

# **FCC Test Report**

Equipment	:	802.11 a/n/ac Module
Brand Name	:	Senao
Model No.	:	PCE4550AH
FCC ID	:	U2M-PCE4550AH
Standard	:	47 CFR FCC Part 15.407
<b>Operating Band</b>	:	5150 MHz – 5250 MHz
FCC Classification	:	NII
Applicant Manufacturer	:	Senao Networks, Inc. 3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan

The product sample received on Apr. 18, 2013 and completely tested on Apr. 29, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / 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	tenna Requirement Antenna connector mechanism complied		Complied				
3.1	15.207	AC Power-line Conducted Emissions			Complied				
3.2	15.407(a)	Emission Bandwidth	Bandwidth [MHz] 20M:26.55 / 40M:49.86 / 80M: 103.65	Information only	Complied				
3.3	15.407(a)	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 5150-5250MHz:16.73	Power [dBm] 5150-5250MHz:17	Complied				
3.4	15.407(a)	Peak Power Spectral Density	PPSD [dBm/MHz] 5150-5250MHz:2.11	PPSD [dBm/MHz] 5150-5250MHz:4	Complied				
3.5	15.407(a)	Peak Excursion	10.57 dB	13 dB	Complied				
3.6	15.407(b)	Transmitter Radiated Bandedge Emissions	Restricted Bands [dBuV/m at 3m]: 5149.80MHz 63.05 (Margin 10.95dB) - PK 53.00 (Margin 1.00dB) - 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 3m]: 912.70MHz 41.93 (Margin 4.07dB) - PK	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied				
3.8	15.407(g)	Frequency Stability	2.6885 ppm	Signal shall remain in-band	Complied				





## **Revision History**

Report No.	Version	Description	Issued Date
FR341809AN	Rev. 01	Initial issue of report	May 09, 2013



## **1** General Description

## 1.1 Information

### 1.1.1 RF General Information

RF General Information								
IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (Ν <sub>τx</sub> )	RF Output Power (dBm)	Co-location			
а	5180-5240	36-48 [4]	3	14.93	N/A			
n(HT20)	5180-5240	36-48 [4]	3	14.89	N/A			
n(HT40)	5190-5230	38-46 [2]	3	16.66	N/A			
ac(VHT20)	5180-5240	36-48 [4]	3	14.86	N/A			
ac(VHT40)	5190-5230	38-46 [2]	3	16.73	N/A			
ac(VHT80)	5210	42 [1]	3	12.96	N/A			
	a n(HT20) n(HT40) ac(VHT20) ac(VHT40)	IEEE Std. 802.11         Ch. Freq. (MHz)           a         5180-5240           n(HT20)         5180-5240           n(HT40)         5190-5230           ac(VHT20)         5180-5240           ac(VHT40)         5190-5230	IEEE Std. 802.11Ch. Freq. (MHz)Channel Numbera5180-524036-48 [4]n(HT20)5180-524036-48 [4]n(HT40)5190-523038-46 [2]ac(VHT20)5180-524036-48 [4]ac(VHT40)5190-523038-46 [2]	IEEE Std. 802.111         Ch. Freq. (MHz)         Channel Number         Transmit Chains (N <sub>TX</sub> )           a         5180-5240         36-48 [4]         3           n(HT20)         5180-5240         36-48 [4]         3           n(HT40)         5190-5230         38-46 [2]         3           ac(VHT20)         5180-5240         36-48 [4]         3	IEEE Std. 802.11         Ch. Freq. (MHz)         Channel Number         Transmit Chains (N <sub>Tx</sub> )         RF Output Power (dBm)           a         5180-5240         36-48 [4]         3         14.93           n(HT20)         5180-5240         36-48 [4]         3         14.89           n(HT40)         5190-5230         38-46 [2]         3         16.66           ac(VHT20)         5180-5240         36-48 [4]         3         14.89			

Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: RF output power specifies that Maximum Peak Conducted Output Power for ac(VHT80) only. Note 3: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

Note 4: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

Note 5: 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								
	Equ	Equipment placed on the market without antennas								
	Integ	gral antenna (antenna permanently attached)								
		Temporary RF connector provided								
		No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.								
$\square$	Exte	ernal antenna (dedicated antennas)								
		Single power level with corresponding antenna(s).								
	Multiple power level and corresponding antenna(s).									
	$\boxtimes$	RF connector provided								
		Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type)								
		Standard antenna connector. (e.g., SMA, N, BNC, and TNC type)								



	Antenna General Information							
No.	No. Ant. Cat. Ant. Type Connector Gain (dBi)							
1	External	Dipole	UFL	3				
2	External	Dipole	UFL	5.5				
3	Integral	PIFA	UFL	6				

## 1.1.3 Type of EUT

	Identify EUT				
EUT	Serial Number	N/A			
Pres	sentation of Equipment	$\Box$ Production ; $\Box$ Pre-Production ; $\Box$ Prototype			
		Type of EUT			
	Stand-alone				
	Combined (EUT where the radio part is fully integrated within another device)				
	Combined Equipment - Brand Name / Model No.:				
$\boxtimes$	Plug-in radio (EUT intended for a variety of host systems)				
	Host System - Brand Name / Model No.:				
	] Other:				



### 1.1.4 Test Signal Duty Cycle

	Operated Mode for Worst Duty Cycle						
	Operated normally mode for worst duty cycle						
⊠	Operated test mode for worst duty cycle						
	Test Signal Duty Cycle (x)Power Duty Factor[dB] - (10 log 1/x)						
⊠	98.05% - IEEE 802.11a	0.09					
⊠	98.21% - IEEE 802.11n (HT20)	0.08					
⊠	94.73% - IEEE 802.11n (HT40)	0.24					
⊠	98.23% - IEEE 802.11ac (VHT20)	0.08					
⊠	95.21% - IEEE 802.11ac (VHT40)	0.21					
⊠	90.40% - IEEE 802.11ac (VHT80)	0.44					

### 1.1.5 EUT Operational Condition

Supply Voltage	AC mains	$\boxtimes$	DC		
Type of DC Source	Internal DC supply		External DC adapter	Ø	Host 3.3 V
Test Voltage (Host)	Vnom (110 Vac)	⊠	Vmax (126.5 Vac)	Ø	Vmin (93.5 Vac)
Test Climatic	Tnom (20°C)	⊠	Tmax (55°C)	Ø	Tmin (-30°C)

## **1.2** Accessories and Support Equipment

	Accessories							
No.	No.         Equipment         Brand Name         Model Name         P/N         Spec.							

	Support Equipment							
No.	No. Equipment Brand Name Model Name Serial No.							
1	Notebook	DELL	E5420	DoC				
2	Extender card	Senao	adapter	NA				
3	Carrier board	Senao	IAP6200AG-0 0.2 LFP	NA				

## 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 v01r03
- FCC KDB 662911 v01r02
- FCC KDB 412172 v01

SPORTON INTERNATIONAL INC. TEL : 886-3-3273456 FAX : 886-3-3270973



## **1.4 Testing Location Information**

	Testing Location									
⊠	HWA YA	ADD	ADD : No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.							
		TEL	EL : 886-3-327-3456 FAX : 886-3-327-0973							
Т	Test Condition Test Site No. Test Engineer Test Environment Test Date									
RF Conducted TH01-HY Ian Du 22.3°C / 62% Apr.			Apr. 22 ~ Apr . 29, 2013							
AC Conduction CO04-HY Bill Hsiao 21°C / 52% Apr. 25, 2013					Apr. 25, 2013					
Rad	Radiated Emission         03CH05-HY         Sam Chang         25°C / 65%         Apr. 18 ~ Apr. 23, 2013									
	Test site registered number [643075] with FCC Test site registered number [4086B-1] with IC									

## 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)

Ν	leasurement Uncertainty	/			
Test Item		Uncertainty	Limit		
AC power-line conducted emissions	AC power-line conducted emissions				
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	l	±0.8 °C	N/A		
Humidity	±3 %	N/A			
DC and low frequency voltages	±3 %	N/A			
Time		±1.42 %	N/A		
Duty Cycle		±1.42 %	N/A		



## 2 Test Configuration of EUT

## 2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing (5150-5250MHz)					
Modulation Mode	Transmit Chains (N <sub>TX</sub> )	Data Rate / MCS	Worst Data Rate / MCS		
11a	3	6-54Mbps	6 Mbps		
HT20	3	M0-23	MO		
HT40	3	M0-23	MO		
VHT20	3	M0-9	M0		
VHT40	3	M0-9	MO		
VHT80	3	M0-9	MO		
Note 1: Modulation modes consist of below configuration: 11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac Note 2: IEEE Std. 802.11n/ac modulation consists of HT20, HT40, VHT20, VHT40, VHT80 and VHT160. Then EUT support HT20, HT40, VHT20, VHT40 and VHT80.					

## 2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (5150-5250 MHz band)								
Operating Mode	1	1						
Test Software Version	AH-a	art2 V4_9_5	1_b					
				Test Free	quency (MH	z)		
Modulation Mode	N <sub>TX</sub>	NCB: 20MHz			NCB: 40MHz		NCB: 80MHz	
		5180	5200	5240	5190	5230	5210	
11a,6-54Mbps	3	13.5	13.5	13.5	-	-	-	
HT20,M0-23	3	13.5	13.5	13.5	-	-	-	
HT40,M0-23	3	-	-	-	14.5	14.5	-	
VHT20,M0-9	3	13.5	13.5	13.5	-	-	-	
VHT40,M0-9	3	-	-	-	14.5	14.5	-	
VHT80,M0-9	3	-	-	-	-	-	12.5	



The Worst Case Power Setting Parameter (5150-5250 MHz band)								
Operating Mode	2	2						
Test Software Version	AH-a	rt2 V4_9_5	51_b					
		Test Frequency (MHz)						
Modulation Mode	Ντχ		NCB: 20MI	Ηz	NCB:	40MHz	NCB: 80MHz	
		5180	5200	5240	5190	5230	5210	
11a,6-54Mbps	3	6.5	6.5	6.5	-	-	-	
HT20,M0-23	3	6.5	6.5	6.5	-	-	-	
HT40,M0-23	3	-	-	-	10.5	10.5	-	
VHT20,M0-9	3	6.5	6.5	6.5	-	-	-	
VHT40,M0-9	3	-	-	-	10.5	10.5	-	
VHT80,M0-9	3	-	-	-	-	-	6	

The Worst Case Power Setting Parameter (5150-5250 MHz band)								
Operating Mode	3	3						
Test Software Version	AH-a	art2 V4_9_5	1_b					
		Test Frequency (MHz)						
Modulation Mode	N <sub>TX</sub>	NCB: 20MHz			NCB: 40MHz		NCB: 80MHz	
		5180	5200	5240	5190	5230	5210	
11a,6-54Mbps	3	6.5	6.5	6.5	-	-	-	
HT20,M0-23	3	6.5	6.5	6.5	-	-	-	
HT40,M0-23	3	-	-	-	10.5	10.5	-	
VHT20,M0-9	3	6.5	6.5	6.5	-	-	-	
VHT40,M0-9	3	-	-	-	10.5	10.5	-	
VHT80,M0-9	3	-	-	-	-	-	7.5	



## 2.3 The Worst Case Measurement Configuration

ті	The Worst Case Mode for Following Conformance Tests					
Tests Item	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	DC Power & Radio link (WLAN), Ant 1					
2	DC Power & Radio link (WLAN), Ant 2					
3	DC Power & Radio link (WLAN), Ant 3					

The Worst Case Mode for Following Conformance Tests				
Tests Item	RF Output Power			
Test Condition	Conducted measurement at transmit chains			
Modulation Mode	11a, HT20, HT40, VHT20, VHT40, VHT80			
Operating Mode	Operating Mode Description			
1	DC Power & Radio link (WLAN), Ant 1			
2	DC Power & Radio link (WLAN), Ant 2			
3	DC Power & Radio link (WLAN), Ant 3			

The Worst Case Mode for Following Conformance Tests					
Tests Item Peak Power Spectral Density, Emission Bandwidth, Peak Excursion					
Conducted measurement at transmit chains					
11a, HT20, HT40, VHT80					
Operating Mode Description					
DC Power & Radio link (WLAN), Ant 1					
DC Power & Radio link (WLAN), Ant 2					
3 DC Power & Radio link (WLAN), Ant 3					
-					

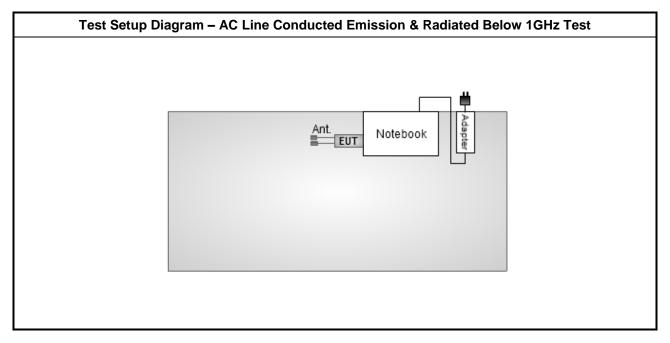
802.11n/ac modulation modes consist of HT20, HT40, VHT20, VHT40 and VHT80. After pretested, HT20, HT40, and VHT80 were the worst cases and were selected for final test.

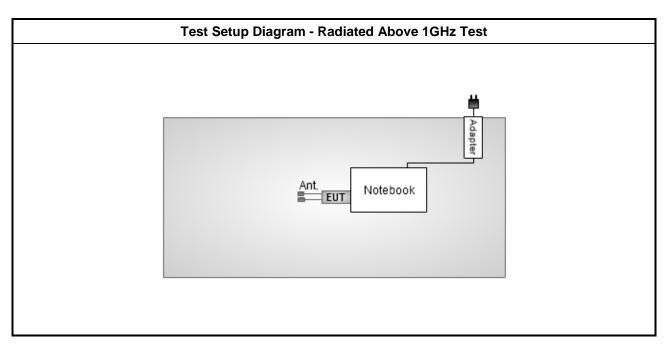


Th	e Worst Case Mode for Fo	bllowing Conformance Te	sts				
Tests Item	Transmitter Radiated Unwa Transmitter Radiated Banc						
Test Condition	regardless of spatial multi	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.					
EUT will be placed in fixed position.         User Position         EUT will be placed in mobile position and operating multiple positions shall be performed two orthogonal planes. The worst planes is X.							
	EUT will be operating multiple positions. The dipole antenna of EUT was pre-tested on the positioned of each 3 axis. The worst plane is Y.						
Operating Mode < 1GHz	🛛 1. DC Power & Radi	o link (WLAN), Ant 1					
	2. DC Power & Radi	o link (WLAN), Ant 2					
	3. DC Power & Radi	o link (WLAN), Ant 3					
Modulation Mode	11a, HT20, HT40, VHT80						
	X Plane	Y Plane	Z Plane				
Orthogonal Planes of EUT							
Note: 802.11n/ac modulation modes consist of HT20, HT40, VHT20, VHT40 and VHT80. After pretested, HT20, HT40, and VHT80 were the worst cases and were selected for final test.							



## 2.4 Test Setup Diagram







#### **Transmitter Test Result** 3

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

ecreases with the logarithm of the frequency

### 3.1.2 Measuring Instruments

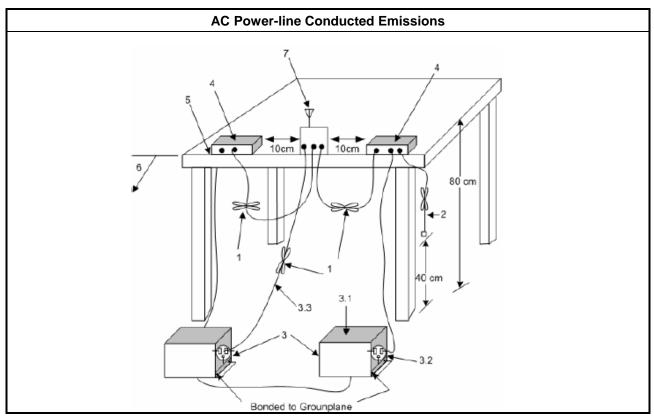
Refer a test equipment and calibration data table in this test report.

#### 3.1.3 **Test Procedures**

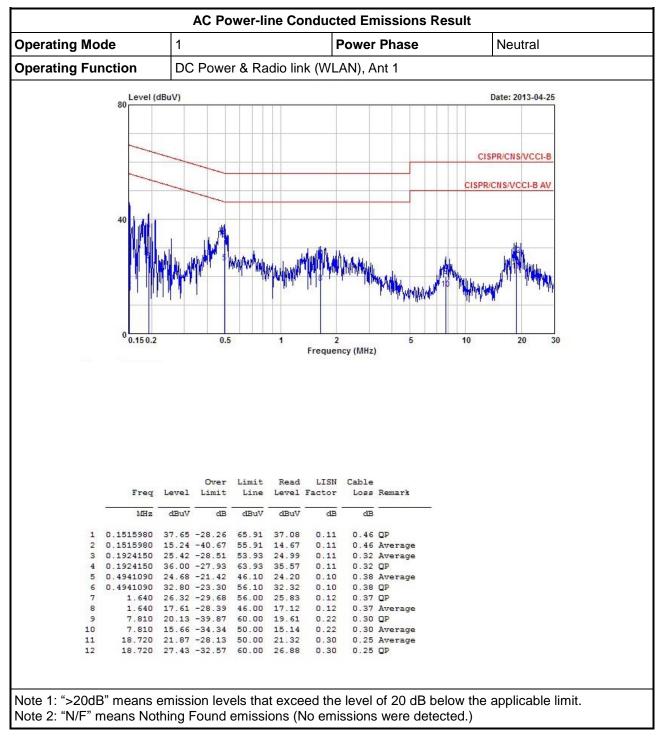
**Test Method** 

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

### 3.1.4 Test Setup



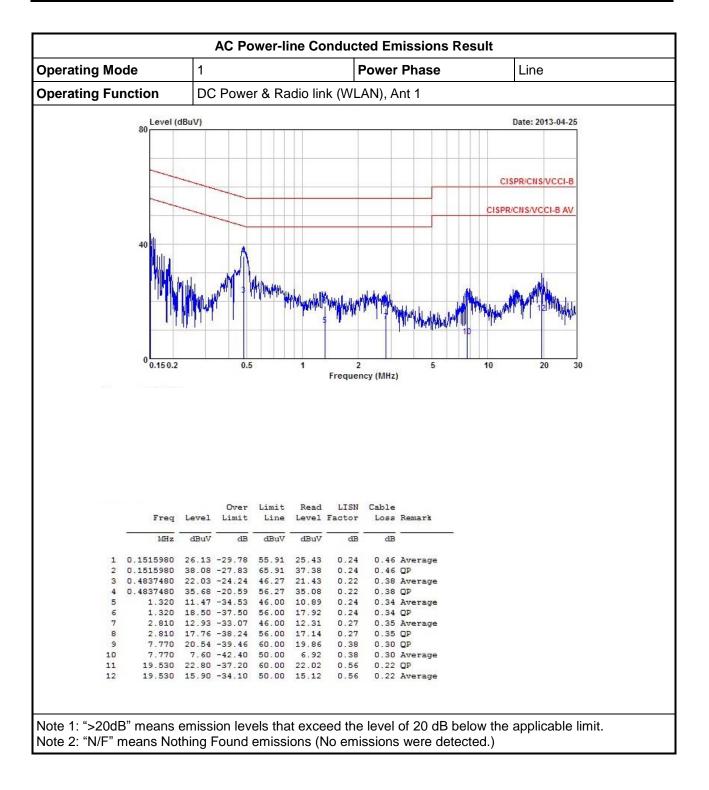




### 3.1.5 Test Result of AC Power-line Conducted Emissions

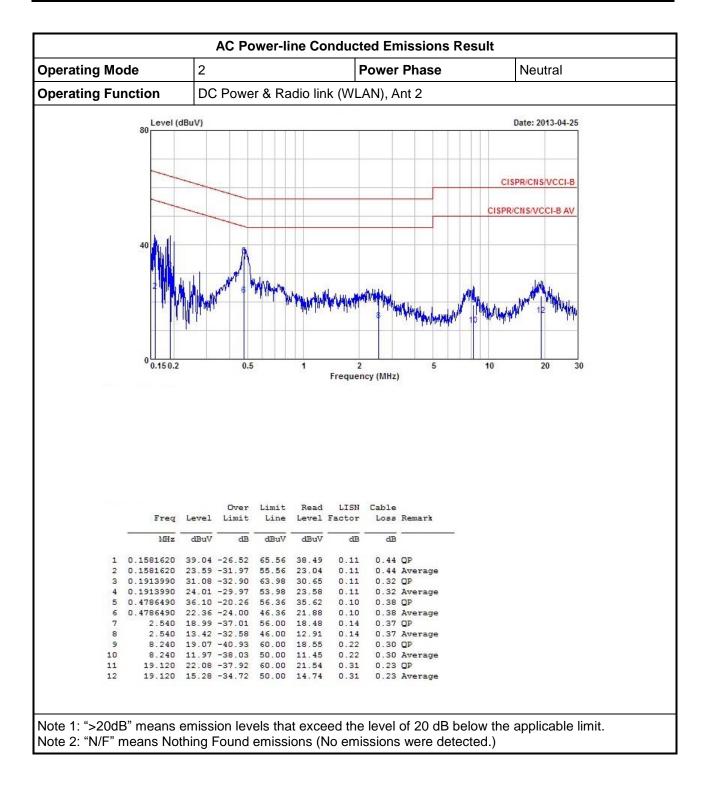






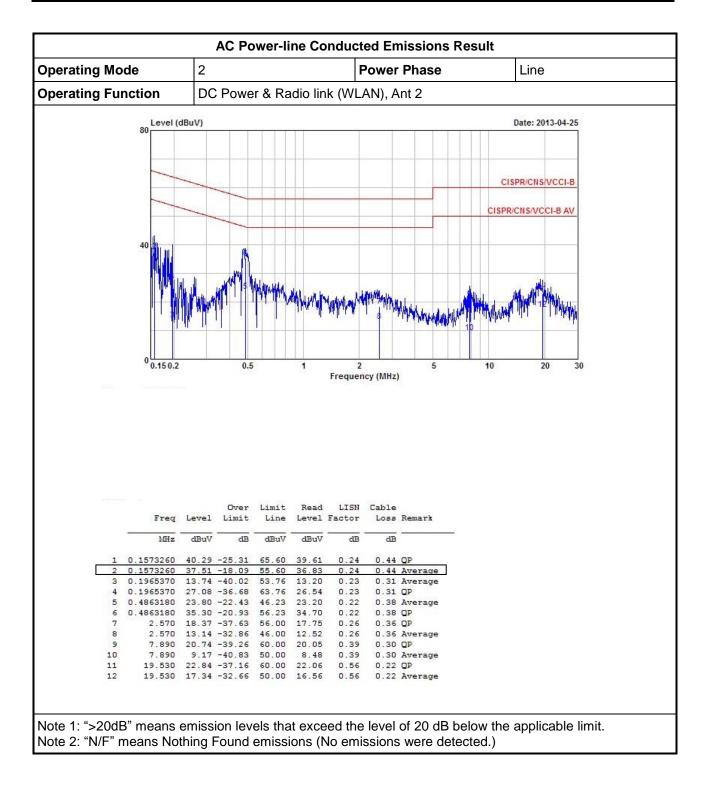






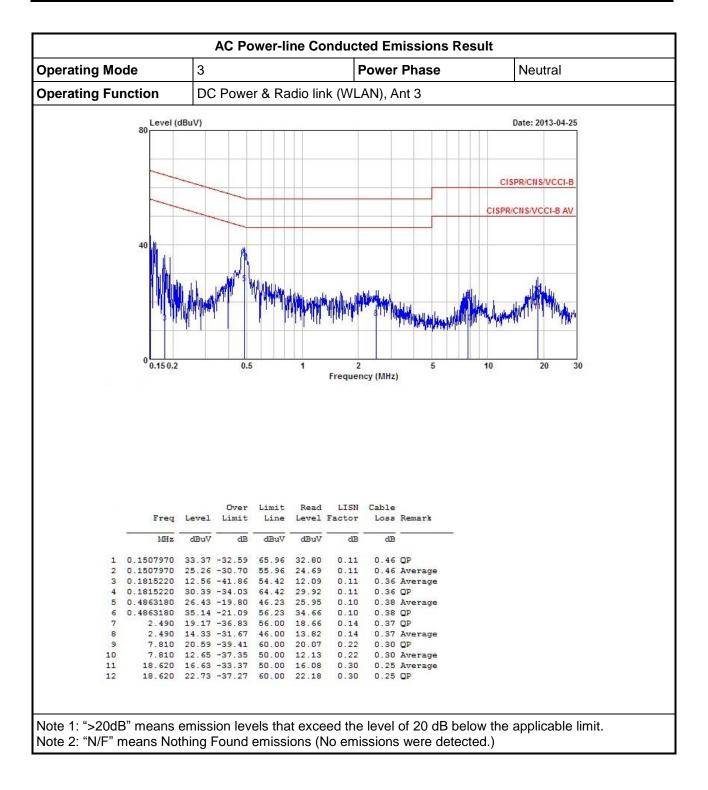






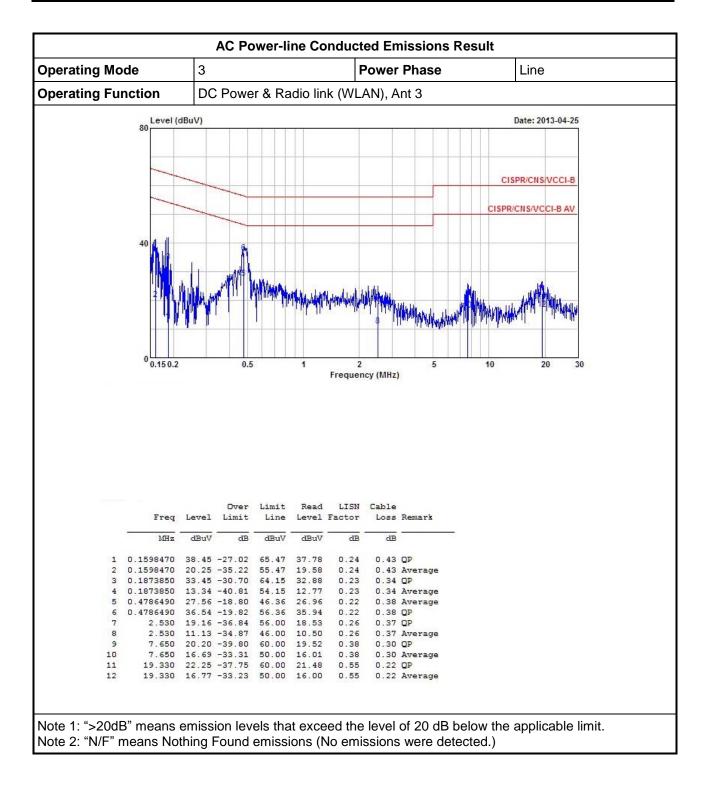














## 3.2 Emission Bandwidth

## 3.2.1 Emission Bandwidth (EBW) Limit

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

### 3.2.2 Measuring Instruments

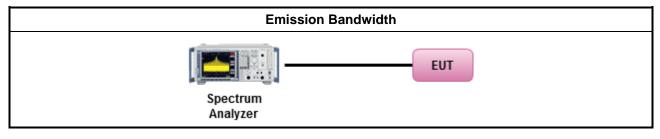
Refer a test equipment and calibration data table in this test report.

