

FCC PART 15.247

TEST REPORT

For

Chengdu Ebyte Electronic Technology Co.,Ltd

Building B2, Mould Industrial Park, 199# Xi-Qu Ave,
West High-tech Zone, Chengdu, 611731, Sichuan, China

Tested Model: E52-900NW22S
FCC ID: 2A8C3-E52900NW22S

Report Type: Original Report		Product Name: Wireless Networking Module	
Report Number:		RSC240618002-0	
Date of Report Issue:		2024-07-02	
Reviewed By:		Sula Huang	
Test Laboratory:		Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: +86-28-65525123 Fax: +86-28-65525125 www.baclcorp.com	

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Chengdu Ebyte Electronic Technology Co.,Ltd
Address	Building B2, Mould Industrial Park, 199# Xi-Qu Ave, West High-tech Zone, Chengdu, 611731, Sichuan, China
Email	157768495@qq.com
Product	Wireless Networking Module
Tested Model	E52-900NW22S
FCC ID	2A8C3-E52900NW22S
Frequency*	903.125 - 924.125 MHz
Modulation Type*	LoRa
RF output power	9.83 dBm
Voltage*	DC 1.8-3.6V (Typical: 3.3V)
Measure approximately	20 mm (L) x 14 mm (W) x 2.7 mm (H)
Sample serial number	240618002/01 (RF Radiated Test & RF Conducted Test) (assigned by the BACL, Chengdu)
Sample/EUT Status	The test sample was in good condition and received: 2024-06-18

Note: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Objective

This report is prepared on behalf of **Chengdu Ebyte Electronic Technology Co.,Ltd** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

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

Measurement Uncertainty

Item			Measurement Uncertainty	U_{cispr}
AC power line conducted emission			2.79 dB	3.4 dB
Radiated Emission	9kHz-30MHz		4.48dB	-
	30MHz-200MHz	H	4.34dB	6.3dB
	30MHz-200MHz	V	4.59dB	6.3dB
	200MHz-1GHz	H	4.69dB	6.3dB
	200MHz-1GHz	V	5.79dB	6.3dB
	1GHz-6GHz		4.58dB	5.2dB
	6GHz-18GHz		4.58dB	5.5dB

Item	Measurement Uncertainty
RF output power, conducted	$\pm 0.61\text{dB}$
Occupied Bandwidth	$\pm 1.69\%$
Power Spectrum Density, conducted	$\pm 2.52\text{dB}$
Humidity	$\pm 5\%$
Temperature	$\pm 1^{\circ}\text{C}$
Voltage(DC)	$\pm 0.4\%$
Voltage(AC, <10kHz)	$\pm 1\%$
Time	1%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the corresponding inclusion factor K when the inclusion probability is about 95%.

Test Methodology

All measurements contained in this report were conducted with:

1. ANSI C63.10-2020 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
2. KDB558074 D01 15.247 Meas Guidance v05r02.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Bay Area Compliance Laboratories Corp. (Chengdu) lab is accredited to ISO/IEC 17025 by NVLAP (Lab code: 600346-0) and the FCC designation No.: CN5056. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration*

The system was configured in testing mode, which was provided by manufacturer.

For 500 kHz mode, 22 channels are provided for testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	903.125	11	914.125
1	904.125	12	915.125
2	905.125	13	916.125
3	906.125	14	917.125
4	907.125	15	918.125
5	908.125	16	919.125
6	909.125	17	920.125
7	910.125	18	921.125
8	911.125	19	922.125
9	912.125	20	923.125
10	913.125	21	924.125

EUT was tested with channel 0, 11 and 21.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software*

The setting by the software as following table:

Test Mode	Test Software	XCOM V2.6		
500 kHz	Test Frequency	903.125MHz	914.125MHz	924.125MHz
	Power Level	14	14	14

Duty Cycle information is below:

Mode	T _{on}	T _p	Duty Cycle
	(ms)	(ms)	(%)
500 kHz	100	100	100

Duty Cycle



Project:RSC240618002-0 Tester:Murphy Guo
Date: 24.JUN.2024 16:53:46

Support Test Devices Description

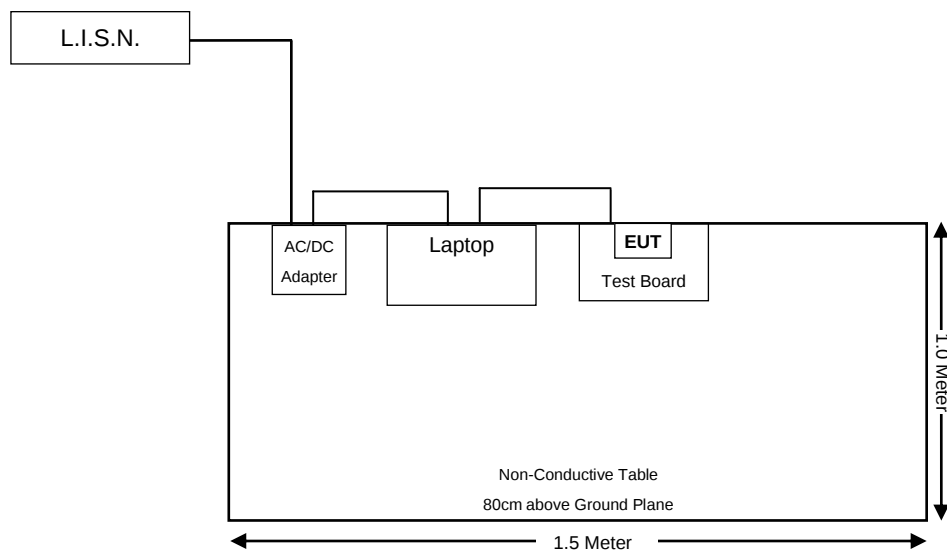
Manufacturer	Device Name	Model	Serial Number
Local			
Lenovo	Laptop	L540	No
Lenovo	AC/DC Adapter	ADLX45NDC2A	SA10E75790
Ebyte	Test Board	v1.0	10683

Support Test Cable Description

Cable Description	Length (m)	From / Port	To
Unshielded AC Power Cable	1.5	L.I.S.N.	AC/DC Adapter
Unshielded DC Power Cable	1.5	Adapter	Laptop
Unshielded USB Power Cable	0.5 or 1.3	Laptop	Test Board

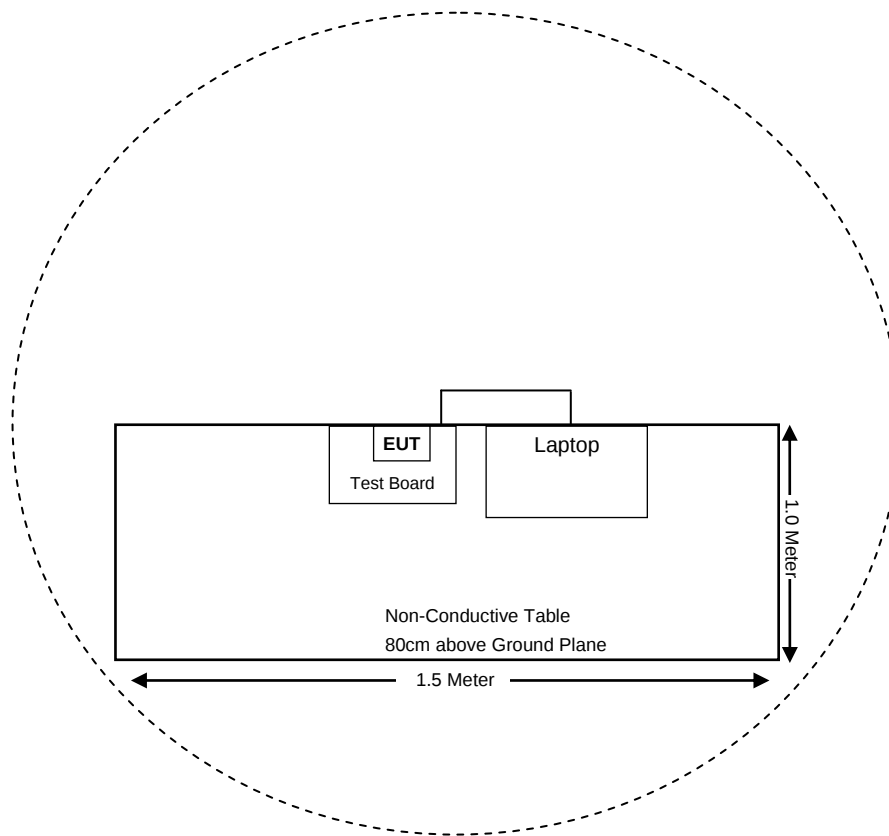
Block Diagram of Test Setup

Conducted Emissions:

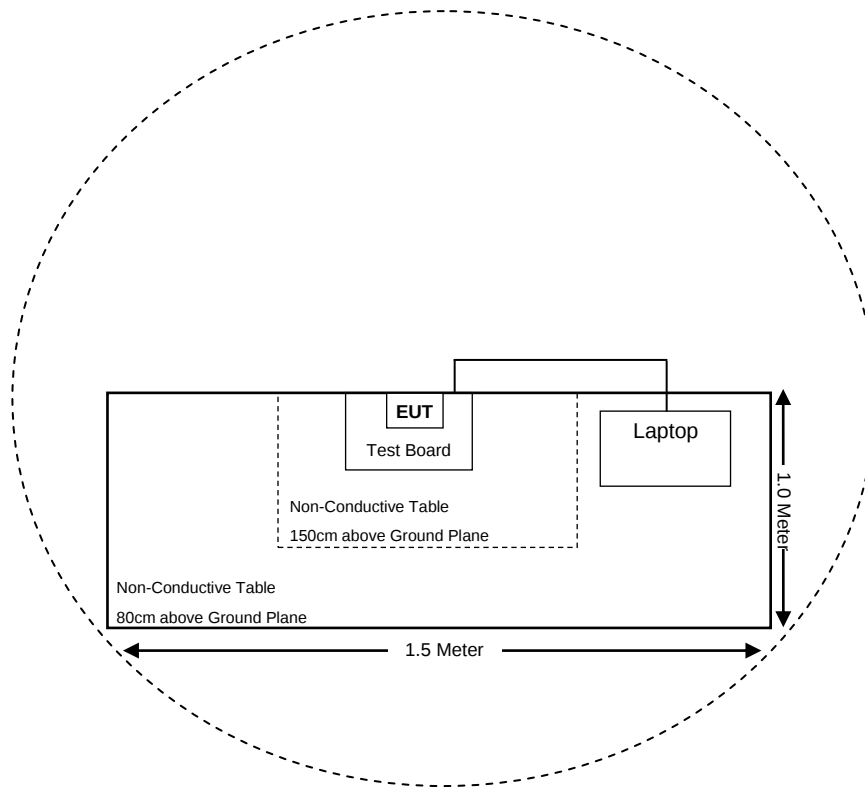


Spurious Emissions

Below 1GHz:



Above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 & §1.1310 & §2.1091	Maximum Permissible Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Raidated Spurious Emissions	Compliant
§15.247(d)	Conducted Spurious Emissions at Antenna Terminal	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

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

TEST EQUIPMENTS LIST

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions					
Rohde & Schwarz	EMI Test Receiver	ESCI 3	100028	2024-04-10	2025-04-09
Rohde & Schwarz	L.I.S.N.	ENV216	3560.6550.16	2024-04-10	2025-04-09
HP	RF Limiter	11947A	3107A01270	2023-08-11	2024-08-10
UTIFLEX	Conducted Cable	L-E-003	000003	2023-08-03	2024-08-02
Rohde & Schwarz	EMC32	EMC32	V 8.52.0	NCR	NCR
Radiated Emissions (9kHz-30MHz)					
EMCT	Semi-Anechoic Chamber	966	001	2023-04-15	2028-04-14
Rohde & Schwarz	EMI Test Receiver	ESR3	102456	2024-04-11	2025-04-10
BACL CORP	Active Loop Antenna	1313-1A	4031411	2024-05-20	2025-05-19
Xin Hang Xun Wei Bo	RF Cable (Below 1GHz)	XH500A-N/J- N/J-2M-A	T-E271	2023-11-30	2024-11-29
Xin Hang Xun Wei Bo	RF Cable (Below 1GHz)	XH500A-N/J- N/J-7M-A	T-E268	2023-11-30	2024-11-29
Rohde & Schwarz	EMC32	EMC32	V9.10.00	NCR	NCR
Radiated Emissions (30MHz-1GHz)					
EMCT	Semi-Anechoic Chamber	966	001	2023-04-15	2028-04-14
SONOMA INSTRUMENT	Pre-Amplifier	310 N	186684	2023-08-08	2024-08-07
SUNOL SCIENCES	Broadband Antenna	JB3	A121808	2024-01-24	2025-01-23
INMET	Attenuator	18N-6dB	64671	2024-01-24	2025-01-23
Rohde & Schwarz	EMI Test Receiver	ESR3	102456	2024-04-11	2025-04-10
HUBER+SUHENER	RF Cable (Below 1GHz)	L-E-015	MY4345/EA	2023-11-30	2024-11-29
Xin Hang Xun Wei Bo	RF Cable (Below 1GHz)	XH500A-N/J- N/J-2M-A	T-E271	2023-11-30	2024-11-29
Xin Hang Xun Wei Bo	RF Cable (Below 1GHz)	XH500A-N/J- N/J-7M-A	T-E268	2023-11-30	2024-11-29
MICRO-TRONICS	900MHz Notch Filter	BRM50706	G216	2024-05-18	2025-05-17
Rohde & Schwarz	EMC32	EMC32	V9.10.00	NCR	NCR

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions (1GHz-10GHz)					
EMCT	Semi-Anechoic Chamber	966	001	2023-04-15	2028-04-14
Rohde & Schwarz	Spectrum Analyzer	FSU26	200835	2024-04-11	2025-04-10
ETS	Horn Antenna	3115	003-6076	2023-08-16	2024-08-15
A.H. Systems, inc.	Pre-Amplifier	PAM-0118P	509	2023-11-11	2024-11-10
Xin Hang Xun Wei Bo	RF Cable (Above 1GHz)	XH500A-SMA/J -N/J-2M-A	L-E-016	2024-01-05	2025-01-04
Xin Hang Xun Wei Bo	RF Cable (Above 1GHz)	XH500A-SMA/J -N/J-5M-A	L-E-017	2024-01-05	2025-01-04
MICRO-TRONICS	900MHz Notch Filter	BRM50706	G216	2024-05-18	2025-05-17
MICRO-TRONICS	High Pass Filter	HPM50111	G216	2024-05-18	2025-05-17
Rohde & Schwarz	EMC32	EMC32	V9.10.00	NCR	NCR
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSV40	101943	2024-04-10	2025-04-09
MIDWEST	6dB Attenuator	219	AA4305	2024-03-01	2025-03-01
Astrolab	RF Coaxial Cable	MINIREND-5	1206	2023-10-18	2024-10-17

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

FCC §15.247 & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE

Applicable Standard

According to subpart 15.247 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Mode	Frequency Range (MHz)	Antenna Gain*		Tune-up Conducted Power*		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
500 kHz	903.125 - 924.125	3.0	2.0	10.0	10.0	20	0.0040	1.0

Result: The device meets FCC MPE at ≥20 cm distance.

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.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Information*

The EUT has one external monopole antenna with RP-SMA connector and the maximum antenna gain is 3.0dBi, which fulfill the requirement of this section. Please refer to the EUT photos.

