

FCC Test Report

Report No.: RF200224C22

FCC ID: T4829973R

Test Model: 29973-RX

Received Date: Feb. 24, 2020

Test Date: Apr. 07 ~ Apr. 08, 2020

Issued Date: Apr. 23, 2020

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Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF200224C22	Original release	Apr. 23, 2020

1 Certificate of Conformity

Product: WIRELESS CONFERENCE ROOM VIDEO HUB - HDMI AND USB-C

Brand: C2G

Test Model: 29973-RX

Sample Status: Engineering sample

Applicant: Ortronics Inc.

Test Date: Apr. 07 ~ Apr. 08, 2020

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : , **Date:** Apr. 23, 2020
Polly Chien / Specialist

Approved by : , **Date:** Apr. 23, 2020
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is 18.44dB at 0.61381MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.3dB at 10620.00MHz.
15.407(a)(1/2 /3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2 /3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Ant.A, B: Antenna connector is I PEX_I not a standard connector. Ant.1, 2, 3: No antenna connector is used.

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
3. For U-NII-1, U-NII-2A and U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	WIRELESS CONFERENCE ROOM VIDEO HUB - HDMI AND USB-C
Brand	C2G
Test Model	29973-RX
Sample Status	Engineering sample
Power Supply Rating	5Vdc from adapter
Modulation Technology	OFDM
Transfer Rate	100Kbps transmission, 1Gbps reception
Operating Frequency	5180 ~ 5240MHz, 5270 ~ 5310MHz, 5510 ~ 5670MHz & 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 4 for WHDI (20MHz) 2 for WHDI (40MHz) 5270 ~ 5310MHz: 2 for WHDI (40MHz) 5510 ~ 5670MHz: 3 for WHDI (40MHz) 5745 ~ 5825MHz: 5 for WHDI (20MHz) 2 for WHDI (40MHz)
Output Power	5180 ~ 5240MHz: 54.075mW 5270 ~ 5310MHz: 52.240mW 5510 ~ 5670MHz: 54.450mW 5745 ~ 5825MHz: 55.590mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter
Data Cable Supplied	0.95m shielded HDMI cable without core (Brand: Polywell Technology Corporation, Model: PW15-W50-A034) 0.95m shielded Type-C cable without core (Brand: Lian Shuo Electronics Co., Ltd, Model: L0140137-UCCE)

Note:

1. The EUT provides 1 completed transmitter and 5 receivers.

Modulation Mode	TX Function
WHDI (20MHz)	1TX
WHDI (40MHz)	1TX

2. The following antennas were provided to the EUT.

Ant. Type	Ant.A, B: Dipole Ant.1, 2, 3: Chip antenna								
Connector	Ant.A, B: I PEX_I Ant.1, 2, 3: NA								
Item	Model	Antenna Gain (dBi)							
		5150 MHz	5250 MHz	5350 MHz	5450 MHz	5550 MHz	5650 MHz	5750 MHz	5850 MHz
Ant.A (RX)	AJWP1J-B0012	5.01	4.96	4.69	4.53	4.96	3.97	4.52	3.98
Ant.B (TX/RX)	AJWP1J-B0012	5.17	5.02	4.57	4.38	4.01	4.44	4.82	4.31
Ant.1 (RX)	AT3216-B5R5HAA	0.9							
Ant.2 (RX)	AT3216-B5R5HAA	2.9							
Ant.3 (RX)	AT3216-B5R5HAA	4.8							

* The Ant.B is chosen for final test.

3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. The EUT consumes power from the following adapter.

Brand	Sunny COMPUTER TECHNOLOGY CO.,LTD.
Model	SYS1638-1005-W2
Input Power	100-240Vac, 50-60Hz, 0.5A MAX.
Output Power	+5Vdc, 2A
Power Line	1.5m DC power cable without core attached on adapter

3.2 Description of Test Modes

For 5180 ~ 5240MHz

4 channels are provided for WHDI (20MHz):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for WHDI (40MHz):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

For 5270 ~ 5310MHz

2 channels are provided for WHDI (40MHz):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

For 5510 ~ 5670MHz

3 channels are provided for WHDI (40MHz):

Channel	Frequency	Channel	Frequency
102	5510 MHz	134	5670 MHz
110	5550 MHz		

For 5745 ~ 5825MHz:

5 channels are provided for WHDI (20MHz):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for WHDI (40MHz):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz & Bandedge Measurement
RE<1G: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission
APCM: Antenna Port Conducted Measurement

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
-	WHDI (20MHz)	5180-5240	36 to 48	36, 40, 44, 48	OFDM	100
-	WHDI (40MHz)	5190-5230	38 to 46	38, 46	OFDM	100
-	WHDI (40MHz)	5270-5310	54 to 62	54, 62	OFDM	100
-	WHDI (40MHz)	5510-5670	102 to 134	102, 110, 134	OFDM	100
-	WHDI (20MHz)	5745-5825	149 to 165	149, 153, 157, 161, 165	OFDM	100
-	WHDI (40MHz)	5755-5795	151 to 159	151, 159	OFDM	100

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
-	WHDI (40MHz)	5190-5230, 5270-5310, 5510-5670, 5755-5795	38 to 46, 54 to 62, 102 to 134, 151 to 159	110	OFDM	100

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
-	WHDI (40MHz)	5190-5230, 5270-5310, 5510-5670, 5755-5795	38 to 46, 54 to 62, 102 to 134, 151 to 159	110	OFDM	100

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
-	WHDI (20MHz)	5180-5240	36 to 48	36, 40, 44, 48	OFDM	100
-	WHDI (40MHz)	5190-5230	38 to 46	38, 46	OFDM	100
-	WHDI (40MHz)	5270-5310	54 to 62	54, 62	OFDM	100
-	WHDI (40MHz)	5510-5670	102 to 134	102, 110, 134	OFDM	100
-	WHDI (20MHz)	5745-5825	149 to 165	149, 153, 157, 161, 165	OFDM	100
-	WHDI (40MHz)	5755-5795	151 to 159	151, 159	OFDM	100

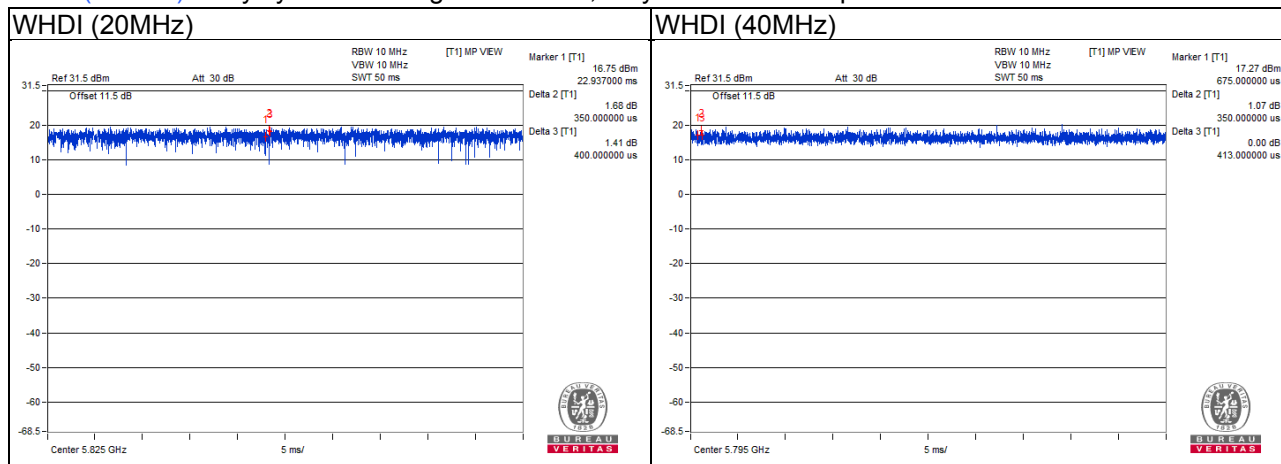
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	23deg. C, 66%RH	120Vac, 60Hz	Adair Peng, Titan Hsu
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Adair Peng
PLC	23deg. C, 67%RH	120Vac, 60Hz	Adair Peng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

WHDI (20MHz): Duty cycle of test signal is 100 %, duty factor is not required.

WHDI (40MHz): Duty cycle of test signal is 100 %, duty factor is not required.



3.4 Description of Support Units

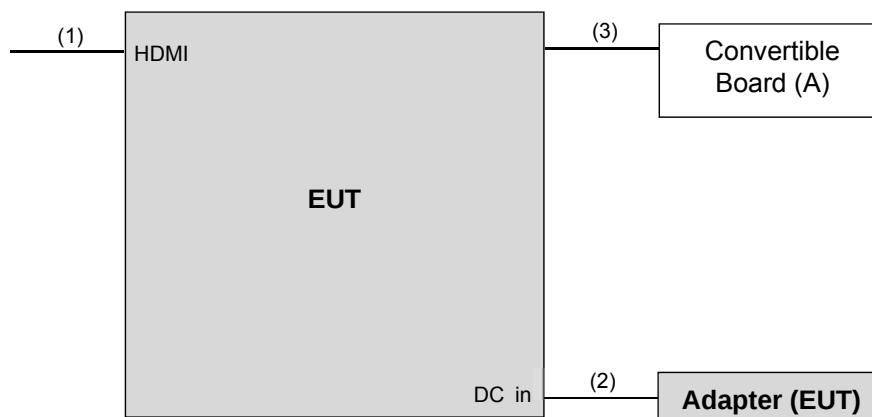
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Convertible Board	NA	NA	NA	NA	Provided by client

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	HDMI cable	1	0.95	Y	0	Accessory of EUT (Brand: Polywell Technology Corporation, Model: PW15-W50-A034)
2.	DC cable	1	1.5	N	0	Attached on adapter
3.	Cable	1	0.4	N	0	Provided by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Applicable To	Limit	
789033 D02 General UNII Test Procedure New Rules v02r01	FIELD STRENGTH at 3m	
	PK:74 (dBuV/m)	AV:54 (dBuV/m)
Applicable To	EIRP Limit	Equivalent Field Strength at 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2 (dBuV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2 (dBuV/m) ^{*1} PK: 105.2 (dBuV/m) ^{*2} PK: 110.8 (dBuV/m) ^{*3} PK: 122.2 (dBuV/m) ^{*4}
15.407(b)(4)(ii)	FIELD STRENGTH at 3m / § 15.247(d),	
	PK:74 (dBuV/m)	AV:54 (dBuV/m)
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 30, 2019	May 29, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 20, 2019	Aug. 19, 2020
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 20, 2019	Aug. 19, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz- 40GHz) EMC	EMC184045B	980175	Sep. 05, 2019	Sep. 04, 2020
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5 5190004/MY55190 007/MY55210005	Jul. 15, 2019	Jul. 14, 2020

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 3.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

