NVLAP TESTING
NVLAP LAB CODE 600338-0

BACL Bay Area Compliance Labs Corp.

FCC PART 15.407

TEST REPORT

For

Heilongjiang Huida Technology Co., Ltd

Building 1, Science and Technology Innovation Headquarters, Shenzhen (Harbin) Industrial Park, No. 288, Zhigu Street, Songbei District, Harbin, China

FCC ID: 2BBNT-HD402

Report Type:	Product Name:
Original Report	Intelligent Remote Control

Report Number:	RSHA240322001-00E
Report Date:	2024-12-31
Reviewed By:	Jenny Yang
Approved By:	Oscar Ye
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu Province, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RSHA240322001-00E	R1V1	2024-12-31	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Heilongjiang Huida Technology Co., Ltd
Tested Model:	HD402
Product Name:	Intelligent Remote Control
Power Supply:	DC 7.4V from battery and charging by DC 7.3V battery
RF Function:	5G SRD
Operating Band/Frequency:	B1: 5180-5240 MHz, B4: 5735-5805 MHz
Maximum Average Output Power:	Band 1: 7.65 dBm Band 4: 7.07 dBm
Channel Number:	15
Modulation Type:	BPSK
Antenna Type:	Omni Antenna
★Maximum Antenna Gain:	Band 1: 1.82 dBi Band 4: 2.70 dBi

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: RSHA240322002-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-03-22.)

Objective

This type approval report is prepared for *Heilongjiang Huida Technology 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, 15.207, 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.

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℃
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

Test channel list as below:

For **5180~5240 MHz** band, EUT was tested with Channel 1, 4 and 7.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5180	5	5220
2	5190	6	5230
3	5200	7	5240
4	5210	/	/

For **5735~5805 MHz** band, EUT was tested with Channel 1, 5 and 8.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5735	5	5775
2	5745	6	5785
3	5755	7	5795
4	5765	8	5805

Equipment Modifications

No modification was made to the EUT tested.
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EUT Exercise Software

RF test tool: Artosyn8030PCTool

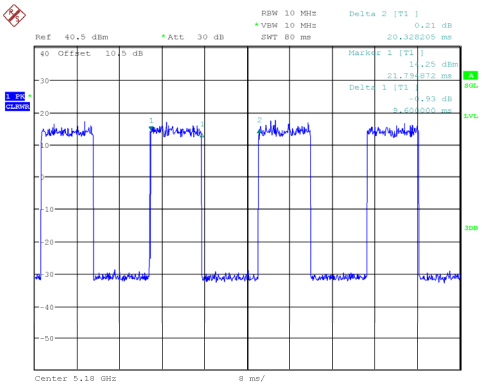
Mode	Channel	Frequency (MHz)	★Power Level
SRD (BW: 1.25 MHz)	Low	5180	7
	Middle	5210	7
	High	5240	7
SRD (BW: 10 MHz)	Low	5180	8
	Middle	5210	9
	High	5240	9

Mode	Channel	Frequency (MHz)	★Power Level
SRD (BW: 1.25 MHz)	Low	5735	9
	Middle	5775	9
	High	5805	9
SRD (BW: 10 MHz)	Low	5735	9
	Middle	5775	10
	High	5805	11

Note: The power level was declared by the applicant.

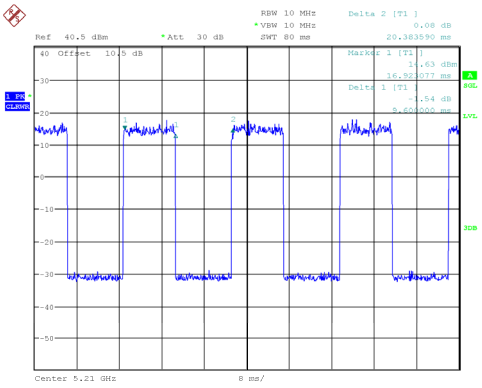
Band 1
Duty Cycle:
BW: 1.25 MHz

Low Channel: 5180 MHz



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:51:24

Middle Channel: 5210 MHz



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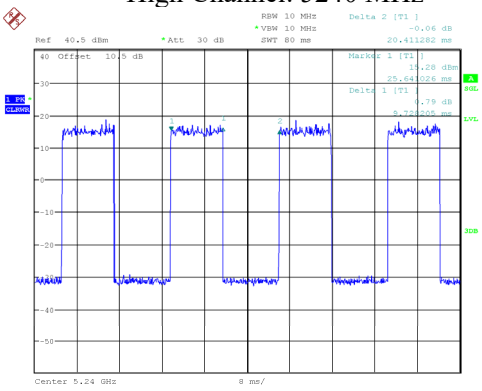
High Channel: 5240 MHz



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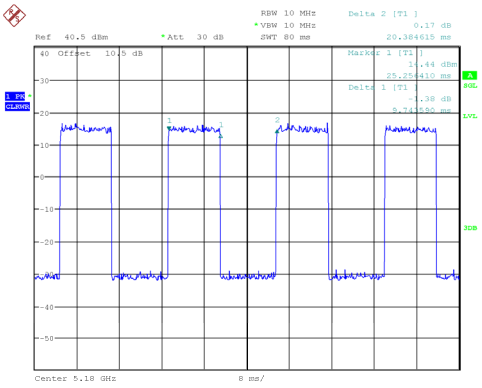
10 MHz

Low Channel: 5180 MHz



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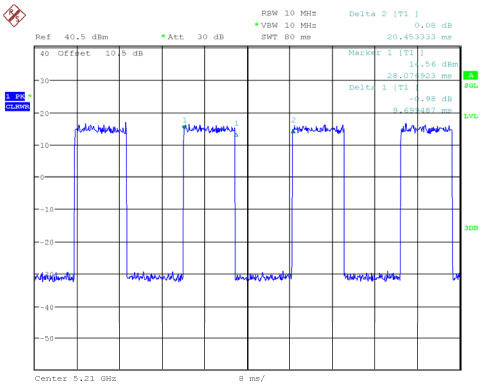
Middle Channel: 5210 MHz



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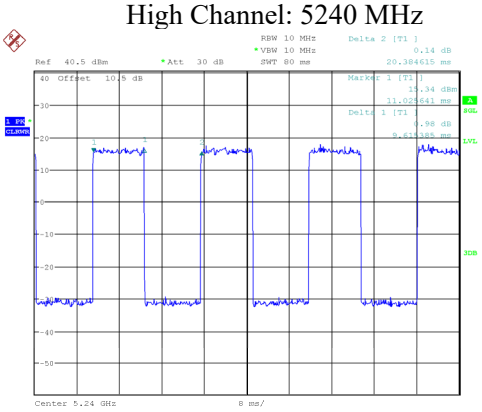
High Channel: 5240 MHz



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Date: 31.DEC.2024 10:14:09

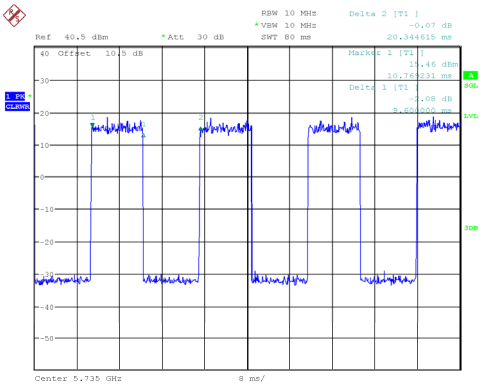
Note： Offset（10.5dB）= Attenuator(10dB)+Cable loss(0.5dB)

Mode	Channel	Duty Cycle (%)	Ton (ms)	Ton+off (ms)	10log(1/x)(dB)
SRD (BW: 1.25 MHz)	Low	47.22	9.60	20.33	3.26
	Middle	47.11	9.60	20.38	3.27
	High	47.67	9.73	20.41	3.22
SRD (BW: 10 MHz)	Low	47.79	9.74	20.38	3.21
	Middle	47.43	9.70	20.45	3.24
	High	47.20	9.62	20.38	3.26

Note: "x" means the Duty Cycle.

Band 4
Duty Cycle:
BW: 1.25 MHz

Low Channel: 5735 MHz



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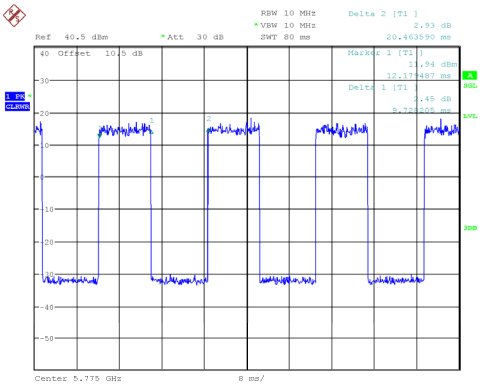
Middle Channel: 5775 MHz



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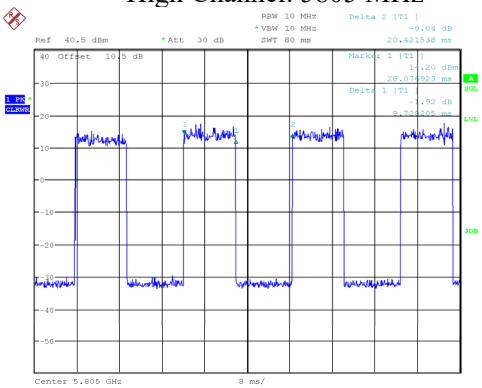
High Channel: 5805 MHz



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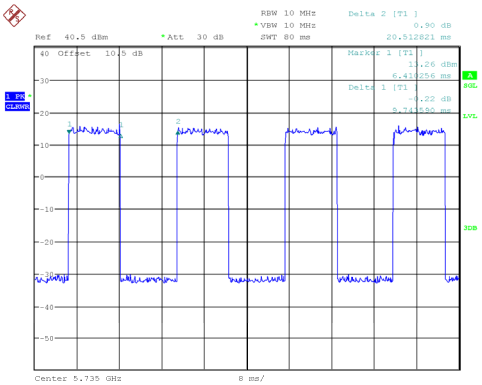
Date: 31.DEC.2024 11:56:41

10 MHz

Low Channel: 5735 MHz



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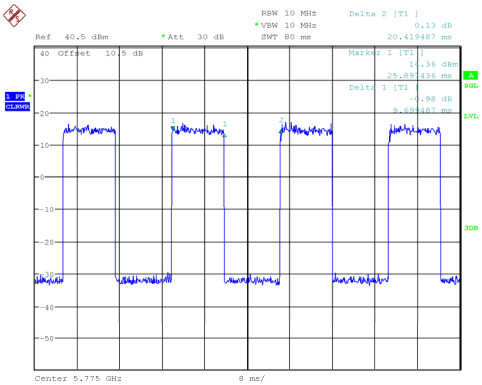
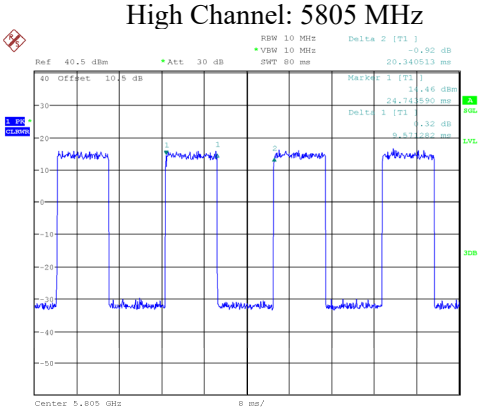
Middle Channel: 5775 MHz



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:04:46

High Channel: 5805 MHz



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:03:32

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

Mode	Channel	Duty Cycle (%)	Ton (ms)	Ton+off (ms)	10log(1/x)(dB)
SRD (BW: 1.25 MHz)	Low	47.20	9.60	20.34	3.26
	Middle	47.56	9.73	20.46	3.23
	High	47.65	9.73	20.42	3.22
SRD (BW: 10 MHz)	Low	47.49	9.74	20.51	3.23
	Middle	47.50	9.70	20.42	3.23
	High	47.05	9.57	20.34	3.27

Note: "x" means the Duty Cycle.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

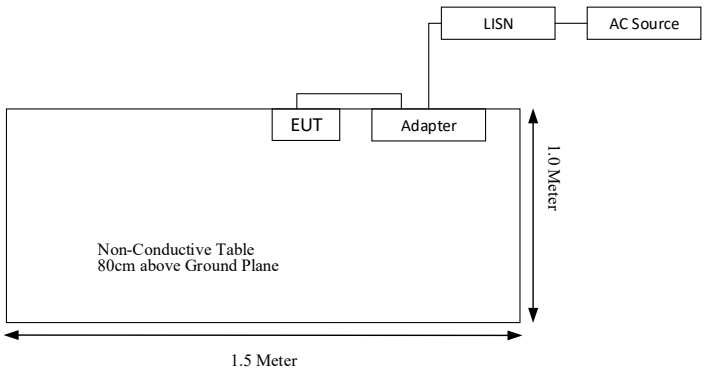
Manufacturer	Description	Model	Serial Number
Huntkey	Adapter	HK06520033-0C1	/

External I/O Cable

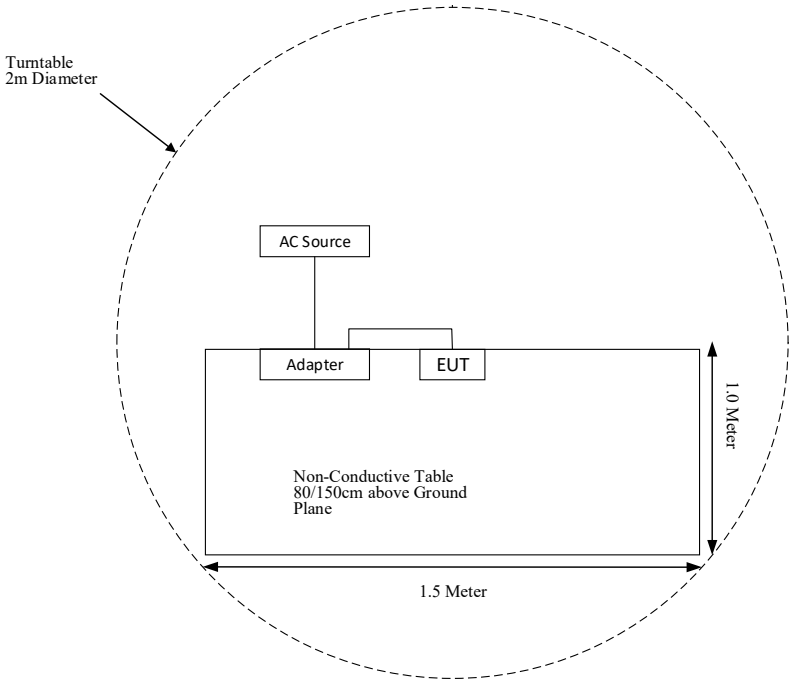
Cable Description	Length (m)	From Port	To
Power Cable	1.0	LISN/AC Source	Adapter
USB Cable	1.0	Adapter	EUT

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emissions(Below 1GHz & Above 1 GHz):



TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber #1)					
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	2024-04-23	2025-04-22
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
Radiated Emission Test (Chamber #2)					
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	BRC50703	G094	2024-04-23	2025-04-22
MICRO-TRONICS	Band Reject Filter	BRC50705	G085	2024-04-23	2025-04-22
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	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-23	2025-04-22
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	100147	2024-04-01	2025-03-31
Rohde & Schwarz	Signal Analyzer	FSV40	101116	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
XHFDZ	RG316 Coaxial Cable	SMA-316	XHF-1175	Each time	N/A
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102154	2024-04-23	2025-04-22
Rohde & Schwarz	Signal Analyzer	FSV40-N	103298	2024-04-24	2025-04-23
Rohde & Schwarz	LISN	ENV216	101115	2024-04-23	2025-04-22
Audix	Test Software	e3	V9	N/A	N/A
Narda	Attenuator	10 dB	N/A	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-15	015	2024-04-23	2025-04-22

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	Compliant
§ 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
§1.1310 & §2.1093	RF Exposure	Compliant

FCC §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
• f(GHz) is the RF channel transmit frequency in GHz
• Power and distance are rounded to the nearest mW and mm before calculation
• The result is rounded to one decimal place for comparison
• 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Calculation Results

Frequency Range (MHz)	Max Tune-up Conducted Average Power		Calculated Distance (mm)	Calculated Value	Threshold (1-g SAR)	SAR Test Exclusion
	(dBm)	(mW)				
5180-5240	8.0	6.31	5	2.9	3.0	Yes
5735-5805	7.5	5.62	5	2.7	3.0	Yes

Result: So the stand-alone SAR evaluation is not necessary.

