

FCC Test Report

Equipment : Wireless module
Brand Name : PEGATRON
Model No. : UPWL6028F
FCC ID : VUIUPWL6028F
Standard : 47 CFR FCC Part 15.407
Frequency Range : 5150 MHz – 5250 MHz
5250 MHz – 5350 MHz
5470 MHz – 5725 MHz
Equipment Class : NII
Applicant : PEGATRON CORPORATION
Manufacturer : 5F., NO. 76, LIGONG ST., BEITOU DISTRICT,
TAIPEI CITY 112 Taiwan
Operate Mode : Client without radar detection

The product sample received on Aug. 28, 2012 and completely tested on Oct. 05, 2012. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

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

Reviewed by:

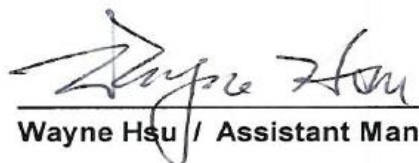

Wayne Hsu / Assistant Manager



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Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.203963MHz 29.75 (Margin 23.70dB) - AV 40.76 (Margin 22.69dB) - QP	FCC 15.207	Complied
3.2	15.407(a)	Emission Bandwidth	Bandwidth [MHz] 20M:23.73/ 40M:72.64	Information only	Complied
3.3	15.407(a)	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 5150-5250MHz:16.52 5250-5350MHz:18.70 5470-5725MHz:17.73	Power [dBm] 5150-5250MHz:17 5250-5350MHz:24 5470-5725MHz:24	Complied
3.4	15.407(a)	Peak Power Spectral Density	PPSD [dBm/MHz] 5150-5250MHz:3.50 5250-5350MHz:8.35 5470-5725MHz:4.97	PPSD [dBm/MHz] 5150-5250MHz:4 5250-5350MHz:11 5470-5725MHz:11	Complied
3.5	15.407(a)	Peak Excursion	10.29 dB	13 dB	Complied
3.6	15.407(b)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 5727.38MHz: 76.80dBm Restricted Bands [dBuV/m at 1m]: 5350.00MHz 81.95 (Margin 1.05dB) - PK 62.58 (Margin 0.96dB) - AV	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
3.7	15.407(b)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 1m]: 10480MHz 76.75 (Margin 1.09dB) - PK	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
3.8	15.407(g)	Frequency Stability	1.92 ppm	Signal shall remain in-band	Complied



SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-327-0973

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)	Co-location
5150-5250	a	5180-5240	36-48 [4]	1	13.49	N/A
5250-5350		5260-5320	52-64 [4]	1	15.04	
5470-5725		5500-5700	100-140 [8]	1	14.95	
5150-5250	n (HT20)	5180-5240	36-48 [4]	1	13.46	N/A
5250-5350		5260-5320	52-64 [4]	1	15.07	
5470-5725		5500-5700	100-140 [8]	1	14.76	
5150-5250	n (HT40)	5190-5230	38-46 [2]	1	15.03	N/A
5250-5350		5270-5310	54-62 [2]	1	15.38	
5470-5725		5510-5670	102-134 [3]	1	15.38	
5150-5250	n (HT20)	5180-5240	36-48 [4]	2	13.82	N/A
5250-5350		5260-5320	52-64 [4]	2	18.70	
5470-5725		5500-5700	100-140 [8]	2	15.19	
5150-5250	n (HT40)	5190-5230	38-46 [2]	2	16.52	N/A
5250-5350		5270-5310	54-62 [2]	2	17.54	
5470-5725		5510-5670	102-134 [3]	2	17.73	

Note 1: RF output power specifies that Maximum Conducted Output Power.
 Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
 Note 3: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

1.1.2 Antenna Information

Antenna Category	
<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	Brand	Part No.	Gain (dBi)	
					2.4G	5G
1	Integral	PCB	Wanshih	UC3WFI0063	2.04	4.62
2	Integral	PCB	Wanshih	UC3WFI0064	3.90	4.48
3	Integral	PCB	Wanshih	UC3WFI0072	2.04	6.21
4	Integral	PCB	Wanshih	UC3WFI0073	5.72	4.93
5	Integral	PCB	Wanshih	UC3WFI0080	4.72	-
6	Integral	PCB	Wanshih	UC3WFI0081	5.65	-
7	Integral	PCB	Wanshih	UC3WFI0082	-	5.16
8	Integral	PCB	Wanshih	UC3WFI0083	-	6.36
9	Integral	PCB	Hong-lin	260-23396	2.32	3.91
10	Integral	PCB	Hong-lin	260-23397	4.64	4.53
11	Integral	PCB	Hong-lin	260-23042	4.36	6.22
12	Integral	PCB	Hong-lin	260-23403	4.40	6.00
13	Integral	PCB	Hong-lin	260-23432	2.58	-
14	Integral	PCB	Hong-lin	260-23434	4.36	-
15	Integral	PCB	Hong-lin	260-23433	-	5.60
16	Integral	PCB	Hong-lin	260-23435	-	6.22
17	Integral	PCB	Airgain	N2420DS (10cm)	3.10	-
18	Integral	PCB	Airgain	N2420DS (27cm)	3.10	-
19	Integral	PCB	Airgain	N2420 (10cm)	3.30	-
20	Integral	PCB	Airgain	N2420 (40cm)	3.30	-
21	Integral	PCB	Airgain	N5x20SC (15cm)	-	1.90
22	Integral	PCB	Airgain	N5x20SC (19cm)	-	1.90
23	Integral	PCB	Airgain	N5x20SC (23cm)	-	1.90
24	Integral	PCB	Airgain	N5x20SC (27cm)	-	1.90

EUT is consist of multiple antenna models assembly (multiple antenna models are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. Then Ant. No. 4 shall be performed the radiated test.

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input type="checkbox"/> Production ; <input checked="" type="checkbox"/> Pre-Production ; <input 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)	Voltage Duty Factor [dB] – (20 log 1/x)
<input checked="" type="checkbox"/> 97.97% - IEEE 802.11a	0.09	0.18
<input checked="" type="checkbox"/> 95.89% - IEEE 802.11n (HT20)	0.18	0.36
<input checked="" type="checkbox"/> 87.49% - IEEE 802.11n (HT40)	0.58	1.16

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

1.1.5 EUT Operational Condition

Supply Voltage	<input type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> Host	<input type="checkbox"/> Battery
Operational Voltage	<input checked="" type="checkbox"/> Vnom (110 V)	<input checked="" type="checkbox"/> Vmax (126.5 V)	<input checked="" type="checkbox"/> Vmin (93.5 V)
Operational Climatic	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (50°C)	<input checked="" type="checkbox"/> Tmin (-20°C)

1.1.6 DFS and TPC Information

The DFS Related Operating Mode(s) of the Equipment			
<input type="checkbox"/> Master			
<input type="checkbox"/> Slave with radar detection			
<input checked="" type="checkbox"/> Slave without radar detection			
Software / Firmware Version		6.20.61.0	
Communication Mode		<input checked="" type="checkbox"/> IP Based (Load Based)	<input type="checkbox"/> Frame Based
IEEE Std. 802.11	Frequency Range (MHz)	TPC (Transmit Power Control)	Passive Scan
a	<input checked="" type="checkbox"/> 5150-5250	-	Yes
n (HT20)	<input checked="" type="checkbox"/> 5250-5350	Yes	Yes
n (HT40)	<input checked="" type="checkbox"/> 5470-5725	Yes	Yes
	<input type="checkbox"/> 5600-5650	-	-

1.2 Support Equipment

Support Equipment - Conducted Emissions				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	XPS M1330	DoC
2	iPod	Apple	A1199	N/A
3	(USB) Mouse	Microsoft	1113	N/A
4	Wireless AP (Remote Workstation)	ASUS	RT-AC66U	DoC

Support Equipment - Radiated Emissions				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	E5500	DoC
2	(USB) Mouse	Microsoft	1113	DoC
3	iPod	APPLE	A1199	DoC
4	Wireless AP (Remote Workstation)	ASUS	RT-AC66U	DoC

1.3 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2009
- ◆ FCC KDB 789033
- ◆ FCC KDB 662911
- ◆ FCC KDB 412172

1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.		
		TEL : 886-3-327-3456 FAX : 886-3-327-0973		
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Ian	25.9°C / 60%	04-Oct-12
AC Conduction	CO04-HY	Bill	25.2°C / 49.3%	04-Sep-12
Radiated Emission	03CH03-HY	Daniel	25.6°C / 58%	20-Sep-12 ~ 29-Sep-12

1.5 Measurement Uncertainty

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

Measurement Uncertainty			
Test Item		Uncertainty	Limit
AC power-line conducted emissions		±2.26 dB	N/A
Emission bandwidth		±1.42 %	N/A
RF output power, conducted		±0.63 dB	N/A
Power density, conducted		±0.81 dB	N/A
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	±2.56 dB	N/A
	1 – 18 GHz	±3.59 dB	N/A
	18 – 40 GHz	±3.82 dB	N/A
	40 – 200 GHz	N/A	N/A
Temperature		±0.8 °C	N/A
Humidity		±3 %	N/A
DC and low frequency voltages		±3 %	N/A
Time		±1.42 %	N/A
Duty Cycle		±1.42 %	N/A

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing					
Frequency Band	Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS	RF Output Power (dBm)
5.2G	11a	1	6-54 Mbps	6 Mbps	13.49
5.3G	11a	1	6-54 Mbps	6 Mbps	15.04
5.6G	11a	1	6-54 Mbps	6 Mbps	14.95
5.2G	HT20	1	MCS 0-7	MCS 0	13.46
5.3G	HT20	1	MCS 0-7	MCS 0	15.07
5.6G	HT20	1	MCS 0-7	MCS 0	14.76
5.2G	HT40	1	MCS 0-7	MCS 0	15.03
5.3G	HT40	1	MCS 0-7	MCS 0	15.38
5.6G	HT40	1	MCS 0-7	MCS 0	15.38
5.2G	HT20	2	MCS 0-15	MCS 8	13.82
5.3G	HT20	2	MCS 0-15	MCS 8	18.70
5.6G	HT20	2	MCS 0-15	MCS 8	15.19
5.2G	HT40	2	MCS 0-15	MCS 8	16.52
5.3G	HT40	2	MCS 0-15	MCS 8	17.54
5.6G	HT40	2	MCS 0-15	MCS 8	17.73
Note 1: IEEE Std. 802.11n-2009 modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Worst modulation mode of Guard Interval (GI) is 800ns. Note 2: Modulation modes consist of below configuration: 11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n. 5.2G: 5.15-5.25GHz band, 5.3G: 5.25-5.35GHz band, 5.6G: 5.47-5.725GHz band					

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration		
Frequency Range (MHz)	IEEE Std. 802.11	Test Channel Freq. (MHz) – FX (Frequencies Abbreviations)
5150-5250	a, n (HT20)	5180-(F1), 5200-(F2), 5240-(F3)
5250-5350	a, n (HT20)	5260-(F4), 5300-(F5), 5320-(F6)
5470-5725	a, n (HT20)	5500-(F7), 5580-(F8), 5700-(F9)
5150-5250	n (HT40)	5190-(F1'), 5230-(F2')
5250-5350	n (HT40)	5270-(F4'), 5310-(F5')
5470-5725	n (HT40)	5510-(F7'), 5550-(F8'), 5670-(F9')

2.3 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter		
Test Software Version	DOS	
N _{TX}	N _{TX} 1	
Modulation Mode of Power Setting for 20MHz Channel Bandwidth		
Frequency (MHz)	11a	HT20
5180	44	56
5200	57	57
5240	58	57
5260	65	65
5300	67	65
5320	44	50
5500	66	58
5580	65	65
5700	40	41
Modulation Mode of Power Setting for 40MHz Channel Bandwidth		
Frequency (MHz)	HT40	
5190	40	
5230	65	
5270	68	
5310	46	
5510	54	
5550	67	
5670	48	

The Worst Case Power Setting Parameter	
Test Software Version	DOS
N _{TX}	N _{TX} 2
Modulation Mode of Power Setting for 20MHz Channel Bandwidth	
Frequency (MHz)	HT20
5180	40
5200	48
5240	49
5260	70
5300	70
5320	60
5500	56
5580	52
5700	40
Modulation Mode of Power Setting for 40MHz Channel Bandwidth	
Frequency (MHz)	HT40
5190	42
5230	59
5270	65
5310	44
5510	52
5550	66
5670	48

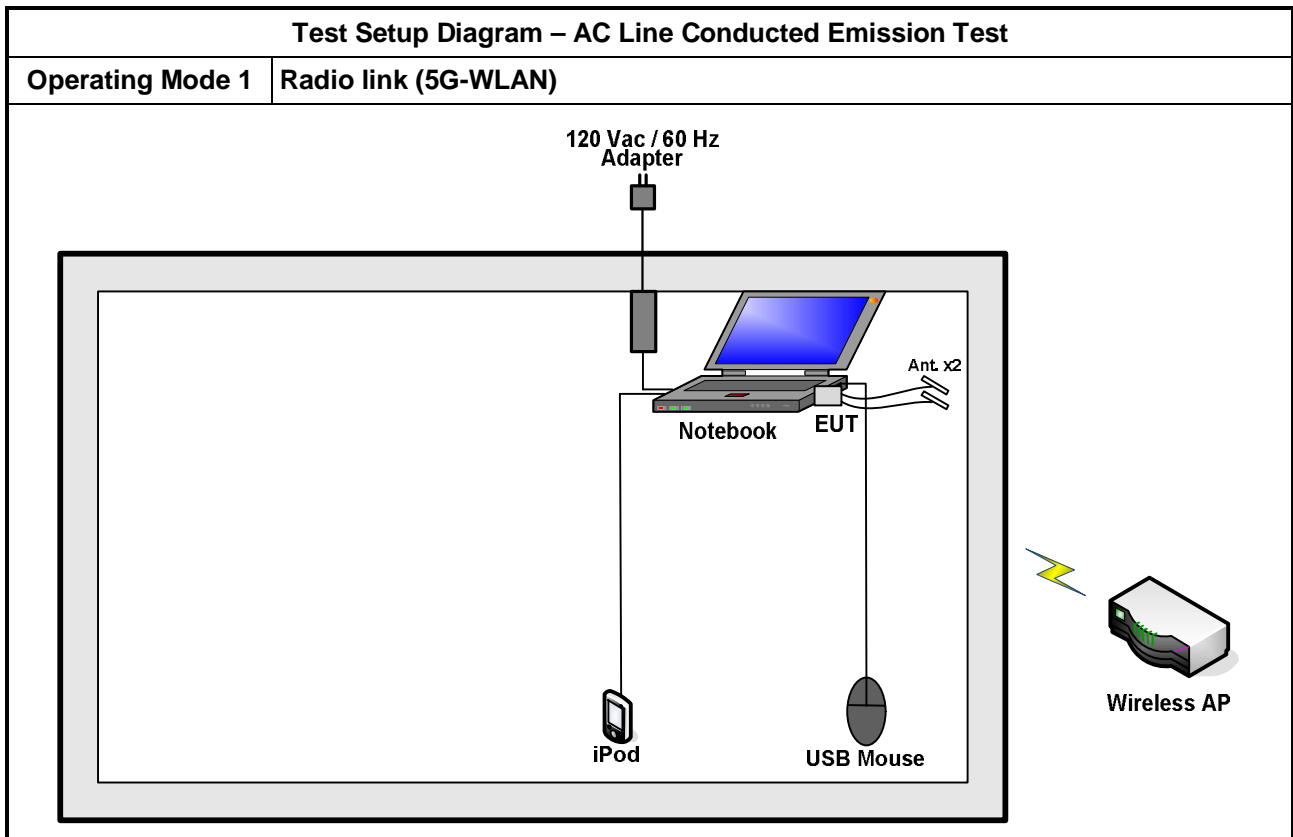
2.4 The Worst Case Measurement Configuration

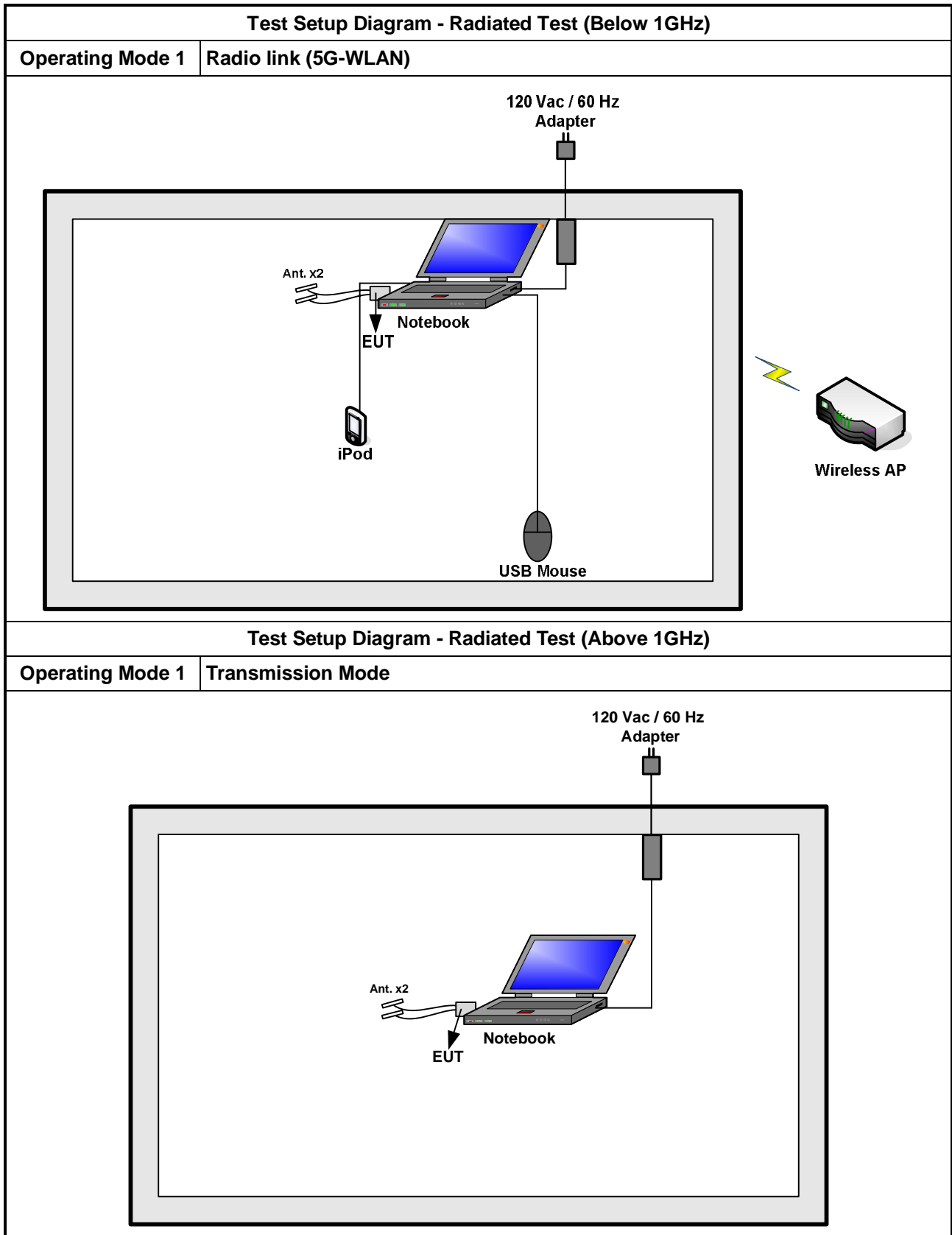
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	Radio link (5G-WLAN)

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, Peak Power Spectral Density, Emission Bandwidth, Peak Excursion
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT20, HT40

The Worst Case Mode for Following Conformance Tests	
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
User Position	<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. The worst planes is X.
	<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.
Operating Mode < 1GHz	<input checked="" type="checkbox"/> 1. Radio link (5G-WLAN)
Modulation Mode	11a, HT20, HT40

2.5 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.

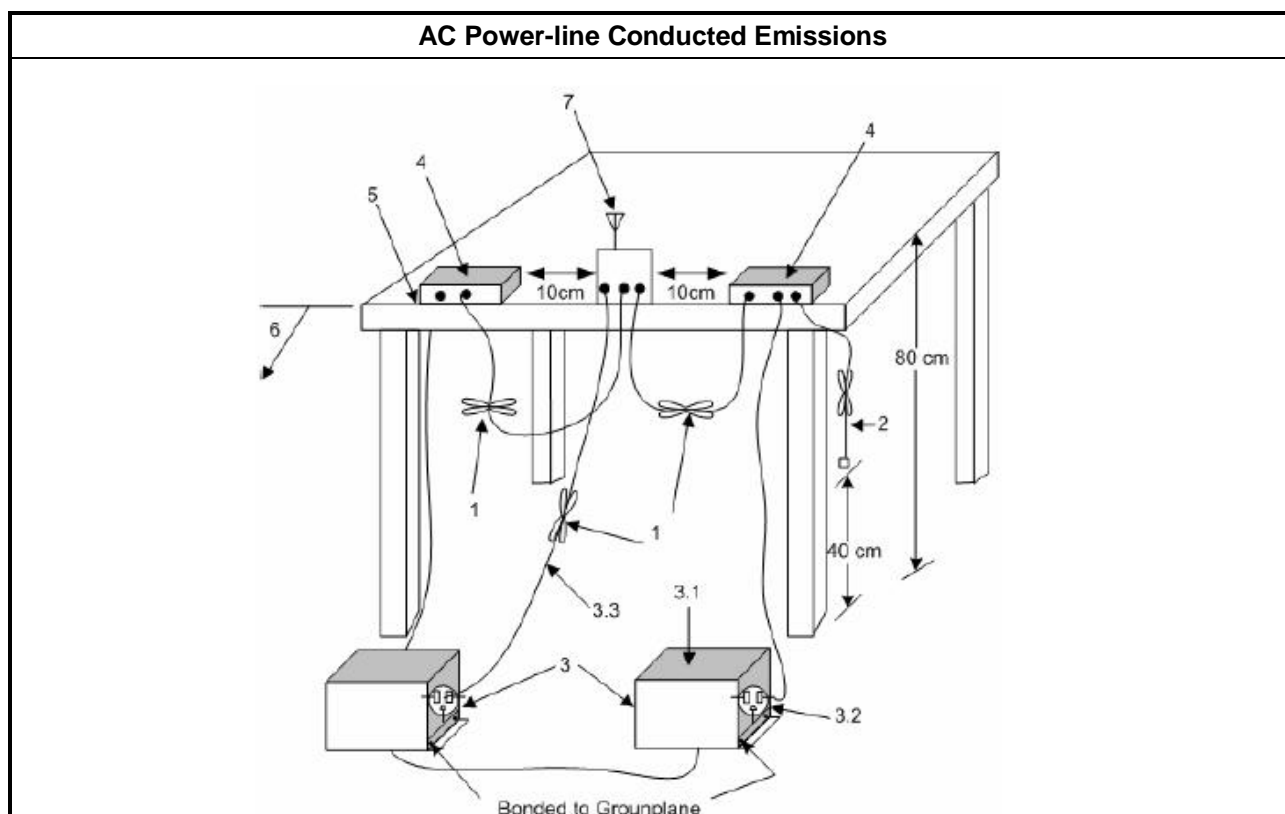
3.1.2 Measuring Instruments

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

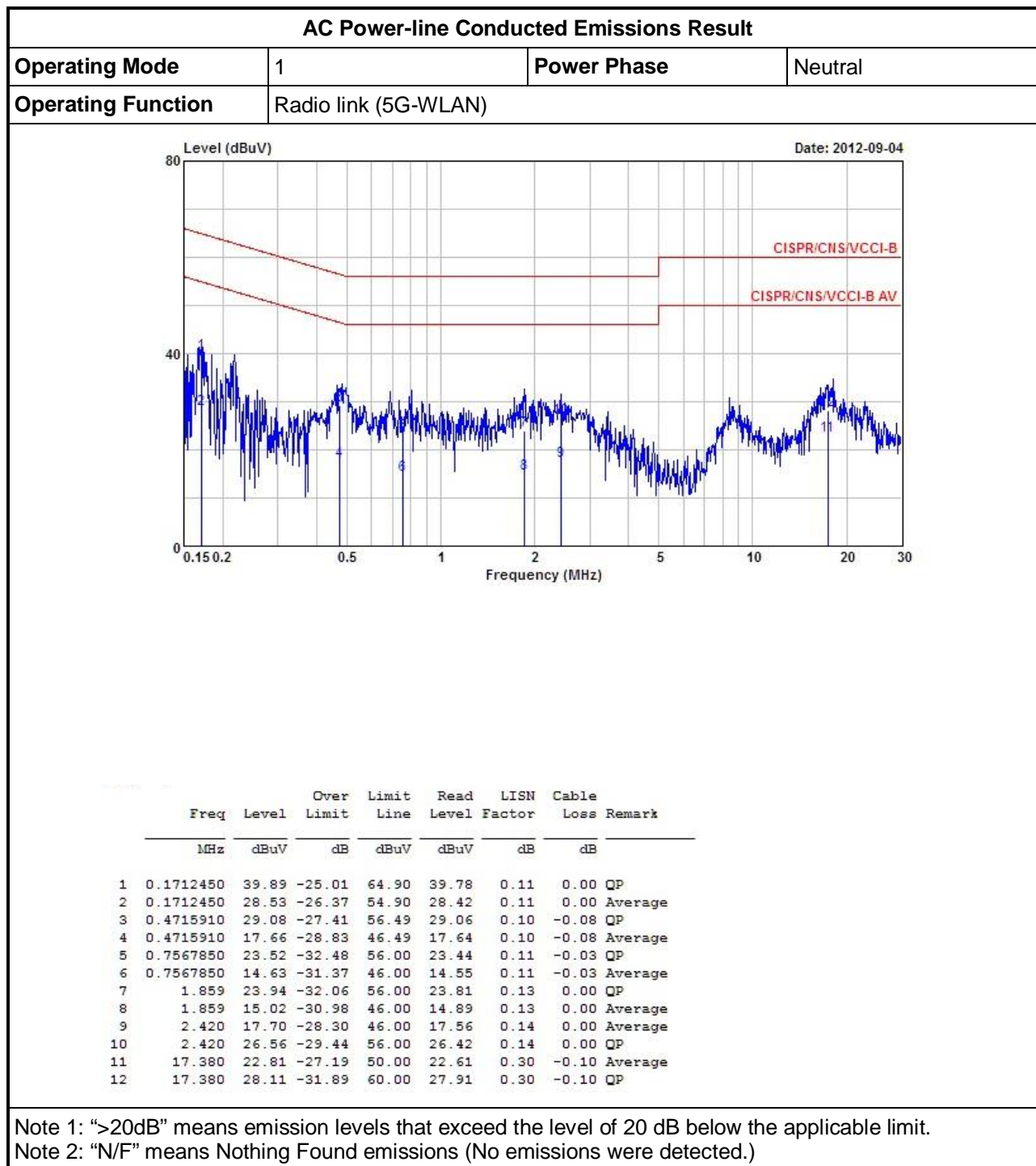
3.1.3 Test Procedures

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

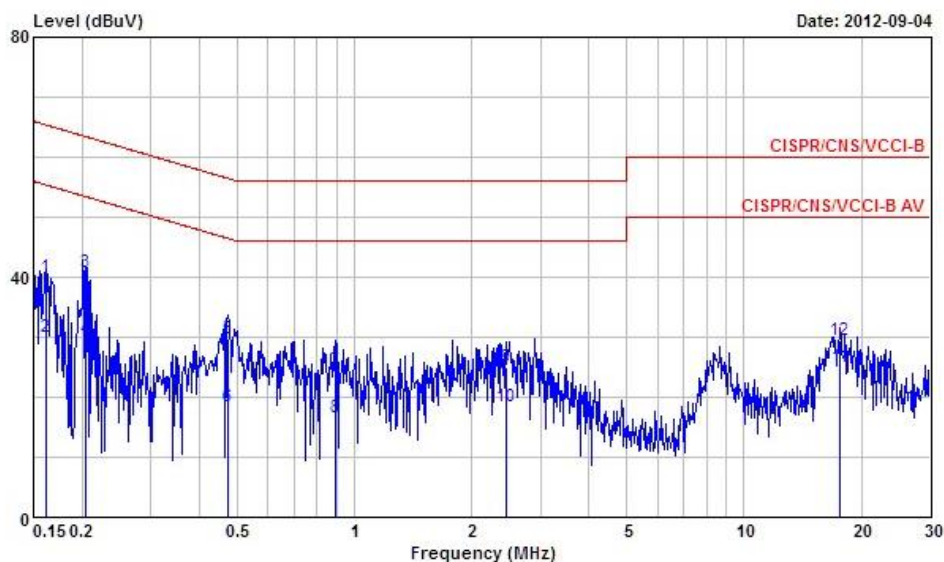


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Radio link (5G-WLAN)		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1615500	40.01	-25.37	65.38	39.77	0.24	0.00	QP
2	0.1615500	30.00	-25.38	55.38	29.76	0.24	0.00	Average
3	0.2039630	40.76	-22.69	63.45	40.53	0.23	0.00	QP
4	0.2039630	29.75	-23.70	53.45	29.52	0.23	0.00	Average
5	0.4736030	29.84	-26.61	56.45	29.70	0.22	-0.08	QP
6	0.4736030	18.47	-27.98	46.45	18.33	0.22	-0.08	Average
7	0.8904140	24.54	-31.46	56.00	24.32	0.23	-0.01	QP
8	0.8904140	16.60	-29.40	46.00	16.38	0.23	-0.01	Average
9	2.450	25.11	-30.89	56.00	24.85	0.26	0.00	QP
10	2.450	18.33	-27.67	46.00	18.07	0.26	0.00	Average
11	17.660	24.91	-25.09	50.00	24.46	0.54	-0.09	Average
12	17.660	29.53	-30.47	60.00	29.08	0.54	-0.09	QP