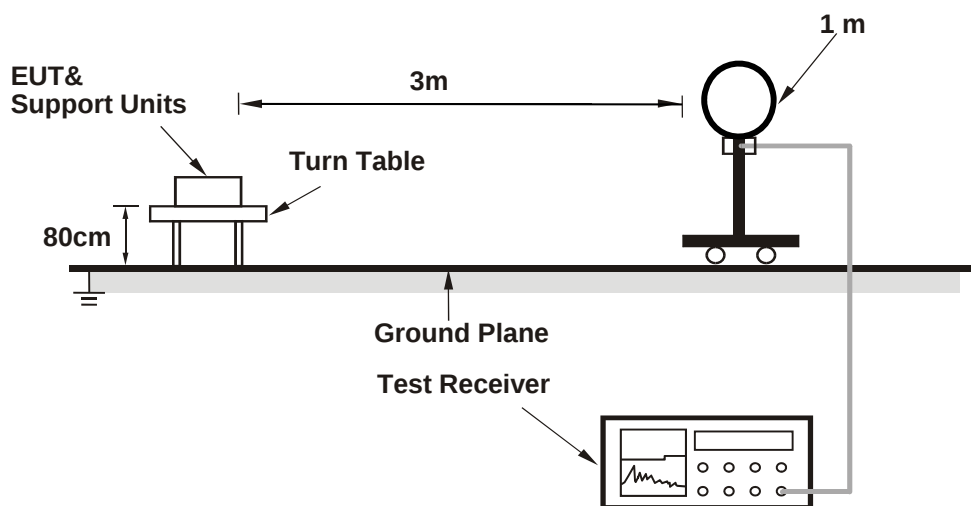
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

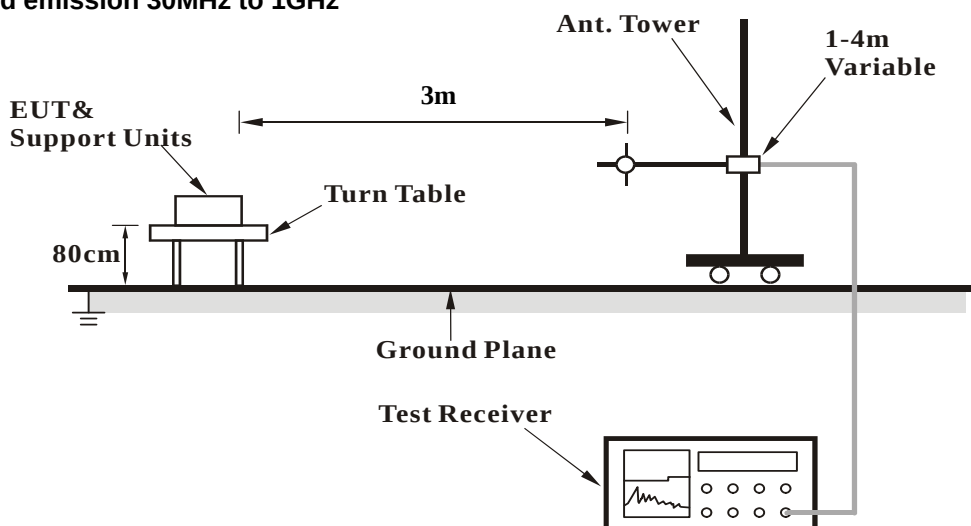
No deviation.

4.1.5 Test Set Up

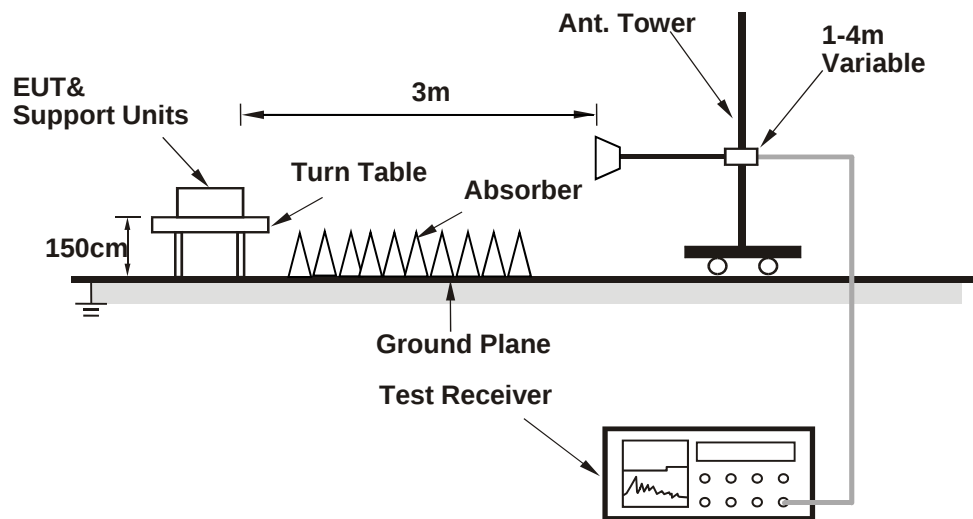
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data

WHDI (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.8 PK	74.0	-17.2	2.51 H	86	52.7	4.1
2	5150.00	42.6 AV	54.0	-11.4	2.51 H	86	38.5	4.1
3	*5180.00	100.5 PK			2.51 H	86	61.2	39.3
4	*5180.00	90.3 AV			2.51 H	86	51.0	39.3
5	#10360.00	65.2 PK	68.2	-3.0	2.09 H	222	48.0	17.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.0 PK	74.0	-16.0	2.38 V	132	53.9	4.1
2	5150.00	43.7 AV	54.0	-10.3	2.38 V	132	39.6	4.1
3	*5180.00	106.7 PK			2.38 V	132	67.4	39.3
4	*5180.00	98.1 AV			2.38 V	132	58.8	39.3
5	#10360.00	67.4 PK	68.2	-0.8	2.39 V	24	50.2	17.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	100.5 PK			2.62 H	87	61.2	39.3
2	*5200.00	90.8 AV			2.62 H	87	51.5	39.3
3	#10400.00	65.7 PK	68.2	-2.5	2.21 H	230	48.3	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	108.8 PK			2.80 V	127	69.5	39.3
2	*5200.00	99.2 AV			2.80 V	127	59.9	39.3
3	#10400.00	67.7 PK	68.2	-0.5	2.27 V	5	50.3	17.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 44	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5220.00	100.0 PK			2.66 H	81	60.8	39.2
2	*5220.00	90.2 AV			2.66 H	81	51.0	39.2
3	#10440.00	65.6 PK	68.2	-2.6	2.13 H	223	47.9	17.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5220.00	108.2 PK			2.69 V	125	69.0	39.2
2	*5220.00	98.4 AV			2.69 V	125	59.2	39.2
3	#10440.00	67.7 PK	68.2	-0.5	2.09 V	2	50.0	17.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	100.8 PK			2.56 H	87	61.7	39.1
2	*5240.00	91.2 AV			2.56 H	87	52.1	39.1
3	5350.00	56.2 PK	74.0	-17.8	2.56 H	87	52.1	4.1
4	5350.00	42.1 AV	54.0	-11.9	2.56 H	87	38.0	4.1
5	#10480.00	65.7 PK	68.2	-2.5	2.31 H	220	47.7	18.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	108.6 PK			2.74 V	150	69.5	39.1
2	*5240.00	99.1 AV			2.74 V	150	60.0	39.1
3	5350.00	57.1 PK	74.0	-16.9	2.74 V	150	53.0	4.1
4	5350.00	43.1 AV	54.0	-10.9	2.74 V	150	39.0	4.1
5	#10480.00	67.8 PK	68.2	-0.4	2.23 V	4	49.8	18.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5631.41	56.0 PK	68.2	-12.2	2.62 H	70	51.5	4.5
2	*5745.00	98.9 PK			2.62 H	70	58.9	40.0
3	*5745.00	89.6 AV			2.62 H	70	49.6	40.0
4	#5998.08	56.8 PK	68.2	-11.4	2.62 H	70	51.4	5.4
5	11490.00	62.9 PK	74.0	-11.1	2.45 H	217	44.1	18.8
6	11490.00	52.9 AV	54.0	-1.1	2.45 H	217	34.1	18.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5604.49	56.8 PK	68.2	-11.4	2.77 V	102	52.3	4.5
2	*5745.00	108.7 PK			2.77 V	102	68.7	40.0
3	*5745.00	99.0 AV			2.77 V	102	59.0	40.0
4	#5987.82	57.5 PK	68.2	-10.7	2.77 V	102	52.1	5.4
5	11490.00	63.4 PK	74.0	-10.6	2.69 V	6	44.6	18.8
6	11490.00	53.5 AV	54.0	-0.5	2.69 V	6	34.7	18.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 153	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5623.08	55.6 PK	68.2	-12.6	2.51 H	67	51.1	4.5
2	*5765.00	99.4 PK			2.51 H	67	59.3	40.1
3	*5765.00	90.1 AV			2.51 H	67	50.0	40.1
4	#5951.28	56.5 PK	68.2	-11.7	2.51 H	67	51.2	5.3
5	11530.00	62.7 PK	74.0	-11.3	2.54 H	233	44.0	18.7
6	11530.00	52.9 AV	54.0	-1.1	2.54 H	233	34.2	18.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.77	55.7 PK	68.2	-12.5	2.53 V	116	51.2	4.5
2	*5765.00	107.5 PK			2.53 V	116	67.4	40.1
3	*5765.00	98.3 AV			2.53 V	116	58.2	40.1
4	#5971.79	56.8 PK	68.2	-11.4	2.53 V	116	51.5	5.3
5	11530.00	63.6 PK	74.0	-10.4	2.58 V	5	44.9	18.7
6	11530.00	53.5 AV	54.0	-0.5	2.58 V	5	34.8	18.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5630.77	56.9 PK	68.2	-11.3	2.51 H	70	52.4	4.5
2	*5785.00	99.5 PK			2.51 H	70	59.3	40.2
3	*5785.00	89.9 AV			2.51 H	70	49.7	40.2
4	#5991.67	56.8 PK	68.2	-11.4	2.51 H	70	51.4	5.4
5	11570.00	62.6 PK	74.0	-11.4	2.23 H	220	44.1	18.5
6	11570.00	52.8 AV	54.0	-1.2	2.23 H	220	34.3	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5619.23	56.4 PK	68.2	-11.8	2.76 V	112	51.9	4.5
2	*5785.00	108.4 PK			2.76 V	112	68.2	40.2
3	*5785.00	98.4 AV			2.76 V	112	58.2	40.2
4	#5977.56	57.0 PK	68.2	-11.2	2.76 V	112	51.7	5.3
5	11570.00	63.2 PK	74.0	-10.8	2.74 V	7	44.7	18.5
6	11570.00	53.5 AV	54.0	-0.5	2.74 V	7	35.0	18.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 161	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5640.38	56.4 PK	68.2	-11.8	2.84 H	250	51.9	4.5
2	*5805.00	98.0 PK			2.84 H	250	57.7	40.3
3	*5805.00	88.1 AV			2.84 H	250	47.8	40.3
4	#5973.72	57.4 PK	68.2	-10.8	2.84 H	250	52.1	5.3
5	11610.00	60.4 PK	74.0	-13.6	2.44 H	221	42.1	18.3
6	11610.00	51.9 AV	54.0	-2.1	2.44 H	221	33.6	18.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5647.44	57.9 PK	68.2	-10.3	2.74 V	111	53.4	4.5
2	*5805.00	108.4 PK			2.74 V	111	68.1	40.3
3	*5805.00	98.7 AV			2.74 V	111	58.4	40.3
4	#5951.92	56.8 PK	68.2	-11.4	2.74 V	111	51.5	5.3
5	11610.00	61.1 PK	74.0	-12.9	2.71 V	7	42.8	18.3
6	11610.00	52.3 AV	54.0	-1.7	2.71 V	7	34.0	18.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.77	56.5 PK	68.2	-11.7	2.55 H	90	52.0	4.5
2	*5825.00	98.8 PK			2.55 H	90	58.4	40.4
3	*5825.00	89.6 AV			2.55 H	90	49.2	40.4
4	#5962.82	57.5 PK	68.2	-10.7	2.55 H	90	52.2	5.3
5	11650.00	61.7 PK	74.0	-12.3	2.35 H	224	43.2	18.5
6	11650.00	52.3 AV	54.0	-1.7	2.35 H	224	33.8	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.69	56.8 PK	68.2	-11.4	2.94 V	116	52.3	4.5
2	*5825.00	107.5 PK			2.94 V	116	67.1	40.4
3	*5825.00	98.5 AV			2.94 V	116	58.1	40.4
4	#5962.82	57.5 PK	68.2	-10.7	2.94 V	116	52.2	5.3
5	11650.00	62.6 PK	74.0	-11.4	2.73 V	359	44.1	18.5
6	11650.00	52.6 AV	54.0	-1.4	2.73 V	359	34.1	18.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