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

Antenna use a unique type of connector to attach to the EUT. fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Frequency Range	Max. Antenna Gain	Input impedance
Omni Antenna	5180~5240 MHz	1.82 dBi	50Ω
	5735~5805 MHz	2.70 dBi	50Ω

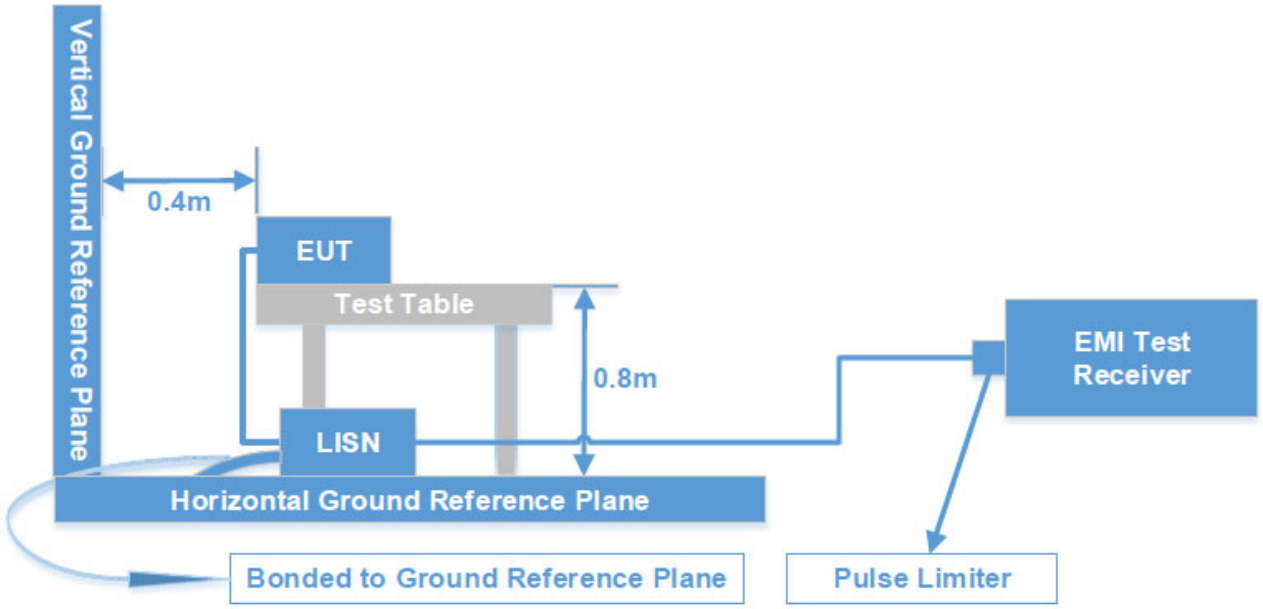
Result: Compliant.

FCC §15.407 (b) (9) §15.207 (a) – AC POWER LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (9)

Test System Setup



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

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

Frequency Range	RBW	VBW
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

During the conducted emission test, the EUT or adapte Injector was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Level & Over Limit Calculation

The Level is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Level (dBμV) = Read level (dBμV) + Factor (dB)

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit of 7 dB means the emission is 7 dB above the limit. The equation for Over Limit calculation is as follows:

Over Limit (dB) = Level (dBμV) - Limit (dBμV)

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data: See Appendix

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

Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

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.

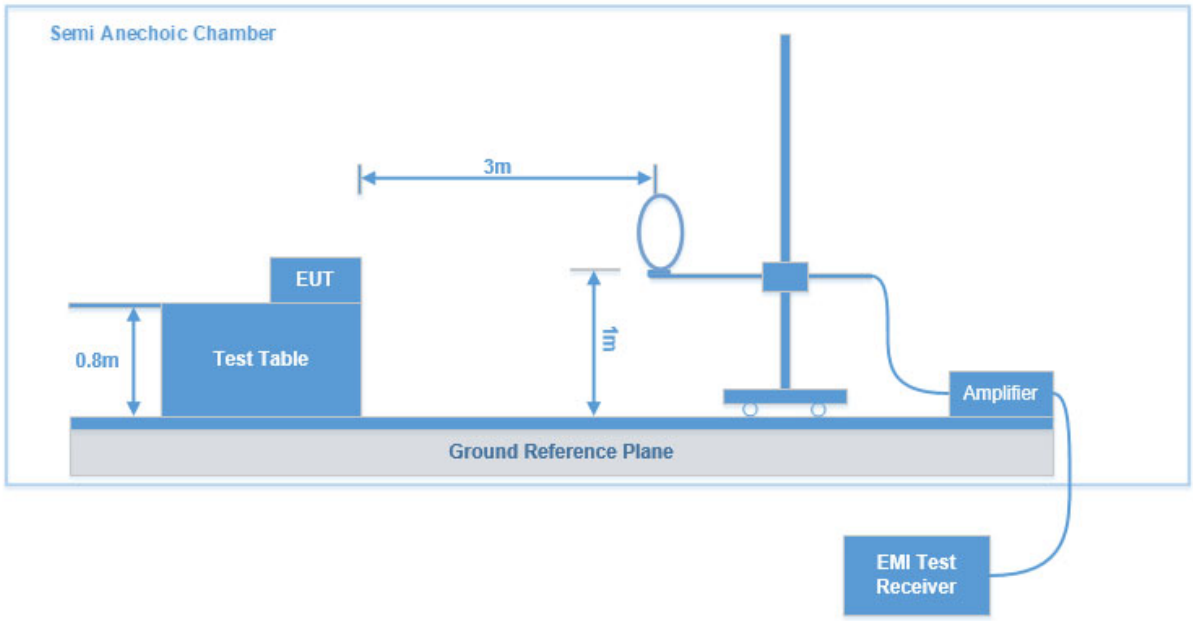
For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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

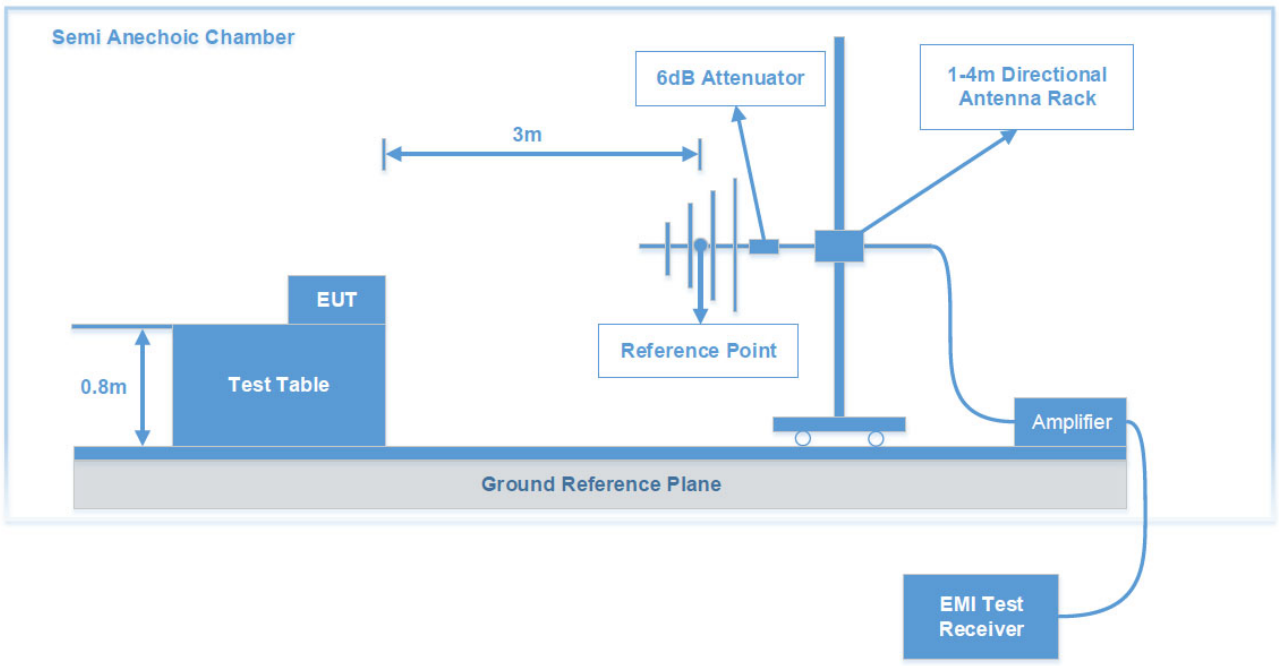
According to 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBµV/m] = EIRP [dBm] + 95.2, for d = 3 meters.

Test System Setup

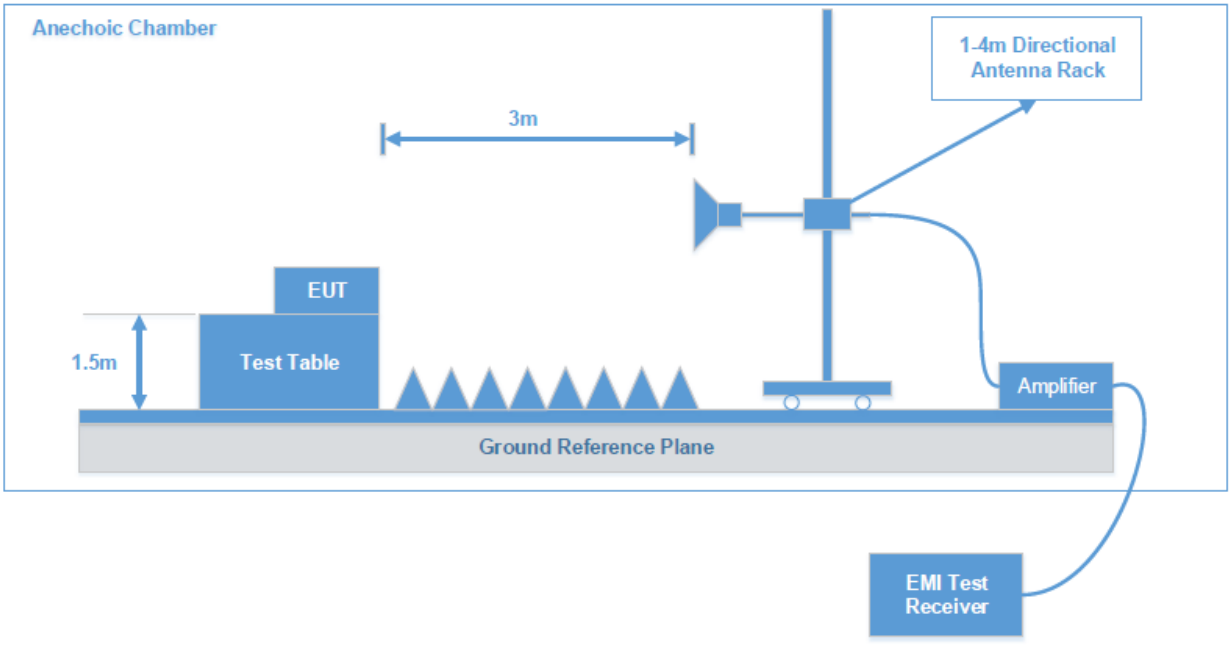
9 kHz - 30 MHz:



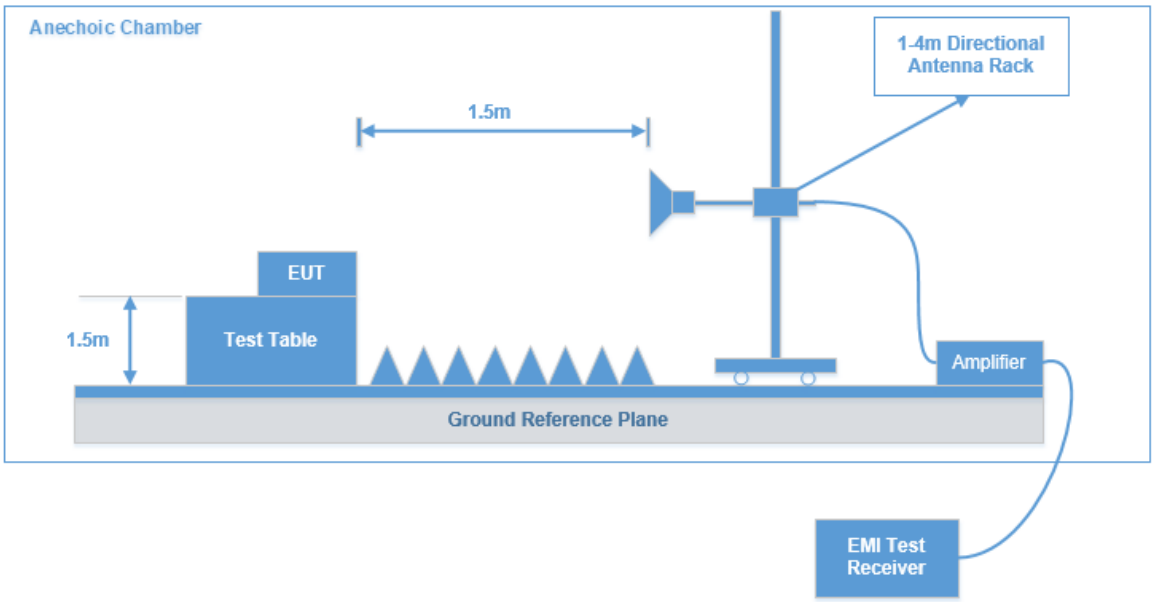
30 MHz - 1 GHz:



1 GHz - 18 GHz:



18 GHz - 40 GHz:



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 80dBµV/m（Peak）and 60dBµV/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:

Corrected Amplitude (dBμV/m) = Meter Reading (dBμV) + Corrected factor（dB/m）
Corrected factor（dB/m）= Antenna Factor (dB/m) + Cable Loss (dB) - 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:

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV/m)

Note: The QuasiPeak (dBμV/m), MaxPeak (dBμV/m), Average (dBμV/m) which shown in the data table are all Corrected Amplitude.

