TEST REPORT

Applicant Name:	Axiom Distribution Solutions
Address:	1320 Arroyo Grande California United States 93420
Report Number:	SZ1240117-04046E-RF-00
FCC ID:	2ATTQAXP5X5V

Test Standard (s)

FCC PART 90

Sample Description

Product Type:	Digital Portable Radio
Model No.:	AXP595 VHF
Multiple Model(s) No.:	AXP565 VHF, AXP505 VHF
Trade Mark:	Axiom
Date Received:	2024/01/18
Issue Date:	2024/03/25

Test Result:	Pass▲

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

Prepared and Checked By:

Mike Xiao
RF Engineer

Approved By:

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.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1240117-04046E-RF-00	Original Report	2024/03/25

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Digital Portable Radio
Tested Model	AXP595 VHF
Multiple Model(s)	AXP565 VHF, AXP505 VHF
Frequency Range	136 -174MHz
Rated Transmit Power	5.0Watts(High), 1.0Watt(Low)
Channel separation	12.5kHz
Modulation Technique	4FSK/FM
Antenna Specification#	0dBi (provided by the applicant)
Voltage Range	DC 7.4V from battery or DC 12.0V from adapter
Sample serial number	AXP595 VHF: 2GRV-1 for Radiated Emissions Test 2GRV-2 for RF Conducted Test AXP565 VHF: 2GRV-3 for Radiated Emissions Test AXP505 VHF: 2GRV-4 for Radiated Emissions Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: ES085H-X120100XYF Input: AC 100-240V~50/60Hz, 0.5A Output: DC 12.0V, 1.0A
Note: The Multiple models are electrically identical with the test model except for the screen and keyboard. 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: 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.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
Frequency Error		213.55Hz
RF output power, conducted		0.72dB
Unwanted Emission, conducted		1.75dB
Audio Frequency Response		0.1dB
Low Pass Filter Response		1.2dB
Modulation Limiting		1%
Radiated Spurious Emission	30MHz~200MHz (Horizontal)	4.48dB
	30MHz~200MHz (Vertical)	4.55dB
	200MHz~1000MHz (Horizontal)	4.85dB
	200MHz~1000MHz (Vertical)	5.05dB
	1GHz - 6GHz	5.35dB
Temperature		1℃
Humidity		6%
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 a test mode which has been done in the factory.

Test channel information

Test Mode	Test Frequency (MHz)
FM, 12.5kHz	136.0125
	155.0125
	173.9875
4FSK, 12.5kHz	136.0125
	155.0125
	173.9875

Equipment Modifications

No modification was made to the EUT.

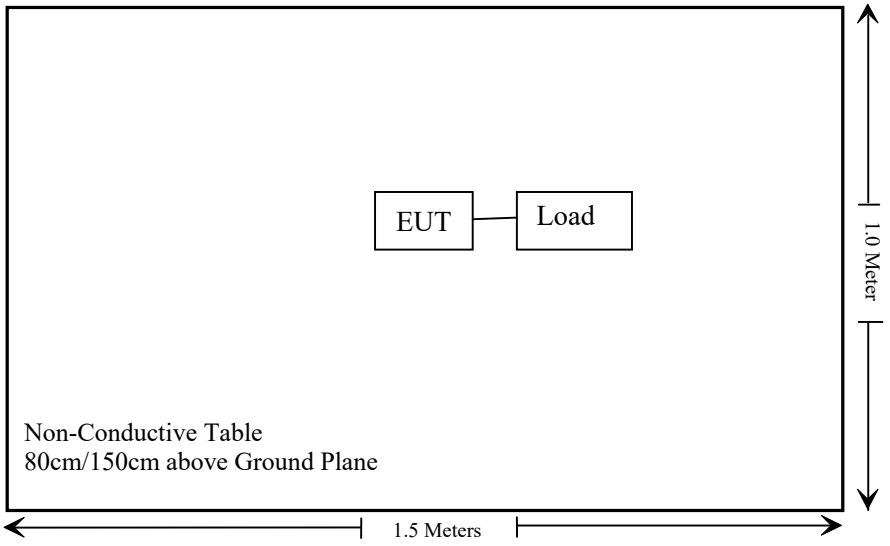
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Unknown	Load	Unknown	Unknown

External I/O Cable

Cable Description	Length (m)	From Port	To
RF Cable	0.5	EUT	Load

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
FCC §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					
R&S	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2023/06/08	2024/06/07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2024/07/19
Unknown	Cable	Chamber Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	V Band Pass Filter	NHP-25+	15542	2023/07/04	2024/07/03
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2023/04/18	2024/04/17
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2024/07/25
A.H.System	Horn Antenna	SAS-200/571	135	2021/07/14	2024/07/13
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
RF Conducted Test					
R&S	SPECTRUM ANALYZER	FSU26	200120	2024/01/08	2025/01/07
BACL	Temperature & Humidity Chamber	BTH-150-40	30145	2024/01/16	2025/01/15
HP	RF Communication test set	8920B	US36141849	2024/01/16	2025/01/15
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2023/06/08	2024/06/07
JFW	30dB Attenuator	50FH-030-100 RF	F-03-EM032	2023/07/04	2024/07/03
WEINSCHEL	Power Splitter	1515	RH386	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082135	W1113	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082176	W6102	2023/07/04	2024/07/03
R&S	Audio Analyzer	UPV	101782	2024/01/16	2025/01/15
R&S	Signal Analyzer	FSIQ26	837405/023	2024/01/08	2025/01/07

* 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: SZ1240117-04046E-20.

FCC §2.1046 & §90.205 - RF OUTPUT POWER

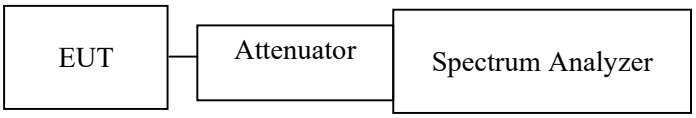
Applicable Standard

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:	26.3 ℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-03-21 to 2024-03-22.

Test Mode: Transmitting

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

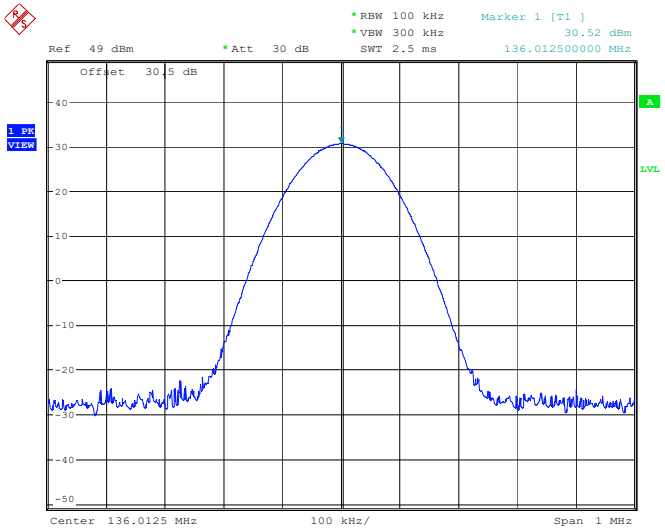
The 30dB Attenuator and cable loss 0.5dB was added in the Spectrum Analyze as the offset.

Modulation Mode	Channel Separation	f_c	Reading (dBm)		Limit (dBm)	
		MHz	High Power Level	Low Power Level	High Power Level	Low Power Level
FM	12.5kHz	136.0125	37.13	30.52	≤37.78	≤30.79
		155.0125	37.06	30.55	≤37.78	≤30.79
		173.9875	36.89	30.04	≤37.78	≤30.79
4FSK	12.5kHz	136.0125	37.21	30.77	≤37.78	≤30.79
		155.0125	37.03	30.61	≤37.78	≤30.79
		173.9875	36.83	30.01	≤37.78	≤30.79

Note: The output power shall not exceed by more than 20 percent the manufacturer's rated output power.
Rated high power: 5Watts
Rated low power: 1Watt

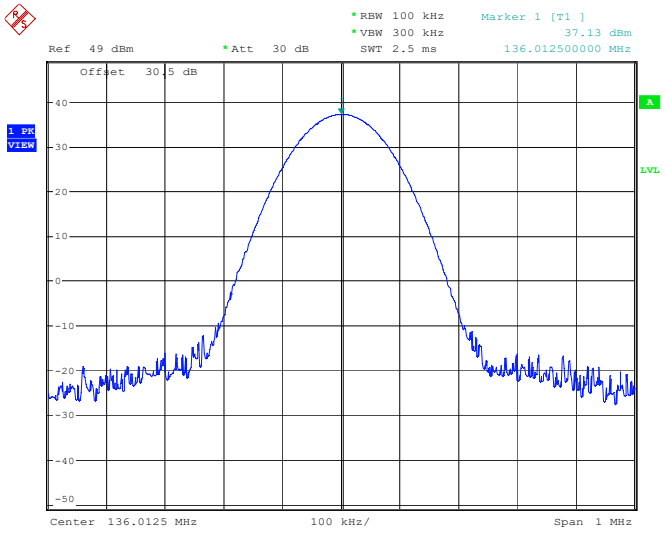
FM:

Frequency 136.0125MHz, Low Power



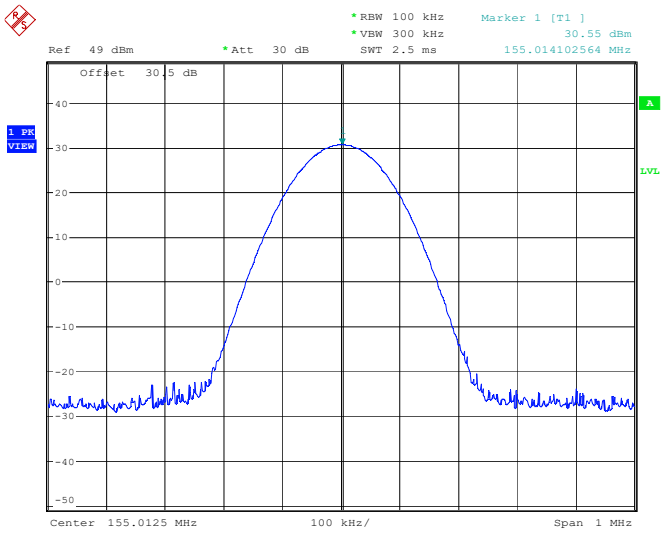
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:50:59

Frequency 136.0125 MHz, High Power



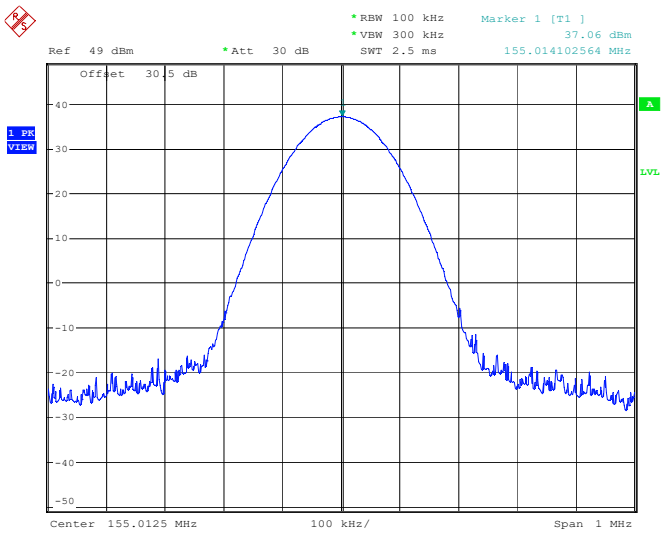
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:50:33

Frequency 155.0125MHz, Low Power



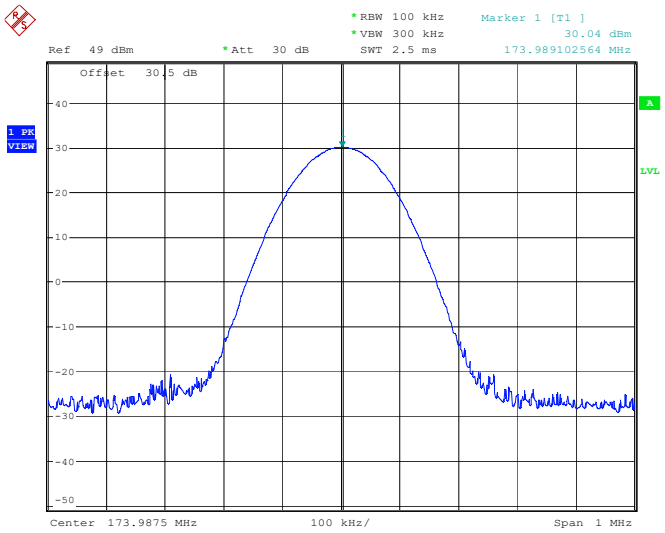
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:51:32

