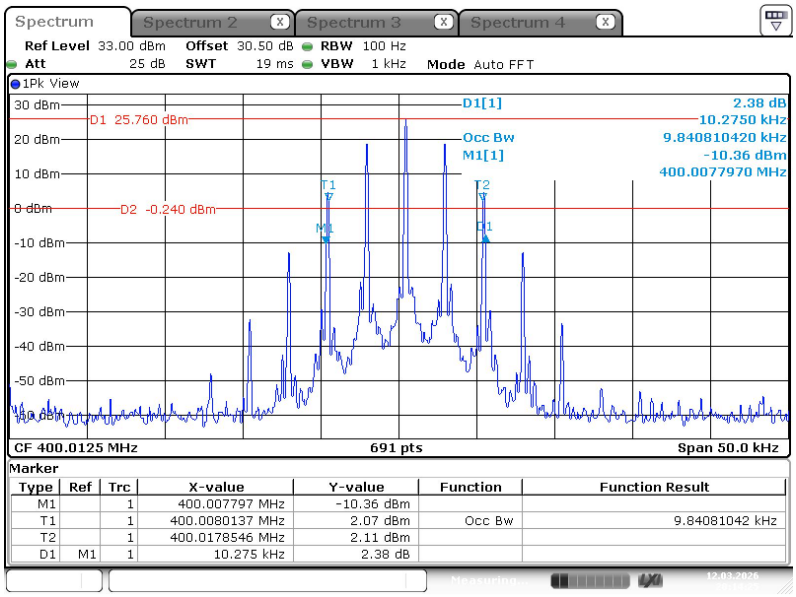
FM, 12.5kHz

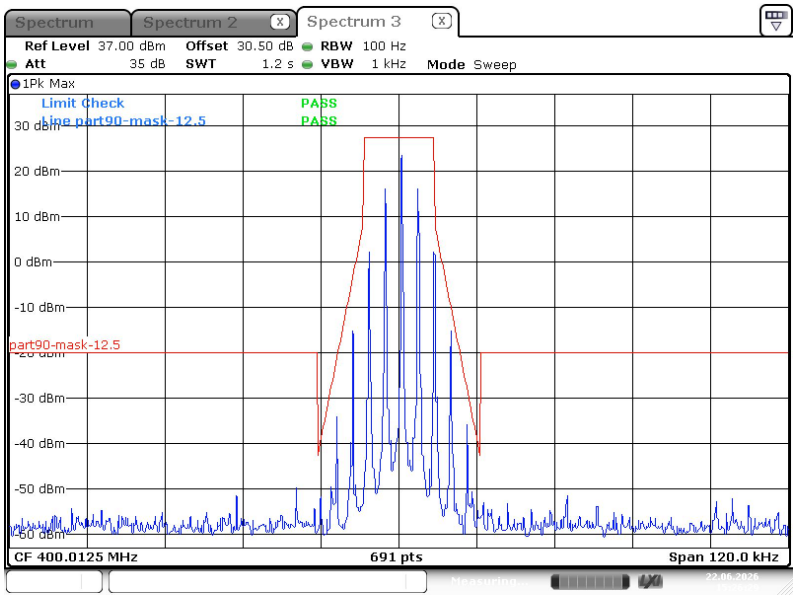
Frequency 400.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

Date: 12.MAR.2026 20:14:25

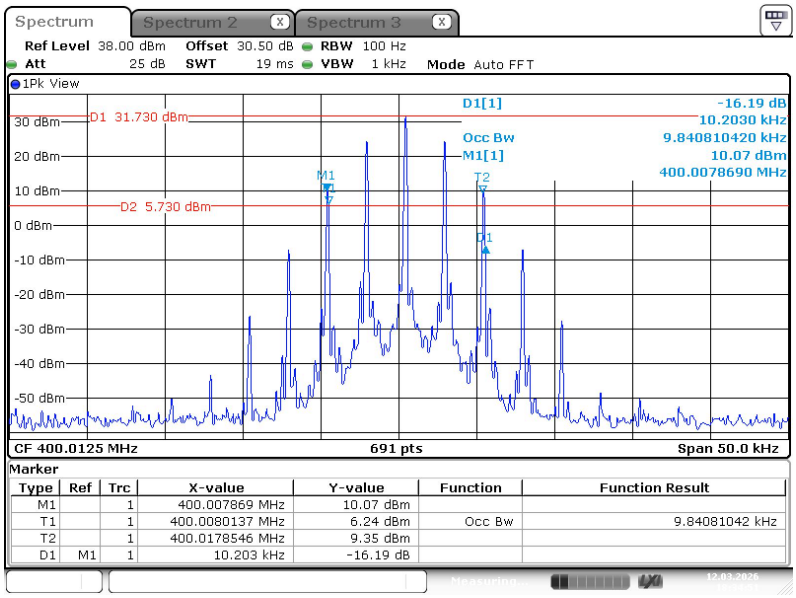
Frequency 400.0125 MHz: Emission Mask D, Low Power



ProjectNo.:2601Q14787E-RFTester:Cheeb Huang

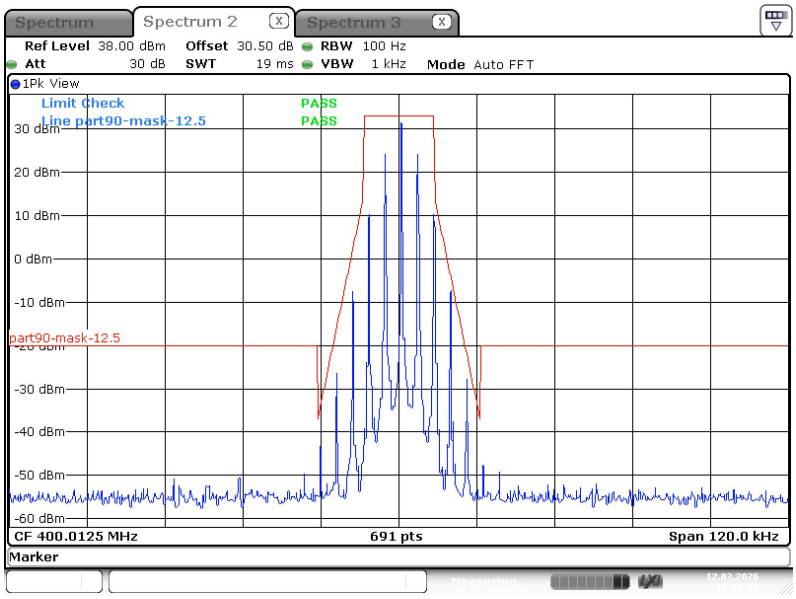
Date: 22.JUN.2026 15:26:29

Frequency 400.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



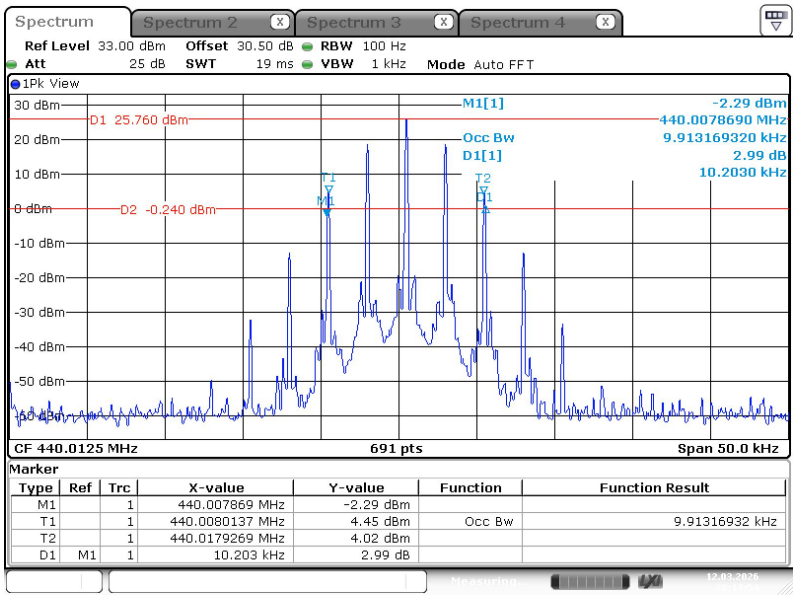
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 18:34:51

