

TEST REPORT

Applicant: Midland Radio Corporation

Address: 5900 Parretta Drive, Kansas City, Missouri, United States

Product Name: GMRS MOBILE RADIO

FCC ID: MMAMXT105N

Standard(s): FCC Part 15B
ANSI C63.4-2014

Report Number: 2502S01630E-RF-00B

Report Date: 2025/6/4

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

Pedro Yun

Gavin Xu

Reviewed By: Pedro Yun

Approved By: Gavin Xu

Title: Project Engineer

Title: RF Supervisor

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2502S01630E-RF-00B	Original Report	2025/6/4

1. GENERAL INFORMATION

1.1 General Description Of Equipment under Test

EUT Name:	GMRS MOBILE RADIO
EUT Model:	MXT105
Highest Operation Frequency[^]:	462.7250MHz
Rated Input Voltage:	DC 13.8V
Serial Number:	329N-1
EUT Received Date:	2025/5/6
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.3 Equipment Modifications

No modifications are made to the EUT during all test items.

2. SUMMARY OF TEST RESULTS

Standard Clause	Description of Test	Test Result
FCC§15.107	Conducted emissions	Not Applicable
FCC§15.109	Radiated emissions	Compliant

Not Applicable: the device was powered by vehicle system.

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency And Test Channel:

Operation Modes	Operation Frequency Range (MHz)	Test Frequency (MHz)
NOAA Receiving	161.650-163.275	161.650, 163.275
UHF Receiving	462.55-462.725	462.6375

3.2 Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user). The following summary table is showing all test modes to demonstrate in compliance with the standard:

Test Items	Test Mode(s)
Radiated Spurious Emission :	M1: UHF Receiving M2: NOAA Receiving
AC Line Conducted Emission	N/A

3.3 EUT Exercise Software

No software was used to test.

3.4 Support Equipment List and Details

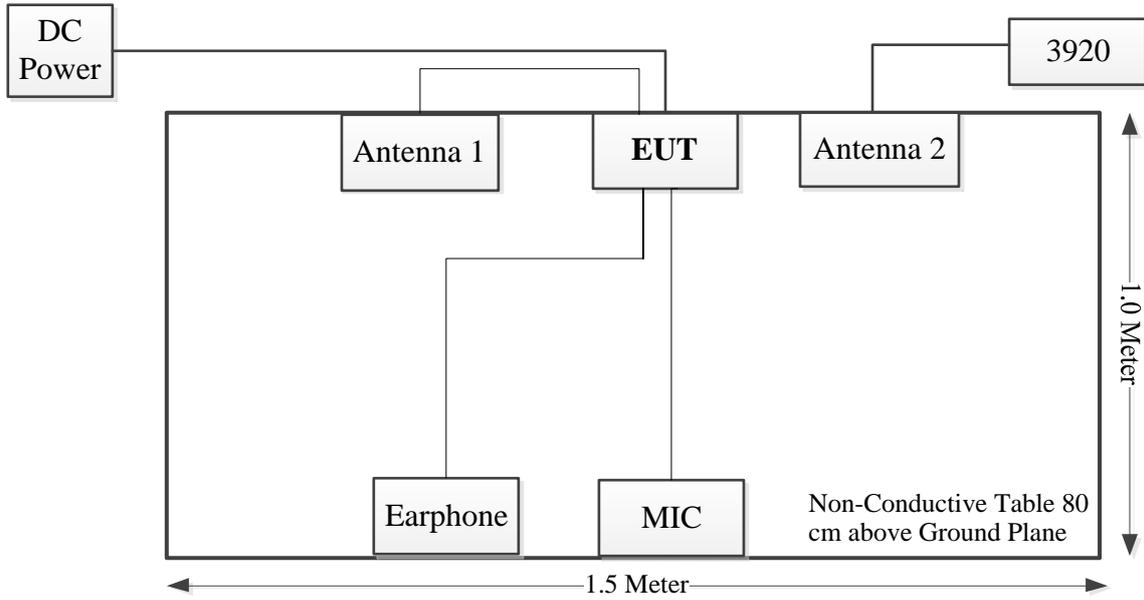
Manufacturer	Description	Model	Serial Number
TDK-Lambda	DC Power	KYT173381	LOC-825A153-0016
Unknown	Earphone	Unknown	Earphone 01
AEROFLEX	Digital Radio Tester	3920	100635767
Unknown	Antenna 1	Unknown	Unknown
Unknown	Antenna 2	Unknown	Unknown

3.5 Support Cable List and Details

Cable Description	Shielding Cable	Ferrite Core	Length (m)	From Port	To
DC power Cable	No	No	2.0	DC Power	EUT
Earphone Cable	No	No	1.2	Earphone	EUT
Coaxial Cable	Yes	No	10	Antenna 1	EUT
Coaxial Cable	Yes	No	10	3920	Antenna 2

3.6 Block Diagram of Test Setup

Radiated Emission:



3.7 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 829273, the FCC Designation No. : CN5044.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

3.8 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	9kHz~30MHz: 3.3dB, 30MHz~200MHz: 4.55 dB 200MHz~1GHz: 5.92 dB, 1GHz~6GHz: 4.98 dB 6GHz~18GHz: 5.89 dB, 18GHz~26.5GHz: 5.47 dB 26.5GHz~40GHz: 5.63 dB
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)
Temperature	±1 °C
Humidity	±5%

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

Not Applicable, the device was powered by vehicle system.