### 3.2.3 Test Procedures

		Test Method										
$\boxtimes$	For	the emission bandwidth shall be measured using one of the options below:										
	Refer as FCC KDB 789033 v01r03, clause C for EBW and clause D for OBW measurement.											
	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.											
	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.											
$\boxtimes$	For	conducted measurement.										
	The EUT supports single transmit chain and measurements performed on this transmit chain.											
		The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.										
	$\square$	The EUT supports multiple transmit chains using options given below:										
		Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1.										
		Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains.										



## 3.2.4 Test Setup





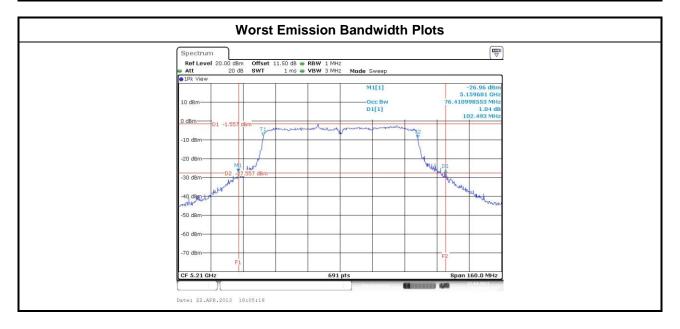
### 3.2.5 Test Result of Emission Bandwidth

Operating	g Mod	е	1	1										
		UNII Em	nission	ission Bandwidth Result (5150-5250MHz band)										
Condi	tion			Emission Bandwidth (MHz)										
Modulation		Freq.	9	9% Ba	ndwidt	h	2	6dB Ba	ndwidt	h	Power	r Limit		
Mode	Ντχ	(MHz)	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	99% BW	26dB BW		
11a	3	5180	17.13	17.02	17.02	-	25.22	24.46	24.70	-	16.31	17.00		
11a	3	5200	17.25	17.13	17.08	-	25.45	24.23	25.39	-	16.32	17.00		
11a	3	5240	17.13	17.25	17.08	-	25.10	24.64	24.70	-	16.32	17.00		
HT20	3	5180	18.23	18.12	18.18	-	25.86	25.86	25.91	-	16.58	17.00		
HT20	3	5200	18.29	18.18	18.18	-	26.14	26.09	25.74	-	16.60	17.00		
HT20	3	5240	18.12	18.12	18.06	-	24.64	25.39	25.86	-	16.57	17.00		
HT40	3	5190	37.28	37.40	37.28	-	49.86	48.58	48.70	-	17.00	17.00		
HT40	HT40 3 52		37.16	37.28	37.16	-	48.46	49.39	48.23	-	17.00	17.00		
VHT80	VHT80 3 5210					-	98.55	96.93	98.78	-	17.00	17.00		
Res	ult			Complied										



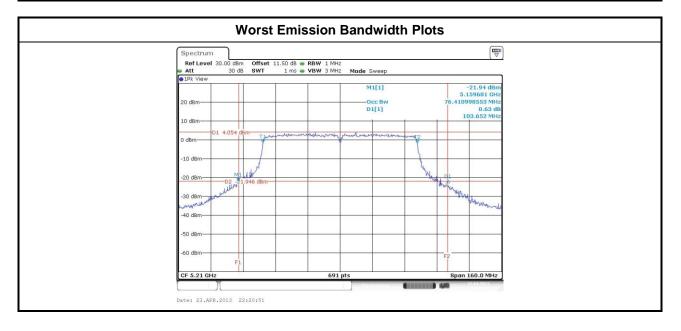


Operating	g Mod	е	2											
		UNII Em	nission	ission Bandwidth Result (5150-5250MHz band)										
Condi	tion			Emission Bandwidth (MHz)										
Modulation		Freq.	ç	99% Ba	ndwidtl	h	2	6dB Ba	ndwidt	h	Power	r Limit		
Mode	Ντχ	(MHz)	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	99% BW	26dB BW		
11a	3	5180	17.13	17.13	17.08	-	25.57	24.87	25.51	-	16.32	17.00		
11a	3	5200	17.19	17.08	17.02	-	26.09	24.87	24.81	-	16.31	17.00		
11a	3	5240	17.19	17.13	17.02	-	25.33	25.16	24.93	-	16.31	17.00		
HT20	3	5180	18.18	18.12	18.12	-	26.20	25.74	25.74	-	16.58	17.00		
HT20	3	5200	18.23	18.29	18.18	-	26.09	26.26	26.03	-	16.60	17.00		
HT20	3	5240	18.12	18.23	18.18	-	26.03	26.55	26.14	-	16.58	17.00		
HT40	3	5190	37.28	37.51	37.28	-	48.93	48.58	48.23	-	17.00	17.00		
HT40	3	5230	37.28	37.28	37.05	-	49.16	49.62	48.23	-	17.00	17.00		
VHT80	76.41	76.64	76.18	-	102.49	95.77	95.54	-	17.00	17.00				
Res	Result						Com	plied						





Operating	g Mod	е	3											
		UNII Em	ission Bandwidth Result (5150-5250MHz band)											
Condi	tion			Emission Bandwidth (MHz)										
Modulation		Freq.	ç	99% Ba	ndwidtl	h	2	6dB Ba	ndwidt	h	Power	r Limit		
Mode	Ντχ	(MHz)	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 4	99% BW	26dB BW		
11a	3	5180	17.13	17.13	17.08	-	25.57	24.87	25.51	-	16.32	17.00		
11a	3	5200	17.19	17.08	17.02	-	26.09	24.87	24.81	-	16.31	17.00		
11a	3	5240	17.19	17.13	17.02	-	25.33	25.16	24.93	-	16.31	17.00		
HT20	3	5180	18.18	18.12	18.12	-	26.20	25.74	25.74	-	16.58	17.00		
HT20	3	5200	18.23	18.29	18.18	-	26.09	26.26	26.03	-	16.60	17.00		
HT20	3	5240	18.12	18.23	18.18	-	26.03	26.55	26.14	-	16.58	17.00		
HT40	3	5190	37.28	37.51	37.28	-	48.93	48.58	48.23	-	17.00	17.00		
HT40	3	5230	37.28	37.28	37.05	-	49.16	49.62	48.23	-	17.00	17.00		
VHT80	76.41	75.95	76.41	-	103.65	98.55	100.17	-	17.00	17.00				
Res	ult						Com	plied						





## 3.3 **RF Output Power**

### 3.3.1 RF Output Power Limit

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

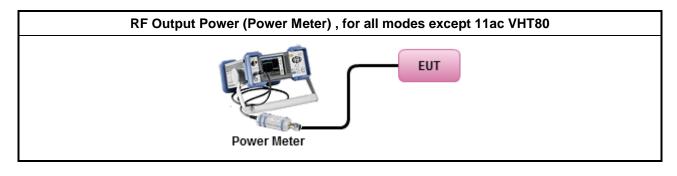


### 3.3.3 Test Procedures

		Test Method
$\square$	Max	imum Conducted Output Power
		Refer as FCC KDB 789033 v01r03, clause E Method SA-1 (spectral trace averaging).
		Refer as FCC KDB 789033 v01r03, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
		Refer as FCC KDB 789033 v01r03, clause E Method SA-2 (spectral trace averaging).
	$\boxtimes$	Refer as FCC KDB 789033 v01r03, clause E Method SA-2 Alt. (RMS detection with slow sweep speed) For 11ac VHT80 mode
	Wid	eband RF power meter and average over on/off periods with duty factor
	$\boxtimes$	Refer as FCC KDB 789033 v01r03, clause E Method PM-G (using a gated RF average power meter). For all modes except 11ac VHT80
$\boxtimes$	For	conducted measurement.
		The EUT supports single transmit chain and measurements performed on this transmit chain.
		The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
		The EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
		If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

### 3.3.4 Test Setup

RF Output Power (Spectrum Analyzer) , for 11ac VHT 80
EUT Spectrum
Analyzer





	•			
Dire	ectional Gain (D	G) Result		
	1	2	3	-
	3	3	3	-
DG (dBi)	N <sub>TX</sub>	N <sub>SS</sub>	STBC	Array Gain (dB)
3	3	1	-	-
3	3	1	-	-
3	3	1	-	-
3	3	1	-	-
3	3	1	-	-
3	3	1	-	-
correlated mpletely with une correlated mpletely Directiona of indepe	I, Directional Gai uncorrelated, Di qual antenna ga I, Directional Gai uncorrelated, Di I Gain (DG) = G ndent spatial str	in = $G_{ANT}$ + 10 lo rectional Gain = ins, directional g in =10 log[(10 <sup>G1/2</sup> rectional Gain = <sub>ANT</sub> + 10 log(N <sub>TX</sub> / eams data.	$g(N_{TX})$ $G_{ANT}$ ain is to be comp ${}^{10} + + 10^{GN/20})^2$ 10 log[(10 <sup>G1/10</sup> + N <sub>SS</sub> ),	
	DG (dBi) 3 3 3 3 3 3 3 3 with equ correlated mpletely with une correlated mpletely Directiona of indepe lirectiona	1         3         DG (dBi)       NTX         3       3	1233DG (dBi) $N_{TX}$ $N_{ss}$ 331331331331331331331331331331with equal antenna gains, directional gain correlated, Directional Gain = $G_{ANT}$ + 10 lompletely uncorrelated, Directional Gain =10 log[( $10^{G1/2}$ mpletely uncorrelated, Directional Gain =with unequal antenna gains, directional gain correlated, Directional Gain = 10 log[( $10^{G1/2}$ mpletely uncorrelated, Directional Gain =Directional Gain (DG) = $G_{ANT}$ + 10 log( $N_{Tx}/$ of independent spatial streams data.lirectional gain is calculated as power mean	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

## 3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) =  $G_{ANT}$  + Array Gain, where Array Gain is as follows: Array Gain = 0 dB (i.e., no array gain) for  $N_{TX} \le 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq$  40 MHz for any N<sub>TX</sub>;



Operating Mode		2			
	Dire	ectional Gain (D	G) Result		
Transmit Chains No.		1	2	3	-
Maximum G <sub>ANT</sub> (dBi)		5.5	5.5	5.5	-
Modulation Mode	DG (dBi)	Ν <sub>τχ</sub>	N <sub>SS</sub>	STBC	Array Gain (dB)
11a,6-54Mbps	5.5	3	1	-	-
HT20,M0-23	5.5	3	1	-	-
HT40,M0-23	5.5	3	1	-	-
VHT20,M0-9	5.5	3	1	-	-
VHT40,M0-9	5.5	3	1	-	-
VHT80,M0-9	5.5	3	1	-	-
Note 1: For all transmitter outputs Any transmit signals are con All transmit signals are con Note 2: For all transmitter outputs Any transmit signals are con All transmit signals are con Note 3: For Spatial Multiplexing, Di where Nss = the number o Note 4: For CDD transmissions, di Directional Gain (DG) = G/ Array Gain = 0 dB (i.e., no Array Gain = 0 dB (i.e., no	orrelated npletely with une orrelated npletely irectional f indepe rectional ANT + Arra array ga	I, Directional Gai uncorrelated, Di qual antenna gai I, Directional Gai uncorrelated, Din I Gain (DG) = G, ndent spatial stre I gain is calculate ay Gain, where A ain) for $N_{TX} \leq 4$ ;	n = $G_{ANT}$ + 10 lo rectional Gain = ins, directional g n =10 log[(10 <sup>G1/2</sup> rectional Gain = aNT + 10 log(N <sub>TX</sub> / eams data. ed as power mea array Gain is as f	$\begin{array}{l} g(N_{TX}) \\ G_{ANT} \\ ain is to be comp \\ ^{20} + + 10^{GN/20})^2 \\ 10 \log[(10^{G1/10} + \\ N_{SS}), \\ asurements: \\ follows: \end{array}$	outed as follows: /N-vl

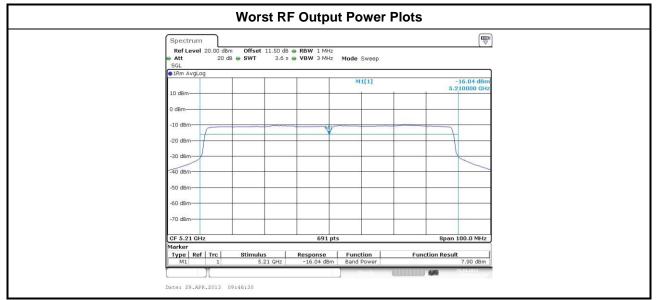


Operating Mode		3			
	Dire	ectional Gain (D	G) Result		
Transmit Chains No.		1	2	3	-
Maximum G <sub>ANT</sub> (dBi)		6	6	6	-
Modulation Mode	DG (dBi)	Ν <sub>τχ</sub>	N <sub>ss</sub>	STBC	Array Gain (dB)
11a,6-54Mbps	6	3	1	-	-
HT20,M0-23	6	3	1	-	-
HT40,M0-23	6	3	1	-	-
VHT20,M0-9	6	3	1	-	-
VHT40,M0-9	6	3	1	-	-
VHT80,M0-9	6	3	1	-	-
Note 1: For all transmitter outputs Any transmit signals are co All transmit signals are cor Note 2: For all transmitter outputs Any transmit signals are cor All transmit signals are cor Note 3: For Spatial Multiplexing, D where Nss = the number of Note 4: For CDD transmissions, di Directional Gain (DG) = G, Array Gain = 0 dB (i.e., no Array Gain = 0 dB (i.e., no	orrelated npletely with une orrelated npletely irectiona f indepe rectiona <sub>ANT</sub> + Arra array ga	I, Directional Gai uncorrelated, Di qual antenna gai I, Directional Gai uncorrelated, Din I Gain (DG) = G, ndent spatial stre I gain is calculate ay Gain, where A ain) for $N_{TX} \leq 4$ ;	n = $G_{ANT}$ + 10 log rectional Gain = ins, directional gain n =10 log[(10 <sup>G1/2</sup> rectional Gain = $T_{ANT}$ + 10 log(N <sub>TX</sub> /1 eams data. ed as power mea Array Gain is as f	$g(N_{TX})$ $G_{ANT}$ ain is to be comp $^{0} + + 10^{GN/20})^{2}$ $10 \log[(10^{G1/10} + N_{SS}),$ asurements: ollows:	



### 3.3.6 Test Result of Maximum Peak Conducted Output Power

Operatir	ng M	ode	1											
Maximum Peak Conducted Output Power Result														
Conc	dition	)	RF Output Power (dBm)											
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Chain Port 1 w/o Duty Factor (dB)	Chain Port 2 w/o Duty Factor (dB)	Chain Port 3 w/o Duty Factor (dB)	Duty Factor (dB)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT80 3 5210			7.89	7.90	7.43	0.44	8.33	8.35	7.87	12.96	17.00	3.00	15.96	23.00
Res		Complied												

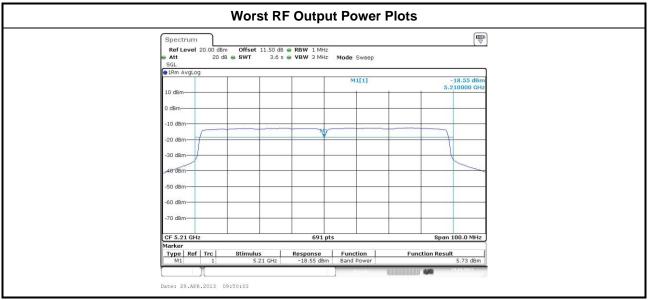


Note 1: RF Output Power Plots w/o Duty Factor





Operati	ng M	ode	2											
Maximum Peak Conducted Output Power Result														
Cond	ditior	1	RF Output Power (dBm)											
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Chain Port 1 w/o Duty Factor (dB)	Chain Port 2 w/o Duty Factor (dB)	Chain Port 3 w/o Duty Factor (dB)	Duty Factor (dB)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT80 3 5210			5.46	5.34	5.73	0.44	5.90	5.78	6.17	10.72	17.00	5.50	16.22	23.00
Re		Complied												

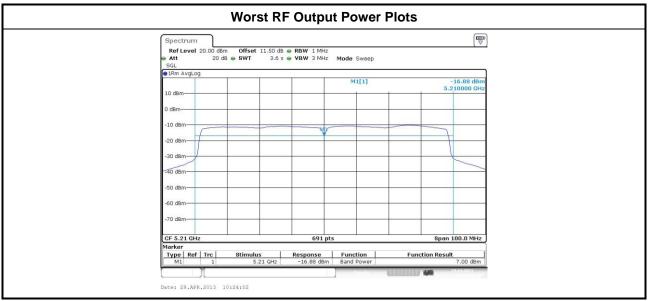


Note 1: RF Output Power Plots w/o Duty Factor





Operating Mode			3											
Maximum Peak Conducted Output Power Result														
Cone	ditior	1	RF Output Power (dBm)											
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Chain Port 1 w/o Duty Factor (dB)	Chain Port 2 w/o Duty Factor (dB)	Chain Port 3 w/o Duty Factor (dB)	Duty Factor (dB)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT80	3	5210	6.96	7.00	6.48	0.44	7.40	7.44	6.92	12.03	17.00	6.00	18.03	23.00
Result			Complied											



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



Operatin	1													
	Μ	aximum	Conducted Output Power (5150-5250MHz band)											
Cond	RF Output Power (dBm)													
Modulation Mode	Ντχ	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit			
11a	3	5180	10.31	10.26	9.68	-	14.86	17.0	3.00	17.86	23.00			
11a	3	5200	10.38	10.26	9.82	-	14.93	17.0	3.00	17.93	23.00			
11a	3	5240	10.16	10.08	9.66	-	14.74	17.0	3.00	17.74	23.00			
HT20	3	5180	10.26	10.33	9.72	-	14.88	17.0	3.00	17.88	23.00			
HT20	3	5200	10.31	10.26	9.76	-	14.89	17.0	3.00	17.89	23.00			
HT20	3	5240	10.29	10.23	9.78	-	14.88	17.0	3.00	17.88	23.00			
HT40	3	5190	12.01	11.89	11.61	-	16.61	17.0	3.00	19.61	23.00			
HT40	3	5230	12.11	11.91	11.63	-	16.66	17.0	3.00	19.66	23.00			
VHT20	3	5180	10.16	10.21	9.76	-	14.82	17.0	3.00	17.82	23.00			
VHT20	3	5200	10.19	10.26	9.81	-	14.86	17.0	3.00	17.86	23.00			
VHT20	3	5240	10.21	10.16	9.83	-	14.84	17.0	3.00	17.84	23.00			
VHT40	3	5190	12.04	11.89	11.72	-	16.66	17.0	3.00	19.66	23.00			
VHT40	3	5230	12.11	11.93	11.84	-	16.73	17.0	3.00	19.73	23.00			
Res	Result				Complied									

## 3.3.7 Test Result of Maximum Conducted Output Power



Operating	g Mode	9	2										
	Maximum Conducted Output Power (5150-5250MHz band)												
Condi	RF Output Power (dBm)												
Modulation Mode	Ντχ	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit		
11a	3	5180	6.70	6.90	7.01	-	11.64	17.0	5.50	17.14	23.00		
11a	3	5200	6.78	6.89	7.18	-	11.72	17.0	5.50	17.22	23.00		
11a	3	5240	6.83	6.88	7.24	-	11.76	17.0	5.50	17.26	23.00		
HT20	3	5180	6.66	6.92	7.01	-	11.64	17.0	5.50	17.14	23.00		
HT20	3	5200	6.82	6.89	7.03	-	11.69	17.0	5.50	17.19	23.00		
HT20	3	5240	6.72	6.66	7.23	-	11.65	17.0	5.50	17.15	23.00		
HT40	3	5190	10.61	10.71	10.82	-	15.49	17.0	5.50	20.99	23.00		
HT40	3	5230	10.64	10.36	10.96	-	15.43	17.0	5.50	20.93	23.00		
VHT20	3	5180	6.49	6.94	7.06	-	11.61	17.0	5.50	17.11	23.00		
VHT20	3	5200	6.78	6.72	7.06	-	11.63	17.0	5.50	17.13	23.00		
VHT20	3	5240	6.75	6.56	7.16	-	11.60	17.0	5.50	17.10	23.00		
VHT40	3	5190	10.41	10.94	10.76	-	15.48	17.0	5.50	20.98	23.00		
VHT40	3	5230	10.63	10.41	10.89	-	15.42	17.0	5.50	20.92	23.00		
Resu	Complied												



Operating Mode			3										
	М	aximum	Conducted Output Power (5150-5250MHz band)										
Condi	RF Output Power (dBm)												
Modulation Mode	Ντχ	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit		
11a	3	5180	6.70	6.90	7.01	-	11.64	17.0	6.00	17.64	23.00		
11a	3	5200	6.78	6.89	7.18	-	11.72	17.0	6.00	17.72	23.00		
11a	3	5240	6.83	6.88	7.24	-	11.76	17.0	6.00	17.76	23.00		
HT20	3	5180	6.66	6.92	7.01	-	11.64	17.0	6.00	17.64	23.00		
HT20	3	5200	6.82	6.89	7.23	-	11.75	17.0	6.00	17.75	23.00		
HT20	3	5240	6.72	6.66	7.03	-	11.58	17.0	6.00	17.58	23.00		
HT40	3	5190	10.61	10.71	10.96	-	15.53	17.0	6.00	21.53	23.00		
HT40	3	5230	10.64	10.36	10.82	-	15.38	17.0	6.00	21.38	23.00		
VHT20	3	5180	6.49	6.94	7.06	-	11.61	17.0	6.00	17.61	23.00		
VHT20	3	5200	6.78	6.72	7.06	-	11.63	17.0	6.00	17.63	23.00		
VHT20	3	5240	6.75	6.56	7.16	-	11.60	17.0	6.00	17.60	23.00		
VHT40	3	5190	10.41	10.94	10.76	-	15.48	17.0	6.00	21.48	23.00		
VHT40	3	5230	10.63	10.41	10.89	-	15.42	17.0	6.00	21.42	23.00		
Result			Complied										



# 3.4 Peak Power Spectral Density

### 3.4.1 Peak Power Spectral Density Limit

	Peak Power Spectral Density Limit							
UN	II Devices							
$\square$	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) $\leq$ 4 dBm/MHz. If G <sub>TX</sub> > 6 dBi, then PPSD = 4 - (G <sub>TX</sub> - 6).							
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If G <sub>TX</sub> > 6 dBi, then PPSD= 11 - (G <sub>TX</sub> - 6).							
	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If G <sub>TX</sub> > 6 dBi, then PPSD= 11 - (G <sub>TX</sub> - 6).							
	For the 5.725-5.825 GHz band:							
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) $\leq$ 17 dBm/MHz. If G <sub>TX</sub> > 6 dBi, then PPSD= 17 – (G <sub>TX</sub> – 6).							
	Point-to-point systems (P2P): the peak power spectral density (PPSD) $\leq$ 17 dBm/MHz. If G <sub>TX</sub> > 23 dBi, then PPSD = 17 - (G <sub>TX</sub> - 23).							
LE-	LAN Devices							
$\boxtimes$	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) $\leq$ 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 10 dBm/MHz.							
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 17 dBm/MHz.							
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 17 dBm/MHz.							
	For the 5.725-5.825 GHz band, the peak power spectral density (PPSD) $\leq$ 17 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 23 dBm/MHz.							
pov	<b>SD</b> = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi.							

### 3.4.2 Measuring Instruments

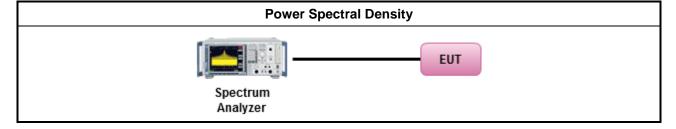
Refer a test equipment and calibration data table in this test report.



### 3.4.3 Test Procedures

		Test Method
	outp func	c power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density be measured using below options:
		Refer as FCC KDB 789033 v01r03, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
	$\boxtimes$	Refer as FCC KDB 789033 v01r03, clause E Method SA-1 (spectral trace averaging). For 11a / HT20
		Refer as FCC KDB 789033 v01r03, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
		Refer as FCC KDB 789033 v01r03, clause E Method SA-2 (spectral trace averaging).
		Refer as FCC KDB 789033 v01r03, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	<b>–</b>	For HT40 / 11ac VHT80 mode
$\square$	For	conducted measurement.
		The EUT supports single transmit chain and measurements performed on this transmit chain.
		The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
	$\square$	The EUT supports multiple transmit chains using options given below:
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
		Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
		If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$
	$\boxtimes$	Each individually PPSD plots refer as test report clause 3.3.5 with each individually PPSD plots.

