FCC Test Report

FCC ID	:	**SQG-PH45N**
Equipment	:	**802.11a/b/g/n module**
Model No.	:	**PH45N**
Brand Name	:	**Laird**
Applicant	:	**Laird Technologies**
Address	:	**W66N220 Commerce Court, Cedarburg, Wisconsin 53012, USA**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Jan. 12, 2018**
Tested Date	:	**Jan. 16 ~ Jan. 22, 2018**

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: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR811202AN	Rev. 01	Initial issue	Feb. 06, 2018

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.404MHz 39.23 (Margin -18.54dB) - QP	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 175.25MHz 42.23 (Margin -1.27dB) – QP	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: 5150~5250MHz: 14.93 5250~5350MHz: 14.65 5470~5725MHz: 16.08 5725~5850MHz: 15.69	Pass
15.407(a)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
5150-5250 5250-5350 5470-5725 5725-5850	a	5180-5240 5260-5320 5500-5700 5745-5825	36-48 [4] 52-64 [4] 100-140 [11] 149-165 [5]	1	6-54 Mbps
5150-5250 5250-5350 5470-5725 5725-5850	n (HT20)	5180-5240 5260-5320 5500-5700 5745-5825	36-48 [4] 52-64 [4] 100-140 [11] 149-165 [5]	1	MCS 0-7
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

1.1.2 Antenna Details

Ant No.	Brand	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
					2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Laird	NanoBlade-IP04	PCB Dipole	IPEX U.FL	2	3.9		4	

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host

1.1.4 Accessories

N/A

1.1.5 Channel List

802.11 a / HT20	
Channel	**Frequency(MHz)**
36	5180
40	5200
44	5220
48	5240
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
149	5745
153	5765
157	5785
161	5805
165	5825

1.1.6 Test Tool and Duty Cycle

Test Tool	SRU, v3.03.10.00		
Duty Cycle and Duty Factor	**Mode**	**Duty cycle (%)**	**Duty factor (dB)**
	11a	99.31%	0.03
	HT20	99.18%	0.04

1.1.7 Power Setting

For Frequency band 5150-5250 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5180	100%
11a	5200	100%
11a	5240	100%
HT20	5180	100%
HT20	5200	100%
HT20	5240	100%

For Frequency band 5250~5350 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5260	100%
11a	5300	100%
11a	5320	100%
HT20	5260	100%
HT20	5300	100%
HT20	5320	100%

For Frequency band 5470~5725 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5500	100%
11a	5580	100%
11a	5700	100%
HT20	5500	100%
HT20	5580	100%
HT20	5700	100%

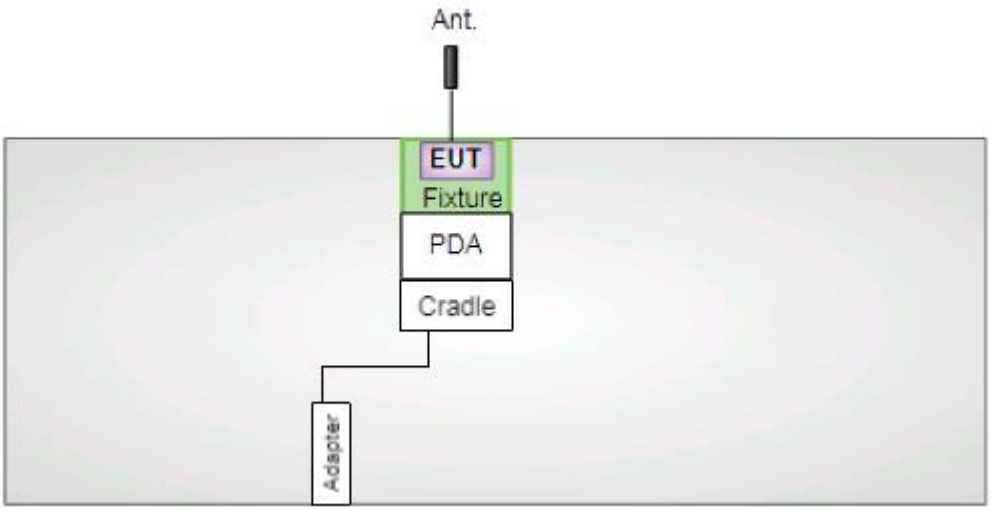
For Frequency band 5725~5850 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5745	100%
11a	5785	100%
11a	5825	100%
HT20	5745	100%
HT20	5785	100%
HT20	5825	100%

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Signal cable / Length (m)**
1	PDA	HP	HSTNH-L05C-BT	---	---
2	Fixture	---	---	---	---

1.3 Test Setup Chart

Test Setup Diagram



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jan. 19, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 05, 2018	Jan. 04, 2019
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2017	Nov. 12, 2018
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Nov. 24, 2017	Nov. 23, 2018
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 18, 2017	Dec. 17, 2018
50 ohm terminal (Support Unit)	NA	50	04	May. 12, 2017	May. 11, 2018
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	Jan. 16 ~ Jan. 17, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&**S**	FSV40	101499	Jan. 03, 2018	Jan. 02, 2019
Receiver	R&**S**	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 09, 2017	Feb. 08, 2018
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 07, 2017	Dec. 06, 2018
Preamplifier	EMC	EMC02325	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY53270014	Aug. 21, 2017	Aug. 20, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY32487/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Nov. 27, 2017	Nov. 26, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Nov. 27, 2017	Nov. 26, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Nov. 27, 2017	Nov. 26, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Nov. 27, 2017	Nov. 26, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jan. 22, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 27, 2017	Nov. 26, 2018
Power Meter	Anritsu	ML2495A	1241002	Oct. 16, 2017	Oct. 15, 2018
Power Sensor	Anritsu	MA2411B	1207366	Oct. 16, 2017	Oct. 15, 2018
DC POWER SOURCE	GW INSTEK	GPC-6030D	EM892433	Oct. 26, 2017	Oct. 25, 2018
Measurement Software	Sporton	Sporton_1	1.3.30	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 v02r01
FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Frequency error	±34.134 Hz
Power density	±0.463 dB
Conducted emission	±2.670 dB
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.66 dB
Radiated emission > 1GHz	±5.37 dB
Time	±0.1%
Temperature	±0.6 ^{o}C

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	23°C / 59%	Alex Tsai
Radiated Emissions	03CH03-WS	21-25°C / 62-66%	Roger Lu Akan Chung Vincent Yeh
RF Conducted	TH01-WS	22°C / 64%	Brad Wu

- FCC site registration No.: 207696
- IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Frequency band 5150~5350 MHz / 5470~5725 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate**	**Test Configuration**
Conducted Emissions	11a	5580	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5580	6 Mbps	---
RF Output Power	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	6 Mbps	---
	HT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	6 Mbps	---
	HT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700	MCS 0	
Frequency Stability	Un-modulation	5320	---	---

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.

Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate**	**Test Configuration**
Conducted Emissions	11a	5785	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5785	6 Mbps	---
RF Output Power	11a	5745 / 5785 / 5825	6 Mbps	---
	HT20	5745 / 5785 / 5825	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a	5745 / 5785 / 5825	6 Mbps	---
	HT20	5745 / 5785 / 5825	MCS 0	
Frequency Stability	Un-modulation	5785	---	---

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.

3 Transmitter Test Results

3.1 Conducted Emissions

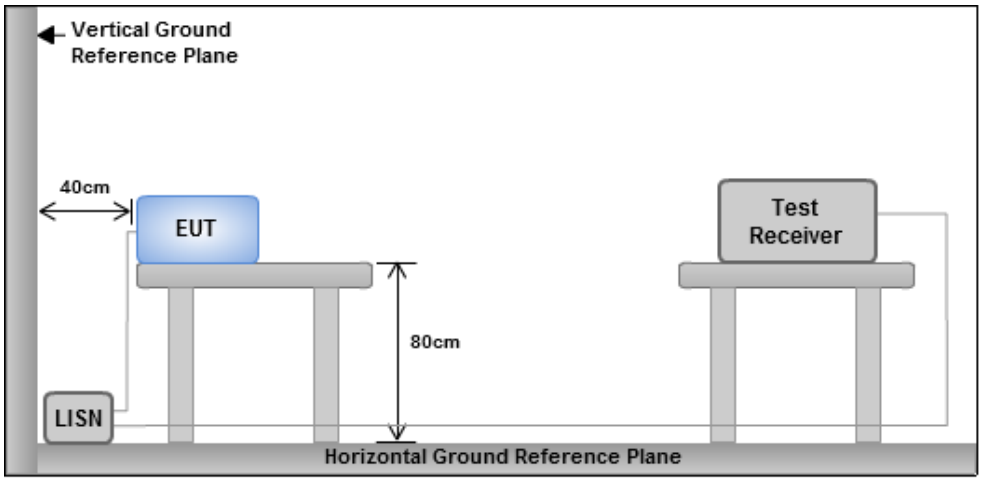
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Test Procedures

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

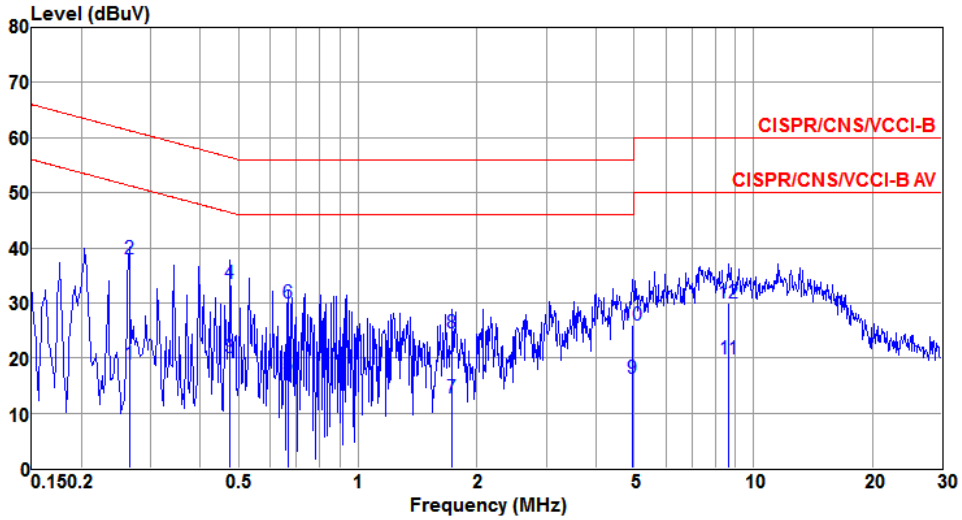
3.1.3 Test Setup



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

3.1.4 Test Result of Conducted Emissions

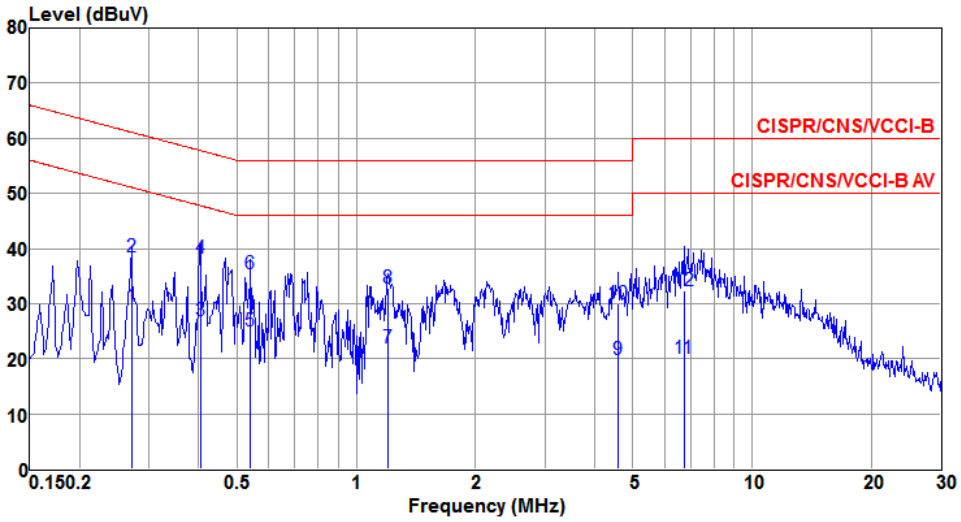
Modulation	11a	Test Freq. (MHz)	5580
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.264	18.92	51.29	-32.37	18.58	0.31	0.03	Average
2	0.264	38.11	61.29	-23.18	37.77	0.31	0.03	QP
3	0.476	20.13	46.41	-26.28	19.76	0.35	0.02	Average
4@	0.476	33.52	56.41	-22.89	33.15	0.35	0.02	QP
5	0.668	16.80	46.00	-29.20	16.40	0.37	0.03	Average
6	0.668	30.06	56.00	-25.94	29.66	0.37	0.03	QP
7	1.734	12.70	46.00	-33.30	12.19	0.42	0.09	Average
8	1.734	24.63	56.00	-31.37	24.12	0.42	0.09	QP
9	4.952	16.25	46.00	-29.75	15.52	0.49	0.24	Average
10	4.952	26.07	56.00	-29.93	25.34	0.49	0.24	QP
11	8.683	19.88	50.00	-30.12	19.03	0.55	0.30	Average
12	8.683	30.04	60.00	-29.96	29.19	0.55	0.30	QP

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

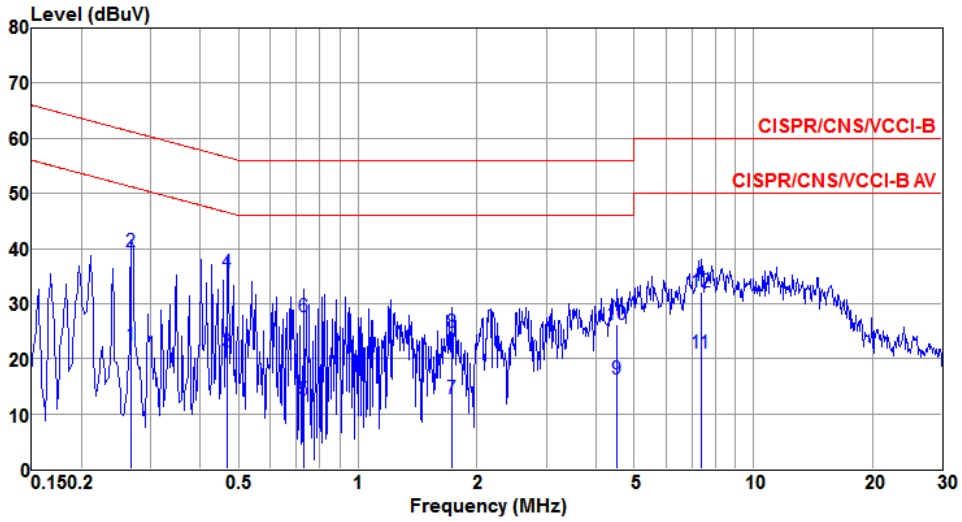
Modulation	11a	Test Freq. (MHz)	5580
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.270	29.62	51.12	-21.50	29.42	0.17	0.03	Average
2	0.270	38.39	61.12	-22.73	38.19	0.17	0.03	QP
3	0.404	26.94	47.77	-20.83	26.73	0.19	0.02	Average
4@	0.404	38.28	57.77	-19.49	38.07	0.19	0.02	QP
5	0.541	24.95	46.00	-21.05	24.72	0.21	0.02	Average
6	0.541	35.43	56.00	-20.57	35.20	0.21	0.02	QP
7	1.203	21.94	46.00	-24.06	21.62	0.27	0.05	Average
8	1.203	32.71	56.00	-23.29	32.39	0.27	0.05	QP
9	4.598	19.85	46.00	-26.15	19.24	0.37	0.24	Average
10	4.598	30.06	56.00	-25.94	29.45	0.37	0.24	QP
11	6.733	20.04	50.00	-29.96	19.35	0.41	0.28	Average
12	6.733	32.41	60.00	-27.59	31.72	0.41	0.28	QP

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

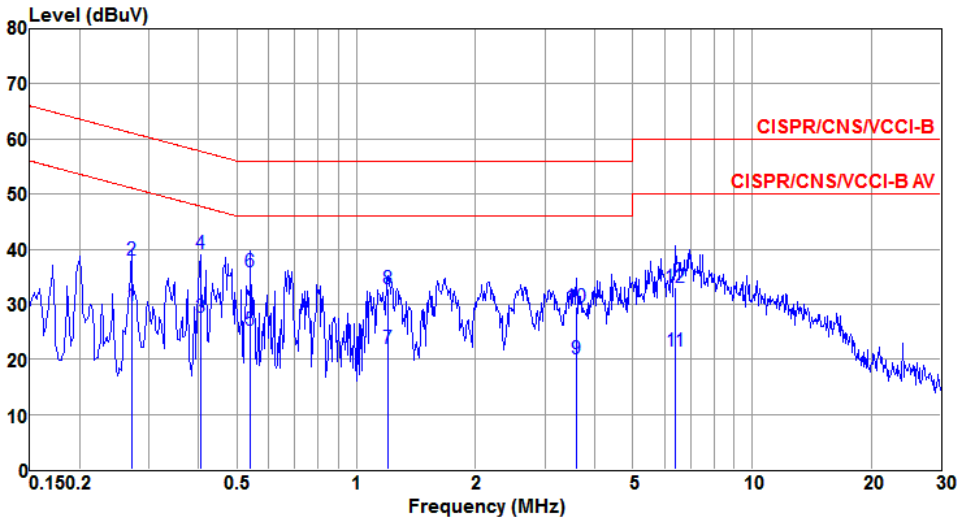
Modulation	11a	Test Freq. (MHz)	5785
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.267	22.37	51.20	-28.83	22.03	0.31	0.03	Average
2	0.267	39.41	61.20	-21.79	39.07	0.31	0.03	QP
3	0.469	21.28	46.54	-25.26	20.91	0.35	0.02	Average
4@	0.469	35.66	56.54	-20.88	35.29	0.35	0.02	QP
5	0.727	12.53	46.00	-33.47	12.13	0.37	0.03	Average
6	0.727	27.62	56.00	-28.38	27.22	0.37	0.03	QP
7	1.734	12.68	46.00	-33.32	12.17	0.42	0.09	Average
8	1.734	24.71	56.00	-31.29	24.20	0.42	0.09	QP
9	4.525	16.26	46.00	-29.74	15.55	0.48	0.23	Average
10	4.525	26.25	56.00	-29.75	25.54	0.48	0.23	QP
11	7.368	21.06	50.00	-28.94	20.23	0.54	0.29	Average
12	7.368	32.06	60.00	-27.94	31.23	0.54	0.29	QP

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

Modulation	11a	Test Freq. (MHz)	5785
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.270	29.63	51.12	-21.49	29.43	0.17	0.03	Average
2	0.270	38.12	61.12	-23.00	37.92	0.17	0.03	QP
3	0.404	27.62	47.77	-20.15	27.41	0.19	0.02	Average
4@	0.404	39.23	57.77	-18.54	39.02	0.19	0.02	QP
5	0.541	25.20	46.00	-20.80	24.97	0.21	0.02	Average
6	0.541	35.96	56.00	-20.04	35.73	0.21	0.02	QP
7	1.203	22.01	46.00	-23.99	21.69	0.27	0.05	Average
8	1.203	32.77	56.00	-23.23	32.45	0.27	0.05	QP
9	3.603	19.99	46.00	-26.01	19.45	0.34	0.20	Average
10	3.603	29.59	56.00	-26.41	29.05	0.34	0.20	QP
11	6.420	21.41	50.00	-28.59	20.73	0.41	0.27	Average
12	6.420	33.09	60.00	-26.91	32.41	0.41	0.27	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 Limit of Emission Bandwidth

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.2.2 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.