4.2 Radiation Spurious Emissions

4.2.1 Applicable Standard

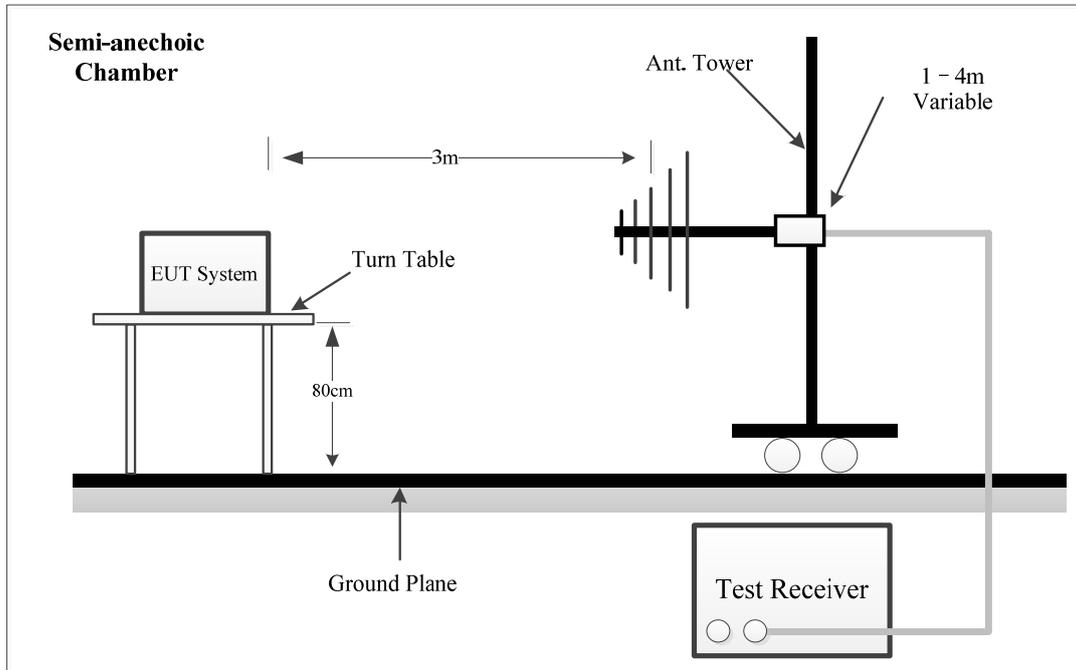
FCC§15.109

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

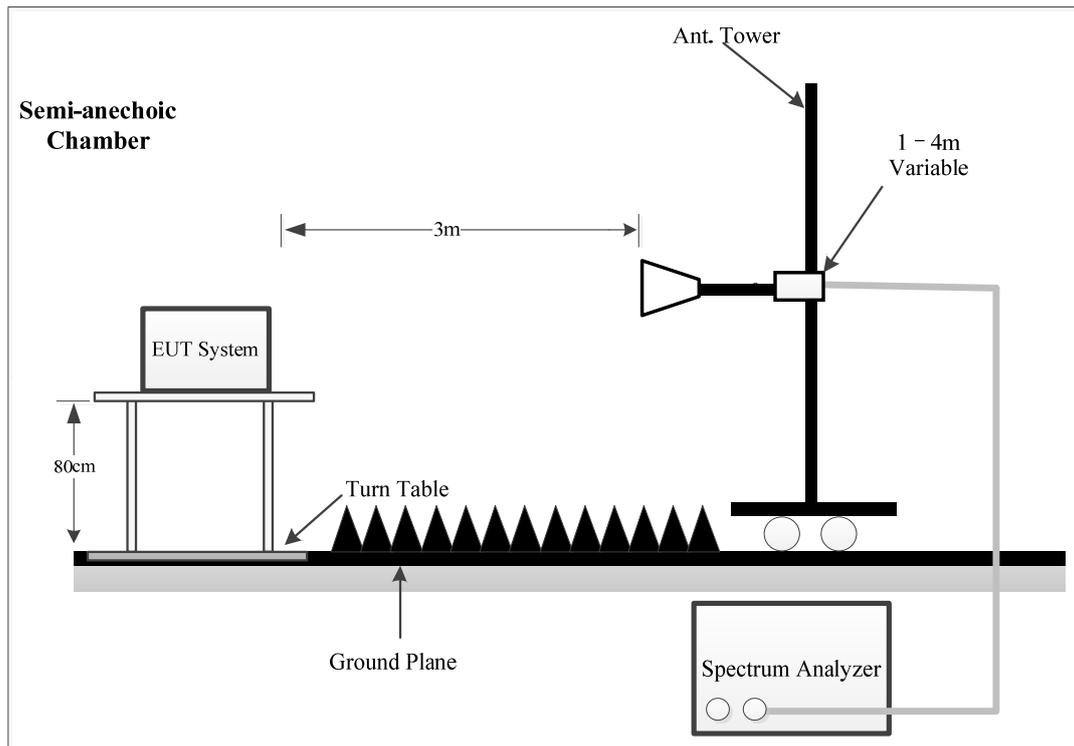
Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

4.2.2 Test System Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed at the 3 meters distance, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15B Class B limits.

