



## FCC PART 15.407

### TEST REPORT

For

### Neuracle Technology (Changzhou) Co., Ltd.

6-B602 R&D HUB Changzhou Science and Education Town No.18 Changwu RD, Wujin District,  
Changzhou City, Jiangsu Province, China

**FCC ID: 2BGXN-NRW03**

<b>Report Type:</b> Original Report	<b>Product Name:</b> Mindful Hub
<b>Report Number:</b> <u>RSHA240717001-00B</u>	
<b>Report Date:</b> <u>2025-04-02</u>	
<b>Reviewed By:</b> <u>Bard Liu</u>	
<b>Approved By:</b> <u>Kyle Xu</u>	
<b>Test Laboratory:</b> Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-512-86175000 Fax: +86-512-88934268 <a href="http://www.baclcorp.com.cn">www.baclcorp.com.cn</a>	

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S.Government.

## **TABLE OF CONTENTS**

<b>REPORT REVISION HISTORY.....</b>	<b>3</b>
<b>GENERAL INFORMATION.....</b>	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	4
OBJECTIVE .....	4
TEST METHODOLOGY .....	4
OBJECTIVE .....	5
TEST METHODOLOGY .....	5
MEASUREMENT UNCERTAINTY.....	5
TEST FACILITY .....	5
<b>SYSTEM TEST CONFIGURATION .....</b>	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EUT EXERCISE SOFTWARE .....	8
EQUIPMENT MODIFICATIONS .....	13
SUPPORT EQUIPMENT LIST AND DETAILS .....	13
EXTERNAL I/O CABLE.....	13
BLOCK DIAGRAM OF TEST SETUP .....	14
<b>TEST EQUIPMENT LIST .....</b>	<b>15</b>
<b>SUMMARY OF TEST RESULTS .....</b>	<b>16</b>
<b>FCC §15.203 – ANTENNA REQUIREMENT .....</b>	<b>17</b>
APPLICABLE STANDARD .....	17
ANTENNA CONNECTOR CONSTRUCTION .....	17
<b>§15.205 &amp; §15.209 &amp; §15.407(B) – UNDESIRABLE EMISSION &amp; RESTRICTED BANDS .....</b>	<b>18</b>
APPLICABLE STANDARD .....	18
TEST SYSTEM SETUP.....	18
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP .....	21
TEST PROCEDURE .....	21
<b>FCC §15.407(a) &amp; §15.407(e) – EMISSION BANDWIDTH .....</b>	<b>22</b>
APPLICABLE STANDARD .....	22
TEST PROCEDURE .....	22
<b>FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER.....</b>	<b>24</b>
APPLICABLE STANDARD .....	24
TEST PROCEDURE .....	24
<b>FCC §15.407(a) - POWER SPECTRAL DENSITY .....</b>	<b>25</b>
APPLICABLE STANDARD .....	25
TEST PROCEDURE .....	25
<b>EUT PHOTOGRAPHS .....</b>	<b>26</b>
<b>TEST SETUP PHOTOGRAPHS .....</b>	<b>27</b>
<b>APPENDIX - TEST DATA .....</b>	<b>28</b>
ENVIRONMENTAL CONDITIONS & TEST INFORMATION .....	28
TRANSMITTER UNWANTED EMISSIONS & RESTRICTED FREQUENCY BANDS .....	29
EMISSION BANDWIDTH.....	92
CONDUCTED TRANSMITTER OUTPUT POWER.....	107
POWER SPECTRAL DENSITY .....	109

**REPORT REVISION HISTORY**

Number of Revisions	Report No.	Version	Issue Date	Description
0	RSHA240717001-00B	R1V1	2025-04-02	Initial Release

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Applicant:	Neuracle Technology (Changzhou) Co., Ltd.				
Product Name:	Mindful Hub				
Tested Model:	MHub1				
HVIN:	NRW4001, NRW4002, NRW4003, NRW4004				
Model Difference:	EEG cap, A/D Connector, Auxiliary sensor				
Power Supply:	DC 3.7V from battery				
RF Function:	5G Wi-Fi				
Operating Frequency:	5G Wi-Fi B1: 5150-5250 MHz, B2: 5250-5350 MHz, B3: 5470-5725 MHz, B4: 5725-5850 MHz				
Maximum Average Output Power:	Mode:	5G Wi-Fi B1:	5G Wi-Fi B2:	5G Wi-Fi B3:	5G Wi-Fi B4:
	802.11a:	11.05 dBm	11.21 dBm	8.62 dBm	10.32 dBm
	802.11n-HT20:	10.9 dBm	11.1 dBm	8.87 dBm	10.35 dBm
	802.11n-HT40:	8.53 dBm	10.9 dBm	8.13 dBm	10.13 dBm
Channel Number:	5G Wi-Fi B1: 6; B2: 6; B3: 16; B4: 7				
Channel Separation:	5G Wi-Fi: a/n20: 20 MHz, n40: 40 MHz				
Modulation Type:	OFDM				
Antenna Type:	Ceramic Antenna				
★Maximum Antenna Gain:	2.2dBi				

*Note: The maximum antenna gain was provided by the applicant.*

*All measurement and test data in this report was gathered from production sample serial number: RSHA240717001-1/2/3/4 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-07-17.)*

### Objective

This type approval report is prepared for *Neuracle Technology (Changzhou) Co., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions' rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.209 and 15.407 rules.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

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## Test Methodology

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## Measurement Uncertainty

Item	Uncertainty	
AC Power Lines Conducted Emissions	3.19 dB	
RF conducted test with spectrum	0.9dB	
RF Output Power with Power meter	0.5dB	
Radiated emission	9 kHz~150 kHz	3.8dB
	150 kHz~30 MHz	3.4dB
	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth	0.5kHz	
Temperature	1.0 °C	
Humidity	6%	

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu Province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN5055.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

For **5150~5250 MHz** band, test channel list is as below,

802.11a/n20 mode Channel 36, 40, 48 were tested.  
802.11n40 mode Channel 38, 46 were tested.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
/	/	/	/

For **5250~5350 MHz** band, test channel list is as below,

802.11a/n20 mode Channel 52, 56, 64 were tested.  
802.11n40 mode Channel 54, 62 were tested.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320
/	/	/	/

For **5470~5725 MHz** band, test channel list is as below,

802.11a/n20 mode Channel 100, 116, 140 were tested.  
802.11n40 mode Channel 102, 110, 134, were tested.

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
102	5510	118	5590	134	5670
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
110	5550	126	5630	/	/
112	5560	128	5640	/	/

For **5725~5850 MHz** band,

802.11a/n20 mode Channel 149, 157, 165 were tested.  
802.11n40 mode Channel 151, 159 were tested.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
151	5755	165	5825
153	5765	/	/
157	5785	/	/
159	5795	/	/

**EUT Exercise Software**

RF test tool: Murate-mfg-test-tools V1.0.2

The worst case was performed under:

U-NII	Mode	Data rate	★Power Level		
			Low Channel	Middle Channel	High Channel
5150~5250MHz	802.11a	6Mbps	15	15	15
	802.11n-HT20	MCS0	12	15	15
	802.11n-HT40	MCS0	12	/	12

U-NII	Mode	Data rate	★Power Level		
			Low Channel	Middle Channel	High Channel
5250~5350MHz	802.11a	6Mbps	15	15	15
	802.11n-HT20	MCS0	15	15	14
	802.11n-HT40	MCS0	15	/	10

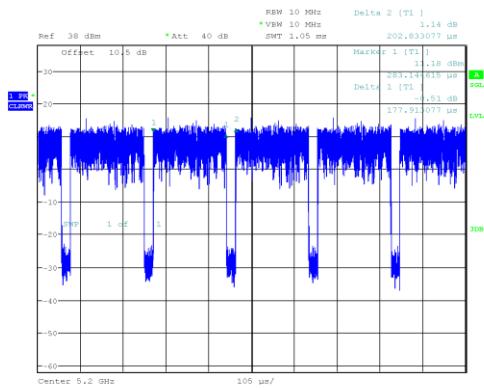
U-NII	Mode	Data rate	★Power Level		
			Low Channel	Middle Channel	High Channel
5470~5725MHz	802.11a	6Mbps	15	15	15
	802.11n-HT20	MCS0	15	15	15
	802.11n-HT40	MCS0	11	15	15

U-NII	Mode	Data rate	★Power Level		
			Low Channel	Middle Channel	High Channel
5725~5850MHz	802.11a	6Mbps	15	15	15
	802.11n-HT20	MCS0	15	15	15
	802.11n-HT40	MCS0	15	/	15

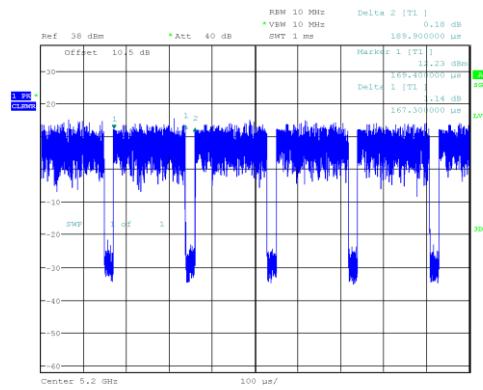
Note: The power level was declared by the applicant.

**Duty Cycle**  
**5150MHz-5250MHz Band:**

**802.11a mode**



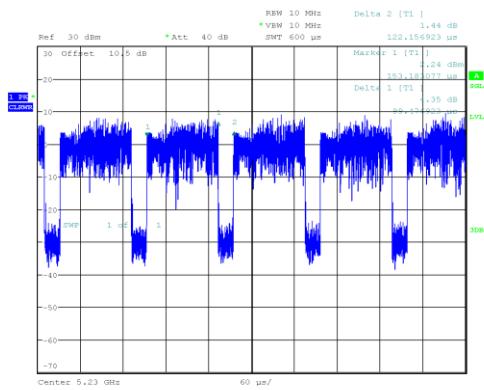
**802.11n-HT20 mode**



ProjectNo.:RSHA240717001 Tester:Neil Zhou  
 Date: 31.AUG.2024 10:12:019

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 Date: 31.AUG.2024 10:45:51

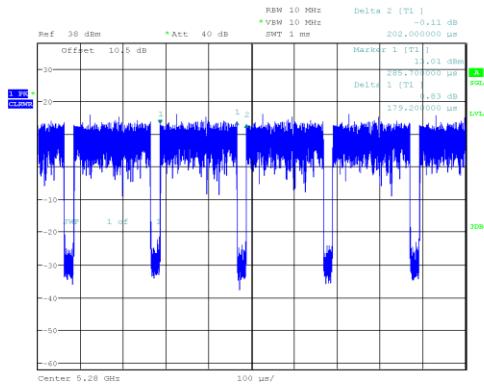
**802.11n-HT40 mode**



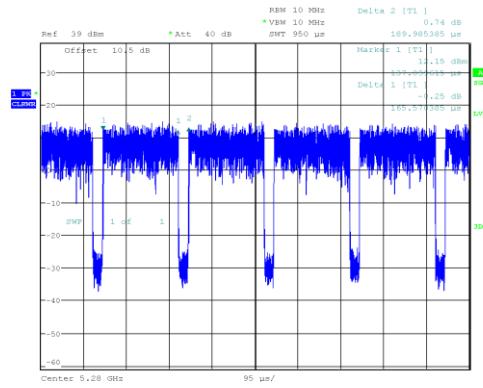
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**5250MHz-5350MHz Band:**

**802.11a mode**

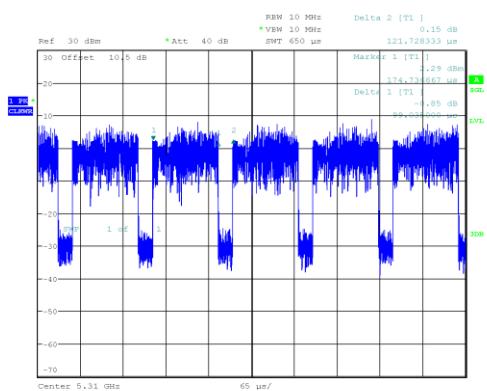


**802.11n-HT20 mode**

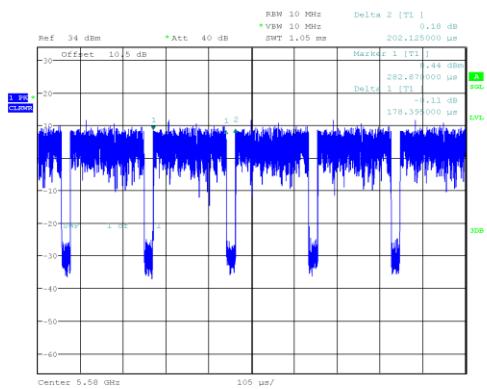


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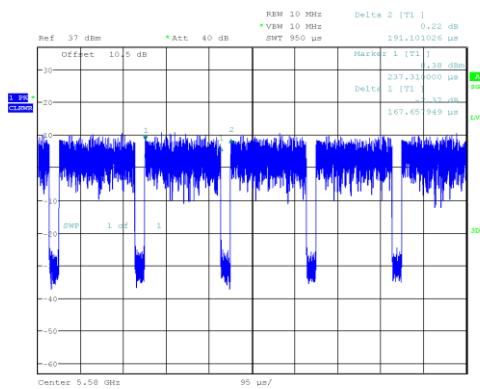
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**802.11n-HT40 mode**

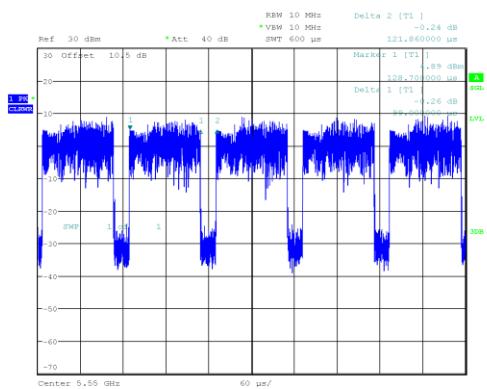
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**5470MHz-5725MHz Band:  
802.11a mode**

ProjectNo.:RSHA240717001 Tester:Neil Zhou  
Date: 31.AUG.2024 14:24:32

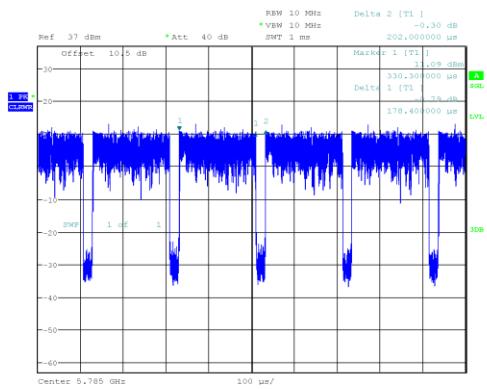
**802.11n-HT20 mode**

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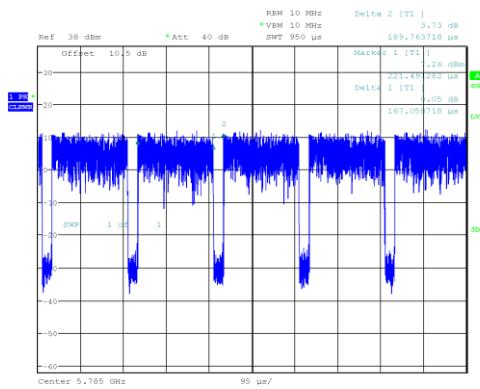
**802.11n-HT40 mode**

ProjectNo.:RSHA240717001 Tester:Neil Zhou  
Date: 31.AUG.2024 15:17:50

**5725MHz-5850MHz Band:  
802.11a mode**



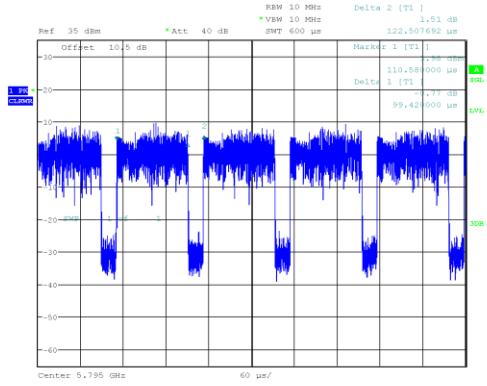
**802.11n-HT20 mode**



ProjectNo.:RSHA240717001 Tester:Neil Zhou  
Date: 31.AUG.2024 15:45:34

ProjectNo.:RSHA240717001 Tester:Neil Zhou  
Date: 31.AUG.2024 16:01:02

**802.11n-HT40 mode**



ProjectNo.:RSHA240717001 Tester:Neil Zhou  
Date: 31.AUG.2024 16:18:04

Note: Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

**5.2G**

Mode	Ton (ms)	Ton+Töff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)
a_5200MHz	0.178	0.203	87.68	0.57	5618
n20_5200MHz	0.167	0.190	87.89	0.56	5988
n40_5230MHz	0.099	0.122	81.15	0.91	10101

**5.3G**

Mode	Ton (ms)	Ton+Töff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)
a_5280MHz	0.179	0.202	88.61	0.52	5587
n20_5280MHz	0.166	0.190	87.37	0.59	6024
n40_5310MHz	0.099	0.122	81.15	0.91	10101

**5.6G**

Mode	Ton (ms)	Ton+Töff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)
a_5580MHz	0.178	0.202	88.12	0.55	5618
n20_5580MHz	0.168	0.191	87.96	0.56	5952
n40_5550MHz	0.099	0.122	81.15	0.91	10101

**5.8G**

Mode	Ton (ms)	Ton+Töff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)
a_5785MHz	0.178	0.202	88.12	0.55	5618
n20_5785MHz	0.167	0.190	87.89	0.56	5988
n40_5795MHz	0.099	0.123	80.49	0.94	10101

## Equipment Modifications

No modification was made to the EUT.

