POWER SPECTRAL DENSITY AND EIRP CALCULATIONS

XMit 2020.12.30.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission power spectral density was measured using the channels and modes as called out on the following data sheets.

The method of ANSI C63.26-2015 section 5.2.4.5 was used to make this measurement.

The RF conducted emission testing was performed on one port. The AZQW antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the “Output Power - All Ports” report section) and antenna port 8 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

The total PSD for all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4. The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 and 6.4.6.3.

The applicable FCC regulatory requirement for EIRP are provided below:

FCC Requirements: §27.50 Power limits and duty cycle.
27.50 (j) The following power requirements apply to stations transmitting in the 3700-3980 MHz band:
(1) The power of each fixed or base station transmitting in the 3700-3980 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, is limited to an equivalent isotropically radiated power (EIRP) of 3280 Watts/MHz. This limit applies to the aggregate power of all antenna elements in any given sector of a base station.
(2) The power of each fixed or base station transmitting in the 3700-3980 MHz band and situated in any geographic location other than that described in paragraph (j)(1) of this section is limited to an EIRP of 1640 Watts/MHz. This limit applies to the aggregate power of all antenna elements in any given sector of a base station.

POWER SPECTRAL DENSITY AND EIRP CALCULATIONS

element

TbtTx 2021.03.19.1 XMit 2020.12.30.0

EUT:	Airscale Base Transceiver Station Remote Radio Head Model AZQW	Work Order:	NOKI0028
Serial Number:	YK211100168	Date:	17-Jun-21
Customer:	Nokia Solutions and Networks	Temperature:	21.6 °C
Attendees:	John Rattanavong, David Le	Humidity:	52.2% RH
Project:	None	Barometric Pres.:	1019 mbar
Tested by:	Brandon Hobbs	Power: 54VDC	Job Site: TX05

TEST SPECIFICATIONS	Test Method
FCC 27:2021	ANSI C63.26:2015

COMMENTS

All measurement path losses were accounted for in the reference level offest including any attenuators, filters and DC blocks. The output power was measured for a single carrier over the carrier channel bandwidth on port 8. The PSD was measured while transmitting one carrier on Port 8. The total PSD for multiport (2x2 MIMO, 4x4 MIMO & 8x8 MIMO) operation was determinded based upon ANSI 63.26 clause 6.4.3.2.4 (10 Log Nout). The total PSD for two port operation is single port PSD +3dB [i.e. 10 Log(2)]. The total PSD for four port operation is single port PSD +6dB [i.e. 10 Log(4)]. The total PSD for eight port operation is single port PSD +9dB [i.e. 10 Log(8)]. External 1 gating was set using a trig delay = 86.2us and a gate length = 3.714ms. The carrier power was set to maximum for all testing.

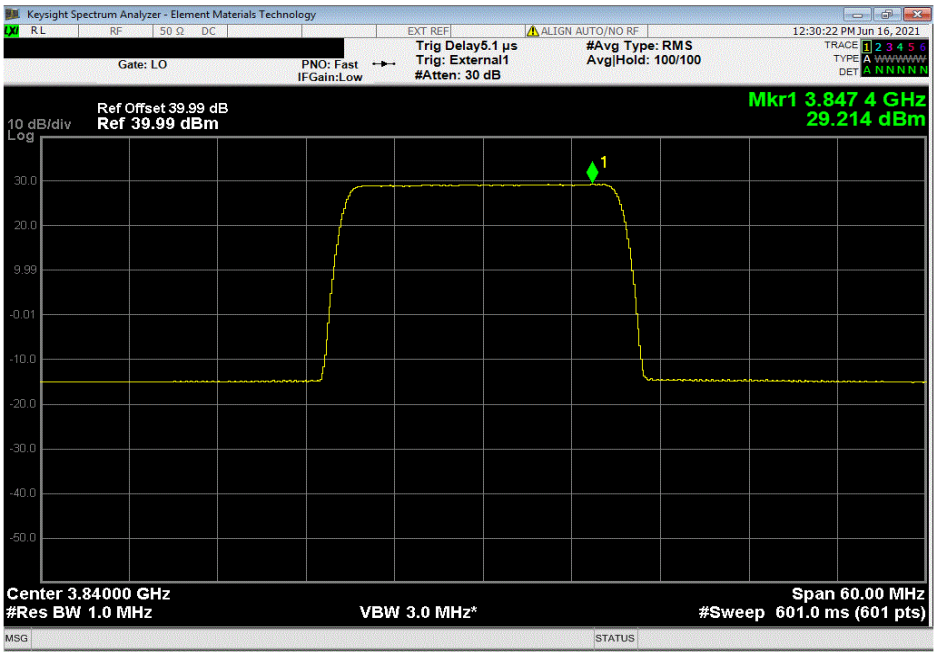
DEVIATIONS FROM TEST STANDARD

None

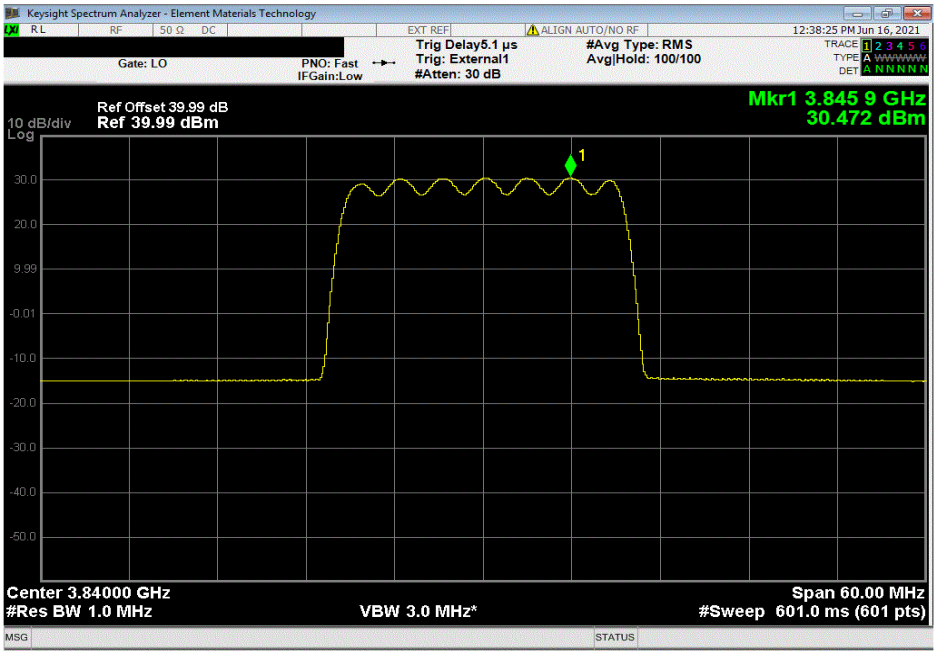
Configuration #	2	Signature

	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
Band n77, 3700 MHz - 3980 MHz, 5G NR						
Port 8						
20 MHz BW						
QPSK Modulation						
Mid Ch. 3840 MHz	29.214	0	29.21	32.21	35.21	38.21
16-QAM Modulation						
Mid Ch. 3840 MHz	30.472	0	30.47	33.47	36.47	39.47
64-QAM Modulation						
Mid Ch. 3840 MHz	29.126	0	29.13	32.13	35.13	38.13
256-QAM Modulation						
Mid Ch. 3840 MHz	29.475	0	29.48	32.48	35.48	38.48
40 MHz BW						
QPSK Modulation						
Low Ch. 3720 Mhz	29.168	0	29.17	32.17	35.17	38.17
Mid Ch. 3840 MHz	29.428	0	29.43	32.43	35.43	38.43
High Ch. 3960 MHz	29.346	0	29.35	32.35	35.35	38.35
16-QAM Modulation						
Low Ch. 3720 Mhz	30.896	0	30.90	33.90	36.90	39.90
Mid Ch. 3840 MHz	31.286	0	31.29	34.29	37.29	40.29
High Ch. 3960 MHz	31.295	0	31.30	34.30	37.30	40.30
64-QAM Modulation						
Low Ch. 3720 Mhz	29.352	0	29.35	32.35	35.35	38.35
Mid Ch. 3840 MHz	29.671	0	29.67	32.67	35.67	38.67
High Ch. 3960 MHz	29.517	0	29.52	32.52	35.52	38.52
256-QAM Modulation						
Low Ch. 3720 Mhz	29.501	0	29.50	32.50	35.50	38.50
Mid Ch. 3840 MHz	29.551	0	29.55	32.55	35.55	38.55
High Ch. 3960 MHz	29.601	0	29.60	32.60	35.60	38.60
60 MHz BW						
QPSK Modulation						
Mid Ch. 3840 MHz	28.773	0	28.77	31.77	34.77	37.77
16-QAM Modulation						
Mid Ch. 3840 MHz	30.273	0	30.27	33.27	36.27	39.27
64-QAM Modulation						
Mid Ch. 3840 MHz	28.575	0	28.58	31.58	34.58	37.58
256-QAM Modulation						
Mid Ch. 3840 MHz	28.636	0	28.64	31.64	34.64	37.64
80 MHz BW						
QPSK Modulation						
Mid Ch. 3840 MHz	27.034	0	27.03	30.03	33.03	36.03
16-QAM Modulation						
Mid Ch. 3840 MHz	28.909	0	28.91	31.91	34.91	37.91
64-QAM Modulation						
Mid Ch. 3840 MHz	27.455	0	27.46	30.46	33.46	36.46
256-QAM Modulation						
Mid Ch. 3840 MHz	26.897	0	26.90	29.90	32.90	35.90
100 MHz BW						
QPSK Modulation						
Mid Ch. 3840 MHz	26.923	0	26.92	29.92	32.92	35.92
16-QAM Modulation						
Mid Ch. 3840 MHz	28.889	0	28.89	31.89	34.89	37.89
64-QAM Modulation						
Mid Ch. 3840 MHz	26.952	0	26.95	29.95	32.95	35.95
256-QAM Modulation						
Mid Ch. 3840 MHz	26.91	0	26.91	29.91	32.91	35.91

