FCC C2PC Test Report

FCC ID	:	**RYK-WPEQ257ACN**
Equipment	:	**802.11ac/b/g/n Mini PCIe Module**
Model No.	:	**WPEQ-257ACN**
Brand Name	:	**SparkLAN**
Applicant	:	**SparkLAN Communications, Inc.**
Address	:	**8F., No.257, Sec. 2, Tiding Blvd., Neihu District, Taipei City 11493, Taiwan.**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Oct. 16, 2019**
Tested Date	:	**Oct. 19 ~ Nov. 02, 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: **Approved by:**

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

Testing Laboratory 2732

Table of Contents

Release Record

Report No.	Version	Description	Issued Date
FR660602-02AN	Rev. 01	Initial issue	Nov. 27, 2019

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.507MHz 39.11 (Margin -16.89dB) - QP	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5150.00MHz 52.77 (Margin -1.23dB) - AV	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 Class II Permissive Change. The only difference is adding antenna.
In this report, conducted emissions & radiated emission is performed for this C2PC.

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	a	5180-5240	36-48 [4]	2	6-54 Mbps
5150-5250	n (HT20)	5180-5240	36-48 [4]	2	MCS 0-15
5150-5250	n (HT40)	5190-5230	38-46 [2]	2	MCS 0-15
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	2	MCS 0-9
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	2	MCS 0-9
5150-5250	ac (VHT80)	5210	42 [1]	2	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.					

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
5725-5850	a	5745-5825	149-165 [5]	2	6-54 Mbps
5725-5850	n (HT20)	5745-5825	149-165 [5]	2	MCS 0-15
5725-5850	n (HT40)	5755-5795	151-159 [2]	2	MCS 0-15
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	2	MCS 0-9
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	2	MCS 0-9
5725-5850	ac (VHT80)	5775	155 [1]	2	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.					

1.1.2 Antenna Details (Adding antenna were marked in boldface)

Ant. No.	Brand	Model	Type	Connector	Operating Frequencies(GHz) / Antenna Gain (dBi)		
					2.4~2.4835	5.15~5.25	5.725~5.85
1	Wanshih Electronic Co., Ltd.	WSS038	Dipole	RP-SMA	4.6	5	5
2	Long Cheng Tech. Int'l Co., Ltd.	DB B-SMA THIN PADDLE Ant. GEC6200	Dipole	RP-SMA	3	5	5
3	**SparkLAN Communications, Inc.**	**AD-103AG**	**Dipole**	**RP-SMA**	**2.02**	**1.93**	**2.03**
4	**SparkLAN Communications, Inc.**	**AD-302N**	**Dipole**	**RP-SMA**	**3.14**	**2.74**	**2.35**
5	**SparkLAN Communications, Inc.**	**AD-303N**	**Dipole**	**RP-SMA**	**3.14**	**2.82**	**2.97**
6	**TAOGLAS**	**FXP522.A.07.A.001**	**Monopole**	**IPEX**	**Port 1: 3.78 Port 2: 3.15**	**Port 1: 4.63 Port 2: 4.61**	**Port 1: 4.63 Port 2: 4.61**

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

For Frequency band 5150-5250 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	VHT 80	
48	5240	42	5210

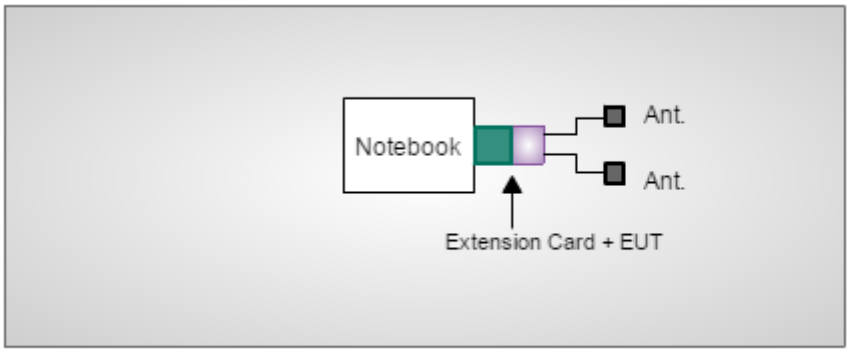
For Frequency band 5725~5850 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
149	5745	151	5755
153	5765	159	5795
157	5785	VHT80	
161	5805	155	5775
165	5825	---	---

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6430	DoC	---
2.	Extension Card	---	---	---	---

1.3 Test Setup Chart

Test Setup Diagram



**Antenna distance 5cm

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Oct. 31, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
LISN	R&S	ENV216	101579	Mar. 08, 2019	Mar. 07, 2020
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 22, 2019	Oct. 21, 2020
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 chamber1 / (03CH01-WS)				
Tested Date	Oct. 19 ~ Nov. 01, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 27, 2018	Dec. 26, 2019
Receiver	R&S	ESR3	101658	Dec. 11, 2018	Dec. 10, 2019
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 12, 2019	Jul. 11, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 18, 2018	Dec. 17, 2019
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. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980225	Jul. 09, 2019	Jul. 08, 2020
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 07, 2019	Oct. 06, 2020
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 07, 2019	Oct. 06, 2020
Measurement Software	AUDIX	e3	6.120210g	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 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**
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	22°C / 58%	Akun Chung
Radiated Emissions	03CH01-WS	24-25°C / 61-65%	Roger Lu

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

For Frequency band 5150-5250 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5200	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5200	6 Mbps	---
Radiated Emissions >1GHz	11a VHT20 VHT40 VHT80	5180 / 5200 / 5240 5180 / 5200 / 5240 5190 / 5230 5210	6 Mbps MCS 0 MCS 0 MCS 0	--- --- ---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.				

For Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5745	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5745	6 Mbps	---
Radiated Emissions >1GHz	11a VHT20 VHT40 VHT80	5745 / 5785 / 5825 5745 / 5785 / 5825 5755 / 5795 5775	6 Mbps MCS 0 MCS 0 MCS 0	---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.				

3 Transmitter Test Results

3.1 Conducted Emissions

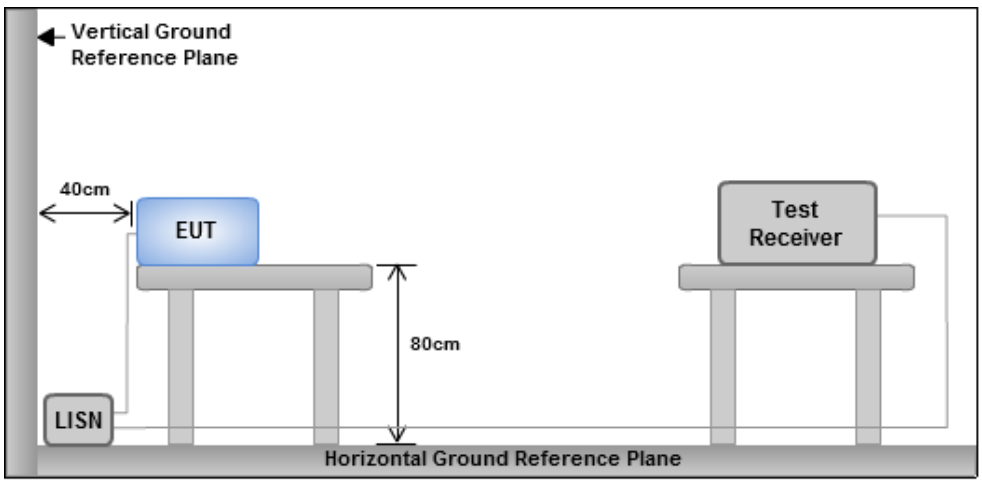
3.1.1 Limit of Conducted Emissions

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

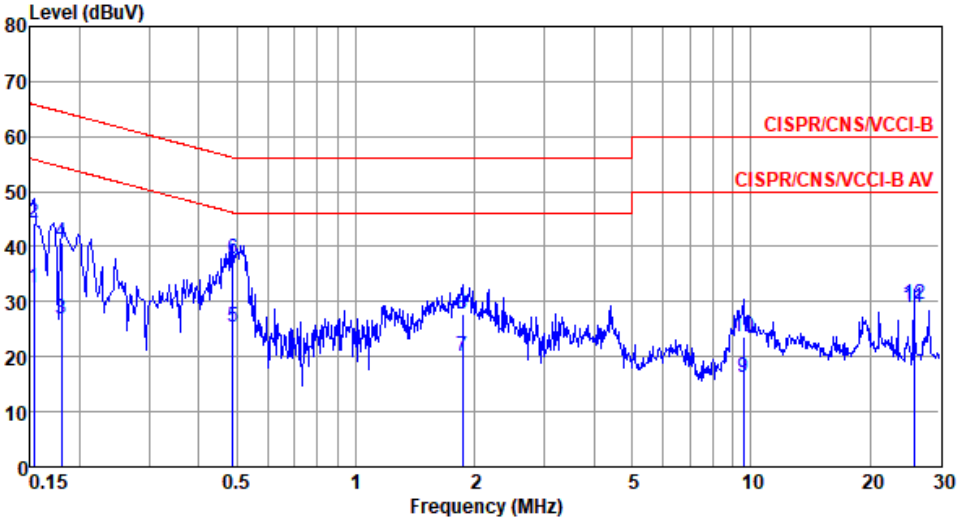


Note: 1. Support units were connected to second LISN.

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

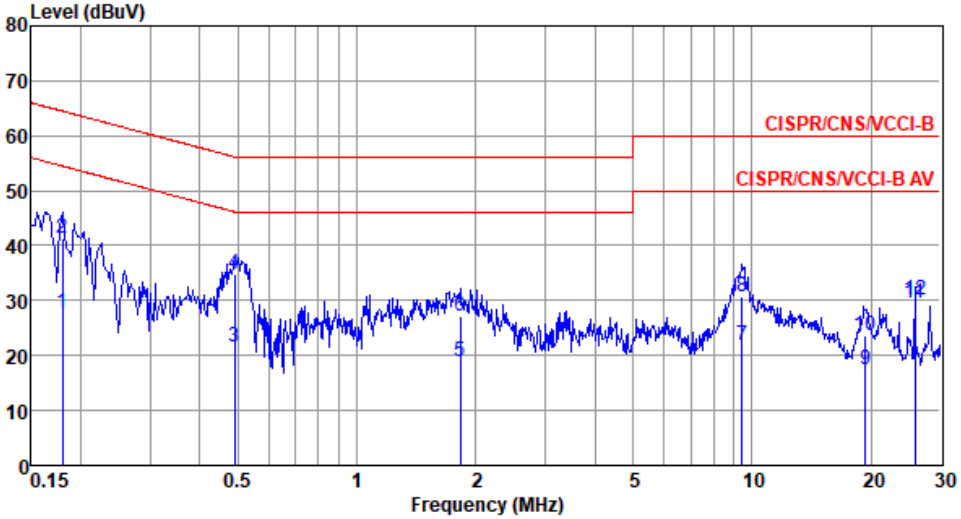
Modulation	11a	Test Freq. (MHz)	5200
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.153	32.52	55.82	-23.30	22.94	9.53	0.05	Average
2	0.153	44.14	65.82	-21.68	34.56	9.53	0.05	QP
3	0.180	26.76	54.50	-27.74	17.16	9.54	0.06	Average
4	0.180	40.86	64.50	-23.64	31.26	9.54	0.06	QP
5	0.489	25.30	46.19	-20.89	15.63	9.58	0.09	Average
6*	0.489	37.80	56.19	-18.39	28.13	9.58	0.09	QP
7	1.858	20.08	46.00	-25.92	10.31	9.60	0.17	Average
8	1.858	27.75	56.00	-28.25	17.98	9.60	0.17	QP
9	9.552	16.22	50.00	-33.78	6.19	9.65	0.38	Average
10	9.552	23.47	60.00	-36.53	13.44	9.65	0.38	QP
11	25.870	29.07	50.00	-20.93	18.72	9.63	0.72	Average
12	25.870	29.66	60.00	-30.34	19.31	9.63	0.72	QP

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

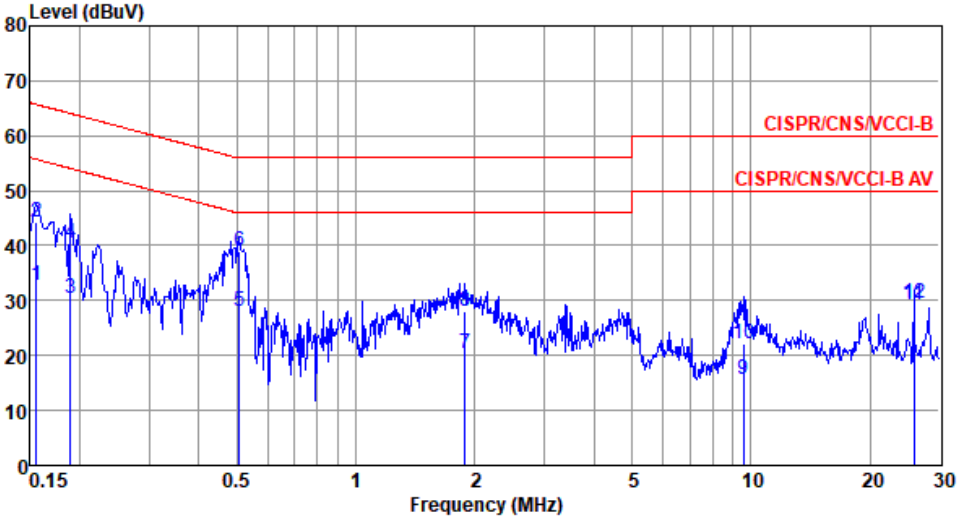
Modulation	11a	Test Freq. (MHz)	5180
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.180	27.87	54.50	-26.63	18.23	9.58	0.06	Average
2	0.180	41.39	64.50	-23.11	31.75	9.58	0.06	QP
3	0.491	21.55	46.14	-24.59	11.84	9.62	0.09	Average
4	0.491	34.83	56.14	-21.31	25.12	9.62	0.09	QP
5	1.829	18.80	46.00	-27.20	8.98	9.65	0.17	Average
6	1.829	27.16	56.00	-28.84	17.34	9.65	0.17	QP
7	9.451	21.90	50.00	-28.10	11.81	9.71	0.38	Average
8	9.451	30.61	60.00	-29.39	20.52	9.71	0.38	QP
9	19.400	17.35	50.00	-32.65	6.89	9.81	0.65	Average
10	19.400	23.76	60.00	-36.24	13.30	9.81	0.65	QP
11*	25.870	29.65	50.00	-20.35	19.11	9.82	0.72	Average
12	25.870	29.97	60.00	-30.03	19.43	9.82	0.72	QP

