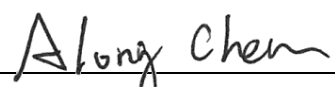


FCC C2PC Test Report

FCC ID : I88WAX650S
Equipment : 802.11ax (WiFi 6) Dual-Radio Unified Pro
Access Point
Model No. : WAX650S
Brand Name : ZYXEL
Applicant : Zyxel Communications Corporation
Address : No.2 Industry East RD. IX, Hsinchu Science
Park, Hsinchu 30075, Taiwan, R.O.C
Standard : 47 CFR FCC Part 15.407
Received Date : Aug. 01, 2019
Tested Date : Aug. 07 ~ Sep. 16, 2019

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.

Reviewed by:


Along Chen / Assistant Manager

Approved by:

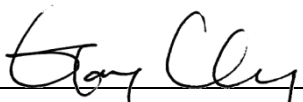

Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR980101-01AN	Rev. 01	Initial issue	Nov. 26, 2019

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.989MHz 42.17 (Margin -3.83dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5725.00MHz 67.89 (Margin -0.31dB) - PK	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(a)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: Non-beamforming mode 5250~5350MHz: 23.13 5470~5725MHz: 23.65 Beamforming mode 5250~5350MHz: 17.11 5470~5725MHz: 17.63	Pass
15.407(g)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.203	Frequency Stability	Meet the requirement of limit	Pass
15.207	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

This report is issued as a FCC Class II Permissive Change. The modification is only concerned with adding 5250~5350MHz and 5470~5725 MHz band by software setting.

1.1.1 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
5250-5350 5470-5725	a	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	6-54 Mbps
5250-5350 5470-5725	n (HT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	MCS 0-31
5250-5350 5470-5725	n (HT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	4	MCS 0-31
5250-5350 5470-5725	ac (VHT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	MCS 0-9
5250-5350 5470-5725	ac (VHT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	4	MCS 0-9
5250-5350 5470-5725	ac (VHT80)	5290 5530~5690	58 [1] 106-138 [3]	4	MCS 0-9
5250-5350 5470-5725	ax (HE20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	MCS 0-11
5250-5350 5470-5725	ax (HE40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	4	MCS 0-11
5250-5350 5470-5725	ax (HE80)	5290 5530~5690	58 [1] 106-138 [3]	4	MCS 0-11
Note 1: Chip feature: OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulation. Note 2: Operating modes of this device are listed as above table. Note 3: 802.11ax supports beamforming function.					

Combination of channel list for 80+80MHz mode

Mode	Channels
1	CH42 (5210 MHz) + CH58 (5290 MHz)
2	CH106(5530 MHz) + CH122 (5610 MHz)

1.1.2 Radio Details

Radio	Function
1	Wi-Fi 2.4GHz, 4T4R
2	Wi-Fi 5GHz, 4T4R
3	Wi-Fi 2.4GHz & 5GHz, 2 RX only
4	Bluetooth LE only

1.1.3 Antenna Details

For Radio 2

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	AD442 R1.3	PIFA	Ipex	0	3.51	4.22	4.61	4.68
2	AD442 R1.3	PIFA	Ipex	0	3.51	4.22	4.61	4.68
3	AD442 R1.3	PIFA	Ipex	0	3.51	4.22	4.61	4.68
4	AD442 R1.3	PIFA	Ipex	0	3.51	4.22	4.61	4.68

For Radio 3

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	AD442 R1.3	PIFA	Ipex	5.7	6.9			
2	AD442 R1.3	PIFA	Ipex	5.7	6.9			

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter 30~57Vdc from POE
--------------------------	---

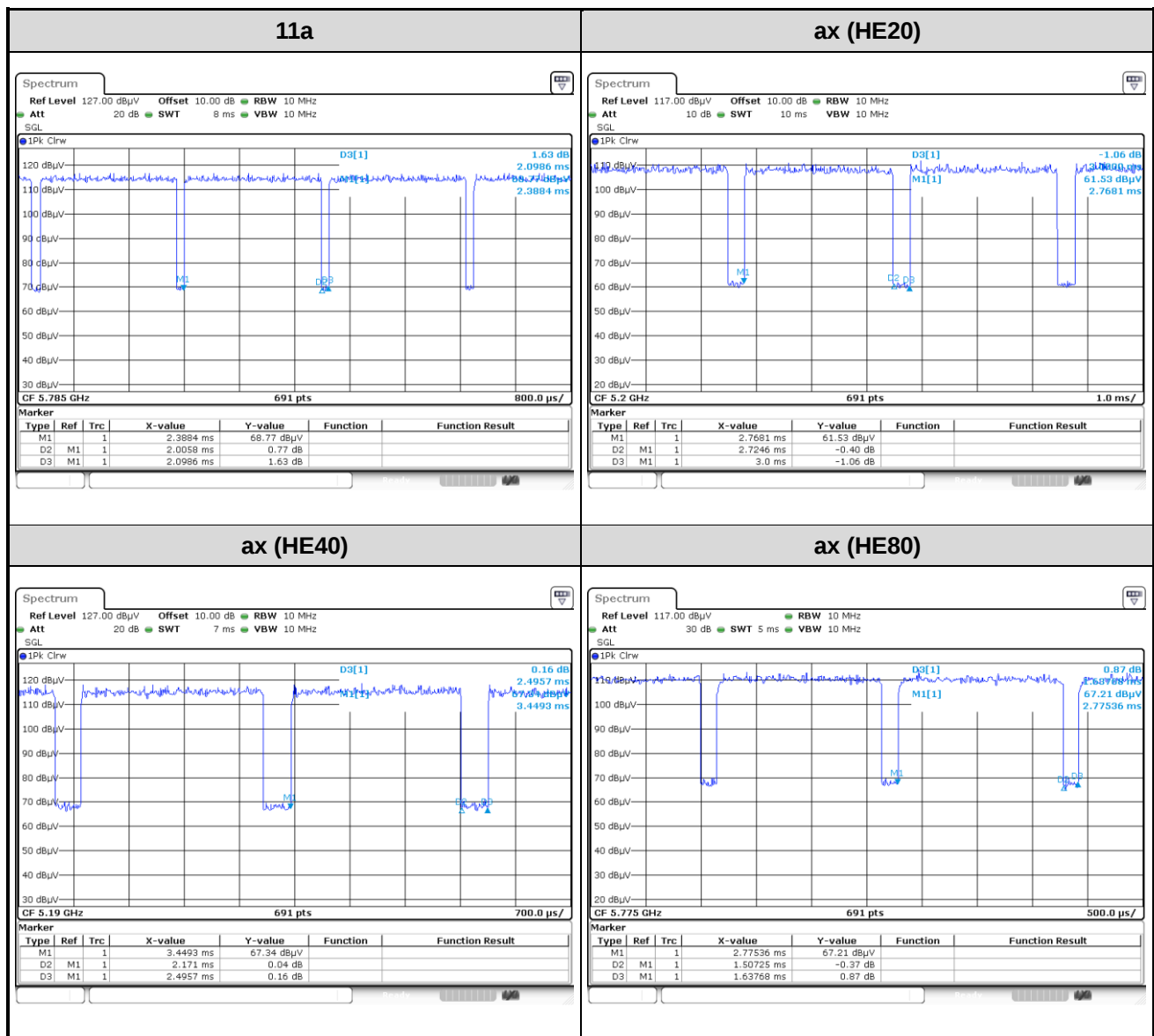
Note: The above power supply is not bundled in market.

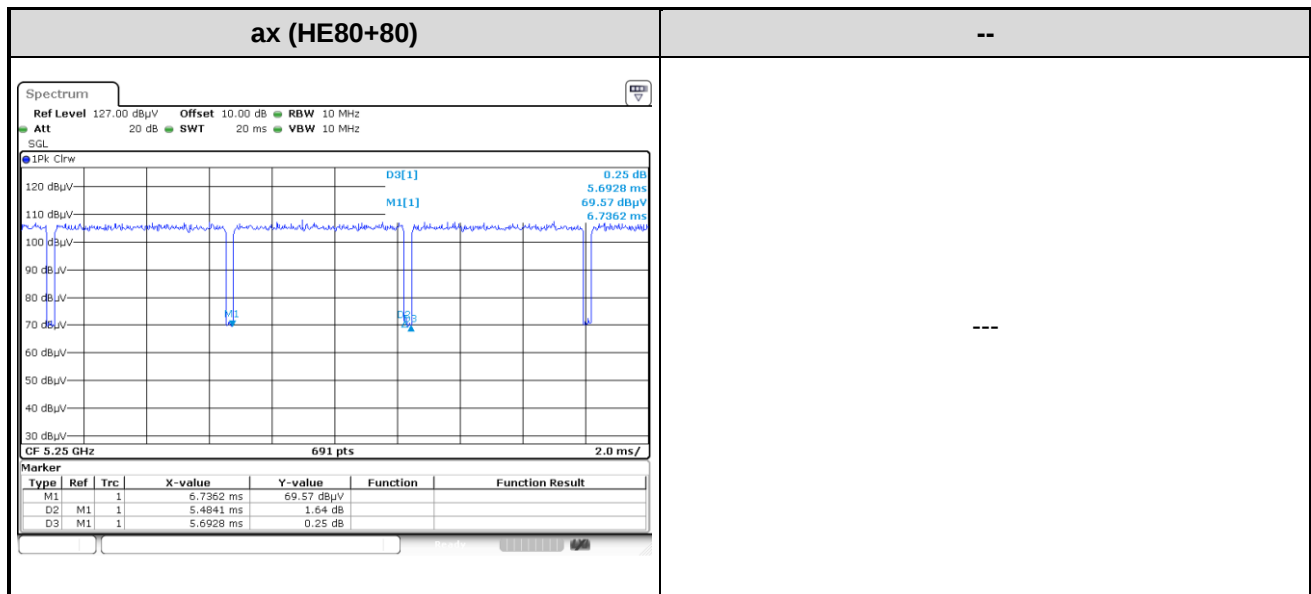
1.1.5 Channel List

802.11a / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
52	5260	54	5270
56	5280	62	5310
60	5300	102	5510
64	5320	110	5550
100	5500	118	5590
104	5520	126	5630
108	5540	134	5670
112	5560	142	5710
116	5580	802.11ac VHT80 / ax HE80	
120	5600	58	5290
124	5620	106	5530
128	5640	122	5610
132	5660	138	5690
136	5680	802.11 ax (HE80+80)	
140	5700	42	5210
144	5720	58	5290
---	---	106	5530
---	---	122	5610

1.1.6 Test Tool and Duty Cycle

Test Tool	QSPR, v5.0-00170		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11a	95.58%	0.20
	ax (HE20)	90.82%	0.42
	ax (HE40)	86.99%	0.61
	ax (HE80)	92.04%	0.36
	ax (HE80+80)	96.33%	0.16





1.1.7 Power Index of Test Tool

For Frequency band 5250~5350 MHz		
Modulation Mode	Test Frequency (MHz)	Power Index
11a	5260	13
11a	5300	13
11a	5320	12.5
ax (HE20)	5260	13.5
ax (HE20)	5300	13.5
ax (HE20)	5320	13
ax (HE40)	5270	16
ax (HE40)	5310	16
ax (HE80)	5290	15.5
ax (HE80+80)	5290	16.5

For Frequency band 5470~5725 MHz		
Modulation Mode	Test Frequency (MHz)	Power Index
11a	5500	12
11a	5580	13
11a	5700	13
ax (HE20)	5500	13
ax (HE20)	5580	13
ax (HE20)	5700	13
ax (HE40)	5510	15.5
ax (HE40)	5590	16
ax (HE40)	5670	16
ax (HE80)	5530	15
ax (HE80)	5610	17
ax (HE160)	5530	17
ax (HE80+80)	5610	17

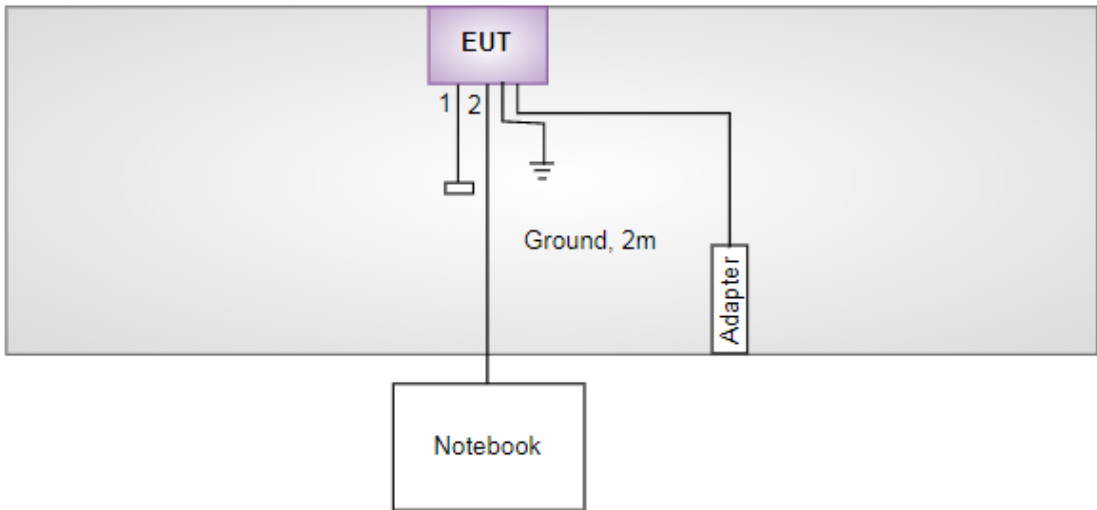
Channel that extends across the 5.725 GHz boundary

For Frequency band 5470~5725 MHz		
Modulation Mode	Test Frequency (MHz)	Power Index
11a	5720MHz	13
ax (HE20)	5720MHz	13.5
ax (HE40)	5710MHz	16
ax (HE80)	5690MHz	17

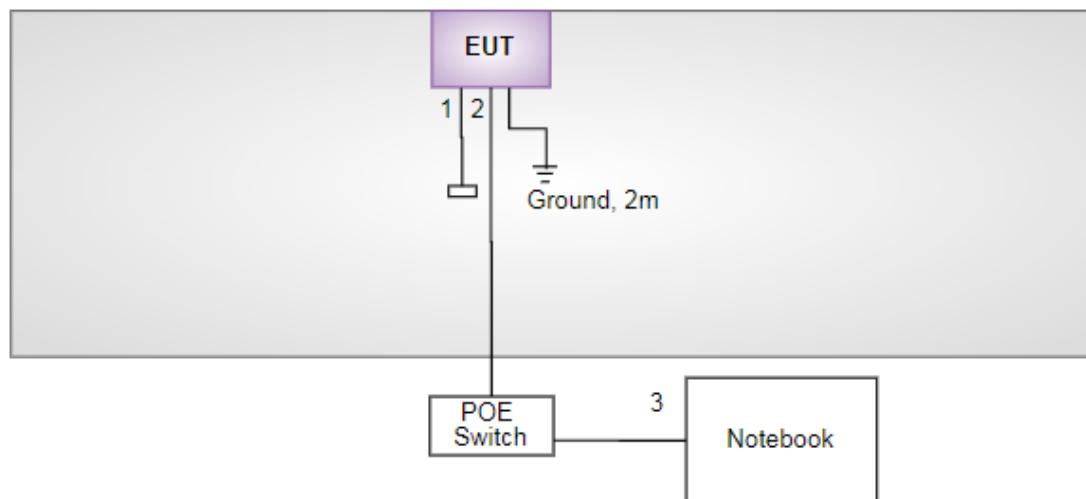
1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E6440	DoC	---
2	POE Switch	ZYXEL	XS1930-12HP	---	Provided by applicant.
3	Adapter	APD	WA-30P12R	---	Provided by applicant.

1.3 Test Setup Chart

Test Setup Diagram (Adapter mode)	
 The diagram illustrates the test setup for an EUT (Equipment Under Test) in Adapter mode. The EUT is connected to a Notebook via a signal cable. The EUT is also connected to a Ground (2m) and an Adapter. The Notebook is kept in the control area.	
No.	Signal cable / Length (m)
1	RJ45, 1m non-shielded with load
2	RJ45, 10m non-shielded.

Test Setup Diagram (POE mode)



Kept in control area

No.	Signal cable / Length (m)
1	RJ45, 1m non-shielded with load
2	RJ45, 10m non-shielded.
3	RJ45, 1m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Sep. 16, 2019				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 05, 2018	Nov. 04, 2019
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 23, 2018	Oct. 22, 2019
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 3 / (03CH03-WS)				
Tested Date	Aug. 15 ~ Aug. 30, 2019				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101499	Jan. 07, 2019	Jan. 06, 2020
Receiver	R&S	ESR3	101658	Dec. 11, 2018	Dec. 10, 2019
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 17, 2019	Apr. 16, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Jan. 07, 2019	Jan. 06, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2018	Nov. 14, 2019
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 09, 2018	Nov. 08, 2019
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 08, 2018	Oct. 07, 2019
Preamplifier	EMC	EMC02325	980187	Aug. 14, 2019	Aug. 13, 2020
Preamplifier	Agilent	83017A	MY53270014	Aug. 07, 2019	Aug. 06, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Oct. 01, 2018	Sep. 30, 2019
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Oct. 01, 2018	Sep. 30, 2019
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Oct. 01, 2018	Sep. 30, 2019
LF cable-0.8M	EMC	EMC8D-NM-NM-8000	EMC8D-NM-NM-800-001	Oct. 01, 2018	Sep. 30, 2019
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Oct. 01, 2018	Sep. 30, 2019
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Oct. 01, 2018	Sep. 30, 2019
Measurement Software	SENSE-15247_DTS	V5.9	--	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Aug. 07 ~ Sep. 10, 2019				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Apr. 17, 2019	Apr. 16, 2020
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 05, 2018	Dec. 04, 2019
Power Meter	Anritsu	ML2495A	1241002	Oct. 09, 2018	Oct. 08, 2019
Power Sensor	Anritsu	MA2411B	1207366	Oct. 09, 2018	Oct. 08, 2019
AC POWER SOURCE	APC	AFC-500W	F312060012	Nov. 29, 2018	Nov. 28, 2019
Measurement Software	Sporton	SENSE-15247_DTS	V5.9	NA	NA
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 C63.10-2013

FCC KDB 789033 D02 General UNII Test Procedures New Rules

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 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	± 34.130 Hz
Conducted power	± 0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Radiated emission ≤ 1 GHz	± 3.96 dB
Radiated emission > 1 GHz	± 4.51 dB
Time	$\pm 0.1\%$
Temperature	± 0.4 °C

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	24°C / 62%	Alex Tsai
Radiated Emissions	03CH03-WS	24-25°C / 61-63%	Roger Lu Brad Wu
RF Conducted	TH01-WS	22°C / 65%	Roger Lu

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Frequency band 5150~5250 MHz / 5250~5350 MHz / 5470~5725 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	ax (HE80+80)	5530 + 5610	MCS 0	1, 2
Radiated Emissions ≤1GHz	ax (HE80+80)	5530 + 5610	MCS 0	1, 2
RF Output Power	11a	5260 / 5300 / 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	1
	ax (HE20)	5260 / 5300 / 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	
	ax (HE40)	5270 / 5310 / 5510 / 5590 / 5670 / 5710	MCS 0	
	ax (HE80)	5290 / 5530 / 5610 / 5690	MCS 0	
	ax (HE80+80)	5210 + 5290 / 5530 + 5610	MCS 0	
RF Output Power	ax (HE20)	5260 / 5300 / 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	3
	ax (HE40)	5270 / 5310 / 5510 / 5590 / 5670 / 5710	MCS 0	
	ax (HE80)	5290 / 5530 / 5610 / 5690	MCS 0	
	ax (HE80+80)	5210 + 5290 / 5530 + 5610	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5260 / 5300 / 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	1
	ax (HE20)	5260 / 5300 / 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	
	ax (HE40)	5270 / 5310 / 5510 / 5590 / 5670 / 5710	MCS 0	
	ax (HE80)	5290 / 5530 / 5610 / 5690	MCS 0	
	ax (HE80+80)	5210 + 5290 / 5530 + 5610	MCS 0	
Frequency Stability	Un-modulation	5500	---	---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Z-plane results were found as the worst case and were shown in this report. 2. The EUT had been tested by following test configurations. 1) Configuration 1: Adapter mode , Radio 2 / Non-Beamforming 2) Configuration 2: POE mode , Radio 2 / Non-Beamforming 3) Configuration 3: Adapter mode , Radio 2 / Beamforming				

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

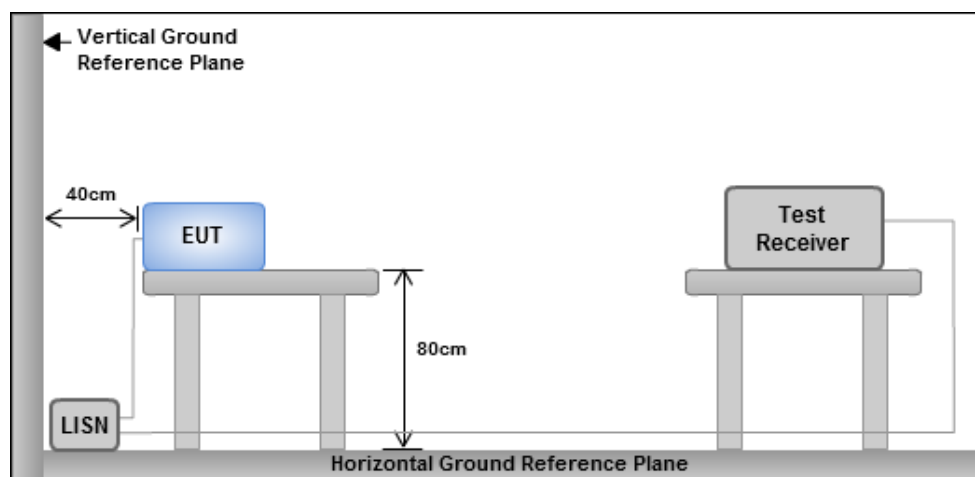
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

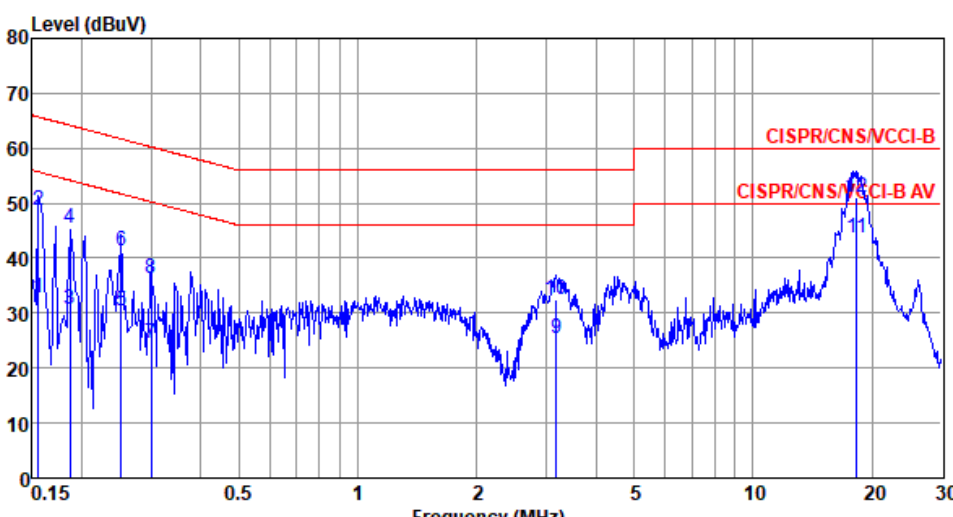
3.1.3 Test Setup



- 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

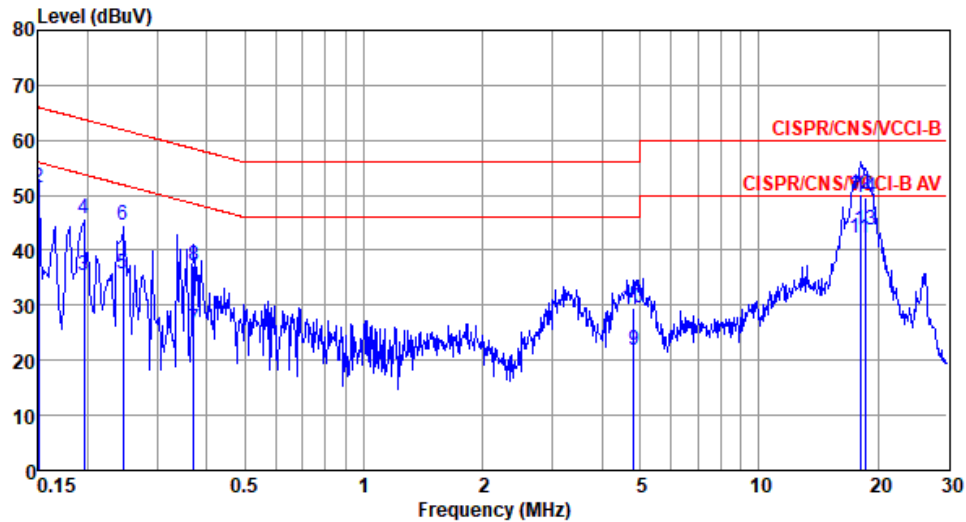
Modulation	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Power Phase	Line	Test Configuration	1



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	LISN factor dB	cable loss dB	Remark
1	0.156	32.63	55.69	-23.06	22.92	9.53	0.05	Average
2	0.156	48.71	65.69	-16.98	39.00	9.53	0.05	QP
3	0.186	30.70	54.20	-23.50	20.92	9.54	0.07	Average
4	0.186	45.37	64.20	-18.83	35.59	9.54	0.07	QP
5	0.252	30.39	51.69	-21.30	20.56	9.55	0.07	Average
6	0.252	41.28	61.69	-20.41	31.45	9.55	0.07	QP
7	0.300	24.53	50.24	-25.71	14.66	9.56	0.08	Average
8	0.300	36.22	60.24	-24.02	26.35	9.56	0.08	QP
9	3.173	25.38	46.00	-20.62	15.16	9.61	0.24	Average
10	3.173	32.39	56.00	-23.61	22.17	9.61	0.24	QP
11*	18.328	43.72	50.00	-6.28	32.90	9.66	0.59	Average
12	18.328	51.02	60.00	-8.98	40.20	9.66	0.59	QP

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

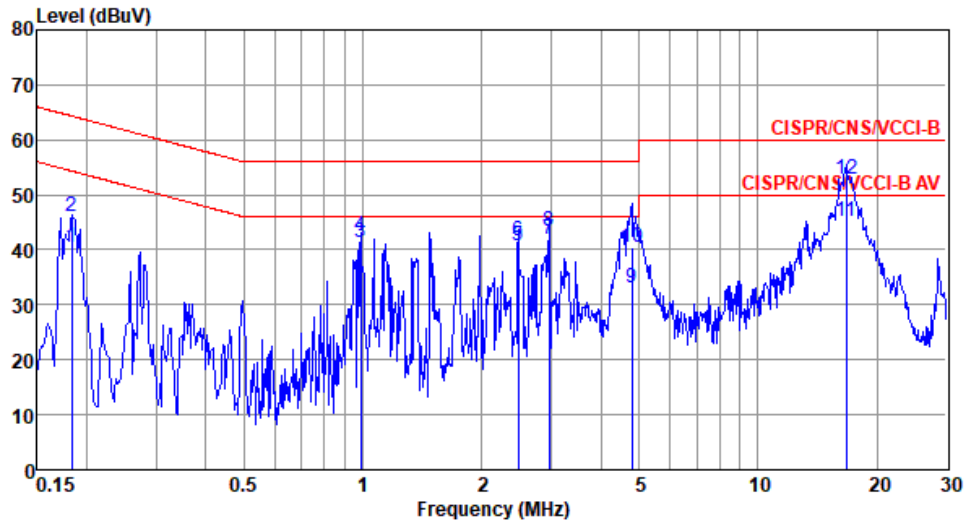
Modulation	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Power Phase	Neutral	Test Configuration	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.150	35.94	56.00	-20.06	26.21	9.57	0.05	Average
2	0.150	51.23	66.00	-14.77	41.50	9.57	0.05	QP
3	0.195	35.35	53.80	-18.45	25.56	9.58	0.07	Average
4	0.195	45.65	63.80	-18.15	35.86	9.58	0.07	QP
5	0.246	35.61	51.91	-16.30	25.82	9.59	0.07	Average
6	0.246	44.59	61.91	-17.32	34.80	9.59	0.07	QP
7	0.371	25.61	48.47	-22.86	15.80	9.61	0.08	Average
8	0.371	37.31	58.47	-21.16	27.50	9.61	0.08	QP
9	4.822	21.95	46.00	-24.05	11.70	9.67	0.31	Average
10	4.822	29.53	56.00	-26.47	19.28	9.67	0.31	QP
11	18.039	42.22	50.00	-7.78	31.42	9.80	0.59	Average
12	18.039	50.15	60.00	-9.85	39.35	9.80	0.59	QP
13*	18.622	43.70	50.00	-6.30	32.88	9.80	0.59	Average
14	18.622	49.64	60.00	-10.36	38.82	9.80	0.59	QP

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

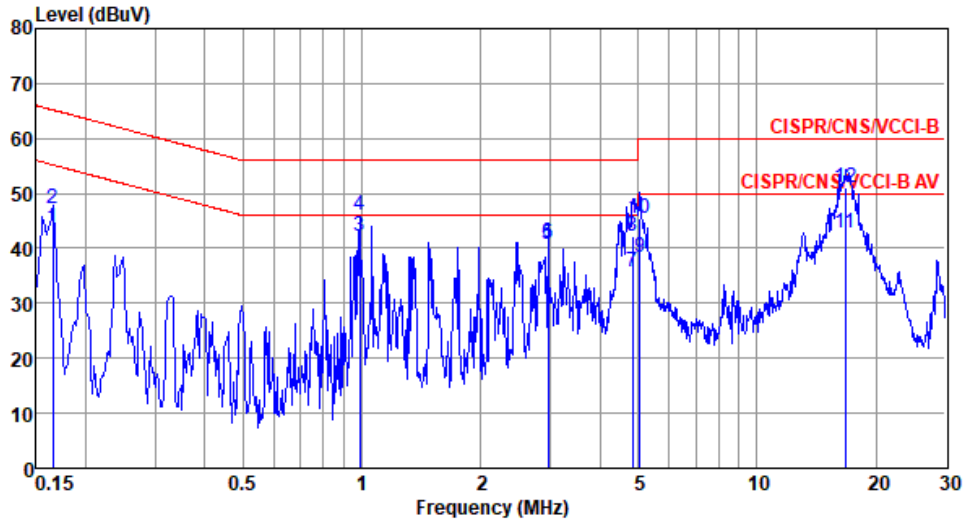
Modulation	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Power Phase	Line	Test Configuration	2



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.183	40.51	54.33	-13.82	30.91	9.54	0.06	Average
2	0.183	46.17	64.33	-18.16	36.57	9.54	0.06	QP
3	0.989	41.38	46.00	-4.62	31.68	9.60	0.10	Average
4	0.989	42.63	56.00	-13.37	32.93	9.60	0.10	QP
5	2.474	40.71	46.00	-5.29	30.91	9.60	0.20	Average
6	2.474	41.50	56.00	-14.50	31.70	9.60	0.20	QP
7*	2.962	42.05	46.00	-3.95	32.21	9.61	0.23	Average
8	2.962	43.39	56.00	-12.61	33.55	9.61	0.23	QP
9	4.797	33.19	46.00	-12.81	23.26	9.62	0.31	Average
10	4.797	40.32	56.00	-15.68	30.39	9.62	0.31	QP
11	16.750	45.16	50.00	-4.84	34.93	9.66	0.57	Average
12	16.750	52.80	60.00	-7.20	42.57	9.66	0.57	QP

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

Modulation	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Power Phase	Neutral	Test Configuration	2



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.165	43.71	55.21	-11.50	34.08	9.57	0.06	Average
2	0.165	47.37	65.21	-17.84	37.74	9.57	0.06	QP
3*	0.989	42.17	46.00	-3.83	32.43	9.64	0.10	Average
4	0.989	45.97	56.00	-10.03	36.23	9.64	0.10	QP
5	2.962	40.66	46.00	-5.34	30.77	9.66	0.23	Average
6	2.962	41.00	56.00	-15.00	31.11	9.66	0.23	QP
7	4.848	35.61	46.00	-10.39	25.63	9.67	0.31	Average
8	4.848	42.27	56.00	-13.73	32.29	9.67	0.31	QP
9	5.058	38.31	50.00	-11.69	28.32	9.67	0.32	Average
10	5.058	45.48	60.00	-14.52	35.49	9.67	0.32	QP
11	16.750	42.90	50.00	-7.10	32.55	9.78	0.57	Average
12	16.750	51.14	60.00	-8.86	40.79	9.78	0.57	QP

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

3.2 Emission Bandwidth

3.2.1 Test Procedures

26dB Bandwidth

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.

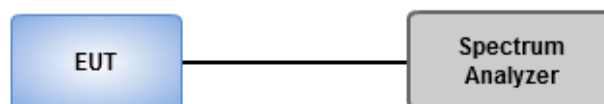
Occupied Bandwidth

1. Set RBW = 1 % to 5 % of the OBW.
2. Set VBW $\geq$ 3 RBW.
3. Sample detection and single sweep mode shall be used.
4. Use the 99 % power bandwidth function of the instrument.