Frequency 155.0125MHz, High Power



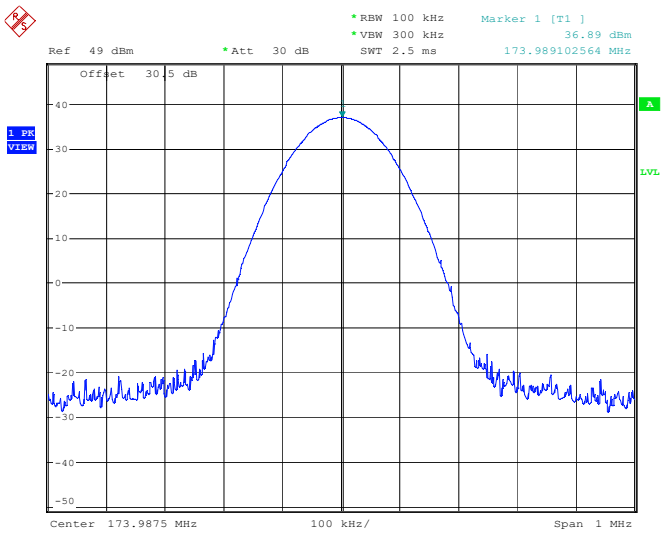
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:51:50

Frequency 173.9875 MHz, Low Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:52:51

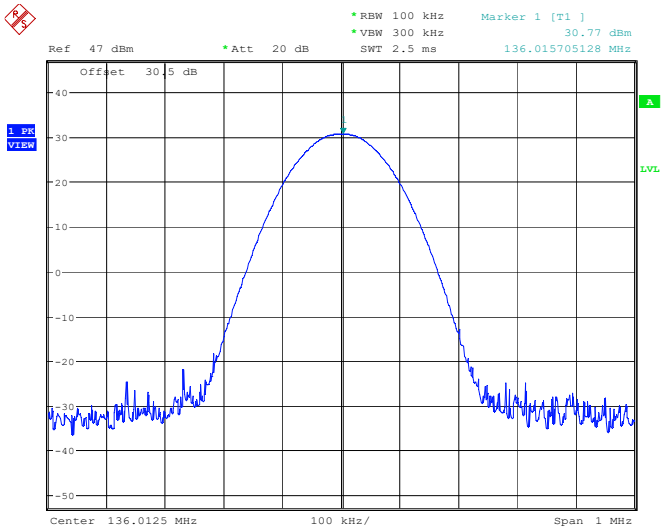
Frequency 173.9875 MHz, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:52:32

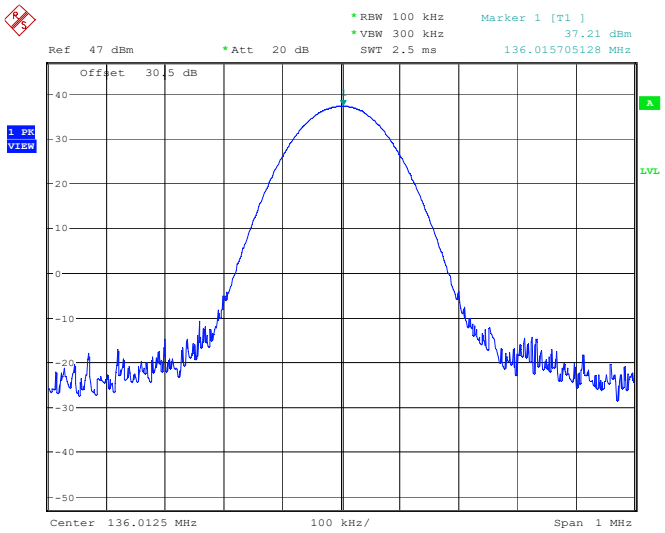
4FSK:

Frequency 136.0125MHz, Low Power



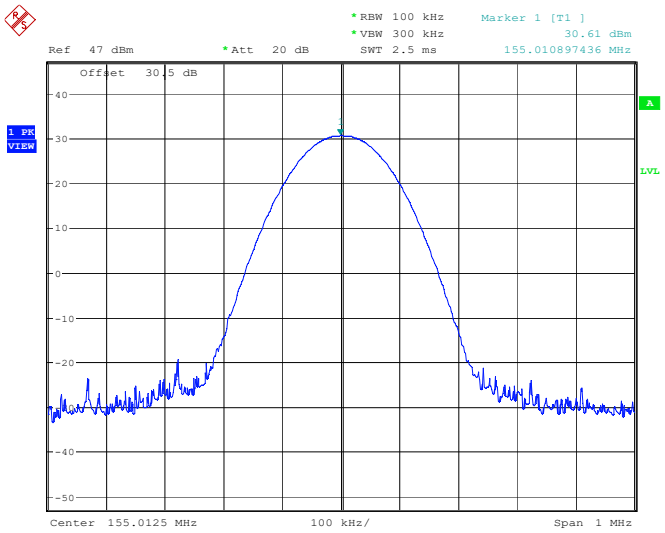
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:18:19

Frequency 136.0125 MHz, High Power



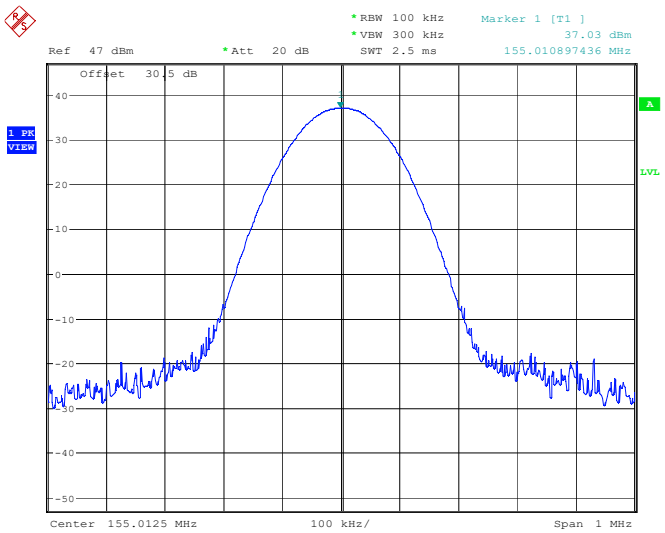
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:15:55

Frequency 155.0125MHz, Low Power



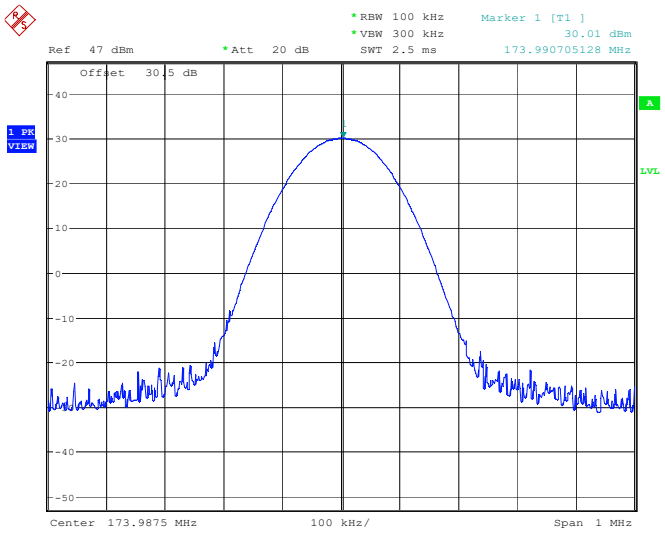
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:19:06

Frequency 155.0125MHz, High Power



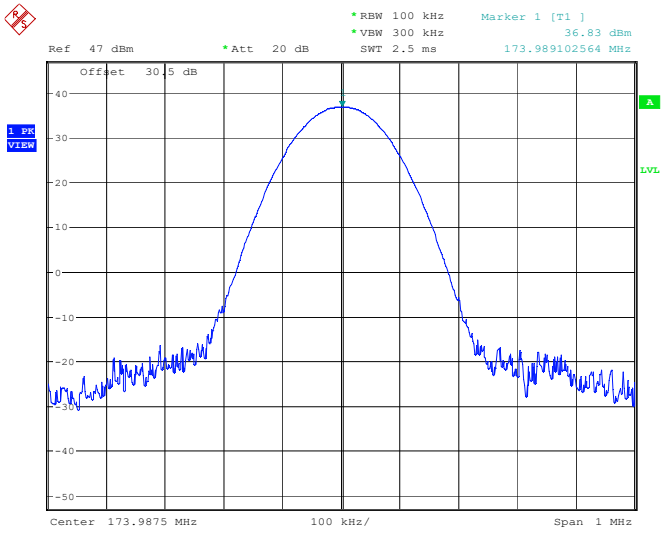
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:19:26

Frequency 173.9875 MHz, Low Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:20:13

Frequency 173.9875 MHz, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.MAR.2024 17:20:38

FCC §2.1047 & §90.207 - MODULATION CHARACTERISTIC

Applicable Standard

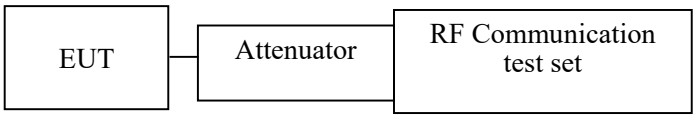
FCC§2.1047 and §90.207:

(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.

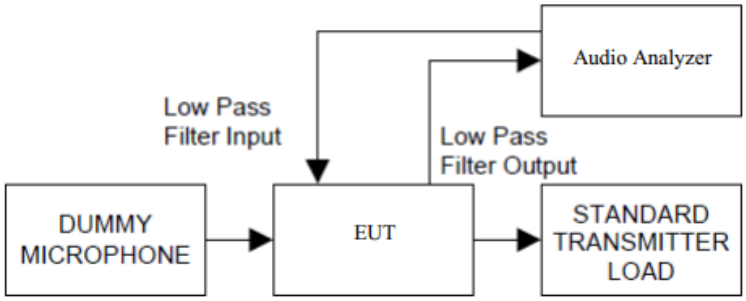
Test Procedure

Test Method: ANSI C63.26-2015 section 5.3

For modulation limiting and audio frequency respone:



For Audio Low Pass Filter Response:



Test Data

Environmental Conditions

Temperature:	26.3 ℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-02-22 to 2024-03-06.

