

# FCC Test Report

**Equipment** : Personal Computer  
**Brand Name** : SONY  
**Model No.** : SVT212A11L  
**FCC ID** : AK8SVT212A11L  
**Standard** : 47 CFR FCC Part 15.247  
**Operating Band** : 5725 MHz – 5850 MHz  
**FCC Classification** : DTS  
**Applicant** : Sony Corporation  
**Manufacturer** : 1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

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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### APPENDIX A. TEST PHOTOS

### APPENDIX B. PHOTOGRAPHS OF EUT



## 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	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M:16.21 / 40M:27.60 80M: 57.68	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 23.74	Power [dBm]:30	Complied
3.4	15.247(d)	Power Spectral Density	PSD [dBm/100kHz]: -10.28	PSD [dBm/MHz]:17 replace 8dBm/3kHz	Complied
3.5	15.247(c)	Transmitter Bandedge Emissions	Non-Restricted Bands: 5724.340MHz: 27.51dB	replace > 20 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(c)	Transmitter Unwanted Emissions	Restricted Bands [dBuV/m at 3m]:17475MHz 66.88(Margin 16.66dB) - PK 54.00(Margin 9.54dB) - AV	replace > 20 dBc Restricted Bands: FCC 15.209	Complied



# 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 <sub>TX</sub> )	RF Output Power (dBm)	Co-location
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	1	23.74	Yes
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	1	19.63	
5725-5850	ac(VHT80)	5775	155 [1]	1	22.55	
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	2	22.43	
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	2	22.79	
5725-5850	ac(VHT80)	5775	155 [1]	2	22.45	

Note 1: RF output power specifies that Maximum Peak 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.)

### 1.1.2 Antenna Information

Antenna Category	
<input checked="" type="checkbox"/>	Integral antenna (antenna permanently attached)
<input checked="" type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	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	<input type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input checked="" type="checkbox"/> Prototype
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.:
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.:
<input type="checkbox"/>	Other:

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
<input type="checkbox"/> Operated normally mode for worst duty cycle	
<input checked="" type="checkbox"/> Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT20)	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT40)	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT80)	0

1.1.5 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> External DC adapter	<input checked="" type="checkbox"/> Li-on Battery

## 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 $\overline{\text{---}}$ 3.3A		
Li-ion Battery	Brand Name	SONY	Model Name	VGP-BPS34
	Power Rating	11.4V $\overline{\text{---}}$ / 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 558074
- ◆ FCC KDB 644545 D01
- ◆ FCC KDB 644545 D02
- ◆ FCC KDB 662911
- ◆ FCC KDB 412172

### 1.5 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1 <sup>st</sup> 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. 20, 2013
Radiated Emission	03CH03-HY	Daniel	25°C / 56%	Jul. 02, 2013~ Jul. 28, 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, 6dB bandwidth		±1.42 %	N/A
RF output power, conducted		±0.63 dB	N/A
Power density, conducted		±0.81 dB	N/A
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	±2.56 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 <sub>TX</sub> )	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 (5725-5850MHz band)							
Test Software Version	DRTU						
Modulation Mode	N <sub>TX</sub>	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		NCB: 80MHz
		5745	5785	5825	5755	5795	5775
VHT20, M0-8	1	35	39	39	-	-	-
VHT40, M0-9	1	-	-	-	31	31	-
VHT80, M0-9	1	-	-	-	-	-	34
VHT20, M0-8	2	30/31	31/31	31.5/32	-	-	-
VHT40, M0-9	2	-	-	-	31/31	31/31.5	-
VHT80, M0-9	2	-	-	-	-	-	31.5/31.5

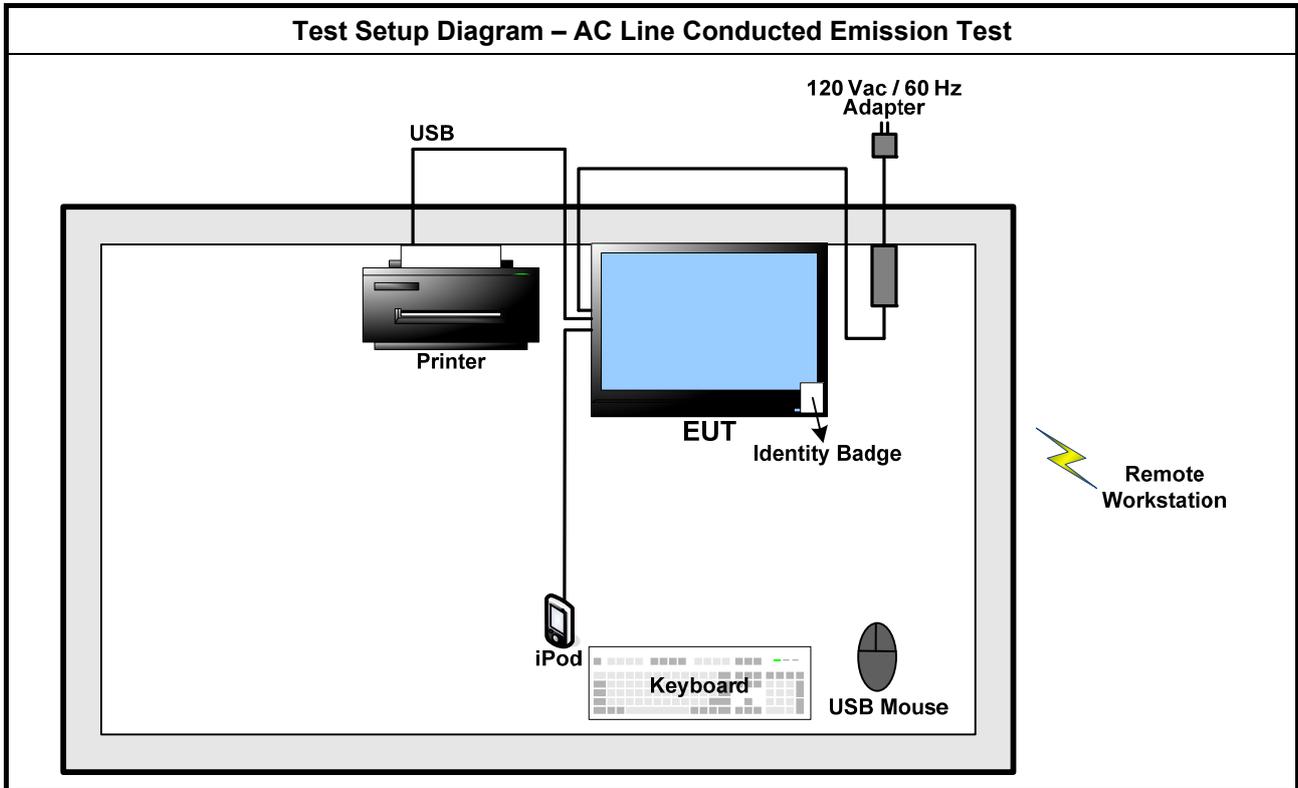
### 2.3 The Worst Case Measurement Configuration

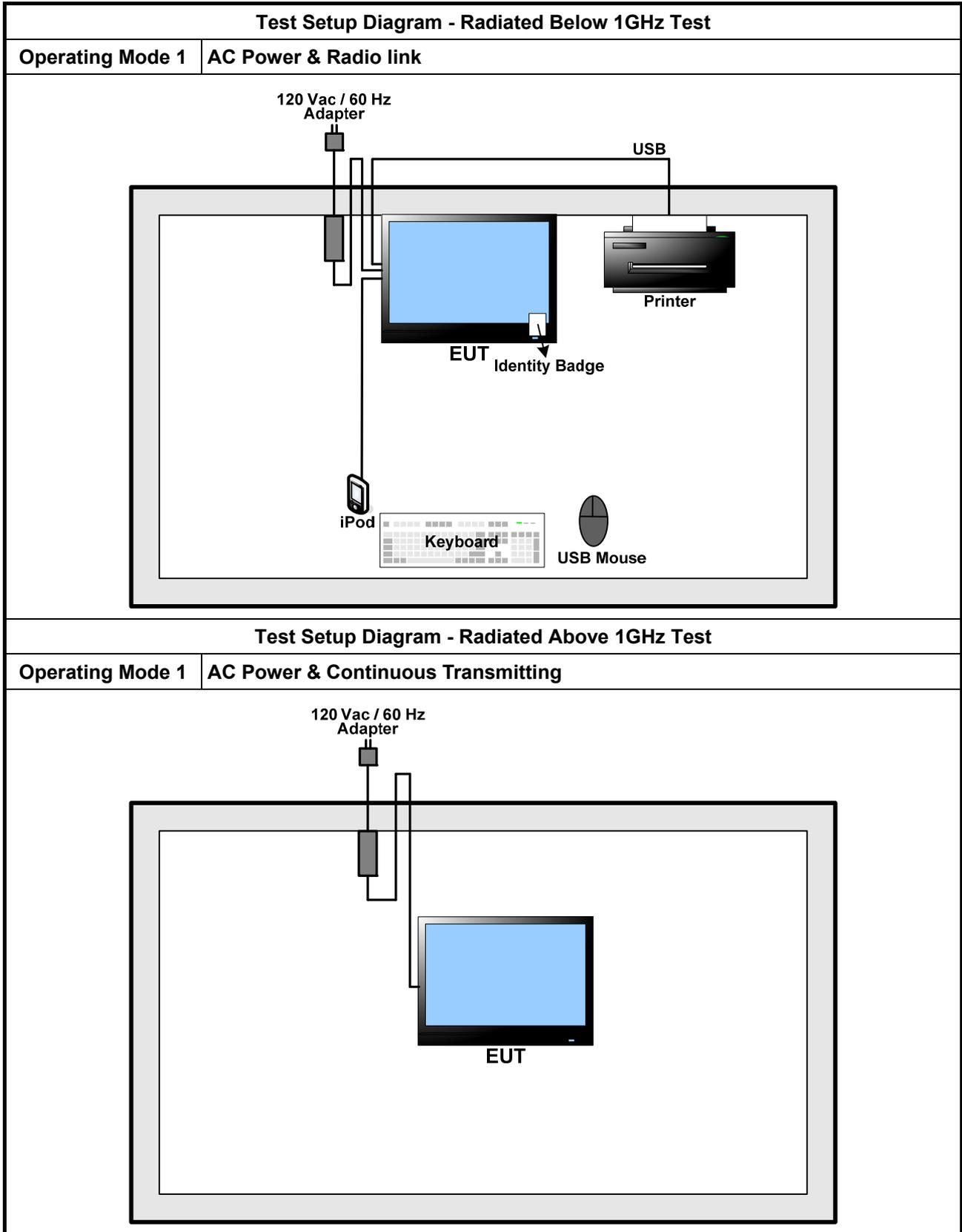
The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
<b>Operating Mode</b>	Operating Mode Description
1	AC Power & Radio link

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	RF Output Power, Power Spectral Density, 6 dB Bandwidth Transmitter Conducted Unwanted Emissions Transmitter Conducted Bandedge Emissions
<b>Test Condition</b>	Conducted measurement at transmit chains
<b>Modulation Mode</b>	VHT20, VHT40, VHT80

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions		
<b>Test Condition</b>	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.		
<b>User Position</b>	<input checked="" type="checkbox"/> EUT will be placed in fixed position.		
	<input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes.		
	<input type="checkbox"/> 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.		
<b>Operating Mode &lt; 1GHz</b>	<input checked="" type="checkbox"/> 1. AC Power & Radio link		
<b>Modulation Mode</b>	VHT20, VHT40, VHT80		
<b>Orthogonal Planes of EUT</b>	<b>X Plane</b>	<b>Y Plane</b>	<b>Z Plane</b>
			

## 2.4 Test Setup Diagram





### 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.

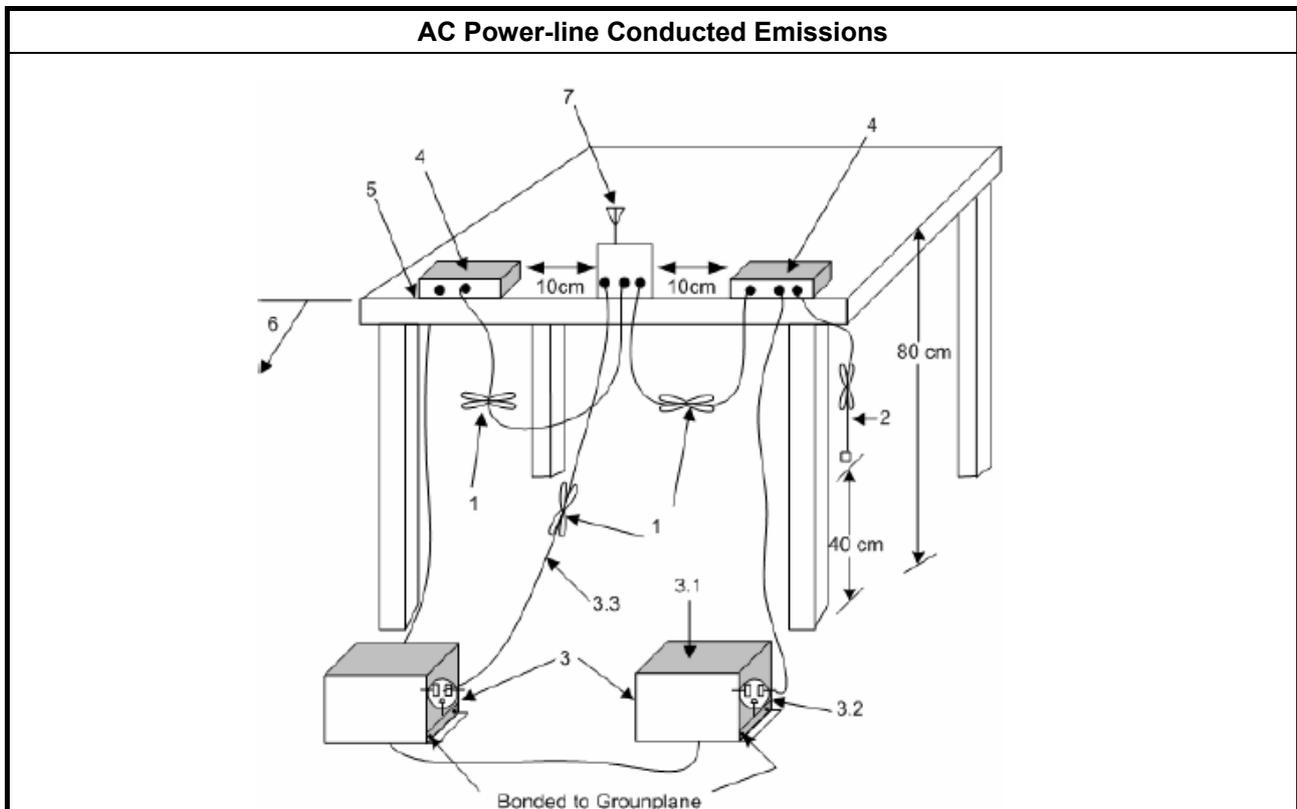
##### 3.1.2 Measuring Instruments

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

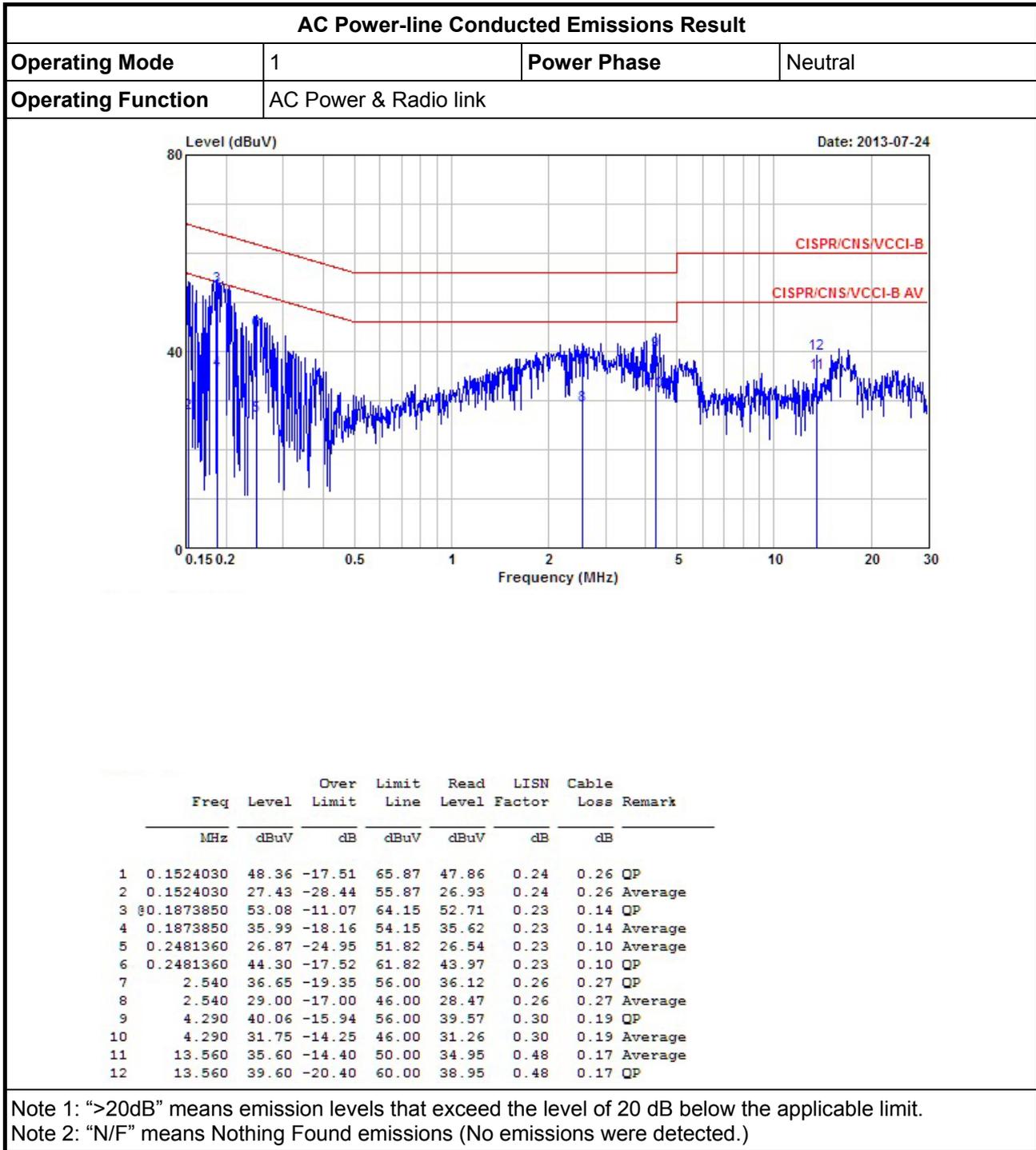
##### 3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