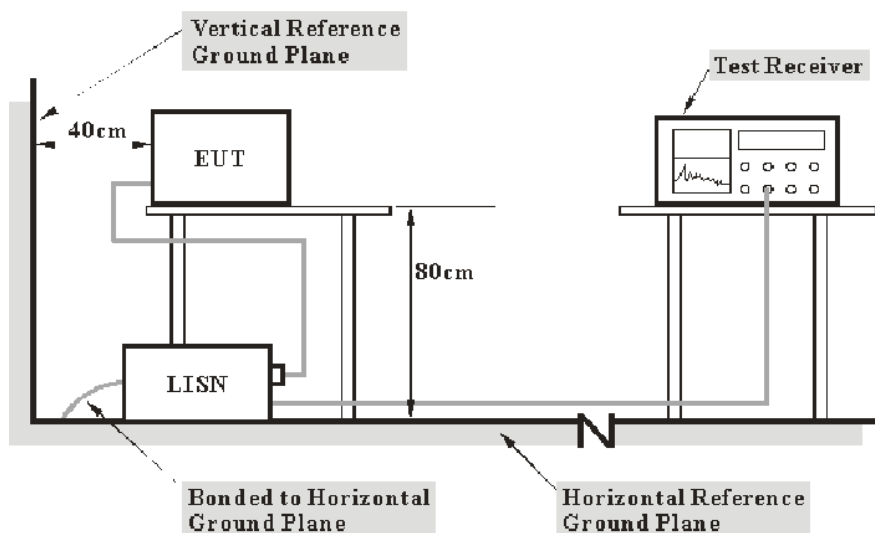
Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2020 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

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter of laptop was connected to the first L.I.S.N.

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

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

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

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

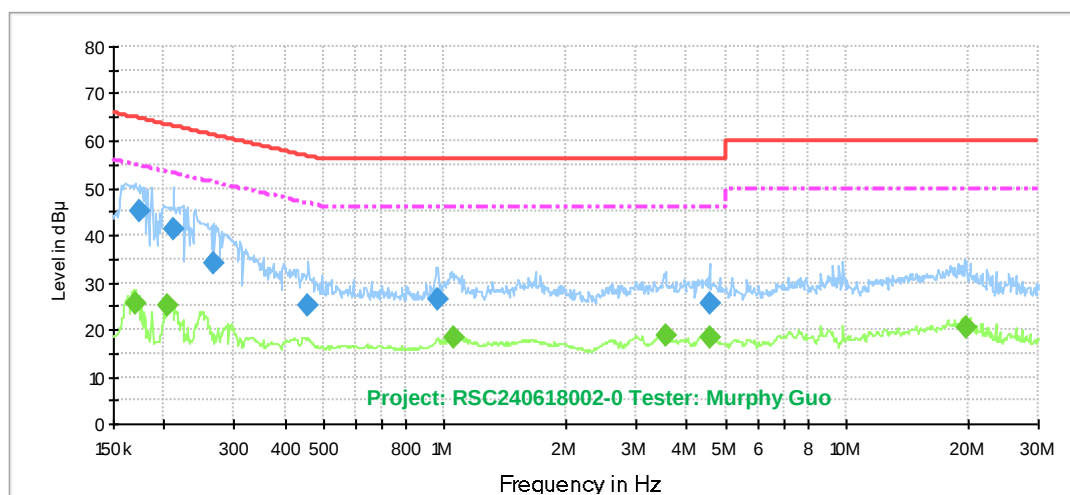
Test Data

Test Environment Conditions

Temperature:	24 °C
Relative Humidity:	64 %
ATM Pressure:	95.3 kPa

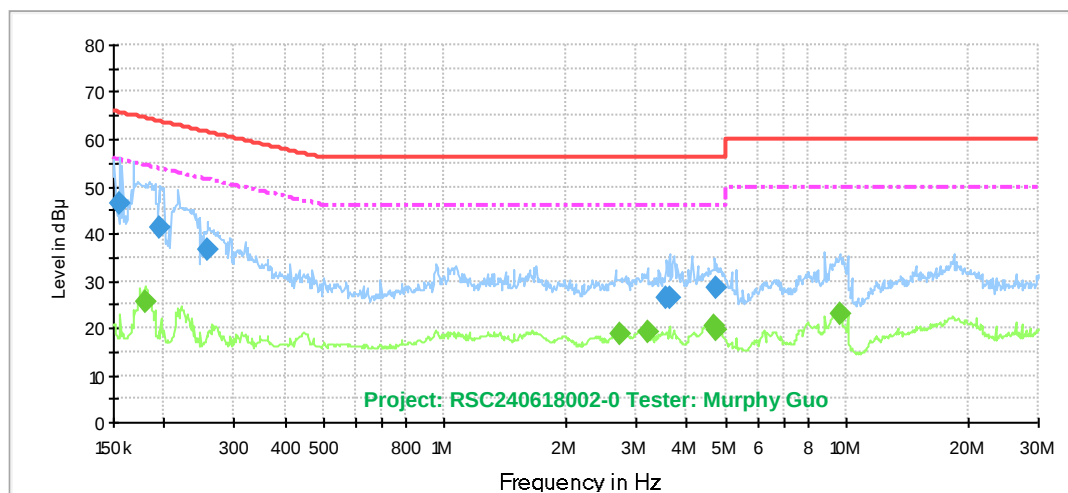
The testing was performed by Murphy Guo on 2024-06-25.

Test Mode: Transmitting

AC120V/60Hz, Line:

Frequency (MHz)	QuasiPeak (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)
0.174210	45.2	5000.0	9.000	L1	19.6	19.5	64.8
0.211617	41.1	5000.0	9.000	L1	19.6	22.0	63.1
0.264864	34.2	5000.0	9.000	L1	19.6	27.1	61.3
0.458447	25.0	5000.0	9.000	L1	19.7	31.7	56.7
0.959106	26.3	5000.0	9.000	L1	19.8	29.7	56.0
4.569239	25.5	5000.0	9.000	L1	19.8	30.5	56.0

Frequency (MHz)	Average (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)
0.170769	25.4	5000.0	9.000	L1	19.6	29.6	54.9
0.204356	25.0	5000.0	9.000	L1	19.6	28.5	53.4
1.059712	18.3	5000.0	9.000	L1	19.8	27.7	46.0
3.543029	18.8	5000.0	9.000	L1	19.8	27.2	46.0
4.569239	18.3	5000.0	9.000	L1	19.8	27.7	46.0
19.800037	20.6	5000.0	9.000	L1	19.9	29.4	50.0

AC120V/60Hz, Neutral:

Frequency (MHz)	QuasiPeak (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)
0.156106	46.6	5000.0	9.000	N	19.6	19.1	65.7
0.196363	41.1	5000.0	9.000	N	19.6	22.7	63.8
0.257055	36.8	5000.0	9.000	N	19.6	24.7	61.5
3.560744	26.2	5000.0	9.000	N	19.8	29.8	56.0
3.632495	26.4	5000.0	9.000	N	19.8	29.6	56.0
4.731581	28.5	5000.0	9.000	N	19.8	27.5	56.0

Frequency (MHz)	Average (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)
0.179502	25.6	5000.0	9.000	N	19.6	29.0	54.5
2.733628	18.9	5000.0	9.000	N	19.6	27.1	46.0
3.190711	19.0	5000.0	9.000	N	19.7	27.0	46.0
4.684618	20.3	5000.0	9.000	N	19.8	25.7	46.0
4.731581	19.7	5000.0	9.000	N	19.8	26.3	46.0
9.606984	23.0	5000.0	9.000	N	19.8	27.0	50.0

Note:

- 1) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude

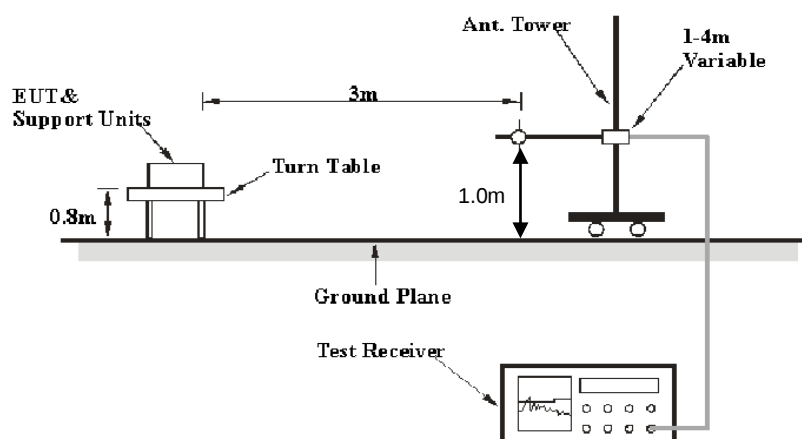
FCC §15.209, §15.205 & §15.247(d) - RADIATED SPURIOUS EMISSIONS & BAND EDGE

Applicable Standard

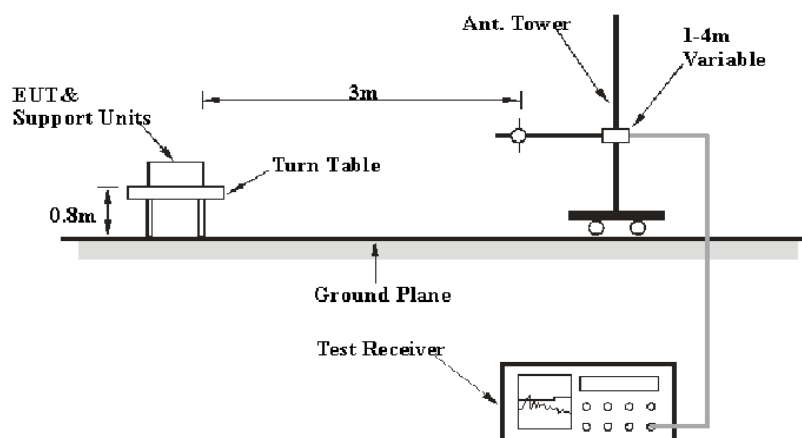
FCC §15.247 (d); §15.209; §15.205;

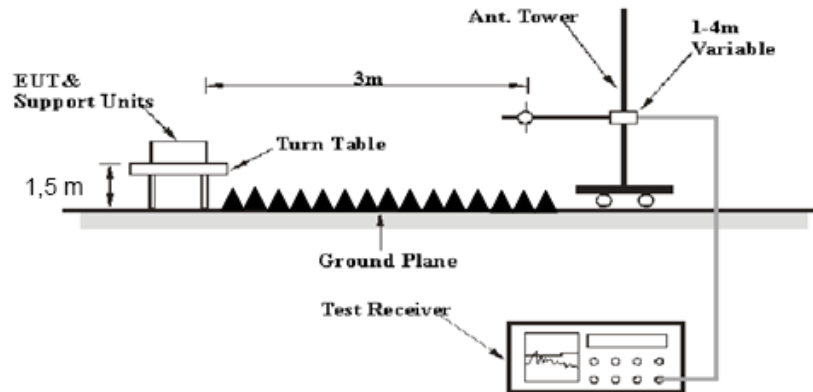
EUT Setup

9kHz - 30MHz:



30MHz - 1GHz:



Above 1GHz:

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209, and FCC 15.247 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

The system was investigated from 9 kHz to 10 GHz.

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

Frequency Range	RBW	Video B/W	Duty Cycle	Measurement
9 kHz – 90 kHz	200 Hz	1 kHz	/	AV
90 kHz –110 kHz	200 Hz	1 kHz	/	QP
110 kHz – 150 kHz	200 Hz	1 kHz	/	AV
150 kHz – 490 kHz	9 kHz	30 kHz	/	AV
490 kHz – 30 MHz	9 kHz	30 kHz	/	QP
30 MHz – 1000 MHz	120 kHz	300 kHz	/	QP
Above 1 GHz	1 MHz	3 MHz	Any	PK
	1 MHz	10 Hz	>98%	AV
	1 MHz	1/T	<98%	AV

Note: T is minimum transmission duration.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

The test software EMC 32 setting is as below:

Frequency Range	RBW	Video B/W	Measurement
9 kHz – 150 kHz	200 Hz	1 kHz	PK
150 kHz – 30 MHz	9 kHz	30 kHz	PK
30 MHz – 1000 MHz	120 kHz	300 kHz	QP
Above 1 GHz	1 MHz	3 MHz	PK
	1 MHz	3 MHz	AV

Test Procedure

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 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude (MaxPeak or QuasiPeak)= Meter Reading + Antenna Loss + Cable Loss
- Amplifier Gain

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

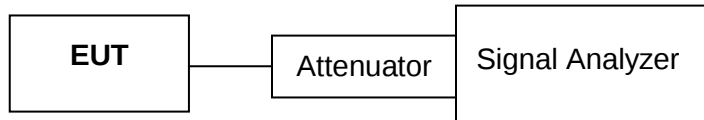
$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Conducted Spurious Emission At Antenna Port:

Connect the antenna port through an attenuator to the spectrum analyzer input; in the results, account for all losses between the unlicensed wireless device output and the spectrum analyzer. The instrument shall span 30 MHz to 10 times the operating frequency in GHz, with a resolution bandwidth of 100 kHz, video bandwidth of 300 kHz, and a coupled sweep time with a peak detector.

- Set the center frequency and span to encompass frequency range to be measured.
- Set the RBW = 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max-hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum unwanted emissions amplitude level.

Test Setup Block



Test Data

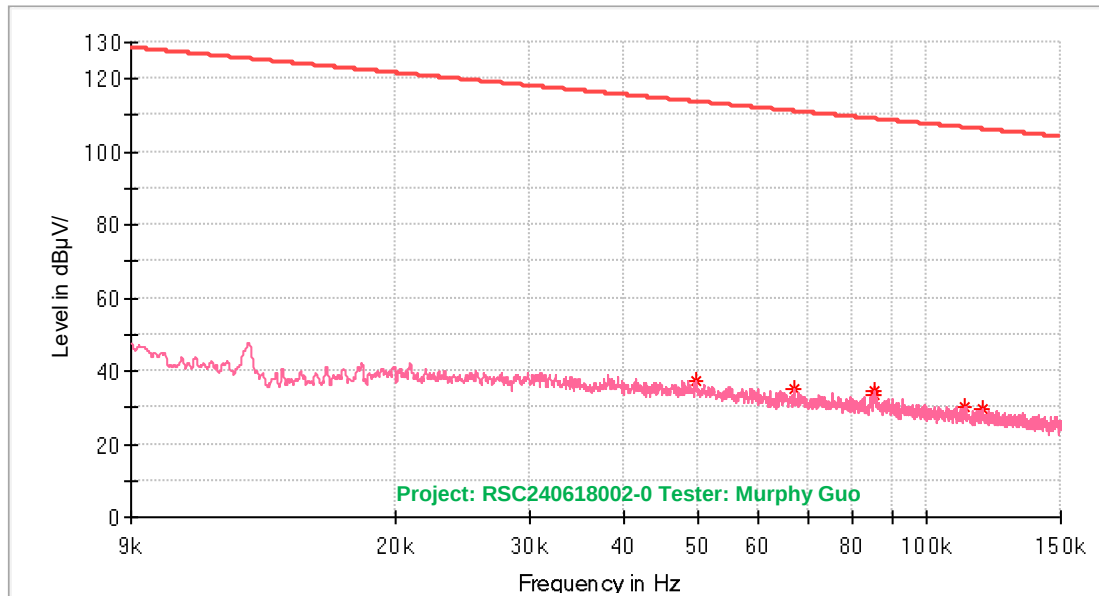
Test Environment Conditions

Test Measurement:	Conducted	Radiated
Test Date:	2024-06-24	2024-06-25
Temperature:	25 °C	24 °C
Relative Humidity:	67 %	62 %
ATM Pressure:	95.7 kPa	96.3 kPa

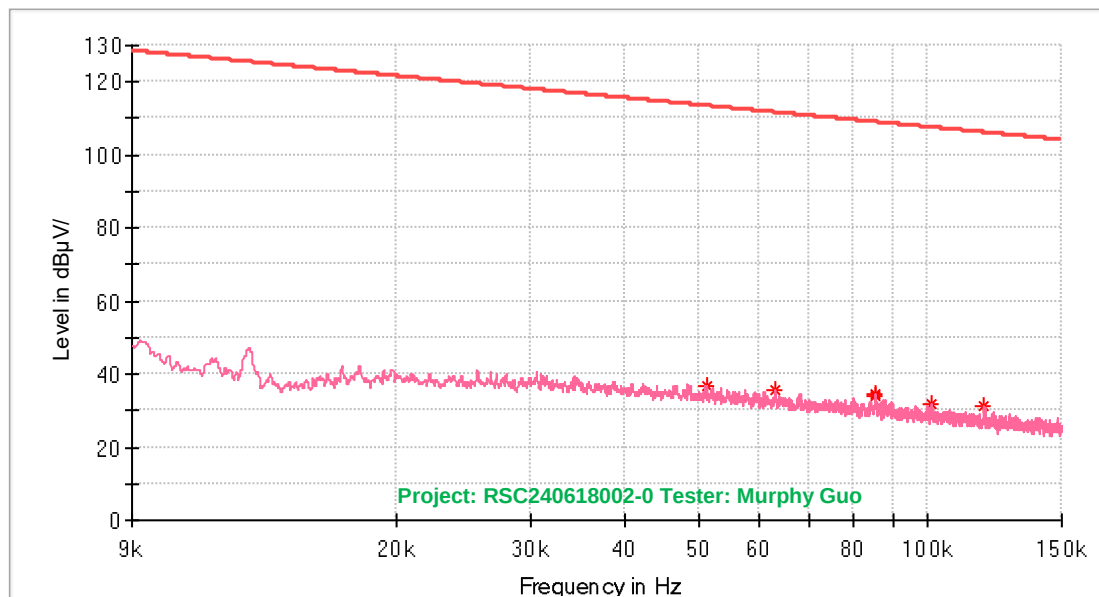
The testing was performed by Murphy Guo.