Frequency 400.0125 MHz: Emission Mask D, High Power



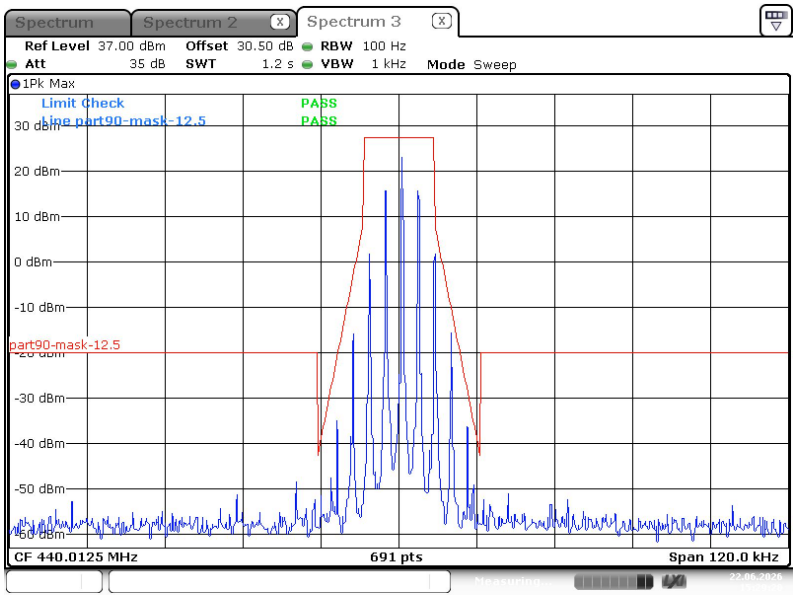
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 17:58:54

Frequency 440.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



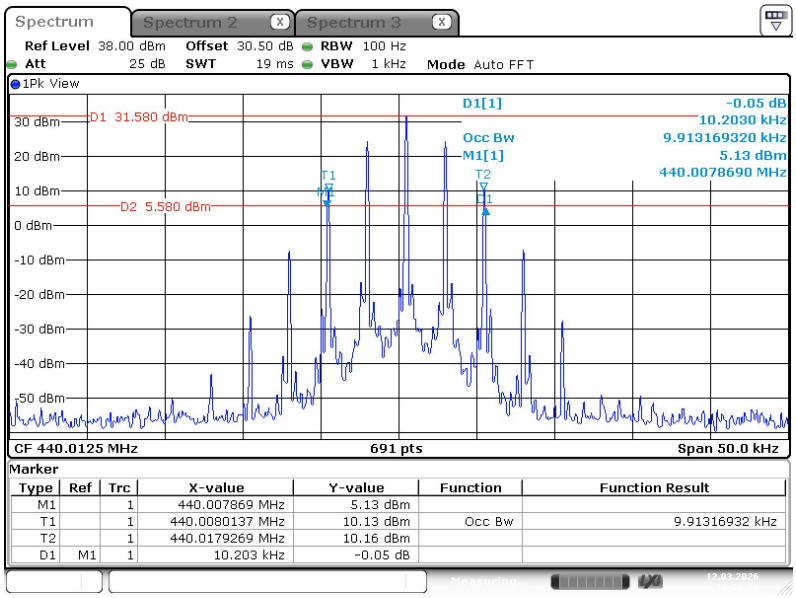
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 20:13:54

Frequency 440.0125 MHz: Emission Mask D, Low Power



ProjectNo.:2601Q14787E-RFTester:Cheeb Huang
Date: 22.JUN.2026 15:29:21

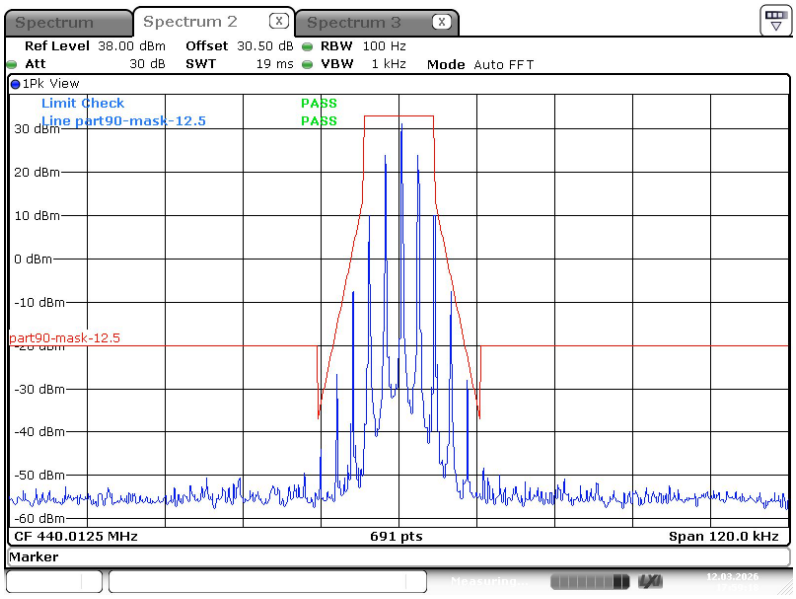
Frequency 440.0125MHz: 99% Occupied & 26 dB Bandwidth, High Power



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

Date: 12.MAR.2026 18:36:09

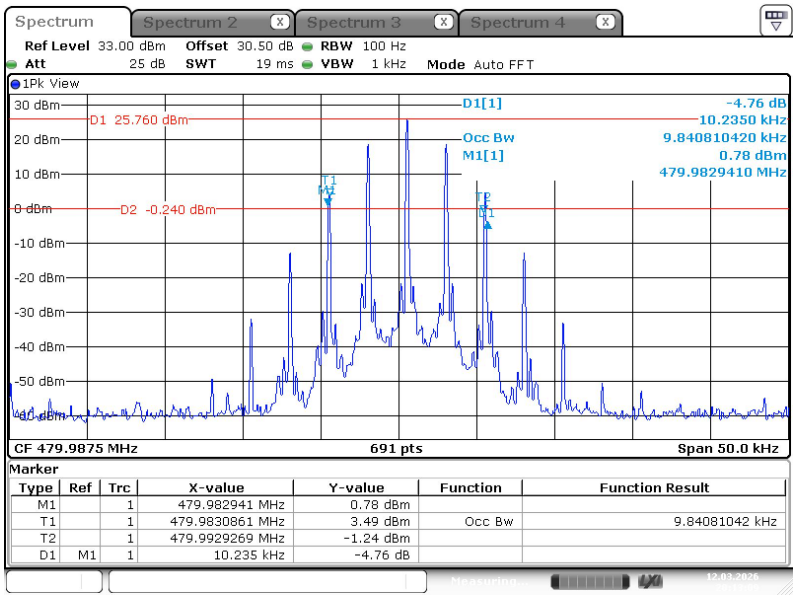
Frequency 440.0125 MHz: Emission Mask D, High Power



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

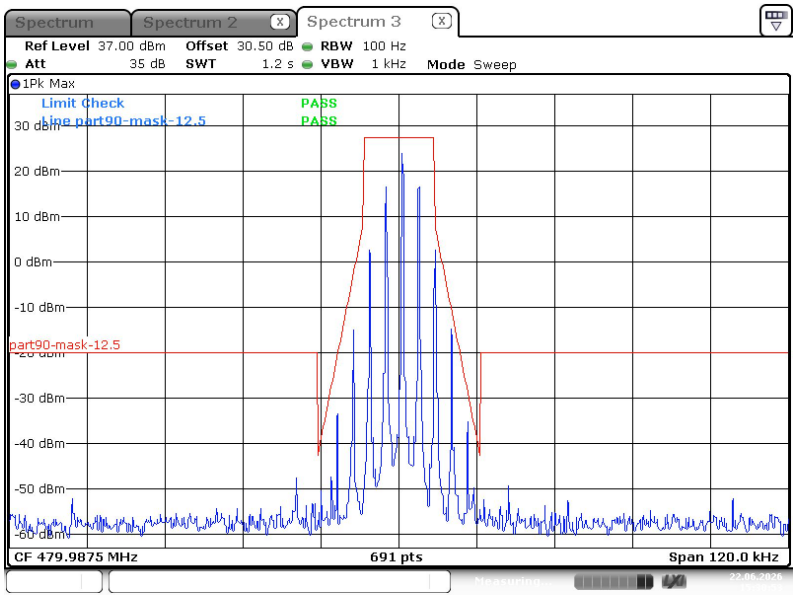
Date: 12.MAR.2026 17:59:17

Frequency 479.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



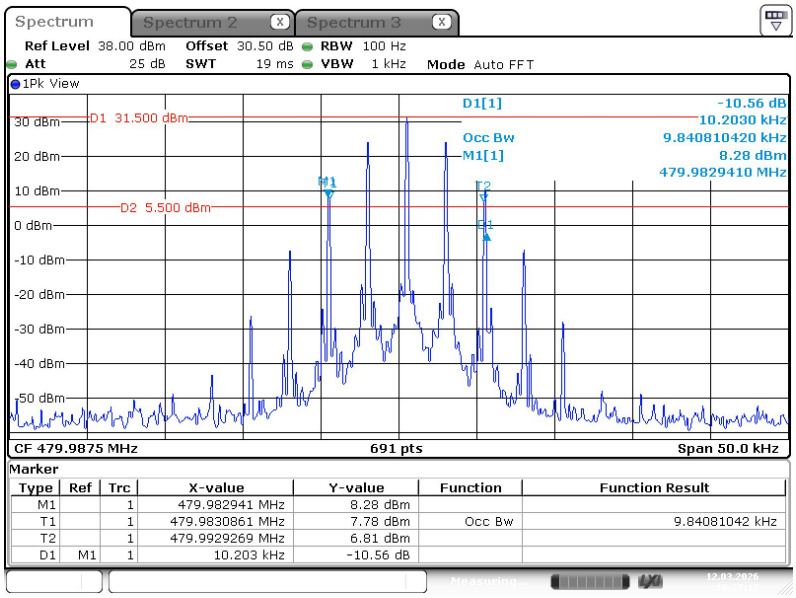
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 20:13:09