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

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth (EBW) Limit

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

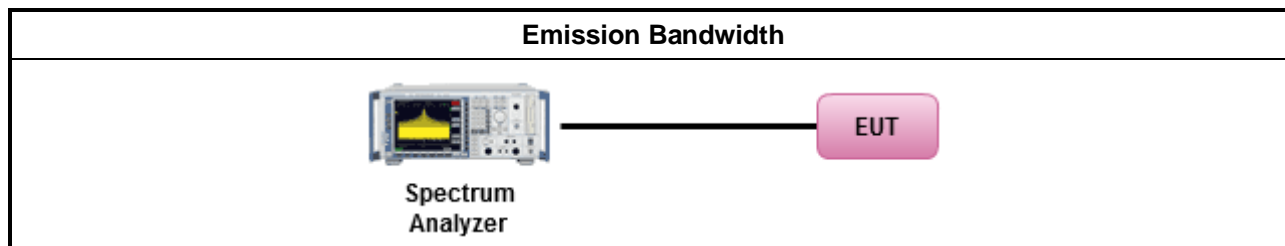
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
<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 789033, clause D for EBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input checked="" type="checkbox"/>	Refer as IC RSS-Gen, clause 4.6 for 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

UNII Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth				Conducted Power Limit (dBm)	
			Chain-Port 1	-	-	-	Calculation Power Limit	Final Power Limit
11a	1	5180	18.96	-	-	-	16.8	16.8
11a	1	5200	19.13	-	-	-	16.8	16.8
11a	1	5240	18.96	-	-	-	16.8	16.8
11a	1	5260	19.05	-	-	-	23.8	23.8
11a	1	5300	21.23	-	-	-	24.3	24.0
11a	1	5320	19.26	-	-	-	23.8	23.8
11a	1	5500	19.64	-	-	-	23.9	23.9
11a	1	5580	21.71	-	-	-	24.4	24.0
11a	1	5700	19.25	-	-	-	23.8	23.8
HT20	1	5180	19.07	-	-	-	16.8	16.8
HT20	1	5200	19.41	-	-	-	16.9	16.9
HT20	1	5240	19.56	-	-	-	16.9	16.9
HT20	1	5260	19.31	-	-	-	23.9	23.9
HT20	1	5300	23.27	-	-	-	24.7	24.0
HT20	1	5320	19.40	-	-	-	23.9	23.9
HT20	1	5500	19.52	-	-	-	23.9	23.9
HT20	1	5580	23.73	-	-	-	24.8	24.0
HT20	1	5700	19.23	-	-	-	23.8	23.8
HT40	1	5190	39.88	-	-	-	20.0	17.0
HT40	1	5230	40.28	-	-	-	20.1	17.0
HT40	1	5270	72.64	-	-	-	29.6	24.0
HT40	1	5310	39.52	-	-	-	27.0	24.0
HT40	1	5510	39.56	-	-	-	27.0	24.0
HT40	1	5550	58.64	-	-	-	28.7	24.0
HT40	1	5670	65.08	-	-	-	29.1	24.0
Result			Complied					
Note 1: N _{TX} = Number of Transmit Chains								

UNII Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth				Conducted Power Limit (dBm)	
			Chain-Port 1	Chain-Port 2	-	-	Calculation Power Limit	Final Power Limit
HT20	2	5180	18.10	18.66	-	-	16.6	16.6
HT20	2	5200	19.11	19.47	-	-	16.8	16.8
HT20	2	5240	19.31	19.19	-	-	16.8	16.8
HT20	2	5260	20.90	23.70	-	-	24.2	24.0
HT20	2	5300	19.70	23.33	-	-	23.9	23.9
HT20	2	5320	19.07	19.19	-	-	23.8	23.8
HT20	2	5500	19.29	19.11	-	-	23.8	23.8
HT20	2	5580	19.49	19.28	-	-	23.8	23.8
HT20	2	5700	19.14	19.43	-	-	23.8	23.8
HT40	2	5190	20.78	20.78	-	-	17.2	17.0
HT40	2	5230	39.16	39.20	-	-	19.9	17.0
HT40	2	5270	39.04	61.72	-	-	26.9	24.0
HT40	2	5310	39.32	39.56	-	-	26.9	24.0
HT40	2	5510	39.20	38.72	-	-	26.9	24.0
HT40	2	5550	53.28	56.00	-	-	28.3	24.0
HT40	2	5670	52.72	53.92	-	-	28.2	24.0
Result			Complied					
Note 1: N _{TX} = Number of Transmit Chains								

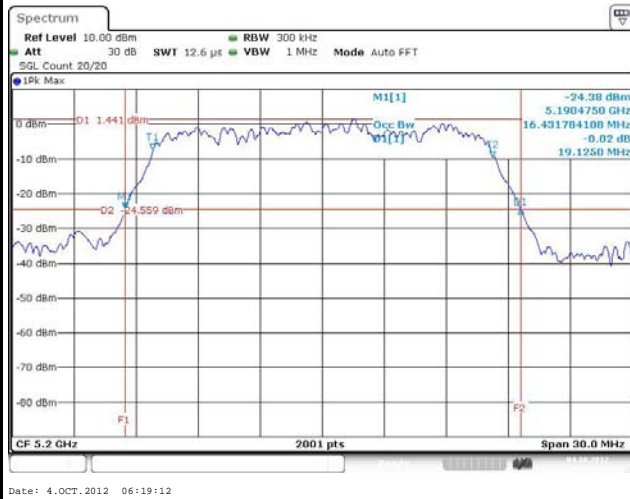
LE-LAN Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth				e.i.r.p. Power Limit (dBm)	
			Chain-Port 1	-	-	-	Calculation Power Limit	Final Power Limit
11a	1	5180	16.33	-	-	-	16.1	16.1
11a	1	5200	16.43	-	-	-	16.2	16.2
11a	1	5240	16.40	-	-	-	16.1	16.1
11a	1	5260	16.58	-	-	-	23.2	23.2
11a	1	5300	16.64	-	-	-	23.2	23.2
11a	1	5320	16.69	-	-	-	23.2	23.2
11a	1	5500	16.82	-	-	-	23.3	23.3
11a	1	5580	16.52	-	-	-	23.2	23.2
11a	1	5700	16.43	-	-	-	23.2	23.2
HT20	1	5180	17.50	-	-	-	16.4	16.4
HT20	1	5200	17.60	-	-	-	16.5	16.5
HT20	1	5240	17.80	-	-	-	16.5	16.5
HT20	1	5260	17.54	-	-	-	23.4	23.4
HT20	1	5300	17.84	-	-	-	23.5	23.5
HT20	1	5320	17.59	-	-	-	23.5	23.5
HT20	1	5500	17.66	-	-	-	23.5	23.5
HT20	1	5580	17.71	-	-	-	23.5	23.5
HT20	1	5700	17.54	-	-	-	23.4	23.4
HT40	1	5190	36.18	-	-	-	19.6	17.0
HT40	1	5230	36.34	-	-	-	19.6	17.0
HT40	1	5270	36.82	-	-	-	26.7	24.0
HT40	1	5310	36.62	-	-	-	26.6	24.0
HT40	1	5510	36.46	-	-	-	26.6	24.0
HT40	1	5550	36.70	-	-	-	26.6	24.0
HT40	1	5670	37.82	-	-	-	26.8	24.0
Result			Complied					
Note 1: N _{TX} = Number of Transmit Chains								

LE-LAN Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth				e.i.r.p. Power Limit (dBm)	
			Chain-Port 1	Chain-Port 2	-	-	Calculation Power Limit	Final Power Limit
HT20	2	5180	17.65	17.62	-	-	16.5	16.5
HT20	2	5200	17.53	17.69	-	-	16.4	16.4
HT20	2	5240	17.60	17.63	-	-	16.5	16.5
HT20	2	5260	17.71	17.72	-	-	23.5	23.5
HT20	2	5300	17.69	17.69	-	-	23.5	23.5
HT20	2	5320	17.48	17.62	-	-	23.4	23.4
HT20	2	5500	17.60	17.50	-	-	23.4	23.4
HT20	2	5580	17.66	17.50	-	-	23.4	23.4
HT20	2	5700	17.50	17.57	-	-	23.4	23.4
HT40	2	5190	36.30	36.58	-	-	19.6	17.0
HT40	2	5230	36.42	36.30	-	-	19.6	17.0
HT40	2	5270	36.26	36.54	-	-	26.6	24.0
HT40	2	5310	36.70	36.46	-	-	26.6	24.0
HT40	2	5510	36.58	36.26	-	-	26.6	24.0
HT40	2	5550	36.82	36.62	-	-	26.6	24.0
HT40	2	5670	36.78	36.74	-	-	26.7	24.0
Result			Complied					
Note 1: N _{TX} = Number of Transmit Chains								

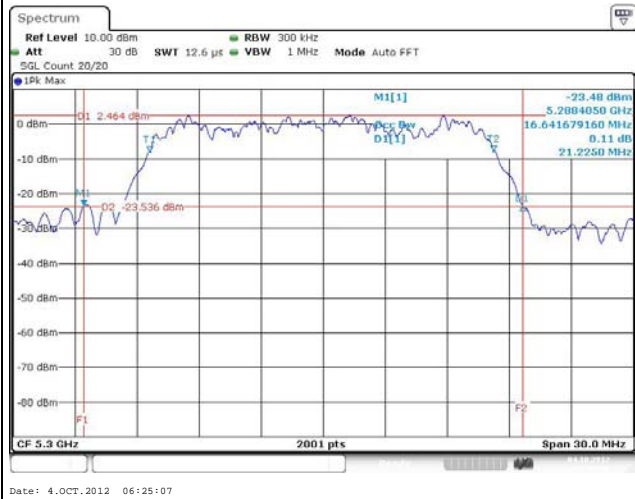
(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11A-20M-N_{TX} 1

Worst Emission Bandwidth Plots

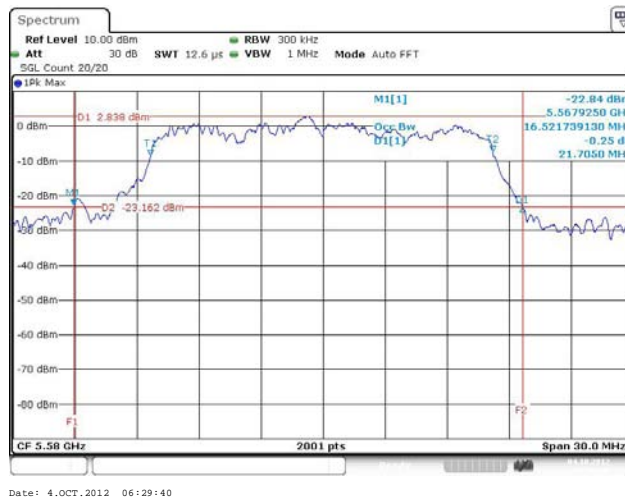
11a – F2 [Port 1]



11a – F5 [Port 1]



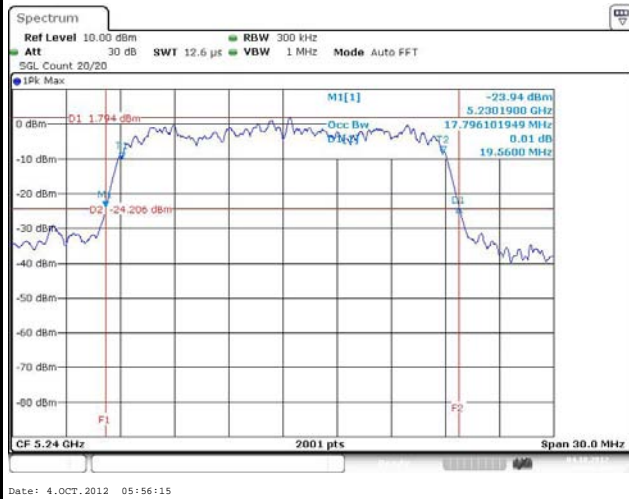
11a – F8 [Port 1]



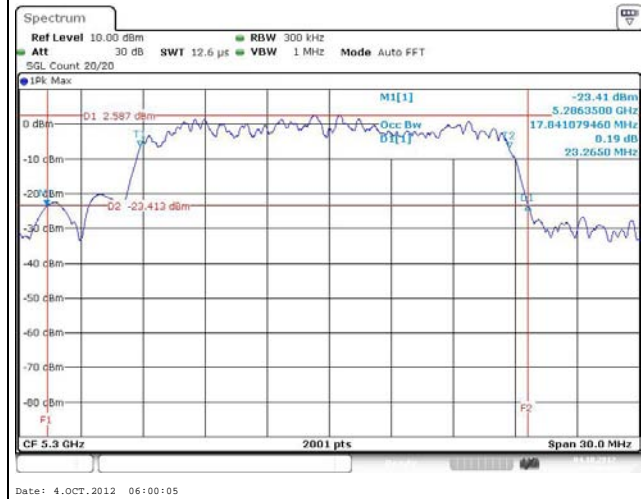
(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 1

Worst Emission Bandwidth Plots

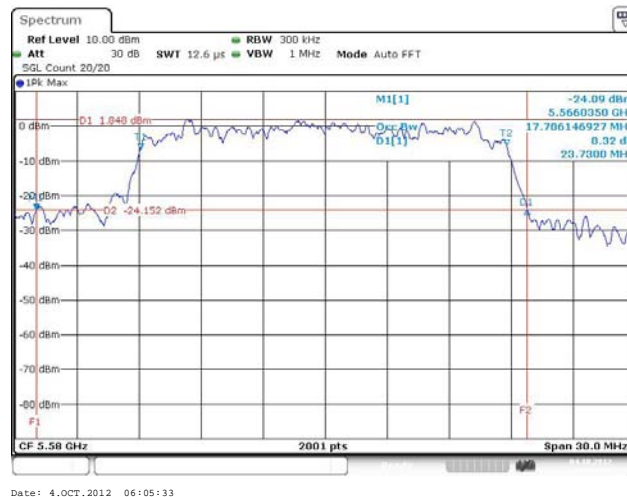
HT20 – F3 [Port 1]



HT20 – F5 [Port 1]



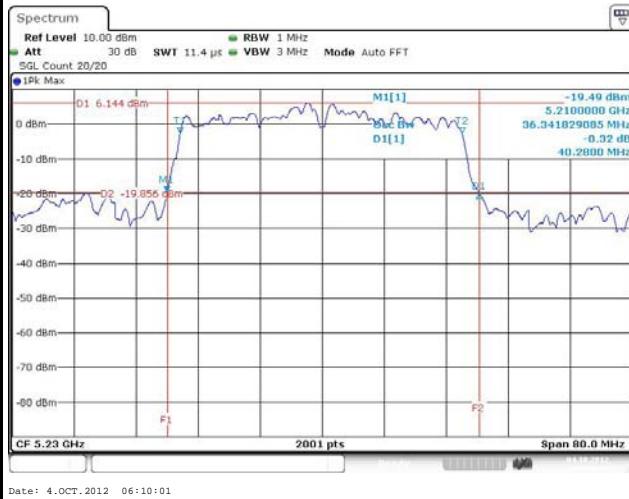
HT20 – F8 [Port 1]



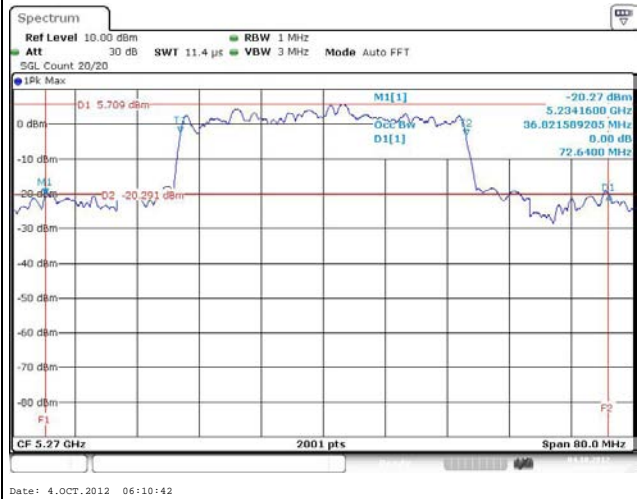
(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 1

Worst Emission Bandwidth Plots

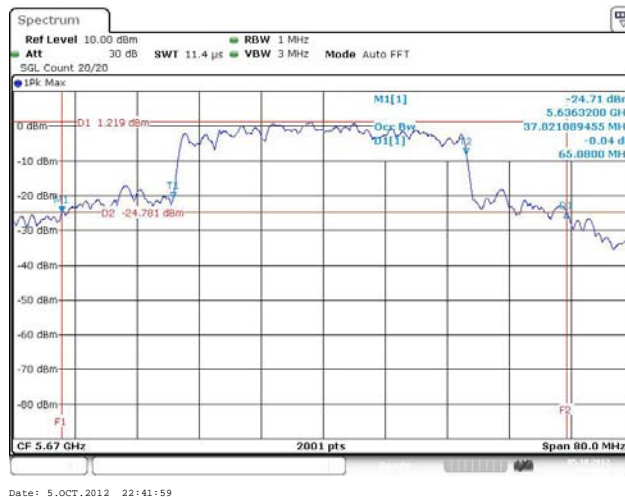
HT40 – F2' [Port 1]



HT40 – F4' [Port 1]



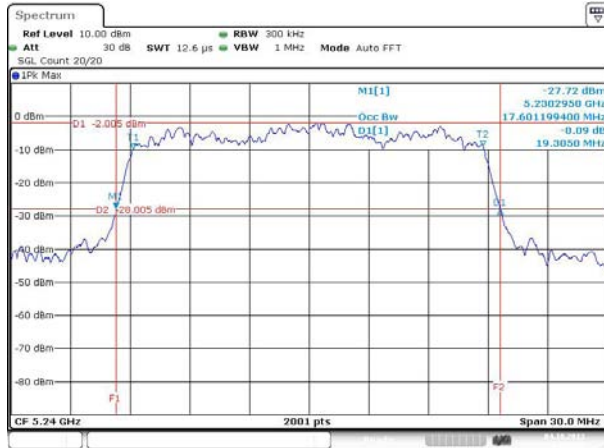
HT40 – F9' [Port 1]



(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 2

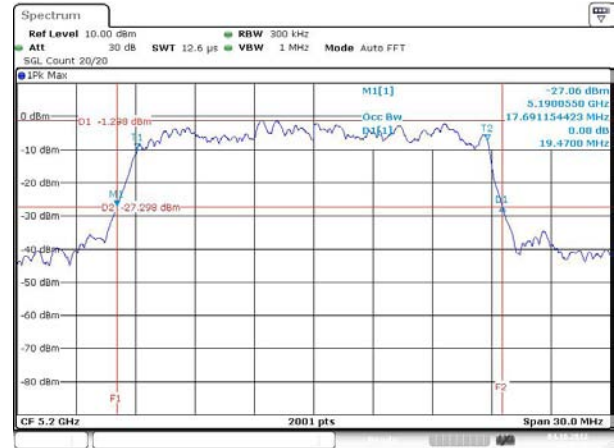
Worst Emission Bandwidth Plots

HT20 – F3 [Port 1]



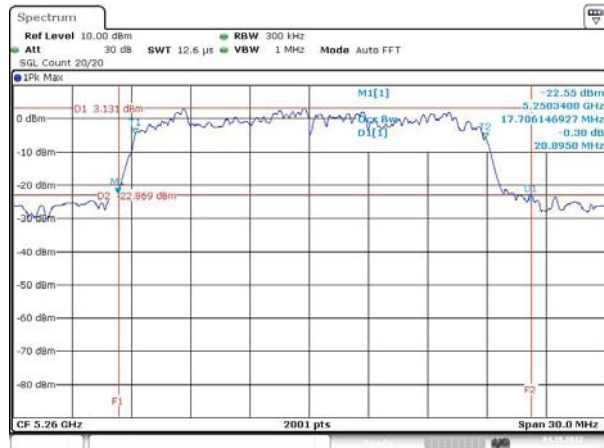
Date: 4.OCT.2012 04:39:17

HT20 – F2 [Port 2]



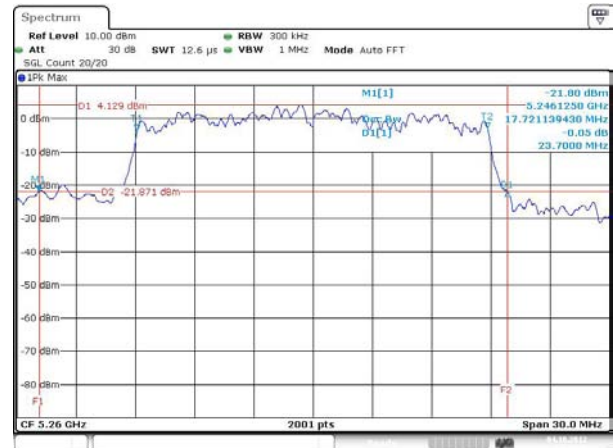
Date: 4.OCT.2012 04:35:21

HT20 – F4 [Port 1]



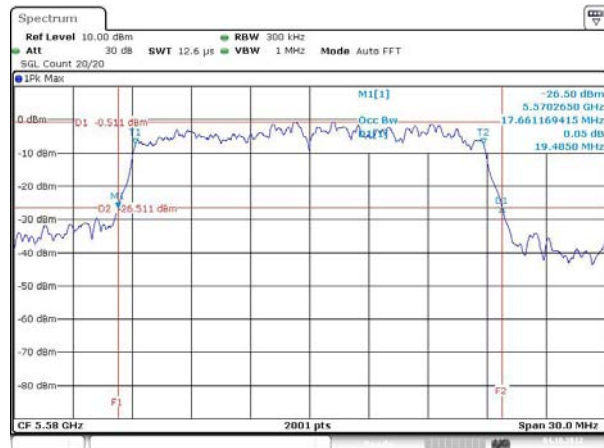
Date: 4.OCT.2012 04:42:41

HT20 – F4 [Port 2]



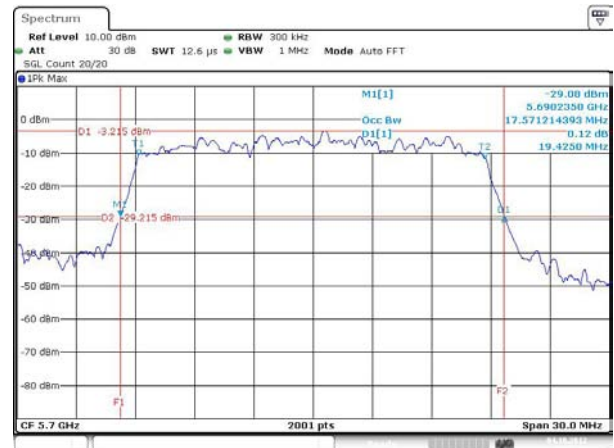
Date: 4.OCT.2012 04:42:48

HT20 – F8 [Port 1]



Date: 4.OCT.2012 04:55:00

HT20 – F9 [Port 2]

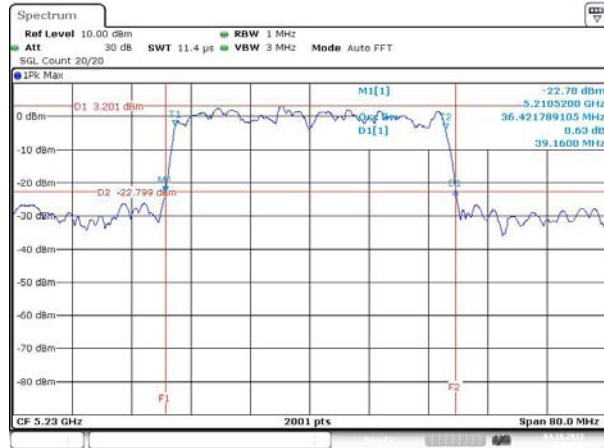


Date: 4.OCT.2012 04:56:43

(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 2

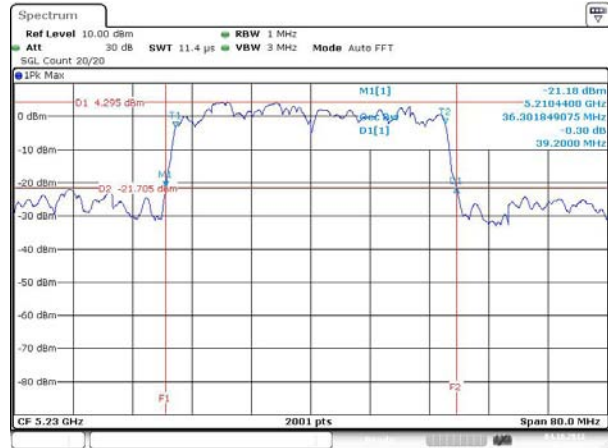
Worst Emission Bandwidth Plots

HT40 – F2' [Port 1]



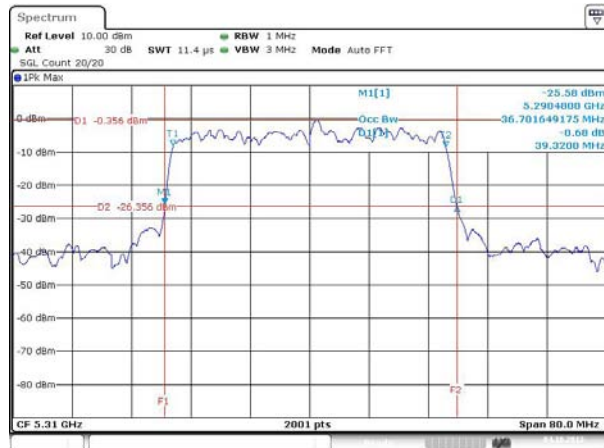
Date: 4.OCT.2012 05:05:10

HT40 – F2' [Port 2]



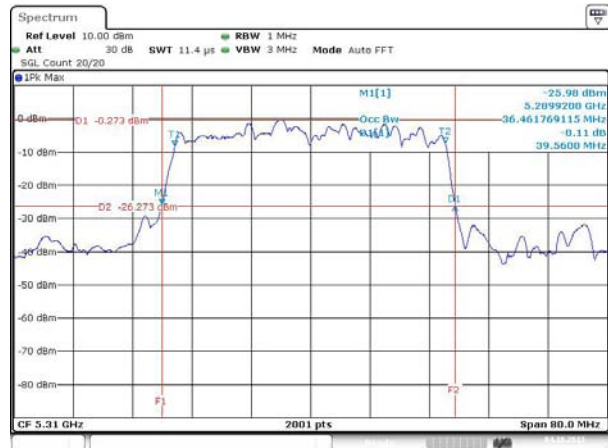
Date: 4.OCT.2012 05:05:17

HT40 – F5' [Port 1]