4.2.3 EMI Test Receiver Setup

The system was investigated from 30 MHz to 6 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30MHz – 1000 MHz	100 kHz	300 kHz	/	Peak
	/	/	120kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10Hz	/	AVG

4.2.4 Test Procedure

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

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

4.2.5 Corrected Result & Margin Calculation

The basic equation is as follows:

$$\text{Result} = \text{Reading} + \text{Factor}$$

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

4.2.6 Test Result and Data

Serial Number:	329N-1	Test Date:	2025/5/19~2025/6/3
Test Site:	Chamber A, Chamber10m	Test Mode:	M1~M2
Tester:	Jayce Wang, Bill Yang, Zoo Zou, Willem Qiu	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	24.7~27.9	Relative Humidity: (%)	41~53	ATM Pressure: (kPa)	99.7~100.3

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Hybrid Antenna	JB3	A060611-1	2023/9/6	2026/9/5
Narda	Coaxial Attenuator	779-6dB	04269	2023/9/6	2026/9/5
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-04	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2024/7/1	2025/6/30
Sonoma	Amplifier	310N	185914	2024/8/26	2025/8/25
R&S	EMI Test Receiver	ESCI	100224	2024/8/26	2025/8/25
Audix	Test Software	E3	191218 V9	N/A	N/A
AH	Horn Antenna	SAS-571	1177	2023/2/22	2026/2/21
HUBER+SUHNER	Coaxial Cable	SUCOFLEX 126EA	MY369/26/26EA	2024/7/1	2025/6/30
AH	Preamplifier	PAM-0118P	530	2024/6/3	2025/6/2
AH	Preamplifier	PAM-0118P	530	2025/6/3	2026/6/2
Agilent	Spectrum Analyzer	E4440A	MY44303352	2024/10/22	2025/10/21

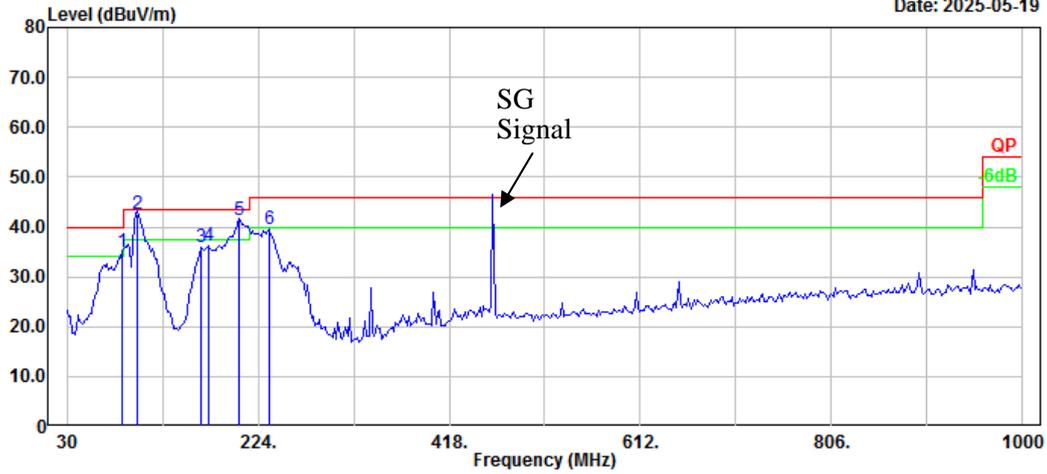
* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**1) 30MHz-1GHz:
462.6375MHz**

Project No.: 2502S01630E-RF
 Polarization: Horizontal
 Test Mode: M1
 Note:
 RBW:100kHz VBW:300kHz

Serial No.: 329N-1
 Tester: Zoo Zou

Date: 2025-05-19

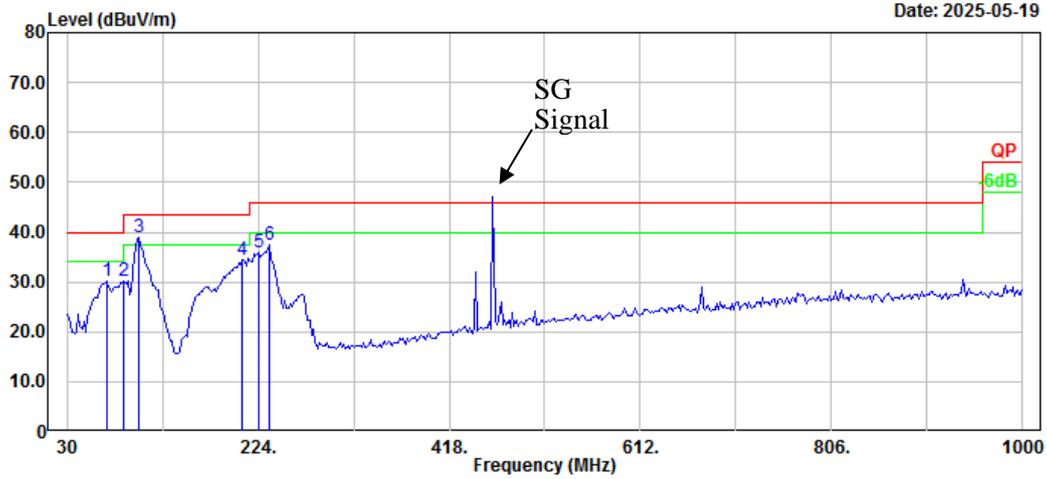


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement
1	86.26	51.70	-16.62	35.08	40.00	4.92	QP
2	101.78	56.30	-13.86	42.44	43.50	1.06	QP
3	165.80	47.51	-11.51	36.00	43.50	7.50	Peak
4	173.56	48.22	-11.98	36.24	43.50	7.26	Peak
5	204.60	53.50	-12.01	41.49	43.50	2.01	QP
6	235.64	51.41	-11.96	39.45	46.00	6.55	Peak

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M1
 Note:

