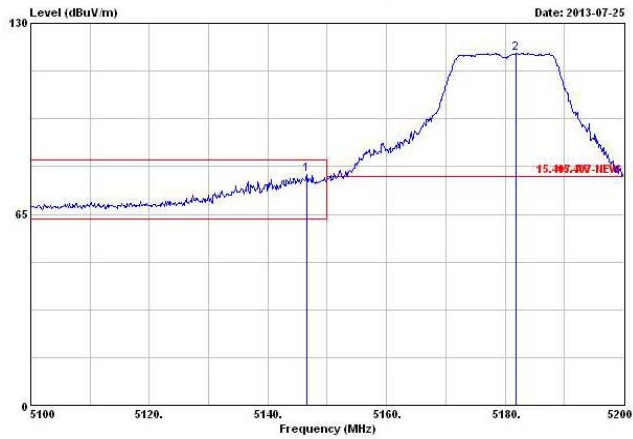
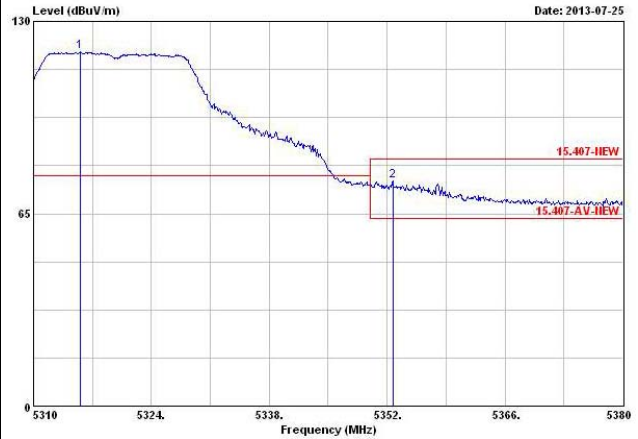
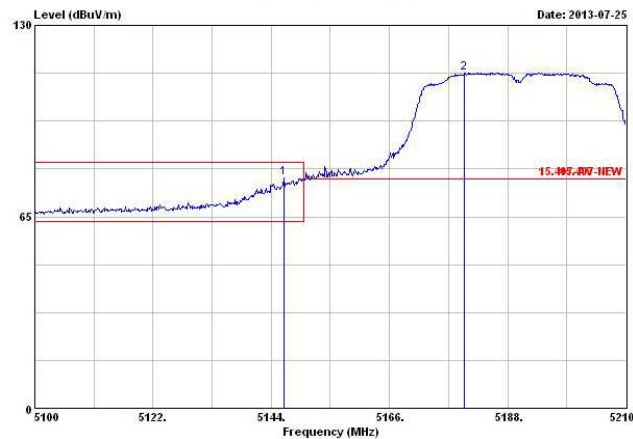
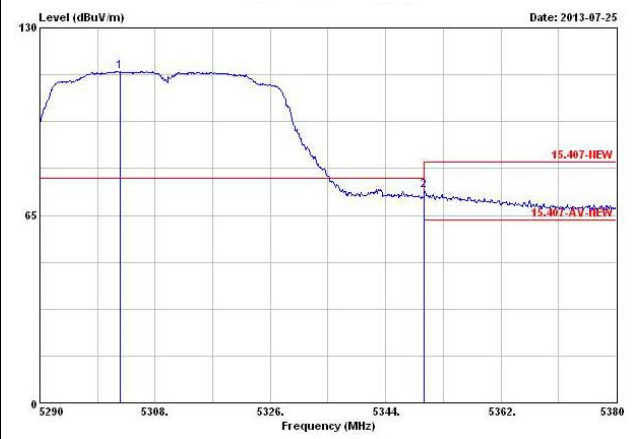
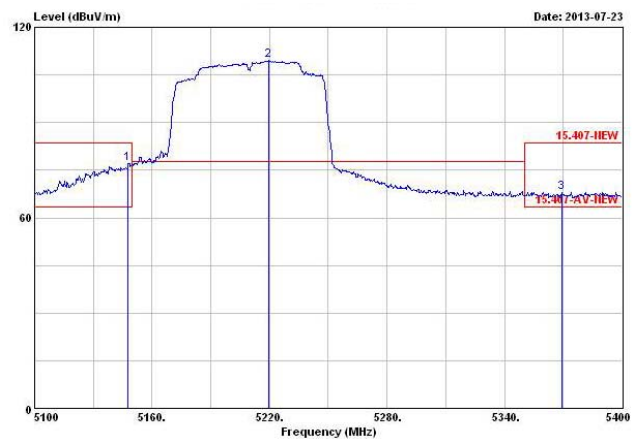
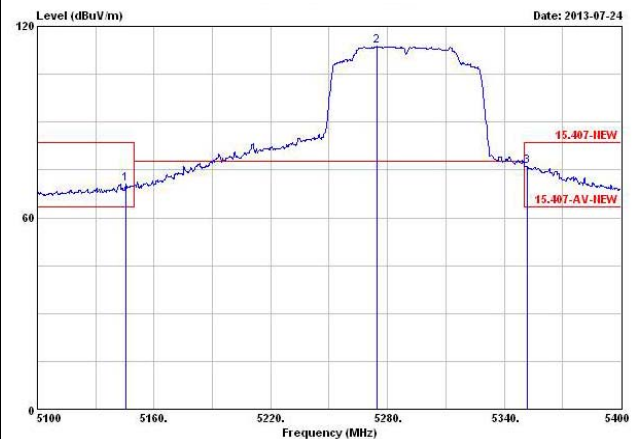
U-NII 5150-5250MHz Transmitter Radiated Bandedge (with Antenna)										
Modulation Mode	N _{Tx}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20,M0	1	5180	1	5146.600	78.63	83.54	5150.000	62.34	63.54	V
VHT40,M0	1	5190	1	5146.420	78.24	83.54	5150.000	62.49	63.54	V
VHT80,M0	1	5210	1	5147.700	77.16	83.54	5150.000	61.66	63.54	V
VHT20,M0	2	5180	1	5148.600	71.63	83.54	5150.000	58.05	63.54	V
VHT40,M0	2	5190	1	5149.500	77.97	83.54	5150.000	62.13	63.54	V
VHT80,M0	2	5210	1	5148.900	71.90	83.54	5150.000	58.14	63.54	V

Note 1: Measurement worst emissions of receive antenna polarization.

U-NII 5250-5350MHz Transmitter Radiated Bandedge (with Antenna)										
Modulation Mode	N _{Tx}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20,M0	1	5320	1	5352.000	75.94	83.54	5350.000	60.26	63.54	V
VHT40,M0	1	5310	1	5350.030	73.46	83.54	5350.030	58.61	63.54	V
VHT80,M0	1	5290	1	5351.700	76.15	83.54	5350.000	62.05	63.54	V
VHT20,M0	2	5320	1	5355.500	74.76	83.54	5350.250	57.40	63.54	V
VHT40,M0	2	5310	1	5358.220	68.95	83.54	5350.660	55.56	63.54	V
VHT80,M0	2	5290	1	5353.800	72.29	83.54	5382.600	55.07	63.54	V

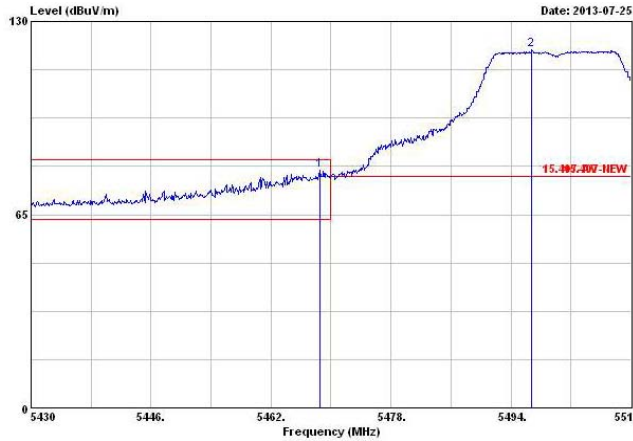
Note 1: Measurement worst emissions of receive antenna polarization.

U-NII 5470-5725MHz Transmitter Radiated Bandedge (with Antenna)										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20,M0	1	5500	1	5468.560	79.91	83.54	5470.000	62.27	63.54	V
VHT20,M0	1	5700	1	5734.340	75.88	77.84	-	-	-	V
VHT20,M0	1	5720	1	5843.180	69.69	83.54	5828.780	55.74	63.54	V
VHT40,M0	1	5510	1	5467.900	79.03	83.54	5470.000	62.53	63.54	V
VHT40,M0	1	5670	1	5728.200	72.60	77.84	-	-	-	V
VHT40,M0	1	5710	1	5851.380	69.28	83.54	5840.930	55.70	63.54	V
VHT80,M0	1	5530	1	5733.040	68.41	83.54	5745.840	55.67	63.54	V
VHT80,M0	1	5610	1	5730.160	71.59	83.54	5725.360	57.56	63.54	V
VHT80,M0	1	5690	1	5830.210	69.34	83.54	5825.610	55.91	63.54	V
VHT20,M0	2	5500	1	5468.880	75.23	83.54	5470.000	59.63	63.54	V
VHT20,M0	2	5700	1	5726.320	68.78	77.84	-	-	-	V
VHT20,M0	2	5720	1	5732.900	75.78	77.84	5725.000	60.84	63.54	V
VHT40,M0	2	5510	1	5467.800	77.47	83.54	5470.000	62.13	63.54	V
VHT40,M0	2	5670	1	5726.700	71.93	83.54	5725.000	58.06	63.54	V
VHT40,M0	2	5710	1	5837.700	68.56	83.54	5838.460	55.70	63.54	V
VHT80,M0	2	5530	1	5444.720	78.13	83.54	5470.000	62.12	63.54	V
VHT80,M0	2	5610	1	5465.520	74.77	83.54	5470.000	57.35	63.54	V
VHT80,M0	2	5690	1	5857.580	68.86	83.54	5828.370	55.62	63.54	V
Note 1: Measurement worst emissions of receive antenna polarization.										

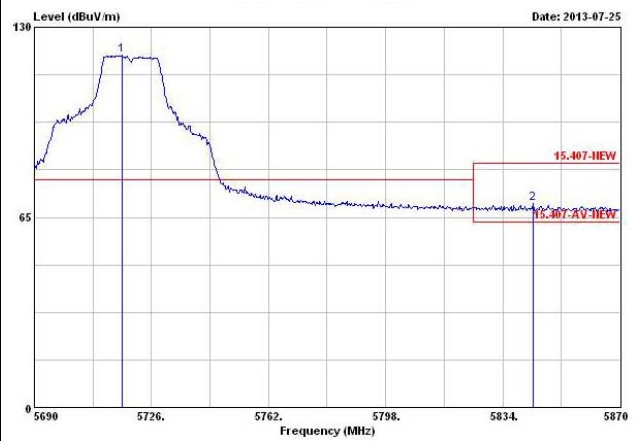
5150-5350MHz - Transmitter Radiated Bandedge Emissions Plots (N_{TX}1)
VHT20-(Lowest Ch.)

VHT20-(Highest Ch.)

VHT40-(Lowest Ch.)

VHT40-(Highest Ch.)

VHT80-(Lowest Ch.)

VHT80-(Highest Ch.)


5470-5725MHz - Transmitter Radiated Bandedge Emissions Plots (N_{TX}1)

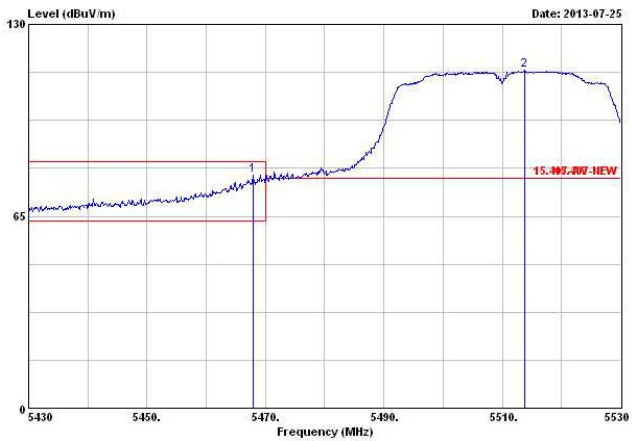
VHT20-(Lowest Ch.)



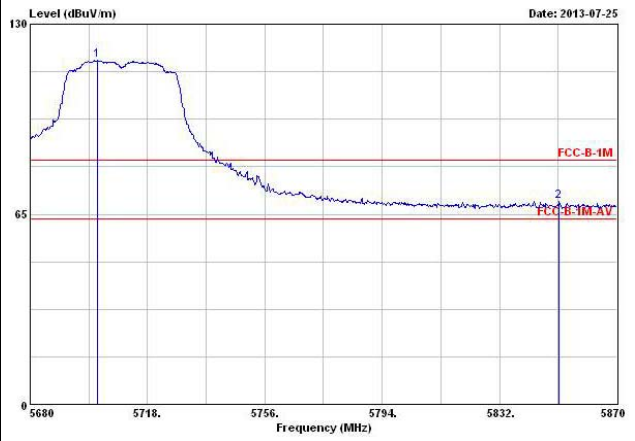
VHT20-(Highest Ch.)



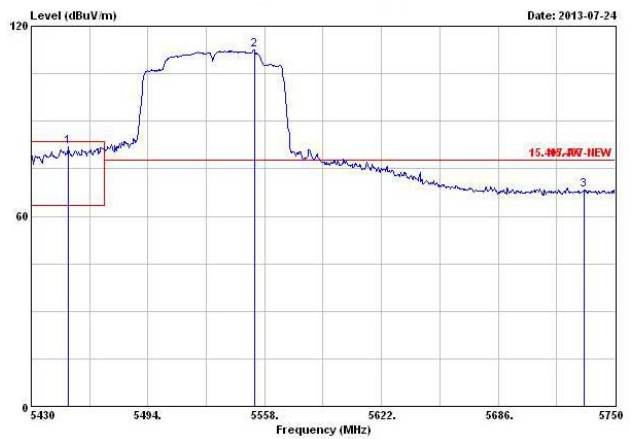
VHT40-(Lowest Ch.)



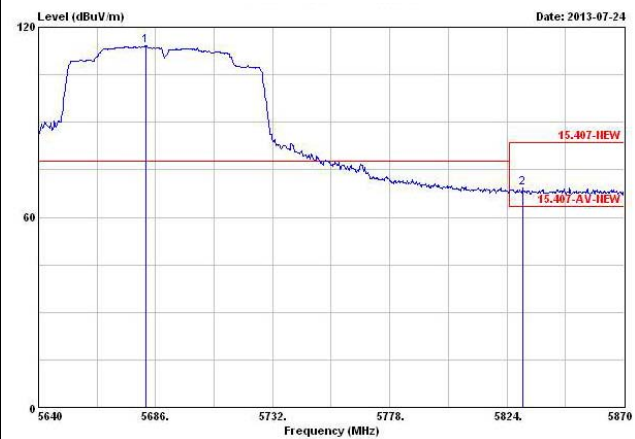
VHT40-(Highest Ch.)

