

RF Test Report

Applicant : Rajant Corporation
Product Type : Radio Module
Trade Name : VIZMONET
Model Number : RJ-2002
Applicable Standard : FCC 47 CFR PART 90Y
ANSI C63.26 2015
Received Date : Jul. 22, 2021
Test Period : Sep. 28, 2021 ~ Feb. 07, 2022
Issued Date : May 06, 2022

Issued by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C.)
Tel : +886-3-2710188 / Fax : +886-3-2710190



Taiwan Accreditation Foundation accreditation number: 1330

Frequency Range : 9 kHz to 40 GHz

Test Firm MRA designation number: TW0010

Note:

Note:

1. The test results are valid only for samples provided by customers and under the test conditions described in this report.
2. This report shall not be reproduced except in full, without the written approval of A Test Lab Technology Corporation.
3. The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Revisions	Revised By
00	May 06, 2022	Initial Issue	Nina Lin

Verification of Compliance

Applicant : Rajant Corporation

Product Type : Radio Module

Trade Name : VIZMONET

Model Number : RJ-2002

FCC ID : VJA-RJ2002

Applicable Standard : FCC 47 CFR PART 90Y
ANSI C63.26 2015

Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C.)
Tel : +886-3-2710188 / Fax : +886-3-2710190
Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By :

(Kai Yu Yang)

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1 General Information

1.1. EUT Description

Applicant	Rajant Corporation 200 Chesterfield Parkway, Malvern, Pennsylvania 19355-3258, United States www.rajant.com			
Product Type	Radio Module			
Trade Name	VIZMONET			
Model Number	RJ-2002			
FCC ID	VJA-RJ2002			
Operate frequency	MHz	Frequency (MHz)	Number of channels	Modulation
	5	4942.5 ~ 4987.5	10	BPSK/QPSK/ 16QAM/64QAM
	10	4945 ~ 4985	9	
	20	4950 ~ 4980	7	
Antenna information	Antenna	Model	Type	Max. Gain (dBi)
	ANT-0/ANT-1	KMA-4800-6-NM	External type(Omni-directional)	6
Operate Temp. Range	-40 ~ +85 °C			
EUT Power Rating	DC 24 V			

Test Mode	Max. RF Output Power (dBm)	26 dB RF Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
Mode 1	26.39	9.759	6.555
Mode 2	26.49	19.320	12.992
Mode 3	26.14	38.740	24.103
Mode 4	24.65	9.393	4.693
Mode 5	24.94	18.660	9.818
Mode 6	26.08	43.220	21.382
Mode 7	26.84	9.808	5.908
Mode 8	28.47	19.490	10.559
Mode 9	27.63	37.510	29.245
Mode 10	26.74	8.448	4.355
Mode 11	27.17	19.420	9.589
Mode 12	27.66	41.830	22.395

1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: SISO_5 MHz Continuous TX mode (Legacy)
Mode 2: SISO_10 MHz Continuous TX mode (Legacy)
Mode 3: SISO_20 MHz Continuous TX mode (Legacy)
Mode 4: SISO_5 MHz Continuous TX mode
Mode 5: SISO_10 MHz Continuous TX mode
Mode 6: SISO_20 MHz Continuous TX mode
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy)
Mode 8: MIMO_10 MHz Continuous TX mode (Legacy)
Mode 9: MIMO_20 MHz Continuous TX mode (Legacy)
Mode 10: MIMO_5 MHz Continuous TX mode
Mode 11: MIMO_10 MHz Continuous TX mode
Mode 12: MIMO_20 MHz Continuous TX mode

Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

Note 2: ANT-0 is the worst case in Mode 1~6.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

