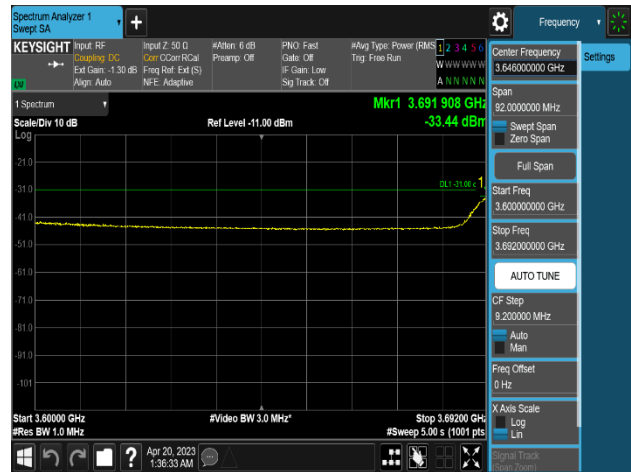


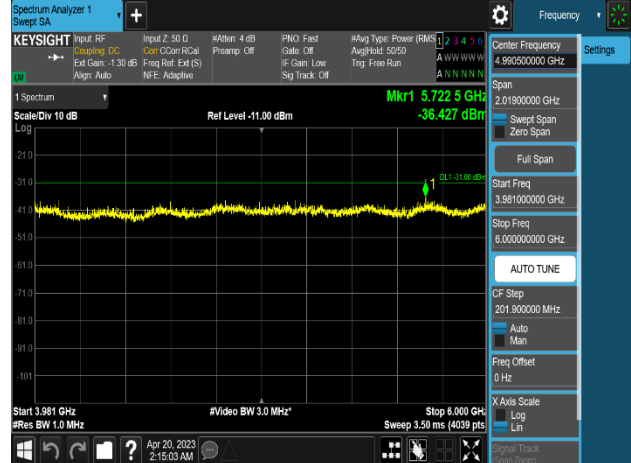
Plot 8-55. Conducted Spurious Emission Plot (1000MHz to 3600MHz) (n77_1C_60M_QPSK - Low Channel_Port 31)



Plot 8-56. Conducted Spurious Emission Plot (3600MHz to 3692MHz) (n77_1C_60M_QPSK - Low Channel_Port 31)



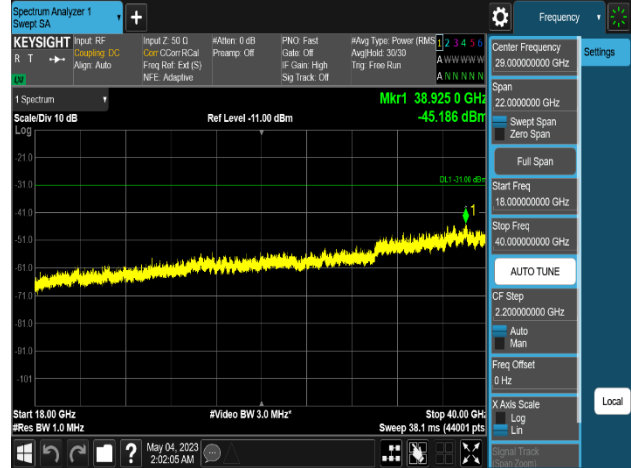
Plot 8-57. Conducted Spurious Emission Plot (3692MHz to 3699MHz) (n77_1C_60M_QPSK - Low Channel_Port 31)



Plot 8-58. Conducted Spurious Emission Plot (3981MHz to 6GHz) (n77_1C_60M_QPSK - Low Channel_Port 31)



Plot 8-59. Conducted Spurious Emission Plot (6GHz to 18GHz) (n77_1C_60M_QPSK - Low Channel_Port 31)



Plot 8-60. Conducted Spurious Emission Plot (18GHz to 40GHz) (n77_1C_60M_QPSK - Low Channel_Port 31)

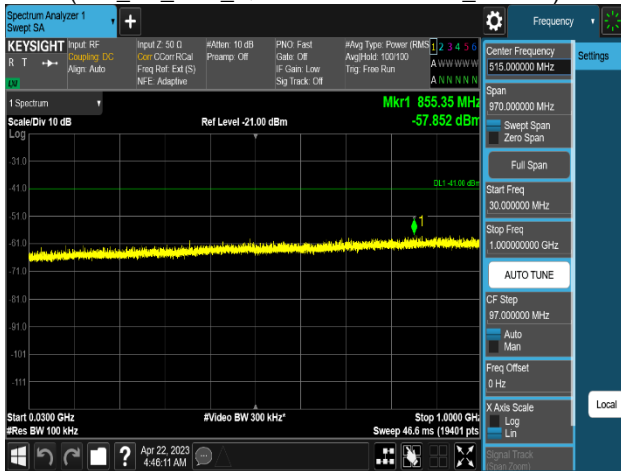
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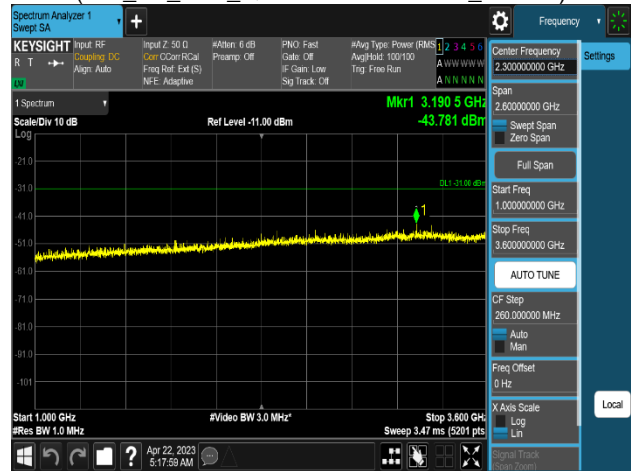
Plot 8-61. Conducted Spurious Emission Plot (9KHz to 150KHz) (n77_1C_80M_QPSK - Low Channel_Port 19)



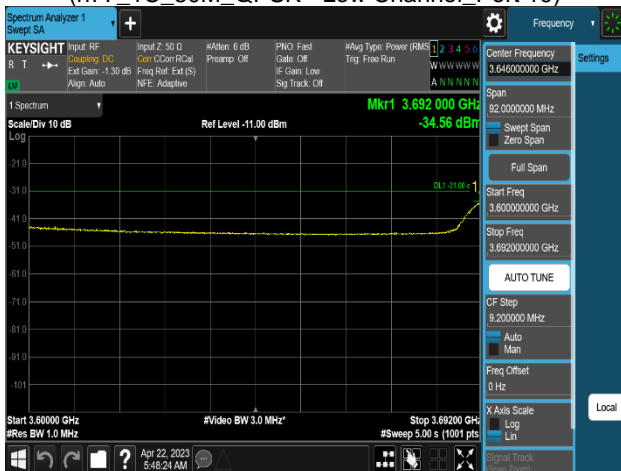
Plot 8-62. Conducted Spurious Emission Plot (150KHz to 30MHz) (n77_1C_80M_QPSK - Low Channel_Port 19)



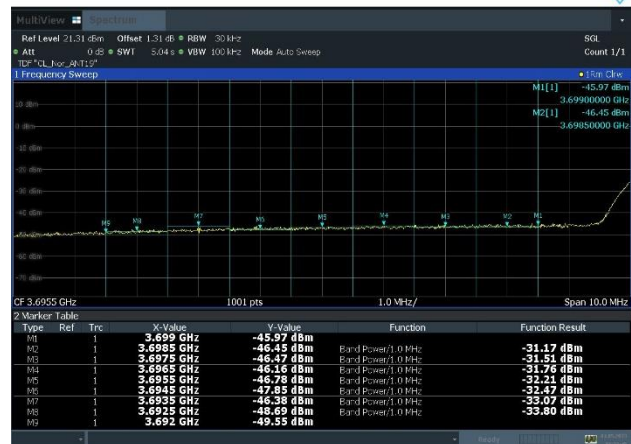
Plot 8-63. Conducted Spurious Emission Plot (30MHz to 1000MHz) (n77_1C_80M_QPSK - Low Channel_Port 19)



Plot 8-64. Conducted Spurious Emission Plot (1000MHz to 3600MHz) (n77_1C_80M_QPSK - Low Channel_Port 19)

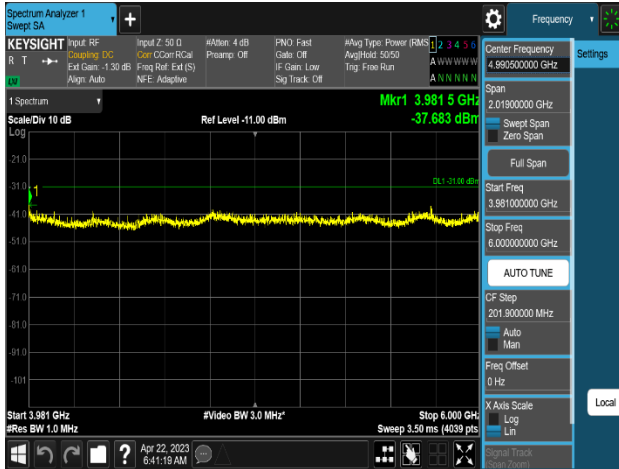


Plot 8-65. Conducted Spurious Emission Plot (3600MHz to 3692MHz) (n77_1C_80M_QPSK - Low Channel_Port 19)

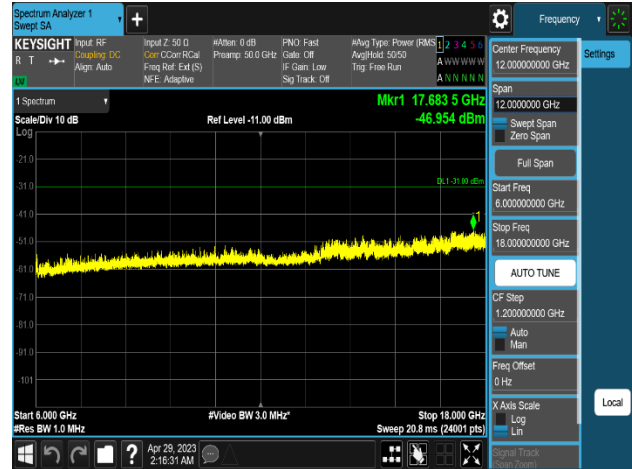


Plot 8-66. Conducted Spurious Emission Plot (3992MHz to 3699MHz) (n77_1C_80M_QPSK - Low Channel_Port 19)