Frequency 479.9875 MHz: Emission Mask D, Low Power



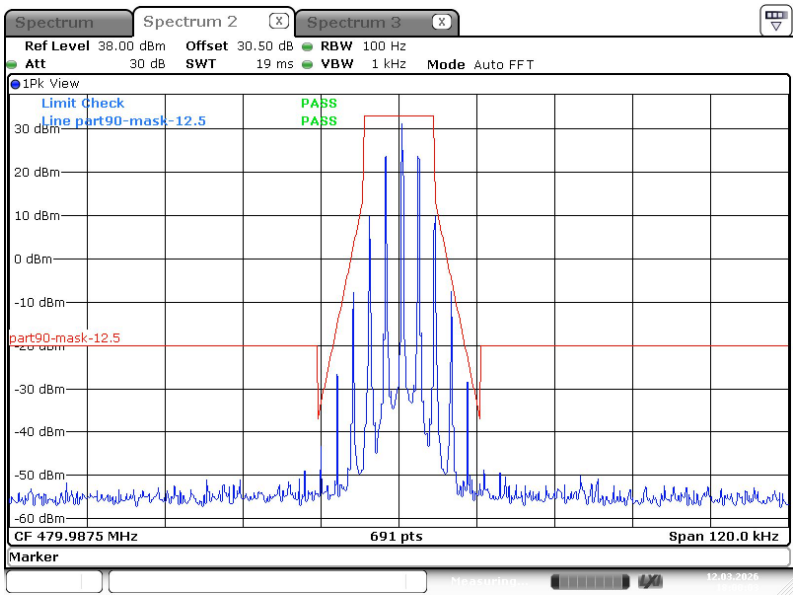
ProjectNo.:2601Q14787E-RFTester:Cheeb Huang
Date: 22.JUN.2026 15:30:53

Frequency 479.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 18:37:17

Frequency 479.9875 MHz: Emission Mask D, High Power



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 12.MAR.2026 18:00:03

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:

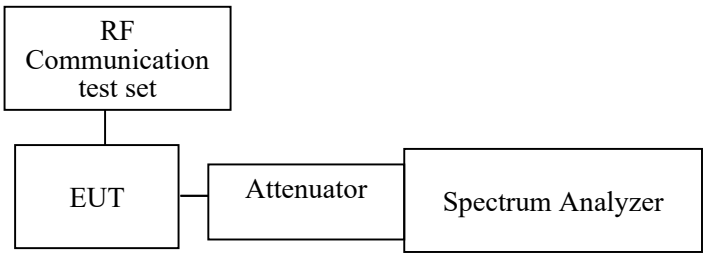
1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0 dB.

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:	25.2 ℃
Relative Humidity:	42 %
ATM Pressure:	100.6 kPa

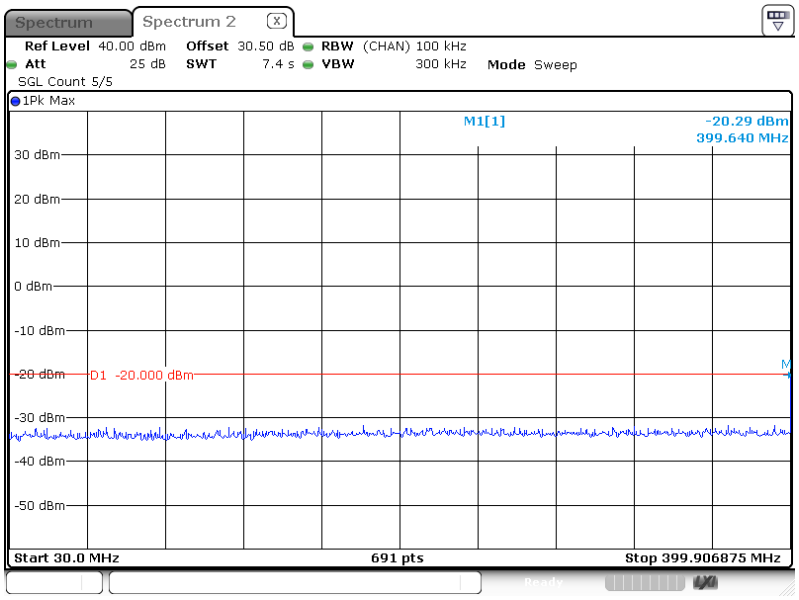
The testing was performed by Cheeb Huang from 2026-03-13 to 2026-06-22.

