

MEASUREMENT REPORT

FCC PART 24 Subpart E


FCC ID: 2AWAS-910-00086

Application: Mavenir Systems, Inc.

Application Type: Class II Permissive Change

Product: B25 4T4R 160W Radio Unit

Model No.: MR44MA

Trade Mark: 

FCC Rule Part(s): Part 24 Subpart E

Test Procedure(s): ANSI C63.26-2015

Test Date: December 20, 2021 ~ January 04, 2022

Reviewed By:

Jame Yuan

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2112RSU035-U1	Rev. 01	Initial Report	01-06-2022	Valid

Note: This report is prepared for FCC Class II permissive supplement to MRT Original report No. 2104RSU074-U1, added dual carrier mode and some related data.

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1.4. Product Information

Product Name	B25 4T4R 160W Radio Unit
Model No.	MR44MA
Serial No.	JW2128B25Z01025
Hardware Version	Gamma1.0
Software Version	MD4.10
Voltage Range	-48VDC
LTE Operating Band (s)	FDD Band 25, Dual carrier
T _x Frequency Range	Band 25: 1930 ~ 1995 MHz
R _x Frequency Range	Band 25: 1850 ~ 1915 MHz
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Max EIRP Power Density	QPSK: 57.84dBm/MHz; 16QAM: 58.04dBm/MHz; 64QAM: 57.77dBm/MHz; 256QAM: 57.53dBm/MHz;
Max Antenna Gain	15dBi

Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

1.5. Test Mode for this report

Spot Check Test Item	Channel Bandwidth	Modulation
Equivalent Isotropically Radiated Power	5 + 5 MHz, 5 + 10 MHz 15 + 20 MHz, 20 + 20 MHz	QPSK, 16QAM, 64QAM, 256QAM
Emission Bandwidth	5 + GAP55 + 5 MHz	
Conducted Spurious Emissions	5 + GAP50 + 10 MHz	QPSK
Band Edge Measurements	15 + GAP30 + 20 MHz 20 + GAP25 + 20 MHz	

1.6. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26 - 2015
- FCC KDB 971168 D01v03r01
- FCC Part 24 Subpart E

1.7. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

2. Test Equipment Calibration Date

Conducted Test Equipment (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/07
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2022/10/10
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2022/06/08
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2022/06/08
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2022/06/08
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2022/05/18
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2022/09/12
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2022/10/10
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2022/06/28
Attenuator	MVE	6dB	MRTSUE06534	1 year	N/A
Attenuator	MVE	10dB	MRTSUE06543	1 year	N/A

Software	Version	Function
EMI Software	V3	EMI Test Software

3. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.28%

4. Test Result

4.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046; 24.232(a)(2)	Equivalent Isotropically Radiated Power	< 1640 watts/MHz	Conducted	Pass	Section 4.2
2.1049	Emission Bandwidth	Refer to Section 4.3		Pass	Section 4.3
24.238(a)	Band Edge Measurements	< -13 dBm		Pass	Section 4.4
2.1051; 24.238(a)	Conducted Spurious Emissions	< -13 dBm		Pass	Section 4.5

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) The Channel Band-edge, Conducted Spurious Emission were presented the worst test data of modulation & antenna port in the test report.

4.2. Equivalent Isotropically Radiated Power Measurement

4.2.1. Test Limit

The Radiated Equivalent Isotropically Power shall be according to the specific rule Part 24.232(a)(2) that are limited to EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

4.2.2. Test Procedures Used

KDB 971168 D01v03r01 - Section 5.2.4 & 5.4 & 5.6

ANSI C63.26-2015 - Section 5.2.4.2 & 5.2.4.5 & 5.2.5.5

4.2.3. Test Setting

Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

Average Power Spectral Density Measurement

1. Span to 2 × to 3 × the OBW
2. RBW ≥ 1% to 5% of the OBW
3. VBW ≥ 3*RBW
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run”
7. If the EUT can be configured to transmit continuously, then set the trigger to free run
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.
9. The trace was allowed to stabilize
10. RBW set to the reference bandwidth specified by the applicable regulatory requirement, and by using the marker function to identify the maximum PSD.

Note: The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

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

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)

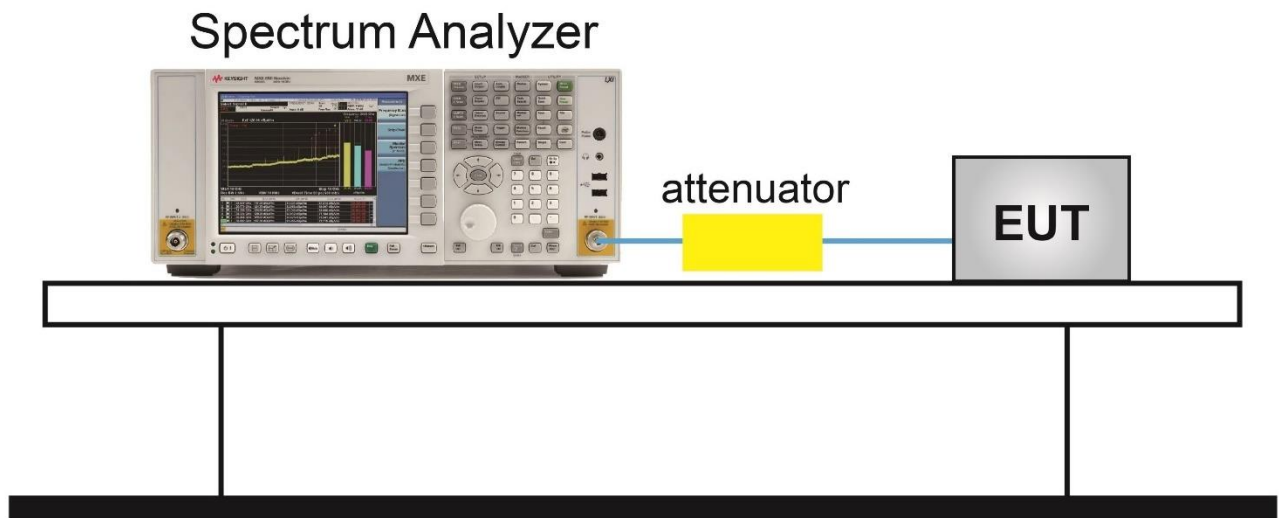
P_{Meas} measured transmitter output power or PSD, in dBm or dBW

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

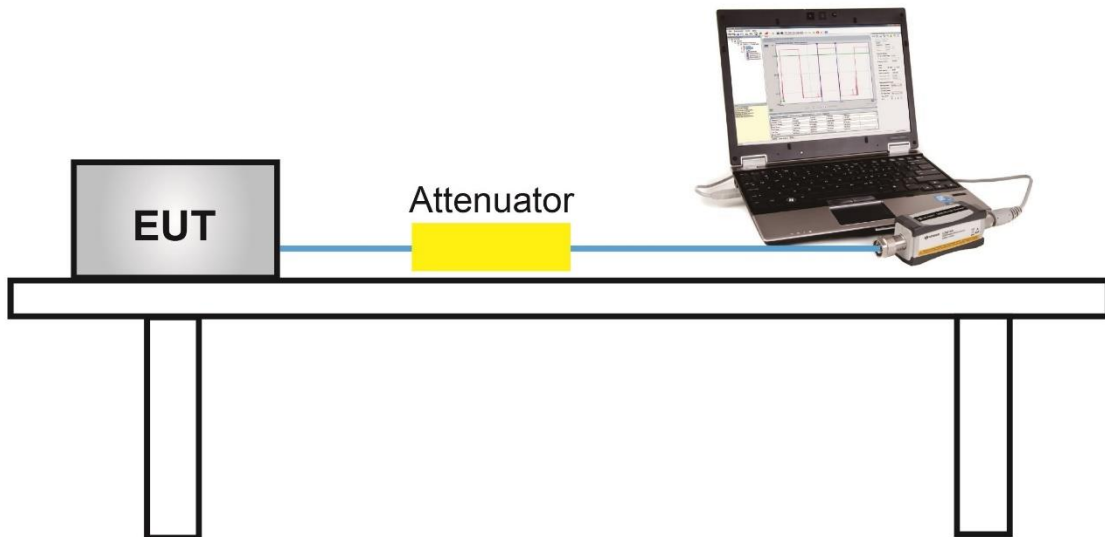
$$ERP = EIRP - 2.15$$

4.2.4. Test Setup

Average Power Spectral Density Measurement



Conducted Measurement of Output Power



4.2.5. Test Result

Product	B25 4T4R 160W Radio Unit	Test Engineer	Eric Xu
Test Site	WZ-TR3	Test Date	2021/12/22 ~ 2022/01/04
Test Configuration	LTE Band 25 (Dual Carrier)		