Serial No.: 329N-1
 Tester: Zoo Zou

RBW:100kHz VBW:300kHz



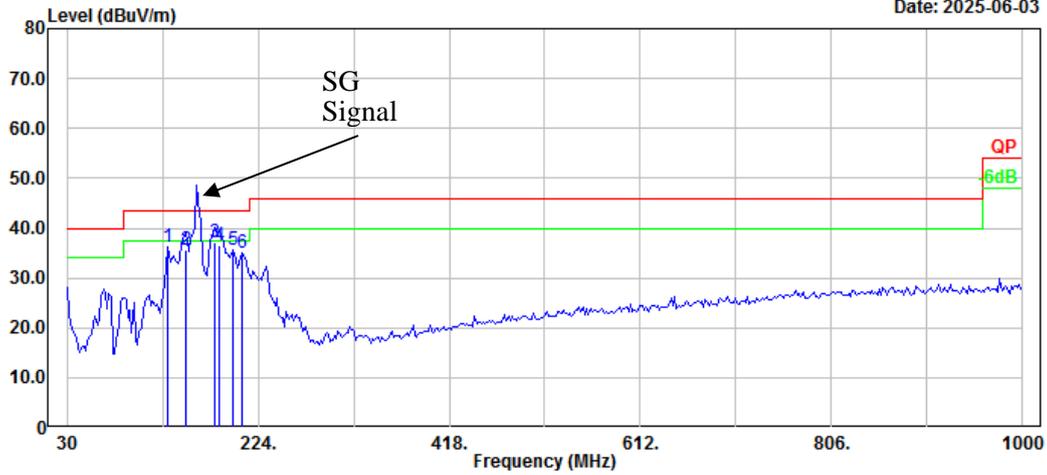
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	70.74	46.35	-16.25	30.10	40.00	9.90	Peak
2	88.20	46.91	-16.58	30.33	43.50	13.17	Peak
3	103.72	52.30	-13.27	39.03	43.50	4.47	QP
4	208.48	46.78	-12.40	34.38	43.50	9.12	Peak
5	224.00	48.18	-12.39	35.79	46.00	10.21	Peak
6	235.64	49.43	-11.96	37.47	46.00	8.53	Peak

161.65MHz

Project No.: 2502S01630E-RF
 Polarization: Horizontal
 Test Mode: M2
 Note: 161.65MHz
 RBW:100kHz VBW:300kHz

Serial No.: 329N-1
 Tester: Willem Qiu

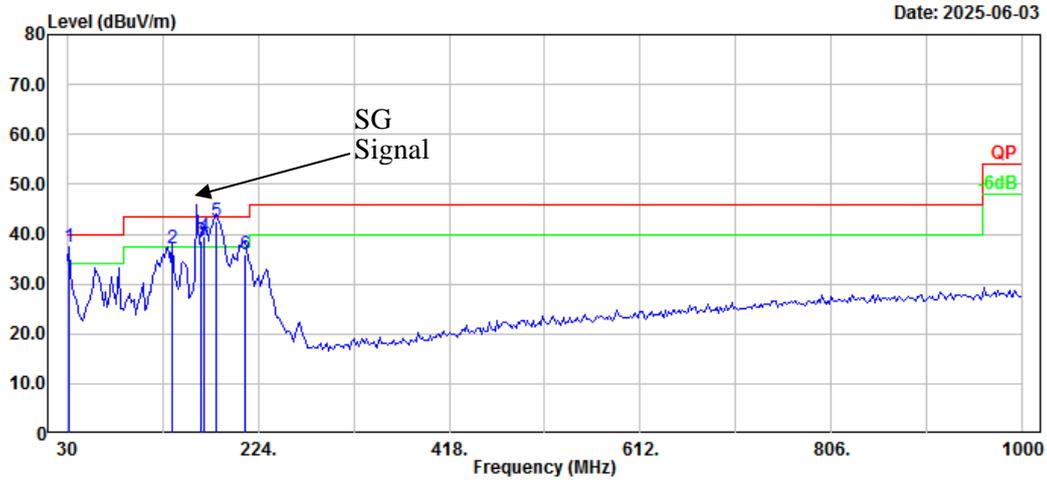
Date: 2025-06-03



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	132.82	46.29	-10.03	36.26	43.50	7.24	Peak
2	150.28	46.60	-11.06	35.54	43.50	7.96	QP
3	179.38	49.40	-12.32	37.08	43.50	6.42	QP
4	185.20	48.70	-12.24	36.46	43.50	7.04	QP
5	198.78	47.33	-11.60	35.73	43.50	7.77	Peak
6	208.48	47.44	-12.40	35.04	43.50	8.46	Peak

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M2
 Note: 161.65MHz
 RBW:100kHz VBW:300kHz