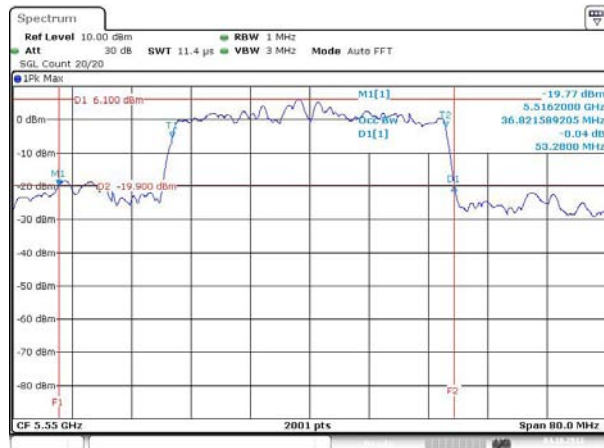
Date: 4.OCT.2012 05:16:34

HT40 – F5' [Port 2]



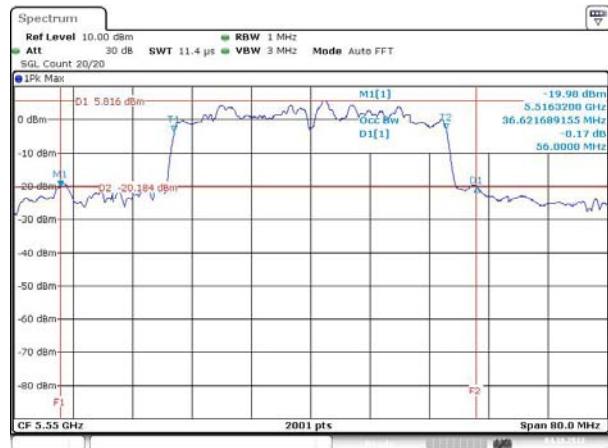
Date: 4.OCT.2012 05:16:41

HT40 – F8' [Port 1]



Date: 4.OCT.2012 05:20:08

HT40 – F8' [Port 2]



Date: 4.OCT.2012 05:20:15

3.3 RF Output Power

3.3.1 RF Output Power Limit

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

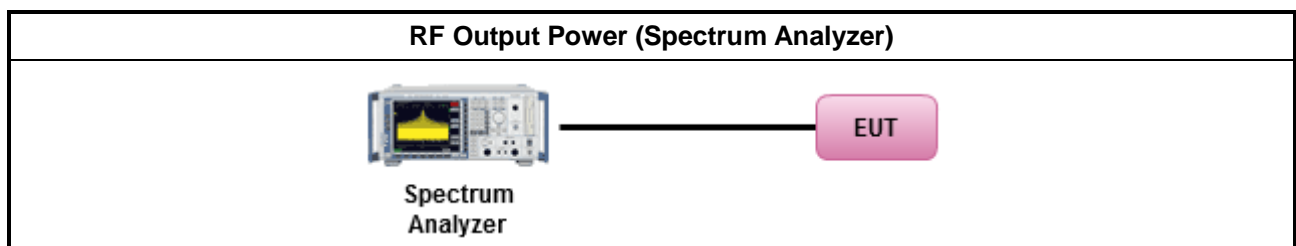
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Maximum Conducted Output Power
	[duty cycle $\geq 98\%$ or external video / power trigger]
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle $< 98\%$ and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method PM (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 checked="" 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: $P_{\text{total}} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$

3.3.4 Test Setup



3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		6.36	6.36	-	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS}	STBC	Array Gain (dB)
11a,6-54Mbps	6.36	1	1	-	-
HT20,M0-M7	6.36	1	1	-	-
HT20,M8-15	6.36	2	2	-	-
HT40,M0-M7	6.36	1	1	-	-
HT40,M8-M15	6.36	2	2	-	-
<p>Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $G_{ANT} + 10 \log(N_{TX})$ All transmit signals are completely uncorrelated, Directional Gain = G_{ANT}</p> <p>Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $10 \log[(10^{G_{1/20}} + \dots + 10^{G_{N/20}})^2 / N_{TX}]$ All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G_{1/10}} + \dots + 10^{G_{N/10}}) / N_{TX}]$</p> <p>Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$, where N_{SS} = the number of independent spatial streams data.</p> <p>Note 4: For CDD transmissions, directional gain is calculated as power measurements: Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows: Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \leq 4$; Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX};</p>					

3.3.6 Test Result of Maximum Conducted Output Power

Maximum Conducted (Average) Output Power											
Condition			RF Output Power (dBm)								
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	-	-	-	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11a	1	5180	10.22	-	-	-	10.22	17.0	6.36	16.58	23.0
11a	1	5200	13.49	-	-	-	13.49	17.0	6.36	19.85	23.0
11a	1	5240	13.16	-	-	-	13.16	17.0	6.36	19.52	23.0
11a	1	5260	14.65	-	-	-	14.65	24.0	6.36	21.01	30.0
11a	1	5300	15.04	-	-	-	15.04	24.0	6.36	21.40	30.0
11a	1	5320	9.16	-	-	-	9.16	24.0	6.36	15.52	30.0
11a	1	5500	14.95	-	-	-	14.95	24.0	6.36	21.31	30.0
11a	1	5580	14.75	-	-	-	14.75	24.0	6.36	21.11	30.0
11a	1	5700	9.17	-	-	-	9.17	24.0	6.36	15.53	30.0
HT20	1	5180	13.30	-	-	-	13.30	17.0	6.36	19.66	23.0
HT20	1	5200	13.46	-	-	-	13.46	17.0	6.36	19.82	23.0
HT20	1	5240	13.30	-	-	-	13.30	17.0	6.36	19.66	23.0
HT20	1	5260	15.07	-	-	-	15.07	24.0	6.36	21.43	30.0
HT20	1	5300	14.67	-	-	-	14.67	24.0	6.36	21.03	30.0
HT20	1	5320	10.95	-	-	-	10.95	24.0	6.36	17.31	30.0
HT20	1	5500	13.21	-	-	-	13.21	24.0	6.36	19.57	30.0
HT20	1	5580	14.76	-	-	-	14.76	24.0	6.36	21.12	30.0
HT20	1	5700	9.40	-	-	-	9.40	24.0	6.36	15.76	30.0
HT40	1	5190	8.83	-	-	-	8.83	17.0	6.36	15.19	23.0
HT40	1	5230	15.03	-	-	-	15.03	17.0	6.36	21.39	23.0
HT40	1	5270	15.38	-	-	-	15.38	24.0	6.36	21.74	30.0
HT40	1	5310	9.61	-	-	-	9.61	24.0	6.36	15.97	30.0
HT40	1	5510	12.18	-	-	-	12.18	24.0	6.36	18.54	30.0
HT40	1	5550	15.38	-	-	-	15.38	24.0	6.36	21.74	30.0
HT40	1	5670	15.22	-	-	-	12.13	24.0	6.36	18.49	30.0
Result			Complied								

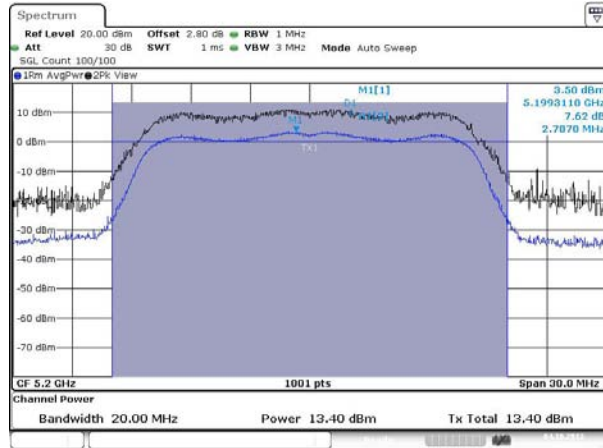
Maximum Conducted (Average) Output Power											
Condition			RF Output Power (dBm)								
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	-	-	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
HT20	2	5180	8.41	8.76	-	-	11.60	17.0	6.36	17.96	23.0
HT20	2	5200	10.55	10.84	-	-	13.71	17.0	6.36	20.07	23.0
HT20	2	5240	10.77	10.85	-	-	13.82	17.0	6.36	20.18	23.0
HT20	2	5260	15.75	15.63	-	-	18.70	24.0	6.36	25.06	30.0
HT20	2	5300	15.37	15.36	-	-	18.38	24.0	6.36	24.74	30.0
HT20	2	5320	12.89	12.86	-	-	15.89	24.0	6.36	22.25	30.0
HT20	2	5500	12.21	12.14	-	-	15.19	24.0	6.36	21.55	30.0
HT20	2	5580	11.27	11.21	-	-	14.25	24.0	6.36	20.61	30.0
HT20	2	5700	8.62	8.60	-	-	11.62	24.0	6.36	17.98	30.0
HT40	2	5190	9.59	9.56	-	-	12.59	17.0	6.36	18.95	23.0
HT40	2	5230	13.51	13.46	-	-	16.50	17.0	6.36	22.86	23.0
HT40	2	5270	14.49	14.57	-	-	17.54	24.0	6.36	23.90	30.0
HT40	2	5310	9.05	9.02	-	-	12.05	24.0	6.36	18.41	30.0
HT40	2	5510	11.28	11.18	-	-	14.24	24.0	6.36	20.60	30.0
HT40	2	5550	14.73	14.70	-	-	17.73	24.0	6.36	24.09	30.0
HT40	2	5670	11.67	11.62	-	-	14.66	24.0	6.36	21.02	30.0
Result			Complied								

Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 97.97% - IEEE 802.11a	0.09
<input checked="" type="checkbox"/> 95.89% - IEEE 802.11n (HT20)	0.18
<input checked="" type="checkbox"/> 87.49% - IEEE 802.11n (HT40)	0.58

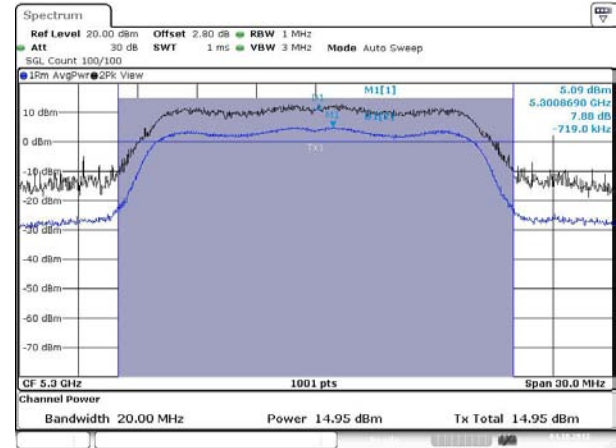
(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11A-20M-N_{TX} 1

Worst Maximum Conducted Output Power and Peak Excursion Plots

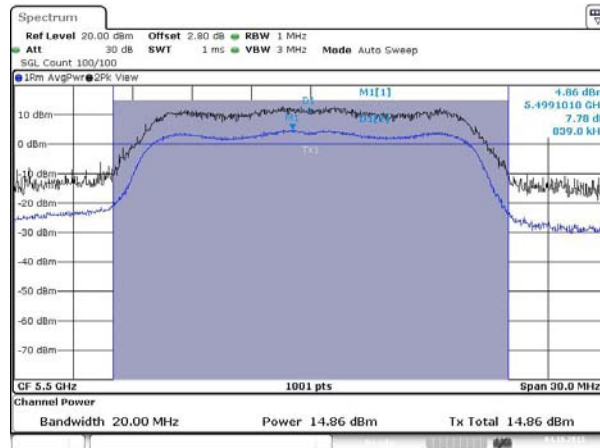
11a – F2 [Port 1]



11a – F5 [Port 1]



11a – F7 [Port 1]

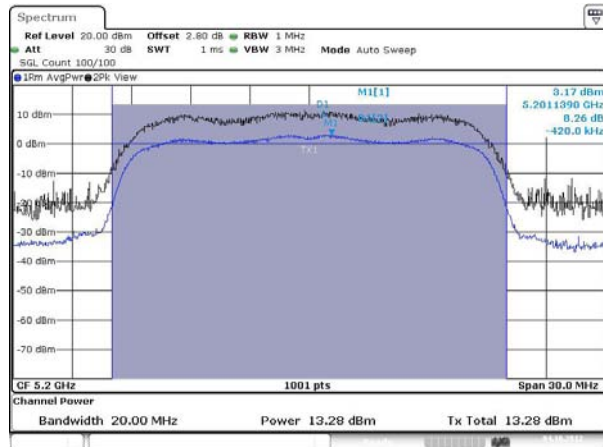


Note 1: Average Output Power Plots w/o Duty Factor

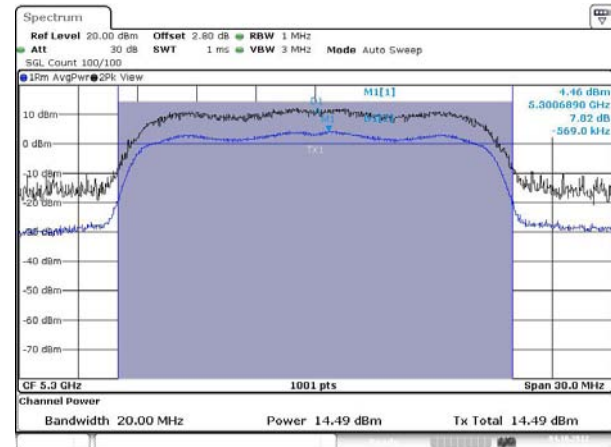
(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 1

Worst Maximum Conducted Output Power and Peak Excursion Plots

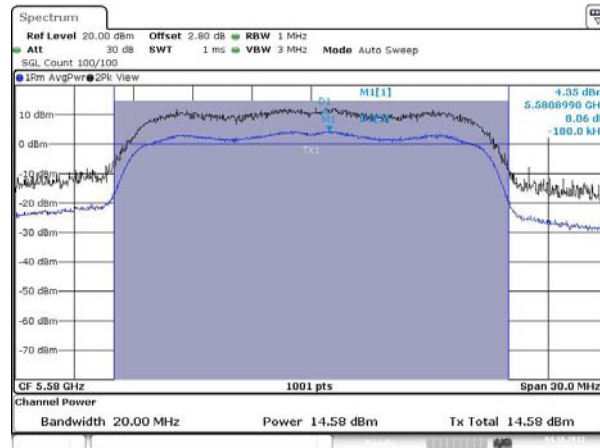
HT20 – F2 [Port 1]



HT20 – F5 [Port 1]



HT20 – F8 [Port 1]

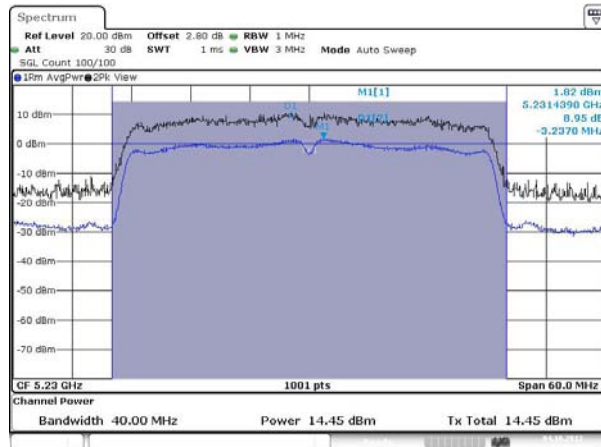


Note 1: Average Output Power Plots w/o Duty Factor

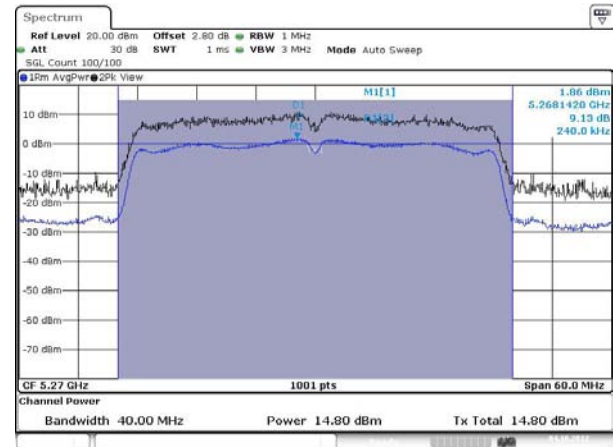
(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 1

Worst Maximum Conducted Output Power and Peak Excursion Plots

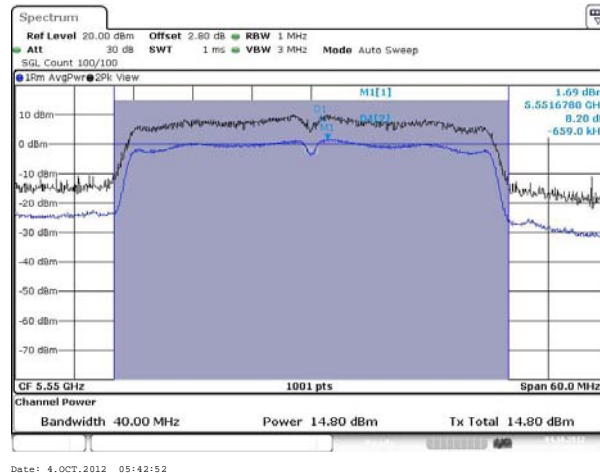
HT40 – F2' [Port 1]



HT40 – F4' [Port 1]



HT40 – F8' [Port 1]

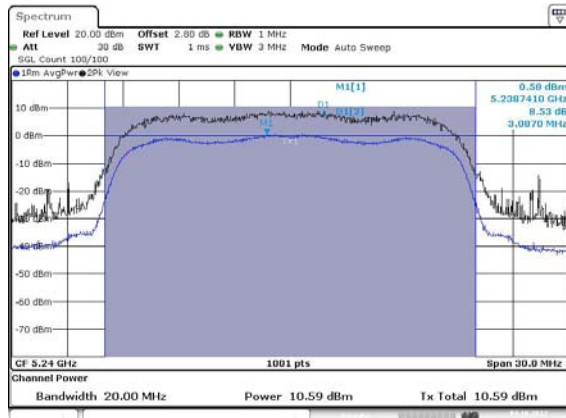


Note 1: Average Output Power Plots w/o Duty Factor

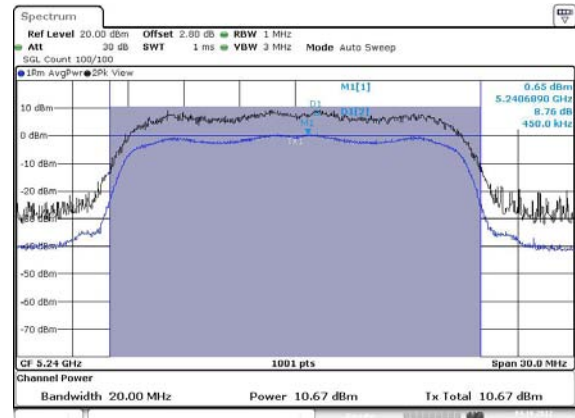
(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 2

Worst Maximum Conducted Output Power and Peak Excursion Plots

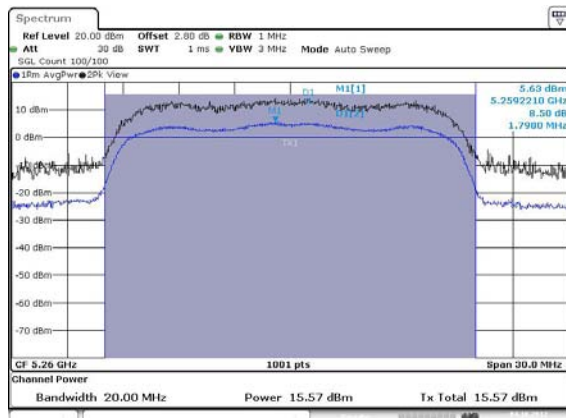
HT20 – F3 [Port 1]



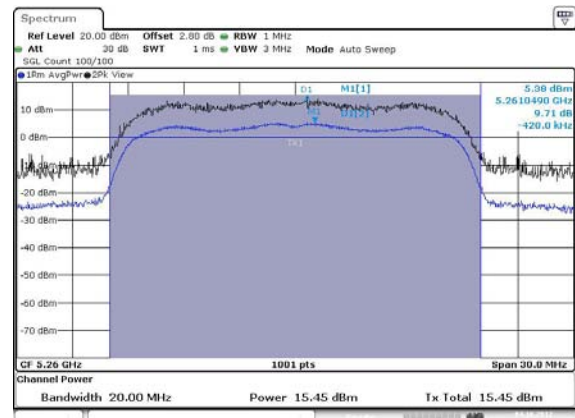
HT20 – F3 [Port 2]



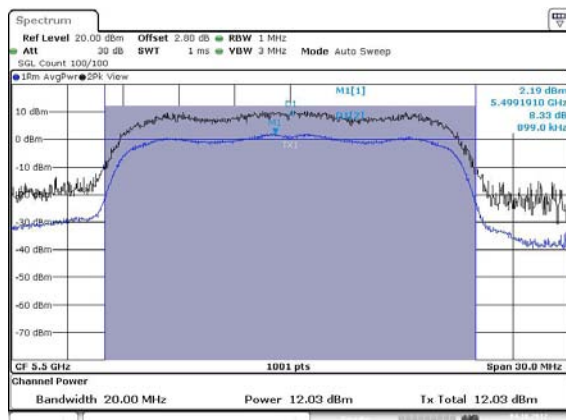
HT20 – F4 [Port 1]



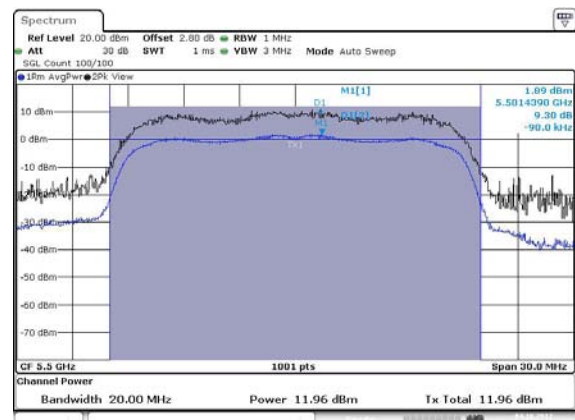
HT20 – F4 [Port 2]



HT20 – F7 [Port 1]



HT20 – F7 [Port 2]

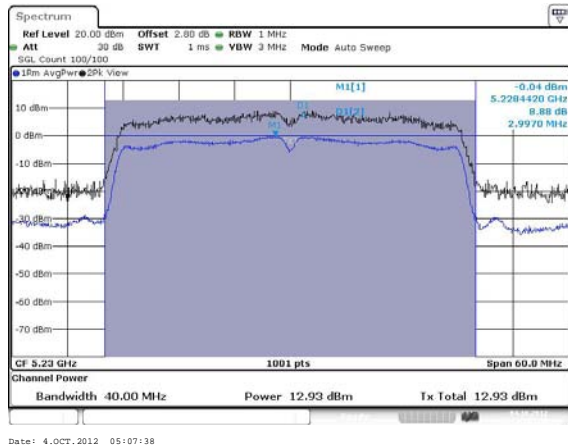


Note 1: Average Output Power Plots w/o Duty Factor

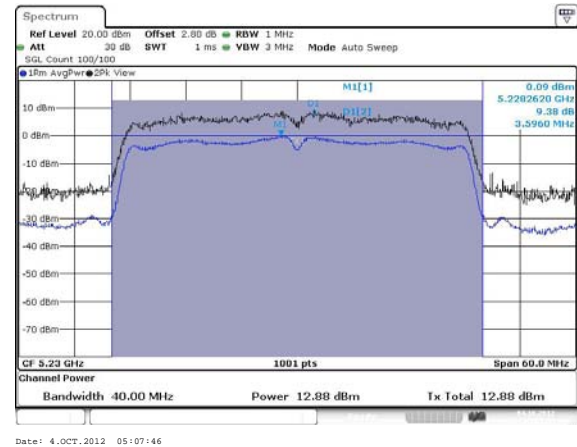
(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 2

Worst Maximum Conducted Output Power and Peak Excursion Plots

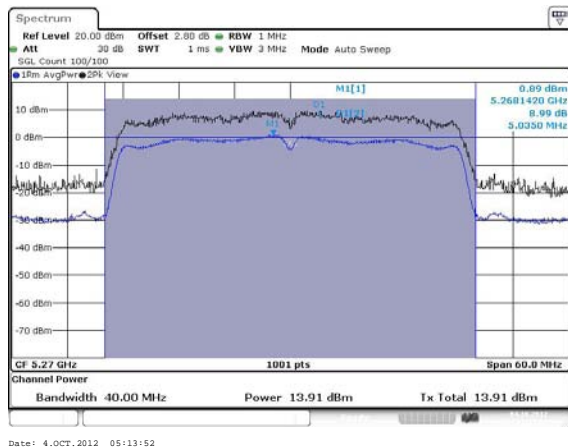
HT40 – F2' [Port 1]



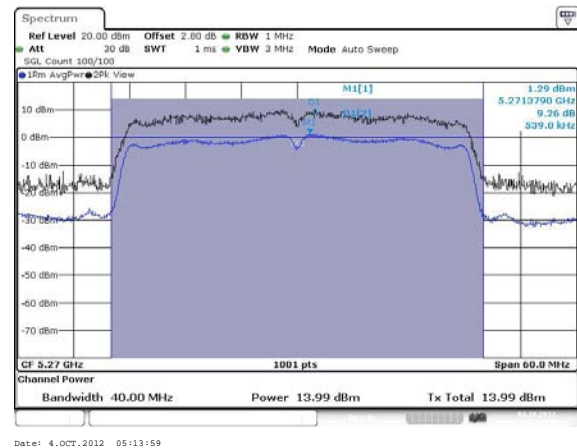
HT40 – F2' [Port 2]



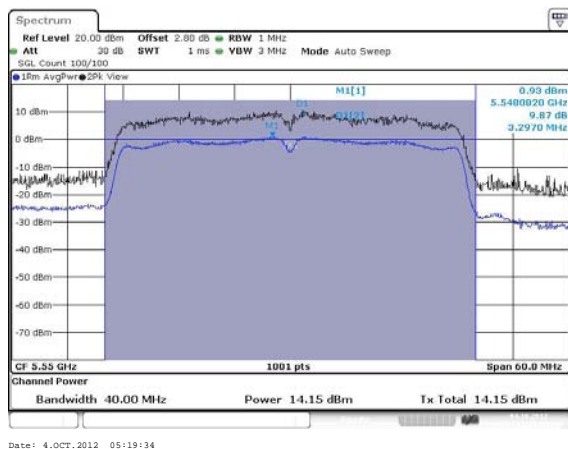
HT40 – F4' [Port 1]



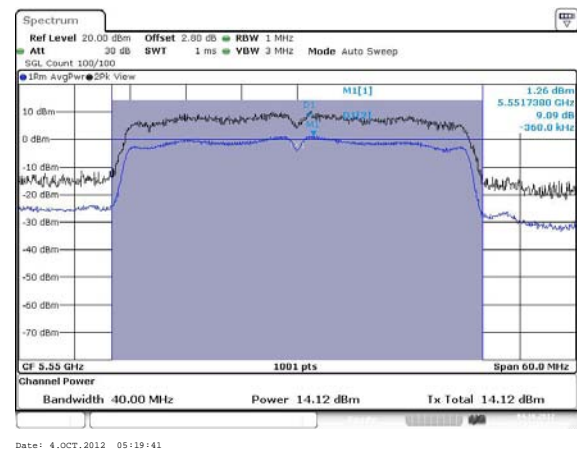
HT40 – F4' [Port 2]



HT40 – F8' [Port 1]



HT40 – F8' [Port 2]



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

3.4 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

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

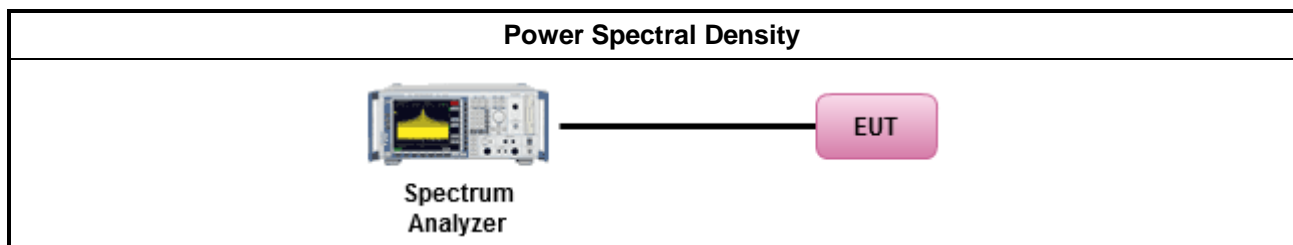
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
<input checked="" 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:
	[duty cycle \geq 98% or external video / power trigger]
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause C Method SA-2 Alt. (RMS detection with 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 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 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.
<input checked="" type="checkbox"/>	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$
<input checked="" type="checkbox"/>	Each individually PPSD plots refer as test report clause 3.3.5 with each individually PPSD plots.