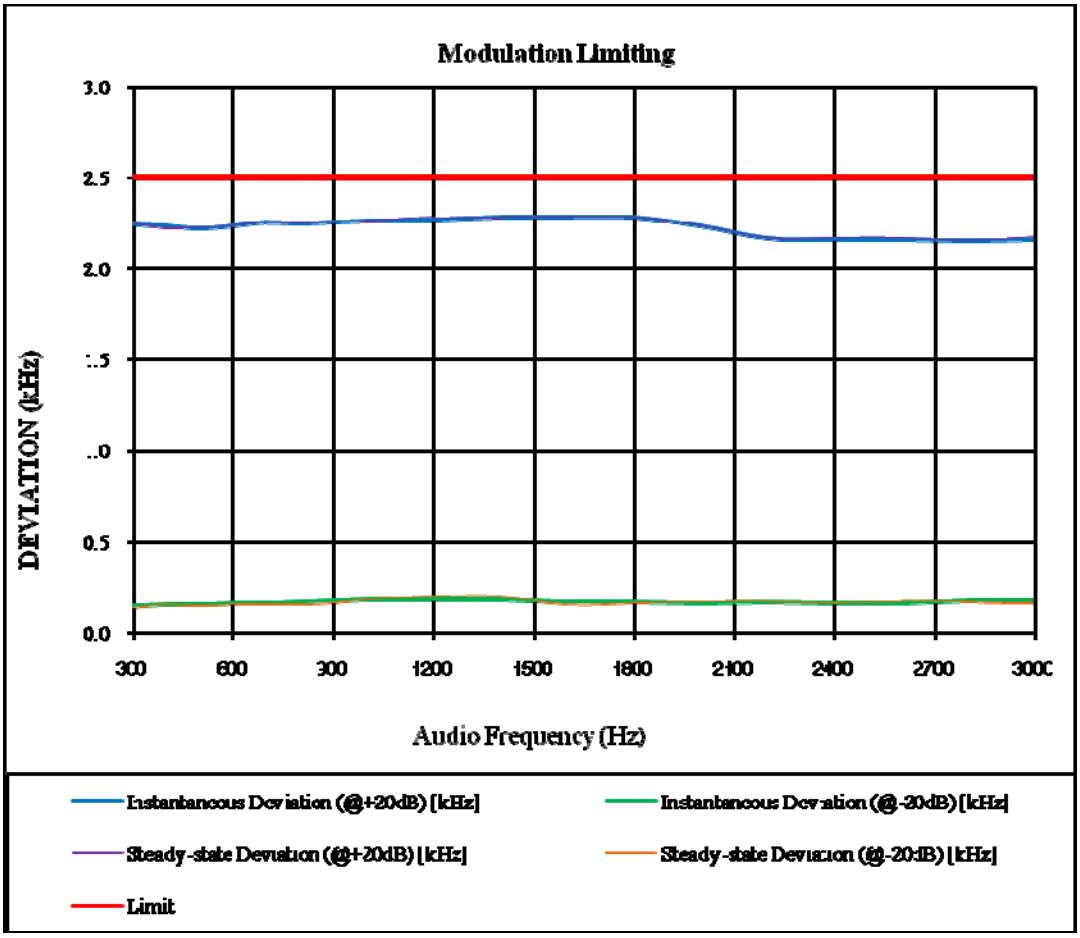
Test Mode: Transmitting

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

MODULATION LIMITING

Carrier Frequency: 155.0125MHz, Separation: 12.5kHz

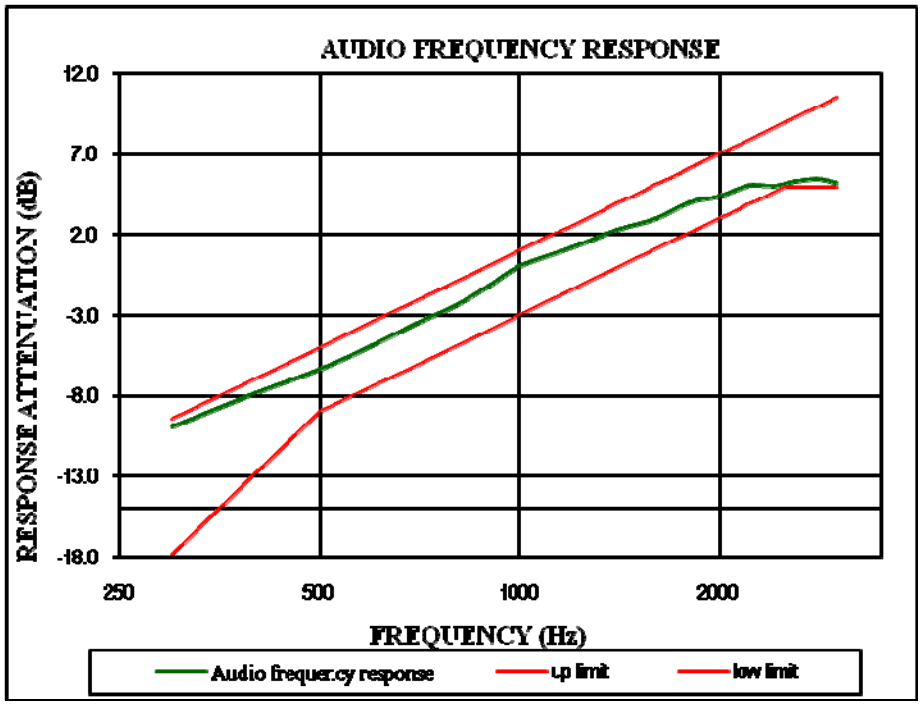
Audio Frequency (Hz)	Instantaneous		Steady-state		Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.241	0.152	2.251	0.142	2.500
400	2.236	0.159	2.226	0.159	2.500
500	2.223	0.161	2.223	0.151	2.500
600	2.239	0.168	2.239	0.158	2.500
700	2.254	0.169	2.254	0.159	2.500
800	2.251	0.172	2.251	0.162	2.500
900	2.258	0.178	2.258	0.168	2.500
1000	2.262	0.185	2.262	0.185	2.500
1200	2.271	0.188	2.281	0.198	2.500
1400	2.281	0.190	2.281	0.200	2.500
1600	2.285	0.171	2.285	0.161	2.500
1800	2.283	0.177	2.283	0.167	2.500
2000	2.235	0.165	2.235	0.175	2.500
2200	2.167	0.176	2.167	0.176	2.500
2400	2.160	0.168	2.170	0.168	2.500
2600	2.159	0.167	2.169	0.177	2.500
2800	2.153	0.181	2.153	0.171	2.500
3000	2.162	0.180	2.172	0.170	2.500


Modulation Limiting
DEVIATION (kHz)
3.0
2.5
2.0
0.5
0.0
300
600
1200
1500
1800
2100
2400
2700
Audio Frequency (Hz)
Instantaneous Deviation (@+20dB) [kHz]
Instantaneous Deviation (@-20dB) [kHz]
Steady-state Deviation (@+20dB) [kHz]
Steady-state Deviation (@-20dB) [kHz]
Limit

Audio Frequency Response

Carrier Frequency: 155.0125MHz, Separation: 12.5kHz

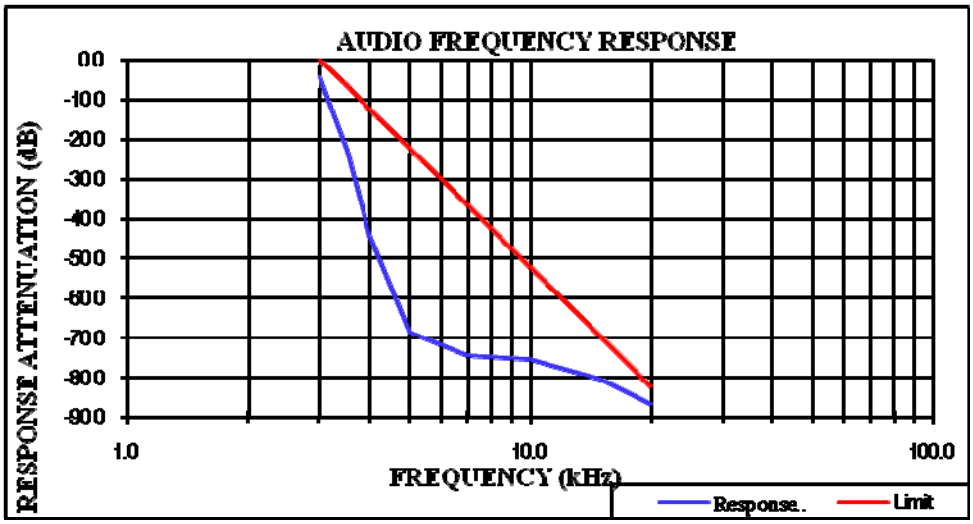
Audio Frequency (Hz)	Response Attenuation (dB)
300	-9.90
400	-7.83
500	-6.38
600	-4.94
700	-3.53
800	-2.43
900	-1.19
1000	0.00
1200	1.17
1400	2.31
1600	3.01
1800	4.01
2000	4.35
2200	5.02
2400	5.01
2600	5.28
2800	5.42
3000	5.25



Audio frequency lows pass filter response

Carrier Frequency: 155.0125MHz, Separation: 12.5kHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
3.0	-4.3	0.0
3.5	-23.0	-6.7
4.0	-44.3	-12.5
5.0	-68.6	-22.2
7.0	-74.5	-36.8
10.0	-75.6	-52.3
15.0	-80.7	-69.9
20.0	-86.9	-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:

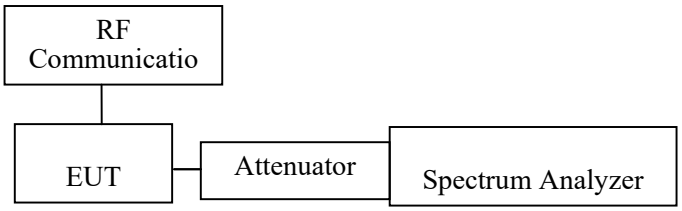
1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0dB.

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.

4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

Test Procedure



According to ANSI C63.26-2015 Section 5.4.4:

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:	26.3 ℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-02-22 to 2024-03-21.

Test mode: Transmitting

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

Modulation Mode	Channel Separation	f_c	High Power Level		Low Power Level	
			99% Occupied Bandwidth	26 dB Bandwidth	99% Occupied Bandwidth	26 dB Bandwidth
		MHz	kHz	kHz	kHz	kHz
FM	12.5kHz	136.0125	9.936	10.689	9.936	10.657
		155.0125	9.936	10.577	9.936	10.657
		173.9875	9.936	10.657	10.016	10.657
4FSK	12.5kHz	136.0125	7.372	9.856	7.612	9.375
		155.0125	7.452	9.647	7.772	9.968
		173.9875	7.452	9.487	7.933	9.567

Emission Mask please refers to the plots.

Note:
Emission bandwidth was based on calculation method instead of measurement.
Emission Designator
BW = 2M + 2D

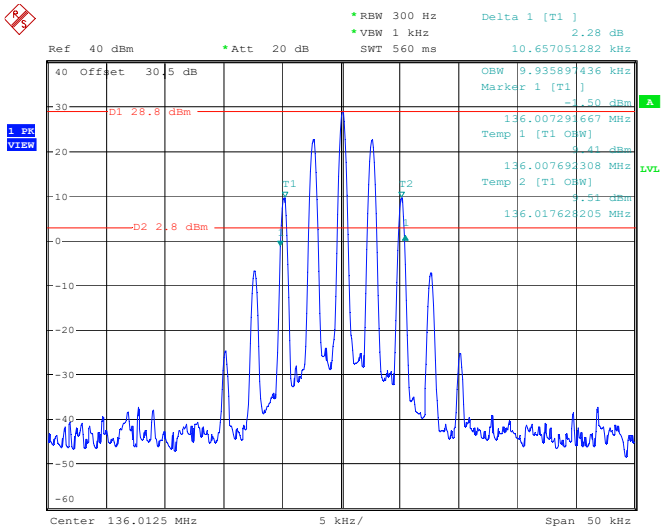
For FM Mode (Channel Spacing: 12.5 kHz)
Emission Designator: 11K0F3E
In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.
BW = 2(M+D) = 2*(3.0 kHz + 2.5 kHz) = 11 kHz =11K0
F3E portion of the designator represents an FM voice transmission
Therefore, the entire designator 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, 7.60 kHz. 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.

The 30dB Attenuator and cable loss 0.5dB was added in the Spectrum Analyzer as the offset.

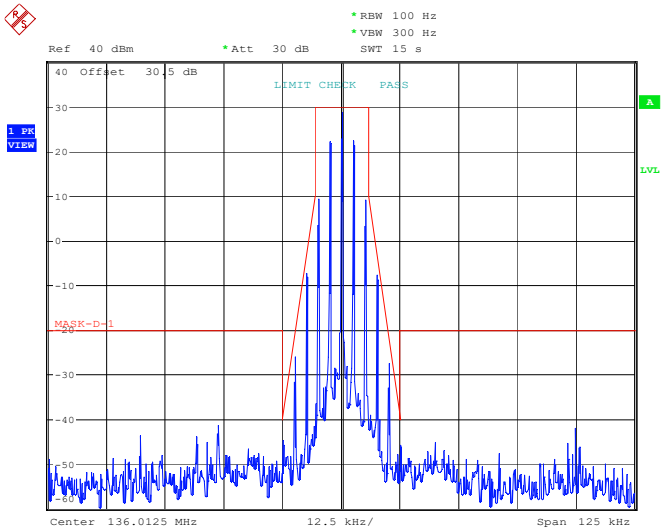
FM:

Frequency 136.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



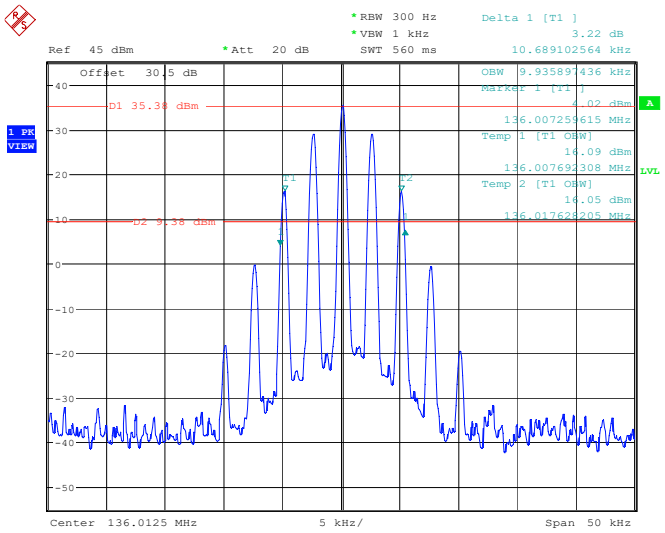
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:27:59

Frequency 136.0125 MHz: Emission Mask D, Low Power



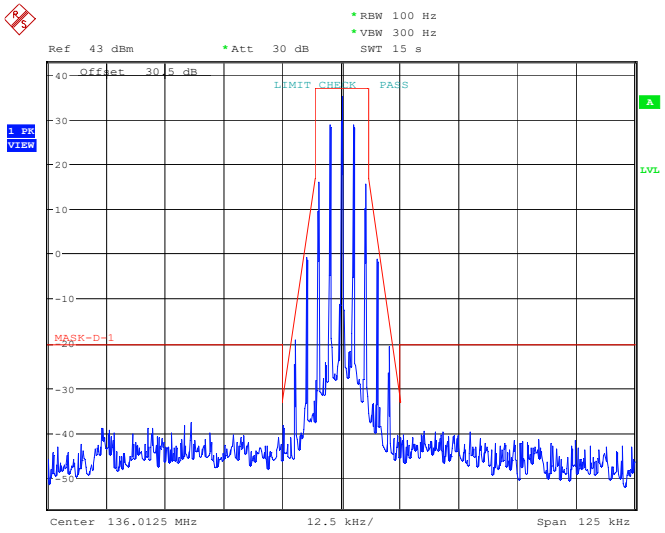
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:37:44

Frequency 136.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



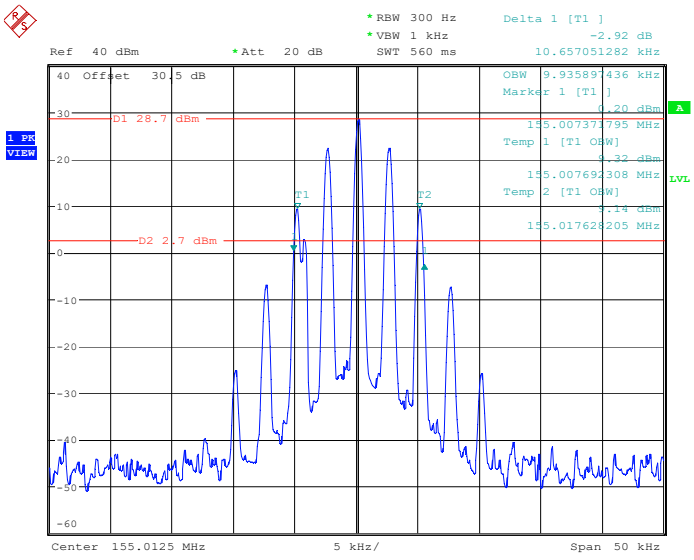
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:21:34