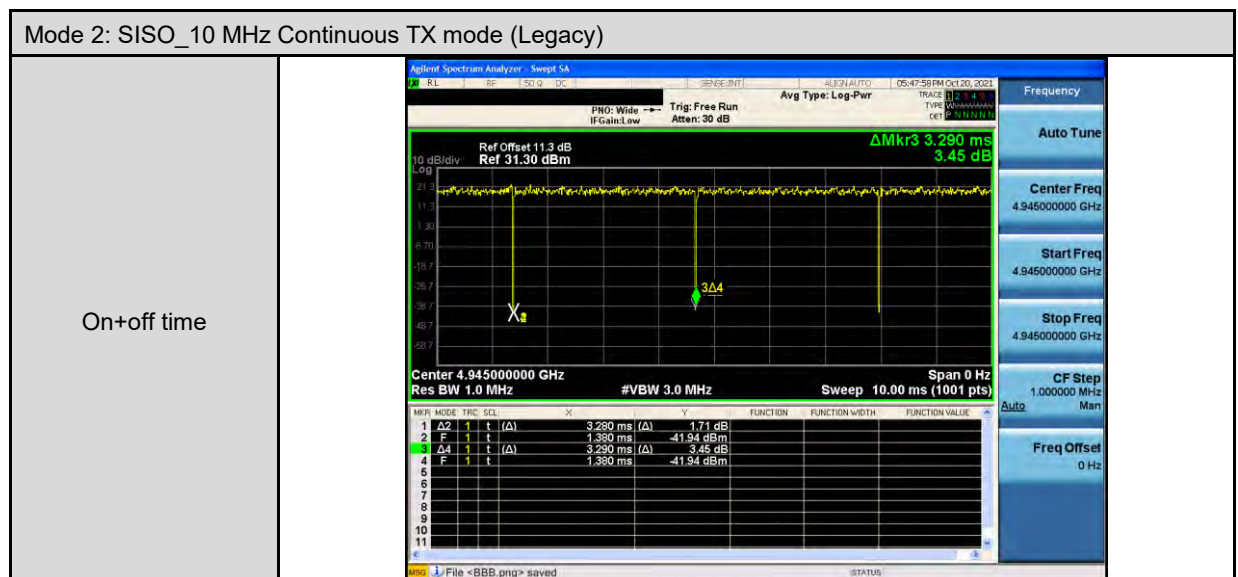
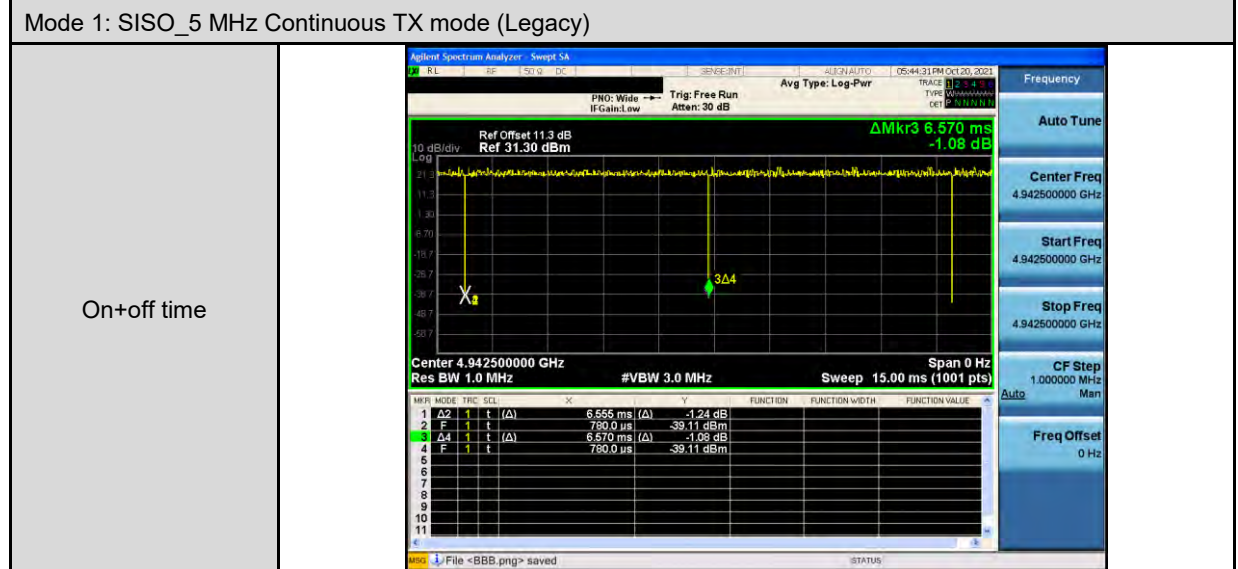
Test Mode	ANT-0	ANT-1	ANT-0+1
Mode 1	V	V	---
Mode 2	V	V	---
Mode 3	V	V	---
Mode 4	V	V	---
Mode 5	V	V	---
Mode 6	V	V	---
Mode 7	V	V	V
Mode 8	V	V	V
Mode 9	V	V	V
Mode 10	V	V	V
Mode 11	V	V	V
Mode 12	V	V	V

Test Mode	Antenna Delivery	Data Rate (Mbps)	Test Frequency (MHz)
Mode 1	1TX (Diversity)	6	4942.5, 4967.5, 4987.5
Mode 2	1TX (Diversity)	6	4945, 4965, 4985
Mode 3	1TX (Diversity)	6	4950, 4965, 4980
Mode 4	1TX (Diversity)	MCS0	4942.5, 4967.5, 4987.5
Mode 5	1TX (Diversity)	MCS0	4945, 4965, 4985
Mode 6	1TX (Diversity)	MCS0	4950, 4965, 4980
Mode 7	2TX (MIMO)	6	4942.5, 4967.5, 4987.5
Mode 8	2TX (MIMO)	6	4945, 4965, 4985
Mode 9	2TX (MIMO)	6	4950, 4965, 4980
Mode 10	2TX (MIMO)	MCS8	4942.5, 4967.5, 4987.5
Mode 11	2TX (MIMO)	MCS8	4945, 4965, 4985
Mode 12	2TX (MIMO)	MCS8	4950, 4965, 4980