3.4.4 Test Setup



3.4.5 Directional Gain for Power Spectral Density Measurement

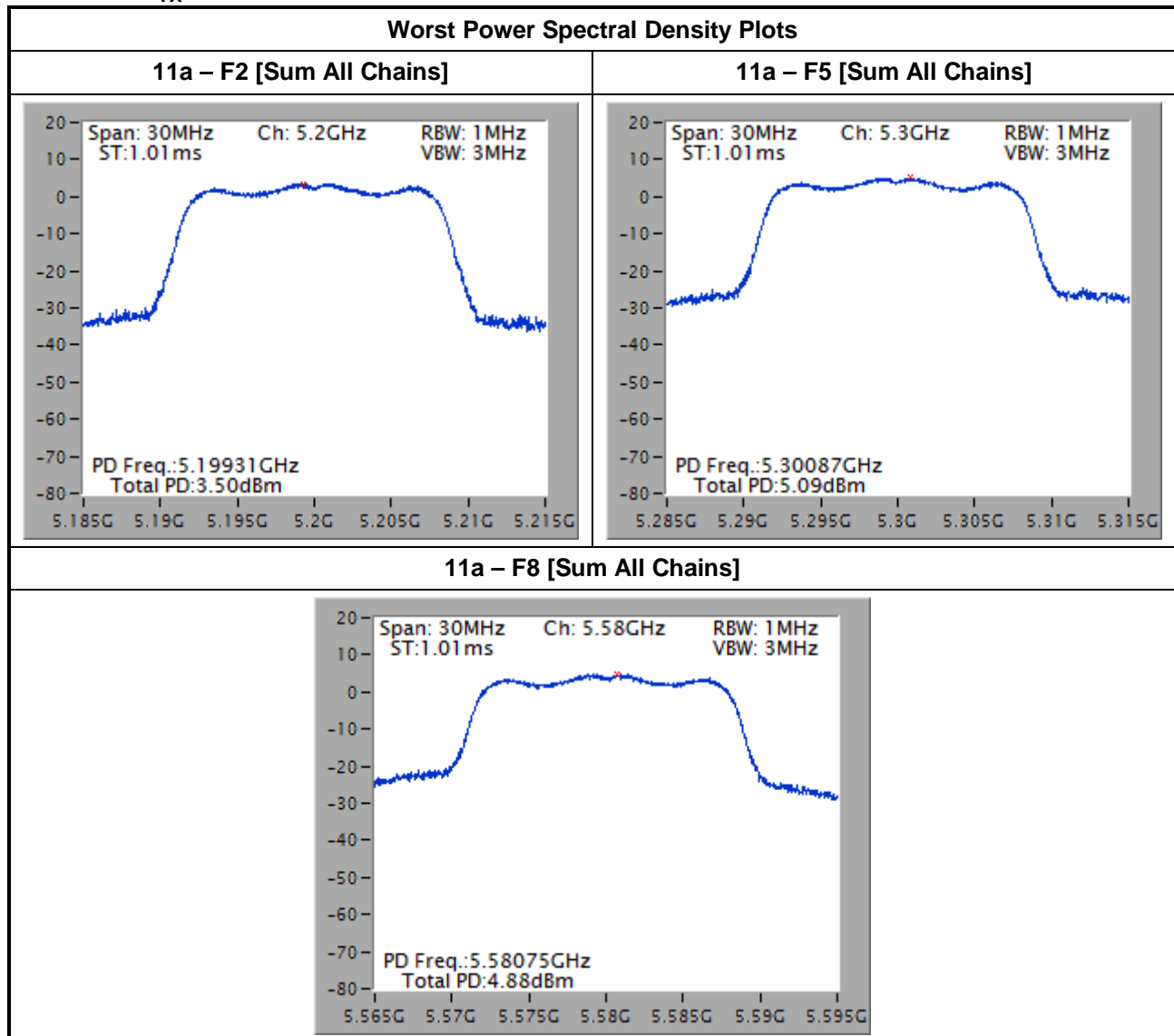
Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		6.36	6.36	-	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS}	STBC	Array Gain (dB)
11a,6-54Mbps	6.36	1	1	-	0
HT20,M0-M7	6.36	1	1	-	3
HT20,M8-15	6.36	2	2	-	0
HT40,M0-M7	6.36	1	1	-	3
HT40,M8-M15	6.36	2	2	-	0
<p>Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $G_{ANT} + 10 \log(N_{TX})$ All transmit signals are completely uncorrelated, Directional Gain = G_{ANT}</p> <p>Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $10 \log[(10^{G_{1/20}} + \dots + 10^{G_{N/20}})^2 / N_{TX}]$ All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G_{1/10}} + \dots + 10^{G_{N/10}}) / N_{TX}]$</p> <p>Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$, where N_{SS} = the number of independent spatial streams data.</p> <p>Note 4: For CDD transmissions, directional gain is calculated as power spectral density measurements: Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows: Array Gain = $10 \log(N_{TX}/N_{SS})$;</p>					

3.4.6 Test Result of Peak Power Spectral Density

Peak Power Spectral Density Result											
Condition			Peak Power Spectral Density (dBm/MHz)								
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	-	-	-	-	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
11a	1	5180	0.19	-	-	-	-	3.6	6.36	6.64	10.0
11a	1	5200	3.50	-	-	-	-	3.6	6.36	9.95	10.0
11a	1	5240	3.27	-	-	-	-	3.6	6.36	9.72	10.0
11a	1	5260	4.88	-	-	-	-	10.6	6.36	11.33	17.0
11a	1	5300	5.09	-	-	-	-	10.6	6.36	11.54	17.0
11a	1	5320	-0.69	-	-	-	-	10.6	6.36	5.76	17.0
11a	1	5500	4.86	-	-	-	-	10.6	6.36	11.31	17.0
11a	1	5580	4.88	-	-	-	-	10.6	6.36	11.33	17.0
11a	1	5700	-0.50	-	-	-	-	10.6	6.36	5.95	17.0
HT20	1	5180	3.14	-	-	-	-	3.6	6.36	9.68	10.0
HT20	1	5200	3.17	-	-	-	-	3.6	6.36	9.71	10.0
HT20	1	5240	3.10	-	-	-	-	3.6	6.36	9.64	10.0
HT20	1	5260	4.88	-	-	-	-	10.6	6.36	11.42	17.0
HT20	1	5300	4.46	-	-	-	-	10.6	6.36	11.00	17.0
HT20	1	5320	0.60	-	-	-	-	10.6	6.36	7.14	17.0
HT20	1	5500	2.98	-	-	-	-	10.6	6.36	9.52	17.0
HT20	1	5580	4.35	-	-	-	-	10.6	6.36	10.89	17.0
HT20	1	5700	-0.63	-	-	-	-	10.6	6.36	5.91	17.0
HT40	1	5190	-4.56	-	-	-	-	3.6	6.36	2.38	10.0
HT40	1	5230	1.82	-	-	-	-	3.6	6.36	8.76	10.0
HT40	1	5270	1.86	-	-	-	-	10.6	6.36	8.80	17.0
HT40	1	5310	-3.93	-	-	-	-	10.6	6.36	3.01	17.0
HT40	1	5510	-1.28	-	-	-	-	10.6	6.36	5.66	17.0
HT40	1	5550	1.69	-	-	-	-	10.6	6.36	8.63	17.0
HT40	1	5670	-1.50	-	-	-	-	10.6	6.36	5.44	17.0
Result			Complied								

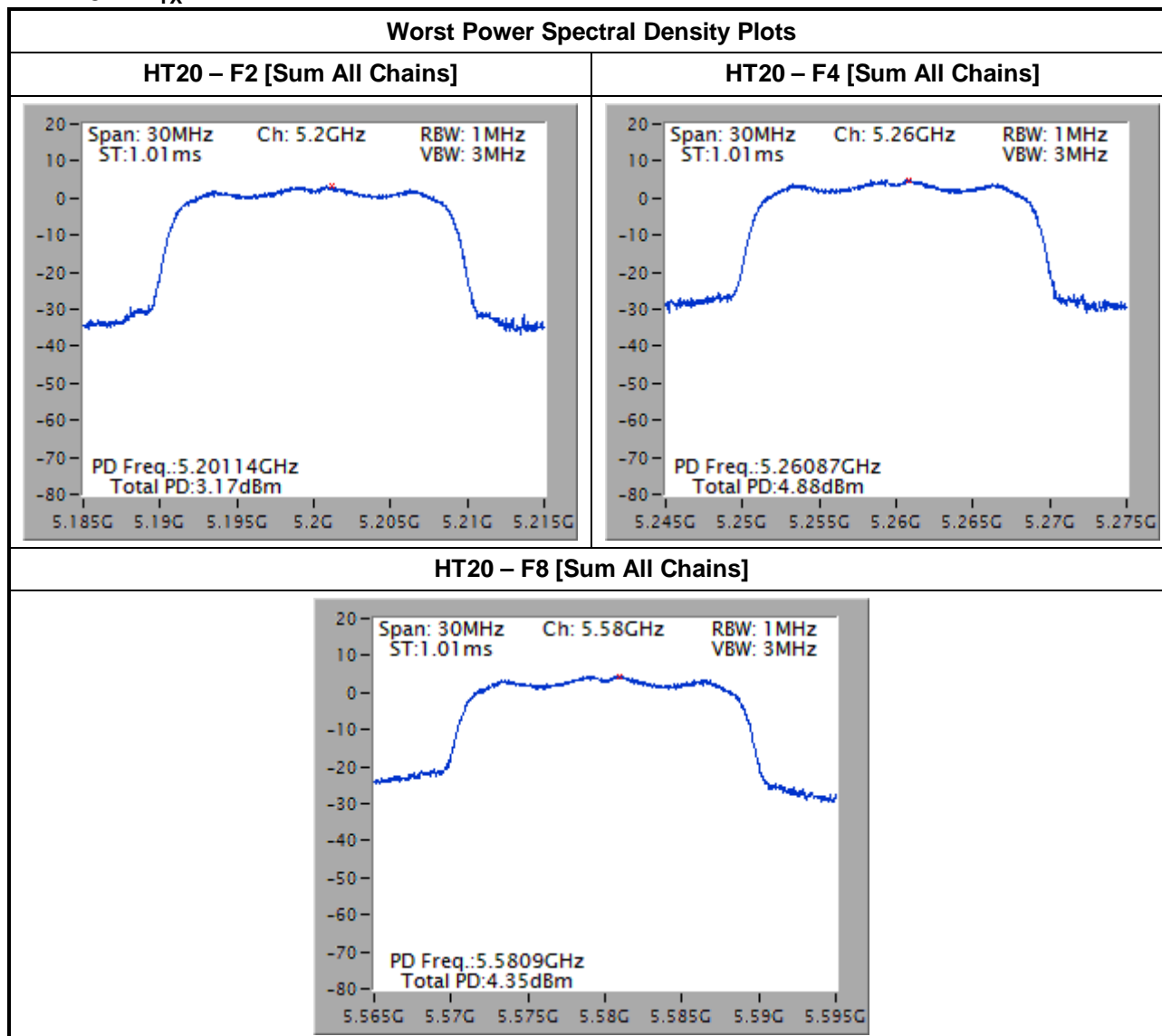
Peak Power Spectral Density Result											
Condition			Peak Power Spectral Density (dBm/MHz)								
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	-	-	-	-	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
HT20	2	5180	1.34	-	-	-	-	3.6	6.36	7.88	10.0
HT20	2	5200	3.40	-	-	-	-	3.6	6.36	9.94	10.0
HT20	2	5240	3.44	-	-	-	-	3.6	6.36	9.98	10.0
HT20	2	5260	8.35	-	-	-	-	10.6	6.36	14.89	17.0
HT20	2	5300	8.06	-	-	-	-	10.6	6.36	14.60	17.0
HT20	2	5320	5.49	-	-	-	-	10.6	6.36	12.03	17.0
HT20	2	5500	4.97	-	-	-	-	10.6	6.36	11.51	17.0
HT20	2	5580	4.01	-	-	-	-	10.6	6.36	10.55	17.0
HT20	2	5700	1.19	-	-	-	-	10.6	6.36	7.73	17.0
HT40	2	5190	-1.11	-	-	-	-	3.6	6.36	5.83	10.0
HT40	2	5230	2.95	-	-	-	-	3.6	6.36	9.89	10.0
HT40	2	5270	3.85	-	-	-	-	10.6	6.36	10.79	17.0
HT40	2	5310	-1.42	-	-	-	-	10.6	6.36	5.52	17.0
HT40	2	5510	0.41	-	-	-	-	10.6	6.36	7.35	17.0
HT40	2	5550	3.99	-	-	-	-	10.6	6.36	10.93	17.0
HT40	2	5670	0.78	-	-	-	-	10.6	6.36	7.72	17.0
Result			Complied								

(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11A-20M-N_{TX} 1



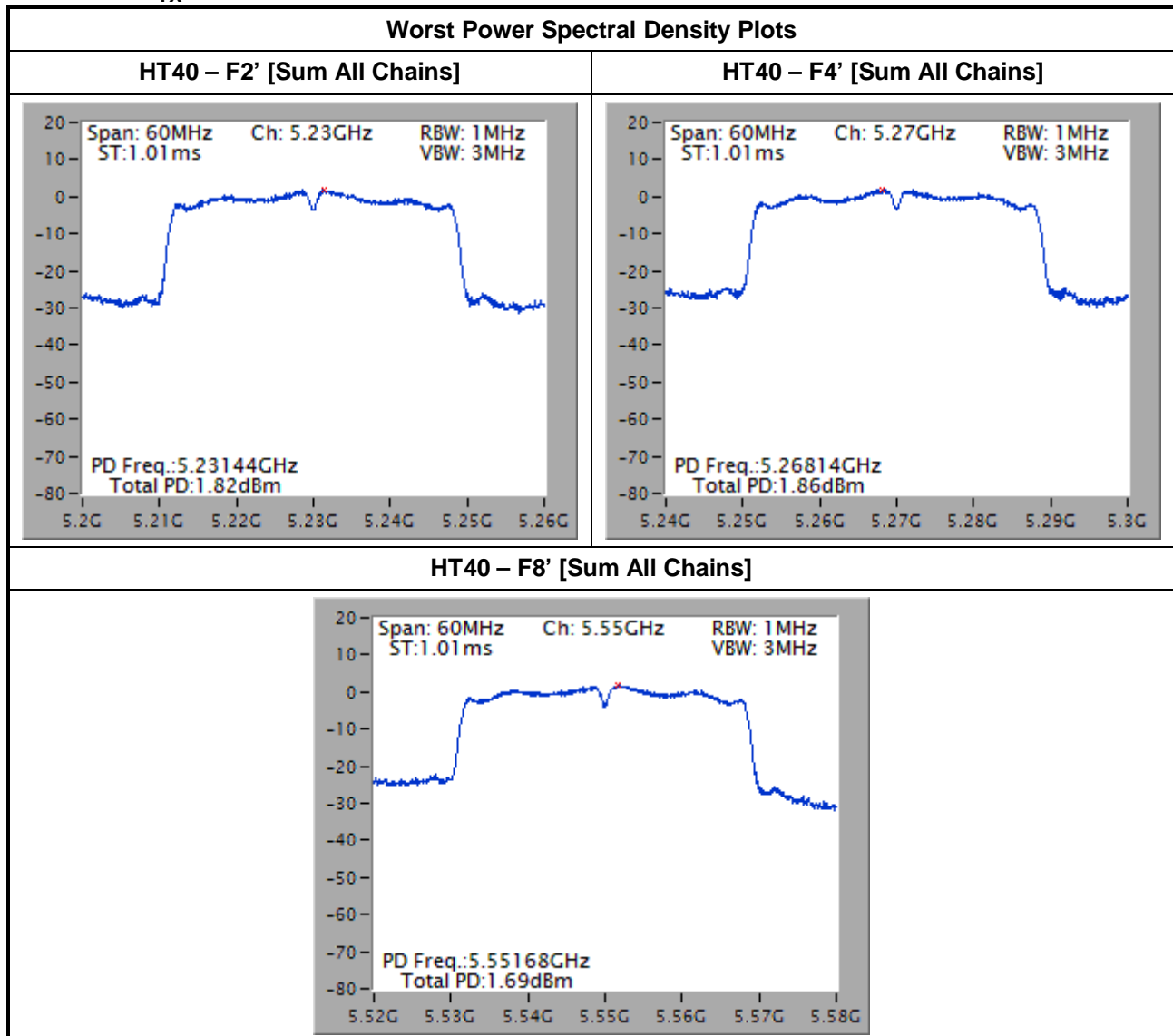
Note 1: Power Density Plots w/o Duty Factor

(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 1



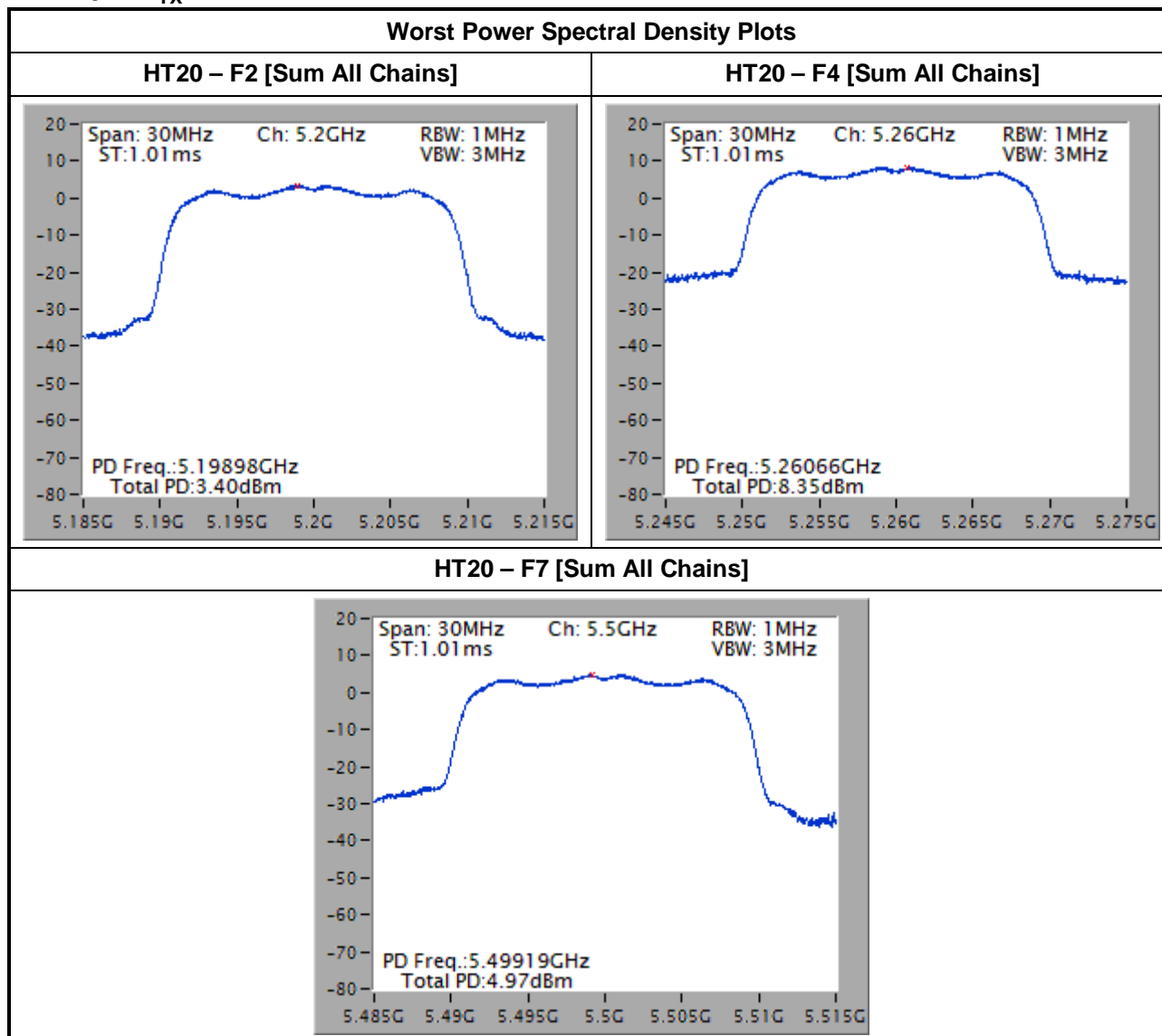
Note 1: Power Density Plots w/o Duty Factor

(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 1



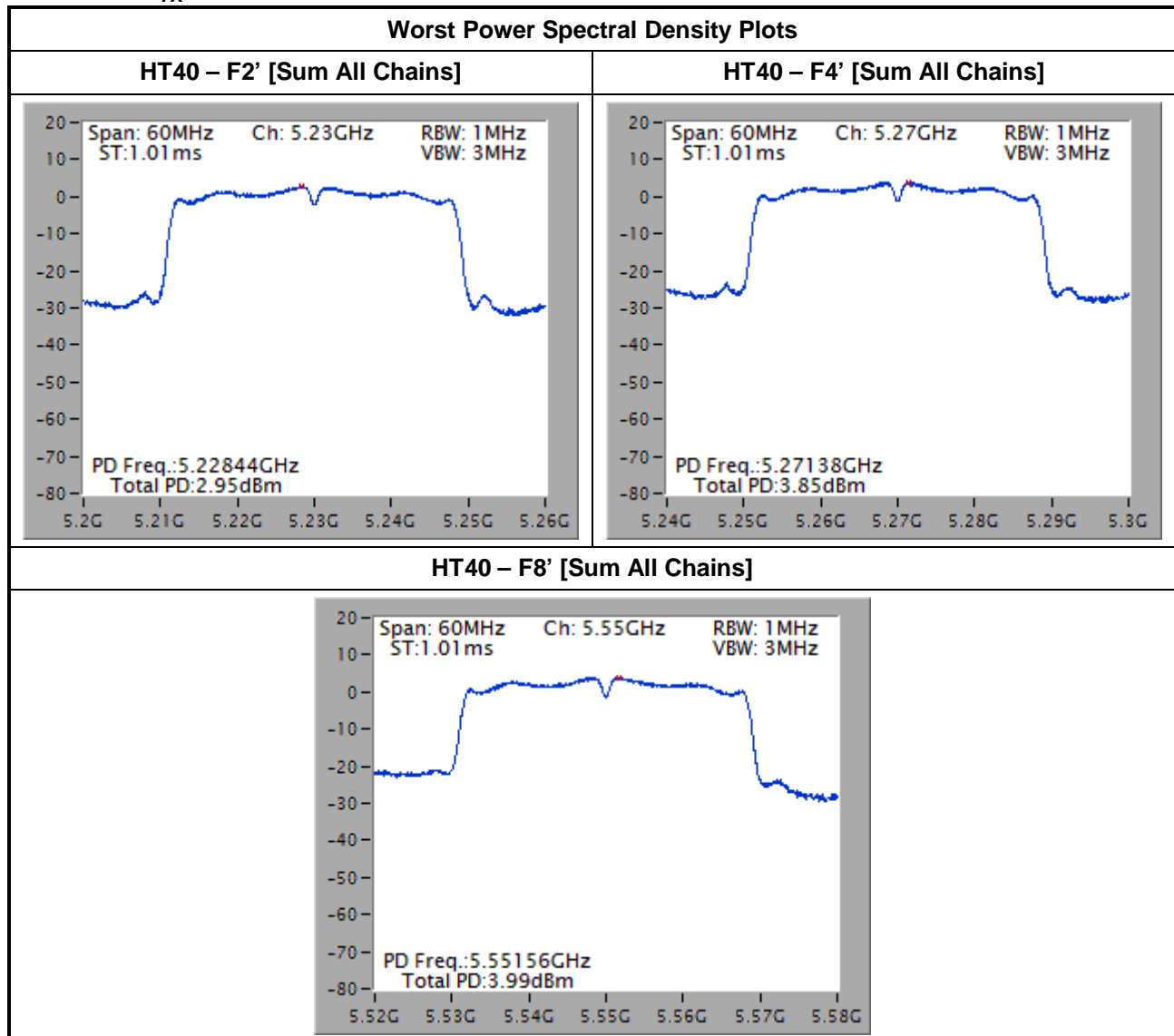
Note 1: Power Density Plots w/o Duty Factor

(F1~F3: 5150-5250 MHz) / (F4~F6: 5250-5350 MHz) / (F7~F9: 5470-5725 MHz)
11N-20M-N_{TX} 2



Note 1: Power Density Plots w/o Duty Factor

(F1'~F2': 5150-5250 MHz) / (F4'~F5': 5250-5350 MHz) / (F7'~F9': 5470-5725 MHz)
11N-40M-N_{TX} 2



Note 1: Power Density Plots w/o Duty Factor

3.5 Peak Excursion

3.5.1 Peak Excursion Limit

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

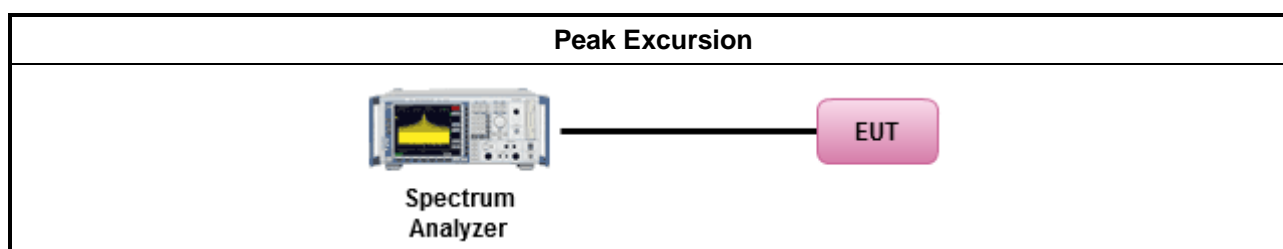
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause F peak excursion method.
<input checked="" type="checkbox"/>	Testing each modulation mode on a single channel is sufficient to demonstrate compliance with the peak excursion requirement
<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 given below method: Refer as FCC KDB 662911, when testing in-band (peak to average ratio) against relative emission limits, tests may be performed on each output individually without summing or adding $10 \log(N)$.
<input checked="" type="checkbox"/>	Test result plots refer as test report clause 3.3.5 with peak excursion ratio of the maximum of the peak-max-hold spectrum to the maximum of the average spectrum.

