TEST REPORT

Applicant Name:	JEM ACCESSORIES INC.
Address:	32 Brunswick Avenue, Edison, New Jersey, United States, 08817
Report Number:	2401Y44801E-RF-00
FCC ID:	2AHAS-XBS91085

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	5W BT Speaker
Model No.:	XBS9-1085
Multiple Model(s) No.:	N/A
Trade Mark:	N/A
Date Received:	2024-10-22
Issue Date:	2024-12-24

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

GaLa Liu
RF Engineer

Approved By:

Michelle Zeng
RF Supervisor

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. Customer model name, addresses, names, trademarks etc. are included.
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401Y44801E-RF-00	Original Report	2024-12-24

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	2402~2480MHz
Transmit Peak Power	3.33dBm
Modulation Technique	Bluetooth: GFSK, π/4-DQPSK, 8DPSK
Antenna Specification#	-0.58dBi (provided by the applicant)
Voltage Range	DC 3.7V from battery or DC 5V from USB
Sample serial number	2TBG-3(Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissionrules.

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

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		109.2kHz(k=2, 95% level of confidence)
RF output power, conducted		0.86dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz-150kHz	3.63dB(k=2, 95% level of confidence)
	150kHz-30MHz	3.66dB(k=2, 95% level of confidence)
Radiated Emissions	0.009MHz~30MHz	3.60dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	5.32dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	5.43dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	5.77dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.73dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.34dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.40dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.64dB(k=2, 95% level of confidence)
Temperature		±1℃
Humidity		±1%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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.: 715558, the FCC Designation No.: CN5045.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	**2402**	40	2442
1	2403	41	2443
2	2404	42	2444
…	…	…	…
…	…	…	…
36	2438	75	2477
37	2439	76	2478
38	2440	77	2479
39	**2441**	**78**	**2480**
EUT was tested with Channel 0, 39 and 78.			

EUT Exercise Software

Exercise Software#	BT_Tool_V1.1.2
Power Level#	10

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

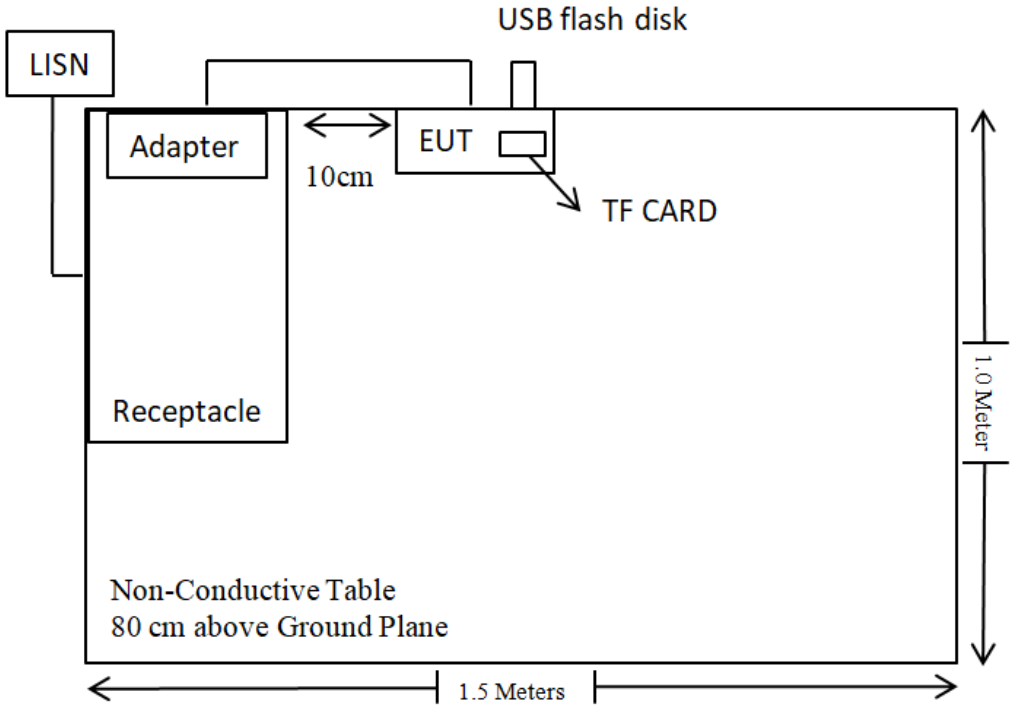
Manufacturer	Description	Model	Serial Number
XED	Adapter	XED-UL050100CU	unknown
SANDISK	TF CARD	SDSQUNC-032G-ZN3MN	41311661269
SANDISK	USB flash disk	SDCZ73-128G-Z35	2145507
Bull	Receptacle	unknown	unknown

External I/O Cable

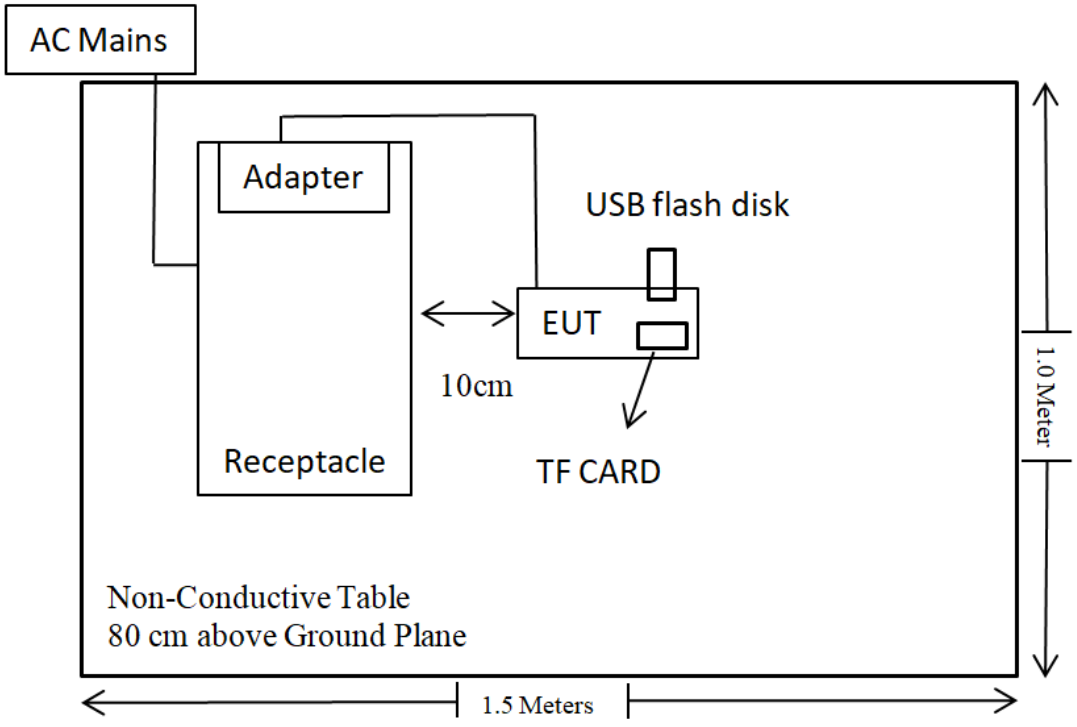
Cable Description	Length (m)	From Port	To
Un-shielding Detachable DC Cable	1	EUT	Adapter
Un-shielding Detachable AC Cable	1	Receptacle	LISN/AC Mains

Block Diagram of Test Setup

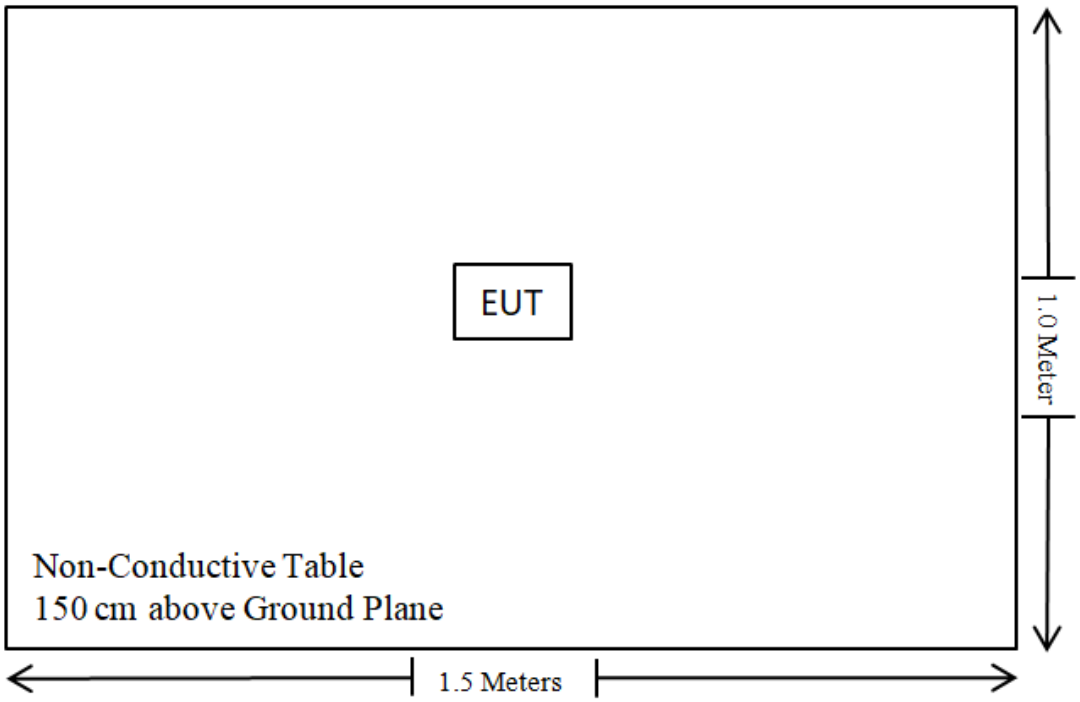
For Conducted Emissions:



For Radiated Emissions below 1GHz:



For Radiated Emissions above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207(a)	AC Line Conducted Emissions	Compliant
FCC §15.205, §15.209, §15.247(d)	Radiated Spurious Emission	Compliant
FCC §15.247(a)(1)	20 dB Emission Bandwidth	Compliant
FCC §15.247(a)(1)	Channel Separation	Compliant
FCC §15.247(a)(1)(iii)	Number of Hopping Frequency	Compliant
FCC §15.247(a)(1)(iii)	Time of Occupancy (dwell time)	Compliant
FCC §15.247(b)(1)	Maximum Conducted Output Power	Compliant
FCC §15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
FCC §1.1307&§2.1093&§15.247 (i)	RF Exposure	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2024/01/16	2025/01/15
Rohde & Schwarz	LISN	ENV216	101613	2024/01/16	2025/01/15
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2024/05/21	2025/05/20
Rohde & Schwarz	EMC Measurement	EMC32	V8.53.0	NCR	NCR
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2024/05/21	2025/05/20
Radiated Emission Test					
Sonoma instrument	Pre-amplifier	310N	186238	2024/05/21	2025/05/20
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
BACL	Active Loop Antenna	1313-1A	4031911	2024/05/14	2027/05/13
Unknown	Cable	XH500C	J-10M-A	2024/06/18	2025/06/17
Unknown	Cable	Chamber Cable 1	F-03-EM236	2024/06/18	2025/06/17
Rohde&Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2024/06/18	2025/06/17
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	UFA147	219661	2024/06/18	2025/06/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	2024/06/18	2025/06/17
A.H.System	Pre-amplifier	PAM-1840VH	190	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2024/06/18	2025/06/17
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200982	2024/09/20	2025/09/19
Rohde & Schwarz	Spectrum Analyzer	FSV40	101473	2024/01/16	2025/01/15
MARCONI	10dB Attenuator	6534/3	2942	2024/06/27	2025/06/26

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

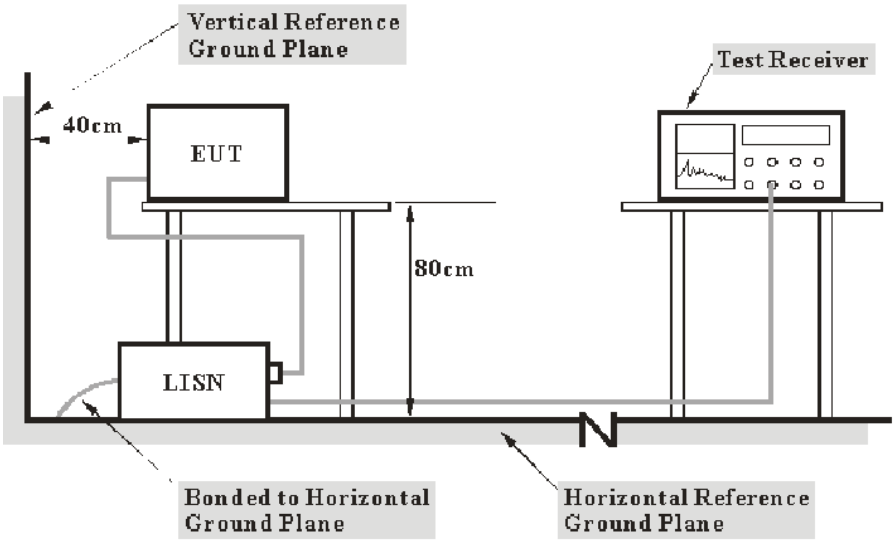
REQUIREMENTS AND TEST PROCEDURES

AC Line Conducted Emissions

Applicable Standard

FCC §15.207(a)

EUT Setup



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

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

The spacing between the peripherals was 10cm.