WHDI (40MHz)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.3 PK	74.0	-18.7	2.37 H	107	51.2	4.1
2	5150.00	42.6 AV	54.0	-11.4	2.37 H	107	38.5	4.1
3	*5190.00	101.4 PK			2.37 H	107	62.1	39.3
4	*5190.00	88.7 AV			2.37 H	107	49.4	39.3
5	#10380.00	61.8 PK	68.2	-6.4	2.01 H	220	44.4	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.6 PK	74.0	-11.4	2.71 V	150	58.5	4.1
2	5150.00	45.0 AV	54.0	-9.0	2.71 V	150	40.9	4.1
3	*5190.00	108.2 PK			2.71 V	150	68.9	39.3
4	*5190.00	95.5 AV			2.71 V	150	56.2	39.3
5	#10380.00	67.6 PK	68.2	-0.6	2.18 V	2	50.2	17.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.7 PK	74.0	-18.3	2.33 H	105	51.6	4.1
2	5150.00	42.4 AV	54.0	-11.6	2.33 H	105	38.3	4.1
3	*5230.00	101.7 PK			2.33 H	105	62.6	39.1
4	*5230.00	88.7 AV			2.33 H	105	49.6	39.1
5	5350.00	55.1 PK	74.0	-18.9	2.33 H	105	51.0	4.1
6	5350.00	42.3 AV	54.0	-11.7	2.33 H	105	38.2	4.1
7	#10460.00	62.4 PK	68.2	-5.8	2.14 H	220	44.6	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.2 PK	74.0	-17.8	2.90 V	151	52.1	4.1
2	5150.00	42.7 AV	54.0	-11.3	2.90 V	151	38.6	4.1
3	*5230.00	107.9 PK			2.90 V	151	68.8	39.1
4	*5230.00	95.3 AV			2.90 V	151	56.2	39.1
5	5350.00	55.8 PK	74.0	-18.2	2.90 V	151	51.7	4.1
6	5350.00	42.3 AV	54.0	-11.7	2.90 V	151	38.2	4.1
7	#10460.00	67.8 PK	68.2	-0.4	2.29 V	1	50.0	17.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.5 PK	74.0	-18.5	2.31 H	104	51.4	4.1
2	5150.00	42.3 AV	54.0	-11.7	2.31 H	104	38.2	4.1
3	*5270.00	101.2 PK			2.31 H	104	62.1	39.1
4	*5270.00	88.9 AV			2.31 H	104	49.8	39.1
5	#10540.00	62.1 PK	68.2	-6.1	2.13 H	226	43.6	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.7 PK	74.0	-18.3	2.74 V	147	51.6	4.1
2	5150.00	42.6 AV	54.0	-11.4	2.74 V	147	38.5	4.1
3	*5270.00	108.6 PK			2.74 V	147	69.5	39.1
4	*5270.00	96.1 AV			2.74 V	147	57.0	39.1
5	#10540.00	67.5 PK	68.2	-0.7	2.12 V	4	49.0	18.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	103.6 PK			2.31 H	106	64.4	39.2
2	*5310.00	90.6 AV			2.31 H	106	51.4	39.2
3	5350.00	55.6 PK	74.0	-18.4	2.31 H	106	51.5	4.1
4	5350.00	42.3 AV	54.0	-11.7	2.31 H	106	38.2	4.1
5	10620.00	61.9 PK	74.0	-12.1	2.56 H	233	43.1	18.8
6	10620.00	53.7 AV	54.0	-0.3	2.56 H	233	34.9	18.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	109.8 PK			2.95 V	148	70.6	39.2
2	*5310.00	96.9 AV			2.95 V	148	57.7	39.2
3	5350.00	63.9 PK	74.0	-10.1	2.95 V	148	59.8	4.1
4	5350.00	43.4 AV	54.0	-10.6	2.95 V	148	39.3	4.1
5	10620.00	67.9 PK	74.0	-6.1	2.28 V	2	49.1	18.8
6	10620.00	53.3 AV	54.0	-0.7	2.28 V	2	34.5	18.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.5 PK	74.0	-18.5	2.36 H	239	51.0	4.5
2	5460.00	42.7 AV	54.0	-11.3	2.36 H	239	38.2	4.5
3	#5470.00	57.8 PK	68.2	-10.4	2.36 H	239	53.3	4.5
4	*5510.00	98.8 PK			2.36 H	239	59.1	39.7
5	*5510.00	86.3 AV			2.36 H	239	46.6	39.7
6	11020.00	61.9 PK	74.0	-12.1	2.27 H	277	42.8	19.1
7	11020.00	52.4 AV	54.0	-1.6	2.27 H	277	33.3	19.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.1 PK	74.0	-14.9	3.07 V	148	54.6	4.5
2	5460.00	43.1 AV	54.0	-10.9	3.07 V	148	38.6	4.5
3	#5470.00	67.3 PK	68.2	-0.9	3.07 V	148	62.8	4.5
4	*5510.00	109.4 PK			3.07 V	148	69.7	39.7
5	*5510.00	97.4 AV			3.07 V	148	57.7	39.7
6	11020.00	63.4 PK	74.0	-10.6	2.91 V	144	44.3	19.1
7	11020.00	50.7 AV	54.0	-3.3	2.91 V	144	31.6	19.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	100.2 PK			2.42 H	244	60.5	39.7
2	*5550.00	87.6 AV			2.42 H	244	47.9	39.7
3	11100.00	61.2 PK	74.0	-12.8	2.18 H	288	42.6	18.6
4	11100.00	51.2 AV	54.0	-2.8	2.18 H	288	32.6	18.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	110.3 PK			2.84 V	95	70.6	39.7
2	*5550.00	98.3 AV			2.84 V	95	58.6	39.7
3	11100.00	62.2 PK	74.0	-11.8	2.89 V	158	43.6	18.6
4	11100.00	50.6 AV	54.0	-3.4	2.89 V	158	32.0	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	98.5 PK			2.06 H	211	58.7	39.8
2	*5670.00	85.7 AV			2.06 H	211	45.9	39.8
3	#5725.00	56.3 PK	68.2	-11.9	2.06 H	211	51.6	4.7
4	11340.00	61.8 PK	74.0	-12.2	2.07 H	289	43.1	18.7
5	11340.00	53.2 AV	54.0	-0.8	2.07 H	289	34.5	18.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	107.8 PK			2.92 V	145	68.0	39.8
2	*5670.00	95.9 AV			2.92 V	145	56.1	39.8
3	#5725.00	57.2 PK	68.2	-11.0	2.92 V	145	52.5	4.7
4	11340.00	61.5 PK	74.0	-12.5	2.68 V	2	42.8	18.7
5	11340.00	52.2 AV	54.0	-1.8	2.68 V	2	33.5	18.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5649.36	56.3 PK	68.2	-11.9	2.75 H	263	51.8	4.5
2	#5650.00	55.9 PK	68.2	-12.3	2.75 H	263	51.5	4.4
3	*5755.00	98.5 PK			2.75 H	263	58.5	40.0
4	*5755.00	85.6 AV			2.75 H	263	45.6	40.0
5	#5933.97	57.3 PK	68.2	-10.9	2.75 H	263	52.0	5.3
6	11510.00	61.6 PK	74.0	-12.4	2.22 H	297	42.7	18.9
7	11510.00	52.7 AV	54.0	-1.3	2.22 H	297	33.8	18.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5620.51	56.1 PK	68.2	-12.1	2.72 V	146	51.6	4.5
2	#5650.00	55.7 PK	68.2	-12.5	2.72 V	146	51.3	4.4
3	*5755.00	107.9 PK			2.72 V	146	67.9	40.0
4	*5755.00	95.1 AV			2.72 V	146	55.1	40.0
5	#5991.03	57.5 PK	68.2	-10.7	2.72 V	146	52.1	5.4
6	11510.00	62.5 PK	74.0	-11.5	2.73 V	1	43.6	18.9
7	11510.00	52.4 AV	54.0	-1.6	2.73 V	1	33.5	18.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.74	56.4 PK	68.2	-11.8	2.50 H	253	51.9	4.5
2	*5795.00	97.9 PK			2.50 H	253	57.6	40.3
3	*5795.00	85.4 AV			2.50 H	253	45.1	40.3
4	#5925.00	56.6 PK	68.2	-11.6	2.50 H	253	51.3	5.3
5	#5945.51	57.7 PK	68.2	-10.5	2.50 H	253	52.4	5.3
6	11590.00	61.4 PK	74.0	-12.6	1.31 H	279	43.0	18.4
7	11590.00	51.8 AV	54.0	-2.2	1.31 H	279	33.4	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.00	55.5 PK	68.2	-12.7	2.71 V	103	51.1	4.4
2	*5795.00	108.3 PK			2.71 V	103	68.0	40.3
3	*5795.00	96.0 AV			2.71 V	103	55.7	40.3
4	#5925.00	57.0 PK	68.2	-11.2	2.71 V	103	51.7	5.3
5	#5932.05	56.5 PK	68.2	-11.7	2.71 V	103	51.2	5.3
6	11590.00	61.8 PK	74.0	-12.2	2.71 V	355	43.4	18.4
7	11590.00	52.0 AV	54.0	-2.0	2.71 V	355	33.6	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Data:

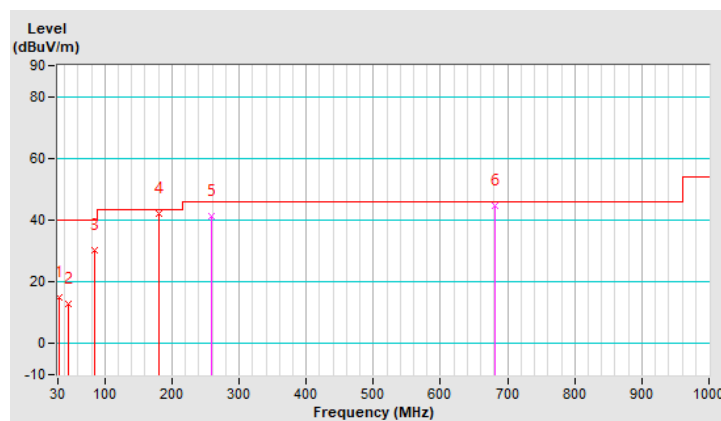
WHDI (40MHz)

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.71	15.1 QP	40.0	-24.9	1.49 H	162	25.6	-10.5
2	45.69	12.9 QP	40.0	-27.1	1.98 H	151	21.7	-8.8
3	83.95	30.1 QP	40.0	-9.9	1.98 H	138	44.0	-13.9
4	179.99	42.1 QP	43.5	-1.4	1.49 H	162	52.0	-9.9
5	259.14	41.1 QP	46.0	-4.9	1.00 H	226	50.2	-9.1
6	680.88	44.6 QP	46.0	-1.4	1.49 H	7	42.6	2.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

