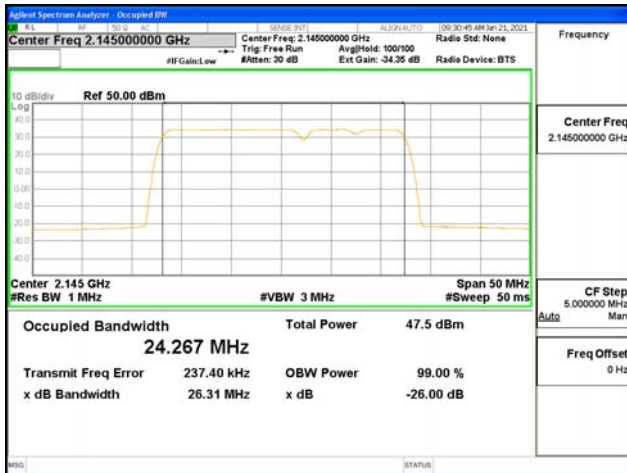
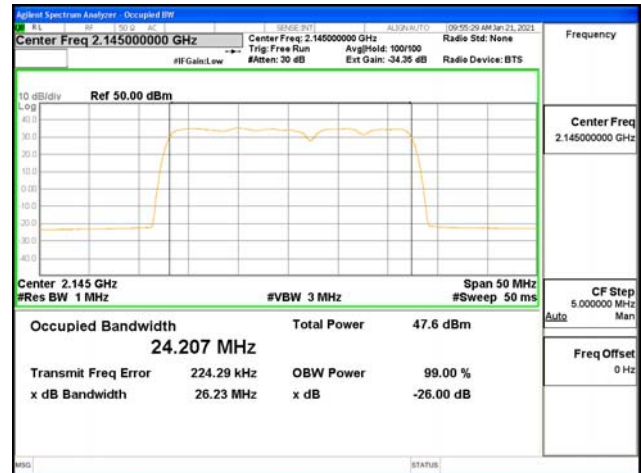


