

TEST REPORT

Applicant: Midland Radio Corporation

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

Product Name: GMRS MOBILE RADIO

FCC ID: MMAMXT115P

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

Report Number: 2502R04460E-RF-00B

Report Date: 2025/7/3

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

Reviewed By: Pedro Yun

Title: Project Engineer

Gavin Xu

Approved By: Gavin Xu

Title: RF Supervisor

Bay Area Compliance Laboratories Corp. (Dongguan)
No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China

Tel: +86-769-86858888

Fax: +86-769-86858891

www.baclcorp.com.cn

Note: The information marked ▲ is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This report cannot be reproduced except in full, without prior written approval of the Company. 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. This report may contain data that are not covered by the accreditation scope and shall be marked with ★. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Each test item follows the test standard(s) without deviation.

CONTENTS

DOCUMENT REVISION HISTORY	3
1. GENERAL INFORMATION	4
1.1 GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST	4
1.2 ACCESSORY INFORMATION.....	4
1.3 EQUIPMENT MODIFICATIONS	4
2. SUMMARY OF TEST RESULTS	5
3. DESCRIPTION OF TEST CONFIGURATION	6
3.1 OPERATION FREQUENCY AND TEST CHANNEL:.....	6
3.2 DESCRIPTION OF TEST CONFIGURATION.....	6
3.3 SUPPORT EQUIPMENT LIST AND DETAILS	6
3.4 SUPPORT CABLE LIST AND DETAILS.....	6
3.5 BLOCK DIAGRAM OF TEST SETUP.....	7
3.6 TEST FACILITY	8
3.7 MEASUREMENT UNCERTAINTY	8
4. REQUIREMENTS AND TEST PROCEDURES.....	9
4.1 CONDUCTED EMISSIONS	9
4.2 RADIATION EMISSIONS	10
4.2.1 Applicable Standard	10
4.2.2 Test System Setup	10
4.2.3 EMI Test Receiver Setup	11
4.2.4 Test Procedure.....	11
4.2.5 Corrected Result & Margin Calculation.....	12
4.2.6 Test Data and Result	13
4.3 ANTENNA POWER CONDUCTION LIMITS FOR RECEIVERS	26
4.3.1 Applicable Standard	26
4.3.2 EUT Setup Block Diagram	26
4.3.3 Test Procedure.....	26
4.3.4 Test Data and Result	27
EXHIBIT A - EUT PHOTOGRAPHS	29
EXHIBIT B - TEST SETUP PHOTOGRAPHS.....	30

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2502R04460E-RF-00B	Original Report	2025/7/3

1. GENERAL INFORMATION

1.1 General Description Of Equipment under Test

EUT Name:	GMRS MOBILE RADIO
EUT Model:	MXT115P
Highest Operation Frequency[▲]:	467.7250MHz
Rated Input Voltage:	DC 13.8V from vehicle system
Serial Number:	2ZB1-1(For Radiated emissions test) 2ZB1-2(For RF Conducted test)
EUT Received Date:	2025/3/4
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model
Hand Mic	Midland Radio Corporation	Unknown

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
FCC§15.111	Antenna power conduction limits for receivers	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	462.6250

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: Charging &UHF Receiving M2: Charging & NOAA Receiving
AC Line Conducted Emission	/
RF Conducted:	M1: Charging &UHF Receiving M2: Charging & NOAA Receiving

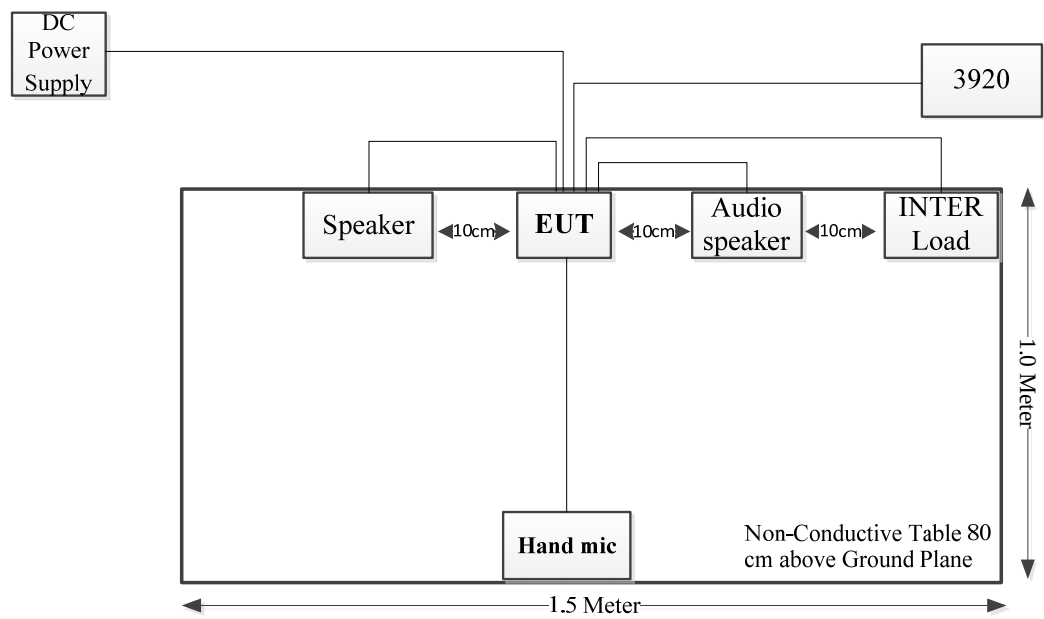
3.3 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1
Midland	Speaker	Unknown	Speaker 01
AEROFLEX	Digital Radio Tester	3920	100635767
Midland	Audio Speaker	Unknown	Unknown
Midland	INTER Load	Unknown	Unknown

3.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Hand Mic Cable	Yes	No	2	Hand Mic	EUT
Speaker Cable	No	No	1.5	Speaker	EUT
Audio Speaker Cable	No	No	0.6	Audio Speaker	EUT
INTER Load Cable	No	No	0.6	INTER Load	EUT

3.5 Block Diagram of Test Setup



3.6 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.

3.7 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
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

4. REQUIREMENTS AND TEST PROCEDURES

4.1 Conducted Emissions

Not Applicable, the device was powered by vehicle system.

