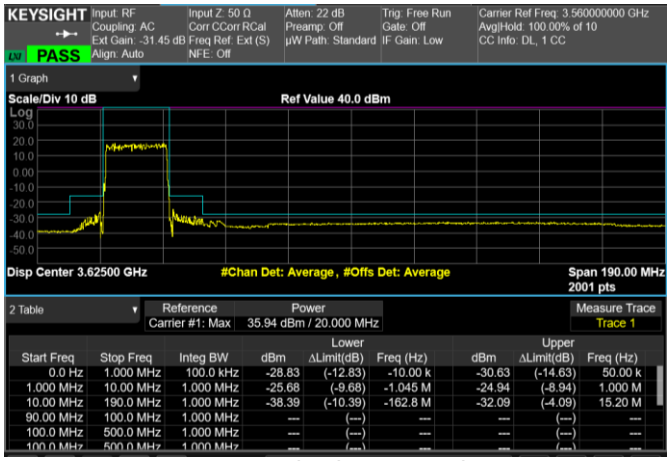
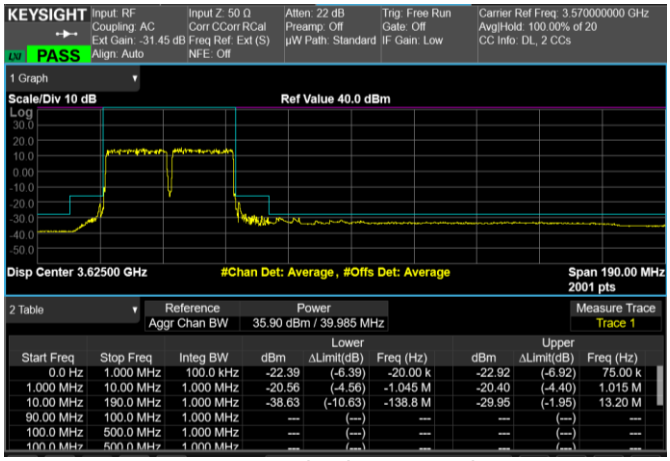
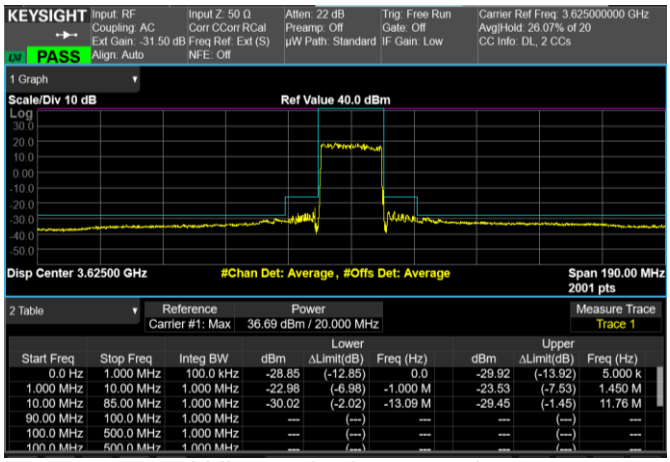


Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=20MHz

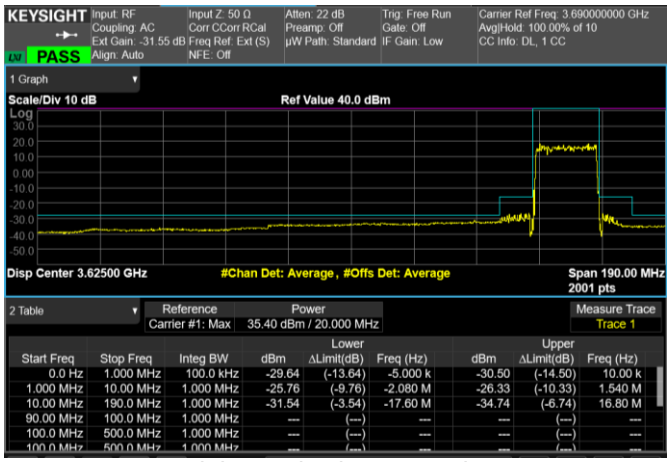


Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=20MHz

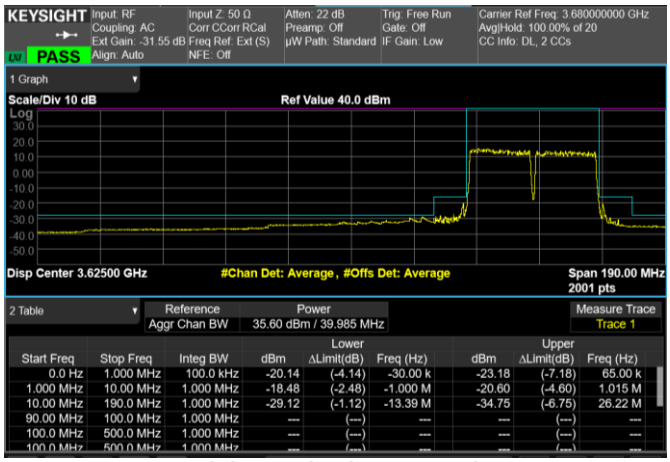


Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=20MHz

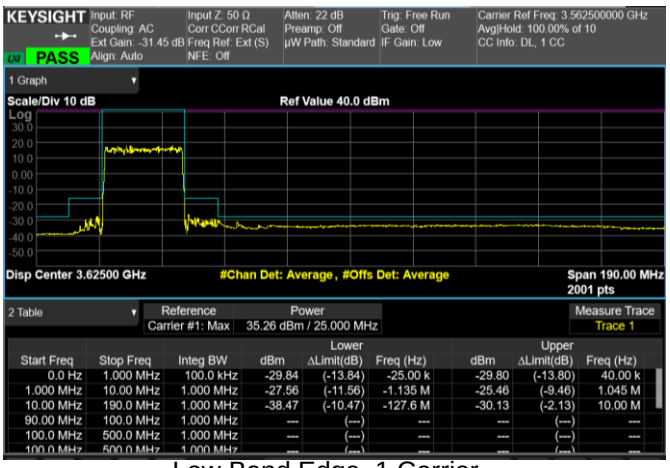
Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=20MHz



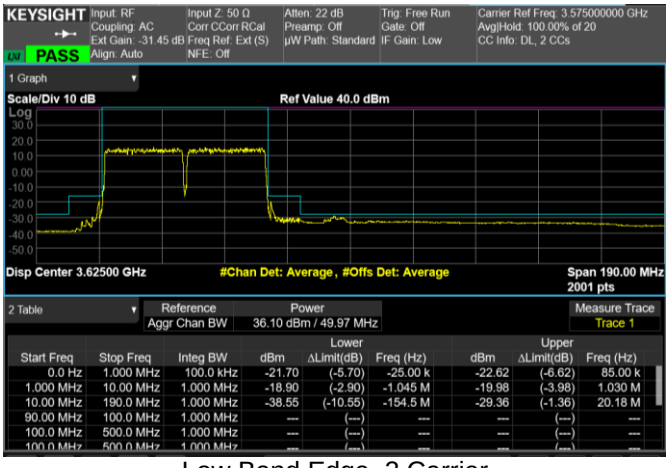
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=20MHz



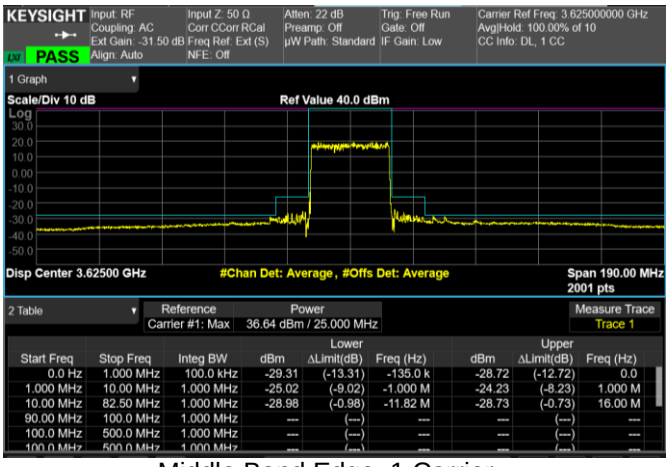
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=20MHz



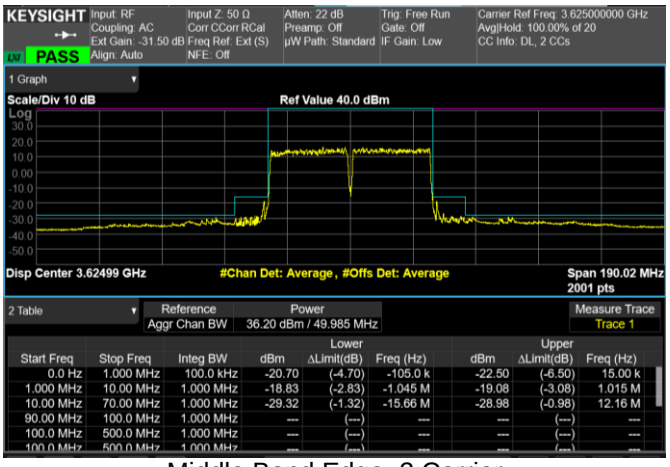
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=25MHz



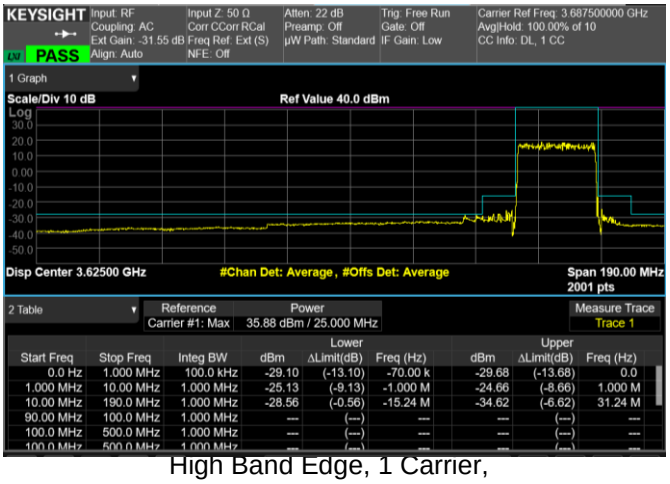
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=25MHz



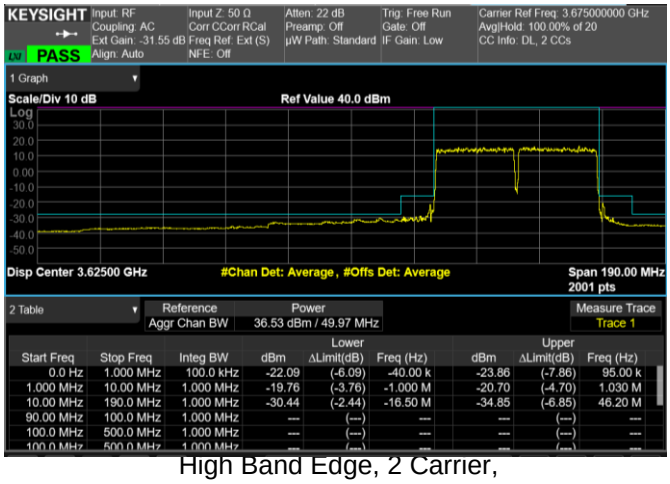
Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=25MHz



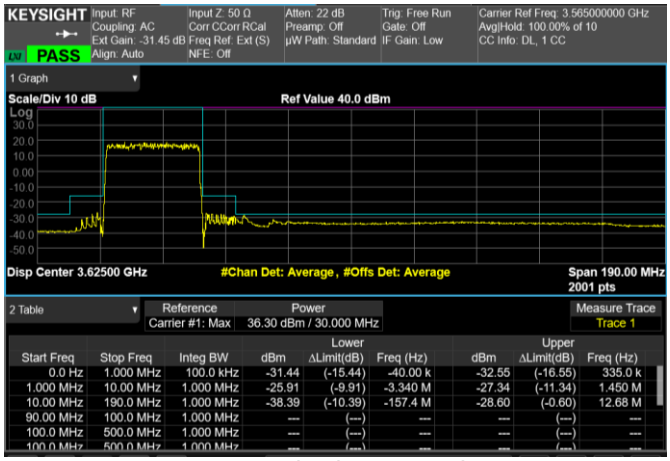
Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=25MHz



