

Partial FCC Test Report

Report No.: RFBENL-WTW-P21080259-1

FCC ID: RYK-WPEA252NIRB

Test Model: WPEA-252NIRB

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Designation Number (1):

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Designation Number (2):



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Release Control Record

Issue No.	Description	Date Issued
RFBENL-WTW-P21080259-1	Original release	Sep. 14, 2021

1 Certificate of Conformity

Product: 802.11a/b/g/n 2T2R Industrial Grade Mini PCIe Module

Brand: SparkLAN

Test Model: WPEA-252NIRB

Sample Status: R & D sample

Applicant: SparkLAN Communications, Inc.

Test Date: Aug. 13 ~ Aug. 20, 2021

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

This report is issued as a duplicate report of RF180913C25-1. This report shall be used combined together with its original report.

Prepared by : Polly Chien , **Date:** Sep. 14, 2021
Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Sep. 14, 2021
Bruce Chen / Project Engineer

Note: The conducted power, radiated emission and conducted emission test items are performed for the addendum. Refer to original report for the other test data.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(8)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -17.31dB at 1.58600MHz.
15.407(b)(1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.1dB at 5350.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	N/A	Refer to Note 1
15.407(e)	6dB bandwidth	N/A	Refer to Note 1
15.407(g)	Frequency Stability	N/A	Refer to Note 1
15.203	Antenna Requirement	Pass	For Ant. No.: 1~5 Antenna connectors are HRS U.FL at modular side & RP-SMA (M) at antenna side not standard connector. For Ant. No.: 6 Antenna connectors are 3M FD-200 with RP-SMA(M) not standard connector.

Note:

1. The conducted power, radiated emission and conducted emission test items are performed for the addendum. Refer to original report for the other test data.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
4. 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) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11a/b/g/n 2T2R Industrial Grade Mini PCIe Module
Brand	SparkLAN
Test Model	WPEA-252NIRB
Sample Status	R & D sample
Power Supply Rating	3.3Vdc (host)
Modulation Type	64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20): 4 802.11n (HT40): 2 5260 ~ 5320MHz: 802.11a, 802.11n (HT20): 4 802.11n (HT40): 2 5500 ~ 5700MHz: 802.11a, 802.11n (HT20): 11 802.11n (HT40): 5 5745 ~ 5825MHz: 802.11a, 802.11n (HT20): 5 802.11n (HT40): 2
Output Power	5180 ~ 5240MHz: 33.574mW 5260 ~ 5320MHz: 34.754mW 5500 ~ 5700MHz: 33.343mW 5745 ~ 5825MHz: 32.659mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Antenna
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to the original BV CPS report no.: RF180913C25-1. The difference compared with original report is adding PIFA antenna. Therefore, only conducted power, radiated emission and conducted emission test items are performed for the addendum. Refer to original report for the other test data.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11a	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

3. The EUT uses following antennas. (New antenna is marked in boldface)

No.	Transmitter Circuit	Brand	Model	Antenna Type	2.4G gain with cable loss (dBi)	5G gain with cable loss (dBi)	Connector Type
1	Chain(0) Chain(1)	Sparklan	AD-301N	Dipole	4.4	B1&2: 5.2 B3&4: 5.8	HRS U.FL at modular side & RP-SMA (M) at antenna side
2	Chain(0) Chain(1)	Sparklan	AD-103AG	Dipole	2.02	B1&2: 1.93 B3&4: 2.03	
3	Chain(0) Chain(1)	Sparklan	AD-305N	Dipole	5.0	5.0	
4	Chain(0) Chain(1)	Sparklan	AD-303N	Dipole	3.0	3.0	
5	Chain(0) Chain(1)	Sparklan	AD-302N	Dipole	3.0	2.0	
6	Chain(0) Chain(1)	Taoglas	Ma230.LBC .002	PIFA	1.5	2.0	3M FD-200 with RP-SMA(M)

4. 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.

5. WLAN 2.4G and 5G technology cannot transmit simultaneously.

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20):

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

For 5260 ~ 5320MHz:

4 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

For 5500 ~ 5700MHz:

11 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

For 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20):

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

2 channels are provided for 802.11n (HT40):

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 $\geq$ 1G	RE<1G	PLC	Power	
-	√	√	√	√	-

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

Power: Maximum Output Power Measurement

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

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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5

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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11n (HT20)	5260-5320	52 to 64	52	OFDM	6.5

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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11n (HT20)	5260-5320	52 to 64	52	OFDM	6.5

Maximum Output Power 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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE $\geq$ 1G	23 deg. C, 73% RH	120Vac, 60Hz	Noah Chang
RE<1G	24 deg. C, 72% RH	120Vac, 60Hz	Noah Chang
PLC	23 deg. C, 66% RH	120Vac, 60Hz	Cookie Ku
Power	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu

3.3 Description of Support Units

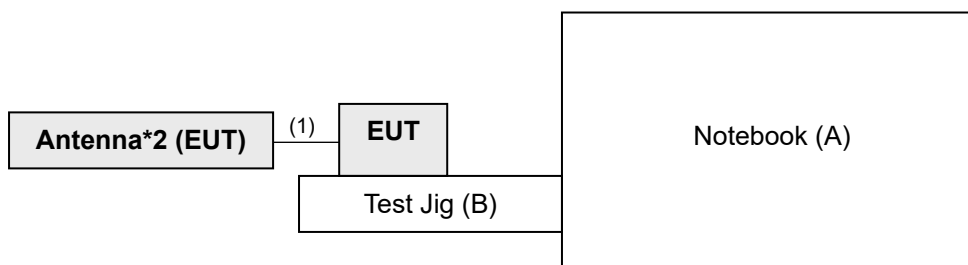
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Lenovo	L440	R90GHURS	FCC DoC Approved	-
B.	Test Jig	NA	NA	NA	NA	Provided by manufacturer

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.	Antenna cable	2	0.15	Y	0	Provided by manufacturer

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

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

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)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	☒ 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}
^{*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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102579	Jul. 05, 2021	Jul. 04, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 18, 2020	Dec. 17, 2021
BILOG Antenna SCHWARZBECK	VULB9168	995	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC118A45SE	980810	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC104-SM-SM-(9 000+2000+1000)	201230+ 201242+ 210101	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMCCFD400-NM-N M-(9000+300+500)	201252+ 201250+ 201245	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC101G-KM-KM- (5000+3000+2000)	201261+201258+ 201249	Jan. 12, 2021	Jan. 11, 2022
Software BV CPS	ADT_Radiated_V7. 6.15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190 004/MY55190007/MY55 210005	Jul. 12, 2021	Jul. 11, 2022

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 WM Chamber 7.

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:

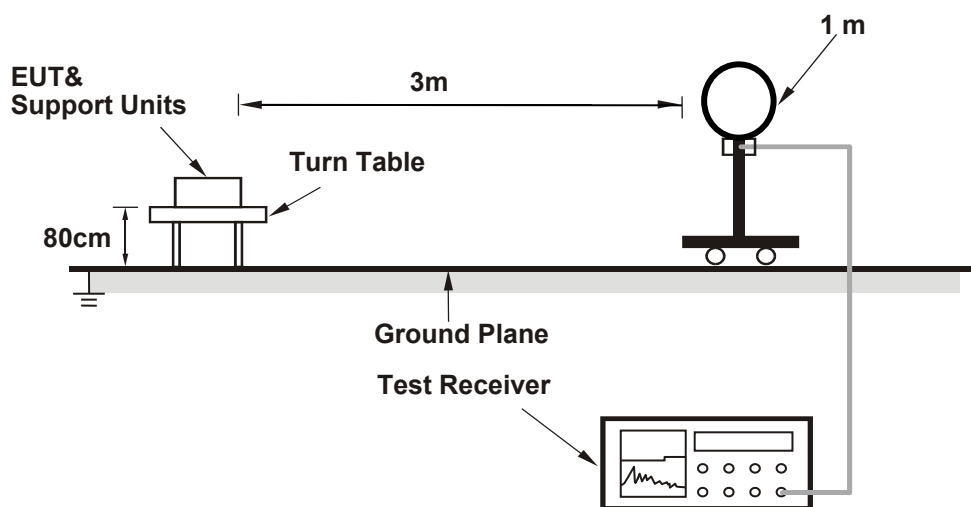
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

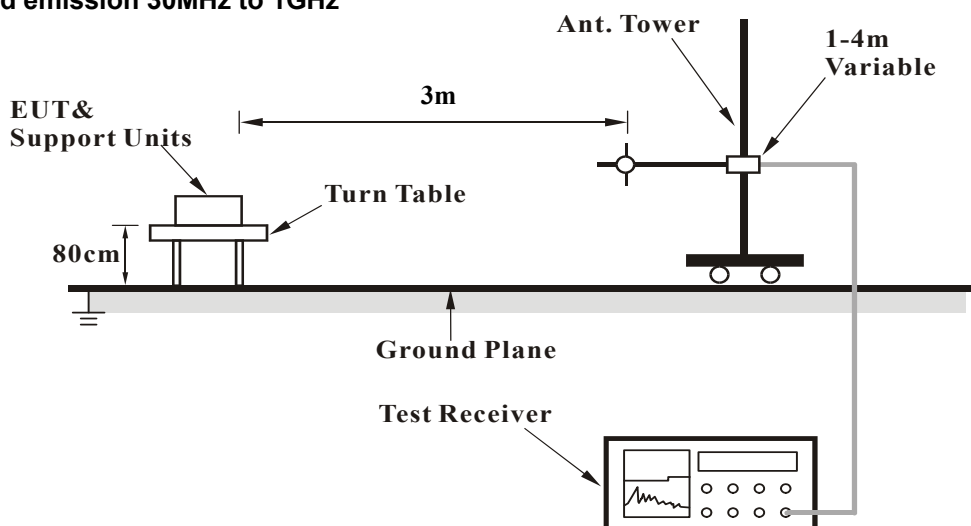
No deviation.

4.1.5 Test Setup

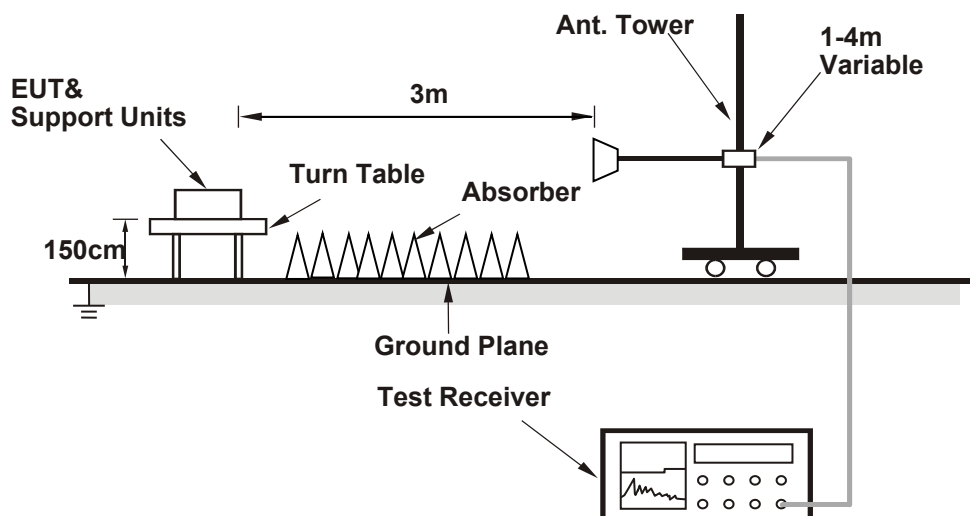
For Radiated emission below 30MHz



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

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

4.1.7 Test Results

Above 1GHz data:

RF Mode	TX 802.11a	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	1.23 H	303	56.1	1.9
2	5150.00	44.6 AV	54.0	-9.4	1.23 H	303	42.7	1.9
3	*5180.00	105.2 PK			1.23 H	303	65.2	40.0
4	*5180.00	96.0 AV			1.23 H	303	56.0	40.0
5	#10360.00	54.7 PK	68.2	-13.5	1.31 H	333	46.6	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	55.9 PK	74.0	-18.1	1.03 V	269	54.0	1.9
2	5150.00	44.6 AV	54.0	-9.4	1.03 V	269	42.7	1.9
3	*5180.00	105.3 PK			1.03 V	269	65.3	40.0
4	*5180.00	96.2 AV			1.03 V	269	56.2	40.0
5	#10360.00	55.3 PK	68.2	-12.9	1.35 V	255	47.2	8.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	105.1 PK			1.22 H	211	65.1	40.0
2	*5200.00	95.8 AV			1.22 H	211	55.8	40.0
3	#10400.00	54.6 PK	68.2	-13.6	1.52 H	3	46.5	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	106.0 PK			1.52 V	281	66.0	40.0
2	*5200.00	96.6 AV			1.52 V	281	56.6	40.0
3	#10400.00	55.1 PK	68.2	-13.1	1.22 V	30	47.0	8.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	104.5 PK			1.32 H	203	64.5	40.0
2	*5240.00	95.9 AV			1.32 H	203	55.9	40.0
3	5350.00	57.3 PK	74.0	-16.7	1.32 H	203	55.4	1.9
4	5350.00	44.8 AV	54.0	-9.2	1.32 H	203	42.9	1.9
5	#10480.00	55.3 PK	68.2	-12.9	1.65 H	133	47.4	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	105.7 PK			1.29 V	281	65.7	40.0
2	*5240.00	96.6 AV			1.29 V	281	56.6	40.0
3	5350.00	56.6 PK	74.0	-17.4	1.29 V	281	54.7	1.9
4	5350.00	44.8 AV	54.0	-9.2	1.29 V	281	42.9	1.9
5	#10480.00	54.2 PK	68.2	-14.0	3.13 V	29	46.3	7.9

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	56.9 PK	74.0	-17.1	1.85 H	302	55.0	1.9
2	5150.00	45.5 AV	54.0	-8.5	1.85 H	302	43.6	1.9
3	*5260.00	109.1 PK			1.85 H	302	69.1	40.0
4	*5260.00	98.0 AV			1.85 H	302	58.0	40.0
5	#10520.00	55.8 PK	68.2	-12.4	2.41 H	178	47.8	8.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	57.0 PK	74.0	-17.0	1.40 V	252	55.1	1.9
2	5150.00	46.2 AV	54.0	-7.8	1.40 V	252	44.3	1.9
3	*5260.00	109.8 PK			1.40 V	252	69.8	40.0
4	*5260.00	99.6 AV			1.40 V	252	59.6	40.0
5	#10520.00	56.1 PK	68.2	-12.1	2.46 V	102	48.1	8.0

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	106.0 PK			2.42 H	298	66.0	40.0
2	*5300.00	96.6 AV			2.42 H	298	56.6	40.0
3	10600.00	56.0 PK	74.0	-18.0	1.56 H	102	47.8	8.2
4	10600.00	44.5 AV	54.0	-9.5	1.56 H	102	36.3	8.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	107.7 PK			1.11 V	267	67.7	40.0
2	*5300.00	98.1 AV			1.11 V	267	58.1	40.0
3	10600.00	56.0 PK	74.0	-18.0	3.15 V	57	47.8	8.2
4	10600.00	44.5 AV	54.0	-9.5	3.15 V	57	36.3	8.2

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	106.4 PK			1.82 H	303	66.4	40.0
2	*5320.00	96.8 AV			1.82 H	303	56.8	40.0
3	5350.00	56.8 PK	74.0	-17.2	1.82 H	303	54.9	1.9
4	5350.00	45.9 AV	54.0	-8.1	1.82 H	303	44.0	1.9
5	10640.00	56.0 PK	74.0	-18.0	2.54 H	145	47.8	8.2
6	10640.00	44.3 AV	54.0	-9.7	2.54 H	145	36.1	8.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	106.5 PK			1.50 V	286	66.5	40.0
2	*5320.00	96.9 AV			1.50 V	286	56.9	40.0
3	5350.00	56.6 PK	74.0	-17.4	1.50 V	286	54.7	1.9
4	5350.00	45.8 AV	54.0	-8.2	1.50 V	286	43.9	1.9
5	10640.00	55.9 PK	74.0	-18.1	1.47 V	15	47.7	8.2
6	10640.00	44.3 AV	54.0	-9.7	1.47 V	15	36.1	8.2

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	60.1 PK	68.2	-8.1	1.52 H	303	57.9	2.2
2	*5500.00	109.4 PK			1.52 H	303	68.9	40.5
3	*5500.00	100.1 AV			1.52 H	303	59.6	40.5
4	11000.00	56.7 PK	74.0	-17.3	2.41 H	103	48.2	8.5
5	11000.00	44.7 AV	54.0	-9.3	2.41 H	103	36.2	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	60.6 PK	68.2	-7.6	1.53 V	268	58.4	2.2
2	*5500.00	109.7 PK			1.53 V	268	69.2	40.5
3	*5500.00	100.4 AV			1.53 V	268	59.9	40.5
4	11000.00	56.2 PK	74.0	-17.8	3.10 V	41	47.7	8.5
5	11000.00	44.6 AV	54.0	-9.4	3.10 V	41	36.1	8.5

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.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	107.1 PK			1.48 H	304	66.4	40.7
2	*5580.00	97.7 AV			1.48 H	304	57.0	40.7
3	11160.00	57.2 PK	74.0	-16.8	2.46 H	204	48.7	8.5
4	11160.00	44.8 AV	54.0	-9.2	2.46 H	204	36.3	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	109.3 PK			1.47 V	264	68.6	40.7
2	*5580.00	99.1 AV			1.47 V	264	58.4	40.7
3	11160.00	56.0 PK	74.0	-18.0	1.96 V	23	47.5	8.5
4	11160.00	44.9 AV	54.0	-9.1	1.96 V	23	36.4	8.5

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.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	105.5 PK			1.89 H	294	64.2	41.3
2	*5700.00	96.3 AV			1.89 H	294	55.0	41.3
3	#5725.00	57.7 PK	68.2	-10.5	1.89 H	294	54.5	3.2
4	11400.00	55.8 PK	74.0	-18.2	2.40 H	103	47.2	8.6
5	11400.00	44.6 AV	54.0	-9.4	2.40 H	103	36.0	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	107.3 PK			1.45 V	262	66.0	41.3
2	*5700.00	97.4 AV			1.45 V	262	56.1	41.3
3	#5725.00	58.8 PK	68.2	-9.4	1.45 V	262	55.6	3.2
4	11400.00	57.4 PK	74.0	-16.6	1.05 V	46	48.8	8.6
5	11400.00	44.8 AV	54.0	-9.2	1.05 V	46	36.2	8.6

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5602.40	59.5 PK	68.2	-8.7	2.72 H	292	56.9	2.6
2	*5745.00	103.5 PK			2.72 H	292	62.0	41.5
3	*5745.00	95.2 AV			2.72 H	292	53.7	41.5
4	#5976.00	59.8 PK	68.2	-8.4	2.72 H	292	56.4	3.4
5	11490.00	56.5 PK	74.0	-17.5	2.10 H	21	47.7	8.8
6	11490.00	44.3 AV	54.0	-9.7	2.10 H	21	35.5	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.00	58.6 PK	68.2	-9.6	1.57 V	274	55.8	2.8
2	*5745.00	105.8 PK			1.57 V	274	64.3	41.5
3	*5745.00	96.4 AV			1.57 V	274	54.9	41.5
4	#5955.20	59.1 PK	68.2	-9.1	1.57 V	274	55.6	3.5
5	11490.00	55.2 PK	74.0	-18.8	2.41 V	105	46.4	8.8
6	11490.00	44.0 AV	54.0	-10.0	2.41 V	105	35.2	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.20	59.3 PK	68.2	-8.9	2.32 H	297	56.5	2.8
2	*5785.00	103.5 PK			2.32 H	297	61.9	41.6
3	*5785.00	95.0 AV			2.32 H	297	53.4	41.6
4	#5960.40	60.0 PK	68.2	-8.2	2.32 H	297	56.5	3.5
5	11570.00	56.1 PK	74.0	-17.9	2.19 H	13	47.3	8.8
6	11570.00	44.3 AV	54.0	-9.7	2.19 H	13	35.5	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5633.60	59.9 PK	68.2	-8.3	1.20 V	264	57.1	2.8
2	*5785.00	104.9 PK			1.20 V	264	63.3	41.6
3	*5785.00	96.4 AV			1.20 V	264	54.8	41.6
4	#5938.40	59.7 PK	68.2	-8.5	1.20 V	264	56.2	3.5
5	11570.00	55.3 PK	74.0	-18.7	2.10 V	31	46.5	8.8
6	11570.00	44.2 AV	54.0	-9.8	2.10 V	31	35.4	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.60	60.7 PK	68.2	-7.5	1.98 H	295	57.9	2.8
2	*5825.00	104.9 PK			1.98 H	295	63.2	41.7
3	*5825.00	95.5 AV			1.98 H	295	53.8	41.7
4	#5970.80	59.3 PK	68.2	-8.9	1.98 H	295	55.8	3.5
5	11650.00	56.2 PK	74.0	-17.8	1.94 H	26	47.5	8.7
6	11650.00	44.2 AV	54.0	-9.8	1.94 H	26	35.5	8.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.80	60.8 PK	68.2	-7.4	1.52 V	275	58.0	2.8
2	*5825.00	107.3 PK			1.52 V	275	65.6	41.7
3	*5825.00	97.2 AV			1.52 V	275	55.5	41.7
4	#5976.00	59.7 PK	68.2	-8.5	1.52 V	275	56.3	3.4
5	11650.00	57.3 PK	74.0	-16.7	1.97 V	315	48.6	8.7
6	11650.00	44.6 AV	54.0	-9.4	1.97 V	315	35.9	8.7

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	56.9 PK	74.0	-17.1	1.45 H	8	55.0	1.9
2	5150.00	45.6 AV	54.0	-8.4	1.45 H	8	43.7	1.9
3	*5180.00	110.9 PK			1.45 H	8	70.9	40.0
4	*5180.00	101.5 AV			1.45 H	8	61.5	40.0
5	#10360.00	55.3 PK	68.2	-12.9	1.31 H	339	47.2	8.1

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	3.58 V	358	54.3	1.9
2	5150.00	44.7 AV	54.0	-9.3	3.58 V	358	42.8	1.9
3	*5180.00	108.0 PK			3.58 V	358	68.0	40.0
4	*5180.00	98.8 AV			3.58 V	358	58.8	40.0
5	#10360.00	55.4 PK	68.2	-12.8	1.36 V	319	47.3	8.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	111.2 PK			1.50 H	10	71.2	40.0
2	*5200.00	101.8 AV			1.50 H	10	61.8	40.0
3	#10400.00	55.1 PK	68.2	-13.1	1.33 H	25	47.0	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	109.1 PK			3.66 V	345	69.1	40.0
2	*5200.00	100.3 AV			3.66 V	345	60.3	40.0
3	#10400.00	54.9 PK	68.2	-13.3	1.55 V	31	46.8	8.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	109.5 PK			1.49 H	8	69.5	40.0
2	*5240.00	101.0 AV			1.49 H	8	61.0	40.0
3	5350.00	55.6 PK	74.0	-18.4	1.49 H	8	53.7	1.9
4	5350.00	45.0 AV	54.0	-9.0	1.49 H	8	43.1	1.9
5	#10480.00	54.7 PK	68.2	-13.5	3.16 H	330	46.8	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	109.0 PK			3.60 V	347	69.0	40.0
2	*5240.00	100.5 AV			3.60 V	347	60.5	40.0
3	5350.00	57.3 PK	74.0	-16.7	3.60 V	347	55.4	1.9
4	5350.00	44.9 AV	54.0	-9.1	3.60 V	347	43.0	1.9
5	#10480.00	54.8 PK	68.2	-13.4	1.52 V	21	46.9	7.9

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	57.6 PK	74.0	-16.4	1.40 H	6	55.7	1.9
2	5150.00	46.4 AV	54.0	-7.6	1.40 H	6	44.5	1.9
3	*5260.00	111.2 PK			1.40 H	6	71.2	40.0
4	*5260.00	101.6 AV			1.40 H	6	61.6	40.0
5	#10520.00	56.0 PK	68.2	-12.2	1.57 H	15	48.0	8.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	56.6 PK	74.0	-17.4	3.11 V	348	54.7	1.9
2	5150.00	45.9 AV	54.0	-8.1	3.11 V	348	44.0	1.9
3	*5260.00	110.2 PK			3.11 V	348	70.2	40.0
4	*5260.00	100.5 AV			3.11 V	348	60.5	40.0
5	#10520.00	55.3 PK	68.2	-12.9	2.15 V	165	47.3	8.0

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	109.2 PK			1.43 H	7	69.2	40.0
2	*5300.00	100.4 AV			1.43 H	7	60.4	40.0
3	10600.00	56.2 PK	74.0	-17.8	1.43 H	156	48.0	8.2
4	10600.00	44.3 AV	54.0	-9.7	1.43 H	156	36.1	8.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	109.9 PK			2.88 V	347	69.9	40.0
2	*5300.00	100.2 AV			2.88 V	347	60.2	40.0
3	10600.00	57.4 PK	74.0	-16.6	2.75 V	126	49.2	8.2
4	10600.00	44.4 AV	54.0	-9.6	2.75 V	126	36.2	8.2

