

# FCC Test Report

**Applicant** : Revopoint 3D Technologies Inc.

**Address** : Office 902, 9/F, Tinno Building, Tongfa South Rd, Xili Street, Nanshan District, Shenzhen, 518000, China.

**Product Name** : 3D Scanner

**Report Date** : Dec. 07, 2023

**Shenzhen Anbotek Compliance Laboratory Limited**



**Shenzhen Anbotek Compliance Laboratory Limited**

Address: 1/F, Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.  
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Report No.: 18220WC30223401

FCC ID: 2AY7J-MINI2

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# TEST REPORT

Applicant : Revopoint 3D Technologies Inc.  
Manufacturer : Revopoint 3D Technologies Inc.  
Product Name : 3D Scanner  
Test Model No. : MINI 2  
Reference Model No. : MINI PRO  
Trade Mark : REVOPOINT  
Rating(s) : Input: 5V $\overline{=}$  1A  
Test Standard(s) : **FCC Part15 Subpart C, Section 15.247**  
**ANSI C63.10: 2020**  
Test Method(s) : **KDB 789033 D02 General UNII Test Procedures New Rules v02r01**  
**KDB 662911 D01 Multiple Transmitter Output v02r01**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with above listed standard(s) requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt:

Oct. 19, 2023

Date of Test:

Oct. 19, 2023 to Nov. 02, 2023

Prepared By:



(Stella Zhu)

Approved &amp; Authorized Signer:



(Edward Pan)

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**Revision History**

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 07, 2023

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## 1. General Information

### 1.1. Client Information

Applicant	:	Revopoint 3D Technologies Inc.
Address	:	Office 902, 9/F, Tinno Building, Tongfa South Rd, Xili Street, Nanshan District, Shenzhen, 518000, China.
Manufacturer	:	Revopoint 3D Technologies Inc.
Address	:	Office 902, 9/F, Tinno Building, Tongfa South Rd, Xili Street, Nanshan District, Shenzhen, 518000, China.
Factory	:	Zhejiang Revopoint Optoelectronics Technology Co., Ltd
Address	:	2F, Building 7, No.1, Weizhong Road, Weitang Street, Jiashan County, Jiaxing city, Zhejiang Province

### 1.2. Description of Device (EUT)

Product Name	:	3D Scanner
Test Model No.	:	MINI 2
Reference Model No.	:	MINI PRO (Note: All samples are the same except the model number, so we prepare "MINI 2" for test only.)
Trade Mark	:	REVOPOINT
Test Power Supply	:	DC 5V from Adapter input AC 120V/60Hz, DC 5V
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
<b>RF Specification</b>		
Operation Frequency	:	802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5180MHz to 5240MHz; 802.11n(HT40)/ac(VHT40)/ax(HE40): 5190MHz to 5230MHz; 802.11ac(VHT80)/ax(HE80): 5210MHz
Number of Channel	:	802.11a/n(HT20)/ac(VHT20)/ax(HE20): 4; 802.11n(HT40)/ac(VHT40)/ax(HE40): 2; 802.11ac(VHT80)/ax(HE80): 1
Modulation Type	:	802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM); 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Antenna Type	:	FPC Antenna
Antenna Gain(Peak)	:	ANT1/ ANT2: 2.39dBi
Directional antenna gain	:	5.40dBi
Device Type	:	Client device
<b>Remark:</b>		
(1) All of the RF specification are provided by customer.		
(2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. (3) Only 802.11n(HT20)/ac(VHT20)/ax(HE20): 5180MHz to 5240MHz; 802.11n(HT40)/ac(VHT40)/ax(HE40) 802.11ac(VHT80)/ax(HE80) support MIMO.		

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**1.3. Auxiliary Equipment Used During Test**

Title	Manufacturer	Model No.	Serial No.
Xiaomi 33W adapter	Xiaomi	MDY-11-EX	SA62212LA04358J

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#### 1.4. Operation channel list

Mode	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz bandwidth	36	5180	40	5200	44	5220	48	5240
40MHz bandwidth	38	5190	46	5230	/	/	/	/
80MHz bandwidth	42	5210	/	/	/	/	/	/

#### 1.5. Description of Test Modes

Pretest Modes	Descriptions
TM1	Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.
TM2	Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
TM3	Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
TM4	Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.

#### 1.6. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.4dB
Conducted Output Power	0.76dB
Power Spectral Density	0.76dB
Occupied Bandwidth	925Hz
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.78dB; 6G-18GHz: 4.88dB 18G-40GHz: 5.68dB
Radiated emissions (Below 30MHz)	3.53dB
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.92dB; Vertical: 4.52dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

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**1.7. Test Summary**

Test Items	Test Modes	Status
Conducted Emission at AC power line	Mode1,2,3,4	P
Duty Cycle	Mode1,2,3,4	P
Maximum conducted output power	Mode1,2,3,4	P
Power spectral density	Mode1,2,3,4	P
Emission bandwidth and occupied bandwidth	Mode1,2,3,4	P
Band edge emissions (Radiated)	Mode1,2,3,4	P
Undesirable emission limits (below 1GHz)	Mode1,2,3,4	P
Undesirable emission limits (above 1GHz)	Mode1,2,3,4	P
Note: P: Pass N: N/A, not applicable		

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## 1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### FCC-Registration No.:434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 434132.

### ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

### Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

## 1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

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**1.10. Test Equipment List**

Conducted Emission at AC power line						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	2023-10-12	2024-10-11
2	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040D T001	2023-07-05	2024-07-04
3	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	2023-10-12	2024-10-11
4	Software Name EZ-EMC	Farad Technology	ANB-03A	N/A	/	/

Duty Cycle Maximum conducted output power Power spectral density Emission bandwidth and occupied bandwidth						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	DC Power Supply	IVYTECH	IV3605	1804D360 510	2023-10-20	2024-10-19
2	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	101792	2023-05-26	2024-05-25
3	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY505318 23	2023-02-23	2024-02-22
4	Oscilloscope	Tektronix	MDO3012	C020298	2023-10-12	2024-10-11
5	MXG RF Vector Signal Generator	Agilent	N5182A	MY474206 47	2023-02-23	2024-10-22

Band edge emissions (Radiated) Undesirable emission limits (above 1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	2023-10-12	2024-10-11
2	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	2023-10-12	2024-10-11
3	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	2022-10-16	2025-10-15
4	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	/	/
5	Horn Antenna	A-INFO	LB-180400-KF	J21106062 8	2023-10-12	2024-10-11
6	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	101792	2023-05-26	2024-05-25
7	Amplifier	Talent Microwave	TLLA18G40 G-50-30	23022802	2023-05-25	2024-05-24

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Undesirable emission limits (below 1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	2023-10-12	2024-10-11
2	Pre-amplifier	SONOMA	310N	186860	2023-10-12	2024-10-11
3	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	2022-10-23	2025-10-22
4	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	/	/
5	Loop Antenna	Schwarzbeck	FMZB1519 B	00053	2023-10-12	2024-10-11

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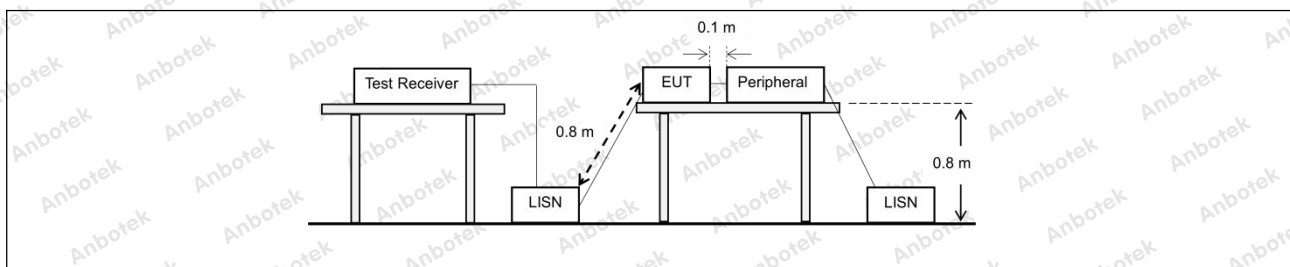
## 2. Conducted Emission at AC power line

Test Requirement:	47 CFR Part 15.207(a)		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
*Decreases with the logarithm of the frequency.			
Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

### 2.1. EUT Operation

Operating Environment:	
Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>

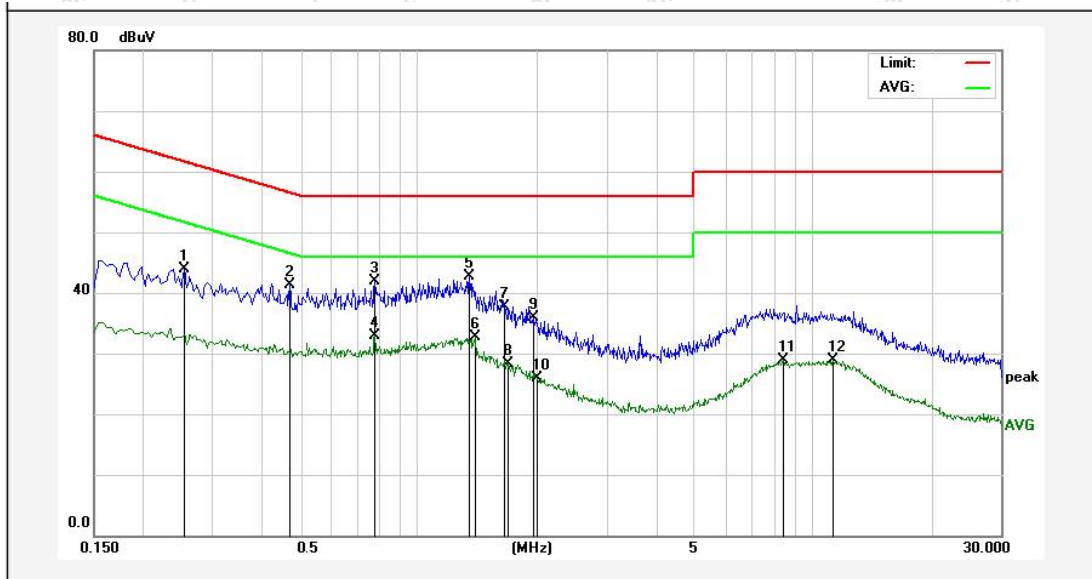
### 2.2. Test Setup



### 2.3. Test Data

Temperature:	24.7 °C	Humidity:	53.2 %	Atmospheric Pressure:	101 kPa
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TM4 / Line: Line / Band: 5150-5250 MHz / BW: 80 / CH: 42

