POWER SPECTRAL DENSITY & TRP CALCULATION - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The RF conducted emission testing was performed on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power" report section) and antenna port 1 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. Duty cycle correction is not needed for this testing since the transmit "on" time is synchronized with the measurement receiver.

The fundamental emission Power Spectral Density (PSD) 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 Power Spectral Density was measured while transmitting on one carrier. The total PSD for multiport operation was determined based upon ANSI C63.26 clause 6.4.3.2.4 (10 Log Nout). The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 and 6.4.6.3

All Measurements were synchronized with the measurement receiver - gated with external trigger input (frame clock (100Hz) provided by the system module.

In 3.45GHz band single carrier operating mode - carriers were enabled at maximum power levels. Simultaneously, 3.7GHz band NR10 carrier were enable to operate at 30 watts or 0.468W(26.7dBm)/per carrier on middle channel.

FCC Requirements: §27.50 Power limits and duty cycle.

27.50 (k) The following power requirements apply to stations transmitting in the 3450-3550 MHz band:

(1) The power of each fixed or base station transmitting in the 3450-3550 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 3450-3550 MHz band and situated in any geographic location other than that described in paragraph (k)(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.

5G NR EIRP Calculations for Sixty-Four 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.

The AVQQA antenna assembly has an array of 4 rows and 8 columns of (±45°) cross-polarized (orthogonal) radiators. This antenna assembly has a beamforming gain of 25.0dBi ± 1.0dB. The sixty-four AVQQA transmitter outputs are connected to the antenna array (thirty-two are connected to **+**45° radiators/antennas and thirty-two are connected to the **-**45° radiators/antennas).

POWER SPECTRAL DENSITY & TRP CALCULATION - 3400 BAND

element
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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 PSD for each channel bandwidth type). The maximum antenna assembly beamforming gain was used for this calculation. Calculations of worst-case EIRP for sixty-four port MIMO are as follows:

Parameter	50 MHz Ch BW
Worst Case PSD/Antenna Port	19.4 dBm/MHz
Cable Loss	0 dB
Number of Ant Ports per Polarization	32
Total PSD per Polarization 10 Log 32 = +15.1 dB	34.5 dBm/MHz
Maximum Antenna Beamforming Gain per Polarization	26.0 dBi
EIRP per Polarization	60.5 dBm/MHz
Number of Polarizations	2
EIRP Total (See Note 1)	60.5 dBm/MHz
Passing EIRP Limit	62.15 dBm/MHz and 65.16 dBm/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 antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

Calculation Summary for the 3.45GHz Band

(1) The worst case AVQQA sixty-four port MIMO EIRP levels for 5G NR channel bandwidths (50MHz) are less than the 3280 W/MHz (65.16 dBm/MHz) FCC regulatory limit.

(2) The worst case AVQQA sixty-four port MIMO EIRP levels for the 5G NR 50MHz channel bandwidths are less than the 1640 W/MHz (62.15 dBm/MHz) FCC regulatory limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

POWER SPECTRAL DENSITY & TRP CALCULATION - 3400 BAND

element
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EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-16
Customer:	Nokia Solutions and Networks	Temperature:	23.6°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	51.2%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

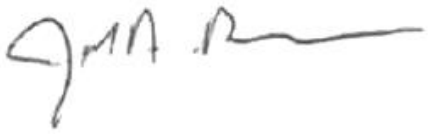
All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass



Tested By

TEST RESULTS

	Initial Value dBm/1MHz		Single Port dBm/1MHz	Sixty-four Port (64x64 MIMO) dBm/1MHz
Port 1				
50 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3475.02 MHz	17.647		17.6	35.7
Middle Channel, 3500.01 MHz	17.648		17.6	35.7
High Channel, 3525.00 MHz	17.558		17.6	35.6
16QAM Modulation				
Low Channel, 3475.02 MHz	19.223		19.2	37.3
Middle Channel, 3500.01 MHz	19.363		19.4	37.4
High Channel, 3525.00 MHz	19.242		19.2	37.3
64QAM Modulation				
Low Channel, 3475.02 MHz	17.831		17.8	35.9
Middle Channel, 3500.01 MHz	17.841		17.8	35.9
High Channel, 3525.00 MHz	17.674		17.7	35.7
256QAM Modulation				
Low Channel, 3475.02 MHz	17.910		17.9	36.0
Middle Channel, 3500.01 MHz	17.924		17.9	36.0
High Channel, 3525.00 MHz	17.736		17.7	35.8

POWER SPECTRAL DENSITY & TRP CALCULATION - 3400 BAND

element
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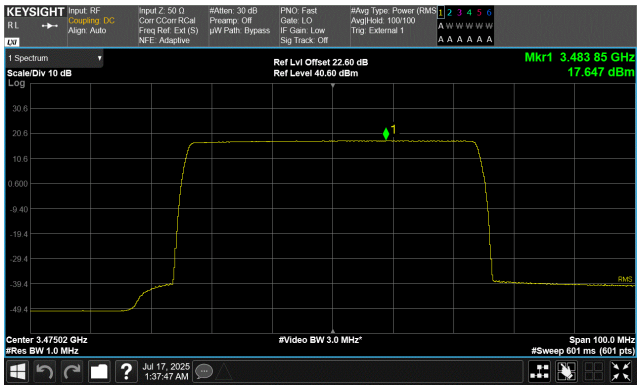
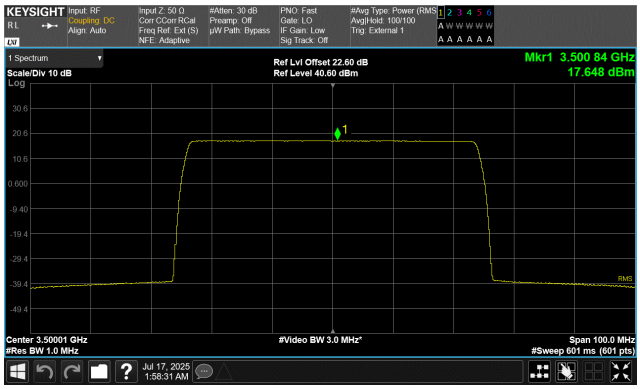
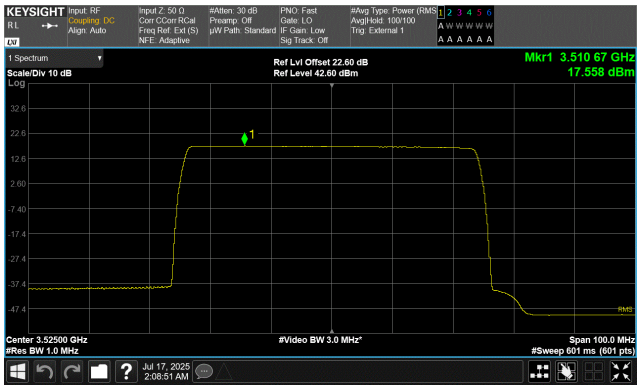


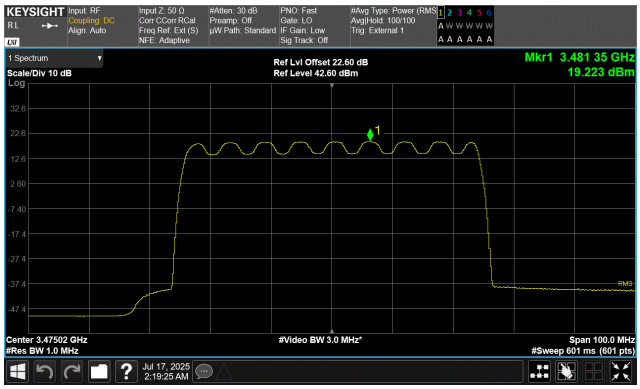
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3475.02 MHz



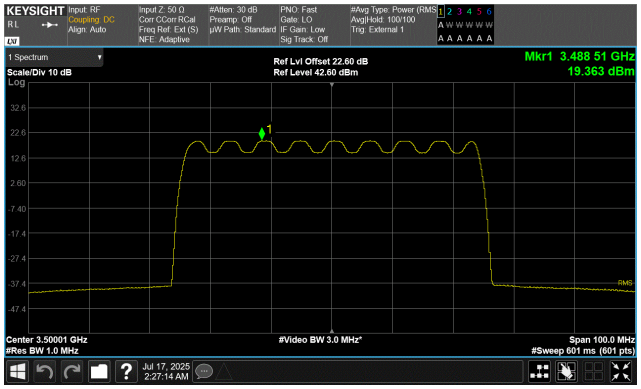
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3500.01 MHz



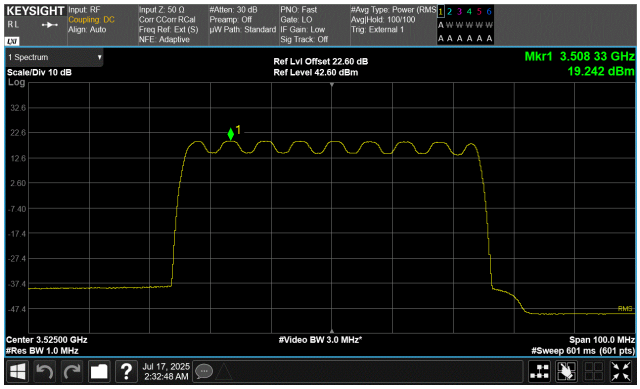
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3525.00 MHz



Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Low Channel, 3475.02 MHz



Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3500.01 MHz



Port 1
50 MHz Channel Bandwidth
16QAM Modulation
High Channel, 3525.00 MHz

POWER SPECTRAL DENSITY & TRP CALCULATION - 3400 BAND

element
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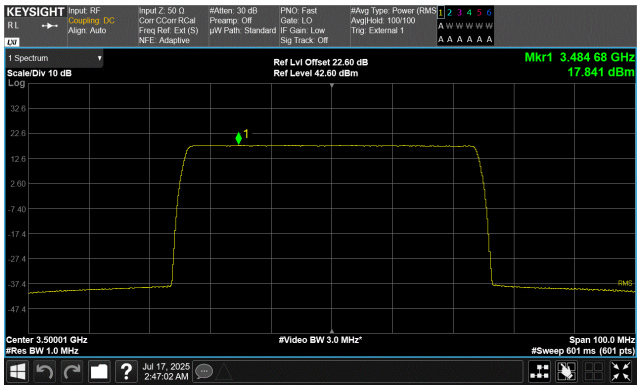
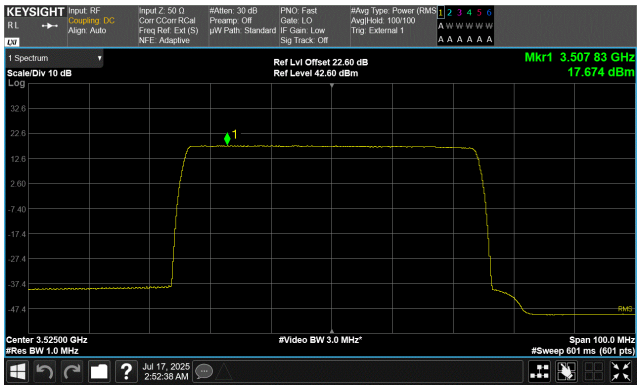
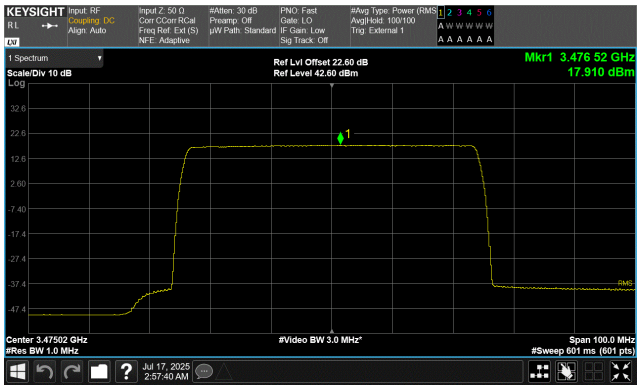
Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Low Channel, 3475.02 MHz



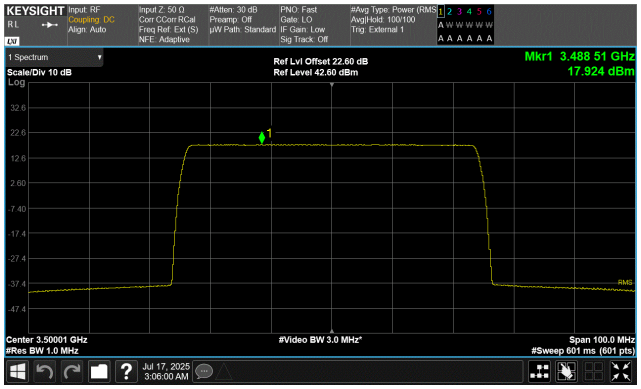
Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3500.01 MHz



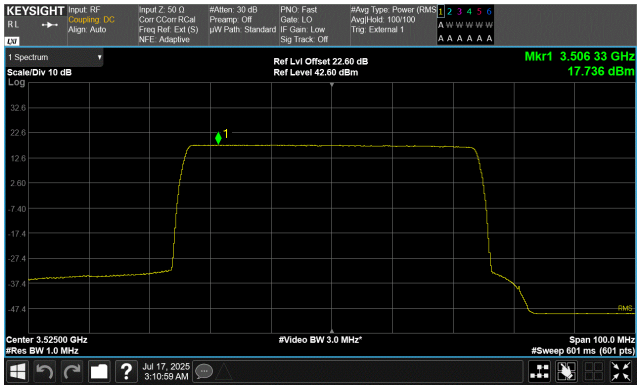
Port 1
50 MHz Channel Bandwidth
64QAM Modulation
High Channel, 3525.00 MHz



Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Low Channel, 3475.02 MHz



Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3500.01 MHz



Port 1
50 MHz Channel Bandwidth
256QAM Modulation
High Channel, 3525.00 MHz

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

element
TbtTx 2025.05.09.1
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TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The RF conducted emission testing was performed on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power" report section) and antenna port 1 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. Duty cycle correction is not needed for this testing since the transmit "on" time is synchronized with the measurement receiver.

The fundamental emission Power Spectral Density (PSD) 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 Power Spectral Density was measured while transmitting on one carrier. The total PSD for multiport operation was determined based upon ANSI C63.26 clause 6.4.3.2.4 (10 Log Nout). The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 and 6.4.6.3

All Measurements were synchronized with the measurement receiver - gated with external trigger input (frame clock (100Hz) provided by the system module.

In 3.7GHz band single carrier operating mode - carriers were enabled at maximum power levels. The power was measured for a single carrier over the channel bandwidth indicated in the table.

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.

5G NR EIRP Calculations for Sixty-Four 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.

The AVQQA antenna assembly has an array of 4 rows and 8 columns of (±45°) cross-polarized (orthogonal) radiators. This antenna assembly has a beamforming gain of 25.0dBi ± 1.0dB. The sixty-four AVQQA transmitter outputs are connected to the antenna array (thirty-two are connected to **+**45° radiators/antennas and thirty-two are connected to the **-**45° radiators/antennas).

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

element
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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 PSD for each channel bandwidth type). The maximum antenna assembly beamforming gain was used for this calculation. Calculations of worst-case EIRP for sixty-four port MIMO are as follows:

Parameter	10 MHz Ch BW	30 MHz Ch BW	50 MHz Ch BW	70 MHz Ch BW	90 MHz Ch BW
Worst Case PSD/Antenna Port	20.1 dBm/MHz	20.9 dBm/MHz	22.1 dBm/MHz	20.7 dBm/MHz	19.6 dBm/MHz
Cable Loss	0 dB	0 dB	0 dB	0 dB	0 dB
Number of Ant Ports per Polarization	32	32	32	32	32
Total PSD per Polarization 10 Log 32 = +15.1 dB	35.2 dBm/MHz	36.0 dBm/MHz	37.2 dBm/MHz	35.8 dBm/MHz	34.7 dBm/MHz
Maximum Antenna Beamforming Gain per Polarization	26.0 dBi	26.0 dBi	26.0 dBi	26.0 dBi	26.0 dBi
EIRP per Polarization	61.2 dBm/MHz	62.0 dBm/MHz	63.2 dBm/MHz	61.8 dBm/MHz	60.7 dBm/MHz
Number of Polarizations	2	2	2	2	2
EIRP Total (See Note 1)	61.2 dBm/MHz	62.0 dBm/MHz	63.2 dBm/MHz	61.8 dBm/MHz	60.7 dBm/MHz
Passing EIRP Limit	62.15 dBm/MHz and 65.16 dBm/MHz	62.15 dBm/MHz and 65.16 dBm/MHz	65.16 dBm/MHz	62.15 dBm/MHz and 65.16 dBm/MHz	62.15 dBm/MHz and 65.16 dBm/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 antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

Calculation Summary

(1) The worst case AVQQA sixty-four port MIMO EIRP levels for all 5G NR channel bandwidths (10MHz, 30MHz, 50MHz, 70MHz, & 90MHz) are less than the 3280 W/MHz (65.16 dBm/MHz) FCC regulatory limit.

(2) The worst case AVQQA sixty-four port MIMO EIRP levels for the 5G NR 10MHz, 30MHz & 90MHz channel bandwidths are less than the 1640 W/MHz (62.15 dBm/MHz) FCC regulatory limit.

(3) The worst case AVQQA sixty-four port MIMO EIRP levels for the 5G NR 50MHz channel bandwidths exceed the 1640 W/MHz (62.15 dBm/MHz) FCC regulatory limit by 1.05 dB (63.2 dBm/MHz - 62.15 dBm/MHz). The AVQQA 5G NR 50MHz channel bandwidths carrier power levels using sixty-four port MIMO operation need to be reduced to meet the 1640 W/MHz (62.15 dBm/MHz) FCC regulatory limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

element
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EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-02
Customer:	Nokia Solutions and Networks	Temperature:	24.2°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	51.4%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

Tested By

TEST RESULTS

	Initial Value dBm/1MHz	Single Port dBm/1MHz	Sixty-four Port (64x64 MIMO) dBm/1MHz
Port 1			
10 MHz Channel Bandwidth			
QPSK Modulation			
Middle Channel, 3840.00 MHz	19.373	19.4	37.4
16QAM Modulation			
Middle Channel, 3840.00 MHz	20.141	20.1	38.2
64QAM Modulation			
Middle Channel, 3840.00 MHz	19.487	19.5	37.5
256QAM Modulation			
Middle Channel, 3840.00 MHz	19.346	19.3	37.4
30 MHz Channel Bandwidth			
QPSK Modulation			
Middle Channel, 3840.00 MHz	18.974	19.0	37.0
16QAM Modulation			
Middle Channel, 3840.00 MHz	20.855	20.9	38.9
64QAM Modulation			
Middle Channel, 3840.00 MHz	19.368	19.4	37.4
256QAM Modulation			
Middle Channel, 3840.00 MHz	19.28	19.3	37.3
50 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3725.01 MHz	19.632	19.6	37.7
Middle Channel, 3840.00 MHz	20.152	20.2	38.2
High Channel, 3954.99 MHz	19.917	19.9	38.0