Test Mode: Transmitting

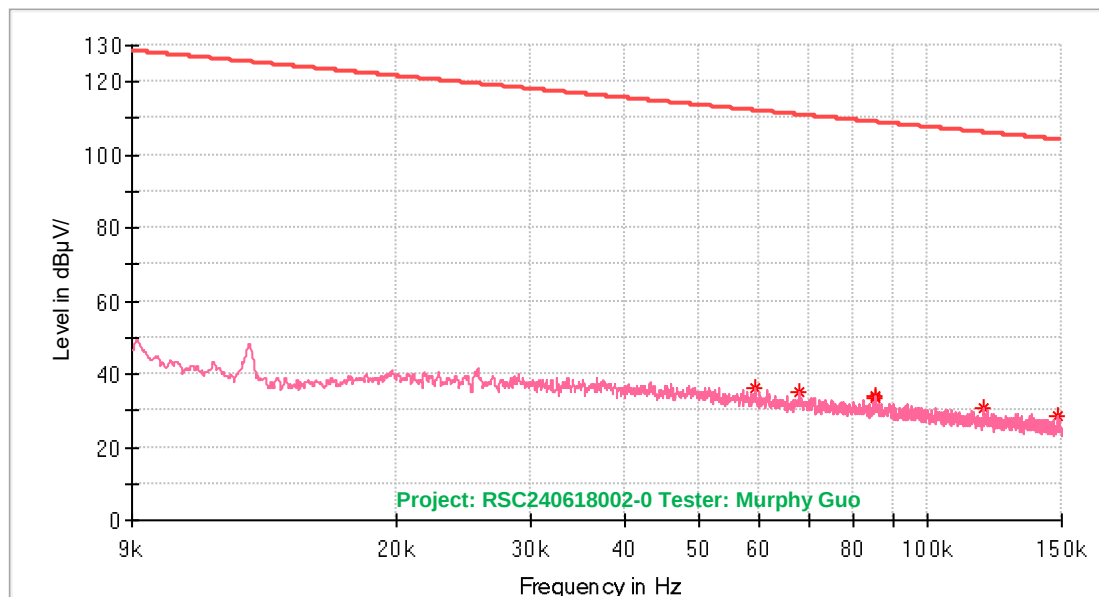
Note: Pre-scan and configuration EUT with X, Y and Z-axis, the Y-axis is the worst case.

Radiated Spurious Emissions:**1) 9 kHz to 150 kHz_low channel_worst case****Parallel**

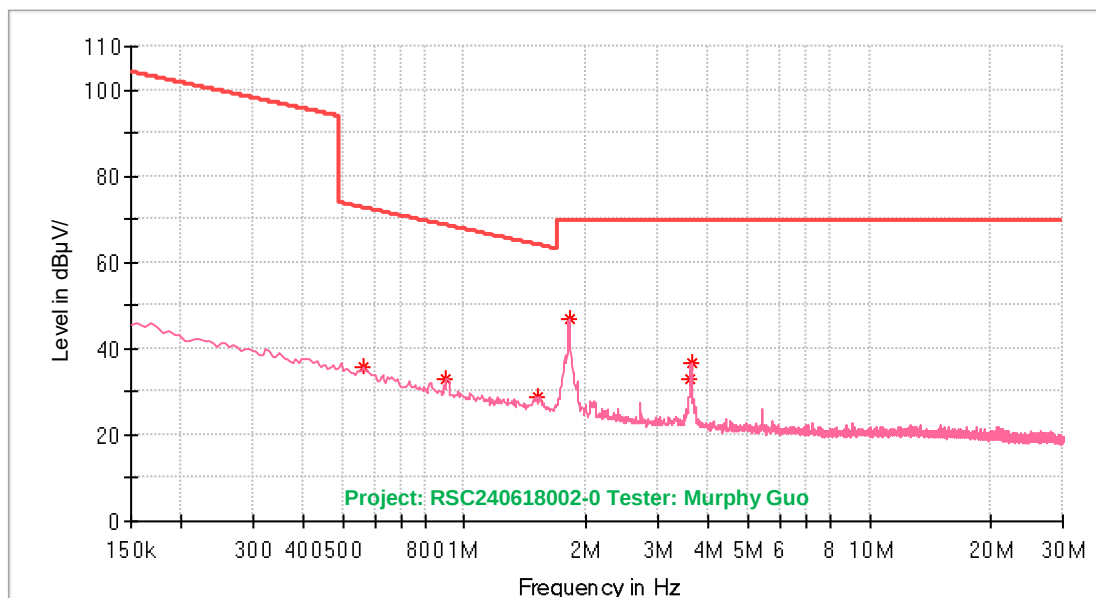
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.049784	37.32	113.65	76.33	100.0	0.0	19.4
0.066898	34.90	111.09	76.19	100.0	0.0	17.1
0.085316	34.61	108.97	74.36	100.0	0.0	15.3
0.085598	33.32	108.95	75.62	100.0	0.0	15.2
0.112459	30.28	106.58	76.30	100.0	0.0	13.0
0.118663	29.75	106.11	76.36	100.0	0.0	12.6

Perpendicular

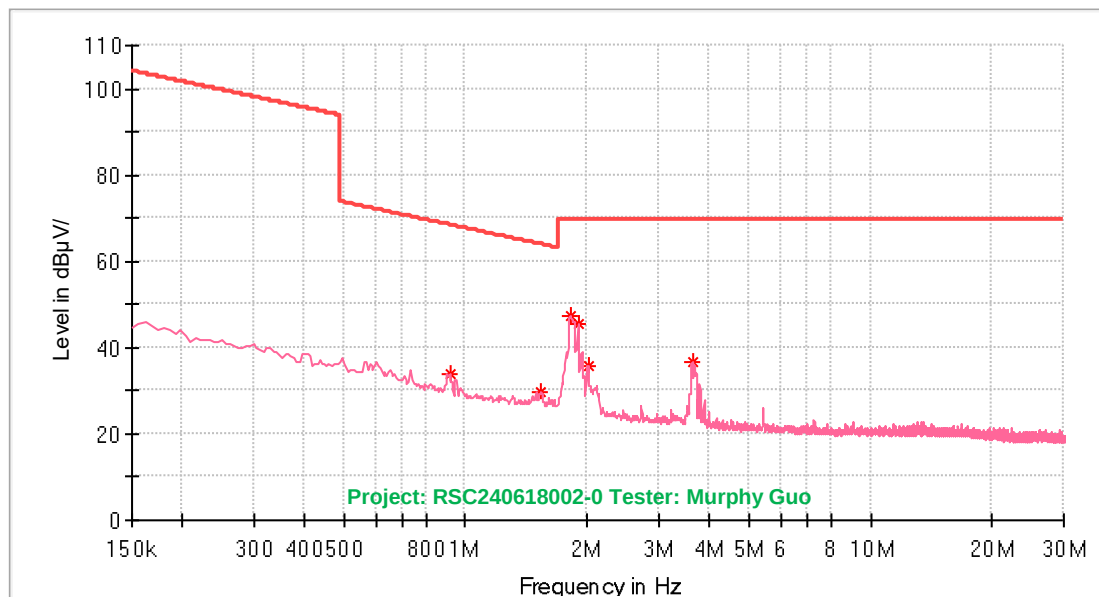
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.051194	36.99	113.41	76.42	100.0	0.0	19.2
0.063074	35.58	111.60	76.02	100.0	0.0	17.6
0.085440	33.96	108.96	75.01	100.0	0.0	15.3
0.085492	34.39	108.96	74.57	100.0	0.0	15.3
0.101390	31.78	107.48	75.69	100.0	0.0	13.9
0.118751	31.22	106.10	74.88	100.0	0.0	12.6

Ground Parallel

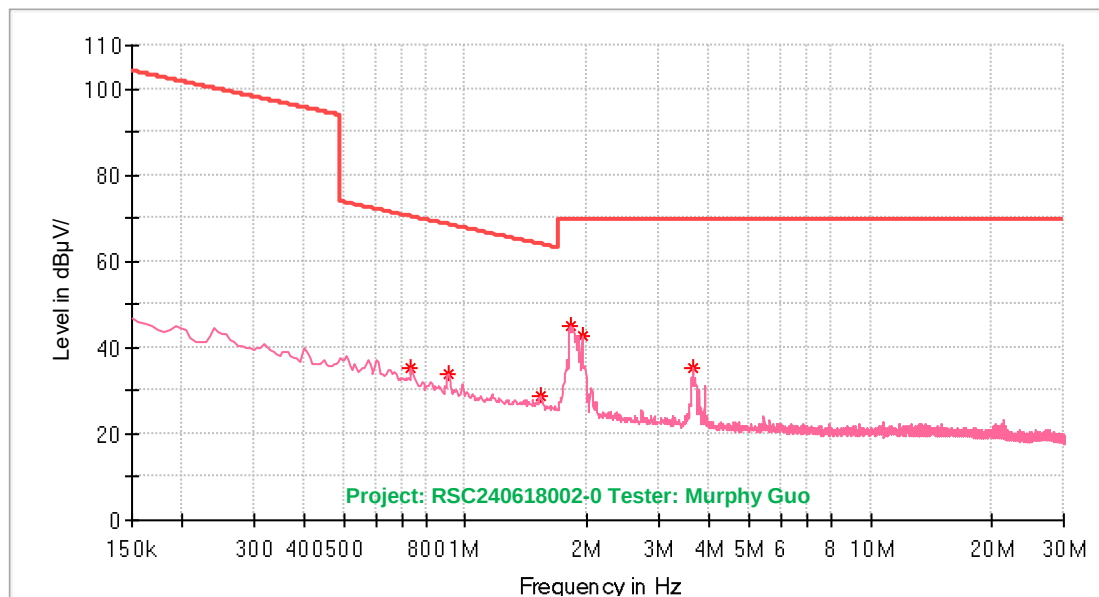
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.059266	36.39	112.14	75.75	100.0	0.0	18.1
0.067868	35.05	110.96	75.91	100.0	0.0	17.0
0.085440	33.38	108.96	75.58	100.0	0.0	15.3
0.085475	33.77	108.96	75.19	100.0	0.0	15.3
0.118698	30.46	106.11	75.65	100.0	0.0	12.6
0.148555	28.78	104.16	75.38	100.0	0.0	10.7

2) 150 kHz to 30 MHz_low channel_worst case**Parallel**

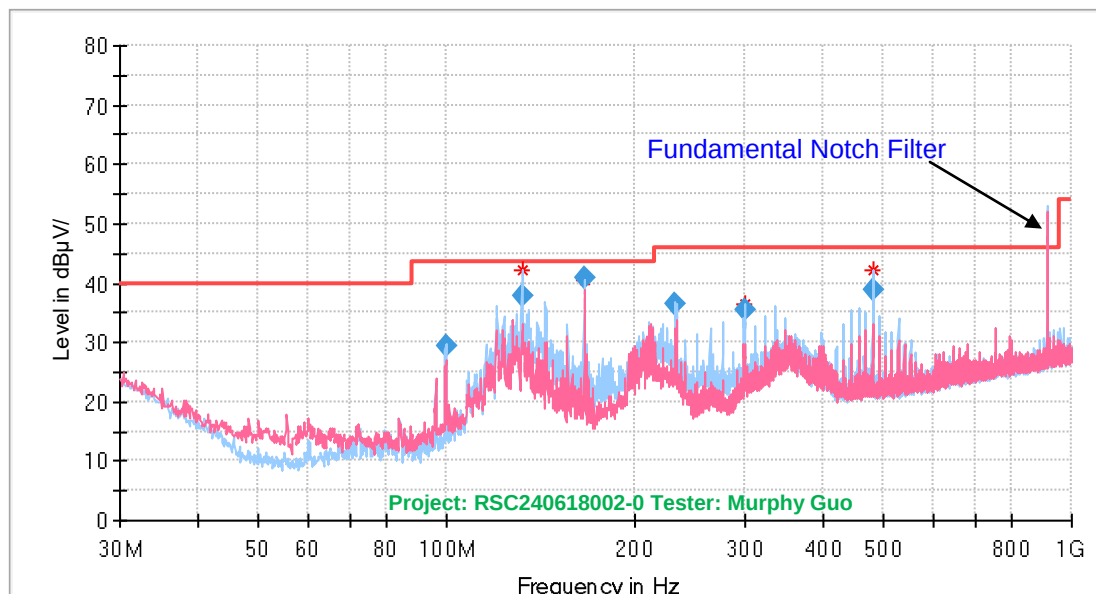
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.561930	35.81	72.61	36.80	100.0	356.0	-0.3
0.902220	33.12	68.51	35.39	100.0	102.0	-3.6
1.517130	28.87	64.01	35.15	100.0	106.0	-6.1
1.809660	47.01	69.50	22.49	100.0	102.0	-6.9
3.600660	33.02	69.50	36.48	100.0	129.0	-8.4
3.624540	36.89	69.50	32.61	100.0	97.0	-8.4