## 3.4.4 Test Setup





Operating Mode		1							
Directional Gain (DG) Result									
Transmit Chains No	).	1	2	3	-				
Maximum G <sub>ANT</sub> (dBi	)	3	3	3	-				
Modulation Mode	DG (dBi)	Ν <sub>τχ</sub>	N <sub>ss</sub>	STBC	Array Gain (dB)				
11a,6-54Mbps	7.77	3	1	-	-				
HT20,M0-23	7.77	3	1	-	-				
HT40,M0-23	7.77	3	1	-	-				
VHT20,M0-9	7.77	3	1	-	-				
VHT40,M0-9	7.77	3	1	-	-				
VHT80,M0-9	7.77	3	1	-	-				
Note 1: For all transmitter outpu Any transmit signals are All transmit signals are Note 2: For all transmitter outpu Any transmit signals are	e correlated completely uts with une	l, Directional Ga uncorrelated, D qual antenna ga Directional Ga	in = $G_{ANT} + 10$ lo rectional Gain = ins, directional c in = 10 log[(10 <sup>G1)</sup>	g(N <sub>TX</sub> ) G <sub>ANT</sub> gain is to be comp <sup>20</sup> + + 10 <sup>GN/20</sup> ) <sup>2</sup>	outed as follows				

### 3.4.5 Directional Gain for Power Spectral Density Measurement

All transmit signals are completely uncorrelated, Directional Gain =  $10 \log[(10^{G1/10} + ... + 10^{GN/10}/N_{TX}]$ Note 3: For Spatial Multiplexing, Directional Gain (DG) =  $G_{ANT}$  +  $10 \log(N_{TX}/N_{SS})$ ,

where Nss = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power measurements:

Directional Gain (DG) =  $G_{ANT}$  + Array Gain, where Array Gain is as follows:

Array Gain = 0 dB (i.e., no array gain) for  $N_{TX} \le 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq$  40 MHz for any N<sub>TX</sub>;



Operating Mode		2					
	Dire	ectional Gain (D	G) Result				
Transmit Chains No.		1	2	3	-		
Maximum G <sub>ANT</sub> (dBi)		5.5	5.5	5.5	-		
Modulation Mode	N <sub>TX</sub>	N <sub>ss</sub>	STBC	Array Gain (dB)			
11a,6-54Mbps	10.27	3	1	-	-		
HT20,M0-23	10.27	3	1	-	-		
HT40,M0-23	10.27	3	1	-	-		
VHT20,M0-9	10.27	3	1	-	-		
VHT40,M0-9	10.27	3	1	-	-		
VHT80,M0-9	10.27	3	1	-	-		
VH180,M0-910.2731Note 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 <sub>TX</sub> ) All transmit signals are completely uncorrelated, Directional Gain = $G_{ANT}$ Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain =10 log[( $10^{G1/20} + + 10^{GN/20}$ )²/N <sub>TX</sub> ] 							

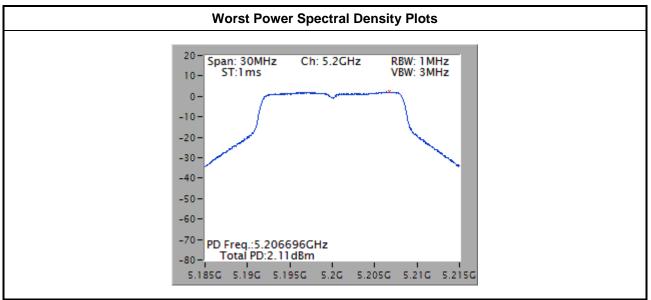


Operating Mode		3					
	Dire	ctional Gain (D	G) Result				
Transmit Chains No.		1	2	3	-		
Maximum G <sub>ANT</sub> (dBi)		6	6	6	-		
Modulation Mode	N <sub>TX</sub>	N <sub>ss</sub>	STBC	Array Gain (dB)			
11a,6-54Mbps	10.77	3	1	-	-		
HT20,M0-23	10.77	3	1	-	-		
HT40,M0-23	10.77	3	1	-	-		
VHT20,M0-9	10.77	3	1	-	-		
VHT40,M0-9	10.77	3	1	-	-		
VHT80,M0-9	10.77	3	1	-	-		
VH180,M0-910.7731-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 <sub>TX</sub> ) All transmit signals are completely uncorrelated, Directional Gain = $G_{ANT}$ Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain =10 log[( $10^{G1/20} + + 10^{GN/20}$ )²/N <sub>TX</sub> ] 							



Operatin	ng Mode	e	1								
	Peak Power Spectral Density Result (5150-5250MHz band)										
Cond	lition			Peak Power S	Spectral Densi	ty (dBm/MHz)					
Modulation Mode N <sub>TX</sub> Freq. (MHz)		Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit					
11a	3	5180	2.08	2.23	7.77	9.85	10.00				
11a	3	5200	2.11	2.23	7.77	9.88	10.00				
11a	3	5240	1.70	2.23	7.77	9.47	10.00				
HT20	3	5180	1.90	2.23	7.77	9.67	10.00				
HT20	3	5200	1.96	2.23	7.77	9.73	10.00				
HT20	3	5240	2.09	2.23	7.77	9.86	10.00				
HT40	3	5190	0.46	2.23	7.77	8.23	10.00				
HT40	3	5230	0.58	2.23	7.77	8.35	10.00				
VHT80	3	5210	-5.74	2.23	7.77	2.03	10.00				
Res	sult				Complied						

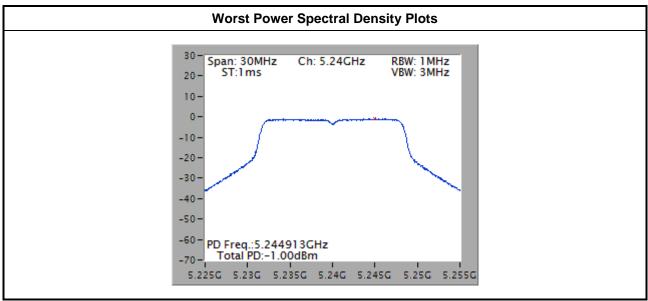
### 3.4.6 Test Result of Peak Power Spectral Density



Note 1: Peak Power Spectral Density w/o Duty Factor.



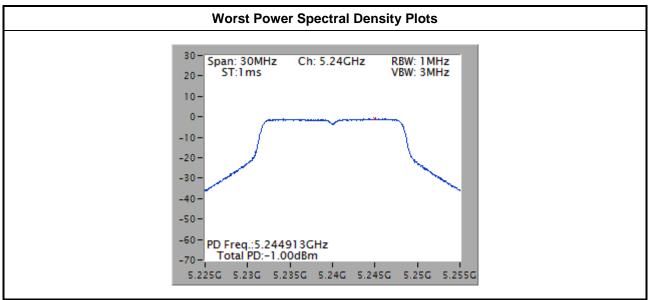
Operatin	g Mode	e	2								
	Peak Power Spectral Density Result (5150-5250MHz band)										
Cond	ition			Peak Power S	Spectral Densi	ty (dBm/MHz)					
Modulation Mode	N-w		Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit				
11a	3	5180	-1.00	-0.27	10.27	9.27	10.00				
11a	3	5200	-1.02	-0.27	10.27	9.25	10.00				
11a	3	5240	-1.00	-0.27	10.27	9.27	10.00				
HT20	3	5180	-1.43	-0.27	10.27	8.84	10.00				
HT20	3	5200	-1.11	-0.27	10.27	9.16	10.00				
HT20	3	5240	-1.46	-0.27	10.27	8.81	10.00				
HT40	3	5190	-1.03	-0.27	10.27	9.24	10.00				
HT40	3	5230	-1.31	-0.27	10.27	8.96	10.00				
VHT80	3	5210	-8.68	-0.27	10.27	1.59	10.00				
Res	ult				Complied						



Note 1: Peak Power Spectral Density w/o Duty Factor.



Operatin	g Mode	e	3				
	Pe	eak Powe	r Spectral Der	nsity Result (5	150-5250MHz	band)	
Cond	ition			Peak Power S	Spectral Densi	ty (dBm/MHz)	
Modulation Mode	NTY		Sum Chain	PSD Limit	DG (dBi)	EIRP PSD	EIRP Limit
11a	3	5180	-1.00	-0.77	10.77	9.77	10.00
11a	3	5200	-1.02	-0.77	10.77	9.75	10.00
11a	11a 3 5240 -1		-1.00	-0.77	10.77	9.77	10.00
HT20	3	5180	-1.43	-0.77	10.77	9.34	10.00
HT20	3	5200	-1.11	-0.77	10.77	9.66	10.00
HT20	3	5240	-1.46	-0.77	10.77	9.31	10.00
HT40	3	5190	-1.03	-0.77	10.77	9.74	10.00
HT40	3	5230	-1.31	-0.77	10.77	9.46	10.00
VHT80	3	5210	-7.79	-0.77	10.77	2.98	10.00
Res	ult				Complied		



Note 1: Peak Power Spectral Density w/o Duty Factor.



## 3.5 Peak Excursion

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### 3.5.1 Peak Excursion Limit

	Peak Excursion Limit							
UN	UNII Devices							
	Peak excursion $\leq$ 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							
$\bowtie$	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									
$\square$	Refer as FCC KDB 789033 v01r03, clause G peak excursion method.									
$\square$	Testing each modulation mode on a single channel is sufficient to demonstrate compliance with the peak excursion requirement									
$\boxtimes$	For	conducted measurement.								
	$\boxtimes$	Testing a single output port is sufficient to demonstrate compliance with the peak excursion.								
		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.								

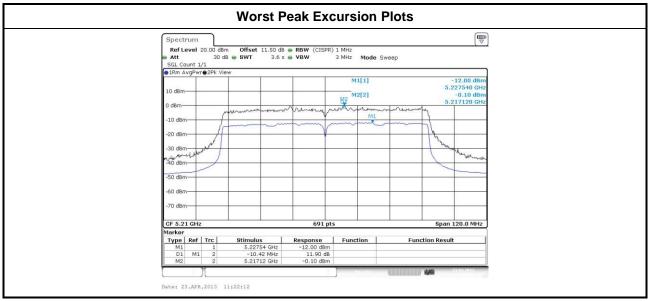
## 3.5.4 Test Setup

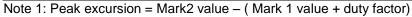
Peak Excursion						
EUT						
Spectrum Analyzer						



### 3.5.5 Test Result of Peak Excursion

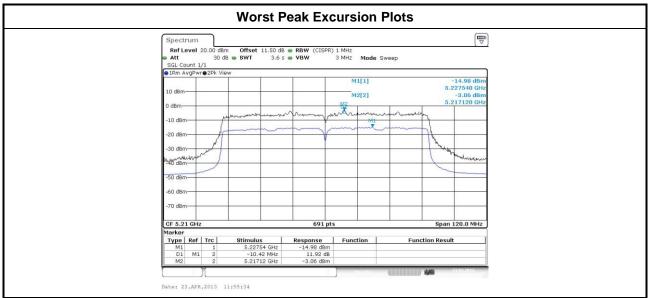
Operating	g Mod	е	1					
			UNII F	eak Excurs	ion Result			
Condi	tion				Peak Excu	irsion (dB)		
NI_N		Freq. (MHz)	BPSK	QPSK	16QAM	64QAM	256QAM	Limit
11a	3	5180	8.49	9.18	8.98	8.68	-	13.0
HT20	3	5180	8.32	9.17	9.79	9.00	-	13.0
HT40	3	5190	8.72	10.09	9.90	9.73	-	13.0
VHT20	3	5180	8.43	8.95	8.81	9.71	8.88	13.0
VHT40	3	5230	8.69	9.00	9.57	9.83	9.62	13.0
VHT80	3	5210	9.46	8.63	10.55	8.98	8.82	13.0
Res	Result				Com	plied		

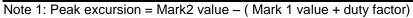






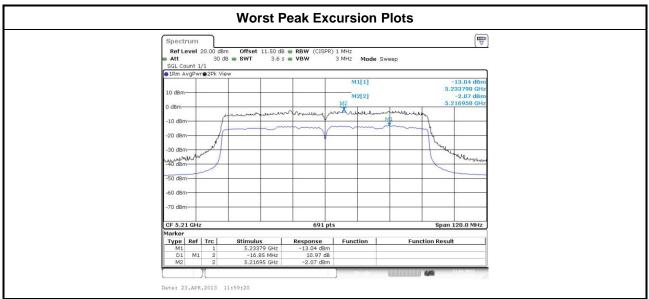
Operatin	g Mod	е	2					
			UNII P	eak Excurs	ion Result			
Cond	ition							
Modulation Mode	Ντχ	Freq. (MHz)	BPSK	QPSK	16QAM	64QAM	256QAM	Limit
11a	3	5180	8.11	9.20	8.81	8.79	-	13.0
HT20	3	5180	8.95	8.77	9.90	9.49	-	13.0
HT40	3	5190	8.93	9.00	9.42	9.14	-	13.0
VHT20	3	5180	8.04	8.53	8.67	9.12	9.08	13.0
VHT40	3	5230	8.61	9.70	9.38	9.07	9.40	13.0
VHT80	3	5210	9.75	9.83	10.57	9.15	9.04	13.0
Res	ult				Com	plied		

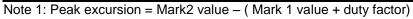






Operatin	g Mod	е	3					
			UNII P	eak Excurs	ion Result			
Cond	ition		Peak Excursion (dB)					
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	BPSK	QPSK	16QAM	64QAM	256QAM	Limit
11a	3	5180	8.11	9.20	8.81	8.79	-	13.0
HT20	3	5180	7.95	8.77	9.90	9.49	-	13.0
HT40	3	5190	8.93	9.00	9.42	9.14	-	13.0
VHT20	3	5180	8.04	8.53	8.67	9.12	9.08	13.0
VHT40	3	5230	8.61	9.70	9.38	9.07	9.40	13.0
VHT80	3	5210	8.99	9.37	9.62	8.90	8.81	13.0
Res	ult				Com	plied		

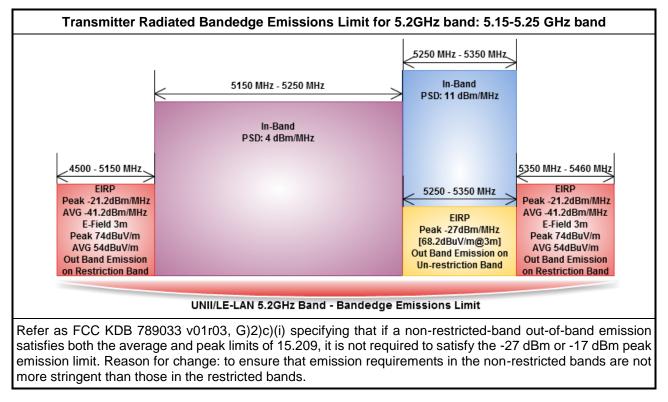






# 3.6 Transmitter Radiated Bandedge Emissions

### 3.6.1 Transmitter Radiated Bandedge Emissions Limit



### 3.6.2 Measuring Instruments

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



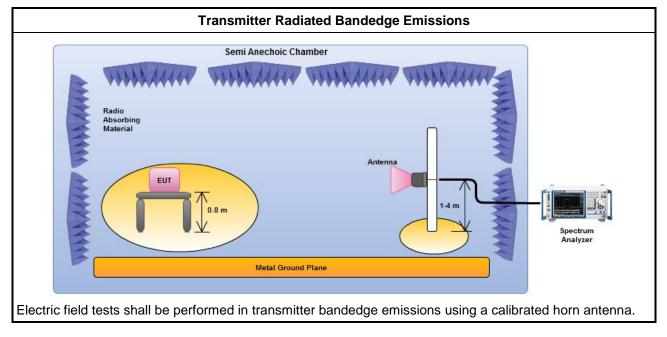
## 3.6.3 Test Procedures

	Test Method
	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-densit measurements). Measurements in the bandedge are typically made at a closer distance 3m, becaus the instrumentation noise floor is typically close to the radiated emission limit.
$\square$	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
	Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequence channel and highest frequency channel within the allowed operating band.
	If EUT operate in adjacent contiguous bands, bandedge testing performed at the lowest frequency channel at lower-band and highest frequency channel at higher-band. Transmitter in-band emission will consist of adjacent contiguous bands (e.g., IEEE 802.11ac VHT160 The lowest frequency channel at lower-band and highest frequency channel at higher-band in-band emissions will consist of two adjacent contiguous bands.)
	Operating in 5.15-5.25 GHz band (lower-band) and 5.25-5.35 GHz band (higher-band).
	Operating in 5.47-5.725 GHz band (lower-band) and 5.725-5.825 GHz band (higher-band).
	If EUT operate in individual non-contiguous bands, bandedge testing performed at the lowest frequenc channel and highest frequency channel within lower-band and higher-band. (e.g., (e.g., IEEE 802.11a VHT160)
	Operating in 5.25-5.35 GHz band (lower-band) and 5.47-5.725 GHz band (higher-band).
	Operating in 5.15-5.25 GHz band (lower-band) and 5.725-5.825 GHz band (higher-band).
$\square$	For the transmitter unwanted emissions shall be measured using following options below:
	Refer as FCC KDB 789033 v01r03, clause H)2) for unwanted emissions into non-restricted bands
	Refer as FCC KDB 789033 v01r03, clause H)1) for unwanted emissions into restricted bands.
	Refer as FCC KDB 789033 v01r03, H)6) Method AD (Trace Averaging).
	Refer as FCC KDB 789033 v01r03, H)6) Method VB (Reduced VBW).
	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
	Refer as FCC KDB 789033 v01r03, clause H)5) measurement procedure peak limit.
	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
$\boxtimes$	For the transmitter bandedge emissions shall be measured using following options below:
	Refer as FCC KDB 789033 v01r03, clause H)3)d) for narrower resolution bandwidth (100kHz using the band power and summing the spectral levels (i.e., 1 MHz).
	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
$\boxtimes$	For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions from above 1 GHz



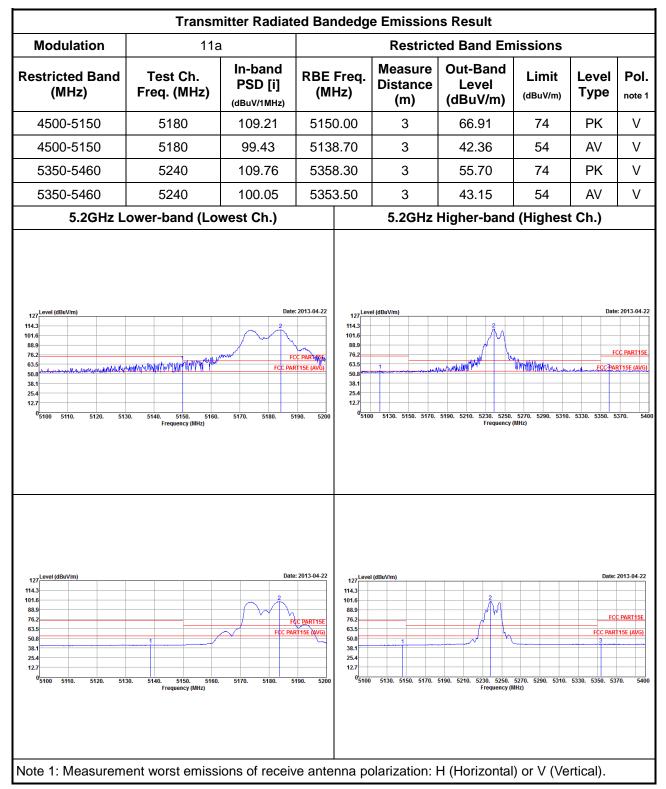
	Test Method
For	conducted and cabinet radiation measurement, refer as FCC KDB 789033 v01r03, clause H)3).
	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB

## 3.6.4 Test Setup





3.6.5	Test Result of Transmitter Radiated Bandedge Emissions	_Operating Mode 1
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Modulation	HT2	0	Restricted Band Emissions							
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (MI		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note	
4500-5150	5180	109.21	514	7.70	3	66.30	74	PK	V	
4500-5150	5180	99.04	514	9.10	3	42.51	54	AV	V	
5350-5460	5240	110.37	536	0.10	3	58.38	74	PK	V	
5350-5460	5240	99.90	539	8.20	3	43.20	54	AV	V	
5.2GHz L	ower-band (Lo	west Ch.)			5.2GHz	Higher-band	l (Hiahes	t Ch.)		
38.1 25.4 12.7	130. 5140. 5150. 5160 Frequency (MHz)		5190. 5200	50.8 38.1 25.4 12.7 0 510		5190. 5210. 5230. 5250. Frequency	5270. 5290. 5310	. 5330. 5350. 53	370. 5	
	r redneur à (un r						(MH2)			
127 144.3 101.6 88.9 76.2 63.5 50.8 88.1 25.4 12.7		2 P	2: 2013.04-22 CC.PART15E RT15E (AVG)	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4	sl (dBuV/m)	2		F	2: 2013-04 CC. PART1 R115E (AV	



Modulation	Transm HT4	0			Postrict	ed Band Em	iccione		
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i]	RBE (M		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5190	106.37	514	8.99	3	60.96	74	PK	V
4500-5150	5190	96.46	514	9.91	3	47.64	54	AV	V
5350-5460	5230	106.63	535	9.50	3	57.23	74	PK	V
5350-5460	5230	96.70	535	3.80	3	44.22	54	AV	V
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	(Highes	t Ch.)	
25.4 12.7 05100 5110. 5130.	5150.5170 Frequency (MHz)	. 5190.	5215	25.4 12.7 05100	5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		0. 5330. 5350.	5370.



	VHT2					ed Band Err	viscions		
Modulation Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (M		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit	Level Type	Pol
4500-5150	5180	108.15	514	9.60	3	65.64	74	PK	V
4500-5150	5180	97.99	514	9.30	3	43.25	54	AV	V
5350-5460	5240	108.93	535	7.40	3	58.26	74	PK	V
5350-5460	5240	98.45	535	8.60	3	43.79	54	AV	V
5.2GHz L	.ower-band (Lov	west Ch.)			5.2GHz	Higher-band	l (Hiahes	t Ch.)	
12.7 05100 5110. 5120. 513	30. 5140. 5150. 5160. Frequency (MHz)	5170. 5180. 5	5190. 5200	12.7 0 5100	) 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		5330. 5350. 53	370. 5
127 Level (dBuV/m) 114.3 101.6 88.9			te: 2013-04-22 CC PARTISE INTISE (AVG)	127 Leve 114.3 101.6 88.9 76.2 63.5 50.8 38.4	el (dBuV/m)			FI	2013-04- CC PART15 RT15E (AV



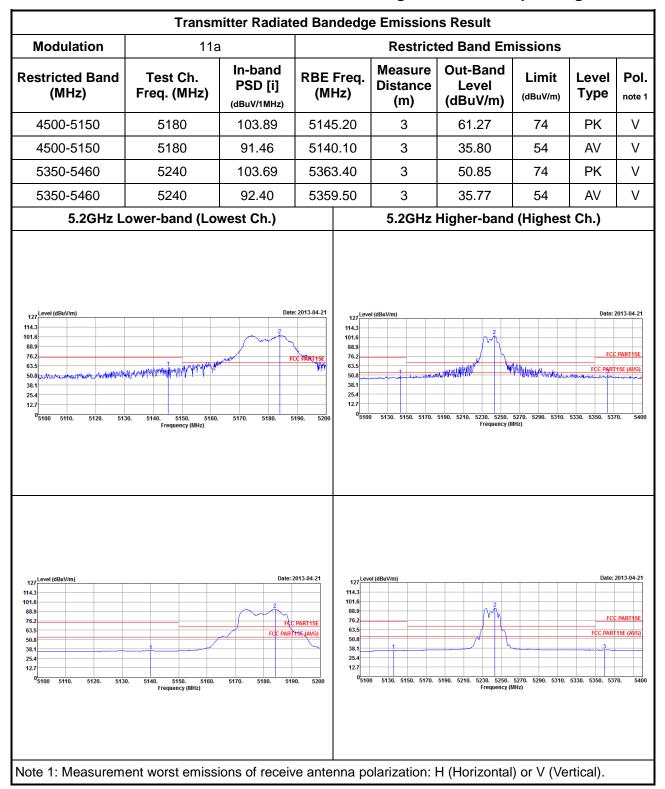
	Transm	nitter Radiat	ed Bar	ndedg	e Emission	is Result			
Modulation	VHT₄	40			Restrict	ed Band Em	nissions		
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (M	Freq. Hz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5190	106.11	514	9.22	3	59.27	74	PK	V
4500-5150	5190	95.17	514	8.30	3	43.27	54	AV	V
5350-5460	5230	105.77	536	4.30	3	55.20	74	PK	V
5350-5460	5230	96.26	536	1.60	3	42.14	54	AV	V
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	(Highes	t Ch.)	
63.5 50.8 25.4 12.7 65100 5110. 5130.	5150. 5170. Frequency (MHz)		8T15E (AVG) 5215	63.5 50.8 38.1 25.4 12.7 0 5100	D 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency			RT15E (AV
127 Level (dBuVim)		Date:	2013-04-22	127	i (dBuVim)			Date	2013-04-2
114.3		Date:	2013-04-22	114.3 101.6	I (dBuV/m)			Date:	2013-04-2
114.3		2 FCC	PART15E	114.3	I (dBuV/m)			FC	C PART15E
114.3 101.6 88.9 76.2		2 FCC		127 114.3 101.6 88.9 76.2 63.5 50.8 38.1	I (dBuV/m)			FC	
114.3 101.6 88.9 76.2 63.5 50.8		2 FCC	PART15E	127 114.3 101.6 88.9 76.2 63.5 50.8				FCC PAR	C PART15E
114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4	1 5150. 5170. Frequency (MHz)	2 FCC	PART15E	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4			5270. 5290. 5310. Hrj	FCC PAR	
114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7		FCC PARI	C PAR(15E (15E (AVG)	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7		5190. 5210. 5230. 5250.		FCC PAR	<u>2 PART15E</u> [15E (AVG)
114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7		FCC PARI	C PAR(15E (15E (AVG)	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7		5190. 5210. 5230. 5250.		FCC PAR	<u>2 PART15E</u> [15E (AVG)



	Transm	nitter Radiate	ed Banc	dedge	e Emission	s Result					
Modulation	VHT	30		<b>Restricted Band Emissions</b>							
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Fi (MH:		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note		
4500-5150	5210	101.68	5149.	.20	3	64.90	74	PK	V		
4500-5150	5210	90.39	5149.	.80	3	52.80	54	AV	V		
5350-5460	5210	101.68	5390.	.10	3	56.08	74	PK	V		
5350-5460	5210	90.39	5353.	.80	3	43.98	54	AV	V		
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	(Highes	t Ch.)			
127 Level (dBuV/m)											
		Dai	te: 2013-04-22	127Leve	el (dBuV/m)			Date	: 2013-04-:		



3.6.6 Test Result of Transmitter Radiated Bandedge Emissions_Operating Mode 2
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HT20 est Ch. q. (MHz) 5180 5240 5240 -band (Low	In-band PSD [i] (dBuV/1MHz) 104.74 92.45 105.10 93.12 vest Ch.)	RBE (MI 5114: 5135: 5355: 5355: 5355: 2013-04-21	Hz) 9.90 8.40 2.60 0.80	Measure Distance (m) 3 3 3 3 3 3 5.2GHz	ed Band Em Out-Band Level (dBuV/m) 62.41 36.12 51.12 35.81 Higher-band	Limit (dBuV/m) 74 54 74 54	Date	Pol. note 1 V V V V V
q. (MHz) 5180 5180 5240 5240 -band (Low	PSD [i] (dBuV/1MHz) 104.74 92.45 105.10 93.12 vest Ch.)	(MI 514) 535) 535) 535)	Hz) 9.90 8.40 2.60 0.80	Distance (m) 3 3 3 3 3 5.2GHz	Level (dBuV/m) 62.41 36.12 51.12 35.81 Higher-band	(dBuV/m) 74 54 74 54 4 (Highes	Type PK AV PK AV t Ch.)	note V V V V V v v v
5180 5240 5240 •band (Low	92.45 105.10 93.12 vest Ch.)	513 535 535	8.40 2.60 0.80 127 114.3 101.6 88.9 76.2 65.5 55.6 38.1	3 3 5.2GHz	36.12 51.12 35.81 Higher-band	54 74 54 4 (Highes	AV PK AV t Ch.)	× 2013-04-2
5240 5240 -band (Low	105.10 93.12 vest Ch.)	2013-04-21	2.60 0.80 127 114.3 101.6 8 76.2 65.5 55.6 38.1	3 3 5.2GHz	51.12 35.81 Higher-band	74 54 4 (Highes	PK AV t Ch.)	2 2013-04-2 2 2013-04-2
5240 -band (Low	93.12 vest Ch.) Date:	2013.04.21	127 114.3 101.6 88.9 76.2 65.5 50.8 38.1	3 5.2GHz	35.81 Higher-band	54 d (Highes	AV t Ch.)	2013-04-3
-band (Low	vest Ch.) Date:	2013-04-21	127 Leve 114.3 101.6 88.9 76.2 65.5 50.8 2 38.1	5.2GHz	Higher-band	1 (Highes	Date	: 2013-04-
16. 5150. 5160.	Date:	C PART15E	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1	al (dBuV/m)			Date	CC PART15
16. 5150. 5160.	Date:	C PART15E	127 114.3 101.6 88.9 76.2 63.5 50.8 38.1	al (dBuV/m)			Date	CC PART15
	5170. 5180. 51	90. 5200	12.7 05100	0 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		). 5330. 5350. 5	370. 54
5150. 5160. Frequency (MHz)	FCC PARTY	PART15E ISE (AVG)	114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7		5190. 5210. 5230. 5250. Frequency (	5270. 5290. 5310. (MHz)	FCC PART	2013-04-21
Fr	requency (MHz)	5150. 5160. 5170. 5180. 519 requency (IMHz)	FCC PARTISE FCC PARTISE	2 FCC PARTISE FCC PARTISE FC	2 FCC PARTISE FCC PARTISE FC	114.3           101.6           FCC PARTISE           FCC PARTISE	114.3           101.6           101.7           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.6           101.7           101.6           101.7           101.6           101.7           101.6           101.7           101.6           101.7           101.6           101.7 </td <td>Fice partise         Fice partise&lt;</td>	Fice partise         Fice partise<