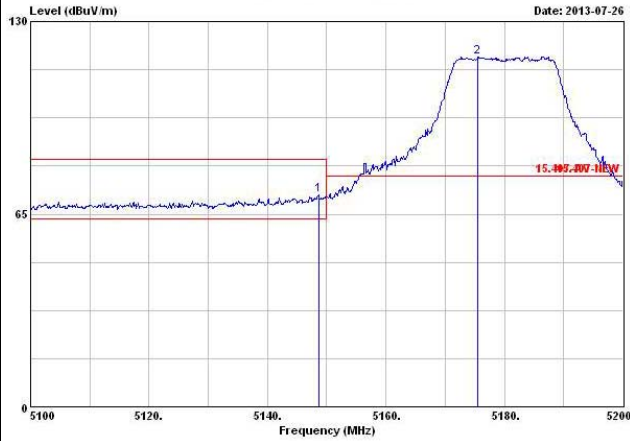
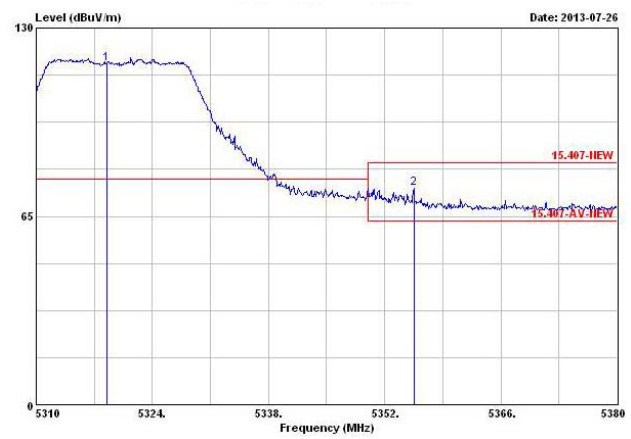
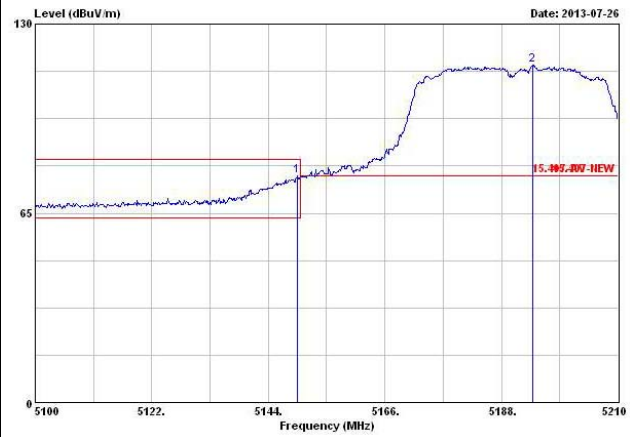
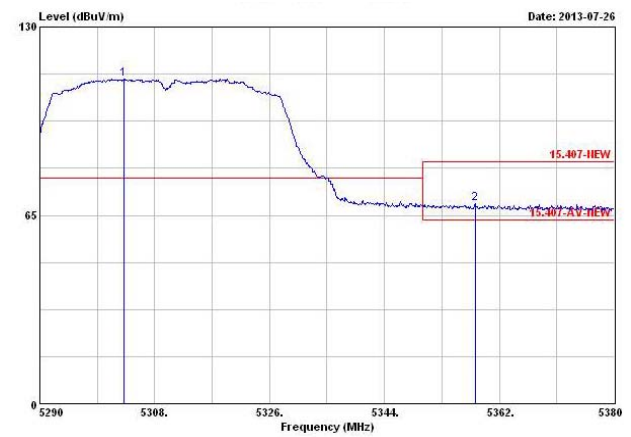
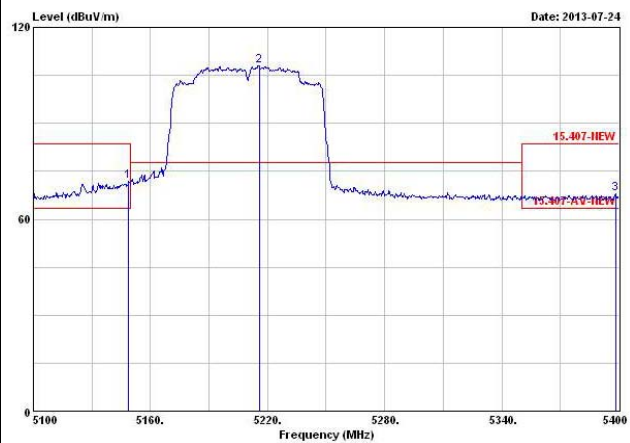
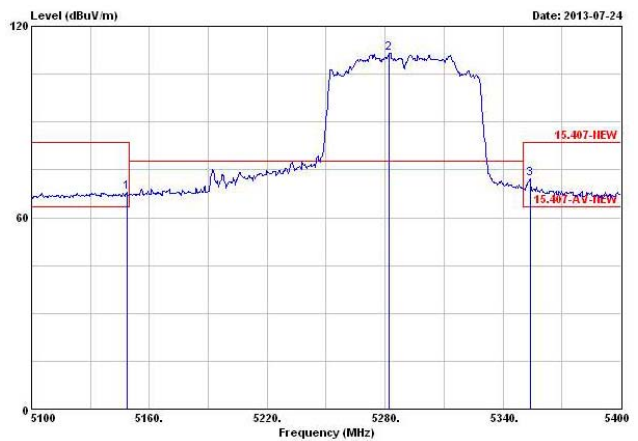


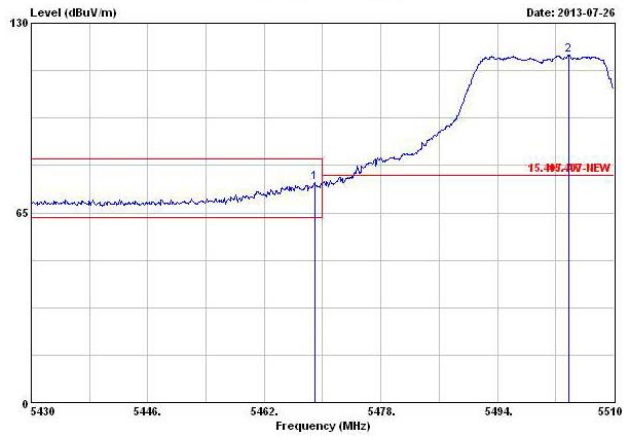
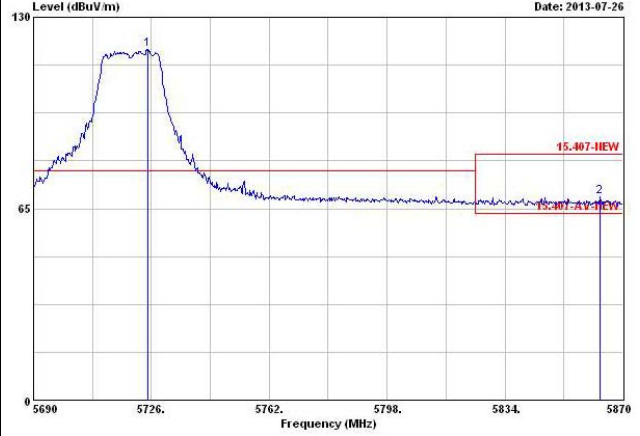
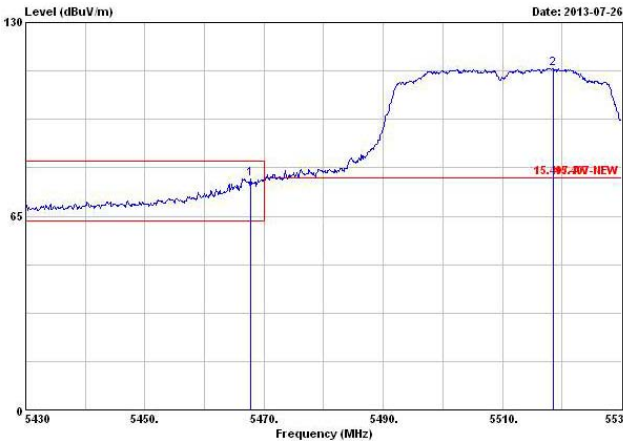
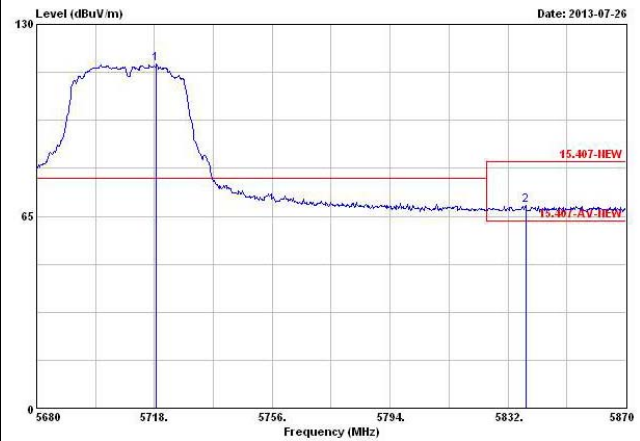
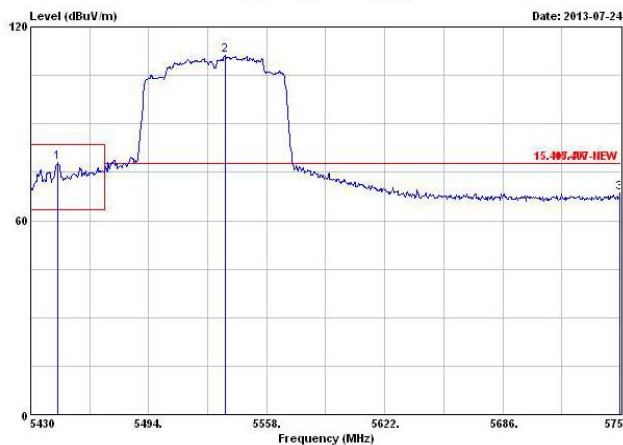
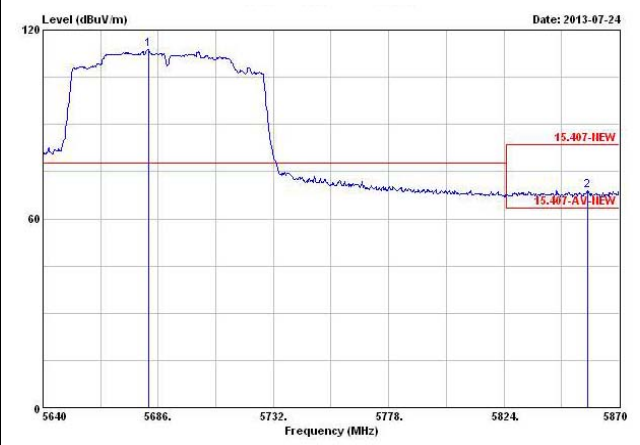
VHT80-(Lowest Ch.)



VHT80-(Highest Ch.)



5150-5350MHz - Transmitter Radiated Bandedge Emissions Plots (N_{TX}2)
VHT20-(Lowest Ch.)

VHT20-(Highest Ch.)

VHT40-(Lowest Ch.)

VHT40-(Highest Ch.)

VHT80-(Lowest Ch.)

VHT80-(Highest Ch.)


5470-5725MHz - Transmitter Radiated Bandedge Emissions Plots (N_{TX}2)
VHT20-(Lowest Ch.)

VHT20-(Highest Ch.)

VHT40-(Lowest Ch.)

VHT40-(Highest Ch.)

VHT80-(Lowest Ch.)

VHT80-(Highest Ch.)


3.7 Transmitter Unwanted Emissions

3.7.1 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).

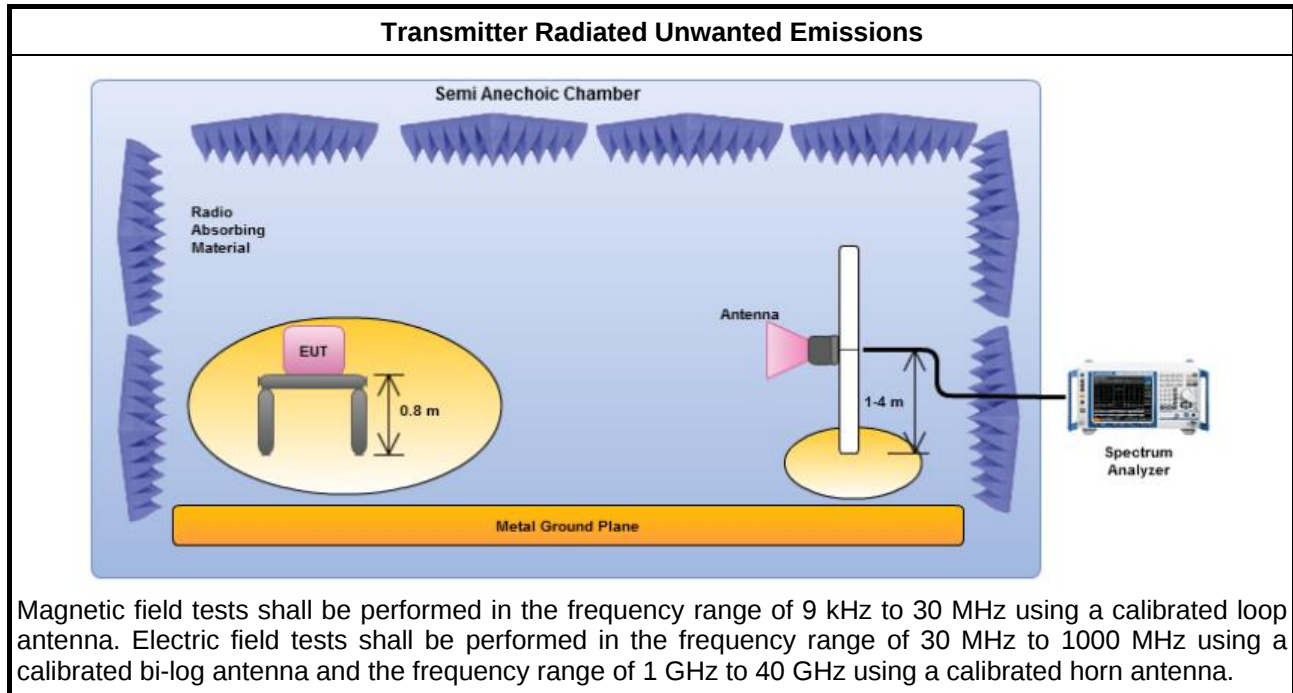
3.7.2 Measuring Instruments

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

3.7.3 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 $\geq$ 98 or duty factor].
☒	For the transmitter unwanted emissions shall be measured using following options below:
☒	Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.
☒	Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
☐	Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
☐	Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
☒	Refer as FCC KDB 789033, clause H)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.