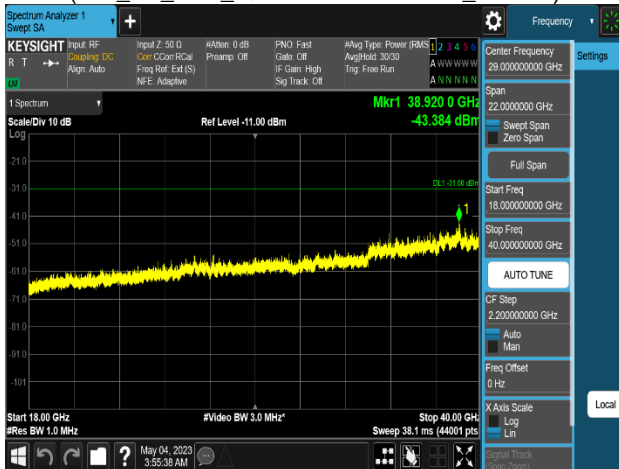
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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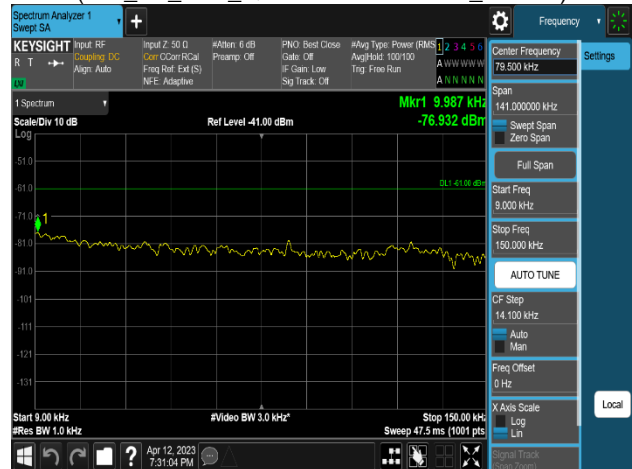
Plot 8-67. Conducted Spurious Emission Plot (3981MHz to 6GHz)
(n77_1C_80M_QPSK - Low Channel_Port 19)



Plot 8-68. Conducted Spurious Emission Plot (6GHz to 18GHz)
(n77_1C_80M_QPSK - Low Channel_Port 19)



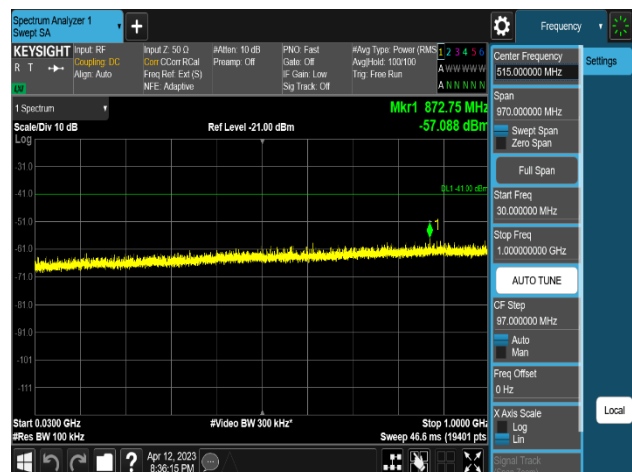
Plot 8-69. Conducted Spurious Emission Plot (18GHz to 40GHz)
(n77_1C_80M_QPSK - Low Channel_Port 19)



Plot 8-70. Conducted Spurious Emission Plot (9kHz to 150kHz)
(n77_1C_100M_QPSK - Low Channel_Port 47)

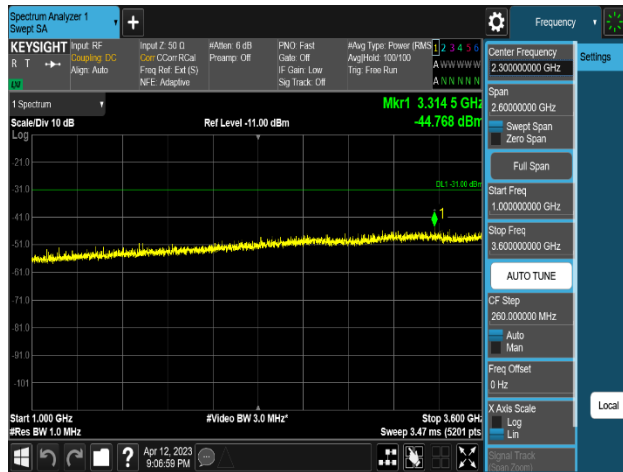


Plot 8-71. Conducted Spurious Emission Plot (150kHz to 30MHz)
(n77_1C_100M_QPSK - Low Channel_Port 47)

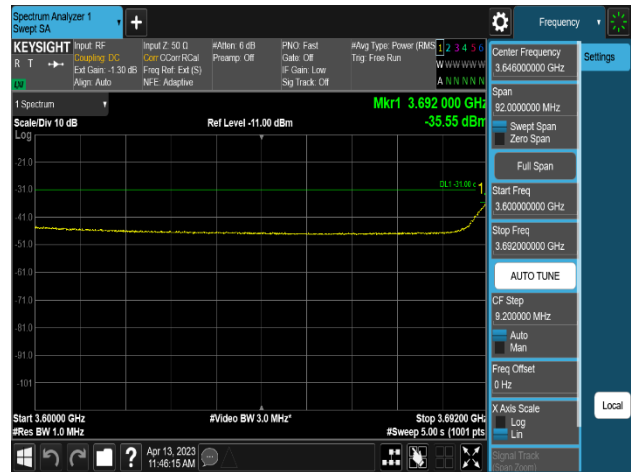


Plot 8-72. Conducted Spurious Emission Plot (30MHz to 100MHz)
(n77_1C_100M_QPSK - Low Channel_Port 47)

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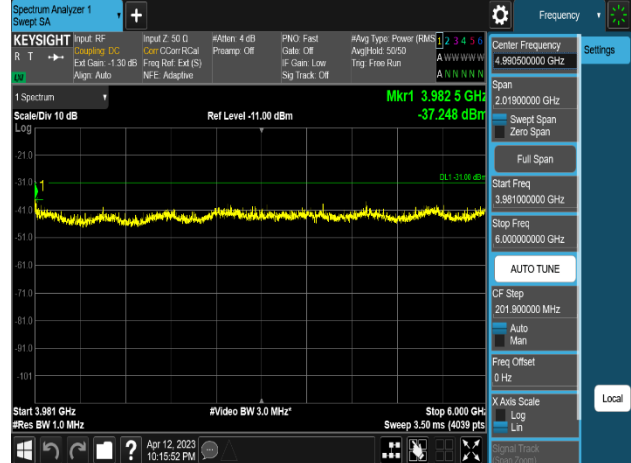
Plot 8-73. Conducted Spurious Emission Plot (1000MHz to 3600MHz) (n77_1C_100M_QPSK - Low Channel_Port 47)



Plot 8-74. Conducted Spurious Emission Plot (3600MHz to 3692MHz) (n77_1C_100M_QPSK - Low Channel_Port 47)



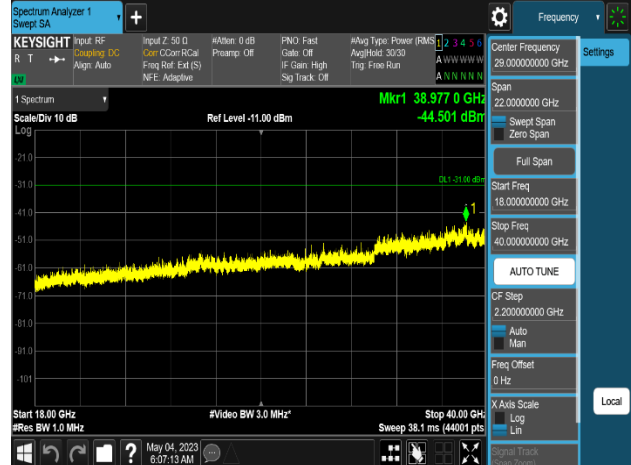
Plot 8-75. Conducted Spurious Emission Plot (30MHz to 100MHz) (n77_1C_100M_QPSK - Low Channel_Port 47)



Plot 8-76. Conducted Spurious Emission Plot (3981MHz to 6GHz) (n77_1C_100M_QPSK - Low Channel_Port 47)



Plot 8-77. Conducted Spurious Emission Plot (6GHz to 18GHz) (n77_1C_100M_QPSK - Low Channel_Port 47)

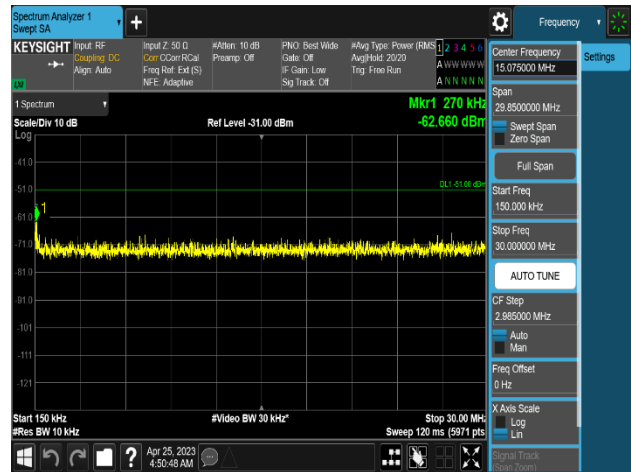


Plot 8-78. Conducted Spurious Emission Plot (18GHz to 40GHz) (n77_1C_100M_QPSK - Low Channel_Port 47)

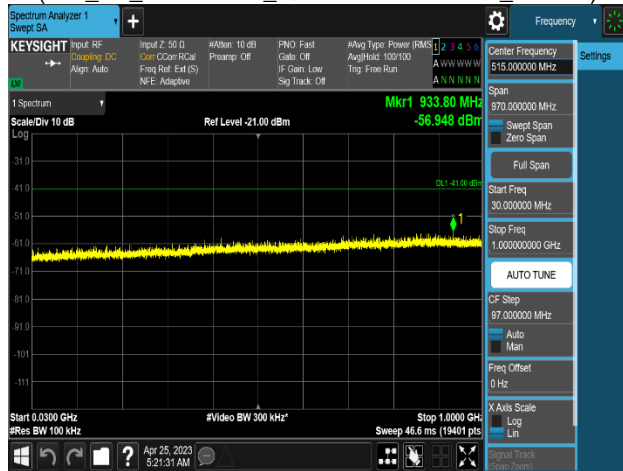
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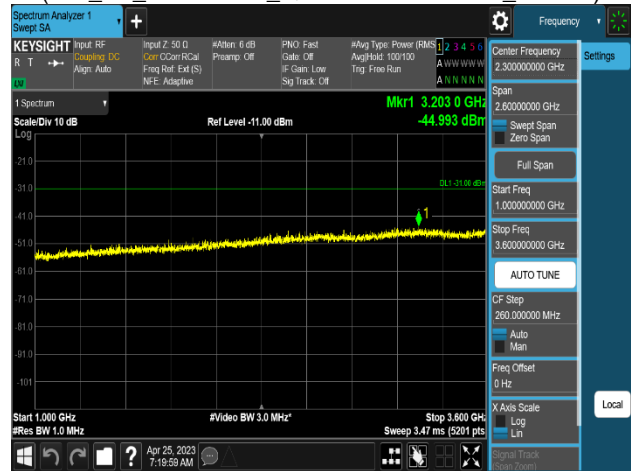
Plot 8-79. Conducted Spurious Emission Plot (9kHz to 150kHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