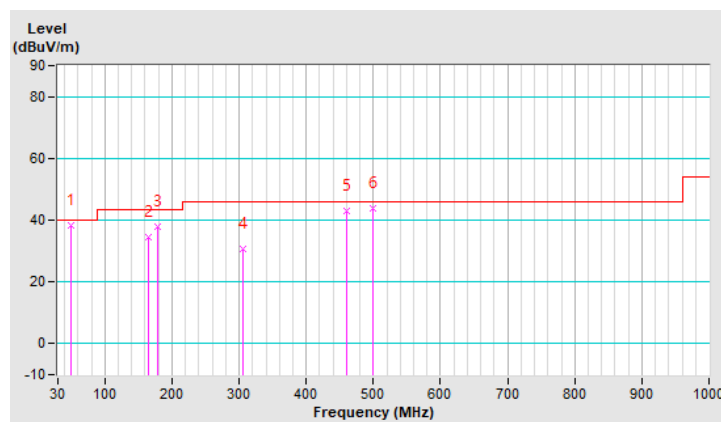


CHANNEL	TX Channel 110	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	49.68	38.4 QP	40.0	-1.6	1.00 V	6	47.2	-8.8
2	164.96	34.7 QP	43.5	-8.8	1.00 V	256	43.4	-8.7
3	179.01	37.8 QP	43.5	-5.7	1.00 V	297	47.6	-9.8
4	305.54	30.6 QP	46.0	-15.4	2.00 V	104	37.8	-7.2
5	460.17	42.8 QP	46.0	-3.2	1.00 V	121	45.3	-2.5
6	499.54	43.7 QP	46.0	-2.3	1.00 V	131	45.2	-1.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Tested date: Apr. 08, 2020

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 11, 2019	Dec. 10, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
Software ADT	BV ADT_Conf_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

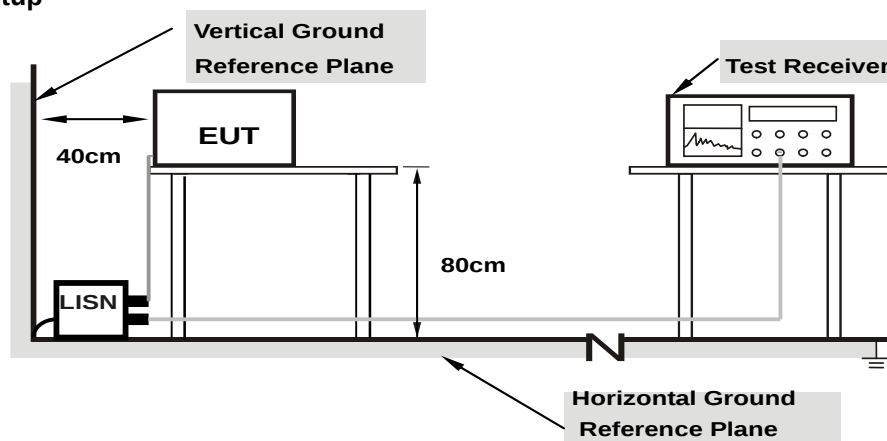
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

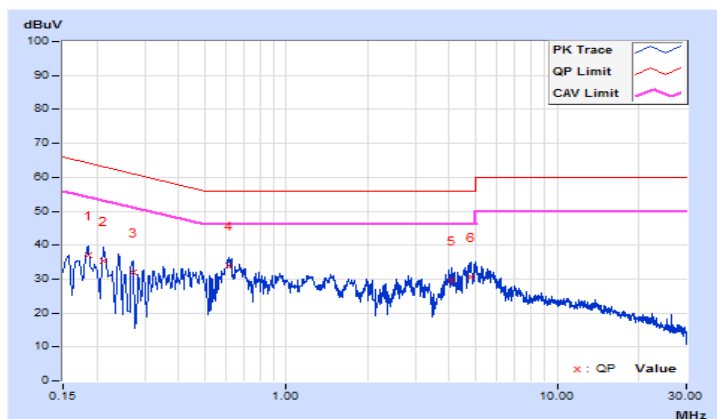
WHDI (40MHz)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 110		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18508	9.62	27.58	20.70	37.20	30.32	64.25	54.25	-27.05	-23.93
2	0.21256	9.62	25.75	16.52	35.37	26.14	63.10	53.10	-27.73	-26.96
3	0.27120	9.63	22.20	9.52	31.83	19.15	61.08	51.08	-29.25	-31.93
4	0.61381	9.66	24.23	17.50	33.89	27.16	56.00	46.00	-22.11	-18.84
5	4.08346	9.79	19.68	13.24	29.47	23.03	56.00	46.00	-26.53	-22.97
6	4.79508	9.80	20.94	12.05	30.74	21.85	56.00	46.00	-25.26	-24.15

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

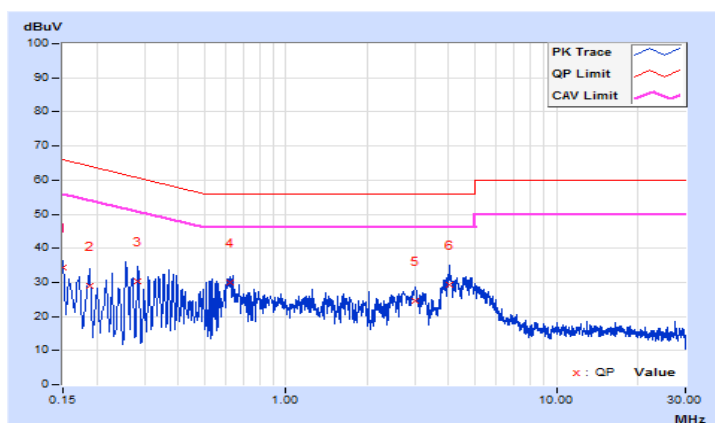


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 110		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	24.61	10.51	34.27	20.17	66.00	56.00	-31.73	-35.83
2	0.18903	9.64	19.25	9.72	28.89	19.36	64.08	54.08	-35.19	-34.72
3	0.28294	9.65	20.81	8.39	30.46	18.04	60.73	50.73	-30.27	-32.69
4	0.62311	9.68	20.32	12.13	30.00	21.81	56.00	46.00	-26.00	-24.19
5	3.01603	9.79	14.87	5.04	24.66	14.83	56.00	46.00	-31.34	-31.17
6	4.02090	9.82	19.50	7.87	29.32	17.69	56.00	46.00	-26.68	-28.31

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



4.3 Transmit Power Measurement

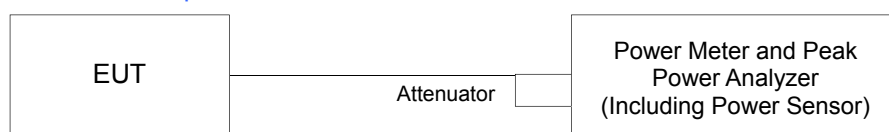
4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

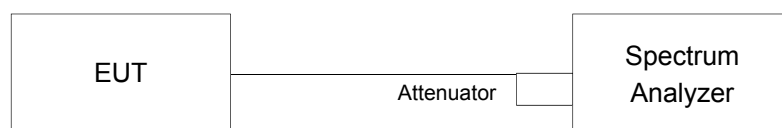
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 26dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

Power Output:

WHDI (20MHz)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	53.827	17.31	30.00	Pass
40	5200	53.580	17.29	30.00	Pass
44	5220	53.703	17.30	30.00	Pass
48	5240	53.703	17.30	30.00	Pass
149	5745	53.456	17.28	30.00	Pass
153	5765	53.211	17.26	30.00	Pass
157	5785	55.590	17.45	30.00	Pass
161	5805	52.723	17.22	30.00	Pass
165	5825	49.317	16.93	30.00	Pass

WHDI (40MHz)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	54.075	17.33	30.00	Pass
46	5230	53.088	17.25	30.00	Pass
54	5270	51.523	17.12	24.00	Pass
62	5310	52.240	17.18	24.00	Pass
102	5510	53.951	17.32	24.00	Pass
110	5550	54.450	17.36	24.00	Pass
134	5670	54.325	17.35	24.00	Pass
151	5755	54.702	17.38	30.00	Pass
159	5795	53.951	17.32	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(40.58) = 27.08 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.28) = 27.05 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.34) = 27.05 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.41) = 27.06 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.10) = 27.03 > 24\text{dBm}$

26dB Bandwidth:

WHDI (20MHz)

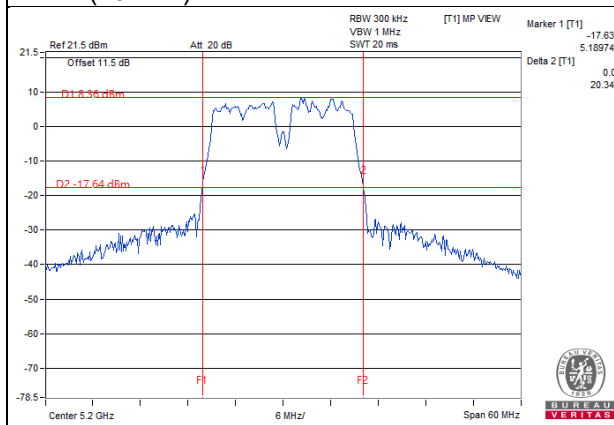
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	Pass / Fail
36	5180	20.27	Pass
40	5200	20.34	Pass
44	5220	20.33	Pass
48	5240	20.28	Pass

WHDI (40MHz)

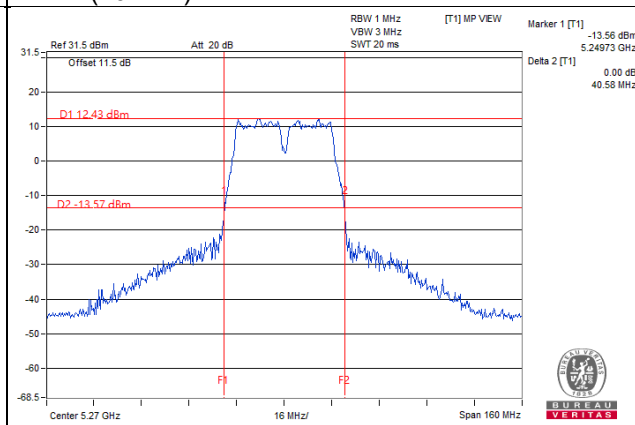
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	Pass / Fail
38	5190	40.07	Pass
46	5230	39.99	Pass
54	5270	40.58	Pass
62	5310	40.28	Pass
102	5510	40.34	Pass
110	5550	40.41	Pass
134	5670	40.10	Pass

Spectrum Plot of Worst Value

WHDI (20MHz)



WHDI (40MHz)



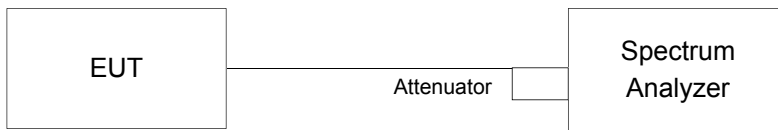
EUT MAXIMUM CONDUCTED POWER

WHDI (40MHz)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	52.240	17.18
5470~5725	54.450	17.36

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Result

Occupied Bandwidth:

WHDI (20MHz)

