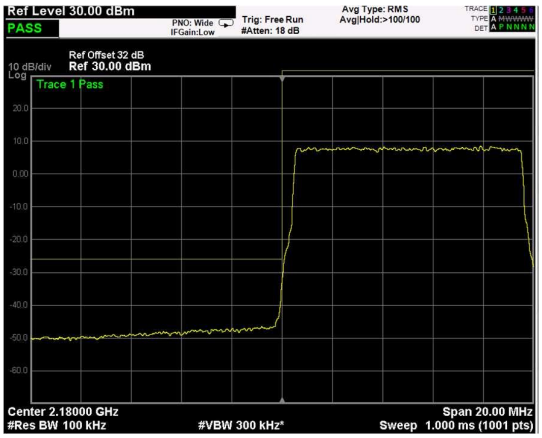
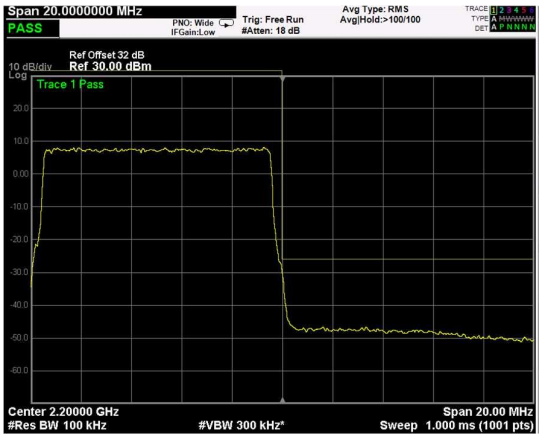
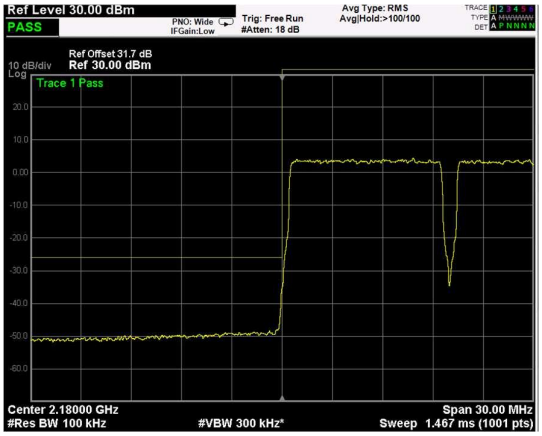


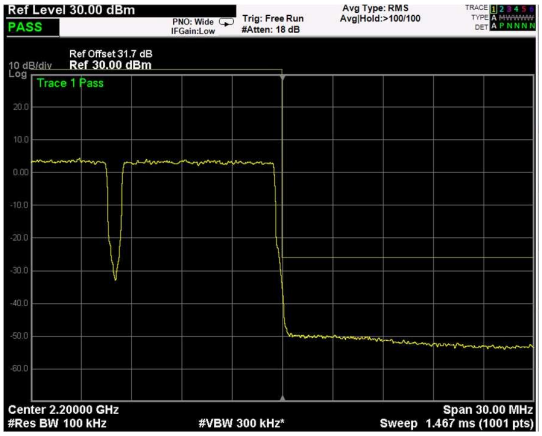
Low Band Edge, 1 Carrier,
Modulation: QPSK, BW=10MHz



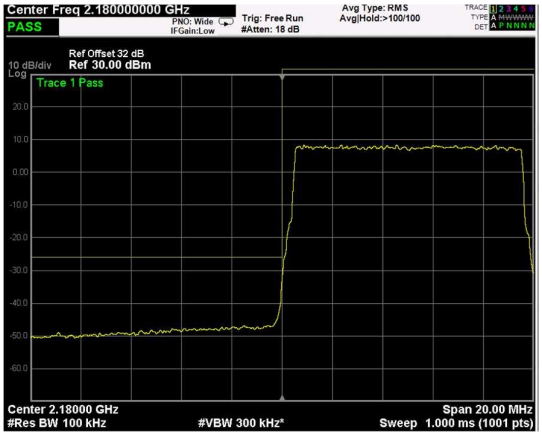
High Band Edge, 1 Carrier,
Modulation: QPSK, BW=10MHz



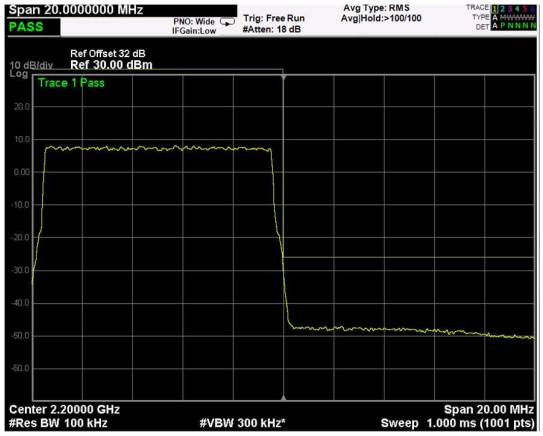
Low Band Edge, 2 Carrier,
Modulation: QPSK, BW=10MHz



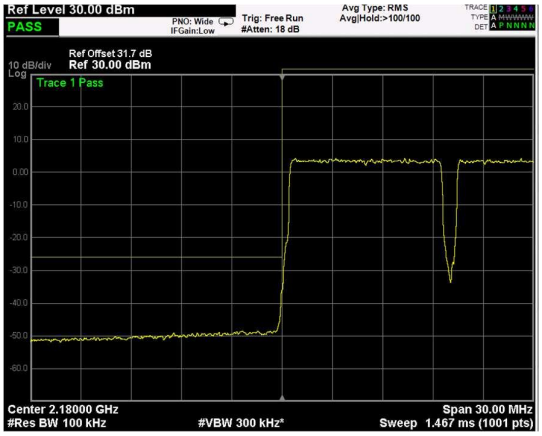
High Band Edge, 2 Carrier,
Modulation: QPSK, BW=10MHz



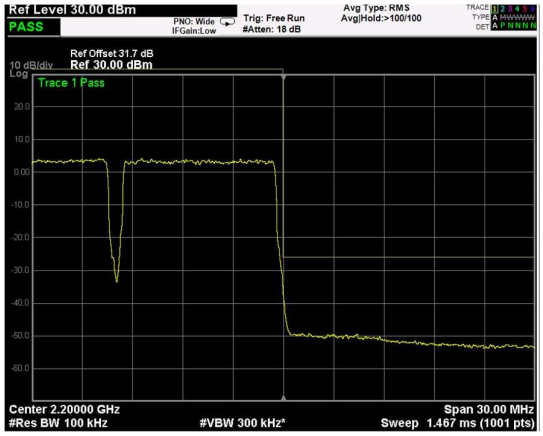
Low Band Edge, 1 Carrier,
Modulation: 16QAM, BW=10MHz



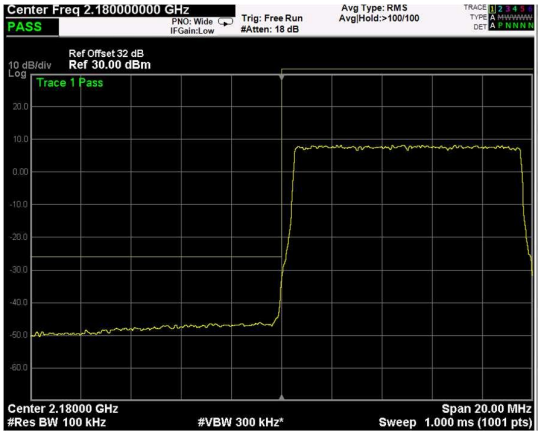
High Band Edge, 1 Carrier,
Modulation: 16QAM, BW=10MHz



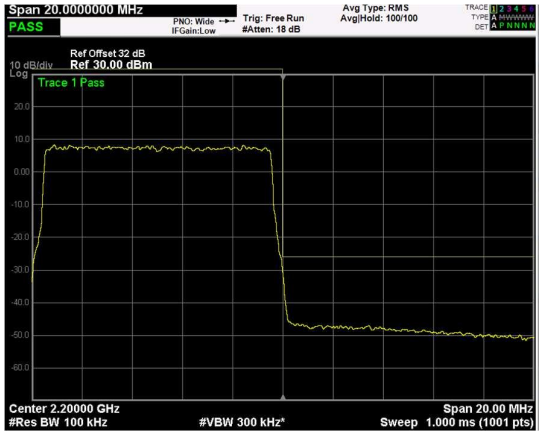
Low Band Edge, 2 Carrier,
Modulation: 16QAM, BW=10MHz