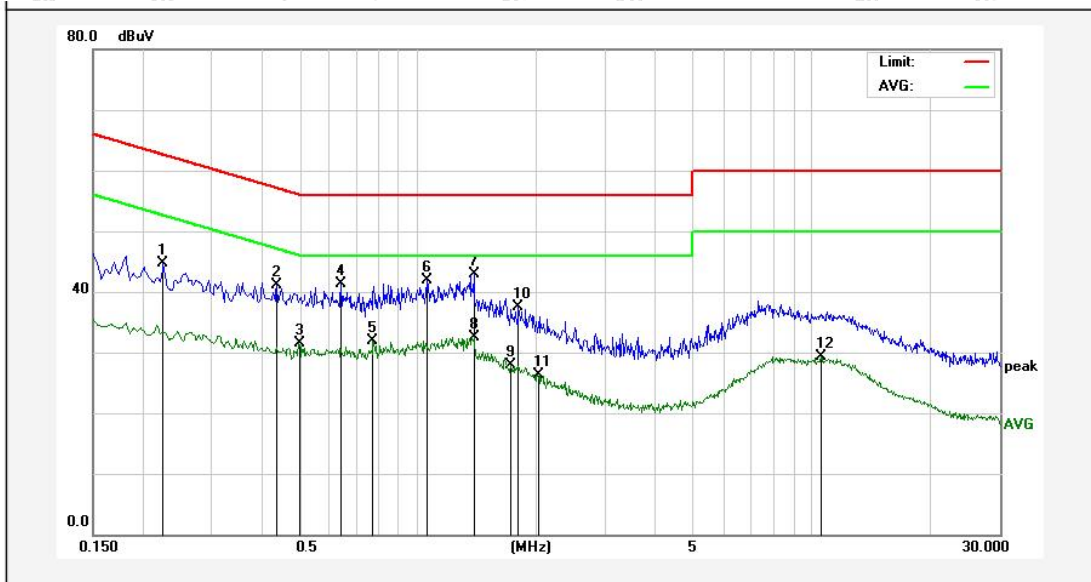


No.	Freq. (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit (dBUV)	Over Limit (dB)	Detector	Remark
1	0.2540	24.03	19.83	43.86	61.62	-17.76	QP	
2	0.4700	21.49	19.84	41.33	56.51	-15.18	QP	
3	0.7780	22.04	19.86	41.90	56.00	-14.10	QP	
4	0.7780	12.96	19.86	32.82	46.00	-13.18	AVG	
5	1.3500	22.81	19.84	42.65	56.00	-13.35	QP	
6	1.3940	12.79	19.84	32.63	46.00	-13.37	AVG	
7	1.6620	17.80	19.84	37.64	56.00	-18.36	QP	
8	1.6940	8.38	19.84	28.22	46.00	-17.78	AVG	
9	1.9660	16.07	19.83	35.90	56.00	-20.10	QP	
10	2.0020	6.17	19.83	26.00	46.00	-20.00	AVG	
11	8.4019	8.96	19.92	28.88	50.00	-21.12	AVG	
12	11.3059	8.84	20.03	28.87	50.00	-21.13	AVG	



Temperature:	24.7 °C	Humidity:	53.2 %	Atmospheric Pressure:	101 kPa
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TM4 / Line: Neutral / Band: 5150-5250 MHz / BW: 80 / CH: 42



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2260	24.89	19.83	44.72	62.59	-17.87	QP	
2	0.4380	21.35	19.83	41.18	57.10	-15.92	QP	
3	0.4980	11.65	19.85	31.50	46.03	-14.53	AVG	
4	0.6419	21.53	19.86	41.39	56.00	-14.61	QP	
5	0.7740	12.06	19.86	31.92	46.00	-14.08	AVG	
6	1.0580	22.08	19.85	41.93	56.00	-14.07	QP	
7	1.3940	23.16	19.84	43.00	56.00	-13.00	QP	
8	1.3940	12.63	19.84	32.47	46.00	-13.53	AVG	
9	1.7220	8.08	19.84	27.92	46.00	-18.08	AVG	
10	1.8020	17.72	19.84	37.56	56.00	-18.44	QP	
11	2.0220	6.53	19.83	26.36	46.00	-19.64	AVG	
12	10.6020	9.37	20.01	29.38	50.00	-20.62	AVG	

Note: Only record the worst data (802.11ax(HE80) MIMO) in the report.



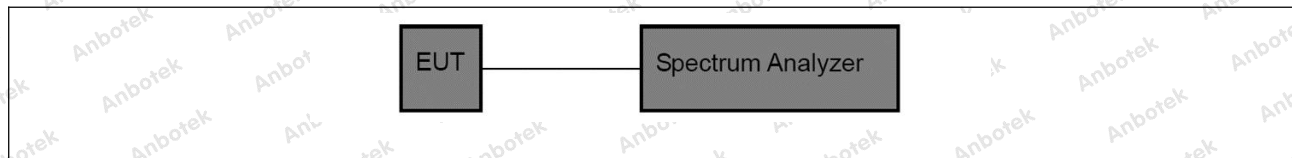
### 3. Duty Cycle

Test Requirement:	All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.
Test Limit:	No limits, only for report use.
Test Method:	ANSI C63.10-2013 section 12.2 (b)
Procedure:	<ul style="list-style-type: none"> <li>i) Set the center frequency of the instrument to the center frequency of the transmission.</li> <li>ii) Set RBW <math>\geq</math> EBW if possible; otherwise, set RBW to the largest available value.</li> <li>iii) Set VBW <math>\geq</math> RBW.</li> <li>iv) Set detector = peak.</li> <li>v) The zero-span measurement method shall not be used unless both RBW and VBW are <math>&gt; 50/T</math>, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.</li> </ul>

#### 3.1. EUT Operation

Operating Environment:	
Test mode:	<ul style="list-style-type: none"> <li>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</li> <li>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</li> <li>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</li> <li>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</li> </ul>

#### 3.2. Test Setup



#### 3.3. Test Data

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Please Refer to Appendix for Details.