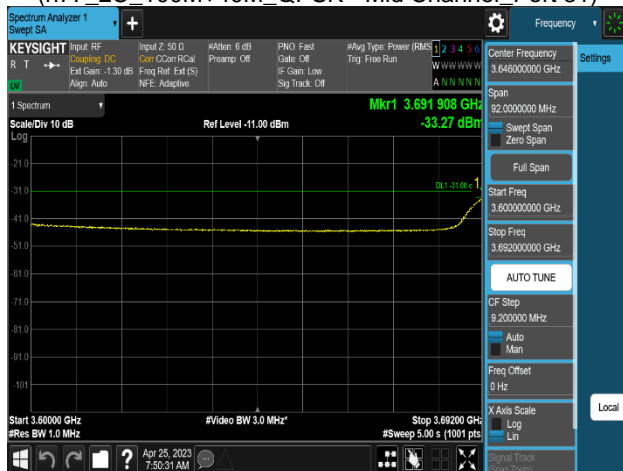
Plot 8-80. Conducted Spurious Emission Plot (150kHz to 30MHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



Plot 8-81. Conducted Spurious Emission Plot (30MHz to 100MHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



Plot 8-82. Conducted Spurious Emission Plot (100MHz to 3600MHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)

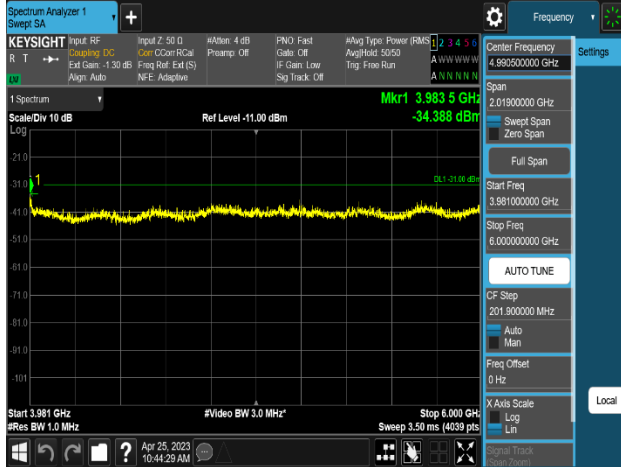


Plot 8-83. Conducted Spurious Emission Plot (3600MHz to 3692MHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)

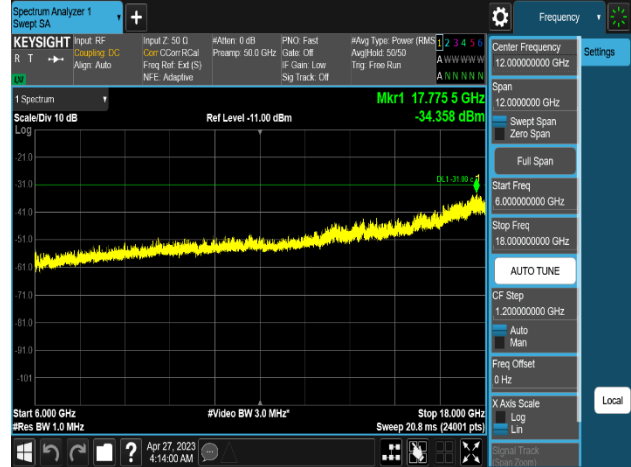


Plot 8-84. Conducted Spurious Emission Plot (3692MHz to 3699MHz) (n77_2C_100M+40M_QPSK - Mid Channel_Port 31)

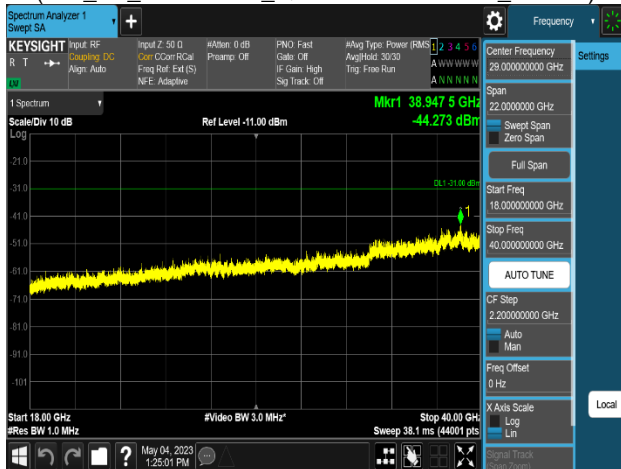
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Plot 8-85. Conducted Spurious Emission Plot (3981MHz to 6GHz)
(n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



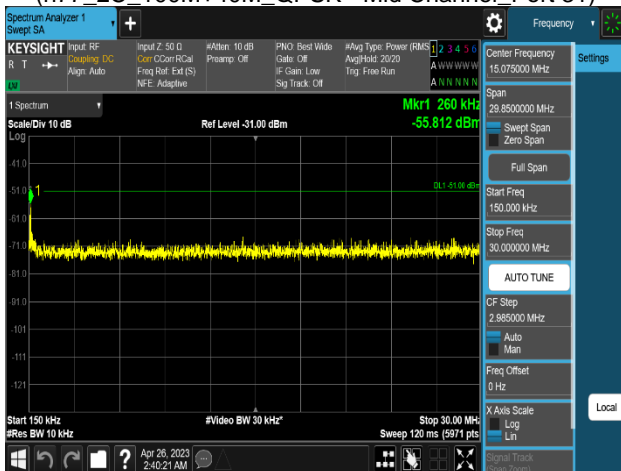
Plot 8-86. Conducted Spurious Emission Plot (6GHz to 18GHz)
(n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



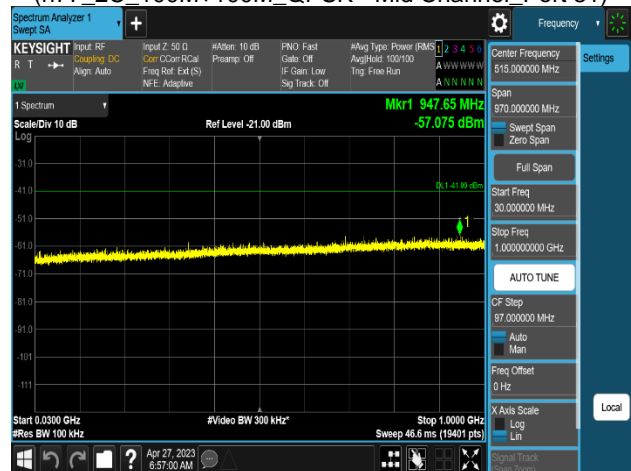
Plot 8-87. Conducted Spurious Emission Plot (18GHz to 40GHz)
(n77_2C_100M+40M_QPSK - Mid Channel_Port 31)



Plot 8-88. Conducted Spurious Emission Plot (9kHz to 150kHz)
(n77_2C_100M+100M_QPSK - Mid Channel_Port 31)

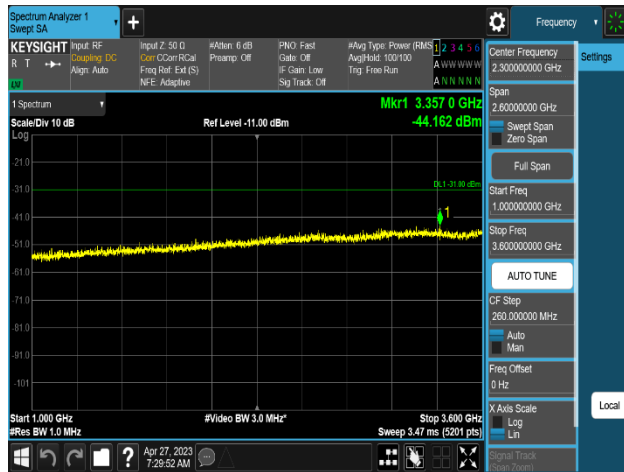


Plot 8-89. Conducted Spurious Emission Plot (150kHz to 30MHz)
(n77_2C_100M+100M_QPSK - Mid Channel_Port 31)

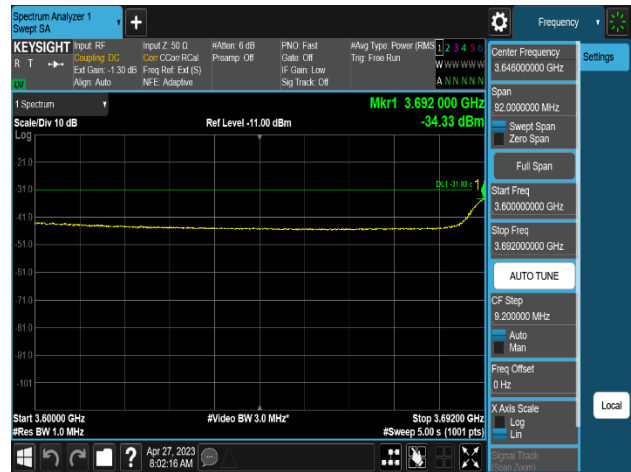


Plot 8-90. Conducted Spurious Emission Plot (30MHz to 1000MHz)
(n77_2C_100M+100M_QPSK - Mid Channel_Port 31)