6dB Bandwidth

1. Set RBW = 100kHz, VBW = 300kHz.
2. Detector = Peak, Trace mode = max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.2.2 Test Setup



3.2.3 Test Result of Emission Bandwidth

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.25-5.35GHz	-	-	-	-	-
802.11a_ Nss1,(6Mbps)_4TX	19.13M	16.353M	16M4D1D	18.623M	16.281M
802.11ax HEW20_ Nss1,(MCS0)_4TX	23.406M	18.958M	19M0D1D	22.101M	18.886M
802.11ax HEW40_ Nss1,(MCS0)_4TX	45.652M	37.916M	37M9D1D	43.768M	37.771M
802.11ax HEW80_ Nss1,(MCS0)_4TX	82.029M	76.99M	77M0D1D	81.449M	76.99M
5.47-5.725GHz	-	-	-	-	-
802.11a_ Nss1,(6Mbps)_4TX	19.71M	16.425M	16M4D1D	14.565M	13.155M
802.11ax HEW20_ Nss1,(MCS0)_4TX	23.261M	18.958M	19M0D1D	15.739M	14.414M
802.11ax HEW40_ Nss1,(MCS0)_4TX	45.507M	37.916M	37M9D1D	37.333M	33.835M
802.11ax HEW80_ Nss1,(MCS0)_4TX	82.609M	77.279M	77M3D1D	75.435M	72.721M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_ Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	Inf	18.623M	16.353M	18.841M	16.353M	18.986M	16.353M	18.913M	16.353M
5300MHz	Pass	Inf	18.986M	16.353M	18.913M	16.353M	18.986M	16.281M	19.13M	16.281M
5320MHz	Pass	Inf	18.986M	16.353M	18.986M	16.353M	18.768M	16.353M	18.913M	16.353M
5500MHz	Pass	Inf	18.913M	16.353M	18.696M	16.353M	19.71M	16.425M	18.986M	16.425M
5580MHz	Pass	Inf	18.913M	16.353M	18.696M	16.353M	18.841M	16.353M	18.986M	16.353M
5700MHz	Pass	Inf	18.913M	16.353M	19.42M	16.353M	18.841M	16.425M	19.058M	16.353M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	14.565M	13.198M	14.565M	13.242M	14.652M	13.155M	14.565M	13.242M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.13M	3.415M	3.13M	3.415M	3.13M	3.415M	3.13M	3.357M
802.11ax HEW20_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	Inf	22.246M	18.886M	22.536M	18.958M	22.391M	18.886M	22.101M	18.886M
5300MHz	Pass	Inf	22.464M	18.886M	23.043M	18.886M	23.406M	18.886M	22.826M	18.958M
5320MHz	Pass	Inf	22.246M	18.886M	22.536M	18.886M	22.899M	18.886M	23.116M	18.886M
5500MHz	Pass	Inf	22.391M	18.886M	22.391M	18.958M	23.116M	18.886M	23.261M	18.886M
5580MHz	Pass	Inf	22.319M	18.886M	22.246M	18.813M	22.971M	18.886M	22.754M	18.886M
5700MHz	Pass	Inf	22.609M	18.886M	23.188M	18.886M	22.536M	18.886M	22.971M	18.958M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	16.304M	14.457M	15.783M	14.457M	15.739M	14.414M	16.435M	14.457M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.406M	4.399M	4.464M	4.399M	4.348M	4.399M	4.406M	4.399M
802.11ax HEW40_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	Inf	43.913M	37.771M	44.638M	37.771M	43.768M	37.771M	44.348M	37.771M
5310MHz	Pass	Inf	45.652M	37.771M	44.493M	37.916M	44.638M	37.916M	44.348M	37.771M
5510MHz	Pass	Inf	45.507M	37.916M	43.623M	37.916M	43.043M	37.771M	44.493M	37.916M
5590MHz	Pass	Inf	44.203M	37.916M	43.188M	37.771M	43.768M	37.916M	44.348M	37.771M
5670MHz	Pass	Inf	43.913M	37.771M	43.478M	37.771M	43.623M	37.916M	45.072M	37.771M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	37.333M	33.835M	37.435M	33.835M	37.435M	33.835M	37.435M	33.936M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.942M	4.11M	3.942M	3.994M	3.884M	3.994M	3.884M	3.994M
802.11ax HEW80_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5290MHz	Pass	Inf	81.739M	76.99M	82.029M	76.99M	81.739M	76.99M	81.449M	76.99M
5530MHz	Pass	Inf	82.029M	77.279M	82.319M	76.99M	81.449M	76.99M	81.449M	76.99M
5610MHz	Pass	Inf	81.449M	76.99M	81.159M	76.7M	82.609M	77.279M	81.449M	76.99M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	75.87M	72.938M	75.435M	72.721M	76.087M	73.372M	76.304M	73.155M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	4.058M	4.052M	4.058M	4.11M	3.942M	4.11M	4M	4.11M

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.319M	76.99M	82.609M	76.99M	-	-	-	-
5290MHz	Pass	Inf	-	-	-	-	82.029M	76.99M	82.609M	76.99M
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5530MHz	Pass	Inf	82.029M	77.279M	142.319 M	91.751M	-	-	-	-
5610MHz	Pass	Inf	-	-	-	-	82.899M	77.569M	82.609M	77.279M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

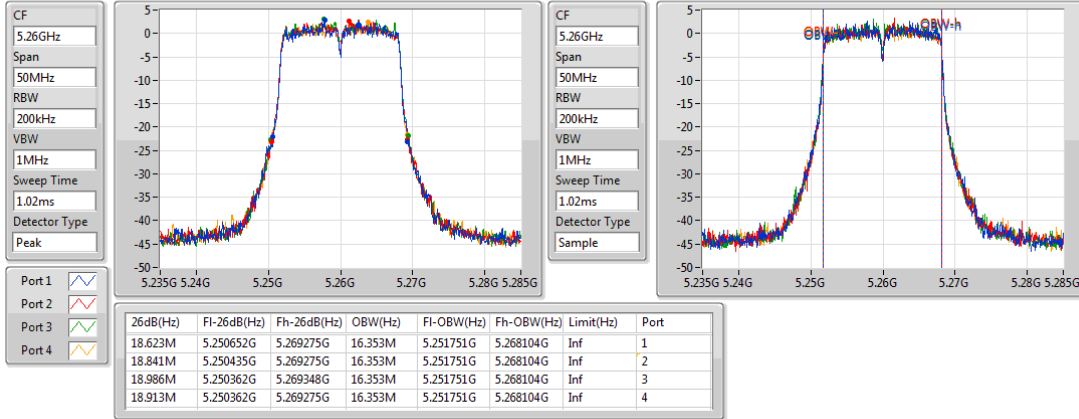
Port X-OBW = Port X 99% occupied bandwidth;

Note:

802.11a_Nss1,(6Mbps)_4TX

EBW

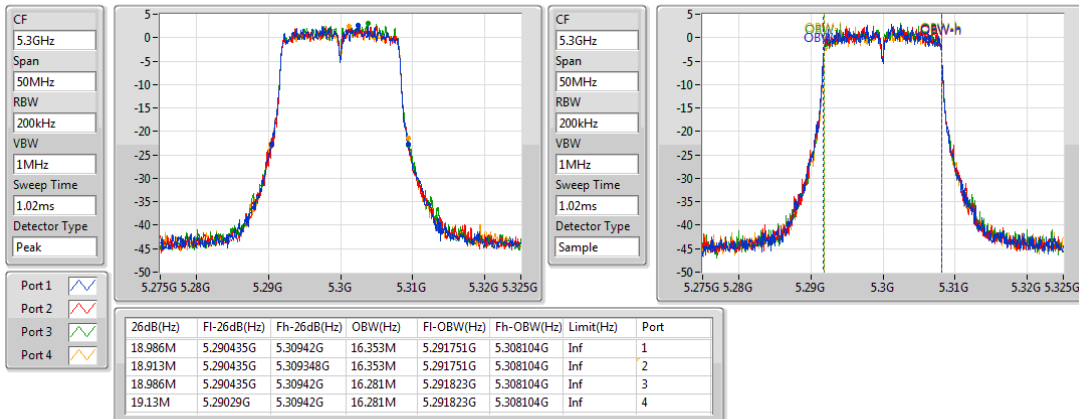
5260MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

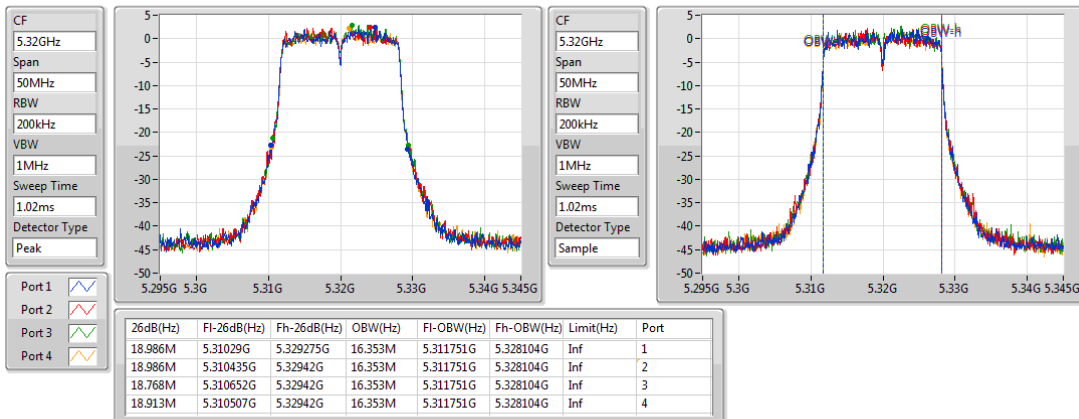
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802.11a_Nss1,(6Mbps)_4TX

EBW

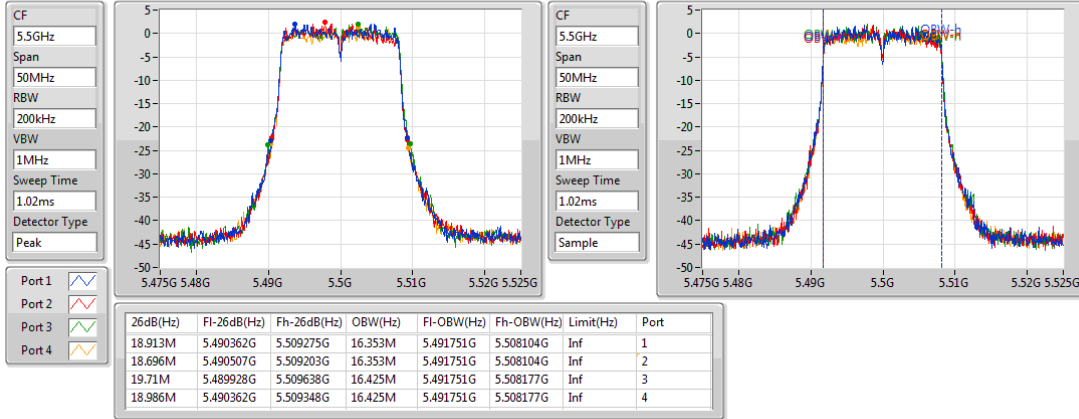
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802.11a_Nss1,(6Mbps)_4TX

EBW

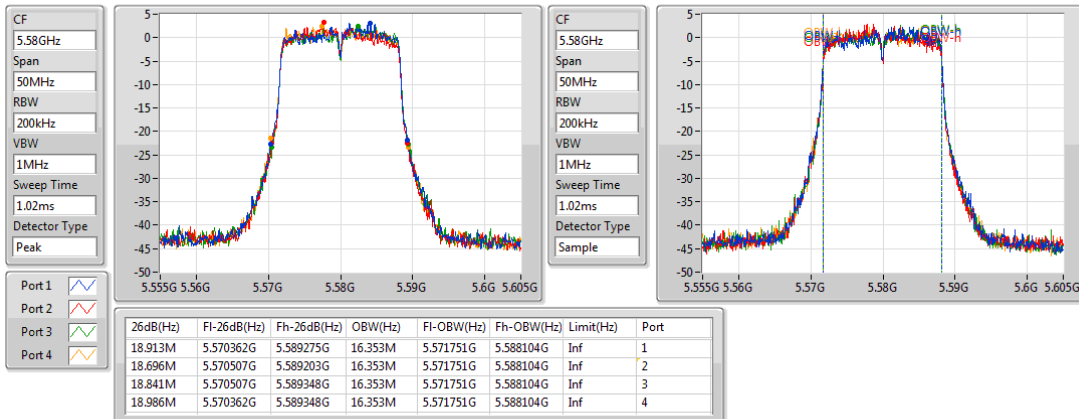
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802.11a_Nss1,(6Mbps)_4TX

EBW

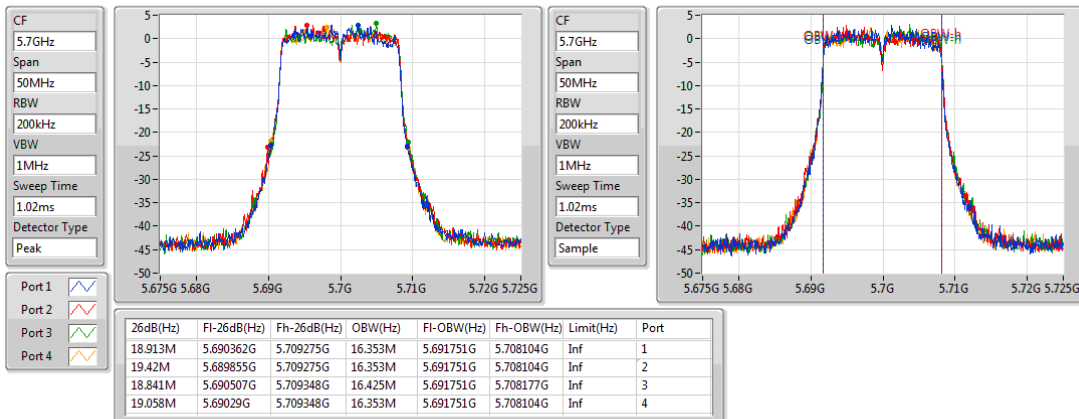
5580MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

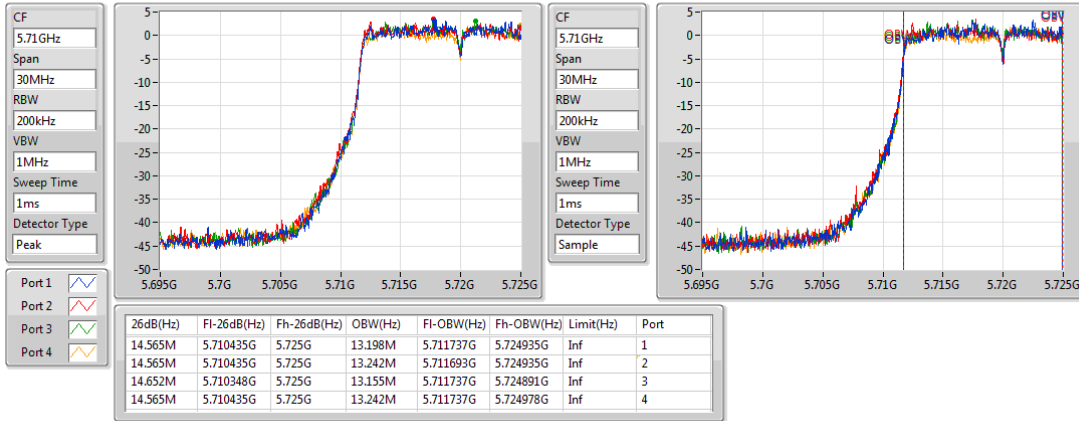
5700MHz



802.11a_Nss1,(6Mbps)_4TX

EBW

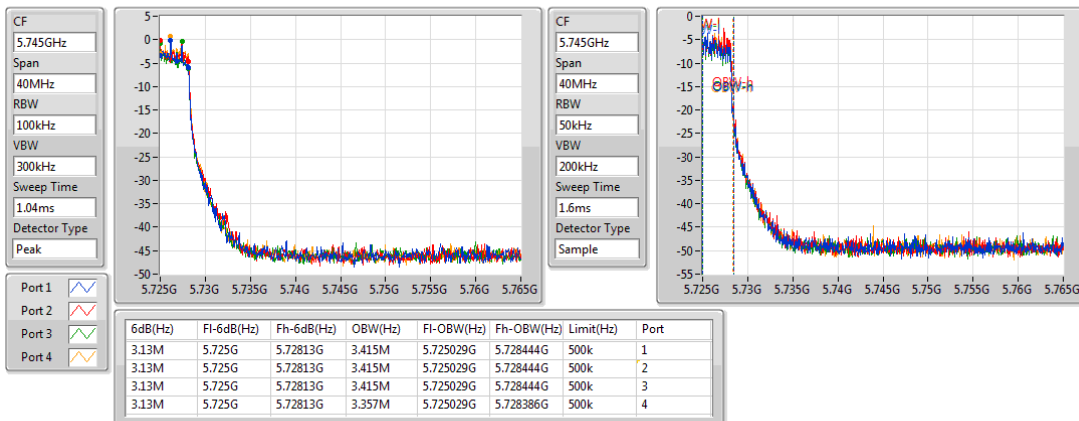
5720MHz Straddle 5.47-5.725GHz



802.11a_Nss1,(6Mbps)_4TX

EBW

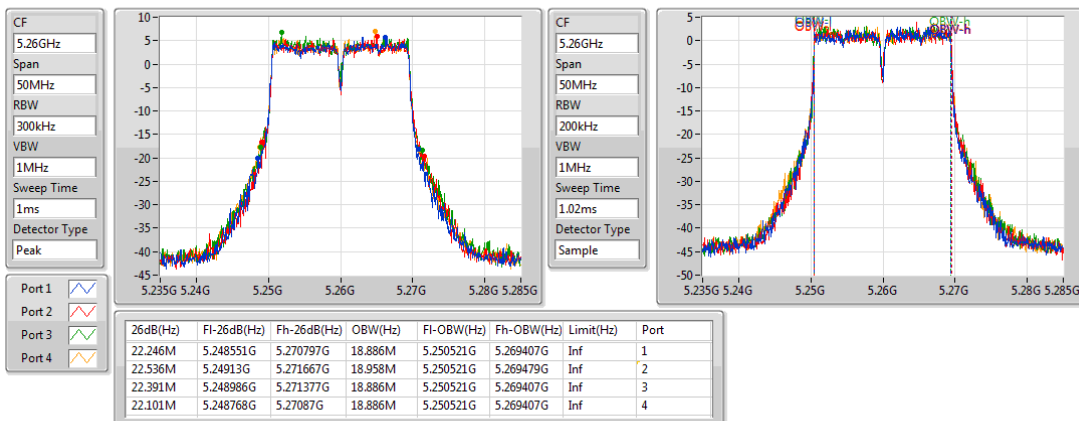
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

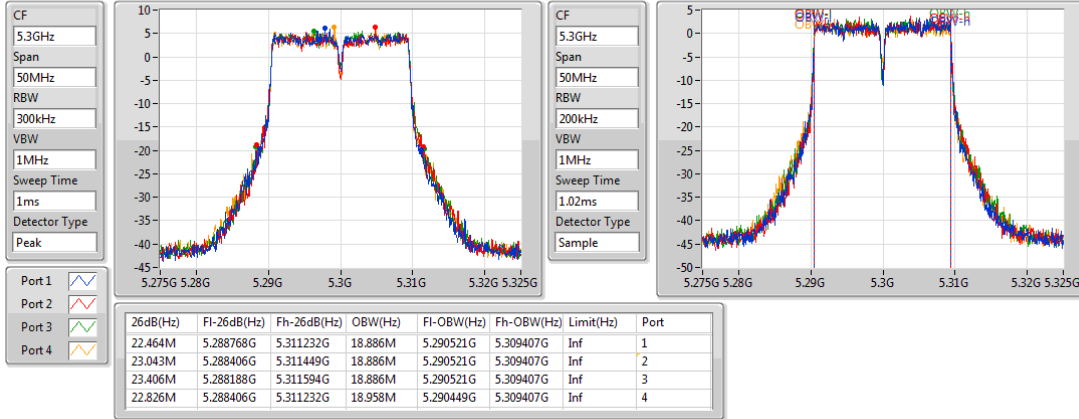
5260MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

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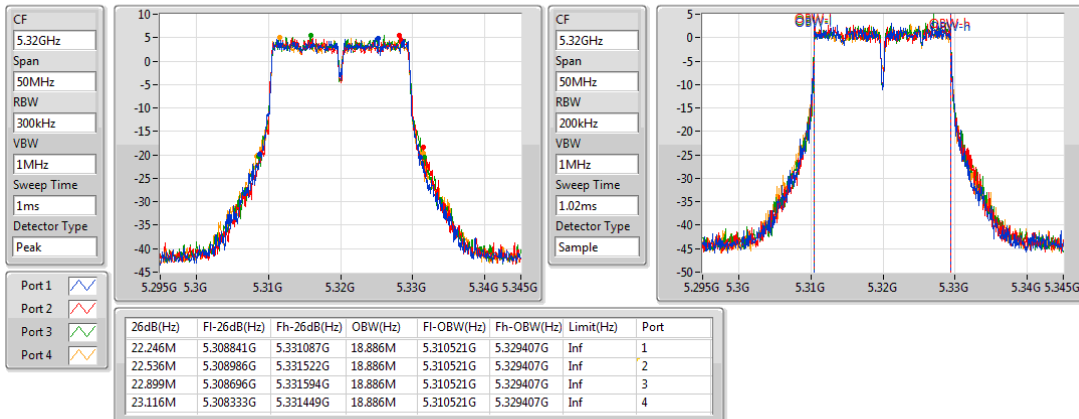
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802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

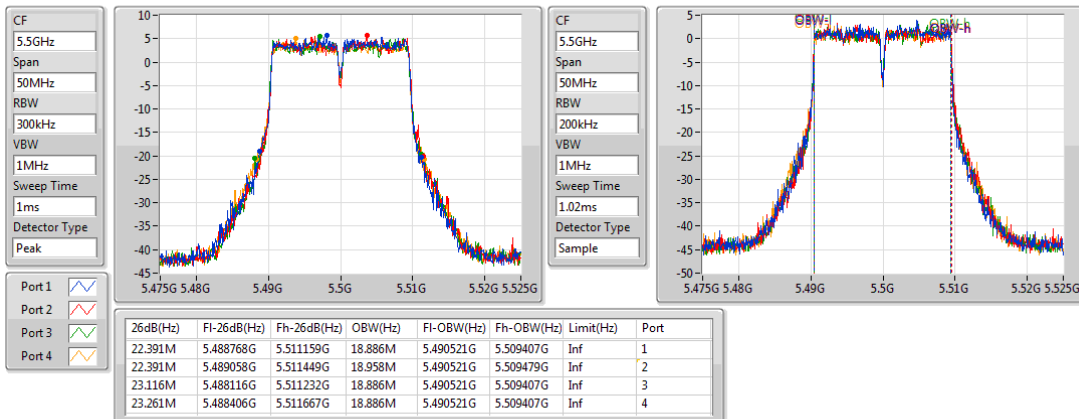
5320MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

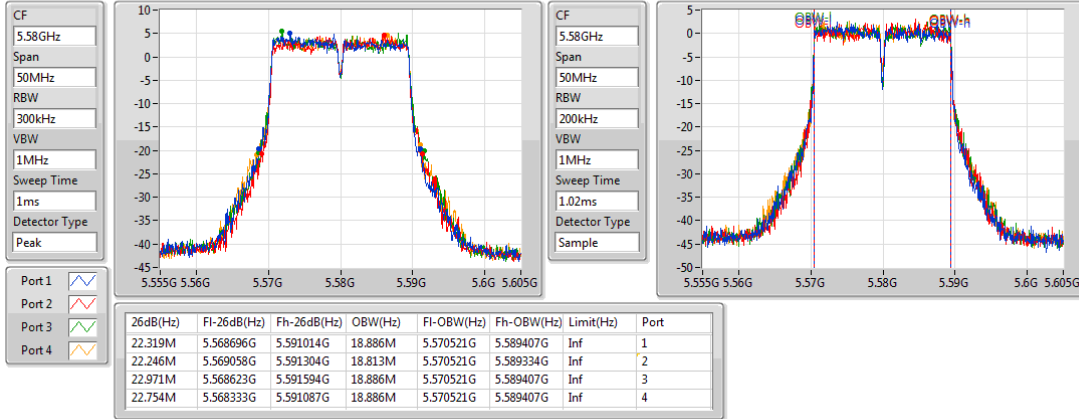
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802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

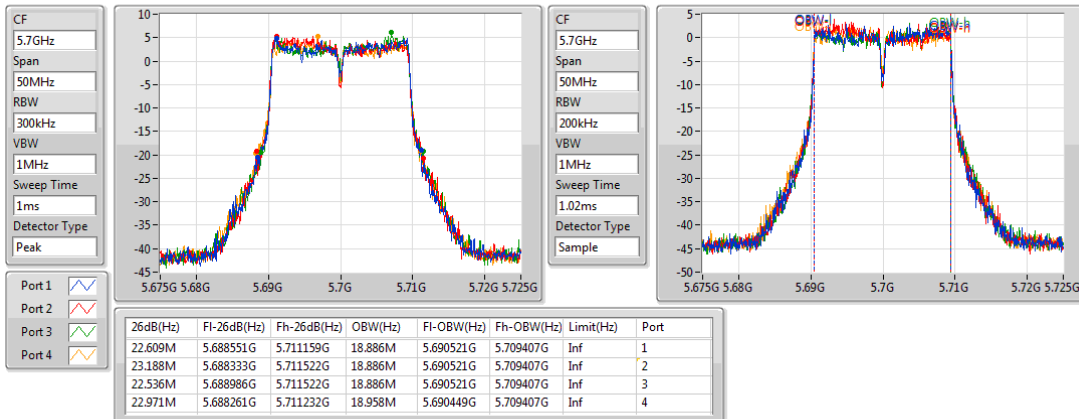
5580MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

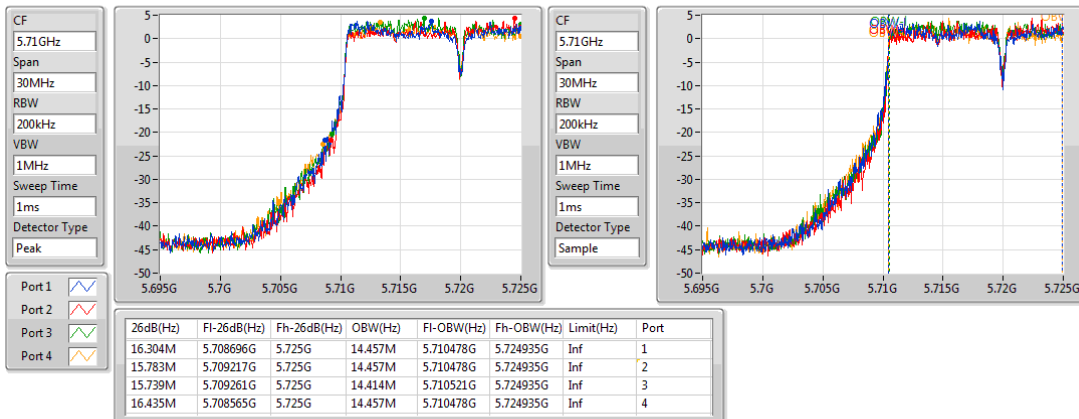
5700MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

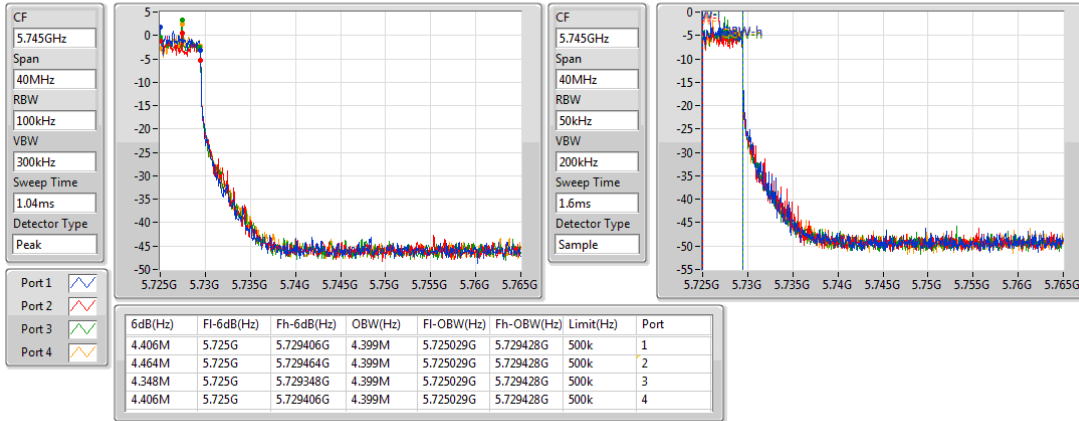
5720MHz Straddle 5.47-5.725GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

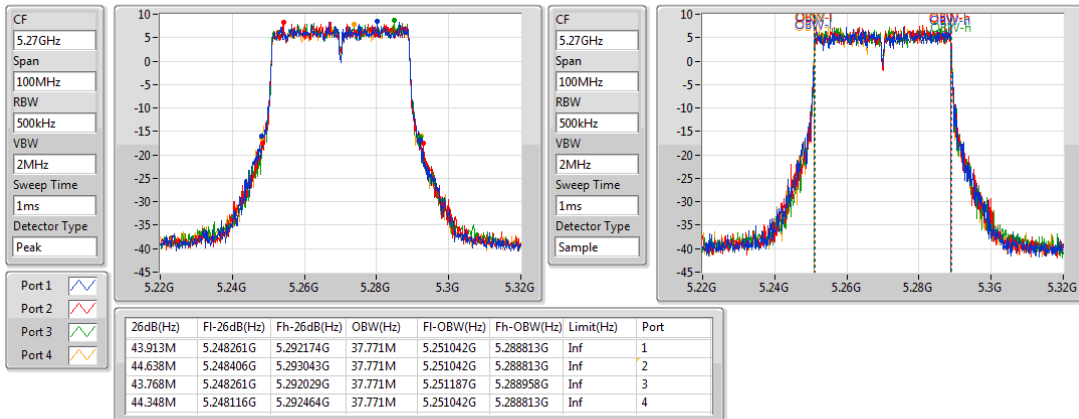
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

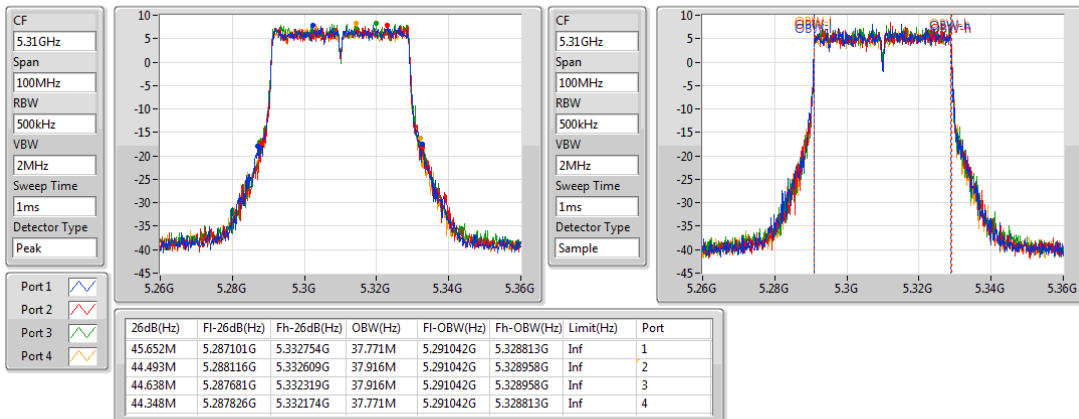
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802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

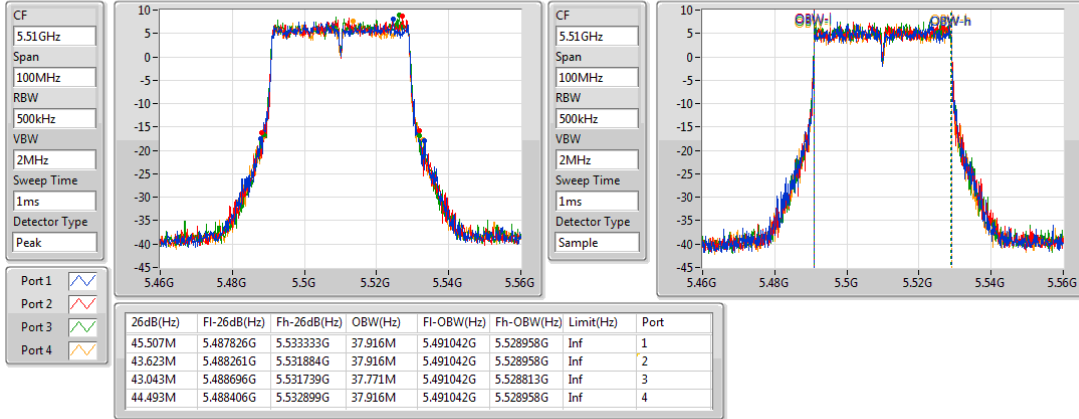
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802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

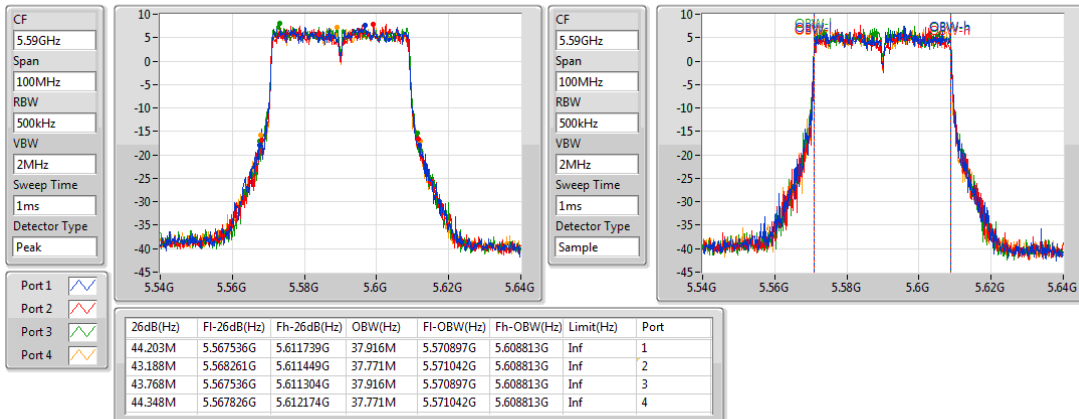
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802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

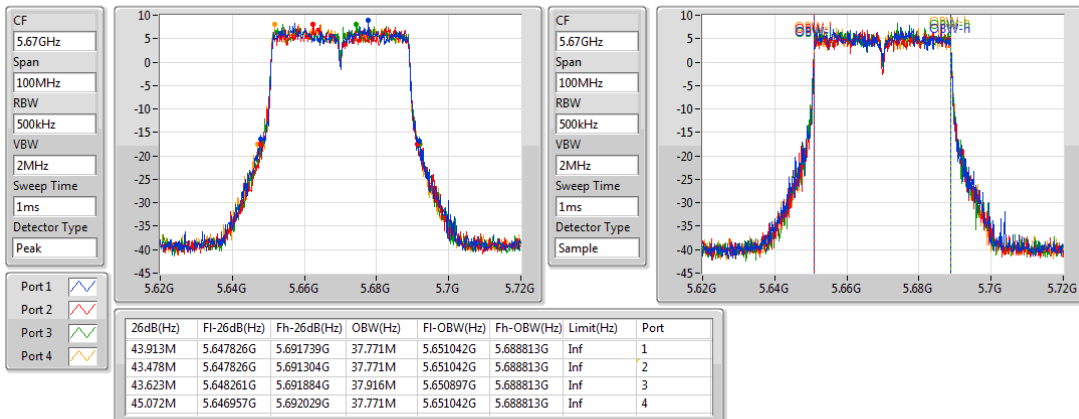
5590MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

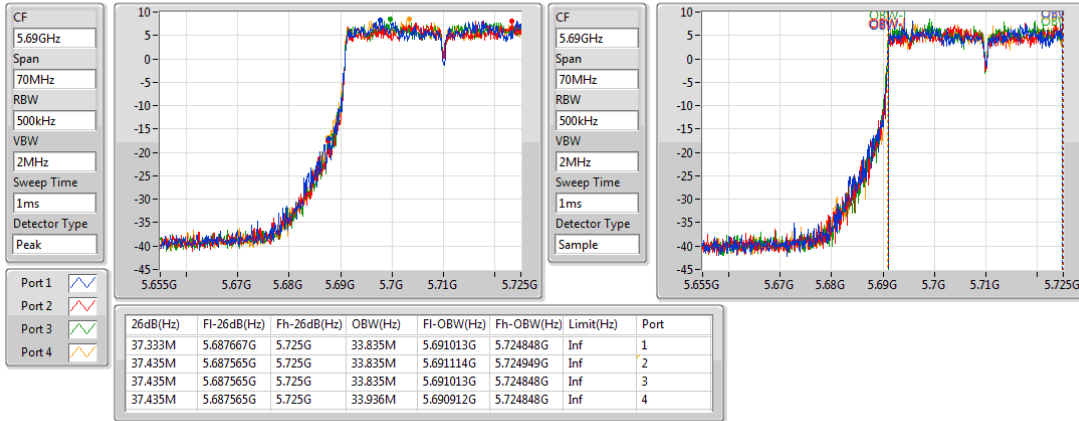
5670MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

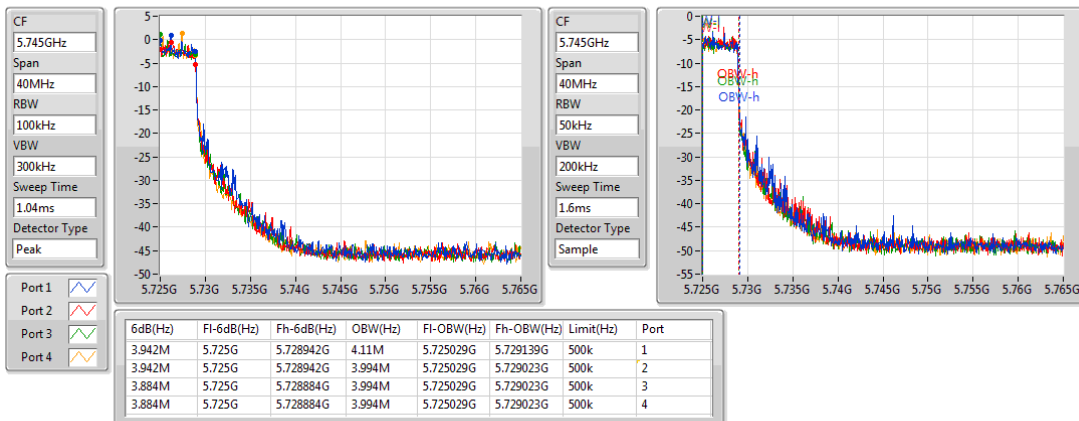
5710MHz Straddle 5.47-5.725GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

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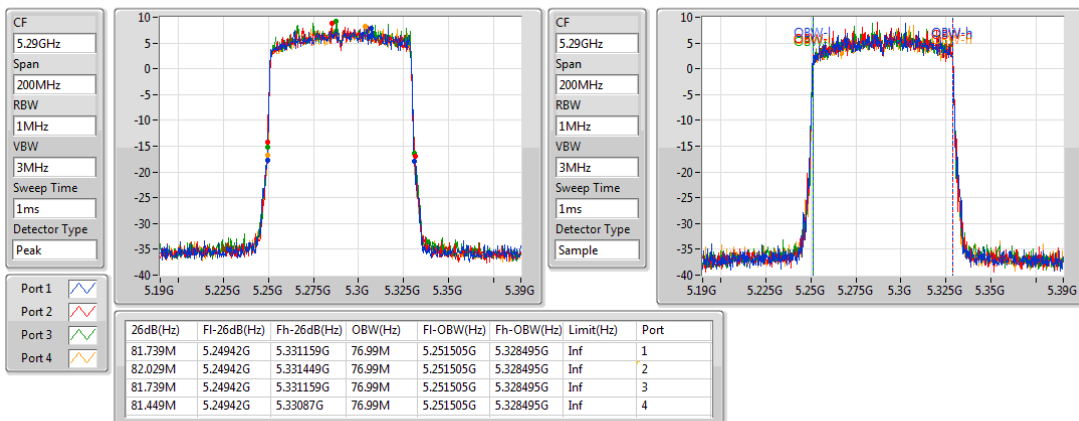
5710MHz Straddle 5.725-5.85GHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

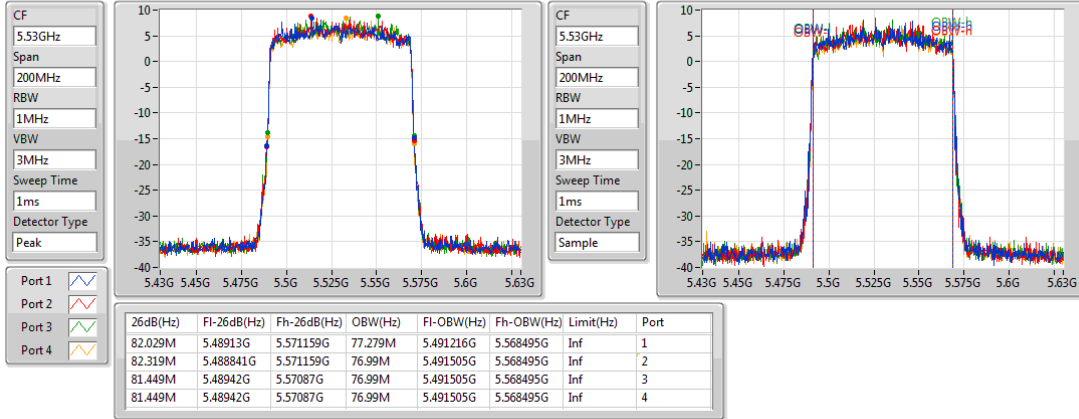
5290MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