##### 3.1.4 Test Setup

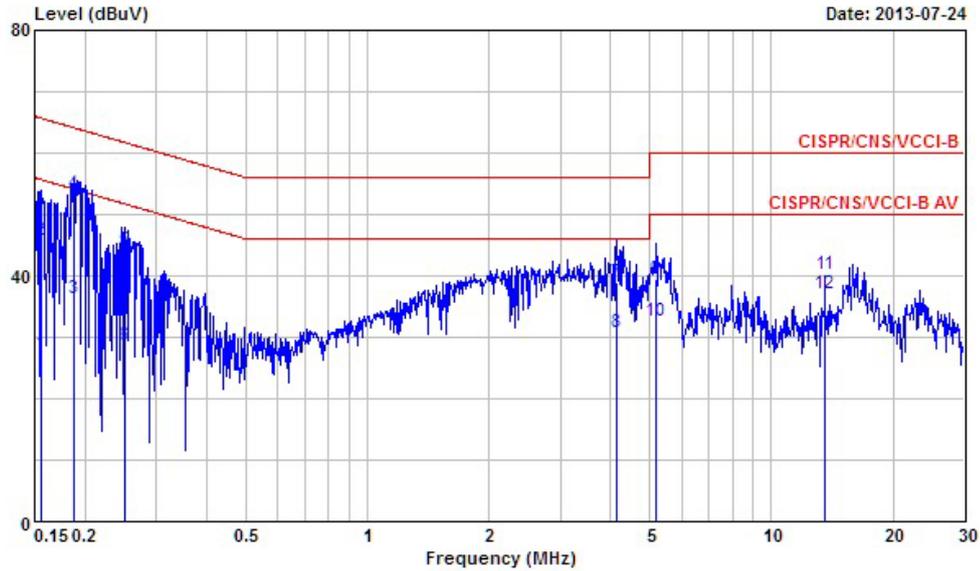


### 3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	AC Power & Radio link		



	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 6dB Bandwidth

#### 3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
<input checked="" type="checkbox"/>	6 dB bandwidth $\geq$ 500 kHz.

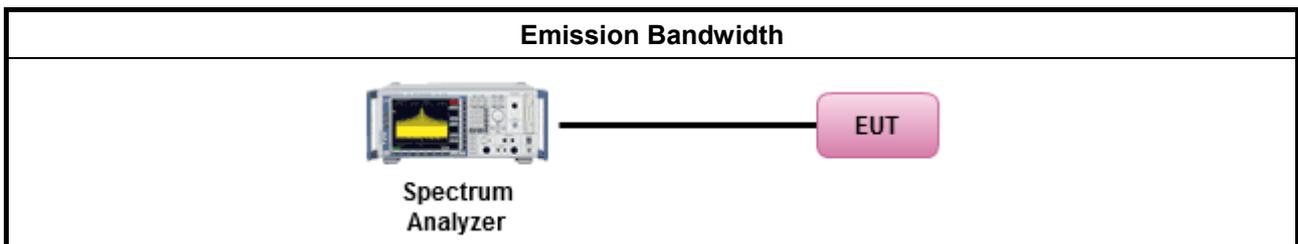
#### 3.2.2 Measuring Instruments

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

#### 3.2.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input checked="" type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input checked="" type="checkbox"/>	The EUT supports multiple transmit chains using options given below:
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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



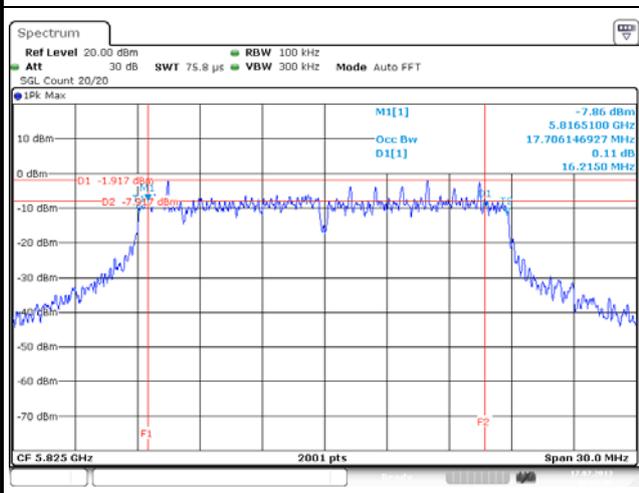
3.2.5 Test Result of Emission Bandwidth

Emission Bandwidth Result						
Condition			Emission Bandwidth (MHz)			
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	99% Bandwidth		6dB Bandwidth	
			Chain- Port 1	Chain- Port 2	Chain- Port 1	Chain- Port 2
VHT20,M0	1	5745	22.08	-	17.58	-
VHT20,M0	1	5785	20.92	-	17.80	-
VHT20,M0	1	5825	20.71	-	17.67	-
VHT40,M0	1	5755	35.94	-	28.88	-
VHT40,M0	1	5795	35.98	-	28.80	-
VHT80,M0	1	5755	76.04	-	57.68	-
VHT20,M0	2	5745	17.78	17.72	17.77	17.71
VHT20,M0	2	5785	17.70	17.66	17.70	17.67
VHT20,M0	2	5825	17.70	17.69	16.21	17.65
VHT40,M0	2	5755	35.94	35.98	33.84	32.56
VHT40,M0	2	5795	35.98	35.90	31.36	27.60
VHT80,M0	2	5755	74.92	75.00	62.56	60.08
<b>Limit</b>			<b>N/A</b>		<b>≥500 kHz</b>	
<b>Result</b>			<b>Complied</b>			
Note 1: N <sub>TX</sub> = Number of Transmit Chains						

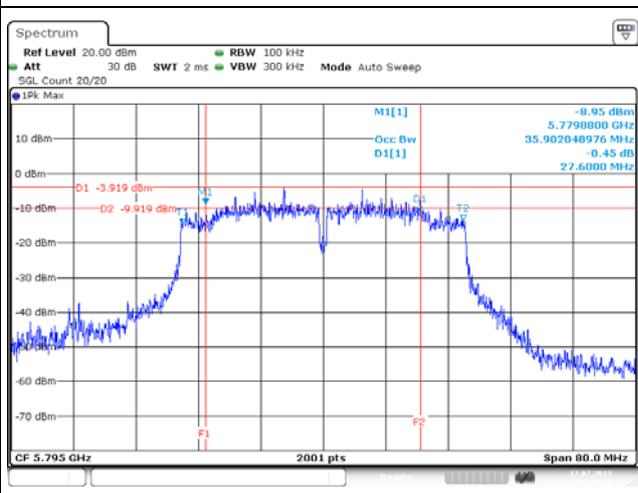


Worst Emission Bandwidth Plots

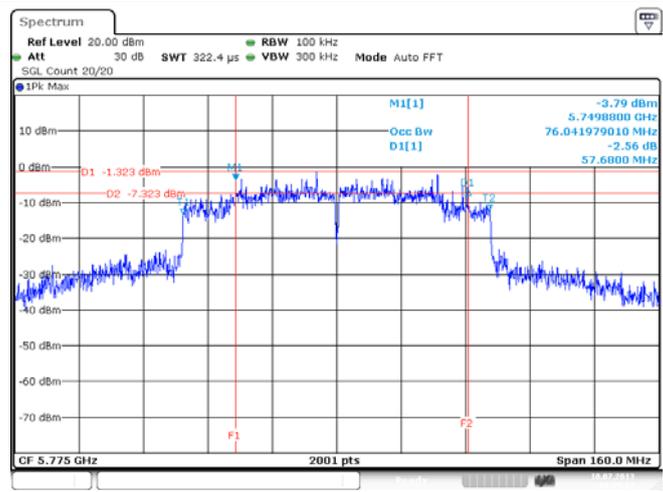
VHT20



VHT40



VHT80



### 3.3 RF Output Power

#### 3.3.1 RF Output Power Limit

<b>DTS-RF Output Power Limit</b>	
<b>Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit</b>	
<input checked="" type="checkbox"/> 5725-5850 MHz Band:	
<input checked="" type="checkbox"/>	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
<input checked="" type="checkbox"/>	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
<input type="checkbox"/>	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30$ dBm
<b>e.i.r.p. Power Limit:</b>	
<input checked="" type="checkbox"/> 5725-5850 MHz Band	
<input checked="" type="checkbox"/>	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
<input type="checkbox"/>	Point-to-point systems (P2P): N/A
$P_{Out}$ = maximum peak conducted output power or maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi. $P_{eirp}$ = e.i.r.p. Power in dBm.	

<b>DTS 5.8 GHz &amp; U-NII 5.8 GHz -RF Output Power Limit</b>	
<input checked="" type="checkbox"/> For the 5.725-5.825 GHz band:	
<input checked="" type="checkbox"/>	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 $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ .
<input type="checkbox"/>	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 $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$ .
$P_{Out}$ = maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.	

#### 3.3.2 Measuring Instruments

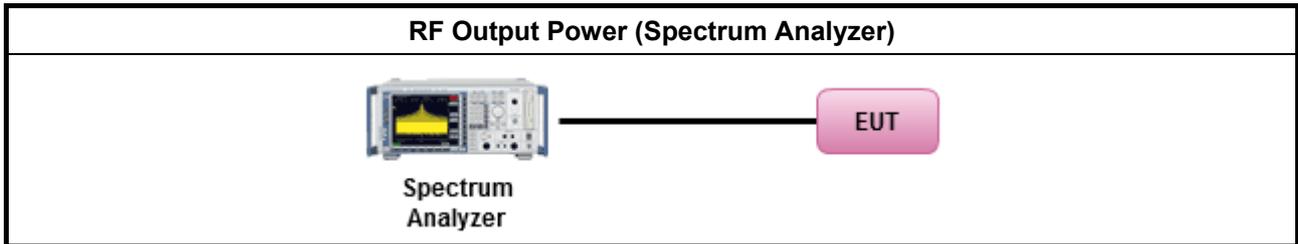
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Maximum Peak Conducted Output Power
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (integrated band power method).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.3 Option 2 (peak power meter for VBW ≥ DTS BW)
<input checked="" type="checkbox"/>	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter).
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input checked="" type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

<b>Test Method for DTS 5.8 GHz &amp; U-NII 5.8 GHz</b>	
<input type="checkbox"/>	Refer FCC KDB 644545 D02 C) In-band measurements for operations above 5.725 GHz. Products that are capable of transmitting U-NII 4 band (5.725-5.825 GHz) or in the DTS 5.8 GHz band (5.725-5.850 GHz) or both. If conducted power in the 5.725-5.850 GHz range (i.e., the upper U-NII band extended to match the upper frequency of the corresponding 15.247 band) satisfies the conducted power limits applicable to the 5.725-5.825 GHz (U-NII 4) band, then the conducted power limits of the U-NII bands and the 5.8 GHz 15.247 band will be judged to have been satisfied.
<input type="checkbox"/>	Maximum Conducted Output Power
	[duty cycle $\geq$ 98% or external video / power trigger]
<input type="checkbox"/>	Refer as FCC KDB 558074, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
<input type="checkbox"/>	Refer as FCC KDB 558074, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, 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
<input type="checkbox"/>	Refer as FCC KDB 558074, clause E Method PM (using an RF average power meter).

**3.3.4 Test Setup**



3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G <sub>ANT</sub> (dBi)		-5.42	-5.42	-	-
Modulation Mode	DG (dBi)	N <sub>TX</sub>	N <sub>SS</sub> (Min.)	STBC	Array Gain (dB)
VHT20,M0-8	-5.42	1	1	-	0
VHT40,M0-9	-5.42	1	1	-	0
VHT80,M0-9	-5.42	1	1	-	0
VHT20,M0-8	-5.42	2	2	-	0
VHT40,M0-9	-5.42	2	2	-	0
VHT80,M0-9	-5.42	2	2	-	0

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<sub>ANT</sub> + 10 log(N<sub>TX</sub>)  
All transmit signals are completely uncorrelated, Directional Gain = G<sub>ANT</sub>

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<sup>G<sub>1</sub>/10</sup> + ... + 10<sup>G<sub>N</sub>/10</sup>)<sup>2</sup> / N<sub>TX</sub>]  
All transmit signals are completely uncorrelated, Directional Gain = 10 log[(10<sup>G<sub>1</sub>/10</sup> + ... + 10<sup>G<sub>N</sub>/10</sup>) / N<sub>TX</sub>]

Note 3: For Spatial Multiplexing, Directional Gain (DG) = G<sub>ANT</sub> + 10 log(N<sub>TX</sub>/N<sub>SS</sub>),  
where N<sub>SS</sub> = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power measurements:  
Directional Gain (DG) = G<sub>ANT</sub> + Array Gain, where Array Gain is as follows:  
Array Gain = 0 dB (i.e., no array gain) for N<sub>TX</sub> ≤ 4;  
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N<sub>TX</sub>;

3.3.6 Test Result of Maximum Conducted Output Power

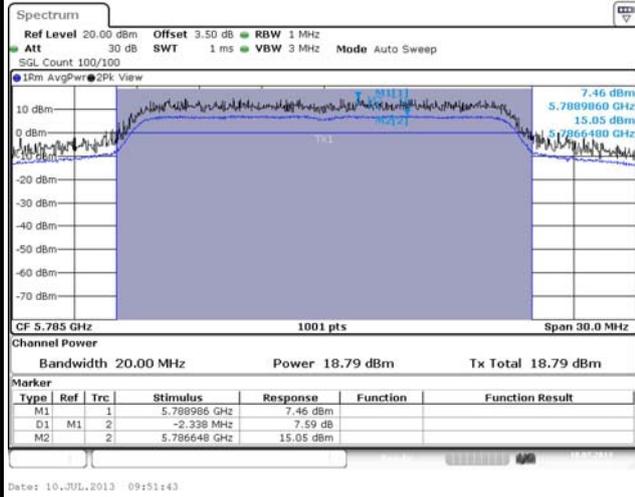
Maximum Peak Conducted Output Power									
Condition			RF Output Power (dBm)						
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5745	23.19	-	23.19	30	-5.42	17.77	36
VHT20,M0	1	5785	23.74	-	23.74	30	-5.42	18.32	36
VHT20,M0	1	5825	23.56	-	23.56	30	-5.42	18.14	36
VHT40,M0	1	5755	19.63	-	19.63	30	-5.42	14.21	36
VHT40,M0	1	5795	19.23	-	19.23	30	-5.42	13.81	36
VHT80,M0	1	5775	22.55	-	22.55	30	-5.42	17.13	36
VHT20,M0	2	5745	19.04	19.77	22.43	30	-5.42	17.01	36
VHT20,M0	2	5785	19.55	18.94	22.27	30	-5.42	16.85	36
VHT20,M0	2	5825	19.34	19.18	22.27	30	-5.42	16.85	36
VHT40,M0	2	5755	19.93	19.63	22.79	30	-5.42	17.37	36
VHT40,M0	2	5795	19.31	19.39	22.36	30	-5.42	16.94	36
VHT80,M0	2	5775	19.61	19.27	22.45	30	-5.42	17.03	36
<b>Result</b>			<b>Complied</b>						