## Support Equipment List and Details

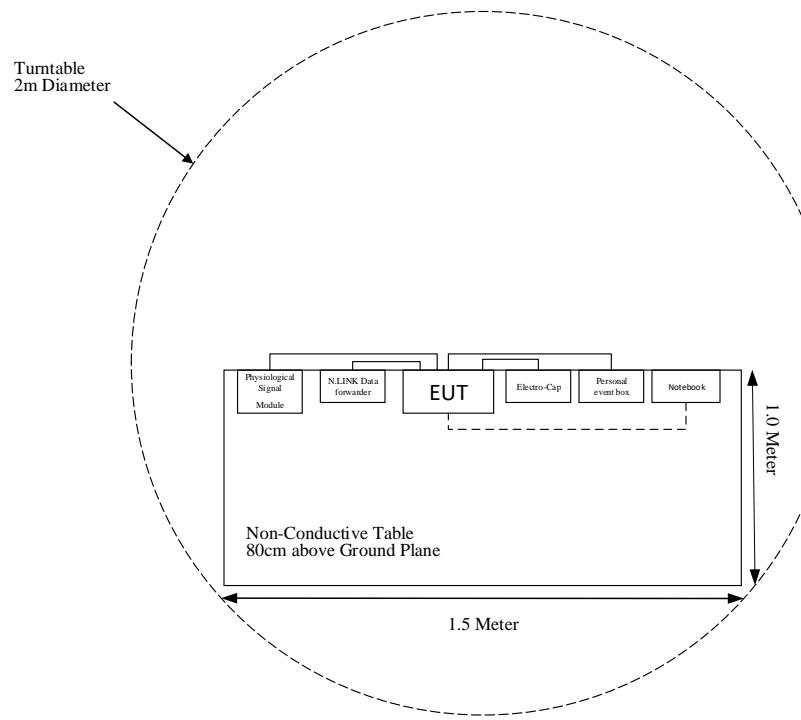
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	Y700P	PF2B7PL5
Neuracle Technology (Changzhou) Co., Ltd.	Physiological Signal Module	/	/
Neuracle Technology (Changzhou) Co., Ltd.	NLINK Data forwarder	/	/
Neuracle Technology (Changzhou) Co., Ltd.	Electro-Cap	/	/
Neuracle Technology (Changzhou) Co., Ltd.	Personal event box	/	/

## External I/O Cable

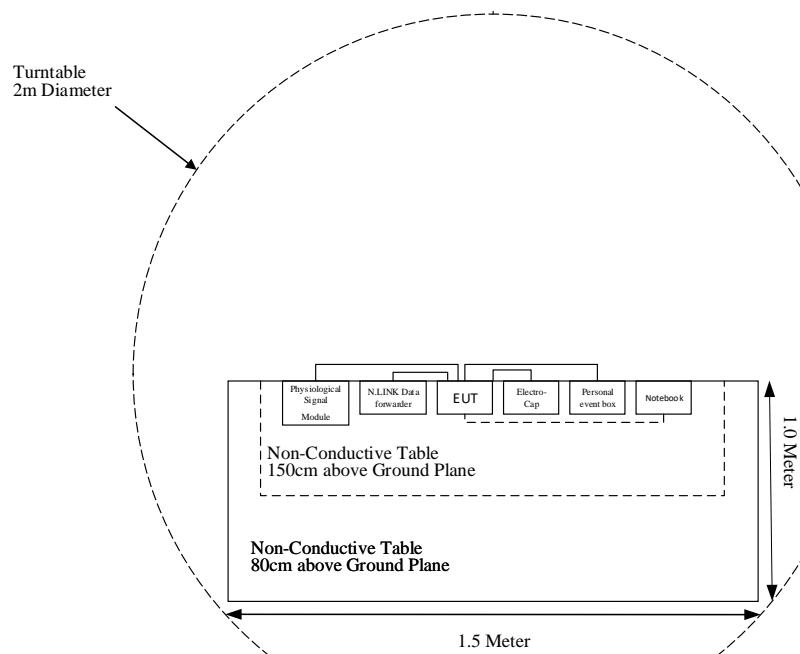
Cable Description	Length (m)	From Port	To Port
Data Cable 1	1.0	EUT	Physiological Signal Module
Data Cable 2	1.0	EUT	NLINK Data forwarder
Data Cable 3	1.0	EUT	Electro-Cap
Data Cable 4	1.0	EUT	Personal event box

## Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1 GHz):



## TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test (Chamber #1)</b>					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2024-04-23	2025-04-22
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2023-11-11	2024-11-10
ETS-LINDGREN	Loop Antenna	6512	108100	2023-11-09	2024-11-08
Sonoma Instrument	Amplifier	310N	171205	2024-04-23	2025-04-22
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-9	009	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2024-04-23	2025-04-22
Narda	6dB Attenuator	773-6	10690812-2-1	2023-11-11	2024-11-10
<b>Radiated Emission Test (Chamber #2)</b>					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2023-12-02	2024-12-01
ETS-LINDGREN	Horn Antenna	3116	84159	2023-12-07	2024-12-06
A.H.Systems,inc	Amplifier	PAM-0118P	512	2024-04-25	2025-04-24
EM Electronics Corporation	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50716	G059	2024-05-23	2025-05-22
Narda	Attenuator	10dB	010	2024-04-23	2025-04-22
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-25	2025-04-24
<b>RF Conducted Test</b>					
Rohde & Schwarz	Signal Analyzer	FSV40-N	103298	2024-04-24	2025-04-23
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Anritsu	Power Sensor	MA24418A	12621	2024-04-23	2025-04-22
N/A	Attenuator	10 dB	N/A	2024-04-23	2025-04-22
XHFHZ	RG316 Coaxial Cable	SMA-316	XHF-1175	Each time	N/A

**Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207 & §15.407(b) (9)	AC Power Line Conducted Emissions	Not Applicable (See Note)
§ 15.205 & §15.209 & §15.407(b)	Undesirable Emission & Restricted Bands	Compliant
§§15.407(a) & §15.407(e)	Emission Bandwidth	Compliant
§15.407(a)	Conducted Transmitter Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant

Note: The EUT is powered by battery.

## FCC §15.203 – ANTENNA REQUIREMENT

### Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407, if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Antenna Connector Construction

The EUT has a ceramic antenna which was permanently attached, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Frequency Range	Max. Antenna Gain	Input impedance
Ceramic Antenna	5150~5250 MHz	2.2dBi	50Ω
	5250~5350 MHz		50Ω
	5470~5725 MHz		50Ω
	5725~5850 MHz		50Ω

**Result:** Compliant.

## §15.205 & §15.209 & §15.407(B) – UNDESIRABLE EMISSION & RESTRICTED BANDS

### Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

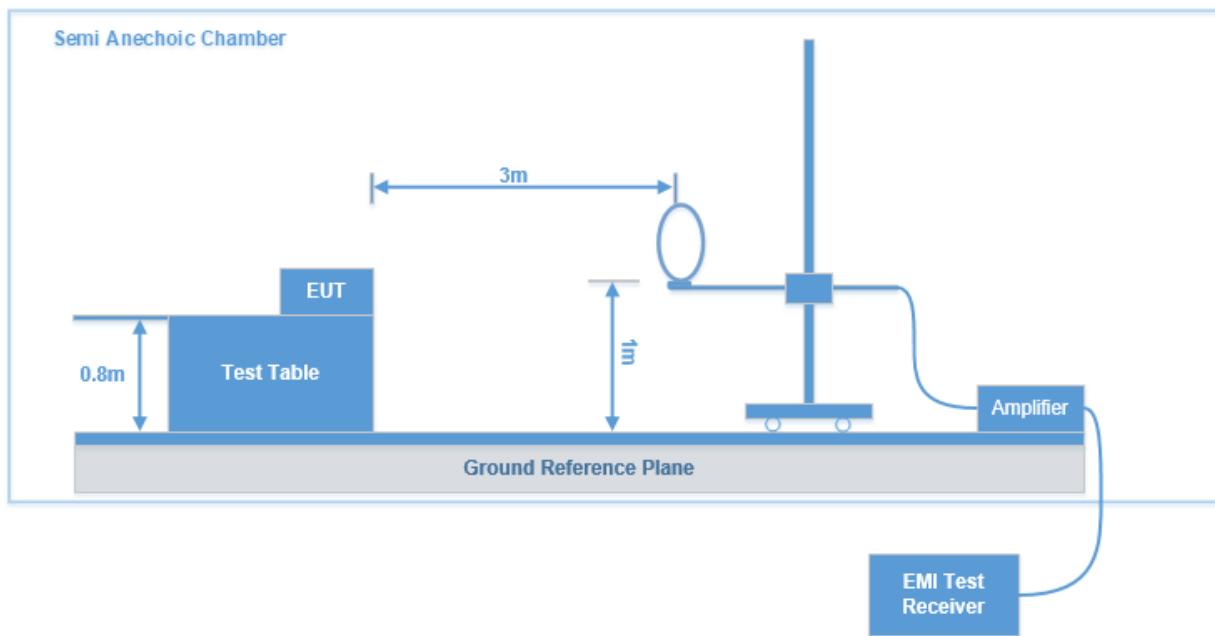
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) 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.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
  - (i) 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.

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000MHz shall be performed using a minimum resolution bandwidth of 1MHz.

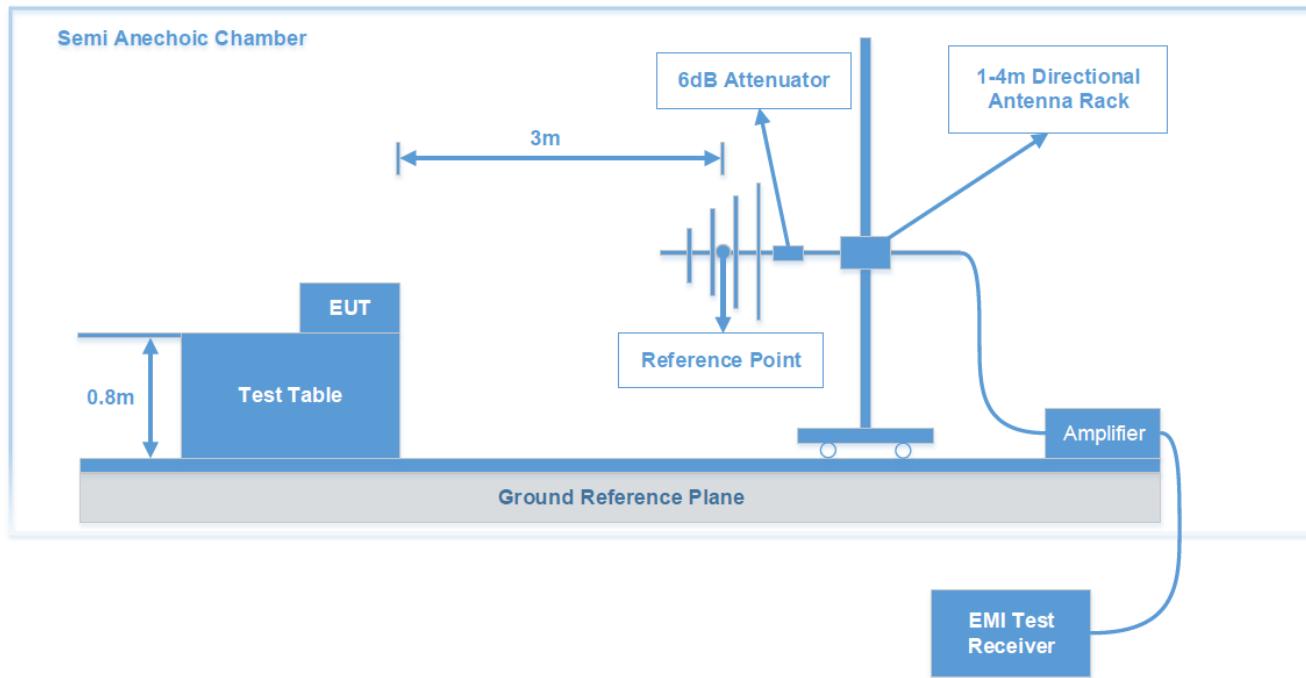
According to C63.10, emission shall be computed as:  $E [\text{dB}\mu\text{V}/\text{m}] = \text{EIRP} [\text{dBm}] + 95.2$ , for  $d = 3$  meters.

### Test System Setup

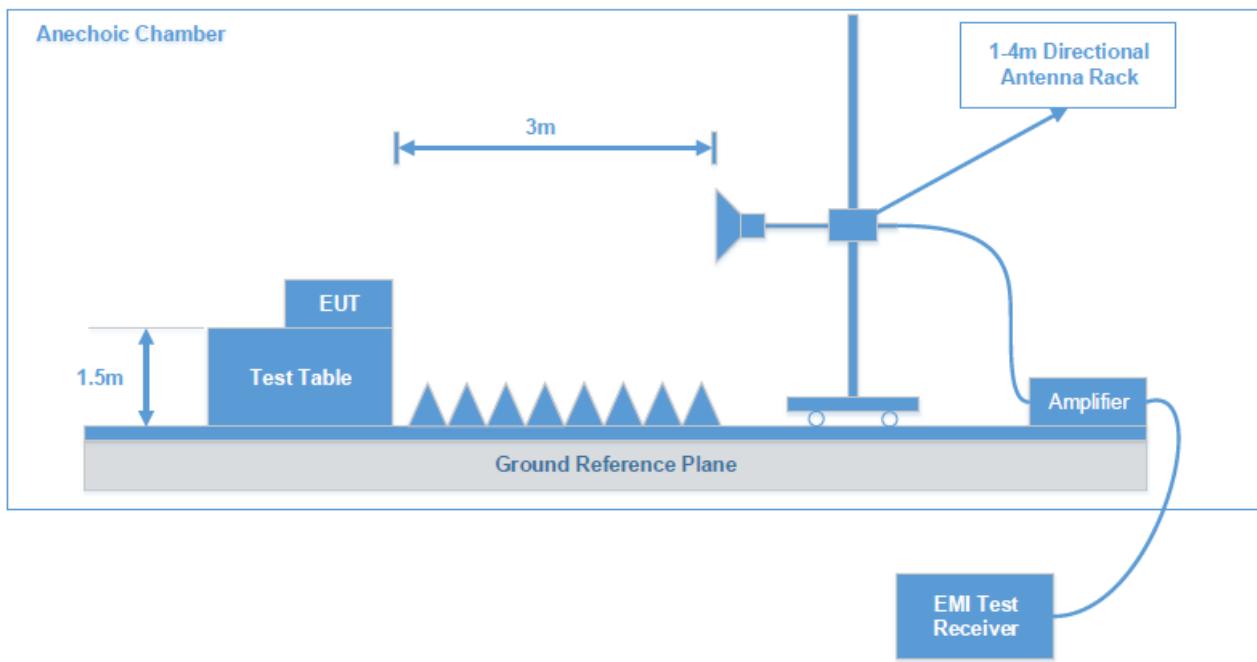
9 kHz–30 MHz:



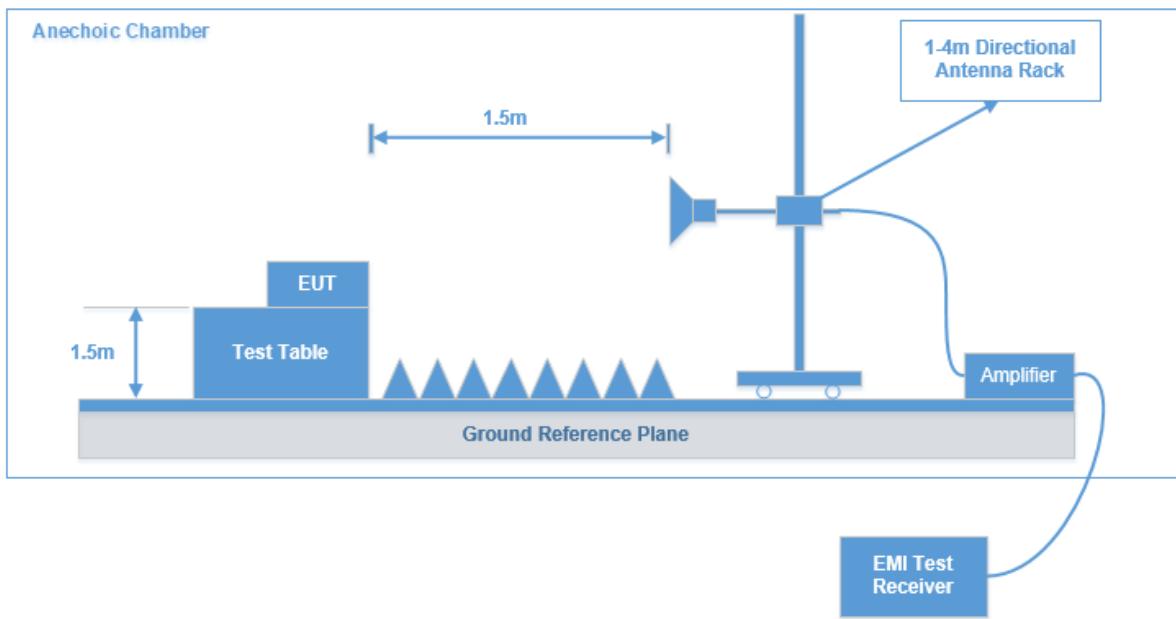
30MHz-1GHz:



1 GHz-18GHz:



18-40GHz:



The radiated emission tests were performed in the 3 meters test site for below 18GHz and 1.5m for 18-40 GHz, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.407 limits. The limit at 1.5m for 18-40 GHz is 80dB $\mu$ V/m (Peak) and 60dB $\mu$ V/m (Average)

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

## EMI Test Receiver & Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	VBW	IF B/W	Measurement
9 kHz - 150 kHz	200 Hz	1 kHz	200 Hz	QP/Average
150 kHz - 30 MHz	9 kHz	30 kHz	9 kHz	QP/ Average
30 MHz - 1000 MHz	100 kHz	300 kHz	/	Peak
	/	/	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	/	Average

For 9 kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

## Test Procedure

During the radiated emission test, the adapter was connected to AC floor outlet. Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude (dB}\mu\text{V/m)} = \text{Meter Reading (dB}\mu\text{V)} + \text{Corrected factor (dB/m)}$$

$$\text{Corrected factor (dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Corrected Amplitude (dB}\mu\text{V/m)}$$

## Test Data: See Appendix

## FCC §15.407(a) & §15.407(e)–EMISSION BANDWIDTH

### Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

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

### Test Procedure

#### 1. Emission Bandwidth (EBW)

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

#### 2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

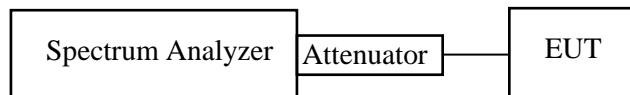
- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two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

#### 3. Occupied bandwidth

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- 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.
- 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.
- 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  $[10 \log (OBW/RBW)]$  below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.

- 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.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- 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 total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- 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).



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss(0.5dB)

**Test Data: See Appendix**

## FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER

### Applicable Standard

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.

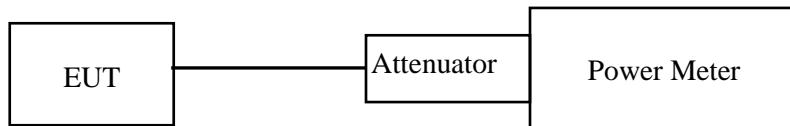
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### Test Procedure

According to C63.10:2013 clause 12.3.3.1 Measurement using an RF average power meter.

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss(0.5dB)

### Test Data: See Appendix

## FCC §15.407(a) - POWER SPECTRAL DENSITY

### Applicable Standard

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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### Test Procedure

The measurements are based on C63.10:2013 Clause 12.5: method SA-2 used

### Test Data: See Appendix

## **EUT PHOTOGRAPHS**

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Please refer to the attachment EXHIBIT A - EUT EXTERNAL PHOTOGRAPHS and EXHIBIT B - EUT INTERNAL PHOTOGRAPHS.

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## TEST SETUP PHOTOGRAPHS

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Please refer to the attachment EXHIBIT C - TEST SETUP PHOTOGRAPHS.