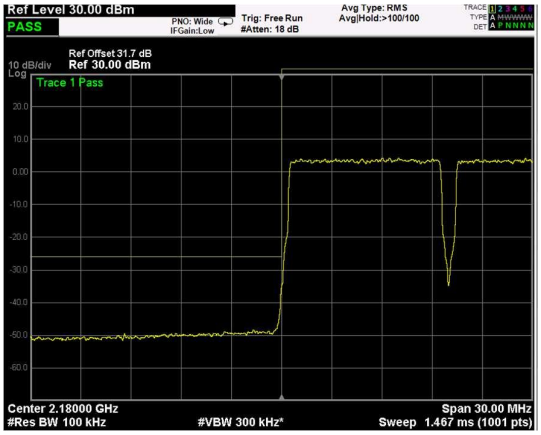
High Band Edge, 2 Carrier,
Modulation: 16QAM, BW=10MHz



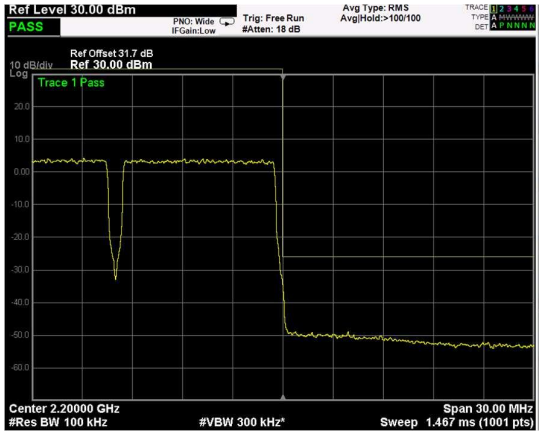
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=10MHz



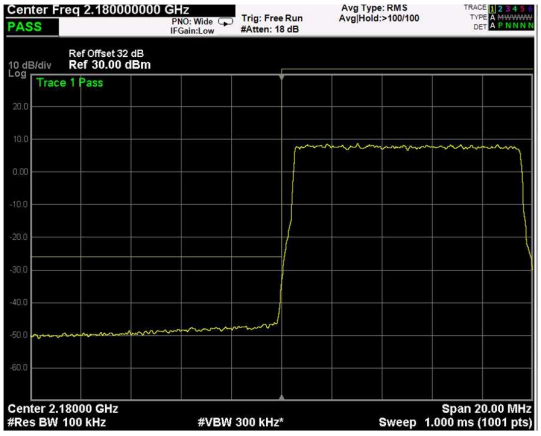
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=10MHz



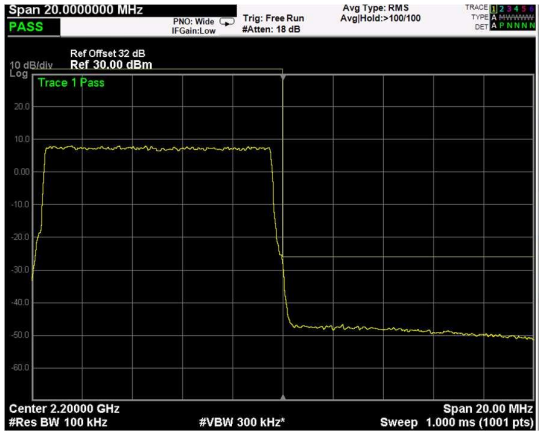
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=10MHz



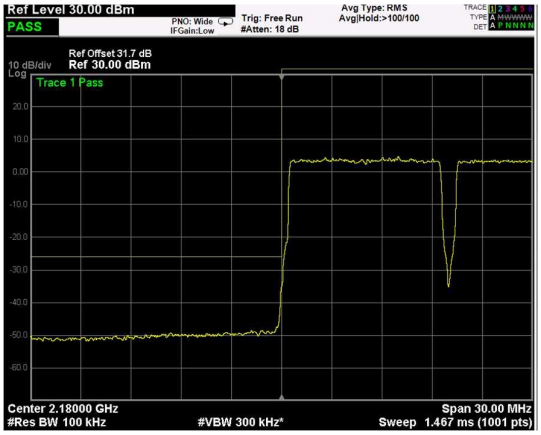
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=10MHz



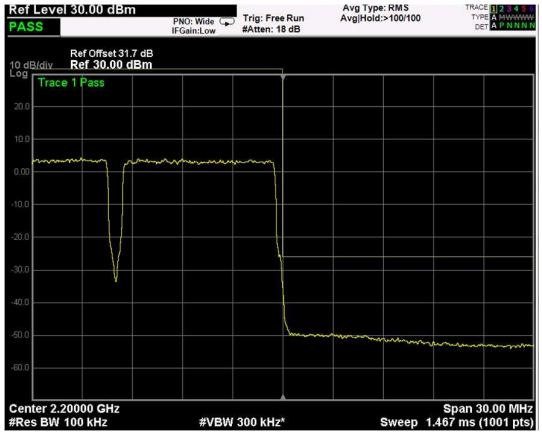
Low Band Edge, 1 Carrier,
Modulation: 256QAM, BW=10MHz



High Band Edge, 1 Carrier,
Modulation: 256QAM, BW=10MHz

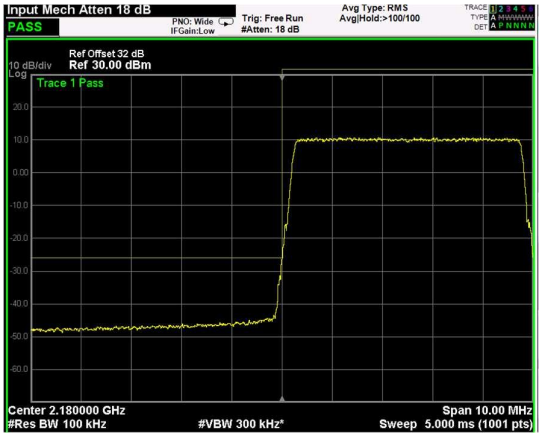


Low Band Edge, 2 Carrier,
Modulation: 256QAM, BW=10MHz

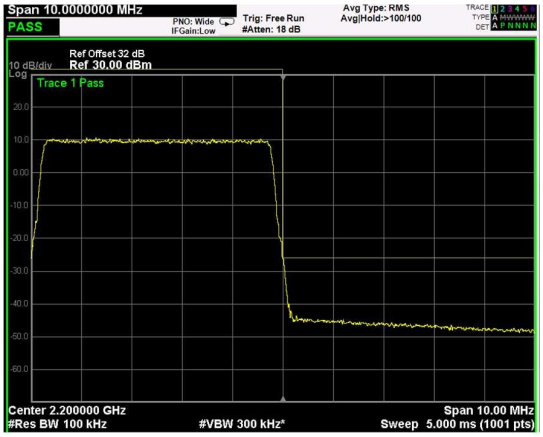


High Band Edge, 2 Carrier,
Modulation: 256QAM, BW=10MHz

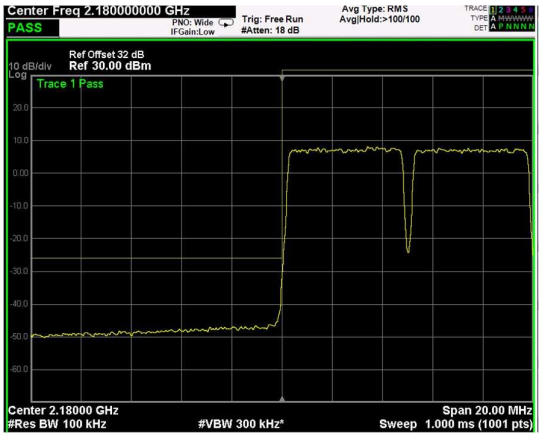
RF PORT 2



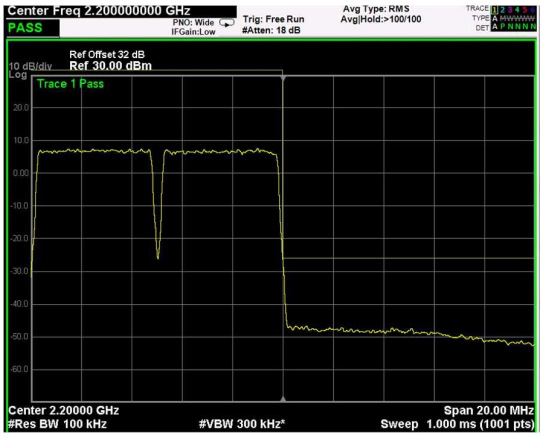
Low Band Edge, 1 Carrier,
Modulation: QPSK, BW=5MHz