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (HT20)	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	109.8 PK			1.30 H	0	69.8	40.0
2	*5320.00	100.2 AV			1.30 H	0	60.2	40.0
3	5350.00	57.1 PK	74.0	-16.9	1.30 H	0	55.2	1.9
4	5350.00	46.4 AV	54.0	-7.6	1.30 H	0	44.5	1.9
5	10640.00	57.2 PK	74.0	-16.8	2.45 H	213	49.0	8.2
6	10640.00	44.3 AV	54.0	-9.7	2.45 H	213	36.1	8.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	109.6 PK			3.00 V	349	69.6	40.0
2	*5320.00	100.3 AV			3.00 V	349	60.3	40.0
3	5350.00	57.3 PK	74.0	-16.7	3.00 V	349	55.4	1.9
4	5350.00	46.0 AV	54.0	-8.0	3.00 V	349	44.1	1.9
5	10640.00	57.6 PK	74.0	-16.4	2.12 V	301	49.4	8.2
6	10640.00	44.4 AV	54.0	-9.6	2.12 V	301	36.2	8.2

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11n (HT20)	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	57.6 PK	68.2	-10.6	1.73 H	5	55.4	2.2
2	*5500.00	109.1 PK			1.73 H	5	68.6	40.5
3	*5500.00	100.5 AV			1.73 H	5	60.0	40.5
4	11000.00	55.1 PK	74.0	-18.9	1.42 H	103	46.6	8.5
5	11000.00	43.8 AV	54.0	-10.2	1.42 H	103	35.3	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	55.4 PK	68.2	-12.8	3.50 V	350	53.2	2.2
2	*5500.00	109.1 PK			3.50 V	350	68.6	40.5
3	*5500.00	100.1 AV			3.50 V	350	59.6	40.5
4	11000.00	56.4 PK	74.0	-17.6	1.97 V	71	47.9	8.5
5	11000.00	43.5 AV	54.0	-10.5	1.97 V	71	35.0	8.5

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.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	108.2 PK			1.56 H	5	67.5	40.7
2	*5580.00	99.5 AV			1.56 H	5	58.8	40.7
3	11160.00	55.1 PK	74.0	-18.9	2.41 H	107	46.6	8.5
4	11160.00	43.6 AV	54.0	-10.4	2.41 H	107	35.1	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	108.0 PK			3.77 V	353	67.3	40.7
2	*5580.00	99.1 AV			3.77 V	353	58.4	40.7
3	11160.00	55.5 PK	74.0	-18.5	2.71 V	54	47.0	8.5
4	11160.00	43.6 AV	54.0	-10.4	2.71 V	54	35.1	8.5

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.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (HT20)	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	108.3 PK			1.54 H	17	67.0	41.3
2	*5700.00	98.3 AV			1.54 H	17	57.0	41.3
3	#5725.00	58.5 PK	68.2	-9.7	1.54 H	17	55.3	3.2
4	11400.00	54.9 PK	74.0	-19.1	2.75 H	281	46.3	8.6
5	11400.00	43.8 AV	54.0	-10.2	2.75 H	281	35.2	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	108.1 PK			3.31 V	350	66.8	41.3
2	*5700.00	98.2 AV			3.31 V	350	56.9	41.3
3	#5725.00	58.2 PK	68.2	-10.0	3.31 V	350	55.0	3.2
4	11400.00	55.8 PK	74.0	-18.2	2.19 V	10	47.2	8.6
5	11400.00	43.8 AV	54.0	-10.2	2.19 V	10	35.2	8.6

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5602.40	59.5 PK	68.2	-8.7	1.07 H	359	56.9	2.6
2	*5745.00	105.8 PK			1.07 H	359	64.3	41.5
3	*5745.00	97.0 AV			1.07 H	359	55.5	41.5
4	#5927.20	60.0 PK	68.2	-8.2	1.07 H	359	56.6	3.4
5	11490.00	55.4 PK	74.0	-18.6	2.64 H	103	46.6	8.8
6	11490.00	44.4 AV	54.0	-9.6	2.64 H	103	35.6	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5620.80	59.6 PK	68.2	-8.6	3.38 V	348	56.9	2.7
2	*5745.00	105.5 PK			3.38 V	348	64.0	41.5
3	*5745.00	97.0 AV			3.38 V	348	55.5	41.5
4	#5961.60	59.5 PK	68.2	-8.7	3.38 V	348	56.0	3.5
5	11490.00	56.2 PK	74.0	-17.8	2.94 V	210	47.4	8.8
6	11490.00	44.1 AV	54.0	-9.9	2.94 V	210	35.3	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5603.20	58.6 PK	68.2	-9.6	1.53 H	360	56.0	2.6
2	*5785.00	106.4 PK			1.53 H	360	64.8	41.6
3	*5785.00	97.7 AV			1.53 H	360	56.1	41.6
4	#5954.40	58.7 PK	68.2	-9.5	1.53 H	360	55.2	3.5
5	11570.00	54.8 PK	74.0	-19.2	2.75 H	142	46.0	8.8
6	11570.00	44.4 AV	54.0	-9.6	2.75 H	142	35.6	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5620.00	59.5 PK	68.2	-8.7	3.18 V	348	56.8	2.7
2	*5785.00	106.0 PK			3.18 V	348	64.4	41.6
3	*5785.00	97.3 AV			3.18 V	348	55.7	41.6
4	#5972.40	60.7 PK	68.2	-7.5	3.18 V	348	57.2	3.5
5	11570.00	56.4 PK	74.0	-17.6	1.49 V	236	47.6	8.8
6	11570.00	44.1 AV	54.0	-9.9	1.49 V	236	35.3	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5603.20	59.3 PK	68.2	-8.9	1.03 H	1	56.7	2.6
2	*5825.00	107.3 PK			1.03 H	1	65.6	41.7
3	*5825.00	98.6 AV			1.03 H	1	56.9	41.7
4	#5982.80	58.8 PK	68.2	-9.4	1.03 H	1	55.4	3.4
5	11650.00	55.0 PK	74.0	-19.0	2.79 H	246	46.3	8.7
6	11650.00	44.5 AV	54.0	-9.5	2.79 H	246	35.8	8.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.00	59.1 PK	68.2	-9.1	3.45 V	349	56.1	3.0
2	*5825.00	106.8 PK			3.45 V	349	65.1	41.7
3	*5825.00	98.7 AV			3.45 V	349	57.0	41.7
4	#5939.60	58.9 PK	68.2	-9.3	3.45 V	349	55.4	3.5
5	11650.00	55.6 PK	74.0	-18.4	2.49 V	102	46.9	8.7
6	11650.00	44.4 AV	54.0	-9.6	2.49 V	102	35.7	8.7

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 38 : 5190 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	65.2 PK	74.0	-8.8	1.13 H	9	63.3	1.9
2	5150.00	50.0 AV	54.0	-4.0	1.13 H	9	48.1	1.9
3	*5190.00	103.8 PK			1.13 H	9	63.8	40.0
4	*5190.00	95.6 AV			1.13 H	9	55.6	40.0
5	#10380.00	54.8 PK	68.2	-13.4	3.16 H	300	46.7	8.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	58.2 PK	74.0	-15.8	3.58 V	350	56.3	1.9
2	5150.00	46.8 AV	54.0	-7.2	3.58 V	350	44.9	1.9
3	*5190.00	103.5 PK			3.58 V	350	63.5	40.0
4	*5190.00	94.2 AV			3.58 V	350	54.2	40.0
5	#10380.00	54.8 PK	68.2	-13.4	1.35 V	326	46.7	8.1

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	105.6 PK			1.10 H	8	65.6	40.0
2	*5230.00	96.2 AV			1.10 H	8	56.2	40.0
3	5350.00	56.3 PK	74.0	-17.7	1.10 H	8	54.4	1.9
4	5350.00	44.8 AV	54.0	-9.2	1.10 H	8	42.9	1.9
5	#10460.00	55.0 PK	68.2	-13.2	2.15 H	200	47.0	8.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	103.5 PK			3.57 V	348	63.5	40.0
2	*5230.00	95.6 AV			3.57 V	348	55.6	40.0
3	5350.00	56.0 PK	74.0	-18.0	3.57 V	348	54.1	1.9
4	5350.00	44.7 AV	54.0	-9.3	3.57 V	348	42.8	1.9
5	#10480.00	55.5 PK	68.2	-12.7	3.13 V	100	47.6	7.9

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 54 : 5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	59.0 PK	74.0	-15.0	1.96 H	8	57.1	1.9
2	5150.00	46.3 AV	54.0	-7.7	1.96 H	8	44.4	1.9
3	*5270.00	106.3 PK			1.96 H	8	66.3	40.0
4	*5270.00	97.7 AV			1.96 H	8	57.7	40.0
5	#10540.00	55.7 PK	68.2	-12.5	1.57 H	124	47.7	8.0

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	48.3 PK	74.0	-25.7	2.64 V	345	46.4	1.9
2	5150.00	36.1 AV	54.0	-17.9	2.64 V	345	34.2	1.9
3	*5270.00	106.2 PK			2.64 V	345	66.2	40.0
4	*5270.00	97.6 AV			2.64 V	345	57.6	40.0
5	#10540.00	55.7 PK	68.2	-12.5	1.64 V	31	47.7	8.0

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 62 : 5310 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	106.1 PK			1.38 H	6	66.2	39.9
2	*5310.00	96.9 AV			1.38 H	6	57.0	39.9
3	5350.00	62.4 PK	74.0	-11.6	1.38 H	6	60.5	1.9
4	5350.00	50.9 AV	54.0	-3.1	1.38 H	6	49.0	1.9
5	10620.00	55.7 PK	74.0	-18.3	1.94 H	175	47.5	8.2
6	10620.00	45.0 AV	54.0	-9.0	1.94 H	175	36.8	8.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	105.7 PK			3.25 V	345	65.8	39.9
2	*5310.00	96.6 AV			3.25 V	345	56.7	39.9
3	5350.00	61.0 PK	74.0	-13.0	3.25 V	345	59.1	1.9
4	5350.00	50.1 AV	54.0	-3.9	3.25 V	345	48.2	1.9
5	10620.00	56.2 PK	74.0	-17.8	2.05 V	103	48.0	8.2
6	10620.00	45.1 AV	54.0	-8.9	2.05 V	103	36.9	8.2

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11n (HT40)	Channel	CH 102 : 5510 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	64.6 PK	68.2	-3.6	1.69 H	5	62.4	2.2
2	*5510.00	105.4 PK			1.69 H	5	64.9	40.5
3	*5510.00	97.1 AV			1.69 H	5	56.6	40.5
4	11020.00	54.7 PK	74.0	-19.3	2.10 H	34	46.3	8.4
5	11020.00	44.1 AV	54.0	-9.9	2.10 H	34	35.7	8.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5470.00	63.9 PK	68.2	-4.3	3.50 V	350	61.7	2.2
2	*5510.00	105.4 PK			3.50 V	350	64.9	40.5
3	*5510.00	96.2 AV			3.50 V	350	55.7	40.5
4	11020.00	55.0 PK	74.0	-19.0	3.10 V	23	46.6	8.4
5	11020.00	44.0 AV	54.0	-10.0	3.10 V	23	35.6	8.4

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 110 : 5550 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	105.5 PK			1.54 H	4	64.8	40.7
2	*5550.00	96.0 AV			1.54 H	4	55.3	40.7
3	11100.00	55.1 PK	74.0	-18.9	2.60 H	103	46.6	8.5
4	11100.00	44.5 AV	54.0	-9.5	2.60 H	103	36.0	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	105.3 PK			3.41 V	354	64.6	40.7
2	*5550.00	94.7 AV			3.41 V	354	54.0	40.7
3	11100.00	55.3 PK	74.0	-18.7	1.97 V	205	46.8	8.5
4	11100.00	44.5 AV	54.0	-9.5	1.97 V	205	36.0	8.5

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.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (HT40)	Channel	CH 134 : 5670 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	103.2 PK			1.91 H	5	62.1	41.1
2	*5670.00	94.6 AV			1.91 H	5	53.5	41.1
3	#5725.00	58.2 PK	68.2	-10.0	1.91 H	5	55.0	3.2
4	11340.00	55.5 PK	74.0	-18.5	2.67 H	106	46.9	8.6
5	11340.00	45.1 AV	54.0	-8.9	2.67 H	106	36.5	8.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	103.2 PK			3.27 V	356	62.1	41.1
2	*5670.00	94.2 AV			3.27 V	356	53.1	41.1
3	#5725.00	57.5 PK	68.2	-10.7	3.27 V	356	54.3	3.2
4	11340.00	55.8 PK	74.0	-18.2	2.57 V	109	47.2	8.6
5	11340.00	44.5 AV	54.0	-9.5	2.57 V	109	35.9	8.6