Frequency 136.0125 MHz: Emission Mask D, High Power



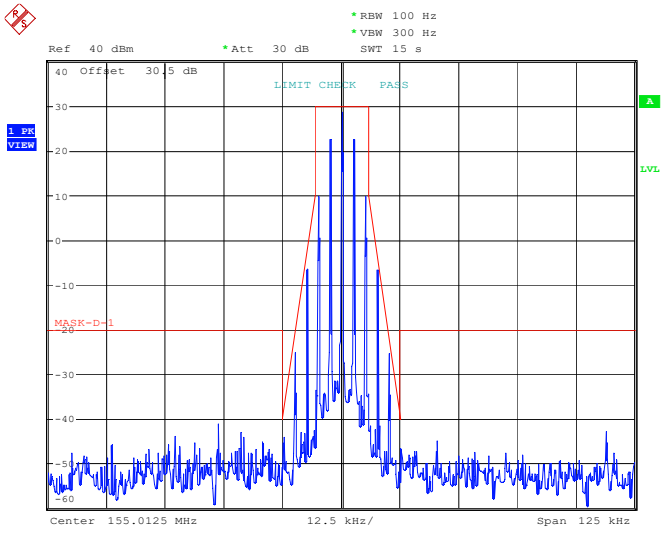
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:45:06

Frequency 155.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



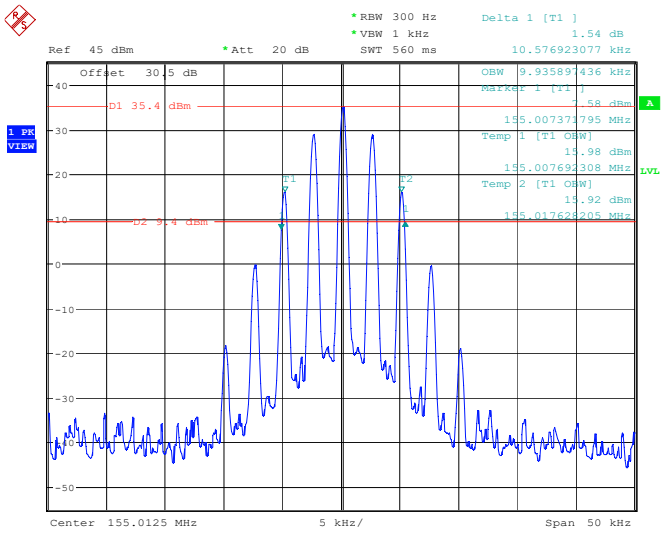
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:26:32

Frequency 155.0125 MHz: Emission Mask D, Low Power



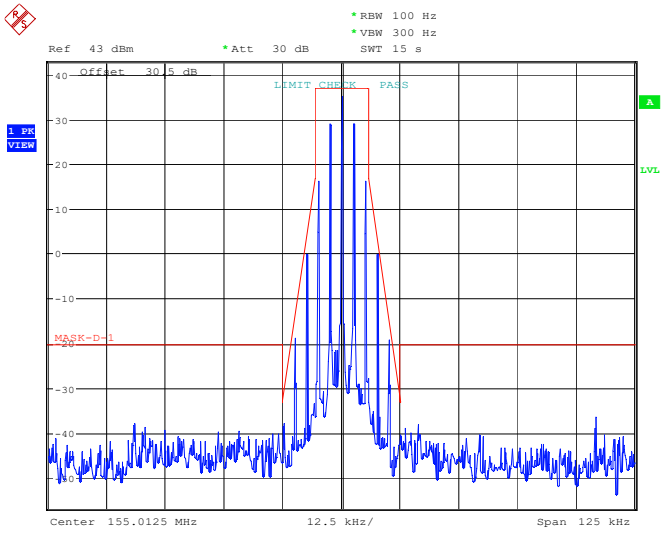
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:38:56

Frequency 155.0125MHz: 99% Occupied & 26 dB Bandwidth, High Power



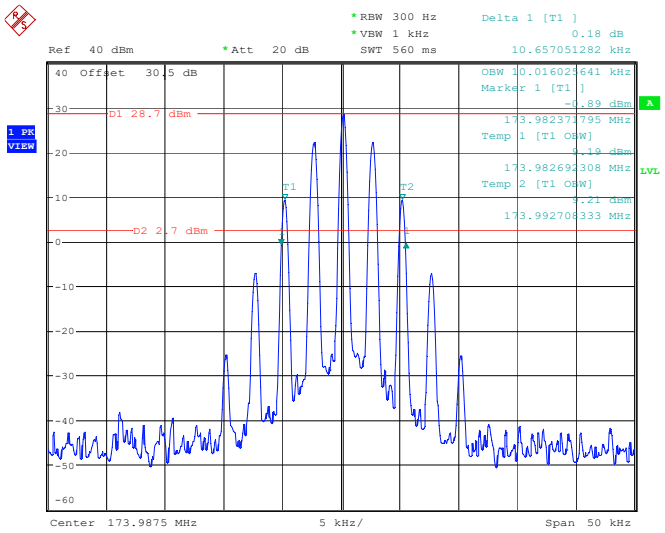
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:23:13

Frequency 155.0125 MHz: Emission Mask D, High Power



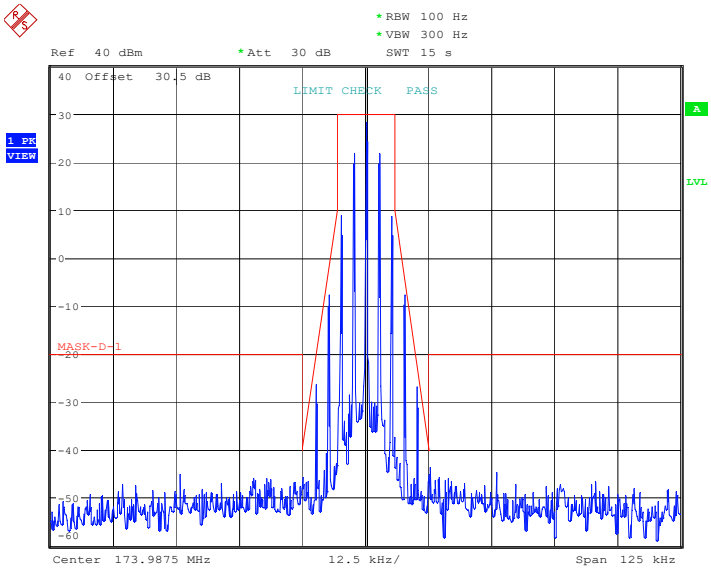
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:42:57

Frequency 173.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



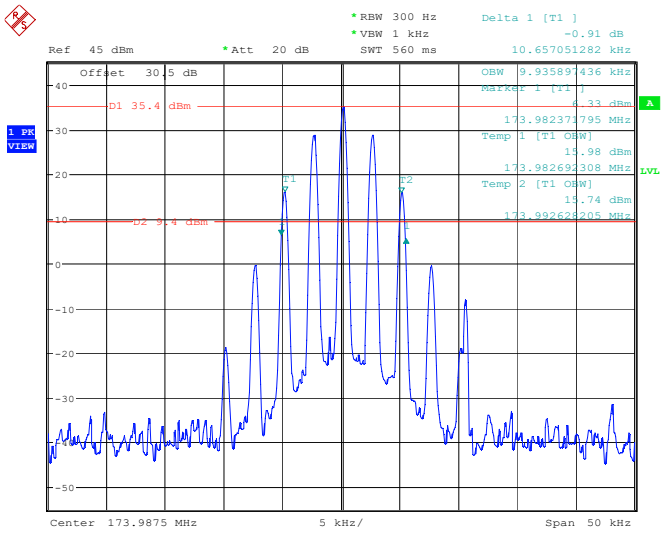
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:25:12

Frequency 173.9875 MHz: Emission Mask D, Low Power



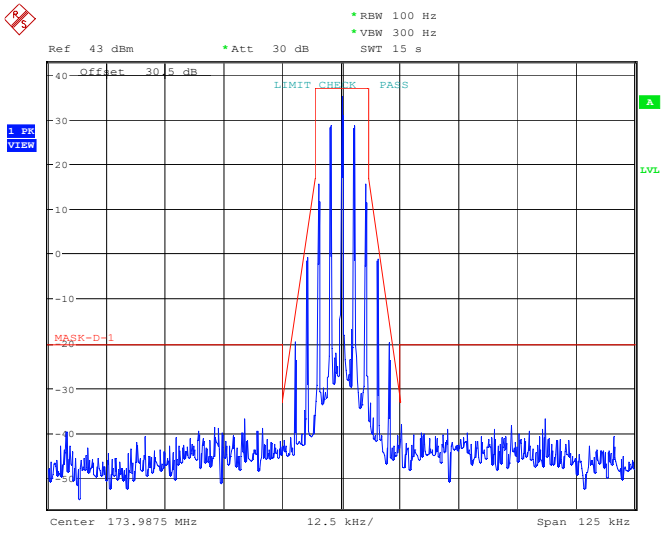
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:40:00

Frequency 173.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 6.MAR.2024 23:24:06

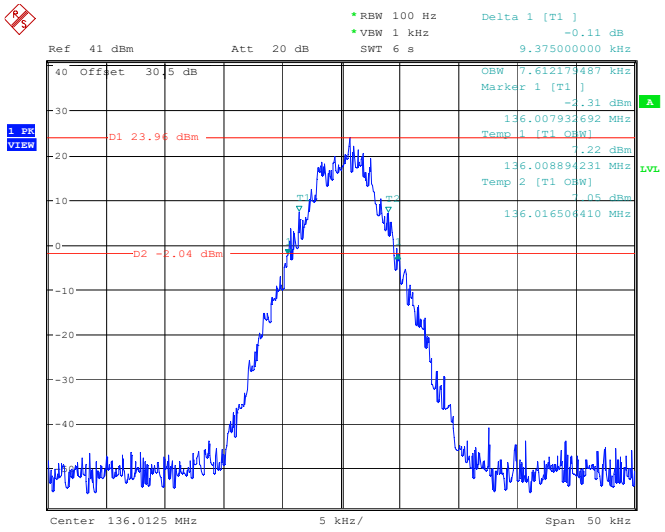
Frequency 173.9875 MHz: Emission Mask D, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.MAR.2024 18:41:47

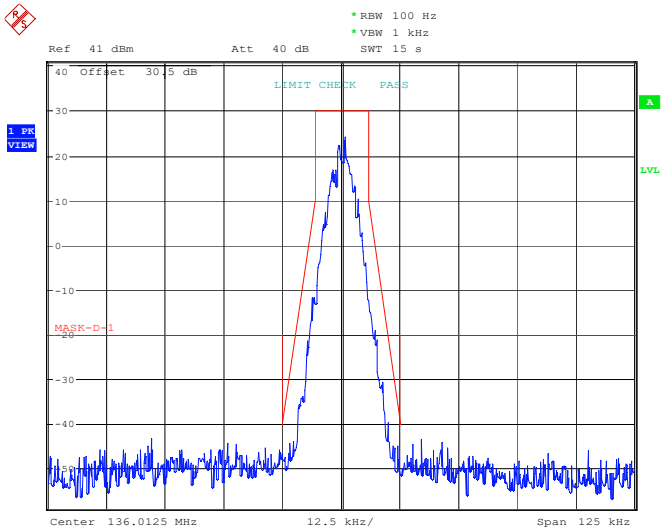
4FSK

Frequency 136.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



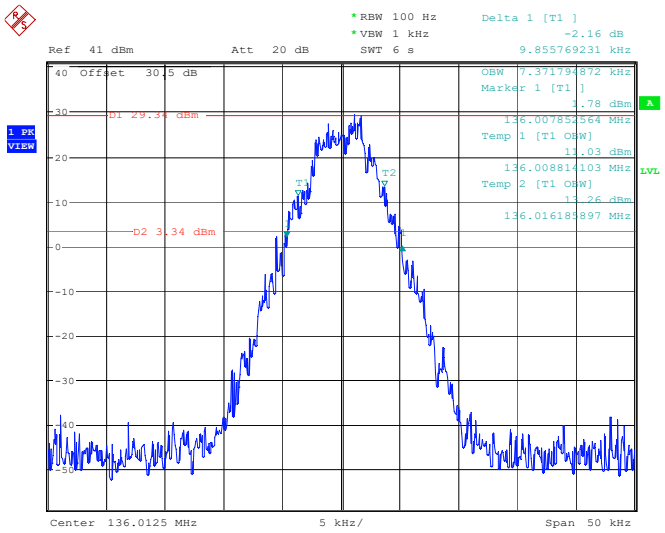
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:38:27

