



Test Report No.:
FCC2025-0016-RF3

TEST REPORT

FCC ID : 2AYXT61100004
Applicant : Eight Sleep Inc
Product Name : Pod Hub
Model No. : 11504

CVC Testing Technology Co., Ltd.

Product Name	Pod Hub	Trade Mark	Eight Sleep
Type/Model	11504	Sample Status	/
Applicant	Eight Sleep Inc		
Applicant Address	915 Broadway STE 1301 New York, New York 10010		
Manufacturer	BoShiJie Technology Co., Ltd		
Manufacturer Address	Boshijie Industrial Park, No. 1 Huifeng West Third Road, Zhongkai High-tech Zone, Huizhou City, Guangdong, China. 516006		
Factory	BoShiJie Technology Co., Ltd		
Factory Address	Boshijie Industrial Park, No. 1 Huifeng West Third Road, Zhongkai High-tech Zone, Huizhou City, Guangdong, China. 516006		
Sample Identification	1-1	Test Item	See page 8
Tested According To	FCC CFR47 Part 15E ANSI C63.10-2020/Cor1-2023 KDB 789033 D02 General UNII Test Procedures New Rules v01r04 KDB 662911 D01 Multiple Transmitter Output v02r01 KDB905462 D02 UNII DFS Compliance Procedures New Rules v02 KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02		
Receiving Date	March.19,2025	Completing Date	March.28,2025~April.30,2025
Test conclusion	The equipment under test was found to comply with the requirements of the standards applied. Final Verdict: Pass. <div style="text-align: right;"> Seal of CVC Date of issue: June.25,2025 </div>		
Abbreviations: / Pass= passed Fail = failed N/A= not applicable			
This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.			

Approved by:

Chen Huawen



Reviewed by:

Xu Zhenfei



Tested by:

Li Yueao



TABLE OF CONTENTS

- RELEASE CONTROL RECORD 4**
- 1. GENERAL PRODUCT INFORMATION 5**
 - 1.1 GENERAL INFORMATION 5
- 2. TEST SITES 6**
 - 2.1 TEST FACILITIES 6
 - 2.2 DESCRIPTION OF NON-STANDARD METHOD AND DEVIATIONS 6
 - 2.3 LIST OF TEST AND MEASUREMENT INSTRUMENTS 6
- 3. TEST CONFIGURATION 7**
 - 3.1 TEST MODE 7
 - 3.2 DUTY CYCLE 9
- 4. SUMMARY OF MEASUREMENT RESULTS 11**
- 5. MEASUREMENT PROCEDURE 12**
 - 5.1 CONDUCTED EMISSION 12
 - 5.2 UNWANTED EMISSION 15
 - 5.2.1 *SPURIOUS EMISSIONS:* 19
 - 5.2.2 *Band edge measurements (Radiates):* 27
 - 5.3 MAXIMUM CONDUCTED OUTPUT POWER 33
 - 5.4 MIN EMISSION BANDWIDTH AND EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH 35
 - 5.5 MAXIMUM POWER SPECTRAL DENSITY 37
 - 5.6 FREQUENCY STABILITY 39
 - 5.7 DYNAMIC FREQUENCY SELECTION (DFS) 41
 - 5.7.1 *DFS detection threshold level* 41
 - 5.7.2 *UNII Detection Bandwidth* 42
 - 5.7.3 *Channel Availability Check (CAC)* 43
 - 5.7.4 *In-service Monitoring* 44
 - 5.7.5 *Statistical Performance Check* 46
- 6. APPENDIX X 48**

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2025-0016-RF3	Original release	June.25,2025

1. General Product Information

1.1 General information

Product Name	Pod Hub
Model No.	11504
Additional model	/
Power Supply	110-240V AC 50-60Hz
Serial Number(SN)	/
specific power settings	IEEE 802.11a: 13 IEEE 802.11n(20MHz)/11n(40MHz): 14 IEEE 802.11ac(20MHz)/11ac (40MHz)/11ac (80MHz): 14
Antenna Type	FPC antenna
Antenna Gain	U-NII-1: Ant1:-1.56 dBi, Ant2:-3.01 dBi (provided by client) U-NII-3: Ant1:2.88 dBi, Ant2:4.07 dBi (provided by client)
Beamforming gain	Unsupported
Frequency Range	U-NII-1: For 20MHz:5180-5240MHz For 40MHz:5190-5230MHz For 80MHz:5210MHz U-NII-3: For 20MHz:5745-5825MHz For 40MHz:5755-5795MHz For 80MHz:5775MHz
Modulation Type	802.11a/n(HT20/HT40): 64QAM, 16QAM, QPSK, BPSK for OFDM 802.11ac(VHT20/VHT40/VHT80): 256QAM,64QAM,16QAM, QPSK,BPSK for OFDM
Max. Conducted Power	U-NII-1: 16.22 dBm U-NII-3: 15.38 dBm
DFS device type	<input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input type="checkbox"/> Slave without radar detection
TPC Function	<input type="checkbox"/> Support <input checked="" type="checkbox"/> Not support
TDWR Band	<input type="checkbox"/> Support <input checked="" type="checkbox"/> Not support
Operate Temp.Range	-10°C~+70°C

Note:

- The information of the EUT is declared by the manufacturer.
- The laboratory is not responsible for the product technical specification provided by the client.
- The product models of this application are: 11504. All the tests carried out on model 11504.
- EUT photo refer to report (Report NO.:FCC2025-0016-EUT).
- There are two power supplies, from different manufacturers.

Power supply information		
No.	Manufacturer	MODEL
1	Meanwell	LOP-400-12
2	Megmeet	MAP400-12

- This time, the main engine+bedspread was used for testing, and the test results covered other combinations.
- There are four ways to sell this product in combination:1)Host+Bed cover,2)Host+Pillow,3)Host+Bed cover+Pillow,4)Host+Bed cover+blanket.

2. Test Sites

2.1 Test Facilities

The tests and measurements refer to this report were performed by RF testing Lab of CVC Testing Technology Co., Ltd.

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Fax : +86-20-32293889

FCC(Test firm designation number: CN1282)

IC(Test firm CAB identifier number: CN0103)

CNAS(Test firm designation number: L0095)

2.2 Description of Non-standard Method and Deviations

The testing and measurement methods used in this report are applied by all standard methods. Not any non-standard method or deviation from the used standards was used.

2.3 List of Test and Measurement Instruments

Refer to **Appendix X**.

3. Test Configuration

3.1 Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Test Mode	Antenna Delivery	Test Channel
IEEE 802.11A	1TX / 1RX	36,44,48,149,157,165
IEEE 802.11N 20 MIMO	2TX / 2RX	36,44,48,149,157,165
IEEE 802.11N 40 MIMO	2TX / 2RX	38,46,151,159
IEEE 802.11AC 20 MIMO	2TX / 2RX	36,44,48,149,157,165
IEEE 802.11AC 40 MIMO	2TX / 2RX	38,46,151,159
IEEE 802.11AC 80 MIMO	2TX / 2RX	42,155

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate and different channels.. Preliminary tests have been done on all the configurations for confirming worst case.

Data rate below means worst-case rate of each test item.

Worst-case data rates and channels are shown as following table.