Maximum Peak Conducted Output Power									
Condition			RF Output Power (dBm)						
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Chain Port 1	Chain Port 2	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT20,M0	1	5745	18.22	-	18.22	30	-5.42	12.80	36
VHT20,M0	1	5785	18.79	-	18.79	30	-5.42	13.37	36
VHT20,M0	1	5825	18.58	-	18.58	30	-5.42	13.16	36
VHT40,M0	1	5755	14.60	-	14.60	30	-5.42	9.18	36
VHT40,M0	1	5795	14.23	-	14.23	30	-5.42	8.81	36
VHT80,M0	1	5775	17.34	-	17.34	30	-5.42	11.92	36
VHT20,M0	2	5745	12.20	12.85	15.55	30	-5.42	10.13	36
VHT20,M0	2	5785	12.76	12.01	15.41	30	-5.42	9.99	36
VHT20,M0	2	5825	12.60	12.22	15.42	30	-5.42	10.00	36
VHT40,M0	2	5755	12.95	12.55	15.76	30	-5.42	10.34	36
VHT40,M0	2	5795	12.36	12.35	15.37	30	-5.42	9.95	36
VHT80,M0	2	5775	12.46	12.00	15.25	30	-5.42	9.83	36
<b>Result</b>			<b>Complied</b>						

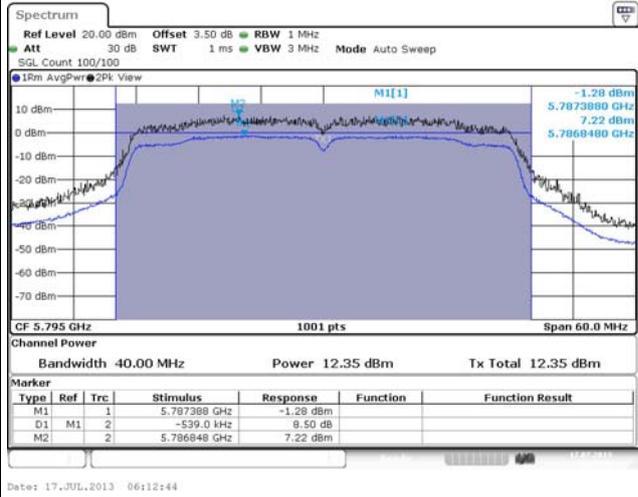


5725-5850MHz - Worst RF Output Power Plots

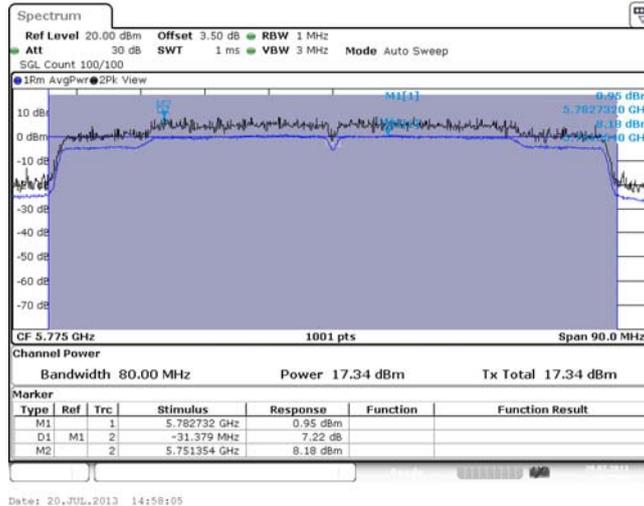
VHT20



VHT40



VHT80



### 3.4 Power Spectral Density

#### 3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
<input checked="" type="checkbox"/>	DTS Power Spectral Density (PSD) $\leq 8$ dBm/3kHz
<input type="checkbox"/>	For DTS 5.8 GHz & U-NII 5.8 GHz:
<input type="checkbox"/>	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) $\leq 17$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 17 - (G_{TX} - 6)$ .
<input type="checkbox"/>	Point-to-point systems (P2P): the peak power spectral density (PPSD) $\leq 17$ dBm/MHz. If $G_{TX} > 23$ dBi, then $PPSD = 17 - (G_{TX} - 23)$ .

#### 3.4.2 Measuring Instruments

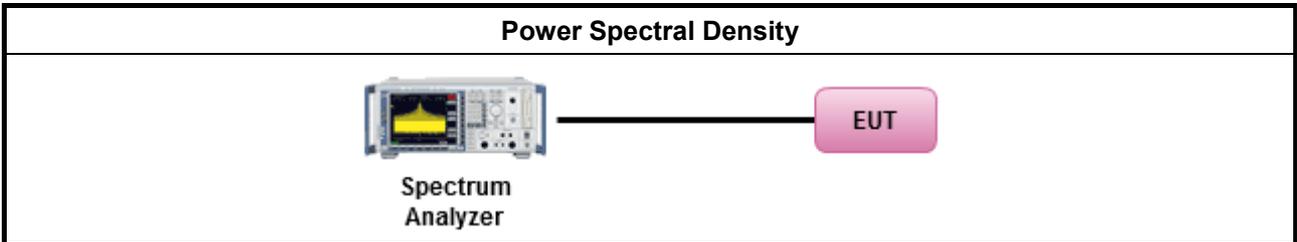
Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz;detector=peak).. [duty cycle $\geq 98\%$ or external video / power trigger]
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed) duty cycle $< 98\%$ and average over on/off periods with duty factor
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input checked="" type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input checked="" type="checkbox"/>	The EUT supports multiple transmit chains using options given below:
<input checked="" type="checkbox"/>	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the $N_{TX}$ output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
<input type="checkbox"/>	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.

<b>Test Method for DTS 5.8 GHz &amp; U-NII 5.8 GHz</b>	
<input type="checkbox"/>	Refer FCC KDB 644545 D02 C) In-band measurements for operations above 5.725 GHz. Products that are capable of transmitting U-NII 4 band (5.725-5.825 GHz) or in the DTS 5.8 GHz band (5.725-5.850 GHz) or both. If maximum PSD in the 5.725-5.850 GHz range (i.e., the upper U-NII band extended to match the upper frequency of the corresponding 15.247 band) satisfies the PSD limits applicable to the 5.725-5.825 GHz (U-NII 4) band, then the PSD limits of the U-NII 4 band and the 5.8 GHz 15.247 band will be judged to have been satisfied.
<input type="checkbox"/>	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:
<input type="checkbox"/>	Refer as FCC KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth [duty cycle ≥ 98% or external video / power trigger]
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	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
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)

**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 <sub>ANT</sub> (dBi)		-5.42	-5.42	-	-
Modulation Mode	DG (dBi)	N <sub>TX</sub>	N <sub>SS</sub> (Min.)	STBC	Array Gain (dB)
VHT20,M0-8	-5.42	1	1	-	0
VHT40,M0-8	-5.42	1	1	-	0
VHT80,M0-9	-5.42	1	1	-	0
VHT20,M0-8	-5.42	2	2	-	0
VHT40,M0-8	-5.42	2	2	-	0
VHT80,M0-9	-5.42	2	2	-	0

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<sub>ANT</sub> + 10 log(N<sub>TX</sub>)  
All transmit signals are completely uncorrelated, Directional Gain = G<sub>ANT</sub>

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<sup>G<sub>1</sub>/20</sup> + ... + 10<sup>G<sub>N</sub>/20</sup>)<sup>2</sup> / N<sub>TX</sub>]  
All transmit signals are completely uncorrelated, Directional Gain = 10 log[(10<sup>G<sub>1</sub>/10</sup> + ... + 10<sup>G<sub>N</sub>/10</sup>) / N<sub>TX</sub>]

Note 3: For Spatial Multiplexing, Directional Gain (DG) = G<sub>ANT</sub> + 10 log(N<sub>TX</sub>/N<sub>SS</sub>),  
where N<sub>SS</sub> = 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<sub>ANT</sub> + Array Gain, where Array Gain is as follows:  
Array Gain = 10 log(N<sub>TX</sub>/N<sub>SS</sub>);



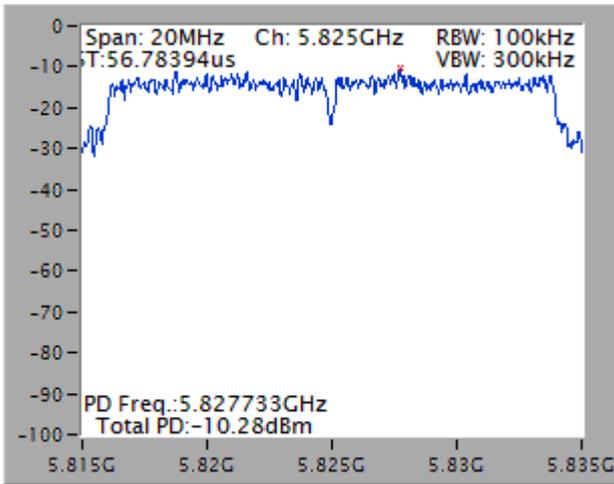
3.4.6 DTS-Power Spectral Density

DTS-Power Spectral Density Result				
Condition			Peak Power Spectral Density	
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Sum Chain (dBm/100kHz)	Power Limit (dBm/3kHz)
VHT20,M0	1	5745	-12.37	8.00
VHT20,M0	1	5785	-10.90	8.00
VHT20,M0	1	5825	-10.28	8.00
VHT40,M0	1	5755	-15.19	8.00
VHT40,M0	1	5795	-13.31	8.00
VHT80,M0	1	5775	-14.45	8.00
VHT20,M0	2	5745	-13.27	8.00
VHT20,M0	2	5785	-12.88	8.00
VHT20,M0	2	5825	-13.27	8.00
VHT40,M0	2	5755	-16.26	8.00
VHT40,M0	2	5795	-14.37	8.00
VHT80,M0	2	5775	-16.58	8.00
<b>Result</b>			<b>Complied</b>	

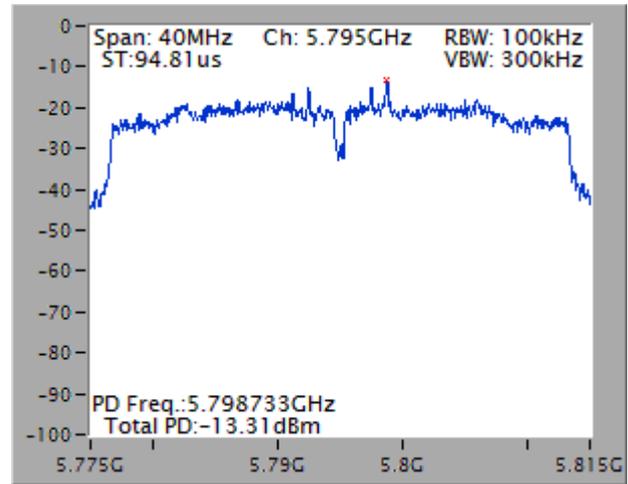


5725-5850MHz - Worst Power Spectral Density Plots

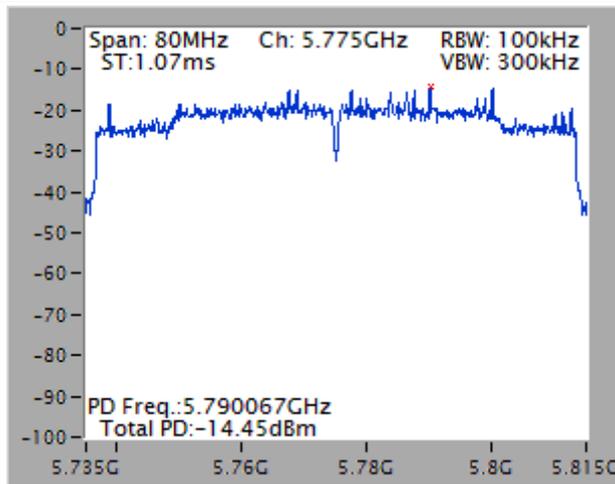
VHT20



VHT40

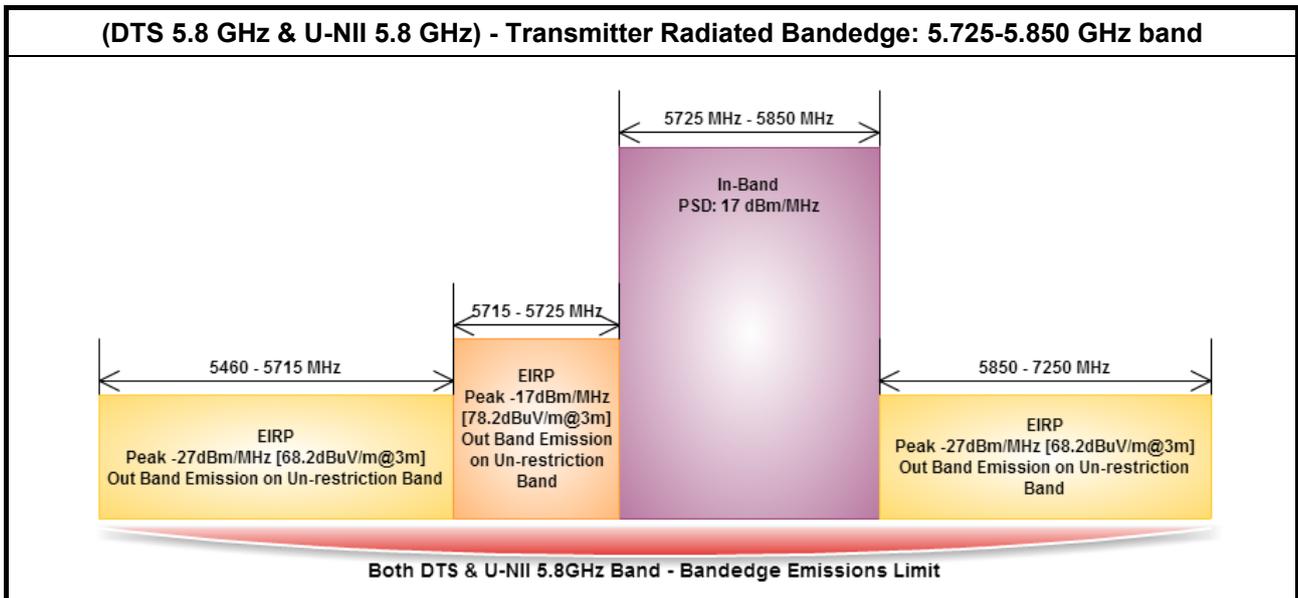
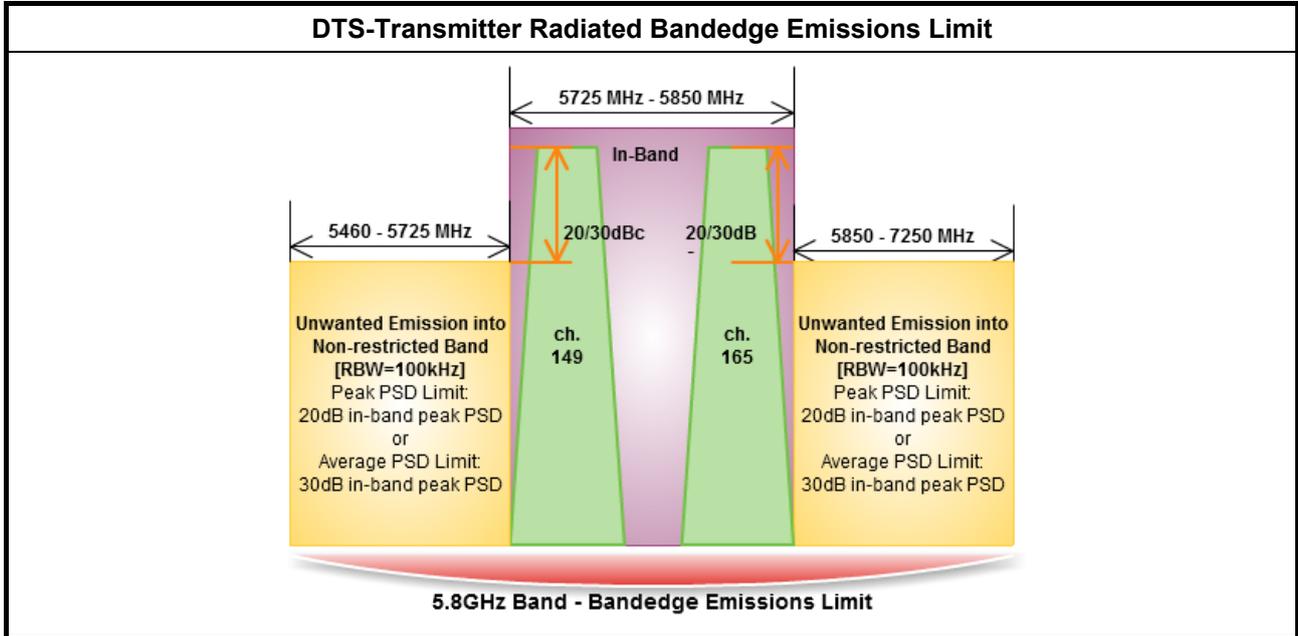


VHT80



### 3.5 Transmitter Bandedge Emissions

#### 3.5.1 Transmitter Radiated Bandedge Emissions Limit



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.