Frequency 136.0125 MHz: Emission Mask D, Low Power



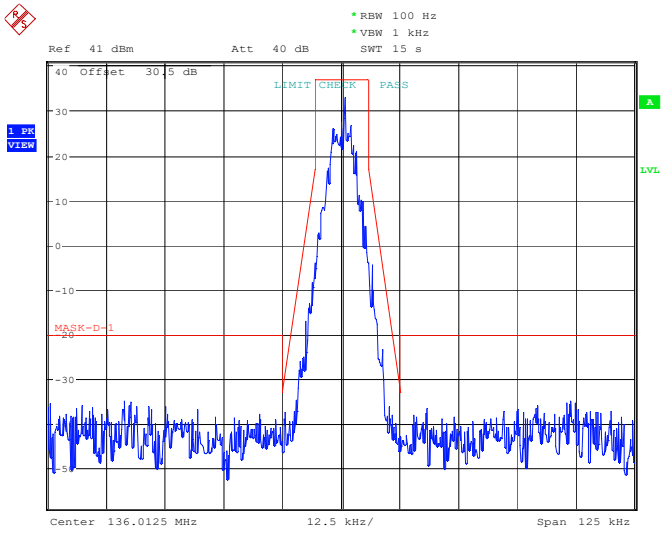
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:03:16

Frequency 136.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



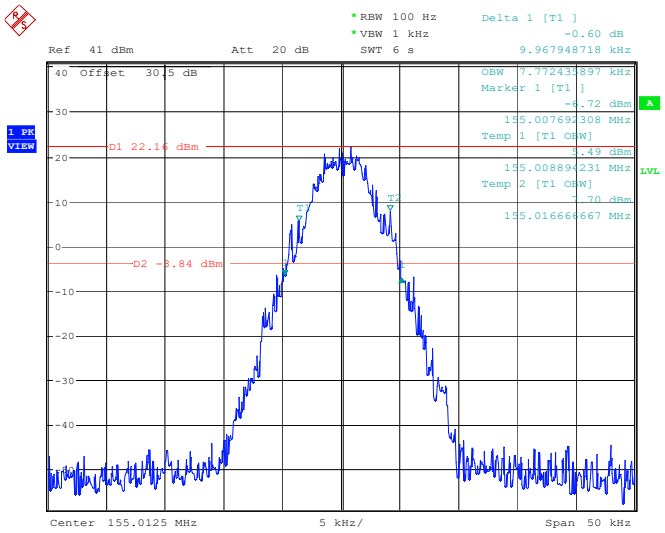
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:35:31

Frequency 136.0125 MHz: Emission Mask D, High Power



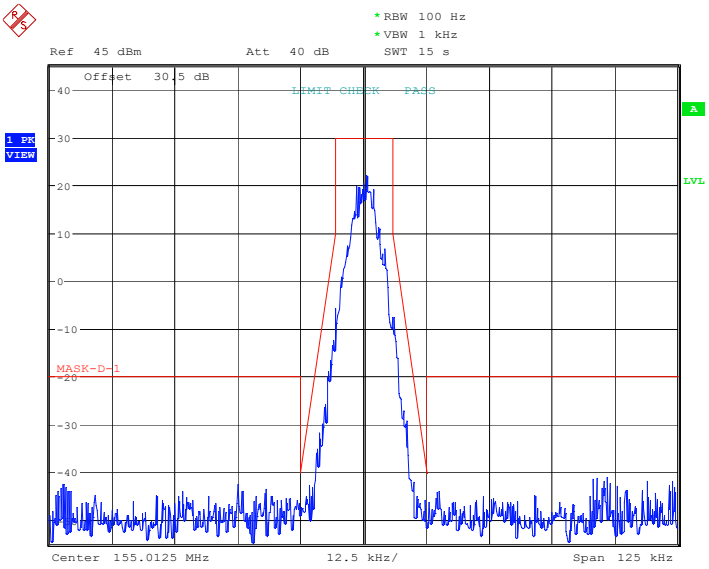
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:05:18

Frequency 155.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



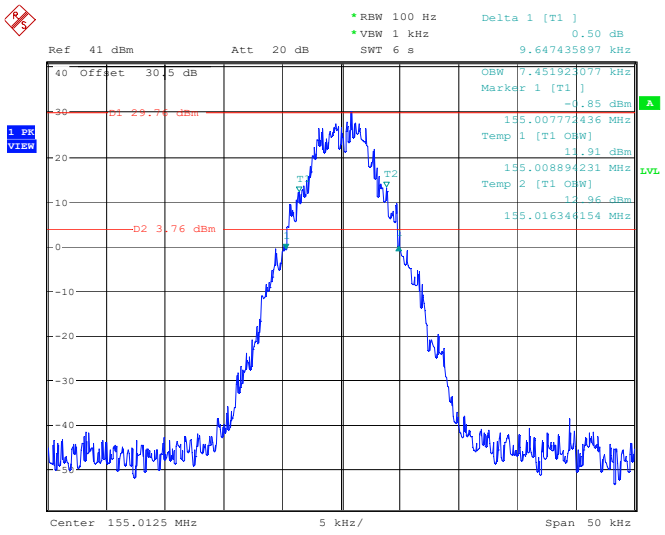
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:40:43

Frequency 155.0125 MHz: Emission Mask D, Low Power



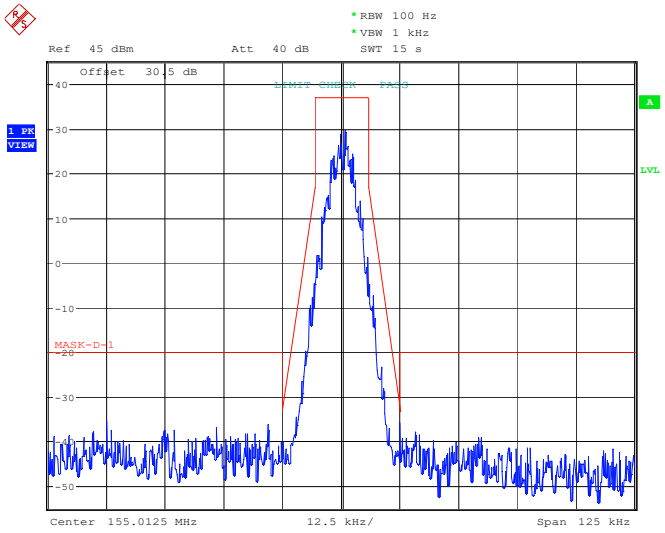
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 18:55:46

Frequency 155.0125MHz: 99% Occupied & 26 dB Bandwidth, High Power



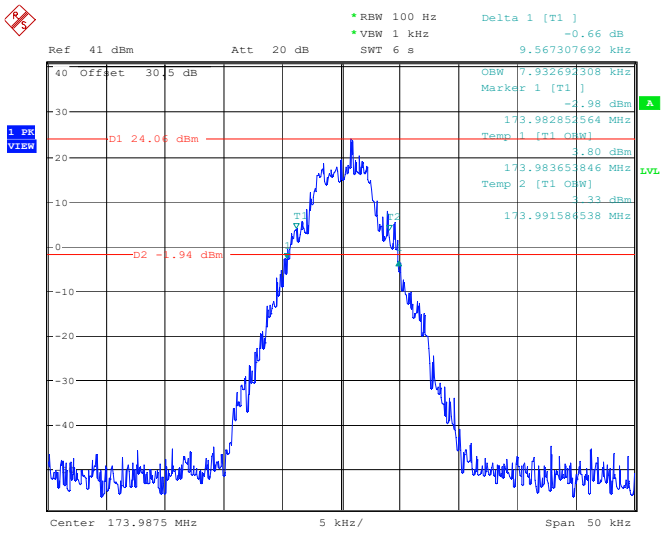
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:46:23

Frequency 155.0125 MHz: Emission Mask D, High Power



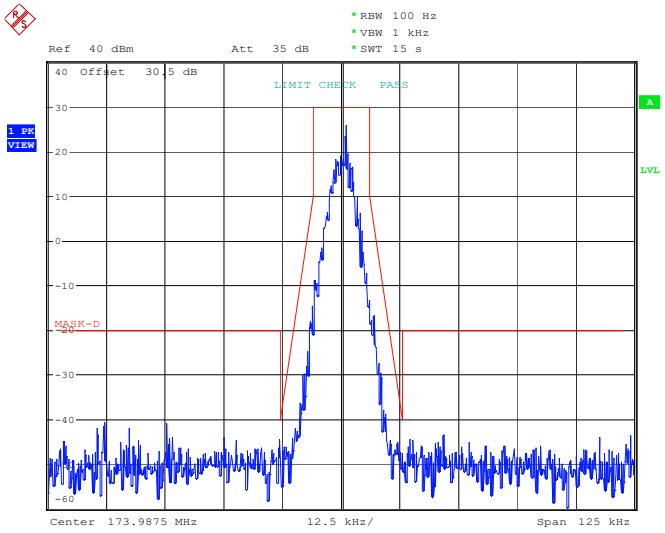
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 18:53:32

Frequency 173.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



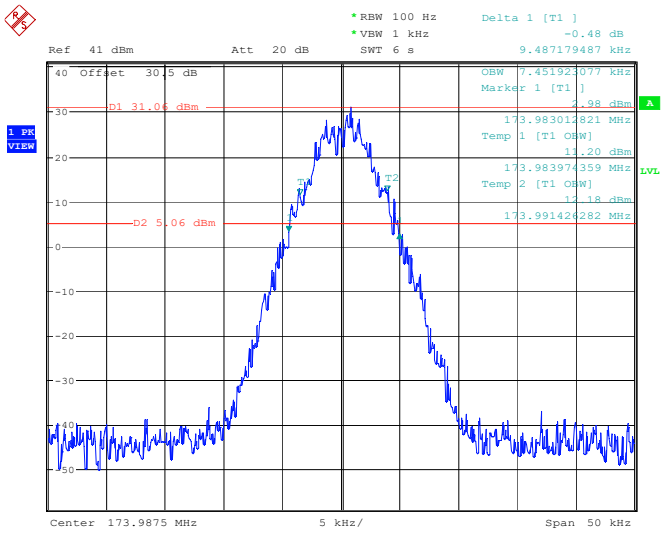
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:51:22

Frequency 173.9875 MHz: Emission Mask D, Low Power



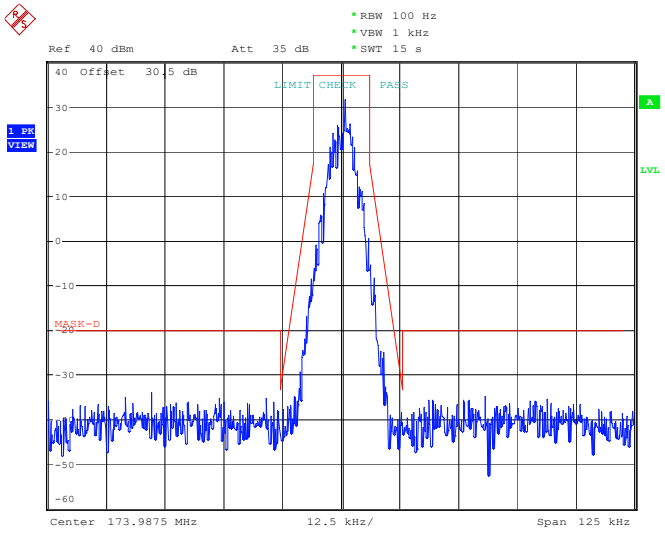
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 18:19:44

Frequency 173.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 19:48:41

Frequency 173.9875 MHz: Emission Mask D, High Power



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 22.FEB.2024 18:27:19

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:

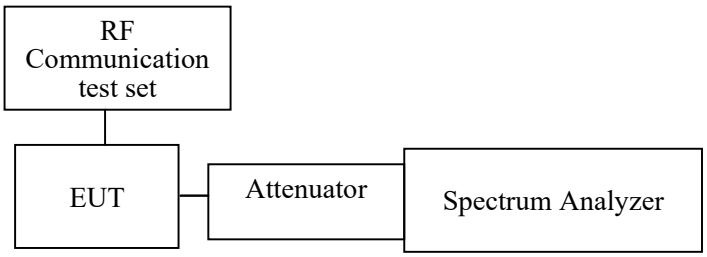
1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0 dB.

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 100kHz 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:	22.1℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin on 2024-02-21.

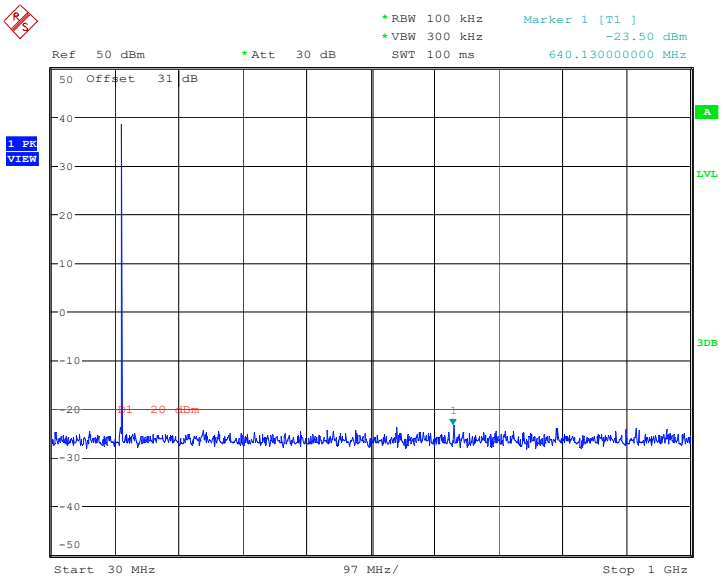
Test Mode: Transmitting, worst case for high power level.