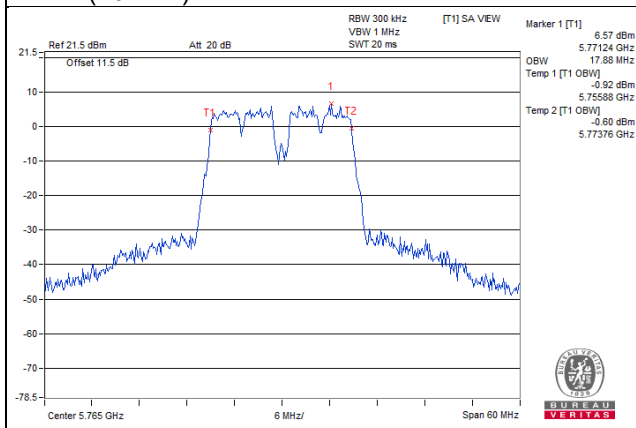
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	17.76
44	5220	17.76
48	5240	17.76
149	5745	17.76
153	5765	17.88
157	5785	17.76
161	5805	17.88
165	5825	17.76

WHDI (40MHz)

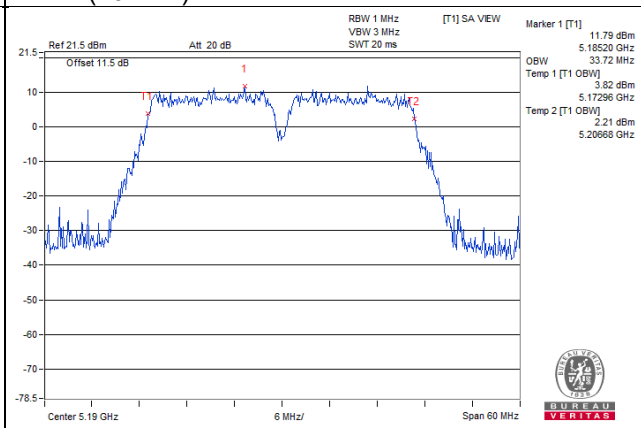
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
38	5190	33.72
46	5230	33.60
54	5270	33.72
62	5310	33.60
102	5510	33.60
110	5550	33.60
134	5670	33.48
151	5755	32.52
159	5795	33.48

Spectrum Plot of Worst Value

WHDI (20MHz)

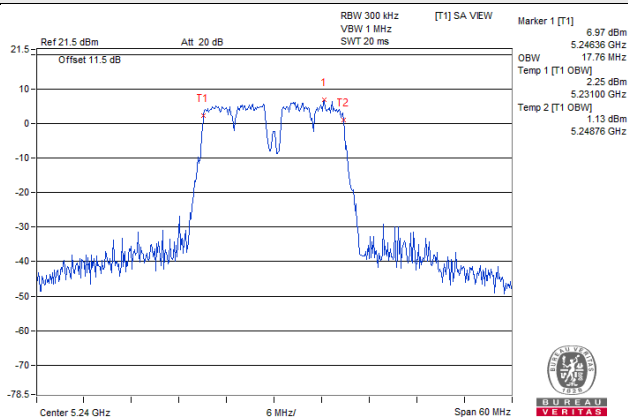


WHDI (40MHz)

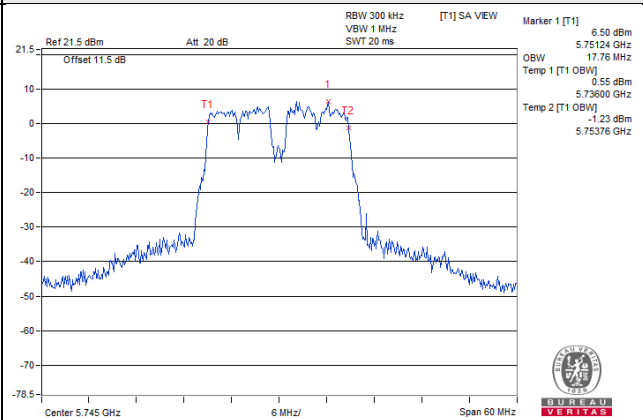


Spectrum Plot for near By DFS Band

WHDI (20MHz) / CH 48

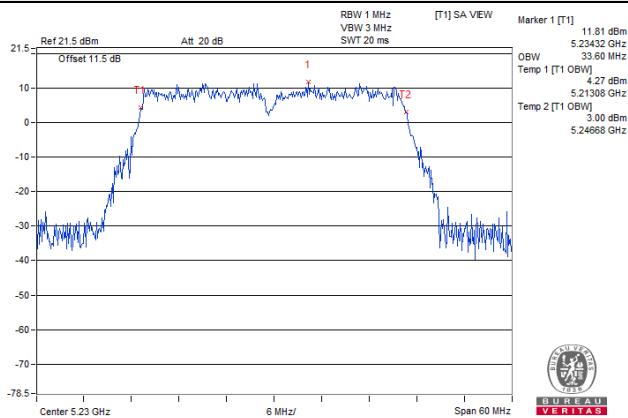


WHDI (20MHz) / CH 149

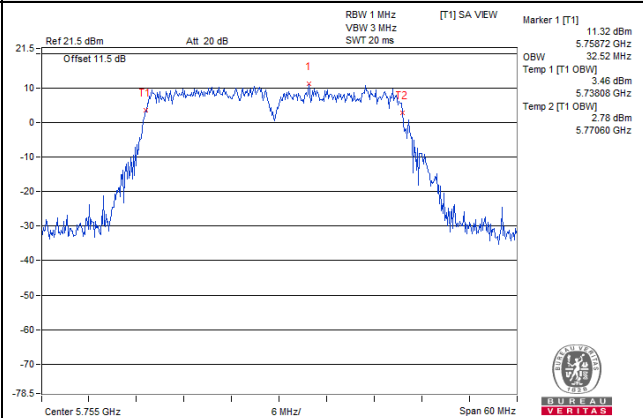


Spectrum Plot for near By DFS Band

WHDI (40MHz) / CH 46



WHDI (40MHz) / CH 151

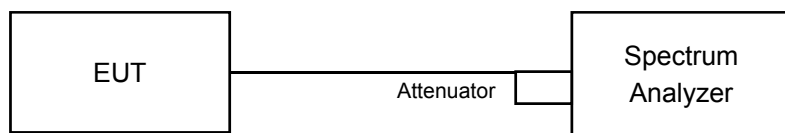


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band:

Duty cycle of test signal is < 98%

Using method SA-2

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- c. Set Channel power measure = 1MHz
- d. Sweep time = auto, trigger set to "free run".
- e. Trace average at least 100 traces in power averaging mode.
- f. Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

Duty cycle of test signal is < 98%

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1, U-NII-2A, U-NII-2C Band

WHDI (20MHz)

Chan.	Freq. (MHz)	PSD (dBm/1mHz)	Max. Limit (dBm)	Pass / Fail
36	5180	2.43	17.00	Pass
40	5200	2.90	17.00	Pass
44	5220	2.52	17.00	Pass
48	5240	3.04	17.00	Pass

Note: Gain = 5.17dBi < 6dBi, so the power spectral density limit is not reduced.

WHDI (40MHz)

Chan.	Freq. (MHz)	PSD (dBm/1mHz)	Max. Limit (dBm)	Pass / Fail
38	5190	0.67	17.00	Pass
46	5230	1.12	17.00	Pass
54	5270	0.67	11.00	Pass
62	5310	1.02	11.00	Pass
102	5510	2.67	11.00	Pass
110	5550	2.57	11.00	Pass
134	5670	1.13	11.00	Pass

Note:

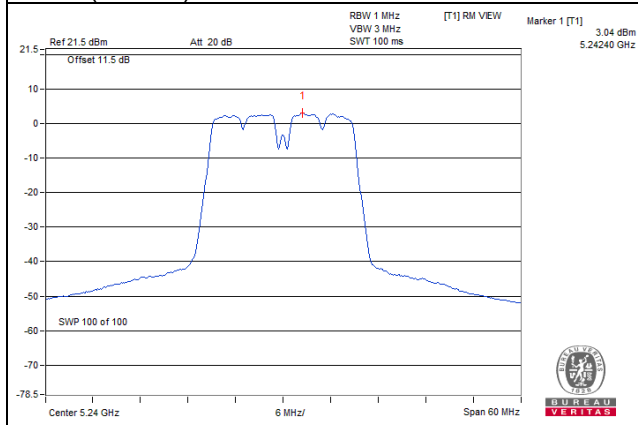
U-NII-1 Band: Gain = 5.17dBi < 6dBi, so the power spectral density limit is not reduced.

U-NII-2A Band: Gain = 5.02dBi < 6dBi, so the power spectral density limit is not reduced.

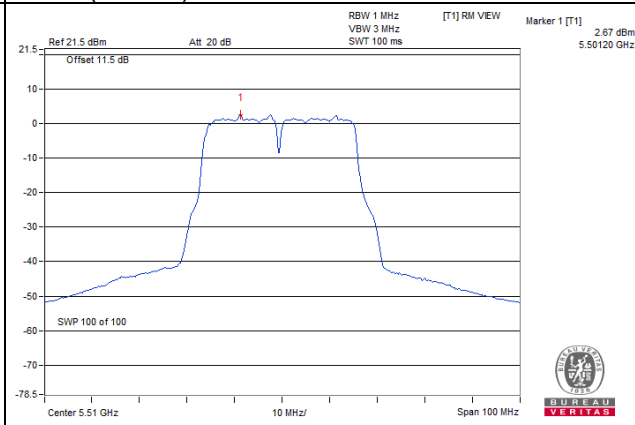
U-NII-2C Band: Gain = 4.44dBi < 6dBi, so the power spectral density limit is not reduced.

Spectrum Plot of Worst Value

WHDI (20MHz)



WHDI (40MHz)



For U-NII-3 Band

WHDI (20MHz)

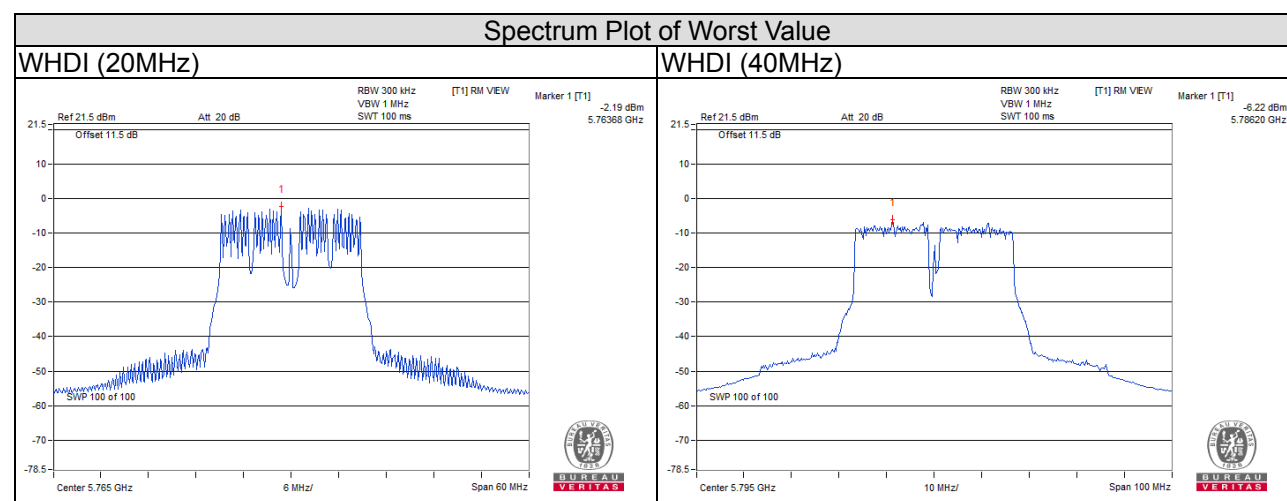
Chan.	Freq. (MHz)	PSD W/O Duty Factor		Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)		
149	5745	-2.82	-0.60	30.00	Pass
153	5765	-2.19	0.03	30.00	Pass
157	5785	-2.58	-0.36	30.00	Pass
161	5805	-3.11	-0.89	30.00	Pass
165	5825	-3.21	-0.99	30.00	Pass

Note: Gain = 4.82dBi < 6dBi, so the power spectral density limit is not reduced.