EMI Test Receiver Setup

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

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

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

Test Procedure

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

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

Corrected Factor & Margin Calculation

The Corrected Factor (Corr.) is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Correction Factor (Corr.) = LISN VDF + Cable Loss + Transient Limiter Attenuation

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

Margin = Limit – Corrected Amplitude

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

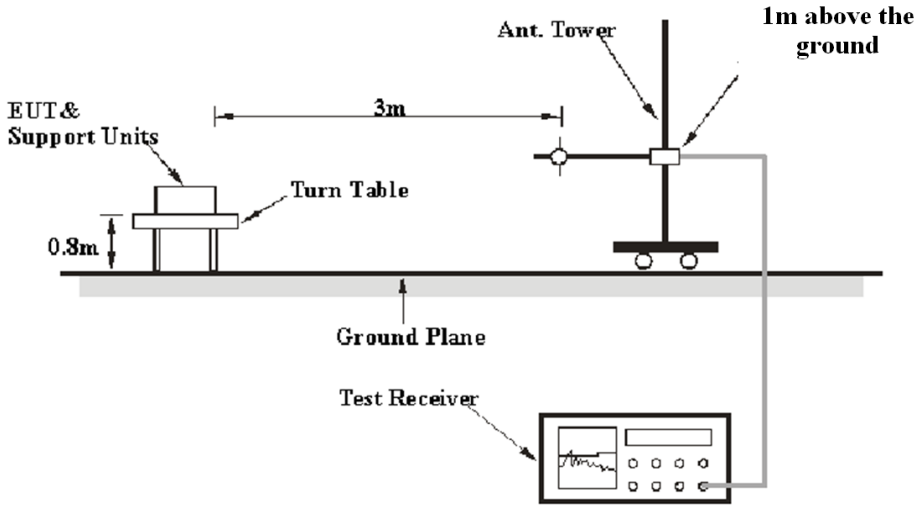
Radiated Emissions

Applicable Standard

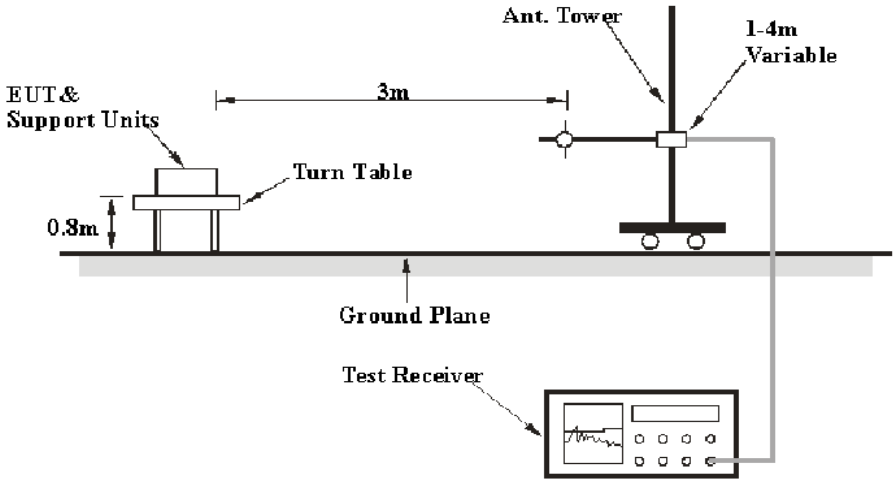
FCC §15.205; §15.209; §15.247(d)

EUT Setup

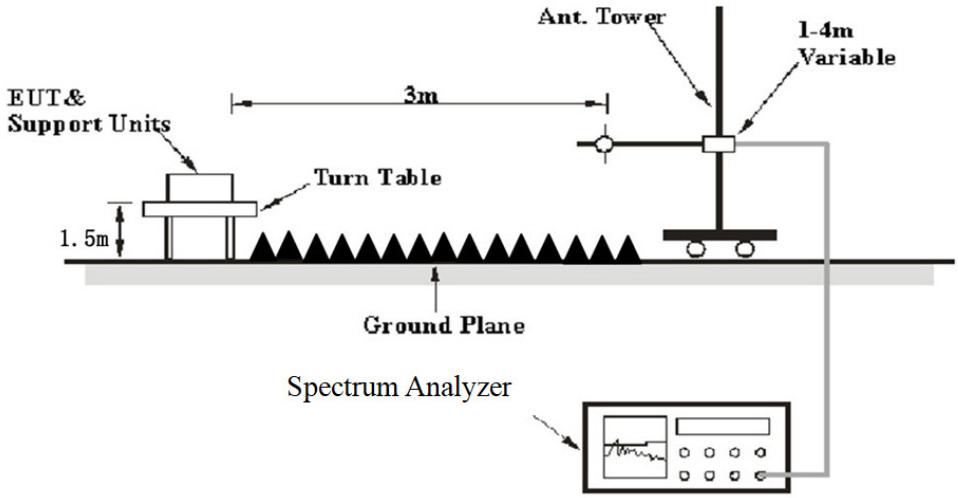
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3meters, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver&Spectrum Analyzer Setup

The EMI test receiver &Spectrum Analyzer Setup were set with the following configurations:

FrequencyRange	RBW	Video B/W	IF B/W	Measurement
9 kHz – 150 kHz	/	/	200Hz	QP
	300Hz	1 kHz	/	PK
150 kHz – 30 MHz	/	/	9 kHz	QP
	10 kHz	30 kHz	/	PK
30MHz – 1000 MHz	/	/	120kHz	QP
	100 kHz	300 kHz	/	PK
Above 1 GHz	Harmonics			
	1MHz	3 MHz	/	PK
	Average Emission Level=Peak Emission Level+20*log(Duty cycle)			
	Other Emissions			
	1MHz	3 MHz	/	PK
	1MHz	⩾10 Hz	/	Average

For Duty cycle measurement:

Use the duty cycle factor correction factor method per 15.35(c).
Duty cycle=On time/100milliseconds, On time=N1*L1+N2*L2+…Nn-1*Ln-1+Nn*Ln,
Where N1 is number of type 1 pulses, L1 is length of type 1 pulse, etc.

Test Procedure

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

All final data was recorded in Quasi-peak detection modeexcept for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative tothe limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless themargin is greater than 20 dB.

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

All emissions under the average limit and under the noise floor have not recorded in the report.

Factor & Over Limit/Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

Over Limit/Margin = Level/Corrected Amplitude–Limit
Level / Corrected Amplitude = Read Level + Factor

20 dBEmission Bandwidth

Applicable Standard

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.7 &Clause 6.9.2

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five 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 video bandwidth (VBW) shall be approximately three times 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.

d) Steps a) through c) might require iteration to adjust within the specified tolerances.

e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "−xx dB down" requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below thereference value.

f) Set detection mode to peak and trace mode to max hold.

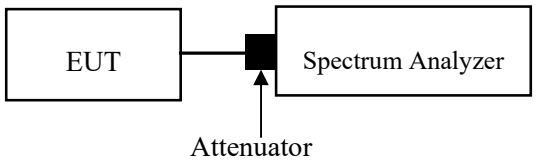
g) Determine the reference value: Set the EUT to transmit an un-modulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to thehighest level of the displayed trace (this is the reference value).

h) Determine the "−xx dB down amplitude" using [(reference value) −xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.

i) If the reference value is determined by an un-modulated carrier, then turn the EUT modulation on, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).

j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−xx dB down amplitude"determined in step h). If a marker is below this "−xx dB down amplitude"value, then it shall be as close as possible to this value. The occupied bandwidth is the frequencydifference between the two markers. Alternatively, set a marker at the lowest frequency of theenvelope of the spectral display, such that the marker is at or slightly below the "−xx dB downamplitude" determined in step h). Reset the marker-delta function and move the marker to theother side of the emission until the delta marker amplitude is at the same level as the referencemarker amplitude. The marker-delta frequency reading at this point is the specified emissionbandwidth.

k) 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).



Channel Separation Test

Applicable Standard

Frequency hopping systems shall have hoping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

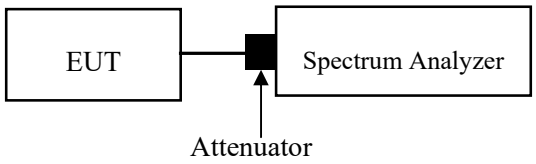
Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.2

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: Wide enough to capture the peaks of two adjacent channels.
b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
c) Video (or average) bandwidth (VBW) ≥RBW.
d) Sweep: Auto.
e) Detector function: Peak.
f) Trace: Max hold.
g) Allow the trace to stabilize.

Use the marker-delta function to determinethe separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined.



Note: The limit is 2/3*20 dB bandwidth

Quantity of Hopping Channel Test

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that
a minimum of 15 channels are used.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.3

a) Span: The frequency band of operation. Depending on the number of channels the devicesupports, it may be necessary to divide the frequency range of operation across multiple spans,to allow the individual channels to be clearly seen.

b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channelspacing or the 20 dB bandwidth, whichever is smaller.

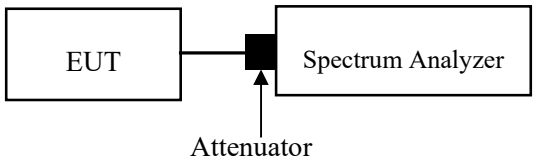
c) VBW ≥RBW.

d) Sweep: Auto.

e) Detector function: Peak.

f) Trace: Max hold.

It might prove necessary to break the span up into sub ranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels.



Time of Occupancy (Dwell Time)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.4

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: Zero span, centered on a hopping channel.
b) RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel.
c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the startof the plot. The trigger level might need slight adjustment to prevent triggering when the systemhops on an adjacent channel; a second plot might be needed with a longer sweep time to showtwo successive hops on a channel.
d) Detector function: Peak.
e) Trace: Max hold.

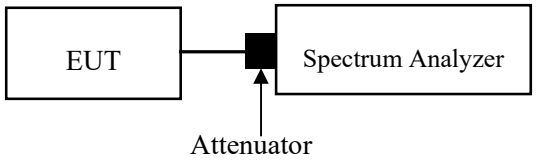
Use the marker-delta function to determine the transmit time per hop. If this value varies with differentmodes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this testfor each variation in transmit time.

Repeat the measurement using a longer sweep time to determine the number of hops over the periodspecified in the requirements. The sweep time shall be equal to, or less than, the period specified in therequirements. Determine the number of hops over the sweep time and calculate the total number of hops inthe period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) =(number of hops on spectrum analyzer) ×(period specified in the requirements / analyzer sweep time)

The average time of occupancy is calculated from the transmit time per hop multiplied by the number ofhops in the period specified in the requirements. If the number of hops in a specific time varies withdifferent modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeatthis test for each variation.

The measured transmit time and time between hops shall be consistent with the values described in theoperational description for the EUT.



Peak Output Power Measurement

Applicable Standard

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. And for all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.5

This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between theantenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. Thehopping shall be disabled for this test:

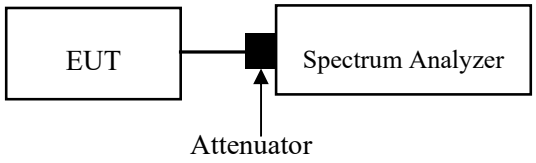
a) Use the following spectrum analyzer settings:

1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
2) RBW > 20 dB bandwidth of the emission being measured.
3) VBW ⩾ RBW.
4) Sweep: Auto.
5) Detector function: Peak.
6) Trace: Max hold.

b) Allow trace to stabilize.

c) Use the marker-to-peak function to set the marker to the peak of the emission.

d) The indicated level is the peak output power, after any corrections for external attenuators andcables.



Note: A short RF cable with low cable loss connected to the EUT antenna port,which was provided by client or lab, the cable loss was add with offset into test equipment, the total offset consists of attenuator an d/or RF cable loss

Band Edges

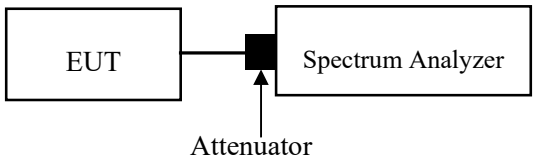
Applicable Standard

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

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.6 &Clause 6.10

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 100 kHz with a convenient frequency spanincluding 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



ANTENNA REQUIREMENT

Applicable Standard

According to 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.

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.

Antenna Connector Construction

The EUT has one internal antenna arrangement, which was permanently attached, the antenna gain[#] is -0.58dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant

TEST DATA AND RESULTS

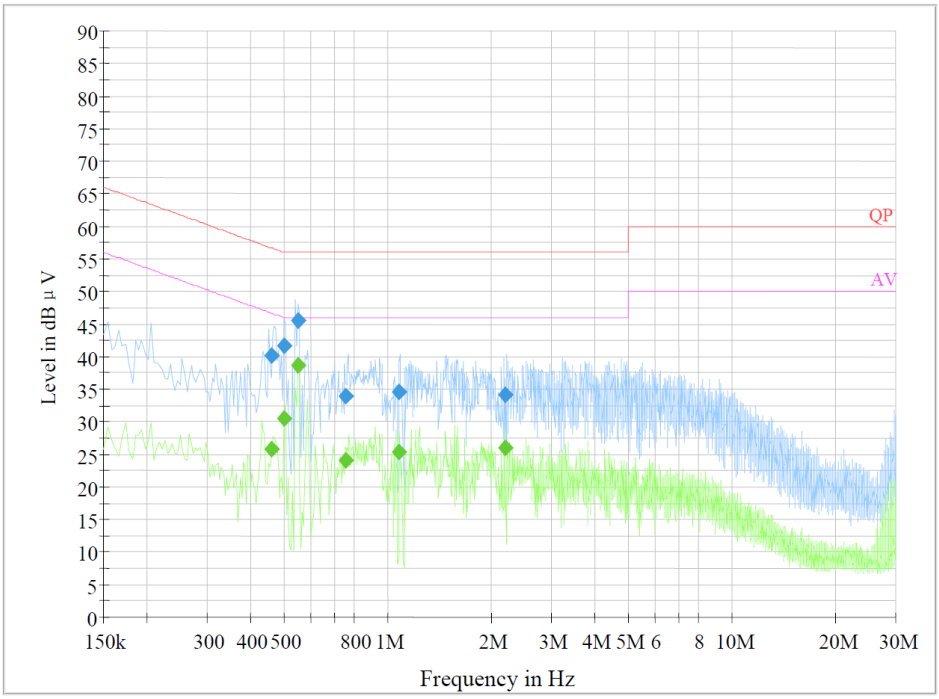
AC Line Conducted Emissions

Environmental Conditions

Temperature (℃)	24.7	**Relative Humidity (%)**	56
ATM Pressure (kPa)	101.5	**Test engineer**	Macy shi
Test date	2024.12.12		
EUT operation mode	Transmitting(Maximum output power mode, EDR (8DPSK) High Channel)		

AC120V 60 Hz, Line

Project No.:	2401Y44801E-RF	**Environmental Conditions:**	24.7°C56%RH 101.5kPa
EUT Number:	2TBG -3	**Test By**	Macy Shi
Test Mode:	(Maximum output power mode, EDR (8DPSK) High Channel)	**Date:** 2024.12.12	



Final Result 1

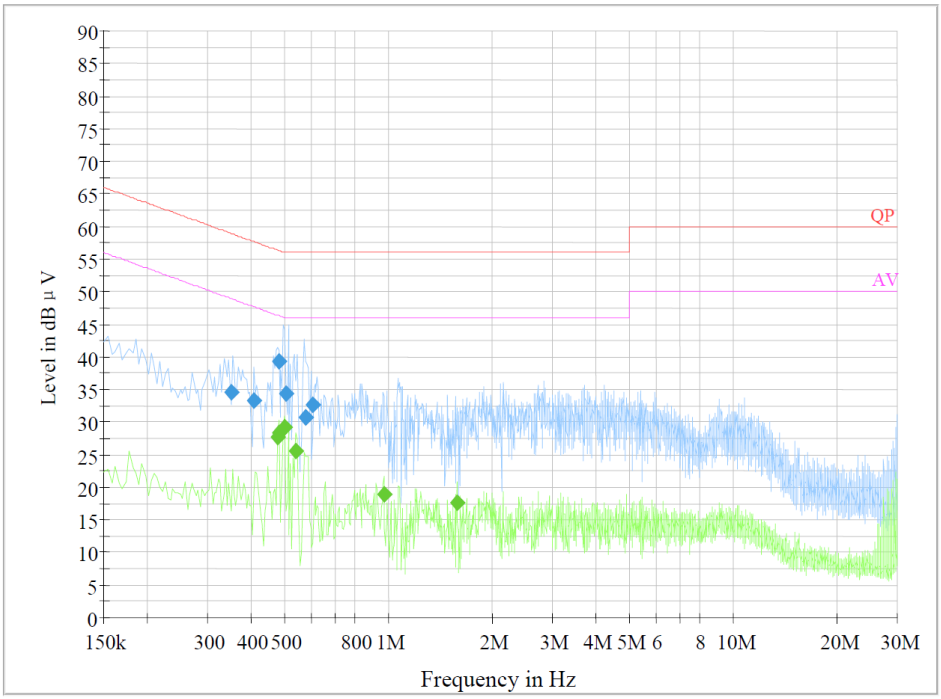
Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.462950	40.1	9.000	L1	20.7	16.5	56.6
0.502470	41.8	9.000	L1	20.6	14.2	56.0
0.550130	45.6	9.000	L1	20.6	10.4	56.0
0.758450	34.0	9.000	L1	20.6	22.0	56.0
1.081650	34.5	9.000	L1	20.5	21.5	56.0
2.200610	34.3	9.000	L1	20.7	21.7	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.462950	25.8	9.000	L1	20.7	20.8	46.6
0.502470	30.5	9.000	L1	20.6	15.5	46.0
0.550130	38.8	9.000	L1	20.6	7.2	46.0
0.758450	24.0	9.000	L1	20.6	22.0	46.0
1.081650	25.4	9.000	L1	20.5	20.6	46.0
2.200610	25.9	9.000	L1	20.7	20.1	46.0