ANT 3

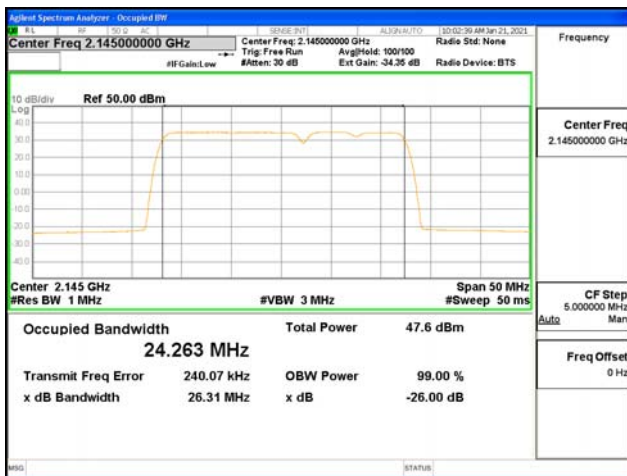
QPSK



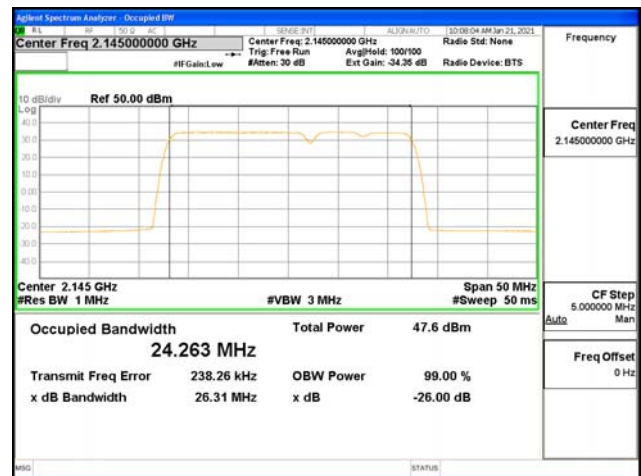
16QAM



64QAM

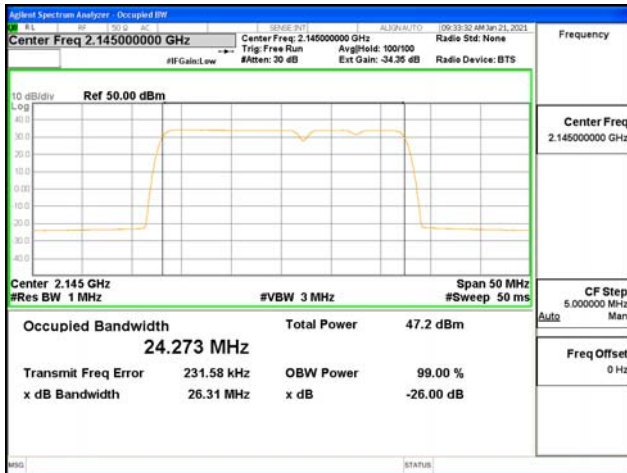


256QAM

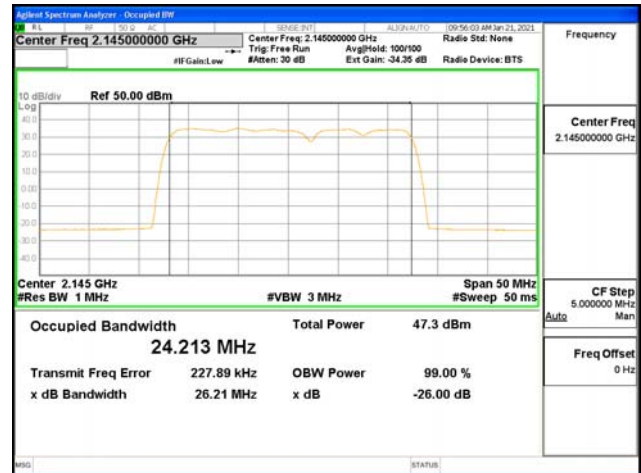


ANT 4

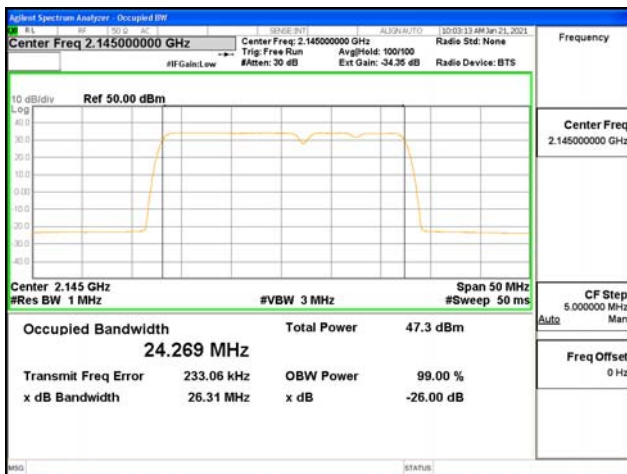
QPSK



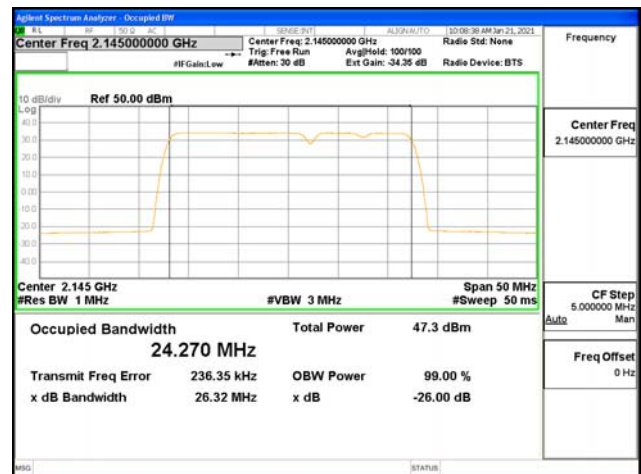
16QAM



64QAM

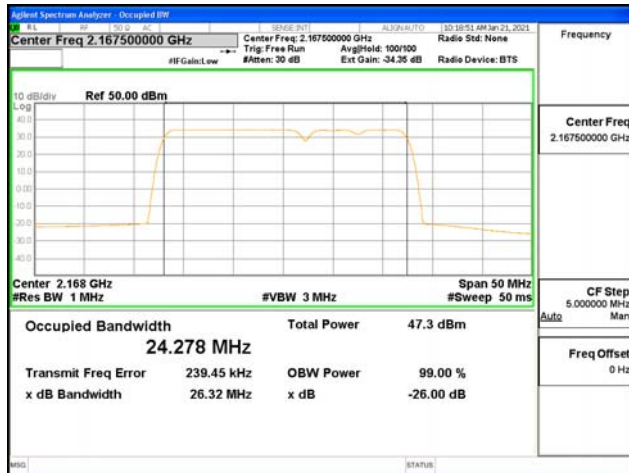


256QAM

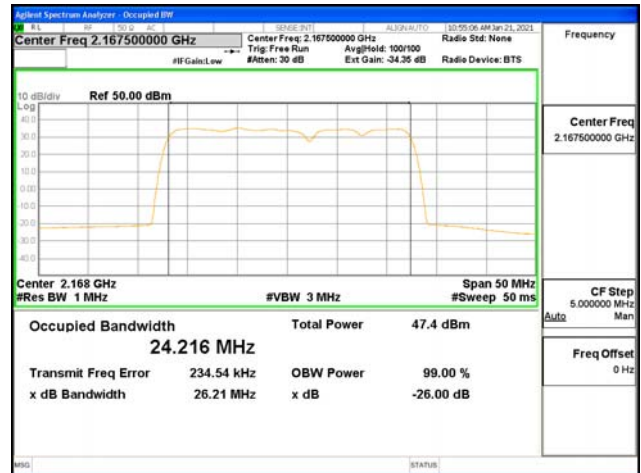


**BW 15MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 4Tx, Top
ANT 1**

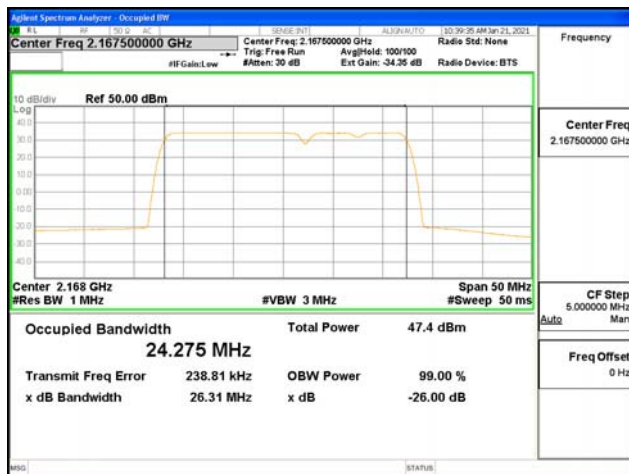
QPSK



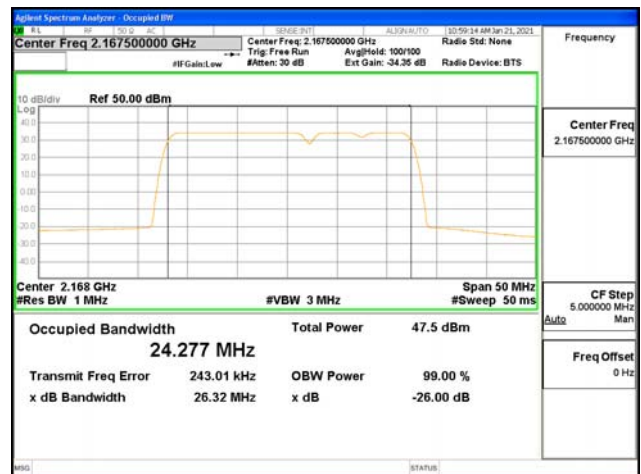
16QAM



64QAM

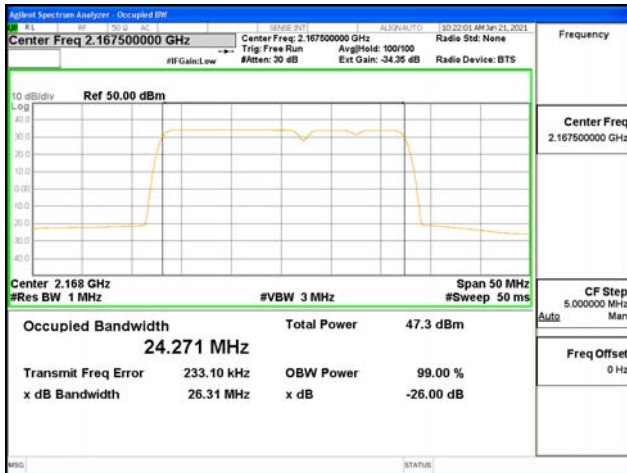


256QAM

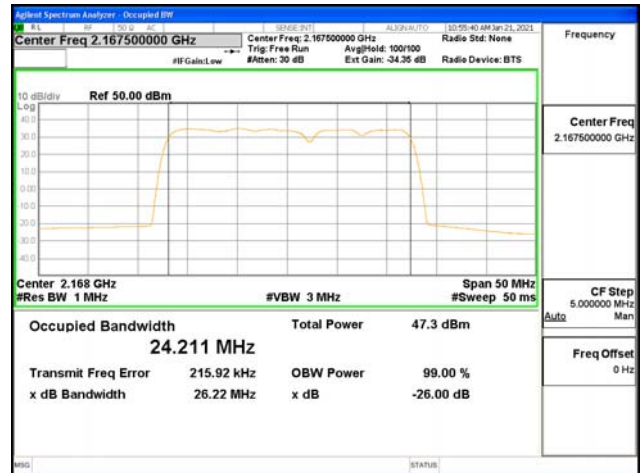


ANT 2

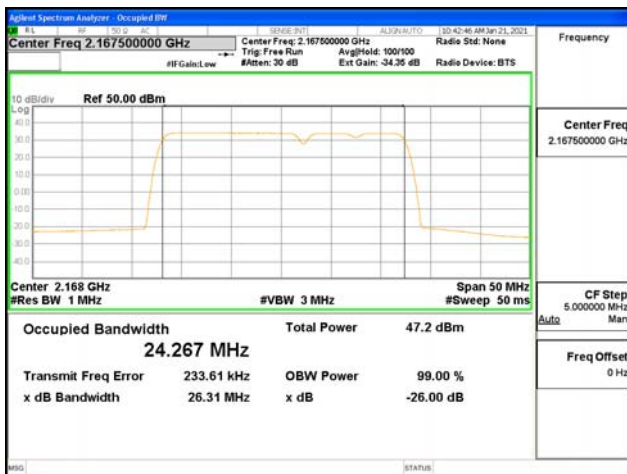
QPSK



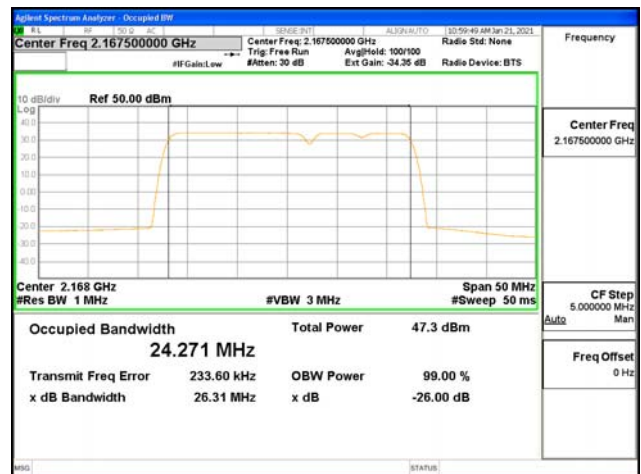
16QAM



64QAM

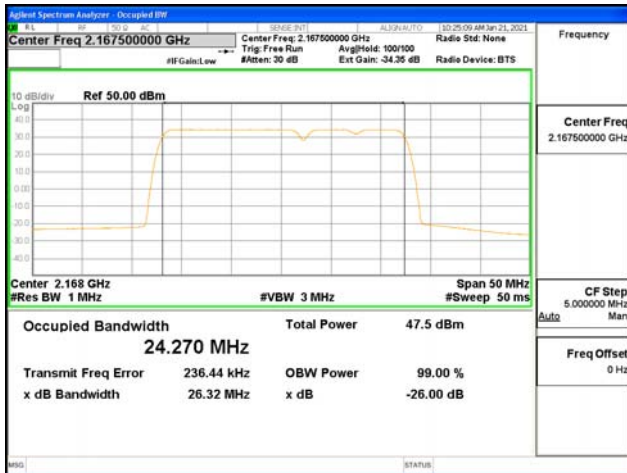


256QAM

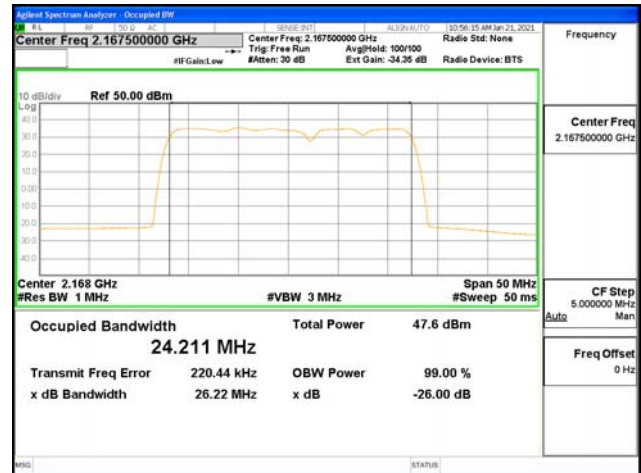


ANT 3

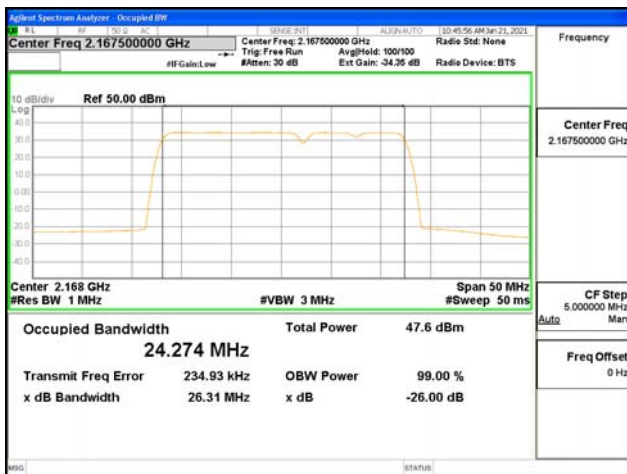
QPSK



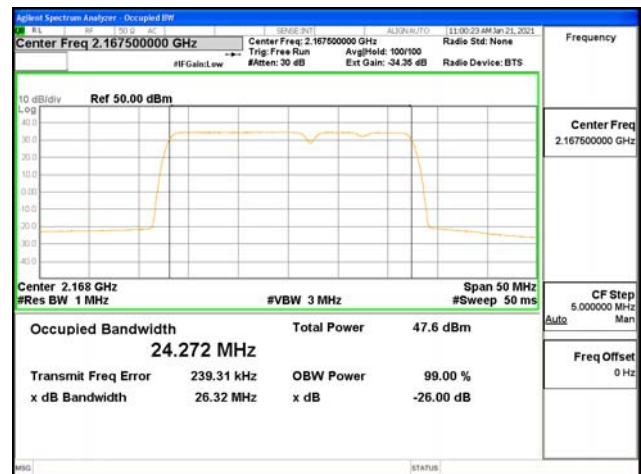
16QAM



64QAM

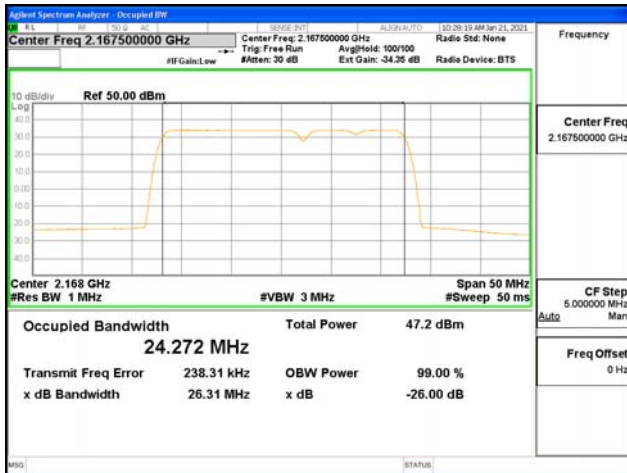


256QAM

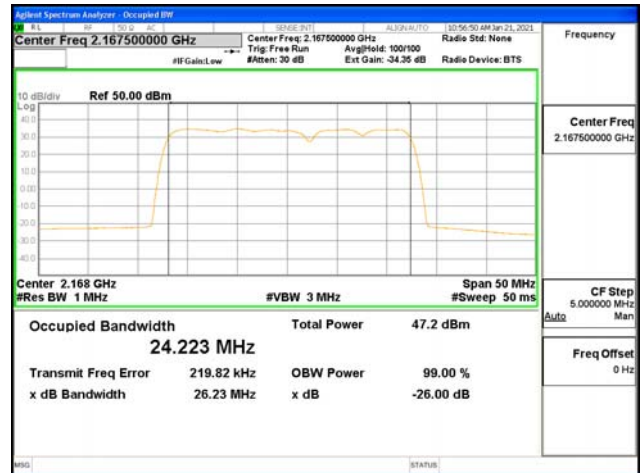


ANT 4

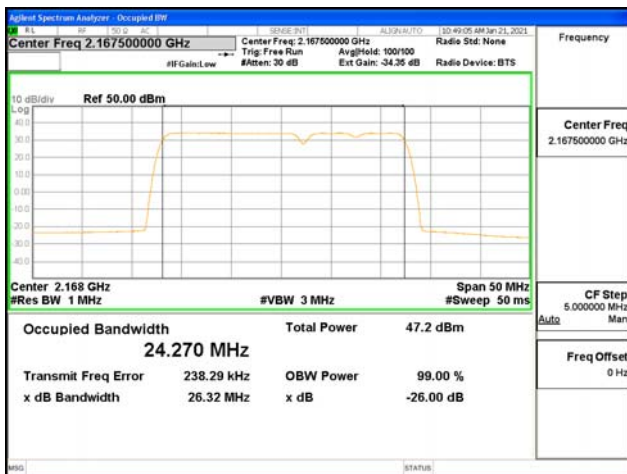
QPSK



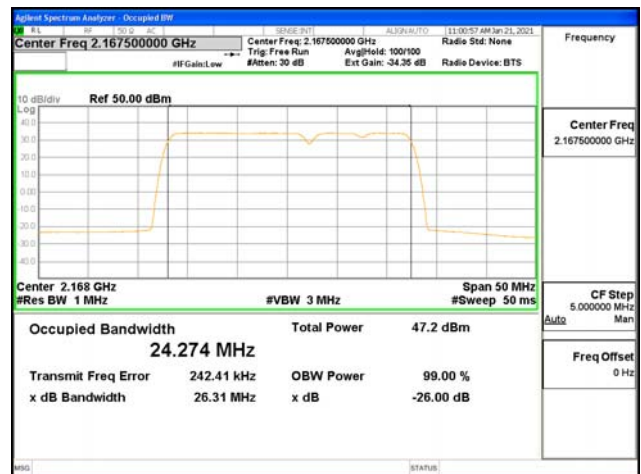
16QAM



64QAM

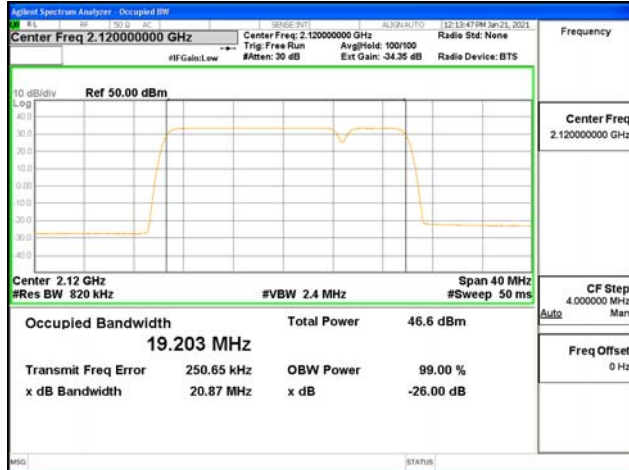


256QAM

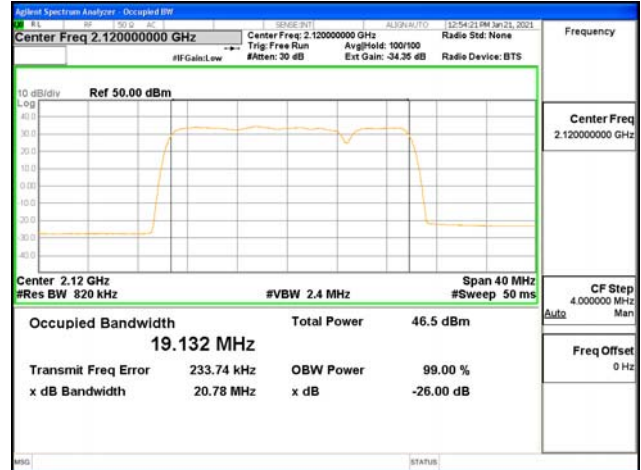


**BW 15MHz+5MHz+5MHz, Multi 3 carrier(Non-Contiguous), 4Tx, Bottom
ANT 1**

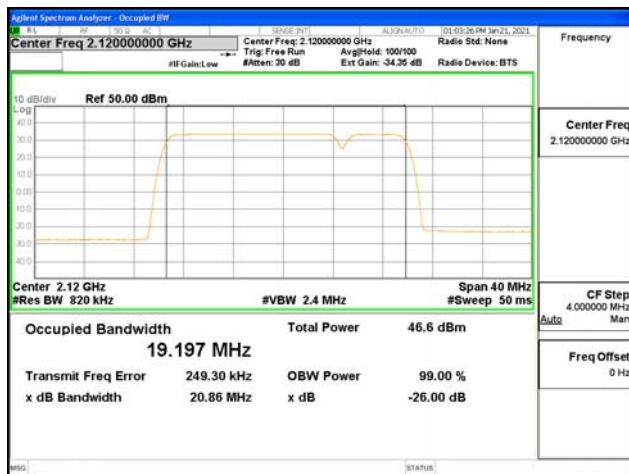
QPSK



16QAM



64QAM

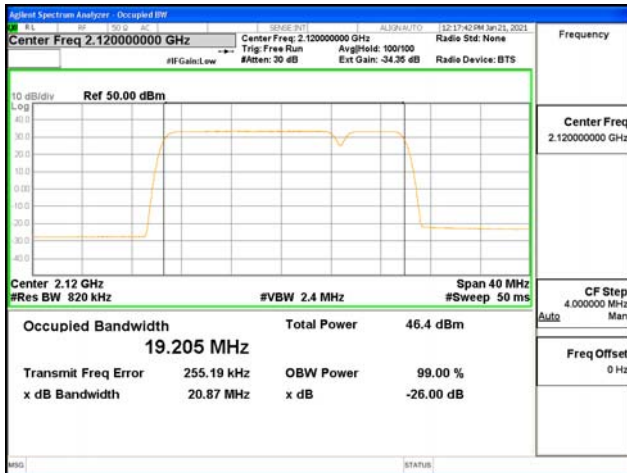


256QAM

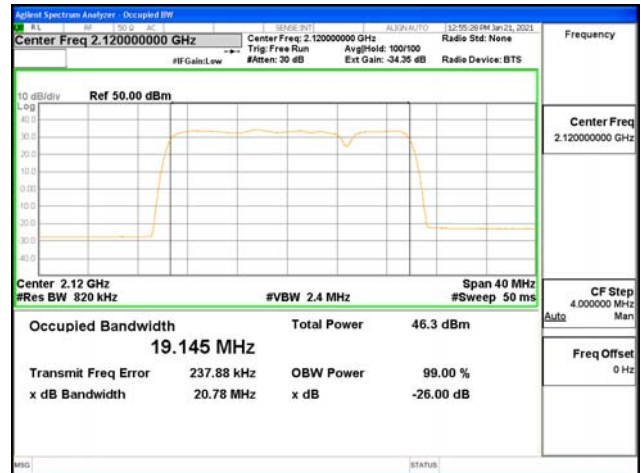