### 3.5.2 Measuring Instruments

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

### 3.5.3 Test Procedures

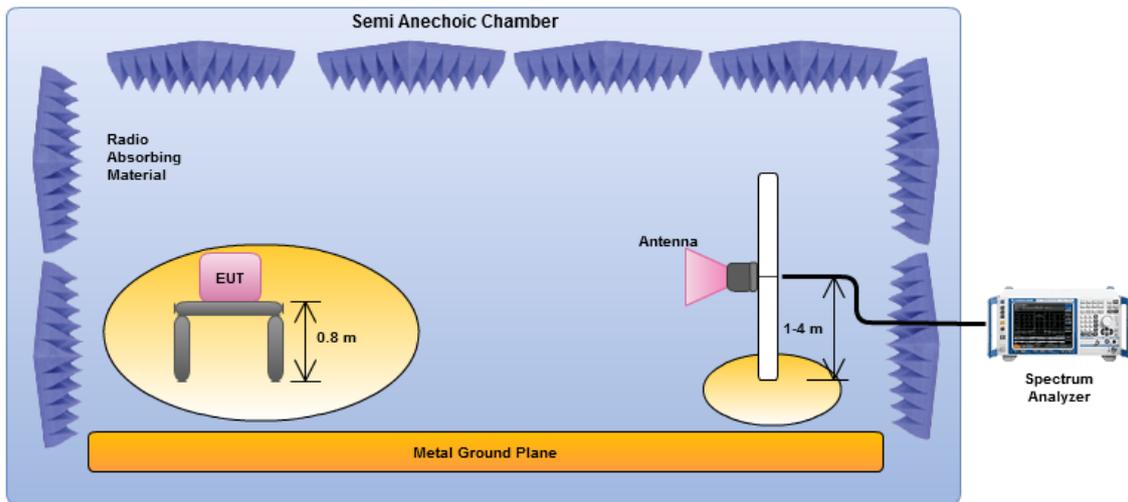
Test Method	
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq$ 98%)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq$ 1/T).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For the transmitter bandedge emissions shall be measured using following options below:
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.
<input checked="" type="checkbox"/>	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 1.0m, because the instrumentation noise floor is typically close to the radiated emission limit.

**Test Method for DTS 5.8 GHz & U-NII 5.8 GHz**

- Refer FCC KDB 644545 D02 D) Out-of-band and spurious emissions measurements for operations above 5.725 GHz. Products that are capable of transmitting U-NII 4 band (5.725-5.825 GHz) or in the DTS 5.8 GHz band (5.725-5.850 GHz) or both. Perform out-of-band (restricted and non-restricted band) tests using U-NII procedures and applying the U-NII limits as if the upper U-NII band was extended to 5.850 GHz and the -27 dBm/MHz peak EIRP limit applies
  - 1) All restricted band emission limits must be satisfied based on U-NII measurement procedures.
  - 2) All non-restricted-band out-of-band and spurious emission limits specified in 15.407(b) must be satisfied except that, when operating anywhere in the frequency range from 5.725-5.850 GHz, out-of-band emissions requirements are not applied at frequencies from 5.825-5.850 GHz, and the -27 dBm/MHz peak out-of-band EIRP limit shall be applied in non-restricted bands above 5.850 GHz.
- For the transmitter unwanted emissions shall be measured using following options below:
  - Refer as FCC KDB 558074, clause H)2) for unwanted emissions into non-restricted bands.
  - Refer as FCC KDB 558074, clause H)1) for unwanted emissions into restricted bands.
    - Refer as FCC KDB 558074, H)6) Method AD (Trace Averaging).
    - Refer as FCC KDB 558074, 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 558074, clause H)5) measurement procedure peak limit.
    - Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.

**3.5.4 Test Setup**

**Transmitter Radiated Bandedge Emissions**



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



3.5.5 DTS-Transmitter Radiated Bandedge Emissions

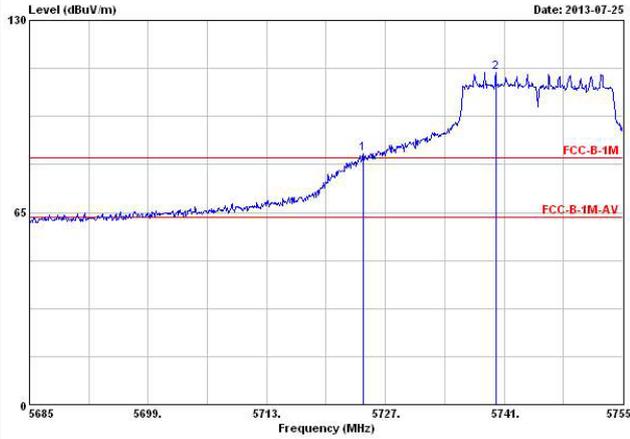
DTS-5725-5850MHz Transmitter Radiated Bandedge Emissions								
Modulation	N <sub>TX</sub>	Test Freq. (MHz)	In-band PSD [i] (dBuV/100 kHz)	Freq. (MHz)	Out-band PSD [o] (dBuV/100 kHz)	[i] – [o] (dB)	Limit (dB)	Pol.
VHT20,M0	1	5745	112.37	5724.340	84.86	27.51	20	V
VHT20,M0	1	5825	113.26	5850.150	80.31	32.95	20	V
VHT40,M0	1	5755	107.67	5723.500	78.78	28.48	20	V
VHT40,M0	1	5795	106.07	5851.100	63.94	42.13	20	V
VHT80,M0	1	5775	106.62	5852.660	70.67	35.95	20	V
VHT20,M0	2	5745	112.28	5724.340	73.24	39.04	20	V
VHT20,M0	2	5825	111.78	5851.850	64.53	47.25	20	V
VHT40,M0	2	5755	109.20	5722.300	78.91	30.29	20	V
VHT40,M0	2	5795	108.99	5852.300	62.51	46.48	20	V
VHT80,M0	2	5775	107.55	5851.300	65.03	42.52	20	V

Note 1: Measurement worst emissions of receive antenna polarization

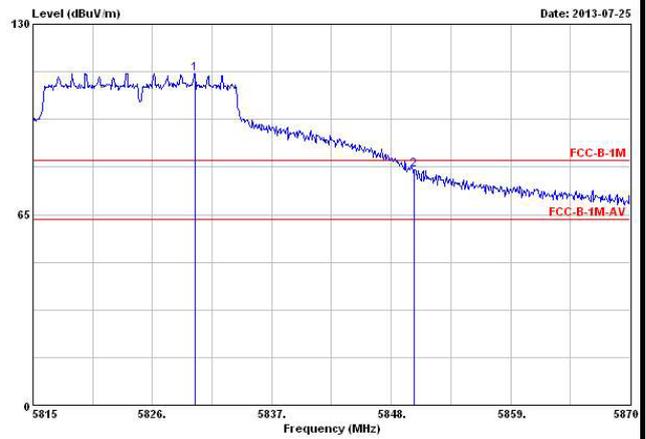


DTS-5725-5850MHz - Transmitter Radiated Bandedge Emissions Plots (N<sub>Tx1</sub>)

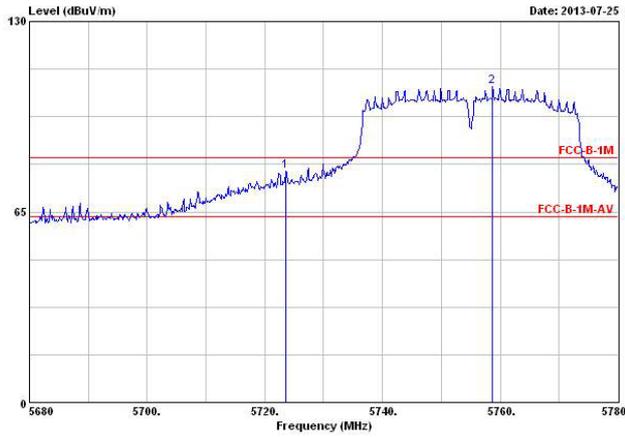
VHT20-(Lowest Ch.)



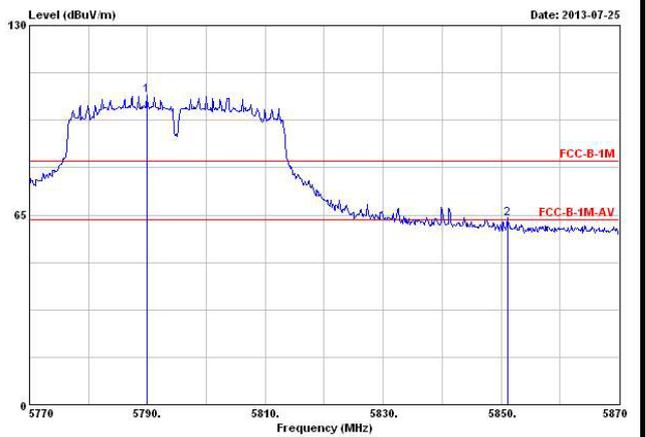
VHT20-(Highest Ch.)



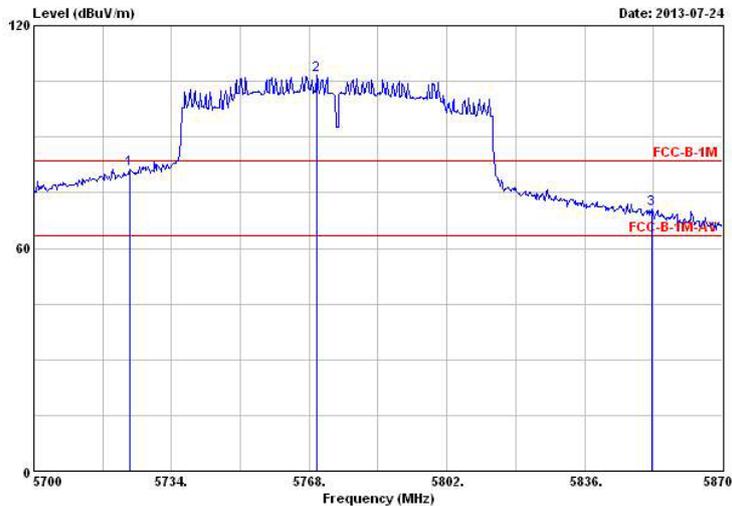
VHT40-(Lowest Ch.)



VHT40-(Highest Ch.)



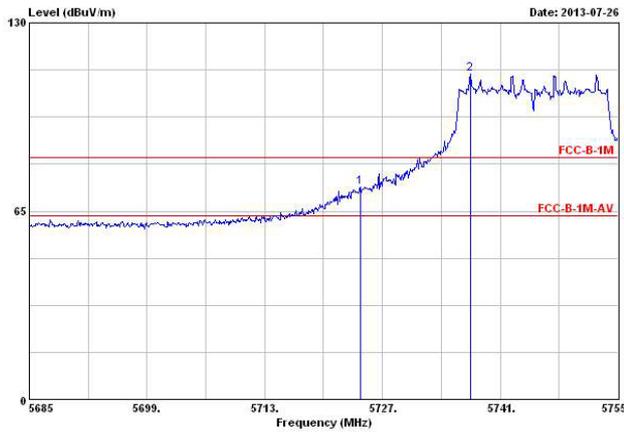
VHT80



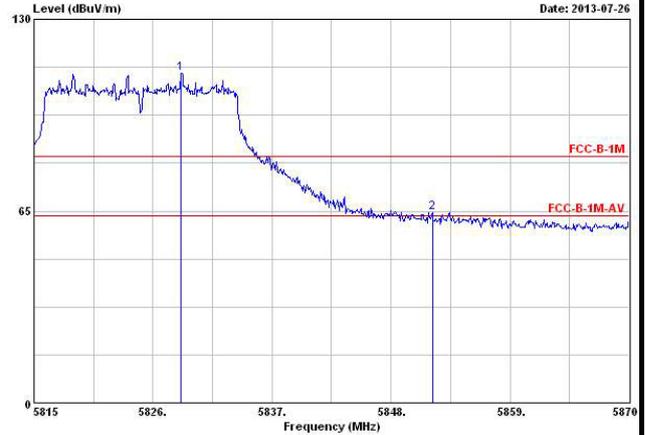


DTS-5725-5850MHz - Transmitter Radiated Bandedge Emissions Plots (N<sub>TX2</sub>)

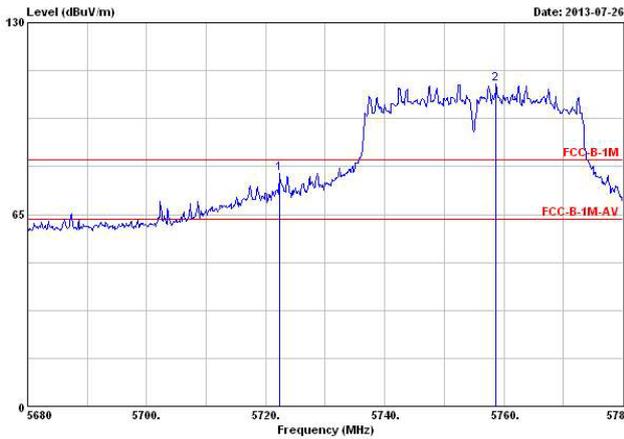
VHT20-(Lowest Ch.)



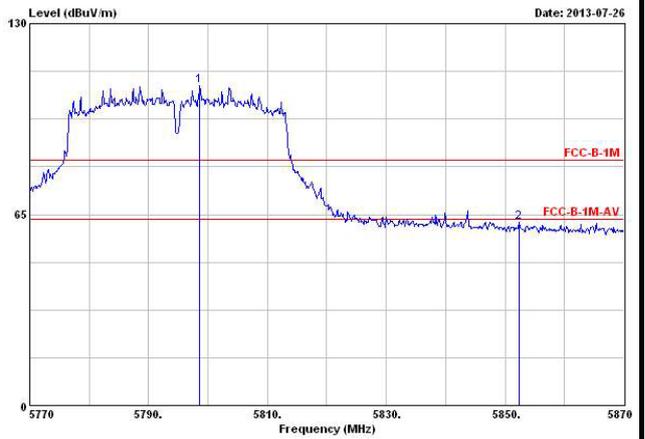
VHT20-(Highest Ch.)



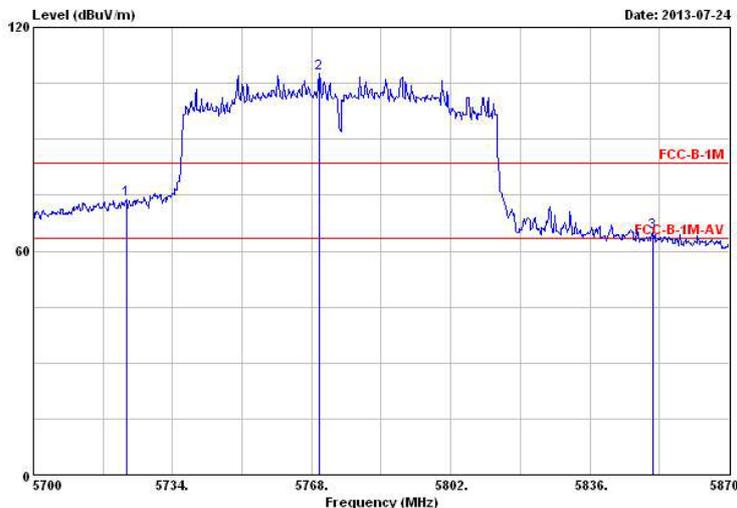
VHT40-(Lowest Ch.)



VHT40-(Highest Ch.)



VHT80





### 3.6 Transmitter Unwanted Emissions

#### 3.6.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

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

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

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

DTS 5.8 GHz & U-NII 5.8 GHz Un-restricted Band Emissions Limit	
Band	Limit (dB)
5.725 - 5.850 GHz	Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m] 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 peak emission limit.

### 3.6.2 Measuring Instruments

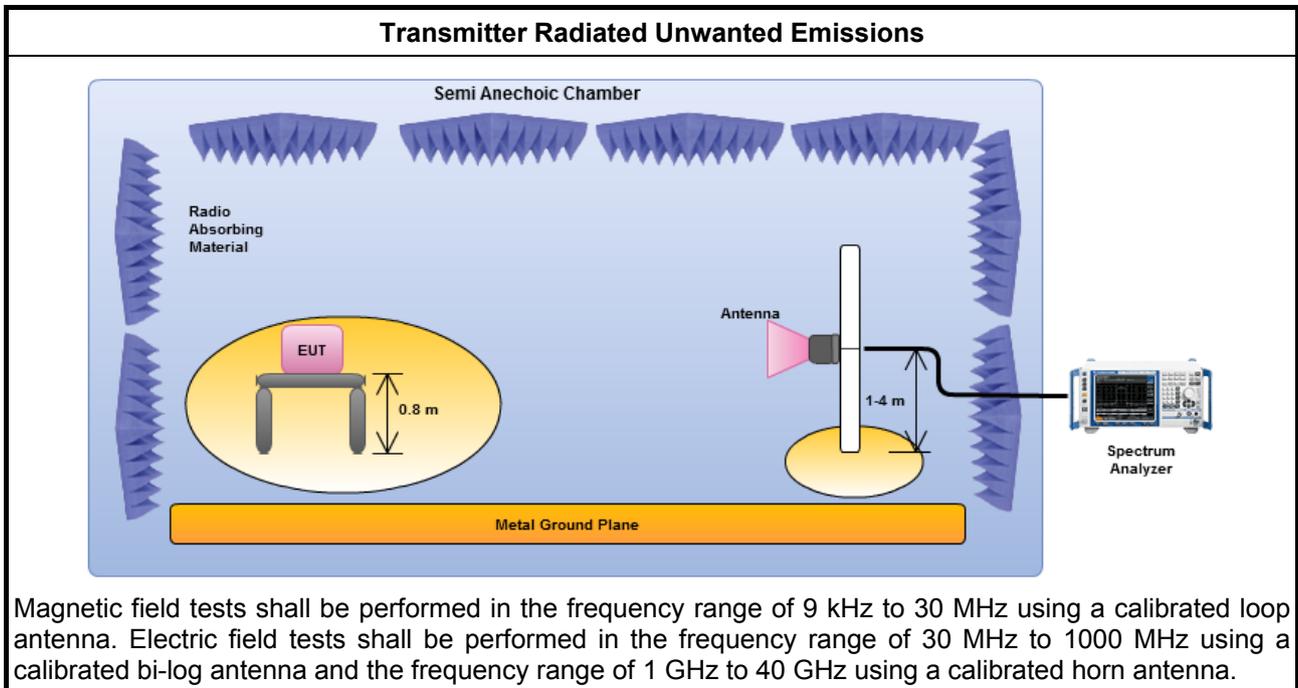
Refer a test equipment and calibration data table in this test report.

