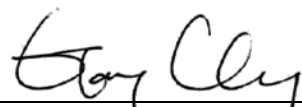


FCC Test Report

FCC ID : NKR-DHUB81
Equipment : 11abgn WLAN/Bluetooth Combo adapter
Model No. : DHUB-81, 700-0022-001
Brand Name : WNC
Applicant : Wistron Neweb Corporation
Address : 20 Park Avenue II, Hsinchu Science Park,
Hsinchu 308,Taiwan,R.O.C.
Standard : 47 CFR FCC Part 15.407
Received Date : Feb. 18, 2014
Tested Date : Feb. 20 ~ Mar. 03, 2014

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR421807AN	Rev. 01	Initial issue	Apr. 21, 2014

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.153MHz 50.08 (Margin -5.74dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5350.00MHz, 53.00 (Margin -1.00dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Power [dBm]: 5150~5250 MHz:16.59 5250~5350 MHz:20.50 5470~5725 MHz:21.62	Pass
15.407(a)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.407(a)	Peak Excursion	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

1 General Description

1.1 Information

1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
WNC	DHUB-81	11abgn WLAN/Bluetooth Combo adapter	marketing purpose
	700-0022-001		
✦ All models are electrically identical, different model names are for marketing purpose. ✦ The above models, model DHUB-81 was selected as a representative one for the final test and only its data was recorded in this report.			

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
5150-5250 5250-5350 5470-5725	a	5180-5240 5260-5320 5500-5700	36-48 [4] 52-64 [4] 100-140 [8]	2	6-54 Mbps
5150-5250 5250-5350 5470-5725	n (HT20)	5180-5240 5260-5320 5500-5700	36-48 [4] 52-64 [4] 100-140 [8]	2	MCS 0-15
5150-5250 5250-5350 5470-5725	n (HT40)	5190-5230 5270-5310 5510-5670	38-46 [2] 54-62 [2] 102-134 [3]	2	MCS 0-15
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

1.1.3 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)			
				5150~5250	5250~5350	5470~5725	5725~5850
1	Left (ANT1)	Printed	NA	-2.93	-2.65	-2.71	-3.84
2	Right (ANT0)	Printed	NA	-3.14	-2.83	-2.73	-3.12

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	5Vdc from host
-------------------	----------------

1.1.5 Accessories

N/A

1.1.6 Channel List

Frequency band (MHz)		5150~5725	
802.11 a / n HT20		802.11n HT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	134	5670
64	5320	---	---
100	5500	---	---
104	5520	---	---
108	5540	---	---
112	5560	---	---
116	5580	---	---
132	5660	---	---
136	5680	---	---
140	5700	---	---

1.1.7 Test Tool and Duty Cycle

Test Tool	Mtool, V2.0.0.9		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11a	99.31%	0.03
	HT20	99.25%	0.03
	HT40	98.19%	0.08

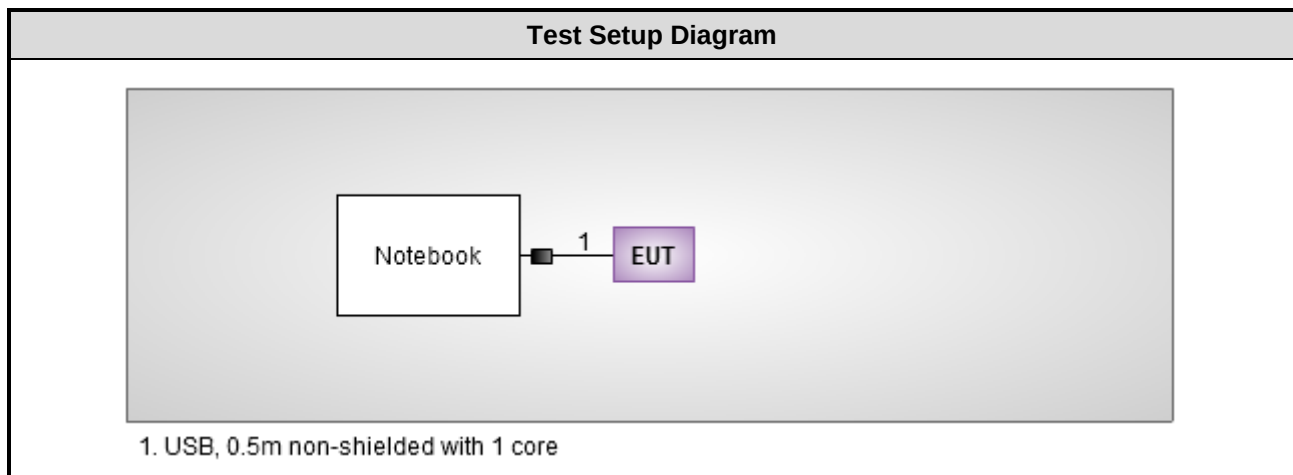
1.1.8 Power Setting

Channel	Frequency(MHz)	Modulation Mode		
		11a	HT20	HT40
CH 36	5180	42	42	---
CH 40	5200	40	40	---
CH 48	5240	40	40	---
CH 52	5260	64	64	---
CH 60	5300	54	54	---
CH 64	5320	48	48	---
CH 100	5500	50	50	---
CH 116	5580	72	72	---
CH 140	5700	50	50	---
CH 38	5190	---	---	42
CH 46	5230	---	---	50
CH 54	5270	---	---	52
CH 62	5310	---	---	38
CH 102	5510	---	---	42
CH 110	5550	---	---	60
CH 134	5670	---	---	54

1.2 Local Support Equipment List

Support Equipment List						
No.	Equipment	Brand	Model	S/N	FCC ID	Signal cable / Length (m)
1	Notebook	DELL	E6430	---	DoC	USB 0.5m non-shielded cable with 1 core.

1.3 Test Setup Chart



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
EMC Receiver	R&S	ESCS 30	100169	Oct. 15, 2013	Oct. 14, 2014
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 23, 2013	Nov. 22, 2014
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 04, 2013	Dec. 03, 2014
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Apr. 24, 2013	Apr. 23, 2014
50 ohm terminal (Support Unit)	NA	50	04	Apr. 22, 2013	Apr. 21, 2014
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 2 / (03CH02-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101499	Feb. 08, 2014	Feb. 07, 2015
Receiver	R&S	ESR3	101657	Jan. 18, 2014	Jan. 17, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-524	Jan. 08, 2014	Jan. 07, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Jan. 07, 2014	Jan. 06, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014
Preamplifier	Burgeon	BPA-530	100218	Dec. 09, 2013	Dec. 08, 2014
Preamplifier	Agilent	83017A	MY39501309	Dec. 09, 2013	Dec. 08, 2014
Preamplifier	EM	EM18G40G	060572	Jun. 20, 2013	Jun. 19, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 17, 2013	Dec. 16, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 17, 2013	Dec. 16, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 17, 2013	Dec. 16, 2014
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-003	Dec. 17, 2013	Dec. 16, 2014
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-004	Dec. 17, 2013	Dec. 16, 2014
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission above 1GHz				
Test Site	966 chamber 2 / (03CH02-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Note: Calibration Interval of instruments listed above is two year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2014	Feb. 16, 2015
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 11, 2013	Dec. 10, 2014
Power Meter	Anritsu	ML2495A	1241002	Oct. 24, 2013	Oct. 23, 2014
Power Sensor	Anritsu	MA2411B	1207366	Oct. 24, 2013	Oct. 23, 2014
Note: Calibration Interval of instruments listed above is one year.					

1.5 Testing Applied Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.407

ANSI C63.10-2009

FCC KDB 412172

FCC KDB 789033 D01 General UNII Test procedures v01r03

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

Note: The EUT has been tested and complied with FCC part 15B requirement. FCC Part 15B test results are issued to another report.

1.6 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	±74.147 Hz
Conducted power	±0.717 dB
Power density	±2.687 dB
Frequency error	±74.147 Hz
Temperature	±0.3 °C
AC conducted emission	±2.43 dB
Radiated emission	±2.49 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	19°C / 65%	Skys Huang
Radiated Emissions	03CH02-WS	17-18°C / 63-65%	Anderson Hong
RF Conducted	TH01-WS	22°C / 62%	Felix Sung

➤ FCC site registration No.: 657002

➤ IC site registration No.: 10807A-2

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data rate (Mbps) / MCS	Test Configuration
Conducted Emissions	HT20	5580	MCS 0	---
Radiated Emissions ≤1GHz	HT20	5580	MCS 0	---
Radiated Emissions >1GHz RF Output Power Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	6 Mbps	---
	HT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	MCS 0	---
	HT40	5190 / 5230 / 5270 / 5310 / 5510 5550 / 5670	MCS 0	---
Peak Excursion	11a	5180 / 5260 / 5580	6 Mbps	---
	HT20	5180 / 5260 / 5580	MCS 0	---
	HT40	5230 / 5270 / 5550	MCS 0	---
Frequency Stability	Un-modulation	5320	---	---
NOTE:				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.				

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

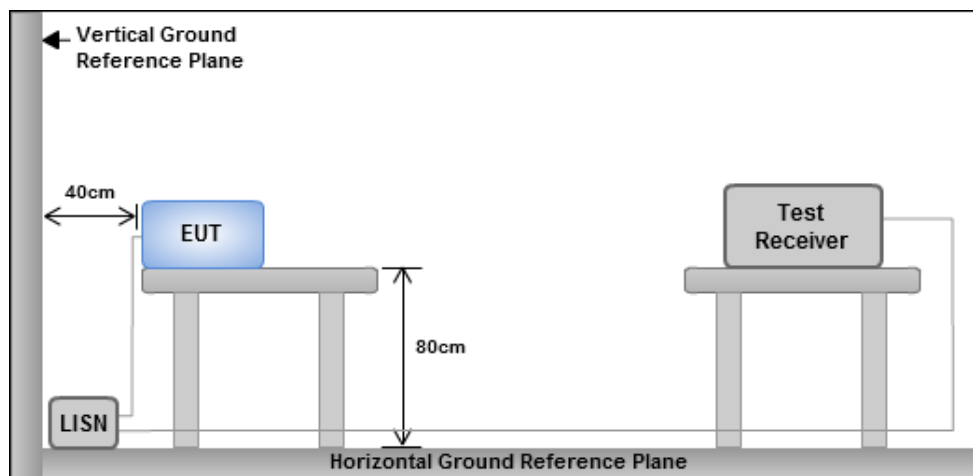
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

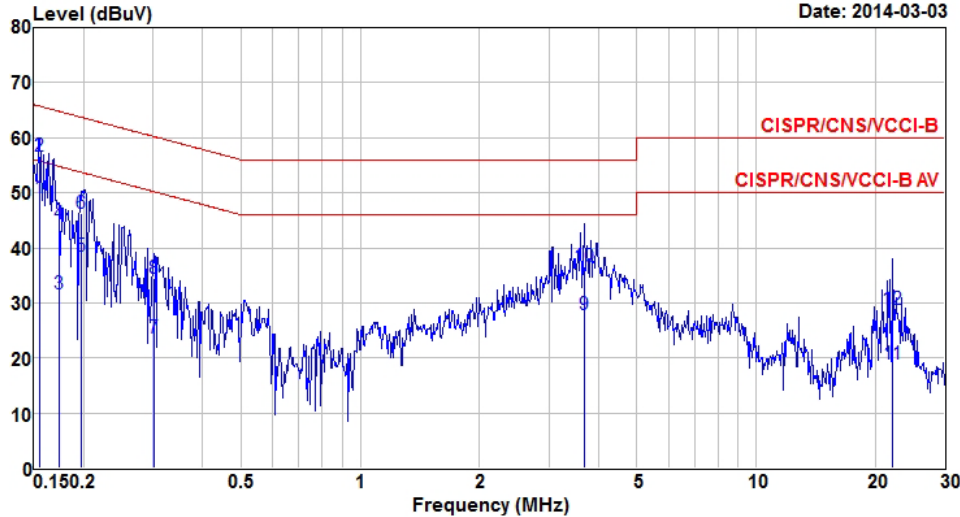
3.1.3 Test Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Modulation Mode	HT20	Test Freq. (MHz)	5580
Power Phase	Line		



