

FCC Test Report (Part 96 – NR B48)

Report No.: RFBEIH-WTW-P24110561A

FCC ID: 2ASK5AIOID5GSC03

Test Model: Nokia AIOSC Indoor 5G n48

Received Date: 2024/11/19

Test Date: 2025/10/15 ~ 2025/11/12

Issued Date: 2025/12/23

Applicant: Nokia

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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33383, Taiwan

Test Location (2): No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

FCC Registration / 788550 / TW0003

Designation Number: 281270 / TW0032



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Release Control Record

Issue No.	Description	Date Issued
RFBEIH-WTW-P24110561A	Original Release	2025/12/23

1 Certificate of Conformity

Product: Nokia AIO SC Indoor 5G

Brand: Nokia

Test Model: Nokia AIO SC Indoor 5G n48

Sample Status: Engineering Sample

Applicant: Nokia

Test Date: 2025/10/15 ~ 2025/11/12

Standards: 47 CFR FCC Part 96
47 CFR FCC Part 2

Measurement procedure: ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 940660 D01 Part 96 CBRS Eqpt v03
KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :

Gina Liu

, Date:

2025/12/23

Gina Liu / Specialist

Approved by :

Jeremy Lin

, Date:

2025/12/23

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 96			
FCC Clause	Test Item	Result	Remarks
2.1046 96.41(b)	Maximum EIRP	Pass	Meet the requirement of limit.
2.1047 96.41(a)	Modulation Characteristics	N/A	Refer to original report
2.1046 96.41(b)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
96.41(g)	Peak to Average Ration	Pass	Meet the requirement of limit.
2.1049	Bandwidth	Pass	Meet the requirement of limit.
2.1055	Frequency Stability	Pass	Meet the requirement of limit.
2.1051 96.41(e)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 96.41(e)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -4.77dB at 7359.96MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Effective Radiated Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Peak to Average Ratio	-	0.920 dB
Bandwidth	-	960 Hz
Frequency Stability	-	0.176 ppm
Conducted Spurious Emissions	-	2.12 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 1000MHz	2.93 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Nokia AIO SC Indoor 5G		
Brand	Nokia		
Test Model	Nokia AIO SC Indoor 5G n48		
Sample Status	Engineering Sample		
Power Supply Rating	Refer to Note		
Modulation Type	QPSK, 64QAM, 256QAM		
Operating Frequency	NR Band 48 (Channel Bandwidth 10MHz)	3555.00MHz ~ 3694.98MHz	
	NR Band 48 (Channel Bandwidth 20MHz)	3560.01MHz ~ 3690.00MHz	
	NR Band 48 (Channel Bandwidth 40MHz)	3570.00MHz ~ 3679.98MHz	
EUT Category	Category A		

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Specification
AC Adapter 1	Mass Power Electronics Inc.	NBS100A120600M2	AC Input : 100-240Vac, 50/60Hz, 1.6A DC Output : 12.0V, 6.0A, 72.0W DC Output Cable : 2pin, 1.5m non shielded without core
AC Adapter 2	Mass Power Electronics Inc.	NBS100A120600M3	AC Input : 100-240Vac, 50/60Hz, 1.6A DC Output : 12.0V, 6.0A, 72.0W DC Output Cable : 3pin, 1.5m non shielded without core

* After pre-tested all the adapters and found adapter 1 was the worst. Therefore, only adapter 1 was for the final test and presented in the test report.

2. The EUT supports the following configuration.

5GNR	FCC 5G FR1	
	1CC_SCS_30kHz	2CC_SCS_30kHz
Bandwidth (MHz)	10/20/40	10+20 / 20+10 / 20+20 / 20+40

3. Non-support 16QAM modulation bandwidth.

4. The following antennas were provided to the EUT.

<Internal antenna>

	Antenna 1	Antenna 2	Antenna 3	Antenna 4
Antenna Type	Dipole	Dipole	PIFA	PIFA
Connector Type	MMCX	MMCX	MMCX	MMCX
Frequency Range	Antenna Gain (dBi)			
3450MHz	3.67	3.61	4.02	3.85
3550MHz	3.83	4.12	4.33	4.15
3700MHz	4.37	4.06	4.58	4.32
3800MHz	4.59	4.34	4.26	4.29
3980MHz	4.32	4.27	4.34	4.36
4200MHz	4.24	4.09	4.25	4.14

Note:

- Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2/2] = 5.52\text{dBi}$
- This device operates with Multiple Antennas Using Multiple-input, Multiple-output (MIMO) Technology for correlated Transmission.
- The device has 4 FR1 antennas, where Ant 1 & 2 are horizontal polarization and Ant 3 & 4 are vertical polarization. These two co-polarized antenna pairs are with orthogonal polarization to each other.
- According to the regulation KDB 662911, the correlated gain for Ant 1 & 2 and Ant 3 & 4 can be calculated respectively. Then select the maximum value between them as directional gain

<External antenna>

Antenna Type	Omni	Omni	Directional
Connector Type	4.3-10 Female	4.3-10 Female	4.3-10 Female
Mode	CMAX-OMF7-43-UWI53	CMAX-OMF9-43-UWI53	CMAX-DMF4-43-WI53
Brand	Cell-Max™	Cell-Max™	Cell-Max™
Frequency Range	Antenna Gain (dBi)		
3300-4200MHz	5.5	5.2	7.7

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

**The product is an indoor Small Cell, with built-in antenna as the primary usage scenario.

5. EUT Overview

Mode A2

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	905.733 mW (29.57dBm/10MHz)	889.201 mW (29.49dBm/10MHz)	872.971 mW (29.41dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2500.345 mW (33.98dBm/Channel Bandwidth)	2454.709 mW (33.90dBm/Channel Bandwidth)	2415.461 mW (33.83dBm/Channel Bandwidth)

Mode A3

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	928.966 mW (29.68dBm/10MHz)	914.113 mW (29.61dBm/10MHz)	897.429 mW (29.53dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2471.724 mW (33.93dBm/10MHz)	2426.610 mW (33.85dBm/10MHz)	2382.319 mW (33.77dBm/10MHz)

Mode B2

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	868.960 mW (29.39dBm/10MHz)	860.994 mW (29.35dBm/10MHz)	851.138 mW (29.30dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2517.677 mW (34.01dBm/Channel Bandwidth)	2494.595 mW (33.97dBm/Channel Bandwidth)	2471.724 mW (33.93dBm/Channel Bandwidth)

Mode B3

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	860.994 mW (29.35dBm/10MHz)	853.100 mW (29.31dBm/10MHz)	845.279 mW (29.27dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2371.374 mW (33.75dBm/Channel Bandwidth)	2349.633 mW (33.71dBm/Channel Bandwidth)	2328.091 mW (33.67dBm/Channel Bandwidth)

Mode C2

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	810.961 mW (29.09dBm/10MHz)	805.378 mW (29.06dBm/10MHz)	796.159 mW (29.01dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2349.633 mW (33.71dBm/Channel Bandwidth)	2328.091 mW (33.67 dBm/Channel Bandwidth)	2306.747 mW (33.63dBm/Channel Bandwidth)

Mode C3

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	841.395 mW (29.25dBm/Channel Bandwidth)	833.681 mW (29.21dBm/Channel Bandwidth)	826.038 mW (29.17dBm/Channel Bandwidth)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2223.310 mW (33.47dBm/Channel Bandwidth)	2202.926 mW (33.43dBm/Channel Bandwidth)	2182.730 mW (33.39dBm/Channel Bandwidth)

Mode D2

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	98.628 mW (19.94dBm/10MHz)	97.499 mW (19.89dBm/10MHz)	96.383 mW (19.84dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2421.029 mW (33.84dBm/Channel Bandwidth)	2398.833 mW (33.80dBm/Channel Bandwidth)	2371.374 mW (33.75dBm/Channel Bandwidth)

Mode D3

NR Band 48			
Bandwidth	Max. EIRP Power (Per 10M Power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	95.940 mW (19.82dBm/10MHz)	94.842 mW (19.77dBm/10MHz)	93.756 mW (19.72dBm/10MHz)
Bandwidth	Max. EIRP Power (Full power)		
	QPSK	64QAM	256QAM
Channel Bandwidth 20+40MHz	2233.572 mW (33.49dBm/Channel Bandwidth)	2213.095 mW (33.45dBm/Channel Bandwidth)	2192.805 mW (33.41dBm/Channel Bandwidth)

Mode A2 / B2 / C2 / D2

NR Band 48			
Bandwidth	Emission Designator		
	QPSK	64QAM	256QAM
Channel Bandwidth 20MHz+40MHz	57M8G7D	57M8D7W	57M8D7W

Mode A3 / B3 / C3 / D3

NR Band 48			
Bandwidth	Emission Designator		
	QPSK	64QAM	256QAM
Channel Bandwidth 20MHz+40MHz	56M3G7D	56M3D7W	57M3D7W

3.2 Test Mode Applicability and Tested Channel Detail

Test results are presented in the report as below.

Test Mode	Test Condition		
A2	EUT with internal antenna	2CC mode_ Contiguous	
A3		2CC mode_ Non-Contiguous	
B2	EUT with External antenna (CMAX-OMF7-43-UWI53)	2CC mode_ Contiguous	
B3		2CC mode_ Non-Contiguous	
C2	EUT with External antenna (CMAX-OMF9-43-UWI53)	2CC mode_ Contiguous	
C3		2CC mode_ Non-Contiguous	
D2	EUT with External antenna (CMAX-DMF4-43-WI53)	2CC mode_ Contiguous	
D3		2CC mode_ Non-Contiguous	
E3	EUT with internal antenna	2CC mode	Power from adapter
E4			Power from PoE
F3	EUT with 50 ohm terminator	2CC mode	Power from adapter
F4			Power from PoE

Pre-Scan:	1. For Unwanted Emission (below 1GHz) items: Adapter/PoE. Pre-scan these modes and find the worst case as a representative test condition. 2. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 3. This device was tested under all bandwidths and modulations. The worst case was found in QPSK modulation. Therefore, only EIRP, modulation characteristics, occupied bandwidth and peak to average ratio items had been tested under QPSK, 64QAM and 256QAM mode, the other items were performed under QPSK mode only. 4. For Frequency Stability, Occupied Bandwidth, Peak-to-Average Ratio, Conducted Emission, and Radiated Spurious Emissions, choose the maximum conducted output power worst case for final testing.
Worst Case:	1. AC Adapter 2. X-axis/ Y-axis/ Z-axis Worst Condition: Z-axis

Following channel(s) was (were) selected for the final test as listed below:

Mode A2

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Maximum Power Spectral Density	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK
Frequency Stability	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK
Occupied Bandwidth	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Peak to Average Ratio	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Conducted Emission	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK

Mode A3

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Maximum Power Spectral Density	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK
Frequency Stability	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK
Occupied Bandwidth	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK
Peak to Average Ratio	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Conducted Emission	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK

Mode B2, C2, D2

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Maximum Power Spectral Density	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz)	20MHz+40MHz	QPSK

Mode B3, C3, D3

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK / 64QAM / 256QAM
Maximum Power Spectral Density	637334 to 645332	637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK

Mode E3, F3

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Radiated Emission Below 1GHz	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz)	20MHz+40MHz	QPSK
Radiated Emission Above 1GHz	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz), 643332 (3649.98 MHz) + 645332 (3679.98 MHz) 637334 (3560.01MHz) + 645332 (3679.98MHz), 639500 (3592.5MHz) + 644500 (3667.5MHz), 639834 (3597.51MHz) + 644168 (3662.52MHz)	20MHz+40MHz	QPSK

Mode E4, F4

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Radiated Emission Below 1GHz	637334 to 645332	637334 (3560.01 MHz) + 639334 (3590.01 MHz)	20MHz+40MHz	QPSK

3.3 Description of Support Units

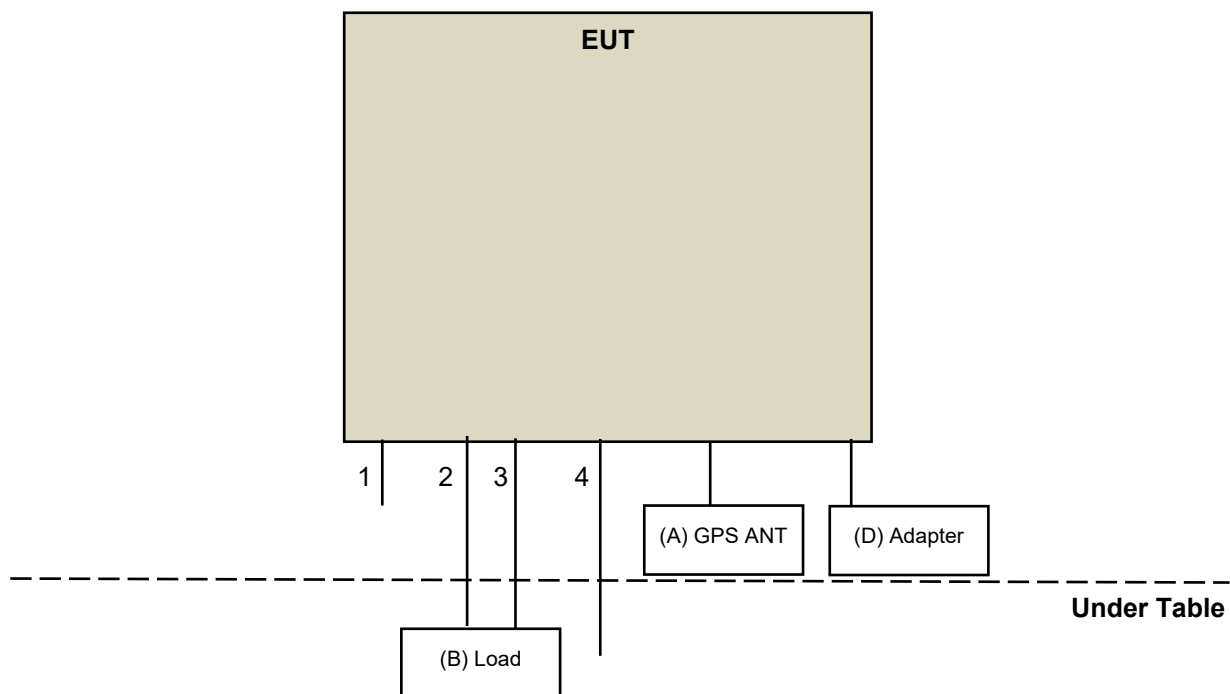
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	GPS ANT	N/A	N/A	N/A	N/A	Supplied by applicant
B	Load	BV	LP-04	N/A	N/A	Provided by Lab
C	Notebook	Lenovo	TP00133C	N/A	N/A	Supplied by applicant
D	Adapter	Mass Power Electronics Inc.	NBS100A120600M2	N/A	N/A	Supplied by applicant
E	POE	Delta	ADH-90AR N	N/A	N/A	Supplied by applicant
F	50Ω Terminal*4	N/A	N/A	N/A	N/A	Provided by Lab