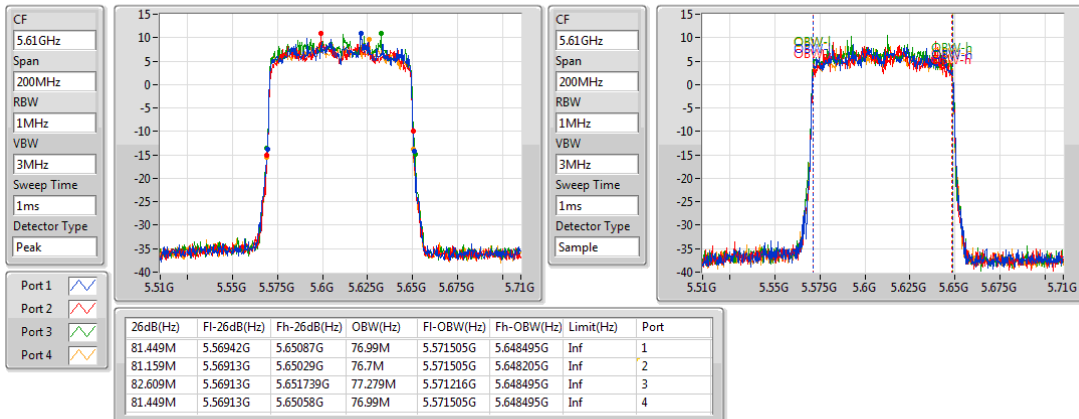
5530MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

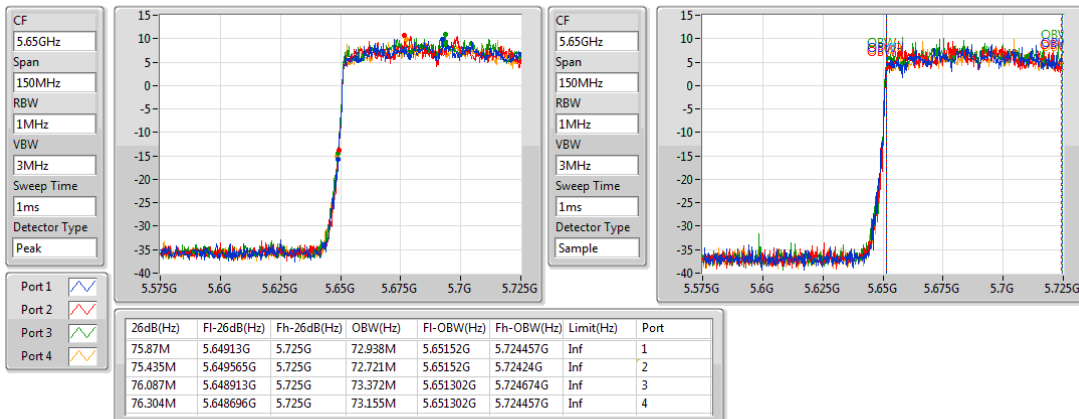
5610MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

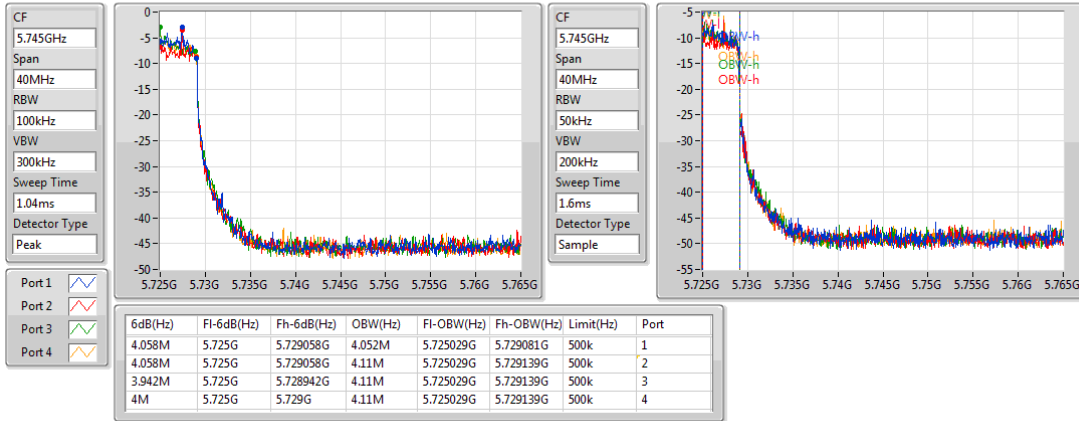
5690MHz Straddle 5.47-5.725GHz



802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

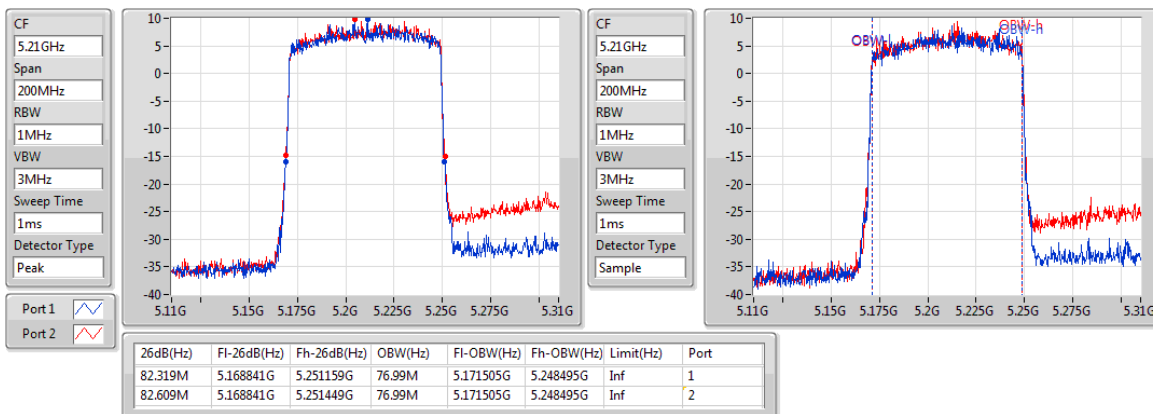
5690MHz Straddle 5.725-5.85GHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

EBW

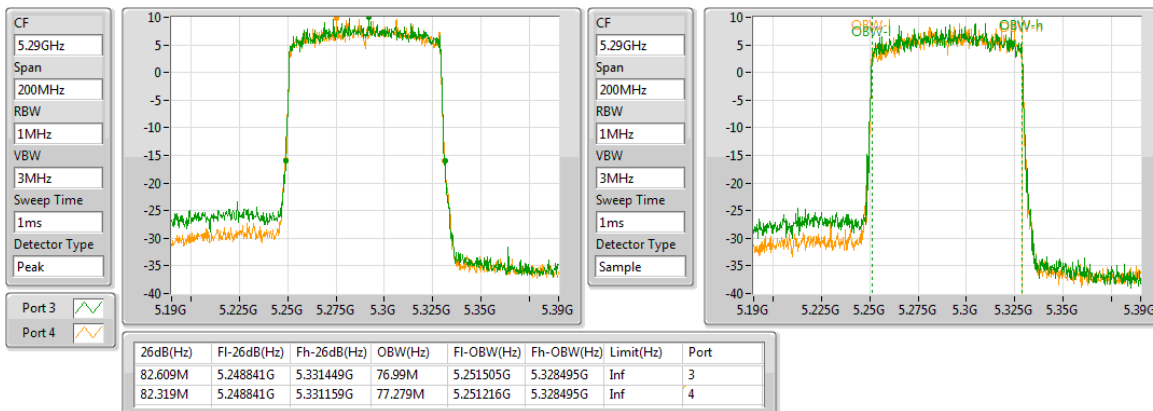
5210MHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

EBW

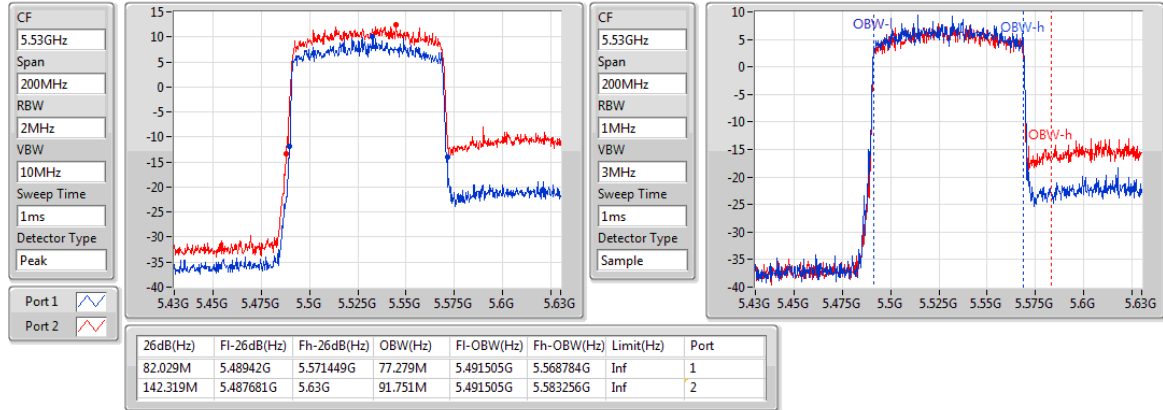
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802.11ax HEW80+80_Nss1,(MCS0)_2TX

EBW

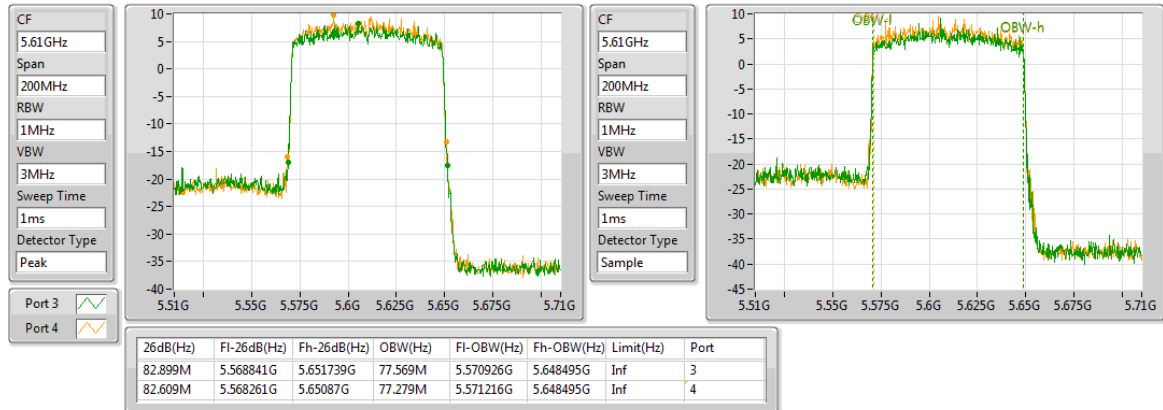
5530MHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

EBW

5610MHz



3.3 RF Output Power

3.3.1 Limit of RF Output Power

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	Conducted Power: 250mW or 11dBm+10 log B
☒	5470 ~ 5725	Conducted Power: 250mW or 11dBm+10 log B
Note: "B" is the 26dB emission bandwidth in MHz.		

3.3.2 Test Procedures

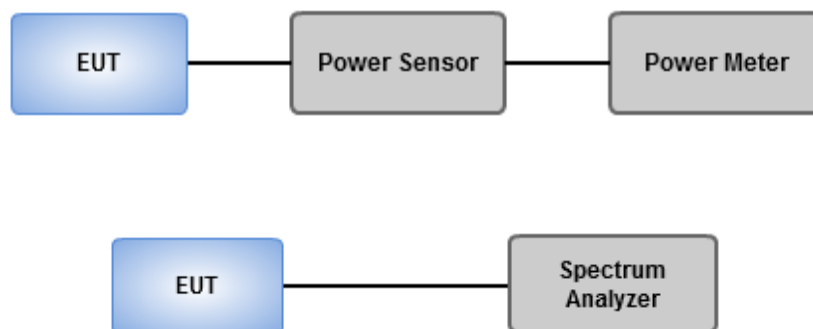
Method PM-G (Measurement using a gated RF average power meter)

Measurements 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.

Spectrum analyzer (For channel that extends across the 5.725 GHz boundary)

1. Set RBW = 1MHz, VBW = 3MHz, Sweep time = Auto, Detector = RMS.
2. Trace average at least 100 traces in power averaging mode.
3. Compute power by integrating the spectrum across the 26 dB EBW.
4. Add $10 \log(1/X)$, X:duty cycle) if duty cycle is <98%).

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.82	0.09594	24.04	0.25351
802.11ax HEW20_Nss1,(MCS0)_4TX	20.10	0.10233	24.32	0.27040
802.11ax HEW40_Nss1,(MCS0)_4TX	23.13	0.20559	27.35	0.54325
802.11ax HEW80_Nss1,(MCS0)_4TX	22.33	0.17100	26.55	0.45186
802.11ax HEW80+80_Nss1,(MCS0)_2TX	20.33	0.10789	24.55	0.28510
5.47-5.725GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	19.70	0.09333	24.31	0.26977
802.11ax HEW20_Nss1,(MCS0)_4TX	19.91	0.09795	24.52	0.28314
802.11ax HEW40_Nss1,(MCS0)_4TX	22.72	0.18707	27.33	0.54075
802.11ax HEW80_Nss1,(MCS0)_4TX	23.35	0.21627	27.96	0.62517
802.11ax HEW80+80_Nss1,(MCS0)_2TX	23.65	0.23174	28.26	0.66988

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_ Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	4.22	13.58	13.89	14.15	13.54	19.82	23.70	24.04	29.70
5300MHz	Pass	4.22	13.74	13.64	14.01	13.55	19.76	23.77	23.98	29.77
5320MHz	Pass	4.22	13.24	13.35	13.72	13.39	19.45	23.73	23.67	29.73
5500MHz	Pass	4.61	13.06	13.12	13.21	12.96	19.11	23.72	23.72	29.72
5580MHz	Pass	4.61	13.53	13.36	13.66	13.25	19.47	23.72	24.08	29.72
5700MHz	Pass	4.61	13.82	13.59	13.84	13.46	19.70	23.75	24.31	29.75
5720MHz Straddle 5.47-5.725GHz	Pass	4.61	12.49	12.47	12.36	12.48	18.47	22.63	23.08	28.63
5720MHz Straddle 5.725-5.85GHz	Pass	4.68	7.09	5.52	6.83	5.97	12.42	30.00	17.10	36.00
802.11ax HEW20_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	4.22	13.67	13.89	14.12	13.86	19.91	24.00	24.13	30.00
5300MHz	Pass	4.22	14.06	14.09	14.23	13.94	20.10	24.00	24.32	30.00
5320MHz	Pass	4.22	13.81	13.75	14.31	13.82	19.95	24.00	24.17	30.00
5500MHz	Pass	4.61	13.95	13.93	13.91	13.76	19.91	24.00	24.52	30.00
5580MHz	Pass	4.61	13.51	13.56	14.03	13.44	19.66	24.00	24.27	30.00
5700MHz	Pass	4.61	13.61	13.52	13.61	13.51	19.58	24.00	24.19	30.00
5720MHz Straddle 5.47-5.725GHz	Pass	4.61	13.13	12.59	12.69	13.01	18.88	22.97	23.49	28.97
5720MHz Straddle 5.725-5.85GHz	Pass	4.68	7.8	7.82	8.72	7.59	14.03	30.00	18.71	36.00
802.11ax HEW40_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	4.22	16.92	16.93	17.02	16.83	22.95	24.00	27.17	30.00
5310MHz	Pass	4.22	17.02	17.19	17.36	16.86	23.13	24.00	27.35	30.00
5510MHz	Pass	4.61	16.65	16.85	16.86	16.43	22.72	24.00	27.33	30.00
5590MHz	Pass	4.61	16.54	16.31	16.73	16.54	22.55	24.00	27.16	30.00
5670MHz	Pass	4.61	16.73	16.55	16.78	16.61	22.69	24.00	27.30	30.00
5710MHz Straddle 5.47-5.725GHz	Pass	4.61	16.07	15.82	16.4	16.2	22.15	24.00	26.76	30.00
5710MHz Straddle 5.725-5.85GHz	Pass	4.68	6.78	6.88	6.81	6.62	12.79	30.00	17.47	36.00
802.11ax HEW80_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5290MHz	Pass	4.22	16.32	16.36	16.38	16.16	22.33	24.00	26.55	30.00
5530MHz	Pass	4.61	15.85	15.92	15.94	15.62	21.85	24.00	26.46	30.00
5610MHz	Pass	4.61	17.16	17.02	17.52	17.03	23.21	24.00	27.82	30.00

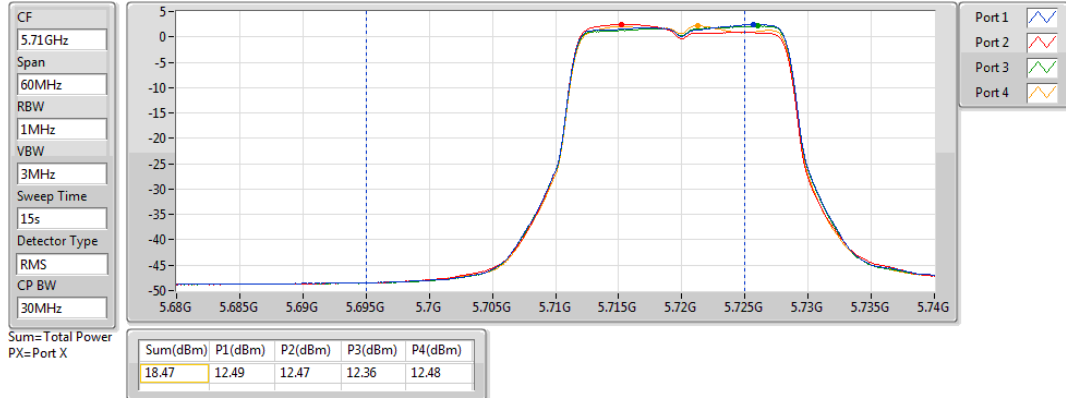
Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
5690MHz Straddle 5.47-5.725GHz	Pass	4.61	17.18	17.23	17.82	17.06	23.35	24.00	27.96	30.00
5690MHz Straddle 5.725-5.85GHz	Pass	4.68	3.39	2.12	3.38	2.92	9.00	30.00	13.68	36.00
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	3.51	17.13	17.06	-	-	20.11	30.00	23.62	36.00
5290MHz	Pass	4.22	-	-	17.65	16.96	20.33	24.00	24.55	30.00
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5530MHz	Pass	4.61	17.96	17.75	-	-	23.65	24.00	28.26	30.00
5610MHz			-	-	17.21	17.56				

DG = Directional Gain; **Port X** = Port X output power

802.11a_Nss1,(6Mbps)_4TX

AV Power

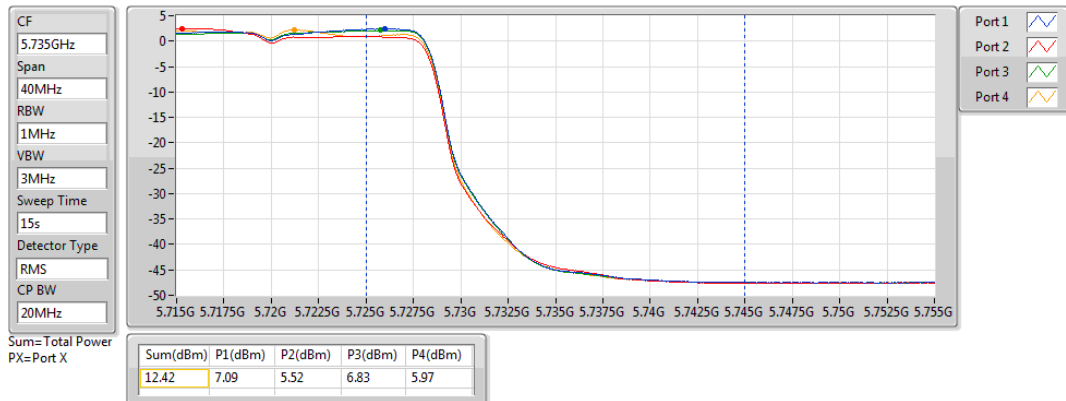
5720MHz Straddle 5.47-5.725GHz



802.11a_Nss1,(6Mbps)_4TX

AV Power

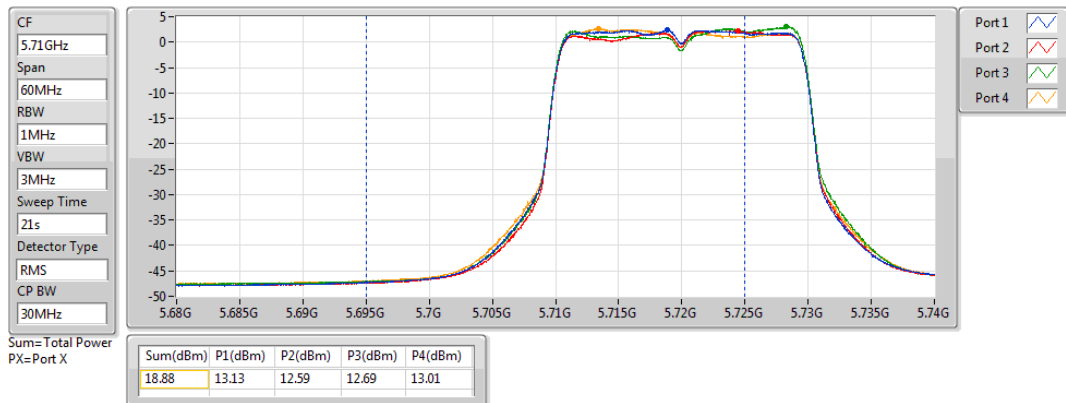
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

AV Power

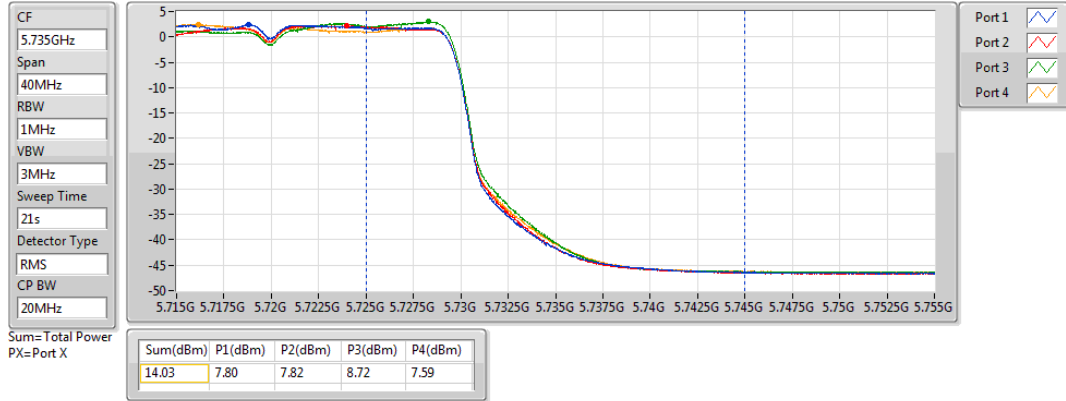
5720MHz Straddle 5.47-5.725GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

AV Power

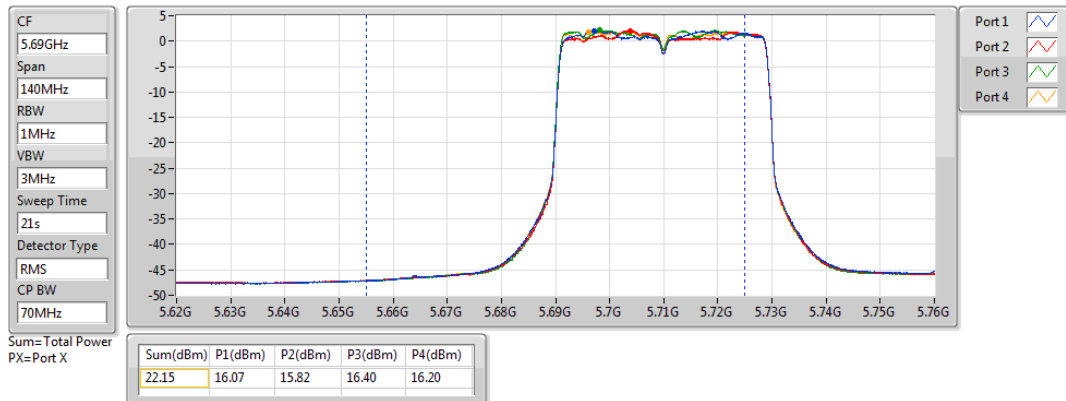
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

AV Power

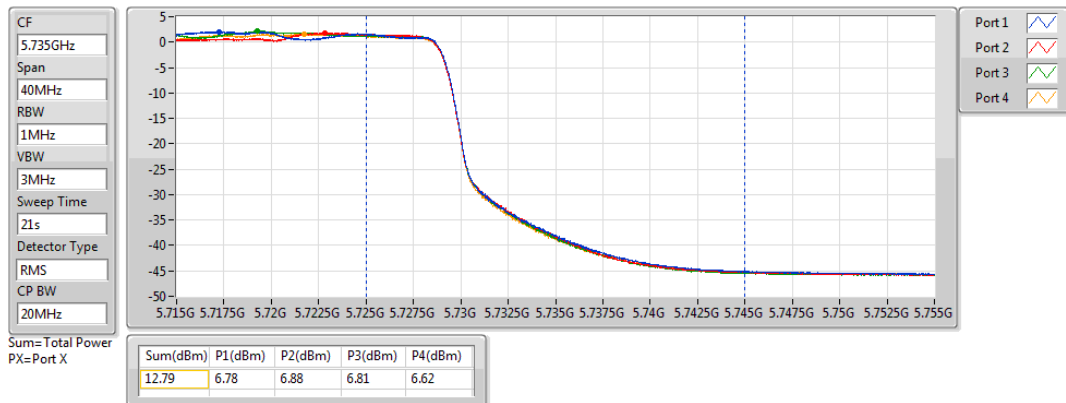
5710MHz Straddle 5.47-5.725GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

AV Power

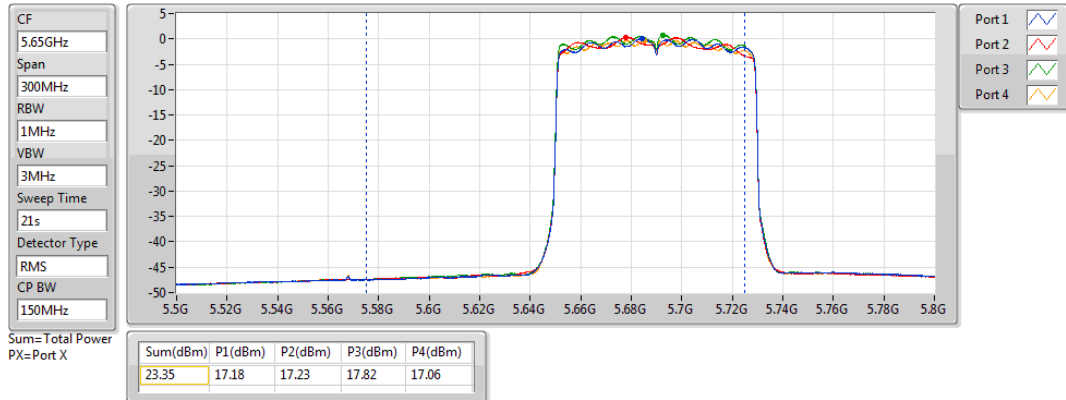
5710MHz Straddle 5.725-5.85GHz



802.11ax HEW80_Nss1,(MCS0)_4TX

AV Power

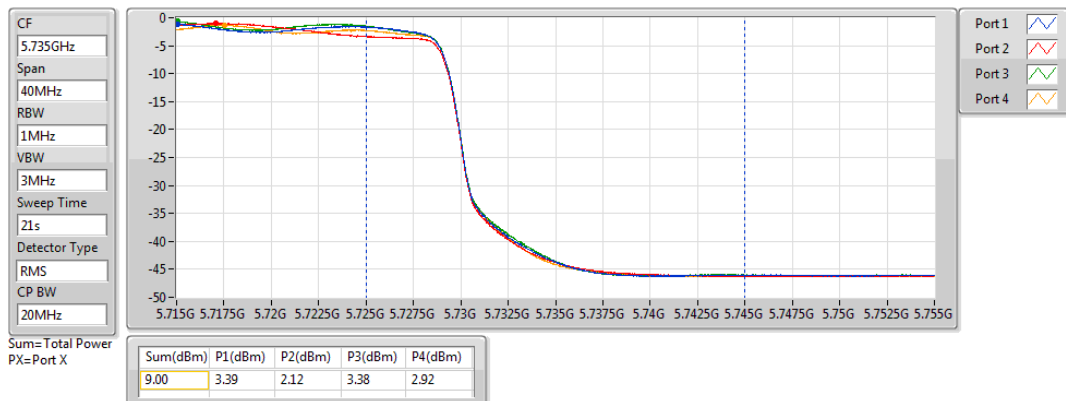
5690MHz Straddle 5.47-5.725GHz



802.11ax HEW80_Nss1,(MCS0)_4TX

AV Power

5690MHz Straddle 5.725-5.85GHz



Beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.25-5.35GHz	-	-	-	-
802.11ax HEW20-BF_ Nss1,(MCS0)_4TX	14.08	0.02559	24.32	0.27040
802.11ax HEW40-BF_ Nss1,(MCS0)_4TX	17.11	0.05140	27.35	0.54325
802.11ax HEW80-BF_ Nss1,(MCS0)_4TX	16.31	0.04276	26.55	0.45186
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	14.31	0.02698	18.53	0.07129
5.47-5.725GHz	-	-	-	-
802.11ax HEW20-BF_ Nss1,(MCS0)_4TX	13.89	0.02449	24.52	0.28314
802.11ax HEW40-BF_ Nss1,(MCS0)_4TX	16.70	0.04677	27.33	0.54075
802.11ax HEW80-BF_ Nss1,(MCS0)_4TX	17.33	0.05408	27.96	0.62517
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	17.63	0.05794	22.24	0.16749

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	10.24	7.65	7.87	8.1	7.84	13.89	19.76	24.13	30.00
5300MHz	Pass	10.24	8.04	8.07	8.21	7.92	14.08	19.76	24.32	30.00
5320MHz	Pass	10.24	7.79	7.73	8.29	7.8	13.93	19.76	24.17	30.00
5500MHz	Pass	10.63	7.93	7.91	7.89	7.74	13.89	19.37	24.52	30.00
5580MHz	Pass	10.63	7.49	7.54	8.01	7.42	13.64	19.37	24.27	30.00
5700MHz	Pass	10.63	7.59	7.5	7.59	7.49	13.56	19.37	24.19	30.00
5720MHz Straddle 5.47-5.725GHz	Pass	10.63	7.11	6.57	6.67	6.99	12.86	18.34	23.49	28.97
5720MHz Straddle 5.725-5.85GHz	Pass	10.70	1.78	1.8	2.7	1.57	8.01	25.30	18.71	36.00
802.11ax HEW40-BF_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	10.24	10.9	10.91	11	10.81	16.93	19.76	27.17	30.00
5310MHz	Pass	10.24	11	11.17	11.34	10.84	17.11	19.76	27.35	30.00
5510MHz	Pass	10.63	10.63	10.83	10.84	10.41	16.70	19.37	27.33	30.00
5590MHz	Pass	10.63	10.52	10.29	10.71	10.52	16.53	19.37	27.16	30.00
5670MHz	Pass	10.63	10.71	10.53	10.76	10.59	16.67	19.37	27.30	30.00
5710MHz Straddle 5.47-5.725GHz	Pass	10.63	10.05	9.8	10.38	10.18	16.13	19.37	26.76	30.00
5710MHz Straddle 5.725-5.85GHz	Pass	10.70	0.76	0.86	0.79	0.6	6.77	25.30	17.47	36.00

DG = Directional Gain; Port X = Port X output power

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5290MHz	Pass	10.24	10.3	10.34	10.36	10.14	16.31	19.76	26.55	30.00
5530MHz	Pass	10.63	9.83	9.9	9.92	9.6	15.83	19.37	26.46	30.00
5610MHz	Pass	10.63	11.14	11	11.5	11.01	17.19	19.37	27.82	30.00
5690MHz Straddle 5.47-5.725GHz	Pass	10.63	11.16	11.21	11.8	11.04	17.33	19.37	27.96	30.00
5690MHz Straddle 5.725-5.85GHz	Pass	10.70	-2.63	-3.9	-2.64	-3.1	2.98	25.30	13.68	36.00
802.11ax HEW80+80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	6.52	11.11	11.04	-	-	14.09	29.48	20.61	36.00
5290MHz	Pass	7.23	-	-	11.63	10.94	14.31	22.77	21.54	30.00
5530MHz	Pass	7.62	11.94	11.73	-	-	17.63	22.38	25.25	30.00
5610MHz			-	-	11.19	11.54				

Note:

- D.F is duty factor.
- Test result is bin-by-bin summing measured value of each TX port.
- 5150-5250 MHz
2TX
Directional gain = $3.51 + 10 * \log(2/1) = 6.52 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (6.52 \text{ dBi} - 6 \text{ dBi}) = 29.48 \text{ dBm}$.
- 5250-5350 MHz
4TX
Directional gain = $4.22 + 10 * \log(4/1) = 10.24 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $24 \text{ dBm} - (10.24 \text{ dBi} - 6 \text{ dBi}) = 19.76 \text{ dBm}$.
2TX
Directional gain = $4.22 + 10 * \log(2/1) = 7.23 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $24 \text{ dBm} - (7.23 \text{ dBi} - 6 \text{ dBi}) = 22.77 \text{ dBm}$.
- 5470-5750 MHz
4TX
Directional gain = $4.61 + 10 * \log(4/1) = 10.63 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $24 \text{ dBm} - (10.63 \text{ dBi} - 6 \text{ dBi}) = 19.37 \text{ dBm}$.
2TX
Directional gain = $4.61 + 10 * \log(2/1) = 7.62 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $24 \text{ dBm} - (7.62 \text{ dBi} - 6 \text{ dBi}) = 22.38 \text{ dBm}$.
- 5725-5850 MHz
Directional gain = $4.68 + 10 * \log(4/1) = 10.70 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (10.70 \text{ dBi} - 6 \text{ dBi}) = 25.30 \text{ dBm}$.

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	11 dBm / MHz
☒	5470 ~ 5725	11 dBm / MHz

3.4.2 Test Procedures

For 5250 ~ 5350 MHz / 5470 ~ 5725 MHz

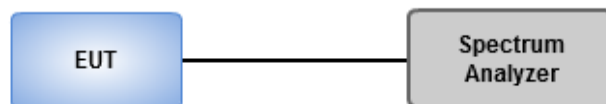
Duty cycle $\geq 98\%$

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.