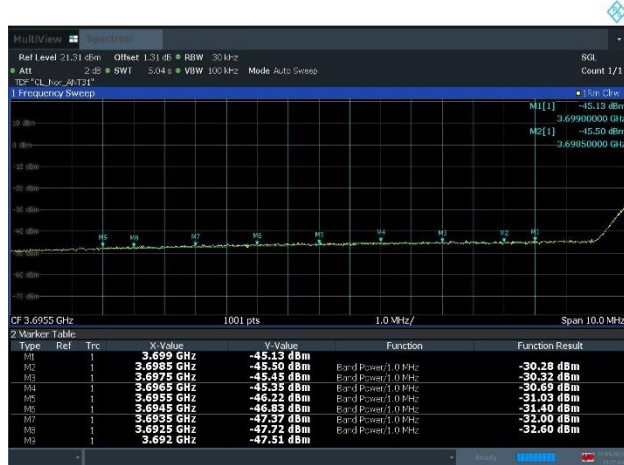
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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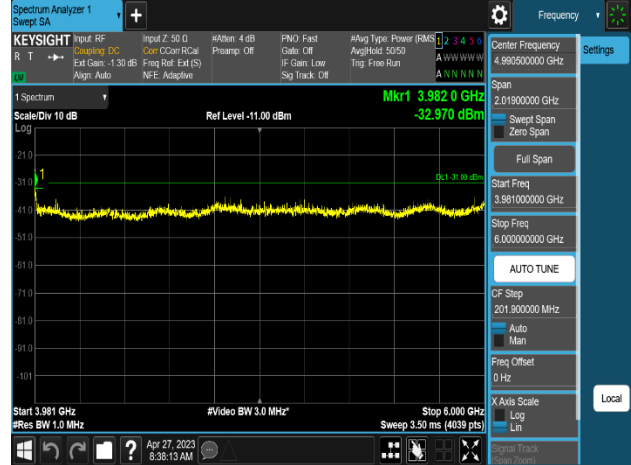
Plot 8-91. Conducted Spurious Emission Plot (1000MHz to 3600MHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)



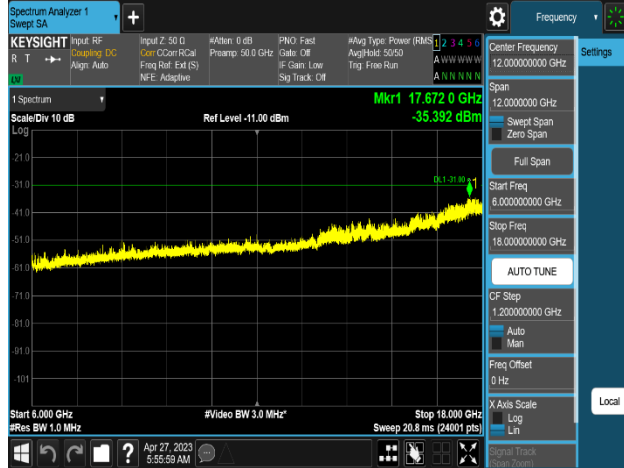
Plot 8-92. Conducted Spurious Emission Plot (3600MHz to 3692MHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)



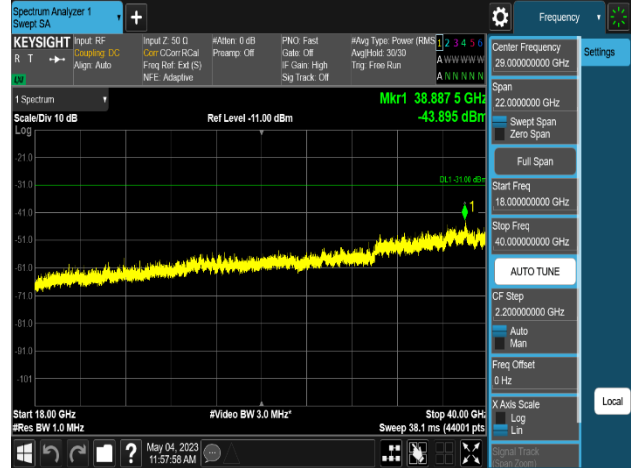
Plot 8-93. Conducted Spurious Emission Plot (3692MHz to 3699MHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)



Plot 8-94. Conducted Spurious Emission Plot (3981MHz to 6GHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)



Plot 8-95. Conducted Spurious Emission Plot (6GHz to 18GHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)



Plot 8-96. Conducted Spurious Emission Plot (18GHz to 40GHz) (n77_2C_100M+100M_QPSK - Mid Channel_Port 31)

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8.7 Frequency Stability

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of KDB 971168 D01 v03r01. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for DC powered equipment.

Test Description

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

Frequency measurements are made -30°C to +50°C in 10°C increments. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

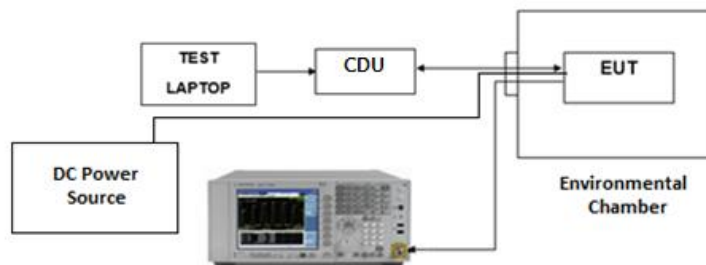




Figure 8-6. Test Instrument & Measurement Setup

Test Notes

None.

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OPERATING FREQUENCY: 3840,000,000 Hz
 REFERENCE VOLTAGE: -48.00 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	-48.00	+ 20 (Ref)	3,840,000,591	0	0.0000000
100 %		- 30	3,840,000,594	3	0.0000001
100 %		- 20	3,840,000,595	4	0.0000001
100 %		- 10	3,840,000,595	4	0.0000001
100 %		0	3,840,000,594	3	0.0000001
100 %		+ 10	3,840,000,552	-39	-0.0000010
100 %		+ 30	3,840,000,585	-6	-0.0000002
100 %		+ 40	3,840,000,578	-13	-0.0000003
100 %		+ 50	3,840,000,573	-18	-0.0000005
85 %	-40.8	+ 20	3,840,000,552	-39	-0.0000010
115 %	-55.2	+ 20	3,840,000,544	-47	-0.0000012

Table 8-30. Frequency Stability Summary Data (n77_1C_40M)

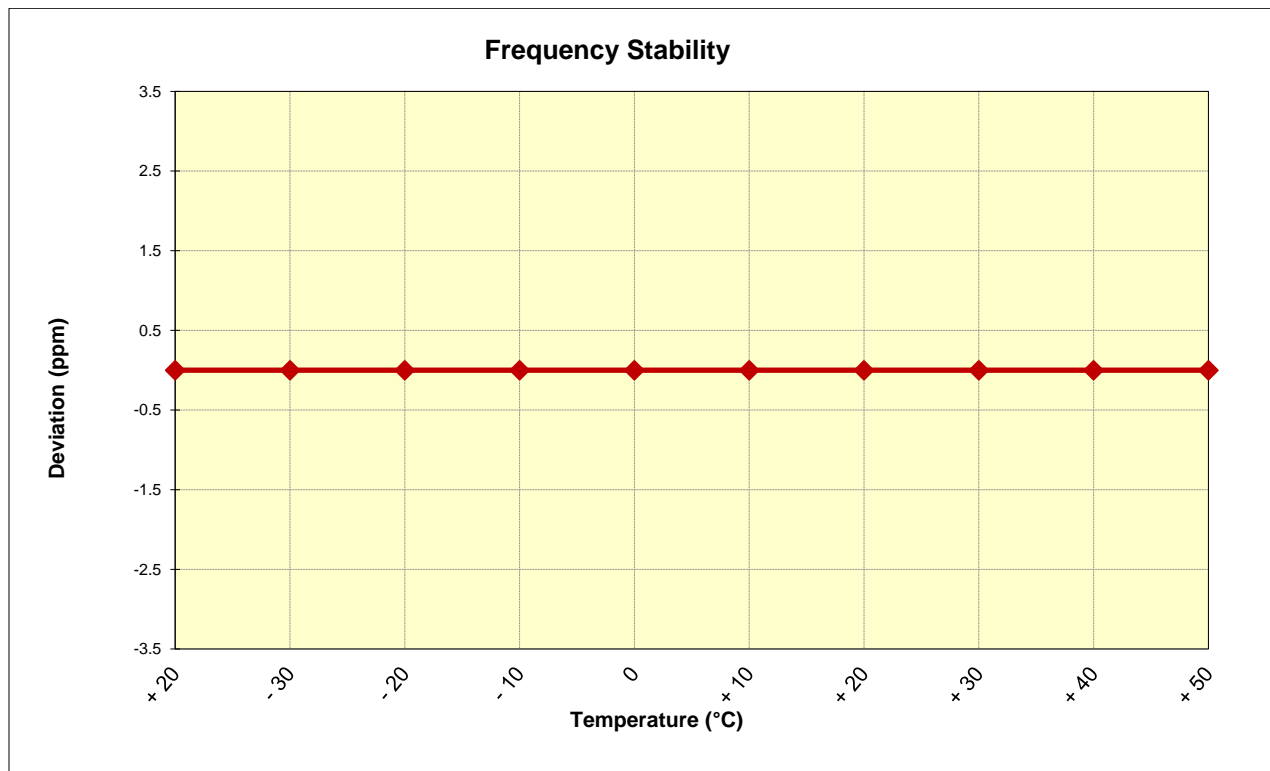


Figure 8-7. Frequency Stability Graph (n77_1C_40M)

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8.8 Radiated spurious emission

Test Overview

Radiated spurious emissions measurements are performed using the field strength method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized broadband tri-log antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedure Used



ANSI C63.26 - Section 5.5.3.2

Test Setting

1. Start frequency was set to 30 MHz and stop frequency was set to at least 10 * the fundamental frequency
2. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1GHz
3. VBW $\geq 3 \times$ RBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = Peak for the pre-scan, (In cases where the level is within 2 dB of the limit, the final measurement is taken using RMS detector.)
6. Trace mode = Max Hold (In cases where the level is within 2 dB of the limit, the final measurement is taken using triggering/gating and trace averaging.)
7. The trace was allowed to stabilize.

Limit

The power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm.