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

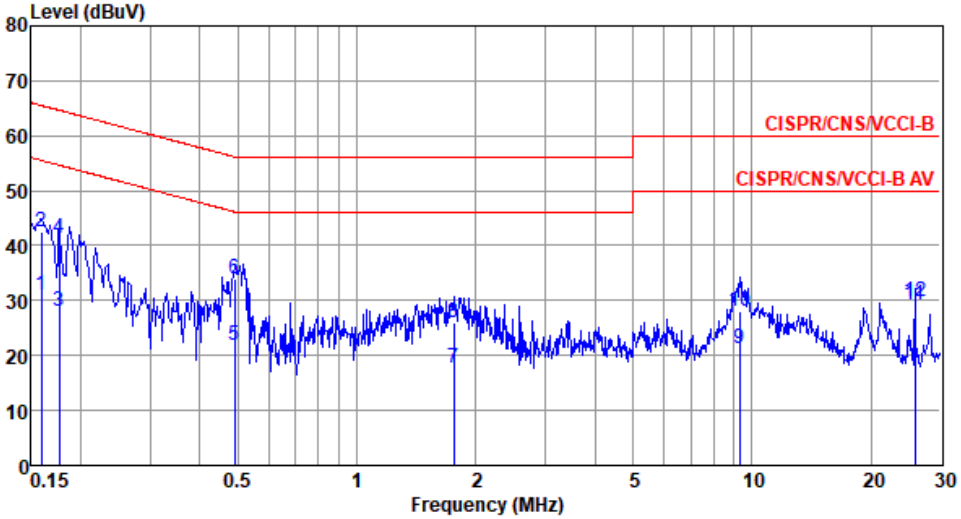
Modulation	11a	Test Freq. (MHz)	5745
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.156	32.64	55.69	-23.05	23.06	9.53	0.05	Average
2	0.156	44.25	65.69	-21.44	34.67	9.53	0.05	QP
3	0.189	30.41	54.06	-23.65	20.81	9.54	0.06	Average
4	0.189	40.53	64.06	-23.53	30.93	9.54	0.06	QP
5	0.507	27.91	46.00	-18.09	18.24	9.58	0.09	Average
6*	0.507	39.11	56.00	-16.89	29.44	9.58	0.09	QP
7	1.888	20.28	46.00	-25.72	10.50	9.60	0.18	Average
8	1.888	28.00	56.00	-28.00	18.22	9.60	0.18	QP
9	9.552	15.54	50.00	-34.46	5.51	9.65	0.38	Average
10	9.552	22.10	60.00	-37.90	12.07	9.65	0.38	QP
11	25.870	29.09	50.00	-20.91	18.74	9.63	0.72	Average
12	25.870	29.64	60.00	-30.36	19.29	9.63	0.72	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)	5745
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	30.98	55.52	-24.54	21.36	9.57	0.05	Average
2	0.159	42.65	65.52	-22.87	33.03	9.57	0.05	QP
3	0.177	28.15	54.64	-26.49	18.51	9.58	0.06	Average
4	0.177	41.38	64.64	-23.26	31.74	9.58	0.06	QP
5	0.491	21.71	46.14	-24.43	12.00	9.62	0.09	Average
6	0.491	33.90	56.14	-22.24	24.19	9.62	0.09	QP
7	1.762	17.80	46.00	-28.20	7.98	9.65	0.17	Average
8	1.762	25.96	56.00	-30.04	16.14	9.65	0.17	QP
9	9.302	21.37	50.00	-28.63	11.28	9.71	0.38	Average
10	9.302	27.90	60.00	-32.10	17.81	9.71	0.38	QP
11*	25.870	29.37	50.00	-20.63	18.83	9.82	0.72	Average
12	25.870	29.69	60.00	-30.31	19.15	9.82	0.72	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 Transmitter Radiated and Band Edge Emissions

3.2.1 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]
5.725 - 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).

3.2.2 Test Procedures

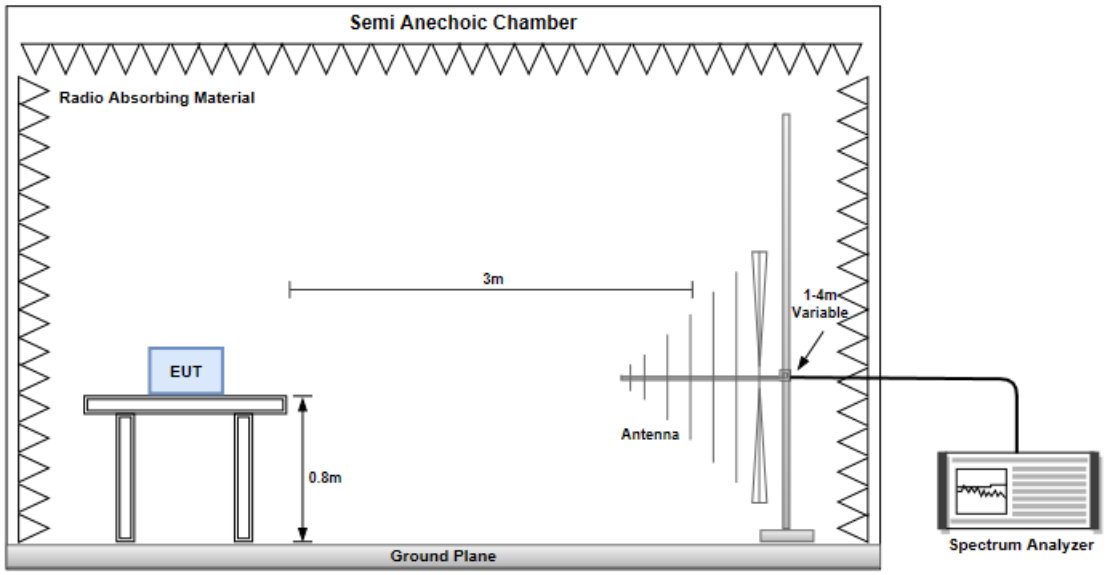
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

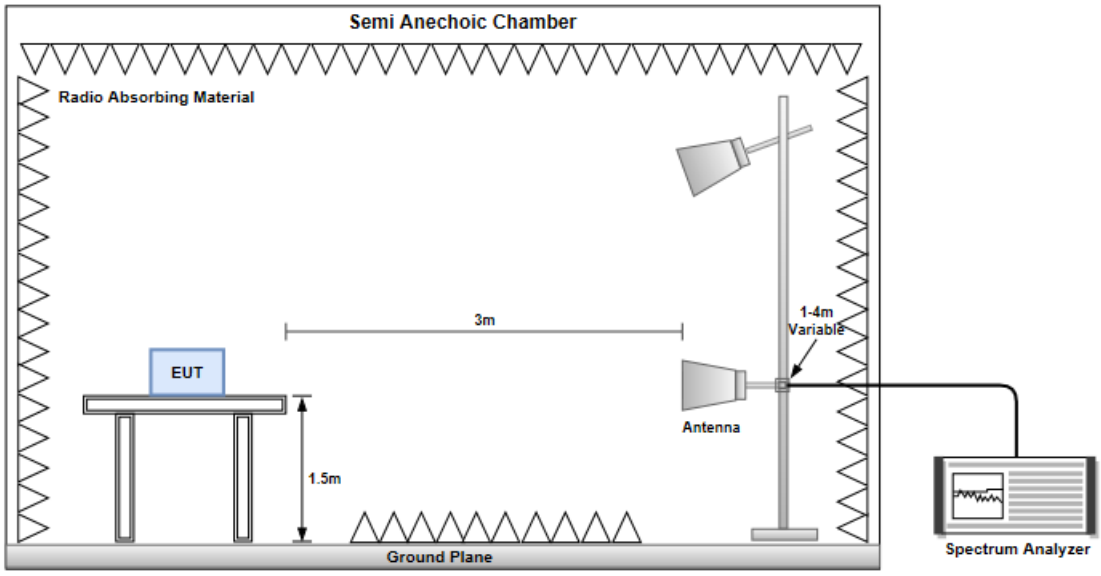
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.2.3 Test Setup

Radiated Emissions below 1 GHz

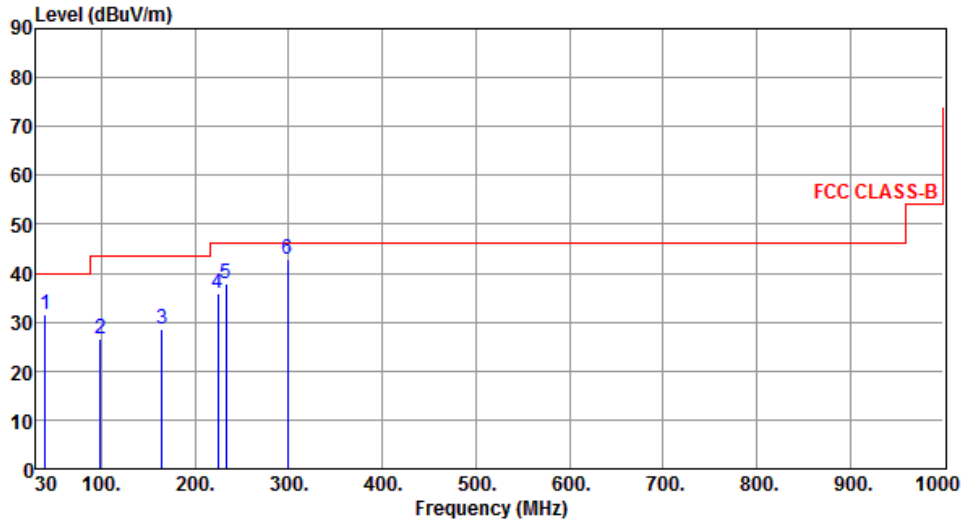


Radiated Emissions above 1 GHz



3.2.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

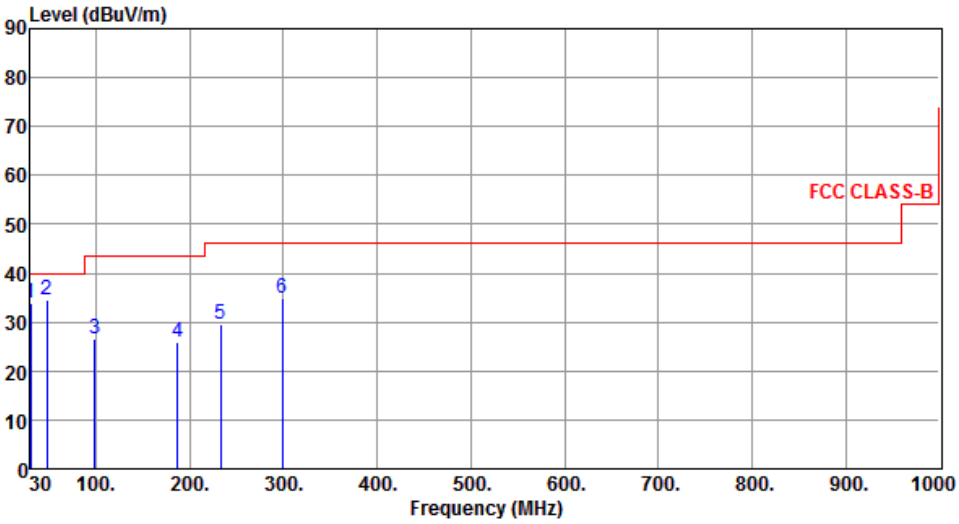
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	39.70	31.70	40.00	-8.30	40.42	-8.72	Peak	---	---
2	98.87	26.44	43.50	-17.06	39.66	-13.22	Peak	---	---
3	164.83	28.70	43.50	-14.80	37.31	-8.61	Peak	---	---
4	224.00	35.78	46.00	-10.22	47.78	-12.00	Peak	---	---
5	232.73	37.87	46.00	-8.13	49.03	-11.16	Peak	---	---
6	298.69	42.88	46.00	-3.12	51.00	-8.12	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.

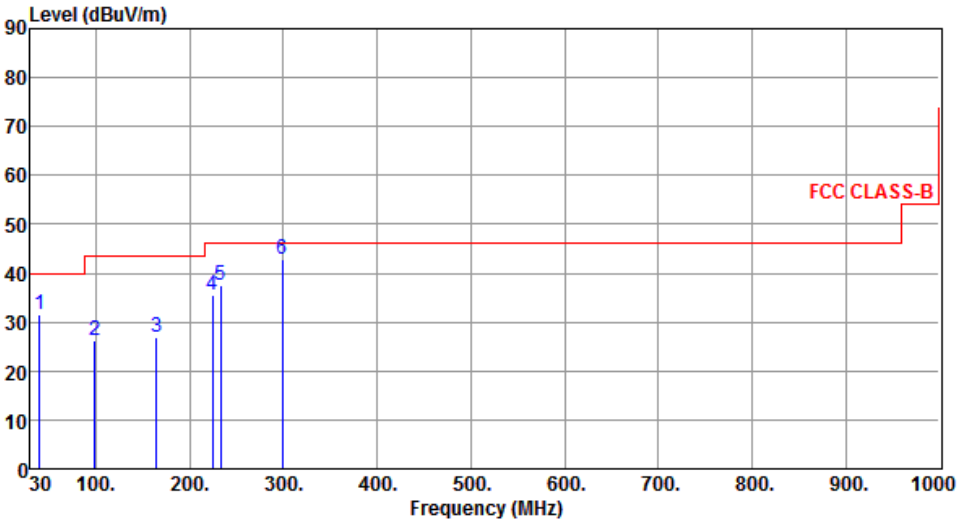
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.00	33.84	40.00	-6.16	43.55	-9.71	Peak	---	---
2	47.46	34.53	40.00	-5.47	42.94	-8.41	Peak	---	---
3	98.87	26.48	43.50	-17.02	39.70	-13.22	Peak	---	---
4	187.14	26.00	43.50	-17.50	36.89	-10.89	Peak	---	---
5	232.73	29.66	46.00	-16.34	40.82	-11.16	Peak	---	---
6	298.69	35.03	46.00	-10.97	43.15	-8.12	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.