Frequency (MHz)	Channel BW (MHz)	Power Density (dBm/MHz)				EIRP Density (dBm/MHz)	Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4		
QPSK							
1932.5 + 1937.5	5 + 5	37.40	36.30	36.15	37.00	57.76	< 62.15
1960.0 + 1965.0	5 + 5	37.43	36.43	36.30	37.02	57.84	< 62.15
1987.5 + 1992.5	5 + 5	37.02	36.43	36.10	37.02	57.68	< 62.15
1932.5 + 1940.0	5 + 10	37.15	36.31	36.20	36.96	57.69	< 62.15
1957.5 + 1965.0	5 + 10	37.46	36.57	36.16	36.98	57.84	< 62.15
1982.5 + 1990.0	5 + 10	37.05	36.30	36.21	37.10	57.71	< 62.15
1937.5 + 1955.0	15 + 20	32.70	31.90	32.01	32.47	53.30	< 62.15
1952.5 + 1970.0	15 + 20	32.50	31.61	31.26	32.21	52.94	< 62.15
1967.5 + 1985.0	15 + 20	32.63	31.52	31.44	32.23	53.00	< 62.15
1940.0 + 1960.0	20 + 20	31.52	30.77	30.21	31.18	51.97	< 62.15
1952.5 + 1972.5	20 + 20	31.38	30.47	30.52	31.19	51.93	< 62.15
1965.0 + 1985.0	20 + 20	31.28	30.57	29.80	31.24	51.78	< 62.15
1932.5 + 1992.5	5 + GAP55 + 5	37.07	36.15	35.89	36.65	57.48	< 62.15
1932.5 + 1990.0	5 + GAP50 + 10	36.86	36.01	35.72	36.65	57.36	< 62.15
1937.5 + 1985.0	15 + GAP30 + 20	32.13	31.00	30.83	31.99	52.55	< 62.15
1940.0 + 1985.0	20 + GAP25 + 20	30.90	30.04	29.61	30.56	51.33	< 62.15
16QAM							
1932.5 + 1937.5	5 + 5	36.99	36.54	36.20	36.99	57.71	< 62.15
1960.0 + 1965.0	5 + 5	37.54	36.82	36.14	37.08	57.94	< 62.15
1987.5 + 1992.5	5 + 5	37.60	36.74	36.50	37.15	58.04	< 62.15
1932.5 + 1940.0	5 + 10	37.35	36.16	36.25	36.90	57.71	< 62.15
1957.5 + 1965.0	5 + 10	37.40	36.20	36.13	36.58	57.63	< 62.15
1982.5 + 1990.0	5 + 10	37.29	35.97	35.53	36.66	57.44	< 62.15
1937.5 + 1955.0	15 + 20	31.95	31.07	31.28	32.41	52.73	< 62.15
1952.5 + 1970.0	15 + 20	31.29	31.42	30.97	31.46	52.31	< 62.15
1967.5 + 1985.0	15 + 20	32.31	31.62	30.38	30.89	52.38	< 62.15

Frequency (MHz)	Channel Bandwidth (MHz)	Power Density (dBm/MHz)				EIRP Density (dBm/MHz)	Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4		
1940.0 + 1960.0	20 + 20	30.62	29.67	29.62	31.10	51.32	< 62.15
1952.5 + 1972.5	20 + 20	31.03	29.69	29.65	30.43	51.26	< 62.15
1965.0 + 1985.0	20 + 20	30.65	29.61	29.82	30.56	51.20	< 62.15
1932.5 + 1992.5	5 + GAP55 + 5	36.75	35.89	35.30	36.17	57.08	< 62.15
1932.5 + 1990.0	5 + GAP50 + 10	36.23	35.02	35.22	35.65	56.58	< 62.15
1937.5 + 1985.0	15 + GAP30 + 20	30.39	31.00	31.07	30.14	51.69	< 62.15
1940.0 + 1985.0	20 + GAP25 + 20	30.64	30.25	29.55	31.19	51.47	< 62.15
64QAM							
1932.5 + 1937.5	5 + 5	37.34	35.41	36.09	36.84	57.50	< 62.15
1960.0 + 1965.0	5 + 5	37.33	36.28	35.88	36.67	57.59	< 62.15
1987.5 + 1992.5	5 + 5	36.91	35.67	35.91	36.59	57.32	< 62.15
1932.5 + 1940.0	5 + 10	37.24	36.62	36.02	37.02	57.77	< 62.15
1957.5 + 1965.0	5 + 10	37.15	36.26	36.18	36.74	57.62	< 62.15
1982.5 + 1990.0	5 + 10	36.98	36.26	36.08	36.76	57.56	< 62.15
1937.5 + 1955.0	15 + 20	31.61	30.97	30.54	31.43	52.18	< 62.15
1952.5 + 1970.0	15 + 20	31.76	30.55	30.69	31.36	52.14	< 62.15
1967.5 + 1985.0	15 + 20	31.78	30.81	30.74	31.52	52.26	< 62.15
1940.0 + 1960.0	20 + 20	30.40	30.20	29.58	30.43	51.19	< 62.15
1952.5 + 1972.5	20 + 20	30.46	29.63	29.25	30.24	50.94	< 62.15
1965.0 + 1985.0	20 + 20	30.64	29.96	29.68	30.34	51.19	< 62.15
1932.5 + 1992.5	5 + GAP55 + 5	36.51	35.91	35.68	36.24	57.12	< 62.15
1932.5 + 1990.0	5 + GAP50 + 10	36.11	35.19	35.13	35.88	56.62	< 62.15
1937.5 + 1985.0	15 + GAP30 + 20	30.38	31.20	30.49	30.29	51.63	< 62.15
1940.0 + 1985.0	20 + GAP25 + 20	30.50	29.67	29.60	30.50	51.11	< 62.15
256QAM							
1932.5 + 1937.5	5 + 5	36.77	35.63	35.83	36.55	57.24	< 62.15
1960.0 + 1965.0	5 + 5	36.87	36.98	35.69	36.39	57.53	< 62.15
1987.5 + 1992.5	5 + 5	36.96	35.85	35.89	36.81	57.43	< 62.15
1932.5 + 1940.0	5 + 10	36.42	35.92	35.57	36.47	57.13	< 62.15
1957.5 + 1965.0	5 + 10	36.63	35.67	35.64	36.25	57.09	< 62.15
1982.5 + 1990.0	5 + 10	36.58	35.78	35.43	36.36	57.08	< 62.15
1937.5 + 1955.0	15 + 20	31.93	30.83	31.05	31.64	52.41	< 62.15
1952.5 + 1970.0	15 + 20	31.61	31.23	30.60	31.92	52.39	< 62.15
1967.5 + 1985.0	15 + 20	31.75	30.66	30.65	31.58	52.21	< 62.15

Frequency (MHz)	Channel Bandwidth (MHz)	Power Density (dBm/MHz)				EIRP Density (dBm/MHz)	Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4		
1940.0 + 1960.0	20 + 20	30.76	29.91	29.55	30.55	51.24	< 62.15
1952.5 + 1972.5	20 + 20	30.66	30.02	29.92	30.65	51.35	< 62.15
1965.0 + 1985.0	20 + 20	30.91	30.11	29.84	30.58	51.40	< 62.15
1932.5 + 1992.5	5 + GAP55 + 5	36.60	35.72	35.57	36.15	57.05	< 62.15
1932.5 + 1990.0	5 + GAP50 + 10	35.86	35.02	34.90	35.59	56.38	< 62.15
1937.5 + 1985.0	15 + GAP30 + 20	31.17	31.33	30.58	31.20	52.10	< 62.15
1940.0 + 1985.0	20 + GAP25 + 20	30.56	29.45	29.56	30.36	51.03	< 62.15

Note 1: Total Power Density (dBm/MHz) = $10 \cdot \log \left\{ 10^{\text{ANT 1 Power Density} / 10} + 10^{\text{ANT 2 Power Density} / 10} + 10^{\text{ANT 3 Power Density} / 10} + 10^{\text{ANT 4 Power Density} / 10} \right\}$ (dBm/MHz).

Note 2: EIRP Density (dBm/MHz) = Total Power Density (dBm/MHz) + Antenna Gain (dBi).

Test Result of Conducted Output Power (Reporting Only)

Frequency (MHz)	Channel BW (MHz)	Conducted Output Power (dBm)				Total Output Power (dBm)
		Ant 1	Ant 2	Ant 3	Ant 4	
QPSK						
1932.5 + 1937.5	5 + 5	45.66	45.88	45.75	45.85	51.81
1960.0 + 1965.0	5 + 5	45.76	45.85	45.80	45.82	51.83
1987.5 + 1992.5	5 + 5	45.77	45.85	45.81	45.78	51.82
1932.5 + 1940.0	5 + 10	45.73	45.78	45.80	45.80	51.80
1957.5 + 1965.0	5 + 10	45.84	45.85	45.80	45.76	51.83
1982.5 + 1990.0	5 + 10	45.83	45.81	45.83	45.78	51.83
1937.5 + 1955.0	15 + 20	45.76	45.85	45.77	45.82	51.82
1952.5 + 1970.0	15 + 20	45.85	45.82	45.82	45.70	51.82
1967.5 + 1985.0	15 + 20	45.87	45.77	45.78	45.68	51.80
1940.0 + 1960.0	20 + 20	45.89	45.82	45.72	45.70	51.80
1952.5 + 1972.5	20 + 20	45.74	45.82	45.74	45.67	51.76
1965.0 + 1985.0	20 + 20	45.74	45.93	45.77	45.79	51.83
1932.5 + 1992.5	5 + GAP55 + 5	45.83	45.82	45.81	45.78	51.83
1932.5 + 1990.0	5 + GAP50 + 10	45.85	45.83	45.81	45.76	51.83
1937.5 + 1985.0	15 + GAP30 + 20	45.79	45.75	45.81	45.79	51.81
1940.0 + 1985.0	20 + GAP25 + 20	45.91	45.86	45.78	45.62	51.81
16QAM						
1932.5 + 1937.5	5 + 5	45.81	45.79	45.83	45.81	51.83
1960.0 + 1965.0	5 + 5	45.76	45.76	45.80	45.77	51.79
1987.5 + 1992.5	5 + 5	45.77	45.91	45.80	45.75	51.83
1932.5 + 1940.0	5 + 10	45.80	45.80	45.82	45.82	51.83
1957.5 + 1965.0	5 + 10	45.79	45.76	45.80	45.82	51.81
1982.5 + 1990.0	5 + 10	45.91	45.75	45.75	45.79	51.82
1937.5 + 1955.0	15 + 20	45.72	45.85	45.60	45.77	51.76
1952.5 + 1970.0	15 + 20	45.71	45.80	45.69	45.79	51.77
1967.5 + 1985.0	15 + 20	45.61	45.84	45.61	45.67	51.70
1940.0 + 1960.0	20 + 20	45.77	45.80	45.78	45.82	51.81
1952.5 + 1972.5	20 + 20	45.77	45.74	45.77	45.89	51.81
1965.0 + 1985.0	20 + 20	45.80	45.83	45.80	45.80	51.83
1932.5 + 1992.5	5 + GAP55 + 5	45.73	45.89	45.75	45.67	51.78
1932.5 + 1990.0	5 + GAP50 + 10	45.71	45.84	45.79	45.49	51.73
1937.5 + 1985.0	15 + GAP30 + 20	45.46	45.60	45.45	45.33	51.48
1940.0 + 1985.0	20 + GAP25 + 20	45.60	45.91	45.62	45.62	51.71