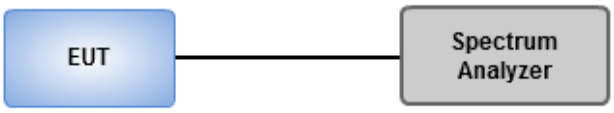
Occupied Bandwidth

1. Set RBW = 1 % to 5 % of the OBW
2. Set VBW ≥ 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

3.2.3 Test Setup

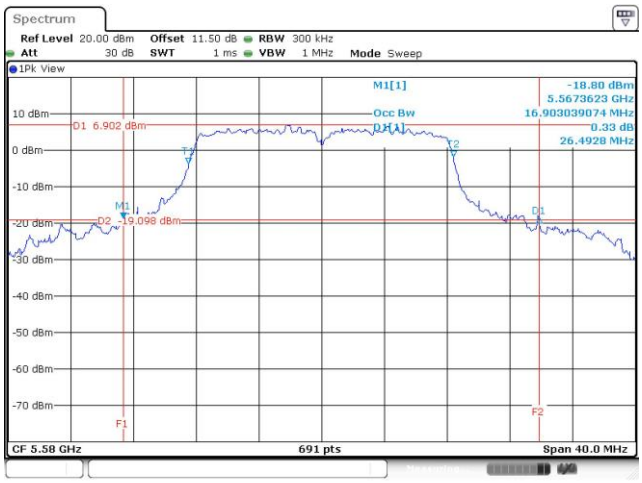
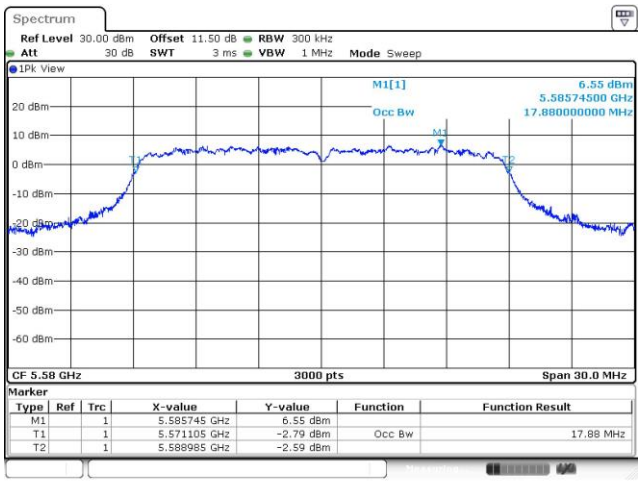


3.2.4 Test Result of Emission Bandwidth

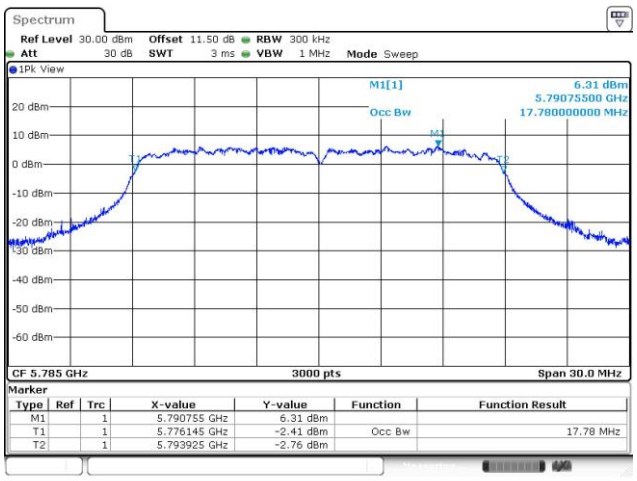
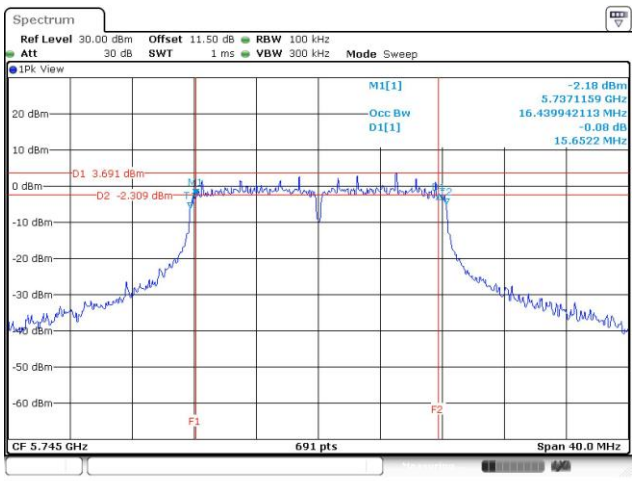
For Frequency band 5150~5250 MHz										
Mode	N_{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
11a	1	5180	21.97	---	---	---	16.69	---	---	---
11a	1	5200	22.14	---	---	---	16.70	---	---	---
11a	1	5240	23.88	---	---	---	16.70	---	---	---
HT20	1	5180	22.90	---	---	---	17.79	---	---	---
HT20	1	5200	23.30	---	---	---	17.79	---	---	---
HT20	1	5240	23.36	---	---	---	17.80	---	---	---

For Frequency band 5250~5350 MHz											
Mode	N_{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	1	5260	23.13	---	---	---	16.69	---	---	---	24.00
11a	1	5300	22.20	---	---	---	16.71	---	---	---	24.00
11a	1	5320	22.26	---	---	---	16.70	---	---	---	24.00
HT20	1	5260	22.78	---	---	---	17.78	---	---	---	24.00
HT20	1	5300	23.01	---	---	---	17.79	---	---	---	24.00
HT20	1	5320	23.71	---	---	---	17.79	---	---	---	24.00

For Frequency band 5470~5725 MHz											
Mode	N_{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	1	5500	24.06	---	---	---	16.73	---	---	---	24.00
11a	1	5580	26.49	---	---	---	16.80	---	---	---	24.00
11a	1	5700	23.54	---	---	---	16.73	---	---	---	24.00
HT20	1	5500	23.54	---	---	---	17.80	---	---	---	24.00
HT20	1	5580	24.23	---	---	---	17.88	---	---	---	24.00
HT20	1	5700	23.36	---	---	---	17.79	---	---	---	24.00

Worst Plot of 26dB Bandwidth	Worst Plot of 99% Bandwidth
	

For Frequency band 5725-5850 MHz											
Mode	N_{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)
11a	1	5745	16.72	---	---	---	15.65	---	---	---	0.5
11a	1	5785	16.73	---	---	---	15.77	---	---	---	0.5
11a	1	5825	16.73	---	---	---	15.65	---	---	---	0.5
HT20	1	5745	17.77	---	---	---	16.70	---	---	---	0.5
HT20	1	5785	17.78	---	---	---	16.58	---	---	---	0.5
HT20	1	5825	17.77	---	---	---	16.46	---	---	---	0.5

Worst Plot of 99% Bandwidth	Worst Plot of 6dB Bandwidth
	

3.3 RF Output Power

3.3.1 Limit of RF Output Power

Frequency band 5150-5250 MHz		
Operating Mode		**Limit**
☐	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
☐	Indoor access point	Conducted Power: 1 W
☐	Fixed point-to-point access points	Conducted Power: 1 W
☒	Client devices	Conducted Power: 250 mW

Frequency Band (MHz)		**Limit**
☒	5250 ~ 5350	250mW or 11dBm+10 log B
☒	5470 ~ 5725	250mW or 11dBm+10 log B
☒	5725 ~ 5850	1 W
Note: “B” is the 26dB emission bandwidth in MHz.		

3.3.2 Test Procedures

☒ 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

3.3.3 Test Setup

3.3.4 Test Result of Maximum Conducted Output Power

For Frequency band 5150~5250 MHz									
Mode	N_{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	1	5180	14.36	---	---	---	27.290	14.36	24.00
11a	1	5200	14.63	---	---	---	29.040	14.63	24.00
11a	1	5240	14.93	---	---	---	31.117	**14.93**	24.00
HT20	1	5180	14.29	---	---	---	26.853	14.29	24.00
HT20	1	5200	14.61	---	---	---	28.907	14.61	24.00
HT20	1	5240	14.85	---	---	---	30.549	14.85	24.00

For Frequency band 5250~5350 MHz									
Mode	N_{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	1	5260	14.58	---	---	---	28.708	14.58	24.00
11a	1	5300	14.65	---	---	---	29.174	**14.65**	24.00
11a	1	5320	14.58	---	---	---	28.708	14.58	24.00
HT20	1	5260	14.52	---	---	---	28.314	14.52	24.00
HT20	1	5300	14.62	---	---	---	28.973	14.62	24.00
HT20	1	5320	14.54	---	---	---	28.445	14.54	24.00

For Frequency band 5470~5725 MHz									
Mode	N_{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	1	5500	15.26	---	---	---	33.574	15.26	24.00
11a	1	5580	16.08	---	---	---	40.551	**16.08**	24.00
11a	1	5700	15.38	---	---	---	34.514	15.38	24.00
HT20	1	5500	14.52	---	---	---	28.314	14.52	24.00
HT20	1	5580	14.62	---	---	---	28.973	14.62	24.00
HT20	1	5700	14.54	---	---	---	28.445	14.54	24.00

For Frequency band 5725-5850 MHz									
Mode	N_{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	1	5745	15.16	---	---	---	32.810	15.16	30.00
11a	1	5785	15.69	---	---	---	37.068	**15.69**	30.00
11a	1	5825	15.47	---	---	---	35.237	15.47	30.00
HT20	1	5745	15.41	---	---	---	34.754	15.41	30.00
HT20	1	5785	15.62	---	---	---	36.475	15.62	30.00
HT20	1	5825	15.41	---	---	---	34.754	15.41	30.00

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency band 5150-5250 MHz		
Operating Mode		**Limit**
☐	Outdoor access point	17 dBm / MHz
☐	Indoor access point	17 dBm / MHz
☐	Fixed point-to-point access points	17 dBm / MHz
☒	Client devices	11 dBm / MHz

Frequency Band (MHz)		**Limit**
☒	5250 ~ 5350	11 dBm / MHz
☒	5470 ~ 5725	11 dBm / MHz
☒	5725 ~ 5850	30 dBm / 500 kHz

3.4.2 Test Procedures

For 5150~5250 MHz, 5250~5350 MHz, 5470~5725 MHz

☒ Method SA-1

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

☐ Method SA-2 Alternative

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time ≥ 10 * (number of points in sweep) * (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.

For 5725~5850 MHz

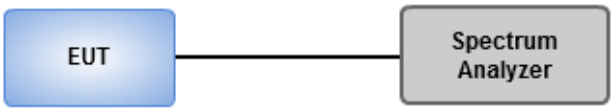
☒ Method SA-1

1. Set RBW = 500 kHz, VBW = 2 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

☐ Method SA-2 Alternative

1. Set RBW = 500 kHz, VBW = 2 MHz, Detector = RMS.
2. Set sweep time ≥ 10 * (number of points in sweep) * (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

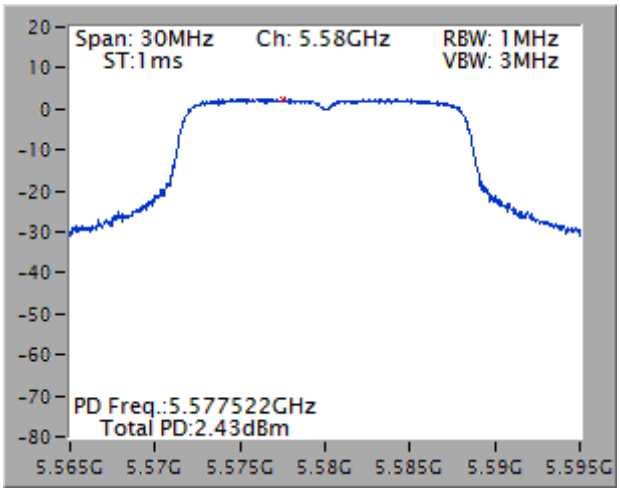
Frequency band			5150~5250 MHz / 5250~5350 MHz			
Condition			Peak Power Spectral Density (dBm/MHz)			
Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	1	5180	0.64	0.00	0.64	11
11a	1	5200	1.18	0.00	1.18	11
11a	1	5240	1.71	0.00	1.71	11
HT20	1	5180	0.47	0.00	0.47	11
HT20	1	5200	0.82	0.00	0.82	11
HT20	1	5240	1.66	0.00	1.66	11
11a	1	5260	1.77	0.00	1.77	11
11a	1	5300	1.64	0.00	1.64	11
11a	1	5320	1.74	0.00	1.74	11
HT20	1	5260	1.12	0.00	1.12	11
HT20	1	5300	1.33	0.00	1.33	11
HT20	1	5320	1.31	0.00	1.31	11

Note:
1. D.F is duty factor.

Frequency band			5470~5725 MHz			
Condition			Peak Power Spectral Density (dBm/MHz)			
Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	1	5500	1.64	0.00	1.64	11
11a	1	5580	2.43	0.00	2.43	11
11a	1	5700	2.14	0.00	2.14	11
HT20	1	5500	1.46	0.00	1.46	11
HT20	1	5580	2.19	0.00	2.19	11
HT20	1	5700	2.27	0.00	2.27	11

Note:
1. D.F is duty factor.

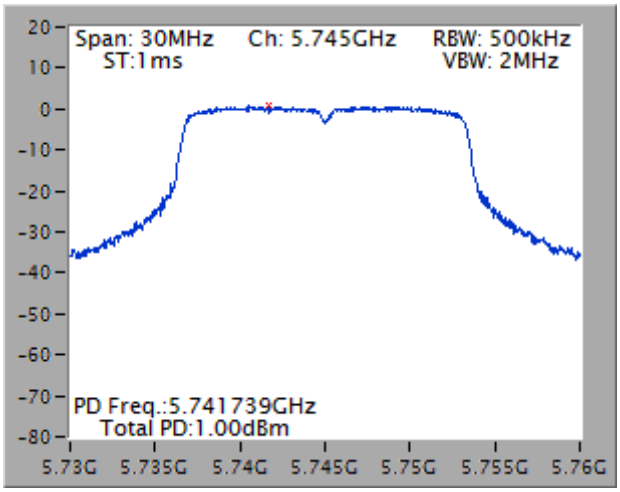
Worst Plot



Frequency band			5725-5850 MHz			
Condition			Peak Power Spectral Density (dBm/500kHz)			
Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	1	5745	1.00	0.00	1.00	30.00
11a	1	5785	0.75	0.00	0.75	30.00
11a	1	5825	0.82	0.00	0.82	30.00
HT20	1	5745	0.66	0.00	0.66	30.00
HT20	1	5785	0.62	0.00	0.62	30.00
HT20	1	5825	0.89	0.00	0.89	30.00

Note:
1. D.F is duty factor.

Worst Plot



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	☒	15.407(b)(4)(i) 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.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see § 15.205(c))

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

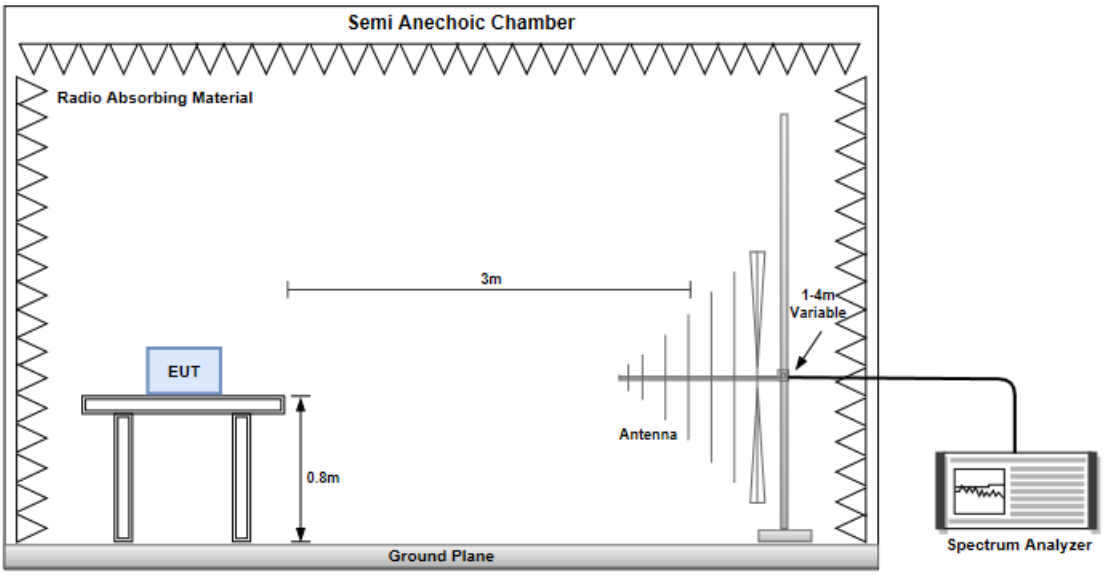
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

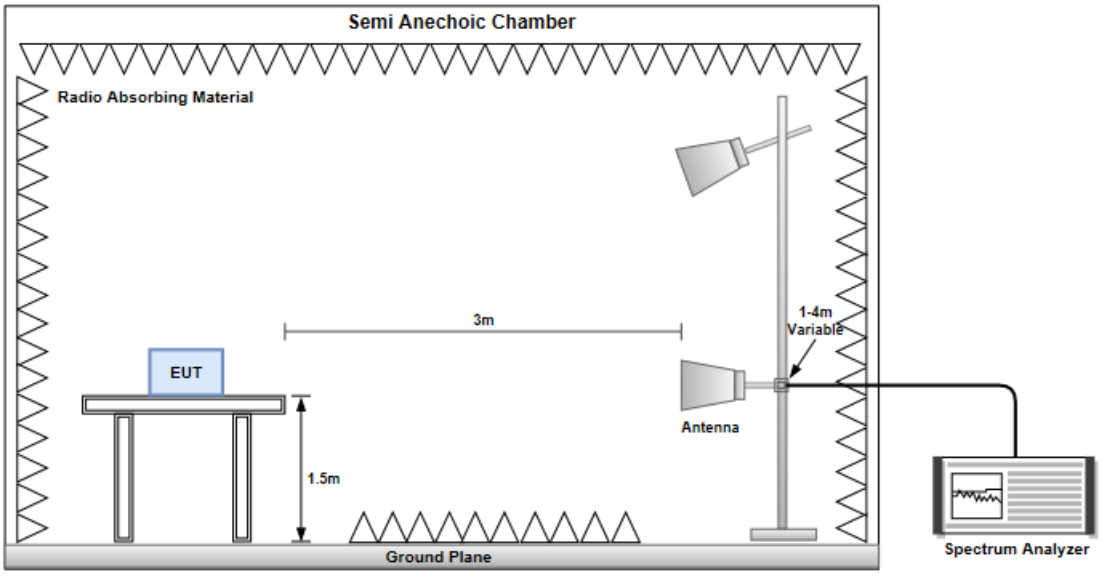
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