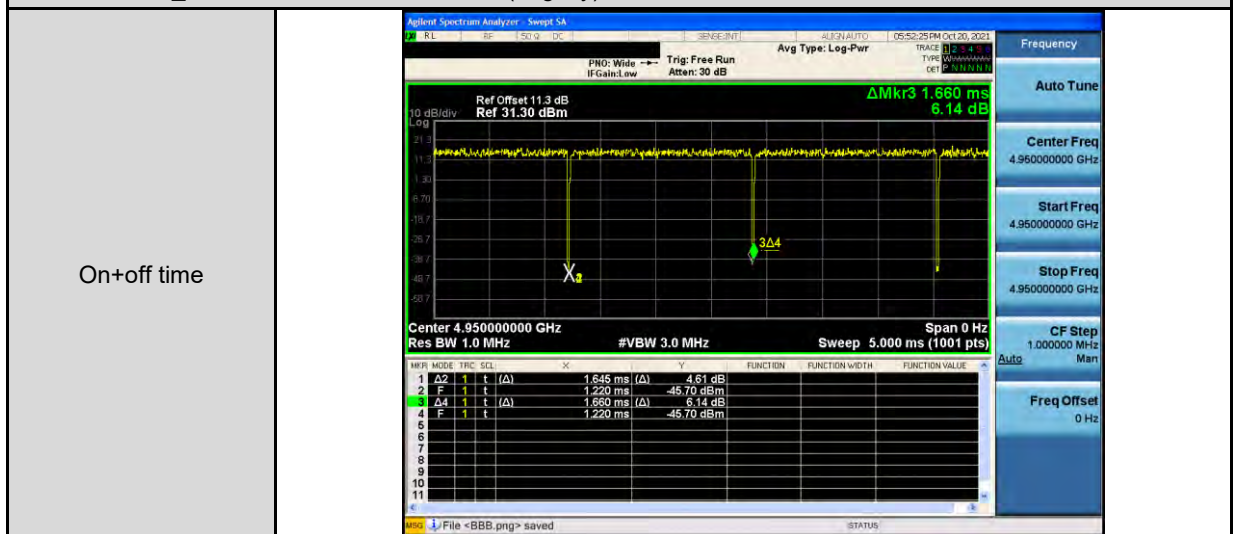
Duty cycle

Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 1	4942.5	6.555	6.570	0.998	0.010	0.010
Mode 2	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 3	4950.0	1.645	1.660	0.991	0.039	0.010
Mode 4	4942.5	6.555	6.570	0.998	0.010	0.010
Mode 5	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 6	4950.0	1.535	1.560	0.984	0.070	0.010
Mode 7	4942.5	1.645	1.660	0.991	0.039	0.010
Mode 8	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 9	4950.0	1.640	1.665	0.985	0.066	0.010
Mode 10	4942.5	6.555	6.570	0.998	0.010	0.010
Mode 11	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 12	4950.0	1.535	1.560	0.984	0.070	0.010