## APPENDIX - TEST DATA

### Environmental Conditions & Test Information

Test Item:	UNWANTED EMISSIONS & BAND EDGE EMISSIONS		
	9 kHz - 1GHz	1 GHz - 18 GHz	18 GHz - 40 GHz
<b>Test Date:</b>	2024-08-20	2024-07-29 to 2024-08-02	2024-08-02
<b>Temperature:</b>	26.2 °C	23.5 °C~24.1°C	24.1°C
<b>Relative Humidity:</b>	42 %	53 %~58 %	58 %
<b>ATM Pressure:</b>	100.5 kPa	100.4 kPa ~101.2kPa	100.4 kPa
<b>Test Result:</b>	Pass	Pass	Pass
<b>Test Engineer:</b>	Grace Luo	Klein Zhu	Hugh Wu

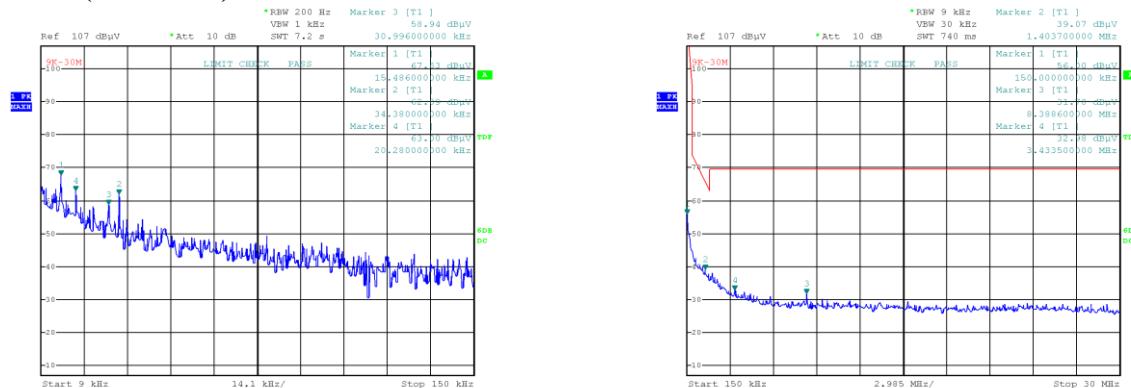
Test Item:	Emission Bandwidth	Conducted Transmitter Output Power	Power Spectral Density	Duty Cycle
<b>Test Date:</b>	2024-08-31 to 2024-10-14	2024-09-02	2024-08-31	2024-08-31
<b>Temperature:</b>	24.2-25.8 °C	22.3 °C	24.2°C	24.2°C
<b>Relative Humidity:</b>	48-51 %	48 %	48 %	48 %
<b>ATM Pressure:</b>	100.9-102.8kPa	101.9kPa	100.9 kPa	100.9 kPa
<b>Test Result:</b>	Pass	Pass	Pass	/
<b>Test Engineer:</b>	Neil Zhou	Neil Zhou	Neil Zhou	Neil Zhou

## Transmitter Unwanted Emissions & Restricted frequency bands

After pre-scan in the X, Y and Z axes of orientation, the worst case in the Y axes of orientation is below:

**9 kHz-30 MHz:** (Maximum output power 5250-5350 802.11a mode middle channel)

### Parallel (worst case)



Project No. RSHA240717001  
Date: 20.AUG.2024 21:06:01

Tester: Grace Luo

Project No. RSHA240717001  
Date: 20.AUG.2024 21:15:13

Tester: Grace Luo

### 9 kHz - 150 kHz

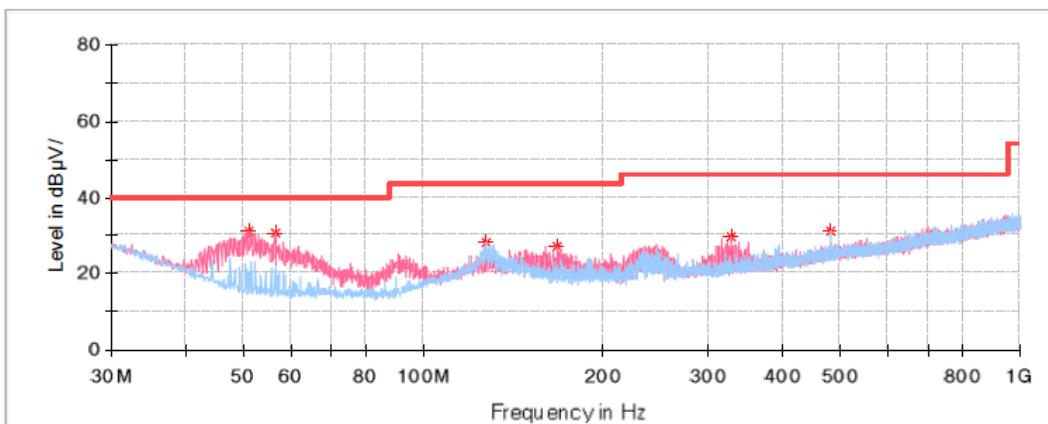
Frequency (KHz)	Corrected Amplitude (dB $\mu$ V/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dB $\mu$ V/m) @3m	Margin (dB)
15.486	67.53	PK	52.87	123.81	56.28
34.38	62.09	PK	46.06	116.77	54.68
30.996	58.94	PK	46.94	117.78	58.84
20.28	63	PK	49.92	121.46	58.46

### 150 kHz - 30 MHz

Frequency (MHz)	Corrected Amplitude (dB $\mu$ V/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dB $\mu$ V/m) @3m	Margin (dB)
0.15000	56	PK	50.90	104.08	48.08
1.40370	39.07	PK	6.65	64.66	25.59
8.38860	31.7	PK	6.24	69.54	37.84
3.43350	32.98	PK	14.02	69.54	36.56

**30MHz-1GHz Band: (Maximum output power 5250-5350 802.11a mode middle channel)****Common Information**

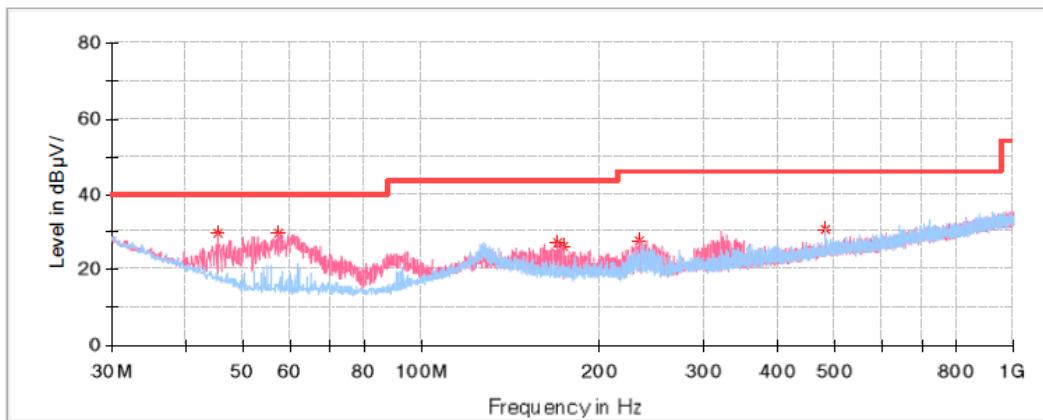
Project No: RSHA240717001  
 EUT Model: MHub1 (HVIN: NRW4001)  
 Test Mode: Transmitting in 802.11a mode  
 Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.407  
 Test Equipment: ESCI, JB3, 310N  
 Temperature: 26.2°C  
 Humidity: 42%  
 Barometric Pressure: 100.5kPa  
 Test Engineer: Grace Luo  
 Test Date: 2024/8/20

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
50.976250	31.44	40.00	8.56	V	-16.8
56.432500	30.59	40.00	9.41	V	-17.3
127.485000	28.07	43.50	15.43	H	-11.1
167.982500	27.24	43.50	16.26	V	-12.5
328.275000	29.87	46.00	16.13	V	-9.8
480.080000	31.32	46.00	14.68	H	-5.9

## Common Information

Project No: RSHA240717001  
EUT Model: MHub1 (HVIN: NRW4002)  
Test Mode: Transmitting in 802.11a mode  
Standard: FCC Part 15.205 & FCC Part 15.209&FCC Part 15.407  
Test Equipment: ESCI, JB3, 310N  
Temperature: 26.2°C  
Humidity: 42%  
Barometric Pressure: 100.5kPa  
Test Engineer: Grace Luo  
Test Date: 2024/8/20

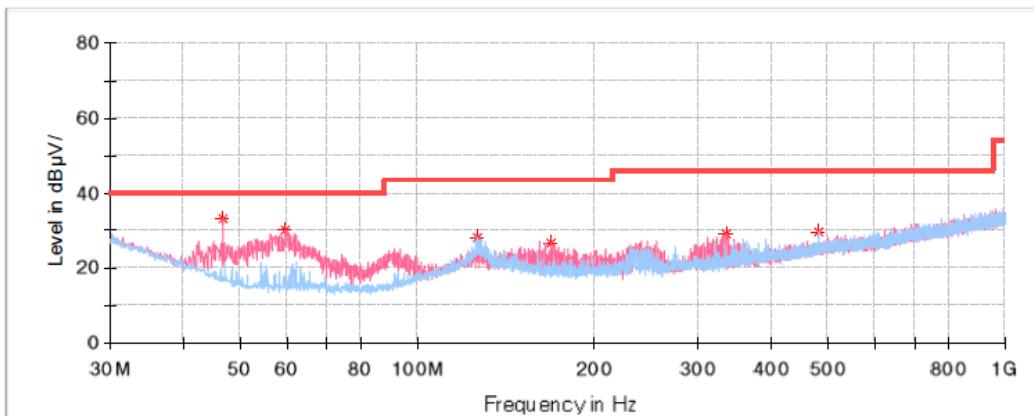


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
45.398750	29.59	40.00	10.41	V	-14.3
57.523750	29.49	40.00	10.51	V	-17.4
169.558750	27.41	43.50	16.09	V	-12.6
173.317500	26.21	43.50	17.29	V	-12.7
232.851250	27.78	46.00	18.22	V	-12.9
480.080000	30.70	46.00	15.30	H	-5.9

## Common Information

Project No: RSHA240717001  
EUT Model: MHub1 (HVIN: NRW4003)  
Test Mode: Transmitting in 802.11a mode  
Standard: FCC Part 15.205 &FCC Part 15.209&FCC Part 15.407  
Test Equipment: ESCI, JB3, 310N  
Temperature: 26.2°C  
Humidity: 42%  
Barometric Pressure: 100.5kPa  
Test Engineer: Grace Luo  
Test Date: 2024/8/20

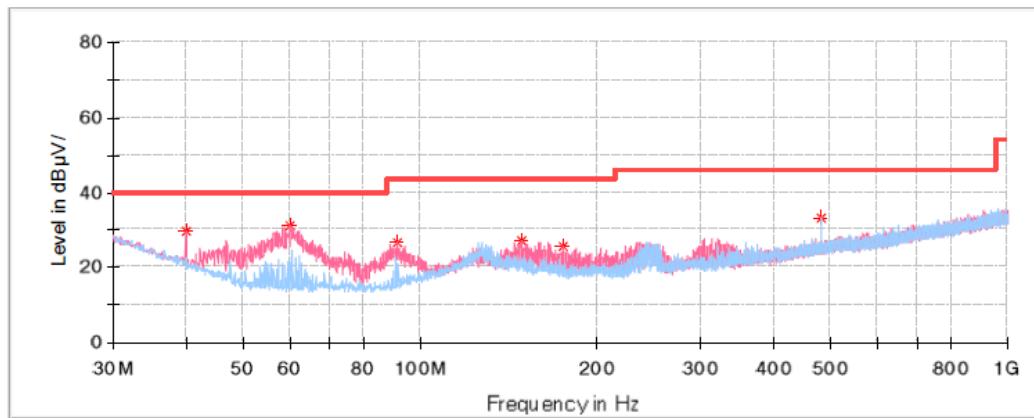


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
46.732500	33.27	40.00	6.73	V	-15.0
59.706250	30.13	40.00	9.87	V	-17.5
126.151250	28.15	43.50	15.35	H	-11.0
168.831250	26.87	43.50	16.63	V	-12.5
336.156250	29.22	46.00	16.78	V	-9.6
480.080000	29.74	46.00	16.26	H	-5.9

## Common Information

Project No: RSHA240717001  
EUT Model: MHub1 (HVIN: NRW4004)  
Test Mode: Transmitting in 802.11a mode  
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.407  
Test Equipment: ESCI, JB3, 310N  
Temperature: 26.2°C  
Humidity: 42%  
Barometric Pressure: 100.5kPa  
Test Engineer: Grace Luo  
Test Date: 2024/8/20



## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
39.942500	29.68	40.00	10.32	V	-11.4
60.191250	31.38	40.00	8.62	V	-17.6
91.595000	26.50	43.50	17.00	V	-16.5
148.340000	27.27	43.50	16.23	V	-11.7
175.378750	25.57	43.50	17.93	V	-12.8
480.080000	33.14	46.00	12.86	H	-5.9

For above 1GHz only tested with HVIN:NRW4004

1GHz - 18GHz (5150-5250 MHz):

802.11a Mode:

Low Channel: 5180MHz

### Common Information

Project No.:

RSHA240717001

Test Mode:

5G WIFI

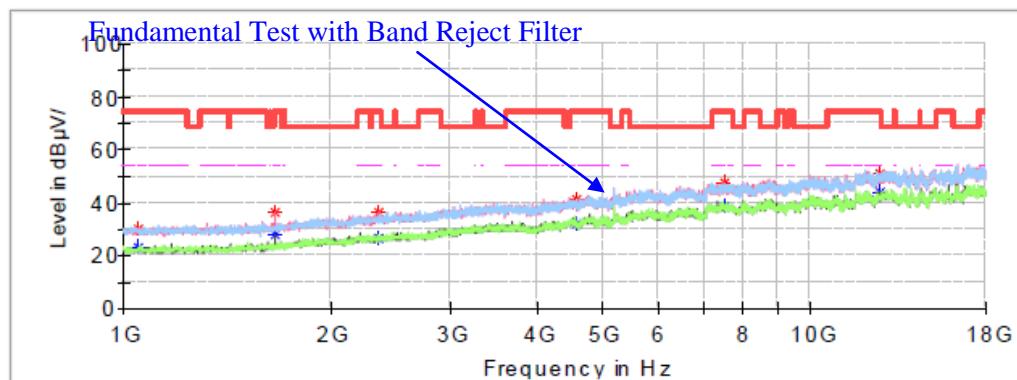
Standard:

FCC Part 15.407& FCC Part 15.205& FCC Part 15.209

Test Engineer:

Klein Zhu

### Full Spectrum

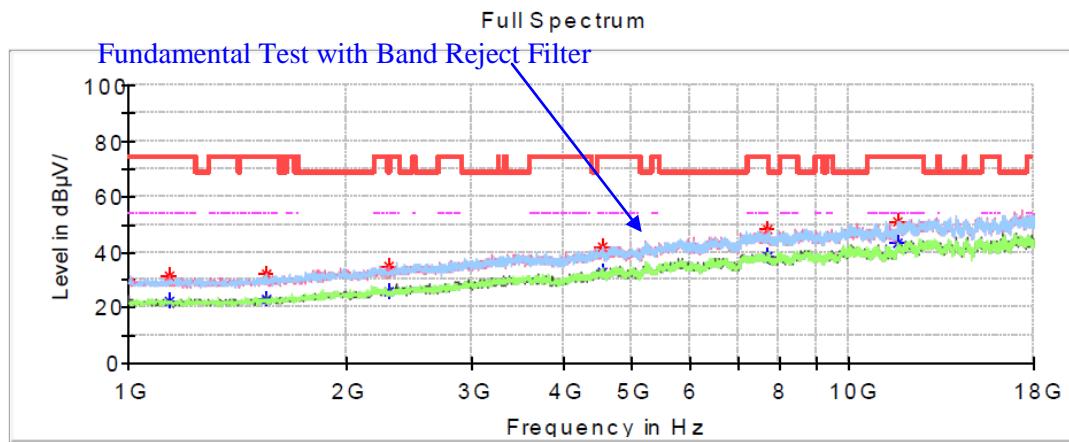


### Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1051.000000	---	22.99	54.00	31.01	H	-15.4
1051.000000	30.05	---	74.00	43.95	H	-15.4
1663.000000	---	28.05	54.00	25.95	V	-13.8
1663.000000	36.50	---	74.00	37.50	V	-13.8
2349.800000	---	26.78	54.00	27.22	V	-10.6
2349.800000	36.64	---	74.00	37.36	V	-10.6
4570.000000	---	32.49	54.00	21.51	V	-4.0
4570.000000	40.96	---	74.00	33.04	V	-4.0
7514.400000	---	38.35	54.00	15.65	V	3.9
7514.400000	47.75	---	74.00	26.25	V	3.9
12619.500000	---	44.40	54.00	9.60	V	9.7
12619.500000	51.03	---	74.00	22.97	V	9.7

**Middle Channel: 5200MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1137.700000	---	22.07	54.00	31.93	H	-15.3
1137.700000	31.40	---	74.00	42.60	H	-15.3
1555.900000	---	23.23	54.00	30.77	H	-14.4
1555.900000	32.35	---	74.00	41.65	H	-14.4
2292.000000	---	25.63	54.00	28.37	H	-10.8
2292.000000	35.02	---	74.00	38.98	H	-10.8
4542.800000	---	32.53	54.00	21.47	H	-4.1
4542.800000	41.96	---	74.00	32.04	H	-4.1
7681.000000	---	38.57	54.00	15.43	V	3.9
7681.000000	47.96	---	74.00	26.04	V	3.9
11652.200000	---	43.15	54.00	10.85	V	8.9
11652.200000	50.94	---	74.00	23.06	V	8.9

**High Channel: 5240MHz****Common Information**

Project No.:

RSHA240717001

Test Mode:

5G WIFI

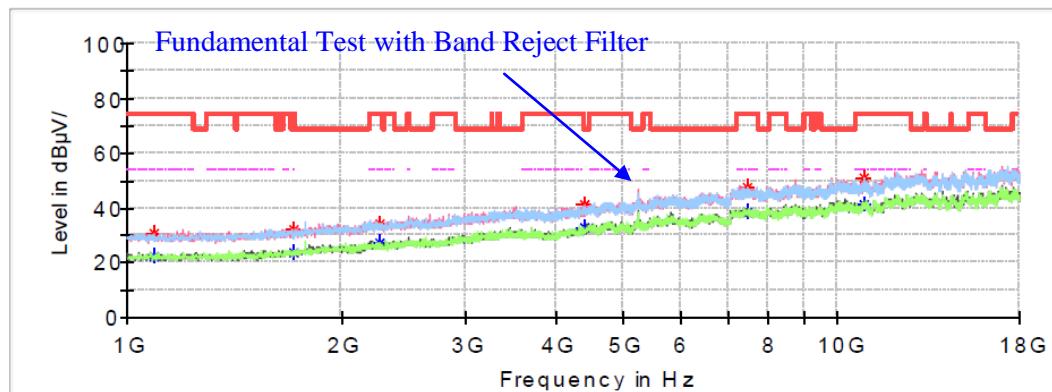
Standard:

FCC Part 15.407&amp; FCC Part 15.205&amp; FCC Part 15.209

Test Engineer:

Klein Zhu

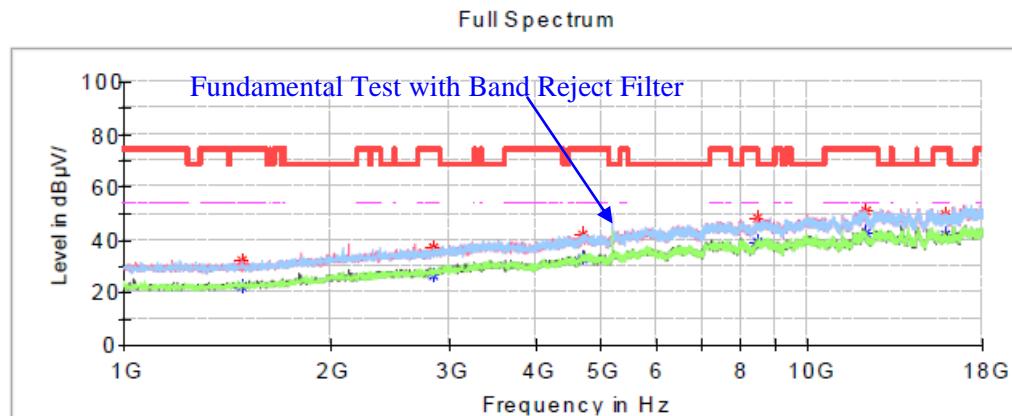
Full Spectrum

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1088.400000	30.63	---	74.00	43.37	V	-15.3
1088.400000	---	22.50	54.00	31.50	V	-15.3
1714.000000	31.88	---	68.20	36.32	V	-13.5
2271.600000	34.05	---	74.00	39.95	H	-10.9
2271.600000	---	26.93	54.00	27.07	H	-10.9
4411.900000	41.57	---	68.20	26.63	V	-4.6
7454.900000	47.77	---	74.00	26.23	V	3.8
7454.900000	---	38.59	54.00	15.41	V	3.8
10860.000000	---	41.57	54.00	12.43	H	7.3
10860.000000	50.85	---	74.00	23.15	H	7.3