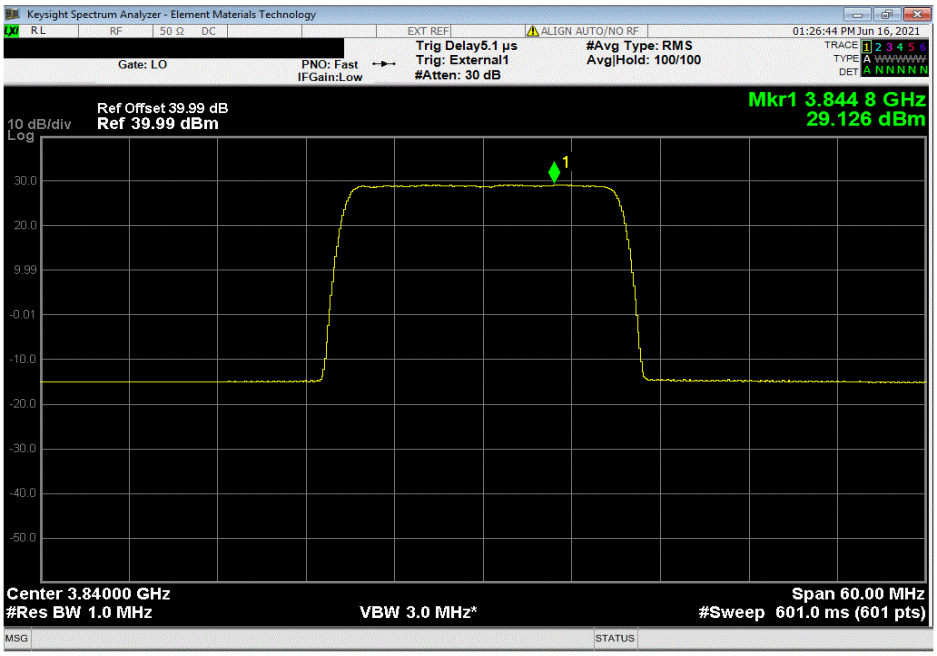
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 20 MHz BW, QPSK Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.214	0	29.214	32.214	35.214	38.214



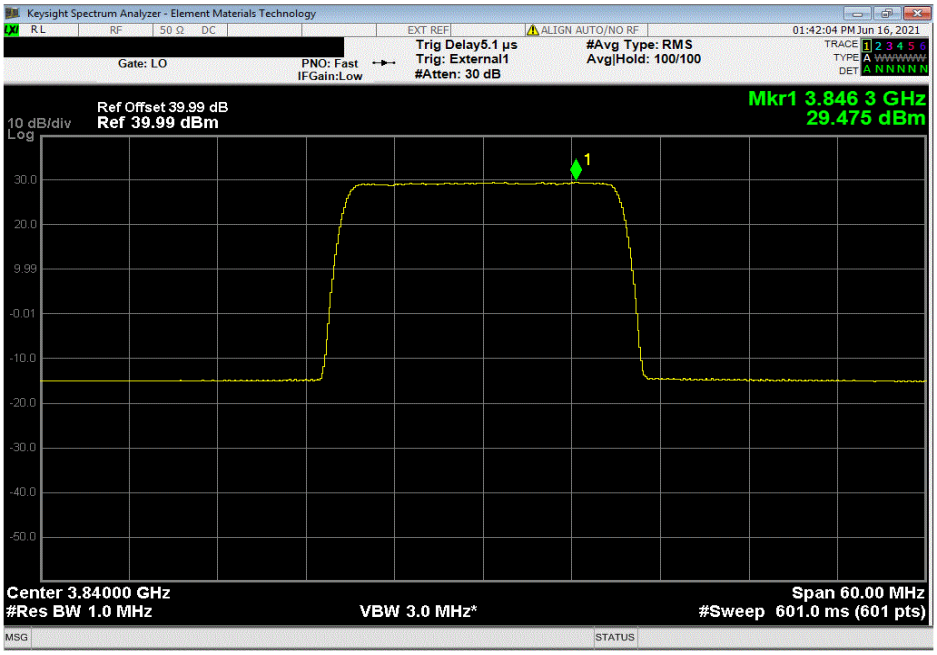
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 20 MHz BW, 16-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	30.472	0	30.472	33.472	36.472	39.472



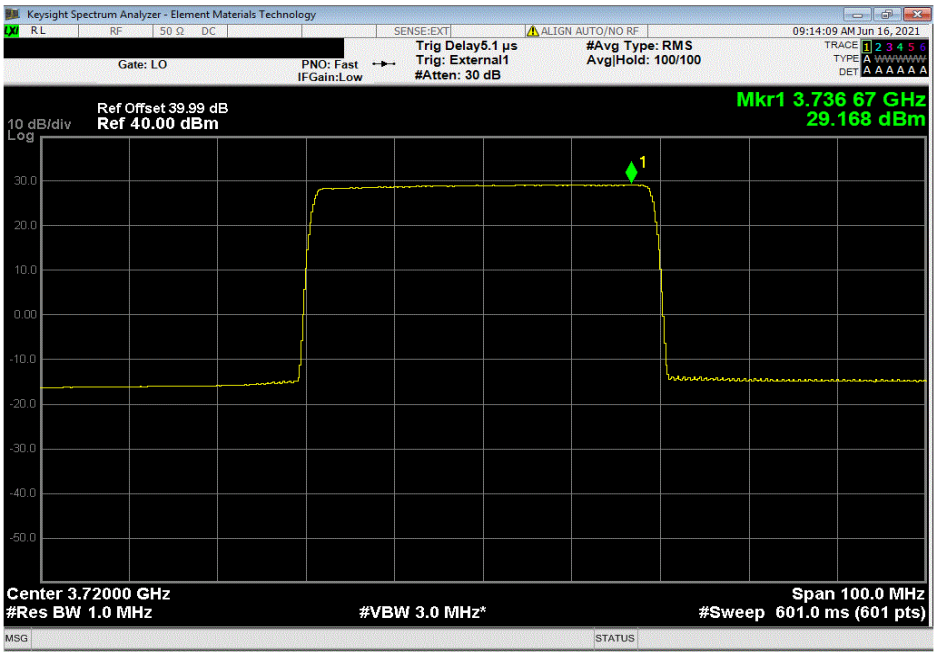
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 20 MHz BW, 64-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.126	0	29.126	32.126	35.126	38.126