#### Shenzhen Anbotek Compliance Laboratory Limited

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## 4. Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(1)(iv)
Test Limit:	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. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Test Method:	ANSI C63.10-2013, section 12.3
Procedure:	<p>Method SA-2</p> <p>a) Measure the duty cycle D of the transmitter output signal.</p> <p>b) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.</p> <p>c) Set RBW = 1 MHz.</p> <p>d) Set VBW &gt;= 3 MHz.</p> <p>e) Number of points in sweep &gt;= [2 × span / RBW]. (This gives bin-to-bin spacing &lt;= RBW / 2, so that narrowband signals are not lost between frequency bins.)</p> <p>f) Sweep time = auto.</p> <p>g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.</p> <p>h) Do not use sweep triggering. Allow the sweep to “free run.”</p> <p>i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.</p> <p>j) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum</p> <p>k) Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.</p>

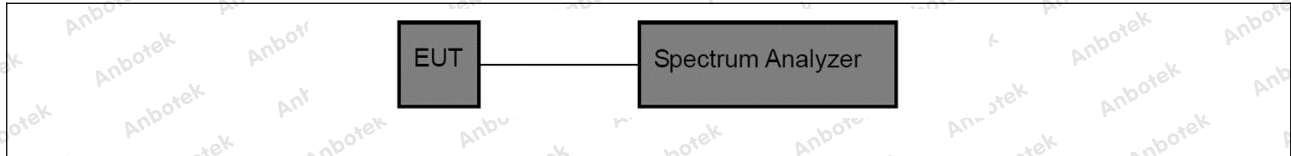
### 4.1. EUT Operation

Operating Environment:	
Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data</p>



rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.

#### 4.2. Test Setup



#### 4.3. Test Data

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Please Refer to Appendix for Details.



## 5. Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(iv)
Test Limit:	For client devices in the 5.15-5.25 GHz band, 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, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Test Method:	ANSI C63.10-2013, section 12.5
Procedure:	<p>a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, "Compute power...." (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.)</p> <p>b) Use the peak search function on the instrument to find the peak of the spectrum.</p> <p>c) Make the following adjustments to the peak value of the spectrum, if applicable:</p> <ol style="list-style-type: none"> <li>1) If method SA-2 or SA-2A was used, then add <math>[10 \log (1 / D)]</math>, where D is the duty cycle, to the peak of the spectrum.</li> <li>2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.</li> </ol> <p>d) The result is the PPSD.</p> <p>e) The procedure in item a) through item c) requires the use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified by some regulatory authorities. This requirement also permits use of resolution bandwidths less than 1 MHz "provided that the measured power is integrated to show the total power over the measurement bandwidth" (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth, the following adjustments to the procedures apply:</p> <ol style="list-style-type: none"> <li>1) Set <math>RBW \geq 1 / T</math>, where T is defined in 12.2 a).</li> <li>2) Set <math>VBW \geq [3 \times RBW]</math>.</li> <li>3) Care shall be taken such that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.</li> </ol>

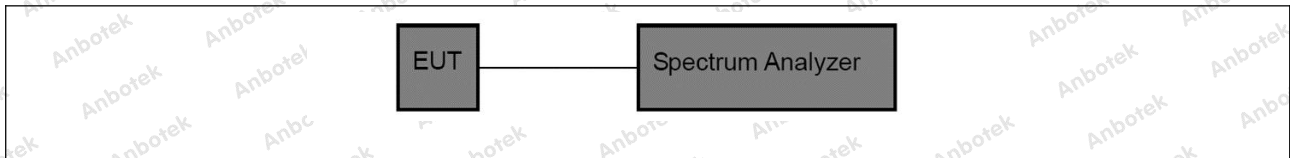


## 5.1. EUT Operation

### Operating Environment:

Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>
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## 5.2. Test Setup



## 5.3. Test Data

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Please Refer to Appendix for Details.



## 6. Emission bandwidth and occupied bandwidth

Test Requirement:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.
Test Limit:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.
Test Method:	ANSI C63.10-2013, section 6.9.3 & 12.4
Procedure:	<p>Emission bandwidth:</p> <ul style="list-style-type: none"> <li>a) Set RBW = approximately 1% of the emission bandwidth.</li> <li>b) Set the VBW &gt; RBW.</li> <li>c) Detector = peak.</li> <li>d) Trace mode = max hold.</li> <li>e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission.</li> </ul> <p>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.</p> <p>Occupied bandwidth:</p> <ul style="list-style-type: none"> <li>a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.</li> <li>b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.</li> <li>c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than <math>[10 \log (OBW/RBW)]</math> below the reference level. Specific guidance is given in 4.1.5.2.</li> <li>d) Step a) through step c) might require iteration to adjust within the specified range.</li> <li>e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.</li> <li>f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.</li> <li>g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the</li> </ul>