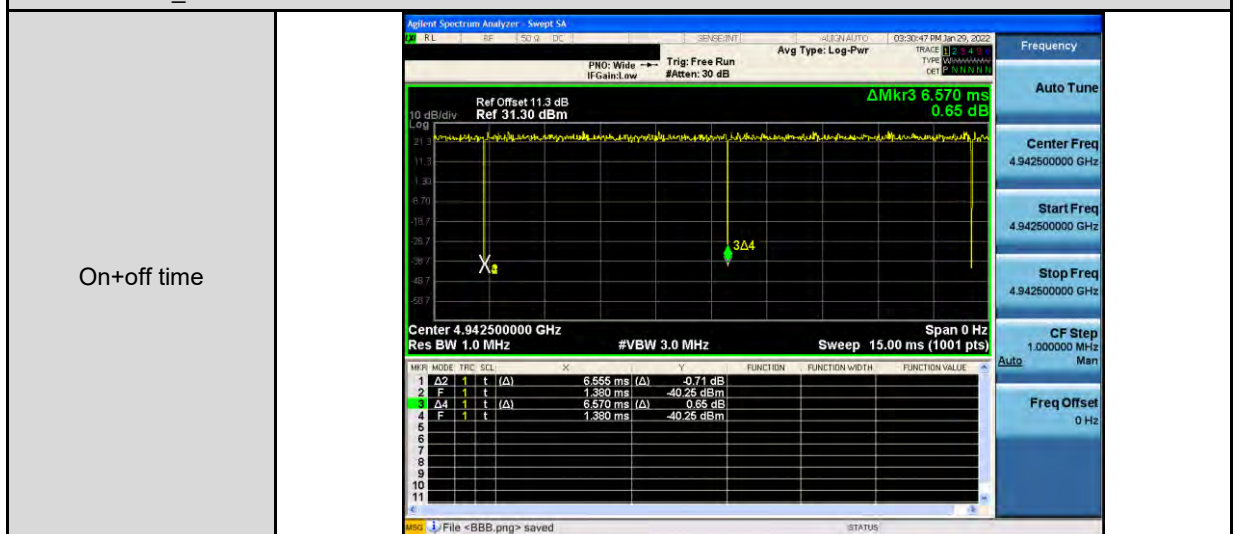
Duty Cycle Graphs



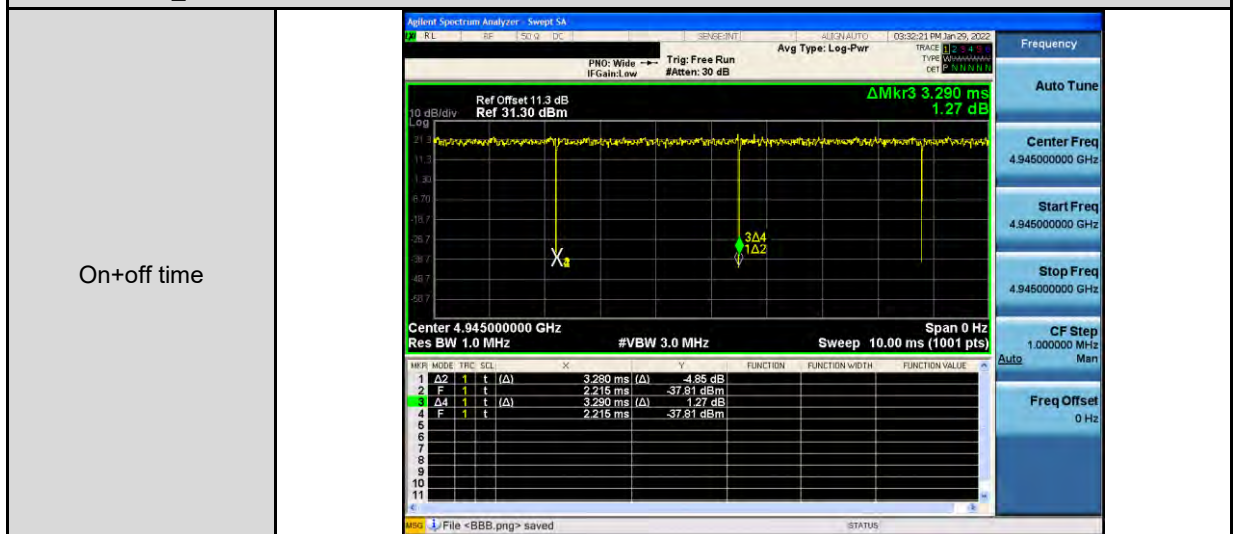
Mode 3: SISO_20 MHz Continuous TX mode (Legacy)