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 151 : 5755 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5602.40	58.9 PK	68.2	-9.3	1.27 H	358	56.3	2.6
2	*5755.00	103.4 PK			1.27 H	358	61.9	41.5
3	*5755.00	94.7 AV			1.27 H	358	53.2	41.5
4	#5940.40	58.7 PK	68.2	-9.5	1.27 H	358	55.2	3.5
5	11510.00	54.8 PK	74.0	-19.2	2.74 H	169	46.0	8.8
6	11510.00	44.8 AV	54.0	-9.2	2.74 H	169	36.0	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5601.60	57.7 PK	68.2	-10.5	3.01 V	348	55.1	2.6
2	*5755.00	103.0 PK			3.01 V	348	61.5	41.5
3	*5755.00	94.3 AV			3.01 V	348	52.8	41.5
4	#5929.20	58.6 PK	68.2	-9.6	3.01 V	348	55.2	3.4
5	11510.00	55.3 PK	74.0	-18.7	2.64 V	101	46.5	8.8
6	11510.00	44.9 AV	54.0	-9.1	2.64 V	101	36.1	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 159 : 5795 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5634.00	58.3 PK	68.2	-9.9	1.54 H	360	55.5	2.8
2	*5795.00	103.1 PK			1.54 H	360	61.4	41.7
3	*5795.00	94.6 AV			1.54 H	360	52.9	41.7
4	#5933.60	58.5 PK	68.2	-9.7	1.54 H	360	55.0	3.5
5	11590.00	54.8 PK	74.0	-19.2	2.19 H	34	46.0	8.8
6	11590.00	45.1 AV	54.0	-8.9	2.19 H	34	36.3	8.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5633.60	58.4 PK	68.2	-9.8	3.66 V	344	55.6	2.8
2	*5795.00	102.4 PK			3.66 V	344	60.7	41.7
3	*5795.00	94.1 AV			3.66 V	344	52.4	41.7
4	#5990.80	58.9 PK	68.2	-9.3	3.66 V	344	55.5	3.4
5	11590.00	54.9 PK	74.0	-19.1	1.97 V	149	46.1	8.8
6	11590.00	45.1 AV	54.0	-8.9	1.97 V	149	36.3	8.8

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) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

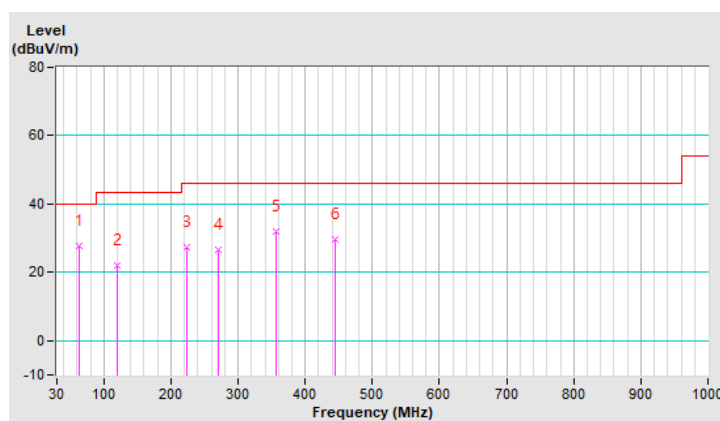
Below 1GHz Worst-Case Data: 802.11n (HT20)

CHANNEL	TX Channel 52	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	63.95	27.9 QP	40.0	-12.1	1.50 H	23	47.6	-19.7
2	120.21	22.2 QP	43.5	-21.3	1.00 H	301	42.7	-20.5
3	223.03	27.5 QP	46.0	-18.5	2.00 H	179	49.4	-21.9
4	269.59	26.5 QP	46.0	-19.5	1.00 H	79	45.7	-19.2
5	355.92	32.0 QP	46.0	-14.0	1.50 H	46	48.8	-16.8
6	444.19	29.6 QP	46.0	-16.4	1.00 H	30	43.9	-14.3

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
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

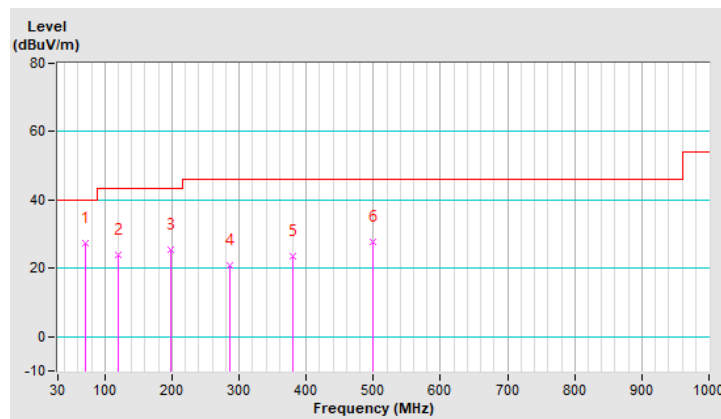


CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	71.71	27.2 QP	40.0	-12.8	1.00 V	60	48.3	-21.1
2	120.21	23.9 QP	43.5	-19.6	1.50 V	203	44.4	-20.5
3	198.78	25.3 QP	43.5	-18.2	1.00 V	77	47.3	-22.0
4	286.08	20.7 QP	46.0	-25.3	1.50 V	68	39.1	-18.4
5	380.17	23.7 QP	46.0	-22.3	1.00 V	297	39.7	-16.0
6	499.48	27.6 QP	46.0	-18.4	2.00 V	74	41.0	-13.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 25, 2021	Feb. 24, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Conc_ 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 (Conduction 1).

3. The VCCI Site Registration No. is C-2040.

4. Tested date: Aug. 20, 2021

4.2.3 Test Procedures

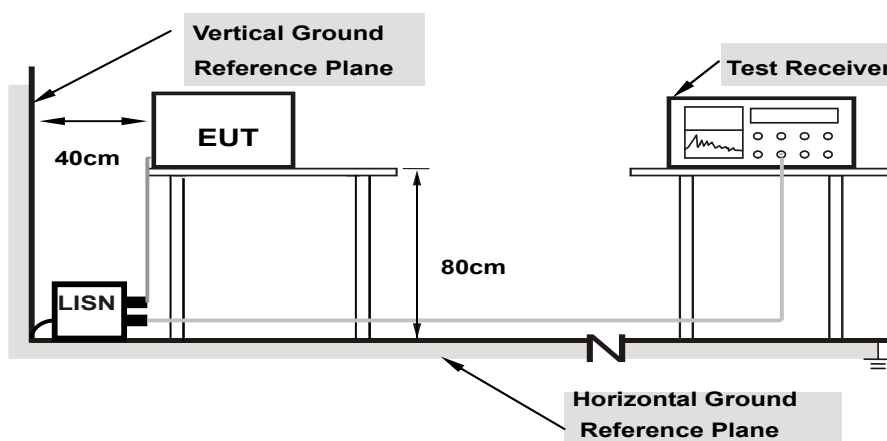
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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

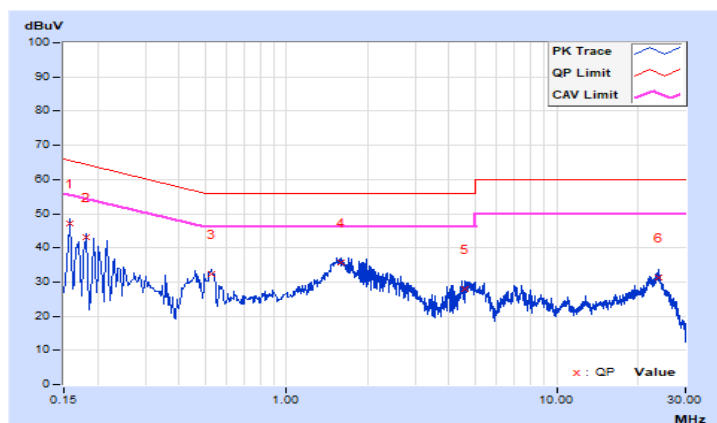
Worst-case data: 802.11n (HT20)

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

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	0.15800	9.71	37.30	20.48	47.01	30.19	65.57	55.57	-18.56	-25.38
2	0.18180	9.71	33.49	15.39	43.20	25.10	64.40	54.40	-21.20	-29.30
3	0.52600	9.74	22.43	15.04	32.17	24.78	56.00	46.00	-23.83	-21.22
4	1.58600	9.77	25.76	18.92	35.53	28.69	56.00	46.00	-20.47	-17.31
5	4.56200	9.80	18.16	7.62	27.96	17.42	56.00	46.00	-28.04	-28.58
6	23.89000	9.81	21.56	8.90	31.37	18.71	60.00	50.00	-28.63	-31.29

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.

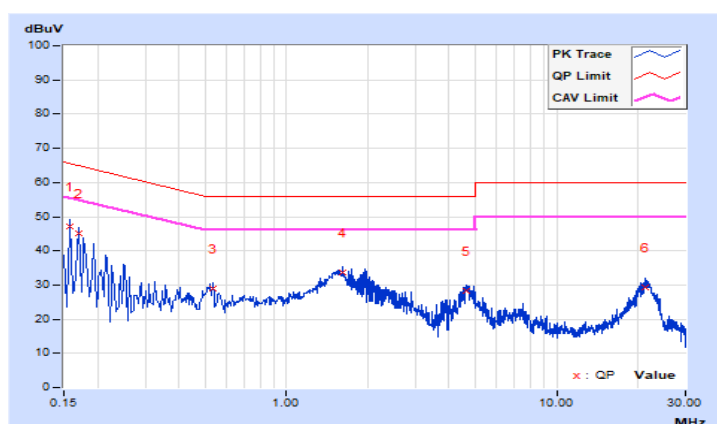


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	9.77	37.33	20.31	47.10	30.08	65.57	55.57	-18.47	-25.49
2	0.17000	9.77	35.18	16.50	44.95	26.27	64.96	54.96	-20.01	-28.69
3	0.53400	9.80	19.20	7.88	29.00	17.68	56.00	46.00	-27.00	-28.32
4	1.61400	9.83	23.76	15.58	33.59	25.41	56.00	46.00	-22.41	-20.59
5	4.61800	9.86	18.41	5.76	28.27	15.62	56.00	46.00	-27.73	-30.38
6	21.19400	9.99	19.15	9.80	29.14	19.79	60.00	50.00	-30.86	-30.21

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

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

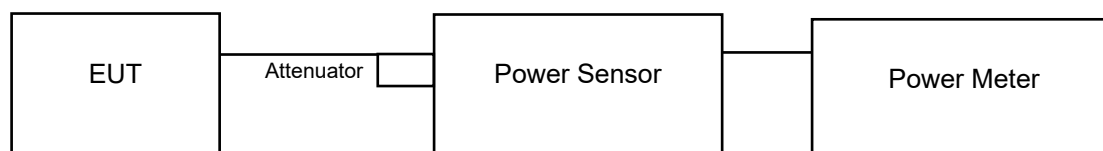
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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 and set the detector to average. Duty factor is not added to measured value.