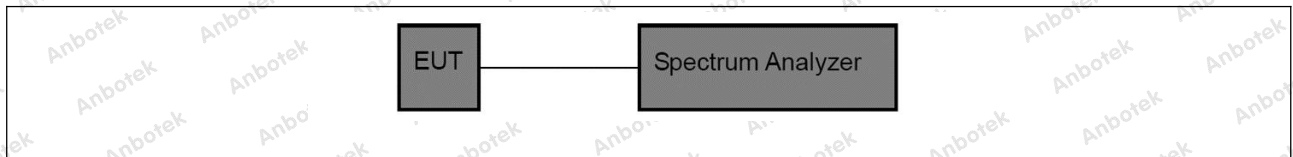


	<p>total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.</p> <p>h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).</p>
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## 6.1. EUT Operation

Operating Environment:	
Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>

## 6.2. Test Setup



## 6.3. Test Data

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Please Refer to Appendix for Details.



## 7. Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10)			
Test Limit:	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.			
	MHz	MHz	MHz	GHz
	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
	<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
	6.31175-6.31225	123-138	2200-2300	14.47-14.5
	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )	
13.36-13.41				
	<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.			
	<sup>2</sup> Above 38.6			
	The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.			
	Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			
	Frequency (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
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6		
Procedure:	<p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>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.</p> <p>c. 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.</p> <p>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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. 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 or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <ol style="list-style-type: none"> <li>Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</li> <li>Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</li> <li>As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</li> <li>The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</li> </ol>		



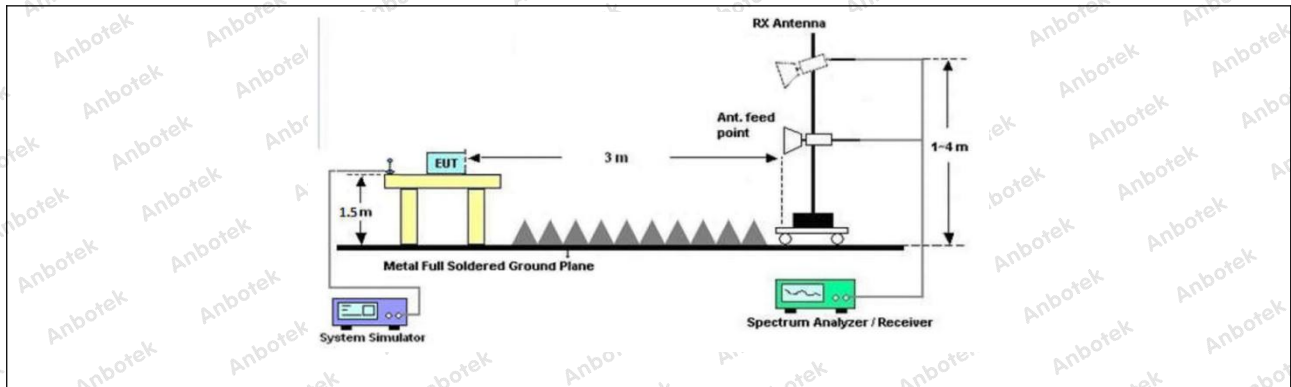


## 7.1. EUT Operation

### Operating Environment:

Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>
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## 7.2. Test Setup



### Shenzhen Anbotek Compliance Laboratory Limited

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Hotline  
 400-003-0500  
 www.anbotek.com.cn



### 7.3. Test Data

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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TM1 / L (Ant1)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	37.18	15.99	53.17	68.20	-15.03	H	Peak
5150.00	39.28	15.99	55.27	68.20	-12.93	V	Peak
5150.00	27.06	15.99	43.05	54.00	-10.95	H	AVG
5150.00	29.17	15.99	45.16	54.00	-8.84	V	AVG
TM1 / H (Ant1)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5250.00	37.57	16.43	54.00	68.20	-14.20	H	Peak
5250.00	40.64	16.43	57.07	68.20	-11.13	V	Peak
5250.00	28.96	16.43	45.39	54.00	-8.61	H	AVG
5250.00	29.79	16.43	46.22	54.00	-7.78	V	AVG

Remark: 1. Result=Reading + Factor

TM2 / L (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	36.05	15.99	52.04	68.20	-16.16	H	Peak
5150.00	37.50	15.99	53.49	68.20	-14.71	V	Peak
5150.00	26.77	15.99	42.76	54.00	-11.24	H	AVG
5150.00	27.74	15.99	43.73	54.00	-10.27	V	AVG
TM2 / H (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5250.00	37.91	16.43	54.34	68.20	-13.86	H	Peak
5250.00	38.91	16.43	55.34	68.20	-12.86	V	Peak
5250.00	27.96	16.43	44.39	54.00	-9.61	H	AVG
5250.00	29.46	16.43	45.89	54.00	-8.11	V	AVG

Remark: 1. Result=Reading + Factor



TM3 / L (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	36.68	15.99	52.67	68.20	-15.53	H	Peak
5150.00	38.52	15.99	54.51	68.20	-13.69	V	Peak
5150.00	27.27	15.99	43.26	54.00	-10.74	H	AVG
5150.00	28.83	15.99	44.82	54.00	-9.18	V	AVG
TM3 / H (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5250.00	38.22	16.43	54.65	68.20	-13.55	H	Peak
5250.00	37.03	16.43	53.46	68.20	-14.74	V	Peak
5250.00	28.52	16.43	44.95	54.00	-9.05	H	AVG
5250.00	29.76	16.43	46.19	54.00	-7.81	V	AVG