Modulation	HT4	0			Restrict	ed Band Err	nissions		
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (Mł		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5190	105.57	5148	3.95	3	61.29	74	PK	V
4500-5150	5190	96.10	5149	9.61	3	49.67	54	AV	V
5350-5460	5230	105.70	5387	7.40	3	56.03	74	PK	V
5350-5460	5230	96.11	535	1.70	3	43.82	54	AV	V
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	l (Hiahes	t Ch.)	
50.8 38.1 25.4 12.7 0 5100 5110. 5130	I. 5150. 5 Frequency (Miz)	170. 5190.	<u>IRT15E (AVG)</u> 5210	50.8 38.1 25.4 12.7 0 510	0 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency	5270. 5290. 5310 (MHz)		370. 5
		Date: 2	013-04-21	127	si (dBuV/m)			Date	2013-04-2'



ModulationVH20Restricted BandTest Ch. (MH2)In-band (MH2)RBE Freq. (MH2)Measure (Measure) (m)Out-Band (Level (dBUV/m)Limit (eBUV/m)Level (m)4500-51505180104.215150.00362.7274PK4500-51505180104.215150.00349.3274PK5350-54605240103.955354.40349.3274PK5350-54605240103.955364.30333.3554AV52GHz Lover-band (Lowest Ch.)Out-Part	adiated Bandedge Emissions Result	ge Emissions Result	d Bandedg	hitter Radiate	Transm	
Kestricted Band         Freq. (MHz)         PSD [i] (dBuV/iMHz)         Kest Freq. (MHz)         Distance (m)         Level (dBuV/m)         Limit (dBuV/m)         Level Type           4500-5150         5180         104.21         5150.00         3         62.72         74         PK           4500-5150         5180         91.89         5127.70         3         33.16         54         AV           5350-5460         5240         103.95         5354.40         3         49.32         74         PK           5350-5460         5240         92.33         5364.30         3         33.35         54         AV           5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)         5.2GHz Higher-band (Highest Ch.)	<b>Restricted Band Emissions</b>	<b>Restricted Band</b>		In-band		Modulation
4500-5150         5180         91.89         5127.70         3         33.16         54         AV           5350-5460         5240         103.95         5354.40         3         49.32         74         PK           5350-5460         5240         92.33         5364.30         3         33.35         54         AV           5.2GHz Lower-band (Lowest Ch.)         5.2GHz difference         90.00         91.89	[i] RBE Freq. Distance Level Limit Leve (MHz) (m) (m) (dBuV/m) Type	Distance Level		PSD [i]		
5350-5460         5240         103.95         5354.40         3         49.32         74         PK           5350-5460         5240         92.33         5364.30         3         33.35         54         AV           S2GHz Lower-band (Lowest Ch.)         S2GHz Lower-band (Highest Ch.)           S2GHz Lower-band (Lowest Ch.)         S2GHz Higher-band (Highest Ch.)           S2GHz Lower-band (Lowest Ch.)         S2GHz Higher-band (Highest Ch.)           S2GHz Lower-band (Lowest Ch.)         S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher-band (Highest Ch.)           S2GHz Higher	.21 5150.00 3 62.72 74 PK	3 62.72	5150.00	104.21	5180	4500-5150
5350-5460         5240         92.33         5364.30         3         33.35         54         AV           5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)           1100000000000000000000000000000000000	89 5127.70 3 33.16 54 AV	3 33.16	5127.70	91.89	5180	4500-5150
5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)           114         5.2GHz Higher-band (Highest Ch.)           114	.95 5354.40 3 49.32 74 PK	3 49.32	5354.40	103.95	5240	5350-5460
	33 5364.30 3 33.35 54 AV	3 33.35	5364.30	92.33	5240	5350-5460
127 Level (dBs/Vm)	h.) 5.2GHz Higher-band (Highest Ch.)	5.2GHz Higher-ba		west Ch.)	ower-band (Lov	5.2GHz L
508       100       5100       <	FCC PARH45E 762		101.6 88.9 PART45E 76.2	FC		01.6 88.9 76.2
121 122 123 123 124 125 125 125 125 125 125 125 125						
127 <u>Level (IBBV/m)</u> 114 1150 110 110 110 110 110 110 11	2 114.3 2		114.3	2		14.3
0.00       10       10       10       11       <	88.9 FCC PART45E 76.2		88.9 76.2	FC		88.9
254 125 5100 5110 5120 5130 5140 5150 5170 5180 5190 5200 5170 5180 5190 5200 5170 5190 5210 5200 5210 5200 5310 5330 530 550 5100 5130 5150 5170 5190 5210 520 520 520 5310 5330 530 550 5100 5130 5150 5170 5190 5210 520 520 520 5310 5330 530 550 510 510 5130 5150 5170 5190 5210 520 520 520 5310 5330 530 550 510 510 5130 5150 5170 5190 5210 520 520 5310 5330 530 550 510 510 510 5130 5150 5170 5190 5210 520 520 520 5310 5330 530 550 510 510 510 510 510 510 510 510 51	50.8 50.8 50.8 50.8 50.8 50.8 50.8 50.8	- man man and man walk walk	50.8	FCC PAR		50.8
International and the second	25.4		25.4			25.4
114.3     114.3       101.6     2       88.9     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       50.8     76.2       5100     5100       5100     5120.       5100     5120.       5100     5120.       5100     5120.       5100     5120.       5100     5120.       5100     5120.       5100     5120.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100     5130.       5100    <			90. 5200 0510	5170. 5180. 51		0 <mark>5100 5110. 5120. 51</mark>
114.3     114.3       101.6     2       88.9     -       76.2     -       63.5     -       50.8     -       12.7     -       05100     5110.       5120     5130.       5140.     5160.       5100     5120.       5100     5120.       5100     5130.       5100     5140.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5100.       5100.     5100.       5100.     5100.						
114.3       2       6 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
114.3     114.3       101.6     2       88.9     -       76.2     -       63.5     -       50.8     -       12.7     -       05100     5110.       5120     5130.       5140.     5160.       5100     5120.       5100     5120.       5100     5130.       5100     5140.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5100.       5100.     5100.       5100.     5100.						
114.3     114.3       101.6     2       88.9     -       76.2     -       63.5     -       50.8     -       12.7     -       05100     5110.       5120     5130.       5140.     5160.       5100     5120.       5100     5120.       5100     5130.       5100     5140.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5150.       5100.     5100.       5100.     5100.       5100.     5100.						
114.3 101.6 88.9 76.2 50.8 38.1 12.7 0 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200						
114.3 101.6 88.9 76.2 50.8 38.1 1.2 9 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200						
114.3 101.6 88.9 76.2 63.5 50.8 38.1 1.27 0 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200	Date: 2013.04.22 Level (dBuV/m) D	evel (dRuV/m)	113.04.22 Leve	Date: 2		Loual (dBuV(m)
88.9         76.2         FCC PARTISE           63.5         FCC PARTISE         76.2           63.5         FCC PARTISE         76.2           76.2         FCC PARTISE         76.2           63.5         FCC PARTISE         76.2           76.2         FCC PARTISE         76.2           70.3         FCC PARTISE         76.2           70.4         FCC PARTISE         76.2           70.5         FCC PARTISE         76.2           70.5         FCC PARTISE         76.2           70.5         FCC PARTISE         76.2           70.5         FCC PARTISE         76.2 <td< td=""><td>114.3</td><td></td><td>114.3</td><td>Date. 2</td><td></td><td>4.3</td></td<>	114.3		114.3	Date. 2		4.3
0.2         FCC PARTISE           50.8         1           12.7         5100           05100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5100         5120.           5120.         5120.           5120.         5120.           5120.         5120.           5120.         5120.           5120.         5120.           5120.         5120.           5120.         520.           520.         520.           520.         520.           520.         520.           520.         520.           520.         520.           520.         520.           520.         520.           520.         520.           520. <td< td=""><td>88.9</td><td></td><td>88.9</td><td></td><td></td><td>8.9</td></td<>	88.9		88.9			8.9
38.1 25.4 12.7 05100 5110. 5120. 5130. 5140. 5150. 5160. 5170. 5180. 5190. 5200 05100 5110. 5120. 5130. 5140. 5150. 5160. 5170. 5180. 5190. 5200	FCC PARTISE 63.5 FCC 1		5E (AVG) 63.5			3.5
12.7 05100 5110. 5120. 5130. 5140. 5150. 5160. 5170. 5180. 5190. 5200 12.7 05100 5110. 5120. 5130. 5230. 5250. 5270. 5290. 5310. 5330. 5350.	38.1		38.1			8.1
	12.7		12.7			2.7
	180. 5190. 5200 <sup>0</sup> 5100 5130. 5150. 5170. 5190. 5210. 5230. 5250. 5270. 5290. 5310. 5330. 5350. Frequency (MHz)	100 5130. 5150. 5170. 5190. 5210. 5230. Frequ	. 5200 <sup>0</sup> 5100	5170. 5180. 519	). 5140. 5150. 5160. Frequency (MHz)	°5100 5110. 5120. 513
			1			



VHT4 Test Ch. Freq. (MHz) 5190	но In-band PSD [i] (dBuV/1MHz) 104.92	RBE (MI		Measure Distance (m)	ed Band Em Out-Band Level (dBuV/m)	Limit	Level Type	Pol.
	eq. (MHz) PSD [i] ( (dBuV/1MHz) (				( )			
= 1 0 0		5149	9.06	3	59.15	74	PK	V
5190	94.71	5149	9.94	3	43.08	54	AV	V
5230	104.75	5383	3.80	3	49.29	74	PK	V
5230	94.85	5374	4.80	3	36.93	54	AV	V
wer-band (Lo	west Ch.)			5.2GHz	Higher-band	(Highes	t Ch.)	
5150. 5 Frequency (MHz)	770. 5190.	5210	12.7	0 5130. 5150. 5170.			. 5330. 5350. 4	;370.
5150. 5	FCC PA	2 FCC PART15E	114.3 101.6 88.9 76.2 63.5 50.8 38.1 25.4 12.7				FCC PAR	2013-04-2 C PART15 T15E (AVG 3
	wer-band (Lov	Dete Stillon Frequency (MHz) Dete Frequency (MHz) Frequency (MHz) Freq	wer-band (Lowest Ch.)           Date: 2013-04-22	Date: 2013-04-22         127           Date: 2013-04-22         114.3           Date: 2013-04-22         114.3           Date: 2013-04-22         101.6           S150.         5170.           Frequency (MHz)         5190.           Date: 2013-04-22         127           Group         5150.           Frequency (MHz)         5190.           S150.         5170.           S150.         5170.           S150.         5170.           S150.         5170.           S150.         5170.           S150.         5170.           S190.         5210           127         6510           Group         6510	Date: 2013-04-22         127         Level (dBuV/m)           0 <t< td=""><td>wer-band (Lowest Ch.)         5.2GHz Higher-band           Date: 2013.04.22</td><td>Dete: 2013-04-20 0         Type (evel (dBuVm) 143 762 762 762           0         0</td><td>Wer-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422</td></t<>	wer-band (Lowest Ch.)         5.2GHz Higher-band           Date: 2013.04.22	Dete: 2013-04-20 0         Type (evel (dBuVm) 143 762 762 762           0         0	Wer-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422           Image: State 20130422         Image: State 20130422         Image: State 20130422         Image: State 20130422



Modulation									
In-band		30			Restrict	ed Band Em	nissions		
estricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE F (MH		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5210	98.07	5148.	.60	3	63.45	74	PK	V
4500-5150	5210	88.32	5149.	.80	3	52.76	54	AV	V
5350-5460	5210	98.07	5352.	.60	3	56.61	74	PK	V
			1					1	
5350-5460	5210	88.32	5373.	.60	3	43.86	54	AV	V
	5210 ower-band (Lo		5373.	5.60	-	43.86 Higher-band			V
5.2GHz L		west Ch.)	: 2013-04-21		5.2GHz			t Ch.)	
5.2GHz L		west Ch.)			el (dBuV/m)			Date	2013-04- CC PART1E RT15E (AV/



3.6.7 Te	est Result of Tra	Insmitter Radiated	d Bandedge Emis	ssions_Operating Mode 3
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	Transm	hitter Radiate	ed Bandedg					
Modulation	11a	1		Restrict	ed Band Em	nissions	T	1
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol.
4500-5150	5180	107.10	5147.70	3	65.45	74	PK	V
4500-5150	5180	96.29	5149.30	3	42.44	54	AV	V
5350-5460	5240	107.38	5361.00	3	56.18	74	PK	V
5350-5460	5240	96.25	5356.50	3	43.13	54	AV	V
5.2GHz L	ower-band (Lo	west Ch.)		5.2GHz	Higher-band	l (Highes	t Ch.)	
46.8 35.1 23.4 11.7 05100 5110. 5120. 51 117 105.3 93.6 81.9 70.2 58.5 46.8 10.5 10	30. 5140. 5150. 5160. Frequency (MHz)	FOC		al (dBuV/m)	5190. 5210. 5230. 5250 Frequency		Date:	5370. 52013-04-2 C PART 51 T15E (AVG
23.4 11.7 05100 5110. 5120. 51	30. 5140. 5150. 5160. Frequency (MHz)	5170. 5180. 51	23.4	0 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		5330. 5350. 53	370. 54



Modulation	Transm HT2	0				ed Band Em	icciono		
Modulation Restricted Band (MHz)	Test Ch. Freq. (MHz)	U In-band PSD [i] (dBuV/1MHz)	RBE (MI		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5180	106.84	5149	9.00	3	64.65	74	PK	V
4500-5150	5180	95.84	514	2.30	3	42.20	54	AV	V
5350-5460	5240	106.88	535	5.60	3	56.97	74	PK	V
5350-5460	5240	96.19	535	1.70	3	43.12	54	AV	V
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	(Highes	t Ch.)	
0 <mark>_5100_5110512051</mark>	30. 5140. 5150. 5160. Frequency (MHz)	5170. 5180. 51	90. 5200	11.7 0 <u>5100</u>	0 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		 . 5330. 5350. 5	370. 5



Modulation	HT40				Restrict	ed Band Err	nissions		
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (M		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5190	107.65	514	9.94	3	57.25	74	PK	V
4500-5150	5190	96.22	514	9.72	3	45.03	54	AV	V
5350-5460	5230	107.68	536	2.50	3	56.95	74	PK	V
5350-5460	5230	96.40	536	7.00	3	43.91	54	AV	V
5.2GHz L	ower-band (Lov	west Ch.)			5.2GHz	Higher-band	l (Highes	t Ch.)	
11.7 05100 5110. 5130.	5150. 517 Frequency (MHz)	70. 5190.	5210	11.7 0 <u>5100</u>	) 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (N		5330. 5350. 537	0. 540



Modulation	In-band Mer				Restrict	ed Band Err	nissions		
Restricted Band (MHz)	Test Ch. Freq. (MHz)		RBE (MI		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5180	105.77	5149	9.40	3	64.26	74	PK	V
4500-5150	5180	94.70	513 <sup>,</sup>	1.60	3	35.73	54	AV	V
5350-5460	5240	105.76	535	7.10	3	52.28	74	PK	V
5350-5460	5240	95.05	5360	0.10	3	36.19	54	AV	V
5.2GHz L	ower-band (Lo	west Ch.)			5.2GHz	Higher-band	(Hiahes	t Ch.)	
35.1 23.4 11.7 0 <u>5100 5110. 5120. 51</u>	30. 5140. 5150. 5160. Frequency (MHz)	5170. 5180. 57	190. 5200	35.1 23.4 11.7 0 510	0 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (1	5270. 5290. 5310. MHz)	5330. 5350. 537	70. 540



Modulation	VHT	40			Restrict	ed Band Err	nissions		
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE (MI		Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol note
4500-5150	5190	106.04	5149	9.94	3	60.99	74	PK	V
4500-5150	5190	94.79	5149	9.94	3	45.27	54	AV	V
5350-5460	5230	106.22	535	3.80	3	53.42	74	PK	V
5350-5460	5230	95.27	535	3.50	3	39.18	54	AV	V
5.2GHz L	ower-band (Lo	west Ch.)			5.2GHz	Higher-band	l (Hiahes	t Ch.)	1
35.1 23.4 11.7				35.1 23.4 11.7					
0 <mark>5100 5110. 5130.</mark>	5150. 5 Frequency (MHz)	770. 5190.	5210	0 <u></u>	) 5130. 5150. 5170.	5190. 5210. 5230. 5250. Frequency (		. 5330. 5350. 53	370. 5
05100 5110. 5130. 117 105.3 93.6 81.9 70.2 58.5 46.8 35.1 23.4 11.7	5150. 5 Frequency (MHz)	Da	5210 5210 te: 2013-04-22 ECC PART15E ART15E (AVG)		el (dBuV/m)			Date	370. 5 2013-04- 2013-



(MHz)         Freq. (MHz)         PSD [i] (dBuV/1MHz)         (MHz)         Distance (MHz)         Level (dBuV/m)         Type         note           4500-5150         5210         97.93         5149.80         3         63.05         74         PK         V           4500-5150         5210         88.04         5149.80         3         53.00         54         AV         V           5350-5460         5210         97.93         5382.30         3         57.48         74         PK         V		0		1					
Restricted Band (MHz)         Test Ch. Freq. (MHz)         PSD [i] (dBuV/1MHz)         RBE Freq. (MHz)         Distance (m)         Level (dBuV/m)         Limit (dBuV/m)         Level Type         Limit (dBuV/m)         Level Type         Po note           4500-5150         5210         97.93         5149.80         3         63.05         74         PK         V           4500-5150         5210         88.04         5149.80         3         53.00         54         AV         V           5350-5460         5210         97.93         5382.30         3         57.48         74         PK         V           5350-5460         5210         88.04         5378.70         3         45.55         54         AV         V           5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)         0	Modulation	VHT	30		Restric	ted Band Err	nissions		
4500-5150       5210       88.04       5149.80       3       53.00       54       AV       V         5350-5460       5210       97.93       5382.30       3       57.48       74       PK       V         5350-5460       5210       88.04       5378.70       3       45.55       54       AV       V         5.2GHz Lower-band (Lowest Ch.)       Intervision of the stand of the st			PSD [i]		Distance	Level			Pol note
5350-5460         5210         97.93         5382.30         3         57.48         74         PK         V           5350-5460         5210         88.04         5378.70         3         45.55         54         AV         V           5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)         5.2GHz Higher-band (Highest Ch.)	4500-5150	5210	97.93	5149.8	0 3	63.05	74	PK	V
5350-5460         5210         88.04         5378.70         3         45.55         54         AV         V           5.2GHz Lower-band (Lowest Ch.)         5.2GHz Higher-band (Highest Ch.)           117_terel (dBuV/m)         Date: 2013.04.23         117_terel (dBuV/m)         Date: 2013.04.23         117_terel (dBuV/m)         Date: 2013.04.23           105.3         24         4	4500-5150	5210	88.04	5149.8	0 3	53.00	54	AV	V
S.2GHz Lower-band (Lowest Ch.)     S.2GHz Higher-band (Highest Ch.)       117	5350-5460	5210	97.93	5382.3	0 3	57.48	74	PK	V
117     Level (dBuV/m)     Date: 2013-04-23       117     117     Level (dBuV/m)     Date: 2013-04-23       105.3     2	5350-5460	5210	88.04	5378.7	0 3	45.55	54	AV	V
117     Level (dBuV/m)     Date: 2013-04-23       117     117     Level (dBuV/m)     Date: 2013-04-23       105.3     2									
06.3 33.6 19.9 70.2 58.5 51.1 23.4 105.3 91.6 105.3 92.6 81.9 70.2 58.5 50.6 92.6 93.6	5.2GHz L	ower-band (Lo	west Ch.)		5.2GHz	Higher-band	l (Highes	t Ch.)	
		ower-band (Lo		2013-04-23	Laural (dBrid (im)	Higher-band	l (Highes		2013-04-23
0 5100 5130, 5150, 5170, 5190, 5210, 5230, 5250, 5270, 5290, 5310, 5330, 5350, 5370, 5400 0 5130, 5150, 5170, 5190, 5210, 5230, 5250, 5270, 5290, 5310, 5330, 5350, 5370, 5400	117 Level (dBuV/m) 05.3 9.6 9.9 70.2 58.5 4.9 70.2 58.5 1 1 1 1 1 1 1 1 1 1 1 1 1	2 mm	Date:	2 PART15E 77 115E2(44/G): 44 3	117 Level (dBuV/m) 15.3 1.9 0.2 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9	Higher-band	I (Highes)	Date:	C PART15E



## 3.7 Transmitter Radiated Unwanted Emissions

### 3.7.1 Transmitter Radiated Unwanted Emissions Limit

sions below 1 GHz and re	estricted band emissions a	bove 1GHz limit
Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
2400/F(kHz)	48.5 - 13.8	300
24000/F(kHz)	33.8 - 23	30
30	29	30
100	40	3
150	43.5	3
200	46	3
500	54	3
	Field Strength (uV/m)           2400/F(kHz)           24000/F(kHz)           30           100           150           200	2400/F(kHz)         48.5 - 13.8           24000/F(kHz)         33.8 - 23           30         29           100         40           150         43.5           200         46

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.p27 dBm [68.2 dBuV/m@3m]	
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
5.725 - 5.825 GHz	5.715 5.725 GHz: e.i.r.p17 dBm [78.2 dBuV/m@3m] 5.825 5.835 GHz: e.i.r.p17 dBm [78.2 dBuV/m@3m] Other un-restricted band: e.i.r.p27 dBm [68.2 dBuV/m@3m]	

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

### 3.7.2 Measuring Instruments

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



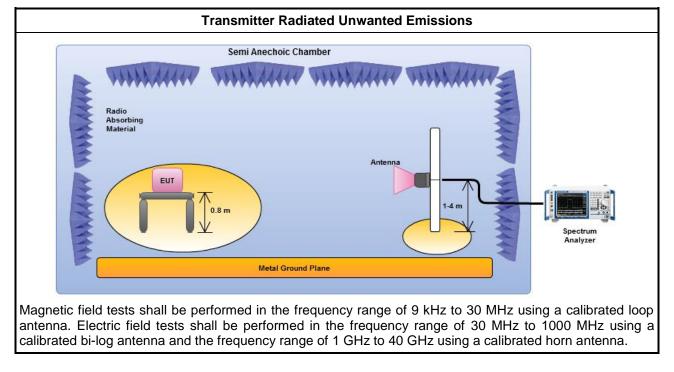
## 3.7.3 Test Procedures

	Test Method		
	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).		
		Measurements in the frequency range 5 GHz - 10GHz are typically made at a closer distance 3m, because the instrumentation noise floor is typically close to the radiated emission limit.	
		Measurements in the frequency range 10 GHz - 18GHz are typically made at a closer distance 1m, because the instrumentation noise floor is typically close to the radiated emission limit.	
		Measurements in the frequency range above 18 GHz - 40GHz are typically made at a closer distance 0.5m, because the instrumentation noise floor is typically close to the radiated emission limit.	
$\boxtimes$	The	average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
$\boxtimes$	For the transmitter unwanted emissions shall be measured using following options below:		
	$\square$	Refer as FCC KDB 789033 v01r03, clause H)2) for unwanted emissions into non-restricted bands.	
	$\square$	Refer as FCC KDB 789033 v01r03, clause H)1) for unwanted emissions into restricted bands.	
		Refer as FCC KDB 789033 v01r03, H)6) Method AD (Trace Averaging).	
		Refer as FCC KDB 789033 v01r03, H)6) Method VB (Reduced VBW).	
		Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.	
		Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.	
		Refer as FCC KDB 789033 v01r03, clause H)5) measurement procedure peak limit.	
		Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.	
$\boxtimes$	For	radiated measurement.	
	$\square$	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.	
	$\square$	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.	
	$\boxtimes$	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.	