4.2 Radiation Emissions

4.2.1 Applicable Standard

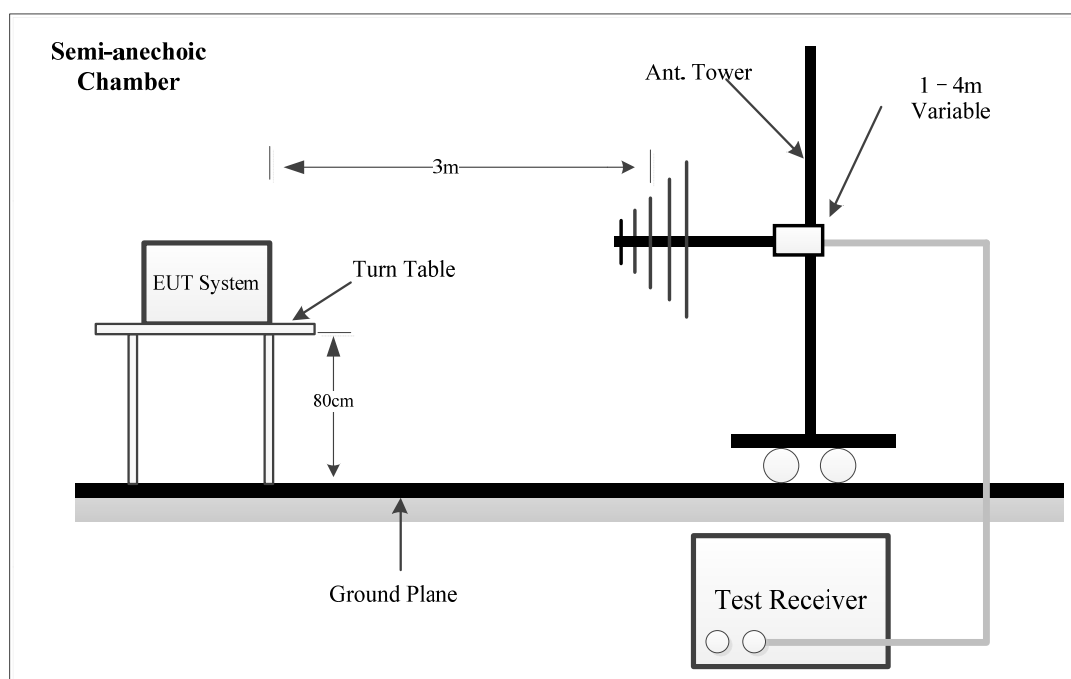
FCC§15.109

(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:

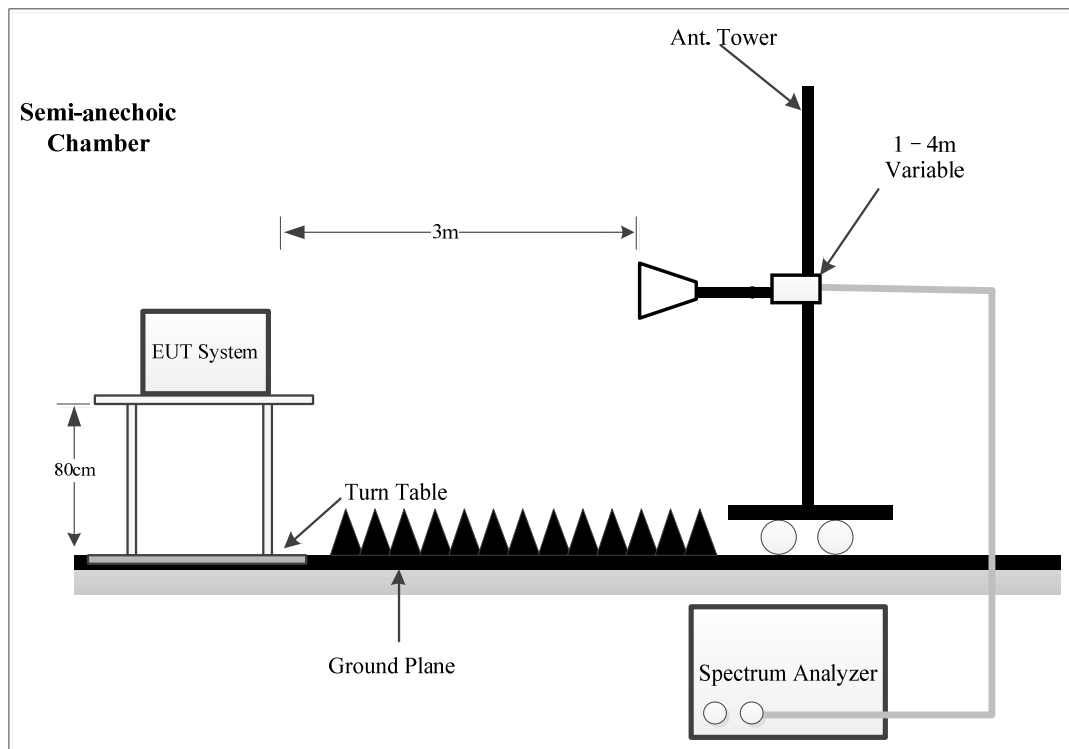
Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

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 2 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	10 Hz	/	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:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- 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:

Margin = Limit – Result

4.2.6 Test Data and Result

Serial Number:	2ZB1-1	Test Date:	Below 1GHz:2025/3/29 &2025/6/18 Above 1GHz:2025/4/1& 2025/6/17
Test Site:	Chamber A, Chamber10m	Test Mode:	M1, M2
Tester:	Lancer Zhang, Leesin Xiang	Test Result:	Pass

Environmental Conditions:

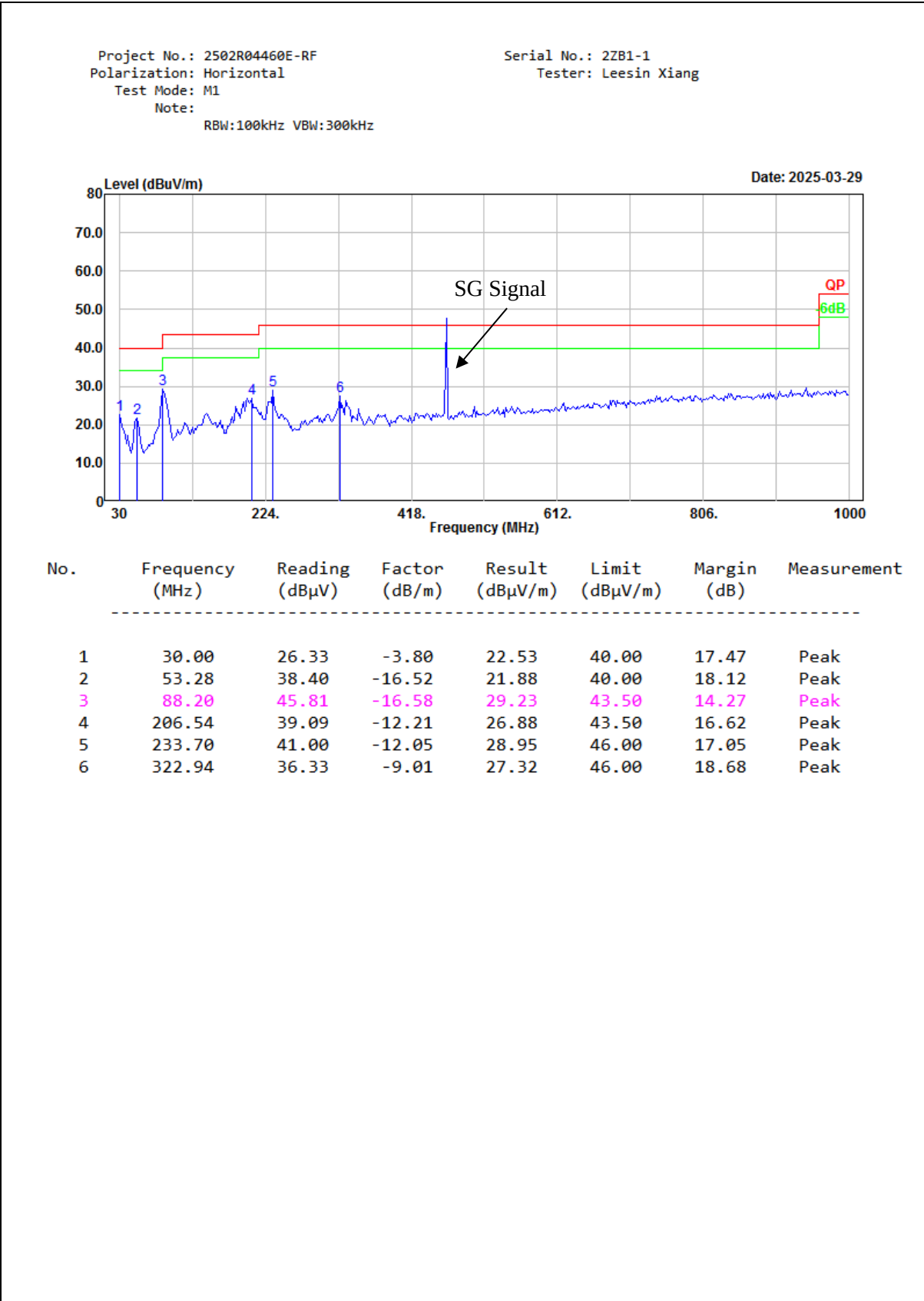
Temperature: (°C)	19.8~25.2	Relative Humidity: (%)	43~54	ATM Pressure: (kPa)	100.9~101.4
----------------------	-----------	------------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
30MHz~1000MHz					
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
Above 1GHz					
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
Mini-Circuits	Preamplifier	ZVZ-183-S+	5696001267	2025/2/14	2026/2/13
R&S	Spectrum Analyzer	FSV40	101947	2024/9/5	2025/9/4
Audix	Test Software	E3	191218 V9	N/A	N/A