ANT 2

QPSK



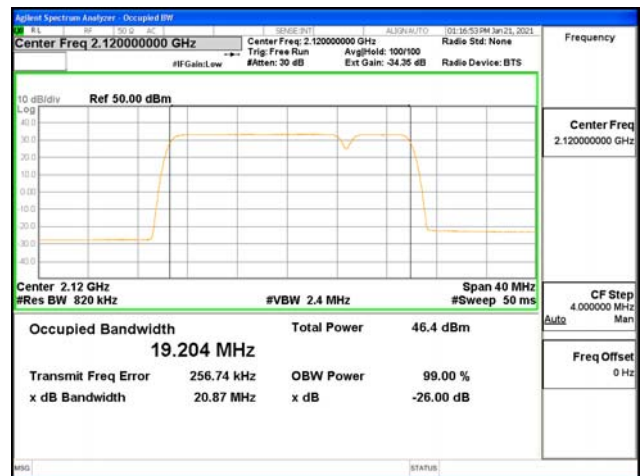
16QAM



64QAM



256QAM

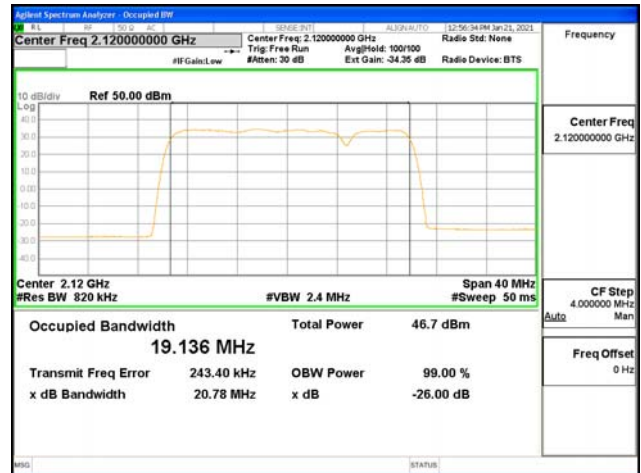


ANT 3

QPSK



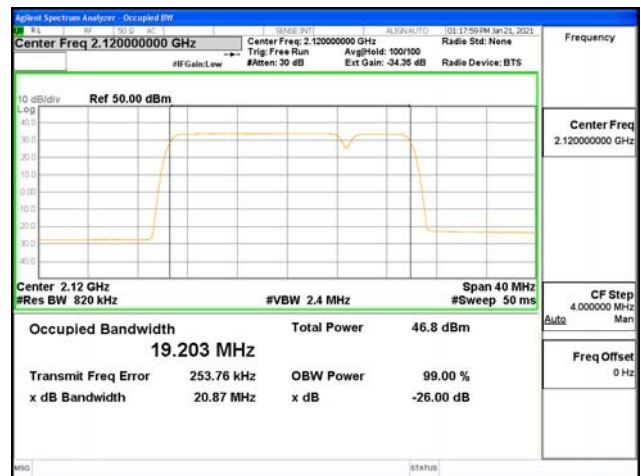
16QAM



64QAM

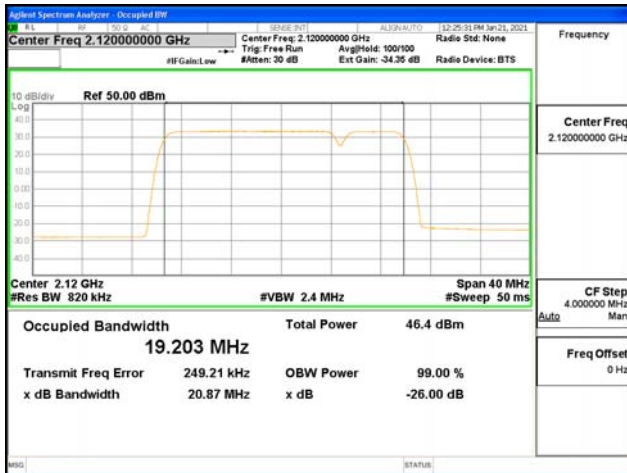


256QAM

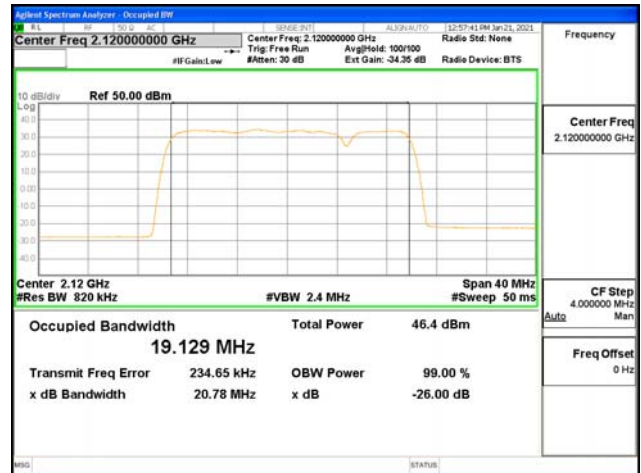


ANT 4

QPSK



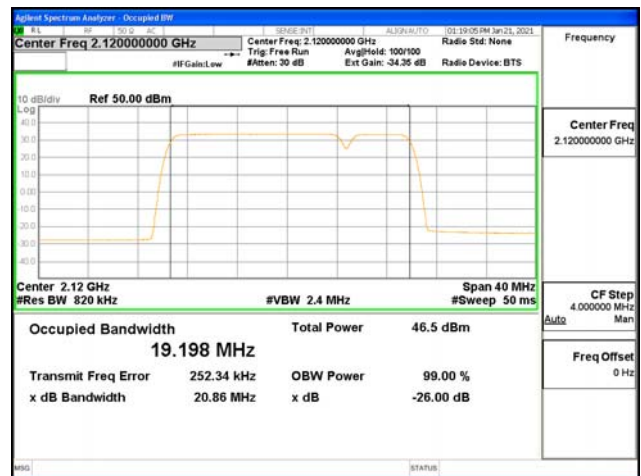
16QAM



64QAM

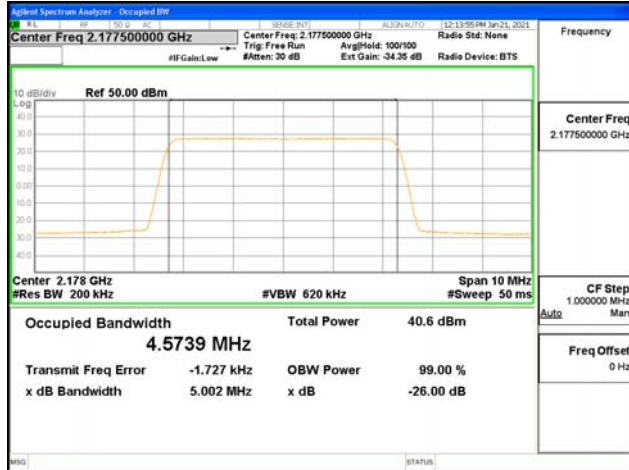


256QAM



**BW 15MHz+5MHz+5MHz, Multi 3 carrier(Non-Contiguous), 4Tx, Top
ANT 1**

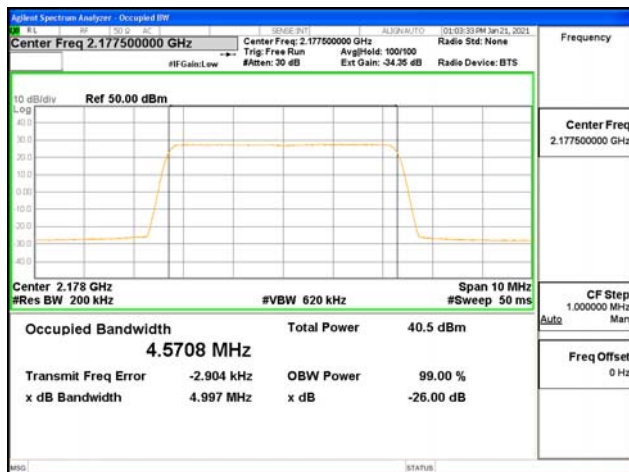
QPSK



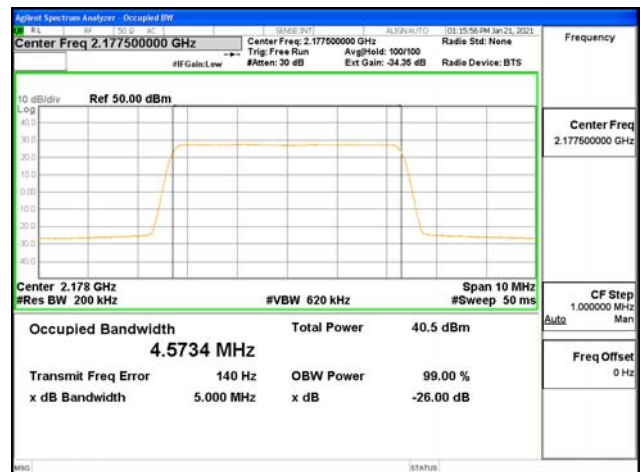
16QAM



64QAM

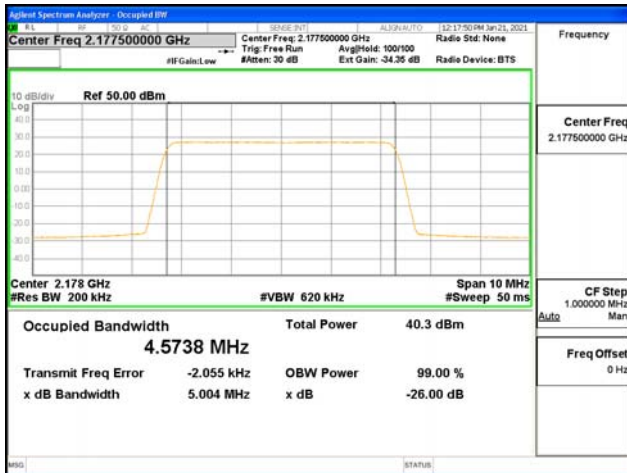


256QAM

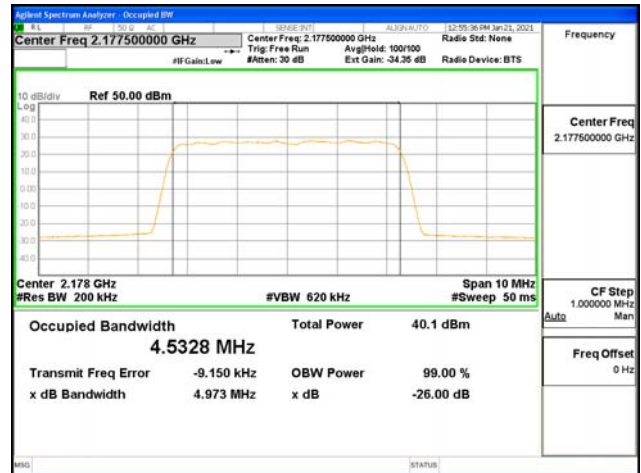


ANT 2

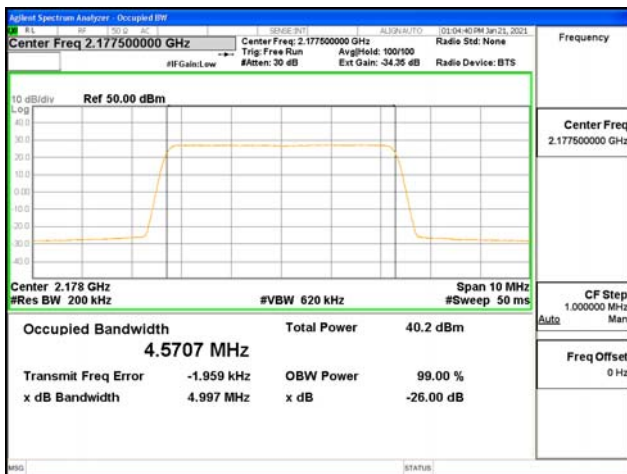
QPSK



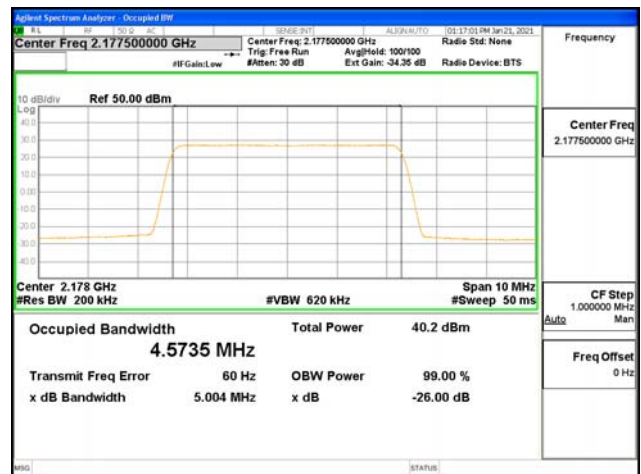
16QAM



64QAM

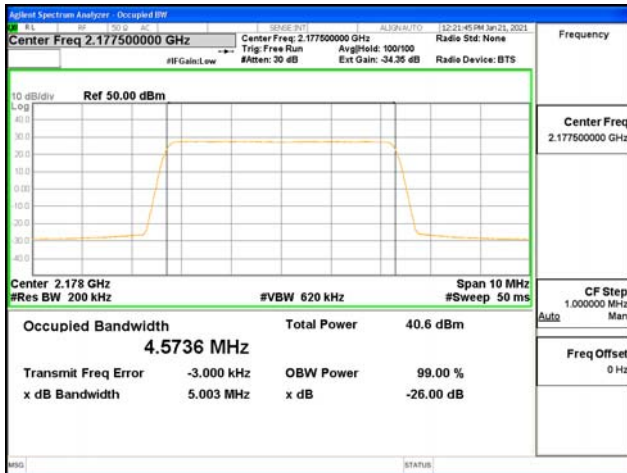


256QAM

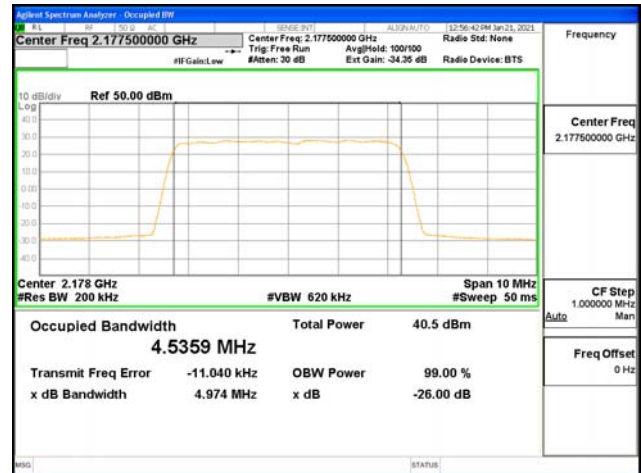


ANT 3

QPSK



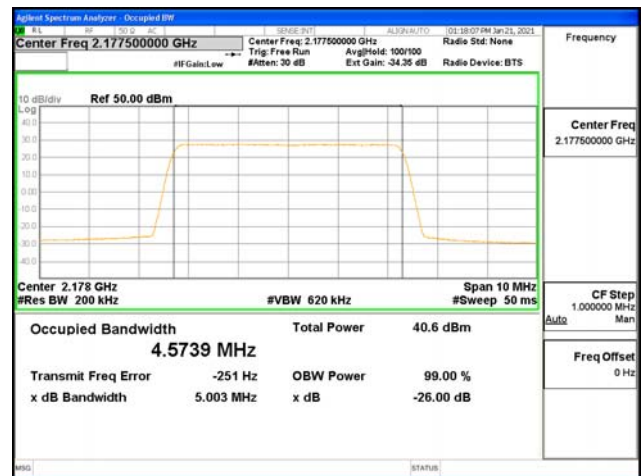
16QAM



64QAM

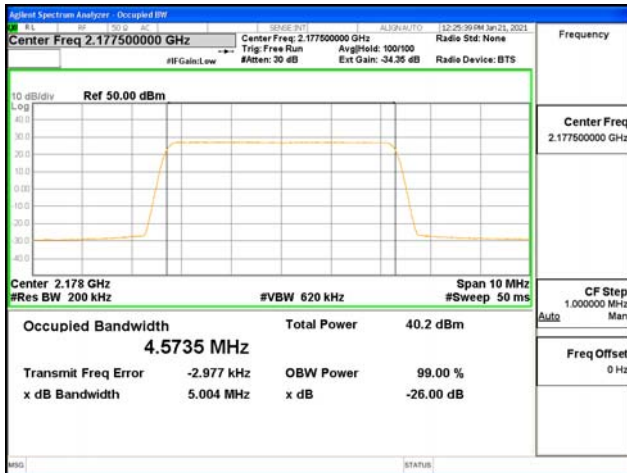


256QAM

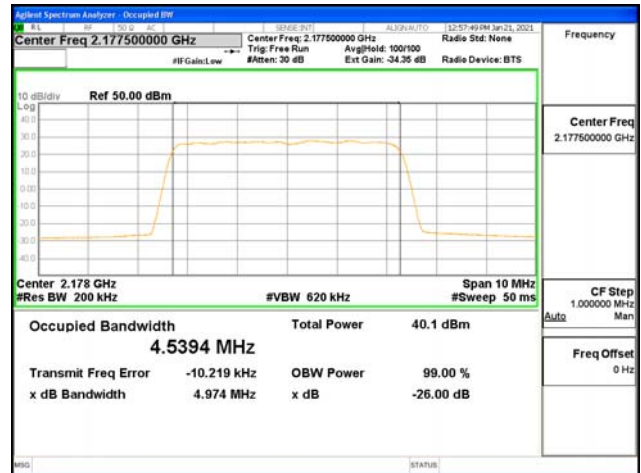


ANT 4

QPSK



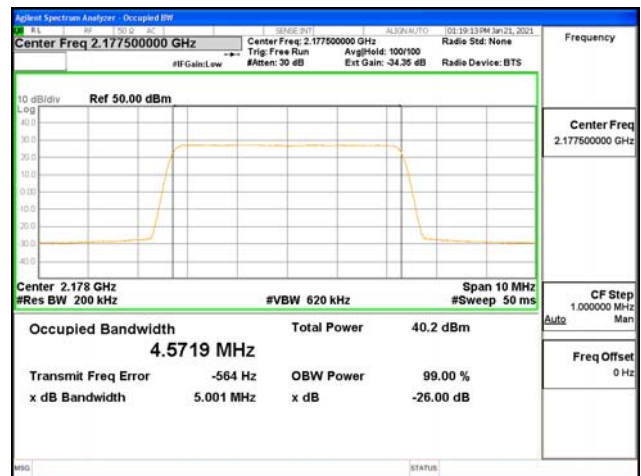
16QAM



64QAM



256QAM



 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2021-00288 Page (239) / (428) Pages	
---	--	--	--

6. Spurious Emission at Antenna Terminal

§ 27.53 Emission limits

(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

Test Procedures :

The RF Output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 kHz(below 1 GHz), 1 MHz(Above 1 GHz). Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2021-00288 Page (240) / (428) Pages	