Remark: 1. Result=Reading + Factor

TM4 / L (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	37.16	15.99	53.15	68.20	-15.05	H	Peak
5150.00	38.95	15.99	54.94	68.20	-13.26	V	Peak
5150.00	26.68	15.99	42.67	54.00	-11.33	H	AVG
5150.00	28.95	15.99	44.94	54.00	-9.06	V	AVG
TM4 / H (MIMO)							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5250.00	38.00	16.43	54.43	68.20	-13.77	H	Peak
5250.00	38.23	16.43	54.66	68.20	-13.54	V	Peak
5250.00	27.95	16.43	44.38	54.00	-9.62	H	AVG
5250.00	28.58	16.43	45.01	54.00	-8.99	V	AVG

Remark: 1. Result=Reading + Factor



## 8. Undesirable emission limits (below 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(9)		
Test Limit:	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.		
	Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:		
	Frequency (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	
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6		
Procedure:	Below 1GHz:		
	a. For below 1GHz, 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.		
	b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.		
	c. 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.		
	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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.		
	f. 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 quasi-peak method as specified and then reported in a data sheet.		
	g. Test the EUT in the lowest channel, the middle channel, the Highest channel.		
	h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.		
	i. Repeat above procedures until all frequencies measured was complete.		
Remark:			
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor			
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low.			
The points marked on above plots are the highest emissions could be found			



when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

Above 1GHz:

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. 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 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.

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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 or average method as specified and then reported in a data sheet.