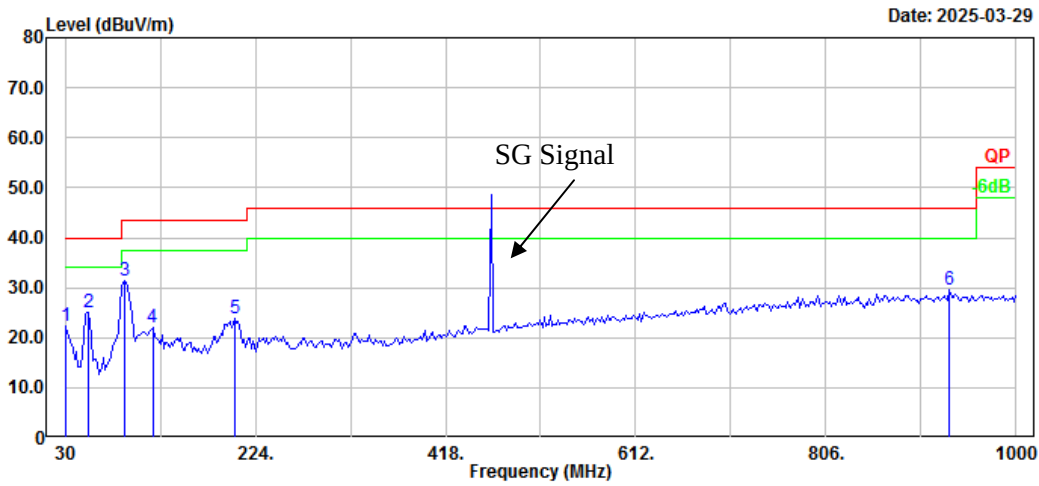
* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

1) 30MHz-1GHz:
M1:462.625MHz



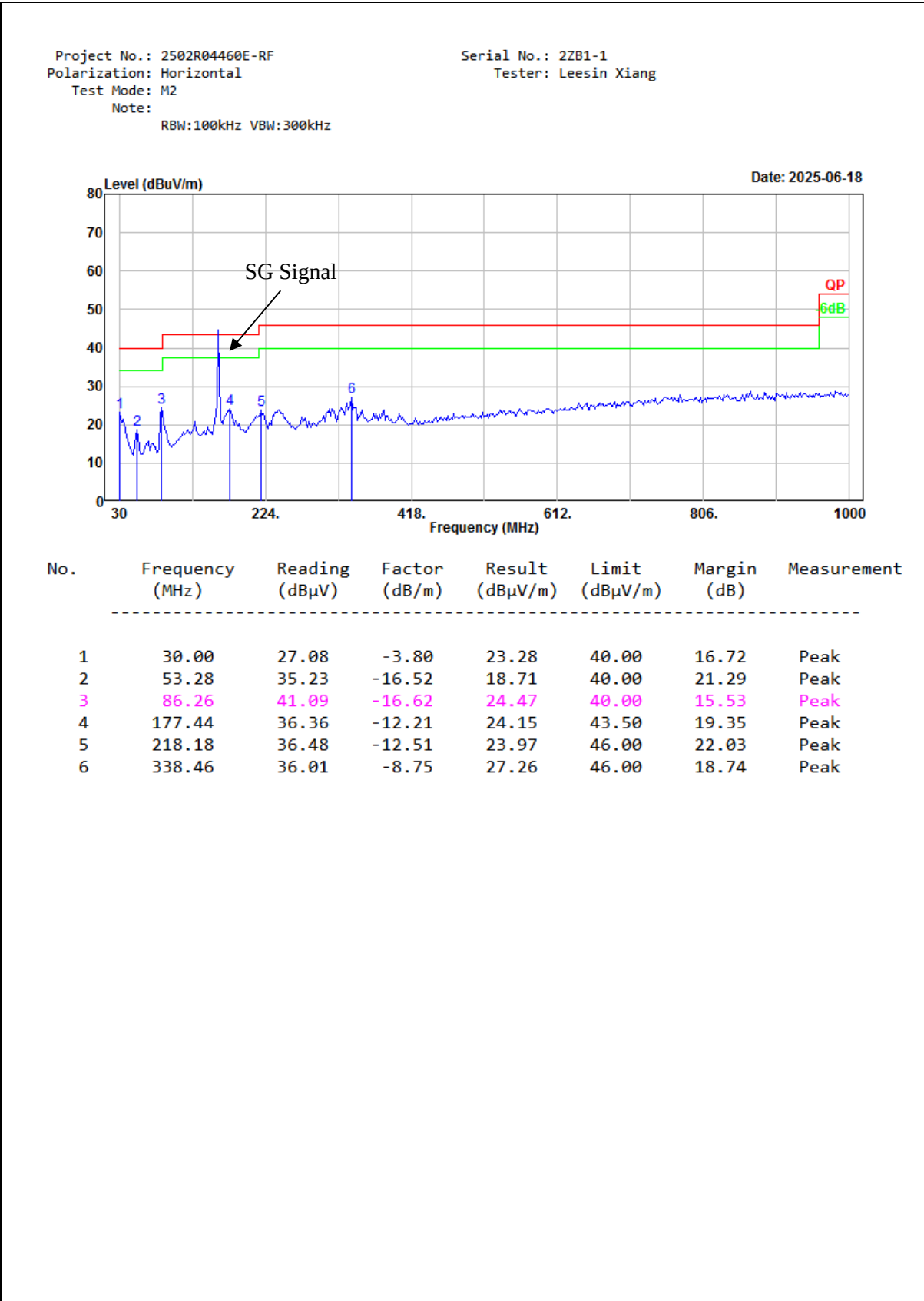
Project No.: 2502R04460E-RF
Polarization: Vertical
Test Mode: M1
Note:
RBW:100kHz VBW:300kHz