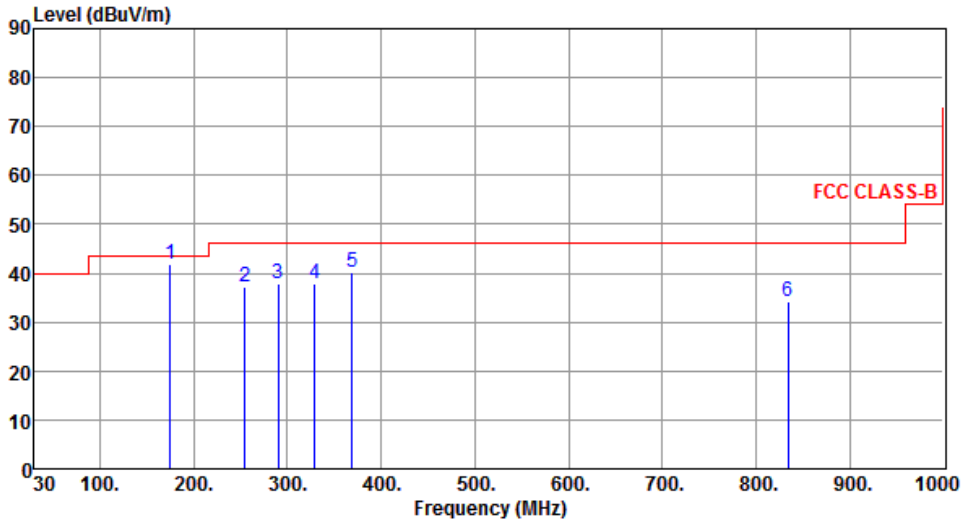


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

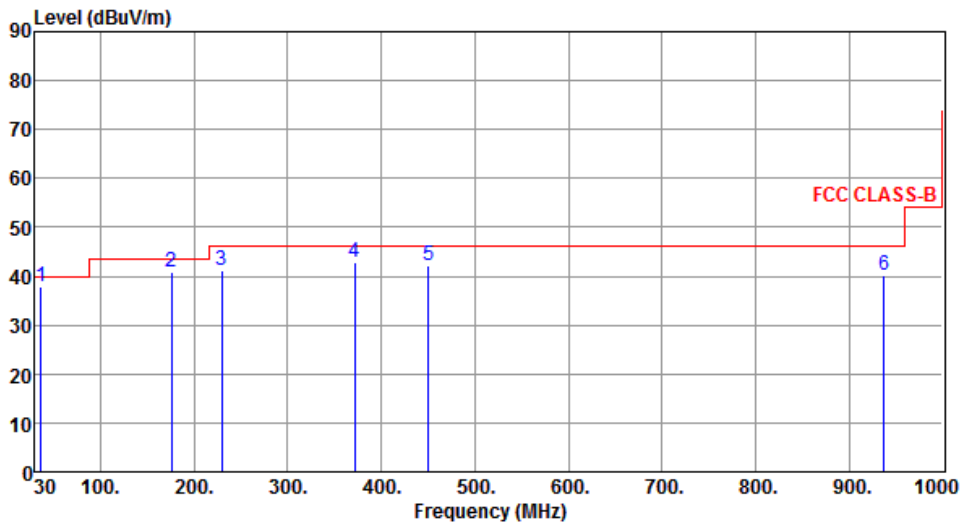
Modulation	11a	**Test Freq. (MHz)**	5580
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	175.14	41.88	43.50	-1.62	51.05	-9.17	QP	173	89
2	254.36	37.26	46.00	-8.74	46.49	-9.23	Peak	---	---
3	290.10	37.87	46.00	-8.13	45.88	-8.01	Peak	---	---
4	329.47	37.98	46.00	-8.02	45.06	-7.08	Peak	---	---
5	369.12	40.11	46.00	-5.89	46.13	-6.02	Peak	---	---
6	834.22	34.11	46.00	-11.89	31.31	2.80	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.

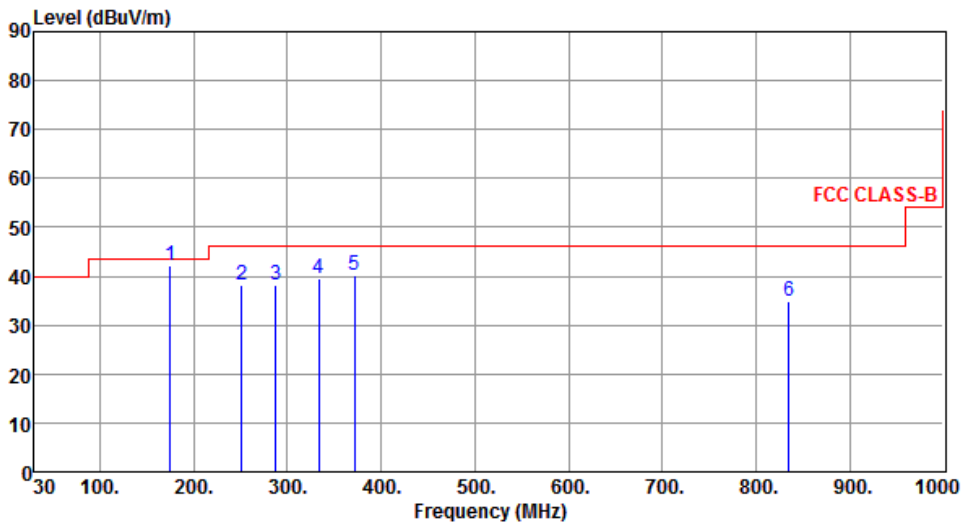
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	36.41	37.89	40.00	-2.11	46.88	-8.99	QP	100	22
2	175.63	40.87	43.50	-2.63	50.10	-9.23	QP	100	213
3	229.25	41.25	46.00	-4.75	51.56	-10.31	Peak	---	---
4	371.58	42.98	46.00	-3.02	48.93	-5.95	Peak	---	---
5	450.25	42.25	46.00	-3.75	46.10	-3.85	Peak	---	---
6	937.00	40.21	46.00	-5.79	35.63	4.58	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.

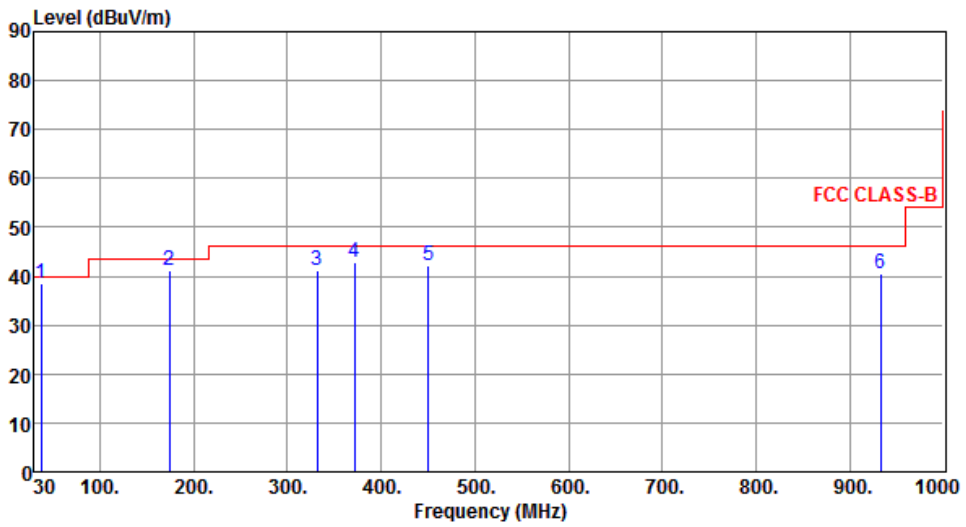
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	175.25	42.23	43.50	-1.27	51.41	-9.18	QP	179	96
2	251.00	38.10	46.00	-7.90	47.41	-9.31	Peak	---	---
3	288.00	38.25	46.00	-7.75	46.30	-8.05	Peak	---	---
4	333.12	39.40	46.00	-6.60	46.39	-6.99	Peak	---	---
5	371.57	40.25	46.00	-5.75	46.20	-5.95	Peak	---	---
6	835.36	34.82	46.00	-11.18	31.99	2.83	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	11a	Test Freq. (MHz)	5785
Polarization	Vertical		

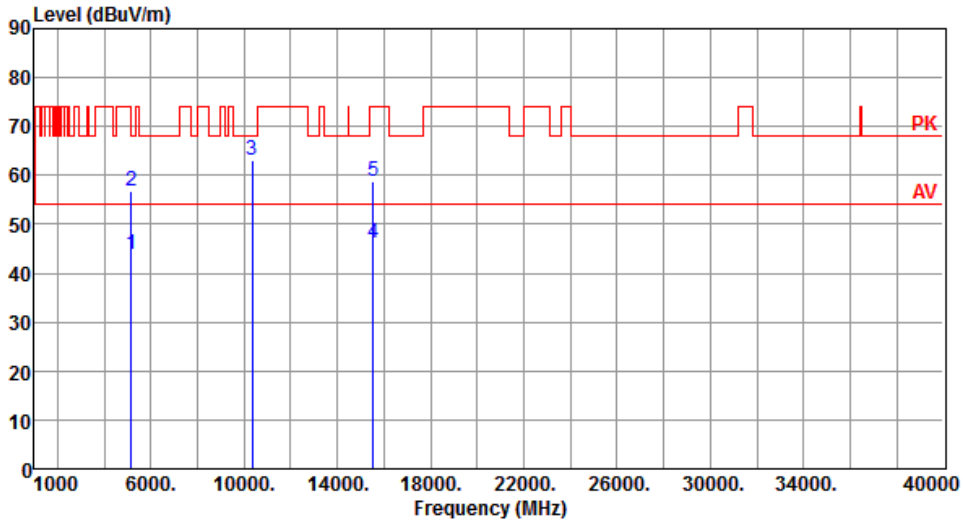


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	37.66	38.58	40.00	-1.42	47.44	-8.86	QP	100	20
2	173.78	41.24	43.50	-2.26	50.22	-8.98	QP	100	211
3	332.14	41.23	46.00	-4.77	48.25	-7.02	Peak	---	---
4	371.58	42.91	46.00	-3.09	48.86	-5.95	Peak	---	---
5	450.29	42.27	46.00	-3.73	46.12	-3.85	Peak	---	---
6	933.00	40.54	46.00	-5.46	36.04	4.50	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 11a

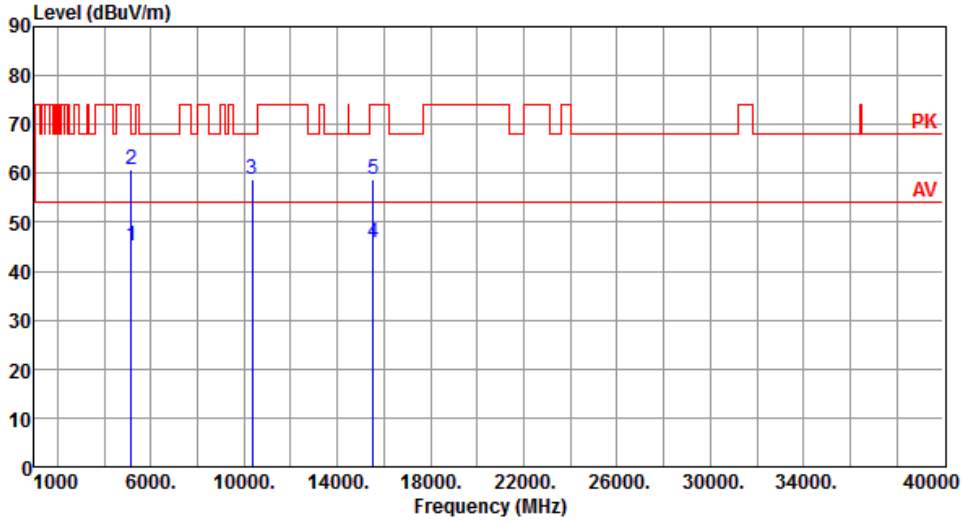
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.69	54.00	-10.31	37.35	6.34	Average	125	236
2	5150.00	56.93	74.00	-17.07	50.59	6.34	Peak	125	236
3	10360.00	62.96	68.20	-5.24	46.96	16.00	Peak	165	318
4	15540.00	46.03	54.00	-7.97	29.40	16.63	Average	100	25
5	15540.00	58.74	74.00	-15.26	42.11	16.63	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).

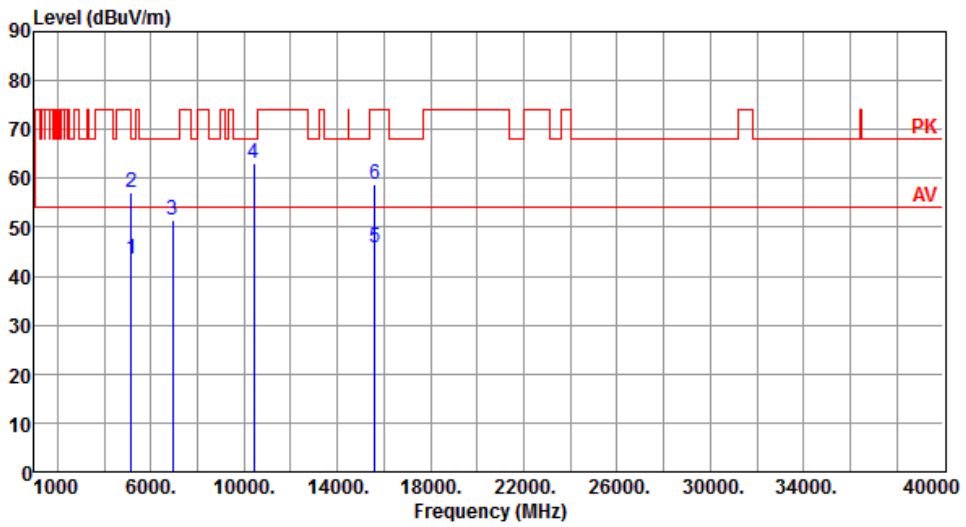
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.32	54.00	-8.68	38.98	6.34	Average	126	344
2	5150.00	60.65	74.00	-13.35	54.31	6.34	Peak	126	344
3	10360.00	58.73	68.20	-9.47	42.73	16.00	Peak	100	30
4	15540.00	45.97	54.00	-8.03	29.34	16.63	Average	100	60
5	15540.00	58.69	74.00	-15.31	42.06	16.63	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).

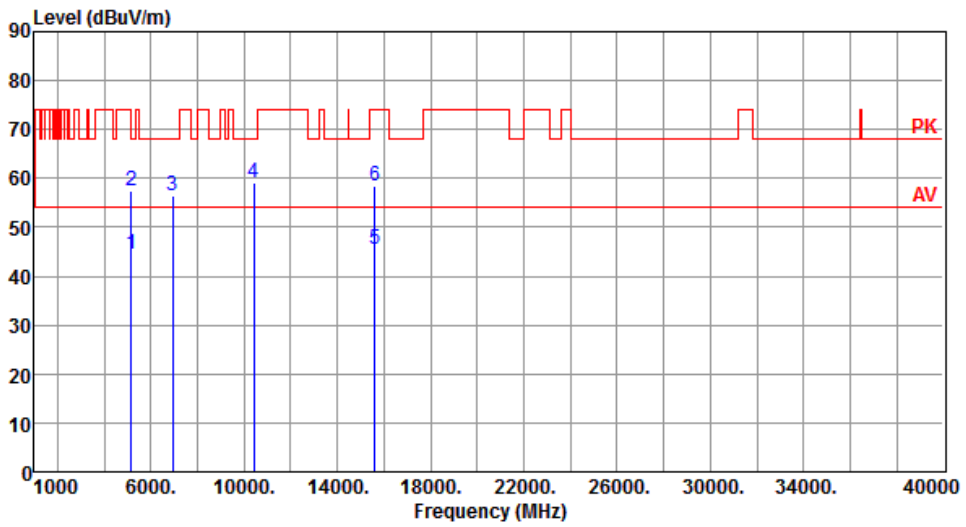
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.65	54.00	-10.35	37.31	6.34	Average	259	222
2	5150.00	57.10	74.00	-16.90	50.76	6.34	Peak	259	222
3	6933.33	51.42	68.20	-16.78	41.24	10.18	Peak	112	290
4	10400.00	63.26	68.20	-4.94	47.22	16.04	Peak	167	320
5	15600.00	45.89	54.00	-8.11	29.34	16.55	Average	100	20
6	15600.00	58.63	74.00	-15.37	42.08	16.55	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).

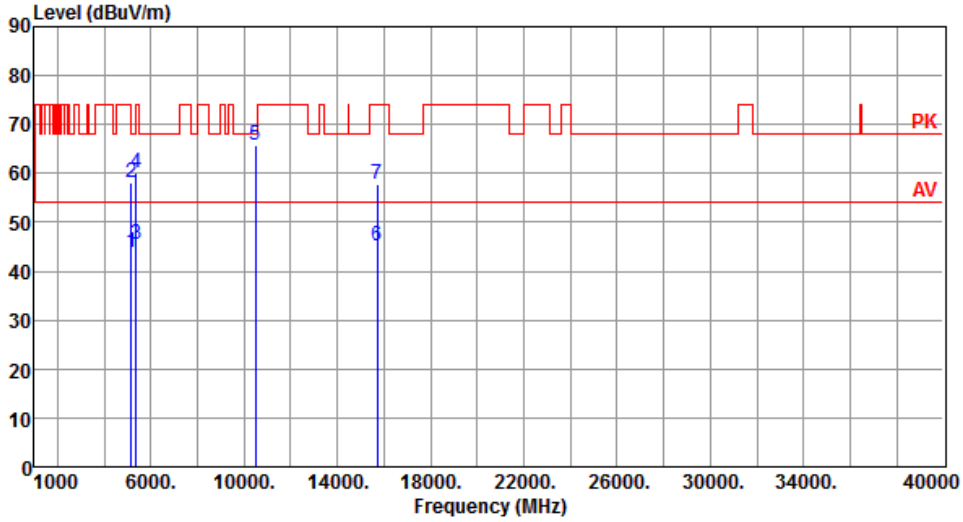
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.61	54.00	-9.39	38.27	6.34	Average	134	331
2	5150.00	57.51	74.00	-16.49	51.17	6.34	Peak	134	331
3	6933.33	56.56	68.20	-11.64	46.38	10.18	Peak	194	21
4	10400.00	59.03	68.20	-9.17	42.99	16.04	Peak	100	37
5	15600.00	45.65	54.00	-8.35	29.10	16.55	Average	100	50
6	15600.00	58.58	74.00	-15.42	42.03	16.55	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).

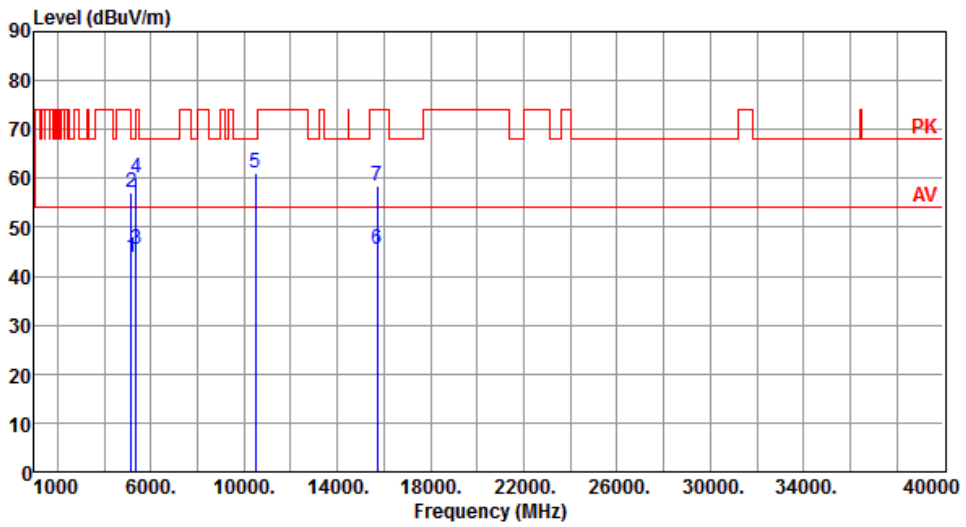
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.71	54.00	-10.29	37.37	6.34	Average	111	236
2	5150.00	58.15	74.00	-15.85	51.81	6.34	Peak	111	236
3	5350.00	45.49	54.00	-8.51	38.87	6.62	Average	111	236
4	5350.00	60.04	74.00	-13.96	53.42	6.62	Peak	111	236
5	10480.00	65.64	68.20	-2.56	49.52	16.12	Peak	202	314
6	15720.00	45.23	54.00	-8.77	28.82	16.41	Average	100	25
7	15720.00	57.70	74.00	-16.30	41.29	16.41	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).