Frequency (MHz)	Channel Bandwidth (MHz)	Conducted Output Power (dBm)				Total Output Power (dBm)
		Ant 1	Ant 2	Ant 3	Ant 4	
64QAM						
1932.5 + 1937.5	5 + 5	45.87	45.83	45.80	45.73	51.83
1960.0 + 1965.0	5 + 5	45.74	45.80	45.90	45.79	51.83
1987.5 + 1992.5	5 + 5	45.72	45.81	45.83	45.81	51.81
1932.5 + 1940.0	5 + 10	45.78	45.71	45.84	45.76	51.79
1957.5 + 1965.0	5 + 10	45.77	45.77	45.84	45.80	51.82
1982.5 + 1990.0	5 + 10	45.89	45.77	45.86	45.72	51.83
1937.5 + 1955.0	15 + 20	45.71	45.74	45.72	45.55	51.70
1952.5 + 1970.0	15 + 20	45.71	45.73	45.59	45.64	51.69
1967.5 + 1985.0	15 + 20	45.73	45.79	45.70	45.62	51.73
1940.0 + 1960.0	20 + 20	45.78	45.81	45.80	45.81	51.82
1952.5 + 1972.5	20 + 20	45.79	45.87	45.75	45.84	51.83
1965.0 + 1985.0	20 + 20	45.58	45.92	45.88	45.84	51.83
1932.5 + 1992.5	5 + GAP55 + 5	45.85	45.81	45.80	45.56	51.78
1932.5 + 1990.0	5 + GAP50 + 10	45.71	45.82	45.60	45.50	51.68
1937.5 + 1985.0	15 + GAP30 + 20	45.45	45.62	45.39	45.48	51.51
1940.0 + 1985.0	20 + GAP25 + 20	45.56	45.81	45.56	45.56	51.64
256QAM						
1932.5 + 1937.5	5 + 5	45.76	45.82	45.75	45.83	51.81
1960.0 + 1965.0	5 + 5	45.77	45.79	45.78	45.88	51.83
1987.5 + 1992.5	5 + 5	45.76	45.80	45.75	45.87	51.82
1932.5 + 1940.0	5 + 10	45.76	45.99	45.63	45.61	51.77
1957.5 + 1965.0	5 + 10	45.82	45.81	45.76	45.82	51.82
1982.5 + 1990.0	5 + 10	45.80	45.76	45.80	45.88	51.83
1937.5 + 1955.0	15 + 20	45.68	45.88	45.51	45.66	51.71
1952.5 + 1970.0	15 + 20	45.85	45.81	45.67	45.64	51.76
1967.5 + 1985.0	15 + 20	45.70	45.83	45.65	45.68	51.74
1940.0 + 1960.0	20 + 20	45.80	45.84	45.78	45.77	51.82
1952.5 + 1972.5	20 + 20	45.82	45.83	45.76	45.81	51.83
1965.0 + 1985.0	20 + 20	45.82	45.81	45.80	45.77	51.82
1932.5 + 1992.5	5 + GAP55 + 5	45.71	45.87	45.75	45.75	51.79
1932.5 + 1990.0	5 + GAP50 + 10	45.70	45.84	45.72	45.50	51.71
1937.5 + 1985.0	15 + GAP30 + 20	45.40	45.61	45.40	45.42	51.48
1940.0 + 1985.0	20 + GAP25 + 20	45.76	45.88	45.65	45.60	51.74

Note: Total Output Power (dBm) = $10 \cdot \log\{10^{[ANT\ 1\ Output\ Power / 10]} + 10^{[ANT\ 2\ Output\ Power / 10]} + 10^{[ANT\ 3\ Output\ Power / 10]} + 10^{[ANT\ 4\ Output\ Power / 10]}\}$ (dBm).

4.3. Emission Bandwidth

4.3.1. Test Limit

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4.3.2. Test Procedure

KDB 971168 D01v03r01 - Section 4.1 & 4.2

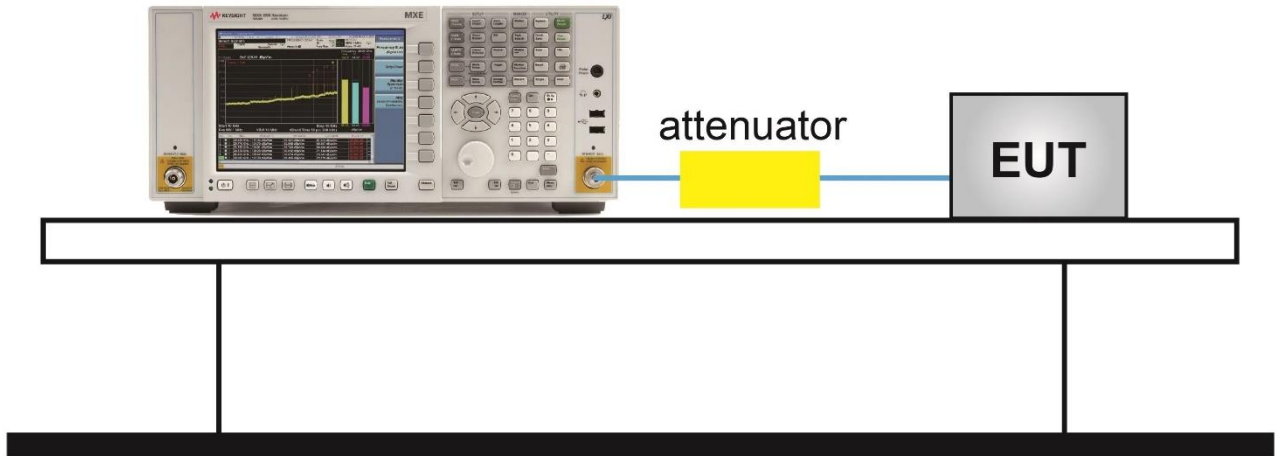
ANSI C63.26-2015 - Section 5.4.3 & 5.4.4

4.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency;
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW;
3. VBW $\geq 3 \times$ RBW;
4. Detector = Peak;
5. Trace mode = max hold;
6. Sweep = auto couple;
7. Allow the trace to stabilize;
8. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 26 dB below the reference level

4.3.4. Test Setup

Spectrum Analyzer



4.3.5. Test Result

Product	B25 4T4R 160W Radio Unit	Test Engineer	Eric Xu
Test Site	WZ-TR3	Test Date	2021/12/22 ~ 2021/12/28
Test Configuration	LTE Band 25 (Dual Carrier)		

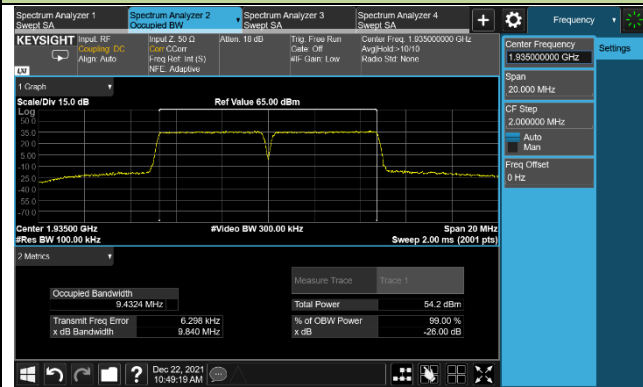
Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
1932.5 + 1937.5	5 + 5	9.84	9.43
1960.0 + 1965.0	5 + 5	9.83	9.43
1987.5 + 1992.5	5 + 5	9.84	9.43
1932.5 + 1940.0	5 + 10	14.72	14.15
1957.5 + 1965.0	5 + 10	14.69	14.16
1982.5 + 1990.0	5 + 10	14.71	14.14
1937.5 + 1955.0	15 + 20	34.48	33.00
1952.5 + 1970.0	15 + 20	34.53	32.98
1967.5 + 1985.0	15 + 20	34.48	33.06
1940.0 + 1960.0	20 + 20	39.25	37.64
1952.5 + 1972.5	20 + 20	39.23	37.65
1965.0 + 1985.0	20 + 20	39.20	37.66
1932.5 + 1992.5	5 + GAP55 + 5	9.49	8.96
1932.5 + 1990.0	5 + GAP50 + 10	14.29	13.44
1937.5 + 1985.0	15 + GAP30 + 20	33.54	31.31
1940.0 + 1985.0	20 + GAP25 + 20	37.90	35.71
16QAM			
1932.5 + 1937.5	5 + 5	9.82	9.41
1960.0 + 1965.0	5 + 5	9.81	9.41
1987.5 + 1992.5	5 + 5	9.83	9.42
1932.5 + 1940.0	5 + 10	14.70	14.16
1957.5 + 1965.0	5 + 10	14.68	14.18
1982.5 + 1990.0	5 + 10	14.70	14.15
1937.5 + 1955.0	15 + 20	34.39	33.02
1952.5 + 1970.0	15 + 20	34.42	32.99
1967.5 + 1985.0	15 + 20	34.36	33.00
1940.0 + 1960.0	20 + 20	39.07	37.82
1952.5 + 1972.5	20 + 20	39.19	37.77
1965.0 + 1985.0	20 + 20	39.15	37.79

Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
1932.5 + 1992.5	5 + GAP55 + 5	9.50	8.95
1932.5 + 1990.0	5 + GAP50 + 10	14.24	13.43
1937.5 + 1985.0	15 + GAP30 + 20	33.37	31.30
1940.0 + 1985.0	20 + GAP25 + 20	37.78	35.78
64QAM			
1932.5 + 1937.5	5 + 5	9.83	9.45
1960.0 + 1965.0	5 + 5	9.83	9.42
1987.5 + 1992.5	5 + 5	9.84	9.42
1932.5 + 1940.0	5 + 10	14.73	14.16
1957.5 + 1965.0	5 + 10	14.72	14.15
1982.5 + 1990.0	5 + 10	14.71	14.15
1937.5 + 1955.0	15 + 20	34.44	33.01
1952.5 + 1970.0	15 + 20	34.34	33.05
1967.5 + 1985.0	15 + 20	34.44	33.03
1940.0 + 1960.0	20 + 20	39.21	37.65
1952.5 + 1972.5	20 + 20	39.22	37.70
1965.0 + 1985.0	20 + 20	39.15	37.64
1932.5 + 1992.5	5 + GAP55 + 5	9.49	8.92
1932.5 + 1990.0	5 + GAP50 + 10	14.18	13.40
1937.5 + 1985.0	15 + GAP30 + 20	33.26	31.29
1940.0 + 1985.0	20 + GAP25 + 20	37.82	35.76
256QAM			
1932.5 + 1937.5	5 + 5	9.83	9.43
1960.0 + 1965.0	5 + 5	9.84	9.43
1987.5 + 1992.5	5 + 5	9.83	9.42
1932.5 + 1940.0	5 + 10	14.75	14.14
1957.5 + 1965.0	5 + 10	14.76	14.15
1982.5 + 1990.0	5 + 10	14.74	14.17
1937.5 + 1955.0	15 + 20	34.42	33.01
1952.5 + 1970.0	15 + 20	34.50	33.04
1967.5 + 1985.0	15 + 20	34.42	33.04
1940.0 + 1960.0	20 + 20	39.24	37.65
1952.5 + 1972.5	20 + 20	39.18	37.72
1965.0 + 1985.0	20 + 20	39.21	37.62

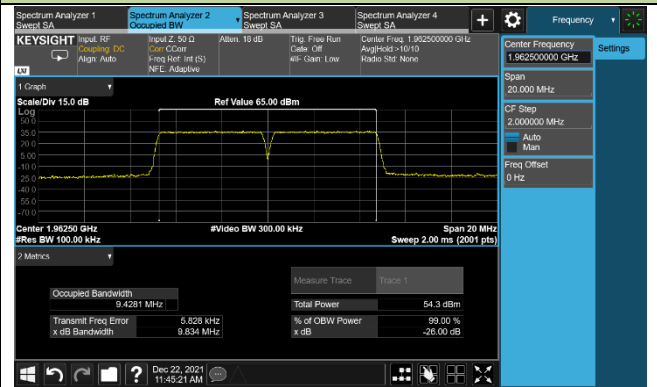
Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
1932.5 + 1992.5	5 + GAP55 + 5	9.51	8.94
1932.5 + 1990.0	5 + GAP50 + 10	14.21	13.44
1937.5 + 1985.0	15 + GAP30 + 20	33.35	31.27
1940.0 + 1985.0	20 + GAP25 + 20	37.80	35.73