Perpendicular

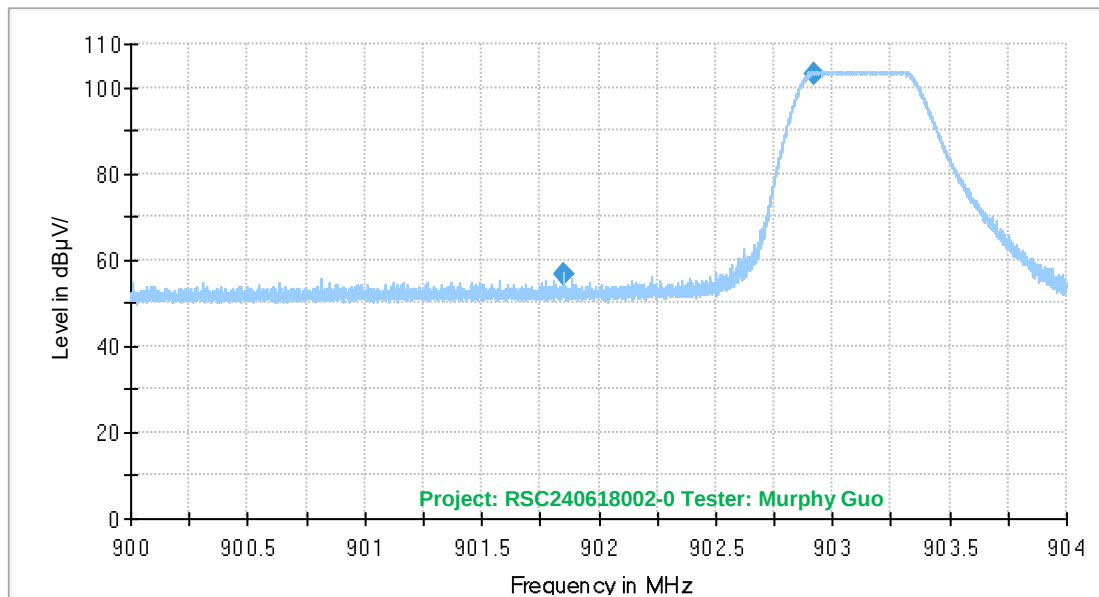
Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.914160	33.74	68.40	34.66	100.0	178.0	-3.6
1.535040	29.70	63.91	34.21	100.0	162.0	-6.1
1.809660	47.12	69.50	22.38	100.0	12.0	-6.9
1.893240	45.32	69.50	24.18	100.0	178.0	-7.1
2.006670	35.90	69.50	33.60	100.0	178.0	-7.4
3.624540	36.86	69.50	32.64	100.0	16.0	-8.4

Ground Parallel

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB)
0.735060	35.31	70.29	34.97	100.0	103.0	-2.3
0.908190	33.74	68.46	34.72	100.0	131.0	-3.6
1.529070	28.81	63.94	35.13	100.0	0.0	-6.1
1.815630	45.15	69.50	24.35	100.0	30.0	-6.9
1.946970	42.92	69.50	26.58	100.0	347.0	-7.2
3.636480	35.11	69.50	34.39	100.0	9.0	-8.4

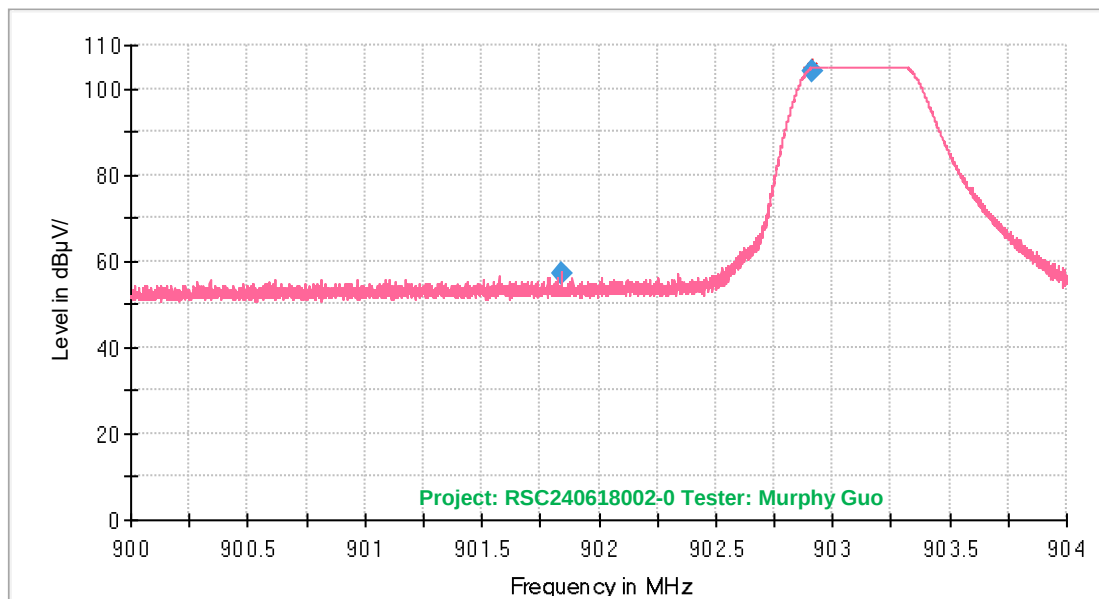
3) 30 MHz to 1 GHz_low channel_worst case

Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
99.929250	29.21	43.50	14.29	1000.0	120.000	220.0	H	196.0	-14.7
131.969250	37.89	43.50	5.61	1000.0	120.000	190.0	H	211.0	-10.6
165.997250	40.83	43.50	2.67	1000.0	120.000	223.0	H	208.0	-12.5
232.369750	36.60	46.00	9.40	1000.0	120.000	114.0	H	224.0	-12.4
299.867000	35.39	46.00	10.61	1000.0	120.000	123.0	H	236.0	-10.2
480.017750	38.79	46.00	7.21	1000.0	120.000	103.0	H	63.0	-5.7

Band Edge**Left_Horizontal**

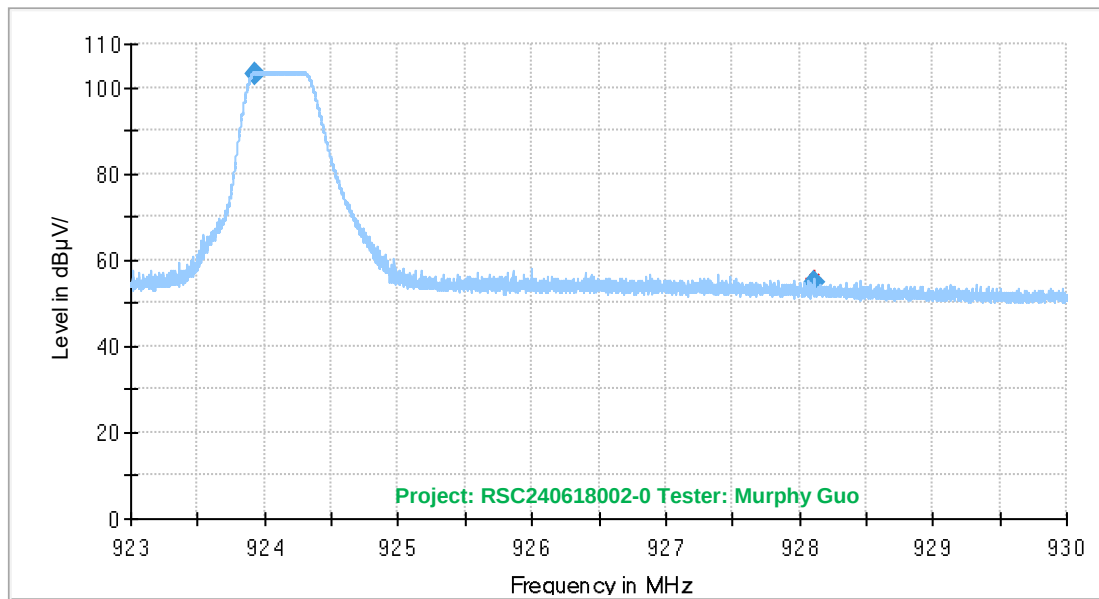
Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
901.852000	56.76	83.09	26.33	1000.0	120.000	105.0	H	130.0	31.5
902.923500	103.09	---	---	1000.0	120.000	103.0	H	130.0	31.5

Left_Vertical



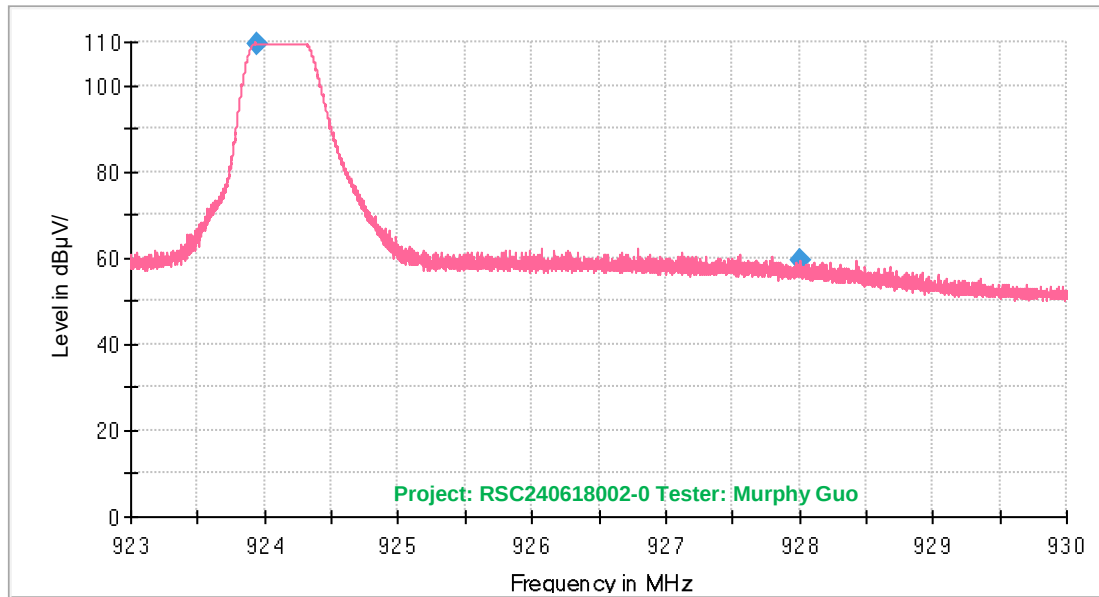
Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
901.843000	57.12	84.10	26.98	1000.0	120.000	113.0	V	48.0	31.5
902.912500	104.10	---	---	1000.0	120.000	114.0	V	47.0	31.5

Right_Horizontal



Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
923.923100	103.26	---	---	1000.0	120.000	103.0	H	130.0	32.0
928.104000	54.82	83.26	28.44	1000.0	120.000	105.0	H	130.0	32.0

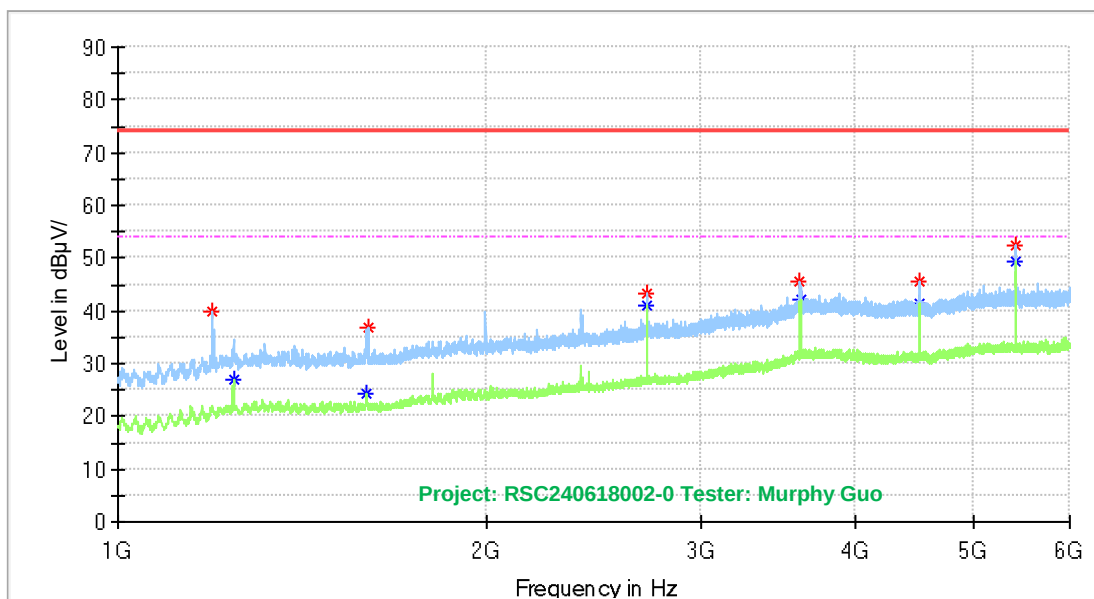
Right_Vertical



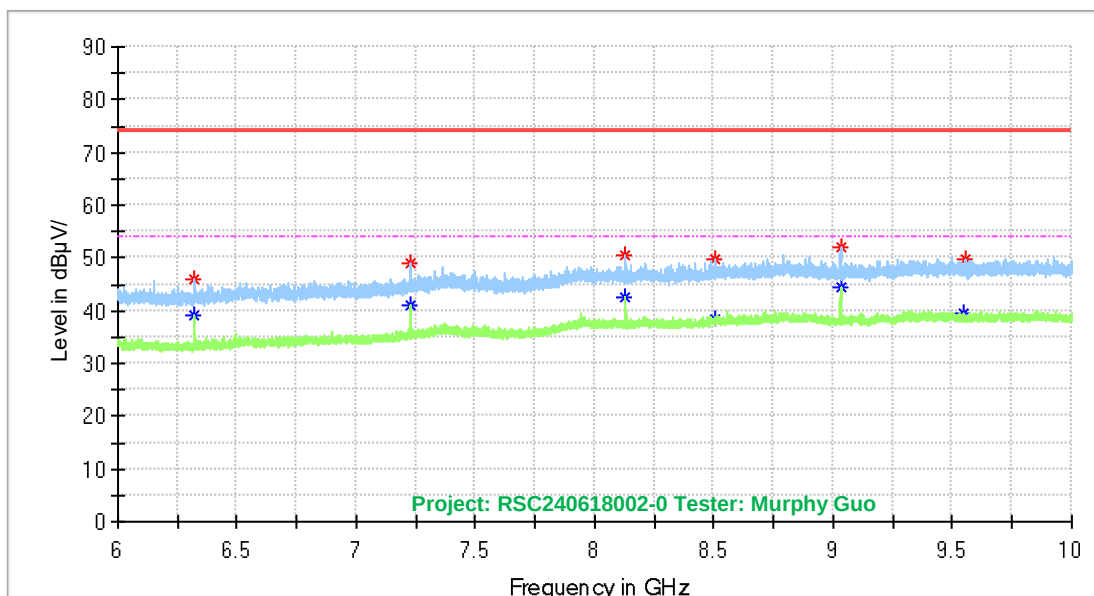
Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
923.938000	109.38	---	---	1000.0	120.000	112.0	V	46.0	32.0
928.012000	59.53	89.38	29.85	1000.0	120.000	112.0	V	46.0	32.0

