NVLAP TESTING
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BACL Bay Area Compliance Labs Corp.

TEST REPORT

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Address: **601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China**

Product Name: **EVO Max**

FCC ID: **2AGNTMDX240958B**

Standard(s): **47 CFR Part 15, Subpart C(15.247)**
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

Report Number: **SZ1240322-14909E-RF-00E**

Report Date: **2024/6/13**

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

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	SZ1240322-14909E-RF-00E	Original Report	2024/6/13

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	EVO Max
EUT Model:	MDX
Operation Frequency:	SRD 1.4MHz: 904-926 MHz, 2403.5-2475.5 MHz SRD 10MHz: 909-921 MHz, 2407.5-2471.5 MHz SRD 20MHz: 914-916 MHz, 2412.5-2462.5 MHz
Maximum Average Output Power (Conducted):	SRD-900MHz: QPSK 26.43dBm, 16QAM 27.08dBm SRD-2.4GHz: QPSK 24.24dBm, 16QAM 24.14dBm
Modulation Type:	QPSK ,16QAM
Rated Input Voltage:	DC 14.88V from battery
Serial Number:	2J8R-1(For RF Conducted test) 2J8R-2(For Radiated spurious emission test)
EUT Received Date:	2024/3/29
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
Adapter	Shenzhen Esun Power Technology Co., Ltd	MDX120W	Input: 100-240Vac,50/60Hz,3.0A Output: 17Vdc, 7.06A(Main) USB-C:5.0Vdc,3.0A; 9.0Vdc,3.0A;12.0Vdc, 2.5A Total Output Power:120W Max

1.3 Antenna Information Detail▲

Antenna	Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Chain 0 (Antenna 0)	Autel Robotics Co., Ltd.	FPC	50	902-928MHz	-0.8 dBi
Chain 2 (Antenna 2)		FPC	50	902-928MHz	0.3 dBi
Chain 0 (Antenna 0)	Autel Robotics Co., Ltd.	FPC	50	2.4~2.5GHz	1.9 dBi
Chain 2 (Antenna 2)		FPC	50	2.4~2.5GHz	1.7 dBi

Note:
The system supports 2T4R .
Per KDB 662911 D01 Multiple Transmitter Output v02r01:

SRD-900MHz:
For power measurements:
CDD Mode:
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$
directional gain=0.3dBi +0dB =0.3dBi

For power spectral density (PSD) measurements:
Array Gain = 10 log(N_{ANT}/N_{SS}) dB.
directional gain=0.3dBi +3dB =3.3dBi

SRD-2.4GHz:
For power measurements:
CDD Mode:
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$
directional gain=1.9dBi +0dB =1.9dBi

For power spectral density (PSD) measurements:
Array Gain = 10 log(N_{ANT}/N_{SS}) dB.
directional gain=1.9dBi +3dB =4.9dBi

The design of compliance with §15.203:
☒ Unit uses a permanently attached antenna.
☐ Unit uses a unique coupling to the intentional radiator.
☐ Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

1.4 Equipment Modifications

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

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC Line Conducted Emissions	Not applicable
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliant
§15.247 (a)(2)	Minimum 6 dB 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
§15.203	Antenna Requirement	Compliant
Note 1: For AC line conducted emissions, the maximum output power mode and channel was tested. Note 2: For Radiated Spurious Emissions 9kHz~ 1GHz, the maximum output power mode and channel was tested.		

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency Detail

For SRD-900MHz band 1.4MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	904	13	916
2	905	14	917
3	906	15	918
…	…	…	…
…	…	22	925
11	914	23	926
12	915	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			

Test Channel	Frequency (MHz)
Lowest	904
Middle	916
Highest	926

For SRD-900MHz band 10MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	909	8	916
2	910	9	917
3	911	10	918
4	912	11	919
5	913	12	920
6	914	13	921
7	915	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			

Test Channel	Frequency (MHz)
Lowest	909
Middle	915
Highest	921

For SRD-900MHz band 20MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	914	3	916
2	915	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			

Test Channel	Frequency (MHz)
Lowest	914
Middle	915
Highest	916

For SRD-2.4GHz band 1.4MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2403.5	38	2440.5
2	2404.5	39	2441.5
3	2405.5	40	2442.5
…	…	…	…
…	…	72	2474.5
36	2438.5	73	2475.5
37	2439.5	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			
Test Channel	**Frequency (MHz)**		
Lowest	2403.5		
Middle	2439.5		
Highest	2475.5		

For SRD-2.4GHz band 10MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2407.5	34	2440.5
2	2408.5	35	2441.5
3	2409.5	36	2442.5
…	…	…	…
…	…	64	2470.5
32	2438.5	65	2471.5
33	2439.5	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			
Test Channel	**Frequency (MHz)**		
Lowest	2407.5		
Middle	2439.5		
Highest	2471.5		

For SRD-2.4GHz band 20MHz Bandwidth Mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412.5	27	2438.5
2	2413.5	28	2439.5
3	2414.5	29	2440.5
…	…	…	…
…	…	50	2461.5
25	2436.5	51	2462.5
26	2437.5	/	/
Per section 15.31(m), the below frequencies were performed the test as below:			
Test Channel	**Frequency (MHz)**		
Lowest	2412.5		
Middle	2437.5		
Highest	2462.5		

3.2 EUT Operation Condition

The system was configured for testing in Engineering Mode, which was provided by the manufacturer. The EUT configuration as below:

EUT Exercise Software:	RRTL6.0.0_VCOM

The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:

Test Modes		Data rate	Power Level Setting					
			Lowest Channel		Middle Channel		Highest Channel	
			Chain 0	Chain 2	Chain 0	Chain 2	Chain 0	Chain 2
900MHz Band QPSK	1.4M	120kbps	60	60	65	65	62	62
	10M	19Mbps	40	40	40	40	40	40
	20M	38Mbps	40	40	40	40	40	40
900MHz Band 16QAM	1.4M	120kbps	60	60	65	65	62	62
	10M	19Mbps	40	40	40	40	40	40
	20M	38Mbps	40	40	40	40	40	40
2.4GHz Band QPSK	1.4M	120kbps	43	43	43	43	43	43
	10M	19Mbps	40	40	40	40	50	50
	20M	38Mbps	57	57	50	50	50	50
2.4GHz Band 16QAM	1.4M	120kbps	43	43	43	43	43	43
	10M	19Mbps	40	40	40	40	50	50
	20M	38Mbps	57	57	50	50	50	50

3.3 Support Equipment List and Details

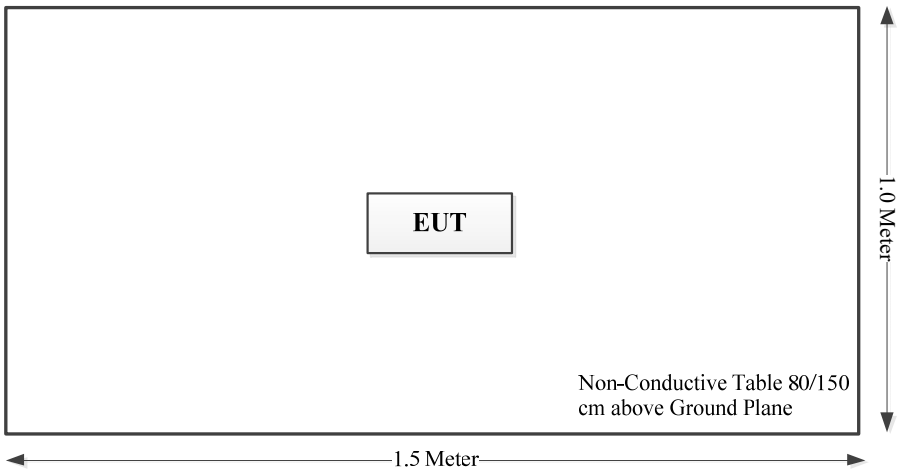
Manufacturer	Description	Model	Serial Number
/	/	/	/

3.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

3.5 Block Diagram of Test Setup

Radiated Spurious Emissions:



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
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
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
Unwanted Emissions, conducted	±2.47 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

4.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBµV)	
Frequency of emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

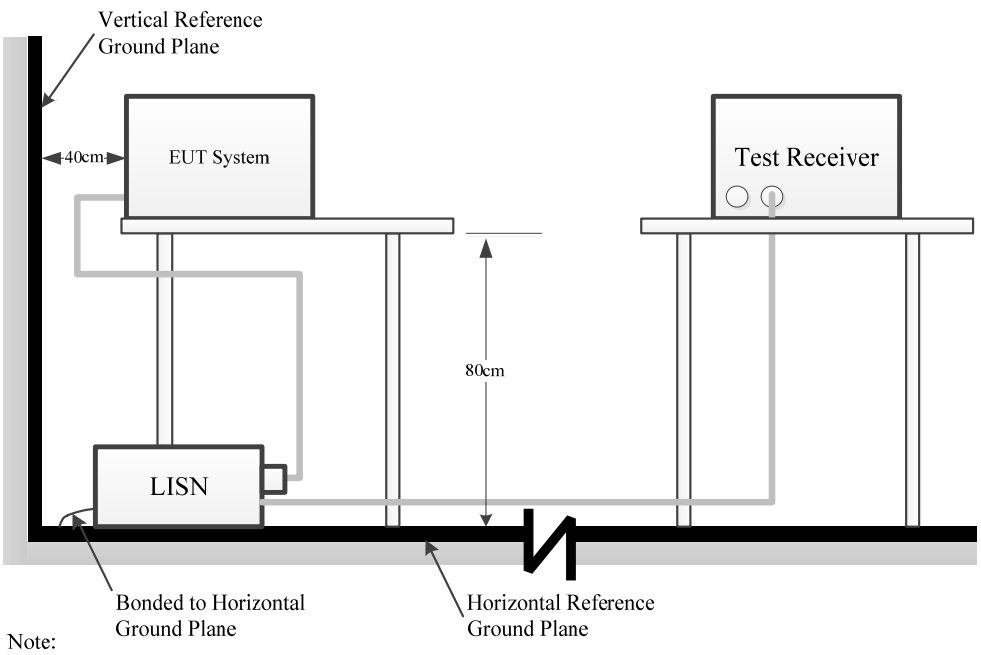
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtainig their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

4.1.2 EUT Setup



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

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

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

4.1.3 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

4.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

4.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = attenuation caused by cable loss + voltage division factor of AMN

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

4.1.6 Test Result

Please refer to section 5.1.

4.2 Radiation Spurious Emissions

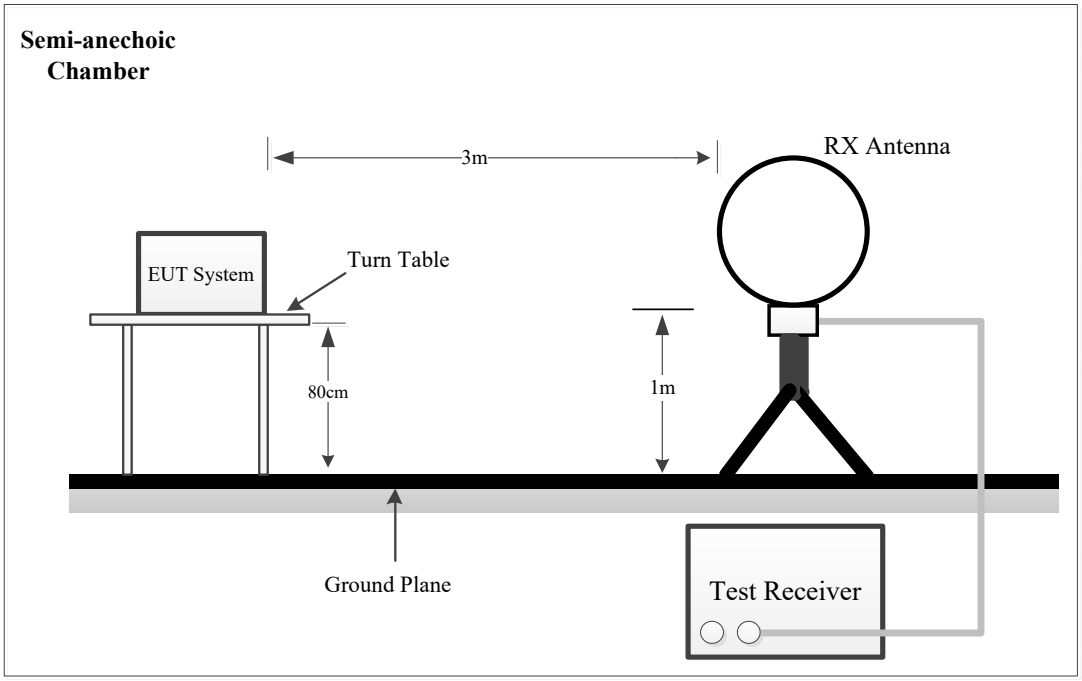
4.2.1 Applicable Standard

FCC §15.247 (d);

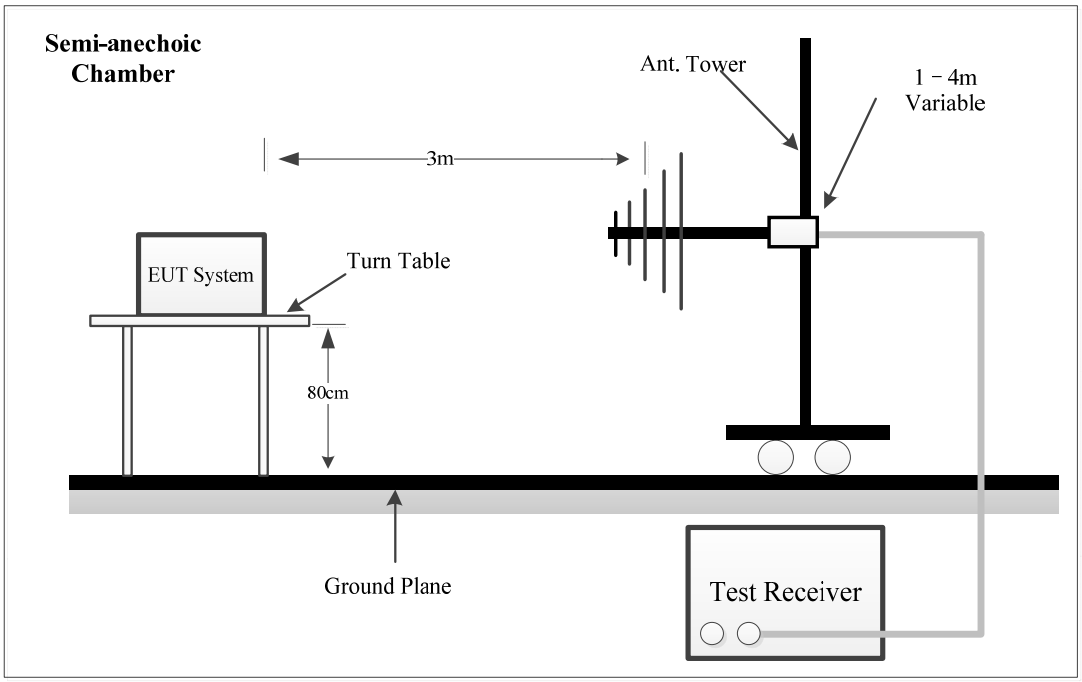
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

4.2.2 EUT Setup

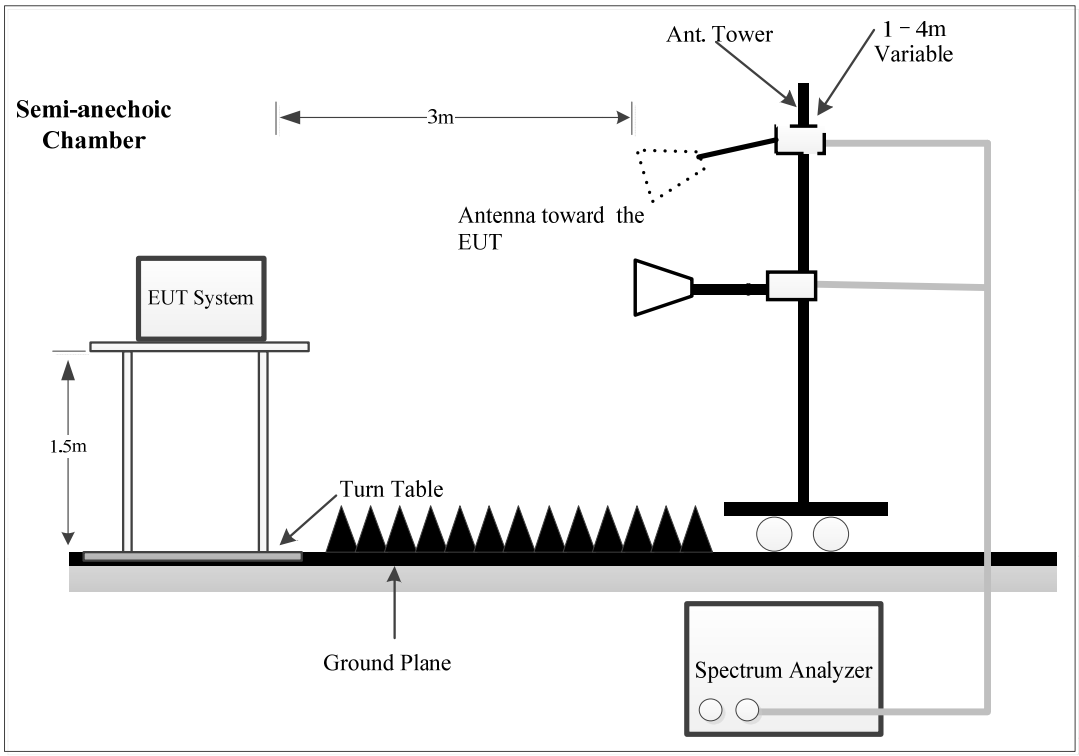
9kHz~30MHz:



30MHz~1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. 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.

For 9kHz-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.

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

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

9kHz-1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W
9 kHz – 150 kHz	QP/AV	200 Hz	1 kHz	200 Hz
150 kHz – 30 MHz	QP/AV	9 kHz	30 kHz	9 kHz
30 MHz – 1000 MHz	PK	100 kHz	300 kHz	/
	QP	/	/	120 kHz

1GHz- 25GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	⩾1/T

Note: T is minimum transmission duration

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

If the maximized peak measured value complies with under the Average limit, then it is unnecessary to perform an Average measurement.

4.2.4 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 9 kHz -1 GHz, except 9-90 kHz, 110-490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

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 Result

Please refer to section 5.2.

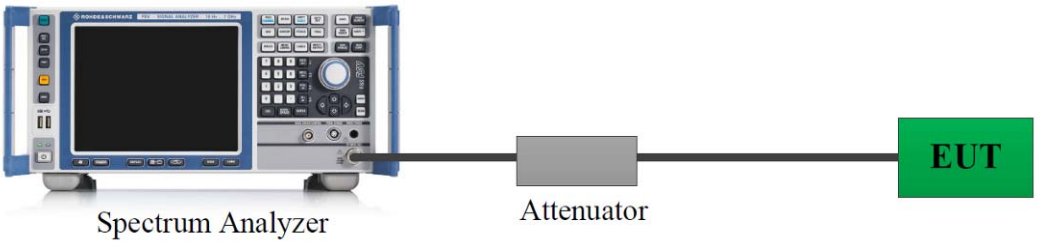
4.3 Minimum 6 dB Emission Bandwidth

4.3.1 Applicable Standard

FCC §15.247 (a)(2)

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.

4.3.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer.