Duty cycle $< 98\%$

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
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

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	6.45	16.69
802.11ax HEW20_Nss1,(MCS0)_4TX	6.59	16.83
802.11ax HEW40_Nss1,(MCS0)_4TX	6.64	16.88
802.11ax HEW80_Nss1,(MCS0)_4TX	2.77	13.01
802.11ax HEW80+80_Nss1,(MCS0)_2TX	0.53	7.76
5.47-5.725GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	6.31	16.94
802.11ax HEW20_Nss1,(MCS0)_4TX	6.21	16.84
802.11ax HEW40_Nss1,(MCS0)_4TX	6.18	16.81
802.11ax HEW80_Nss1,(MCS0)_4TX	4.31	14.94
802.11ax HEW160_Nss1,(MCS0)_4TX	1.37	12.00

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/ RBW)	Port 2 (dBm/ RBW)	Port 3 (dBm/ RBW)	Port 4 (dBm/ RBW)	PD (dBm/ RBW)	PD Limit (dBm/ RBW)	EIRP PD (dBm/ RBW)	EIRP PD Limit (dBm/ RBW)
802.11a_ Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	10.24	0.23	0.29	0.79	0.28	6.34	6.76	16.58	17.00
5300MHz	Pass	10.24	0.33	0.65	0.84	0.49	6.45	6.76	16.69	17.00
5320MHz	Pass	10.24	0.08	0.28	0.78	0.08	6.30	6.76	16.54	17.00
5500MHz	Pass	10.63	-0.25	0.17	0.02	0.01	5.84	6.37	16.47	17.00
5580MHz	Pass	10.63	0.43	0.32	0.36	0.59	6.02	6.37	16.65	17.00
5700MHz	Pass	10.63	0.66	1.01	0.52	0.58	6.31	6.37	16.94	17.00
5720MHz Straddle 5.47-5.725GHz	Pass	10.63	0.60	0.80	0.27	0.48	6.15	6.37	16.78	17.00
5720MHz Straddle 5.725-5.85GHz	Pass	10.70	-0.86	-2.33	-1.16	-1.93	4.41	25.30	15.11	36.00
802.11ax HEW20_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	10.24	0.51	0.27	0.88	0.48	6.52	6.76	16.76	17.00
5300MHz	Pass	10.24	0.45	0.62	1.05	0.48	6.59	6.76	16.83	17.00
5320MHz	Pass	10.24	0.22	0.24	0.80	0.20	6.37	6.76	16.61	17.00
5500MHz	Pass	10.63	0.47	0.58	0.43	-0.02	6.09	6.37	16.72	17.00
5580MHz	Pass	10.63	0.23	0.17	0.31	-0.12	5.97	6.37	16.60	17.00
5700MHz	Pass	10.63	0.54	0.11	0.63	-0.15	5.98	6.37	16.61	17.00
5720MHz Straddle 5.47-5.725GHz	Pass	10.63	0.78	0.33	0.90	0.83	6.21	6.37	16.84	17.00
5720MHz Straddle 5.725-5.85GHz	Pass	10.70	-1.52	-1.28	-0.29	-1.50	4.79	25.30	15.49	36.00
802.11ax HEW40_ Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	10.24	0.43	0.63	0.88	0.61	6.52	6.76	16.76	17.00
5310MHz	Pass	10.24	0.67	0.74	1.34	0.44	6.64	6.76	16.88	17.00
5510MHz	Pass	10.63	-0.09	0.44	0.30	-0.32	5.88	6.37	16.51	17.00
5590MHz	Pass	10.63	0.27	0.32	1.26	0.30	6.18	6.37	16.81	17.00
5670MHz	Pass	10.63	0.39	0.34	0.45	0.25	6.09	6.37	16.72	17.00
5710MHz Straddle 5.47-5.725GHz	Pass	10.63	0.36	0.43	0.52	0.12	6.12	6.37	16.75	17.00
5710MHz Straddle 5.725-5.85GHz	Pass	10.70	-1.60	-1.80	-2.03	-2.10	4.13	25.30	14.83	36.00
802.11ax HEW80_	-	-	-	-	-	-	-	-	-	-

Mode	Result	DG (dBi)	Port 1 (dBm/ RBW)	Port 2 (dBm/ RBW)	Port 3 (dBm/ RBW)	Port 4 (dBm/ RBW)	PD (dBm/ RBW)	PD Limit (dBm/ RBW)	EIRP PD (dBm/ RBW)	EIRP PD Limit (dBm/ RBW)
Nss1,(MCS0)_4TX										
5290MHz	Pass	10.24	-3.25	-3.00	-2.75	-3.38	2.77	6.76	13.01	17.00
5530MHz	Pass	10.63	-3.38	-2.94	-3.25	-3.83	2.39	6.37	13.02	17.00
5610MHz	Pass	10.63	-1.97	-1.85	-1.29	-2.29	3.78	6.37	14.41	17.00
5690MHz Straddle 5.47-5.725GHz	Pass	10.63	-1.42	-1.22	-0.85	-1.82	4.31	6.37	14.94	17.00
5690MHz Straddle 5.725-5.85GHz	Pass	10.70	-5.06	-6.81	-4.84	-5.69	0.49	25.30	11.19	36.00
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	6.52	-2.69	-2.38	-	-	0.45	16.48	6.97	23.00
5290MHz	Pass	7.23	-	-	-2.42	-2.53	0.53	9.77	7.76	17.00
802.11ax HEW80+80_ Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5530MHz	Pass	7.62	-1.81	-2.02	-	-	1.06	9.38	8.68	17.00
5610MHz	Pass	7.62	-	-	-3.33	-2.45	0.13	9.38	7.75	17.00

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port Xpower density;

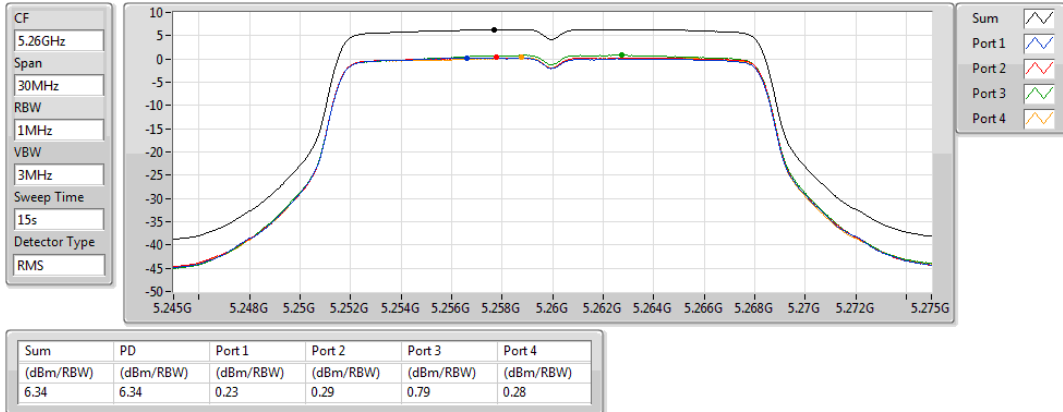
Note:

- 5150-5250 MHz
2TX
Directional gain = $3.51 + 10 * \log(2/1) = 6.52 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $17 \text{ dBm} - (6.52 \text{ dBi} - 6 \text{ dBi}) = 16.48 \text{ dBm}$.
- 5250-5350 MHz
4TX
Directional gain = $4.22 + 10 * \log(4/1) = 10.24 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $11 \text{ dBm} - (10.24 \text{ dBi} - 6 \text{ dBi}) = 6.76 \text{ dBm}$.
2TX
Directional gain = $4.22 + 10 * \log(2/1) = 7.23 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $11 \text{ dBm} - (7.23 \text{ dBi} - 6 \text{ dBi}) = 9.77 \text{ dBm}$.
- 5470-5750 MHz
4TX
Directional gain = $4.61 + 10 * \log(4/1) = 10.63 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $11 \text{ dBm} - (10.63 \text{ dBi} - 6 \text{ dBi}) = 6.37 \text{ dBm}$.
2TX
Directional gain = $4.61 + 10 * \log(2/1) = 7.62 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $11 \text{ dBm} - (7.62 \text{ dBi} - 6 \text{ dBi}) = 9.38 \text{ dBm}$.
- 5725-5850 MHz
Directional gain = $4.68 + 10 * \log(4/1) = 10.70 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (10.70 \text{ dBi} - 6 \text{ dBi}) = 25.30 \text{ dBm}$.

802.11a_Nss1,(6Mbps)_4TX

PSD

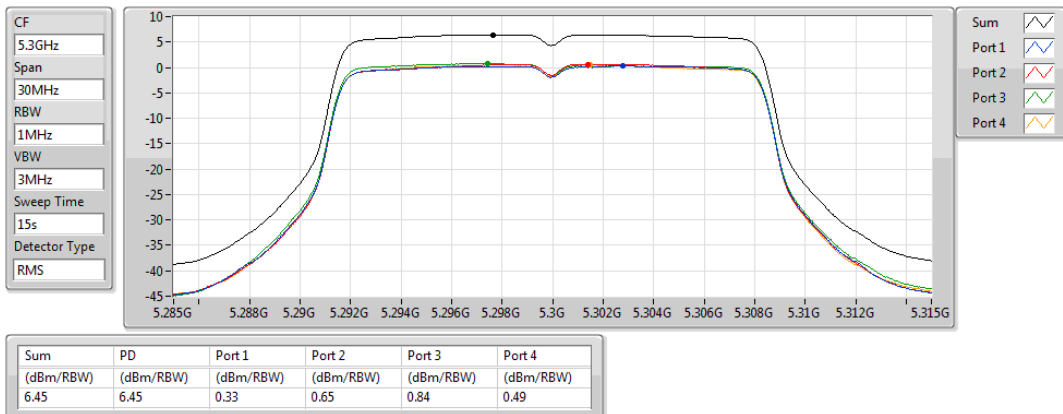
5260MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

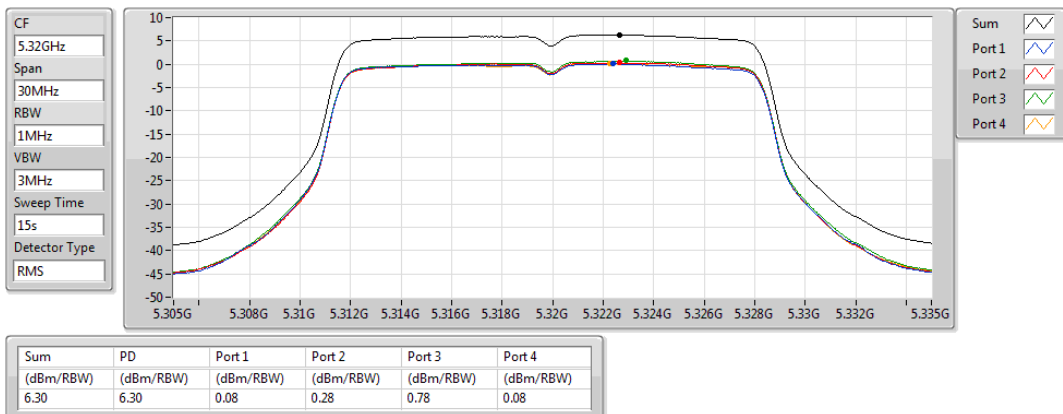
5300MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

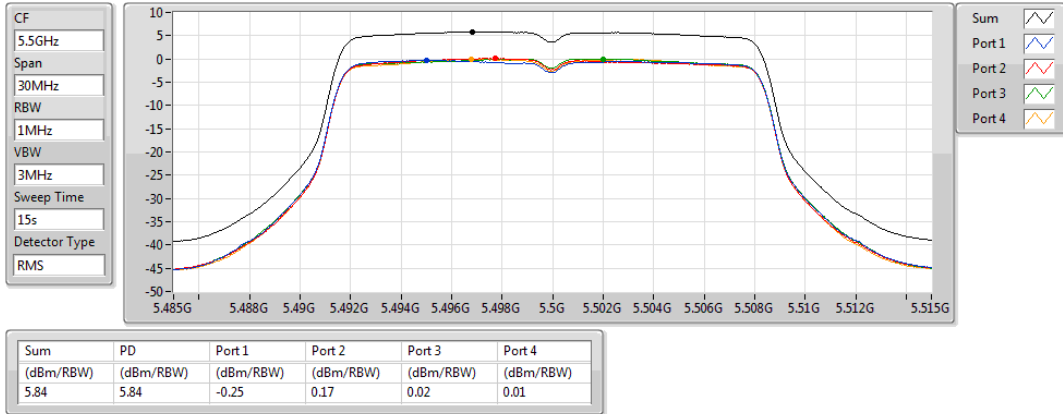
5320MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

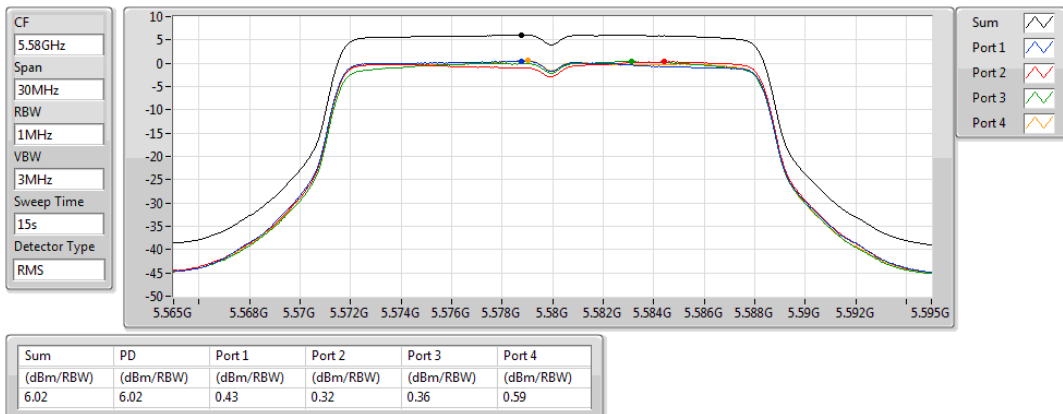
5500MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

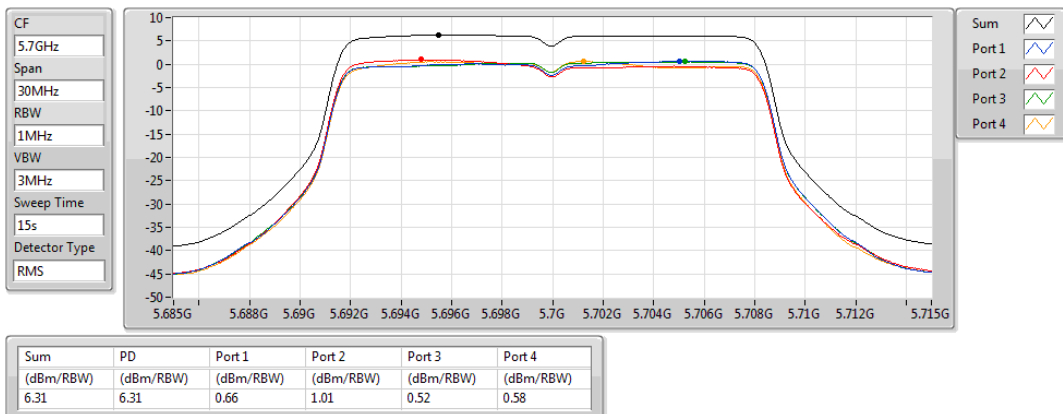
5580MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

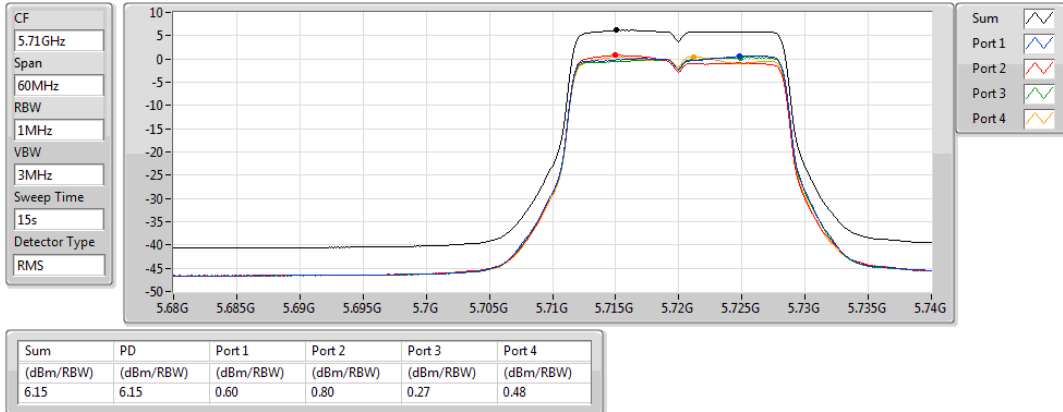
5700MHz



802.11a_Nss1,(6Mbps)_4TX

PSD

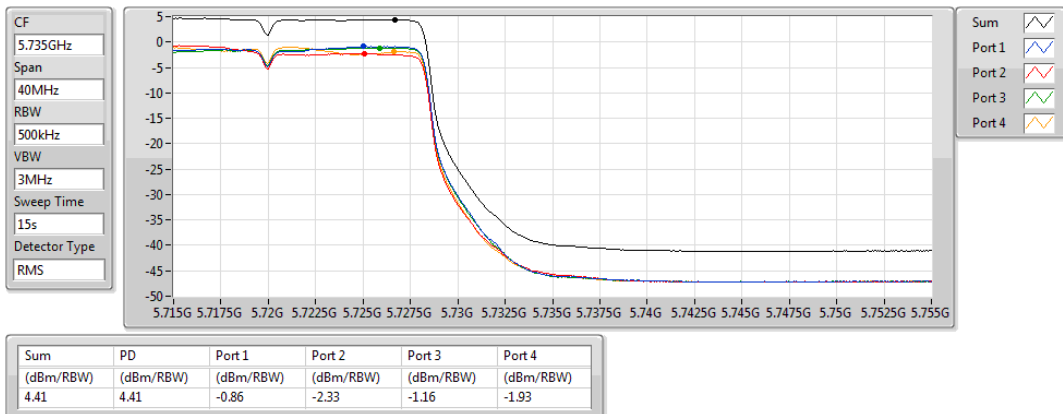
5720MHz Straddle 5.47-5.725GHz



802.11a_Nss1,(6Mbps)_4TX

PSD

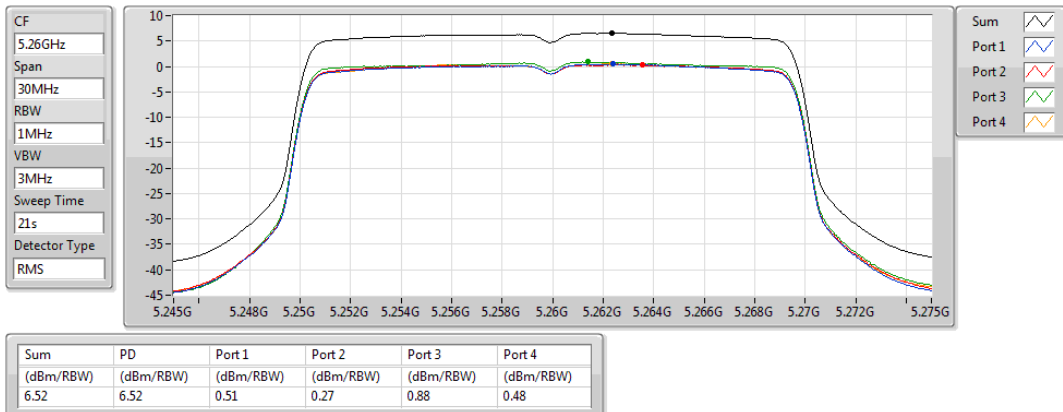
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

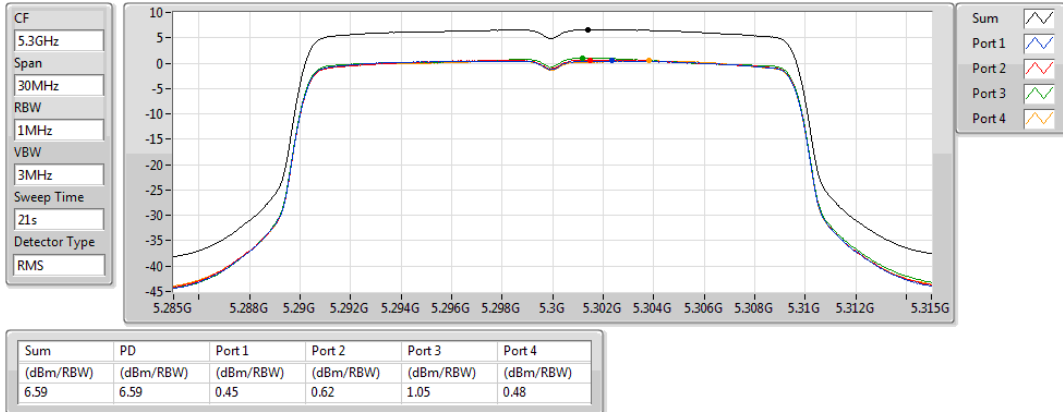
5260MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

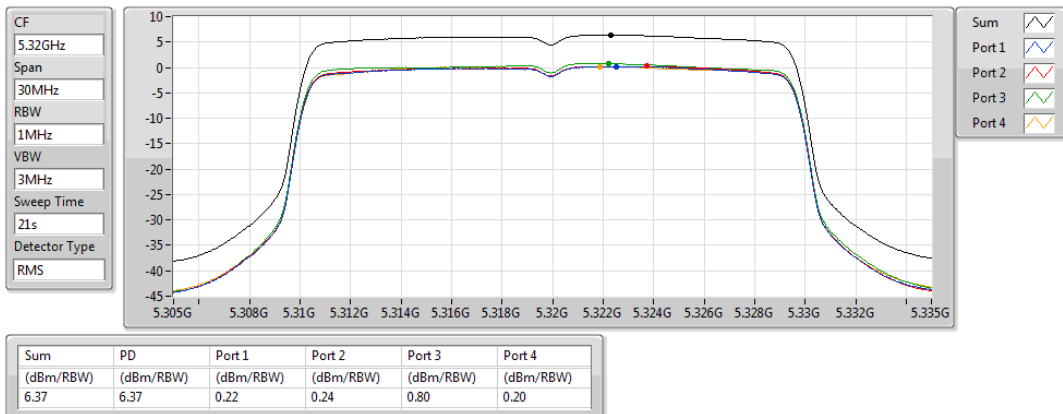
5300MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

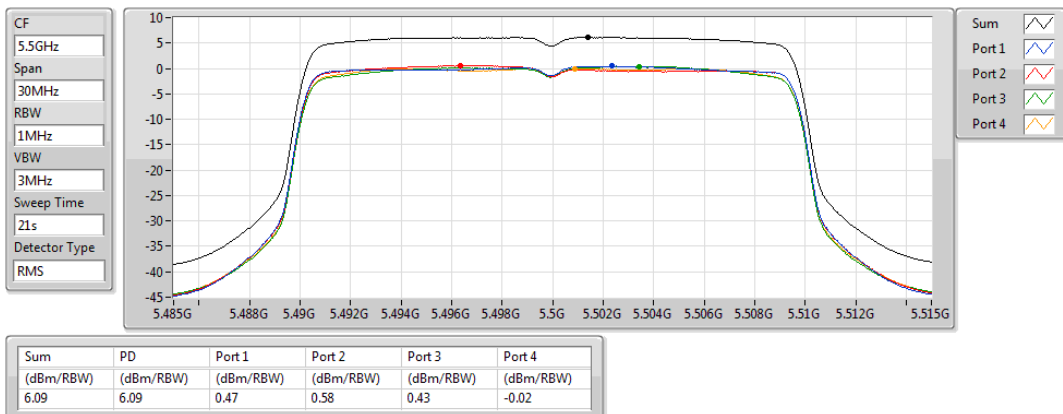
5320MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

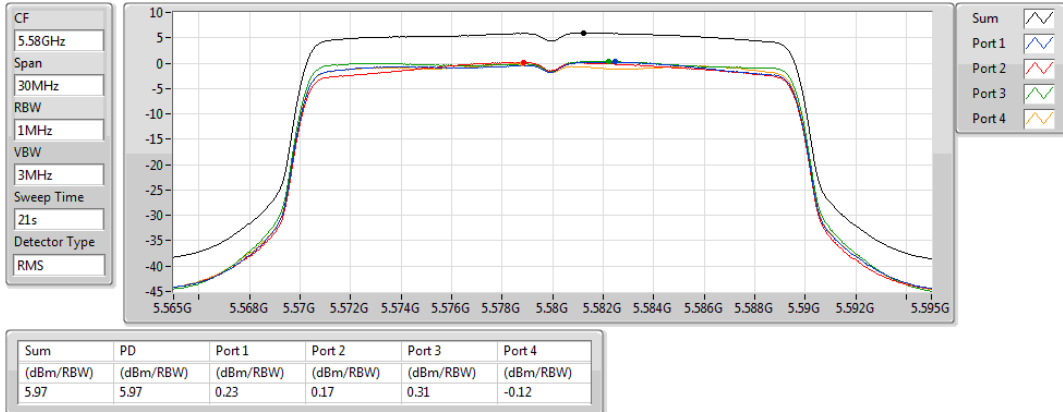
5500MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

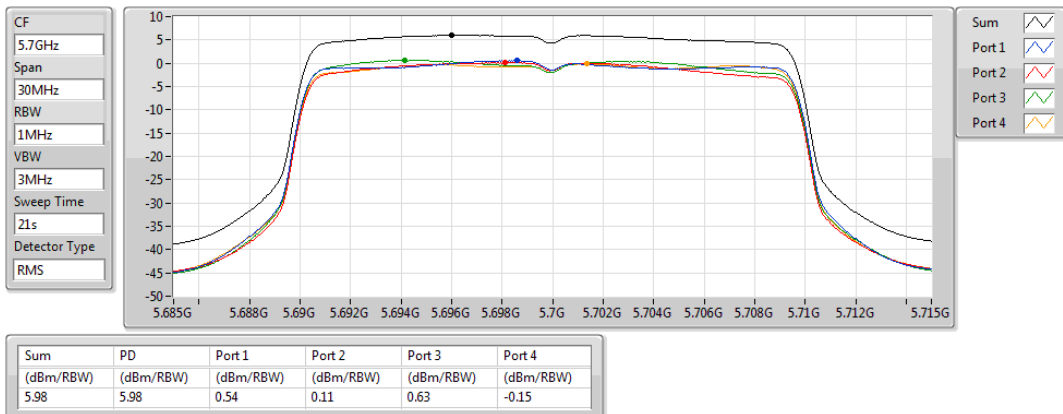
5580MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

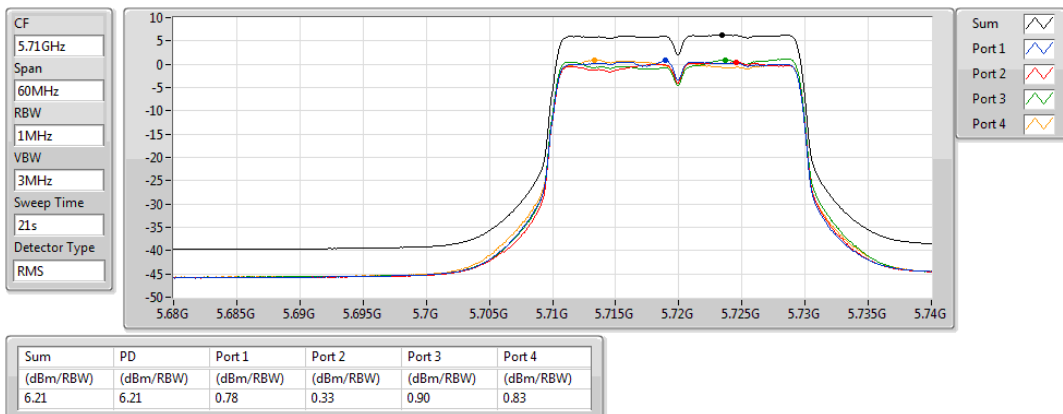
5700MHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

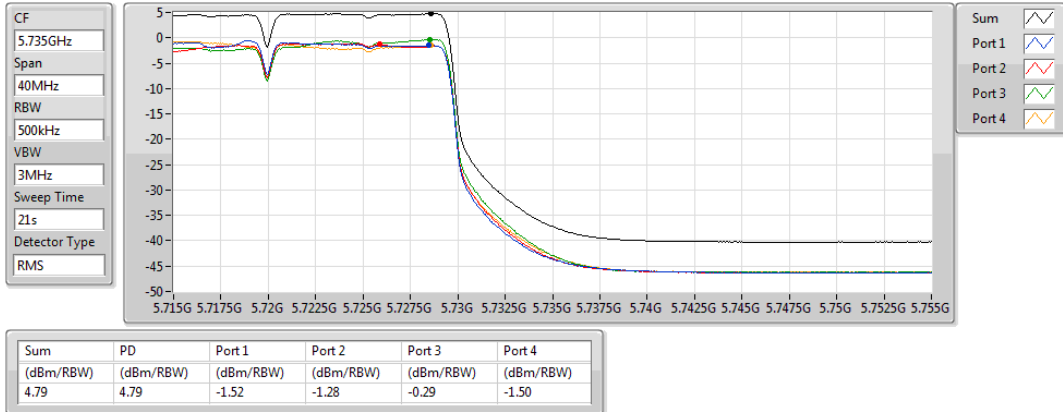
5720MHz Straddle 5.47-5.725GHz



802.11ax HEW20_Nss1,(MCS0)_4TX

PSD

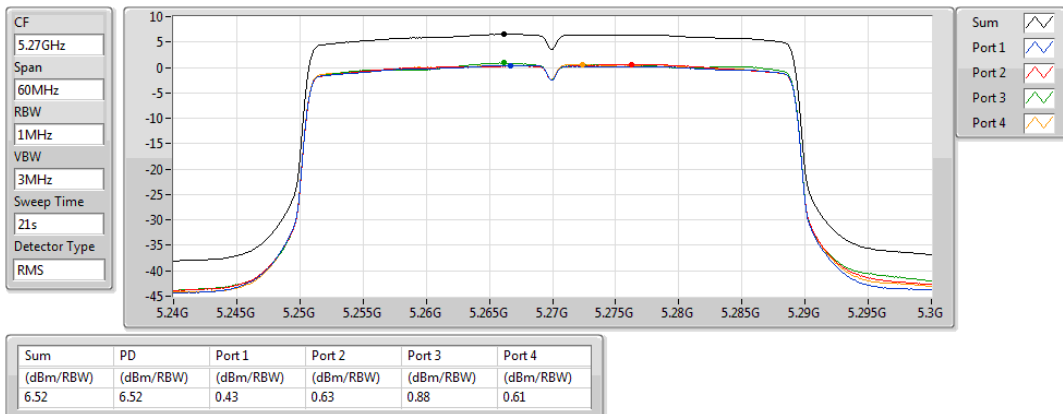
5720MHz Straddle 5.725-5.85GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

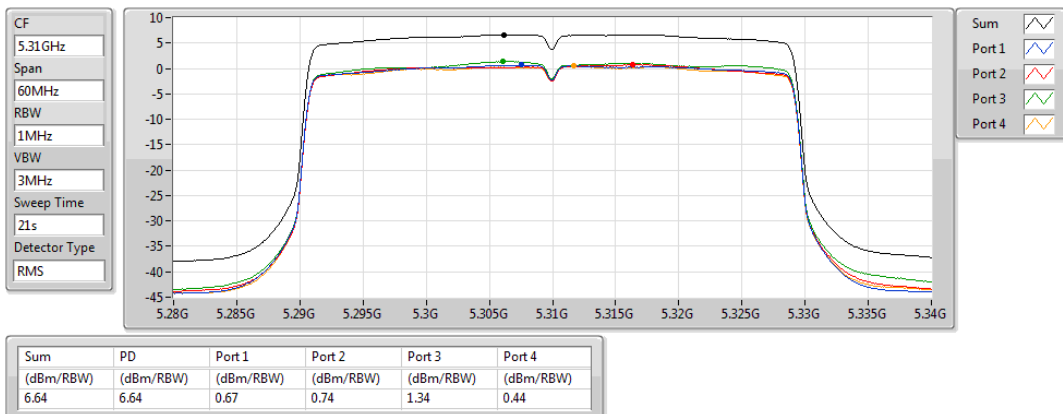
5270MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

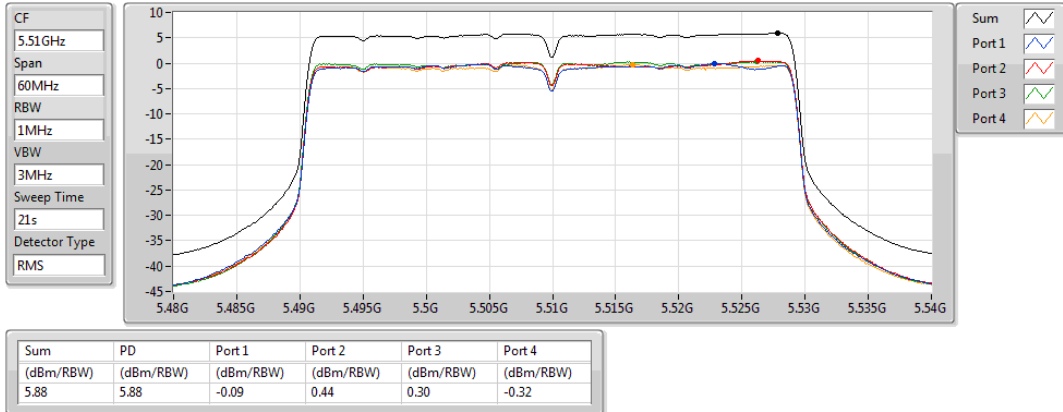
5310MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

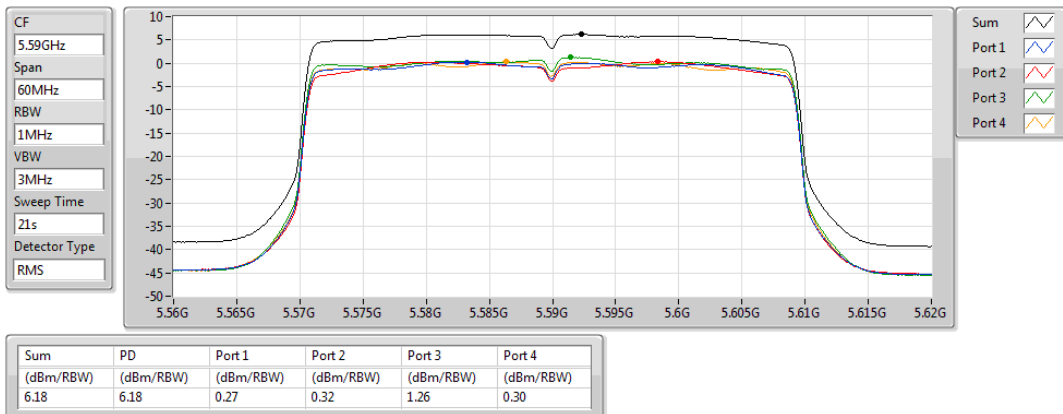
5510MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

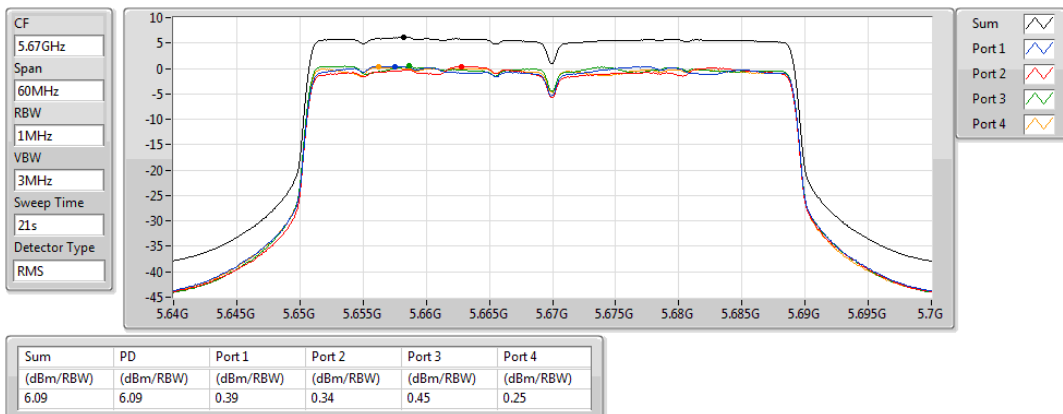
5590MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

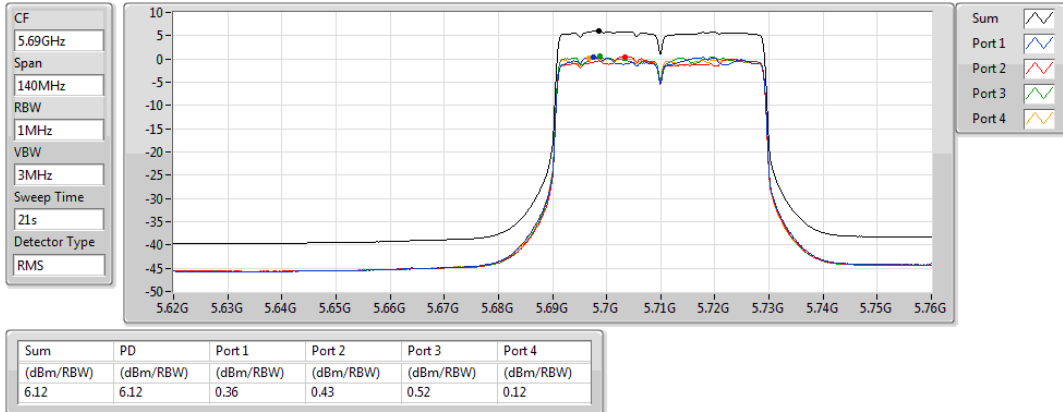
5670MHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