4) 1GHz-10GHz

Low Channel_Horizontal

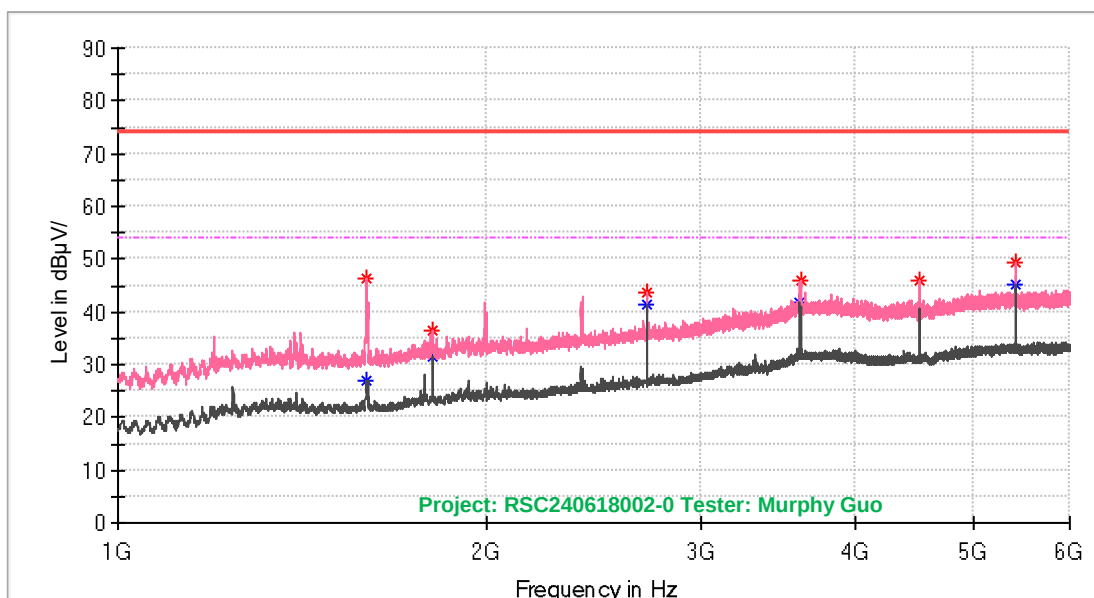


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1195.000000	39.75	---	74.00	34.25	150.0	H	140.0	-17.6
1243.500000	---	27.11	54.00	26.89	150.0	H	271.0	-17.2
1598.000000	---	24.27	54.00	29.73	200.0	H	25.0	-16.4
1600.500000	36.87	---	74.00	37.13	200.0	H	240.0	-16.4
2709.500000	---	41.11	54.00	12.89	150.0	H	147.0	-11.2
2710.000000	43.21	---	74.00	30.79	150.0	H	147.0	-11.2
3612.500000	45.75	---	74.00	28.25	200.0	H	167.0	-6.1
3613.000000	---	42.17	54.00	11.83	150.0	H	170.0	-6.1
4515.000000	45.70	---	74.00	28.30	150.0	H	170.0	-6.5
4516.000000	---	41.27	54.00	12.73	150.0	H	164.0	-6.5
5418.500000	---	49.37	54.00	4.63	150.0	H	184.0	-4.2
5420.000000	52.36	---	74.00	21.64	150.0	H	184.0	-4.2

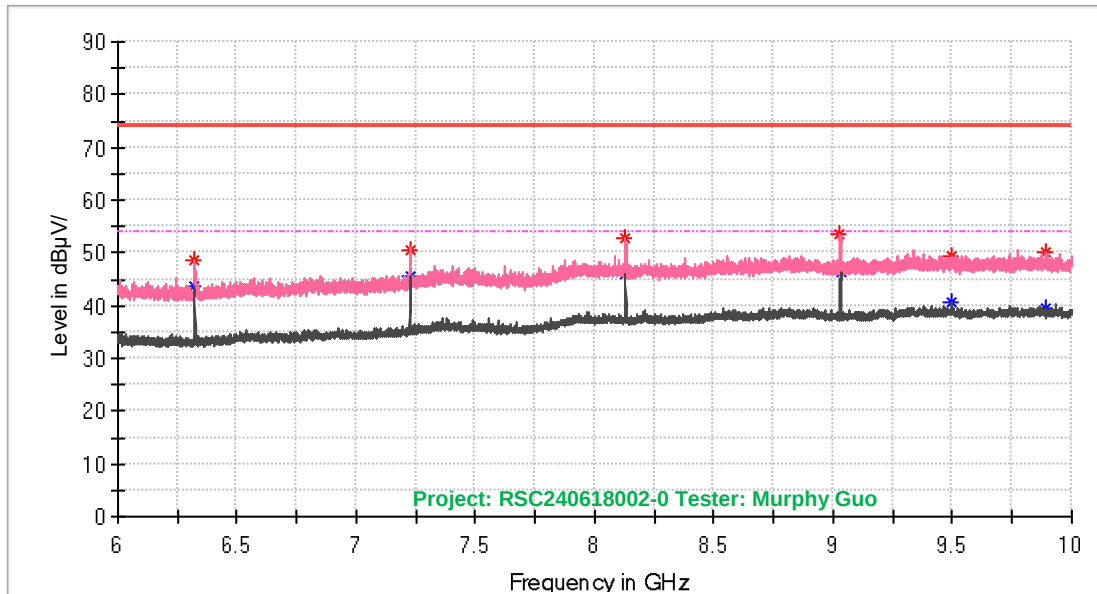


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6322.400000	---	38.98	54.00	15.02	150.0	H	12.0	-4.1
6322.400000	46.07	---	74.00	27.93	150.0	H	12.0	-4.1
7226.000000	---	41.01	54.00	12.99	150.0	H	0.0	-2.1
7226.800000	49.06	---	74.00	24.94	150.0	H	6.0	-2.1
8126.800000	---	42.55	54.00	11.45	150.0	H	129.0	0.0
8127.200000	50.57	---	74.00	23.43	200.0	H	131.0	0.0
8502.000000	---	38.24	54.00	15.76	150.0	H	32.0	0.9
8502.400000	49.65	---	74.00	24.35	200.0	H	349.0	0.9
9030.400000	---	44.54	54.00	9.46	150.0	H	51.0	0.8
9033.600000	51.98	---	74.00	22.02	150.0	H	58.0	0.8
9550.000000	---	39.31	54.00	14.69	200.0	H	283.0	1.6
9550.800000	49.60	---	74.00	24.40	200.0	H	277.0	1.6

Low Channel_Vertical

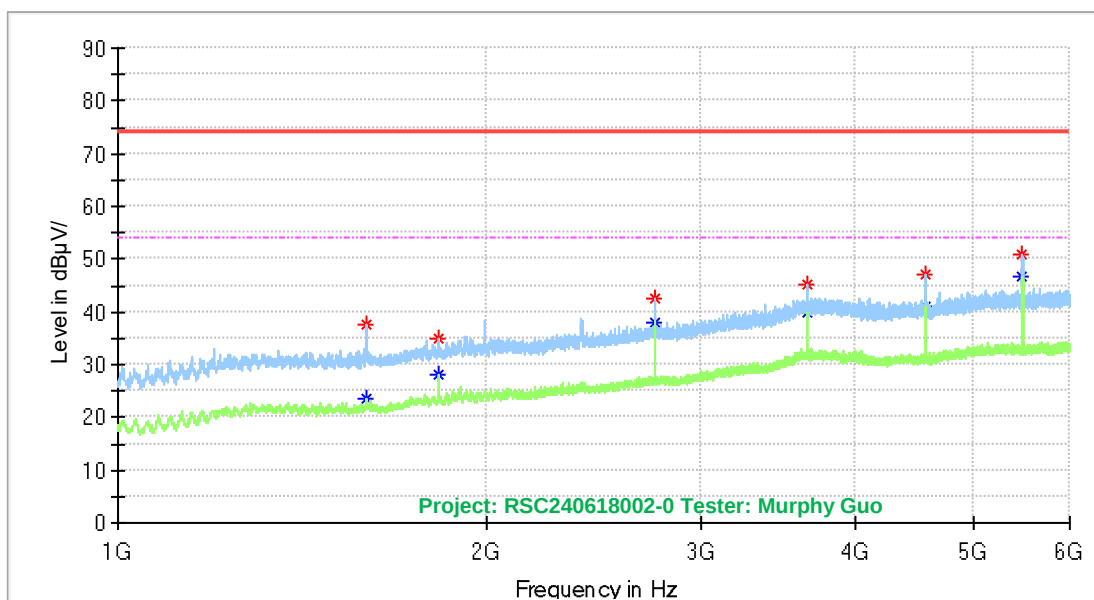


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1596.500000	46.30	---	74.00	27.70	200.0	V	119.0	-16.4
1598.000000	---	27.09	54.00	26.91	150.0	V	144.0	-16.4
1806.000000	36.54	---	74.00	37.46	150.0	V	312.0	-14.9
1806.000000	---	31.42	54.00	22.58	150.0	V	312.0	-14.9
2709.000000	---	41.26	54.00	12.74	200.0	V	198.0	-11.2
2709.000000	43.60	---	74.00	30.40	200.0	V	198.0	-11.2
3612.000000	---	41.92	54.00	12.08	150.0	V	205.0	-6.1
3613.000000	45.82	---	74.00	28.18	150.0	V	185.0	-6.1
4515.500000	---	40.51	54.00	13.49	200.0	V	212.0	-6.5
4515.500000	45.82	---	74.00	28.18	200.0	V	212.0	-6.5
5418.500000	---	45.34	54.00	8.66	150.0	V	150.0	-4.2
5420.000000	49.54	---	74.00	24.46	150.0	V	150.0	-4.2

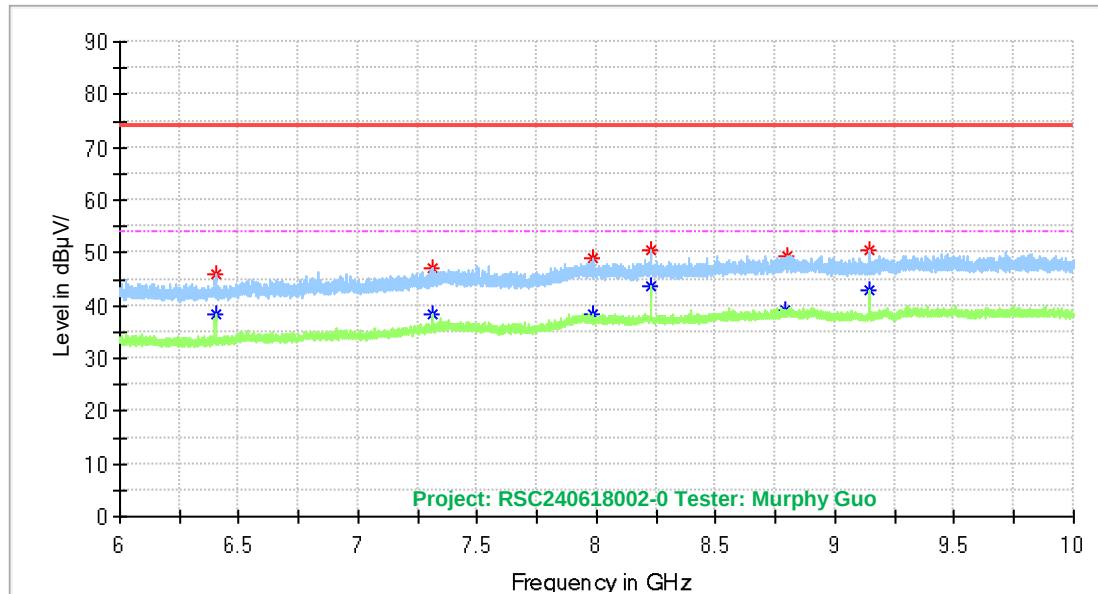


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6320.800000	---	43.70	54.00	10.30	150.0	V	195.0	-4.1
6321.200000	48.75	---	74.00	25.25	150.0	V	209.0	-4.1
7224.400000	---	45.64	54.00	8.36	200.0	V	263.0	-2.1
7225.200000	50.55	---	74.00	23.45	150.0	V	121.0	-2.1
8126.000000	52.68	---	74.00	21.32	150.0	V	94.0	0.0
8126.800000	---	46.10	54.00	7.90	200.0	V	121.0	0.0
9029.200000	53.49	---	74.00	20.51	200.0	V	81.0	0.8
9032.800000	---	46.34	54.00	7.66	200.0	V	53.0	0.8
9494.000000	49.37	---	74.00	24.63	200.0	V	263.0	1.8
9494.400000	---	40.60	54.00	13.40	200.0	V	290.0	1.8
9888.400000	50.04	---	74.00	23.96	200.0	V	335.0	1.4
9889.600000	---	39.46	54.00	14.54	200.0	V	155.0	1.4

Middle Channel_Horizontal

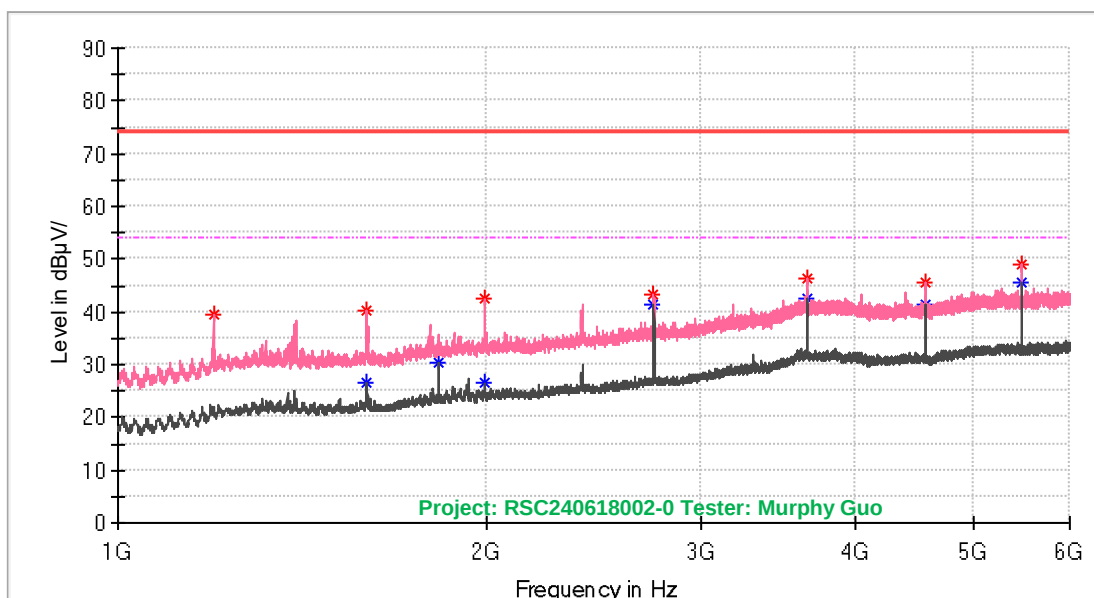


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1594.500000	---	23.54	54.00	30.46	200.0	H	340.0	-16.4
1594.500000	37.64	---	74.00	36.36	200.0	H	340.0	-16.4
1830.500000	---	28.02	54.00	25.98	150.0	H	88.0	-14.8
1830.500000	35.08	---	74.00	38.92	150.0	H	88.0	-14.8
2745.500000	---	38.13	54.00	15.87	150.0	H	149.0	-11.0
2746.000000	42.69	---	74.00	31.31	150.0	H	162.0	-11.0
3660.000000	---	40.02	54.00	13.98	200.0	H	161.0	-5.9
3660.500000	45.07	---	74.00	28.93	200.0	H	154.0	-6.0
4576.000000	---	41.12	54.00	12.88	200.0	H	161.0	-6.4
4576.000000	46.91	---	74.00	27.09	200.0	H	161.0	-6.4
5491.000000	50.75	---	74.00	23.25	150.0	H	183.0	-4.3
5491.000000	---	46.66	54.00	7.34	150.0	H	183.0	-4.3