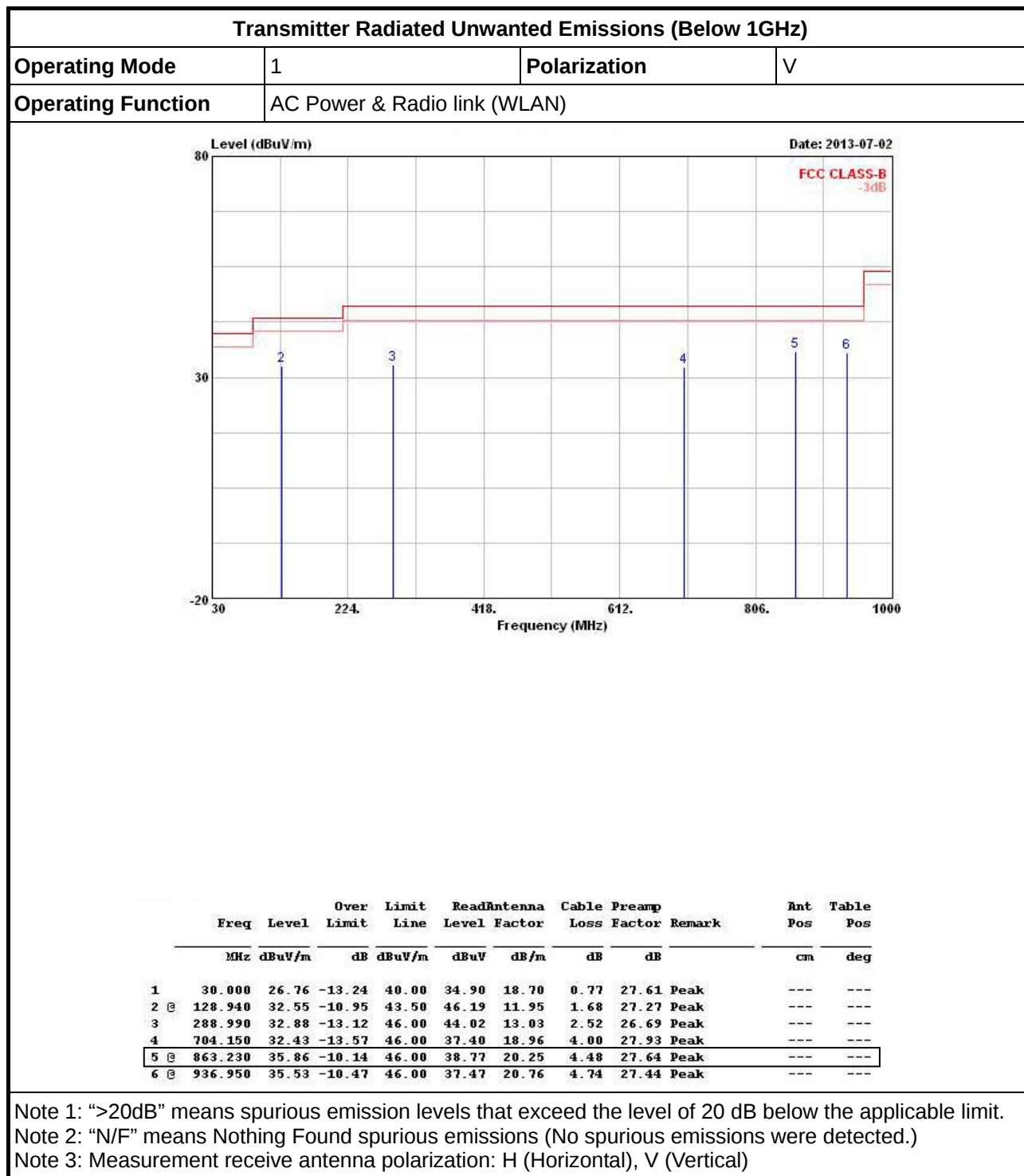
3.7.4 Test Setup



3.7.5 Transmitter Radiated Unwanted Emissions-with Antenna (Below 30MHz)

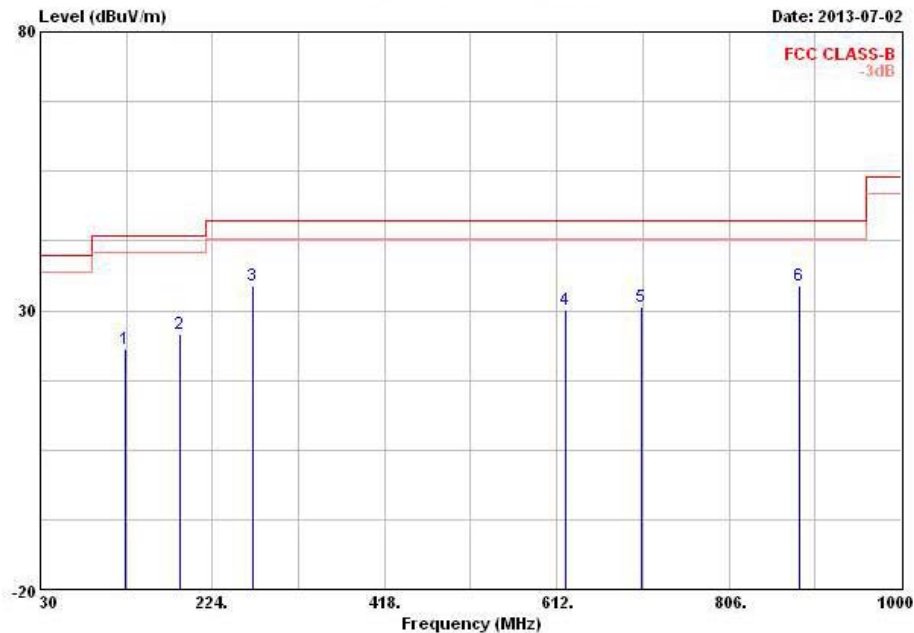
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.7.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	AC Power & Radio link (WLAN)		

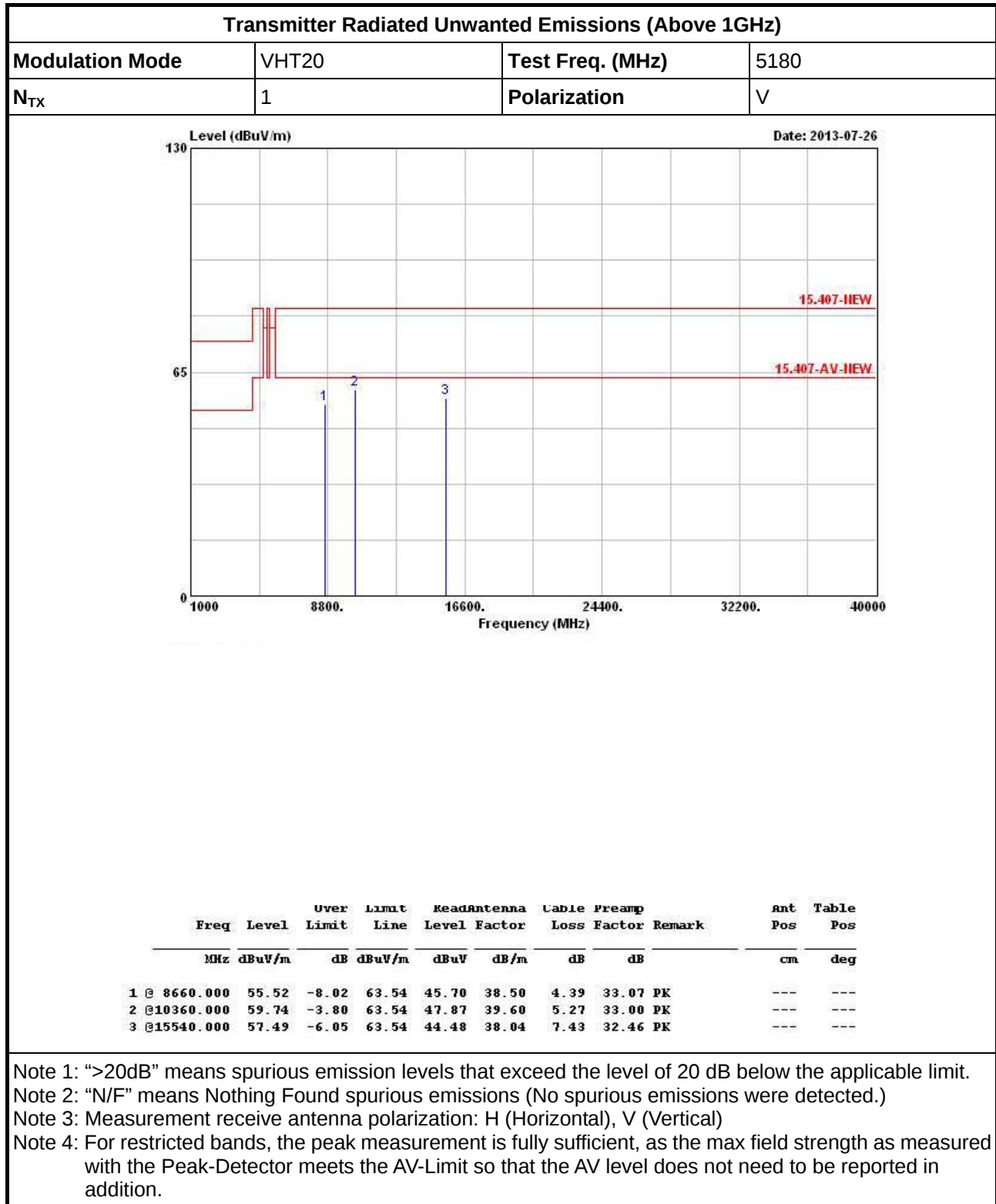


	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	126.030	23.00	-20.50	43.50	36.21	12.40	1.67	27.28	Peak	---
2	187.140	25.92	-17.58	43.50	41.82	9.16	1.99	27.05	Peak	---
3	269.590	34.37	-11.63	46.00	46.16	12.56	2.41	26.76	Peak	---
4	621.700	30.18	-15.82	46.00	35.43	18.95	3.78	27.98	Peak	---
5	707.060	30.59	-15.41	46.00	35.51	19.00	4.01	27.93	Peak	---
6	885.540	34.37	-11.63	46.00	36.99	20.45	4.52	27.59	Peak	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

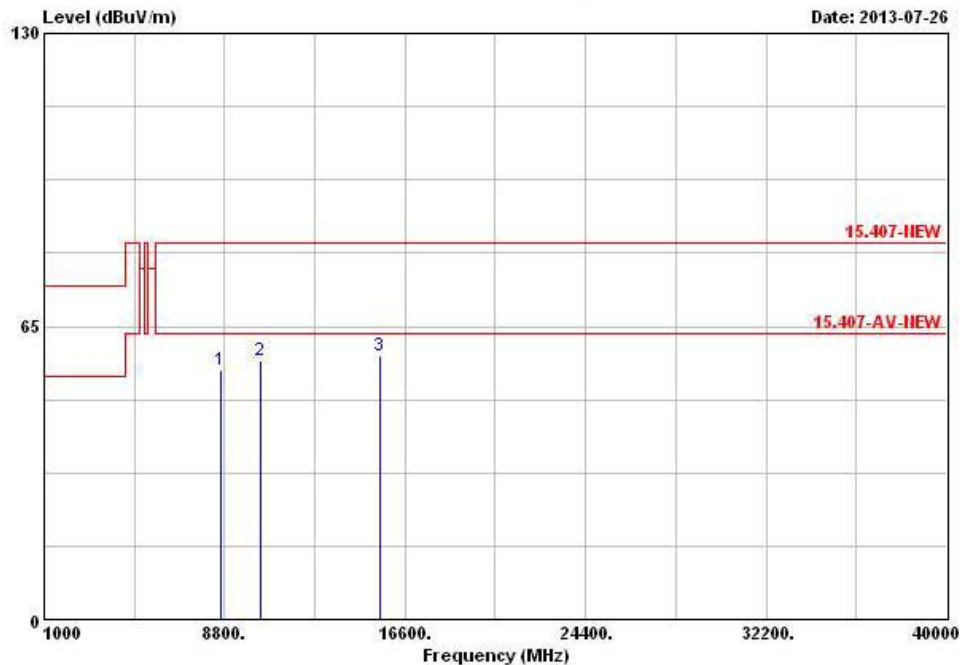
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.7.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5150-5250MHz


Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5180
N_{TX}	1	Polarization	H

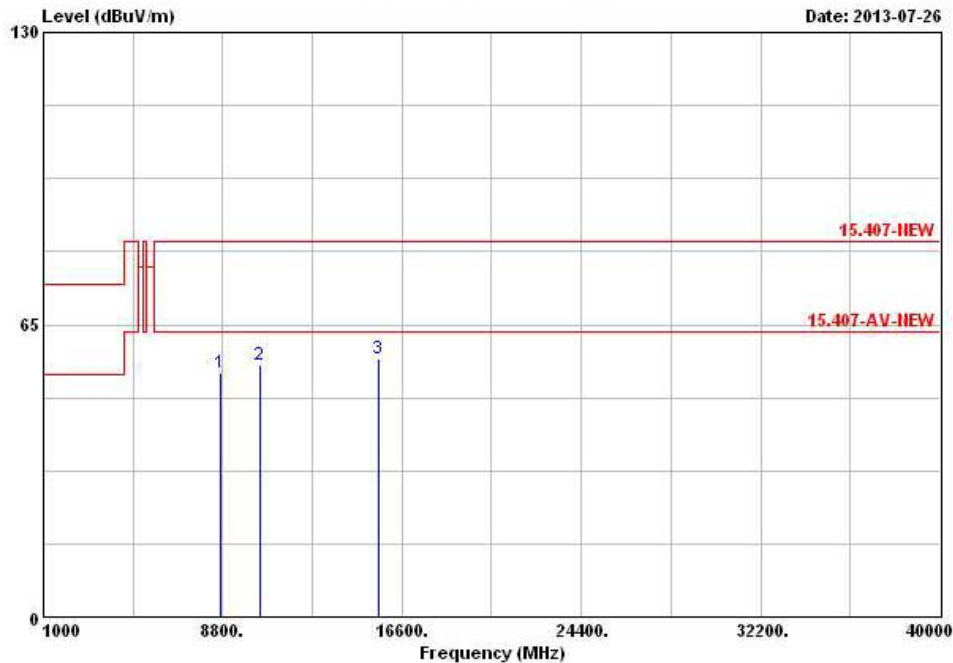


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	@ 8630.000	55.16	-8.38	63.54	45.29	38.54	4.39	33.06	PK	---	---
2	@ 10360.000	57.60	-5.94	63.54	45.73	39.60	5.27	33.00	PK	---	---
3	@ 15540.000	58.65	-4.89	63.54	45.64	38.04	7.43	32.46	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	VHT20	Test Freq. (MHz)	5200
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	@ 8710.000	54.28	-9.26	63.54	44.35	38.44	4.58	33.09	PK	---	---
2	@ 10400.000	56.13	-7.41	63.54	44.22	39.60	5.26	32.95	PK	---	---
3	@ 15600.000	57.41	-6.13	63.54	44.52	37.91	7.47	32.49	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

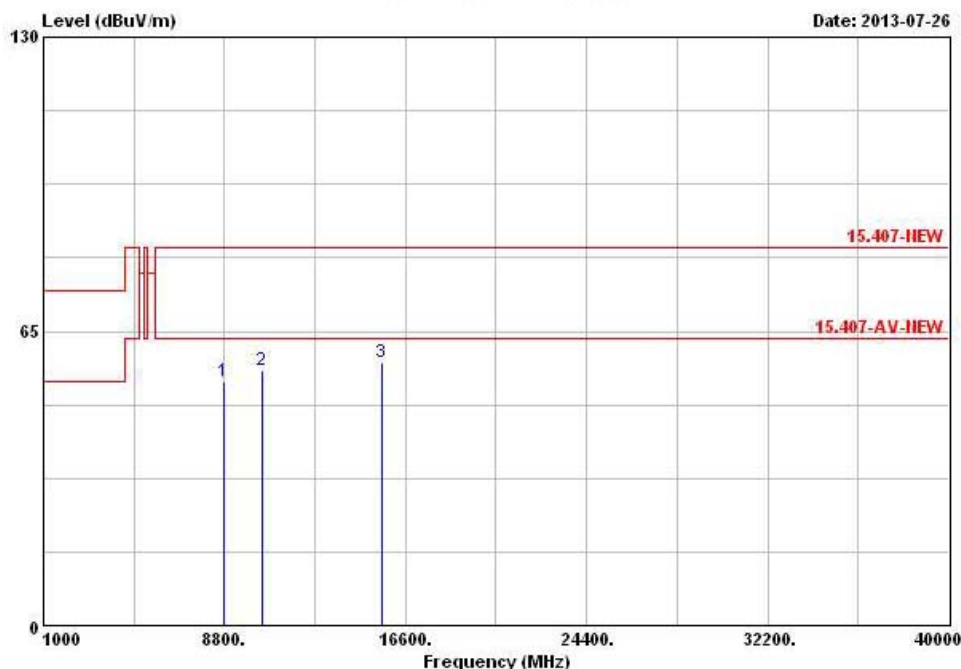
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5200
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @	8780.000	54.04	-9.50	63.54	44.12	38.36	4.67	33.11 PK	---	---
2 @	10400.000	56.22	-7.32	63.54	44.31	39.60	5.26	32.95 PK	---	---
3 @	15600.000	58.00	-5.54	63.54	45.11	37.91	7.47	32.49 PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

