

FCC PART 15.247

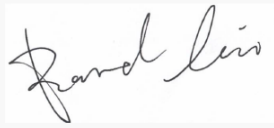
TEST REPORT

For

SEUIC Technologies Co., Ltd.

NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, Nanjing, China

FCC ID: 2AC68-HS220CHD252B

Report Type: Original Report	Product Name: Handheld Scanner
Report Number: <u>RKSA240711002-00A</u>	
Report Date: <u>2025-02-11</u>	
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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.

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240711002-00A	R1V1	2025-02-11	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	SEUIC Technologies Co., Ltd.
Product Name:	Handheld Scanner
Tested Model	HS220CHD-252B
Series Model:	HS220CSR-252B, HS320GHD-203B, HS320GSR-203B, HS525DP-303B, HS525HDP-303B, HS325DP-203B, HS325HDP-203B
Model Difference:	Model Name
Power Supply:	DC 3.6V from Battery or DC 5 V from Charging Base or type-C port
RF Function:	2.4G SRD
Operating Band/Frequency:	2410-2470 MHz
Maximum peak output power	-5.05 dBm
Modulation Type:	GFSK
Antenna Type:	Spring Antenna
★Maximum Antenna Gain:	0.53 dBi

Note: The maximum antenna gain is provided by the applicant.

All measurement and test data in this report was gathered from production sample serial number: RKSA240711002-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-07-11.)

Objective

This report is prepared for *SEUIC Technologies Co., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions' rules.

The tests were performed in order to determine Compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and FCC 558074 D01 15.247 Meas Guidance v05r02.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
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

Channel list as below:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2410	17	2426	33	2442	49	2458
2	2411	18	2427	34	2443	50	2459
3	2412	19	2428	35	2444	51	2460
4	2413	20	2429	36	2445	52	2461
5	2414	21	2430	37	2446	53	2462
6	2415	22	2431	38	2447	54	2463
7	2416	23	2432	39	2448	55	2464
8	2417	24	2433	40	2449	56	2465
9	2418	25	2434	41	2450	57	2466
10	2419	26	2435	42	2451	58	2467
11	2420	27	2436	43	2452	59	2468
12	2421	28	2437	44	2453	60	2469
13	2422	29	2438	45	2454	61	2470
14	2423	30	2439	46	2455		
15	2424	31	2440	47	2456		
16	2425	32	2441	48	2457		

EUT was tested with Channel 1, 31 and 61.

Equipment Modifications

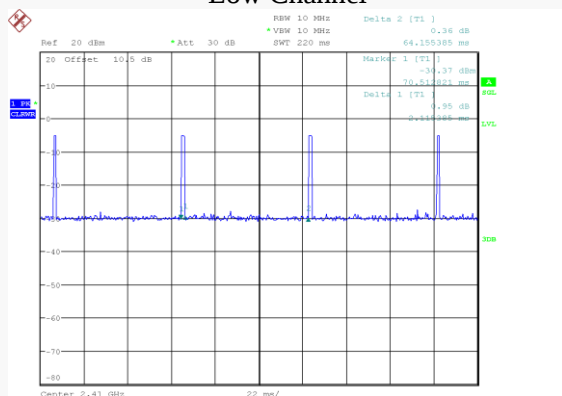
No modification was made to the EUT tested.

EUT Exercise Software

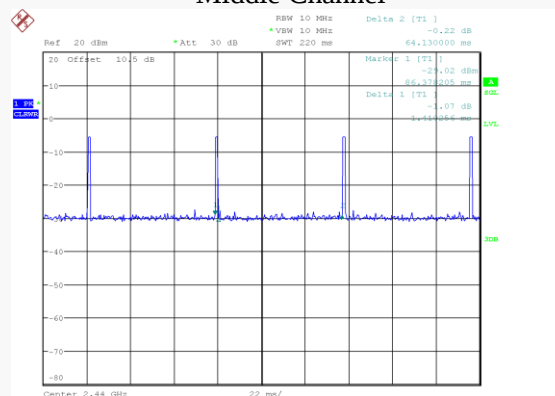
RF Test Software: FCC-Test-Tool-3.1

Mode	Channel	★Power Level
SRD	Low	0
	Middle	0
	High	0

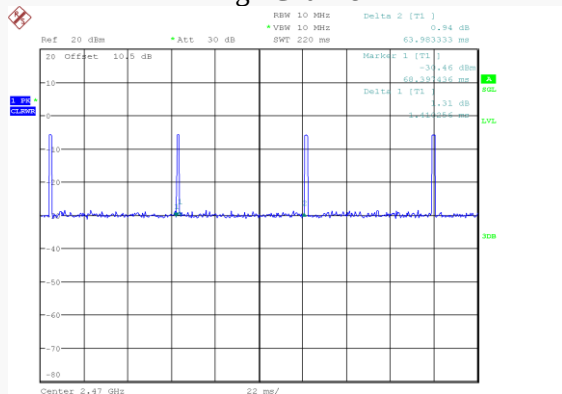
Note: The power level was declared by the applicant.

Duty Cycle:**Low Channel**

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 3.JAN.2025 17:57:40

Middle Channel

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 3.JAN.2025 17:59:09

High Channel

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 3.JAN.2025 18:00:17

Channel	Duty Cycle (%)	Ton (ms)	Ton+off (ms)	10*log (1/x) (dB)
Low	3.30	2.12	64.16	14.81
Middle	2.20	1.41	64.13	16.58
High	2.20	1.41	63.98	16.58

Note:

1. "x" means the Duty Cycle.
2. Note: Offset (10.5dB) = Attenuator (10dB)+cable loss(0.5dB)

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	Adapter 1	ADLX65NLC3	/
/	Adapter 2	DA-00051000UL001	/
Lenovo	Notebook	Y700P	PF2B7PL5
/	Debug Board	/	/
SEUIC Technologies CO.,Ltd	Communication Base	CB-220-PC-CH	CBP24030304

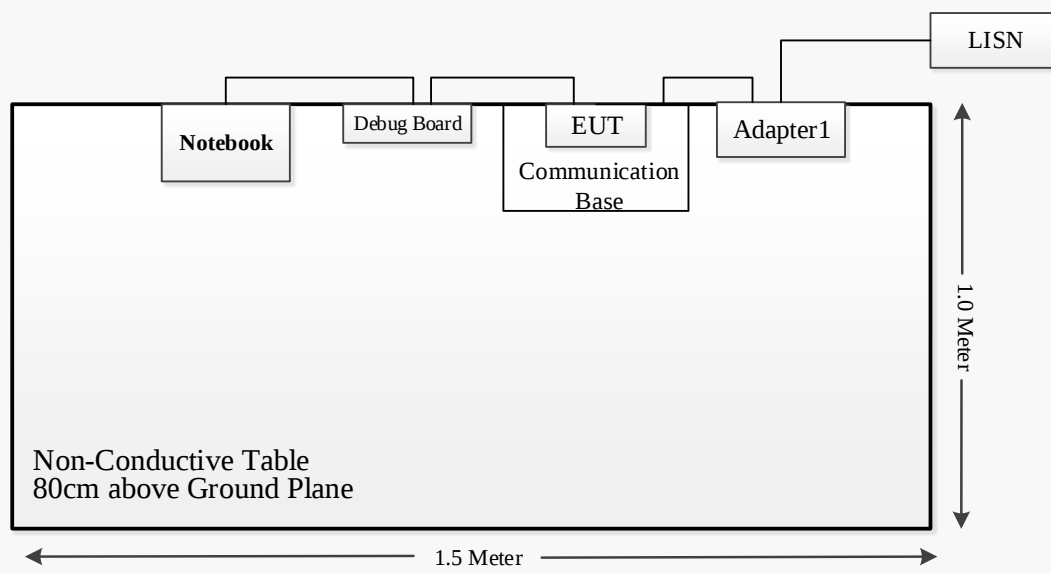
External I/O Cable

Cable Description	Length (m)	From Port	To Port
Power Cable 1	1.0	Adapter	LISN/AC Source
Power Cable 2	2.0	Communication Base	Adapter
USB Cable	1.2	EUT	Adapter
USB Cable	0.5	Notebook	Debug Board
Data Cable	0.2	Debug Board	EUT

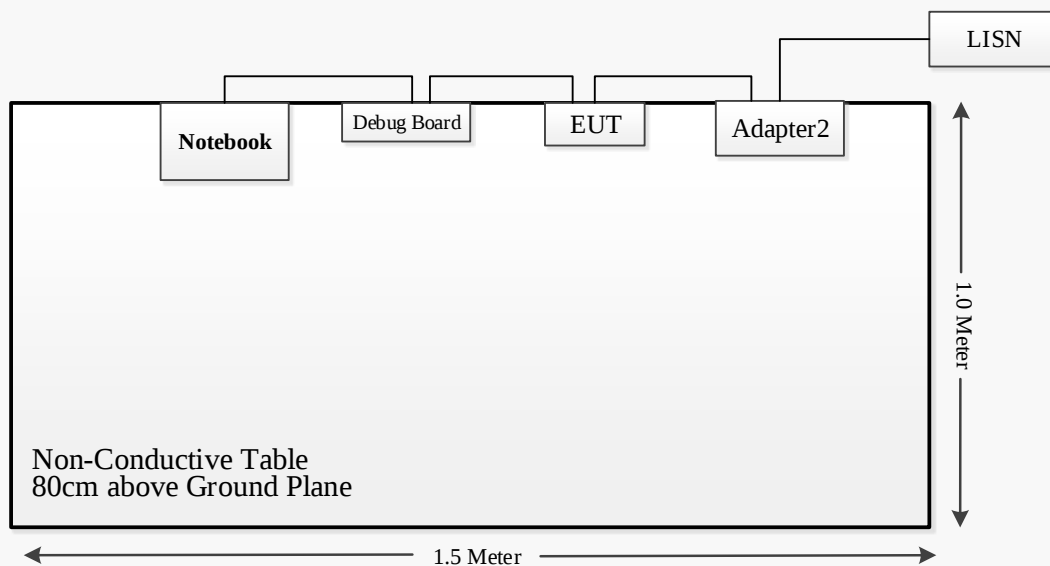
Block Diagram of Test Setup

Conducted Emissions:

For Charging Base



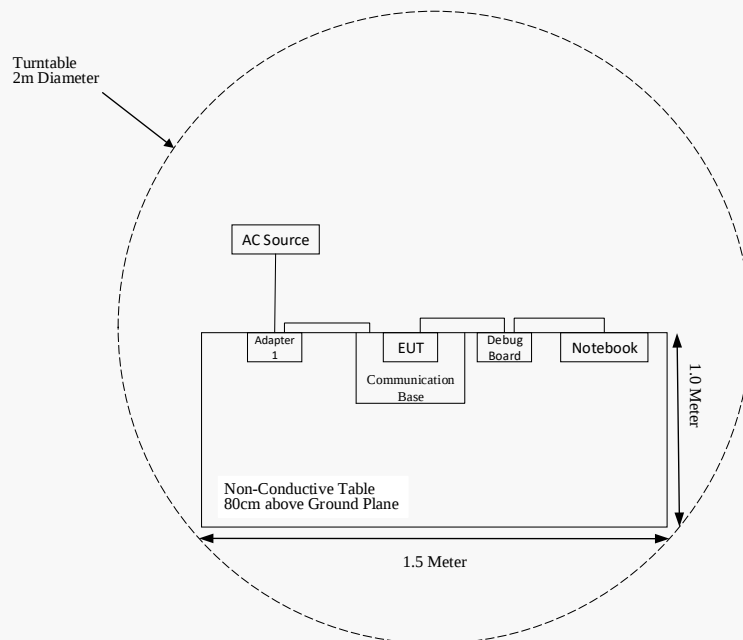
For Type-C



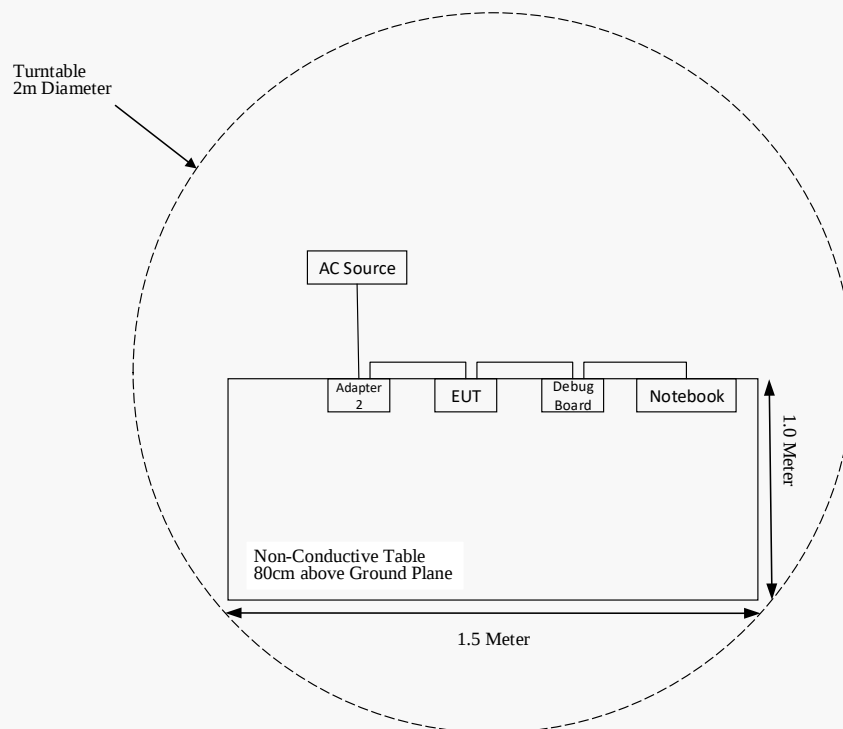
Radiated Emissions:

Below 1GHz:

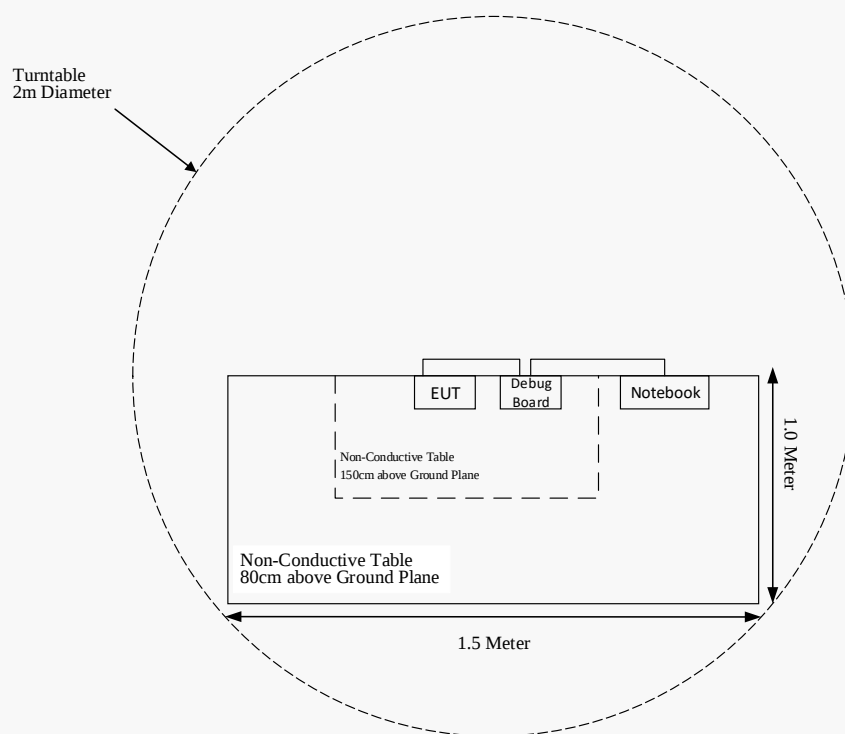
For Charging Base



For Type-C



Radiated Emissions (Above 1 GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310 & §2.1093	RF EXPOSURE	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

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	A090314-2	2024-10-29	2027-10-28
BACL	Active Loop Antenna	1313-1A	4041511	2024-11-22	2027-11-21
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	2024-10-29	2027-10-28
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2024-11-03	2027-11-02
ETS-LINDGREN	Horn Antenna	3116	2516	2024-12-12	2027-12-11
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	BRM50702	G024	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	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-13	013	2024-04-25	2025-04-24
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSU26	200103	2024-04-24	2025-04-23
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	ESR	101746	2024-04-23	2025-04-22
Rohde & Schwarz	LISN	ENV216	101115	2024-04-23	2025-04-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse Limiter	ESH3-Z2	0357.8810.54	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).

FCC §1.1307(b) & §2.1093 - RF EXPOSURE

Applicable Standard

According to §15.247(i) and §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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] [\sqrt{f(\text{GHz})}]$
 ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ 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.

Measurement Result

Mode	Frequency Range (MHz)	Max Tune-up Conducted Power		Calculated Distance (mm)	Calculated Value	Threshold (1-g SAR)	SAR Test Exclusion
		(dBm)	(mW)				
SRD	2410-2470	-5.0	0.32	5.0	0.1	3.0	Yes
BLE	2402-2480	-3.5	0.45	5.0	0.1	3.0	Yes

Result: So the standalone 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 Compliant 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 15.247 (b), 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 spring antenna for SRD, and the antenna gain is 0.53 dBi, which is permanently attached to the unit, fulfill the requirement of this section. Please refer to the EUT photos.

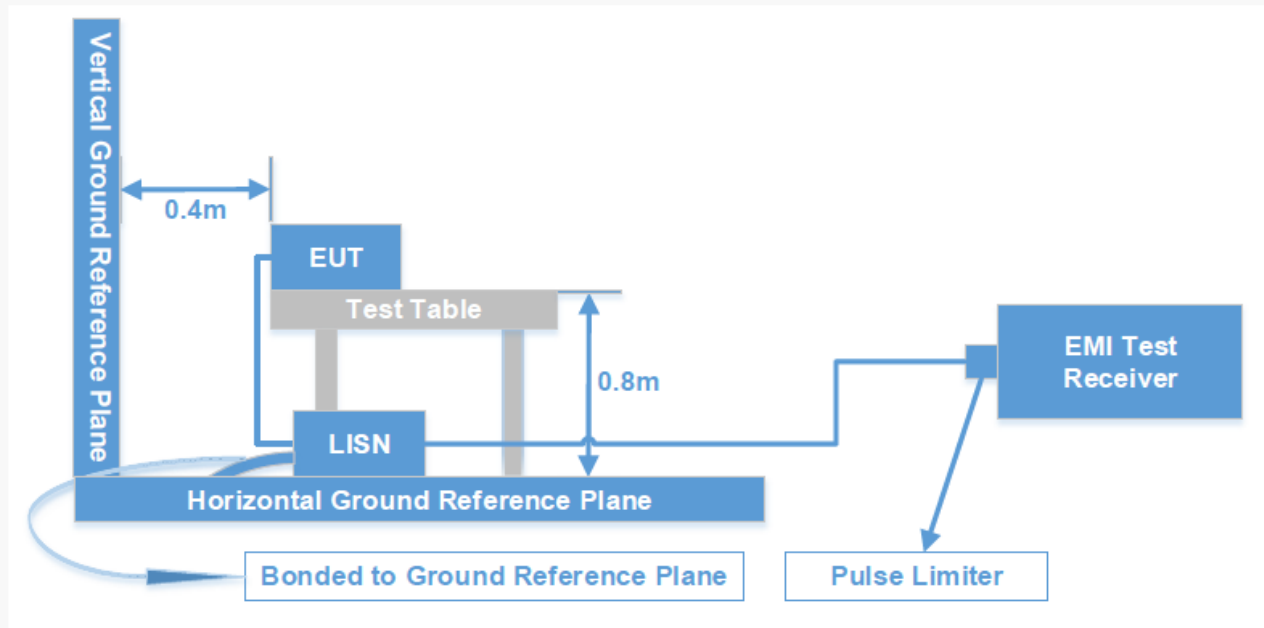
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

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

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the EUT or adapter was connected to the outlet of 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 (dB μ V) = Read level (dB μ V) + 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 (dB μ V) - Limit (dB μ V)