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

The 30dB Attenuator and cable loss 1.0dB was added in the Spectrum Analyzer as the offset.

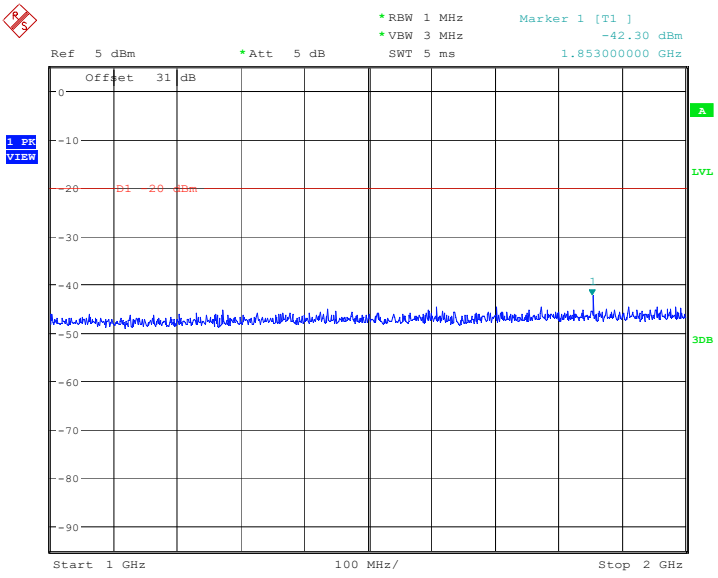
FM

30MHz – 1 GHz, Low Channel



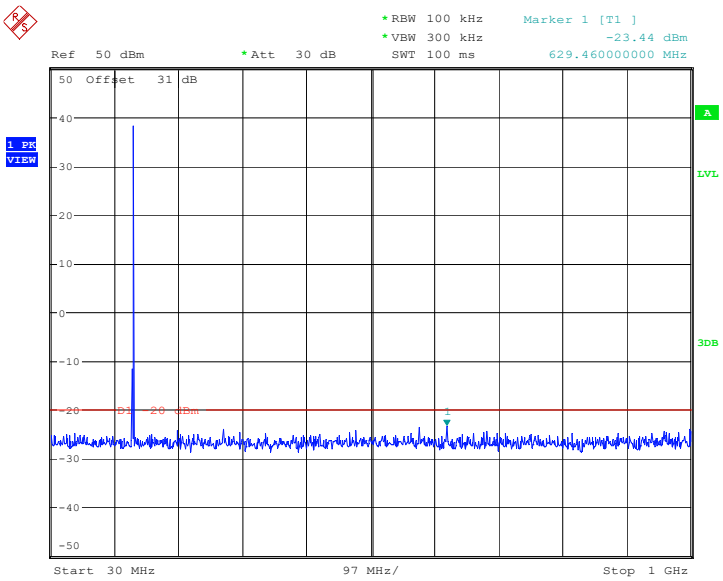
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:38:28

1 GHz – 2GHz, Low Channel



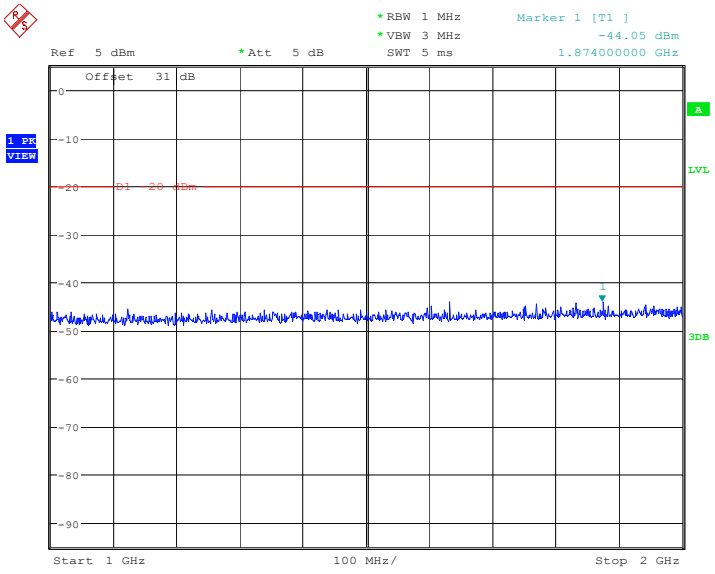
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:25:40

30MHz – 1 GHz, Middle Channel



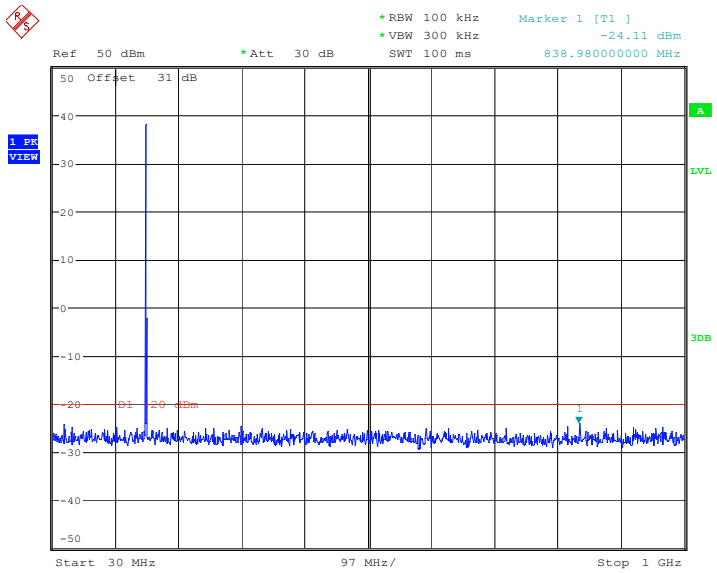
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:38:39

1 GHz – 2 GHz, Middle Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:25:59

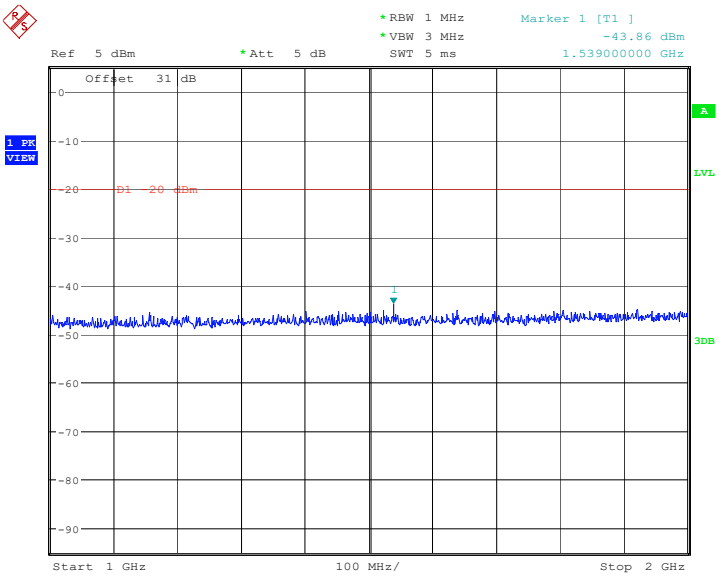
30MHz – 1 GHz, High Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:38:47

1 GHz – 2 GHz, High Channel

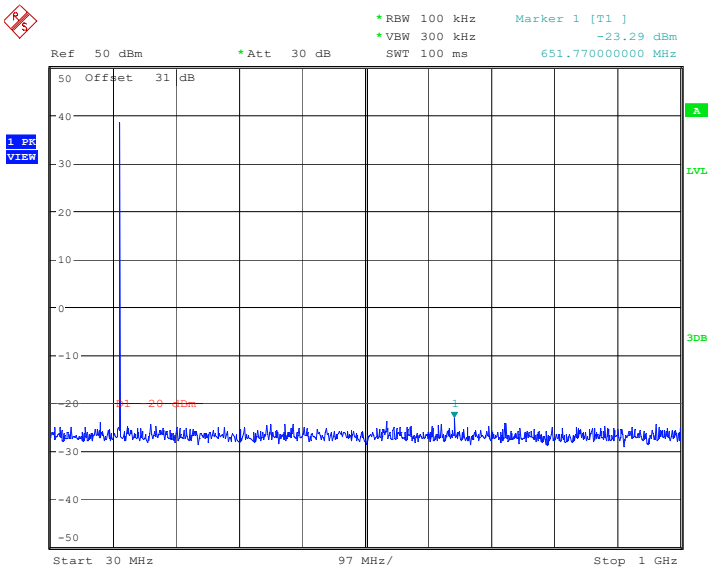


ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:26:18

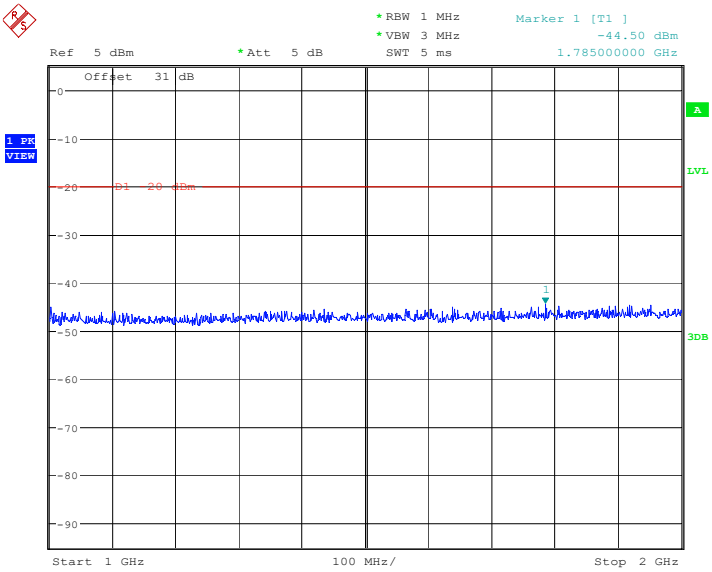
4FSK

30MHz – 1 GHz, Low Channel



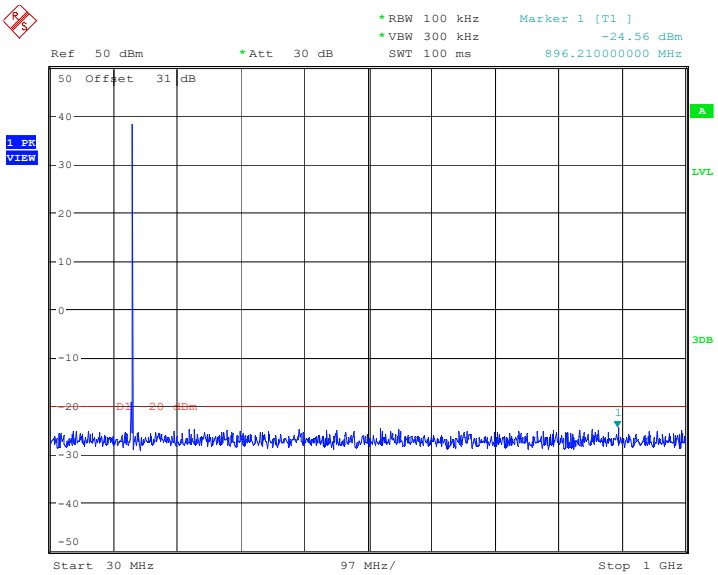
ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:39:18

1 GHz – 2 GHz, Low Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin
Date: 21.FEB.2024 21:29:20

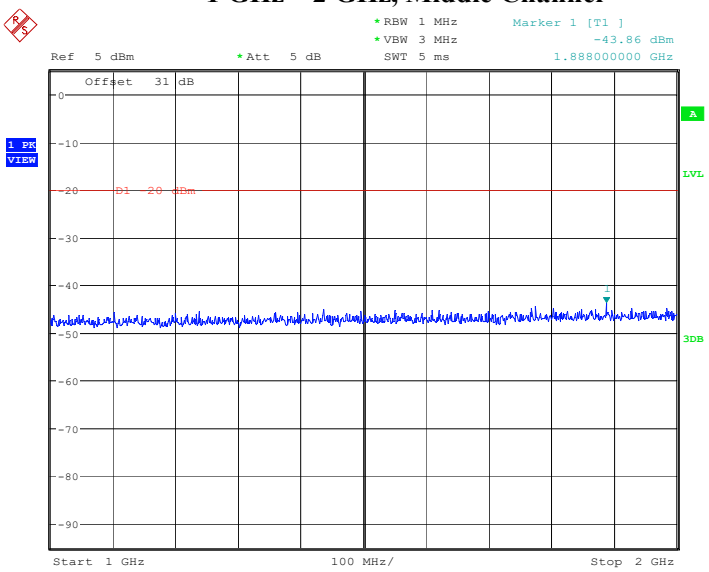
30MHz – 1 GHz, Middle Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:39:27