Test Mode	Antenna Delivery	Data Rate		
		Antenna 1	Antenna 2	MIMO
IEEE 802.11A	1TX / 1RX	6	6	/
IEEE 802.11N 20MHz	2TX / 2RX	MCS 0	MCS 0	MCS 8
IEEE 802.11N 40MHz	2TX / 2RX	MCS 0	MCS 0	MCS 8
IEEE 802.11AC 20MHz	2TX / 2RX	MCS 0	MCS 0	MCS 8
IEEE 802.11AC 40MHz	2TX / 2RX	MCS 0	MCS 0	MCS 8
IEEE 802.11AC 80MHz	2TX / 2RX	MCS 0	MCS 0	MCS 8

Test Items	Test Antennas	Test Modes	Test Channels
Maximum conducted output power	Antenna 1, Antenna 2, MIMO	IEEE 802.11A/ IEEE 802.11N 20/ IEEE 802.11N 40/ IEEE 802.11AC 20/ IEEE 802.11AC 40/ IEEE 802.11AC 80	36,44,48,149,157,165/ 36,44,48,149,157,165/ 38,46,151,159/ 36,44,48,149,157,165/ 38,46,151,159/ 42,155
Maximum Power spectral density	Antenna 1, Antenna 2, MIMO	IEEE 802.11A/ IEEE 802.11N 20/ IEEE 802.11N 40/ IEEE 802.11AC 20/ IEEE 802.11AC 40/ IEEE 802.11AC 80	36,44,48,149,157,165/ 36,44,48,149,157,165/ 38,46,151,159/ 36,44,48,149,157,165/ 38,46,151,159/ 42,155
Unwanted Emissions (Band Edge Measurement)	MIMO	IEEE 802.11AC 20	36,48,149,165
Unwanted Emissions (Spurious Emissions)	MIMO	IEEE 802.11AC 20	36,44,48,149,157,165
Min Emission Bandwidth and Emission Bandwidth and Occupied Bandwidth	Antenna 1, Antenna 2	IEEE 802.11A/ IEEE 802.11N 20/ IEEE 802.11N 40/ IEEE 802.11AC 20/ IEEE 802.11AC 40/ IEEE 802.11AC 80	36,44,48,149,157,165/ 36,44,48,149,157,165/ 38,46,151,159/ 36,44,48,149,157,165/ 38,46,151,159/ 42,155
Frequency stability	Antenna 1, Antenna 2	IEEE 802.11A/ IEEE 802.11N 20/ IEEE 802.11N 40/ IEEE 802.11AC 20/ IEEE 802.11AC 40/ IEEE 802.11AC 80	36,44,48,149,157,165/ 36,44,48,149,157,165/ 38,46,151,159/ 36,44,48,149,157,165/ 38,46,151,159/ 42,155

3.2 Duty cycle

Appendix B of WIFI5G_ diagram

4. Summary of measurement results

Summary of measurements of results	Clause in FCC rules	Verdict	Note
Conducted Emissions	15.207	PASS	/
Maximum conducted output power	15.407(a)	PASS	Appendix C of WIFI5G_ diagram
Maximum Power spectral density	15.407(a)	PASS	Appendix D of WIFI5G_ diagram
Unwanted Emissions	15.407(b)	PASS	/
Min Emission Bandwidth and Emission Bandwidth and Occupied Bandwidth	15.407(e), 15.407(a)	PASS	Appendix A of WIFI5G_ diagram
Frequency stability	15.407(g)	PASS	Appendix E of WIFI5G_ diagram
Dynamic Frequency Selection (DFS)	15.407(h)	PASS	/
Antenna Requirement	15.203	PASS	See note 1

Note 1: According to 15.203, it is considered sufficient to comply with the provisions of this section.

5. Measurement procedure

5.1 Conducted Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

The EUT IS placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2020/Cor1-2023. Connect the AC power line of the EUT to the LISN Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9kHz, VBW is set to 30kHz The measurement result should include both L line and N line.

The test is in transmitting mode.

Limits:

Frequency (MHz)	Conducted Limits(dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

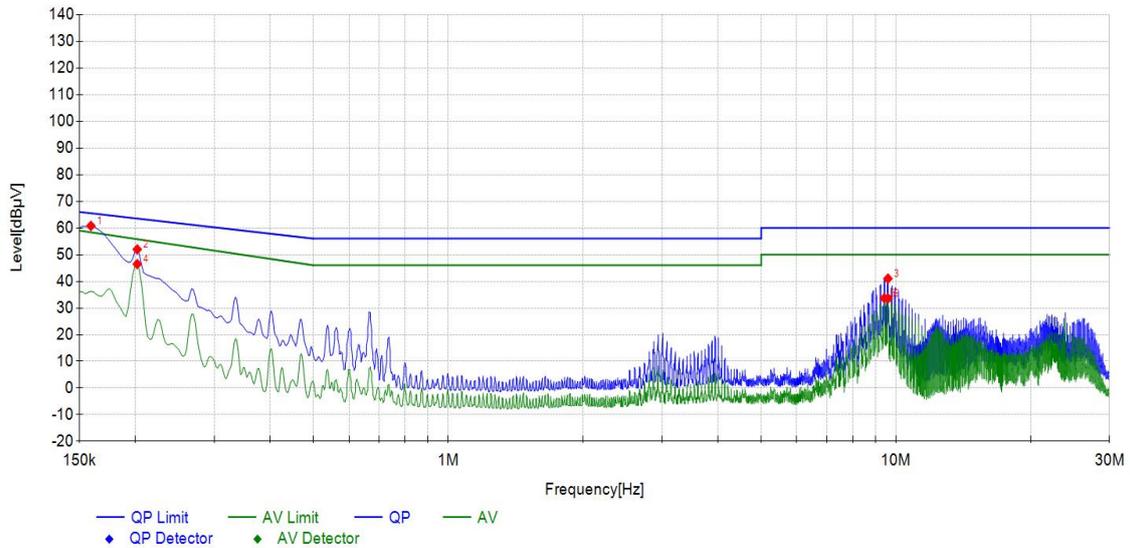
Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

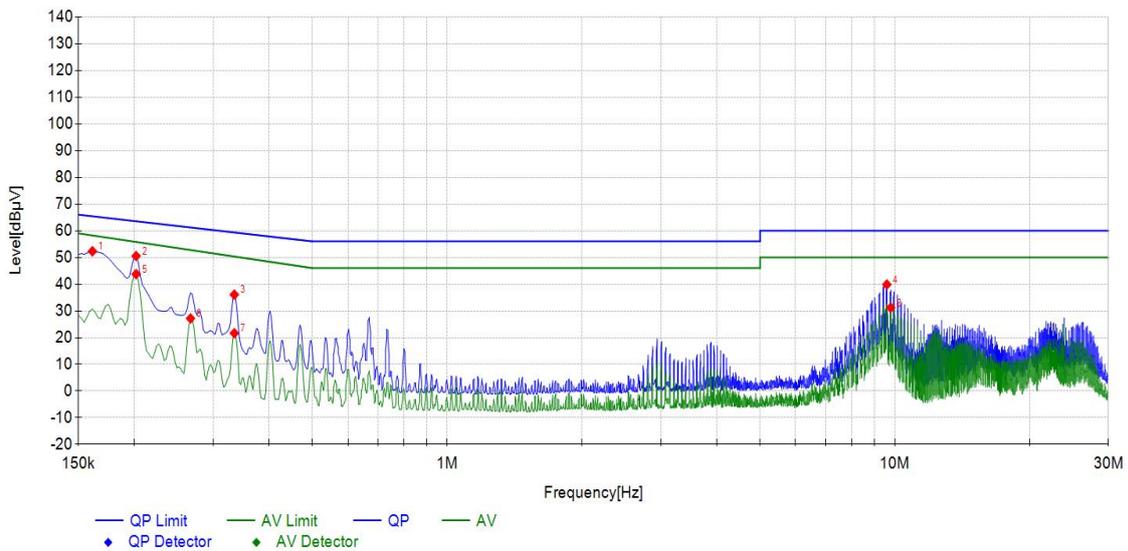
Test Results:

During the test, the Conducted Emission from 150kHz to 30MHz was carried out in 2 power modes, in all modes of WIFI, on all channels and all antennas. Power supply 1#, 802.11ac20, Channel 36, MIMO are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission		150k~30MHz						
Power Line		L						
Test channel		Worst-Case						
Suspected List								
Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV]	Limit [dBμV]	Margin [dB]	Detector	Type	Pass/Fail
0.159	10.29	50.49	60.78	65.52	4.74	QP	L	PASS
0.2018	10.28	41.71	51.99	63.54	11.55	QP	L	PASS
9.6	10.98	30.03	41.01	60.00	18.99	QP	L	PASS
0.2018	10.28	36.19	46.47	55.80	9.33	AV	L	PASS
9.4222	10.95	22.75	33.70	50.00	16.30	AV	L	PASS
9.6068	10.98	22.60	33.58	50.00	16.42	AV	L	PASS



Radiates Emission	150k~30MHz							
Power Line	N							
Test channel	Worst-Case							
Suspected List								
Freq. [MHz]	Factor [dB]	Reading [dB μ V]	Level [dB μ V]	Limit [dB μ V]	Margin [dB]	Detector	Type	Pass/Fail
0.1612	10.27	42.05	52.32	65.40	13.08	QP	N	PASS
0.2018	10.28	40.25	50.53	63.54	13.01	QP	N	PASS
0.3345	10.27	25.81	36.08	59.34	23.26	QP	N	PASS
9.6	10.95	28.91	39.86	60.00	20.14	QP	N	PASS
0.2018	10.28	33.49	43.77	55.80	12.03	AV	N	PASS
0.267	10.28	16.90	27.18	52.77	25.59	AV	N	PASS
0.3345	10.27	11.37	21.64	50.34	28.70	AV	N	PASS
9.7912	10.99	20.22	31.21	50.00	18.79	AV	N	PASS



5.2 Unwanted Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

The antenna height 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.