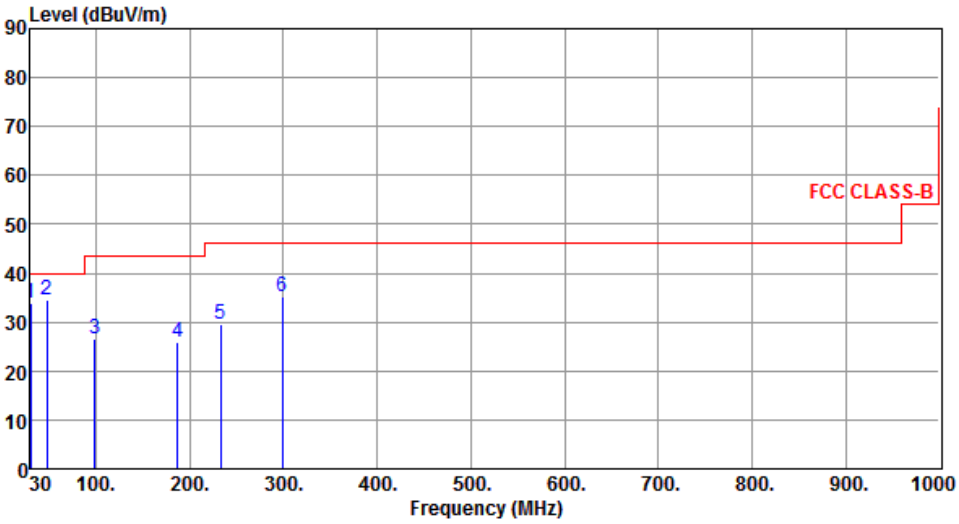
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	39.66	31.55	40.00	-8.45	40.27	-8.72	Peak	---	---
2	98.79	26.34	43.50	-17.16	39.57	-13.23	Peak	---	---
3	164.77	26.74	43.50	-16.76	35.35	-8.61	Peak	---	---
4	224.12	35.69	46.00	-10.31	47.69	-12.00	Peak	---	---
5	232.66	37.68	46.00	-8.32	48.85	-11.17	Peak	---	---
6	298.51	42.79	46.00	-3.21	50.91	-8.12	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	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		

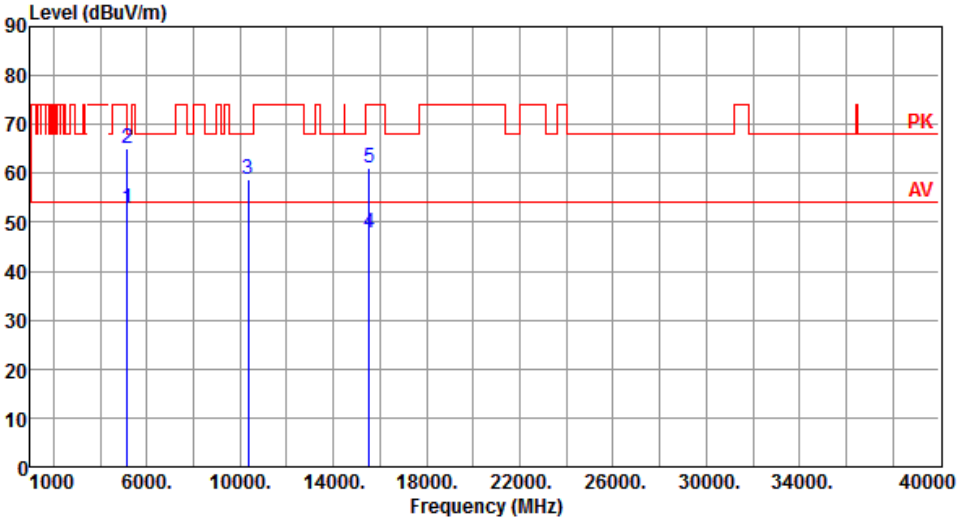


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.00	33.84	40.00	-6.16	43.55	-9.71	Peak	---	---
2	47.81	34.61	40.00	-5.39	43.01	-8.40	Peak	---	---
3	98.51	26.45	43.50	-17.05	39.71	-13.26	Peak	---	---
4	187.22	25.98	43.50	-17.52	36.88	-10.90	Peak	---	---
5	232.66	29.47	46.00	-16.53	40.64	-11.17	Peak	---	---
6	298.55	35.12	46.00	-10.88	43.24	-8.12	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.

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

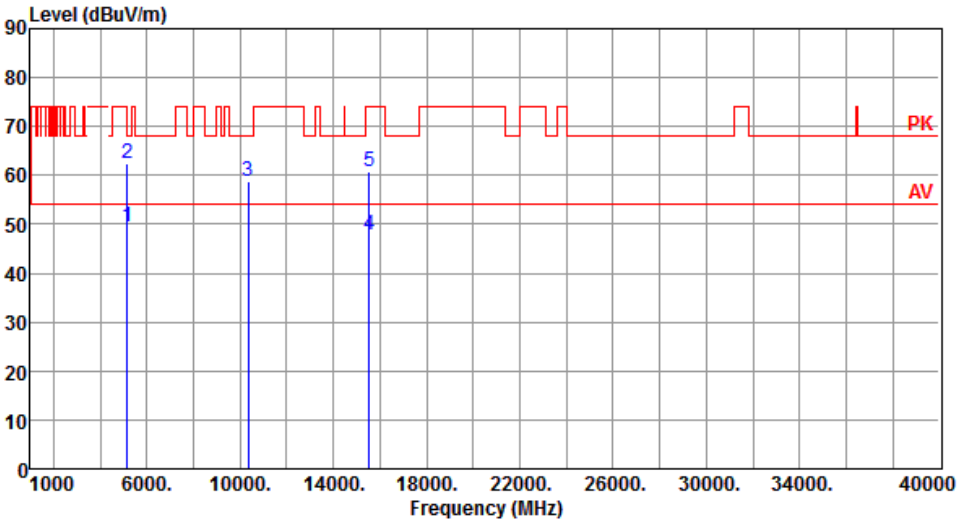
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	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	52.77	54.00	-1.23	48.33	4.44	Average	100	96
2	5150.00	64.94	74.00	-9.06	60.50	4.44	Peak	100	96
3	10360.00	58.91	68.20	-9.29	44.62	14.29	Peak	100	350
4	15540.00	47.69	54.00	-6.31	33.14	14.55	Average	100	20
5	15540.00	61.04	74.00	-12.96	46.49	14.55	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).

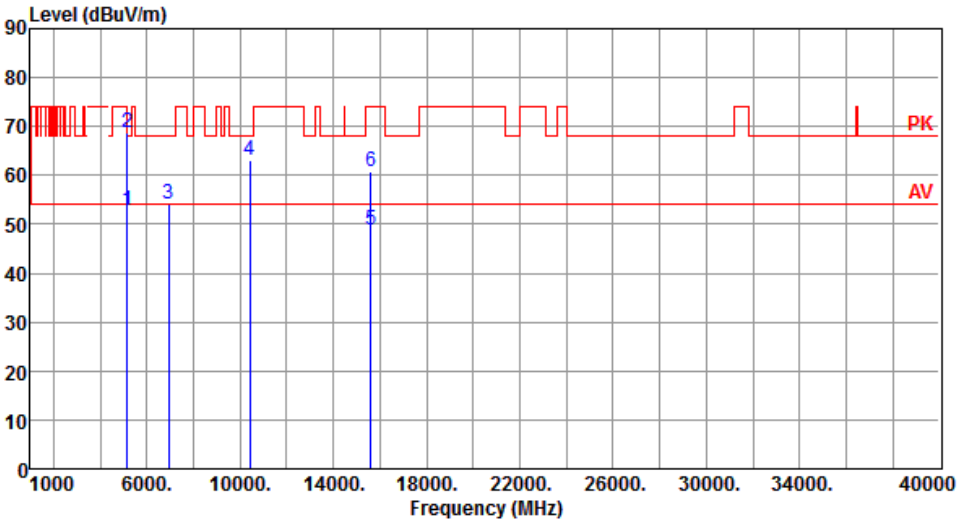
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	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	49.53	54.00	-4.47	45.09	4.44	Average	306	207
2	5150.00	62.53	74.00	-11.47	58.09	4.44	Peak	306	207
3	10360.00	58.81	68.20	-9.39	44.52	14.29	Peak	100	20
4	15540.00	47.74	54.00	-6.26	33.19	14.55	Average	100	50
5	15540.00	60.94	74.00	-13.06	46.39	14.55	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).

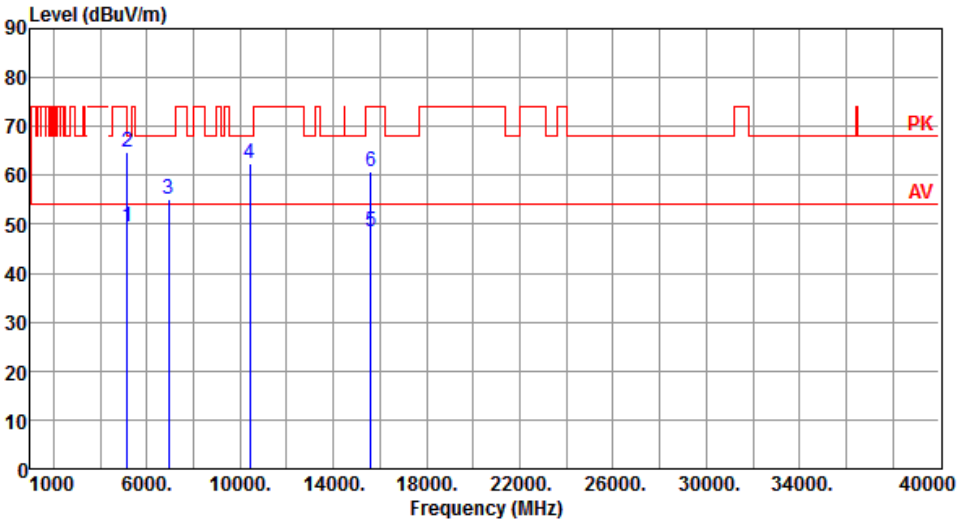
Modulation	11a	**Test Freq. (MHz)**	5200
Polarization	Horizontal		



	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	52.70	54.00	-1.30	48.26	4.44	Average	116	91
2	5150.00	68.58	74.00	-5.42	64.14	4.44	Peak	116	91
3	6933.33	54.25	68.20	-13.95	46.39	7.86	Peak	100	147
4	10400.00	63.09	68.20	-5.11	48.69	14.40	Peak	333	347
5	15600.00	48.69	54.00	-5.31	34.35	14.34	Average	100	60
6	15600.00	60.81	74.00	-13.19	46.47	14.34	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).

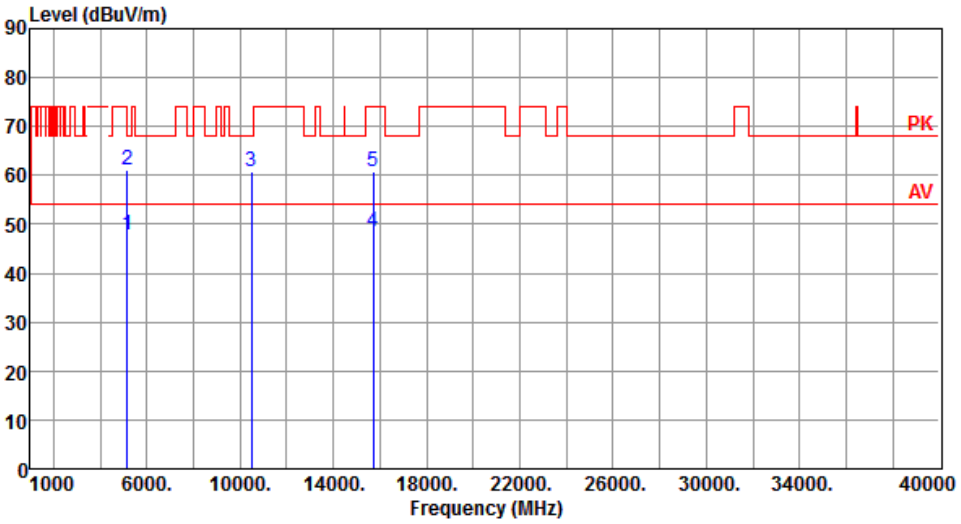
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	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	49.53	54.00	-4.47	45.09	4.44	Average	305	205
2	5150.00	64.86	74.00	-9.14	60.42	4.44	Peak	305	205
3	6933.33	55.17	68.20	-13.03	47.31	7.86	Peak	100	87
4	10400.00	62.34	68.20	-5.86	47.94	14.40	Peak	100	36
5	15600.00	48.39	54.00	-5.61	34.05	14.34	Average	100	40
6	15600.00	60.83	74.00	-13.17	46.49	14.34	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).