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 band is 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

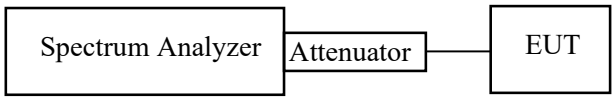
1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. 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) ≥ 3 × 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

According to §15.407(a)(1)

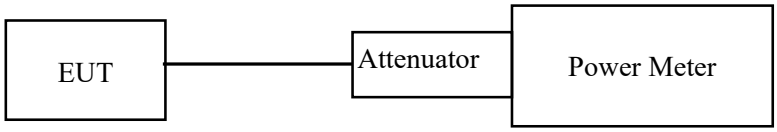
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

According to §15.407(a) (3)

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

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

According to §15.407(a) (1)

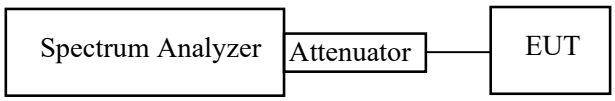
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

According to §15.407(a) (3)

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 base on C63.10:2013
Duty cycle ≥98% ,Method SA-1 should be applied.
Duty cycle <98%, duty cycle variations are less than ±2%,Method SA-2 should be applied.
Duty cycle <98%, duty cycle variations exceed ±2%,Method SA-3 should be applied.



Test Data: See Appendix

APPENDIX - TEST DATA

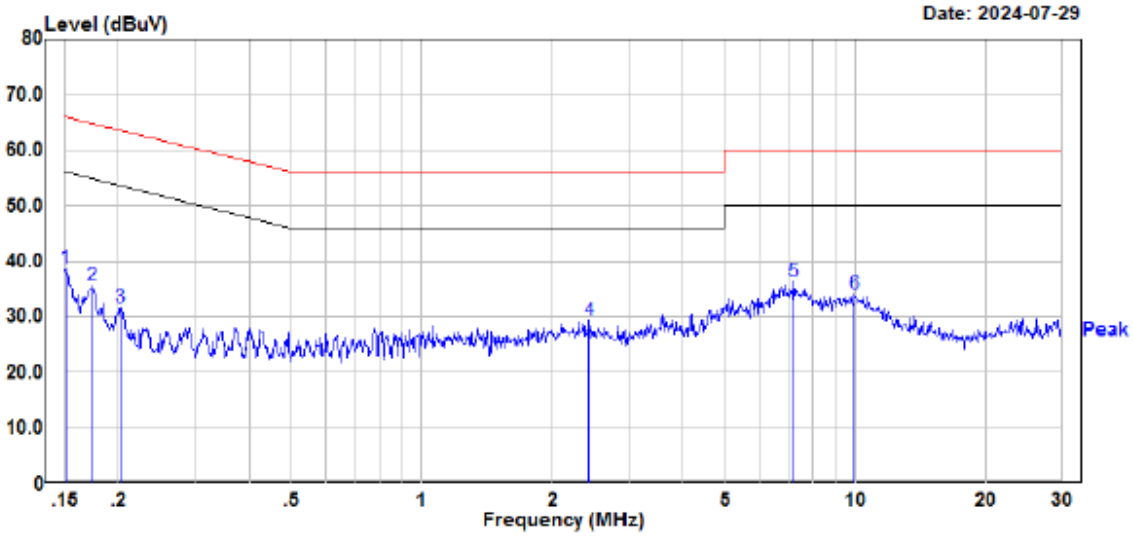
Environmental Conditions & Test Information

Test Item:	UNWANTED EMISSIONS & RESTRICTED FREQUENCY BANDS			Duty Cycle	AC LINE CONDUCTED EMISSIONS
	9 kHz - 1GHz	1 GHz – 18 GHz	18 GHz - 40 GHz		
Test Date:	2024-04-29 & 2024-07-13	2024-07-20	2024-07-13	2024-12-31	2024-07-29
Temperature:	25.5 ℃ - 26 ℃	22.8 ℃	25.5 ℃	23.6 ℃	28.1 ℃
Relative Humidity:	52 % - 55 %	53 %	52 %	52 %	56 %
ATM Pressure:	100.5kPa – 101.0kPa	100.5kPa	100.5kPa	102.5 kPa	101.1kPa
Test Result:	Pass	Pass	Pass	/	Pass
Test Engineer:	Leah Li	Klein Zhu	Hugh Wu	Neil Zhou	Leah Li

Test Item:	EMISSION BANDWIDTH	CONDUCTED TRANSMITTER OUTPUT POWER	POWER SPECTRAL DENSITY
Test Date:	2024-08-14 to 2024-11-20	2024-08-15	2024-12-31
Temperature:	23 ℃ - 25 ℃	23 ℃	23.6 ℃
Relative Humidity:	45 % - 50 %	50 %	52 %
ATM Pressure:	100.6 kPa – 101.0 kPa	100.6 kPa	102.5 kPa
Test Result:	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Neil Zhou	Neil Zhou