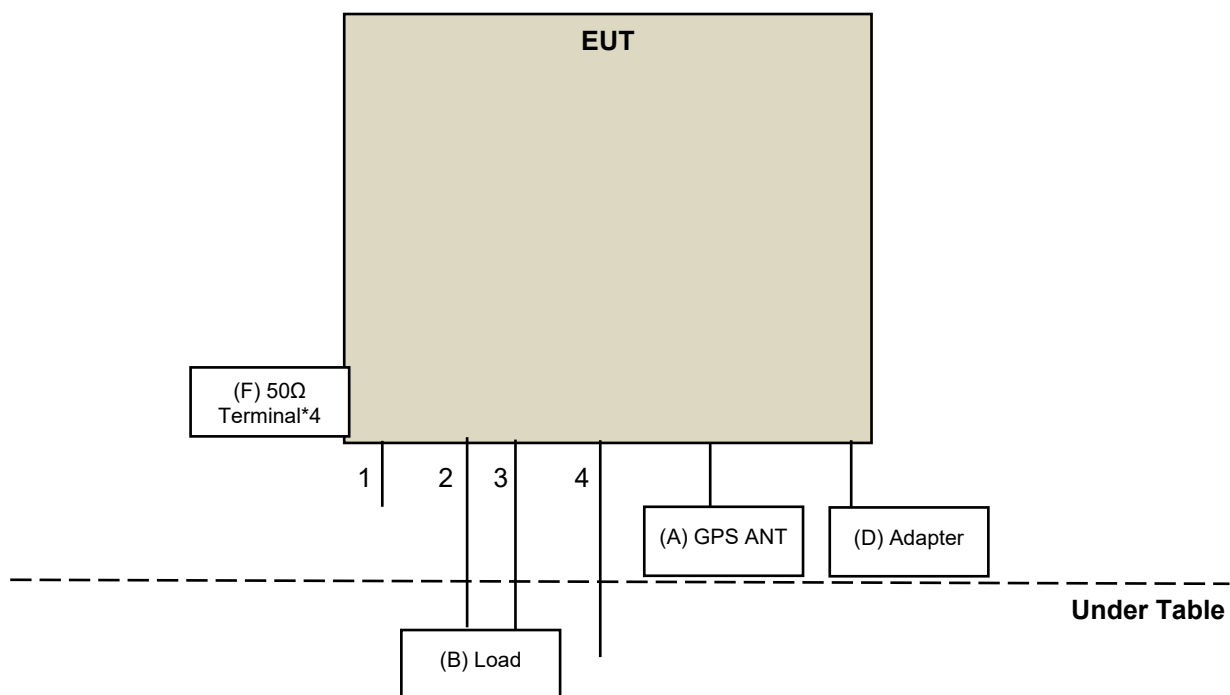
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Console Cable	1	0.25	N	0	Supplied by applicant
2	RJ-45 Cable	1	1.5	N	0	Provided by Lab
3	RJ-45 Cable	1	1.5	N	0	Provided by Lab
4	Fiber Optical Cable	1	3	N	0	Provided by Lab
5	RJ-45 Cable	1	10	N	0	Provided by Lab

3.3.1 Configuration of System under Test

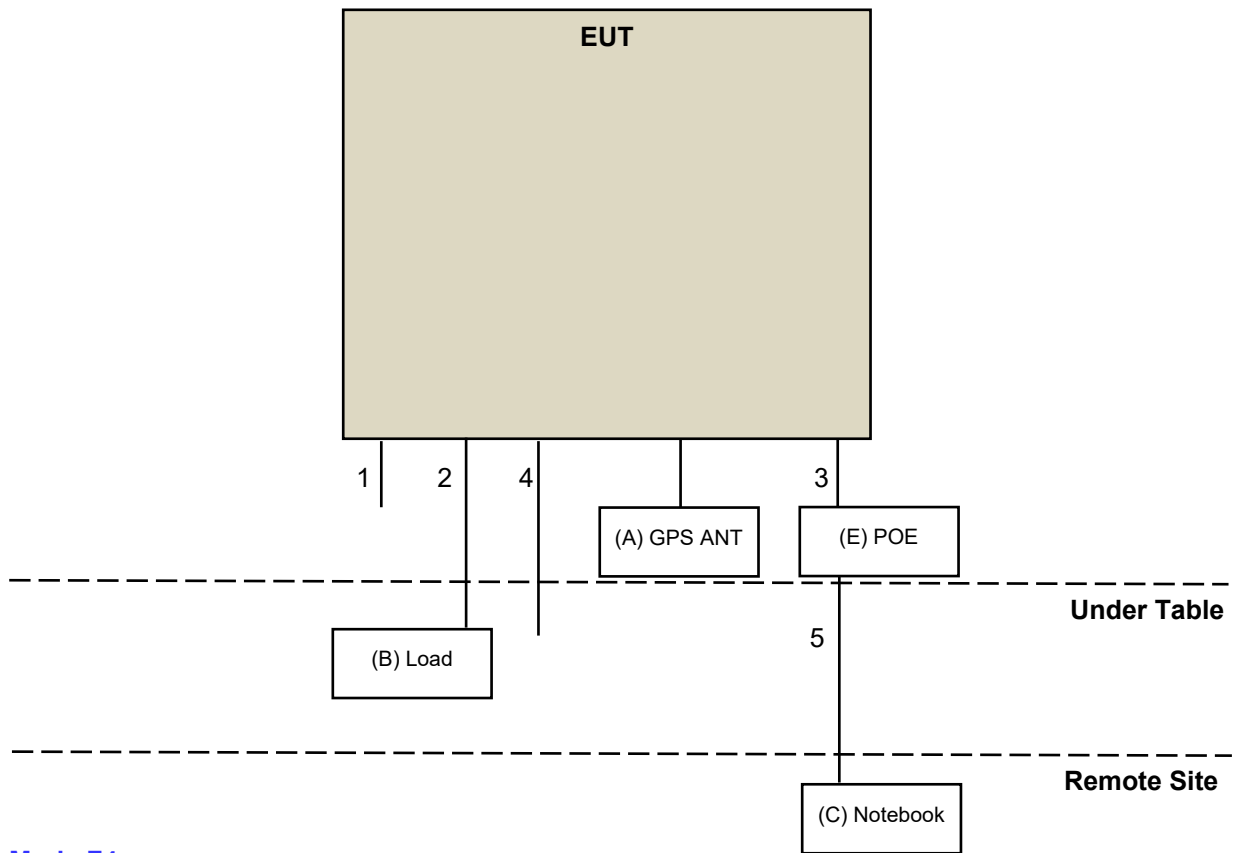
Mode E3



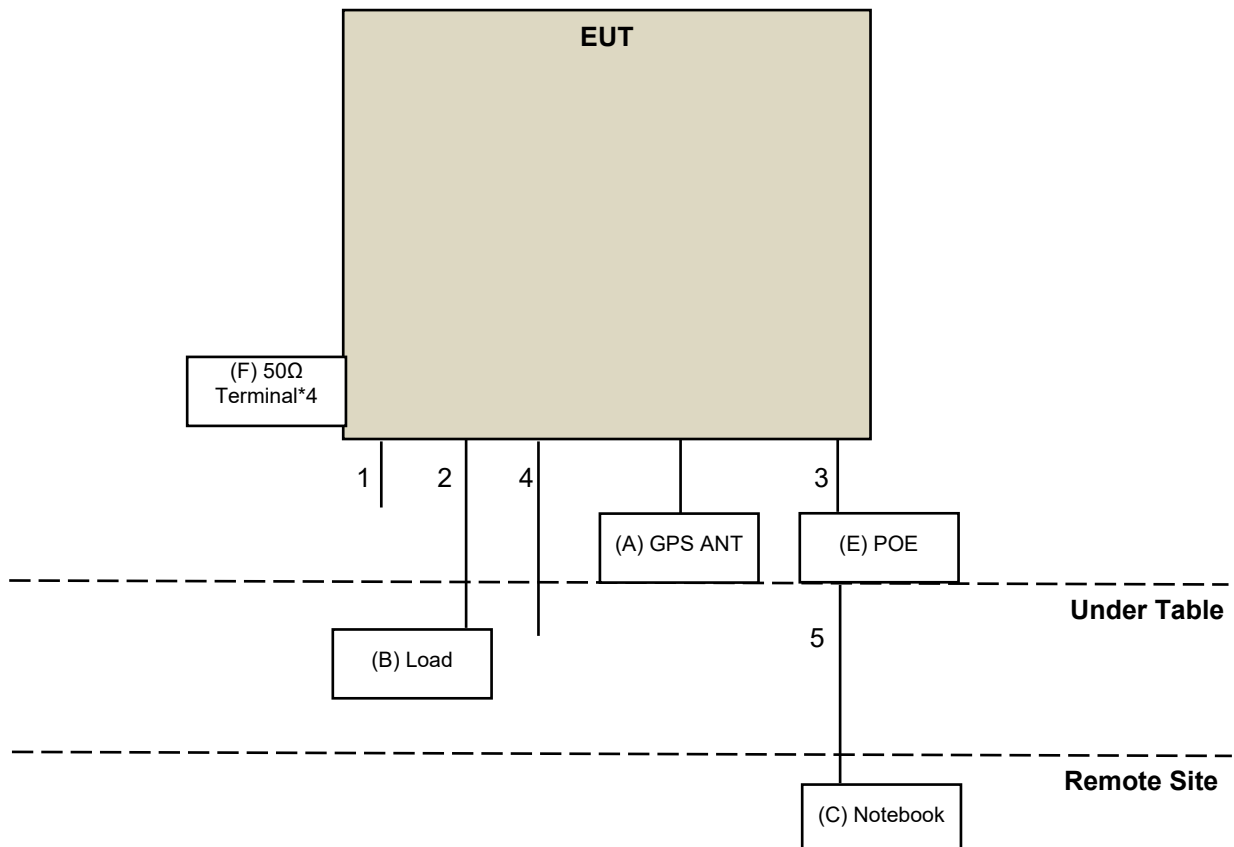
Mode F3



Mode E4



Mode F4



3.4 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 96

ANSI/TIA/EIA-603-E-2016

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 940660 D01 Part 96 CBRS Eqpt v03

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

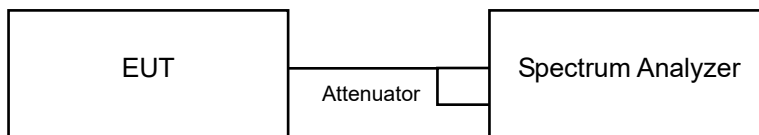
4.1 Maximum Output Power Measurement

4.1.1 Limits of Maximum Output Power Measurement

Device		Maximum EIRP (dBm/10 MHz)
☐	End User Device	23
☒	Category A CBSD	30
☐	Category B CBSD	47

4.1.2 Test Setup

Conducted Power Measurement:



4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Spectrum Analyzer KEYSIGHT	N9030B	MY57140488	2025/3/11	2026/3/10
RF cable	JB200	Cable-OVEN-02	NA	NA
DC-6GHz 20dB 50W Fixed attenuator Woken	MDC9331N-20	0724	2024/7/15	2026/7/14

- Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. Test date: 2025/10/23~2025/11/12

4.1.4 Test Procedures

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology and link to spectrum analyzer measurements. Set the EUT to transmit under low, middle and high channel and record the power level shown on spectrum analyzer. Power measurements use detector average (rms).

Measurement method refers to ANSI C63.26 section 5.2.4.4.

- a. Set span to $2 \times$ to $3 \times$ the OBW.
- b. Set RBW = 1% to 5% of the OBW.
- c. Set VBW $\geq 3 \times$ RBW.
- d. Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
- e. Set Sweep time = auto-couple.
- f. Detector = power averaging (rms).
- g. Set sweep trigger to "free run."
- h. Trace average at least 100 traces in power averaging (rms) mode.
- i. Use the Band/Channel Power function to determine the integrated power per 10 MHz bandwidth and full bandwidth, according to the 47 CFR FCC Part 96 standard.
- j. If Duty cycle < 98%, Add $10 \log (1/\text{duty cycle})$ to the measured power level to compute the average power during continuous transmission.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results

Input Power:	12 Vdc	Environmental Conditions:	23°C, 71% RH	Tested By:	Noah Chang
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Mode A2 / A3

Conducted Output Power and EIRP Power (dBm/10MHz)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/10MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	15.89	16.1	15.64	15.43	21.79	29.68	PASS
			CC1	14.53	14.32	14.38	14.29	20.40		
		64QAM	CC0	15.81	16.02	15.57	15.36	21.72	29.61	PASS
			CC1	14.45	14.24	14.3	14.21	20.32		
		256QAM	CC0	15.73	15.94	15.5	15.29	21.64	29.53	PASS
			CC1	14.38	14.17	14.22	14.13	20.25		
	3592.5+3667.5	QPSK	CC0	16.14	15.76	15.37	14.82	21.57	29.53	PASS
			CC1	14.84	14.08	14.12	14.17	20.33		
		64QAM	CC0	16.06	15.68	15.29	14.75	21.49	29.45	PASS
			CC1	14.77	14	14.05	14.09	20.26		
		256QAM	CC0	15.98	15.61	15.22	14.68	21.42	29.38	PASS
			CC1	14.69	13.92	13.97	14.02	20.18		
	3597.51+3662.52	QPSK	CC0	15.68	15.18	14.76	14.46	21.07	29.03	PASS
			CC1	14.33	13.98	13.29	13.62	19.84		
		64QAM	CC0	15.61	15.11	14.69	14.38	20.99	28.95	PASS
			CC1	14.25	13.91	13.21	13.55	19.77		
		256QAM	CC0	15.54	15.03	14.62	14.3	20.92	28.88	PASS
			CC1	14.18	13.84	13.14	13.47	19.70		
	3560.01+3590.01	QPSK	CC0	15.53	15.17	15.22	15.07	21.27	29.57	PASS
			CC1	15.26	14.85	14.54	14.35	20.78		
		64QAM	CC0	15.45	15.09	15.14	14.99	21.19	29.49	PASS
			CC1	15.18	14.77	14.46	14.28	20.71		
		256QAM	CC0	15.38	15.02	15.07	14.91	21.12	29.41	PASS
			CC1	15.1	14.69	14.38	14.21	20.63		
	3649.98+3679.98	QPSK	CC0	15.1	14.77	14.67	14.52	20.79	29.33	PASS
			CC1	15.62	14.31	14.69	14.41	20.81		
		64QAM	CC0	15.02	14.69	14.6	14.44	20.71	29.25	PASS
			CC1	15.54	14.23	14.62	14.33	20.73		
		256QAM	CC0	14.94	14.61	14.52	14.37	20.64	29.18	PASS
			CC1	15.46	14.16	14.55	14.26	20.66		

Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2/2] = 5.52\text{dBi}$
2. EIRP (dBm/10MHz) = Total Conducted Output Power (dBm/10MHz) + Directional Gain

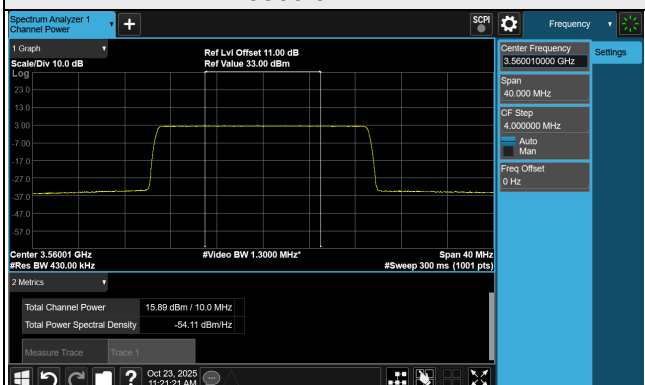
Spectrum Plot of Worst Value

20MHz+40MHz / QPSK

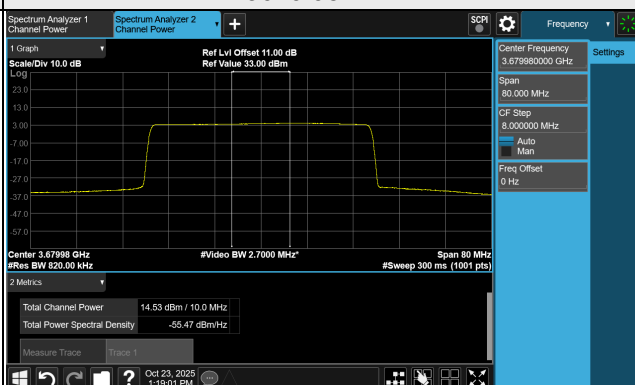
3560.01 MHz+3679.98 MHz

Ant.1

3560.01 MHz

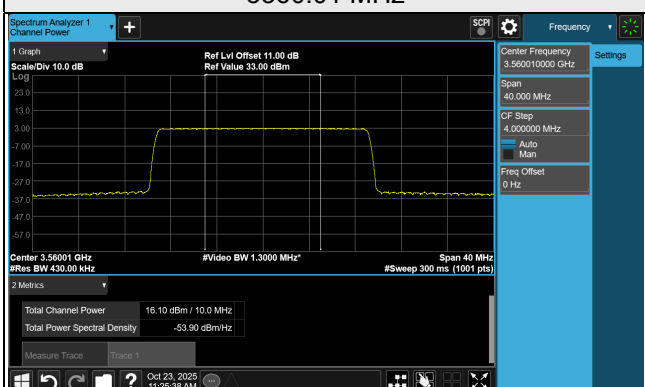


3679.98 MHz

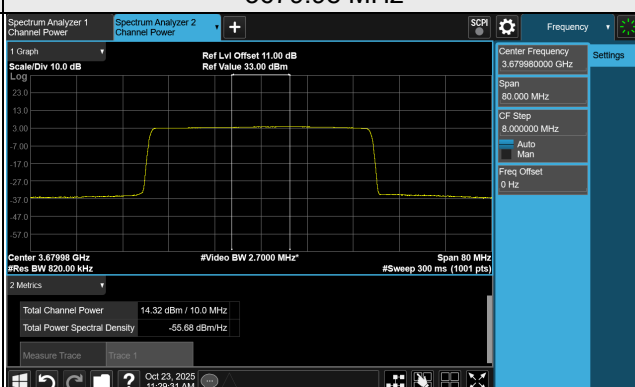


Ant.2

3560.01 MHz

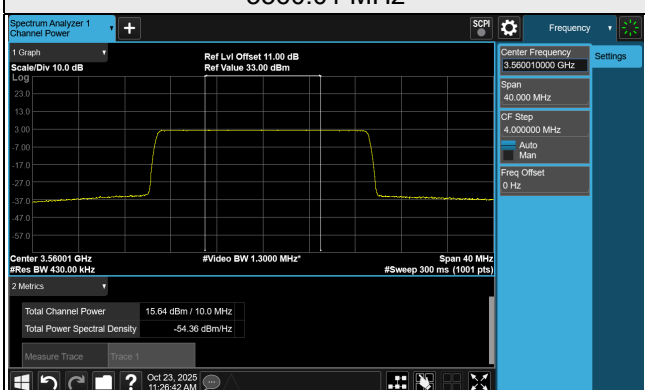


3679.98 MHz

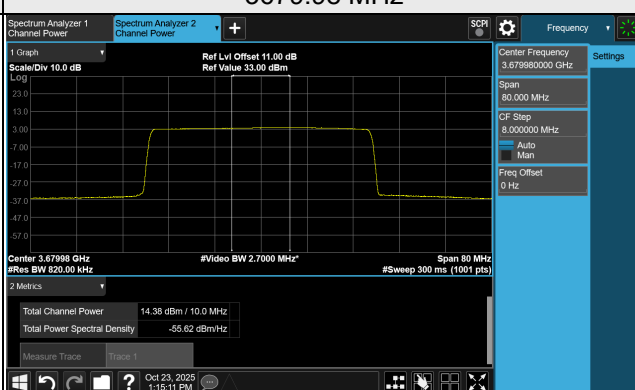


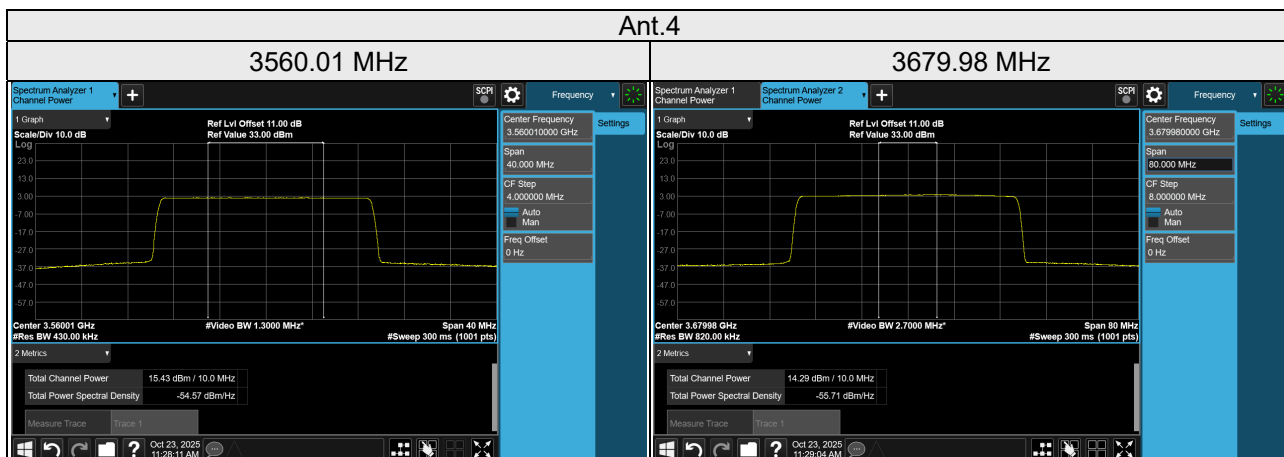
Ant.3

3560.01 MHz



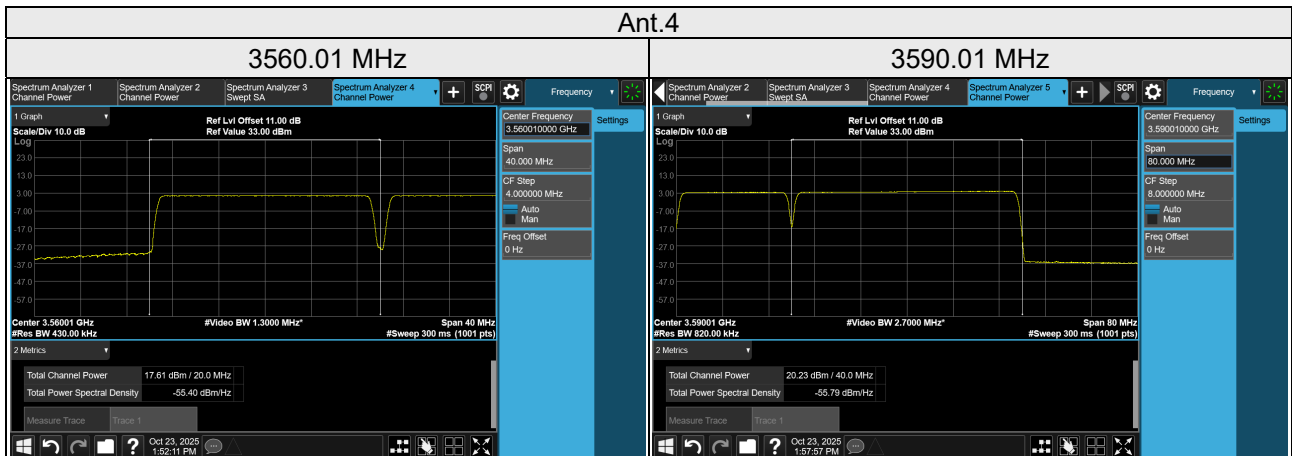
3679.98 MHz





Full Conducted Output Power and Full EIRP Power (dBm/Channel Bandwidth)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/Channel Bandwidth)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	18.42	18.62	18.18	17.88	24.30	33.82	PASS
			CC1	20.09	20.18	20.07	19.92	26.09		
		64QAM	CC0	18.35	18.55	18.1	17.8	24.23	33.74	PASS
			CC1	20.02	20.1	19.99	19.84	26.01		
		256QAM	CC0	18.28	18.47	18.03	17.73	24.16	33.66	PASS
			CC1	19.94	20.02	19.91	19.77	25.93		
	3592.5+3667.5	QPSK	CC0	18.73	18.34	17.99	17.5	24.18	33.93	PASS
			CC1	20.79	20.14	20.16	20.17	26.34		
		64QAM	CC0	18.66	18.26	17.91	17.42	24.11	33.85	PASS
			CC1	20.72	20.06	20.08	20.09	26.27		
		256QAM	CC0	18.58	18.18	17.83	17.35	24.03	33.77	PASS
			CC1	20.64	19.98	20.01	20.01	26.19		
	3597.51+3662.52	QPSK	CC0	17	17.76	17.31	17.03	23.31	33.19	PASS
			CC1	20.16	19.51	19.33	19.62	25.69		
		64QAM	CC0	16.92	17.69	17.23	16.95	23.23	33.11	PASS
			CC1	20.09	19.43	19.26	19.55	25.61		
		256QAM	CC0	16.85	17.62	17.15	16.87	23.15	33.04	PASS
			CC1	20.02	19.35	19.19	19.47	25.54		
	3560.01+3590.01	QPSK	CC0	18.09	17.73	17.77	17.61	23.82	33.98	PASS
			CC1	21	20.67	20.49	20.23	26.63		
		64QAM	CC0	18.02	17.65	17.69	17.54	23.75	33.90	PASS
			CC1	20.92	20.6	20.42	20.15	26.55		
		256QAM	CC0	17.95	17.58	17.61	17.46	23.67	33.83	PASS
			CC1	20.84	20.53	20.34	20.08	26.48		
	3649.98+3679.98	QPSK	CC0	17.75	17.34	17.25	17.09	23.39	33.73	PASS
			CC1	21.17	20.16	20.32	20.11	26.48		
		64QAM	CC0	17.67	17.26	17.18	17.02	23.31	33.66	PASS
			CC1	21.09	20.08	20.24	20.03	26.40		
		256QAM	CC0	17.59	17.19	17.1	16.94	23.23	33.58	PASS
			CC1	21.02	20	20.16	19.95	26.33		



Mode B2 / B3

Conducted Output Power and EIRP Power (dBm/10MHz)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/10MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	9.42	9.44	9.24	8.94	15.29	29.30	PASS
			CC1	8.31	8	8.3	8	14.18		
		64QAM	CC0	9.39	9.39	9.2	8.91	15.25	29.26	PASS
			CC1	8.26	7.95	8.27	7.97	14.14		
		256QAM	CC0	9.36	9.36	9.15	8.88	15.21	29.22	PASS
			CC1	8.21	7.9	8.24	7.93	14.09		
	3592.5+3667.5	QPSK	CC0	10.18	9.25	9.23	8.58	15.37	29.35	PASS
			CC1	8.85	7.65	8.11	7.94	14.18		
		64QAM	CC0	10.15	9.21	9.19	8.54	15.33	29.31	PASS
			CC1	8.8	7.6	8.08	7.9	14.14		
		256QAM	CC0	10.11	9.17	9.15	8.5	15.29	29.27	PASS
			CC1	8.76	7.55	8.05	7.85	14.10		
	3597.51+3662.52	QPSK	CC0	9.05	8.55	9.32	8.92	14.99	28.94	PASS
			CC1	7.34	7.22	8.04	8.17	13.73		
		64QAM	CC0	9.01	8.51	9.29	8.87	14.95	28.90	PASS
			CC1	7.3	7.19	8	8.13	13.70		
		256QAM	CC0	8.96	8.46	9.24	8.81	14.90	28.85	PASS
			CC1	7.25	7.15	7.97	8.09	13.66		
	3560.01+3590.01	QPSK	CC0	9.06	8.56	9.09	8.55	14.84	29.39	PASS
			CC1	9.07	8.75	9.07	8.52	14.88		
		64QAM	CC0	9.02	8.52	9.05	8.5	14.80	29.35	PASS
			CC1	9.03	8.71	9.04	8.47	14.84		
		256QAM	CC0	8.97	8.48	9	8.45	14.75	29.30	PASS
			CC1	8.99	8.67	8.99	8.42	14.79		
	3649.98+3679.98	QPSK	CC0	9.19	8.55	8.13	9.08	14.78	29.35	PASS
			CC1	9.7	8.17	8.21	9.09	14.86		
		64QAM	CC0	9.16	8.52	8.09	9.03	14.74	29.31	PASS
			CC1	9.65	8.13	8.16	9.06	14.82		
		256QAM	CC0	9.12	8.48	8.06	8.99	14.70	29.27	PASS
			CC1	9.61	8.1	8.11	9.02	14.78		