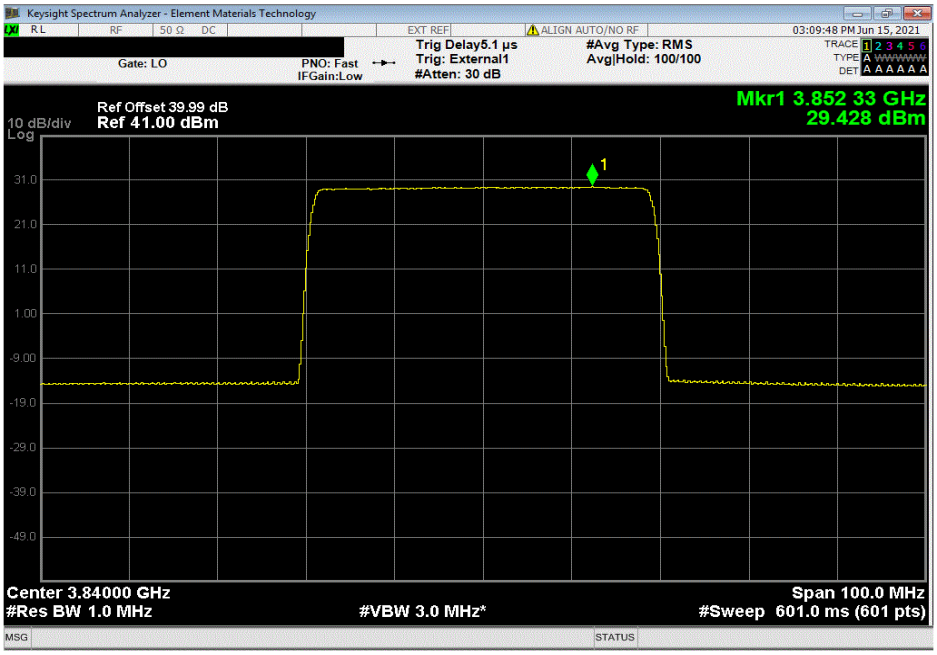
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 20 MHz BW, 256-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.475	0	29.475	32.475	35.475	38.475



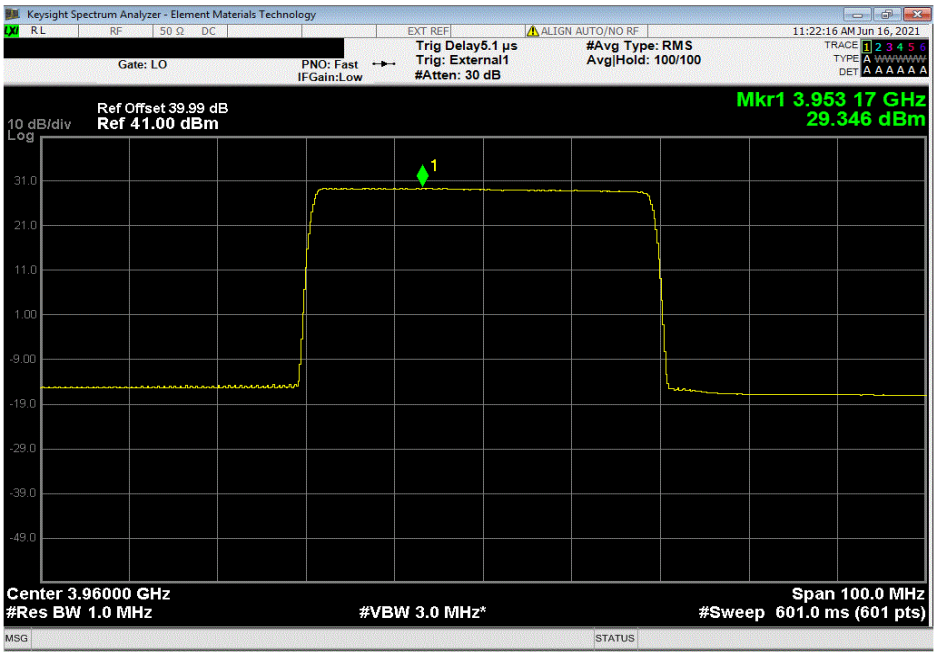
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, QPSK Modulation, Low Ch. 3720 Mhz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.168	0	29.168	32.168	35.168	38.168



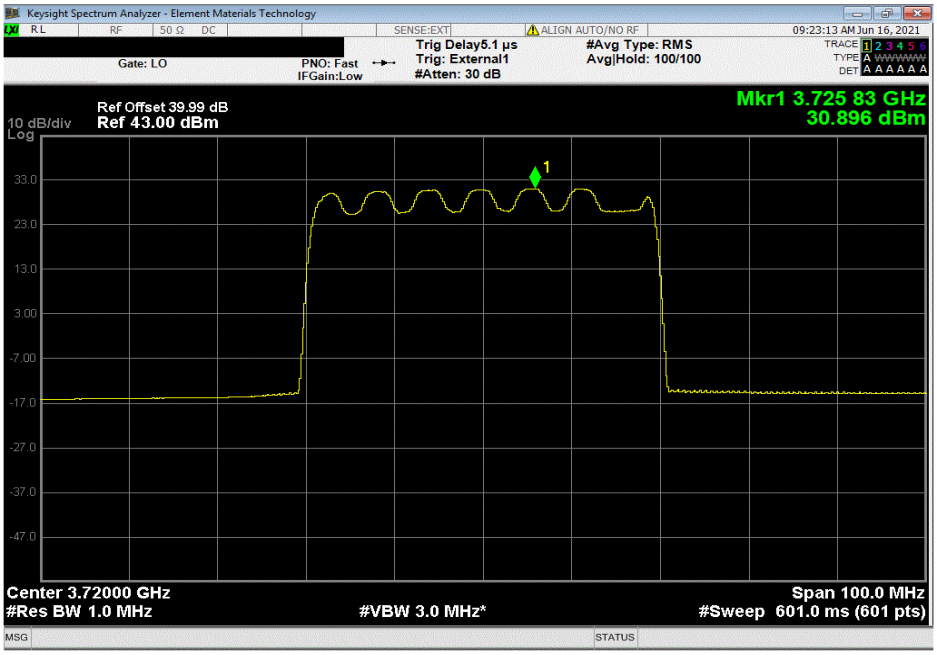
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, QPSK Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.428	0	29.428	32.428	35.428	38.428



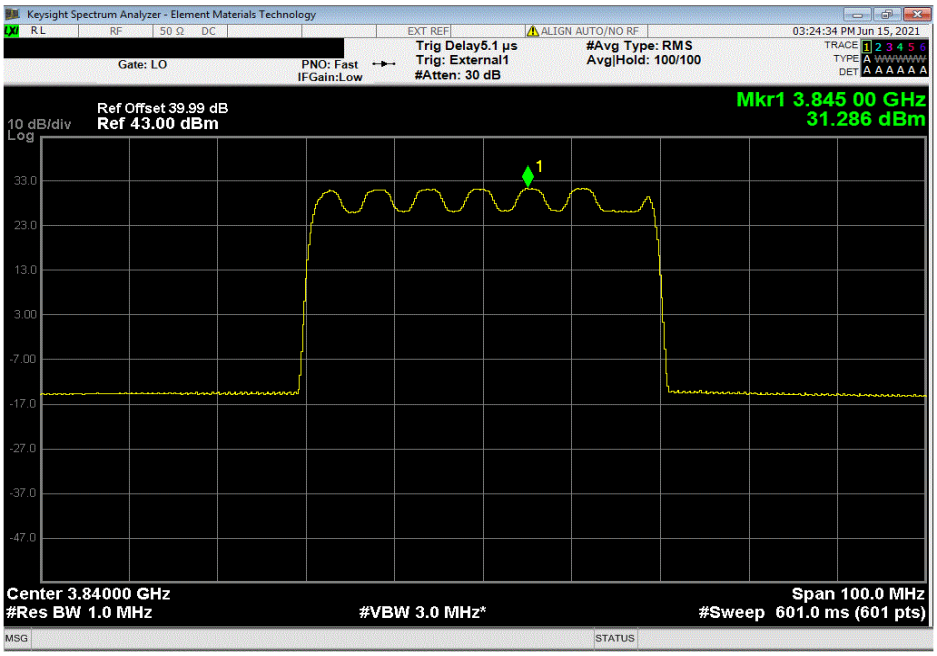
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, QPSK Modulation, High Ch. 3960 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.346	0	29.346	32.346	35.346	38.346