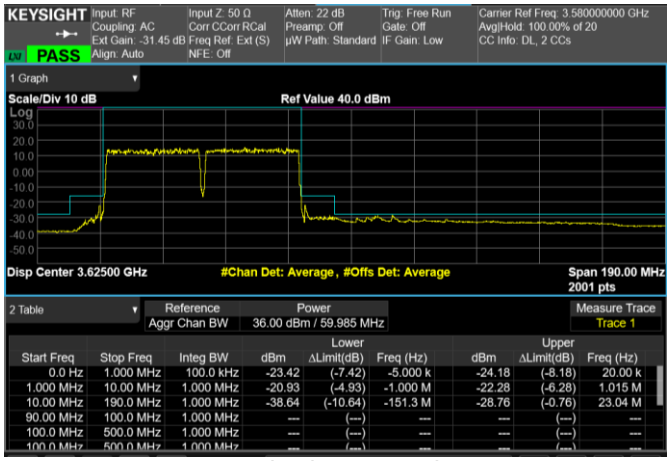
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=25MHz



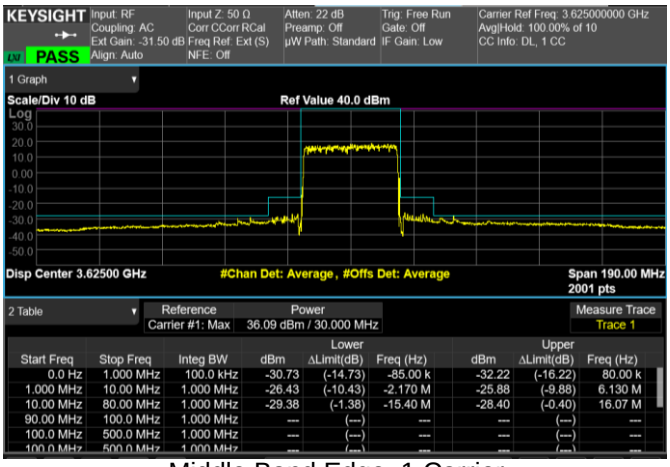
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=25MHz



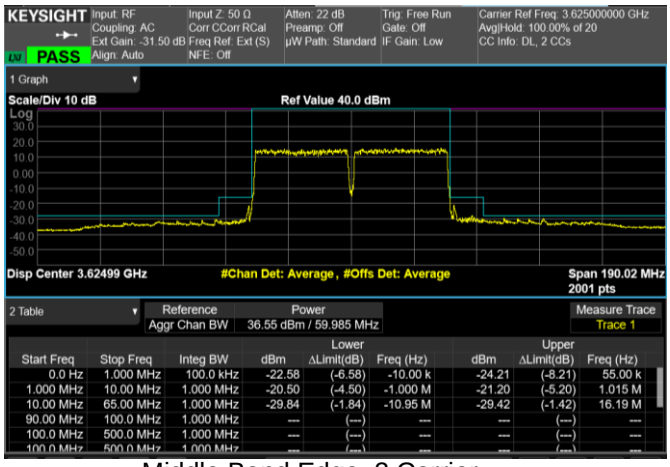
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=30MHz



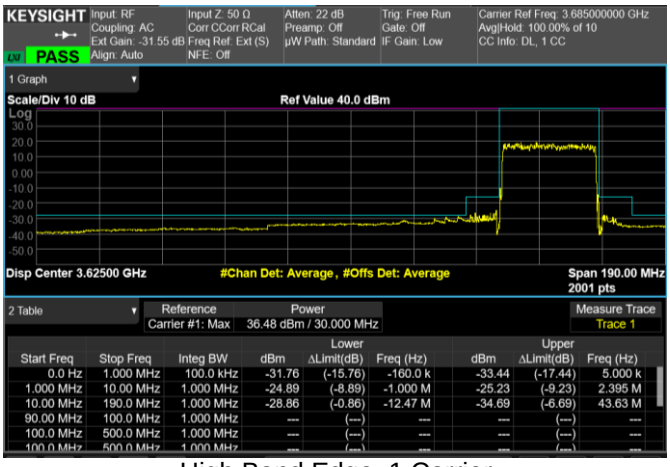
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=30MHz



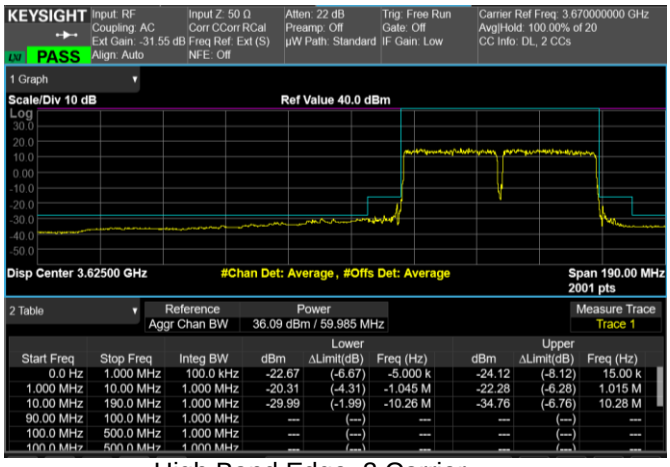
Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=30MHz



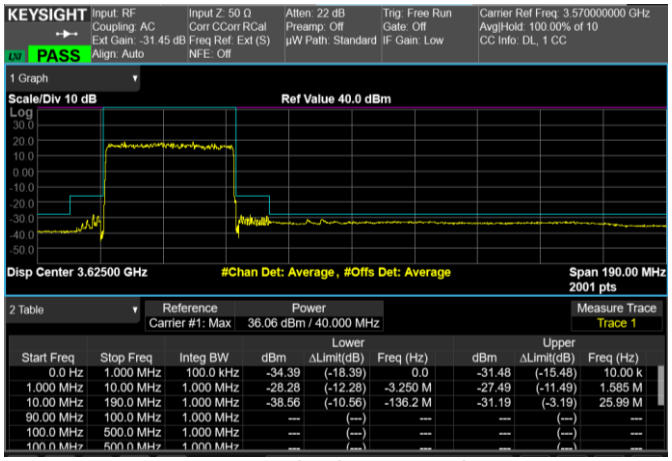
Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=30MHz



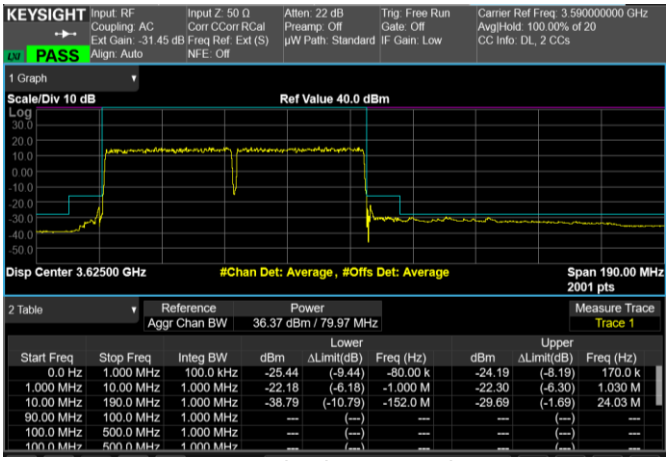
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=30MHz



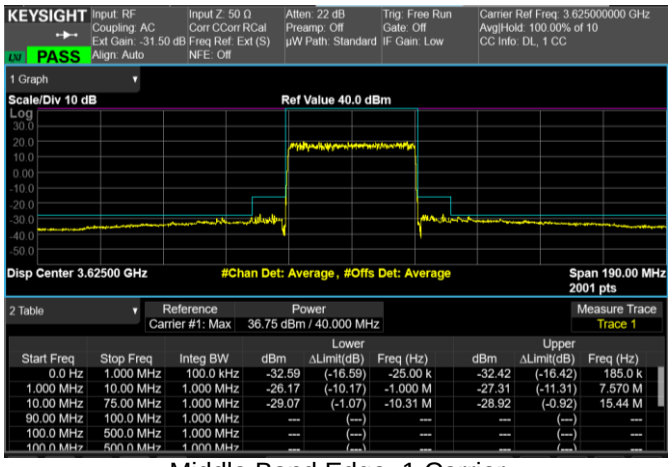
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=30MHz



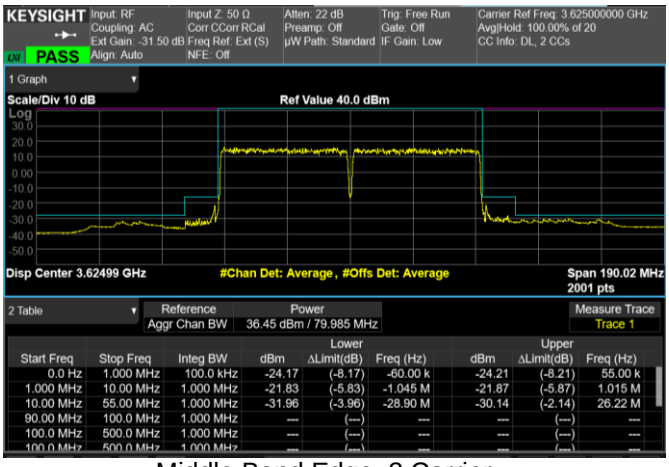
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=40MHz



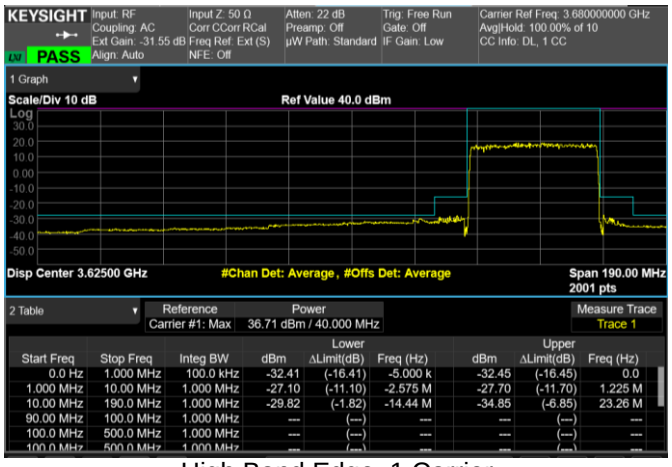
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=40MHz



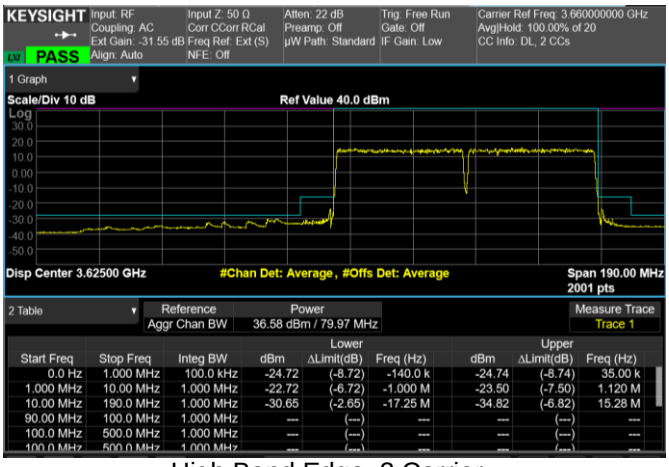
Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=40MHz



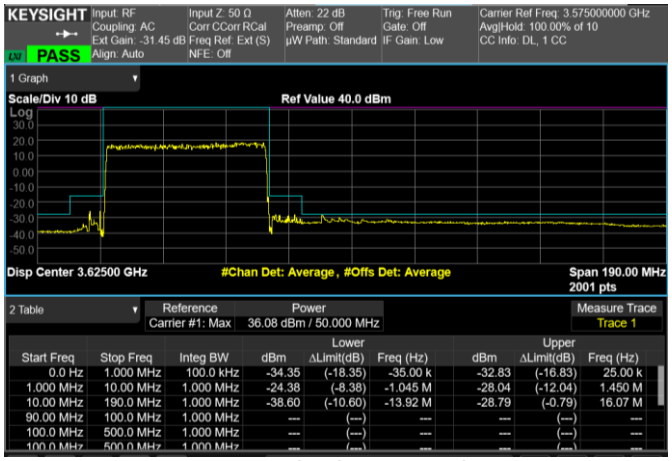
Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=40MHz