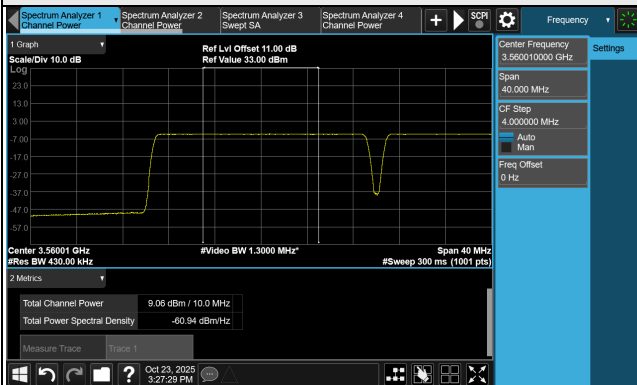
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 11.52\text{dBi}$
2. EIRP (dBm/10MHz) = Total Conducted Output Power (dBm/10MHz) + Directional Gain

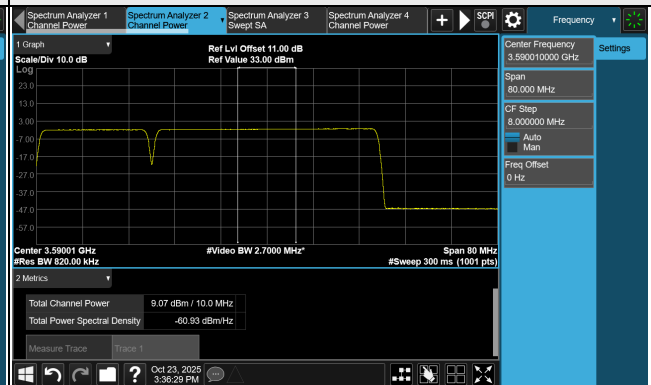
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3560.01 MHz+3590.01 MHz

Ant.1

3560.01 MHz

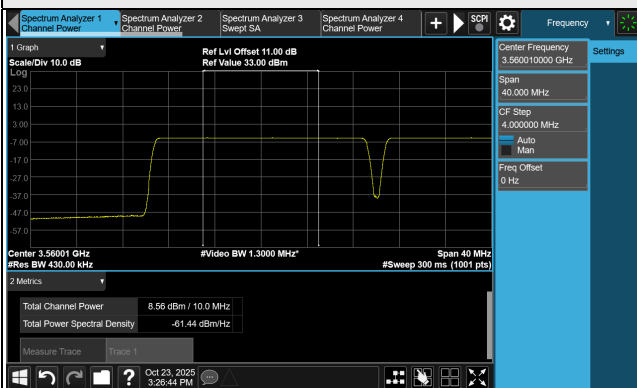


3590.01 MHz

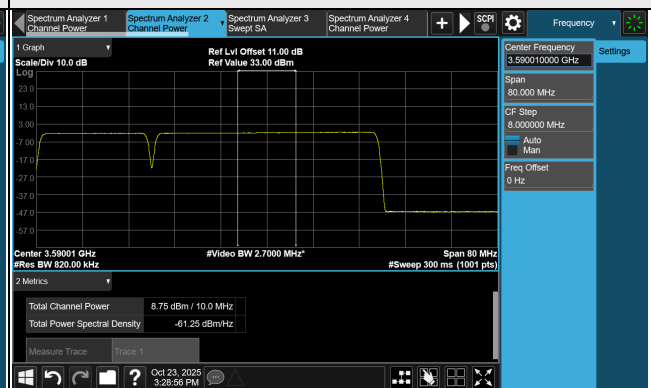


Ant.2

3560.01 MHz

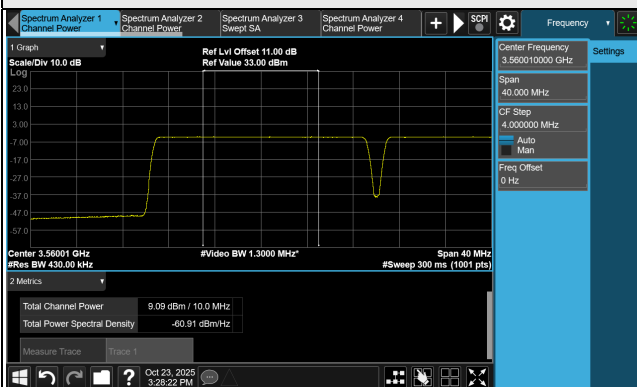


3590.01 MHz

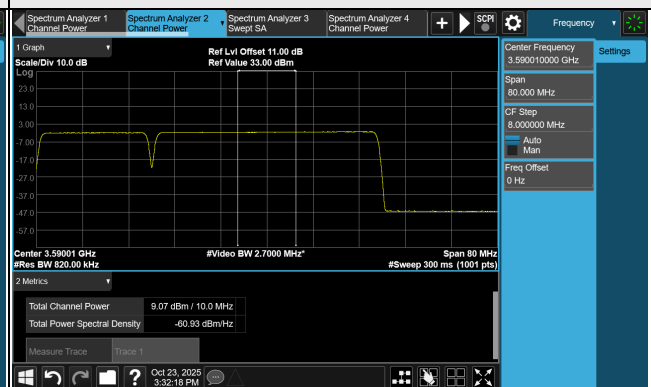


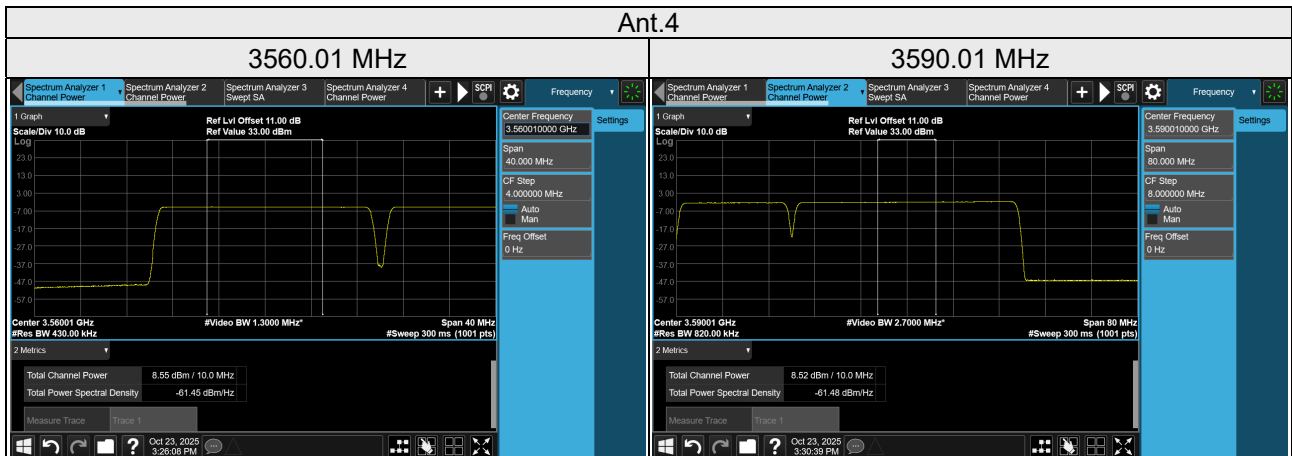
Ant.3

3560.01 MHz



3590.01 MHz





Full Conducted Output Power and Full EIRP Power (dBm/Channel Bandwidth)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/Channel Bandwidth)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	12	12.01	11.82	11.48	17.85	33.53	PASS
			CC1	13.91	13.92	13.99	13.7	19.90		
		64QAM	CC0	11.97	11.97	11.79	11.45	17.82	33.49	PASS
			CC1	13.87	13.88	13.95	13.65	19.86		
		256QAM	CC0	11.92	11.92	11.76	11.41	17.78	33.45	PASS
			CC1	13.84	13.83	13.91	13.62	19.82		
	3592.5+3667.5	QPSK	CC0	12.83	11.76	11.89	11.15	17.97	33.75	PASS
			CC1	14.87	13.57	14.19	13.9	20.18		
		64QAM	CC0	12.8	11.73	11.84	11.12	17.94	33.71	PASS
			CC1	14.84	13.52	14.14	13.86	20.14		
		256QAM	CC0	12.75	11.68	11.8	11.09	17.89	33.67	PASS
			CC1	14.81	13.48	14.11	13.81	20.10		
	3597.51+3662.52	QPSK	CC0	11.64	11.44	11.95	11.53	17.66	33.39	PASS
			CC1	13.41	13.33	14.1	14.18	19.79		
		64QAM	CC0	11.61	11.41	11.91	11.49	17.63	33.35	PASS
			CC1	13.37	13.3	14.07	14.13	19.76		
		256QAM	CC0	11.58	11.38	11.87	11.44	17.59	33.31	PASS
			CC1	13.32	13.25	14.02	14.1	19.71		
	3560.01+3590.01	QPSK	CC0	11.9	11.54	11.78	11.38	17.68	34.01	PASS
			CC1	14.81	14.75	14.95	14.41	20.76		
		64QAM	CC0	11.84	11.51	11.73	11.33	17.63	33.97	PASS
			CC1	14.76	14.7	14.92	14.37	20.71		
		256QAM	CC0	11.79	11.48	11.7	11.3	17.59	33.93	PASS
			CC1	14.73	14.67	14.87	14.33	20.68		
	3649.98+3679.98	QPSK	CC0	11.83	11.17	10.71	11.67	17.39	33.78	PASS
			CC1	15.3	14.07	13.88	14.73	20.55		
		64QAM	CC0	11.8	11.14	10.67	11.63	17.35	33.75	PASS
			CC1	15.27	14.03	13.85	14.7	20.52		
		256QAM	CC0	11.77	11.1	10.63	11.6	17.32	33.71	PASS
			CC1	15.23	13.99	13.8	14.67	20.48		

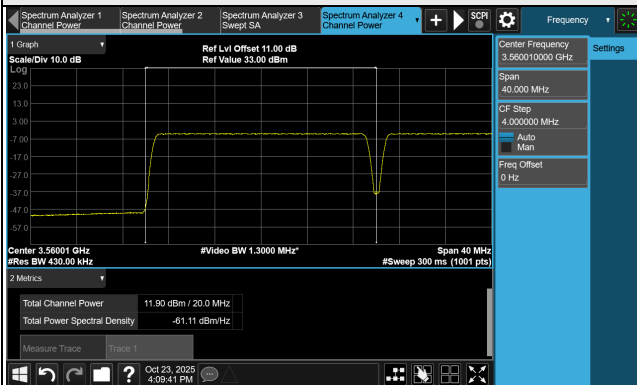
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 11.52\text{dBi}$
2. EIRP (dBm/Channel Bandwidth) = Total Conducted Output Power (dBm/Channel Bandwidth) + Directional Gain

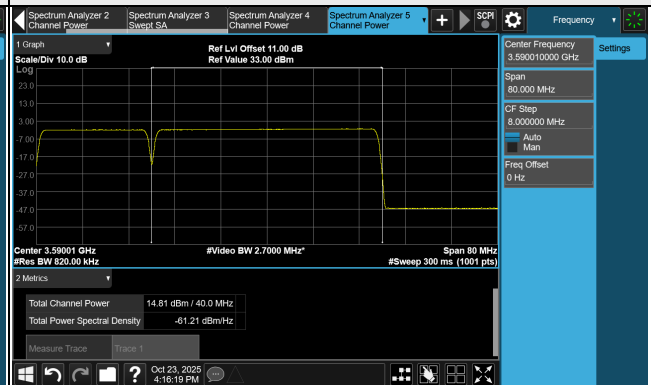
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3560.01 MHz+3590.01 MHz