AC120V 60 Hz, Neutral

Project No.:	2401Y44801E-RF	**Environmental Conditions:**	24.7°C56%RH 101.5kPa
EUT Number:	2TBG -3	**Test By**	Macy Shi
Test Mode:	(Maximum output power mode, EDR (8DPSK) High Channel)	**Date:** 2024.12.12	



Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.352690	34.7	9.000	N	20.7	24.2	58.9
0.407850	33.3	9.000	N	20.7	24.4	57.7
0.482830	39.3	9.000	N	20.8	17.0	56.3
0.505470	34.4	9.000	N	20.8	21.6	56.0
0.577450	30.7	9.000	N	20.8	25.3	56.0
0.606970	32.6	9.000	N	20.8	23.4	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.478000	27.8	9.000	N	20.8	18.6	46.4
0.482000	28.4	9.000	N	20.8	17.9	46.3
0.502000	29.3	9.000	N	20.8	16.7	46.0
0.542000	25.6	9.000	N	20.8	50.4	46.0
0.974000	18.9	9.000	N	21.0	27.1	46.0
1.582000	17.6	9.000	N	20.7	28.4	46.0

Radiated Emissions

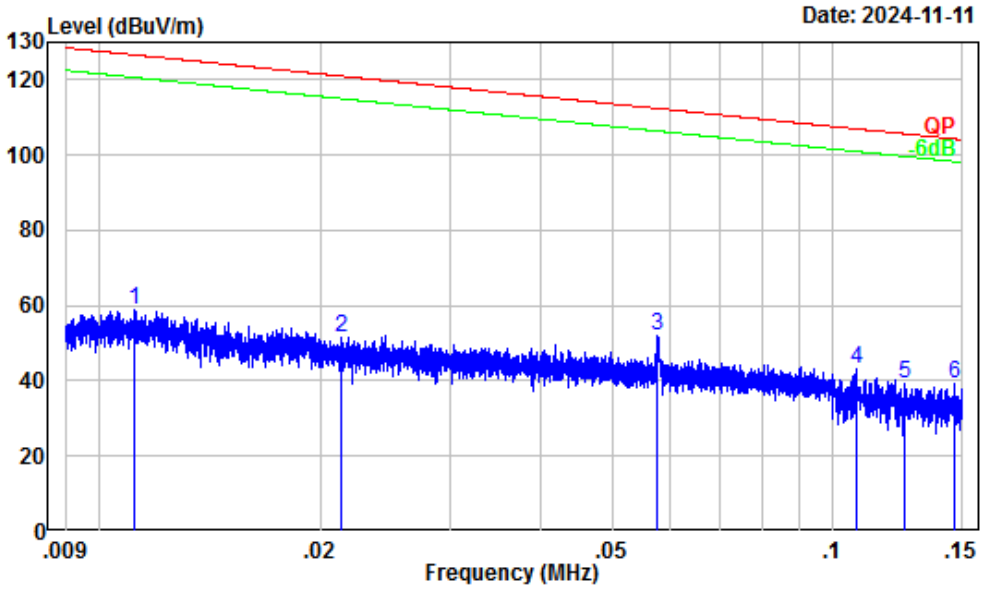
Environmental Conditions

Temperature (℃)	24~26	**Relative Humidity (%)**	49~52
ATM Pressure (kPa):	101	**Test engineer:**	Carl Zhu& Karl Xu& Dylan Yang
Test date:	2024-11-09~2024.12.24		
EUT operation mode:	Below 1GHz: Transmitting(Maximum output power mode, EDR (8DPSK) High Channel) Above 1GHz: Transmitting(Maximum output power mode, EDR (8DPSK))		
Note:	Pre-scan in the X, Y and Z axes of orientation, the worst case Y-axis of orientation was recorded.		

Below 1GHz:

9kHz-30 MHz: (Parallel was the worst)

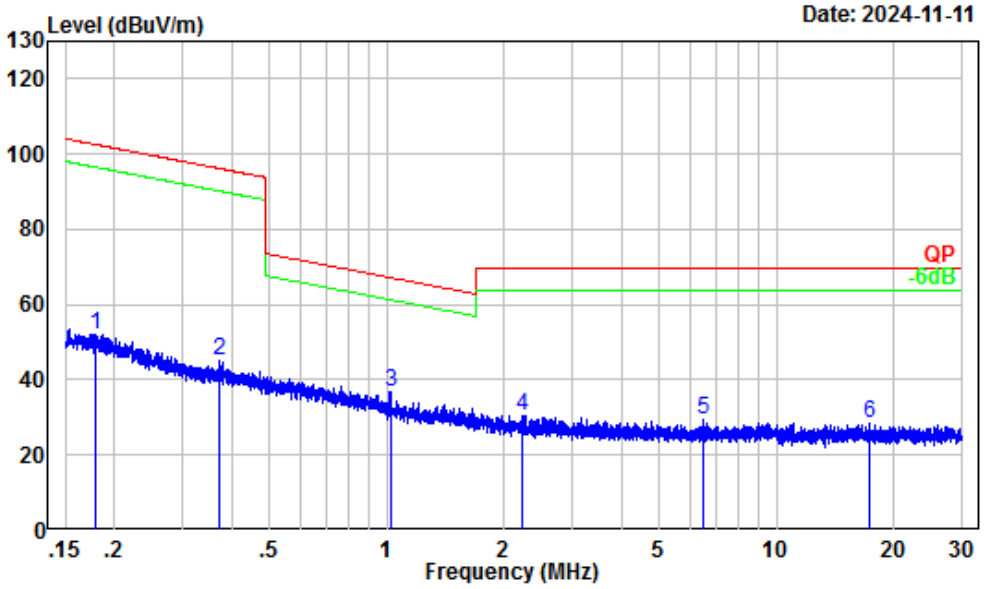
9 kHz-150 kHz



Site : Chamber A
Condition : 3m
Project Number: 2401Y44801E-RF
Test Mode : Transmitting
Tester : Carl Zhu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.01	32.08	26.99	59.07	126.65	-67.58	Peak
2	0.02	30.15	21.36	51.51	121.02	-69.51	Peak
3	0.06	25.63	26.45	52.08	112.39	-60.31	Peak
4	0.11	21.54	21.46	43.00	106.96	-63.96	Peak
5	0.13	20.51	18.73	39.24	105.65	-66.41	Peak
6	0.15	19.28	20.18	39.46	104.31	-64.85	Peak

150kHz-30MHz

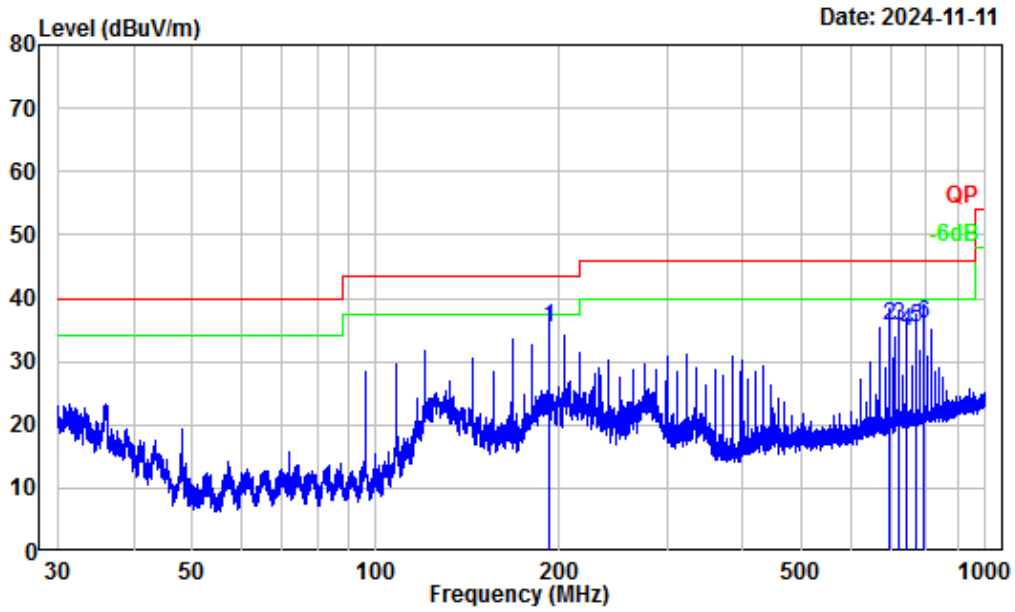


Site : Chamber A
Condition : 3m
Project Number: 2401Y44801E-RF
Test Mode : Transmitting
Tester : Carl Zhu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.18	17.28	34.84	52.12	102.49	-50.37	Peak
2	0.37	8.83	36.44	45.27	96.20	-50.93	Peak
3	1.02	1.14	35.50	36.64	67.28	-30.64	Peak
4	2.22	-1.72	32.37	30.65	69.54	-38.89	Peak
5	6.51	-2.93	32.46	29.53	69.54	-40.01	Peak
6	17.33	-2.70	30.99	28.29	69.54	-41.25	Peak

30MHz-1GHz:

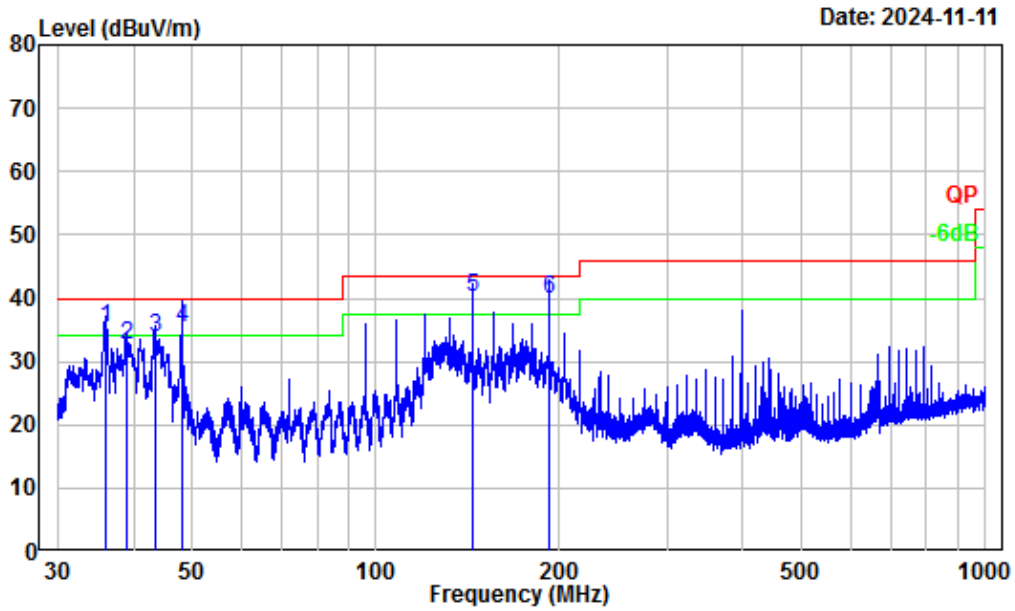
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401Y44801E-RF
Test Mode : Transmitting
Tester : Carl Zhu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	192.00	-12.98	48.24	35.26	43.50	-8.24	QP
2	696.25	-6.62	42.14	35.52	46.00	-10.48	QP
3	720.15	-6.16	41.85	35.69	46.00	-10.31	QP
4	744.21	-5.70	40.44	34.74	46.00	-11.26	QP
5	768.07	-5.40	40.71	35.31	46.00	-10.69	QP
6	792.35	-5.18	41.21	36.03	46.00	-9.97	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401Y44801E-RF
Test Mode : Transmitting
Tester : Carl Zhu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36.05	-10.30	45.54	35.24	40.00	-4.76	QP
2	39.06	-12.53	45.08	32.55	40.00	-7.45	QP
3	43.51	-15.72	49.49	33.77	40.00	-6.23	QP
4	48.02	-18.19	53.59	35.40	40.00	-4.60	QP
5	144.02	-13.33	53.61	40.28	43.50	-3.22	QP
6	192.00	-12.98	52.73	39.75	43.50	-3.75	QP

Above 1GHz:

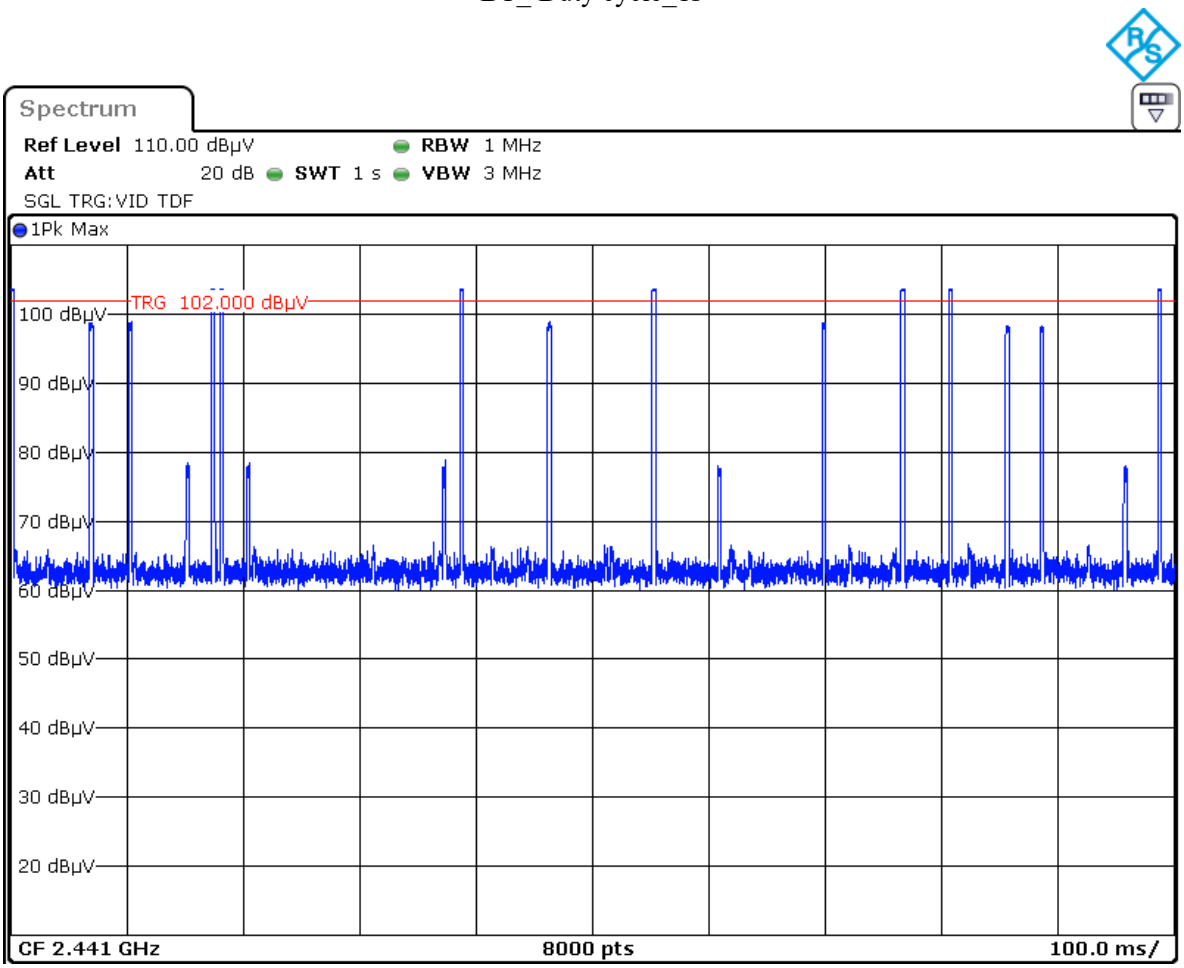
Frequency (MHz)	Reading (dBµV)	Detector (PK/Ave)	Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
8DPSK							
Low Channel							
4804	52.29	PK	H	2.42	54.71	74	-19.29
4804	47.72	PK	V	2.42	50.14	74	-23.86
Middle Channel							
4880	52.09	PK	H	2.58	54.67	74	-19.33
4880	47.88	PK	V	2.58	50.46	74	-23.54
High Channel							
4960	51.85	PK	H	2.69	54.54	74	-19.46
4960	49.01	PK	V	2.69	51.7	74	-22.3

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude/Level = Factor + Reading
Margin = Corrected Amplitude/Level - Limit
The other spurious emission which is in the noise floor level was not recorded.