4.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

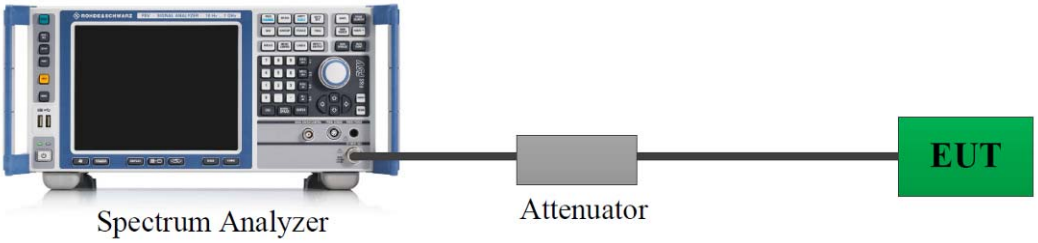
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.4 Test Result

Please refer to section 5.3.

4.4 99% Occupied Bandwidth

4.4.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer.

4.4.2 Test Procedure

According to ANSI C63.10-2013 Section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.4.3 Test Result

Please refer to section 5.4.

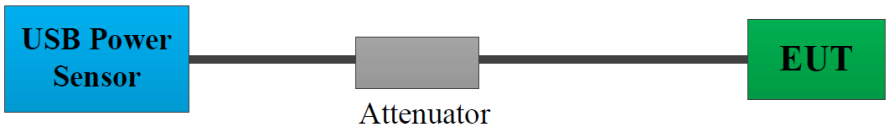
4.5 Maximum Conducted Output Power

4.5.1 Applicable Standard

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.

4.5.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The cable loss of this RF cable was offset into the setting of test equipment, which was provided by manufacturer▲.

4.5.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

a) Set the EUT in transmitting mode.
b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
c) Add a correction factor to the display.
d) Set the power meter to test peak output power, record the result.

According to ANSI C63.10-2013 Section 11.9.2.3.2

Method AVGPM-G is a measurement using a gated RF average power meter.

Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

4.5.4 Test Result

Please refer to section 5.5.

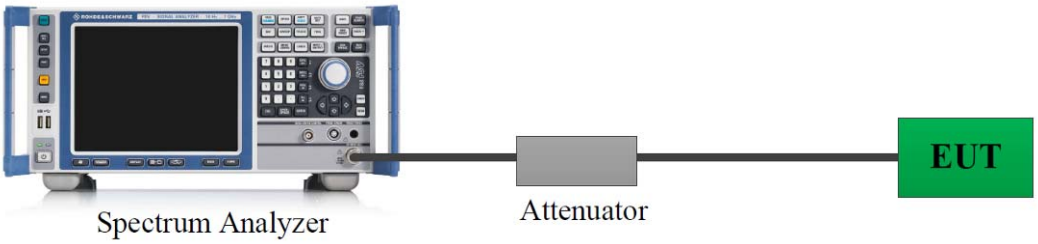
4.6 Maximum Power Spectral Density

4.6.1 Applicable Standard

FCC §15.247 (e)

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.

4.6.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The cable loss of this RF cable was offset into the setting of test equipment, which was provided by manufacturer▲.

4.6.3 Test Procedure

Duty cycle ≥98%

According to ANSI C63.10-2013 Section 11.10.3

Duty cycle <98%, duty cycle variations are less than ±2%

According to ANSI C63.10-2013 Section 11.10.5

Duty cycle <98%, duty cycle variations exceed ±2%

According to ANSI C63.10-2013 Section 11.10.7

4.6.4 Test Result

Please refer to section 5.6.

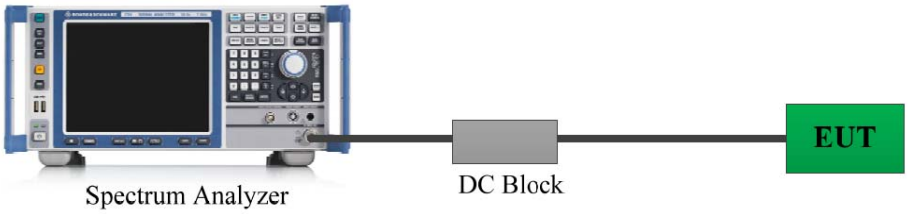
4.7 100 kHz Bandwidth of Frequency Band Edge

4.7.1 Applicable Standard

FCC §15.247 (d);

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)).

4.7.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer.

4.7.3 Test Procedure

According to ANSI C63.10-2013 Section 11.11

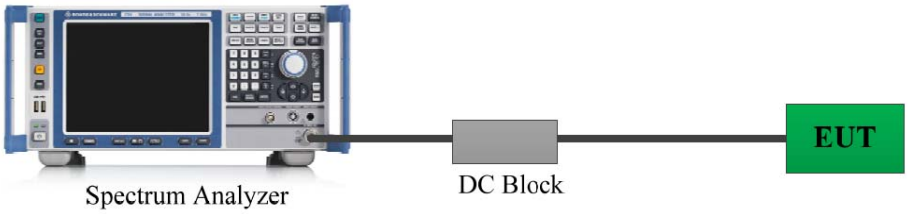
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

4.7.4 Test Result

Please refer to section 5.7.

4.8 Duty Cycle

4.8.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer.

4.8.2 Test Procedure

According to ANSI C63.10-2013 Section 11.6

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
4) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)

4.8.3 Judgment

Report Only. Please refer to section 5.8.

4.9 Antenna Requirement

4.9.1 Applicable Standard

FCC §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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.9.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.3.

5. Test DATA AND RESULTS

5.1 AC Line Conducted Emissions

Not Applicable, the device was powered by battery when operating.

5.2 Radiation Spurious Emissions

Serial Number:	2J8R-2	Test Date:	Below 1GHz: 2024/5/5~2024/5/6 Above 1GHz: 2024/5/8~2024/5/9
Test Site:	Chamber 10m, Chamber B	Test Mode:	Transmitting
Tester:	Zoo Zou, Leo Xiao, Nat Zhou	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	22.5~24.5	Relative Humidity: %	37~69	ATM Pressure: (kPa)	100.3~100.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
9kHz~1000MHz					
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/21	2026/10/20
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	2023/8/1	2024/7/31
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-04	2023/8/1	2024/7/31
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2023/8/1	2024/7/31
Sonoma	Amplifier	310N	185914	2023/8/1	2024/7/31
R&S	EMI Test Receiver	ESCI	101121	2023/10/18	2024/10/17
E-Microwave	Band Rejection Filter	OBF-ZP-902-928-SMAF	OE01902428	2024/6/11	2025/6/11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Above 1GHz					
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2024/9/6
R&S	Spectrum Analyzer	FSV40	101944	2023/10/18	2024/10/17
Xinhang Macrowave	Coaxial Cable	XH750A-N/J-SMA/J-10M	20231117004 #0001	2023/11/17	2024/11/16
Audix	Test Software	E3	191218 (V9)	N/A	N/A
AH	Preamplifier	PAM-0118P	469	2023/8/19	2024/8/18
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-03 1304	2023/2/22	2026/2/21
Xinhang Macrowave	Coaxial Cable	XH360A-2.92/J-2.92/J-6M-A	20231208001 #0001	2023/12/11	2024/12/10
AH	Preamplifier	PAM-1840VH	191	2023/9/7	2024/9/6
E-Microwave	Band Rejection Filter	OBSF-2400-2483.5-S	OE01601525	2024/2/21	2025/2/20
Micro-tronics	High Pass Filter	HPM50111	G217	2023/12/1	2024/11/30

** 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:

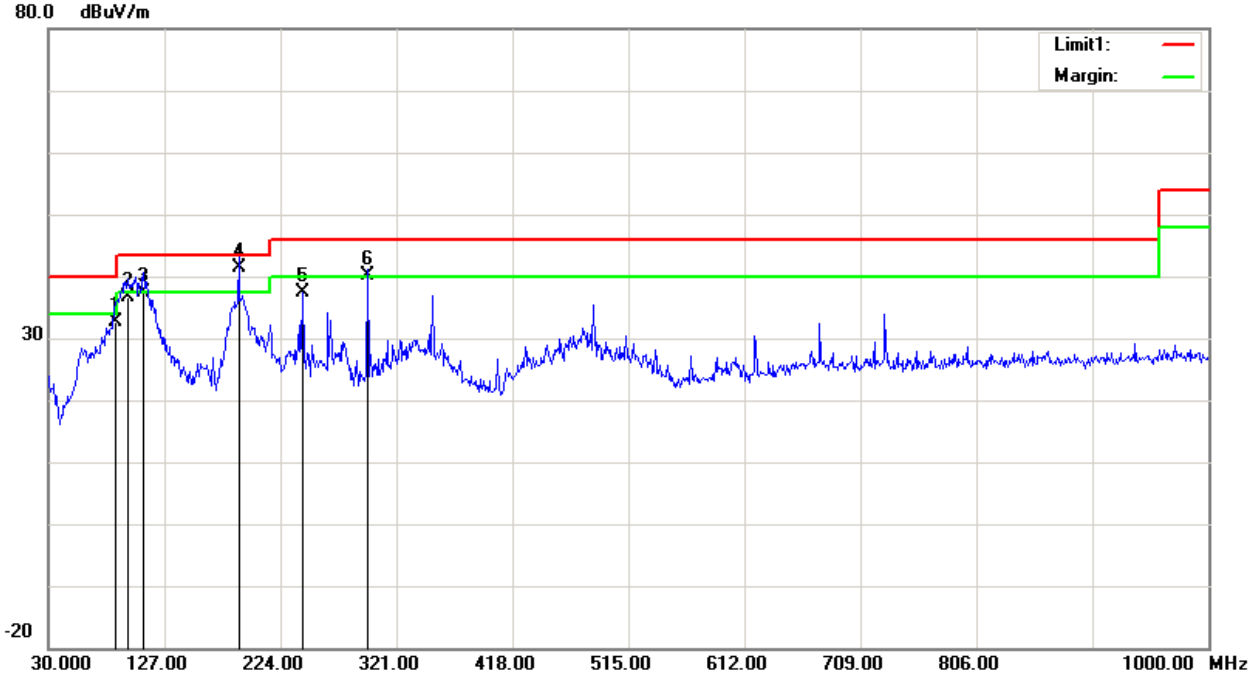
Please refer to the below table and plots.

1) 9kHz~30MHz

For SRD-900MHz,16QAM 10M mode 921MHz was tested. For SRD-2.4GHz,QPSK 1.4M mode 2403.5MHz was tested. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

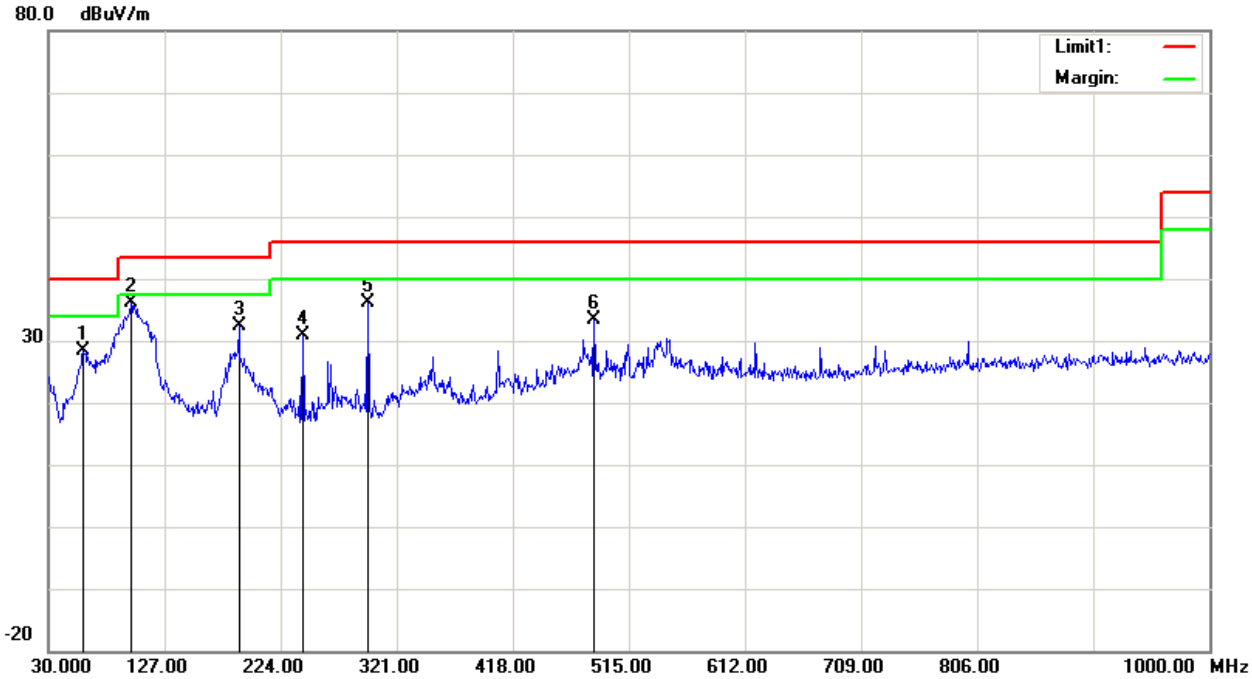
2) 30MHz-1GHz
2.4G SRD

Project No:	SZ1240322-14909E-RF
Test Engineer:	Zoo Zou
Test Date:	2024-5-5
Polarization:	Horizontal
Test Mode:	Transmitting
Power Source:	DC14.88V
Note	QPSK 1.4M mode 2403.5MHz



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	86.2600	49.43	QP	-16.73	32.70	40.00	7.30
2	95.9600	52.22	QP	-15.62	36.60	43.50	6.90
3	109.5400	48.87	QP	-11.47	37.40	43.50	6.10
4	189.0800	53.59	QP	-12.19	41.40	43.50	2.10
5	242.4300	49.05	peak	-11.67	37.38	46.00	8.62
6	296.7500	49.81	QP	-9.61	40.20	46.00	5.80

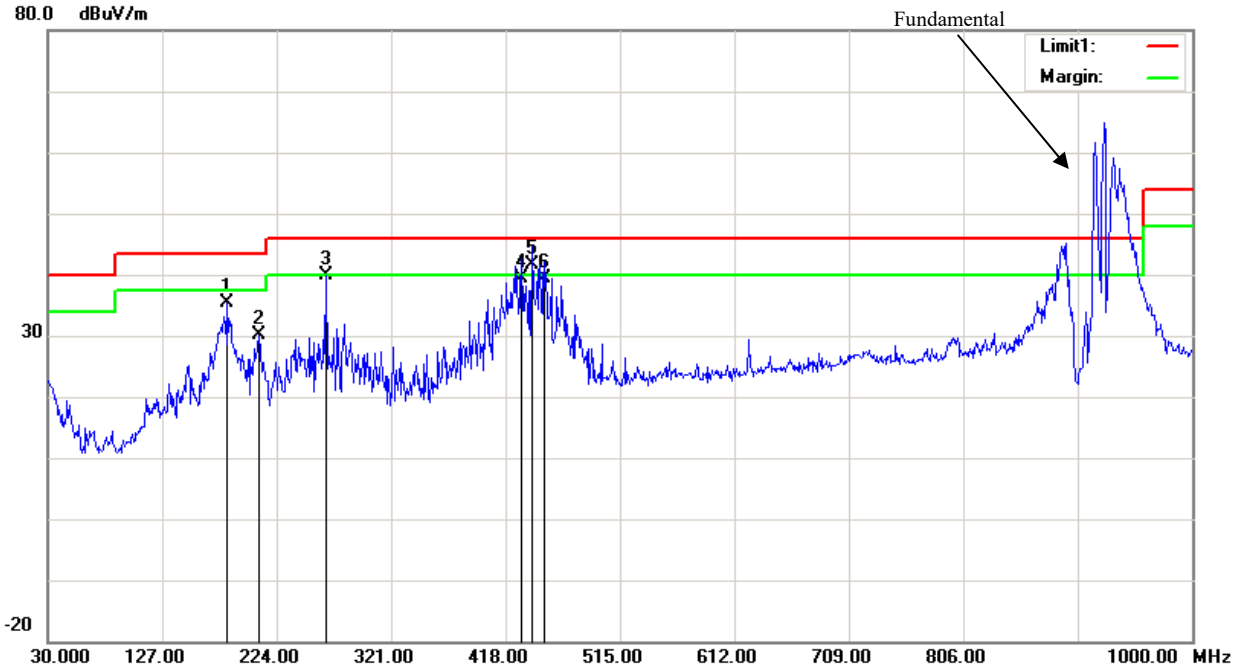
Project No:	SZ1240322-14909E-RF
Test Engineer:	Zoo Zou
Test Date:	2024-5-5
Polarization:	Vertical
Test Mode:	Transmitting
Power Source:	DC14.88V
Note	QPSK 1.4M mode 2403.5MHz



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	59.1000	45.00	peak	-16.70	28.30	40.00	11.70
2	98.8700	50.78	peak	-14.68	36.10	43.50	7.40
3	189.0800	44.57	peak	-12.19	32.38	43.50	11.12
4	242.4300	42.53	peak	-11.67	30.86	46.00	15.14
5	296.7500	45.74	peak	-9.61	36.13	46.00	9.87
6	485.9000	37.63	peak	-4.36	33.27	46.00	12.73

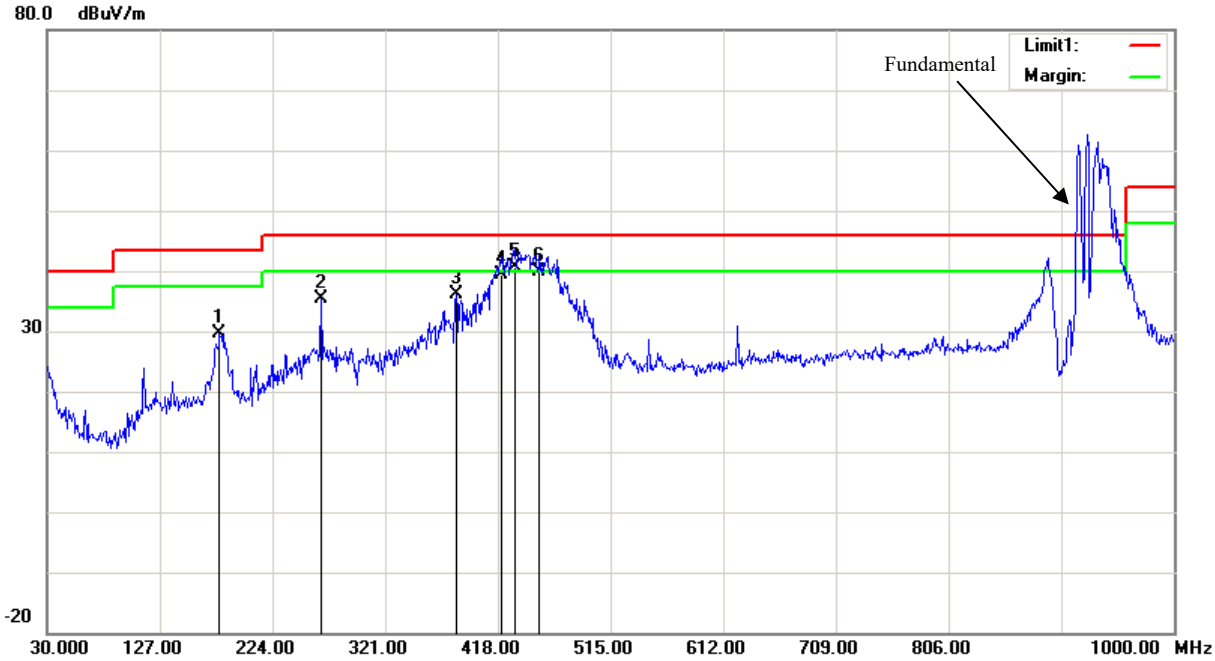
900MHz SRD

Project No:	SZ1240322-14909E-RF
Test Engineer:	Zoo Zou
Test Date:	2024-5-6
Polarization:	Horizontal
Test Mode:	Transmitting
Power Source:	DC14.88V
Note:	16QAM 10M mode 921MHz