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

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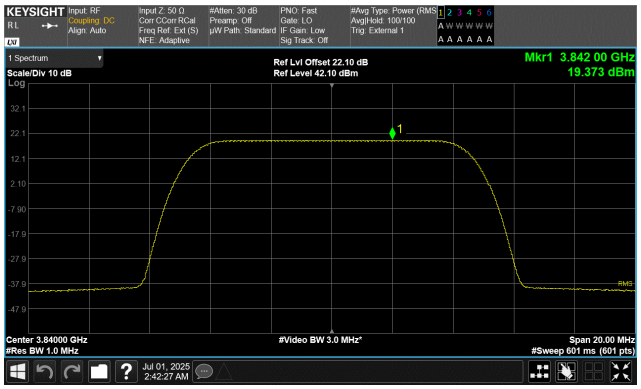
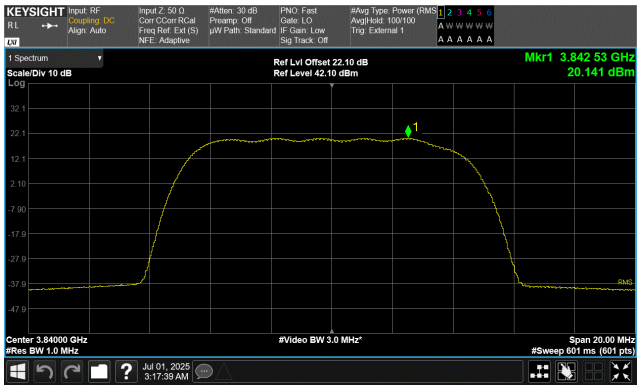
	Initial Value dBm/1MHz	Single Port dBm/1MHz	Sixty-four Port (64x64 MIMO) dBm/1MHz
16QAM Modulation			
Low Channel, 3725.01 MHz	21.59	21.6	39.7
Middle Channel, 3840.00 MHz	22.095	22.1	40.2
High Channel, 3954.99 MHz	21.434	21.4	39.5
64QAM Modulation			
Low Channel, 3725.01 MHz	20.001	20.0	38.1
Middle Channel, 3840.00 MHz	20.428	20.0	38.1
High Channel, 3954.99 MHz	19.851	19.9	37.9
256QAM Modulation			
Low Channel, 3725.01 MHz	19.984	20.0	38.0
Middle Channel, 3840.00 MHz	20.467	20.5	38.5
High Channel, 3954.99 MHz	19.877	19.9	37.9
70 MHz Channel Bandwidth			
QPSK Modulation			
Middle Channel, 3840.00 MHz	18.913	18.9	37.0
16QAM Modulation			
Middle Channel, 3840.00 MHz	20.749	20.7	38.8
64QAM Modulation			
Middle Channel, 3840.00 MHz	18.941	18.9	37.0
256QAM Modulation			
Middle Channel, 3840.00 MHz	18.888	18.9	36.9
90 MHz Channel Bandwidth			
QPSK Modulation			
Middle Channel, 3840.00 MHz	17.826	17.8	35.9
16QAM Modulation			
Middle Channel, 3840.00 MHz	19.627	19.6	37.7
64QAM Modulation			
Middle Channel, 3840.00 MHz	17.858	17.9	35.9
256QAM Modulation			
Middle Channel, 3840.00 MHz	17.873	17.9	35.9

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

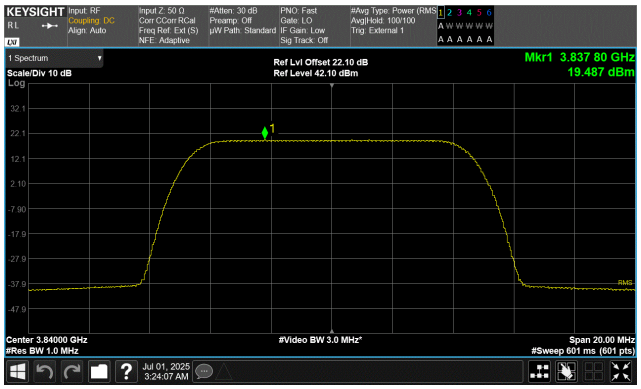
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



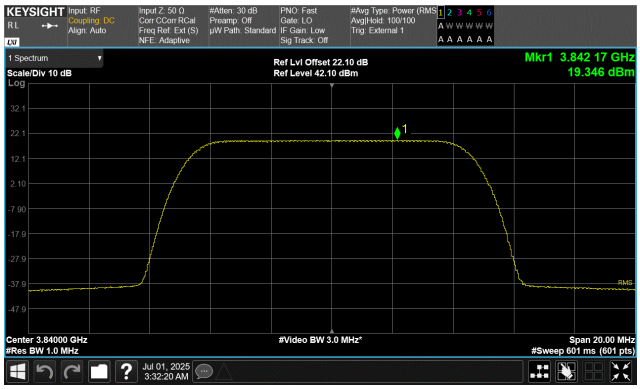
Port 1
10 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



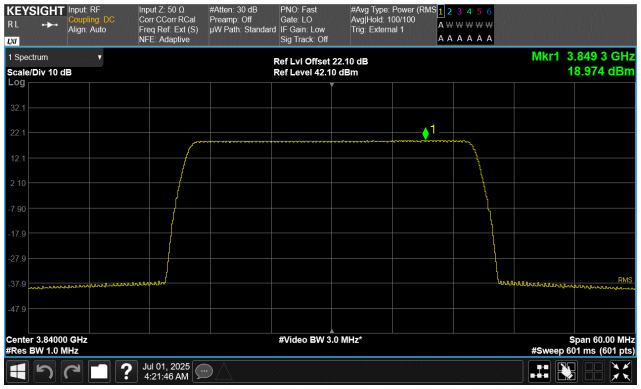
Port 1
10 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz



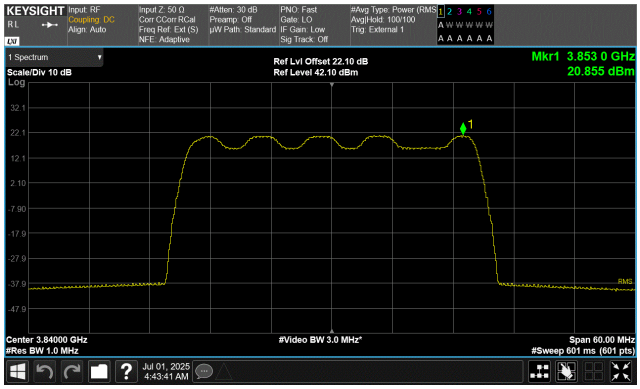
Port 1
10 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz



Port 1
10 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz



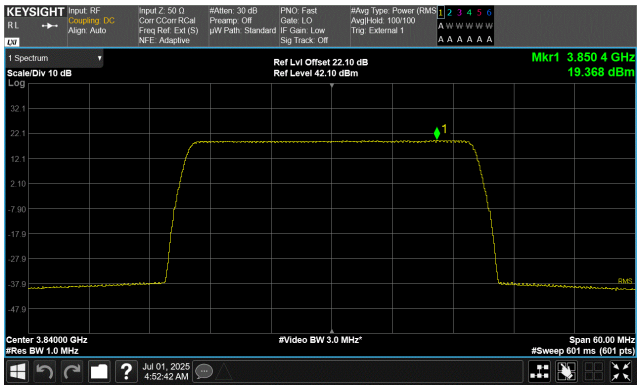
Port 1
30 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



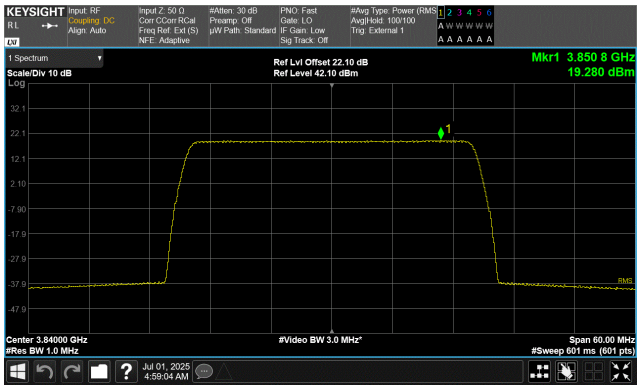
Port 1
30 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

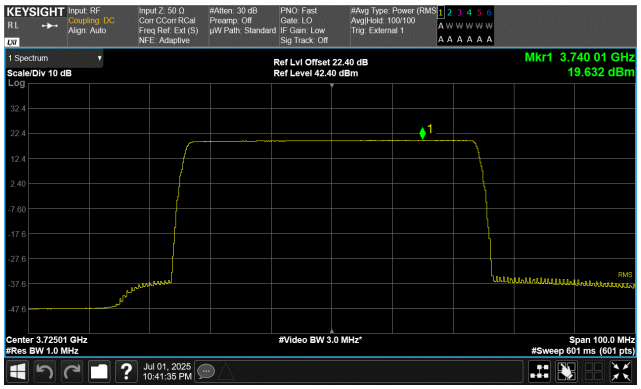
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



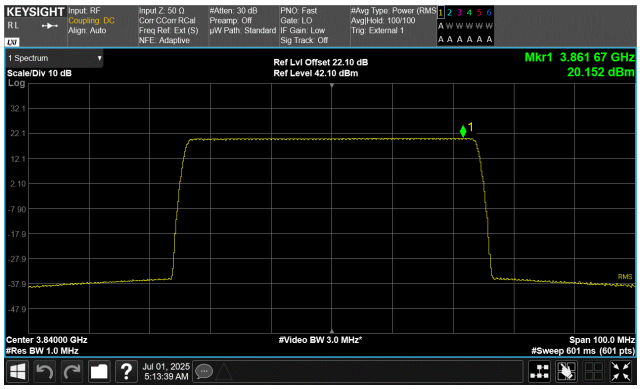
Port 1
30 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz



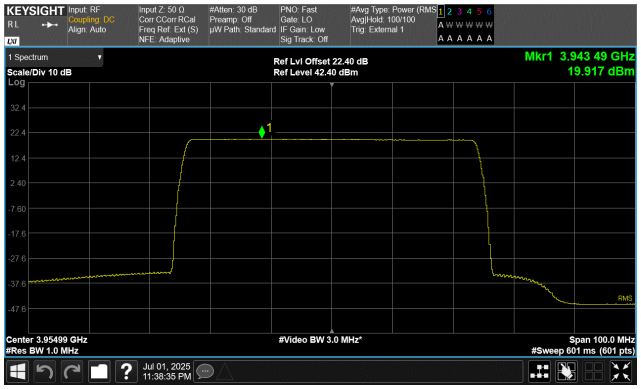
Port 1
30 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz



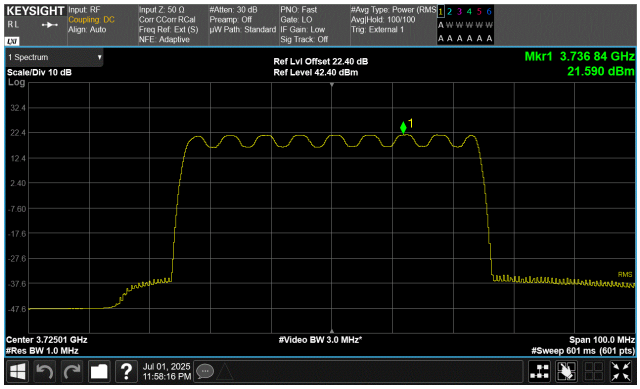
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3725.01 MHz



Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



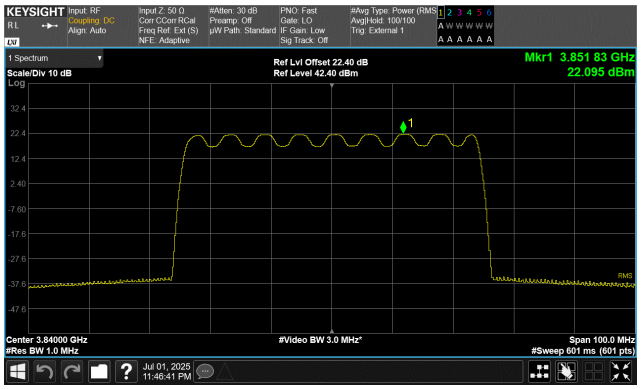
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3954.99 MHz



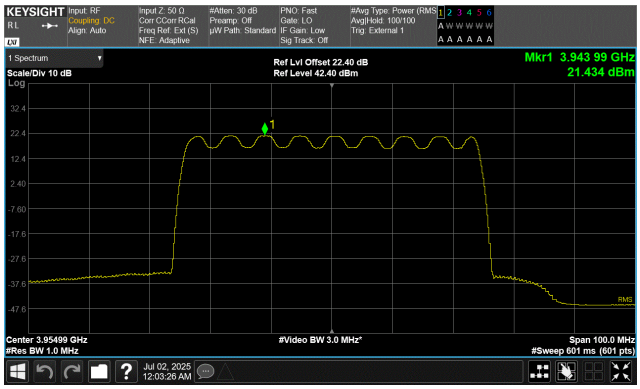
Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Low Channel, 3725.01 MHz

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

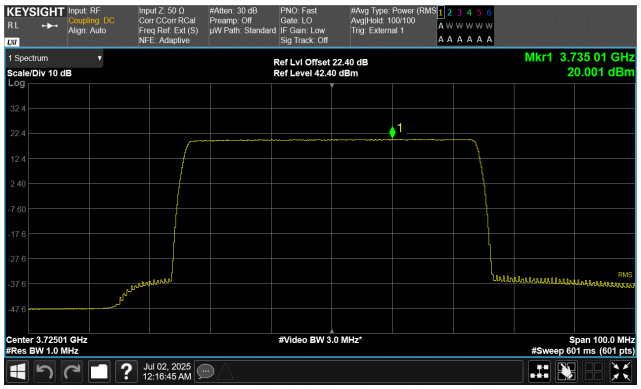
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



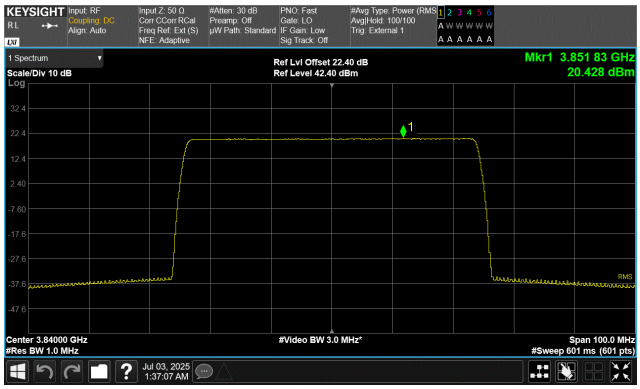
Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz



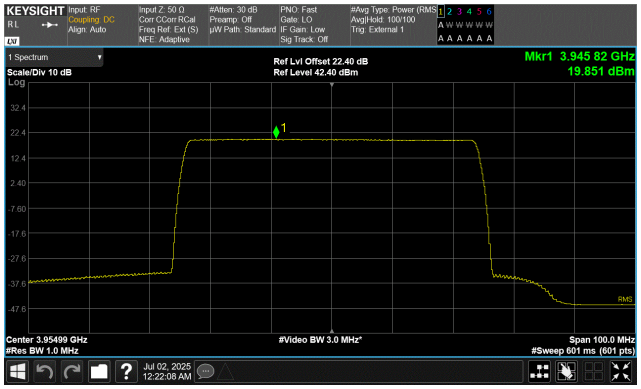
Port 1
50 MHz Channel Bandwidth
16QAM Modulation
High Channel, 3954.99 MHz



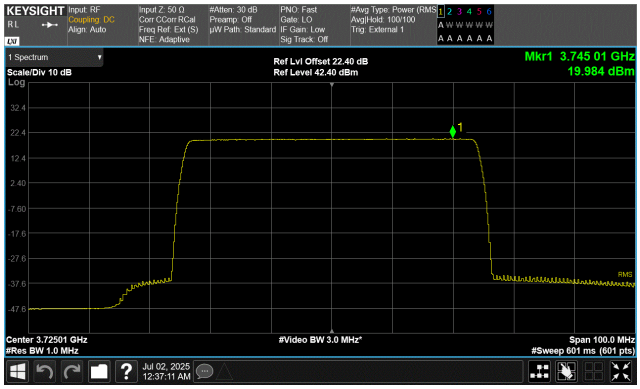
Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Low Channel, 3725.01 MHz



Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz

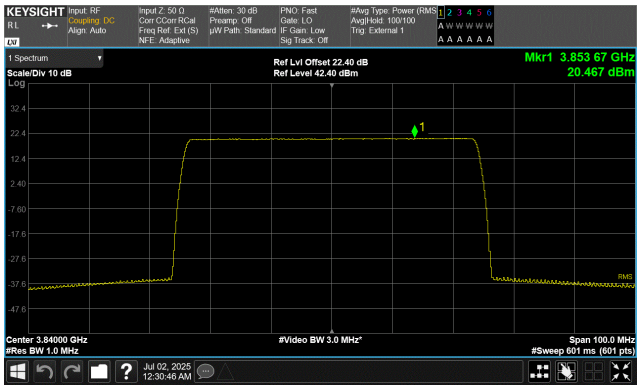


Port 1
50 MHz Channel Bandwidth
64QAM Modulation
High Channel, 3954.99 MHz

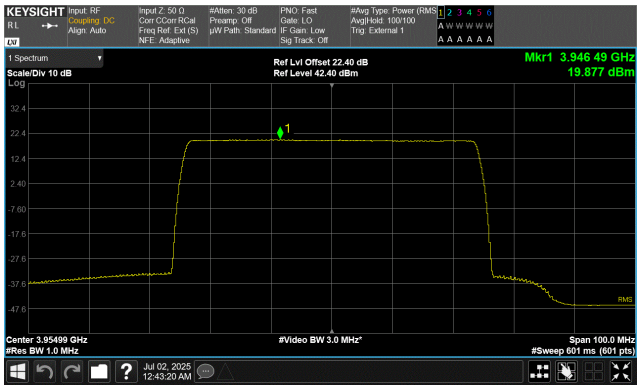


Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Low Channel, 3725.01 MHz

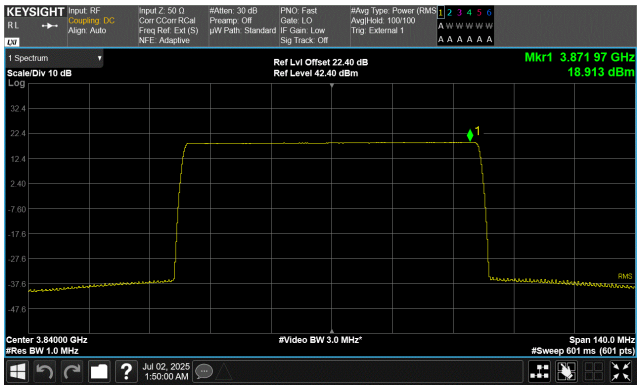
POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND



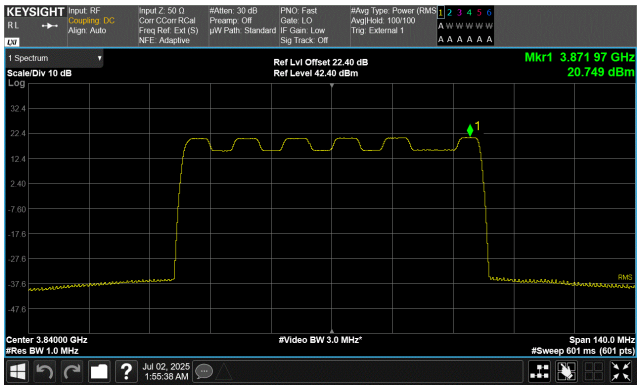
Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz



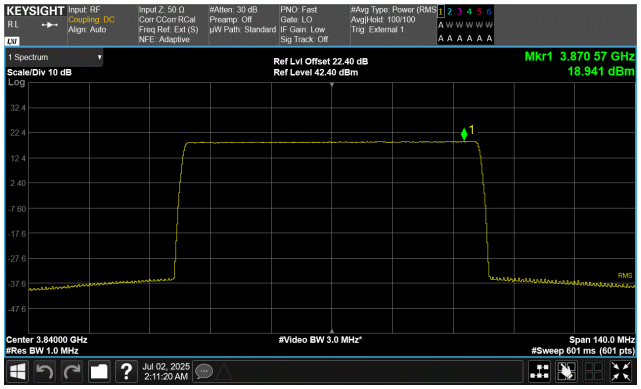
Port 1
50 MHz Channel Bandwidth
256QAM Modulation
High Channel, 3954.99 MHz



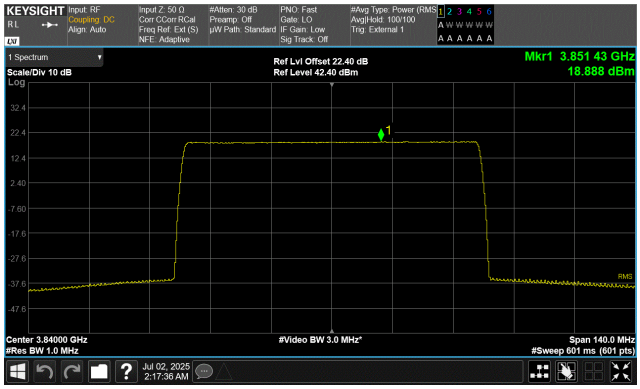
Port 1
70 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



Port 1
70 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz



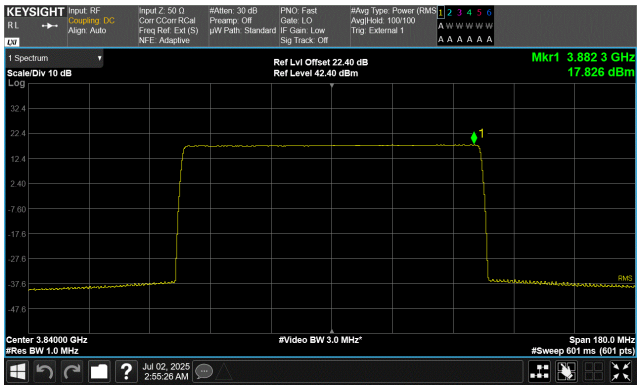
Port 1
70 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz



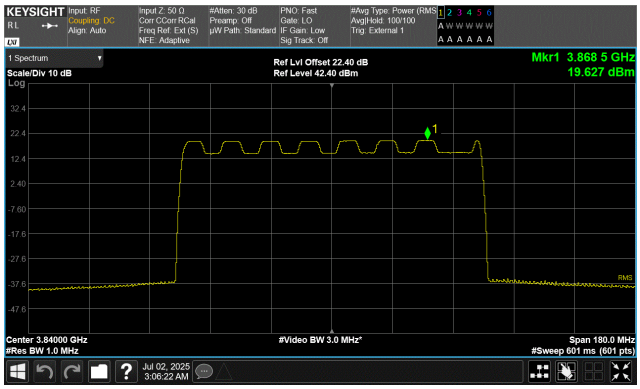
Port 1
70 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz

POWER SPECTRAL DENSITY & TRP CALCULATIONS - 3700 BAND

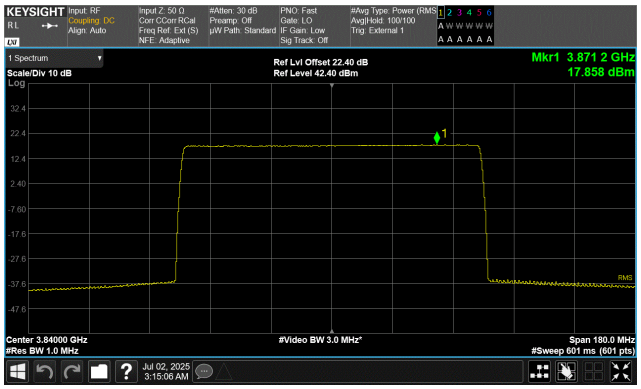
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



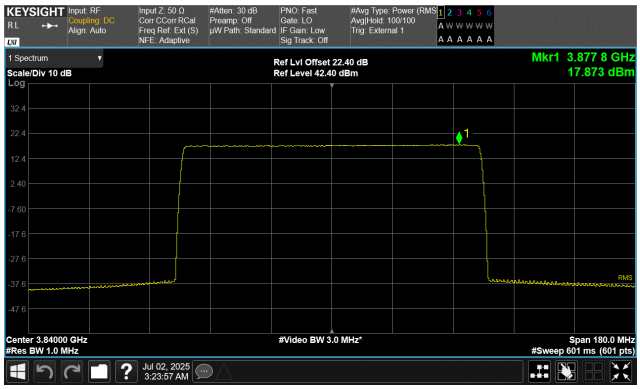
Port 1
90 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



Port 1
90 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz



Port 1
90 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz



Port 1
90 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz

PEAK AND AVERAGE (PAPR) CCDF - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The fundamental emission Peak to Average Power was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

RF conducted emissions testing was performed only on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 1 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.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed the rule part defined limit.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

Per FCC 27.50(k) (4), the peak to average ratio may not exceed 13dB for more than the ANSI described 0.1% of the time.

All Measurements were synchronized with the measurement receiver - gated with external trigger input (frame clock (100Hz) provided by the system module. Duty cycle correction is not needed for this testing since the transmit “on” time is synchronized with the measurement receiver.

In 3.45GHz band single carrier operating mode - carriers were enabled at maximum power levels. Simultaneously, 3.7GHz band NR10 carrier were enabled to operate at 30 watts or 0.468W(26.7dBm)/per carrier on the middle channel. The power was measured for a single carrier over the channel bandwidth indicated in the table.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

PEAK AND AVERAGE (PAPR) CCDF - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-16
Customer:	Nokia Solutions and Networks	Temperature:	26.4°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	42.7%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

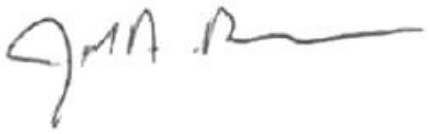
All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

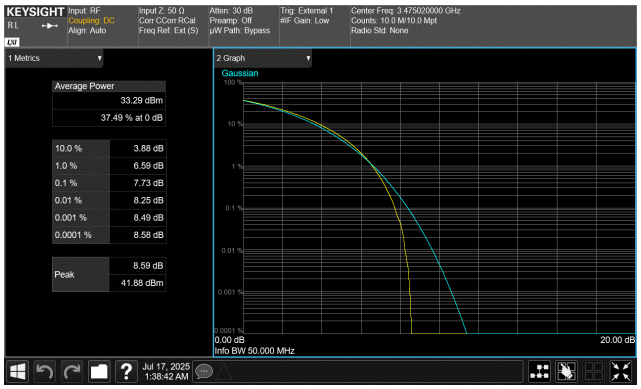


Tested By

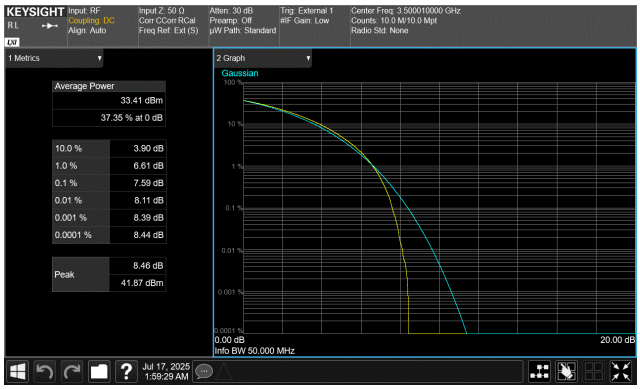
TEST RESULTS

	0.1% PAPR Value (dB)	0.1% PAPR Limit (dB)	Results
Port 1			
50 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3475.02 MHz	7.73	13	Pass
Middle Channel, 3500.01 MHz	7.59	13	Pass
High Channel, 3525.00 MHz	7.73	13	Pass
16QAM Modulation			
Middle Channel, 3500.01 MHz	7.67	13	Pass
64QAM Modulation			
Middle Channel, 3500.01 MHz	7.61	13	Pass
256QAM Modulation			
Middle Channel, 3500.01 MHz	7.64	13	Pass

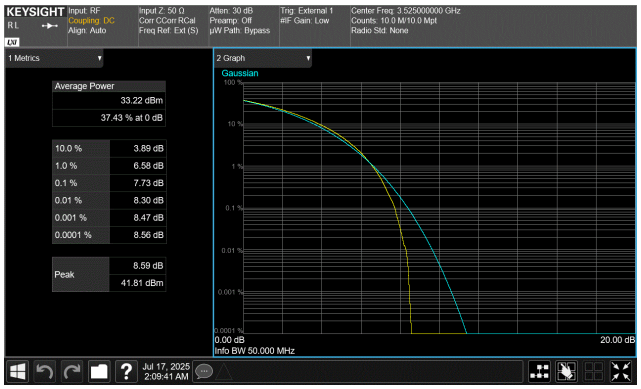
PEAK AND AVERAGE (PAPR) CCDF - 3400 BAND