### 3.6.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	Measurements in the frequency range 5 GHz - 10GHz are typically made at a closer distance 1.0m, because the instrumentation noise floor is typically close to the radiated emission limit.
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	Measurements in the frequency range above 18 GHz - 40GHz are typically made at a closer distance 0.5m, the instrumentation noise floor is typically close to the radiated emission limit.
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.1 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.2 and 8.1.1 measurement procedure peak limit.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.1 measurement procedure Quasi-Peak limit.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074, clause 10.2.1.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.
<input type="checkbox"/>	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 10.2.2.
<input type="checkbox"/>	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
<input type="checkbox"/>	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
<input type="checkbox"/>	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

<b>Test Method for DTS 5.8 GHz &amp; U-NII 5.8 GHz</b>	
<input checked="" type="checkbox"/>	Refer FCC KDB 644545 D02 D) Out-of-band and spurious emissions measurements for operations above 5.725 GHz. Products that are capable of transmitting U-NII 4 band (5.725-5.825 GHz) or in the DTS 5.8 GHz band (5.725-5.850 GHz) or both. Perform out-of-band (restricted and non-restricted band) tests using U-NII procedures and applying the U-NII limits as if the upper U-NII band was extended to 5.850 GHz and the -27 dBm/MHz peak EIRP limit applies 1) All restricted band emission limits must be satisfied based on U-NII measurement procedures. 2) All non-restricted-band out-of-band and spurious emission limits specified in 15.407(b) must be satisfied except that, when operating anywhere in the frequency range from 5.725-5.850 GHz, out-of-band emissions requirements are not applied at frequencies from 5.825-5.850 GHz, and the -27 dBm/MHz peak out-of-band EIRP limit shall be applied in non-restricted bands above 5.850 GHz.
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause H)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause H)1) for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, H)6) Method AD (Trace Averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, H)6) Method VB (Reduced VBW).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq 1/T$ , where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause H)5) measurement procedure peak limit.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.

### 3.6.4 Test Setup

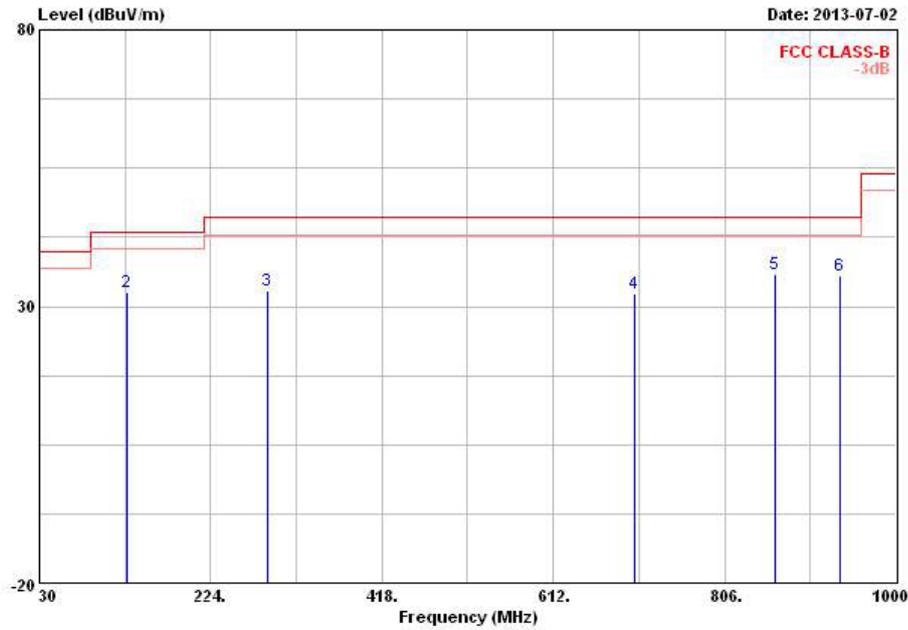


### 3.6.5 Transmitter Radiated Unwanted Emissions-with Antenna (Below 30MHz)

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

### 3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

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



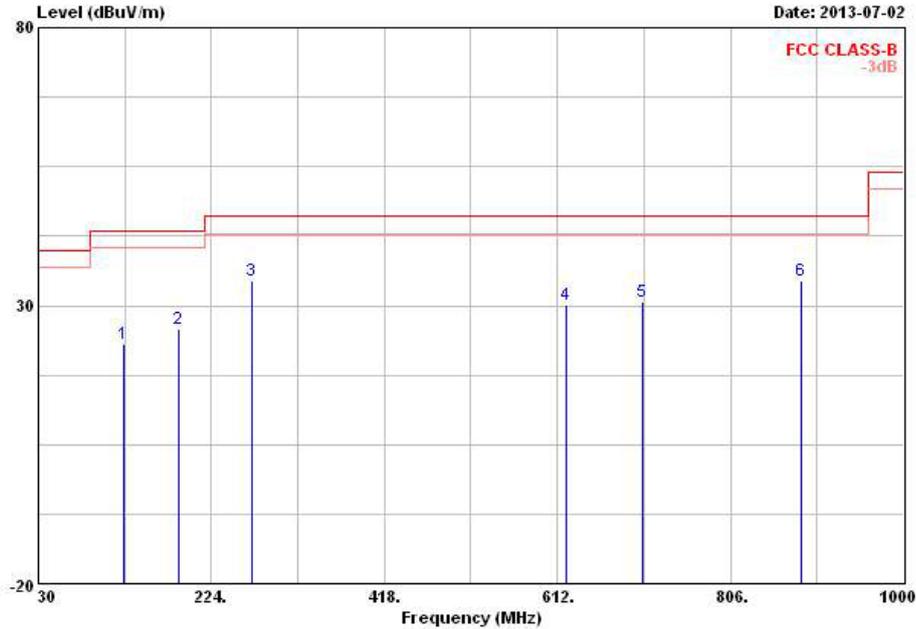
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	30.000	26.76	-13.24	40.00	34.90	18.70	0.77	27.61	Peak	---	---
2	128.940	32.55	-10.95	43.50	46.19	11.95	1.68	27.27	Peak	---	---
3	288.990	32.88	-13.12	46.00	44.02	13.03	2.52	26.69	Peak	---	---
4	704.150	32.43	-13.57	46.00	37.40	18.96	4.00	27.93	Peak	---	---
5	863.230	35.86	-10.14	46.00	38.77	20.25	4.48	27.64	Peak	---	---
6	936.950	35.53	-10.47	46.00	37.47	20.76	4.74	27.44	Peak	---	---

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



Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	AC Power & Radio link		

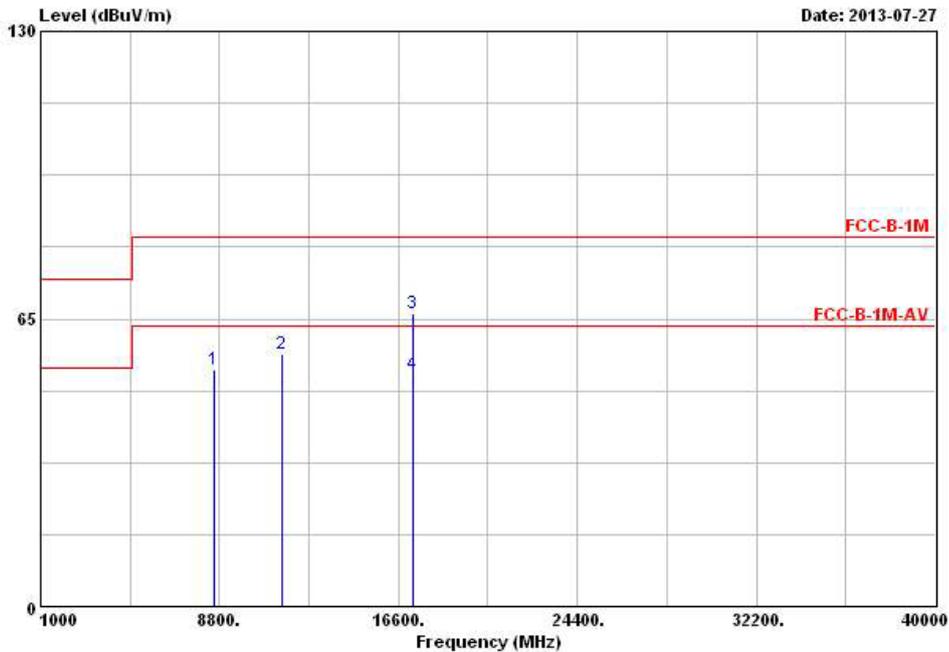


Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Ant	Table		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	126.030	23.00	-20.50	43.50	36.21	12.40	1.67	27.28	Peak	---	---
2	187.140	25.92	-17.58	43.50	41.82	9.16	1.99	27.05	Peak	---	---
3	269.590	34.37	-11.63	46.00	46.16	12.56	2.41	26.76	Peak	---	---
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)

### 3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	VHT20	Test Freq. (MHz)	5745
N <sub>TX</sub>	1	Polarization	V



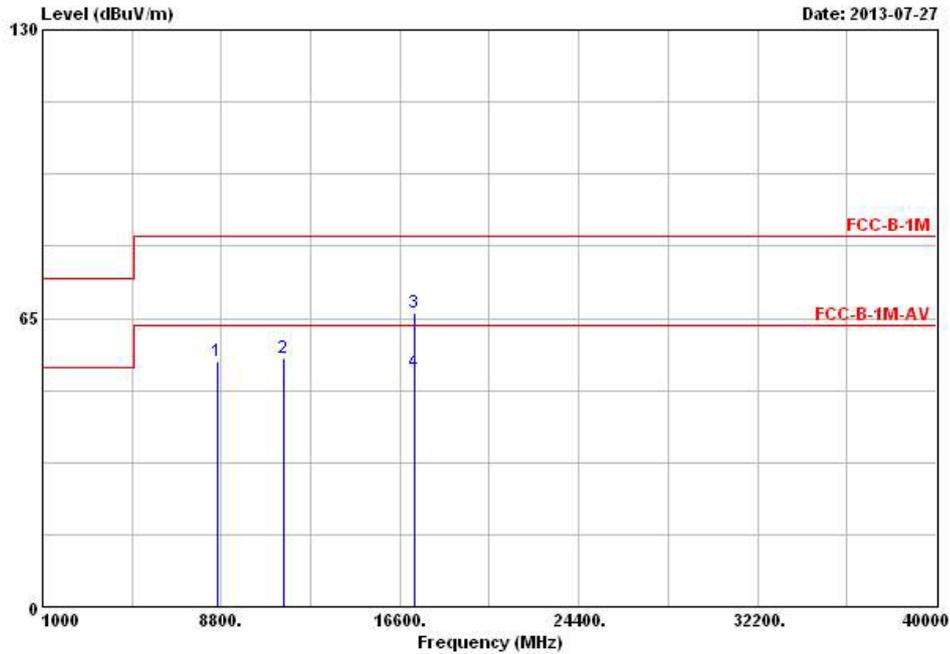
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8573.000	53.69	-9.85	63.54	43.92	38.62	4.20	33.05	PK	---	---
2 @ 11490.000	57.04	-6.50	63.54	44.91	40.07	4.63	32.57	PK	---	---
3 @ 17235.000	66.40	-17.14	83.54	45.48	43.81	8.77	31.66	Peak	---	---
4 @ 17235.000	52.63	-10.91	63.54	31.71	43.81	8.77	31.66	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5745
N <sub>TX</sub>	1	Polarization	H



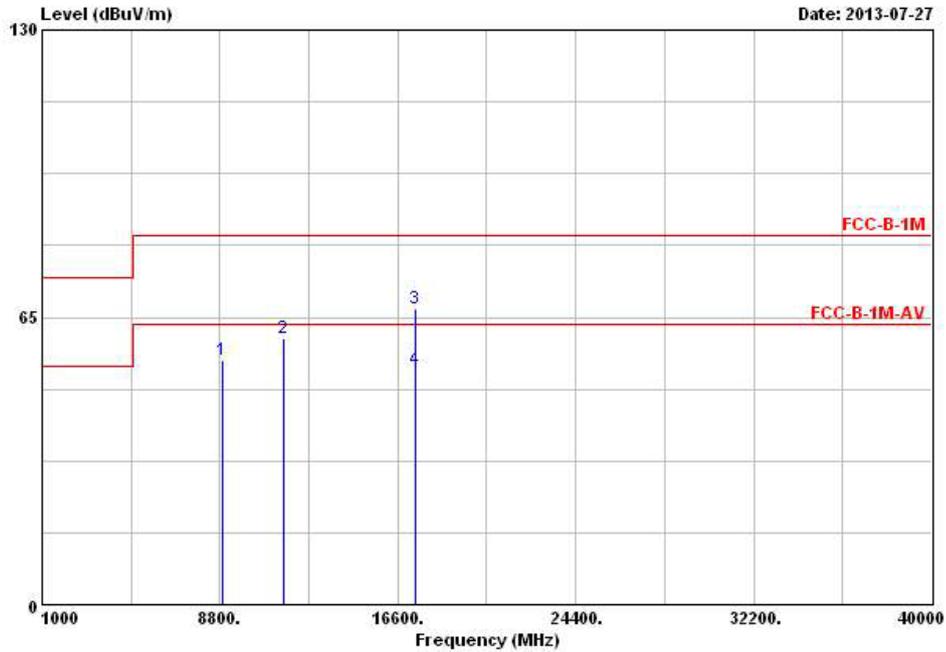
Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8661.000	55.20	-8.34	63.54	45.38	38.50	4.39	33.07	PK	---	---
2 @ 11490.000	56.09	-7.45	63.54	43.96	40.07	4.63	32.57	PK	---	---
3 @ 17235.000	66.25	-17.29	83.54	45.33	43.81	8.77	31.66	Peak	---	---
4 @ 17235.000	52.73	-10.81	63.54	31.81	43.81	8.77	31.66	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N <sub>TX</sub>	1	Polarization	V



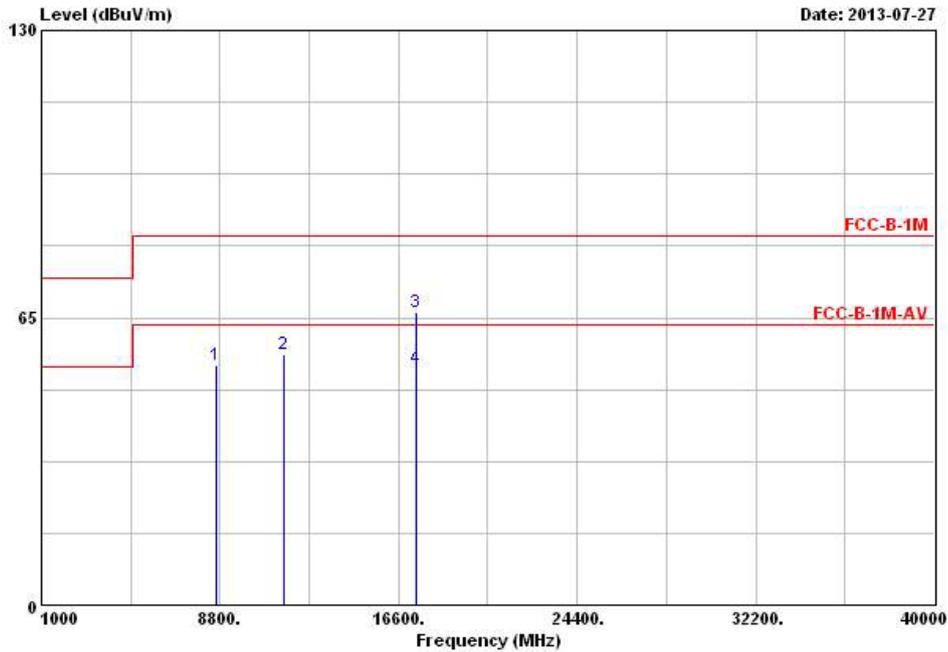
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8914.000	55.33	-8.21	63.54	45.25	38.20	5.04	33.16	PK	---	---
2 @ 11570.000	60.20	-3.34	63.54	48.00	40.04	4.74	32.58	PK	---	---
3 @ 17355.000	66.79	-16.75	83.54	44.68	44.81	8.99	31.69	Peak	---	---
4 @ 17355.000	53.21	-10.33	63.54	31.10	44.81	8.99	31.69	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N <sub>TX</sub>	1	Polarization	H