Test Method		
	For conducted and cabinet radiation measurement, refer as FCC KDB 789033 v01r03, clause H)3).	
	<ul> <li>For conducted unwanted emissions into non-restricted bands (relative emission limits).</li> <li>Devices with multiple transmit chains:</li> <li>Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.</li> </ul>	
	<ul> <li>For conducted unwanted emissions into restricted bands (absolute emission limits).</li> <li>Devices with multiple transmit chains using options given below:</li> <li>(1) Measure and sum the spectra across the outputs or</li> <li>(2) Measure and add 10 log(N) dB</li> </ul>	



### 3.7.4 Test Setup

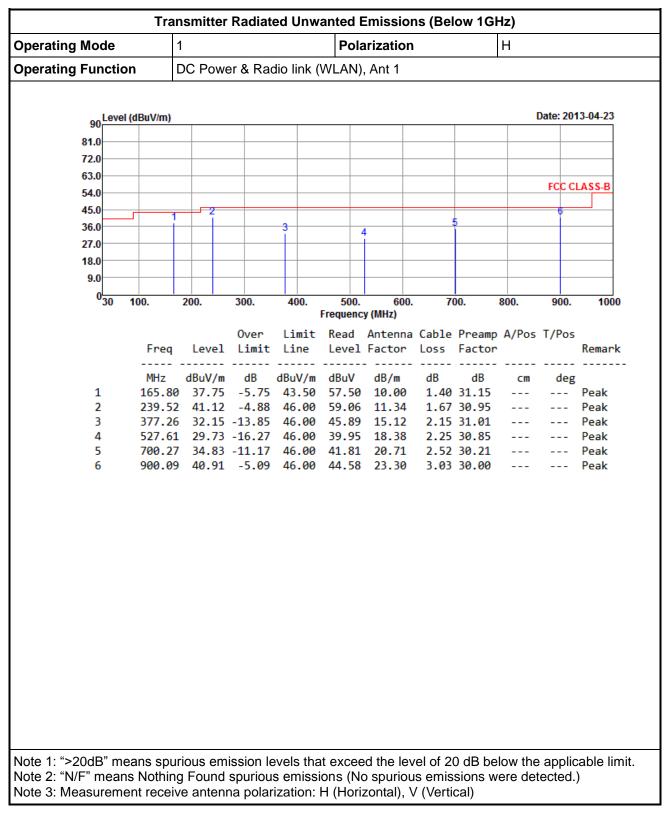


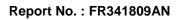
### 3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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



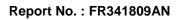
3.7.6	Transmitter Radiated Unwanted Emissions (Below 1GHz)	
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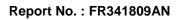


Operating Mode	1				Pola	arization			V		
Operating Function	on [	DC Powe	er & Ra	dio link (	WLAN)	, Ant 1					
Leve	l (dBuV/m)								1	Date: 201	3-04-23
90											
81.0											
72.0									_		
63.0										TCC CI	ACCD
54.0										FUULI	ASS-B
45.0										6	
36.0	1	2		3				5		Ť	
27.0				°	-1-						
18.0											
9.0											
0 <sup>L</sup> 30	100.	200.	300.	400.	500. Frequenc	600. y (MHz)	70	00.	800.	900.	1000
	Freq	Loval	Over	Limit Line		Antenna Factor				T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m		dB/m	dB	dB	cm	deg	<b>_</b> .
1				43.50				31.07			
2		28.79		46.00	49.79			30.95 31.01			Peak Peak
4		28.43			38.52			30.59			Peak
5		31.69			38.67			30.21			Peak
6						23.30		30.00			Peak
lote 1: ">20dB" m	eans sour	ious em	ission la	evels the	texcer	d the lev	el of 20	) dR ho	low the	annlic	able lim
					ons (No						



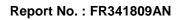


Operating Mode		2			Pola	arization			Н		
Operating Functio	n	DC Pow	er & Ra	dio link (	WLAN)	, Ant 2					
1										Data: 204	2 04 22
90	(dBuV/m)								<b>I</b>	Date: 201	3-04-23
81.0											
72.0											
63.0											
54.0										FCC CL	ASS-B
45.0								-		6	
36.0	-	12		4			:				
27.0											
18.0											
9.0											
0 <mark></mark> 30	100.	200.	300.	400.	500. Frequenc	600. y (MHz)	70	00.	800.	900.	1000
			0ver	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	
	Freq	Level	Limit	Line	Level	Factor	Loss	Factor			Remark
1	MHz	dBuV/m 7 36.25		dBuV/m		dB/m	dB	dB	CM	deg	Deals
1 2	166.7 188.1			43.50 43.50		9.89 8.74		31.14 31.08			Peak Peak
3		2 40.81		46.00				30.95			Peak
4		2 31.60						31.01			Peak
5		7 37.92						30.21			Peak
6	912.7	0 41.93	-4.07	46.00	45.73	23.68	2.55	30.03			Peak
Note 1: ">20dB" me Note 2: "N/F" mean Note 3: Measureme											



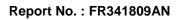


Operating Mode	2	2			Pola	arization	l		V		
Operating Function	on [	DC Powe	er & Rad	dio link (	WLAN)	, Ant 2					
Leve	l (dBuV/m)								1	Date: 201	3-04-23
81.0		_									
72.0											
63.0										500.01	
54.0										FCC CI	A22-R
45.0										6	
36.0	-	3						ē			
27.0	2			4							
18.0											
9.0											
0 <mark>30</mark>	100.	200.	300.	400.	500. Frequenc	600. y (MHz)	7(	)0.	800.	900.	1000
			0ver	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	
	Freq	Level	Limit	Line	Level	Factor	Loss				Remark
	MHz	dBuV/m	dB	dBuV/m		dB/m	dB	dB	cm	deg	
1	48.43	26.34	-13.66	40.00	48.36	8.68	0.74	31.44			Peak
2	173.56	28.11	-15.39	43.50	48.57	9.22	1.37	31.05			Peak
3		32.59			50.53			30.95			Peak
4		28.47			40.55	16.73		31.01			Peak
5		33.45			40.43			30.21			Peak
6	896.21	38.04	-7.96	46.00	41.85	23.22	2.95	29.98			Peak
lote 1: ">20dB" m											
lote 2: "N/F" mear	o Nothing	Equad	couriou	e omieci	one (Ni	o onuriou	ic omic	cione w	oro dat	octod	1





Operating Mode		3			Pola	arization	ì		Н		
Operating Function	on	DC Powe	er & Rad	dio link (	(WLAN)	, Ant 3					
Leve	l (dBuV/m)								1	Date: 201	3-04-23
81.0											
72.0											
63.0										FCC CI	ASS-B
54.0											
45.0	1:	2		-						6	
36.0				3		4					
27.0											
18.0											
9.0											
0 <mark></mark> 30	100.	200.	300.	400.	500. Frequenc		. 70	00.	800.	900.	1000
			0ver			Antenna	Cable	Preamn	A/Pos	T/Pos	
	Freq	Level	Limit		Level	Factor	Loss			1/103	Remark
	MHz	dBuV/m	dB	dBuV/m		dB/m	dB	dB	 ст	deg	
1	142.5	2 36.22					1.27	31.26			Peak
2	165.8	0 36.63	-6.87	43.50	56.38	10.00		31.15			Peak
3		2 33.02						31.01			Peak
4		1 30.01						30.85			Peak
5		7 33.58						30.21			Peak
0	090.2	1 39.41	-0.59	40.00	43.22	23.22	2.95	29.98			Peak
ote 1: ">20dB" m	eans so	irious em	ission le	evels the	at excee	ed the lev	el of 20	) dR he	low the	applic	able lin
lote 2: "N/F" meai											



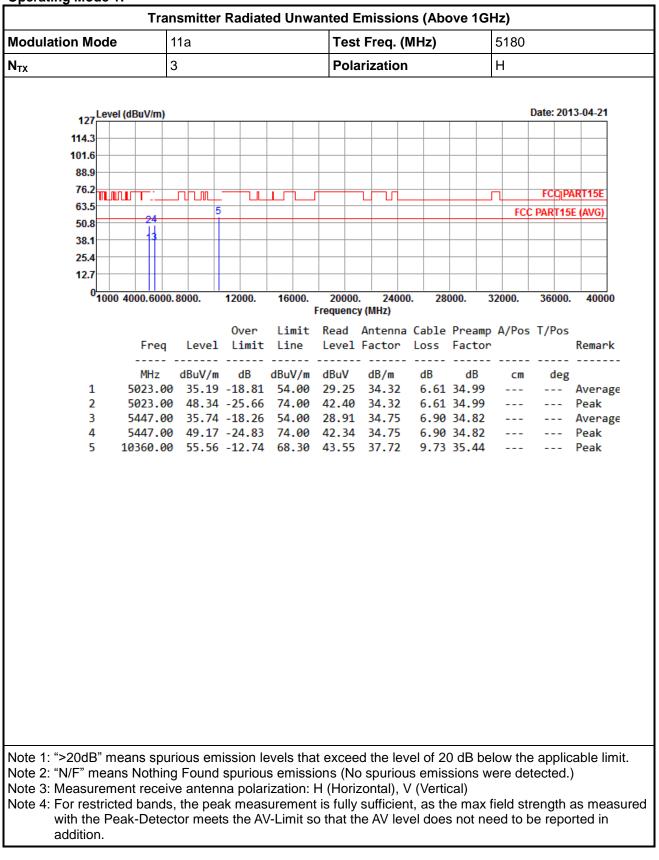


Operating Mode	3	3			Pola	arization			V		
Operating Functio	n [	DC Powe	er & Rad	dio link (	WLAN)	, Ant 3					
l evel	(dBuV/m)									Date: 201	3-04-23
90											
81.0											
72.0											
63.0										500.01	
54.0										FCC CI	ASS-B
45.0											
36.0	2							-		6	
27.0	1 1	3		4				, 			
18.0											
9.0											
0 <mark></mark>	100.	200.	300.	400.	500. Frequenc	600. y (MHz)	70	0.	800.	900.	1000
	_		0ver			Antenna				T/Pos	
	Freq	Level	Limit	Line		Factor		Factor			Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1				43.50				31.44			Peak
2		30.42			50.83			31.07			Peak
3		26.36			41.80			30.98			Peak
4		27.92			40.00			31.01			Peak
5		28.87			35.85			30.21			Peak
6	896.21	32.91	-10.09	46.00	39.72	23.22	2.95	29.98			Peak
Note 1: ">20dB" me Note 2: "N/F" mean											



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

## **Operating Mode 1:**





Modulation M	ode		11a	a					Te	st F	req. (	MHz)		5	5180			
N <sub>TX</sub>			3						Ро	lari	zatior	1		١	/			
	Level (d	BuV/m	)													Date: 20	)13-04	-23
			,															
114.3 101.6																		
88.9																		
76.2		<u> </u>														TCO		
63.5		1			-										FC		PART1	
50.8		-24			,										FC	C PART1	JE (AV	<u>(</u> )
38.1		3																
25.4		+																
12.7	·	$\left  \right $																
(	1000 40	00.600	00.80	00.	120	)00.	160	000.	2000		2400	0. 28	000.	32	000.	36000	D. 4	0000
					0	ver	Li		Frequen Read			a Cable	Prea	amp /	4/Pos	T/Pos	5	
		Free	q	Level	L	imit	Li	ne			actor	Loss	Fact	or			Ren	lark
	-	MHz		BuV/m				-	dBuV		dB/m	dB	dE		cm	de		
1											34.32 34.32		34.9					rage
3											34.75		34.8				Ave	
4											34.75		34.8				Pea	_
5	10	360.0	90 !	55.23	-13	3.07	68	.30	43.2	2	37.72	9.73	35.4	4			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans remen stricted e Peak	Nothi t rece banc	ing F eive a ds, th	ound anten ne pe	spı na j ak n	uriou oolar neas	s en rizati surer	nissio on: H nent	ons (N H (Hoi is full	lo s rizo y si	spuriou ntal), ` ufficier	us emis V (Verti ht, as th	sions cal) ne ma	s we ax fie	re de eld st	etected	l.) Las n	neas



Modulation M	ode	1	1a				Tes	Freq.	(MHz)			5200		
N <sub>TX</sub>		3	3				Pola	rizatio	on			Н		
407	Level (dBu\	//m)											Date: 201	3-04-23
114.3 101.6														
88.9										_				
						<u> </u>				_		_	FCCD	DTAFE
63.5										_	+			RT15E
50.8		24										FC	C PART15	
38.1		3			_			_		_				
25.4												_		
12.7	·									_				
(	1000 4000.	6000.	8000.	12000.	16	000.	20000		000. 2	8000.	3	2000.	36000.	40000
				0ver	Li		Frequenc Read		na Cabl	e Pr	eamp	A/Pos	s T/Pos	
	F	req	Level	Limi		ne	Level	Factor		Fa	tor			Remark
4		Hz	dBuV/m			-	dBuV	-			B	Cm		A
1			34.22 47.19							634 634				Average Peak
3			34.55							5 34				Average
4	538	3.00	47.56	-26.4	4 74	.00	40.88	34.68	6.8	5 34	.85			Peak
5	1040	0.00	55.58	-12.7	2 68	.30	43.48	37.74	1 9.7	6 35	.40			Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans No rement re stricted ba e Peak-D	thing eceiv ands,	g Found e anten , the pea	spurio na pola ak mea	us en arizati asurer	nissi ion: l ment	ons (No H (Hori t is fully	o spurio zontal), sufficie	ous em V (Ver ent, as	issio tical) the n	ns we nax f	ere de ield st	etected.)	) as meas



Modulation M	ode		11a					Tes	t Fre	eq. (I	MHz)		5	200			
N <sub>TX</sub>			3					Pol	ariza	tion			V	/			
	Level (dB	uV/m)													Date: 20	)13-04-	23
114.3 101.6																	
88.9																	
76.2							ļ.,								FCO	PART1	E .
63.5		<u>ا ۔ ـــ</u>		5					Ц					ECO	C PART1		
50.8		-24		ĭ					-					- rU	- PARI 1	JE (AV	3)
38.1		-13-															_
25.4																	_
12.7																	
(	1000 400	0.600	0.8000.	1	2000.	160	) 000. I	2000 Frequence		24000	). 28	000.	32	000.	3600	0. 40	000
					0ver	Li		-			Cable	Prea	mp A	A/Pos	T/Po	5	
		Freq	Leve	1	Limit			Level	Fac		Loss					Rem	ark
	-	MHz	dBuV/		dB			dBuV	dB	/m	dB	dB		cm			
1			0 33.6 0 46.8							.29		34.9					· · ·
3			0 40.0 0 34.5									34.9 34.8				Ave	
4			0 47.2									34.8				Pea	_
5	104	100.0	0 55.2	8 -	13.02	68	.30	43.18	37	.74	9.76	35.4	0			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans N rement stricted I e Peak-	lothir recei band	ng Foun ive ante	d sp nna eak	ouriou polar meas	s en izati surer	nissio on: I nent	ons (N H (Hori ∷is fully	o sp zont ' suff	uriou al), \ icien	is emis / (Verti it, as th	sions cal) ie ma	we x fie	re de eld st	rength	l.) ⊨as m	ieas



Modulation M	ode		11a	а					Те	st F	req. (	(MHz)		5	5240			
N <sub>TX</sub>			3						Ро	lari	zatior	า		ł	4			
107	Level (d	BuV/m	)													Date: 2	013-04	-21
			,															
114.3 101.6																		
88.9																		
76.2		<u> </u>				<u> </u>										FCO		
63.5		1			5												PART1	
50.8		-24			5										FU	C PART1	SE (AV	6)
38.1		13																_
25.4																		_
12.7	·																	_
(	1000 40	00.600	00.80	00.	12	000.	160	) )00.	2000		2400	)0. 28	000.	32	000.	3600	0. 4	0000
					0	ver	Li		Frequer Read			a Cable	Prea	amp	A/Pos	; T/Po	5	
		Free	9	Level	. L	imit			Leve	1 Fa		Loss						ark
	_	MHz		BuV/m		dB		-	dBuV		dB/m	dB		B	cm		-	
1									29.1		34.37 34.37		34.9					rage k
3											34.76		34.8				Ave	
4											34.76		34.8				_	_
5	10	480.0	90	55.29	) -1	3.01	68	.30	43.0	2	37.79	9.80	35.3	32			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans remen stricted e Peak	Nothi t rece banc	ng F eive ds, tl	-ound anter he pe	l sp nna ak r	uriou polar neas	s en izati suren	nissio on: H nent	ons (N H (Ho is full	lo s rizo y si	spurio ntal), ufficie	us emis V (Vert nt, as tl	ssion: ical) ne ma	s we ax fie	re de eld st	rength	l.) i as n	neas



Modulation M	ode		11a						Tes	st F	req. (	MHz)			5240			
N <sub>TX</sub>			3						Pol	ari	zatior	า			V			
407	Level (df	BuV/m)														Date: 20	13-04-2	3
																		]
114.3 101.6																		
88.9																		
76.2																		
63.5		Т. <u> </u>													┦		ART15E	1
50.8		24		5											FC	C PART1	5E (AVG)	
38.1		3																
25.4																		
12.7																		
	1000 40	00.600	0.8000.		12000		160		2000 Frequen		2400 //Hz)	0. 2	3000.	3	2000.	36000	. 400	D0
					0ver										A/Pos	T/Pos		
		Freq	Le	vel	Limi	t	Lin	e				Loss	Fac	tor			Remai	۰k
		MHz	dBu		dB	 d			dBuV		1B/m	dB	·	IB				
1	5			-				-	30.47		34.37			.97	Cm	-		age
2									43.37					97				<u> </u>
3									30.00				34.	82			Avera	age
4									42.16					82			Peak	
5	10	480.0	0 55	.41	-12.8	39	68.	30	43.14		37.79	9.80	35.	32			Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans I rement stricted e Peak	Nothir t rece band	ng Fou ive an s, the	ind teni pea	spurio na pol ak me	ous ariz asu	em atic rem	issi on: l ient	ons (N H (Hor is full	lo s izo / sı	purio ntal), ufficiei	us emi V (Verl nt, as t	ssior ical) he m	ns we nax fi	ere de ield st	rength	.) as me	as



## **Operating Mode 2:**

Modulation M	od	•		11a						Τος	+ F:	0 00	MHz)		5	180			
N <sub>TX</sub>	ou	C		3								ation	,		ŀ				
¥ТХ				5						FUI		alioi			1	1			
																	D-4 20		
127	Le.	/el (dBu	IV/m)														Date: 20	13-04-21	
114.3																			
101.6											-								
88.9																		_	
76.2				лп	лĻ	_					┓╆						FCCIP	ART15E	
63.5			24		5											FCC	PART15	e (AVG)	
50.8			11																
38.1																			
25.4																			
12.7																			
(	100	00 4000	0.6000	. 8000		120	00.	160	000.	2000 requent		2400	0. 28	000.	32	000.	36000	4000	0
						0	/er	1.44					Cable	Phoan	n /				
			Freq	Le	vel			Li					Loss			4/105	1/105	Remar	۰k
		-																	
			MHz		V/m		iB			dBuV		B/m	dB	dB		cm	deg		
1			23.00 23.00					54 74		29.25		4.32		34.99				Avera Peak	ge
3			47.00							28.91		4.75		34.82				Avera	ige
4	Ļ		47.00							42.34		4.75		34.82				Peak	0-
5		103	60.00	) 55	.56	-12	2.74	68	.30	43.55	3	7.72	9.73	35.44	Ļ			Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea rer stria e F	ans N nent r cted b	othin receiv ands	g Fo /e ar s, the	und iten pea	spu na p ak m	uriou bolar neas	s en izati surer	nissio on: H nent	ons (N I (Hori is fully	o sp zon ′ su	ouriou ntal), \ fficier	us emis V (Verti ht, as th	sions cal) ne max	wei < fie	re det eld str	tected. rength	) as me	asu



Modulation M	ode		11a	a					Tes	t F	req. (	MHz)		5	5180			
N <sub>TX</sub>			3						Pol	ariz	zation	1		١	/			
407	Level (d	BuV/m	)													Date: 20	13-04-2	1
																		]
114.3 101.6																		
88.9																		
76.2																		
63.5		<u>гт:</u>			-												PART15E	
50.8		24		5											FC	C PART1	5E (AVG)	
38.1		13																
25.4																		
12.7																		
	1000 4	000.600	0.80	00.	1200	00.	160	)00. I	2000 Frequen		2400 1Hz)	0. 28	000.	32	000.	36000	. 400	00
						er						Cable			A/Pos	T/Pos		
		Free	ון	_evel	Li	mit	Li	ne				Loss	Fact	or			Rema	rk
		MHz		 BuV/m	d	 D	dBul		dBuV		IB/m	dB	dB					
1				-					29.97		4.32		34.9		сm 	deg	-	age
2									45.28				34.9					<u> </u>
3		5447.0	90 3	36.68	-17	.32	54.	.00	29.85	3	4.75		34.8				Aver	age
4									43.92								Peak	
5	10	0360.0	90 5	55.34	-12	.96	68	.30	43.33	3	7.72	9.73	35.4	4			Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans remer stricteo e Peal	Nothi nt rece d banc	ng F eive a ls, th	ound anten ne pea	spu na p ak m	riou olar eas	s em izatio suren	nissio on: I nent	ons (N H (Hor ∷is fully	o s izor / su	puriou ntal), \ Ifficier	us emis V (Verti ht, as th	sions cal) ie ma	s we ax fie	re de eld st	rength	.) as me	eas



Modulation M	ode	1	1a					Tes	st F	req. (	MHz)		5	5200			
N <sub>TX</sub>		3	3					Po	lari	zatior	١		ŀ	1			
107	Level (dBu\	//m)													Date: 20	)13-04	-21
114.3 101.6																	
88.9																	
76.2																	
63.5			, nn n		ШL											PART1	
50.8		4	5	)										FC	C PART1	5E (AV	'G)
38.1		3															
25.4																	
12.7																	
	1000 4000.	000	0000	1200		4.00		2000		2400	0 20	000	22	000	2000		
	1000 4000.	0000.	8000.	1200	υ.	100	)00. I	Frequen			10. 28	000.	32	000.	3600	J. 4	0000
	F	req	Level	Ove Lin							a Cable Loss			A/Pos	5 T/Po		iark
1		Hz z oo	dBuV/m				-	dBuV		dB/m 34.29	dB	dE		CM			
1			34.08 47.02									34.9					rage
3			34.63									34.8				Ave	
4			47.59									34.8				Pea	_
5	1040	0.00	55.62	-12.	68	68	.30	43.52	2 3	37.74	9.76	35.4	0			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans No rement re stricted ba e Peak-D	thing ceiv ands	g Found e anten , the pea	spur na po ak me	iou blar eas	s en izati surer	nissio on: I nent	ons (N H (Hor ∷is full	lo s izo y si	spuriou ntal), ` ufficier	us emis V (Verti nt, as th	sions cal) ne ma	s we ax fie	re de eld st	rength	l.) Las n	neas



Modulation M	ode		11a					Tes	st F	req. (	MHz)		5	5200			
N <sub>TX</sub>			3					Pol	ariz	zation	)		V	/			
	Level (dB	uV/m)													Date: 20	)13-04-2	21
																	7
114.3 101.6																	
88.9																	_
76.2									_						FCO	MDTAE	
63.5		l		- 5										FC		PART15	
50.8		24		Í					_					FC	C PART1	DE (AVG	<u>יי</u>
38.1		-13															_
25.4																	_
12.7	,																-
(	1000 400	0.6000	) <b>. 8000</b> .	120	00.	160	) )00.	2000		2400	0. 28	000.	32	000.	3600	). 40	000
				0	/er	Li		F <b>requen</b> Read			Cable	Prea	mp /	A/Pos	T/Po	5	
		Freq	Level					Level	. Fa		Loss					Rema	irk
		MHz	dBuV/m					dBuV	d	IB/m	dB	dB		cm	de		
1			0 33.79 0 47.15							4.29							· ·
3			34.73													Aver	
4			a 47.51													Peak	_
5			9 55.33													Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans N rement stricted b e Peak-	othin recei bands	g Found ve anter	l spu ina p ak m	iriou bolar neas	s en izati surer	nissio on: I nent	ons (N H (Hor ∷is fully	o s  izor / su	puriou ntal), \ Ifficier	us emis / (Verti ht, as th	sions cal) ie ma	we x fie	re de eld st	rength	.) as m	eas



Modulation M	ode		11	а					Те	st F	req. (	MHz)		5	240			
N <sub>TX</sub>			3						Ро	lari	zatior	١		ŀ	ł			
107	Level (d	IBuV/m	1)													Date: 20	013-04	-21
			<u> </u>															
114.3 101.6																		
88.9																		
76.2						<b>_</b>		ļ.,								FCO	PART1	56
63.5		J I		ՄՆՈՐ	5										ECO	C PART1		
50.8		24			Ť										FU	C PART	JE (AV	<u> </u>
38.1					-													_
25.4	l	+			-													_
12.7		+			+													-
(	1000 40	000.60	00.80	000.	12	000.	160	) 000. I	2000 Frequer		2400 MHz)	0. 28	000.	32	0 <b>00.</b>	3600	0. 4	0000
					0	ver	Li					a Cable	Prea	mp /	A/Pos	T/Po	s	
		Fre	q	Leve]		imit	Li	ne			actor	Loss	Fact	or			Rem	ark
		MHz		lBuV/n		dB		-	dBuV		dB/m	dB	dB		cm		-	
1									29.1		34.37 34.37		34.9 34.9					rage
3											34.76		34.9				Ave	
4											34.76		34.8				_	_
5	16	0480.	00	55.29	) -1	3.01	68	.30	43.0	2	37.79	9.80	35.3	2			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans remen strictec e Peal	Noth nt rece band	ing l eive ds, t	Found anter he pe	d sp nna eak i	uriou polar neas	s en rizati surer	nissi on: I nent	ons (N H (Ho is full	lo s rizo ly si	spurio ntal), ' ufficiei	us emis V (Verti	sions cal) ne ma	we x fie	re de eld st	etectec rength	l.) i as n	neas



Modulation M	ode		11a	I					Te	st F	req. (	(MHz)		Ę	5240			
N <sub>TX</sub>			3						Ро	lari	zatio	n		`	V			
107	Level (dE	3uV/m)														Date: 20	013-04	-21
114.3 101.6																		
88.9																		
76.2		<b></b> .												<u> </u>	1	FCO	PART1	55
63.5		I	U		5									+	FC	C PART1		
50.8		24	_		Ě									-	FU	C PART	JE (AV	<u> </u>
38.1		13																
25.4									+									
12.7														-				
(	1000 40	00.600	0.800	)0.	120	)00.	160	)00. 1	2000 Frequer		2400 2400	0. 2	3000.	32	2000.	3600	0. 4	0000
					0	ver	Li					a Cable	Pre	amp	A/Pos	T/Po	s	
		Fred	1 L	.evel	L	imit	Li	ne			actor	Loss	Fac	tor			Ren	lark
	-	MHz		BuV/m					dBuV		dB/m	dB		В	cm		-	
1									30.5		34.37		34. 34.					rage
3									30.2				34.				Ave	
4									42.4				34.				Pea	_
5	10	480.0	00 5	55.59	-1	2.71	68	.30	43.3	2	37.79	9.80	35.	32			Pea	k
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans I rement stricted e Peak	Nothi rece band	ng Fe ive a ls, th	ound anten ie pea	spı na   ak r	uriou polar neas	s en izati suren	nissio on: I nent	ons (N H (Ho ∷is full	lo s rizo ly si	spurio ntal), ufficie	us emis V (Vert nt, as t	ssion ical) he m	s we ax fi	ere de eld st	rength	l.) i as n	neas