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:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	33.037	15.19	24.00	Pass
40	5200	32.137	15.07	24.00	Pass
48	5240	33.574	15.26	24.00	Pass
52	5260	34.754	15.41	24.00	Pass
60	5300	32.063	15.06	24.00	Pass
64	5320	31.696	15.01	24.00	Pass
100	5500	31.405	14.97	24.00	Pass
116	5580	33.343	15.23	24.00	Pass
140	5700	31.915	15.04	24.00	Pass
149	5745	32.285	15.09	30.00	Pass
157	5785	32.659	15.14	30.00	Pass
165	5825	31.696	15.01	30.00	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	13.35	12.69	40.205	16.04	24.00	Pass
40	5200	13.06	12.91	39.774	16.00	24.00	Pass
48	5240	13.15	12.64	39.019	15.91	24.00	Pass
52	5260	13.38	12.63	40.100	16.03	24.00	Pass
60	5300	13.07	12.47	37.937	15.79	24.00	Pass
64	5320	12.85	13.24	40.362	16.06	24.00	Pass
100	5500	12.98	12.80	38.916	15.90	24.00	Pass
116	5580	12.81	13.01	39.097	15.92	24.00	Pass
140	5700	13.45	12.86	41.451	16.18	24.00	Pass
149	5745	12.89	13.20	40.347	16.06	30.00	Pass
157	5785	12.55	13.31	39.418	15.96	30.00	Pass
165	5825	12.94	13.36	41.356	16.17	30.00	Pass

802.11n (HT40)

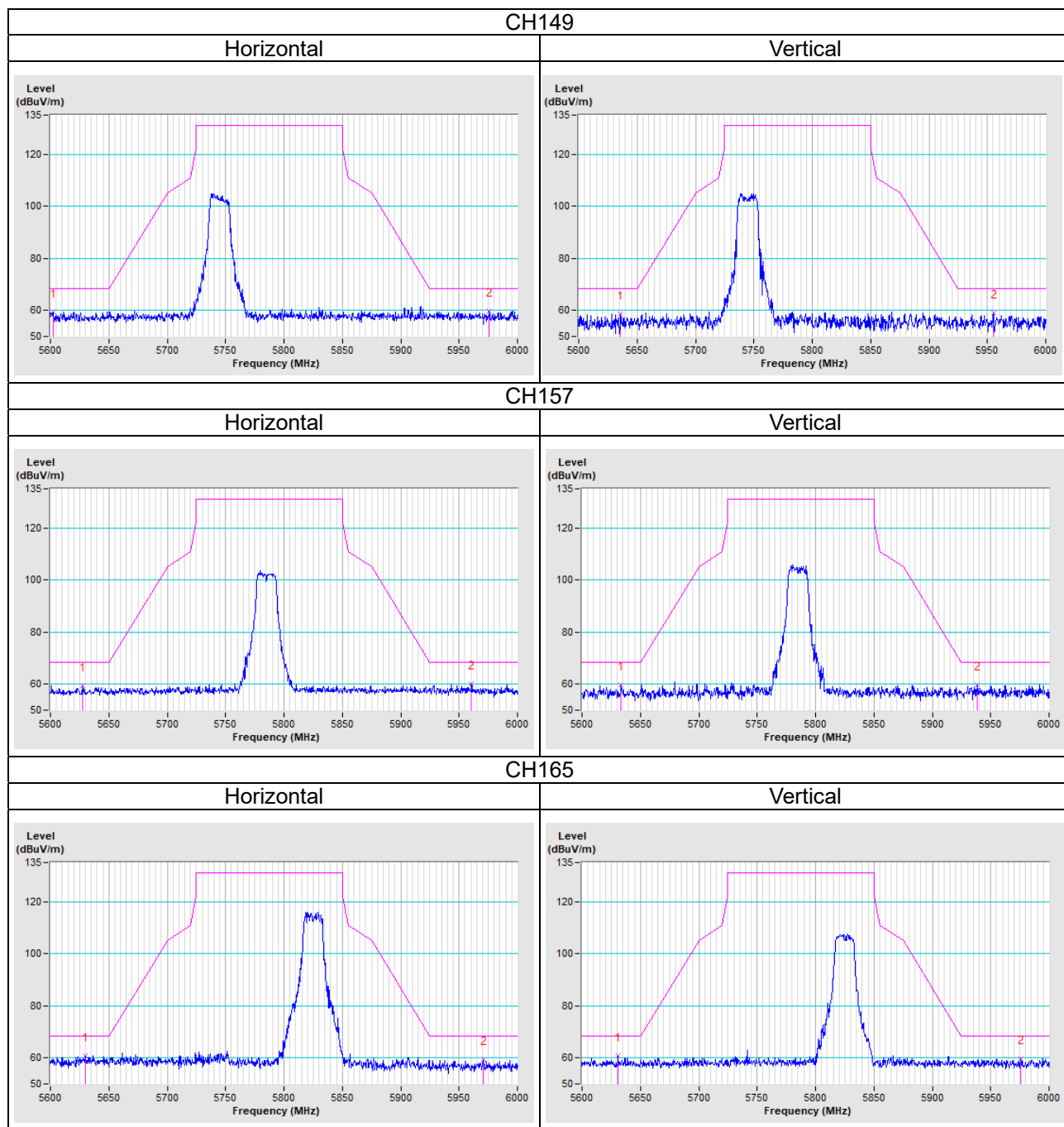
Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	12.52	11.88	33.282	15.22	24.00	Pass
46	5230	12.14	11.29	29.827	14.75	24.00	Pass
54	5270	12.27	11.64	31.454	14.98	24.00	Pass
62	5310	12.29	11.33	30.527	14.85	24.00	Pass
102	5510	11.71	11.68	29.548	14.71	24.00	Pass
110	5550	11.95	11.79	30.768	14.88	24.00	Pass
134	5670	12.26	12.01	32.712	15.15	24.00	Pass
151	5755	12.01	11.98	31.662	15.01	30.00	Pass
159	5795	11.73	12.17	31.375	14.97	30.00	Pass

5 Pictures of Test Arrangements

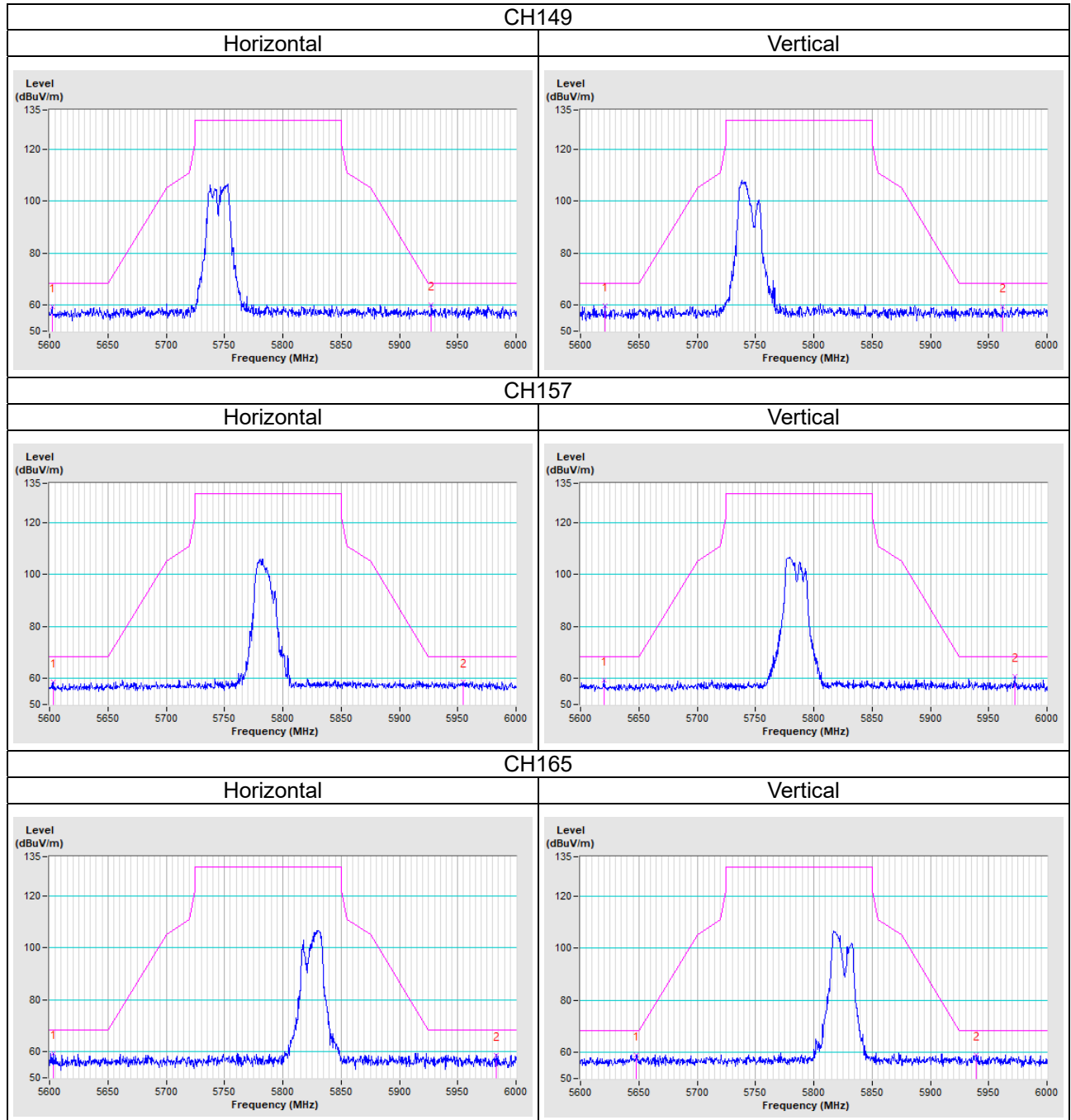
Please refer to the attached file (Test Setup Photo).