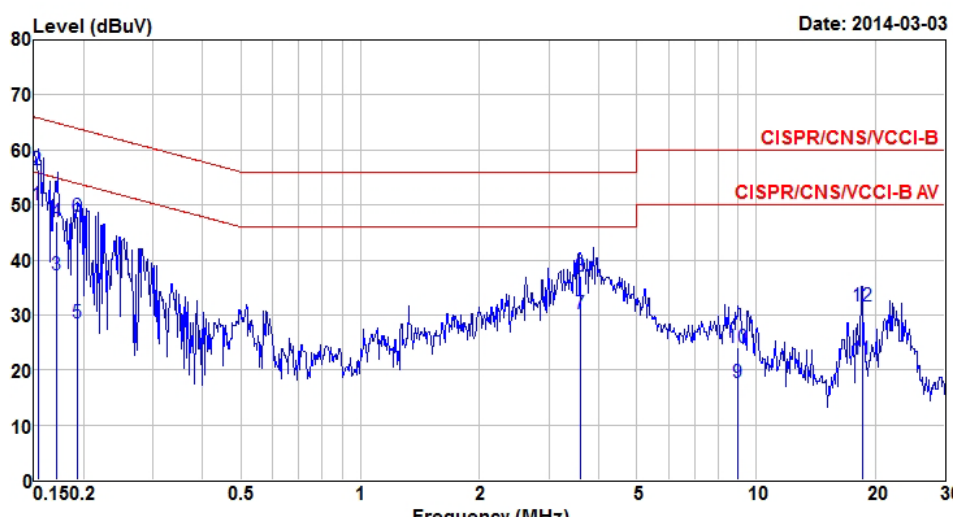
Date: 2014-03-03

	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1*	0.155	49.16	55.74	-6.58	48.69	0.40	0.07	Average
2	0.155	56.62	65.74	-9.12	56.15	0.40	0.07	QP
3	0.174	31.55	54.78	-23.23	31.04	0.39	0.12	Average
4	0.174	44.45	64.78	-20.33	43.94	0.39	0.12	QP
5	0.198	38.39	53.69	-15.30	37.82	0.39	0.18	Average
6	0.198	46.26	63.69	-17.43	45.69	0.39	0.18	QP
7	0.302	23.61	50.19	-26.58	23.12	0.39	0.10	Average
8	0.302	34.51	60.19	-25.68	34.02	0.39	0.10	QP
9	3.682	27.83	46.00	-18.17	27.14	0.46	0.23	Average
10	3.682	36.71	56.00	-19.29	36.02	0.46	0.23	QP
11	22.180	18.88	50.00	-31.12	18.00	0.55	0.33	Average
12	22.180	28.74	60.00	-31.26	27.86	0.55	0.33	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation Mode	HT20	Test Freq. (MHz)	5580
Power Phase	Neutral		

Level (dBuV)



Frequency (MHz)

Date: 2014-03-03

CISPR/CNS/VCCI-B

CISPR/CNS/VCCI-B AV

	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1*	0.153	50.08	55.82	-5.74	49.53	0.48	0.07	Average
2	0.153	56.38	65.82	-9.44	55.83	0.48	0.07	QP
3	0.170	37.20	54.94	-17.74	36.61	0.48	0.11	Average
4	0.170	46.91	64.94	-18.03	46.32	0.48	0.11	QP
5	0.193	28.68	53.89	-25.21	28.03	0.48	0.17	Average
6	0.193	47.94	63.89	-15.95	47.29	0.48	0.17	QP
7	3.603	30.22	46.00	-15.78	29.47	0.52	0.23	Average
8	3.603	37.15	56.00	-18.85	36.40	0.52	0.23	QP
9	9.011	17.64	50.00	-32.36	16.96	0.56	0.12	Average
10	9.011	24.09	60.00	-35.91	23.41	0.56	0.12	QP
11	18.524	22.03	50.00	-27.97	21.30	0.56	0.17	Average
12	18.524	31.60	60.00	-28.40	30.87	0.56	0.17	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).

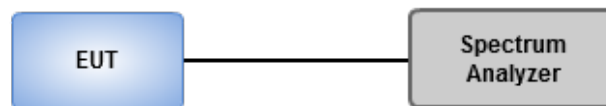
Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

3.2 Emission Bandwidth

3.2.1 Test Procedures

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW, Detector = Peak.
3. Trace mode = max hold.
4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

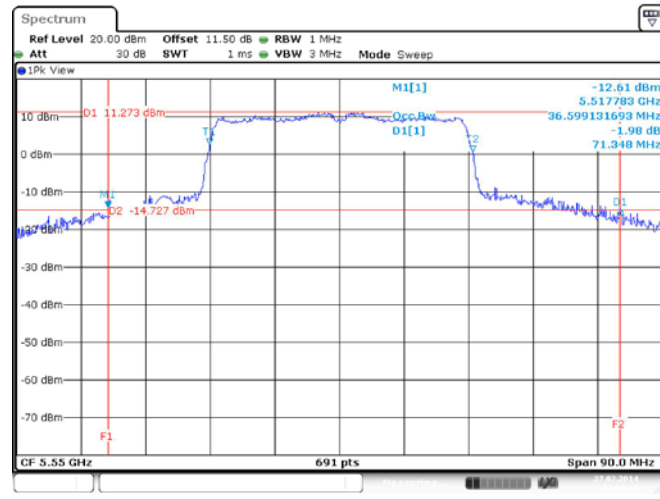
3.2.2 Test Setup



3.2.3 Test Result of Emission Bandwidth

Modulation Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)	
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	26dB BW	99% BW
11a	2	5180	19.59	28.58	---	---	16.61	16.57	---	---	16.92	16.19
11a	2	5200	19.94	27.19	---	---	16.53	16.64	---	---	17.00	16.18
11a	2	5240	19.30	26.72	---	---	16.61	16.57	---	---	16.86	16.19
11a	2	5260	38.12	41.74	---	---	18.16	18.23	---	---	24.00	23.59
11a	2	5300	27.25	19.07	---	---	17.66	17.80	---	---	23.80	23.47
11a	2	5320	19.30	19.07	---	---	17.62	17.66	---	---	23.80	23.46
11a	2	5500	19.13	20.41	---	---	16.61	16.53	---	---	23.82	23.18
11a	2	5580	37.97	39.28	---	---	17.29	17.29	---	---	24.00	23.38
11a	2	5700	19.48	19.25	---	---	16.57	16.50	---	---	23.84	23.17
HT20	2	5180	19.59	25.74	---	---	17.58	17.69	---	---	16.92	16.45
HT20	2	5200	19.48	26.03	---	---	17.58	17.62	---	---	16.90	16.45
HT20	2	5240	19.54	26.55	---	---	17.58	17.62	---	---	16.91	16.45
HT20	2	5260	41.45	43.62	---	---	17.58	18.16	---	---	24.00	23.45
HT20	2	5300	25.68	28.99	---	---	16.75	16.86	---	---	24.00	23.24
HT20	2	5320	22.09	26.03	---	---	16.57	16.71	---	---	24.00	23.19
HT20	2	5500	19.65	20.35	---	---	17.58	17.62	---	---	23.93	23.45
HT20	2	5580	40.58	40.36	---	---	18.05	17.95	---	---	24.00	23.54
HT20	2	5700	19.59	19.71	---	---	17.58	17.62	---	---	23.92	23.45
HT40	2	5190	47.54	62.73	---	---	35.62	35.69	---	---	17.00	17.00
HT40	2	5230	57.91	82.96	---	---	35.62	35.82	---	---	17.00	17.00
HT40	2	5270	63.13	73.70	---	---	35.69	35.82	---	---	24.00	24.00
HT40	2	5310	39.39	41.22	---	---	35.56	35.62	---	---	24.00	24.00
HT40	2	5510	39.65	41.61	---	---	35.56	35.62	---	---	24.00	24.00
HT40	2	5550	63.91	71.35	---	---	35.69	35.75	---	---	24.00	24.00
HT40	2	5670	45.26	54.52	---	---	35.62	35.62	---	---	24.00	24.00

Worst Plots



3.3 RF Output Power

3.3.1 Limit of RF Output Power

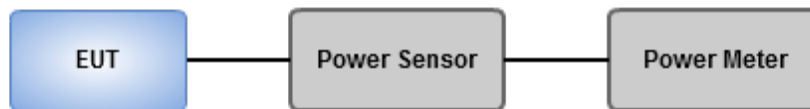
Frequency Band (GHz)		Limit
☒	5.15~5.25	50mW or 4dBm+10 log B
☒	5.25~5.35	250mW or 11dBm+10 log B
☒	5.47~5.725	250mW or 11dBm+10 log B

Note: "B" is the 26dB emission bandwidth in MHz.

3.3.2 Test Procedures

- ☒ **Method PM-G (Measurement using a gated RF average power meter)**
 - ☒ Measurements may is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

Modulation Mode	N _{TX}	Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	2	5180	11.55	12.53	---	---	32.195	15.08	16.92
11a	2	5200	11.05	11.75	---	---	27.697	14.42	17.00
11a	2	5240	10.95	11.68	---	---	27.168	14.34	16.86
11a	2	5260	17.83	17.12	---	---	112.196	20.50	24.00
11a	2	5300	14.88	15.10	---	---	63.120	18.00	23.80
11a	2	5320	13.53	13.92	---	---	47.203	16.74	23.80
11a	2	5500	13.40	13.45	---	---	44.009	16.44	23.82
11a	2	5580	18.63	18.59	---	---	145.223	21.62	24.00
11a	2	5700	13.65	13.76	---	---	46.942	16.72	23.84
HT20	2	5180	11.52	12.08	---	---	30.334	14.82	16.92
HT20	2	5200	10.92	11.38	---	---	26.100	14.17	16.90
HT20	2	5240	11.02	11.41	---	---	26.483	14.23	16.91
HT20	2	5260	17.72	17.05	---	---	109.855	20.41	24.00
HT20	2	5300	14.87	14.75	---	---	60.544	17.82	24.00
HT20	2	5320	13.33	13.74	---	---	45.187	16.55	24.00
HT20	2	5500	13.32	13.28	---	---	42.760	16.31	23.93
HT20	2	5580	18.73	18.16	---	---	140.108	21.46	24.00
HT20	2	5700	13.46	13.38	---	---	43.959	16.43	23.92
HT40	2	5190	11.25	11.76	---	---	28.332	14.52	17.00
HT40	2	5230	13.55	13.61	---	---	45.608	16.59	17.00
HT40	2	5270	14.23	14.05	---	---	51.895	17.15	24.00
HT40	2	5310	10.52	10.72	---	---	23.075	13.63	24.00
HT40	2	5510	11.63	11.45	---	---	28.518	14.55	24.00
HT40	2	5550	16.21	16.02	---	---	81.778	19.13	24.00
HT40	2	5670	14.85	14.52	---	---	58.863	17.70	24.00

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

	Frequency Band (GHz)	Limit (dBm)
☒	5.15~5.25	4
☒	5.25~5.35	11
☒	5.47~5.725	11

3.4.2 Test Procedures

☒ Method SA-1

1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

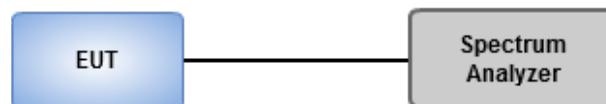
☐ Method SA-2

1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average at 100 traces
3. Use the peak marker function to determine the maximum amplitude level.
4. Add $10 \log(1/x)$, where x is the duty cycle

☒ Method SA-2 Alternative

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time $\geq 10 * (\text{number of points in sweep}) * (\text{total on/off period of the transmitted signal})$.
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add $10 \log(1/x)$, where x is the duty cycle.

3.4.3 Test Setup

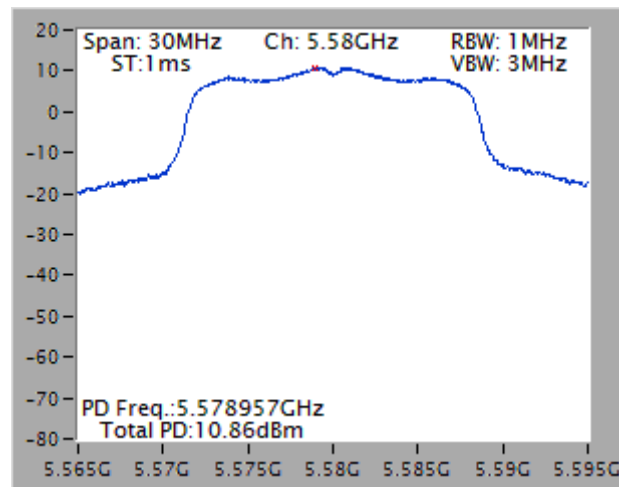


3.4.4 Test Result of Peak Power Spectral Density

Modulation Mode	N _{TX}	Freq. (MHz)	PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)
11a	2	5180	3.95	0.00	3.95	4
11a	2	5200	3.48	0.00	3.48	4
11a	2	5240	3.70	0.00	3.70	4
11a	2	5260	9.61	0.00	9.61	11
11a	2	5300	7.29	0.00	7.29	11
11a	2	5320	5.95	0.00	5.95	11
11a	2	5500	5.77	0.00	5.77	11
11a	2	5580	10.86	0.00	10.86	11
11a	2	5700	5.77	0.00	5.77	11
HT20	2	5180	3.76	0.00	3.76	4
HT20	2	5200	3.50	0.00	3.50	4
HT20	2	5240	3.46	0.00	3.46	4
HT20	2	5260	9.54	0.00	9.54	11
HT20	2	5300	6.82	0.00	6.82	11
HT20	2	5320	5.53	0.00	5.53	11
HT20	2	5500	5.52	0.00	5.52	11
HT20	2	5580	10.66	0.00	10.66	11
HT20	2	5700	5.43	0.00	5.43	11
HT40	2	5190	0.37	0.00	0.37	4
HT40	2	5230	2.27	0.00	2.27	4
HT40	2	5270	2.73	0.00	2.73	11
HT40	2	5310	-0.42	0.00	-0.42	11
HT40	2	5510	-0.28	0.00	-0.28	11
HT40	2	5550	4.29	0.00	4.29	11
HT40	2	5670	3.13	0.00	3.13	11

Note: Test result is bin-by-bin summing measured value of each TX port.