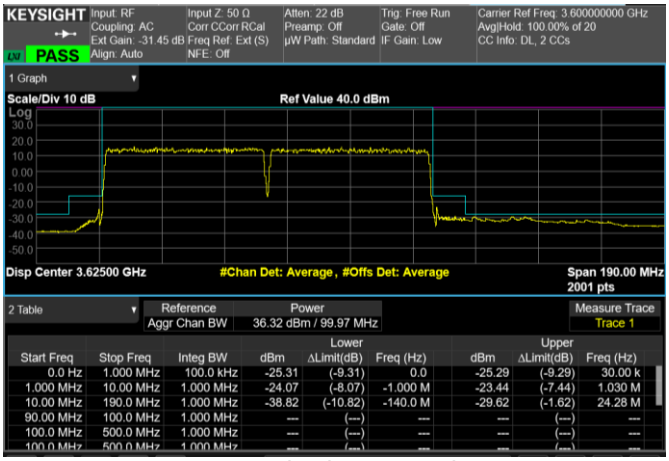
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=40MHz



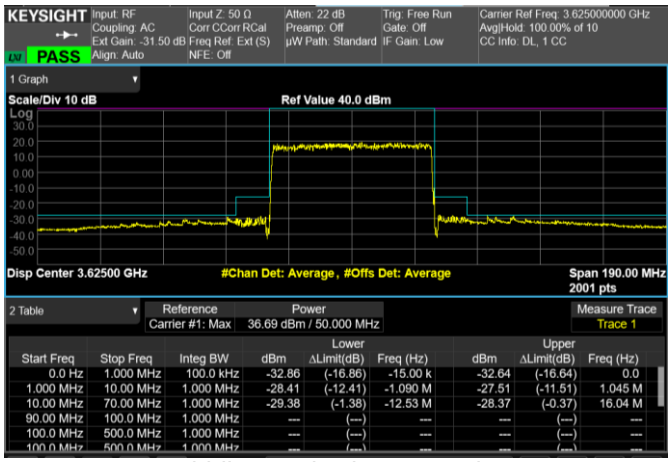
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=40MHz



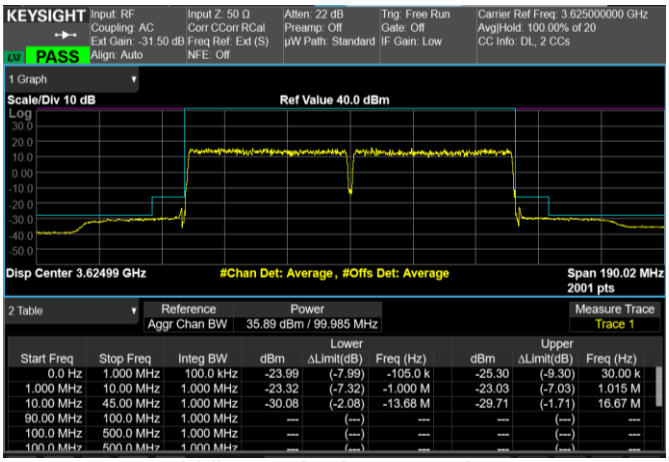
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=50MHz



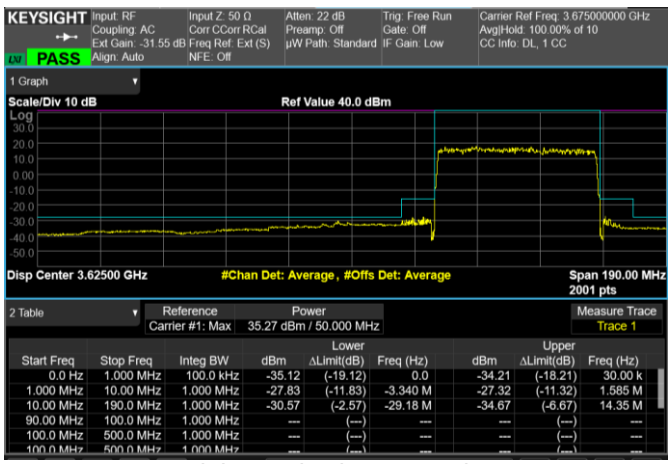
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=50MHz



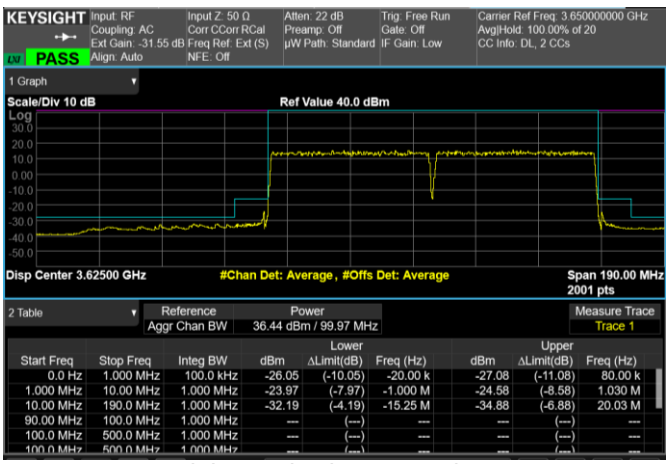
Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=50MHz



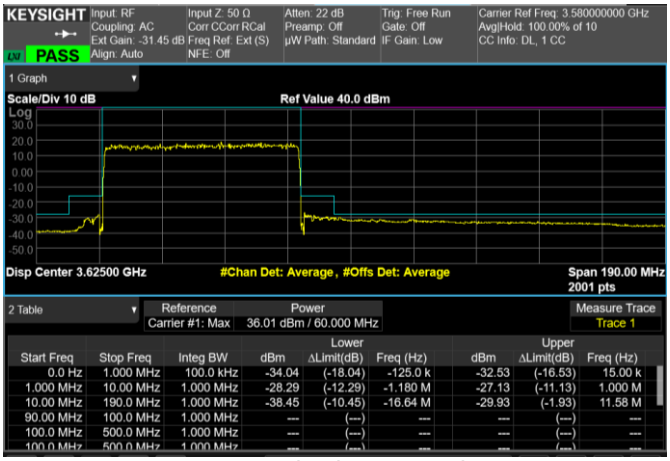
Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=50MHz



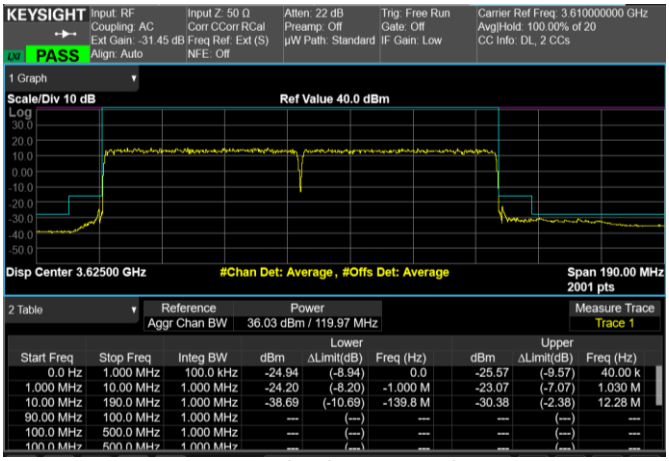
High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=50MHz



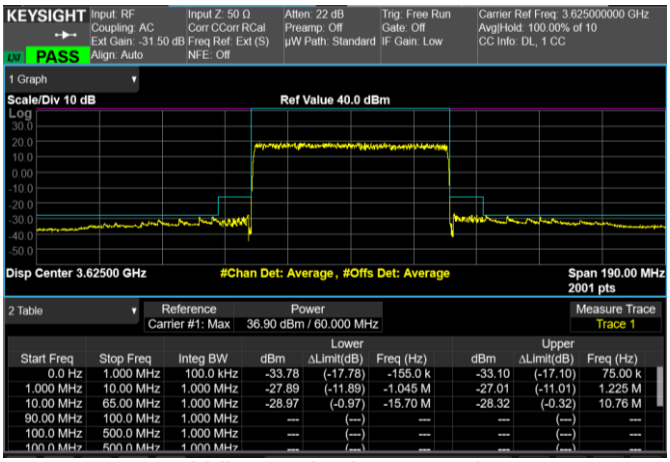
High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=50MHz



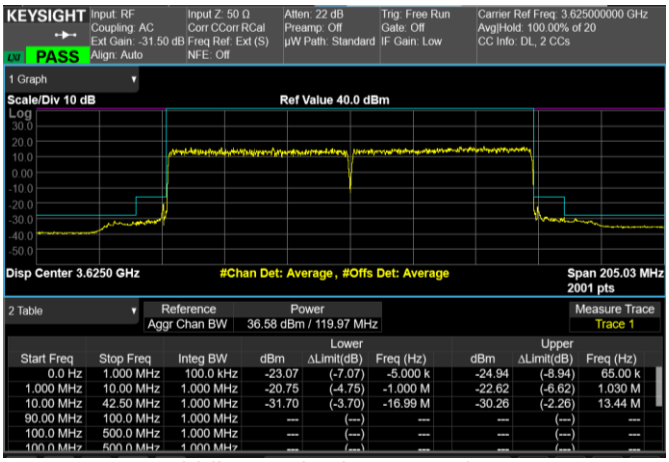
Low Band Edge, 1 Carrier,
Modulation: 64QAM, BW=60MHz



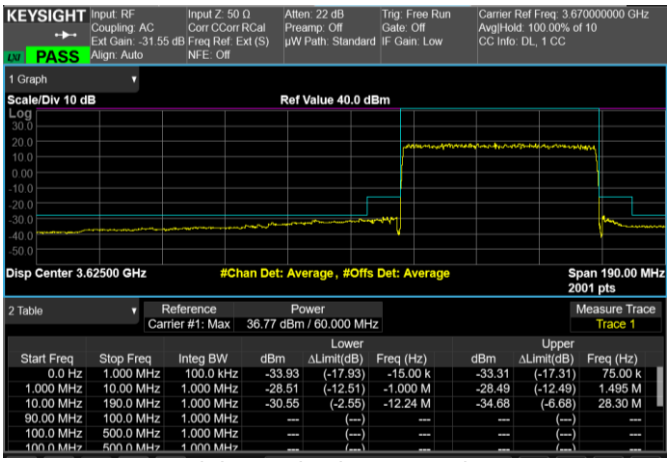
Low Band Edge, 2 Carrier,
Modulation: 64QAM, BW=60MHz



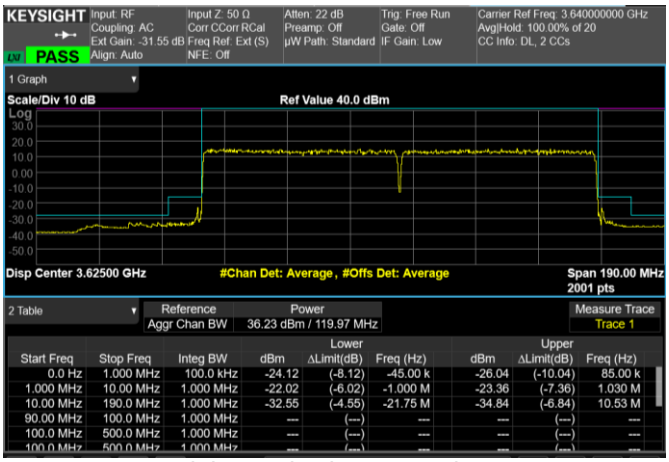
Middle Band Edge, 1 Carrier,
Modulation: 64QAM, BW=60MHz



Middle Band Edge, 2 Carrier,
Modulation: 64QAM, BW=60MHz



High Band Edge, 1 Carrier,
Modulation: 64QAM, BW=60MHz



High Band Edge, 2 Carrier,
Modulation: 64QAM, BW=60MHz

Clause 96.41(e)(1)(2)(3) Radiated Spurious emissions

(e) *3.5 GHz Emissions and Interference Limits—*

(1) *General protection levels.* Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz
within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed −25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

(2) *Additional protection levels.* Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

(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 authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (*i.e.,* 1 MHz or 1 percent of emission bandwidth, as specified). 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.