5 + 5 MHz Channel Bandwidth - QPSK

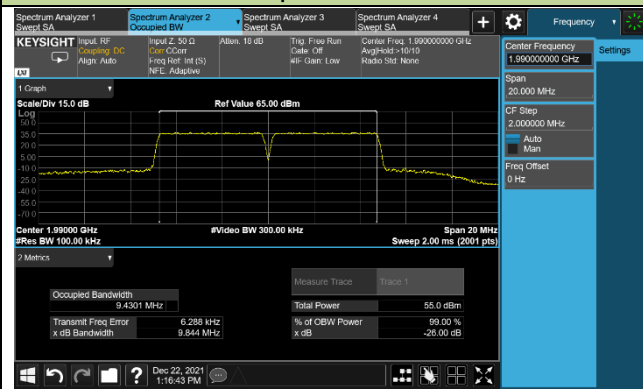
Bottom Channel



Middle Channel

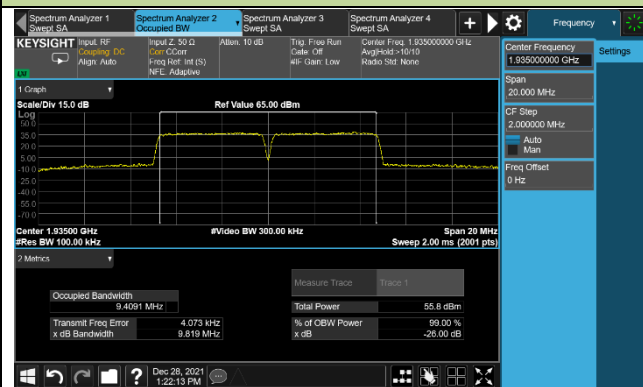


Top Channel

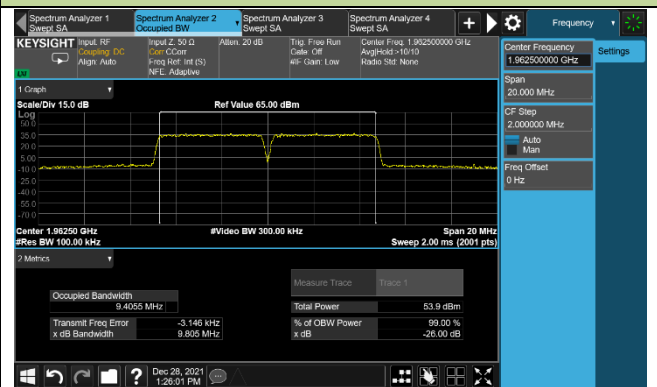


5 + 5 MHz Channel Bandwidth - 16QAM

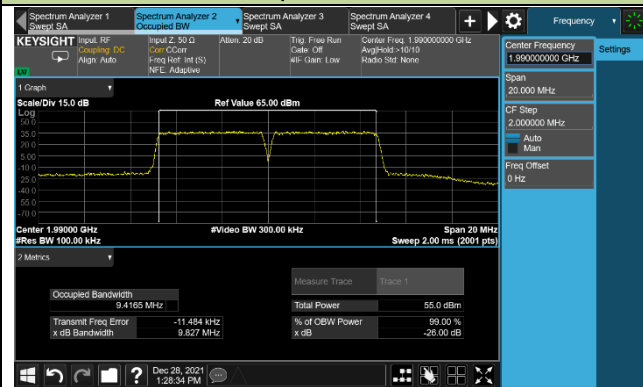
Bottom Channel



Middle Channel

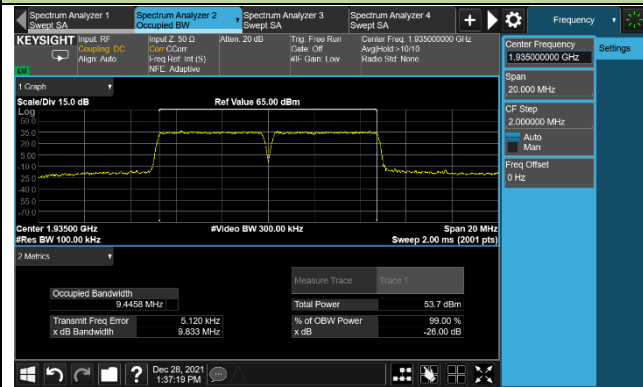


Top Channel

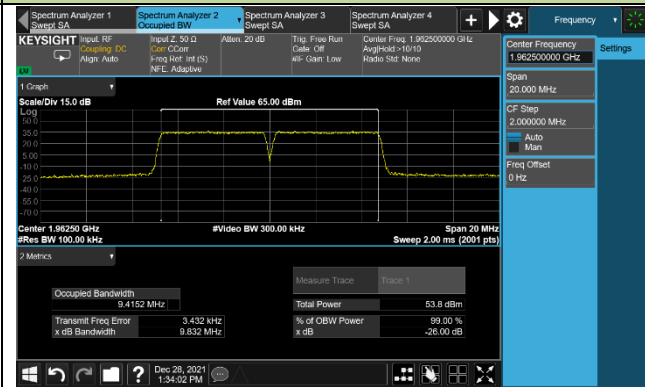


5 + 5 MHz Channel Bandwidth - 64QAM

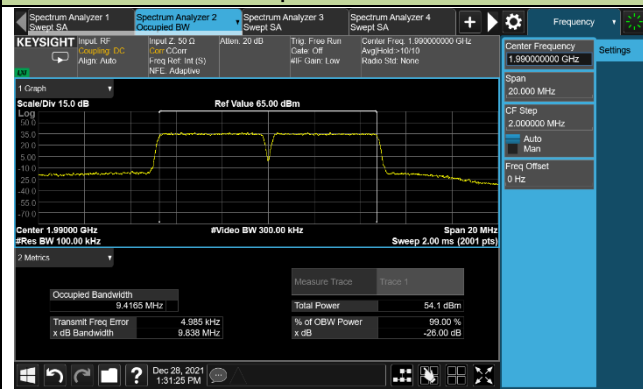
Bottom Channel



Middle Channel

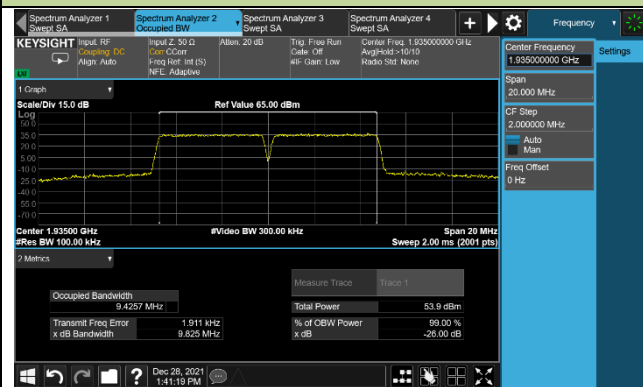


Top Channel

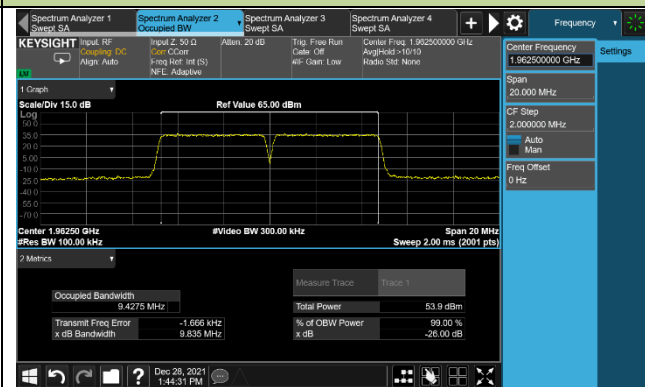


5 + 5 MHz Channel Bandwidth - 256QAM

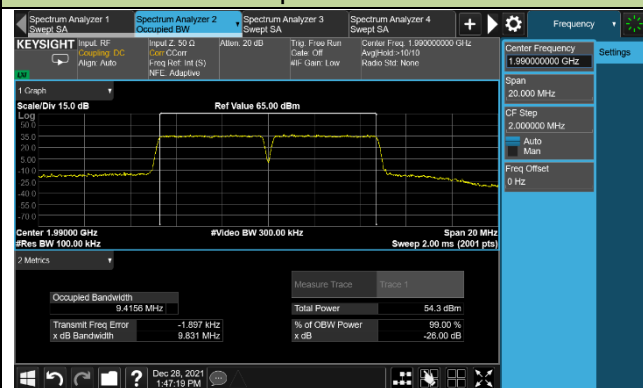
Bottom Channel



Middle Channel

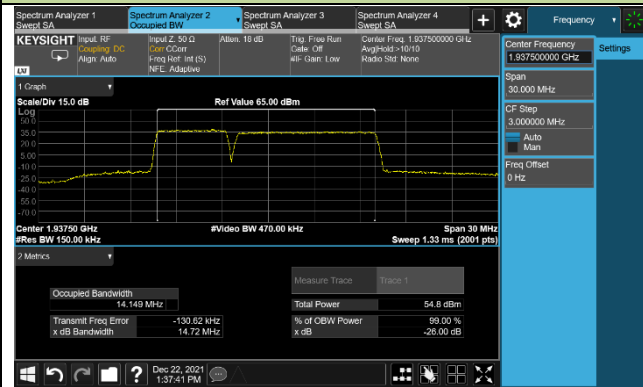


Top Channel

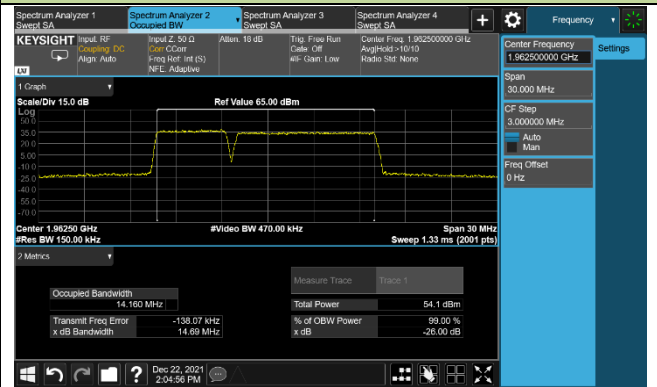


5 + 10 MHz Channel Bandwidth - QPSK

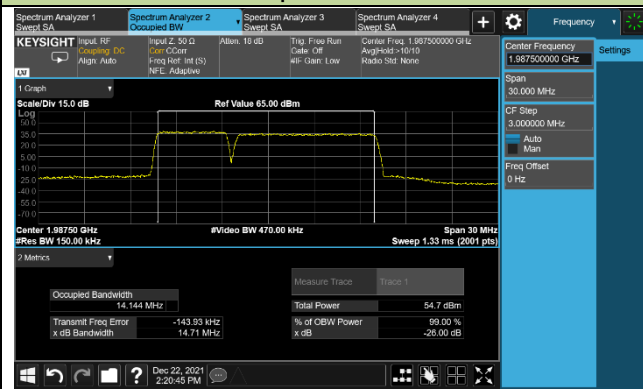
Bottom Channel



Middle Channel