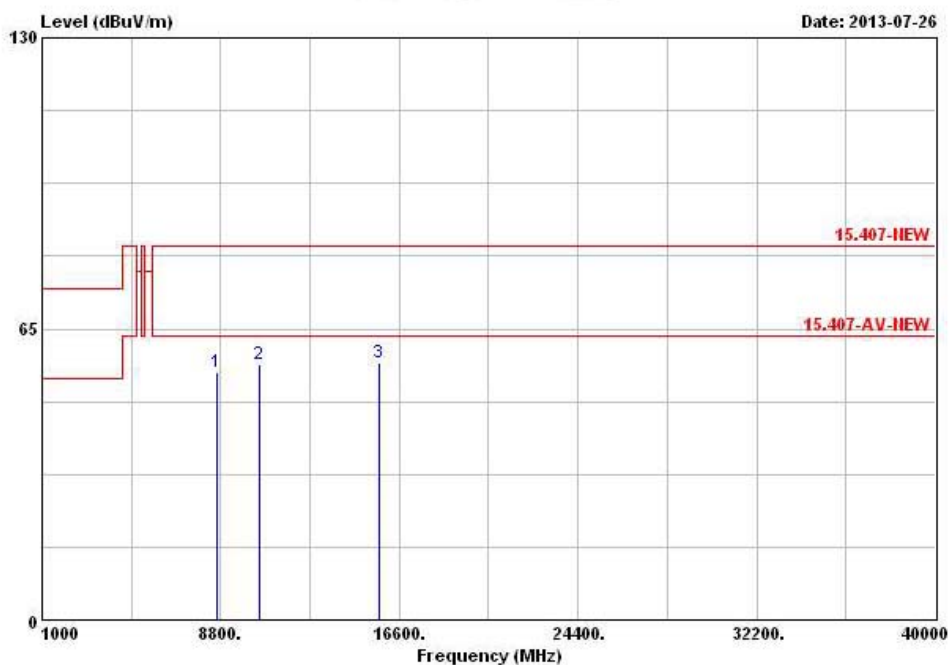
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5240
N_{TX}	1	Polarization	V



Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp			Ant	Table
MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
		dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8620.000	55.16	-8.38	63.54	45.36	38.56	4.30	33.06	PK	---	---
2 @ 10480.000	57.09	-6.45	63.54	45.15	39.60	5.23	32.89	PK	---	---
3 @ 15720.000	57.58	-5.96	63.54	44.82	37.70	7.58	32.52	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

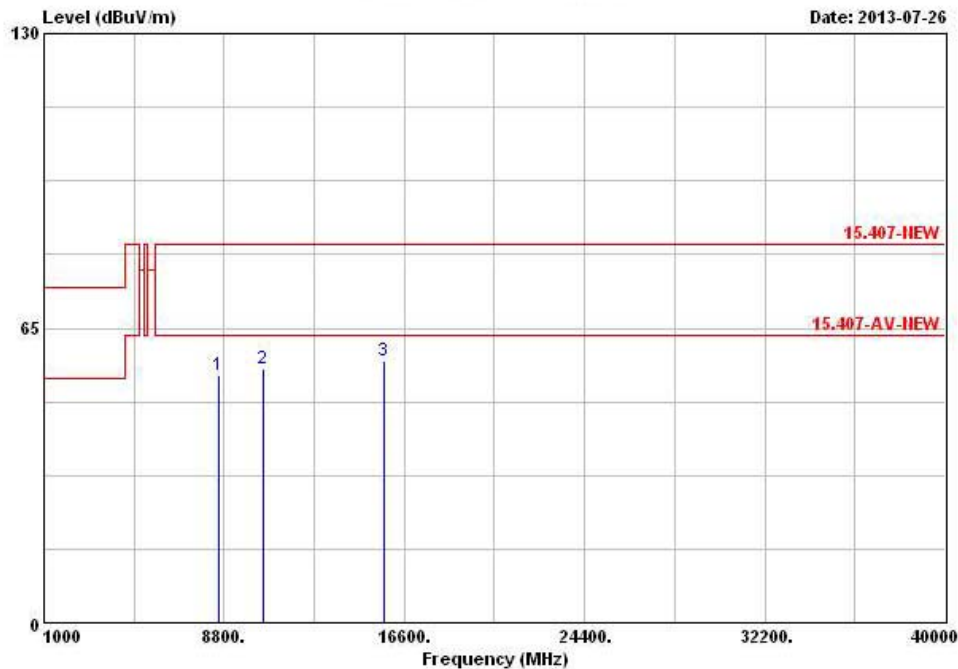
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5240
N_{TX}	1	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	@ 8550.000	54.66	-8.88	63.54	44.86	38.64	4.20	33.04	PK	---
2	@ 10480.000	56.08	-7.46	63.54	44.14	39.60	5.23	32.89	PK	---
3	@ 15720.000	57.62	-5.92	63.54	44.86	37.70	7.58	32.52	PK	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

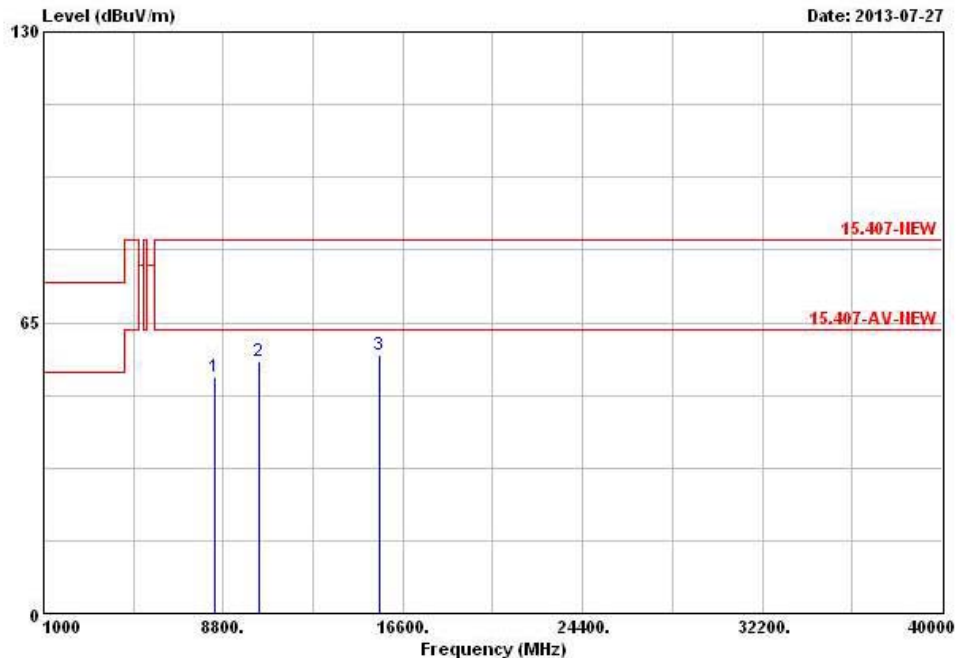
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5190
N_{TX}	1	Polarization	V

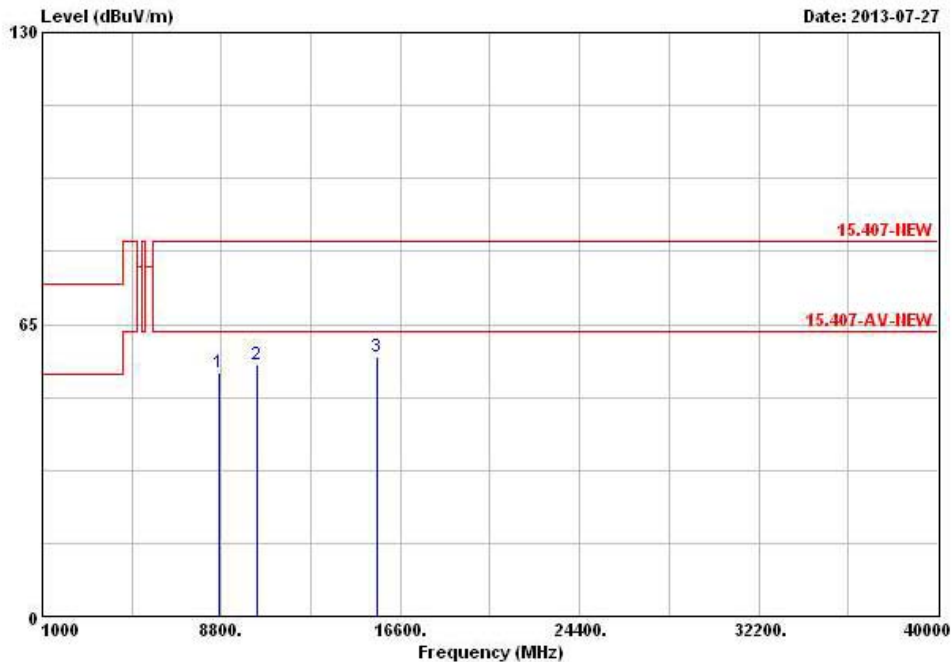


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8395.000	52.80	-10.74	63.54	43.34	38.51	3.97	33.02	PK	---	---
2	10380.000	56.28	-7.26	63.54	44.39	39.60	5.26	32.97	PK	---	---
3	15570.000	57.81	-5.73	63.54	44.83	37.98	7.47	32.47	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	VHT40	Test Freq. (MHz)	5190
N_{TX}	1	Polarization	H



Freq	Level	Over Limit	Limit Line	ReadAntenna 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 @ 8674.000	54.42	-9.12	63.54	44.52	38.50	4.48	33.08	PK	---	---
2 @ 10380.000	55.86	-7.68	63.54	43.97	39.60	5.26	32.97	PK	---	---
3 @ 15570.000	57.62	-5.92	63.54	44.64	37.98	7.47	32.47	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

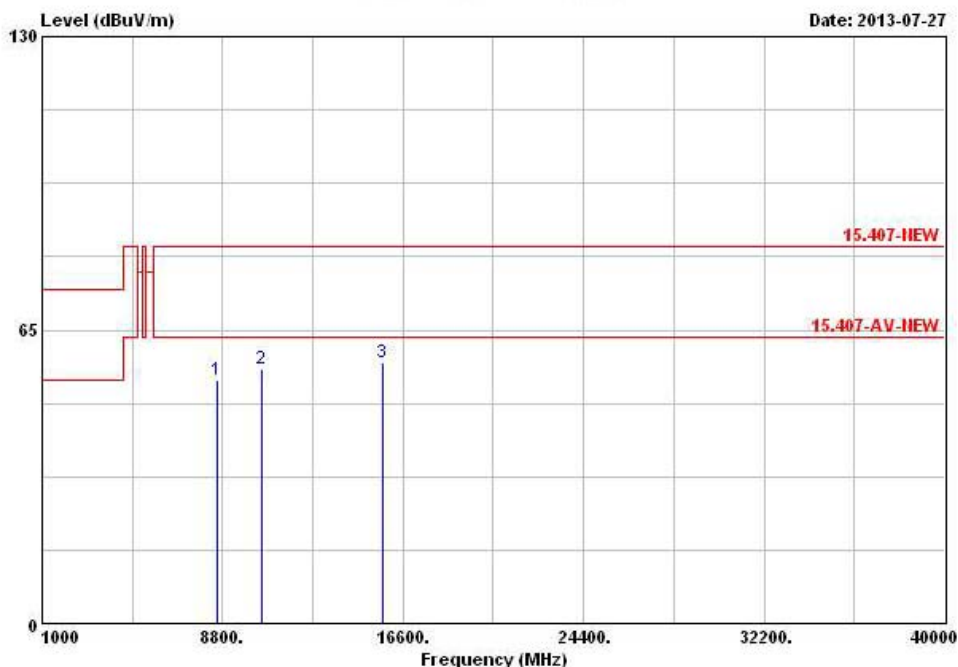
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5230
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8566.000	53.77	-9.77	63.54	44.00	38.62	4.20	33.05	PK	---	---
2	10460.000	56.35	-7.19	63.54	44.43	39.60	5.23	32.91	PK	---	---
3	15690.000	57.63	-5.91	63.54	44.80	37.76	7.58	32.51	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

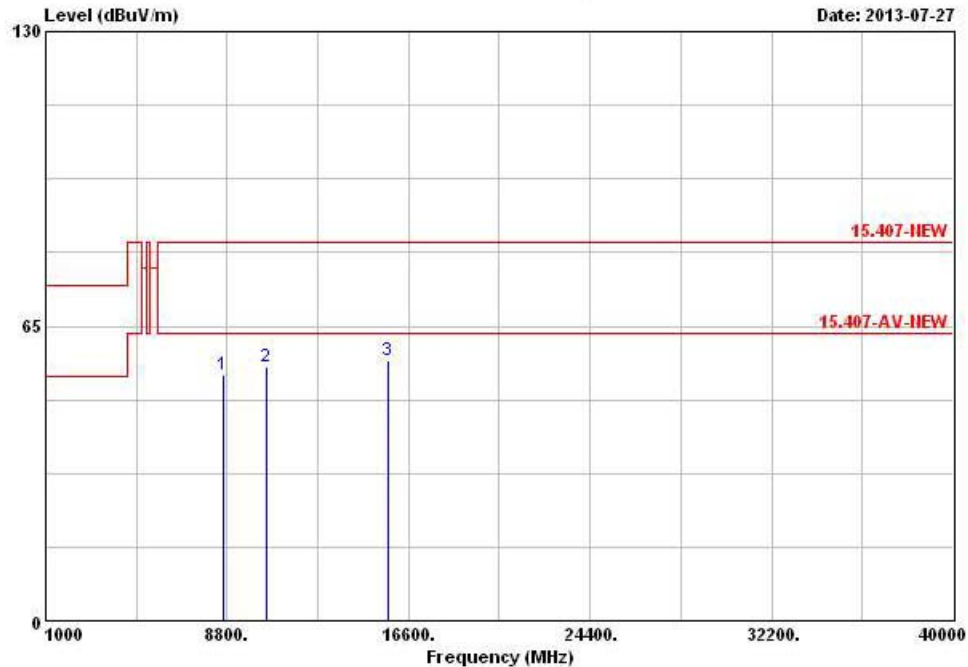
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5230
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8602.000	54.11	-9.43	63.54	44.28	38.58	4.30	33.05 PK	---	---
2	10460.000	55.90	-7.64	63.54	43.98	39.60	5.23	32.91 PK	---	---
3	15690.000	57.40	-6.14	63.54	44.57	37.76	7.58	32.51 PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

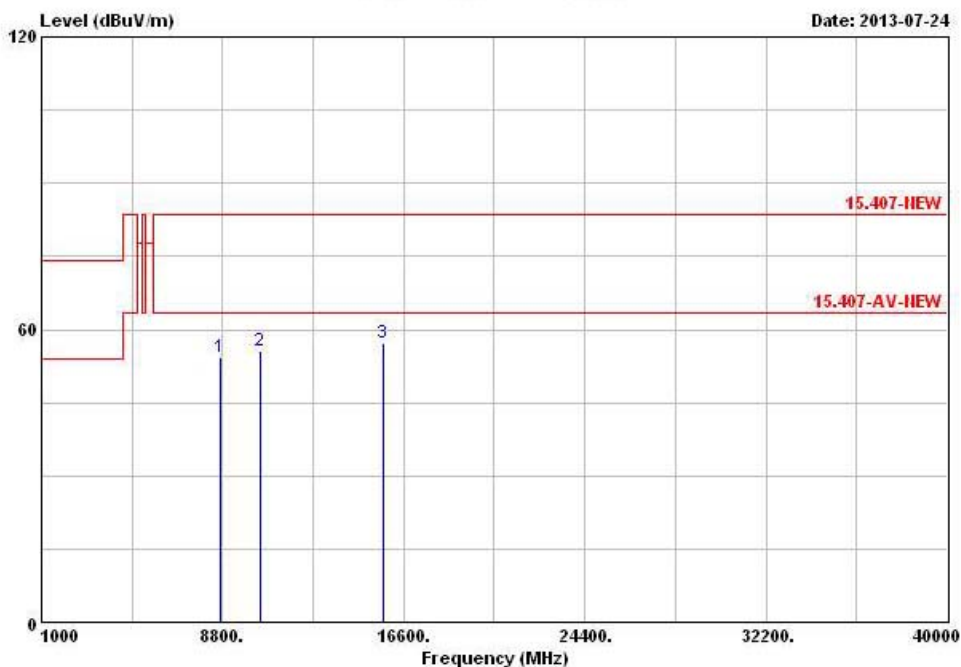
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT80	Test Freq. (MHz)	5210
N_{TX}	1	Polarization	V



Freq	Level	Over Limit	Limit Line	ReadAntenna 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 @ 8670.000	54.36	-9.18	63.54	44.46	38.50	4.48	33.08	PK	---	---
2 @ 10420.000	55.69	-7.85	63.54	43.79	39.60	5.25	32.95	PK	---	---
3 @ 15720.000	57.34	-6.20	63.54	44.58	37.70	7.58	32.52	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