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

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

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

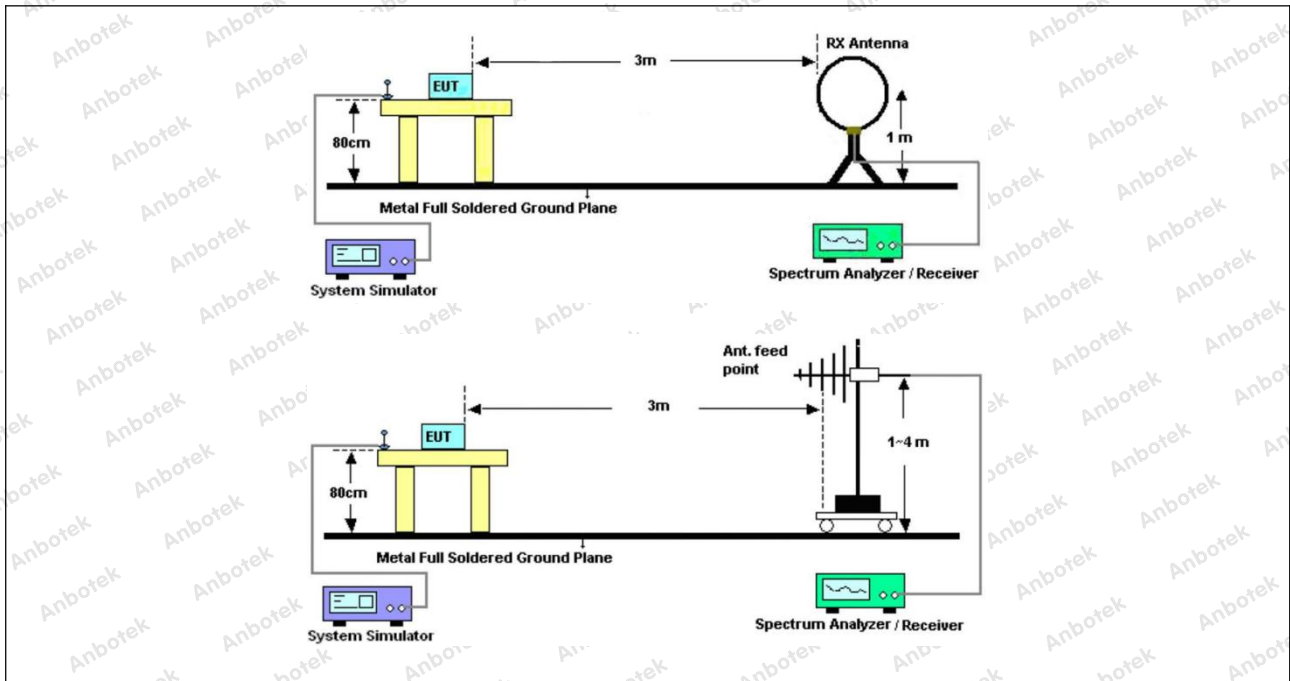


## 8.1. EUT Operation

### Operating Environment:

<p>Test mode:</p>	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>
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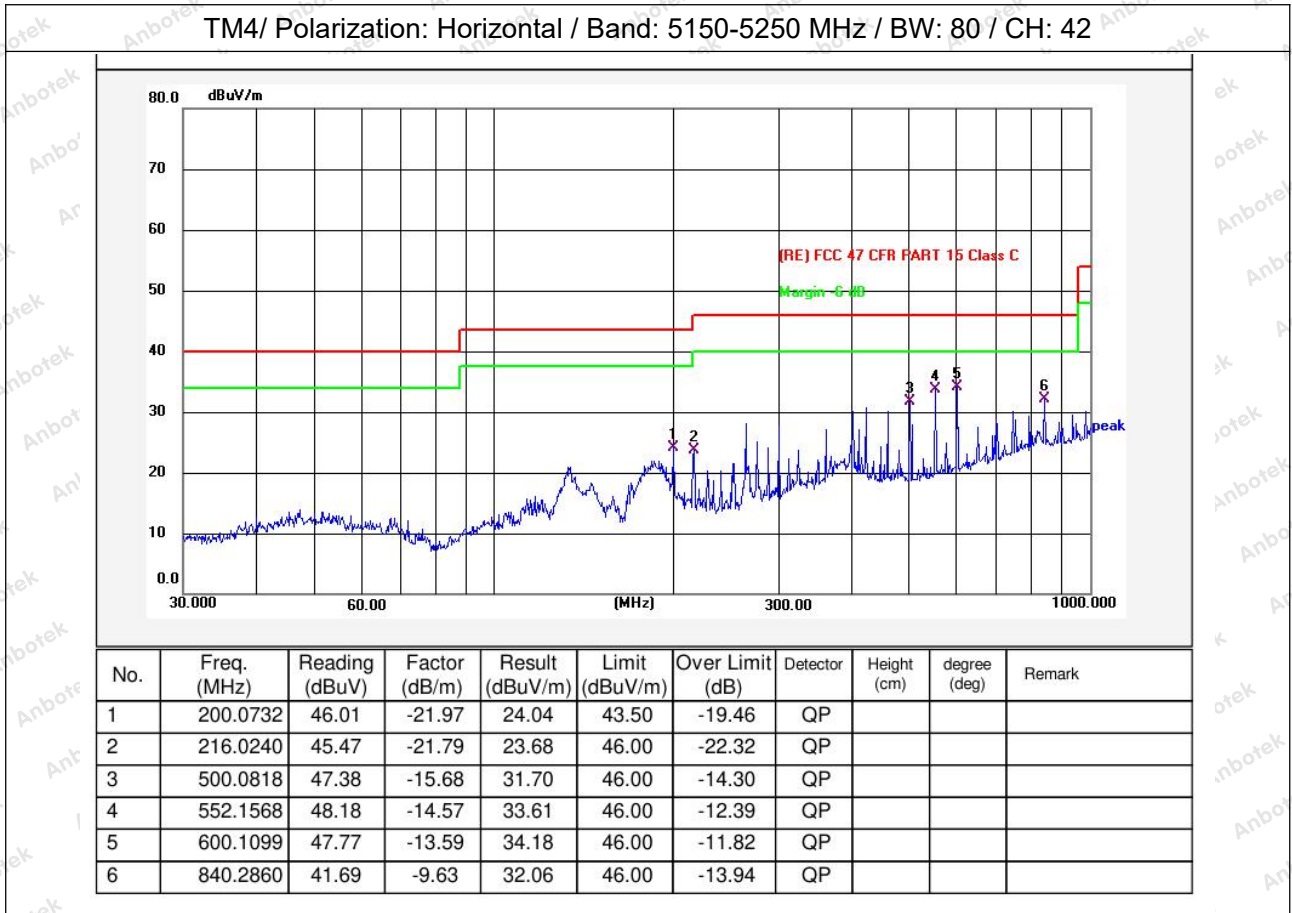
## 8.2. Test Setup



### 8.3. Test Data

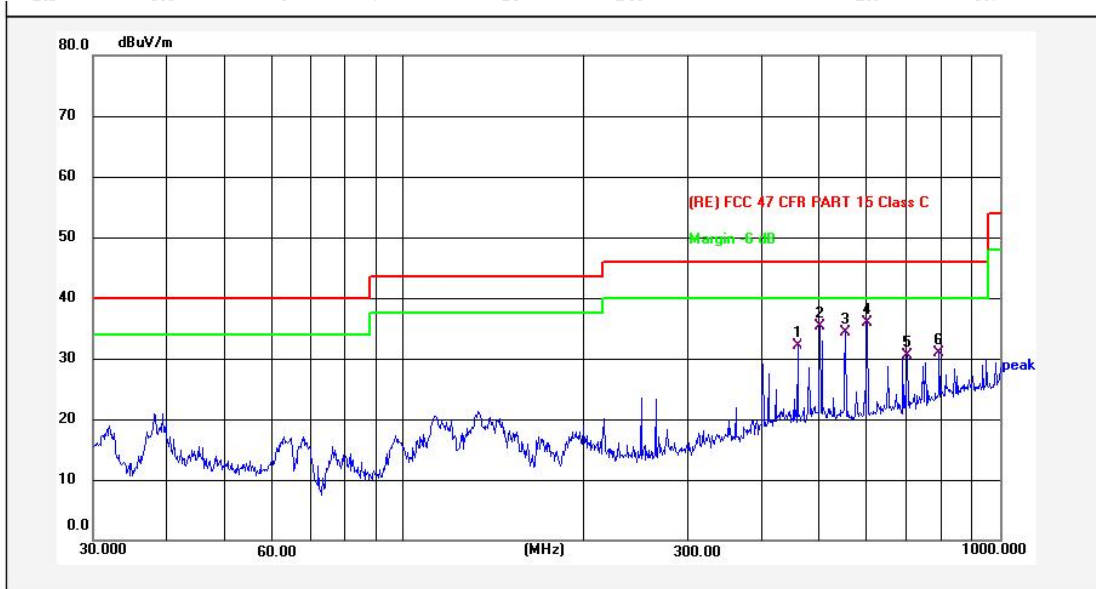
The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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TM4 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 80 / CH: 42



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	456.1057	48.22	-16.19	32.03	46.00	-13.97	QP			
2	500.0818	51.08	-15.68	35.40	46.00	-10.60	QP			
3	552.1568	48.92	-14.57	34.35	46.00	-11.65	QP			
4	600.1099	49.56	-13.59	35.97	46.00	-10.03	QP			
5	700.2247	42.72	-12.24	30.48	46.00	-15.52	QP			
6	792.0062	41.24	-10.31	30.93	46.00	-15.07	QP			

Note: Only record the worst data (802.11ax(HE80) MIMO) in the report.