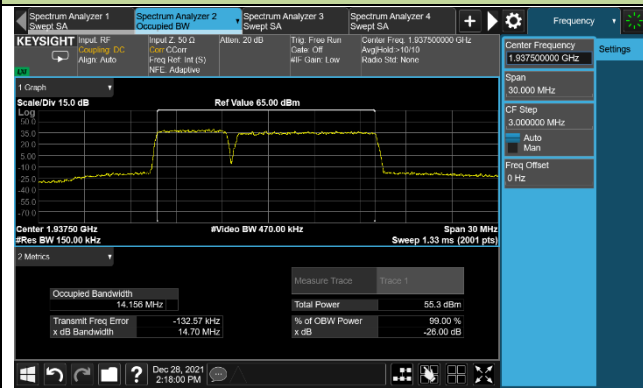


Top Channel

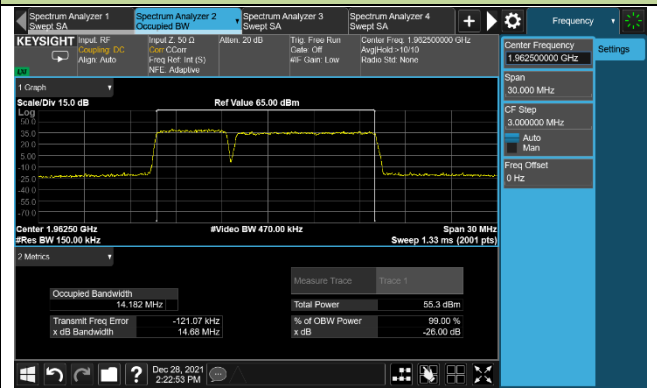


5 + 10 MHz Channel Bandwidth - 16QAM

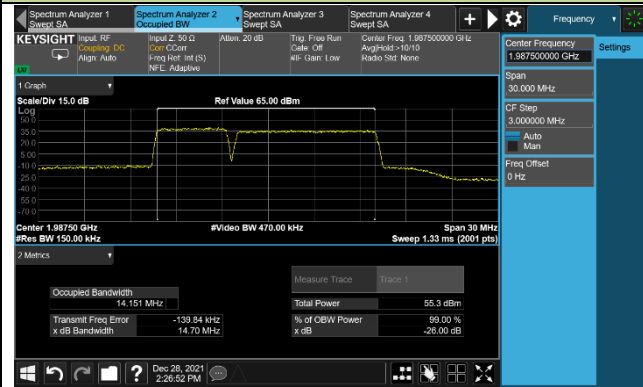
Bottom Channel



Middle Channel

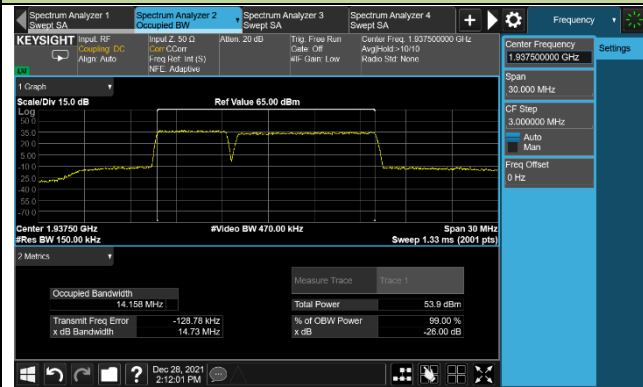


Top Channel

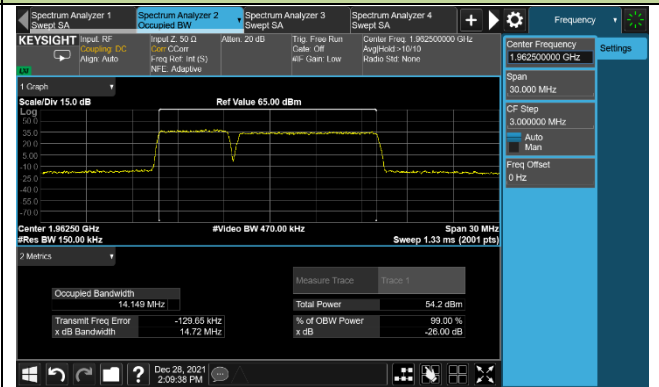


5 + 10 MHz Channel Bandwidth - 64QAM

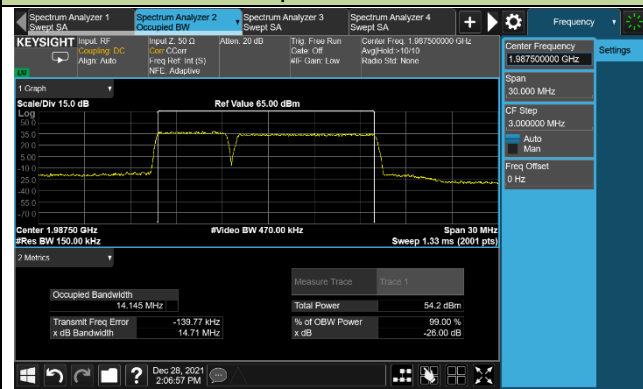
Bottom Channel



Middle Channel

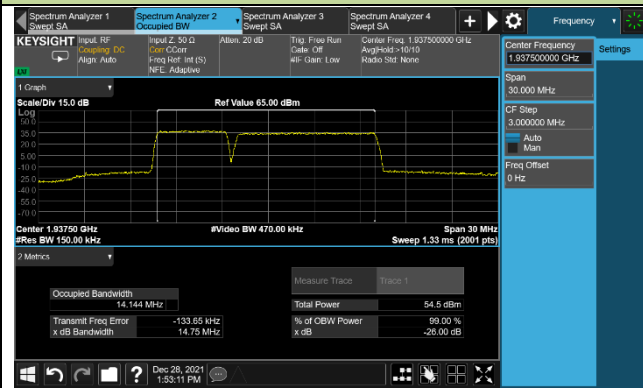


Top Channel

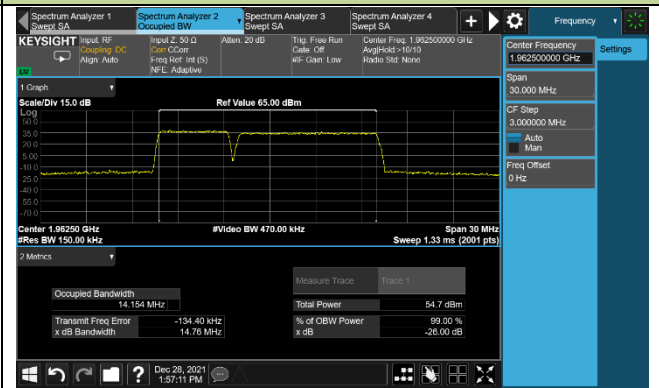


5 + 10 MHz Channel Bandwidth - 256QAM

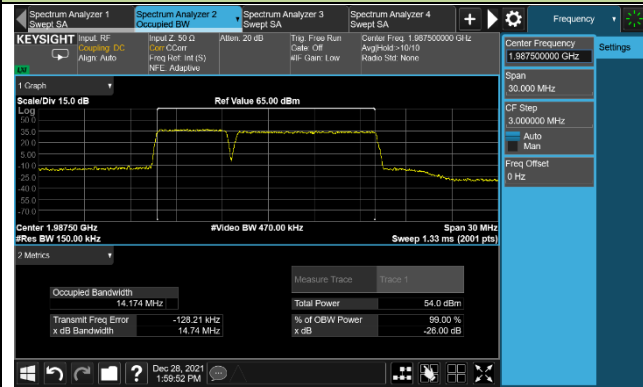
Bottom Channel



Middle Channel

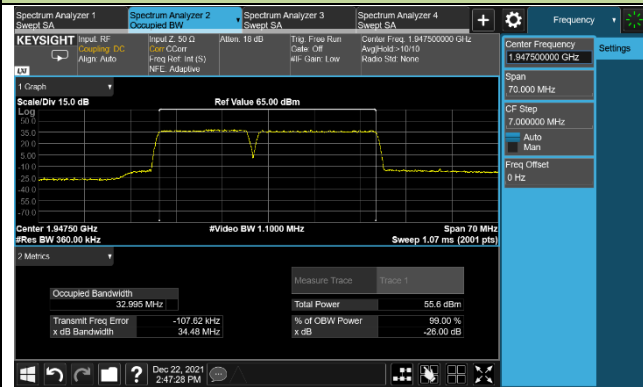


Top Channel

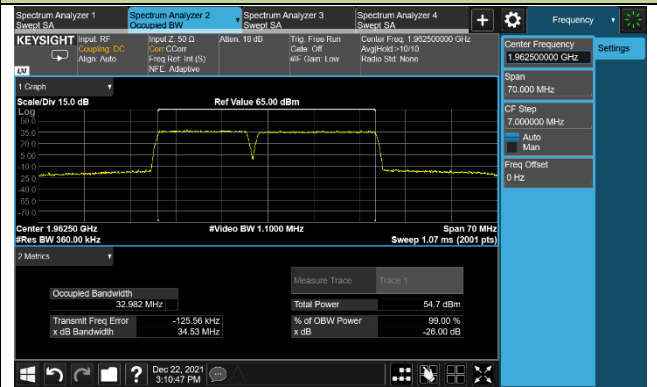


15 + 20 MHz Channel Bandwidth - QPSK

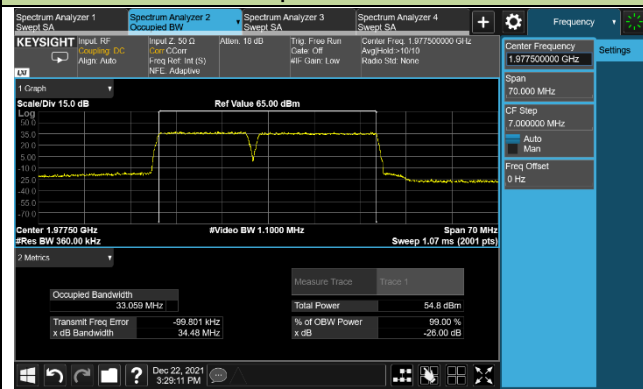
Bottom Channel



Middle Channel

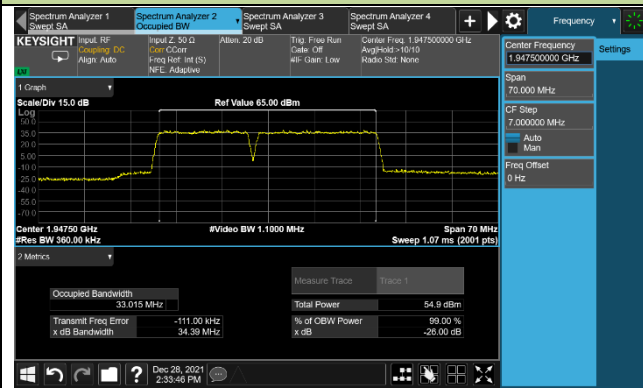


Top Channel

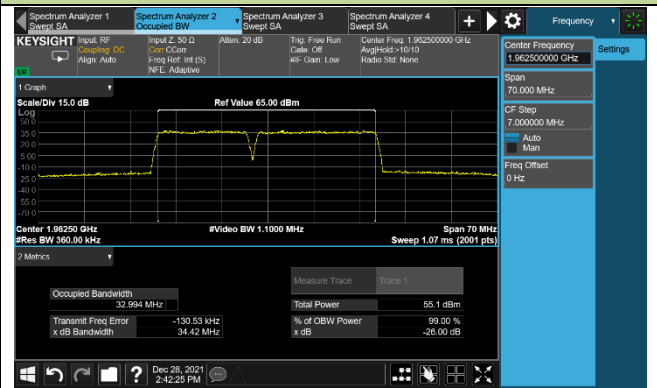