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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.

The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter)..

Test the EUT in the lowest channel ,the middle channel ,the Highest channel

The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

Repeat above procedures until all frequencies measured was complete.

Limits:

1. For transmitters operating in the 5725-5850 MHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
2. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBµV/m).
3. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBµV/m).
4. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz(68.2dBµV/m).

Note: the following formula is used to convert the EIRP to field strength

§1、 $E[dBµV/m] = EIRP[dBm] - 20 \log(d[meters]) + 104.77$, where E = field strength and d = distance at which field strength limit is specified in the rules;

§2、 $E[dBµV/m] = EIRP[dBm] + 95.2$, for d = 3 meters

5. Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency	Limit (µV/m)	Limit (dBµV/m @3m)	Remark
0.009MHz-0.490MHz	2400/F(kHz)@300m	20lg(24000000/F(kHz))	Quasi-peak Level
0.490MHz~1.705MHz	24000/F(kHz)@30m	20lg(2400000/F(kHz))	Quasi-peak Level
1.705MHz~30.0MHz	30@30m	69.54	Quasi-peak Level
30MHz-88MHz	100@3m	40.0	Quasi-peak Level
88MHz-216MHz	150@3m	43.5	Quasi-peak Level
216MHz-960MHz	200@3m	46.0	Quasi-peak Level
960MHz-1GHz	500@3m	54.0	Quasi-peak Level
Above 1GHz	500@3m	54.0	Average Level
	5000@3m	74.0	Peak Level

Measurement Data

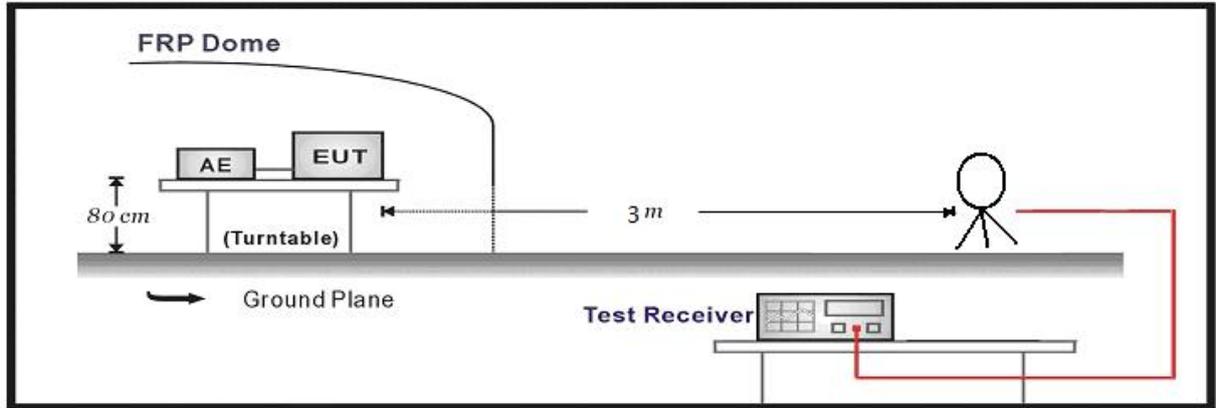
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

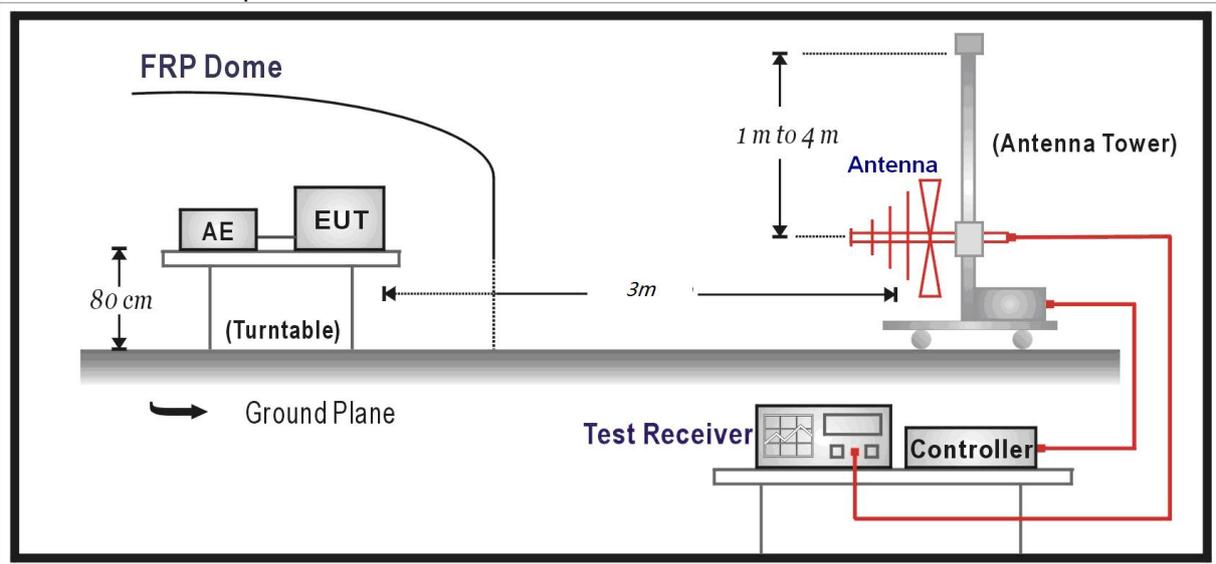
Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Test Setup:

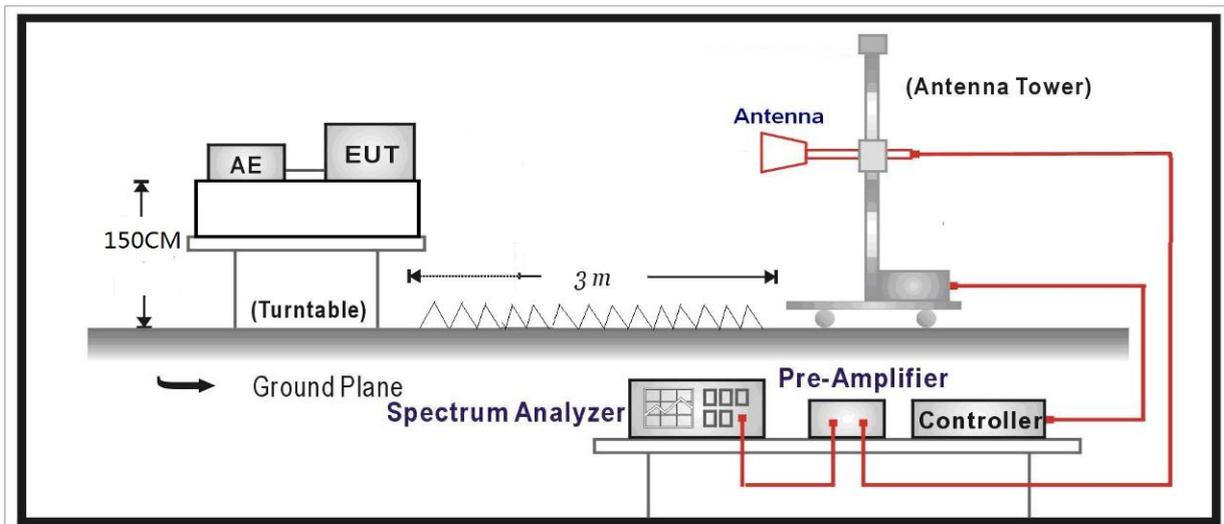
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
1GHz-26.5G	3.68 dB
26.5G-40GHz	4.76dB