Serial No.: 2ZB1-1
Tester: Leesin Xiang



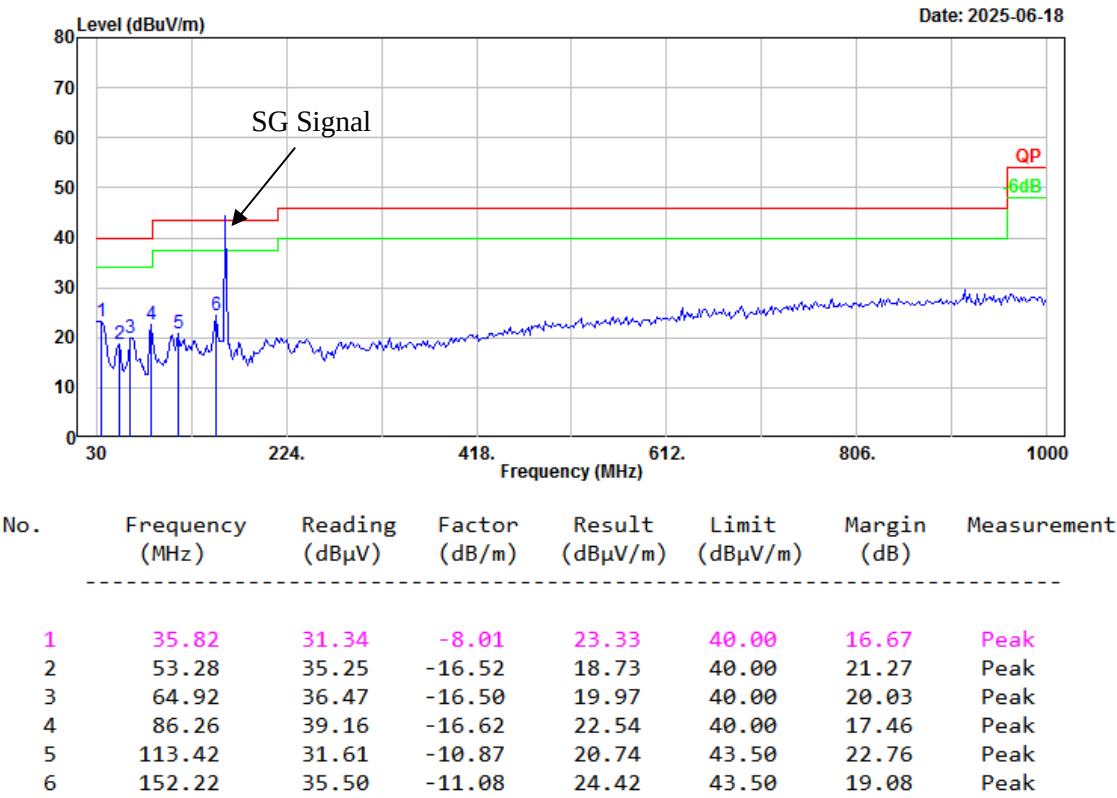
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	30.00	26.05	-3.80	22.25	40.00	17.75	Peak
2	53.28	41.56	-16.52	25.04	40.00	14.96	Peak
3	90.14	48.01	-16.52	31.49	43.50	12.01	Peak
4	119.24	32.06	-10.05	22.01	43.50	21.49	Peak
5	202.66	35.77	-11.80	23.97	43.50	19.53	Peak
6	932.10	27.78	1.81	29.59	46.00	16.41	Peak

M2:161.65MHz

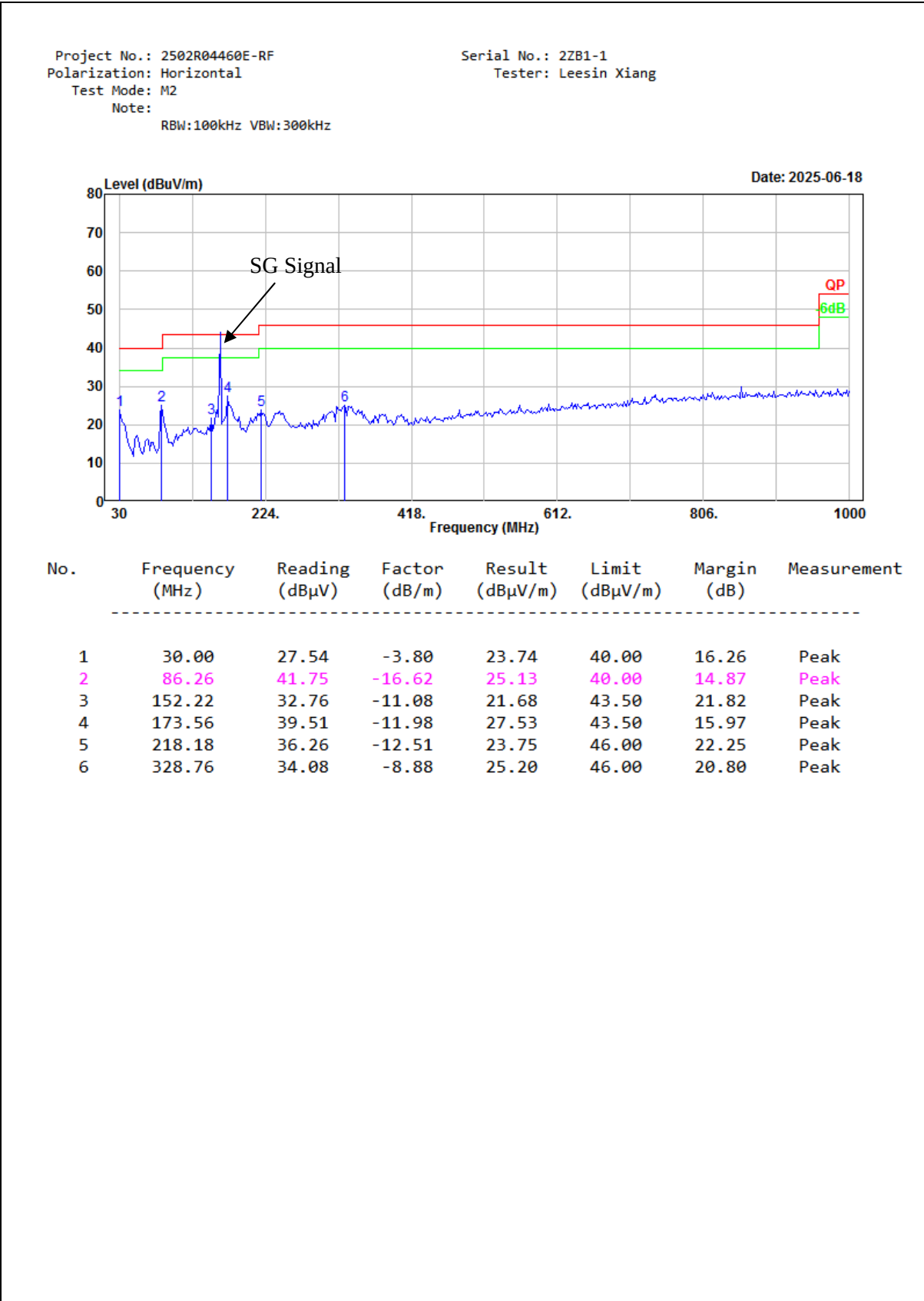


Project No.: 2502R04460E-RF
Polarization: Vertical
Test Mode: M2
Note:
RBW:100kHz VBW:300kHz