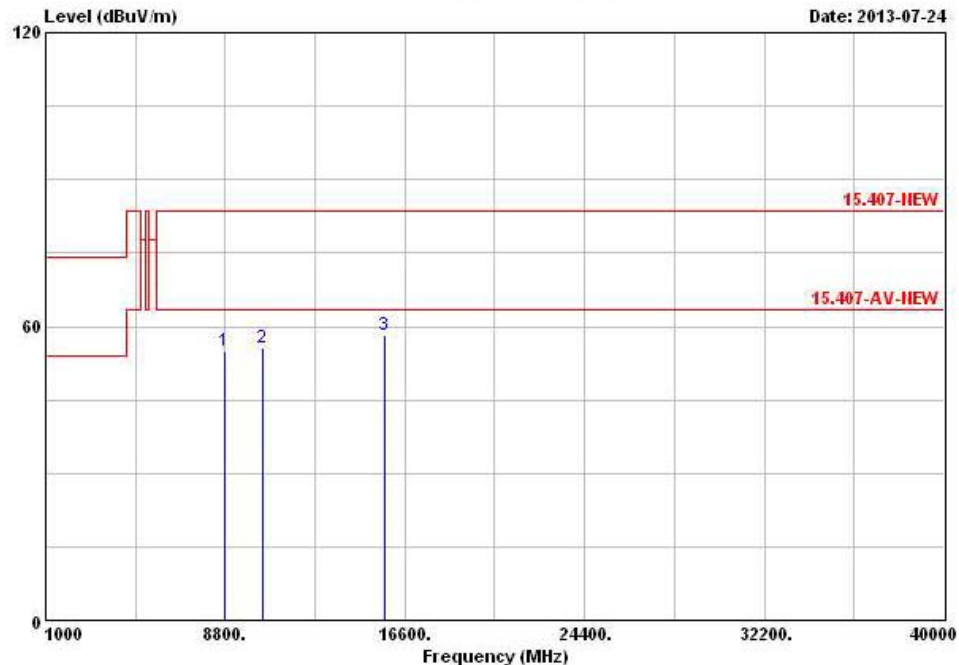
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT80	Test Freq. (MHz)	5210
N_{TX}	1	Polarization	H



Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 8790.000	54.92	-8.62	63.54	44.91	38.36	4.76	33.11 PK	---	---
2 @ 10420.000	55.45	-8.09	63.54	43.55	39.60	5.25	32.95 PK	---	---
3 @ 15720.000	58.18	-5.36	63.54	45.42	37.70	7.58	32.52 PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

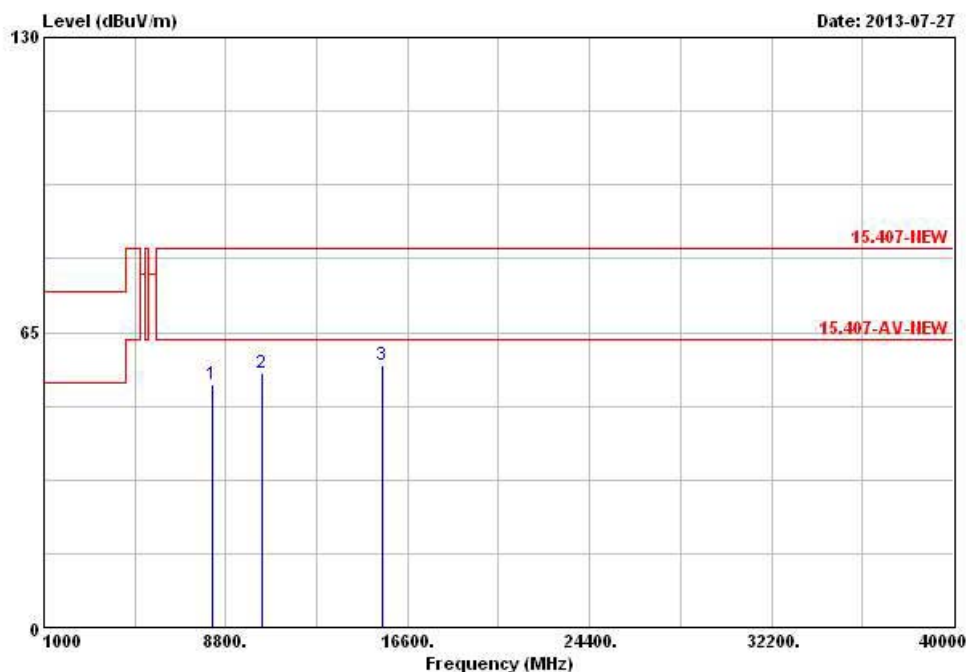
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5180
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8230.000	53.40	-10.14	63.54	44.35	38.20	3.86	33.01	PK	---	---
2	10360.000	56.07	-7.47	63.54	44.20	39.60	5.27	33.00	PK	---	---
3	15540.000	57.69	-5.85	63.54	44.68	38.04	7.43	32.46	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

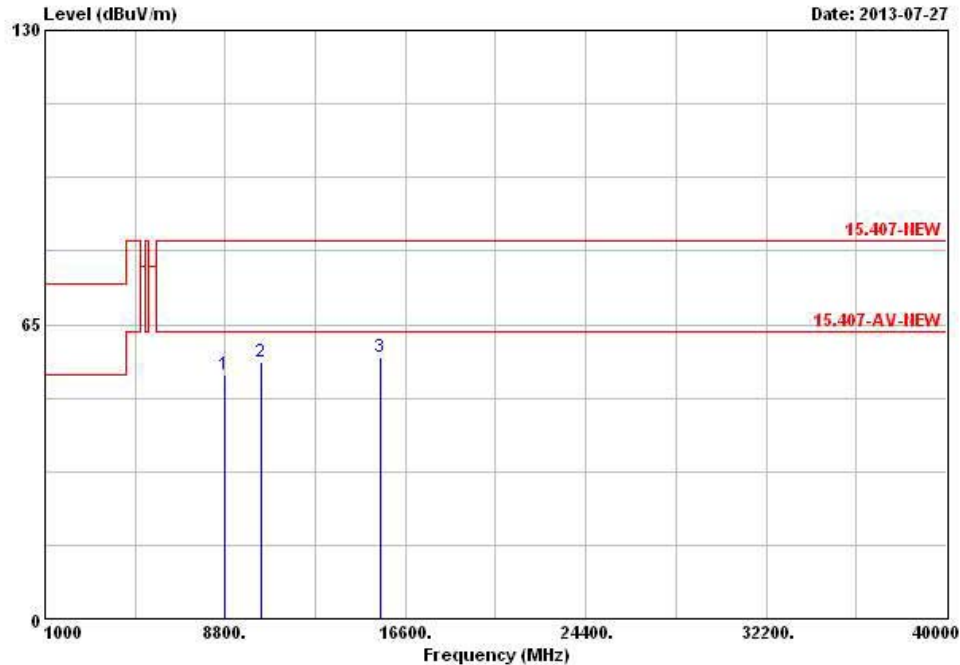
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5180
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8740.000	54.06	-9.48	63.54	44.16	38.42	4.58	33.10	PK	---	---
2	10360.000	56.64	-6.90	63.54	44.77	39.60	5.27	33.00	PK	---	---
3	15540.000	57.66	-5.88	63.54	44.65	38.04	7.43	32.46	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

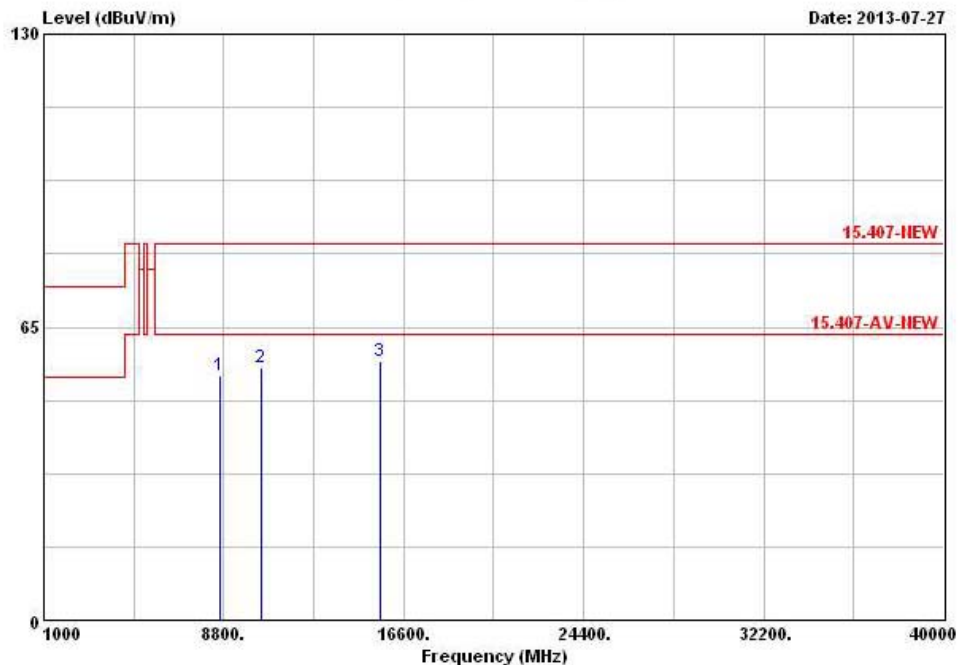
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5200
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8660.000	54.17	-9.37	63.54	44.35	38.50	4.39	33.07	PK	---	---
2	10400.000	56.04	-7.50	63.54	44.13	39.60	5.26	32.95	PK	---	---
3	15600.000	57.35	-6.19	63.54	44.46	37.91	7.47	32.49	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

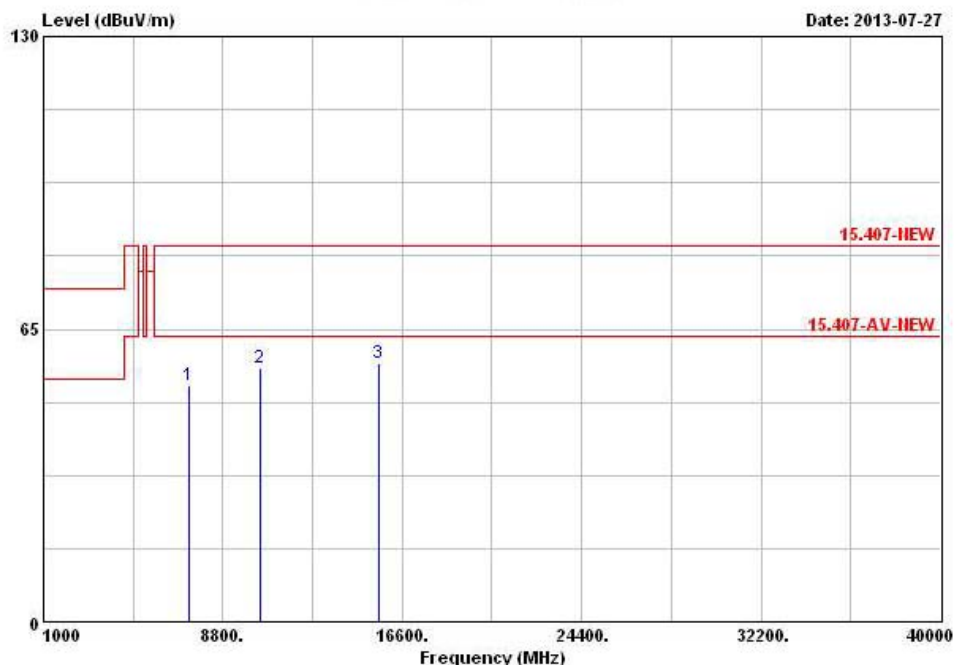
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5200
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	7350.000	52.51	-11.03	63.54	44.07	37.11	4.21	32.88	PK	---	---
2	10400.000	56.51	-7.03	63.54	44.60	39.60	5.26	32.95	PK	---	---
3	15600.000	57.58	-5.96	63.54	44.69	37.91	7.47	32.49	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

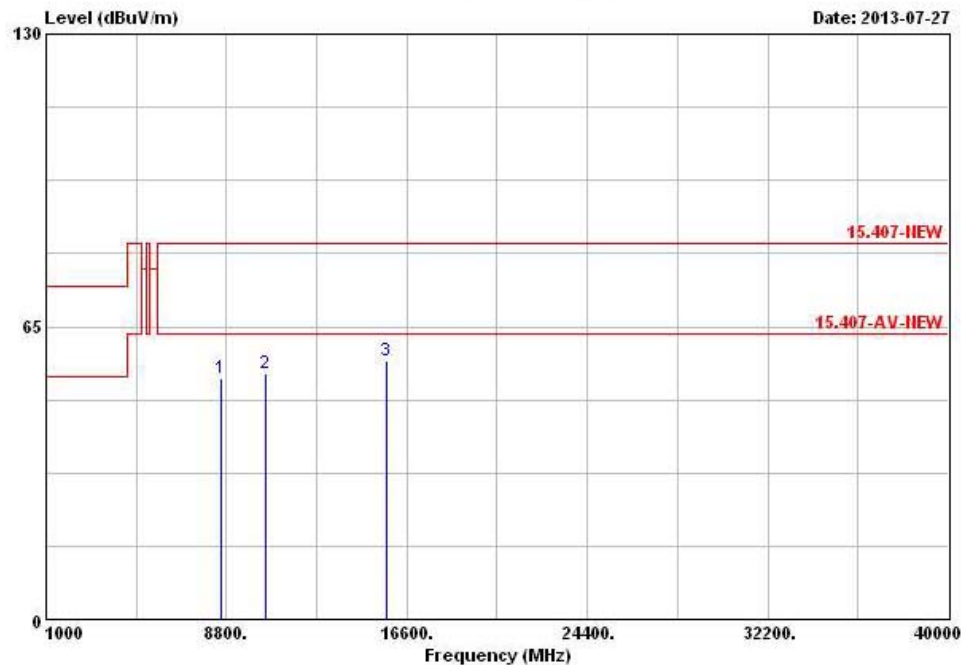
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5240
N_{TX}	2	Polarization	V

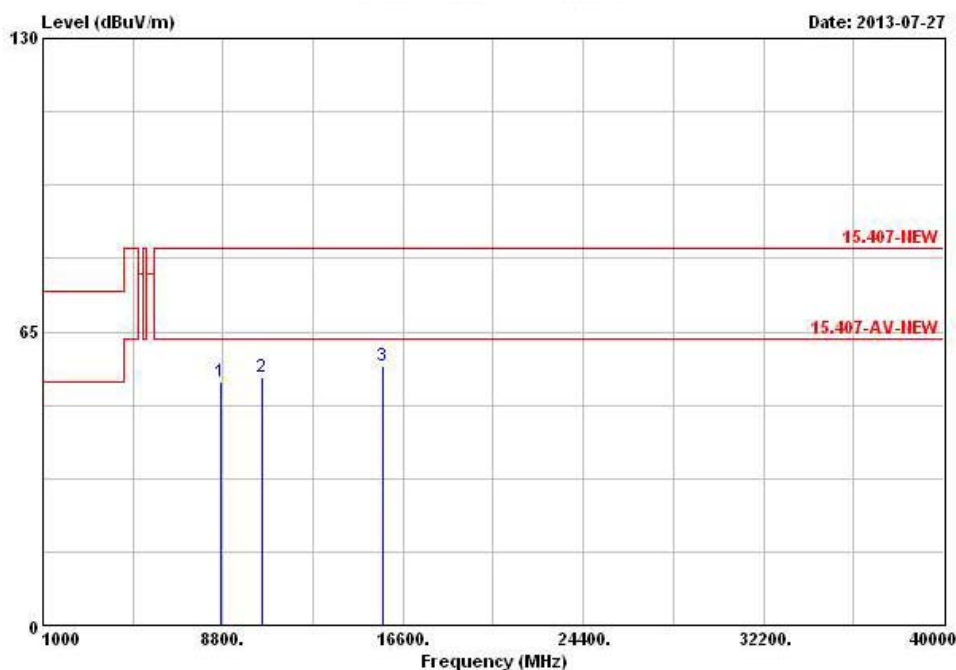


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8540.000	53.44	-10.10	63.54	43.73	38.64	4.11	33.04	PK	---	---
2	10480.000	54.78	-8.76	63.54	42.84	39.60	5.23	32.89	PK	---	---
3	15720.000	57.36	-6.18	63.54	44.60	37.70	7.58	32.52	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	VHT20	Test Freq. (MHz)	5240
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8710.000	53.99	-9.55	63.54	44.06	38.44	4.58	33.09	PK	---	---
2	10480.000	55.06	-8.48	63.54	43.12	39.60	5.23	32.89	PK	---	---
3	15720.000	57.27	-6.27	63.54	44.51	37.70	7.58	32.52	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