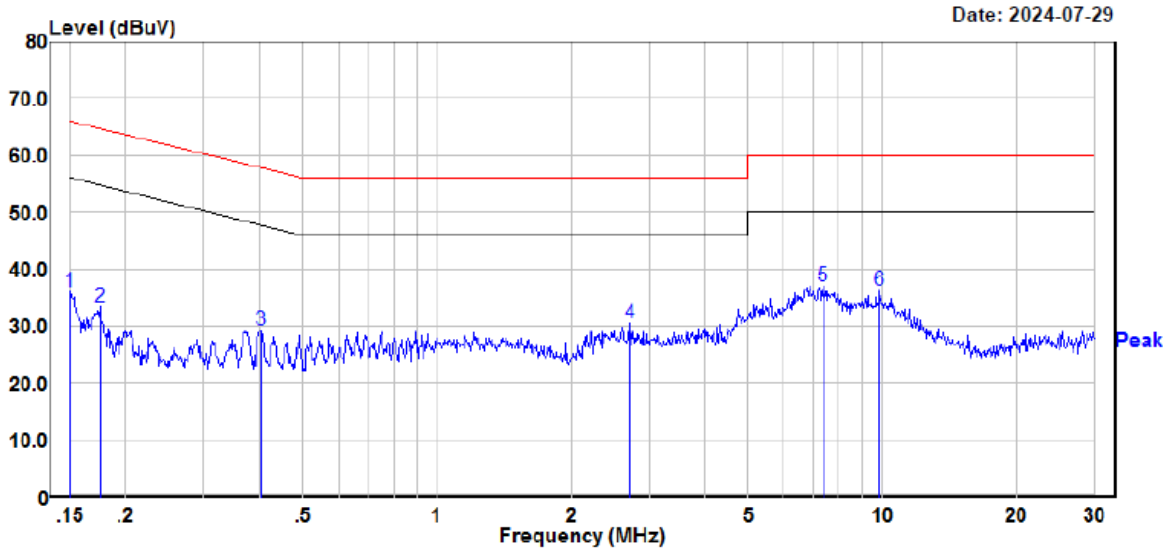
AC LINE CONDUCTED EMISSIONS

EUT operation mode: Transmitting in maximum output power mode SRD 10MHz high channel (5180-5240MHz)




```
Site                : CE
Condition           : limit\FCC PART 15B\Class B QP.csv Line
                    : DET:Peak
Project No.         : RSHA240322001
Model               : HD402
Phase               : L
Voltage             : 120V/60Hz
Mode                : 5G WIFI SRD
Test Equipment      : ENV216,ESR
Temperature         : 28.1℃
Humidity            : 56%
Atmospheric pressure: 101.1kPa
Test Engineer       : Leah Li
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.151	18.61	20.12	38.73	65.96	-27.23	Peak
2	0.173	15.46	20.11	35.57	64.80	-29.23	Peak
3	0.202	11.59	20.11	31.70	63.52	-31.82	Peak
4	2.433	8.99	20.19	29.18	56.00	-26.82	Peak
5	7.212	16.01	20.16	36.17	60.00	-23.83	Peak
6	9.971	14.12	20.01	34.13	60.00	-25.87	Peak



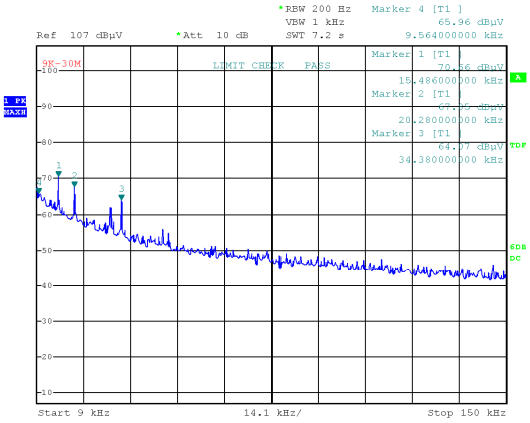
Site : CE
Condition : limit\FCC PART 15.207
: DET:Peak
Project No. : RSHA240322001
Model : HD402
Phase : N
Voltage : 120V/60Hz
Mode : 5G SRD
Test Equipment : ENV216,ESR
Temperature : 28.1℃
Humidity : 56%
Atmospheric pressure: 101.1kPa
Test Engineer : Leah Li

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	15.90	20.12	36.02	66.00	-29.98	Peak
2	0.175	13.21	20.12	33.33	64.72	-31.39	Peak
3	0.402	9.02	20.20	29.22	57.80	-28.58	Peak
4	2.701	10.15	20.20	30.35	56.00	-25.65	Peak
5	7.357	16.88	20.15	37.03	60.00	-22.97	Peak
6	9.823	16.30	20.02	36.32	60.00	-23.68	Peak

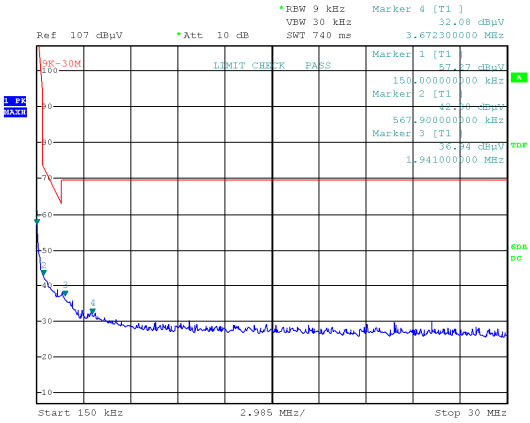
TRANSMITTER UNWANTED EMISSIONS & RESTRICTED FREQUENCY BANDS

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

9 kHz - 30 MHz: *transmit in maximum output power mode SRD 10MHz high channel(5180-5240MHz）*
(Parallel worst)



Project No.RSHA240322001 Tester:Leah Li
Date: 29.APR.2024 14:31:00



Project No.RSHA240322001 Tester:Leah Li
Date: 29.APR.2024 14:46:57

9 kHz - 150 kHz

Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.009564	65.96	PK	56.64	127.99	62.03
0.015486	70.66	PK	52.87	123.81	53.15
0.020280	67.85	PK	49.92	121.46	53.61
0.034380	64.07	PK	46.06	116.88	52.81

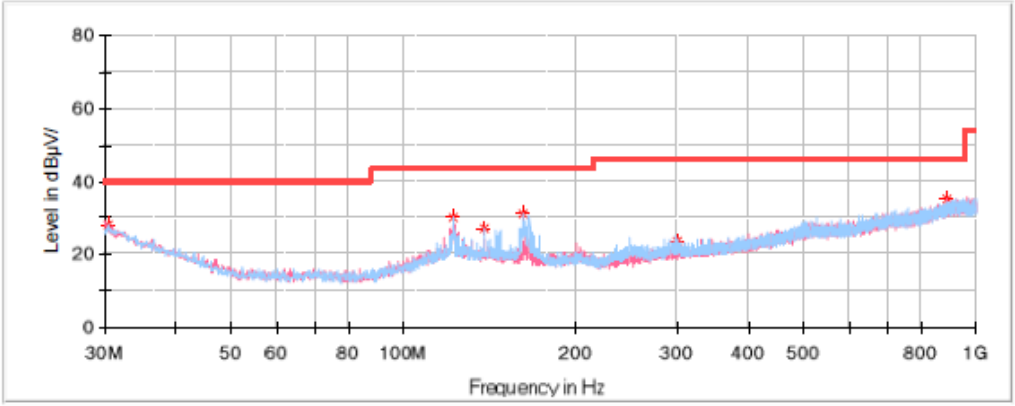
150 kHz - 30 MHz

Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.15000	57.27	PK	50.90	104.08	46.81
0.56790	42.88	PK	22.25	72.52	29.64
1.94100	36.94	PK	13.63	69.54	32.60
3.67230	32.08	PK	16.12	69.54	37.46

Band 1
30MHz - 1GHz: (Transmit in maximum output power mode SRD 10MHz)
Low Channel: 5180 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5180 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.407
Test Engineer:	Leah Li



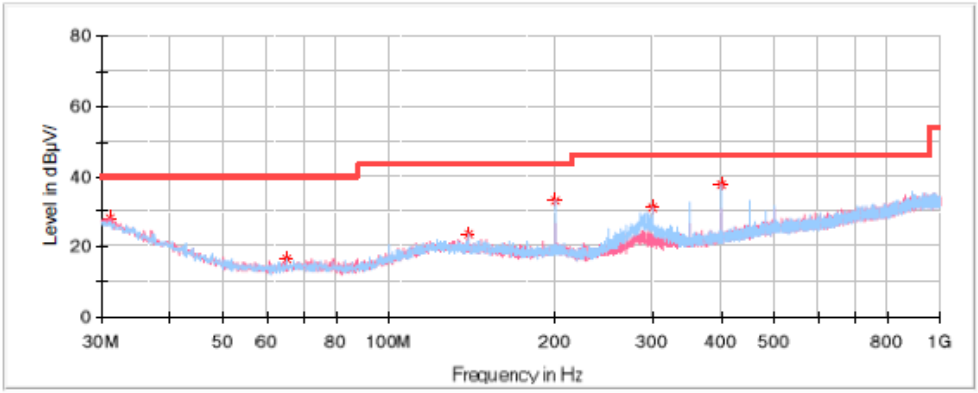
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.485000	28.03	40.00	11.97	H	-4.8
121.786250	30.07	43.50	13.43	V	-11.3
137.912500	27.32	43.50	16.18	H	-11.5
161.313750	30.97	43.50	12.53	H	-12.6
299.296250	23.72	46.00	22.28	H	-11.0
891.723750	35.15	46.00	10.85	V	1.1

Middle Channel: 5210 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5210 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.407
Test Engineer:	Leah Li



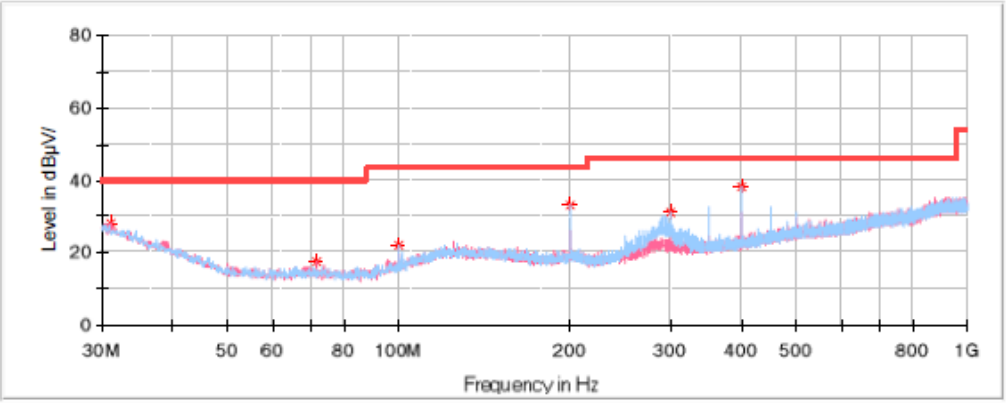
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.091250	27.99	40.00	12.01	V	-5.2
65.162500	16.69	40.00	23.31	H	-17.1
139.610000	23.64	43.50	19.86	H	-11.5
199.992500	33.12	43.50	10.38	H	-12.5
300.023750	31.03	46.00	14.97	H	-11.0
400.055000	37.84	46.00	8.16	H	-8.6

High Channel: 5240 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5240 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.407
Test Engineer:	Leah Li



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.212500	28.20	40.00	11.80	V	-5.3
71.710000	17.73	40.00	22.27	V	-16.9
99.961250	22.17	43.50	21.33	H	-14.8
199.992500	33.25	43.50	10.25	H	-12.5
300.023750	31.17	46.00	14.83	H	-11.0
400.055000	38.35	46.00	7.65	H	-8.6

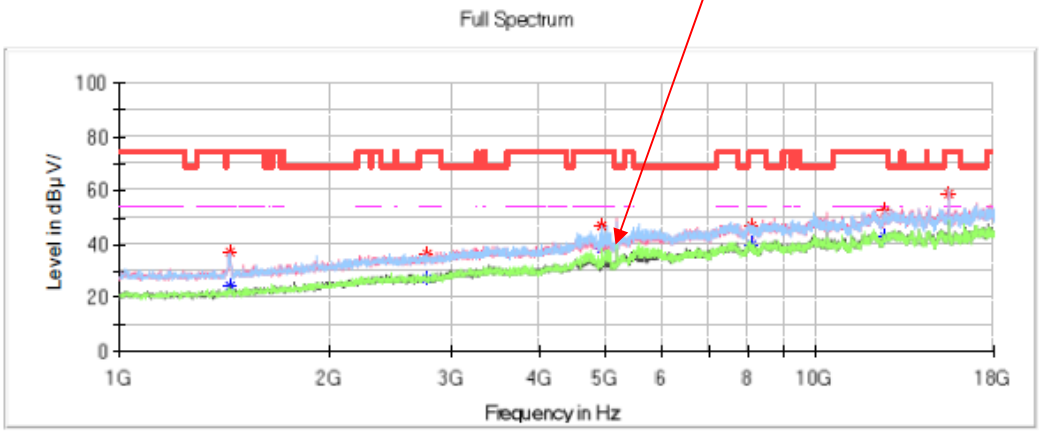
1GHz - 18GHz:
SRD (BW: 1.25 MHz)

Low Channel: 5180 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu

Fundamental Test with notch filter



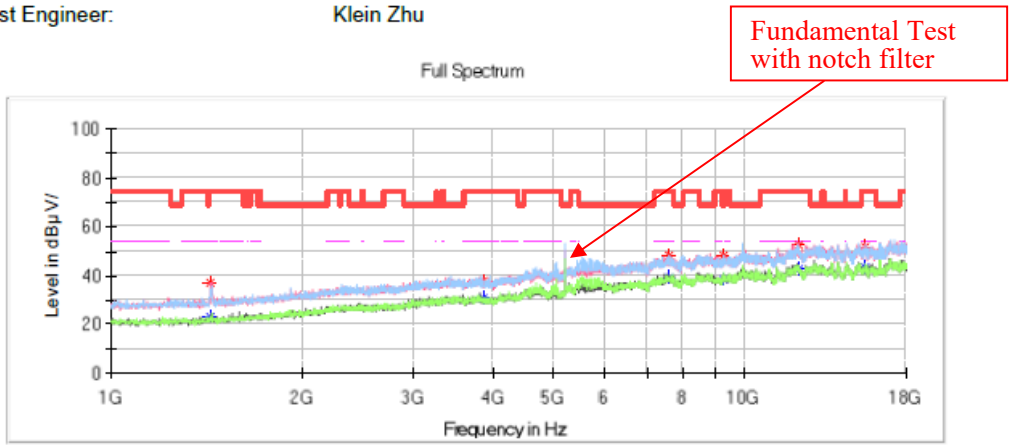
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1442.000000	---	24.78	54.00	29.22	V	-14.8
1442.000000	37.12	---	74.00	36.88	V	-14.8
2766.300000	---	27.48	54.00	26.52	V	-9.2
2766.300000	36.42	---	74.00	37.58	V	-9.2
4938.900000	---	38.72	54.00	15.28	H	-2.7
4938.900000	46.73	---	74.00	27.27	H	-2.7
8078.800000	---	39.87	54.00	14.13	H	4.2
8078.800000	46.57	---	74.00	27.43	H	4.2
12534.500000	---	42.68	54.00	11.32	H	9.7
12534.500000	52.12	---	74.00	21.88	H	9.7
15541.800000	58.64	---	74.00	15.36	V	9.8
15541.800000	---	49.90	54.00	4.10	V	9.8

Middle Channel: 5210 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