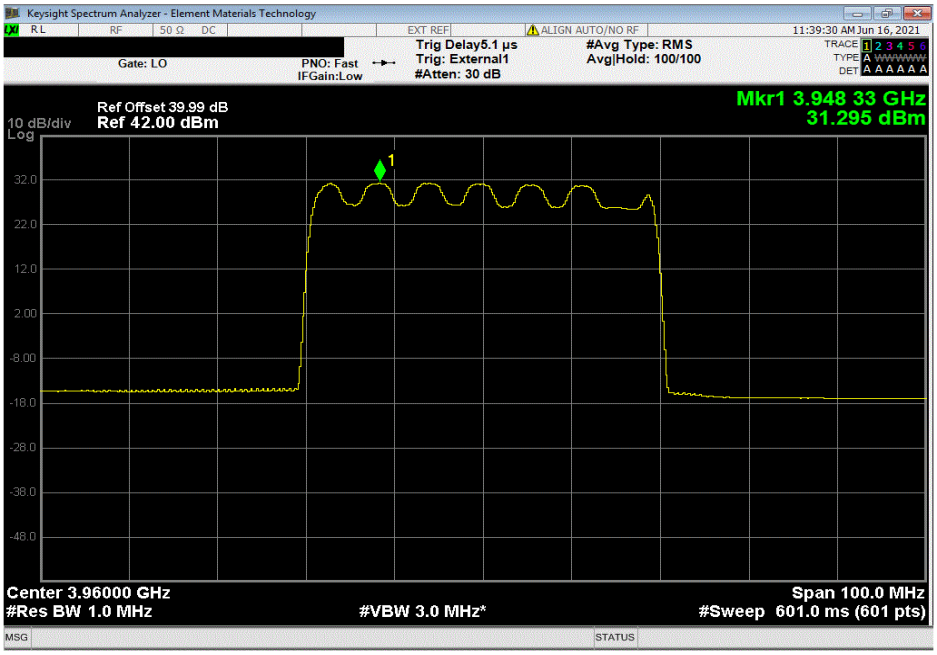
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 16-QAM Modulation, Low Ch. 3720 Mhz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	30.896	0	30.896	33.896	36.896	39.896



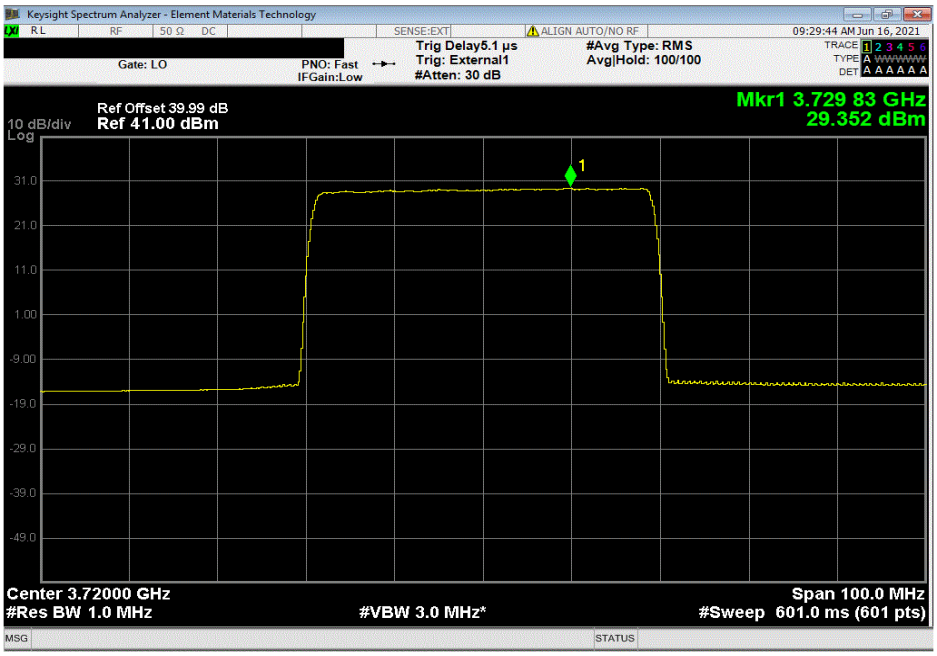
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 16-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	31.286	0	31.286	34.286	37.286	40.286



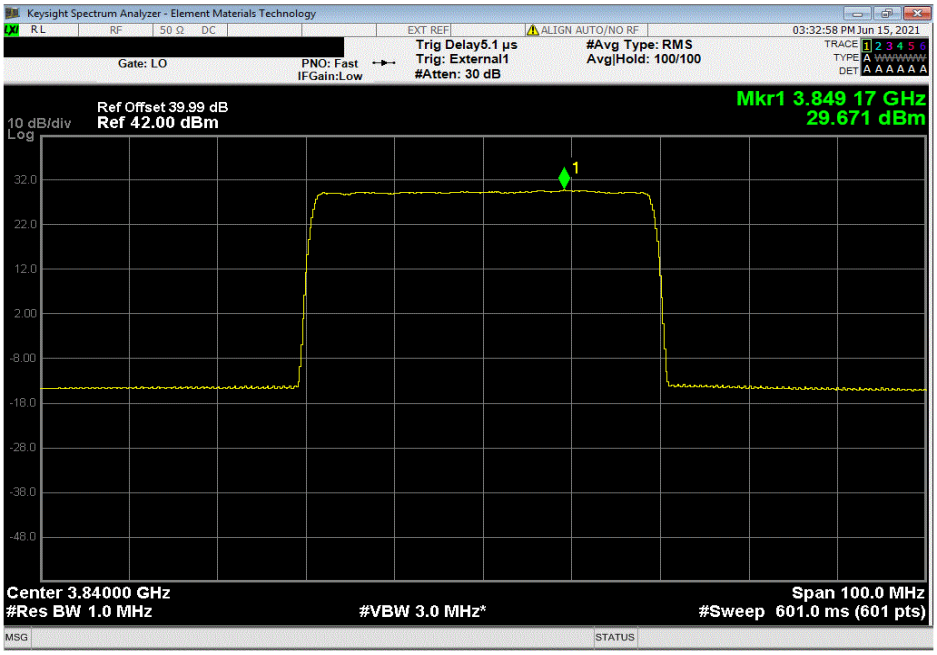
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 16-QAM Modulation, High Ch. 3960 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	31.295	0	31.295	34.295	37.295	40.295



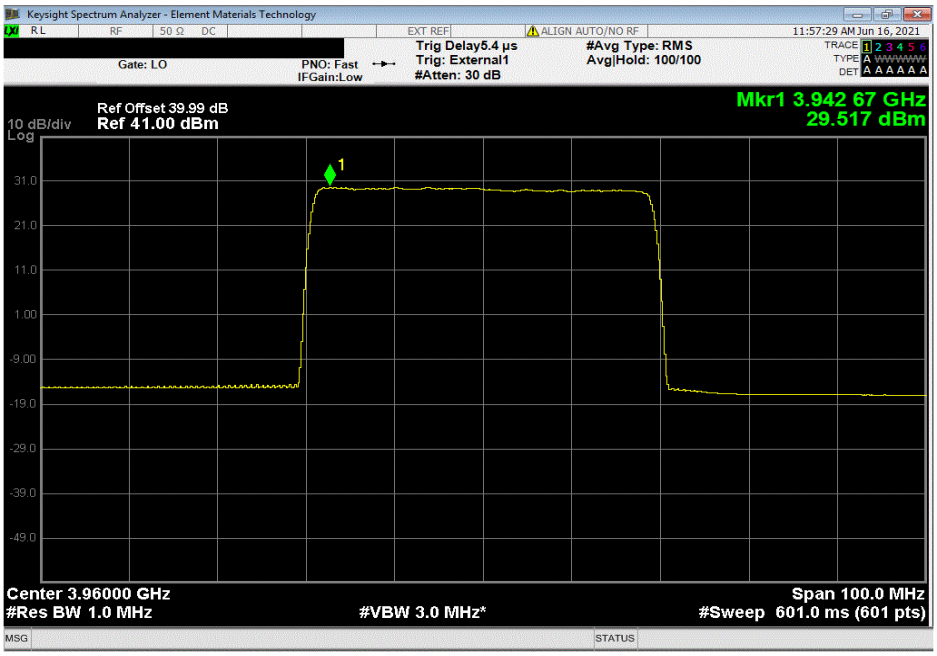
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 64-QAM Modulation, Low Ch. 3720 Mhz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.352	0	29.352	32.352	35.352	38.352