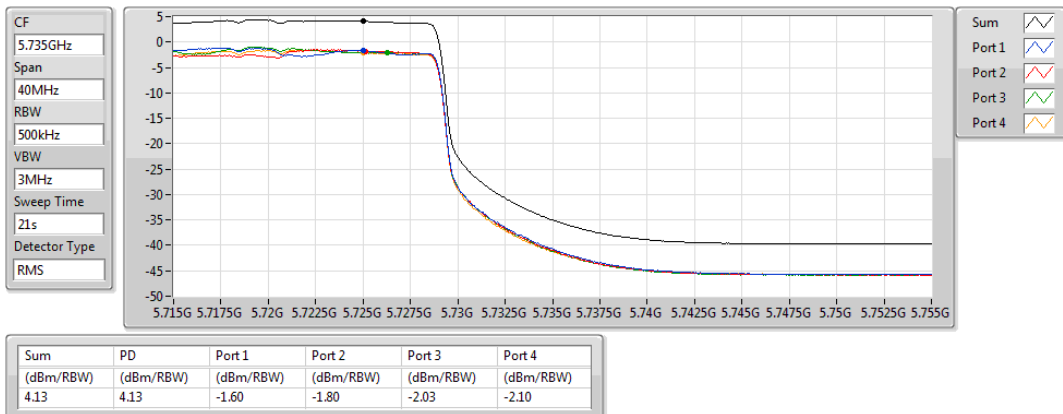
5710MHz Straddle 5.47-5.725GHz



802.11ax HEW40_Nss1,(MCS0)_4TX

PSD

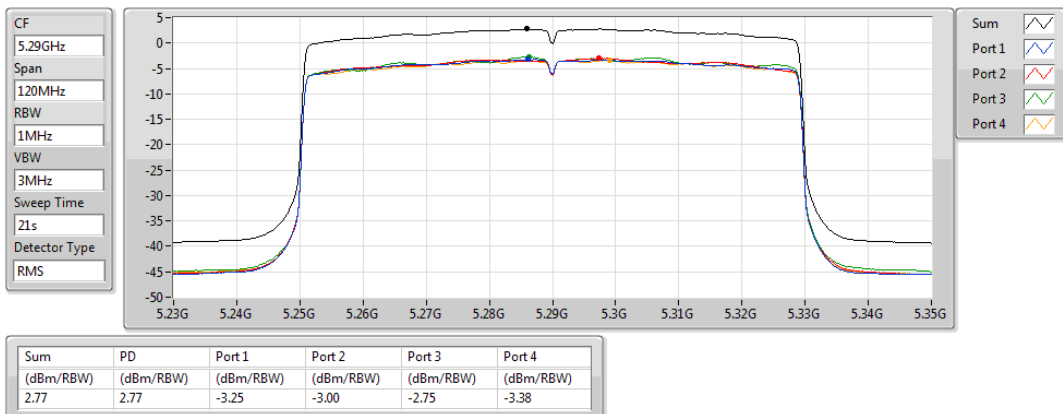
5710MHz Straddle 5.725-5.85GHz



802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

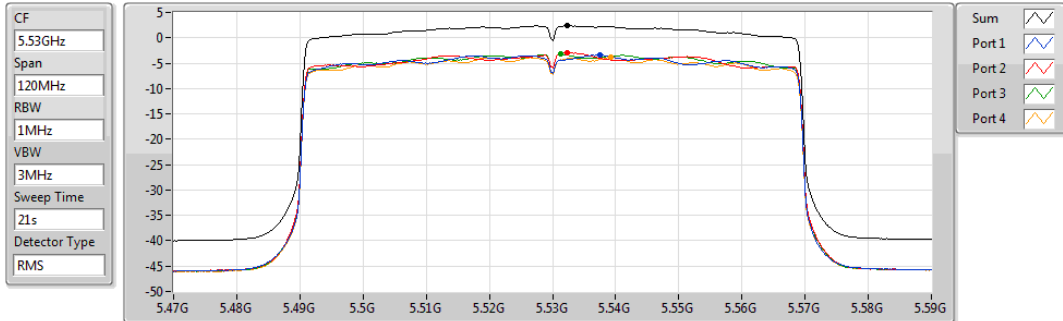
5290MHz



802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

5530MHz

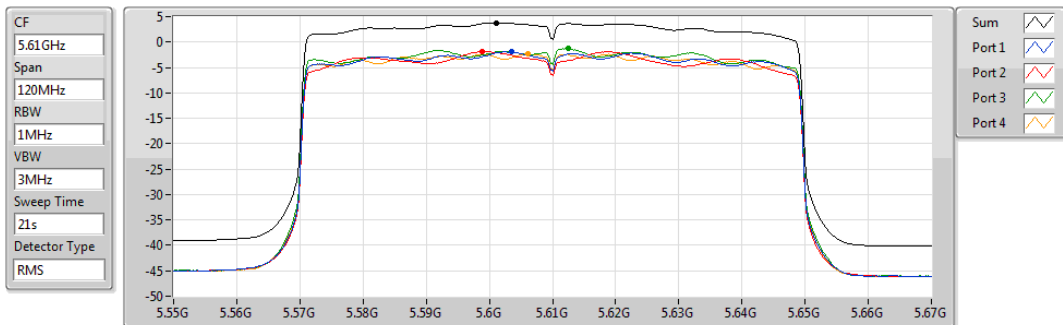


Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.39	2.39	-3.38	-2.94	-3.25	-3.83

802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

5610MHz

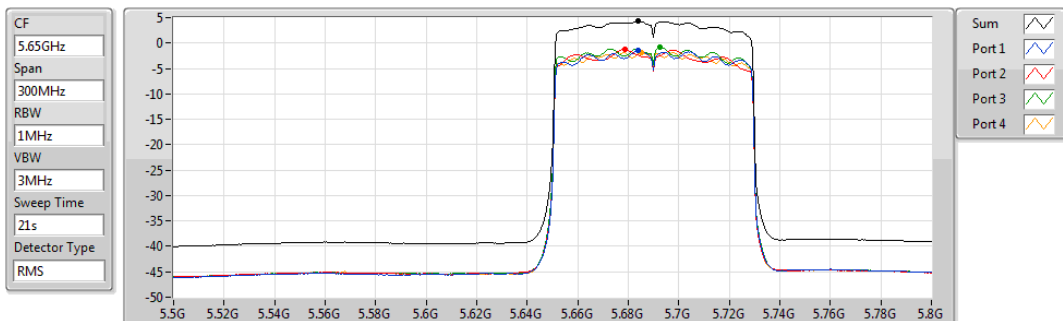


Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.78	3.78	-1.97	-1.85	-1.29	-2.29

802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

5690MHz Straddle 5.47-5.725GHz

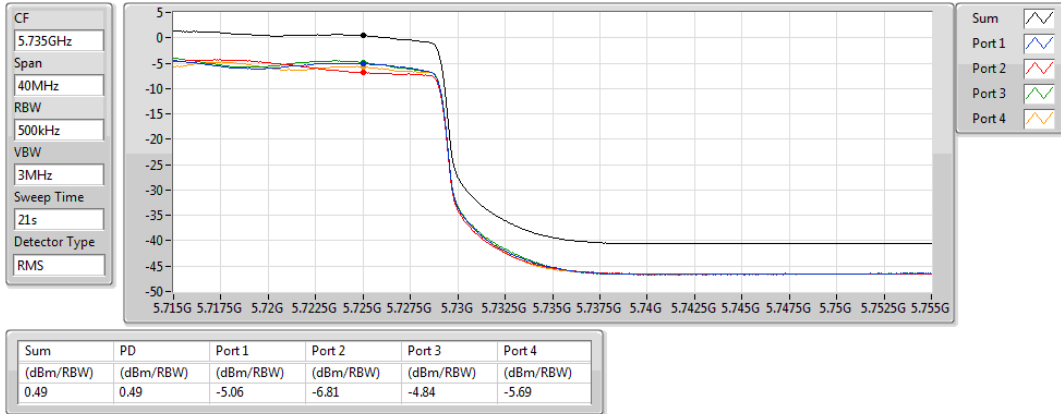


Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.31	4.31	-1.42	-1.22	-0.85	-1.82

802.11ax HEW80_Nss1,(MCS0)_4TX

PSD

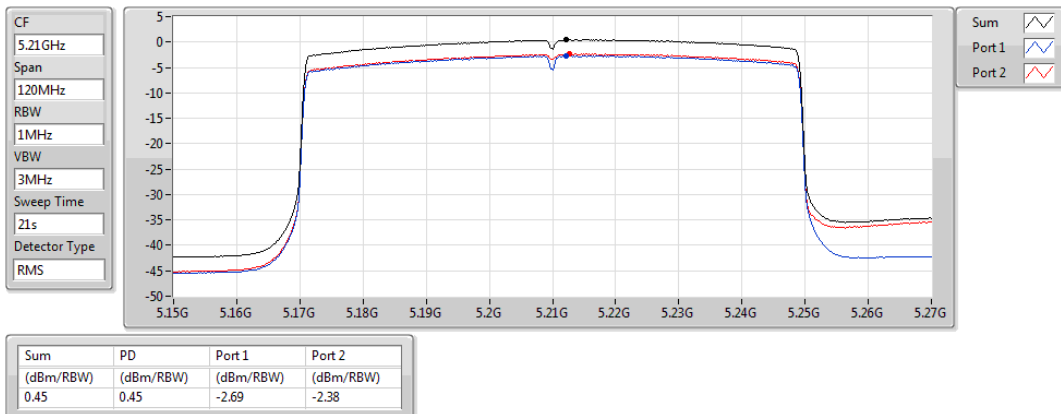
5690MHz Straddle 5.725-5.85GHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

PSD

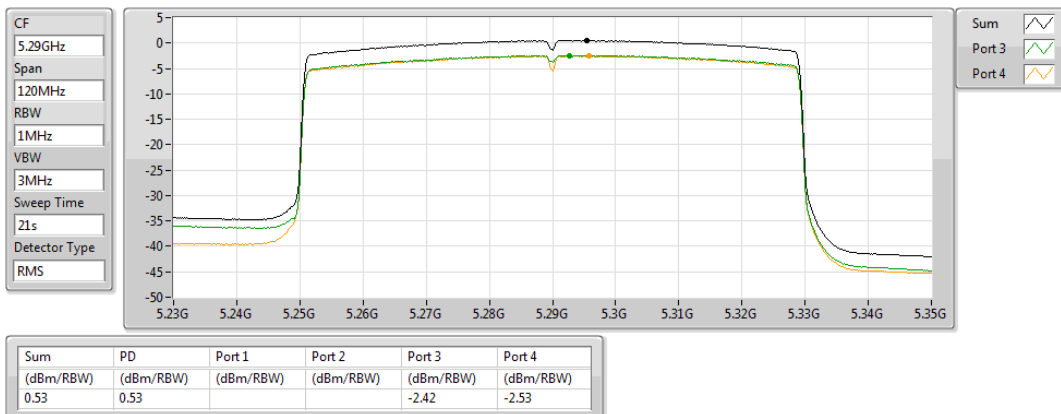
5210MHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

PSD

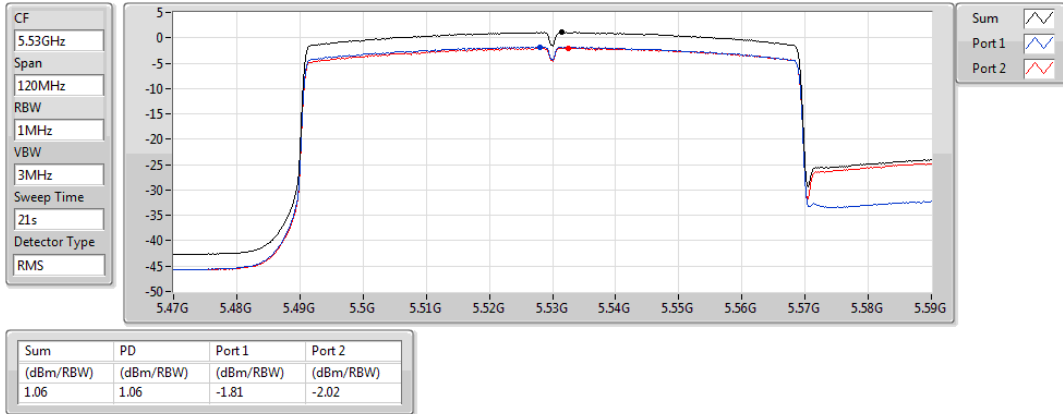
5290MHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

PSD

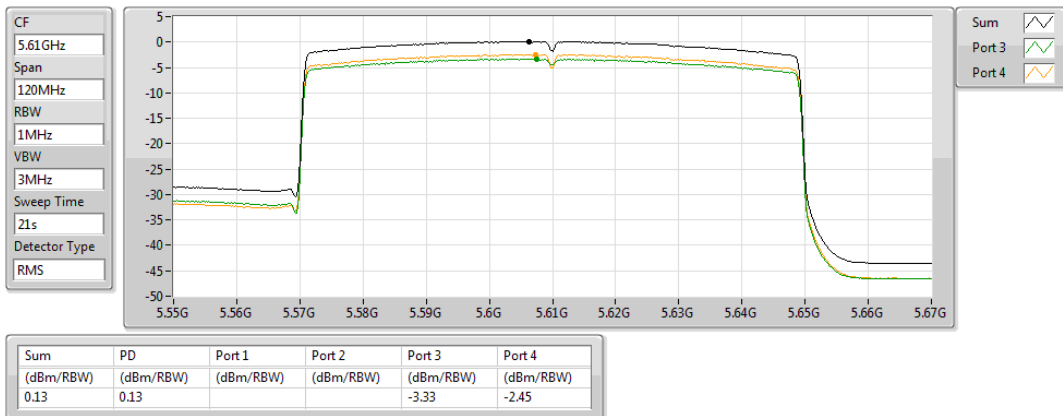
5530MHz



802.11ax HEW80+80_Nss1,(MCS0)_2TX

PSD

5610MHz



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 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 - 5.850 GHz	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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).

3.5.2 Test Procedures

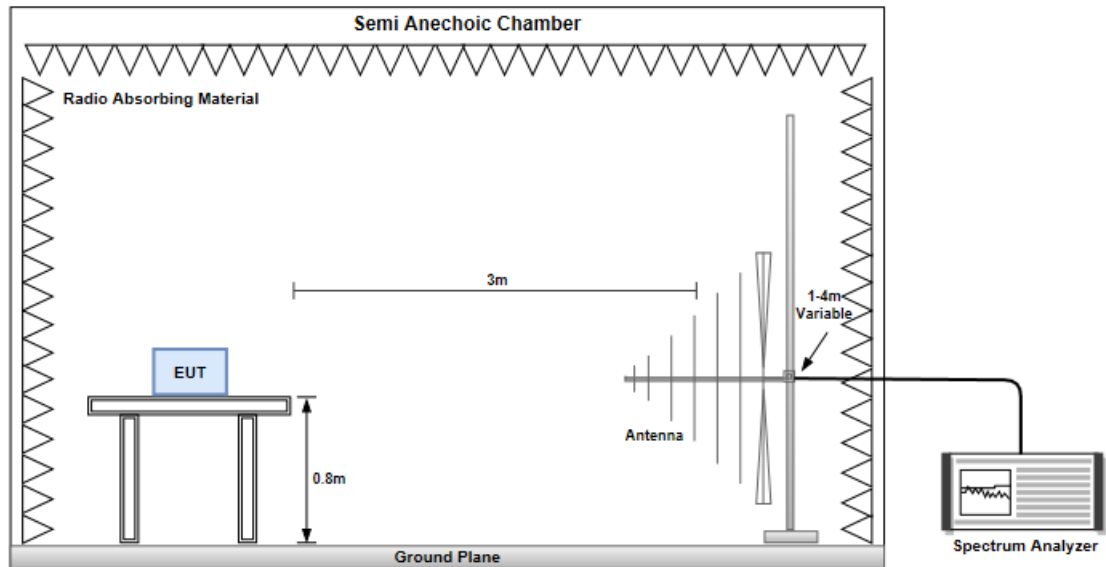
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
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:

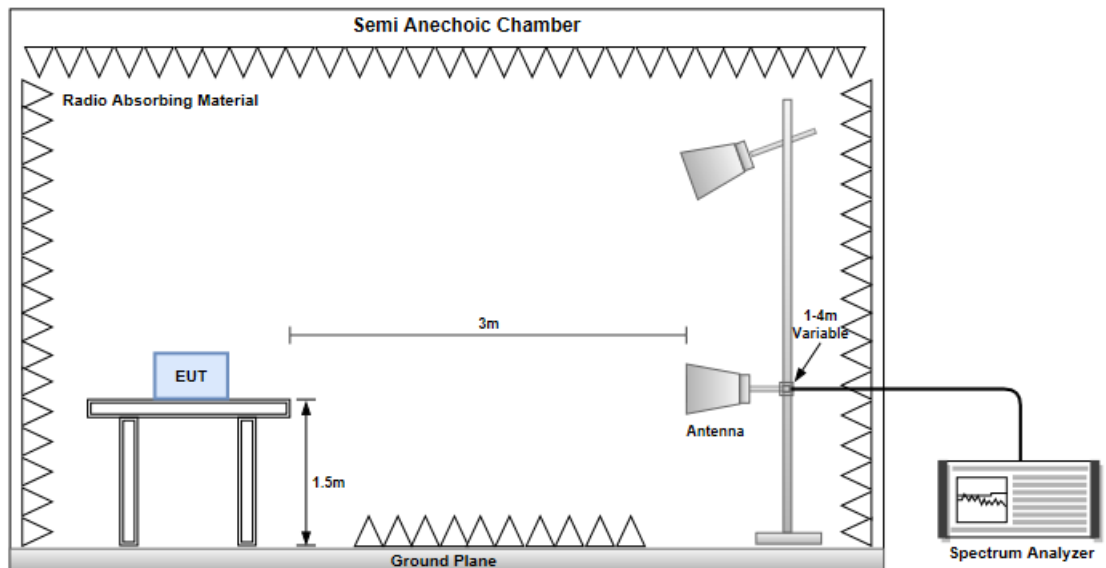
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

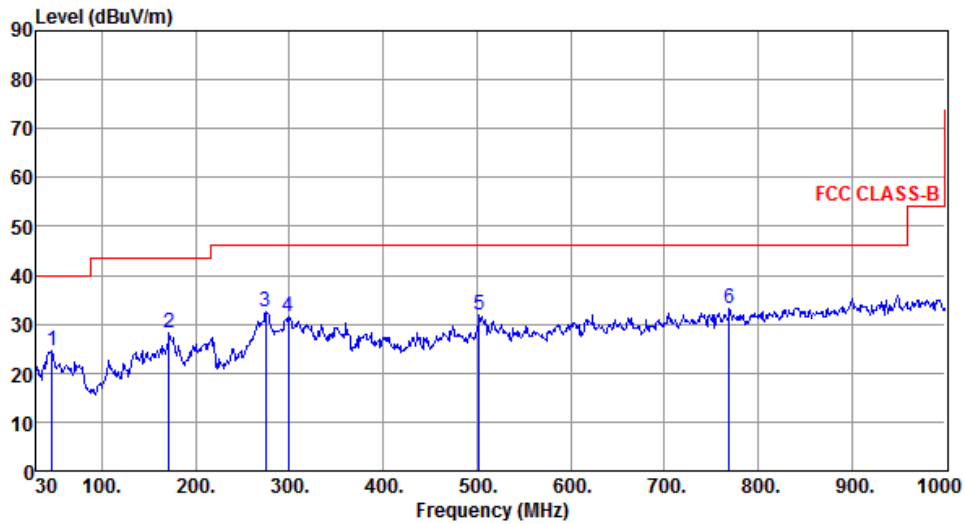


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Polarization	Horizontal	Test Configuration	1

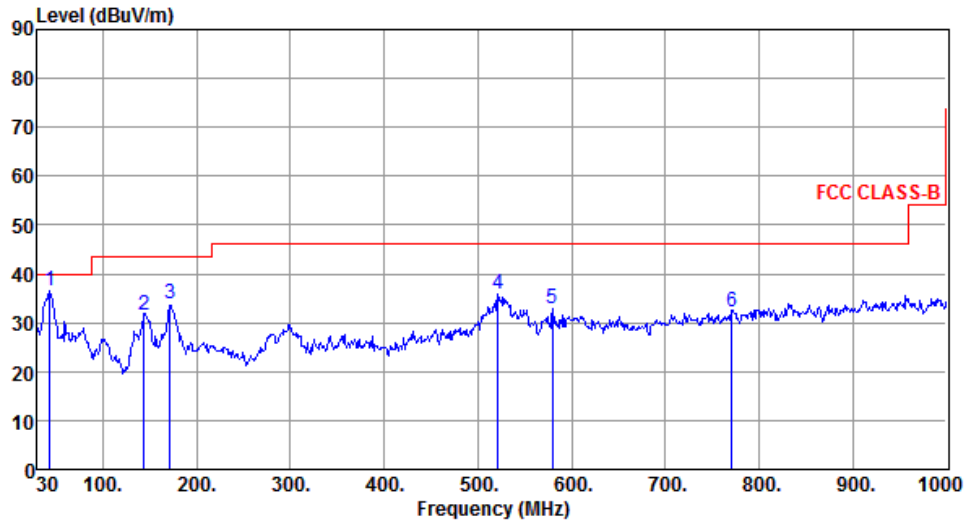


The graph displays the radiated unwanted emissions level in dBuV/m against frequency in MHz from 30 to 1000 MHz. A red line represents the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 300 MHz, and 50 dBuV/m from 300 to 1000 MHz. A blue line shows the measured emission level, with six specific peaks labeled 1 through 6. The emission level is generally below the limit, with the highest peak at 274.39 MHz.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	46.55	24.72	40.00	-15.28	33.37	-8.65	Peak	---	---
2	171.57	28.21	43.50	-15.29	37.45	-9.24	Peak	---	---
3	274.39	32.57	46.00	-13.43	41.63	-9.06	Peak	---	---
4	298.82	31.69	46.00	-14.31	40.03	-8.34	Peak	---	---
5	502.41	31.93	46.00	-14.07	35.01	-3.08	Peak	---	---
6	769.18	33.23	46.00	-12.77	30.81	2.42	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	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	43.45	36.56	40.00	-3.44	45.49	-8.93	Peak	---	---
2	143.58	31.71	43.50	-11.79	40.65	-8.94	Peak	---	---
3	171.72	33.83	43.50	-9.67	43.08	-9.25	Peak	---	---
4	521.91	35.98	46.00	-10.02	38.62	-2.64	Peak	---	---
5	579.92	32.84	46.00	-13.16	34.36	-1.52	Peak	---	---
6	771.15	32.36	46.00	-13.64	29.93	2.43	Peak	---	---

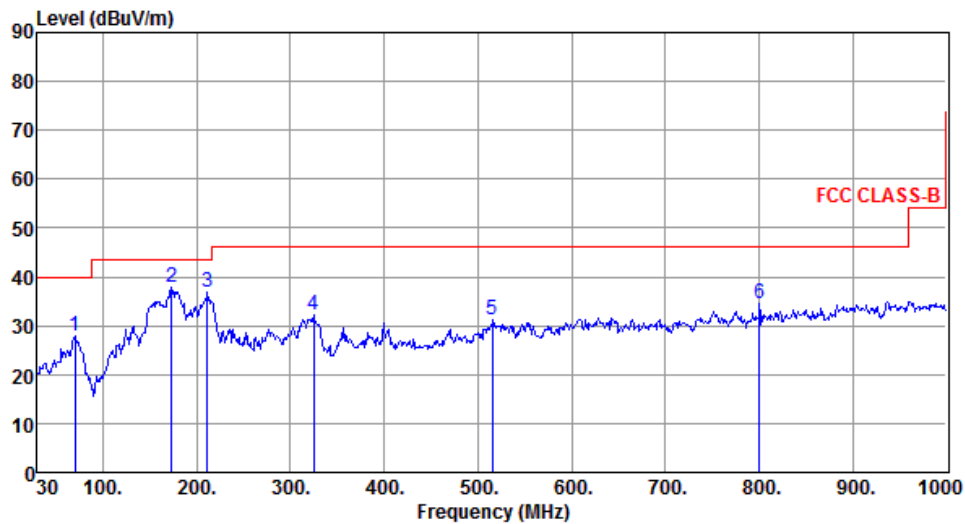
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*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	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Polarization	Horizontal	Test Configuration	2



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	69.88	27.96	40.00	-12.04	38.84	-10.88	Peak	---	---
2	173.64	37.90	43.50	-5.60	47.40	-9.50	Peak	---	---
3	211.44	36.83	43.50	-6.67	48.88	-12.05	Peak	---	---
4	324.96	32.25	46.00	-13.75	39.64	-7.39	Peak	---	---
5	515.85	31.26	46.00	-14.74	34.03	-2.77	Peak	---	---
6	800.23	34.61	46.00	-11.39	31.92	2.69	Peak	---	---

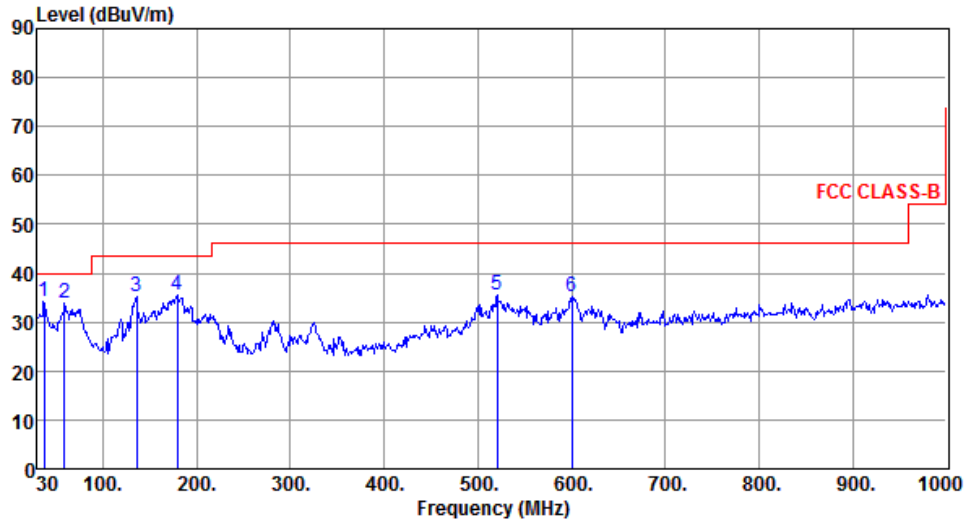
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*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	ax (HE80+80)	Test Freq. (MHz)	5530+5610
Polarization	Vertical	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	36.86	34.35	40.00	-5.65	44.15	-9.80	Peak	---	---
2	59.14	33.92	40.00	-6.08	43.18	-9.26	Peak	---	---
3	135.76	35.24	43.50	-8.26	44.87	-9.63	Peak	---	---
4	179.42	35.46	43.50	-8.04	45.63	-10.17	Peak	---	---
5	520.79	35.61	46.00	-10.39	38.28	-2.67	Peak	---	---
6	600.39	35.25	46.00	-10.75	35.98	-0.73	Peak	---	---

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

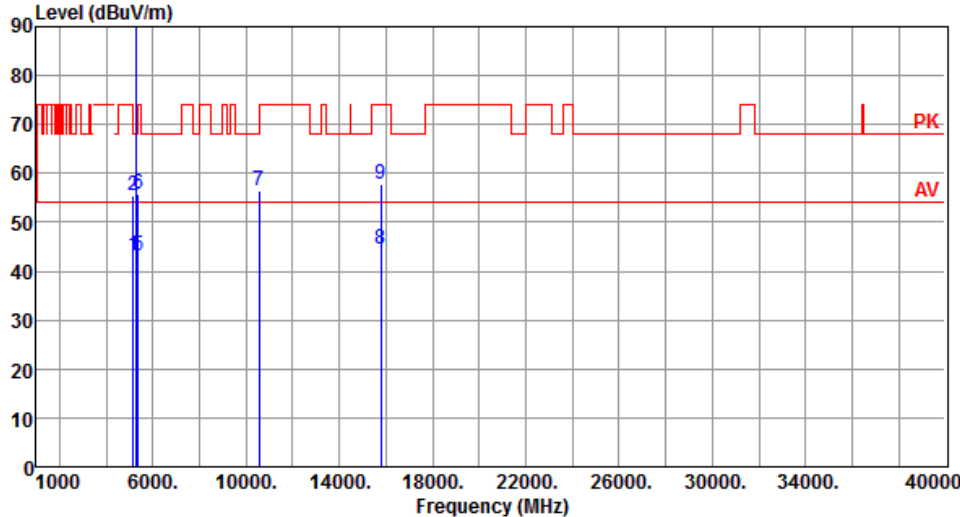
*Factor includes antenna factor , cable loss and amplifier gain

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.

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11

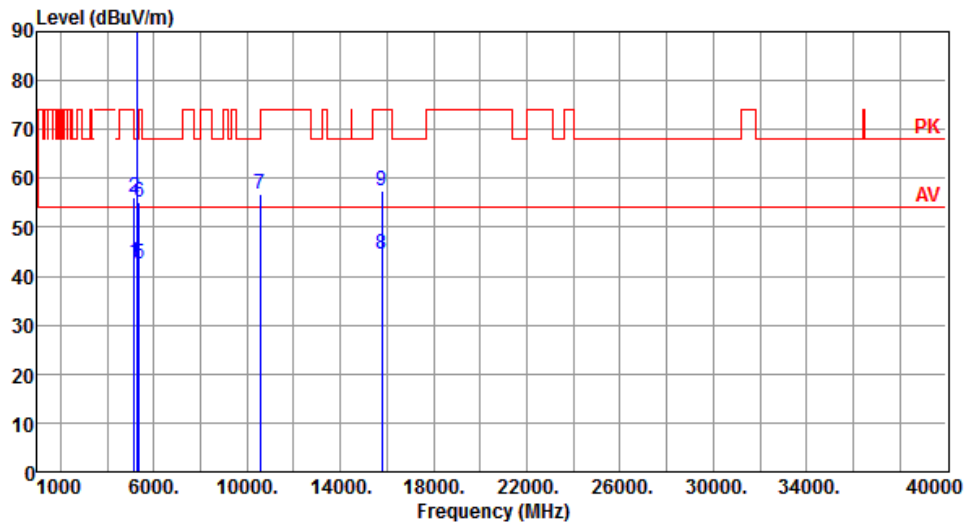
Modulation	11a	Test Freq. (MHz)	5260
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.26	54.00	-10.74	35.80	7.46	Average	180	292
2	5150.00	55.36	74.00	-18.64	47.90	7.46	Peak	180	292
3 *	5260.00	104.57			97.66	6.91	Average	180	292
4 *	5260.00	115.27			108.36	6.91	Peak	180	292
5	5355.00	43.07	54.00	-10.93	36.15	6.92	Average	180	292
6	5355.00	55.90	74.00	-18.10	48.98	6.92	Peak	180	292
7	10540.00	56.58	68.20	-11.62	39.65	16.93	Peak	100	55
8	15780.00	44.52	54.00	-9.48	27.73	16.79	Average	100	20
9	15780.00	57.65	74.00	-16.35	40.86	16.79	Peak	100	20

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: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	42.96	54.00	-11.04	35.50	7.46	Average	191	36
2	5150.00	56.13	74.00	-17.87	48.67	7.46	Peak	191	36
3 *	5260.00	95.85			88.94	6.91	Average	191	36
4 *	5260.00	105.42			98.51	6.91	Peak	191	36
5	5355.00	42.66	54.00	-11.34	35.74	6.92	Average	191	36
6	5355.00	55.24	74.00	-18.76	48.32	6.92	Peak	191	36
7	10540.00	56.84	68.20	-11.36	39.91	16.93	Peak	103	49
8	15780.00	44.39	54.00	-9.61	27.60	16.79	Average	114	26
9	15780.00	57.52	74.00	-16.48	40.73	16.79	Peak	114	26

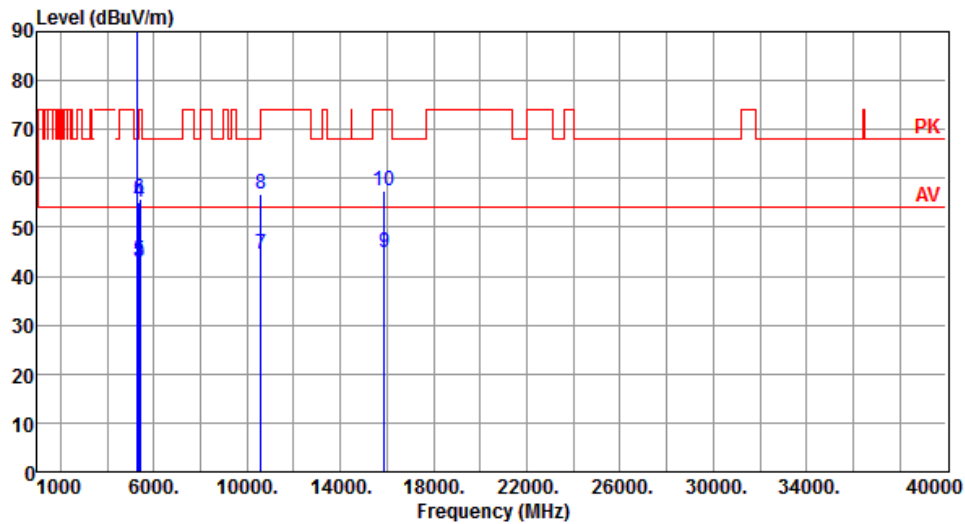
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5300
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5300.00	104.82	---	---	97.96	6.86	Average	181	293
2	*	5300.00	115.21	---	---	108.35	6.86	Peak	181	293
3		5350.00	42.99	54.00	-11.01	36.10	6.89	Average	181	293
4		5350.00	54.99	74.00	-19.01	48.10	6.89	Peak	181	293
5		5395.00	43.13	54.00	-10.87	36.02	7.11	Average	181	293
6		5395.00	55.77	74.00	-18.23	48.66	7.11	Peak	181	293
7		10600.00	44.39	54.00	-9.61	27.40	16.99	Average	100	50
8		10600.00	56.79	74.00	-17.21	39.80	16.99	Peak	100	50
9		15900.00	44.88	54.00	-9.12	28.16	16.72	Average	100	30
10		15900.00	57.61	74.00	-16.39	40.89	16.72	Peak	100	30

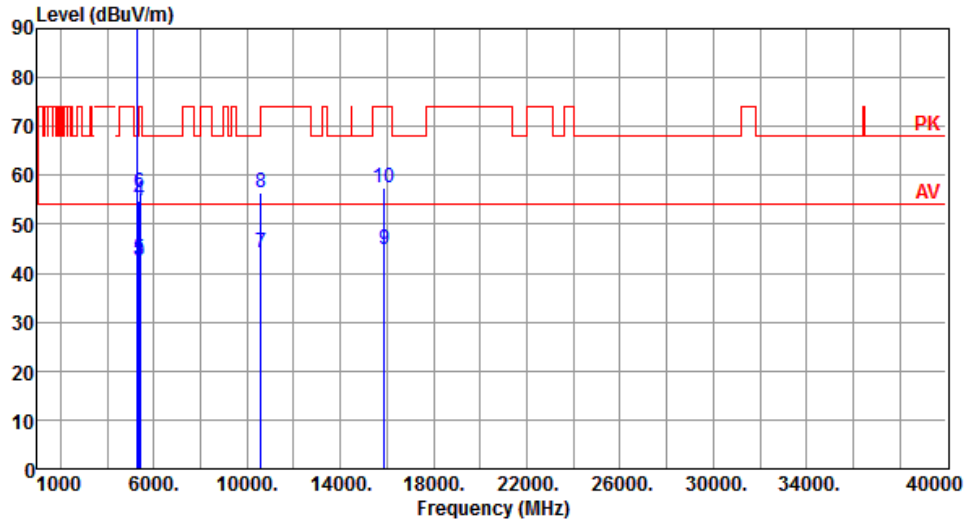
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5300
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5300.00	95.96			89.10	6.86	Average	191	28
2	*	5300.00	105.15			98.29	6.86	Peak	191	28
3		5350.00	42.65	54.00	-11.35	35.76	6.89	Average	191	28
4		5350.00	54.81	74.00	-19.19	47.92	6.89	Peak	191	28
5		5395.00	42.88	54.00	-11.12	35.77	7.11	Average	191	28
6		5395.00	56.46	74.00	-17.54	49.35	7.11	Peak	191	28
7		10600.00	44.29	54.00	-9.71	27.30	16.99	Average	100	64
8		10600.00	56.62	74.00	-17.38	39.63	16.99	Peak	100	64
9		15900.00	44.75	54.00	-9.25	28.03	16.72	Average	105	26
10		15900.00	57.48	74.00	-16.52	40.76	16.72	Peak	105	26

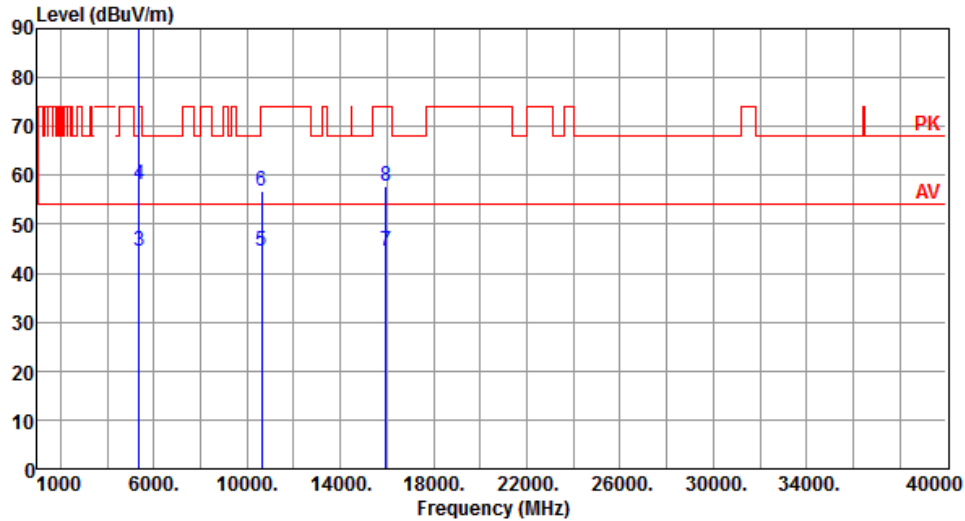
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5320.00	104.65	---	---	97.78	6.87	Average	160	294
2	*	5320.00	114.81	---	---	107.94	6.87	Peak	160	294
3		5350.00	44.64	54.00	-9.36	37.75	6.89	Average	160	321
4		5350.00	57.98	74.00	-16.02	51.09	6.89	Peak	160	321
5		10640.00	44.61	54.00	-9.39	27.67	16.94	Average	100	80
6		10640.00	56.80	74.00	-17.20	39.86	16.94	Peak	100	80
7		15960.00	44.64	54.00	-9.36	27.91	16.73	Average	100	60
8		15960.00	57.67	74.00	-16.33	40.94	16.73	Peak	100	60