---	--	--	--

Notes :

1. In 9 kHz - 10 kHz and 150 kHz - 30 MHz bands, RBW was reduced to 1% and 10% of the reference bandwidth for measuring unwanted emission level (typically, 100 kHz if the authorized frequency band is below 1 GHz) and power was integrated. (1% = +20 dB, 10% = +10 dB)
2. Due to 2 x 2 MIMO operation, limit is **-16.01 dBm** (-13 dBm - 10*Log(2)) per KDB Publication 662911 D01 Multiple Transmitter Output v02r01.
Due to 4 x 4 MIMO operation, limit is **-19.02 dBm** (-13 dBm - 10*Log(4)) per KDB Publication 662911 D01 Multiple Transmitter Output v02r01.
3. The highest power level measured in a narrower RBW (relative to the specified reference bandwidth) can be scaled by applying a correction factor determined from: $10 \log [(reference\ bandwidth) / (resolution\ or\ measurement\ bandwidth)]$.

Example : Band Edge correction factor: $10 \log(1MHz / 100kHz)$

Adding band edge correction factor value and result value dose not exceed the reference value.

4. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its at maximum power, and at the appropriate frequencies.

All modulation types were investigated to determine the worst case configuration.

All modulation types of operation were investigated and the worst case configuration results are reported in this section. (Worst case : QPSK, 64QAM)

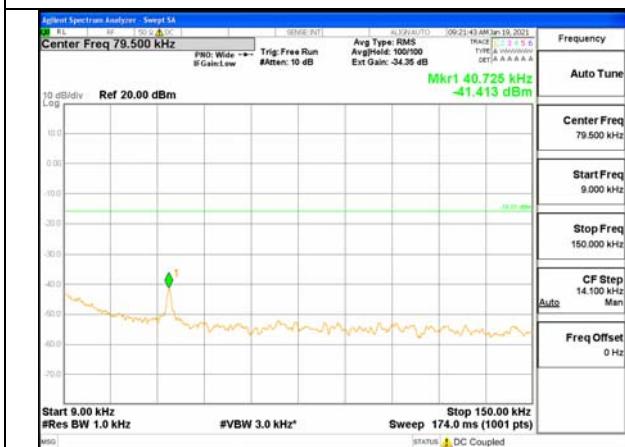
Spurious Emissions at antenna terminal

BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Bottom

ANT 1

[QPSK]