Test Results Summary

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

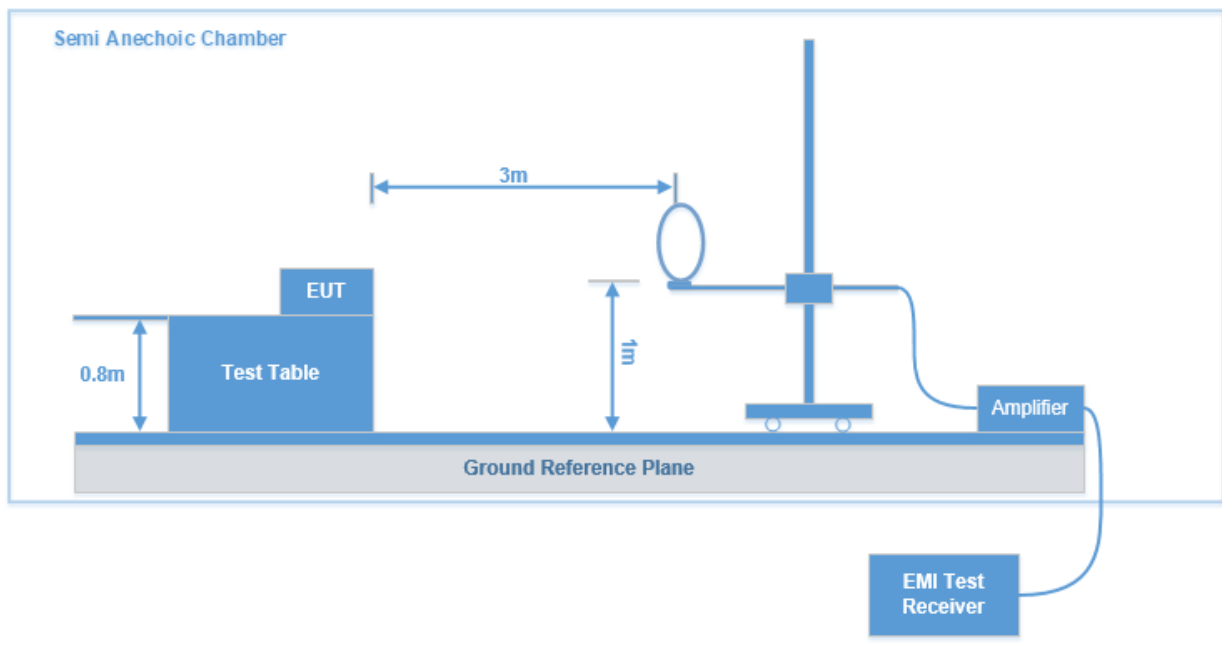
Test Data: See Appendix

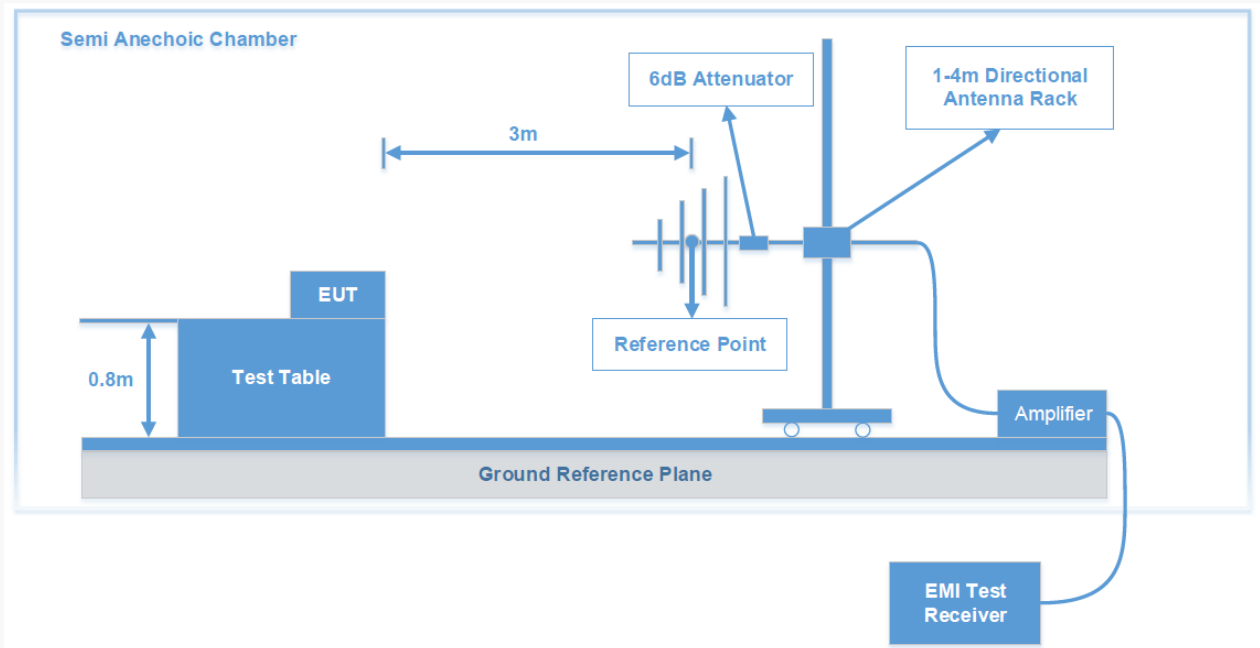
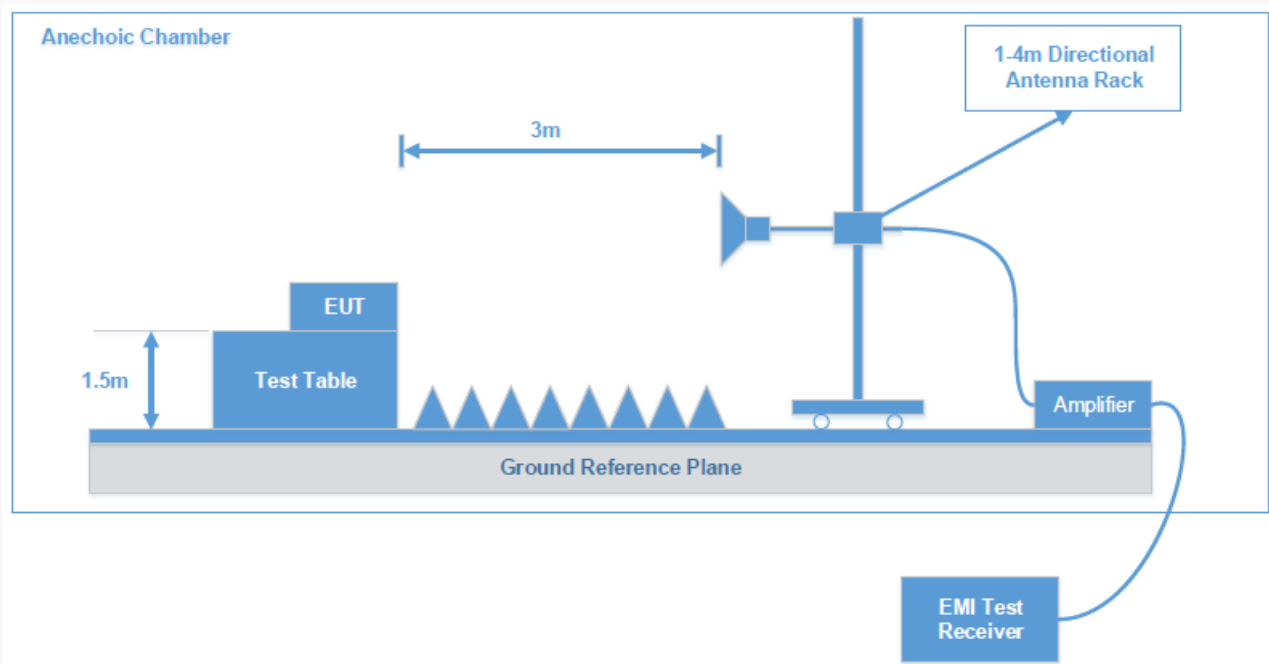
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS**Applicable Standard**

FCC §15.247 (d); §15.209; §15.205;

Test System Setup

9 kHz - 30 MHz:



30 MHz - 1 GHz:**1 GHz - 25 GHz:**

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 15.247 limits.

EMI Test Receiver 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

According to ANSI C63.10-2013 clause 6.5, 6.6 and 6.7.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz - 1GHz, peak and Average detection mode for frequencies above 1 GHz.

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) + 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 Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

Test Data: See Appendix

FCC §15.247(A) (2) - 6 DB EMISSION BANDWIDTH

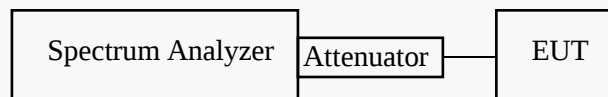
Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 * \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



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

Test Data: See Appendix

FCC §15.247(B) (3) - MAXIMUM CONDUCTED OUTPUT POWER

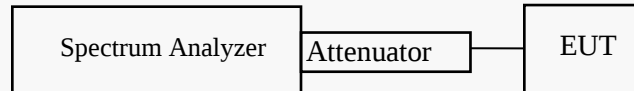
Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.9.1.1

- a) Set the RBW $\geq$ DTS bandwidth.
- b) Set VBW $\geq [3 \times \text{RBW}]$.
- c) Set span $\geq [3 \times \text{RBW}]$.
- d) Sweep time = No faster than coupled (auto) time.
- e) Detector = peak.
- f) Trace mode = max-hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.