3.5.4 Test Setup



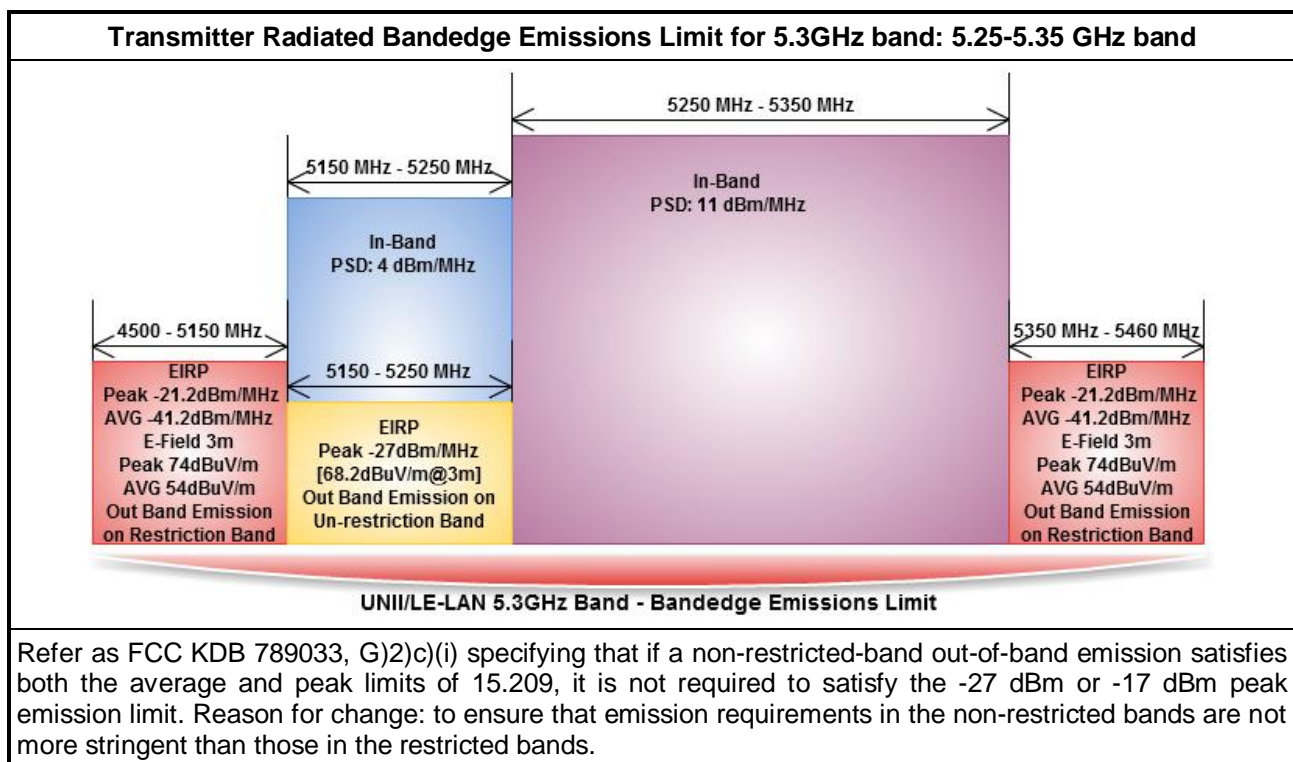
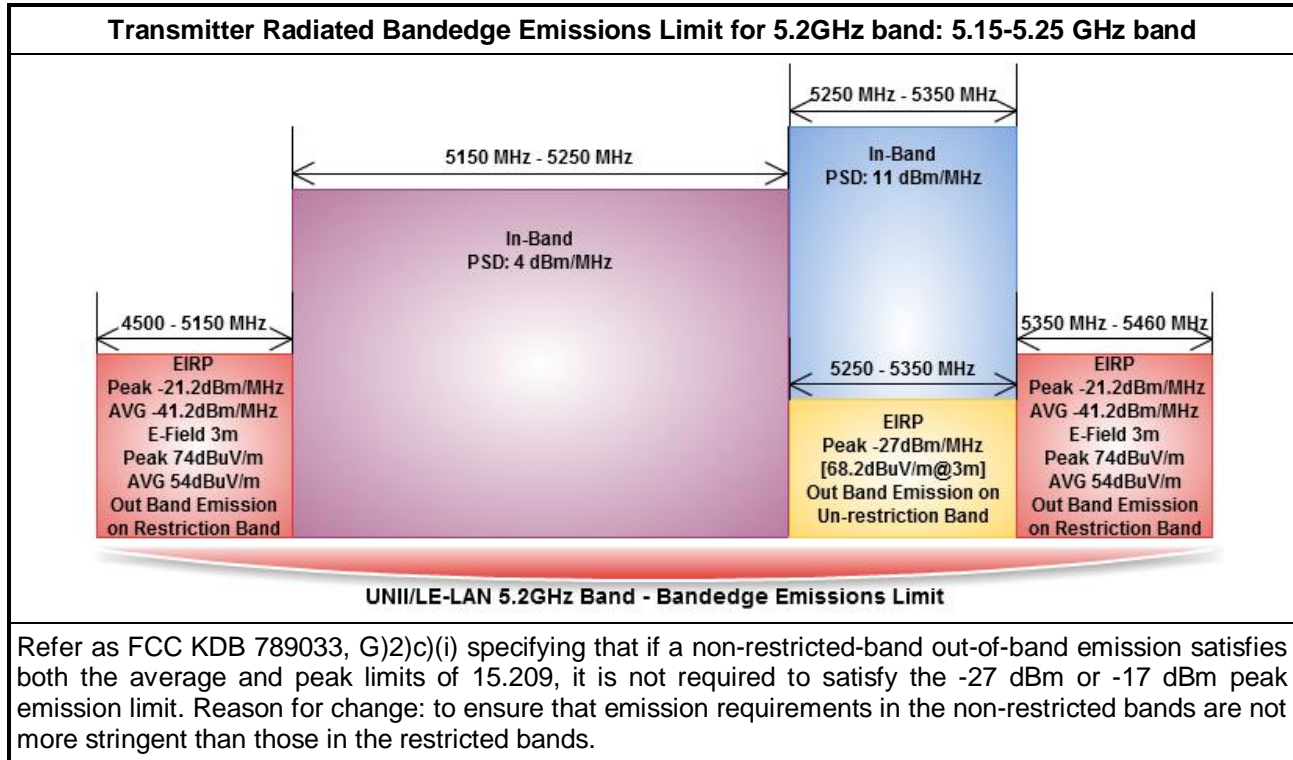
3.5.5 Test Result of Peak Excursion

UNII Peak Excursion Result							
Condition			Peak Excursion (dB)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Limit
11a	1	5180	8.14	-	-	-	13.0
11a	1	5200	7.64	-	-	-	13.0
11a	1	5240	8.12	-	-	-	13.0
11a	1	5260	10.29	-	-	-	13.0
11a	1	5300	7.88	-	-	-	13.0
11a	1	5320	7.63	-	-	-	13.0
11a	1	5500	7.78	-	-	-	13.0
11a	1	5580	8.86	-	-	-	13.0
11a	1	5700	7.91	-	-	-	13.0
HT20	1	5180	8.96	-	-	-	13.0
HT20	1	5200	8.26	-	-	-	13.0
HT20	1	5240	7.69	-	-	-	13.0
HT20	1	5260	8.26	-	-	-	13.0
HT20	1	5300	7.82	-	-	-	13.0
HT20	1	5320	7.92	-	-	-	13.0
HT20	1	5500	7.95	-	-	-	13.0
HT20	1	5580	8.06	-	-	-	13.0
HT20	1	5700	8.50	-	-	-	13.0
HT40	1	5190	9.46	-	-	-	13.0
HT40	1	5230	8.95	-	-	-	13.0
HT40	1	5270	9.13	-	-	-	13.0
HT40	1	5310	9.87	-	-	-	13.0
HT40	1	5510	8.52	-	-	-	13.0
HT40	1	5550	7.92	-	-	-	13.0
HT40	1	5670	8.61	-	-	-	13.0
Result			Complied				

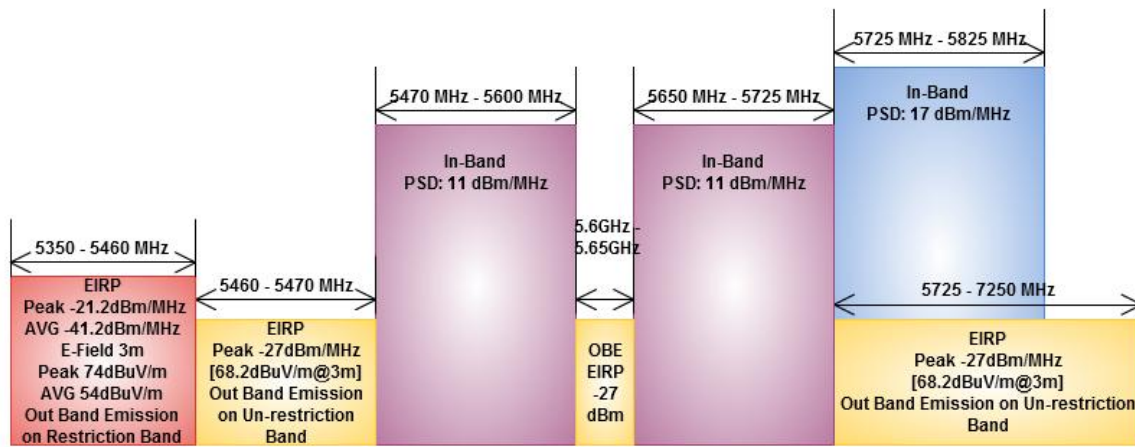
UNII Peak Excursion Result							
Condition			Peak Excursion (dB)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain-Port 1	-	-	-	Limit
HT20	2	5180	8.85	-	-	-	13.0
HT20	2	5200	9.04	-	-	-	13.0
HT20	2	5240	8.76	-	-	-	13.0
HT20	2	5260	9.71	-	-	-	13.0
HT20	2	5300	8.35	-	-	-	13.0
HT20	2	5320	8.76	-	-	-	13.0
HT20	2	5500	9.30	-	-	-	13.0
HT20	2	5580	8.93	-	-	-	13.0
HT20	2	5700	8.93	-	-	-	13.0
HT40	2	5190	9.08	-	-	-	13.0
HT40	2	5230	9.38	-	-	-	13.0
HT40	2	5270	9.26	-	-	-	13.0
HT40	2	5310	9.01	-	-	-	13.0
HT40	2	5510	9.45	-	-	-	13.0
HT40	2	5550	8.76	-	-	-	13.0
HT40	2	5670	8.85	-	-	-	13.0
Result			Complied				

3.6 Transmitter Radiated Bandedge Emissions

3.6.1 Transmitter Radiated Bandedge Emissions Limit



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



UNII/LE-LAN 5.6GHz Band - 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.

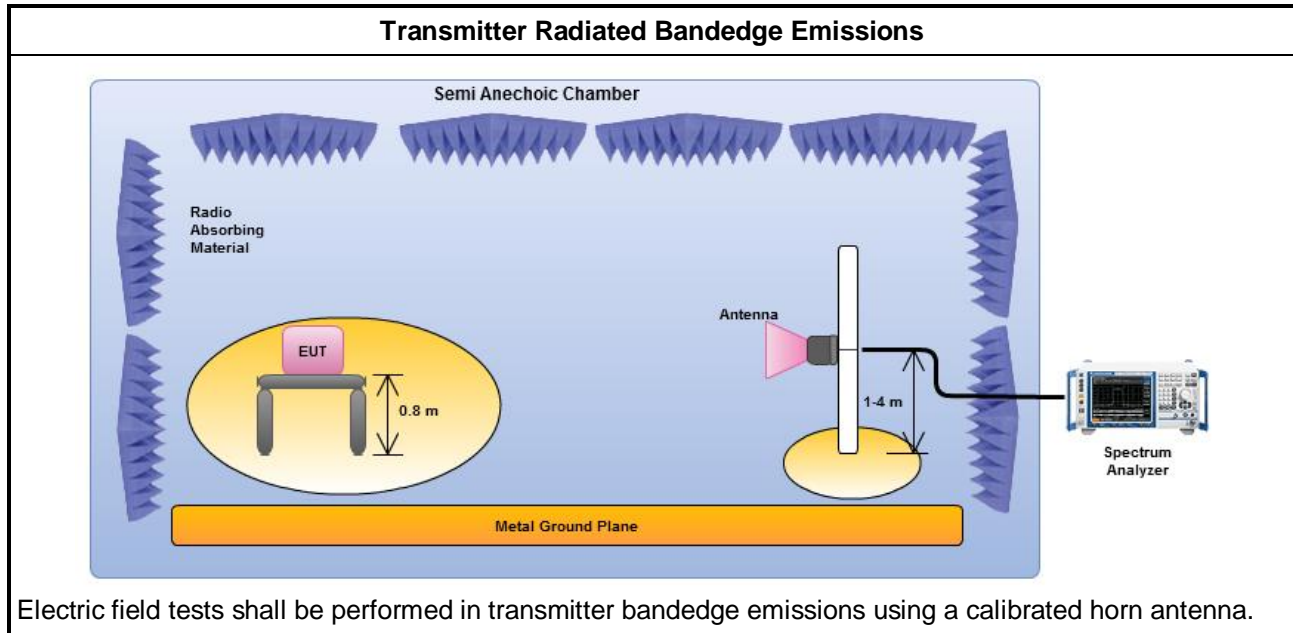
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

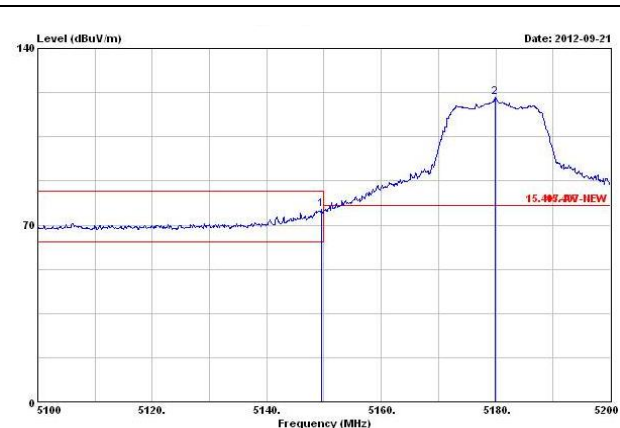
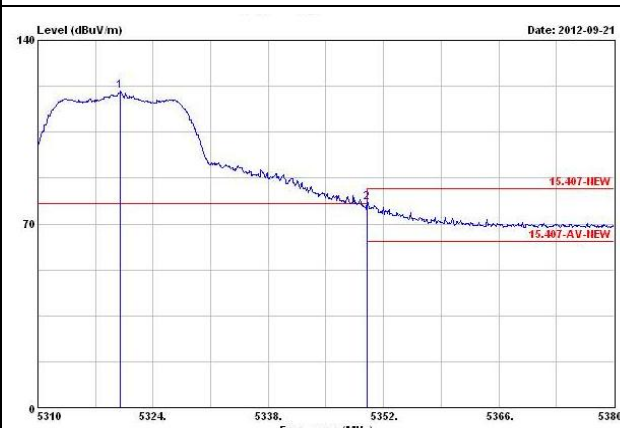
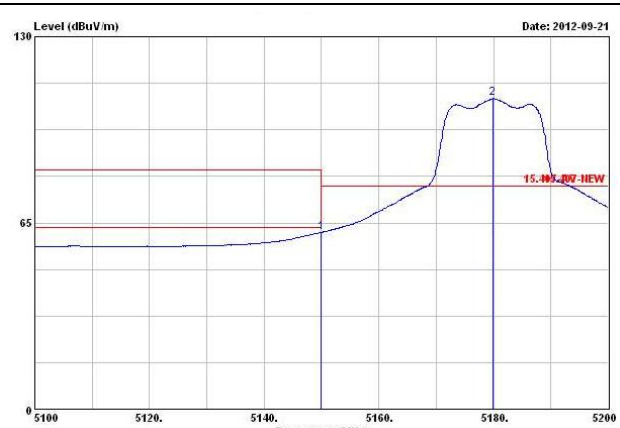
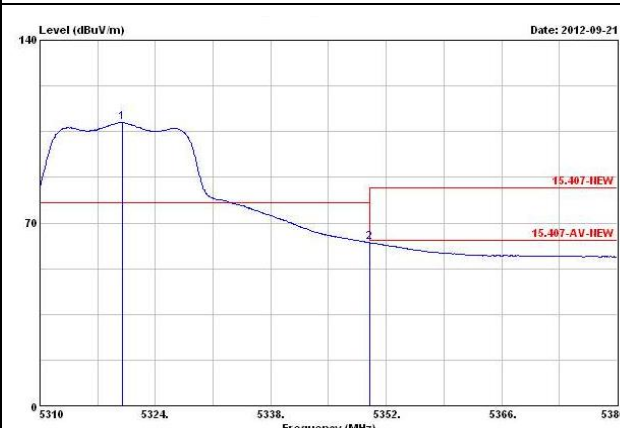
Test Method	
<input checked="" type="checkbox"/>	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (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 m, because 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"/>	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 type="checkbox"/>	If EUT operate in adjacent contiguous bands, bandedge testing performed at the lowest frequency channel at lower-band and highest frequency channel at higher-band. Transmitter in-band emissions will consist of adjacent contiguous bands (e.g., IEEE 802.11ac VHT160 The lowest frequency channel at lower-band and highest frequency channel at higher-band in-band emissions will consist of two adjacent contiguous bands.)
<input type="checkbox"/>	<input type="checkbox"/> Operating in 5.15-5.25 GHz band (lower-band) and 5.25-5.35 GHz band (higher-band). <input type="checkbox"/> Operating in 5.47-5.725 GHz band (lower-band) and 5.725-5.825 GHz band (higher-band).
<input type="checkbox"/>	If EUT operate in individual non-contiguous bands, bandedge testing performed at the lowest frequency channel and highest frequency channel within lower-band and higher-band. (e.g., (e.g., IEEE 802.11ac VHT160)
<input type="checkbox"/>	<input type="checkbox"/> Operating in 5.25-5.35 GHz band (lower-band) and 5.47-5.725 GHz band (higher-band). <input type="checkbox"/> Operating in 5.15-5.25 GHz band (lower-band) and 5.725-5.825 GHz band (higher-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 789033, clause G)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) - Duty cycle \geq 98%.
<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 789033, clause G)5) measurement procedure peak limit.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.2 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 789033, clause G)3)d) marker-delta method for band-edge measurements.
<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 ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz.

3.6.4 Test Setup

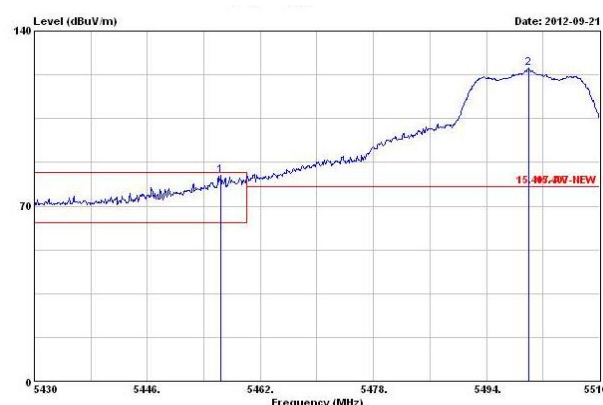
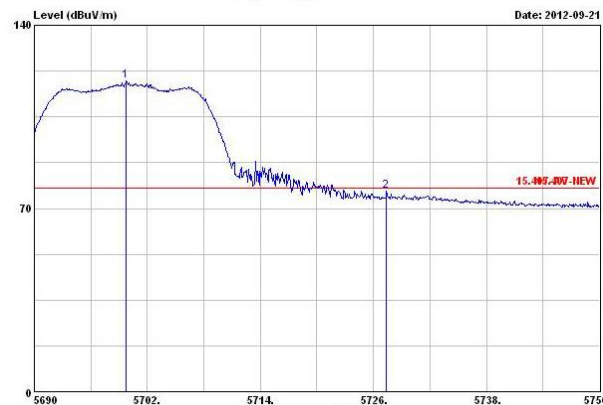
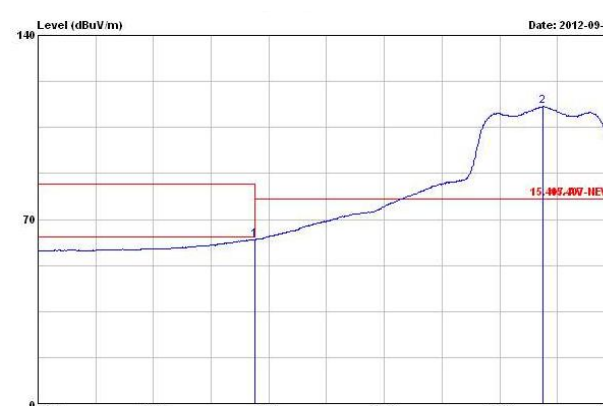



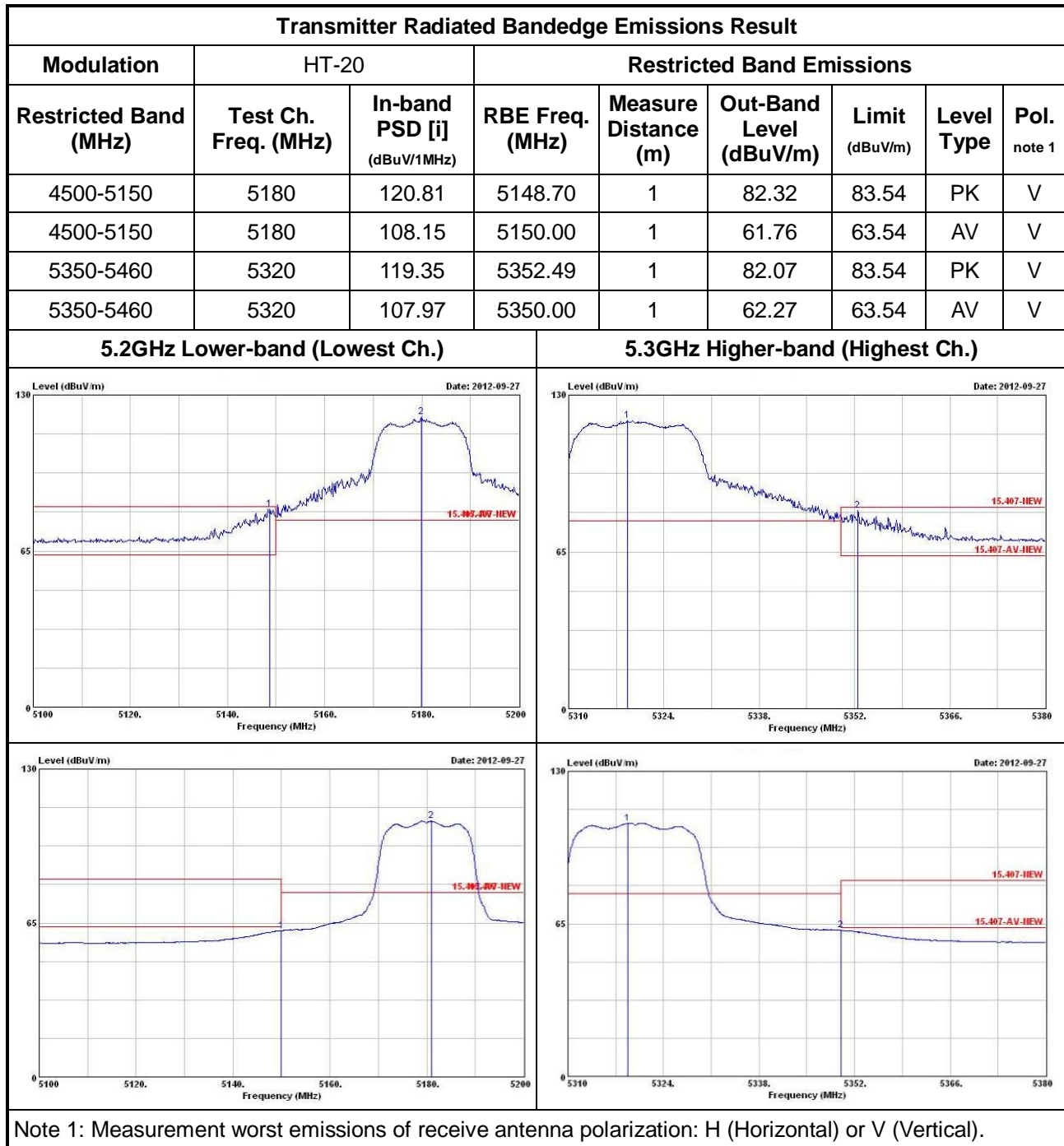
3.6.5 Test Result of Transmitter Radiated Bandedge Emissions-N_{TX} 1

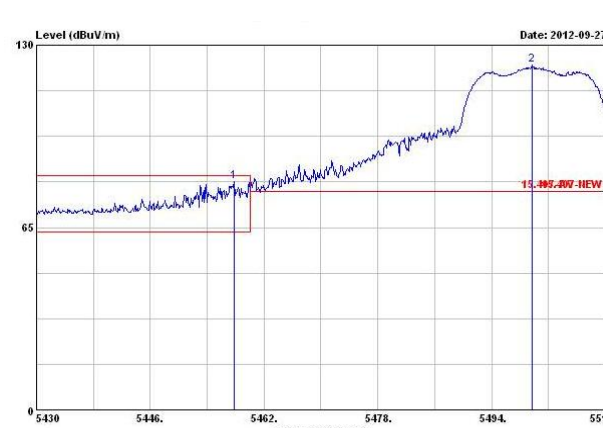
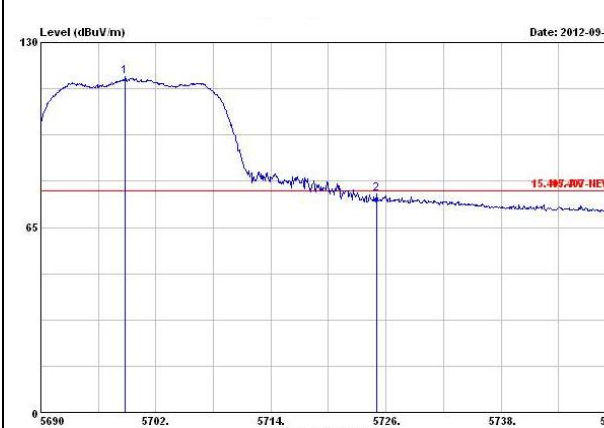
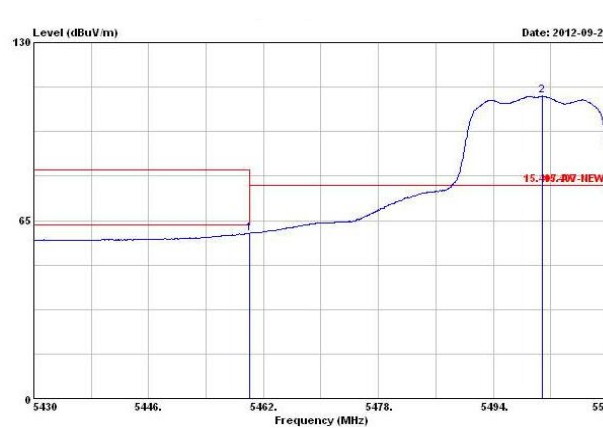
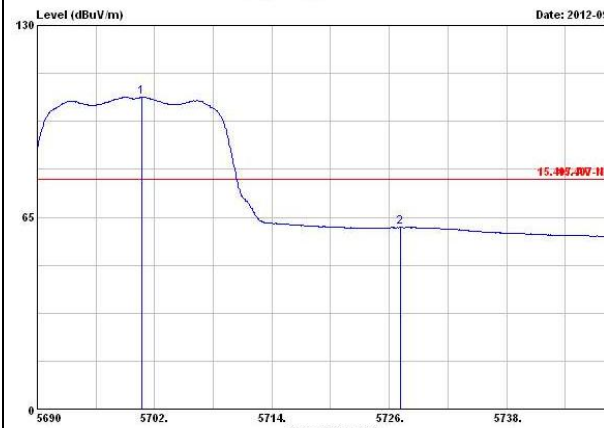
Transmitter Radiated Bandedge Emissions Result								
Modulation	11a		Restricted Band Emissions					
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
4500-5150	5180	120.56	5149.50	1	76.38	83.54	PK	V
4500-5150	5180	108.39	5150.00	1	61.71	63.54	AV	V
5350-5460	5320	120.59	5350.04	1	78.34	83.54	PK	V
5350-5460	5320	108.57	5350.00	1	62.47	63.54	AV	V

5.2GHz Lower-band (Lowest Ch.)	5.3GHz Higher-band (Highest Ch.)
	
