TEST REPORT

Applicant Name:	Fujian BelFone Communications Technology Co.,Ltd.
Address:	A15 Huaqiao Economic Development Zone, Shuangyang, Luojiang, Quanzhou, Fujian, China
Report Number:	2501T00722E-RF-00
FCC ID:	2AARFBFOG30801

Test Standard (s)

FCC PART 90

Sample Description

Product Type:	DIGITAL TRANSCEIVER
Model No.:	BF-OG308
Multiple Model(s) No.:	Belfone VX3 Air
Trade Mark:	N/A
Date Received:	2025/05/13
Report Date:	2025/07/24

Test Result:	Pass▲

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

Prepared and Checked By:

Bruce Lin

Bruce Lin
RF Engineer

Approved By:

Nancy Wang

Nancy Wang
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.

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2501T00722E-RF-00	Original Report	2025/07/24

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	DIGITAL TRANSCEIVER
Tested Model	BF-OG308
Multiple Model(s)	Belfone VX3 Air
Frequency Range	400-480MHz
Rated Transmit Power	2Watts
Channel separation	12.5kHz
Modulation Technique	FM, 4FSK
Antenna Specification#	1.5dBi (provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5V from Type-C Port
Sample serial number	32R4-2 (RF Conducted Test) 32R4-1 (RF Radiated Test) (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A
Note: The Multiple models are electrically identical with the test model except for model name and sales channel. Please refer to the declaration letter# for more detail, which was provided by manufacturer.	

Objective

This test report is in accordance with Part 2, and Part 90 of the Federal Communication Commissions rules.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-E, ANSI C63.26-2015.

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.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		109.2kHz(k=2, 95% level of confidence)
RF Frequency		56.6Hz(k=2, 95% level of confidence)
RF output power, conducted		0.86dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.60dB(k=2, 95% level of confidence)
Audio Frequency Response		0.1dB(k=2, 95% level of confidence)
Low Pass Filter Response		1.2dB(k=2, 95% level of confidence)
Modulation Limiting		1%(k=2, 95% level of confidence)
Radiated Emissions	9kHz - 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.

Each test item follows test standards and with no deviation.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

Test channel information

Test Mode	Test Frequency (MHz)
FM, 12.5kHz	400.0125
	440.0125
	479.9875
4FSK, 12.5kHz	400.0125
	440.0125
	479.9875

Equipment Modifications

No modification was made to the EUT.

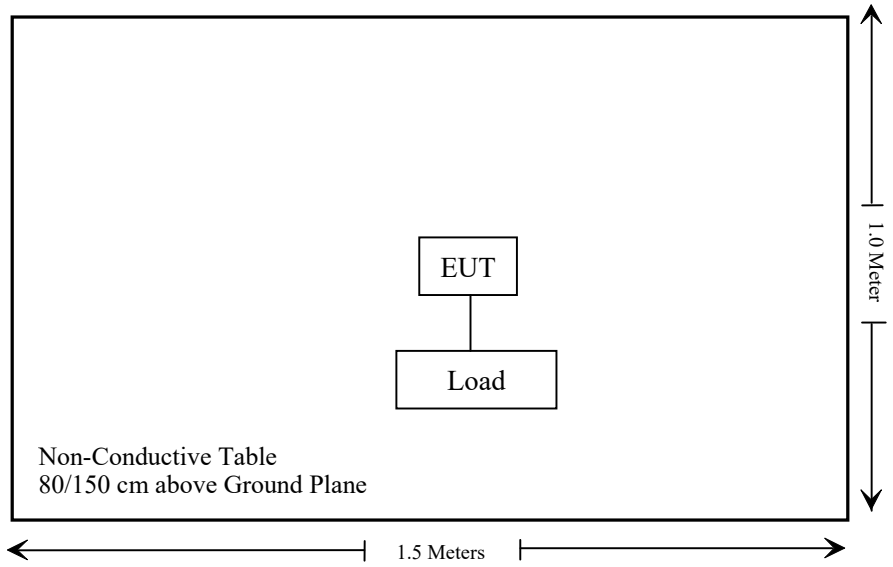
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
BelFone	Dummy MIC	Unknown	Unknown
/	Load	/	/

External I/O Cable

Cable Description	Length (m)	From Port	To
RF Cable	0.8	EUT	Load

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1307 & §2.1093	RF Exposure	Compliant
§2.1046; §90.205	RF Output Power	Compliant
§2.1047; §90.207	Modulation Characteristic	Compliant
§2.1049; §90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliant
§2.1051;§90.210	Spurious Emission at Antenna Terminal	Compliant
§2.1053;§90.210	Spurious Radiated Emissions	Compliant
§2.1055;§90.213	Frequency Stability	Compliant
§90.214	Transient Frequency Behavior	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/12/04	2025/12/03
Sonoma instrument	Pre-amplifier	310 N	186238	2025/04/29	2026/04/28
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	2024/06/18	2025/06/17
COM-POWER	Dipole Antenna	3121C	9209-860	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2025/03/26	2026/03/25
A.H.System	Preamplifier	PAM-0118P	489	2024/11/15	2025/11/14
Schwarzbeck	Horn Antenna	BBHA9120D (1201)	1143	2023/07/26	2026/07/25
The Electro-Mechanics Co.	Horn Antenna	3115	9107-3694	2024/06/06	2027/06/05
Unknown	RF Cable	KMSE	735	2024/12/06	2025/12/05
Unknown	RF Cable	UFA147	219661	2024/12/06	2025/12/05
Unknown	RF Cable	XH750A-N	J-10M	2024/12/06	2025/12/05
JD	Filter Switch Unit	DT7220FSU	DS79906	2024/09/09	2025/09/08
JD	Multiplex Switch Test Control Set	DT7220SCU	DS79903	2024/09/09	2025/09/08
Agilent	Signal Generator	N5183A	MY50140588	2024/09/13	2025/09/12
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200982	2024/09/20	2025/09/19
BACL	Temperature & Humidity Chamber	BTH-150-40	30144	2024/12/06	2025/12/05
HP	RF Communication test set	8920B	US36141849	2024/12/04	2025/12/03
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2025/04/29	2026/04/28
JFW	30dB Attenuator	50FH-030-100 RF	F-03-EM032	2024/06/27	2025/06/26
Unknown	Power Splitter	PD2	2000-600	2024/06/27	2025/06/26
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2024/12/04	2025/12/03

* 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).

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: 2502T35842E-20.

FCC §2.1046 & §90.205 - RF OUTPUT POWER

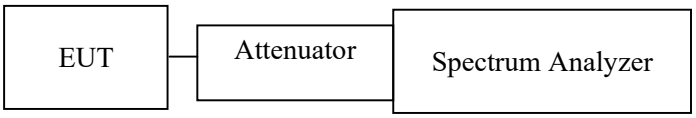
Applicable Standard

FCC §2.1046 and §90.205

Test Procedure

According to ANSI C63.26-2015 section 5.2.3.3

Conducted RF Output Power:



Note: The path loss from EUT to Spectrum Analyzer has included in the result.

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer Setting:

R B/W	Video B/W
100 kHz	300 kHz

Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	45 %
ATM Pressure:	101.5 kPa

The testing was performed by Cheeb Huang on 2025-05-28.

Test Mode: Transmitting

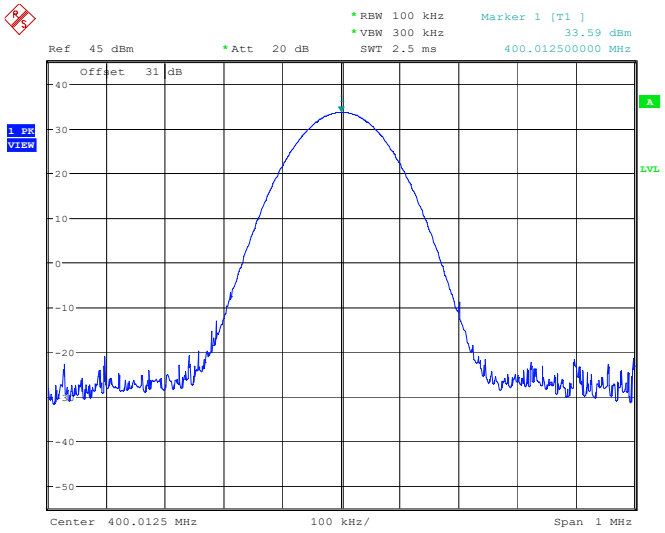
***Test Result: Pass**. Please refer to following table and plots.*

Modulation Mode	Channel Separation	f_c (MHz)	Reading (dBm)	Limit (dBm)
FM	12.5kHz	400.0125	33.59	33.80
		440.0125	33.34	33.80
		479.9875	33.41	33.80
4FSK	12.5kHz	400.0125	33.62	33.80
		440.0125	33.44	33.80
		479.9875	33.45	33.80

Note: The output power shall not exceed by more than 20 percent the manufacturer's rated output power for the particular transmitter specifically listed on the authorization

FM

400.0125 MHz



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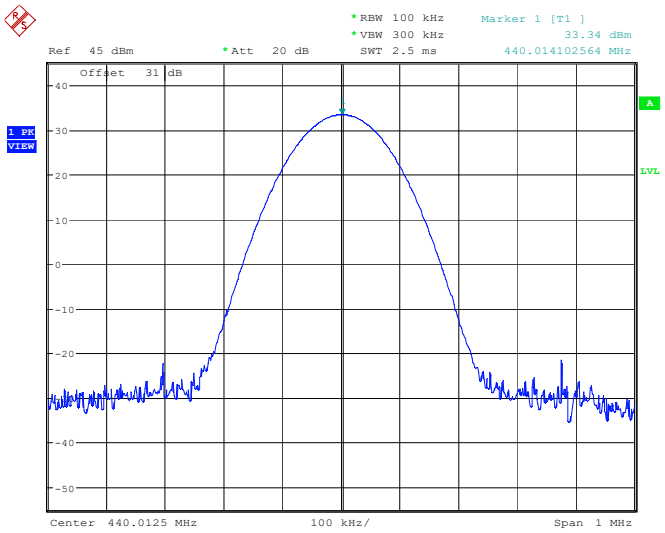
Date: 28.MAY.2025 18:41:54

440.0125MHz



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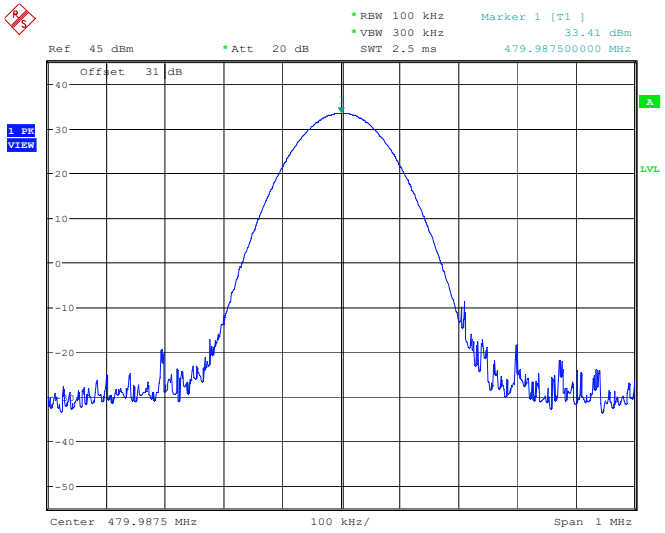
479.9875MHz