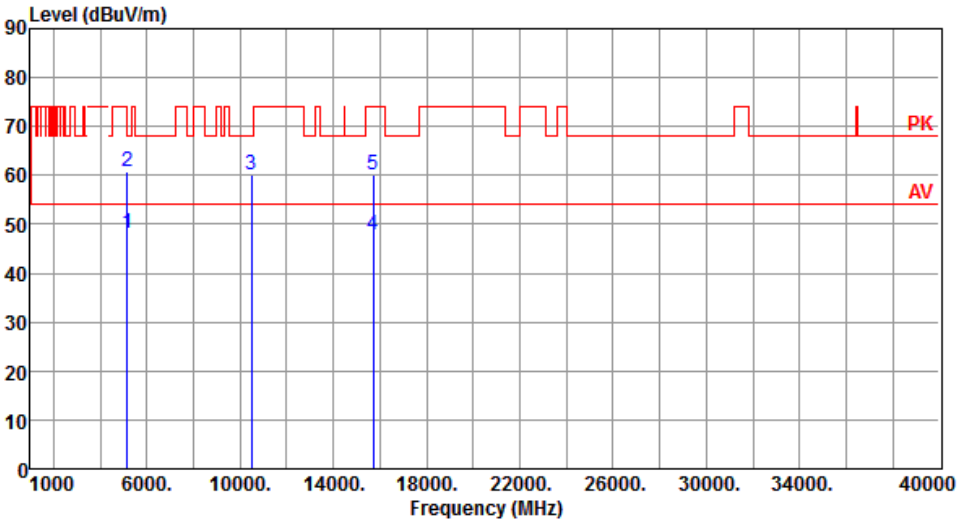
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		



	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	47.97	54.00	-6.03	43.53	4.44	Average	100	88
2	5150.00	61.02	74.00	-12.98	56.58	4.44	Peak	100	88
3	10480.00	60.86	68.20	-7.34	46.46	14.40	Peak	335	345
4	15720.00	48.56	54.00	-5.44	34.47	14.09	Average	100	90
5	15720.00	60.63	74.00	-13.37	46.54	14.09	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).

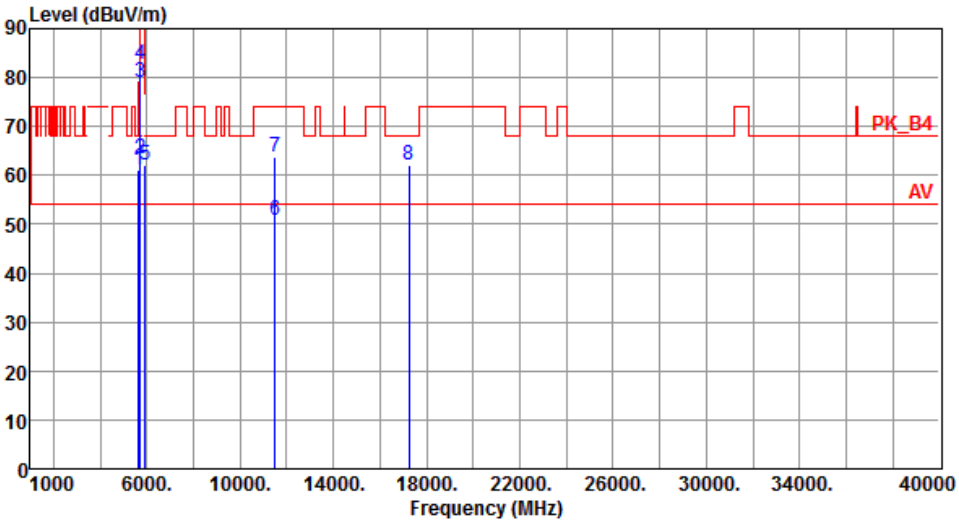
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		



	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	48.02	54.00	-5.98	43.58	4.44	Average	306	205
2	5150.00	60.88	74.00	-13.12	56.44	4.44	Peak	306	205
3	10480.00	60.06	68.20	-8.14	45.66	14.40	Peak	100	37
4	15720.00	47.93	54.00	-6.07	33.84	14.09	Average	100	40
5	15720.00	60.27	74.00	-13.73	46.18	14.09	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).

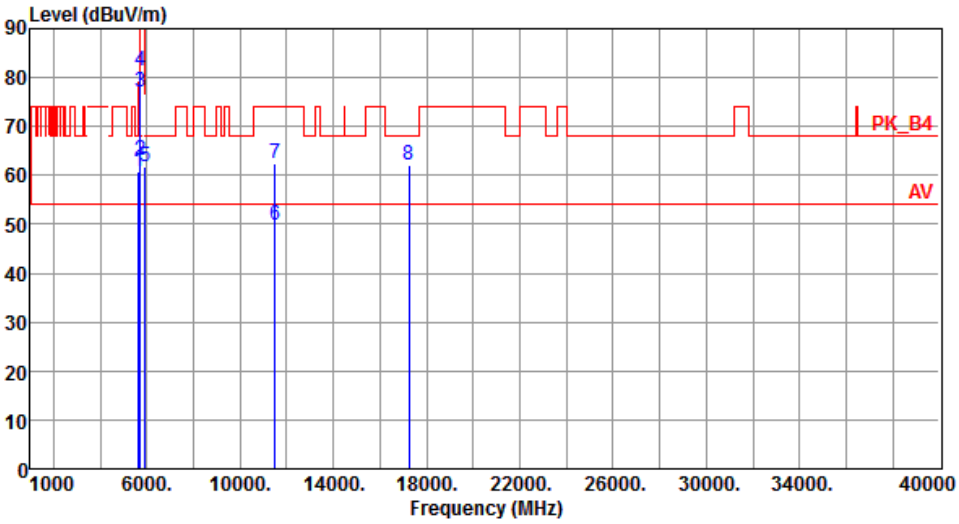
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



	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	60.95	68.20	-7.25	56.41	4.54	Peak	100	91
2	5700.00	63.31	105.20	-41.89	58.63	4.68	Peak	100	91
3	5720.00	79.08	110.80	-31.72	74.35	4.73	Peak	100	91
4	5725.00	82.61	122.20	-39.59	77.86	4.75	Peak	100	91
5	5925.00	61.95	68.20	-6.25	56.67	5.28	Peak	100	91
6	11490.00	50.86	54.00	-3.14	36.15	14.71	Average	100	145
7	11490.00	63.82	74.00	-10.18	49.11	14.71	Peak	100	145
8	17235.00	62.22	68.20	-5.98	44.69	17.53	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).

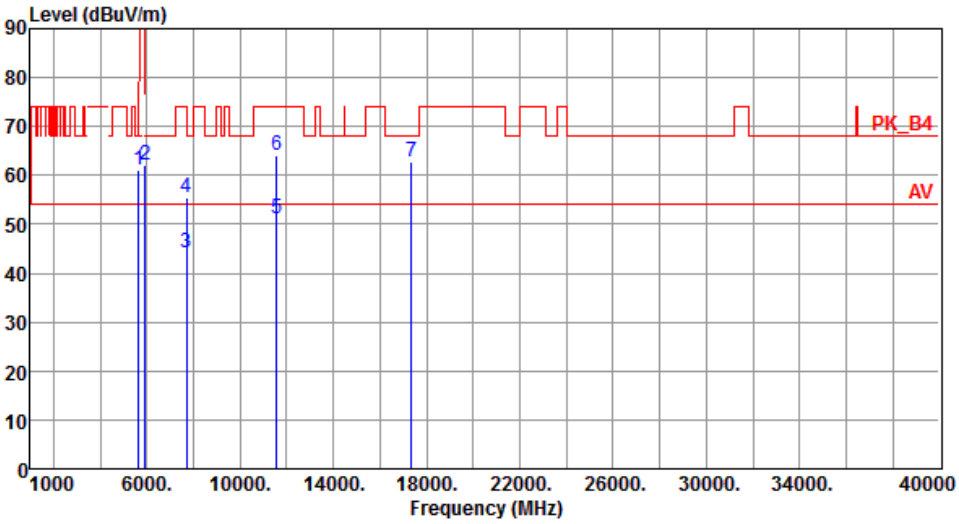
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		



	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	60.84	68.20	-7.36	56.30	4.54	Peak	303	269
2	5700.00	63.24	105.20	-41.96	58.56	4.68	Peak	303	269
3	5720.00	77.00	110.80	-33.80	72.27	4.73	Peak	303	269
4	5725.00	81.41	122.20	-40.79	76.66	4.75	Peak	303	269
5	5925.00	61.82	68.20	-6.38	56.54	5.28	Peak	303	269
6	11490.00	49.72	54.00	-4.28	35.01	14.71	Average	100	55
7	11490.00	62.39	74.00	-11.61	47.68	14.71	Peak	100	55
8	17235.00	62.16	68.20	-6.04	44.63	17.53	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).

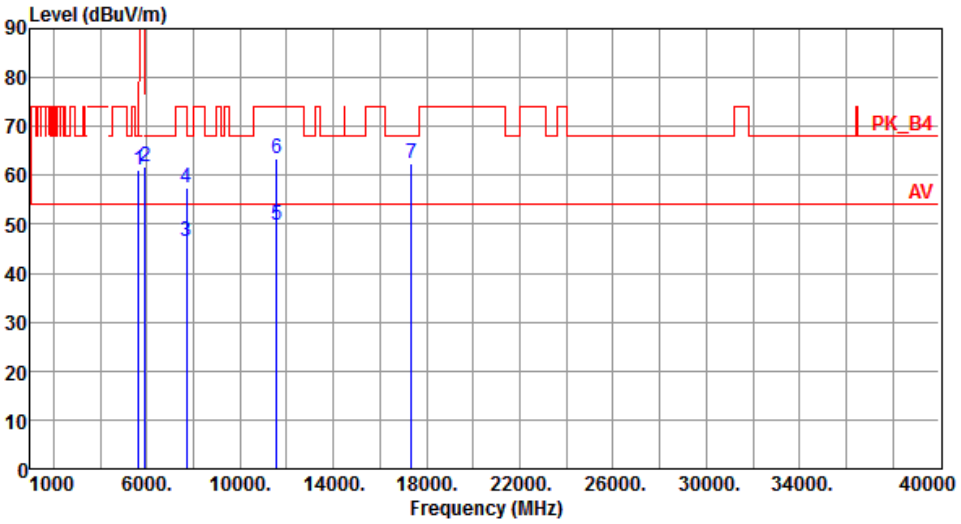
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



	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	61.00	68.20	-7.20	56.46	4.54	Peak	100	94
2	5925.00	62.15	68.20	-6.05	56.87	5.28	Peak	100	94
3	7713.33	44.06	54.00	-9.94	35.33	8.73	Average	100	139
4	7713.33	55.32	74.00	-18.68	46.59	8.73	Peak	100	139
5	11570.00	51.02	54.00	-2.98	36.49	14.53	Average	100	146
6	11570.00	64.07	74.00	-9.93	49.54	14.53	Peak	100	146
7	17355.00	62.79	68.20	-5.41	44.84	17.95	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).

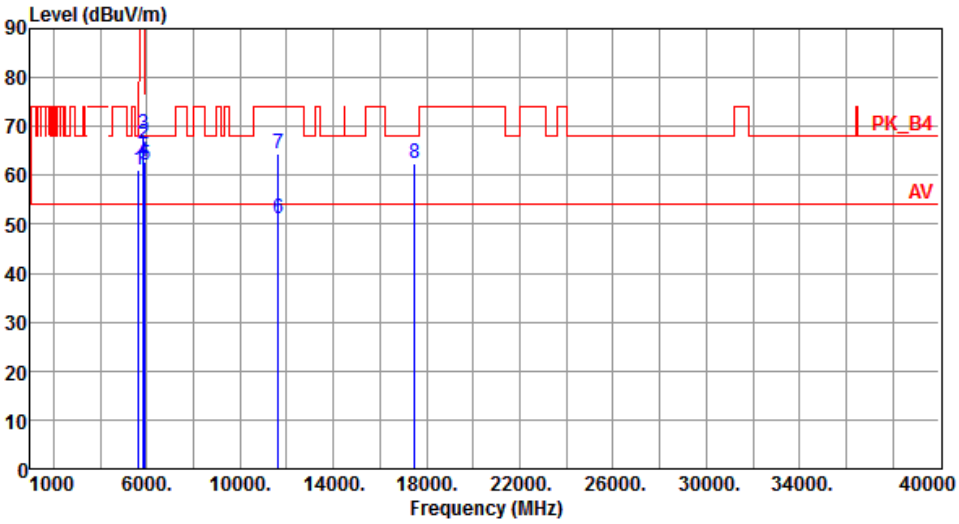
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



	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	60.95	68.20	-7.25	56.41	4.54	Peak	303	266
2	5925.00	61.89	68.20	-6.31	56.61	5.28	Peak	303	266
3	7713.33	46.62	54.00	-7.38	37.89	8.73	Average	100	94
4	7713.33	57.47	74.00	-16.53	48.74	8.73	Peak	100	94
5	11570.00	49.68	54.00	-4.32	35.15	14.53	Average	100	60
6	11570.00	63.30	74.00	-10.70	48.77	14.53	Peak	100	60
7	17355.00	62.59	68.20	-5.61	44.64	17.95	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).