**802.11n20 Mode:****Low Channel: 5180MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

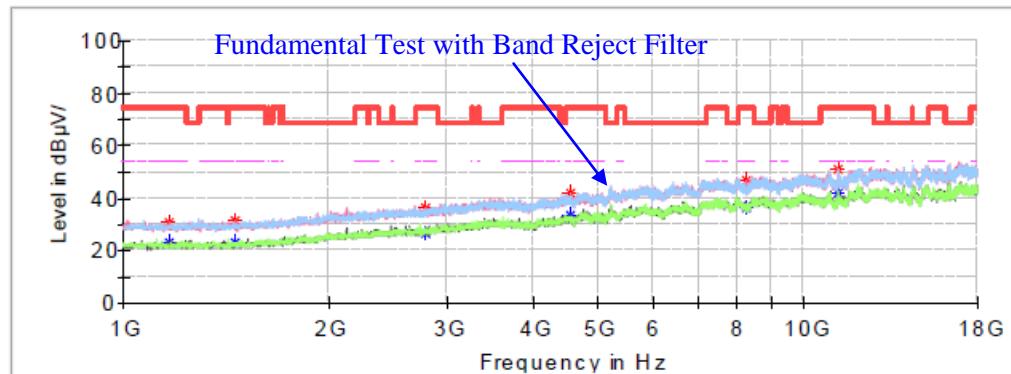
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1491.300000	31.84	---	74.00	42.16	V	-14.7
1491.300000	---	22.69	54.00	31.31	V	-14.7
2832.600000	---	26.92	54.00	27.08	H	-9.0
2832.600000	37.23	---	74.00	36.77	H	-9.0
4692.400000	---	32.97	54.00	21.03	V	-3.6
4692.400000	41.90	---	74.00	32.10	V	-3.6
8420.500000	---	39.46	54.00	14.54	V	5.2
8420.500000	48.54	---	74.00	25.46	V	5.2
12148.600000	---	42.38	54.00	11.62	V	9.2
12148.600000	51.11	---	74.00	22.89	V	9.2
15907.300000	---	41.66	54.00	12.34	V	9.5
15907.300000	49.61	---	74.00	24.39	V	9.5

**Middle Channel: 5200MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

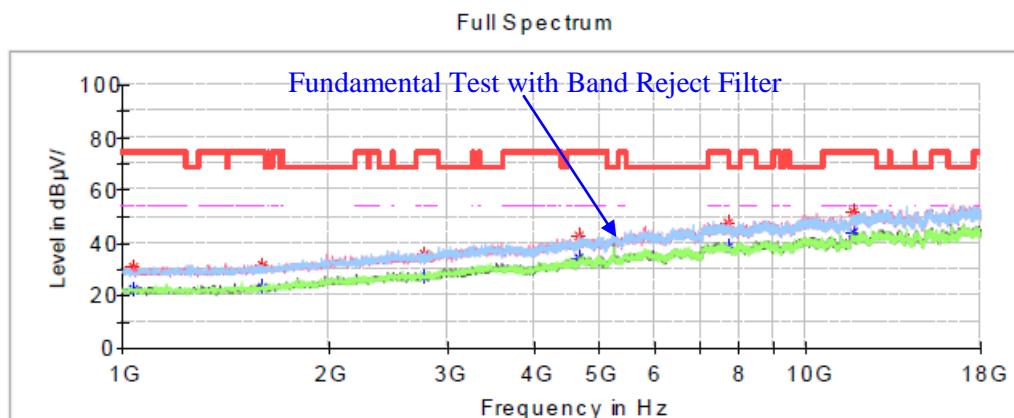
Full Spectrum

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1170.000000	---	22.74	54.00	31.26	V	-15.2
1170.000000	30.93	---	74.00	43.07	V	-15.2
1464.100000	---	22.90	54.00	31.10	H	-14.8
1464.100000	31.59	---	74.00	42.41	H	-14.8
2779.900000	---	26.90	54.00	27.10	H	-9.2
2779.900000	36.44	---	74.00	37.56	H	-9.2
4544.500000	---	33.63	54.00	20.37	V	-4.1
4544.500000	42.03	---	74.00	31.97	V	-4.1
8236.900000	---	36.68	54.00	17.32	V	4.6
8236.900000	46.98	---	74.00	27.02	V	4.6
11254.400000	---	41.72	54.00	12.28	H	8.1
11254.400000	50.97	---	74.00	23.03	H	8.1

**High Channel: 5240MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB μV/m)	Average (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Pol	Corr. (dB/m)
1039.100000	---	22.72	54.00	31.28	H	-15.4
1039.100000	31.11	---	74.00	42.89	H	-15.4
1601.800000	---	23.27	54.00	30.73	H	-14.1
1601.800000	31.52	---	74.00	42.48	H	-14.1
2771.400000	---	27.58	54.00	26.42	V	-9.2
2771.400000	35.66	---	74.00	38.34	V	-9.2
4663.500000	---	34.15	54.00	19.85	H	-3.7
4663.500000	42.52	---	74.00	31.48	H	-3.7
7718.400000	---	38.75	54.00	15.25	V	3.9
7718.400000	47.31	---	74.00	26.69	V	3.9
11727.000000	---	44.00	54.00	10.00	V	8.9
11727.000000	51.89	---	74.00	22.11	V	8.9

**802.11n40 Mode:****Low Channel: 5190MHz****Common Information**

Project No.:

RSHA240717001

Test Mode:

5G WIFI

Standard:

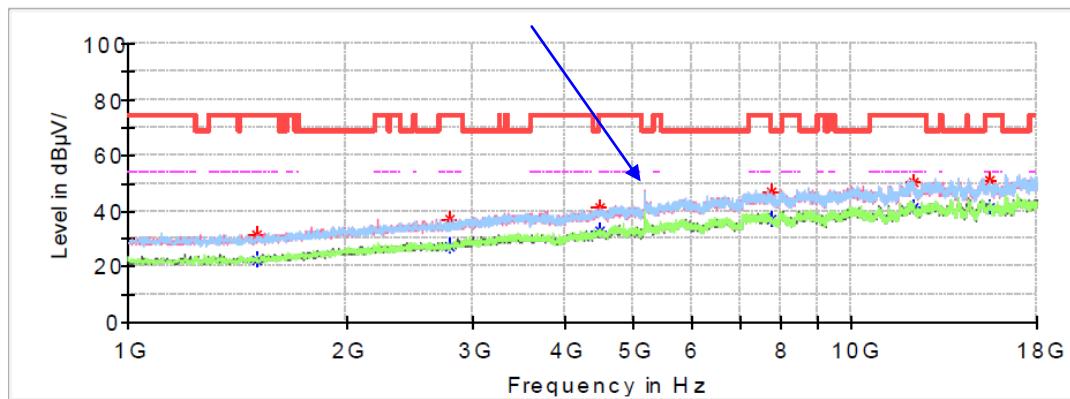
FCC Part 15.407 &amp; FCC Part 15.205 &amp; FCC Part 15.209

Test Engineer:

Klein Zhu

**Fundamental Test with Band Reject Filter**

Full Spectrum

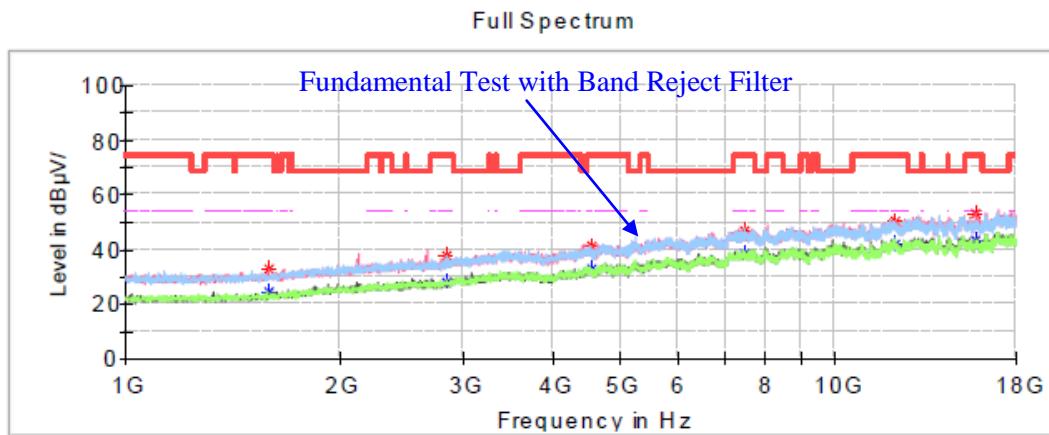
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1501.500000	---	22.17	54.00	31.83	H	-14.7
1501.500000	31.61	---	74.00	42.39	H	-14.7
2778.200000	---	27.43	54.00	26.57	H	-9.2
2778.200000	37.40	---	74.00	36.60	H	-9.2
4498.600000	41.55	---	68.20	26.65	V	-4.3
7730.300000	---	37.09	54.00	16.91	V	3.9
7730.300000	46.55	---	74.00	27.45	V	3.9
12152.000000	---	41.50	54.00	12.50	H	9.2
12152.000000	50.15	---	74.00	23.85	H	9.2
15495.900000	---	41.10	54.00	12.90	V	9.8
15495.900000	50.85	---	74.00	23.15	V	9.8

## High Channel: 5230MHz

## Common Information

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu



## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1593.300000	---	24.47	54.00	29.53	V	-14.2
1593.300000	32.61	---	74.00	41.39	V	-14.2
2842.800000	---	27.97	54.00	26.03	H	-9.0
2842.800000	37.42	---	74.00	36.58	H	-9.0
4542.800000	---	32.94	54.00	21.06	V	-4.1
4542.800000	41.13	---	74.00	32.87	V	-4.1
7461.700000	---	38.56	54.00	15.44	V	3.8
7461.700000	47.16	---	74.00	26.84	V	3.8
12189.400000	---	42.28	54.00	11.72	V	9.2
12189.400000	50.27	---	74.00	23.73	V	9.2
15798.500000	---	43.18	54.00	10.82	V	9.6
15798.500000	52.98	---	74.00	21.02	V	9.6

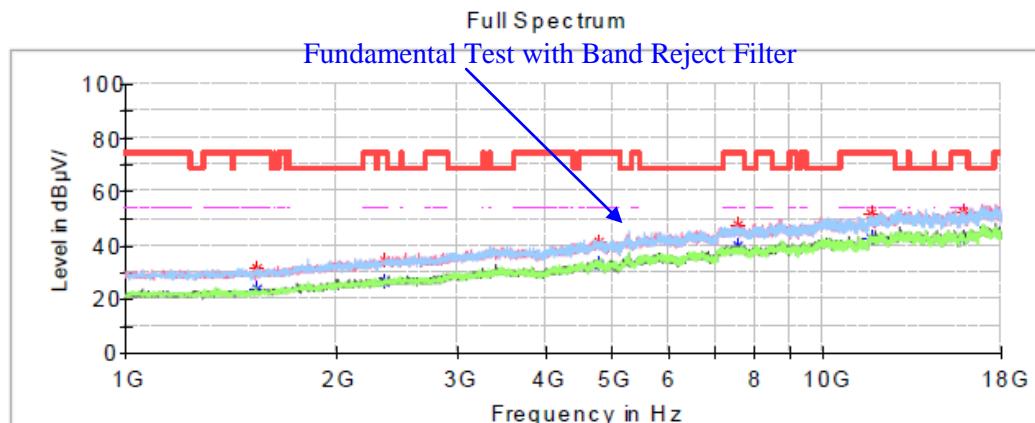
1GHz-18GHz (5250-5350 MHz):

802.11a Mode:

Low Channel: 5260MHz

**Common Information**

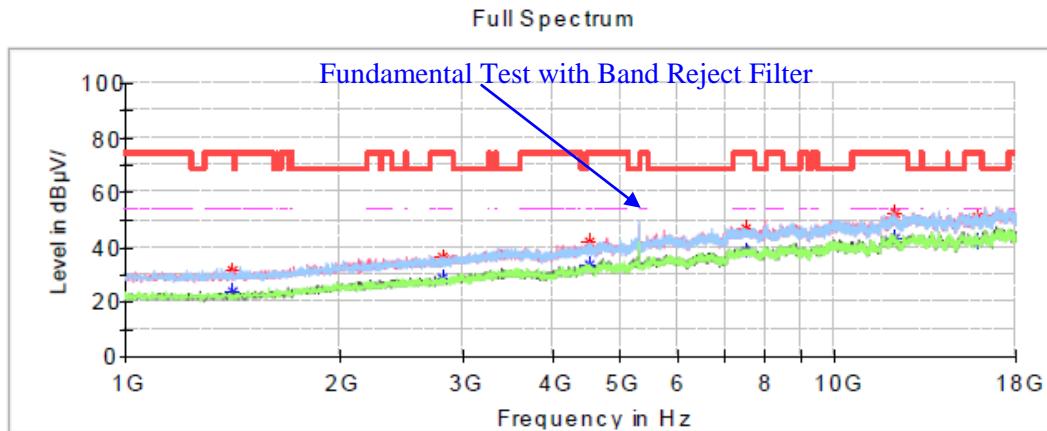
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1547.400000	---	23.62	54.00	30.38	V	-14.4
1547.400000	31.20	---	74.00	42.80	V	-14.4
2349.800000	---	26.75	54.00	27.25	H	-10.6
2349.800000	34.15	---	74.00	39.85	H	-10.6
4782.500000	---	33.16	54.00	20.84	H	-3.2
4782.500000	41.22	---	74.00	32.78	H	-3.2
7545.000000	---	40.20	54.00	13.80	V	3.9
7545.000000	47.29	---	74.00	26.71	V	3.9
11740.600000	---	42.63	54.00	11.37	V	8.9
11740.600000	52.08	---	74.00	21.92	V	8.9
15858.000000	---	42.86	54.00	11.14	V	9.5
15858.000000	52.56	---	74.00	21.44	V	9.5

**Middle Channel: 5280MHz****Common Information**

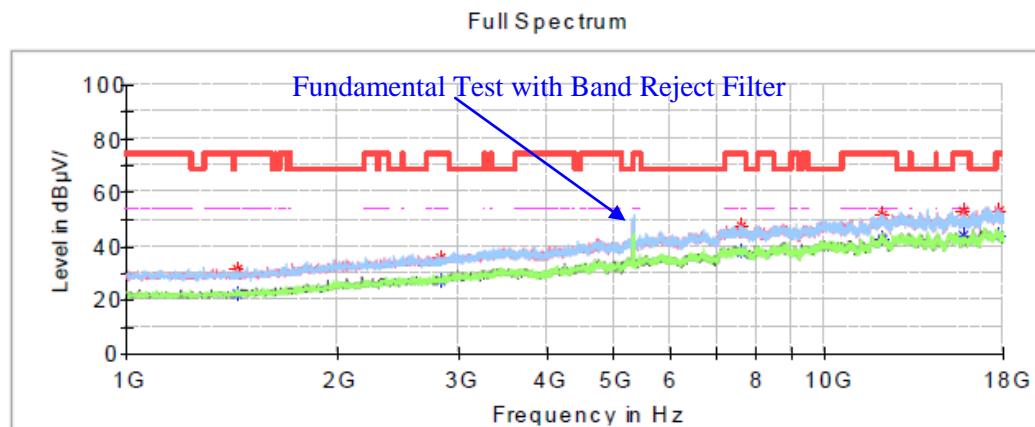
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1413.100000	---	23.57	54.00	30.43	V	-14.9
1413.100000	31.58	---	74.00	42.42	V	-14.9
2796.900000	---	28.45	54.00	25.55	V	-9.1
2796.900000	36.70	---	74.00	37.30	V	-9.1
4519.000000	---	33.23	54.00	20.77	V	-4.2
4519.000000	41.73	---	74.00	32.27	V	-4.2
7529.700000	---	38.70	54.00	15.30	V	3.9
7529.700000	46.65	---	74.00	27.35	V	3.9
12155.400000	---	43.57	54.00	10.43	H	9.2
12155.400000	52.31	---	74.00	21.69	H	9.2
15944.700000	---	42.14	54.00	11.86	V	9.5
15944.700000	51.27	---	74.00	22.73	V	9.5

**Middle Channel: 5320MHz****Common Information**

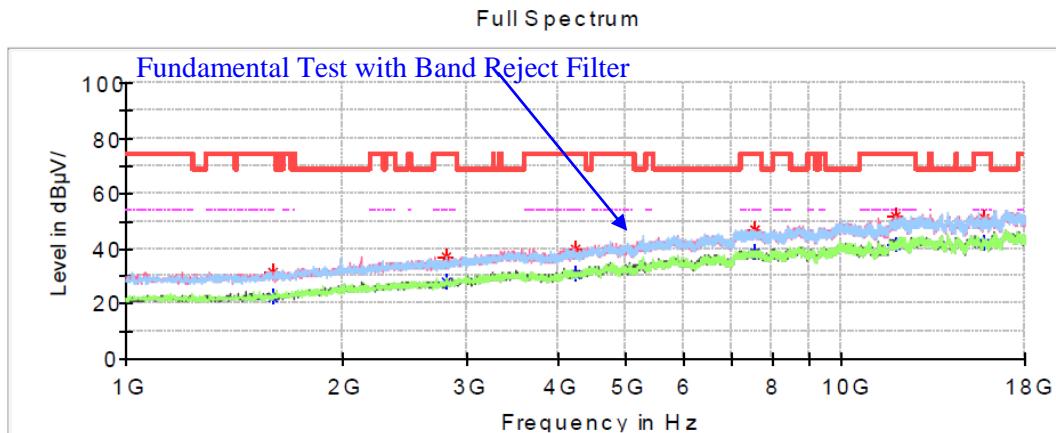
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1438.600000	---	22.61	54.00	31.39	H	-14.8
1438.600000	31.49	---	74.00	42.51	H	-14.8
2825.800000	---	27.30	54.00	26.70	V	-9.0
2825.800000	35.94	---	74.00	38.06	V	-9.0
7606.200000	---	37.68	54.00	16.32	H	3.9
7606.200000	47.23	---	74.00	26.77	H	3.9
12111.200000	---	42.55	54.00	11.45	V	9.1
12111.200000	51.92	---	74.00	22.08	V	9.1
15779.800000	---	44.26	54.00	9.74	V	9.6
15779.800000	53.21	---	74.00	20.79	V	9.6
17734.800000	---	44.11	54.00	9.89	V	11.7
17734.800000	53.34	---	74.00	20.66	V	11.7

**802.11n20 Mode:****Low Channel: 5260MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

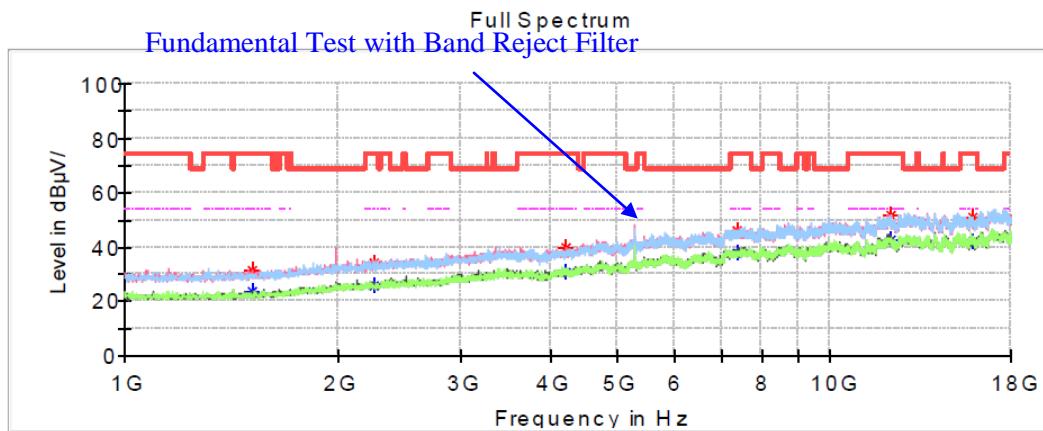
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1600.100000	---	22.72	54.00	31.28	V	-14.1
1600.100000	31.43	---	74.00	42.57	V	-14.1
2805.400000	---	28.02	54.00	25.98	H	-9.1
2805.400000	36.94	---	74.00	37.06	H	-9.1
4238.500000	---	30.90	54.00	23.10	V	-5.1
4238.500000	39.92	---	74.00	34.08	V	-5.1
7545.000000	---	38.21	54.00	15.79	V	3.9
7545.000000	46.93	---	74.00	27.07	V	3.9
11842.600000	51.98	---	74.00	22.02	H	8.9
11842.600000	---	41.00	54.00	13.00	H	8.9
15832.500000	---	41.68	54.00	12.32	V	9.6
15832.500000	51.18	---	74.00	22.82	V	9.6