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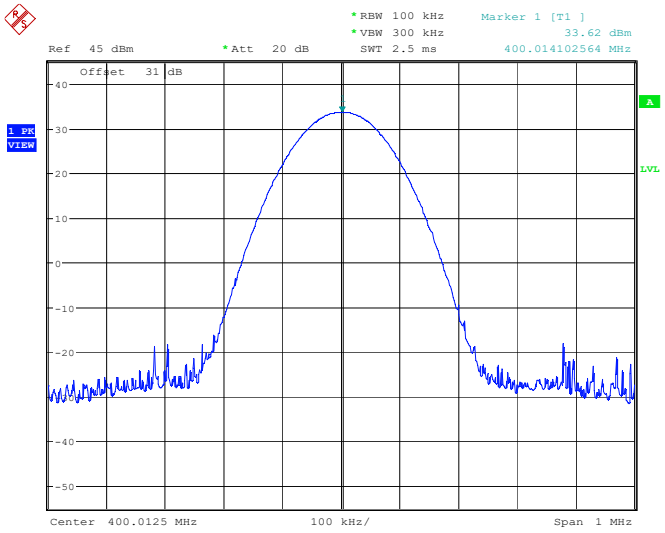
4FSK

400.0125 MHz



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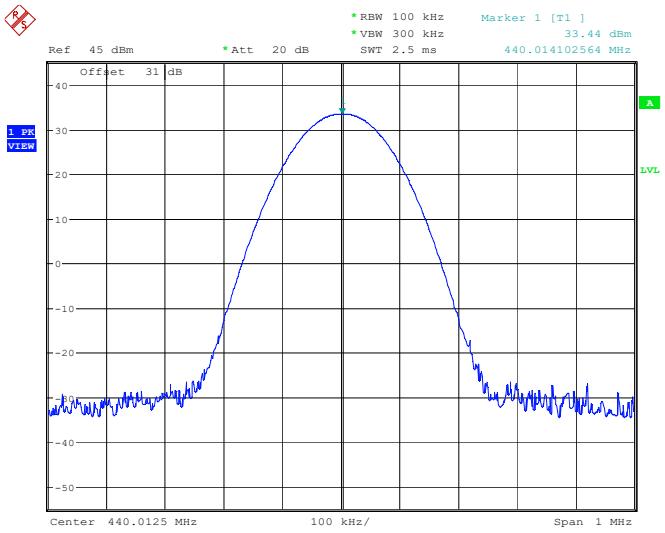
440.0125MHz



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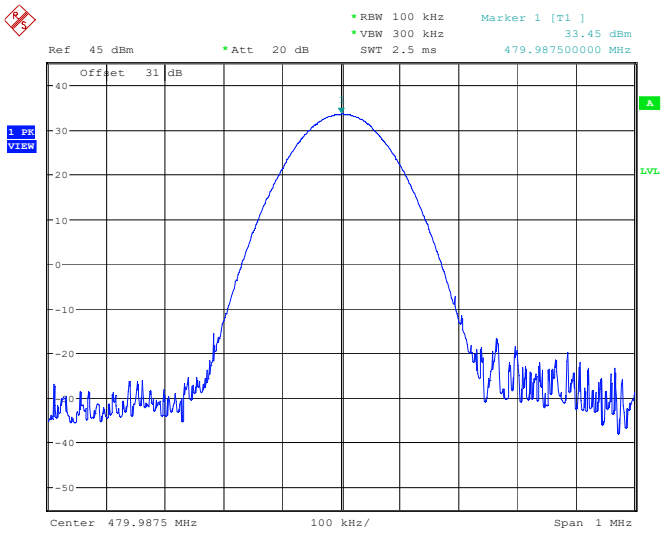
479.9875MHz



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FCC §2.1047 & §90.207 - MODULATION CHARACTERISTIC

Applicable Standard

FCC§2.1047 and §90.207:

(a) Equipment which utilizes voice modulated communication shall show the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz. for equipment which is required to have a low pass filter, the frequency response of the filter, or all of the circuitry installed between the modulation limited and the modulated stage shall be supplied.
(b) Equipment which employs modulation limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

Test Procedure

For modulation limiting and audio frequency response:

Test Method: ANSI C63.26-2015 section 5.3

5.3.2 Modulation limiting test methodology

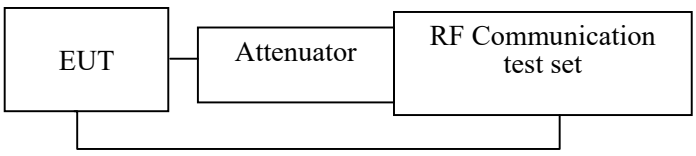
Modulation limiting is the ability of a transmitter circuit to limit the transmitter from producing deviations in excess of a rated system deviation.
a) Connect the equipment as illustrated in Figure 1.
b) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
c) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤0.25 Hz to ≥15 000 Hz. Turn the de-emphasis function off.
d) Apply a 1000 Hz modulating signal to the transmitter from the audio frequency generator, and adjust the level to obtain 60% of full rated system deviation. This is the 0 dB reference level.
e) Increase the level from the audio generator by 20 dB in 5 dB increments recording the deviation as measured from the test receiver in each step. Verify that the audio level used to make the OBW measurement is included in the sweep.
f) Repeat for step e) at 300 Hz, 2500 Hz and 3000 Hz at a minimum using the 0 dB reference level obtained in step d).
g) Set the test receiver to measure peak negative deviation and repeat step d) through step f).
h) The values recorded in step f) and step g) are the modulation limiting.
i) Plot the data set as a percentage of deviation relative to the 0 dB reference point versus input voltage.

5.3.3.2 Audio frequency response test methodology—Constant Input

a) Connect the equipment as illustrated in Figure 3.
b) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤50 Hz to ≥15 000 Hz. Turn the de-emphasis function off.
c) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
d) Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
e) Set the test receiver to measure rms deviation and record the deviation reading as DEVREF.
f) Set the audio frequency generator to the desired test frequency between 300 Hz and 3000 Hz.
g) Record the test receiver deviation reading as DEVFREQ.
h) Calculate the audio frequency response at the present frequency as follows in Equation (4):

$$\text{audio frequency response} = 20\log_{10}\left(\frac{DEV_{FREQ}}{DEV_{REF}}\right) \quad (4)$$

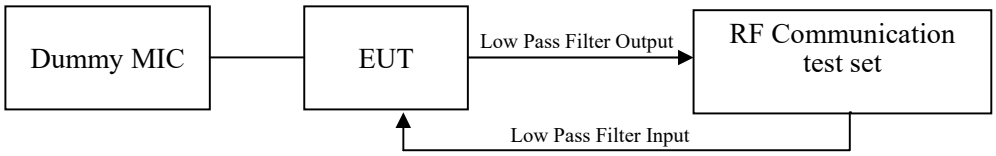
i) Repeat step f) through step h) for all the desired test frequencies.



For Audio Low Pass Filter Response:

Test Method: TIA 603-E-2016 Section 2.2.15:

a) Connect the audio frequency generator as close as possible the input of the post limiter low pass filter within the transmitter under test.
b) Connect the audio spectrum analyzer to the output of the post limiter low pass filter within the transmitter under test.
c) Apply a 1000 Hz tone from the audio frequency generator and adjust the level per manufacturer's specifications.
d) Record the dB level of the 1000 Hz spectral line on the audio spectrum analyzer as LEV_{REF} .
e) Set the audio frequency generator to the desired test frequency between 3000 Hz and the upper low pass filter limit.
f) Record audio spectrum analyzer levels, at the test frequency in step e).
g) Record the dB level on the audio spectrum analyzer as LEV_{FREQ}
h) Calculate the audio frequency response at the test frequency as:
low pass frequency response = LEV_{FREQ} - LEV_{REF}
i) Repeat steps f) through i) for all the desired test frequencies.



Test Data

Environmental Conditions

Temperature:	24~25.5 ℃
Relative Humidity:	45~55 %
ATM Pressure:	101.5~101.9kPa

The testing was performed by Cheeb Huang from 2025-05-20 to 2025-06-14.

Test Mode: Transmitting

***Test Result: Pass**. Please refer to the following tables and plots.*

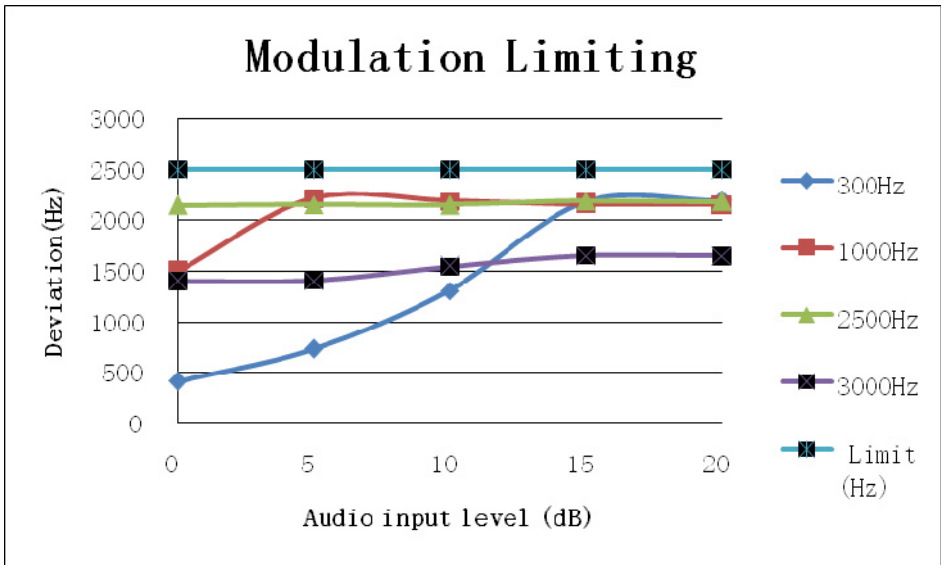
Analog Modulation:

MODULATION LIMITING

Carrier Frequency: 440.0125MHz, Separation: 12.5 kHz

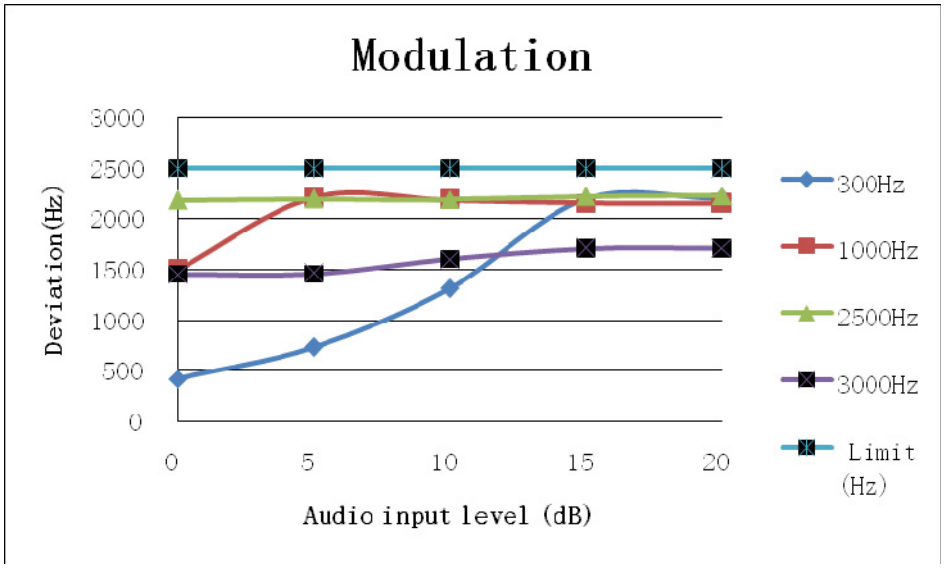
Peak+ deviation

Audio input level (dB)	Deviation (Hz)				Limit (Hz)
	300Hz	1000Hz	2500Hz	3000Hz	
20	2198	2155	2183	1650	2500
15	2187	2159	2190	1653	2500
10	1309	2193	2152	1546	2500
5	737	2219	2156	1407	2500
0	418	1500	2148	1402	2500



Peak- deviation

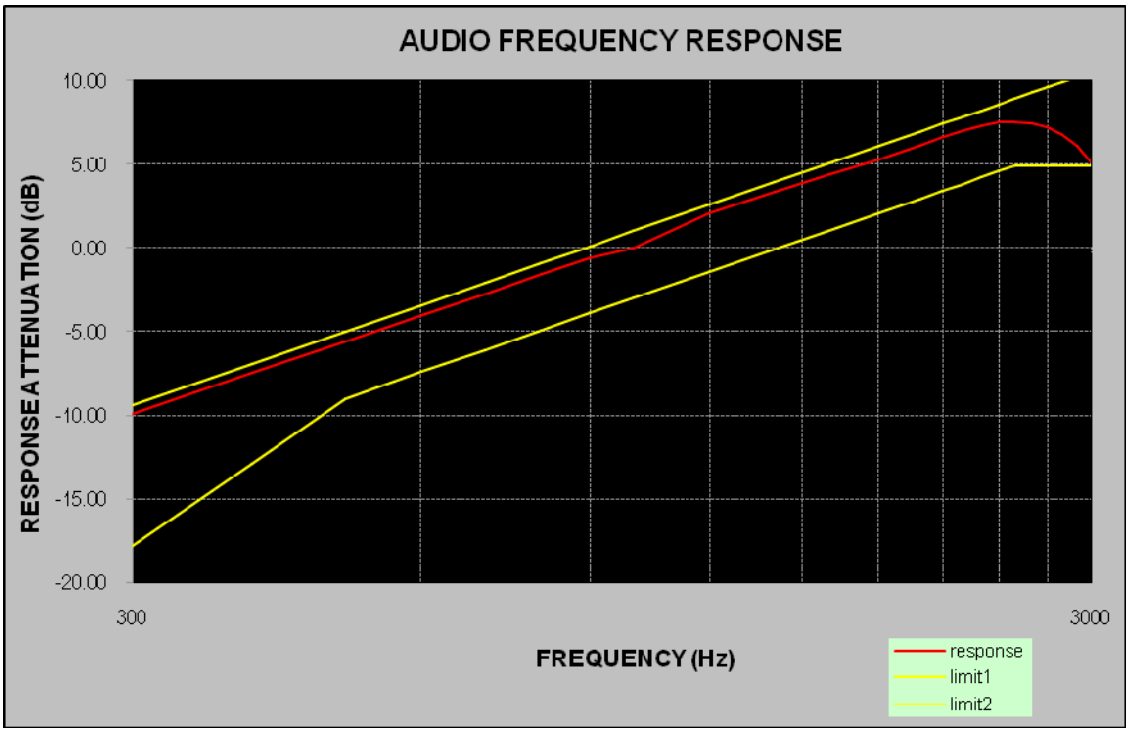
Audio input level (dB)	Deviation (Hz)				Limit (Hz)
	300Hz	1000Hz	2500Hz	3000Hz	
20	2197	2152	2227	1713	2500
15	2190	2154	2221	1708	2500
10	1312	2185	2192	1604	2500
5	735	2212	2199	1459	2500
0	423	1500	2183	1457	2500



Audio Frequency Response

Carrier Frequency: 440.0125MHz, Separation: 12.5 kHz

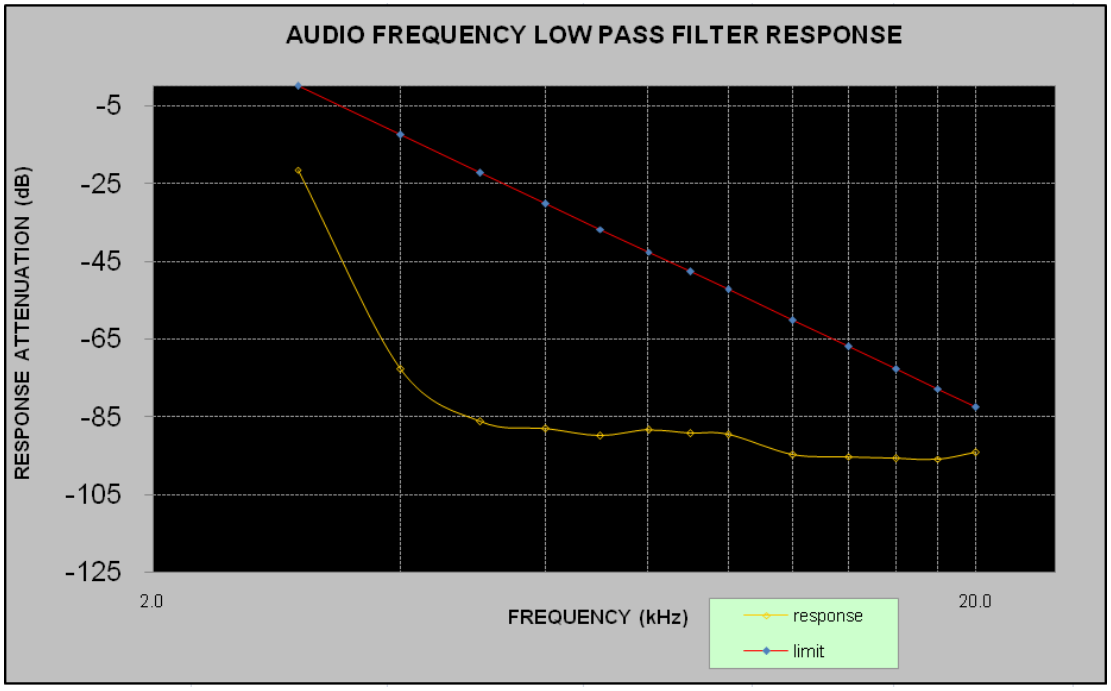
Audio Frequency (Hz)	Response Attenuation (dB)
300	-9.95
400	-7.45
500	-5.61
600	-4.01
700	-2.76
800	-1.60
900	-0.59
1000	0.00
1200	2.10
1400	3.31
1600	4.42
1800	5.31
2000	6.17
2100	6.61
2200	7.00
2300	7.26
2400	7.49
2500	7.55
2600	7.47
2700	7.24
2800	6.76
2900	6.08
3000	5.13


AUDIO FREQUENCY RESPONSE
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
RESPONSE ATTENUATION (dB)
300
3000
FREQUENCY (Hz)
response
limit1
limit2

Audio Frequency Lows Pass Filter Response

Carrier Frequency: 440.0125MHz, Separation: 12.5 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-21.5	0.0
4.0	-72.7	-12.5
5.0	-86.3	-22.2
6.0	-88.1	-30.1
7.0	-89.9	-36.8
8.0	-88.4	-42.6
9.0	-89.2	-47.7
10.0	-89.6	-52.3
12.0	-94.7	-60.2
14.0	-95.3	-66.9
16.0	-95.8	-72.7
18.0	-95.9	-77.8
20.0	-94.1	-82.5



FCC §2.1049 & §90.209 & §90.210 - OCCUPIED BANDWIDTH & EMISSION MASK

Applicable Standard

FCC §2.1049 and §90.210

Emission Mask D - 12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0dB.

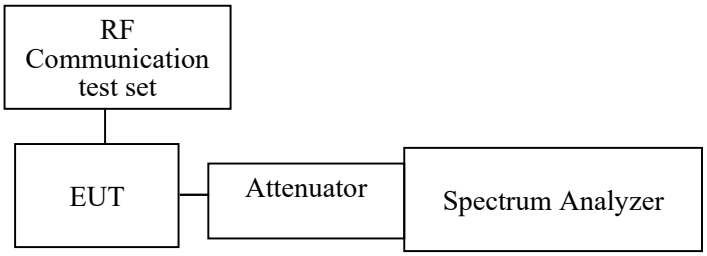
2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least 7.27 (f_d –2.88 kHz) dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz at least: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

Test Procedure

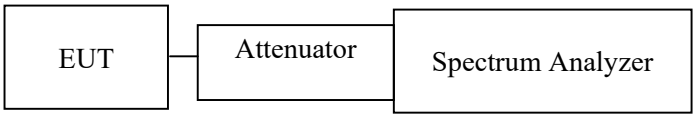
According to ANSI C63.26-2015 section 5.4.4

Analog mode:



Note: The path loss from EUT to Spectrum Analyzer has included in the result.

Digital mode:



The OBW 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 spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient).
b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3. NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.
d) Set the detection mode to peak, and the trace mode to max-hold.
e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.
f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Test Data

Environmental Conditions

Temperature:	24~25.5 ℃
Relative Humidity:	45~55 %
ATM Pressure:	101.5~101.9kPa

The testing was performed by Cheeb Huang from 2025-06-06 to 2025-06-14.

Test mode: Transmitting

***Test Result: Pass**. Please refer to the following tables and plots.*

Modulation Mode	Channel Separation	f_c (MHz)	99% Occupied Bandwidth (kHz)
FM	12.5kHz	400.0125	9.936
		440.0125	10.016
		479.9875	10.016
4FSK	12.5kHz	400.0125	5.529
		440.0125	5.609
		479.9875	5.689

Note: Emission designator is base on calculation instead of measurement.

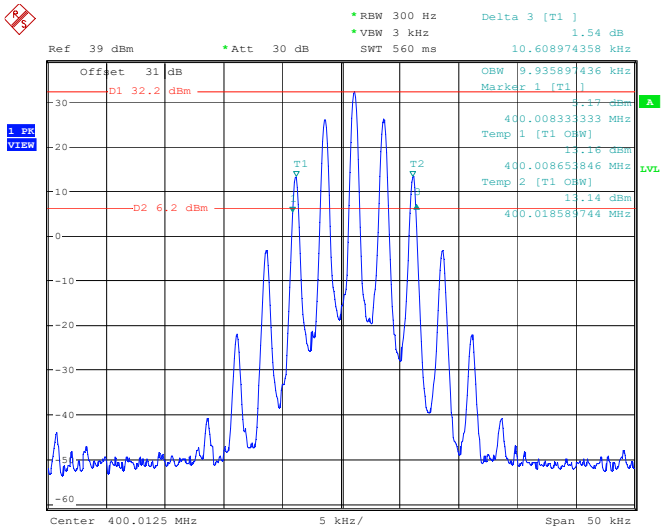
Emission Designator Per CFR 47 §2.201& §2.202&, Bn = 2M + 2D

For FM Mode (Channel Spacing: 12.5 kHz)
Emission Designator 11K0F3E. In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation. BW = 2(M+D) = 2(3.0 kHz + 2.5 kHz) = 11 kHz → 11K0*
F3E portion of the designator represents an FM voice transmission Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.