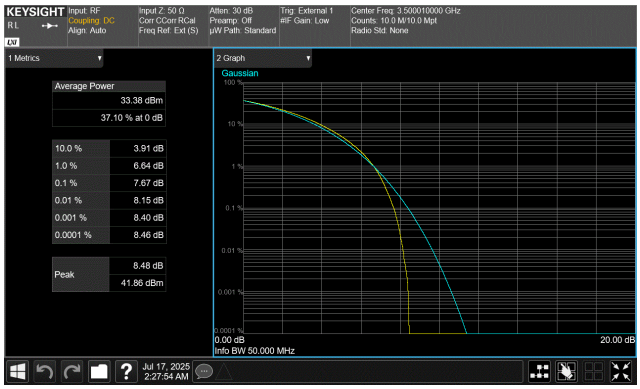
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3475.02 MHz



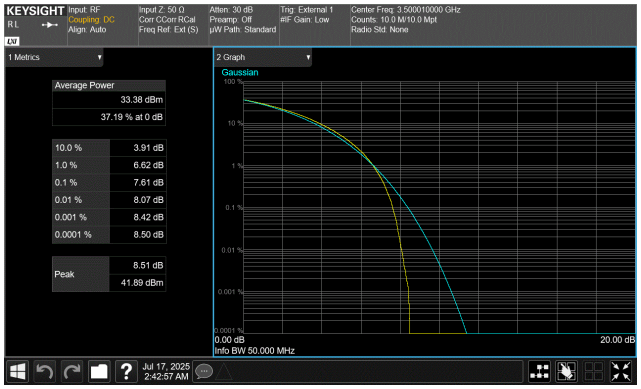
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3500.01 MHz



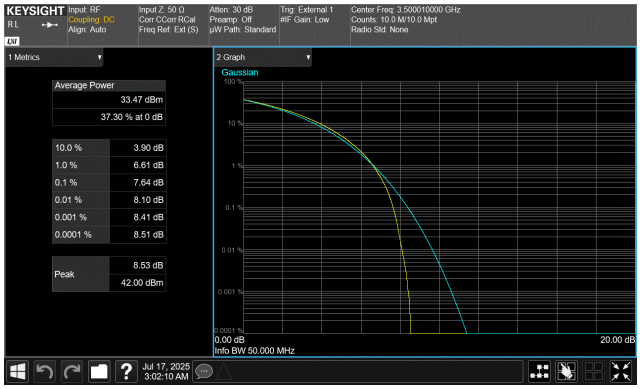
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3525.00 MHz



Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3500.01 MHz



Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3500.01 MHz



Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3500.01 MHz

PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The fundamental emission Peak to Average Power was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

RF conducted emissions testing was performed only on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 1 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.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed the rule part defined limit.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

Per FCC 27.50(j) (4), the peak to average ratio may not exceed 13dB for more than the ANSI described 0.1% of the time.

All Measurements were synchronized with the measurement receiver - gated with external trigger input (frame clock (100Hz) provided by the system module. Duty cycle correction is not needed for this testing since the transmit “on” time is synchronized with the measurement receiver.

In 3.7GHz band single carrier operating mode - carriers were enabled at maximum power levels. The power was measured for a single carrier over the channel bandwidth indicated in the table.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-14
Customer:	Nokia Solutions and Networks	Temperature:	24.1°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	50.5%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

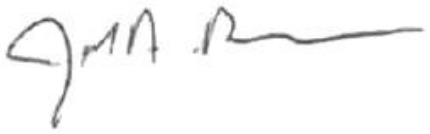
All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass



Tested By

TEST RESULTS

	0.1% PAPR Value (dB)	0.1% PAPR Limit (dB)	Results
Port 1			
10 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3705.00 MHz	7.82	13	Pass
Middle Channel, 3840.00 MHz	7.87	13	Pass
High Channel, 3975.00 MHz	7.83	13	Pass
30 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3715.02 MHz	7.82	13	Pass
Middle Channel, 3840.00 MHz	7.75	13	Pass
High Channel, 3964.98 MHz	7.77	13	Pass
50 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3725.01 MHz	7.88	13	Pass
Middle Channel, 3840.00 MHz	7.75	13	Pass
High Channel, 3954.99 MHz	7.82	13	Pass
70 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3735.00 MHz	8.01	13	Pass
Middle Channel, 3840.00 MHz	7.8	13	Pass
High Channel, 3945.00 MHz	7.93	13	Pass

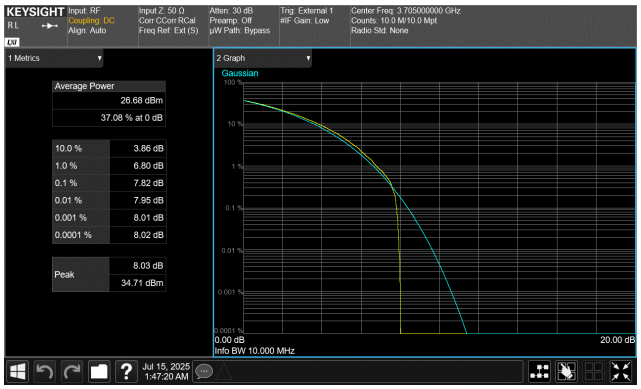
PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

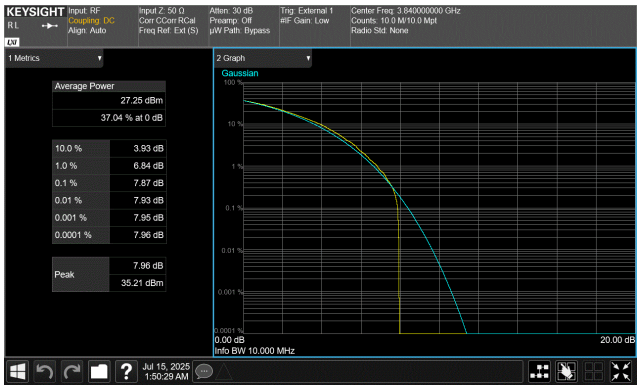
	0.1% PAPR Value (dB)	0.1% PAPR Limit (dB)	Results
90 MHz Channel Bandwidth			
QPSK Modulation			
Low Channel, 3745.02 MHz	8	13	Pass
Middle Channel, 3840.00 MHz	7.77	13	Pass
High Channel, 3934.98 MHz	7.97	13	Pass

PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND

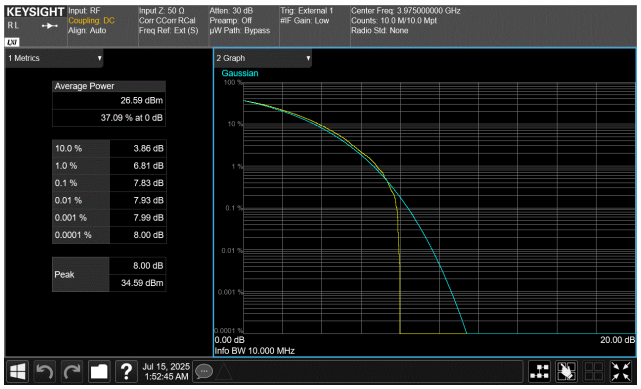
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



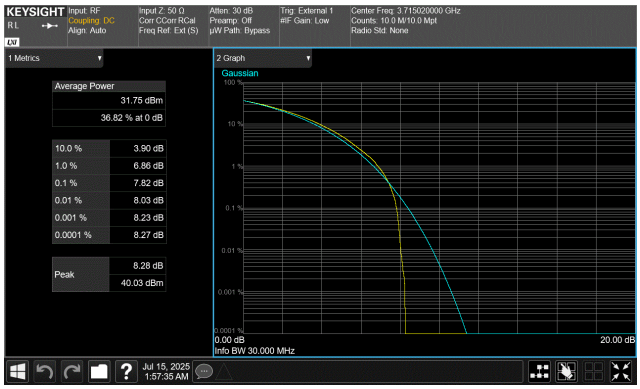
Port 1
10 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3705.00 MHz



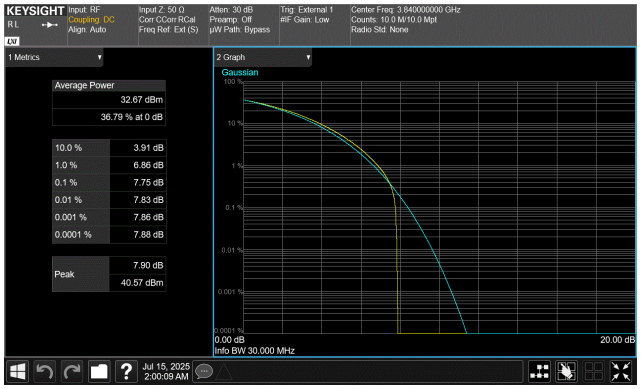
Port 1
10 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



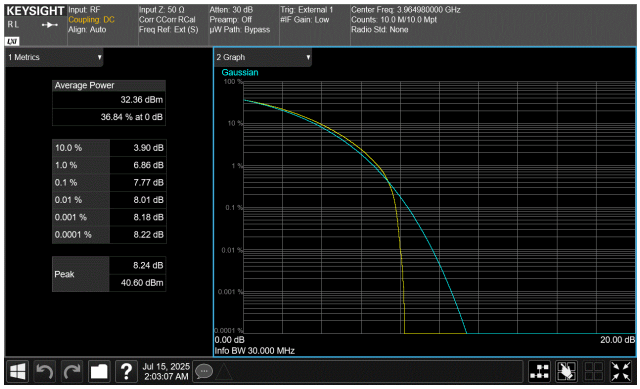
Port 1
10 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3975.00 MHz