Test date: 10/24/2022 to 10/27/2022

Test results: Pass

Special notes

Measurements were performed for all modulation types. As an example, only measurements for 64 QAM modulation type are reported.

Clause 96.41(e)(1)(2)(3) Radiated spurious emissions, continued

Test equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.
Trilog Broad Band Antenna	Schwarzbeck	VULB 9162	VULB 9162-25
Bilog antenna (1 ÷ 18 GHz)	Schwarzbeck	STLP 9148	STPL 9148-123
Double ridge horn antenna (4 ÷ 40 GHz)	RFSpin	DRH40	061106A40
Broadband preamplifier (18 ÷ 40 GHz)	Sage	STB-1834034030-KFKF-L1	18490-01
Broadband preamplifier (1 ÷ 18 GHz)	Schwarzbeck	BBV9718C	00121
EMI receiver (2 Hz ÷ 44 GHz)	R&S	ESW44	101620
Spectrum Analyzer (2 Hz ÷ 43.5 GHz)	R&S	FSW43	101767
Controller	Maturo	FCU3.0	10041
Tilt antenna mast	Maturo	TAM4.0-E	10042
Turntable	Maturo	TT4.0-5T	2.527
Semi-anechoic chamber	Comtest	3m SAC	1711-150

Test data

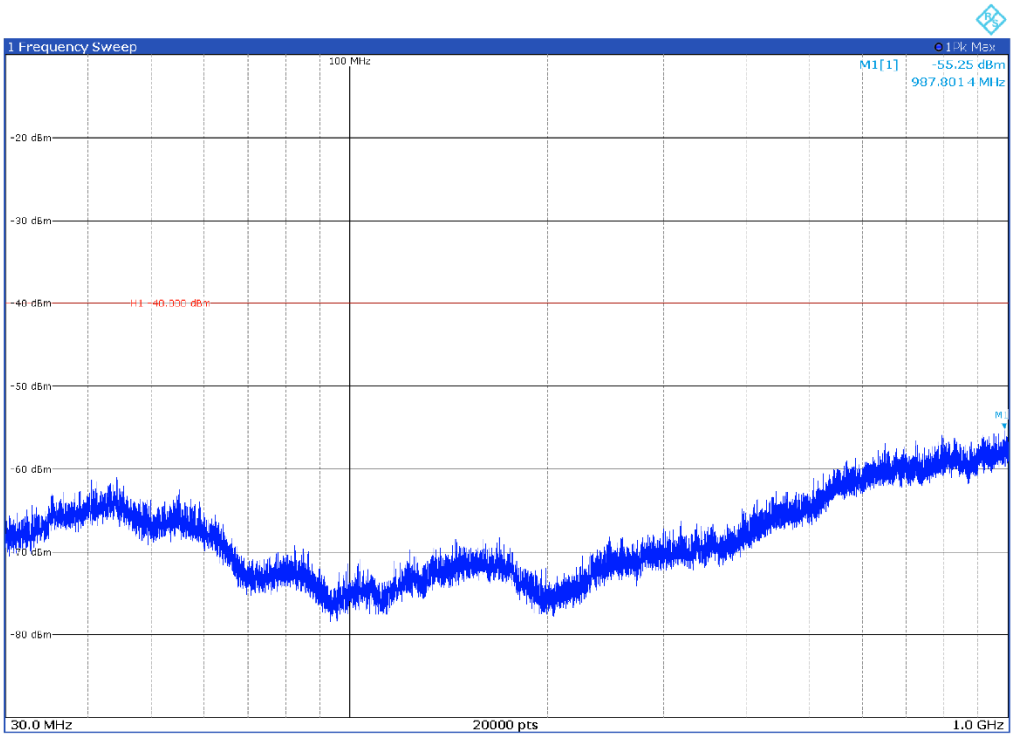
The D.U.T. was positioned according to the radiated emissions set-up

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

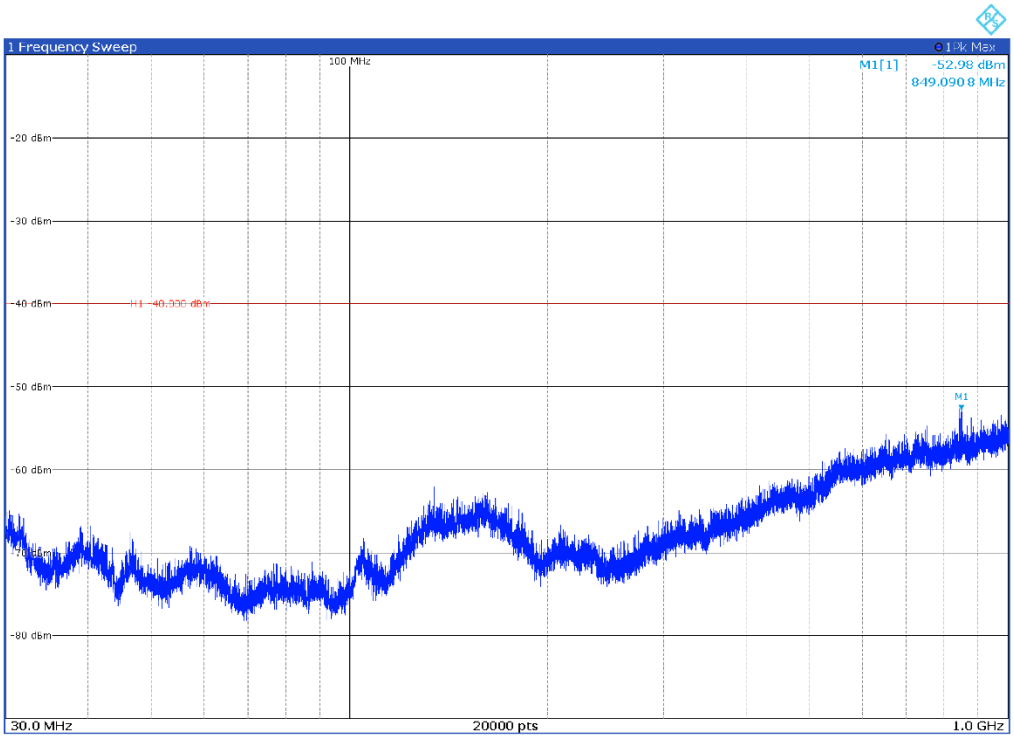
The spectrum was searched from 30 MHz to 1 GHz (RBW 100 kHz) & 1 GHz (RBW 1 MHz) to the tenth harmonic of the carrier.

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

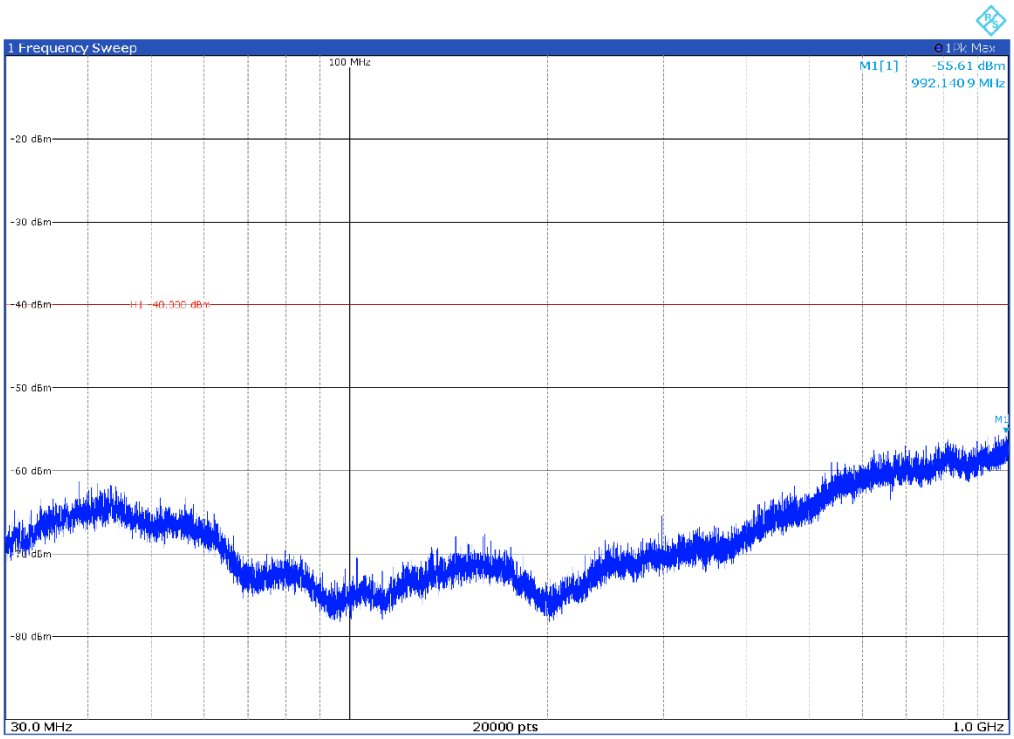
BANDWIDTH: 5 MHz



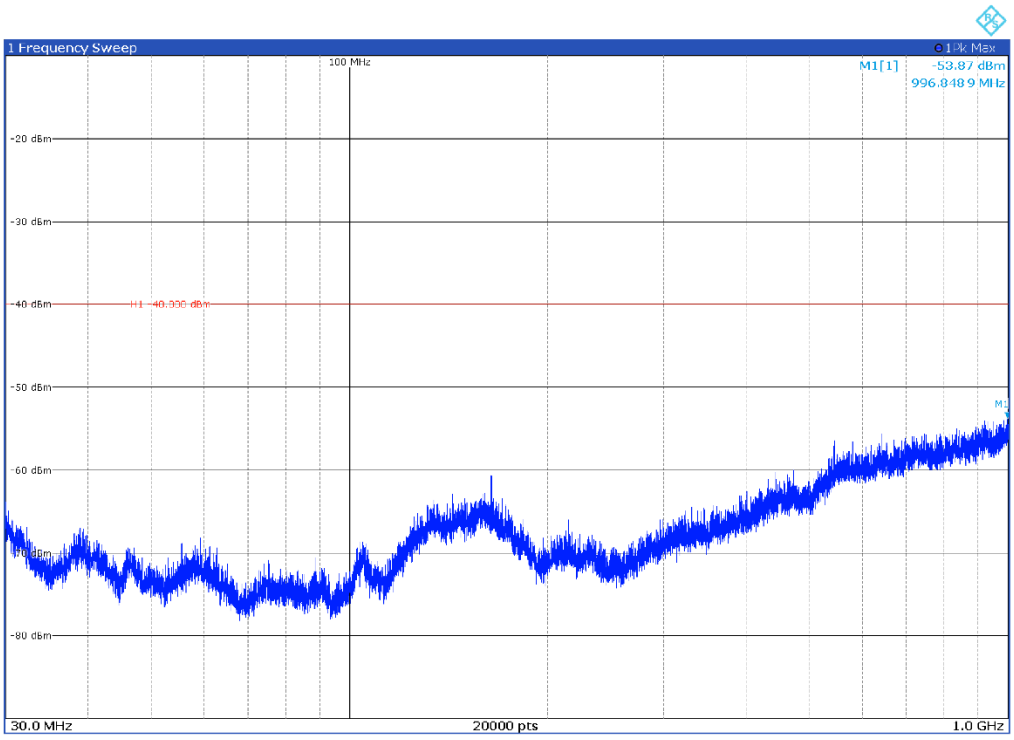
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