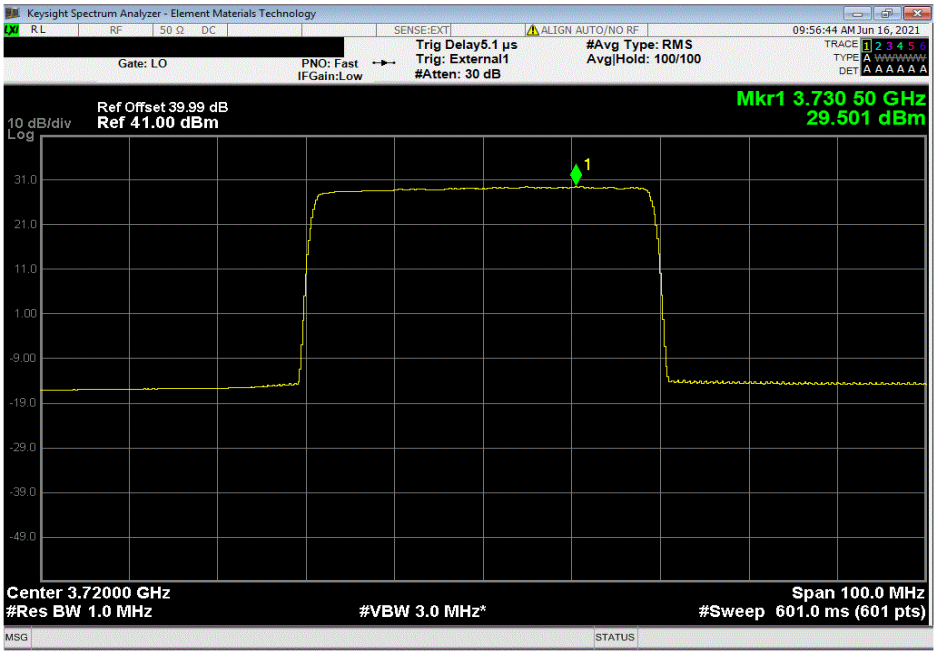
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 64-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.671	0	29.671	32.671	35.671	38.671



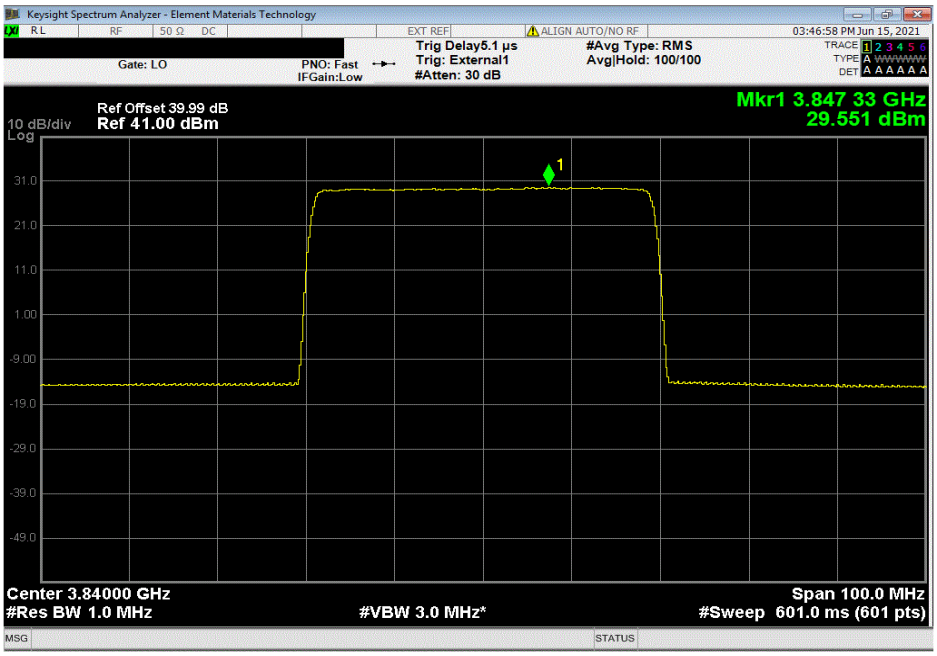
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 64-QAM Modulation, High Ch. 3960 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.517	0	29.517	32.517	35.517	38.517



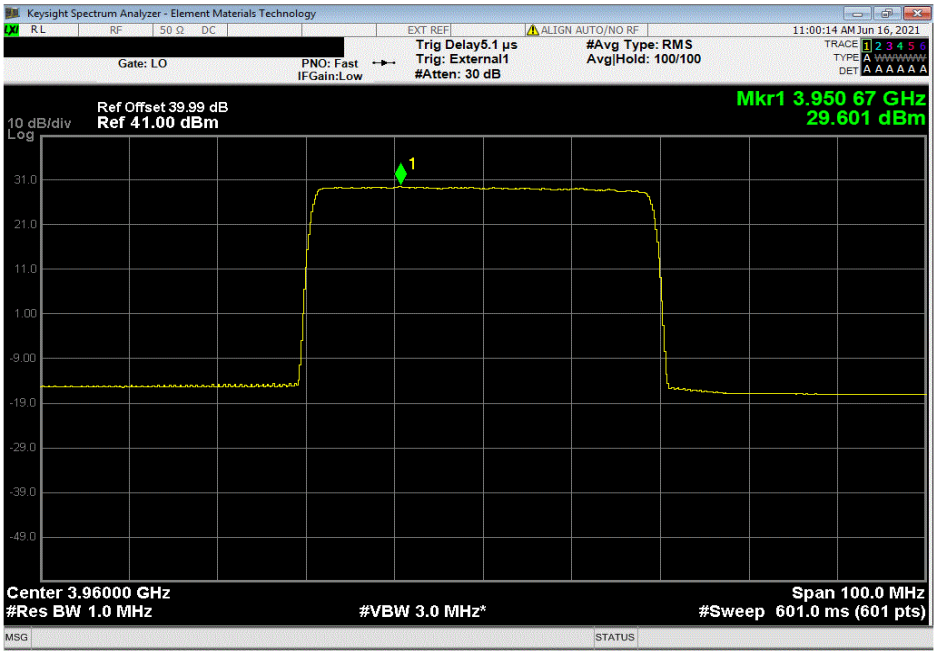
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 256-QAM Modulation, Low Ch. 3720 Mhz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.501	0	29.501	32.501	35.501	38.501



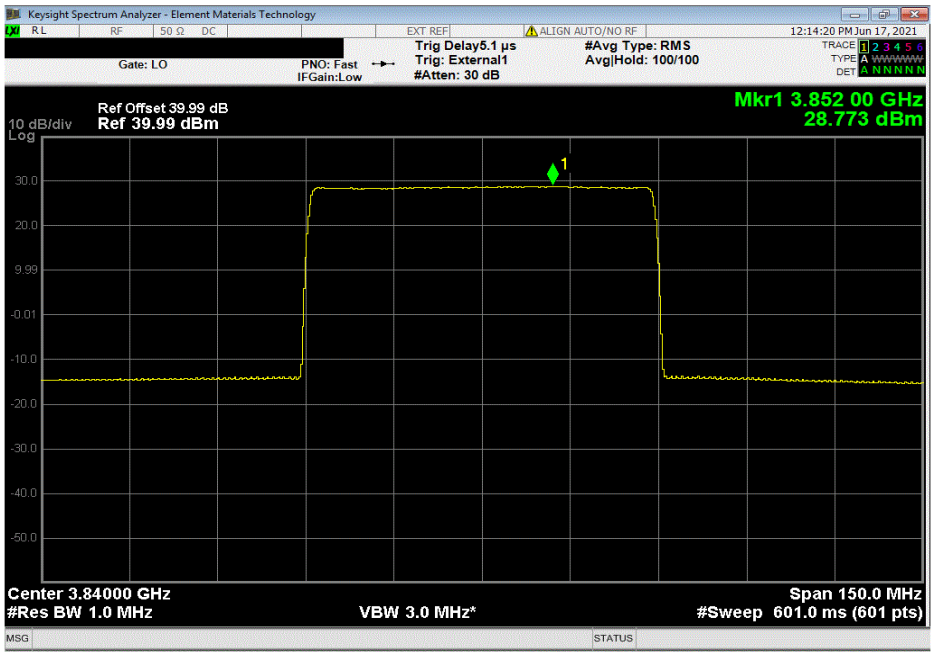
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 256-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.551	0	29.551	32.551	35.551	38.551



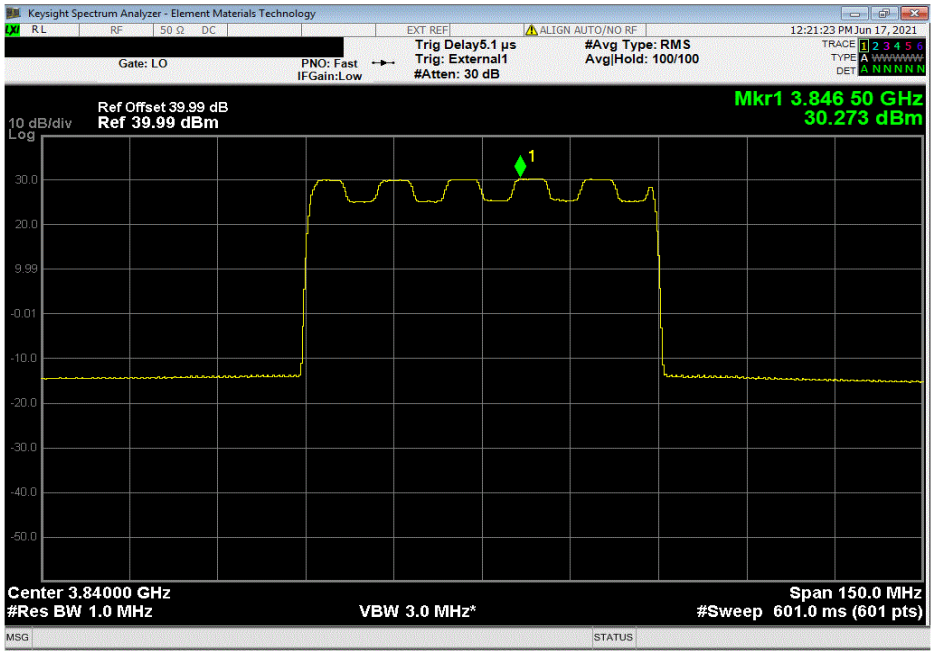
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 40 MHz BW, 256-QAM Modulation, High Ch. 3960 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	29.601	0	29.601	32.601	35.601	38.601