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	182.2900	47.61	peak	-12.26	35.35	43.50	8.15
2	208.4800	42.48	peak	-12.39	30.09	43.50	13.41
3	265.7100	50.16	peak	-10.39	39.77	46.00	6.23
4	431.5800	45.53	QP	-6.03	39.50	46.00	6.50
5	440.3100	47.26	QP	-5.66	41.60	46.00	4.40
6	450.9800	44.73	QP	-5.43	39.30	46.00	6.70

Project No:	SZ1240322-14909E-RF
Test Engineer:	Zoo Zou
Test Date:	2024-5-6
Polarization:	Vertical
Test Mode:	Transmitting
Power Source:	DC14.88V
Note:	16QAM 10M mode 921MHz



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	178.4100	41.87	peak	-12.21	29.66	43.50	13.84
2	265.7100	45.76	peak	-10.39	35.37	46.00	10.63
3	382.1100	43.68	peak	-7.61	36.07	46.00	9.93
4	420.9100	45.66	QP	-6.26	39.40	46.00	6.60
5	432.5500	46.70	QP	-6.00	40.70	46.00	5.30
6	453.8900	45.08	QP	-5.28	39.80	46.00	6.20

3) 1-25GHz:
The maximum output power mode was tested.
2.4G SRD(Test with QPSK mode)
1.4MHz

Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBμV	PK/QP/AV	H/V	dB/m	dBμV/m	dBμV/m	dB
Low channel 2403.5 MHz							
2390.00	28.36	PK	H	28.57	56.93	74.00	17.07
2390.00	18.40	AV	H	28.57	46.97	54.00	7.03
2390.00	29.27	PK	V	28.57	57.84	74.00	16.16
2390.00	19.61	AV	V	28.57	48.18	54.00	5.82
4807.00	65.00	PK	H	-10.11	54.89	74.00	19.11
4807.00	55.22	AV	H	-10.11	45.11	54.00	8.89
4807.00	66.18	PK	V	-10.11	56.07	74.00	17.93
4807.00	55.39	AV	V	-10.11	45.28	54.00	8.72
7210.50	47.32	PK	H	-5.48	41.84	74.00	32.16
7210.50	37.26	AV	H	-5.48	31.78	54.00	22.22
7210.50	47.44	PK	V	-5.48	41.96	74.00	32.04
7210.50	37.70	AV	V	-5.48	32.22	54.00	21.78
Middle channel 2439.5 MHz							
4879.00	64.84	PK	H	-10.01	54.83	74.00	19.17
4879.00	54.71	AV	H	-10.01	44.70	54.00	9.30
4879.00	65.13	PK	V	-10.01	55.12	74.00	18.88
4879.00	55.08	AV	V	-10.01	45.07	54.00	8.93
7318.50	47.89	PK	H	-5.03	42.86	74.00	31.14
7318.50	37.31	AV	H	-5.03	32.28	54.00	21.72
7318.50	47.42	PK	V	-5.03	42.39	74.00	31.61
7318.50	37.76	AV	V	-5.03	32.73	54.00	21.27
High channel 2475.5 MHz							
2483.50	28.56	PK	H	28.95	57.51	74.00	16.49
2483.50	18.29	AV	H	28.95	47.24	54.00	6.76
2483.50	30.31	PK	V	28.95	59.26	74.00	14.74
2483.50	20.28	AV	V	28.95	49.23	54.00	4.77
4951.00	66.15	PK	H	-9.99	56.16	74.00	17.84
4951.00	58.30	AV	H	-9.99	48.31	54.00	5.69
4951.00	66.40	PK	V	-9.99	56.41	74.00	17.59
4951.00	58.82	AV	V	-9.99	48.83	54.00	**5.17**
7426.50	51.96	PK	H	-4.56	47.40	74.00	26.60
7426.50	41.10	AV	H	-4.56	36.54	54.00	17.46
7426.50	55.14	PK	V	-4.56	50.58	74.00	23.42
7426.50	45.89	AV	V	-4.56	41.33	54.00	12.67

10MHz

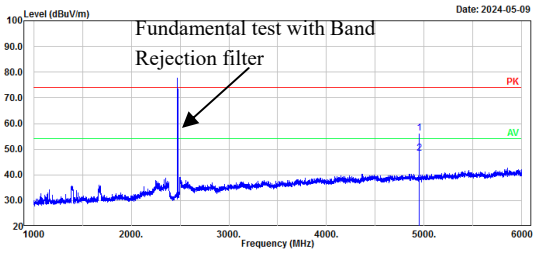
Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
Low channel 2407.5 MHz							
2390.00	29.47	PK	H	28.57	58.04	74.00	15.96
2390.00	16.13	AV	H	28.57	44.70	54.00	9.30
2390.00	32.04	PK	V	28.57	60.61	74.00	13.39
2390.00	19.07	AV	V	28.57	47.64	54.00	6.36
4815.00	64.36	PK	H	-10.1	54.26	74.00	19.74
4815.00	54.64	AV	H	-10.1	44.54	54.00	9.46
4815.00	64.11	PK	V	-10.1	54.01	74.00	19.99
4815.00	54.49	AV	V	-10.1	44.39	54.00	9.61
7222.50	47.91	PK	H	-5.45	42.46	74.00	31.54
7222.50	37.14	AV	H	-5.45	31.69	54.00	22.31
7222.50	47.53	PK	V	-5.45	42.08	74.00	31.92
7222.50	37.12	AV	V	-5.45	31.67	54.00	22.33
Middle channel 2439.5 MHz							
4879.00	62.65	PK	H	-10.01	52.64	74.00	21.36
4879.00	52.36	AV	H	-10.01	42.35	54.00	11.65
4879.00	62.28	PK	V	-10.01	52.27	74.00	21.73
4879.00	52.53	AV	V	-10.01	42.52	54.00	11.48
7318.50	47.77	PK	H	-5.03	42.74	74.00	31.26
7318.50	37.86	AV	H	-5.03	32.83	54.00	21.17
7318.50	47.21	PK	V	-5.03	42.18	74.00	31.82
7318.50	37.72	AV	V	-5.03	32.69	54.00	21.31
High channel 2471.5 MHz							
2483.50	27.50	PK	H	28.95	56.45	74.00	17.55
2483.50	17.31	AV	H	28.95	46.26	54.00	7.74
2483.50	34.85	PK	V	28.95	63.80	74.00	10.20
2483.50	21.42	AV	V	28.95	50.37	54.00	3.63
4943.00	60.66	PK	H	-9.98	50.68	74.00	23.32
4943.00	50.63	AV	H	-9.98	40.65	54.00	13.35
4943.00	60.37	PK	V	-9.98	50.39	74.00	23.61
4943.00	50.51	AV	V	-9.98	40.53	54.00	13.47
7414.50	47.64	PK	H	-4.62	43.02	74.00	30.98
7414.50	37.78	AV	H	-4.62	33.16	54.00	20.84
7414.50	47.84	PK	V	-4.62	43.22	74.00	30.78
7414.50	37.87	AV	V	-4.62	33.25	54.00	20.75

20MHz

Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
Low channel 2412.5 MHz							
2390.00	27.90	PK	H	28.57	56.47	74.00	17.53
2390.00	17.42	AV	H	28.57	45.99	54.00	8.01
2390.00	33.47	PK	V	28.57	62.04	74.00	11.96
2390.00	21.35	AV	V	28.57	49.92	54.00	4.08
4825.00	58.72	PK	H	-10.09	48.63	74.00	25.37
4825.00	48.87	AV	H	-10.09	38.78	54.00	15.22
4825.00	58.53	PK	V	-10.09	48.44	74.00	25.56
4825.00	48.56	AV	V	-10.09	38.47	54.00	15.53
7237.50	47.55	PK	H	-5.38	42.17	74.00	31.83
7237.50	37.33	AV	H	-5.38	31.95	54.00	22.05
7237.50	47.80	PK	V	-5.38	42.42	74.00	31.58
7237.50	37.58	AV	V	-5.38	32.20	54.00	21.80
Middle channel 2437.5 MHz							
4875.00	58.20	PK	H	-10.02	48.18	74.00	25.82
4875.00	48.88	AV	H	-10.02	38.86	54.00	15.14
4875.00	58.24	PK	V	-10.02	48.22	74.00	25.78
4875.00	48.17	AV	V	-10.02	38.15	54.00	15.85
7312.50	47.78	PK	H	-5.05	42.73	74.00	31.27
7312.50	37.57	AV	H	-5.05	32.52	54.00	21.48
7312.50	47.24	PK	V	-5.05	42.19	74.00	31.81
7312.50	37.81	AV	V	-5.05	32.76	54.00	21.24
High channel 2462.5 MHz							
2483.50	27.70	PK	H	28.95	56.65	74.00	17.35
2483.50	16.43	AV	H	28.95	45.38	54.00	8.62
2483.50	32.55	PK	V	28.95	61.50	74.00	12.50
2483.50	22.04	AV	V	28.95	50.99	54.00	3.01
4925.00	58.14	PK	H	-9.98	48.16	74.00	25.84
4925.00	48.08	AV	H	-9.98	38.10	54.00	15.90
4925.00	59.32	PK	V	-9.98	49.34	74.00	24.66
4925.00	49.06	AV	V	-9.98	39.08	54.00	14.92
7387.50	47.69	PK	H	-4.73	42.96	74.00	31.04
7387.50	37.24	AV	H	-4.73	32.51	54.00	21.49
7387.50	47.04	PK	V	-4.73	42.31	74.00	31.69
7387.50	37.48	AV	V	-4.73	32.75	54.00	21.25

QPSK 1.4M, High Channel, Horizontal

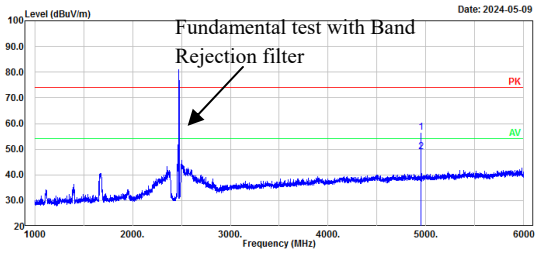
Project No.: SZ1240322-14909E-RF Serial No.: 2J8R-2
Polarization: Horizontal Tester: Leo Xiao
Test Mode: Transmitting
Note: QPSK_1.4M_high channel 2475.5MHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4951.00	66.15	-9.99	56.16	74.00	17.84	Peak
2	4951.00	58.30	-9.99	48.31	54.00	5.69	Average

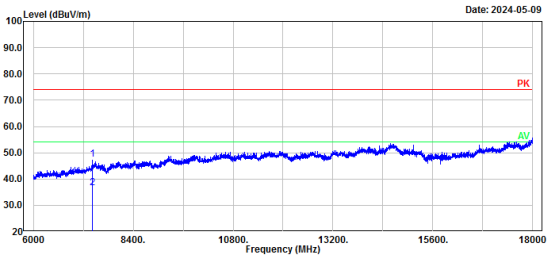
QPSK 1.4M, High Channel, Vertical

Project No.: SZ1240322-14909E-RF Serial No.: 2J8R-2
Polarization: Vertical Tester: Leo Xiao
Test Mode: Transmitting
Note: QPSK_1.4M_high channel 2475.5MHz



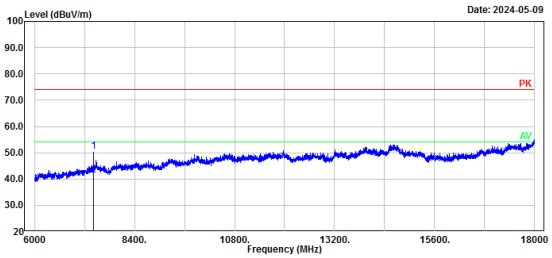
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4951.00	66.40	-9.99	56.41	74.00	17.59	Peak
2	4951.00	58.82	-9.99	48.83	54.00	5.17	Average

Project No.: SZ1240322-14909E-RF Serial No.: 2J8R-2
Polarization: Horizontal Tester: Leo Xiao
Test Mode: Transmitting
Note: QPSK_1.4M_high channel 2475.5MHz

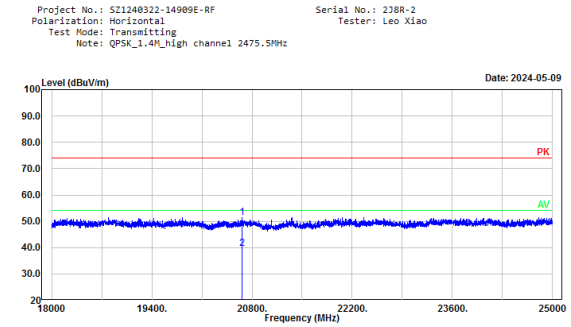
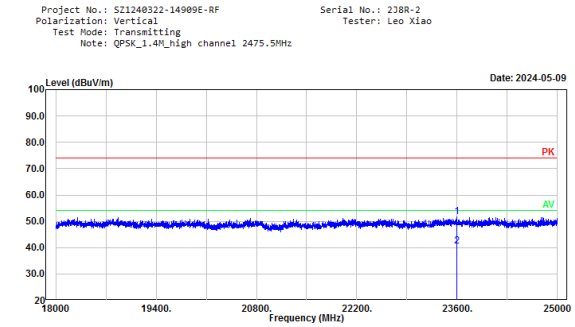


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7426.50	51.96	-4.56	47.40	74.00	26.60	Peak
2	7426.50	41.10	-4.56	36.54	54.00	17.46	Average

Project No.: SZ1240322-14909E-RF Serial No.: 2J8R-2
Polarization: Vertical Tester: Leo Xiao
Test Mode: Transmitting
Note: QPSK_1.4M_high channel 2475.5MHz

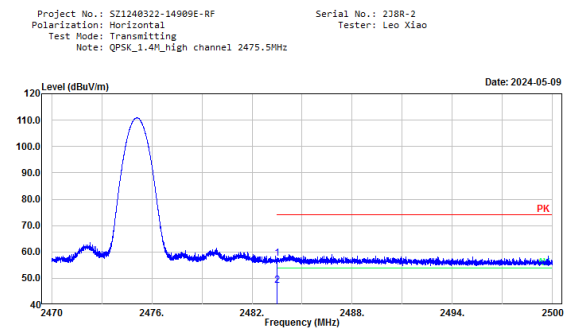
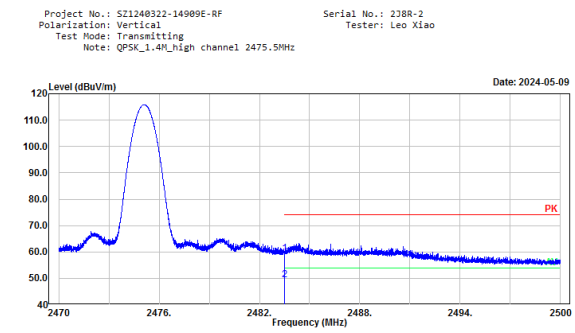


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7426.50	55.14	-4.56	50.58	74.00	23.42	Peak
2	7426.50	45.89	-4.56	41.33	54.00	12.67	Average

QPSK 1.4M, High Channel, Horizontal	QPSK 1.4M, High Channel, Vertical
	

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	20655.80	45.82	5.70	51.52	74.00	22.48	Peak
2	20655.80	33.78	5.70	39.48	54.00	14.52	Average

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	23595.80	43.06	8.73	51.79	74.00	22.21	Peak
2	23595.80	31.85	8.73	40.58	54.00	13.42	Average

QPSK 1.4M, High Channel, Bandedge, Horizontal	QPSK 1.4M, High Channel, Bandedge, Vertical
	

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	28.56	28.95	57.51	74.00	16.49	Peak
2	2483.50	18.29	28.95	47.24	54.00	6.76	Average

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	30.31	28.95	59.26	74.00	14.74	Peak
2	2483.50	20.28	28.95	49.23	54.00	4.77	Average

900MHz SRD(Test with 16QAM mode):
1.4MHz

Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
Low channel 904 MHz							
1808.00	74.26	PK	H	-16.6	57.66	74.00	16.34
1808.00	68.23	AV	H	-16.6	51.63	54.00	2.37
1808.00	73.71	PK	V	-16.6	57.11	74.00	16.89
1808.00	67.38	AV	V	-16.6	50.78	54.00	3.22
2712.00	72.05	PK	H	-13.5	58.55	74.00	15.45
2712.00	62.13	AV	H	-13.5	48.63	54.00	5.37
2712.00	70.45	PK	V	-13.5	56.95	74.00	17.05
2712.00	61.30	AV	V	-13.5	47.80	54.00	6.20
Middle channel 916 MHz							
1832.00	73.47	PK	H	-16.51	56.96	74.00	17.04
1832.00	66.38	AV	H	-16.51	49.87	54.00	4.13
1832.00	73.92	PK	V	-16.51	57.41	74.00	16.59
1832.00	65.15	AV	V	-16.51	48.64	54.00	5.36
2748.00	70.53	PK	H	-13.44	57.09	74.00	16.91
2748.00	61.61	AV	H	-13.44	48.17	54.00	5.83
2748.00	70.98	PK	V	-13.44	57.54	74.00	16.46
2748.00	61.36	AV	V	-13.44	47.92	54.00	6.08
High channel 926 MHz							
1852.00	74.88	PK	H	-16.44	58.44	74.00	15.56
1852.00	65.22	AV	H	-16.44	48.78	54.00	5.22
1852.00	74.52	PK	V	-16.44	58.08	74.00	15.92
1852.00	64.62	AV	V	-16.44	48.18	54.00	5.82
2778.00	69.88	PK	H	-13.39	56.49	74.00	17.51
2778.00	60.21	AV	H	-13.39	46.82	54.00	7.18
2778.00	67.51	PK	V	-13.39	54.12	74.00	19.88
2778.00	58.88	AV	V	-13.39	45.49	54.00	8.51

10MHz

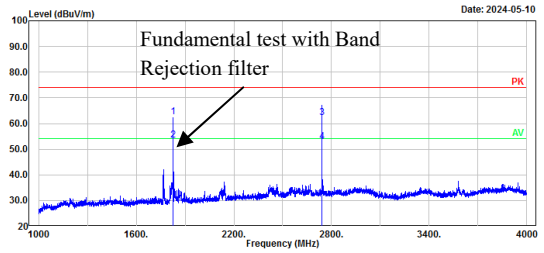
Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
Low channel 909 MHz							
1818.00	73.80	PK	H	-16.56	57.24	74.00	16.76
1818.00	63.72	AV	H	-16.56	47.16	54.00	6.84
1818.00	67.22	PK	V	-16.56	50.66	74.00	23.34
1818.00	57.44	AV	V	-16.56	40.88	54.00	13.12
2727.00	73.60	PK	H	-13.48	60.12	74.00	13.88
2727.00	63.86	AV	H	-13.48	50.38	54.00	3.62
2727.00	65.94	PK	V	-13.48	52.46	74.00	21.54
2727.00	55.24	AV	V	-13.48	41.76	54.00	12.24
Middle channel 915 MHz							
1830.00	71.64	PK	H	-16.51	55.13	74.00	18.87
1830.00	61.83	AV	H	-16.51	45.32	54.00	8.68
1830.00	67.78	PK	V	-16.51	51.27	74.00	22.73
1830.00	57.57	AV	V	-16.51	41.06	54.00	12.94
2745.00	71.79	PK	H	-13.45	58.34	74.00	15.66
2745.00	61.46	AV	H	-13.45	48.01	54.00	5.99
2745.00	65.36	PK	V	-13.45	51.91	74.00	22.09
2745.00	55.90	AV	V	-13.45	42.45	54.00	11.55
High channel 921 MHz							
1842.00	71.62	PK	H	-16.47	55.15	74.00	18.85
1842.00	61.52	AV	H	-16.47	45.05	54.00	8.95
1842.00	67.73	PK	V	-16.47	51.26	74.00	22.74
1842.00	57.54	AV	V	-16.47	41.07	54.00	12.93
2763.00	70.75	PK	H	-13.41	57.34	74.00	16.66
2763.00	60.56	AV	H	-13.41	47.15	54.00	6.85
2763.00	65.48	PK	V	-13.41	52.07	74.00	21.93
2763.00	55.89	AV	V	-13.41	42.48	54.00	11.52