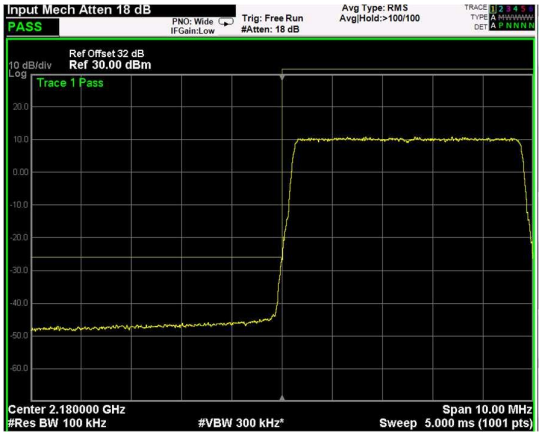
High Band Edge, 1 Carrier,
Modulation: QPSK, BW=5MHz



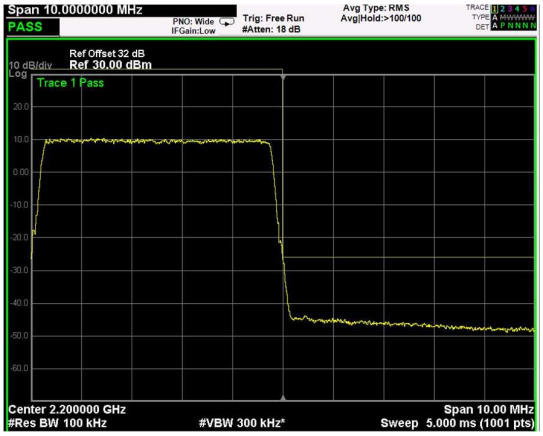
Low Band Edge, 2 Carrier,
Modulation: QPSK, BW=5MHz



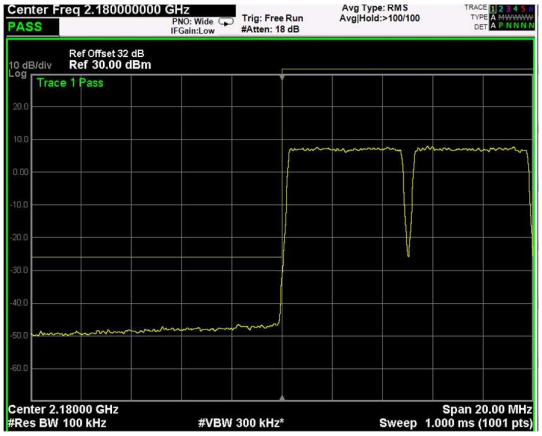
High Band Edge, 2 Carrier,
Modulation: QPSK, BW=5MHz



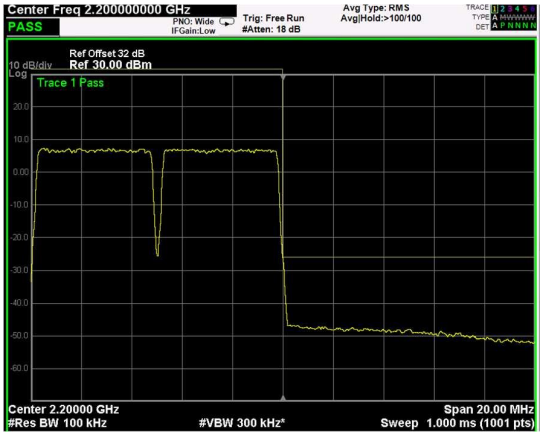
Low Band Edge, 1 Carrier,
Modulation: 16QAM, BW=5MHz



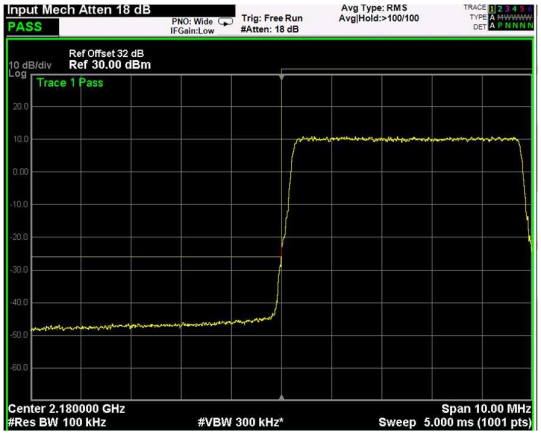
High Band Edge, 1 Carrier,
Modulation: 16QAM, BW=5MHz



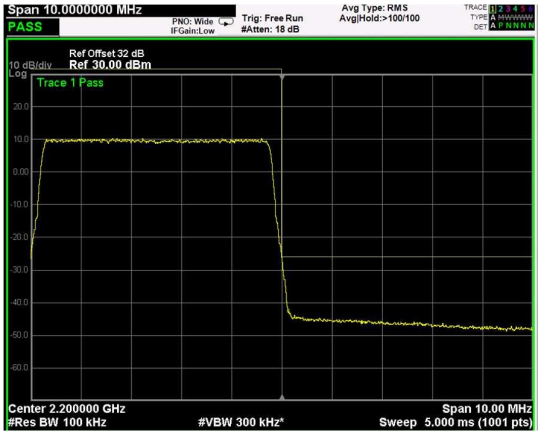
Low Band Edge, 2 Carrier,
Modulation: 16QAM, BW=5MHz



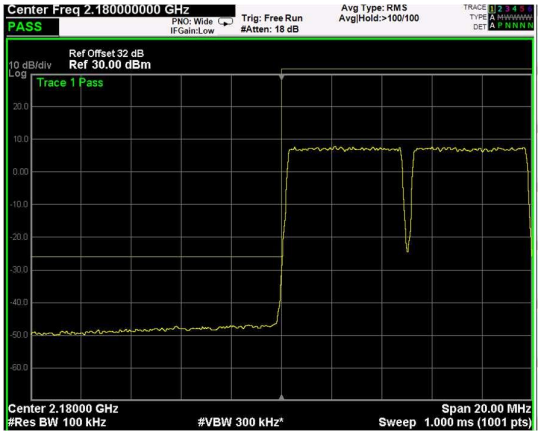
High Band Edge, 2 Carrier,
Modulation: 16QAM, BW=5MHz



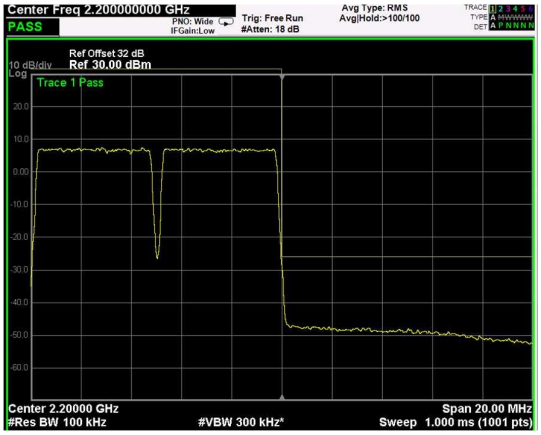
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=5MHz



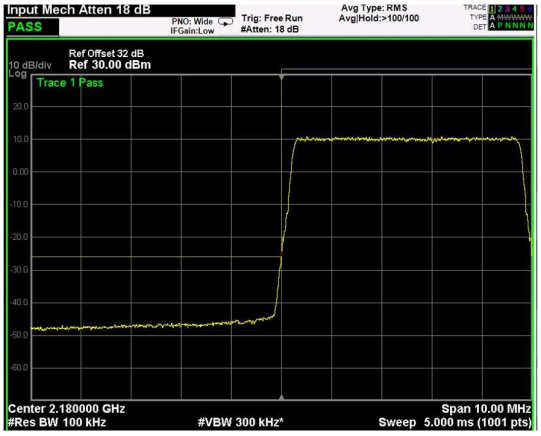
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=5MHz



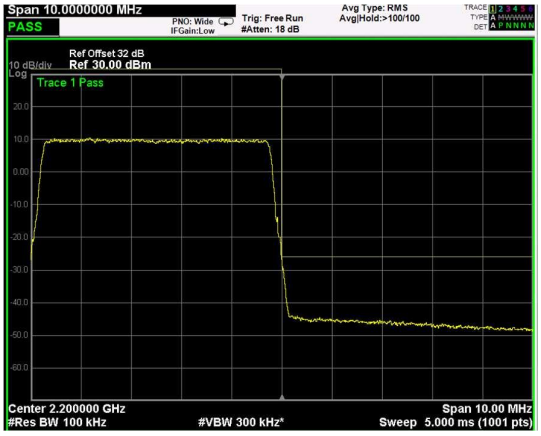
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=5MHz