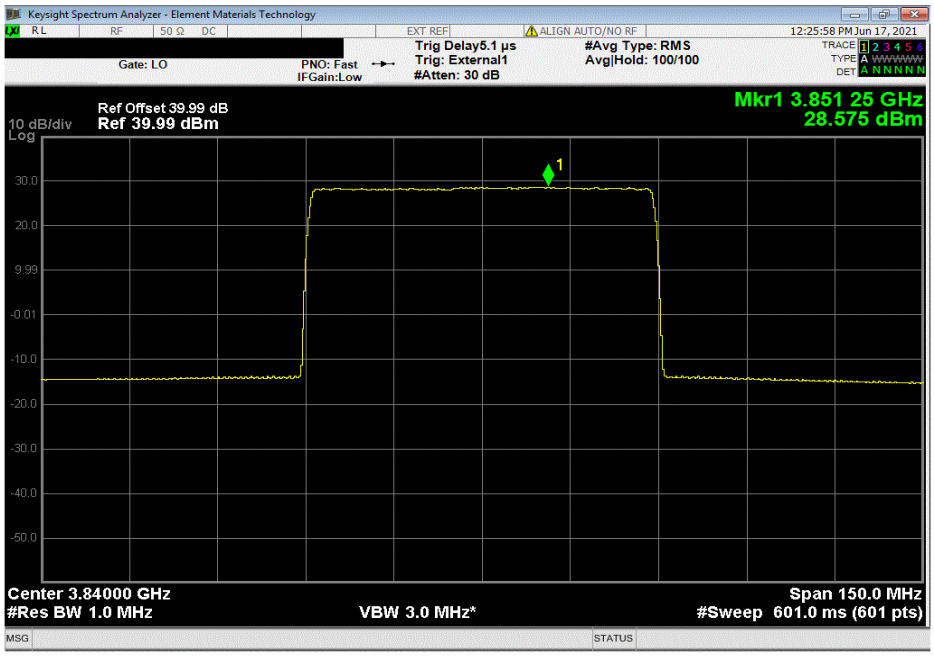
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 60 MHz BW, QPSK Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	28.773	0	28.773	31.773	34.773	37.773



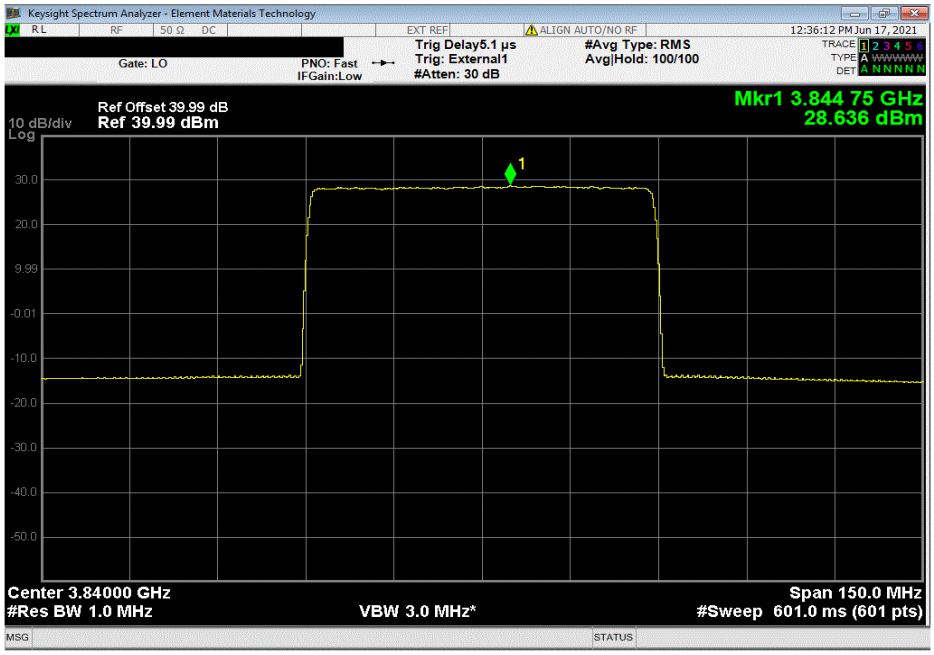
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 60 MHz BW, 16-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	30.273	0	30.273	33.273	36.273	39.273



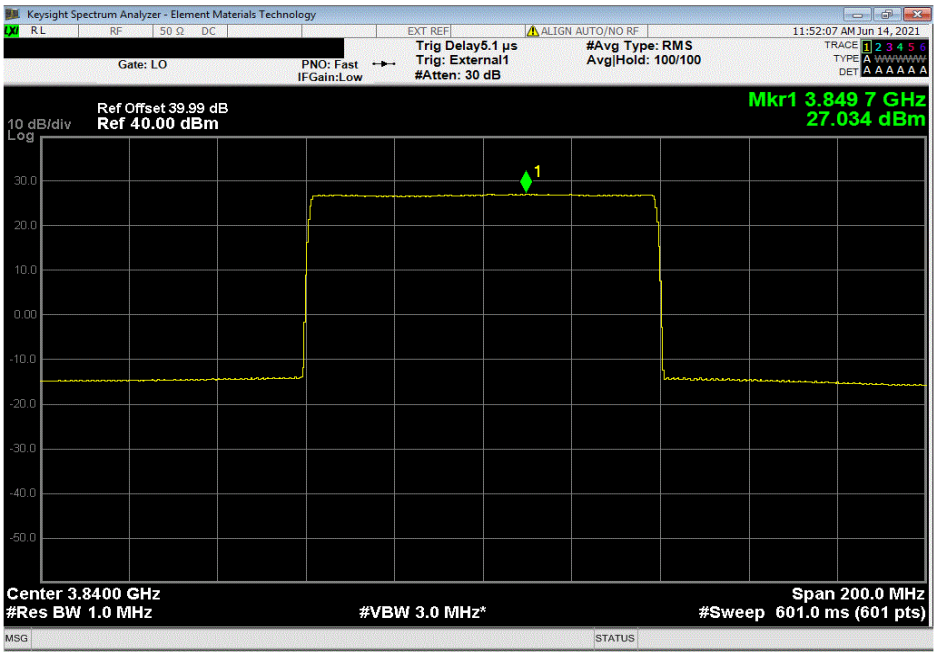
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 60 MHz BW, 64-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	28.575	0	28.575	31.575	34.575	37.575



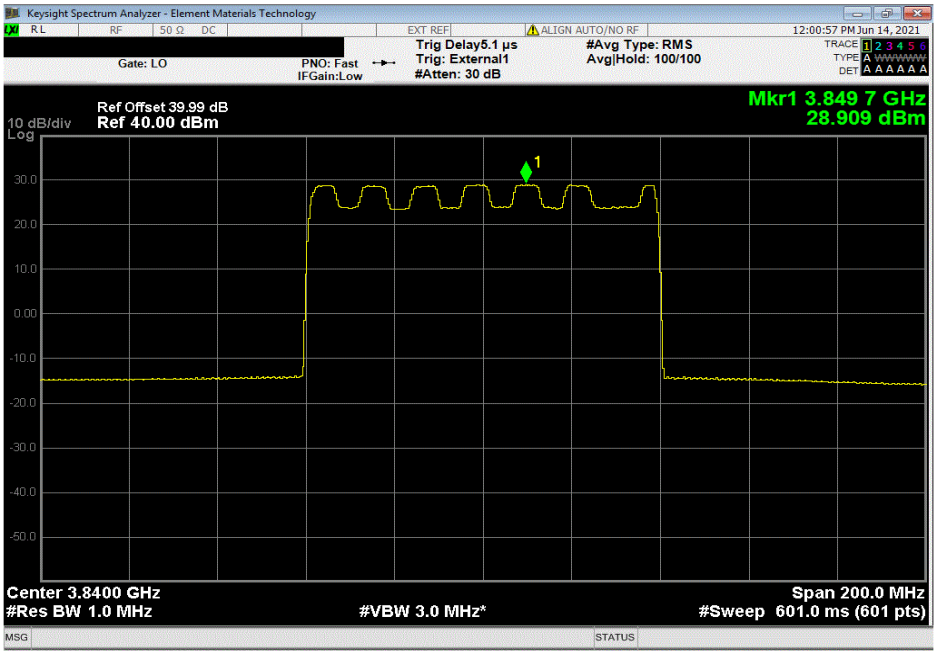
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 60 MHz BW, 256-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	28.636	0	28.636	31.636	34.636	37.636