Serial No.: 2ZB1-1
Tester: Leesin Xiang



M2:163.275MHz



Project No.: 2502R04460E-RF

Serial No.: 22B1-1

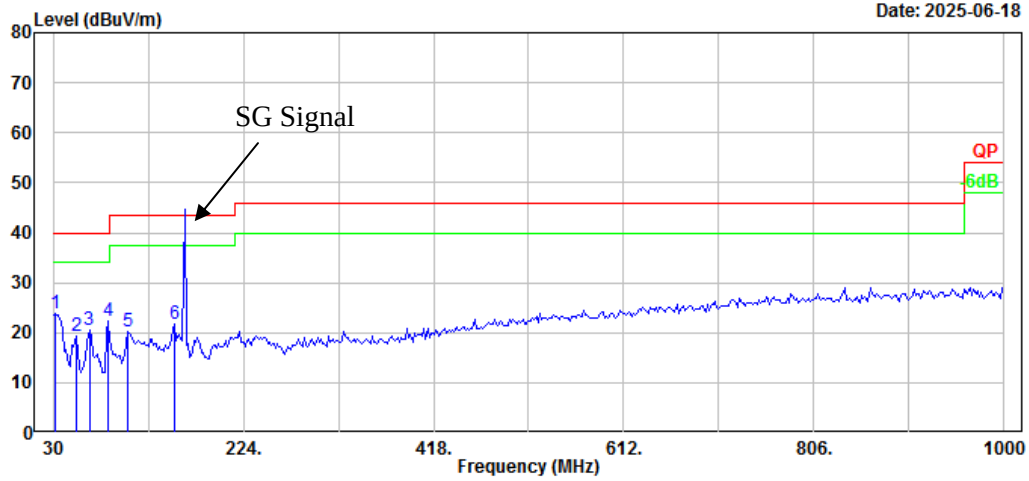
Polarization: Vertical

Tester: Leesin Xiang

Test Mode: M2

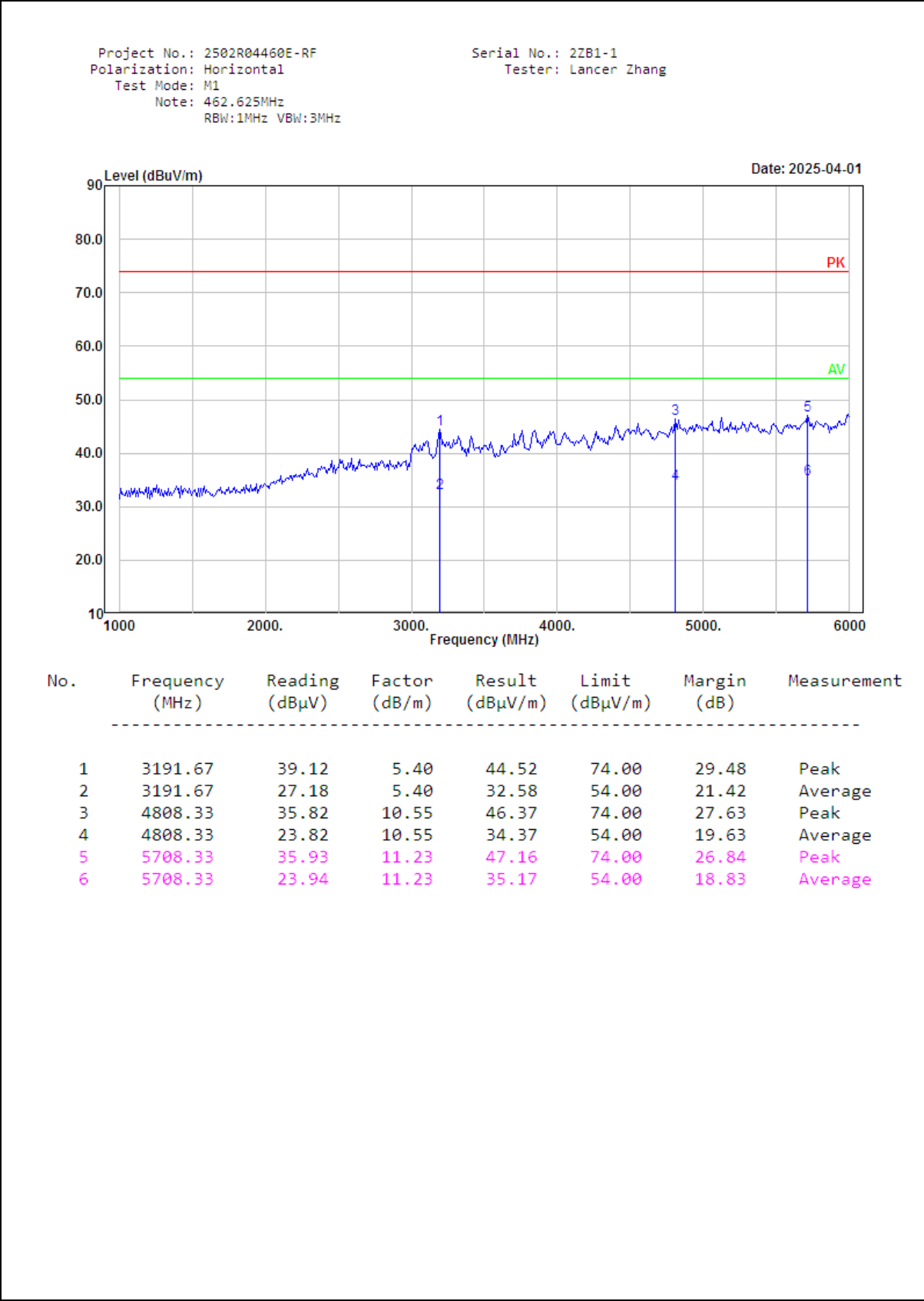
Note:

RBW:100kHz VBW:300kHz



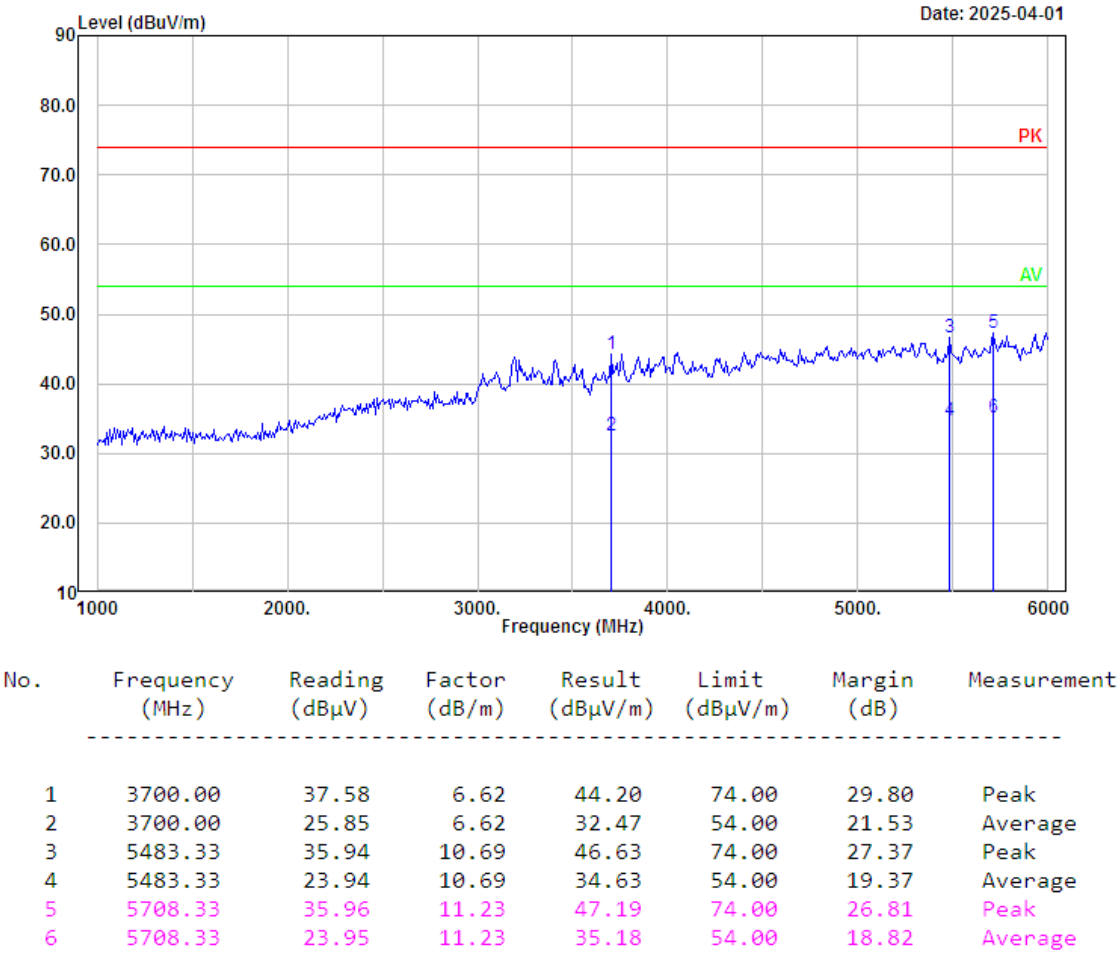
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Measurement
1	31.94	29.18	-5.21	23.97	40.00	16.03	Peak
2	53.28	35.80	-16.52	19.28	40.00	20.72	Peak
3	66.86	37.03	-16.42	20.61	40.00	19.39	Peak
4	86.26	38.98	-16.62	22.36	40.00	17.64	Peak
5	105.66	32.98	-12.68	20.30	43.50	23.20	Peak
6	154.16	32.82	-11.09	21.73	43.50	21.77	Peak