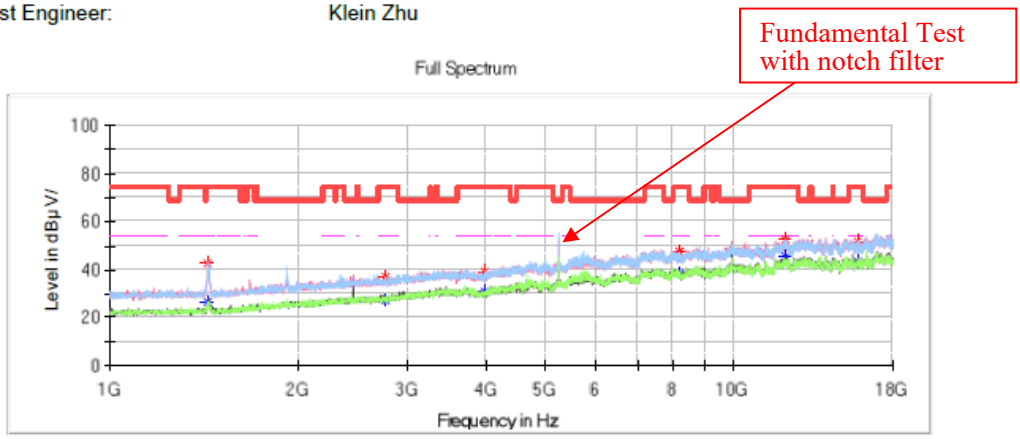
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1436.900000	---	22.77	54.00	31.23	V	-14.8
1436.900000	36.81	---	74.00	37.19	V	-14.8
3871.300000	---	30.91	54.00	23.09	H	-6.0
3871.300000	37.71	---	74.00	36.29	H	-6.0
7619.800000	---	38.82	54.00	15.18	H	3.9
7619.800000	48.24	---	74.00	25.76	H	3.9
9287.500000	48.57	---	68.20	19.63	V	5.4
12145.200000	---	42.93	54.00	11.07	V	9.2
12145.200000	52.49	---	74.00	21.51	V	9.2
15521.400000	---	43.64	54.00	10.36	V	9.8
15521.400000	51.51	---	74.00	22.49	V	9.8

High Channel: 5240 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
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)
1435.200000	---	26.51	54.00	27.49	H	-14.8
1435.200000	42.72	---	74.00	31.28	H	-14.8
2764.600000	---	27.37	54.00	26.63	H	-9.2
2764.600000	36.79	---	74.00	37.21	H	-9.2
3993.700000	---	31.01	54.00	22.99	H	-5.9
3993.700000	38.87	---	74.00	35.13	H	-5.9
8209.700000	---	38.56	54.00	15.44	V	4.5
8209.700000	47.28	---	74.00	26.72	V	4.5
12109.500000	---	45.21	54.00	8.79	V	9.1
12109.500000	52.42	---	74.00	21.58	V	9.1
15800.200000	---	43.04	54.00	10.96	V	9.6
15800.200000	52.09	---	74.00	21.91	V	9.6

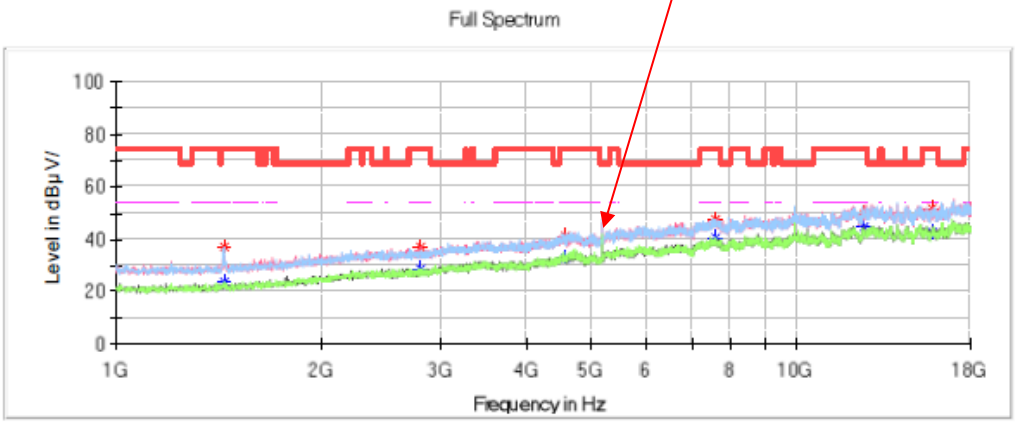
SRD (BW: 10 MHz)

Low Channel: 5180 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu

Fundamental Test with notch filter



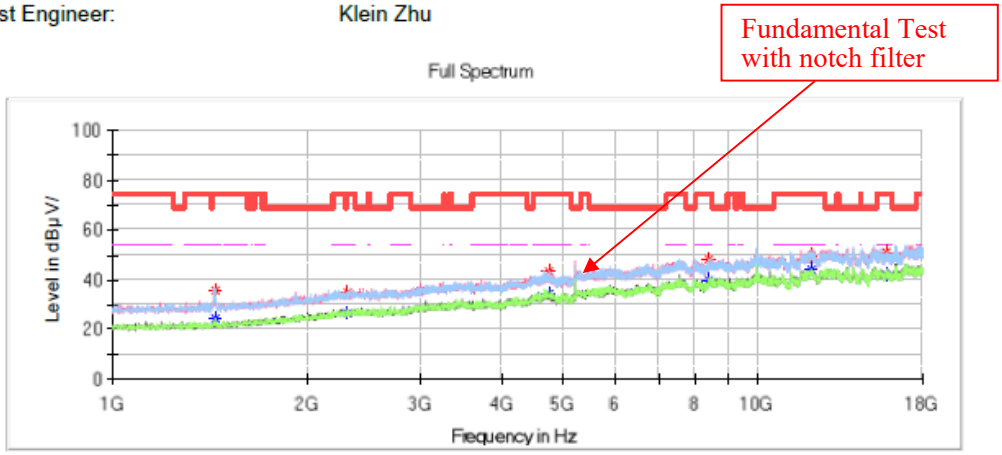
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1440.300000	37.37	---	74.00	36.63	H	-14.8
1440.300000	---	23.86	54.00	30.14	H	-14.8
2795.200000	36.92	---	74.00	37.08	V	-9.1
2795.200000	---	28.41	54.00	25.59	V	-9.1
4568.300000	41.17	---	74.00	32.83	V	-4.0
4568.300000	---	33.00	54.00	21.00	V	-4.0
7614.700000	47.34	---	74.00	26.66	H	3.9
7614.700000	---	40.70	54.00	13.30	H	3.9
12588.900000	49.55	---	74.00	24.45	V	9.7
12588.900000	---	44.87	54.00	9.13	V	9.7
15762.800000	---	42.82	54.00	11.18	V	9.6
15762.800000	52.06	---	74.00	21.94	V	9.6

Middle Channel: 5210 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



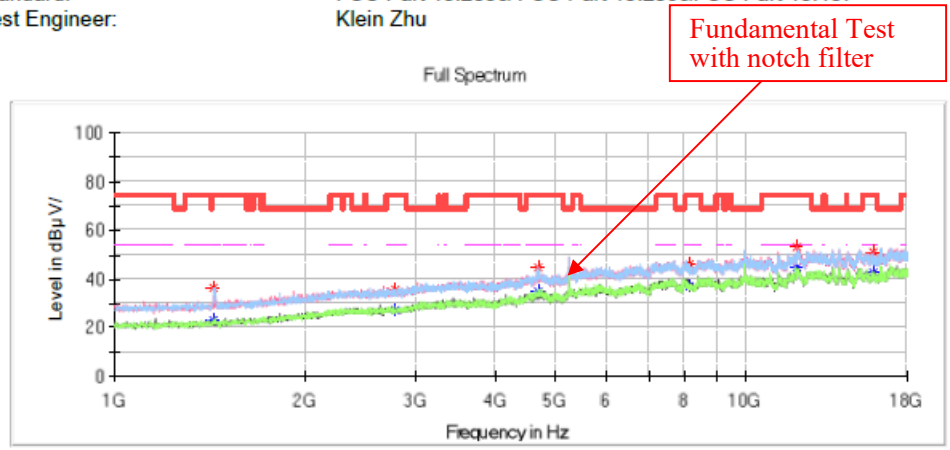
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1440.300000	---	24.76	54.00	29.24	H	-14.8
1440.300000	35.46	---	74.00	38.54	H	-14.8
2303.900000	35.00	---	68.20	33.20	V	-10.8
4736.600000	43.66	---	74.00	30.34	H	-3.4
4736.600000	---	33.98	54.00	20.02	H	-3.4
8381.400000	48.21	---	74.00	25.79	H	5.1
8381.400000	---	39.84	54.00	14.16	H	5.1
12080.600000	49.90	---	74.00	24.10	H	9.1
12080.600000	---	44.08	54.00	9.92	H	9.1
15757.700000	---	42.31	54.00	11.69	V	9.6
15757.700000	50.82	---	74.00	23.18	V	9.6

High Channel: 5240 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



Critical_Freqs

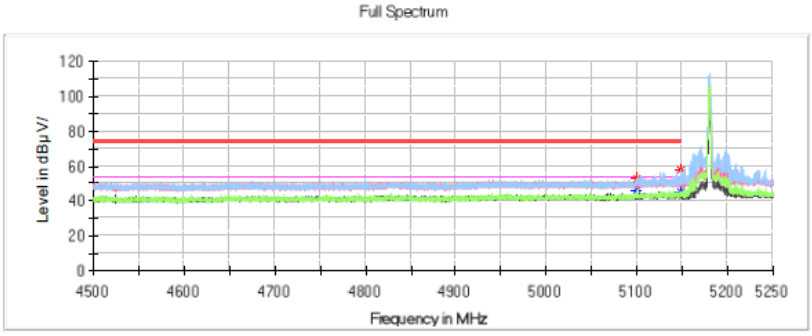
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1436.900000	36.47	---	74.00	37.53	V	-14.8
1436.900000	---	23.23	54.00	30.77	V	-14.8
2774.800000	35.52	---	74.00	38.48	H	-9.2
2774.800000	---	27.43	54.00	26.57	H	-9.2
4687.300000	44.64	---	74.00	29.36	H	-3.6
4687.300000	---	35.15	54.00	18.85	H	-3.6
8158.700000	46.35	---	74.00	27.65	V	4.4
8158.700000	---	37.06	54.00	16.94	V	4.4
12060.200000	53.08	---	74.00	20.92	V	9.1
12060.200000	---	44.82	54.00	9.18	V	9.1
15910.700000	---	42.56	54.00	11.44	V	9.5
15910.700000	50.96	---	74.00	23.04	V	9.5

Band Edge:
Band 1:
SRD (BW: 1.25 MHz)

Low Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



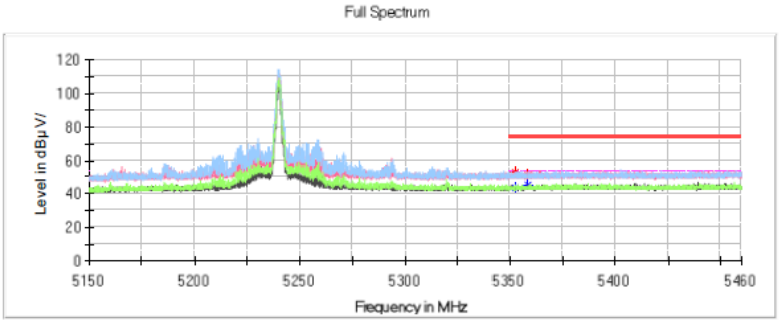
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5099.925000	52.62	---	74.00	21.38	H	4.1
5099.925000	---	46.09	54.00	7.91	H	4.1
5148.375000	57.63	---	74.00	16.37	H	4.2
5148.375000	---	45.35	54.00	8.65	H	4.2

High Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



Critical_Freqs

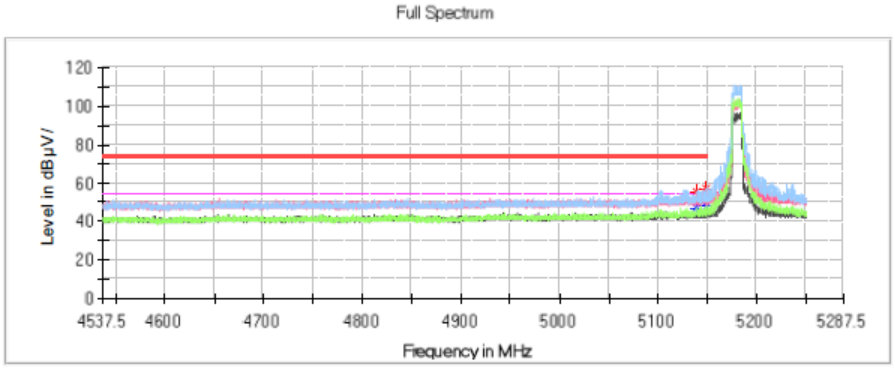
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5352.306000	52.93	---	74.00	21.07	V	4.7
5352.306000	---	43.60	54.00	10.40	V	4.7
5358.723000	50.98	---	74.00	23.02	V	4.8
5358.723000	---	45.50	54.00	8.50	V	4.8

SRD (BW: 10 MHz)

Low Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



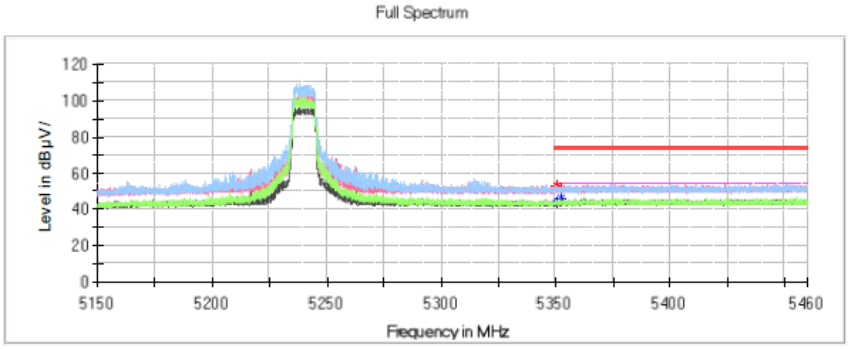
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5138.400000	55.15	---	74.00	18.85	H	4.2
5138.400000	---	47.22	54.00	6.78	H	4.2
5148.300000	---	47.92	54.00	6.08	H	4.2
5148.300000	56.89	---	74.00	17.11	H	4.2

High Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



Critical_Freqs

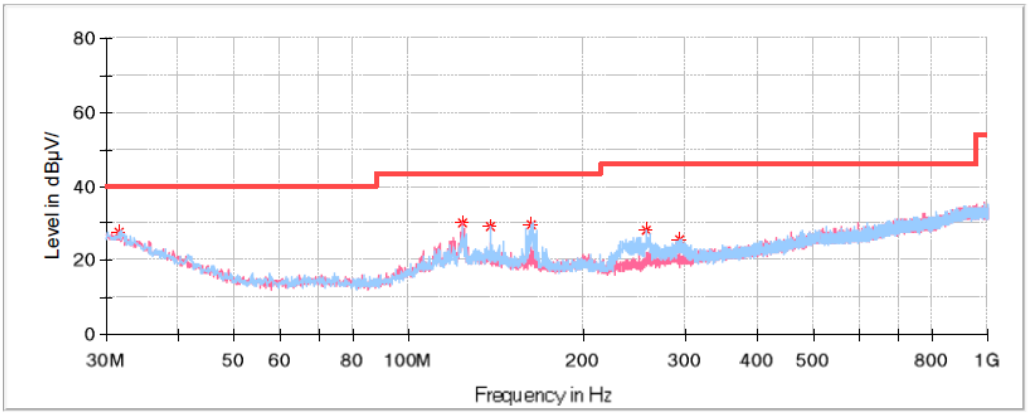
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5350.353000	---	43.23	54.00	10.77	V	4.7
5350.353000	53.01	---	74.00	20.99	V	4.7
5352.430000	51.26	---	74.00	22.74	V	4.7
5352.430000	---	45.86	54.00	8.14	V	4.7

Band 4

30MHz-1GHz(Transmit in maximum output power mode SRD 1.25MHz)
Low Channel: 5735 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5735 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.407