For Digital Mode (Channel Spacing: 12.5 kHz)
Emission Designator 7K60F1D and 7K60F1E
The 99% energy rule (title 47CFR 2.1049) was used for digital mode. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.60kHz. The emission mask was obtained from 47CFR 90.210(d).
F1D and F1E portion of the designator indicates digital information.
Therefore, the entire designator for 12.5 kHz channel spacing digital mode is 7K60F1D and 7K60F1E.

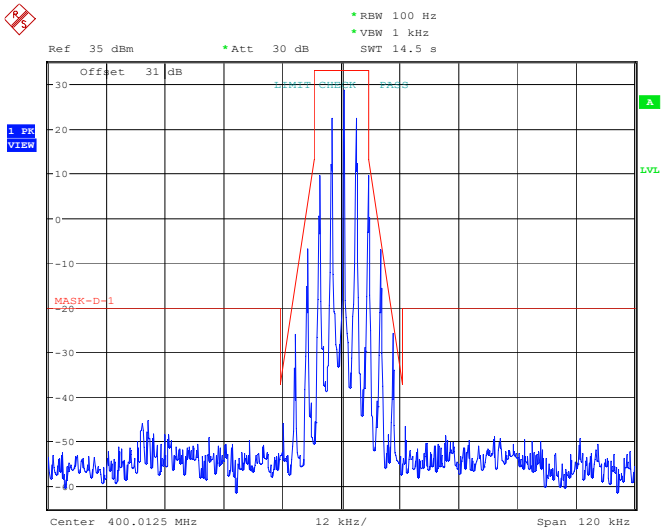
FM

Frequency 400.0125 MHz: 99% Occupied & 26 dB Bandwidth



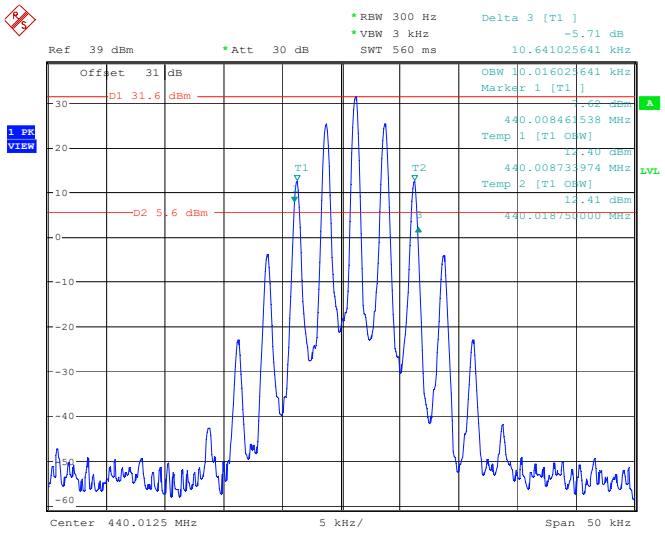
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:52:14

Frequency 400.0125 MHz: Emission Mask D



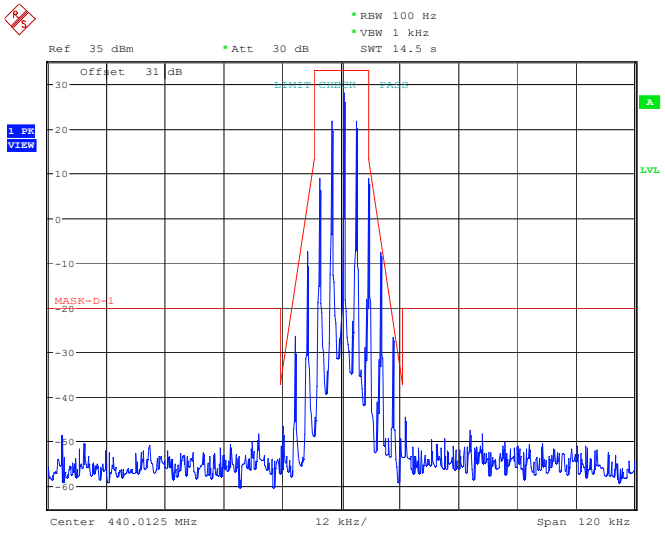
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:05:58

Frequency 440.0125 MHz: 99% Occupied & 26 dB Bandwidth



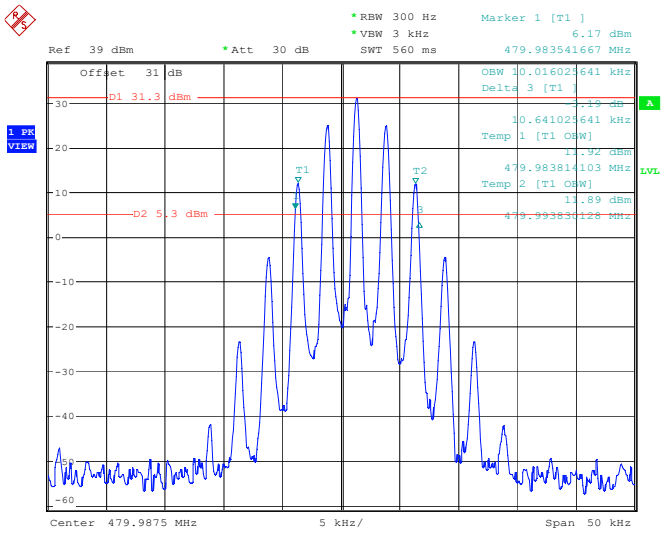
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:55:33

Frequency 440.0125 MHz: Emission Mask D



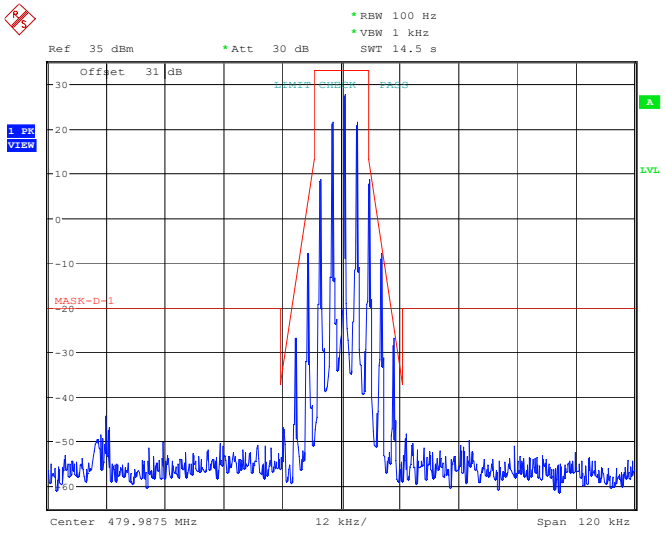
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:04:22

Frequency 479.9875 MHz: 99% Occupied & 26 dB Bandwidth



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:57:35

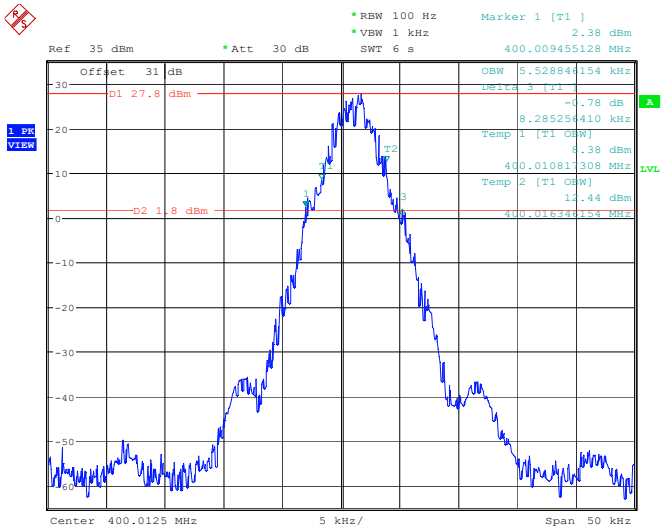
Frequency 479.9875 MHz: Emission Mask D



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:02:28

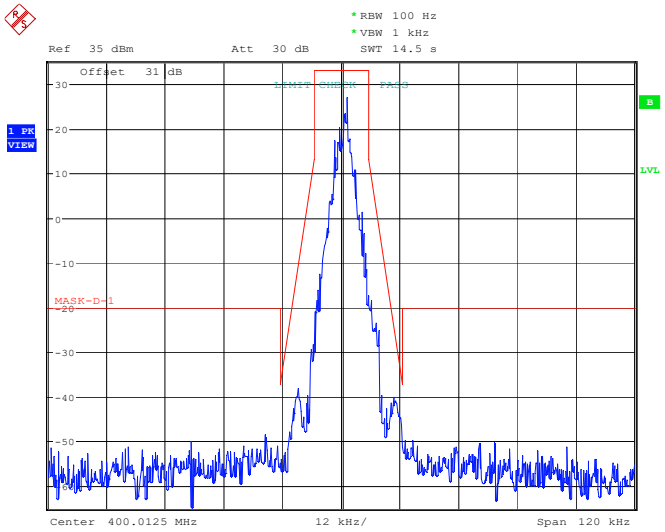
4FSK

Frequency 400.0125 MHz: 99% Occupied & 26 dB Bandwidth



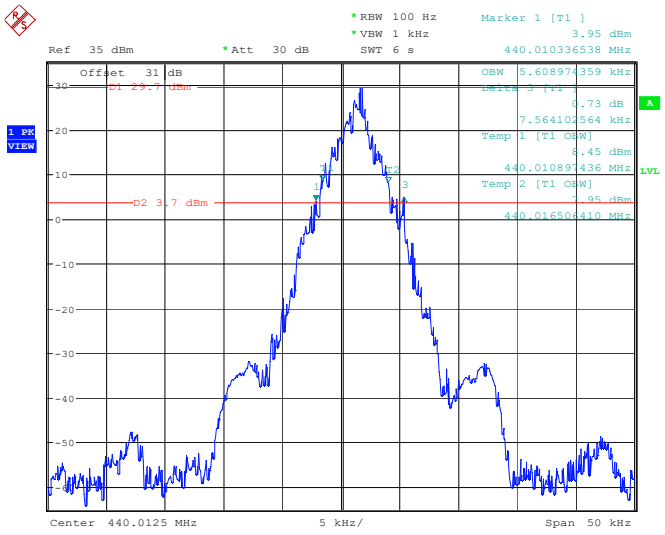
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:43:28