	

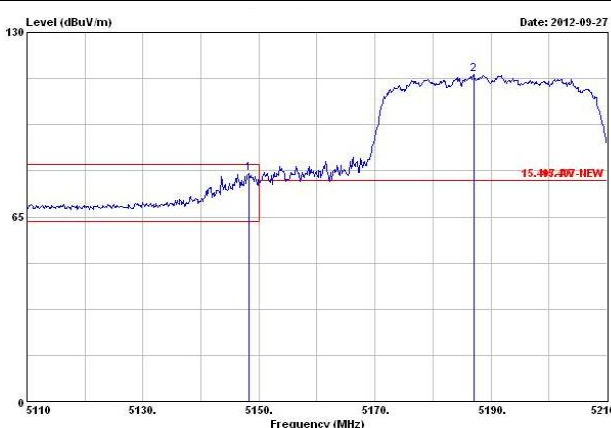
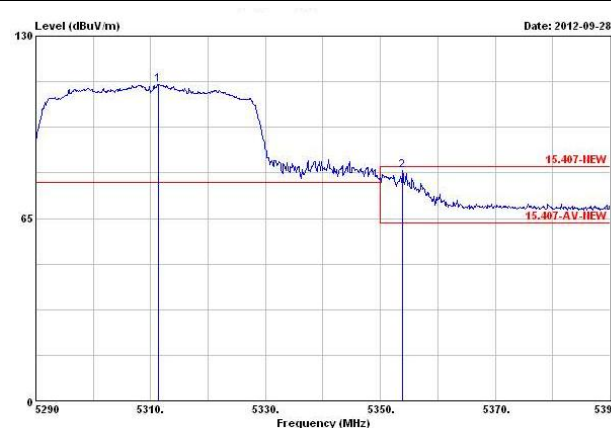
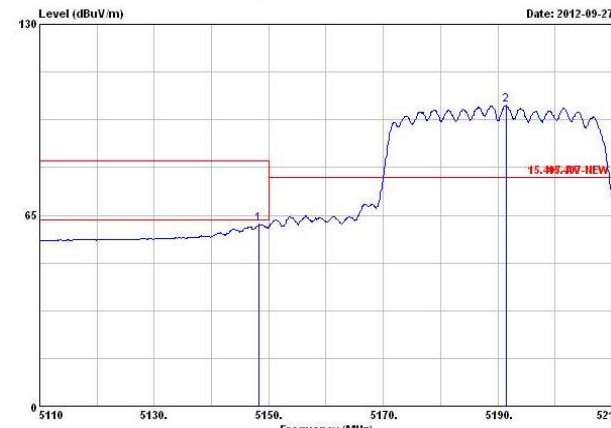
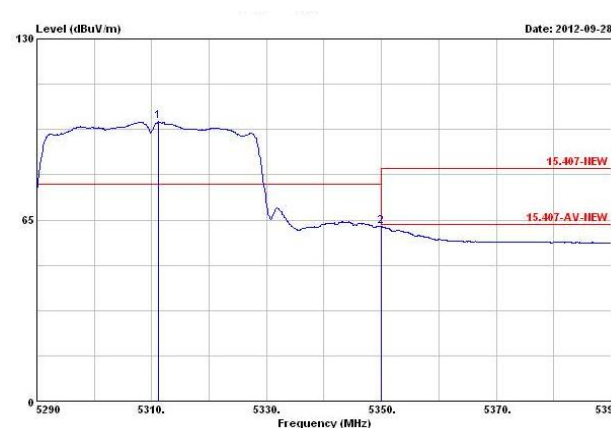
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

Transmitter Radiated Bandedge Emissions Result								
Modulation	11a		Non-restricted Band Emissions					
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	NBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
5350-5470	5500	125.14	5456.40	1	82.31	83.54	PK	V
5350-5470	5500	112.95	5460.00	1	62.32	63.54	AV	V
5725-7250	5700	118.92	5727.38	1	76.80	77.84	PK	V
5725-7250	5700	106.29	5728.52	1	61.61	77.84	AV	V
5.6GHz band (Lowest Ch.)				5.6GHz band (Highest Ch.)				
								
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

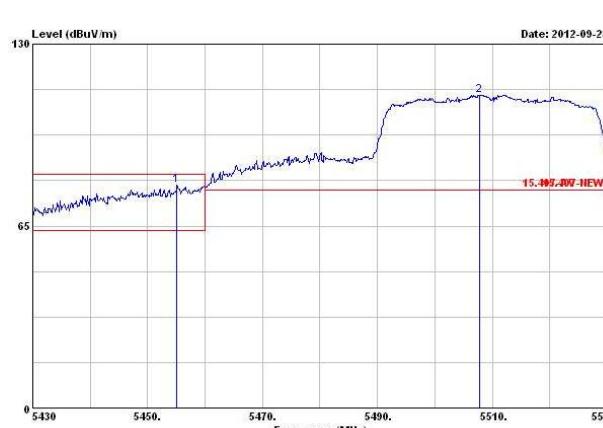
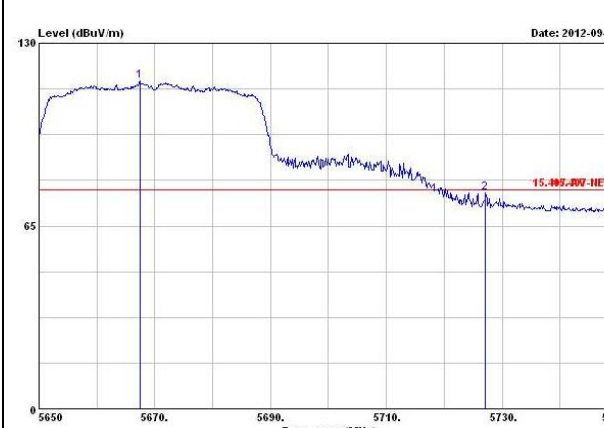
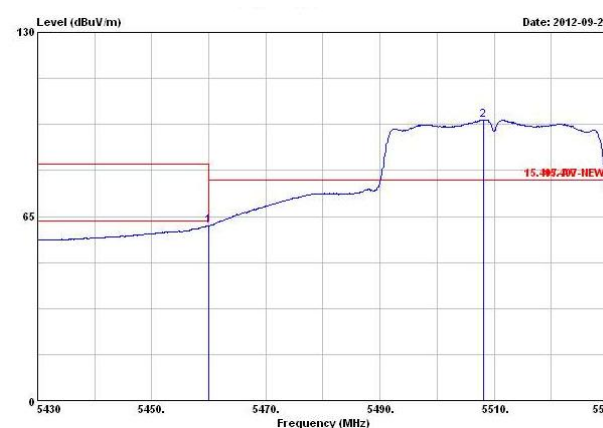
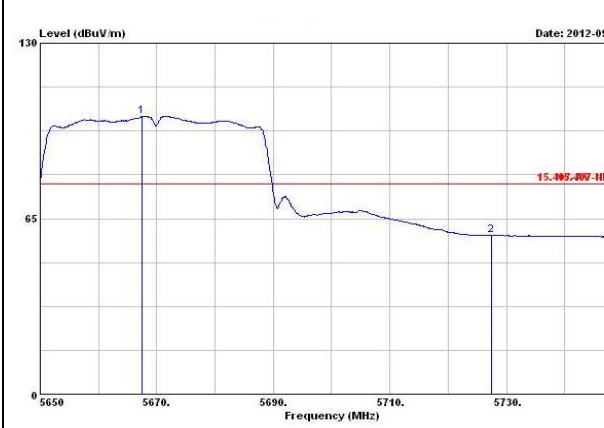


Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		Non-restricted Band Emissions					
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	NBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
5350-5470	5500	122.97	5457.76	1	81.44	83.54	PK	V
5350-5470	5500	110.49	5460.00	1	60.35	63.54	AV	V
5725-7250	5700	117.96	5725.00	1	76.75	77.84	PK	V
5725-7250	5700	105.71	5727.14	1	61.56	77.84	AV	V
5.6GHz band (Lowest Ch.)				5.6GHz band (Highest Ch.)				
								
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		Restricted Band Emissions					
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
4500-5150	5190	115.12	5148.20	1	80.38	83.54	PK	V
4500-5150	5190	102.42	5148.30	1	61.89	63.54	AV	V
5350-5460	5310	112.80	5353.90	1	81.95	83.54	PK	V
5350-5460	5310	100.36	5350.00	1	62.58	63.54	AV	V

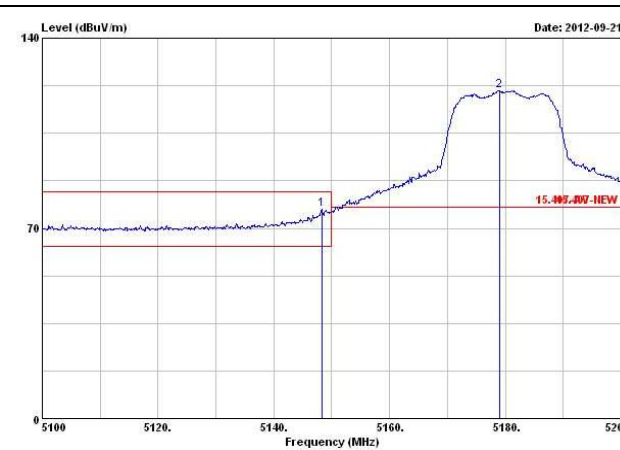
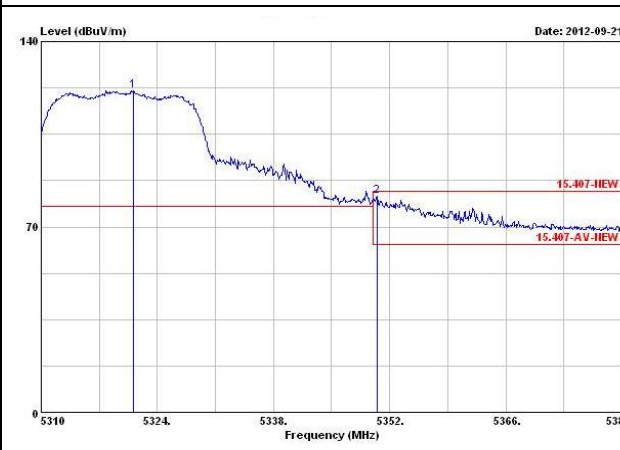
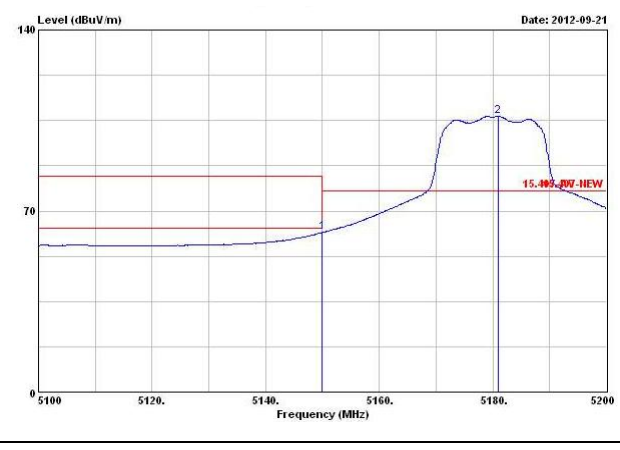
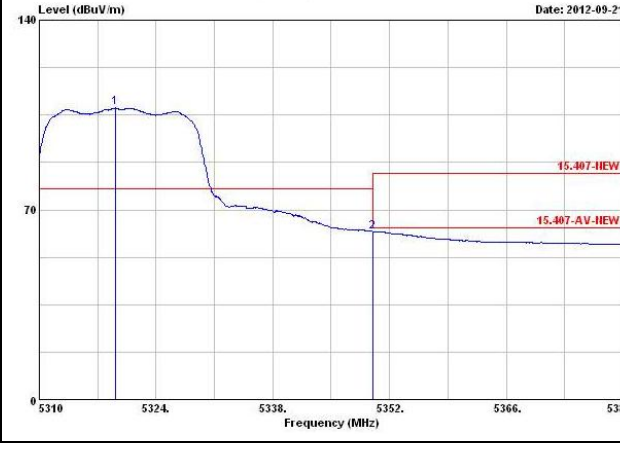
5.2GHz Lower-band (Lowest Ch.)		5.3GHz Higher-band (Highest Ch.)	
			

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

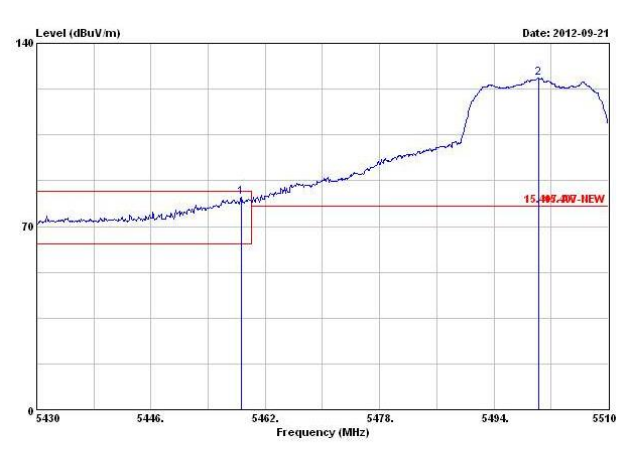
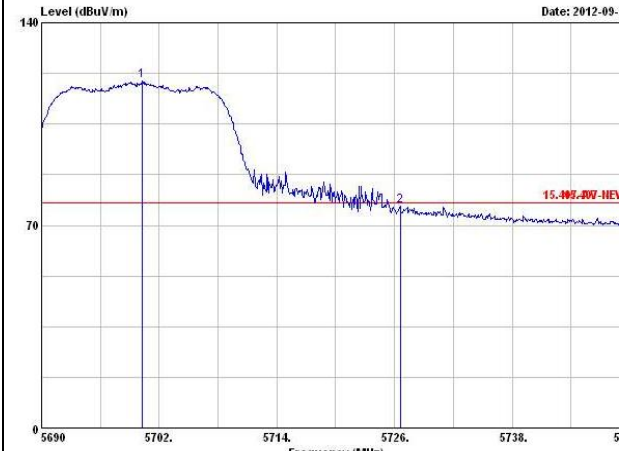
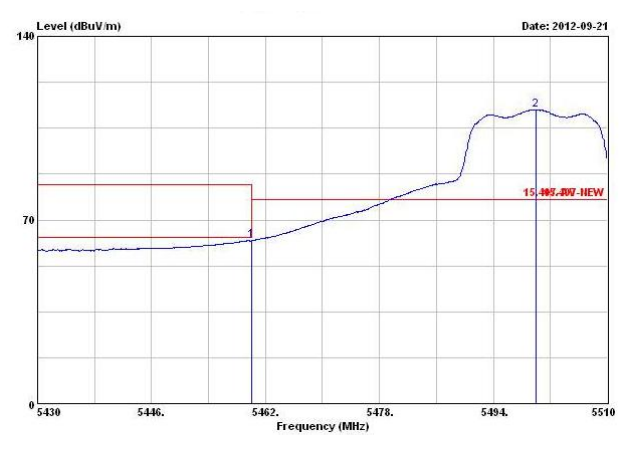
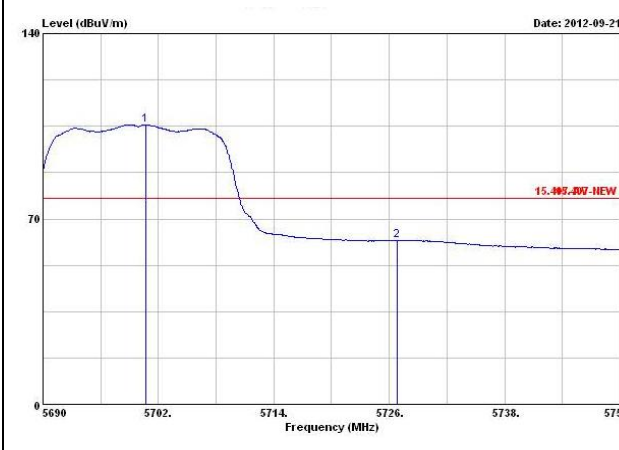
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		Non-restricted Band Emissions					
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	NBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
5350-5470	5510	111.68	5455.10	1	79.64	83.54	PK	V
5350-5470	5510	99.13	5460.00	1	61.71	63.54	AV	V
5725-7250	5670	116.57	5727.10	1	76.63	77.84	PK	V
5725-7250	5670	103.01	5727.40	1	58.98	77.84	AV	V
5.6GHz band (Lowest Ch.)				5.6GHz band (Highest Ch.)				
								
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

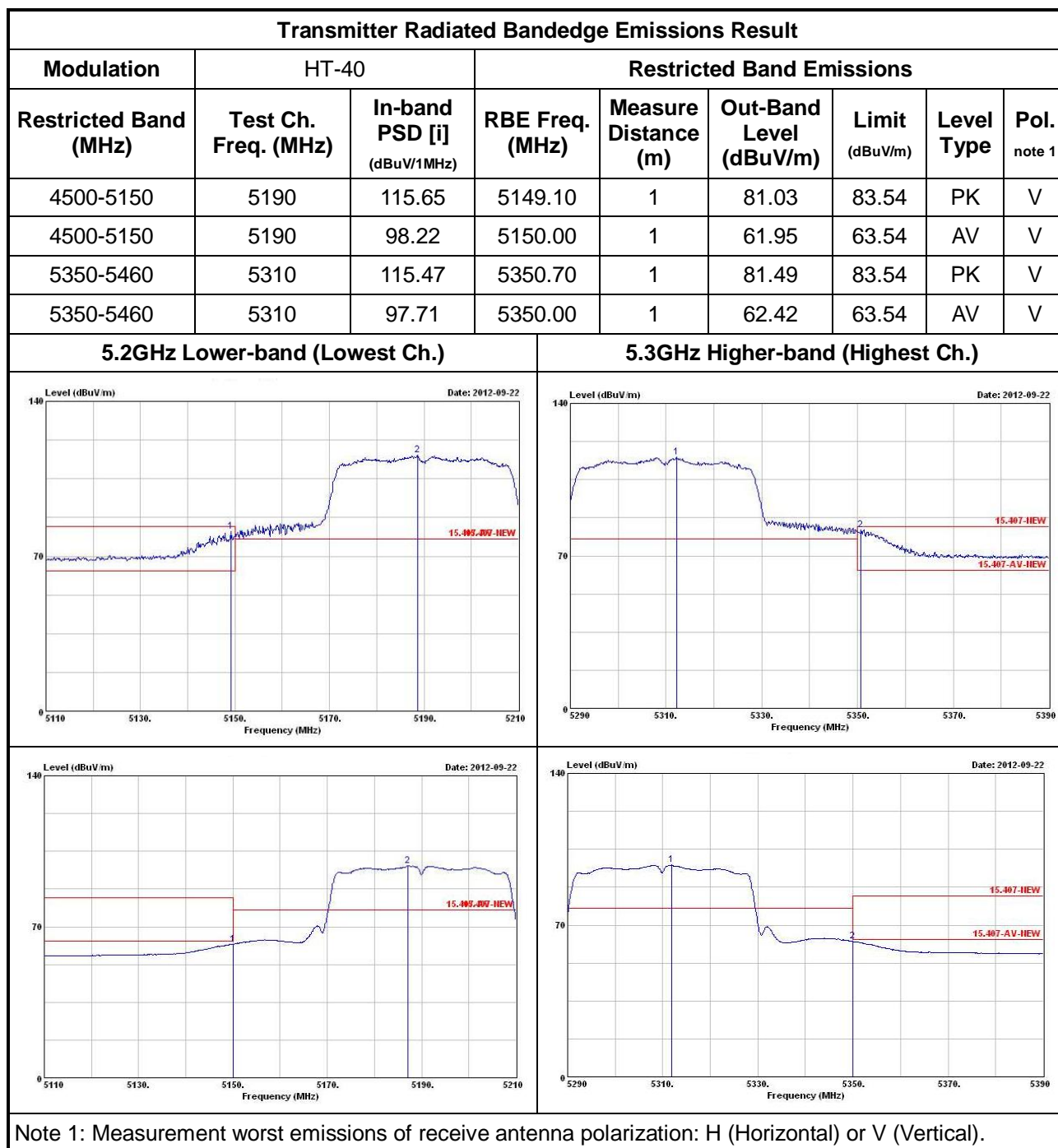
3.6.6 Test Result of Transmitter Radiated Bandedge Emissions-N_{TX} 2

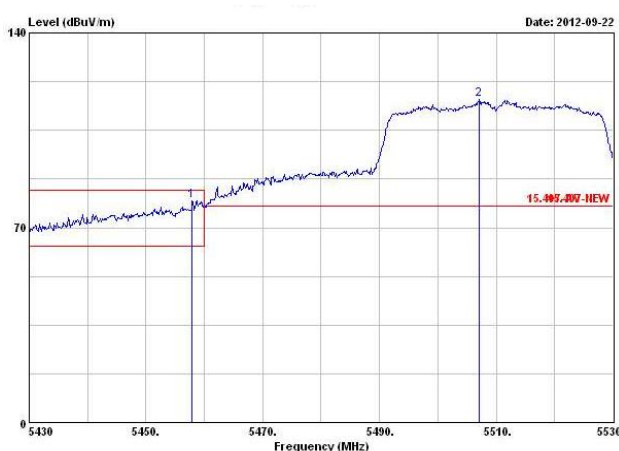
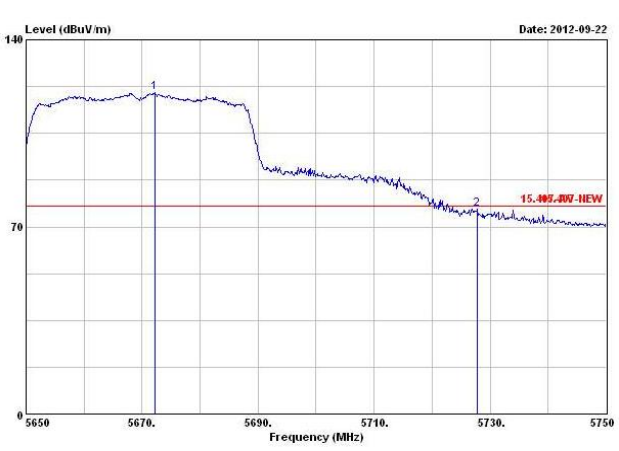
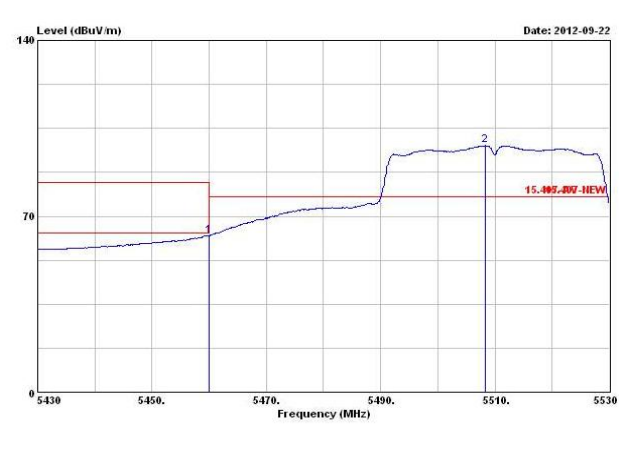
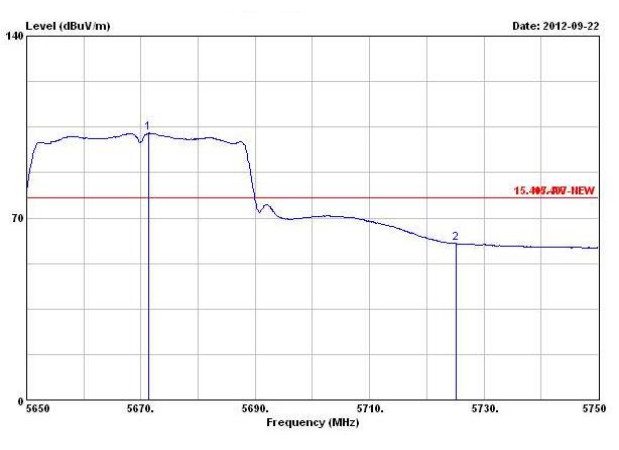
Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		Restricted Band Emissions					
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
4500-5150	5180	120.76	5148.30	1	77.05	83.54	PK	V
4500-5150	5180	106.75	5150.00	1	61.74	63.54	AV	V
5350-5460	5320	121.46	5350.46	1	81.51	83.54	PK	V
5350-5460	5320	107.58	5350.00	1	62.01	63.54	AV	V

5.2GHz Lower-band (Lowest Ch.)			5.3GHz Higher-band (Highest Ch.)		
					
					

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

Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-20		Non-restricted Band Emissions					
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	NBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
5350-5470	5500	126.87	5458.64	1	81.03	83.54	PK	V
5350-5470	5500	112.08	5460.00	1	62.10	63.54	AV	V
5725-7250	5700	119.73	5726.60	1	76.77	77.84	PK	V
5725-7250	5700	105.64	5726.84	1	62.03	77.84	AV	V
5.6GHz band (Lowest Ch.)				5.6GHz band (Highest Ch.)				
								
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT-40		Non-restricted Band Emissions					
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	NBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
5350-5470	5510	116.00	5457.90	1	79.84	83.54	PK	V
5350-5470	5510	98.13	5460.00	1	62.32	63.54	AV	V
5725-7250	5670	120.25	5727.80	1	76.64	77.84	PK	V
5725-7250	5670	102.64	5725.10	1	60.25	77.84	AV	V
5.6GHz band (Lowest Ch.)				5.6GHz band (Highest Ch.)				
								
