

A.4 Conducted Spurious Emission

A.4.1 Reference

FCC CFR 47 Part 2, Clause 2.1051

FCC CFR 47 Part 27, Clause 27.53(m)

A.4.2 Method of measurement

In accordance with FCC rules, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

The spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 3KHz to 27GHz. The resolution bandwidth of 1MHz was employed for frequency band 3KHz to 27GHz. The spectrum analyzer detector was set to RMS.

For MIMO mode configurations, the limit was adjusted with a correction of -18.06dB [$10\log(1/64)$] by using the Measure and Add $10\log(N)$ dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports. Then the limit was adjust to -31.06dBm.

A.4.3 Measurement limit

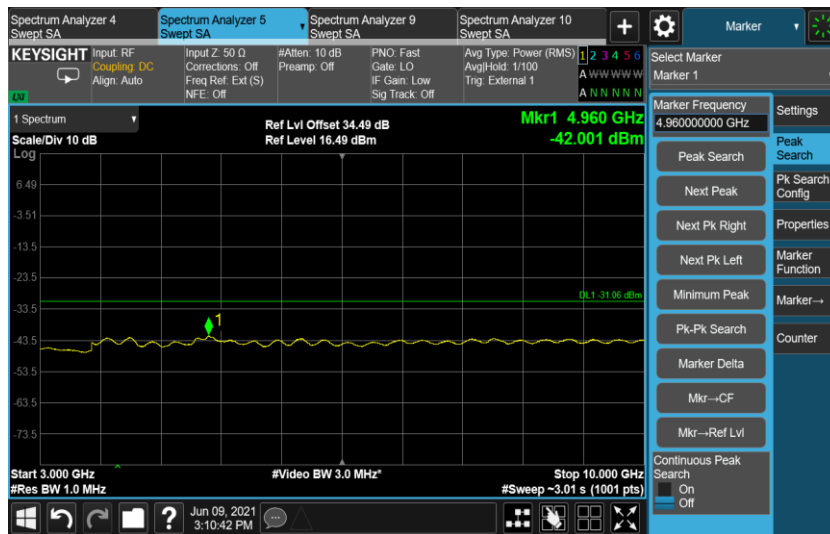
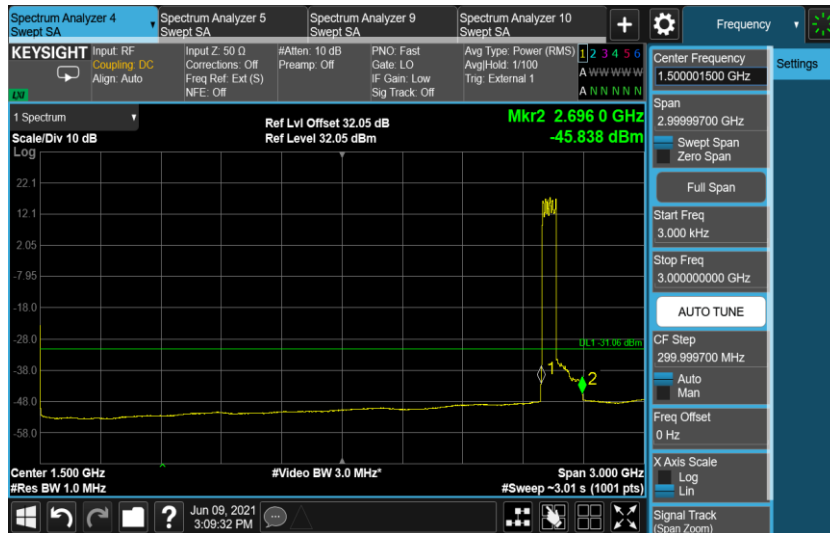
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