Ant.1

3560.01 MHz

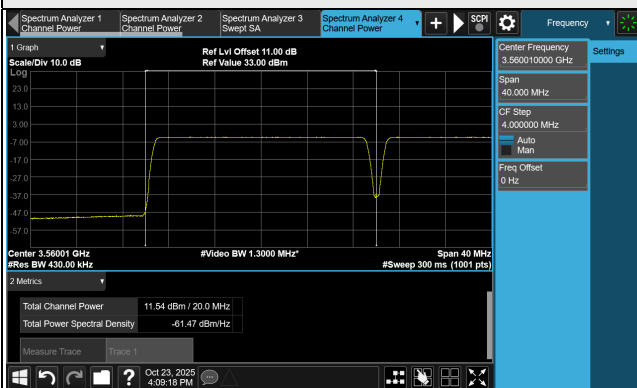


3590.01 MHz

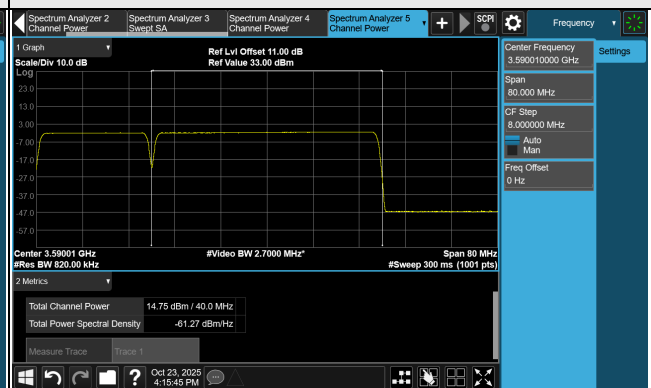


Ant.2

3560.01 MHz

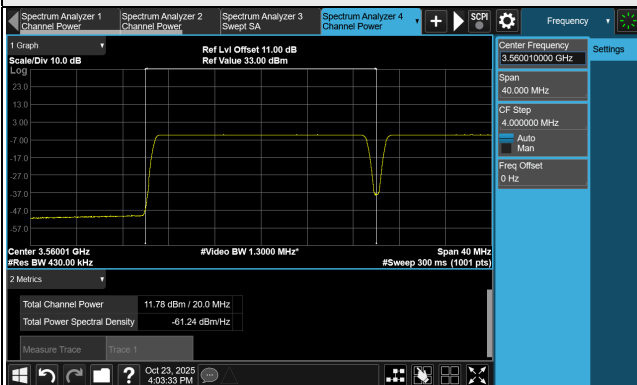


3590.01 MHz

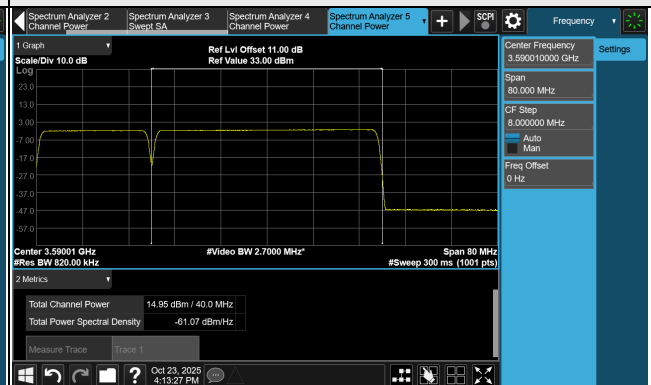


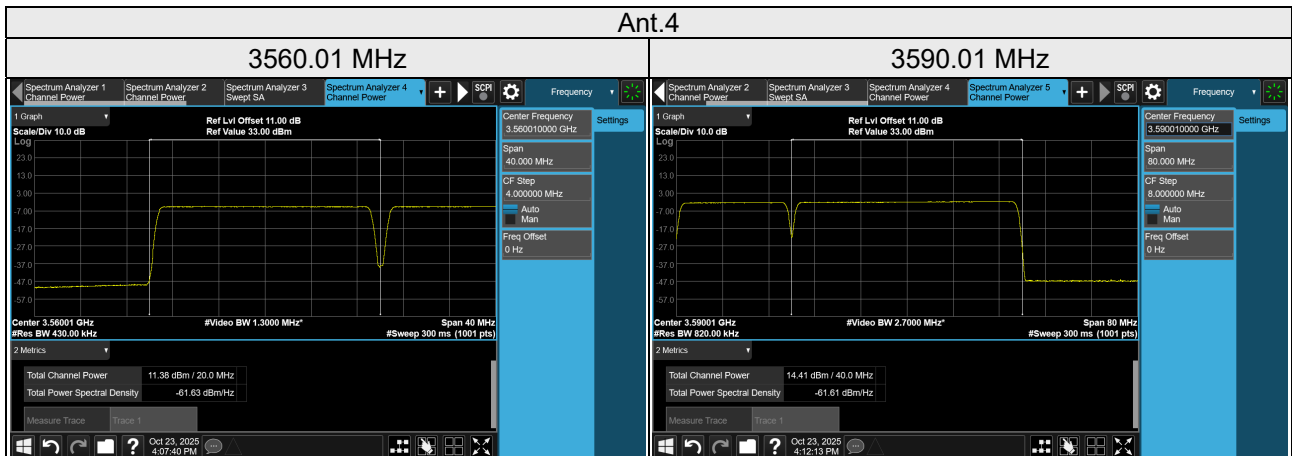
Ant.3

3560.01 MHz



3590.01 MHz





Mode C2 / C3

Conducted Output Power and EIRP Power (dBm/10MHz)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/10MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	10.07	9.41	9.16	9.4	15.54	29.25	PASS
			CC1	8.96	7.99	8.12	8.5	14.43		
		64QAM	CC0	10.04	9.37	9.12	9.36	15.51	29.21	PASS
			CC1	8.92	7.95	8.07	8.46	14.39		
		256QAM	CC0	10	9.34	9.09	9.31	15.47	29.17	PASS
			CC1	8.88	7.9	8.04	8.41	14.34		
	3592.5+3667.5	QPSK	CC0	10.18	9.25	9.23	8.58	15.37	29.05	PASS
			CC1	8.85	7.65	8.11	7.94	14.18		
		64QAM	CC0	10.15	9.2	9.19	8.54	15.33	29.01	PASS
			CC1	8.81	7.61	8.07	7.89	14.14		
		256QAM	CC0	10.11	9.16	9.16	8.51	15.29	28.97	PASS
			CC1	8.77	7.58	8.04	7.84	14.10		
	3597.51+3662.52	QPSK	CC0	10	9.29	9.07	8.54	15.28	28.86	PASS
			CC1	8.48	7.38	7.74	7.73	13.87		
		64QAM	CC0	9.96	9.26	9.02	8.49	15.24	28.82	PASS
			CC1	8.44	7.33	7.69	7.68	13.82		
		256QAM	CC0	9.92	9.22	8.98	8.44	15.19	28.78	PASS
			CC1	8.4	7.28	7.65	7.64	13.78		
	3560.01+3590.01	QPSK	CC0	9.06	8.56	9.09	8.55	14.84	29.09	PASS
			CC1	9.07	8.75	9.07	8.52	14.88		
		64QAM	CC0	9.03	8.51	9.06	8.52	14.81	29.06	PASS
			CC1	9.04	8.71	9.03	8.49	14.84		
		256QAM	CC0	8.98	8.47	9.01	8.47	14.76	29.01	PASS
			CC1	9.01	8.66	8.99	8.45	14.80		
	3649.98+3679.98	QPSK	CC0	9.19	8.55	8.13	9.08	14.78	29.05	PASS
			CC1	9.7	8.17	8.21	9.09	14.86		
		64QAM	CC0	9.15	8.52	8.09	9.03	14.74	29.01	PASS
			CC1	9.67	8.12	8.16	9.04	14.82		
		256QAM	CC0	9.12	8.48	8.06	8.98	14.70	28.97	PASS
			CC1	9.64	8.07	8.13	9	14.78		

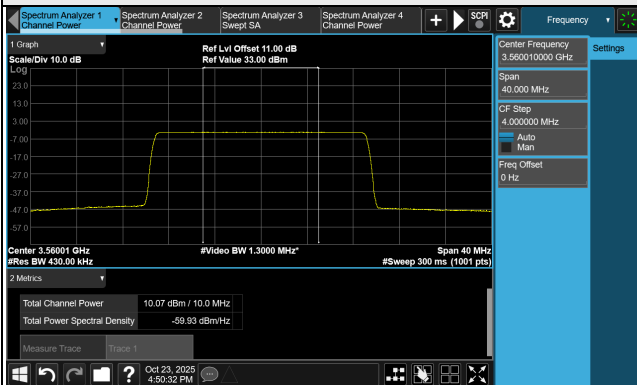
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 11.22\text{dBi}$
2. EIRP (dBm/10MHz) = Total Conducted Output Power (dBm/10MHz) + Directional Gain

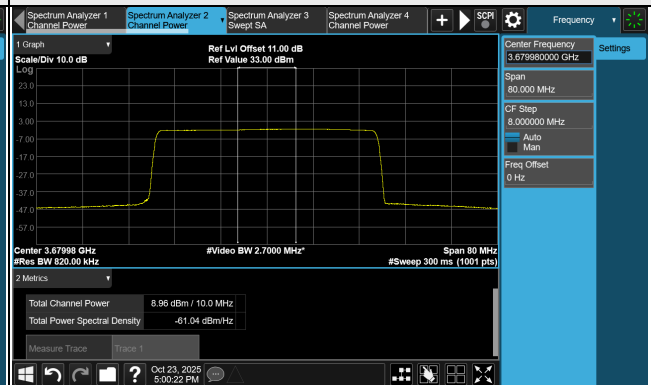
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3560.01 MHz+ 3679.98 MHz

Ant.1

3560.01 MHz

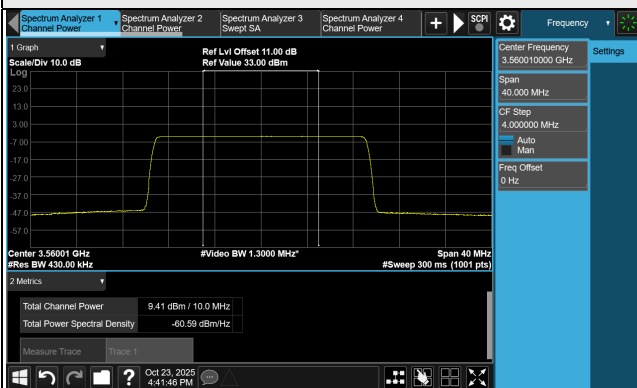


3679.98 MHz

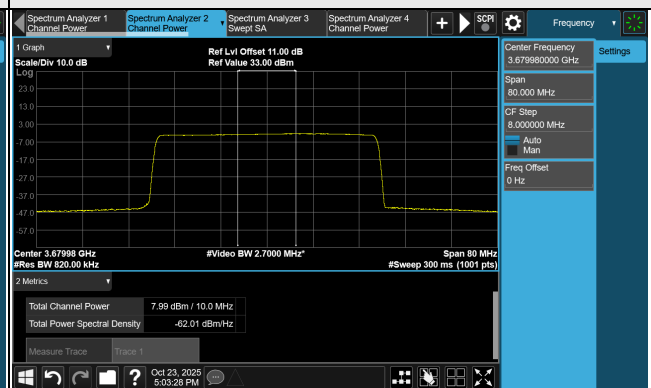


Ant.2

3560.01 MHz

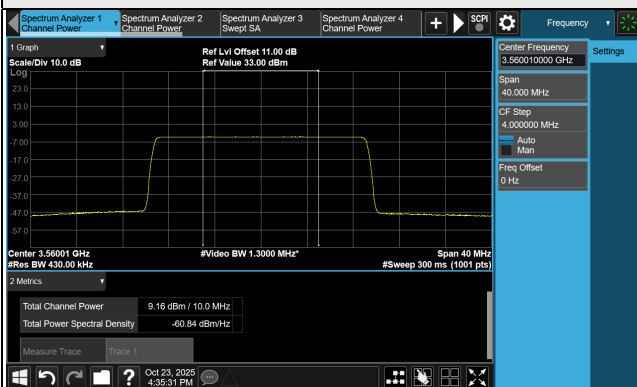


3679.98 MHz

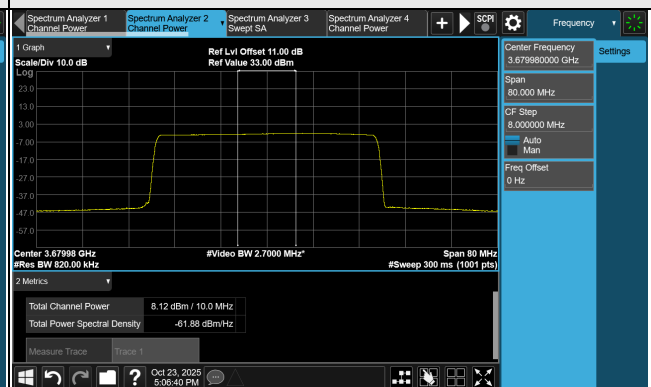


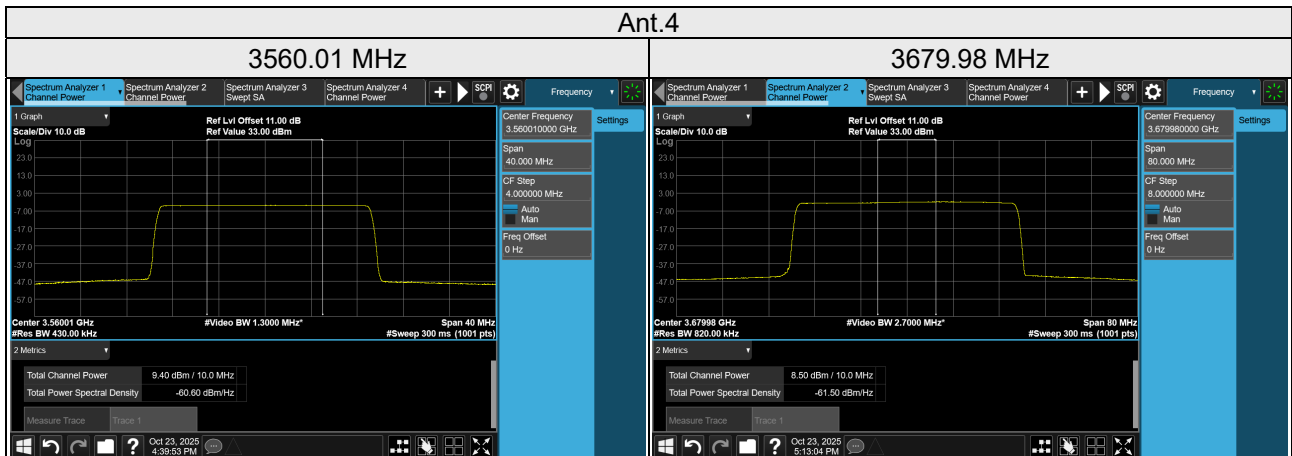
Ant.3

3560.01 MHz



3679.98 MHz





Full Conducted Output Power and Full EIRP Power (dBm/Channel Bandwidth)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/Channel Bandwidth)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	12.65	11.96	11.76	11.93	18.11	33.47	PASS
			CC1	14.54	13.86	13.84	14.17	20.13		
		64QAM	CC0	12.62	11.91	11.71	11.88	18.06	33.43	PASS
			CC1	14.51	13.81	13.79	14.14	20.09		
		256QAM	CC0	12.57	11.87	11.67	11.85	18.02	33.39	PASS
			CC1	14.48	13.77	13.76	14.09	20.06		
	3592.5+3667.5	QPSK	CC0	12.83	11.76	11.89	11.15	17.97	33.45	PASS
			CC1	14.87	13.57	14.19	13.9	20.18		
		64QAM	CC0	12.79	11.72	11.84	11.1	17.93	33.41	PASS
			CC1	14.84	13.53	14.15	13.87	20.15		
		256QAM	CC0	12.74	11.67	11.79	11.07	17.88	33.36	PASS
			CC1	14.8	13.48	14.1	13.82	20.10		
	3597.51+3662.52	QPSK	CC0	12.72	11.89	11.75	11.07	17.92	33.32	PASS
			CC1	14.54	13.74	13.83	13.78	20.01		
		64QAM	CC0	12.68	11.86	11.72	11.04	17.88	33.29	PASS
			CC1	14.51	13.71	13.8	13.75	19.98		
		256QAM	CC0	12.65	11.83	11.68	11.01	17.85	33.25	PASS
			CC1	14.46	13.68	13.75	13.7	19.93		
	3560.01+3590.01	QPSK	CC0	11.9	11.54	11.78	11.38	17.68	33.71	PASS
			CC1	14.81	14.75	14.95	14.41	20.76		
		64QAM	CC0	11.86	11.5	11.74	11.34	17.64	33.67	PASS
			CC1	14.76	14.71	14.91	14.36	20.71		
		256QAM	CC0	11.82	11.45	11.69	11.29	17.59	33.63	PASS
			CC1	14.72	14.67	14.88	14.31	20.67		
	3649.98+3679.98	QPSK	CC0	11.83	11.17	10.71	11.67	17.39	33.48	PASS
			CC1	15.3	14.07	13.88	14.73	20.55		
		64QAM	CC0	11.78	11.12	10.67	11.62	17.34	33.45	PASS
			CC1	15.27	14.04	13.85	14.7	20.52		
		256QAM	CC0	11.73	11.07	10.62	11.58	17.29	33.40	PASS
			CC1	15.23	13.99	13.8	14.65	20.48		