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

3.7 Transmitter Radiated Unwanted Emissions

3.7.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

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

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

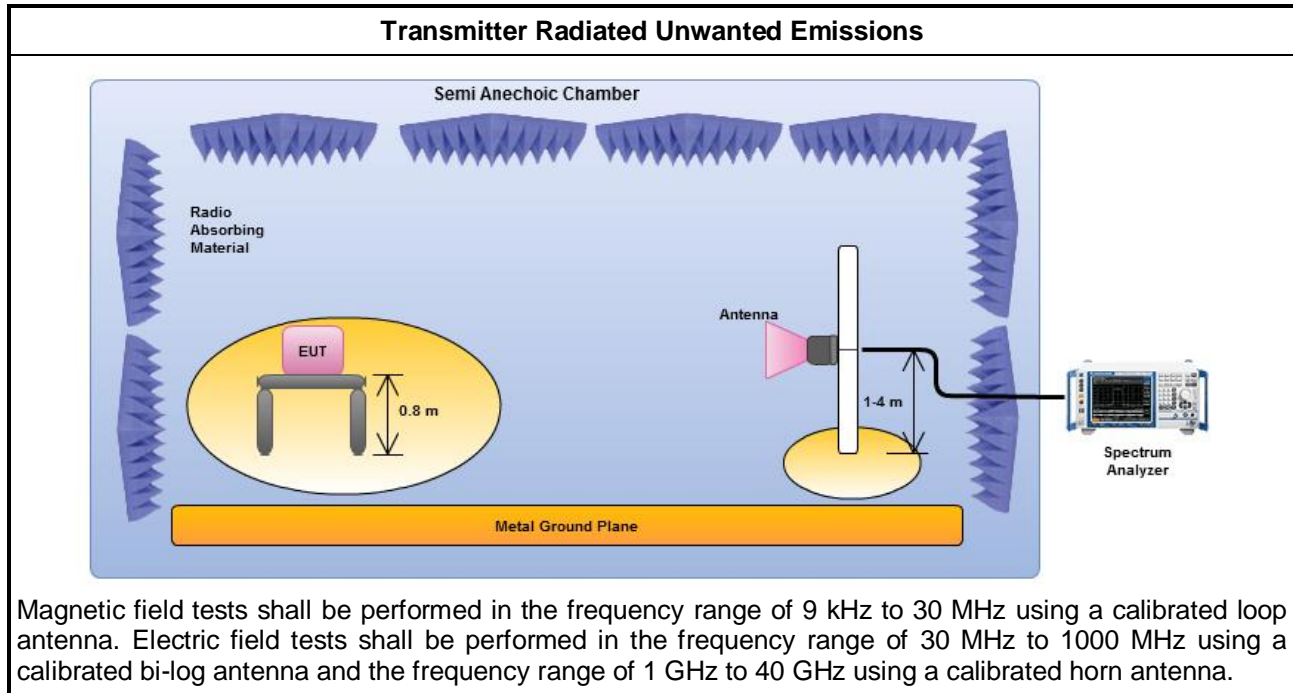
3.7.2 Measuring Instruments

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

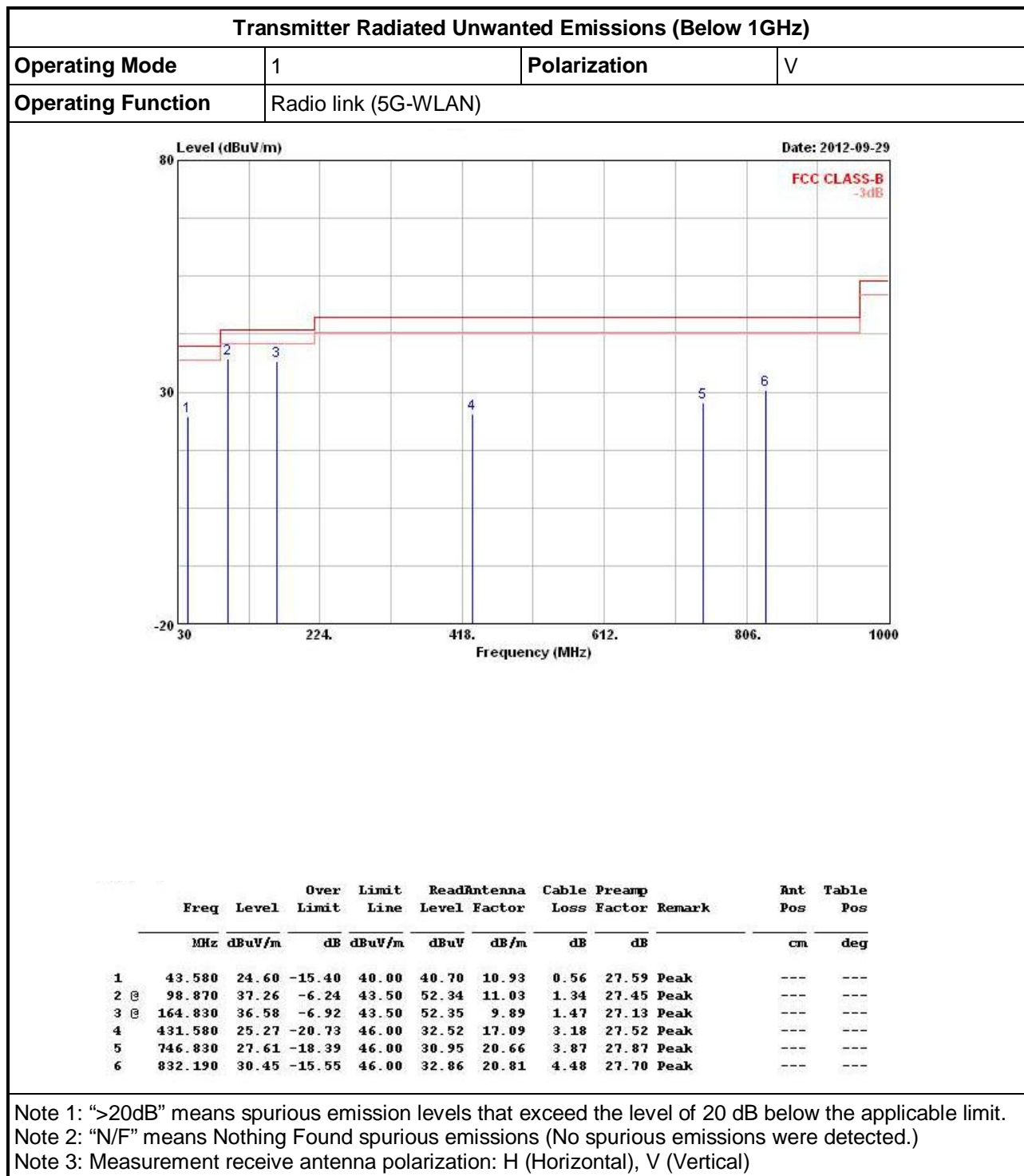
3.7.3 Test Procedures

Test Method	
<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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
<input checked="" type="checkbox"/>	Measurements in the frequency range 5 GHz - 10GHz are typically made at a closer distance 1.5m, because the instrumentation noise floor is typically close to the radiated emission limit.
<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, because 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 789033, clause G)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty \geq 98%.
<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 789033, clause G)5) measurement procedure peak limit.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For radiated measurement.
<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 6.5 for radiated emissions from above 1 GHz.

3.7.4 Test Setup

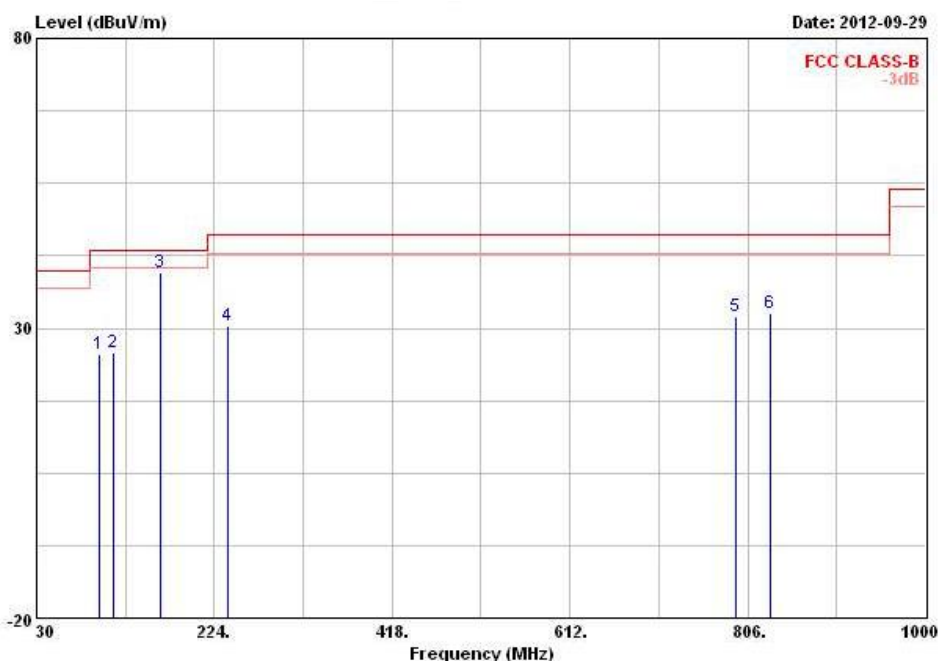


3.7.5 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Transmitter Radiated Unwanted Emissions (Below 1GHz)

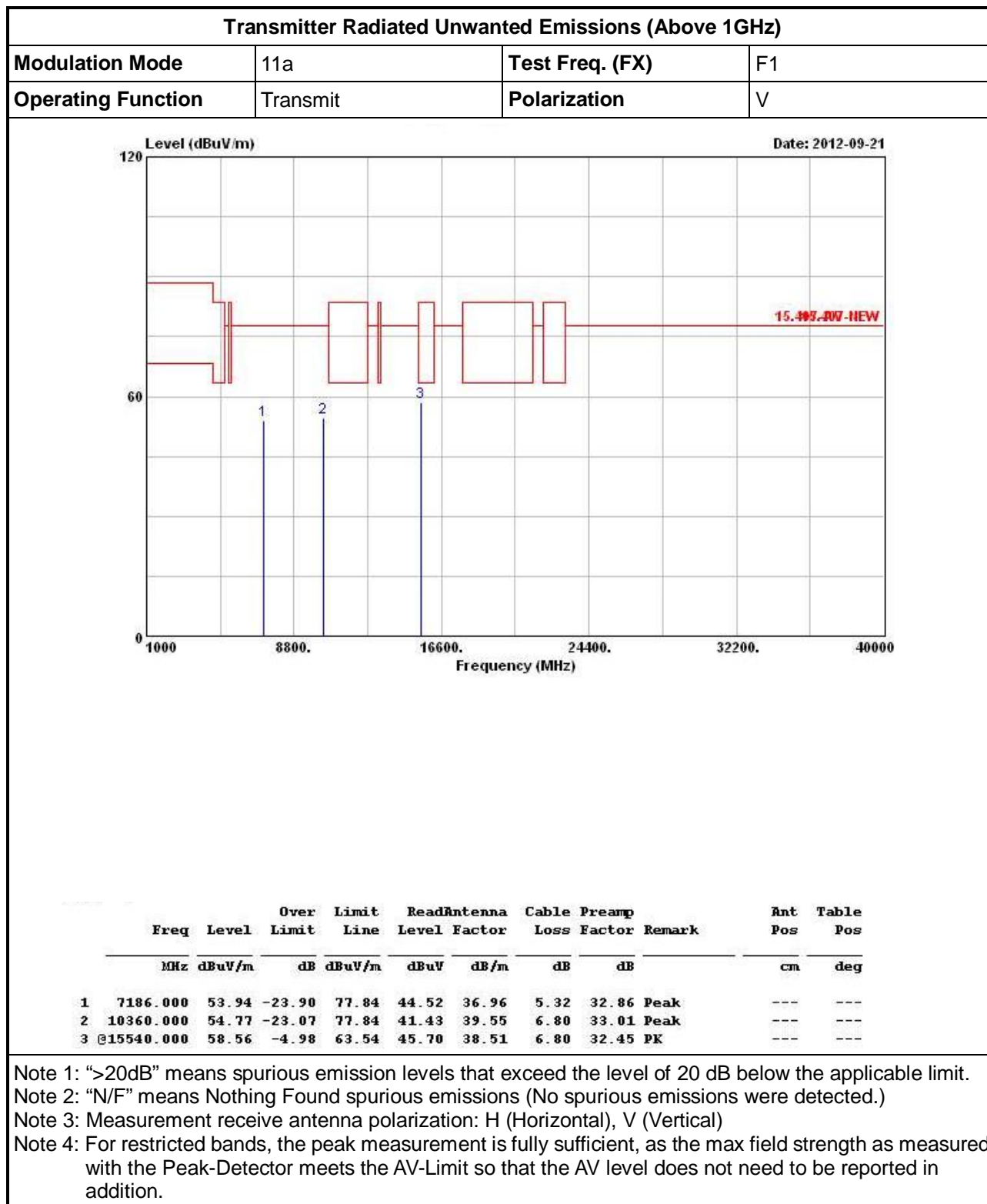
Operating Mode	1	Polarization	H
Operating Function	Radio link (5G-WLAN)		



	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	98.870	25.52	-17.98	43.50	40.60	11.03	1.34	27.45	Peak	---	---
2	113.420	25.82	-17.68	43.50	39.36	12.49	1.36	27.39	Peak	---	---
3	164.830	39.58	-3.92	43.50	55.35	9.89	1.47	27.13	Peak	---	---
4	238.550	30.35	-15.65	46.00	43.34	11.44	2.43	26.86	Peak	---	---
5	793.390	31.90	-14.10	46.00	34.60	20.75	4.32	27.77	Peak	---	---
6	831.220	32.60	-13.40	46.00	35.02	20.81	4.47	27.70	Peak	---	---

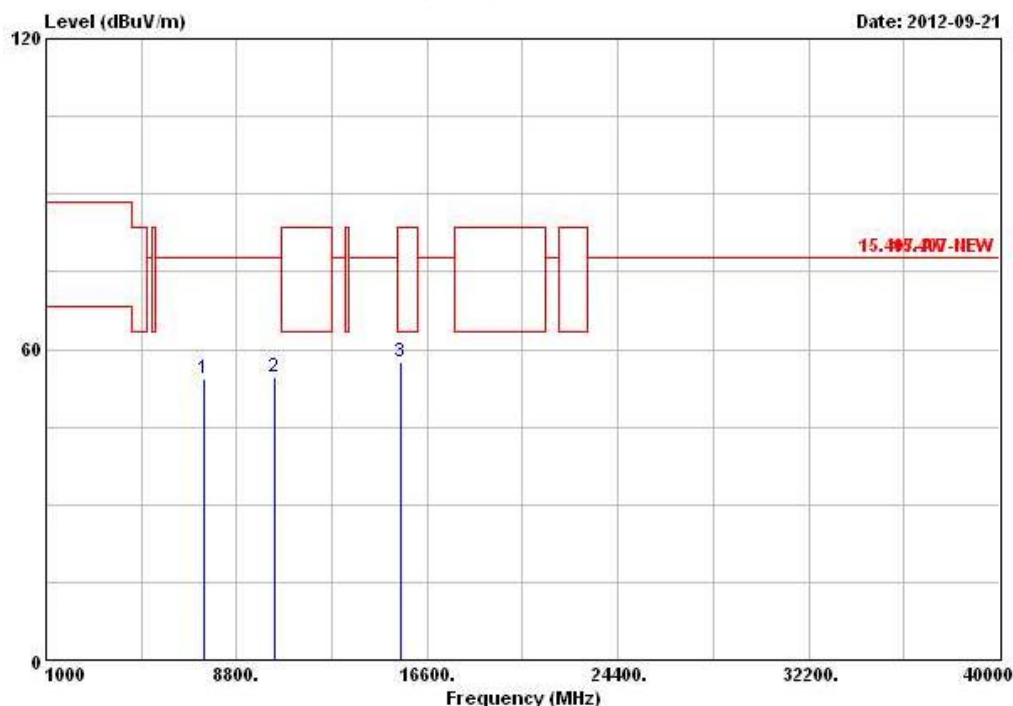
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.7.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11A-20M-N_{TX} 1



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F1
Operating Function	Transmit	Polarization	H

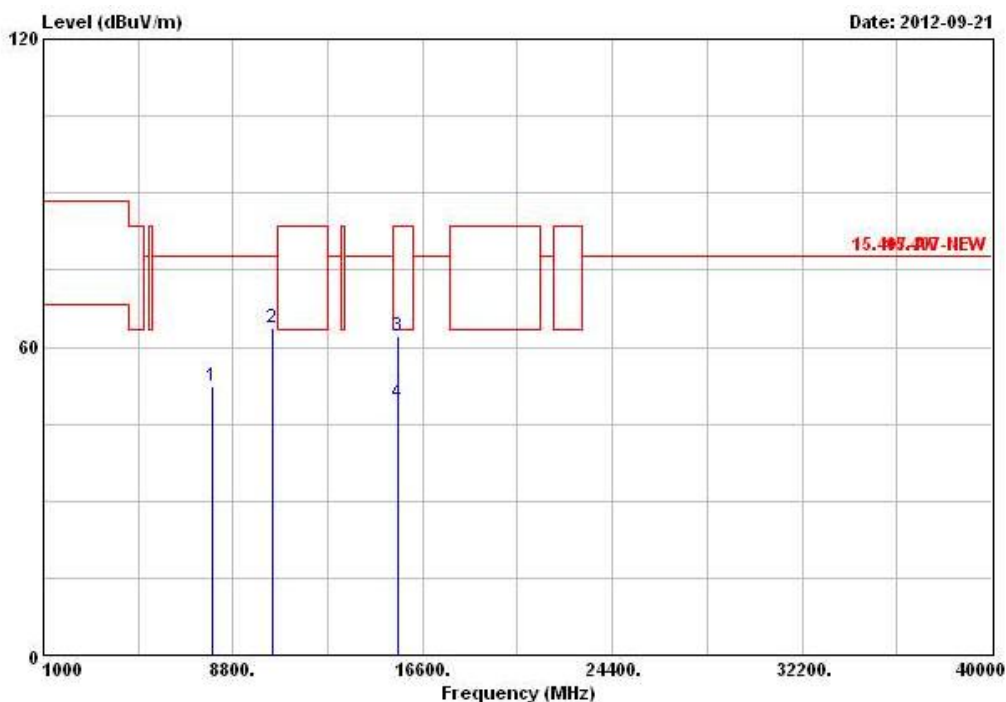


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7486.000	54.40	-23.44	77.84	43.94	37.70	5.70	32.94	Peak	---	---
2	10360.000	54.52	-23.32	77.84	41.18	39.55	6.80	33.01	Peak	---	---
3	15540.000	57.67	-5.87	63.54	44.81	38.51	6.80	32.45	PK	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F2
Operating Function	Transmit	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	7940.000	52.32	-25.52	77.84	41.74	37.87	5.74	33.03	Peak	---	---
2	10400.000	63.79	-14.05	77.84	50.41	39.54	6.80	32.96	Peak	---	---
3	15600.000	62.08	-21.46	83.54	49.43	38.33	6.80	32.48	Peak	---	---
4	15600.000	49.09	-14.45	63.54	36.44	38.33	6.80	32.48	Average	---	---

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

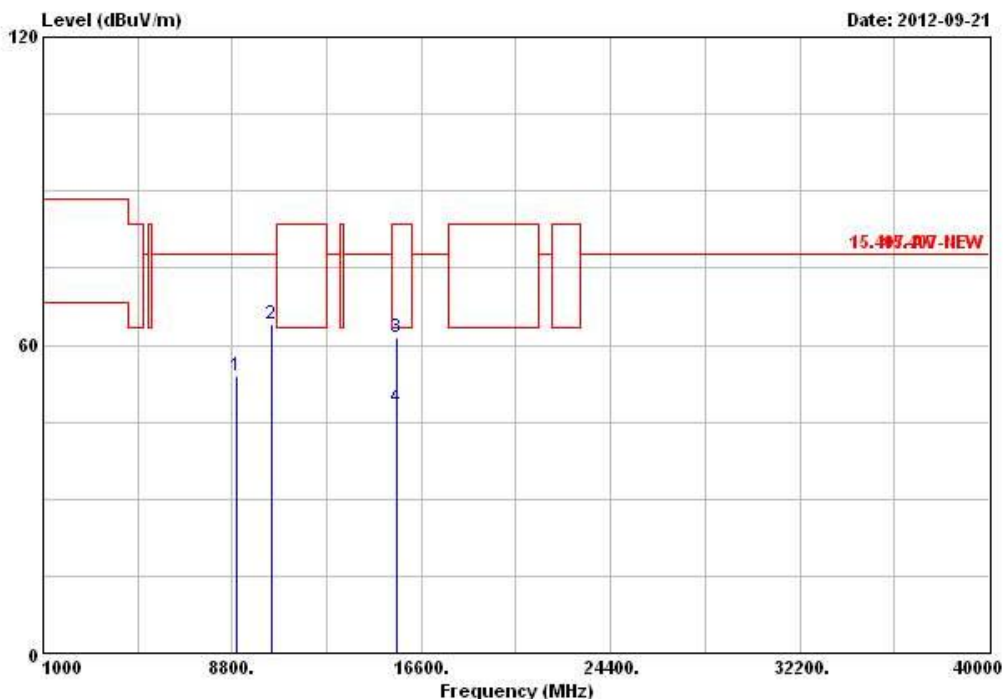
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F2
Operating Function	Transmit	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	dB	dBuV/m	Level	Loss	Factor	Remark	Pos	Pos
					Factor				cm	deg
1	8971.000	53.87	-23.97	77.84	41.92	38.79	6.36	33.20 Peak	---	---
2	10400.000	64.07	-13.77	77.84	50.69	39.54	6.80	32.96 Peak	---	---
3	15600.000	61.41	-22.13	83.54	48.76	38.33	6.80	32.48 Peak	---	---
4	15600.000	47.90	-15.64	63.54	35.25	38.33	6.80	32.48 Average	---	---

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

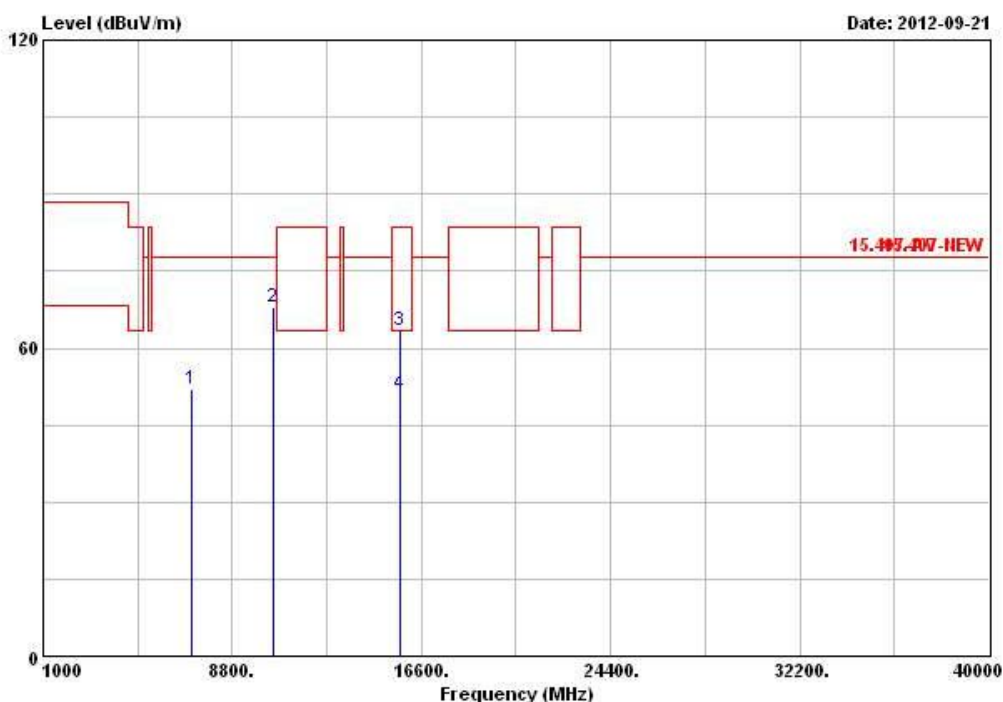
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F3
Operating Function	Transmit	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7099.000	51.87	-25.97	77.84	42.76	36.75	5.19	32.83	Peak	---
2	10480.000	67.86	-9.98	77.84	54.46	39.51	6.79	32.90	Peak	---
3	15720.000	63.35	-20.19	83.54	51.04	38.02	6.81	32.52	Peak	---
4	15720.000	50.96	-12.58	63.54	38.65	38.02	6.81	32.52	Average	---

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

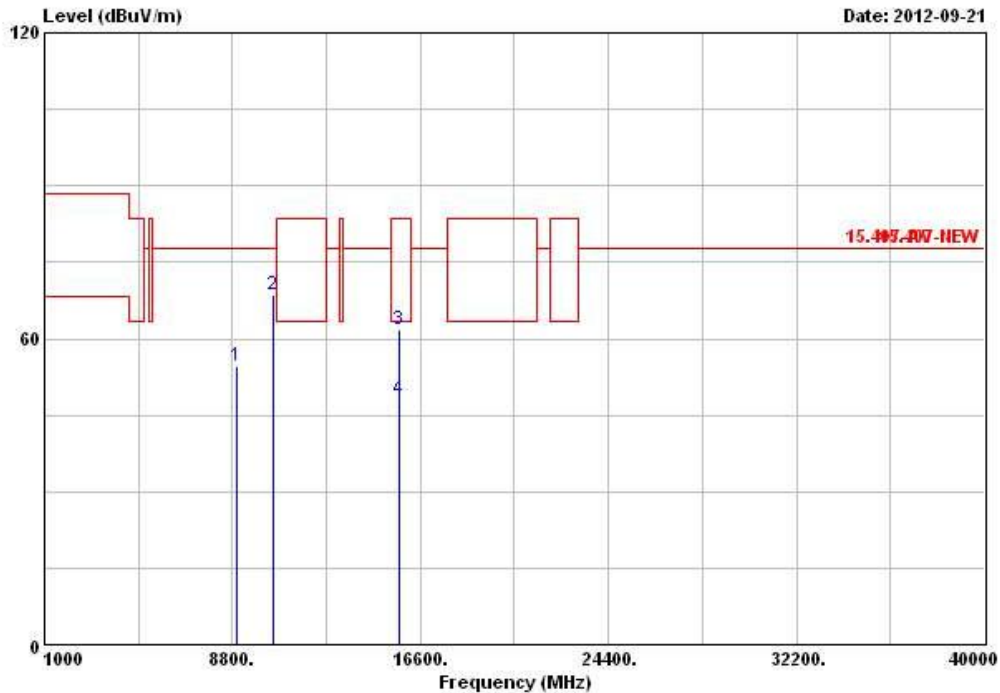
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F3
Operating Function	Transmit	Polarization	H

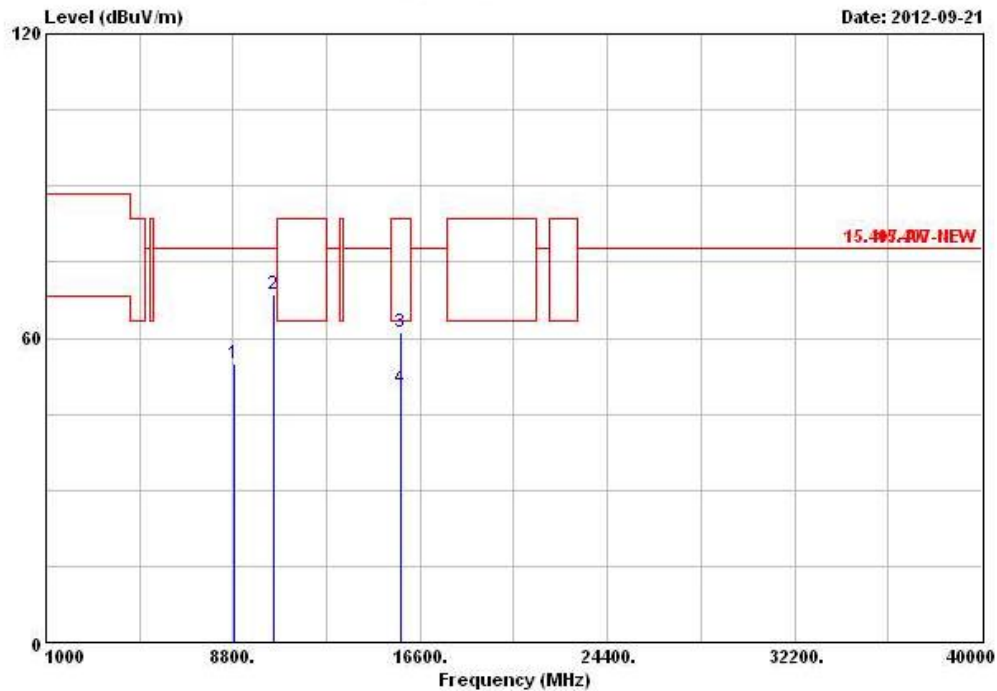


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8971.000	54.69	-23.15	77.84	42.74	38.79	6.36	33.20	Peak	---	---
2	10480.000	68.46	-9.38	77.84	55.06	39.51	6.79	32.90	Peak	---	---
3	15720.000	61.95	-21.59	83.54	49.64	38.02	6.81	32.52	Peak	---	---
4	15720.000	48.20	-15.34	63.54	35.89	38.02	6.81	32.52	Average	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F4
Operating Function	Transmit	Polarization	V