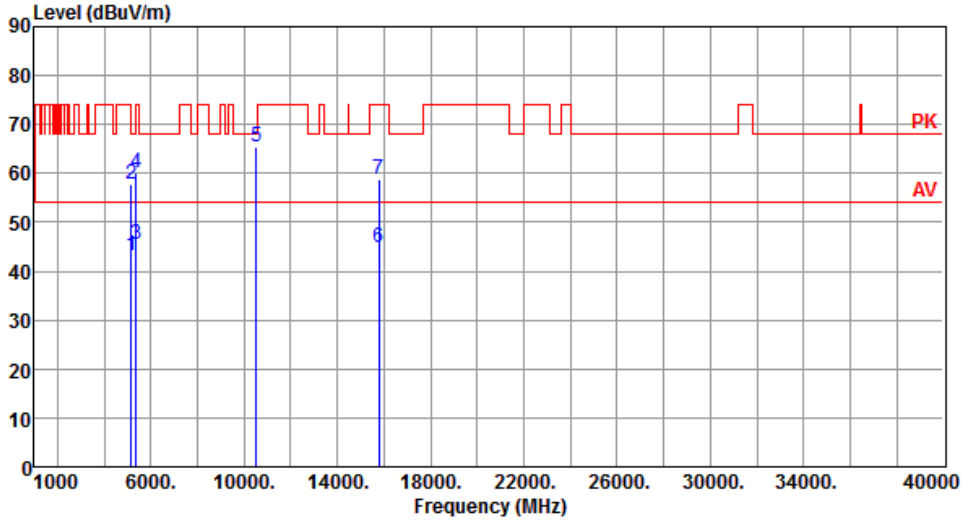
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.87	54.00	-10.13	37.53	6.34	Average	145	335
2	5150.00	57.14	74.00	-16.86	50.80	6.34	Peak	145	335
3	5350.00	45.61	54.00	-8.39	38.99	6.62	Average	145	335
4	5350.00	60.01	74.00	-13.99	53.39	6.62	Peak	145	335
5	10480.00	61.15	68.20	-7.05	45.03	16.12	Peak	105	35
6	15720.00	45.36	54.00	-8.64	28.95	16.41	Average	100	60
7	15720.00	58.53	74.00	-15.47	42.12	16.41	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).

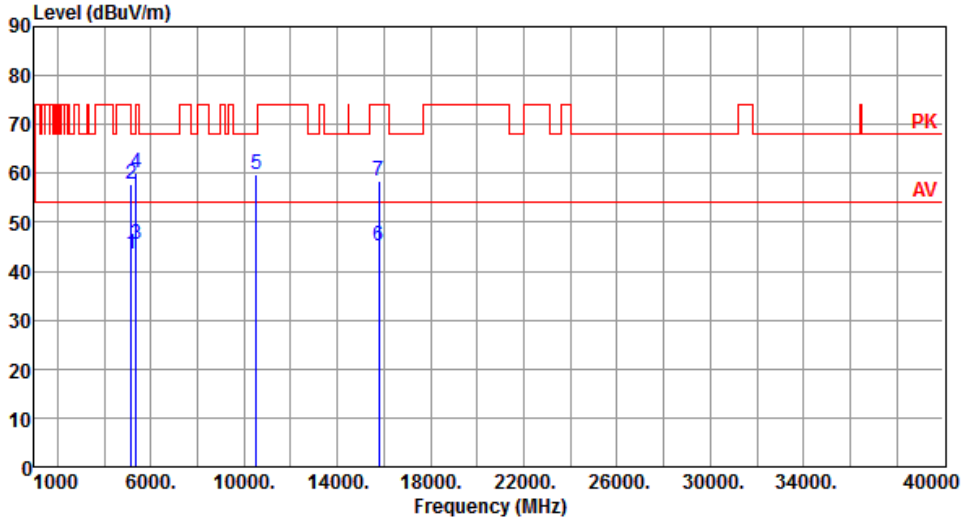
Modulation	11a	Test Freq. (MHz)	5260
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.25	54.00	-10.75	36.91	6.34	Average	100	222
2	5150.00	57.68	74.00	-16.32	51.34	6.34	Peak	100	222
3	5350.00	45.62	54.00	-8.38	39.00	6.62	Average	100	222
4	5350.00	60.04	74.00	-13.96	53.42	6.62	Peak	100	222
5	10520.00	65.41	68.20	-2.79	49.23	16.18	Peak	185	312
6	15780.00	44.97	54.00	-9.03	28.64	16.33	Average	100	250
7	15780.00	58.64	74.00	-15.36	42.31	16.33	Peak	100	250

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

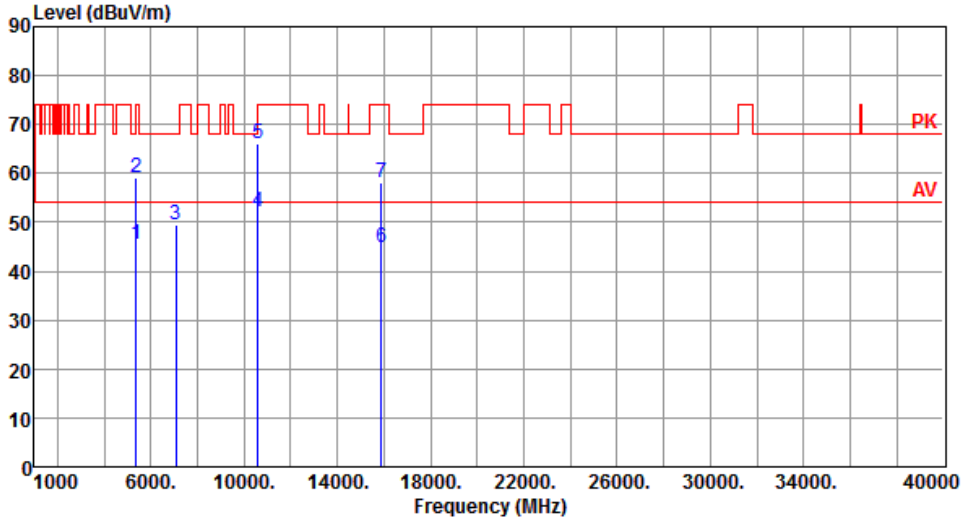
Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	43.52	54.00	-10.48	37.18	6.34	Average	148	342
2	5150.00	57.85	74.00	-16.15	51.51	6.34	Peak	148	342
3	5350.00	45.57	54.00	-8.43	38.95	6.62	Average	148	342
4	5350.00	60.01	74.00	-13.99	53.39	6.62	Peak	148	342
5	10520.00	59.84	68.20	-8.36	43.66	16.18	Peak	102	40
6	15780.00	45.09	54.00	-8.91	28.76	16.33	Average	100	50
7	15780.00	58.41	74.00	-15.59	42.08	16.33	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).

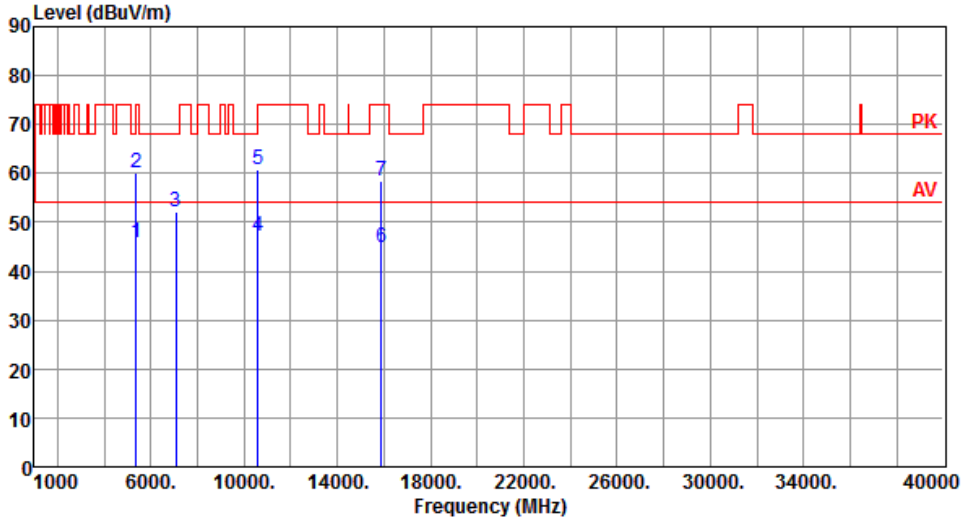
Modulation	11a	Test Freq. (MHz)	5300
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	45.54	54.00	-8.46	38.92	6.62	Average	100	221
2	5350.00	59.24	74.00	-14.76	52.62	6.62	Peak	100	221
3	7066.66	49.51	68.20	-18.69	39.09	10.42	Peak	100	280
4	10600.00	52.01	54.00	-1.99	35.70	16.31	Average	188	314
5	10600.00	65.99	74.00	-8.01	49.68	16.31	Peak	188	314
6	15900.00	44.94	54.00	-9.06	28.75	16.19	Average	100	30
7	15900.00	58.14	74.00	-15.86	41.95	16.19	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).

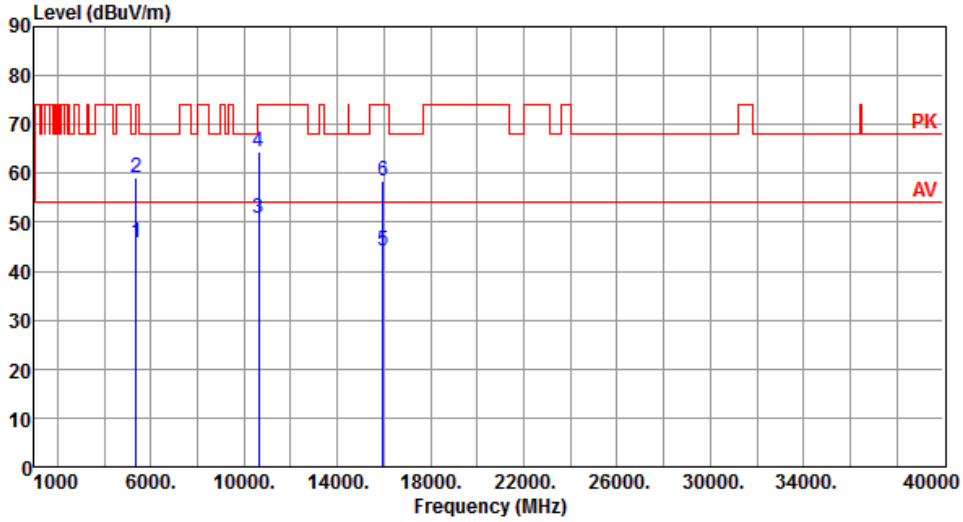
Modulation	11a	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	45.81	54.00	-8.19	39.19	6.62	Average	139	352
2	5350.00	60.16	74.00	-13.84	53.54	6.62	Peak	139	352
3	7066.66	52.10	68.20	-16.10	41.68	10.42	Peak	200	16
4	10600.00	47.32	54.00	-6.68	31.01	16.31	Average	103	35
5	10600.00	60.81	74.00	-13.19	44.50	16.31	Peak	103	35
6	15900.00	44.98	54.00	-9.02	28.79	16.19	Average	100	25
7	15900.00	58.31	74.00	-15.69	42.12	16.19	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).

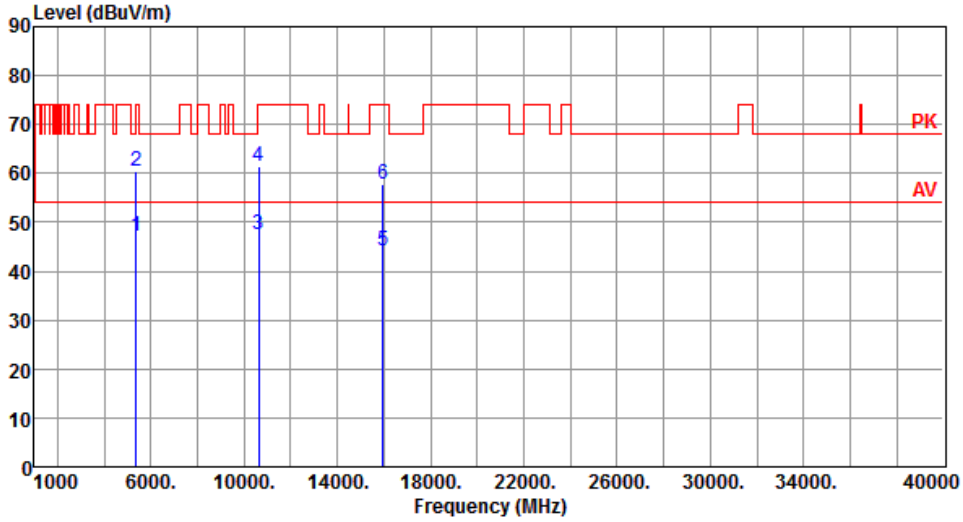
Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	45.98	54.00	-8.02	39.36	6.62	Average	235	200
2	5350.00	59.11	74.00	-14.89	52.49	6.62	Peak	235	200
3	10640.00	50.76	54.00	-3.24	34.37	16.39	Average	200	318
4	10640.00	64.54	74.00	-9.46	48.15	16.39	Peak	200	318
5	15960.00	44.28	54.00	-9.72	28.17	16.11	Average	100	37
6	15960.00	58.40	74.00	-15.60	42.29	16.11	Peak	100	37

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

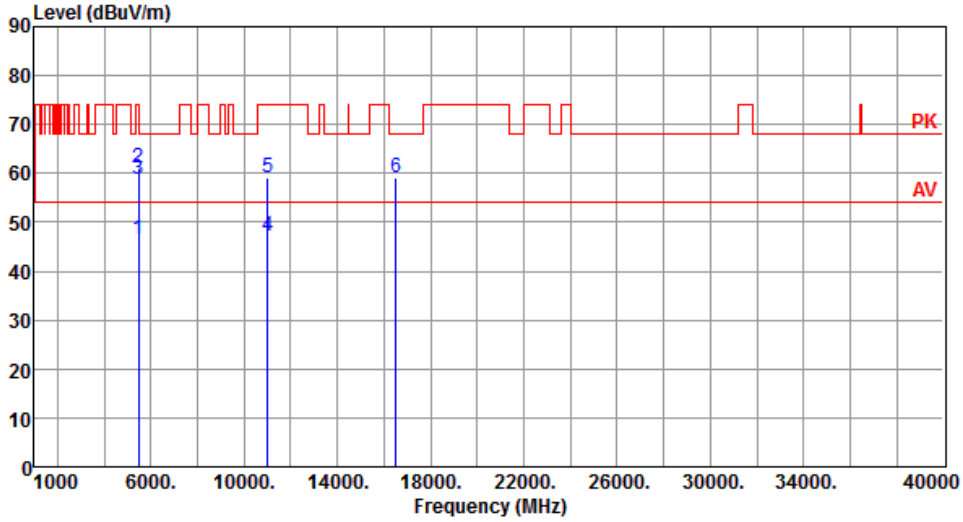
Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	47.08	54.00	-6.92	40.46	6.62	Average	145	327
2	5350.00	60.49	74.00	-13.51	53.87	6.62	Peak	145	327
3	10640.00	47.50	54.00	-6.50	31.11	16.39	Average	100	24
4	10640.00	61.45	74.00	-12.55	45.06	16.39	Peak	100	24
5	15960.00	44.23	54.00	-9.77	28.12	16.11	Average	100	53
6	15960.00	57.78	74.00	-16.22	41.67	16.11	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).

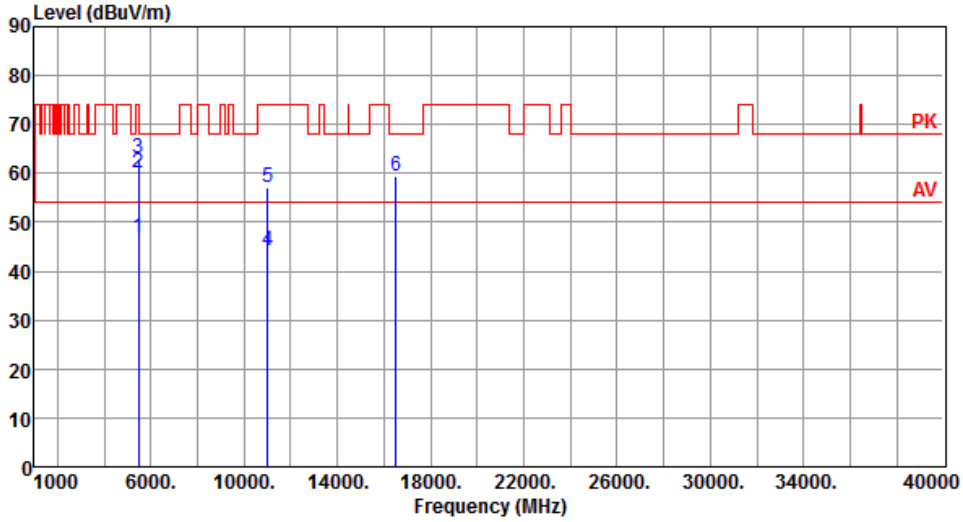
Modulation	11a	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	46.63	54.00	-7.37	39.86	6.77	Average	216	213
2	5460.00	61.17	74.00	-12.83	54.40	6.77	Peak	216	213
3	5470.00	58.94	68.20	-9.26	52.17	6.77	Peak	216	213
4	11000.00	47.32	54.00	-6.68	30.34	16.98	Average	189	319
5	11000.00	59.10	74.00	-14.90	42.12	16.98	Peak	189	319
6	16500.00	59.09	68.20	-9.11	41.15	17.94	Peak	100	27

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

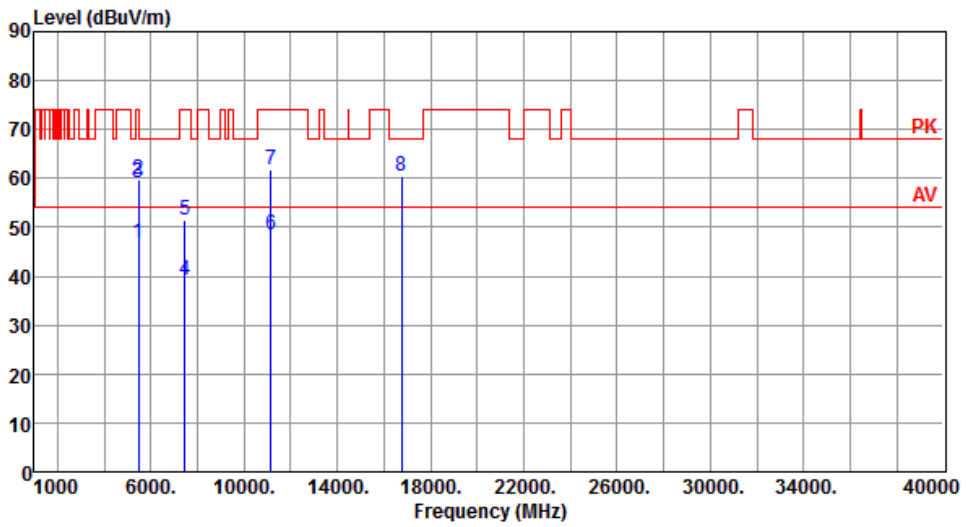
Modulation	11a	Test Freq. (MHz)	5500
Polarization	Vertical		



	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	46.70	54.00	-7.30	39.93	6.77	Average	134	327
2	5460.00	60.03	74.00	-13.97	53.26	6.77	Peak	134	327
3	5470.00	63.24	68.20	-4.96	56.47	6.77	Peak	134	327
4	11000.00	44.14	54.00	-9.86	27.16	16.98	Average	100	24
5	11000.00	57.01	74.00	-16.99	40.03	16.98	Peak	100	24
6	16500.00	59.55	68.20	-8.65	41.61	17.94	Peak	100	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).