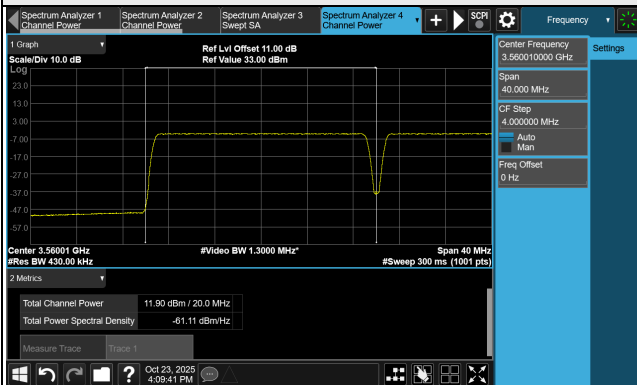
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 11.22\text{dBi}$
2. EIRP (dBm/Channel Bandwidth) = Total Conducted Output Power (dBm/Channel Bandwidth) + Directional Gain

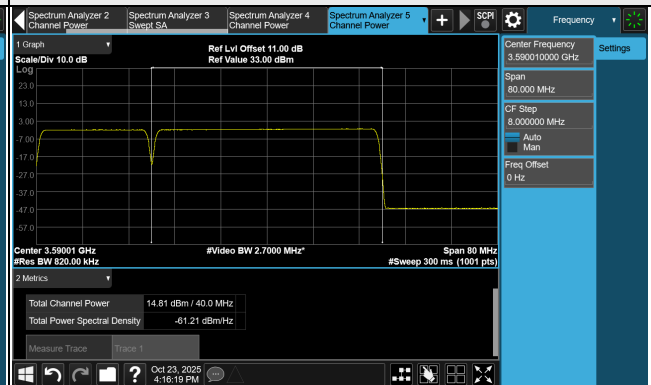
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3560.01 MHz+3590.01 MHz

Ant.1

3560.01 MHz

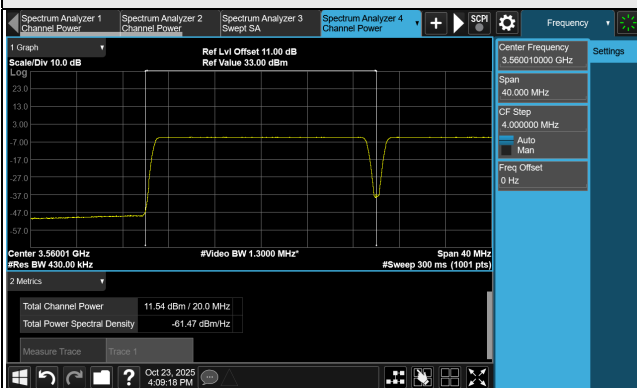


3590.01 MHz

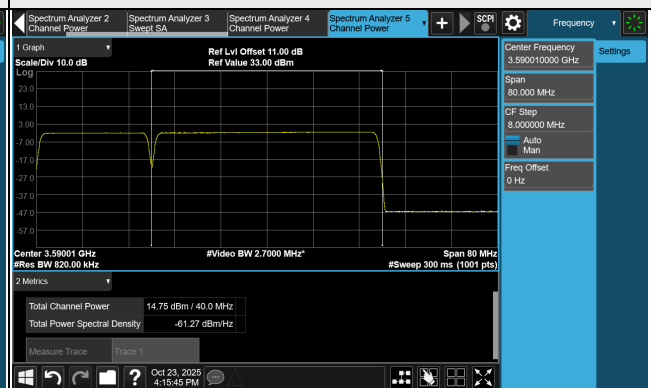


Ant.2

3560.01 MHz

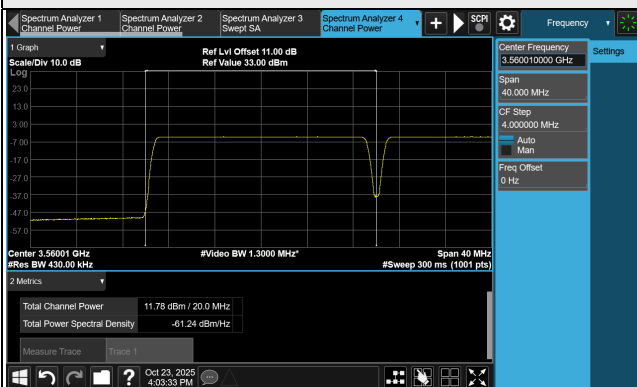


3590.01 MHz

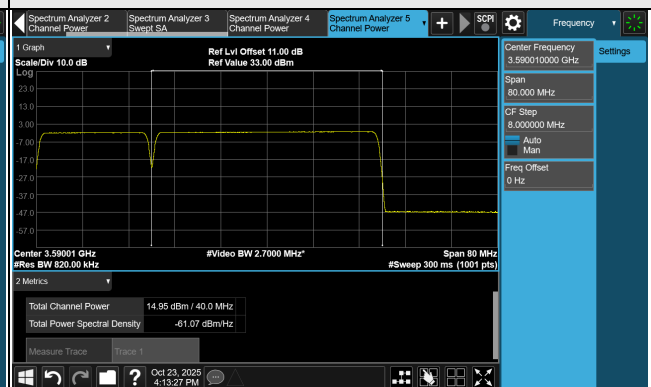


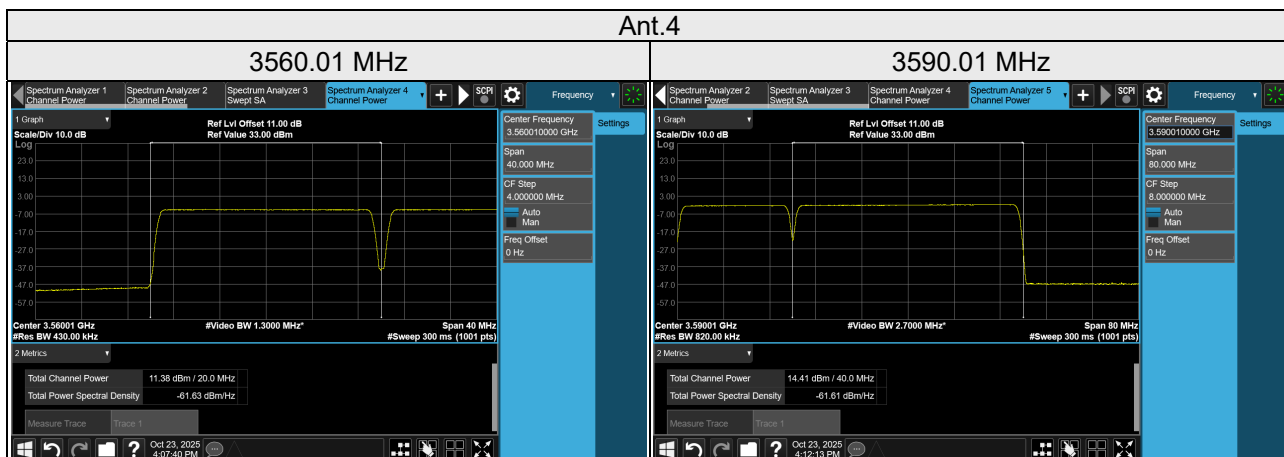
Ant.3

3560.01 MHz



3590.01 MHz





Mode D2 / D3

Conducted Output Power and EIRP Power (dBm/10MHz)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/10MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	7.76	7.44	6.51	6.51	13.11	29.33	PASS
			CC1	6.71	6.03	5.58	5.58	12.02		
		64QAM	CC0	7.71	7.41	6.47	6.46	13.07	29.29	PASS
			CC1	6.66	5.98	5.54	5.53	11.97		
		256QAM	CC0	7.66	7.37	6.43	6.41	13.02	29.24	PASS
			CC1	6.62	5.94	5.5	5.48	11.93		
	3592.5+3667.5	QPSK	CC0	7.53	6.67	7.01	5.96	12.85	29.03	PASS
			CC1	6.17	5.12	5.93	5.27	11.67		
		64QAM	CC0	7.49	6.64	6.97	5.93	12.81	28.99	PASS
			CC1	6.14	5.08	5.89	5.24	11.63		
		256QAM	CC0	7.46	6.61	6.92	5.9	12.78	28.96	PASS
			CC1	6.09	5.05	5.86	5.19	11.59		
	3597.51+3662.52	QPSK	CC0	7.5	6.55	6.78	6.18	12.80	28.93	PASS
			CC1	5.98	4.97	5.48	5.48	11.51		
		64QAM	CC0	7.46	6.51	6.74	6.13	12.76	28.89	PASS
			CC1	5.93	4.93	5.45	5.45	11.47		
		256QAM	CC0	7.41	6.47	6.69	6.08	12.71	28.85	PASS
			CC1	5.89	4.9	5.41	5.42	11.44		
	3560.01+3590.01	QPSK	CC0	6.96	6.53	6.29	6.09	12.50	29.22	PASS
			CC1	7.06	6.67	6.25	5.77	12.48		
		64QAM	CC0	6.92	6.49	6.26	6.05	12.46	29.18	PASS
			CC1	7.02	6.62	6.21	5.74	12.44		
		256QAM	CC0	6.88	6.44	6.21	6.01	12.42	29.14	PASS
			CC1	6.99	6.57	6.17	5.7	12.40		
	3649.98+3679.98	QPSK	CC0	7.04	6.54	6.68	5.83	12.56	29.35	PASS
			CC1	7.66	6.13	6.72	5.91	12.68		
		64QAM	CC0	7	6.49	6.65	5.78	12.52	29.31	PASS
			CC1	7.61	6.08	6.67	5.88	12.63		
		256QAM	CC0	6.97	6.46	6.62	5.73	12.49	29.27	PASS
			CC1	7.57	6.03	6.63	5.85	12.59		

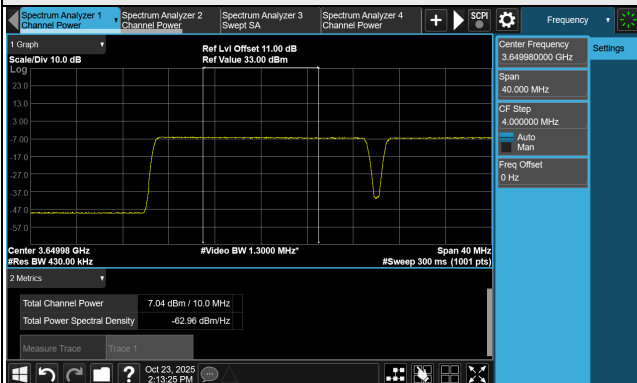
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 13.72\text{dBi}$
2. EIRP (dBm/10MHz) = Total Conducted Output Power (dBm/10MHz) + Directional Gain

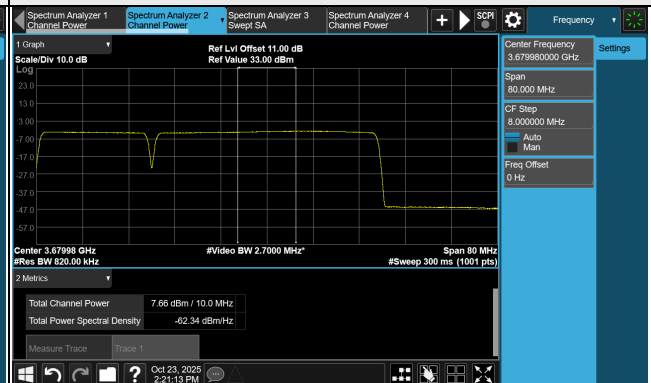
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3649.98 MHz+ 3679.98 MHz

Ant.1

3649.98 MHz

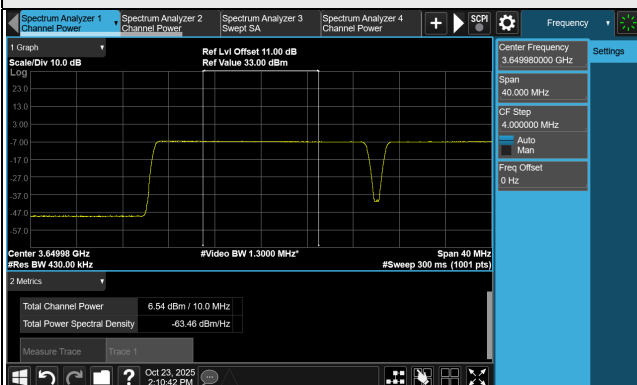


3679.98 MHz

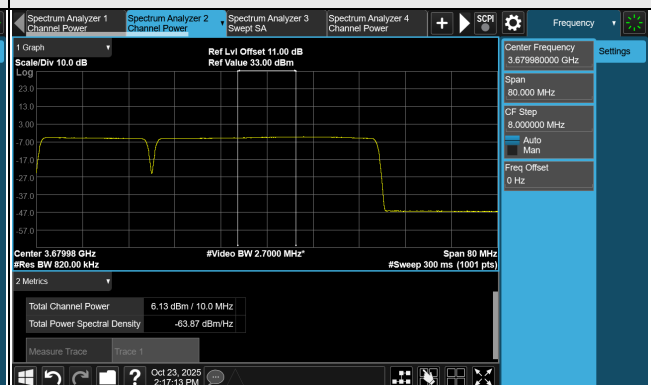


Ant.2

3649.98 MHz

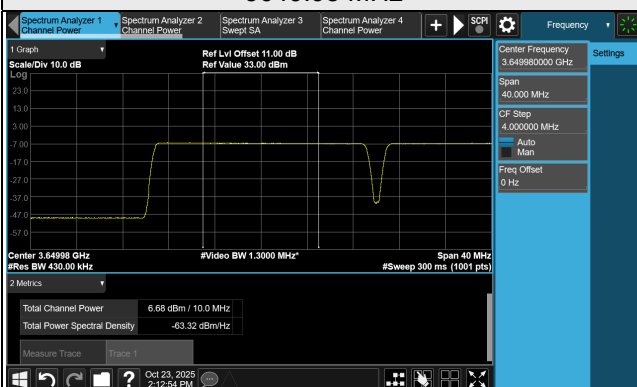


3679.98 MHz

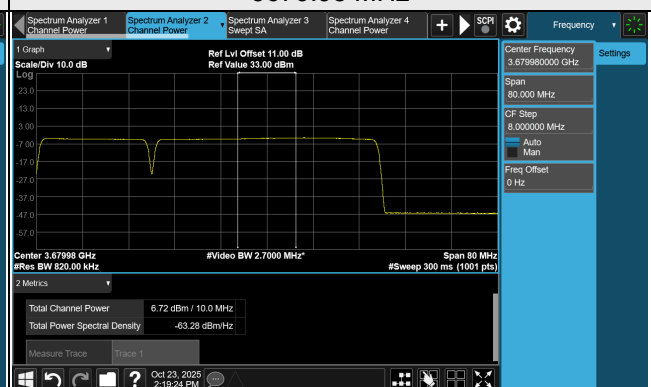


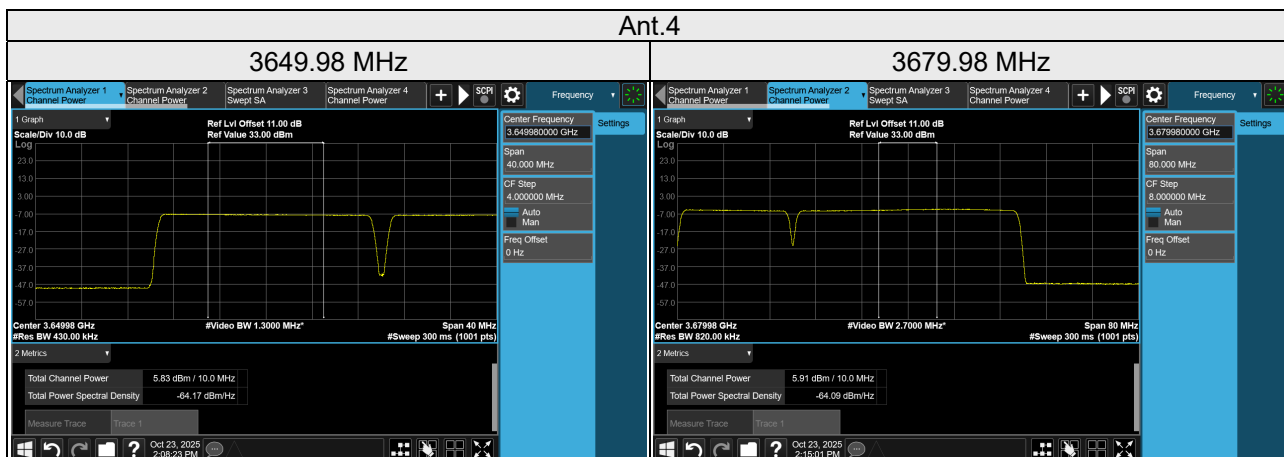
Ant.3

3649.98 MHz



3679.98 MHz





Full Conducted Output Power and Full EIRP Power (dBm/Channel Bandwidth)