Worst Plots



3.5 Peak Excursion

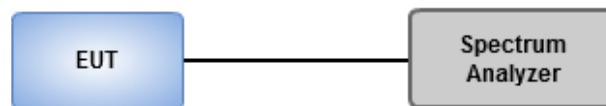
3.5.1 Peak Excursion Limit

Peak excursion of the modulation envelope shall not exceed 13 dB across any 1 MHz bandwidth.

3.5.2 Test Procedures

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = peak.
2. Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
3. Use the peak search function to find the peak of the spectrum.
4. Use the procedure of section 3.4.2 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD

3.5.3 Test Setup



3.5.4 Test Result of Peak Excursion

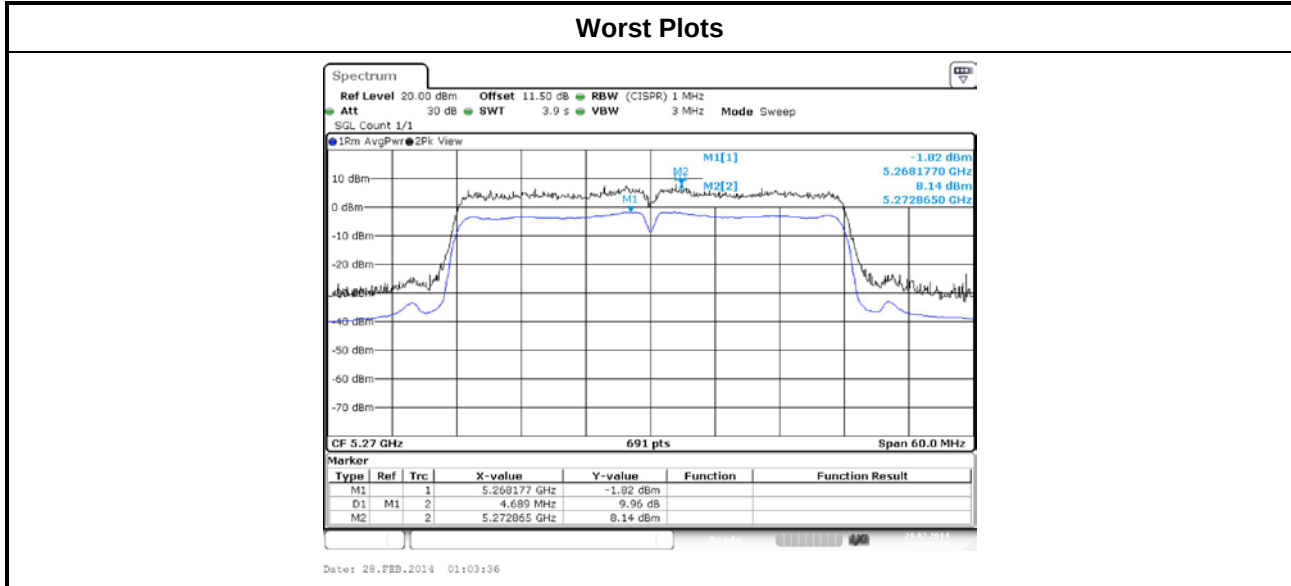
Mode	Modulation Mode	N _{TX}	Freq. (MHz)	Measured value(dB)	Duty factor (dB)	Peak Excursion (dB)	Limit
11a	BPSK	2	5180	8.96	0.00	8.96	13
11a	QPSK	2	5180	8.3	0.00	8.30	13
11a	16QAM	2	5180	8.52	0.16	8.36	13
11a	64QAM	2	5180	9.29	0.32	8.97	13
HT20	BPSK	2	5180	9.23	0.00	9.23	13
HT20	QPSK	2	5180	8.27	0.00	8.27	13
HT20	16QAM	2	5180	9.6	0.18	9.42	13
HT20	64QAM	2	5180	8.84	0.34	8.50	13
HT40	BPSK	2	5230	9.01	0.00	9.01	13
HT40	QPSK	2	5230	8.25	0.19	8.06	13
HT40	16QAM	2	5230	8.69	0.37	8.32	13
HT40	64QAM	2	5230	9.13	0.69	8.44	13

Mode	Modulation Mode	N _{TX}	Freq. (MHz)	Measured value(dB)	Duty factor (dB)	Peak Excursion (dB)	Limit
11a	BPSK	2	5260	9.05	0.00	9.05	13
11a	QPSK	2	5260	8.39	0.00	8.39	13
11a	16QAM	2	5260	9.6	0.16	9.44	13
11a	64QAM	2	5260	8.75	0.32	8.43	13
HT20	BPSK	2	5260	7.91	0.00	7.91	13
HT20	QPSK	2	5260	8.59	0.00	8.59	13
HT20	16QAM	2	5260	9.12	0.18	8.94	13
HT20	64QAM	2	5260	9.36	0.34	9.02	13
HT40	BPSK	2	5270	8.09	0.00	8.09	13
HT40	QPSK	2	5270	8.5	0.19	8.31	13
HT40	16QAM	2	5270	9.96	0.37	9.59	13
HT40	64QAM	2	5270	9.71	0.69	9.02	13

Note: Measured value = Peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission. Since the duty cycle is < 98 %, duty factor is required to average spectrum
Peak excursion = Measured value – duty factor

Mode	Modulation Mode	N _{TX}	Freq. (MHz)	Measured value(dB)	Duty factor (dB)	Peak Excursion (dB)	Limit
11a	BPSK	2	5580	7.74	0.00	7.74	13
11a	QPSK	2	5580	7.03	0.00	7.03	13
11a	16QAM	2	5580	8.79	0.16	8.63	13
11a	64QAM	2	5580	9.2	0.32	8.88	13
HT20	BPSK	2	5580	7.67	0.00	7.67	13
HT20	QPSK	2	5580	7.39	0.00	7.39	13
HT20	16QAM	2	5580	8.86	0.18	8.68	13
HT20	64QAM	2	5580	8.96	0.34	8.62	13
HT40	BPSK	2	5550	7.33	0.00	7.33	13
HT40	QPSK	2	5550	8.53	0.19	8.34	13
HT40	16QAM	2	5550	8.75	0.37	8.38	13
HT40	64QAM	2	5550	9.74	0.69	9.05	13

Note: Measured value = Peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission. Since the duty cycle is < 98 %, duty factor is required to average spectrum
Peak exclusion = Measured value – duty factor



Note: Measured value
= Peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission
= Mark 2 – Mark 1

3.6 Transmitter Radiated and Band Edge Emissions

3.6.1 Limit of Transmitter Radiated and Band Edge Emissions

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

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

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

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

3.6.2 Test Procedures

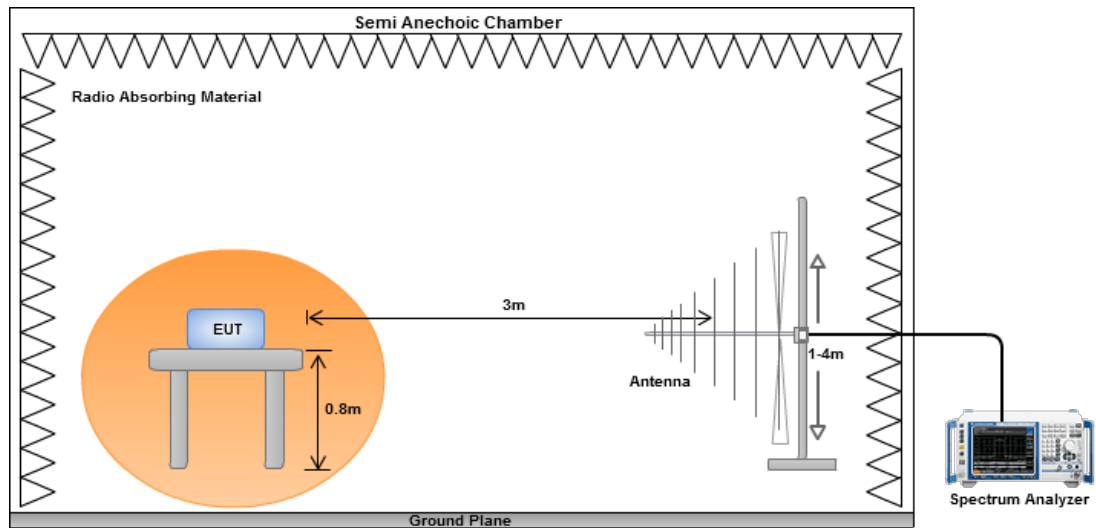
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

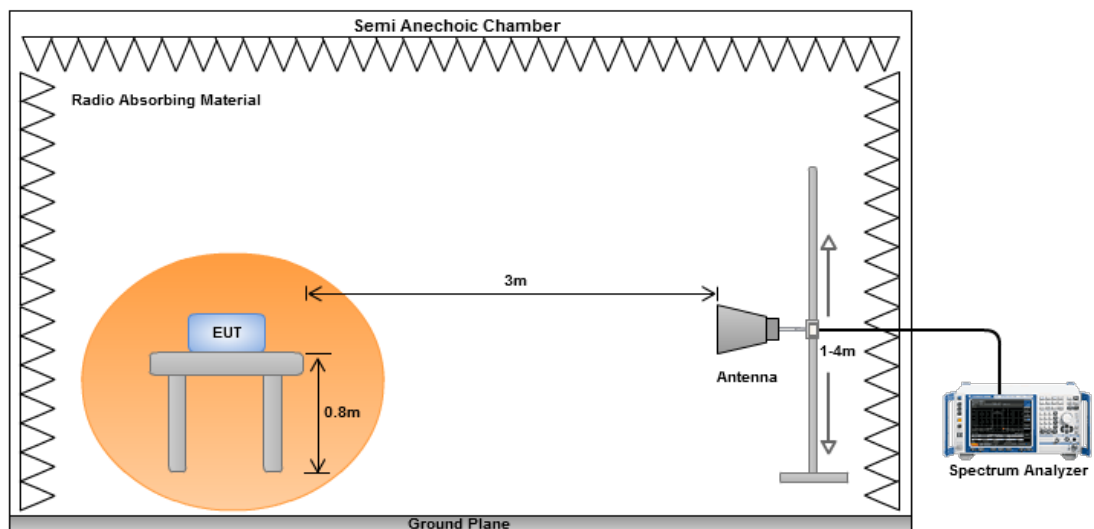
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.6.3 Test Setup

Radiated Emissions below 1 GHz

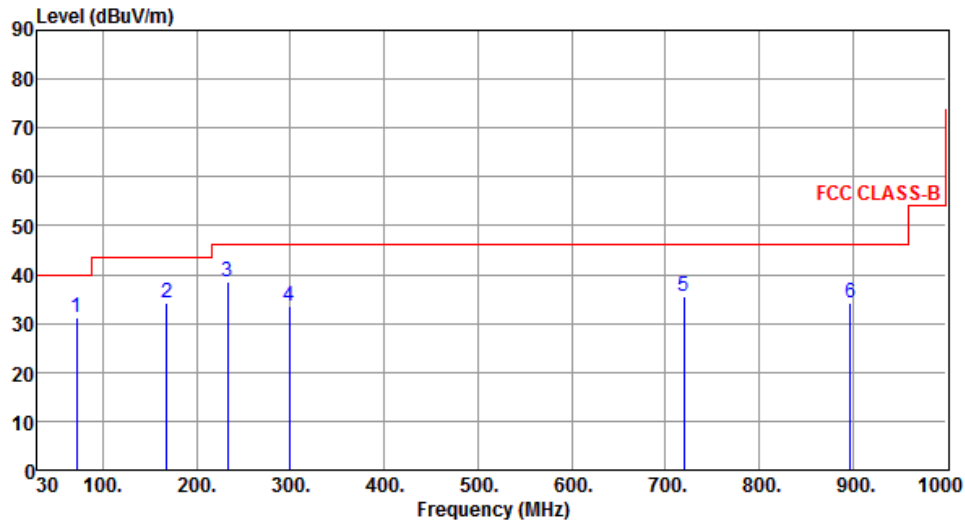


Radiated Emissions above 1 GHz



3.6.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Horizontal		

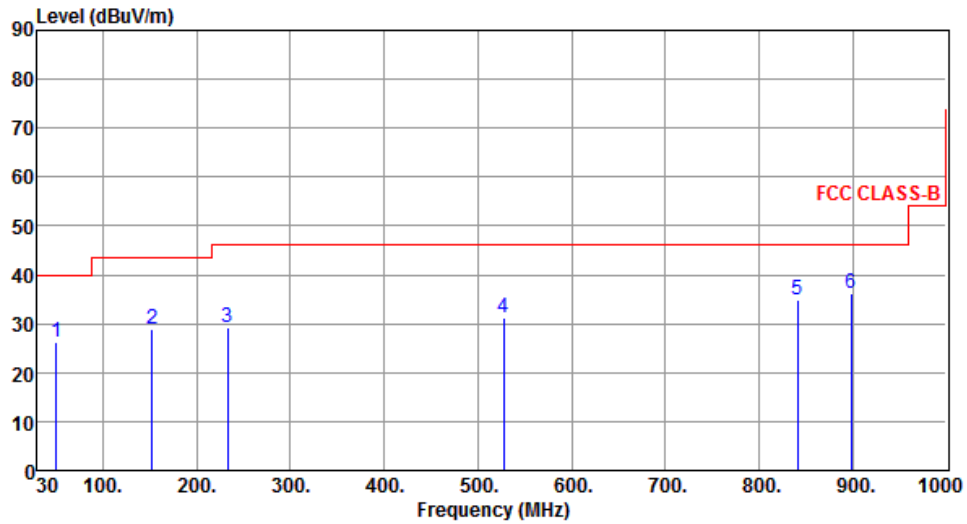


The graph displays the radiated unwanted emissions level in dBuV/m against frequency in MHz from 30 to 1000 MHz. A red line represents the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 300 MHz, and 55 dBuV/m from 300 to 1000 MHz. Six measured peaks are labeled with blue numbers 1 through 6. The data for these peaks is provided in the table below.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	71.71	31.27	40.00	-8.73	51.01	-19.74	Peak	---	---
2	167.74	34.05	43.50	-9.45	51.45	-17.40	Peak	---	---
3	232.73	38.47	46.00	-7.53	57.16	-18.69	Peak	---	---
4	298.69	33.69	46.00	-12.31	50.04	-16.35	Peak	---	---
5	719.67	35.55	46.00	-10.45	43.58	-8.03	Peak	---	---
6	897.18	34.29	46.00	-11.71	39.76	-5.47	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	50.37	26.21	40.00	-13.79	42.92	-16.71	Peak	---	---
2	152.22	28.93	43.50	-14.57	45.99	-17.06	Peak	---	---
3	232.73	29.10	46.00	-16.90	47.79	-18.69	Peak	---	---
4	527.61	31.37	46.00	-14.63	42.62	-11.25	Peak	---	---
5	840.92	34.74	46.00	-11.26	41.03	-6.29	Peak	---	---
6	898.15	36.12	46.00	-9.88	41.58	-5.46	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