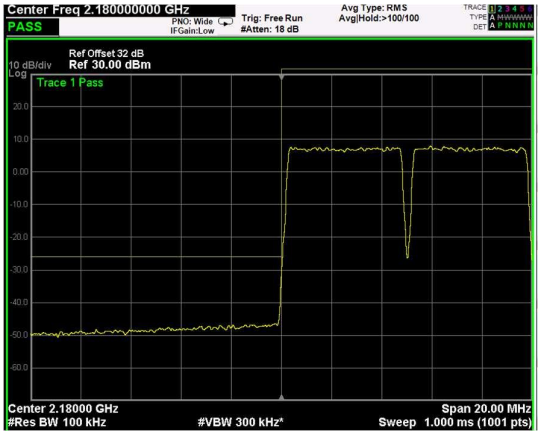
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=5MHz



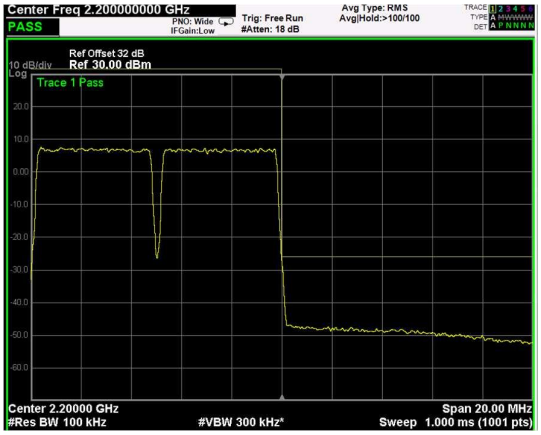
Low Band Edge, 1 Carrier,
Modulation: 256QAM, BW=5MHz



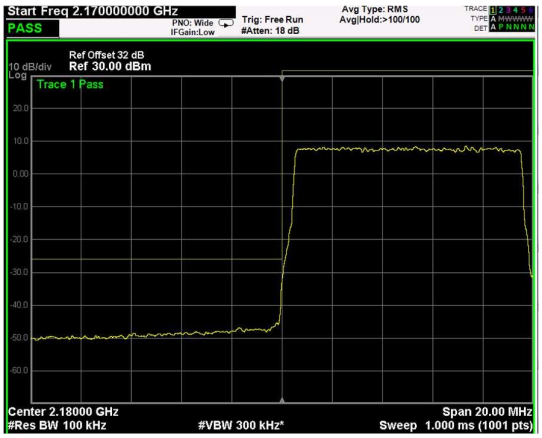
High Band Edge, 1 Carrier,
Modulation: 256QAM, BW=5MHz



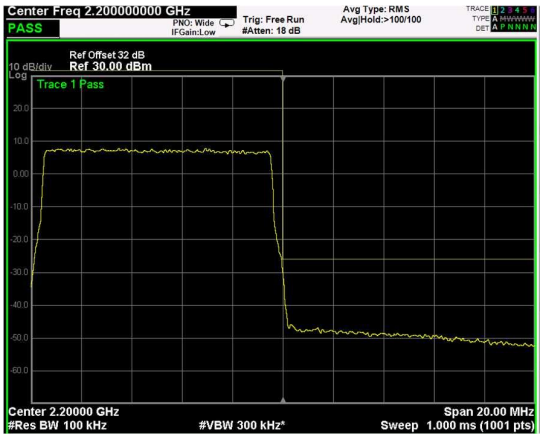
Low Band Edge, 2 Carrier,
Modulation: 256QAM, BW=5MHz



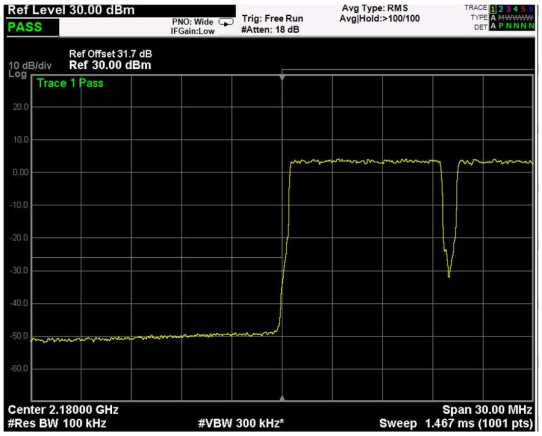
High Band Edge, 2 Carrier,
Modulation: 256QAM, BW=5MHz



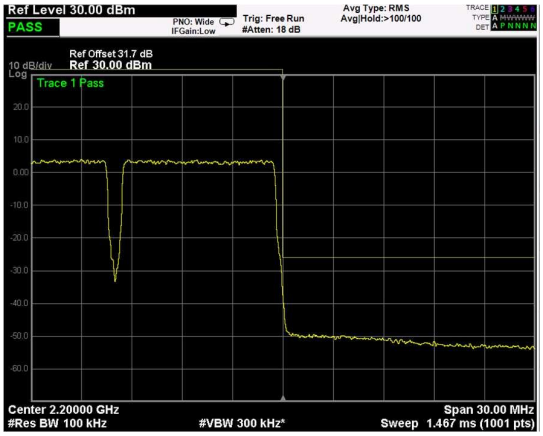
Low Band Edge, 1 Carrier,
Modulation: QPSK, BW=10MHz



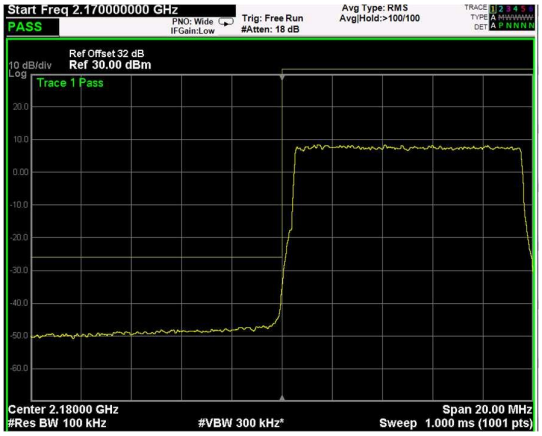
High Band Edge, 1 Carrier,
Modulation: QPSK, BW=10MHz



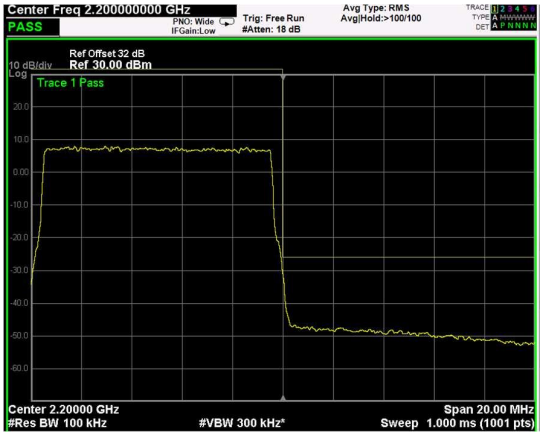
Low Band Edge, 2 Carrier,
Modulation: QPSK, BW=10MHz



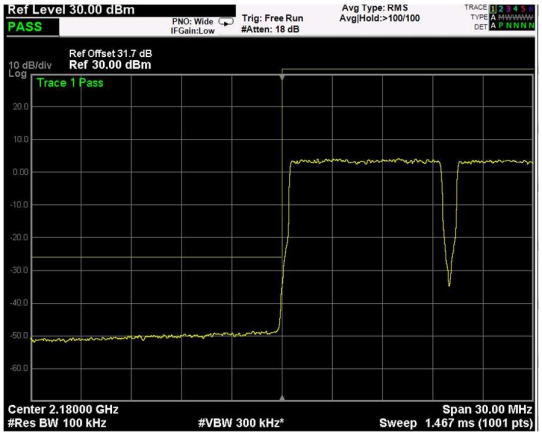
High Band Edge, 2 Carrier,
Modulation: QPSK, BW=10MHz



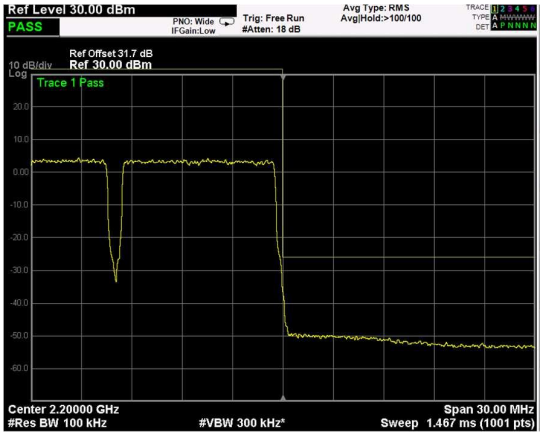
Low Band Edge, 1 Carrier,
Modulation: 16QAM, BW=10MHz