5.2.1 SPURIOUS EMISSIONS:

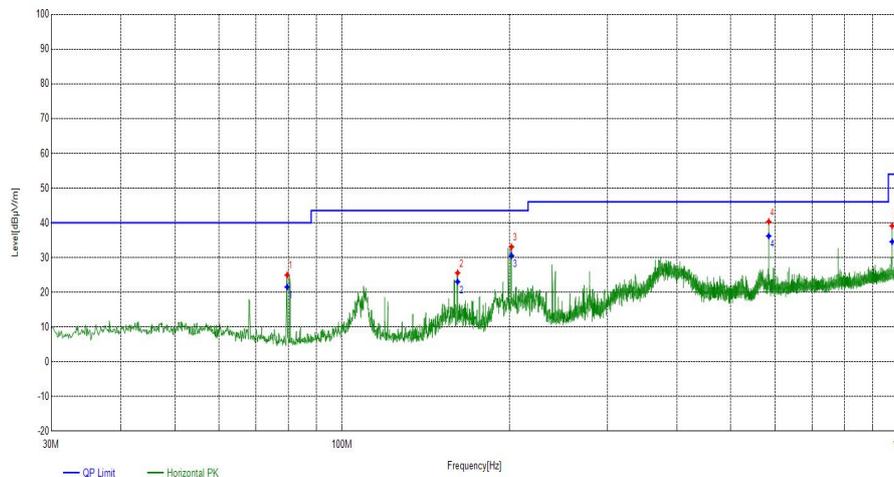
5.2.1.1 Below 1GHz:

During the test, the Radiates Emission from 9kHz to 1GHz was carried out in 2 power modes, in all modes of WIFI, on all channels and all antennas. Power supply 1#,802.11ac20, Channel 36, MIMO are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	9k~1G								
Test channel	Worst-Case								
Polarity	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
79.669	8.76	16.19	24.95	40.00	15.05	PK	100	346	PASS
161.3511	10.13	15.43	25.56	43.50	17.94	PK	100	229	PASS
201.7072	12.93	20.15	33.08	43.50	10.42	PK	100	189	PASS
584.9925	21.76	18.56	40.32	46.00	5.68	PK	100	70	PASS
975.0685	26.57	12.53	39.10	54.00	14.90	PK	100	359	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

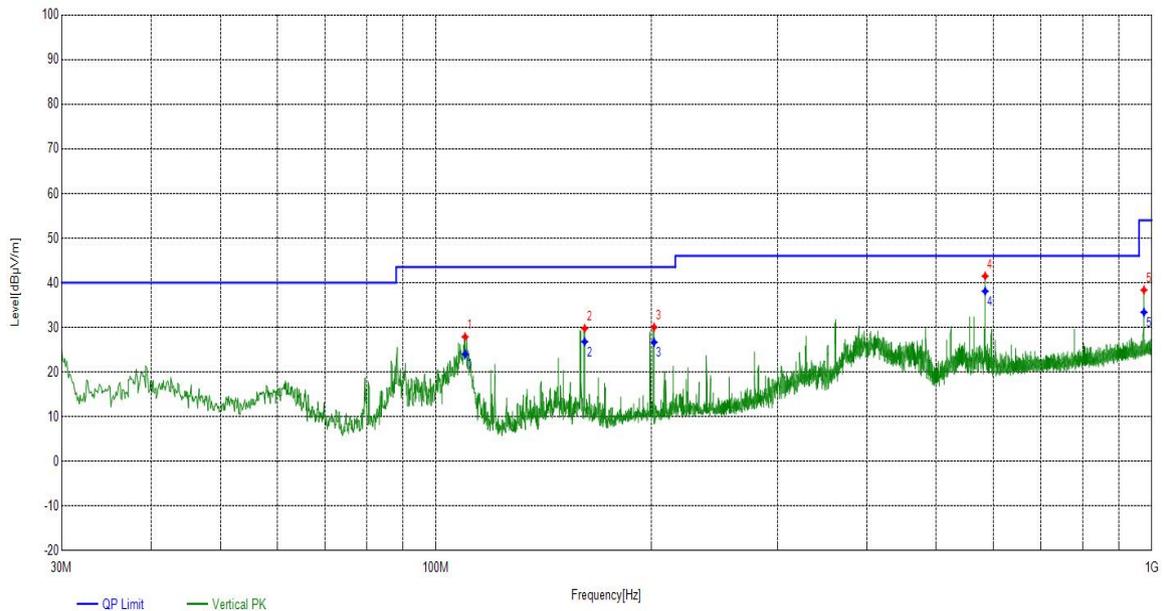
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
79.669	8.76	21.51	40.00	18.49	325	312	PASS
161.3511	10.13	23.02	43.50	20.48	216	201	PASS
201.7072	12.93	30.54	43.50	12.96	198	163	PASS
584.9925	21.76	36.18	46.00	9.82	56	89	PASS
975.0685	26.57	34.55	54.00	19.45	298	303	PASS



Radiates Emission	9k~1G								
Test channel	Worst-Case								
Polarity	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
109.839	11.62	16.26	27.88	43.50	15.62	PK	100	245	PASS
161.3511	10.13	19.63	29.76	43.50	13.74	PK	100	146	PASS
201.7072	12.93	17.12	30.05	43.50	13.45	PK	100	179	PASS
584.9925	21.76	19.73	41.49	46.00	4.51	PK	100	8	PASS
975.0685	26.57	11.80	38.37	54.00	15.63	PK	100	8	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
109.839	11.62	24.01	43.50	19.49	286	213	PASS
161.3511	10.13	26.79	43.50	16.71	216	186	PASS
201.7072	12.93	26.67	43.50	16.83	297	152	PASS
584.9925	21.76	38.11	46.00	7.89	128	82	PASS
975.0685	26.57	33.39	54.00	20.61	96	68	PASS



5.2.1.2 Above 1GHz:

During the test, the Radiates Emission from 1GHz to 40GHz was carried out in 2 power modes, in all modes of WIFI, on all channels and all antennas. Power supply 1#, 802.11ac20, Highest, medium, lowest channels, MIMO are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

5.2.1.2.1 U-NII-1:

Radiates Emission		Above 1GHz							
Test channel		Lowest							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7174.917492	9.00	35.16	44.16	74.00	29.84	PK	150	250	PASS
10328.83288	12.79	34.47	47.26	74.00	26.74	PK	150	310	PASS
14552.05520	18.19	33.26	51.45	74.00	22.55	PK	150	350	PASS
7174.917492	9.00	23.36	32.36	54.00	21.64	AV	150	40	PASS
10328.83288	12.79	20.86	33.65	54.00	20.35	AV	150	360	PASS
14552.05520	18.19	21.15	39.34	54.00	14.66	AV	150	10	PASS
Radiates Emission		Above 1GHz							
Test channel		Lowest							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7100.510051	8.97	35.45	44.42	74.00	29.58	PK	150	20	PASS
10376.83768	12.86	32.99	45.85	74.00	28.15	PK	150	60	PASS
14562.85628	18.15	33.42	51.57	74.00	22.43	PK	150	260	PASS
7100.510051	8.97	24.15	33.12	54.00	20.88	AV	150	20	PASS
10376.83768	12.86	21.41	34.27	54.00	19.73	AV	150	20	PASS
14562.85628	18.15	21.28	39.43	54.00	14.57	AV	150	150	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission		Above 1GHz							
Test channel		Medium							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7047.704771	8.96	35.89	44.85	74.00	29.15	PK	150	110	PASS
10216.02160	12.61	33.81	46.42	74.00	27.58	PK	150	200	PASS
14559.25592	18.17	33.62	51.79	74.00	22.21	PK	150	100	PASS
7047.704771	8.96	23.25	32.21	54.00	21.79	AV	150	80	PASS
10216.02160	12.61	21.50	34.11	54.00	19.89	AV	150	20	PASS
14559.25592	18.17	23.03	41.20	54.00	12.80	AV	150	10	PASS
Radiates Emission		Above 1GHz							
Test channel		Medium							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7230.123012	9.01	36.35	45.36	74.00	28.64	PK	150	140	PASS
9785.178518	12.40	33.42	45.82	74.00	28.18	PK	150	310	PASS
14511.25112	18.34	33.42	51.76	74.00	22.24	PK	150	290	PASS
7230.123012	9.01	23.86	32.87	54.00	21.13	AV	150	10	PASS
9785.178518	12.40	21.29	33.69	54.00	20.31	AV	150	40	PASS
14511.25112	18.34	21.56	39.90	54.00	14.10	AV	150	10	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission		Above 1GHz							
Test channel		Highest							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7126.912691	8.98	36.09	45.07	74.00	28.93	PK	150	110	PASS
10874.88748	12.69	33.91	46.60	74.00	27.40	PK	150	30	PASS
14534.05340	18.26	33.00	51.26	74.00	22.74	PK	150	150	PASS
7126.912691	8.98	23.69	32.67	54.00	21.33	AV	150	10	PASS
10874.88748	12.69	22.56	35.25	54.00	18.75	AV	150	10	PASS
14534.05340	18.26	21.21	39.47	54.00	14.53	AV	150	70	PASS
Radiates Emission		Above 1GHz							
Test channel		Highest							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7120.912091	8.98	35.49	44.47	74.00	29.53	PK	150	90	PASS
10326.43264	12.78	33.56	46.34	74.00	27.66	PK	150	300	PASS
14476.44764	18.28	33.08	51.36	74.00	22.64	PK	150	100	PASS
7120.912091	8.98	23.61	32.59	54.00	21.41	AV	150	50	PASS
10326.43264	12.78	21.74	34.52	54.00	19.48	AV	150	20	PASS
14476.44764	18.28	20.72	39.00	54.00	15.00	AV	150	70	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