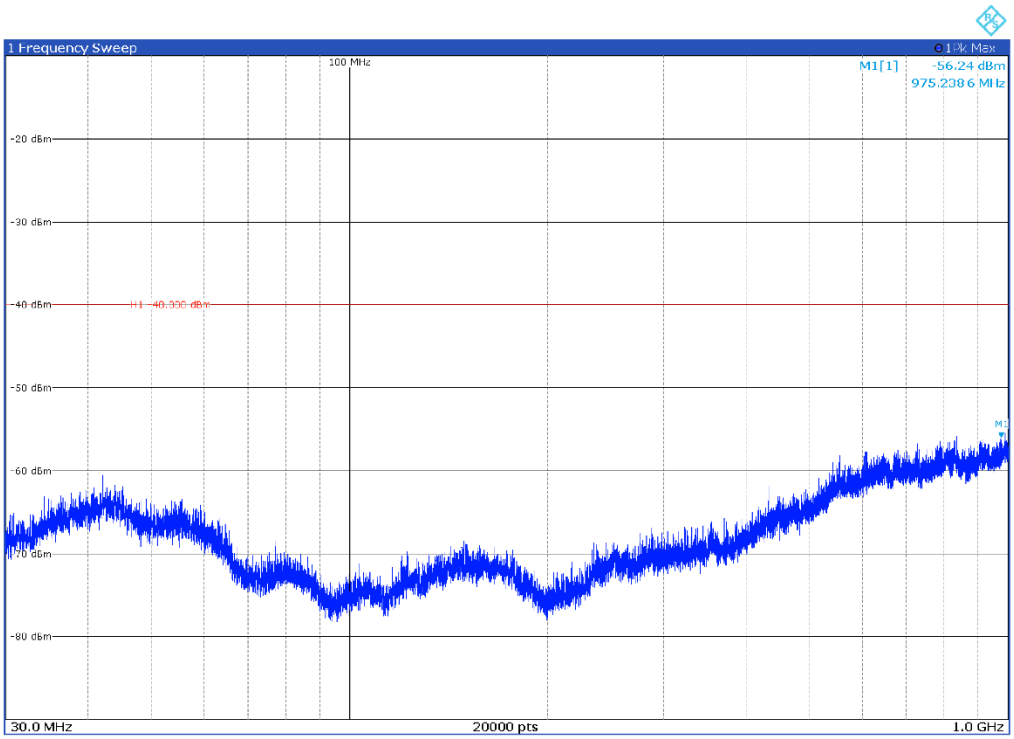
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical



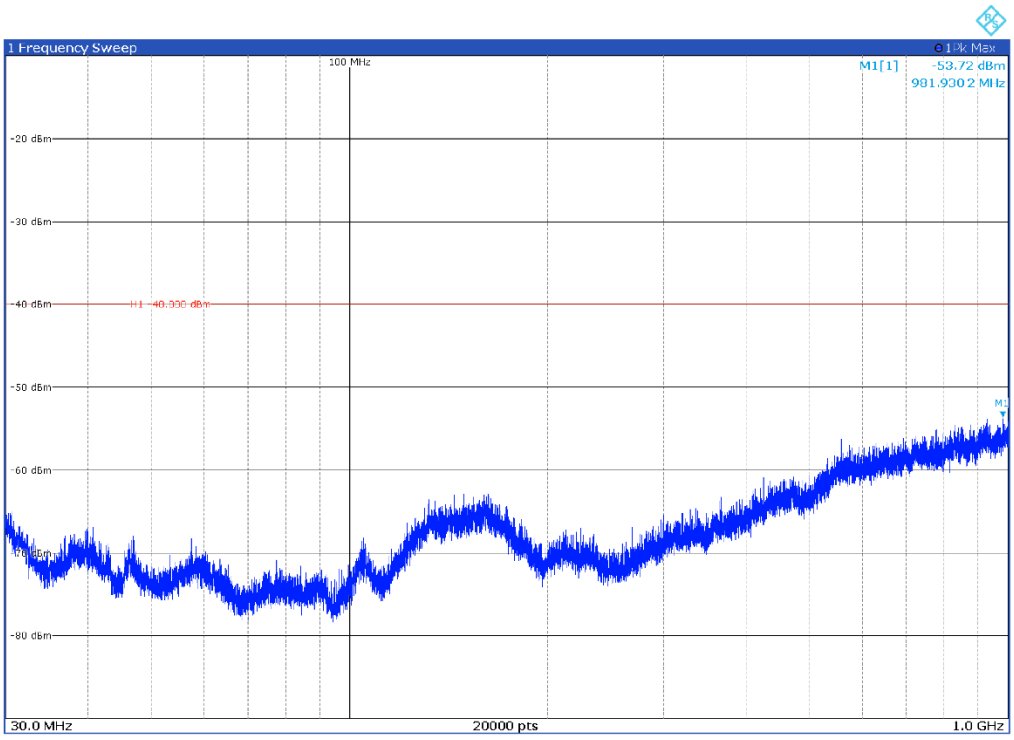
Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



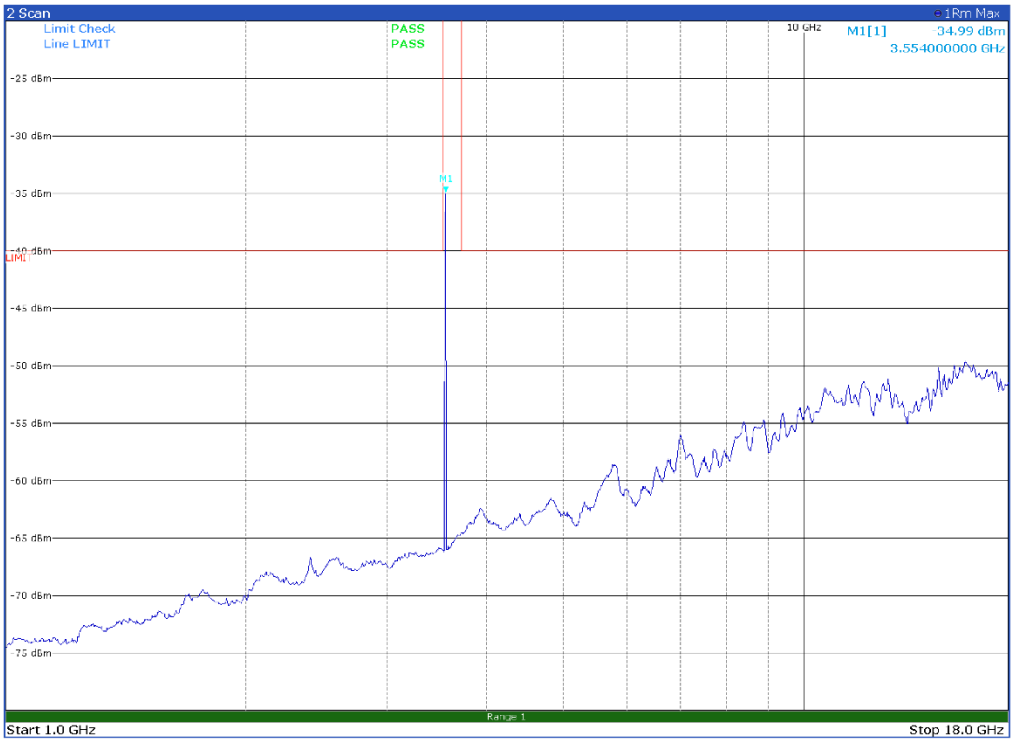
Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical



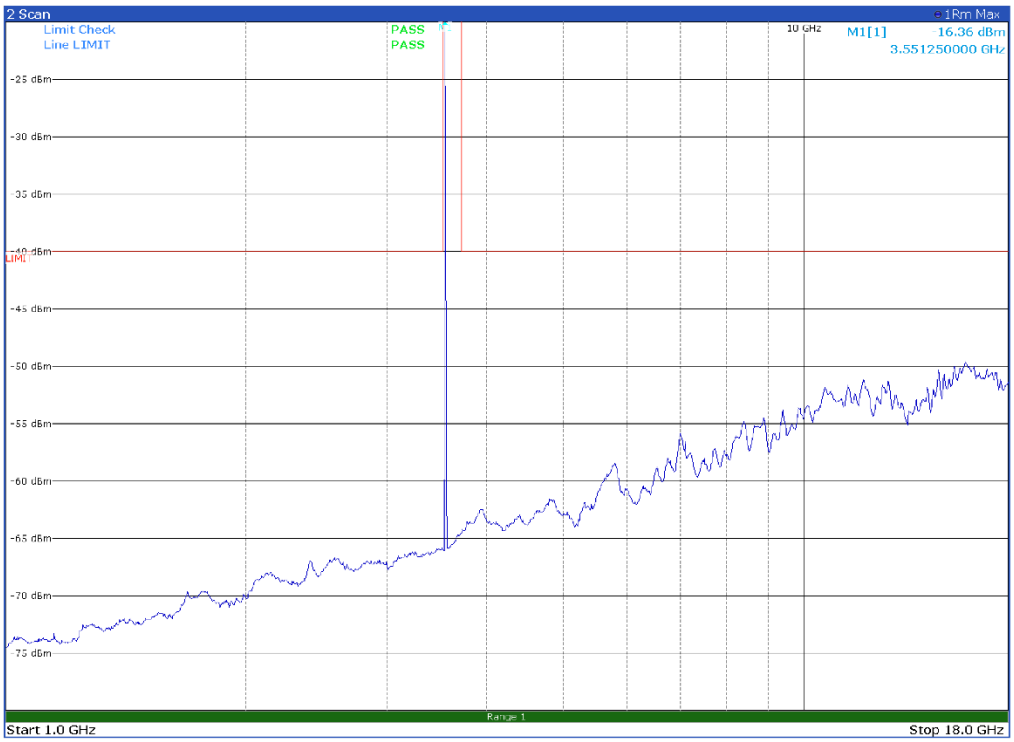
Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



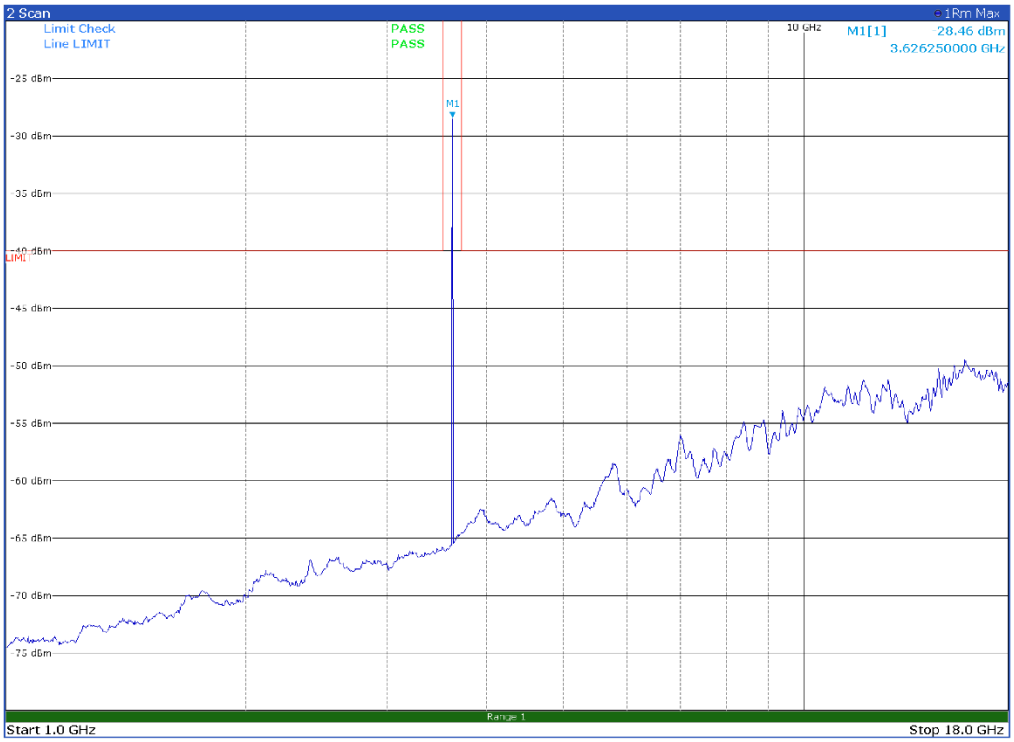
Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical



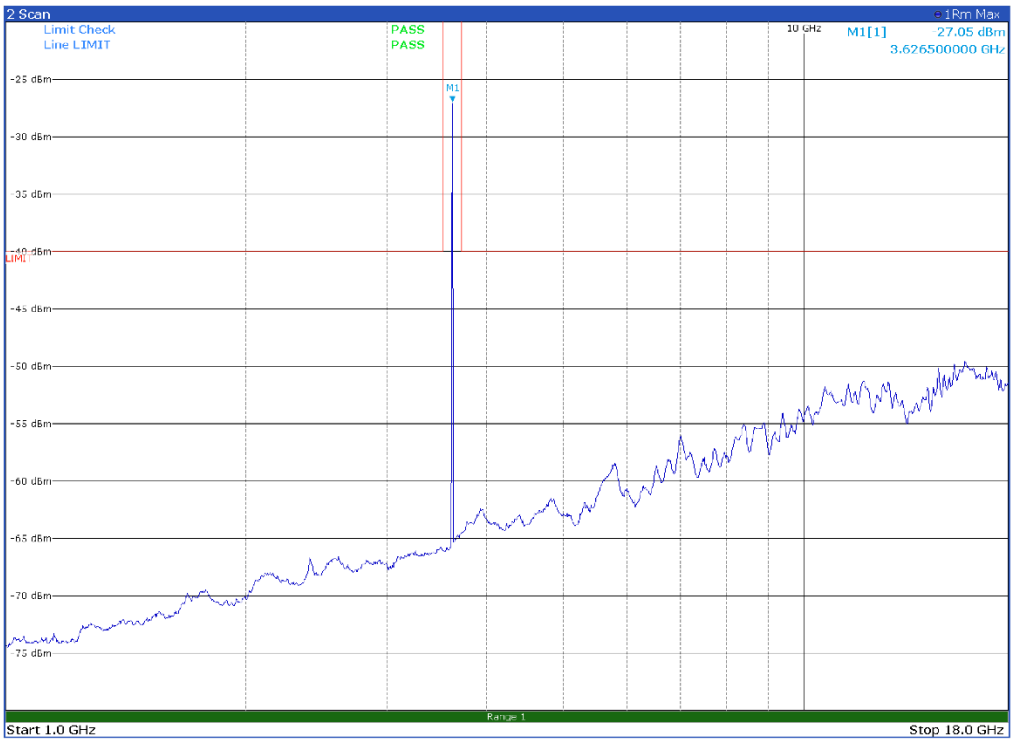
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Horizontal



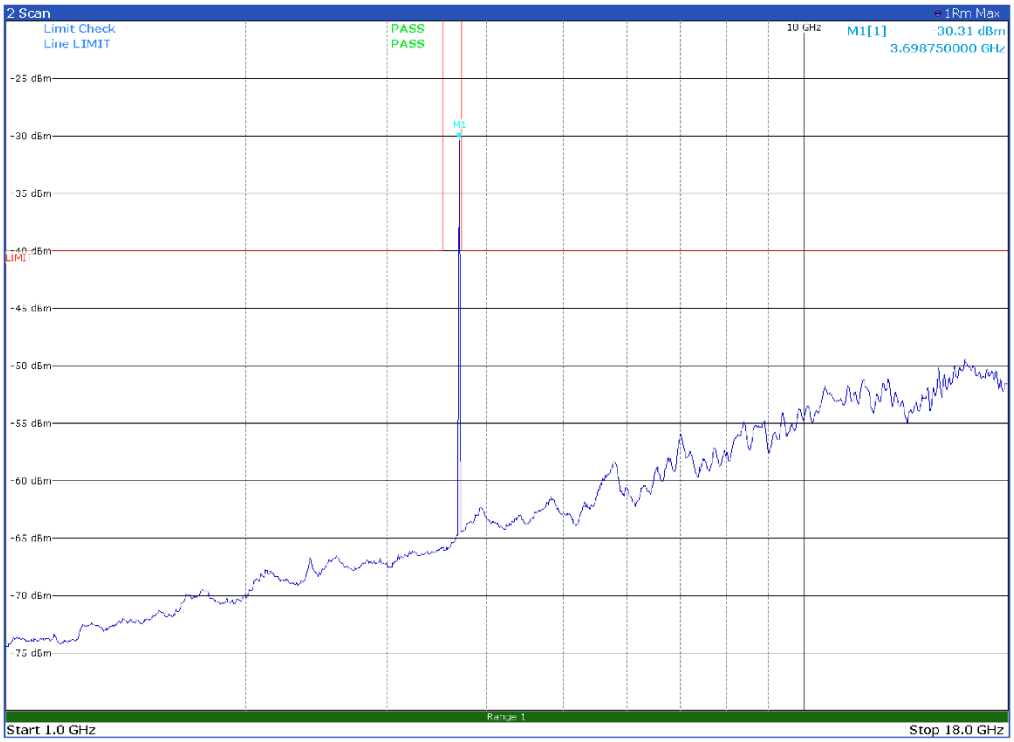
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Vertical



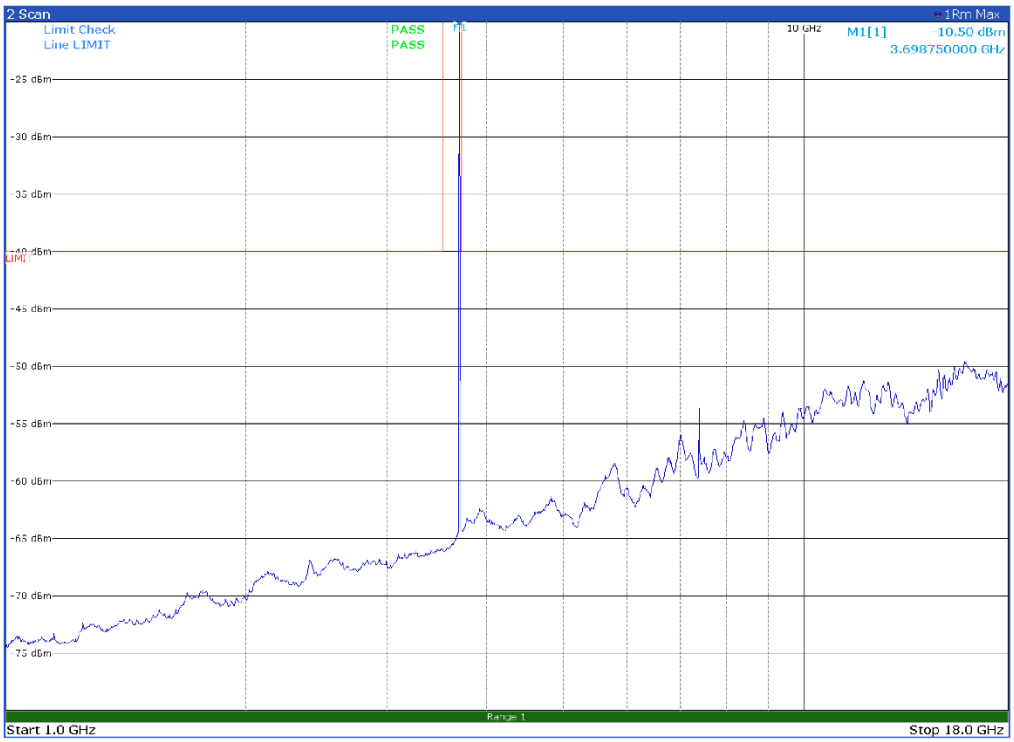
Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Horizontal



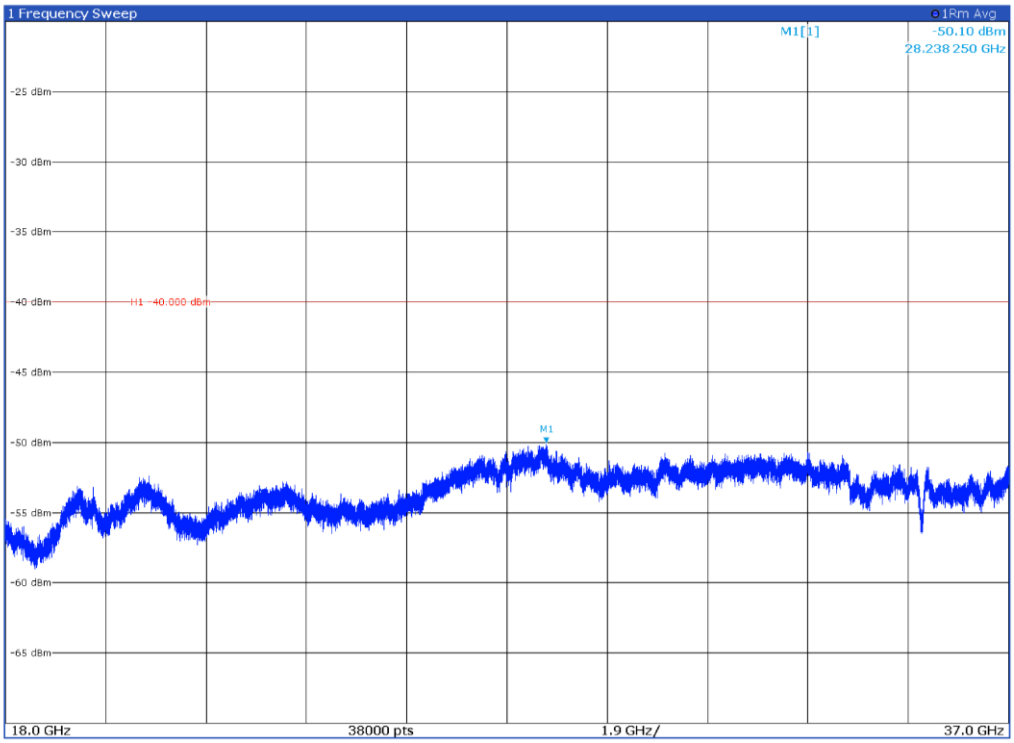
Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Vertical



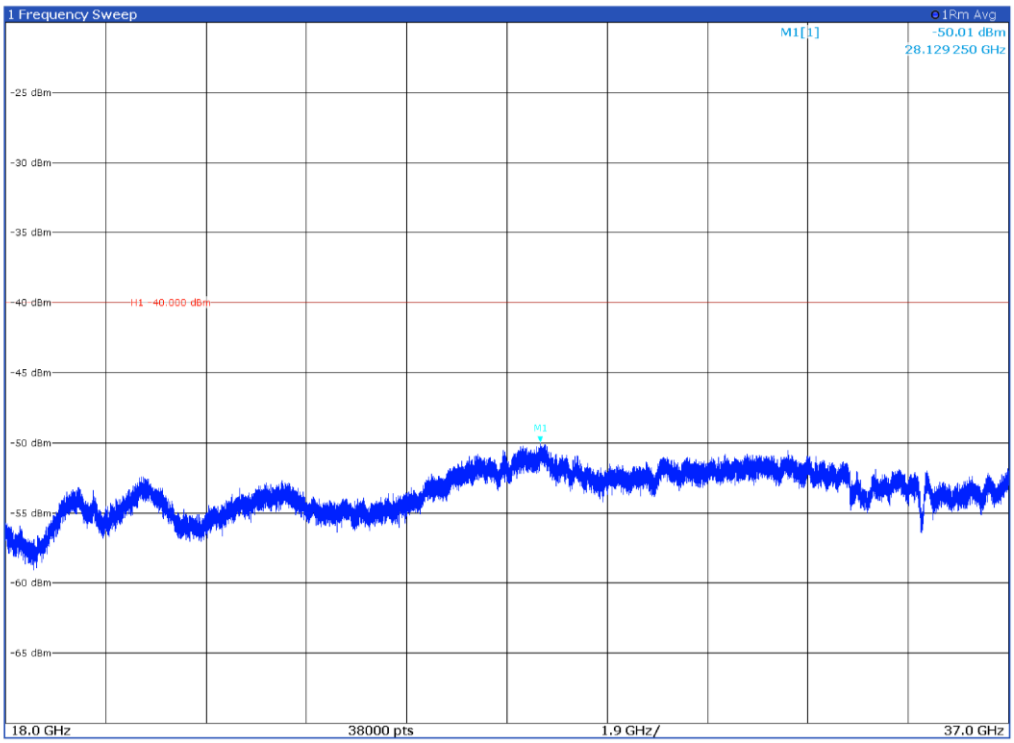
Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Horizontal