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

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

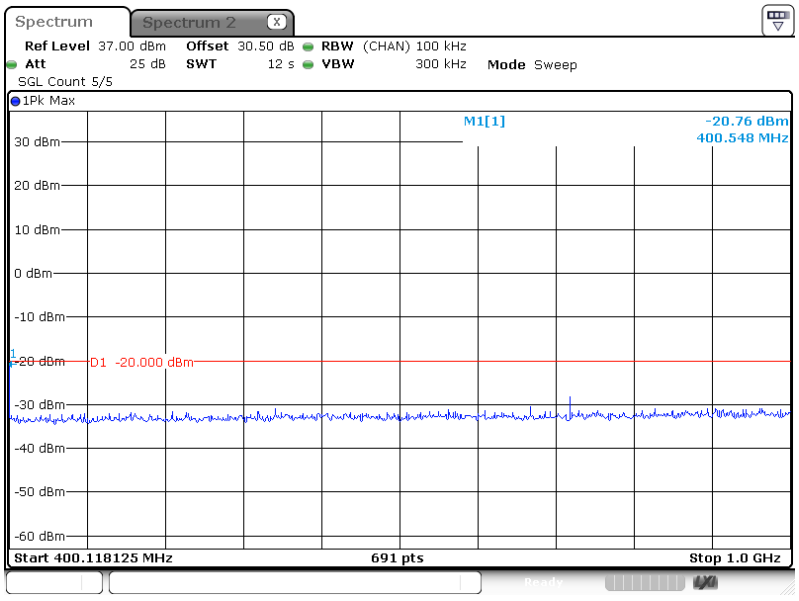
Digital signal, 12.5kHz

30MHz – 1 GHz, Low Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

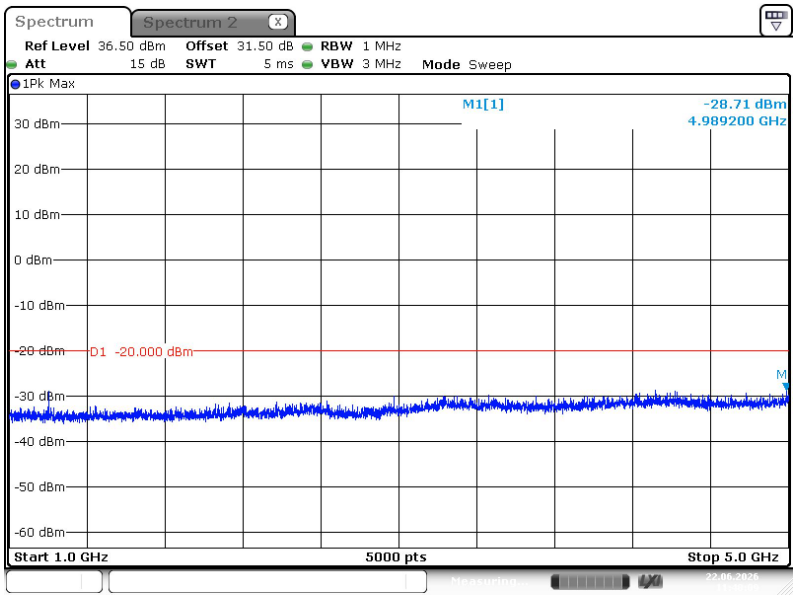
Date: 13.MAR.2026 15:12:06



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

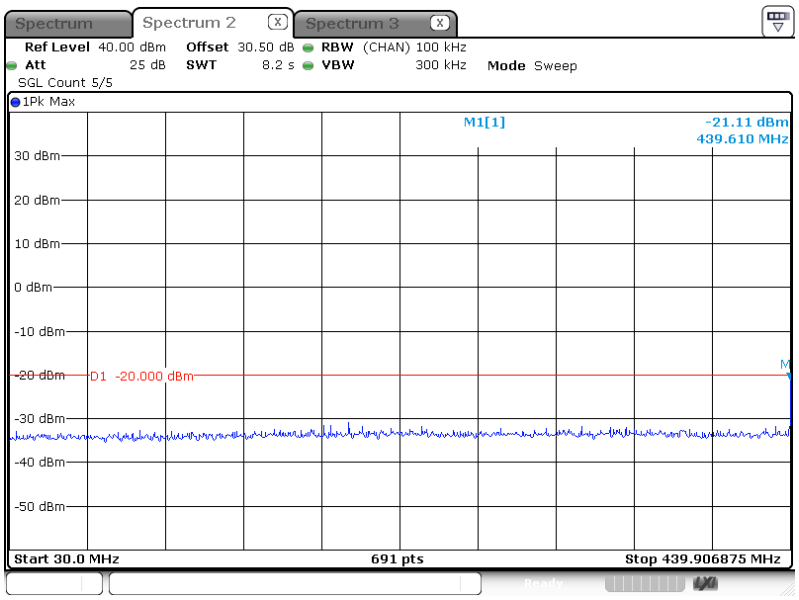
Date: 13.MAR.2026 15:16:50

1 GHz – 5 GHz, Low Channel



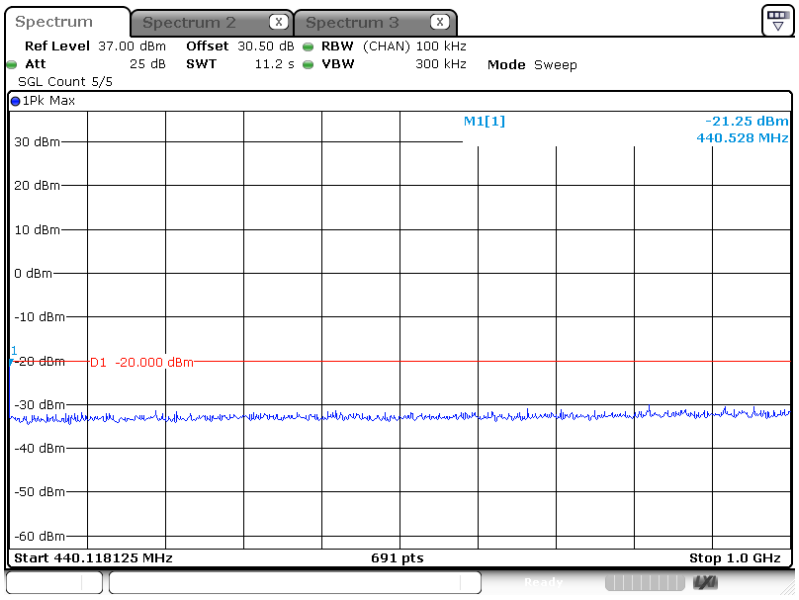
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:40:10

30MHz – 1 GHz, Middle Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

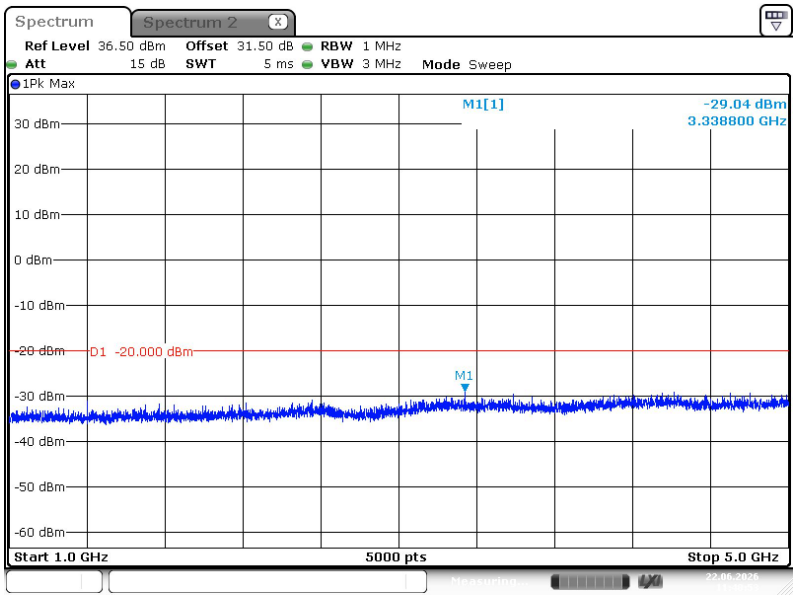
Date: 13.MAR.2026 15:32:01



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

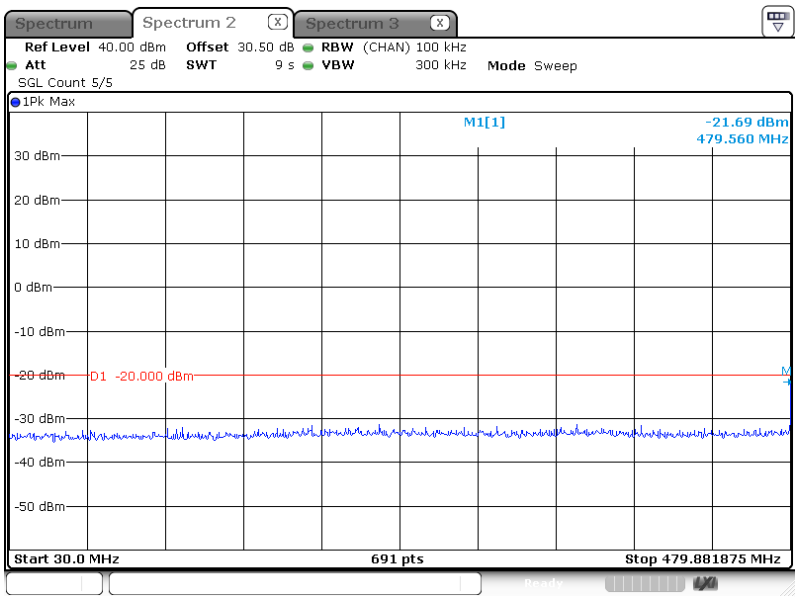
Date: 13.MAR.2026 15:33:17

1 GHz – 5 GHz, Middle Channel



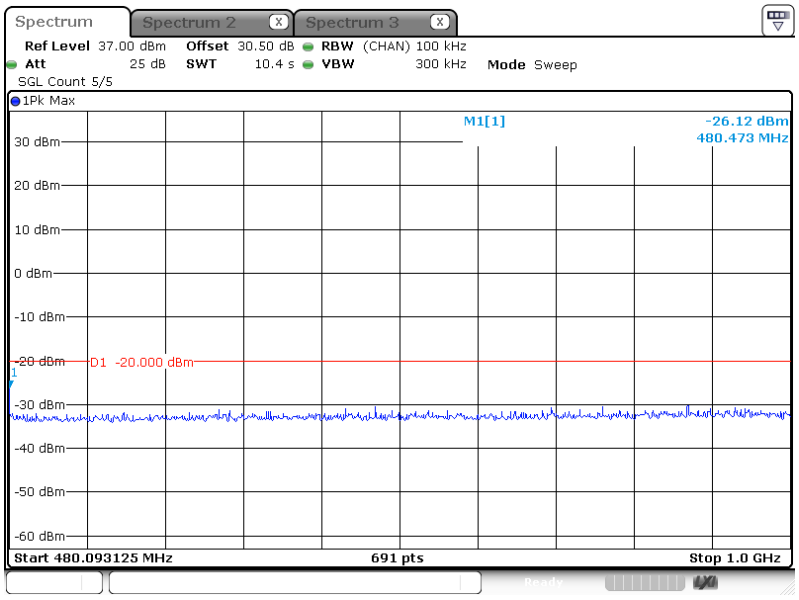
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:40:53