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

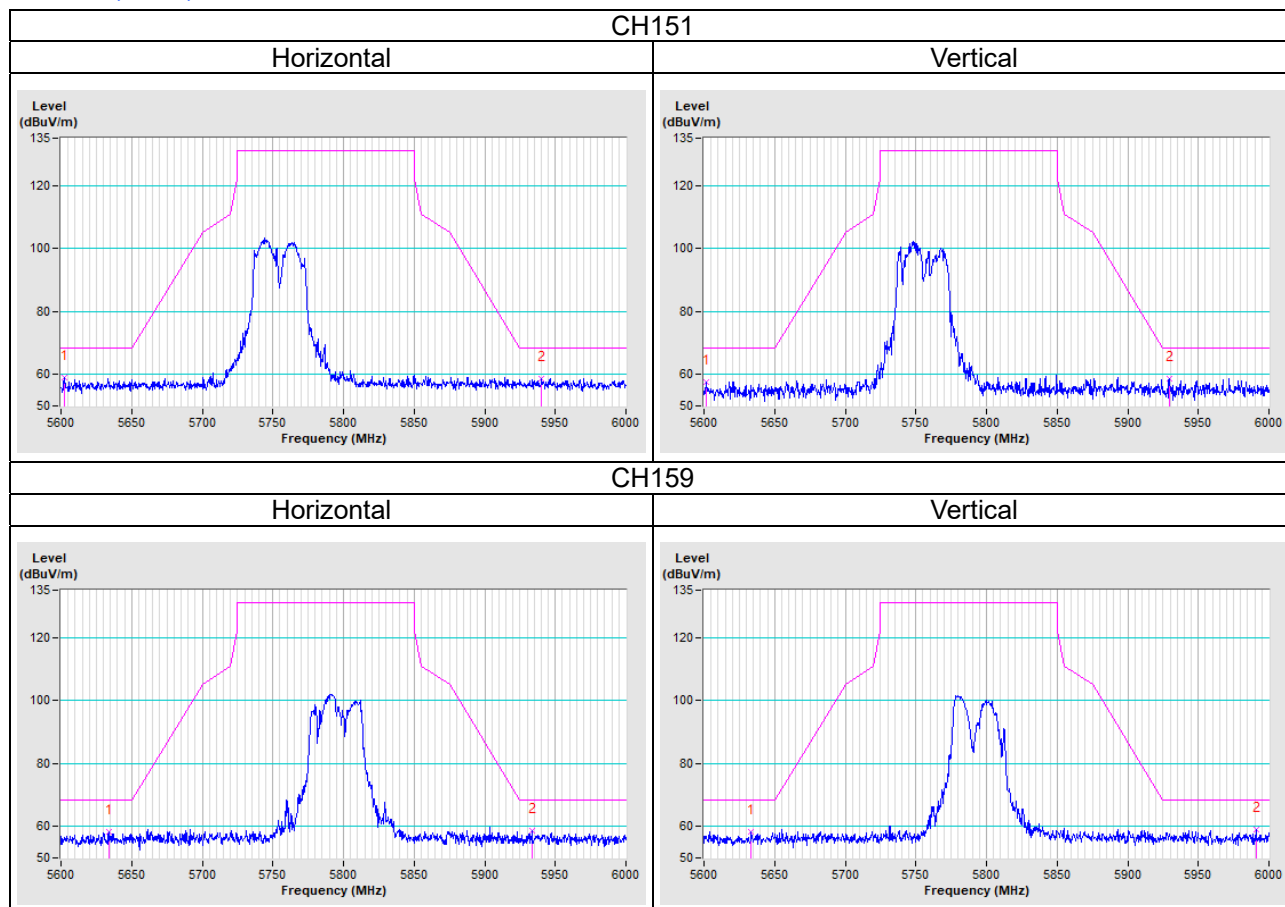
802.11a



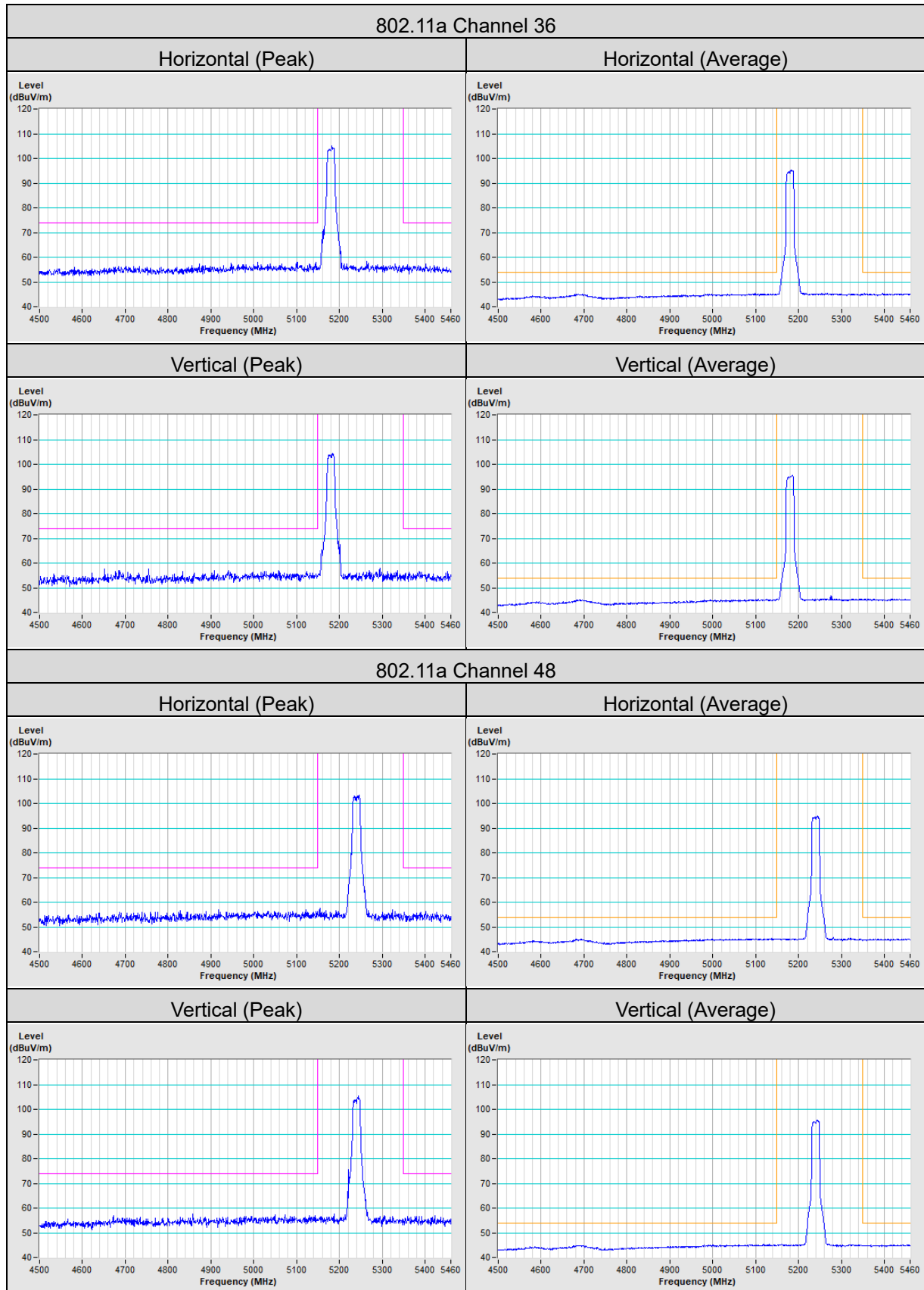
802.11n (HT20)

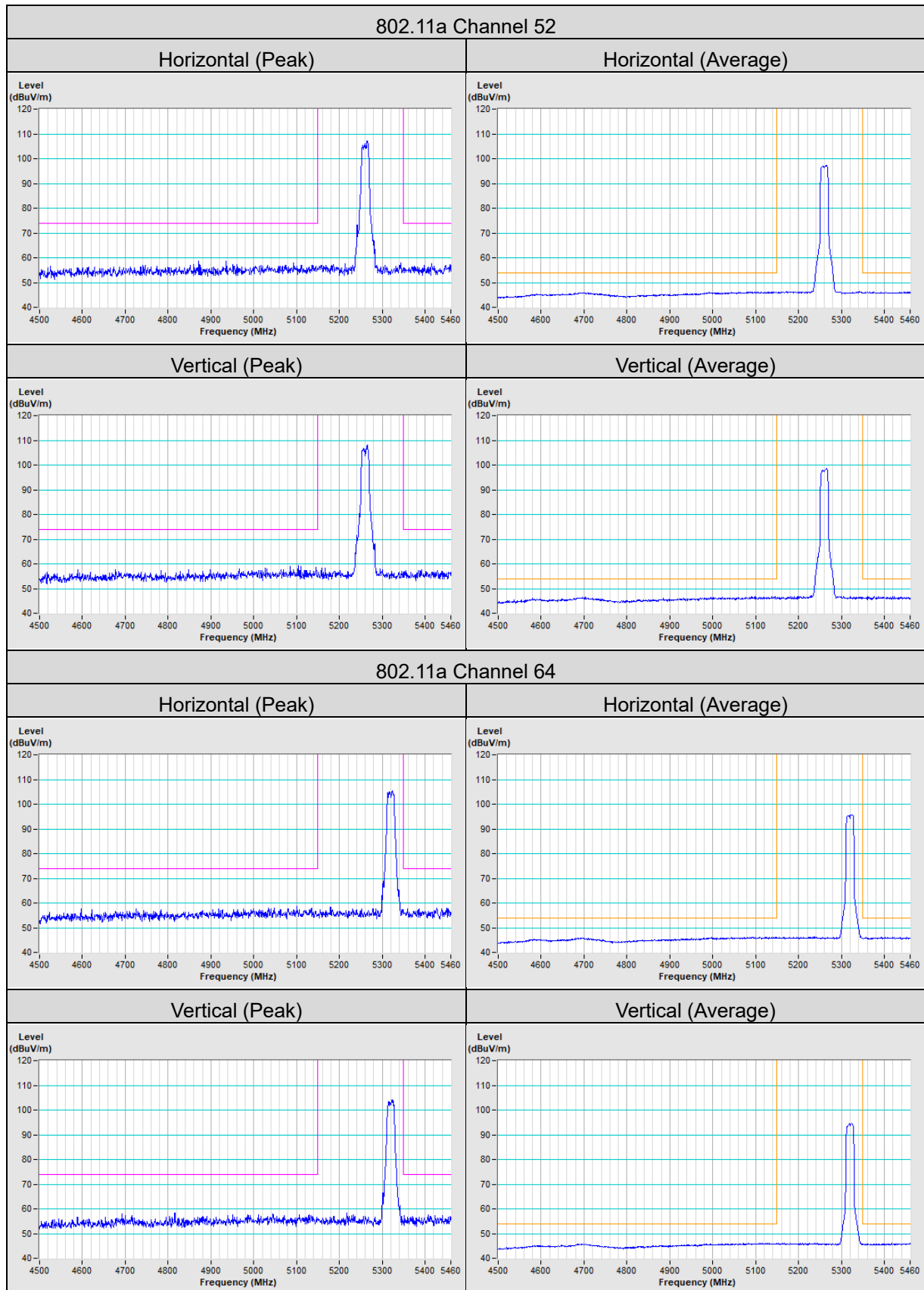


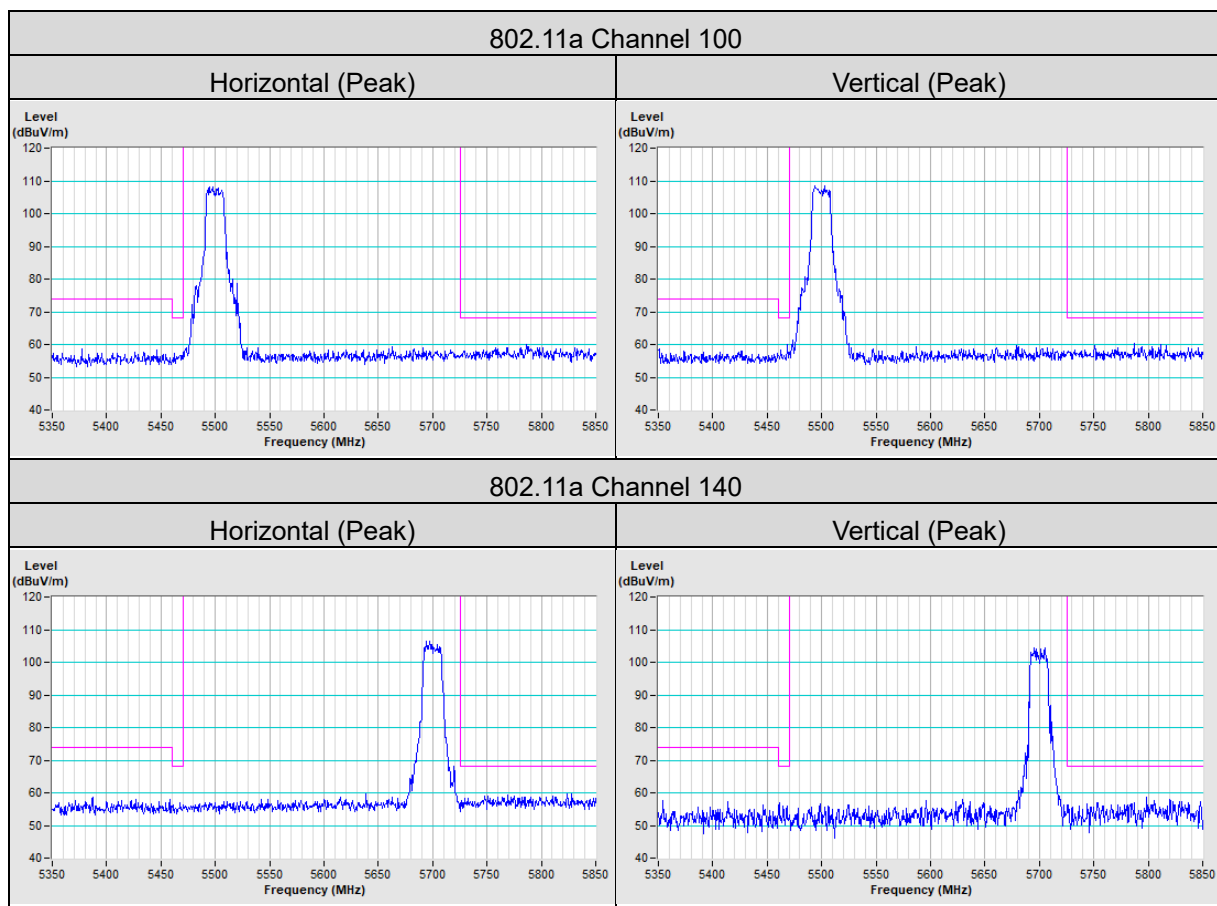
802.11n (HT40)