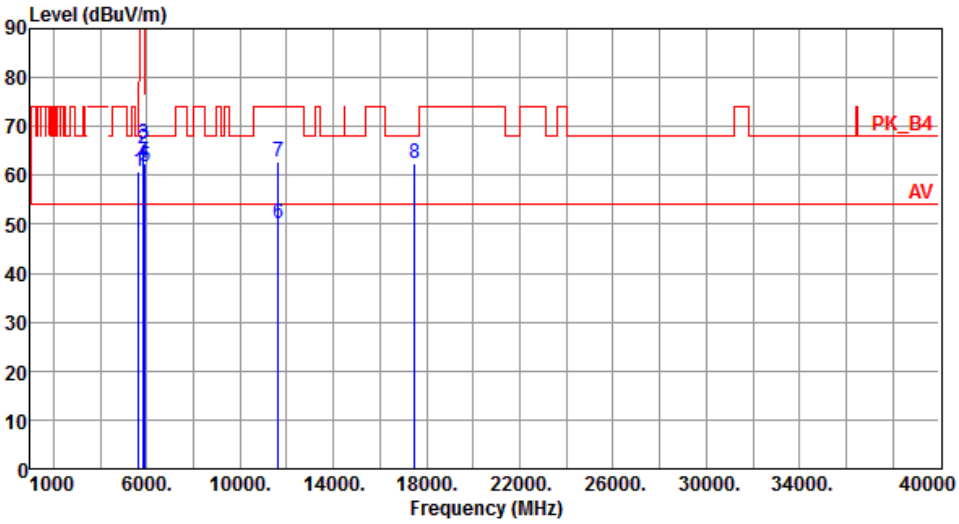
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		



	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	61.06	68.20	-7.14	56.52	4.54	Peak	100	95
2	5850.00	66.33	122.20	-55.87	61.18	5.15	Peak	100	95
3	5855.00	68.28	110.80	-42.52	63.13	5.15	Peak	100	95
4	5875.00	62.74	105.20	-42.46	57.55	5.19	Peak	100	95
5	5925.00	62.12	68.20	-6.08	56.84	5.28	Peak	100	95
6	11650.00	51.26	54.00	-2.74	37.05	14.21	Average	100	146
7	11650.00	64.37	74.00	-9.63	50.16	14.21	Peak	100	146
8	17475.00	62.36	68.20	-5.84	44.08	18.28	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)	5825
Polarization	Vertical		

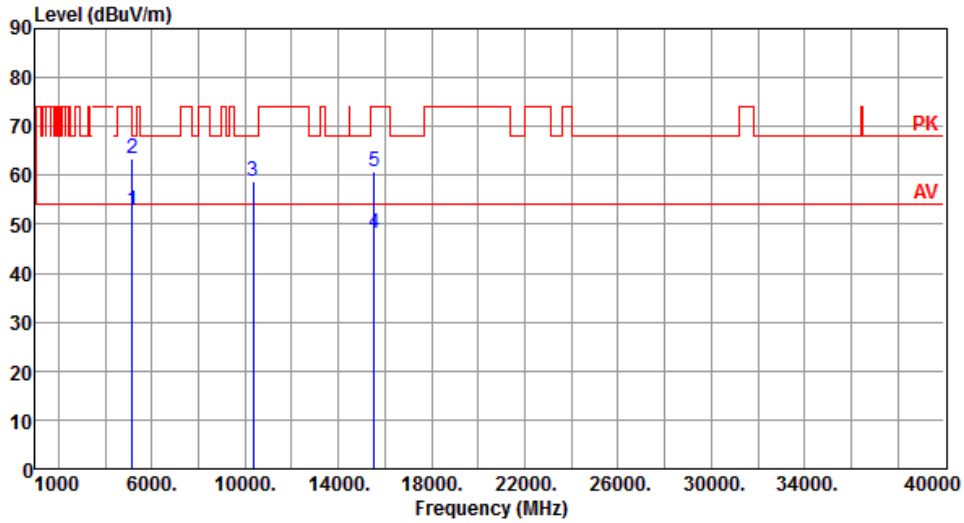


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.90	68.20	-7.30	56.36	4.54	Peak	305	268
2	5850.00	65.58	122.20	-56.62	60.43	5.15	Peak	305	268
3	5855.00	66.42	110.80	-44.38	61.27	5.15	Peak	305	268
4	5875.00	62.29	105.20	-42.91	57.10	5.19	Peak	305	268
5	5925.00	61.92	68.20	-6.28	56.64	5.28	Peak	305	268
6	11650.00	50.13	54.00	-3.87	35.92	14.21	Average	100	59
7	11650.00	62.73	74.00	-11.27	48.52	14.21	Peak	100	59
8	17475.00	62.27	68.20	-5.93	43.99	18.28	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).

3.2.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

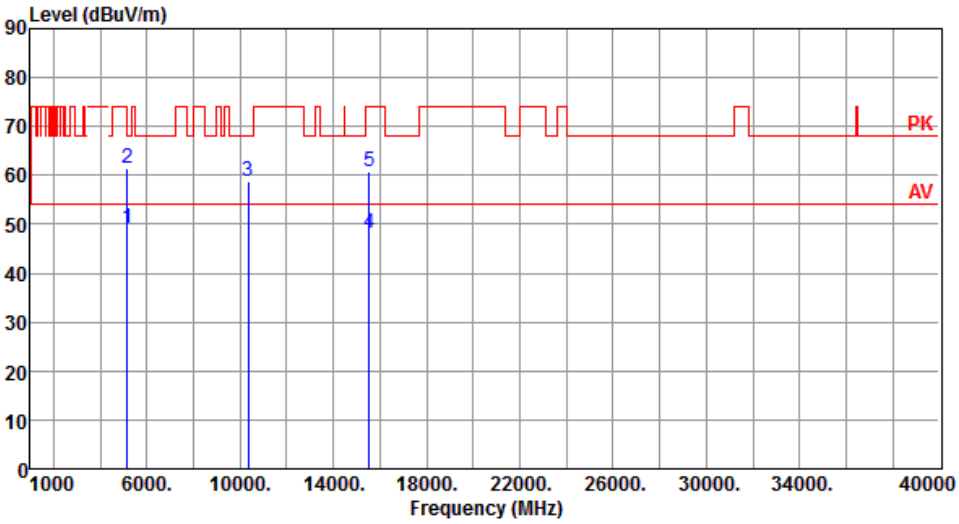
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	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	52.72	54.00	-1.28	48.28	4.44	Average	107	90
2	5150.00	63.53	74.00	-10.47	59.09	4.44	Peak	107	90
3	10360.00	58.81	68.20	-9.39	44.52	14.29	Peak	100	30
4	15540.00	48.18	54.00	-5.82	33.63	14.55	Average	100	25
5	15540.00	60.84	74.00	-13.16	46.29	14.55	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).

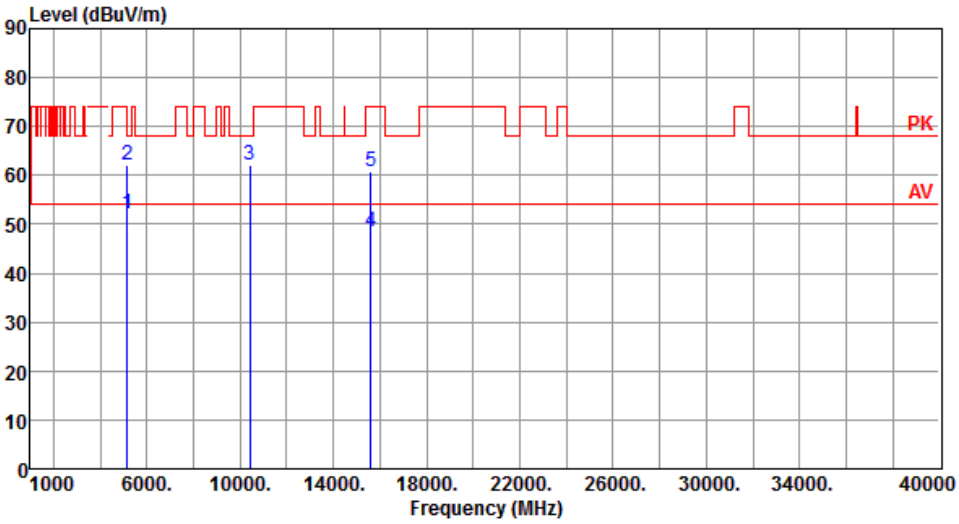
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	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	49.10	54.00	-4.90	44.66	4.44	Average	303	206
2	5150.00	61.52	74.00	-12.48	57.08	4.44	Peak	303	206
3	10360.00	58.86	68.20	-9.34	44.57	14.29	Peak	100	10
4	15540.00	48.04	54.00	-5.96	33.49	14.55	Average	100	40
5	15540.00	60.68	74.00	-13.32	46.13	14.55	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).

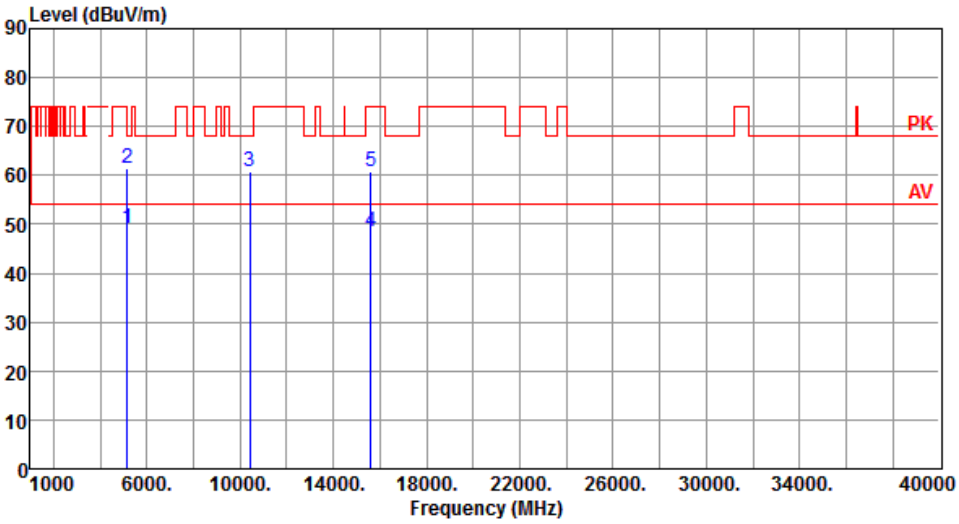
Modulation	VHT20	**Test Freq. (MHz)**	5200
Polarization	Horizontal		



	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	52.27	54.00	-1.73	47.83	4.44	Average	100	92
2	5150.00	61.94	74.00	-12.06	57.50	4.44	Peak	100	92
3	10400.00	62.00	68.20	-6.20	47.60	14.40	Peak	332	351
4	15600.00	48.62	54.00	-5.38	34.28	14.34	Average	100	40
5	15600.00	60.89	74.00	-13.11	46.55	14.34	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).

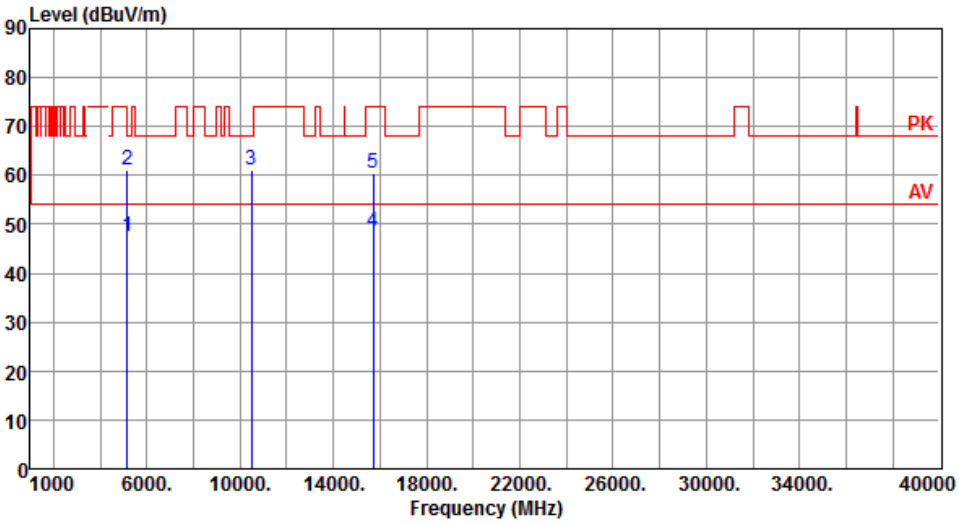
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		



	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	49.10	54.00	-4.90	44.66	4.44	Average	306	202
2	5150.00	61.43	74.00	-12.57	56.99	4.44	Peak	306	202
3	10400.00	60.84	68.20	-7.36	46.44	14.40	Peak	100	39
4	15600.00	48.49	54.00	-5.51	34.15	14.34	Average	100	30
5	15600.00	60.68	74.00	-13.32	46.34	14.34	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).

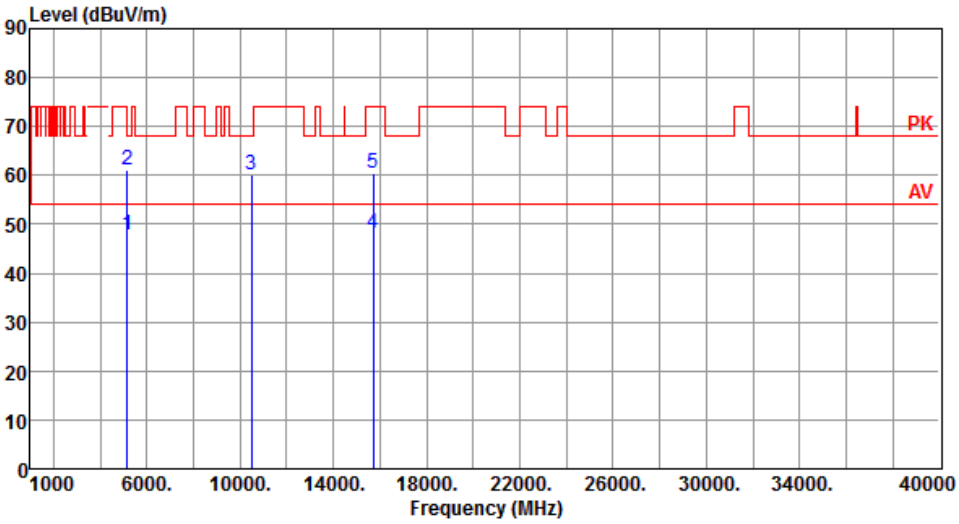
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	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	47.53	54.00	-6.47	43.09	4.44	Average	100	92
2	5150.00	60.97	74.00	-13.03	56.53	4.44	Peak	100	92
3	10480.00	61.11	68.20	-7.09	46.71	14.40	Peak	333	349
4	15720.00	48.44	54.00	-5.56	34.35	14.09	Average	100	40
5	15720.00	60.56	74.00	-13.44	46.47	14.09	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).