30MHz – 1 GHz, High Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

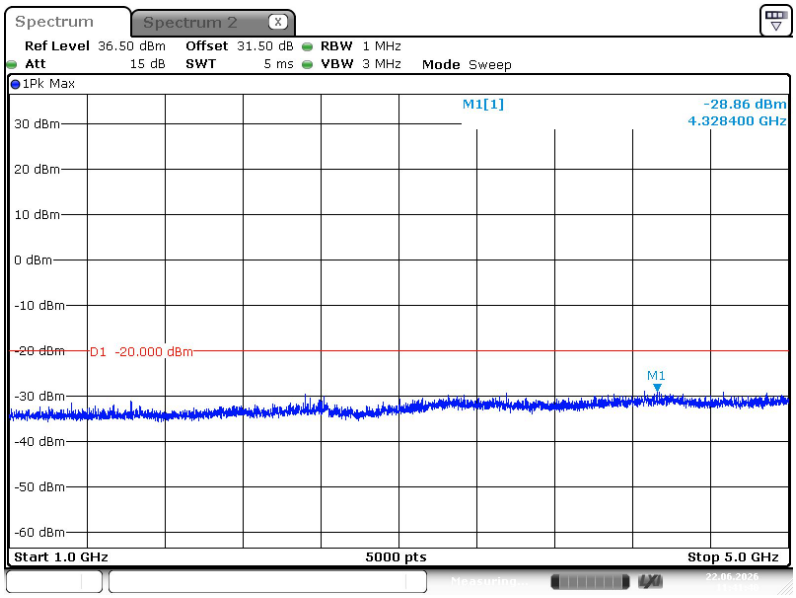
Date: 13.MAR.2026 15:36:41



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

Date: 13.MAR.2026 15:38:39

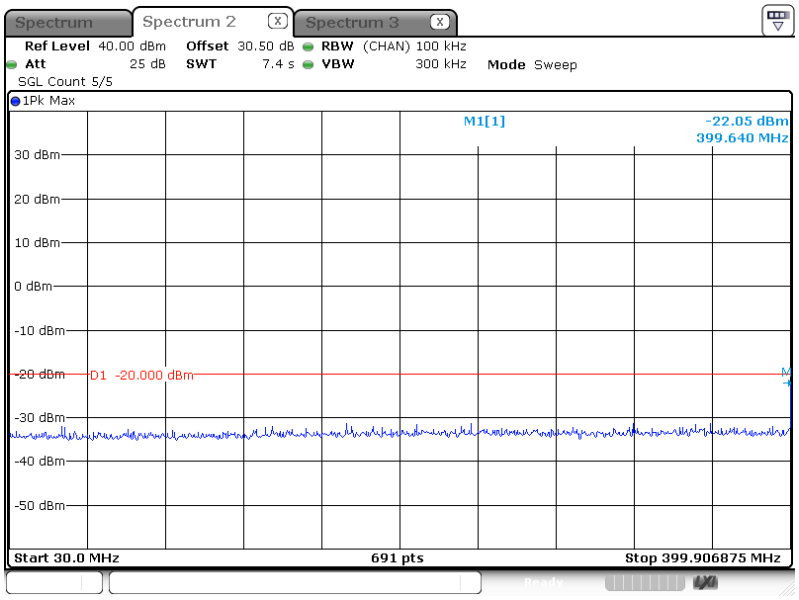
1 GHz – 5 GHz, High Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:41:41