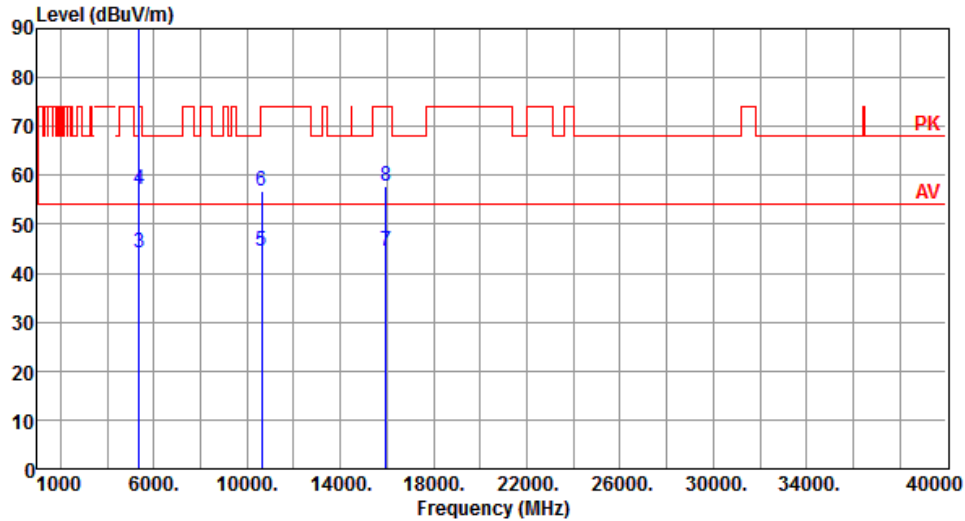
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5320.00	95.82			88.95	6.87	Average	196	29
2	*	5320.00	104.95			98.08	6.87	Peak	196	29
3		5350.00	44.05	54.00	-9.95	37.16	6.89	Average	196	29
4		5350.00	57.24	74.00	-16.76	50.35	6.89	Peak	196	29
5		10640.00	44.58	54.00	-9.42	27.64	16.94	Average	106	91
6		10640.00	56.74	74.00	-17.26	39.80	16.94	Peak	106	91
7		15960.00	44.52	54.00	-9.48	27.79	16.73	Average	100	65
8		15960.00	57.64	74.00	-16.36	40.91	16.73	Peak	100	65

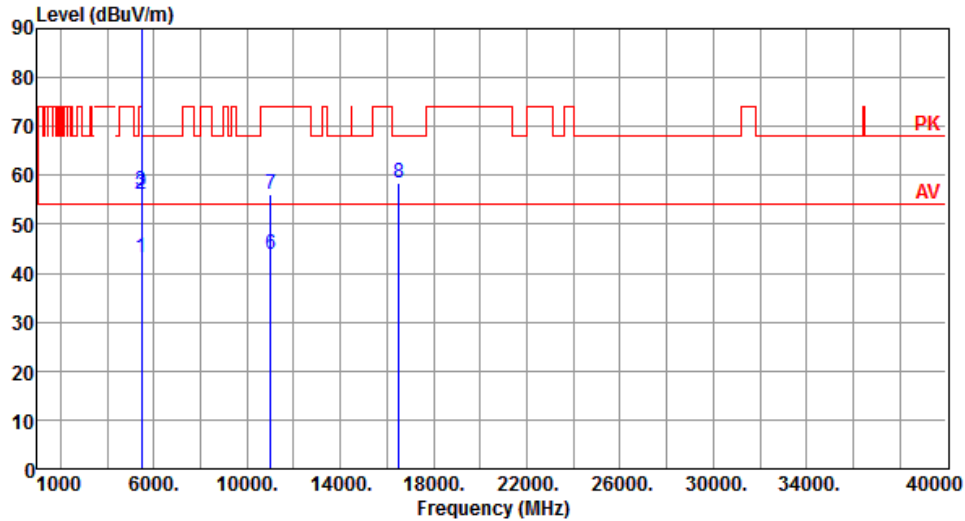
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Horizontal	Test Configuration	1



	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	43.22	54.00	-10.78	35.82	7.40	Average	162	303
2	5460.00	56.08	74.00	-17.92	48.68	7.40	Peak	162	303
3	5470.00	56.74	68.20	-11.46	49.30	7.44	Peak	162	303
4 *	5500.00	104.36			96.79	7.57	Average	162	303
5 *	5500.00	114.56			106.99	7.57	Peak	162	303
6	11000.00	43.98	54.00	-10.02	26.82	17.16	Average	100	80
7	11000.00	56.01	74.00	-17.99	38.85	17.16	Peak	100	80
8	16500.00	58.48	68.20	-9.72	40.95	17.53	Peak	100	50

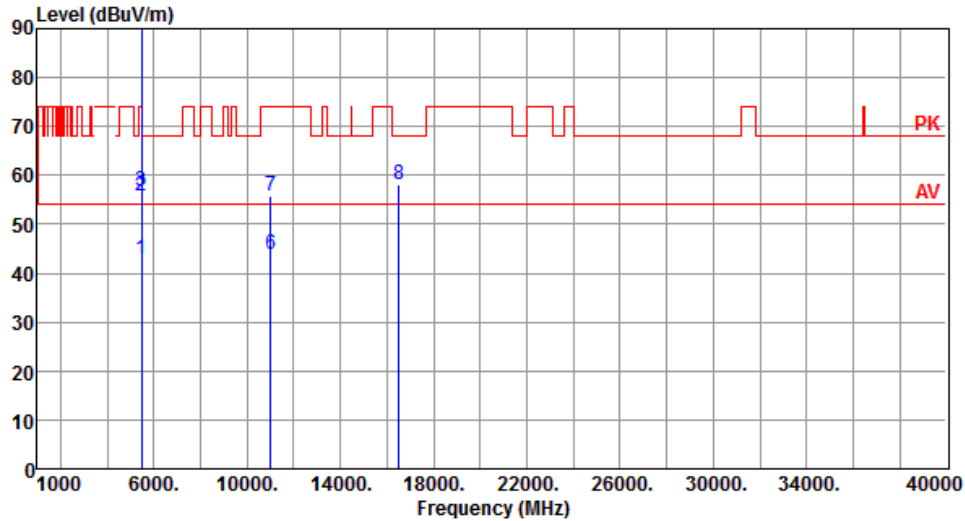
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Vertical	Test Configuration	1



	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	42.92	54.00	-11.08	35.52	7.40	Average	195	14
2	5460.00	55.88	74.00	-18.12	48.48	7.40	Peak	195	14
3	5470.00	56.69	68.20	-11.51	49.25	7.44	Peak	195	14
4 *	5500.00	95.41			87.84	7.57	Average	195	14
5 *	5500.00	104.62			97.05	7.57	Peak	195	14
6	11000.00	43.82	54.00	-10.18	26.66	17.16	Average	109	68
7	11000.00	55.92	74.00	-18.08	38.76	17.16	Peak	109	68
8	16500.00	58.27	68.20	-9.93	40.74	17.53	Peak	105	69

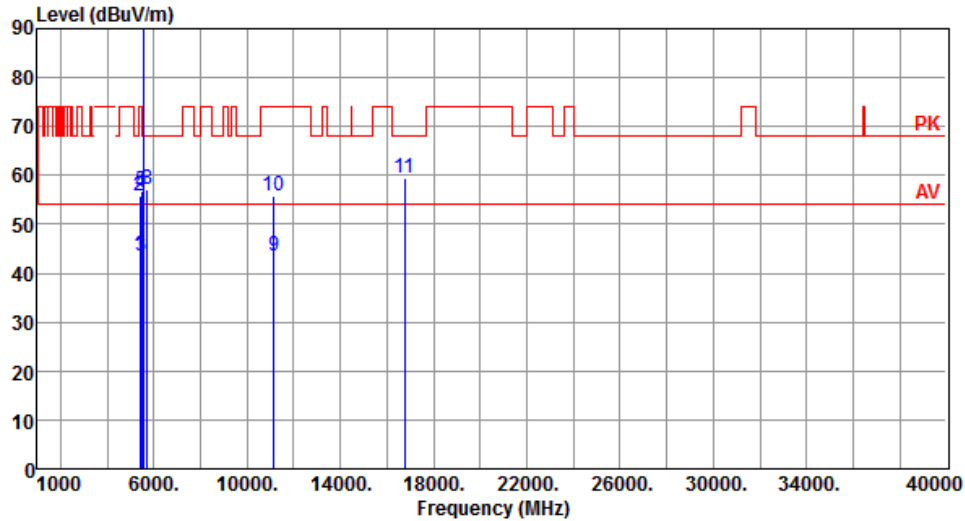
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5580
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5390.00	43.42	54.00	-10.58	36.34	7.08	Average	205	297
2	5390.00	55.75	74.00	-18.25	48.67	7.08	Peak	205	297
3	5460.00	43.62	54.00	-10.38	36.22	7.40	Average	205	297
4	5460.00	56.31	74.00	-17.69	48.91	7.40	Peak	205	297
5	5470.00	56.86	68.20	-11.34	49.42	7.44	Peak	205	297
6 *	5580.00	104.12			96.65	7.47	Average	205	297
7 *	5580.00	114.34			106.87	7.47	Peak	205	297
8	5725.00	57.04	68.20	-11.16	49.27	7.77	Peak	205	297
9	11160.00	43.62	54.00	-10.38	26.77	16.85	Average	100	40
10	11160.00	55.78	74.00	-18.22	38.93	16.85	Peak	100	40
11	16740.00	59.58	68.20	-8.62	40.97	18.61	Peak	100	90

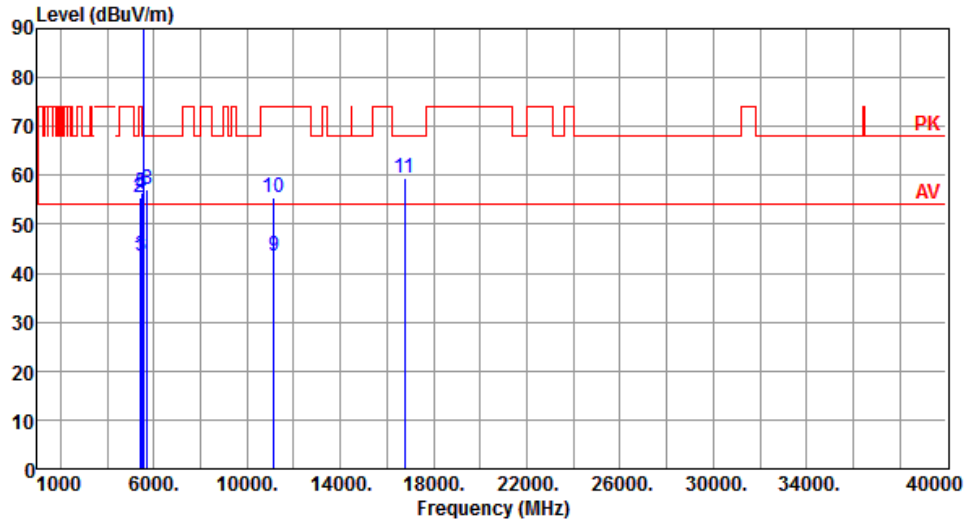
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5390.00	43.31	54.00	-10.69	36.23	7.08	Average	186	26
2	5390.00	55.56	74.00	-18.44	48.48	7.08	Peak	186	26
3	5460.00	43.38	54.00	-10.62	35.98	7.40	Average	186	26
4	5460.00	56.22	74.00	-17.78	48.82	7.40	Peak	186	26
5	5470.00	56.52	68.20	-11.68	49.08	7.44	Peak	186	26
6 *	5580.00	95.24			87.77	7.47	Average	186	26
7 *	5580.00	105.46			97.99	7.47	Peak	186	26
8	5725.00	56.98	68.20	-11.22	49.21	7.77	Peak	186	26
9	11160.00	43.58	54.00	-10.42	26.73	16.85	Average	109	51
10	11160.00	55.62	74.00	-18.38	38.77	16.85	Peak	109	51
11	16740.00	59.42	68.20	-8.78	40.81	18.61	Peak	100	88

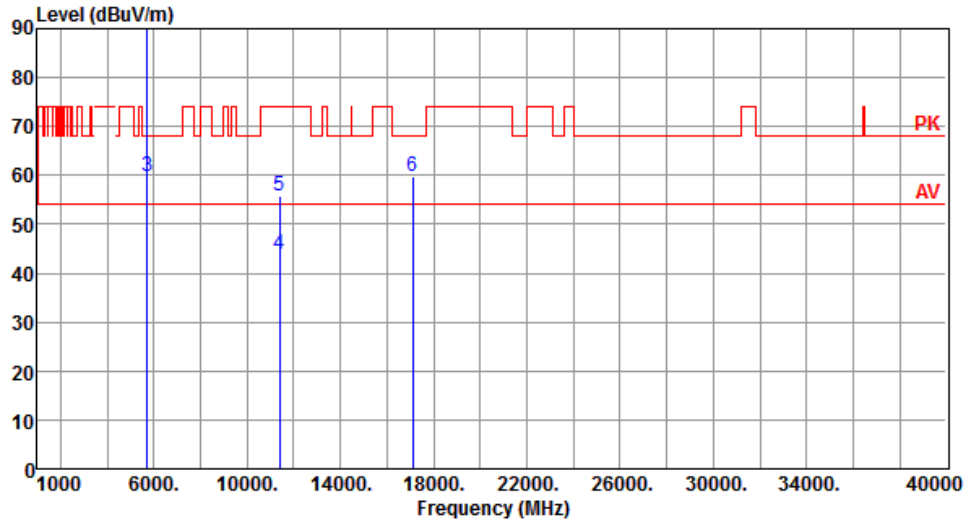
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5700.00	104.18	---	---	96.47	7.71	Average	185	296
2	*	5700.00	114.62	---	---	106.91	7.71	Peak	185	296
3		5725.00	59.94	68.20	-8.26	52.17	7.77	Peak	185	296
4		11400.00	43.94	54.00	-10.06	27.00	16.94	Average	100	60
5		11400.00	55.88	74.00	-18.12	38.94	16.94	Peak	100	60
6		17100.00	59.76	68.20	-8.44	41.06	18.70	Peak	100	30

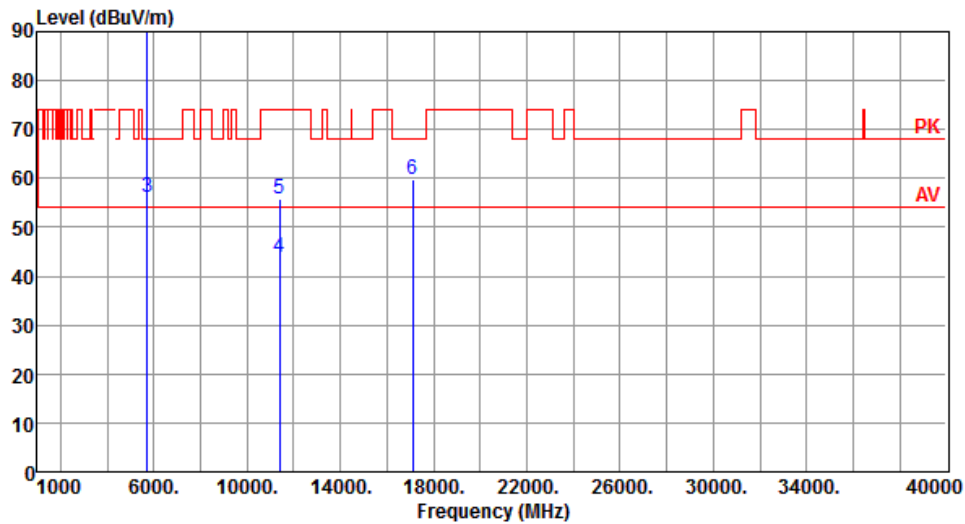
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5700.00	95.25			87.54	7.71	Average	189	22
2	*	5700.00	105.36			97.65	7.71	Peak	189	22
3		5725.00	56.04	68.20	-12.16	48.27	7.77	Peak	189	22
4		11400.00	43.88	54.00	-10.12	26.94	16.94	Average	113	25
5		11400.00	55.71	74.00	-18.29	38.77	16.94	Peak	113	25
6		17100.00	59.65	68.20	-8.55	40.95	18.70	Peak	100	45

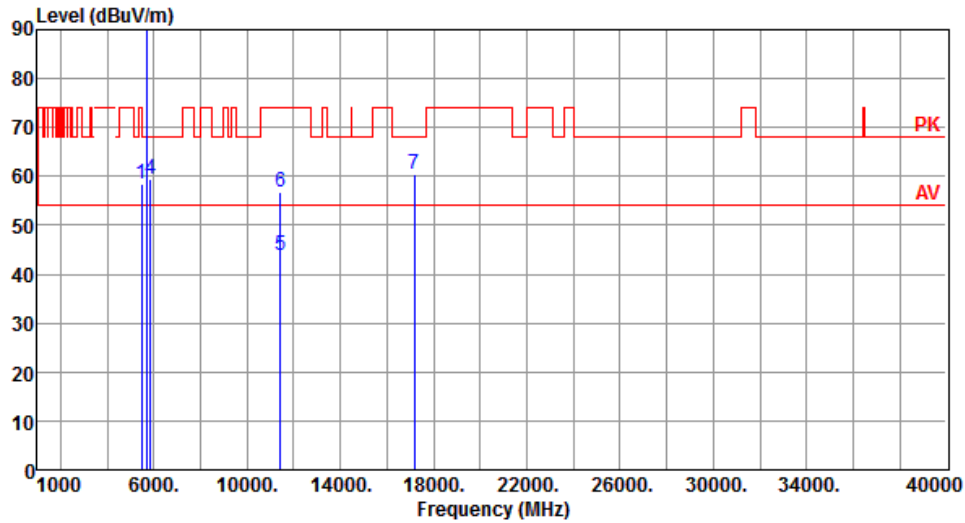
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5720
Polarization	Horizontal	Test Configuration	1



	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	58.61	68.20	-9.59	51.17	7.44	Peak	216	298
2 *	5720.00	104.43			96.67	7.76	Average	216	298
3 *	5720.00	114.72			106.96	7.76	Peak	216	298
4	5850.00	59.50	68.20	-8.70	51.35	8.15	Peak	216	298
5	11440.00	43.68	54.00	-10.32	26.69	16.99	Average	144	35
6	11440.00	56.76	74.00	-17.24	39.77	16.99	Peak	144	35
7	17160.00	60.42	68.20	-7.78	41.76	18.66	Peak	136	45

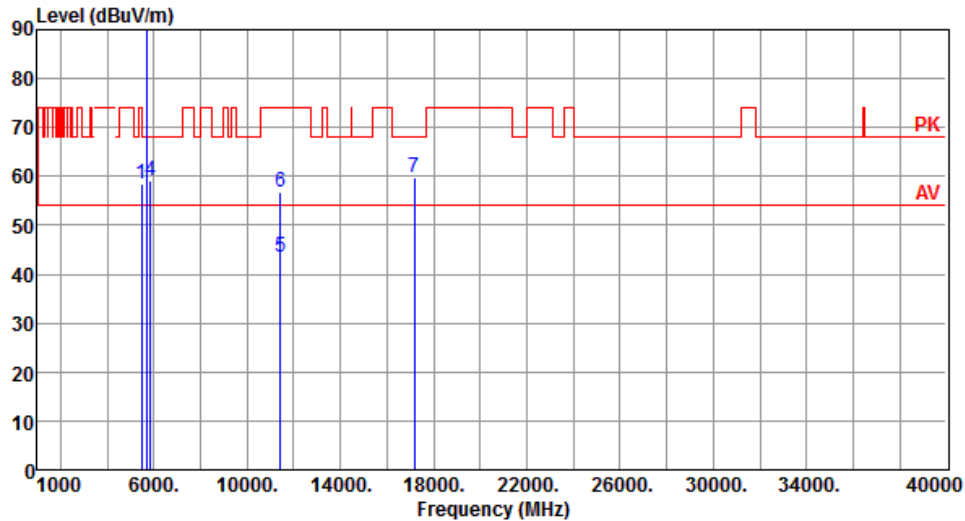
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5720
Polarization	Vertical	Test Configuration	1



	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	58.57	68.20	-9.63	51.13	7.44	Peak	219	2
2	* 5720.00	94.96			87.20	7.76	Average	219	2
3	* 5720.00	105.18			97.42	7.76	Peak	219	2
4	5850.00	59.16	68.20	-9.04	51.01	8.15	Peak	219	2
5	11440.00	43.50	54.00	-10.50	26.51	16.99	Average	106	19
6	11440.00	56.67	74.00	-17.33	39.68	16.99	Peak	106	19
7	17160.00	59.88	68.20	-8.32	41.22	18.66	Peak	108	21

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

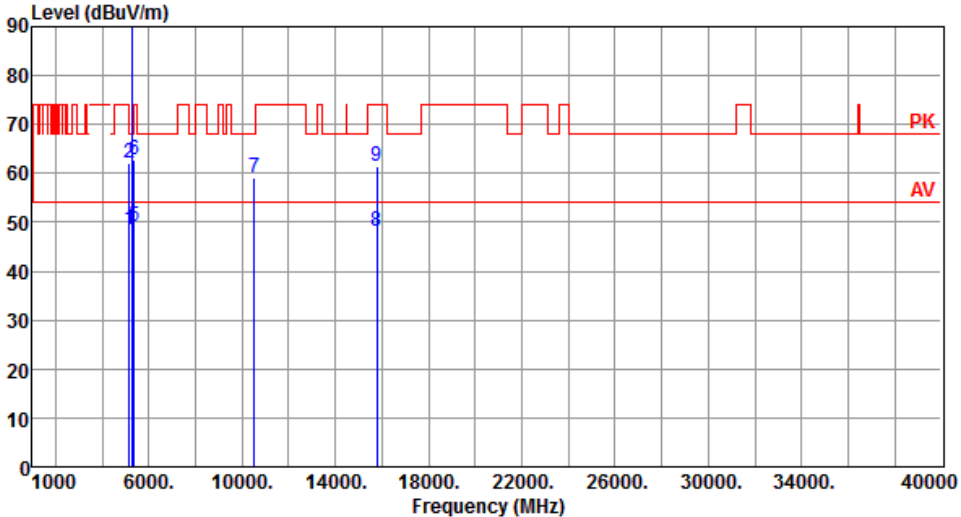
*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE20)

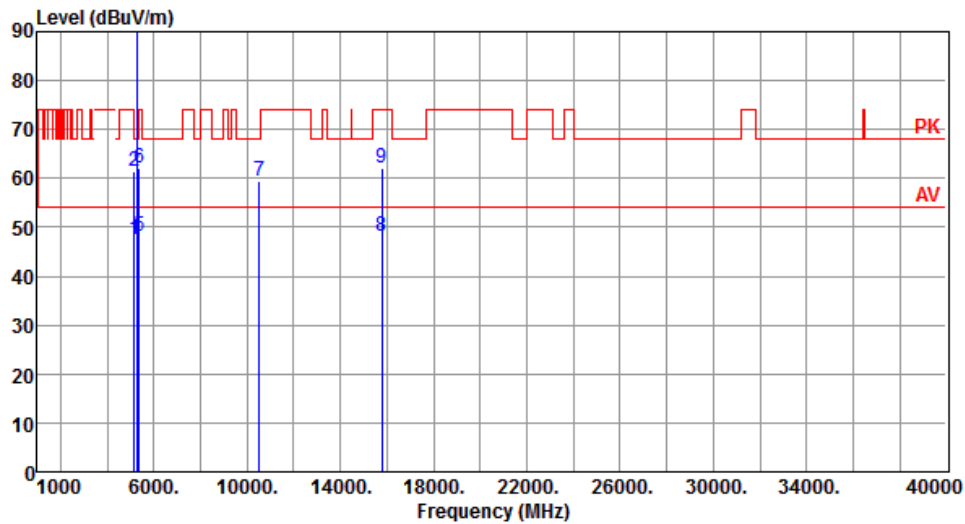
Modulation	ax (HE20)	Test Freq. (MHz)	5260
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.44	54.00	-5.56	40.98	7.46	Average	176	311
2	5150.00	62.12	74.00	-11.88	54.66	7.46	Peak	176	311
3 *	5260.00	105.44			98.53	6.91	Average	176	311
4 *	5260.00	117.42			110.51	6.91	Peak	176	311
5	5350.00	49.13	54.00	-4.87	42.24	6.89	Average	176	311
6	5350.00	62.82	74.00	-11.18	55.93	6.89	Peak	176	311
7	10520.00	59.28	68.20	-8.92	42.37	16.91	Peak	106	234
8	15780.00	48.06	54.00	-5.94	31.27	16.79	Average	108	66
9	15780.00	61.49	74.00	-12.51	44.70	16.79	Peak	108	66

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: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5260
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.49	54.00	-6.51	40.03	7.46	Average	109	202
2	5150.00	61.58	74.00	-12.42	54.12	7.46	Peak	109	202
3 *	5260.00	96.38	---	---	89.47	6.91	Average	109	202
4 *	5260.00	108.33	---	---	101.42	6.91	Peak	109	202
5	5350.00	48.32	54.00	-5.68	41.43	6.89	Average	109	202
6	5350.00	62.21	74.00	-11.79	55.32	6.89	Peak	109	202
7	10520.00	59.36	68.20	-8.84	42.45	16.91	Peak	105	241
8	15780.00	48.16	54.00	-5.84	31.37	16.79	Average	113	52
9	15780.00	61.98	74.00	-12.02	45.19	16.79	Peak	113	52

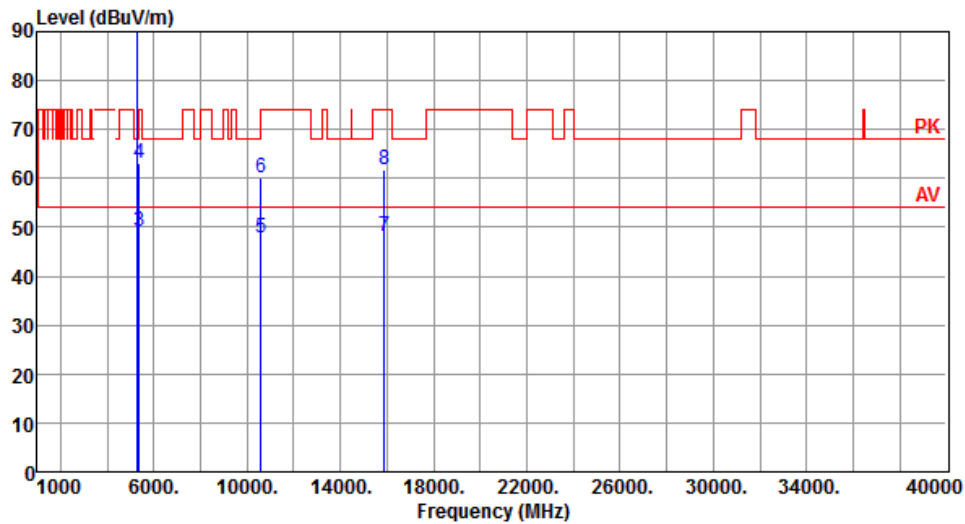
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5300
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5300.00	105.28	---	---	98.42	6.86	Average	177	309
2	*	5300.00	117.26	---	---	110.40	6.86	Peak	177	309
3		5350.00	49.28	54.00	-4.72	42.39	6.89	Average	177	309
4		5350.00	62.95	74.00	-11.05	56.06	6.89	Peak	177	309
5		10600.00	47.83	54.00	-6.17	30.84	16.99	Average	109	244
6		10600.00	60.13	74.00	-13.87	43.14	16.99	Peak	109	244
7		15900.00	48.21	54.00	-5.79	31.49	16.72	Average	113	52
8		15900.00	61.69	74.00	-12.31	44.97	16.72	Peak	113	52

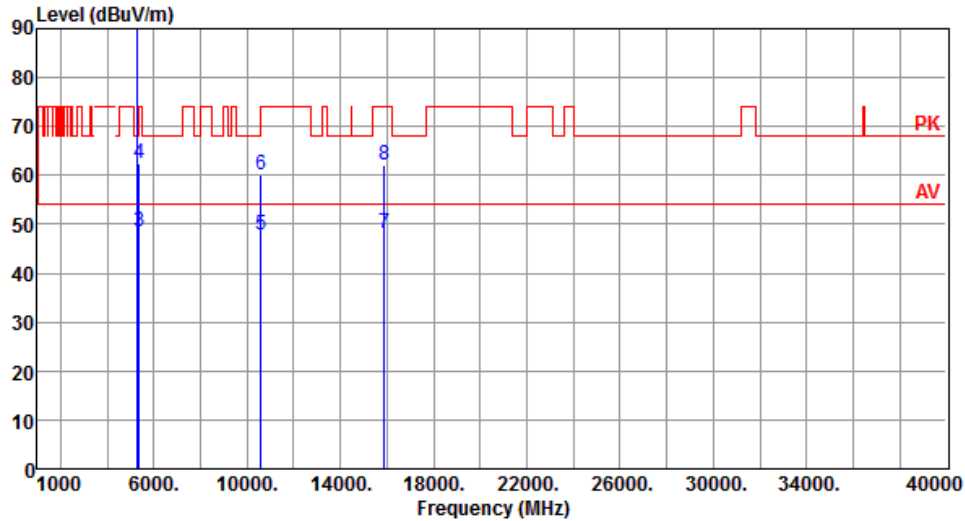
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5300
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5300.00	96.21	---	---	89.35	6.86	Average	110	205
2	*	5300.00	108.19	---	---	101.33	6.86	Peak	110	205
3		5350.00	48.41	54.00	-5.59	41.52	6.89	Average	110	205
4		5350.00	62.35	74.00	-11.65	55.46	6.89	Peak	110	205
5		10600.00	47.91	54.00	-6.09	30.92	16.99	Average	109	225
6		10600.00	60.25	74.00	-13.75	43.26	16.99	Peak	109	225
7		15900.00	48.25	54.00	-5.75	31.53	16.72	Average	115	99
8		15900.00	62.11	74.00	-11.89	45.39	16.72	Peak	115	99

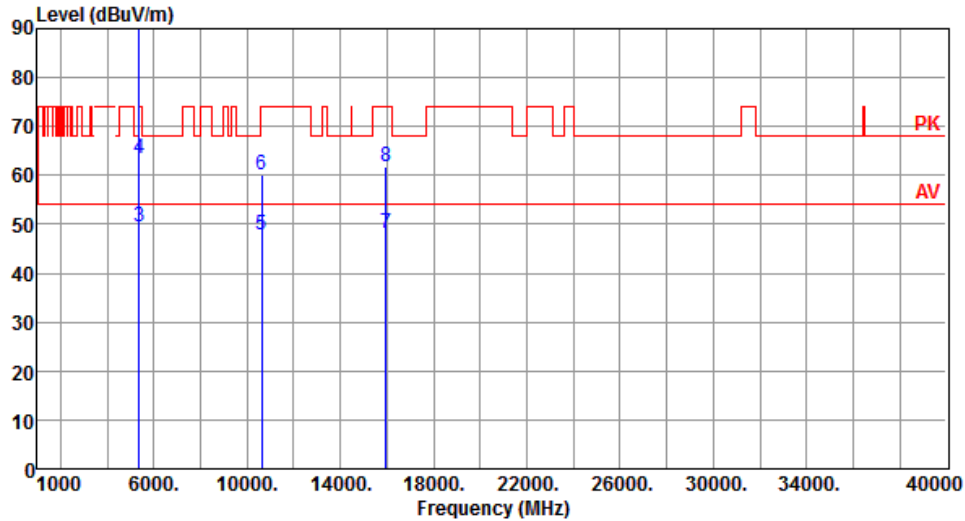
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5320
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5320.00	104.82	---	---	97.95	6.87	Average	183	311
2	*	5320.00	117.05	---	---	110.18	6.87	Peak	183	311
3		5350.00	49.61	54.00	-4.39	42.72	6.89	Average	183	311
4		5350.00	63.49	74.00	-10.51	56.60	6.89	Peak	183	311
5		10640.00	47.95	54.00	-6.05	31.01	16.94	Average	110	239
6		10640.00	60.26	74.00	-13.74	43.32	16.94	Peak	110	239
7		15960.00	48.29	54.00	-5.71	31.56	16.73	Average	116	38
8		15960.00	61.82	74.00	-12.18	45.09	16.73	Peak	116	38

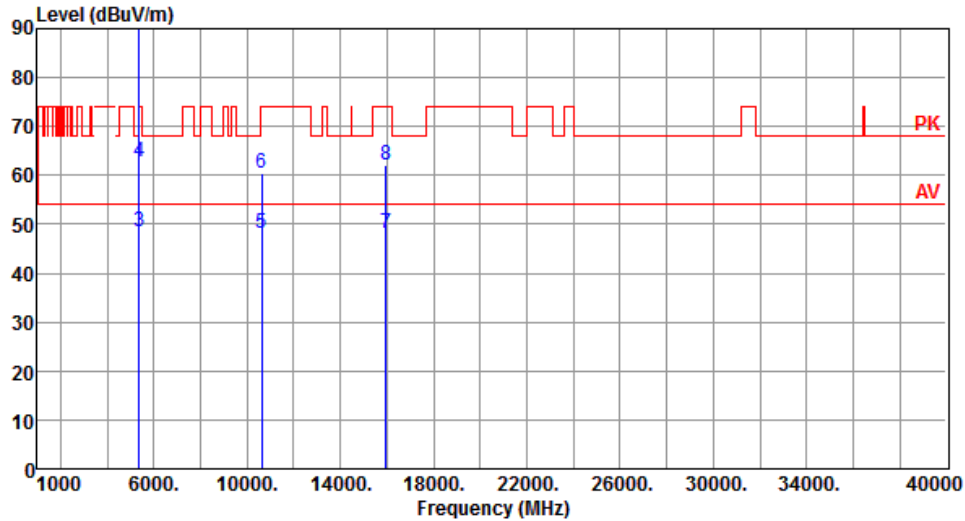
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5320
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5320.00	96.28	---	---	89.41	6.87	Average	110	209
2	*	5320.00	108.34	---	---	101.47	6.87	Peak	110	209
3		5350.00	48.56	54.00	-5.44	41.67	6.89	Average	110	209
4		5350.00	62.69	74.00	-11.31	55.80	6.89	Peak	110	209
5		10640.00	48.24	54.00	-5.76	31.30	16.94	Average	113	249
6		10640.00	60.39	74.00	-13.61	43.45	16.94	Peak	113	249
7		15960.00	48.21	54.00	-5.79	31.48	16.73	Average	119	82
8		15960.00	62.09	74.00	-11.91	45.36	16.73	Peak	119	82

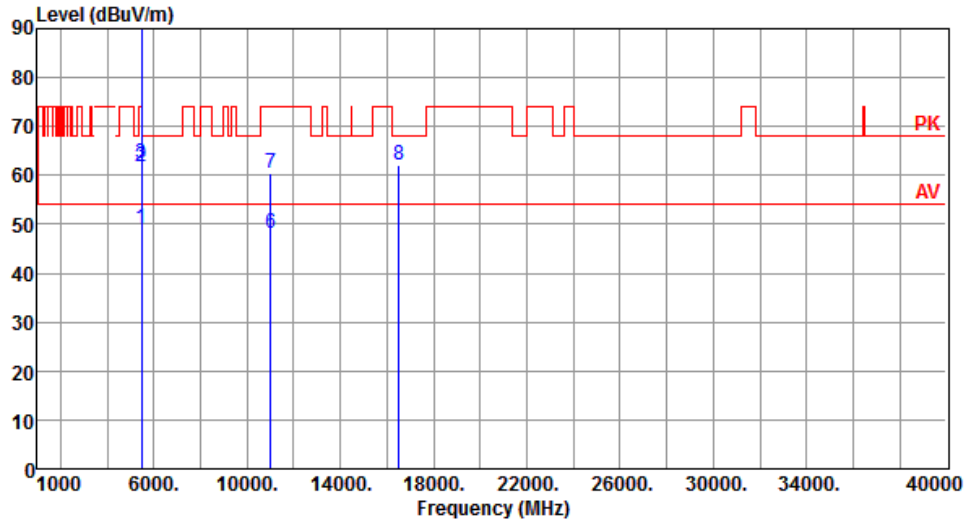
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5500
Polarization	Horizontal	Test Configuration	1



	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	49.03	54.00	-4.97	41.63	7.40	Average	174	314
2	5460.00	61.61	74.00	-12.39	54.21	7.40	Peak	174	314
3	5470.00	62.52	68.20	-5.68	55.08	7.44	Peak	174	314
4 *	5500.00	104.75			97.18	7.57	Average	174	314
5 *	5500.00	117.49			109.92	7.57	Peak	174	314
6	11000.00	48.16	54.00	-5.84	31.00	17.16	Average	114	246
7	11000.00	60.39	74.00	-13.61	43.23	17.16	Peak	114	246
8	16500.00	61.95	68.20	-6.25	44.42	17.53	Peak	119	42