WHDI (40MHz)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)		
151	5755	-6.92	-4.70	30.00	Pass
159	5795	-6.22	-4.00	30.00	Pass

Note: Gain = 4.82dBi < 6dBi, so the power spectral density limit is not reduced.

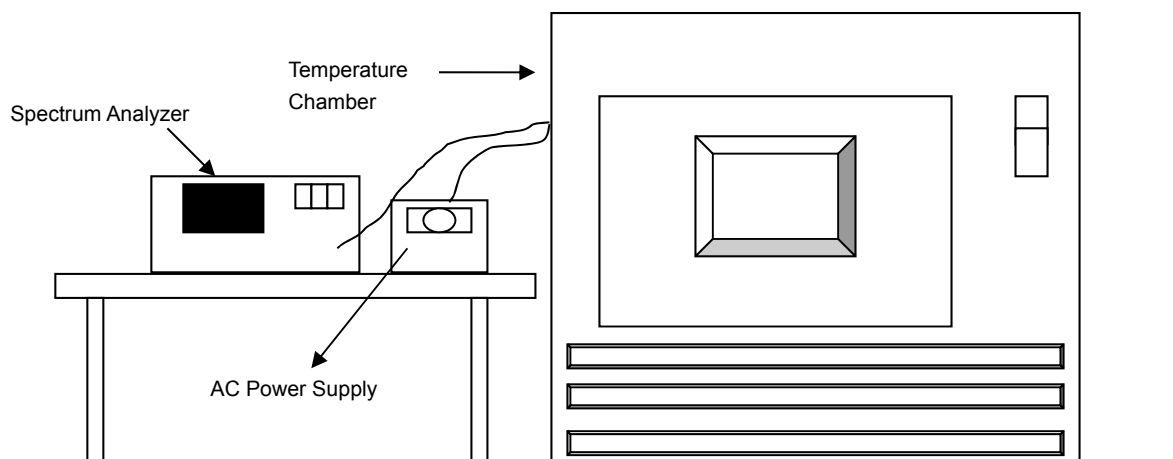


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 28, 2019	Jun. 27, 2020
AC Power Supply Extech	CFW-105	E000603	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results

WHDI (40MHz)

Frequency Stability Versus Temp.									
Operating Frequency: 5190MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5190.0017	Pass	5190.0027	Pass	5190.0037	Pass	5190.0041	Pass
40	120	5190.0012	Pass	5190.0038	Pass	5190.0033	Pass	5190.0045	Pass
30	120	5190.0046	Pass	5190.0024	Pass	5190.0054	Pass	5190.0039	Pass
20	120	5190.0060	Pass	5190.0060	Pass	5190.0103	Pass	5190.0090	Pass
10	120	5190.0110	Pass	5190.0105	Pass	5190.0079	Pass	5190.0067	Pass
0	120	5189.9790	Pass	5189.9807	Pass	5189.9789	Pass	5189.9805	Pass
-10	120	5189.9805	Pass	5189.9840	Pass	5189.9815	Pass	5189.9824	Pass
-20	120	5190.0051	Pass	5190.0052	Pass	5190.0055	Pass	5190.0066	Pass
-30	120	5189.9778	Pass	5189.9803	Pass	5189.9789	Pass	5189.9802	Pass

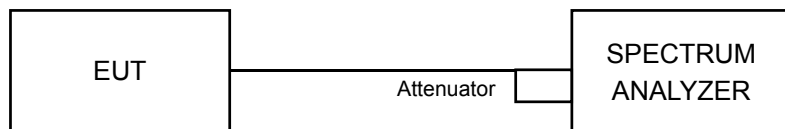
Frequency Stability Versus Voltage.									
Operating Frequency: 5190MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5190.0065	Pass	5190.0065	Pass	5190.0105	Pass	5190.0092	Pass
	120	5190.0060	Pass	5190.0060	Pass	5190.0103	Pass	5190.0090	Pass
	102	5190.0050	Pass	5190.0063	Pass	5190.0098	Pass	5190.0089	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

WHDI (20MHz)

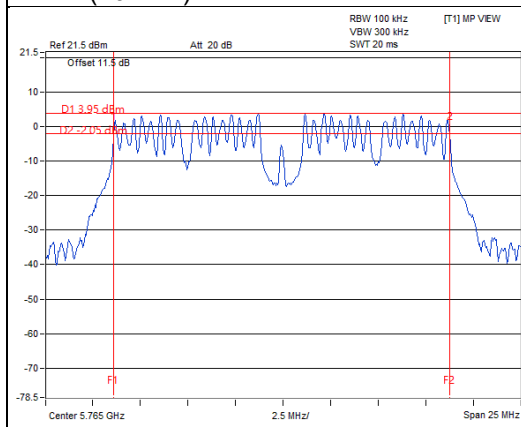
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.72	0.5	Pass
153	5765	17.70	0.5	Pass
157	5785	17.71	0.5	Pass
161	5805	17.71	0.5	Pass
165	5825	17.71	0.5	Pass

WHDI (40MHz)

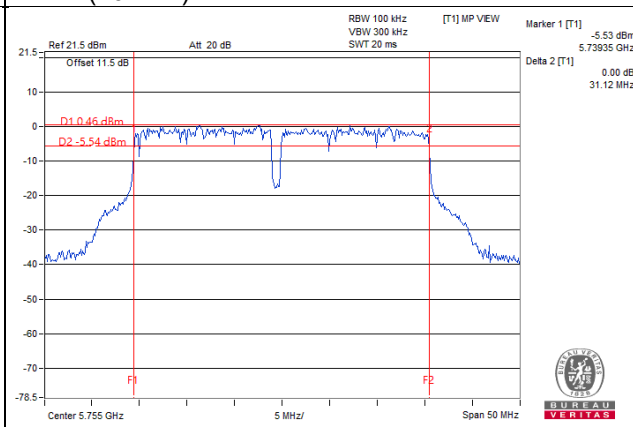
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	31.12	0.5	Pass
159	5795	32.06	0.5	Pass

Spectrum Plot of Worst Value

WHDI (20MHz)



WHDI (40MHz)



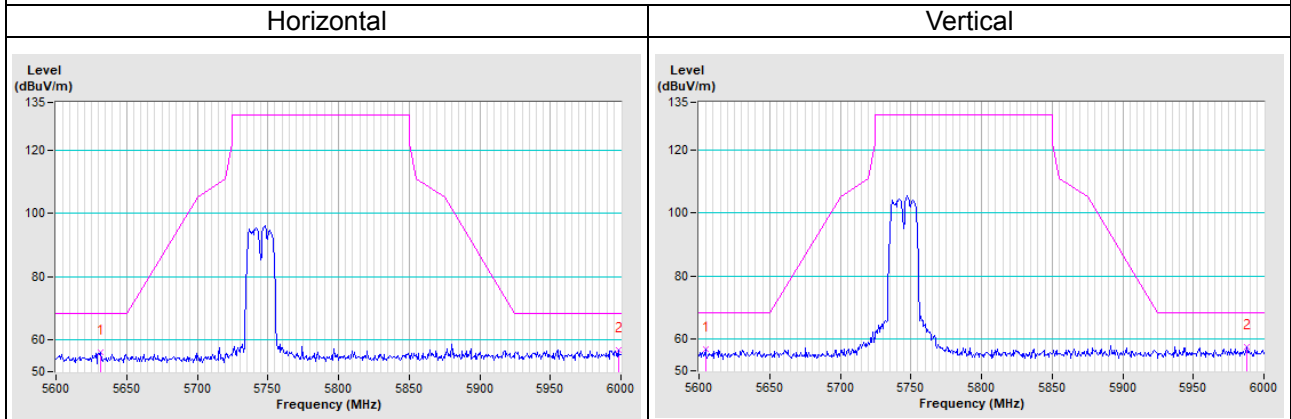
5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

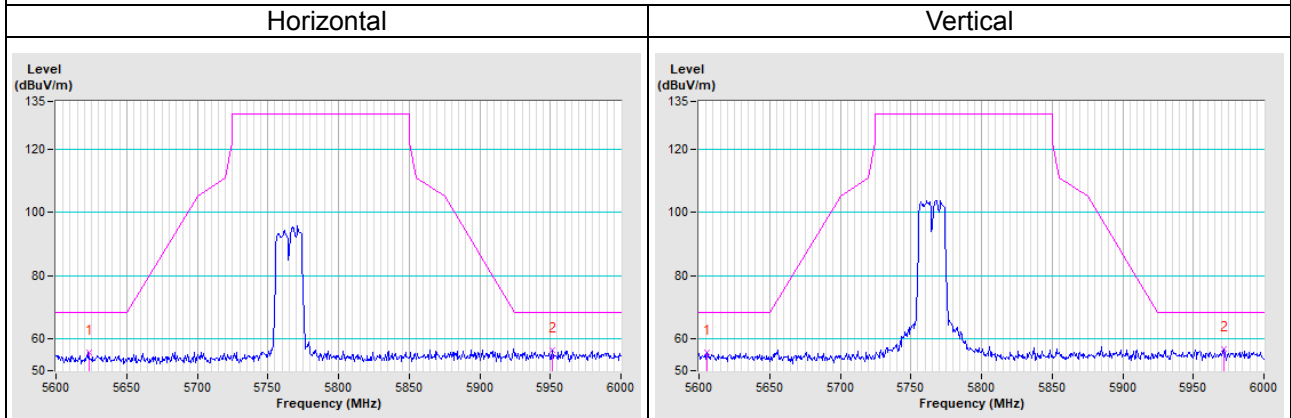
Annex A- Radiated out of Band Emission (OOBE) Measurement (For U-NII-3 band)

WHDI (20MHz)