Field Strength of Average							
Frequency (MHz)	Peak Measurement @3m (dBµV/m)	Polar (H/V)	Duty Cycle Correction Factor (dB)	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel							
4804	54.71	H	-24.73	29.98	54	-24.02	Harmonic
4804	50.14	V	-24.73	25.41	54	-28.59	Harmonic
Middle Channel							
4880	54.67	H	-24.73	29.94	54	-24.06	Harmonic
4880	50.46	V	-24.73	25.73	54	-28.27	Harmonic
High Channel							
4960	54.54	H	-24.73	29.81	54	-24.19	Harmonic
4960	51.7	V	-24.73	26.97	54	-27.03	Harmonic

Note: Average level= Peak level + Duty Cycle Corrected Factor
Margin = Average level - Limit
Worst case duty cycle:
Duty cycle = Ton/100ms = 2.899*2/100=0.05798
Duty Cycle Corrected Factor = 20lg (Duty cycle) = 20lg0.05798 = -24.73

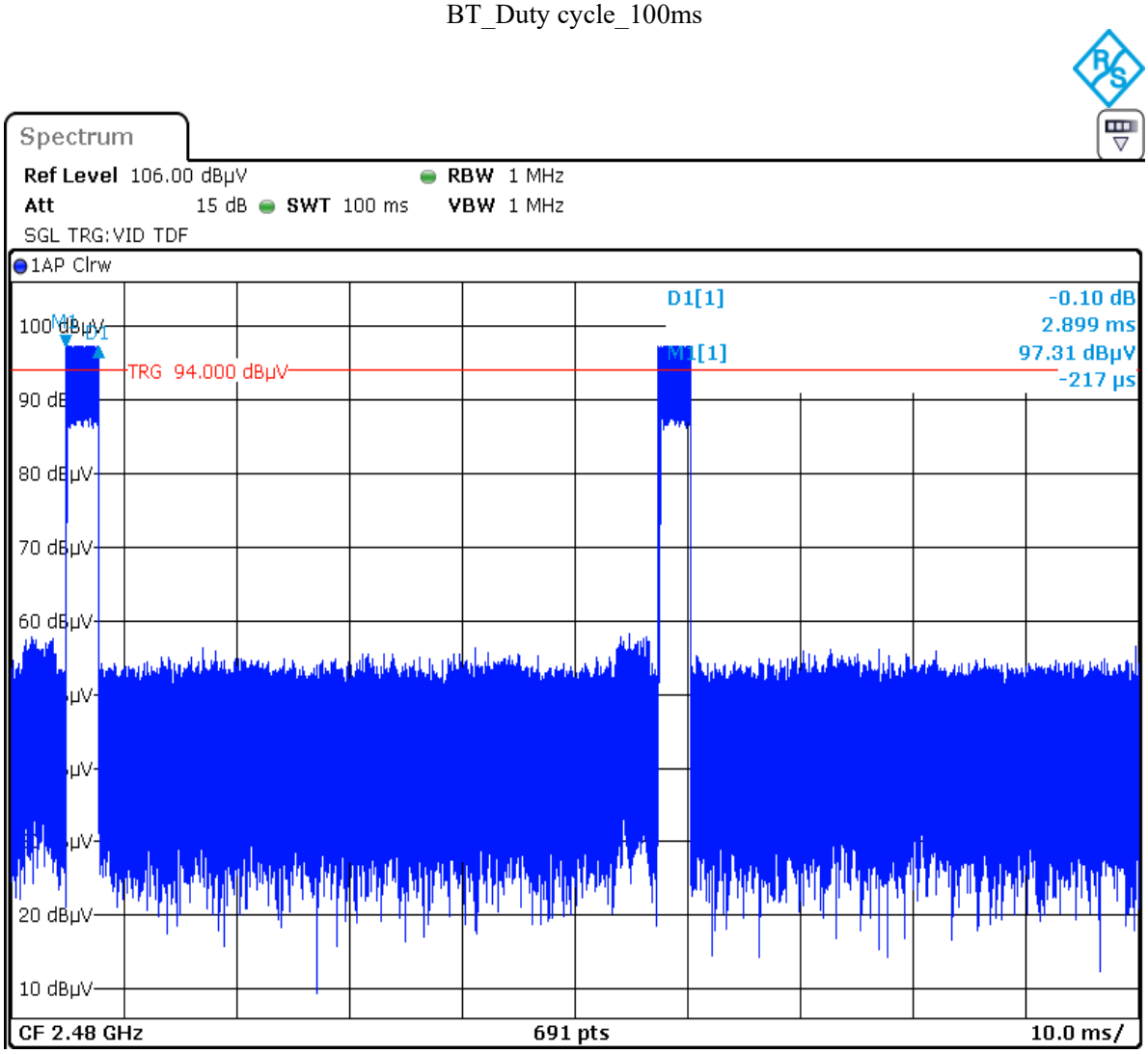
BT_ Duty cycle_1s



ProjectNo.:2401Y44801E-RF Tester:Dylan Yang

Date: 24.DEC.2024 14:19:58

BT_Duty cycle_100ms

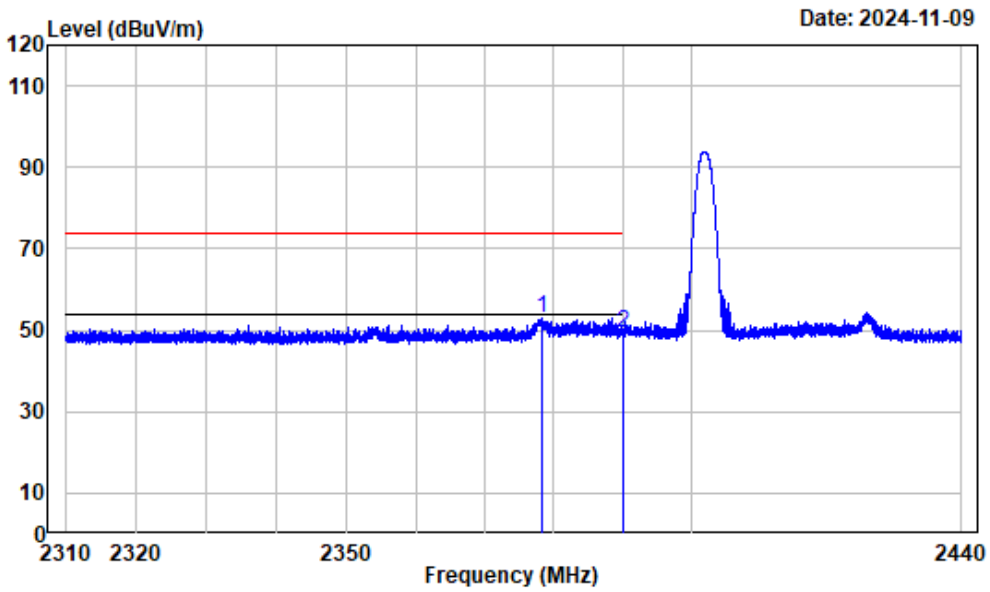


ProjectNo.:2401Y44801E-RF Tester:Karl Xu

Date: 9.NOV.2024 16:24:17

Test plots

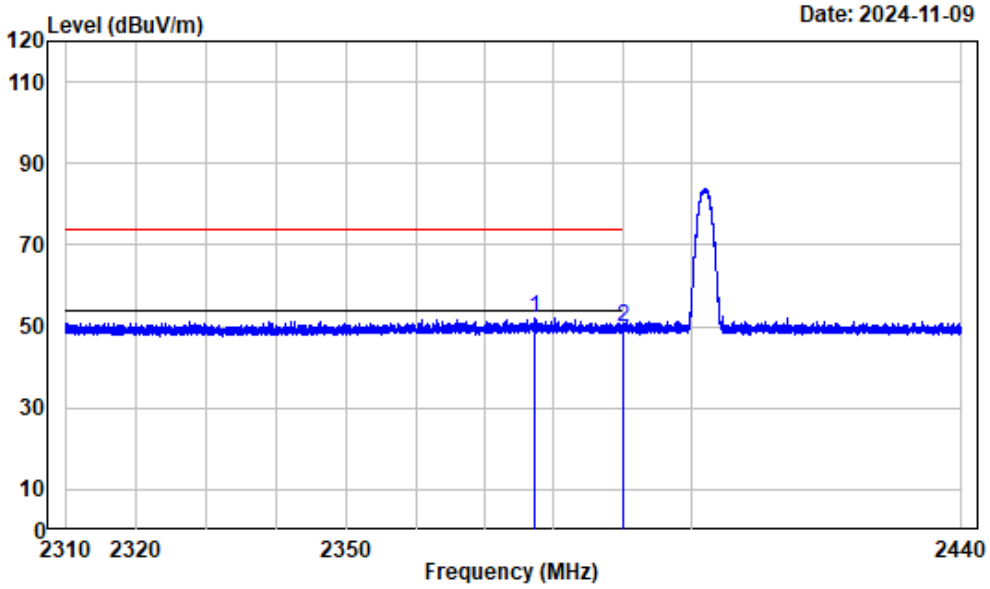
Left Band edge_ Horizontal



Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2378.210	-3.19	56.26	53.07	74.00	-20.93	peak
2	2390.000	-3.20	52.77	49.57	74.00	-24.43	Peak

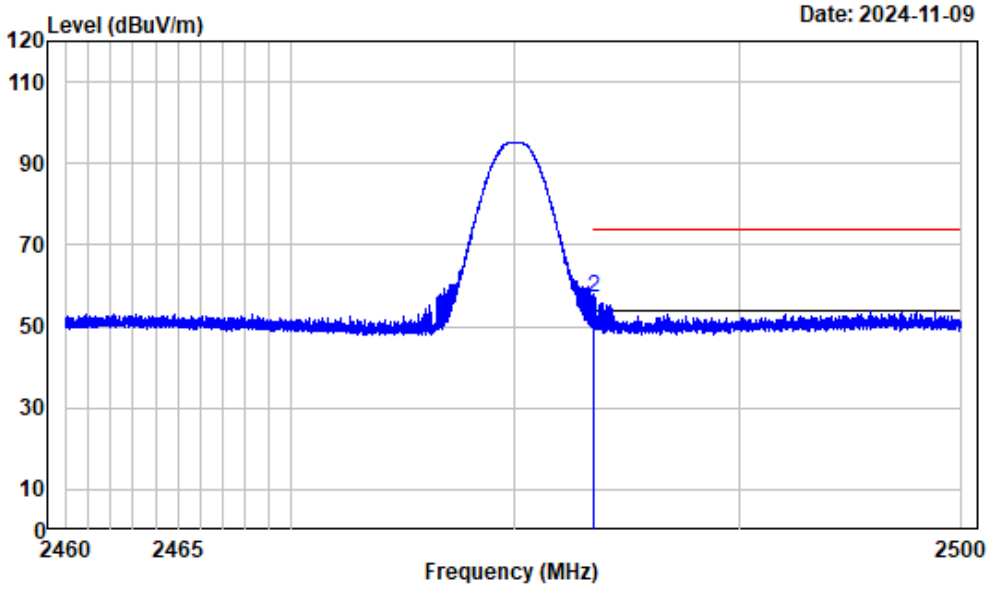
Left Band edge_Vertical



Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2377.072	-3.18	55.36	52.18	74.00	-21.82	Peak
2	2390.000	-3.20	53.11	49.91	74.00	-24.09	Peak

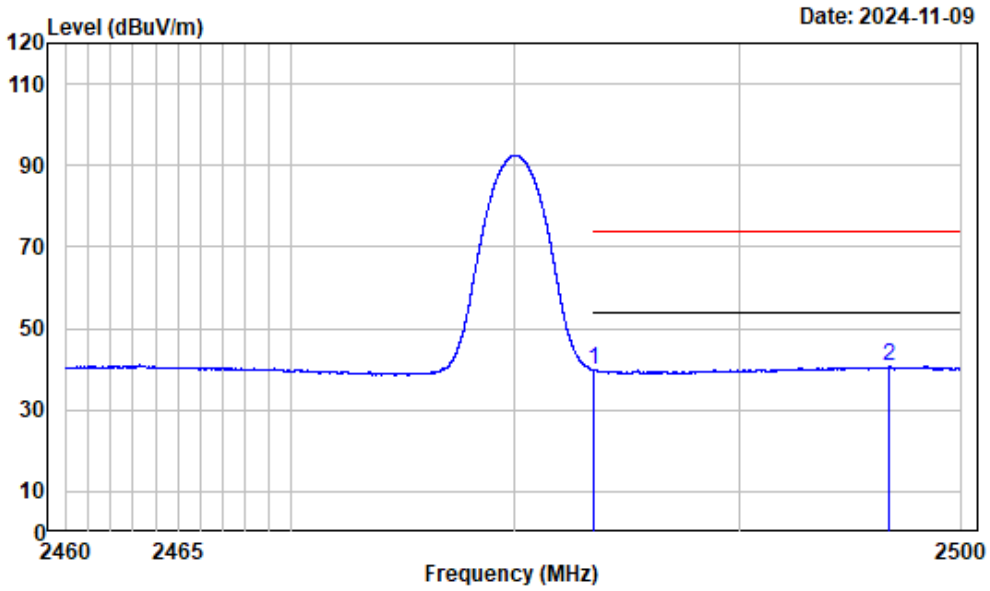
Right Band edge_Horizontal _Peak



Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	53.16	49.99	74.00	-24.01	Peak
2	2483.543	-3.17	60.29	57.12	74.00	-16.88	peak