Serial No.: 329N-1
 Tester: Willem Qiu

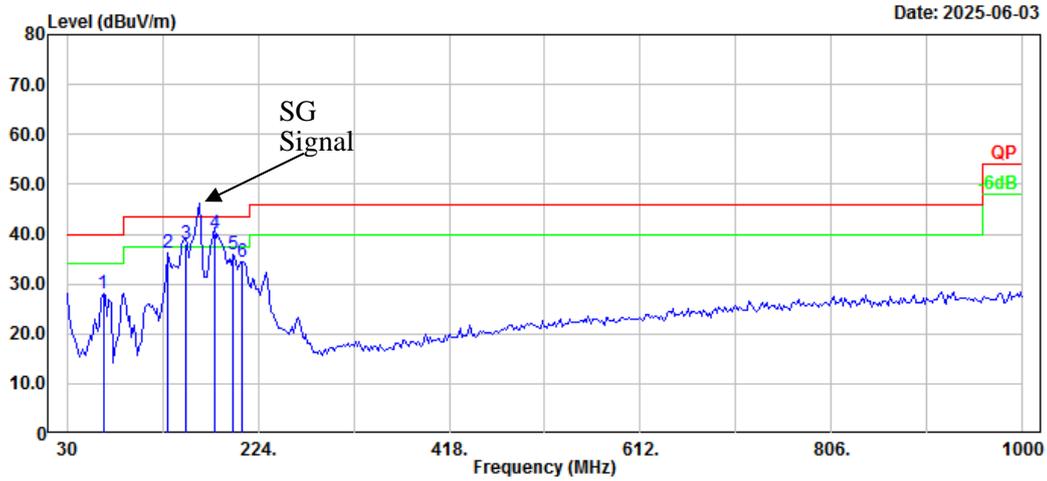


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	31.94	42.73	-5.21	37.52	40.00	2.48	QP
2	136.70	47.50	-10.26	37.24	43.50	6.26	QP
3	165.80	50.09	-11.51	38.58	43.50	4.92	QP
4	169.68	51.40	-11.76	39.64	43.50	3.86	QP
5	181.32	54.80	-12.33	42.47	43.50	1.03	QP
6	210.42	48.61	-12.57	36.04	43.50	7.46	QP

163.275MHz

Project No.: 2502S01630E-RF
 Polarization: Horizontal
 Test Mode: M2
 Note: 163.275MHz
 RBW:100kHz VBW:300kHz

Serial No.: 329N-1
 Tester: Willem Qiu

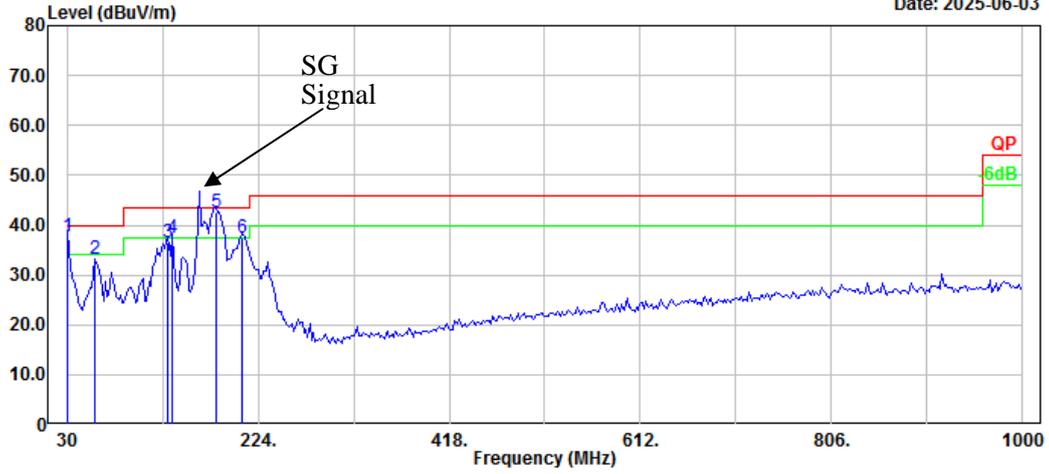


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	66.86	44.37	-16.42	27.95	40.00	12.05	Peak
2	132.82	46.15	-10.03	36.12	43.50	7.38	Peak
3	150.28	49.10	-11.06	38.04	43.50	5.46	QP
4	179.38	52.40	-12.32	40.08	43.50	3.42	QP
5	198.78	47.62	-11.60	36.02	43.50	7.48	Peak
6	208.48	46.90	-12.40	34.50	43.50	9.00	Peak

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M2
 Note: 163.275MHz
 RBW:100kHz VBW:300kHz