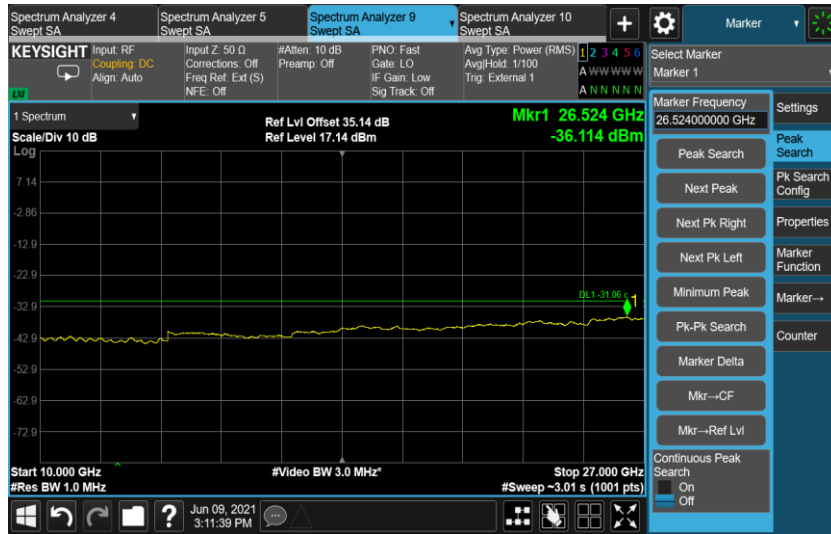
A.4.4 Measurement results

Configuration NR-MIMO-1C 16QAM

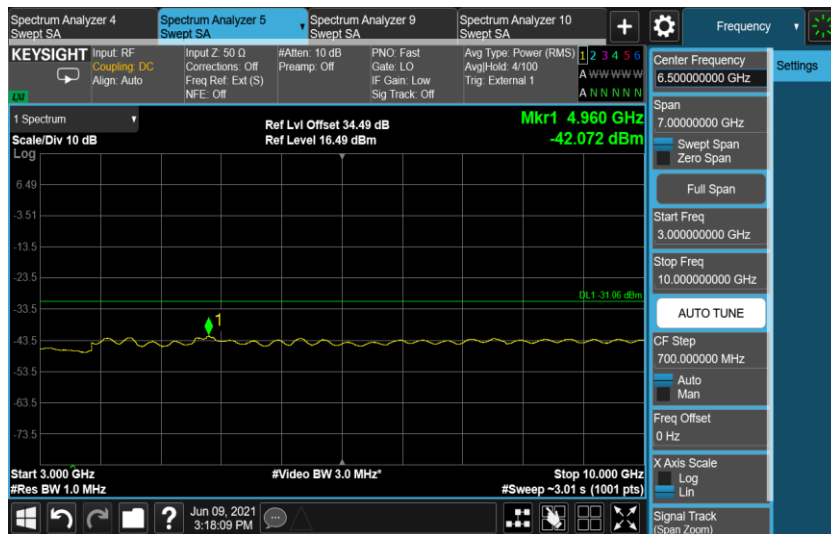
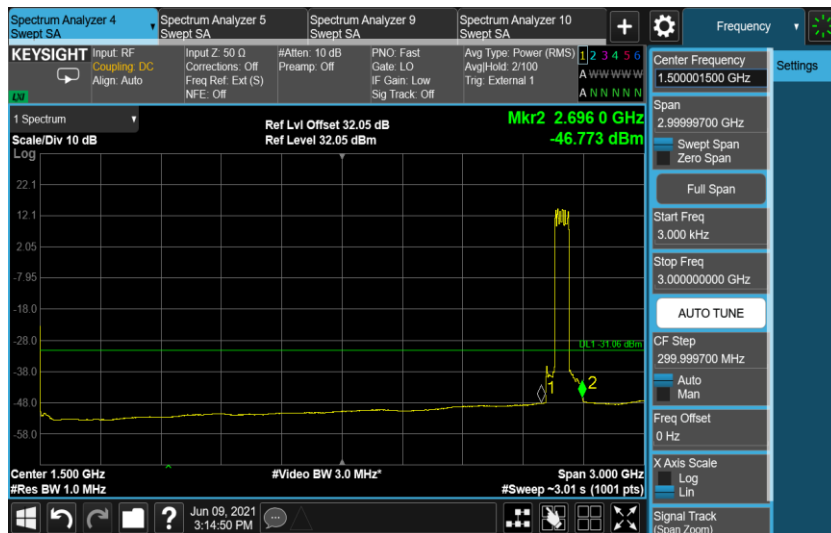
Channel Bandwidth	RBW (MHz)	Limit (dBm)
70.0 MHz	1.0	-31.06