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

Test Data: See Appendix

FCC §15.247(D) - 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

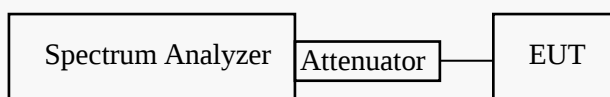
Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates Compliant with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

According to ANSI C63.10-2013 sub-clause 6.10.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



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

Test Data: See Appendix

FCC §15.247(E) - POWER SPECTRAL DENSITY

Applicable Standard

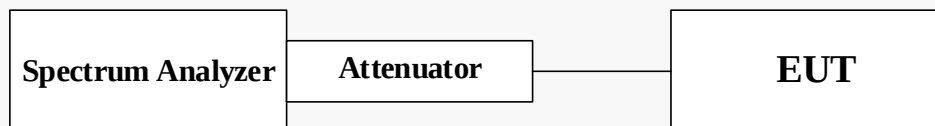
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.10.2

The following procedure shall be used if maximum peak conducted output power was used to determine Compliant, and it is optional if the maximum conducted (average) output power was used to determine Compliant:

1. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
2. Set the VBW $\geq 3 * \text{RBW}$.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



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

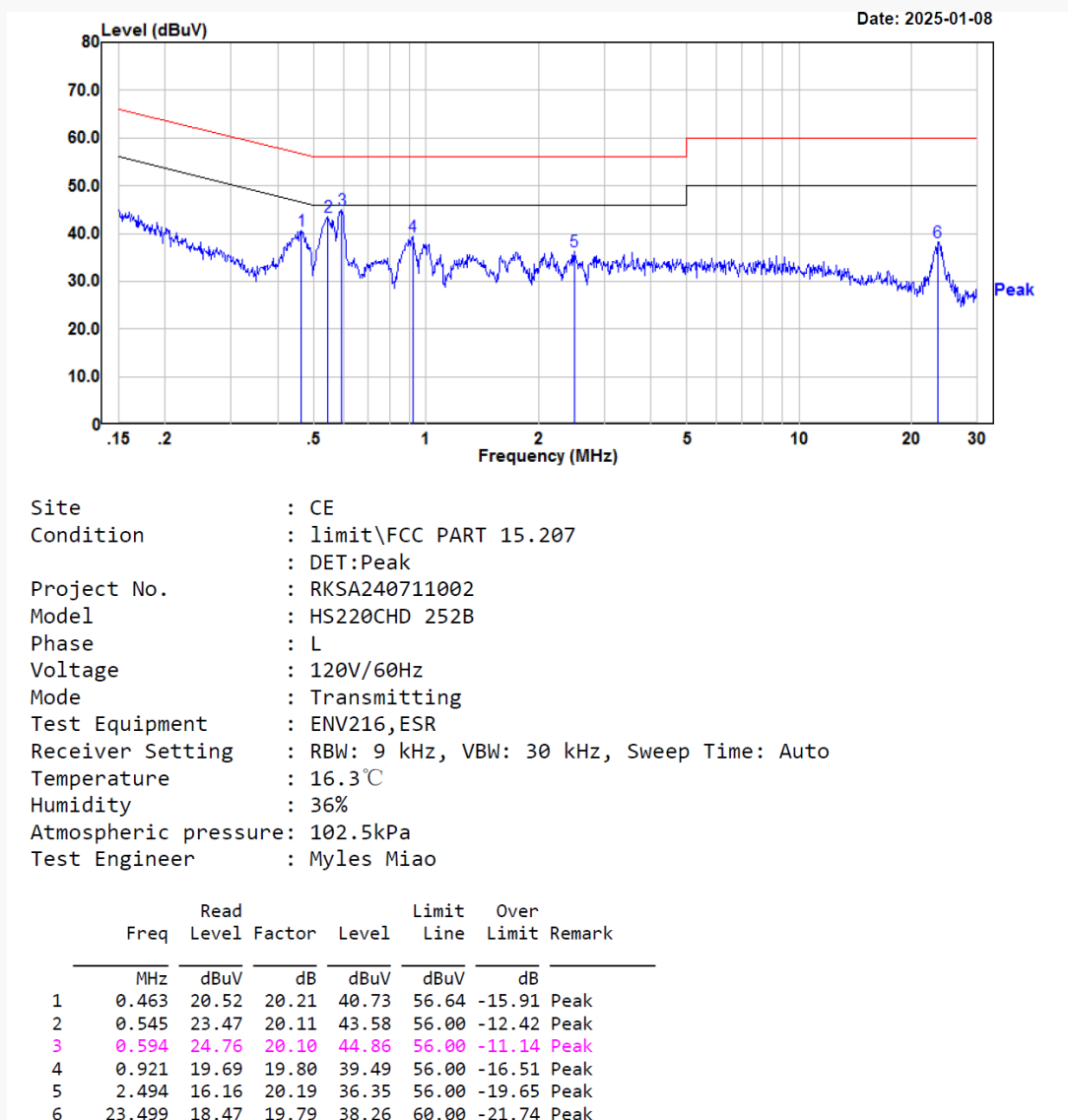
Test Data: See Appendix

APPENDIX - TEST DATA

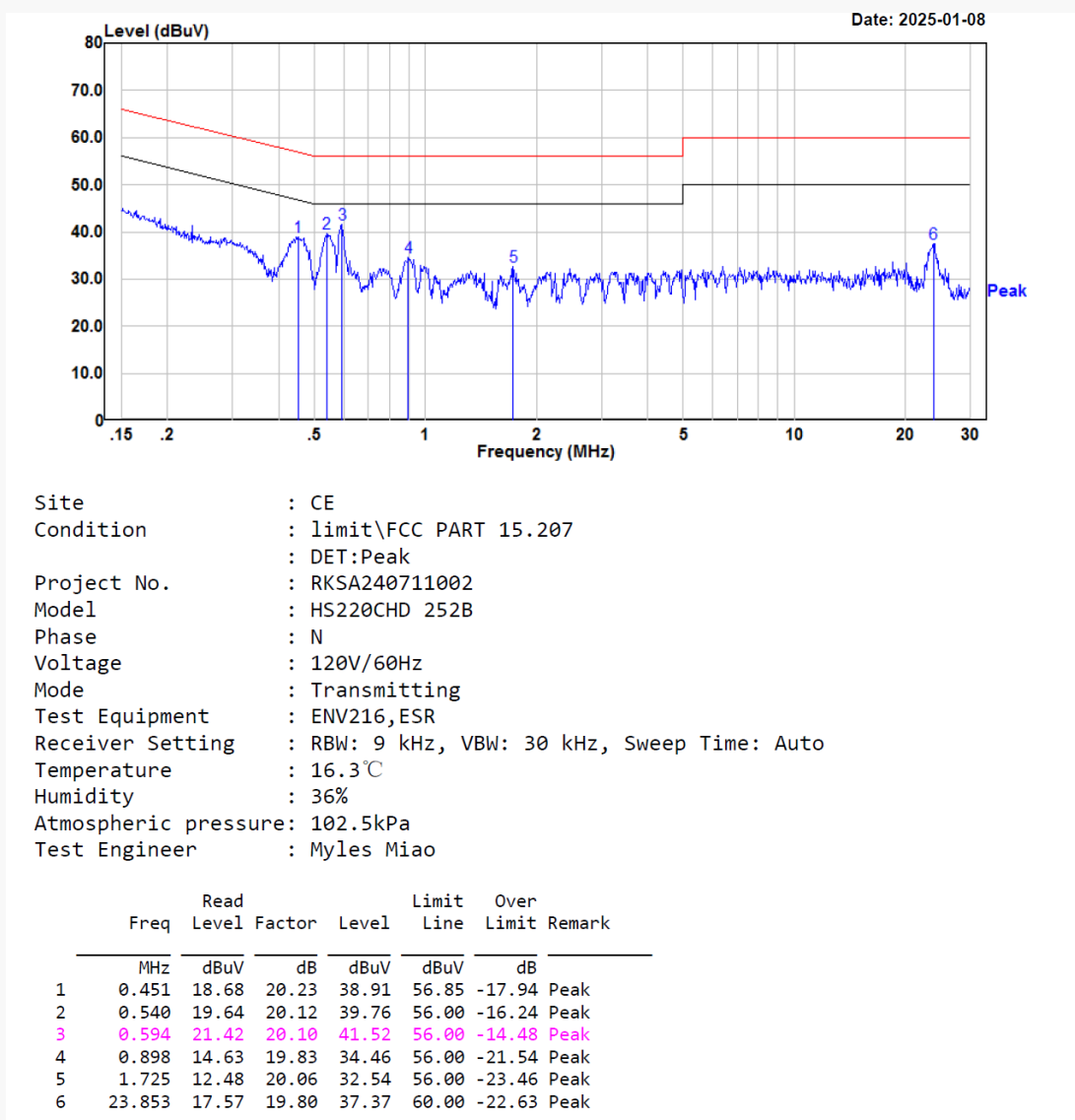
Environmental Conditions & Test Information

Test Item:	AC LINE CONDUCTED EMISSIONS	SPURIOUS EMISSIONS				DUTY CYCLE
		9 kHz - 30 MHz	30MHz - 1GHz	1 GHz - 18 GHz	18 GHz - 25 GHz	
Test Date:	2025-01-08 & 2025-02-11	2025-01-08 & 2025-02-10	2024-12-07 & 2025-02-10	2025-01-09	2024-11-20	2025-01-03
Temperature:	16.3&17.4℃	16.3&17.1℃	16.9&17.1℃	17.2 ℃	22.5 ℃	17.8 ℃
Relative Humidity:	36&42 %	36&42 %	33&42 %	51 %	49 %	47%
ATM Pressure:	102.5&102.4 kPa	102.5&102.1 kPa	102.3&102.1 kPa	103.2 kPa	102.6 kPa	102.9 kPa
Test Result:	Pass	Pass	Pass	Pass	Pass	/
Test Engineer:	Myles Miao	Jerry Yan	Jerry Yan	Destine Hu	Hugh Wu	Neil Zhou