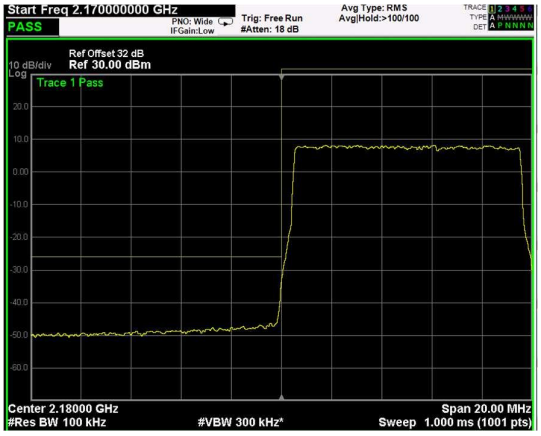
High Band Edge, 1 Carrier,
Modulation: 16QAM, BW=10MHz



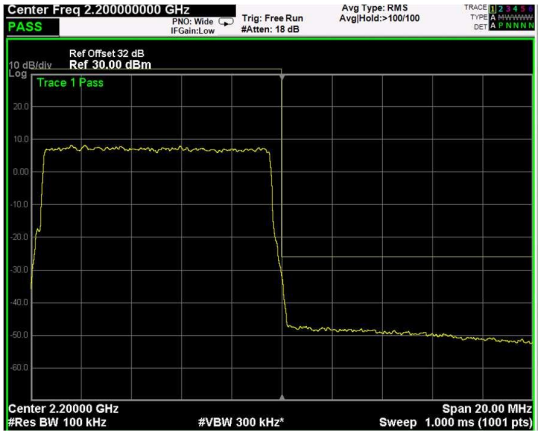
Low Band Edge, 2 Carrier,
Modulation: 16QAM, BW=10MHz



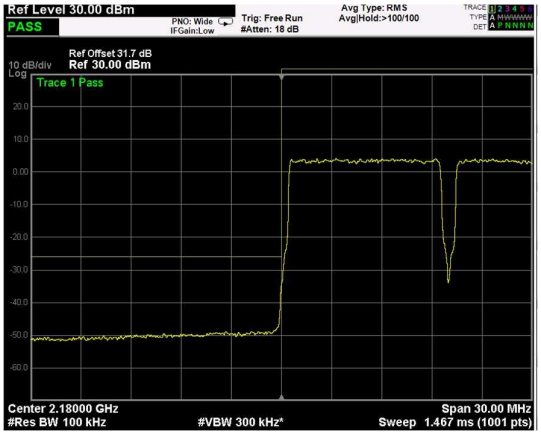
High Band Edge, 2 Carrier,
Modulation: 16QAM, BW=10MHz



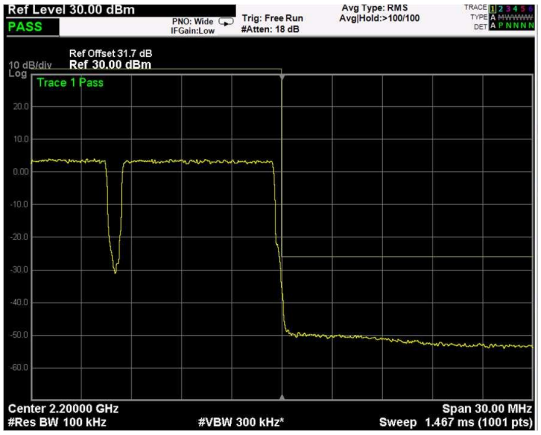
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=10MHz



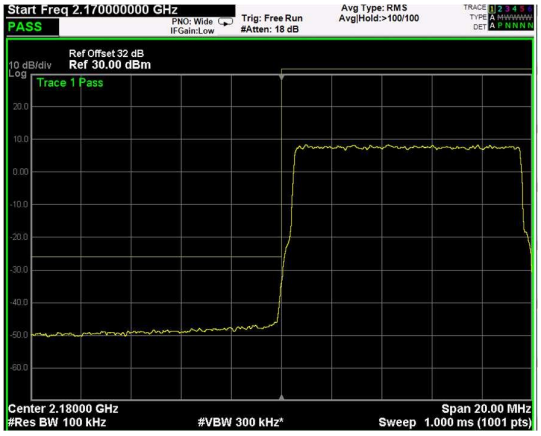
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=10MHz



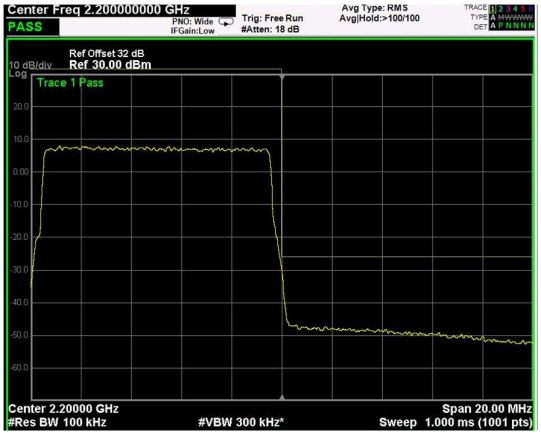
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=10MHz



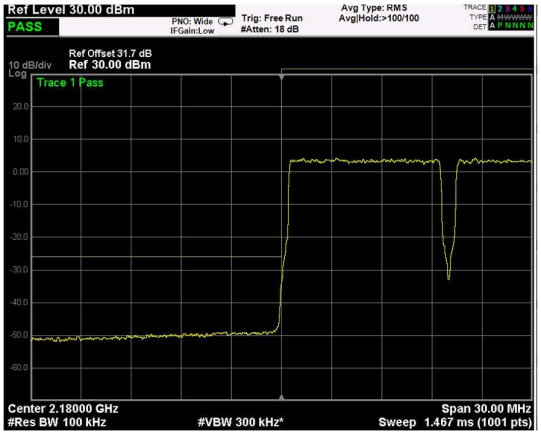
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=10MHz



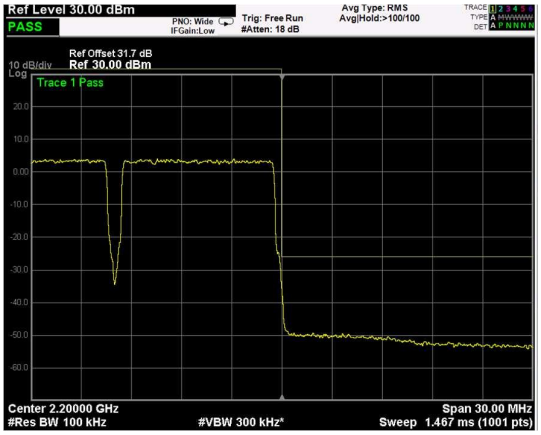
Low Band Edge, 1 Carrier,
Modulation: 256QAM, BW=10MHz



High Band Edge, 1 Carrier,
Modulation: 256QAM, BW=10MHz



Low Band Edge, 2 Carrier,
Modulation: 256QAM, BW=10MHz



High Band Edge, 2 Carrier,
Modulation: 256QAM, BW=10MHz

Clause 27.53(h) Radiated Spurious emissions

(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 log10 (P) dB.

(2) Additional protection levels. Notwithstanding the foregoing paragraph (h)(1) of this section:
(i) Operations in the 2180-2200 MHz band are subject to the out-of-band emission requirements set forth in §27.1134 for the protection of federal government operations operating in the 2200 2290 MHz band.

(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 date: 10/21/2019 to 12/13/2019

Test results: Pass

Special notes

Clause 27.53(h) Radiated spurious emissions, continued

Test data

The D.U.T. was positioned according to the radiated emissions set-up

The D.U.T. antenna connector was terminated by a 50 Ω shielded dummy load.