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

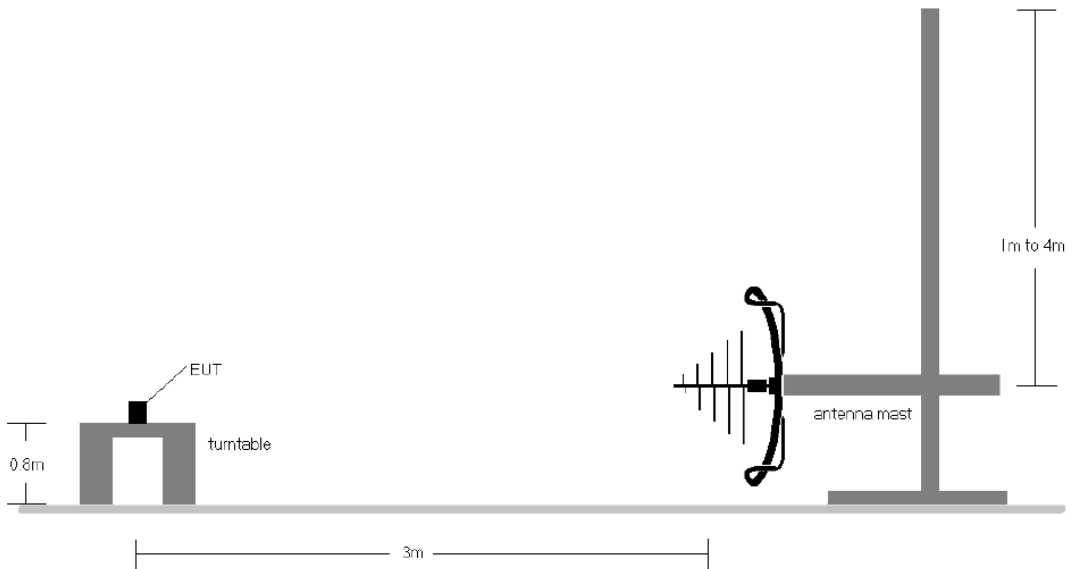


Figure 8-8. Test Instrument & Measurement Setup < 1 GHz

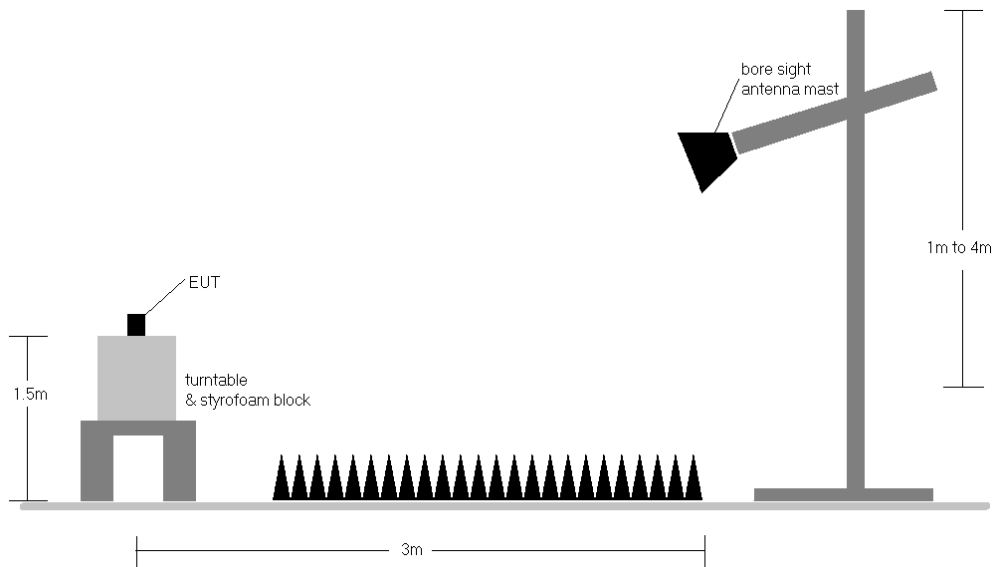


Figure 8-9. Test Instrument & Measurement Setup > 1 GHz

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Test Notes

1. The average EIRP reported below is calculated per 5.2.7 of ANSI C63.26-2015 which states:

The measured e.i.r.p is converted to E-field in V/m. Then the distance correction is applied before converted back to calculated e.i.r.p.as explained in KDB 971168 D01 D01 v03r01.

Effective Isotropic Radiated Power Sample Calculation

Field Strength [dBμV/m] = Measured Value [dBm] + 107 + AFCL [dB/m]
 = -64.52 [dBm] + 107 + 23.64 [dB/m] = 66.12 dBμV/m



e.i.r.p. [dBm] = E[dB μV/m] + 20 log₁₀(d[m]) - 104.8
 = 66.12 dB[μV/m] + (20*log (3)) - 104.8
 = -29.14 dBm

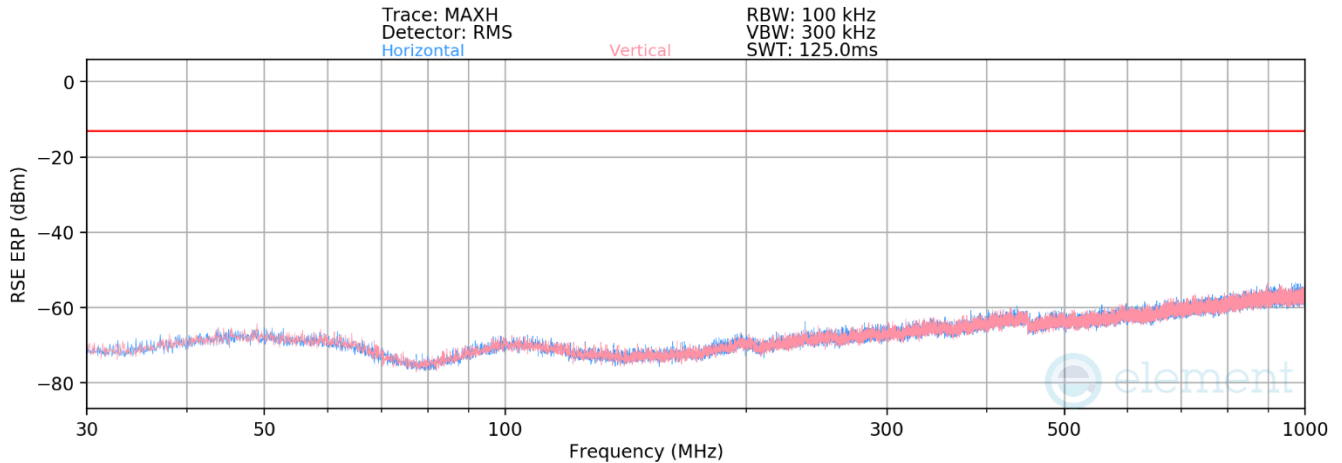
*AFCL (dB/m) contains measurement antenna factor(dB/m) and cable loss(dB) as below:

Frequency [MHz]	Antenna Factor (dB/m)	Chamber measurement cable loss + amplifier [dB]	AFCL (dB/m)
992.17	23.24	-30.38	-7.27
17873.15	47.29	-23.65	23.64

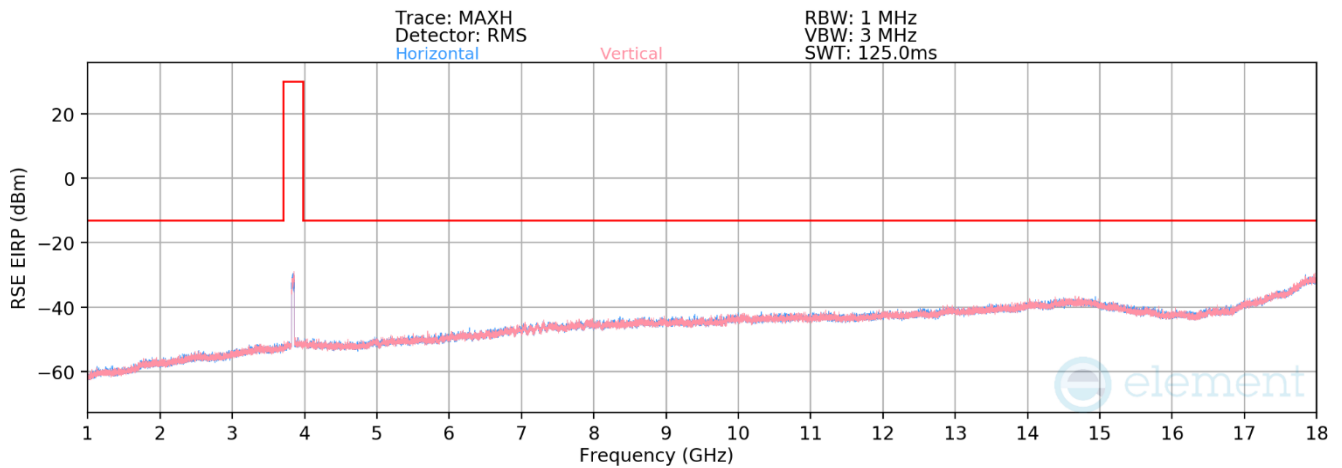
Table 8-31. Adopted AFCL value in the calculation

2. The EUT was tested in both horizontal and vertical antenna polarizations and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, channel bandwidth configurations shown in the tables below.
3. The spectrum is measured from 30 MHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
4. All emissions were measured at a 3-meter test distance.
5. Spurious emissions were measured with all EUT antennas transmitting simultaneously and all antenna ports terminated.
6. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
7. All modes of operation were investigated and the worst case configuration results are reported in this section.

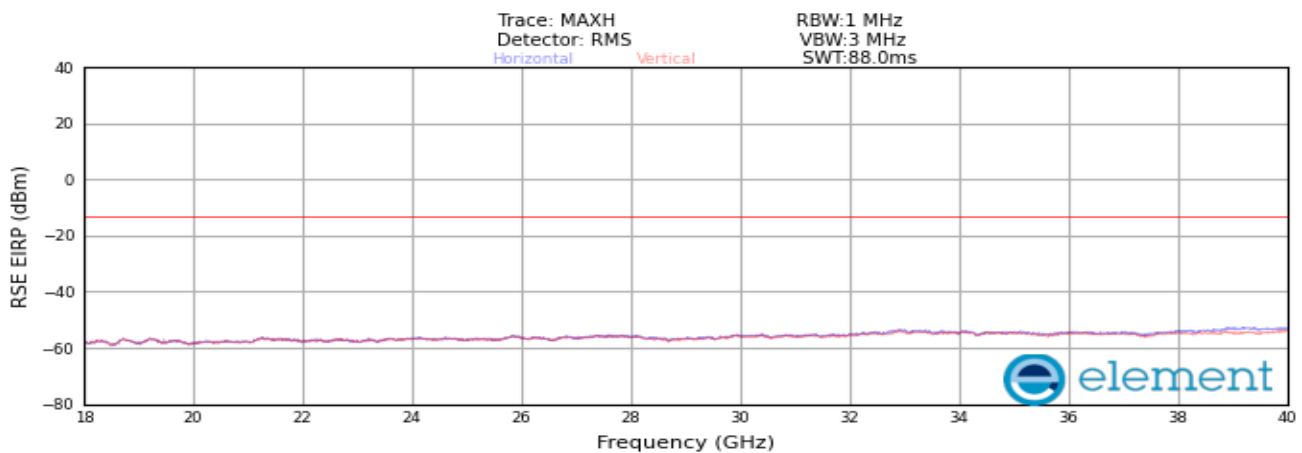
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Plot 8-97. Radiated spurious emission Plot_30 MHz to 1000 MHz (n77_1C_40M_Mid Channel)