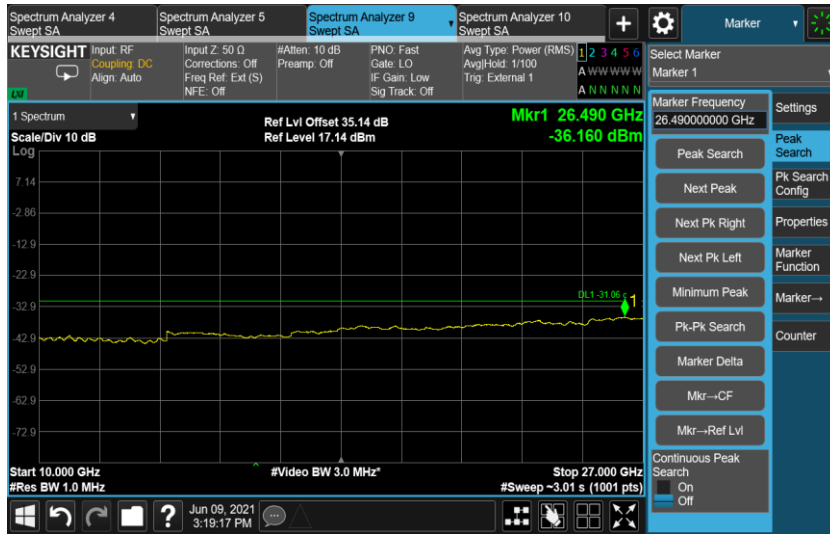
Port 10, Channel Position B



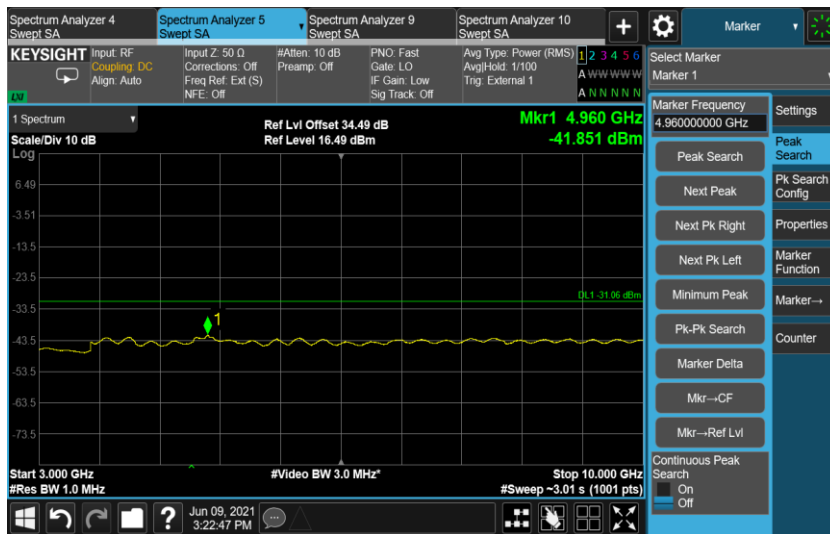
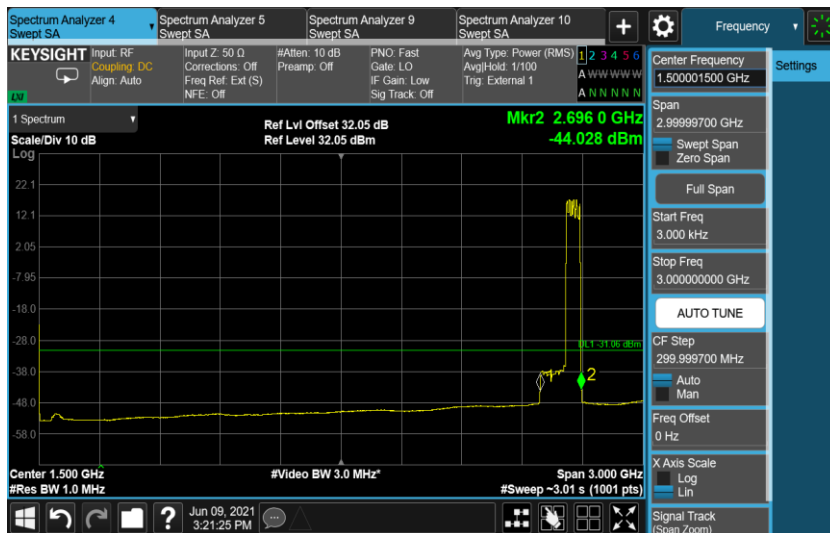