Serial No.: 329N-1
 Tester: Willem Qiu

Date: 2025-06-03

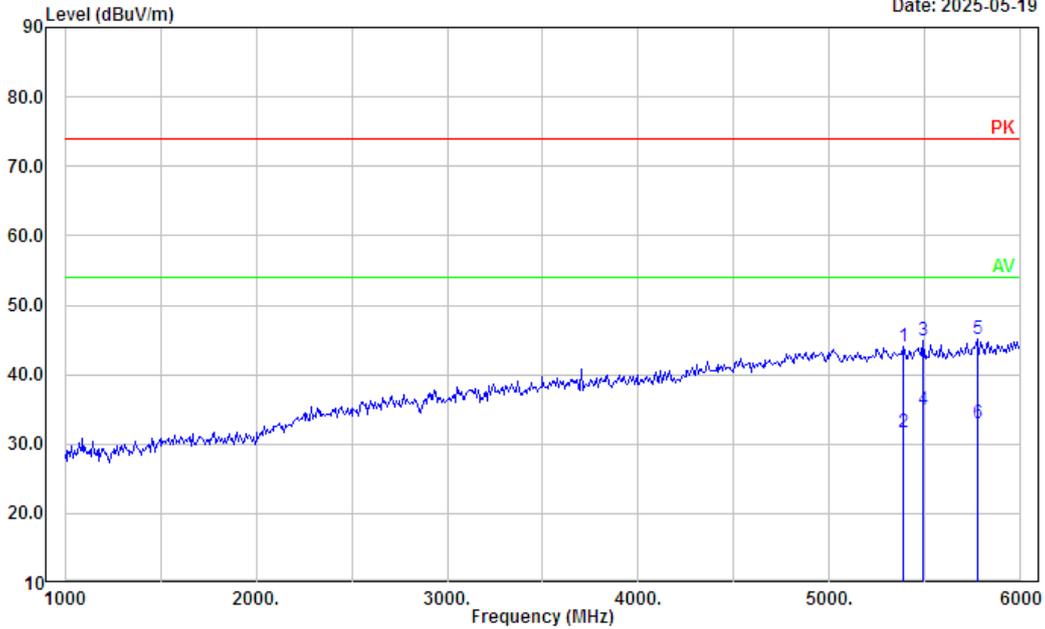


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	30.00	41.50	-3.80	37.70	40.00	2.30	QP
2	59.10	49.90	-16.63	33.27	40.00	6.73	Peak
3	132.82	46.70	-10.03	36.67	43.50	6.83	QP
4	136.70	47.60	-10.26	37.34	43.50	6.16	QP
5	181.32	54.80	-12.33	42.47	43.50	1.03	QP
6	208.48	49.89	-12.40	37.49	43.50	6.01	QP

**2) 1GHz-6GHz:
462.6375MHz**

Project No.: 2502S01630E-RF Serial No.: 329N-1
 Polarization: Horizontal Tester: Jayce Wang
 Test Mode: M1
 Note: RBW: 1MHz, VBW: 3MHz

Date: 2025-05-19

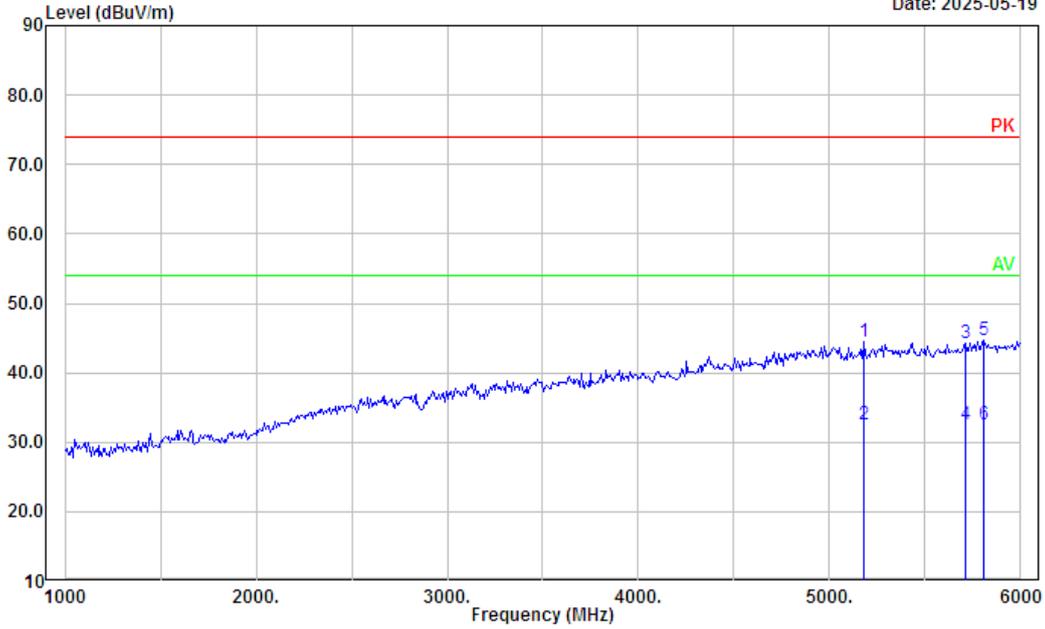


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement
1	5384.06	48.18	-4.24	43.94	74.00	30.06	Peak
2	5384.06	35.92	-4.24	31.68	54.00	22.32	Average
3	5485.51	49.09	-4.19	44.90	74.00	29.10	Peak
4	5485.51	39.04	-4.19	34.85	54.00	19.15	Average
5	5775.36	48.57	-3.45	45.12	74.00	28.88	Peak
6	5775.36	36.47	-3.45	33.02	54.00	20.98	Average

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M1
 Note: RBW:1MHz,VBW:3MHz
 :