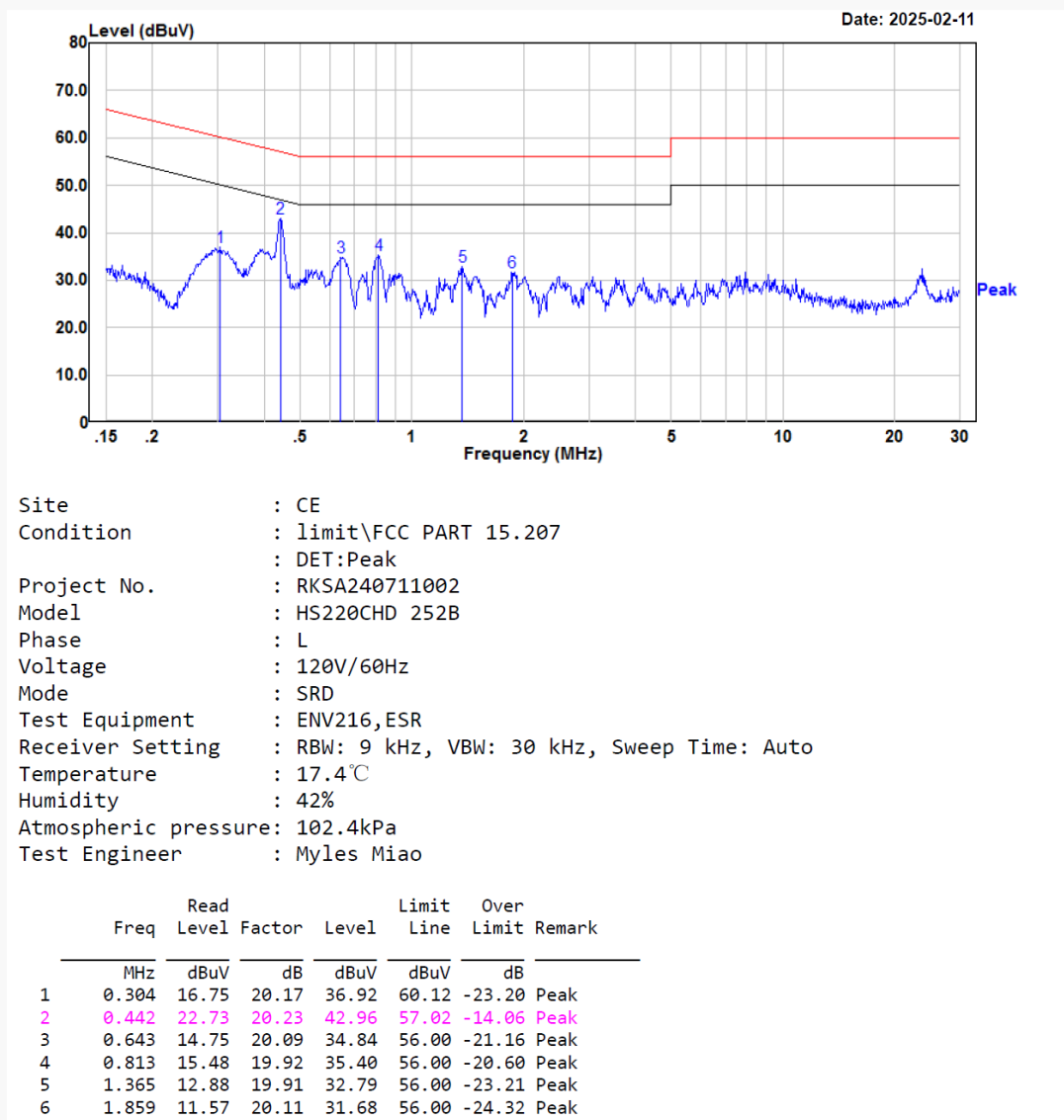
Test Item:	6 DB EMISSION BANDWIDTH	MAXIMUM CONDUCTED OUTPUT POWER	100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	POWER SPECTRAL DENSITY
Test Date:	2025-01-09	2025-01-06	2025-01-03	2025-01-06
Temperature:	17.2 ℃	17.1 ℃	17.8 ℃	17.1 ℃
Relative Humidity:	51 %	52 %	47%	52 %
ATM Pressure:	103.2 kPa	102.4 kPa	102.9 kPa	102.4 kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Neil Zhou	Neil Zhou	Neil Zhou

AC LINE CONDUCTED EMISSIONS*EUT operation mode: Transmitting in SRD Mode low channel (maximum output power mode)**For Charging Base***AC 120V/60 Hz, Line**

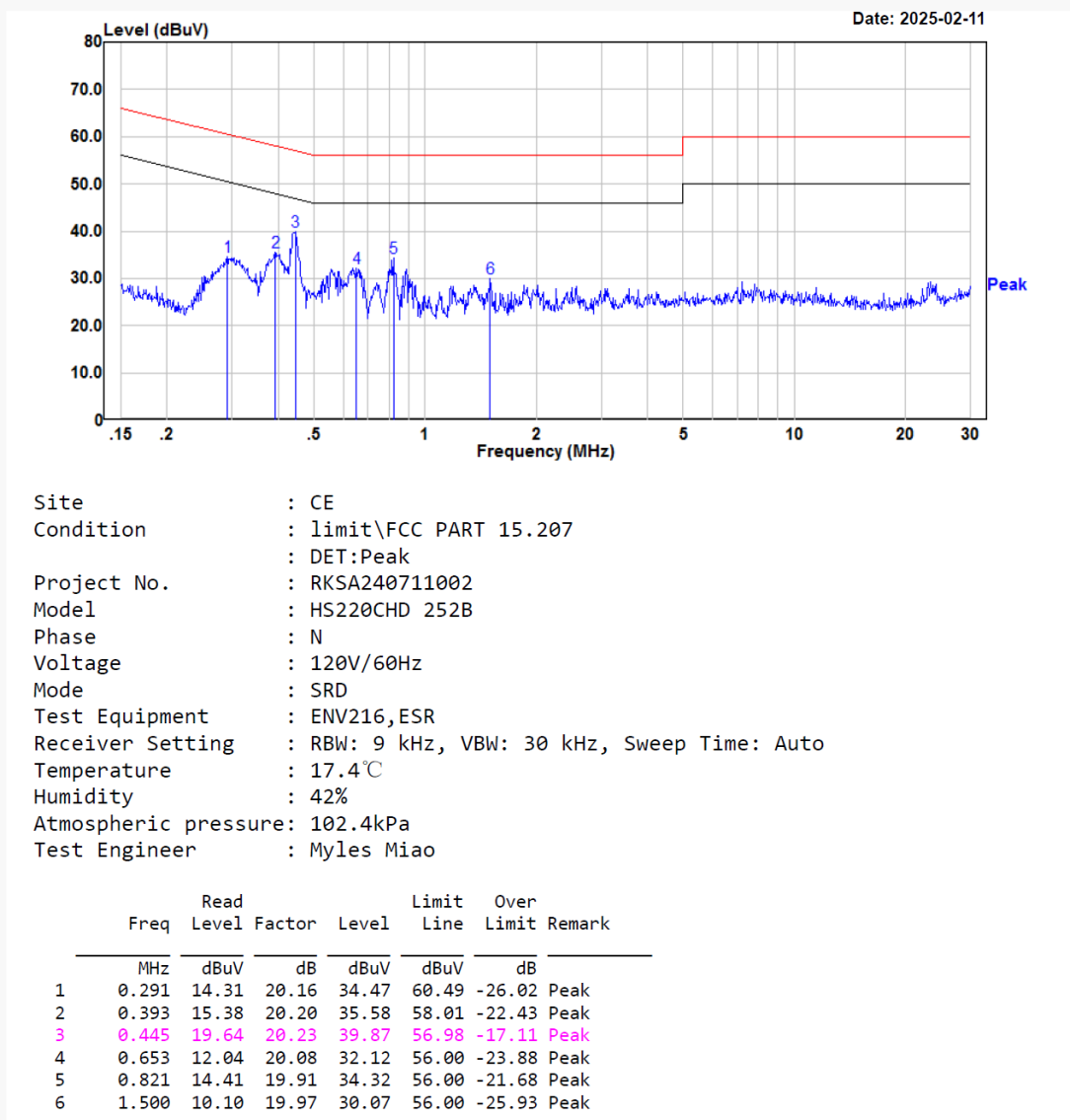
AC 120V/60 Hz, Neutral



For Type-C
AC 120V/60 Hz, Line



AC 120V/60 Hz, Neutral



SPURIOUS EMISSIONS & RESTRICTED BANDS EMISSIONS

EUT operation mode: Transmitting

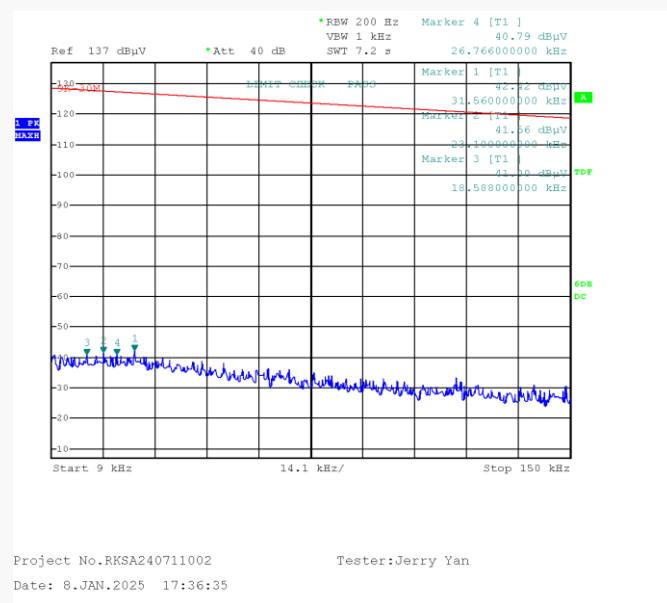
After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

For Charging Base

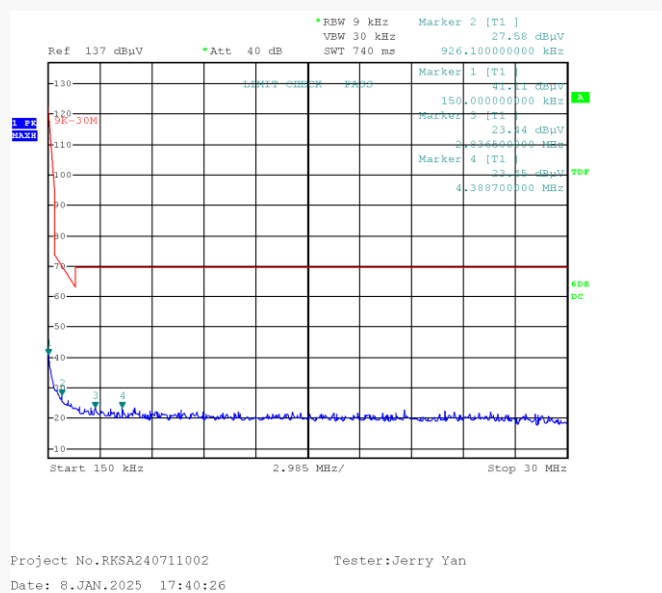
9 kHz-30 MHz: (Transmitting in maximum output power SRD mode low channel)