15 + 20 MHz Channel Bandwidth - 16QAM

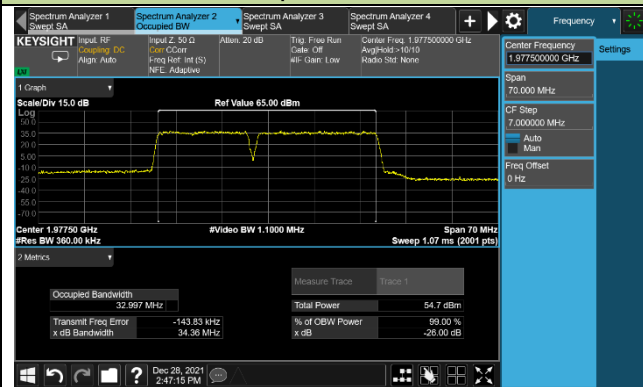
Bottom Channel



Middle Channel

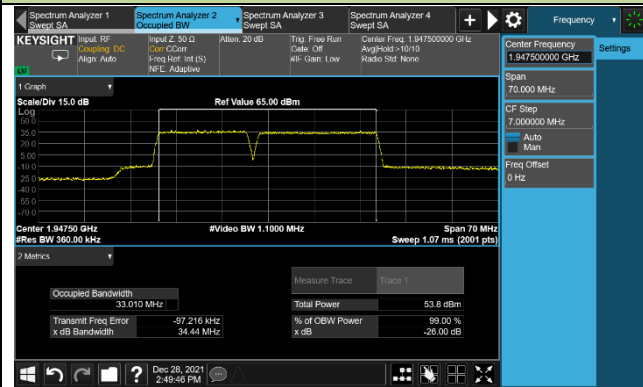


Top Channel

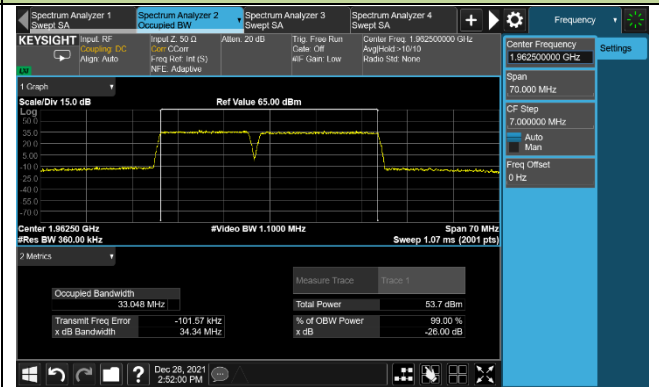


15 + 20 MHz Channel Bandwidth - 64QAM

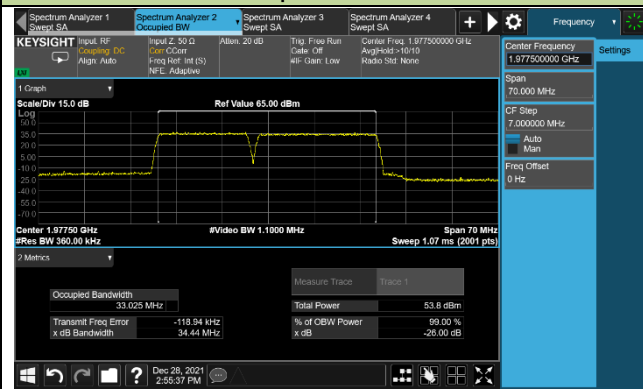
Bottom Channel



Middle Channel

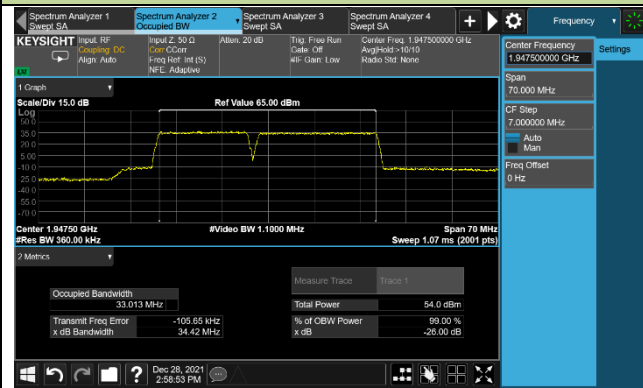


Top Channel

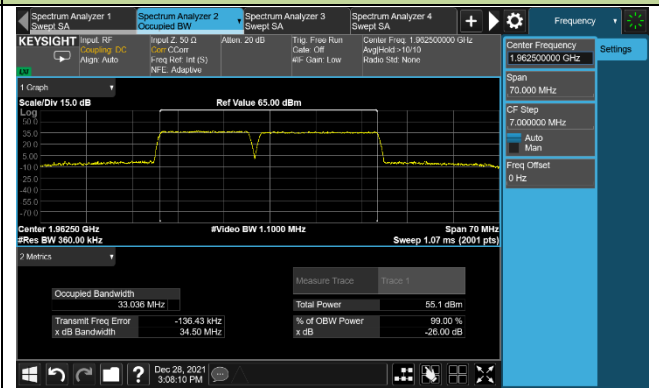


15 + 20 MHz Channel Bandwidth - 256QAM

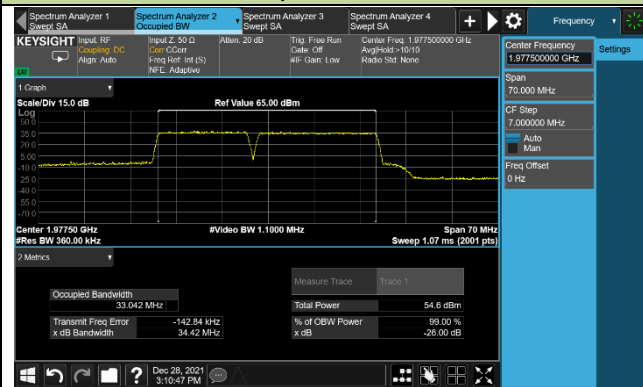
Bottom Channel



Middle Channel

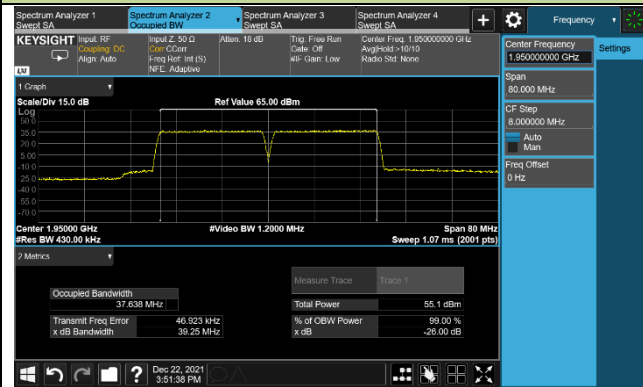


Top Channel

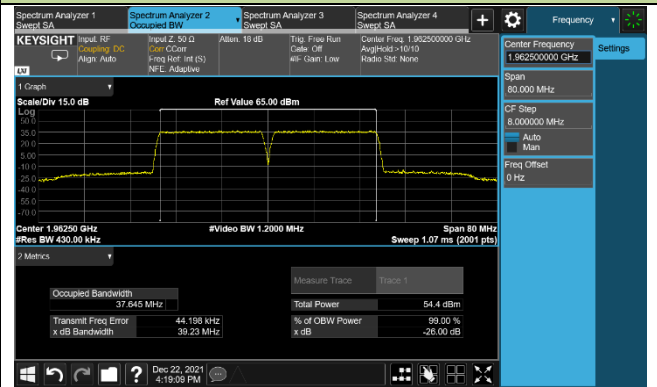


20 + 20 MHz Channel Bandwidth - QPSK

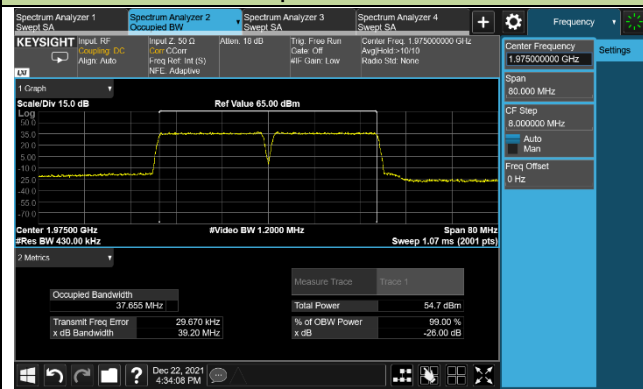
Bottom Channel



Middle Channel

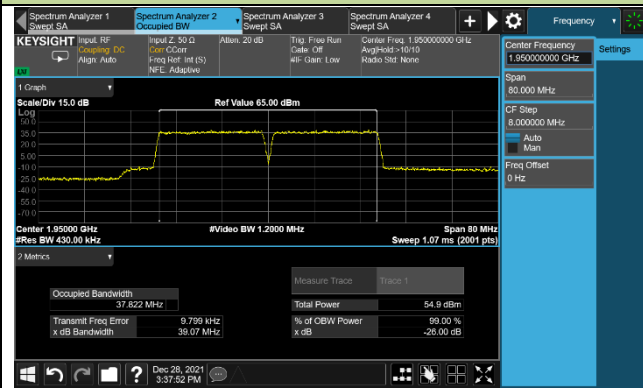


Top Channel

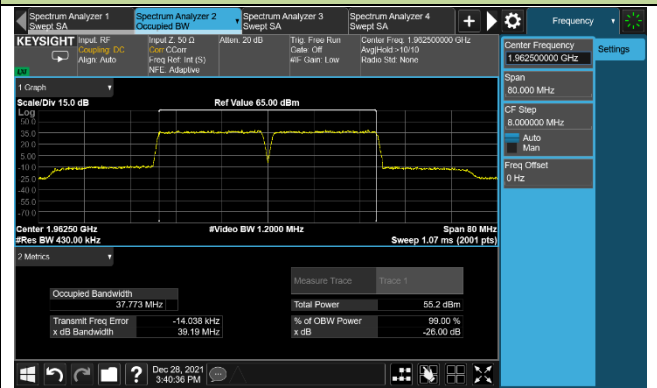


20 + 20 MHz Channel Bandwidth - 16QAM

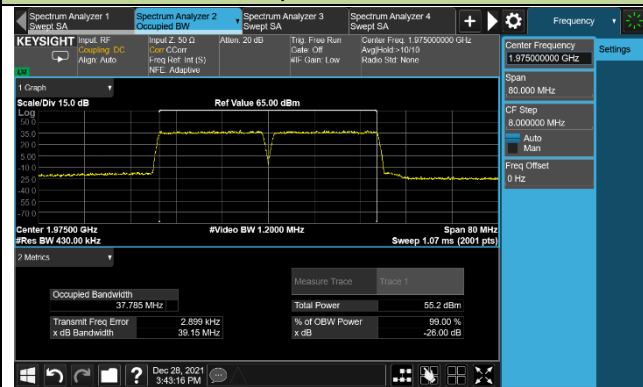
Bottom Channel



Middle Channel