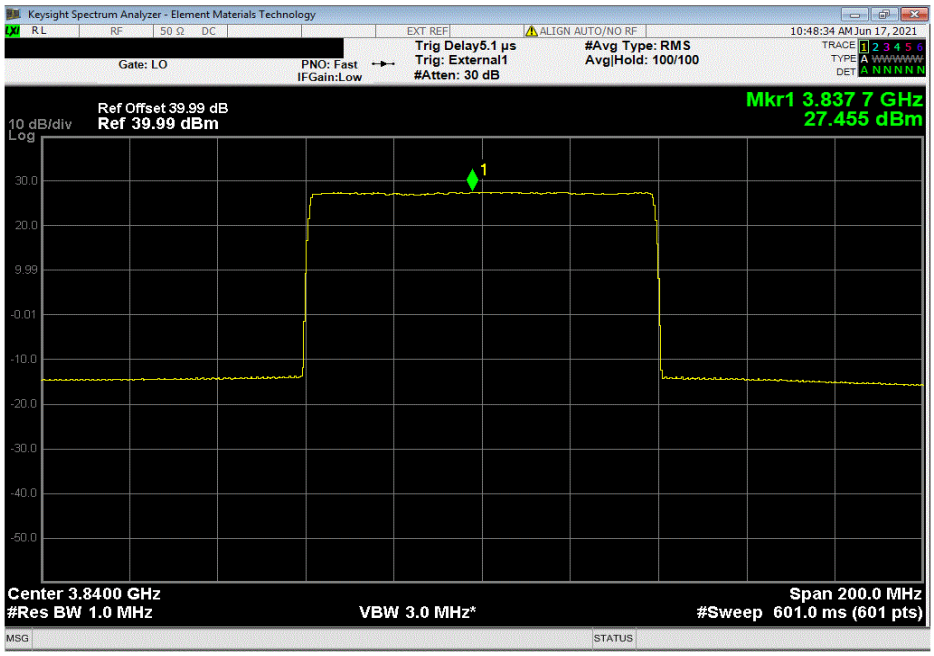
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 80 MHz BW, QPSK Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	27.034	0	27.034	30.034	33.034	36.034



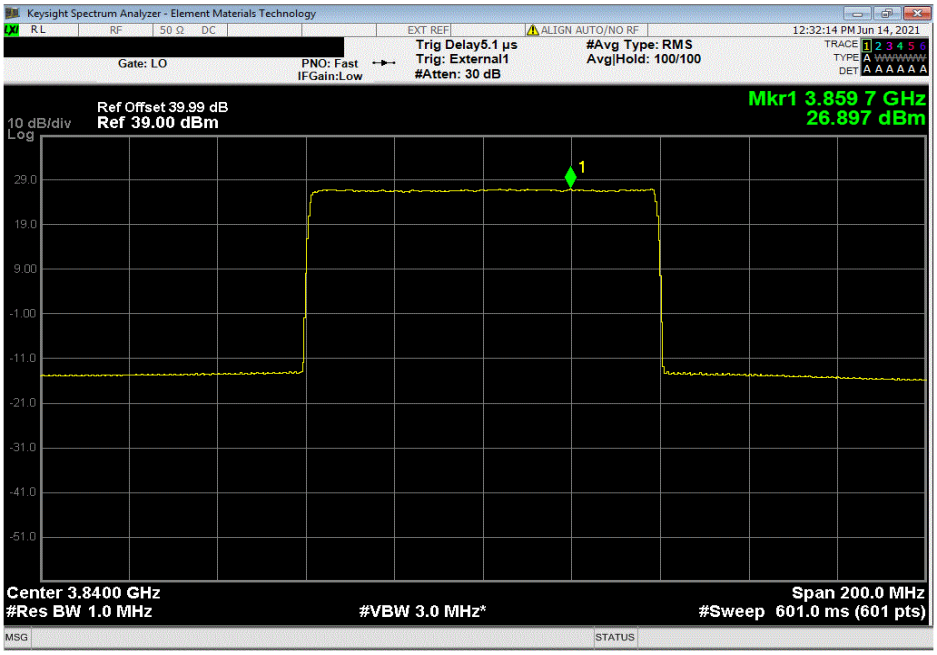
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 80 MHz BW, 16-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	28.909	0	28.909	31.909	34.909	37.909



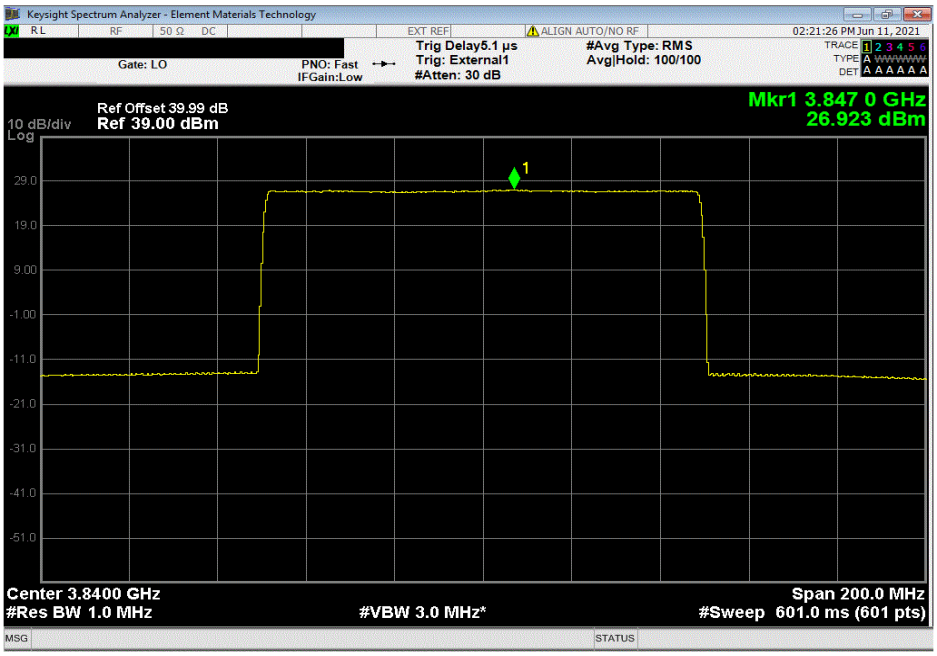
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 80 MHz BW, 64-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	27.455	0	27.455	30.455	33.455	36.455



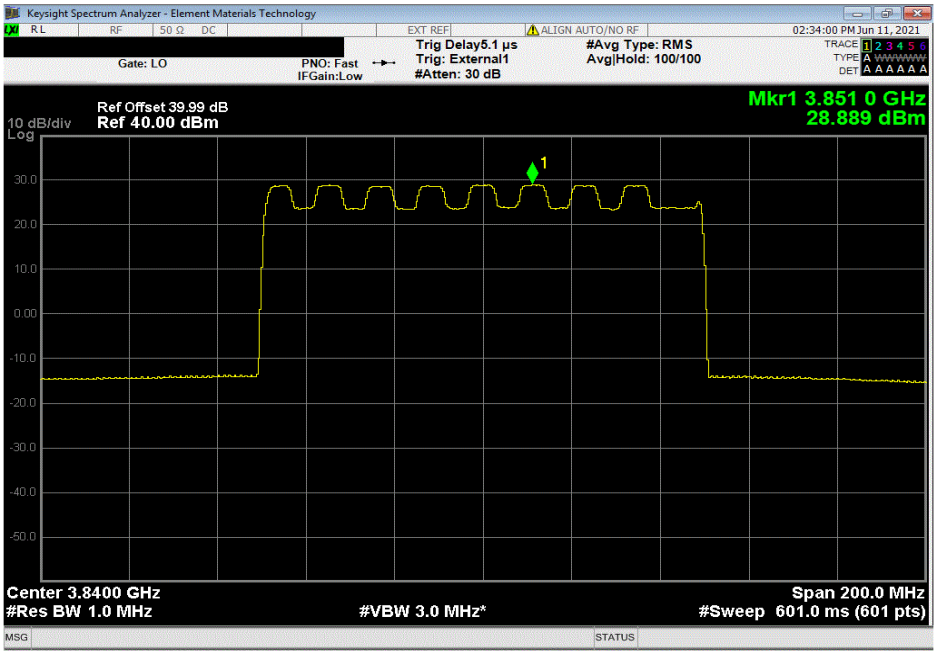
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 80 MHz BW, 256-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	26.897	0	26.897	29.897	32.897	35.897