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/Channel Bandwidth)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	9.66	10.07	9.06	9.07	15.51	33.49	PASS
			CC1	12.29	11.95	11.22	11.3	17.73		
		64QAM	CC0	9.61	10.02	9.03	9.03	15.46	33.45	PASS
			CC1	12.25	11.91	11.17	11.26	17.69		
		256QAM	CC0	9.58	9.97	8.98	8.98	15.42	33.41	PASS
			CC1	12.2	11.87	11.13	11.22	17.65		
	3592.5+3667.5	QPSK	CC0	10.21	9.41	9.67	8.49	15.51	33.47	PASS
			CC1	12.2	11.23	11.97	11.23	17.70		
		64QAM	CC0	10.16	9.37	9.64	8.45	15.47	33.43	PASS
			CC1	12.16	11.19	11.92	11.18	17.66		
		256QAM	CC0	10.11	9.32	9.59	8.4	15.42	33.38	PASS
			CC1	12.11	11.14	11.88	11.15	17.61		
	3597.51+3662.52	QPSK	CC0	10.27	9.14	9.45	8.85	15.48	33.42	PASS
			CC1	12.18	11	11.62	11.54	17.63		
		64QAM	CC0	10.22	9.09	9.42	8.81	15.44	33.38	PASS
			CC1	12.15	10.97	11.58	11.49	17.59		
		256QAM	CC0	10.19	9.05	9.39	8.76	15.40	33.34	PASS
			CC1	12.11	10.94	11.54	11.44	17.55		
	3560.01+3590.01	QPSK	CC0	9.54	9.09	8.87	8.62	15.06	33.74	PASS
			CC1	12.87	12.52	12.16	11.65	18.34		
		64QAM	CC0	9.51	9.05	8.83	8.59	15.03	33.69	PASS
			CC1	12.83	12.47	12.11	11.6	18.30		
		256QAM	CC0	9.47	9	8.79	8.55	14.99	33.65	PASS
			CC1	12.79	12.42	12.07	11.55	18.25		
	3649.98+3679.98	QPSK	CC0	9.56	9.21	9.31	8.7	15.23	33.84	PASS
			CC1	13.12	12.14	12.43	11.78	18.42		
		64QAM	CC0	9.52	9.18	9.26	8.67	15.19	33.80	PASS
			CC1	13.07	12.09	12.38	11.75	18.37		
		256QAM	CC0	9.48	9.13	9.22	8.62	15.14	33.75	PASS
			CC1	13.02	12.05	12.35	11.7	18.33		

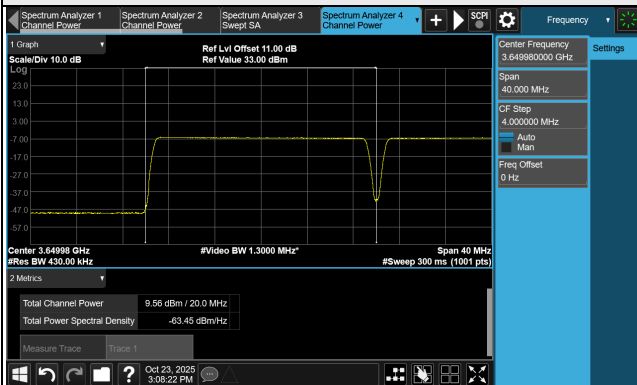
Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 13.72\text{dBi}$
2. EIRP (dBm/Channel Bandwidth) = Total Conducted Output Power (dBm/Channel Bandwidth) + Directional Gain

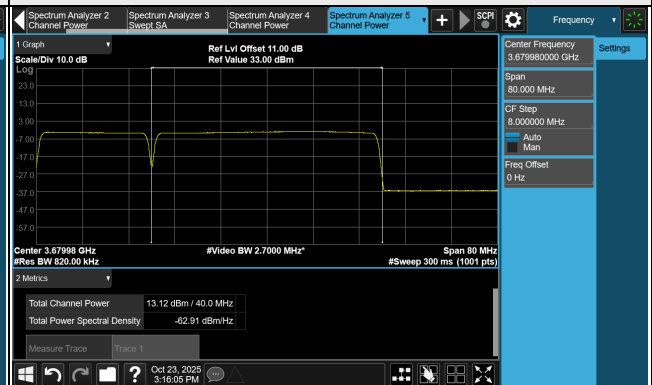
Spectrum Plot of Worst Value
20MHz+40MHz / QPSK
3649.98 MHz+3679.98 MHz

Ant.1

3649.98 MHz

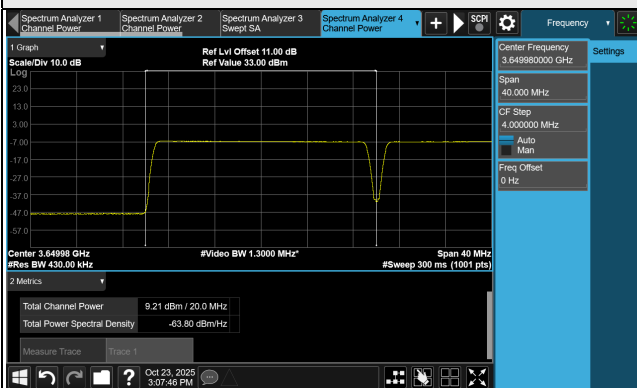


3679.98 MHz

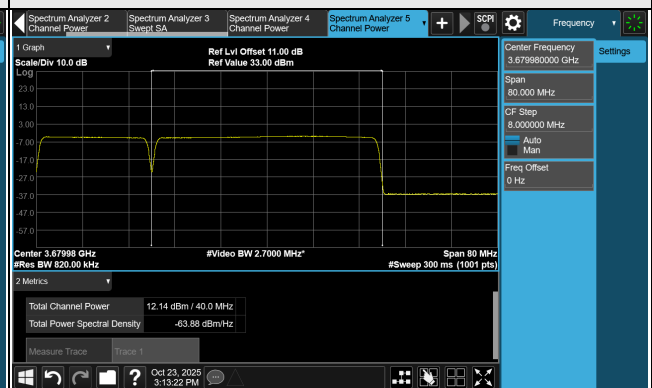


Ant.2

3649.98 MHz

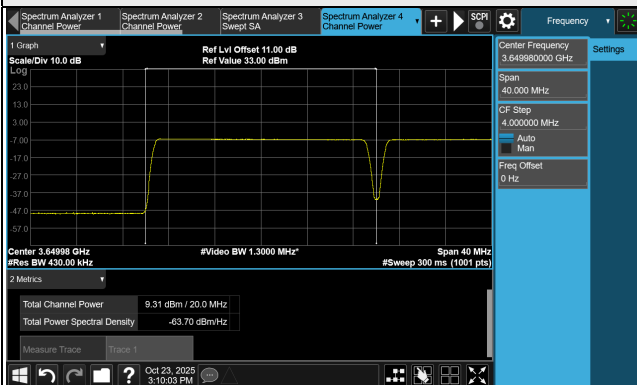


3679.98 MHz

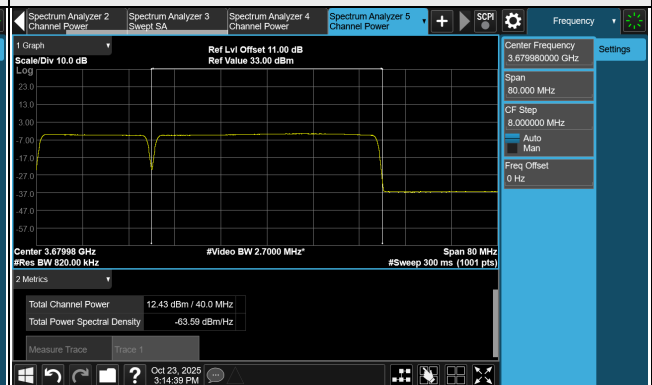


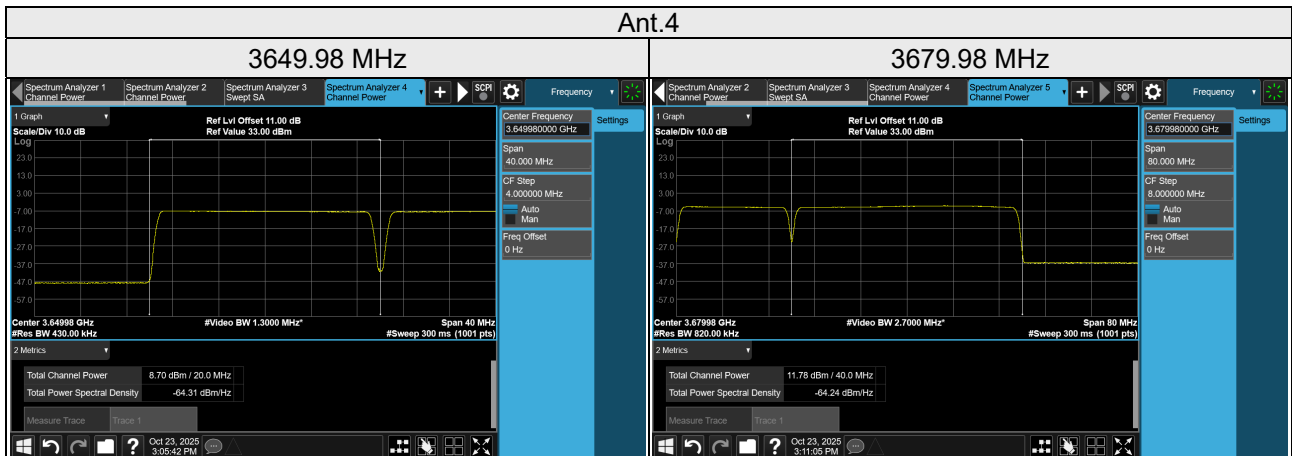
Ant.3

3649.98 MHz



3679.98 MHz



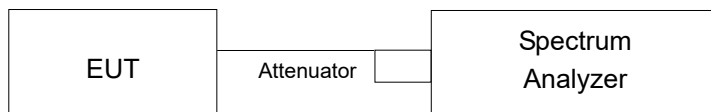


4.2 Maximum Power Spectral Density Measurement

4.2.1 Limits of Maximum Power Spectral Density Measurement

Device		Maximum PSD (dBm/MHz)
☐	End User Device	n/a
☒	Category A CBSD	20
☐	Category B CBSD	37

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.2.4 Test Procedure

- Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- Set instrument center frequency to OBW center frequency.
- Set span to $2 \times$ to $3 \times$ the OBW.
- Set the RBW to the specified reference bandwidth (often 1 MHz).
- Set VBW $\geq 3 \times$ RBW.
- Detector = RMS (power averaging).
- Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.2.7 Test Results

Mode A2 / A3

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	6	6.05	5.88	5.69	11.93	19.99	PASS
			CC1	4.89	5.05	4.98	4.76	10.94		
		64QAM	CC0	5.97	6.01	5.85	5.67	11.90	19.96	PASS
			CC1	4.86	5.02	4.94	4.73	10.91		
		256QAM	CC0	5.94	5.98	5.81	5.65	11.87	19.93	PASS
			CC1	4.82	4.98	4.92	4.7	10.88		
	3592.5+3667.5	QPSK	CC0	6.05	6.12	5.77	5.32	11.85	19.98	PASS
			CC1	5.01	5	5.01	4.94	11.01		
		64QAM	CC0	6.01	6.1	5.75	5.3	11.82	19.95	PASS
			CC1	4.97	4.96	4.98	4.91	10.98		
		256QAM	CC0	5.97	6.07	5.72	5.27	11.79	19.92	PASS
			CC1	4.94	4.92	4.95	4.88	10.94		
	3597.51+3662.52	QPSK	CC0	6.03	5.53	5.25	4.86	11.46	19.59	PASS
			CC1	5.11	4.6	4.22	4.44	10.63		
		64QAM	CC0	6.01	5.5	5.23	4.84	11.44	19.56	PASS
			CC1	5.07	4.57	4.19	4.4	10.59		
		256QAM	CC0	5.98	5.47	5.19	4.82	11.41	19.53	PASS
			CC1	5.03	4.53	4.16	4.36	10.55		
	3560.01+3590.01	QPSK	CC0	5.6	5.47	5.45	5.23	11.46	19.96	PASS
			CC1	5.66	5.29	5.64	4.92	11.41		
		64QAM	CC0	5.58	5.44	5.42	5.21	11.44	19.94	PASS
			CC1	5.64	5.25	5.61	4.88	11.38		
		256QAM	CC0	5.54	5.4	5.38	5.17	11.40	19.90	PASS
			CC1	5.61	5.21	5.59	4.86	11.35		
	3649.98+3679.98	QPSK	CC0	5.62	5.45	5.28	5.1	11.39	19.92	PASS
			CC1	6.09	5.09	5.28	4.9	11.38		
		64QAM	CC0	5.59	5.43	5.24	5.06	11.36	19.88	PASS
			CC1	6.05	5.06	5.24	4.86	11.35		
		256QAM	CC0	5.57	5.4	5.22	5.03	11.33	19.86	PASS
			CC1	6.02	5.04	5.22	4.84	11.32		