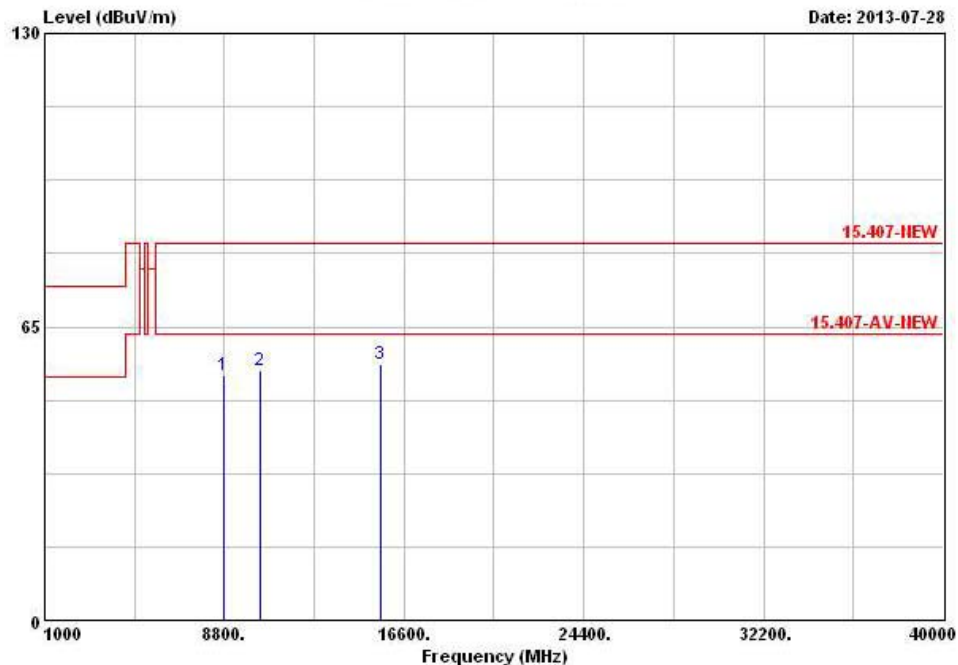
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5190
N_{TX}	2	Polarization	V

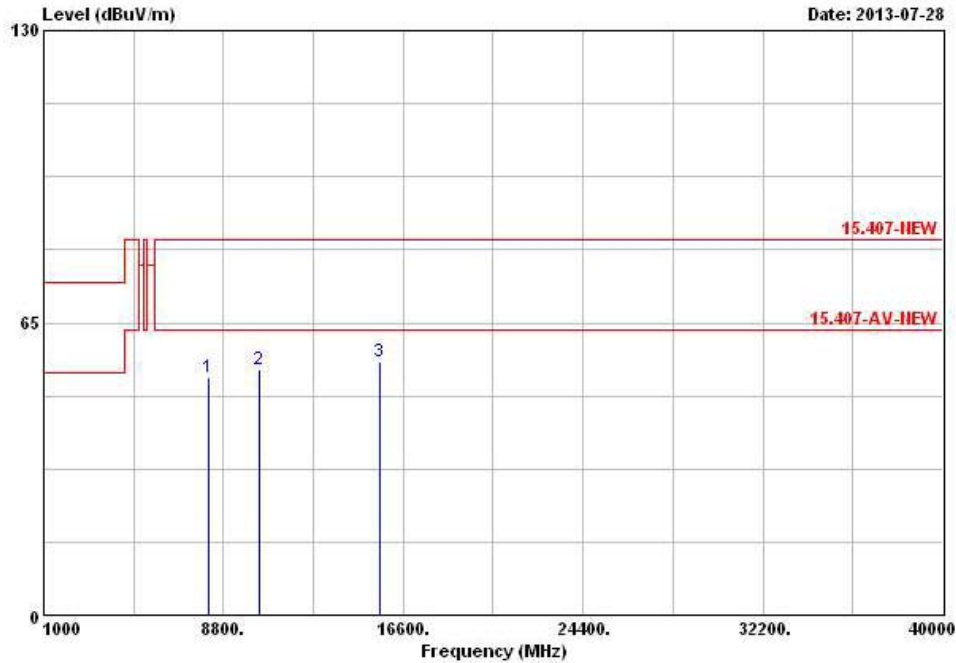


	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @	8790.000	54.13	-9.41	63.54	44.12	38.36	4.76	33.11	PK	---
2 @	10380.000	55.14	-8.40	63.54	43.25	39.60	5.26	32.97	PK	---
3 @	15570.000	56.76	-6.78	63.54	43.78	37.98	7.47	32.47	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	VHT40	Test Freq. (MHz)	5190
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8180.000	52.80	-10.74	63.54	43.87	38.11	3.83	33.01	PK	---	---
2	10380.000	54.47	-9.07	63.54	42.58	39.60	5.26	32.97	PK	---	---
3	15570.000	56.38	-7.16	63.54	43.40	37.98	7.47	32.47	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

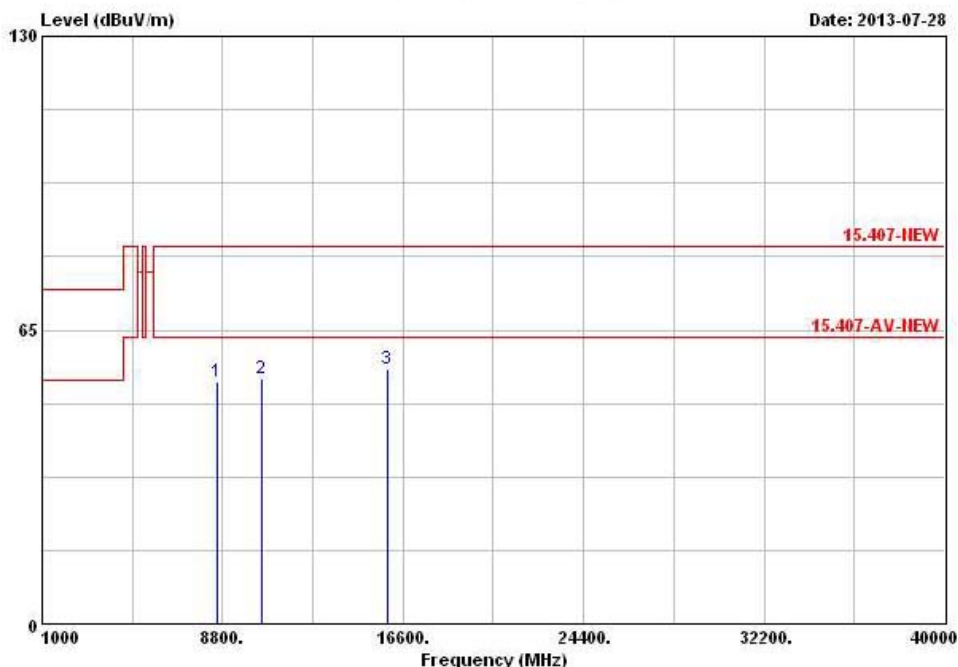
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5230
N_{TX}	2	Polarization	V



Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 8550.000	53.46	-10.08	63.54	43.66	38.64	4.20	33.04	PK	---
2 @ 10460.000	54.16	-9.38	63.54	42.24	39.60	5.23	32.91	PK	---
3 @ 15960.000	56.37	-7.17	63.54	43.87	37.26	7.85	32.61	PK	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

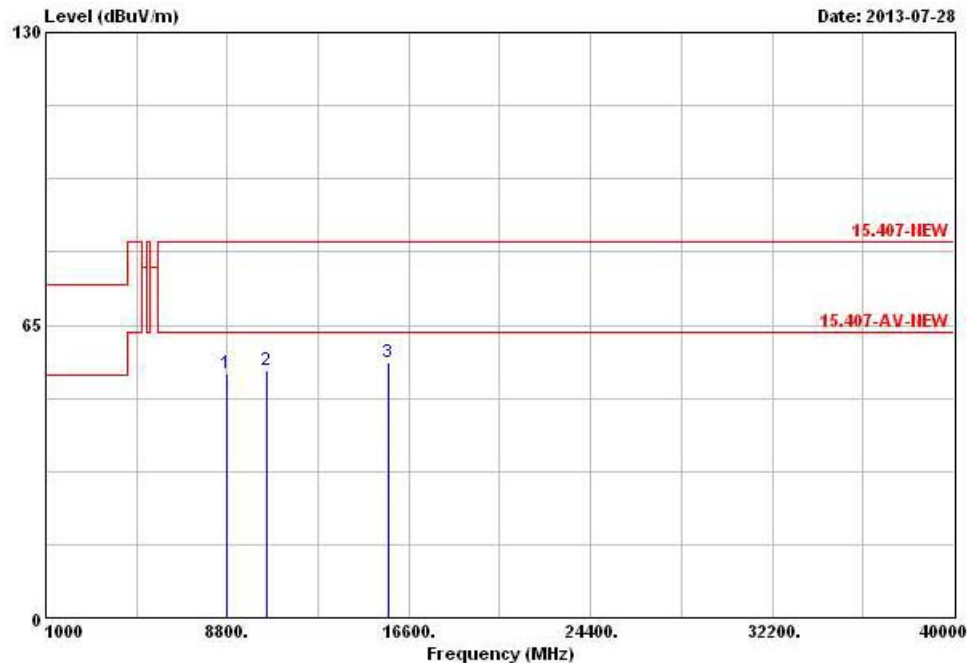
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5230
N_{TX}	2	Polarization	H

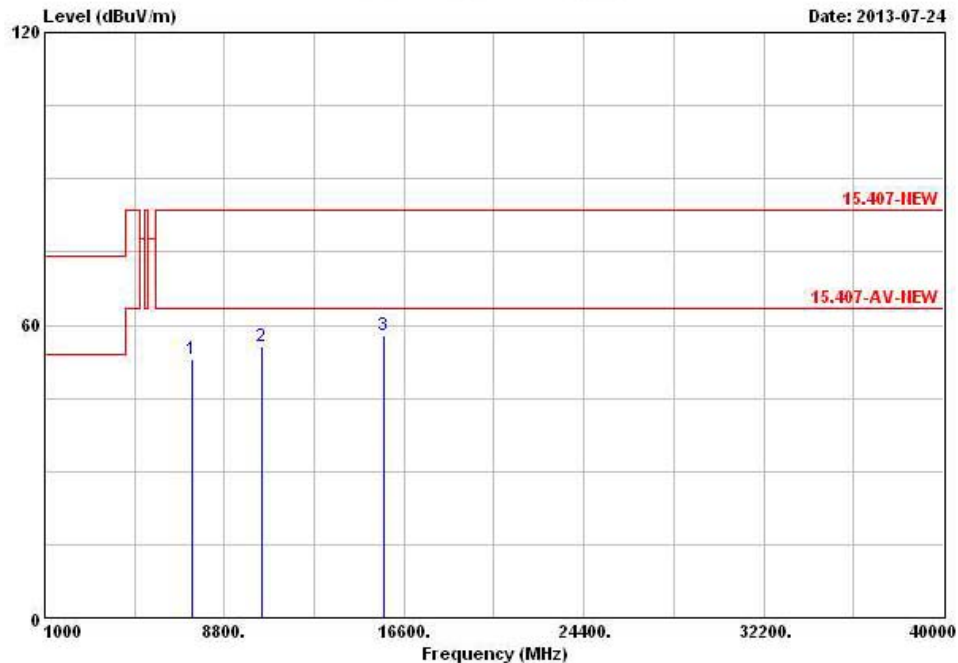


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	8740.000	54.13	-9.41	63.54	44.23	38.42	4.58	33.10	PK	---	---
2 @	10460.000	55.02	-8.52	63.54	43.10	39.60	5.23	32.91	PK	---	---
3 @	15690.000	56.71	-6.83	63.54	43.88	37.76	7.58	32.51	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	VHT80	Test Freq. (MHz)	5210
N_{TX}	2	Polarization	V



Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp			Ant	Table
MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
		dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 7430.000	53.09	-10.45	63.54	44.62	37.20	4.17	32.90	PK	---	---
2 @ 10420.000	55.61	-7.93	63.54	43.71	39.60	5.25	32.95	PK	---	---
3 @ 15720.000	57.78	-5.76	63.54	45.02	37.70	7.58	32.52	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

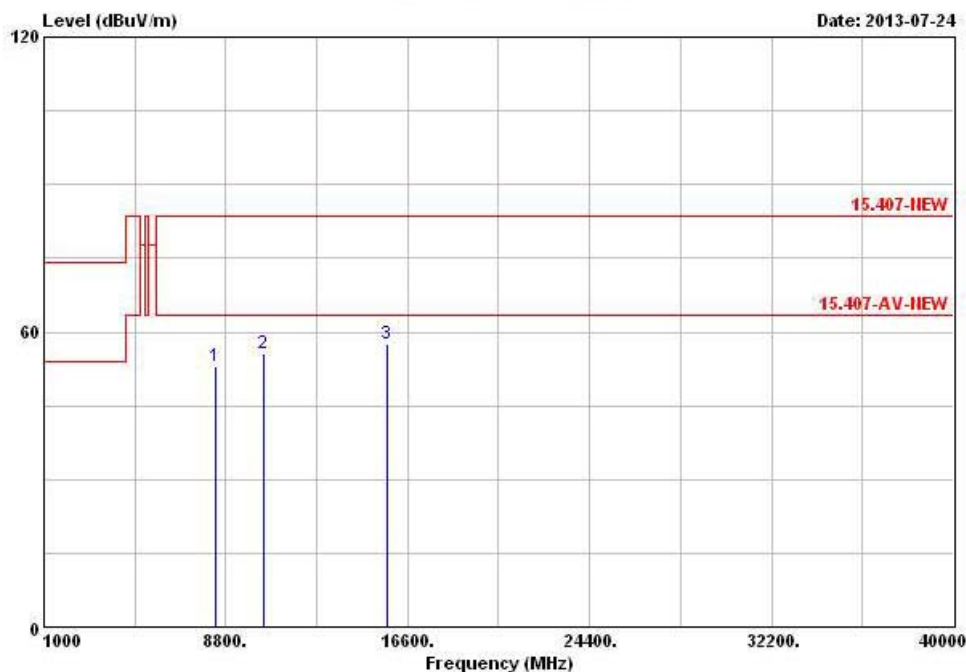
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT80	Test Freq. (MHz)	5210
N_{TX}	2	Polarization	H