Serial No.: 329N-1
 Tester: Jayce Wang

Date: 2025-05-19



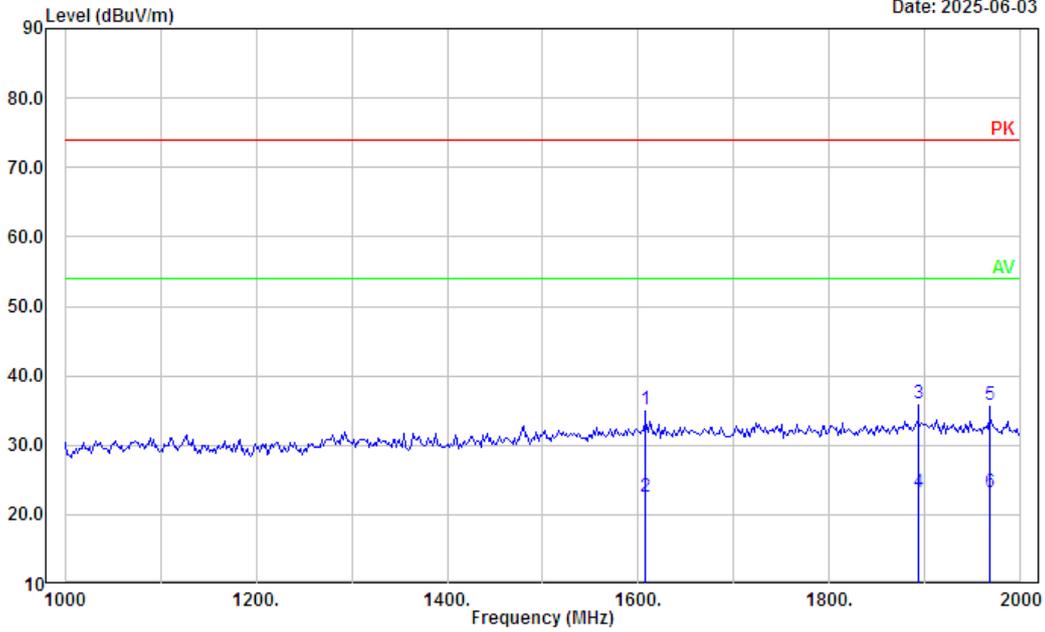
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	5181.16	48.62	-4.25	44.37	74.00	29.63	Peak
2	5181.16	36.83	-4.25	32.58	54.00	21.42	Average
3	5710.15	48.05	-3.75	44.30	74.00	29.70	Peak
4	5710.15	36.21	-3.75	32.46	54.00	21.54	Average
5	5804.35	48.08	-3.35	44.73	74.00	29.27	Peak
6	5804.35	35.89	-3.35	32.54	54.00	21.46	Average

161.65MHz

Project No.: 2502S01630E-RF
 Polarization: Horizontal
 Test Mode: M2
 Note: 161.65MHz
 RBW: 1MHz, VBW: 3MHz

Serial No.: 329N-1
 Tester: Bill Yang

Date: 2025-06-03

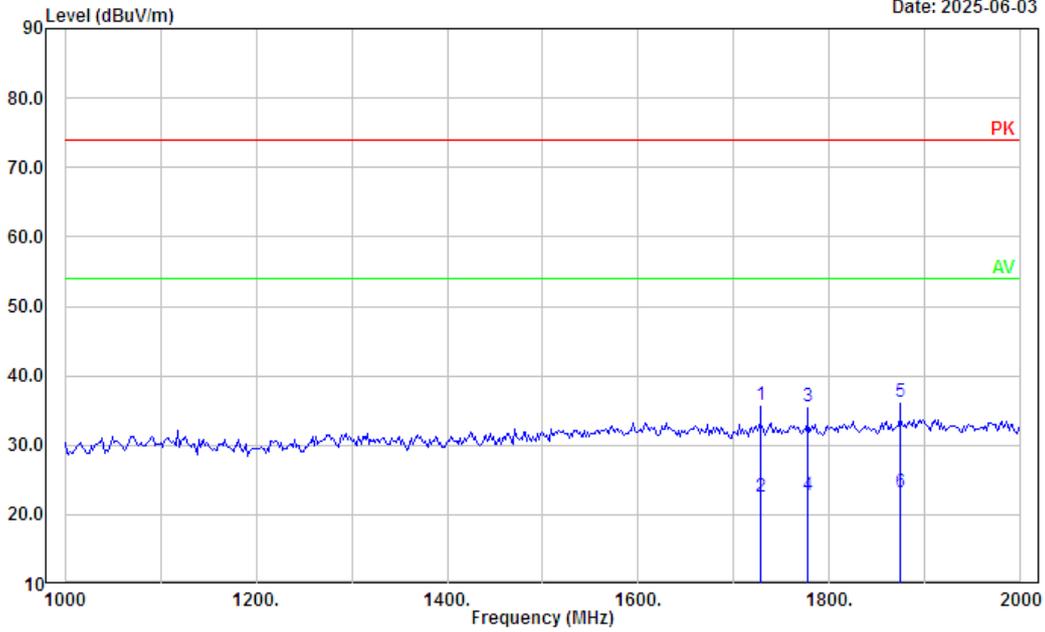


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	1606.67	49.36	-14.25	35.11	74.00	38.89	Peak
2	1606.67	36.75	-14.25	22.50	54.00	31.50	Average
3	1893.33	49.48	-13.43	36.05	74.00	37.95	Peak
4	1893.33	36.76	-13.43	23.33	54.00	30.67	Average
5	1968.33	49.41	-13.61	35.80	74.00	38.20	Peak
6	1968.33	36.74	-13.61	23.13	54.00	30.87	Average

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M2
 Note: 161.65MHz
 RBW: 1MHz, VBW: 3MHz