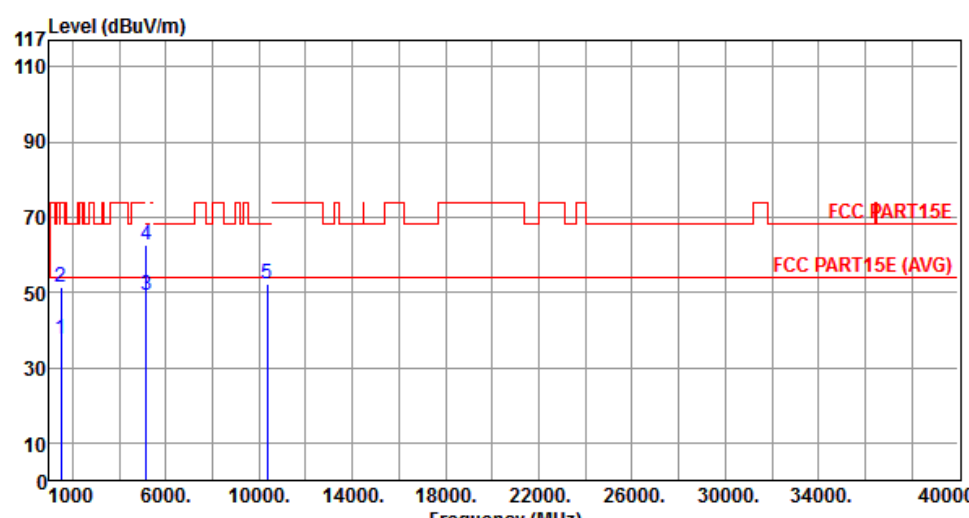
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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

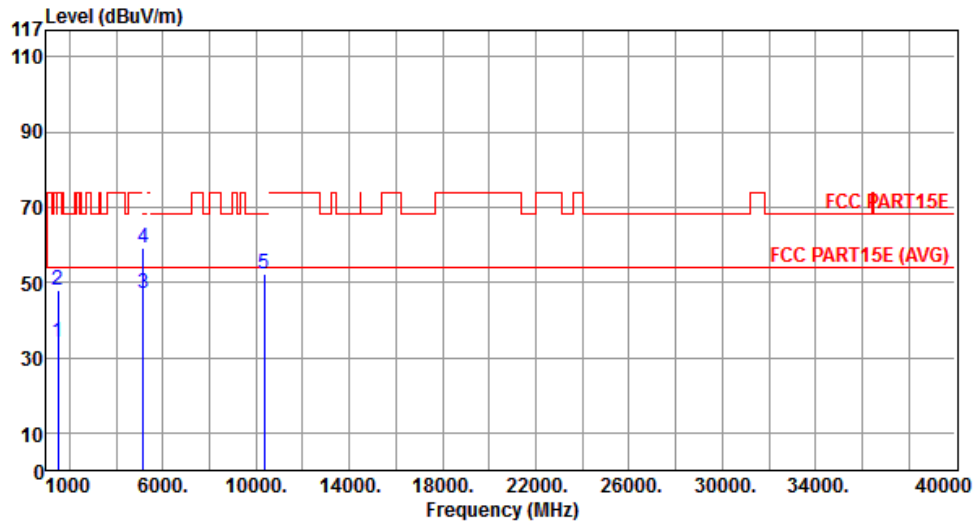
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.55	54.00	-16.45	44.22	-6.67	Average	---	---
2	1500.00	51.39	74.00	-22.61	58.06	-6.67	Peak	---	---
3	5150.00	49.26	54.00	-4.74	42.24	7.02	Average	---	---
4	5150.00	62.80	74.00	-11.20	55.78	7.02	Peak	---	---
5	10360.00	52.22	68.20	-15.98	38.93	13.29	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



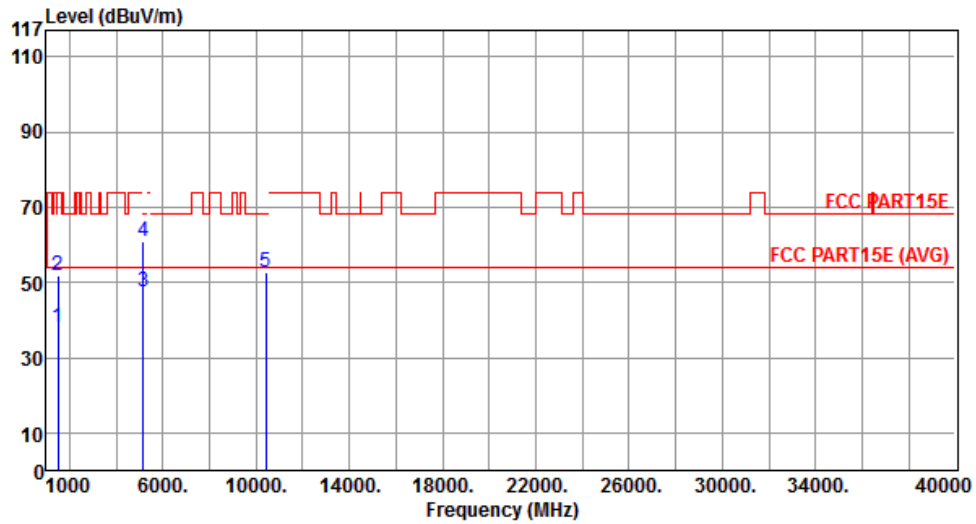
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.32	54.00	-19.68	40.99	-6.67	Average	---	---
2	1500.00	47.73	74.00	-26.27	54.40	-6.67	Peak	---	---
3	5150.00	47.26	54.00	-6.74	40.24	7.02	Average	---	---
4	5150.00	59.30	74.00	-14.70	52.28	7.02	Peak	---	---
5	10360.00	52.09	68.20	-16.11	38.80	13.29	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.84	54.00	-16.16	44.51	-6.67	Average	---	---
2	1500.00	51.73	74.00	-22.27	58.40	-6.67	Peak	---	---
3	5150.00	47.52	54.00	-6.48	40.50	7.02	Average	---	---
4	5150.00	60.72	74.00	-13.28	53.70	7.02	Peak	---	---
5	10400.00	52.62	68.20	-15.58	39.34	13.28	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

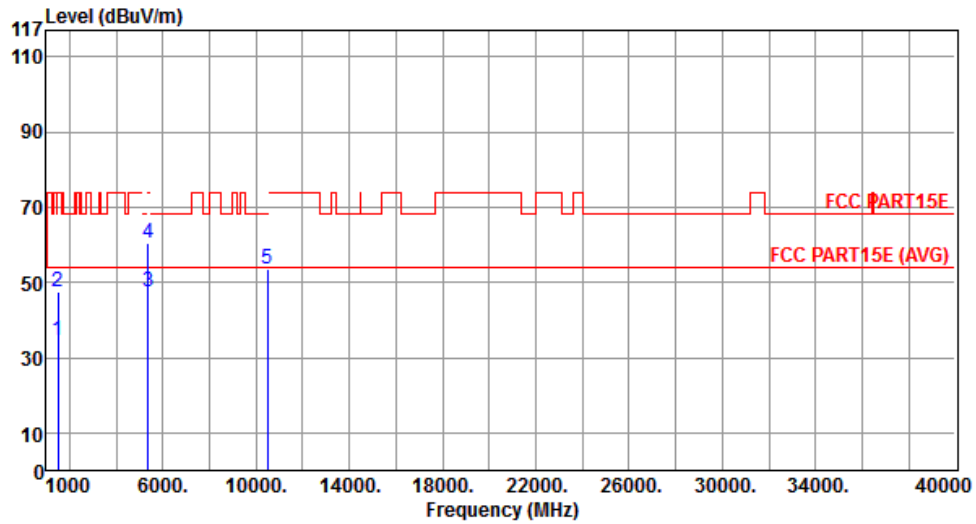
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5200																																																																																
Polarization	Vertical																																																																																		
Level (dBuV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 1 2 3 4 5 FCC PART15E FCC PART15E (AVG) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th>dBuV/m</th><th>dB</th><th>reading</th><th>dB</th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th></th><th></th><th>dBuV</th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1500.00</td><td>34.62</td><td>54.00</td><td>-19.38</td><td>41.29</td><td>-6.67</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>1500.00</td><td>48.11</td><td>74.00</td><td>-25.89</td><td>54.78</td><td>-6.67</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5150.00</td><td>47.03</td><td>54.00</td><td>-6.97</td><td>40.01</td><td>7.02</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5150.00</td><td>59.12</td><td>74.00</td><td>-14.88</td><td>52.10</td><td>7.02</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>10400.00</td><td>52.58</td><td>68.20</td><td>-15.62</td><td>39.30</td><td>13.28</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB		High	Table			dBuV/m			dBuV			cm	deg	1	1500.00	34.62	54.00	-19.38	41.29	-6.67	Average	---	---	2	1500.00	48.11	74.00	-25.89	54.78	-6.67	Peak	---	---	3	5150.00	47.03	54.00	-6.97	40.01	7.02	Average	---	---	4	5150.00	59.12	74.00	-14.88	52.10	7.02	Peak	---	---	5	10400.00	52.58	68.20	-15.62	39.30	13.28	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																										
	MHz	level	dBuV/m	dB	reading	dB		High	Table																																																																										
		dBuV/m			dBuV			cm	deg																																																																										
1	1500.00	34.62	54.00	-19.38	41.29	-6.67	Average	---	---																																																																										
2	1500.00	48.11	74.00	-25.89	54.78	-6.67	Peak	---	---																																																																										
3	5150.00	47.03	54.00	-6.97	40.01	7.02	Average	---	---																																																																										
4	5150.00	59.12	74.00	-14.88	52.10	7.02	Peak	---	---																																																																										
5	10400.00	52.58	68.20	-15.62	39.30	13.28	Peak	---	---																																																																										
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).																																																																																			

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		



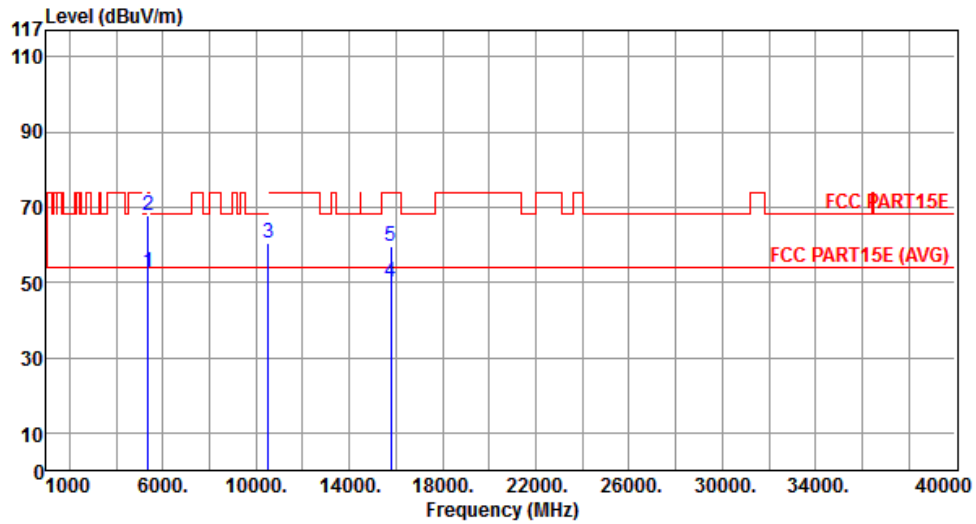
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.46	54.00	-19.54	41.13	-6.67	Average	---	---
2	1500.00	47.55	74.00	-26.45	54.22	-6.67	Peak	---	---
3	5350.00	47.30	54.00	-6.70	39.72	7.58	Average	---	---
4	5350.00	60.58	74.00	-13.42	53.00	7.58	Peak	---	---
5	10480.00	53.66	68.20	-14.54	40.39	13.27	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Horizontal		