Right Band edge _Horizontal_Average

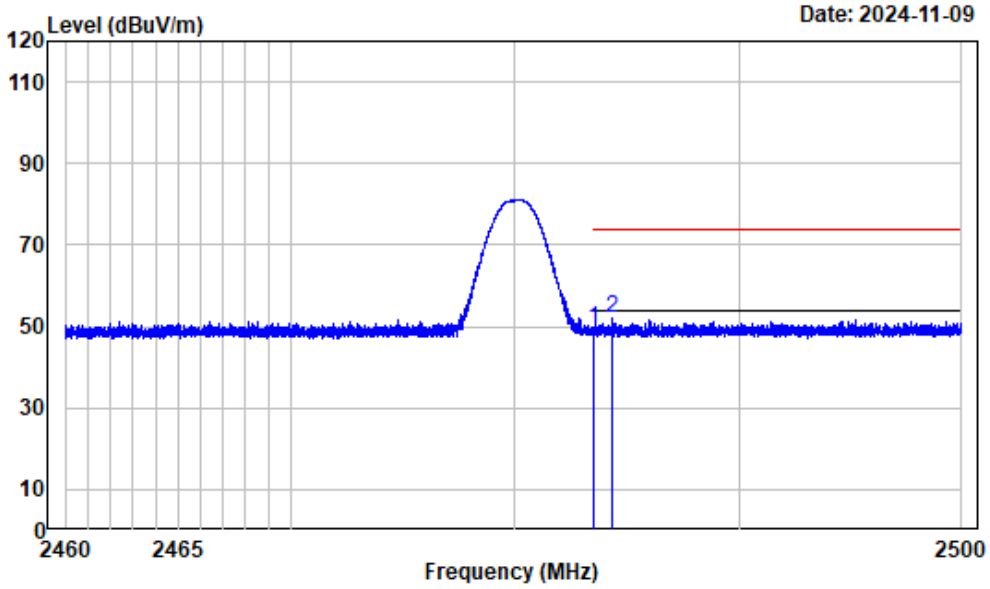


Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2480_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	43.10	39.93	54.00	-14.07	Average
2	2496.780	-3.19	43.88	40.69	54.00	-13.31	Average

Note: Spectrum analyzer setting: RBW=1 MHz, VBW=5 kHz

Right Band edge _Vertical

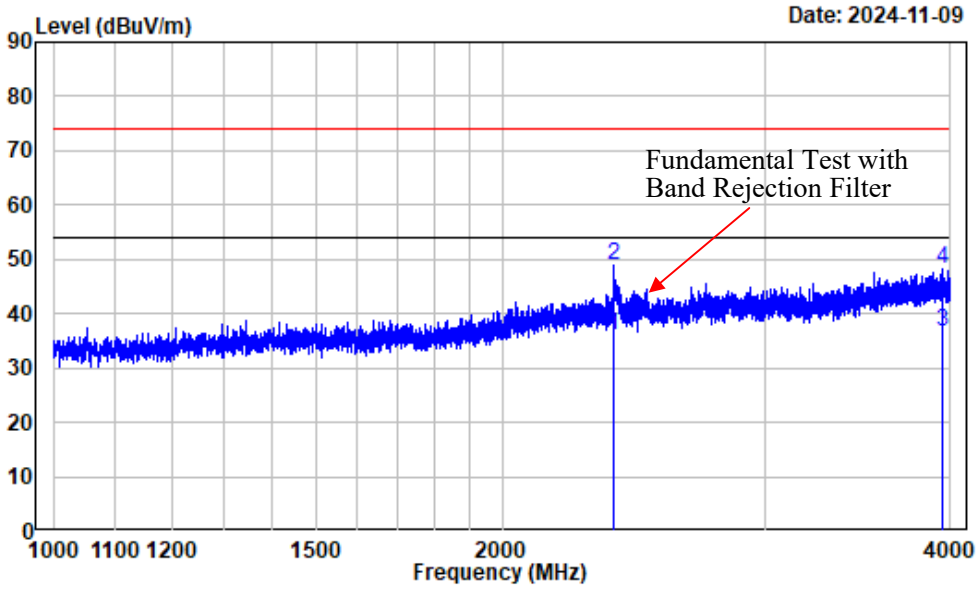


Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	52.73	49.56	74.00	-24.44	Peak
2	2484.298	-3.17	55.23	52.06	74.00	-21.94	peak

Worst Harmonic test plot (8DPSK, low channel)

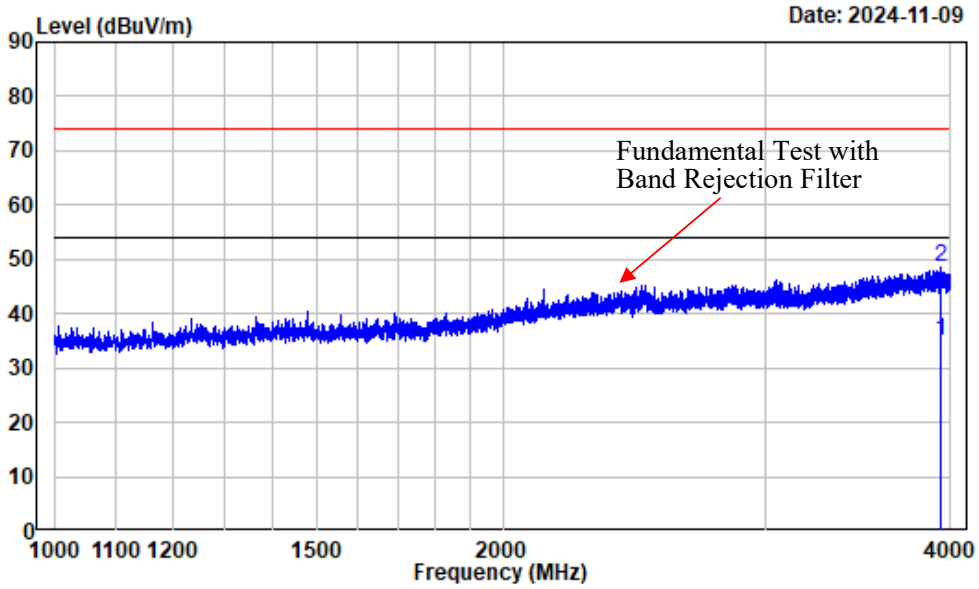
1-4GHz_Horizontal



Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2377.547	-3.19	39.23	36.04	54.00	-17.96	Average
2	2377.547	-3.19	52.21	49.02	74.00	-24.98	Peak
3	3955.369	-0.17	37.01	36.84	54.00	-17.16	Average
4	3955.369	-0.17	48.53	48.36	74.00	-25.64	Peak

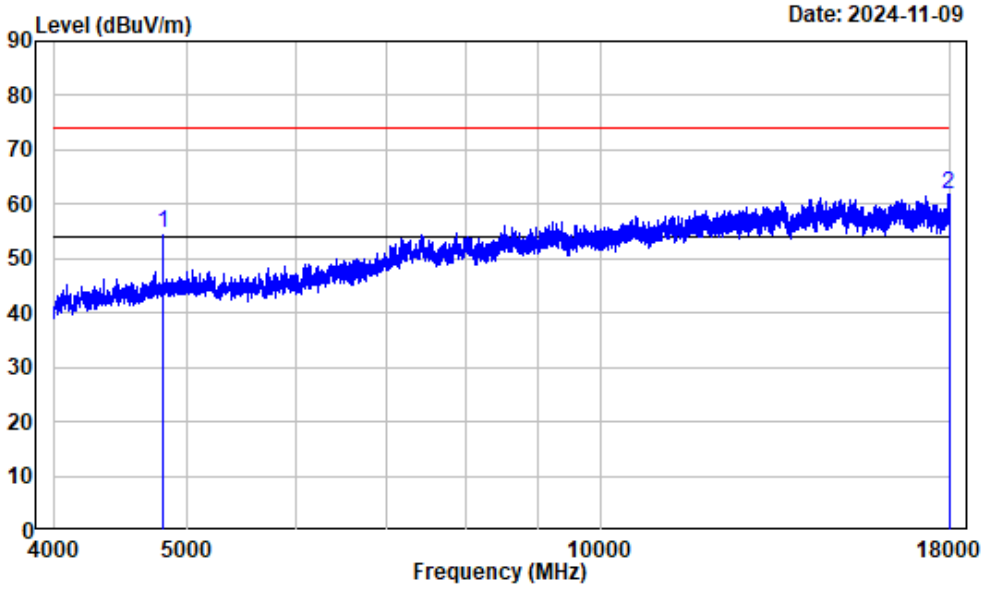
1-4GHz_Vertical



Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3942.618	-0.22	35.37	35.15	54.00	-18.85	Average
2	3942.618	-0.22	48.65	48.43	74.00	-25.57	Peak

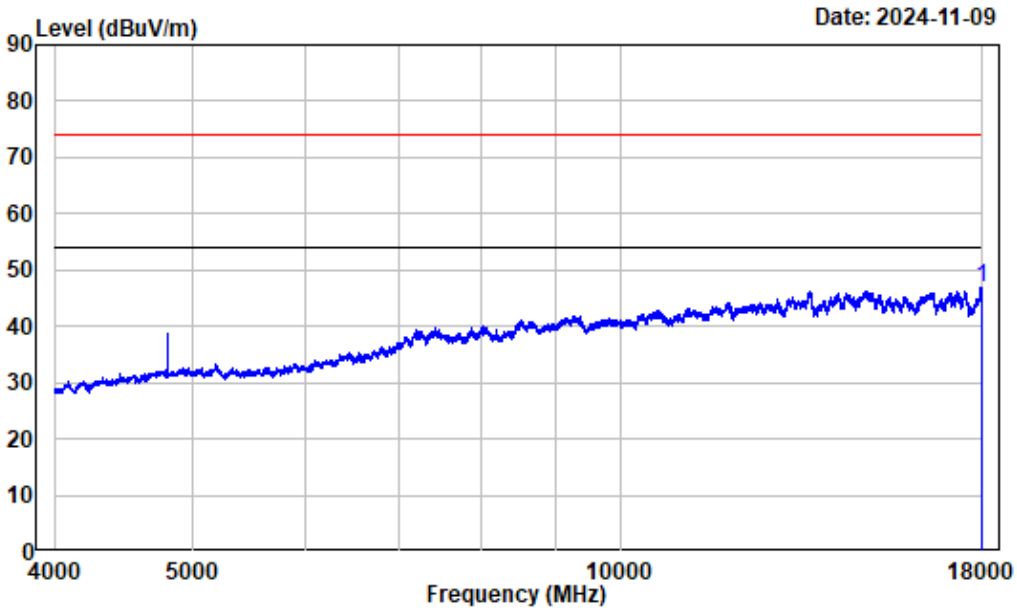
4-18GHz_Horizontal_Peak



Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	2.42	52.29	54.71	74.00	-19.29	Peak
2	17956.240	24.31	37.61	61.92	74.00	-12.08	Peak

4-18GHz_Horizontal_Average

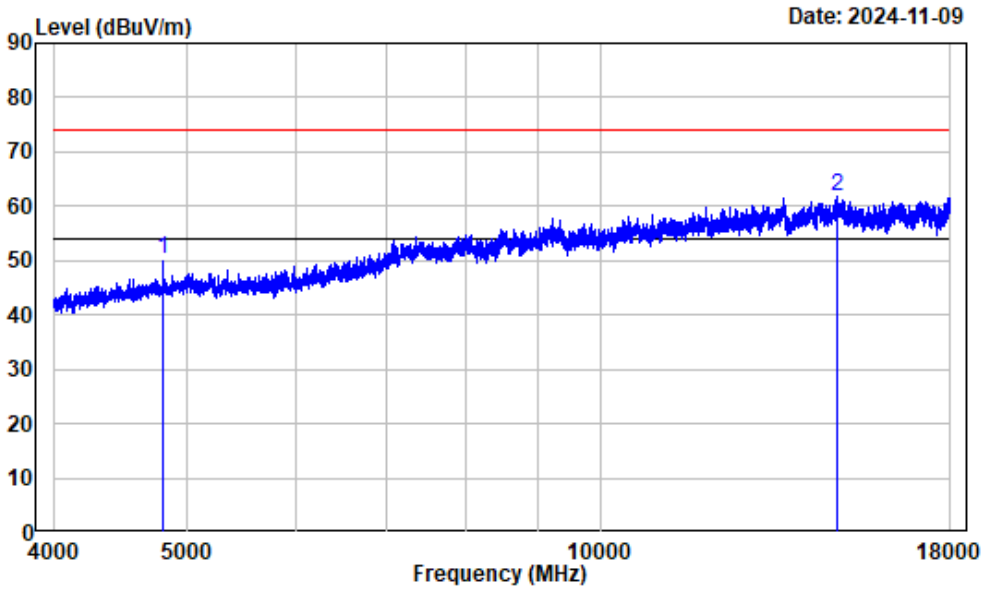


Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	17961.500	24.35	22.68	47.03	54.00	-6.97	Average

Note: Spectrum analyzer setting: RBW=1 MHz, VBW=5 kHz

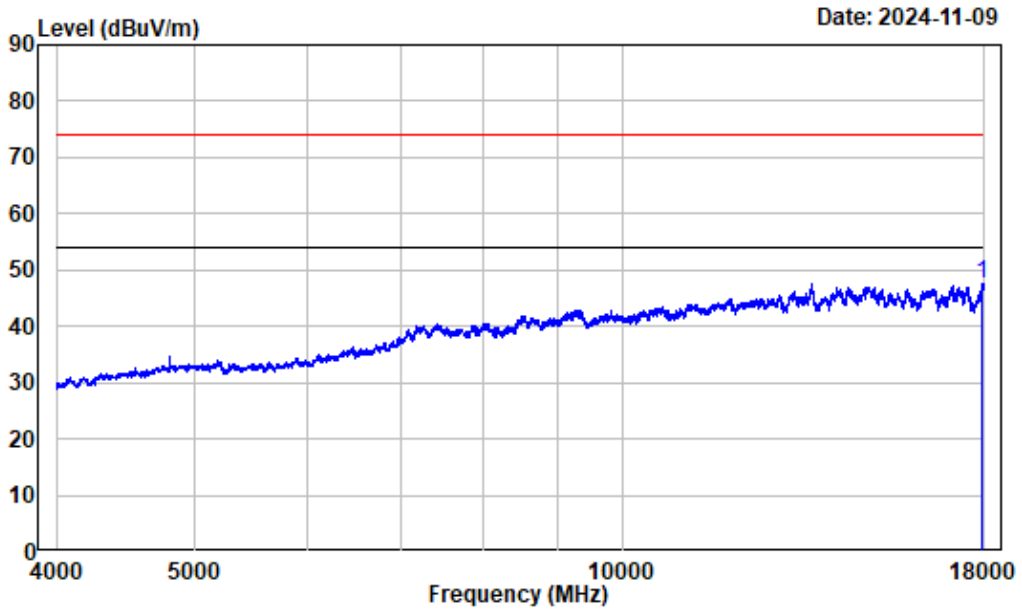
4-18GHz_Vertical_Peak



Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	2.42	47.72	50.14	74.00	-23.86	Peak
2	14867.110	16.68	45.04	61.72	74.00	-12.28	Peak