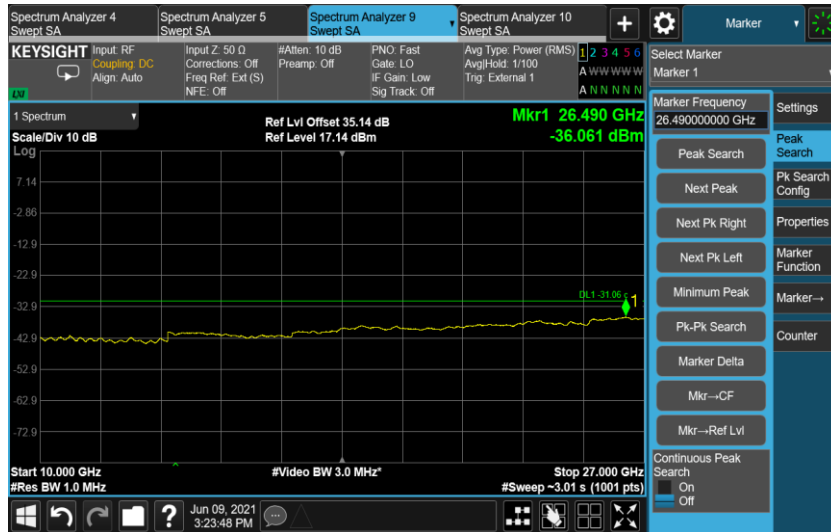
Port 10, Channel Position M





Port 10, Channel Position T

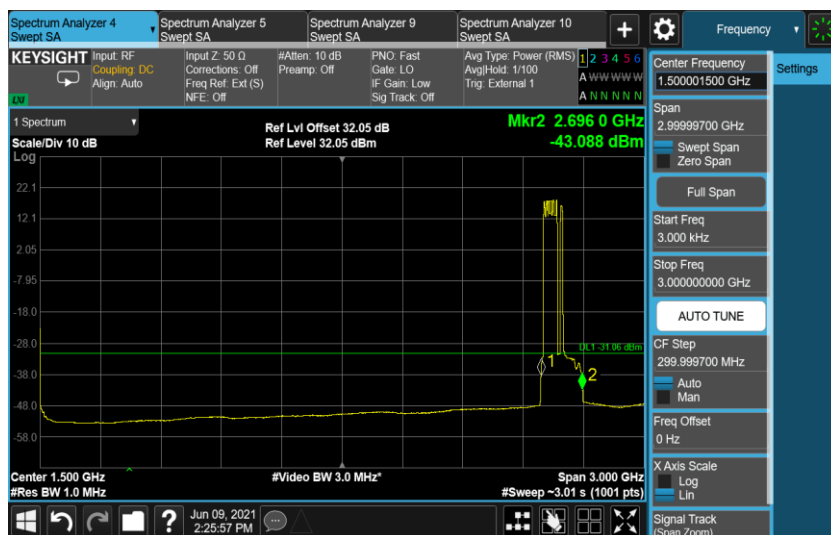


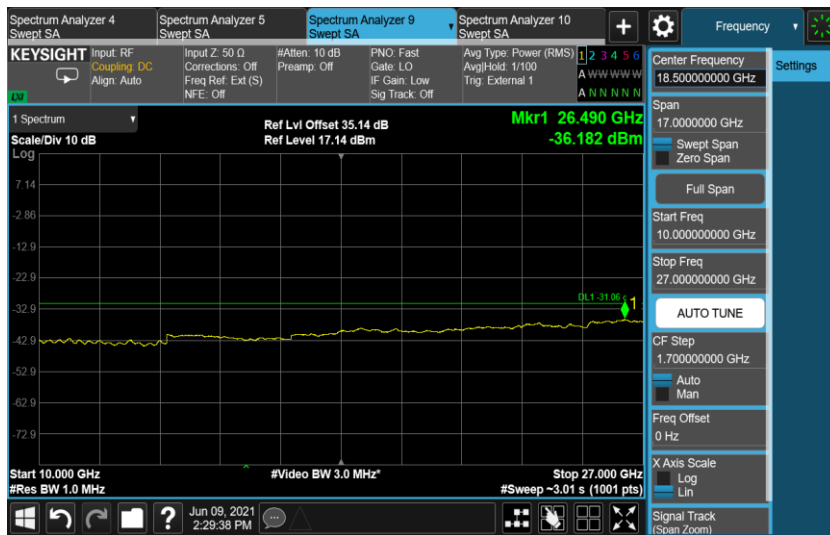


Configuration LTE+NR-MIMO-MC-1 (1LTE QPSK+1NR 16QAM)

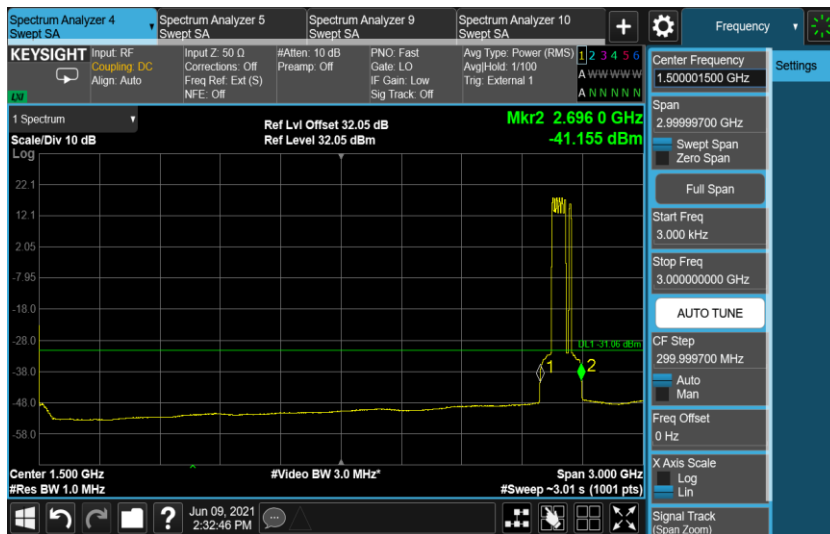
Channel Bandwidth	RBW (MHz)	Limit (dBm)
L: 10.0 MHz NR: 70.0 MHz	1.0	-31.06
L: 20.0 MHz NR: 70.0 MHz	1.0	-31.06