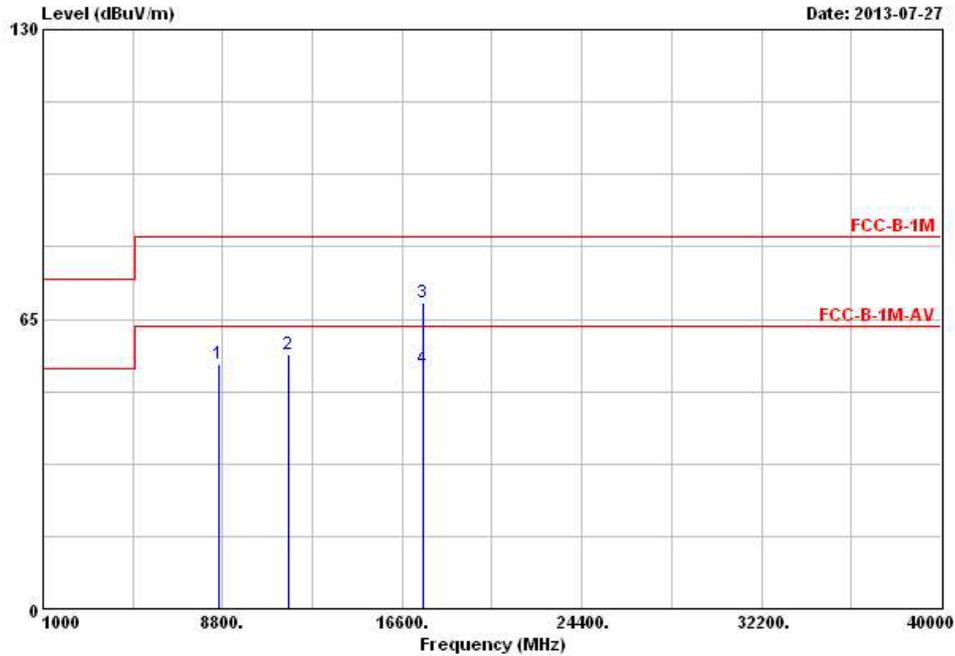
Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 8650.000	54.24	-9.30	63.54	44.40	38.52	4.39	33.07 PK	---	---
2 @ 11570.000	56.73	-6.81	63.54	44.53	40.04	4.74	32.58 PK	---	---
3 17355.000	66.23	-17.31	83.54	44.12	44.81	8.99	31.69 Peak	---	---
4 @ 17355.000	53.39	-10.15	63.54	31.28	44.81	8.99	31.69 Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5825
N <sub>TX</sub>	1	Polarization	V



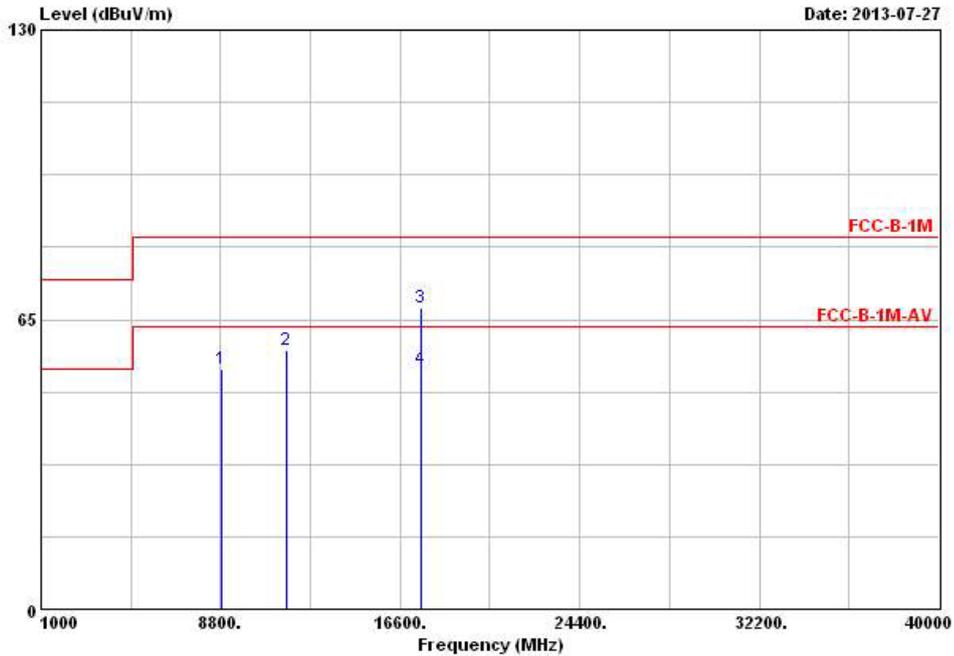
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8606.000	54.95	-8.59	63.54	45.12	38.58	4.30	33.05	PK	---	---
2 @ 11650.000	57.13	-6.41	63.54	44.88	39.99	4.85	32.59	PK	---	---
3 @ 17475.000	68.61	-14.93	83.54	45.33	45.81	9.20	31.73	Peak	---	---
4 @ 17475.000	53.75	-9.79	63.54	30.47	45.81	9.20	31.73	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5825
N <sub>TX</sub>	1	Polarization	H



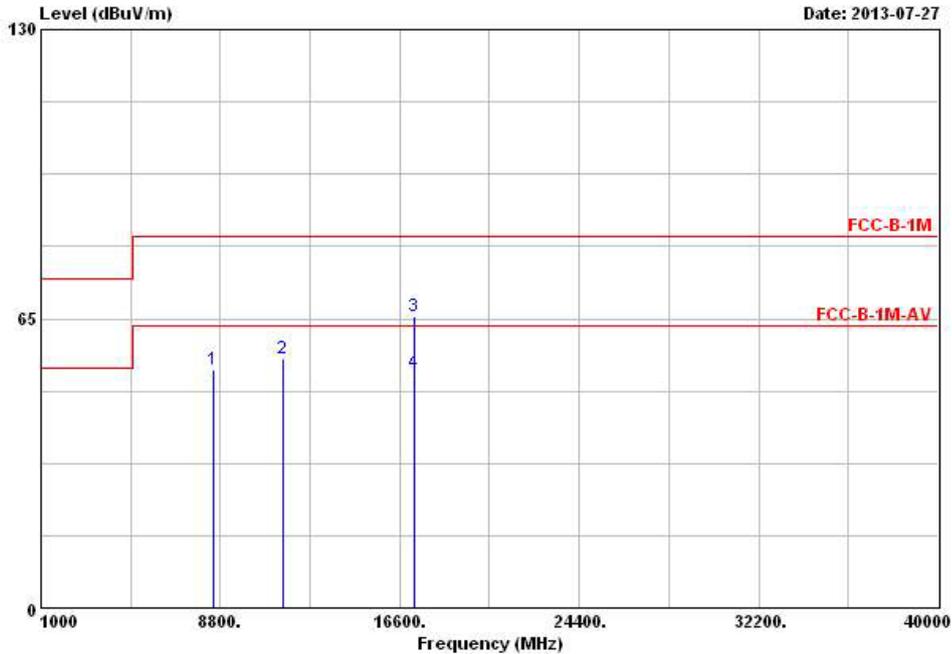
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8826.000	53.85	-9.69	63.54	43.80	38.32	4.86	33.13	PK	---	---
2 @ 11650.000	58.23	-5.31	63.54	45.98	39.99	4.85	32.59	PK	---	---
3 @ 17475.000	67.67	-15.87	83.54	44.39	45.81	9.20	31.73	Peak	---	---
4 @ 17475.000	53.79	-9.75	63.54	30.51	45.81	9.20	31.73	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5755
N <sub>TX</sub>	1	Polarization	V



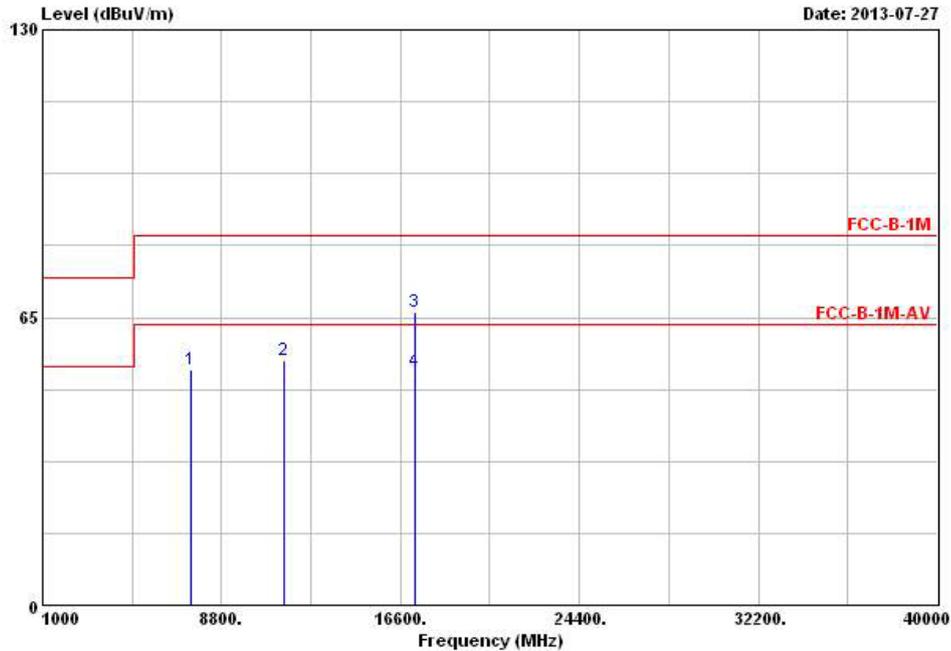
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8474.000	53.41	-10.13	63.54	43.74	38.67	4.02	33.02	PK	---	---
2 @ 11510.000	56.01	-7.53	63.54	43.85	40.10	4.63	32.57	PK	---	---
3 @ 17265.000	65.61	-17.93	83.54	44.35	44.09	8.84	31.67	Peak	---	---
4 @ 17265.000	52.81	-10.73	63.54	31.55	44.09	8.84	31.67	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5755
N <sub>TX</sub>	1	Polarization	H

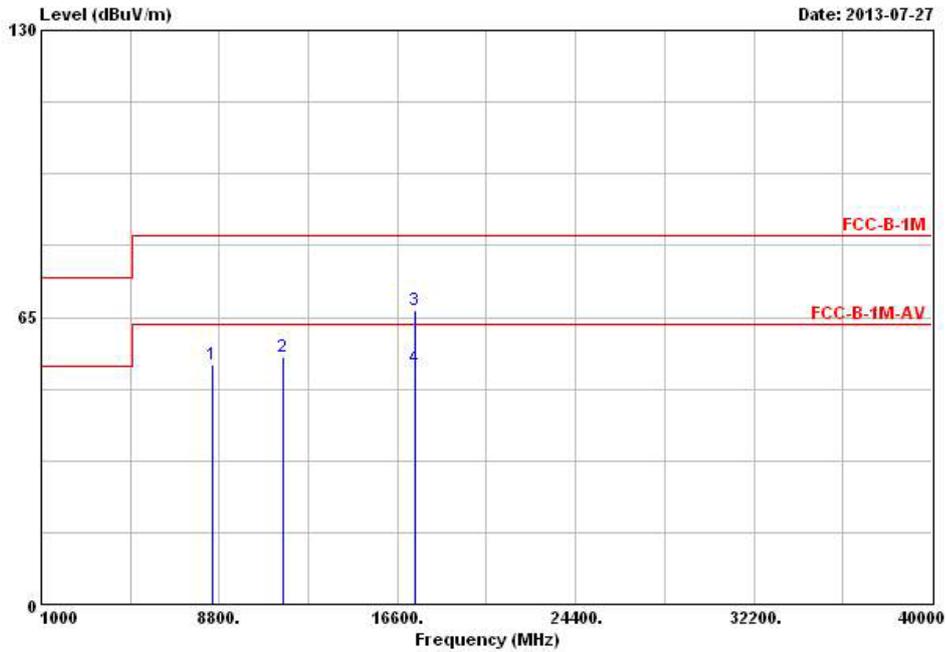


Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: For restricted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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5795
N <sub>TX</sub>	1	Polarization	V



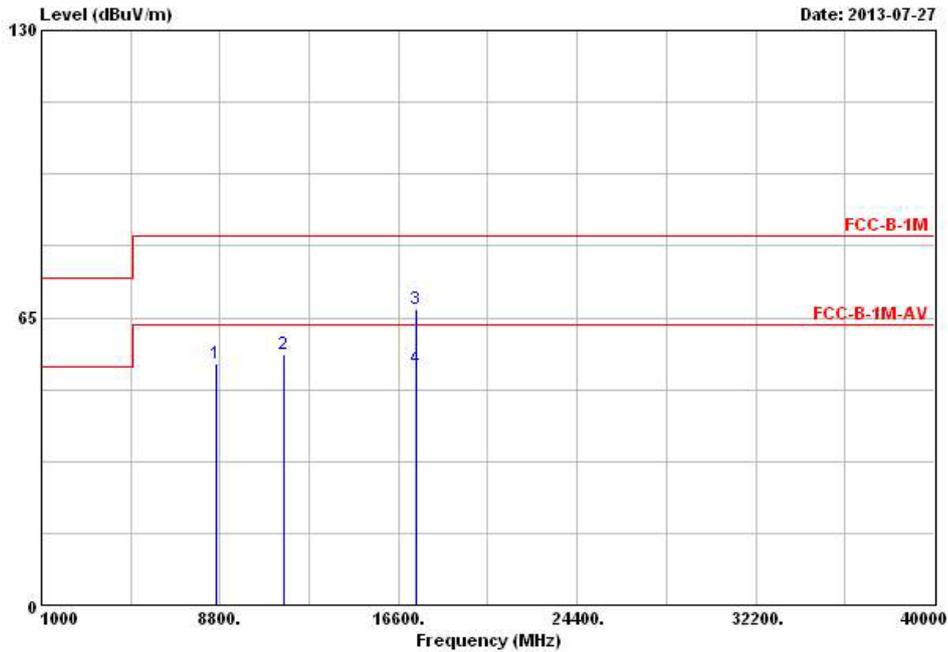
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8518.000	54.30	-9.24	63.54	44.54	38.68	4.11	33.03	PK	---	---
2 @ 11590.000	56.07	-7.47	63.54	43.83	40.03	4.79	32.58	PK	---	---
3 @ 17385.000	66.60	-16.94	83.54	44.15	45.10	9.06	31.71	Peak	---	---
4 @ 17385.000	53.58	-9.96	63.54	31.13	45.10	9.06	31.71	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5795
N <sub>TX</sub>	1	Polarization	H



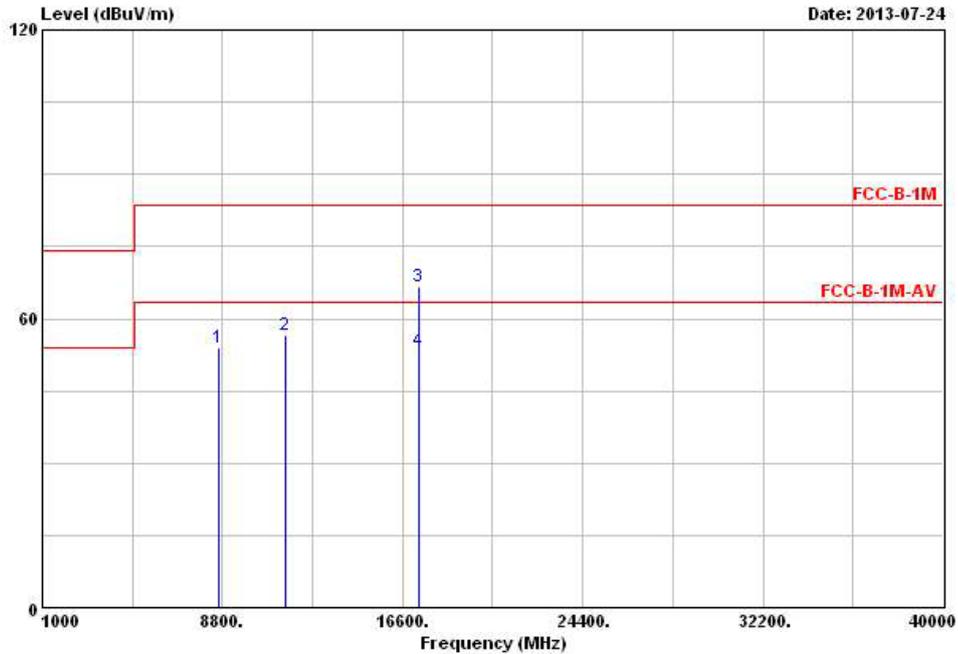
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB		cm	deg
1	@ 8617.000	54.45	-9.09	63.54	44.65	38.56	4.30	33.06	PK	---	---
2	@ 11590.000	56.77	-6.77	63.54	44.53	40.03	4.79	32.58	PK	---	---
3	@ 17385.000	67.03	-16.51	83.54	44.58	45.10	9.06	31.71	Peak	---	---
4	@ 17385.000	53.47	-10.07	63.54	31.02	45.10	9.06	31.71	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5775
N <sub>TX</sub>	1	Polarization	V