Serial No.: 329N-1
 Tester: Bill Yang

Date: 2025-06-03



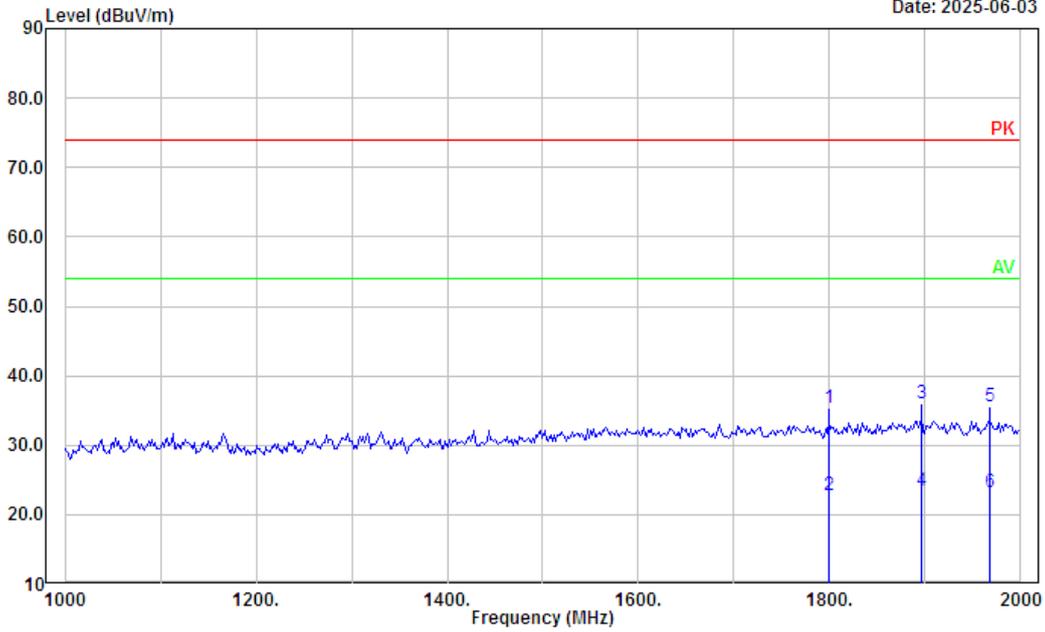
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	1728.33	49.93	-14.22	35.71	74.00	38.29	Peak
2	1728.33	36.75	-14.22	22.53	54.00	31.47	Average
3	1776.67	49.70	-14.08	35.62	74.00	38.38	Peak
4	1776.67	36.77	-14.08	22.69	54.00	31.31	Average
5	1873.33	49.85	-13.56	36.29	74.00	37.71	Peak
6	1873.33	36.74	-13.56	23.18	54.00	30.82	Average

163.275MHz

Project No.: 2502S01630E-RF
 Polarization: Horizontal
 Test Mode: M2
 Note: 163.275MHz
 RBW: 1MHz, VBW: 3MHz

Serial No.: 329N-1
 Tester: Bill Yang

Date: 2025-06-03

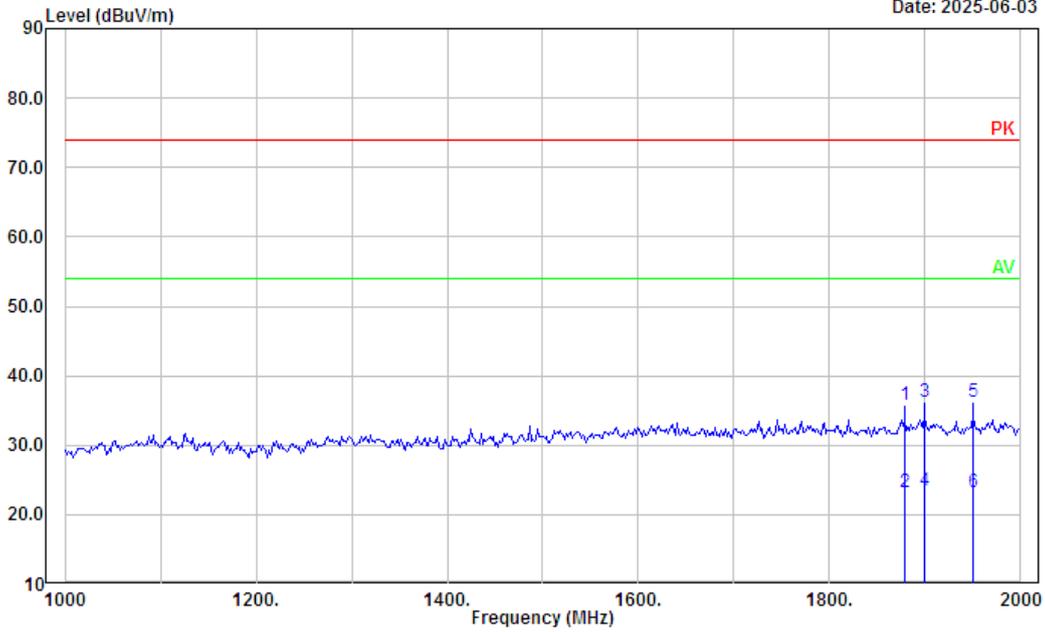


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	1800.00	49.42	-14.03	35.39	74.00	38.61	Peak
2	1800.00	36.74	-14.03	22.71	54.00	31.29	Average
3	1896.67	49.42	-13.40	36.02	74.00	37.98	Peak
4	1896.67	36.75	-13.40	23.35	54.00	30.65	Average
5	1968.33	49.27	-13.61	35.66	74.00	38.34	Peak
6	1968.33	36.73	-13.61	23.12	54.00	30.88	Average

Project No.: 2502S01630E-RF
 Polarization: Vertical
 Test Mode: M2
 Note: 163.275MHz
 RBW: 1MHz, VBW: 3MHz

Serial No.: 329N-1
 Tester: Bill Yang

Date: 2025-06-03



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement
1	1878.33	49.29	-13.53	35.76	74.00	38.24	Peak
2	1878.33	36.74	-13.53	23.21	54.00	30.79	Average
3	1900.00	49.63	-13.39	36.24	74.00	37.76	Peak
4	1900.00	36.75	-13.39	23.36	54.00	30.64	Average
5	1950.00	49.80	-13.61	36.19	74.00	37.81	Peak
6	1950.00	36.76	-13.61	23.15	54.00	30.85	Average

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2502S01630E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2502S01630E-RF-INP EUT INTERNAL PHOTOGRAPHS

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2502S01630E-RF-00B-TSP TEST SETUP PHOTOGRAPHS.

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