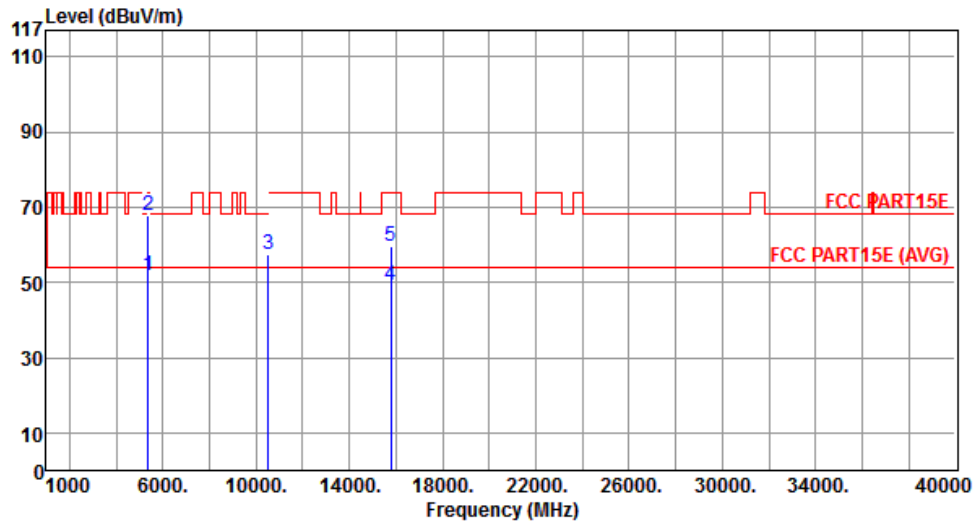
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.60	54.00	-1.40	45.02	7.58	Average	---	---
2	5350.00	67.76	74.00	-6.24	60.18	7.58	Peak	---	---
3	10520.00	60.52	68.20	-7.68	47.24	13.28	Peak	---	---
4	15780.00	50.20	54.00	-3.80	35.03	15.17	Average	---	---
5	15780.00	59.39	74.00	-14.61	44.22	15.17	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	51.86	54.00	-2.14	44.28	7.58	Average	---	---
2	5350.00	67.77	74.00	-6.23	60.19	7.58	Peak	---	---
3	10520.00	57.42	68.20	-10.78	44.14	13.28	Peak	---	---
4	15780.00	49.36	54.00	-4.64	34.19	15.17	Average	---	---
5	15780.00	59.43	74.00	-14.57	44.26	15.17	Peak	---	---

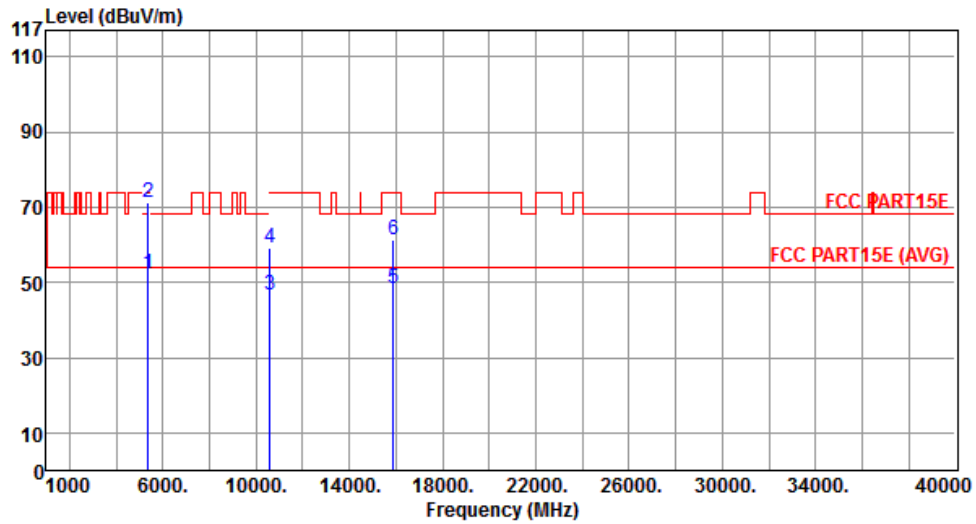
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5300
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.29	54.00	-1.71	44.71	7.58	Average	---	---
2	5350.00	71.44	74.00	-2.56	63.86	7.58	Peak	---	---
3	10600.00	46.50	54.00	-7.50	33.18	13.32	Average	---	---
4	10600.00	59.29	74.00	-14.71	45.97	13.32	Peak	---	---
5	15900.00	48.15	54.00	-5.85	32.84	15.31	Average	---	---
6	15900.00	61.22	74.00	-12.78	45.91	15.31	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

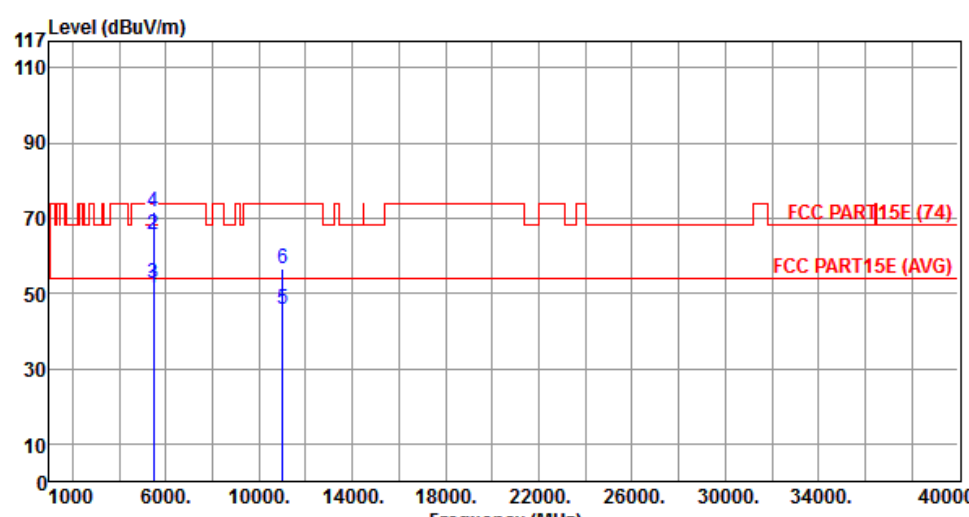
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical		
Level (dBUV/m) <			

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	51.18	54.00	-2.82	43.31	7.87	Average	---	---
2	5460.00	65.67	74.00	-8.33	57.80	7.87	Peak	---	---
3	5470.00	52.67	54.00	-1.33	44.77	7.90	Average	---	---
4	5470.00	71.54	74.00	-2.46	63.64	7.90	Peak	---	---
5	11000.00	45.73	54.00	-8.27	32.14	13.59	Average	---	---
6	11000.00	56.70	74.00	-17.30	43.11	13.59	Peak	---	---

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Vertical		
Level (dBUV/m) </			

Modulation	11a	Test Freq. (MHz)	5580
Polarization	Horizontal		
Level (dBuV/m)			

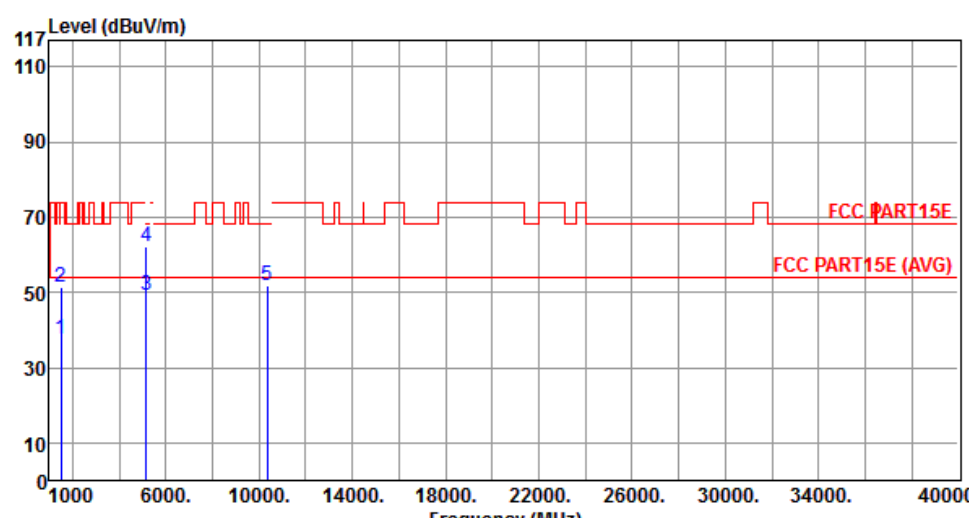
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical		
Level (dBuV/m) <			

Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		
Level (dBUV/m) <			

3.6.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

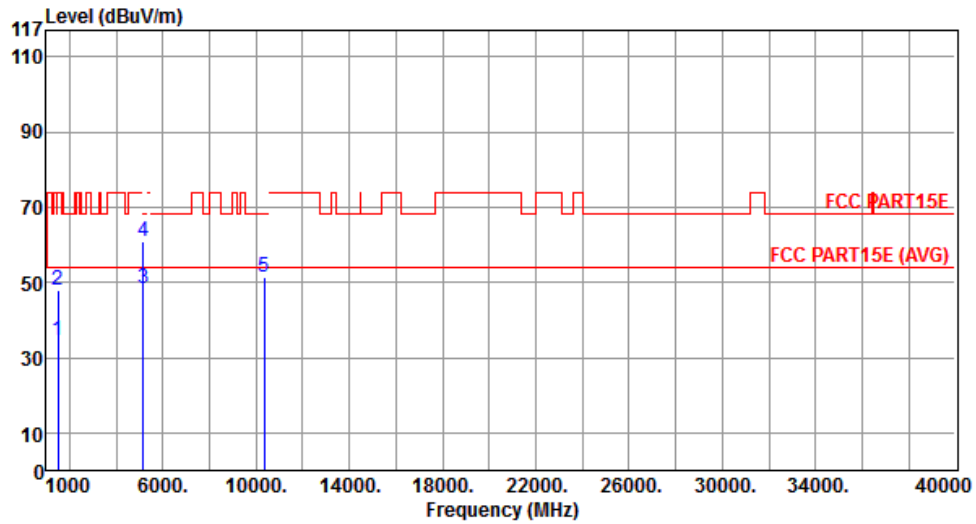
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.58	54.00	-16.42	44.25	-6.67	Average	---	---
2	1500.00	51.43	74.00	-22.57	58.10	-6.67	Peak	---	---
3	5150.00	49.04	54.00	-4.96	42.02	7.02	Average	---	---
4	5150.00	62.12	74.00	-11.88	55.10	7.02	Peak	---	---
5	10360.00	51.75	68.20	-16.45	38.46	13.29	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.39	54.00	-19.61	41.06	-6.67	Average	---	---
2	1500.00	47.78	74.00	-26.22	54.45	-6.67	Peak	---	---
3	5150.00	48.43	54.00	-5.57	41.41	7.02	Average	---	---
4	5150.00	61.00	74.00	-13.00	53.98	7.02	Peak	---	---
5	10360.00	51.45	68.20	-16.75	38.16	13.29	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