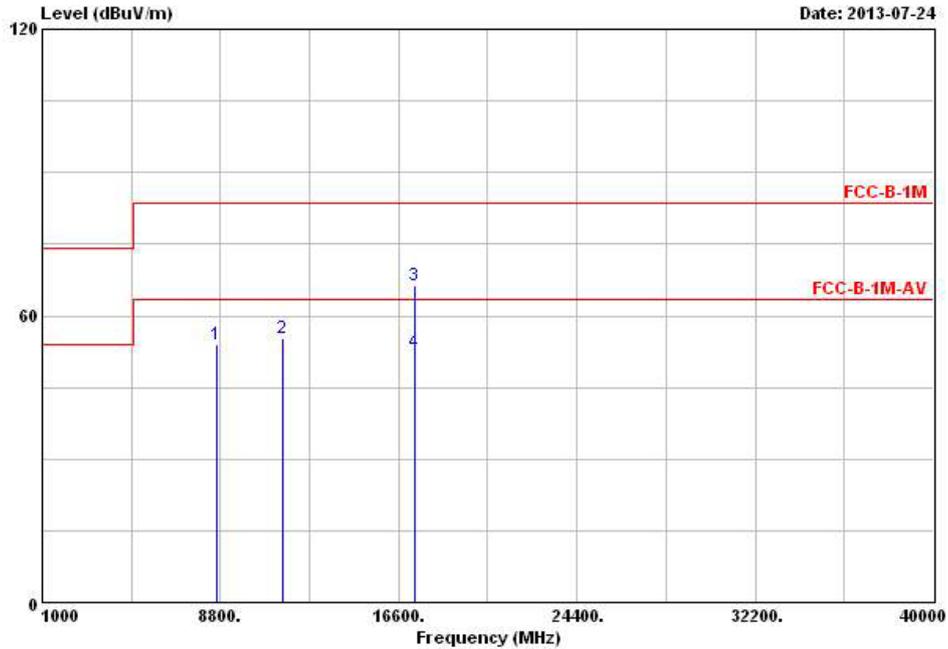


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8650.000	54.09	-29.45	83.54	44.25	38.52	4.39	33.07	PK	---	---
2	@11550.000	56.72	-6.82	63.54	44.50	40.06	4.74	32.58	PK	---	---
3	17325.000	66.62	-16.92	83.54	44.79	44.52	8.99	31.68	Peak	---	---
4	@17325.000	53.20	-10.34	63.54	31.37	44.52	8.99	31.68	Average	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5775
N <sub>TX</sub>	1	Polarization	H



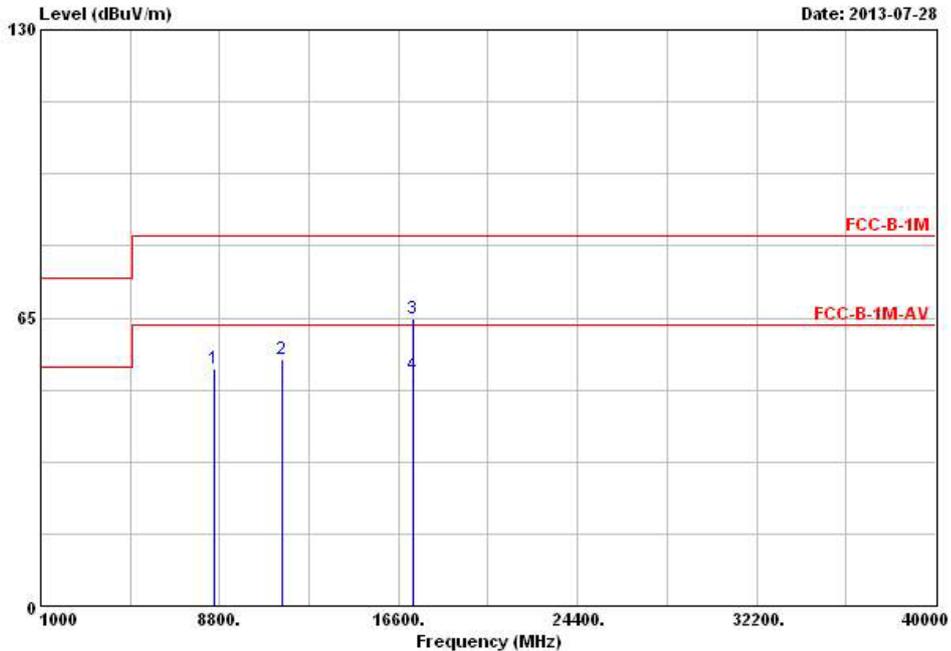
Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8650.000	53.85	-9.69	63.54	44.01	38.52	4.39	33.07	PK	---	---
2 @ 11550.000	55.27	-8.27	63.54	43.05	40.06	4.74	32.58	PK	---	---
3 @ 17325.000	66.30	-17.24	83.54	44.47	44.52	8.99	31.68	Peak	---	---
4 @ 17325.000	52.38	-11.16	63.54	30.55	44.52	8.99	31.68	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5745
N <sub>TX</sub>	2	Polarization	V



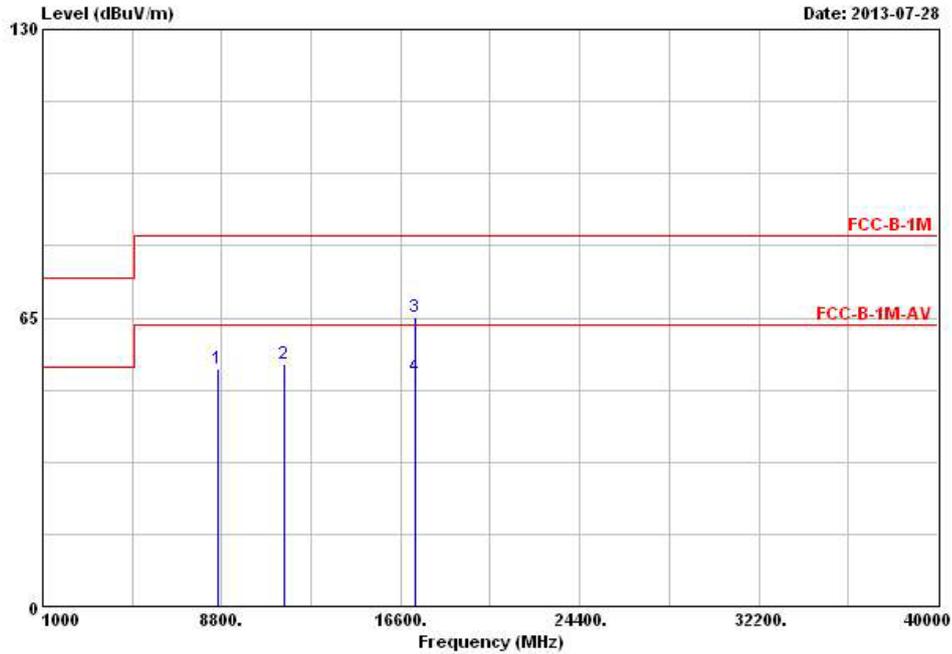
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8573.000	53.57	-9.97	63.54	43.80	38.62	4.20	33.05	PK	---	---
2 @ 11490.000	55.50	-8.04	63.54	43.37	40.07	4.63	32.57	PK	---	---
3 @ 17235.000	64.94	-18.60	83.54	44.02	43.81	8.77	31.66	Peak	---	---
4 @ 17235.000	52.01	-11.53	63.54	31.09	43.81	8.77	31.66	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5745
N <sub>TX</sub>	2	Polarization	H



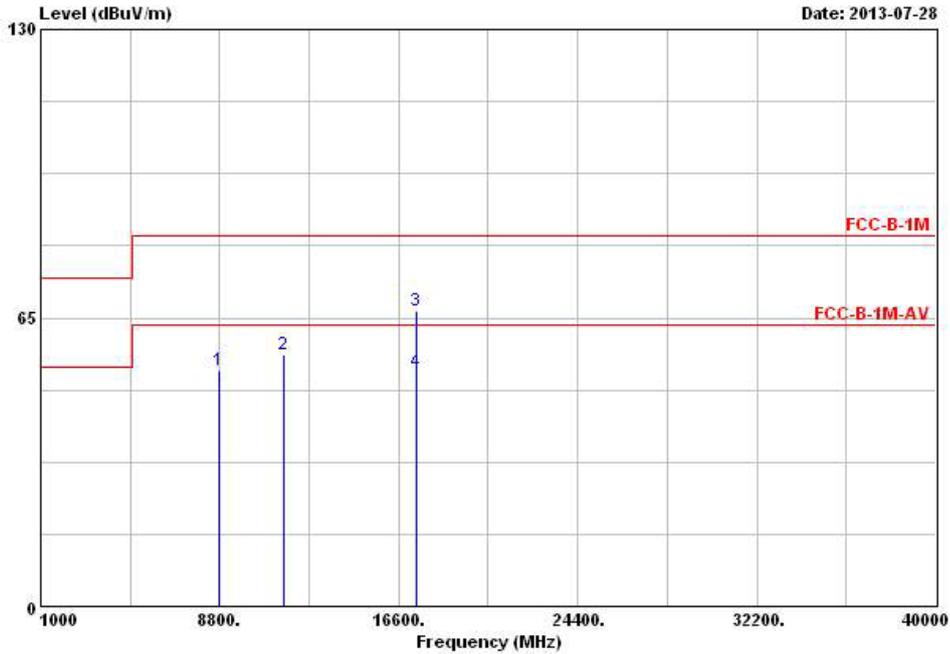
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8650.000	53.51	-10.03	63.54	43.67	38.52	4.39	33.07	PK	---	---
2 @ 11490.000	54.69	-8.85	63.54	42.56	40.07	4.63	32.57	PK	---	---
3 @ 17235.000	65.01	-18.53	83.54	44.09	43.81	8.77	31.66	Peak	---	---
4 @ 17235.000	51.91	-11.63	63.54	30.99	43.81	8.77	31.66	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N <sub>TX</sub>	2	Polarization	V



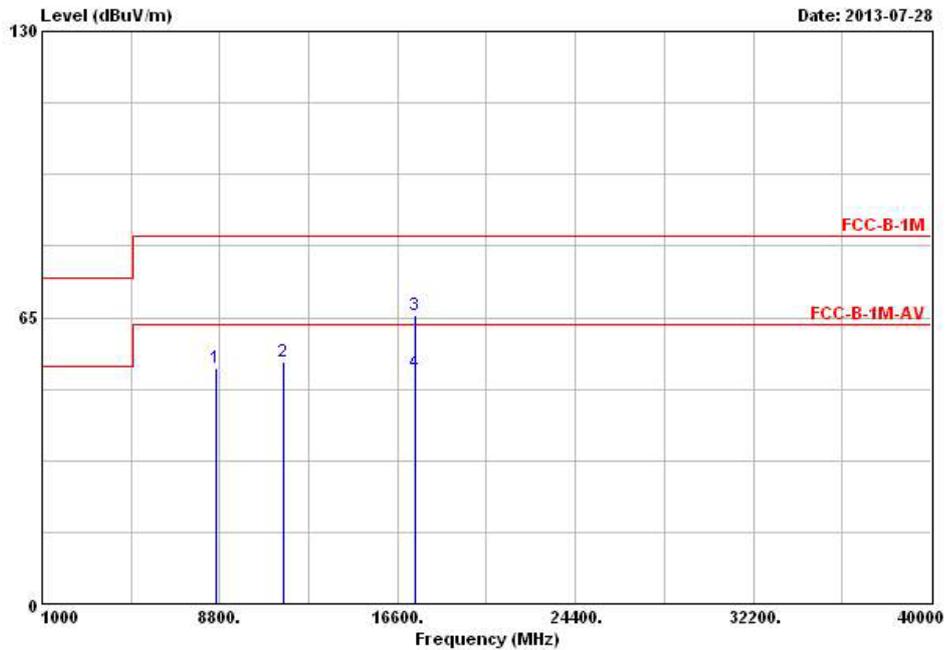
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8793.000	53.33	-10.21	63.54	43.33	38.36	4.76	33.12	PK	---	---
2 @ 11570.000	56.65	-6.89	63.54	44.45	40.04	4.74	32.58	PK	---	---
3 17355.000	66.67	-16.87	83.54	44.56	44.81	8.99	31.69	Peak	---	---
4 @ 17355.000	52.74	-10.80	63.54	30.63	44.81	8.99	31.69	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N <sub>TX</sub>	2	Polarization	H



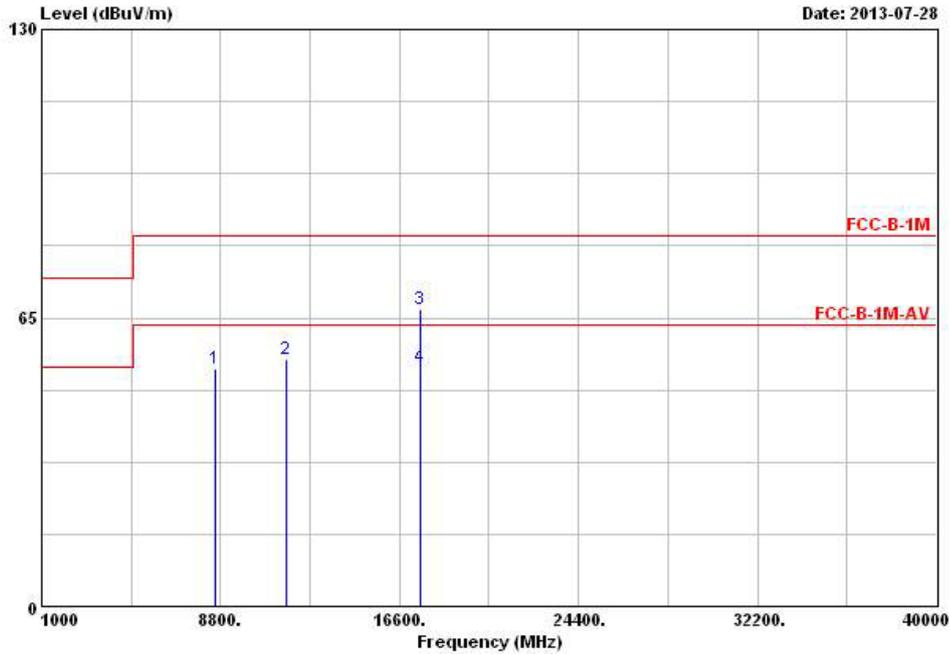
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8617.000	53.61	-9.93	63.54	43.81	38.56	4.30	33.06	PK	---	---
2 @ 11570.000	54.97	-8.57	63.54	42.77	40.04	4.74	32.58	PK	---	---
3 17355.000	65.70	-17.84	83.54	43.59	44.81	8.99	31.69	Peak	---	---
4 @ 17355.000	52.63	-10.91	63.54	30.52	44.81	8.99	31.69	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5825
N <sub>TX</sub>	2	Polarization	V



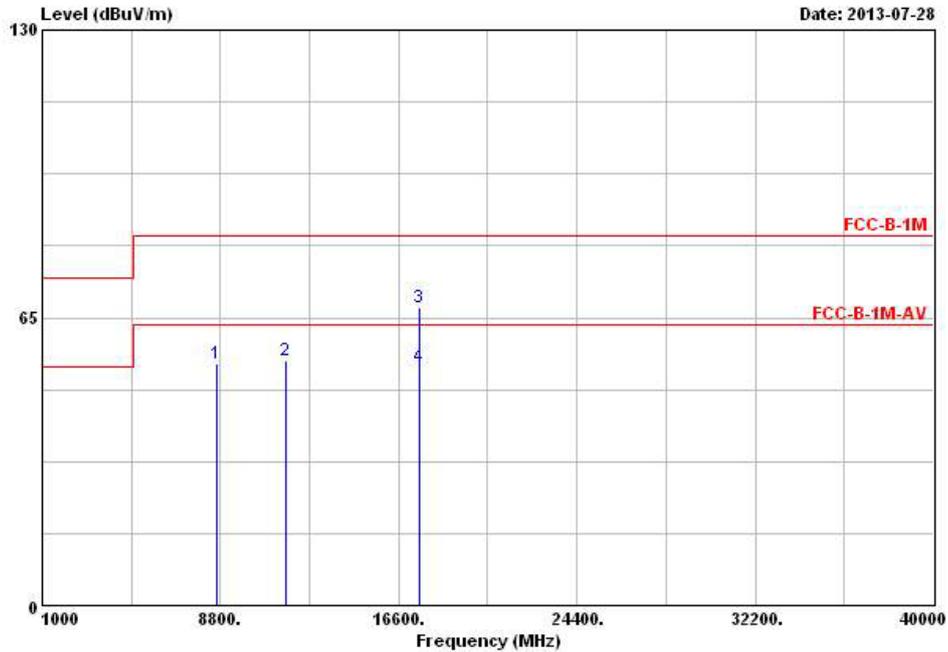
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8573.000	53.52	-10.02	63.54	43.75	38.62	4.20	33.05	PK	---	---
2	11650.000	55.64	-7.90	63.54	43.39	39.99	4.85	32.59	PK	---	---
3	17475.000	66.88	-16.66	83.54	43.60	45.81	9.20	31.73	Peak	---	---
4	17475.000	54.00	-9.54	63.54	30.72	45.81	9.20	31.73	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5825
N <sub>TX</sub>	2	Polarization	H