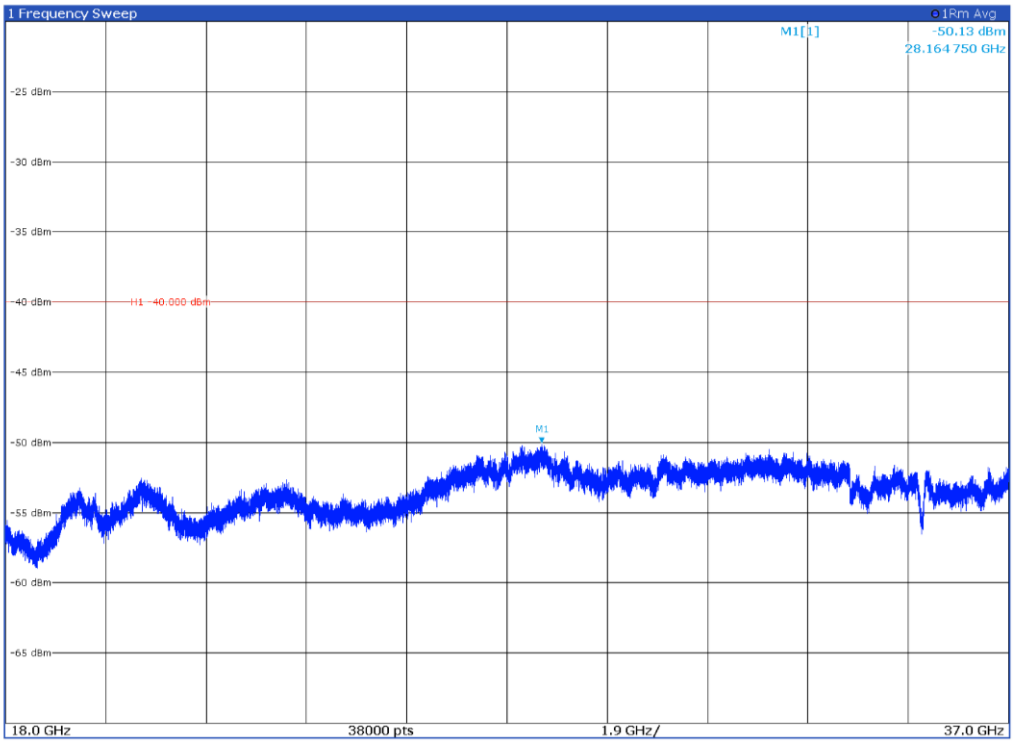
Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 1 GHz-18 GHz, Polarization: Vertical



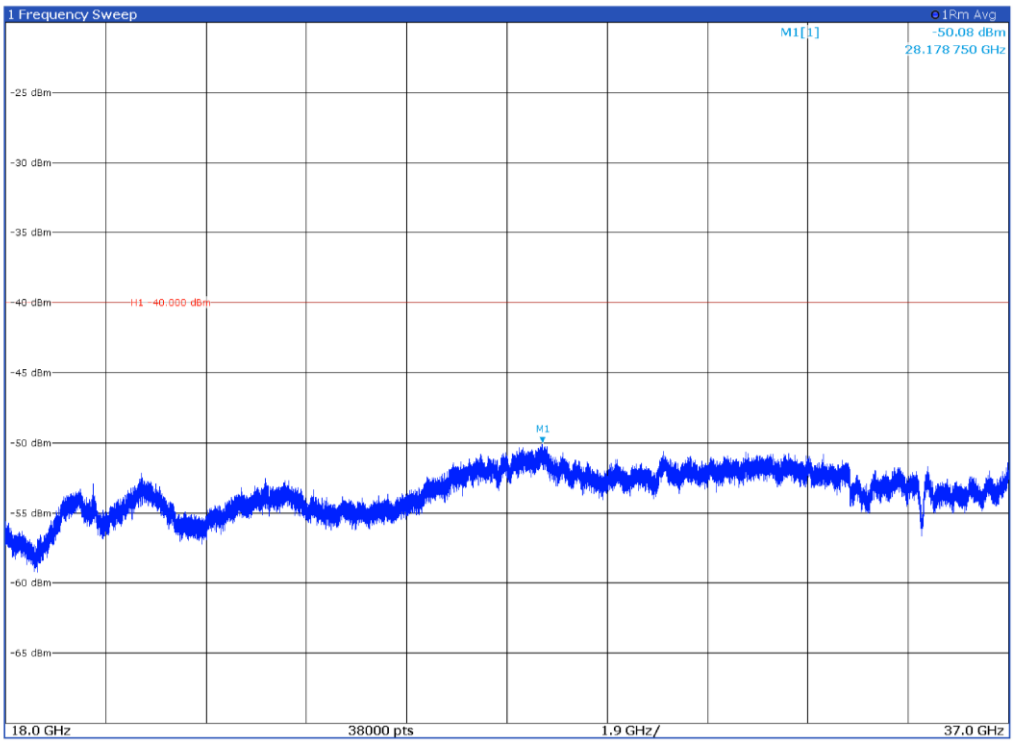
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Horizontal



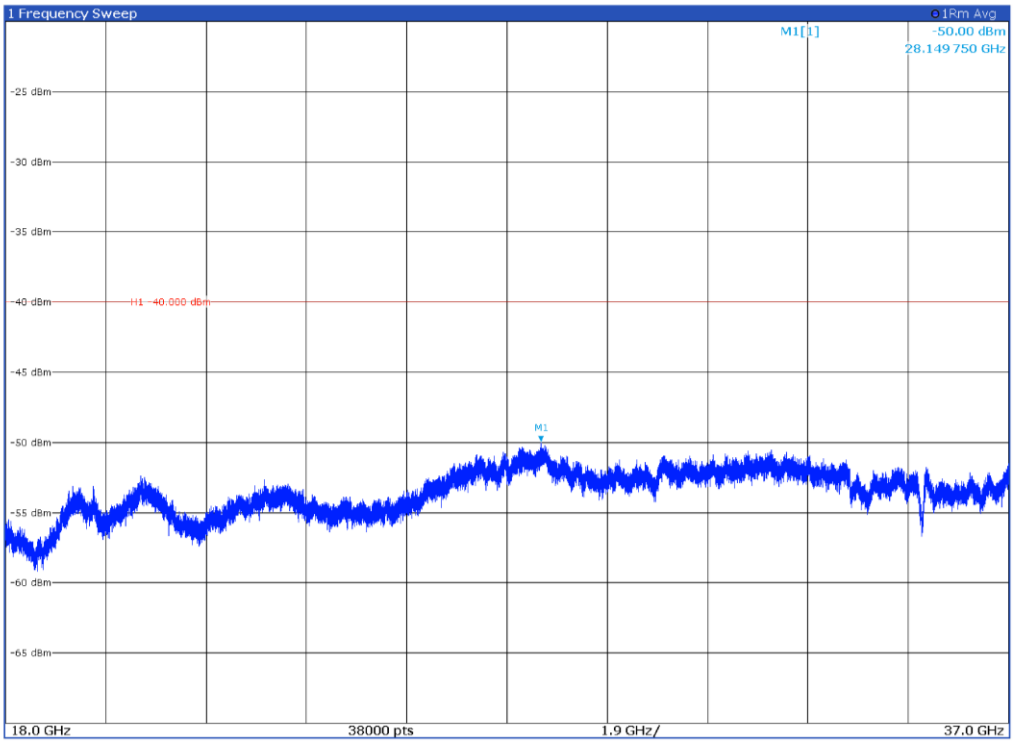
Channel: BOTTOM, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Vertical



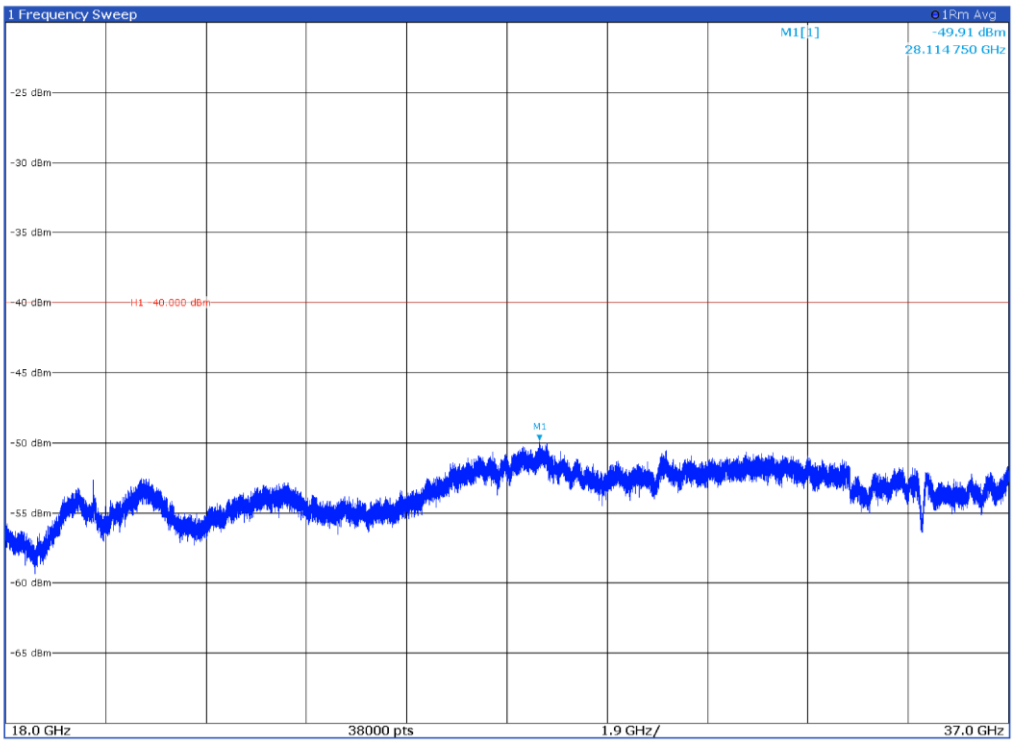
Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Horizontal