Test Engineer:	Leah Li



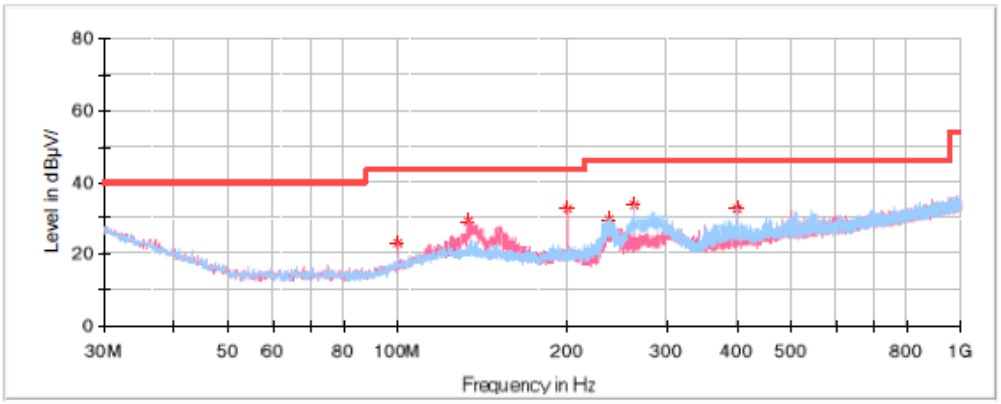
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.576250	27.91	40.00	12.09	V	-5.5
123.847500	30.08	43.50	13.42	V	-11.3
138.518750	29.36	43.50	14.14	H	-11.5
162.526250	29.79	43.50	13.71	H	-12.7
257.586250	28.10	46.00	17.90	H	-12.4
292.627500	25.64	46.00	20.36	H	-11.0

Middle Channel: 5775 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5775 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Leah Li



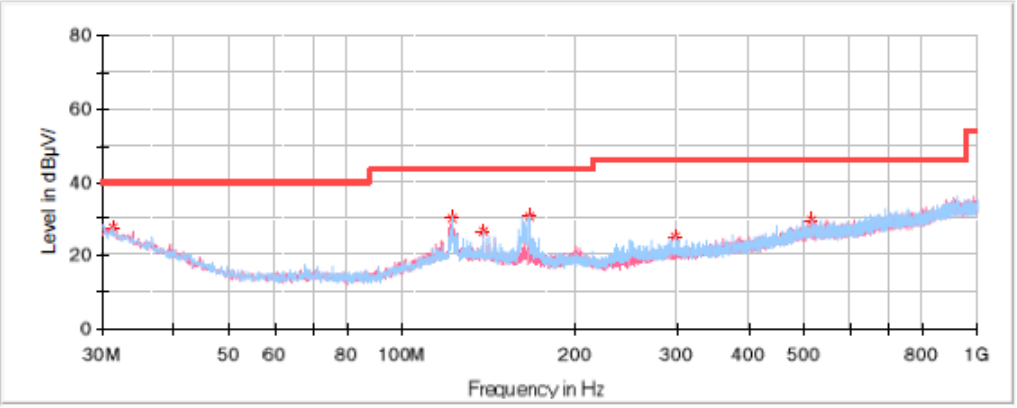
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
99.961250	23.22	43.50	20.28	V	-14.5
132.820000	29.36	43.50	14.14	V	-11.2
199.992500	32.93	43.50	10.57	V	-12.2
236.610000	29.56	46.00	16.44	H	-12.8
262.678750	33.59	46.00	12.41	H	-11.8
400.055000	32.94	46.00	13.06	H	-8.0

High Channel: 5805 MHz

Common Information

Project No:	RSHA240322001
Test Mode:	Transmitting in 5805 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.407
Test Engineer:	Leah Li



Critical_Freqs

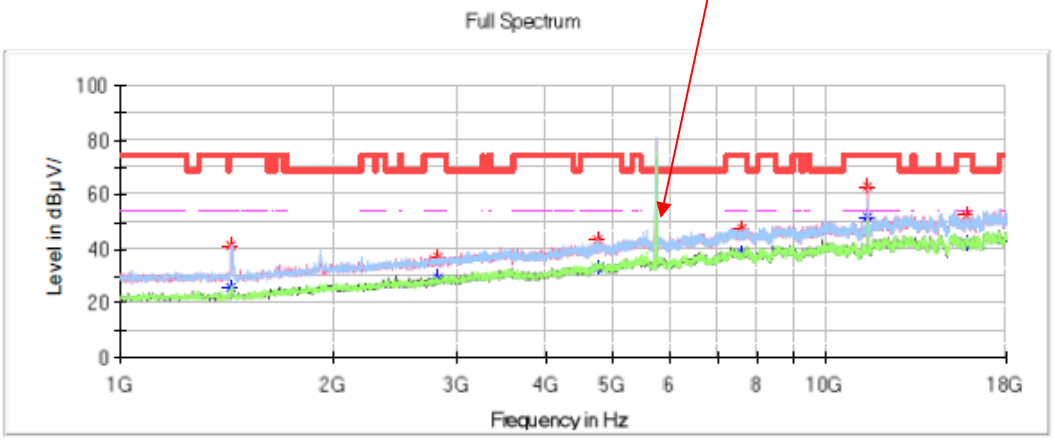
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.333750	27.89	40.00	12.11	H	-5.3
121.786250	30.42	43.50	13.08	V	-11.3
138.033750	26.86	43.50	16.64	H	-11.5
165.921250	30.63	43.50	12.87	H	-12.8
297.962500	25.25	46.00	20.75	H	-11.0
514.636250	29.88	46.00	16.12	H	-5.6

1GHz - 18GHz:
SRD (BW: 1.25 MHz)

Low Channel: 5735 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



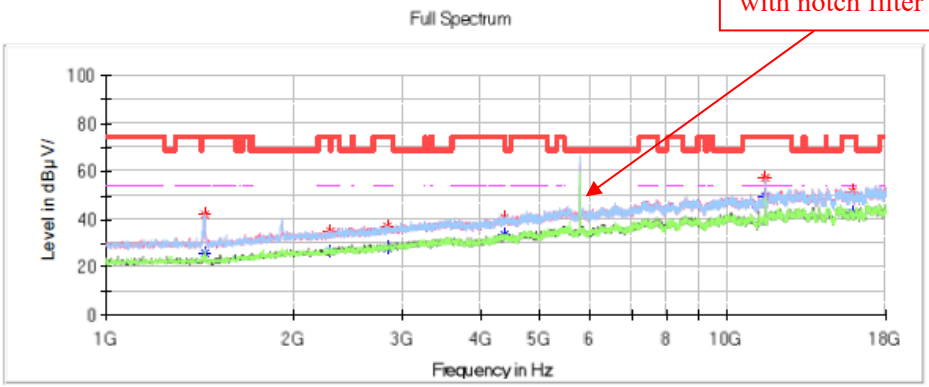
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1435.200000	---	26.20	54.00	27.80	H	-14.8
1435.200000	41.19	---	74.00	32.81	H	-14.8
2820.700000	---	29.22	54.00	24.78	V	-9.1
2820.700000	36.77	---	74.00	37.23	V	-9.1
4729.800000	---	32.66	54.00	21.34	H	-3.4
4729.800000	43.26	---	74.00	30.74	H	-3.4
7582.400000	---	38.71	54.00	15.29	H	3.9
7582.400000	47.24	---	74.00	26.76	H	3.9
11470.300000	62.97	---	74.00	11.03	V	8.8
11470.300000	---	52.06	54.00	1.94	V	8.8
15793.400000	---	42.25	54.00	11.75	V	9.6
15793.400000	52.63	---	74.00	21.37	V	9.6

Middle Channel: 5775 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



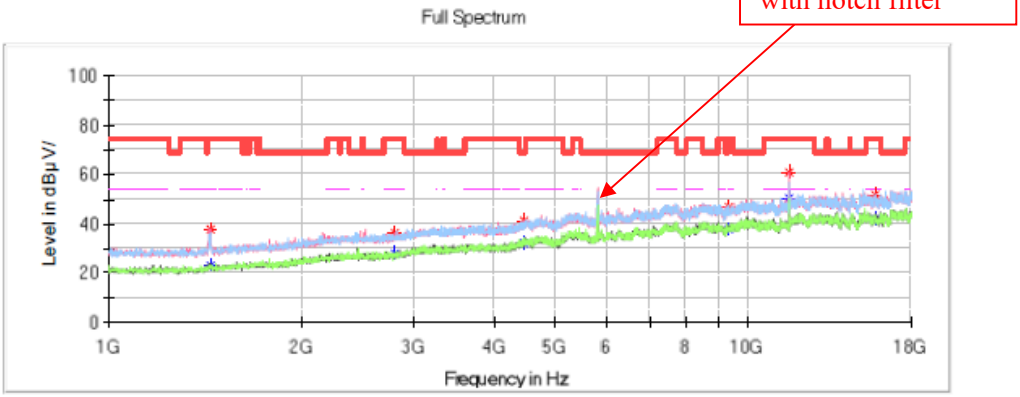
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1438.600000	---	25.72	54.00	28.28	V	-14.8
1438.600000	42.23	---	74.00	31.77	V	-14.8
2292.000000	---	26.37	54.00	27.63	H	-10.8
2292.000000	34.90	---	74.00	39.10	H	-10.8
2834.300000	---	28.03	54.00	25.97	H	-9.0
2834.300000	37.14	---	74.00	36.86	H	-9.0
4379.600000	---	33.44	54.00	20.56	H	-4.7
4379.600000	40.65	---	74.00	33.35	H	-4.7
11550.200000	57.16	---	74.00	16.84	V	8.9
11550.200000	---	49.49	54.00	4.51	V	8.9
15859.700000	---	42.49	54.00	11.51	V	9.5
15859.700000	51.75	---	74.00	22.25	V	9.5

High Channel: 5805 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
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)
1440.300000	---	23.13	54.00	30.87	V	-14.8
1440.300000	37.65	---	74.00	36.35	V	-14.8
2795.200000	---	27.63	54.00	26.37	H	-9.1
2795.200000	36.18	---	74.00	37.82	H	-9.1
4457.800000	41.06	---	68.20	27.14	H	-4.4
9309.600000	---	37.77	54.00	16.23	H	5.4
9309.600000	47.09	---	74.00	26.91	H	5.4
11609.700000	---	50.17	54.00	3.83	H	8.9
11609.700000	60.94	---	74.00	13.06	H	8.9
15781.500000	---	42.04	54.00	11.96	V	9.6
15781.500000	52.02	---	74.00	21.98	V	9.6

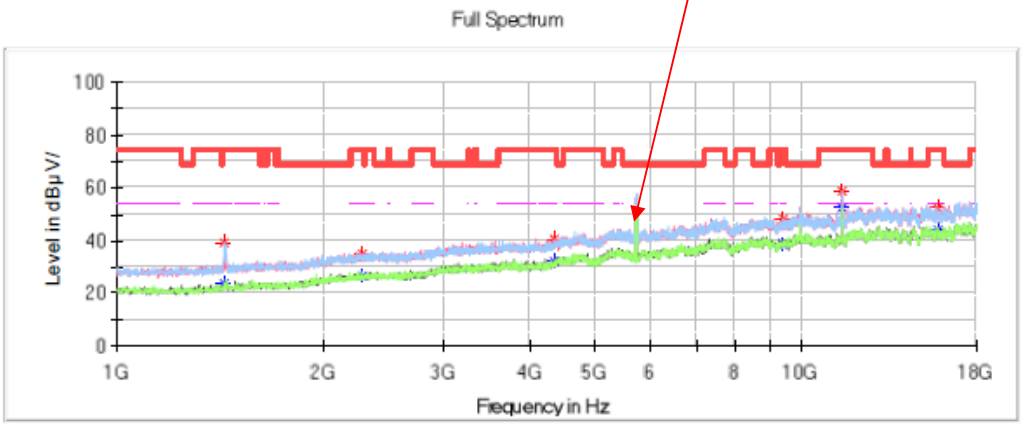
SRD (BW: 10 MHz)

Low Channel: 5735 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu

Fundamental Test with notch filter



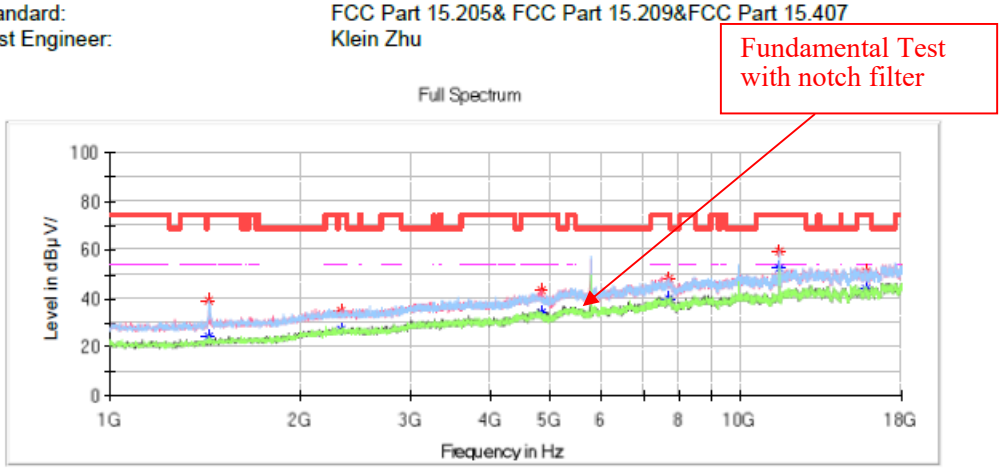
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1435.200000	39.20	---	74.00	34.80	H	-14.8
1435.200000	---	24.09	54.00	29.91	H	-14.8
2281.800000	34.63	---	74.00	39.37	V	-10.8
2281.800000	---	26.28	54.00	27.72	V	-10.8
4349.000000	40.51	---	74.00	33.49	V	-4.8
4349.000000	---	31.87	54.00	22.13	V	-4.8
9404.800000	48.32	---	74.00	25.68	H	5.4
9404.800000	---	38.62	54.00	15.38	H	5.4
11470.300000	59.01	---	74.00	14.99	H	8.8
11470.300000	---	52.35	54.00	1.65	H	8.8
15781.500000	---	44.07	54.00	9.93	V	9.6
15781.500000	52.15	---	74.00	21.85	V	9.6

Middle Channel: 5775 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



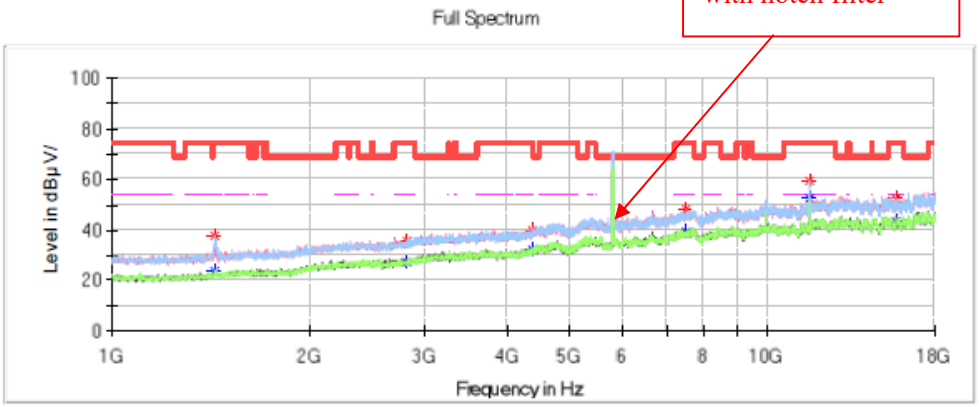
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1436.900000	---	24.34	54.00	29.66	H	-14.8
1436.900000	38.88	---	74.00	35.12	H	-14.8
2324.300000	---	26.96	54.00	27.04	H	-10.7
2324.300000	35.08	---	74.00	38.92	H	-10.7
4830.100000	---	33.94	54.00	20.06	H	-3.1
4830.100000	43.26	---	74.00	30.74	H	-3.1
7699.700000	---	39.64	54.00	14.36	V	3.9
7699.700000	48.17	---	74.00	25.83	V	3.9
11550.200000	59.38	---	74.00	14.62	H	8.9
11550.200000	---	52.65	54.00	1.35	H	8.9
15800.200000	51.24	---	74.00	22.76	H	9.6
15800.200000	---	43.98	54.00	10.02	H	9.6