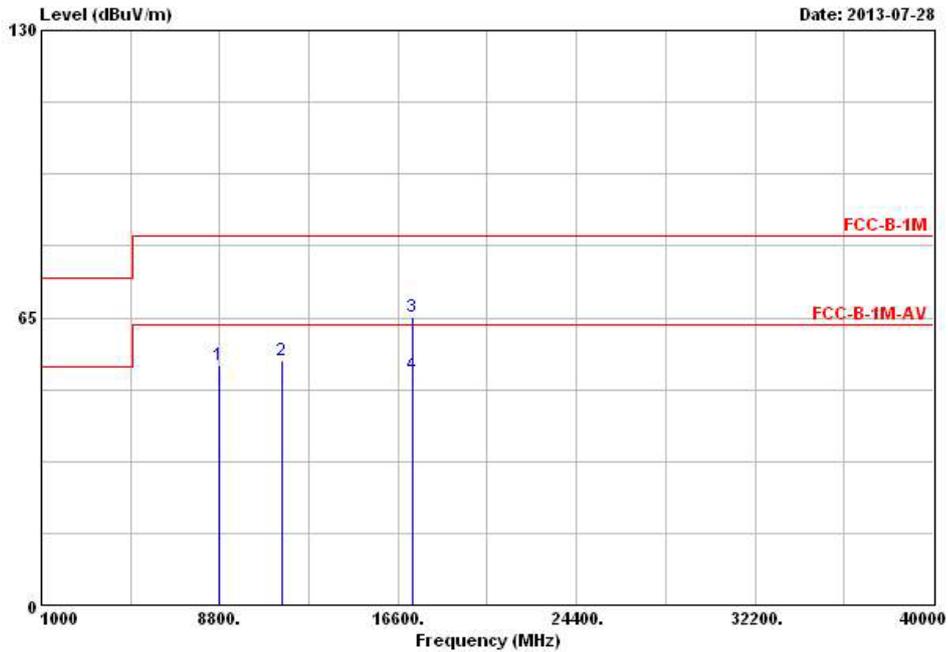
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8661.000	54.50	-9.04	63.54	44.68	38.50	4.39	33.07	PK	---	---
2 @ 11650.000	55.22	-8.32	63.54	42.97	39.99	4.85	32.59	PK	---	---
3 @ 17475.000	67.20	-16.34	83.54	43.92	45.81	9.20	31.73	Peak	---	---
4 @ 17475.000	53.98	-9.56	63.54	30.70	45.81	9.20	31.73	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5755
N <sub>TX</sub>	2	Polarization	V



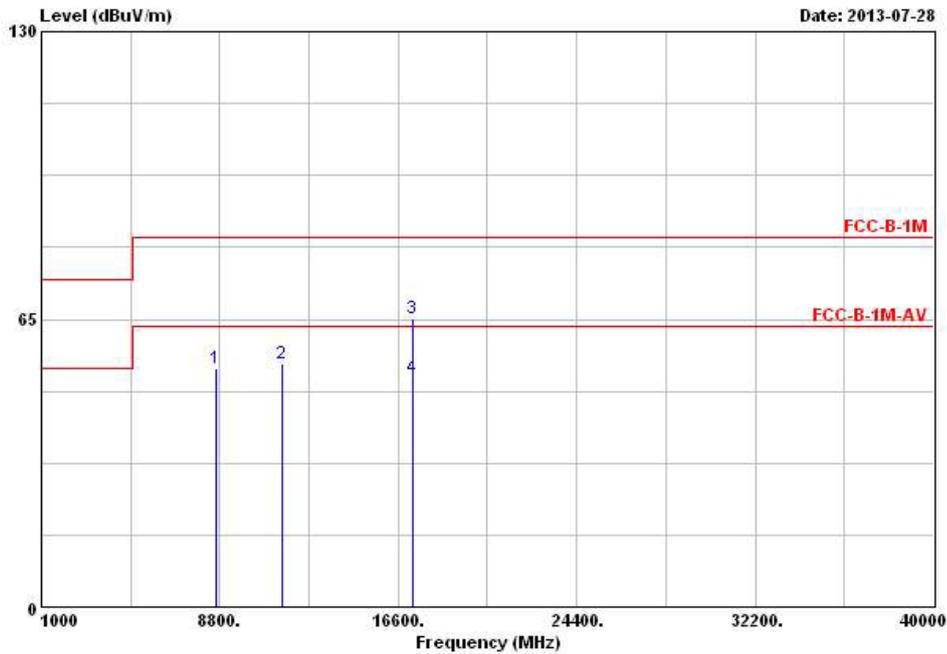
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8782.000	54.09	-9.45	63.54	44.08	38.36	4.76	33.11	PK	---	---
2 @ 11510.000	55.26	-8.28	63.54	43.10	40.10	4.63	32.57	PK	---	---
3 @ 17265.000	65.15	-18.39	83.54	43.89	44.09	8.84	31.67	Peak	---	---
4 @ 17265.000	52.05	-11.49	63.54	30.79	44.09	8.84	31.67	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5755
N <sub>TX</sub>	2	Polarization	H



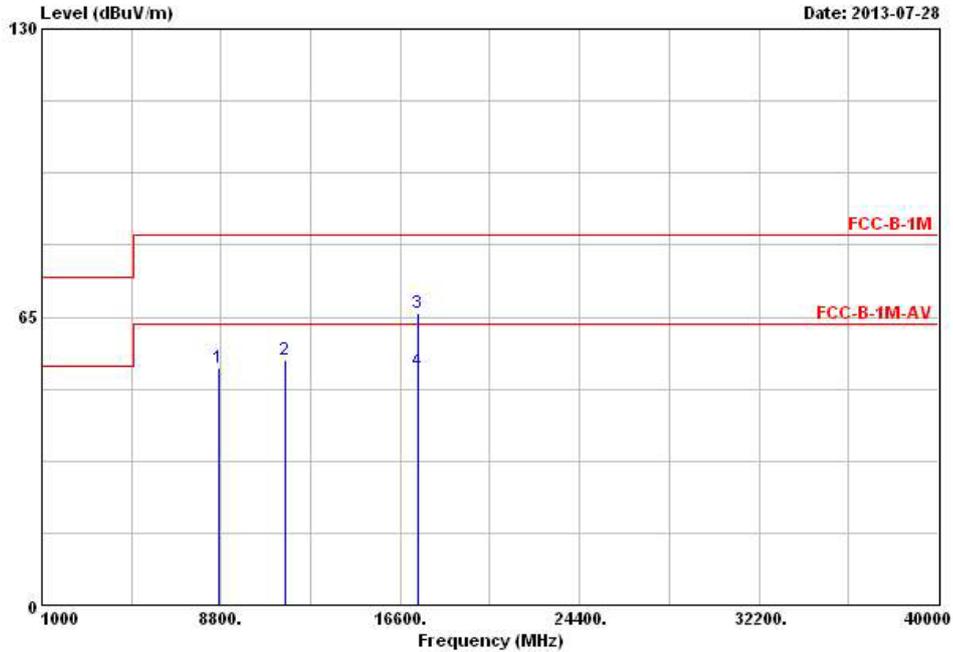
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8650.000	53.94	-9.60	63.54	44.10	38.52	4.39	33.07	PK	---	---
2 @ 11510.000	54.81	-8.73	63.54	42.65	40.10	4.63	32.57	PK	---	---
3 @ 17265.000	65.02	-18.52	83.54	43.76	44.09	8.84	31.67	Peak	---	---
4 @ 17265.000	51.69	-11.85	63.54	30.43	44.09	8.84	31.67	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5795
N <sub>TX</sub>	2	Polarization	V



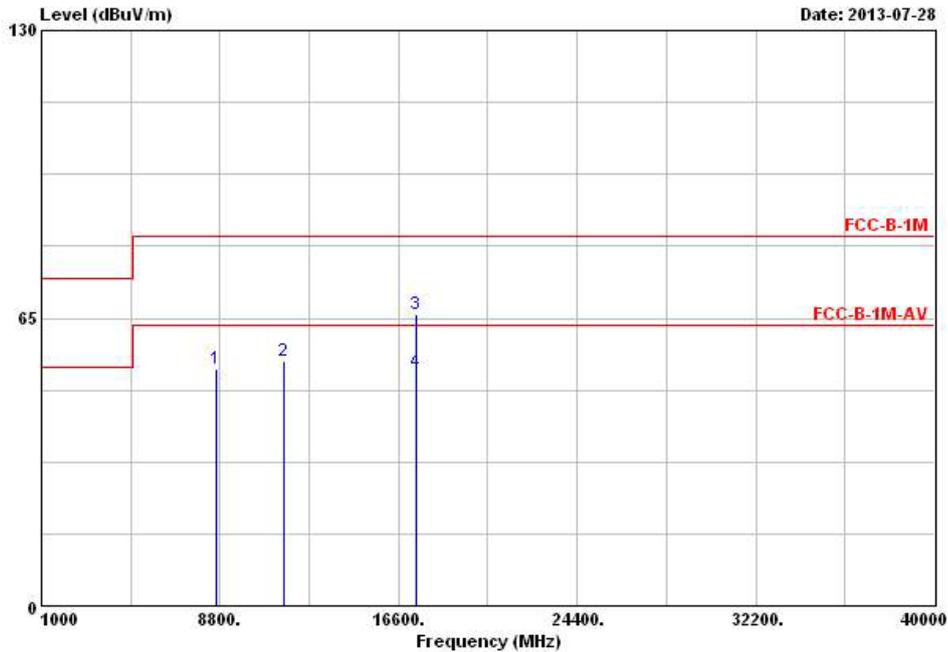
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8694.000	53.57	-9.97	63.54	43.72	38.46	4.48	33.09	PK	---	---
2 @ 11590.000	55.38	-8.16	63.54	43.14	40.03	4.79	32.58	PK	---	---
3 @ 17385.000	65.96	-17.58	83.54	43.51	45.10	9.06	31.71	Peak	---	---
4 @ 17385.000	52.85	-10.69	63.54	30.40	45.10	9.06	31.71	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5795
N <sub>TX</sub>	2	Polarization	H



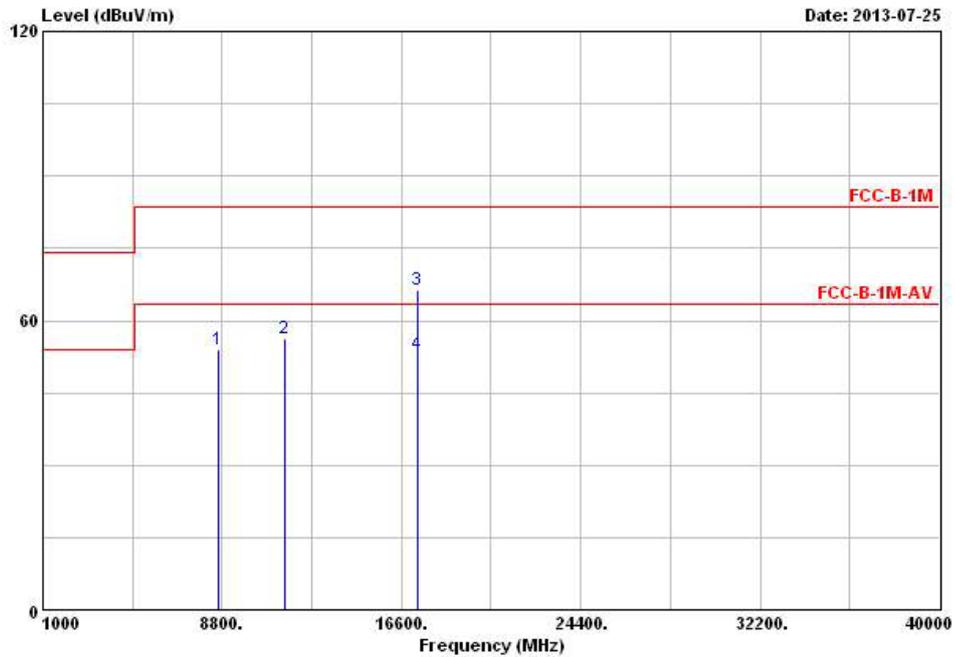
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8661.000	53.50	-10.04	63.54	43.68	38.50	4.39	33.07	PK	---	---
2 @ 11590.000	55.27	-8.27	63.54	43.03	40.03	4.79	32.58	PK	---	---
3 @ 17385.000	66.02	-17.52	83.54	43.57	45.10	9.06	31.71	Peak	---	---
4 @ 17385.000	52.87	-10.67	63.54	30.42	45.10	9.06	31.71	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5775
N <sub>TX</sub>	2	Polarization	V



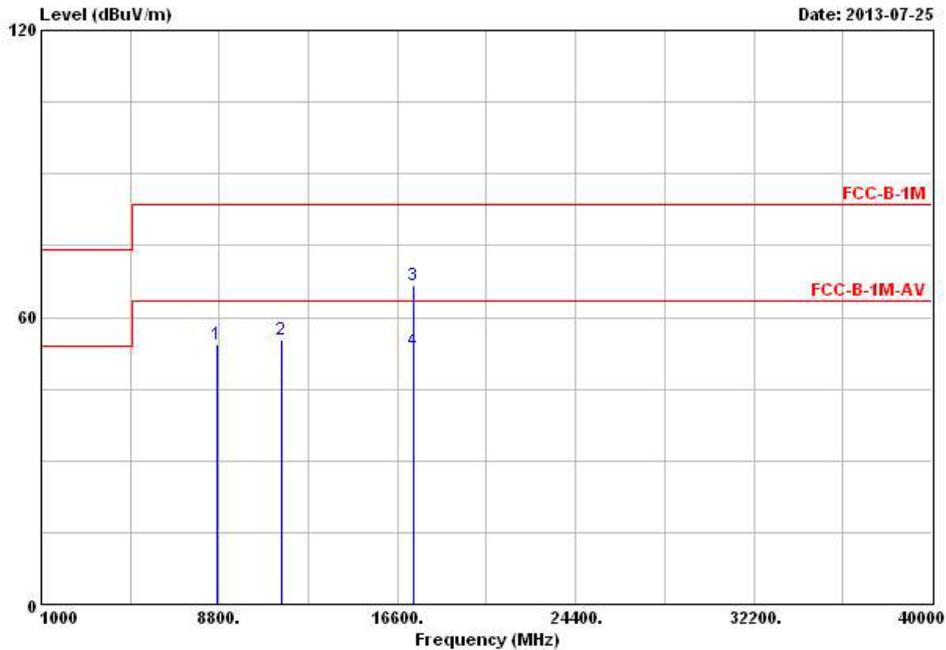
Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 8617.000	53.95	-9.59	63.54	44.15	38.56	4.30	33.06	PK	---	---
2 @ 11550.000	56.14	-7.40	63.54	43.92	40.06	4.74	32.58	PK	---	---
3 @ 17325.000	66.42	-17.12	83.54	44.59	44.52	8.99	31.68	Peak	---	---
4 @ 17325.000	53.13	-10.41	63.54	31.30	44.52	8.99	31.68	Average	---	---

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



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5775
N <sub>TX</sub>	2	Polarization	H



Date: 2013-07-25

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 @ 8694.000	54.32	-9.22	63.54	44.47	38.46	4.48	33.09	PK	---	---
2 @ 11550.000	55.42	-8.12	63.54	43.20	40.06	4.74	32.58	PK	---	---
3 @ 17325.000	66.64	-16.90	83.54	44.81	44.52	8.99	31.68	Peak	---	---
4 @ 17325.000	53.17	-10.37	63.54	31.34	44.52	8.99	31.68	Average	---	---

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



## 4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 26, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2013	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz ~ 30MHz	Apr. 18, 2013	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	7.61183201e+012	9kHz ~ 30MHz	Nov. 09, 2012	Conduction (CO04-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	Jan. 29, 2013	Conducted (TH06-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	-20 ~ 100°C	Nov. 21, 2012	Conducted (TH06-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 27, 2013	Conducted (TH06-HY)
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH06-HY)
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH06-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345673/4	1GHz ~ 26.5GHz	NA	Conducted (TH06-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345668/4	1GHz ~ 26.5GHz	NA	Conducted (TH06-HY)

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



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	Dec. 01, 2012	Radiation (03CH03-HY)
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May. 03, 2013	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1GHz ~ 26.5GHz	Aug. 16, 2012	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Sep. 14, 2012	Radiation (03CH03-HY)
Receiver	R&S	ESU26	1302.6005.26	20Hz ~ 26.5GHz	Apr. 02, 2013	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	Sep. 22, 2012	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	May. 31, 2013	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Jan. 17, 2013	Radiation (03CH03-HY)
RF Cable-high	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz ~ 40GHz	Jan. 17, 2013	Radiation (03CH03-HY)
Turn Table	EM Electronics	EM Electronics	060615	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	MF	MF-7802	MF780208179	1 ~ 4 m	N/A	Radiation (03CH03-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Magnetic Loop Antenna	Teseq GmbH	HLA 6120	31244	0.01MHz ~ 30MHz	Dec. 02, 2012	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz ~ 40GHz	Apr. 19, 2013	Radiation (03CH03-HY)

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