2) Above 1GHz:
M1:462.625MHz

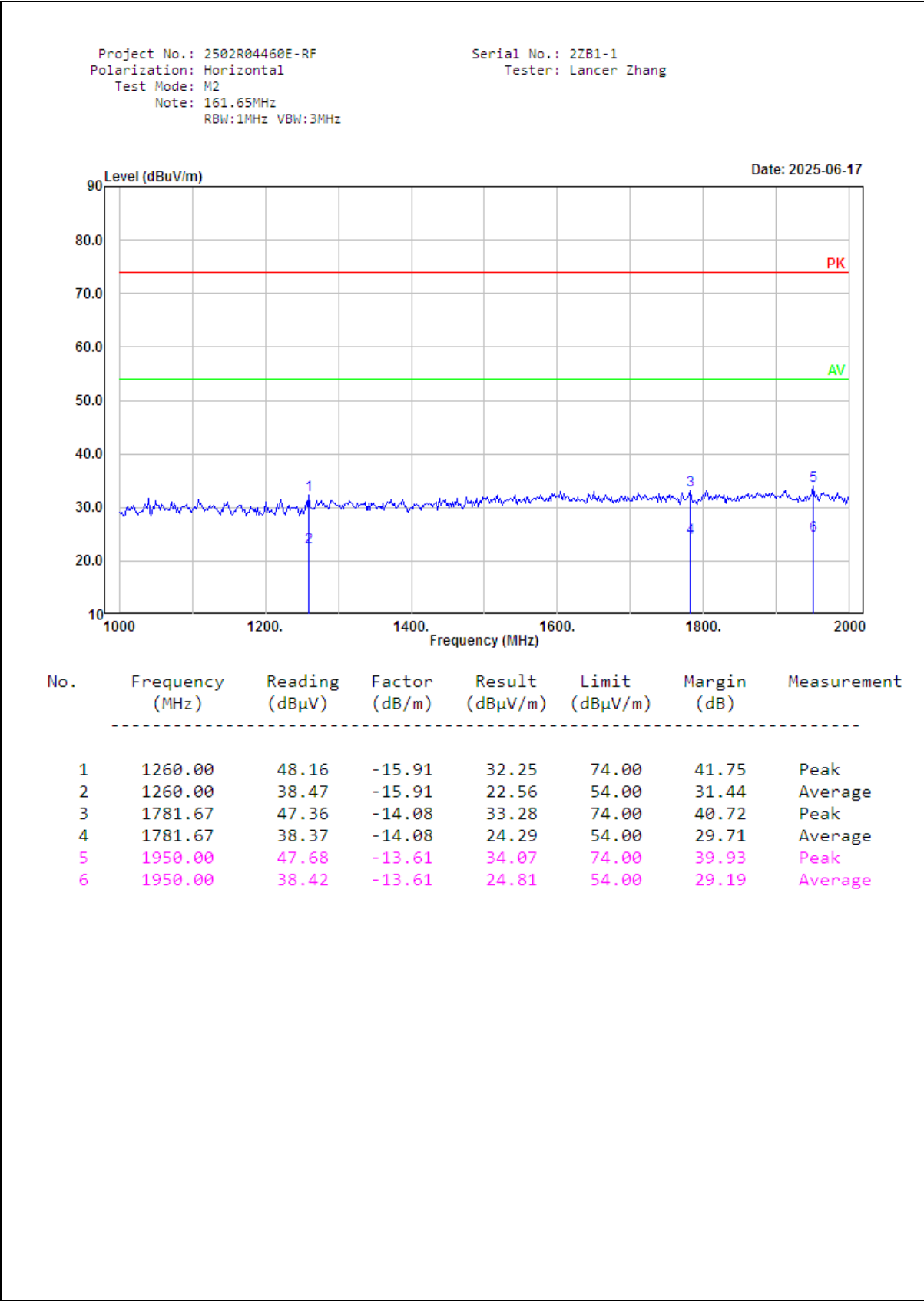


Project No.: 2502R04460E-RF
Polarization: Vertical
Test Mode: M1
Note: 462.625MHz
RBW:1MHz VBW:3MHz