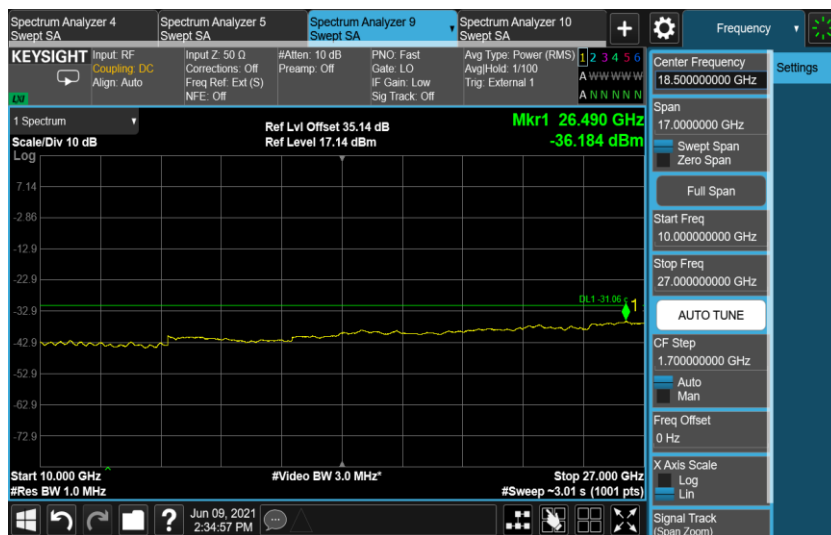
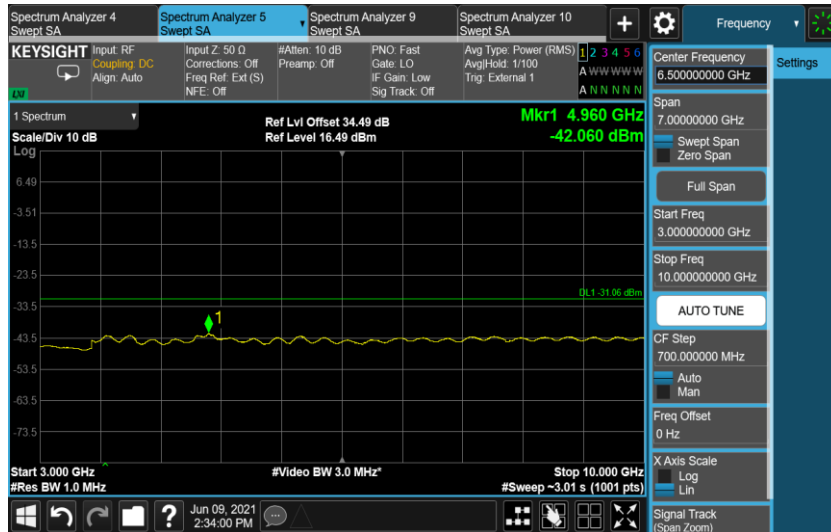
Port 10, Channel Position B, L 10.0 MHz, NR 70.0 MHz



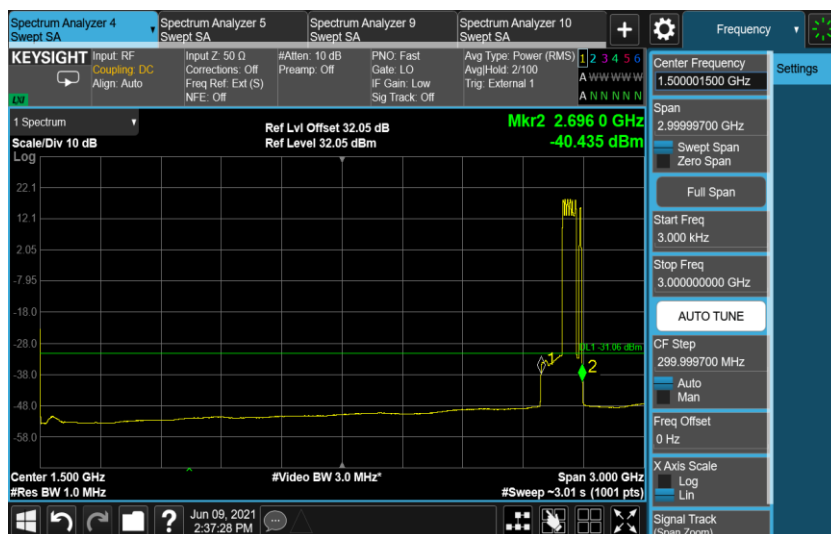


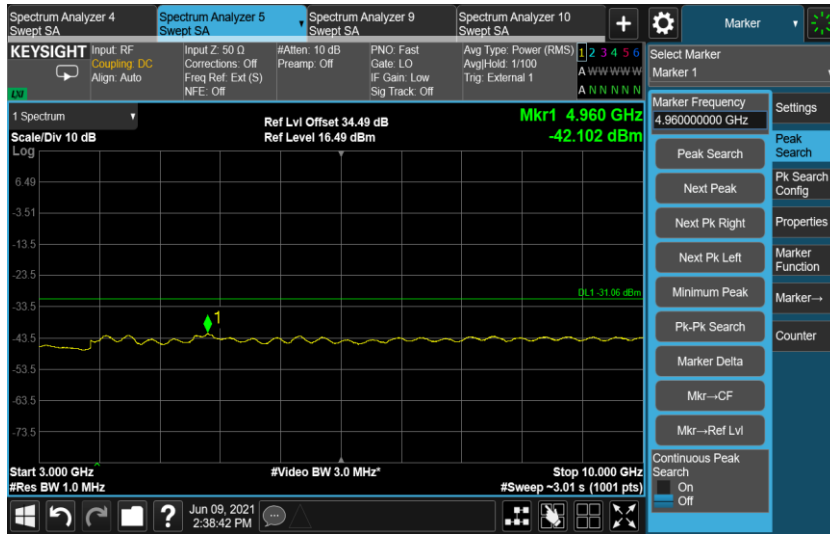
Port 10, Channel Position M, L 10.0 MHz, NR 70.0 MHz