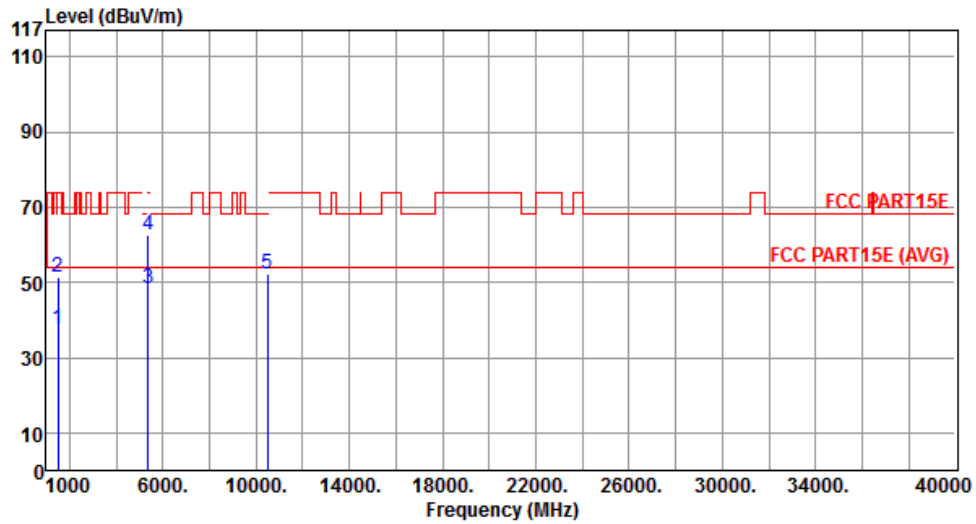
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5200
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	HT20	Test Freq. (MHz)	5200																																																																																
Polarization	Vertical																																																																																		
Level (dBuV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 1 2 3 4 5 FCC PART15E FCC PART15E (AVG) Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1500.00</td><td>34.26</td><td>54.00</td><td>-19.74</td><td>40.93</td><td>-6.67</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>1500.00</td><td>47.83</td><td>74.00</td><td>-26.17</td><td>54.50</td><td>-6.67</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5150.00</td><td>47.36</td><td>54.00</td><td>-6.64</td><td>40.34</td><td>7.02</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5150.00</td><td>59.52</td><td>74.00</td><td>-14.48</td><td>52.50</td><td>7.02</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>10400.00</td><td>52.28</td><td>68.20</td><td>-15.92</td><td>39.00</td><td>13.28</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	1500.00	34.26	54.00	-19.74	40.93	-6.67	Average	---	---	2	1500.00	47.83	74.00	-26.17	54.50	-6.67	Peak	---	---	3	5150.00	47.36	54.00	-6.64	40.34	7.02	Average	---	---	4	5150.00	59.52	74.00	-14.48	52.50	7.02	Peak	---	---	5	10400.00	52.28	68.20	-15.92	39.00	13.28	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																										
	MHz	level			reading			High	Table																																																																										
		dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg																																																																										
1	1500.00	34.26	54.00	-19.74	40.93	-6.67	Average	---	---																																																																										
2	1500.00	47.83	74.00	-26.17	54.50	-6.67	Peak	---	---																																																																										
3	5150.00	47.36	54.00	-6.64	40.34	7.02	Average	---	---																																																																										
4	5150.00	59.52	74.00	-14.48	52.50	7.02	Peak	---	---																																																																										
5	10400.00	52.28	68.20	-15.92	39.00	13.28	Peak	---	---																																																																										
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).																																																																																			

Modulation	HT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.62	54.00	-16.38	44.29	-6.67	Average	---	---
2	1500.00	51.42	74.00	-22.58	58.09	-6.67	Peak	---	---
3	5350.00	48.16	54.00	-5.84	40.58	7.58	Average	---	---
4	5350.00	62.48	74.00	-11.52	54.90	7.58	Peak	---	---
5	10480.00	52.29	68.20	-15.91	39.02	13.27	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

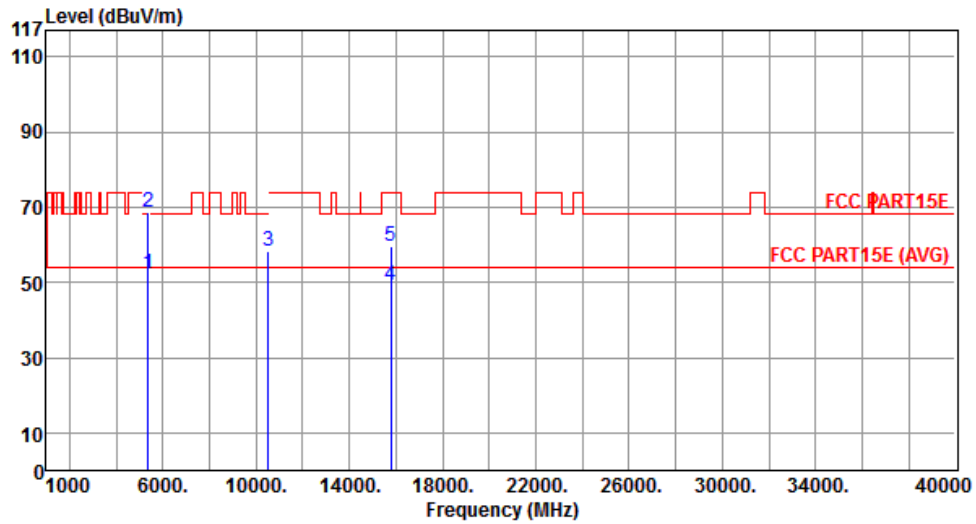
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5240																																																																																
Polarization	Vertical																																																																																		
Level (dBuV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 1 2 3 4 5 FCC PART15E FCC PART15E (AVG) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1500.00</td><td>34.72</td><td>54.00</td><td>-19.28</td><td>41.39</td><td>-6.67</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>1500.00</td><td>47.82</td><td>74.00</td><td>-26.18</td><td>54.49</td><td>-6.67</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5350.00</td><td>47.69</td><td>54.00</td><td>-6.31</td><td>40.11</td><td>7.58</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5350.00</td><td>61.00</td><td>74.00</td><td>-13.00</td><td>53.42</td><td>7.58</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>10480.00</td><td>53.28</td><td>68.20</td><td>-14.92</td><td>40.01</td><td>13.27</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	1500.00	34.72	54.00	-19.28	41.39	-6.67	Average	---	---	2	1500.00	47.82	74.00	-26.18	54.49	-6.67	Peak	---	---	3	5350.00	47.69	54.00	-6.31	40.11	7.58	Average	---	---	4	5350.00	61.00	74.00	-13.00	53.42	7.58	Peak	---	---	5	10480.00	53.28	68.20	-14.92	40.01	13.27	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																										
	MHz	level			reading			High	Table																																																																										
		dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg																																																																										
1	1500.00	34.72	54.00	-19.28	41.39	-6.67	Average	---	---																																																																										
2	1500.00	47.82	74.00	-26.18	54.49	-6.67	Peak	---	---																																																																										
3	5350.00	47.69	54.00	-6.31	40.11	7.58	Average	---	---																																																																										
4	5350.00	61.00	74.00	-13.00	53.42	7.58	Peak	---	---																																																																										
5	10480.00	53.28	68.20	-14.92	40.01	13.27	Peak	---	---																																																																										
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).																																																																																			

Modulation	HT20		Test Freq. (MHz)		5260	
Polarization	Horizontal					
Level (dBuV/m) </						

Modulation	HT20	Test Freq. (MHz)	5260
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.08	54.00	-1.92	44.50	7.58	Average	---	---
2	5350.00	68.58	74.00	-5.42	61.00	7.58	Peak	---	---
3	10520.00	58.11	68.20	-10.09	44.83	13.28	Peak	---	---
4	15780.00	49.39	54.00	-4.61	34.22	15.17	Average	---	---
5	15780.00	59.46	74.00	-14.54	44.29	15.17	Peak	---	---

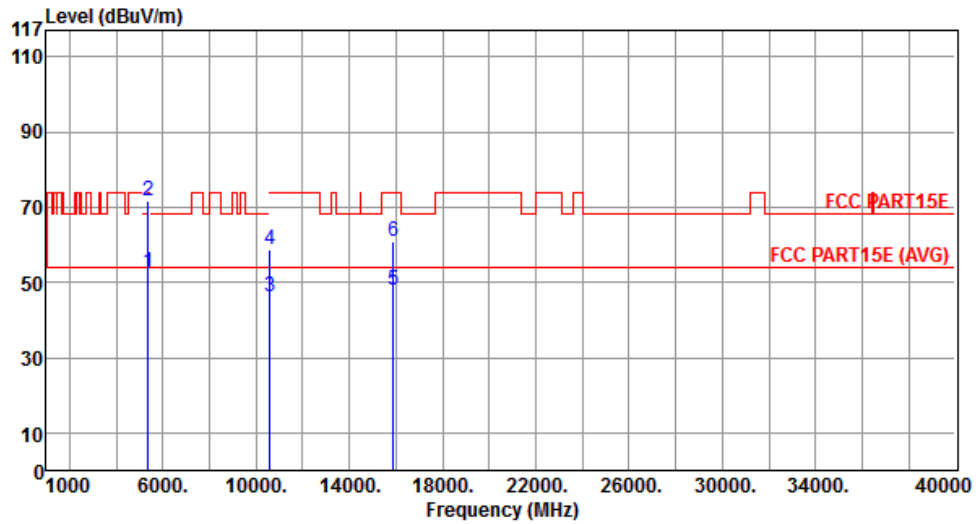
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5300																																																																																										
Polarization	Horizontal																																																																																												
Level (dBUV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 1 2 3 4 5 6 FCC PART15E FCC PART15E (AVG) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th>dBuV/m</th><th>dB</th><th>reading</th><th>dB</th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>5350.00</td><td>53.00</td><td>54.00</td><td>-1.00</td><td>45.42</td><td>7.58</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5350.00</td><td>71.80</td><td>74.00</td><td>-2.20</td><td>64.22</td><td>7.58</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10600.00</td><td>48.21</td><td>54.00</td><td>-5.79</td><td>34.89</td><td>13.32</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>10600.00</td><td>63.42</td><td>74.00</td><td>-10.58</td><td>50.10</td><td>13.32</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15900.00</td><td>47.23</td><td>54.00</td><td>-6.77</td><td>31.92</td><td>15.31</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>15900.00</td><td>59.00</td><td>74.00</td><td>-15.00</td><td>43.69</td><td>15.31</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB		High	Table									cm	deg	1	5350.00	53.00	54.00	-1.00	45.42	7.58	Average	---	---	2	5350.00	71.80	74.00	-2.20	64.22	7.58	Peak	---	---	3	10600.00	48.21	54.00	-5.79	34.89	13.32	Average	---	---	4	10600.00	63.42	74.00	-10.58	50.10	13.32	Peak	---	---	5	15900.00	47.23	54.00	-6.77	31.92	15.31	Average	---	---	6	15900.00	59.00	74.00	-15.00	43.69	15.31	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																				
	MHz	level	dBuV/m	dB	reading	dB		High	Table																																																																																				
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1	5350.00	53.00	54.00	-1.00	45.42	7.58	Average	---	---																																																																																				
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3	10600.00	48.21	54.00	-5.79	34.89	13.32	Average	---	---																																																																																				
4	10600.00	63.42	74.00	-10.58	50.10	13.32	Peak	---	---																																																																																				
5	15900.00	47.23	54.00	-6.77	31.92	15.31	Average	---	---																																																																																				
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Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).																																																																																													

Modulation	HT20	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.54	54.00	-1.46	44.96	7.58	Average	---	---
2	5350.00	71.84	74.00	-2.16	64.26	7.58	Peak	---	---
3	10600.00	46.13	54.00	-7.87	32.81	13.32	Average	---	---
4	10600.00	58.85	74.00	-15.15	45.53	13.32	Peak	---	---
5	15900.00	47.76	54.00	-6.24	32.45	15.31	Average	---	---
6	15900.00	60.73	74.00	-13.27	45.42	15.31	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5320
Polarization	Horizontal		
Level (dBUV/m)			

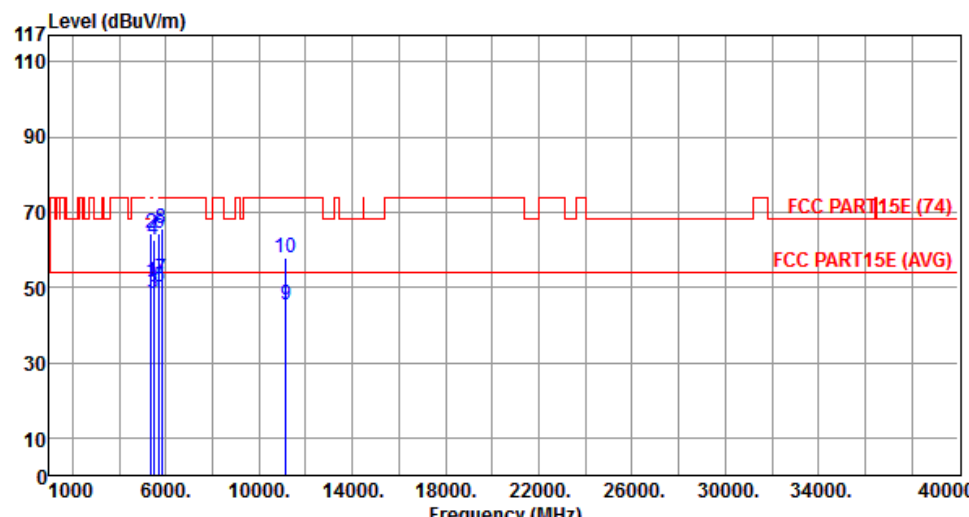
Modulation	HT20	Test Freq. (MHz)	5320																																																																						
Polarization	Vertical																																																																								
Level (dBUV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 1 2 3 4 5 6 5350.00 5350.00 10640.00 10640.00 15960.00 15960.00 52.17 71.61 45.23 56.19 47.00 57.02 54.00 74.00 54.00 74.00 54.00 74.00 -1.83 -2.39 -8.77 -17.81 -7.00 -16.98 44.59 64.03 31.88 42.84 31.62 41.64 7.58 7.58 13.35 13.35 15.38 15.38 Average Peak Average Peak Average Peak --- --- --- --- --- --- --- --- --- --- --- --- FCC PART15E FCC PART15E (AVG) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>5350.00</td><td>52.17</td><td>54.00</td><td>-1.83</td><td>44.59</td><td>7.58</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5350.00</td><td>71.61</td><td>74.00</td><td>-2.39</td><td>64.03</td><td>7.58</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10640.00</td><td>45.23</td><td>54.00</td><td>-8.77</td><td>31.88</td><td>13.35</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>10640.00</td><td>56.19</td><td>74.00</td><td>-17.81</td><td>42.84</td><td>13.35</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15960.00</td><td>47.00</td><td>54.00</td><td>-7.00</td><td>31.62</td><td>15.38</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>15960.00</td><td>57.02</td><td>74.00</td><td>-16.98</td><td>41.64</td><td>15.38</td><td>Peak</td><td>---</td><td>---</td></tr></table> Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5350.00	52.17	54.00	-1.83	44.59	7.58	Average	---	---	2	5350.00	71.61	74.00	-2.39	64.03	7.58	Peak	---	---	3	10640.00	45.23	54.00	-8.77	31.88	13.35	Average	---	---	4	10640.00	56.19	74.00	-17.81	42.84	13.35	Peak	---	---	5	15960.00	47.00	54.00	-7.00	31.62	15.38	Average	---	---	6	15960.00	57.02	74.00	-16.98	41.64	15.38	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																
1	5350.00	52.17	54.00	-1.83	44.59	7.58	Average	---	---																																																																
2	5350.00	71.61	74.00	-2.39	64.03	7.58	Peak	---	---																																																																
3	10640.00	45.23	54.00	-8.77	31.88	13.35	Average	---	---																																																																
4	10640.00	56.19	74.00	-17.81	42.84	13.35	Peak	---	---																																																																
5	15960.00	47.00	54.00	-7.00	31.62	15.38	Average	---	---																																																																
6	15960.00	57.02	74.00	-16.98	41.64	15.38	Peak	---	---																																																																