Channel: MIDDLE, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Vertical

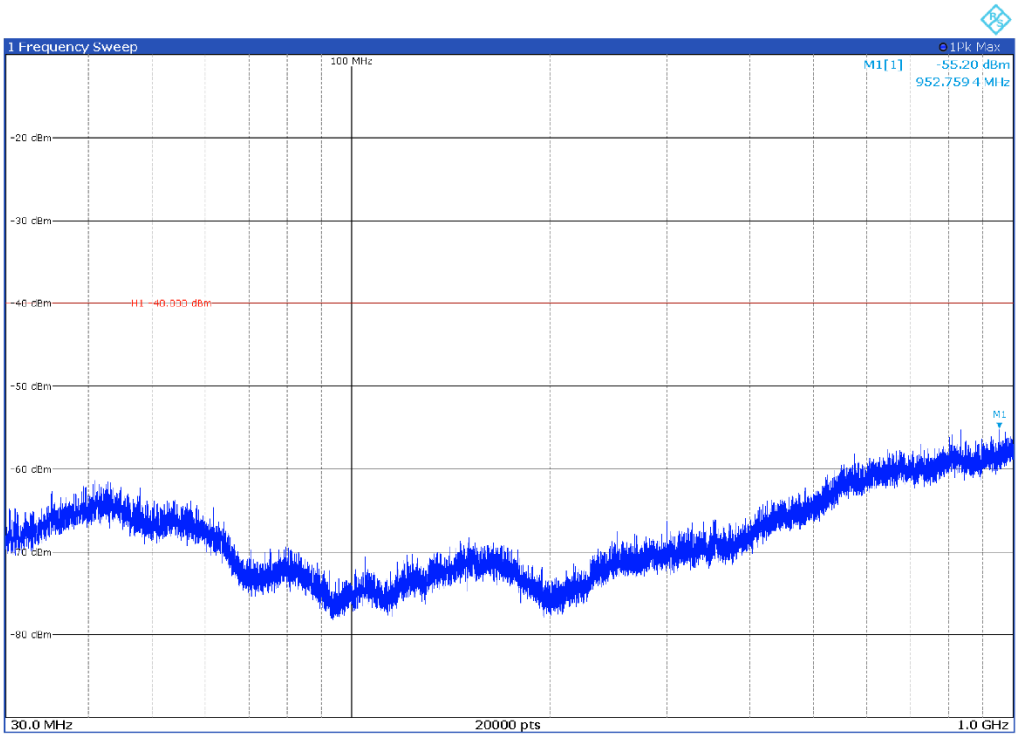


Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Horizontal

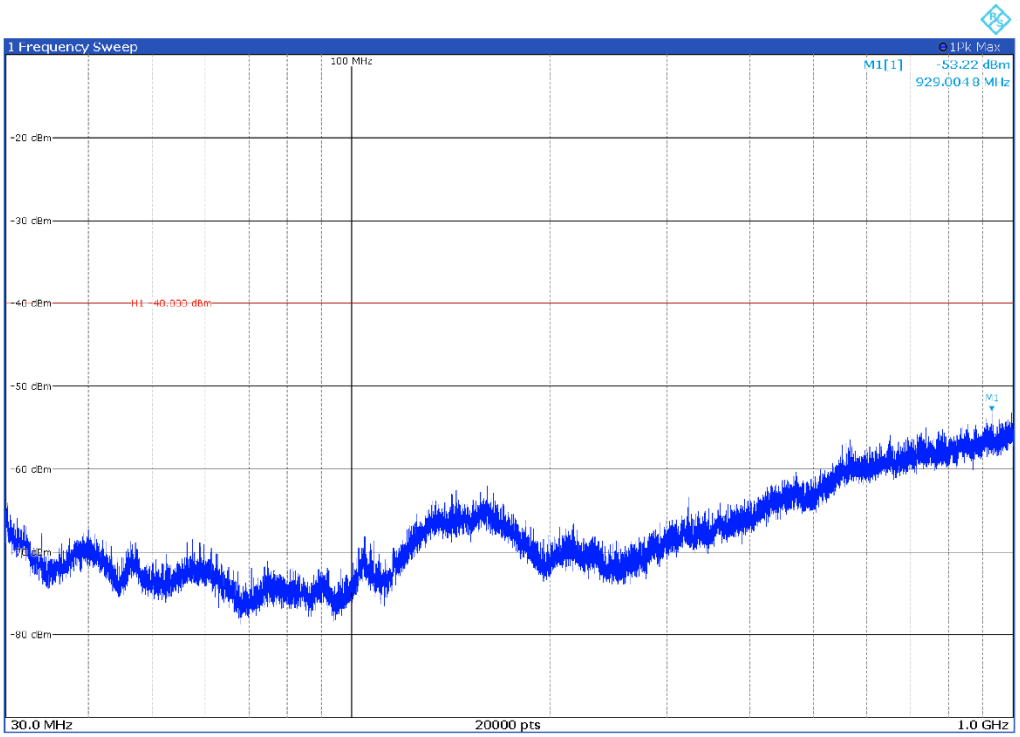


Channel: TOP, Modulation: 64QAM,
BW=5 MHz, Range: 18 GHz-37 GHz, Polarization: Vertical

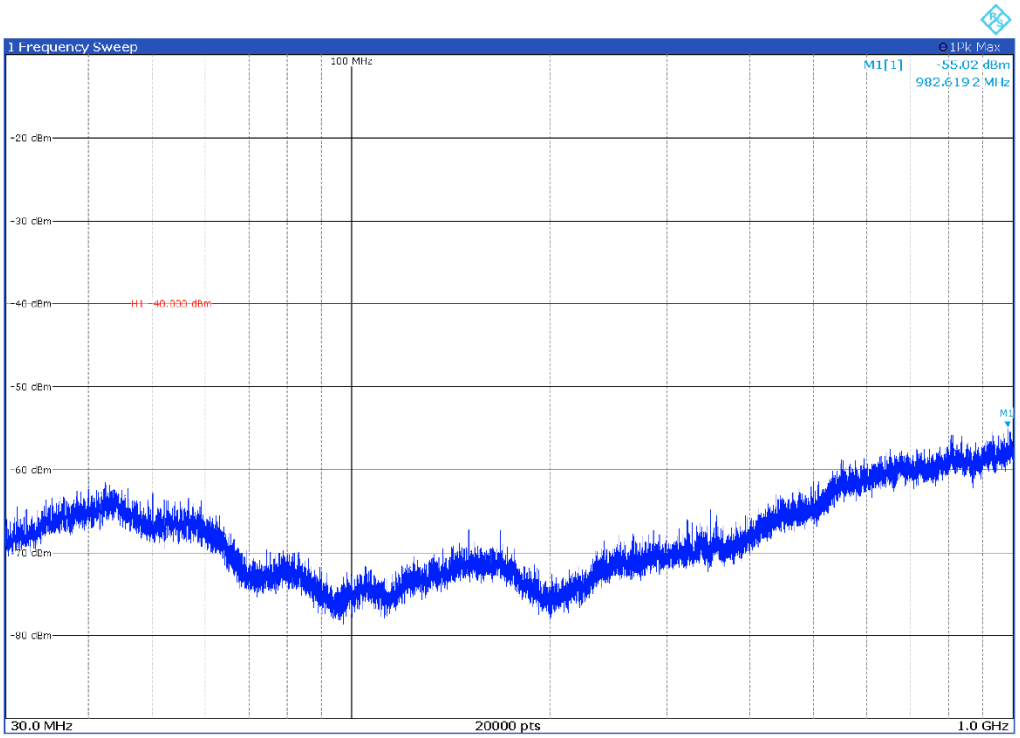
BANDWIDTH: 10 MHz



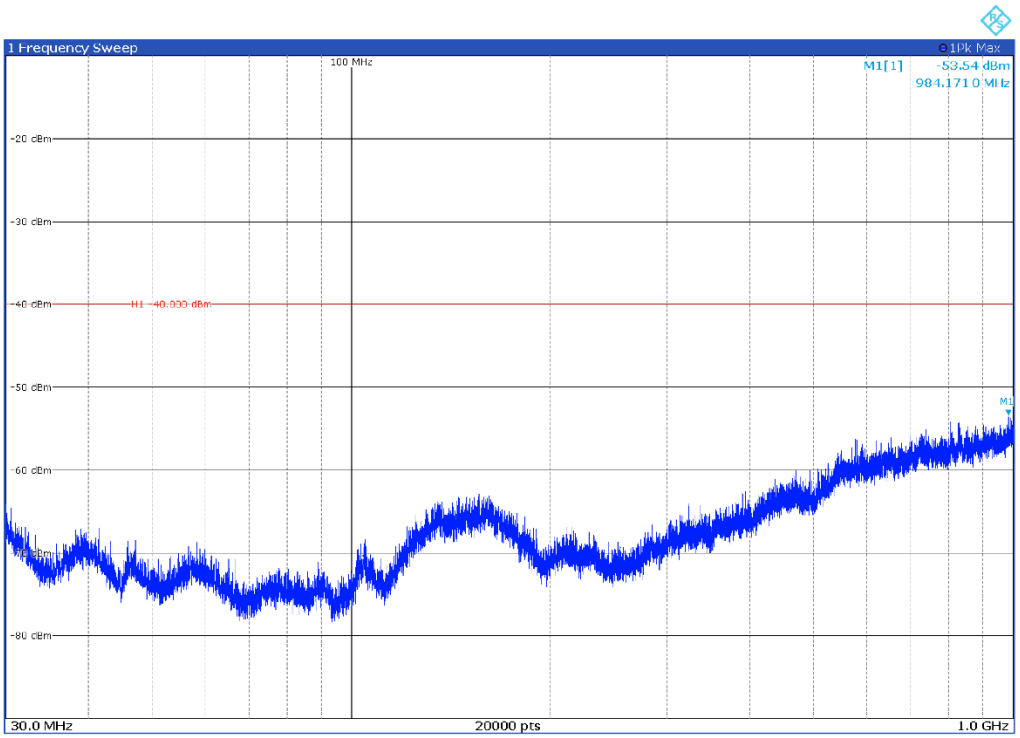
Channel: BOTTOM, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



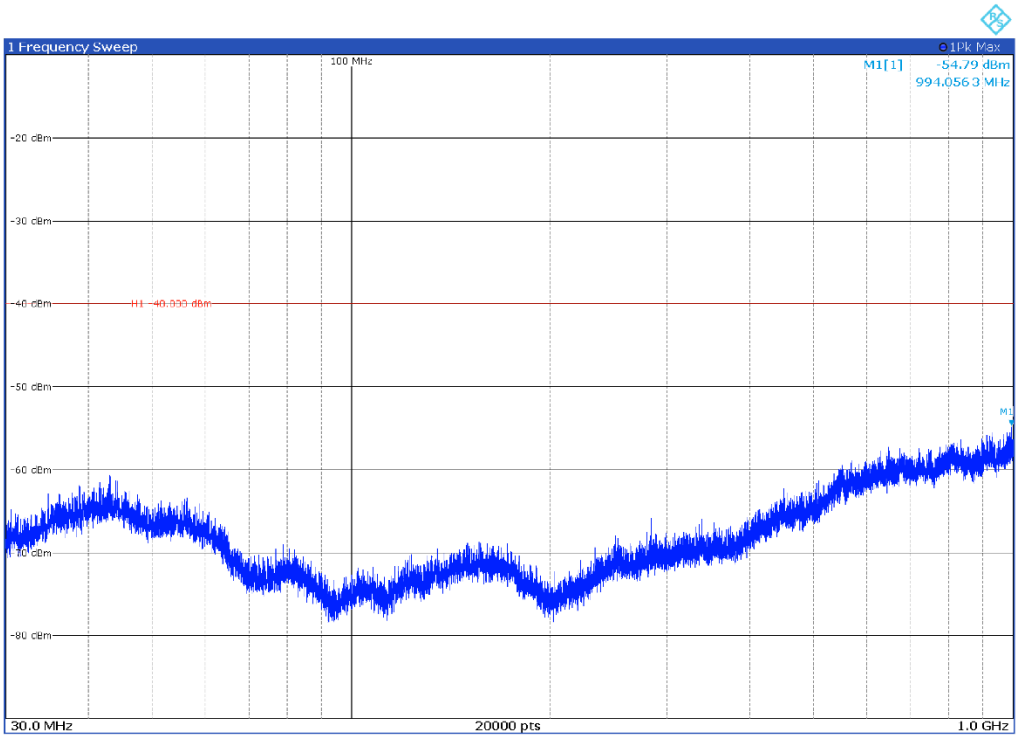
Channel: BOTTOM, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical



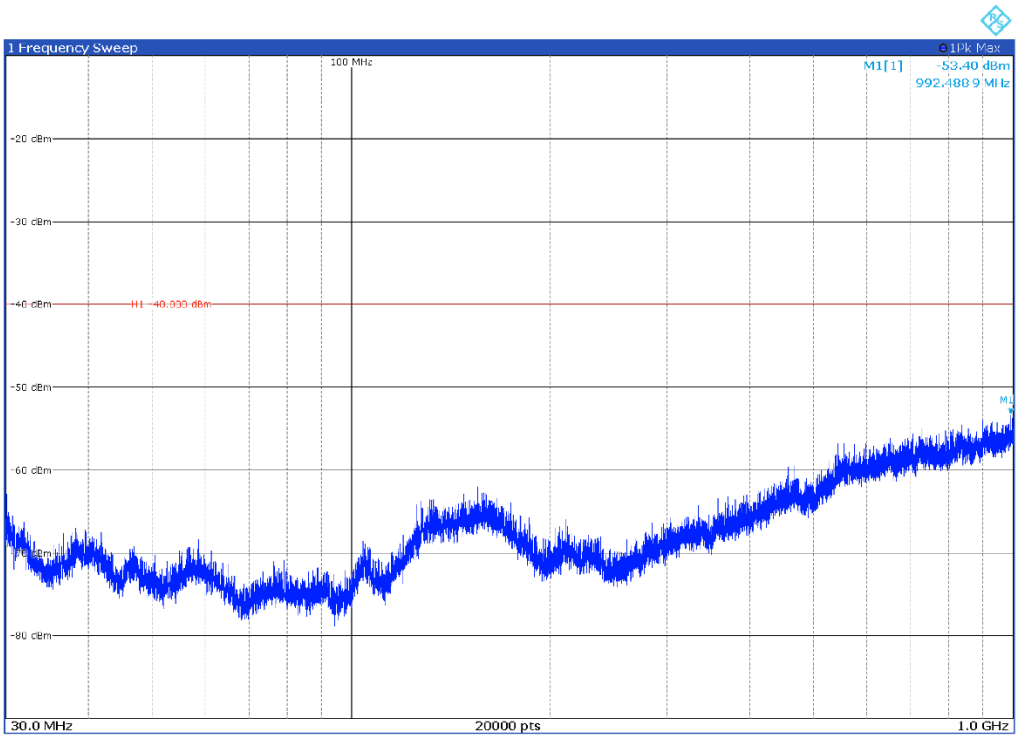
Channel: MIDDLE, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



Channel: MIDDLE, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical



Channel: TOP, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Horizontal



Channel: TOP, Modulation: 64QAM,
BW=10 MHz, Range: 30 MHz-1000 MHz, Polarization: Vertical