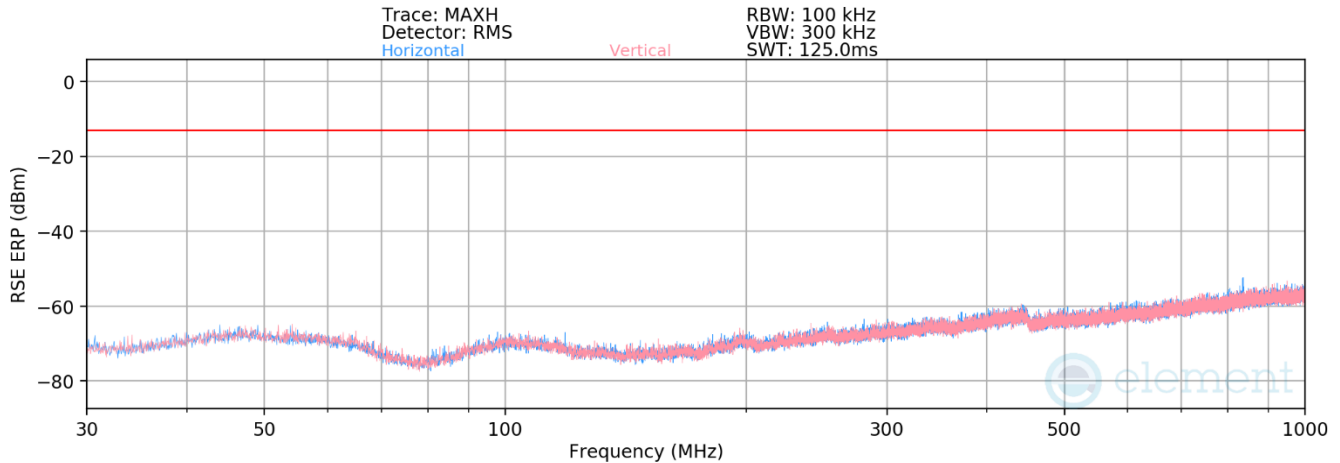


Plot 8-98. Radiated spurious emission Plot_1 GHz to 18 GHz (n77_1C_40M_Mid Channel)

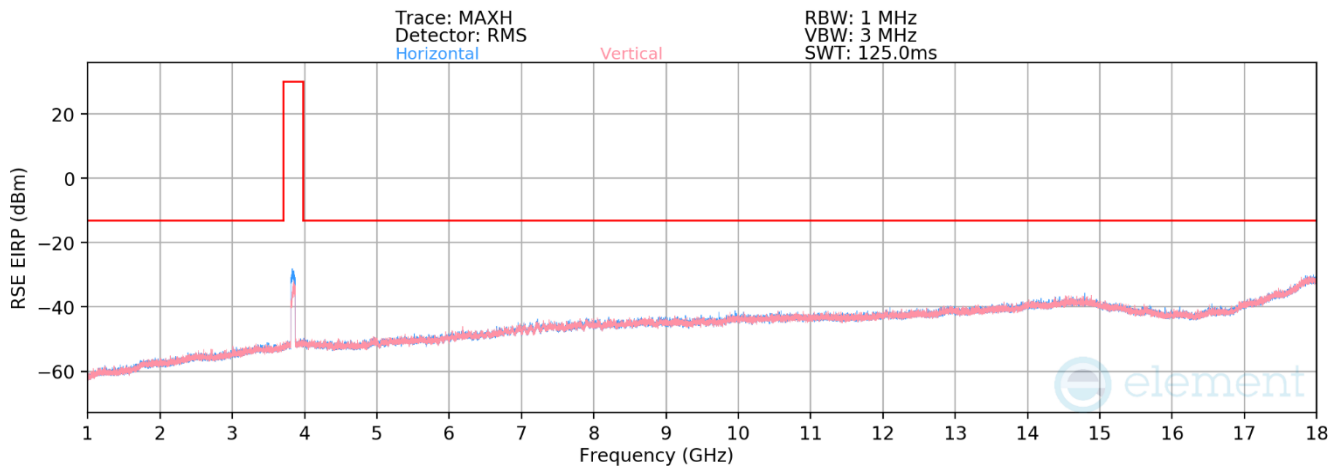


Plot 8-99. Radiated spurious emission Plot_18 GHz to 40 GHz (n77_1C_40M_Mid Channel)

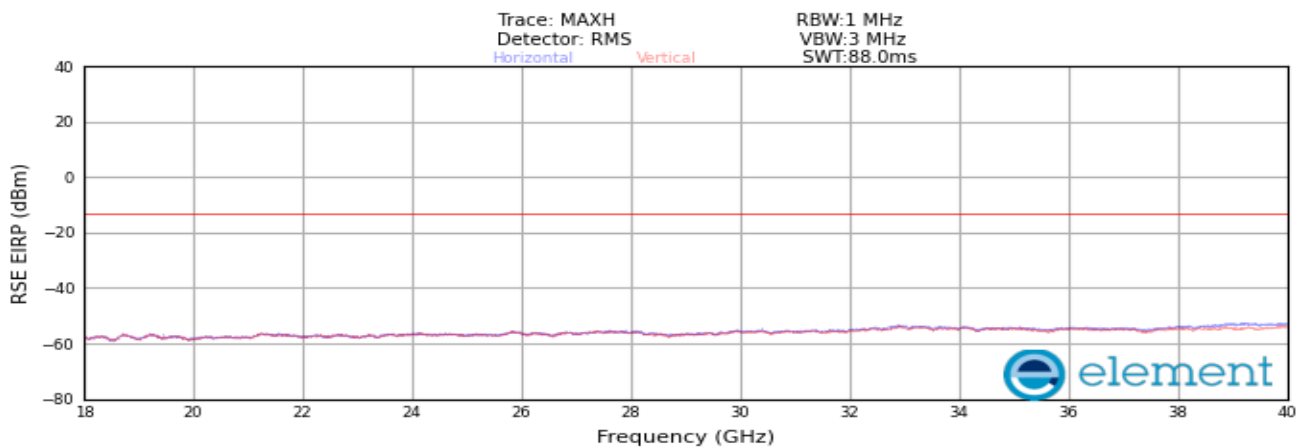
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 8-100. Radiated spurious emission Plot_30 MHz to 1000 MHz (n77_1C_60M_Mid Channel)

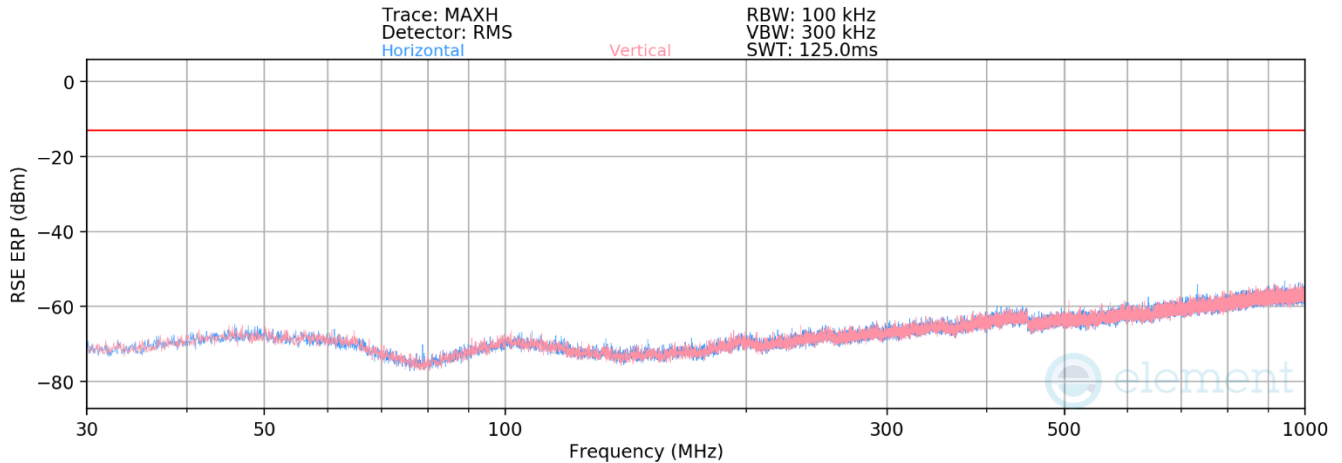


Plot 8-101. Radiated spurious emission Plot_1 GHz to 18 GHz (n77_1C_60M_Mid Channel)

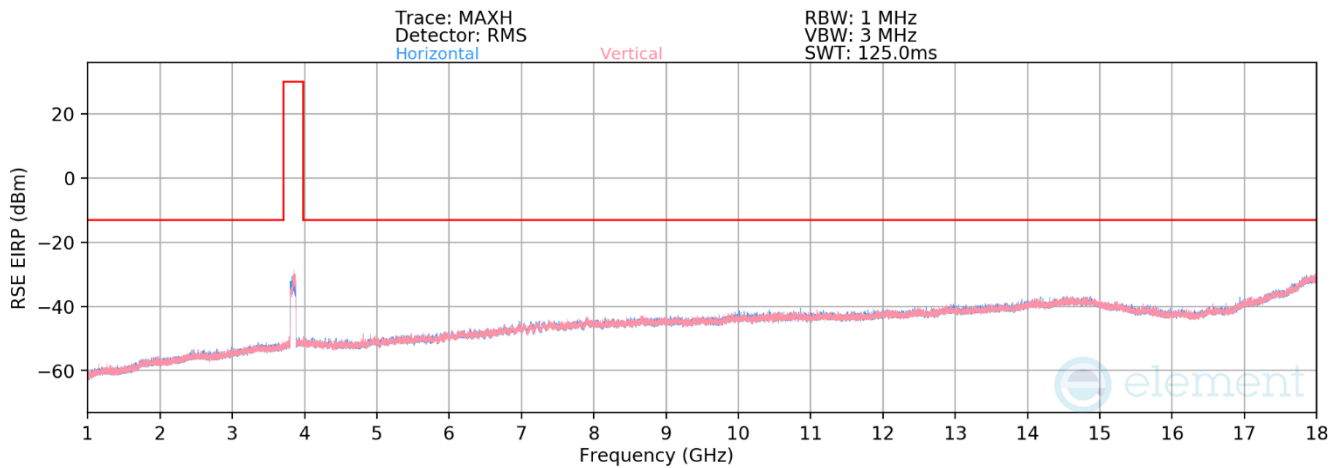


Plot 8-102. Radiated spurious emission Plot_18 GHz to 40 GHz (n77_1C_60M_Mid Channel)