4-18GHz_Vertical_Average

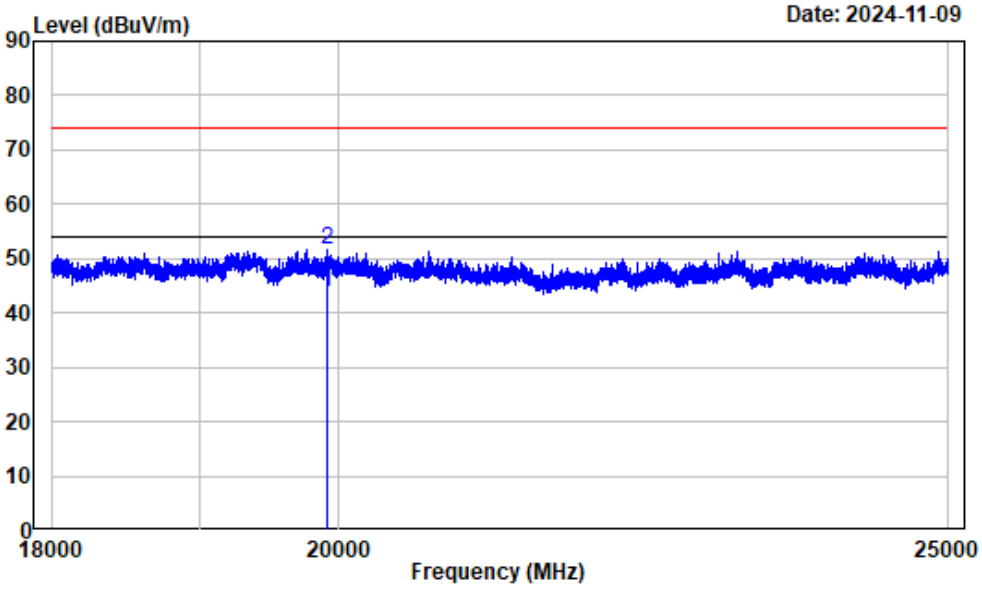


Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	17940.490	24.19	23.44	47.63	54.00	-6.37	Average

Note: Spectrum analyzer setting: RBW=1 MHz, VBW=5 kHz

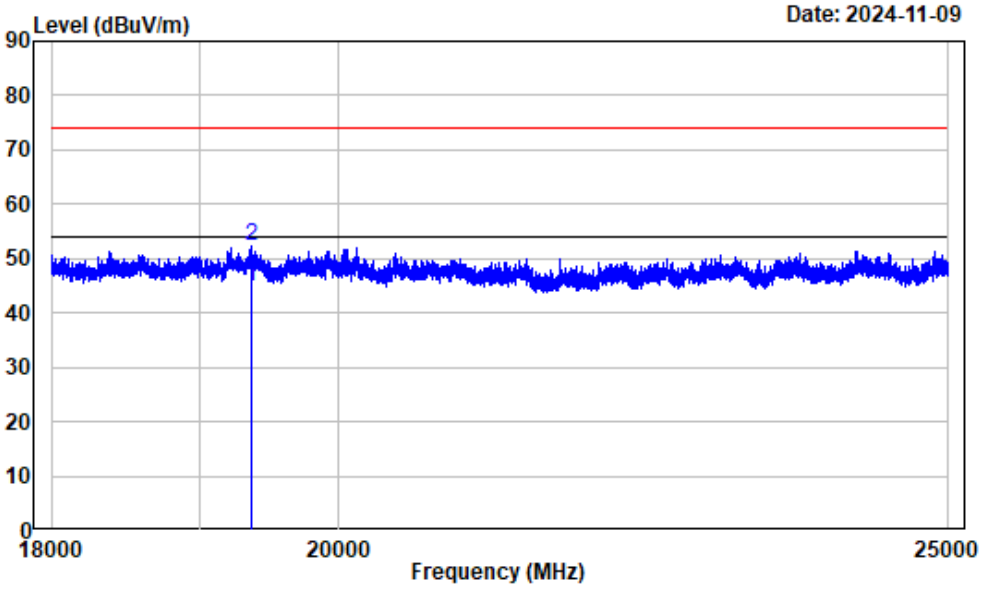
18-25GHz_Horizontal



Condition : Horizontal
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19907.740	15.41	28.34	43.75	54.00	-10.25	Average
2	19907.740	15.41	36.29	51.70	74.00	-22.30	Peak

18-25GHz_Vertical



Condition : Vertical
Project No: 2401Y44801E-RF
Tester : Karl Xu
Note : BT_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19367.800	15.12	29.57	44.69	54.00	-9.31	Average
2	19367.800	15.12	37.21	52.33	74.00	-21.67	Peak

20 dB Emission Bandwidth

Test Information:

Sample No.:	2TBG-3	**Test Date:**	2024/11/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	N/A

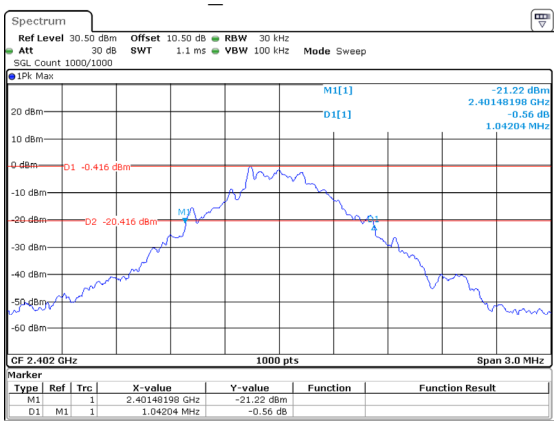
Environmental Conditions:

Temperature: (°C):	23.5	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101

Test Data:

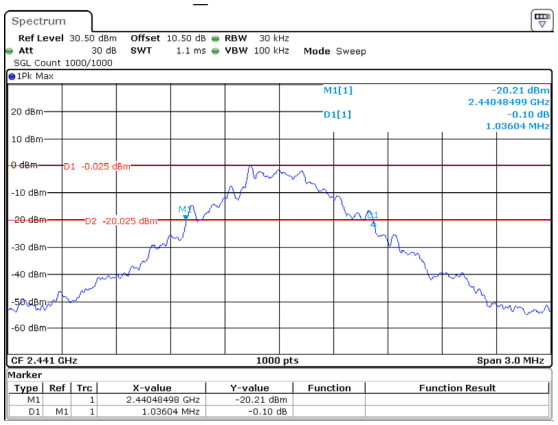
Mode	Channel	Result (MHz)	Verdict
DH1	Low Channel	1.042	Pass
	Middle Channel	1.036	Pass
	High Channel	1.033	Pass
2DH1	Low Channel	**1.294**	Pass
	Middle Channel	1.291	Pass
	High Channel	1.288	Pass
3DH1	Low Channel	1.252	Pass
	Middle Channel	1.261	Pass
	High Channel	1.258	Pass

DH1_Low 1.042MHz



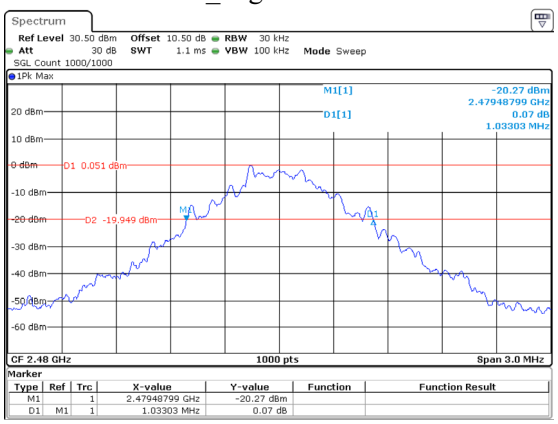
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:55:35

DH1_Middle 1.036MHz



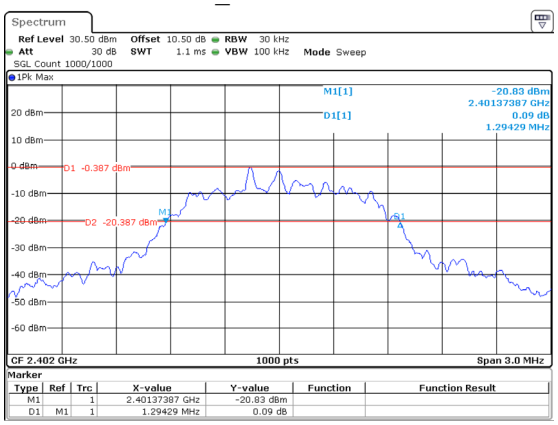
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:56:06

DH1_High 1.033MHz



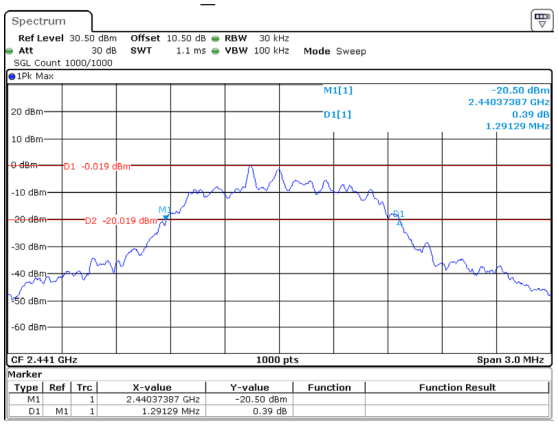
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:56:34

2DH1_Low 1.294MHz



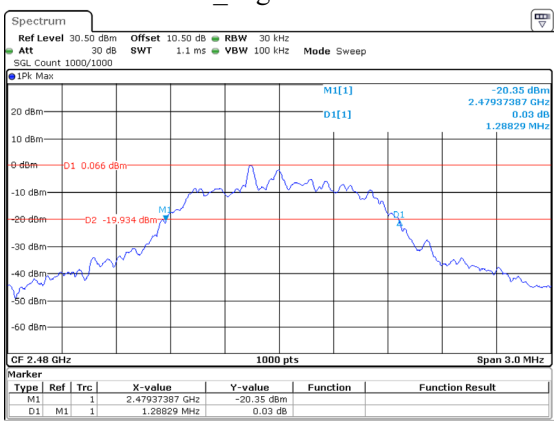
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:01:35

2DH1_Middle 1.291MHz



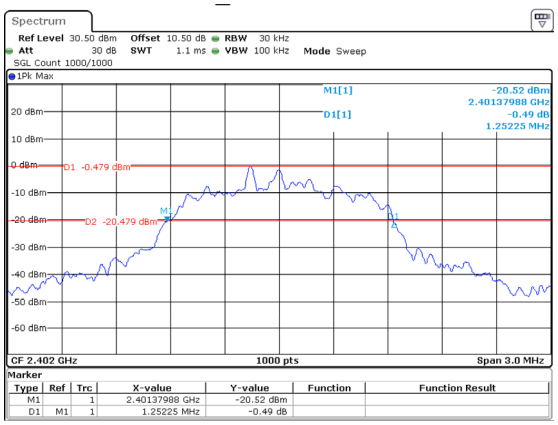
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:57:22

2DH1_High 1.288MHz



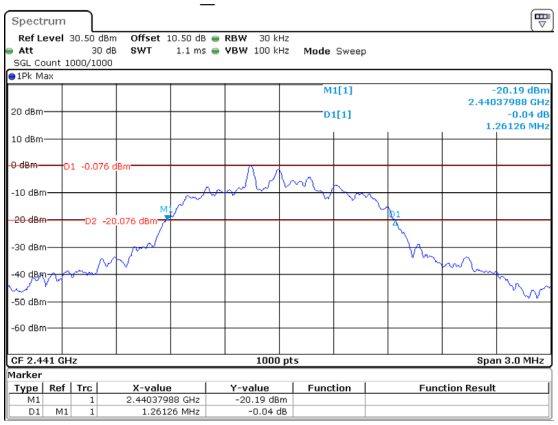
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:58:06

3DH1_Low 1.252MHz



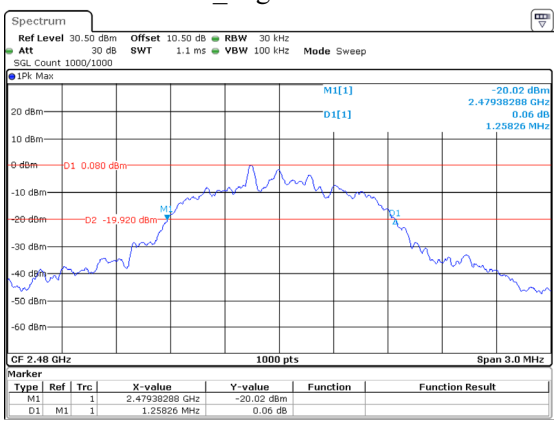
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:58:38

3DH1_Middle 1.261MHz



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:59:24

3DH1_High 1.258MHz



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 00:59:52

Channel Separation

Test Information:

Sample No.:	2TBG-3	**Test Date:**	2024/12/23
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

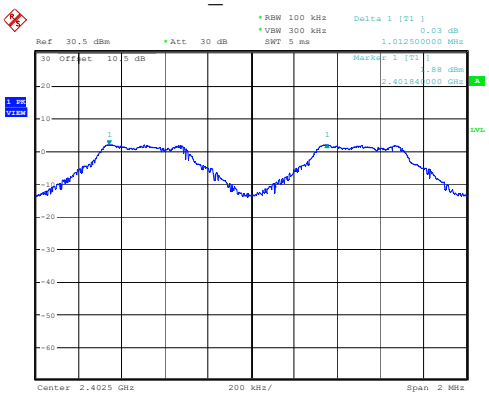
Environmental Conditions:

Temperature: (°C):	23.5	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101

Test Data:

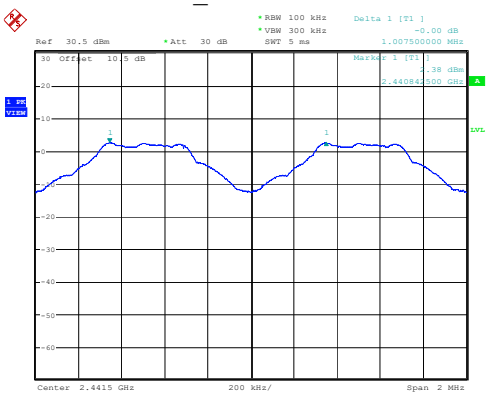
Mode	Channel	Result (MHz)	Limit (MHz)	Verdict
Hop_DH1	Low Channel	1.013	0.863	Pass
	Middle Channel	1.007		Pass
	High Channel	0.998		Pass
Note: Only the BDR (DH1 GFSK) mode result is reported since EDR 2DH1 (π/4-DQPSK) and EDR 3DH1 (8DPSK) modes have the exact same channel plan, and the limit is the maximum 20dB bandwidth *2/3				

DH1_Low 1.013MHz



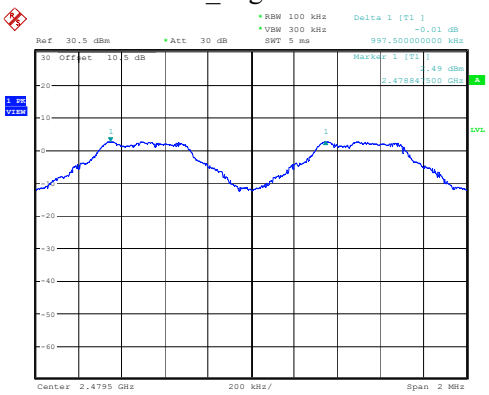
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 23.DEC.2024 12:03:04

DH1_Middle 1.007MHz



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 23.DEC.2024 12:23:23

DH1_High 0.998MHz



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 23.DEC.2024 11:56:57

Number of Hopping Frequency

Test Information:

Sample No.:	2TBG-3	**Test Date:**	2024/11/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