Serial No.: 2ZB1-1
Tester: Lancer Zhang

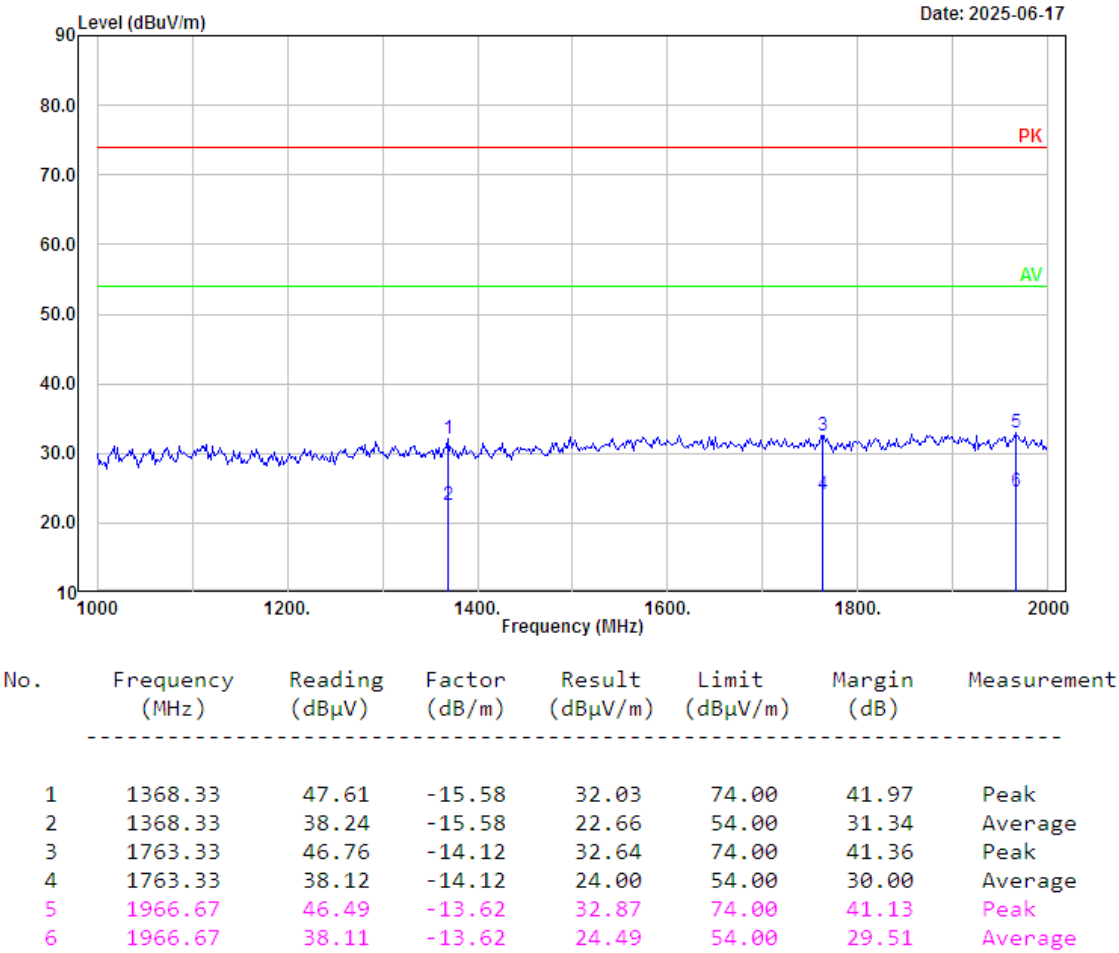


M2:161.65MHz

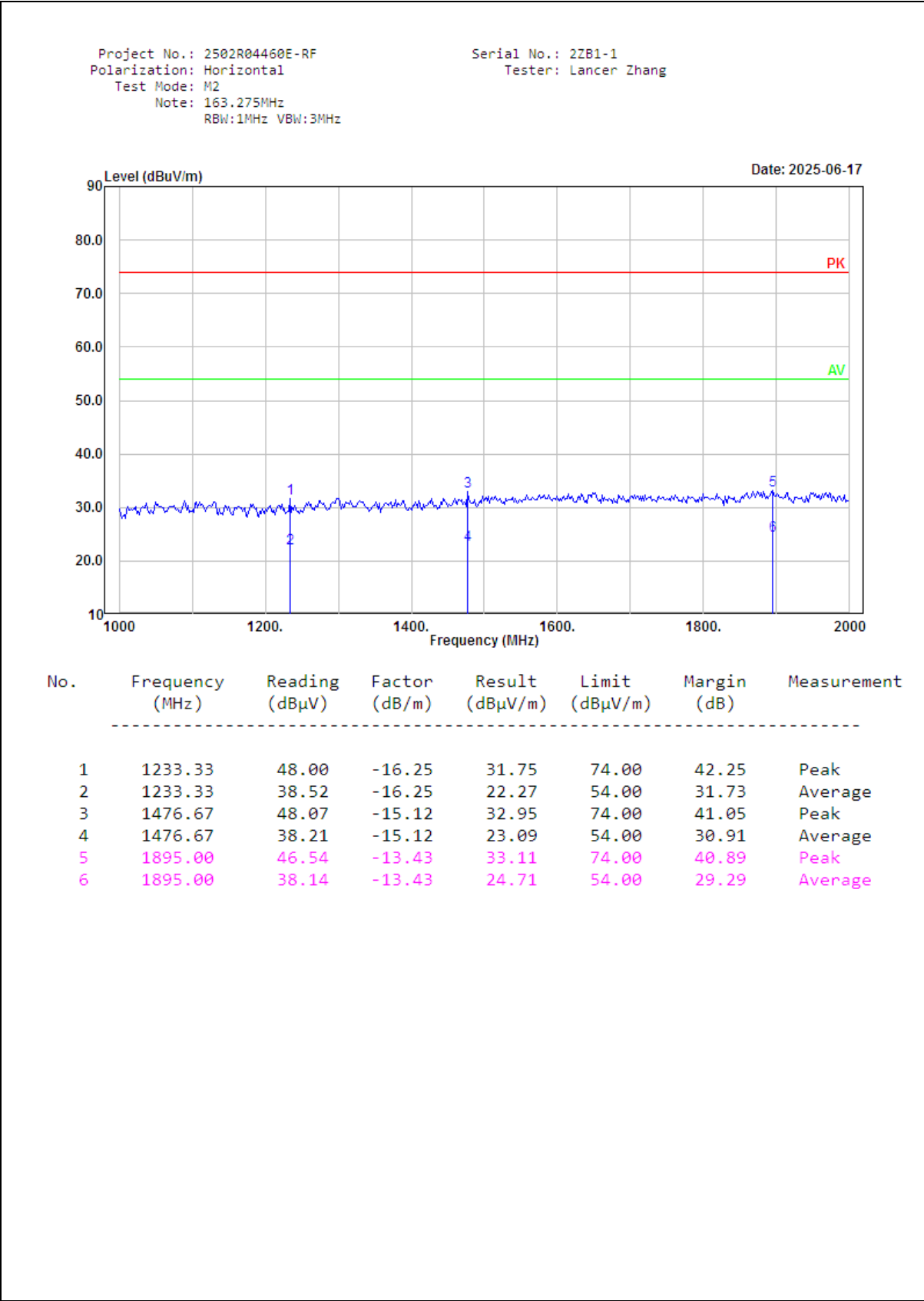


Project No.: 2502R04460E-RF
Polarization: Vertical
Test Mode: M2
Note: 161.65MHz
RBW:1MHz VBW:3MHz