Frequency 400.0125 MHz: Emission Mask D



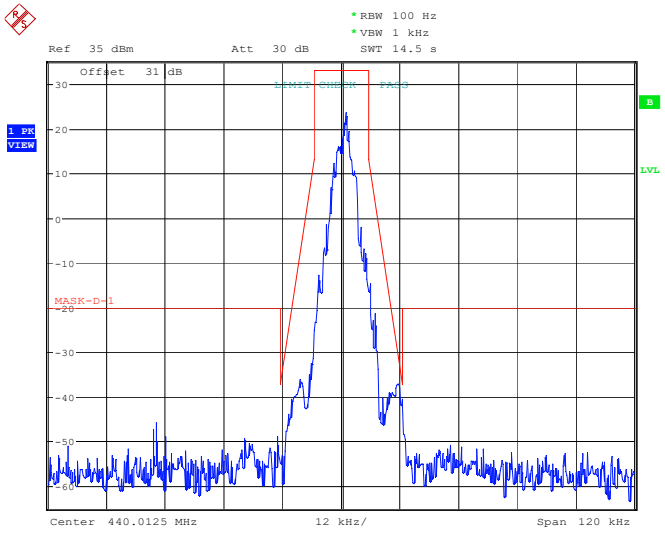
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:24:43

Frequency 440.0125 MHz: 99% Occupied & 26 dB Bandwidth



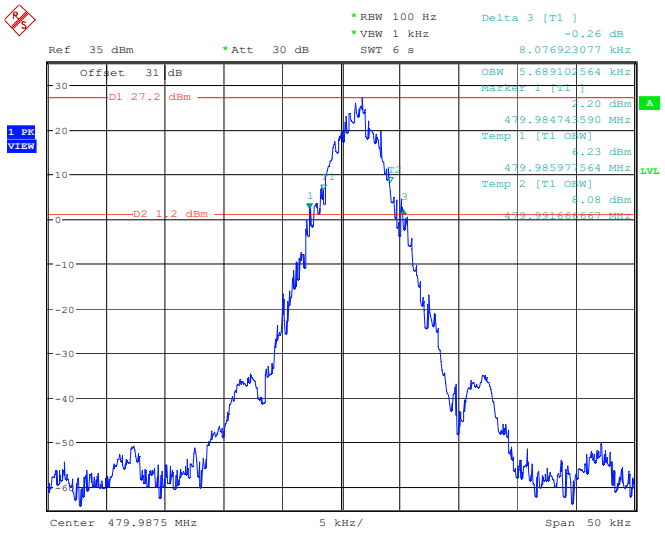
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:34:51

Frequency 440.0125 MHz: Emission Mask D



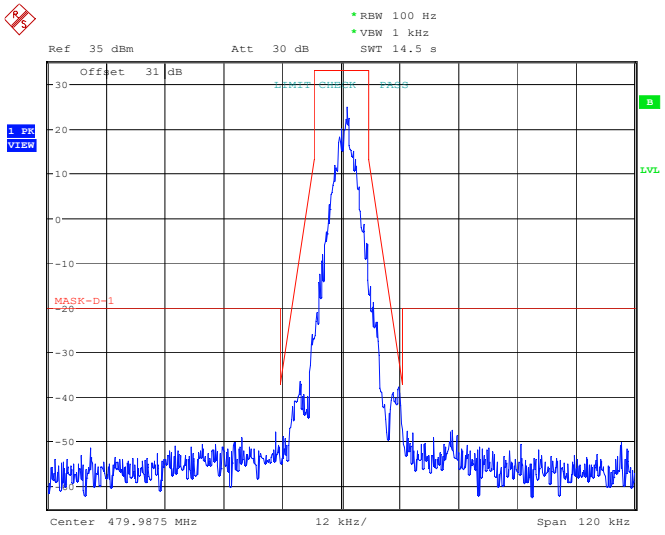
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:21:30

Frequency 479.9875 MHz: 99% Occupied & 26 dB Bandwidth



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 14.JUN.2025 19:39:30

Frequency 479.9875 MHz: Emission Mask D



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 6.JUN.2025 17:19:45

FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

Emission Mask D—12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

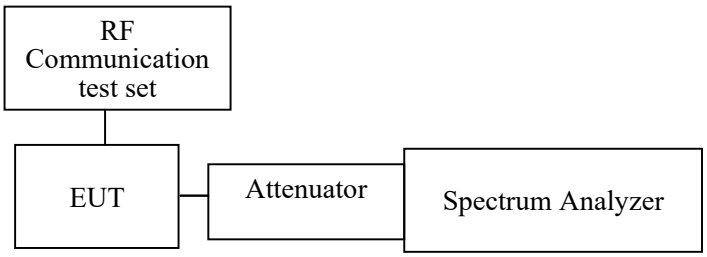
1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0 dB.

2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least 7.27 (f_d –2.88 kHz) dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

Test Procedure

According to ANSI C63.26-2015 section 5.7



Note: The path loss from EUT to Spectrum Analyzer has included in the result.

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for below 1GHz, and 1MHz for above 1GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	45%
ATM Pressure:	101.5 kPa

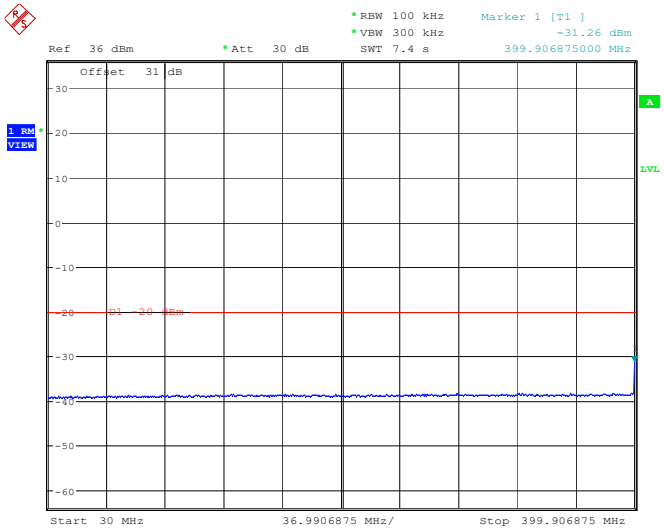
The testing was performed by Cheeb Huang on 2025-05-20.

Test Mode: Transmitting, worst case for high power level.

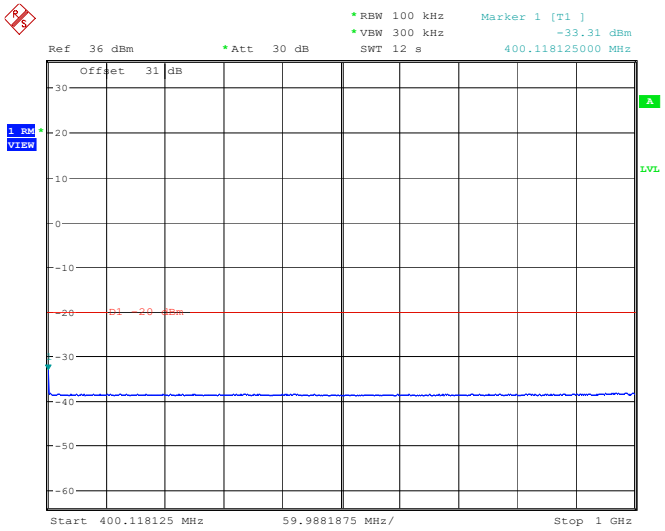
Test Result: Pass. *Please refer to the following plots.*