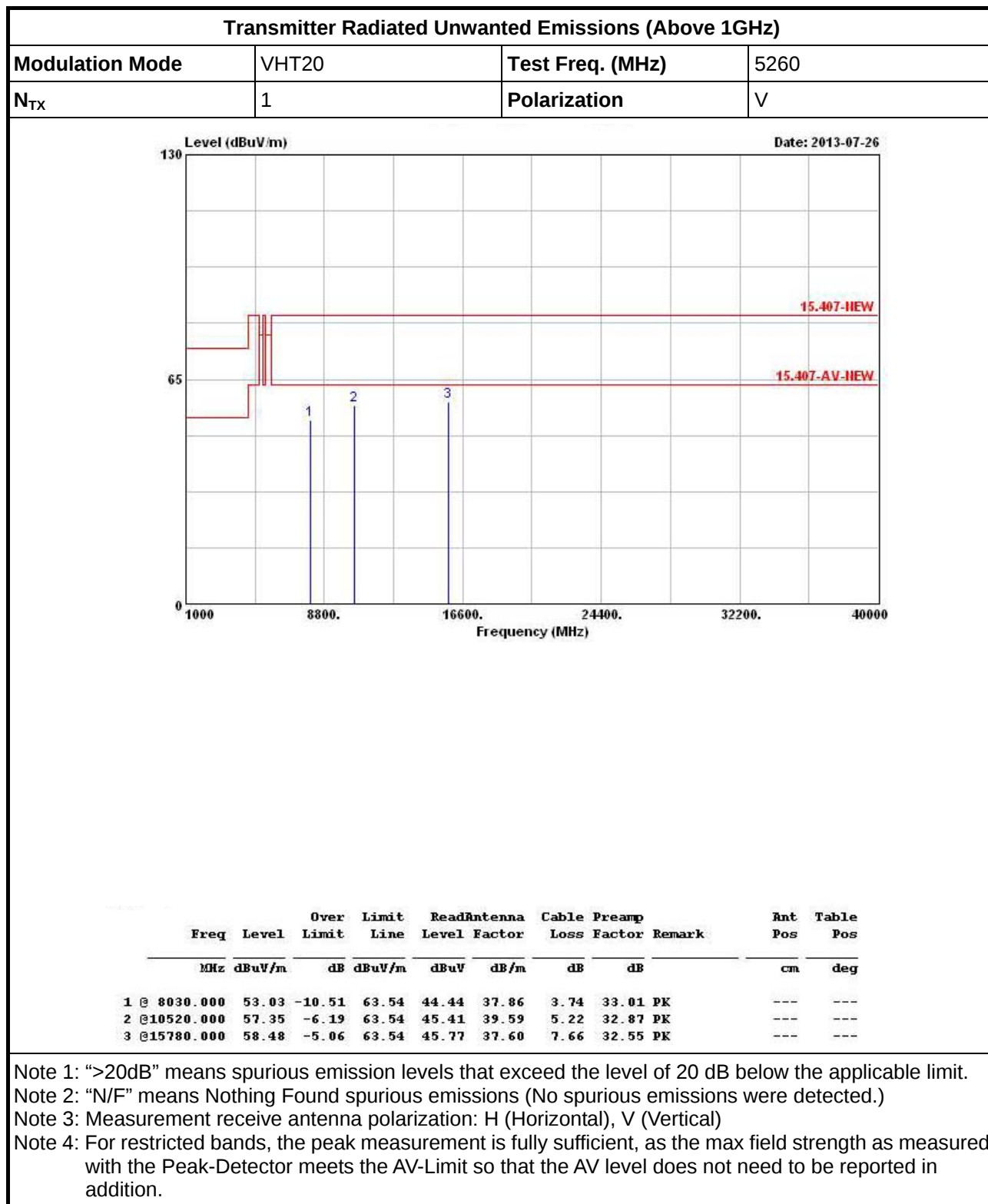
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8340.000	53.15	-10.39	63.54	43.83	38.42	3.92	33.02	PK	---	---
2 @ 10420.000	55.48	-8.06	63.54	43.58	39.60	5.25	32.95	PK	---	---
3 @ 15720.000	57.68	-5.86	63.54	44.92	37.70	7.58	32.52	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.)

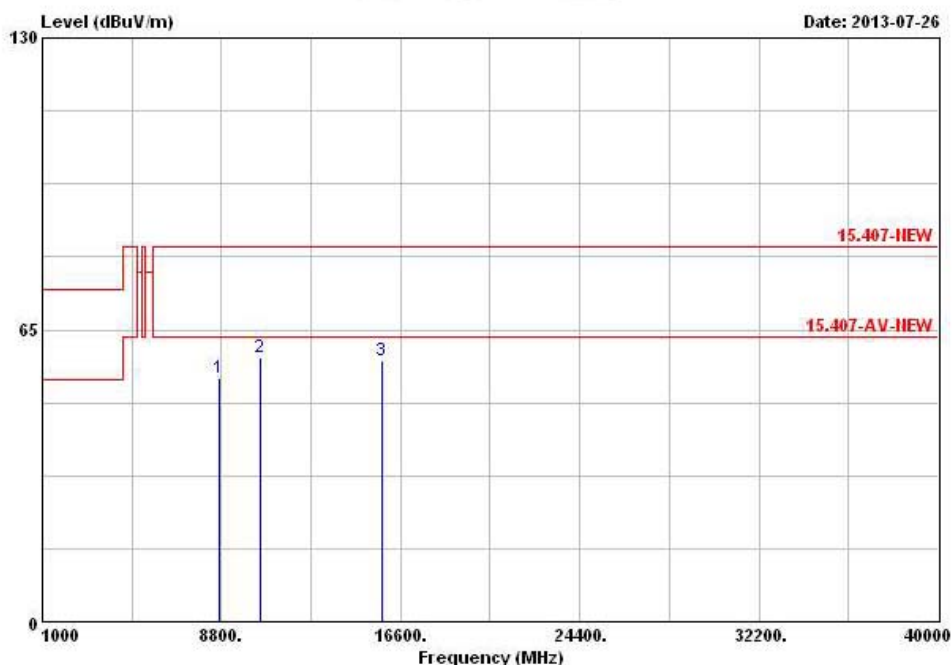
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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.

3.7.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5250-5350MHz


Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5260
N_{TX}	1	Polarization	H



Freq	Level	Over Limit	Limit Line	ReadAntenna 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 @ 8670.000	54.13	-9.41	63.54	44.23	38.50	4.48	33.08	PK	---	---
2 @ 10520.000	58.67	-4.87	63.54	46.73	39.59	5.22	32.87	PK	---	---
3 @ 15780.000	57.97	-5.57	63.54	45.26	37.60	7.66	32.55	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

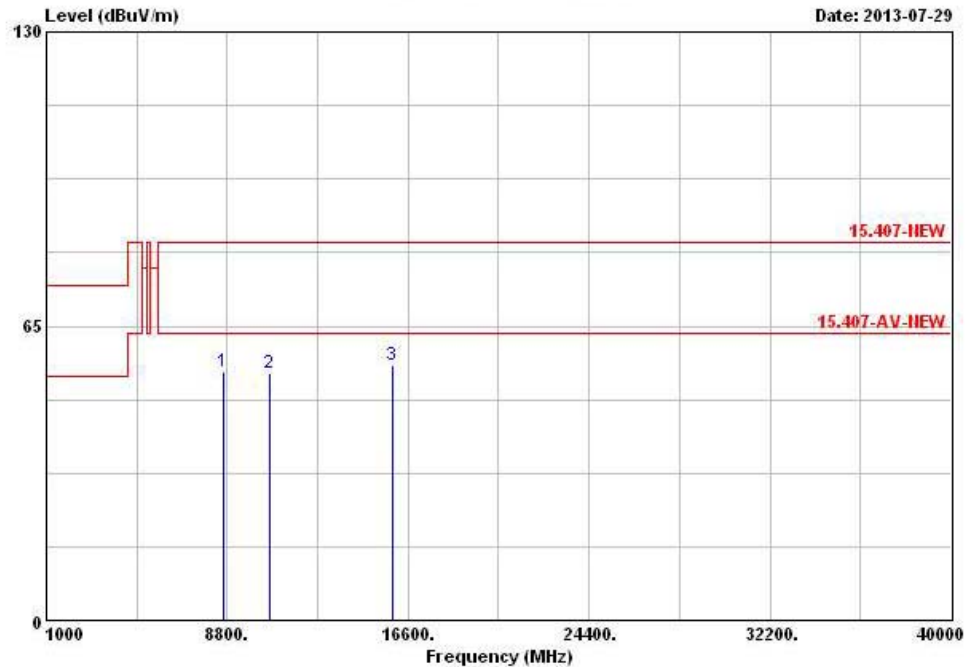
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5300
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	8620.000	55.08	-8.46	63.54	45.28	38.56	4.30	33.06	PK	---	---
2	10600.000	54.55	-8.99	63.54	42.76	39.52	5.10	32.83	PK	---	---
3	15900.000	56.39	-7.15	63.54	43.81	37.39	7.77	32.58	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

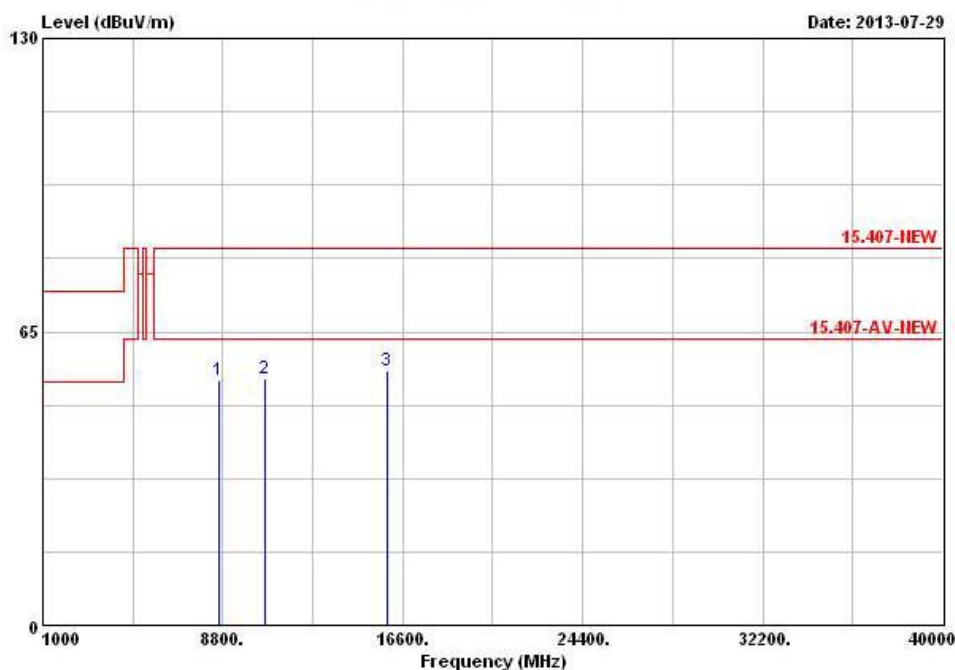
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5300
N_{TX}	1	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8630.000	54.38	-9.16	63.54	44.51	38.54	4.39	33.06	PK	---
2	10600.000	54.70	-8.84	63.54	42.91	39.52	5.10	32.83	PK	---
3	15900.000	56.33	-7.21	63.54	43.75	37.39	7.77	32.58	PK	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

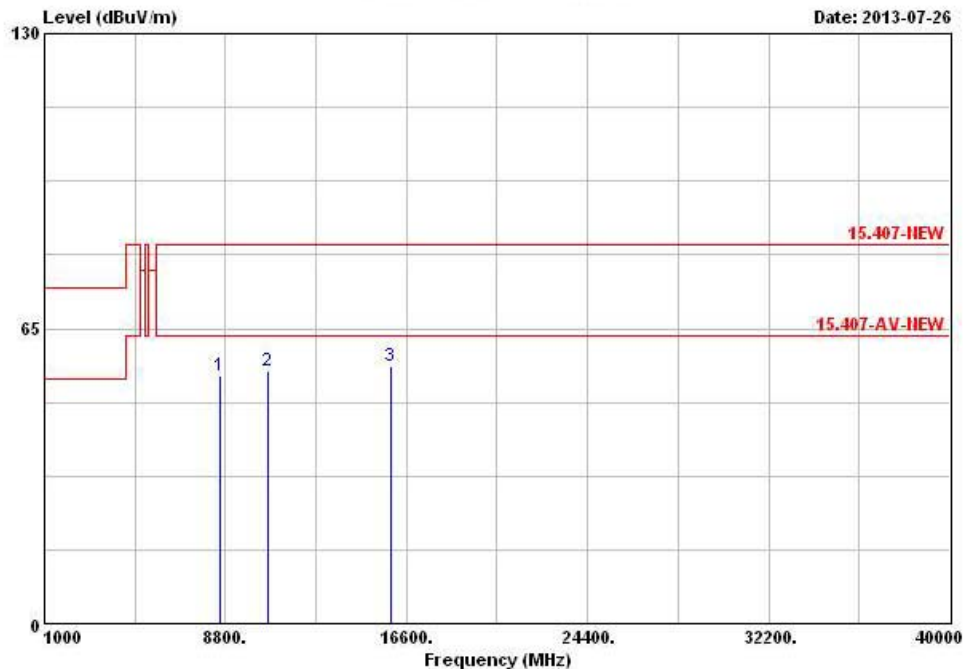
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5320
N_{TX}	1	Polarization	V

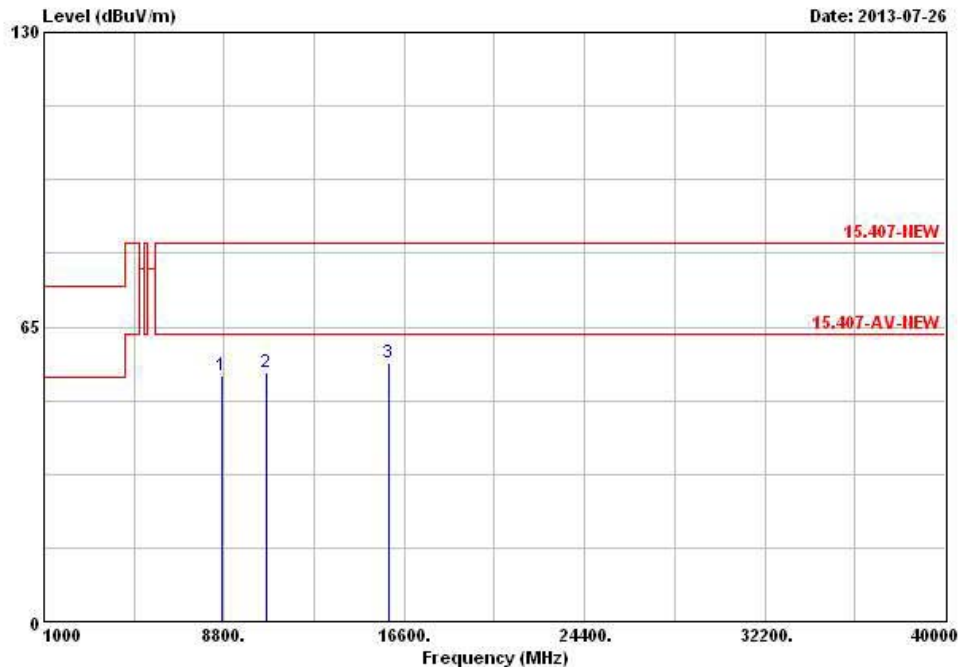


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	@ 8550.000	54.56	-8.98	63.54	44.76	38.64	4.20	33.04	PK	---	---
2	@ 10640.000	55.52	-8.02	63.54	43.79	39.49	5.04	32.80	PK	---	---
3	@ 15960.000	56.86	-6.68	63.54	44.36	37.26	7.85	32.61	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	VHT20	Test Freq. (MHz)	5320
N_{TX}	1	Polarization	H



Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp			Ant	Table
MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
		dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8670.000	54.33	-9.21	63.54	44.43	38.50	4.48	33.08	PK	---	---
2 @ 10640.000	55.07	-8.47	63.54	43.34	39.49	5.04	32.80	PK	---	---
3 @ 15960.000	56.91	-6.63	63.54	44.41	37.26	7.85	32.61	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