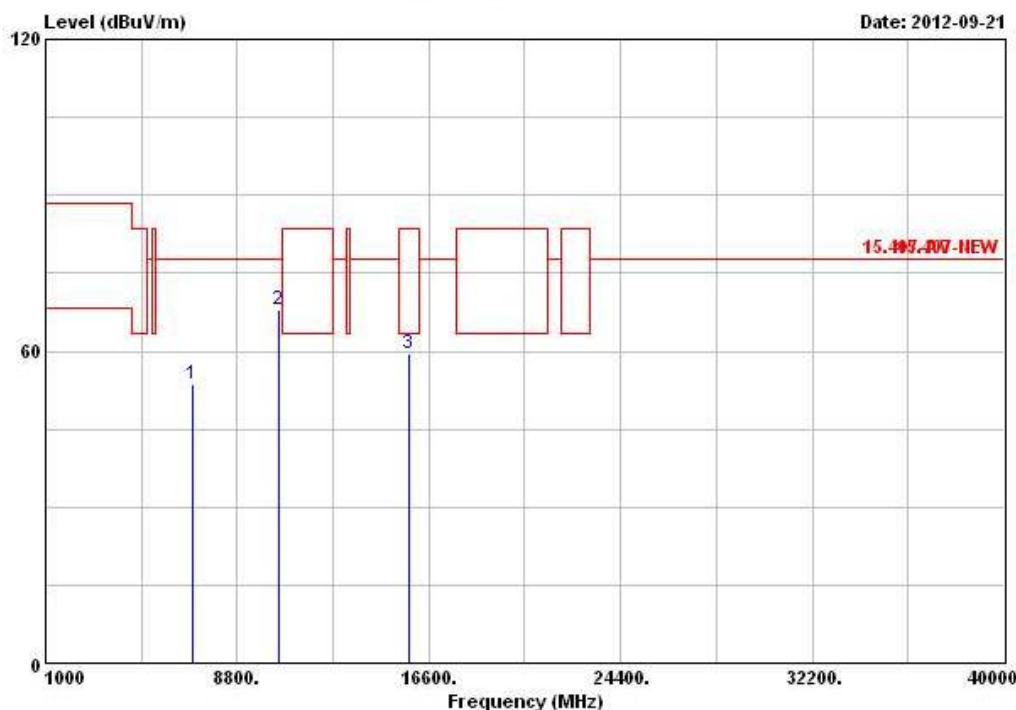


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8863.000	54.82	-23.02	77.84	42.91	38.75	6.32	33.16	Peak	---	---
2	10520.000	68.65	-9.19	77.84	55.26	39.49	6.78	32.88	Peak	---	---
3	15780.000	61.07	-22.47	83.54	48.92	37.88	6.81	32.54	Peak	---	---
4	15780.000	50.03	-13.51	63.54	37.88	37.88	6.81	32.54	Average	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F4
Operating Function	Transmit	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	7000.000	53.64	-24.20	77.84	44.84	36.50	5.10	32.80	Peak	---	---
2	10520.000	68.07	-9.77	77.84	54.68	39.49	6.78	32.88	Peak	---	---
3	15780.000	59.62	-3.92	63.54	47.47	37.88	6.81	32.54	PK	---	---

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

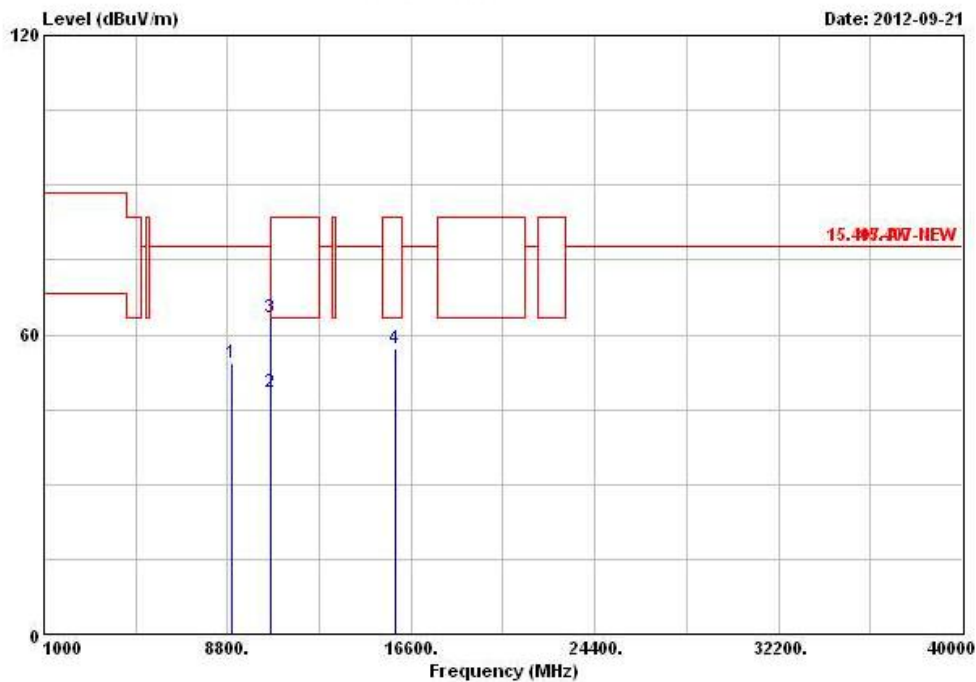
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F5
Operating Function	Transmit	Polarization	V

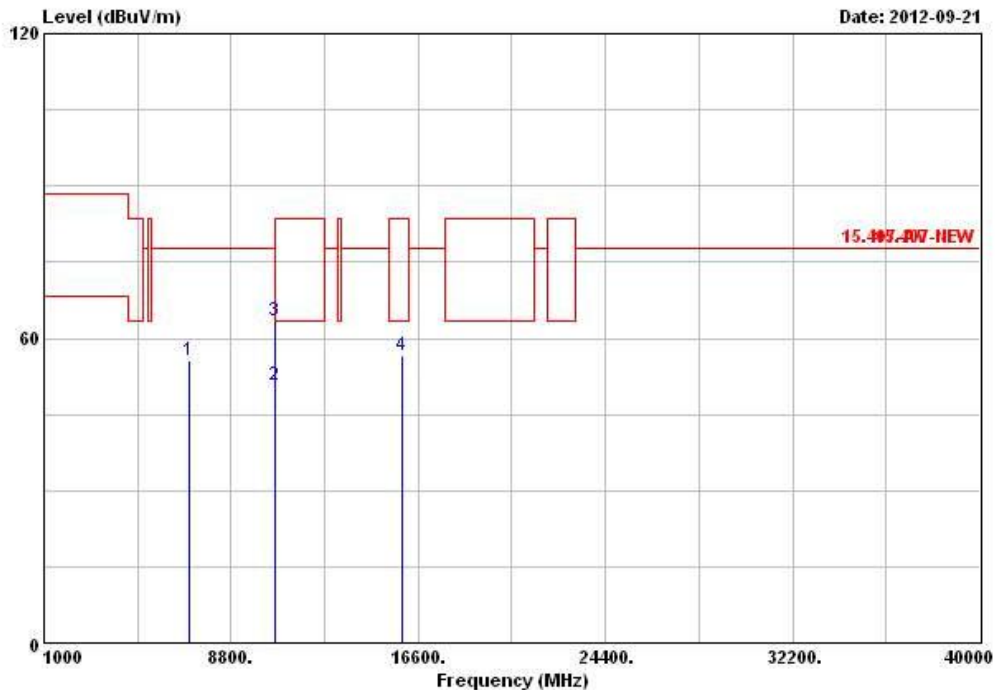


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8971.000	54.43	-23.41	77.84	42.48	38.79	6.36	33.20	Peak	---	---
2	10600.100	48.56	-14.98	63.54	35.19	39.46	6.75	32.84	Average	---	---
3	10600.100	63.57	-19.97	83.54	50.20	39.46	6.75	32.84	Peak	---	---
4	15900.000	57.12	-6.42	63.54	45.31	37.57	6.82	32.58	PK	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F5
Operating Function	Transmit	Polarization	H

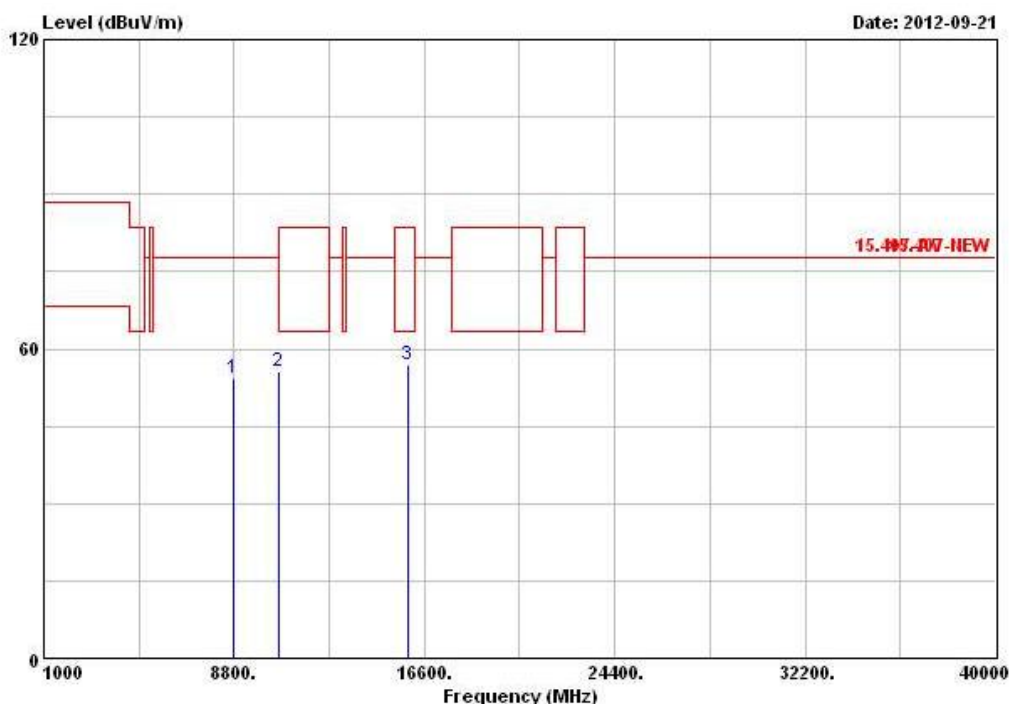


	Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	dB	dBuV/m	Level	Loss	Factor	Remark	Pos	Pos
					dBuV	dB/m	dB	dB	cm	deg
1	7027.000	55.67	-22.17	77.84	46.77	36.58	5.13	32.81 Peak	---	---
2	10600.100	50.75	-12.79	63.54	37.38	39.46	6.75	32.84 Average	---	---
3	10600.100	63.56	-19.98	83.54	50.19	39.46	6.75	32.84 Peak	---	---
4	15900.000	56.65	-6.89	63.54	44.84	37.57	6.82	32.58 PK	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F6
Operating Function	Transmit	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	54.32	-23.52	77.84	42.45	38.71	6.29	33.13	Peak	---	---
2	@10640.000	55.56	-7.98	63.54	42.20	39.44	6.73	32.81	PK	---	---
3	@15960.000	56.91	-6.63	63.54	45.31	37.39	6.82	32.61	PK	---	---

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

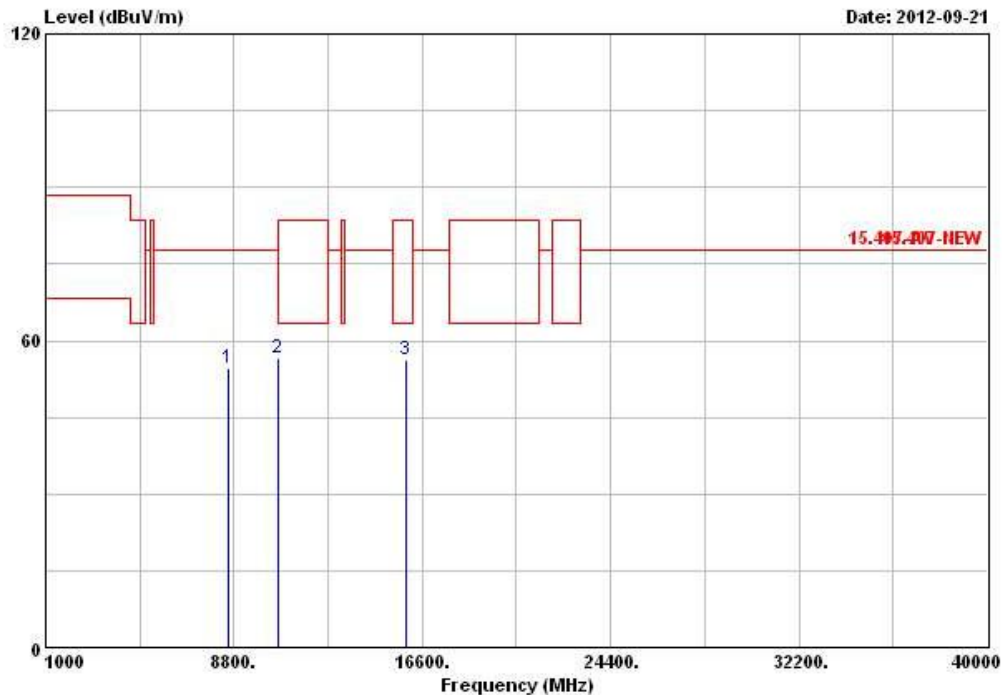
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F6
Operating Function	Transmit	Polarization	H

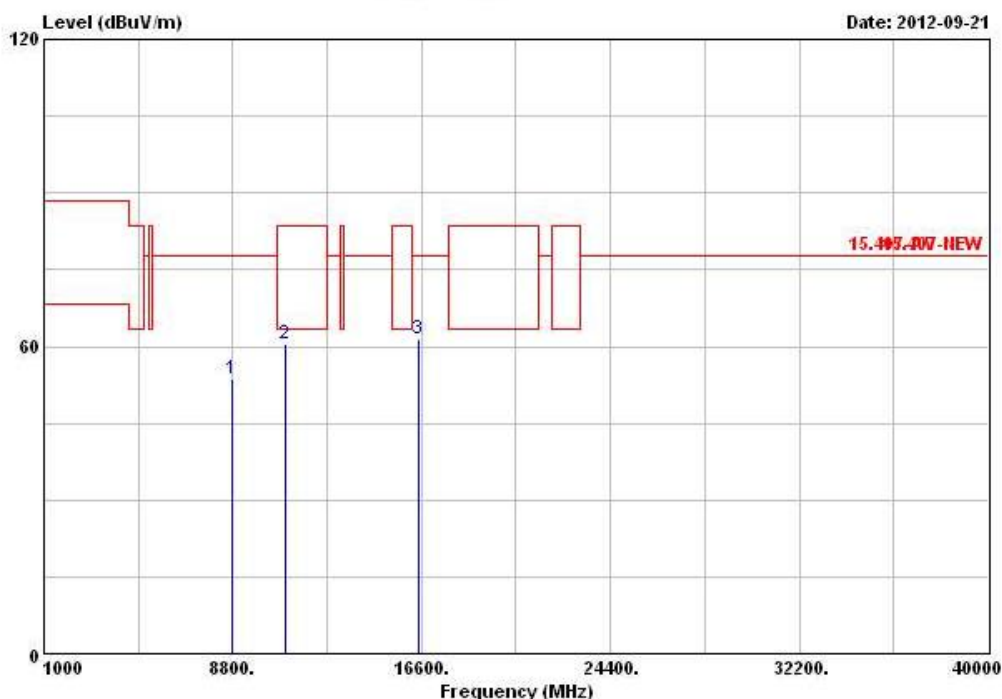


Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8566.000	54.49	-23.35	77.84	42.74	38.63	6.19	33.07	Peak	---	---
2 @10640.000	56.56	-6.98	63.54	43.20	39.44	6.73	32.81	PK	---	---
3 @15960.000	56.22	-7.32	63.54	44.62	37.39	6.82	32.61	PK	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F7
Operating Function	Transmit	Polarization	V

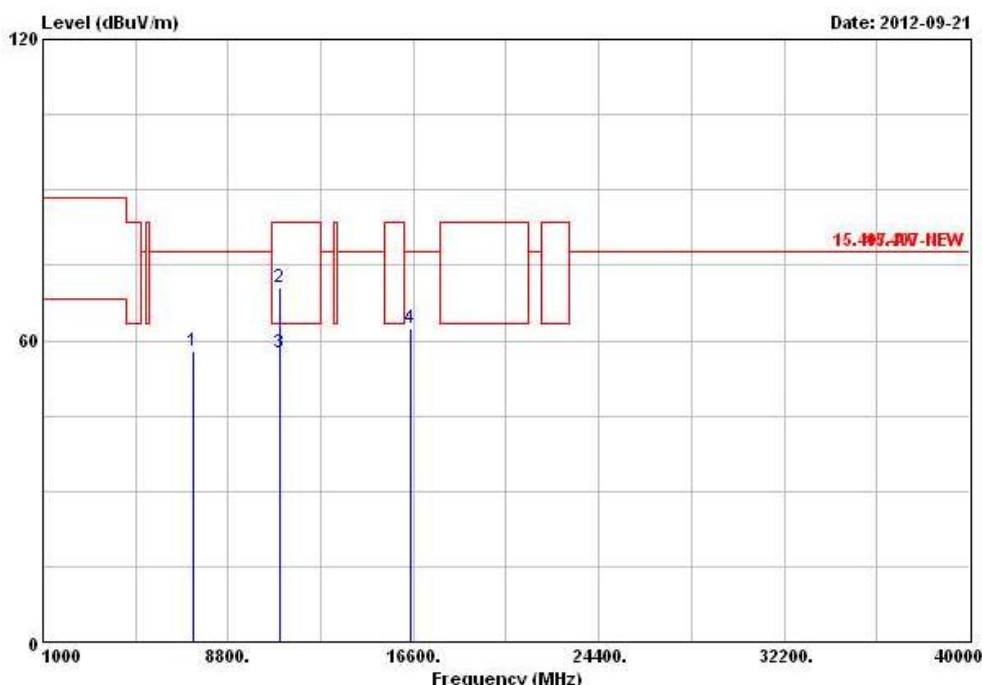


	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8750.000	53.54	-24.30	77.84	41.69	38.70	6.27	33.12 Peak	---	---
2	11000.000	60.50	-3.04	63.54	47.21	39.30	6.60	32.61 PK	---	---
3	16500.000	61.41	-16.43	77.84	48.24	38.50	6.89	32.22 Peak	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F7
Operating Function	Transmit	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	7333.000	57.84	-20.00	77.84	47.90	37.33	5.51	32.90	Peak	---	---
2	11000.000	70.62	-12.92	83.54	57.33	39.30	6.60	32.61	Peak	---	---
3	11000.000	57.53	-6.01	63.54	44.24	39.30	6.60	32.61	Average	---	---
4	16500.000	62.55	-15.29	77.84	49.38	38.50	6.89	32.22	Peak	---	---

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

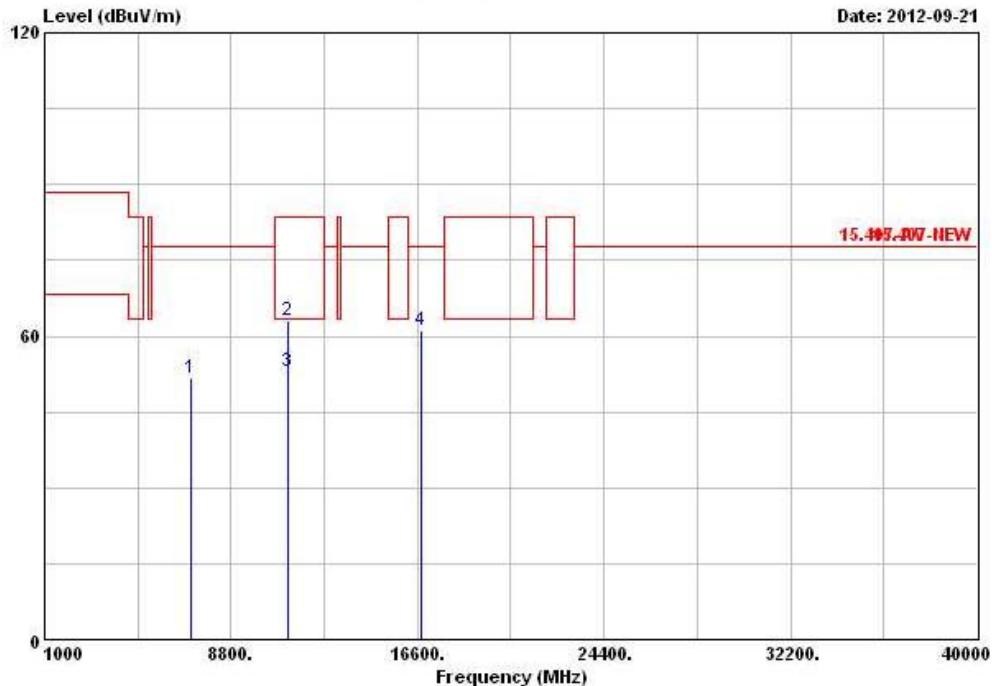
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F8
Operating Function	Transmit	Polarization	V

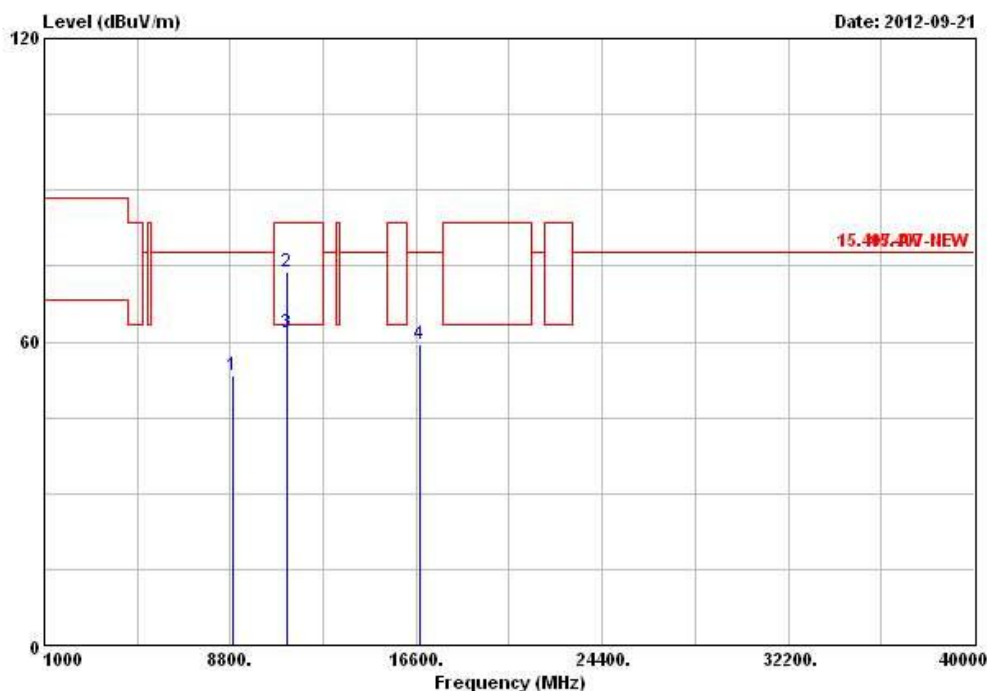


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7110.000	51.75	-26.09	77.84	42.61	36.75	5.23	32.84	Peak	---	---
2	11160.000	62.93	-20.61	83.54	49.38	39.57	6.58	32.60	Peak	---	---
3	11160.000	52.95	-10.59	63.54	39.40	39.57	6.58	32.60	Average	---	---
4	16740.000	61.12	-16.72	77.84	46.36	40.00	6.68	31.92	Peak	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F8
Operating Function	Transmit	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8910.000	53.33	-24.51	77.84	41.41	38.76	6.34	33.18 Peak	---	---
2	11160.000	73.69	-9.85	83.54	60.14	39.57	6.58	32.60 Peak	---	---
3	@11160.000	61.78	-1.76	63.54	48.23	39.57	6.58	32.60 Average	---	---
4	16740.000	59.48	-18.36	77.84	44.72	40.00	6.68	31.92 Peak	---	---

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

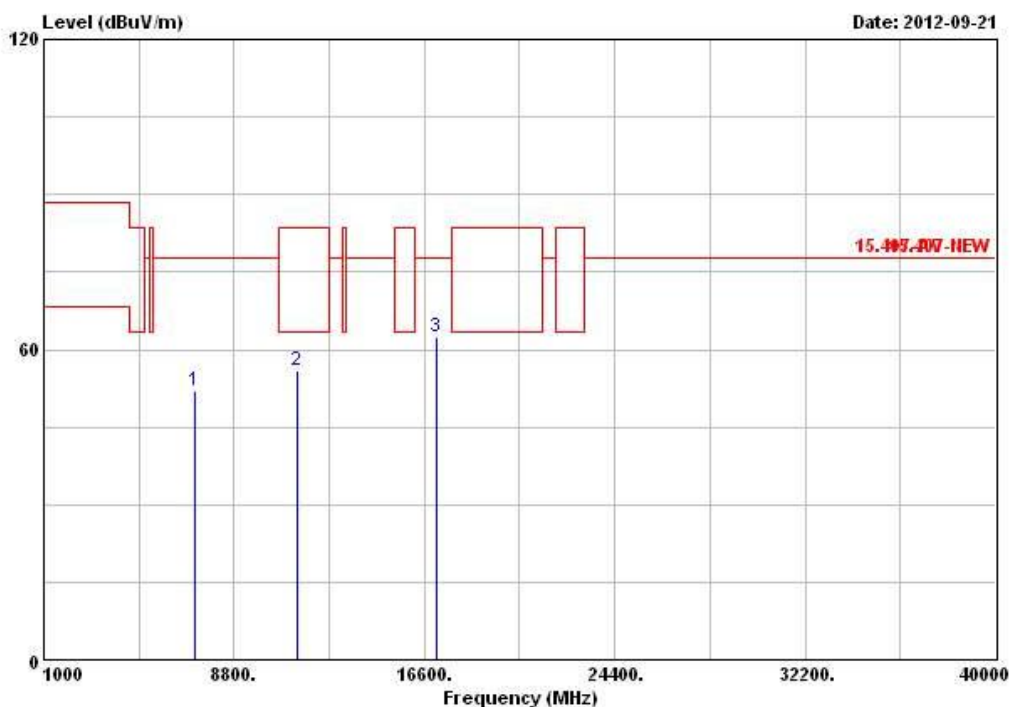
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F9
Operating Function	Transmit	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7162.000	52.03	-25.81	77.84	42.72	36.87	5.29	32.85	Peak	---	---
2	11400.000	55.97	-7.57	63.54	42.06	39.94	6.55	32.58	PK	---	---
3	17100.000	62.34	-15.50	77.84	44.85	42.54	6.57	31.62	Peak	---	---

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

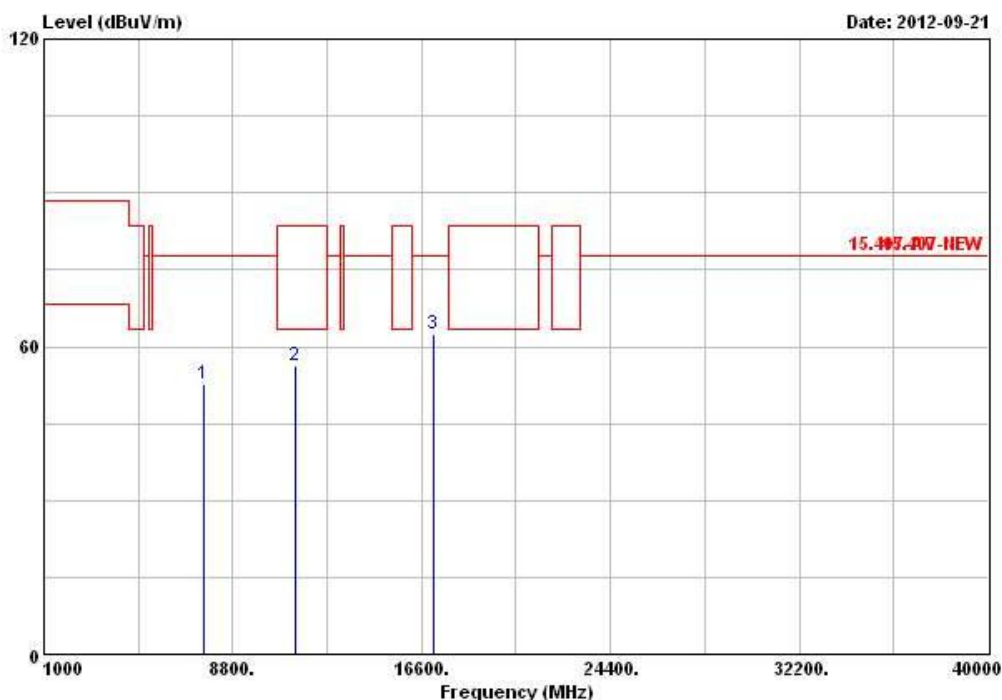
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (FX)	F9
Operating Function	Transmit	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7594.000	52.67	-25.17	77.84	42.19	37.74	5.71	32.97 Peak	---	---
2	11400.000	56.30	-7.24	63.54	42.39	39.94	6.55	32.58 PK	---	---
3	17100.000	62.32	-15.52	77.84	44.83	42.54	6.57	31.62 Peak	---	---

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

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

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

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.