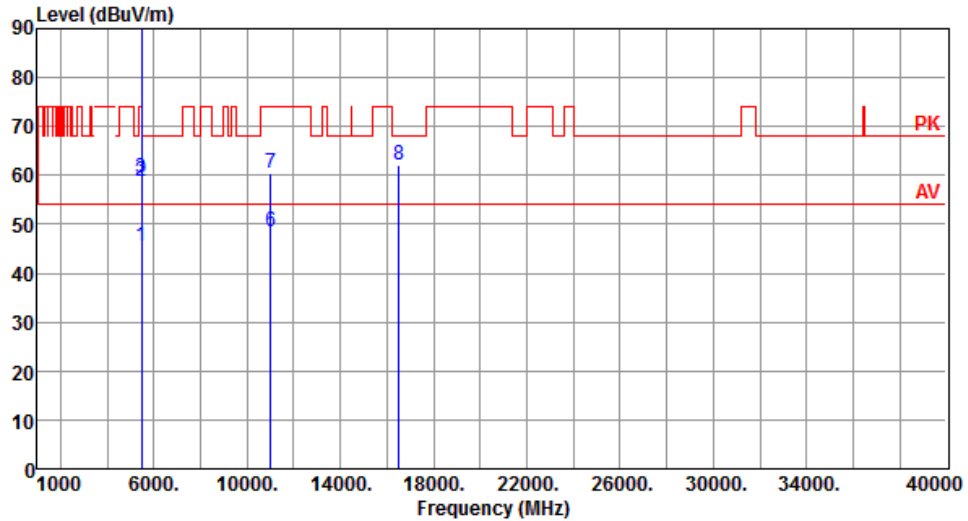
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5500
Polarization	Vertical	Test Configuration	1



	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	45.41	54.00	-8.59	38.01	7.40	Average	112	214
2	5460.00	58.85	74.00	-15.15	51.45	7.40	Peak	112	214
3	5470.00	59.33	68.20	-8.87	51.89	7.44	Peak	112	214
4 *	5500.00	95.82	---	---	88.25	7.57	Average	112	214
5 *	5500.00	107.98	---	---	100.41	7.57	Peak	112	214
6	11000.00	48.36	54.00	-5.64	31.20	17.16	Average	119	253
7	11000.00	60.45	74.00	-13.55	43.29	17.16	Peak	119	253
8	16500.00	62.16	68.20	-6.04	44.63	17.53	Peak	119	91

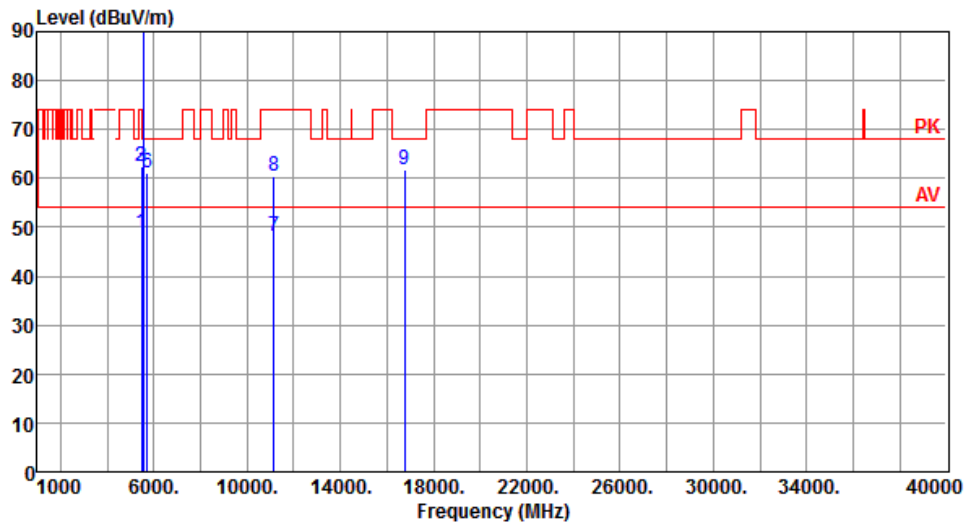
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5580
Polarization	Horizontal	Test Configuration	1



	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	48.97	54.00	-5.03	41.57	7.40	Average	176	311
2	5460.00	62.35	74.00	-11.65	54.95	7.40	Peak	176	311
3	5470.00	62.52	68.20	-5.68	55.08	7.44	Peak	174	314
4 *	5580.00	104.33	---	---	96.86	7.47	Average	176	311
5 *	5580.00	116.63	---	---	109.16	7.47	Peak	176	311
6	5725.00	61.20	68.20	-7.00	53.43	7.77	Peak	176	311
7	11160.00	48.21	54.00	-5.79	31.36	16.85	Average	103	251
8	11160.00	60.45	74.00	-13.55	43.60	16.85	Peak	103	251
9	16740.00	61.88	68.20	-6.32	43.27	18.61	Peak	123	56

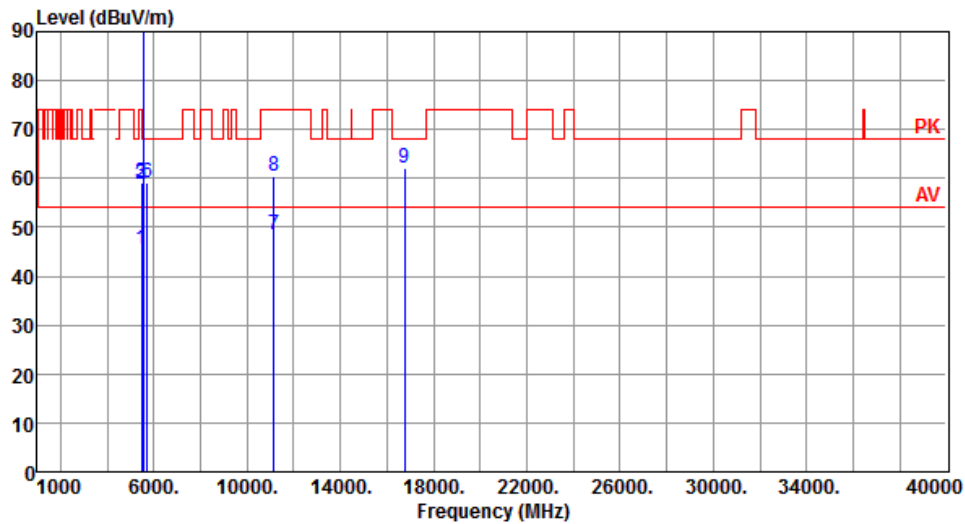
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5580
Polarization	Vertical	Test Configuration	1



	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	45.39	54.00	-8.61	37.99	7.40	Average	113	216
2	5460.00	58.76	74.00	-15.24	51.36	7.40	Peak	113	216
3	5470.00	59.28	68.20	-8.92	51.84	7.44	Peak	113	216
4 *	5580.00	95.53			88.06	7.47	Average	113	216
5 *	5580.00	107.64			100.17	7.47	Peak	113	216
6	5725.00	59.21	68.20	-8.99	51.44	7.77	Peak	113	216
7	11160.00	48.45	54.00	-5.55	31.60	16.85	Average	126	247
8	11160.00	60.53	74.00	-13.47	43.68	16.85	Peak	126	247
9	16740.00	62.08	68.20	-6.12	43.47	18.61	Peak	115	84

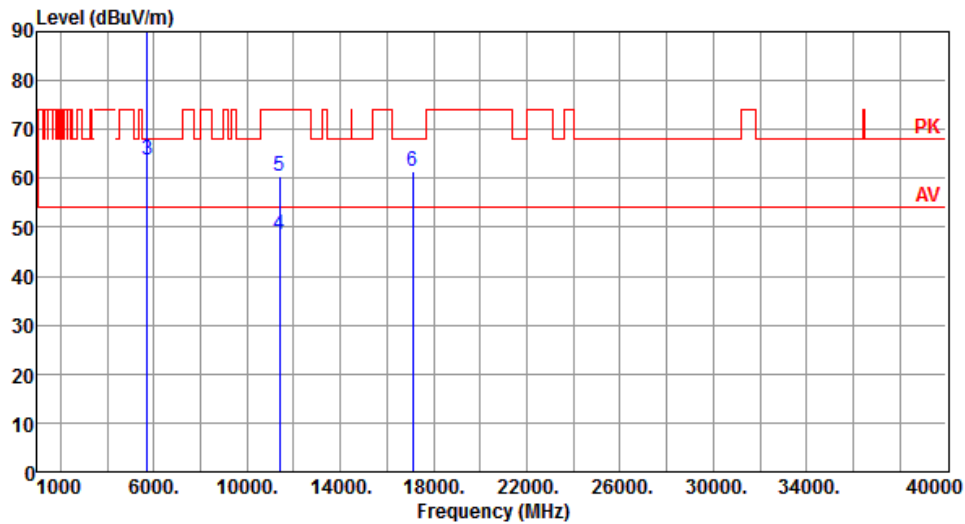
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5700
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5700.00	104.45	---	---	96.74	7.71	Average	178	304
2	*	5700.00	116.95	---	---	109.24	7.71	Peak	178	304
3		5725.00	63.82	68.20	-4.38	56.05	7.77	Peak	178	304
4		11400.00	48.36	54.00	-5.64	31.42	16.94	Average	109	265
5		11400.00	60.54	74.00	-13.46	43.60	16.94	Peak	109	265
6		17100.00	61.52	68.20	-6.68	42.82	18.70	Peak	126	51

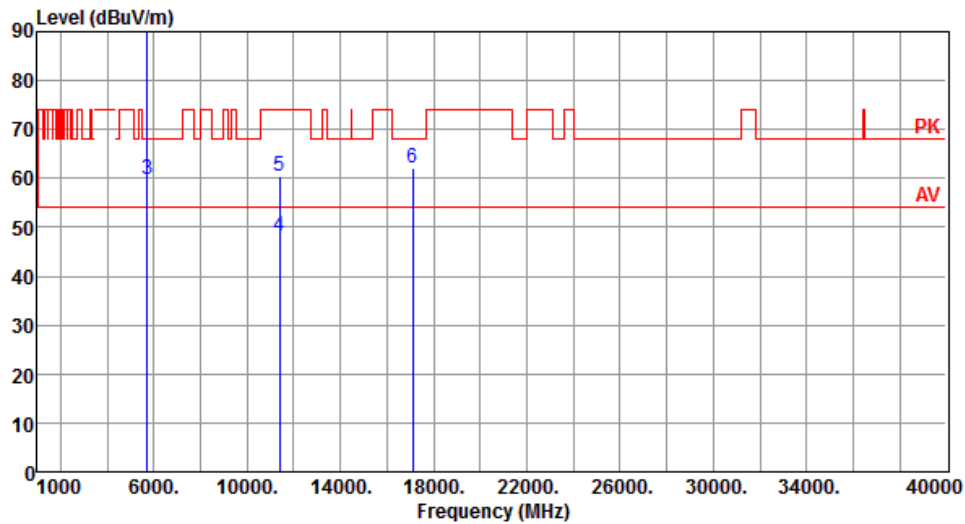
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5700
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5700.00	95.26	---	---	87.55	7.71	Average	115	214
2	*	5700.00	107.45	---	---	99.74	7.71	Peak	115	214
3		5725.00	59.88	68.20	-8.32	52.11	7.77	Peak	115	214
4		11400.00	48.23	54.00	-5.77	31.29	16.94	Average	129	251
5		11400.00	60.49	74.00	-13.51	43.55	16.94	Peak	129	251
6		17100.00	62.19	68.20	-6.01	43.49	18.70	Peak	118	96

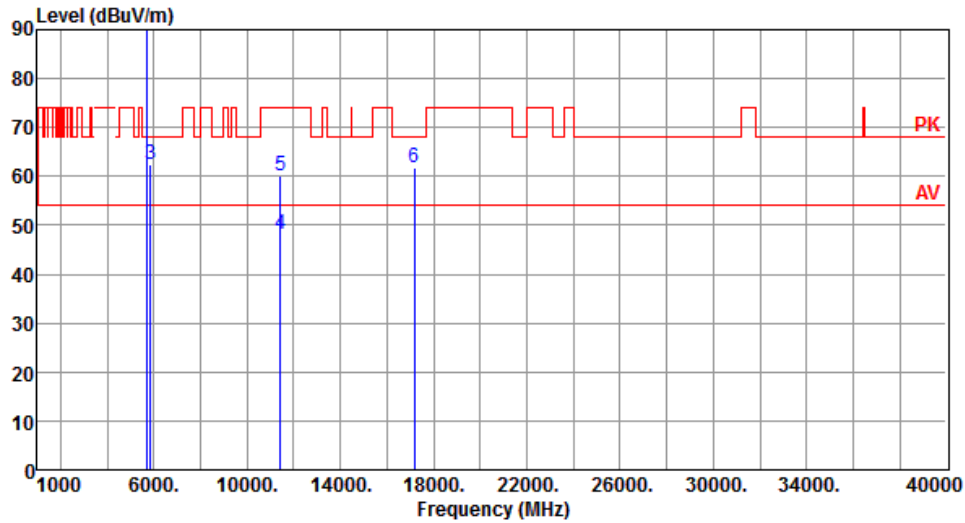
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5720
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5720.00	104.85			97.09	7.76	Average	175	312
2	*	5720.00	117.21			109.45	7.76	Peak	175	312
3		5850.00	62.41	68.20	-5.79	54.26	8.15	Peak	175	312
4		11440.00	48.25	54.00	-5.75	31.26	16.99	Average	108	255
5		11440.00	60.23	74.00	-13.77	43.24	16.99	Peak	108	255
6		17160.00	61.80	68.20	-6.40	43.14	18.66	Peak	100	52

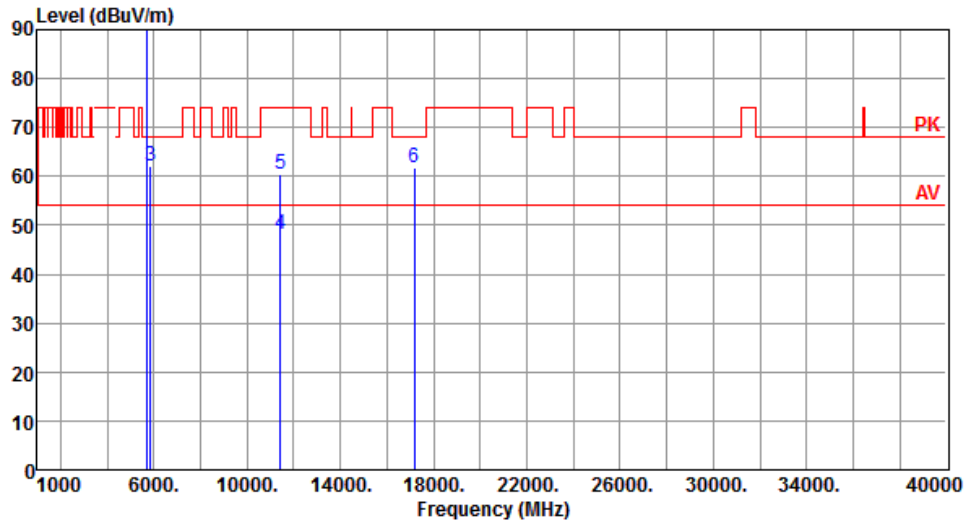
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE20)	Test Freq. (MHz)	5720
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5720.00	95.41			87.65	7.76	Average	116	215
2	*	5720.00	107.68			99.92	7.76	Peak	116	215
3		5850.00	62.20	68.20	-6.00	54.05	8.15	Peak	116	215
4		11440.00	48.14	54.00	-5.86	31.15	16.99	Average	125	256
5		11440.00	60.41	74.00	-13.59	43.42	16.99	Peak	125	256
6		17160.00	61.91	68.20	-6.29	43.25	18.66	Peak	100	95

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

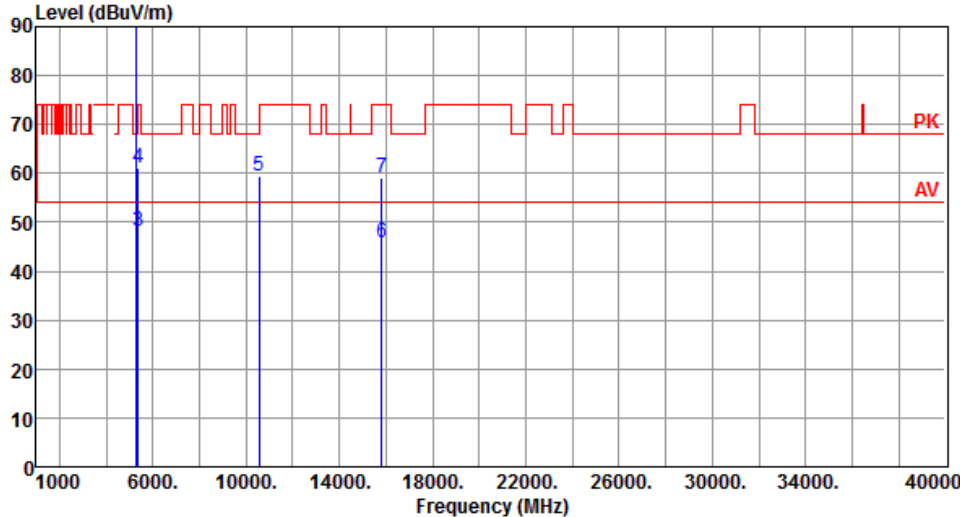
*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE40)

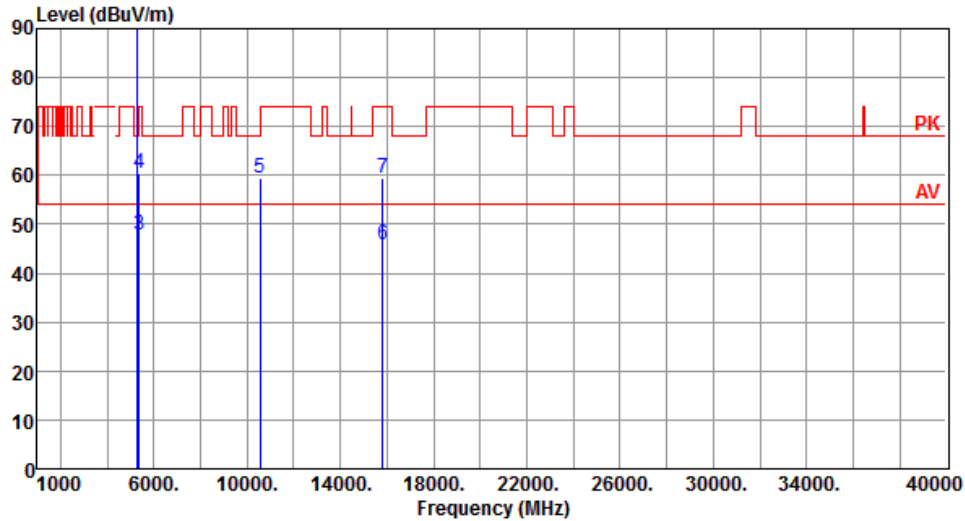
Modulation	ax (HE40)	Test Freq. (MHz)	5270
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5270.00	106.15			99.26	6.89	Average	175	293
2	*	5270.00	118.35			111.46	6.89	Peak	175	293
3		5350.00	48.15	54.00	-5.85	41.26	6.89	Average	175	293
4		5350.00	61.01	74.00	-12.99	54.12	6.89	Peak	175	293
5		10540.00	59.55	68.20	-8.65	42.62	16.93	Peak	100	80
6		15810.00	45.91	54.00	-8.09	29.22	16.69	Average	100	60
7		15810.00	59.20	74.00	-14.80	42.51	16.69	Peak	100	60

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: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5270
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5270.00	97.00	---	---	90.11	6.89	Average	100	215
2	*	5270.00	107.18	---	---	100.29	6.89	Peak	100	215
3		5350.00	47.91	54.00	-6.09	41.02	6.89	Average	100	215
4		5350.00	60.58	74.00	-13.42	53.69	6.89	Peak	100	215
5		10540.00	59.48	68.20	-8.72	42.55	16.93	Peak	100	30
6		15810.00	45.84	54.00	-8.16	29.15	16.69	Average	100	40
7		15810.00	59.32	74.00	-14.68	42.63	16.69	Peak	100	40

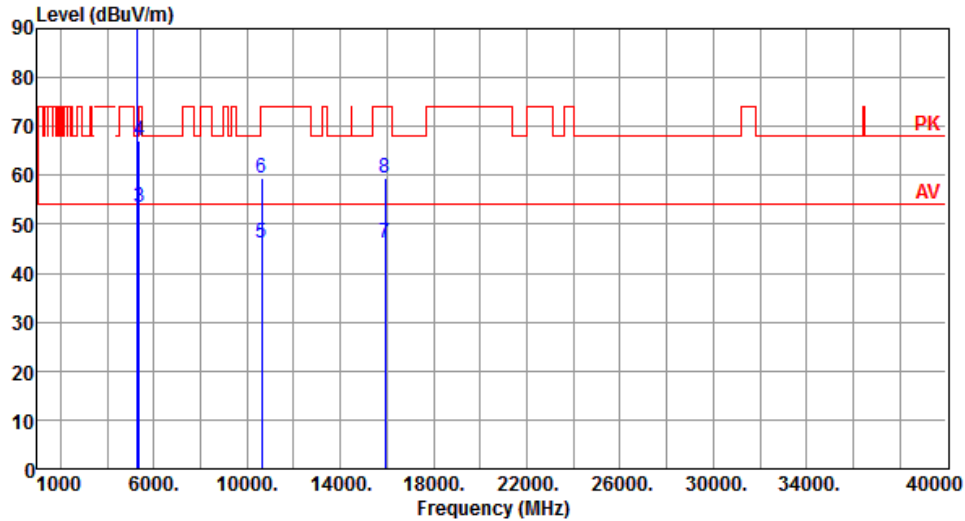
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5310
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5310.00	106.27	---	---	99.41	6.86	Average	176	292
2	*	5310.00	118.94	---	---	112.08	6.86	Peak	176	292
3		5350.00	53.50	54.00	-0.50	46.61	6.89	Average	176	292
4		5350.00	66.98	74.00	-7.02	60.09	6.89	Peak	176	292
5		10620.00	46.22	54.00	-7.78	29.25	16.97	Average	100	50
6		10620.00	59.52	74.00	-14.48	42.55	16.97	Peak	100	50
7		15930.00	46.00	54.00	-8.00	29.27	16.73	Average	100	40
8		15930.00	59.41	74.00	-14.59	42.68	16.73	Peak	100	40

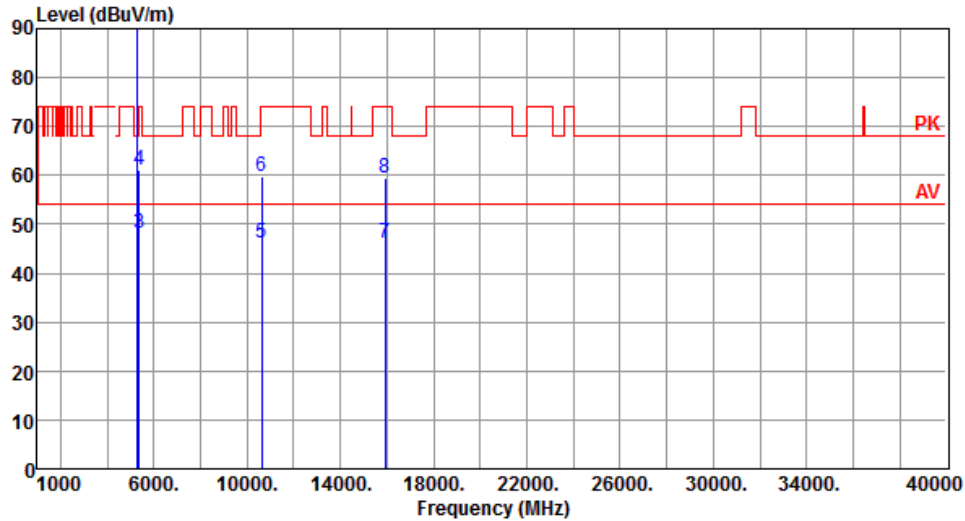
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5310
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5310.00	97.12	---	---	90.26	6.86	Average	105	210
2	*	5310.00	107.25	---	---	100.39	6.86	Peak	105	210
3		5350.00	48.01	54.00	-5.99	41.12	6.89	Average	105	210
4		5350.00	61.18	74.00	-12.82	54.29	6.89	Peak	105	210
5		10620.00	46.27	54.00	-7.73	29.30	16.97	Average	100	40
6		10620.00	59.65	74.00	-14.35	42.68	16.97	Peak	100	40
7		15930.00	46.03	54.00	-7.97	29.30	16.73	Average	100	60
8		15930.00	59.44	74.00	-14.56	42.71	16.73	Peak	100	60

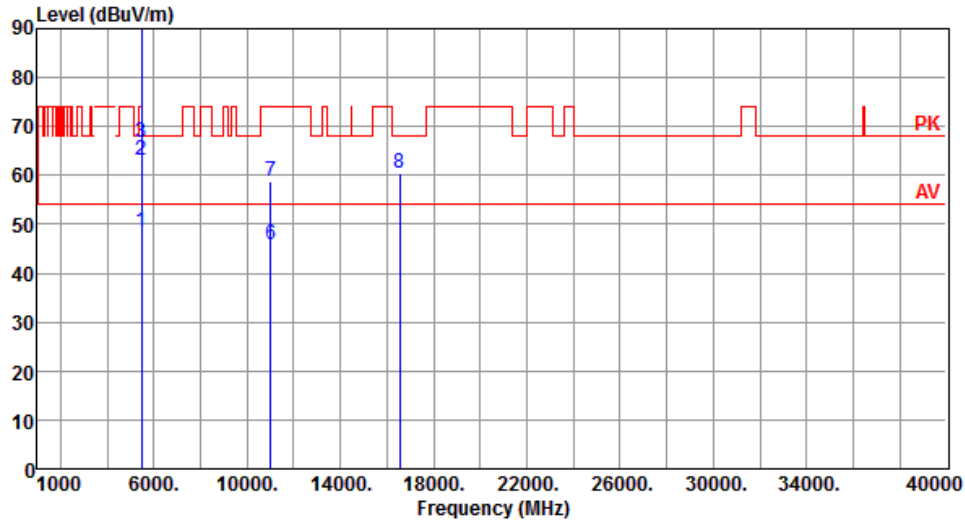
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5510
Polarization	Horizontal	Test Configuration	1



	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	48.63	54.00	-5.37	41.23	7.40	Average	178	302
2	5460.00	63.17	74.00	-10.83	55.77	7.40	Peak	178	302
3	5470.00	66.74	68.20	-1.46	59.30	7.44	Peak	178	302
4 *	5510.00	105.36	---	---	97.80	7.56	Average	178	302
5 *	5510.00	118.14	---	---	110.58	7.56	Peak	178	302
6	11020.00	45.69	54.00	-8.31	28.56	17.13	Average	100	20
7	11020.00	58.69	74.00	-15.31	41.56	17.13	Peak	100	20
8	16530.00	60.31	68.20	-7.89	42.69	17.62	Peak	100	30

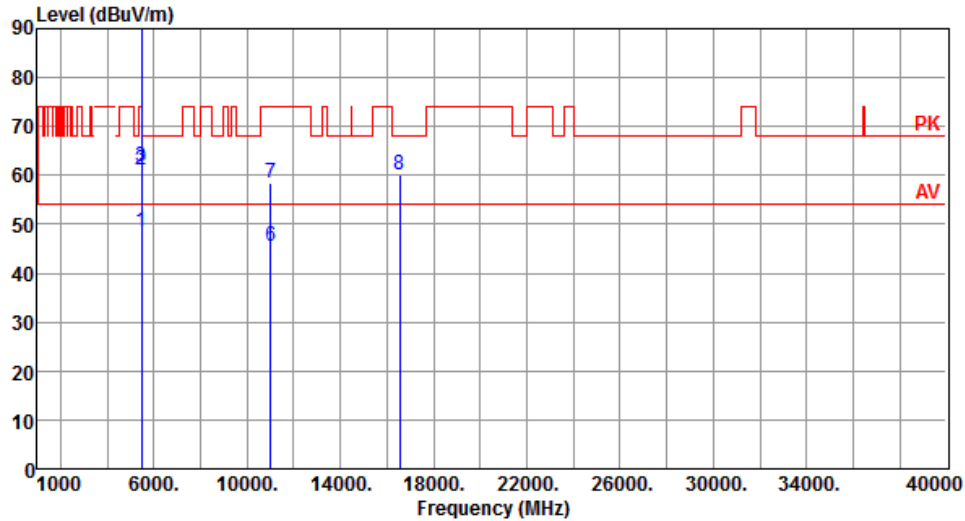
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5510
Polarization	Vertical	Test Configuration	1



	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	48.42	54.00	-5.58	41.02	7.40	Average	115	212
2	5460.00	60.96	74.00	-13.04	53.56	7.40	Peak	115	212
3	5470.00	61.65	68.20	-6.55	54.21	7.44	Peak	115	212
4 *	5510.00	96.54			88.98	7.56	Average	115	212
5 *	5510.00	106.80			99.24	7.56	Peak	115	212
6	11020.00	45.59	54.00	-8.41	28.46	17.13	Average	100	50
7	11020.00	58.56	74.00	-15.44	41.43	17.13	Peak	100	50
8	16530.00	60.20	68.20	-8.00	42.58	17.62	Peak	100	90

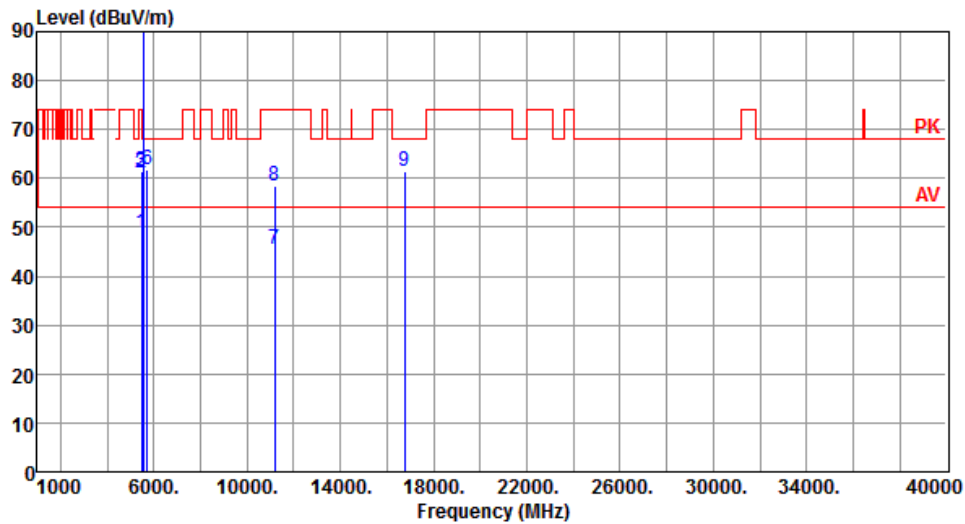
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5590
Polarization	Horizontal	Test Configuration	1



	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	48.66	54.00	-5.34	41.26	7.40	Average	186	303
2	5460.00	60.99	74.00	-13.01	53.59	7.40	Peak	186	303
3	5470.00	61.60	68.20	-6.60	54.16	7.44	Peak	186	303
4 *	5590.00	104.67	---	---	97.19	7.48	Average	186	303
5 *	5590.00	117.96	---	---	110.48	7.48	Peak	186	303
6	5725.00	61.93	68.20	-6.27	54.16	7.77	Peak	186	303
7	11180.00	45.34	54.00	-8.66	28.54	16.80	Average	100	100
8	11180.00	58.33	74.00	-15.67	41.53	16.80	Peak	100	100
9	16770.00	61.28	68.20	-6.92	42.69	18.59	Peak	100	20

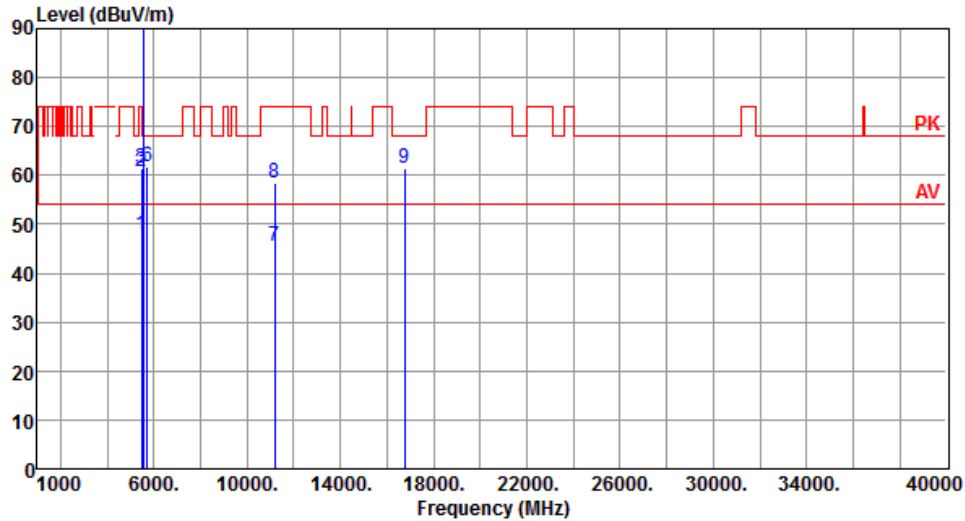
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5590
Polarization	Vertical	Test Configuration	1



	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	47.99	54.00	-6.01	40.59	7.40	Average	115	214
2	5460.00	60.85	74.00	-13.15	53.45	7.40	Peak	115	214
3	5470.00	61.40	68.20	-6.80	53.96	7.44	Peak	115	214
4 *	5590.00	96.59			89.11	7.48	Average	115	214
5 *	5590.00	106.86			99.38	7.48	Peak	115	214
6	5725.00	61.76	68.20	-6.44	53.99	7.77	Peak	115	214
7	11180.00	45.42	54.00	-8.58	28.62	16.80	Average	100	40
8	11180.00	58.49	74.00	-15.51	41.69	16.80	Peak	100	40
9	16770.00	61.42	68.20	-6.78	42.83	18.59	Peak	100	25

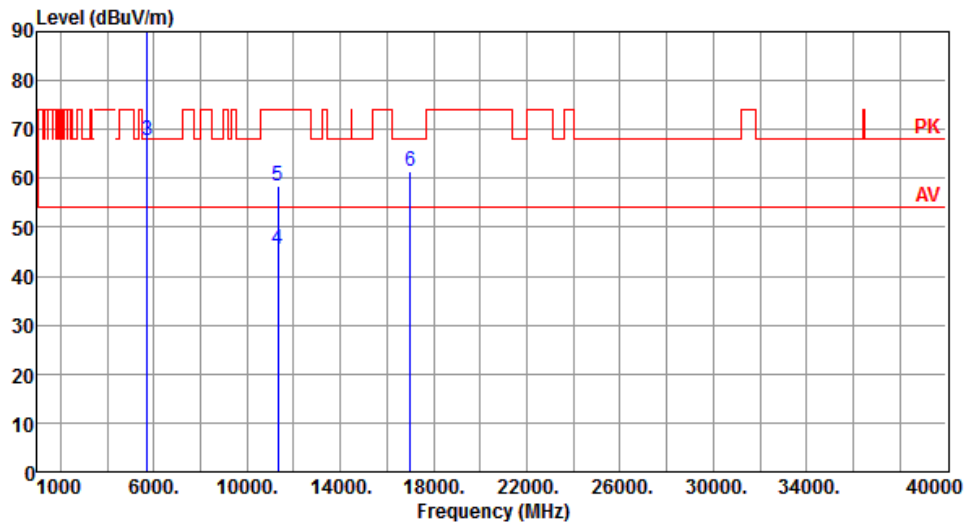
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5670
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5670.00	104.54	---	---	97.02	7.52	Average	185	302
2	*	5670.00	117.89	---	---	110.37	7.52	Peak	185	302
3		5725.00	67.89	68.20	-0.31	60.12	7.77	Peak	185	302
4		11340.00	45.53	54.00	-8.47	28.62	16.91	Average	100	50
5		11340.00	58.49	74.00	-15.51	41.58	16.91	Peak	100	50
6		17010.00	61.51	68.20	-6.69	42.57	18.94	Peak	100	20

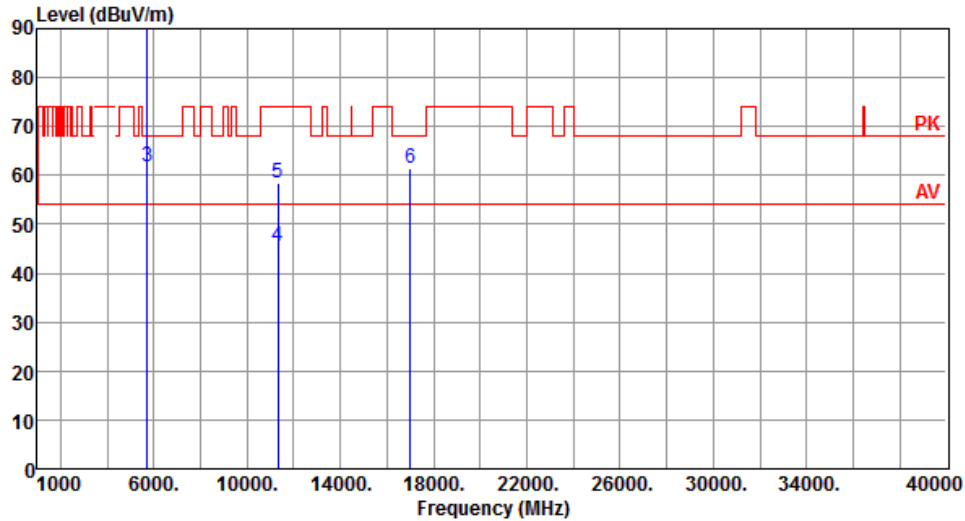
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5670
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5670.00	96.77	---	---	89.25	7.52	Average	111	210
2	*	5670.00	107.17	---	---	99.65	7.52	Peak	111	210
3		5725.00	61.89	68.20	-6.31	54.12	7.77	Peak	111	210
4		11340.00	45.46	54.00	-8.54	28.55	16.91	Average	100	40
5		11340.00	58.56	74.00	-15.44	41.65	16.91	Peak	100	40
6		17010.00	61.60	68.20	-6.60	42.66	18.94	Peak	100	50