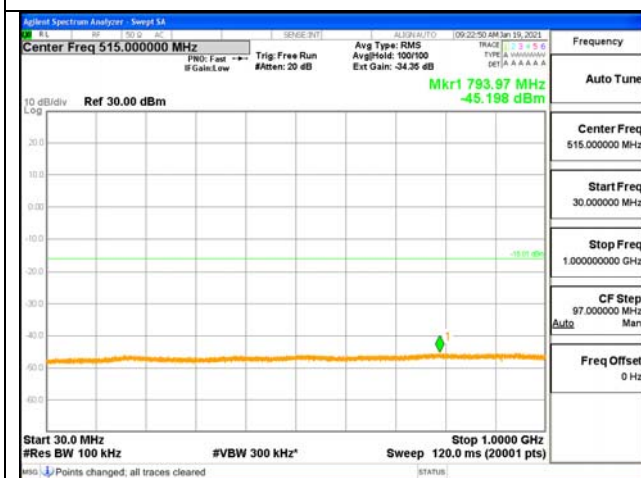
9 kHz - 150 kHz



150 kHz - 30 MHz



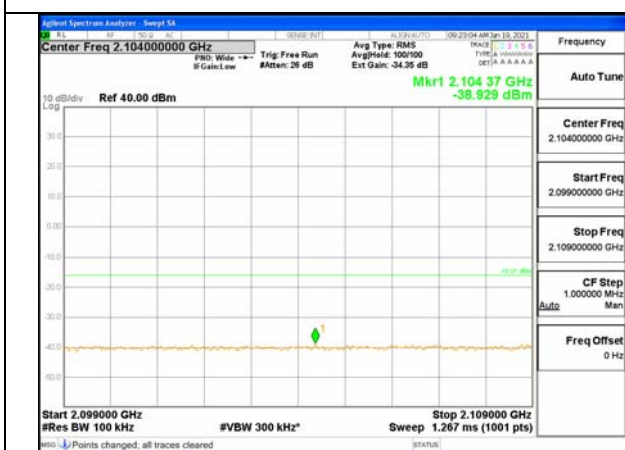
30 MHz - 1 000 MHz



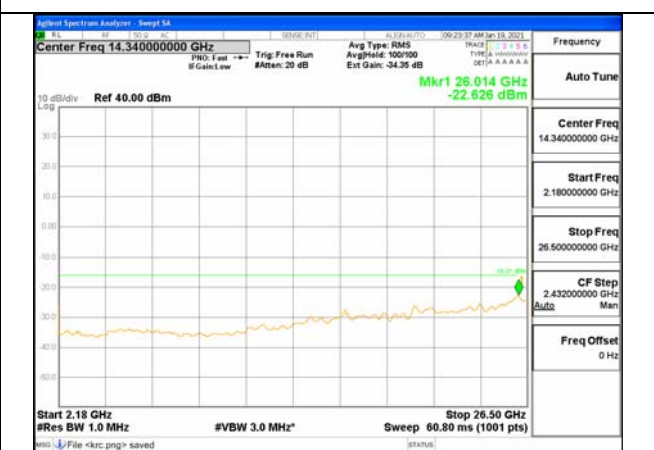
1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2180 MHz - 26.5 GHz

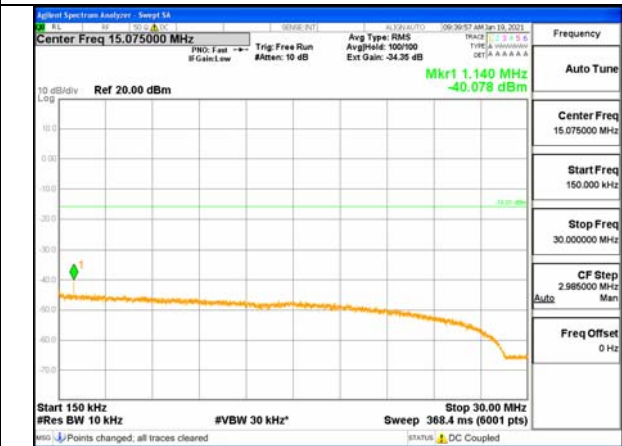


[64QAM]

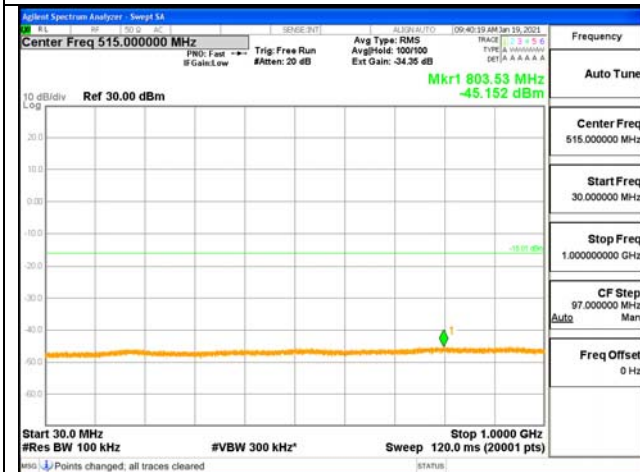
9 kHz - 150 kHz



150 kHz - 30 MHz



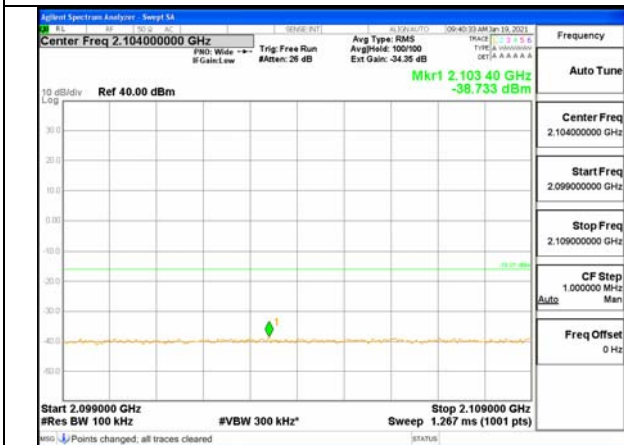
30 MHz - 1 000 MHz



1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2180 MHz - 26.5 GHz

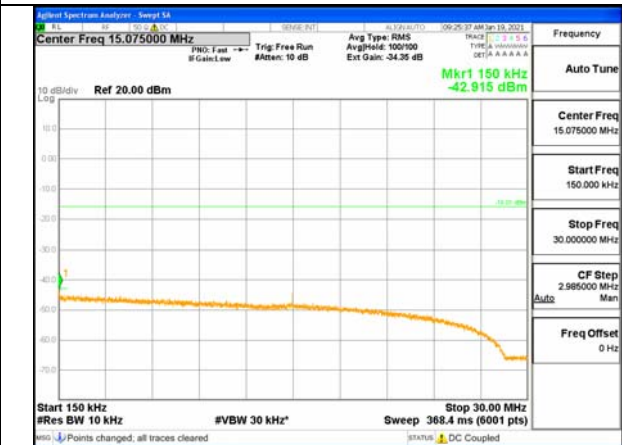


ANT 2
[QPSK]

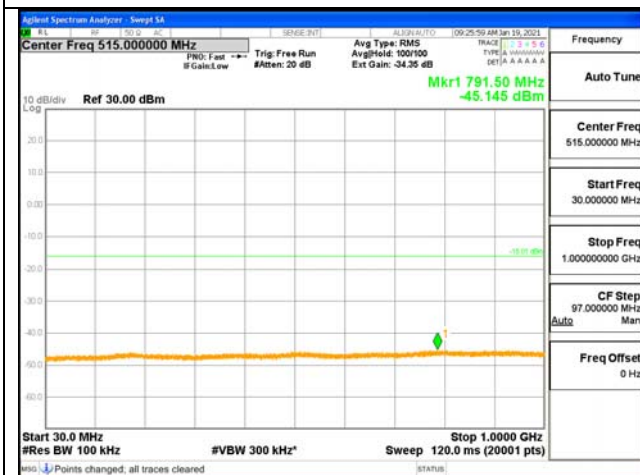
9 kHz - 150 kHz



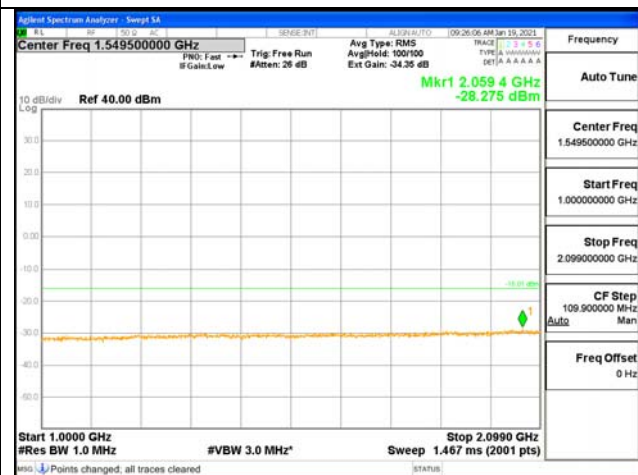
150 kHz - 30 MHz



30 MHz - 1 000 MHz



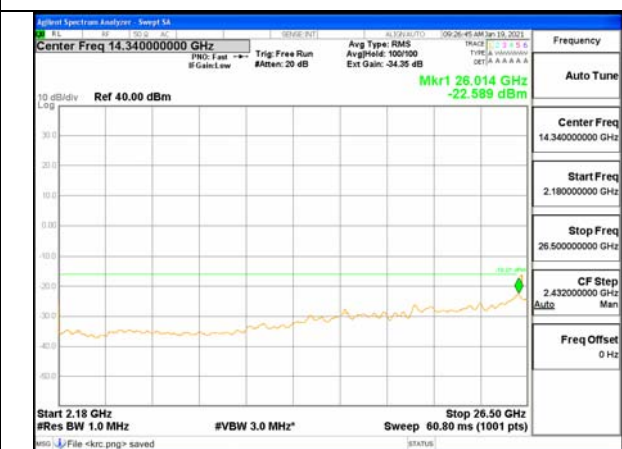
1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2180 MHz - 26.5 GHz

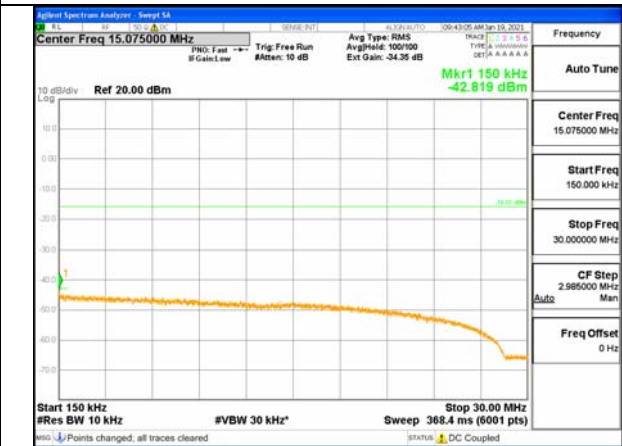


[64QAM]

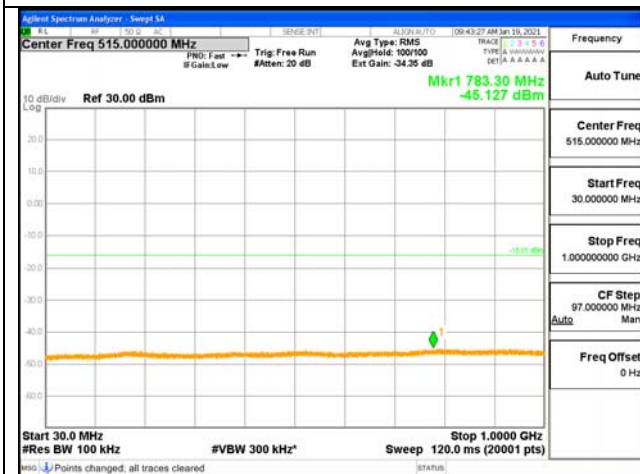
9 kHz - 150 kHz



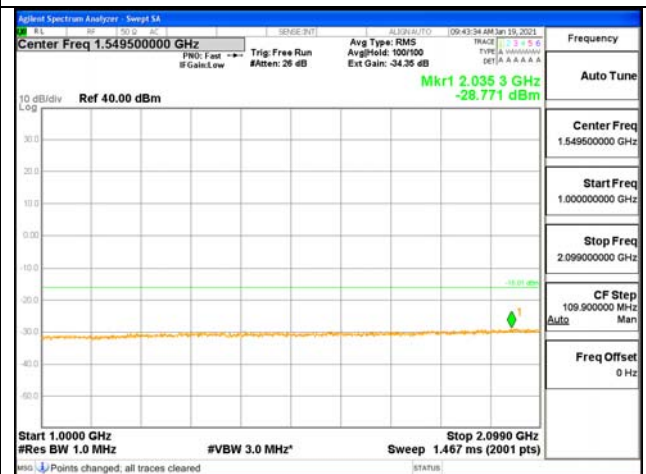
150 kHz - 30 MHz



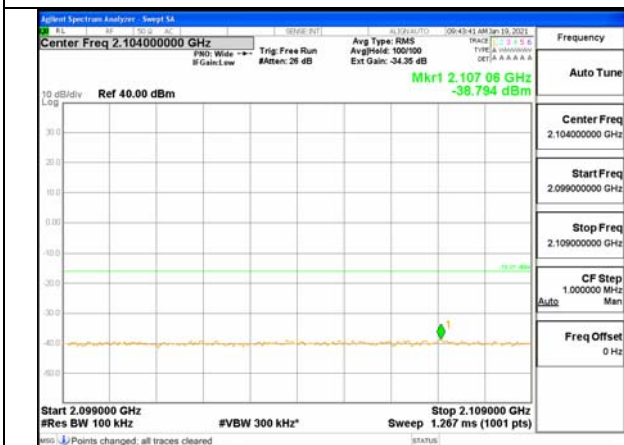
30 MHz - 1 000 MHz



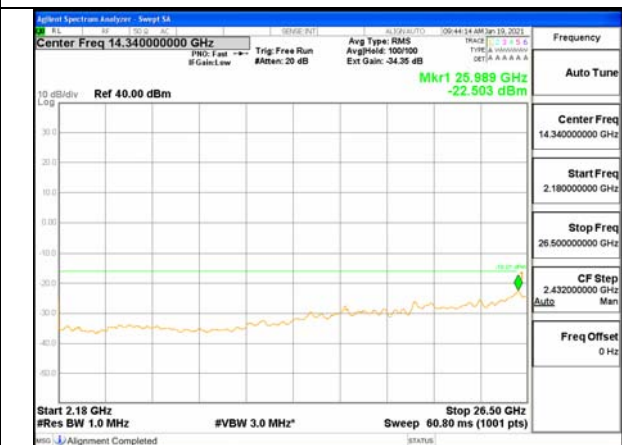
1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2180 MHz - 26.5 GHz