#### **Operating Mode 3:**

Modulation M	ode	e		11	а					Те	st F	req.	(M	Hz)		5	5180			
Ντχ				3						Ро	lari	zatio	n			ŀ	1			
107	Lev	el (dB	luV/m	)														Date:	2013	-04-21
114.3																				
101.6																				
88.9																				
76.2			Т.		ίπ													FC	<b>JIPAR</b>	T15E
63.5						5											FCC	: PAR	[15E	(AVG)
50.8	Ħ		2 4																	
38.1	$\vdash$		+ 3																	
25.4			++																	
12.7																				
	100	0 400	00.60	00.80	000.	12	000.	160	)00. F	2000 requer		240 /Hz)	00.	280	000.	32	000.	360	00.	40000
						0	ver	Li	mit	Read	Ar	tenn	ia (	Cable	Pream	np /	A/Pos	T/P	os	
			Fre	q	Leve	1 L	imit							Loss						Remark
		-																		
			MHz	c	lBuV/ı	n	dB	dBu	V/m	dBuV	C	lB/m		dB	dB		cm	d	eg	
1			539.		31.8					26.1	8 3	4.21		6.40	34.91	L			- 4	Average
2		45	539.	00	43.4	5-3	0.55	74	.00	37.7	5 3	34.21		6.40	34.91	L			- F	'eak
3		53	362.	00	32.4	5-2	1.55	54	.00	25.8	13	34.66	5		34.86				- 4	Average
4	Ļ									39.0		34.66		6.84	34.86	5			- F	'eak
5		103	360.	00	55.8	1 -1	2.49	68	.30	43.8	0 3	37.72	2	9.73	35.44	1			- F	'eak
Note 1: ">20dE Note 2: "N/F" r Note 3: Measu Note 4: For res with th additio	nea ren stric e P	ns N nent ted	Noth rece band	ing l eive ds, t	Found anter he pe	d sp nna eak r	uriou polai neas	is en rizati surer	nissio on: H nent	ons (N I (Ho is full	lo s rizoi y su	puric ntal), ıfficie	ous V ent,	emis (Vertio , as th	sions cal) e max	wei k fie	re de eld st	tecte	ed.) th as	s meas



Modulation M	od	e		11	a		_	_	_	Те	st F	req.	(M	Hz)		5	180		
N <sub>TX</sub>				3						Ро	lari	zatio	n			V	,		
																		Data: 204	2 04 24
127	Lev	el (dB	uV/m)	)														Date: 201	3-04-21
114.3																			
101.6	<b> </b>																		
88.9																			
76.2			<b>-</b> ·	Г	ՄՆՈՆ				1 1		_							FCCIPA	RT15E
63.5			•			5											FCC	PART15	
50.8			24																,,
38.1	$\left  - \right $		13																
25.4	$\vdash$		$\left  \right $																
12.7	-																		
(		0.400				4.24		4.00										20000	
	100	0 400	0.600	0.80	000.	120	000.	16	000. I	2000 Frequer			000.	28	000.	320	000.	36000.	40000
						0	ver	1.4.						abla	Droom		/Poc	T/Pos	
			Fred	,	Leve	-									Facto		VFUS	1/FUS	Remark
		-		1 															
			MHz	d	lBuV/ı	n (	dB	dBu	V/m	dBuV	(	dB/m		dB	dB		cm	deg	
1		45	39.0	90	34.1	7 -1	9.83	54	.00	28.4		34.21		6.40	34.91				Average
2	2	45	39.0	90	46.5	2 - 2	7.48	74	.00	40.8	2	34.21	L	6.40	34.91				Peak
3										30.0					34.86				Average
4															34.86				Peak
5	•	103	60.0	90	55.3	/ -1	2.93	68	.30	43.3	6	37.72	2	9.73	35.44	ŀ			Peak
Note 1: ">20dE	3" n	nean	s sn	urio	ous er	niss	ion le	evels	s tha	texce	ed	the le	eve	l of 20	) dB h	elo	w the	applic	able lim
Note 2: "N/F" r																			
Note 3: Measu																			
Note 4: For res																c fie	ld str	ength a	as meas
																		e repoi	
additio																		•	



Modulation M	ode	•		11a						Те	st F	req.	(Mł	Ηz)		5	200		
N <sub>TX</sub>				3						Ро	lari	zatio	n			ŀ	ł		
	_																	D-4 004	
127	Leve	el (dBu	IV/m)															Date: 201	3-04-21
114.3																			
101.6																			
88.9																			
76.2									ļ.,							_		ECODA	DT45E
63.5											L							FCCIPA	
50.8			24	_		5											FCC	PART15	E (AVG)
38.1			Ĩ																
			۲ <b>۰</b>																
25.4																			
12.7																			
0	1000	4000	0.6000	. 800	0.	120	000.	16	000.	200	00.	240	00.	28	000.	320	000.	36000.	40000
									I	Frequei	icy (I	MHz)							
						0	ver	Li	mit	Read	Ar	ntenn	a C	able	Pream	np A	/Pos	T/Pos	
		I	Freq	L	evel	L	imit	Li	ne	Leve	1 Fa	actor	۰ L	oss	Facto	or			Remark
		-																	
			MHz		uV/m				-	dBuV		dB/m		dB	dB		cm	deg	
1										26.3					34.98				Average
2										39.3					34.98				Peak
3										26.1					34.86				Average
4															34.86				Peak
5		1040	00.00	0 0	5.43	) -1	2.0/	00	. 50	43.3	5 2	57.74	ł	9.70	35.40	)			Peak
Note 1: ">20dE	3" m	eans	s spu	iriou	s en	niss	ion le	evel	s tha	t exce	ed	the le	evel	of 20	dB h	elo	w the	applic	able lim
Note 2: "N/F" n																			
Note 3: Measu																	5 40		
Note 4: For res																k fie	ld str	enath :	as meas
with the																			
	`																		



Modulation M	od	e		11	a					Те	st F	req.	(M)	Hz)		5	200		
N <sub>TX</sub>				3						Ро	lari	zatic	n			V			
																		D-4 204	2.04.24
127	Lev	el (dB	uV/m)	)														Date: 201	3-04-21
114.3	3																		
101.0	5																		
88.9	•⊢																		
76.3	2		<b>T</b> .		1 TIN				і п г									FCCIPA	RT15E
63.			•			5											FCC	PART15	
50.8	3		-24			-										_			. (
38.	1		-13																
25.4	1																		
12.7																			
	100	0 400	00.600	0.80	000.	12	000.	16	000. F	200 Frequer			00.	28	000.	320	00.	36000.	40000
						0	ver	1.4.						oblo.	Dnoom	- ^	/Pos	T/Pos	
			Free	,	Leve	-									Facto		TOS	1/FUS	Remark
				1 															
			MHz	d	lBuV/ı	n	dB	dBu	V/m	dBuV	(	dB/m		dB	dB		cm	deg	
1	L	56	046.0	90	35.6	ð -1	8.40	54	.00	29.6				6.62	34.98				Average
2	2	56	046.0	90	48.9	8-2	5.02	74	.00	42.9	9 3	34.35	5	6.62	34.98				Peak
	3									29.9					34.86				Average
	1														34.86				Peak
-	5	104	400.0	90	55.6	5 -1	2.64	68	.30	43.5	6 :	37.74	ļ	9.76	35.40				Peak
Note 1: ">20d																			
Note 2: "N/F" r	nea	ans N	lothi	ng l	Found	d sp	uriou	is en	nissi	ons (N	No s	purio	ous	emis	sions v				
Note 3: Measu	irer	nent	rece	ive	ante	nna	pola	rizati	on: ł	H (Ho	rizo	ntal),	, V (	(Verti	cal)				
Note 4: For res	stric	cted	banc	ls, t	he pe	eak r	neas	surer	nent	is ful	ly sı	ufficie	ent,	as th	e max				
with th	еF	'eak-	Dete	ecto	r mee	ets tl	ne A'	∕-Lin	nit so	o that	the	AV le	eve	l does	s not n	eed	d to b	e repoi	rted in



Modulation M	od	е		11;	а					Те	st F	req.	(MI	Hz)		5	240		
N <sub>TX</sub>				3						Ро	lari	zatic	n			Н			
																		Data: 204	2 04 24
12		/el (dE	BuV/m	)														Date: 201	3-04-21
114.3	3																		
101.0	5																		
88.9	<b>)</b>																		
76.3	2		<b>-</b> ·															FCCIIPA	RT15E
63.			<u>ا</u>		u LUUL	5					L						TCC		
50.8	3		-24			Ĭ											ru	PART15	
38.			- Îk																
25.4			_ľ.																
12.7																			
	100	0 400	00.600	00.80	000.	120	000.	16	000.	200			000.	28	000.	320	00.	36000.	40000
										Frequer									
			_			-	ver										/Pos	T/Pos	_
			Free	7	Leve	1 L	imit	Li	ne						Facto	r			Remark
		E	MHz		BuV/i				-	dBuV 28.2		dB/m		dB	dB 34.97		CM	deg	Average
	2									38.4					34.97				Peak
	3									26.1					34.86				Average
	í									38.9					34.86				Peak
	5									43.3					35.32				Peak
Note 1: ">20dl																			
Note 2: "N/F" r	nea	ans N	Vothi	ng I	Found	d spi	uriou	s en	nissi	ons (l	No s	purio	ous	emis	sions	wer	e de	tected.)	
Note 3: Measu																			
Note 4: For rea																			
	e F n.	'eak	-Dete	ecto	r mee	ets th	ne A	/-Lin	nit so	o that	the	AV le	evel	does	s not n	eed	d to b	e repo	rted in

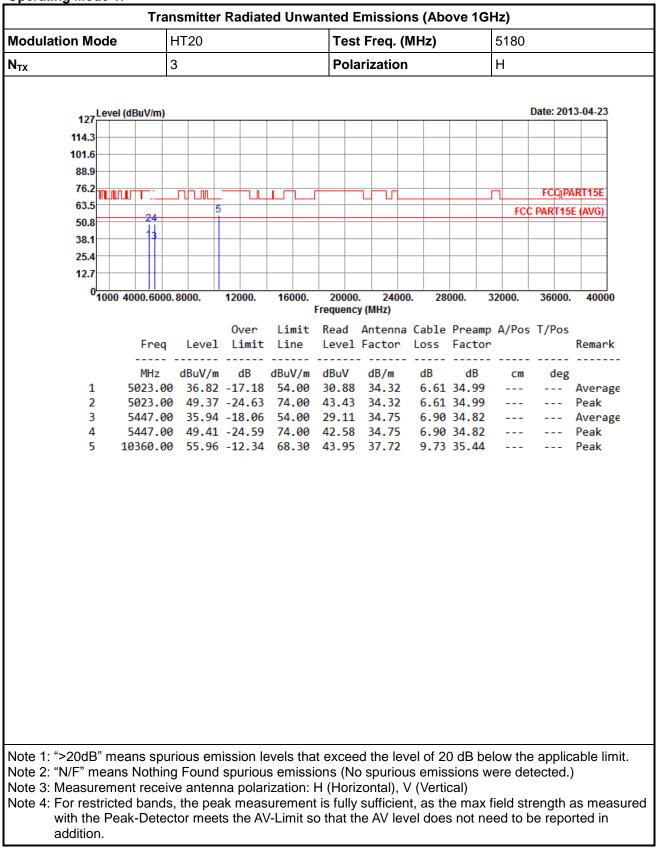


Modulation M	od	е		11	а					Те	st F	req.	(Mł	Hz)		5	240		
N <sub>TX</sub>				3						Ро	lari	zatio	n			V	/		
																		Data: 204	2 04 24
127	Lev	/el (dE	BuV/m	)														Date: 201	3-04-21
114.3																			
101.6	-																		
88.9																			
76.2							n									_		FCCIIPA	RT15F
63.5	┇╟║┻		۰		νıπ	5											FCC		
50.8			-24			5											FUU	PART15	E (AVG)
38.1	1 1		13																
25.4	1 1																		
12.7	1 1																		
· · · ·	100	00 400	00.600	00.8	000.	120	000.	16	000.	200		240	00.	28	000.	320	000.	36000.	40000
										Frequer									
							ver										/Pos	T/Pos	
			Free	7	Leve:	1 L:	imit	Li							Facto	or			Remark
		E/	MHz		BuV/r				-	dBuV		dB/m		dB	dB		cm	deg	
1										43.8					34.97 34.97				Average
3										29.5					34.86				Average
4										43.5					34.86				Peak
										42.6					35.32				Peak
Note 1: ">20dE																			
Note 2: "N/F" r																wer	e det	tected.)	
Note 3: Measu																			
Note 4: For res																			
		'eak	-Dete	ecto	or mee	ets th	ne A	/-Lin	nit so	o that	the	AV le	evel	does	s not r	nee	d to b	e repo	rted in
additio	n																		



# 3.7.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

### **Operating Mode 1:**





Modulation M	ode			Н٦	Г20					Tes	st F	req. (	MHz)		5	180			
N <sub>TX</sub>				3						Pol	ariz	zation	Ì		٧	/			
	Level	l (dBı	uV/m)	)													Date:	2013	-04-23
127 114.3																			
101.6																			
88.9																			
76.2		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u> </u>		บาณ				 п г		_						FCC	) IPAF	T15E
63.5			24			5										FCC	: PARI		
50.8	⊧⊨		1																
38.1																			
25.4																			
12.7																			
'	1000	400	0.600	0.80	000.	12	000.	16	000. I	2000 Frequen		2400 /Hz)	0. 28	000.	32	000.	360	00.	40000
							ver						Cable			A/Pos	T/P	os	
		-	Free	1	Level	l L 	imit		ne			actor	Loss	Fact	or			F 	Remark
			MHz		lBuV/r				-	dBuV		IB/m				cm		eg	
1										30.24				34.9 34.9					Average Peak
2										29.32				34.9					verage
2										44.16			6.90						Peak
-	5	103	60.6	90	55.5	1 -1	2.79	68	.30	43.50	3	37.72	9.73	35.4	4			- F	Peak
Note 1: ">20dE Note 2: "N/F" r Note 3: Measu Note 4: For res with th	nean reme stricte	ns N ent i ed b	othi rece banc	ng l eive Is, t	Found anter the pe	d sp nna eak i	uriou polai neas	is en rizati surer	nissi on: I nent	ons (N H (Hor is fully	o s izor / su	puriou ntal), N Ifficier	us emis V (Verti ht, as th	sions cal) ie ma	wei x fie	re de eld sti	tecte	ed.) th as	s meas



Modulation M	ode		Н	T20					Tes	st F	req. (	MHz)		5	200			
N <sub>TX</sub>			3						Po	ariz	zatior	۱		ŀ	ł			
	Level (	dBuV/r	m)													Date:	2013	-04-23
127 114.3																		
114.3																		
88.9		_	_															
76.2			r	υm						_						FCC	)) PAR	T15E
63.5		<b>I</b> J I			5									[	FC	C PART		
50.8		24								_								
38.1		-13		_														
25.4																		
12.7																		
(	1000 4	4000.6	000.8	000.	12	000.	16	000. I	2000 Frequen		2400 /Hz)	0. 28	000.	320	000.	360	00.	40000
						ver						a Cable			A/Pos	T/P	os	
		Fre	eq	Level	l L	imit		ne			ctor	Loss	Fact	or			F 	lemark
		MH:		dBuV/r				-	dBuV	¢	lB/m	dB	dB		cm		eg	
1									28.65		34.29		34.9					Average
2									41.95		4.29 4.68		34.9 34.8					Peak Average
- 4									41.56				34.8					eak
5	1								43.73				35.4				- F	Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans reme stricte e Pea	s Noth nt rec d bar	hing ceive nds,	Found anter the pe	d sp nna eak i	uriou polaı neas	is en rizati surer	nissi ion: I nent	ons (N H (Hor ∷is full	lo s izoi y su	puriou ntal), ' ufficier	us emis V (Verti	sions cal) ie ma	wei x fie	re de eld st	rengt	ed.) th as	s meas



Modulation M	ode		H	Т20					Tes	t Fi	r <b>eq. (</b> l	MHz)		5	200			
N <sub>TX</sub>			3						Pol	ariz	ation	1		٧	/			
427	Level (d	BuV/m	1)													Date:	2013	-04-23
127																		
101.6																		
88.9																		
76.2		<b>_</b> .								_						ECI	DAD	T15E
63.5		<b>!</b>	$\vdash$	uun	5										ECO	: PAR		
50.8		24			Ē					=					ru	- PAK	TJE	
38.1		13	-															
25.4					-													
12.7					-													
C	1000 40	00.60	00.8	000.	12	2000.	160	DOO.	2000	0.	2400	0. 28	000.	320	000.	360	00.	40000
								I	Frequen	cy (M	IHz)							
		-				)ver						Cable			4/Pos	Т/Р		
		Fre	P	Level	LL	imit			Level			Loss	Fact	or				Remark
		MHz		dBuV/n	n	dB			dBuV		B/m	dB	dB		cm	d	eg	
1									29.25		4.29		34.9					Average
2									42.25				34.9					Peak
3									28.73 41.58				34.8 34.8					Average Peak
5									43.86				35.4					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans remen tricted e Peak	Noth t rec ban	ing eive ds, 1	Found anter the pe	d sp nna eak	ouriou polar meas	s en izati surer	nissi on: l nent	ons (N H (Hor is fully	o s  izor / su	ouriou ntal), \ fficier	us emis V (Verti ht, as th	sions cal) ie ma	wei x fie	re de eld st	tecte rengi	ed.) th a	s meas



Modulation M	ode		HT20	)				Tes	st Fi	r <b>eq. (</b> l	MHz)		5	240			
N <sub>TX</sub>			3					Pol	ariz	ation	1		ŀ	ł			
427	Level (df	BuV/m)													Date:	2013	-04-23
127																	
101.6																	
88.9				_													
76.2				nn			- 		_						FC	CIPAF	RT15E
63.5		I		5										FC	C PAR		
50.8		24 1		+					-								
38.1		-13-															
25.4																	
12.7																	
L	1000 40	00.600	0.8000.		12000.	16	000. I	2000 Frequen		2400 IHz)	0. 28	000.	32	000.	360	000.	40000
					0ver						Cable			A/Pos	T/F	os	
		Freq	Le	vel	Limit	Li						Fact	or			I	Remark
		MHz	dBu	V/m	dB	dBu		dBuV		 B/m	dB	dB		cm		leg	
1			0 35	.63	-18.37	54	.00	29.59	3	4.37	6.64	34.9				-	Averag
2					-27.43							34.9					Peak
3					-18.39							34.8 34.8					Averag Peak
5					-12.61							35.3					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans I rement stricted e Peak	Nothir rece band	ng Fou ive an s, the	und teni pea	spuriou na pola	is en rizati surer	nissi on: I nent	ons (N ⊣ (Hor ∷is fully	o sļ izor / su	puriou ntal), \ fficier	us emis V (Verti ht, as th	sions cal) ie ma	we x fie	re de eld st	reng	ed.) th a	s mea



Modulation M	ode		HT20	)				Tes	st Fr	req. (I	MHz)		5	240			
N <sub>TX</sub>			3					Pol	ariz	ation	1		٧	/			
427	Level (di	BuV/m)													Date:	2013	-04-23
127																	
101.6																	
88.9																	
76.2							- -		_+						FC	CIPAF	TT15E
63.5				5		+								FC	C PAR		
50.8		24 ]]		-					-								
38.1		- 19															
25.4																	
12.7																	
L	1000 40	00.600	0.8000.		12000.	16	000. I	2000 Frequen		2400 IHz)	0. 28	000.	320	000.	360	000.	40000
					0ver						Cable			A/Pos	T/F	os	
		Freq	Le	vel	Limit	Li	ne			ctor		Facto	or			I	Remark
		MHz	dBu	V/m	dB	dBu	V/m	dBuV		B/m	dB	dB		cm	d	leg	
1					-16.89					4.37		34.97					Averag
2					-23.78							34.97 34.82					Peak Averag
4					-24.01							34.82					<sup>verag</sup>
5					-12.39							35.32					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans I rement stricted e Peak	Nothii t rece band	ng Fou ive an s, the	und Iteni pea	spuriou na pola	is en rizati surer	nissi ion: I ment	ons (N H (Hor is full <u>y</u>	o sp izor / su	ouriou ntal), \ fficier	us emis V (Verti ht, as th	sions cal) ie ma:	wei x fie	re de eld st	reng	ed.) ith a	s mea



## **Operating Mode 2:**

Modulation M	od	۵		нт	20		adiat			Τος	t Fred	n (I	` МН <del>7</del> )		51	80			
N <sub>TX</sub>	ou	C		3	20						arizat				Н	00			
■TX				5							11201								
																	)ato: 204	13-04-21	
127		Vel (ab	luV/m)														Jale. 20	J-04-21	
114.3												-							
101.0												-							
88.9												-							
76.2			Т:_		, m	_						л			л		FCCIP	ART15E	
63.			24			5										FCC	PART15	E (AVG)	
50.0 38.1			13																
25.4																			
12.7																			
	10	00 400	00.600	0.80	00.	12	000.	160	000. F	20000 requenc		400( )	0. 28	000.	3200	00.	36000.	40000	)
						C	ver	Li					Cable	Preamp	Α	/Pos	T/Pos		
			Freq	1	Leve!	ιι	imit	Li	ne	Level	Fact	or	Loss	Factor				Remark	c
		-	MHz	d	BuV/r	 n	dB	dBu	V/m	dBuV	dB/	 m	dB	dB		cm	deg		
1	L		023.0		36.82	2 -1	7.18	54	.00	30.88			6.61	34.99	-				ge
	2				49.37					43.43				34.99	-			Peak	
	3				35.94					29.11				34.82				Averag	şe
	1 5				49.58					42.75			6.90 9.73	35.44	_			Peak Peak	
Note 1: ">20dł Note 2: "N/F" r Note 3: Measu Note 4: For res with th additic	nea irer stria e F	ans N nent cted	lothii rece band	ng F ive Is, tl	Found anter he pe	d sp nna eak	uriou polar meas	s en izati surer	nissio on: H nent	ons (N H (Hori is fully	o spu zonta <sup>v</sup> suffic	riou I), \ cien	is emis / (Verti ht, as th	sions w cal)	vere fiele	e det d str	ected.	) as mea	



Modulation M	ode		ΗT	20					Te	st F	req. (	MHz)		5	180			
N <sub>TX</sub>			3						Ро	lari	zatior	1		۷	/			
427	Level (d	BuV/m)	)													Date:	2013	-04-21
127																		
101.6																		
88.9																		
76.2		<b></b> .			_											FC		T15E
63.5					-										FC	: PAR		
50.8		24		<b>   </b>												, FAI	TJE	
38.1		13							+									
25.4																		
12.7																		
0	1000 40	00.600	)0.80	00.	120	00.	160	)00. I	2000 Frequen		2400 MH7)	0. 28	000.	320	000.	360	)00.	40000
					0\	/er	Lir			-		a Cable	Prear	mp A	A/Pos	T/P	os	
		Free	ł 	Level	Li	imit	Lin		Leve			Loss	Facto	or			F	lemark
1		MHz		BuV/m					dBuV 30.54		dB/m		dB 34.99		cm		leg	verage
2									46.1				34.99					verage Peak
3									30.4				34.82					verage
4									44.4			6.90						Peak
5	10	360.0	90	55.87	-12	2.43	68	.30	43.8	5 3	37.72	9.73	35.44	4			- F	Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans remen tricted e Peak	Nothi t rece banc	ng F eive Is, th	-ound anten he pe	spu na p ak n	uriou bolar neas	s en izati suren	nissi on: I nent	ons (N H (Hoi : is full	lo s rizo y si	puriountal), ` ufficier	us emis V (Verti	sions cal) ie ma:	wei x fie	re de eld st	tecte reng	ed.) th as	s meas



Modulation M	ode		HT	20					Te	st F	req. (	MHz)		5	200			
N <sub>TX</sub>			3						Ро	lari	zatior	1		ŀ	ł			
407	Level (d	BuV/m	)													Date:	2013	-04-21
114.3 101.6																		
88.9																		
76.2						<b>_</b>										FC		T15E
63.5		<b>!</b>			5										ECO	C PAR		
50.8		24			-										ru	. PAR	TIDE	(AVG)
38.1		- 13																
25.4		+																
12.7																		
(	1000 40	00.60	00.80	00.	12	000.	160	000.	2000	0.	2400	0. 28	000.	320	000.	360	000.	40000
									Frequen	-								
		<b>F</b>	_	1		ver						a Cable Loss			A/Pos	T/F		
		Fre	q 	Level		1m1C		ne			actor		Facto	or				lemark
		MHz	d	BuV/m	1	dB	dBu	V/m	dBuV		dB/m	dB	dB		cm	d	leg	
1									28.4		34.29		34.99					Average
2									41.8		34.29 34.68		34.99					Peak Averag
4									41.4				34.8					verag Peak
5									43.8				35.40					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	neans remen stricted e Peak	Nothi t rece band	ing F eive ds, t	-ound anter he pe	l spi ina ak r	uriou polar neas	s en rizati surer	nissio on: I nent	ons (N H (Hoi : is full	lo s rizo y si	puriountal), ` ufficier	us emis V (Verti	sions cal) ie ma:	wei x fie	re de eld st	reng	ed.) th as	s meas



Modulation M	ode		Н٦	Г20					Tes	st F	req. (	MHz)		5	5200			
N <sub>TX</sub>			3						Pol	ariz	zation	ì		V	/			
427	Level (d	BuV/m	1)													Date:	2013	-04-21
127 114.3																		
101.6																		
88.9																		
76.2		<u> </u>						ļ.,		_						EC	CIDAL	RT15E
63.5		·		տո	5										ECI	C PAR		
50.8		-24			Ť					-					ru	. PAR	TIDE	(AVG)
38.1		13			-													
25.4					-													
12.7		+			+													
0	1000 40	00.60	00.80	000.	12	2000.	160	) 000.	2000		2400	0. 28	000.	32	000.	360	00.	40000
					C	Over	Li		F <b>requen</b> Read			Cable	Prea	mp /	A/Pos	т/Р	os	
		Fre	q	Leve]		imit	Li	ne	Leve]	. Fa	ctor	Loss			.,	.,.		Remark
		MHz		lBuV/n		dB	dBu	V/m	dBuV	d	IB/m	dB	dB		cm		eg	
1									29.03				34.9					Average
2									42.36				34.9 34.8					Peak Average
4												6.85						Peak
5									44.00				35.4				- 1	Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans remen stricted e Peak	Noth t rece ban	ing I eive ds, t	Found anter he pe	d sp nna eak	ouriou polar meas	s en izati surer	nissi on: l nent	ons (N H (Hor is full <u>y</u>	o s izor / su	puriou ntal), \ Ifficier	us emis V (Verti ht, as th	sions cal) ne ma	we x fie	re de eld st	tecte	ed.) th a	s meas



Modulation M	ode		HT20	)				Tes	st Fi	req. (	MHz)		5	240			
N <sub>TX</sub>			3					Pol	ariz	zation	1		F	ł			
427	Level (di	BuV/m)													Date:	2013	-04-21
127																	
101.6																	
88.9						_											
76.2							<u> </u>		_						FC		RT15E
63.5		I		JUL5										ECI			(AVG)
50.8		24		Ť		_								ru	- rak	TIDE	
38.1		-13															
25.4	ļ — —					_											
12.7	·																
0	1000 40	00.600	0.8000		12000.	16	5000.	2000		2400	0. 28	000.	320	000.	360	)00.	40000
					0ver	Li		Frequen Read			Cable	Prea	np A	\/Pos	5 T/F	os	
		Freq	l Le	vel				Leve]	. Fa	ctor	Loss						Remark
		MHz	dBu	V/m	dB	dBu	ıV/m	dBuV		18/m	dB	dB		cm	с с	leg	
1					-18.4							34.9					Averag
2					-25.3							34.92					Peak Averag
4					-25.2							34.8					Peak
5					-12.8							35.3					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans l rement stricted e Peak	Nothii t rece band	ng Fo ive ar s, the	und iteni pea	spurio na pola ak mea	us er arizat asure	nissi ion: l ment	ons (N H (Hor t is full <u>y</u>	lo s  izor / su	puriou ntal), \ Ifficier	us emis V (Verti	sions cal) ie ma:	wei x fie	re de eld st	reng	ed.) th as	s mea