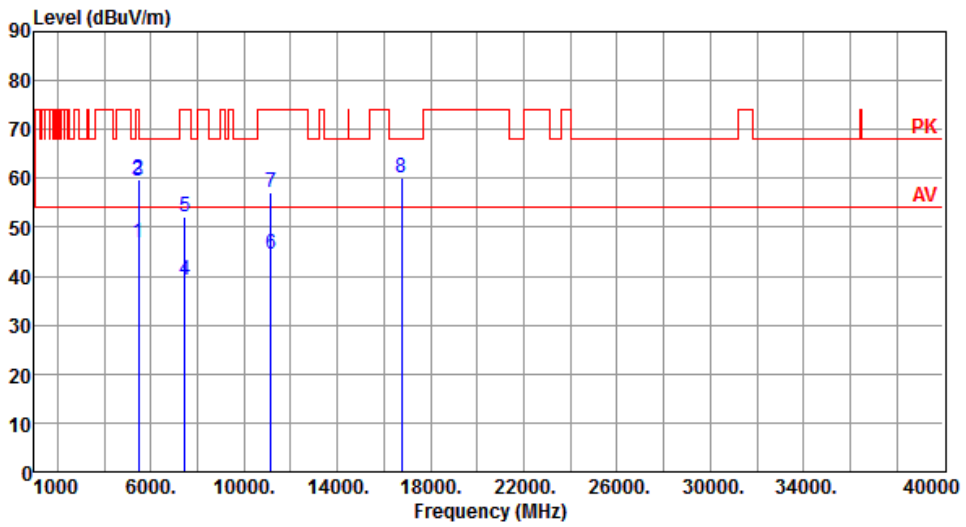
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	46.72	54.00	-7.28	39.95	6.77	Average	220	198
2	5460.00	59.62	74.00	-14.38	52.85	6.77	Peak	220	198
3	5470.00	59.08	68.20	-9.12	52.31	6.77	Peak	220	198
4	7440.00	39.10	54.00	-14.90	27.82	11.28	Average	100	281
5	7440.00	51.63	74.00	-22.37	40.35	11.28	Peak	100	281
6	11160.00	48.45	54.00	-5.55	31.54	16.91	Average	168	313
7	11160.00	61.83	74.00	-12.17	44.92	16.91	Peak	168	313
8	16740.00	60.32	68.20	-7.88	41.32	19.00	Peak	100	43

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

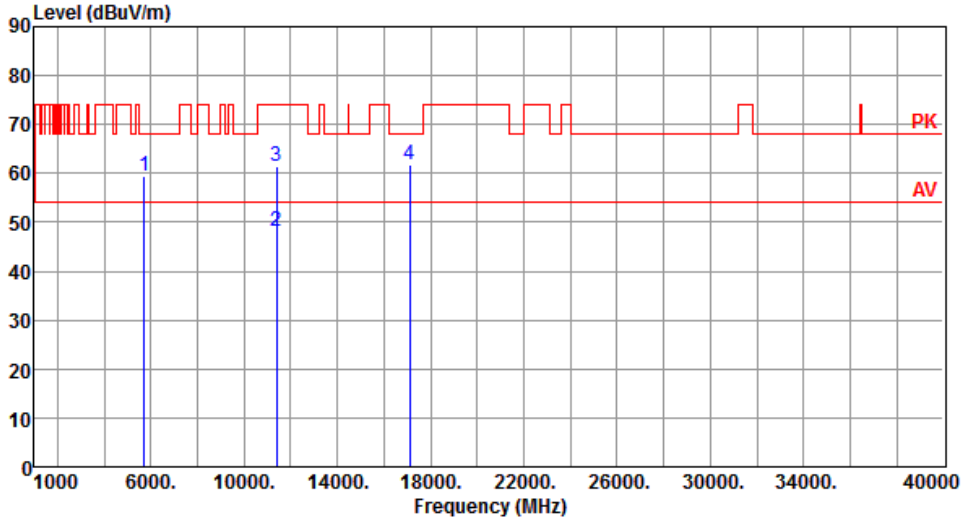
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	46.67	54.00	-7.33	39.90	6.77	Average	133	334
2	5460.00	59.63	74.00	-14.37	52.86	6.77	Peak	133	334
3	5470.00	59.48	68.20	-8.72	52.71	6.77	Peak	133	334
4	7440.00	39.30	54.00	-14.70	28.02	11.28	Average	211	24
5	7440.00	51.99	74.00	-22.01	40.71	11.28	Peak	211	24
6	11160.00	44.34	54.00	-9.66	27.43	16.91	Average	100	38
7	11160.00	57.08	74.00	-16.92	40.17	16.91	Peak	100	38
8	16740.00	60.20	68.20	-8.00	41.20	19.00	Peak	100	58

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

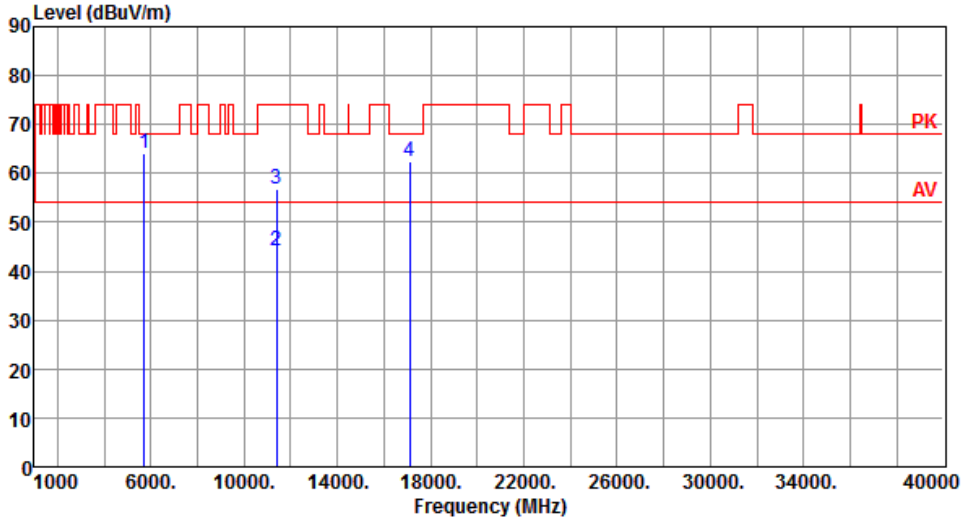
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5725.00	59.51	68.20	-8.69	52.40	7.11	Peak	211	208
2	11400.00	48.17	54.00	-5.83	31.34	16.83	Average	172	321
3	11400.00	61.60	74.00	-12.40	44.77	16.83	Peak	172	321
4	17100.00	61.79	68.20	-6.41	41.26	20.53	Peak	100	39

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

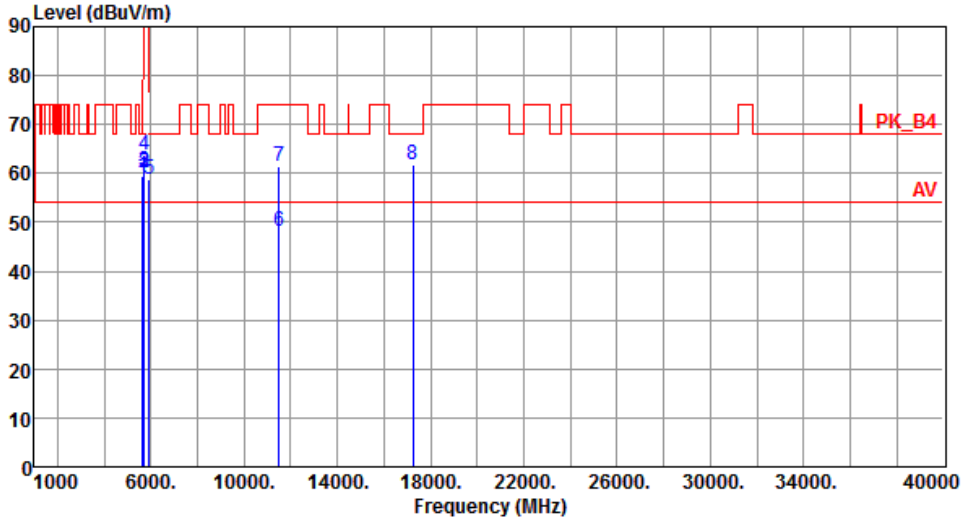
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5725.00	64.10	68.20	-4.10	56.99	7.11	Peak	131	330
2	11400.00	44.13	54.00	-9.87	27.30	16.83	Average	100	42
3	11400.00	56.94	74.00	-17.06	40.11	16.83	Peak	100	42
4	17100.00	62.39	68.20	-5.81	41.86	20.53	Peak	100	33

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

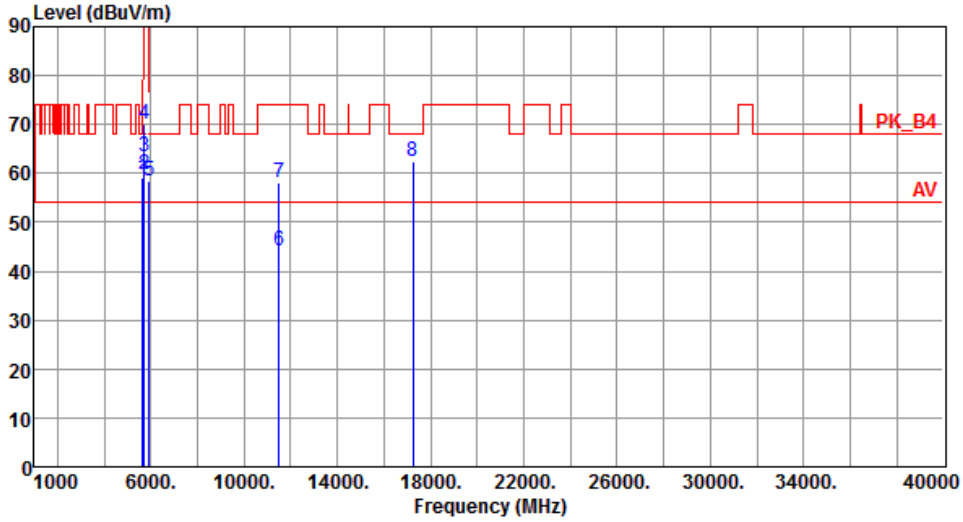
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.35	68.20	-8.85	52.35	7.00	Peak	197	191
2	5700.00	60.05	105.20	-45.15	52.97	7.08	Peak	197	191
3	5720.00	60.61	110.80	-50.19	53.50	7.11	Peak	197	191
4	5725.00	63.62	122.20	-58.58	56.51	7.11	Peak	197	191
5	5925.00	58.94	68.20	-9.26	51.53	7.41	Peak	197	191
6	11490.00	48.21	54.00	-5.79	31.42	16.79	Average	192	305
7	11490.00	61.32	74.00	-12.68	44.53	16.79	Peak	192	305
8	17235.00	61.69	68.20	-6.51	40.64	21.05	Peak	100	44

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

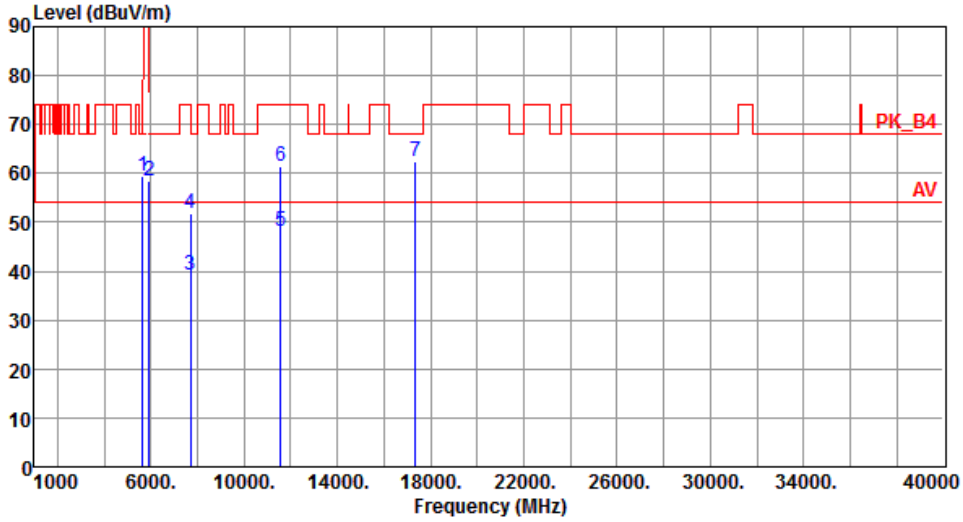
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.05	68.20	-9.15	52.05	7.00	Peak	125	345
2	5700.00	59.71	105.20	-45.49	52.63	7.08	Peak	125	345
3	5720.00	63.52	110.80	-47.28	56.41	7.11	Peak	125	345
4	5725.00	69.97	122.20	-52.23	62.86	7.11	Peak	125	345
5	5925.00	58.49	68.20	-9.71	51.08	7.41	Peak	125	345
6	11490.00	44.17	54.00	-9.83	27.38	16.79	Average	100	36
7	11490.00	58.17	74.00	-15.83	41.38	16.79	Peak	100	36
8	17235.00	62.35	68.20	-5.85	41.30	21.05	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).

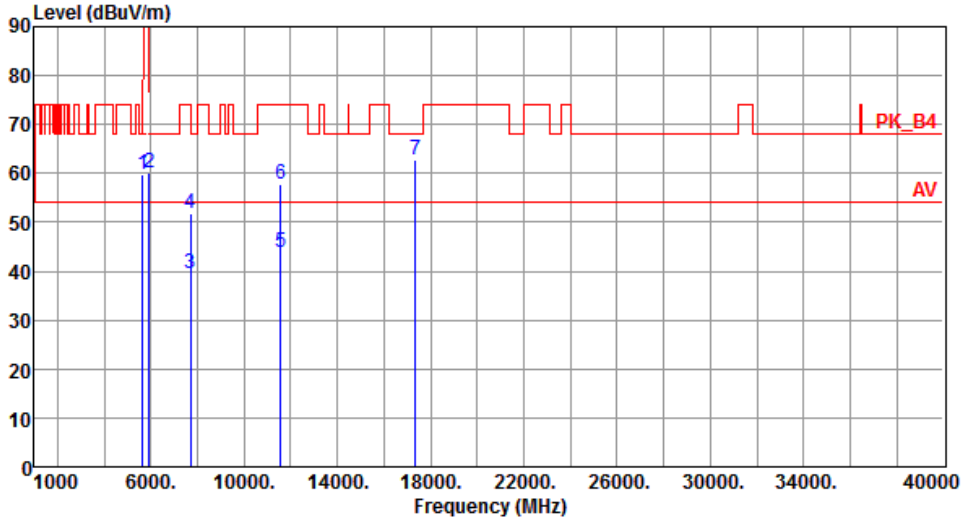
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.44	68.20	-8.76	52.44	7.00	Peak	200	198
2	5925.00	58.31	68.20	-9.89	50.90	7.41	Peak	200	198
3	7713.33	39.23	54.00	-14.77	27.78	11.45	Average	100	296
4	7713.33	51.81	74.00	-22.19	40.36	11.45	Peak	100	296
5	11570.00	47.99	54.00	-6.01	31.31	16.68	Average	199	314
6	11570.00	61.45	74.00	-12.55	44.77	16.68	Peak	199	314
7	17355.00	62.31	68.20	-5.89	40.79	21.52	Peak	100	46

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

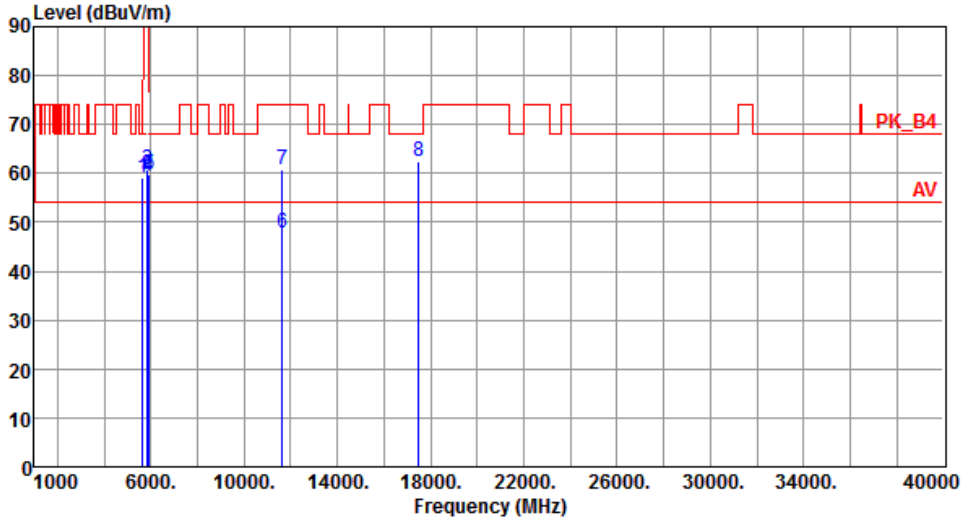
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.80	68.20	-8.40	52.80	7.00	Peak	135	330
2	5925.00	59.97	68.20	-8.23	52.56	7.41	Peak	135	330
3	7713.33	39.37	54.00	-14.63	27.92	11.45	Average	100	66
4	7713.33	51.71	74.00	-22.29	40.26	11.45	Peak	100	66
5	11570.00	43.95	54.00	-10.05	27.27	16.68	Average	100	26
6	11570.00	57.72	74.00	-16.28	41.04	16.68	Peak	100	26
7	17355.00	62.68	68.20	-5.52	41.16	21.52	Peak	100	41

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

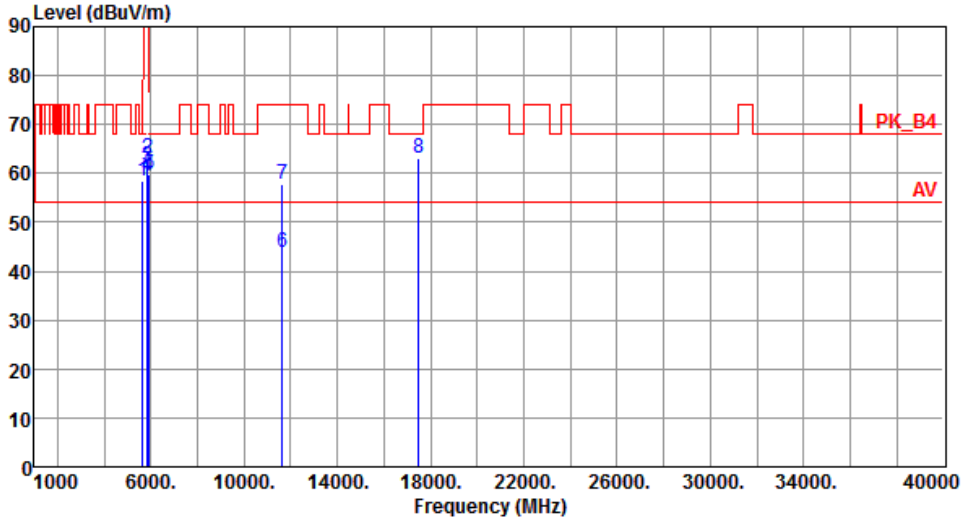
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.12	68.20	-9.08	52.12	7.00	Peak	190	187
2	5850.00	59.72	122.20	-62.48	52.42	7.30	Peak	190	187
3	5855.00	60.72	110.80	-50.08	53.40	7.32	Peak	190	187
4	5875.00	59.40	105.20	-45.80	52.06	7.34	Peak	190	187
5	5925.00	59.71	68.20	-8.49	52.30	7.41	Peak	190	187
6	11650.00	47.89	54.00	-6.11	31.35	16.54	Average	185	302
7	11650.00	60.85	74.00	-13.15	44.31	16.54	Peak	185	302
8	17475.00	62.49	68.20	-5.71	40.50	21.99	Peak	100	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).