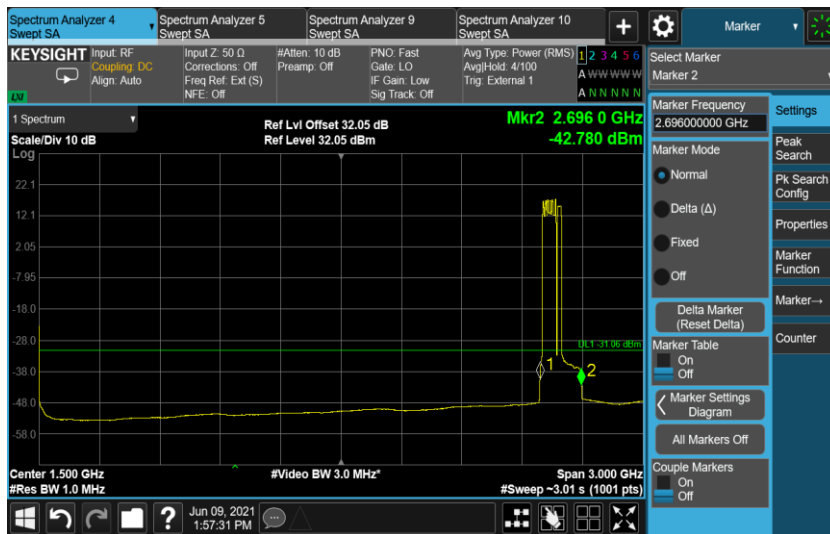


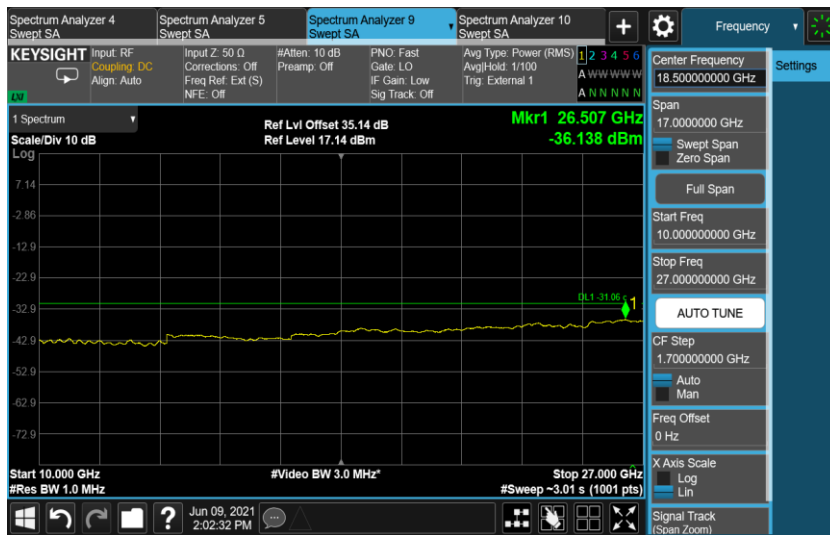
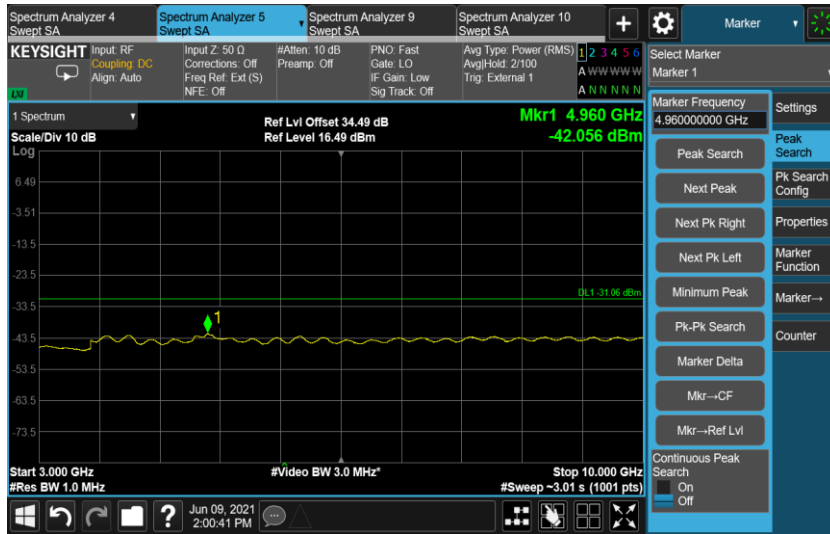
Port 10, Channel Position T, L 10.0 MHz, NR 70.0 MHz