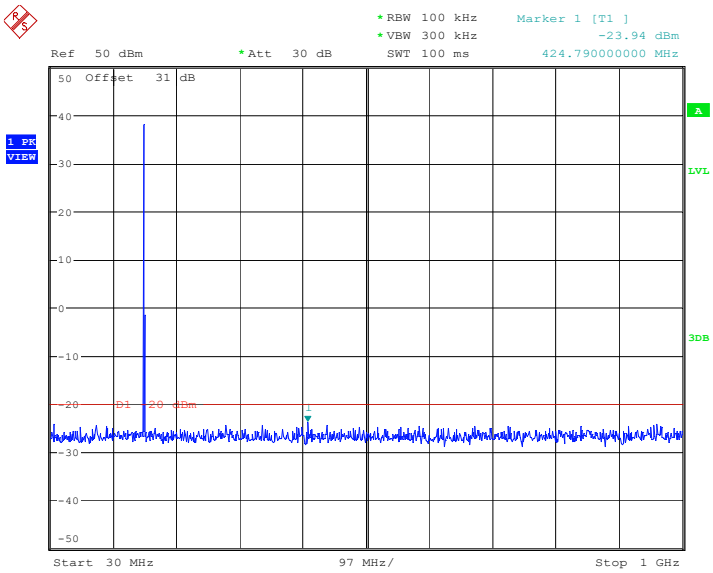
1 GHz – 2 GHz, Middle Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:29:40

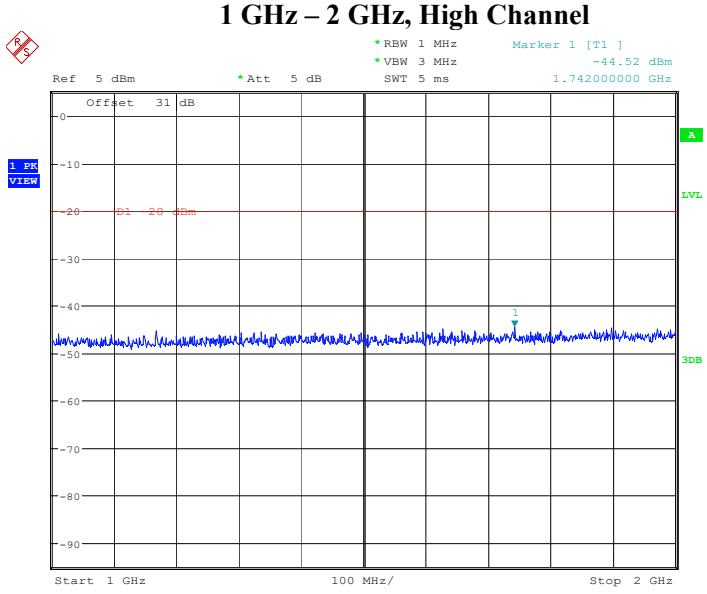
30MHz – 1 GHz, High Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:39:38

1 GHz – 2 GHz, High Channel



ProjectNo.:SZ1240117-04046E Tester:Bruce Lin

Date: 21.FEB.2024 21:29:59

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:	22~25.4 ℃
Relative Humidity:	50~54 %
ATM Pressure:	101 kPa

The testing was performed by Anson Su on 2024-01-25 and 2024-03-11 for below 1GHz, Tyler Wu on 2024-02-05 and 2024-03-11 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.

30MHz~2GHz:

For Model AXP595 VHF

FM

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	22.14	H	-57.9	0.90	0.0	-58.80	-20	38.80
272.025	31.98	V	-44.8	0.90	0.0	-45.70	-20	25.70
1088.10	29.82	H	-43.1	0.70	6.50	-37.30	-20	17.30
1088.10	30.32	V	-43.9	0.70	6.50	-38.10	-20	18.10
1224.11	29.24	H	-43.7	0.80	6.90	-37.60	-20	17.60
1224.11	29.37	V	-44.3	0.80	6.90	-38.20	-20	18.20
1360.13	29.21	H	-43.9	0.80	7.90	-36.80	-20	16.80
1360.13	29.38	V	-44.4	0.80	7.90	-37.30	-20	17.30
Middle Channel 155.0125MHz								
310.025	22.67	H	-54.3	0.94	0.0	-55.24	-20	35.24
310.025	28.73	V	-45.5	0.94	0.0	-46.44	-20	26.44
1085.09	29.93	H	-43.0	0.70	6.50	-37.20	-20	17.20
1085.09	29.47	V	-44.8	0.70	6.50	-39.00	-20	19.00
1240.10	29.51	H	-43.5	0.80	6.90	-37.40	-20	17.40
1240.10	29.33	V	-44.3	0.80	6.90	-38.20	-20	18.20
1395.11	28.74	H	-44.4	0.80	7.90	-37.30	-20	17.30
1395.11	29.12	V	-44.7	0.80	7.90	-37.60	-20	17.60
1550.13	29.39	H	-43.7	0.90	8.60	-36.00	-20	16.00
1550.13	29.08	V	-44.6	0.90	8.60	-36.90	-20	16.90
High Channel 173.9875MHz								
347.975	23.14	H	-52.8	0.98	0.0	-53.78	-20	33.78
347.975	24.32	V	-48.5	0.98	0.0	-49.48	-20	29.48
1043.93	29.67	H	-43.1	0.70	6.20	-37.60	-20	17.60
1043.93	29.34	V	-45.0	0.70	6.20	-39.50	-20	19.50
1217.91	29.31	H	-43.7	0.80	6.90	-37.60	-20	17.60
1217.91	29.59	V	-44.1	0.80	6.90	-38.00	-20	18.00
1391.90	29.38	H	-43.7	0.80	7.90	-36.60	-20	16.60
1391.90	29.01	V	-44.8	0.80	7.90	-37.70	-20	17.70
1565.89	29.25	H	-43.9	0.90	8.60	-36.20	-20	16.20
1565.89	29.39	V	-44.3	0.90	8.60	-36.60	-20	16.60
1739.88	29.28	H	-43.8	0.90	8.60	-36.10	-20	16.10
1739.88	29.72	V	-43.9	0.90	8.60	-36.20	-20	16.20

4FSK

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	22.54	H	-57.5	0.90	0.0	-58.40	-20	38.40
272.025	32.03	V	-44.8	0.90	0.0	-45.70	-20	25.70
1088.10	29.55	H	-43.3	0.70	6.50	-37.50	-20	17.50
1088.10	29.91	V	-44.3	0.70	6.50	-38.50	-20	18.50
1224.11	29.05	H	-43.9	0.80	6.90	-37.80	-20	17.80
1224.11	29.42	V	-44.2	0.80	6.90	-38.10	-20	18.10
1360.13	29.22	H	-43.9	0.80	7.90	-36.80	-20	16.80
1360.13	29.17	V	-44.7	0.80	7.90	-37.60	-20	17.60
Middle Channel 155.0125MHz								
310.025	22.84	H	-54.2	0.94	0.0	-55.14	-20	35.14
310.025	28.81	V	-45.4	0.94	0.0	-46.34	-20	26.34
1085.09	29.49	H	-43.4	0.70	6.50	-37.60	-20	17.60
1085.09	29.68	V	-44.6	0.70	6.50	-38.80	-20	18.80
1240.10	29.29	H	-43.7	0.80	6.90	-37.60	-20	17.60
1240.10	29.33	V	-44.3	0.80	6.90	-38.20	-20	18.20
1395.11	29.41	H	-43.7	0.80	7.90	-36.60	-20	16.60
1395.11	29.16	V	-44.7	0.80	7.90	-37.60	-20	17.60
1550.13	29.09	H	-44.0	0.90	8.60	-36.30	-20	16.30
1550.13	30.35	V	-43.3	0.90	8.60	-35.60	-20	15.60
High Channel 173.9875MHz								
347.975	23.34	H	-52.6	0.98	0.0	-53.58	-20	33.58
347.975	24.38	V	-48.4	0.98	0.0	-49.38	-20	29.38
1043.93	29.51	H	-43.3	0.70	6.20	-37.80	-20	17.80
1043.93	29.54	V	-44.8	0.70	6.20	-39.30	-20	19.30
1217.91	29.55	H	-43.4	0.80	6.90	-37.30	-20	17.30
1217.91	29.49	V	-44.2	0.80	6.90	-38.10	-20	18.10
1391.90	29.53	H	-43.6	0.80	7.90	-36.50	-20	16.50
1391.90	29.27	V	-44.6	0.80	7.90	-37.50	-20	17.50
1565.89	28.98	H	-44.2	0.90	8.60	-36.50	-20	16.50
1565.89	29.21	V	-44.5	0.90	8.60	-36.80	-20	16.80
1739.88	29.86	H	-43.2	0.90	8.60	-35.50	-20	15.50
1739.88	29.52	V	-44.1	0.90	8.60	-36.40	-20	16.40

For Model AXP565 VHF

FM

Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	24.89	H	-55.1	0.90	0.0	-56.00	-20	36.00
272.025	28.27	V	-48.5	0.90	0.0	-49.40	-20	29.40
1008.10	29.85	H	-43.0	0.70	6.20	-37.50	-20	17.50
1008.10	29.31	V	-45.1	0.70	6.20	-39.60	-20	19.60
1134.11	29.45	H	-43.4	0.70	6.50	-37.60	-20	17.60
1134.11	29.06	V	-45.2	0.70	6.50	-39.40	-20	19.40
1260.13	29.52	H	-43.5	0.80	7.30	-37.00	-20	17.00
1260.13	29.17	V	-44.8	0.80	7.30	-38.30	-20	18.30
Middle Channel 155.0125MHz								
310.025	24.92	H	-52.1	0.94	0.0	-53.04	-20	33.04
310.025	28.15	V	-46.1	0.94	0.0	-47.04	-20	27.04
1085.09	29.35	H	-43.5	0.70	6.50	-37.70	-20	17.70
1085.09	29.61	V	-44.6	0.70	6.50	-38.80	-20	18.80
1240.10	29.46	H	-43.5	0.80	6.90	-37.40	-20	17.40
1240.10	29.15	V	-39.9	0.80	6.90	-33.80	-20	13.80
1395.11	29.43	H	-43.7	0.80	7.90	-36.60	-20	16.60
1395.11	29.09	V	-44.7	0.80	7.90	-37.60	-20	17.60
1550.13	29.37	H	-43.8	0.90	8.60	-36.10	-20	16.10
1550.13	28.94	V	-44.7	0.90	8.60	-37.00	-20	17.00
High Channel 173.9875MHz								
347.975	24.28	H	-51.6	0.98	0.0	-52.58	-20	32.58
347.975	27.75	V	-45.0	0.98	0.0	-45.98	-20	25.98
1043.93	29.54	H	-43.3	0.70	6.20	-37.80	-20	17.80
1043.93	29.86	V	-44.5	0.70	6.20	-39.00	-20	19.00
1217.91	29.01	H	-44.0	0.80	6.90	-37.90	-20	17.90
1217.91	29.45	V	-39.6	0.80	6.90	-33.50	-20	13.50
1391.90	29.21	H	-43.9	0.80	7.90	-36.80	-20	16.80
1391.90	29.13	V	-44.7	0.80	7.90	-37.60	-20	17.60
1565.89	29.57	H	-43.6	0.90	8.60	-35.90	-20	15.90
1565.89	29.42	V	-44.3	0.90	8.60	-36.60	-20	16.60
1739.88	29.03	H	-44.0	0.90	8.60	-36.30	-20	16.30
1739.88	29.74	V	-43.9	0.90	8.60	-36.20	-20	16.20

4FSK

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	25.18	H	-54.8	0.90	0.0	-55.70	-20	35.70
272.025	28.59	V	-48.2	0.90	0.0	-49.10	-20	29.10
1008.10	29.75	H	-43.1	0.70	6.20	-37.60	-20	17.60
1008.10	29.31	V	-45.1	0.70	6.20	-39.60	-20	19.60
1134.11	30.12	H	-42.8	0.70	6.50	-37.00	-20	17.00
1134.11	29.46	V	-44.8	0.70	6.50	-39.00	-20	19.00
1260.13	29.85	H	-43.2	0.80	7.30	-36.70	-20	16.70
1260.13	29.43	V	-44.5	0.80	7.30	-38.00	-20	18.00
Middle Channel 155.0125MHz								
310.025	25.02	H	-52.0	0.94	0.0	-52.94	-20	32.94
310.025	28.26	V	-45.9	0.94	0.0	-46.84	-20	26.84
1085.09	29.85	H	-43.0	0.70	6.50	-37.20	-20	17.20
1085.09	29.31	V	-44.9	0.70	6.50	-39.10	-20	19.10
1240.10	30.13	H	-42.8	0.80	6.90	-36.70	-20	16.70
1240.10	29.32	V	-39.8	0.80	6.90	-33.70	-20	13.70
1395.11	29.05	H	-44.1	0.80	7.90	-37.00	-20	17.00
1395.11	29.46	V	-44.4	0.80	7.90	-37.30	-20	17.30
1550.13	29.82	H	-43.3	0.90	8.60	-35.60	-20	15.60
1550.13	29.37	V	-44.3	0.90	8.60	-36.60	-20	16.60
High Channel 173.9875MHz								
347.975	24.66	H	-51.2	0.98	0.0	-52.18	-20	32.18
347.975	27.94	V	-44.9	0.98	0.0	-45.88	-20	25.88
1043.93	29.37	H	-43.4	0.70	6.20	-37.90	-20	17.90
1043.93	29.83	V	-44.5	0.70	6.20	-39.00	-20	19.00
1217.91	30.24	H	-42.7	0.80	6.90	-36.60	-20	16.60
1217.91	29.12	V	-40.0	0.80	6.90	-33.90	-20	13.90
1391.90	29.67	H	-43.5	0.80	7.90	-36.40	-20	16.40
1391.90	29.41	V	-44.4	0.80	7.90	-37.30	-20	17.30
1565.89	29.58	H	-43.6	0.90	8.60	-35.90	-20	15.90
1565.89	29.83	V	-43.8	0.90	8.60	-36.10	-20	16.10
1739.88	29.34	H	-43.7	0.90	8.60	-36.00	-20	16.00
1739.88	29.15	V	-44.5	0.90	8.60	-36.80	-20	16.80