20MHz

Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
Low channel 914 MHz							
1828.00	79.17	PK	H	-16.52	62.65	74.00	11.35
1828.00	70.14	AV	H	-16.52	53.62	54.00	0.38
1828.00	75.09	PK	V	-16.52	58.57	74.00	15.43
1828.00	65.75	AV	V	-16.52	49.23	54.00	4.77
2742.00	75.68	PK	H	-13.45	62.23	74.00	11.77
2742.00	66.35	AV	H	-13.45	52.90	54.00	1.10
2742.00	70.56	PK	V	-13.45	57.11	74.00	16.89
2742.00	61.05	AV	V	-13.45	47.60	54.00	6.40
Middle channel 915 MHz							
1830.00	78.25	PK	H	-16.51	61.74	74.00	12.26
1830.00	69.22	AV	H	-16.51	52.71	54.00	1.29
1830.00	73.51	PK	V	-16.51	57.00	74.00	17.00
1830.00	63.33	AV	V	-16.51	46.82	54.00	7.18
2745.00	75.32	PK	H	-13.45	61.87	74.00	12.13
2745.00	64.68	AV	H	-13.45	51.23	54.00	2.77
2745.00	70.18	PK	V	-13.45	56.73	74.00	17.27
2745.00	60.15	AV	V	-13.45	46.70	54.00	7.30
High channel 916MHz							
1832.00	78.16	PK	H	-16.51	61.65	74.00	12.35
1832.00	68.21	AV	H	-16.51	51.70	54.00	2.30
1832.00	75.39	PK	V	-16.51	58.88	74.00	15.12
1832.00	64.57	AV	V	-16.51	48.06	54.00	5.94
2748.00	75.15	PK	H	-13.44	61.71	74.00	12.29
2748.00	64.96	AV	H	-13.44	51.52	54.00	2.48
2748.00	70.12	PK	V	-13.44	56.68	74.00	17.32
2748.00	60.38	AV	V	-13.44	46.94	54.00	7.06

20M Low Channel, Horizontal

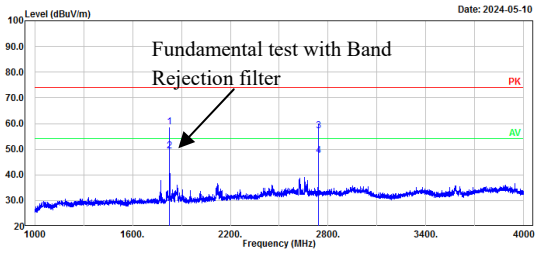
Project No.: SZ1240322-14909E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz
Serial No.: 2J8R-2
Tester: Nat Zhou



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1828.00	79.17	-16.52	62.65	74.00	11.35	Peak
2	1828.00	70.14	-16.52	53.62	54.00	0.38	Average
3	2742.00	75.68	-13.45	62.23	74.00	11.77	Peak
4	2742.00	66.35	-13.45	52.90	54.00	1.10	Average

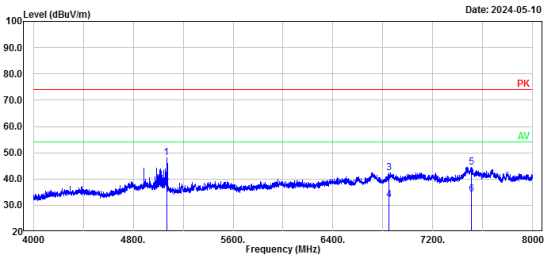
20M Low Channel, Vertical

Project No.: SZ1240322-14909E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz
Serial No.: 2J8R-2
Tester: Nat Zhou



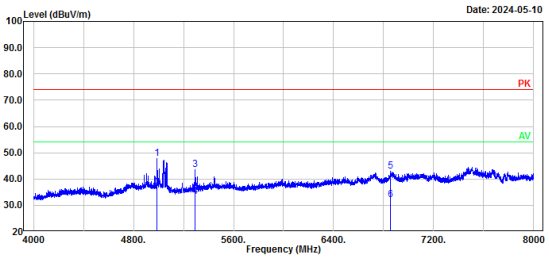
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1828.00	75.09	-16.52	58.57	74.00	15.43	Peak
2	1828.00	65.75	-16.52	49.23	54.00	4.77	Average
3	2742.00	70.56	-13.45	57.11	74.00	16.89	Peak
4	2742.00	61.05	-13.45	47.60	54.00	6.40	Average

Project No.: SZ1240322-14909E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz
Serial No.: 2J8R-2
Tester: Nat Zhou



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5066.40	57.90	-9.85	48.05	74.00	25.95	Peak
2	5066.40	46.85	-9.85	37.00	54.00	17.00	Average
3	6850.40	49.12	-6.68	42.44	74.00	31.56	Peak
4	6850.40	38.80	-6.68	32.12	54.00	21.88	Average
5	7506.40	48.69	-4.25	44.44	74.00	29.56	Peak
6	7506.40	38.56	-4.25	34.31	54.00	19.69	Average

Project No.: SZ1240322-14909E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz
Serial No.: 2J8R-2
Tester: Nat Zhou

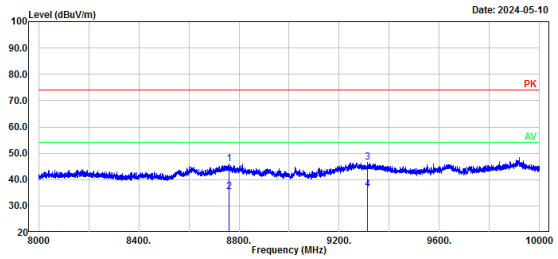


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4988.00	57.87	-9.99	47.88	74.00	26.12	Peak
2	4988.00	46.67	-9.99	36.68	54.00	17.32	Average
3	5291.20	52.83	-9.32	43.51	74.00	30.49	Peak
4	5291.20	42.63	-9.32	33.31	54.00	20.69	Average
5	6856.00	49.62	-6.67	42.95	74.00	31.05	Peak
6	6856.00	38.79	-6.67	32.12	54.00	21.88	Average

Horizontal	Vertical

Project No.: SZ1240322-14909E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz

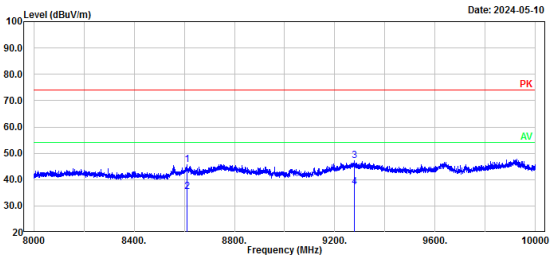
Serial No.: 238R-2
Tester: Nat Zhou



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	8761.60	48.53	-2.58	45.95	74.00	28.05	Peak
2	8761.60	37.91	-2.58	35.33	54.00	18.67	Average
3	9313.60	47.86	-1.44	46.42	74.00	27.58	Peak
4	9313.60	37.83	-1.44	36.39	54.00	17.61	Average

Project No.: SZ1240322-14909E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 16QAM_20M_low channel 914 MHz

Serial No.: 238R-2
Tester: Nat Zhou



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	8611.60	48.27	-2.68	45.59	74.00	28.41	Peak
2	8611.60	37.94	-2.68	35.26	54.00	18.74	Average
3	9276.80	48.58	-1.55	47.03	74.00	26.97	Peak
4	9276.80	38.80	-1.55	37.25	54.00	16.75	Average

5.3 Minimum 6 dB Emission Bandwidth

Serial No.:	2J8R-1	**Test Date:**	2024/4/18
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jojo Zhou	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	27.3	**Relative Humidity: (%)**	49	**ATM Pressure: (kPa)**	100.4

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2023/9/10	2024/9/9

** 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).*

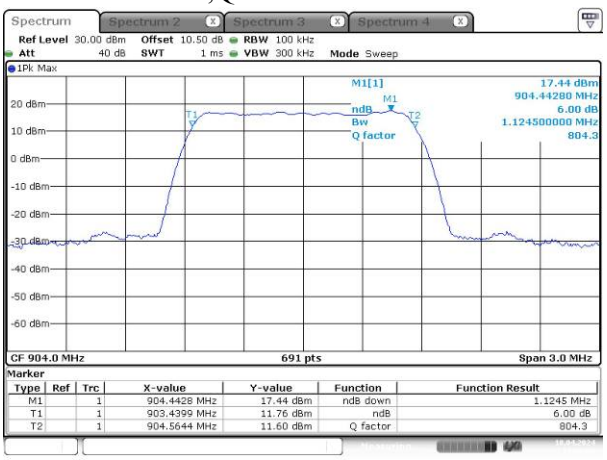
Test Data:

Operation Bands	Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
900MHz	1.4M QPSK	904	1.125	≥0.5
		916	1.129	≥0.5
		926	1.129	≥0.5
	1.4M 16QAM	904	1.125	≥0.5
		916	1.129	≥0.5
		926	1.125	≥0.5
	10M QPSK	909	9.001	≥0.5
		915	9.001	≥0.5
		921	9.001	≥0.5
	10M 16QAM	909	9.001	≥0.5
		915	9.001	≥0.5
		921	9.001	≥0.5
	20M QPSK	914	18.061	≥0.5
		915	18.061	≥0.5
		916	18.061	≥0.5
	20M 16QAM	914	18.061	≥0.5
		915	18.061	≥0.5
		916	18.061	≥0.5
2.4GHz	1.4M QPSK	2403.5	1.125	≥0.5
		2439.5	1.133	≥0.5
		2475.5	1.133	≥0.5
	1.4M 16QAM	2403.5	1.133	≥0.5
		2439.5	1.133	≥0.5
		2475.5	1.129	≥0.5
	10M QPSK	2407.5	8.973	≥0.5
		2439.5	9.001	≥0.5
		2471.5	9.001	≥0.5
	10M 16QAM	2407.5	9.001	≥0.5
		2439.5	9.001	≥0.5
		2471.5	9.001	≥0.5
	20M QPSK	2412.5	18.061	≥0.5
		2437.5	18.061	≥0.5
		2462.5	18.061	≥0.5
	20M 16QAM	2412.5	18.061	≥0.5
		2437.5	18.061	≥0.5
		2462.5	18.061	≥0.5

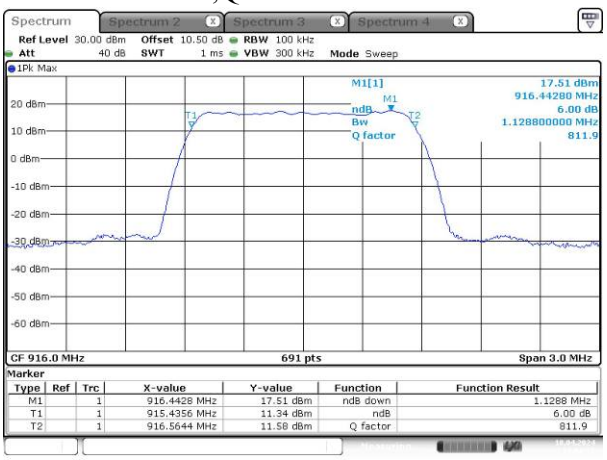
Note: Test only was performed at Chain 0.

900MHz Band:

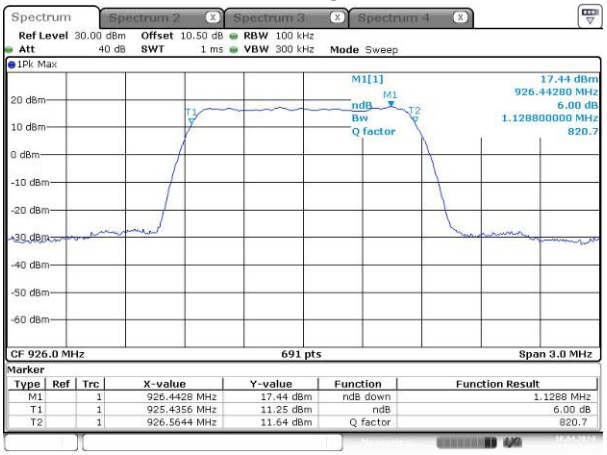
1.4MHz,QPSK Lowest Channel



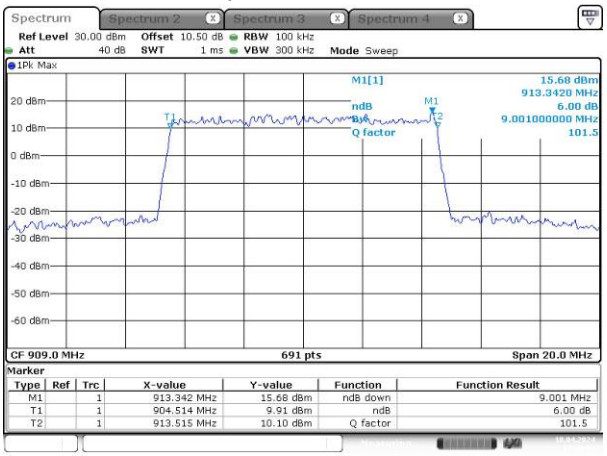
1.4MHz,QPSK Middle Channel



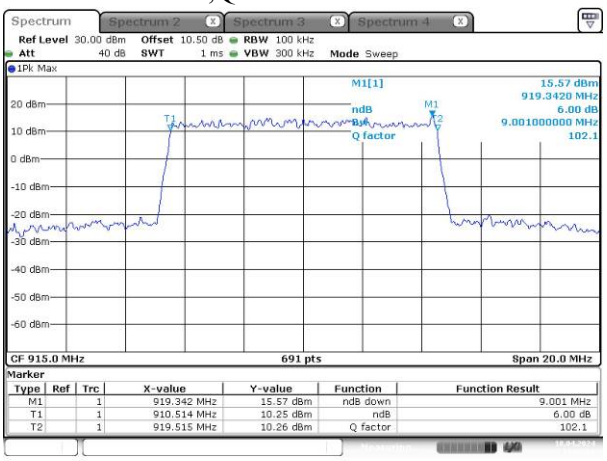
1.4MHz,QPSK Highest Channel



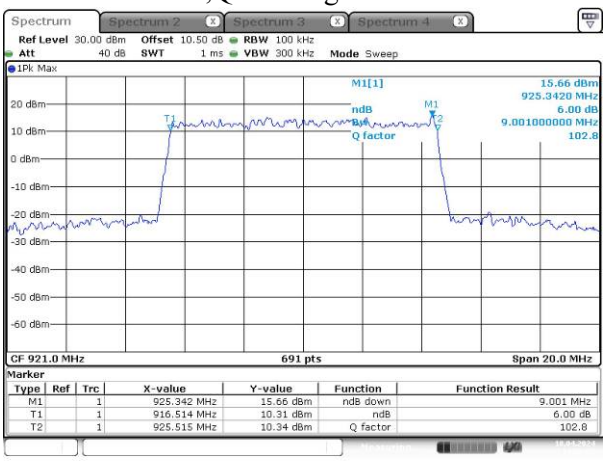
10MHz,QPSK Lowest Channel



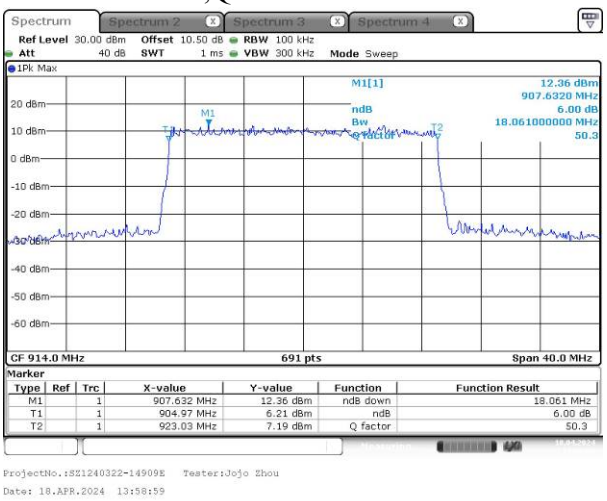
10MHz,QPSK Middle Channel



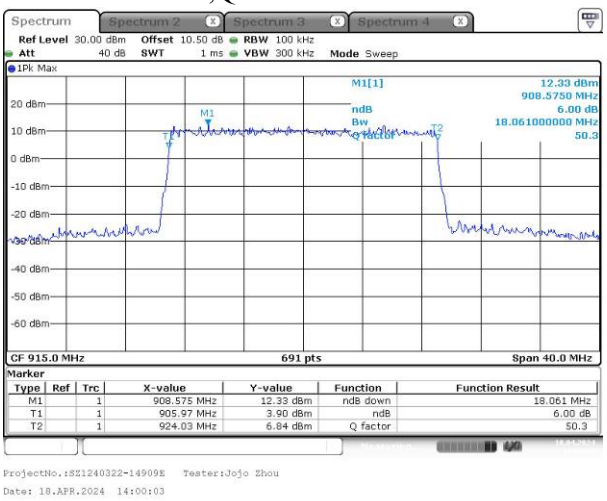
10MHz,QPSK Highest Channel



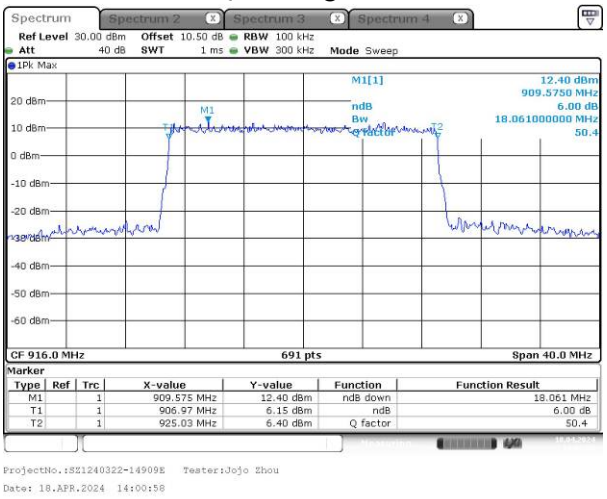
20MHz,QPSK Lowest Channel



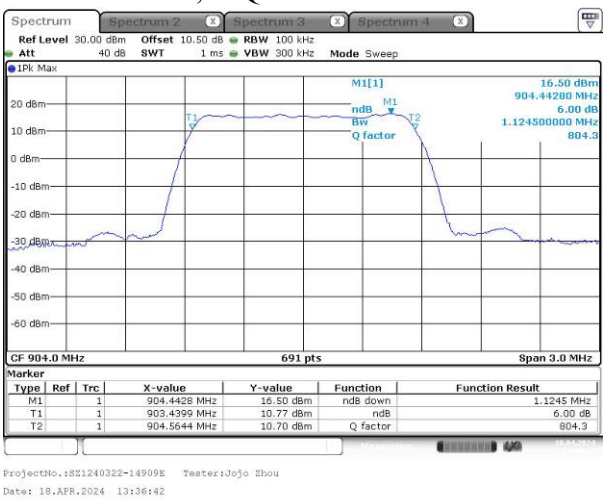
20MHz,QPSK Middle Channel



20MHz,QPSK Highest Channel

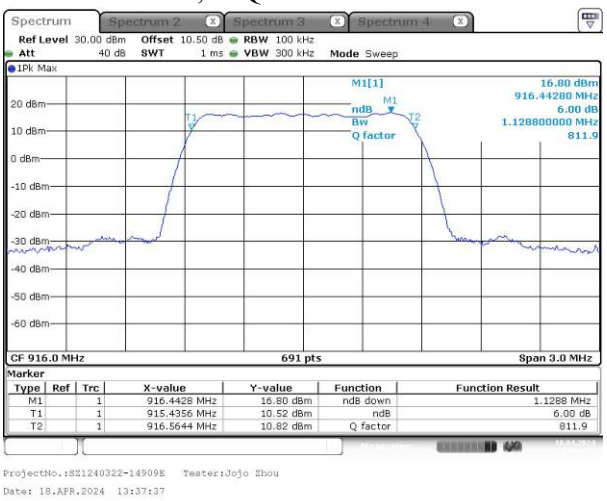


1.4MHz, 16QAM Lowest Channel



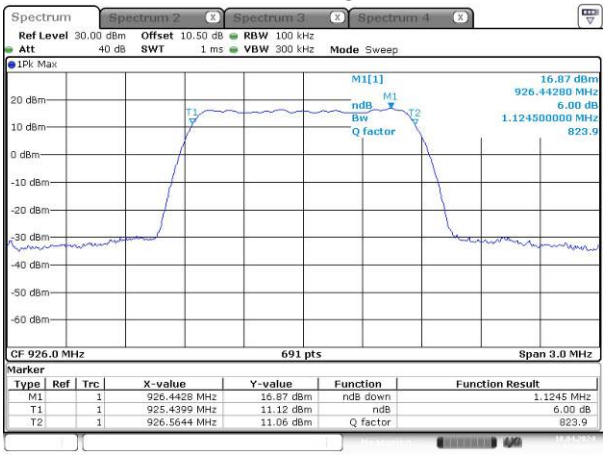
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:36:42