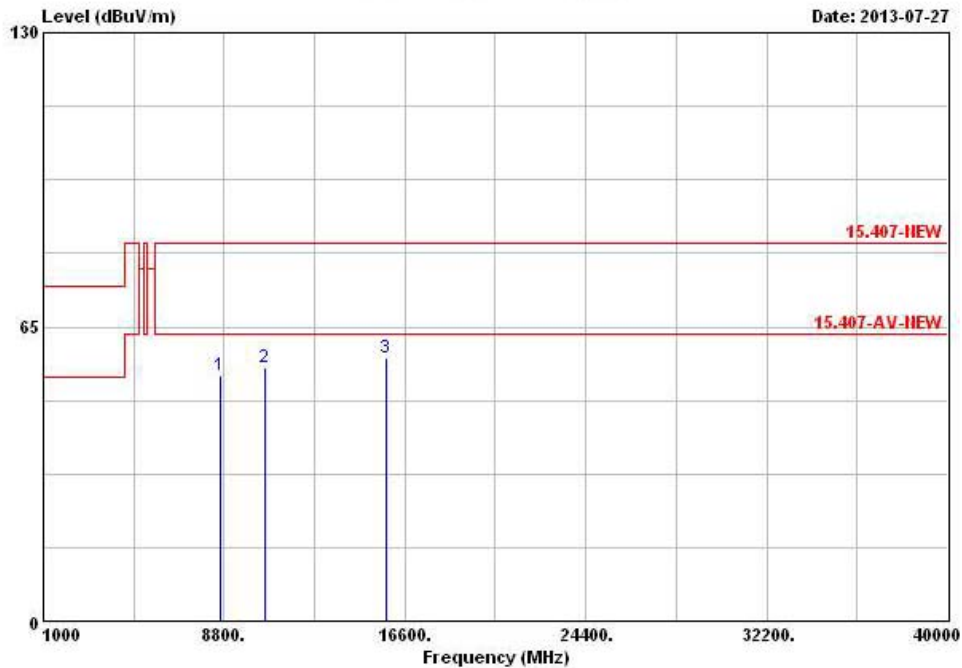
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5270
N_{TX}	1	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @	8630.000	54.37	-9.17	63.54	44.50	38.54	4.39	33.06	PK	---
2 @	10540.000	56.06	-7.48	63.54	44.19	39.57	5.16	32.86	PK	---
3 @	15810.000	58.08	-5.46	63.54	45.40	37.54	7.70	32.56	PK	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

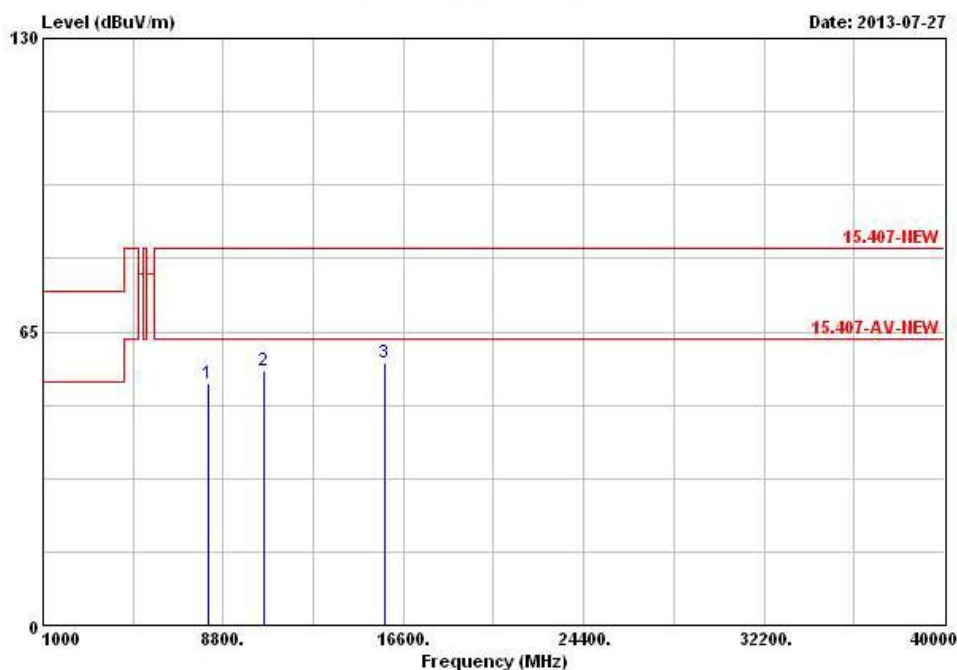
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5270
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	@ 8150.000	53.55	-9.99	63.54	44.67	38.08	3.81	33.01	PK	---	---
2	@ 10540.000	56.26	-7.28	63.54	44.39	39.57	5.16	32.86	PK	---	---
3	@ 15810.000	58.11	-5.43	63.54	45.43	37.54	7.70	32.56	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

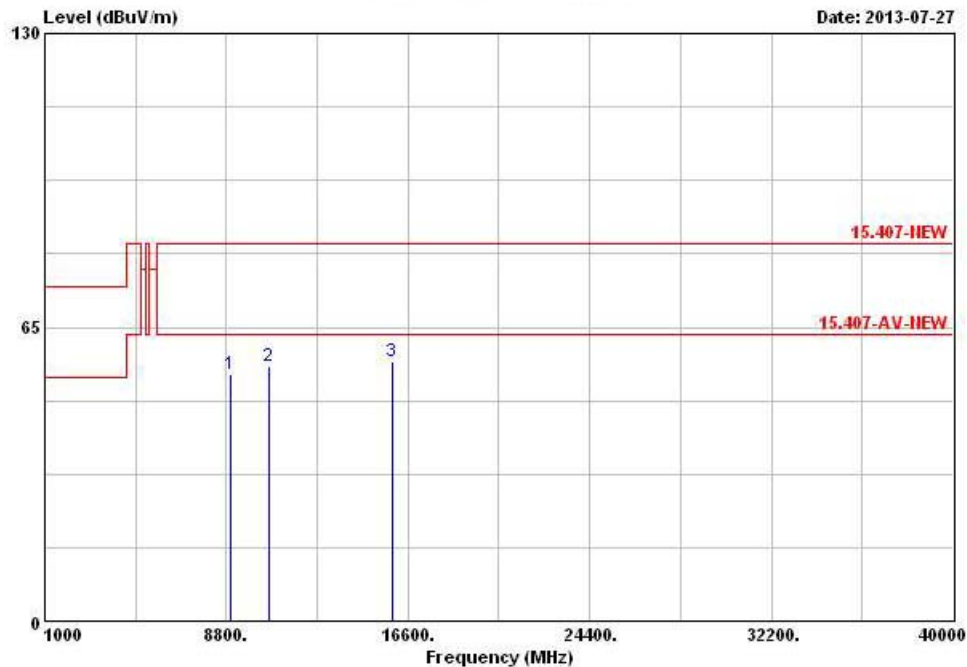
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT40	Test Freq. (MHz)	5310
N_{TX}	1	Polarization	V

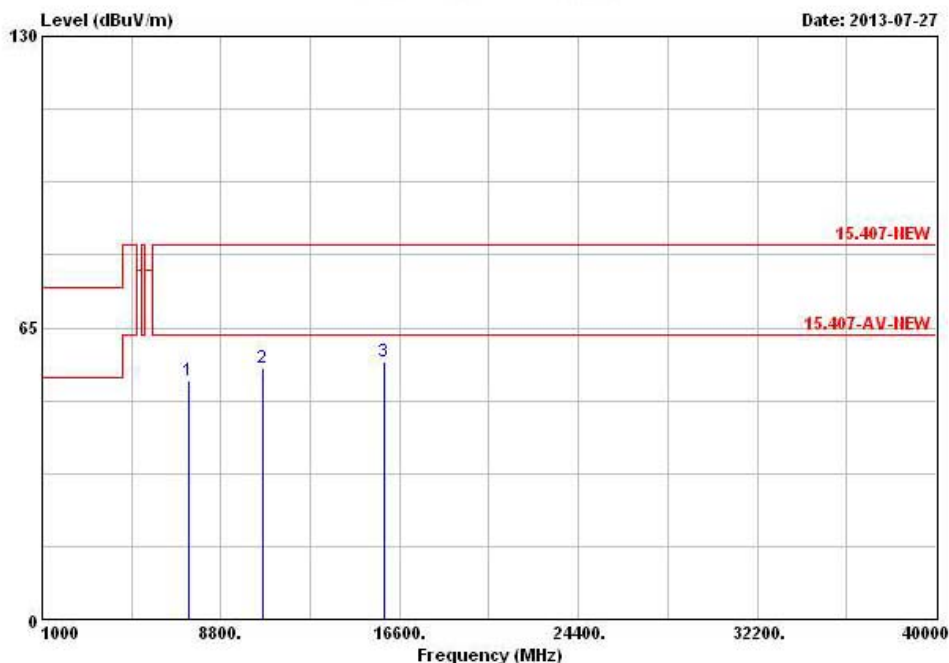


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	@ 8990.000	54.58	-8.96	63.54	44.41	38.12	5.23	33.18	PK	---	---
2	@10620.000	56.31	-7.23	63.54	44.58	39.50	5.04	32.81	PK	---	---
3	@15930.000	57.55	-5.99	63.54	45.01	37.32	7.81	32.59	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	VHT40	Test Freq. (MHz)	5310
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	@ 7420.000	53.18	-10.36	63.54	44.71	37.20	4.17	32.90	PK	---	---
2	@ 10620.000	55.92	-7.62	63.54	44.19	39.50	5.04	32.81	PK	---	---
3	@ 15930.000	57.38	-6.16	63.54	44.84	37.32	7.81	32.59	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

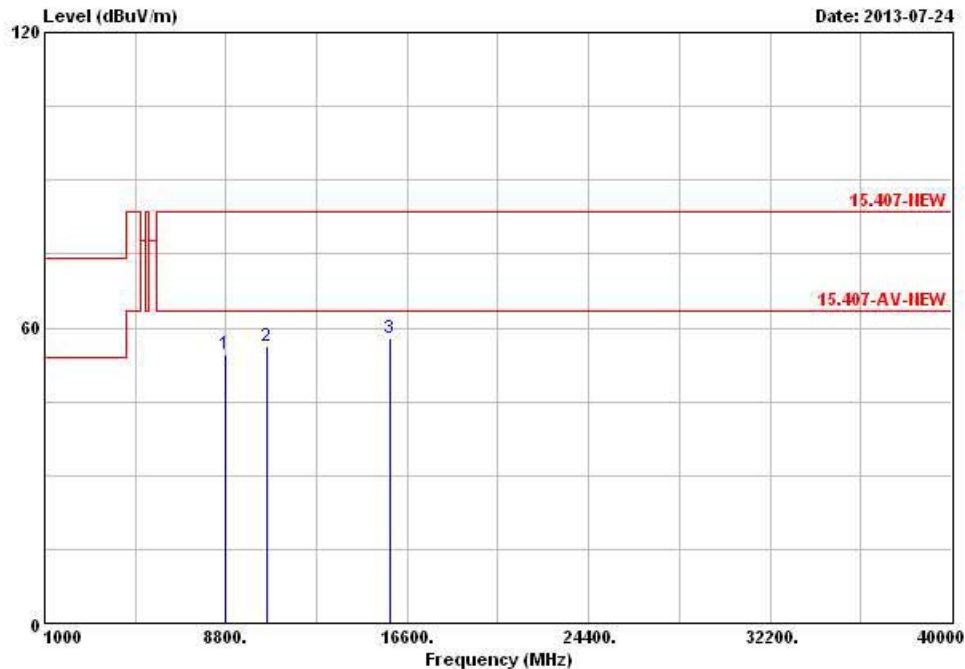
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT80	Test Freq. (MHz)	5290
N_{TX}	1	Polarization	V

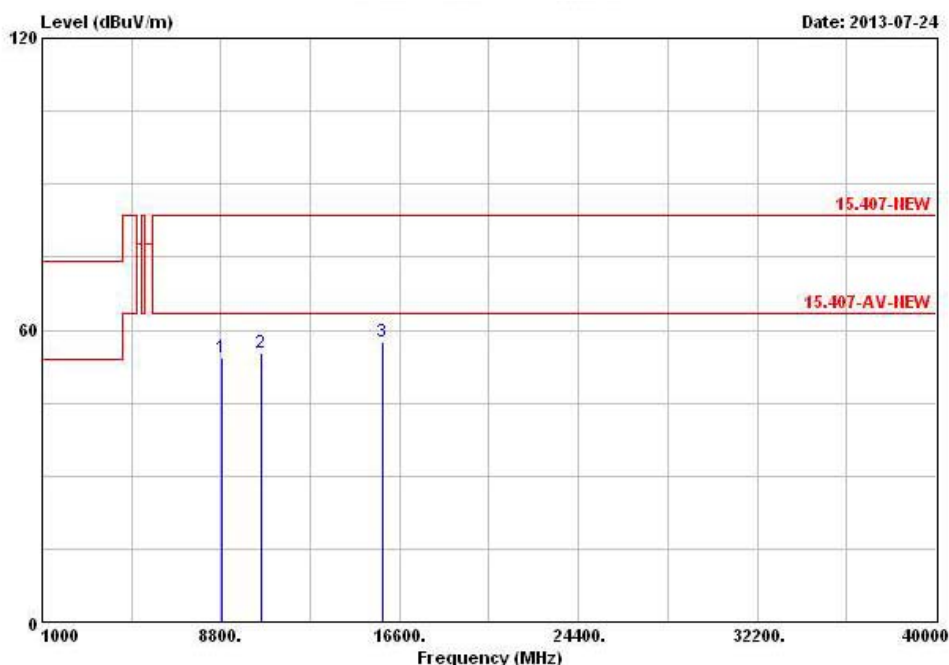


Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 8790.000	54.56	-8.98	63.54	44.55	38.36	4.76	33.11	PK	---
2 @ 10580.000	56.11	-7.43	63.54	44.31	39.53	5.10	32.83	PK	---
3 @ 15870.000	57.85	-5.69	63.54	45.28	37.42	7.73	32.58	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	VHT80	Test Freq. (MHz)	5290
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	@ 8820.000	54.15	-9.39	63.54	44.10	38.32	4.86	33.13	PK	---	---
2	@ 10580.000	55.30	-8.24	63.54	43.50	39.53	5.10	32.83	PK	---	---
3	@ 15870.000	57.67	-5.87	63.54	45.10	37.42	7.73	32.58	PK	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

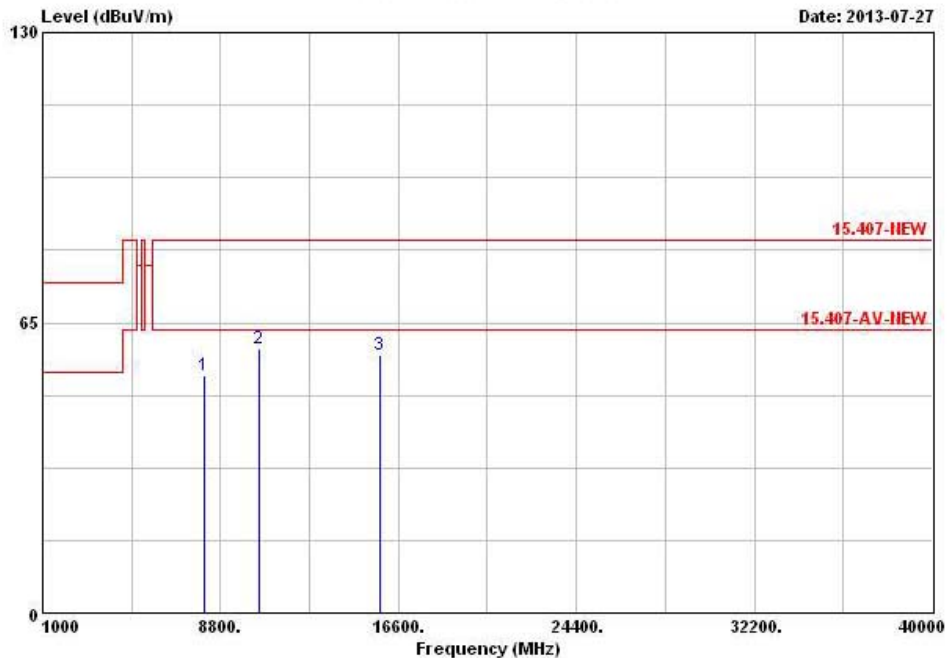
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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	VHT20	Test Freq. (MHz)	5260
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	@ 8100.000	53.16	-10.38	63.54	44.39	37.99	3.79	33.01	PK	---	---
2	@10520.000	59.12	-4.42	63.54	47.18	39.59	5.22	32.87	PK	---	---
3	@15780.000	57.69	-5.85	63.54	44.98	37.60	7.66	32.55	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.