## Middle Channel: 5280MHz

## Common Information

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

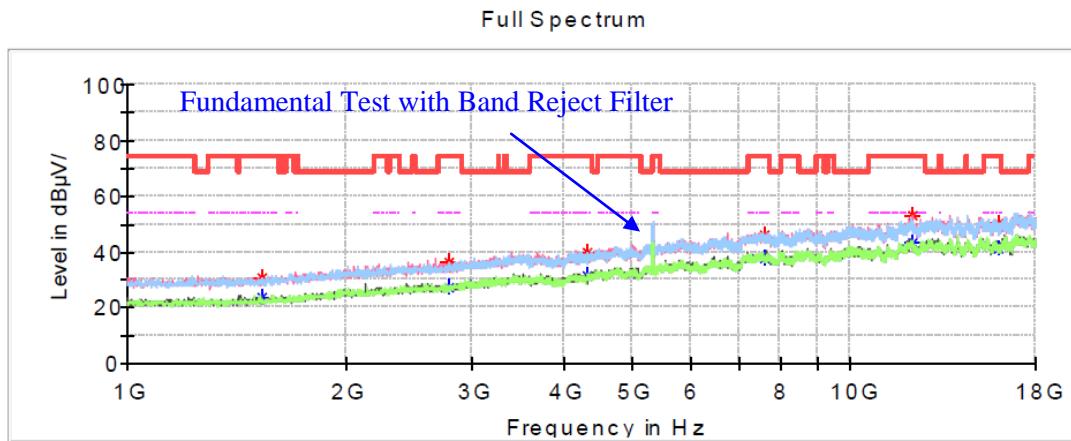


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1515.100000	---	23.90	54.00	30.10	V	-14.6
1515.100000	31.14	---	74.00	42.86	V	-14.6
2251.200000	---	25.97	54.00	28.03	V	-10.9
2251.200000	34.01	---	74.00	39.99	V	-10.9
4228.300000	---	30.97	54.00	23.03	V	-5.2
4228.300000	39.82	---	74.00	34.18	V	-5.2
7383.500000	---	37.87	54.00	16.13	H	3.6
7383.500000	45.88	---	74.00	28.12	H	3.6
12182.600000	---	42.44	54.00	11.56	V	9.2
12182.600000	51.78	---	74.00	22.22	V	9.2
15922.600000	---	42.30	54.00	11.70	H	9.5
15922.600000	50.89	---	74.00	23.11	H	9.5

**High Channel: 5320MHz****Common Information**

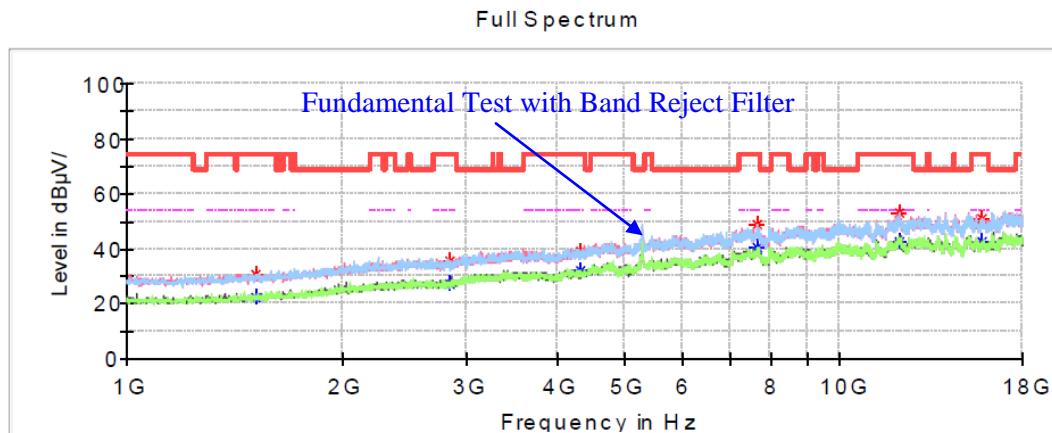
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1533.800000	---	23.45	54.00	30.55	V	-14.5
1533.800000	30.77	---	74.00	43.23	V	-14.5
2790.100000	---	26.93	54.00	27.07	H	-9.2
2790.100000	36.52	---	74.00	37.48	H	-9.2
4326.900000	---	31.46	54.00	22.54	H	-4.8
4326.900000	39.91	---	74.00	34.09	H	-4.8
7607.900000	---	37.58	54.00	16.42	V	3.9
7607.900000	46.07	---	74.00	27.93	V	3.9
12162.200000	---	43.25	54.00	10.75	V	9.2
12162.200000	52.85	---	74.00	21.15	V	9.2
16046.700000	---	41.10	54.00	12.90	H	9.5
16046.700000	50.05	---	74.00	23.95	H	9.5

**802.11n40 Mode:****Low Channel: 5270MHz****Common Information**

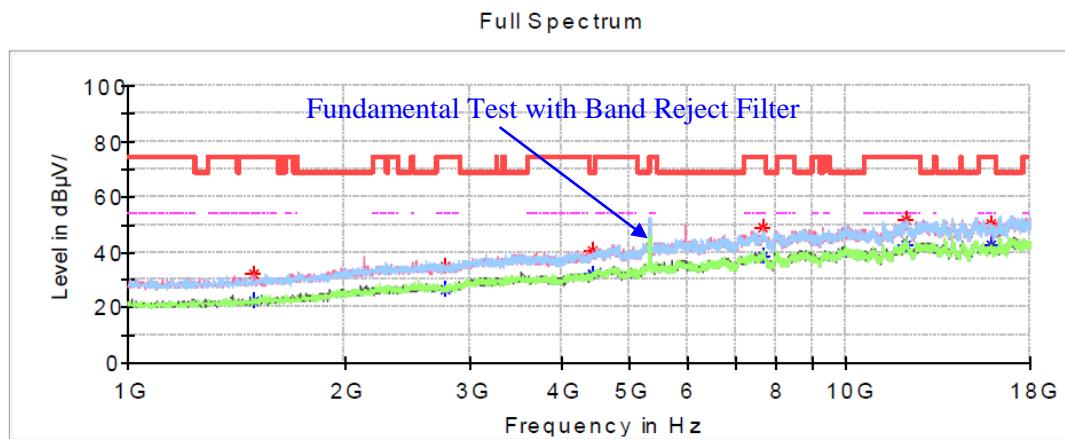
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1511.700000	---	22.26	54.00	31.74	V	-14.7
1511.700000	30.79	---	74.00	43.21	V	-14.7
2841.100000	---	27.54	54.00	26.46	H	-9.0
2841.100000	35.54	---	74.00	38.46	H	-9.0
4321.800000	---	31.90	54.00	22.10	H	-4.8
4321.800000	38.94	---	74.00	35.06	H	-4.8
7640.200000	---	40.71	54.00	13.29	H	3.9
7640.200000	48.95	---	74.00	25.05	H	3.9
12111.200000	---	42.42	54.00	11.58	V	9.1
12111.200000	53.11	---	74.00	20.89	V	9.1
15822.300000	---	42.64	54.00	11.36	H	9.6
15822.300000	51.11	---	74.00	22.89	H	9.6

**Middle Channel: 5310MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1499.800000	---	22.49	54.00	31.51	H	-14.7
1499.800000	32.30	---	74.00	41.70	H	-14.7
2762.900000	---	26.49	54.00	27.51	V	-9.3
2762.900000	35.31	---	74.00	38.69	V	-9.3
4435.700000	40.73	---	68.20	27.47	V	-4.5
7630.000000	---	38.16	54.00	15.84	V	3.9
7630.000000	48.63	---	74.00	25.37	V	3.9
12128.200000	---	42.96	54.00	11.04	H	9.1
12128.200000	52.04	---	74.00	21.96	H	9.1
15864.800000	---	42.34	54.00	11.66	V	9.5
15864.800000	50.60	---	74.00	23.40	V	9.5

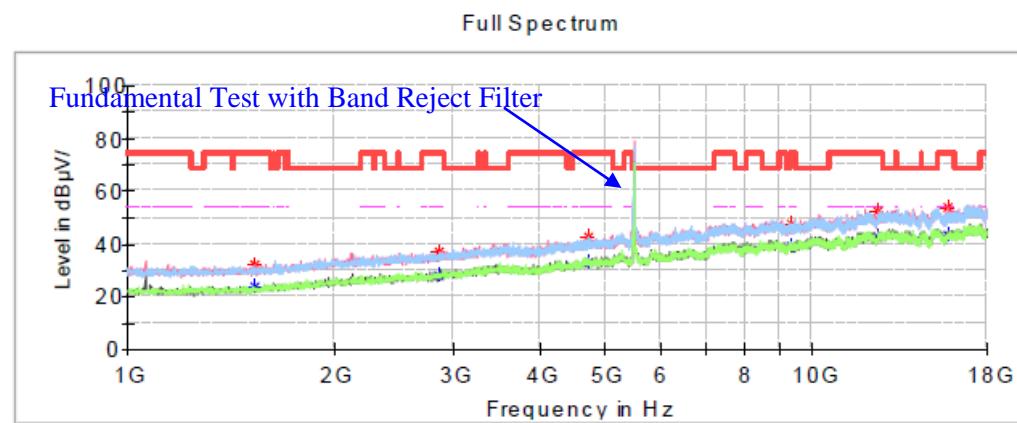
1GHz-18GHz (5470-5725 MHz):

802.11a Mode:

Low Channel: 5500MHz

**Common Information**

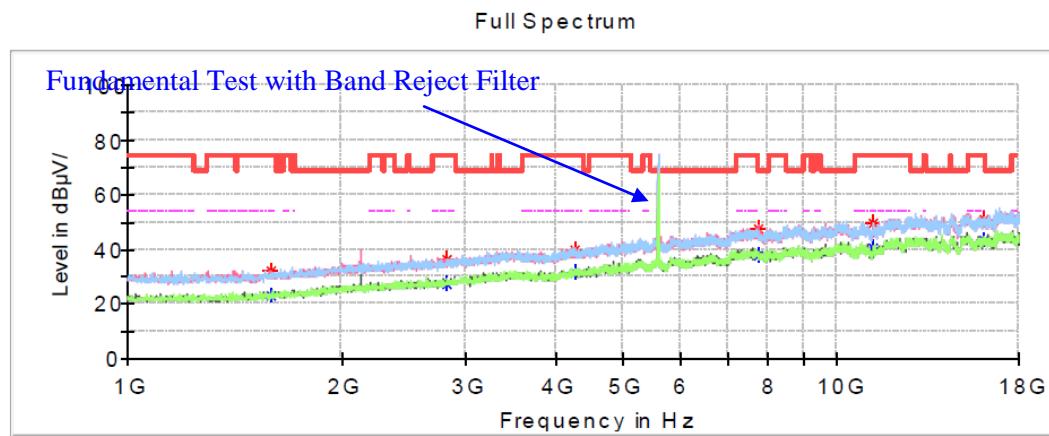
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407 & FCC Part 15.205 & FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1538.900000	---	23.46	54.00	30.54	V	-14.5
1538.900000	31.87	---	74.00	42.13	V	-14.5
2856.400000	---	27.94	54.00	26.06	V	-8.9
2856.400000	36.96	---	74.00	37.04	V	-8.9
4723.000000	---	32.91	54.00	21.09	H	-3.4
4723.000000	42.82	---	74.00	31.18	H	-3.4
9335.100000	---	39.07	54.00	14.93	H	5.4
9335.100000	47.89	---	74.00	26.11	H	5.4
12490.300000	---	42.91	54.00	11.09	V	9.6
12490.300000	52.28	---	74.00	21.72	V	9.6
15837.600000	---	43.31	54.00	10.69	H	9.6
15837.600000	53.62	---	74.00	20.38	H	9.6

**Middle Channel: 5580MHz****Common Information**

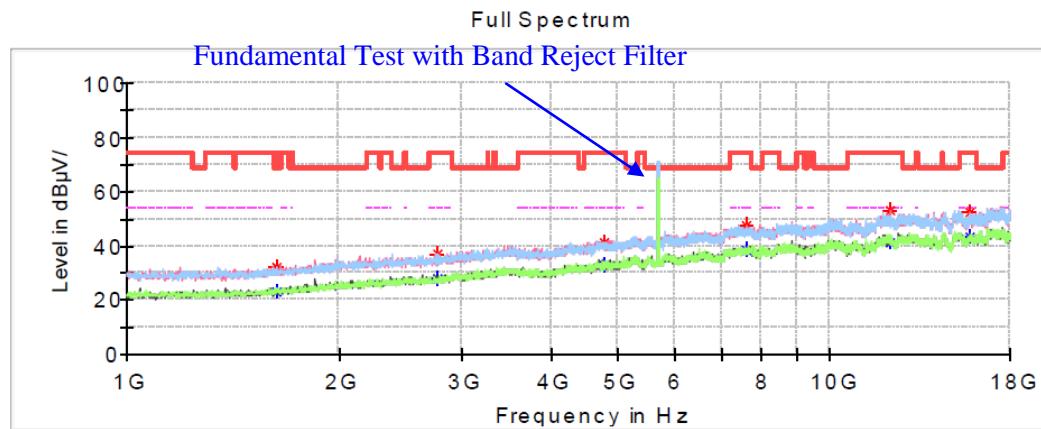
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1588.200000	32.38	---	74.00	41.62	H	-14.2
1588.200000	---	23.17	54.00	30.83	H	-14.2
2810.500000	36.11	---	74.00	37.89	V	-9.1
2810.500000	---	27.56	54.00	26.44	V	-9.1
4277.600000	---	31.12	54.00	22.88	V	-5.0
4277.600000	40.03	---	74.00	33.97	V	-5.0
7759.200000	47.61	---	68.20	20.59	V	3.9
11254.400000	---	40.87	54.00	13.13	V	8.1
11254.400000	49.59	---	74.00	24.41	V	8.1
16128.300000	---	43.24	54.00	10.76	H	9.8
16128.300000	50.79	---	74.00	23.21	H	9.8

**High Channel: 5700MHz****Common Information**

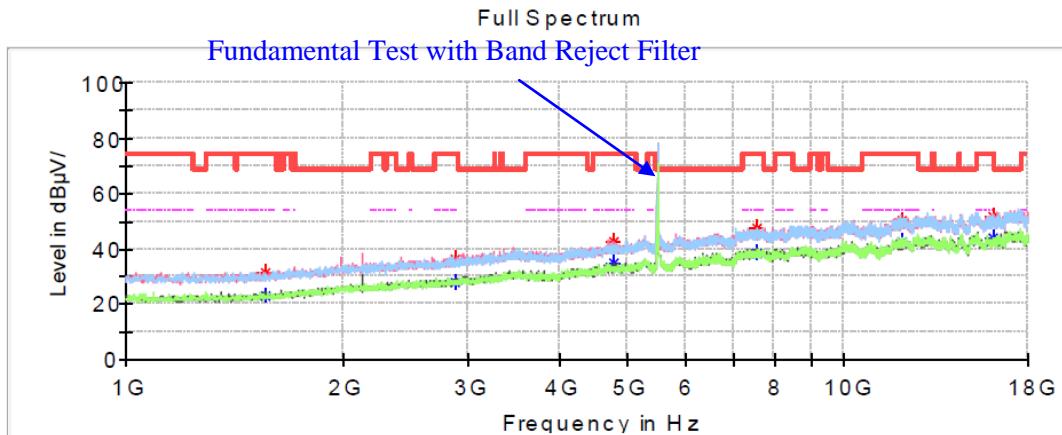
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1634.100000	32.25	---	68.20	35.95	V	-13.9
2773.100000	---	28.17	54.00	25.83	H	-9.2
2773.100000	37.11	---	74.00	36.89	H	-9.2
4762.100000	---	32.80	54.00	21.20	V	-3.3
4762.100000	41.51	---	74.00	32.49	V	-3.3
7604.500000	---	38.52	54.00	15.48	H	3.9
7604.500000	47.73	---	74.00	26.27	H	3.9
12194.500000	---	41.42	54.00	12.58	V	9.2
12194.500000	52.80	---	74.00	21.20	V	9.2
15790.000000	---	43.49	54.00	10.51	H	9.6
15790.000000	52.70	---	74.00	21.30	H	9.6

**802.11n20 Mode:****Low Channel: 5500MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1566.100000	---	22.89	54.00	31.11	V	-14.3
1566.100000	31.73	---	74.00	42.27	V	-14.3
2868.300000	---	27.90	54.00	26.10	H	-8.9
2868.300000	36.23	---	74.00	37.77	H	-8.9
4777.400000	---	34.76	54.00	19.24	V	-3.3
4777.400000	42.46	---	74.00	31.54	V	-3.3
7558.600000	---	38.80	54.00	15.20	H	3.9
7558.600000	47.66	---	74.00	26.34	H	3.9
12016.000000	---	42.32	54.00	11.68	V	9.0
12016.000000	50.50	---	74.00	23.50	V	9.0
16087.500000	---	44.09	54.00	9.91	V	9.7
16087.500000	52.05	---	74.00	21.95	V	9.7

**Middle Channel: 5580MHz****Common Information**

Project No.:

RSHA240717001

Test Mode:

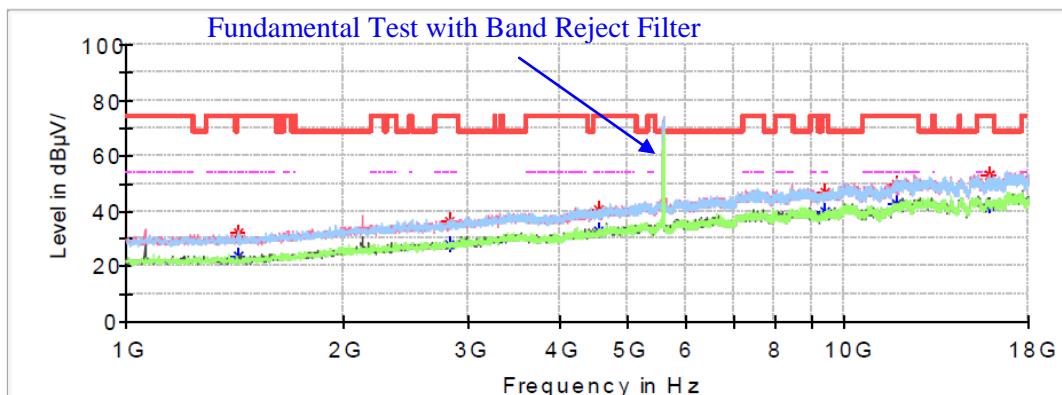
5G WIFI

Standard:

FCC Part 15.407&amp; FCC Part 15.205&amp; FCC Part 15.209

Test Engineer:

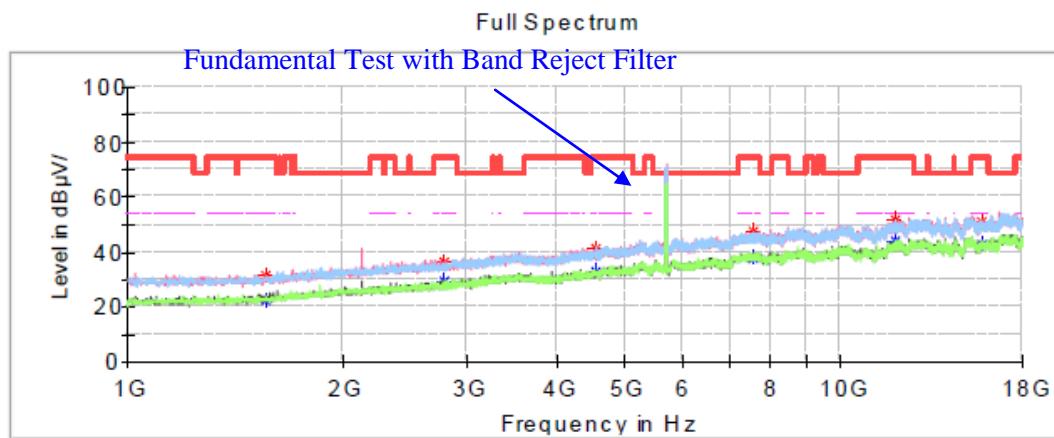
Klein Zhu

**Full Spectrum****Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1436.900000	---	24.11	54.00	29.89	V	-14.8
1436.900000	31.84	---	74.00	42.16	V	-14.8
2812.200000	---	28.26	54.00	25.74	H	-9.1
2812.200000	36.34	---	74.00	37.66	H	-9.1
4532.600000	---	33.18	54.00	20.82	V	-4.1
4532.600000	40.23	---	74.00	33.77	V	-4.1
9411.600000	---	39.62	54.00	14.38	V	5.4
9411.600000	46.79	---	74.00	27.21	V	5.4
11791.600000	---	42.64	54.00	11.36	H	8.9
11791.600000	49.83	---	74.00	24.17	H	8.9
15869.900000	---	42.22	54.00	11.78	V	9.5
15869.900000	53.32	---	74.00	20.68	V	9.5