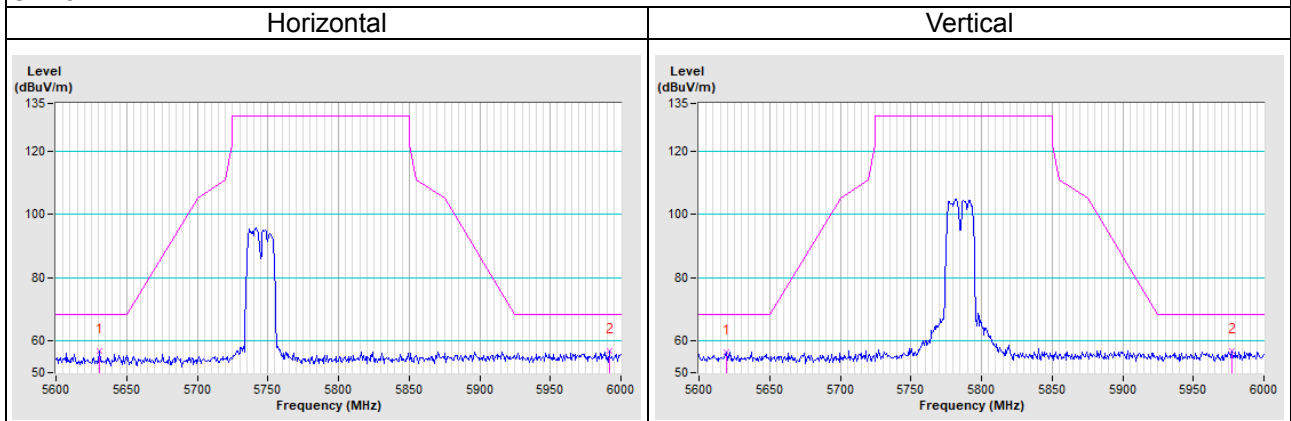
CH149



CH153

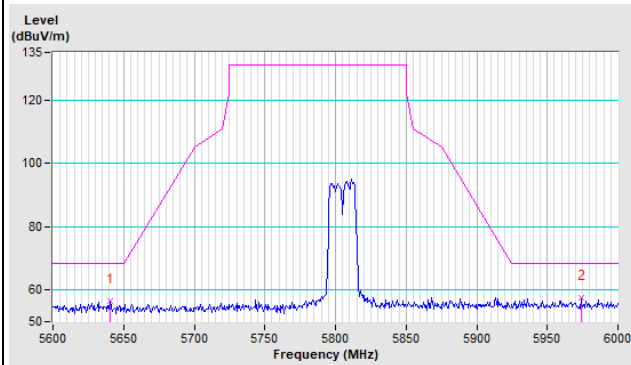


CH157

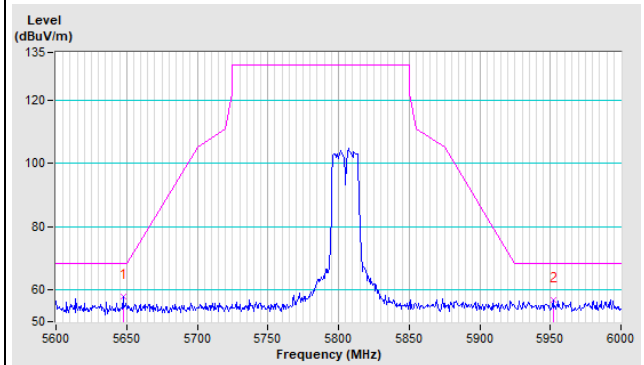


CH161

Horizontal

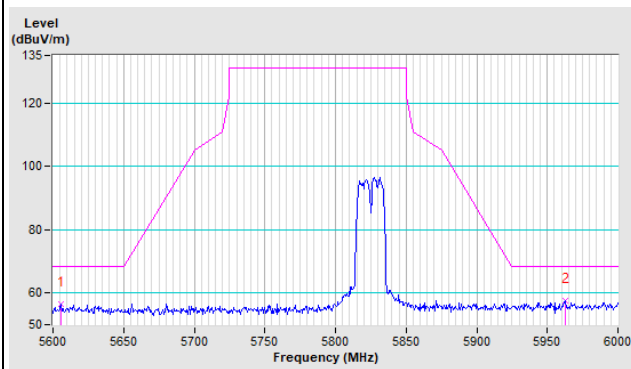


Vertical

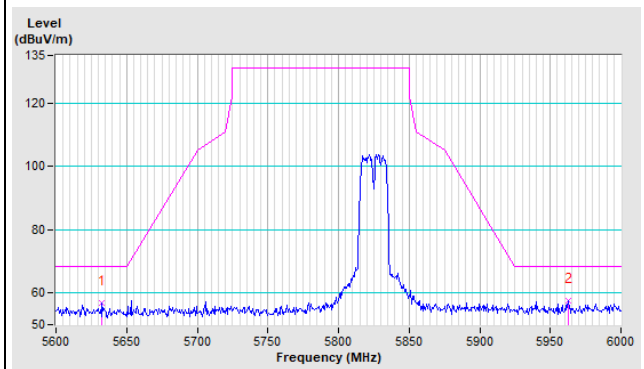


CH165

Horizontal



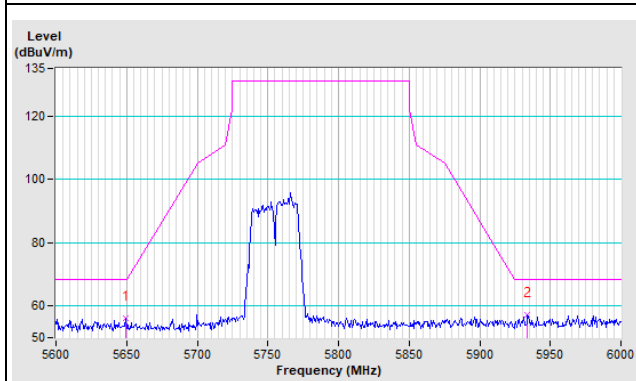
Vertical



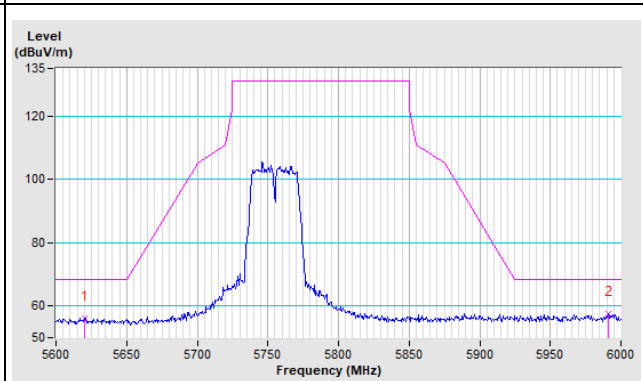
WHDI (40MHz)