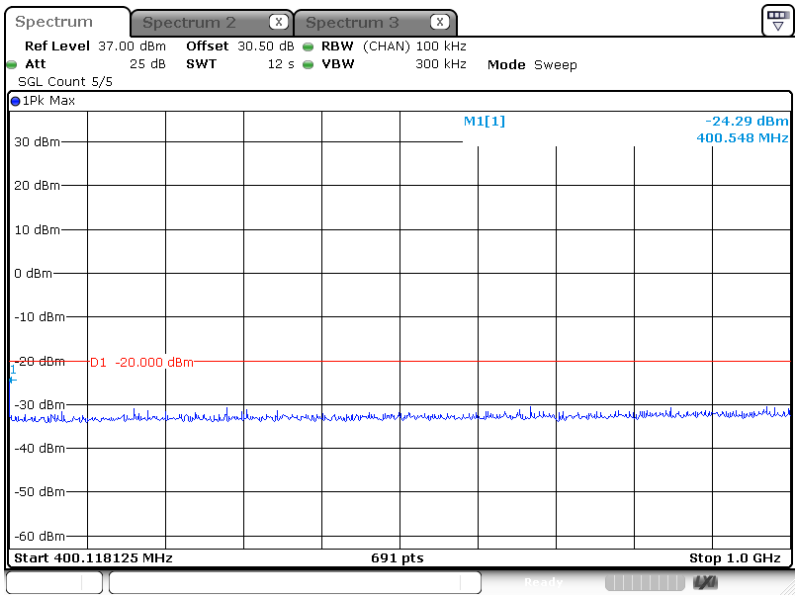
Analog signal, 12.5kHz

30MHz – 1 GHz, Low Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

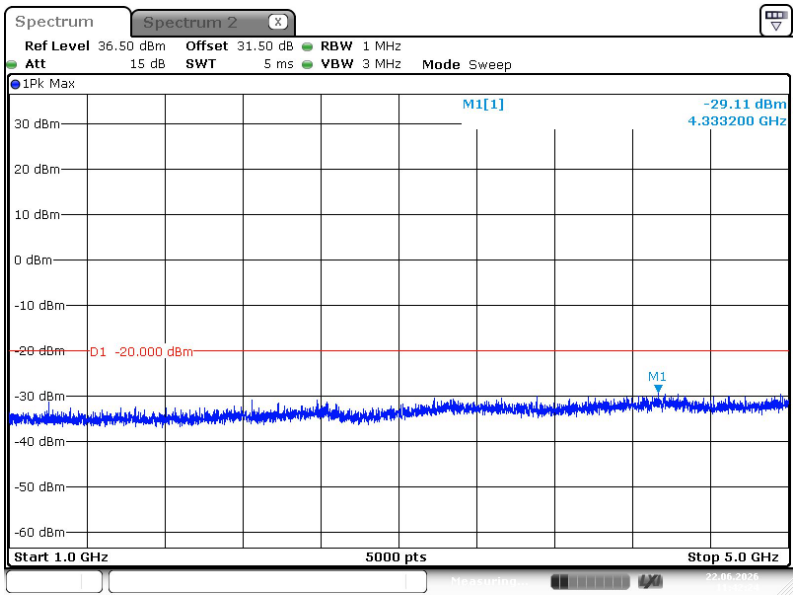
Date: 13.MAR.2026 15:21:51



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

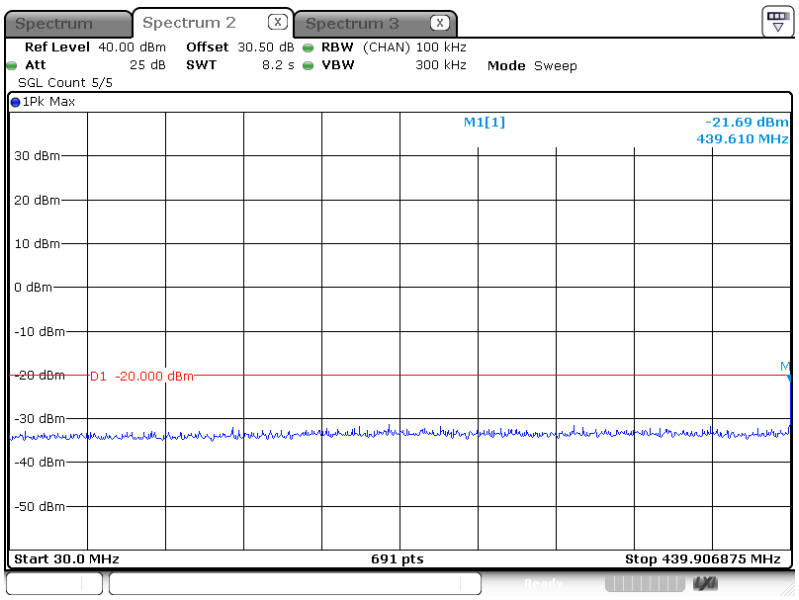
Date: 13.MAR.2026 15:23:42

1 GHz – 5 GHz, Low Channel



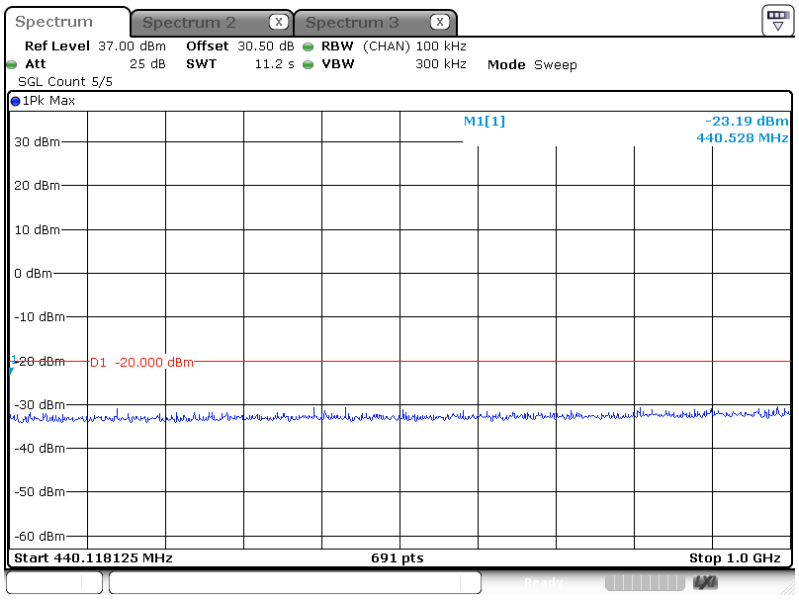
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:42:25

30MHz – 1 GHz, Middle Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

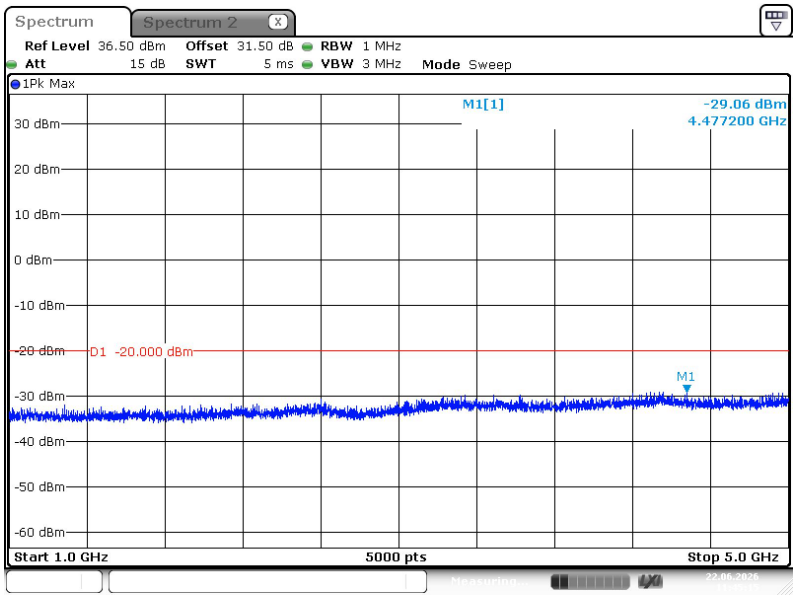
Date: 13.MAR.2026 15:27:49



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

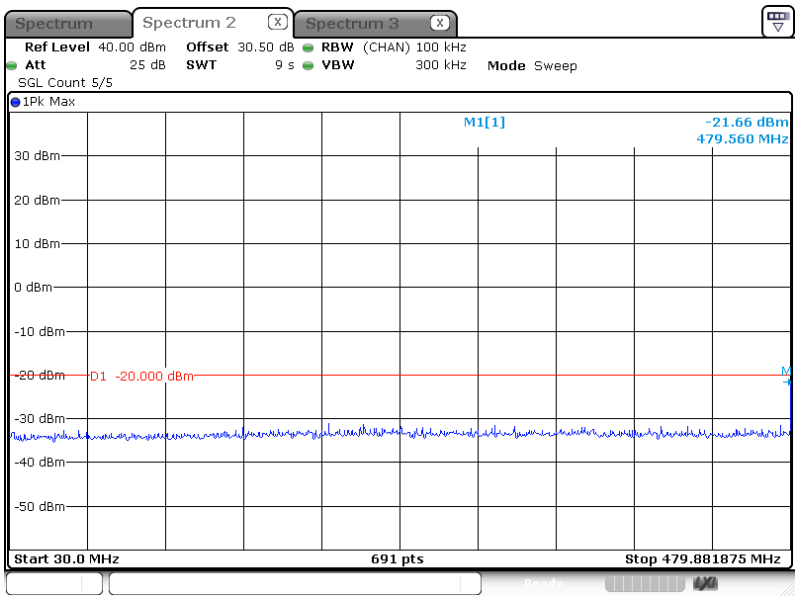
Date: 13.MAR.2026 15:26:42

1 GHz – 5 GHz, Middle Channel



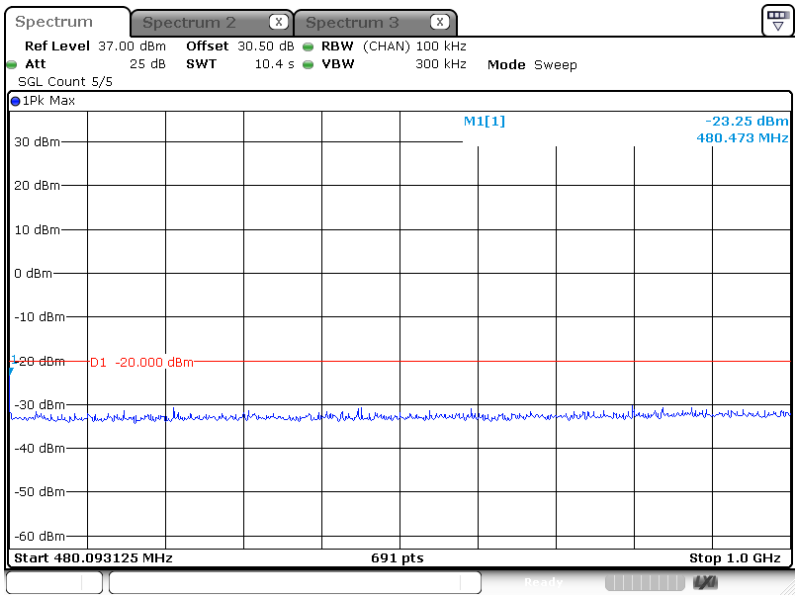
ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:45:15

30MHz – 1 GHz, High Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

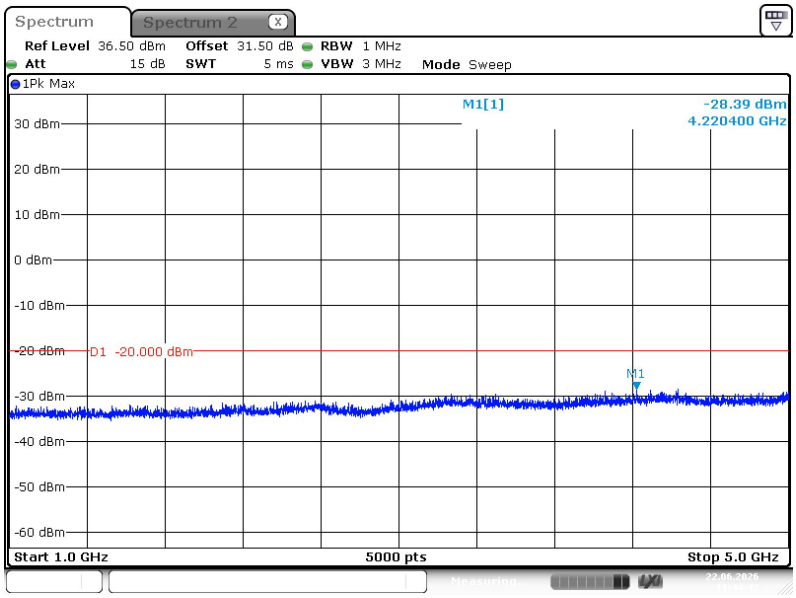
Date: 13.MAR.2026 15:40:11



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang

Date: 13.MAR.2026 15:42:46

1 GHz – 5 GHz, High Channel



ProjectNo.:2601Q14787E-RF Tester:Cheeb Huang
Date: 22.JUN.2026 11:44:42

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:	20.6~24.6 ℃
Relative Humidity:	56~60 %
ATM Pressure:	100.7~101.9 kPa

The testing was performed by Nico Wu on 2026-05-05 for below 1GHz and Wing K Ji on 2026-03-11 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.*