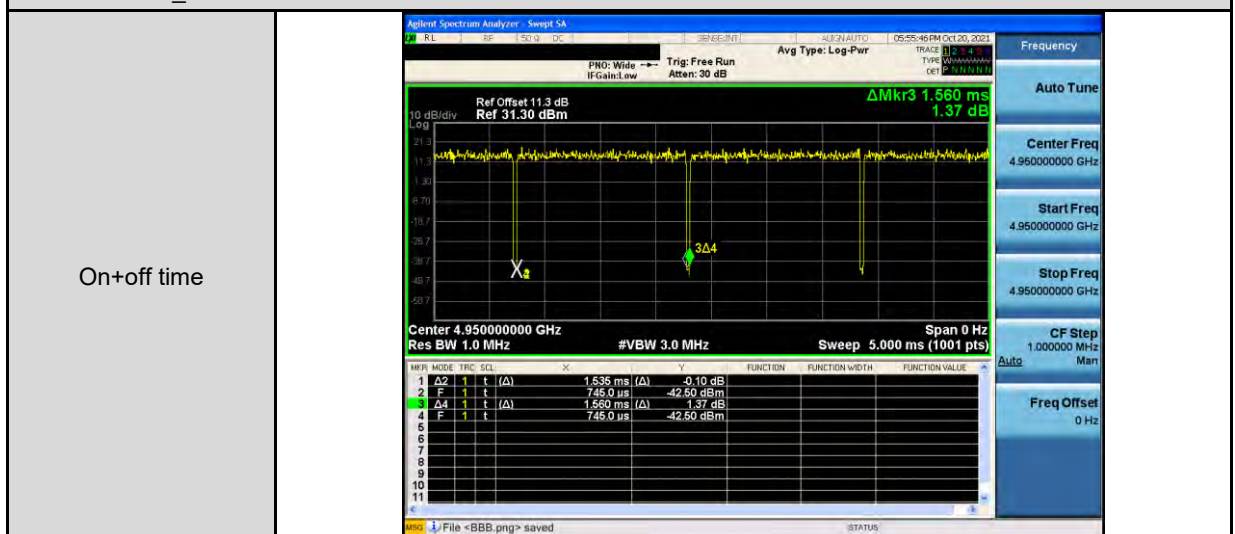
Mode 4: SISO_5 MHz Continuous TX mode



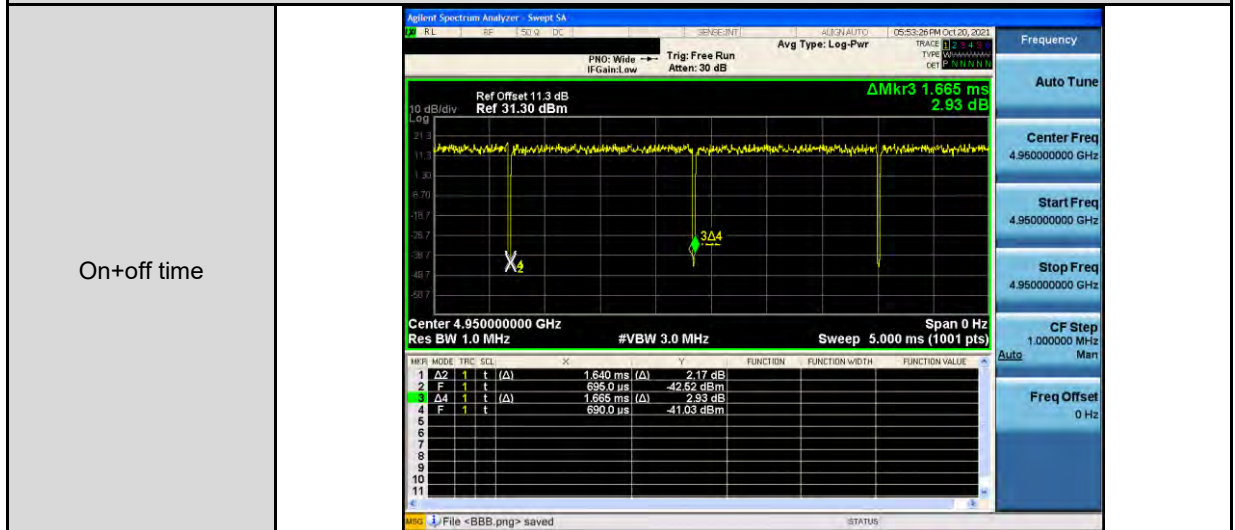
Mode 5: SISO_10 MHz Continuous TX mode



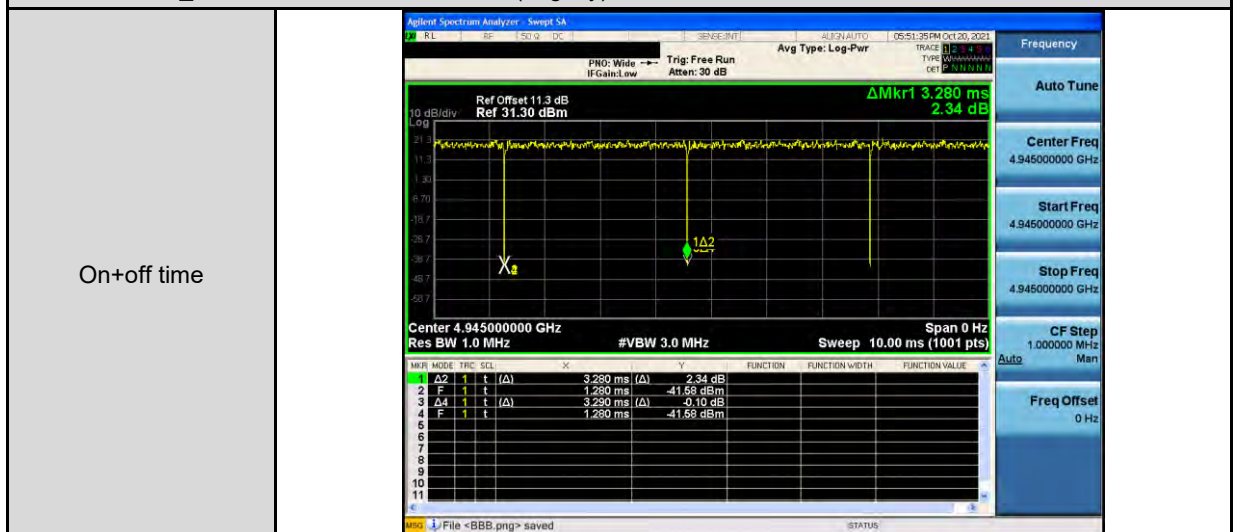