Modulation M	ode		HT2	C				Tes	t Fre	eq. (I	MHz)		5	240			
N <sub>TX</sub>			3					Pol	ariza	ation			۷	/			
407	Level (dE	BuV/m)													Date:	2013	-04-21
127																	
101.6							_										
88.9																	
76.2					<u> </u>		_								FC	CIPAF	RT15E
63.5					. L									FC	C PAR		
50.8		24 ]]		-					-	-							
38.1		- 19				_											
25.4																	
12.7																	
L. L.	1000 40	00.600	0.8000		12000.	1	6000.	2000 Frequen		2400( lz)	0. 28	000.	320	000.	36	000.	40000
					0ver						Cable			A/Pos	; T/F	os	
		Freq	Le	vel	Limi	t L	ine			tor	Loss	Facto	or			F	Remark
		MHz		V/m				dBuV	dB	/m	dB	dB		cm		leg	
1								31.22				34.97					Averag
2								44.13 31.34				34.97					Peak Averag
4								42.98				34.82					<sup>ver</sup> ag
5								43.47				35.32				- F	Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	neans I rement stricted e Peak	Nothii t rece band	ng Fo ive ar s, the	und nten pea	spuric na pol ak mea	ous e ariza asure	missi tion:   ment	ons (N H (Hor t is full <u>y</u>	o sp izont / suf	uriou al), \ ficien	is emis / (Verti ht, as th	sions cal) ie max	wei x fie	re de eld st	reng	ed.) th a	s mea



#### **Operating Mode 3:**

Modulation M	od	е		H	T20					Те	st F	req.	(M)	Hz)		5	180			
N <sub>TX</sub>				3						Ро	lariz	zatio	n			F	1			
427	Lev	el (dE	3uV/n	n)														Date:	2013	-04-21
114.3																				
101.6																				
88.9							<u> </u>													
76.2			T		JUL						-					П		FC		T15E
63.5						5											FCC	: PAR	<b>F15E</b>	(AVG)
50.8	Ħ		2 4	-																-
38.1			13																	
25.4																				
12.7																				
	100	0 40	00.60	00.8	000.	12	000.	160	000.	2000		240	00.	280	000.	320	000.	360	00.	40000
										requer										
			_				ver								Pream		A/Pos	T/P		
			Fre	p	Leve	1 L	imit	Li	ne	Leve	1 Fa				Facto	r			F	lemark
1		41	MHz		dBuV/ 32.4		dB			dBuV 26.7		IB/m 34.21		dB	dB 34.91		cm		eg,	wanaga
1					44.5							4.21 34.21								lverage Peak
2					33.8					38.8		4.21 34.66			34.91 34.86					
4										39.7					34.86					lverage Peak
5										43.9					35.44					eak
_		10.	.00	00	55.5		2.51	00		45.5	0 -				55.44				- 1	Cak
Note 1: ">20dE																				ble limi
Note 2: "N/F" r																wei	re de	tecte	ed.)	
Note 3: Measu																				
Note 4: For res																fie	eld sti	rengt	th as	s meas
with th	ен	eak	-Det	ecto	or me	ets t	ne A	v-Lin	nit sc	o that	the	AV Ie	eve	l does	s not n	ee	d to t	be re	port	ea in



Modulation Mo	de	HT20				Tes	t Fr	eq. (N	MHz)		51	80		
Ν <sub>τχ</sub>		3				Pola	ariz	ation			V			
													Data: 204	2 04 24
127	evel (dBuV/m	)											Date: 201	3-04-21
114.3														
101.6											_			
88.9											_			
76.2											_		FCCIPA	DT15E
63.5		5					<u> </u>				┙┡			
50.8	2.4											FCC	PART15E	: (AVG)
38.1	43													
25.4														
12.7														
0	000 4000.60	00.8000.	12000.	160	000.	20000		24000	). 28	000.	3200	)0.	36000.	40000
						Frequenc	:y (M	Hz)						
			0ver			Read						/Pos	T/Pos	
	Fre	q Level	Limit	Li	ne	Level	Fac	tor	Loss	Facto	r			Remark
	MHz					dBuV		3/m		dB		cm	deg	
1		00 35.24												Average
2		00 48.10 00 37.58												
4		00 37.30 00 49.25												Average Peak
5		00 49.23 00 56.07												Peak
, , , , , , , , , , , , , , , , , , ,	10500.	50.07	12.25	00		44.00			5.75	55.44				I Cuk
Note 1: ">20dB'	' means sc	urious em	ission le	evels	s tha	t excee	ed th	ne lev	el of 2	) dB be	elov	v the	applic	able lim
Note 2: "N/F" m														
Note 3: Measur													/	
Note 4: For rest											fiel	d str	ength a	as meas
	Peak-Dete													
with the	reak-Dell	sciol mee	.s iiie A'	∨-∟⊪	iii Su	Junalu	ne r	<u>v</u> iev	er ubes	5 пос п	eeu	10 D	e iepoi	Leu III



	ode			HT20	)					Tes	st F	req.	(MI	Hz)		5	200		
N <sub>TX</sub>				3						Ро	lari	zatio	n			Н			
	Lovo	l /dDu	1/(m)															Date: 201	3.04.21
127		l (dBu	v/iii)															Duto. 20	
114.3																			
101.6																			
88.9																			
76.2		линт		_nn		_												FCCIP	ART15E
63.5					5						_						FCC	PART15	E (AVG)
50.8	$\vdash$		24																
38.1	$\vdash$		13																
25.4	$\vdash$																		
12.7	1																		
C		0 4000	<u>    </u> ).600(	0.8000.		120	00.	16	000.	2000	0.	240	00.	28	000.	320	000.	36000.	40000
										Frequen				2.0				22000	
							/er										/Pos	T/Pos	
		-	Freq	Le	vel	L	imit	Li							Facto	or			Remark
1			MHz 16 Qi	dBu' a 33					-	dBuV		1B/m 2/1 35		dB	dB 34.98		cm	deg	Averag
2										40.28					34.98				-
3															34.86				Averag
4	Ļ														34.86				
5		1040	0.00	0 56	. 37	-11	1.93	68	.30	44.27	7 3	37.74	Ļ	9.76	35.40	)			Peak
	)" ~~	0000		irious	0.00	loci	on l		the	+ 0/00	~ d	the	21/2					onnlia	
Note 1: ">20dE																			
Note 2: "N/F" n Note 3: Measu																wer	e de	lected.	)
Note 3: Measu																( fie	ld str	enath	as mea
with the																			



Modulation M	ode	•		НТ	20					Те	st F	req.	(MI	Hz)		5	200		
N <sub>TX</sub>				3						Ро	lari	zatio	n			V	,		
																		Date: 201	2 04 24
127	Lev	el (ar	uV/m)	)														Date. 201	J-04-21
114.3	$\vdash$																		
101.6																			
88.9	$\vdash$																		
76.2			T:-		L.													FCCIPA	RT15E
63.5			24			5										_	FCC	PART15	E (AVG)
50.8	Ħ		<u>1</u>											+					
38.1	$\vdash$		-18							+									
25.4	$\vdash$													+					
12.7	+													-					
(	100	0 400	0.600	0,80	000	120	000.	16	000.	2000	)0.	240	00.	280	000.	320	00.	36000.	40000
										Frequer				2.5					
						0	ver	Li	mit	Read	Ar	ntenn	na C	able	Pream	рA	/Pos	T/Pos	
			Fred	1	Leve	l L	imit								Facto				Remark
		-																	
		_	MHz		BuV/I				-	dBuV		dB/m		dB	dB		cm	deg	
1										31.2					34.98				Average
2										44.2					34.98 34.86				Peak
4															34.86				Average Peak
5															35.40				Peak
Noto 1. "- 0045	)" ~		0.00	uric		nicc	ion l	avala	the	t over		the	21/2	of O	거요머		w +h -	onnlia	oble line
Note 1: ">20dE																			
Note 2: "N/F" r Note 3: Measu																wer	e de	ieciea.)	
Note 3: Measu																fic	ld etr	onath a	e mooo
																		engin a	



Modulation Mod	e	HT20				Tes	t Free	q. (N	/Hz)		52	40		
N <sub>TX</sub>		3				Pola	arizat	ion			Н			
													Data: 204	2 04 24
127	vel (dBuV/m	)											Date: 201	3-04-21
114.3				_				_						
101.6				_				_						
88.9				_				_						
76.2								Л			_		FCCIPA	RT15E
63.5			_ L 5									500		
50.8	- 24			_			_	_				ru	PART15	(AVG)
38.1	1			_										
25.4														
12.7														
<sup>0</sup> 10	00 4000.60	00.8000.	12000.	16	6000.	20000		4000	. 28	000.	3200	0.	36000.	40000
						Frequenc								
	_		0ver			Read						Pos	T/Pos	
	Fre	q Level				Level				Facto	r			Remark
	MHz	dBuV/m				dBuV		 m		dB				
1		00 34.79			-		-					cm	deg	Avenage
2		00 44.86												<u> </u>
3		00 33.02												Average
4		00 45.87												Peak
5		00 55.96												Peak
Note 1: ">20dB" ı	means cr		niesion	امريما	e tha	taxoor	d the		al of 20			the	annlia	ahla lim
Note 2: "N/F" me Note 3: Measure	ans Noth	ing Found	l spuric	ous er	nissi	ons (N	o spu	riou	s emis	sions v				
Note 4: For restri with the F	cted ban	ds, the pe	ak mea	asure	ment	is fully	suffi	cien	t, as th	ie max				

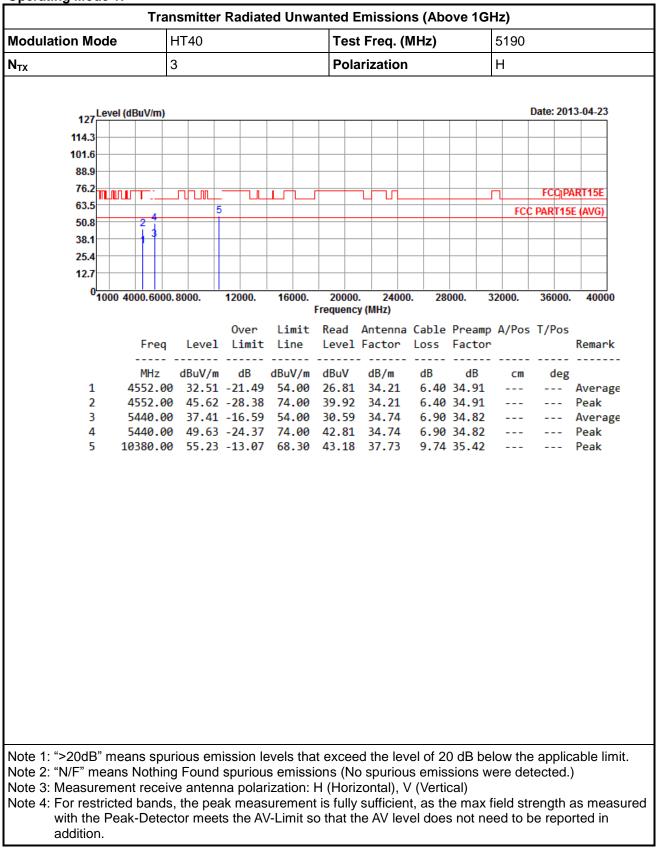


Modulation M	od	е	_	НТ	20	_	_	_		Те	st F	req.	(MI	Hz)		5	240		
N <sub>TX</sub>				3						Ро	lari	zatio	n			V	,		
																		Date: 201	2 04 24
12		/el (al	BuV/m	)														Date. 201	J-04-21
114.3	3																		
101.0	6																		
88.9	9													-					
76.2	2		<b>—</b> ·		u de la companya de l				н п		_							FCCIPA	RT15E
63.						5											FCC	PART15	
50.8	8		-24			-										_			. (110)
38.	1		- 3			_													
25.4	4																		
12.7																			
	100	00 400	00.600	00.80	000.	120	000.	16	DOO.	2000 Frequer		240 //H7)	00.	28	000.	320	000.	36000.	40000
						0		1.4.							D		(D	T (D	
			Free		Lovo	-	ver imit								Facto		Pos	T/Pos	Remark
			Free	4	Leve.	L L	1011							.055	Facto				Nelliark
			MHz	d	lBuV/r	n	dB	dBu	V/m	dBuV		dB∕m		dB	dB		cm	deg	
1	L	50							-	33.4					34.97				Average
2	2									44.2					34.97				_
3	3	5	355.0	90	36.83	3 -1	7.17	54	.00	30.2	1 3	34.65	5	6.83	34.86				Average
4	1	5	355.0	90	50.99	9 -2	3.01	74	.00	44.3	7 3	34.65	5	6.83	34.86				Peak
<u>,</u>	5	104	480.0	90	55.20	5 -1	3.04	68	.30	42.9	9 3	37.79	)	9.80	35.32				Peak
Note 1: ">20d	3" r	near	ns sp	urio	us er	niss	ion le	evels	s tha	t exce	ed	the le	eve	of 20	) dB b	elo	w the	e applic	able lim
Note 2: "N/F" r																			
Note 3: Measu																		/	
Note 4: For res																fie	ld str	ength a	as meas
																		be repo	
additic	n																		



# 3.7.9 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

#### **Operating Mode 1:**





Iodulation M	ode			H	Т40					Tes	t Fre	q. (I	MHz)		51	90			
N <sub>TX</sub>				3						Pola	arizat	ion			V				
	Lovo		1/100														Date: 2	013-04-2	93
		l (dBu	uv/m	1) 													Date. 2	013-04-4	7
114.3												+							
101.6												-							
88.9												-							
76.2		<b>∩</b> ∎r†	<b>Г</b>		ίπ							л			л		FCC	PART15	E
63.5			4			5										FCC	PART1	5E (AVG	)
50.8		1	2 1 3																
38.1			11																
25.4																			
12.7																			
(	1000	400	0.60	00.8	000.	12	000.	160	000. F	20000 requence		4000	0. 28	000.	320	00.	3600	0. 40	000
						0	ver	Li					Cable	Pream	5 A,	/Pos	T/Po	s	
			Fre	q	Leve	1 L	imit	Li	ne		Fact		Loss	Factor	•			Rema	rk
		-	MHz		dBuV/	 m	dB	dBu	V/m	dBuV				dB		cm	de	 g	
1										26.41				34.91				Aver	<u> </u>
2										39.25				34.91					
3										31.89			6.90 6.90	34.82					_
5													9.74						
Note 1: ">20dE Note 2: "N/F" r Note 3: Measu Note 4: For res with th additio	near rem strict e Pe	ns N ent ed b	oth rece	ing eive ds, 1	Foun ante the pe	d sp nna eak r	uriou polai neas	s en izati surer	nissio on: H nent	ons (N I (Hori is fully	o spu zonta suffi	riou I), \ cien	is emis / (Verti	sions v cal) ie max	vere fiel	e det d str	tectec	l.) i as m	easi



Iodulation M	od	е		H	HT40	)					Tes	t F	req. (	(MHz	z)		5	230				
N <sub>TX</sub>				3	3						Pol	ari	zatior	n			Н					
	Le	/el (dE	RuV/ı	m)															Date: 2	2013	3-04-23	
114.3																						
101.6 88.9																						
76.2																				_		
63.5			Τ.		лп												Л			·	RT15E	
50.8			2	-	_		5											FCC	PART	15E	(AVG)	
38.1			-			_																
25.4	ı—					_																
12.7	-																					
(		0 40	00.6	000	8000.		400	000.	46	000.	2000	0	2400	0	200	000.	200	00.	360	0	4000	0
	101	JU 40	00.0	000.	0000.		120	.00	10		requen			<i>.</i>	200		320	00.	200	JU.	4000	U
							0	ver	Li	mit	Read	Ar	ntenna	a Cal	ble	Pream	A	/Pos	T/Po	os		
			Fre	eq	Lev	/el	L	imit	Li	ne					SS	Facto	r				Remar	k
			MH		dBul	//m		dB	dBui		dBuV		lB/m		 R	dB		 cm	de			
1	L	4									27.09					34.92				_	Avera	ge
2	2										39.44		34.22			34.92				-	Peak	·
З											30.16					34.82					Avera	ge
4																34.82 35.34					Peak Peak	
_	,	10	400	.00		. 10	-1	5.14	00	. 50	42.95	-		9	./9	55.54					reak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea rer stria e F	ans I nent cted	Noti rec bar	ning ceiv nds,	g Foι e an , the	ind ten pea	spi na   ak r	uriou polaı neas	s en izati surer	nissi on: I nent	ons (N H (Hor is fully	o s izoi / sı	purio ntal), ufficie	us e V (V nt, a	mis: 'ertic s th	sions v cal) e max	ver fie	e de Id str	tecte engt	d.) h a	s mea	ası



/lodulation M	od	e		H	T40					Tes	t Freq	. (N	MHz)		52	230			
N <sub>TX</sub>				3						Pola	arizati	on			V				
	Lev	el (dB	aV/m	1)												1	Date: 20	013-04-2	3
	1 1			1															٦
114.3 101.6																			
88.9																			
76.2				<u> </u>			<u> </u>		ļ.,		,				_		FCO	PART15	
63.5			<u> </u>			5										FCC		5E (AVG	
50.8	╞		2 1			Ĭ						-			_	ru	PARTI	JE (AVG	<u>'</u>
38.1			13		_							-			_				-
25.4	ŀ											-							-
12.7			++		_							+							-
(	100	0 400	)0.60	00.8	000.	12	000.	16	000.	20000		000	). 28	000.	320	00.	3600	0. 400	000
										requend			<b>C</b> 1 <b>1</b>			(5	т (р		
			Fre	q	Leve		ver imit						Cable Loss			/Pos	1/Po	s Rema	rk
		-																	
1		49	MHz 588.		dBuV/ 33.4					dBuV 27.73				dB 34.92		сm 	de	g Aver	age
2										40.24				34.92					<u> </u>
3										31.04				34.82				Aver	age
4													6.90						
5	•	104	160.	00	55.9	5 -1	2.35	68	.30	43.72	37.7	8	9.79	35.34				Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea ren stric e P	ans N nent cted	loth rec ban	ing eive ds,	Foun ante the pe	d sp nna eak i	uriou polaı neas	s en rizati surer	nissio on: H nent	ons (N H (Hori is fully	o spuri zontal) suffic	iou ), V ien	s emis / (Vertie t, as th	sions v cal) ie max	ver fie	e det Id str	ectec	l.) i as m	easi



#### **Operating Mode 2:**

Modulation M	od	е	ŀ	HT40					Tes	t Fre	q. (N	MHz)		5	190			
N <sub>TX</sub>			3	3					Pola	arizat	ion	-		Н				
127	Le	/el (dBu\	//m)												I	Date: 20	013-04-3	21
114.3											_			_				_
101.6											_			_				_
88.9											_							_
76.2																FCCI	PART15	E
63.5					5										FCC		5E (AVC	
50.8		2	4		Ť.					_	-			-				<u>"</u>
38.1	$\vdash$		3								_							_
25.4											_							_
12.7											_							_
C	400	0 4000.	6000	0000	47	000	460	000	20000		4000	200	000	320		2600	40	
	100	JU 4000.	0000.	0000.	12	000.	100	000. F	requenc		24000 :)	J. 28	000.	J20	.00	3600	u. 40	000
						ver			Read	Ante	nna	Cable	Pream	ρA	/Pos	T/Po	s	
		F	req	Leve	1 L	imit	Li	ne	Level	Fact	or	Loss	Facto	r			Rema	ark
				dBuV/														
1			Hz 2 00	32.3		dB 1 69			dBuV 26.61	dB/ 34.		dB 6 40	dB 34.91		с <b>т</b>	de	-	age
2				45.3					39.64				34.91				Peal	_
3				37.3					30.53		74		34.82				Aver	rage
4				49.5					42.72				34.82				Peal	c
5		1038	0.00	55.1	1 -1	3.19	68	.30	43.06	37.	73	9.74	35.42				Peal	c
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with the additio	nea rer stria e F	ans No nent re cted ba	othing eceiv ands,	g Foun e ante , the p	d sp nna eak i	uriou polai meas	s en rizati surer	nissio on: H nent	ons (No I (Hori is fully	o spu zonta suffi	riou I), V cien	is emis / (Vertiont, as th	sions v cal) ie max	ver fie	e det Id str	ength	l.) i as m	eası



Iodulation M	od	е		Н	IT40					Tes	t Freq	. (N	/Hz)		5	190			
I <sub>TX</sub>				3						Pola	arizatio	on			V	,			
	Le	vel (dE	3uV/r	n)												1	Date: 2	013-04-2	21
				1															7
114.3 101.6	1																		
88.9	1				_														
76.2				_			<u> </u>		ļ.,						_		FCC	PART15	_
63.5					nnin	5						-				500			
50.8	⊫		2		_	Ĩ						-			_	FCC	PARTI	5E (AVG	<u>'</u>
38.1			13									-			_				_
25.4	<b>i</b>											-			_				-
12.7	-											-			_				-
(	10	00 400	00.6	000.8	8000.	12	000.	16	000.	20000	. 24	000	). 28	000.	320	00.	3600	0. 40	000
										Frequenc			20						
							)ver			Read	Anten	na	Cable	Pream	A	/Pos	T/Po	s	
			Fre	eq	Leve	1 I	.imit	Li	ne				Loss	Facto	•			Rema	rk
			MH:		dBuV/		dB	dBul		dBuV	dB/m			dB			de		
1		4								26.09				34.91				ь Aver	age
2	2									38.61				34.91					· ·
Ξ										31.92				34.82					_
4										45.09									
2	•	101	200	.00	55.Z	0 -1	13.02	00	. 50	43.23	57.7	2	9.74	55.4Z				Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea Iren stri e F	ans N nent cted	Votł rec bar	ning eive nds,	Foun e ante the p	d sp nna eak	uriou polai meas	s en rizati surer	nissi on: I nent	ons (N H (Hori ∷is fully	o spuri zontal) suffici	ou , V en	s emis ' (Vertio t, as th	sions v cal) ie max	ver fie	e det Id str	tecteo	l.) i as m	easi



Iodulation M	od	е		Н	IT40					Tes	t Fred	ą. (I	MHz)		5	230			
N <sub>TX</sub>				3						Pola	arizat	ion			Н				
	Le	vel (dB	8uV/n	n)												1	Date: 2	013-04-2	1
				1															7
114.3 101.6																			
88.9																			
76.2																			
63.5			Τ		nnin	5						Л_			Л			PART15	
50.8			2 4		_	5						_			_	FCC	PART1	5E (AVG	)
38.1			13									_							_
25.4	-		+									_			_				_
12.7	_			_								_			_				_
(	10	00 400	00.60	000 9	2000	12	2000.	16	000.	2000	<u> </u>	4000	0 20	000.	320	00	3600	0. 400	
	10	JU 400				12		10		Frequenc			0. 20		520		5000	0. 400	
							Over			Read	Ante	nna	Cable	Pream	Aq	/Pos	T/Po	s	
			Fre	₽q	Leve	1	imit	Li	ne				Loss	Facto	r			Rema	rk
		-	MHz	,	dBuV/	·	dB	dBu	 V/m	dBuV	 dB/i			dB		сm	de	σ	
1		45								27.22				34.92				Aver	age
2										39.70				34.92				Peak	
=										30.21				34.82					_
4													6.90 9.79						
Note 1: ">20dE	3" r	near	ıs s	puri	ous e	miss	sion l	evels	tha	t excee	d the	lev	el of 20	dB b	elo	w the	appl	icable	limit
Note 2: "N/F" r	nea	ans N	Noth	ning	Foun	d sp	ouriou	is en	nissi	ons (N	o spu	riou	ıs emis	sions v					
Note 3: Measu																			
Note 4: For res																			
		'eak-	-De	tect	or me	ets	ine A	v-Lin	nit so	o that t	ne AV	lev	el does	s not n	eec	t o b	e rep	orted i	n
additio	n																		



/lodulation M	od	е		Н	T40					Tes	t Freq	. (N	MHz)		5	230			
N <sub>TX</sub>				3						Pola	arizati	on			V				
	.Lev	vel (dB	3uV/n	1)												1	Date: 20	013-04-2	21
127 114.3	1 1																		
114.3																			
88.9																			
76.2				<u> </u>					ļ.,						_		FCO	PART15	-
63.5			I		JUUL	5									J 4				
50.8	╞╡		2		_							-			_	FCC	PART	5E (AVG	<u>/</u>
38.1			13									-							_
25.4	ŀ		++		_							-			_				_
12.7	-		+									-			_				_
(	) 100	0 400	00.60	00.8	000.	12	000.	16	000.	20000	24	000	). 28	000.	320	00.	3600	0. 40	000
										requenc			. 20				0000		
							ver			Read	Anter	na	Cable	Pream	A	/Pos	T/Po	s	
			Fre	q	Leve	1 L	imit	Li	ne				Loss	Factor	•			Rema	rk
			MHz		dBuV/	 m	 dB	dBul		dBuV	dB/m			dB		 ст	de		
1		4								27.51				34.92				ь Aver	age
2	2									40.12				34.92					<u> </u>
З										31.01				34.82					_
4													6.90						
2	,	104	+00.	00	57.1	0 -1	1.20	00	. 50	44.07	57.7	0	9.79	55.54				Peak	•
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea rer stric e F	ans N nent cted	Noth rec ban	iing eive ds,	Foun ante the pe	d sp nna eak i	uriou polaı neas	s en rizati surer	nissi on: I nent	ons (N H (Hori is fully	o spur zontal suffic	iou ), ∨ ien	s emis / (Vertion t, as th	sions v cal) ie max	ver fie	e det Id str	ectec	l.) i as m	easi



#### **Operating Mode 3:**

Modulation M	od	е		Н	T40					Tes	st F	req.	(MH	z)		5	190			
N <sub>TX</sub>				3						Po	lariz	zatio	n			F	l			
13	,Lev	vel (dE	BuV/n	n)														Date:	2013	-04-21
114.:																				
101.0																				
88.																				
76.	2		T.													Л		FC	) PAF	T15E
63.	5		-24	-	_	5	_										FCO	: PAR	<b>15E</b>	(AVG)
50.	3		- 13	-							_					_				
38.	1						_													
25.4	1				_															
12.					_															
		0 40	00.60	000.8	3000.	1	2000.	160	000.	2000	0.	240	00.	280	000.	320	000.	360	00.	40000
									F	Frequen	cy (N	(Hz)								
							Over								Pream		/Pos	T/P	os	
			Fre	pe	Leve	1	Limit	Li	ne	Leve!	l Fa			SS	Facto	r			F	Remark
		E/	MHz		dBuV/		dB			dBuV		IB/m		B	dB		cm		eg	
	L		000. 000		47.0					41.13		34.30			35.00					Average
	2				56.8					50.93		34.30			35.00					Peak
	3 1				45.8					39.17		4.67			34.85					Average
	+ 5									50.78 45.84		4.67			34.85					<sup>p</sup> eak Peak
Note 1: ">20dl Note 2: "N/F" r																				ble lim
Note 3: Measu	irer	nent			e ante	nna	pola	rizati	on: H	H (Hòi	izoı	ntal),	V (\	/ertio	cal)				,	s meas