**High Channel: 5700MHz****Common Information**

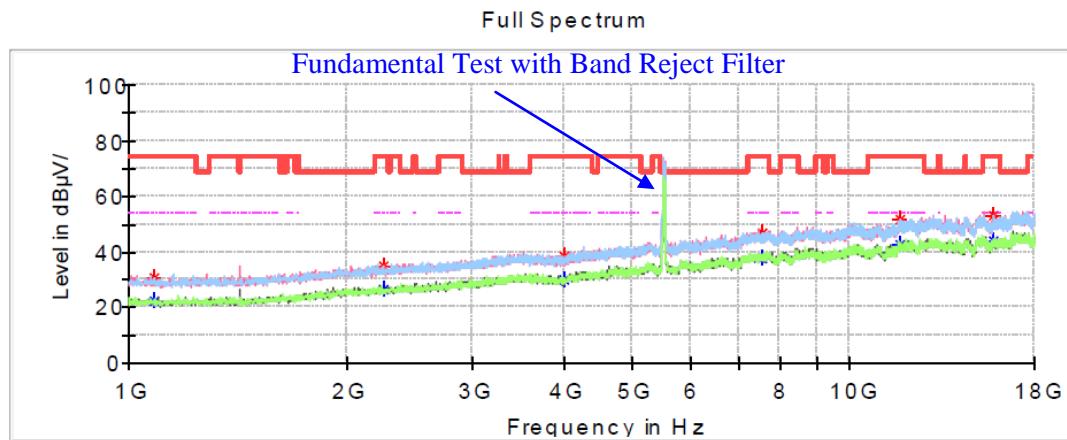
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407 & FCC Part 15.205 & FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1561.000000	---	22.57	54.00	31.43	V	-14.4
1561.000000	31.31	---	74.00	42.69	V	-14.4
2783.300000	---	29.17	54.00	24.83	H	-9.2
2783.300000	36.21	---	74.00	37.79	H	-9.2
4553.000000	---	32.77	54.00	21.23	V	-4.1
4553.000000	41.22	---	74.00	32.78	V	-4.1
7543.300000	---	37.58	54.00	16.42	V	3.9
7543.300000	47.90	---	74.00	26.10	V	3.9
11958.200000	---	44.00	54.00	10.00	V	9.0
11958.200000	51.96	---	74.00	22.04	V	9.0
15834.200000	---	42.74	54.00	11.26	H	9.6
15834.200000	50.73	---	74.00	23.27	H	9.6

**802.11n40 Mode:****Low Channel: 5510MHz****Common Information**

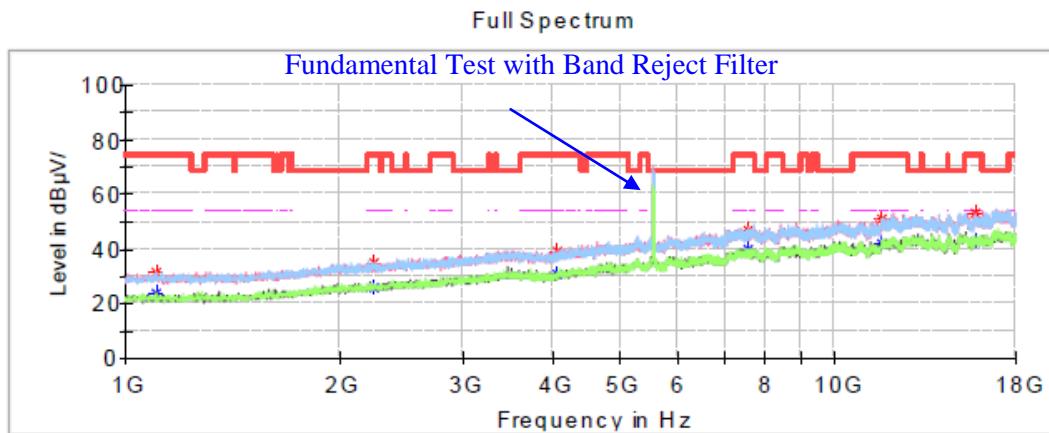
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Pol	Corr. (dB/m)
1081.600000	---	22.04	54.00	31.96	H	-15.3
1081.600000	30.62	---	74.00	43.38	H	-15.3
2247.800000	---	26.81	54.00	27.19	H	-11.0
2247.800000	34.88	---	74.00	39.12	H	-11.0
4010.700000	---	29.89	54.00	24.11	V	-5.9
4010.700000	38.14	---	74.00	35.86	V	-5.9
7565.400000	---	38.10	54.00	15.90	H	3.9
7565.400000	46.85	---	74.00	27.15	H	3.9
11721.900000	---	42.53	54.00	11.47	V	8.9
11721.900000	51.67	---	74.00	22.33	V	8.9
15781.500000	---	43.72	54.00	10.28	H	9.6
15781.500000	52.93	---	74.00	21.07	H	9.6

**Middle Channel: 5550MHz****Common Information**

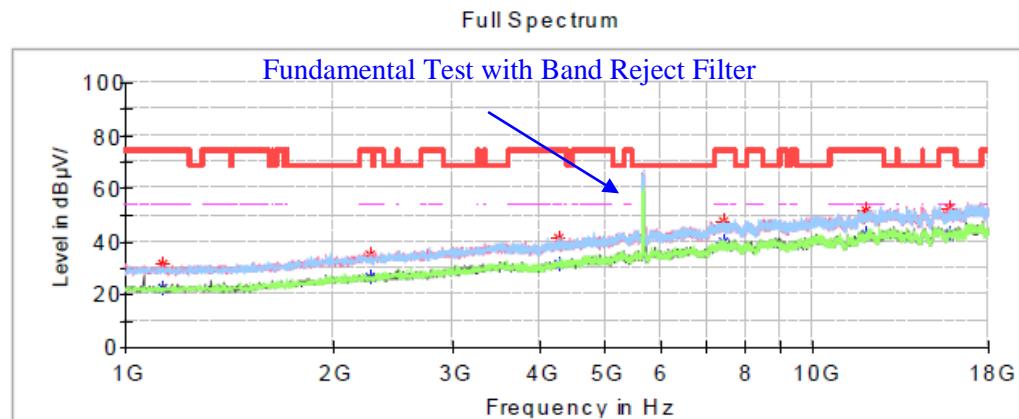
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1102.000000	---	23.50	54.00	30.50	H	-15.3
1102.000000	31.58	---	74.00	42.42	H	-15.3
2237.600000	---	26.22	54.00	27.78	V	-11.0
2237.600000	34.94	---	74.00	39.06	V	-11.0
4056.600000	---	30.66	54.00	23.34	V	-5.7
4056.600000	38.95	---	74.00	35.05	V	-5.7
7573.900000	---	39.83	54.00	14.17	H	3.9
7573.900000	46.93	---	74.00	27.07	H	3.9
11657.300000	---	42.17	54.00	11.83	V	8.9
11657.300000	51.23	---	74.00	22.77	V	8.9
15769.600000	---	42.52	54.00	11.48	H	9.6
15769.600000	52.88	---	74.00	21.12	H	9.6

**High Channel: 5670MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1132.600000	---	22.56	54.00	31.44	V	-15.3
1132.600000	31.72	---	74.00	42.28	V	-15.3
2269.900000	---	26.33	54.00	27.67	V	-10.9
2269.900000	35.01	---	74.00	38.99	V	-10.9
4257.200000	---	31.32	54.00	22.68	H	-5.1
4257.200000	40.91	---	74.00	33.09	H	-5.1
7432.800000	---	39.71	54.00	14.29	H	3.7
7432.800000	47.87	---	74.00	26.13	H	3.7
11946.300000	---	42.83	54.00	11.17	V	9.0
11946.300000	51.89	---	74.00	22.11	V	9.0
15834.200000	---	42.67	54.00	11.33	V	9.6
15834.200000	52.27	---	74.00	21.73	V	9.6

1GHz-18GHz (5725-5850 MHz):

802.11a Mode:

Low Channel: 5745MHz

**Common Information**

Project No.:

RSHA240717001

Test Mode:

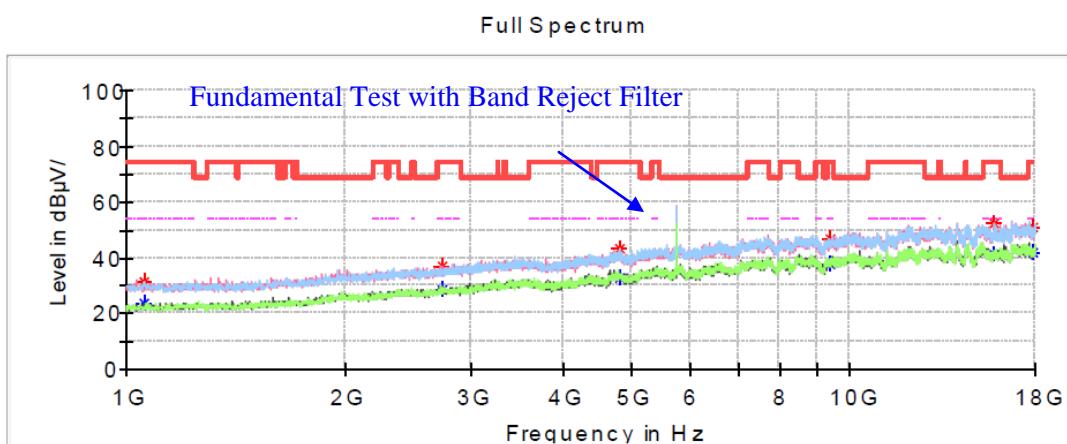
5G WIFI

Standard:

FCC Part 15.407&amp; FCC Part 15.205&amp; FCC Part 15.209

Test Engineer:

Klein Zhu

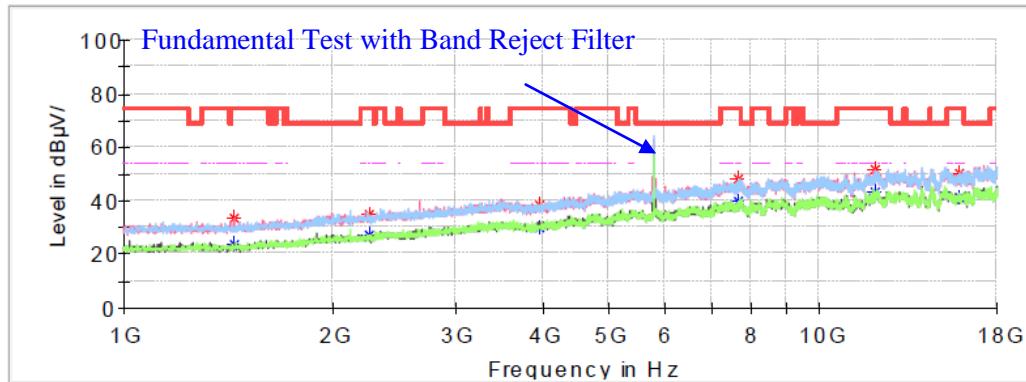
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1059.500000	---	23.77	54.00	30.23	V	-15.4
1059.500000	31.62	---	74.00	42.38	V	-15.4
2734.000000	---	28.71	54.00	25.29	V	-9.4
2734.000000	37.11	---	74.00	36.89	V	-9.4
4789.300000	---	32.94	54.00	21.06	H	-3.2
4789.300000	43.29	---	74.00	30.71	H	-3.2
9391.200000	---	37.83	54.00	16.17	V	5.4
9391.200000	46.91	---	74.00	27.09	V	5.4
15849.500000	---	41.37	54.00	12.63	H	9.5
15849.500000	52.61	---	74.00	21.39	H	9.5
17850.400000	---	42.20	54.00	11.80	V	11.8
17850.400000	50.80	---	74.00	23.20	V	11.8

**Middle Channel: 5785MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407 & FCC Part 15.205 & FCC Part 15.209  
 Test Engineer: Klein Zhu

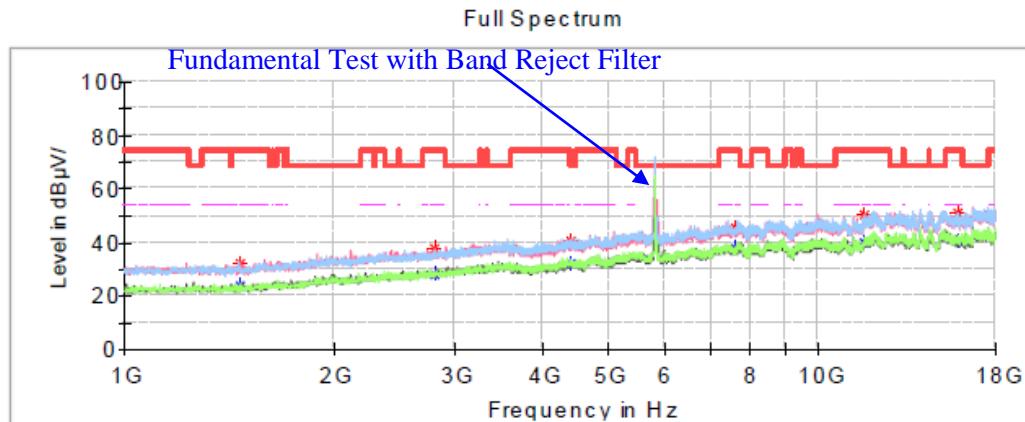
Full Spectrum

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1438.600000	---	23.69	54.00	30.31	V	-14.8
1438.600000	33.42	---	74.00	40.58	V	-14.8
2258.000000	---	27.09	54.00	26.91	V	-10.9
2258.000000	34.88	---	74.00	39.12	V	-10.9
3975.000000	---	30.29	54.00	23.71	V	-5.9
3975.000000	38.50	---	74.00	35.50	V	-5.9
7643.600000	---	39.64	54.00	14.36	H	3.9
7643.600000	48.50	---	74.00	25.50	H	3.9
12060.200000	---	43.06	54.00	10.94	H	9.1
12060.200000	51.88	---	74.00	22.12	H	9.1
15861.400000	---	41.52	54.00	12.48	V	9.5
15861.400000	50.20	---	74.00	23.80	V	9.5

**High Channel: 5825MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407 & FCC Part 15.205 & FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1467.500000	---	23.43	54.00	30.57	V	-14.8
1467.500000	32.44	---	74.00	41.56	V	-14.8
2800.300000	---	27.80	54.00	26.20	H	-9.1
2800.300000	37.53	---	74.00	36.47	H	-9.1
4393.200000	---	32.44	54.00	21.56	V	-4.6
4393.200000	40.54	---	74.00	33.46	V	-4.6
7597.700000	---	37.78	54.00	16.22	H	3.9
7597.700000	45.40	---	74.00	28.60	H	3.9
11681.100000	---	40.10	54.00	13.90	V	8.9
11681.100000	50.04	---	74.00	23.96	V	8.9
15903.900000	---	40.86	54.00	13.14	V	9.5
15903.900000	51.02	---	74.00	22.98	V	9.5

**802.11n20 Mode:****Low Channel: 5745MHz****Common Information**

Project No.:

RSHA240717001

Test Mode:

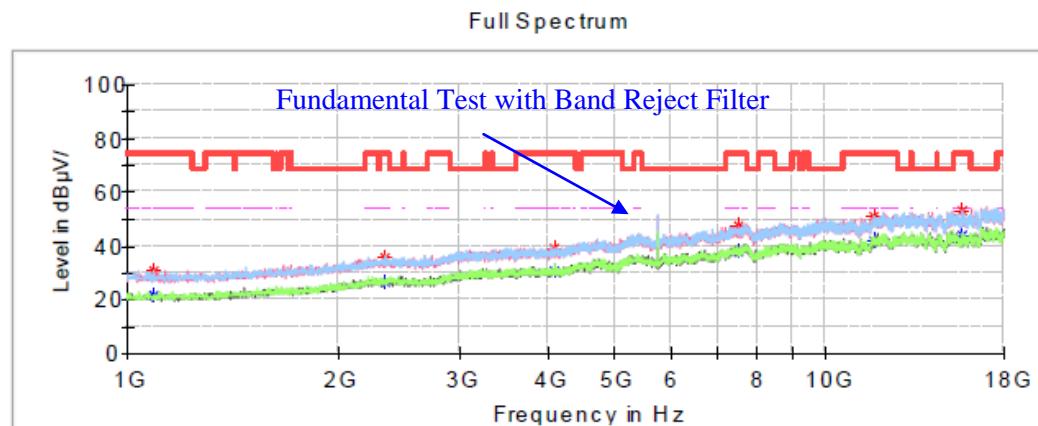
5G WIFI

Standard:

FCC Part 15.407&amp; FCC Part 15.205&amp; FCC Part 15.209

Test Engineer:

Klein Zhu

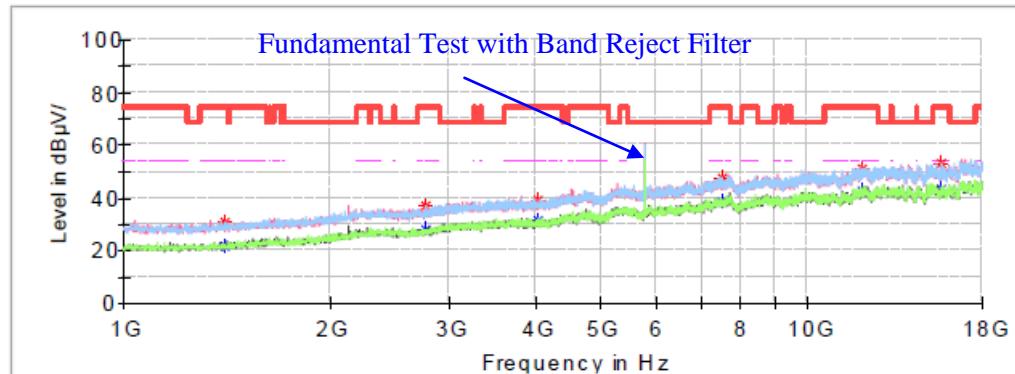
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1090.100000	---	21.62	54.00	32.38	H	-15.3
1090.100000	31.01	---	74.00	42.99	H	-15.3
2341.300000	---	26.63	54.00	27.37	V	-10.7
2341.300000	35.89	---	74.00	38.11	V	-10.7
4083.800000	---	30.42	54.00	23.58	H	-5.6
4083.800000	39.04	---	74.00	34.96	H	-5.6
7514.400000	---	38.09	54.00	15.91	H	3.9
7514.400000	47.27	---	74.00	26.73	H	3.9
11732.100000	---	41.88	54.00	12.12	V	8.9
11732.100000	50.86	---	74.00	23.14	V	8.9
15732.200000	---	43.73	54.00	10.27	V	9.6
15732.200000	52.80	---	74.00	21.20	V	9.6