Parallel(worst case)

9kHz-150kHz



150kHz-30MHz



9kHz-150kHz

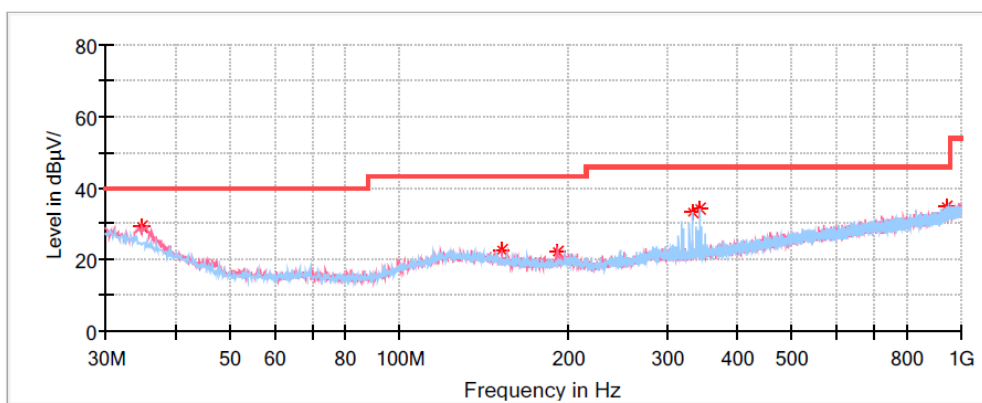
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.018588	41.00	PK	-0.55	122.22	81.22
0.023100	41.56	PK	-0.58	120.33	78.77
0.026766	40.79	PK	-0.59	119.05	78.26
0.031560	42.42	PK	-0.86	117.62	75.20

150kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	41.11	PK	-11.34	104.08	62.97
0.92610	27.58	PK	-27.09	68.27	40.69
2.83650	23.44	PK	-31.33	69.54	46.10
4.38870	23.45	PK	-31.97	69.54	46.09

30MHz - 1GHz**Transmitting maximum output power low channel****Common Information**

Project No: RKSA240711002
EUT Model: HS220CHD-252B
Test Mode: Transmitting in SRD mode low channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Receiver Setting: RBW: 120 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature: 16.9°C
Humidity: 52%
Barometric Pressure: 102.3kPa
Test Engineer: Jerry Yan
Test Date: 2024/12/07

**Critical_Freqs**

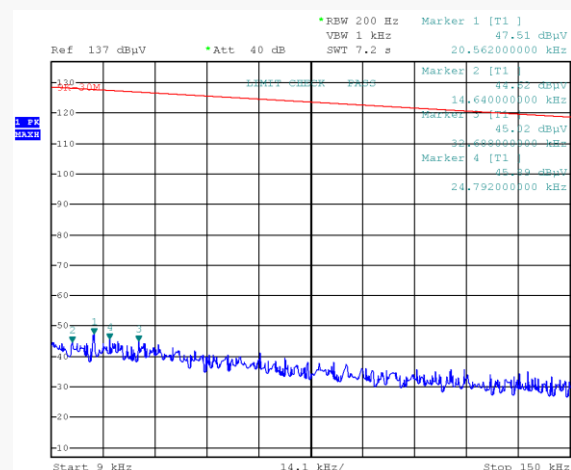
Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
34.850000	29.35	40.00	10.65	V	-7.9
152.341250	22.89	43.50	20.61	V	-11.8
190.656250	22.10	43.50	21.40	V	-12.4
332.882500	33.06	46.00	12.94	H	-9.5
341.976250	34.32	46.00	11.68	H	-9.3
940.951250	34.94	46.00	11.06	H	1.2

For Type-C

9 kHz-30 MHz: (Transmitting in maximum output power SRD mode low channel)

Parallel(worst case)

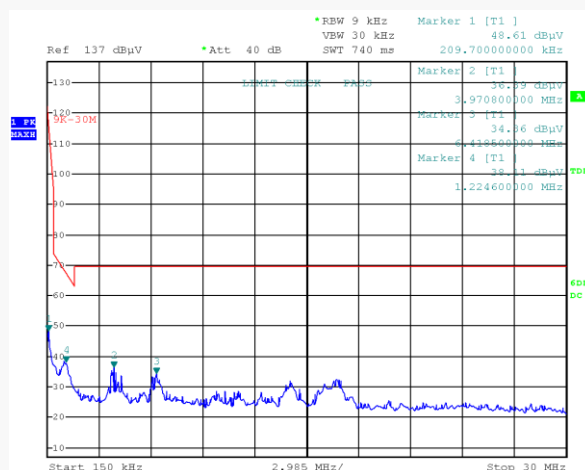
9kHz-150kHz



Project No.RKSA240711002
Date: 10.FEB.2025 11:31:40

Tester:Jerry Yan

150kHz-30MHz



Project No.RKSA240711002
Date: 10.FEB.2025 11:34:54

Tester:Jerry Yan

9kHz-150kHz

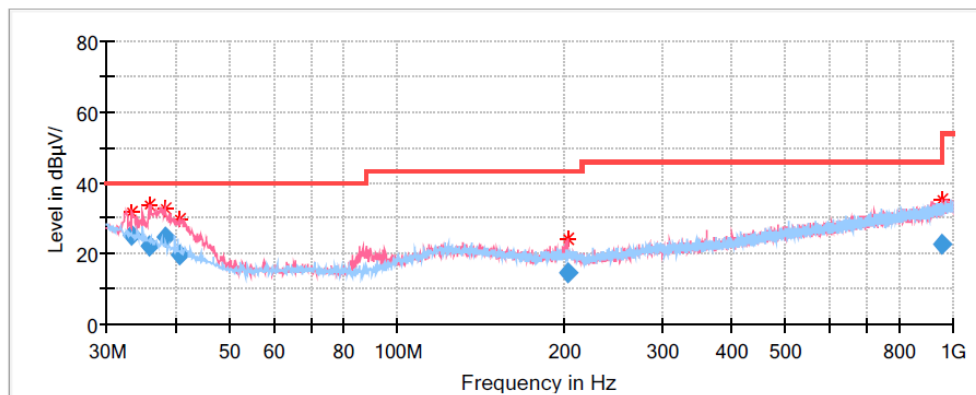
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.014640	44.62	PK	-0.53	124.29	79.67
0.020562	47.51	PK	-0.56	121.34	73.83
0.024792	45.89	PK	-0.58	119.72	73.83
0.032688	45.02	PK	-1.04	117.32	72.30

150kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.20970	48.61	PK	-13.87	101.17	52.56
1.22460	38.11	PK	-28.35	65.84	27.73
3.97080	36.39	PK	-31.90	69.54	33.15
6.41850	34.36	PK	-32.27	69.54	35.18

30MHz - 1GHz**Transmitting maximum output power low channel****Common Information**

Project No: RKSA240711002
EUT Model: HS220CHD-252B
Test Mode: Transmitting in SRD mode low channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Receiver Setting: RBW: 120 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature: 15.7°C
Humidity: 36%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2025/2/10

**Final Result**

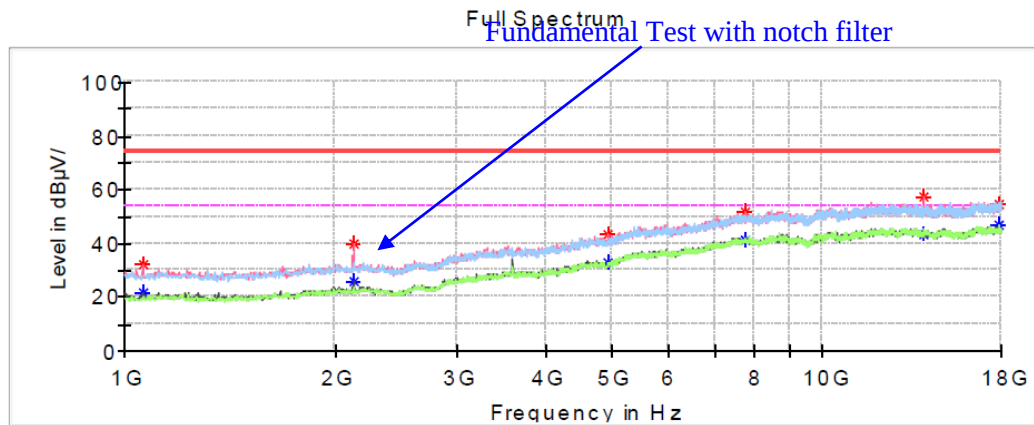
Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
33.273500	25.23	40.00	14.77	V	-7.2
35.698700	22.25	40.00	17.75	V	-8.3
38.245000	24.48	40.00	15.52	V	-9.6
40.548700	19.76	40.00	20.24	V	-11.7
202.296000	14.47	43.50	29.03	V	-12.2
958.905200	22.78	46.00	23.22	V	1.7

1GHz - 18GHz:

Low Channel: 2410 MHz

Common Information

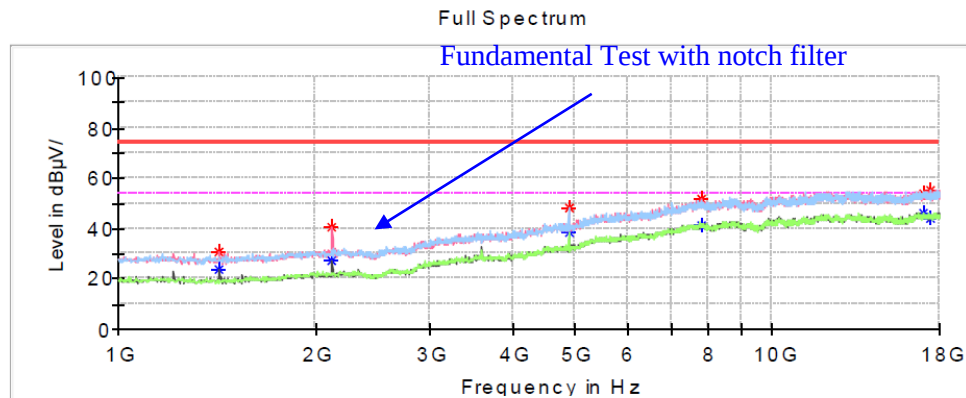
Project No.: RKSA240711002
Test Mode: Transmitting
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer: Destine Hu