Modulation Mod	le	Н	T40				Tes	t Fr	req. (I	MHz)		51	90		
Ν <sub>τχ</sub>		3					Pol	ariz	ation			V			
	vol (dBu)//r	-												Date: 201	3.04.21
127	vel (dBuV/r													5410.201	5-04-21
114.3															
101.6		+													
88.9		-			_										
76.2				——————————————————————————————————————				-+-						FCCIPA	RT15E
63.5	24		5		+								FCC	PART15	(AVG)
50.8	13	+			-	-		-				-		1711110	. (110)
38.1		_	_		_			-+							
25.4			_												
12.7															
°10	00 4000.6	000.8	3000.	12000.	16	6000.	2000 Frequenc		2400	0. 28	000.	3200	00.	36000.	40000
				~										<b>T</b> (D	
	<b>F</b>		1	0ver						Cable			Pos	1/Pos	Demente
	Fre	eq	Level	LIMI			Level			Loss	Facto	r			Remark
	MH:	,	dBuV/m	dB			dBuV		 B/m		dB		cm	deg	
1			46.75											-	Average
2			56.52								35.00				
3			46.34												Average
4			58.60												Peak
5	10380	.00	58.62	-9.6	8 68	3.30	46.57	3	7.73	9.74	35.42				Peak
Note 1: ">20dB" Note 2: "N/F" me Note 3: Measure Note 4: For restri with the I	ans Noth ment rec cted bar	ning eive ids,	Found antenr the pea	spurio na pola ak mea	us er arizat isure	missi ion:   ment	ons (N H (Hori t is fully	o sp izor / su	puriou ntal), \ fficier	is emis / (Verti ht, as th	sions v cal) e max	vere fiel	e det d str	ected.)	as meas



127       Level (dBuV/m)       Date: 2013-04-21         114.3       101.6       88.9         76.2       111.1       FCCIPART15E         63.5       5       6         50.8       2.4       6         38.1       7       6         01000 4000.6000.8000.       12000.       16000.       20000.       24000.       28000.       32000.       36000.       40000         Freq Level Limit Read Antenna Cable Preamp A/Pos T/Pos         Freq Level Limit Line Level Factor Loss Factor       Remark         MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg         1       4576.00       32.73 -21.27       54.00       27.02       34.22       6.41       34.92        Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92         Peak	Modulation Mo	ode			Η٦	40					Tes	st F	req. (	(MHz	z)		5	230		
114.3       101.6 <td< th=""><th>N<sub>TX</sub></th><th></th><th></th><th></th><th>3</th><th></th><th></th><th></th><th></th><th></th><th>Po</th><th>ari</th><th>zatio</th><th>n</th><th></th><th></th><th>Η</th><th></th><th></th><th></th></td<>	N <sub>TX</sub>				3						Po	ari	zatio	n			Η			
114.3       101.6 <td< th=""><th></th><th></th><th>l (dB</th><th>uV/m)</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Date: 201</th><th>3-04-21</th></td<>			l (dB	uV/m)															Date: 201	3-04-21
101.6		Leve		uvilij																
88.9       76.2																				
76.2       76.2																				
63.5 63.5 63.6 63.6 63.7 50.8 38.1 25.4 12.7 0 1000 4000.6000.8000. 12000. 16000. 20000. 24000. 28000. 32000. 36000. 40000 Frequency (MHz) Over Limit Read Antenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4576.00 32.73 -21.27 54.00 27.02 34.22 6.41 34.92 Average 2 4576.00 45.58 -28.42 74.00 39.87 34.22 6.41 34.92 Peak 3 5355.00 34.64 -19.36 54.00 28.02 34.65 6.83 34.86 Peak																				
50.8       2.4       1 <td></td> <td>πĻШ</td> <td></td> <td>Τ:_</td> <td></td> <td>1 III</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Л</td> <td></td> <td>FCCIPA</td> <td>RT15E</td>		πĻШ		Τ:_		1 III	_										Л		FCCIPA	RT15E
38.1       36.00       36.00       36.00       40.00       36.00       40.00       6.1       36.00       40.00       6.1       6.1       36.00       40.00       6.1       6.1       36.00       40.00       6.1       6.1       6.1       7.1       6.1       7.1       7.0							5											FCC	PART15	e (AVG)
25.4       1.2.7       1.2.7       1.200.       16000.       20000.       24000.       28000.       32000.       36000.       40000         1000 4000.6000.8000.       12000.       16000.       20000.       24000.       28000.       32000.       36000.       40000         Frequency (MHz)         Over Limit Read Antenna Cable Preamp A/Pos T/Pos         Frequency (MHz)       1.100       1.100       1.100       1.100       1.100       1.100       1.100       4.000         MHz       dBuV/m       dB       dBuV/m       dB       dB       cm       deg         1       4576.00       32.73       -21.27       54.00       27.02       34.22       6.41       34.92        Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92         Peak         3       5355.00       34.64       -19.36       54.00       28.02       34.65       6.83       34.86        Average         4       5355.00       46.71       -27.29       74.00       40.09       34.65       6.83       34.86        Peak				14																
12.7       12.7       1000 4000.6000.8000.       12000.       16000.       20000.       24000.       28000.       32000.       36000.       40000         Over Limit Read Antenna Cable Preamp A/Pos T/Pos         Freq Level Limit Line Level Factor Loss Factor       Remark         MHz dBuV/m dB dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg         1       4576.00       32.73       -21.27       54.00       27.02       34.22       6.41       34.92        Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92        Peak         3       5355.00       34.64       -19.36       54.00       28.02       34.65       6.83       34.86        Average         4       5355.00       46.71       -27.29       74.00       40.09       34.65       6.83       34.86        Peak				11																
0 1000 4000.6000.8000. 12000. 12000. 12000. 16000. 16000. 20000. 24000. 2800. 2802. 2802. 2802. 280. 2802. 280. 2802. 280. 2802. 280. 28																				
Frequency (MHz)         Over       Limit       Read       Antenna       Cable       Preamp       A/Pos       T/Pos         Freq       Level       Limit       Line       Level       Factor       Loss       Factor       Remark         MHz       dBuV/m       dB       dBuV/m       dBuV       dB/m       dB       dB       cm       deg         1       4576.00       32.73       -21.27       54.00       27.02       34.22       6.41       34.92        Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92        Peak         3       5355.00       34.64       -19.36       54.00       28.02       34.65       6.83       34.86        Average         4       5355.00       46.71       -27.29       74.00       40.09       34.65       6.83       34.86        Peak																				
Over         Limit         Read         Antenna         Cable         Preamp         A/Pos         T/Pos           Freq         Level         Limit         Line         Level         Factor         Loss         Factor         Remark           MHz         dBuV/m         dB         dBuV/m         dBuV         dB/m         dB         dB         cm         deg           1         4576.00         32.73         -21.27         54.00         27.02         34.22         6.41         34.92          Average           2         4576.00         45.58         -28.42         74.00         39.87         34.22         6.41         34.92          Peak           3         5355.00         34.64         -19.36         54.00         28.02         34.65         6.83         34.86          Average           4         5355.00         46.71         -27.29         74.00         40.09         34.65         6.83         34.86          Peak	U	1000	400	0.600	0.80	000.	120	000.	16					00.	280	000.	320	00.	36000.	40000
Freq         Level         Line         Level         Factor         Loss         Factor         Remark           MHz         dBuV/m         dB         dBuV/m         dBuV/m         dBuV         dB/m         dB         dB         cm         deg           1         4576.00         32.73         -21.27         54.00         27.02         34.22         6.41         34.92          Average           2         4576.00         45.58         -28.42         74.00         39.87         34.22         6.41         34.92          Peak           3         5355.00         34.64         -19.36         54.00         28.02         34.65         6.83         34.86          Average           4         5355.00         46.71         -27.29         74.00         40.09         34.65         6.83         34.86          Peak							~												<b>T</b> (D	
MHz       dBuV/m       dB       dBuV/m       dBuV/m       dBuV       dB/m       dB       dB       cm       deg         1       4576.00       32.73       -21.27       54.00       27.02       34.22       6.41       34.92         Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92        Peak         3       5355.00       34.64       -19.36       54.00       28.02       34.65       6.83       34.86        Average         4       5355.00       46.71       -27.29       74.00       40.09       34.65       6.83       34.86         Peak				Enor		Lovol												/Pos	T/Pos	Romank
1       4576.00       32.73       -21.27       54.00       27.02       34.22       6.41       34.92         Average         2       4576.00       45.58       -28.42       74.00       39.87       34.22       6.41       34.92         Peak         3       5355.00       34.64       -19.36       54.00       28.02       34.65       6.83       34.86        Average         4       5355.00       46.71       -27.29       74.00       40.09       34.65       6.83       34.86         Peak			_	rreq																
2 4576.00 45.58 -28.42 74.00 39.87 34.22 6.41 34.92 Peak 3 5355.00 34.64 -19.36 54.00 28.02 34.65 6.83 34.86 Average 4 5355.00 46.71 -27.29 74.00 40.09 34.65 6.83 34.86 Peak				MHz	d	lBuV/m	1	dB	dBu	ıV∕m	dBuV	c	1B/m	d	В	dB		cm	deg	
3 5355.00 34.64 -19.36 54.00 28.02 34.65 6.83 34.86 Average 4 5355.00 46.71 -27.29 74.00 40.09 34.65 6.83 34.86 Peak	1														.41	34.92				Averag
4 5355.00 46.71 -27.29 74.00 40.09 34.65 6.83 34.86 Peak																				
																				_
J 10400.00 J0.04 -9.00 00.30 40.41 J7.70 9.79 J3.94 FEAK																				
	,		104	100.0	0	50.04		9.00	00		40.41		,,,,0	9	. / 9	55.54				reak
																	ver	e det	ected.)	
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 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)		<u></u>		1 10+0	oto.		to +k		1 1 10	mit 0/			11110		1000	n n n + n	$\sim \sim \sim$	3 to b	o ropo	nt od in



Modulation Mo	de	HT40				Tes	t Free	q. (N	MHz)		52	230		
N <sub>TX</sub>		3				Pola	arizat	ion			V			
													Data: 204	2 04 24
127	evel (dBuV/m)												Date: 201	3-04-21
114.3														
101.6								_			_			
88.9								_						
76.2					- 			_			_		FCCIPA	RT15E
63.5								л_			┙╙	500		
50.8	2							_			_	FCC	PART15E	: (AVG)
38.1	3													
25.4														
12.7														
0 <mark>-</mark> 10	000 4000.600	0.8000.	12000.	160	000.	20000	. 2	4000	). 28	000.	320	00.	36000.	40000
					F	requenc	y (MHz	)						
			0ver						Cable				T/Pos	
	Freq	Level	Limit	Lir	ne	Level	Fact	or	Loss	Facto	r			Remark
	MHz	dBuV/m			-	dBuV	-			dB		CM	deg	
1		0 35.15												<u> </u>
2		0 47.46												
4		0 39.22 0 53.71												Average Peak
5		0 58.81												Peak
,	10400.0	0 30.01				40.50	57.		5.75	55.54				I Cuk
Note 1: ">20dB"	means sp	urious em	ission le	evels	that	t excee	d the	lev	el of 20	0 dB b	elov	v the	applic:	able lim
Note 2: "N/F" me														
Note 3: Measure													,	
Note 4: For restr			•			•			•	,	fiel	d str	ength a	as meas
	Peak-Dete													



# 3.7.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

#### **Operating Mode 1:**

Modulation M	ode		VHT	Г80				Tes	t Freq	ı. (N	MHz)		5210		
N <sub>TX</sub>			3					Pola	rizati	ion			Н		
12	Level (	dBuV/m)	)									1		Date: 201	3-04-23
114.3										_					
101.0	5									_					
88.	<b>)</b>									_					
76.					n		- -			-				FCCiP	ART15E
63.	5	U I	U	5									FCI	C PART15	
50.	3	24								-					
38.	ı	-13								_					
25.4	1														
12.	7														
	0 1000 4	1000.600	0.800	0.	12000.	16	000.	20000	. 24	4000	). 28	000.	32000.	36000.	40000
							I	Frequenc	y (MHz)						
					0ver							Preamp		T/Pos	
		Free	l L	evel	Limit	Li	ne	Level	Facto	or	Loss	Factor			Remark
		MHz		uV/m	dB	dBu	 V /m	dBuV	dB/r		dB	dB			
	L				-18.78		-					34.92	Cm	deg	Average
					-29.35			38.93				34.92			Peak
3	3	5440.0	)0 3	6.95	-17.05	54	.00	30.13	34.7	74	6.90	34.82			Average
4					-26.41							34.82			Peak
-	5 1	.0420.0	90 5	3.36	-14.94	68	.30	41.22	37.7	75	9.77	35.38			Peak
Note 1: ">20dl Note 2: "N/F" r Note 3: Measu Note 4: For res with th additic	neans iremei stricte e Pea	Nothi nt rece d banc	ng Fo ive a ls, the	ound ntenr e pea	spuriou na pola ak mea:	us en rizati surer	nissi ion: I ment	ons (Ne H (Hori ∷is fully	o spur zontal suffic	iou ), ∖ ;ien	s emis / (Verti it, as th	sions w cal) ne max	vere de field st	tected.)	) as meas



Modulation M	od	е		V	HT80	)				Tes	t Fre	q. (I	MHz)		5	5210			
N <sub>TX</sub>				3						Pola	ariza	tion			١	/			
407	Le	vel (dE	3uV/n	n)													Date: :	2013	-04-23
12/ 114.3	1 1																		
101.6																			
88.9					_														
76.2			<u> </u>				<u> </u>										FCC	h DA R	T15E
63.5			·	+		5										FC	C PART	· · · · ·	
50.8			2 1	-	-	Ť										ru	- FAN	IJE	AVO
38.1			13		_														
25.4			++	-	_							_							
12.7	-		+	-															
(	100	00 400	00.60	) 00.8	3000.	1	2000.	16	000.	20000	). 2	24000	0. 28	000.	32	000.	360	00.	40000
									F	Frequence	y (MHz	2)							
			_				0ver						Cable			A/Pos	T/P		
			Fre	pe	Leve	21	Limit						Loss	Facto	or			F	lemark
			MHz	,	dBuV/	/m	dB			dBuV		'm	dB	dB		cm	d	eg -	
1		46							-	28.96	-			34.92					verage
2										39.39				34.92					eak
Ξ													6.90						verage
4													6.90 9.77						'eak 'eak
Note 1: ">20dE	3" r	near	is si	ouri	ous e	mis	sion l	evel	s tha	t excee	ed the	e lev	el of 2	0 dB ł	pelo	w the	e anr	olica	ble lim
Note 2: "N/F" n																			
						enna	i pola	rizati	on: I	H (Hori	zonta	ıl), ∖	/ (Verti	cal)					
Note 3: Measu	• • •																		
Note 4: For res	strie	cted	ban																
Note 3: Measu Note 4: For res with th additio	strie e F	cted	ban																



#### **Operating Mode 2:**

Modulation M	od	е		V	HT80					Tes	t Fre	a. (I	MHz)		52	210			
Ν <sub>τχ</sub>		-		3							arizat	<u> </u>			Н				
															1				
12	,Le	/el (dB	luV/m	)												[	)ate: 2	013-04-	23
114.3																			
101.							_												_
88.	-														_				_
76.	2		<b>—</b> ··		ιu							ГL			_		FCO	PART15	F
63.	5					5									┙╙	FCC		5E (AVC	
50.	3		24			Ť					-				+				<u>''</u>
38.	I –		13																_
25.4	1		++									_			-				_
12.	/—		++												-				_
	0 10	00 400	)0.60	00.8	000.	1:	2000.	160	000.	2000	). 2	24000	0. 28	000.	3200	)0.	3600	0. 40	000
										requenc									
							0ver						Cable			/Pos	T/Po		
			Fre	q	Leve	1	Limit	Li	ne	Level	Fact	or	Loss	Facto	•			Rem	ark
		-	MHz		dBuV/	 m	dB	dBu	//m	dBuV	dB/	m	dB	dB		cm	de	σ	
1	L	46					19.19			29.09	-			34.92				-	rage
:	2	46	503.	00	44.2	3 -	29.77	74	.00	38.51	34.	22	6.42	34.92	-			Peal	< _
	3						16.92			30.26				34.82				Ave	
	1 5						26.37			40.81 42.16				34.82 35.38				Peal Peal	
	·	10-	+20.	00	54.5	0 -	14.00	00		42.10	57.	,,,	5.77	55.50				i ca	•
Note 1: ">20dl	3" r	near	is sp	ouri	ous e	mis	sion le	evels	s that	t excee	d the	e lev	el of 2	0 dB be	elov	v the	appl	icable	limit
Note 2: "N/F" r	nea	ans N	loth	ing	Foun	d sj	ouriou	is en	nissio	ons (N	o spu	riou	is emis	sions v					
Note 3: Measu																			
Note 4: For real																			
with th	еF	'eak-	<ul> <li>Det</li> </ul>	ecto	or me	ets	the A۱	∕-Lin	hit so	o that t	ne AV	' lev	el doe	s not n	eed	to b	e rep	orted	IN
additic																	0.0p		



Modulation M	ode			VH	T80					Tes	t Fred	q. (I	MHz)		52	210			
N <sub>TX</sub>				3						Pola	arizat	ion			V				
407	Leve	l (dBı	ıV/m)														Date:	201:	3- <mark>04-23</mark>
12/ 114.3																			
104.3																			
88.9																			
76.2																			
63.5			<b>-</b>			_						л_			Л				RT15E
50.8			2 4		:	5										FCC	: Par	T15E	(AVG)
38.1			13																
25.4																			
12.7																			
	1000	400	0.600	0.80	00.	12	000.	160	000. I	20000 Frequenc		4000 )	0. 28	000.	3200	)0.	360	000.	40000
						0	ver	Li	mit	Read	Ante	nna	Cable	Preamp	5 A/	/Pos	T/P	os	
			Freq		Level	L	imit	Li	ne	Level	Fact	or	Loss	Factor	•				Remark
		-	MHz	d	BuV/m		dB	dBu	V/m	dBuV	dB/	m	dB	dB		cm	d	leg	
1										29.02		22		34.92					Averag
2										39.34				34.92					Peak
3										30.98				34.82 34.82					Averag Peak
5										42.70				35.38					Peak
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	near rem strict e Pe	ns N ent i ed b	othir recei band	ng F ive a s, th	ound anten ne pe	sp na ak r	uriou polar neas	s en izati surer	nissi on: I nent	ons (N H (Hori ∷is fully	o spu zonta suffic	riou I), \ cien	is emis / (Verti ht, as th	sions v cal) ie max	vere fiele	e de <sup>.</sup> d str	tecte reng	ed.) th a	s mea



#### **Operating Mode 3:**

Modulation M	od	е		VH	T80					Tes	t Fre	q. (I	MHz)		52	210			
N <sub>TX</sub>				3						Pola	arizat	tion			Н				
																	D-4 20	42.04	
127	Le.	/el (dBu	IV/m)														Date: 20	13-04-	7
114.3												_			_				_
101.6	-																		-
88.9															-				-
76.2												ாட			Л		FCC	PART15	Ε
63.5			24		5	5										FCC	: PART1	5E (AVG	i)
50.8			13																
38.1																			
25.4																			
12.7																			
(	100	0 400	0.600	0.80	00.	120	000.	16	000.	20000 requence		24000	0. 28	000.	320	00.	36000	). 40	000
						0	ver	Li					Cable	Pream	ρA	/Pos	T/Po:	5	
		I	Freq	l	evel	L	imit	Li	ne	Level	Fact	or	Loss	Facto	r			Rema	irk
		-	MHz	dE	BuV/m		dB	dBu	V/m	dBuV	dB/		dB	dB		cm	de	 g	
1					43.38					37.49				35.00					· ·
2										47.96		30		35.00				Peak	
3					42.93 54 84					36.16 48.07		72 72		34.83 34.83				Aver Peak	
5										43.41				35.38				Peak	
Note 1: ">20dE Note 2: "N/F" n Note 3: Measu Note 4: For res with th additio	nea rer stric e F	ans N nent i cted b	othir recei and:	ig F ve a s, th	ound anten ne pea	sp na ak r	uriou polaı neas	s en rizati surer	nissi on: I nent	ons (N H (Hori is fully	o spu zonta suffi	iriou al), \ cien	us emis / (Verti ht, as th	sions \ cal) ie max	ver fie	e de Id sti	tected	.) as m	eası



Modulation M	od	е		VHT80	)				Tes	t Freq	. (N	/IHz)		52	10			
I <sub>TX</sub>				3					Pola	arizati	on			V				
	Lo	vol (dDu	V(m)													Date: 2	2013-04	.21
		vel (dBu	<u>v/iii)</u>														.010-01	
114.3																		
101.0											<b>—</b>							
88.9																		
76.2			2								1			л			PART1	
63. 50.			2 4		5										FCC	PART	15E (AV	<b>G)</b>
50.4 38.4			3															
25.4																		
12.7																		
	10	00 4000	.600	0.8000.	1	2000.	16	000. I	20000 Frequenc		000	. 28	000.	3200	0.	3600	0. 4	0000
						0ver	Li	mit	Read	Anten	na	Cable	Preamp	5 A/	Pos	T/Po	s	
		F	req	Lev	el	Limit							Factor	•			Rem	ark
			1Hz	dBuV	/m	dB			dBuV				dB		cm	de	 ≥g	
1	L			0 45.									35.00				Ave	_
	2			0 59.									35.00				- Pea	
	3 1			0 42.									34.83				-	rage
	+ 5			0 54. 0 54.									34.83				-	
Note 1: ">20dl Note 2: "N/F" r																		e limi
Note 3: Measu																	a.)	
lote 4: For res														field	d str	enat	h as n	neasi



# 3.8 Frequency Stability

# 3.8.1 Frequency Stability Limit

	Frequency Stability Limit
UNI	II Devices
	In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
LE-	LAN Devices
$\square$	N/A
IEE	E Std. 802.11n-2009
	The transmitter center frequency tolerance shall be $\pm$ 20 ppm maximum for the 5 GHz band and $\pm$ 25 ppm maximum for the 2.4 GHz band.

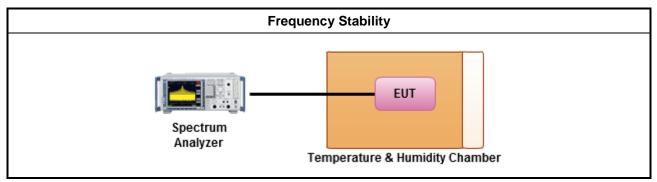
## 3.8.2 Measuring Instruments

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

### 3.8.3 Test Procedures

	Test Method						
$\boxtimes$	Refer as ANSI C63.10, clause 6.8 for frequency stability tests						
	$\boxtimes$	Frequency stability with respect to ambient temperature					
	$\boxtimes$	Frequency stability when varying supply voltage					
$\boxtimes$	For	conducted measurement.					
	$\boxtimes$	For conducted measurements on devices with multiple transmit chains: Measurements need only to be performed on one of the active transmit chains (antenna outputs)					
		radiated measurement. The equipment to be measured and the test antenna shall be oriented to in the maximum emitted power level.					

# 3.8.4 Test Setup





		Frequency Stability Result				
Мо	de	Frequency Stability (ppm)				
Condition	Freq. (MHz)	Test Frequency (MHz)	Frequency Stability (ppm)			
T <sub>20°C</sub> Vmax	5200	5200.01102	2.1192			
T <sub>20°C</sub> Vmin	5200	5200.01147	2.2058			
$T_{55^{\circ}C}$ Vnom	5200	5200.00591	1.5173			
$T_{50^{\circ}C}$ Vnom	5200	5200.01130	2.1731			
$T_{40^{\circ}C}Vnom$	5200	5200.00899	1.7288			
T <sub>30°C</sub> Vnom	5200	5200.00825	1.5865			
$T_{20^\circ C}$ Vnom	5200	5200.01106	2.1269			
T <sub>10°C</sub> Vnom         5200           T <sub>0°C</sub> Vnom         5200		5200.01182	2.2731			
		5200.01112	2.1385			
T <sub>-10°C</sub> Vnom	5200	5200.01321	2.5404			
T <sub>-20°C</sub> Vnom	5200	5200.01398	2.6885			
T <sub>-30°C</sub> Vnom	5200	5200.01166	2.2423			
Limit (	ppm)	20				
Res	ult	Complied				



# 4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Mar. 26, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRO NIK	NSLK 8127	8127-477	9kHz – 30MHz	Jan. 21, 2013	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	Apr. 16, 2013	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9 kHz ~ 30 MHz	Nov. 09, 2012	Conduction (CO04-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP	100055	9Kz – 40GHz	Jun. 06, 2012	Radiation (03CH05-HY)
Receiver	R&S	ESIB26	100337	20Hz – 26.5GHz	Jun.21, 2012	Radiation (03CH05-HY)
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH05-HY	30 MHz - 1 GHz 3m	N/A	Radiation (03CH05-HY)
Amplifier	COM-POWER	PA-103	161241	1 MHz ~ 1 GHz	Feb. 26, 2013	Radiation (03CH05-HY)
Amplifier	Agilent	8449B	3008A02665	1GHz – 26.5 GHz	Aug. 28, 2012	Radiation (03CH05-HY)
Horn Antenna	ETS-LINDGREN	3117	66584	1GHz~18GHz	Aug. 09, 2012	Radiation (03CH05-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH05-HY
RF Cable-R03m	Jye Bao	RG142	03CH05-HY	30 MHz - 1 GHz	Oct. 14, 2012	Radiation (03CH05-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX104	03CH05-HY	1GHz~40GHz	Oct. 14, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30 MHz - 1 GHz	Oct. 06, 2012	Radiation (03CH05-HY)
Turn Table	HD	HD100	420/611	0 - 360 degree	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	HD100	240/666	1 m - 4 m	N/A	Radiation (03CH05-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz ~ 40GHz	Apr. 19, 2013	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/0001	9 kHz - 30 MHz	Jul. 03, 2012	Radiation (03CH05-HY)

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



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101486	9KHz~40GHz	Nov. 14, 2012	Conducted (TH01-HY)
Spectrum Analyzer	R&S	FSP 40	100593	9KHz ~ 40GHz	Aug. 14, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 19, 2012	Conducted (TH01-HY)
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 02, 2012	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP- SD	MAA1112-007	-20 ~ 100℃	Nov. 21, 2012	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 26, 2012	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)

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