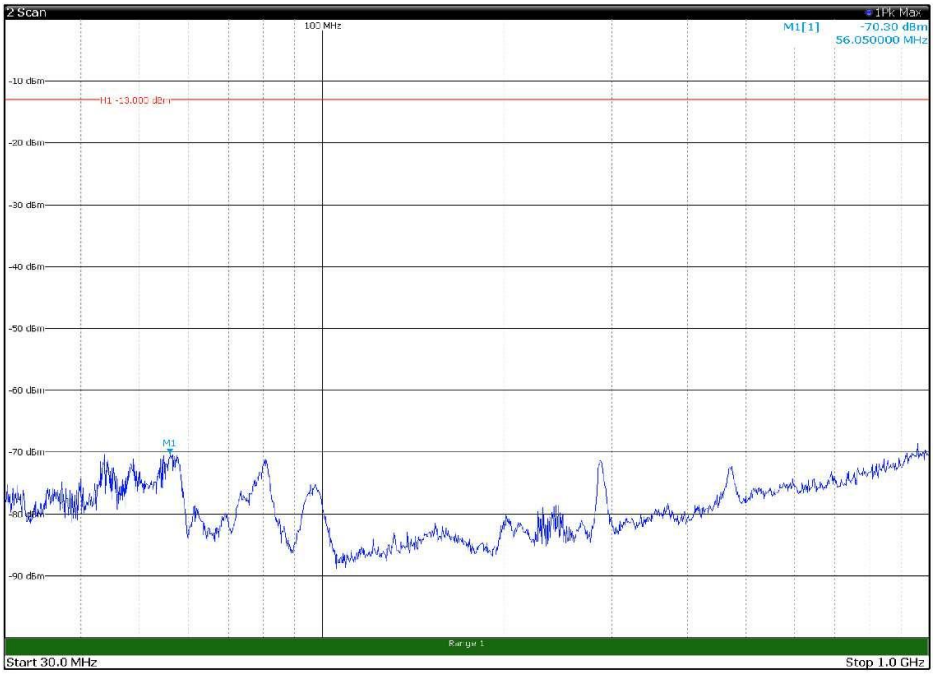
The spectrum was searched from 30 MHz to 1 GHz (RBW 100 kHz) & 1 GHz (RBW 1 MHz) to the tenth harmonic of the carrier.

There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.

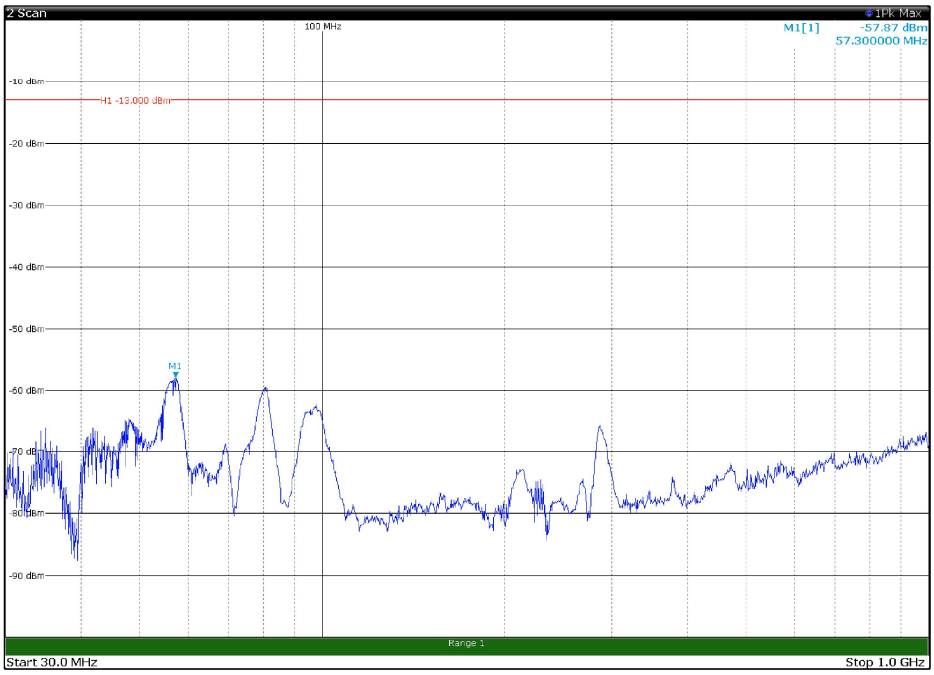
Spurious emissions measurement results:

Frequency (MHz)	Polarization. V/H	Field strength (dBm)	Limit (dBm)	Margin (dB)
Low channel				
First Channel	V/H	Negligible	-13	
Mid channel				
2190	V/H	Negligible	-13	
High channel				
Last Channel	V/H	Negligible	-13	

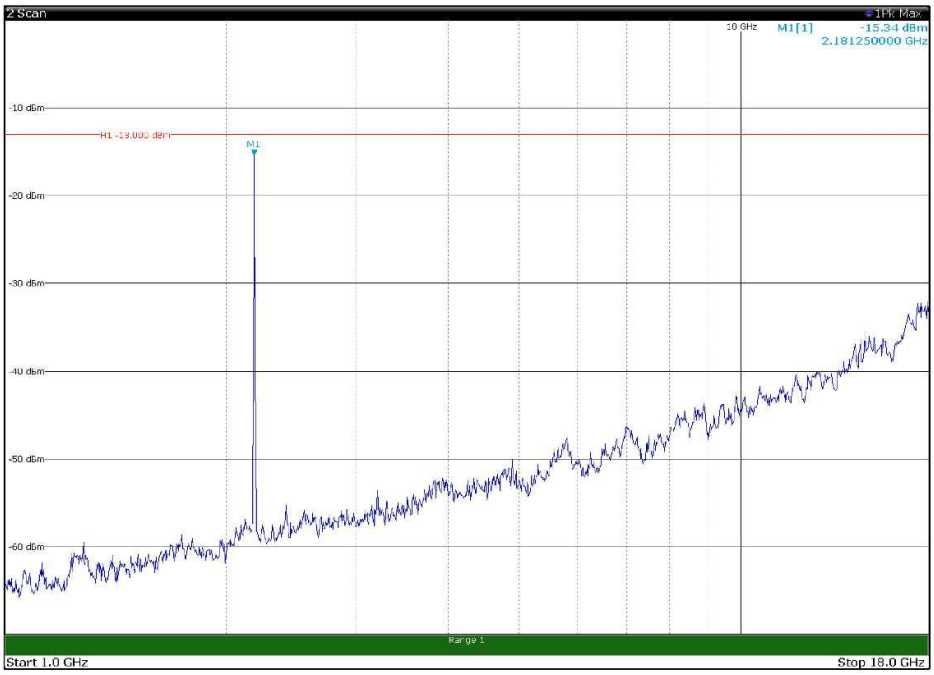
Note: Field strength includes correction factor of antenna, cable loss, amplifier, and attenuators where applicable.



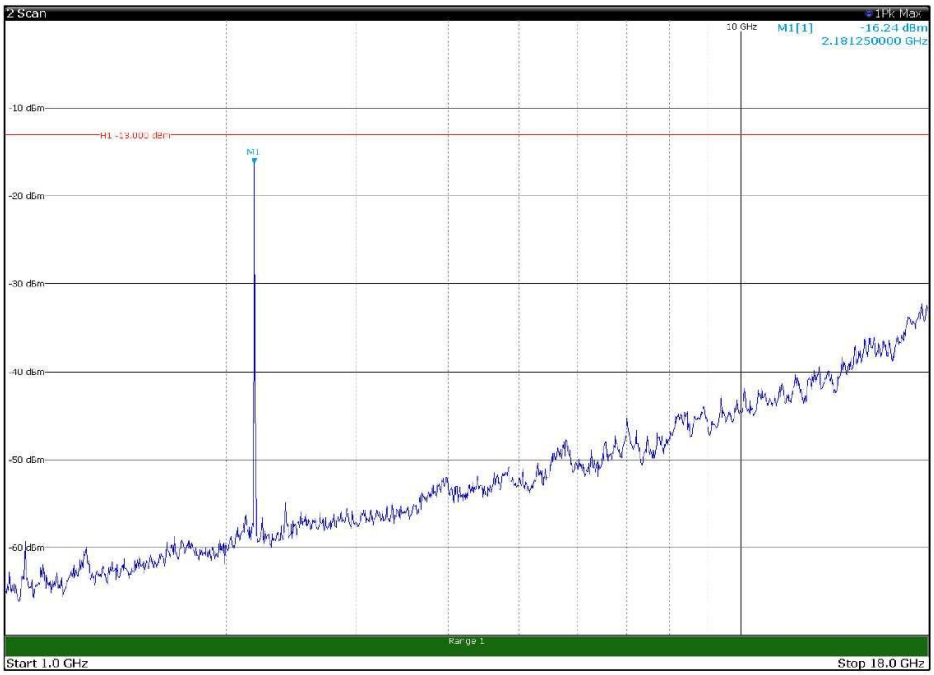
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 30MHz - 1GHz, Polarization: Horizontal