FM

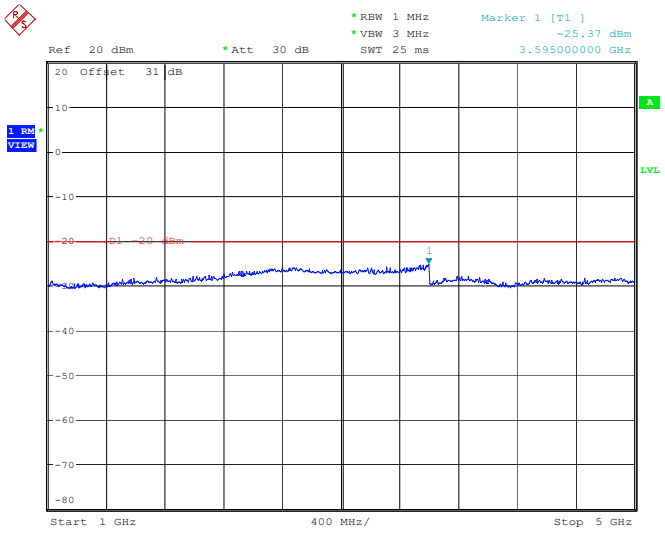
Low Channel



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:16:53

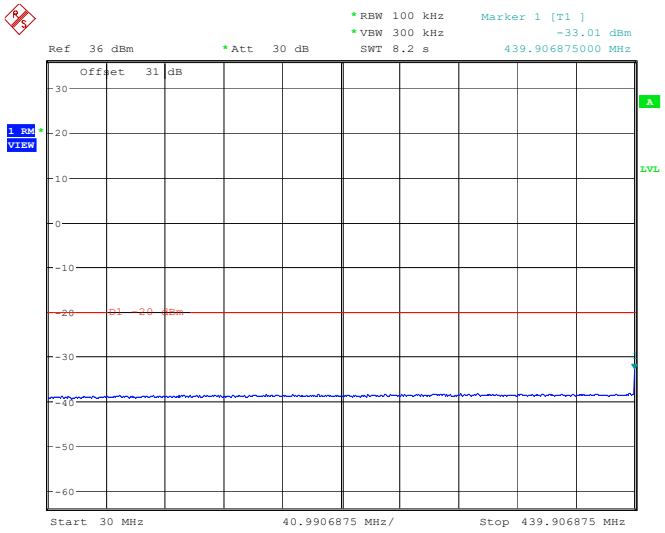


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:20:01

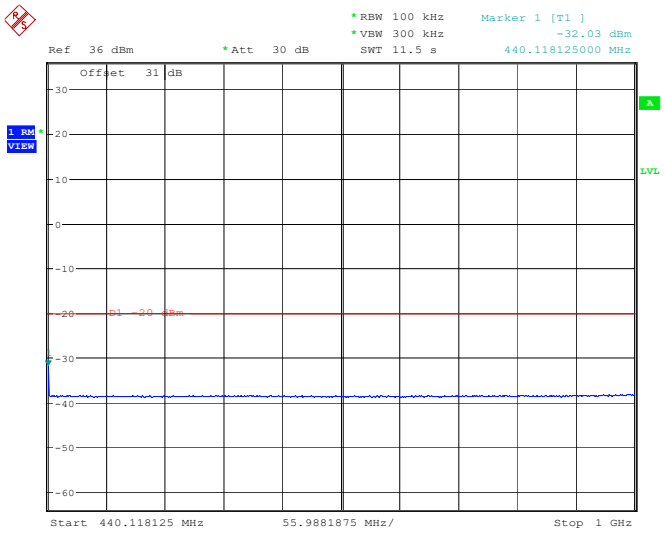


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 11:49:22

Middle Channel

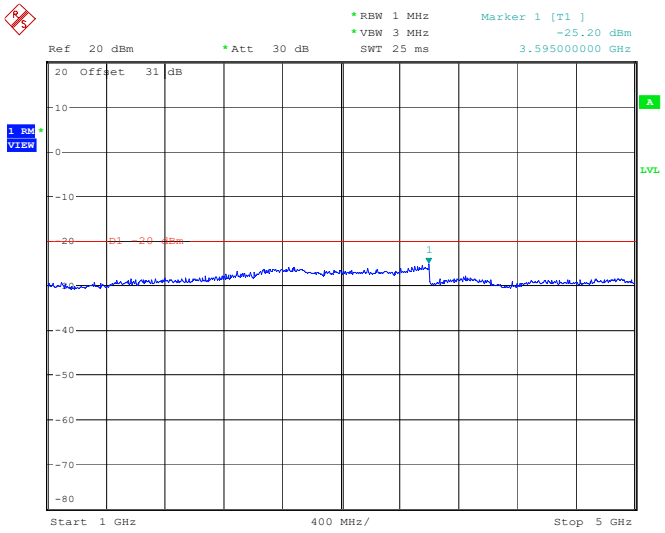


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:30:14



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang

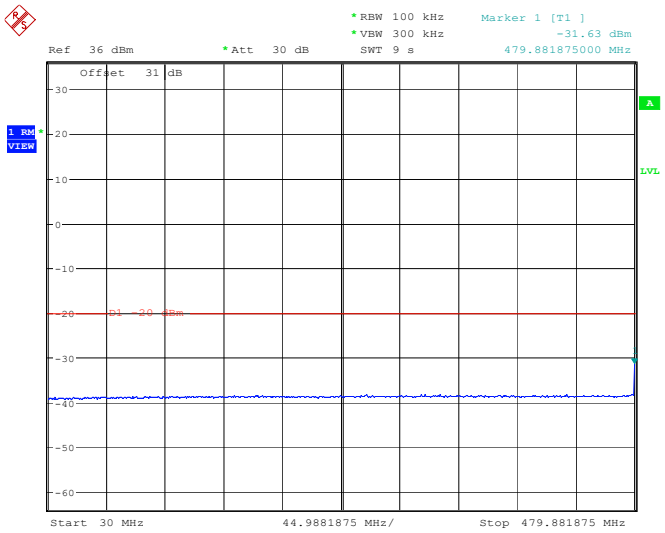
Date: 20.MAY.2025 13:32:55



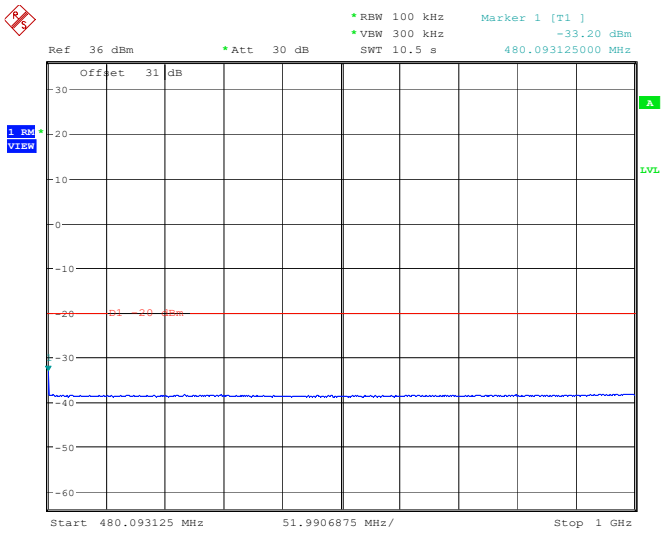
ProjectNo.:2501T00722E-RF Tester:Cheeb Huang