5.2.1.2.2 U-NII-3:

Radiates Emission		Above 1GHz							
Test channel		Lowest							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7018.90189	8.95	35.61	44.56	74.00	29.44	PK	150	50	PASS
10274.82748	12.70	33.91	46.61	74.00	27.39	PK	150	320	PASS
14492.04920	18.35	33.27	51.62	74.00	22.38	PK	150	260	PASS
7018.90189	8.95	23.36	32.31	54.00	21.69	AV	150	40	PASS
10274.82748	12.70	21.33	34.03	54.00	19.97	AV	150	30	PASS
14492.04920	18.35	20.87	39.22	54.00	14.78	AV	150	20	PASS
Radiates Emission		Above 1GHz							
Test channel		Lowest							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7302.130213	8.99	36.62	45.61	74.00	28.39	PK	150	210	PASS
9920.792079	12.38	34.18	46.56	74.00	27.44	PK	150	280	PASS
14372.03720	17.79	33.03	50.82	74.00	23.18	PK	150	280	PASS
7302.130213	8.99	23.08	32.07	54.00	21.93	AV	150	80	PASS
9920.792079	12.38	21.26	33.64	54.00	20.36	AV	150	10	PASS
14372.03720	17.79	20.34	38.13	54.00	15.87	AV	150	220	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission		Above 1GHz							
Test channel		Medium							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7129.312931	8.98	35.20	44.18	74.00	29.82	PK	150	50	PASS
9858.385839	12.39	33.69	46.08	74.00	27.92	PK	150	30	PASS
14487.24872	18.32	33.31	51.63	74.00	22.37	PK	150	230	PASS
7129.312931	8.98	23.42	32.40	54.00	21.60	AV	150	10	PASS
9858.385839	12.39	20.91	33.30	54.00	20.70	AV	150	40	PASS
14487.24872	18.32	21.81	40.13	54.00	13.87	AV	150	10	PASS
Radiates Emission		Above 1GHz							
Test channel		Medium							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7102.910291	8.97	35.30	44.27	74.00	29.73	PK	150	130	PASS
10451.24512	12.86	33.66	46.52	74.00	27.48	PK	150	10	PASS
14583.25832	18.07	33.11	51.18	74.00	22.82	PK	150	280	PASS
7102.910291	8.97	23.50	32.47	54.00	21.53	AV	150	20	PASS
10451.24512	12.86	20.87	33.73	54.00	20.27	AV	150	60	PASS
14583.25832	18.07	21.59	39.66	54.00	14.34	AV	150	30	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission		Above 1GHz							
Test channel		Highest							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7810.981098	8.42	36.75	45.17	74.00	28.83	PK	150	220	PASS
10944.49444	11.69	34.62	46.31	74.00	27.69	PK	150	30	PASS
16081.00810	16.52	32.00	48.52	74.00	25.48	PK	150	200	PASS
7810.981098	8.42	24.41	32.83	54.00	21.17	AV	150	30	PASS
10944.49444	11.69	22.72	34.41	54.00	19.59	AV	150	50	PASS
16081.00810	16.52	19.98	36.50	54.00	17.50	AV	150	40	PASS
Radiates Emission		Above 1GHz							
Test channel		Highest							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
7666.9667	8.37	36.64	45.01	74.00	28.99	PK	150	260	PASS
10115.2115	11.66	33.69	45.35	74.00	28.65	PK	150	30	PASS
12832.2832	12.86	33.21	46.07	74.00	27.93	PK	150	290	PASS
7662.1662	8.37	25.83	34.20	54.00	19.80	AV	150	10	PASS
10271.2271	11.83	23.74	35.57	54.00	18.43	AV	150	10	PASS
12792.6793	12.76	22.92	35.68	54.00	18.32	AV	150	10	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

5.2.2 Band edge measurements (Radiates):

Test Results:

U-NII-1: 5150-5250MHz:

During the test, the Band Edge was performed in WIFI all modes with all channels and all antennas. 802.11ac20, MIMO are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Test mode		802.11ac20							
Test channel		Lowest channel							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4892.3892	1.23	40.23	41.46	74.00	32.54	PK	150	96	PASS
5076.9076	1.92	44.61	46.53	74.00	27.47	PK	150	109	PASS
5150.4150	2.14	57.80	59.94	74.00	14.06	PK	150	102	PASS
4892.3892	1.23	27.94	29.17	54.00	24.83	AV	150	134	PASS
5076.9076	1.92	28.53	30.45	54.00	23.55	AV	150	109	PASS
5150.4150	2.14	39.96	42.10	54.00	11.90	AV	150	115	PASS

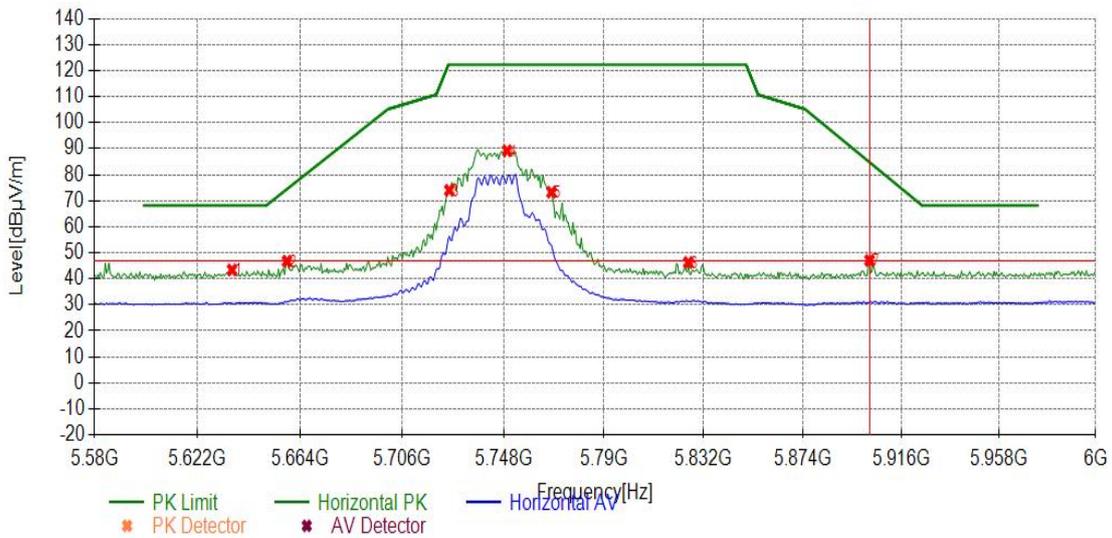
Test mode		802.11ac20							
Test channel		Lowest channel							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4831.3831	0.98	40.61	41.59	74.00	32.41	PK	150	19	PASS
4965.3965	1.54	40.62	42.16	74.00	31.84	PK	150	124	PASS
5150.4150	2.14	52.79	54.93	74.00	19.07	PK	150	131	PASS
4831.3831	0.98	28.13	29.11	54.00	24.89	AV	150	321	PASS
4965.3965	1.54	28.31	29.85	54.00	24.15	AV	150	354	PASS
5150.4150	2.14	34.03	36.17	54.00	17.83	AV	150	65	PASS