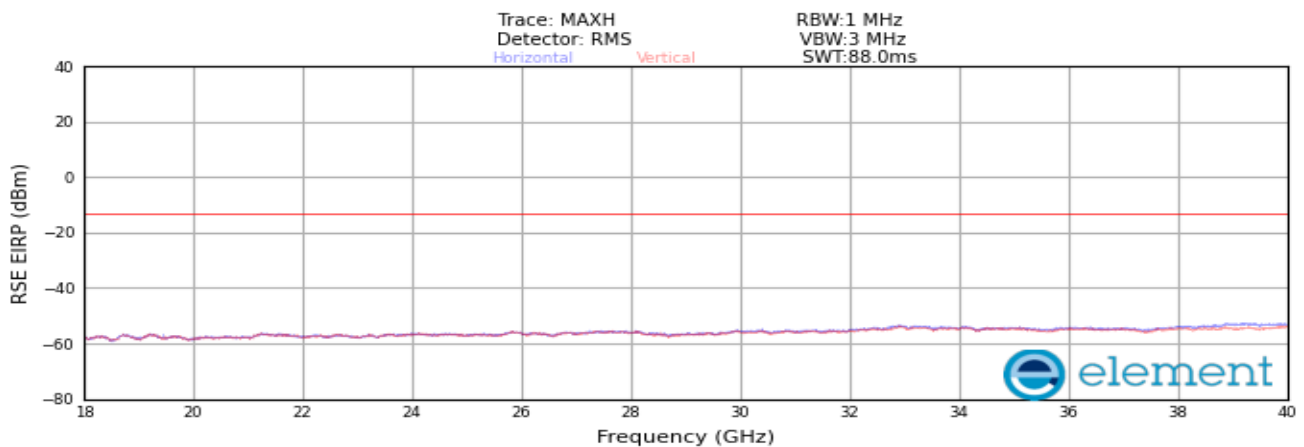
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K23032101-00-R1.A3L	Test Dates: 04/04/2023 - 05/15/2023	EUT Type: MMU(MT6413)		Page 107 of 137



Plot 8-103. Radiated spurious emission Plot_30 MHz to 1000 MHz (n77_1C_80M_Mid Channel)

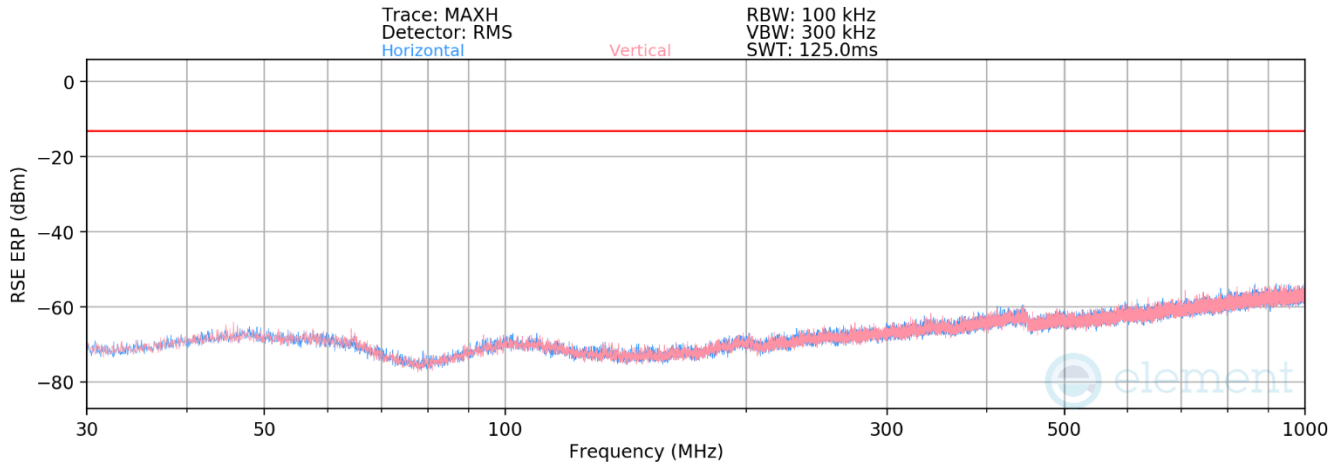


Plot 8-104. Radiated spurious emission Plot_1 GHz to 18 GHz (n77_1C_80M_Mid Channel)

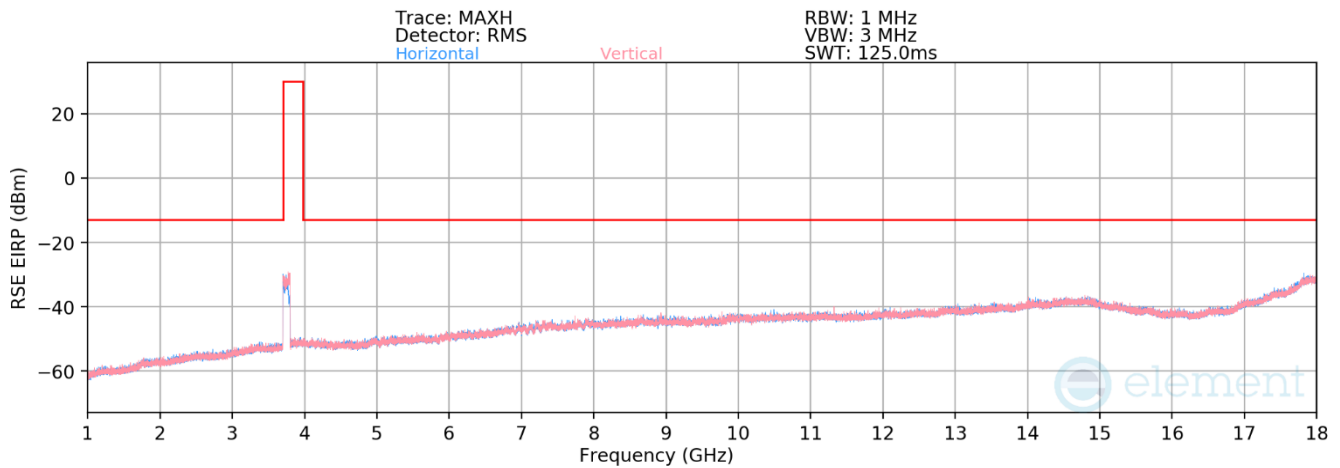


Plot 8-105. Radiated spurious emission Plot_18 GHz to 40 GHz (n77_1C_80M_Mid Channel)

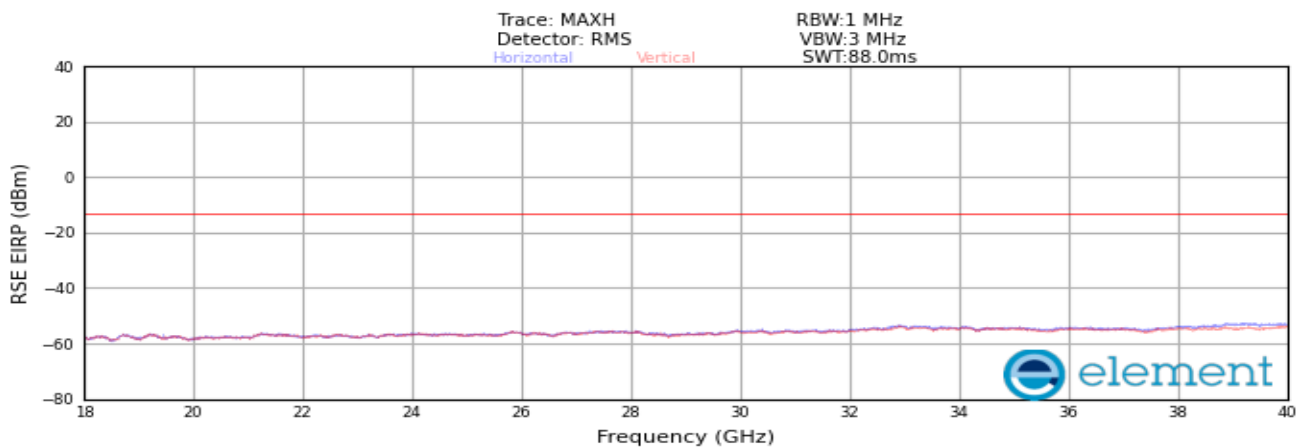
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K23032101-00-R1.A3L	Test Dates: 04/04/2023 - 05/15/2023	EUT Type: MMU(MT6413)		Page 108 of 137