Port 1
30 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3715.02 MHz



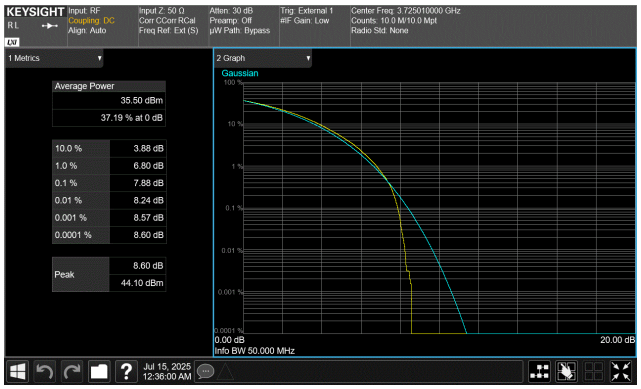
Port 1
30 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



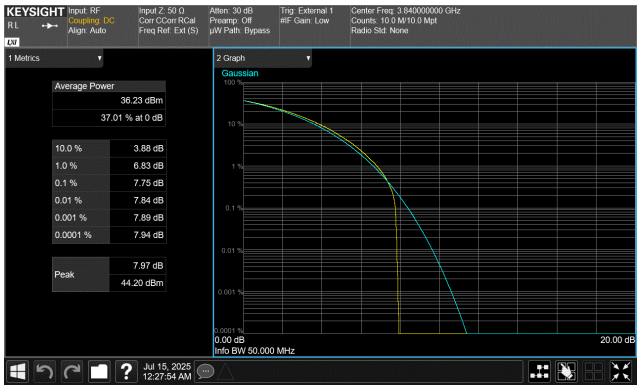
Port 1
30 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3964.98 MHz

PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND

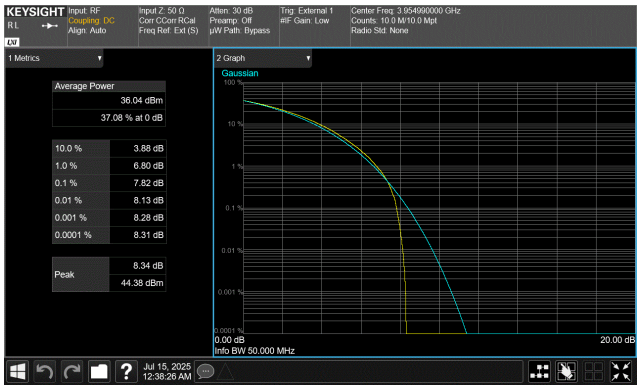
element
TbtTx 2025.05.09.1
WTD.2025.03.25.0



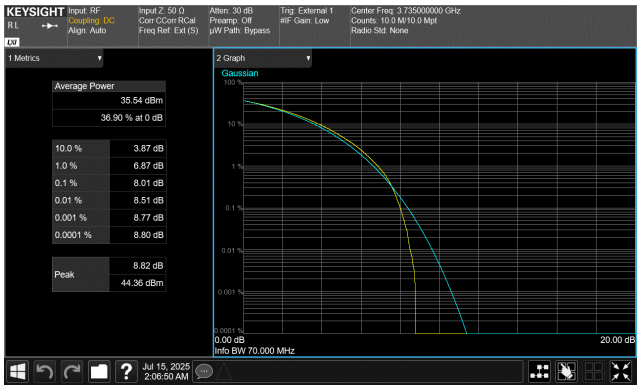
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3725.01 MHz



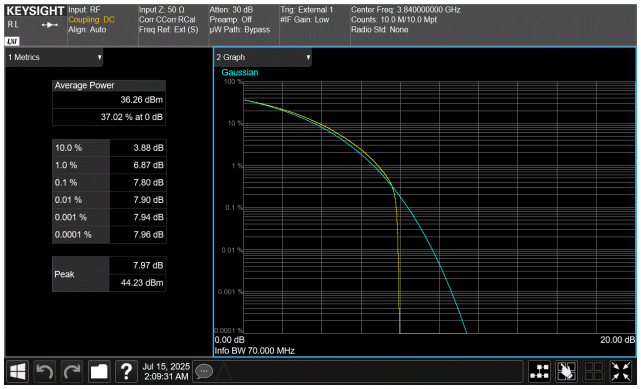
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



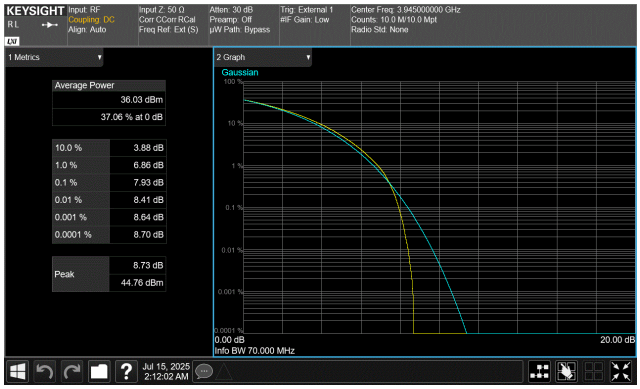
Port 1
50 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3954.99 MHz



Port 1
70 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3735.00 MHz

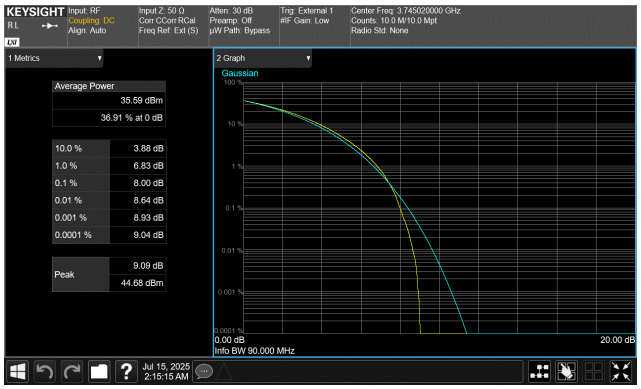


Port 1
70 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz

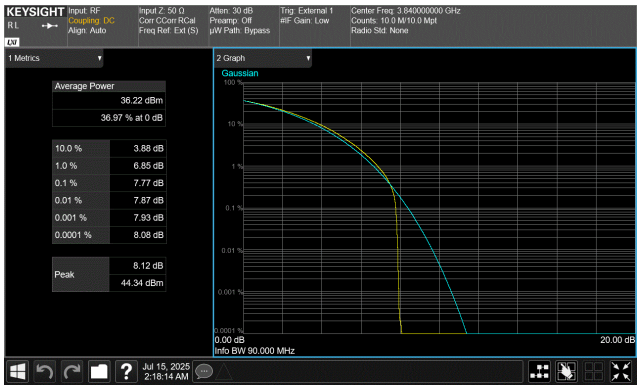


Port 1
70 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3945.00 MHz

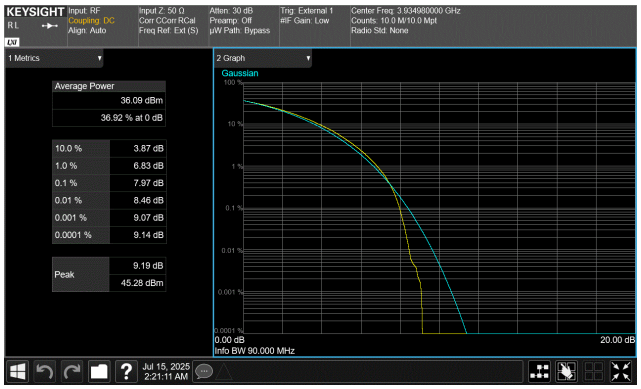
PEAK AND AVERAGE (PAPR) CCDF - 3700 BAND



Port 1
90 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3745.02 MHz



Port 1
90 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz



Port 1
90 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3934.98 MHz

OCCUPIED BANDWIDTH - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The fundamental emission Occupied Bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

RF conducted emissions testing was performed only on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 1 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 method in section 5.4 of ANSI C63.26 was used to make this measurement. The spectrum analyzer settings were as follows:

- RBW is 1% - 5% of the occupied bandwidth
- VBW is ≥ 3x the RBW
- Peak Detector was used
- Trace max hold was used

The 26dB emission bandwidth is measured in accordance with section 4 of FCC KDB 971168 D01v03r01 and ANSI C63.26 section 5.4. FCC 2.1049 requires an emission bandwidth measurement. FCC 27.53(n)(1) defines the emission bandwidth to be used as 26 dB down.

In 3.45GHz band single carrier operating mode - carriers were enabled at maximum power levels. Simultaneously, 3.7GHz band NR10 carrier were enable to operate at 30 watts or 0.468W(26.7dBm)/per carrier on middle channel. The power was measured for a single carrier over the channel bandwidth indicated in the table.

FCC 5G Emission Designators for 3.45GHz Band (3450MHz to 3550MHz)					
Channel Bandwidth	**Radio Channel**	**5G-NR: QPSK**	**5G-NR: 16QAM**	**5G-NR: 64QAM**	**5G-NR: 256QAM**
50MHz	Low	51M0G7W			
	Mid	51M2G7W	51M0G7W	51M1G7W	51M1G7W
	High	51M1G7W			
Note: FCC emission designators are based on 26dB emission bandwidth measurement data.					