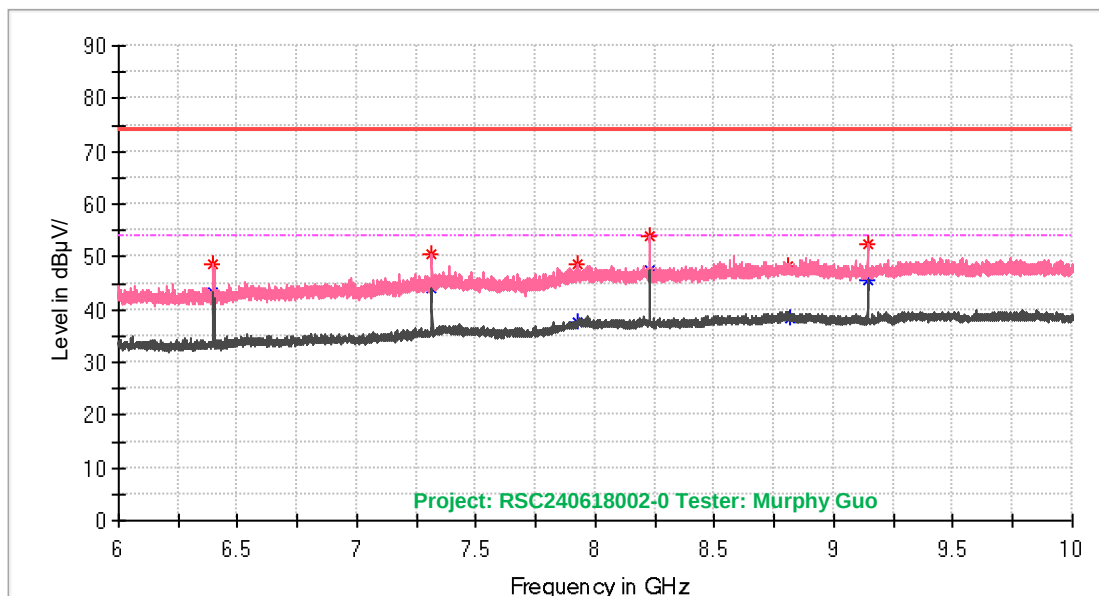


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6399.600000	---	38.36	54.00	15.64	150.0	H	17.0	-4.1
6399.600000	46.11	---	74.00	27.89	150.0	H	17.0	-4.1
7311.600000	---	38.38	54.00	15.62	200.0	H	53.0	-1.6
7314.400000	47.06	---	74.00	26.94	150.0	H	17.0	-1.5
7986.800000	---	38.47	54.00	15.53	150.0	H	122.0	0.2
7987.200000	49.09	---	74.00	24.91	200.0	H	253.0	0.2
8225.600000	---	43.57	54.00	10.43	200.0	H	128.0	0.3
8228.800000	50.63	---	74.00	23.37	200.0	H	121.0	0.3
8791.600000	---	39.19	54.00	14.81	200.0	H	0.0	1.7
8801.600000	49.52	---	74.00	24.48	200.0	H	347.0	1.7
9139.200000	---	42.78	54.00	11.22	200.0	H	141.0	0.8
9141.600000	50.64	---	74.00	23.36	150.0	H	63.0	0.7

Middle Channel_Vertical

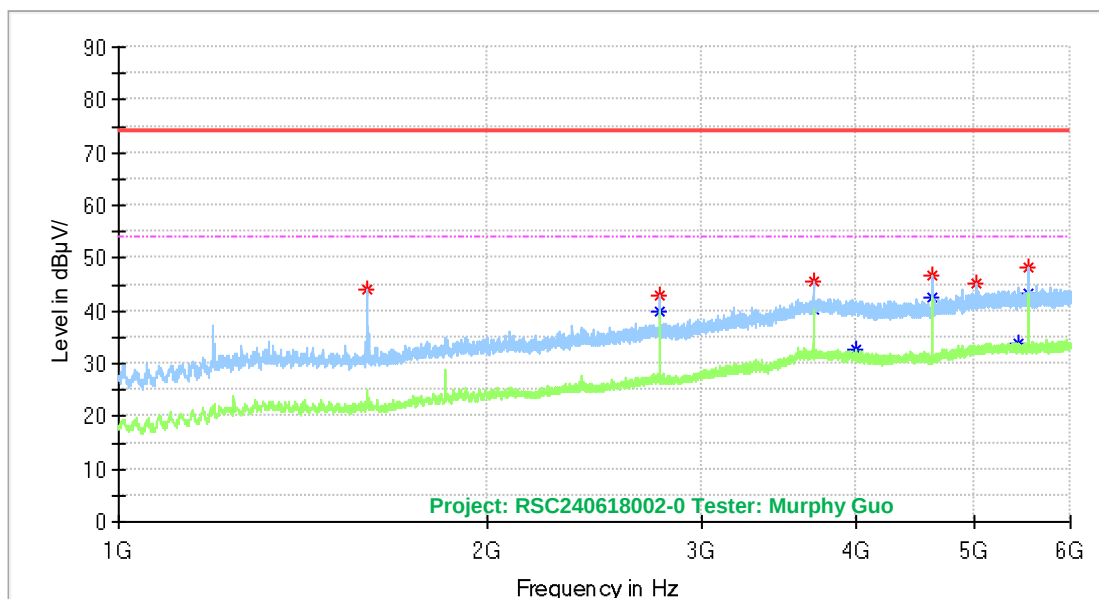


Frequency (MHz)	MaxPeak (dBµ V/m)	Average (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1196.500000	39.64	---	74.00	34.36	200.0	V	298.0	-17.5
1594.500000	40.10	---	74.00	33.90	200.0	V	135.0	-16.4
1594.500000	---	26.70	54.00	27.30	200.0	V	135.0	-16.4
1828.000000	---	30.45	54.00	23.55	150.0	V	70.0	-14.8
1995.000000	42.58	---	74.00	31.42	150.0	V	0.0	-14.1
1995.000000	---	26.40	54.00	27.60	150.0	V	0.0	-14.1
2742.000000	43.45	---	74.00	30.55	200.0	V	183.0	-11.0
2742.000000	---	41.43	54.00	12.57	200.0	V	183.0	-11.0
3656.000000	---	42.36	54.00	11.64	150.0	V	193.0	-5.9
3657.000000	46.30	---	74.00	27.70	150.0	V	199.0	-5.9
4571.000000	45.41	---	74.00	28.59	200.0	V	230.0	-6.4
4571.000000	---	41.53	54.00	12.47	200.0	V	230.0	-6.4
5484.000000	---	45.68	54.00	8.32	150.0	V	77.0	-4.3
5484.500000	48.95	---	74.00	25.05	200.0	V	217.0	-4.3

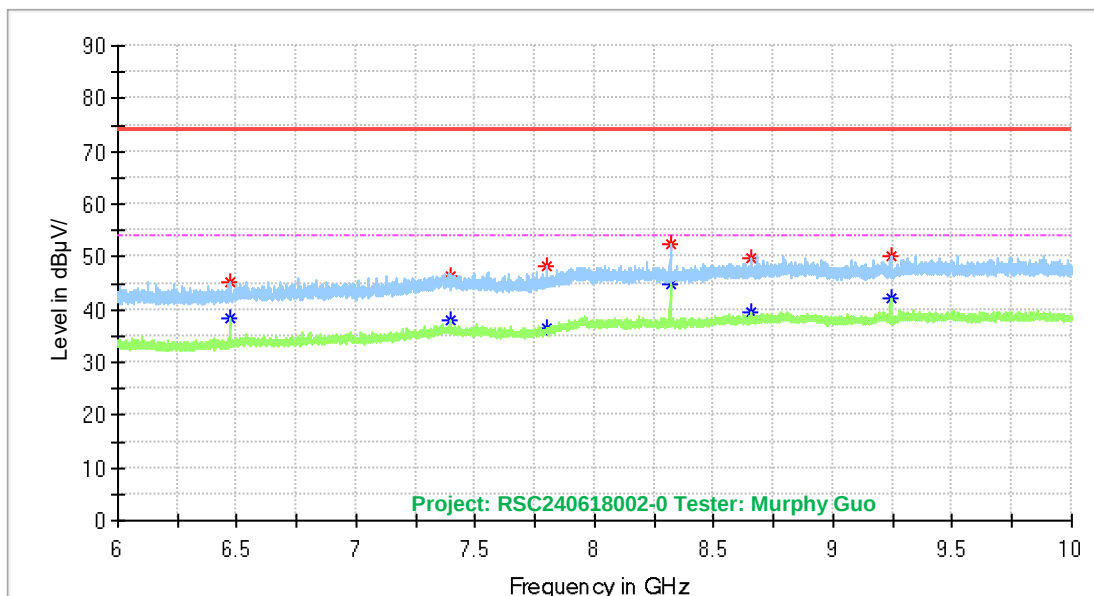


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6397.600000	48.65	---	74.00	25.35	150.0	V	215.0	-4.1
6398.400000	---	43.34	54.00	10.66	150.0	V	259.0	-4.1
7312.400000	---	44.10	54.00	9.90	200.0	V	274.0	-1.5
7314.000000	50.45	---	74.00	23.55	200.0	V	114.0	-1.5
7922.800000	---	37.74	54.00	16.26	150.0	V	36.0	0.1
7923.600000	48.72	---	74.00	25.28	150.0	V	89.0	0.2
8225.600000	---	47.46	54.00	6.54	200.0	V	108.0	0.3
8226.000000	54.09	---	74.00	19.91	200.0	V	88.0	0.3
8808.400000	48.30	---	74.00	25.70	150.0	V	24.0	1.7
8812.400000	---	38.44	54.00	15.56	200.0	V	169.0	1.7
9141.200000	52.42	---	74.00	21.58	200.0	V	101.0	0.7
9143.200000	---	45.40	54.00	8.60	150.0	V	62.0	0.7

High Channel_Horizontal

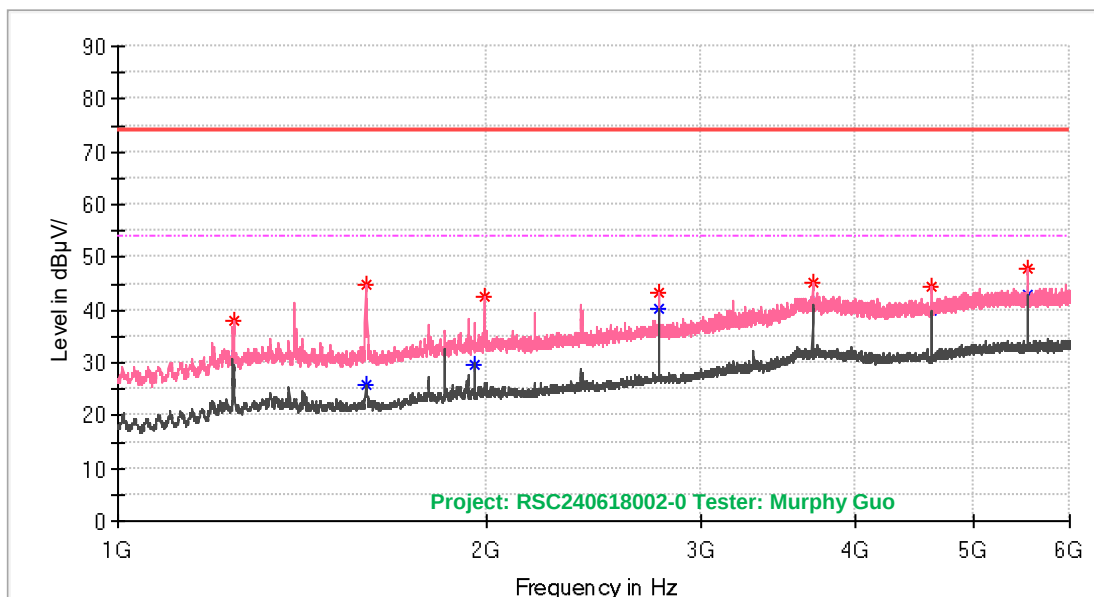


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1597.000000	43.96	---	74.00	30.04	150.0	H	250.0	-16.4
2772.000000	---	39.97	54.00	14.03	150.0	H	320.0	-11.0
2772.000000	42.77	---	74.00	31.23	150.0	H	320.0	-11.0
3696.500000	---	40.20	54.00	13.80	150.0	H	57.0	-6.1
3697.500000	45.39	---	74.00	28.61	200.0	H	315.0	-6.1
4005.000000	---	32.67	54.00	21.33	150.0	H	131.0	-6.0
4621.000000	46.57	---	74.00	27.43	150.0	H	328.0	-6.3
4621.000000	---	42.35	54.00	11.65	150.0	H	328.0	-6.3
5022.500000	45.08	---	74.00	28.92	150.0	H	38.0	-4.6
5443.500000	---	33.94	54.00	20.06	200.0	H	341.0	-4.2
5544.500000	---	43.46	54.00	10.54	150.0	H	351.0	-4.2
5544.500000	48.41	---	74.00	25.59	150.0	H	351.0	-4.2

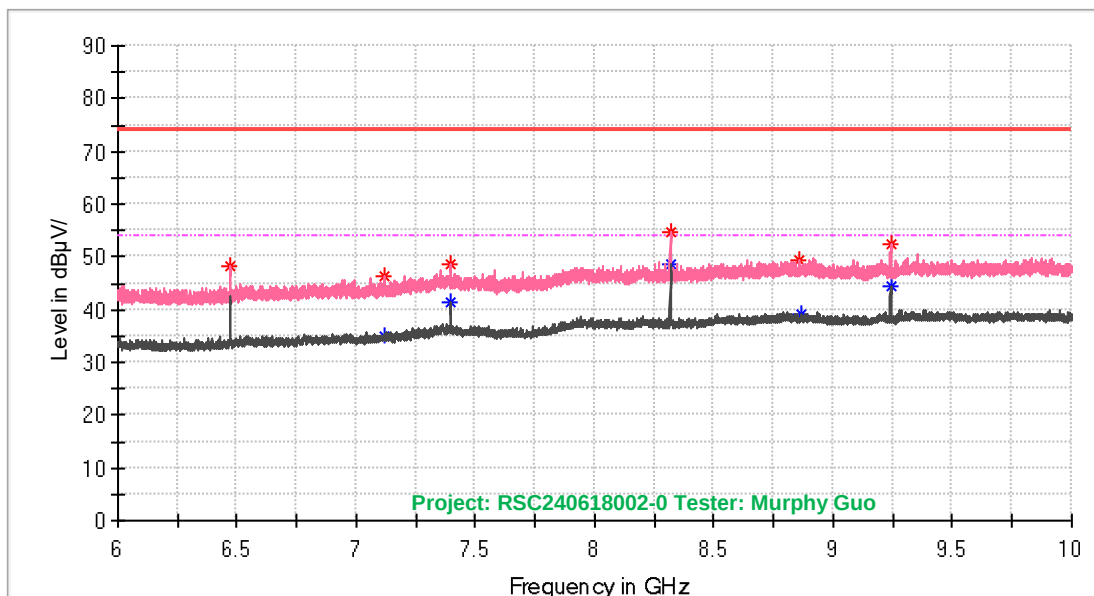


Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6469.600000	---	38.17	54.00	15.83	150.0	H	165.0	-3.8
6470.000000	45.14	---	74.00	28.86	150.0	H	321.0	-3.8
7393.200000	---	37.94	54.00	16.06	150.0	H	60.0	-1.2
7393.600000	46.20	---	74.00	27.80	200.0	H	174.0	-1.2
7795.200000	48.21	---	74.00	25.79	200.0	H	87.0	-1.1
7796.400000	---	36.43	54.00	17.57	150.0	H	293.0	-1.1
8318.000000	52.44	---	74.00	21.56	200.0	H	134.0	0.3
8318.000000	---	44.91	54.00	9.09	200.0	H	134.0	0.3
8656.800000	---	39.50	54.00	14.50	150.0	H	138.0	1.0
8656.800000	49.67	---	74.00	24.33	200.0	H	244.0	1.0
9239.600000	---	42.08	54.00	11.92	150.0	H	60.0	0.9
9240.400000	50.21	---	74.00	23.79	200.0	H	208.0	0.9

High Channel_Vertical



Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1241.500000	---	30.67	54.00	23.33	200.0	V	328.0	-17.2
1244.000000	38.07	---	74.00	35.93	200.0	V	328.0	-17.2
1593.500000	---	25.66	54.00	28.34	150.0	V	319.0	-16.4
1593.500000	44.84	---	74.00	29.16	150.0	V	319.0	-16.4
1958.000000	---	29.76	54.00	24.24	150.0	V	66.0	-14.2
1996.500000	42.45	---	74.00	31.55	200.0	V	26.0	-14.1
2772.000000	---	40.34	54.00	13.66	150.0	V	327.0	-11.0
2772.000000	43.14	---	74.00	30.86	150.0	V	327.0	-11.0
3696.000000	---	40.85	54.00	13.15	150.0	V	173.0	-6.1
3697.000000	45.02	---	74.00	28.98	150.0	V	207.0	-6.1
4619.500000	44.35	---	74.00	29.65	200.0	V	260.0	-6.3
4620.000000	---	40.00	54.00	14.00	200.0	V	213.0	-6.3
5545.000000	47.71	---	74.00	26.29	200.0	V	220.0	-4.2
5545.000000	---	42.93	54.00	11.07	200.0	V	220.0	-4.2