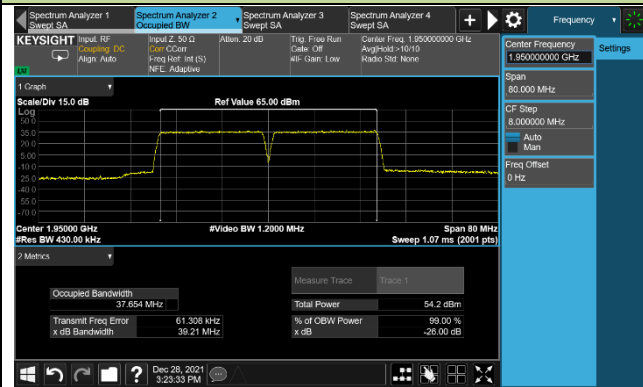


Top Channel

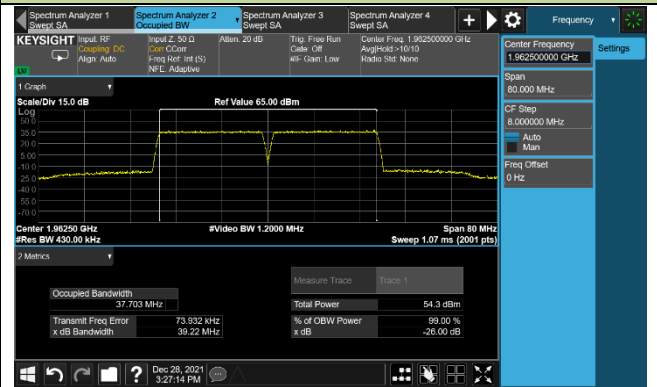


20 + 20 MHz Channel Bandwidth - 64QAM

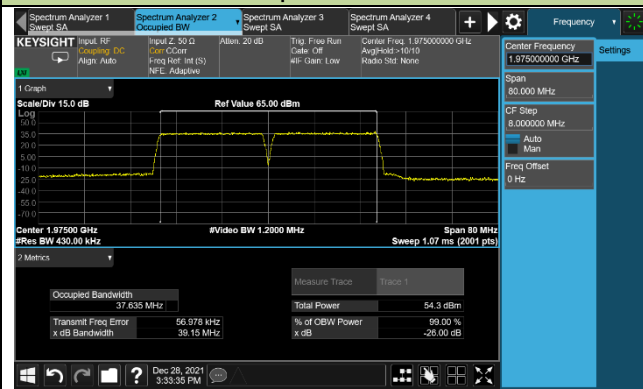
Bottom Channel



Middle Channel

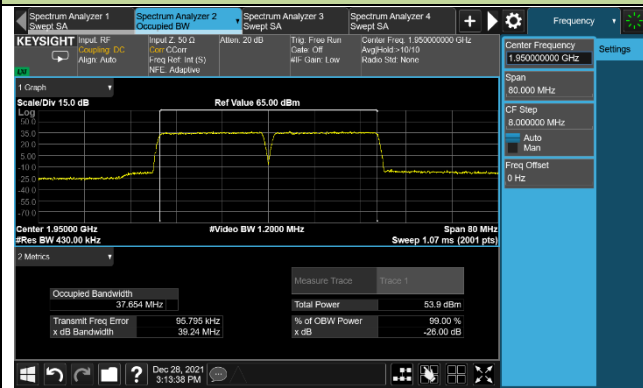


Top Channel

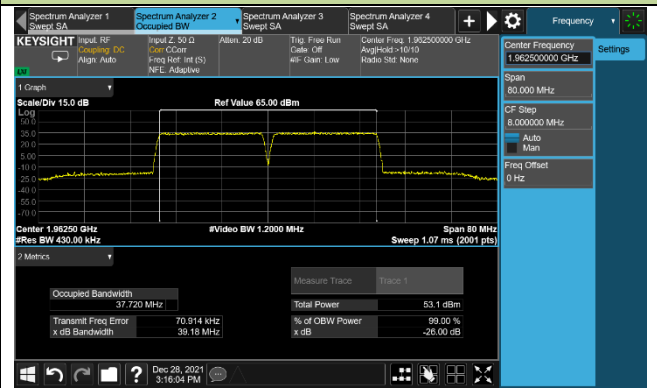


20 + 20 MHz Channel Bandwidth - 256QAM

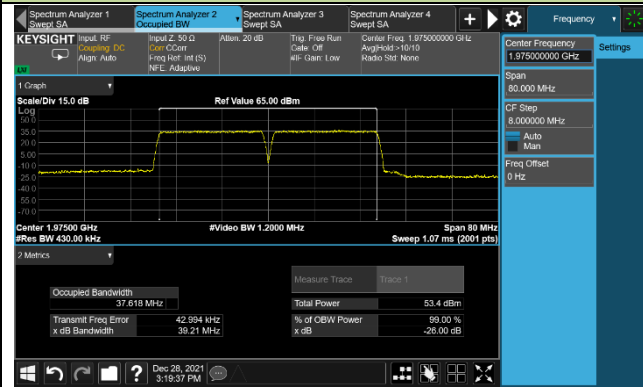
Bottom Channel



Middle Channel



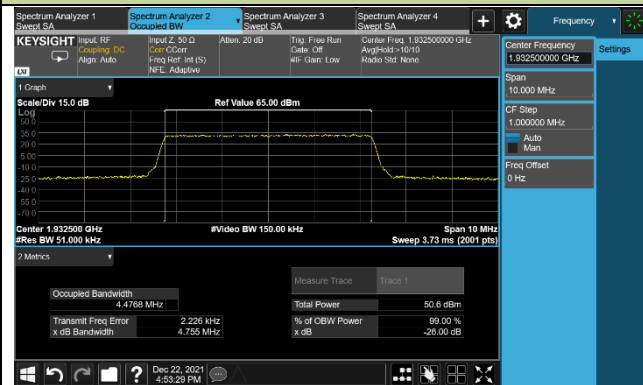
Top Channel



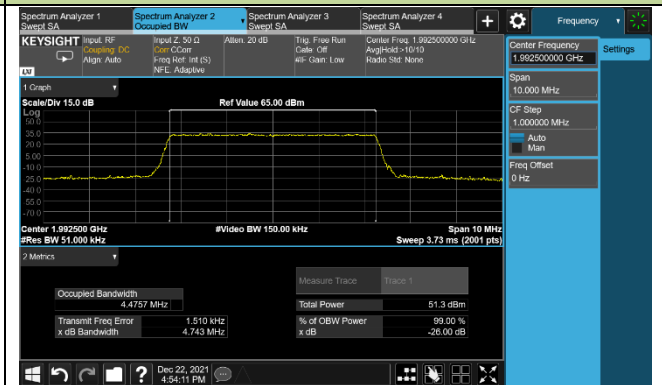
5 + GAP55 + 5 MHz Channel Bandwidth

1932.5 + 1992.5 MHz

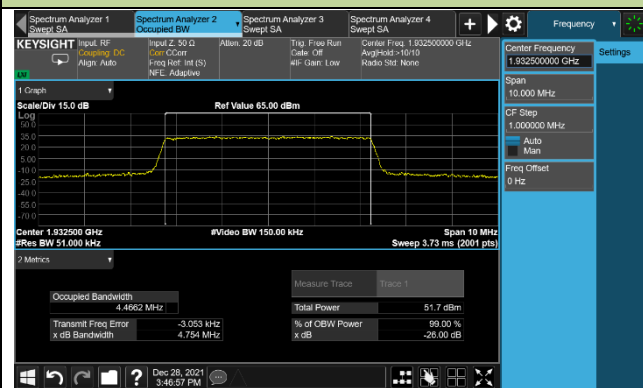
1932.5 MHz - QPSK



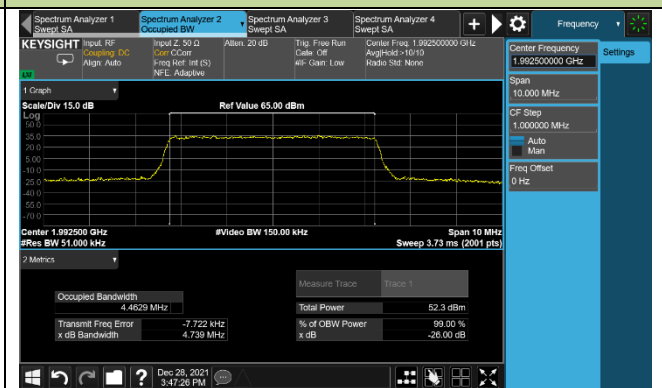
1992.5 MHz - QPSK



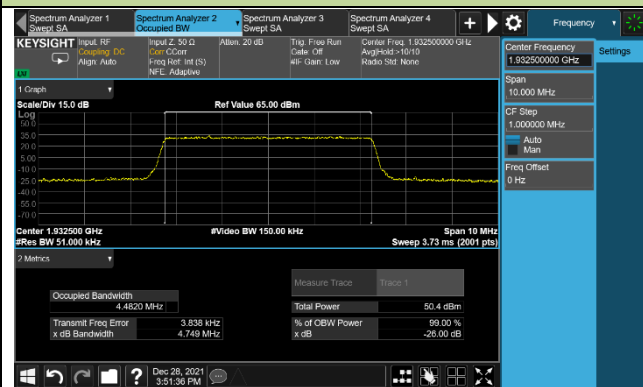
1932.5 MHz - 16QAM



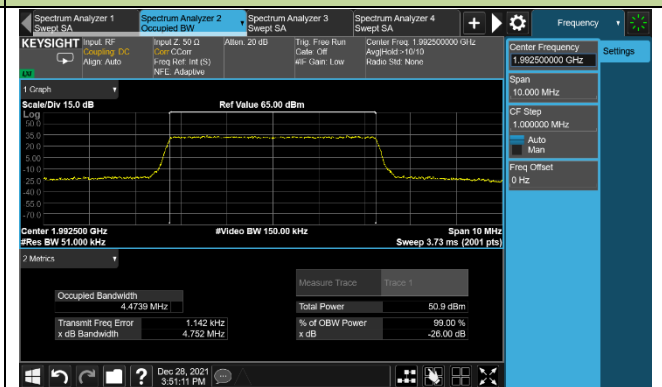
1992.5 MHz - 16QAM



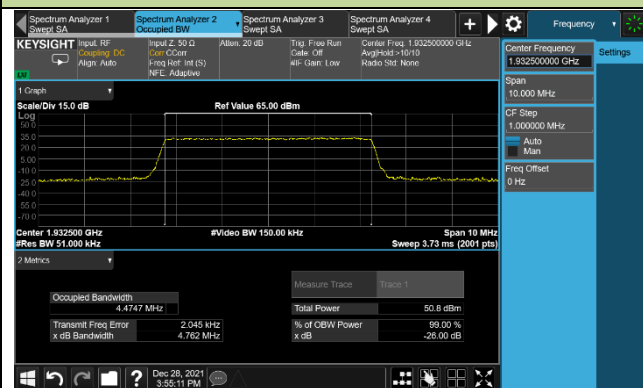
1932.5 MHz - 64QAM



1992.5 MHz - 64QAM



1932.5 MHz - 256QAM



1992.5 MHz - 256QAM