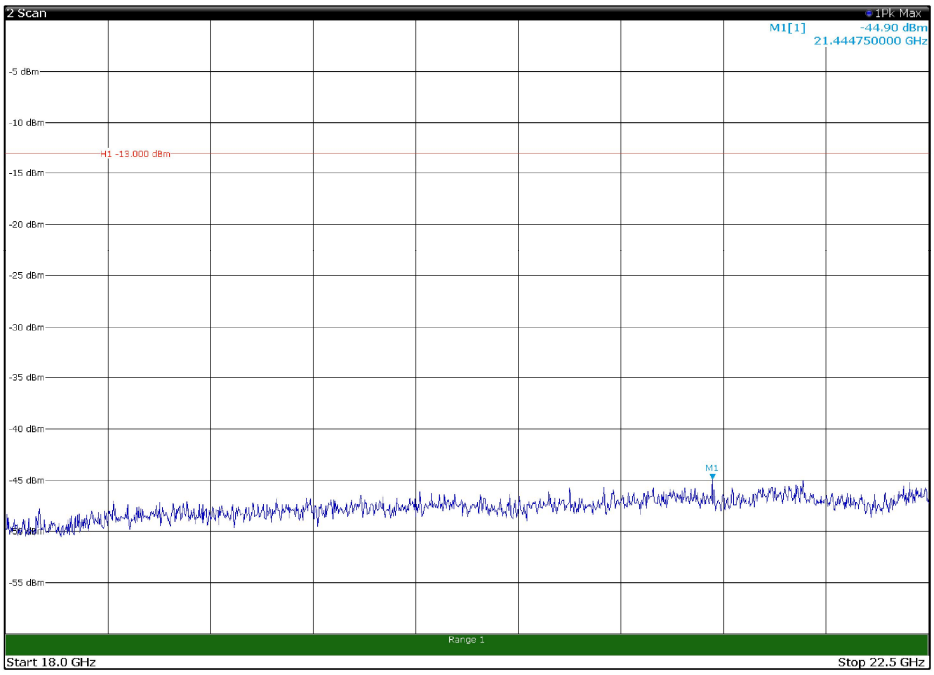
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 30MHz - 1GHz, Polarization: Vertical



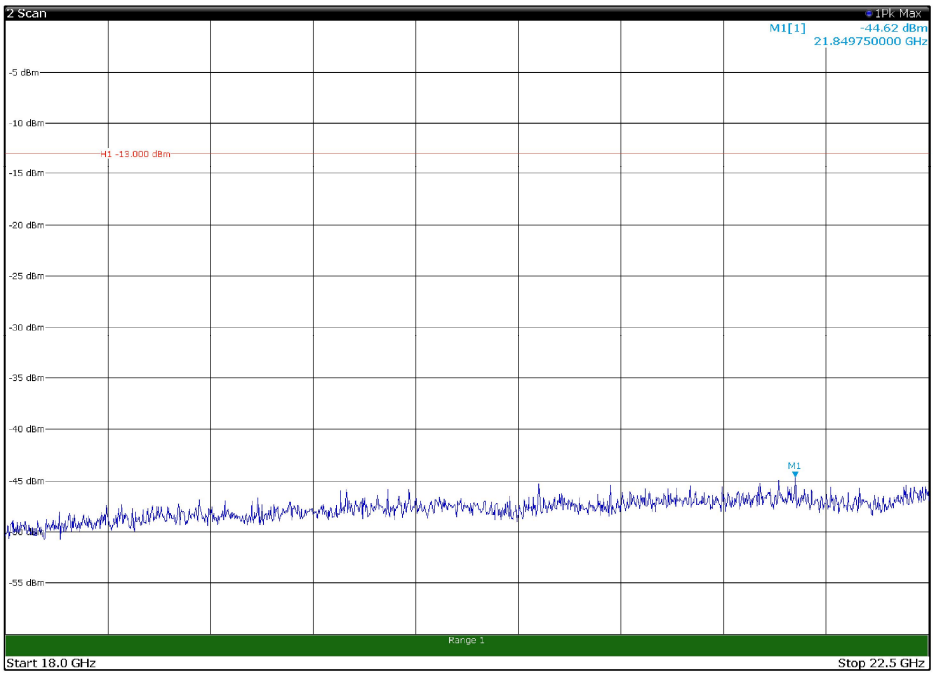
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 1GHz - 18GHz, Polarization: Horizontal



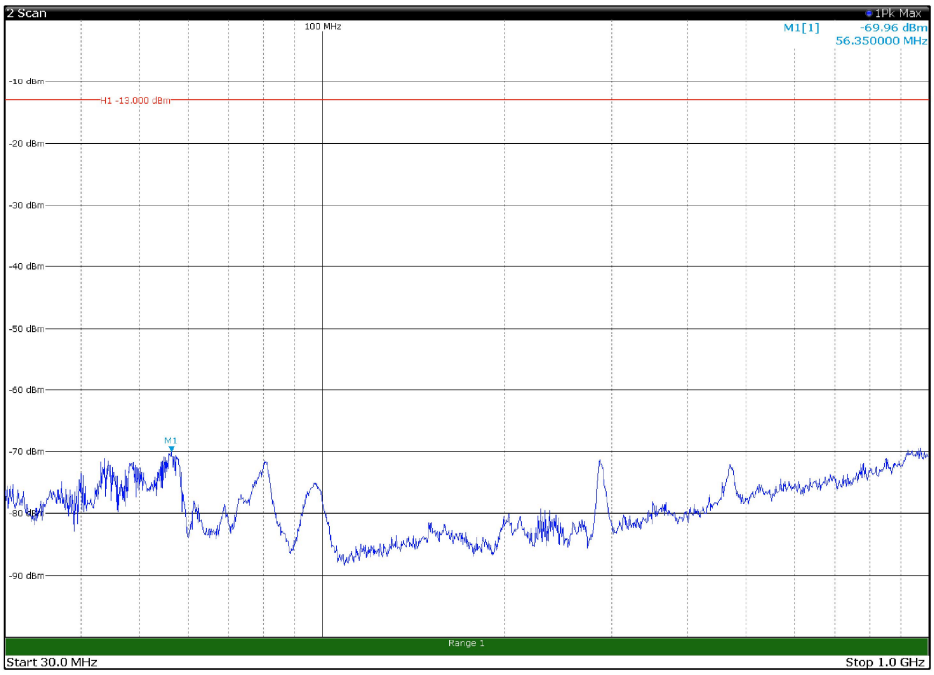
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 1GHz - 18GHz, Polarization: Vertical



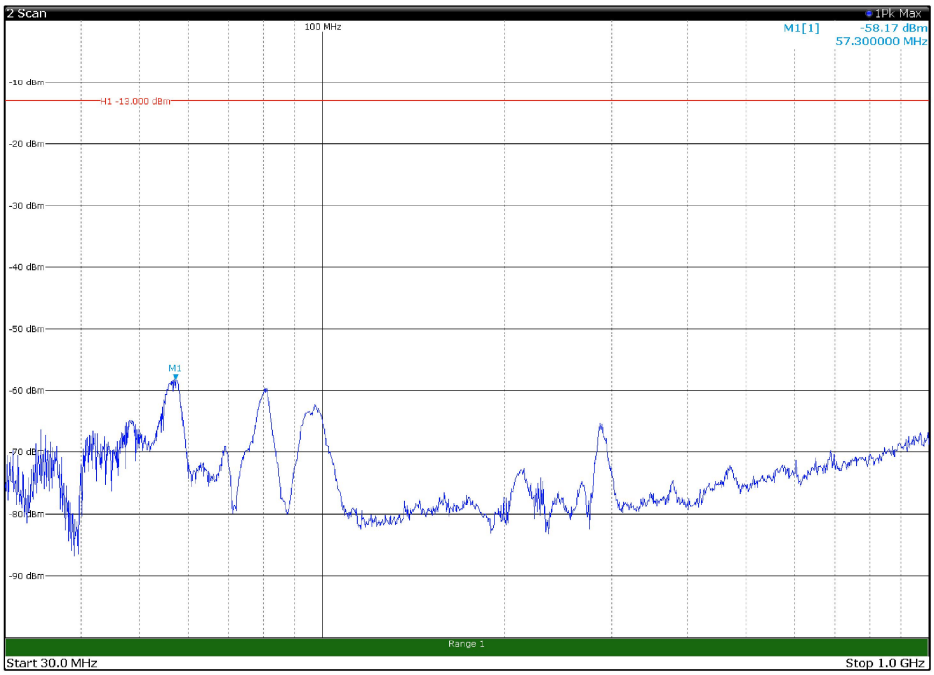
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 18GHz - 22.5GHz, Polarization: Horizontal