Test mode		802.11ac20							
Test channel		Highest channel							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5250.1862	2.69	42.36	45.05	74.00	28.95	PK	150	86	PASS
5360.9360	2.72	47.98	50.70	74.00	23.30	PK	150	180	PASS
5377.4377	2.75	42.52	45.27	74.00	28.73	PK	150	97	PASS
5250.1862	2.69	32.72	35.41	54.00	18.59	AV	150	134	PASS
5360.9360	2.72	30.79	33.51	54.00	20.49	AV	150	354	PASS
5377.4377	2.75	28.85	31.60	54.00	22.40	AV	150	354	PASS
Test mode		802.11ac20							
Test channel		Highest channel							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5250.1735	2.69	43.12	45.81	74.00	28.19	PK	150	129	PASS
5375.9375	2.75	39.24	41.99	74.00	32.01	PK	150	254	PASS
5413.9413	2.85	39.05	41.90	74.00	32.10	PK	150	51	PASS
5250.1735	2.69	33.12	35.81	54.00	18.19	AV	150	103	PASS
5375.9375	2.75	26.76	29.51	54.00	24.49	AV	150	57	PASS
5413.9413	2.85	26.78	29.63	54.00	24.37	AV	150	228	PASS

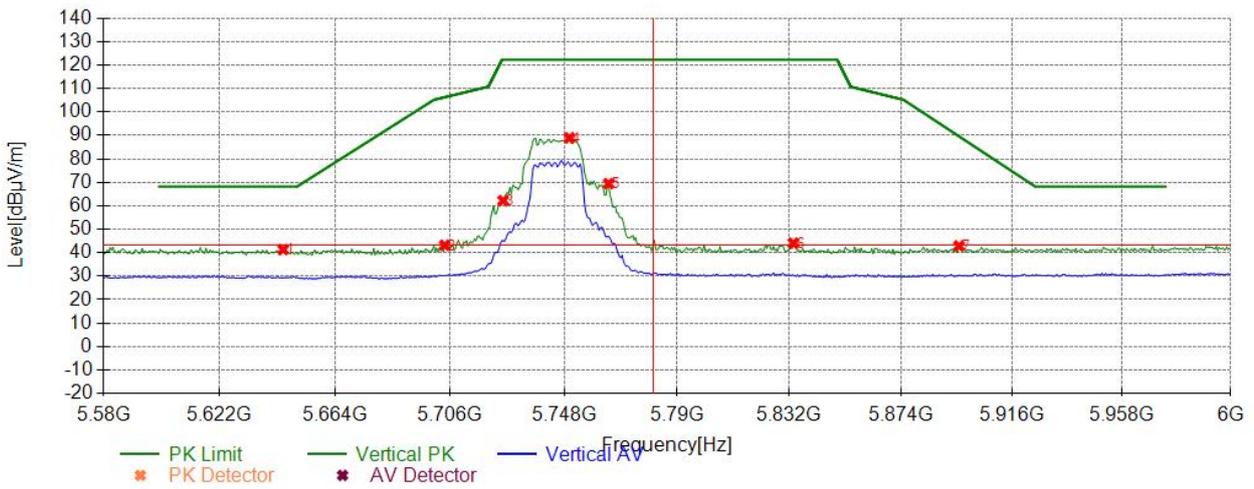
U-NII-3 5725-5850MHz:

During the test, the Band Edge was performed in WIFI all modes with all channels and all antennas. 802.11ac20, MIMO are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Test mode	802.11ac20								
Test channel	Lowest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5635.9635	3.64	39.76	43.40	68.20	24.80	PK	150	90	PASS
5658.4658	3.73	43.02	46.75	74.49	27.74	PK	150	90	PASS
5725.4725	4.02	70.02	74.04	122.20	48.16	PK	150	90	PASS
5749.4749	4.12	85.11	89.23	122.20	32.97	PK	150	169	PASS
5767.9767	4.21	69.08	73.29	122.20	48.91	PK	150	90	PASS
5825.4825	4.46	41.83	46.29	122.20	75.91	PK	150	64	PASS
5902.4902	4.79	42.31	47.10	84.82	37.72	PK	150	90	PASS



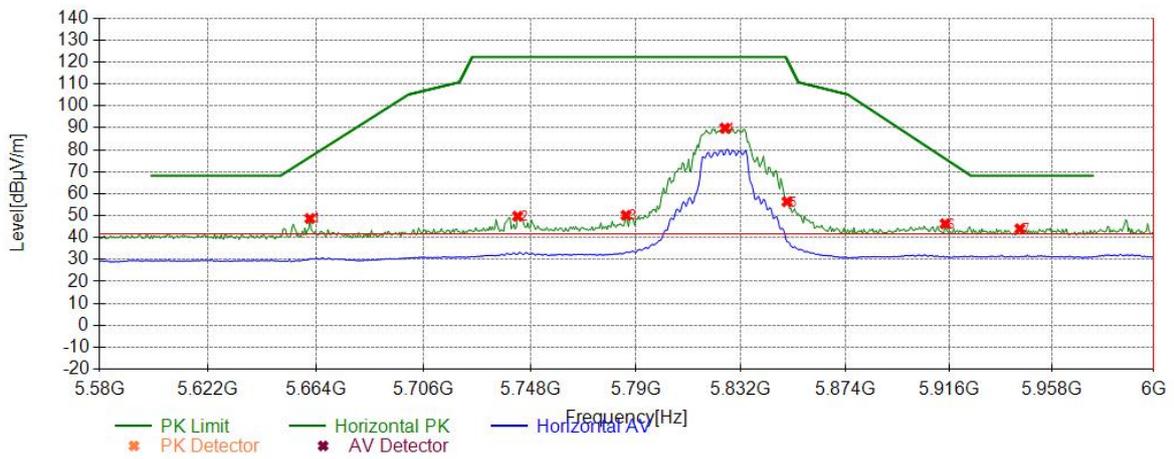
Test mode	802.11ac20								
Test channel	Lowest channel								
polarization	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5644.9644	3.67	37.70	41.37	68.20	26.83	PK	150	89	PASS
5703.9703	3.93	39.23	43.16	106.31	63.15	PK	150	142	PASS
5725.4725	4.02	58.17	62.19	122.20	60.01	PK	150	169	PASS
5749.9749	4.12	84.84	88.96	122.20	33.24	PK	150	155	PASS
5764.4764	4.19	65.30	69.49	122.20	52.71	PK	150	289	PASS
5833.4833	4.49	39.56	44.05	122.20	78.15	PK	150	328	PASS
5895.9895	4.76	38.15	42.91	89.63	46.72	PK	150	308	PASS