Mode 6: SISO_20 MHz Continuous TX mode



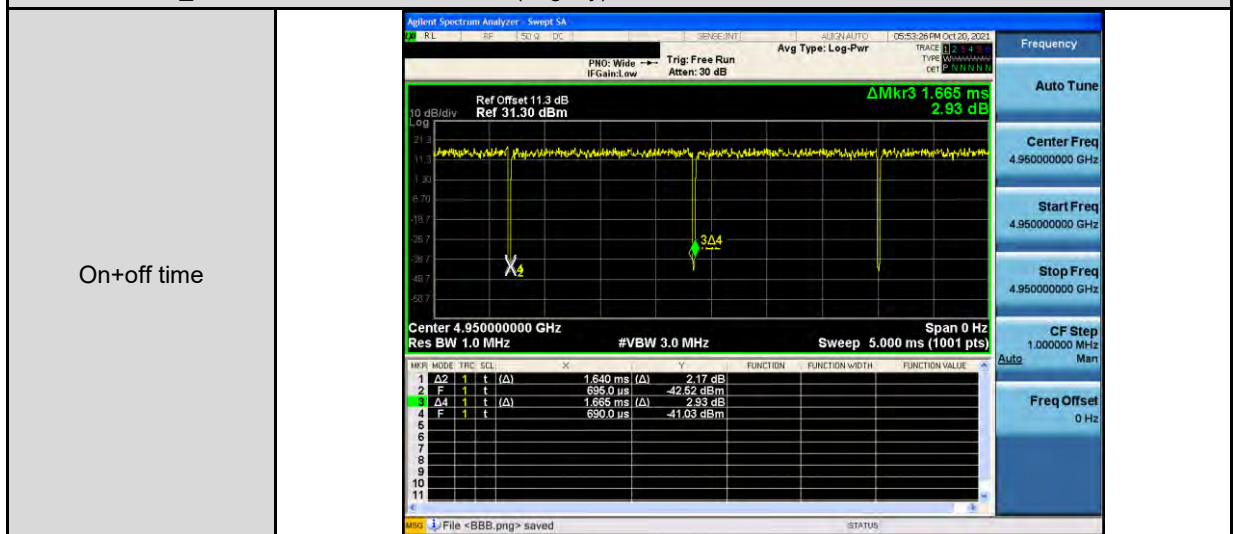
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy)



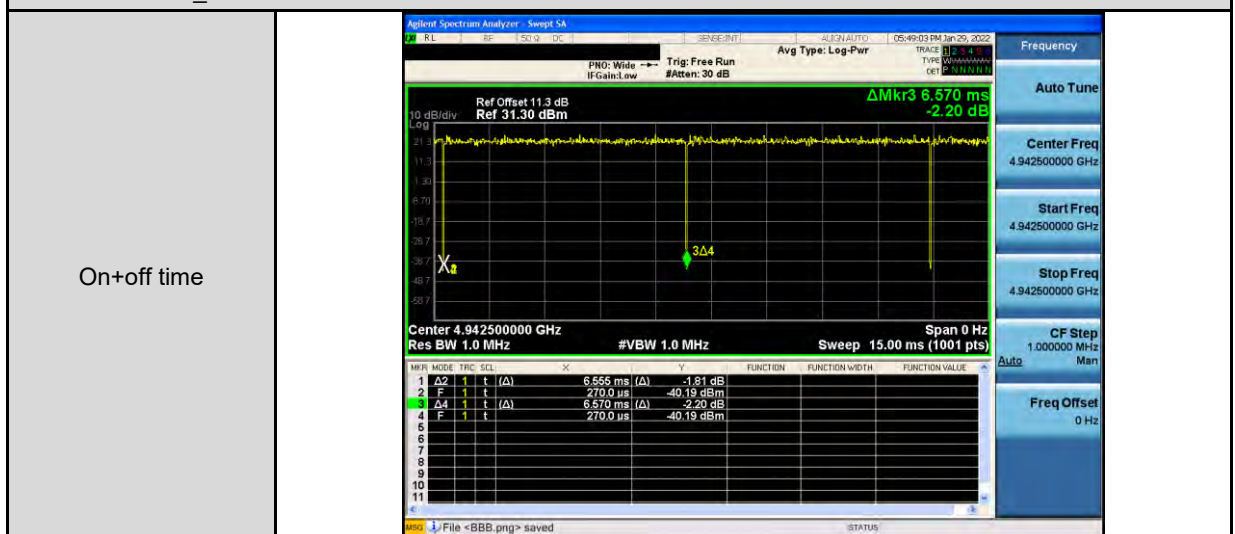
Mode 8: MIMO_10 MHz Continuous TX mode (Legacy)