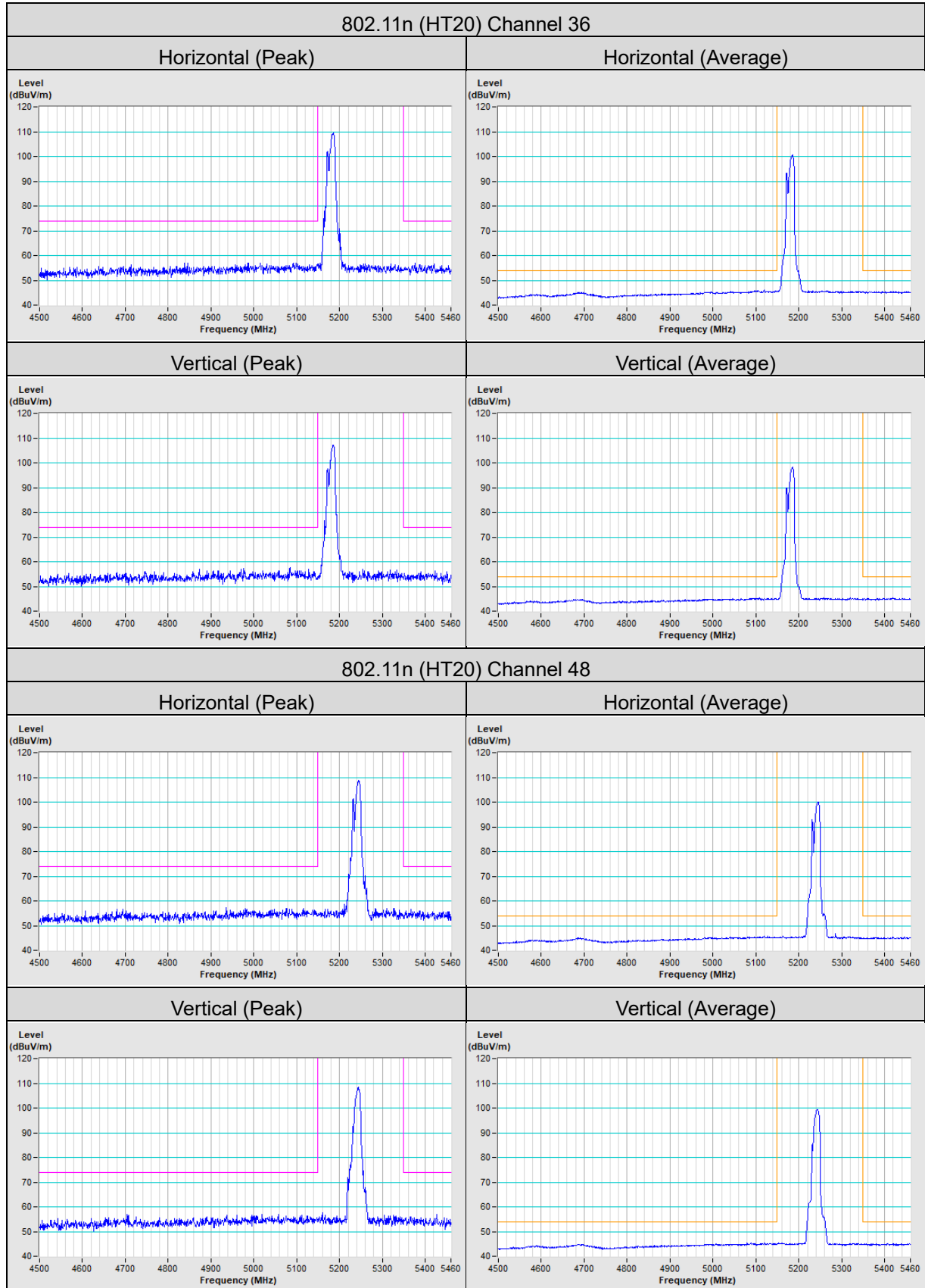


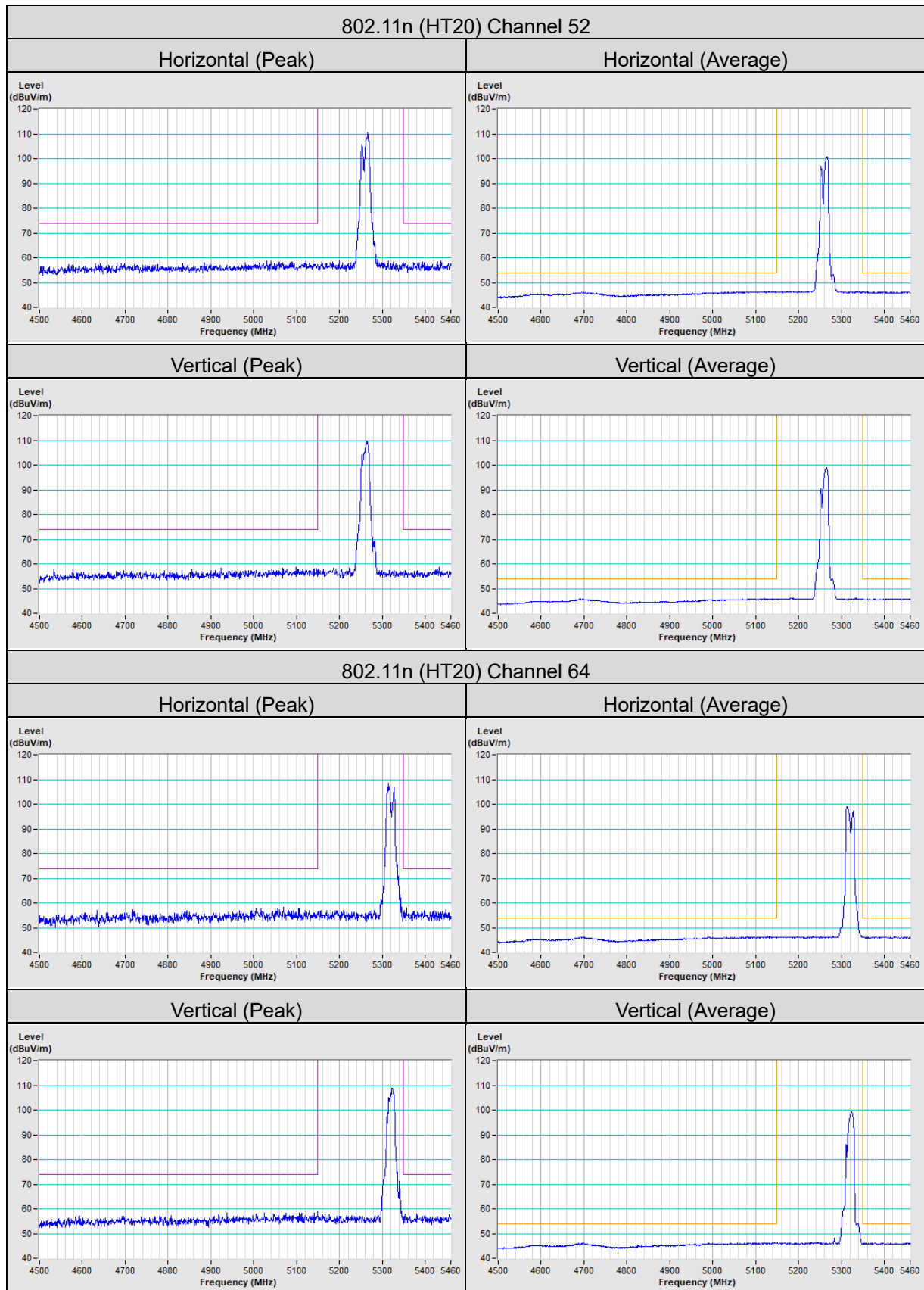
Annex B- Band Edge Measurement

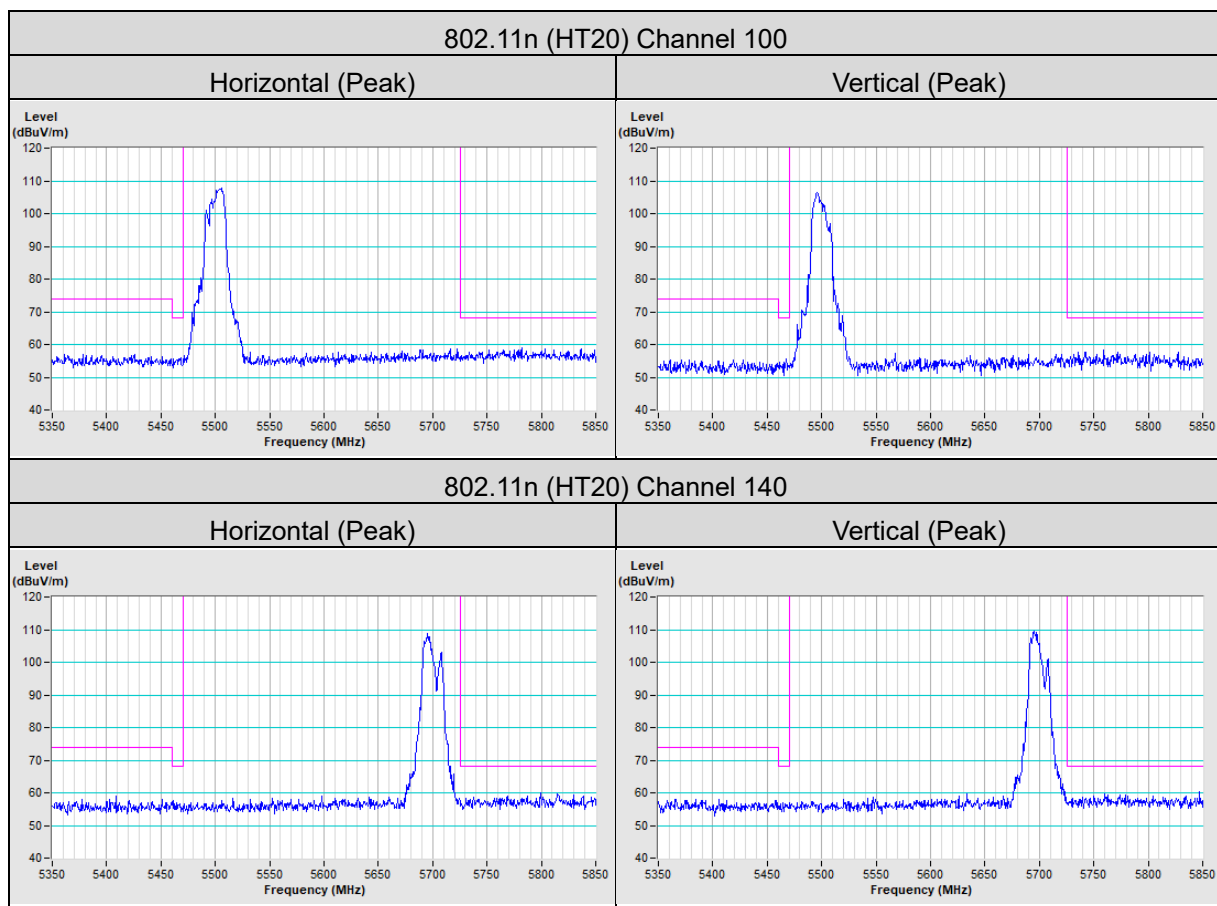






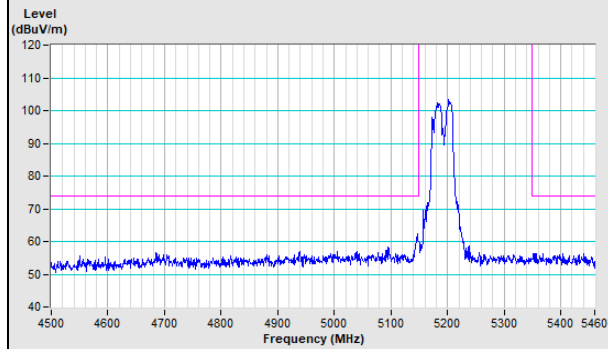




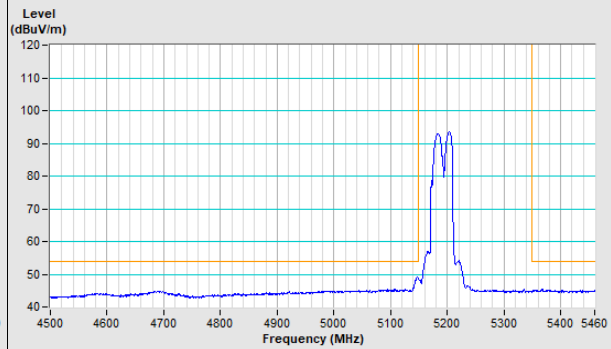


802.11n (HT40) Channel 38

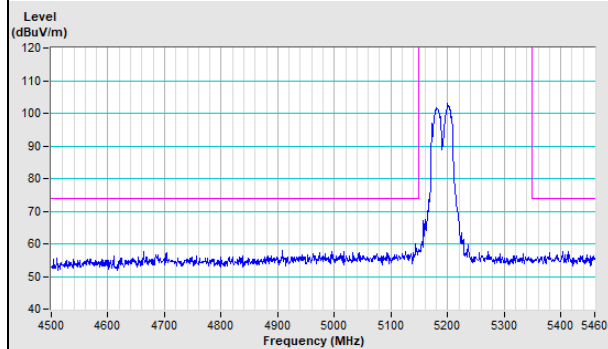
Horizontal (Peak)



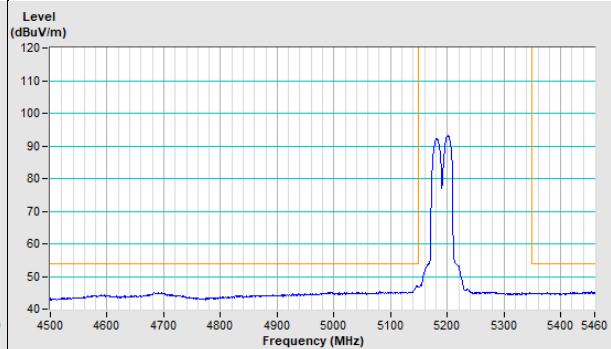
Horizontal (Average)