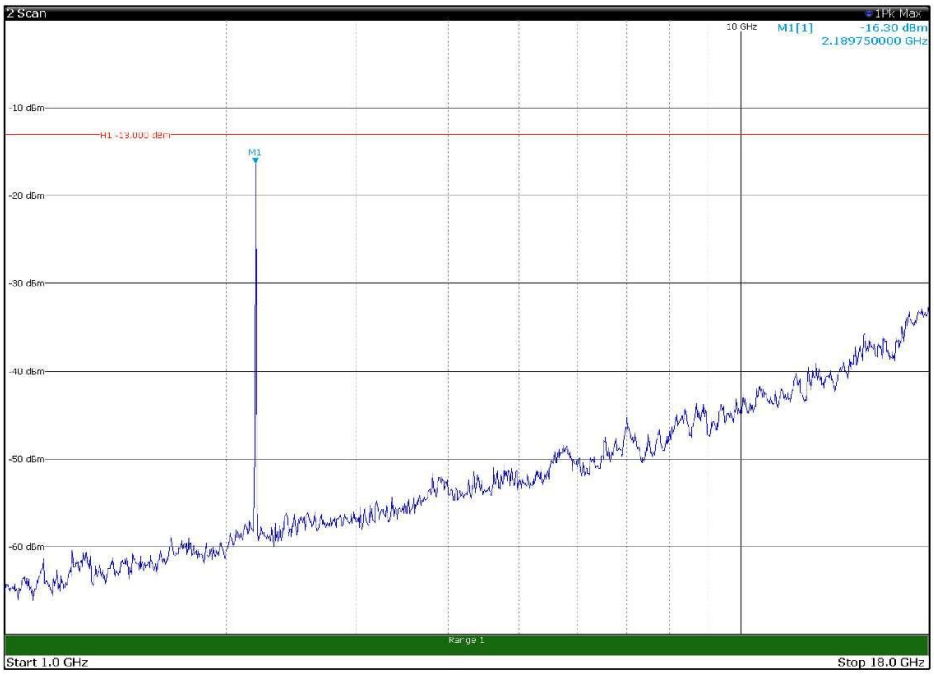
Channel: BOTTOM, Modulation: QPSK,
BW=5MHz, Range: 18GHz - 22.5GHz, Polarization: Vertical



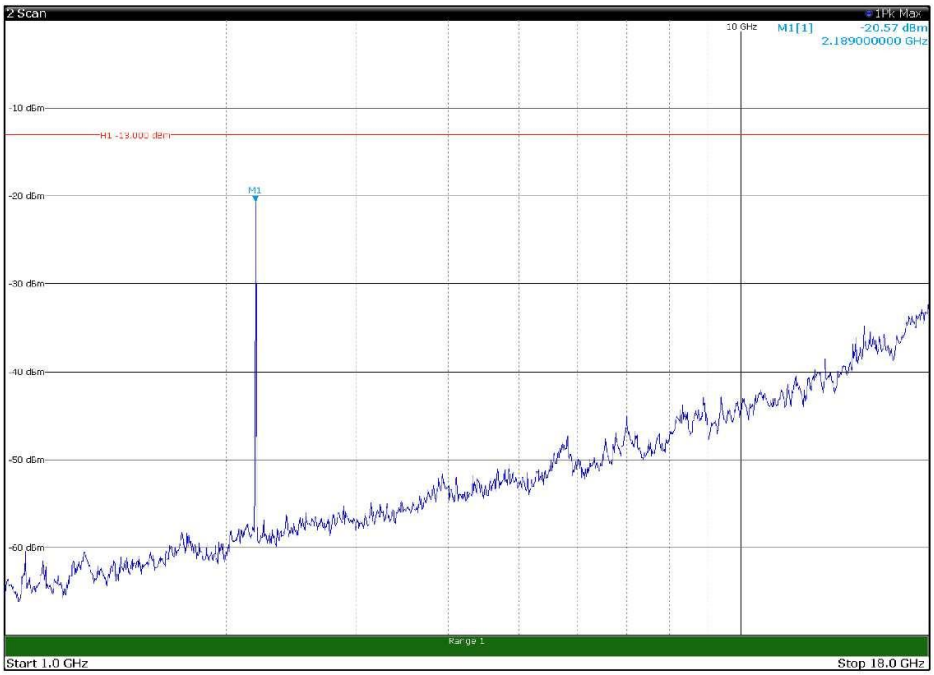
Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 30MHz - 1GHz, Polarization: Horizontal



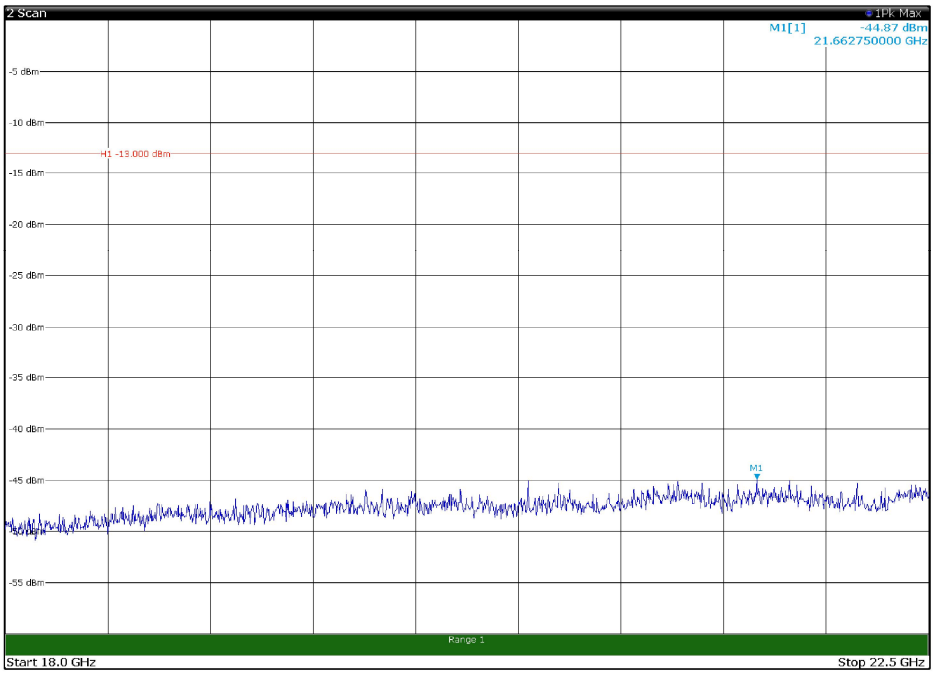
Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 30MHz - 1GHz, Polarization: Vertical



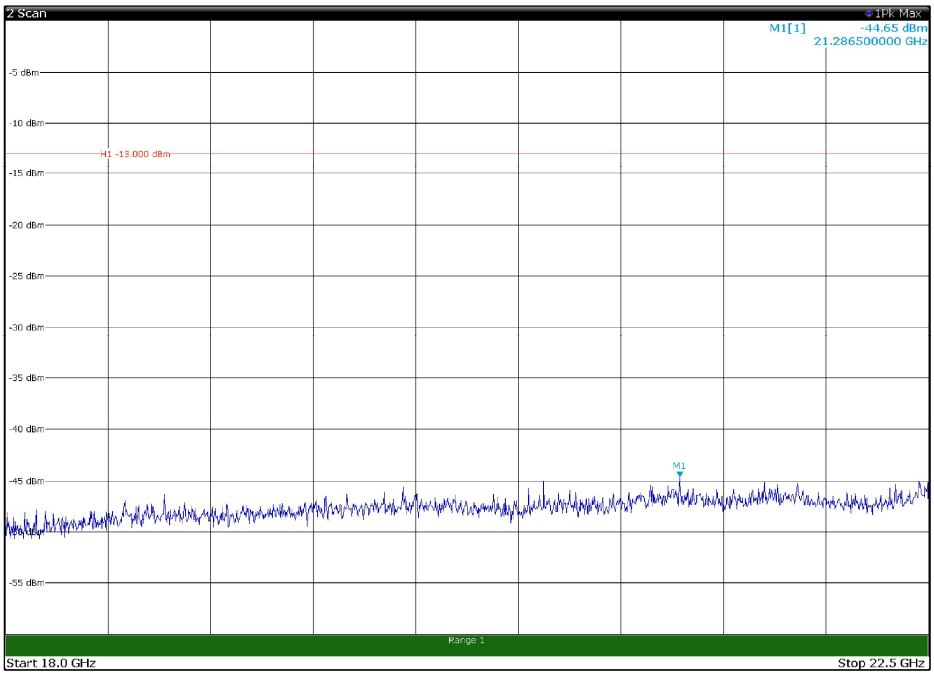
Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 1GHz - 18GHz, Polarization: Horizontal



Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 1GHz - 18GHz, Polarization: Vertical



Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 18GHz - 22.5GHz, Polarization: Horizontal



Channel: MIDDLE, Modulation: QPSK,
BW=5MHz, Range: 18GHz - 22.5GHz, Polarization: Vertical