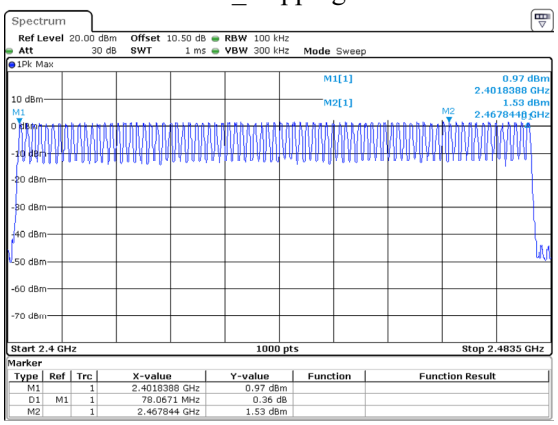
Environmental Conditions:

Temperature: (°C):	23.5	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101

Test Data:

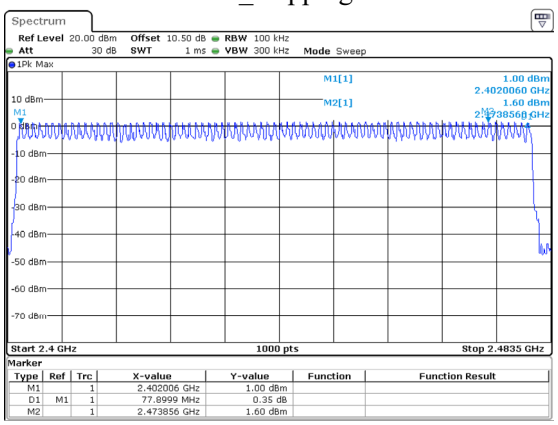
Mode	Channel	Result	Limit	Verdict
DH1	Hopping Channel	**79**	15	Pass
2DH1	Hopping Channel	**79**	15	Pass
3DH1	Hopping Channel	**79**	15	Pass

DH1_Hopping 79



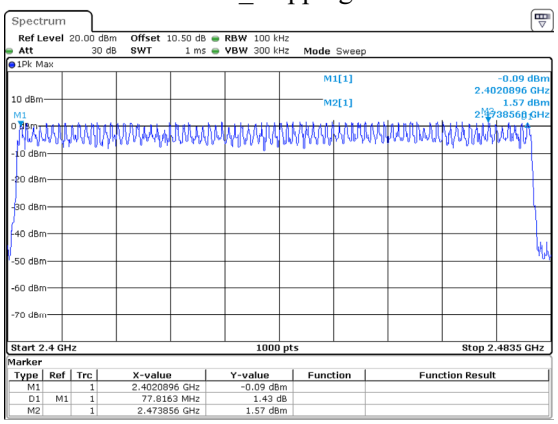
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:28:59

2DH1_Hopping 79



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:30:37

3DH1_Hopping 79



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:31:17

Maximum Conducted Output Power

Test Information:

Sample No.:	2TBG-3	**Test Date:**	2024/11/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

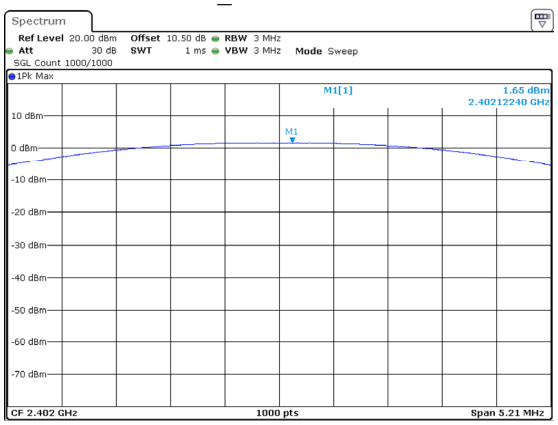
Environmental Conditions:

Temperature: (°C):	23.5	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101

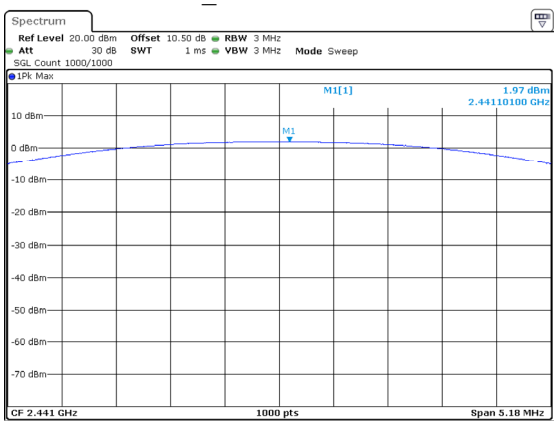
Test Data:

Mode	Channel	Result (dBm)	Limit (dBm)	Verdict
DH1	Low Channel	1.65	21.00	Pass
	Middle Channel	1.97	21.00	Pass
	High Channel	2.03	21.00	Pass
2DH1	Low Channel	2.38	21.00	Pass
	Middle Channel	2.69	21.00	Pass
	High Channel	2.75	21.00	Pass
3DH1	Low Channel	2.90	21.00	Pass
	Middle Channel	3.24	21.00	Pass
	High Channel	**3.33**	21.00	Pass

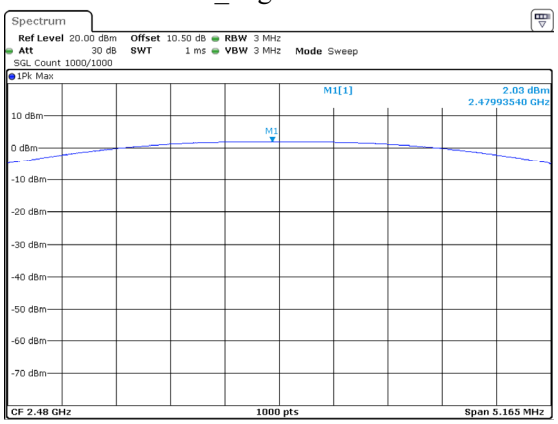
DH1_Low 1.65dBm



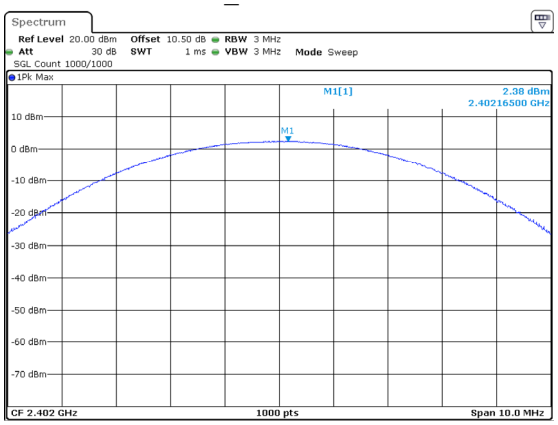
DH1_Middle 1.97dBm



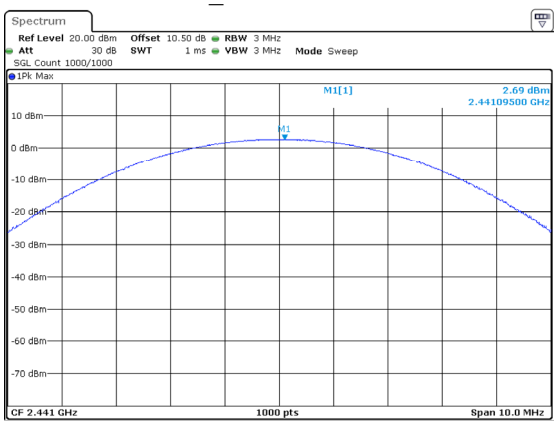
DH1_High 2.03dBm



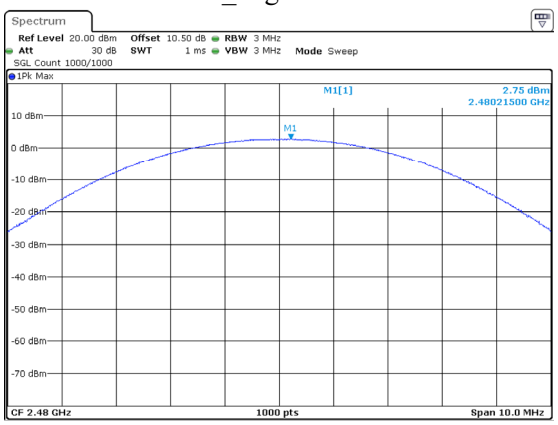
2DH1_Low 2.38dBm



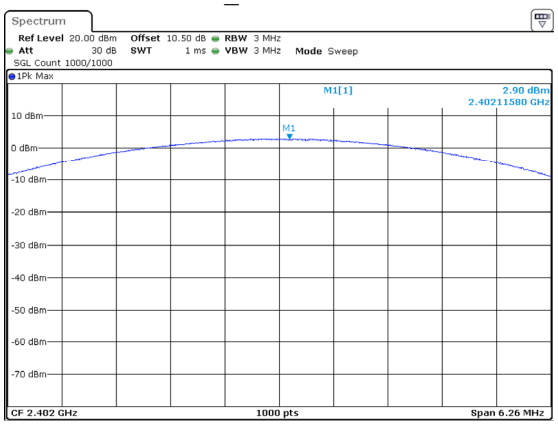
2DH1_Middle 2.69dBm



2DH1_High 2.75dBm

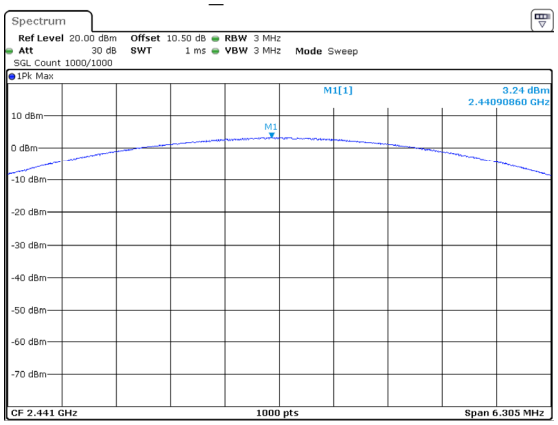


3DH1_Low 2.90dBm



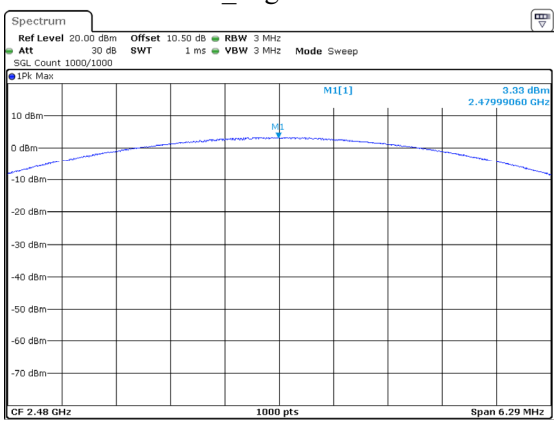
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:05:42

3DH1_Middle 3.24dBm



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:06:03

3DH1_High 3.33dBm



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:06:32

100 kHz Bandwidth of Frequency Band Edge

Test Information:

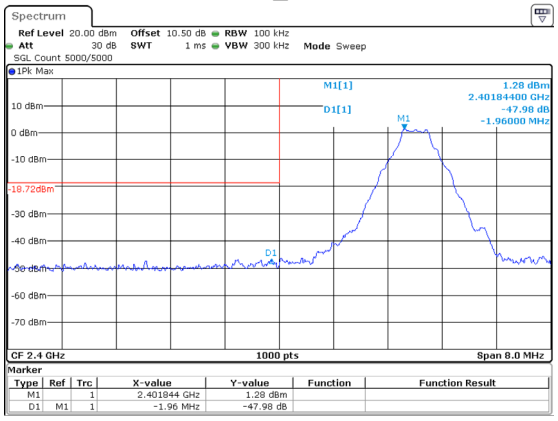
Sample No.:	2TBG-3	**Test Date:**	2024/11/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C):	23.5	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101

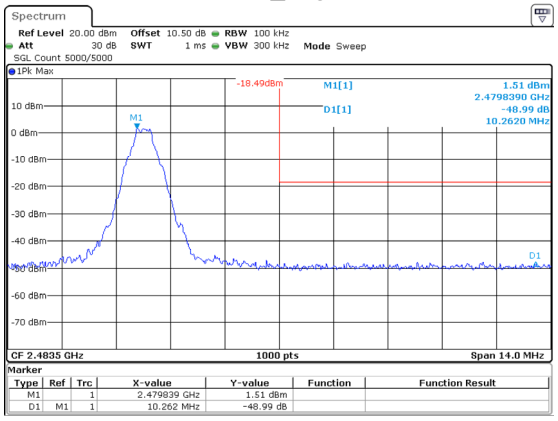
Test Data:

DH1_Low



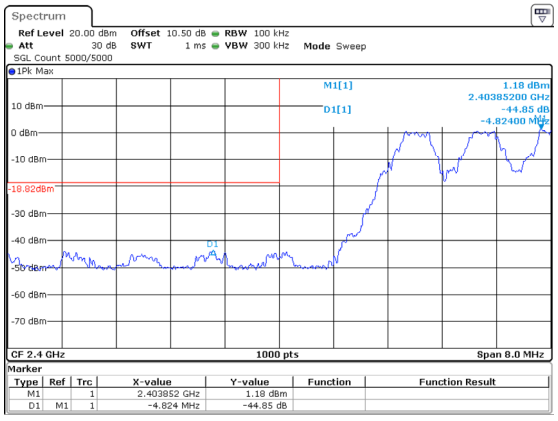
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:09:24

DH1_High



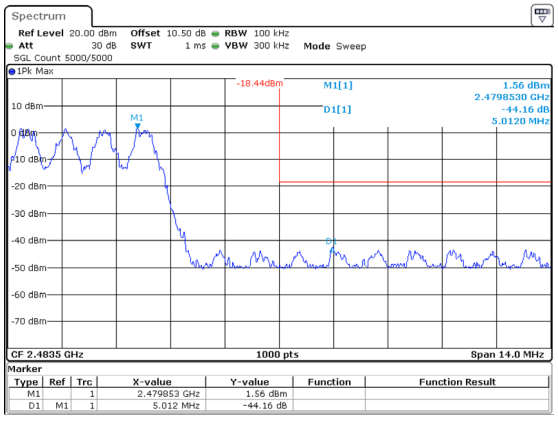
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:10:56

DH1_Hopping_Lower



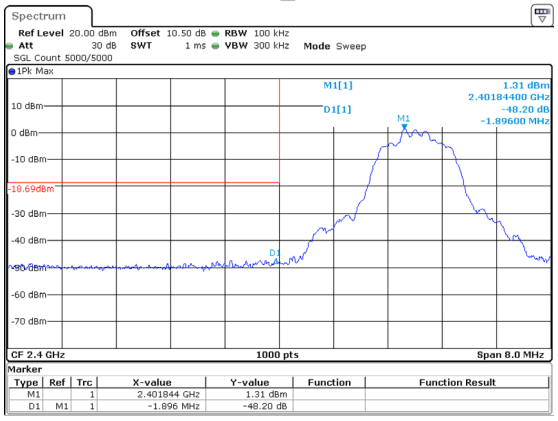
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:19:44

DH1_Hopping_Upper



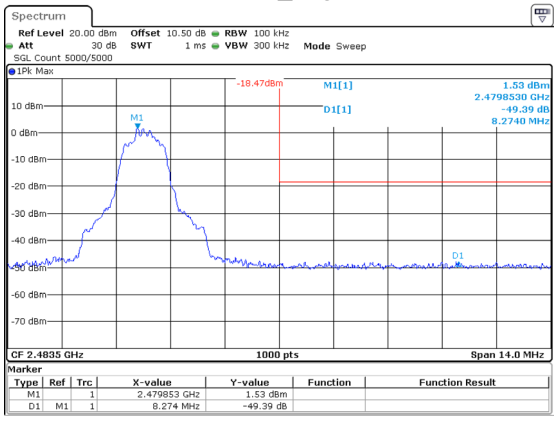
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:21:04