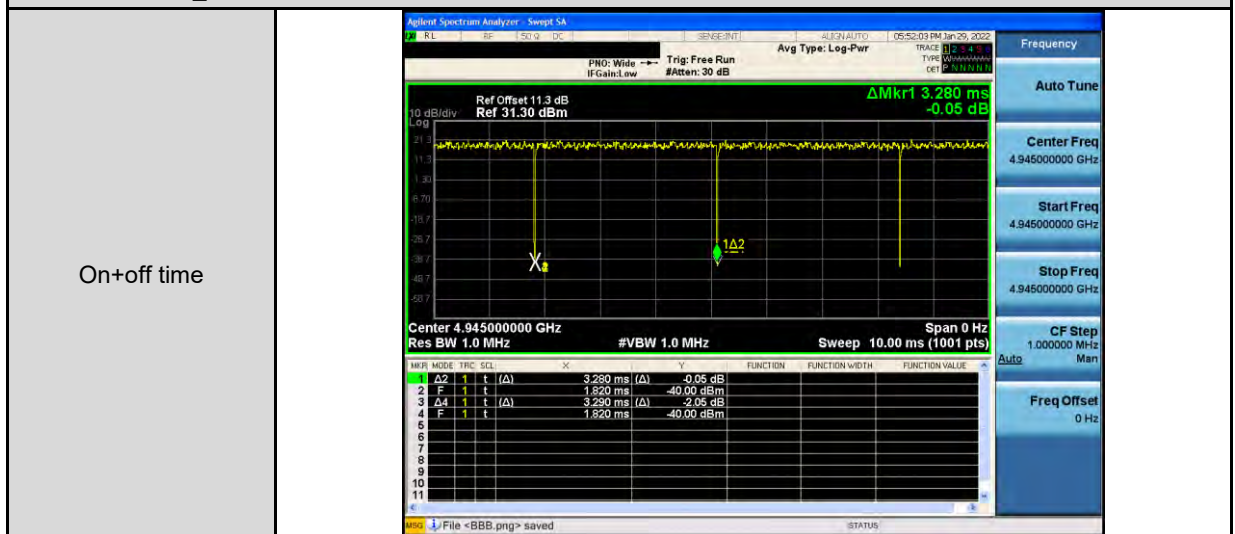
Mode 9: MIMO_20 MHz Continuous TX mode (Legacy)