Vertical (Peak)

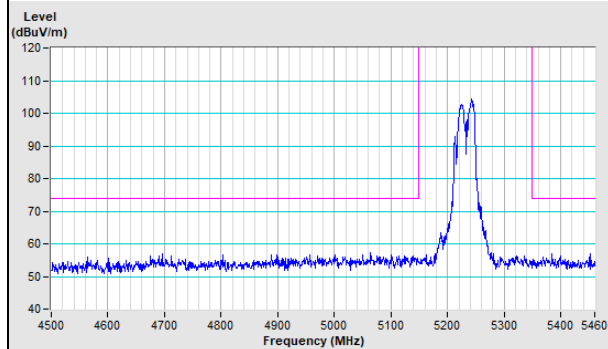


Vertical (Average)

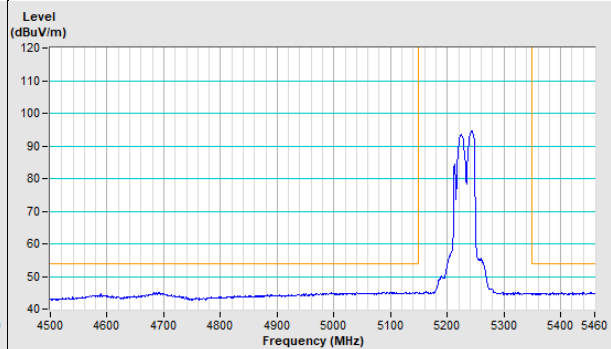


802.11n (HT40) Channel 46

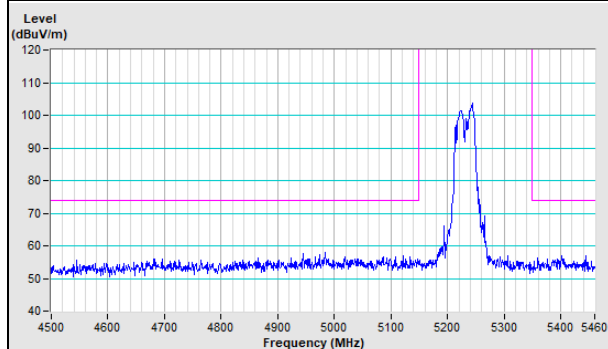
Horizontal (Peak)



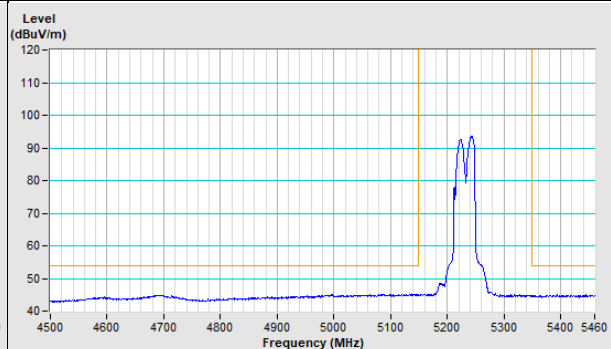
Horizontal (Average)



Vertical (Peak)

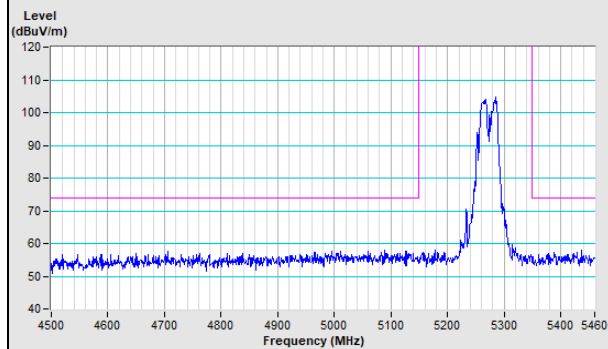


Vertical (Average)

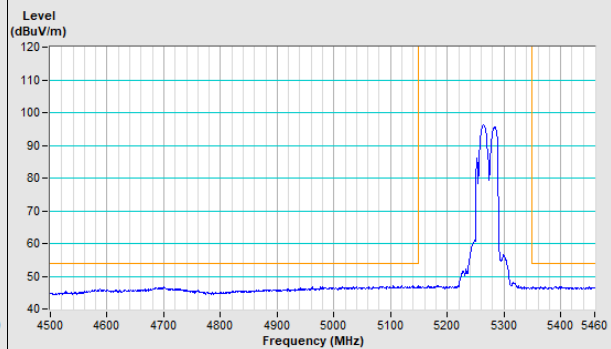


802.11n (HT40) Channel 54

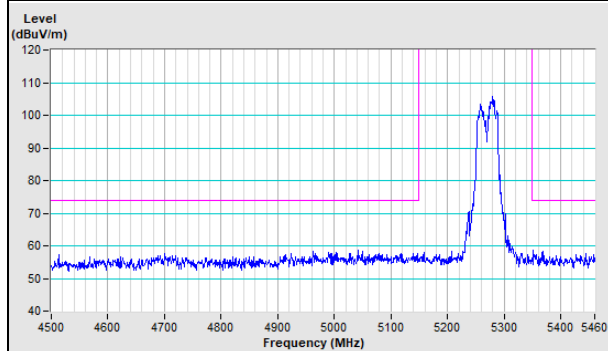
Horizontal (Peak)



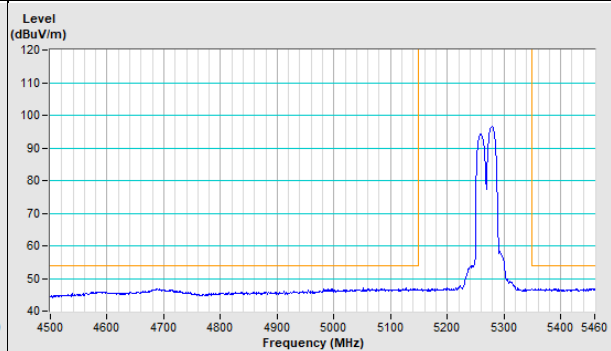
Horizontal (Average)



Vertical (Peak)

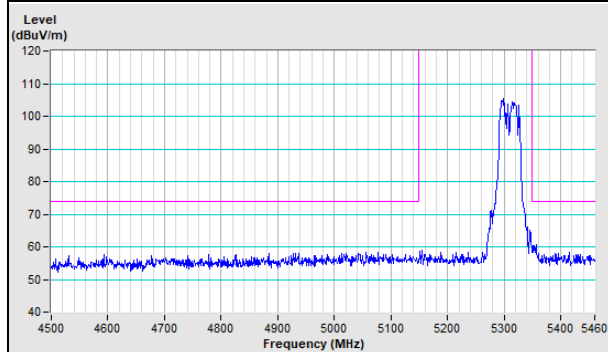


Vertical (Average)

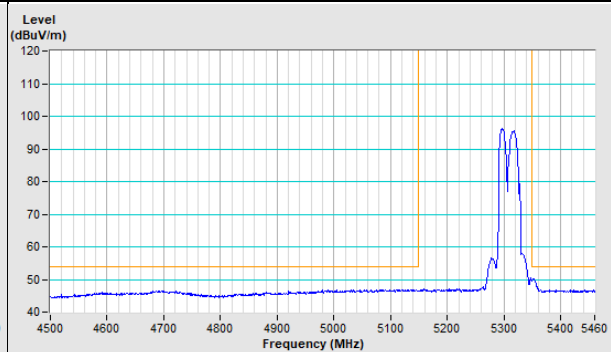


802.11n (HT40) Channel 62

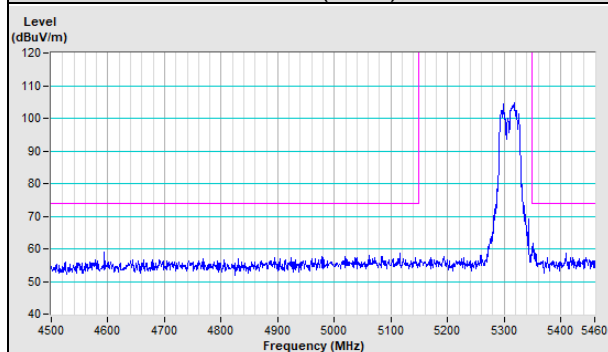
Horizontal (Peak)



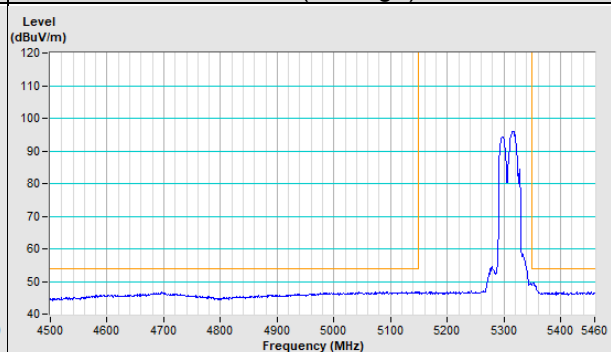
Horizontal (Average)

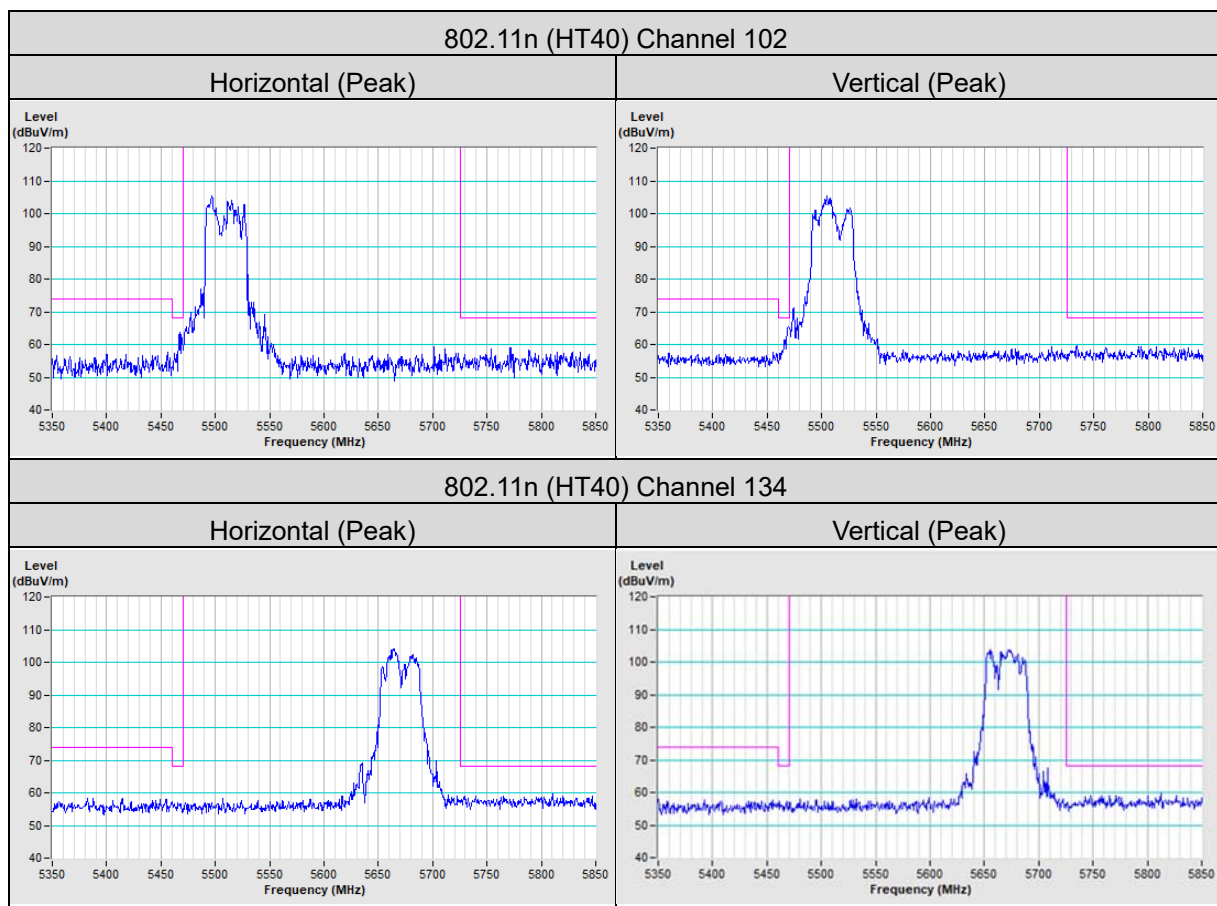


Vertical (Peak)



Vertical (Average)





Appendix – Information on 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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