**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)
1061.200000	---	21.48	54.00	32.52	V	-15.4
1061.200000	32.26	---	74.00	41.74	V	-15.4
2128.800000	---	25.78	54.00	28.22	V	-11.3
2128.800000	39.61	---	74.00	34.39	V	-11.3
4923.600000	---	32.87	54.00	21.13	V	-2.7
4923.600000	43.26	---	74.00	30.74	V	-2.7
7766.000000	---	41.46	54.00	12.54	V	3.9
7766.000000	51.76	---	74.00	22.24	V	3.9
13964.200000	57.42	---	74.00	16.58	H	9.8
13964.200000	---	43.68	54.00	10.32	H	9.8
17935.400000	54.59	---	74.00	19.41	H	11.9
17935.400000	---	46.56	54.00	7.44	H	11.9

Middle Channel: 2440 MHz**Common Information**

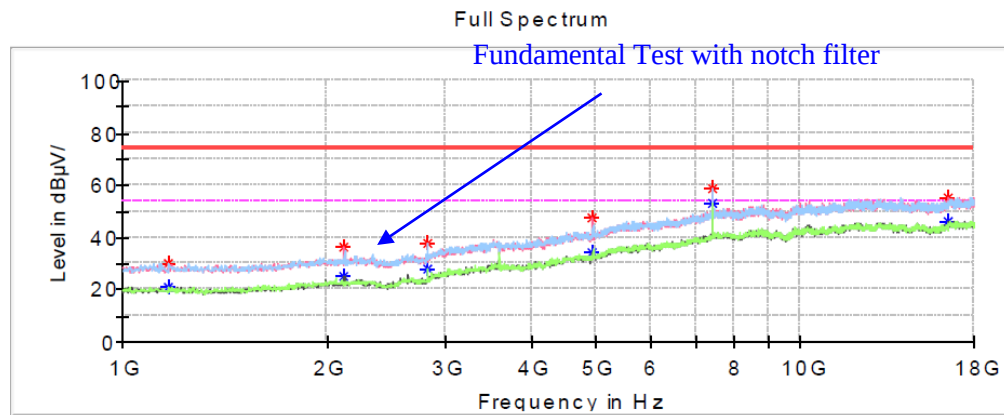
Project No.: RKSA240711002
Test Mode: Transmitting
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer: Destine Hu

**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)
1428.400000	---	23.76	54.00	30.24	V	-14.8
1428.400000	30.87	---	74.00	43.13	V	-14.8
2122.000000	---	27.16	54.00	26.84	V	-11.4
2122.000000	40.30	---	74.00	33.70	V	-11.4
4879.400000	---	38.58	54.00	15.42	H	-2.9
4879.400000	48.30	---	74.00	25.70	H	-2.9
7769.400000	---	41.50	54.00	12.50	H	3.9
7769.400000	51.98	---	74.00	22.02	H	3.9
16980.000000	---	46.45	54.00	7.55	V	12.2
16980.000000	53.55	---	74.00	20.45	V	12.2
17500.200000	---	44.34	54.00	9.66	H	11.5
17500.200000	55.33	---	74.00	18.67	H	11.5

High Channel: 2470 MHz**Common Information**

Project No.: RKSA240711002
Test Mode: Transmitting
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer: Destine Hu

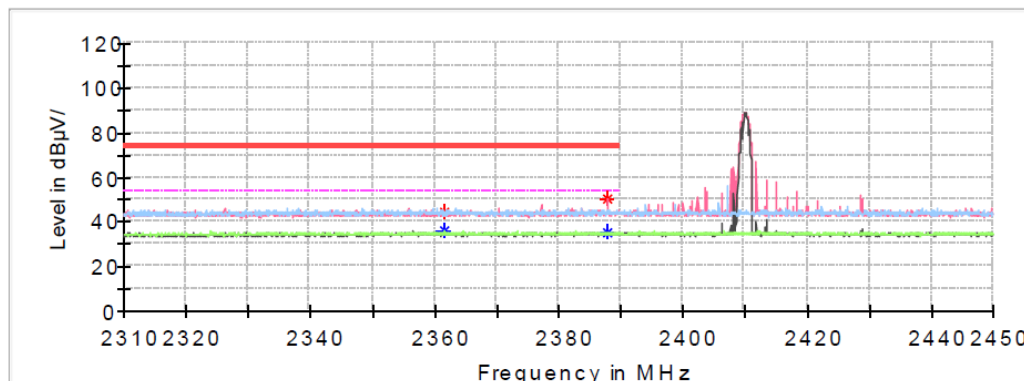
**Critical Freqs**

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	---	20.73	54.00	33.27	H	-15.2
1170.000000	29.93	---	74.00	44.07	H	-15.2
2122.000000	---	25.12	54.00	28.88	V	-11.4
2122.000000	36.34	---	74.00	37.66	V	-11.4
2822.400000	---	28.08	54.00	25.92	H	-9.0
2822.400000	37.67	---	74.00	36.33	H	-9.0
4937.200000	---	34.13	54.00	19.87	V	-2.7
4937.200000	47.52	---	74.00	26.48	V	-2.7
7409.000000	---	53.22	54.00	0.78	H	3.7
7409.000000	58.43	---	74.00	15.57	H	3.7
16551.600000	---	46.42	54.00	7.58	V	10.9
16551.600000	55.57	---	74.00	18.43	V	10.9

RESTRICTED BANDS EMISSIONS**Low Channel****Common Information**

Project No.: RKSA240711002
Test Mode: Transmitting
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer: Destine Hu

Full Spectrum

**Critical_Freqs**

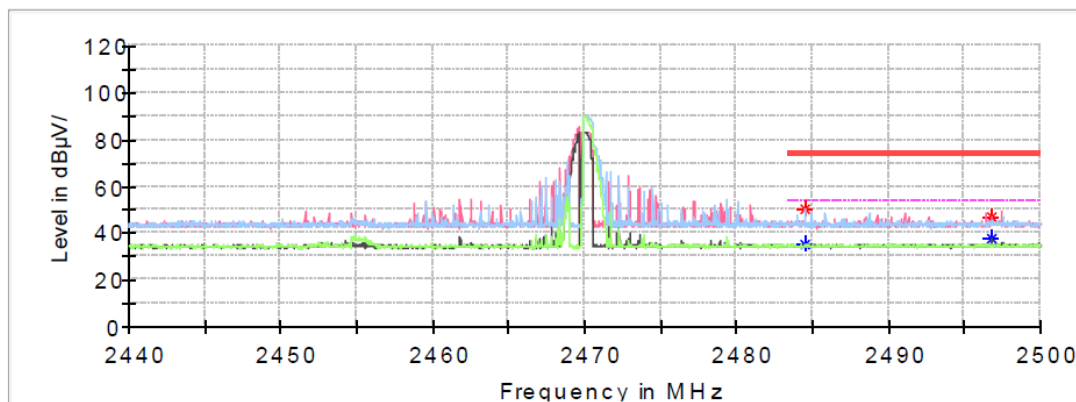
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2361.632000	---	35.88	54.00	18.12	H	-0.7
2361.632000	44.60	---	74.00	29.40	H	-0.7
2387.896000	---	34.83	54.00	19.17	V	-0.6
2387.896000	50.37	---	74.00	23.63	V	-0.6

High Channel

Common Information

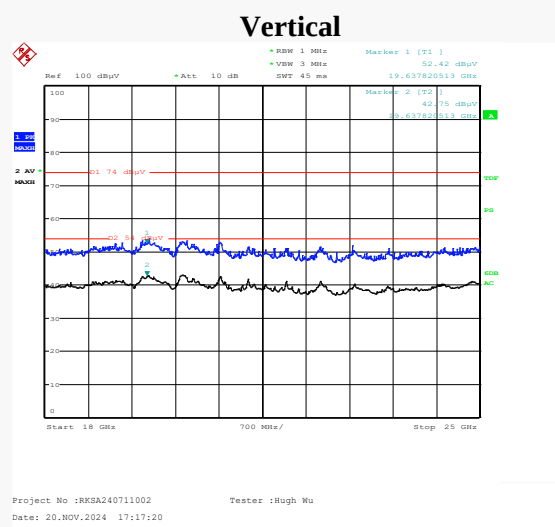
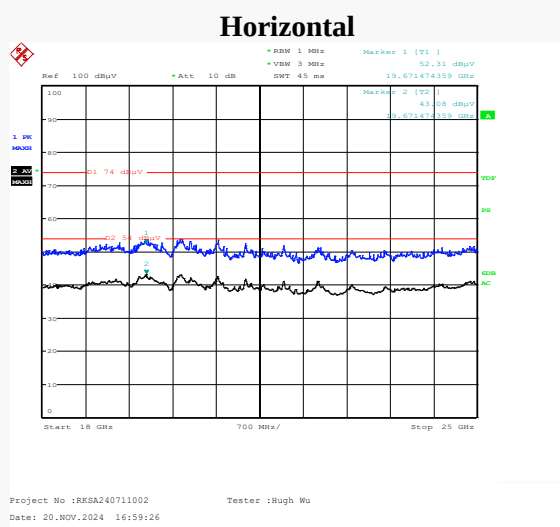
Project No.: RKSA240711002
Test Mode: Transmitting
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer: Destine Hu

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)
2484.448000	50.28	---	74.00	23.72	H	-0.3
2484.448000	---	35.06	54.00	18.94	H	-0.3
2496.760000	46.76	---	74.00	27.24	V	-0.2
2496.760000	---	37.48	54.00	16.52	V	-0.2