Modulation	11a	Test Freq. (MHz)	5825
Polarization	Vertical		

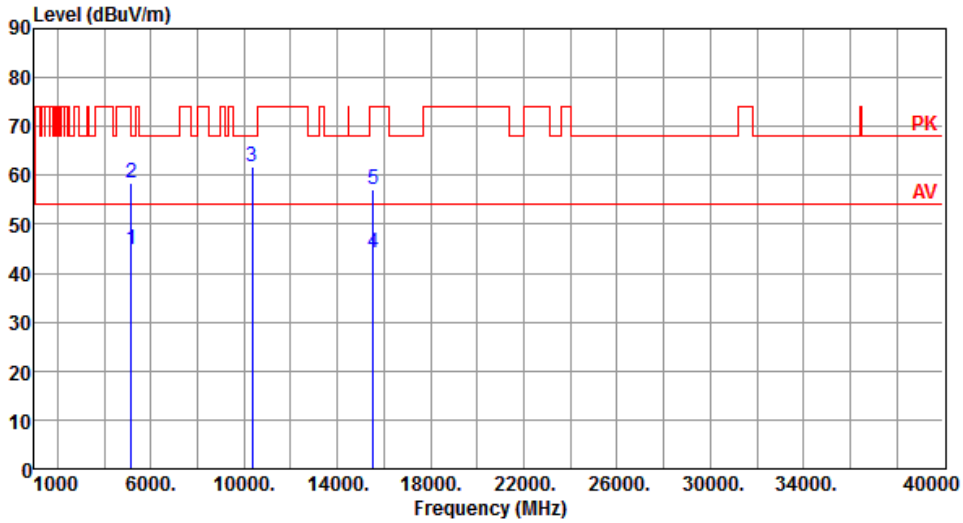


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	58.56	68.20	-9.64	51.56	7.00	Peak	123	331
2	5850.00	63.20	122.20	-59.00	55.90	7.30	Peak	123	331
3	5855.00	61.33	110.80	-49.47	54.01	7.32	Peak	123	331
4	5875.00	59.46	105.20	-45.74	52.12	7.34	Peak	123	331
5	5925.00	59.81	68.20	-8.39	52.40	7.41	Peak	123	331
6	11650.00	43.84	54.00	-10.16	27.30	16.54	Average	100	42
7	11650.00	57.83	74.00	-16.17	41.29	16.54	Peak	100	42
8	17475.00	63.21	68.20	-4.99	41.22	21.99	Peak	100	62

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

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

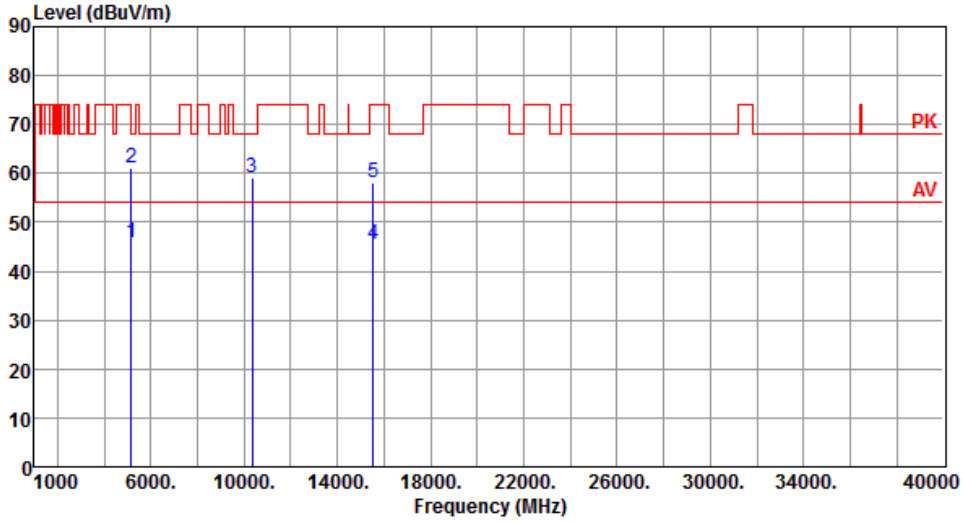
Modulation	HT20	**Test Freq. (MHz)**	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.86	54.00	-9.14	38.52	6.34	Average	249	200
2	5150.00	58.49	74.00	-15.51	52.15	6.34	Peak	249	200
3	10360.00	61.81	68.20	-6.39	45.81	16.00	Peak	133	330
4	15540.00	44.02	54.00	-9.98	27.39	16.63	Average	100	66
5	15540.00	56.98	74.00	-17.02	40.35	16.63	Peak	100	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).

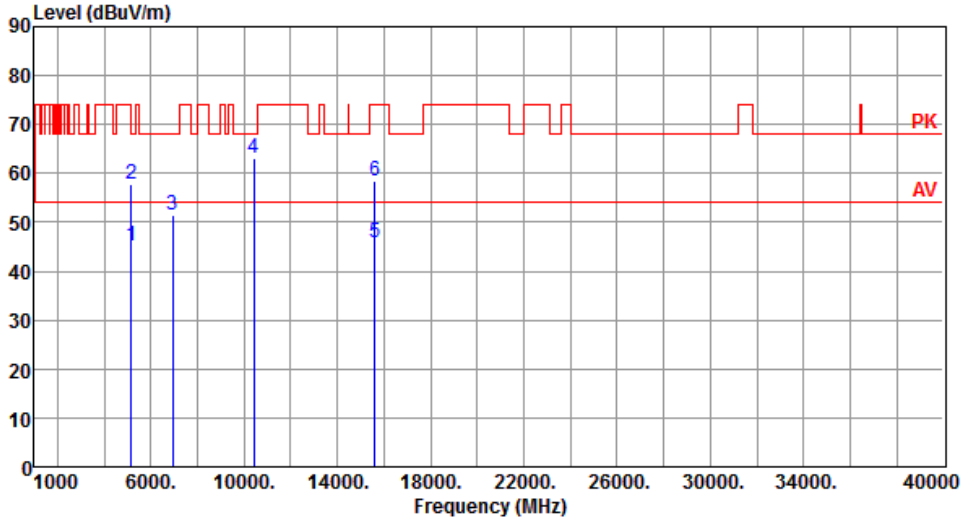
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.79	54.00	-8.21	39.45	6.34	Average	135	336
2	5150.00	61.12	74.00	-12.88	54.78	6.34	Peak	135	336
3	10360.00	58.99	68.20	-9.21	42.99	16.00	Peak	100	36
4	15540.00	45.65	54.00	-8.35	29.02	16.63	Average	100	73
5	15540.00	58.12	74.00	-15.88	41.49	16.63	Peak	100	73

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

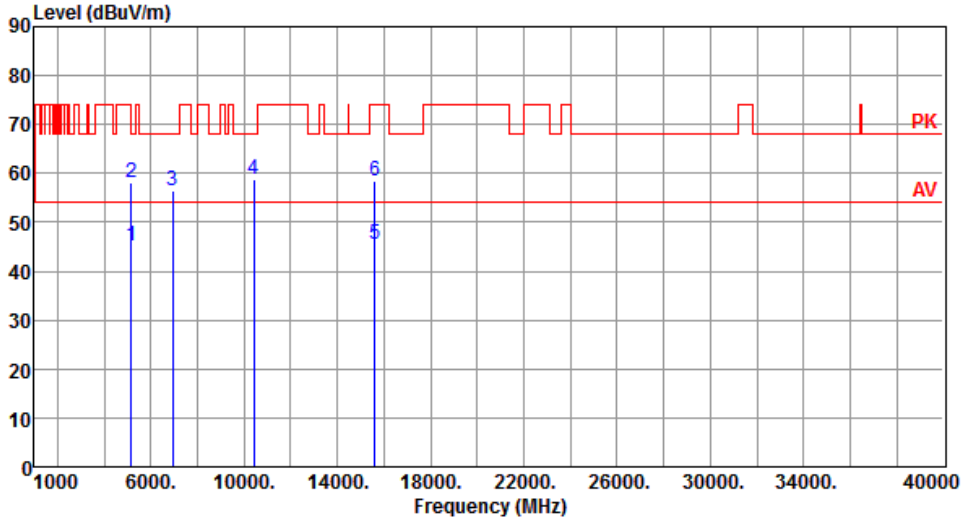
Modulation	HT20	Test Freq. (MHz)	5200
Polarization	Horizontal		



	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	45.05	54.00	-8.95	38.71	6.34	Average	245	198
2	5150.00	57.83	74.00	-16.17	51.49	6.34	Peak	245	198
3	6933.33	51.37	68.20	-16.83	41.19	10.18	Peak	110	294
4	10400.00	63.17	68.20	-5.03	47.13	16.04	Peak	153	316
5	15600.00	45.77	54.00	-8.23	29.22	16.55	Average	100	26
6	15600.00	58.40	74.00	-15.60	41.85	16.55	Peak	100	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).

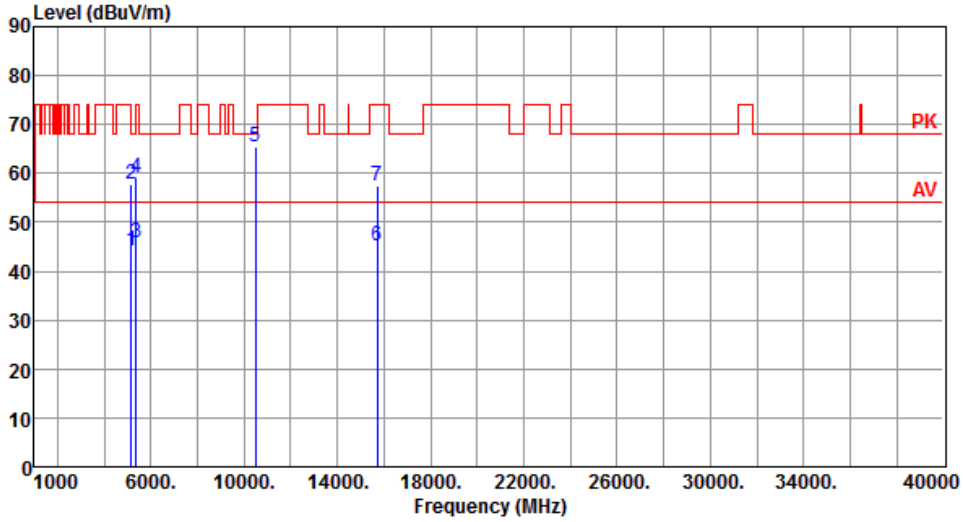
Modulation	HT20	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.25	54.00	-8.75	38.91	6.34	Average	147	346
2	5150.00	58.24	74.00	-15.76	51.90	6.34	Peak	147	346
3	6933.33	56.60	68.20	-11.60	46.42	10.18	Peak	197	14
4	10400.00	58.86	68.20	-9.34	42.82	16.04	Peak	100	42
5	15600.00	45.48	54.00	-8.52	28.93	16.55	Average	100	48
6	15600.00	58.43	74.00	-15.57	41.88	16.55	Peak	100	48

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

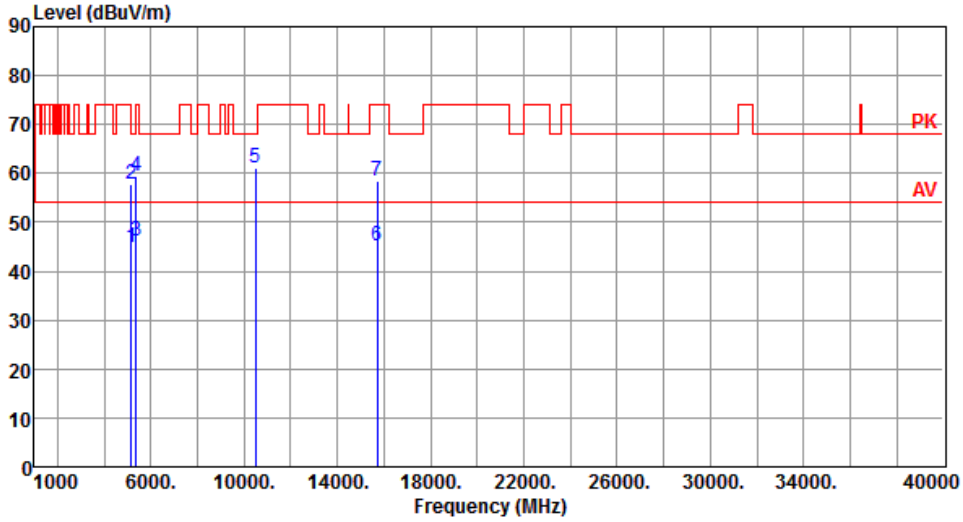
Modulation	HT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.02	54.00	-9.98	37.68	6.34	Average	240	192
2	5150.00	57.65	74.00	-16.35	51.31	6.34	Peak	240	192
3	5350.00	45.82	54.00	-8.18	39.20	6.62	Average	240	192
4	5350.00	58.98	74.00	-15.02	52.36	6.62	Peak	240	192
5	10480.00	65.58	68.20	-2.62	49.46	16.12	Peak	195	311
6	15720.00	45.12	54.00	-8.88	28.71	16.41	Average	100	35
7	15720.00	57.53	74.00	-16.47	41.12	16.41	Peak	100	35

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

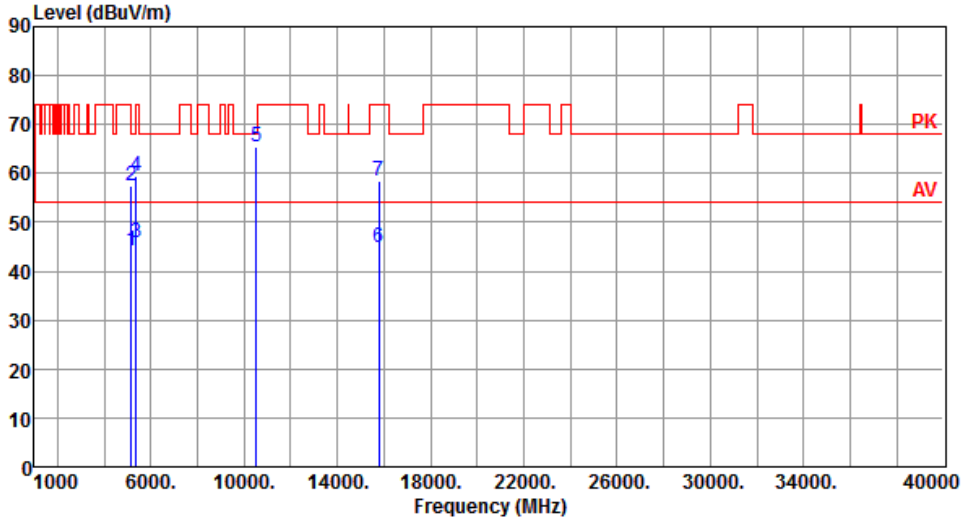
Modulation	HT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	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	44.94	54.00	-9.06	38.60	6.34	Average	140	332
2	5150.00	57.83	74.00	-16.17	51.49	6.34	Peak	140	332
3	5350.00	46.05	54.00	-7.95	39.43	6.62	Average	140	332
4	5350.00	59.48	74.00	-14.52	52.86	6.62	Peak	140	332
5	10480.00	60.98	68.20	-7.22	44.86	16.12	Peak	100	39
6	15720.00	45.07	54.00	-8.93	28.66	16.41	Average	100	56
7	15720.00	58.33	74.00	-15.67	41.92	16.41	Peak	100	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).