Modulation	HT20	Test Freq. (MHz)	5500
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	HT20	Test Freq. (MHz)	5500
Polarization	Vertical		
Level (dBUV/m)			

Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Horizontal		
Level (dBuV/m) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency 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110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 50 30 10 0 1000 6000 10000 14000 18000 22000 26000 30000 34000 40000 Frequency (MHz) 117 110 90 70 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Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Vertical		

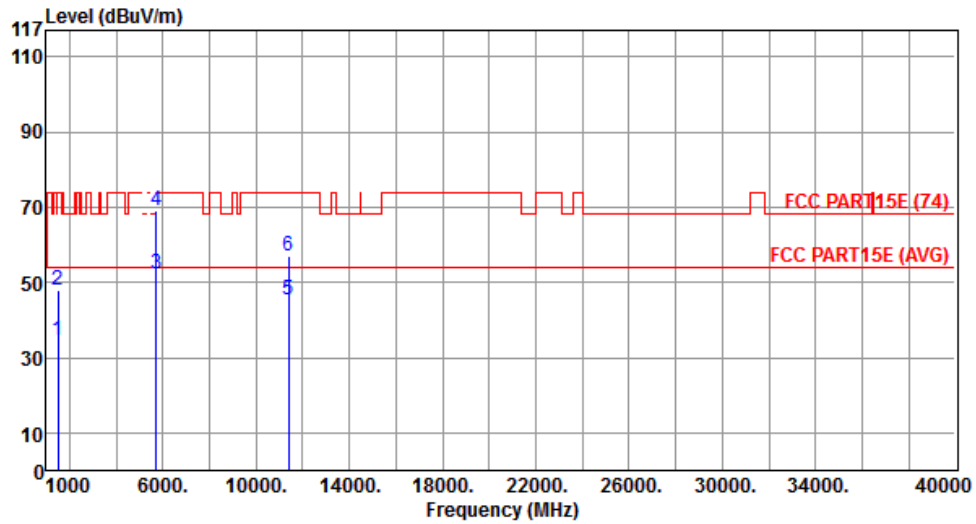


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5354.00	51.55	54.00	-2.45	43.95	7.60	Average	---	---
2	5354.00	64.43	74.00	-9.57	56.83	7.60	Peak	---	---
3	5470.00	48.30	54.00	-5.70	40.40	7.90	Average	---	---
4	5470.00	62.75	74.00	-11.25	54.85	7.90	Peak	---	---
5	5725.00	50.28	54.00	-3.72	41.48	8.80	Average	---	---
6	5725.00	64.40	74.00	-9.60	55.60	8.80	Peak	---	---
7	5806.00	52.42	54.00	-1.58	43.30	9.12	Average	---	---
8	5806.00	65.76	74.00	-8.24	56.64	9.12	Peak	---	---
9	11160.00	45.48	54.00	-8.52	31.86	13.62	Average	---	---
10	11160.00	57.73	74.00	-16.27	44.11	13.62	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.39	54.00	-19.61	41.06	-6.67	Average	---	---
2	1500.00	47.86	74.00	-26.14	54.53	-6.67	Peak	---	---
3	5725.00	52.31	54.00	-1.69	43.51	8.80	Average	---	---
4	5725.00	69.21	74.00	-4.79	60.41	8.80	Peak	---	---
5	11400.00	45.42	54.00	-8.58	31.75	13.67	Average	---	---
6	11400.00	57.19	74.00	-16.81	43.52	13.67	Peak	---	---

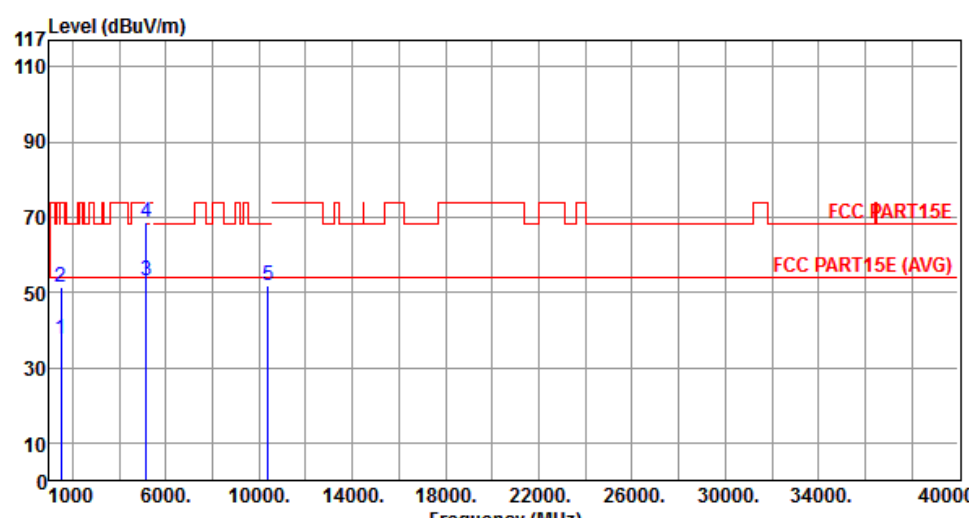
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

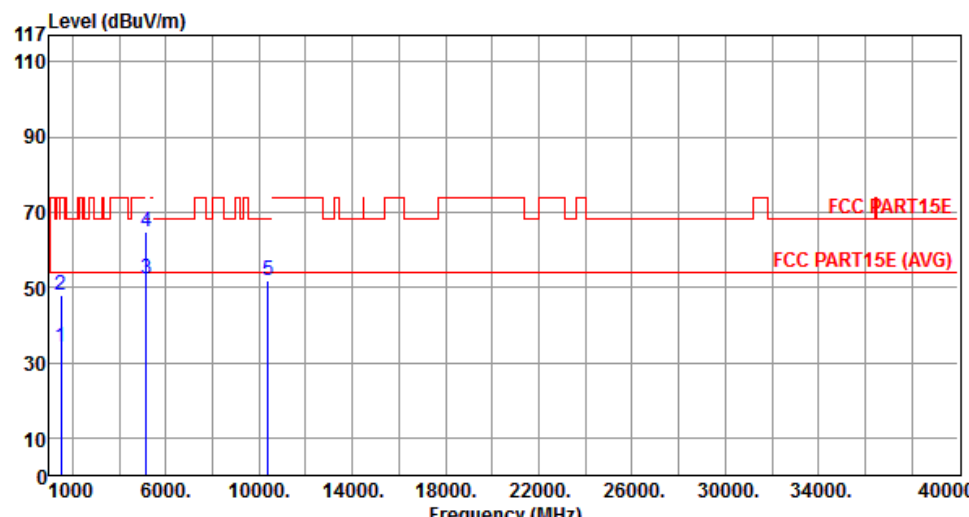
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.41	54.00	-16.59	44.08	-6.67	Average	---	---
2	1500.00	51.18	74.00	-22.82	57.85	-6.67	Peak	---	---
3	5150.00	52.94	54.00	-1.06	45.92	7.02	Average	---	---
4	5150.00	68.54	74.00	-5.46	61.52	7.02	Peak	---	---
5	10380.00	51.84	68.20	-16.36	38.56	13.28	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Vertical		

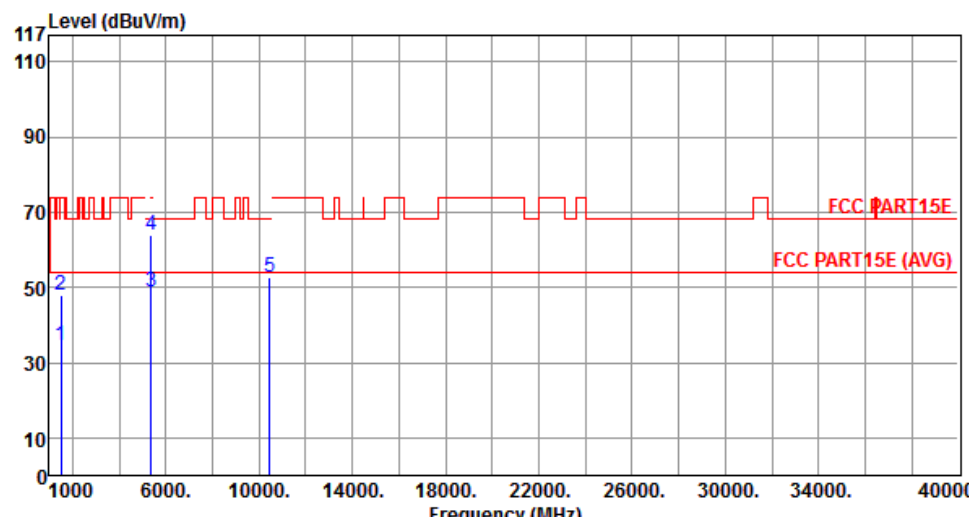


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.27	54.00	-19.73	40.94	-6.67	Average	---	---
2	1500.00	47.84	74.00	-26.16	54.51	-6.67	Peak	---	---
3	5150.00	52.32	54.00	-1.68	45.30	7.02	Average	---	---
4	5150.00	64.74	74.00	-9.26	57.72	7.02	Peak	---	---
5	10380.00	51.88	68.20	-16.32	38.60	13.28	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5230
Polarization	Horizontal		
Level (dBuV/m) </			

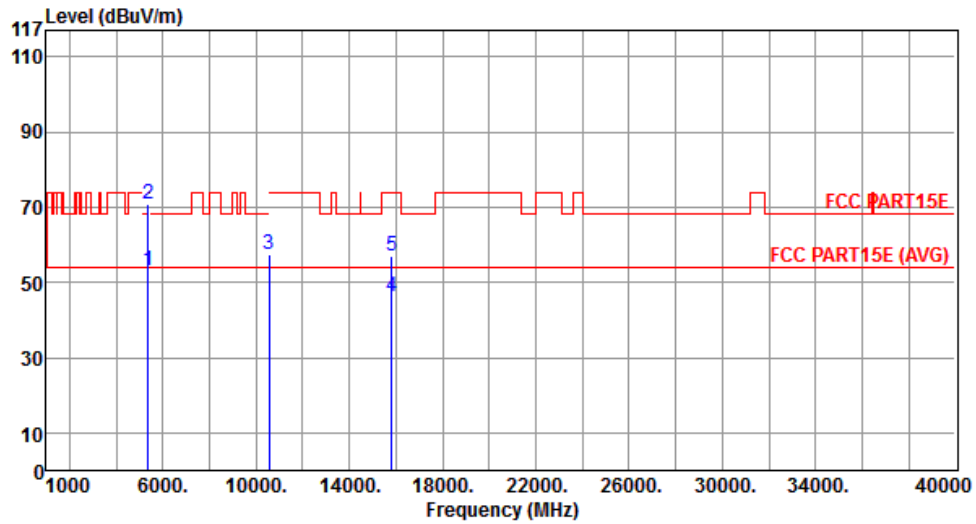
Modulation	HT40	Test Freq. (MHz)	5230
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.65	54.00	-19.35	41.32	-6.67	Average	---	---
2	1500.00	48.13	74.00	-25.87	54.80	-6.67	Peak	---	---
3	5350.00	48.91	54.00	-5.09	41.33	7.58	Average	---	---
4	5350.00	64.03	74.00	-9.97	56.45	7.58	Peak	---	---
5	10460.00	52.87	68.20	-15.33	39.60	13.27	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5270
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.94	54.00	-1.06	45.36	7.58	Average	---	---
2	5350.00	70.70	74.00	-3.30	63.12	7.58	Peak	---	---
3	10540.00	57.55	68.20	-10.65	44.26	13.29	Peak	---	---
4	15810.00	46.12	54.00	-7.88	30.91	15.21	Average	---	---
5	15810.00	56.88	74.00	-17.12	41.67	15.21	Peak	---	---