Date: 20.MAY.2025 11:49:47

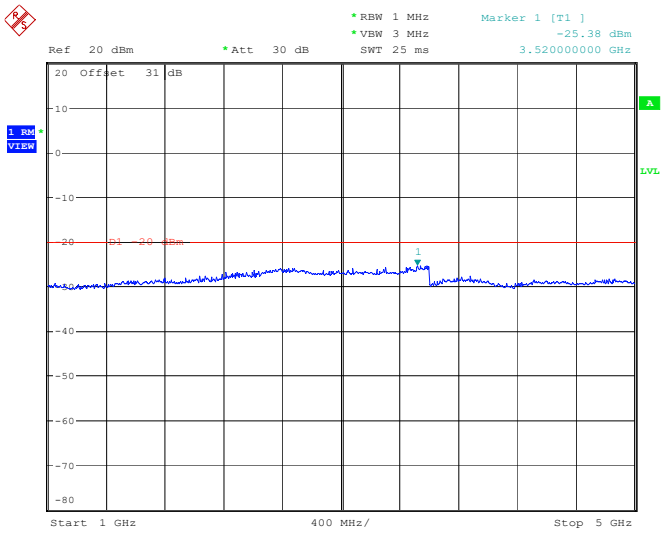
High Channel



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:44:34



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:46:44

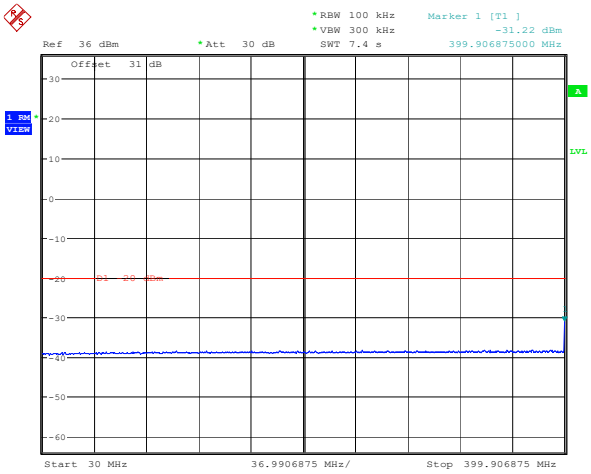


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang

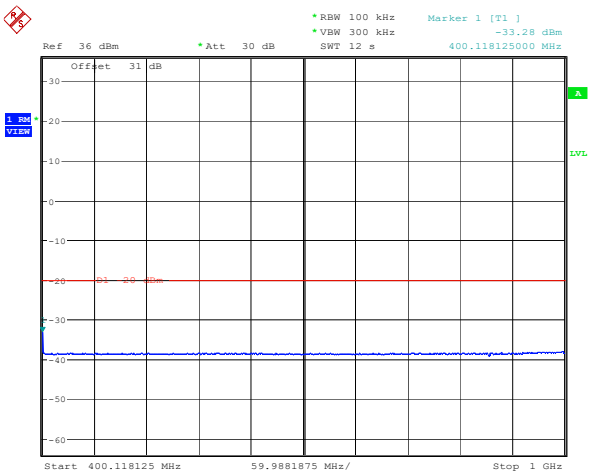
Date: 20.MAY.2025 11:50:40

4FSK

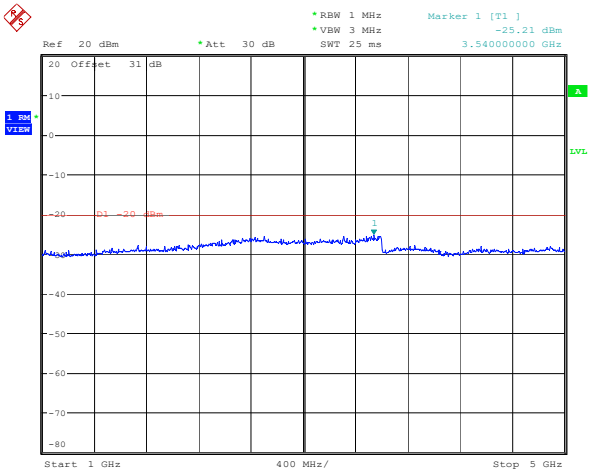
Low Channel



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:16:02

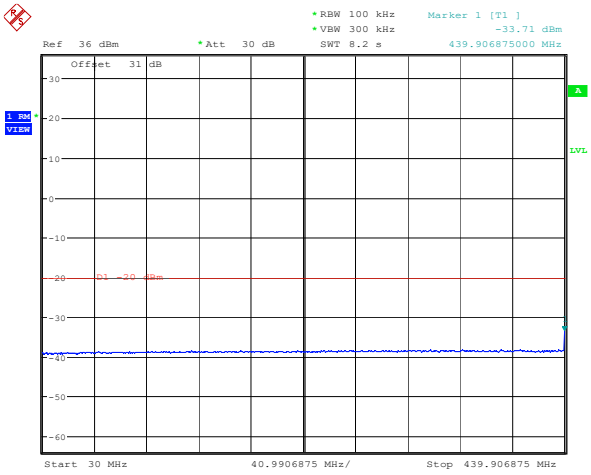


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:22:25

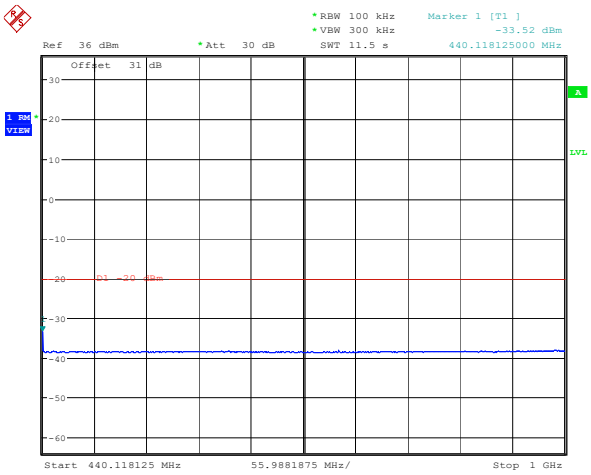


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 11:46:52

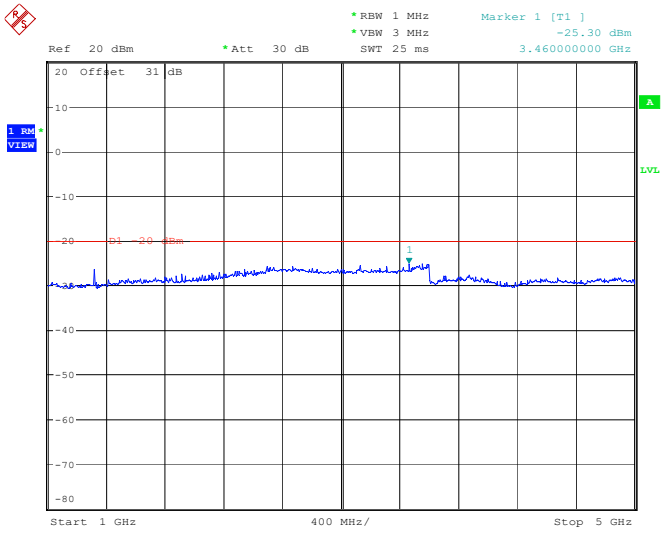
Middle Channel



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:26:25

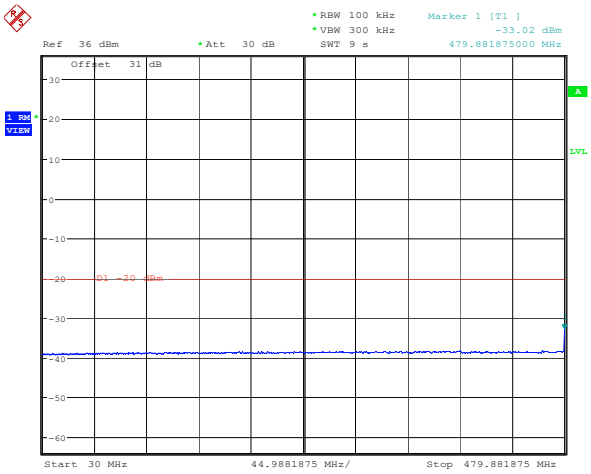


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:37:34

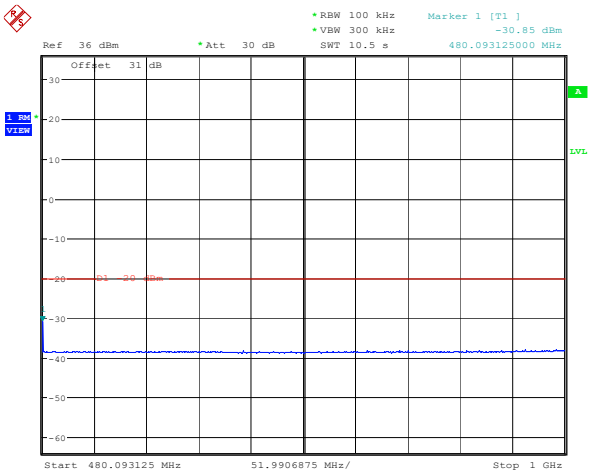


ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 11:47:35

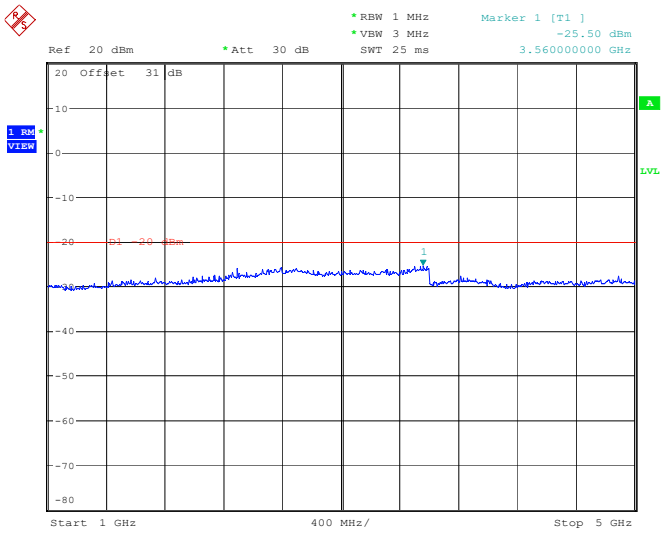
High Channel



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:43:30



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang
Date: 20.MAY.2025 13:48:22



ProjectNo.:2501T00722E-RF Tester:Cheeb Huang

Date: 20.MAY.2025 11:48:31

FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053 and §90.210

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =10 1g (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB =50+10 Log_{10} (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Test Data

Environmental Conditions

Temperature:	18.5~24.7 ℃
Relative Humidity:	49 %
ATM Pressure:	100.2~101.0 kPa

The testing was performed by Alex Yan on 2025-06-06 for below 1GHz and Wing K Ji on 2025-05-30 for above 1GHz.

Test Mode: Transmitting, worst case for high power level.

Note: Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case Y-AXIS was recorded

Test Result: Pass. *Please refer to the following tables.*

FM

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
400.0125 MHz								
800.025	44.96	H	-52.2	1.30	0.0	-53.50	-20	33.50
800.025	51.89	V	-43.1	1.30	0.0	-44.40	-20	24.40
1200.04	55.50	H	-58.7	1.10	6.70	-53.10	-20	33.10
1200.04	60.70	V	-54.2	1.10	6.70	-48.60	-20	28.60
1600.05	51.04	H	-63.3	1.50	8.60	-56.20	-20	36.20
1600.05	53.15	V	-61.7	1.50	8.60	-54.60	-20	34.60
2000.06	54.80	H	-59.5	1.40	9.40	-51.50	-20	31.50
2000.06	55.50	V	-59.5	1.40	9.40	-51.50	-20	31.50
2400.08	50.39	H	-64.3	1.50	9.40	-56.40	-20	36.40
2400.08	51.64	V	-62.9	1.50	9.40	-55.00	-20	35.00
2800.09	58.64	H	-55.3	1.70	9.30	-47.70	-20	27.70
2800.09	59.05	V	-54.6	1.70	9.30	-47.00	-20	27.00
3200.10	55.64	H	-57.6	2.00	9.50	-50.10	-20	30.10
3200.10	56.30	V	-56.6	2.00	9.50	-49.10	-20	29.10
3600.11	52.52	H	-60.2	1.90	9.60	-52.50	-20	32.50
3600.11	52.65	V	-59.8	1.90	9.60	-52.10	-20	32.10
440.0125 MHz								
880.025	45.32	H	-51.0	1.32	0.0	-52.32	-20	32.32
880.025	52.35	V	-43.7	1.32	0.0	-45.02	-20	25.02
1320.04	50.79	H	-63.6	1.00	7.30	-57.30	-20	37.30
1320.04	56.91	V	-58.4	1.00	7.30	-52.10	-20	32.10
1760.05	50.08	H	-64.1	1.40	9.10	-56.40	-20	36.40
1760.05	51.71	V	-63.1	1.40	9.10	-55.40	-20	35.40
2200.06	61.33	H	-53.1	1.50	9.70	-44.90	-20	24.90
2200.06	66.82	V	-47.9	1.50	9.70	-39.70	-20	19.70
2640.08	49.68	H	-64.6	1.70	9.40	-56.90	-20	36.90
2640.08	50.02	V	-64.0	1.70	9.40	-56.30	-20	36.30
3080.09	55.19	H	-58.2	1.80	9.30	-50.70	-20	30.70
3080.09	59.17	V	-53.9	1.80	9.30	-46.40	-20	26.40
3520.10	59.02	H	-54.5	1.80	9.70	-46.60	-20	26.60
3520.10	53.31	V	-59.9	1.80	9.70	-52.00	-20	32.00
3960.11	53.37	H	-59.6	1.80	9.70	-51.70	-20	31.70
3960.11	50.36	V	-62.7	1.80	9.70	-54.80	-20	34.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
479.9875 MHz								
959.975	44.65	H	-51.9	1.36	0.0	-53.26	-20	33.26
959.975	51.31	V	-42.7	1.36	0.0	-44.06	-20	24.06
1439.96	63.77	H	-50.5	0.90	7.80	-43.60	-20	23.60
1439.96	67.56	V	-47.5	0.90	7.80	-40.60	-20	20.60
1919.95	52.17	H	-62.2	1.20	9.40	-54.00	-20	34.00
1919.95	57.59	V	-57.4	1.20	9.40	-49.20	-20	29.20
2399.94	53.68	H	-61.0	1.50	9.40	-53.10	-20	33.10
2399.94	53.95	V	-60.6	1.50	9.40	-52.70	-20	32.70
2879.93	54.65	H	-58.5	1.80	9.30	-51.00	-20	31.00
2879.93	56.64	V	-56.3	1.80	9.30	-48.80	-20	28.80
3359.91	58.87	H	-54.9	1.70	9.60	-47.00	-20	27.00
3359.91	53.47	V	-60.0	1.70	9.60	-52.10	-20	32.10
3839.90	50.96	H	-62.4	2.00	9.60	-54.80	-20	34.80
3839.90	50.45	V	-62.9	2.00	9.60	-55.30	-20	35.30
4319.89	55.84	H	-56.9	2.20	9.70	-49.40	-20	29.40
4319.89	52.98	V	-59.6	2.20	9.70	-52.10	-20	32.10
4799.88	50.59	H	-61.8	2.00	10.40	-53.40	-20	33.40
4799.88	50.06	V	-62.4	2.00	10.40	-54.00	-20	34.00

4FSK

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
400.0125 MHz								
800.025	55.37	H	-41.8	1.30	0.0	-43.10	-20	23.10
800.025	53.74	V	-41.2	1.30	0.0	-42.50	-20	22.50
1200.04	55.46	H	-58.8	1.10	6.70	-53.20	-20	33.20
1200.04	64.68	V	-50.3	1.10	6.70	-44.70	-20	24.70
1600.05	60.76	H	-53.6	1.50	8.60	-46.50	-20	26.50
1600.05	72.44	V	-42.4	1.50	8.60	-35.30	-20	15.30
2000.06	60.05	H	-54.2	1.40	9.40	-46.20	-20	26.20
2000.06	69.07	V	-45.9	1.40	9.40	-37.90	-20	17.90
2400.08	54.93	H	-59.7	1.50	9.40	-51.80	-20	31.80
2400.08	62.29	V	-52.3	1.50	9.40	-44.40	-20	24.40
2800.09	56.83	H	-57.1	1.70	9.30	-49.50	-20	29.50
2800.09	58.97	V	-54.7	1.70	9.30	-47.10	-20	27.10
3200.10	51.92	H	-61.3	2.00	9.50	-53.80	-20	33.80
3200.10	59.02	V	-53.9	2.00	9.50	-46.40	-20	26.40
3600.11	62.93	H	-49.8	1.90	9.60	-42.10	-20	22.10
3600.11	61.78	V	-50.7	1.90	9.60	-43.00	-20	23.00
440.0125 MHz								
880.025	50.07	H	-46.3	1.32	0.0	-47.62	-20	27.62
880.025	52.22	V	-43.9	1.32	0.0	-45.22	-20	25.22
1320.04	55.27	H	-59.1	1.00	7.30	-52.80	-20	32.80
1320.04	56.98	V	-58.3	1.00	7.30	-52.00	-20	32.00
1760.05	58.26	H	-55.9	1.40	9.10	-48.20	-20	28.20
1760.05	61.46	V	-53.3	1.40	9.10	-45.60	-20	25.60
2200.06	68.37	H	-46.1	1.50	9.70	-37.90	-20	17.90
2200.06	78.08	V	-36.7	1.50	9.70	-28.50	-20	8.50
2640.08	56.64	H	-57.6	1.70	9.40	-49.90	-20	29.90
2640.08	60.54	V	-53.4	1.70	9.40	-45.70	-20	25.70
3080.09	56.42	H	-56.9	1.80	9.30	-49.40	-20	29.40
3080.09	61.35	V	-51.7	1.80	9.30	-44.20	-20	24.20
3520.10	52.29	H	-61.2	1.80	9.70	-53.30	-20	33.30
3520.10	53.79	V	-59.4	1.80	9.70	-51.50	-20	31.50
3960.11	65.11	H	-47.9	1.80	9.70	-40.00	-20	20.00
3960.11	65.73	V	-47.4	1.80	9.70	-39.50	-20	19.50