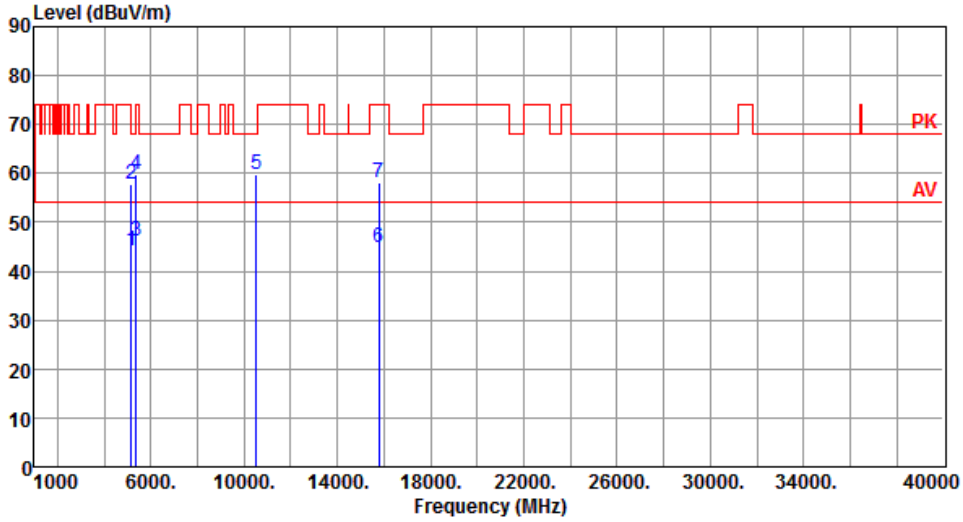
Modulation	HT20	Test Freq. (MHz)	5260
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.02	54.00	-9.98	37.68	6.34	Average	250	212
2	5150.00	57.40	74.00	-16.60	51.06	6.34	Peak	250	212
3	5350.00	45.79	54.00	-8.21	39.17	6.62	Average	250	212
4	5350.00	59.52	74.00	-14.48	52.90	6.62	Peak	250	212
5	10520.00	65.34	68.20	-2.86	49.16	16.18	Peak	180	308
6	15780.00	44.83	54.00	-9.17	28.50	16.33	Average	100	260
7	15780.00	58.50	74.00	-15.50	42.17	16.33	Peak	100	260

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

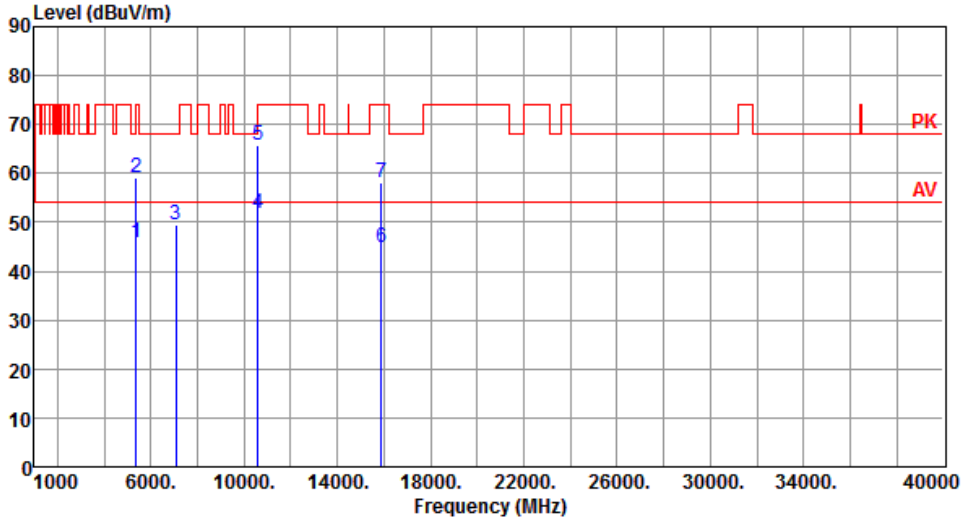
Modulation	HT20	Test Freq. (MHz)	5260
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.11	54.00	-9.89	37.77	6.34	Average	131	333
2	5150.00	57.75	74.00	-16.25	51.41	6.34	Peak	131	333
3	5350.00	46.07	54.00	-7.93	39.45	6.62	Average	131	333
4	5350.00	59.73	74.00	-14.27	53.11	6.62	Peak	131	333
5	10520.00	59.67	68.20	-8.53	43.49	16.18	Peak	100	47
6	15780.00	44.89	54.00	-9.11	28.56	16.33	Average	100	61
7	15780.00	58.15	74.00	-15.85	41.82	16.33	Peak	100	61

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

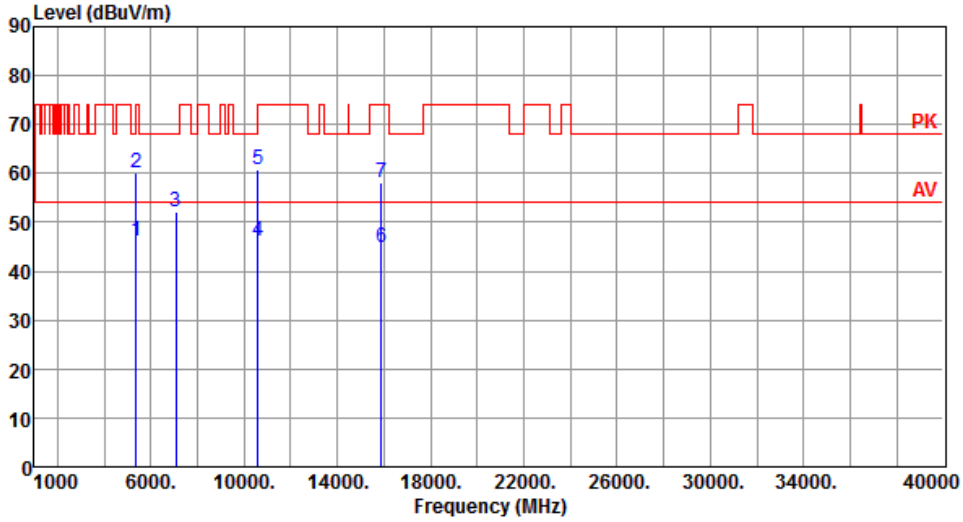
Modulation	HT20	Test Freq. (MHz)	5300
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	45.83	54.00	-8.17	39.21	6.62	Average	237	210
2	5350.00	59.17	74.00	-14.83	52.55	6.62	Peak	237	210
3	7066.66	49.45	68.20	-18.75	39.03	10.42	Peak	100	274
4	10600.00	51.94	54.00	-2.06	35.63	16.31	Average	191	308
5	10600.00	65.88	74.00	-8.12	49.57	16.31	Peak	191	308
6	15900.00	44.82	54.00	-9.18	28.63	16.19	Average	100	38
7	15900.00	57.98	74.00	-16.02	41.79	16.19	Peak	100	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).

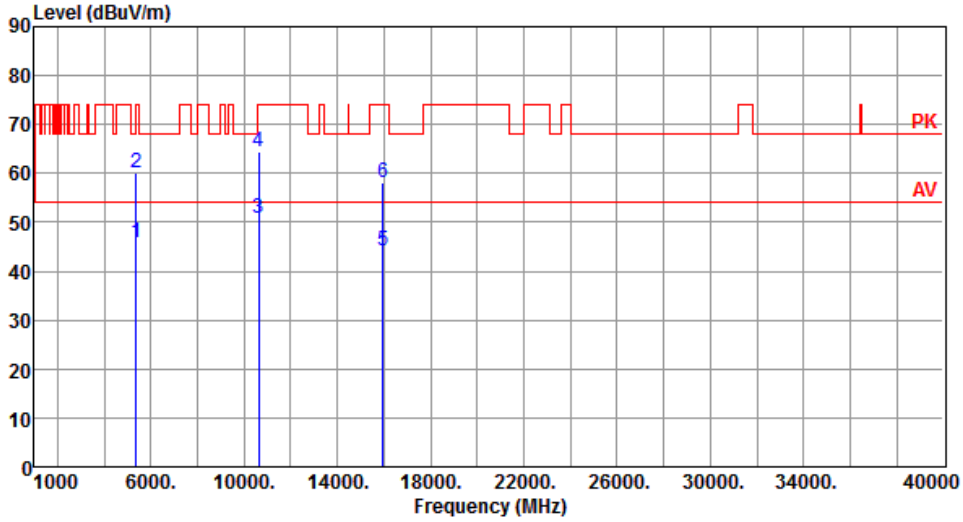
Modulation	HT20	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	46.02	54.00	-7.98	39.40	6.62	Average	132	338
2	5350.00	60.26	74.00	-13.74	53.64	6.62	Peak	132	338
3	7066.66	52.04	68.20	-16.16	41.62	10.42	Peak	195	15
4	10600.00	46.24	54.00	-7.76	29.93	16.31	Average	100	31
5	10600.00	60.72	74.00	-13.28	44.41	16.31	Peak	100	31
6	15900.00	44.82	54.00	-9.18	28.63	16.19	Average	100	24
7	15900.00	58.27	74.00	-15.73	42.08	16.19	Peak	100	24

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

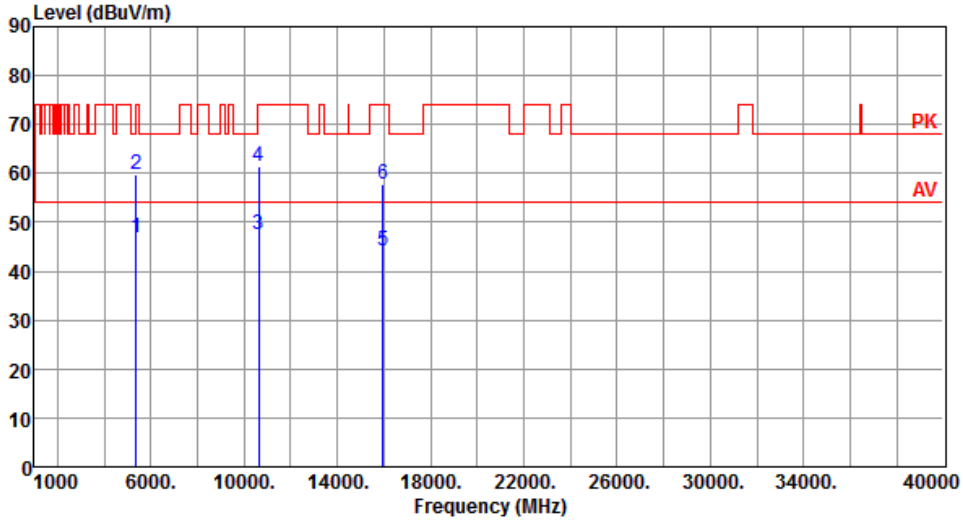
Modulation	HT20	Test Freq. (MHz)	5320
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	45.79	54.00	-8.21	39.17	6.62	Average	234	198
2	5350.00	60.00	74.00	-14.00	53.38	6.62	Peak	234	198
3	10640.00	50.67	54.00	-3.33	34.28	16.39	Average	196	321
4	10640.00	64.39	74.00	-9.61	48.00	16.39	Peak	196	321
5	15960.00	44.20	54.00	-9.80	28.09	16.11	Average	100	33
6	15960.00	58.28	74.00	-15.72	42.17	16.11	Peak	100	33

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

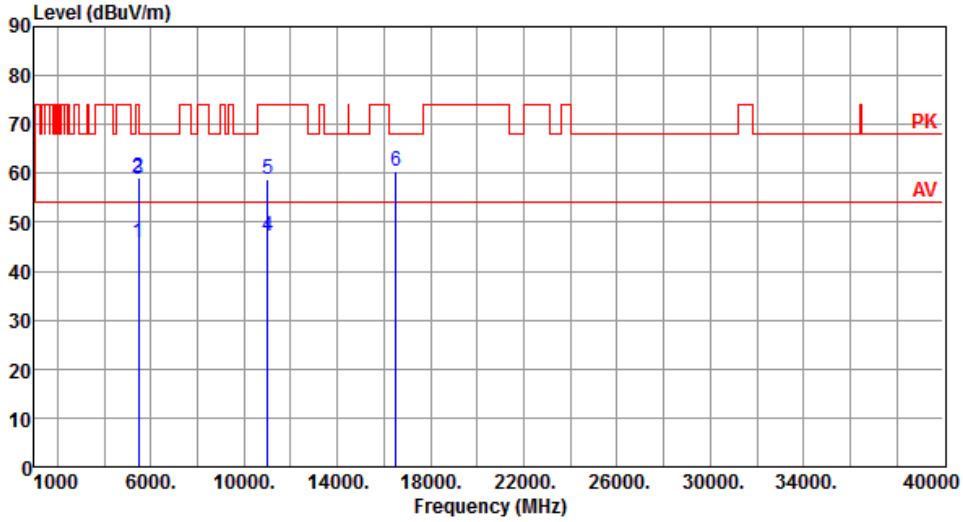
Modulation	HT20	Test Freq. (MHz)	5320
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	46.86	54.00	-7.14	40.24	6.62	Average	130	335
2	5350.00	59.90	74.00	-14.10	53.28	6.62	Peak	130	335
3	10640.00	47.42	54.00	-6.58	31.03	16.39	Average	100	32
4	10640.00	61.29	74.00	-12.71	44.90	16.39	Peak	100	32
5	15960.00	44.15	54.00	-9.85	28.04	16.11	Average	100	48
6	15960.00	57.67	74.00	-16.33	41.56	16.11	Peak	100	48

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

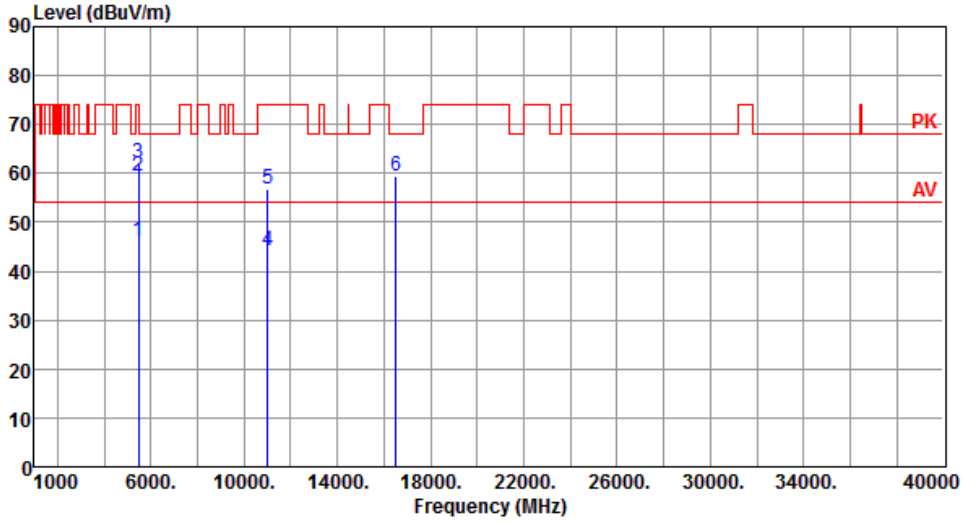
Modulation	HT20	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	45.83	54.00	-8.17	39.06	6.77	Average	214	215
2	5460.00	59.11	74.00	-14.89	52.34	6.77	Peak	214	215
3	5470.00	58.72	68.20	-9.48	51.95	6.77	Peak	214	215
4	11000.00	47.24	54.00	-6.76	30.26	16.98	Average	192	315
5	11000.00	58.90	74.00	-15.10	41.92	16.98	Peak	192	315
6	16500.00	60.34	68.20	-7.86	42.40	17.94	Peak	100	34

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

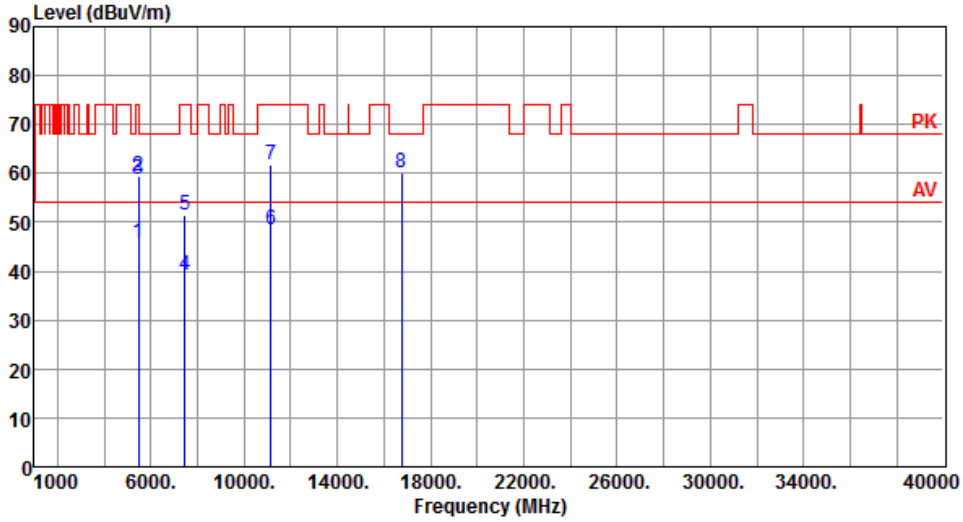
Modulation	HT20	Test Freq. (MHz)	5500
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	46.03	54.00	-7.97	39.26	6.77	Average	138	329
2	5460.00	59.34	74.00	-14.66	52.57	6.77	Peak	138	329
3	5470.00	61.98	68.20	-6.22	55.21	6.77	Peak	138	329
4	11000.00	44.09	54.00	-9.91	27.11	16.98	Average	100	19
5	11000.00	56.90	74.00	-17.10	39.92	16.98	Peak	100	19
6	16500.00	59.47	68.20	-8.73	41.53	17.94	Peak	100	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).

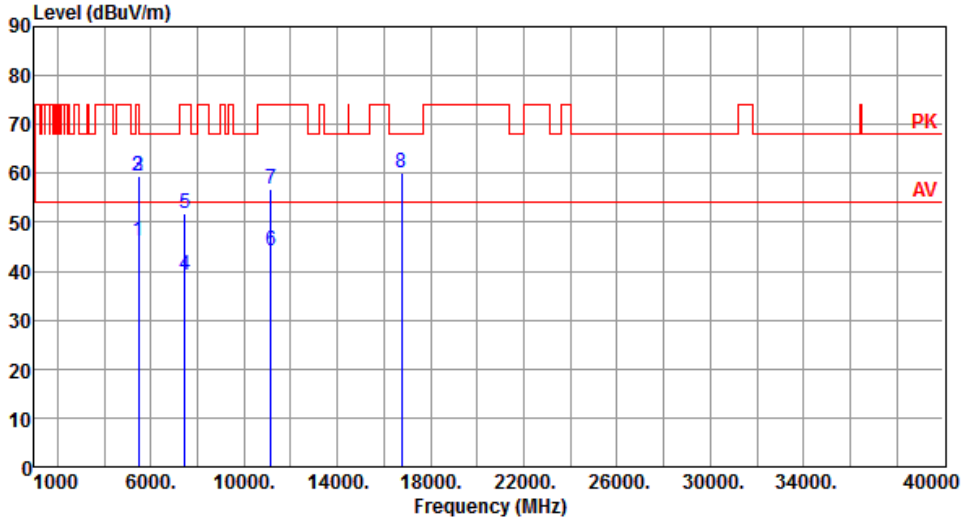
Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	45.82	54.00	-8.18	39.05	6.77	Average	245	185
2	5460.00	59.34	74.00	-14.66	52.57	6.77	Peak	245	185
3	5470.00	58.69	68.20	-9.51	51.92	6.77	Peak	245	185
4	7440.00	39.05	54.00	-14.95	27.77	11.28	Average	100	286
5	7440.00	51.58	74.00	-22.42	40.30	11.28	Peak	100	286
6	11160.00	48.41	54.00	-5.59	31.50	16.91	Average	162	308
7	11160.00	61.78	74.00	-12.22	44.87	16.91	Peak	162	308
8	16740.00	60.28	68.20	-7.92	41.28	19.00	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).