**Plot 8-106. Radiated spurious emission Plot_30 MHz to 1000 MHz
(n77_1C_100M_Low Channel)**

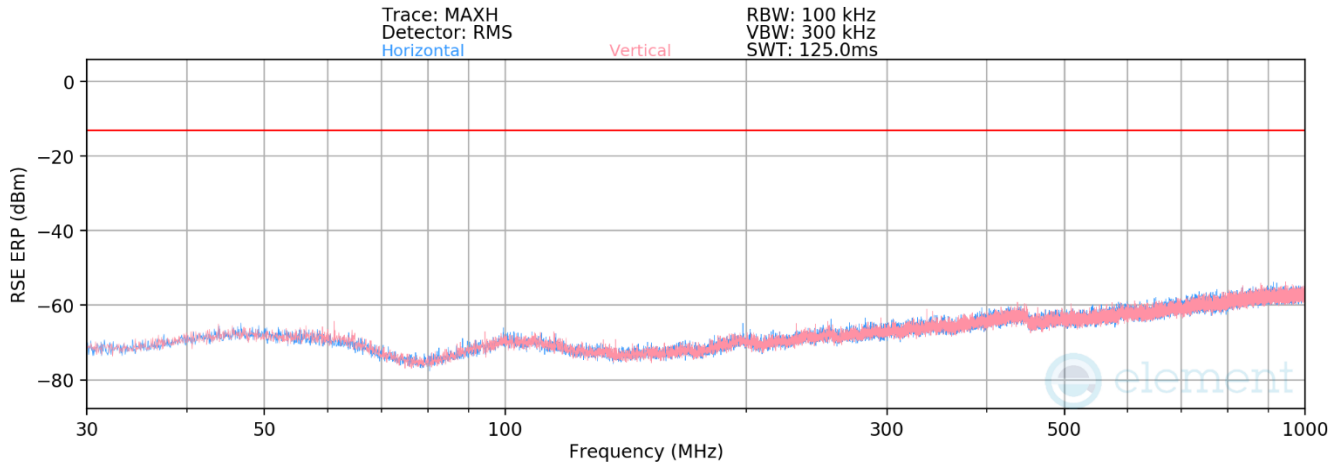


**Plot 8-107. Radiated spurious emission Plot_1 GHz to 18 GHz
(n77_1C_100M_Low Channel)**

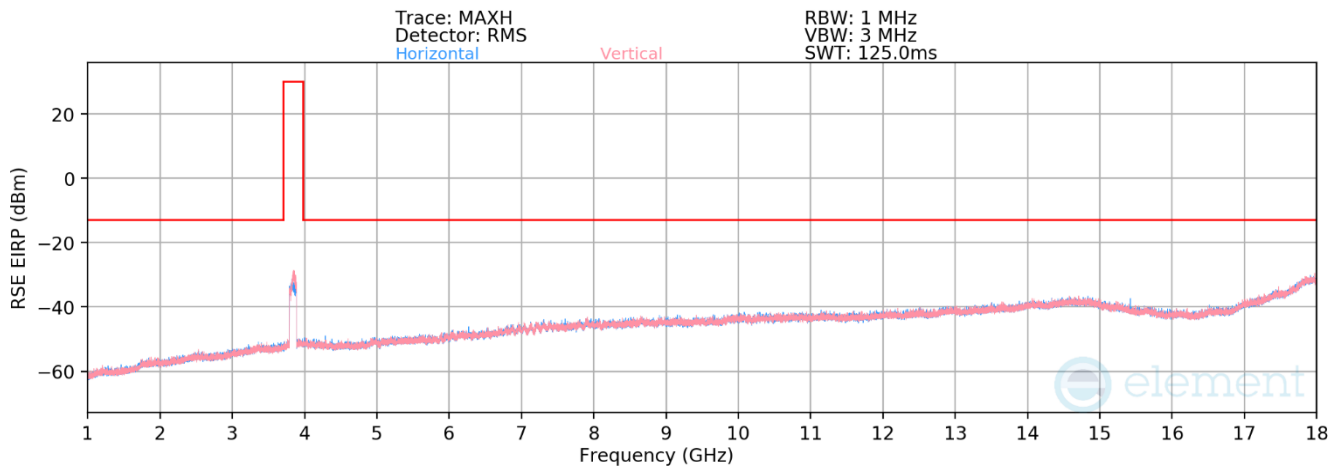


**Plot 8-108. Radiated spurious emission Plot_18 GHz to 40 GHz
(n77_1C_100M_Low Channel)**

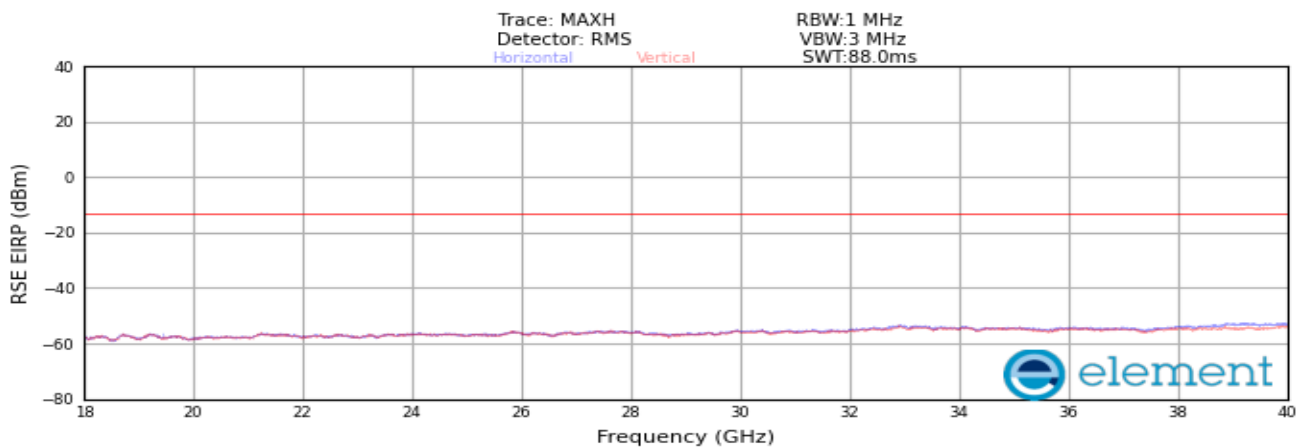
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K23032101-00-R1.A3L	Test Dates: 04/04/2023 - 05/15/2023	EUT Type: MMU(MT6413)		Page 109 of 137



Plot 8-109. Radiated spurious emission Plot_30 MHz to 1000 MHz (n77_1C_100M_Mid Channel)

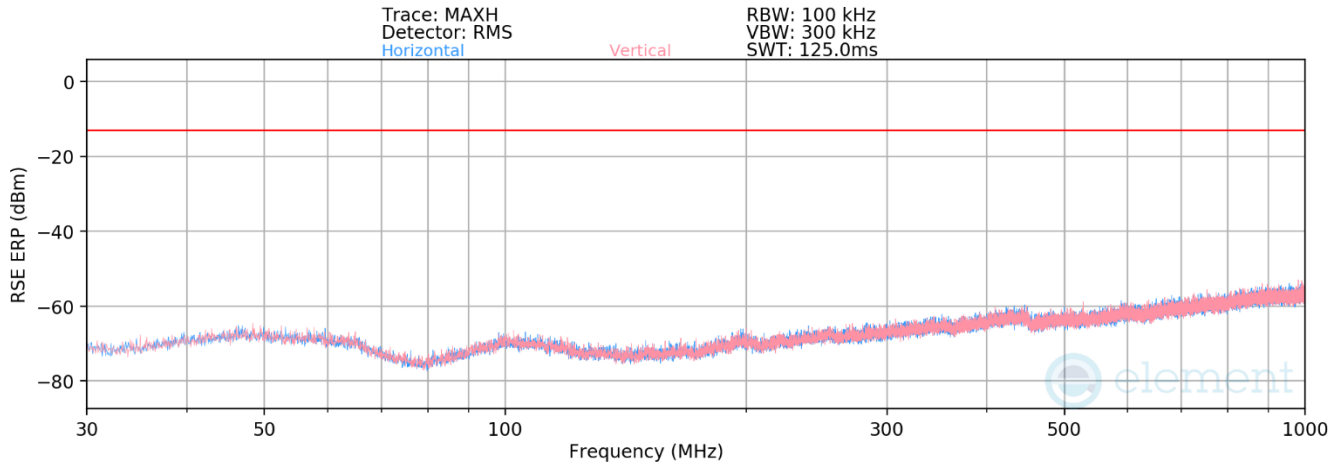


Plot 8-110. Radiated spurious emission Plot_1 GHz to 18 GHz (n77_1C_100M_Mid Channel)

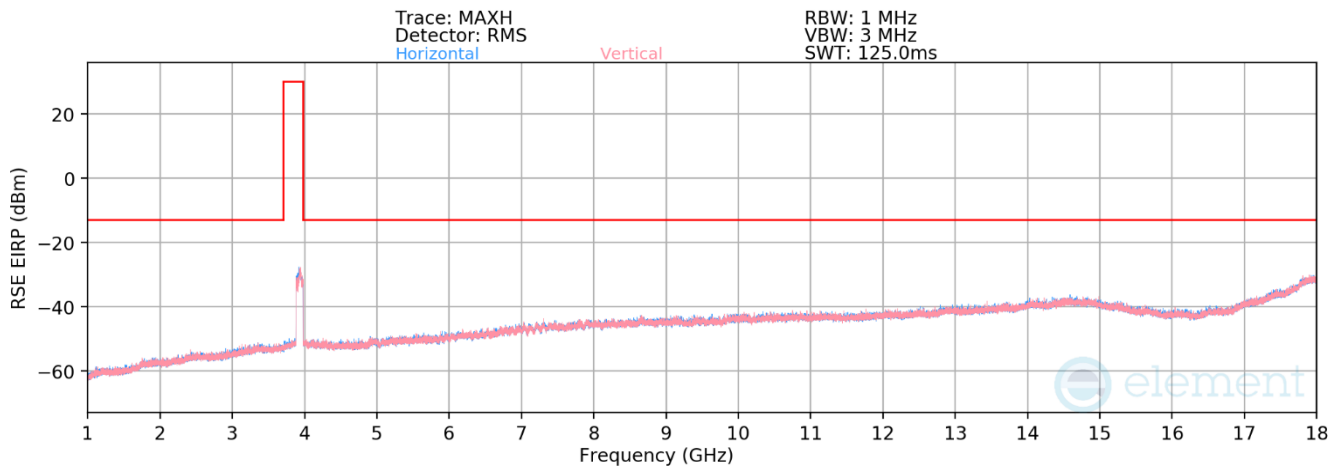


Plot 8-111. Radiated spurious emission Plot_18 GHz to 40 GHz (n77_1C_100M_Mid Channel)

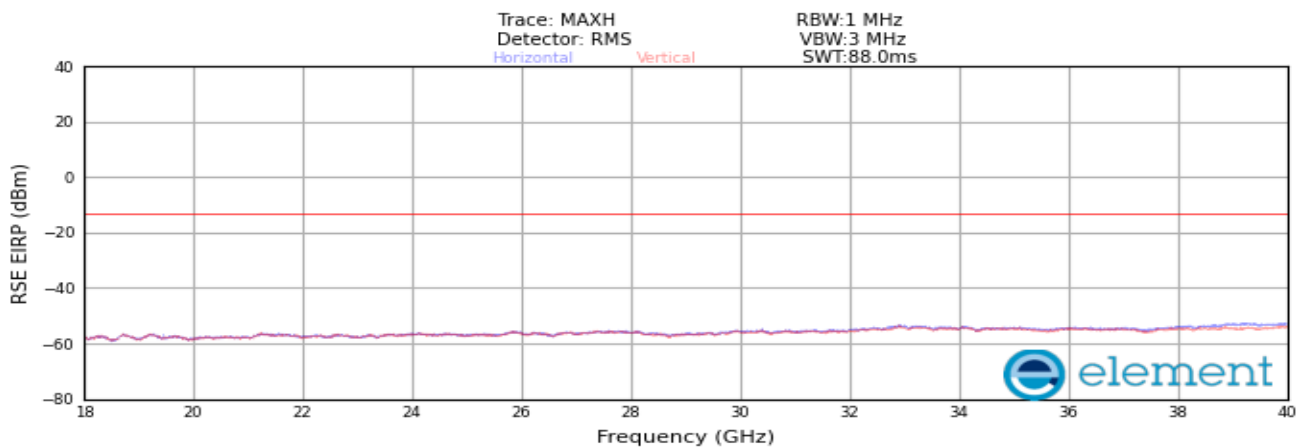
FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K23032101-00-R1.A3L	Test Dates: 04/04/2023 - 05/15/2023	EUT Type: MMU(MT6413)		Page 110 of 137



Plot 8-112. Radiated spurious emission Plot_30 MHz to 1000 MHz (n77_1C_100M_High Channel)



Plot 8-113. Radiated spurious emission Plot_1 GHz to 18 GHz (n77_1C_100M_High Channel)



Plot 8-114. Radiated spurious emission Plot_18 GHz to 40 GHz (n77_1C_100M_High Channel)

FCC ID: A3LMT6413-77A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K23032101-00-R1.A3L	Test Dates: 04/04/2023 - 05/15/2023	EUT Type: MMU(MT6413)		Page 111 of 137