For Model AXP505 VHF

FM

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	24.11	H	-55.9	0.90	0.0	-56.80	-20	36.80
272.025	28.06	V	-48.8	0.90	0.0	-49.70	-20	29.70
1088.10	30.13	H	-42.7	0.70	6.50	-36.90	-20	16.90
1088.10	29.48	V	-44.8	0.70	6.50	-39.00	-20	19.00
1224.11	29.13	H	-43.8	0.80	6.90	-37.70	-20	17.70
1224.11	29.34	V	-39.8	0.80	6.90	-33.70	-20	13.70
1360.13	29.86	H	-43.3	0.80	7.90	-36.20	-20	16.20
1360.13	29.80	V	-44.0	0.80	7.90	-36.90	-20	16.90
Middle Channel 155.0125MHz								
310.025	23.99	H	-53.0	0.94	0.0	-53.94	-20	33.94
310.025	27.86	V	-46.3	0.94	0.0	-47.24	-20	27.24
1085.09	29.73	H	-43.2	0.70	6.50	-37.40	-20	17.40
1085.09	29.06	V	-45.2	0.70	6.50	-39.40	-20	19.40
1240.10	29.38	H	-43.6	0.80	6.90	-37.50	-20	17.50
1240.10	29.15	V	-39.9	0.80	6.90	-33.80	-20	13.80
1395.11	29.54	H	-43.6	0.80	7.90	-36.50	-20	16.50
1395.11	29.31	V	-44.5	0.80	7.90	-37.40	-20	17.40
1550.13	29.07	H	-44.1	0.90	8.60	-36.40	-20	16.40
1550.13	28.89	V	-44.8	0.90	8.60	-37.10	-20	17.10
High Channel 173.9875MHz								
347.975	23.36	H	-52.5	0.98	0.0	-53.48	-20	33.48
347.975	27.17	V	-45.6	0.98	0.0	-46.58	-20	26.58
1043.93	29.47	H	-43.3	0.70	6.20	-37.80	-20	17.80
1043.93	29.72	V	-44.7	0.70	6.20	-39.20	-20	19.20
1217.91	29.15	H	-43.8	0.80	6.90	-37.70	-20	17.70
1217.91	29.34	V	-39.8	0.80	6.90	-33.70	-20	13.70
1391.90	29.46	H	-43.7	0.80	7.90	-36.60	-20	16.60
1391.90	29.61	V	-44.2	0.80	7.90	-37.10	-20	17.10
1565.89	29.72	H	-43.4	0.90	8.60	-35.70	-20	15.70
1565.89	29.12	V	-44.6	0.90	8.60	-36.90	-20	16.90
1739.88	29.34	H	-43.7	0.90	8.60	-36.00	-20	16.00
1739.88	29.76	V	-43.9	0.90	8.60	-36.20	-20	16.20

4FSK

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	FCC Part 90	
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)		Limit (dBm)	Margin (dB)
Low Channel 136.0125MHz								
272.025	24.21	H	-55.8	0.90	0.0	-56.70	-20	36.70
272.025	27.94	V	-48.9	0.90	0.0	-49.80	-20	29.80
1088.10	29.95	H	-42.9	0.70	6.50	-37.10	-20	17.10
1088.10	29.89	V	-44.3	0.70	6.50	-38.50	-20	18.50
1224.11	30.42	H	-42.5	0.80	6.90	-36.40	-20	16.40
1224.11	29.17	V	-39.9	0.80	6.90	-33.80	-20	13.80
1360.13	29.74	H	-43.4	0.80	7.90	-36.30	-20	16.30
1360.13	29.53	V	-44.3	0.80	7.90	-37.20	-20	17.20
Middle Channel 155.0125MHz								
310.025	23.73	H	-53.3	0.94	0.0	-54.24	-20	34.24
310.025	27.54	V	-46.7	0.94	0.0	-47.64	-20	27.64
1085.09	30.01	H	-42.9	0.70	6.50	-37.10	-20	17.10
1085.09	29.87	V	-44.4	0.70	6.50	-38.60	-20	18.60
1240.10	30.34	H	-42.6	0.80	6.90	-36.50	-20	16.50
1240.10	29.09	V	-40.0	0.80	6.90	-33.90	-20	13.90
1395.11	29.62	H	-43.5	0.80	7.90	-36.40	-20	16.40
1395.11	29.73	V	-44.1	0.80	7.90	-37.00	-20	17.00
1550.13	29.42	H	-43.7	0.90	8.60	-36.00	-20	16.00
1550.13	29.08	V	-44.6	0.90	8.60	-36.90	-20	16.90
High Channel 173.9875MHz								
347.975	23.52	H	-52.4	0.98	0.0	-53.38	-20	33.38
347.975	27.33	V	-45.5	0.98	0.0	-46.48	-20	26.48
1043.93	29.87	H	-42.9	0.70	6.20	-37.40	-20	17.40
1043.93	29.91	V	-44.5	0.70	6.20	-39.00	-20	19.00
1217.91	30.53	H	-42.4	0.80	6.90	-36.30	-20	16.30
1217.91	29.35	V	-39.7	0.80	6.90	-33.60	-20	13.60
1391.90	29.85	H	-43.3	0.80	7.90	-36.20	-20	16.20
1391.90	29.34	V	-44.5	0.80	7.90	-37.40	-20	17.40
1565.89	29.37	H	-43.8	0.90	8.60	-36.10	-20	16.10
1565.89	29.06	V	-44.6	0.90	8.60	-36.90	-20	16.90
1739.88	29.37	H	-43.7	0.90	8.60	-36.00	-20	16.00
1739.88	29.64	V	-44.0	0.90	8.60	-36.30	-20	16.30

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

FCC §2.1055 & §90.213 - FREQUENCY STABILITY

Applicable Standard

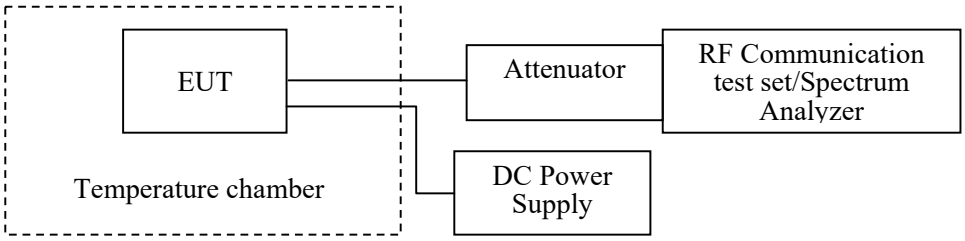
FCC §2.1055 and §90.213

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:	26.3 ℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-02-22 to 2024-03-06.

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

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

Test without modulation:

Test Frequency (MHz)	Temperature (℃)	Voltage (V_{DC})	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
155.0125	-30	7.4	155.0125041	0.03	≤5
	-20		155.0125834	0.54	≤5
	-10		155.0125066	0.04	≤5
	0		155.0125861	0.56	≤5
	10		155.0125256	0.17	≤5
	20		155.0125387	0.25	≤5
	30		155.0125625	0.40	≤5
	40		155.0125673	0.43	≤5
	50		155.0125245	0.16	≤5
	20	6.5	155.0125619	0.40	≤5
	20	8.4	155.0125469	0.30	≤5

FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR

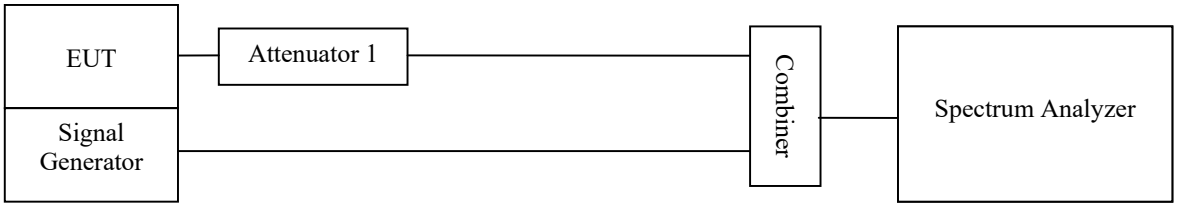
Applicable Standard

Regulations: FCC §90.214

Test method: ANSI C63.26-2015 clause 6.5.2.2

Test Procedure

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:	22.1 ℃
Relative Humidity:	49 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin on 2024-03-21.

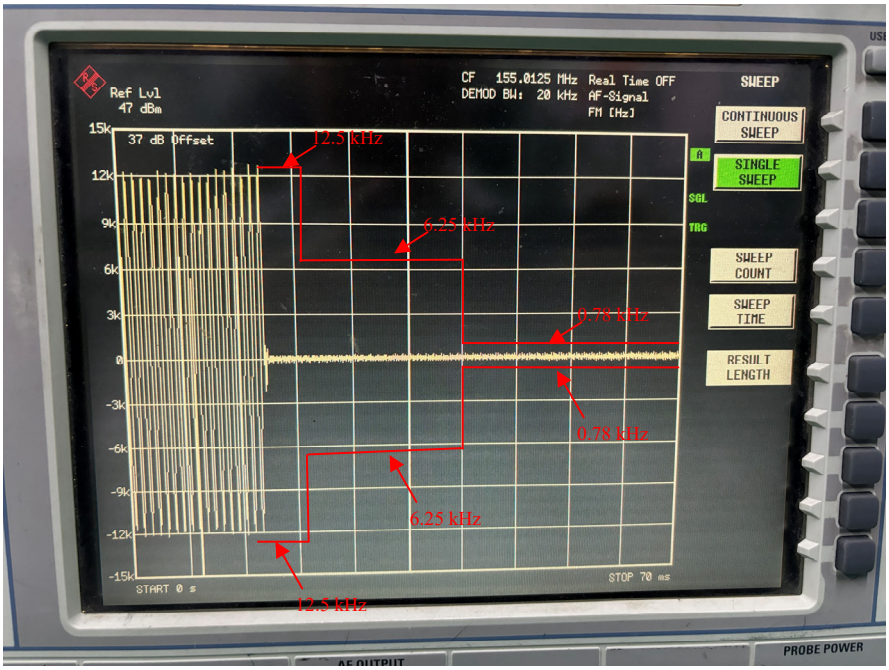
Test Result: Pass*. Please refer to the following tables and plots.*

Test Frequency (MHz)	Channel Separation (kHz)	Transient Period (ms)	Transient Frequency	Result
155.0125	12.5	5 (t1)	<+/-12.5 kHz	Pass
		20(t2)	<+/-6.25 kHz	
		5 (t3)	<+/-12.5 kHz	

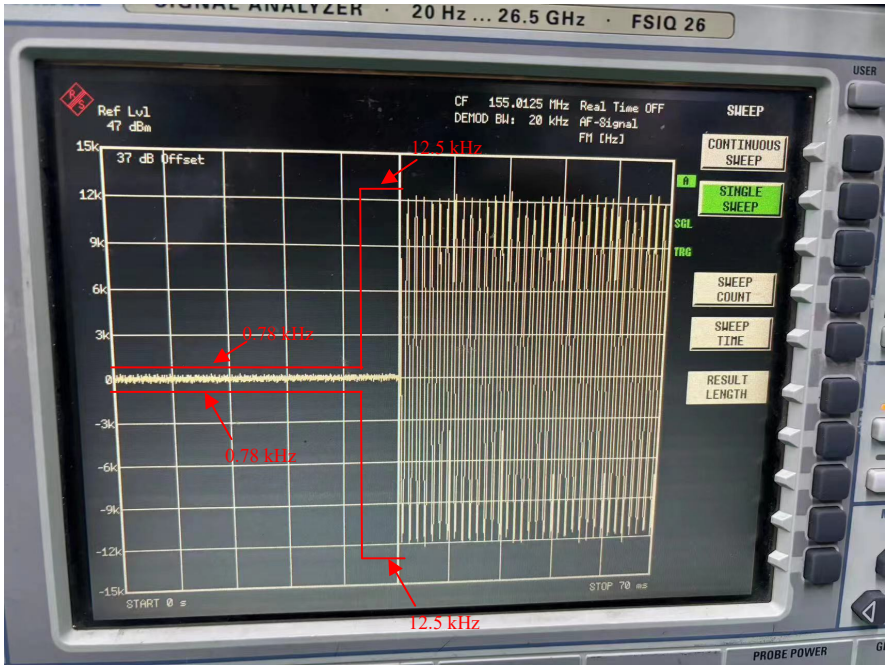
Note: During the time from the end of t_2 to the beginning of t_3, the frequency difference not exceed the limits specified in §90.213

For 155.0125MHz 12.5kHz mode, the limit is 155.0125MHz*+/-5ppm=+/-0.78kHz

Turn on



Turn off



EUT PHOTOGRAPHS

Please refer to the attachment SZ1240117-04046E-RF External photo and SZ1240117-04046E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment SZ1240117-04046E-RF Test Setup photo.

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