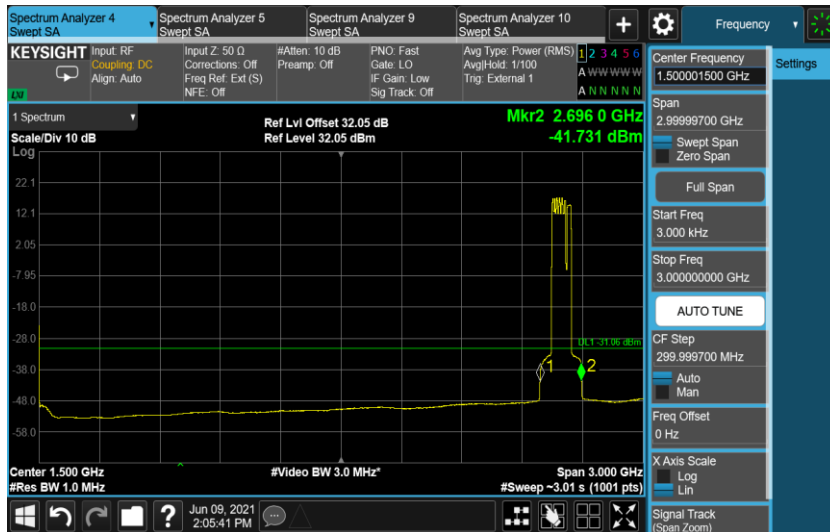


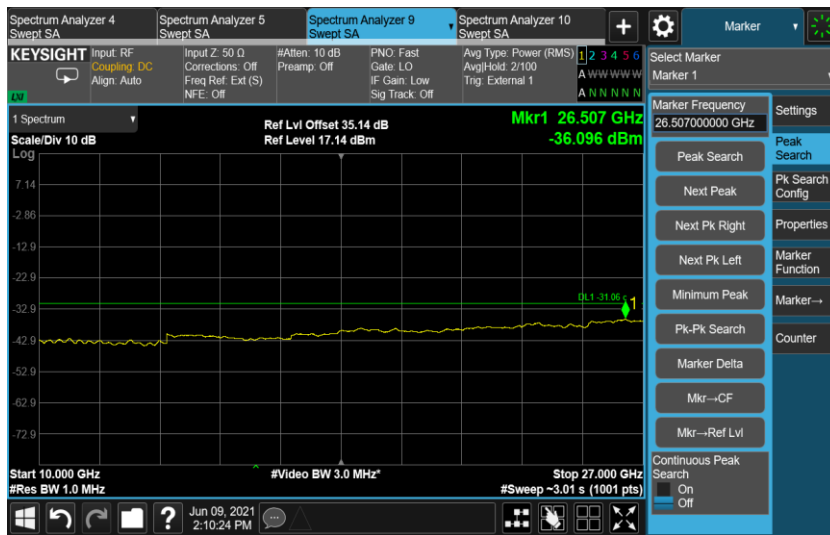
Port 10, Channel Position B, L 20.0 MHz, NR 70.0 MHz