## 9. Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10)		
Test Limit:	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.		
	MHz	MHz	MHz
	0.090-0.110	16.42-16.423	399.9-410
	<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614
	2.1735-2.1905	16.80425-16.80475	960-1240
	4.125-4.128	25.5-25.67	1300-1427
	4.17725-4.17775	37.5-38.25	1435-1626.5
	4.20725-4.20775	73-74.6	1645.5-1646.5
	6.215-6.218	74.8-75.2	1660-1710
	6.26775-6.26825	108-121.94	1718.8-1722.2
	6.31175-6.31225	123-138	2200-2300
	8.291-8.294	149.9-150.05	2310-2390
	8.362-8.366	156.52475-156.52525	2483.5-2500
	8.37625-8.38675	156.7-156.9	2690-2900
	8.41425-8.41475	162.0125-167.17	3260-3267
	12.29-12.293	167.72-173.2	3332-3339
	12.51975-12.52025	240-285	3345.8-3358
12.57675-12.57725	322-335.4	3600-4400	
13.36-13.41		( <sup>2</sup> )	
	<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.		
	<sup>2</sup> Above 38.6		
	The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.		
	Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:		
	Frequency (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
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6		
Procedure:	<p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>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.</p> <p>c. 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.</p> <p>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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. 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 or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <ol style="list-style-type: none"> <li>Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</li> <li>Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</li> <li>As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</li> <li>The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</li> </ol>		

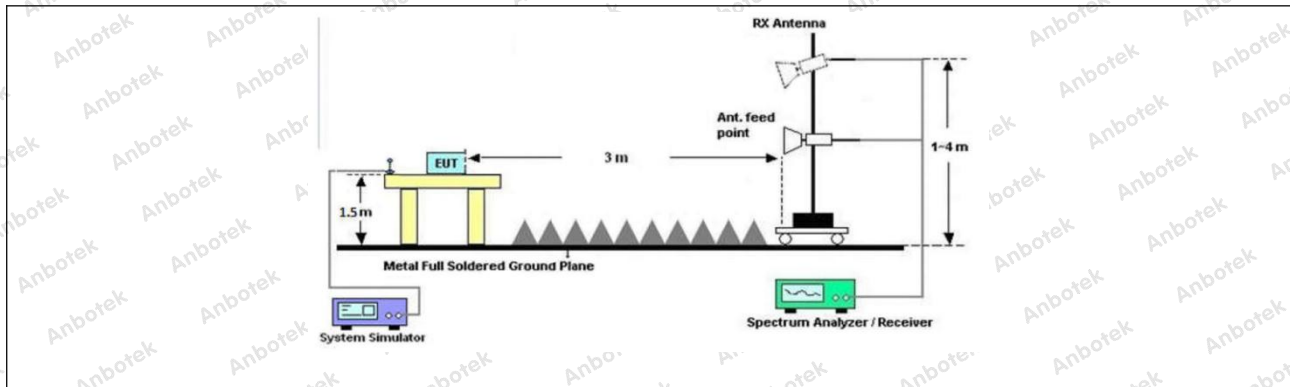


## 9.1. EUT Operation

### Operating Environment:

Test mode:	<p>1: 802.11a mode: Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.</p> <p>2: 802.11n mode: Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>3: 802.11ac mode: Keep the EUT in continuously transmitting mode with 802.11ac modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p> <p>4: 802.11ax mode: Keep the EUT in continuously transmitting mode with 802.11ax modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.</p>
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## 9.2. Test Setup



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**9.3. Test Data**

Temperature:	26.3 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa
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TM4 / CH: 42							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10420.00	30.06	23.81	53.87	68.20	-14.33	V	Peak
15630.00	30.76	29.36	60.12	68.20	-8.08	V	Peak
10420.00	31.00	23.81	54.81	68.20	-13.39	H	Peak
15630.00	32.25	29.36	61.61	68.20	-6.59	H	Peak
10420.00	20.56	23.81	44.37	54.00	-9.63	V	AVG
15630.00	21.50	29.36	50.86	54.00	-3.14	V	AVG
10420.00	20.68	23.81	44.49	54.00	-9.51	H	AVG
15630.00	21.67	29.36	51.03	54.00	-2.97	H	AVG

**Remark:**

1. Result = Reading + Factor
2. During the test, pre-scan the all modulation, only the worst case(802.11ax(HE80) MIMO) is recorded in the report.

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**APPENDIX I -- TEST SETUP PHOTOGRAPH**

Please refer to separated files Appendix I -- Test Setup Photograph\_RF

**APPENDIX II -- EXTERNAL PHOTOGRAPH**

Please refer to separated files Appendix II -- External Photograph

**APPENDIX III -- INTERNAL PHOTOGRAPH**

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

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