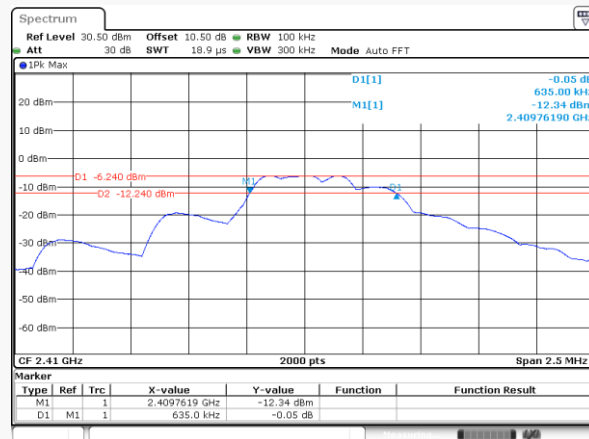
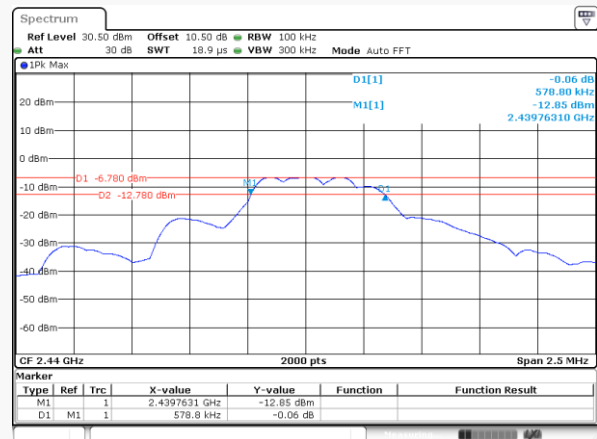
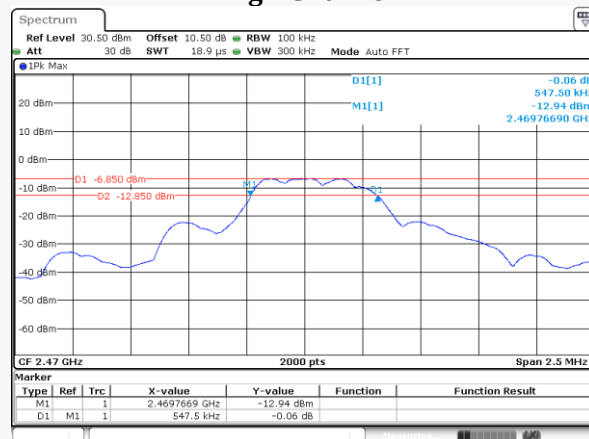
18 GHz-25 GHz: (Transmitting in maximum output power low channel):

Note: The test distance is 3m. The limit is 74dBμV/m(Peak) and 54dBμV/m(Average).

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
19637.82	---	42.75	54	11.25	V	11.23
19637.82	52.42	---	74	21.58	V	11.23
19671.47	---	43.08	54	10.92	H	11.33
19671.47	52.31	---	74	21.69	H	11.33

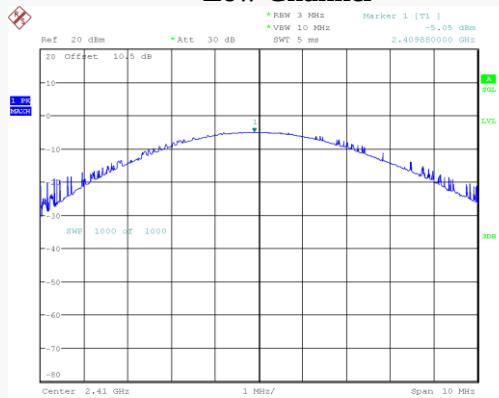
6 dB EMISSION BANDWIDTH*EUT operation mode: Transmitting*

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2410	0.635	≥ 0.5
Middle	2440	0.579	≥ 0.5
High	2470	0.548	≥ 0.5

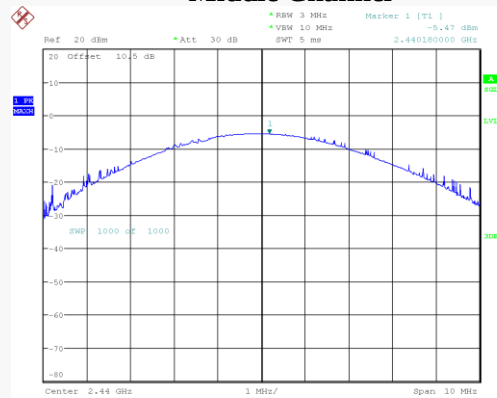
Low Channel**Middle Channel****High Channel**

MAXIMUM CONDUCTED OUTPUT POWER*EUT operation mode: Transmitting*

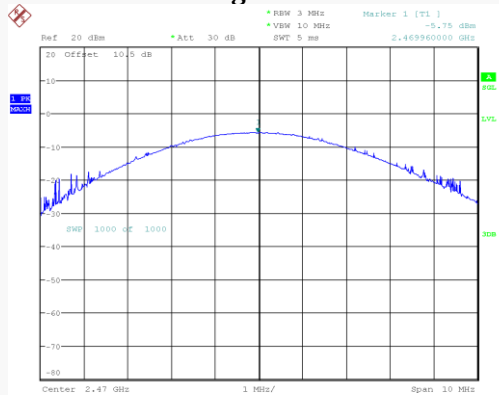
Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)	Result
Low	2410	-5.05	30	Pass
Middle	2440	-5.47	30	Pass
High	2470	-5.75	30	Pass

Low Channel

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 6.JAN.2025 09:42:12

Middle Channel

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 6.JAN.2025 09:43:31

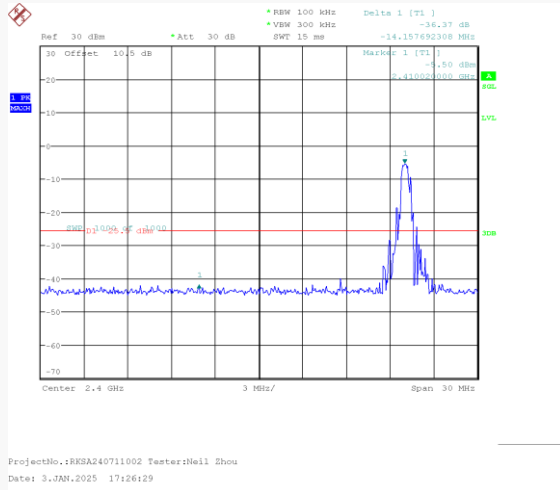
High Channel

ProjectNo.:RKSA240711002 Tester:Neil Zhou
Date: 6.JAN.2025 09:40:43

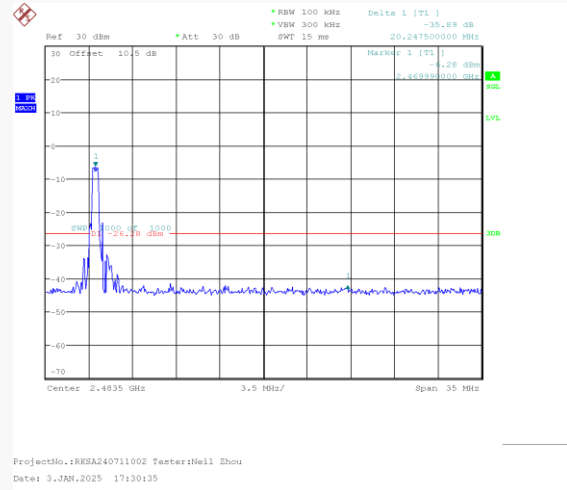
100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

EUT operation mode: Transmitting

Left Side



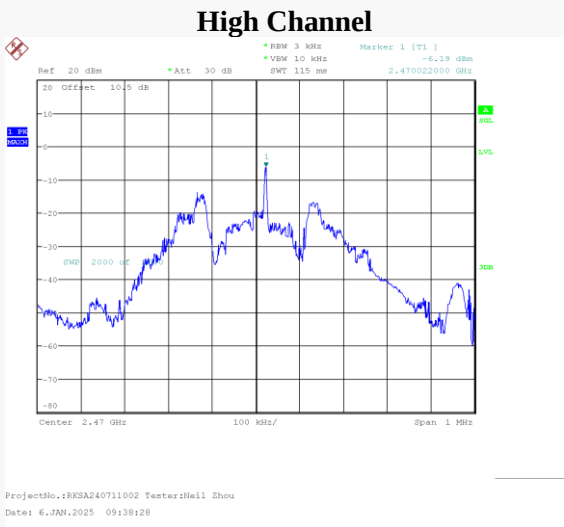
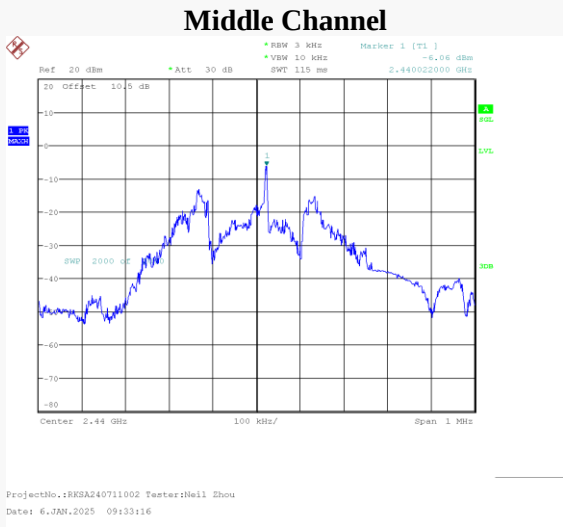
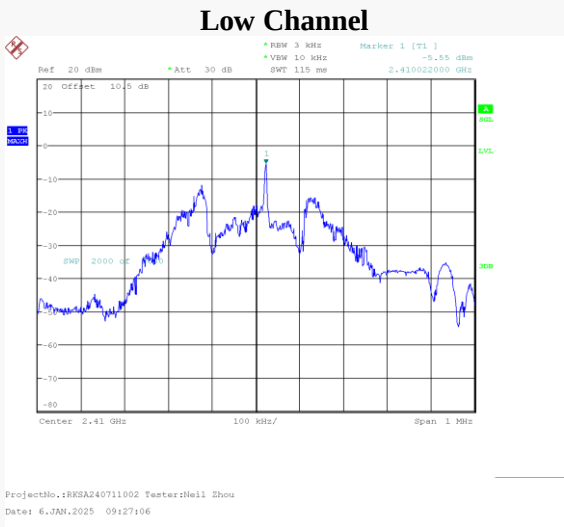
Right Side



POWER SPECTRAL DENSITY

EUT operation mode: Transmitting

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
Low	2410	-5.55	≤ 8
Middle	2440	-6.06	≤ 8
High	2470	-6.19	≤ 8



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 C - 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 *******