Note:

1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 5.52\text{dBi}$
2. EIRP Power Spectral Density (dBm/MHz) = Total Power Spectral Density (dBm/MHz) + Directional Gain

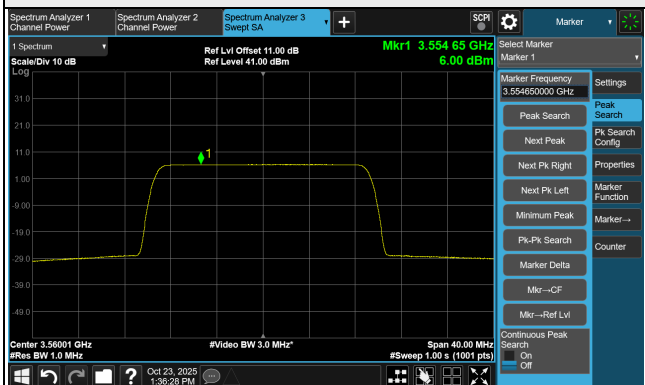
Spectrum Plot of Worst Value

20MHz+40MHz / QPSK

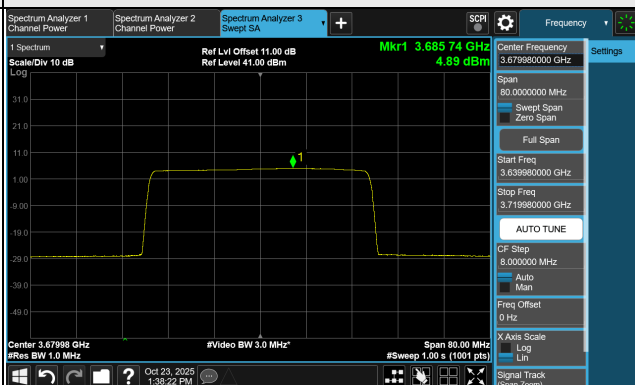
3560.01 MHz+3679.98 MHz

Ant.1

3560.01 MHz

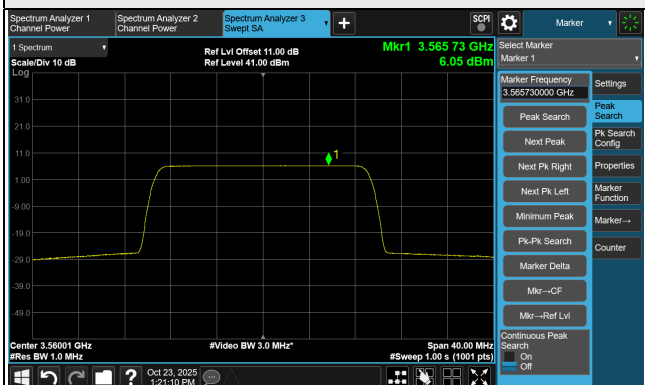


3679.98 MHz

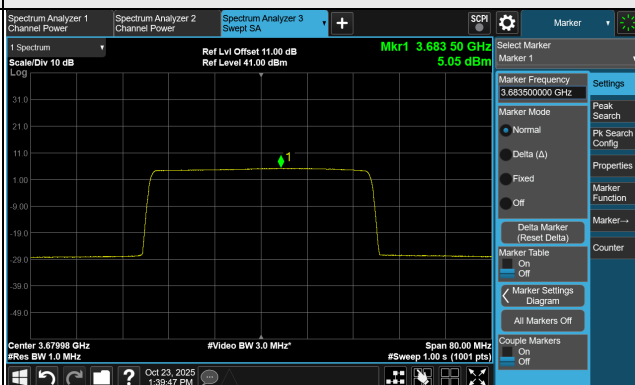


Ant.2

3560.01 MHz

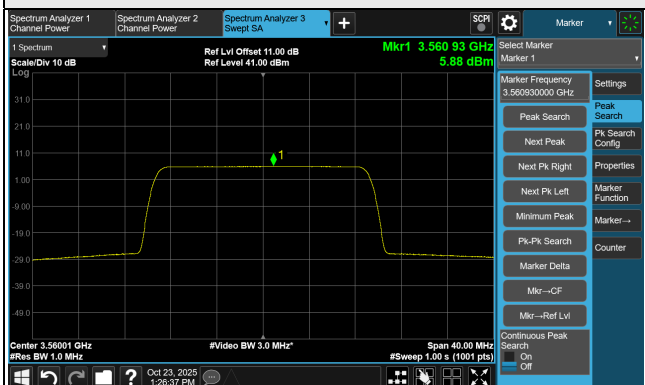


3679.98 MHz

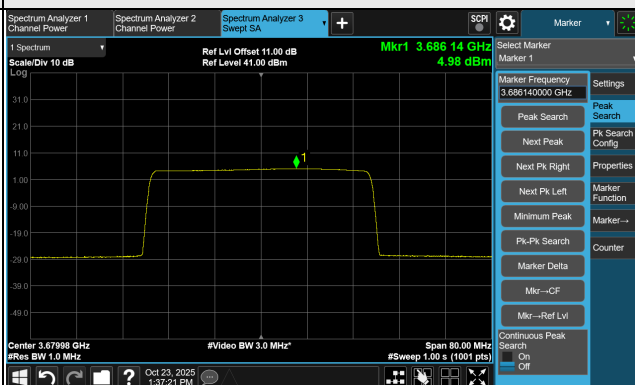


Ant.3

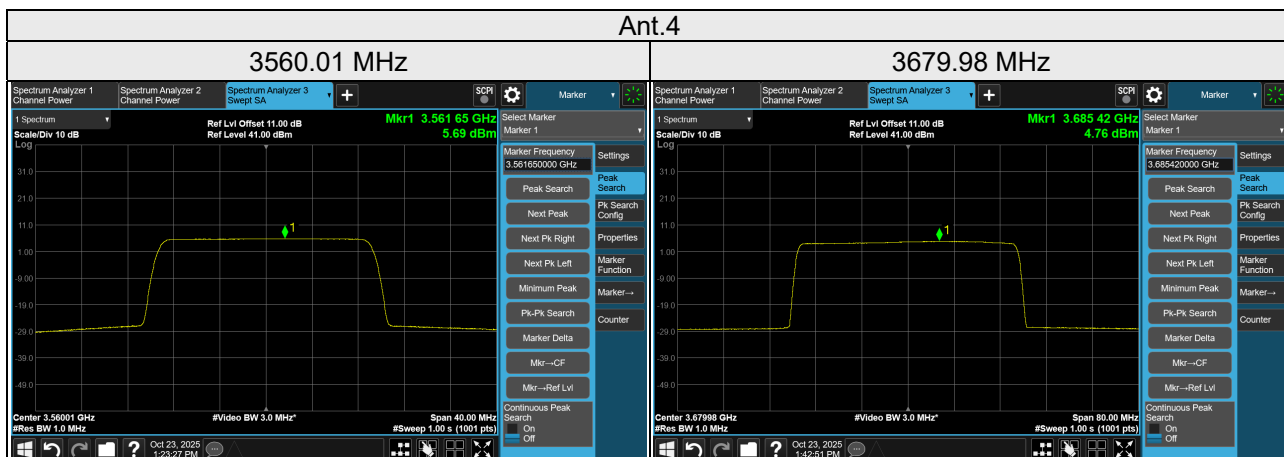
3560.01 MHz



3679.98 MHz



Ant.4



Mode B2 / B3

Bandwidth	Frequency (MHz)	Modulation	Carrier	Antenna				Total	EIRP (dBm/MHz)	Verdict
				1	2	3	4			
20M+40M	3560.01+3679.98	QPSK	CC0	-0.28	-0.09	-0.47	-0.73	5.63	19.74	PASS
			CC1	-1.24	-1.19	-1.13	-1.62	4.73		
		64QAM	CC0	-0.33	-0.13	-0.53	-0.78	5.58	19.68	PASS
			CC1	-1.29	-1.25	-1.19	-1.68	4.67		
		256QAM	CC0	-0.38	-0.17	-0.57	-0.82	5.54	19.64	PASS
			CC1	-1.34	-1.29	-1.24	-1.74	4.62		
	3592.5+3667.5	QPSK	CC0	0.35	-0.36	-0.19	-0.99	5.75	19.96	PASS
			CC1	-0.17	-1.44	-0.93	-1.29	5.09		
		64QAM	CC0	0.31	-0.4	-0.24	-1.03	5.71	19.92	PASS
			CC1	-0.21	-1.48	-0.98	-1.35	5.04		
		256QAM	CC0	0.28	-0.43	-0.28	-1.07	5.67	19.88	PASS
			CC1	-0.27	-1.52	-1.04	-1.4	4.99		
	3597.51+3662.52	QPSK	CC0	-0.63	-0.8	-0.12	-0.59	5.49	19.63	PASS
			CC1	-1.66	-1.72	-1.09	-1.03	4.66		
		64QAM	CC0	-0.68	-0.86	-0.16	-0.63	5.45	19.58	PASS
			CC1	-1.71	-1.77	-1.14	-1.07	4.61		
		256QAM	CC0	-0.74	-0.92	-0.22	-0.69	5.39	19.52	PASS
			CC1	-1.76	-1.81	-1.19	-1.13	4.56		
	3560.01+3590.01	QPSK	CC0	-0.29	-0.84	-0.57	-1.29	5.29	19.98	PASS
			CC1	-0.01	-0.52	-0.19	-0.99	5.61		
		64QAM	CC0	-0.34	-0.89	-0.63	-1.33	5.24	19.93	PASS
			CC1	-0.05	-0.57	-0.25	-1.05	5.56		
		256QAM	CC0	-0.4	-0.95	-0.66	-1.38	5.19	19.88	PASS
			CC1	-0.1	-0.61	-0.31	-1.1	5.51		
	3649.98+3679.98	QPSK	CC0	-0.26	-0.79	-1.13	-0.43	5.38	19.97	PASS
			CC1	0.26	-0.95	-1.12	-0.42	5.50		
		64QAM	CC0	-0.3	-0.84	-1.18	-0.48	5.33	19.92	PASS
			CC1	0.22	-0.99	-1.18	-0.47	5.45		
		256QAM	CC0	-0.36	-0.9	-1.23	-0.54	5.28	19.87	PASS
			CC1	0.17	-1.04	-1.22	-0.52	5.40		

Note:

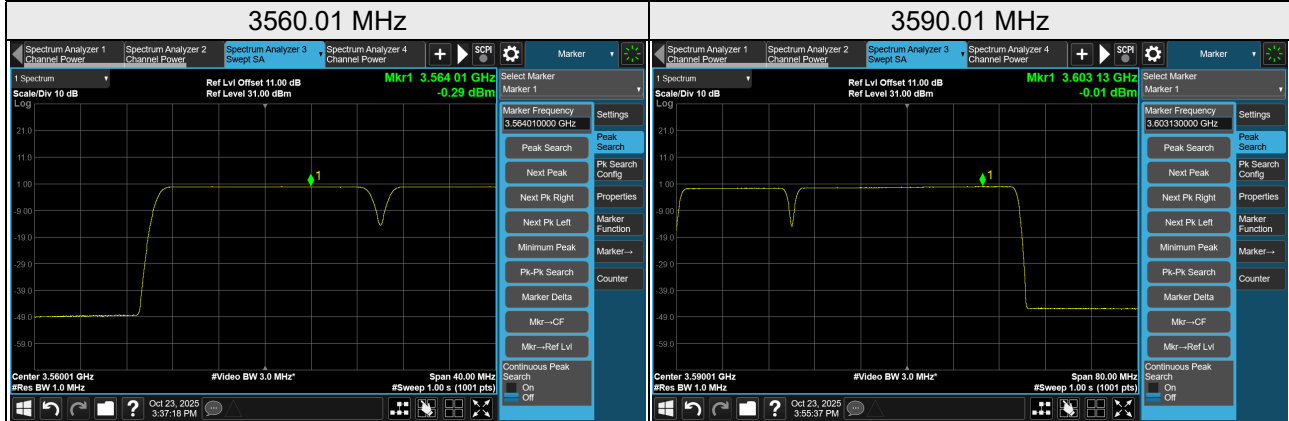
1. Correlated Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{G4/20})^2/4] = 11.52\text{dBi}$
2. EIRP Power Spectral Density (dBm/MHz) = Total Power Spectral Density (dBm/MHz) + Directional Gain

Spectrum Plot of Worst Value

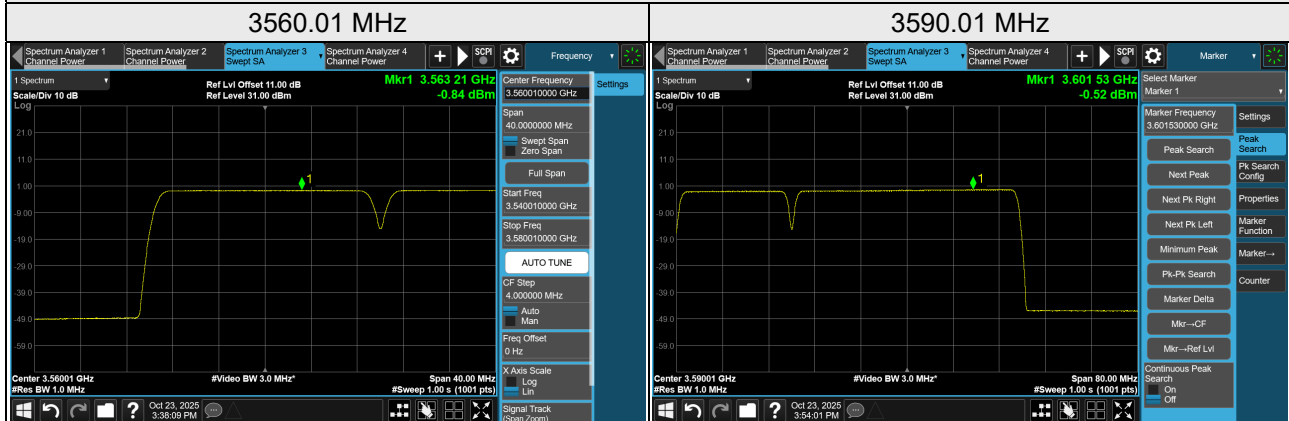
20MHz+40MHz / QPSK

3560.01 MHz+ 3590.01 MHz

Ant.1



Ant.2



Ant.3