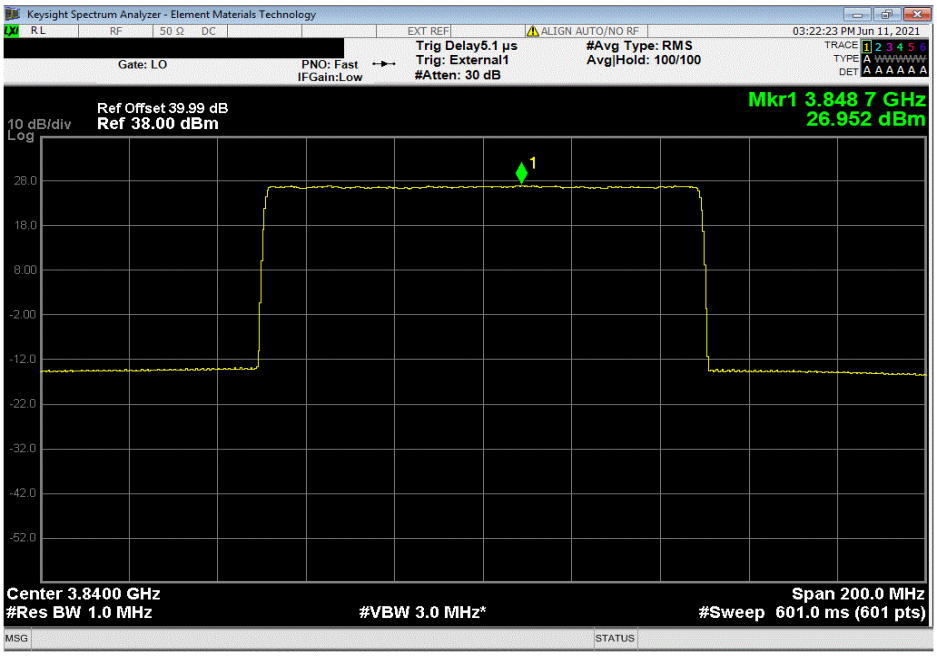
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 100 MHz BW, QPSK Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	26.923	0	26.923	29.923	32.923	35.923



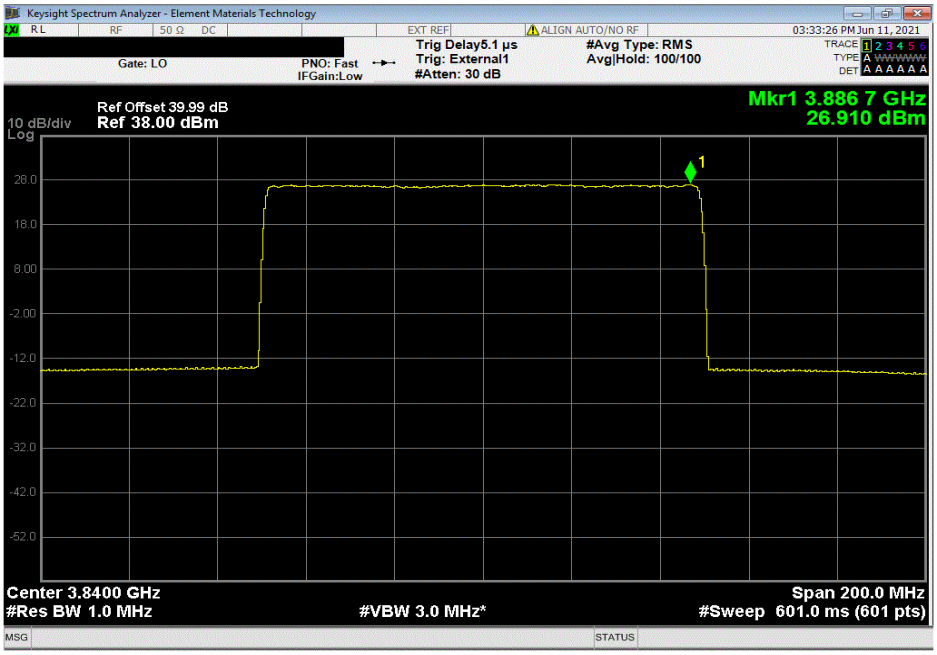
Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 100 MHz BW, 16-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	28.889	0	28.889	31.889	34.889	37.889



Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 100 MHz BW, 64-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	26.952	0	26.952	29.952	32.952	35.952



Band n77, 3700 MHz - 3980 MHz, 5G NR, Port 8, 100 MHz BW, 256-QAM Modulation, Mid Ch. 3840 MHz						
	Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	Eight Port (8x8 MIMO) dBm/MHz ==PSD
	26.91	0	26.91	29.91	32.91	35.91



POWER SPECTRAL DENSITY AND EIRP CALCULATIONS

element

TbtTx 2021.03.19.1 XMit 2020.12.30.0

5G NR EIRP Calculations for Eight Port MIMO Operations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon the Commscope Antenna Assembly model NNH4S4-65B-R7. This antenna assembly has four columns with a maximum beamforming gain of 21.2dBi. The columns within the antenna have ±45° cross-polarized (orthogonal) radiators. The eight AZQW transmitter outputs are connected to the columns (four are connected to +45° radiators/antennas and four are connected to the -45° radiators/antennas). The AZQW provides transmitter outputs for one 4-column antenna assembly.

Equivalent Isotropically Radiated Power (EIRP) is calculated (as specified in ANSI C63.26-2015 section 6.4 for a system of correlated output signals) from the results of power measurements (highest measured average power for each channel bandwidth type). The maximum antenna assembly beamforming gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for eight port MIMO are as follows:

Parameter	20 MHz Ch BW	40 MHz Ch BW	60 MHz Ch BW	80 MHz Ch BW	100 MHz Ch BW
Worst Case PSD/Antenna Port	1.12 W/MHz or 30.5 dBm/MHz	1.35 W/MHz or 31.3 dBm/MHz	1.07 W/MHz or 30.3 dBm/MHz	0.78 W/MHz or 28.9 dBm/MHz	0.78 W/MHz or 28.9 dBm/MHz
Cable Loss	0 dB	0 dB	0 dB	0 dB	0 dB
Number of Ant Ports per Polarization	4	4	4	4	4
Total PSD per Polarization	36.5 dBm/MHz	37.3 dBm/MHz	36.3 dBm/MHz	34.9 dBm/MHz	34.9 dBm/MHz
Maximum Antenna Beamforming Gain per Polarization	21.2 dBi	21.2 dBi	21.2 dBi	21.2 dBi	21.2 dBi
EIRP per Polarization	57.7 dBm/MHz or 589 W/MHz	58.5 dBm/MHz or 708 W/MHz	57.5 dBm/MHz or 562 W/MHz	56.1 dBm/MHz or 407 W/MHz	56.1 dBm/MHz or 407 W/MHz
Number of Polarizations	2	2	2	2	2
EIRP Total (See Note 1)	57.7 dBm/MHz or 589 W/MHz	58.5 dBm/MHz or 708 W/MHz	57.5 dBm/MHz or 562 W/MHz	56.1 dBm/MHz or 407 W/MHz	56.1 dBm/MHz or 407 W/MHz
EIRP Limit	62.15 dBm/MHz or 1640 W/MHz	62.15 dBm/MHz or 1640 W/MHz	62.15 dBm/MHz or 1640 W/MHz	62.15 dBm/MHz or 1640 W/MHz	62.15 dBm/MHz or 1640 W/MHz

Note 1: The EIRP per antenna polarization is required to be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenn are 90 degree-phase shifted relative to each other (cross-polarized radiators).

Calculation Summary

The worst case AZQW eight port MIMO EIRP levels for all 5G NR channel bandwidths using the Commscope Antenna Assembly model "NNH4S4-65B-R7" are less than the FCC regulatory limits (1640 W/MHz or 62.15 dBm/MHz).

End of Test Report