CH151

Horizontal

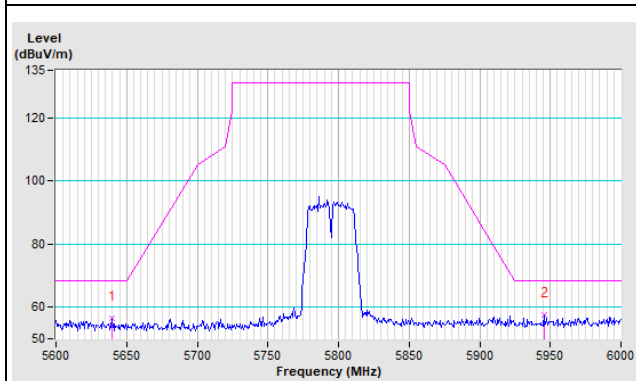


Vertical

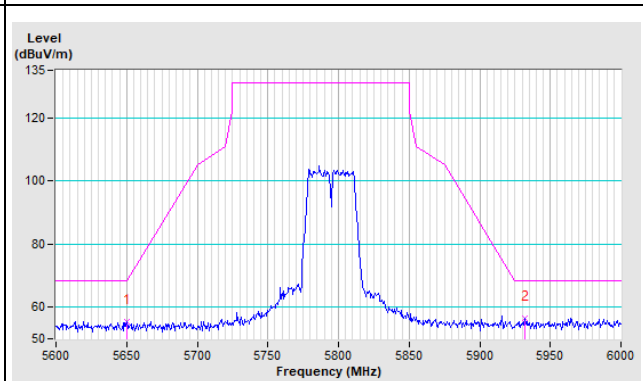


CH159

Horizontal

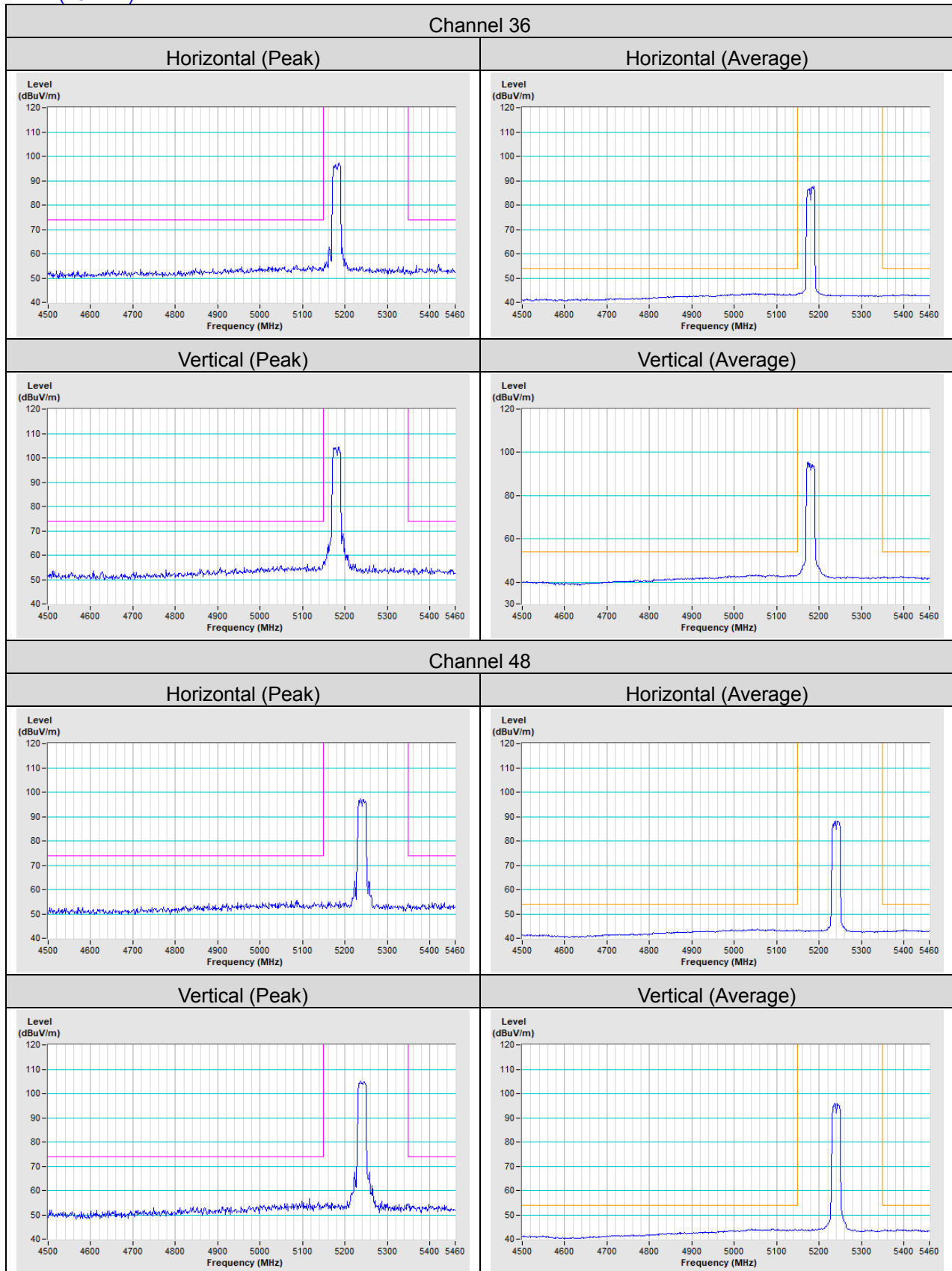


Vertical

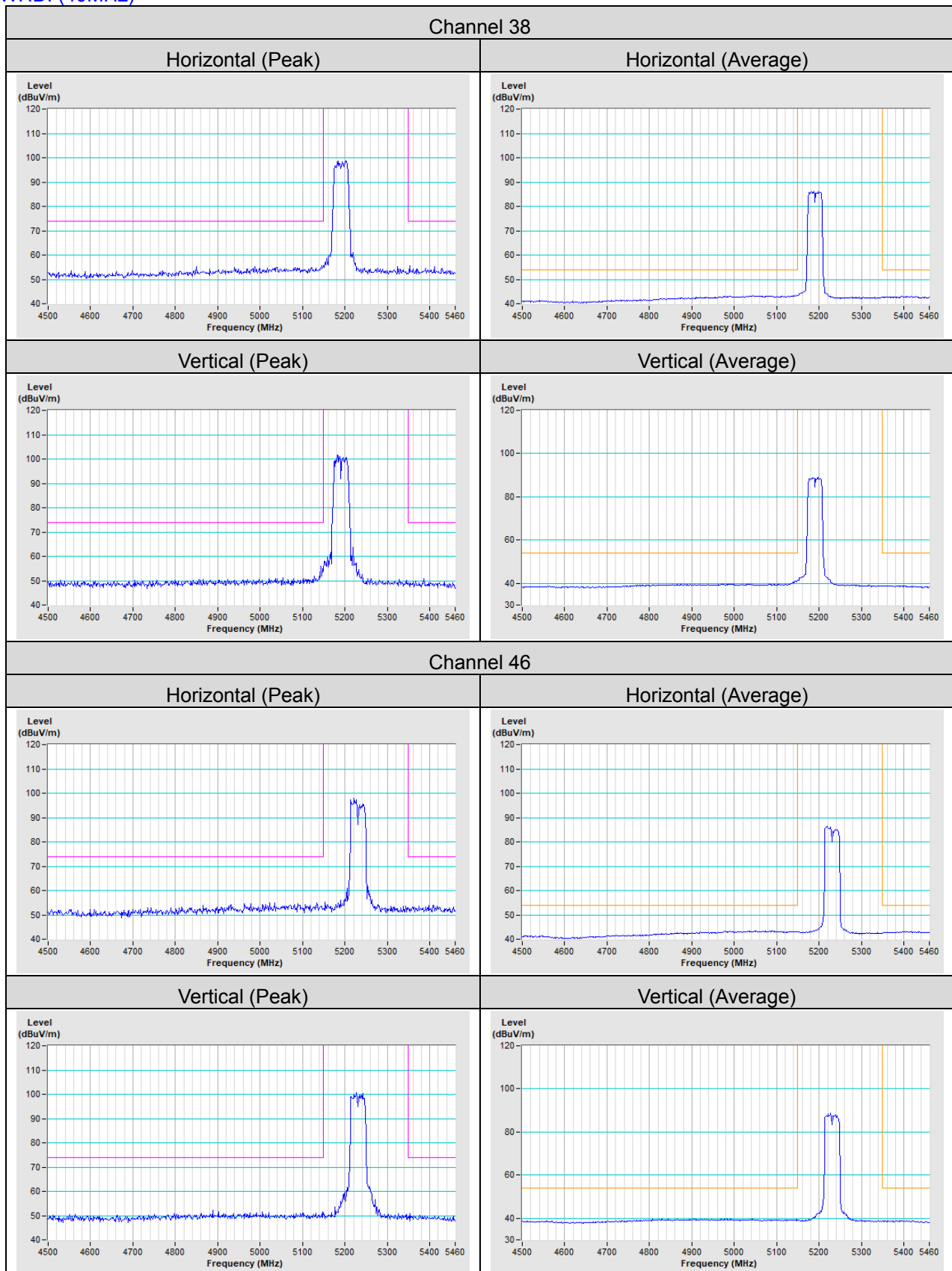


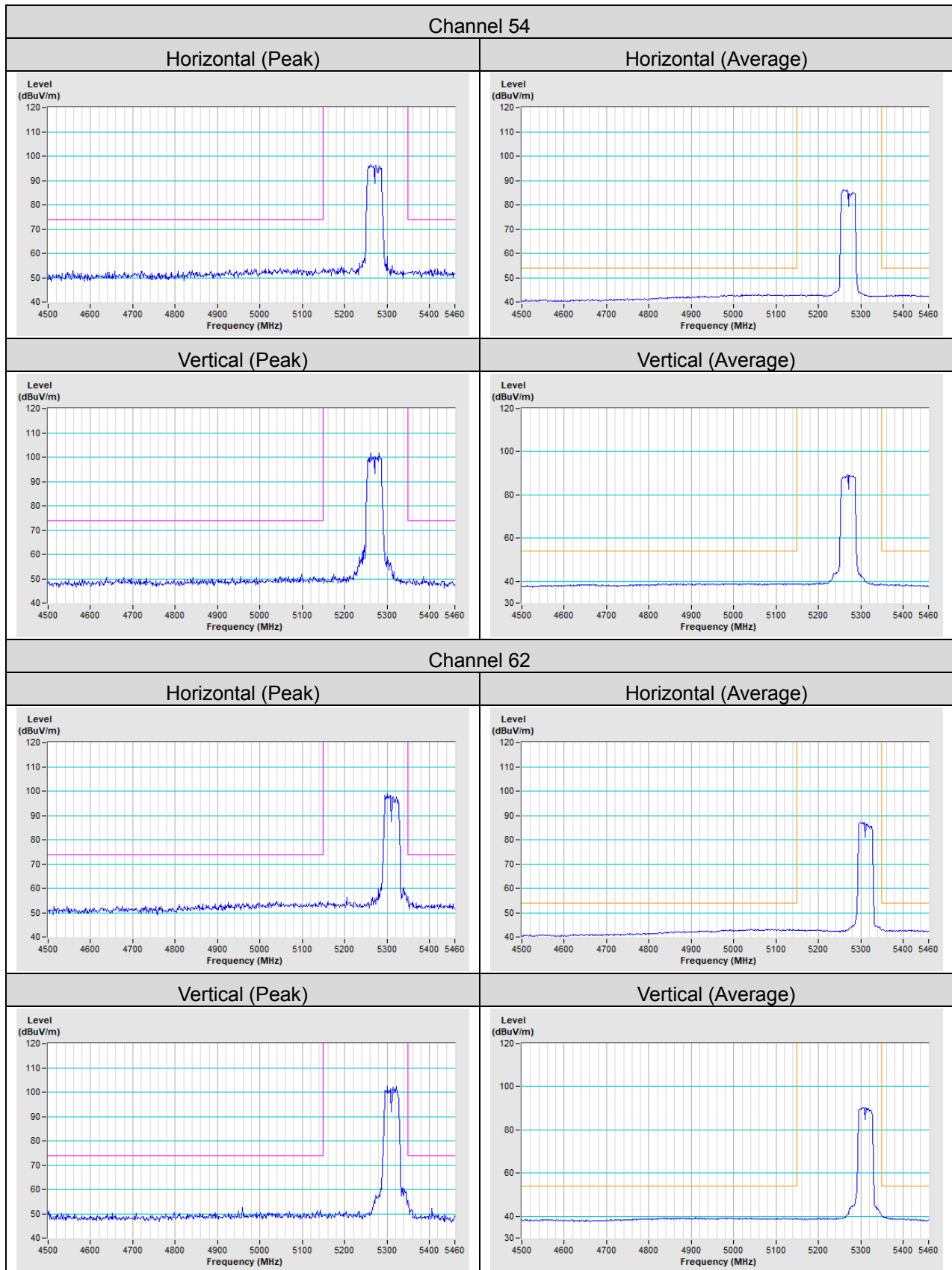
Annex B- Band Edge Measurement

WHDI (20MHz)



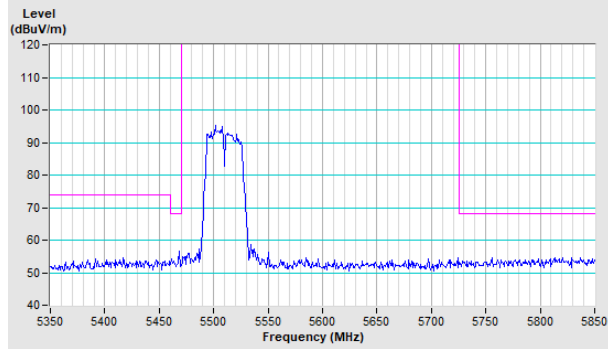
WHDI (40MHz)



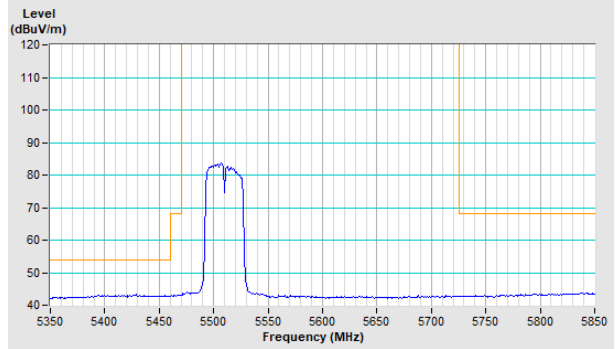


Channel 102

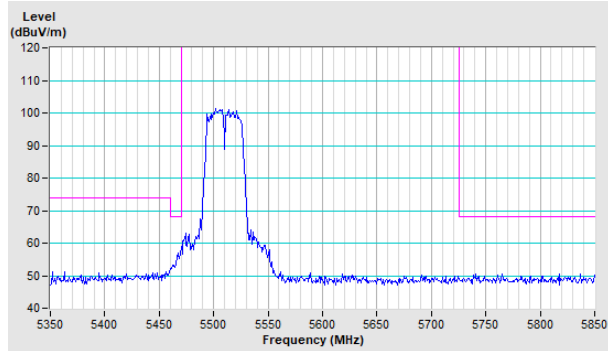
Horizontal (Peak)



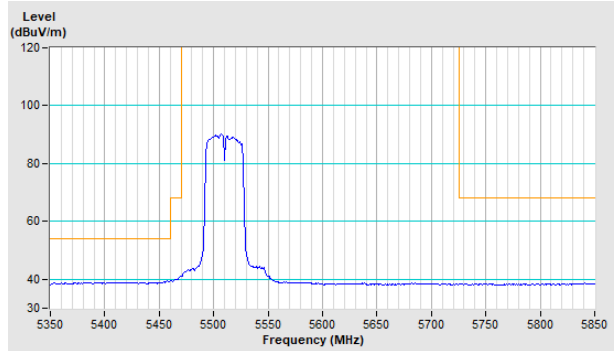
Horizontal (Average)



Vertical (Peak)

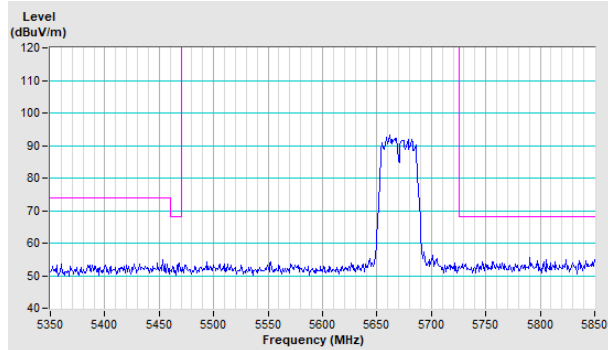


Vertical (Average)

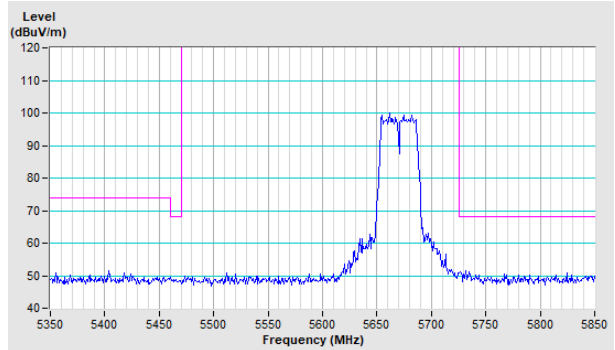


Channel 151

Horizontal (Peak)



Vertical (Peak)



Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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