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

OCCUPIED BANDWIDTH - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-16
Customer:	Nokia Solutions and Networks	Temperature:	26.4°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	42.7%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

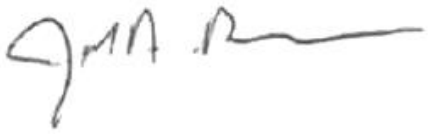
All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass



Tested By

TEST RESULTS

	Value 99% (MHz)	Value 26dB (MHz)	Limit	Result
Port 1				
50 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3475.02 MHz	47.865 MHz	51.031 MHz	Within Tolerance	Pass
Middle Channel, 3500.01 MHz	47.909 MHz	51.232 MHz	Within Tolerance	Pass
High Channel, 3525.00 MHz	47.877 MHz	51.092 MHz	Within Tolerance	Pass
16QAM Modulation				
Middle Channel, 3500.01 MHz	48.054 MHz	51.047 MHz	Within Tolerance	Pass
64QAM Modulation				
Middle Channel, 3500.01 MHz	47.985 MHz	51.105 MHz	Within Tolerance	Pass
256QAM Modulation				
Middle Channel, 3500.01 MHz	47.895 MHz	51.078 MHz	Within Tolerance	Pass

OCCUPIED BANDWIDTH - 3400 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3475.02 MHz

Port 1
50 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3500.01 MHz

Port 1
50 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3525.00 MHz

Port 1
50 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3500.01 MHz

Port 1
50 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3500.01 MHz

Port 1
50 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3500.01 MHz

OCCUPIED BANDWIDTH - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST DESCRIPTION

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.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The fundamental emission Occupied Bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

RF conducted emissions testing was performed only on one port. The AVQQA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 1 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 method in section 5.4 of ANSI C63.26 was used to make this measurement. The spectrum analyzer settings were as follows:

- RBW is 1% - 5% of the occupied bandwidth
- VBW is ≥ 3x the RBW
- Peak Detector was used
- Trace max hold was used

The 26dB emission bandwidth is measured in accordance with section 4 of FCC KDB 971168 D01v03r01 and ANSI C63.26 section 5.4. FCC 2.1049 requires an emission bandwidth measurement. FCC 27.53(l)(1) defines the emission bandwidth to be used as 26 dB down.

In 3.7GHz band single carrier operating mode - carriers were enabled at maximum power levels. The power was measured for a single carrier over the channel bandwidth indicated in the table.

FCC 5G Emission Designators for 3.7GHz Band (3700MHz to 3980MHz)					
Channel Bandwidth	**Radio Channel**	**5G-NR: QPSK**	**5G-NR: 16QAM**	**5G-NR: 64QAM**	**5G-NR: 256QAM**
10MHz	Low	9M79G7W			
	Mid	9M78G7W	9M69G7W	9M79G7W	9M78G7W
	High	9M77G7W			
30MHz	Low	30M4G7W			
	Mid	30M6G7W	30M5G7W	30M6G7W	30M6G7W
	High	30M4G7W			
50MHz	Low	51M3G7W			
	Mid	51M0G7W	50M8G7W	50M9G7W	51M0G7W
	High	51M3G7W			
70MHz	Low	71M6G7W			
	Mid	71M2G7W	71M6G7W	71M8G7W	71M7G7W
	High	71M7G7W			
90MHz	Low	92M1G7W			
	Mid	92M5G7W	92M3G7W	92M4G7W	92M6G7W
	High	92M3G7W			
Note: FCC emission designators are based on 26dB emission bandwidth measurement data.					

OCCUPIED BANDWIDTH - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight Technologies	N9030B	AGA	2025-06-09	2026-06-09
Block - DC	Centric RF	C0140	ANJ	NCR	NCR
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07

Note: The RF Test Setup/ Network (RF cables/Attenuators/filter/etc.) is defined in the configurations section for each test. The RF Test Setup/Network is calibrated using the signal generator and spectrum analyzer prior to test. The RF insertion loss of the RF Test Setup/Network is accounted for by the spectrum analyzer's reference level offset during the RF conducted testing.

OCCUPIED BANDWIDTH - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

EUT:	Airscale Base Transceiver Station Radio Unit Model AVQQA	Work Order:	NOKI0086
Serial Number:	L1242501908	Date:	2025-07-02
Customer:	Nokia Solutions and Networks	Temperature:	24.1°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	51%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mbar
Tested By:	Jarrod Brenden	Job Site:	PT14
Power:	54 VDC	Configuration:	NOKI0086-3

COMMENTS

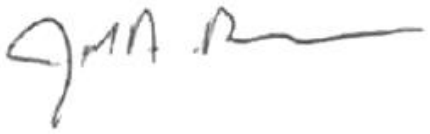
All losses in the measurement path were accounted for in the spectrum analyzer reference level offset; attenuators, filters, cables, and DC blocks.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass



Tested By

TEST RESULTS

	Value 99% (MHz)	Value 26dB (MHz)	Limit	Result
Port 1				
10 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3705.00 MHz	8.681 MHz	9.786 MHz	Within Band	Pass
Middle Channel, 3840.00 MHz	8.669 MHz	9.775 MHz	Within Band	Pass
High Channel, 3975.00 MHz	8.658 MHz	9.768 MHz	Within Band	Pass
16QAM Modulation				
Middle Channel, 3840.00 MHz	8.594 MHz	9.686 MHz	Within Band	Pass
64QAM Modulation				
Middle Channel, 3840.00 MHz	8.705 MHz	9.79 MHz	Within Band	Pass
256QAM Modulation				
Middle Channel, 3840.00 MHz	8.69 MHz	9.782 MHz	Within Band	Pass
30 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3715.02 MHz	28.127 MHz	30.367 MHz	Within Band	Pass
Middle Channel, 3840.00 MHz	28.108 MHz	30.586 MHz	Within Band	Pass
High Channel, 3964.98 MHz	28.104 MHz	30.394 MHz	Within Band	Pass
16QAM Modulation				
Middle Channel, 3840.00 MHz	28.286 MHz	30.514 MHz	Within Band	Pass
64QAM Modulation				
Middle Channel, 3840.00 MHz	28.194 MHz	30.618 MHz	Within Band	Pass
256QAM Modulation				
Middle Channel, 3840.00 MHz	28.18 MHz	30.559 MHz	Within Band	Pass

OCCUPIED BANDWIDTH - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

	Value 99% (MHz)	Value 26dB (MHz)	Limit	Result
50 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3725.01 MHz	48.121 MHz	51.332 MHz	Within Band	Pass
Middle Channel, 3840.00 MHz	47.759 MHz	51.022 MHz	Within Band	Pass
High Channel, 3954.99 MHz	48.006 MHz	51.251 MHz	Within Band	Pass
16QAM Modulation				
Middle Channel, 3840.00 MHz	47.844 MHz	50.837 MHz	Within Band	Pass
64QAM Modulation				
Middle Channel, 3840.00 MHz	47.75 MHz	50.887 MHz	Within Band	Pass
256QAM Modulation				
Middle Channel, 3840.00 MHz	47.779 MHz	50.95 MHz	Within Band	Pass
70 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3735.00 MHz	67.615 MHz	71.627 MHz	Within Band	Pass
Middle Channel, 3840.00 MHz	67.663 MHz	71.241 MHz	Within Band	Pass
High Channel, 3945.00 MHz	67.675 MHz	71.72 MHz	Within Band	Pass
16QAM Modulation				
Middle Channel, 3840.00 MHz	67.975 MHz	71.56 MHz	Within Band	Pass
64QAM Modulation				
Middle Channel, 3840.00 MHz	67.765 MHz	71.774 MHz	Within Band	Pass
256QAM Modulation				
Middle Channel, 3840.00 MHz	67.741 MHz	71.742 MHz	Within Band	Pass
90 MHz Channel Bandwidth				
QPSK Modulation				
Low Channel, 3745.02 MHz	87.556 MHz	92.112 MHz	Within Band	Pass
Middle Channel, 3840.00 MHz	87.653 MHz	92.493 MHz	Within Band	Pass
High Channel, 3934.98 MHz	87.644 MHz	92.255 MHz	Within Band	Pass
16QAM Modulation				
Middle Channel, 3840.00 MHz	88.051 MHz	92.26 MHz	Within Band	Pass
64QAM Modulation				
Middle Channel, 3840.00 MHz	87.561 MHz	92.393 MHz	Within Band	Pass
256QAM Modulation				
Middle Channel, 3840.00 MHz	87.73 MHz	92.583 MHz	Within Band	Pass

OCCUPIED BANDWIDTH - 3700 BAND

element
TbtTx 2025.05.09.1
WTD.2025.03.25.0

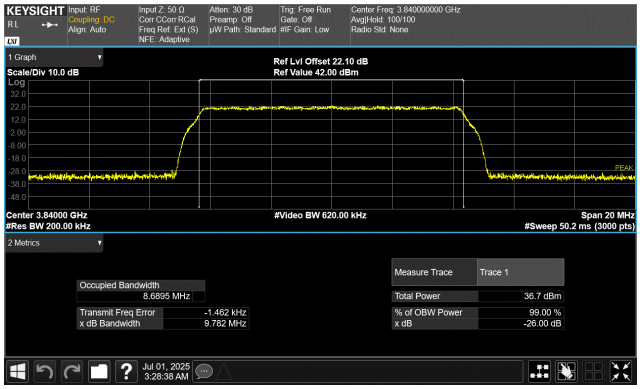
Port 1
10 MHz Channel Bandwidth
QPSK Modulation
Low Channel, 3705.00 MHz

Port 1
10 MHz Channel Bandwidth
QPSK Modulation
Middle Channel, 3840.00 MHz

Port 1
10 MHz Channel Bandwidth
QPSK Modulation
High Channel, 3975.00 MHz

Port 1
10 MHz Channel Bandwidth
16QAM Modulation
Middle Channel, 3840.00 MHz

Port 1
10 MHz Channel Bandwidth
64QAM Modulation
Middle Channel, 3840.00 MHz



Port 1
10 MHz Channel Bandwidth
256QAM Modulation
Middle Channel, 3840.00 MHz