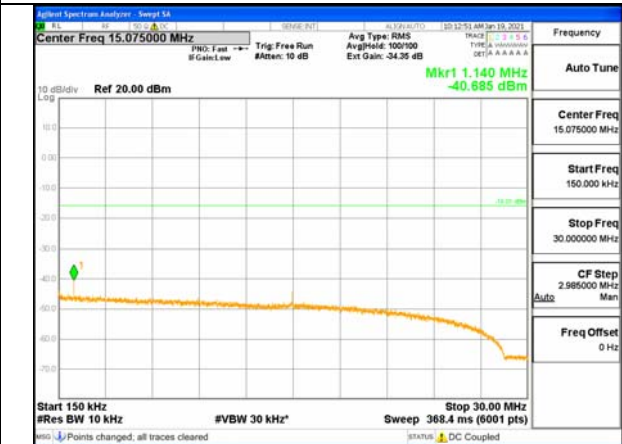


BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Middle
ANT 1
[QPSK]

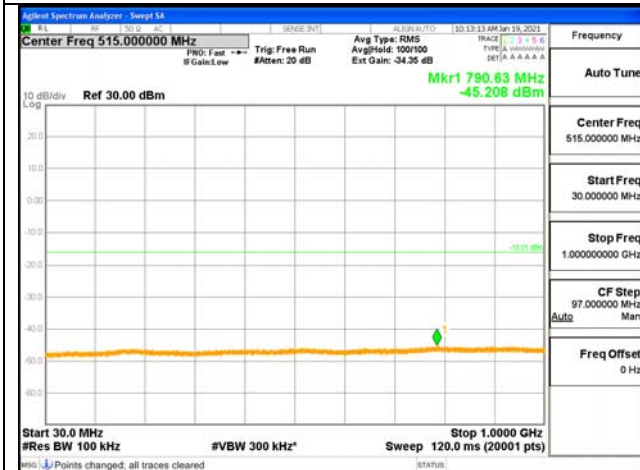
9 kHz - 150 kHz



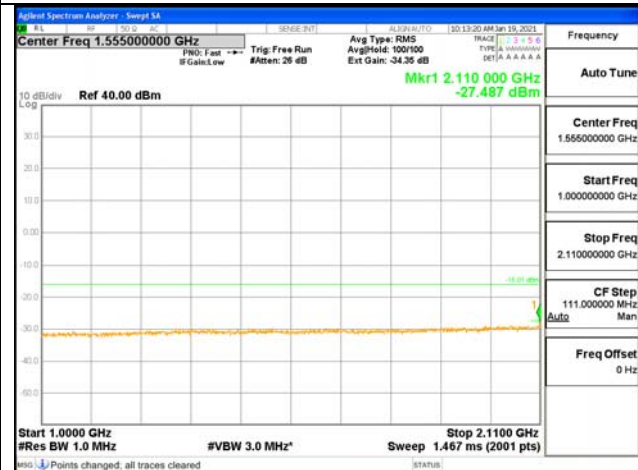
150 kHz - 30 MHz



30 MHz - 1 000 MHz



1 000 MHz - 2 110MHz



2 180 MHz - 26.5 GHz

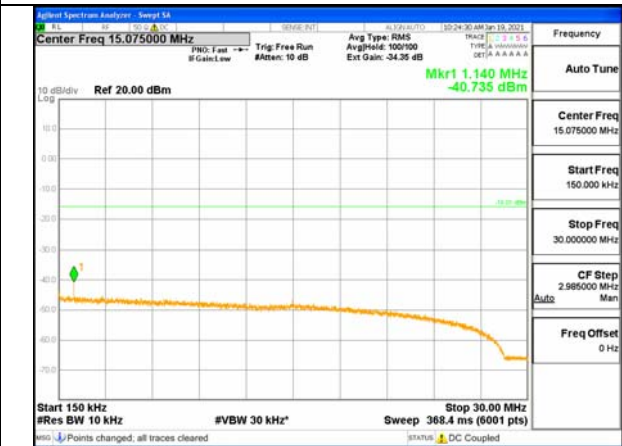


[64QAM]

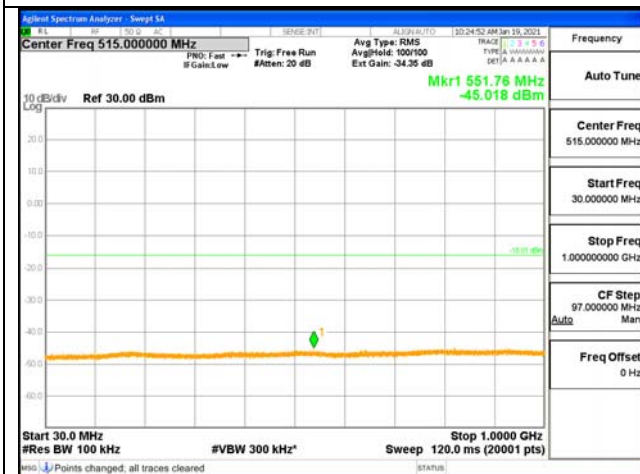
9 kHz - 150 kHz



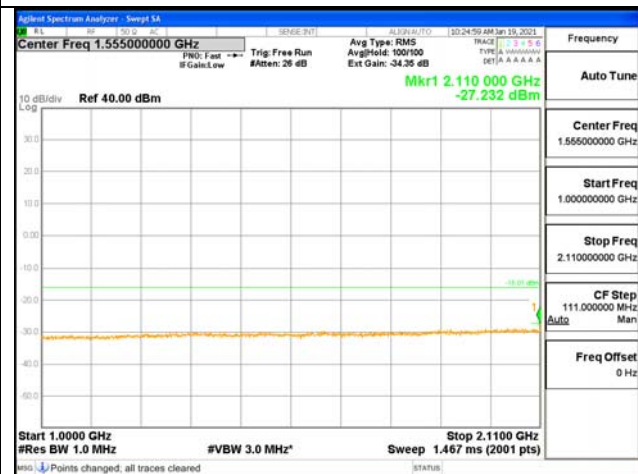
150 kHz - 30 MHz



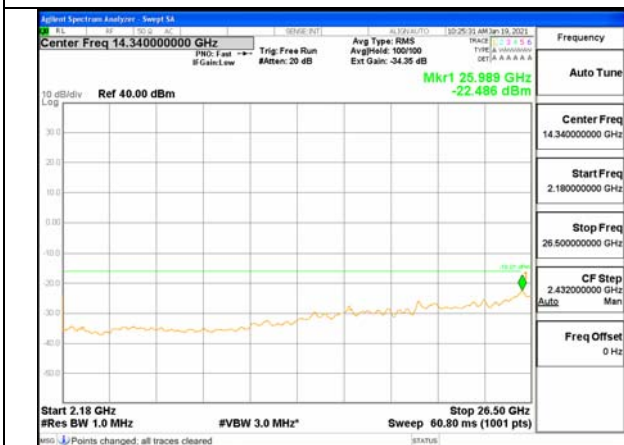
30 MHz - 1 000 MHz



1 000 MHz - 2 110MHz



2 180 MHz - 26.5 GHz



ANT 2
[QPSK]

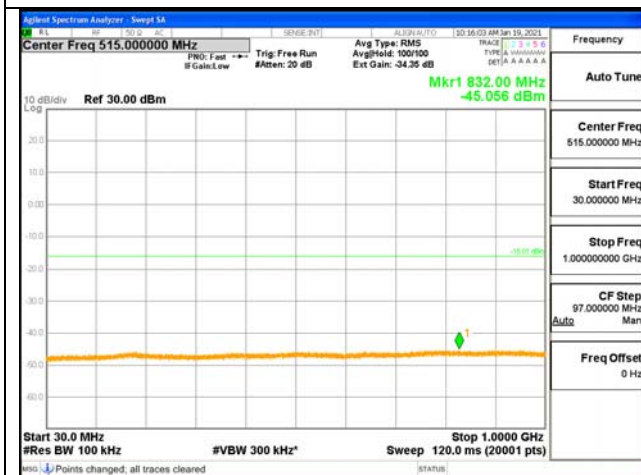
9 kHz - 150 kHz



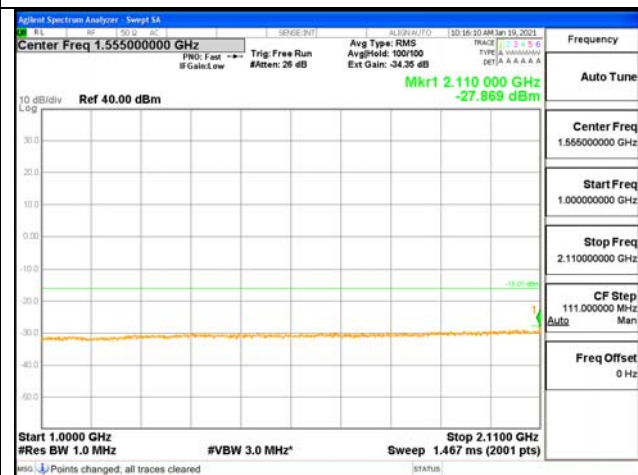
150 kHz - 30 MHz



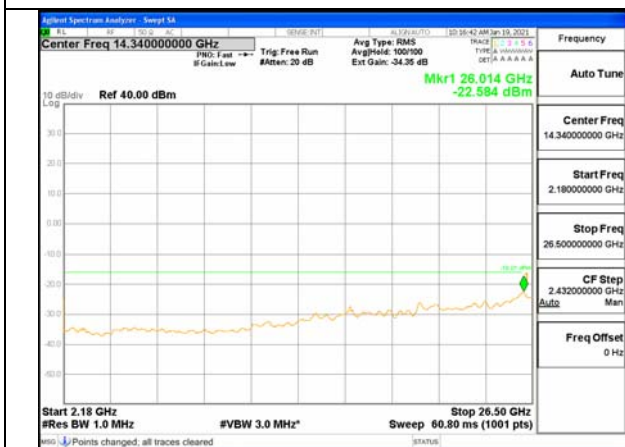
30 MHz - 1 000 MHz



1 000 MHz - 2 110MHz



2 180 MHz - 26.5 GHz

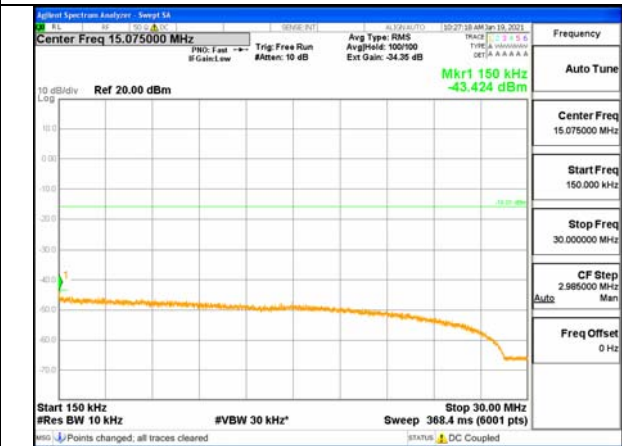


[64QAM]