High Channel: 5805 MHz

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



Critical_Freqs

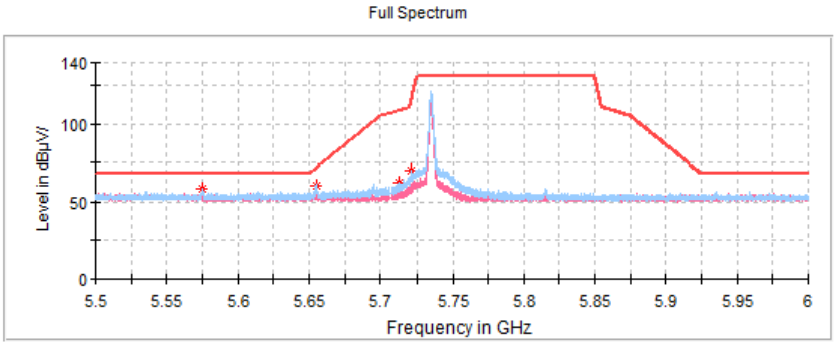
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1433.500000	37.91	---	68.20	30.29	H	-14.8
2808.800000	---	26.95	54.00	27.05	V	-9.1
2808.800000	35.93	---	74.00	38.07	V	-9.1
4371.100000	---	32.50	54.00	21.50	V	-4.7
4371.100000	39.72	---	74.00	34.28	V	-4.7
7497.400000	---	39.00	54.00	15.00	V	3.9
7497.400000	48.11	---	74.00	25.89	V	3.9
11609.700000	59.32	---	74.00	14.68	H	8.9
11609.700000	---	52.42	54.00	1.58	H	8.9
15730.500000	---	43.54	54.00	10.46	H	9.6
15730.500000	52.16	---	74.00	21.84	H	9.6

Band 4:
Band Edge:
SRD (BW: 1.25 MHz)

Low Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



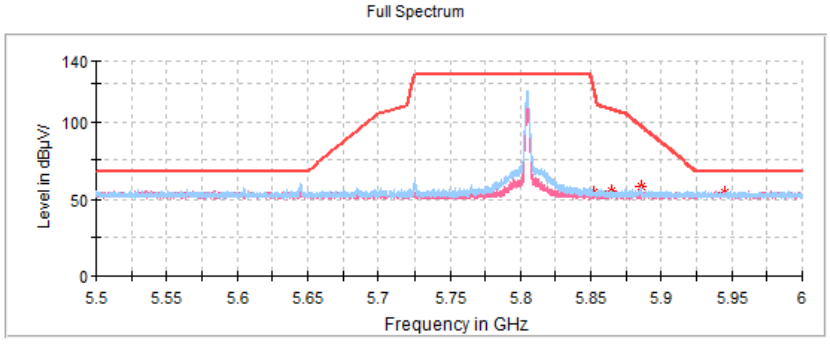
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5575.200000	58.83	---	68.20	9.37	H	9.0
5655.200000	60.61	---	72.05	11.44	H	8.9
5712.900000	62.74	---	108.81	46.07	H	8.9
5721.000000	70.16	---	114.88	44.72	H	8.9

High Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



Critical_Freqs

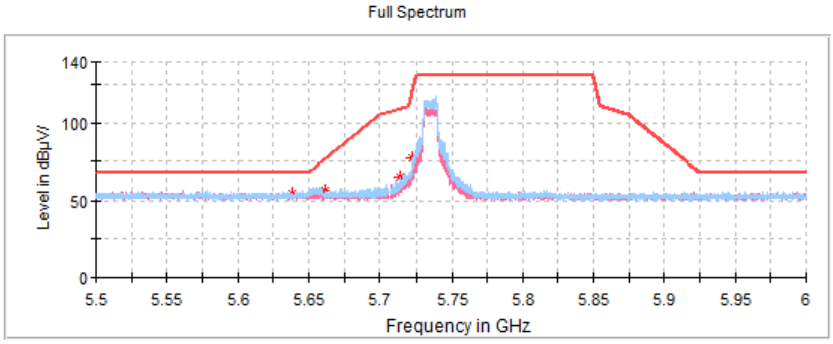
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5851.950000	55.26	---	123.24	67.99	H	8.7
5864.200000	56.10	---	108.22	52.13	H	8.7
5885.350000	58.94	---	97.54	38.60	V	8.7
5944.650000	54.89	---	68.20	13.31	V	8.6

SRD (BW: 10 MHz):

Low Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu



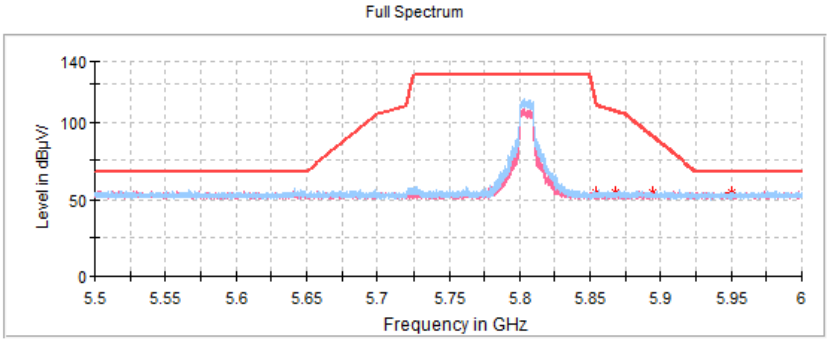
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5638.900000	55.29	---	68.20	12.91	V	9.0
5661.750000	57.14	---	76.90	19.75	V	8.9
5713.250000	65.64	---	108.91	43.27	H	8.9
5722.500000	77.28	---	121.00	43.72	H	8.9

High Channel

Common Information

Project No.:	RSHA240322001
Test Mode:	SRD
Standard:	FCC Part 15.205& FCC Part 15.209&FCC Part 15.407
Test Engineer:	Klein Zhu

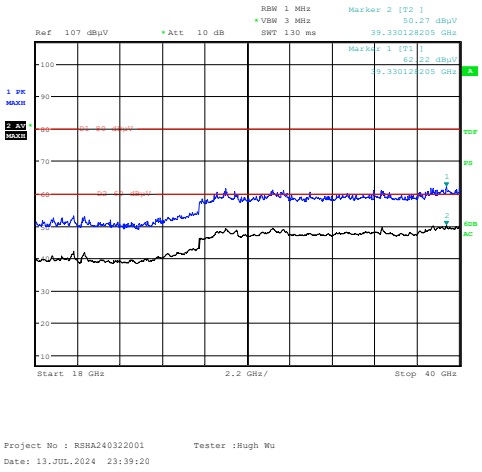


Critical_Freqs

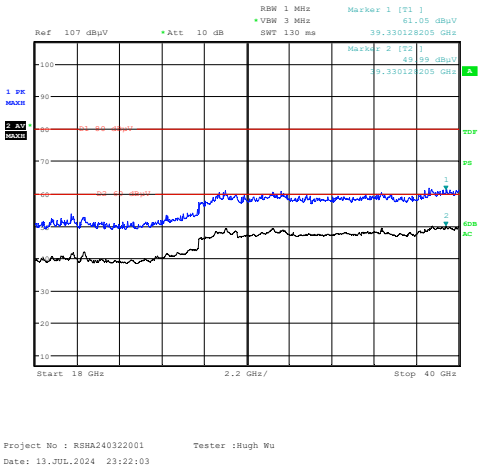
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5854.050000	55.06	---	114.68	59.62	H	8.7
5867.800000	54.60	---	107.22	52.62	H	8.7
5894.800000	54.92	---	90.55	35.63	V	8.7
5950.200000	54.99	---	68.20	13.21	V	8.6

18GHz-40GHz: Transmitting in maximum output power mode SRD 10MHz high channel(5180-5240MHz)

Horizontal



Vertical



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
39330.13	---	49.99	60	10.01	V	19.75
39330.13	61.05	---	80	18.95	V	19.75
39330.13	---	50.27	60	9.73	H	19.75
39330.13	62.22	---	80	17.78	H	19.75

Note: The test distance is 1.5m.

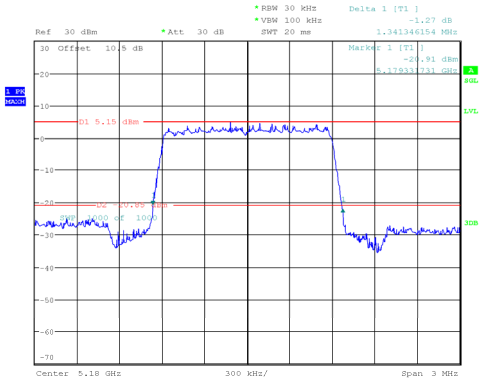
EMISSION BANDWIDTH

EUT operation mode: Transmitting
Band 1

Mode	Channel	Frequency (MHz)	Result (MHz)
SRD (BW: 1.25 MHz)	Low	5180	1.341
	Middle	5210	1.341
	High	5240	1.341
SRD (BW: 10 MHz)	Low	5180	10.185
	Middle	5210	9.870
	High	5240	10.305

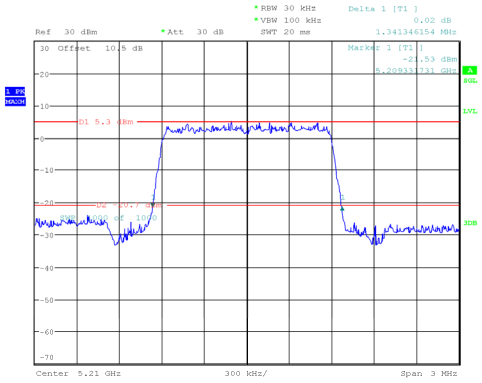
BW: 1.25 MHz

Low Channel



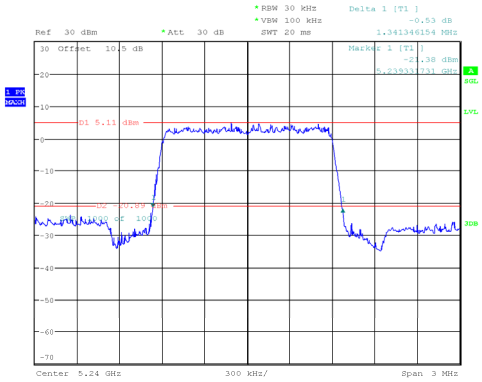
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 10:14:18

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 10:17:44

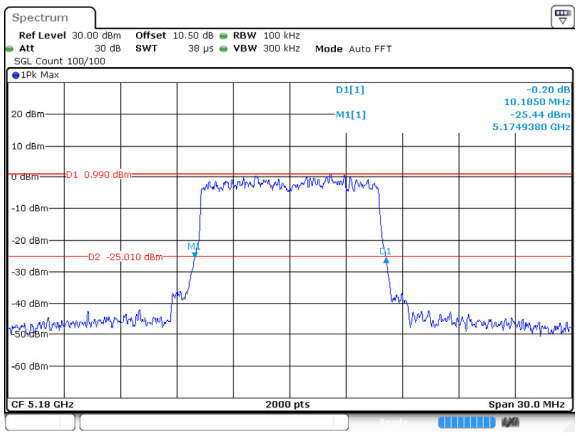
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 10:19:41

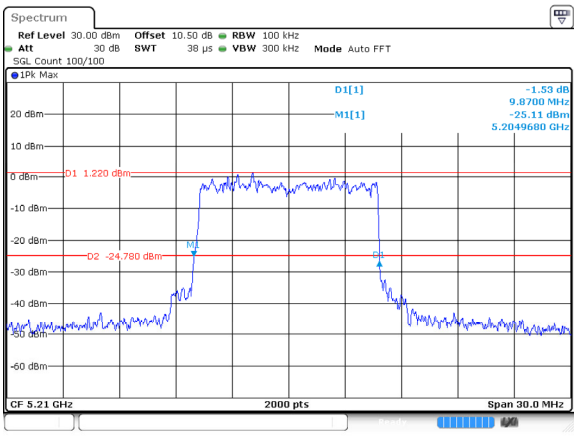
BW: 10 MHz

Low Channel



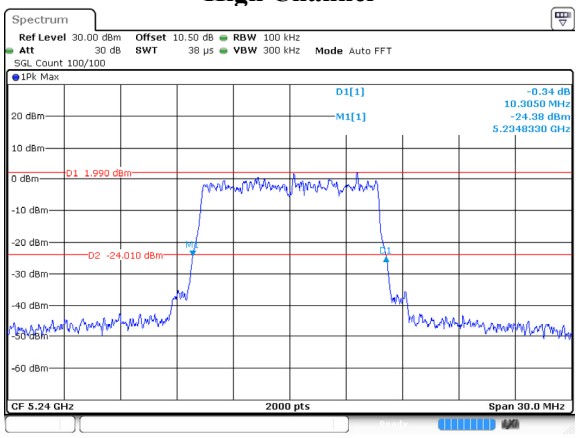
Project.:RSHA240322001 Tester:Neil Zhou
Date: 20.NOV.2024 11:34:32

Middle Channel



Project.:RSHA240322001 Tester:Neil Zhou
Date: 20.NOV.2024 11:28:11

High Channel



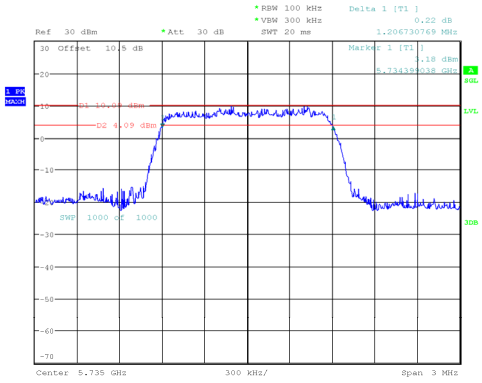
Project.:RSHA240322001 Tester:Neil Zhou
Date: 20.NOV.2024 11:32:04

Band 4

Mode	Channel	Frequency (MHz)	Result (MHz)	Limit (MHz)
SRD (BW: 1.25 MHz)	Low	5735	1.207	0.5
	Middle	5775	1.212	
	High	5805	1.226	
SRD (BW: 10 MHz)	Low	5735	9.487	0.5
	Middle	5775	9.455	
	High	5805	9.487	

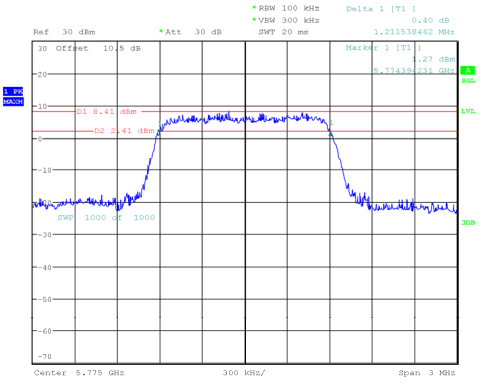
BW: 1.25 MHz

Low Channel



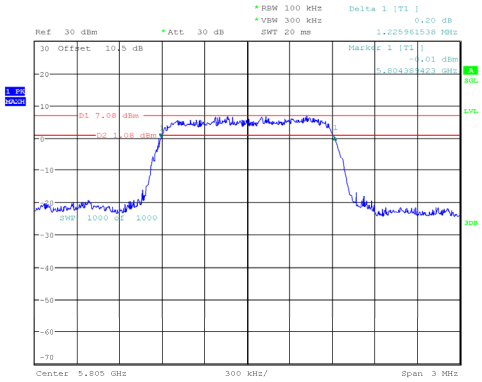
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:30:36

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:28:30

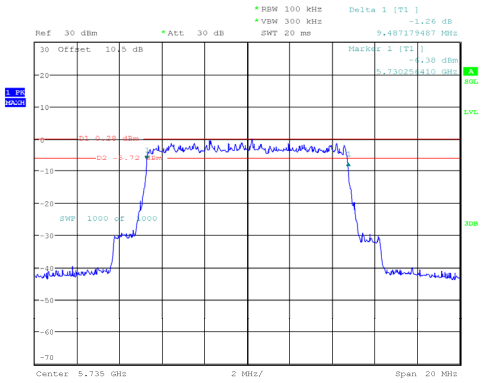
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:24:58

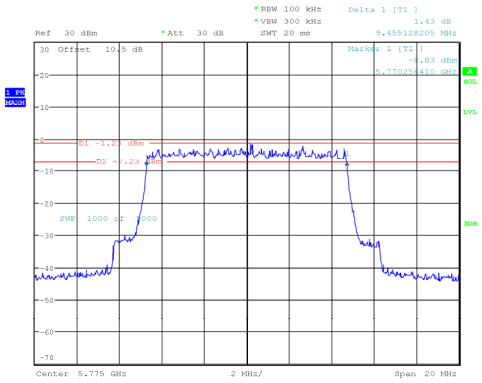
BW: 10 MHz

Low Channel



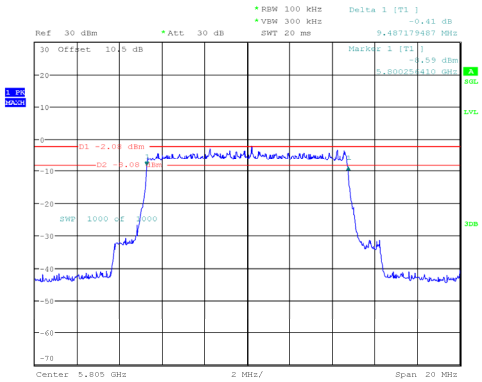
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:53:32

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:55:55

High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:59:31

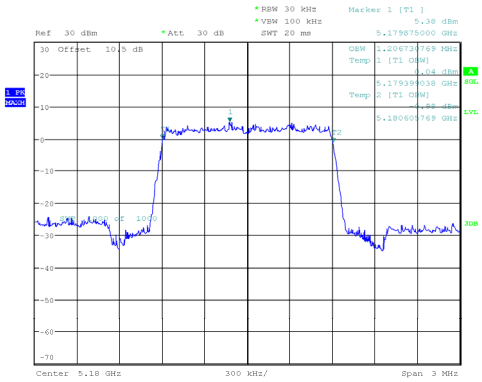
Band 1

Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)
SRD（1.25M）	Low	5180	1.207
	Middle	5210	1.212
	High	5240	1.207
SRD（10M）	Low	5180	9.391
	Middle	5210	9.423
	High	5240	9.423

Note: the 99% Occupied Bandwidth have not fall into the band 5250-5350MHz.

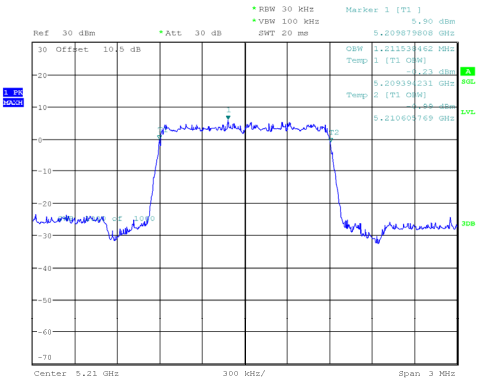
BW: 1.25 MHz