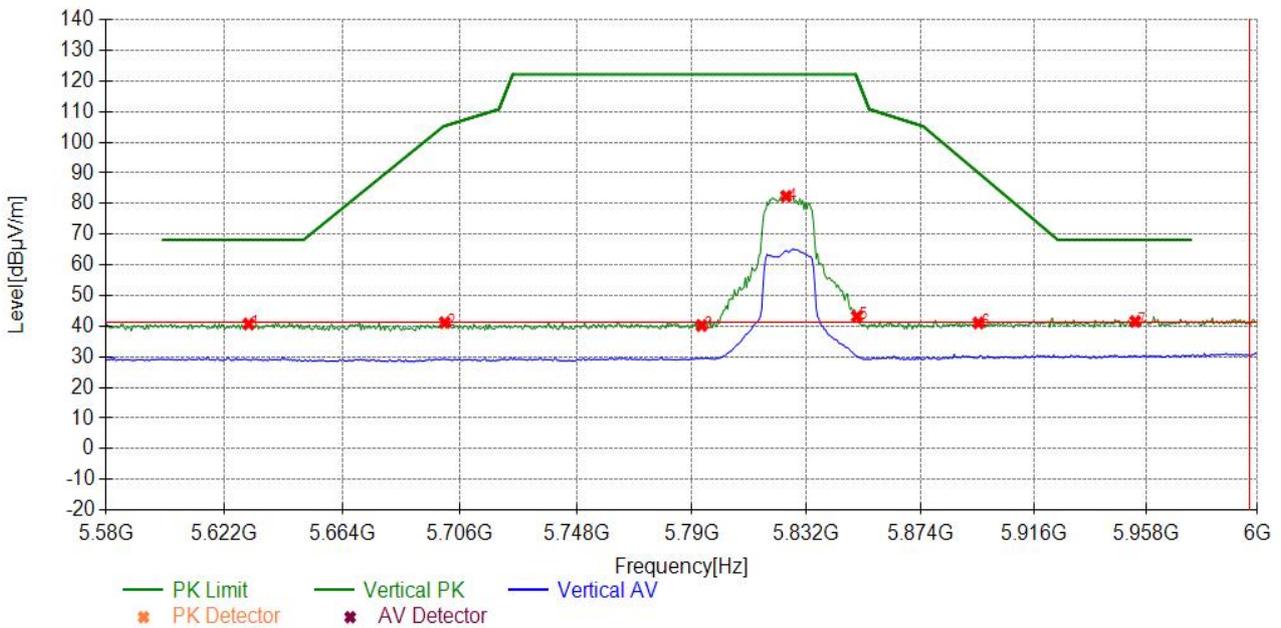
Test mode	802.11ac20
Test channel	Highest channel
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5661.4661	3.75	44.91	48.66	76.71	28.05	PK	150	87	PASS
5742.9742	4.09	45.61	49.70	122.20	72.50	PK	150	322	PASS
5785.9785	4.28	45.86	50.14	122.20	72.06	PK	150	87	PASS
5825.4825	4.46	85.41	89.87	122.20	32.33	PK	150	342	PASS
5850.4850	4.56	51.79	56.35	121.09	64.74	PK	150	81	PASS
5914.4914	4.85	41.48	46.33	75.95	29.62	PK	150	48	PASS
5944.9944	4.98	39.02	44.00	68.20	24.20	PK	150	74	PASS



Test mode	802.11ac20								
Test channel	Highest channel								
polarization	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
5655.4655	3.72	39.18	42.90	72.26	29.36	PK	150	195	PASS
5747.4747	4.12	39.17	43.29	122.20	78.91	PK	150	142	PASS
5795.9795	4.32	42.70	47.02	122.20	75.18	PK	150	84	PASS
5821.9821	4.43	84.96	89.39	122.20	32.81	PK	150	319	PASS
5850.4850	4.56	45.93	50.49	121.09	70.60	PK	150	84	PASS
5908.9908	4.82	38.48	43.30	80.01	36.71	PK	150	338	PASS
5954.4954	5.03	37.37	42.40	68.20	25.80	PK	150	116	PASS



5.3 Maximum conducted output power

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

During the process of the testing, The EUT was connected to spectrum analyzer through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. Use the Peak detector.

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Limits:

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency(MHz)	Antenna Gain(dBi)		Directional gain	Power Limit Reduction
	Antenna 1	Antenna 2		
5150-5250	-1.56	-3.01	0.76	23.98
5725-5825	2.88	4.07	6.51	29.49

Refer to KDB662911 D01 Multiple Transmitter Output v02r01.

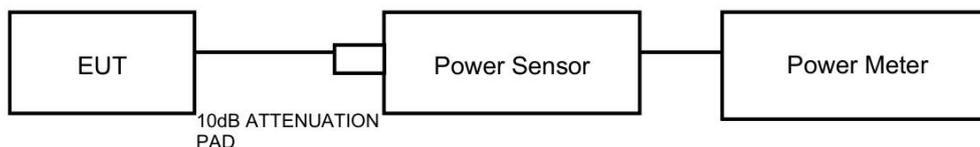
Note: B is the 26 dB emission bandwidth in megahertz.

Directional gain is to be computed as follows:

transmit signals are correlated, then

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

5.4 Min Emission Bandwidth and Emission Bandwidth and Occupied Bandwidth

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

For U-NII-1, set RBW \approx 1% OCB kHz, VBW \geq 3 \times RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW \geq 3 \times RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

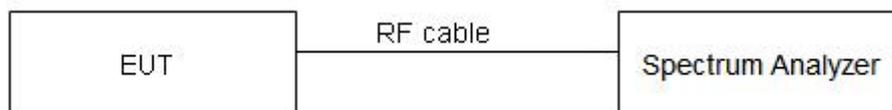
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument.

Limits:

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

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

5.5 Maximum Power Spectral Density

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 500 kHz, VBW =1.5MHz for the band 5.725-5.85 GHz

Set RBW = 1 MHz, VBW =3MHz for the band 5.150-5.250 GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Limits:

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency Bands/MHz	Limits
5150-5250	11dBm/MHz
5.25-5.35 GHz and 5.47-5.725 GHz	11dBm/MHz
5725-5850	30dBm/500kHz

Frequency(MHz)	Antenna Gain(dBi)		Directional gain	Limit
	Antenna 1	Antenna 2		
5150-5250	-1.56	-3.01	0.76	11.00dBm/MHz
5725-5825	2.88	4.07	6.51	29.49dBm/500kHz

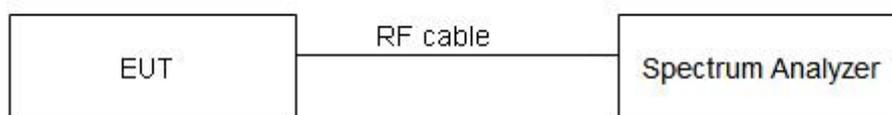
Refer to KDB662911 D01 Multiple Transmitter Output v02r01.

Directional gain is to be computed as follows:

transmit signals are correlated, then

Directional gain = $10 \log\left[\frac{(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2}{N_{ANT}}\right]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

5.6 Frequency Stability

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

Method of Measurement:

1. Frequency stability with respect to ambient temperature

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies specified in 5.6.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more than 10 C, and allow the temperature inside the chamber to stabilize.

j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

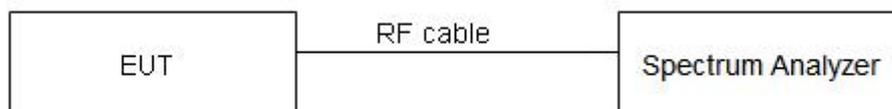
Unless otherwise specified, these tests shall be made at ambient room temperature (+15 °C to +25 °C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

- a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.
- b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- c) Measure the frequency at each of the frequencies specified in 5.6.
- d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limits:

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

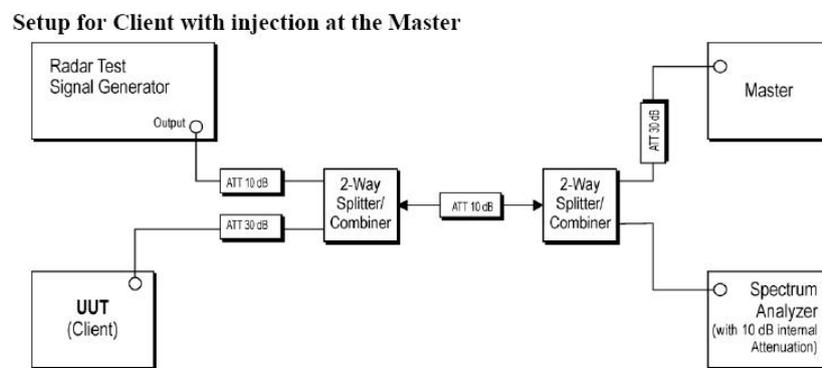
5.7 Dynamic Frequency Selection (DFS)

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

5.7.1 DFS detection threshold level

Test Setup:



Test Results:

Not required

5.7.2 UNII Detection Bandwidth

Method of Measurement:

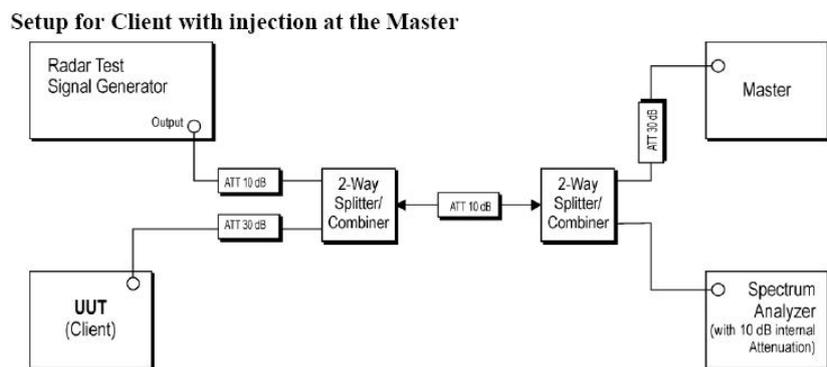
Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 7.8.1 for UNII Detection Bandwidth test. During the U-NII Detection Bandwidth detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. The EUT is set up as a standalone device (no associated Client and no traffic). The radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as FH. The radar frequency is decreased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The lowest frequency at which detection is greater than or equal to 90% is denoted as FL. UNII Detection Bandwidth = FH -FL

Limits:

Channel Bandwidth (MHz)	99% Power Bandwidth (MHz)	UNII Detection Bandwidth (MHz)
20	N/A	N/A
40	N/A	N/A
80	N/A	N/A

UNII Detection Bandwidth is minimum 100% of the 99% power bandwidth. A single radar Burst is generated for a minimum of 10 trials, and the response of the UUT is noted. The UUT must detect the Radar Waveform 90% or more of the time.

Test Setup:



Test Results:

Not required

5.7.3 Channel Availability Check (CAC)

Method of Measurement:

Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 7.8.2.1 for Initial Channel Availability Check Time. The EUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the UNII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms.

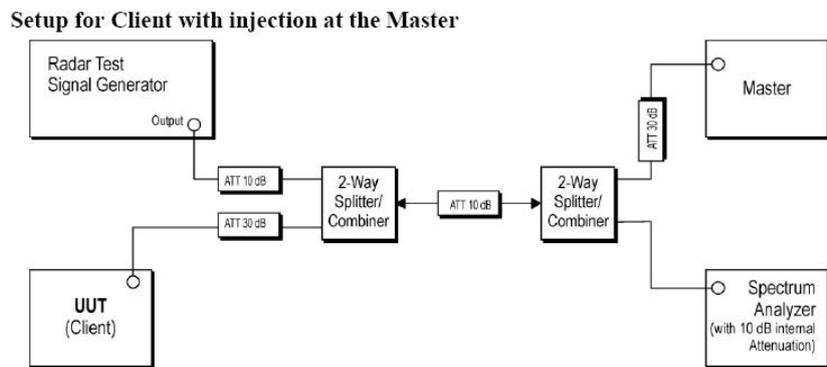
Refer as FCC 06-96 Appendix, clause 7.8.2.2 for Radar Burst at the Beginning of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the Beginning of the Channel Availability Check Time.

Refer as FCC 06-96 Appendix, clause 7.8.2.3 for Radar Burst at the End of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the End of the Channel Availability Check Time.

Limits:

Channel Availability Check Limit
<p>☒ The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute (60 sec) on the intended operating frequency.</p>

Test Setup:



Test Results:

Not required

5.7.4 In-service Monitoring

Method of Measurement:

Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 7.8.3 verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time limits.

Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 8.3 verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. One 10 sec plot needs to be reported for the Short Pulse Radar Types 1-4 and one for the Long Pulse Radar Type in a 22 sec plot. And zoom-in a 600 ms plot verified channel closing time for the aggregate transmission time starting from 200ms after the end of the radar signal to the completion of the channel move.

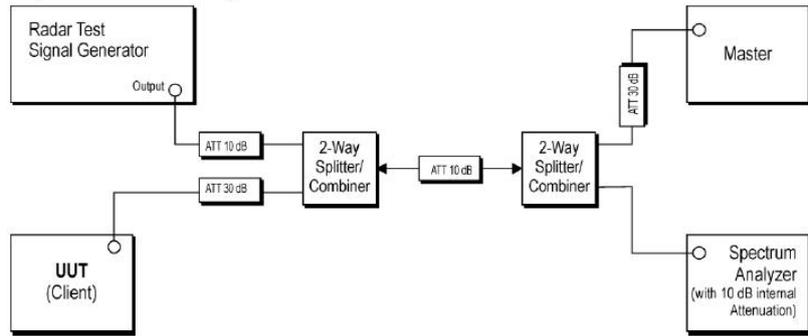
Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 7.8.3 verified during In-Service Monitoring; Non-Occupancy Period. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Non-Occupancy Period). Compare the Non-Occupancy Period limits.

Limits:

In-service Monitoring Limit	
Channel Move Time	10 sec
Channel Closing Transmission Time	200 ms + an aggregate of 60 ms over remaining 10 sec periods.
Non-occupancy period	Minimum 30 minutes

Test Setup:

Setup for Client with injection at the Master



Test Results:

Not required

5.7.5 Statistical Performance Check

Method of Measurement:

Refer as KDB905462 D02 UNII DFS Compliance Procedures New Rules v02, clause 7.8.4 for Statistical Performance Check test. Stream the MPEG test file from the Master Device to the Client Device on the test Channel for the entire period of the test. Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 1-4 and 6 to ensure detection occurs. Then Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.

Limits:

Radar Type	Minimum Percentage of Successful Detection (Pd)	Minimum Trials
1	60%	30
2	60%	30
3	60%	30
4	60%	30
Aggregate (Radar Types 1-4)	80%	120
5	80%	30
6	70%	30

The percentage of successful detection is calculated by:

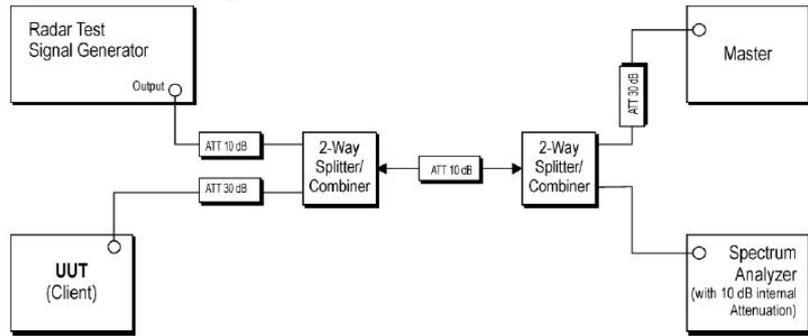
$$\frac{\text{Total Waveform Detections}}{\text{Total Waveform Trails}} \times 100 = \text{Probability of Detection Radar Waveform}$$

In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows:

$$\frac{\text{Pd1} + \text{Pd2} + \text{Pd3} + \text{Pd4}}{4}$$

Test Setup:

Setup for Client with injection at the Master



Test Results:

Not required

6. Appendix X

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
Communication Shielded Room 2	4m*3m*3m	CRTDSWKSR4 4301	/	CRT	2027/04/22
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2026/03/27
RF Radio Frequency Switch	JS0806-2	19H9080187	DZ-000241	Tonscend	2026/03/27
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2026/04/10
5m Semi-Anechoic Chamber	SAC-5	SAC-5-2.0	EM-000557	COMTEST	2027/02/01
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2026/01/01
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2025/12/26
EMI Test Receiver	ESR7	102235	EM-000574	R&S	2026/01/05
loop antenna	HLA 6121	540046	EM-000546	TESEQ	2026/06/02
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWAR ZBECK	2026/06/02
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWAR ZBECK	2025/08/03
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWAR ZBECK	2026/06/02
5G Bandstop Filters	WRCJV12-4900-510 0-5900-6100-50EE	1	DZ-000186	WI	2025/12/02
Temperature and humidity meter	MHO-C201	/	DZ-000249-2	Seconds test	2025/07/28
Temperature and humidity meter	MHO-C201	/	DZ-000249-5	Seconds test	2025/07/28

Dynacomm	Software Release	Software Developer
TS1120-3 Test System(Conduction test)	3.3.38	Tonscend
TS+ (5m,Radiation test)	JS32-RE 5.0.0	Tonscend

————— No Body Text Below —————

Important

1. The test report is invalid without the official stamp of CVC;
2. Any part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Author and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. As for the test result, “—” or “N/A” means “not applicable”, “/” means “not testing”, “P” means “pass” and “F” means “fail”.

Address: No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China (Test location)

Post Code: 510663 Tel: 020-32293888

FAX: 020 32293889 E-mail: office@cvc.org.cn