**Middle Channel: 5785MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

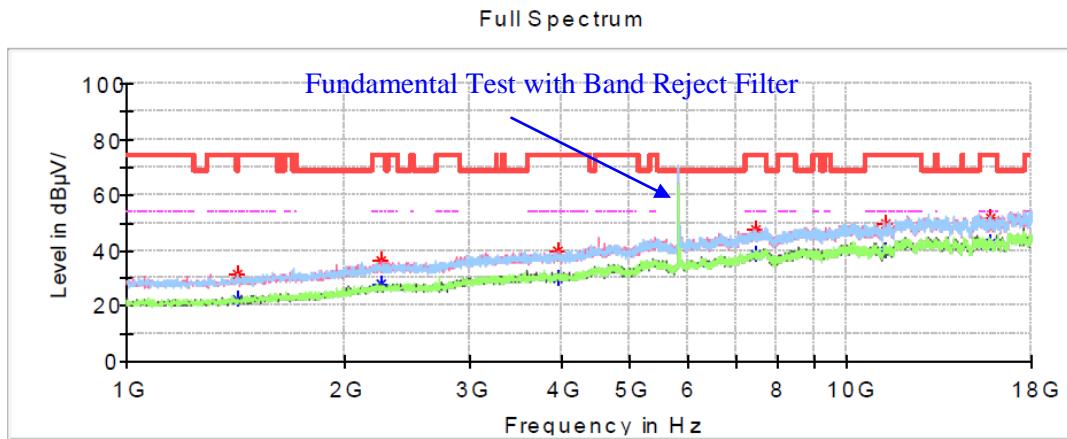
Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1404.600000	30.46	---	74.00	43.54	H	-14.9
1404.600000	---	22.01	54.00	31.99	H	-14.9
2766.300000	37.10	---	74.00	36.90	H	-9.2
2766.300000	---	28.22	54.00	25.78	H	-9.2
4031.100000	39.20	---	74.00	34.80	V	-5.8
4031.100000	---	31.29	54.00	22.71	V	-5.8
7521.200000	47.27	---	74.00	26.73	V	3.9
7521.200000	---	38.16	54.00	15.84	V	3.9
12017.700000	---	42.47	54.00	11.53	H	9.0
12017.700000	51.00	---	74.00	23.00	H	9.0
15728.800000	---	43.19	54.00	10.81	H	9.6
15728.800000	52.97	---	74.00	21.03	H	9.6

**High Channel: 5825MHz****Common Information**

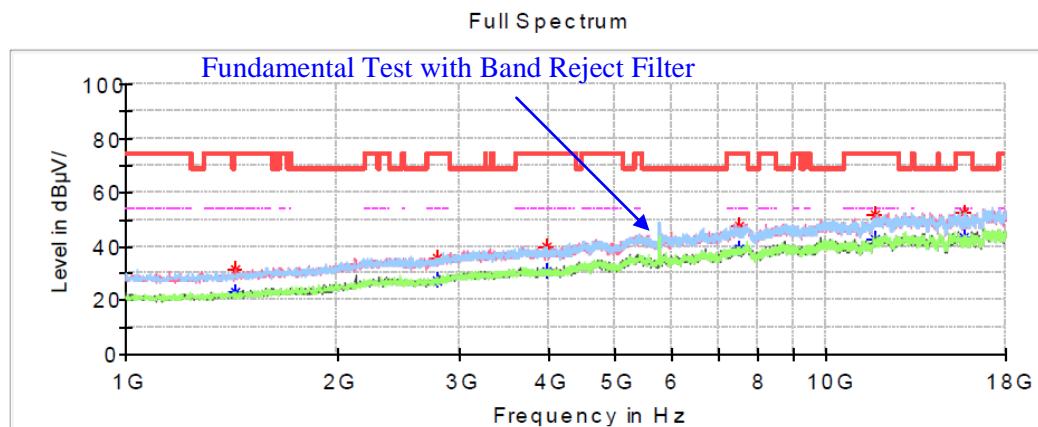
Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1426.700000	31.13	---	74.00	42.87	H	-14.8
1426.700000	---	22.63	54.00	31.37	H	-14.8
2258.000000	36.49	---	74.00	37.51	V	-10.9
2258.000000	---	27.75	54.00	26.25	V	-10.9
3964.800000	39.67	---	74.00	34.33	V	-5.9
3964.800000	---	30.40	54.00	23.60	V	-5.9
7446.400000	47.70	---	74.00	26.30	H	3.8
7446.400000	---	38.52	54.00	15.48	H	3.8
11288.400000	49.60	---	74.00	24.40	V	8.2
11288.400000	---	40.16	54.00	13.84	V	8.2
15790.000000	---	42.73	54.00	11.27	H	9.6
15790.000000	52.06	---	74.00	21.94	H	9.6

**802.11n40 Mode:****Low Channel: 5755MHz****Common Information**

Project No.: RSHA240717001  
 Test Mode: 5G WIFI  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1433.500000	31.52	---	68.20	36.68	V	-14.8
2786.700000	---	27.03	54.00	26.97	H	-9.2
2786.700000	35.77	---	74.00	38.23	H	-9.2
3983.500000	---	30.80	54.00	23.20	H	-5.9
3983.500000	40.03	---	74.00	33.97	H	-5.9
7499.100000	---	39.41	54.00	14.59	V	3.9
7499.100000	47.62	---	74.00	26.38	V	3.9
11735.500000	---	42.98	54.00	11.02	V	8.9
11735.500000	51.78	---	74.00	22.22	V	8.9
15727.100000	---	43.55	54.00	10.45	V	9.6
15727.100000	52.17	---	74.00	21.83	V	9.6

**High Channel: 5795MHz****Common Information**

Project No.:

RSHA240717001

Test Mode:

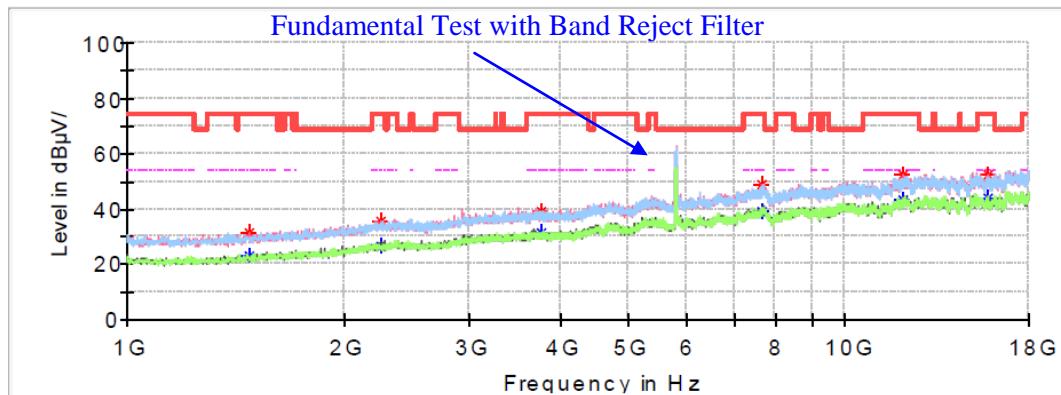
5G WIFI

Standard:

FCC Part 15.407&amp; FCC Part 15.205&amp; FCC Part 15.209

Test Engineer:

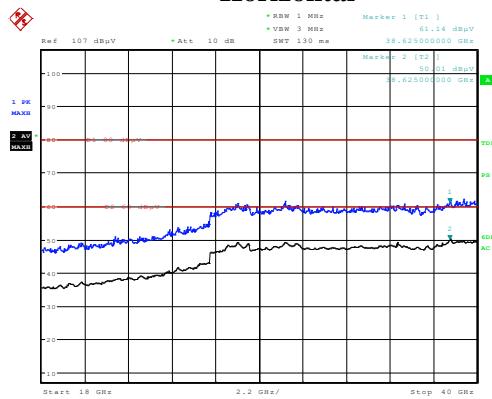
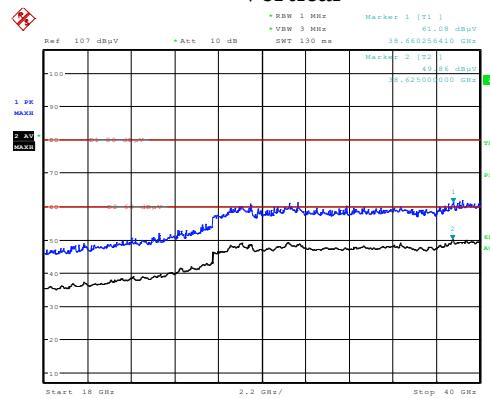
Klein Zhu

**Full Spectrum****Critical Freqs**

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Pol	Corr. (dB/m)
1479.400000	---	22.82	54.00	31.18	V	-14.8
1479.400000	31.62	---	74.00	42.38	V	-14.8
2251.200000	---	26.75	54.00	27.25	H	-10.9
2251.200000	35.70	---	74.00	38.30	H	-10.9
3777.800000	---	31.56	54.00	22.44	V	-6.1
3777.800000	39.13	---	74.00	34.87	V	-6.1
7653.800000	---	38.96	54.00	15.04	H	3.9
7653.800000	48.73	---	74.00	25.27	H	3.9
12055.100000	---	43.15	54.00	10.85	V	9.0
12055.100000	52.67	---	74.00	21.33	V	9.0
15791.700000	---	43.96	54.00	10.04	H	9.6
15791.700000	52.76	---	74.00	21.24	H	9.6

**18GHz-40GHz:**

Pre-scan with 802.11a, 802.11n20, 802.11n40 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11a mode (5280MHz) was recorded

**Horizontal****Vertical**

Project No : RSHA240717001      Tester : Hugh Wu  
Date: 2.AUG.2024 18:22:47

Project No : RSHA240717001      Tester : Hugh Wu  
Date: 2.AUG.2024 18:40:32

Note: The test distance is 1.5m. The limit is 80dBµV/m (Peak) and 60dBµV/m (Average).

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
38660.6	61.08	---	80	18.92	V	17.45
38660.6	---	49.86	60	10.14	V	17.45
38625	61.14	---	80	18.86	H	17.38
38625	---	50.01	60	9.99	H	17.38

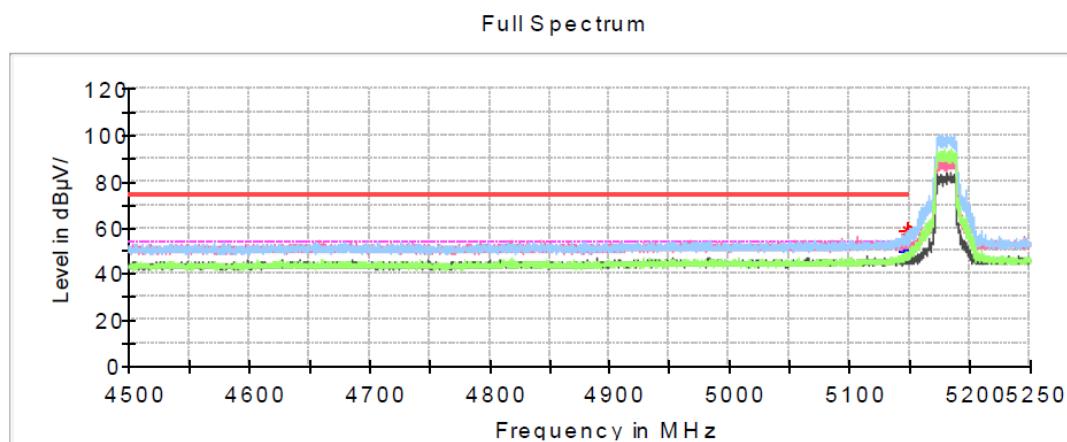
**Restricted bands Emission Test (5150-5250 MHz):**

Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

**802.11a Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11a mode 5180 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

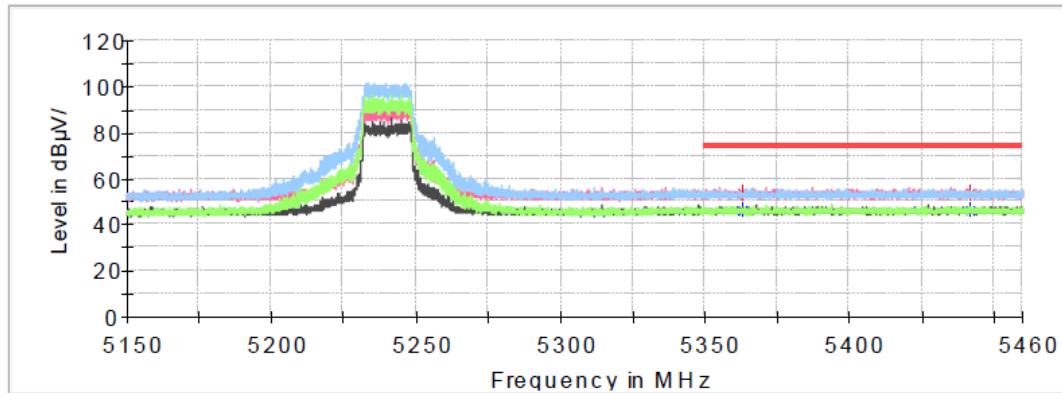
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5148.150000	58.55	---	74.00	15.45	H	8.2
5148.150000	---	49.90	54.00	4.10	H	8.2
5149.950000	57.15	---	74.00	16.85	H	8.2
5149.950000	---	50.24	54.00	3.76	H	8.2

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11a mode 5240 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

Full Spectrum

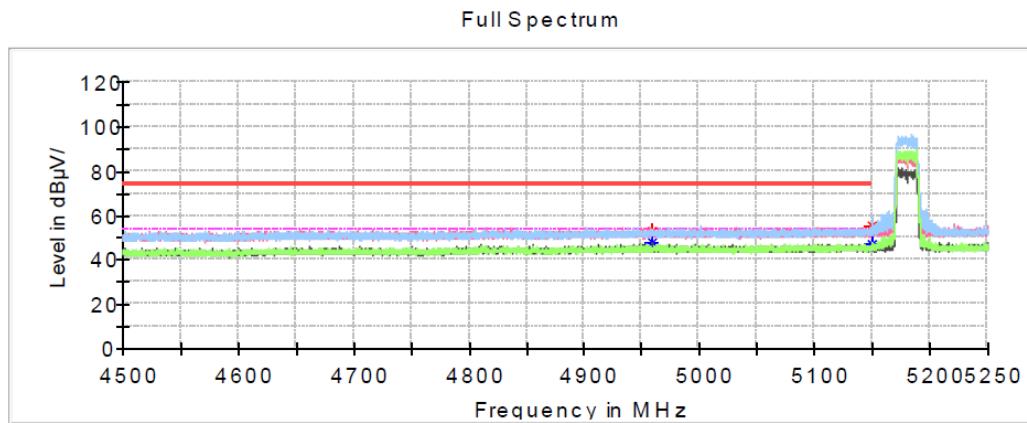


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5363.280000	---	46.50	54.00	7.50	H	8.8
5363.280000	53.66	---	74.00	20.34	H	8.8
5441.741000	---	46.06	54.00	7.94	V	9.0
5441.741000	53.67	---	74.00	20.33	V	9.0

**802.11n20 Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5180 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

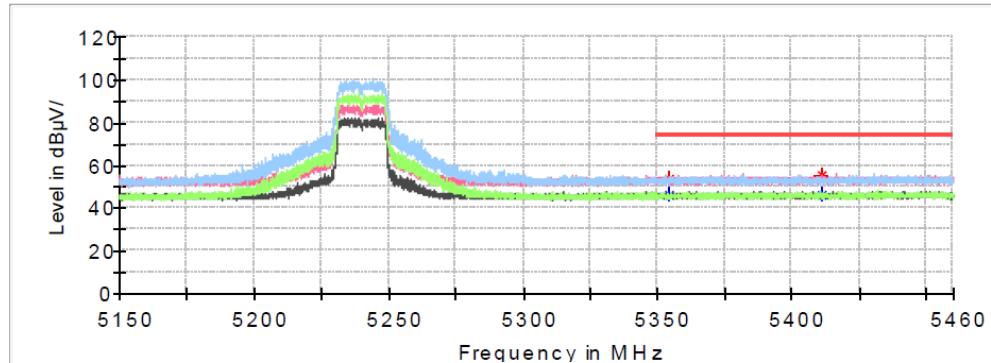
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4959.675000	52.89	---	74.00	21.11	V	7.7
4959.675000	---	47.93	54.00	6.07	V	7.7
5149.050000	55.71	---	74.00	18.29	H	8.2
5149.050000	---	46.76	54.00	7.24	H	8.2

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5240 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

Full Spectrum

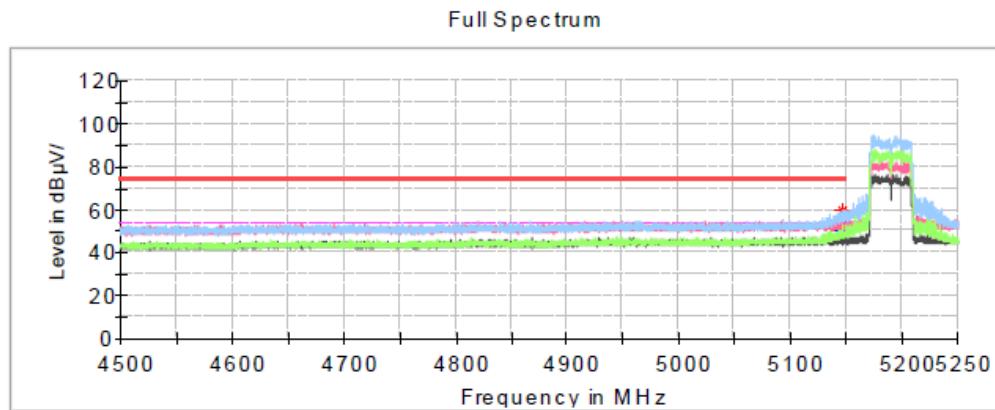


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5354.352000	---	46.49	54.00	7.51	V	8.7
5354.352000	53.51	---	74.00	20.49	V	8.7
5411.206000	---	45.77	54.00	8.23	H	8.9
5411.206000	55.61	---	74.00	18.39	H	8.9

**802.11n40 Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5190 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

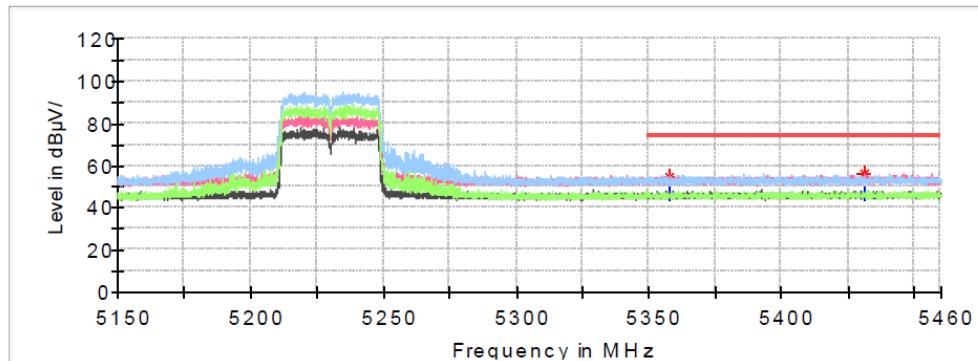
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5147.025000	59.41	---	74.00	14.59	H	8.2
5147.025000	---	49.94	54.00	4.06	H	8.2
5149.800000	58.12	---	74.00	15.88	H	8.2
5149.800000	---	52.67	54.00	1.33	H	8.2

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5230channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

Full Spectrum



## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5357.731000	---	46.04	54.00	7.96	H	8.8
5357.731000	54.54	---	74.00	19.46	H	8.8
5431.077000	---	46.57	54.00	7.43	V	8.9
5431.077000	55.82	---	74.00	18.18	V	8.9