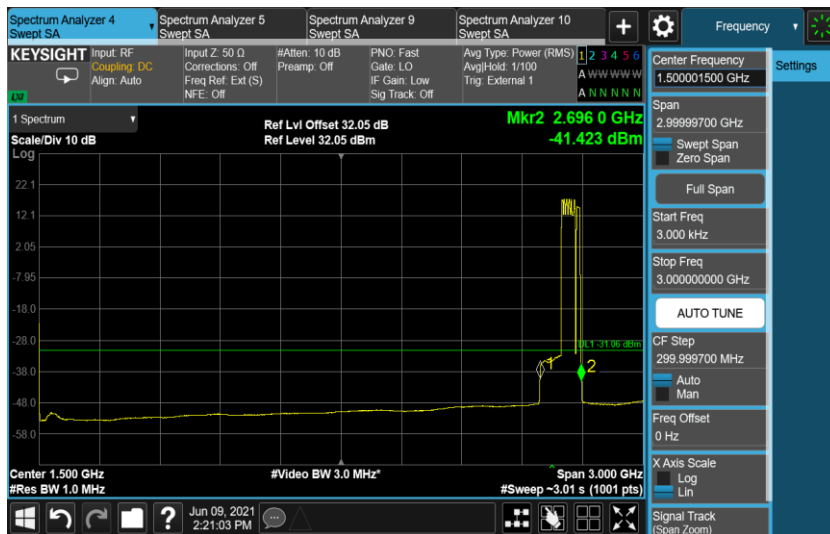


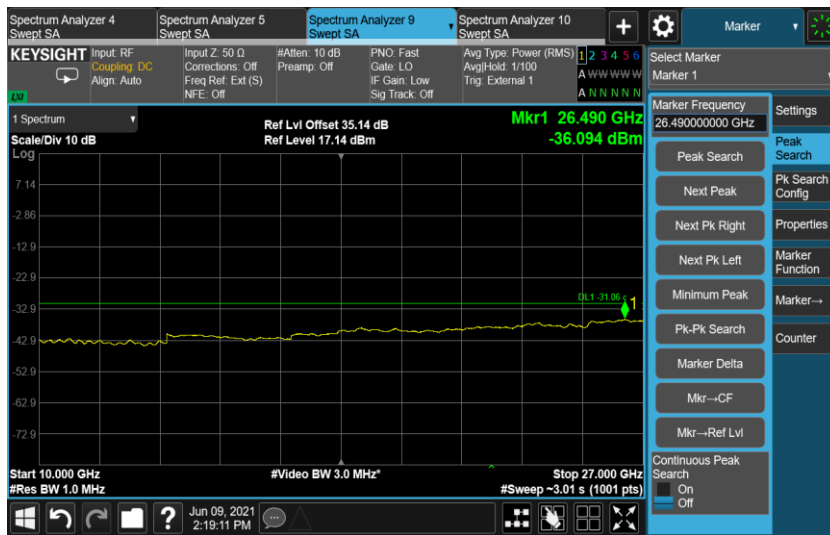
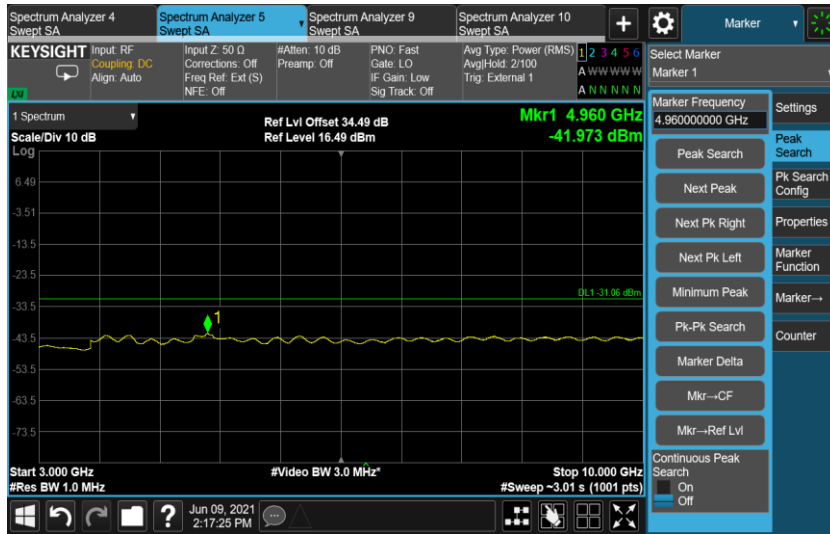
Port 10, Channel Position M, L 20.0 MHz, NR 70.0 MHz





Port 10, Channel Position T, L 20.0 MHz, NR 70.0 MHz





A.5 Frequency Stability

A.6.1 Reference

FCC CFR 47 Part 2, Clause 2.1055

FCC CFR 47 Part 27, Clause 27.54

A.6.2 Method of measurement

Temperature Variation

The EUT was tested over the temperature range -30°C to +50°C in 10°C steps with -48 VDC Power Supply. At each temperature step, the Base Station was configured to transmit a [RAT]* at maximum power on the bottom, middle and top channel of the operating band. After achieving thermal balance, the averages of 200 transmission bursts were measured and the result recorded.

Voltage Variation

The EUT was tested at the supplied voltages varied from 85 to 115 percent of the nominal value of -48 VDC. At +20°C, the Base Station was configured to transmit a [RAT]* at maximum power on the bottom, middle and top channel of the operating band. The average of 200 transmission bursts was measured and the result recorded.

[RAT]*:

NR – 16QAM modulation

A.6.3 Measurement limit

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

A.6.4 Measurement results

Frequency Error – Temperature Variation

Configuration NR-MIMO-1C 70.0M, 16QAM

Maximum Output Power 34.95dBm per port, Channel Bandwidth 70MHz

Supply Voltage DC(V)	Temperature	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
-48	-30	7.28	4.76	9.52
	-20	8.51	-3.68	10.26
	-10	-7.31	8.52	6.39
	0	3.94	5.76	1.63
	10	9.35	6.55	2.89
	20	6.11	3.15	9.25
	30	2.43	5.93	6.51
	40	8.19	5.37	9.62
	50	9.45	3.57	6.95

Frequency Error – Voltage Variation

Configuration NR-MIMO-1C 70.0M, 16QAM

Maximum Output Power 34.95dBm per port, Channel Bandwidth 70MHz

Supply Voltage DC(V)	Temperature(°C)	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
-40.8	20	4.82	6.58	9.59
-55.2	20	7.41	7.31	6.91

ANNEX B: Accreditation Certificate

United States Department of Commerce National Institute of Standards and Technology	
	
<hr/> Certificate of Accreditation to ISO/IEC 17025:2017 <hr/>	
NVLAP LAB CODE: 600118-0	
Telecommunication Technology Labs, CAICT Beijing China	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
Electromagnetic Compatibility & Telecommunications	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i>	
2020-09-29 through 2021-09-30 <i>Effective Dates</i>	  <i>For the National Voluntary Laboratory Accreditation Program</i>

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