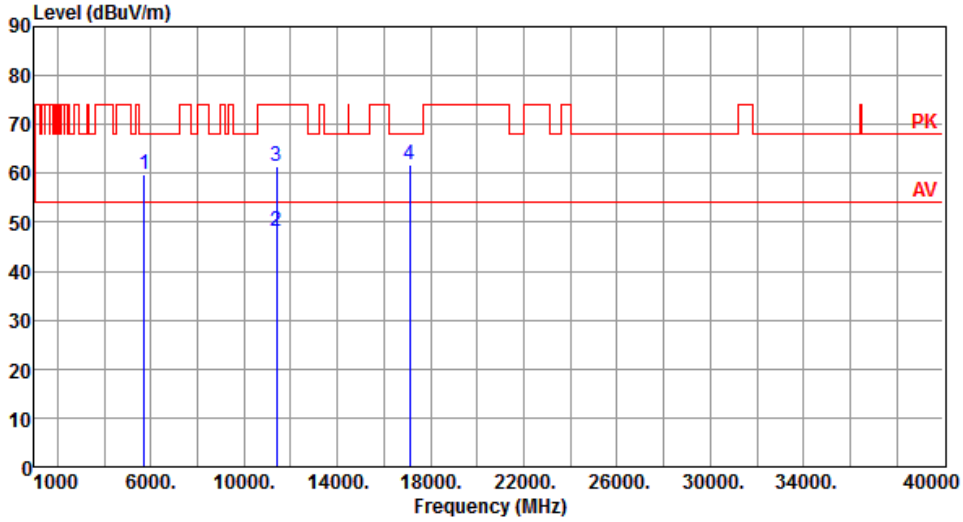
Modulation	HT20	Test Freq. (MHz)	5580
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	46.03	54.00	-7.97	39.26	6.77	Average	136	338
2	5460.00	59.42	74.00	-14.58	52.65	6.77	Peak	136	338
3	5470.00	59.56	68.20	-8.64	52.79	6.77	Peak	136	338
4	7440.00	39.25	54.00	-14.75	27.97	11.28	Average	203	22
5	7440.00	51.94	74.00	-22.06	40.66	11.28	Peak	203	22
6	11160.00	44.28	54.00	-9.72	27.37	16.91	Average	100	33
7	11160.00	56.94	74.00	-17.06	40.03	16.91	Peak	100	33
8	16740.00	60.13	68.20	-8.07	41.13	19.00	Peak	100	64

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

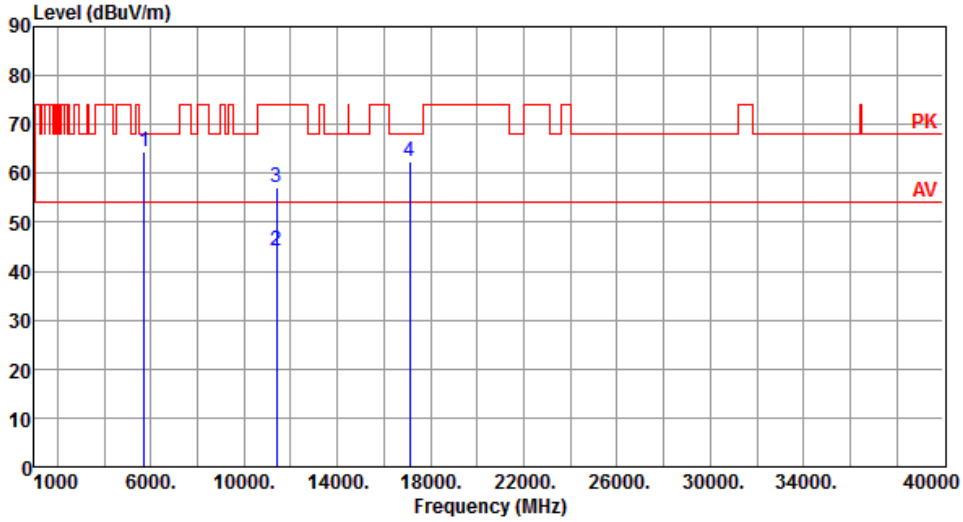
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5725.00	59.65	68.20	-8.55	52.54	7.11	Peak	245	156
2	11400.00	48.12	54.00	-5.88	31.29	16.83	Average	169	316
3	11400.00	61.44	74.00	-12.56	44.61	16.83	Peak	169	316
4	17100.00	61.68	68.20	-6.52	41.15	20.53	Peak	100	49

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

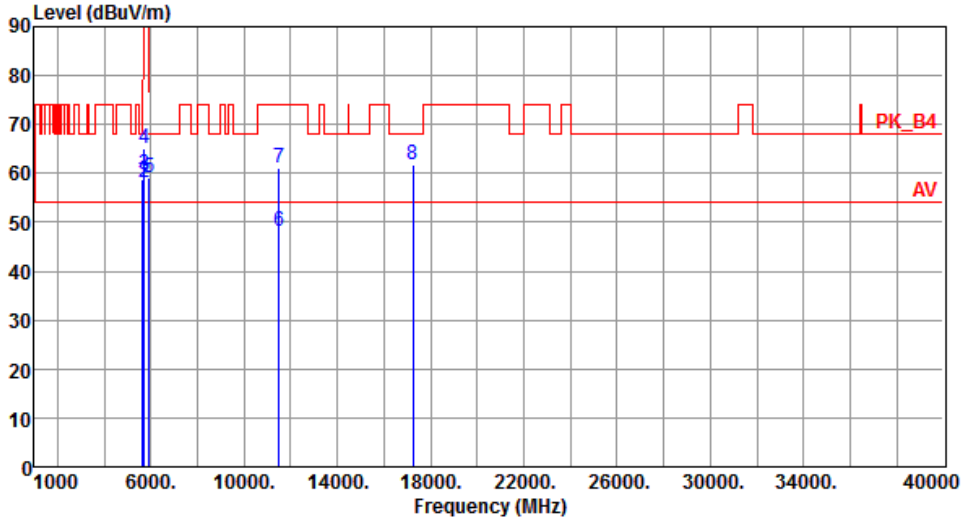
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5725.00	64.46	68.20	-3.74	57.35	7.11	Peak	128	337
2	11400.00	44.09	54.00	-9.91	27.26	16.83	Average	100	40
3	11400.00	56.99	74.00	-17.01	40.16	16.83	Peak	100	40
4	17100.00	62.32	68.20	-5.88	41.79	20.53	Peak	100	36

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

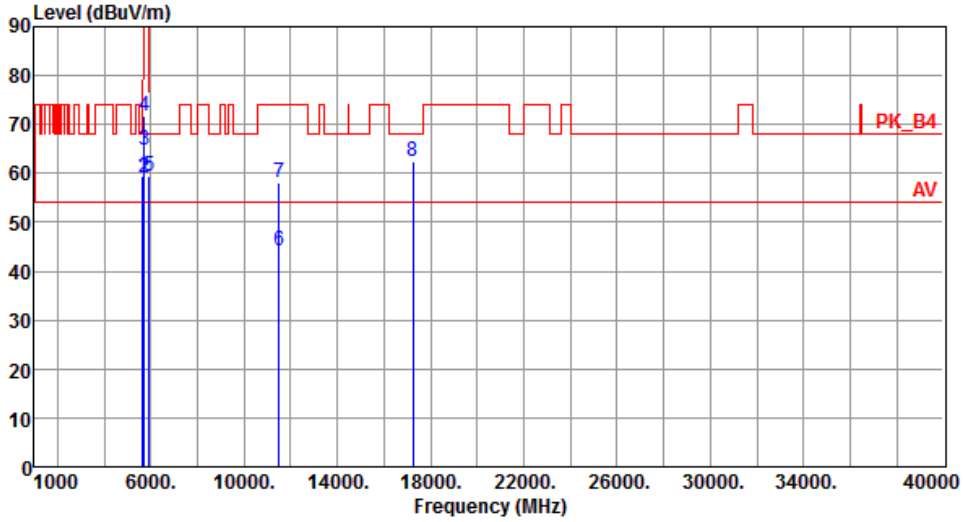
Modulation	HT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	58.88	68.20	-9.32	51.88	7.00	Peak	202	188
2	5700.00	58.16	105.20	-47.04	51.08	7.08	Peak	202	188
3	5720.00	59.71	110.80	-51.09	52.60	7.11	Peak	202	188
4	5725.00	65.23	122.20	-56.97	58.12	7.11	Peak	202	188
5	5925.00	59.13	68.20	-9.07	51.72	7.41	Peak	202	188
6	11490.00	48.18	54.00	-5.82	31.39	16.79	Average	198	311
7	11490.00	61.25	74.00	-12.75	44.46	16.79	Peak	198	311
8	17235.00	61.65	68.20	-6.55	40.60	21.05	Peak	100	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).

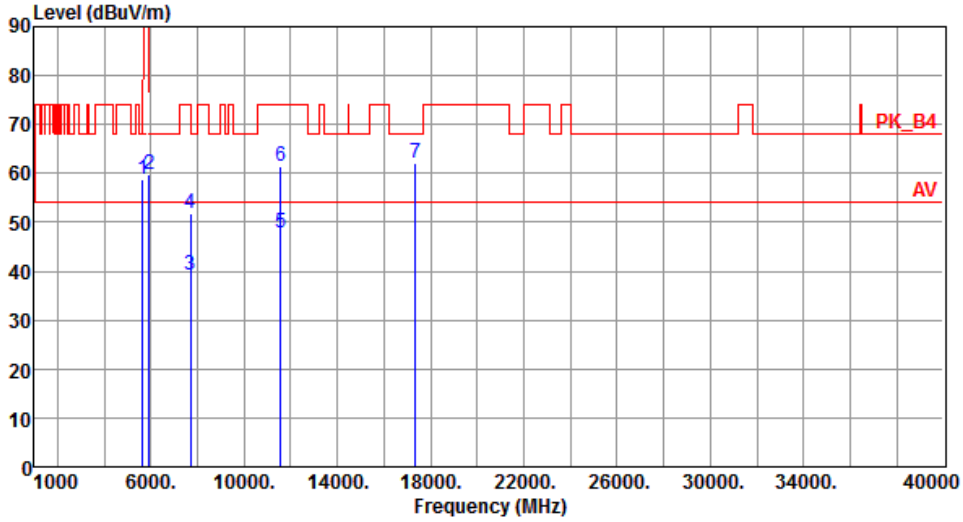
Modulation	HT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.42	68.20	-8.78	52.42	7.00	Peak	128	340
2	5700.00	59.12	105.20	-46.08	52.04	7.08	Peak	128	340
3	5720.00	64.85	110.80	-45.95	57.74	7.11	Peak	128	340
4	5725.00	71.85	122.20	-50.35	64.74	7.11	Peak	128	340
5	5925.00	59.47	68.20	-8.73	52.06	7.41	Peak	128	340
6	11490.00	44.10	54.00	-9.90	27.31	16.79	Average	100	42
7	11490.00	58.10	74.00	-15.90	41.31	16.79	Peak	100	42
8	17235.00	62.28	68.20	-5.92	41.23	21.05	Peak	100	47

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

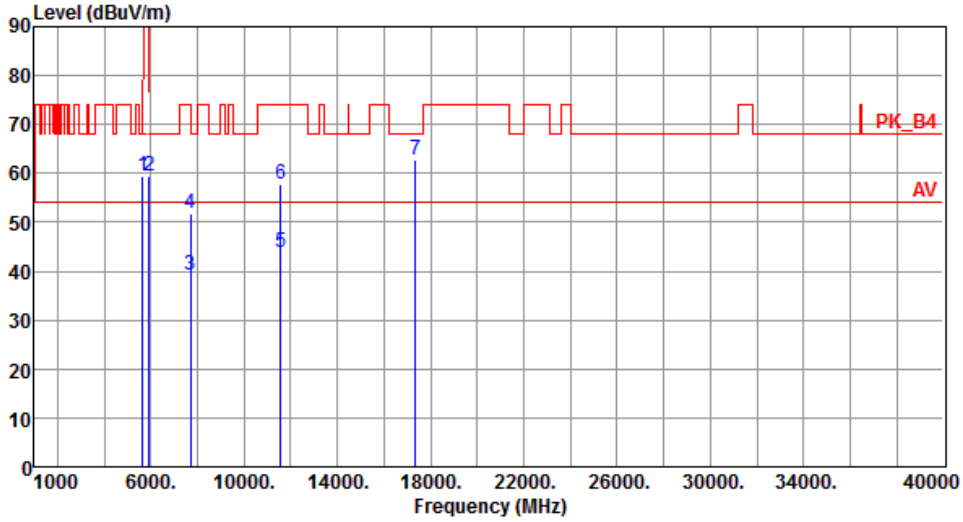
Modulation	HT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	58.77	68.20	-9.43	51.77	7.00	Peak	198	187
2	5925.00	59.94	68.20	-8.26	52.53	7.41	Peak	198	187
3	7713.00	39.17	54.00	-14.83	27.72	11.45	Average	100	292
4	7713.00	51.77	74.00	-22.23	40.32	11.45	Peak	100	292
5	11570.00	47.95	54.00	-6.05	31.27	16.68	Average	204	312
6	11570.00	61.37	74.00	-12.63	44.69	16.68	Peak	204	312
7	17355.00	62.18	68.20	-6.02	40.66	21.52	Peak	100	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).

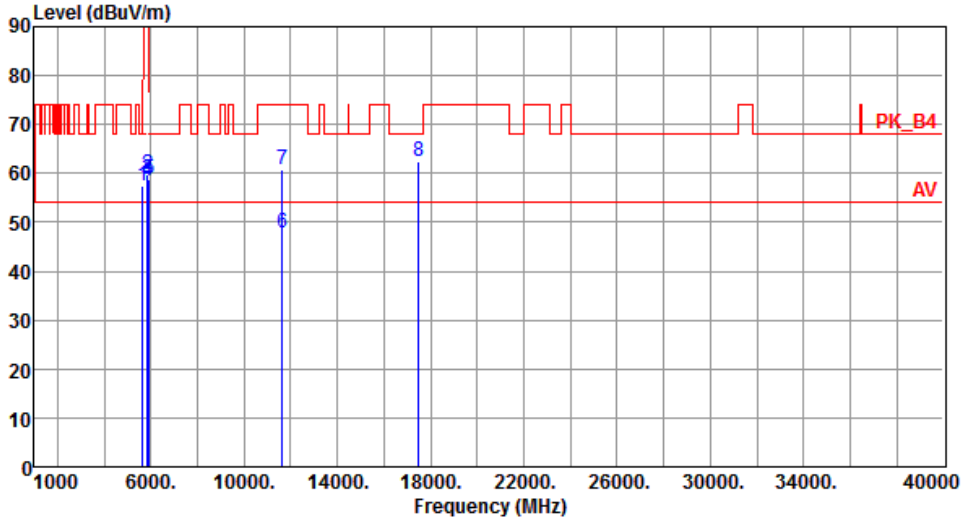
Modulation	HT20	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.55	68.20	-8.65	52.55	7.00	Peak	134	343
2	5925.00	59.61	68.20	-8.59	52.20	7.41	Peak	134	343
3	7713.00	39.33	54.00	-14.67	27.88	11.45	Average	100	71
4	7713.00	51.66	74.00	-22.34	40.21	11.45	Peak	100	71
5	11570.00	43.88	54.00	-10.12	27.20	16.68	Average	100	23
6	11570.00	57.82	74.00	-16.18	41.14	16.68	Peak	100	23
7	17355.00	62.74	68.20	-5.46	41.22	21.52	Peak	100	36

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

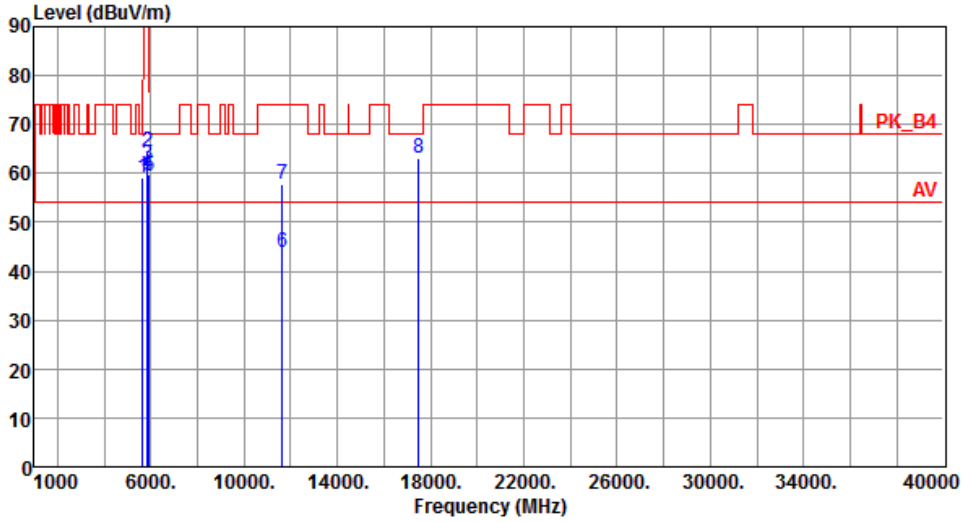
Modulation	HT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	57.39	68.20	-10.81	50.39	7.00	Peak	143	162
2	5850.00	59.67	122.20	-62.53	52.37	7.30	Peak	143	162
3	5855.00	58.79	110.80	-52.01	51.47	7.32	Peak	143	162
4	5875.00	58.49	105.20	-46.71	51.15	7.34	Peak	143	162
5	5925.00	58.93	68.20	-9.27	51.52	7.41	Peak	143	162
6	11650.00	47.84	54.00	-6.16	31.30	16.54	Average	181	311
7	11650.00	60.80	74.00	-13.20	44.26	16.54	Peak	181	311
8	17475.00	62.41	68.20	-5.79	40.42	21.99	Peak	100	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).

Modulation	HT20	Test Freq. (MHz)	5825
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.22	68.20	-8.98	52.22	7.00	Peak	131	324
2	5850.00	64.33	122.20	-57.87	57.03	7.30	Peak	131	324
3	5855.00	61.79	110.80	-49.01	54.47	7.32	Peak	131	324
4	5875.00	59.88	105.20	-45.32	52.54	7.34	Peak	131	324
5	5925.00	59.51	68.20	-8.69	52.10	7.41	Peak	131	324
6	11650.00	43.77	54.00	-10.23	27.23	16.54	Average	100	35
7	11650.00	57.72	74.00	-16.28	41.18	16.54	Peak	100	35
8	17475.00	63.16	68.20	-5.04	41.17	21.99	Peak	100	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).

3.6 Frequency Stability

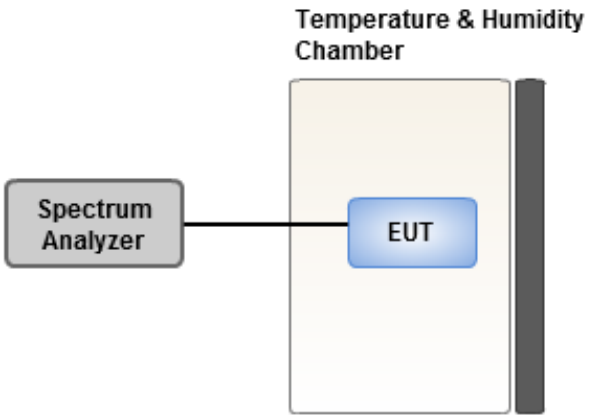
3.6.1 Limit of Frequency Stability

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 50 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under -30 to 70 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Frequency: 5320 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	5.81	6.29	6.13	5.92
T20°CVmin	4.59	4.49	5.03	5.05
T70°CVnom	3.30	3.48	3.51	3.37
T60°CVnom	3.58	3.37	3.99	4.02
T50CVnom	3.61	3.85	3.71	3.69
T40°CVnom	2.94	3.41	3.21	3.59
T30°CVnom	2.07	2.80	2.25	2.26
T20°CVnom	3.52	3.79	3.32	4.19
T10°CVnom	2.59	2.65	2.55	2.93
T0°CVnom	0.83	0.95	1.29	1.24
T-10°CVnom	0.12	0.18	0.10	0.23
T-20°CVnom	0.31	0.45	0.61	0.35
T-30°CVnom	0.71	0.79	1.00	0.65
Vnom [Vdc]: 120		Vmax [Vdc]: 138		Vmin [Vdc]: 102
Tnom [°C]: 20		Tmax [°C]: 70		Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	5.34	5.29	5.41	5.51
T20°CVmin	4.67	5.10	5.23	5.16
T70°CVnom	3.05	3.10	3.78	3.14
T60°CVnom	3.51	3.86	3.24	3.35
T50CVnom	3.20	3.59	3.28	3.69
T40°CVnom	2.43	2.71	2.13	2.52
T30°CVnom	1.56	1.86	1.46	1.98
T20°CVnom	3.38	3.67	3.60	3.78
T10°CVnom	2.01	2.05	2.01	2.40
T0°CVnom	0.80	1.15	0.72	1.53
T-10°CVnom	0.15	0.16	-0.15	0.70
T-20°CVnom	0.45	0.91	0.50	1.06
T-30°CVnom	0.74	1.21	0.94	1.16
Vnom [Vdc]: 120		Vmax [Vdc]: 138		Vmin [Vdc]: 102
Tnom [°C]: 20		Tmax [°C]: 70		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.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	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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