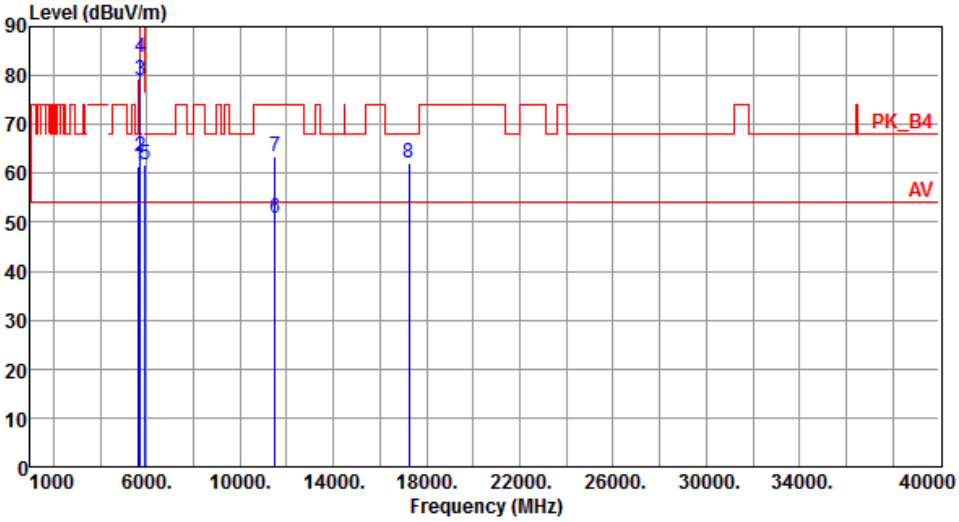
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	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	47.67	54.00	-6.33	43.23	4.44	Average	303	206
2	5150.00	61.02	74.00	-12.98	56.58	4.44	Peak	303	206
3	10480.00	59.97	68.20	-8.23	45.57	14.40	Peak	100	34
4	15720.00	48.23	54.00	-5.77	34.14	14.09	Average	100	20
5	15720.00	60.29	74.00	-13.71	46.20	14.09	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).

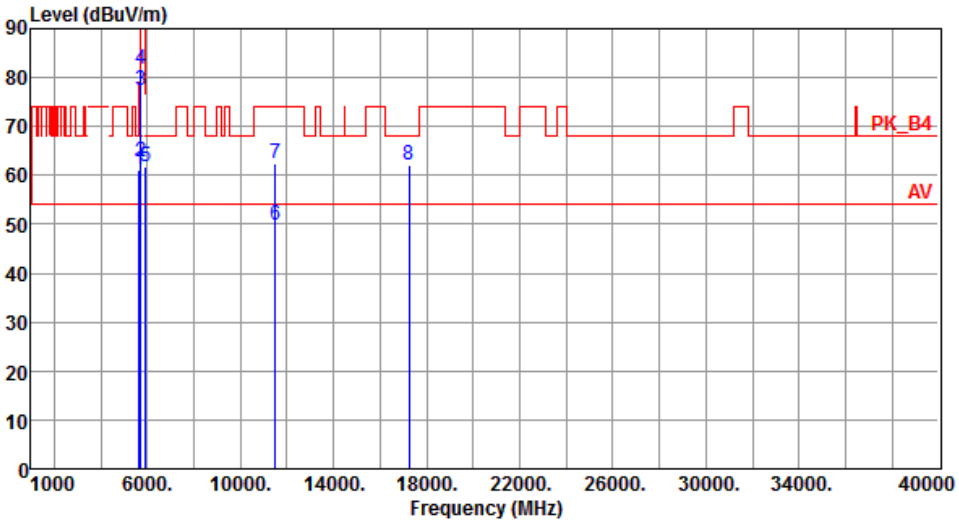
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	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	61.51	68.20	-6.69	56.97	4.54	Peak	100	91
2	5700.00	63.49	105.20	-41.71	58.81	4.68	Peak	100	91
3	5720.00	78.96	110.80	-31.84	74.23	4.73	Peak	100	91
4	5725.00	83.68	122.20	-38.52	78.93	4.75	Peak	100	91
5	5925.00	61.84	68.20	-6.36	56.56	5.28	Peak	100	91
6	11490.00	50.72	54.00	-3.28	36.01	14.71	Average	100	146
7	11490.00	63.40	74.00	-10.60	48.69	14.71	Peak	100	146
8	17235.00	62.16	68.20	-6.04	44.63	17.53	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).

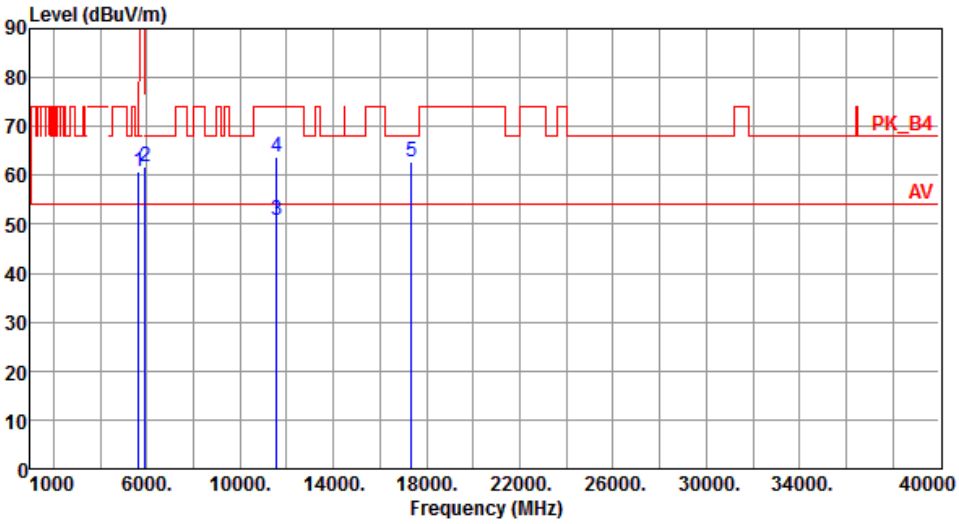
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	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	61.08	68.20	-7.12	56.54	4.54	Peak	305	268
2	5700.00	62.82	105.20	-42.38	58.14	4.68	Peak	305	268
3	5720.00	77.22	110.80	-33.58	72.49	4.73	Peak	305	268
4	5725.00	81.59	122.20	-40.61	76.84	4.75	Peak	305	268
5	5925.00	61.89	68.20	-6.31	56.61	5.28	Peak	305	268
6	11490.00	49.77	54.00	-4.23	35.06	14.71	Average	100	56
7	11490.00	62.55	74.00	-11.45	47.84	14.71	Peak	100	56
8	17235.00	62.06	68.20	-6.14	44.53	17.53	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).

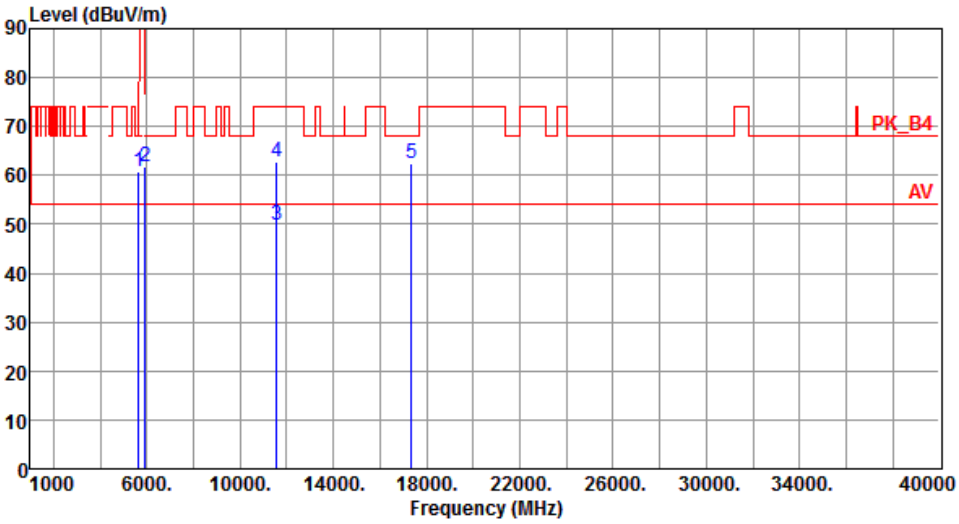
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	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	60.84	68.20	-7.36	56.30	4.54	Peak	107	89
2	5925.00	61.89	68.20	-6.31	56.61	5.28	Peak	107	89
3	11570.00	50.83	54.00	-3.17	36.30	14.53	Average	100	143
4	11570.00	63.92	74.00	-10.08	49.39	14.53	Peak	100	143
5	17355.00	62.64	68.20	-5.56	44.69	17.95	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).

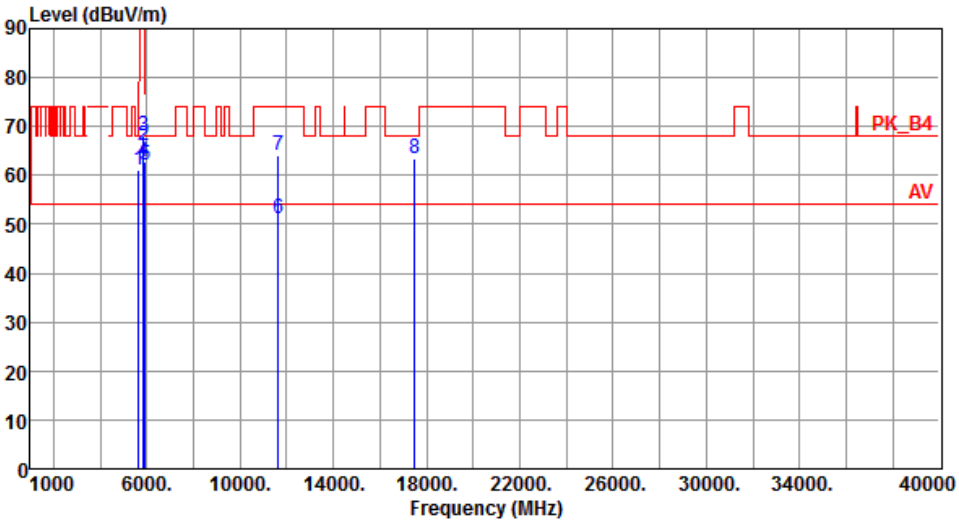
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



	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	60.64	68.20	-7.56	56.10	4.54	Peak	305	264
2	5925.00	61.79	68.20	-6.41	56.51	5.28	Peak	305	264
3	11570.00	49.73	54.00	-4.27	35.20	14.53	Average	100	54
4	11570.00	62.90	74.00	-11.10	48.37	14.53	Peak	100	54
5	17355.00	62.48	68.20	-5.72	44.53	17.95	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).

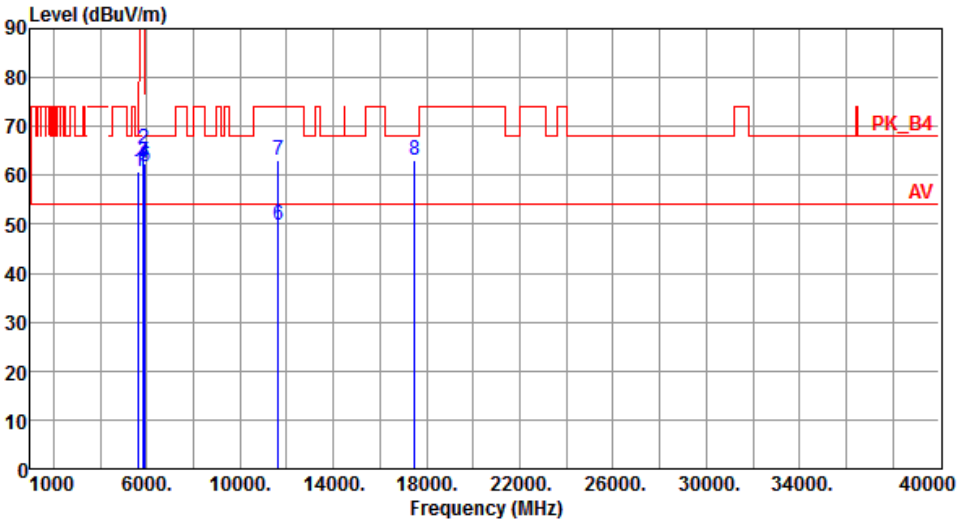
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	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	60.97	68.20	-7.23	56.43	4.54	Peak	100	95
2	5850.00	66.24	122.20	-55.96	61.09	5.15	Peak	100	95
3	5855.00	68.08	110.80	-42.72	62.93	5.15	Peak	100	95
4	5875.00	62.78	105.20	-42.42	57.59	5.19	Peak	100	95
5	5925.00	61.95	68.20	-6.25	56.67	5.28	Peak	100	95
6	11650.00	50.99	54.00	-3.01	36.78	14.21	Average	100	144
7	11650.00	63.99	74.00	-10.01	49.78	14.21	Peak	100	144
8	17475.00	63.29	68.20	-4.91	45.01	18.28	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	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