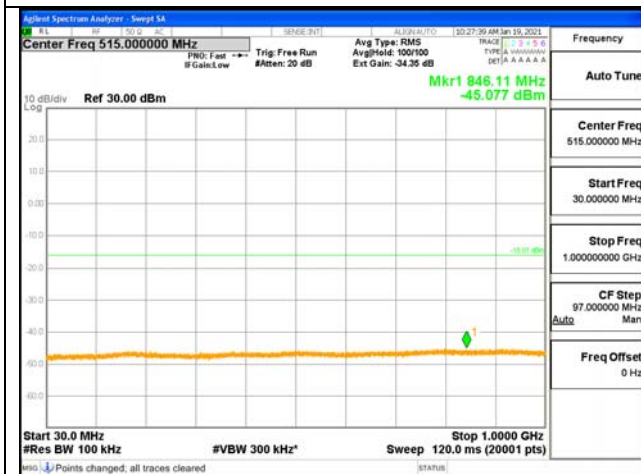
9 kHz - 150 kHz



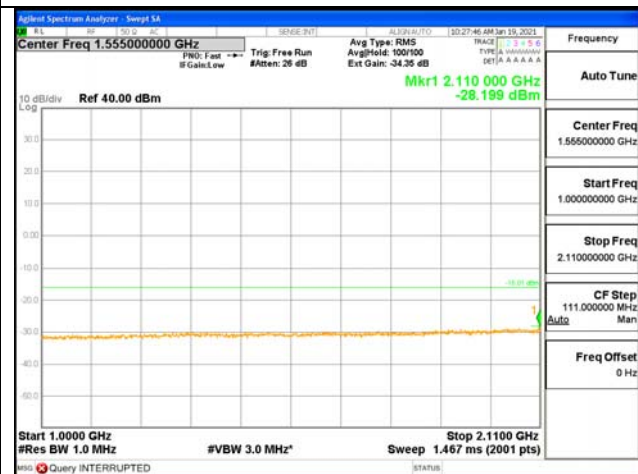
150 kHz - 30 MHz



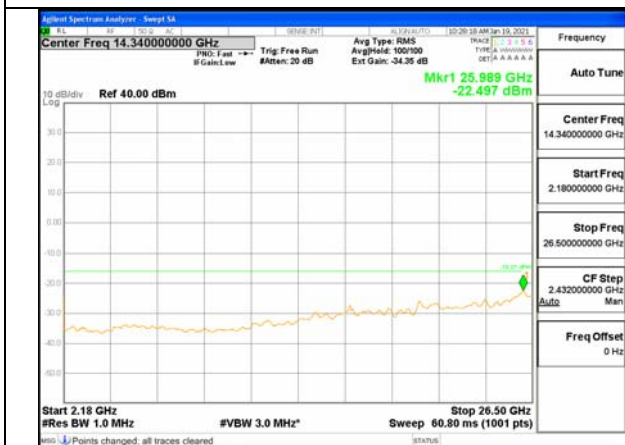
30 MHz - 1 000 MHz



1 000 MHz - 2 110MHz



2 180 MHz - 26.5 GHz

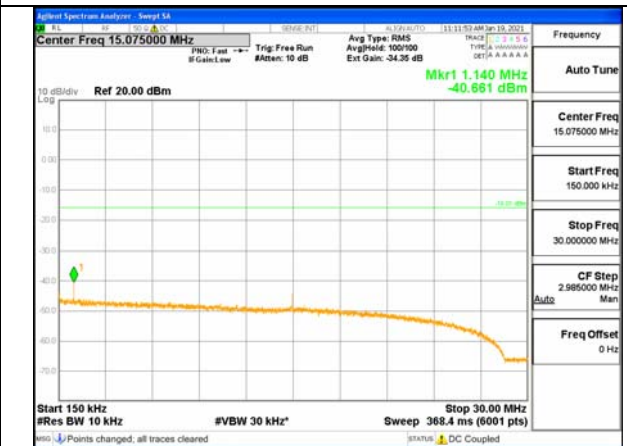


BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Top
ANT 1
[QPSK]

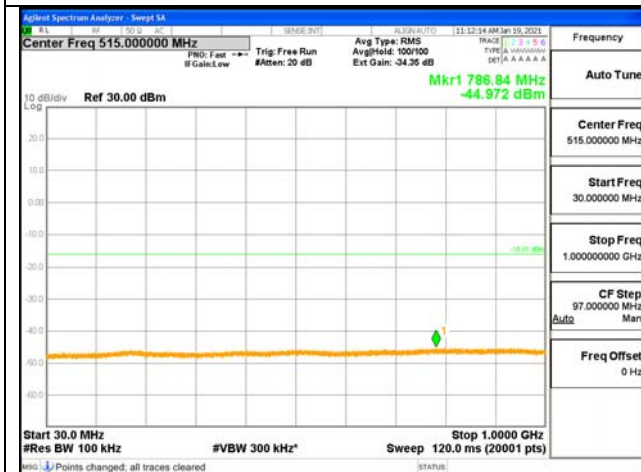
9 kHz - 150 kHz



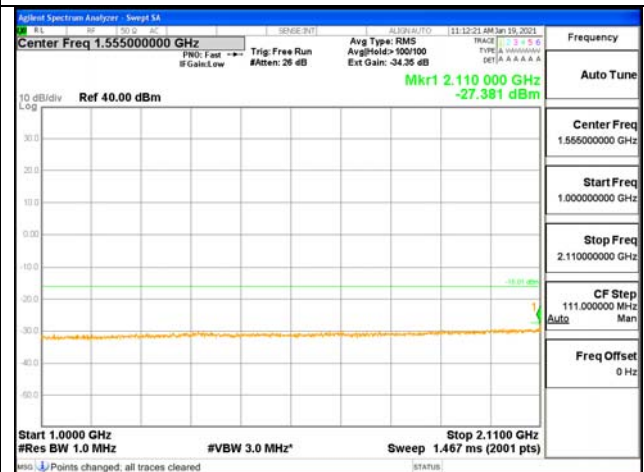
150 kHz - 30 MHz



30 MHz - 1 000 MHz



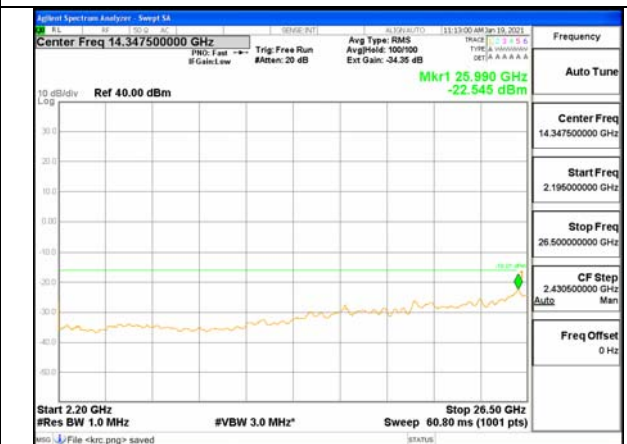
1 000 MHz - 2 110 MHz



2 181 MHz - 2 195 MHz



2 195 MHz - 26.5 GHz

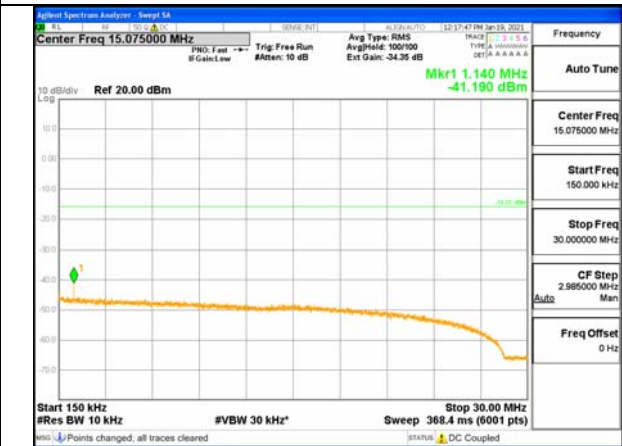


[64QAM]

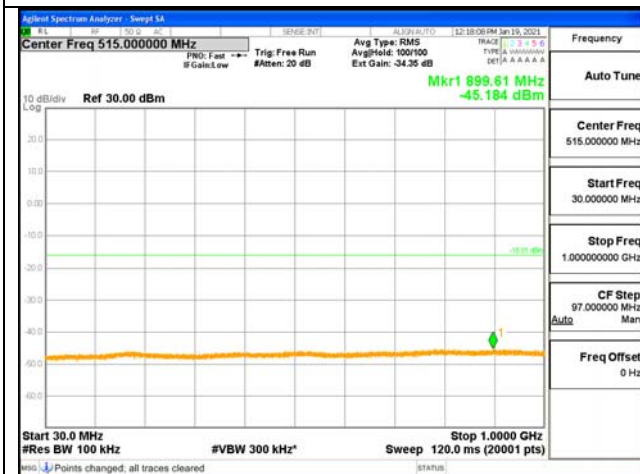
9 kHz - 150 kHz



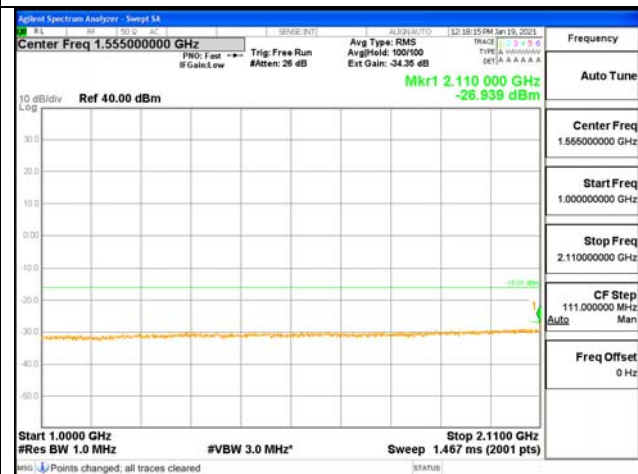
150 kHz - 30 MHz



30 MHz - 1 000 MHz



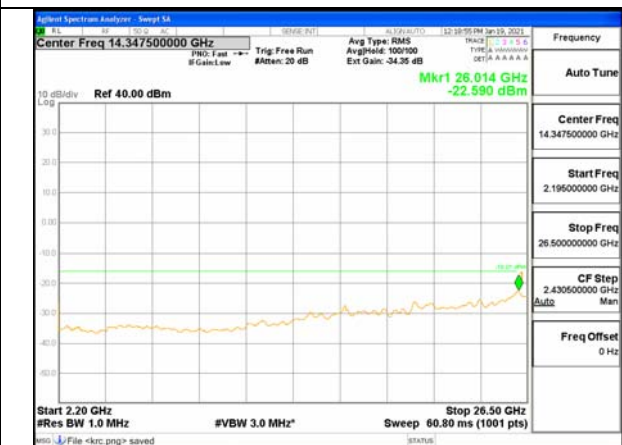
1 000 MHz - 2 110 MHz



2 181 MHz - 2 195 MHz



2 195 MHz - 26.5 GHz

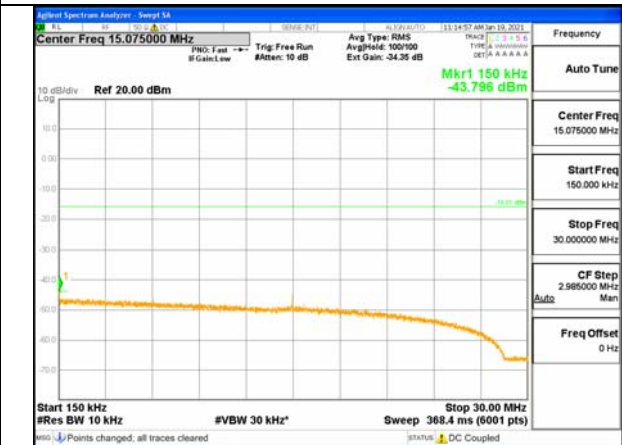


ANT 2
[QPSK]