Frequency (MHz)	MaxPeak (dBμ V/m)	Average (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
6467.600000	48.06	---	74.00	25.94	150.0	V	248.0	-3.8
6468.800000	---	42.57	54.00	11.43	150.0	V	248.0	-3.8
7114.800000	46.34	---	74.00	27.66	150.0	V	24.0	-2.5
7115.600000	---	35.00	54.00	19.00	150.0	V	168.0	-2.5
7391.600000	---	41.31	54.00	12.69	200.0	V	95.0	-1.2
7393.600000	48.74	---	74.00	25.26	150.0	V	102.0	-1.2
8315.600000	---	48.55	54.00	5.45	200.0	V	102.0	0.3
8317.600000	54.63	---	74.00	19.37	200.0	V	102.0	0.3
8860.400000	49.29	---	74.00	24.71	200.0	V	128.0	1.4
8867.600000	---	39.11	54.00	14.89	200.0	V	245.0	1.5
9239.600000	---	44.55	54.00	9.45	200.0	V	102.0	0.9
9240.400000	52.52	---	74.00	21.48	150.0	V	76.0	0.9

Note:

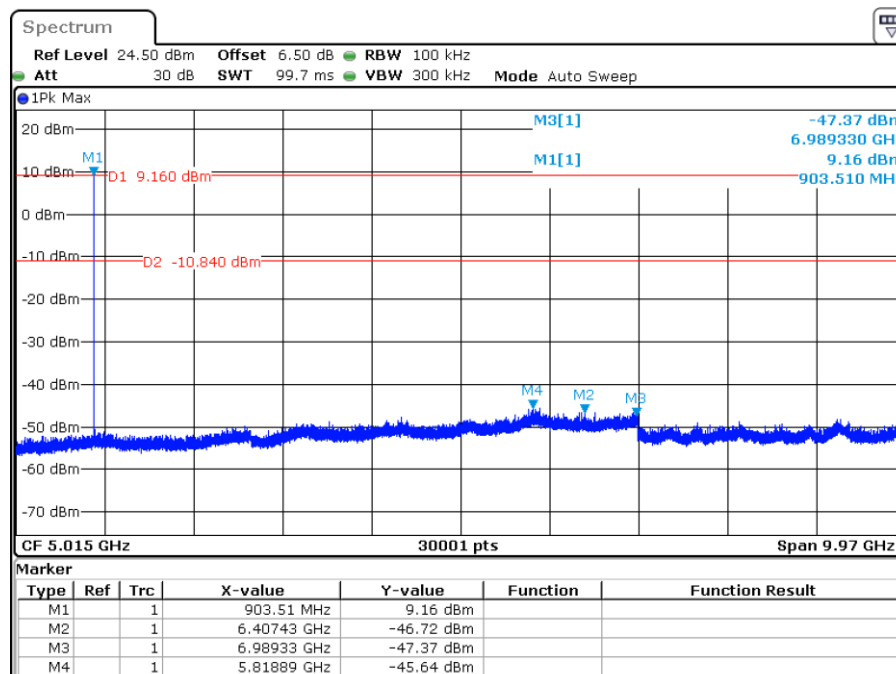
Corrected Amplitude (MaxPeak or QuasiPeak) = Corrected Factor + Reading

Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor or Antenna factor (RX) + Cable Loss

Margin = Limit- Corr. Amplitude

Conducted Spurious Emission At Antenna Port:

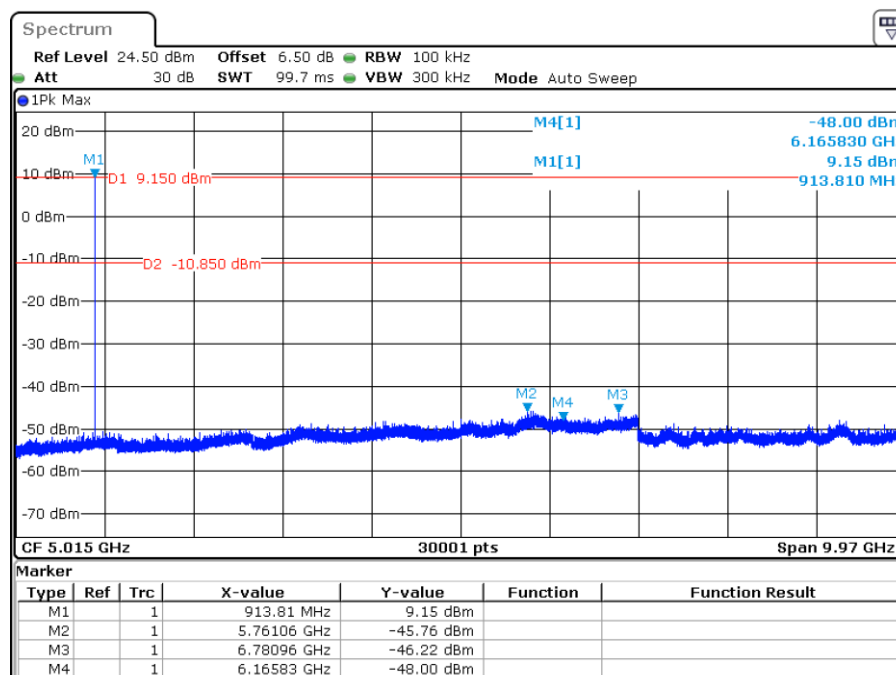
Low Channel



Project:RSC240618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 21:05:04

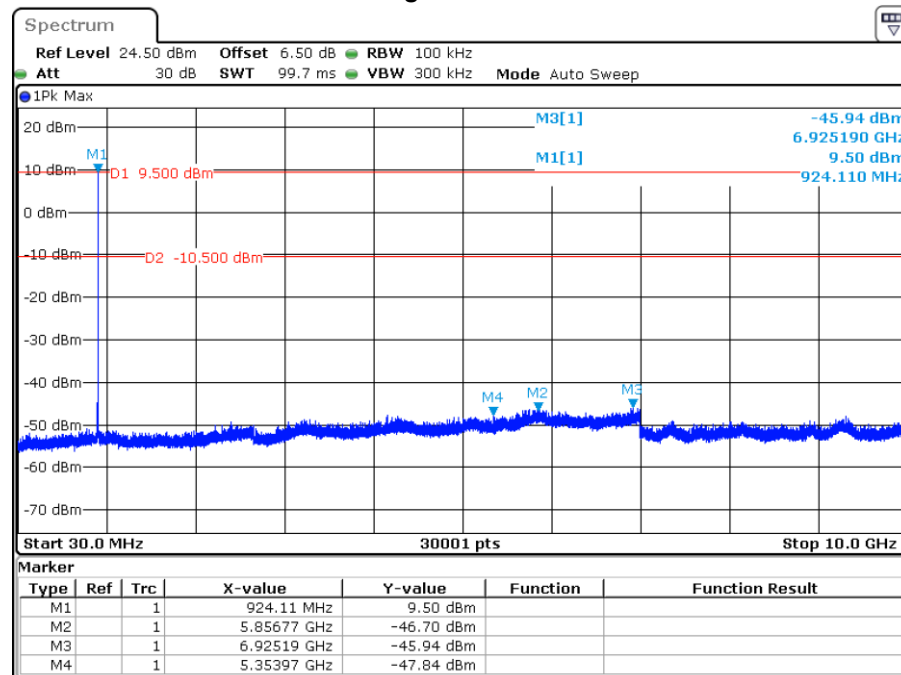
Middle Channel



Project:RSC240618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:54:36

High Channel



Project:RSC240618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:40:07

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, 5725–5850 MHz bands.

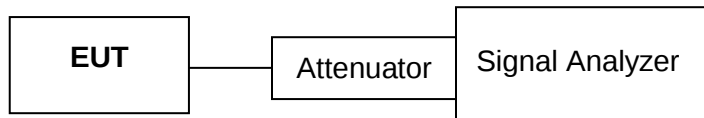
The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

ANSI C63.10-2020 Clause 11.8.1 Option 1

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$
- 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.

Test Setup Block



Note: Offset (6.5dB) = 6dB Attenuator(6dB) + RF cable loss(0.5dB)

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	67 %
ATM Pressure:	95.7 kPa

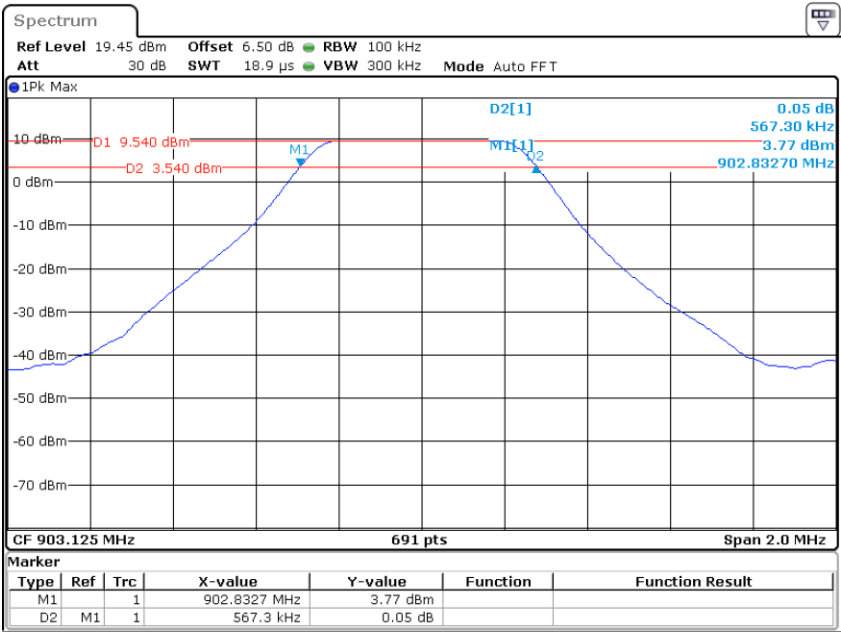
The testing was performed by Murphy Guo on 2024-06-24.

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plots.

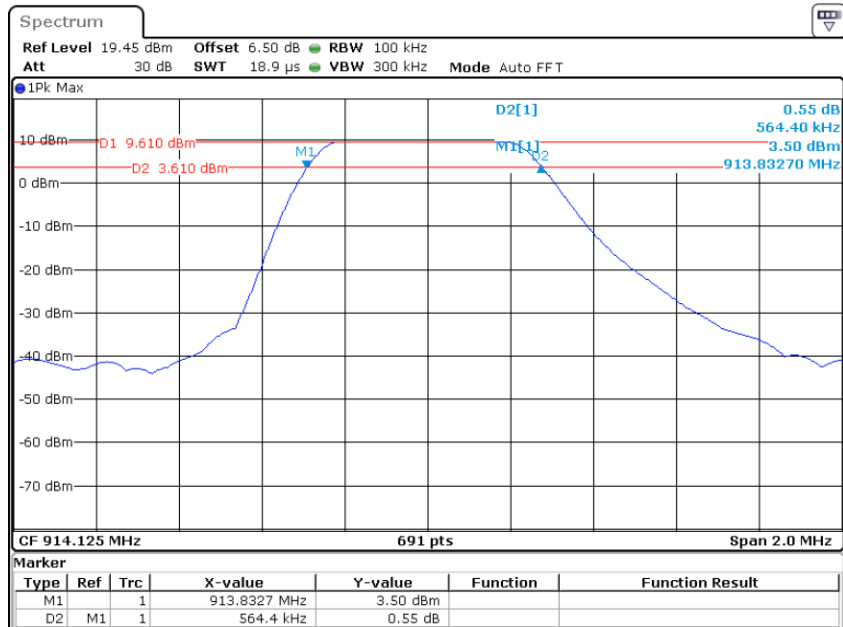
Mode	Channel	Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
500 kHz	Low	903.125	567.30	≥ 500
	Middle	914.125	564.40	≥ 500
	High	924.125	558.60	≥ 500

Low Channel



RSC240618002-0 Tester:Murphy Guo
Date: 24.JUN.2024 20:02:42

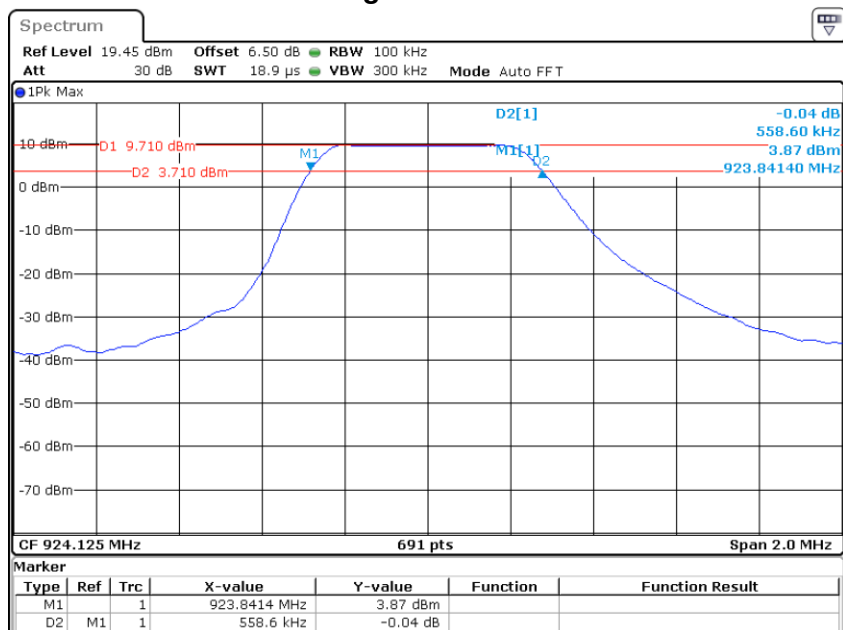
Middle Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 19:59:39

High Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 19:56:15

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, compliance 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.

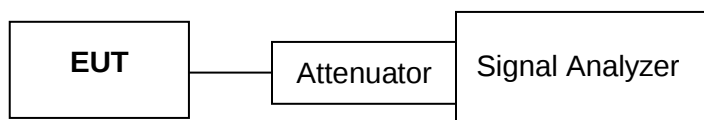
Test Procedure

ANSI C63.10-2020 Clause 11.9.1.1 $RBW \geq DTS$ bandwidth

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- a) Set the $RBW \geq DTS$ bandwidth.
- b) Set $VBW \geq [3 \times RBW]$.
- c) Set span $\geq [3 \times RBW]$.
- 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.