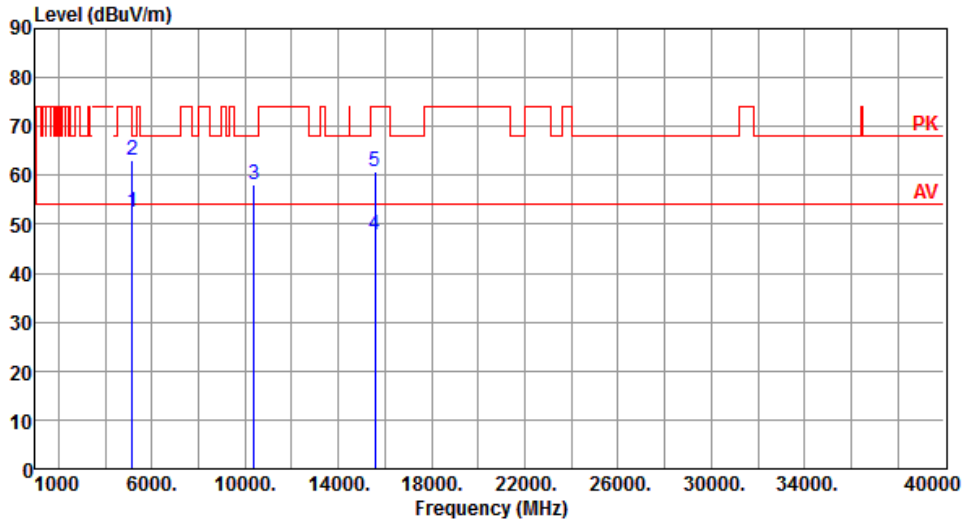


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.84	68.20	-7.36	56.30	4.54	Peak	300	269
2	5850.00	65.38	122.20	-56.82	60.23	5.15	Peak	300	269
3	5855.00	62.68	110.80	-48.12	57.53	5.15	Peak	300	269
4	5875.00	62.49	105.20	-42.71	57.30	5.19	Peak	300	269
5	5925.00	61.76	68.20	-6.44	56.48	5.28	Peak	300	269
6	11650.00	49.94	54.00	-4.06	35.73	14.21	Average	100	57
7	11650.00	62.97	74.00	-11.03	48.76	14.21	Peak	100	57
8	17475.00	63.04	68.20	-5.16	44.76	18.28	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).

3.2.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

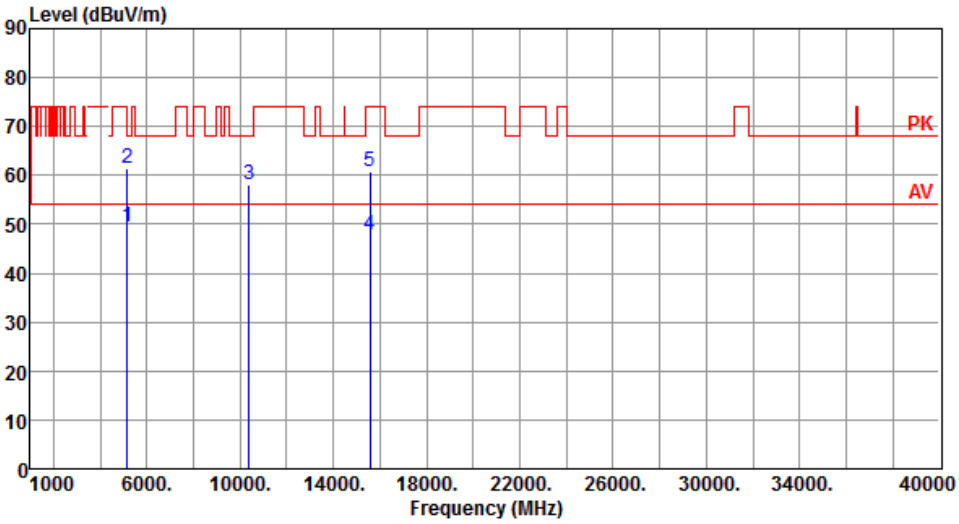
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	52.54	54.00	-1.46	48.10	4.44	Average	100	95
2	5150.00	63.20	74.00	-10.80	58.76	4.44	Peak	100	95
3	10380.00	58.03	68.20	-10.17	43.69	14.34	Peak	100	20
4	15570.00	47.91	54.00	-6.09	33.46	14.45	Average	100	30
5	15570.00	60.80	74.00	-13.20	46.35	14.45	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).

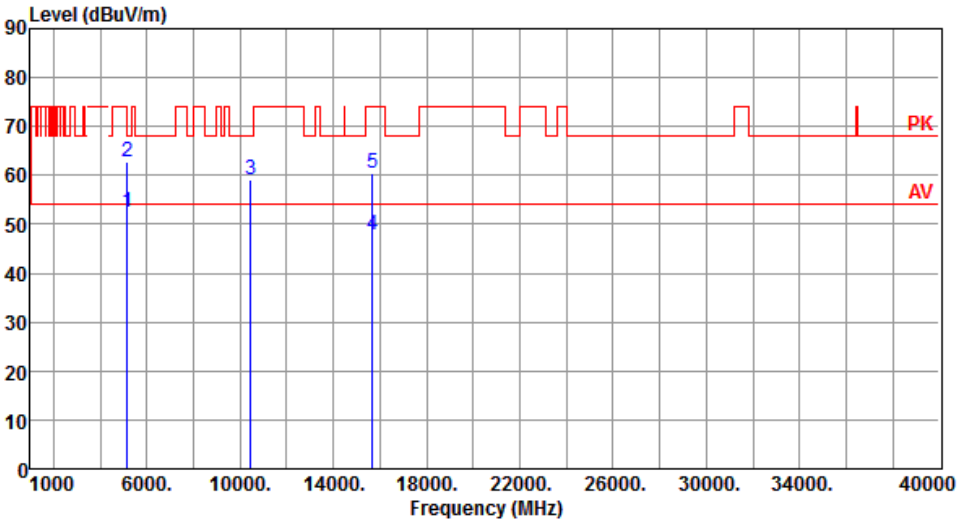
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.40	54.00	-4.60	44.96	4.44	Average	306	205
2	5150.00	61.53	74.00	-12.47	57.09	4.44	Peak	306	205
3	10380.00	58.09	68.20	-10.11	43.75	14.34	Peak	100	30
4	15570.00	47.77	54.00	-6.23	33.32	14.45	Average	100	40
5	15570.00	60.70	74.00	-13.30	46.25	14.45	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).

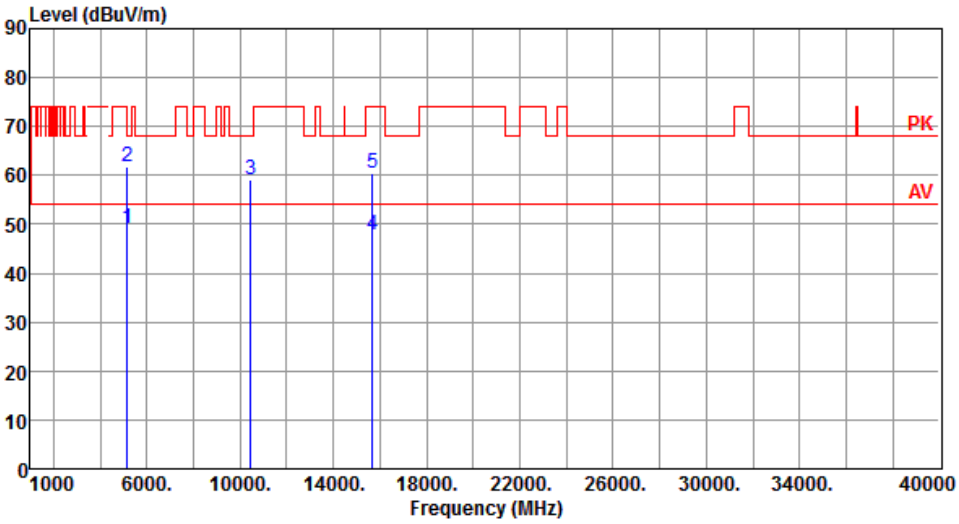
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		



	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	52.43	54.00	-1.57	47.99	4.44	Average	100	95
2	5150.00	62.90	74.00	-11.10	58.46	4.44	Peak	100	95
3	10460.00	59.07	68.20	-9.13	44.67	14.40	Peak	100	40
4	15690.00	47.80	54.00	-6.20	33.66	14.14	Average	100	30
5	15690.00	60.37	74.00	-13.63	46.23	14.14	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).

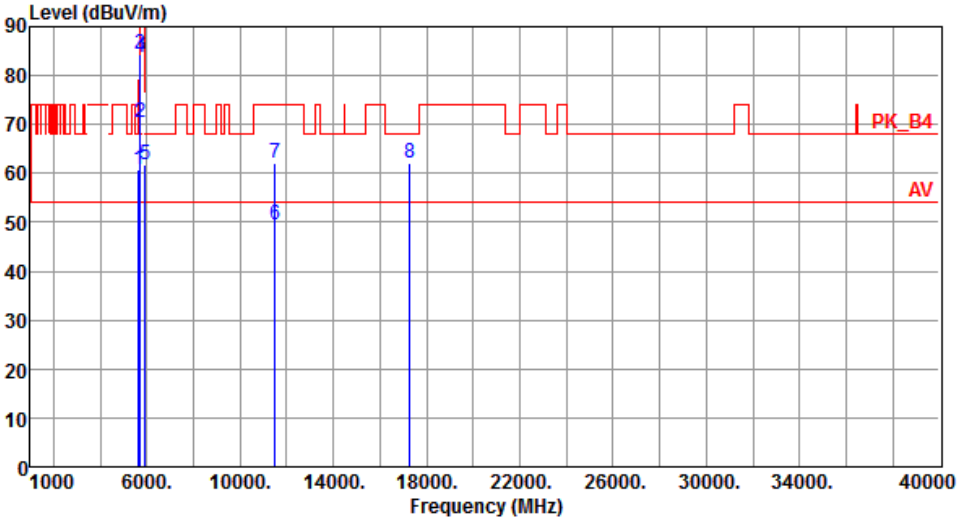
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.27	54.00	-4.73	44.83	4.44	Average	300	203
2	5150.00	61.67	74.00	-12.33	57.23	4.44	Peak	300	203
3	10460.00	59.02	68.20	-9.18	44.62	14.40	Peak	100	60
4	15690.00	47.95	54.00	-6.05	33.81	14.14	Average	100	20
5	15690.00	60.50	74.00	-13.50	46.36	14.14	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).

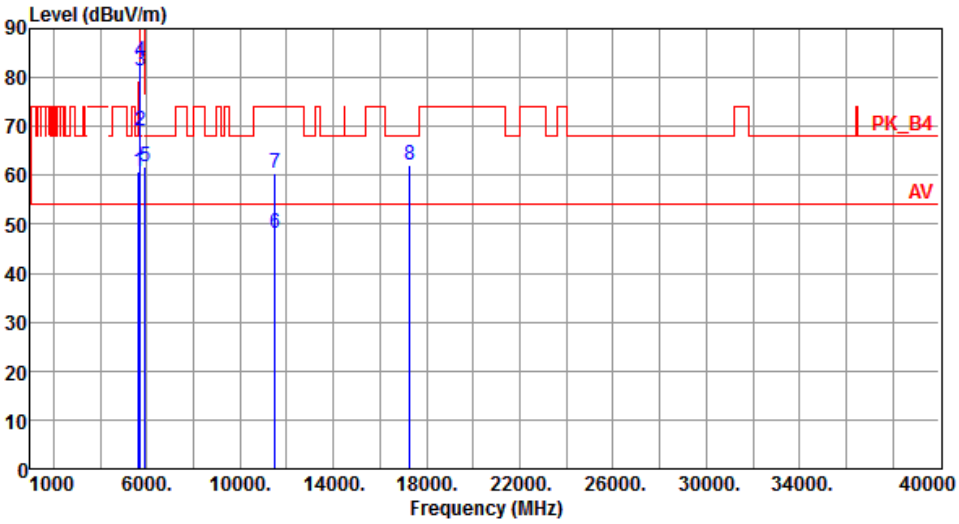
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



	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	60.84	68.20	-7.36	56.30	4.54	Peak	100	92
2	5700.00	70.29	105.20	-34.91	65.61	4.68	Peak	100	92
3	5720.00	84.39	110.80	-26.41	79.66	4.73	Peak	100	92
4	5725.00	83.64	122.20	-38.56	78.89	4.75	Peak	100	92
5	5925.00	61.77	68.20	-6.43	56.49	5.28	Peak	100	92
6	11510.00	49.40	54.00	-4.60	34.70	14.70	Average	100	146
7	11510.00	62.23	74.00	-11.77	47.53	14.70	Peak	100	146
8	17265.00	62.27	68.20	-5.93	44.66	17.61	Peak	100	100

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).