Digital signal, 12.5kHz

Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Low Channel								
800.025	24.9	H	-41.2	1.30	0.0	-42.5	-20	22.50
800.025	35.25	V	-28.7	1.30	0.0	-30.00	-20	10.00
1200.0375	52.31	H	-61.9	1.10	6.70	-56.30	-20	36.30
1200.0375	60.25	V	-54.7	1.10	6.70	-49.10	-20	29.10
1600.0500	58.88	H	-55.5	1.50	8.60	-48.40	-20	28.40
1600.0500	72.01	V	-42.9	1.50	8.60	-35.80	-20	15.80
2000.0625	58.50	H	-55.8	1.40	9.40	-47.80	-20	27.80
2000.0625	59.69	V	-55.3	1.40	9.40	-47.30	-20	27.30
2400.0750	54.14	H	-60.5	1.50	9.40	-52.60	-20	32.60
2400.0750	51.68	V	-62.9	1.50	9.40	-55.00	-20	35.00
2800.0875	49.68	H	-64.2	1.70	9.30	-56.60	-20	36.60
2800.0875	52.20	V	-61.5	1.70	9.30	-53.90	-20	33.90
Middle Channel								
880.025	26.9	H	-38.5	1.33	0.0	-39.83	-20	19.83
880.025	40.93	V	-24.1	1.33	0.0	-25.43	-20	5.43
1320.0375	54.66	H	-59.7	1.00	7.30	-53.40	-20	33.40
1320.0375	62.11	V	-53.2	1.00	7.30	-46.90	-20	26.90
1760.0500	63.08	H	-51.1	1.40	9.10	-43.40	-20	23.40
1760.0500	71.19	V	-43.6	1.40	9.10	-35.90	-20	15.90
2200.0625	54.31	H	-60.1	1.50	9.70	-51.90	-20	31.90
2200.0625	51.73	V	-63.0	1.50	9.70	-54.80	-20	34.80
2640.0750	50.50	H	-63.7	1.70	9.40	-56.00	-20	36.00
2640.0750	50.42	V	-63.6	1.70	9.40	-55.90	-20	35.90
3080.0875	50.08	H	-63.3	1.80	9.30	-55.80	-20	35.80
3080.0875	49.95	V	-63.1	1.80	9.30	-55.60	-20	35.60
High Channel								
959.975	25.85	H	-39.7	1.36	0.0	-41.06	-20	21.06
959.975	35.71	V	-27.3	1.36	0.0	-28.66	-20	8.66
1439.9625	53.52	H	-60.8	0.90	7.80	-53.90	-20	33.90
1439.9625	60.14	V	-54.9	0.90	7.80	-48.00	-20	28.00
1919.9500	60.25	H	-54.1	1.20	9.40	-45.90	-20	25.90
1919.9500	60.53	V	-54.5	1.20	9.40	-46.30	-20	26.30
2399.9375	58.80	H	-55.8	1.50	9.40	-47.90	-20	27.90
2399.9375	53.25	V	-61.3	1.50	9.40	-53.40	-20	33.40
2879.9250	49.66	H	-63.5	1.80	9.30	-56.00	-20	36.00
2879.9250	50.35	V	-62.6	1.80	9.30	-55.10	-20	35.10
3359.9125	60.37	H	-53.4	1.70	9.60	-45.50	-20	25.50
3359.9125	58.81	V	-54.6	1.70	9.60	-46.70	-20	26.70

Analog signal, 12.5kHz

Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Low Channel								
800.025	24.17	H	-42.0	1.36	0.0	-43.36	-20	23.36
800.025	37.25	V	-26.7	1.36	0.0	-28.06	-20	8.06
1200.0375	52.85	H	-61.4	1.10	6.70	-55.80	-20	35.80
1200.0375	61.18	V	-53.8	1.10	6.70	-48.20	-20	28.20
1600.0500	57.60	H	-56.7	1.50	8.60	-49.60	-20	29.60
1600.0500	69.25	V	-45.6	1.50	8.60	-38.50	-20	18.50
2000.0625	55.83	H	-58.4	1.40	9.40	-50.40	-20	30.40
2000.0625	55.44	V	-59.5	1.40	9.40	-51.50	-20	31.50
2400.0750	55.25	H	-59.4	1.50	9.40	-51.50	-20	31.50
2400.0750	54.60	V	-60.0	1.50	9.40	-52.10	-20	32.10
2800.0875	52.40	H	-61.5	1.70	9.30	-53.90	-20	33.90
2800.0875	49.91	V	-63.8	1.70	9.30	-56.20	-20	36.20
3200.1000	56.47	H	-56.8	2.00	9.50	-49.30	-20	29.30
3200.1000	50.36	V	-62.6	2.00	9.50	-55.10	-20	35.10
Middle Channel								
880.025	26.26	H	-39.1	1.33	0.0	-40.43	-20	20.43
880.025	32.11	V	-33.0	1.33	0.0	-34.33	-20	14.33
1320.0375	52.83	H	-61.5	1.00	7.30	-55.20	-20	35.20
1320.0375	58.84	V	-56.4	1.00	7.30	-50.10	-20	30.10
1760.0500	65.61	H	-48.5	1.40	9.10	-40.80	-20	20.80
1760.0500	71.15	V	-43.6	1.40	9.10	-35.90	-20	15.90
2200.0625	56.55	H	-57.9	1.50	9.70	-49.70	-20	29.70
2200.0625	50.56	V	-64.2	1.50	9.70	-56.00	-20	36.00
2640.0750	49.45	H	-64.8	1.70	9.40	-57.10	-20	37.10
2640.0750	49.58	V	-64.4	1.70	9.40	-56.70	-20	36.70
3080.0875	49.60	H	-63.8	1.80	9.30	-56.30	-20	36.30
3080.0875	49.69	V	-63.4	1.80	9.30	-55.90	-20	35.90
3520.1000	56.33	H	-57.2	1.80	9.70	-49.30	-20	29.30
3520.1000	57.78	V	-55.4	1.80	9.70	-47.50	-20	27.50

Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
High Channel								
959.975	22.74	H	-42.8	1.36	0.0	-44.16	-20	24.16
959.975	33.89	V	-29.2	1.36	0.0	-30.56	-20	10.56
1439.9625	59.22	H	-55.1	0.90	7.80	-48.20	-20	28.20
1439.9625	58.53	V	-56.5	0.90	7.80	-49.60	-20	29.60
1919.9500	59.13	H	-55.2	1.20	9.40	-47.00	-20	27.00
1919.9500	61.51	V	-53.5	1.20	9.40	-45.30	-20	25.30
2399.9375	58.55	H	-56.1	1.50	9.40	-48.20	-20	28.20
2399.9375	54.49	V	-60.1	1.50	9.40	-52.20	-20	32.20
2879.9250	49.43	H	-63.7	1.80	9.30	-56.20	-20	36.20
2879.9250	49.68	V	-63.2	1.80	9.30	-55.70	-20	35.70
3359.9125	56.96	H	-56.8	1.70	9.60	-48.90	-20	28.90
3359.9125	57.88	V	-55.6	1.70	9.60	-47.70	-20	27.70
3839.9000	50.68	H	-62.7	2.00	9.60	-55.10	-20	35.10
3839.9000	50.45	V	-62.9	2.00	9.60	-55.30	-20	35.30

Note:

Absolute Level = Substituted Level - Cable Loss + Antenna Gain
Margin = Limit-Absolute Level

FCC §2.1055 & §90.213 - FREQUENCY STABILITY

Applicable Standard

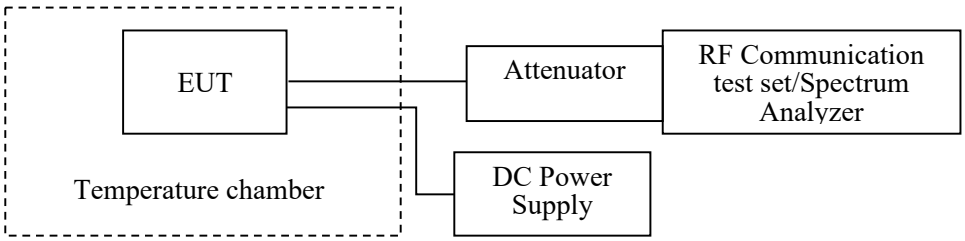
FCC §2.1055 and §90.213

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:	25.2~25.6 ℃
Relative Humidity:	42~48 %
ATM Pressure:	100.6~100.9 kPa

The testing was performed by Cheeb Huang from 2026-03-13 to 2026-03-15.