1.4MHz, 16QAM Middle Channel



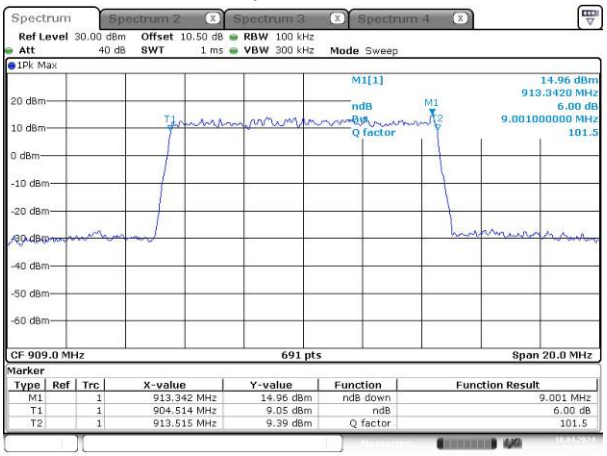
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:37:37

1.4MHz, 16QAM Highest Channel



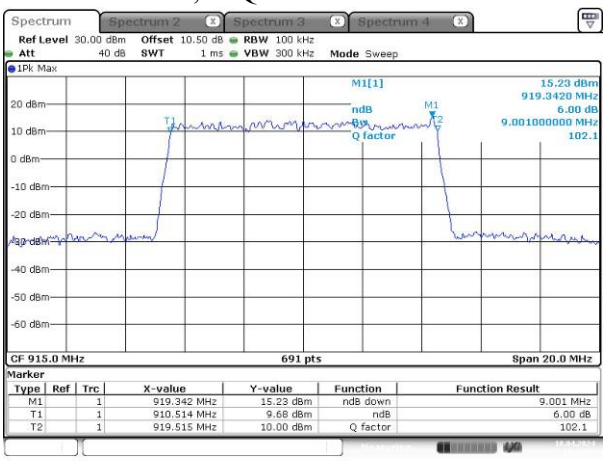
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:38:24

10MHz, 16QAM Lowest Channel



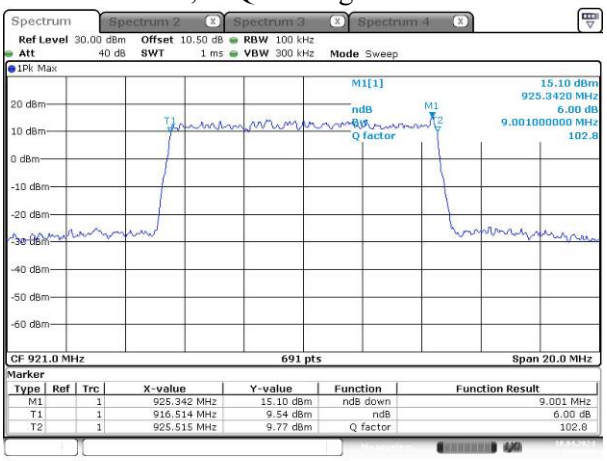
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:39:29

10MHz, 16QAM Middle Channel



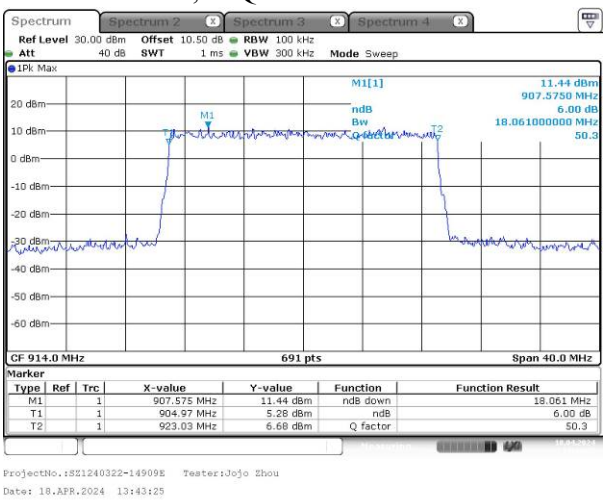
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:40:23

10MHz, 16QAM Highest Channel

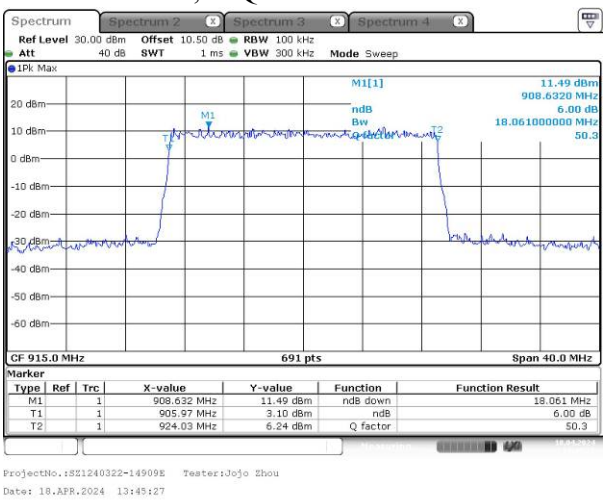


ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:41:26

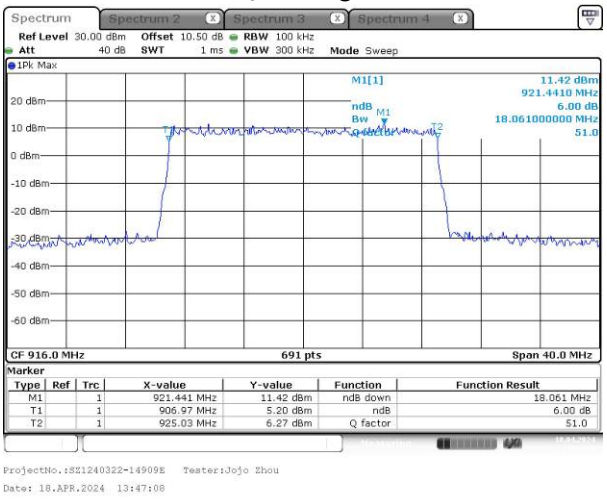
20MHz, 16QAM Lowest Channel



20MHz, 16QAM Middle Channel

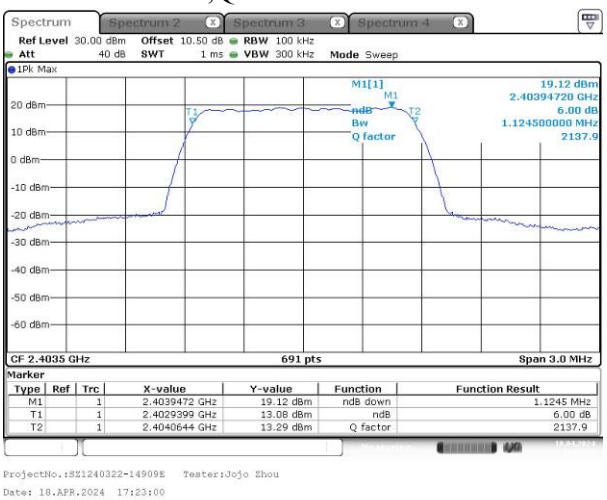


20MHz, 16QAM Highest Channel

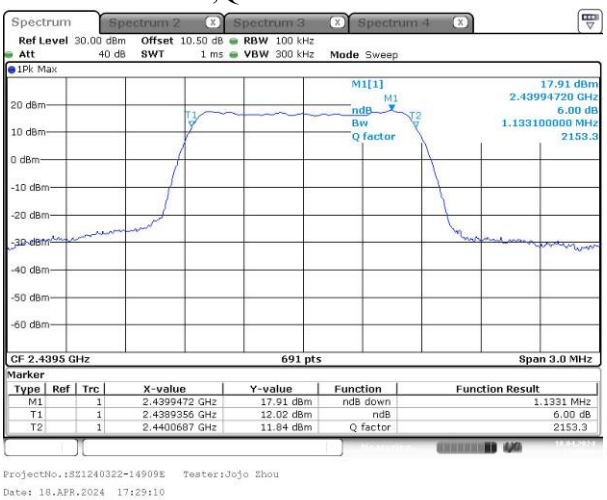


2.4GHz Band:

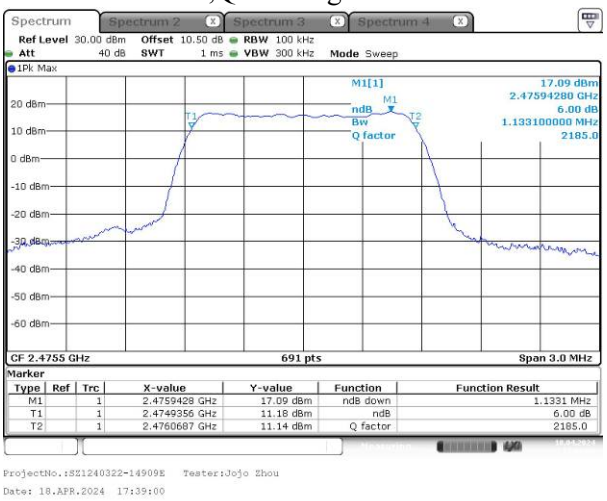
1.4MHz,QPSK Lowest Channel



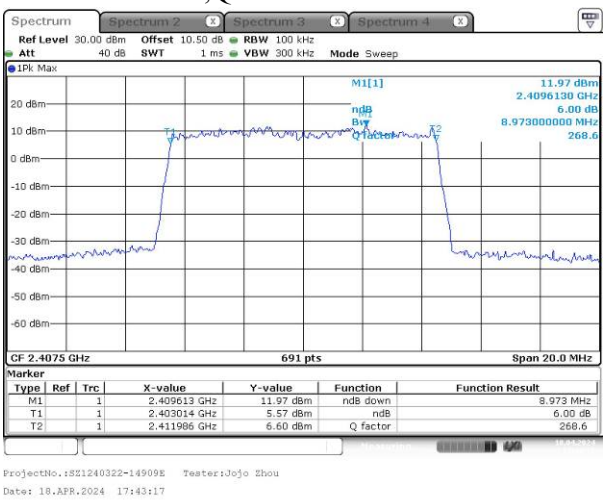
1.4MHz,QPSK Middle Channel



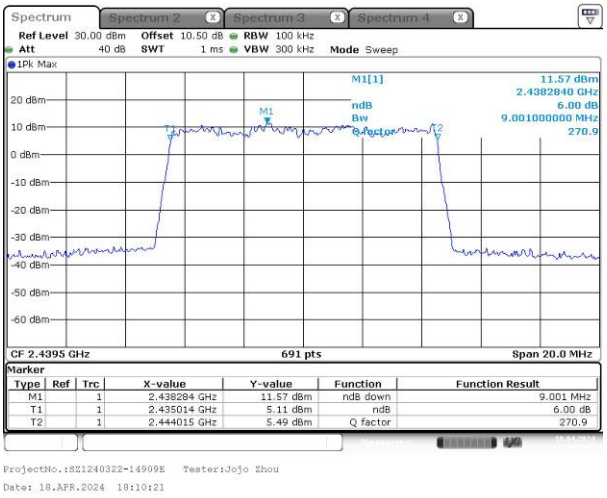
1.4MHz,QPSK Highest Channel



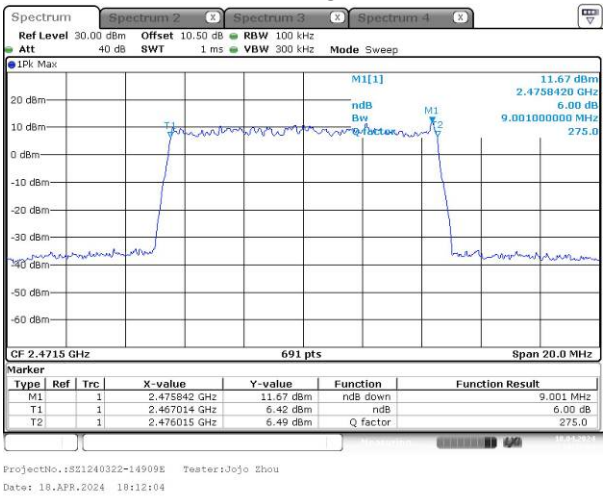
10MHz,QPSK Lowest Channel



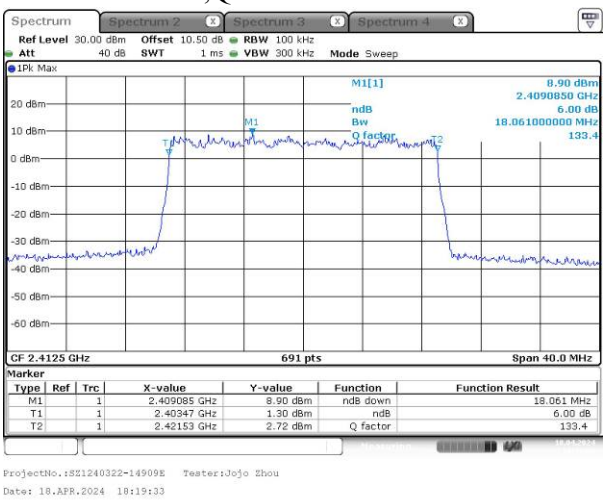
10MHz,QPSK Middle Channel



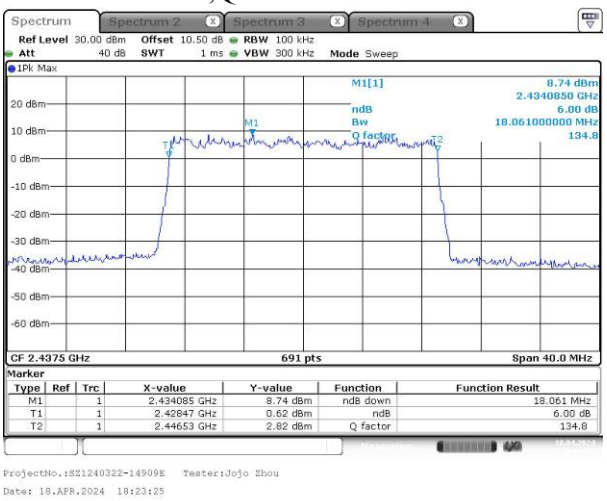
10MHz,QPSK Highest Channel



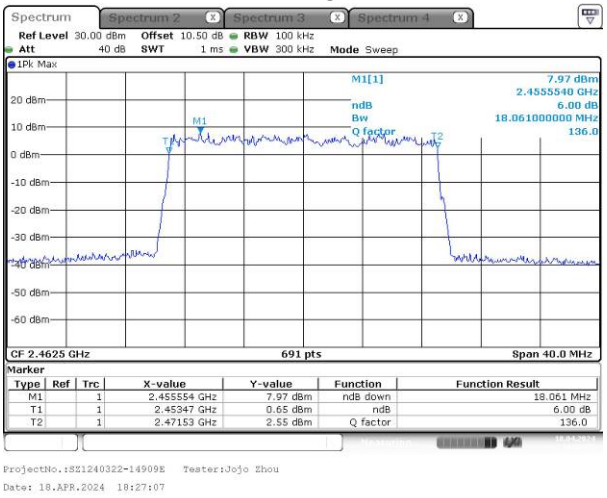
20MHz,QPSK Lowest Channel



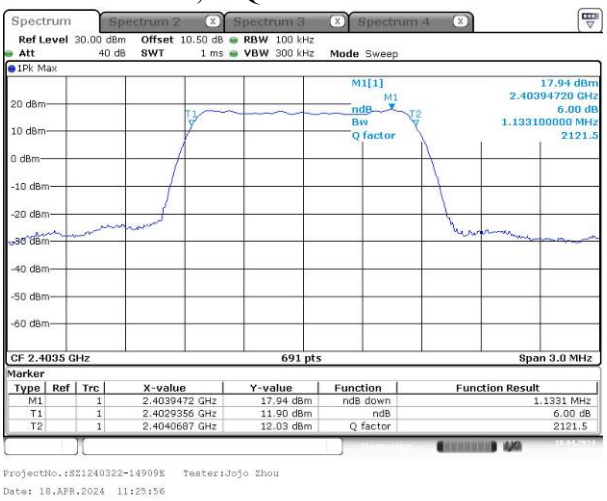
20MHz,QPSK Middle Channel



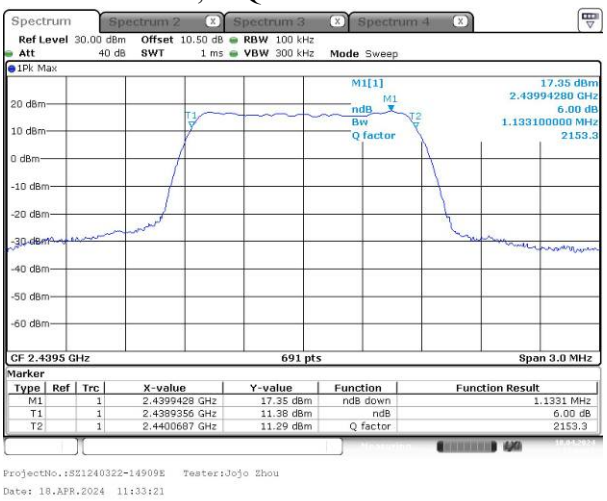
20MHz,QPSK Highest Channel



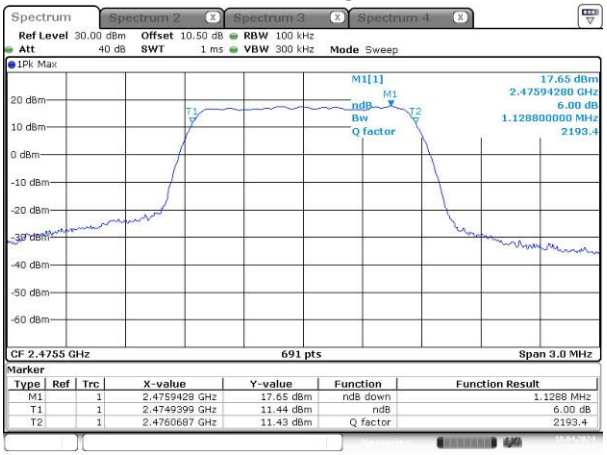
1.4MHz, 16QAM Lowest Channel



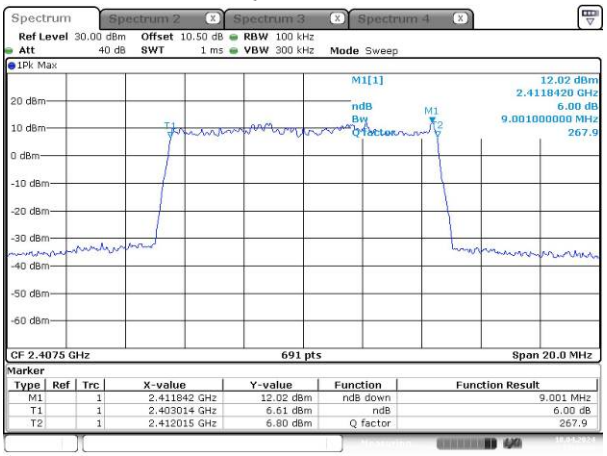
1.4MHz, 16QAM Middle Channel



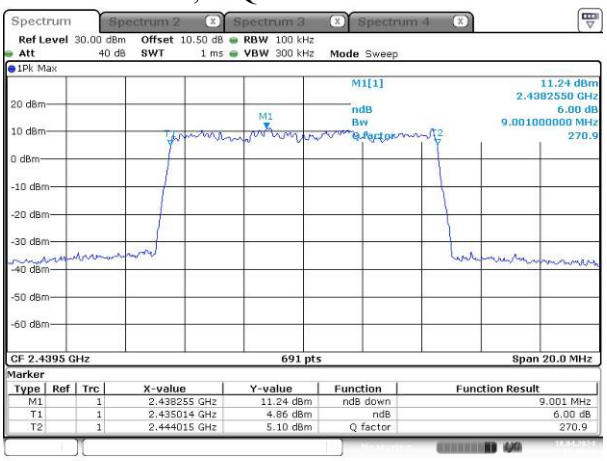
1.4MHz, 16QAM Highest Channel



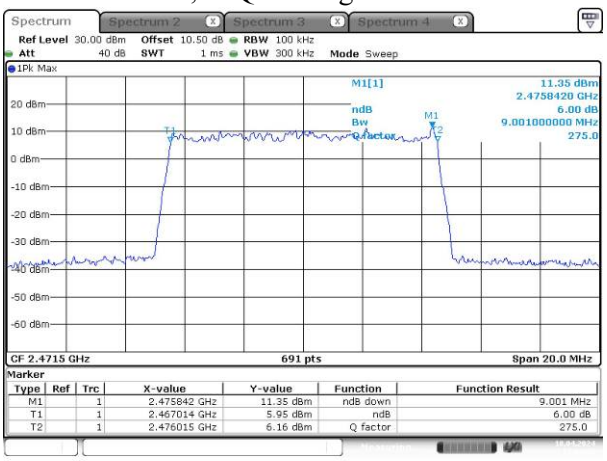
10MHz, 16QAM Lowest Channel



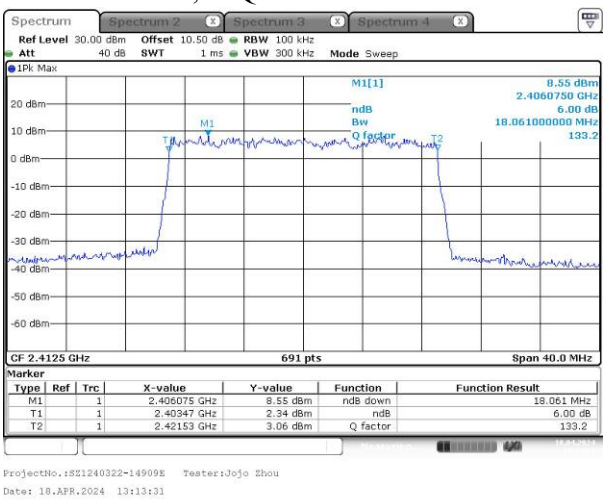
10MHz, 16QAM Middle Channel



10MHz, 16QAM Highest Channel

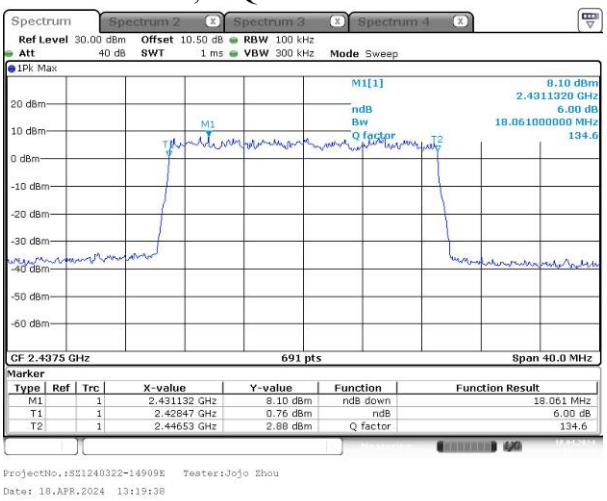


20MHz, 16QAM Lowest Channel



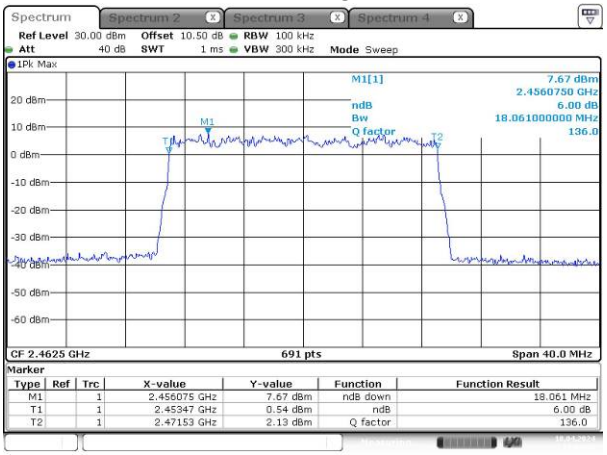
ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:13:31

20MHz, 16QAM Middle Channel



ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:19:38

20MHz, 16QAM Highest Channel



ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 18.APR.2024 13:23:32

5.4 99% Occupied Bandwidth

Serial No.:	2J8R-1	**Test Date:**	2024/4/17~2024/4/18
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jojo Zhou	**Test Result:**	/

Environmental Conditions:

Temperature: (°C)	24.6~27.3	**Relative Humidity: (%)**	42~50	**ATM Pressure: (kPa)**	100.4~100.7

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2023/9/10	2024/9/9

** 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).*

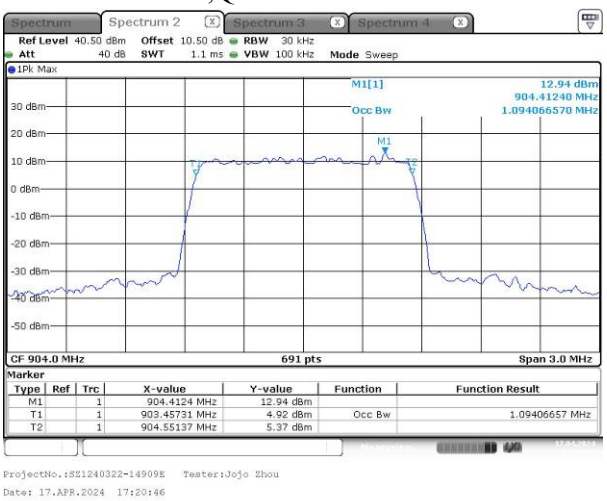
Test Data:

Operation Bands	Test Modes	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)
900MHz	1.4M QPSK	904	1.094
		916	1.094
		926	1.090
	1.4M 16QAM	904	1.081
		916	1.085
		926	1.085
	10M QPSK	909	8.944
		915	8.944
		921	8.944
	10M 16QAM	909	8.944
		915	8.944
		921	8.944
	20M QPSK	914	17.945
		915	17.945
		916	18.003
	20M 16QAM	914	17.945
		915	17.945
		916	17.945
2.4GHz	1.4M QPSK	2403.5	1.090
		2439.5	1.098
		2475.5	1.098
	1.4M 16QAM	2403.5	1.098
		2439.5	1.098
		2475.5	1.090
	10M QPSK	2407.5	8.944
		2439.5	8.944
		2471.5	8.944
	10M 16QAM	2407.5	8.944
		2439.5	8.944
		2471.5	8.944
	20M QPSK	2412.5	17.945
		2437.5	17.945
		2462.5	17.945
	20M 16QAM	2412.5	17.945
		2437.5	17.945
		2462.5	17.945

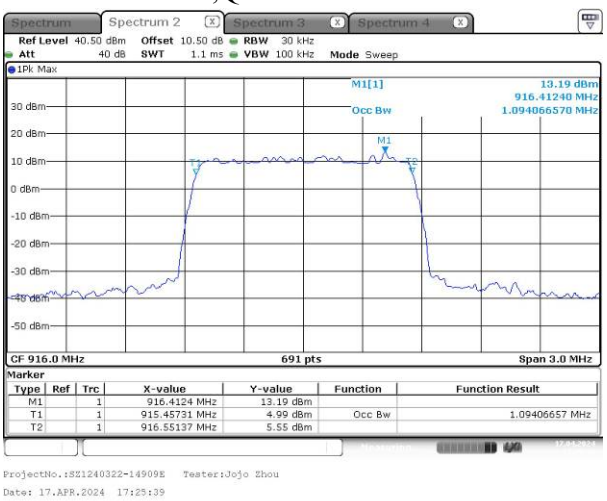
Note: Test only was performed at Chain 0.

900MHz Band:

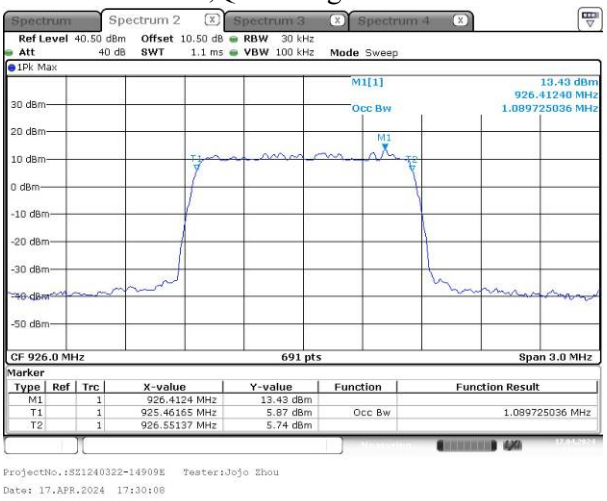
1.4MHz,QPSK Lowest Channel



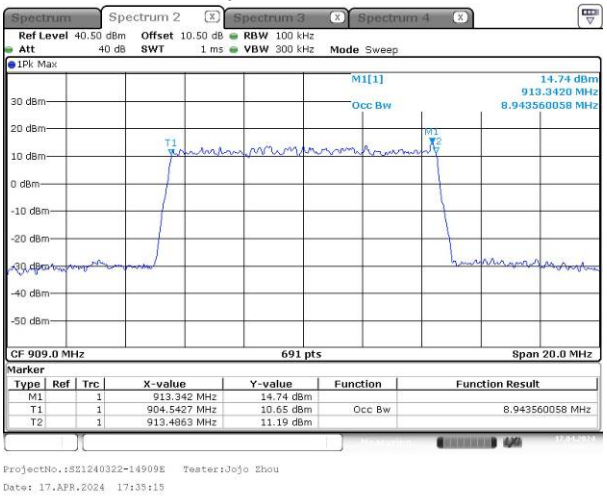
1.4MHz,QPSK Middle Channel



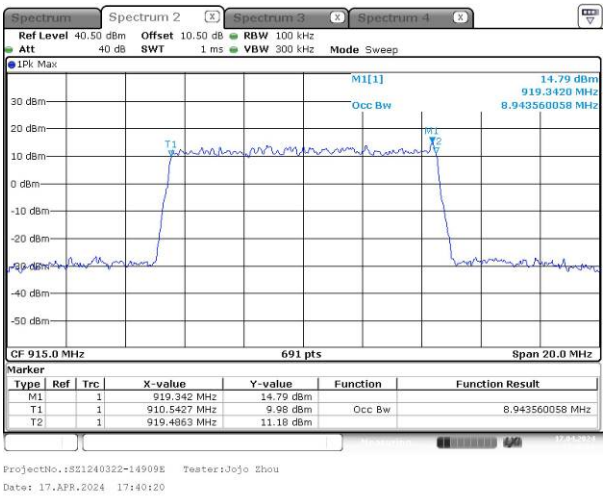
1.4MHz,QPSK Highest Channel



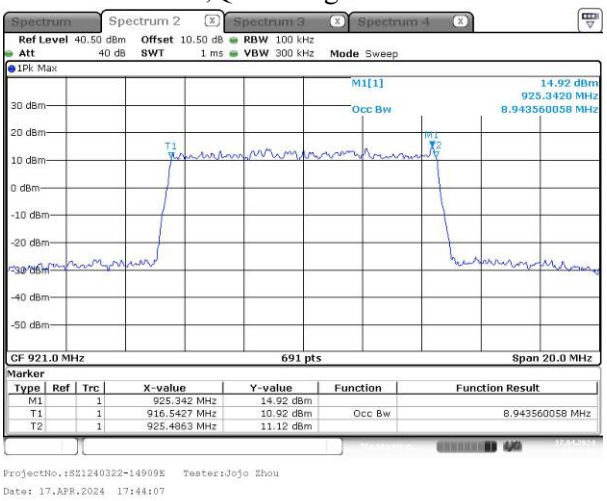
10MHz,QPSK Lowest Channel



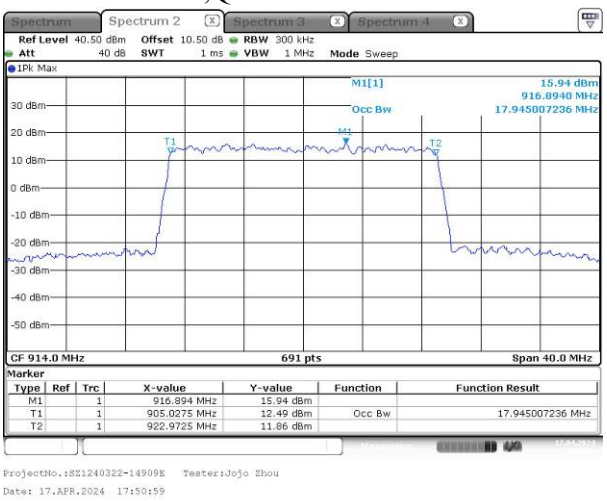
10MHz,QPSK Middle Channel



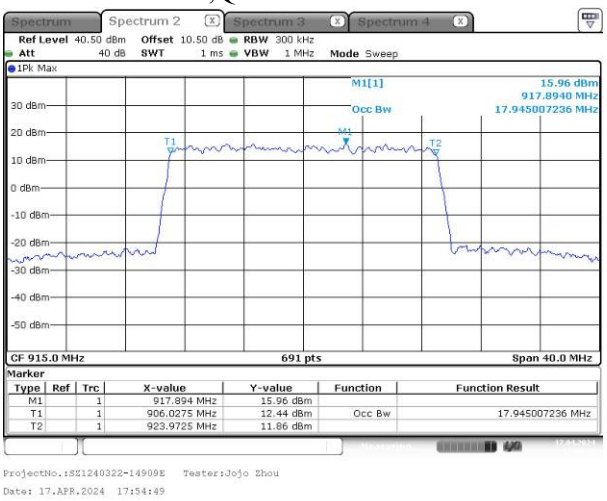
10MHz,QPSK Highest Channel



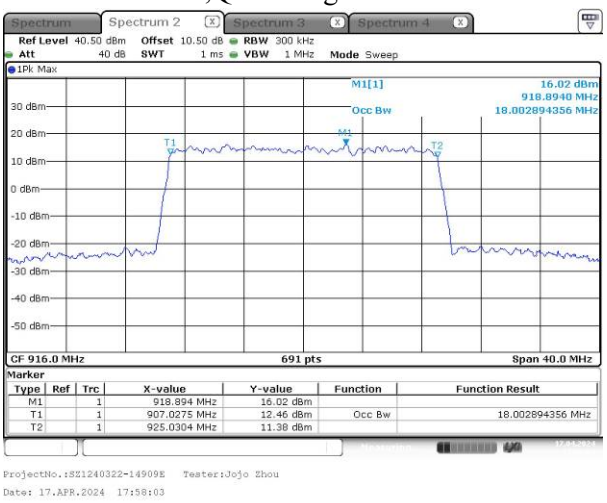
20MHz,QPSK Lowest Channel



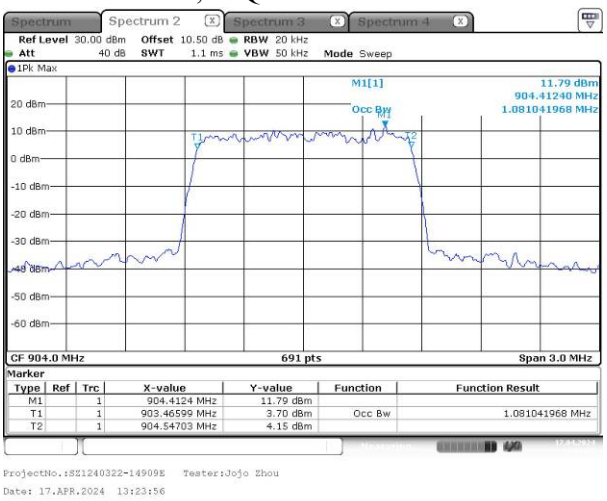
20MHz,QPSK Middle Channel



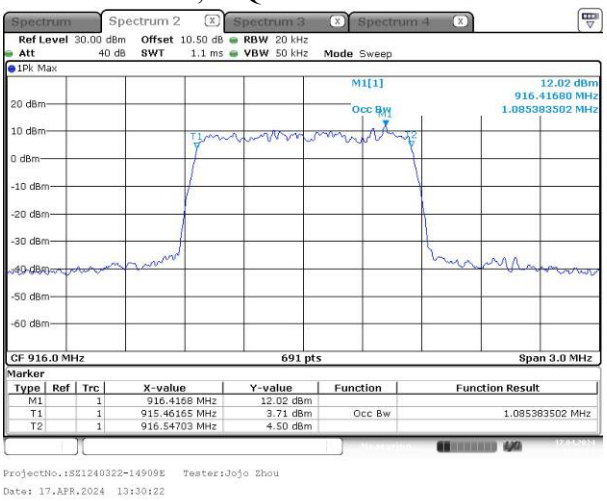
20MHz,QPSK Highest Channel



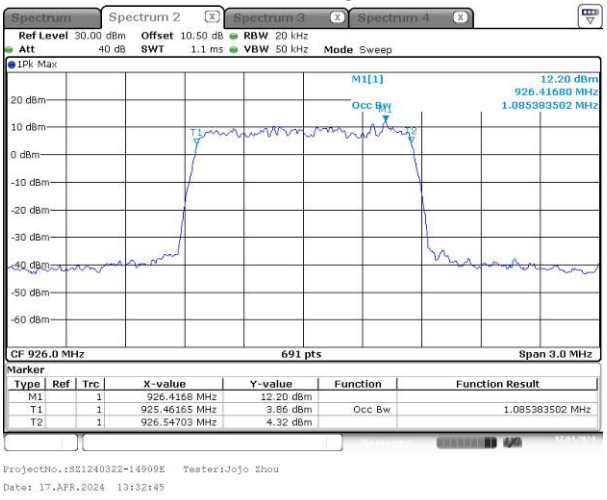
1.4MHz, 16QAM Lowest Channel



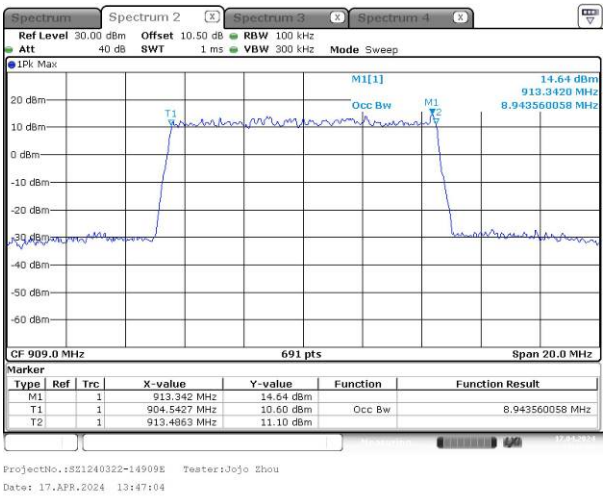
1.4MHz, 16QAM Middle Channel



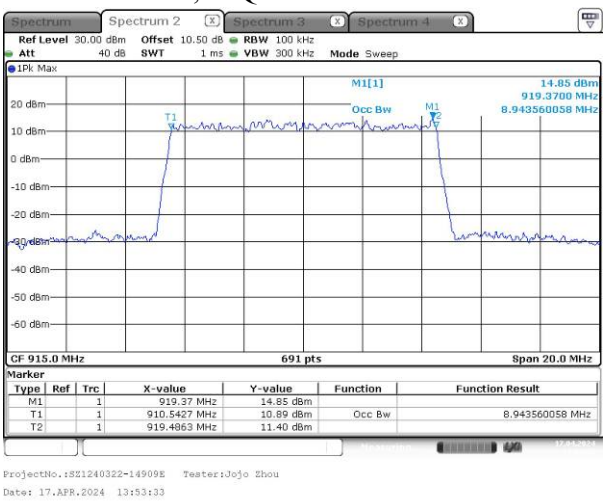
1.4MHz, 16QAM Highest Channel



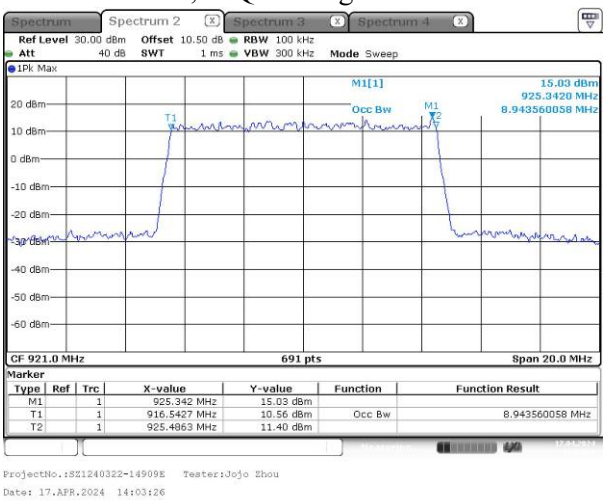
10MHz, 16QAM Lowest Channel



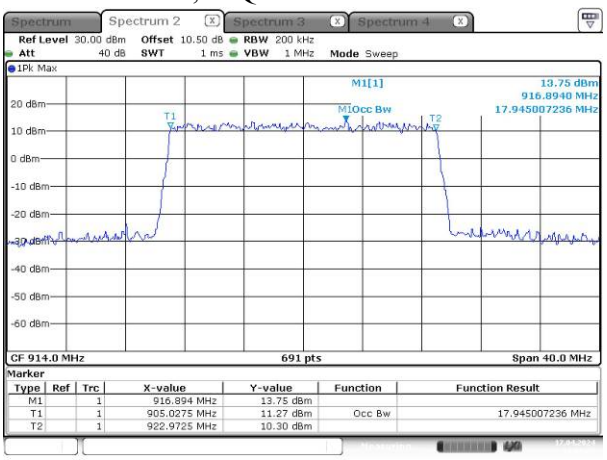
10MHz, 16QAM Middle Channel



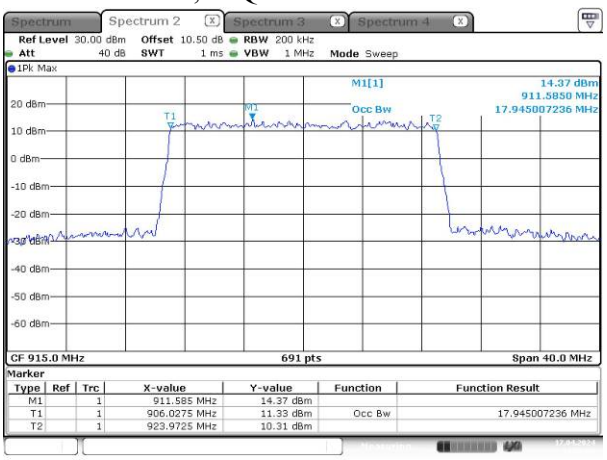
10MHz, 16QAM Highest Channel



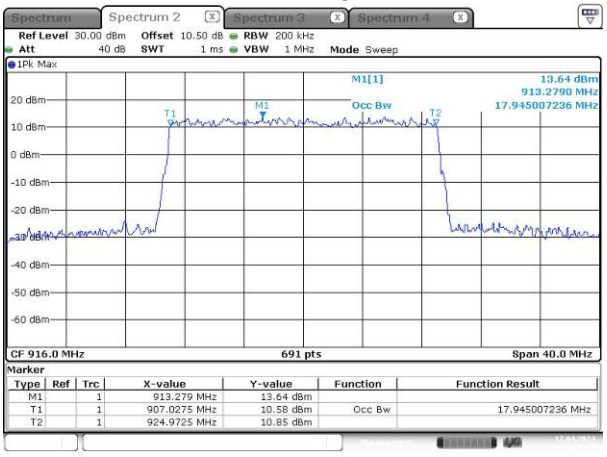
20MHz, 16QAM Lowest Channel



20MHz, 16QAM Middle Channel

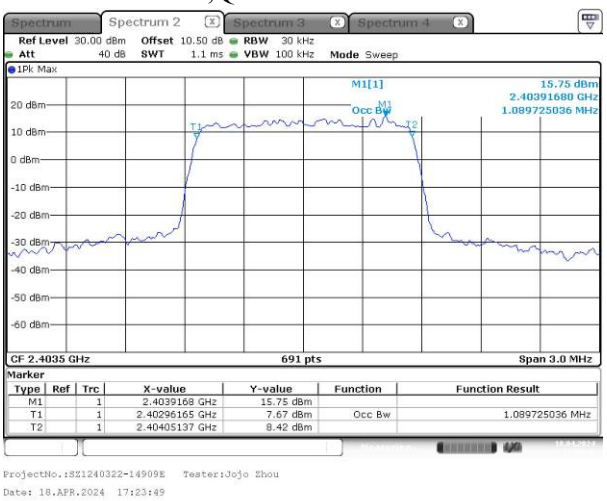


20MHz, 16QAM Highest Channel

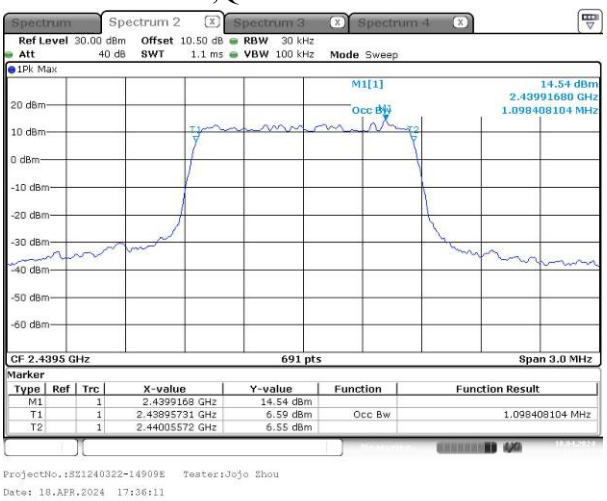


2.4GHz Band:

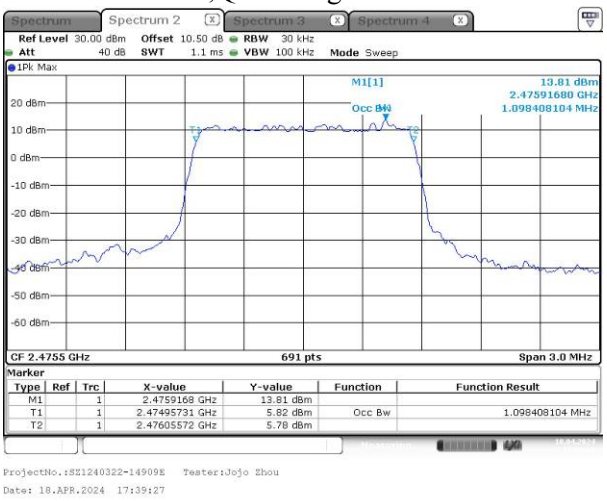
1.4MHz,QPSK Lowest Channel



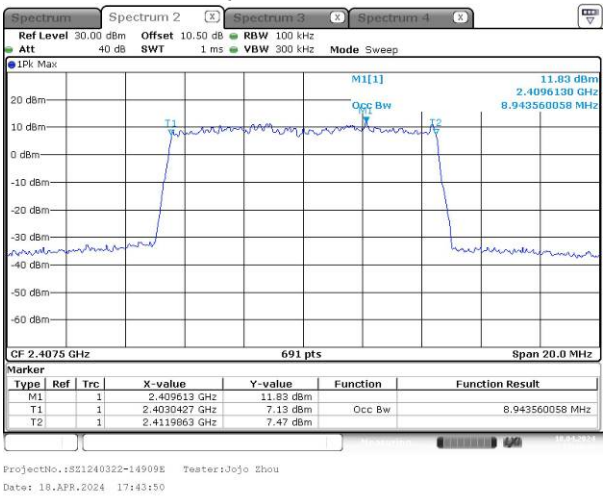
1.4MHz,QPSK Middle Channel



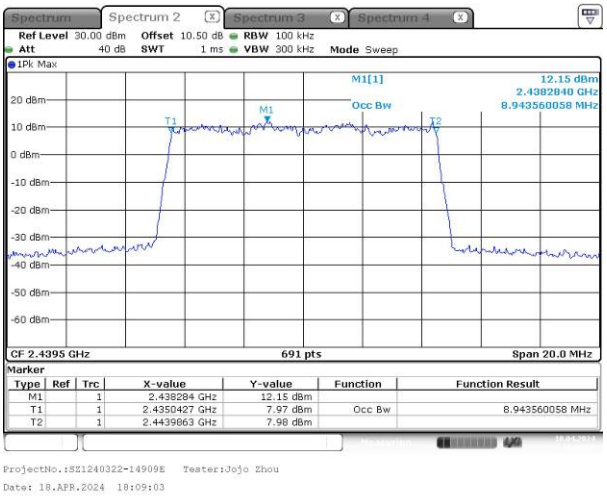
1.4MHz,QPSK Highest Channel



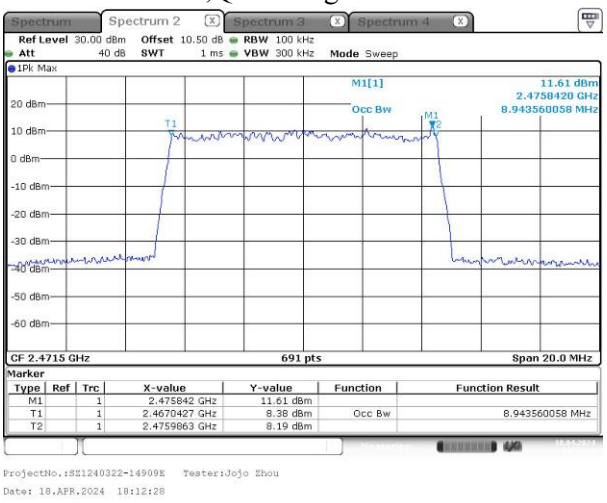
10MHz,QPSK Lowest Channel



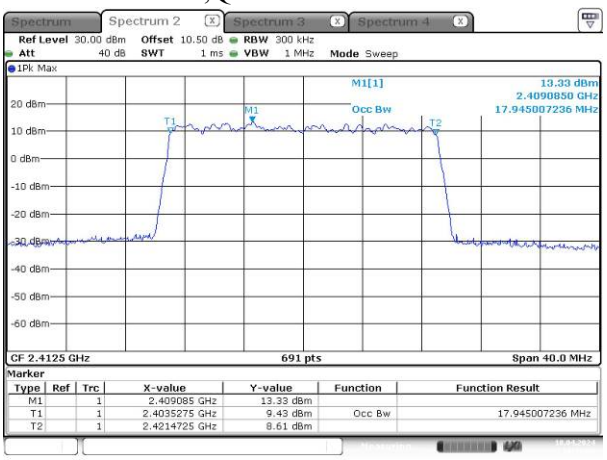
10MHz,QPSK Middle Channel



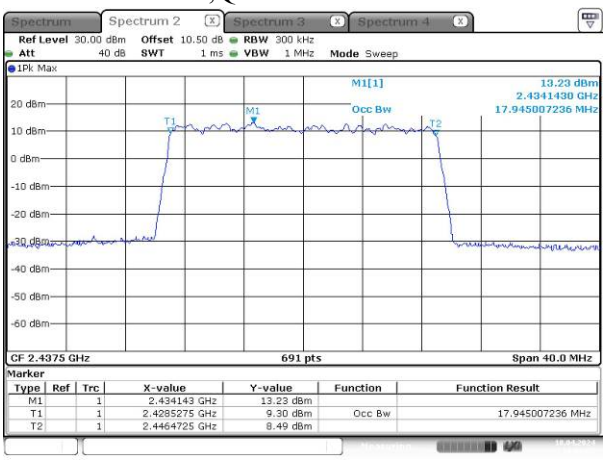
10MHz,QPSK Highest Channel



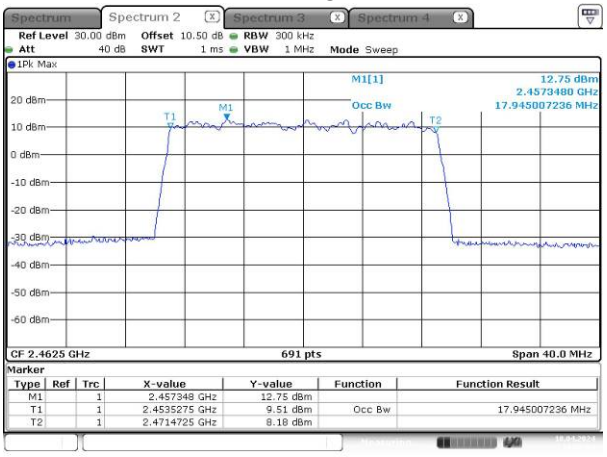
20MHz,QPSK Lowest Channel



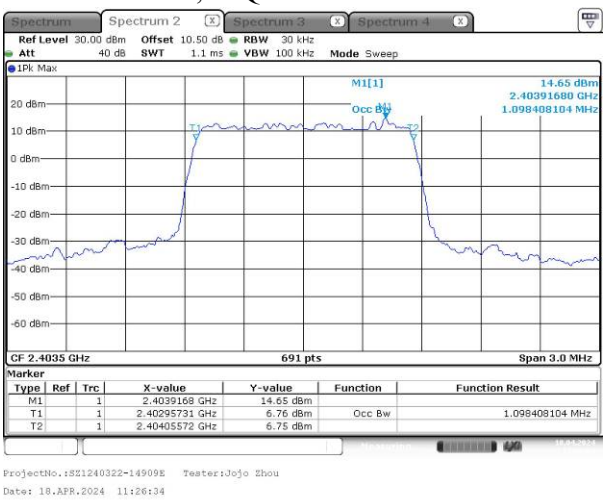
20MHz,QPSK Middle Channel



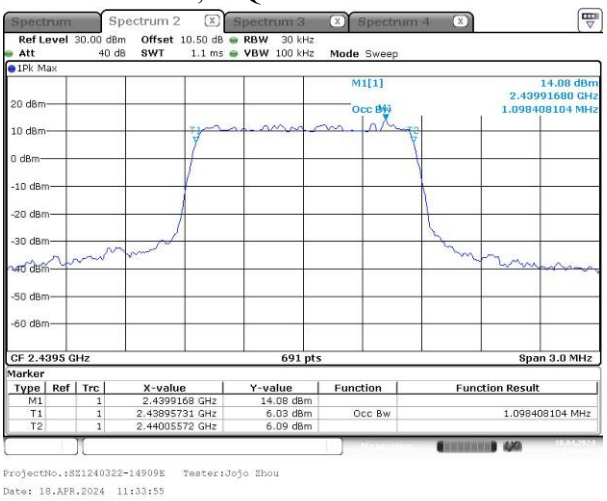
20MHz,QPSK Highest Channel



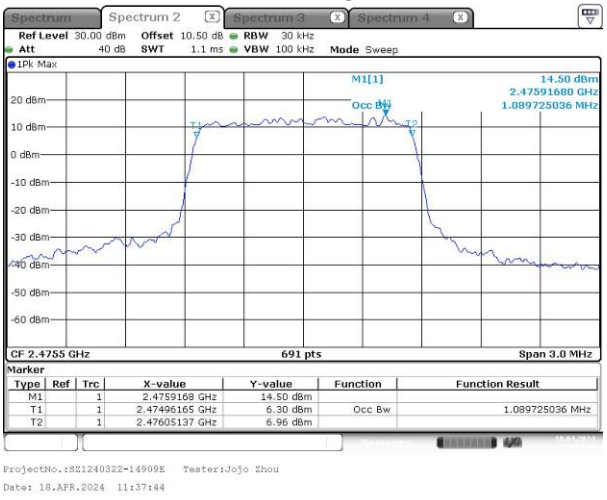
1.4MHz, 16QAM Lowest Channel



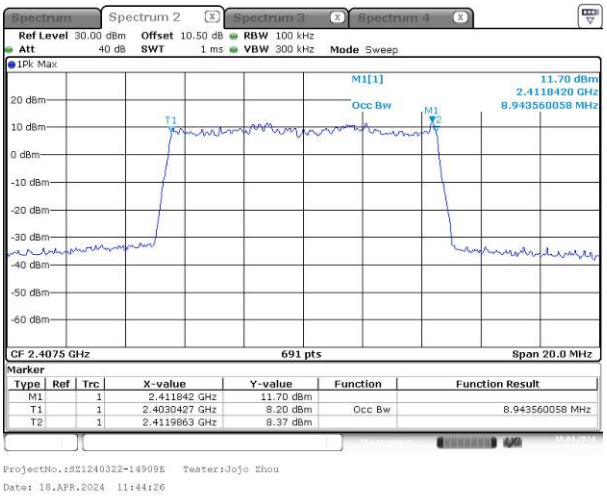
1.4MHz, 16QAM Middle Channel



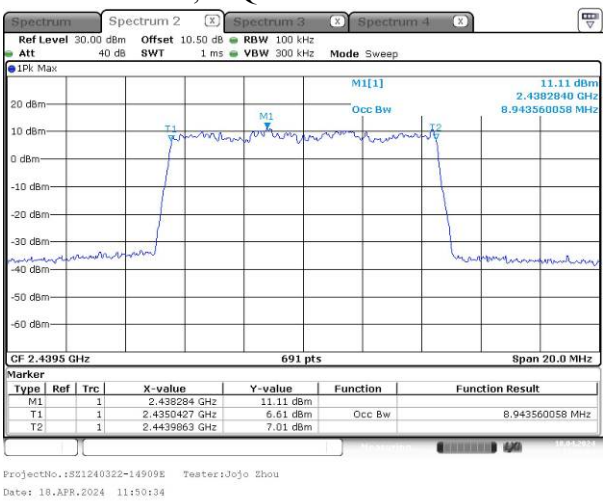
1.4MHz, 16QAM Highest Channel



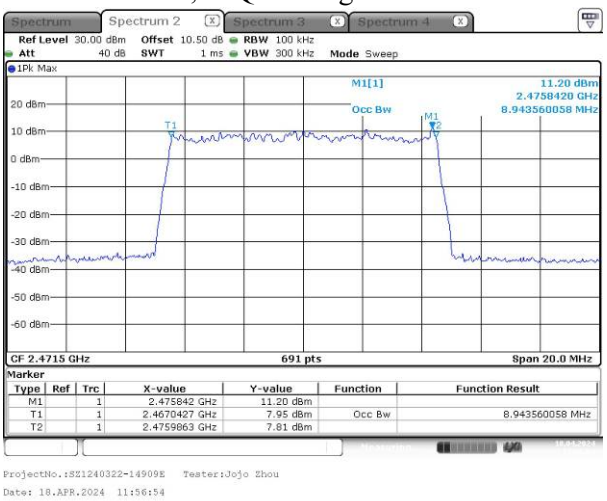
10MHz, 16QAM Lowest Channel



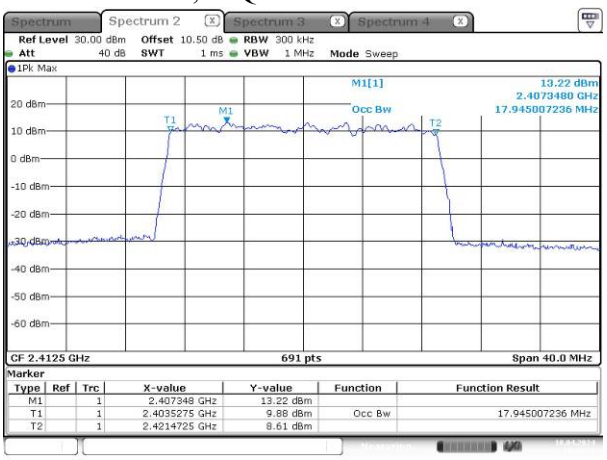
10MHz, 16QAM Middle Channel



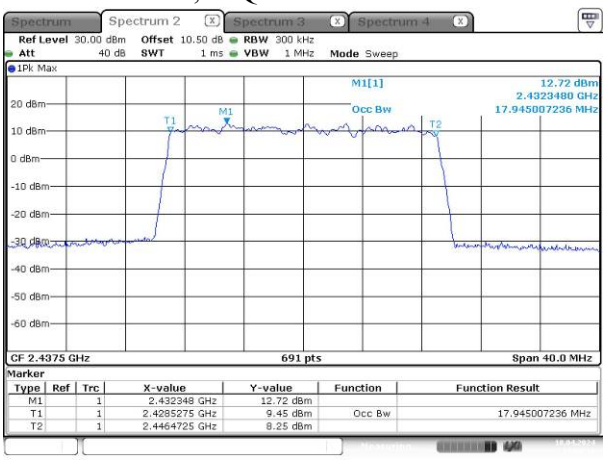
10MHz, 16QAM Highest Channel



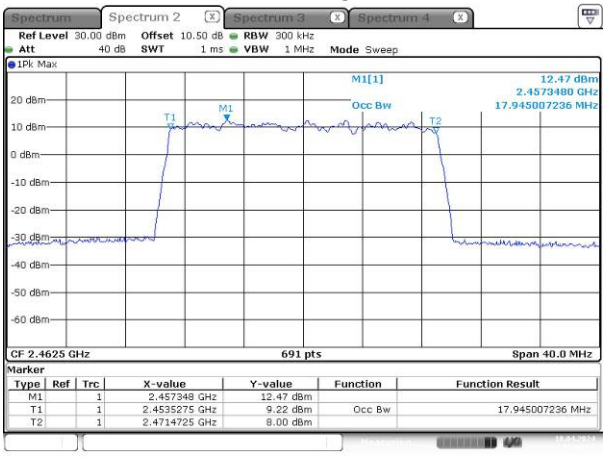
20MHz, 16QAM Lowest Channel



20MHz, 16QAM Middle Channel



20MHz, 16QAM Highest Channel



5.5 Maximum Conducted Output Power

Serial No.:	2J8R-1	**Test Date:**	2024/4/17~2024/4/18
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jojo Zhou	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.5~27.3	**Relative Humidity: (%)**	49~50	**ATM Pressure: (kPa)**	100.4~100.7

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY54170006	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2023/9/10	2024/9/9

** 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:
900MHz Band:

Modulation	Test Modes	Test Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Limit (dBm)
			Chain 0	Chain 2	Total	
QPSK	1.4MHz	904	18.58	19.45	22.05	≤30
		916	19.16	19.49	22.34	≤30
		926	19.04	19.34	22.20	≤30
	10MHz	909	23.27	23.17	26.23	≤30
		915	23.31	23.21	26.27	≤30
		921	23.50	23.13	26.33	≤30
	20MHz	914	23.56	23.25	26.42	≤30
		915	23.52	23.21	26.38	≤30
		916	23.61	23.22	26.43	≤30
16-QAM	1.4MHz	904	18.98	19.71	22.37	≤30
		916	19.23	19.68	22.47	≤30
		926	19.12	19.62	22.39	≤30
	10MHz	909	23.33	24.66	27.06	≤30
		915	23.46	24.12	26.81	≤30
		921	23.92	24.21	**27.08**	≤30
	20MHz	914	23.57	24.14	26.87	≤30
		915	23.58	24.06	26.84	≤30
		916	23.53	24.19	26.88	≤30

2.4GHz band:

Modulation	Test Modes	Test Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Limit (dBm)
			Chain 0	Chain 2	Total	
QPSK	1.4MHz	2403.5	20.57	21.80	**24.24**	≤30
		2439.5	20.29	21.61	24.01	≤30
		2475.5	19.86	21.26	23.63	≤30
	10MHz	2407.5	20.86	20.73	23.81	≤30
		2439.5	20.14	20.68	23.43	≤30
		2471.5	19.81	20.24	23.04	≤30
	20MHz	2412.5	20.72	20.51	23.63	≤30
		2437.5	20.38	20.73	23.57	≤30
		2462.5	20.10	20.39	23.26	≤30
16-QAM	1.4MHz	2403.5	20.48	21.69	24.14	≤30
		2439.5	20.14	21.54	23.91	≤30
		2475.5	19.71	20.51	23.14	≤30
	10MHz	2407.5	20.63	20.93	23.79	≤30
		2439.5	20.09	20.62	23.37	≤30
		2471.5	19.83	20.42	23.15	≤30
	20MHz	2412.5	20.74	20.86	23.81	≤30
		2437.5	20.21	20.57	23.40	≤30
		2462.5	19.95	20.41	23.20	≤30

5.6 Maximum Power Spectral Density

Serial No.:	2J8R-1	Test Date:	2024/4/17~2024/4/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jojo Zhou	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.5~27.3	**Relative Humidity: (%)**	49~50	**ATM Pressure: (kPa)**	100.4~100.7

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2023/09/10	2024/09/09

** 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:

900MHz Band:

Modulation	Test Modes	Test Frequency (MHz)	Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)
			Chain 0	Chain 2	Total	
QPSK	1.4M	904	-0.40	0.95	3.34	≤8.00
		916	-0.02	0.96	3.51	≤8.00
		926	0.53	0.89	3.72	≤8.00
	10M	909	-5.07	-4.04	-1.51	≤8.00
		915	-4.84	-5.09	-1.95	≤8.00
		921	-5.81	-4.63	-2.17	≤8.00
	20M	914	-8.46	-7.48	-4.93	≤8.00
		915	-8.51	-7.11	-4.74	≤8.00
		916	-7.89	-7.51	-4.69	≤8.00
16-QAM	1.4M	904	0.13	1.17	3.69	≤8.00
		916	0.12	0.81	3.49	≤8.00
		926	0.48	0.79	3.65	≤8.00
	10M	909	-5.73	-5.33	-2.52	≤8.00
		915	-5.50	-6.93	-3.15	≤8.00
		921	-5.12	-6.84	-2.89	≤8.00
	20M	914	-7.85	-7.42	-4.62	≤8.00
		915	-8.54	-7.31	-4.87	≤8.00
		916	-8.24	-7.45	-4.82	≤8.00

Note:
The Maximum antenna gain is 0.3dBi and the direction antenna gain is 3.3dBi.

2.4GHz band:

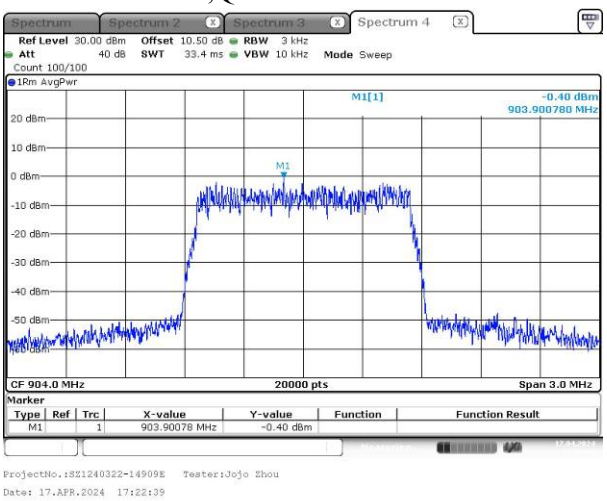
Modulation	Test Modes	Test Frequency (MHz)	Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)
			Chain 0	Chain 2	Total	
QPSK	1.4M	2403.5	3.01	2.99	6.01	≤8.00
		2439.5	0.90	1.67	4.31	≤8.00
		2475.5	0.28	1.01	3.67	≤8.00
	10M	2407.5	-8.92	-7.71	-5.26	≤8.00
		2439.5	-8.45	-8.47	-5.45	≤8.00
		2471.5	-9.93	-8.55	-6.18	≤8.00
	20M	2412.5	-10.92	-10.49	-7.69	≤8.00
		2437.5	-10.97	-10.56	-7.75	≤8.00
		2462.5	-11.26	-11.03	-8.13	≤8.00
16-QAM	1.4M	2403.5	1.11	2.29	4.75	≤8.00
		2439.5	0.54	1.12	3.85	≤8.00
		2475.5	1.57	1.26	4.43	≤8.00
	10M	2407.5	-8.81	-8.57	-5.68	≤8.00
		2439.5	-8.79	-8.73	-5.75	≤8.00
		2471.5	-9.18	-8.66	-5.90	≤8.00
	20M	2412.5	-10.76	-10.66	-7.70	≤8.00
		2437.5	-11.04	-10.82	-7.92	≤8.00
		2462.5	-11.34	-11.10	-8.21	≤8.00

Note:
The Maximum antenna gain is 1.9dBi and the direction antenna gain is 4.9dBi.

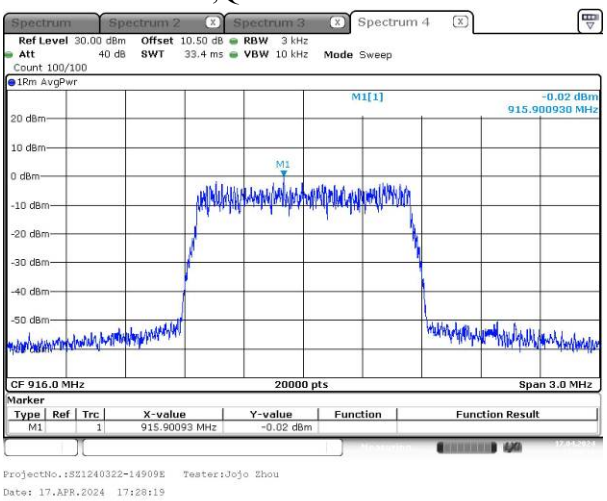
900MHz Band:

Chain 0

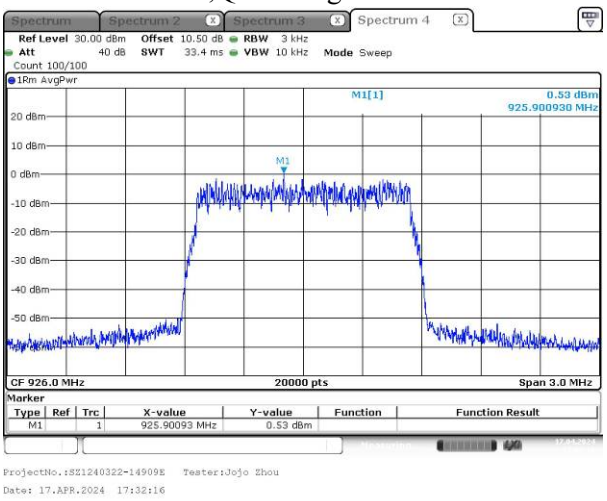
1.4MHz,QPSK Lowest Channel



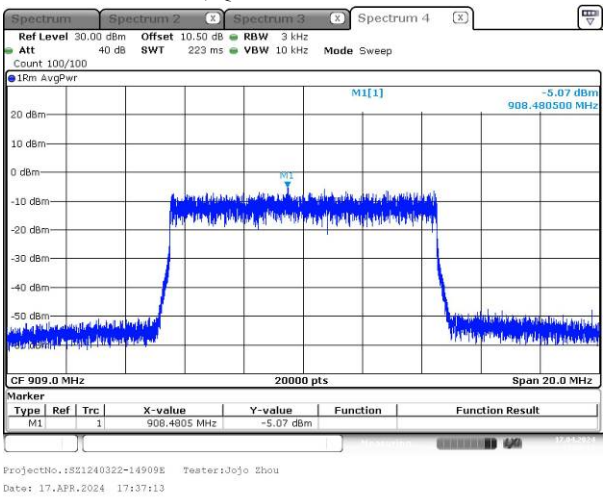
1.4MHz,QPSK Middle Channel



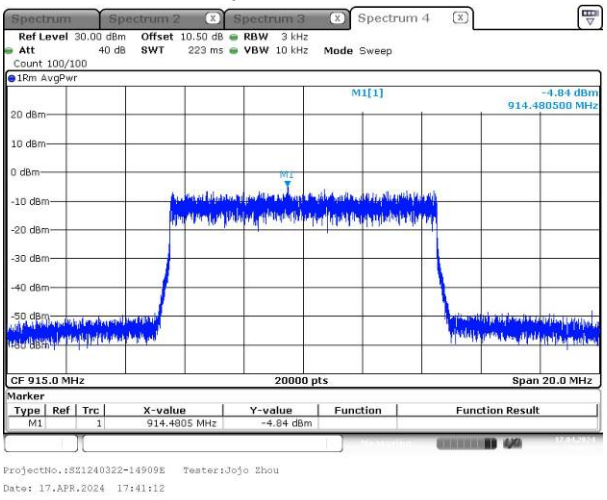
1.4MHz,QPSK Highest Channel



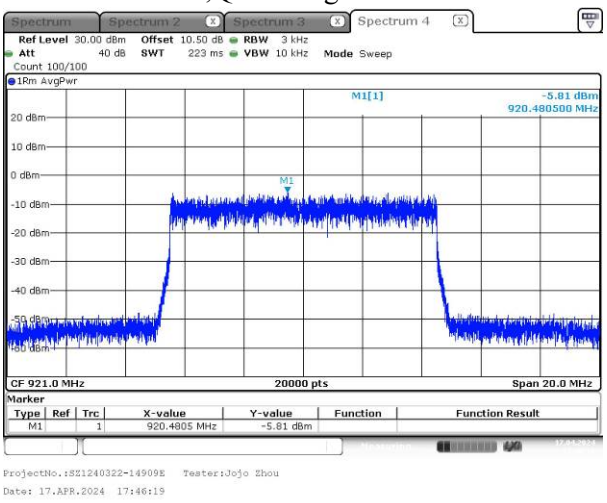
10MHz,QPSK Lowest Channel



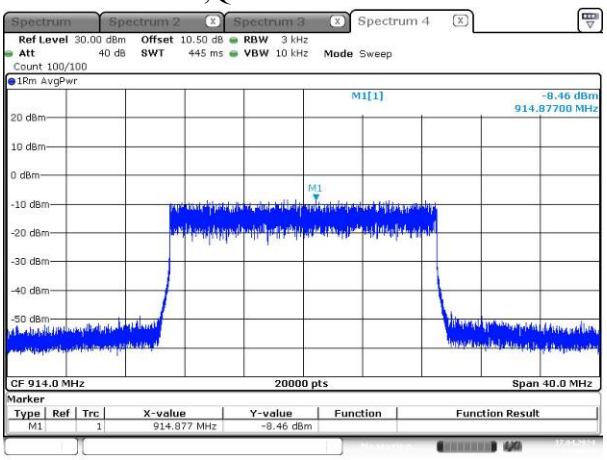
10MHz,QPSK Middle Channel



10MHz,QPSK Highest Channel



20MHz,QPSK Lowest Channel



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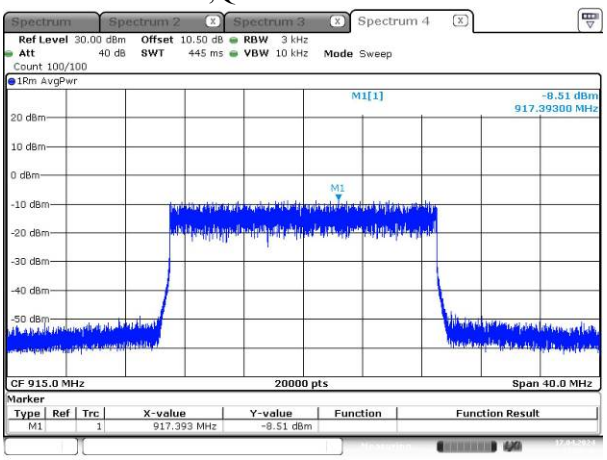
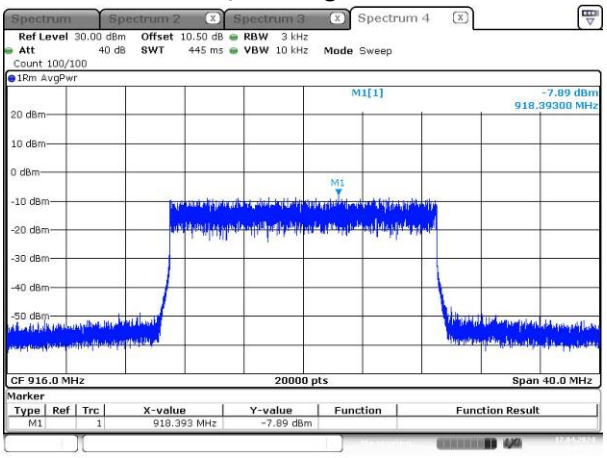
Date: 17.APR.2024 17:53:13

20MHz,QPSK Middle Channel



ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 17.APR.2024 17:55:48

20MHz,QPSK Highest Channel



ProjectNo.:SZ1240322-14909E Tester:Jojo Zhou
Date: 17.APR.2024 18:01:52