### Restricted bands Emission Test (5250-5350 MHz):

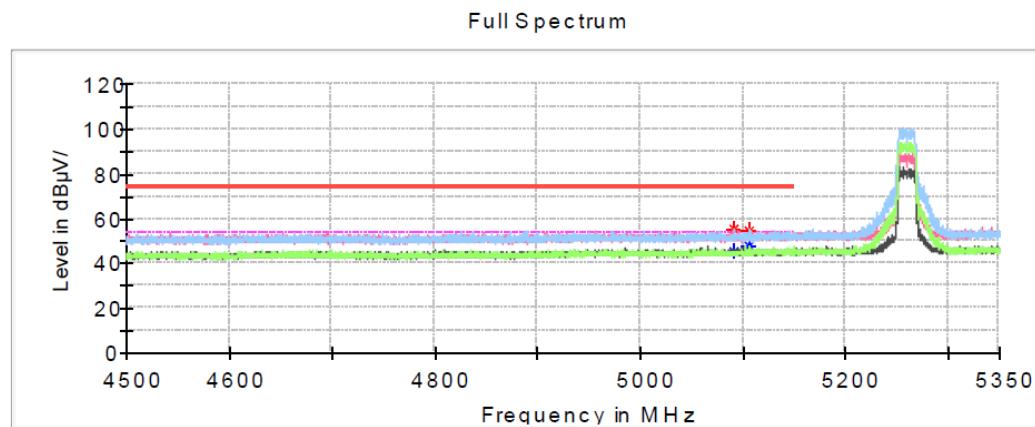
Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

#### 802.11a Mode:

#### Common Information

Project No.: RSHA240717001  
 Test Mode: Transmitting in 802.11a mode 5260 channel  
 Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
 Test Engineer: Klein Zhu

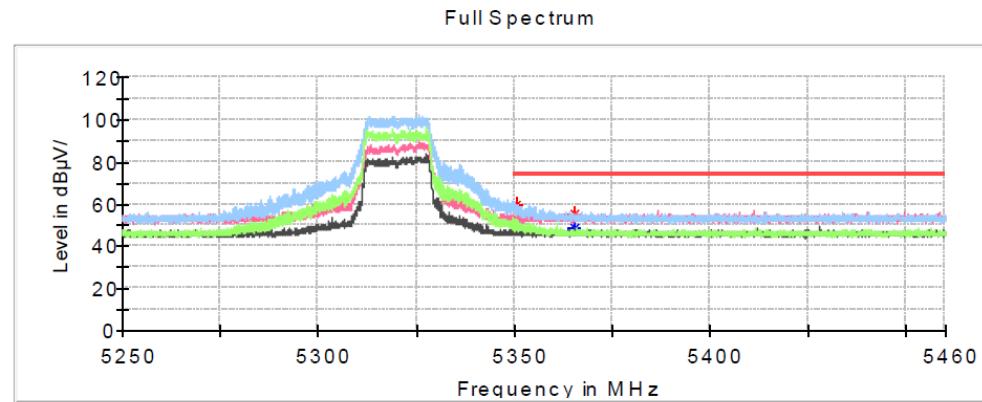


#### Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5091.515000	55.36	---	74.00	18.64	H	8.1
5091.515000	---	45.01	54.00	8.99	H	8.1
5107.240000	54.20	---	74.00	19.80	H	8.1
5107.240000	---	48.17	54.00	5.83	H	8.1

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11a mode 5320 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu



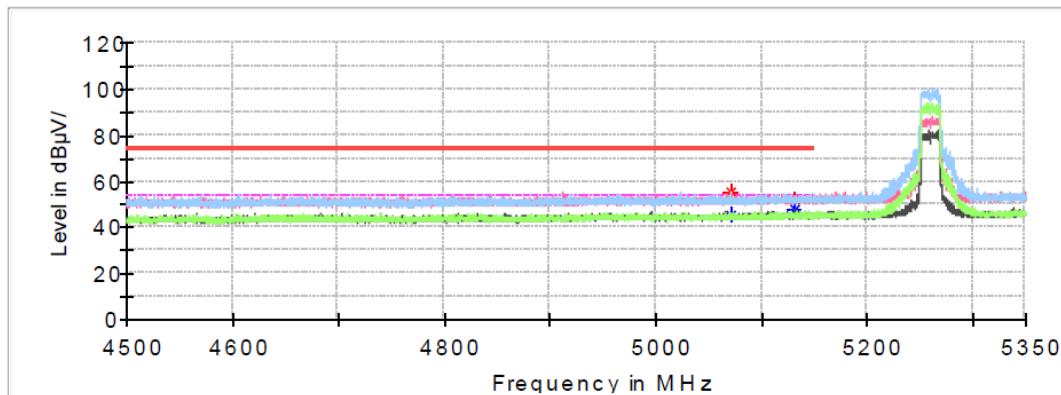
## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5350.485000	59.27	---	74.00	14.73	H	8.7
5350.485000	---	52.58	54.00	1.42	H	8.7
5365.311000	55.48	---	74.00	18.52	V	8.8
5365.311000	---	48.69	54.00	5.31	V	8.8

**802.11n20 Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5260 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

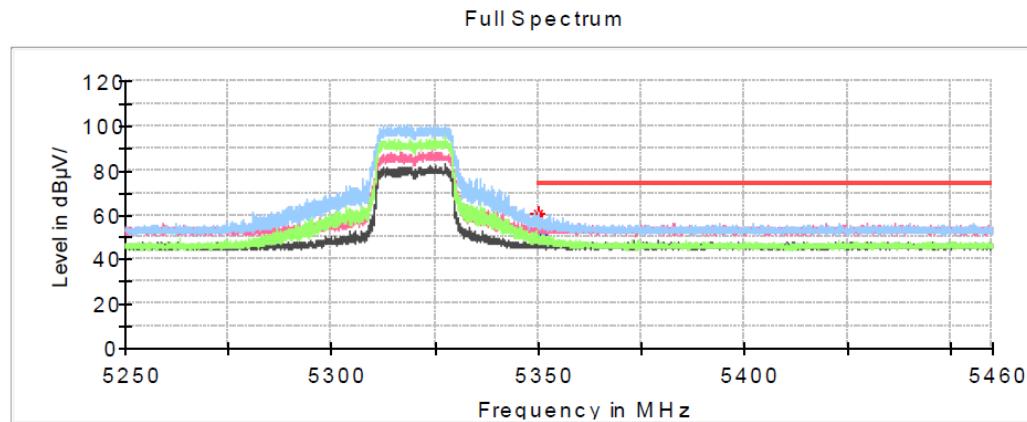
Full Spectrum

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5071.455000	55.29	---	74.00	18.71	H	8.0
5071.455000	---	45.20	54.00	8.80	H	8.0
5131.975000	52.44	---	74.00	21.56	V	8.2
5131.975000	---	47.86	54.00	6.14	V	8.2

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5320 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

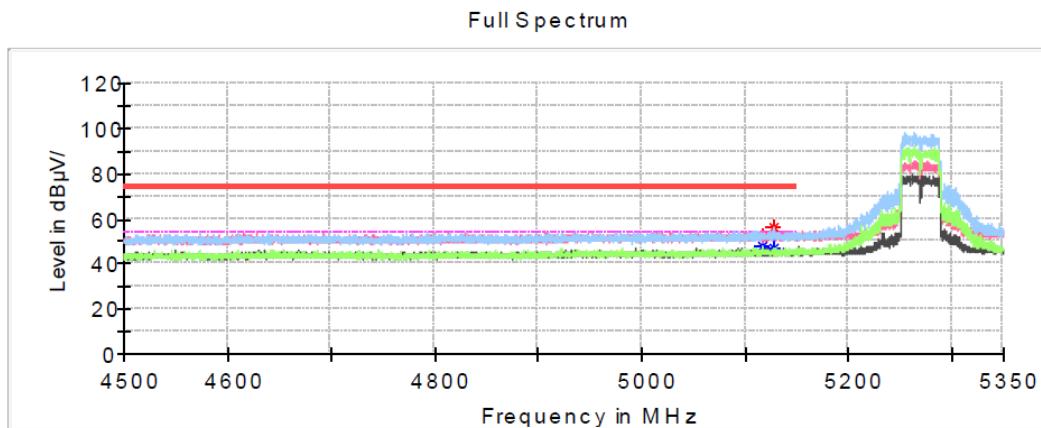


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5350.191000	60.65	---	74.00	13.35	H	8.7
5350.191000	---	50.33	54.00	3.67	H	8.7
5350.737000	56.24	---	74.00	17.76	H	8.7
5350.737000	---	51.26	54.00	2.74	H	8.7

**802.11n40 Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5270 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

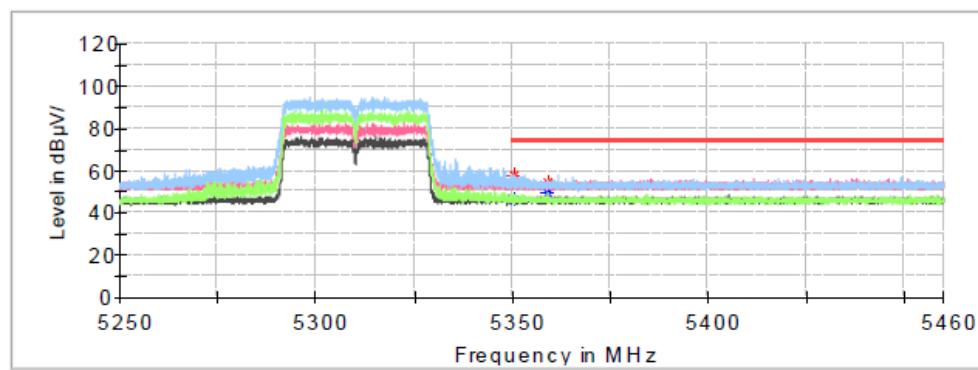
**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5117.015000	52.30	---	74.00	21.70	H	8.1
5117.015000	---	47.65	54.00	6.35	H	8.1
5127.470000	56.01	---	74.00	17.99	H	8.2
5127.470000	---	46.77	54.00	7.23	H	8.2

**Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5310 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Pol	Corr. (dB/m)
5350.632000	58.00	---	74.00	16.00	H	8.7
5350.632000	---	46.51	54.00	7.49	H	8.7
5359.116000	54.54	---	74.00	19.46	H	8.8
5359.116000	---	49.15	54.00	4.85	H	8.8

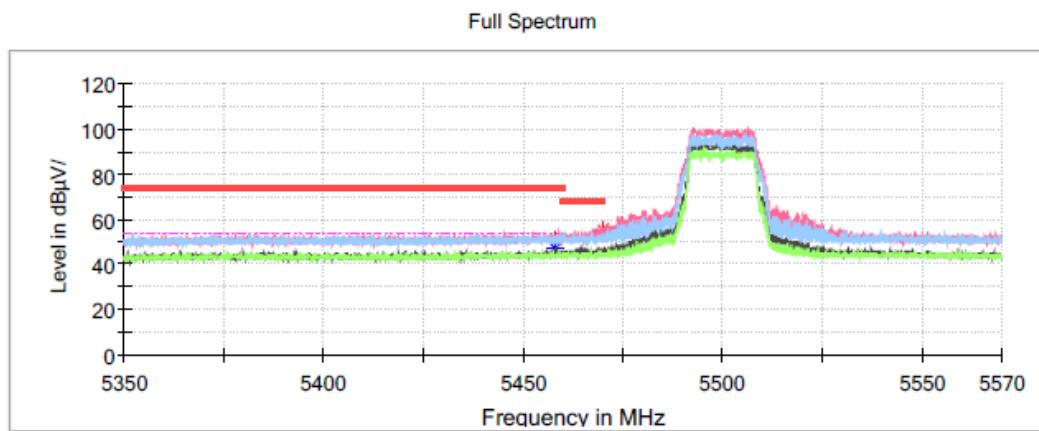
**Restricted bands Emission Test (5470-5725 MHz):**

Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

**802.11a Mode:****Common Information**

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11a mode 5500 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

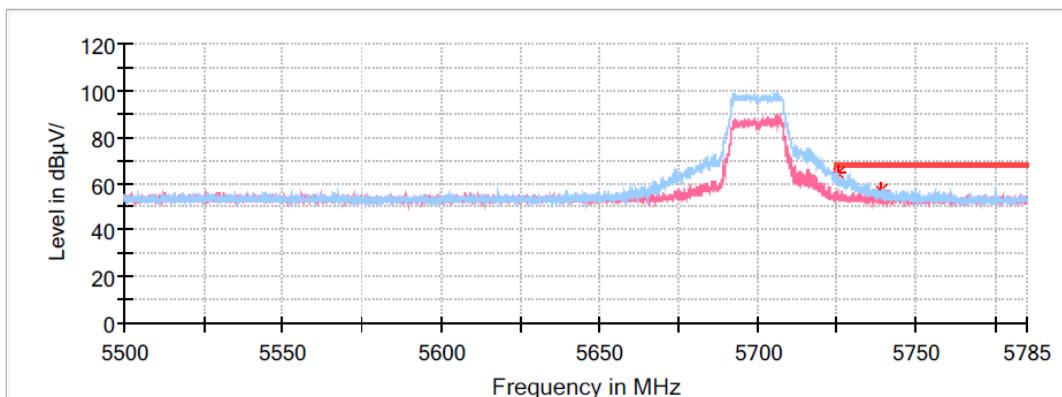
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5458.152000	50.94	---	74.00	23.06	H	5.0
5458.152000	---	46.63	54.00	7.37	H	5.0
5469.746000	55.60	---	68.20	12.60	V	5.0

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11a mode 5700 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

Full Spectrum

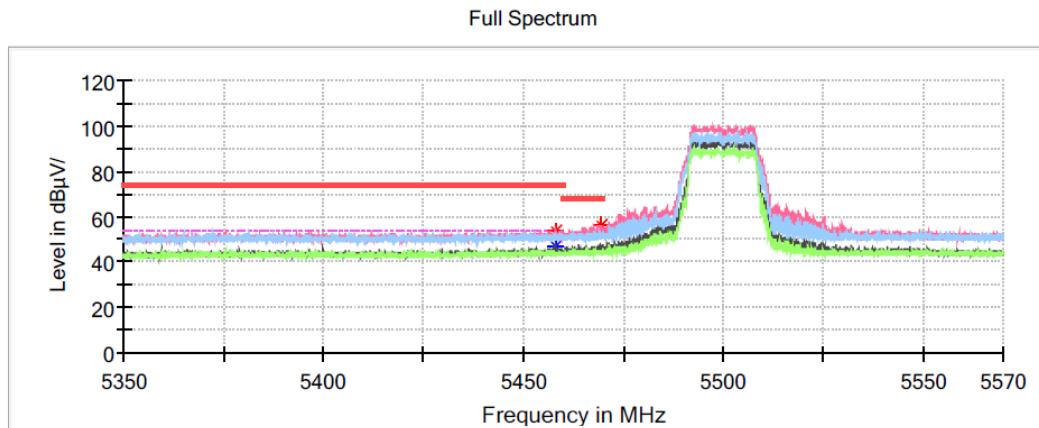


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5725.207000	64.50	---	68.20	3.70	H	8.9
5738.972500	57.14	---	68.20	11.06	H	8.9

**802.11n20 Mode:****Common Information**

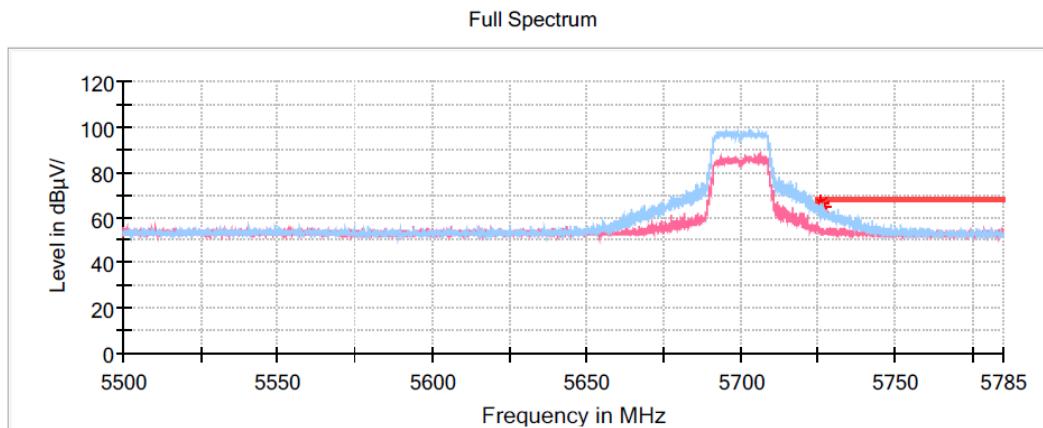
Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5500 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5458.328000	53.45	---	74.00	20.55	V	5.0
5458.328000	---	46.60	54.00	7.40	V	5.0
5469.350000	56.13	---	68.20	12.07	V	5.0

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n20 mode 5700 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

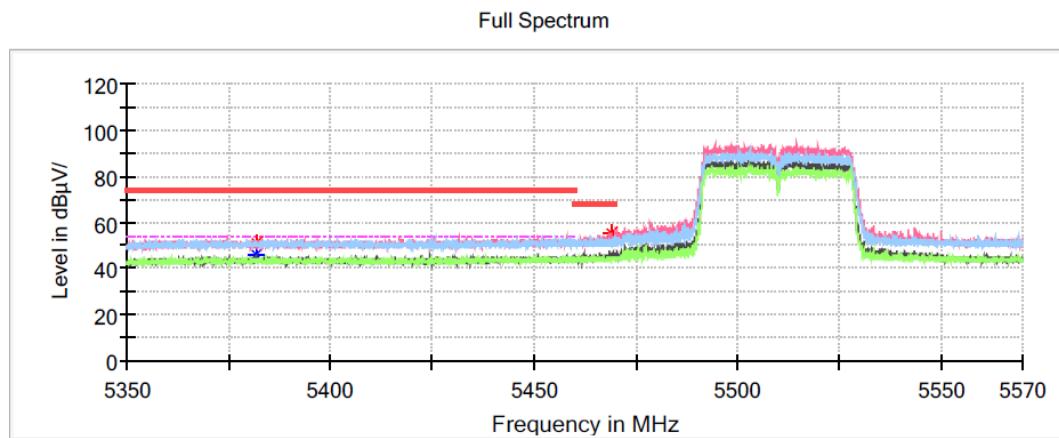


## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5725.862500	66.10	---	68.20	2.10	H	8.9
5726.945500	64.26	---	68.20	3.94	H	8.9

**802.11n40 Mode:****Common Information**

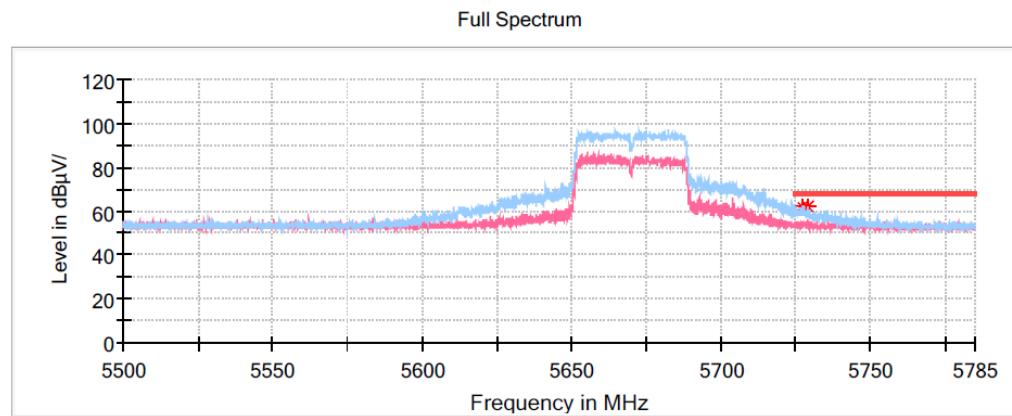
Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5510 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu

**Critical\_Freqs**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5381.592000	51.44	---	74.00	22.56	H	4.8
5381.592000	---	46.02	54.00	7.98	H	4.8
5468.976000	55.39	---	68.20	12.81	V	5.0

## Common Information

Project No.: RSHA240717001  
Test Mode: Transmitting in 802.11n40 mode 5670 channel  
Standard: FCC Part 15.407& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Klein Zhu



## Critical\_Freqs

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5727.544000	62.14	---	68.20	6.06	H	8.9
5729.083000	61.83	---	68.20	6.37	H	8.9