Low Channel



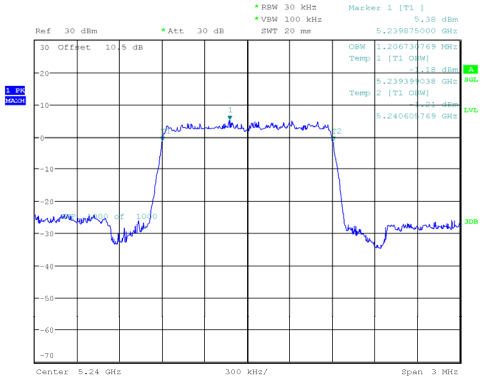
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:28:36

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:30:20

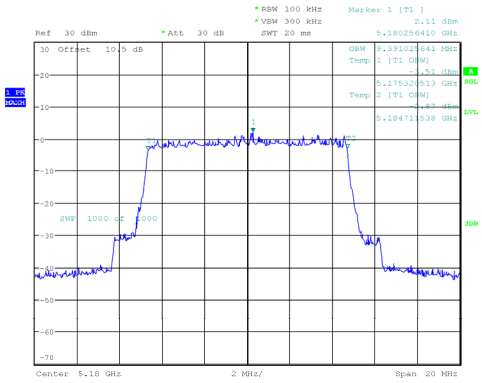
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:31:49

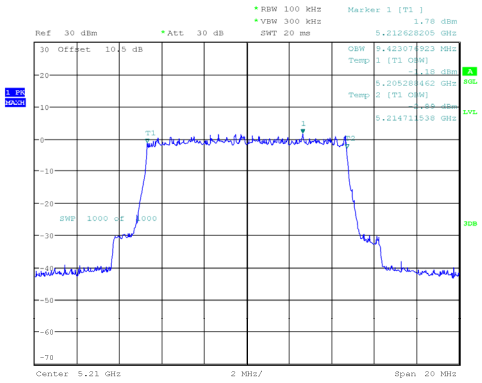
BW: 10 MHz

Low Channel



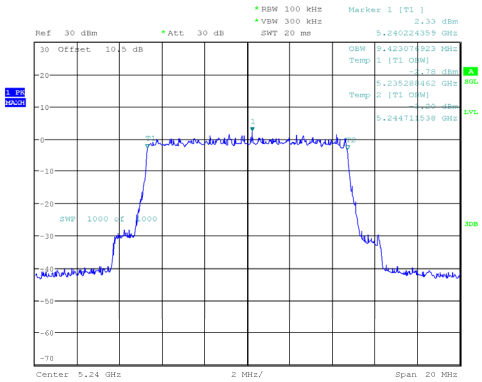
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:50:03

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:51:42

High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:53:35

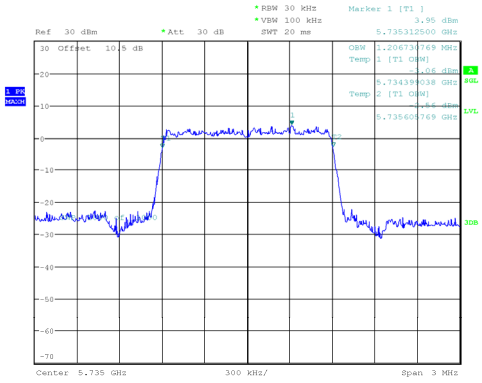
Band 4

Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)
SRD（1.25M）	Low	5735	1.207
	Middle	5775	1.216
	High	5805	1.216
SRD（10M）	Low	5735	9.423
	Middle	5775	9.423
	High	5805	9.423

Note: the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz.

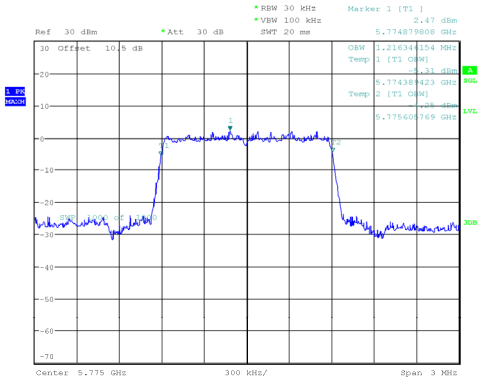
BW: 1.25 MHz

Low Channel



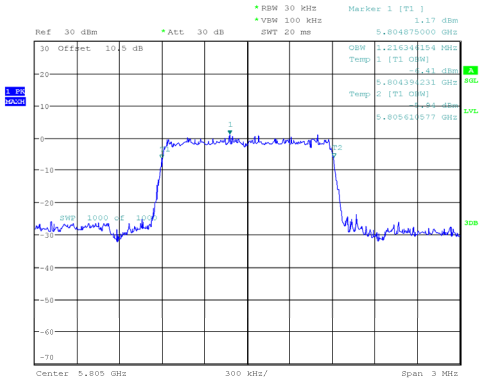
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:33:45

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:35:07

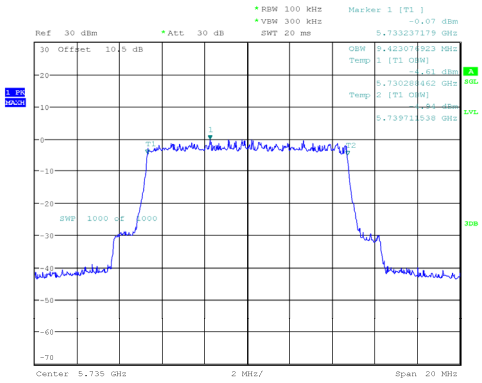
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 15.AUG.2024 09:19:45

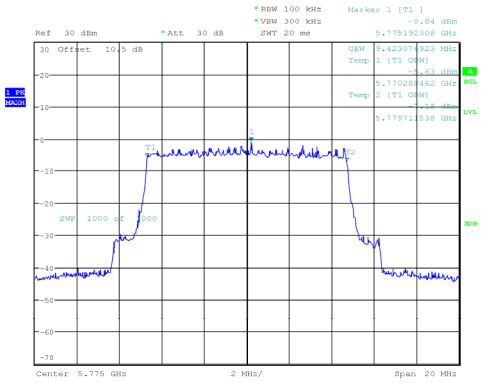
BW: 10 MHz

Low Channel



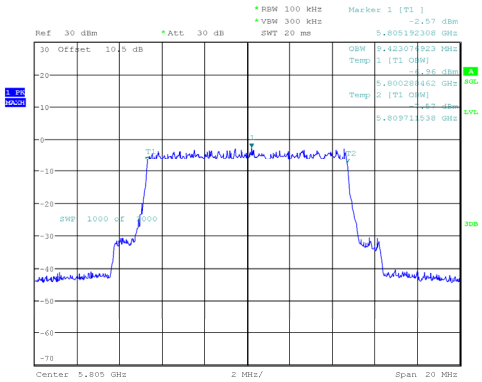
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:55:31

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 19:58:25

High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 14.AUG.2024 20:01:25

CONDUCTED TRANSMITTER OUTPUT POWER

Test Mode: Transmitting

Band 1

Mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Limit (dBm)
SRD (BW: 1.25 MHz)	Low	5180	6.83	30
	Middle	5210	7.47	30
	High	5240	7.37	30
SRD (BW: 10 MHz)	Low	5180	7.13	30
	Middle	5210	7.45	30
	High	5240	7.65	30

Note：The EUT is an outdoor access point. The maximum EIRP is 9.47dBm less than 21dBm

Band 4

Mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Limit (dBm)
SRD (BW: 1.25 MHz)	Low	5735	7.07	30
	Middle	5775	6.98	30
	High	5805	6.30	30
SRD (BW: 10 MHz)	Low	5735	6.45	30
	Middle	5775	6.82	30
	High	5805	6.89	30

POWER SPECTRAL DENSITY

Test Mode: Transmitting

Band 1

Mode	Channel	Frequency (MHz)	Reading (dBm/MHz)	Duty cycle factor（dB）	PSD (dBm/MHz)	Limit (dBm/MHz)
SRD (BW: 1.25 MHz)	Low	5180	2.77	3.26	6.03	17
	Middle	5210	3.49	3.27	6.76	17
	High	5240	3.47	3.22	6.69	17
SRD (BW: 10 MHz)	Low	5180	-4.87	3.21	-1.66	17
	Middle	5210	-3.99	3.24	-0.75	17
	High	5240	-3.22	3.26	0.04	17

Note：The EUT is an outdoor access point.

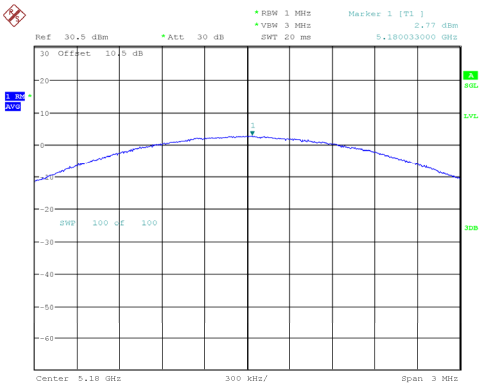
Band 4

Mode	Channel	Frequency (MHz)	Reading (dBm/500kHz)	Duty cycle factor（dB）	PSD (dBm/500kHz)	Limit (dBm/500kHz)
SRD (BW: 1.25 MHz)	Low	5735	1.05	3.26	4.31	30
	Middle	5775	0.68	3.23	3.91	30
	High	5805	-0.35	3.22	2.87	30
SRD (BW: 10 MHz)	Low	5735	-8.01	3.23	-4.78	30
	Middle	5775	-7.8	3.23	-4.57	30
	High	5805	-7.86	3.27	-4.59	30

Note：PSD=Reading+ Duty cycle factor

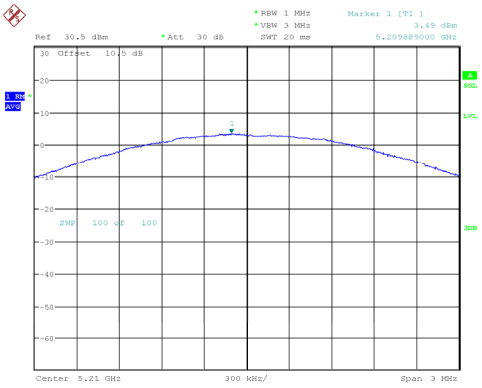
Band 1
BW: 1.25 MHz

Low Channel



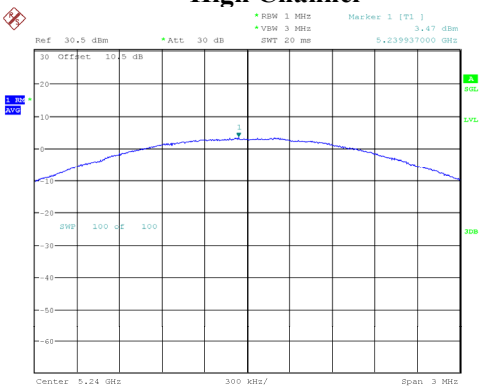
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:47:00

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:47:48

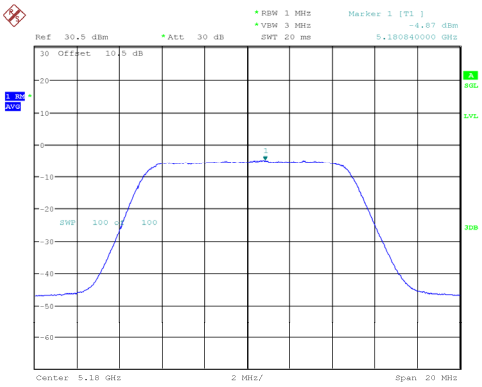
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 12:02:10

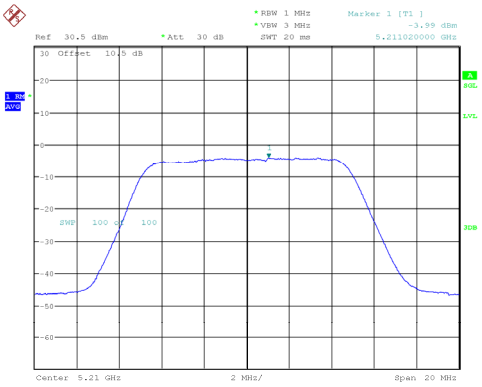
BW: 10 MHz

Low Channel



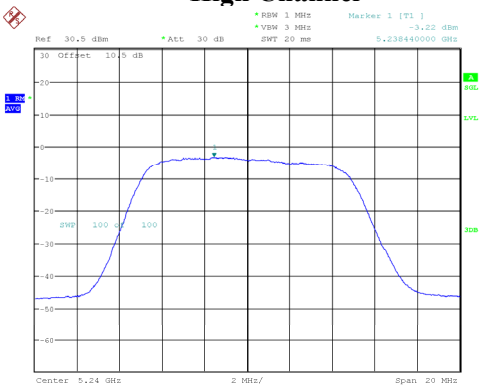
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 10:50:10

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 10:51:46

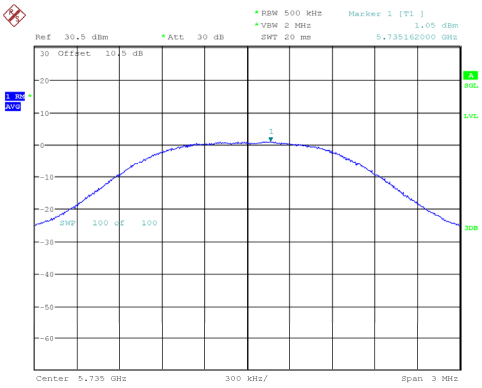
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 10:52:55

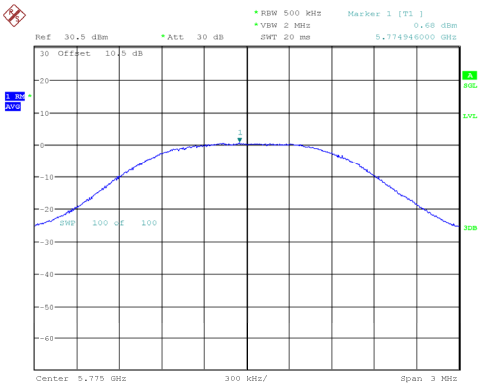
Band 4
BW: 1.25 MHz

Low Channel



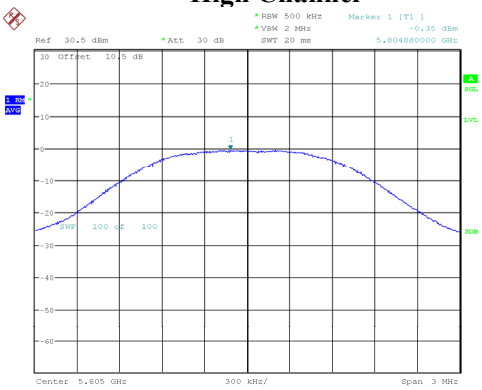
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:43:16

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:44:29

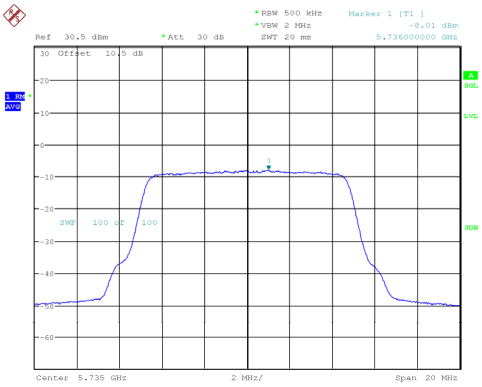
High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:45:20

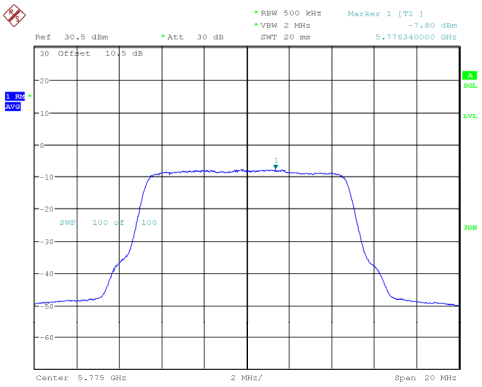
BW: 10 MHz

Low Channel



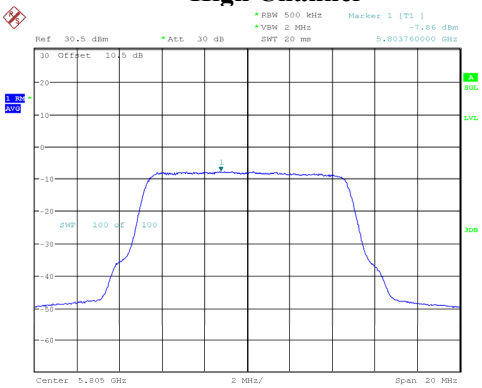
ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:00:08

Middle Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:00:58

High Channel



ProjectNo.:RSHA240322001 Tester:Neil Zhou
Date: 31.DEC.2024 11:01:58

EUT PHOTOGRAPHS

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

TEST SETUP PHOTOGRAPHS

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

Declarations

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with "★".

2. The test data was only valid for the test sample(s).

3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95.45% confidence interval.

******* END OF REPORT *******