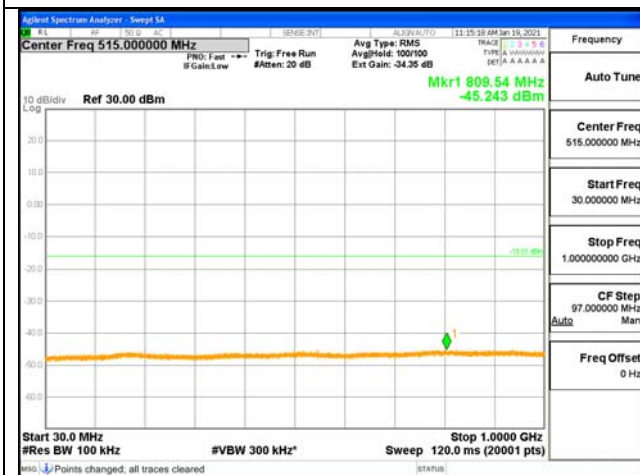
9 kHz - 150 kHz



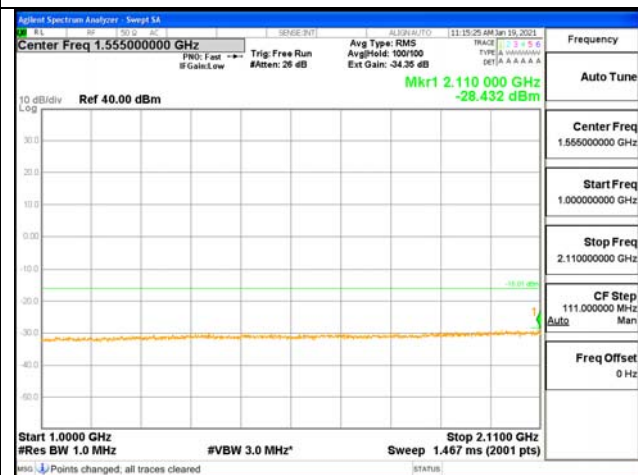
150 kHz - 30 MHz



30 MHz - 1 000 MHz



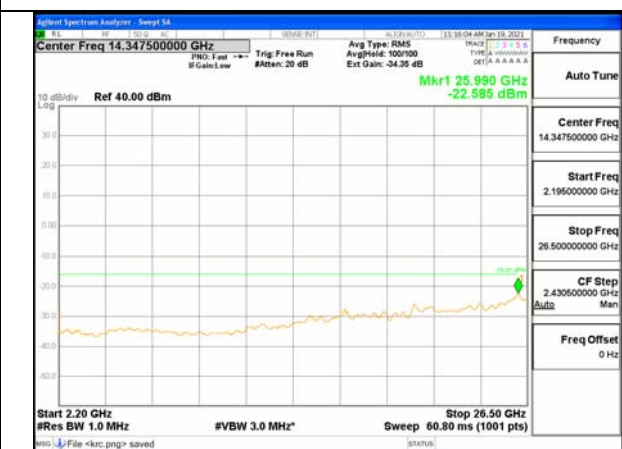
1 000 MHz - 2 110 MHz



2 181 MHz - 2 195 MHz



2 195 MHz - 26.5 GHz

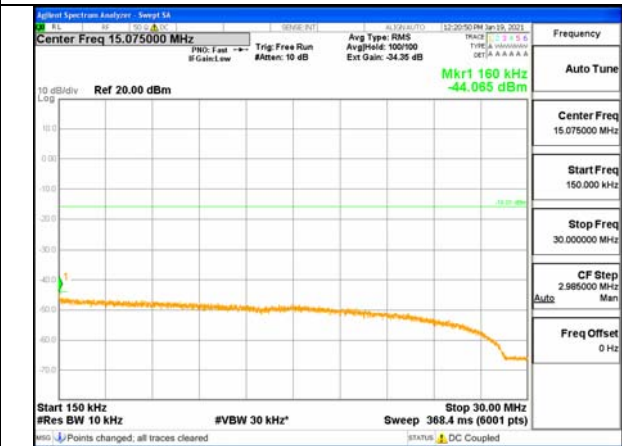


[64QAM]

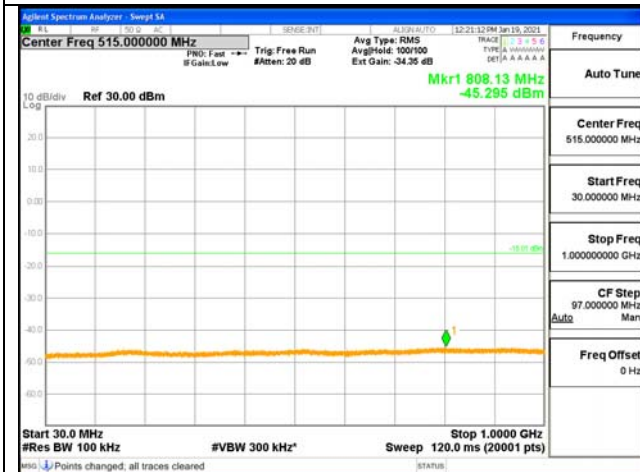
9 kHz - 150 kHz



150 kHz - 30 MHz



30 MHz - 1 000 MHz



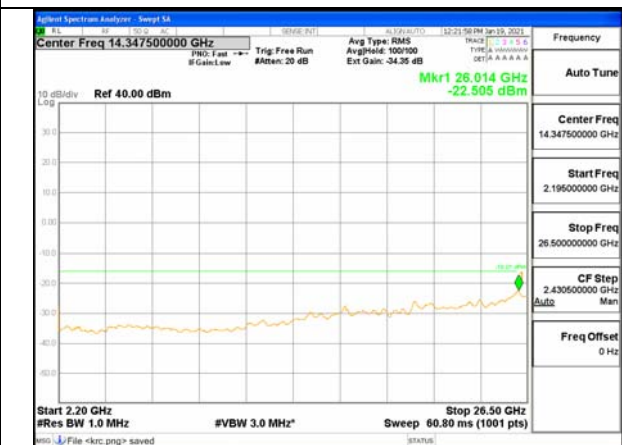
1 000 MHz - 2 110 MHz



2 181 MHz - 2 195 MHz



2 195 MHz - 26.5 GHz



BW 15MHz+15MHz, Multi 2 carrier(Non-Contiguous), 2Tx, Bottom /Top
ANT 1
[QPSK]

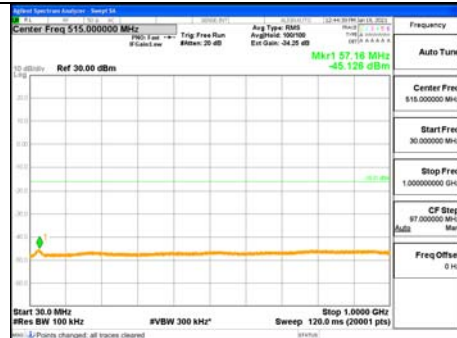
9 kHz - 150 kHz



150 kHz - 30 MHz



30 MHz - 1 000 MHz



1 000 MHz - 2 099 MHz



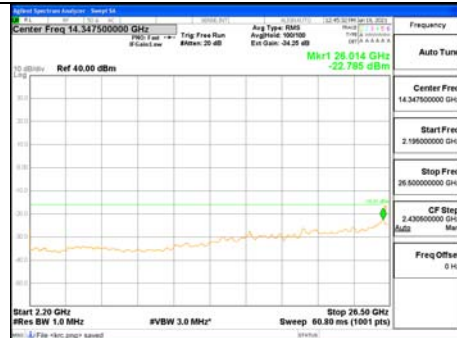
2 099 MHz - 2 109 MHz



2 181 MHz - 2 195 MHz

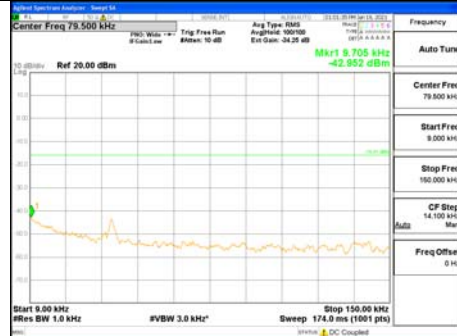


2 195 MHz - 26.5 GHz



[64QAM]

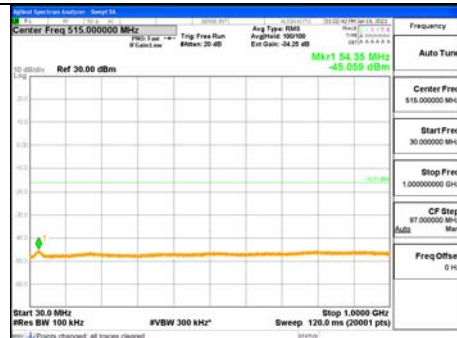
9 kHz - 150 kHz



150 kHz - 30 MHz



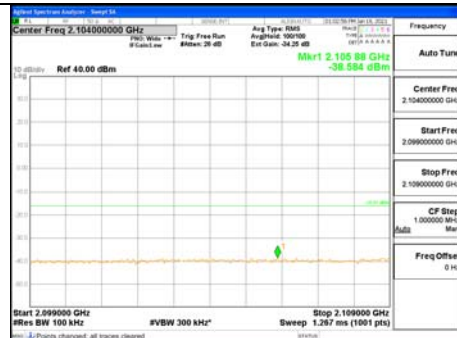
30 MHz - 1 000 MHz



1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2 181 MHz - 2 195 MHz

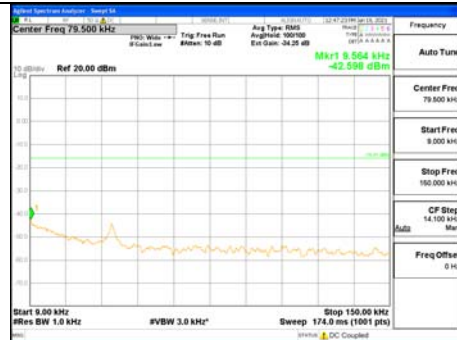


2 195 MHz - 26.5 GHz

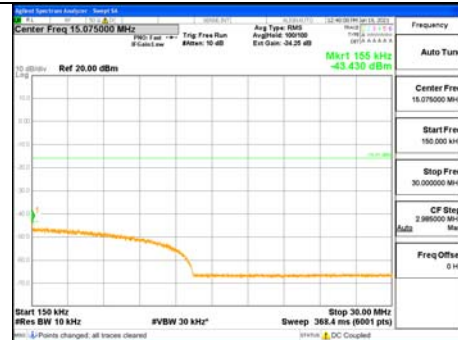


ANT 2
[QPSK]

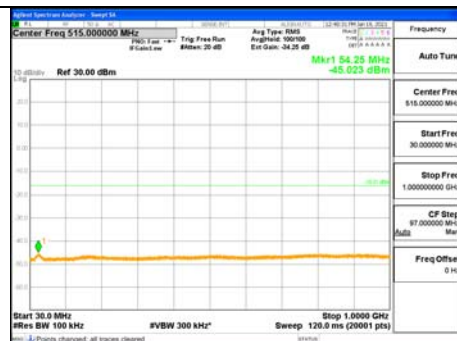
9 kHz - 150 kHz



150 kHz - 30 MHz



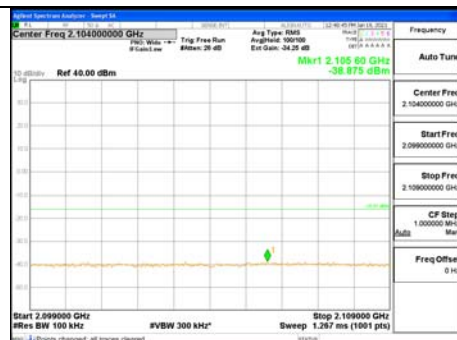
30 MHz - 1 000 MHz



1 000 MHz - 2 099 MHz



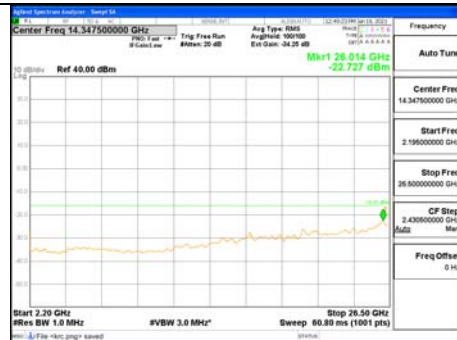
2 099 MHz - 2 109 MHz



2 181 MHz - 2 195 MHz

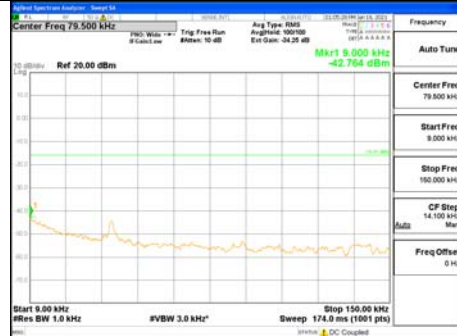


2 195 MHz - 26.5 GHz



[64QAM]

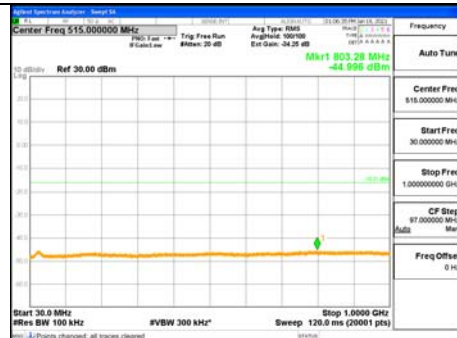
9 kHz - 150 kHz



150 kHz - 30 MHz



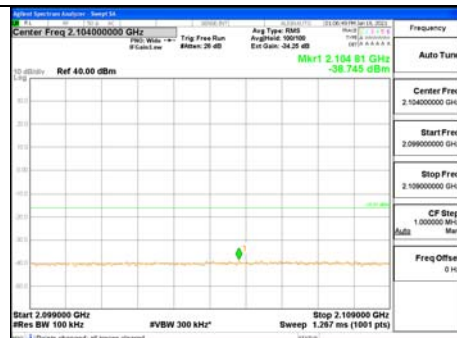
30 MHz - 1 000 MHz



1 000 MHz - 2 099 MHz



2 099 MHz - 2 109 MHz



2 181 MHz - 2 195 MHz



2 195 MHz - 26.5 GHz