Test Setup Block



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	67 %
ATM Pressure:	95.7 kPa

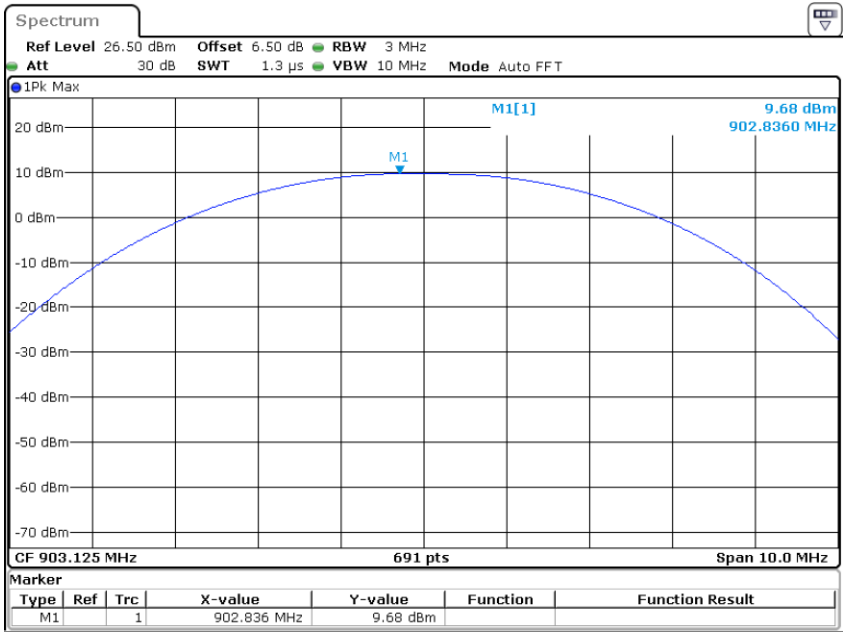
The testing was performed by Murphy Guo on 2024-06-24.

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plots.

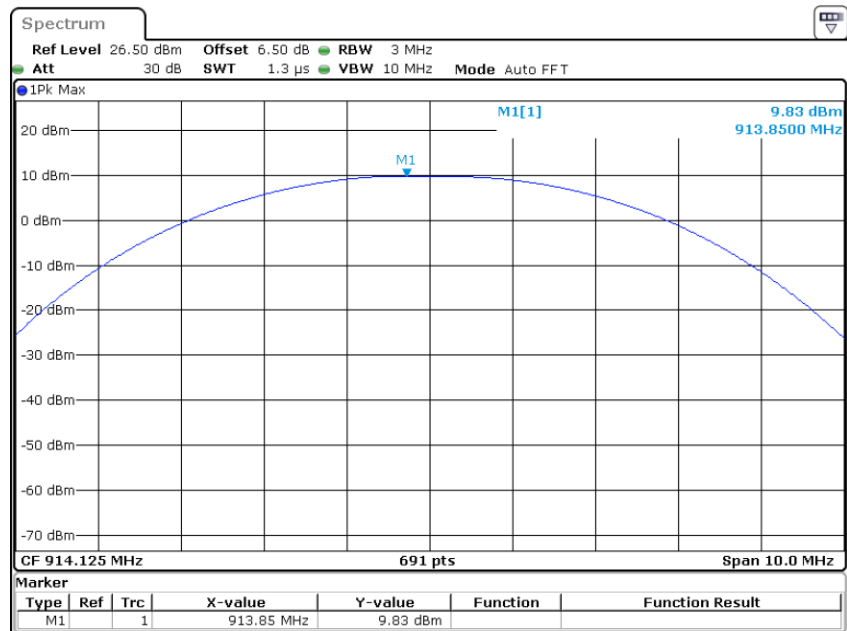
Mode	Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
500 kHz	Low	903.125	9.68	≤30
	Middle	914.125	9.83	≤30
	High	924.125	9.83	≤30

Low Channel



RSC2400618002-0 Tester:Murphy Guo
Date: 24.JUN.2024 19:48:07

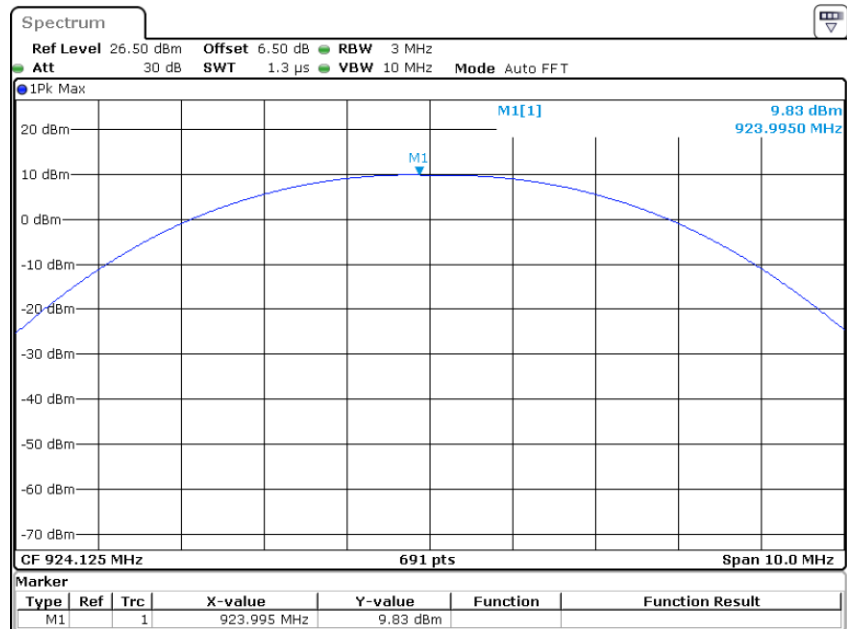
Middle Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 19:47:22

High Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 19:45:36

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

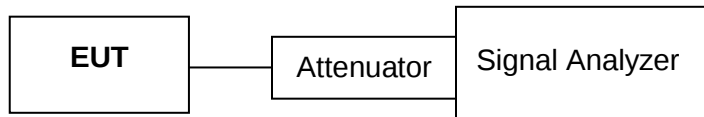
Applicable Standard

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 compliance 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

1. 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.
2. 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.
3. Repeat above procedures until all measured frequencies were complete.

Test Setup Block



Test Data

Environmental Conditions

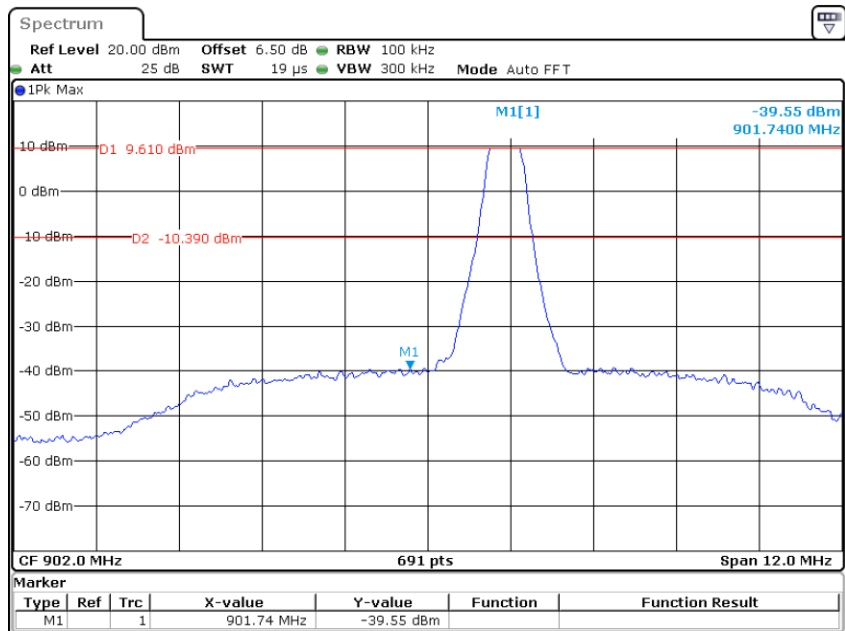
Temperature:	25 °C
Relative Humidity:	67 %
ATM Pressure:	95.7 kPa

The testing was performed by Murphy Guo on 2024-06-24.

Test mode: Transmitting

Test Result: Compliance. Please refer to following plots.

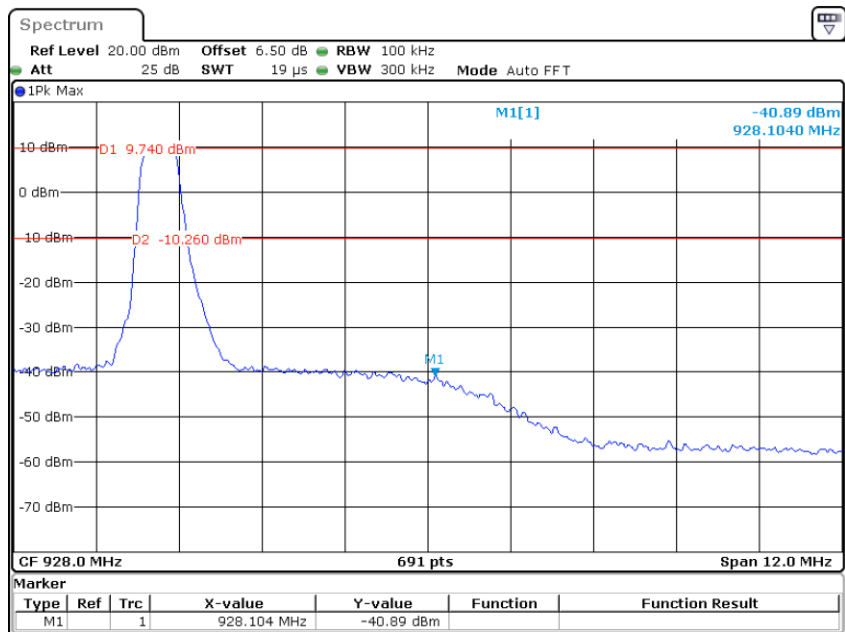
Band Edge, Left Side



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:44:01

Band Edge, Right Side



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:40:53

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

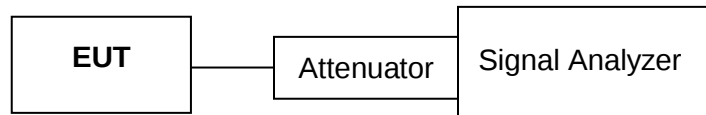
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of 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

ANSI C63.10-2020 Clause 11.10.2(PKPSD)

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW $\geq 3 \times \text{RBW}$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Setup Block



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	67 %
ATM Pressure:	95.7 kPa

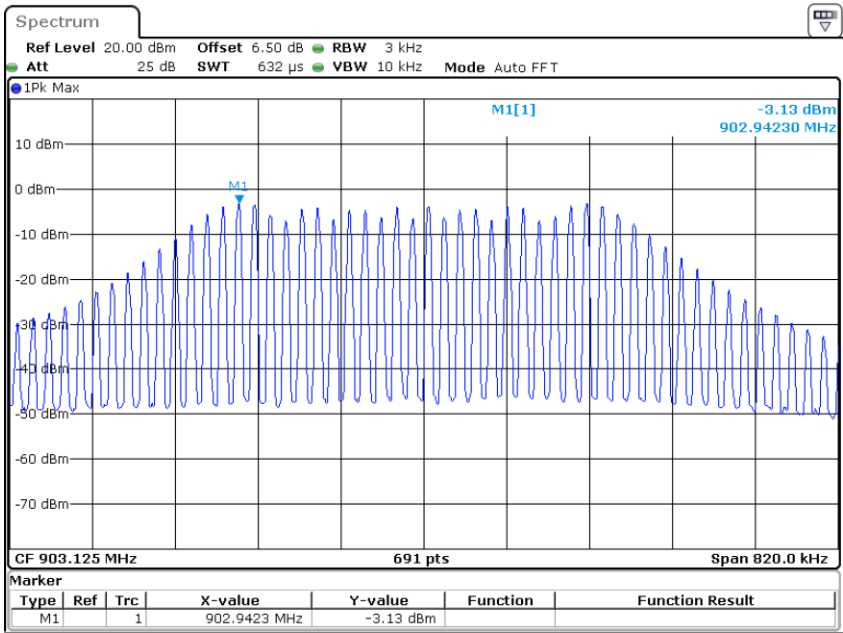
The testing was performed by Murphy Guo on 2024-06-24.

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plots.

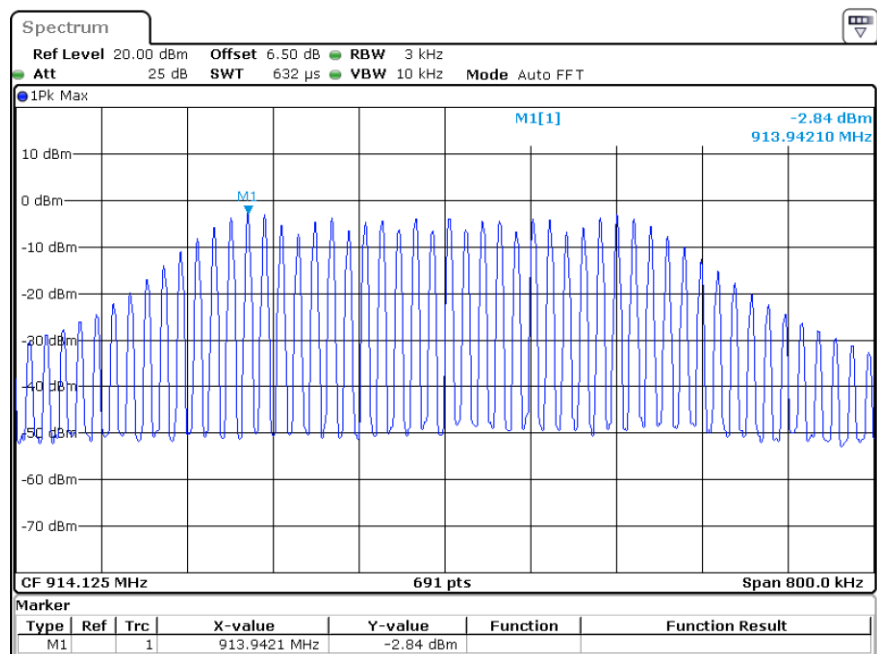
Mode	Channel	Frequency (MHz)	PKPSD (dBm/3KHz)	Limit (dBm/3kHz)
500 kHz	Low	903.125	-3.13	≤8
	Middle	914.125	-2.84	≤8
	High	924.125	-2.54	≤8

Power Spectral Density, Low Channel



RSC240618002-0 Tester:Murphy Guo
Date: 24.JUN.2024 20:09:13

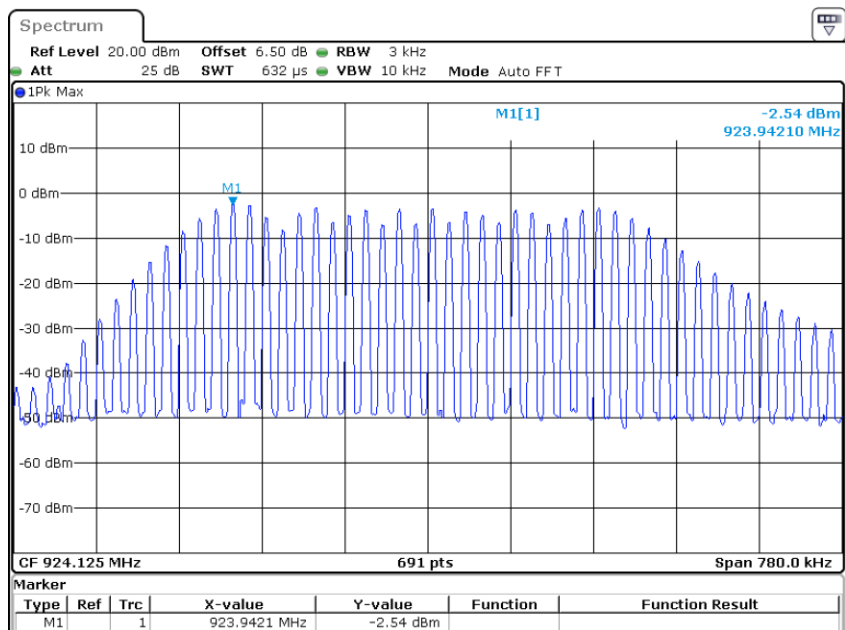
Power Spectral Density, Middle Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:15:32

Power Spectral Density, High Channel



RSC2400618002-0 Tester:Murphy Guo

Date: 24.JUN.2024 20:13:20

END OF REPORT