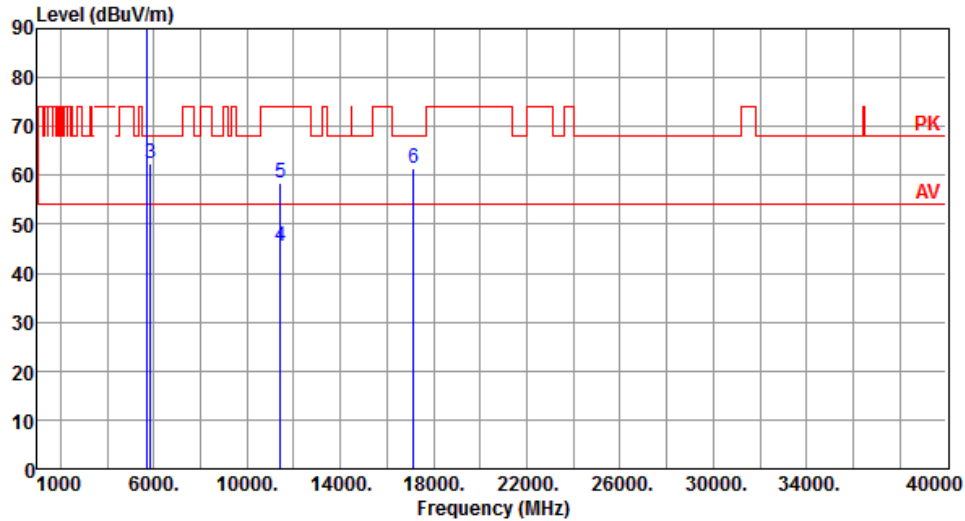
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5710
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5710.00	104.29	---	---	96.56	7.73	Average	186	308
2	*	5710.00	117.41	---	---	109.68	7.73	Peak	186	308
3		5850.00	62.41	68.20	-5.79	54.26	8.15	Peak	186	308
4		11420.00	45.55	54.00	-8.45	28.59	16.96	Average	100	20
5		11420.00	58.59	74.00	-15.41	41.63	16.96	Peak	100	20
6		17130.00	61.37	68.20	-6.83	42.69	18.68	Peak	100	50

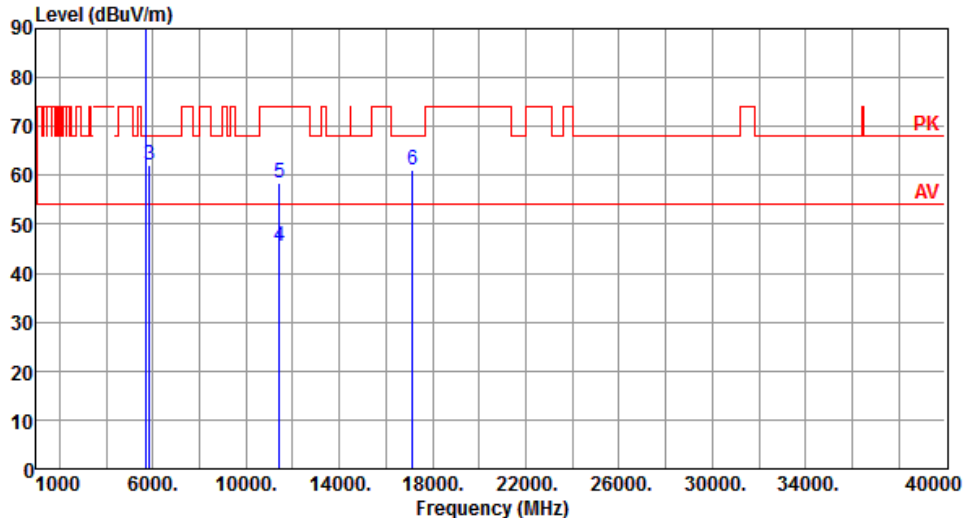
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE40)	Test Freq. (MHz)	5710
Polarization	Vertical	Test Configuration	1

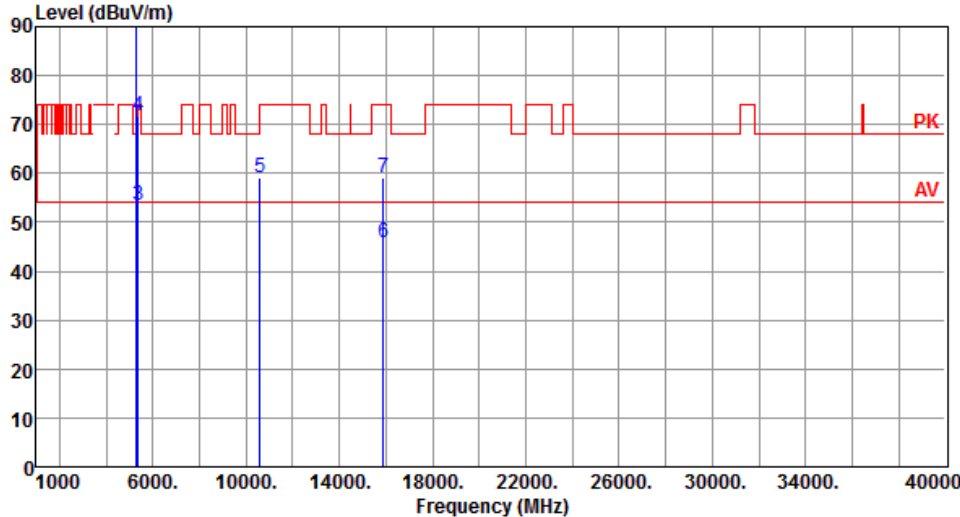


	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB		High	Table
		dBuV/m			dBuV			cm	deg
1 *	5710.00	96.64			88.91	7.73	Average	113	208
2 *	5710.00	106.81			99.08	7.73	Peak	113	208
3	5850.00	62.17	68.20	-6.03	54.02	8.15	Peak	113	208
4	11420.00	45.60	54.00	-8.40	28.64	16.96	Average	100	100
5	11420.00	58.49	74.00	-15.51	41.53	16.96	Peak	100	100
6	17130.00	61.22	68.20	-6.98	42.54	18.68	Peak	100	60

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: "*" is Peak / Average value of fundamental frequency

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE80)

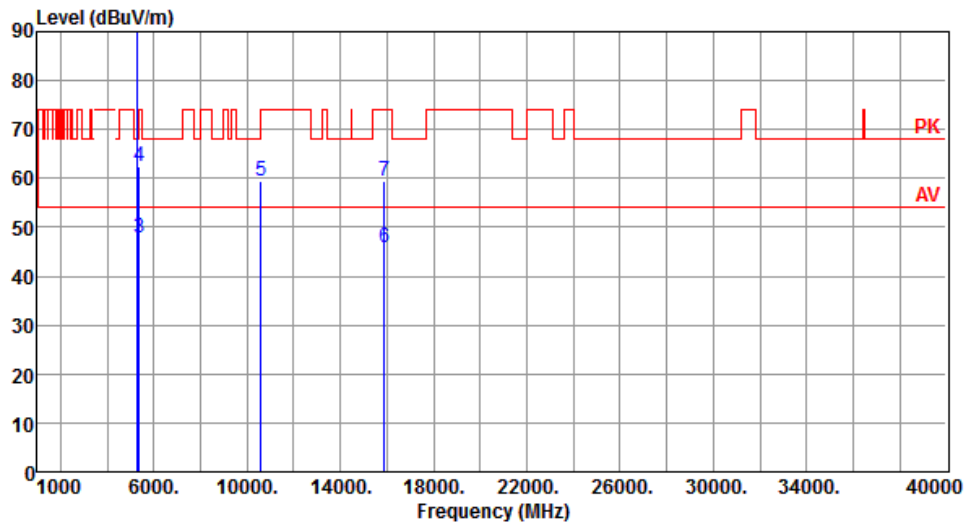
Modulation	ax (HE80)	Test Freq. (MHz)	5290
Polarization	Horizontal	Test Configuration	1



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB		High	Table
			dBuV/m			dBuV			cm	deg
1	*	5290.00	103.39			96.52	6.87	Average	183	291
2	*	5290.00	115.52			108.65	6.87	Peak	183	291
3		5350.00	53.55	54.00	-0.45	46.66	6.89	Average	183	291
4		5350.00	71.80	74.00	-2.20	64.91	6.89	Peak	183	291
5		10580.00	59.13	68.20	-9.07	42.17	16.96	Peak	100	20
6		15870.00	45.87	54.00	-8.13	29.16	16.71	Average	100	40
7		15870.00	59.28	74.00	-14.72	42.57	16.71	Peak	100	40

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: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5290
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5290.00	93.36	---	---	86.49	6.87	Average	101	205
2	*	5290.00	104.15	---	---	97.28	6.87	Peak	101	205
3		5350.00	47.91	54.00	-6.09	41.02	6.89	Average	101	205
4		5350.00	62.35	74.00	-11.65	55.46	6.89	Peak	101	205
5		10580.00	59.36	68.20	-8.84	42.40	16.96	Peak	100	50
6		15870.00	45.75	54.00	-8.25	29.04	16.71	Average	100	20
7		15870.00	59.32	74.00	-14.68	42.61	16.71	Peak	100	20

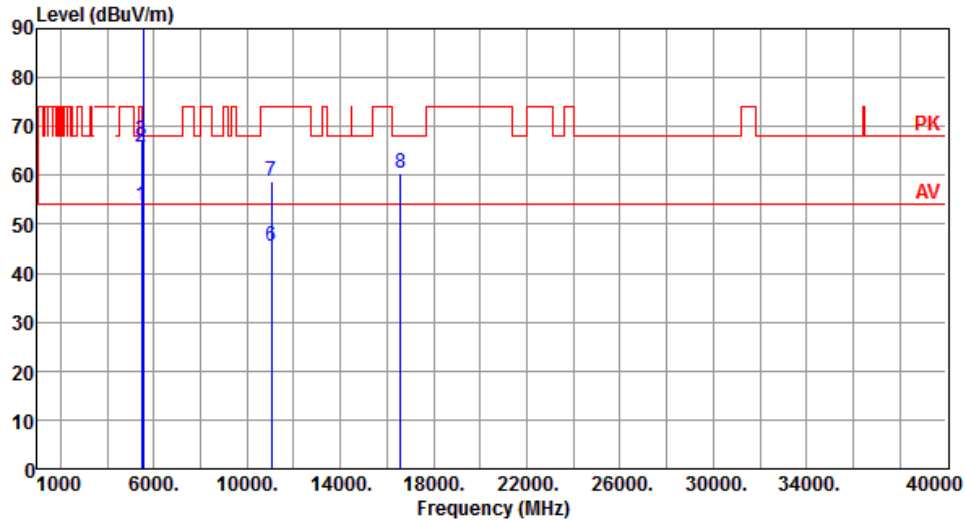
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5530
Polarization	Horizontal	Test Configuration	1



	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	53.65	54.00	-0.35	46.25	7.40	Average	183	308
2	5460.00	65.85	74.00	-8.15	58.45	7.40	Peak	183	308
3	5470.00	67.04	68.20	-1.16	59.60	7.44	Peak	183	308
4 *	5530.00	103.14	---	---	95.62	7.52	Average	183	308
5 *	5530.00	114.79	---	---	107.27	7.52	Peak	183	308
6	11060.00	45.62	54.00	-8.38	28.55	17.07	Average	100	30
7	11060.00	58.63	74.00	-15.37	41.56	17.07	Peak	100	30
8	16590.00	60.47	68.20	-7.73	42.68	17.79	Peak	100	60

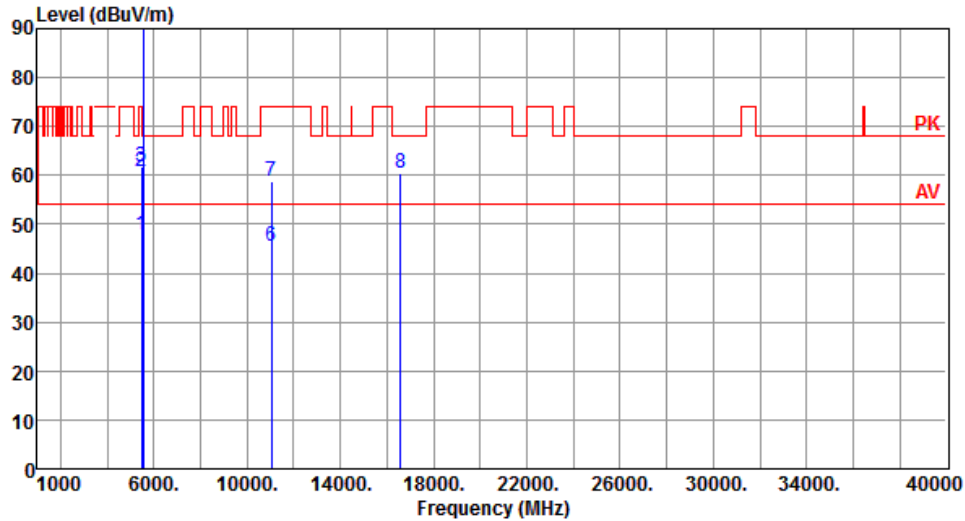
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5530
Polarization	Vertical	Test Configuration	1



	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	47.79	54.00	-6.21	40.39	7.40	Average	105	216
2	5460.00	60.86	74.00	-13.14	53.46	7.40	Peak	105	216
3	5470.00	61.73	68.20	-6.47	54.29	7.44	Peak	105	216
4 *	5530.00	93.09			85.57	7.52	Average	105	216
5 *	5530.00	103.65			96.13	7.52	Peak	105	216
6	11060.00	45.56	54.00	-8.44	28.49	17.07	Average	100	60
7	11060.00	58.75	74.00	-15.25	41.68	17.07	Peak	100	60
8	16590.00	60.36	68.20	-7.84	42.57	17.79	Peak	100	70

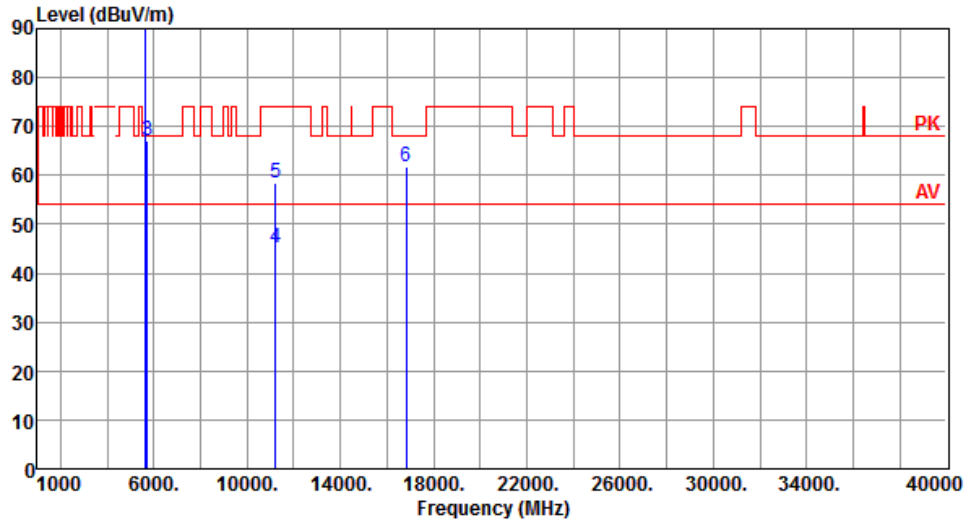
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5610
Polarization	Horizontal	Test Configuration	1



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5610.00	104.55	---	---	97.09	7.46	Average	178	305
2	*	5610.00	116.13	---	---	108.67	7.46	Peak	178	305
3		5725.00	66.98	68.20	-1.22	59.21	7.77	Peak	178	305
4		11220.00	45.24	54.00	-8.76	28.46	16.78	Average	100	40
5		11220.00	58.46	74.00	-15.54	41.68	16.78	Peak	100	40
6		16830.00	61.71	68.20	-6.49	43.15	18.56	Peak	100	90

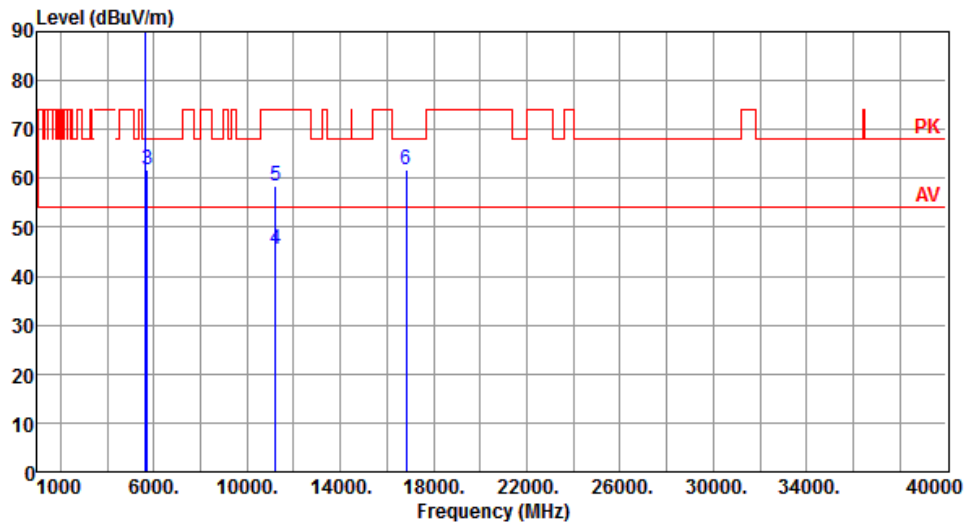
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5610
Polarization	Vertical	Test Configuration	1



		Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	5610.00	93.91	---	---	86.45	7.46	Average	113	201
2	*	5610.00	104.72	---	---	97.26	7.46	Peak	113	201
3		5725.00	61.93	68.20	-6.27	54.16	7.77	Peak	113	201
4		11220.00	45.35	54.00	-8.65	28.57	16.78	Average	100	90
5		11220.00	58.31	74.00	-15.69	41.53	16.78	Peak	100	90
6		16830.00	61.83	68.20	-6.37	43.27	18.56	Peak	100	80

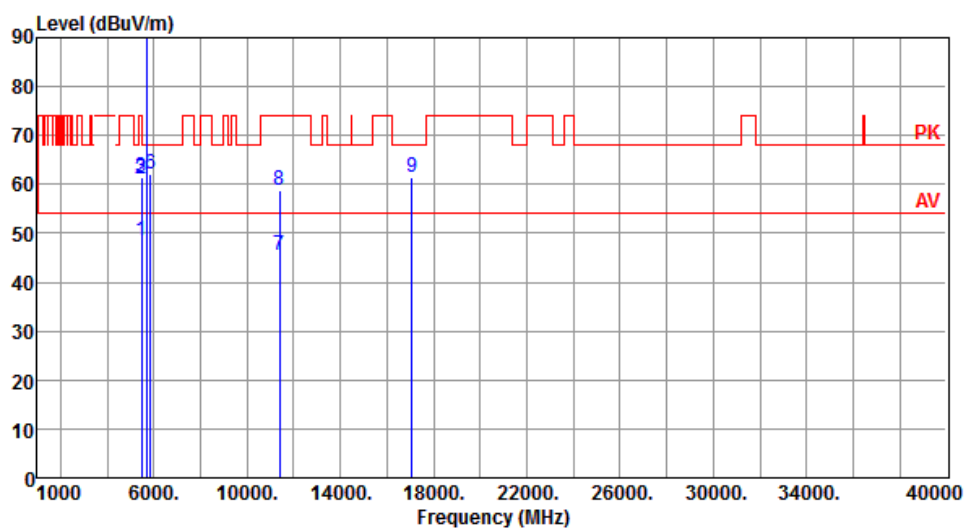
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5690
Polarization	Horizontal	Test Configuration	1



	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	48.63	54.00	-5.37	41.23	7.40	Average	175	306
2	5460.00	60.99	74.00	-13.01	53.59	7.40	Peak	175	306
3	5470.00	61.45	68.20	-6.75	54.01	7.44	Peak	175	306
4 *	5690.00	104.79	---	---	97.15	7.64	Average	175	306
5 *	5690.00	116.52	---	---	108.88	7.64	Peak	175	306
6	5850.00	62.27	68.20	-5.93	54.12	8.15	Peak	175	306
7	11380.00	45.49	54.00	-8.51	28.56	16.93	Average	100	60
8	11380.00	58.68	74.00	-15.32	41.75	16.93	Peak	100	60
9	17070.00	61.31	68.20	-6.89	42.53	18.78	Peak	100	55

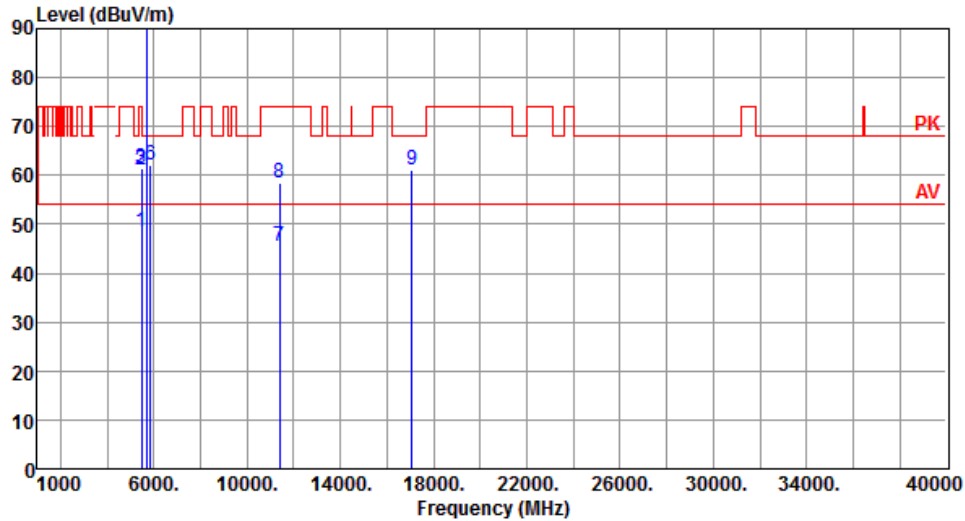
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80)	Test Freq. (MHz)	5690
Polarization	Vertical	Test Configuration	1



	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	48.36	54.00	-5.64	40.96	7.40	Average	112	208
2	5460.00	61.02	74.00	-12.98	53.62	7.40	Peak	112	208
3	5470.00	61.42	68.20	-6.78	53.98	7.44	Peak	112	208
4 *	5690.00	93.85			86.21	7.64	Average	112	208
5 *	5690.00	105.09			97.45	7.64	Peak	112	208
6	5850.00	62.18	68.20	-6.02	54.03	8.15	Peak	112	208
7	11380.00	45.41	54.00	-8.59	28.48	16.93	Average	100	50
8	11380.00	58.54	74.00	-15.46	41.61	16.93	Peak	100	50
9	17070.00	61.24	68.20	-6.96	42.46	18.78	Peak	100	80

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

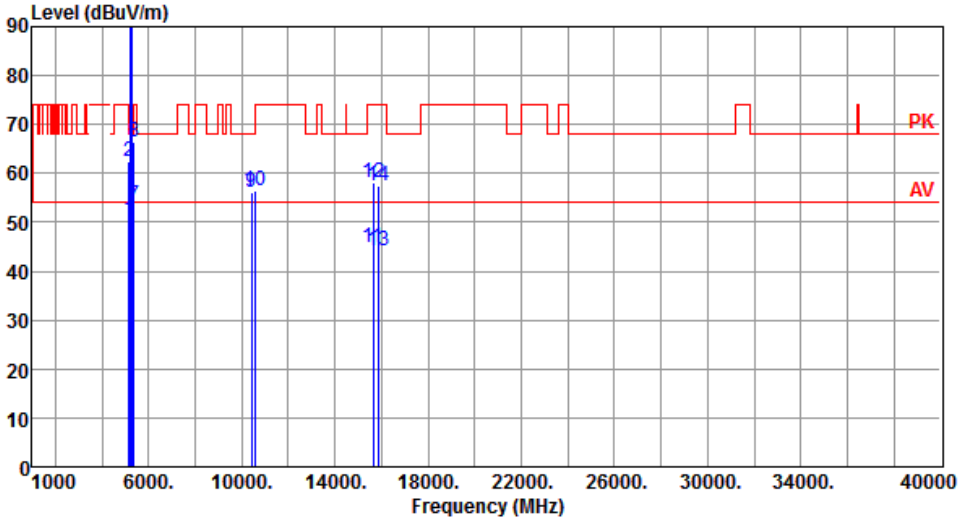
*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

3.5.9 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE80+80)

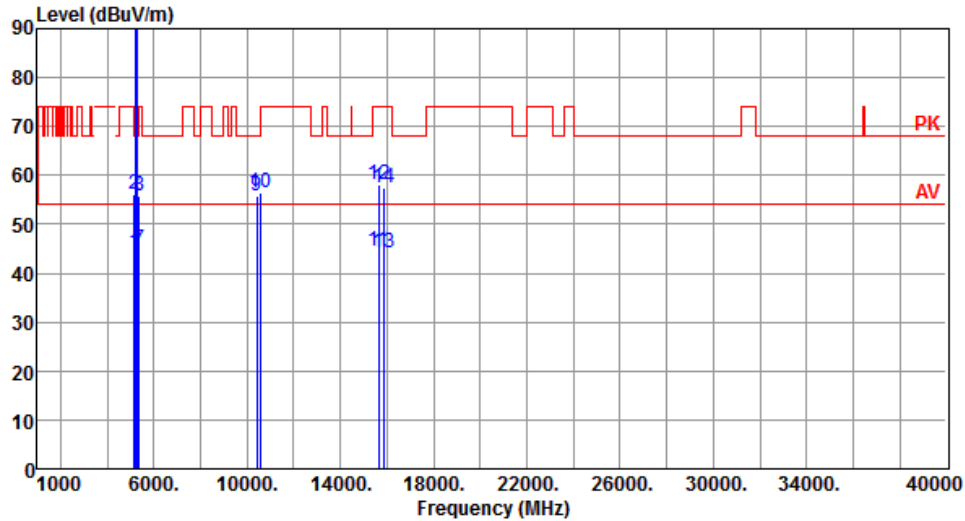
Modulation	ax (HE80+80)	Test Freq. (MHz)	5210 + 5290
Polarization	Horizontal	Test Configuration	1



	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB		High	Table
		dBuV/m			dBuV			cm	deg
1	5150.00	50.47	54.00	-3.53	43.01	7.46	Average	171	311
2	5150.00	62.28	74.00	-11.72	54.82	7.46	Peak	171	311
3 *	5210.00	94.47			87.42	7.05	Average	171	311
4 *	5210.00	107.13			100.08	7.05	Peak	171	311
5 *	5290.00	94.67			87.80	6.87	Average	171	317
6 *	5290.00	106.97			100.10	6.87	Peak	171	317
7	5350.00	53.58	54.00	-0.42	46.69	6.89	Average	171	317
8	5350.00	66.26	74.00	-7.74	59.37	6.89	Peak	171	317
9	10420.00	56.15	68.20	-12.05	39.25	16.90	Peak	101	25
10	10580.00	56.62	68.20	-11.58	39.66	16.96	Peak	105	34
11	15630.00	44.68	54.00	-9.32	27.39	17.29	Average	103	56
12	15630.00	58.19	74.00	-15.81	40.90	17.29	Peak	103	56
13	15870.00	44.29	54.00	-9.71	27.58	16.71	Average	112	9
14	15870.00	57.41	74.00	-16.59	40.70	16.71	Peak	112	9

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: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80+80)	Test Freq. (MHz)	5210 + 5290
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.24	54.00	-9.76	36.78	7.46	Average	100	327
2	5150.00	56.21	74.00	-17.79	48.75	7.46	Peak	100	327
3 *	5210.00	89.65			82.60	7.05	Average	100	327
4 *	5210.00	102.57			95.52	7.05	Peak	100	327
5 *	5290.00	89.44			82.57	6.87	Average	100	35
6 *	5290.00	102.30			95.43	6.87	Peak	100	35
7	5350.00	44.77	54.00	-9.23	37.88	6.89	Average	100	35
8	5350.00	55.69	74.00	-18.31	48.80	6.89	Peak	100	35
9	10420.00	55.93	68.20	-12.27	39.03	16.90	Peak	101	36
10	10580.00	56.35	68.20	-11.85	39.39	16.96	Peak	100	48
11	15630.00	44.51	54.00	-9.49	27.22	17.29	Average	106	22
12	15630.00	58.04	74.00	-15.96	40.75	17.29	Peak	106	22
13	15870.00	44.16	54.00	-9.84	27.45	16.71	Average	104	25
14	15870.00	57.39	74.00	-16.61	40.68	16.71	Peak	104	25

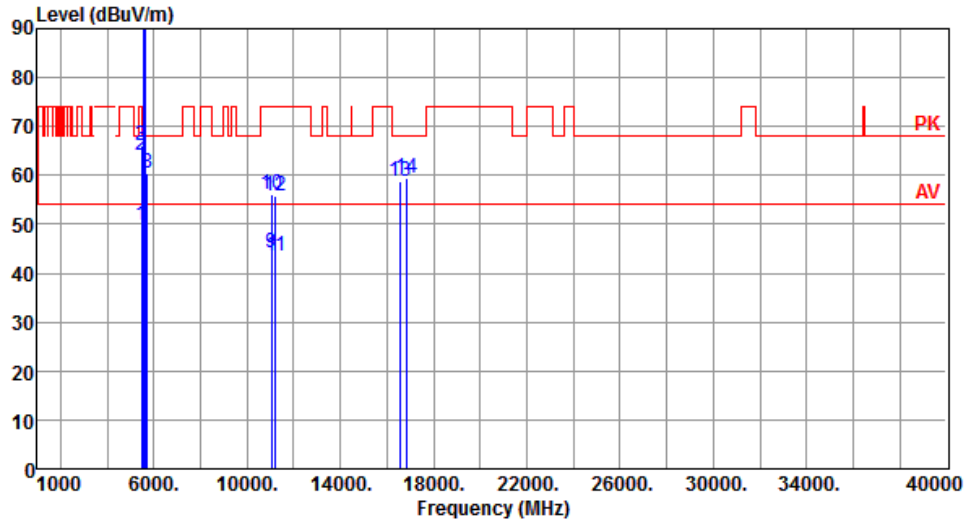
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80+80)	Test Freq. (MHz)	5530 + 5610
Polarization	Horizontal	Test Configuration	1



	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	49.74	54.00	-4.26	42.34	7.40	Average	100	292
2	5460.00	64.20	74.00	-9.80	56.80	7.40	Peak	100	292
3	5470.00	66.07	68.20	-2.13	58.63	7.44	Peak	100	292
4 *	5530.00	95.13			87.61	7.52	Average	100	292
5 *	5530.00	107.40			99.88	7.52	Peak	100	292
6 *	5610.00	95.15			87.69	7.46	Average	100	291
7 *	5610.00	107.75			100.29	7.46	Peak	100	291
8	5725.00	60.34	68.20	-7.86	52.57	7.77	Peak	100	291
9	11060.00	44.02	54.00	-9.98	26.95	17.07	Average	100	195
10	11060.00	56.08	74.00	-17.92	39.01	17.07	Peak	100	195
11	11220.00	43.64	54.00	-10.36	26.86	16.78	Average	100	86
12	11220.00	55.74	74.00	-18.26	38.96	16.78	Peak	100	86
13	16590.00	58.65	68.20	-9.55	40.86	17.79	Peak	108	199
14	16830.00	59.35	68.20	-8.85	40.79	18.56	Peak	102	65

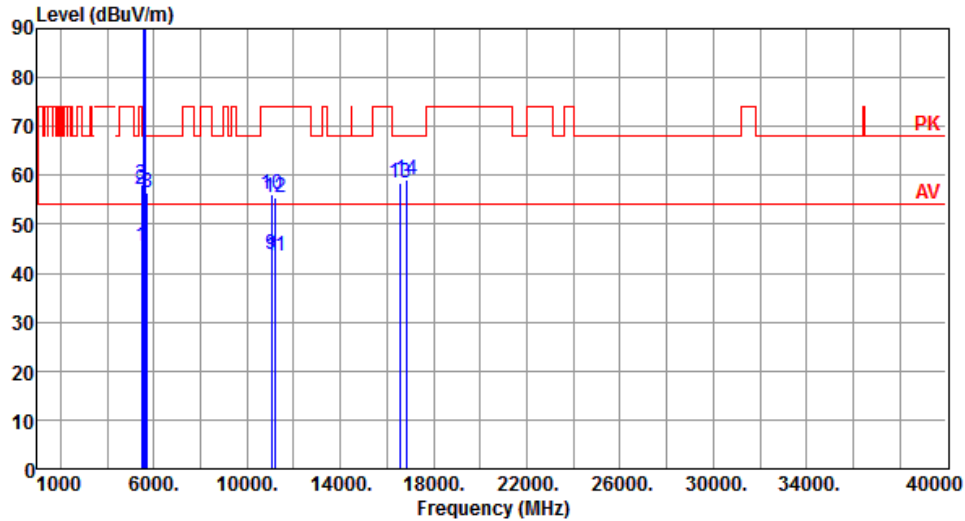
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	ax (HE80+80)	Test Freq. (MHz)	5530 + 5610
Polarization	Vertical	Test Configuration	1



	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	45.36	54.00	-8.64	37.96	7.40	Average	100	23
2	5460.00	57.10	74.00	-16.90	49.70	7.40	Peak	100	23
3	5470.00	58.22	68.20	-9.98	50.78	7.44	Peak	100	23
4 *	5530.00	90.40			82.88	7.52	Average	100	23
5 *	5530.00	102.76			95.24	7.52	Peak	100	23
6 *	5610.00	89.70			82.24	7.46	Average	100	315
7 *	5610.00	102.15			94.69	7.46	Peak	100	315
8	5725.00	56.61	68.20	-11.59	48.84	7.77	Peak	100	315
9	11060.00	43.81	54.00	-10.19	26.74	17.07	Average	104	27
10	11060.00	55.96	74.00	-18.04	38.89	17.07	Peak	104	27
11	11220.00	43.54	54.00	-10.46	26.76	16.78	Average	100	44
12	11220.00	55.61	74.00	-18.39	38.83	16.78	Peak	100	44
13	16590.00	58.57	68.20	-9.63	40.78	17.79	Peak	113	22
14	16830.00	59.21	68.20	-8.99	40.65	18.56	Peak	100	53

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: "*" is Peak / Average value of fundamental frequency

3.6 Frequency Stability

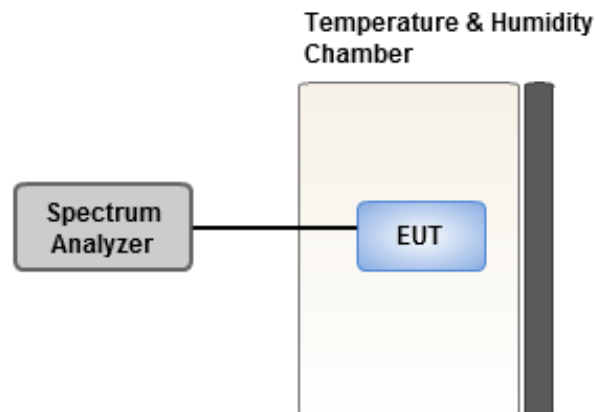
3.6.1 Limit of Frequency Stability

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.

3.6.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 20 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 normal and extreme condition for temperature and voltage.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Frequency: 5500 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	-0.98	-0.90	-1.15	-0.96
T20°C Vmin	-2.09	-2.04	-2.22	-1.77
T50°C Vnom	-5.09	-4.68	-4.57	-5.22
T40°C Vnom	-2.86	-3.20	-2.99	-3.05
T30°C Vnom	-3.09	-3.06	-3.24	-2.68
T20°C Vnom	-2.83	-2.81	-2.64	-2.15
T10°C Vnom	1.55	1.95	1.63	1.52
T0°C Vnom	1.56	2.32	2.11	1.98
T-10°C Vnom	1.71	1.53	1.90	1.39
T-20°C Vnom	2.53	2.65	2.28	2.61
T-30°C Vnom	3.74	3.69	4.37	3.93
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 50		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 (EMC and Wireless Communication Laboratory), 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 District. Location map can be found on our website <http://www.icertifi.com.tw>.

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Kwei Shan

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No. 3-1, Lane 6, Wen San 3rd St.,
Kwei Shan District, Tao Yuan City
333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd
St., Kwei Shan District, Tao Yuan
City 333, Taiwan, R.O.C.

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

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