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
479.9875 MHz								
959.975	52.82	H	-43.7	1.36	0.0	-45.06	-20	25.06
959.975	59.43	V	-34.6	1.36	0.0	-35.96	-20	15.96
1439.96	68.78	H	-45.5	0.90	7.80	-38.60	-20	18.60
1439.96	69.92	V	-45.1	0.90	7.80	-38.20	-20	18.20
1919.95	56.02	H	-58.3	1.20	9.40	-50.10	-20	30.10
1919.95	60.48	V	-54.5	1.20	9.40	-46.30	-20	26.30
2399.94	57.47	H	-57.2	1.50	9.40	-49.30	-20	29.30
2399.94	61.22	V	-53.4	1.50	9.40	-45.50	-20	25.50
2879.93	55.22	H	-57.9	1.80	9.30	-50.40	-20	30.40
2879.93	57.71	V	-55.2	1.80	9.30	-47.70	-20	27.70
3359.91	59.12	H	-54.6	1.70	9.60	-46.70	-20	26.70
3359.91	58.06	V	-55.4	1.70	9.60	-47.50	-20	27.50
3839.9	51.15	H	-62.2	2.00	9.60	-54.60	-20	34.60
3839.9	51.25	V	-62.1	2.00	9.60	-54.50	-20	34.50
4319.89	61.12	H	-51.6	2.20	9.70	-44.10	-20	24.10
4319.89	56.87	V	-55.7	2.20	9.70	-48.20	-20	28.20

Note:
Absolute Level = Reading Level + Substituted Factor
Substituted Factor contains: SG Level - Cable loss+ Antenna Gain
Margin = Absolute Level - Limit

FCC §2.1055 & §90.213 - FREQUENCY STABILITY

Applicable Standard

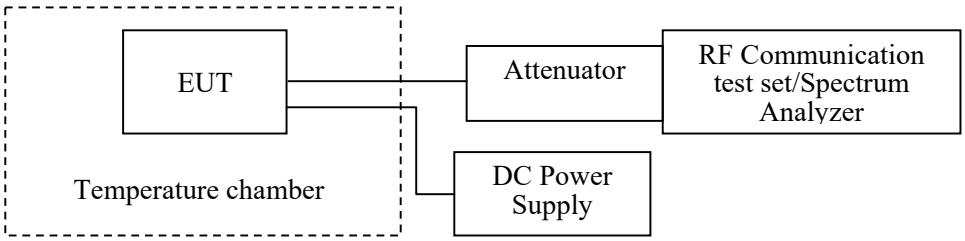
FCC §2.1055 and §90.213

Test Procedure

According to ANSI C63.26-2015 section 5.6

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The power cable and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.



Test Data

Environmental Conditions

Temperature:	24~25.5 ℃
Relative Humidity:	45~55 %
ATM Pressure:	101.5~101.9kPa

The testing was performed by Cheeb Huang from 2025-05-20 to 2025-06-14.

Test Mode: Transmitting, worst case for high power level.

***Test Result: Pass**. Please refer to the following tables.*

Un-modulation, fc =440.0125 MHz				
Temperature (℃)	**Voltage (V_{DC})**	**Reading (MHz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	440.0129340	0.99	2.5
-20		440.0132520	1.71	
-10		440.0131740	1.53	
0		440.0129510	1.02	
10		440.0122320	-0.61	
20		440.0133280	1.88	
30		440.0130440	1.24	
40		440.0127870	0.65	
50		440.0128560	0.81	
20	3.23	440.0127530	0.57	
20	4.37	440.0134450	2.15	

FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR

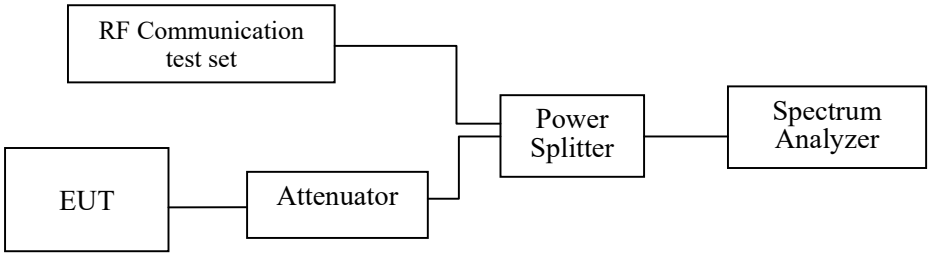
Applicable Standard

Regulations: FCC §90.214

Test Procedure

Test method: ANSI C63.26-2015 clause 6.5.2.2

a) Connect the EUT and test equipment as shown on the following block diagram.
b) Verify RF attenuator power rating for EUT providing adequate protection to the combining network and measurement equipment. Instrumentation linearity shall be confirmed per item j) of 4.2.3..
c) Tune spectrum analyzer center frequency to EUT frequency and span to at least 100 kHz. Set amplitude according to EUT RF power
d) Switch transmitter on and adjust settings in accordance with step c); switch transmitter to the off position.
e) Set analyzer to FM mode; re-tune analyzer to EUT frequency and span according to step c), while in FM demodulation mode.
f) An RF test signal of the same frequency as the EUT from the signal generator shall be modulated by a frequency of 1 kHz with a deviation equal to plus or minus the value of the channel spacing (separation). The RF signal strength shall be adjusted allowing the analyzer to demodulate the signal in FM mode.
g) Adjust analyzer x axis to capture at least 100 ms of demodulated signal.
h) Adjust analyzer y axis for the correct deviation amplitude.
i) The analyzer display should show a continuous 1 kHz signal and the channel spacing deviation amplitude.
j) Change analyzer settings to single sweep and external trigger. For newer analyzers, the channel bandwidth might have to be adjusted for the correct sample rate and sweep speed.
k) Turn on EUT and adjust analyzer to display desired signal by adjusting trigger settings and considerations in step j). Turn off EUT.
I) Repeat step k) until optimum set-up is achieved.



Test Data

Environmental Conditions

Temperature:	24~25.5 ℃
Relative Humidity:	45~55 %
ATM Pressure:	101.5~101.9kPa

The testing was performed by Cheeb Huang from 2025-05-20 to 2025-06-14.

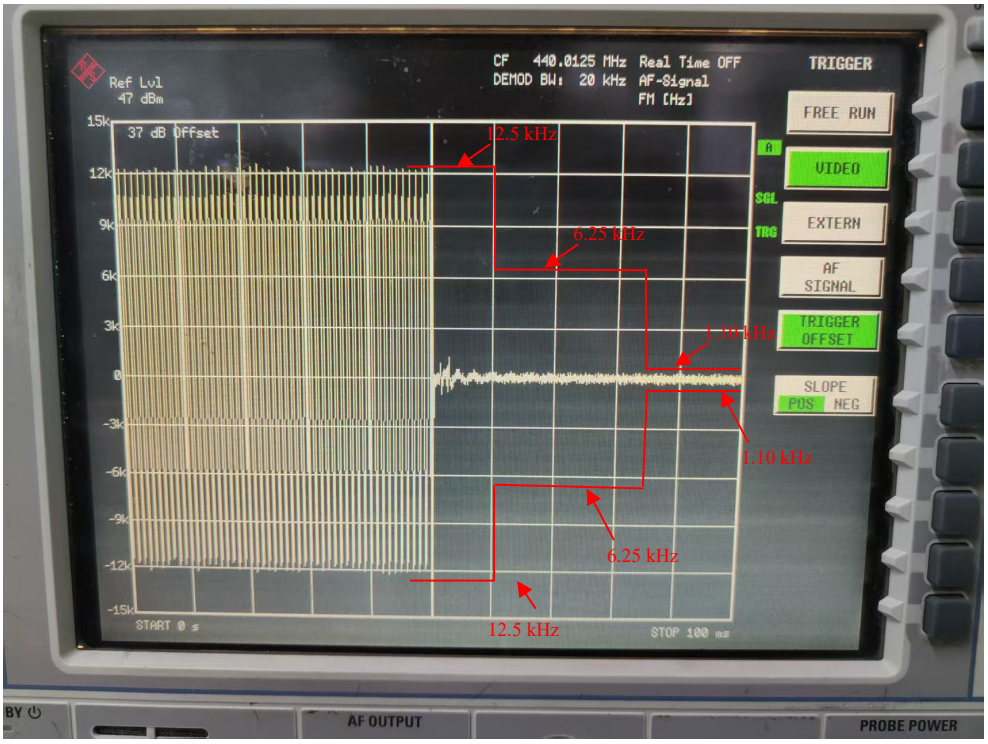
***Test Result: Pass**. Please refer to the following tables and plots.*

Channel Separation (kHz)	Transient Period (ms)	Transient Frequency	Result
12.5	10(t1)	±12.5kHz	Pass
	25(t2)	±6.25kHz	
	10(t1)	±12.5kHz	

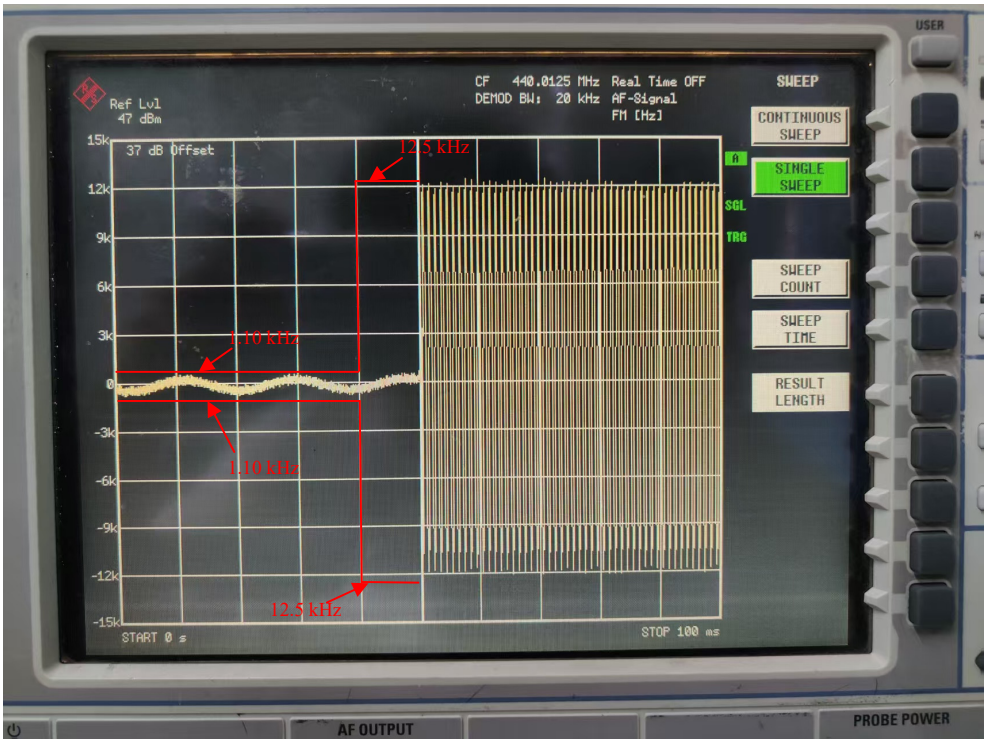
Note: During the time from the end of t_2 to the beginning of t_3, the frequency difference not exceed the limits specified in §90.213

For 440.0125MHz 12.5 kHz mode, the limit is 440.0125MHz*2.5ppm=1.10kHz

Turn on



Turn off



EUT PHOTOGRAPHS

Please refer to the attachment 2501T00722E-RF External photo and 2501T00722E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2501T00722E-RF Test Setup photo.

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