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	3.7	440.0129470	1.02	2.5
-20		440.0128470	0.79	
-10		440.0128400	0.77	
0		440.0128250	0.74	
10		440.0128070	0.70	
20		440.0127960	0.67	
30		440.0128500	0.80	
40		440.0128710	0.84	
50		440.0128370	0.77	
20	3.15	440.0128110	0.71	
20	4.26	440.0129440	1.01	

FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR

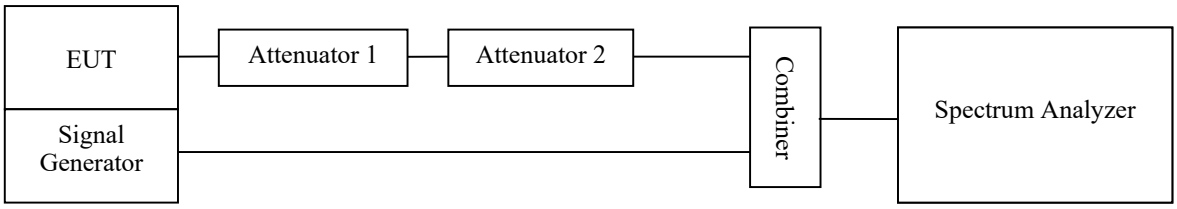
Applicable Standard

Regulations: FCC §90.214

Test method: ANSI C63.26-2015

Test Procedure

a) Connect the EUT and test equipment as shown on the following block diagram.
b) Set the Spectrum Analyzer to measure FM deviation, and tune the RF frequency to the transmitter assigned frequency.
c) Set the signal generator to the assigned transmitter frequency and modulate it with a 1 kHz tone at ±12.5 kHz deviation and set its output level to -100dBm.
d) Turn on the transmitter.
e) Supply sufficient attenuation via the RF attenuator to provide an input level to the Spectrum Analyzer that is 40 dB below the maximum allowed input power when the transmitter is operating at its rated power level. Note this power level on the Spectrum Analyzer as P_0.
f) Turn off the transmitter.
g) Adjust the RF level of the signal generator to provide RF power equal to P_0. This signal generator RF level shall be maintained throughout the rest of the measurement.
h) Remove the attenuation 1, so the input power to the Spectrum Analyzer is increased by 30 dB when the transmitter is turned on.
i) Adjust the vertical amplitude control of the spectrum analyzer to display the 1000 Hz at ±4 divisions vertically centered on the display. Set trigger mode of the Spectrum Analyzer to "Video", and tune the "trigger level" on suitable level. Then set the "tiger offset" to -10ms for turn on and -15ms for turn off.
j) Turn on the transmitter and the transient wave will be captured on the screen of Spectrum Analyzer. Observe the stored display. The instant when the 1 kHz test signal is completely suppressed is considered to be t_{on}. The trace should be maintained within the allowed divisions during the period t_1 and t_2.
k) Then turn off the transmitter, and another transient wave will be captured on the screen of Spectrum Analyzer. The trace should be maintained within the allowed divisions during the period t_3.



Test Data

Environmental Conditions

Temperature:	25.2~25.6 ℃
Relative Humidity:	42~48 %
ATM Pressure:	100.6~100.9 kPa

The testing was performed by Cheeb Huang from 2026-03-13 to 2026-03-15.

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

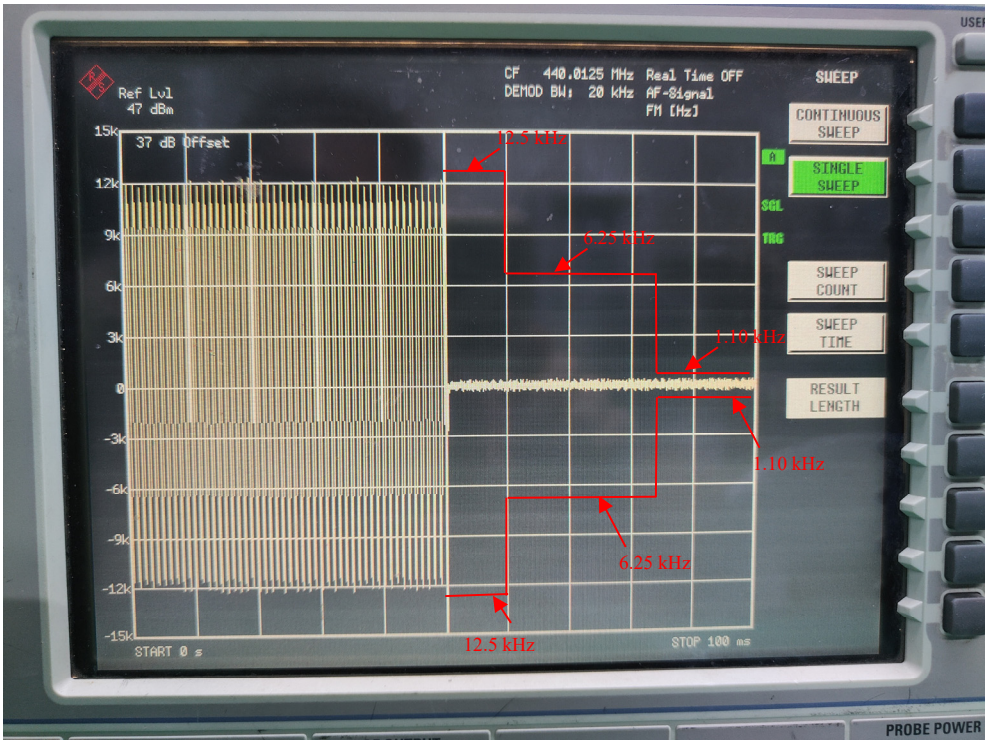
Channel Separation (kHz)	Transient Periode (ms)	Transient Frequency	Result
12.5	10(t1)	±12.5kHz	pass
	25(t2)	±6.25kHz	pass
	10(t1)	±12.5kHz	pass

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

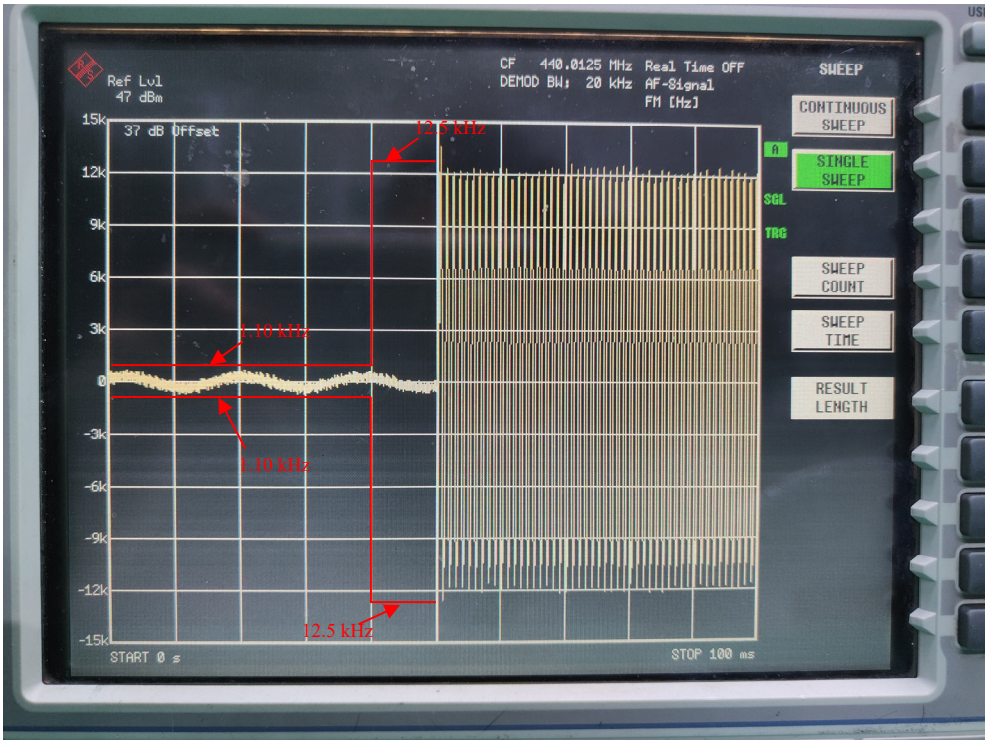
For 440.0125MHz 12.5 kHz mode, the limit is 440.0125MHz*2.5ppm=1.10kHz.

12.5kHz

Turn on



Turn off



EUT PHOTOGRAPHS

Please refer to the attachment 2601Q14787E-RF-EXP External photo and 2601Q14787E-RF-INP Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2601Q14787E-RF-TSP Test Setup photo.

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