2DH1_Low



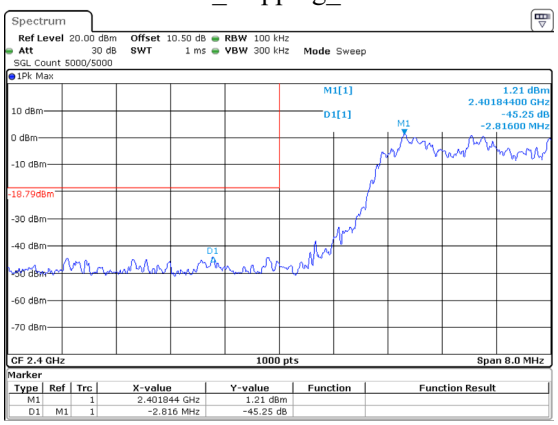
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:12:46

2DH1_High



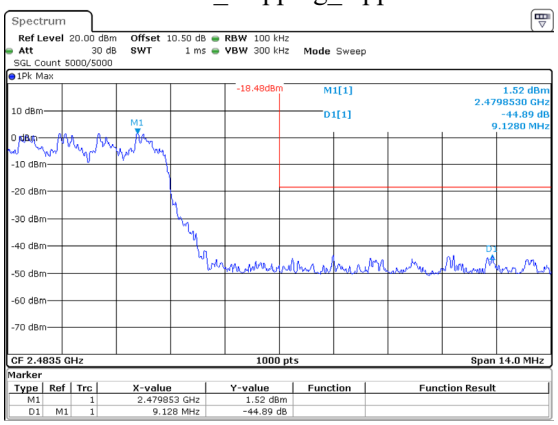
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:14:09

2DH1_Hopping_Lower



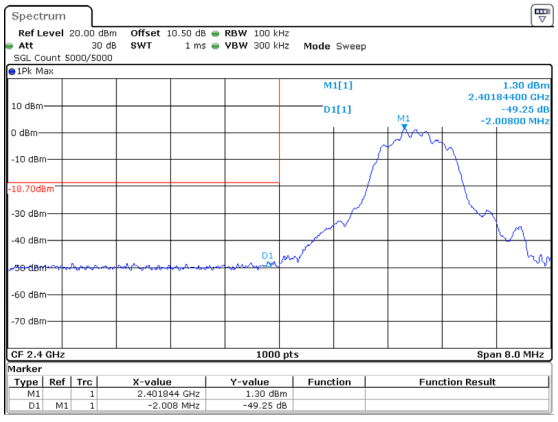
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:22:53

2DH1_Hopping_Upper



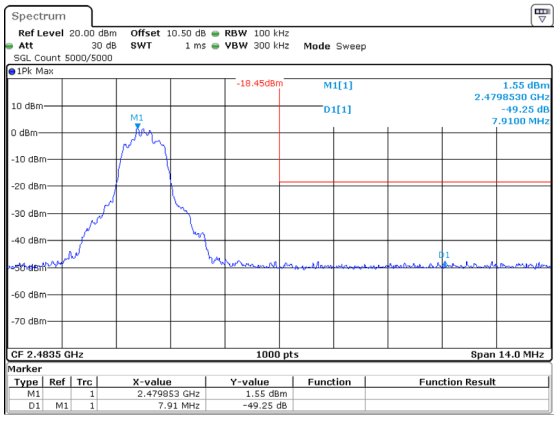
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:24:16

3DH1_Low



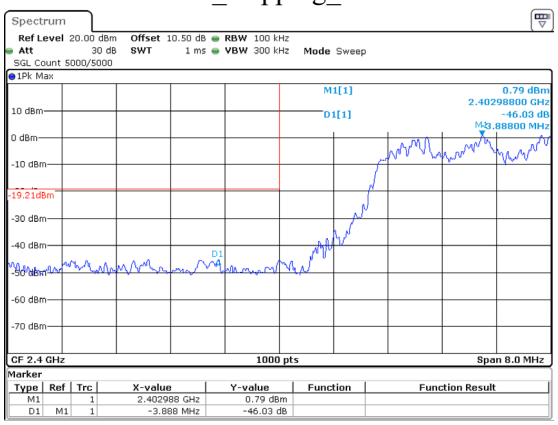
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:16:05

3DH1_High



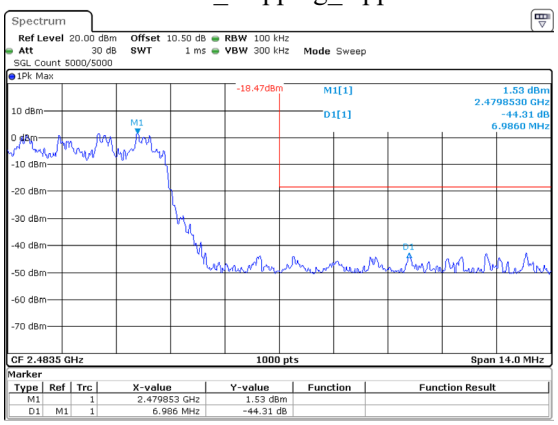
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:17:41

3DH1_Hopping_Lower



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:26:09

3DH1_Hopping_Upper



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:27:31

Time of Occupancy (dwell time)

Test Information:

Sample No.:	2TBG-3	**Test Date:**	2024/11/13~2024/11/14
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

Environmental Conditions:

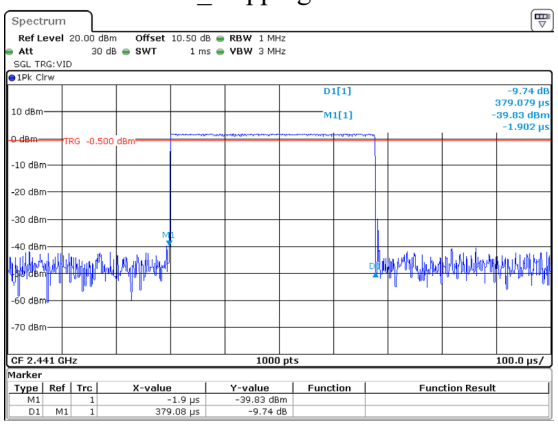
Temperature: (°C):	23.5-25.4	**Relative Humidity: (%)**	51-55	**ATM Pressure: (kPa)**	101

Test Data:

Mode	Channel	Pulse width (ms)	Dwell time (s)	Limit (s)	Verdict
DH1	Hop_2441MHz	0.379	0.121	0.400	Pass
DH3	Hop_2441MHz	1.647	0.264	0.400	Pass
DH5	Hop_2441MHz	2.894	0.309	0.400	Pass
2DH1	Hop_2441MHz	0.390	0.125	0.400	Pass
2DH3	Hop_2441MHz	1.644	0.263	0.400	Pass
2DH5	Hop_2441MHz	2.901	0.309	0.400	Pass
3DH1	Hop_2441MHz	0.396	0.127	0.400	Pass
3DH3	Hop_2441MHz	1.650	0.264	0.400	Pass
3DH5	Hop_2441MHz	2.913	0.311	0.400	Pass

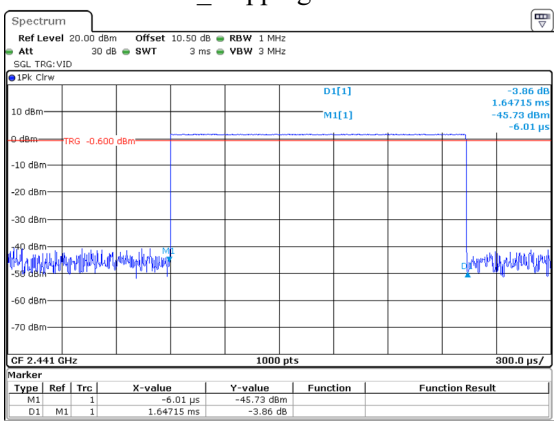
Note:
DH1:Dwell time=Pulse width (ms) × (1600/2/79) ×31.6 s
DH3:Dwell time=Pulse width (ms) × (1600/4/79) ×31.6 s
DH5:Dwell time=Pulse width (ms) × (1600/6/79) ×31.6 s
2DH1: Dwell time=Pulse width (ms) × (1600/2/79) ×31.6 s
2DH3: Dwell time=Pulse width (ms) × (1600/4/79) ×31.6 s
2DH5: Dwell time=Pulse width (ms) × (1600/6/79) ×31.6 s
3DH1: Dwell time=Pulse width (ms) × (1600/2/79) ×31.6 s
3DH3: Dwell time=Pulse width (ms) × (1600/4/79) ×31.6 s
3DH5: Dwell time=Pulse width (ms) × (1600/6/79) ×31.6 s

DH1_Hopping 0.379ms



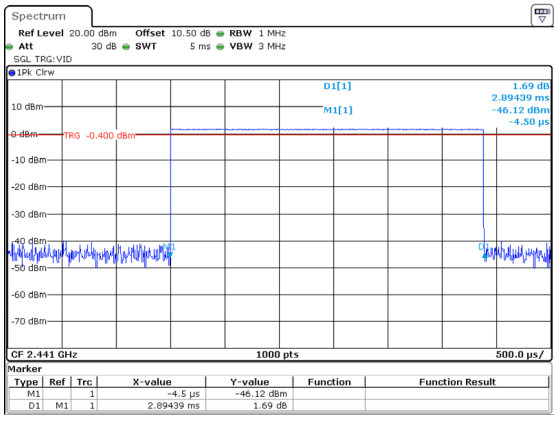
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:42:51

DH3_Hopping 1.647ms



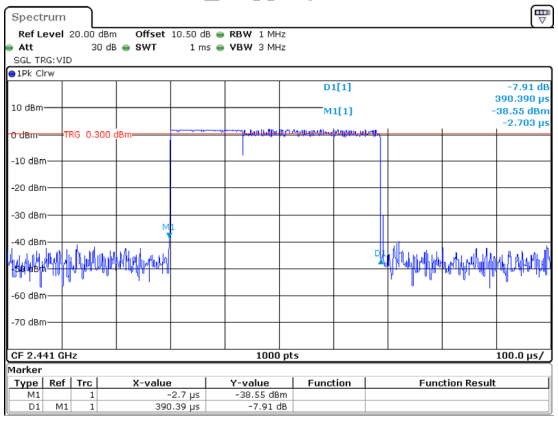
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:44:02

DH5_Hopping 2.894ms



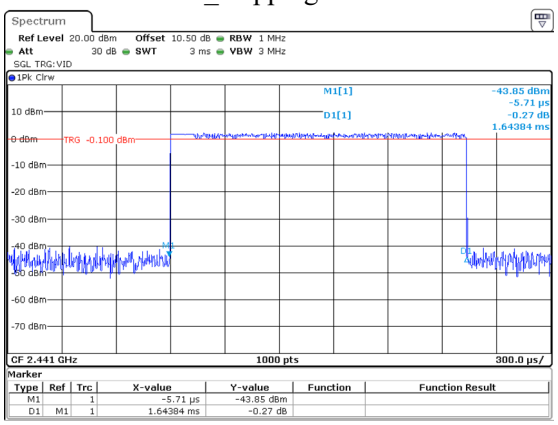
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:45:08

2DH1_Hopping 0.390ms



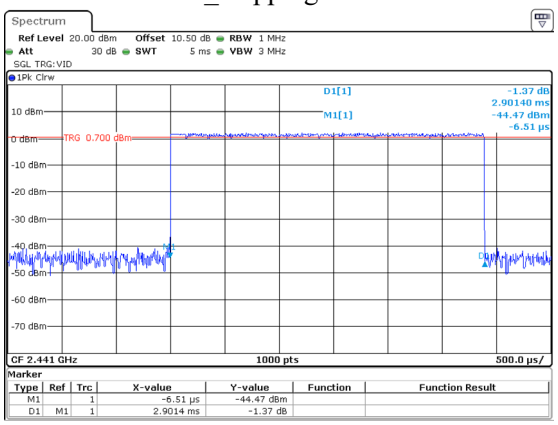
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:50:00

2DH3_Hopping 1.644ms



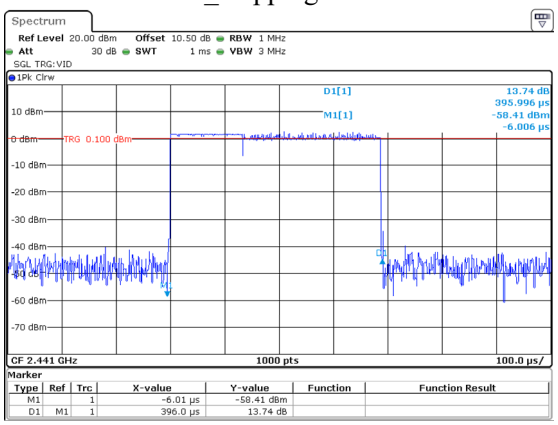
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:51:24

2DH5_Hopping 2.901ms



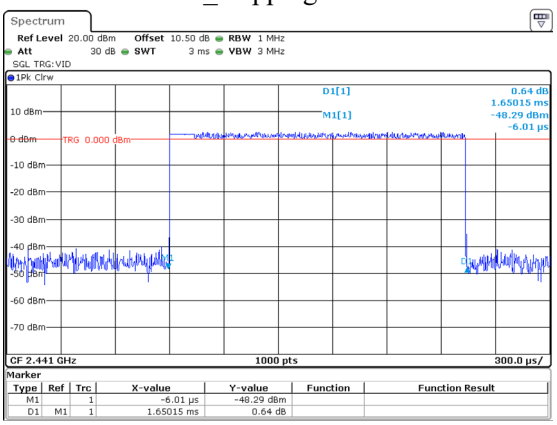
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:52:43

3DH1_Hopping 0.396ms



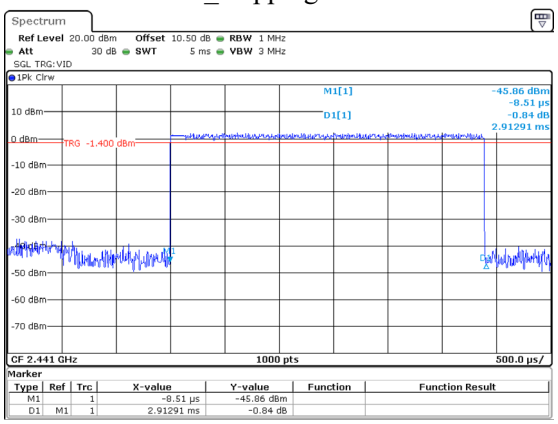
ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:53:54

3DH3_Hopping 1.650ms



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 13.NOV.2024 01:57:52

3DH5_Hopping 2.913ms



ProjectNo.:2401Y44801E-RF Tester:Allen Bai
Date: 14.NOV.2024 03:08:24

RF EXPOSURE EVALUATION

RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 General RF Exposure Guidance v06

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Measurement Result

For worst case:

Mode	Frequency (MHz)	Max tune-up conducted power#(dBm)	Max tune-up conducted power#(mW)	Distance (mm)	Calculated value	Threshold (1-g SAR)	SAR Test Exclusion
Bluetooth	2402-2480	3.50	2.24	5	0.7	3	Yes

Result: Compliant

EUT PHOTOGRAPHS

Please refer to the attachment 2401Y44801E-RF External photo and 2401Y44801E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401Y44801E-RF Test Setup photo.

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