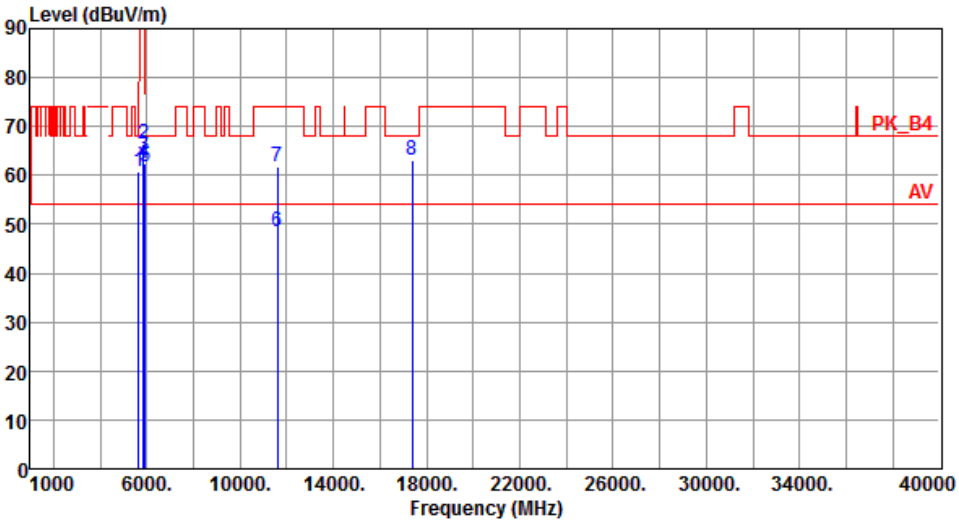
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	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	60.72	68.20	-7.48	56.18	4.54	Peak	300	265
2	5700.00	69.15	105.20	-36.05	64.47	4.68	Peak	300	265
3	5720.00	81.40	110.80	-29.40	76.67	4.73	Peak	300	265
4	5725.00	83.20	122.20	-39.00	78.45	4.75	Peak	300	265
5	5925.00	61.74	68.20	-6.46	56.46	5.28	Peak	300	265
6	11510.00	48.08	54.00	-5.92	33.38	14.70	Average	100	50
7	11510.00	60.41	74.00	-13.59	45.71	14.70	Peak	100	50
8	17265.00	61.95	68.20	-6.25	44.34	17.61	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).

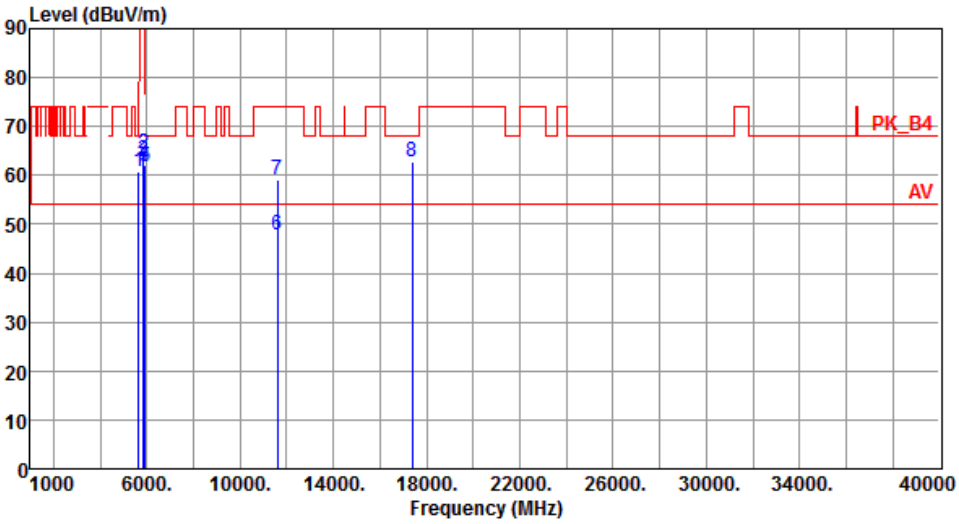
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



	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	60.84	68.20	-7.36	56.30	4.54	Peak	100	93
2	5850.00	66.42	122.20	-55.78	61.27	5.15	Peak	100	93
3	5855.00	64.24	110.80	-46.56	59.09	5.15	Peak	100	93
4	5875.00	62.29	105.20	-42.91	57.10	5.19	Peak	100	93
5	5925.00	61.73	68.20	-6.47	56.45	5.28	Peak	100	93
6	11590.00	48.46	54.00	-5.54	33.99	14.47	Average	100	144
7	11590.00	61.91	74.00	-12.09	47.44	14.47	Peak	100	144
8	17385.00	63.03	68.20	-5.17	44.94	18.09	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).

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		

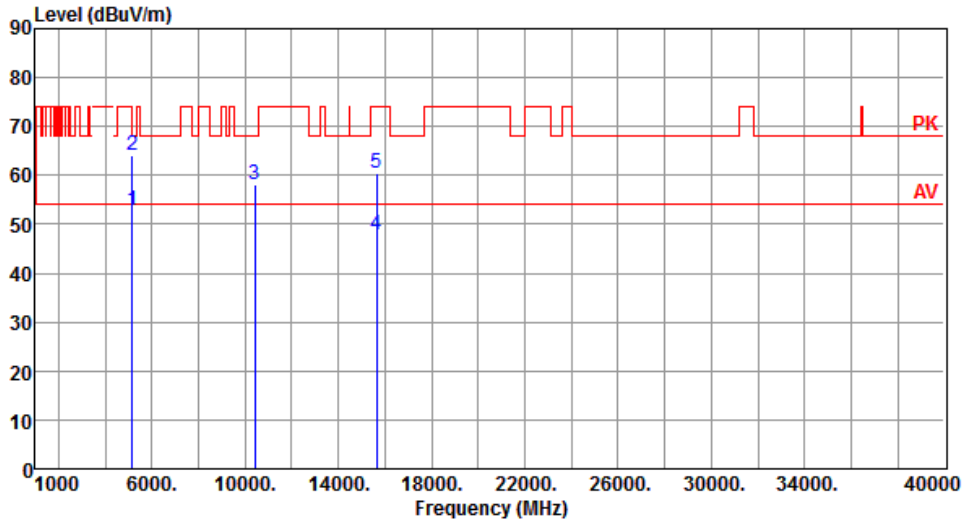


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.74	68.20	-7.46	56.20	4.54	Peak	305	264
2	5850.00	64.33	122.20	-57.87	59.18	5.15	Peak	305	264
3	5855.00	63.25	110.80	-47.55	58.10	5.15	Peak	305	264
4	5875.00	62.19	105.20	-43.01	57.00	5.19	Peak	305	264
5	5925.00	61.61	68.20	-6.59	56.33	5.28	Peak	305	264
6	11590.00	47.87	54.00	-6.13	33.40	14.47	Average	100	30
7	11590.00	59.22	74.00	-14.78	44.75	14.47	Peak	100	30
8	17385.00	62.87	68.20	-5.33	44.78	18.09	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).

3.2.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

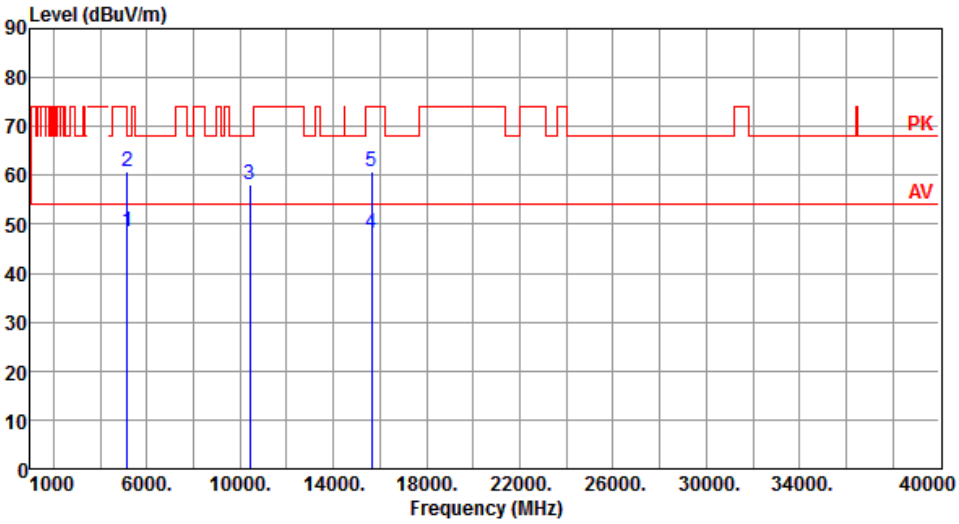
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	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	52.68	54.00	-1.32	48.24	4.44	Average	110	89
2	5150.00	64.01	74.00	-9.99	59.57	4.44	Peak	110	89
3	10420.00	58.26	68.20	-9.94	43.86	14.40	Peak	100	60
4	15630.00	47.90	54.00	-6.10	33.63	14.27	Average	100	70
5	15630.00	60.46	74.00	-13.54	46.19	14.27	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).

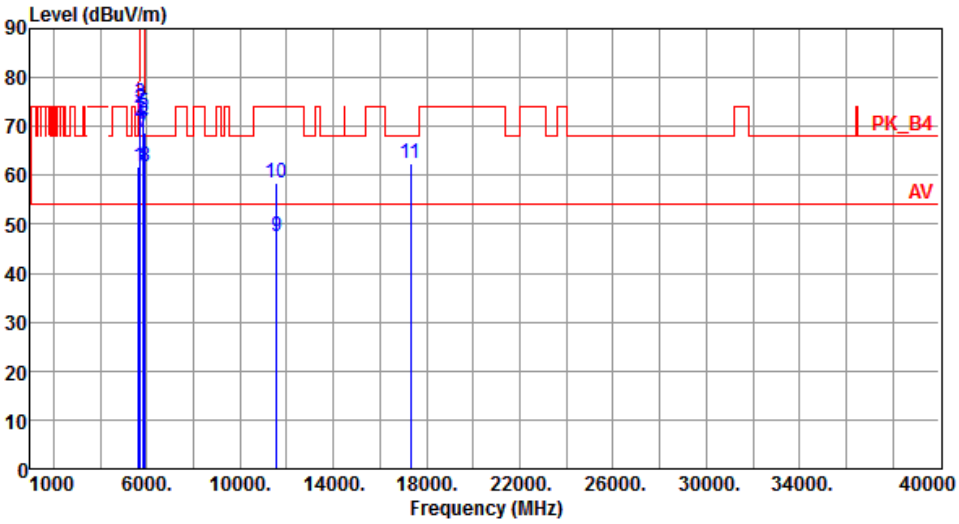
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		



	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	48.53	54.00	-5.47	44.09	4.44	Average	309	264
2	5150.00	60.86	74.00	-13.14	56.42	4.44	Peak	309	264
3	10420.00	58.26	68.20	-9.94	43.86	14.40	Peak	100	80
4	15630.00	48.09	54.00	-5.91	33.82	14.27	Average	100	50
5	15630.00	60.76	74.00	-13.24	46.49	14.27	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).

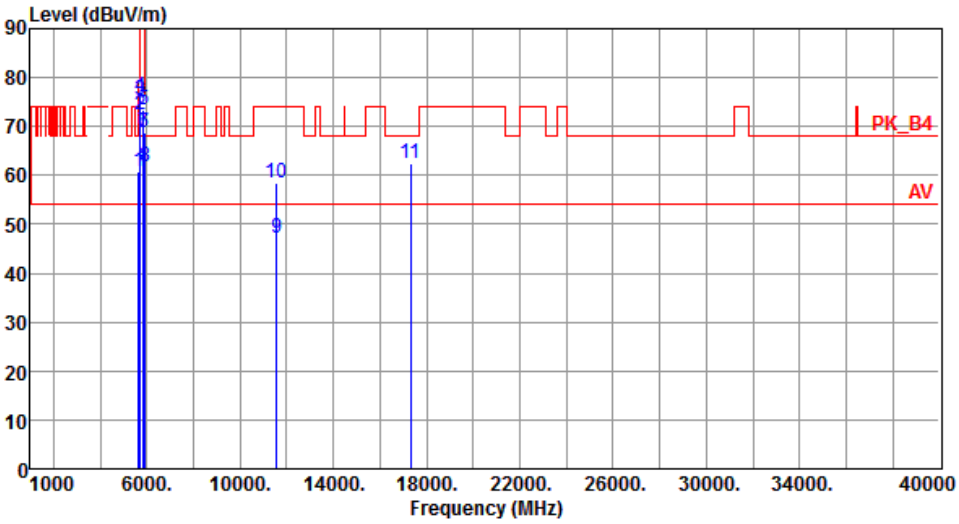
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



	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	61.65	68.20	-6.55	57.11	4.54	Peak	100	96
2	5700.00	73.78	105.20	-31.42	69.10	4.68	Peak	100	96
3	5720.00	74.81	110.80	-35.99	70.08	4.73	Peak	100	96
4	5725.00	70.25	122.20	-51.95	65.50	4.75	Peak	100	96
5	5850.00	72.68	122.20	-49.52	67.53	5.15	Peak	100	96
6	5855.00	71.90	110.80	-38.90	66.75	5.15	Peak	100	96
7	5875.00	68.85	105.20	-36.35	63.66	5.19	Peak	100	96
8	5925.00	61.77	68.20	-6.43	56.49	5.28	Peak	100	96
9	11550.00	47.41	54.00	-6.59	32.83	14.58	Average	100	20
10	11550.00	58.34	74.00	-15.66	43.76	14.58	Peak	100	20
11	17325.00	62.29	68.20	-5.91	44.47	17.82	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	VHT80	Test Freq. (MHz)	5775
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	60.84	68.20	-7.36	56.30	4.54	Peak	302	267
2	5700.00	72.42	105.20	-32.78	67.74	4.68	Peak	302	267
3	5720.00	75.43	110.80	-35.37	70.70	4.73	Peak	302	267
4	5725.00	76.06	122.20	-46.14	71.31	4.75	Peak	302	267
5	5850.00	73.50	122.20	-48.70	68.35	5.15	Peak	302	267
6	5855.00	68.69	110.80	-42.11	63.54	5.15	Peak	302	267
7	5875.00	68.70	105.20	-36.50	63.51	5.19	Peak	302	267
8	5925.00	61.74	68.20	-6.46	56.46	5.28	Peak	302	267
9	11550.00	47.24	54.00	-6.76	32.66	14.58	Average	100	20
10	11550.00	58.33	74.00	-15.67	43.75	14.58	Peak	100	20
11	17325.00	62.38	68.20	-5.82	44.56	17.82	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).

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.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

==END==