Serial No.: 2ZB1-1
Tester: Lancer Zhang

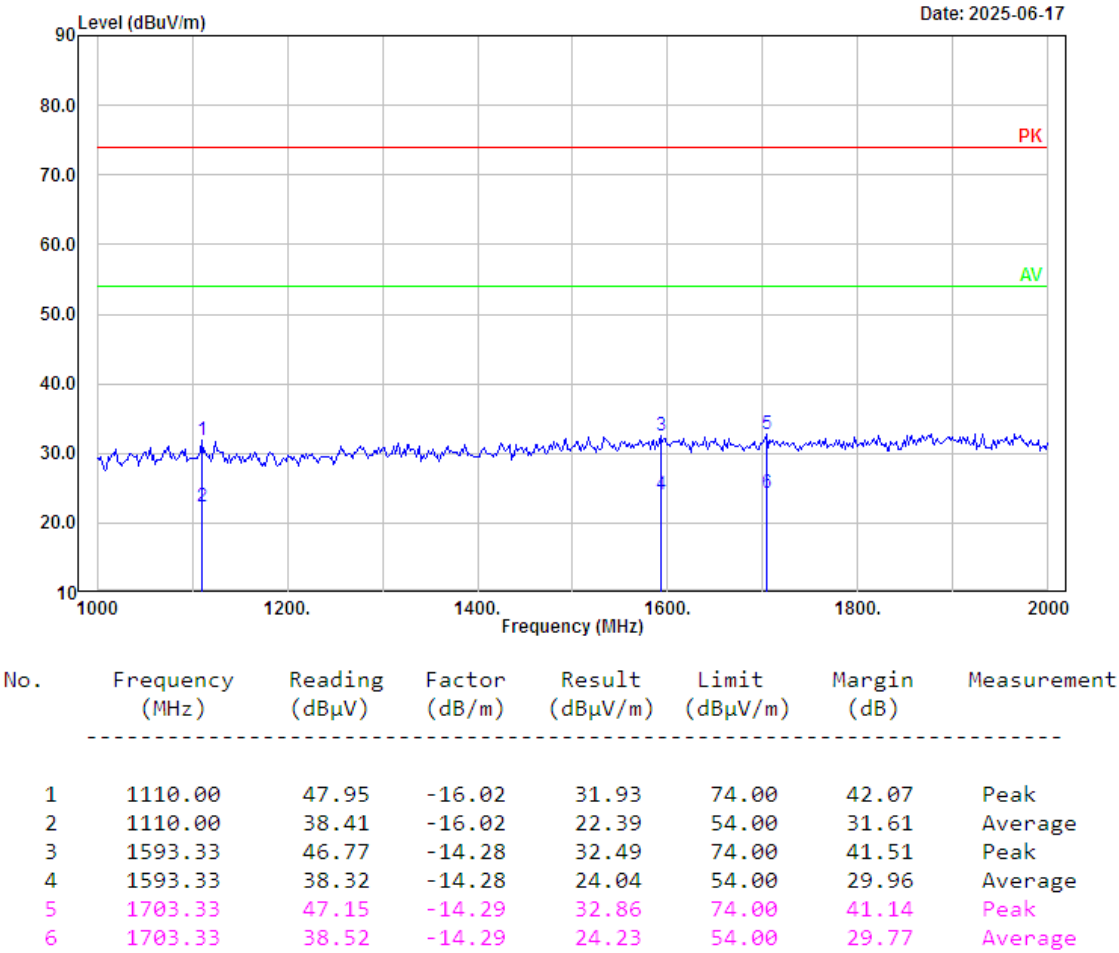


M2:163.275MHz



Project No.: 2502R04460E-RF
Polarization: Vertical
Test Mode: M2
Note: 163.275MHz
RBW:1MHz VBW:3MHz

Serial No.: 2ZB1-1
Tester: Lancer Zhang



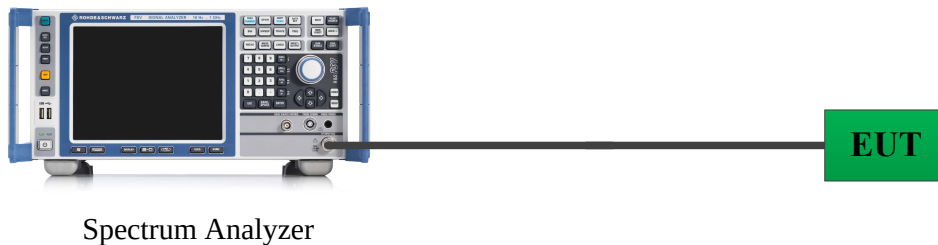
4.3 Antenna Power Conduction Limits for Receivers

4.3.1 Applicable Standard

FCC§15.111.

(a) In addition to the radiated emission limits, receivers that operate (tune) in the frequency range 30 to 960 MHz and CB receivers that provide terminals for the connection of an external receiving antenna may be tested to demonstrate compliance with the provisions of § 15.109 with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna, provided these receivers also comply with the following: With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminal at any frequency within the range of measurements specified in § 15.33 shall not exceed 2.0 nanowatts.

4.3.2 EUT Setup Block Diagram



4.3.3 Test Procedure

EUT antenna port connected to a spectrum analyzer, the traces were recorded as shown on the data pages.

4.3.4 Test Data and Result

Serial Number:	2ZB1-2	Test Date:	2025/4/30-2025/7/3
Test Site:	RF	Test Mode:	Receiving
Tester:	Stu Song	Test Result:	Pass

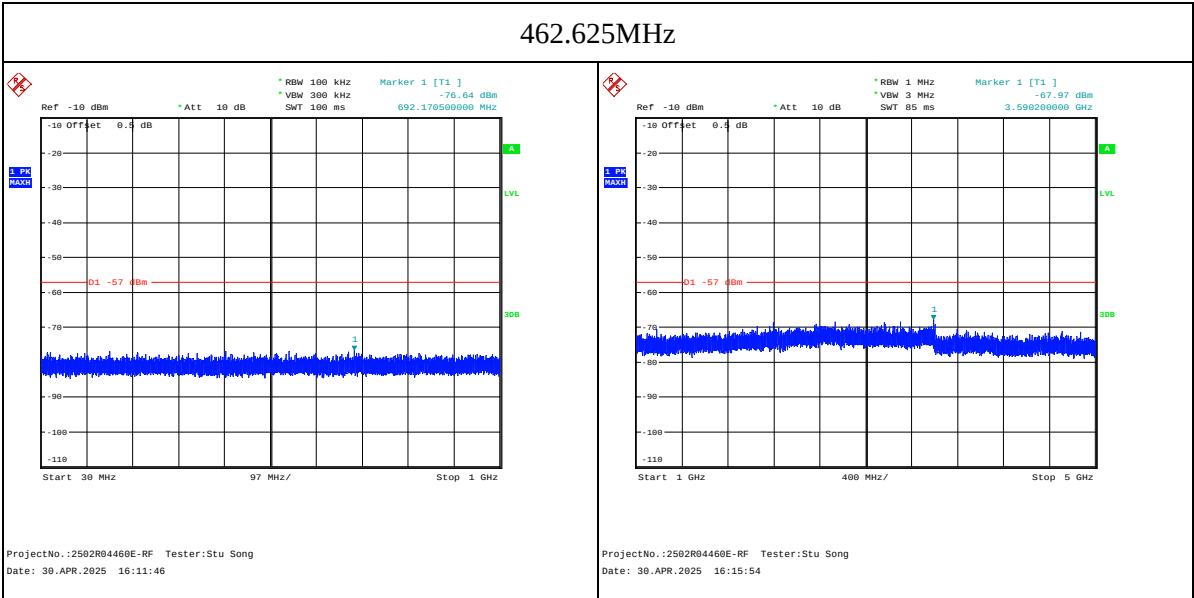
Environmental Conditions:					
Temperature: (°C)	25.3-26.1	Relative Humidity: (%)	58-71	ATM Pressure: (kPa)	100.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200160/026	2024/9/5	2025/9/4
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-03	2024/8/23	2025/8/22

* 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).

Test Data:



ProjectNo.:2502R04460E-RF Tester:Stu Song
Date: 3.JUL.2025 15:25:36

ProjectNo.:2502R04460E-RF Tester:Stu Song
Date: 3.JUL.2025 15:29:22

The image displays two side-by-side screenshots of a spectrum analyzer interface, likely from a software-defined radio (SDR) application. Both screenshots show a frequency spectrum plot with a grid. The left plot is centered around 59.779 MHz, and the right plot is centered around 2.941 GHz. Both plots show a red horizontal line at -57 dBm, indicating a reference level. The left plot shows a blue signal trace with a peak at approximately -76.17 dBm. The right plot shows a blue signal trace with a peak at approximately -69.01 dBm. The interface includes various parameters such as RBW, VBW, and SMT, as well as markers for frequency and power.

Left Screenshot Details:

- Ref: -10 dBm
- *Att: 10 dB
- *RBW: 100 kHz
- *VBW: 300 kHz
- SMT: 100 ms
- Marker 1 [T1]: -76.17 dBm
- 59.77900000 MHz
- Start: 30 MHz
- 97 MHz/
- Stop: 1 GHz

Right Screenshot Details:

- Ref: -10 dBm
- *Att: 10 dB
- *RBW: 1 MHz
- *VBW: 3 MHz
- SMT: 85 ms
- Marker 1 [T1]: -69.01 dBm
- 2.941400000 GHz
- Start: 1 GHz
- 400 MHz/
- Stop: 5 GHz

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2502R04460E-RF-EXP EUT external photographs and 2502R04460E-RF-INP EUT internal photographs.

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2502R04460E-RF-00B-TSP TEST SETUP PHOTOGRAPHS.

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