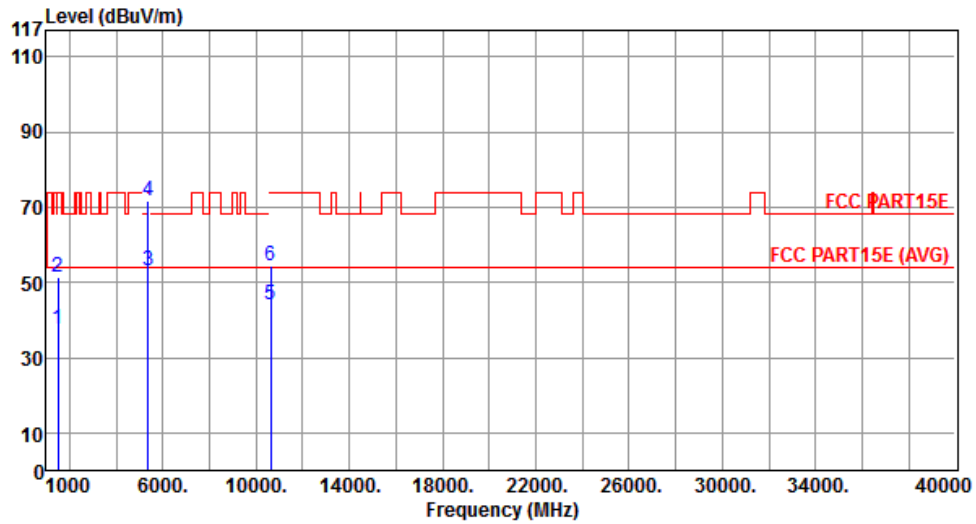
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5270
Polarization	Vertical		
Level (dBuV/m) <			

Modulation	HT40	Test Freq. (MHz)	5310
Polarization	Horizontal		



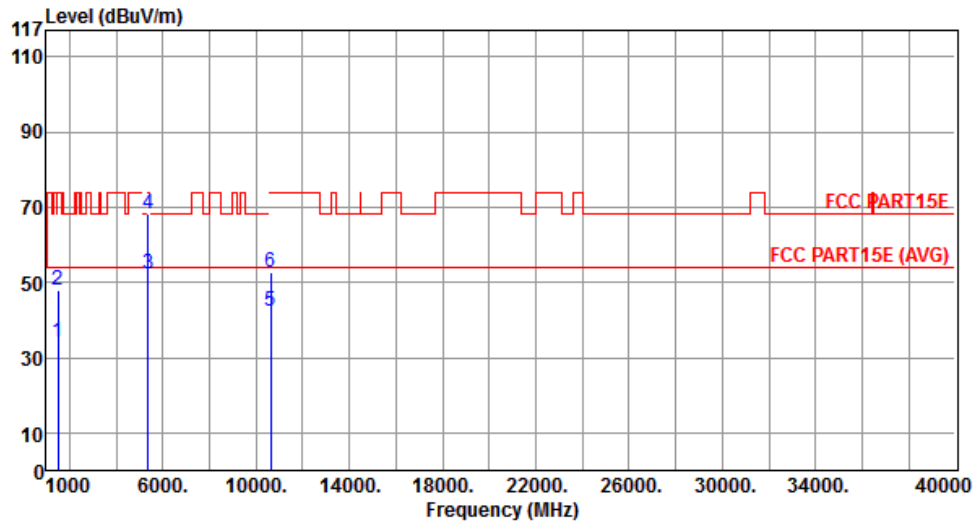
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	37.42	54.00	-16.58	44.09	-6.67	Average	---	---
2	1500.00	51.33	74.00	-22.67	58.00	-6.67	Peak	---	---
3	5350.00	52.90	54.00	-1.10	45.32	7.58	Average	---	---
4	5350.00	71.50	74.00	-2.50	63.92	7.58	Peak	---	---
5	10620.00	44.12	54.00	-9.88	30.78	13.34	Average	---	---
6	10620.00	54.48	74.00	-19.52	41.14	13.34	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5310
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.28	54.00	-19.72	40.95	-6.67	Average	---	---
2	1500.00	47.87	74.00	-26.13	54.54	-6.67	Peak	---	---
3	5350.00	52.18	54.00	-1.82	44.60	7.58	Average	---	---
4	5350.00	68.21	74.00	-5.79	60.63	7.58	Peak	---	---
5	10620.00	42.11	54.00	-11.89	28.77	13.34	Average	---	---
6	10620.00	52.87	74.00	-21.13	39.53	13.34	Peak	---	---

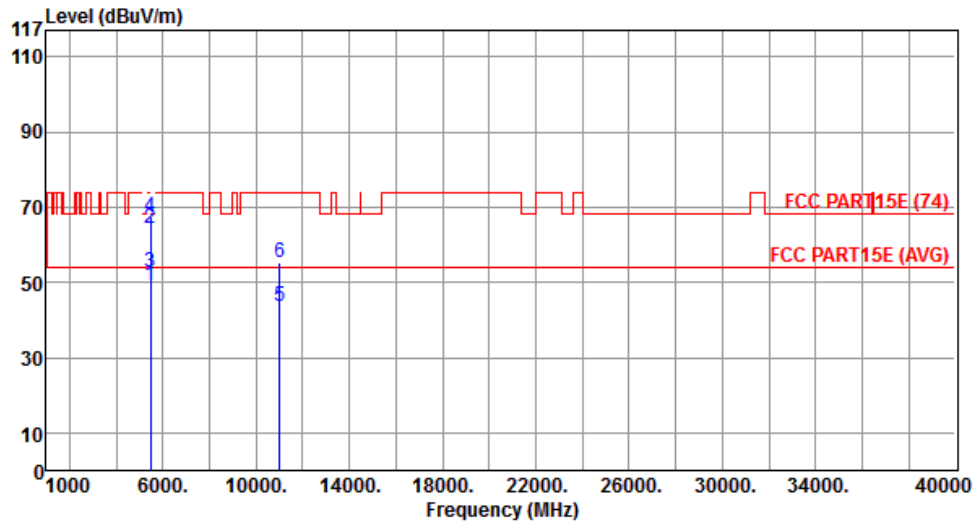
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5510
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	HT40	Test Freq. (MHz)	5510
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	49.01	54.00	-4.99	41.14	7.87	Average	---	---
2	5460.00	64.40	74.00	-9.60	56.53	7.87	Peak	---	---
3	5470.00	52.48	54.00	-1.52	44.58	7.90	Average	---	---
4	5470.00	67.20	74.00	-6.80	59.30	7.90	Peak	---	---
5	11020.00	43.55	54.00	-10.45	29.96	13.59	Average	---	---
6	11020.00	55.27	74.00	-18.73	41.68	13.59	Peak	---	---

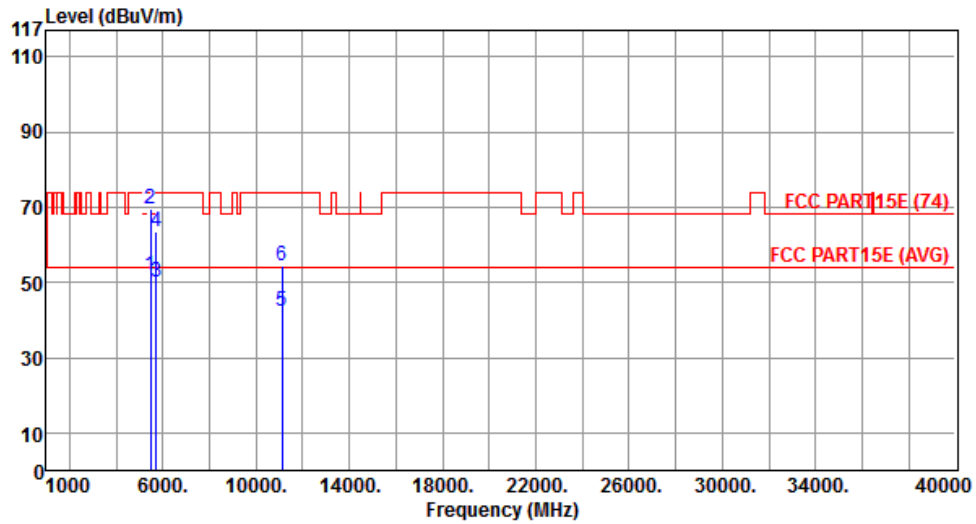
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5550
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	HT40	Test Freq. (MHz)	5550
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5470.00	51.74	54.00	-2.26	43.84	7.90	Average	---	---
2	5470.00	69.39	74.00	-4.61	61.49	7.90	Peak	---	---
3	5725.00	50.02	54.00	-3.98	41.22	8.80	Average	---	---
4	5725.00	63.35	74.00	-10.65	54.55	8.80	Peak	---	---
5	11100.00	42.34	54.00	-11.66	28.73	13.61	Average	---	---
6	11100.00	54.59	74.00	-19.41	40.98	13.61	Peak	---	---

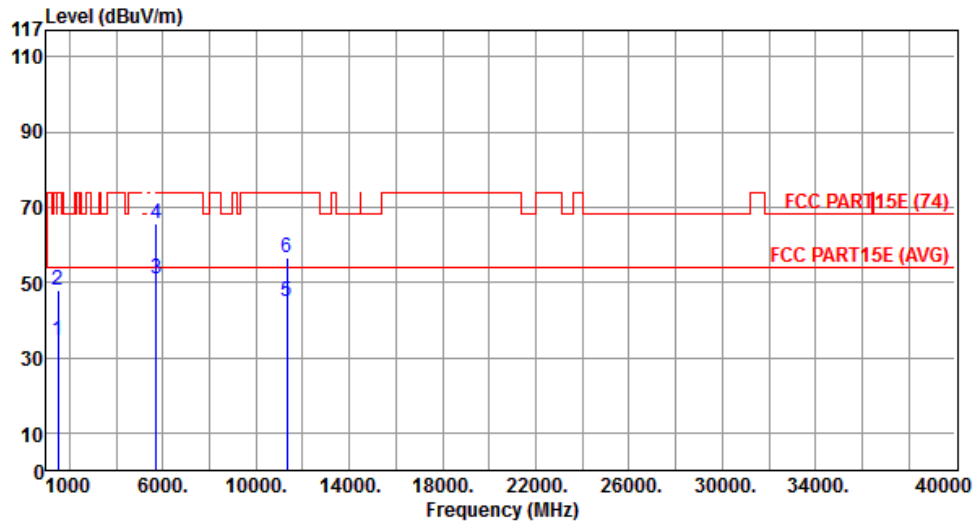
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1500.00	34.39	54.00	-19.61	41.06	-6.67	Average	---	---
2	1500.00	47.98	74.00	-26.02	54.65	-6.67	Peak	---	---
3	5725.00	50.84	54.00	-3.16	42.04	8.80	Average	---	---
4	5725.00	65.77	74.00	-8.23	56.97	8.80	Peak	---	---
5	11340.00	45.11	54.00	-8.89	31.45	13.66	Average	---	---
6	11340.00	56.75	74.00	-17.25	43.09	13.66	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.7 Frequency Stability

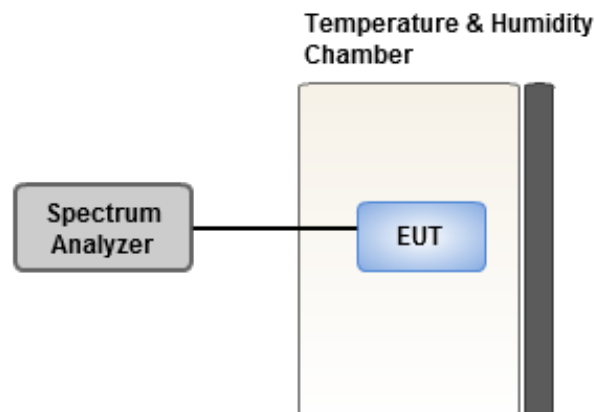
3.7.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.7.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

3.7.3 Test Setup



3.7.4 Test Result of Frequency Stability

Frequency: 5320 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	0.80	1.54	1.06	0.98
T20°CVmin	3.13	2.86	3.37	3.68
T60°CVnom	1.71	2.15	2.37	2.36
T50°CVnom	-1.37	-1.46	-1.60	-0.97
T40°CVnom	0.35	0.74	0.33	-0.11
T30°CVnom	-0.01	0.08	0.40	-0.14
T20°CVnom	0.77	0.73	0.54	0.76
T10°CVnom	0.04	0.48	0.05	0.02
T0°CVnom	1.14	0.54	1.59	1.55
T-10°CVnom	2.07	1.97	2.06	2.01
T-20°CVnom	-0.53	0.14	-0.73	-0.48
Vnom [V]: 110		Vmax [V]: 126.5		Vmin [V]: 93.5
Tnom [°C]: 20		Tmax [°C]: 60		Tmin [°C]: -30

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website <http://www.icertifi.com.tw>.

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If you have any suggestion, please feel free to contact us as below information

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