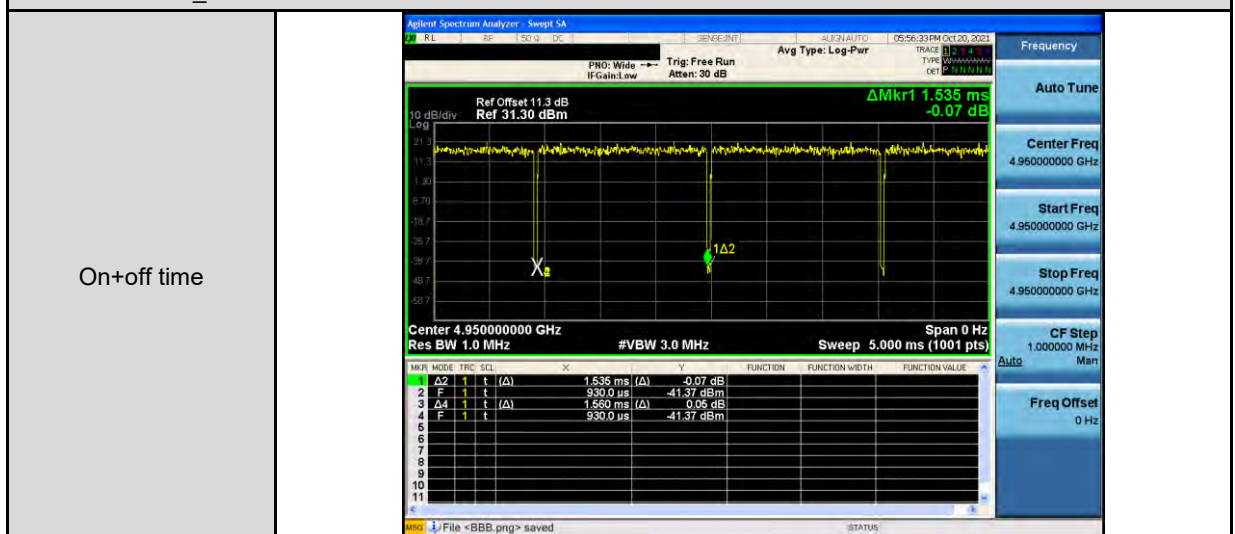
Mode 10: MIMO_5 MHz Continuous TX mode



Mode 11: MIMO_10 MHz Continuous TX mode



Mode 12: MIMO_20 MHz Continuous TX mode

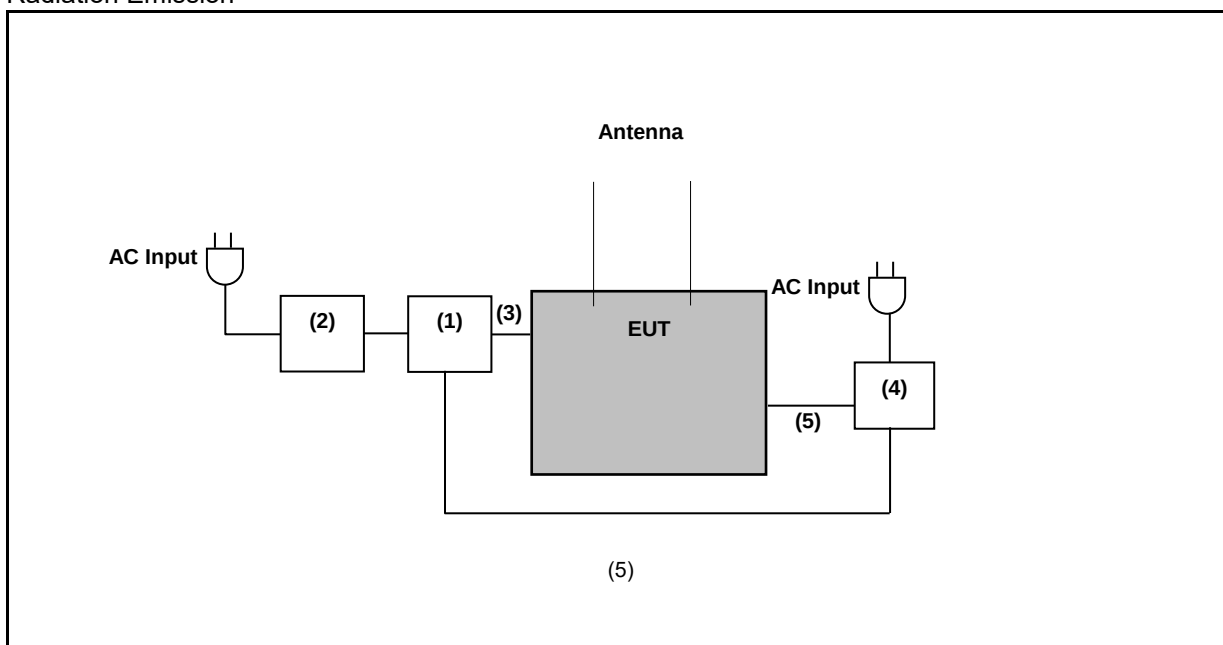


1.3. EUT Test Step

1.	Setup the EUT shown on "Configuration of Test System Details".
2.	Turn on the power of all equipment.
3.	Turn on TX function.
4.	EUT run test program.

1.4. Configuration of Test System Details

Radiation Emission



	Product	Manufacturer	Model Number	Serial Number	Power Cord
(1)	Notebook	ASUS	P1448U	---	---
(2)	AC Adapter	ASUS	PA-1650-78	---	---
(3)	Fixture	FTDI	TTL-232R-3.3V	---	---
(4)	PoE	Tycon Systems	TP-POE-24G	---	---
(5)	LAN Cable	BELDEN	900000433	---	---
(6)	LAN Cable	HUAWEI	UL2464	---	---

1.5. Test Instruments

For Conducted

Test Period: Oct. 20, 2021 ~ Jan. 29, 2022

Testing Engineer: Louis Shen

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Power Sensor	Anritsu	MA2411B	1126022	Sep. 01, 2020 Sep. 03, 2021	1 year
☐	Power Meter	Anritsu	ML2495A	1135009	Sep. 01, 2020 Sep. 03, 2021	1 year
☒	Power Sensor	Agilent	N1921A	MY45241957	Dec. 09, 2020 Dec. 06, 2021	1 year
☒	Power Meter	Agilent	N1911A	MY45101619	Dec. 09, 2020 Dec. 06, 2021	1 year
☐	Spectrum Analyzer (10 Hz~26.5 GHz)	Keysight	N9010B	MY59071418	Mar. 17, 2021	1 year
☐	Spectrum Analyzer (9 kHz~26.5 GHz)	Agilent	N9010A	MY48030518	Jul. 23, 2021	1 year
☐	Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	Sep. 09, 2021	1 year
☒	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Jan. 08, 2021 Jan. 05, 2022	1 year
☒	Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	Mar. 30, 2021	1 year
☐	Signal Generator	Keysight	N5182B	MY53052569	Apr. 20, 2021	1 year
☐	Signal Generator	Keysight	N5182BX07	MY59360221	Apr. 20, 2021	1 year
☐	Bluetooth Tester	R&S	CBT	100350	Mar. 17, 2021	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	Jun. 02, 2021	1 year
☐	Power Supply	KEITHLEY	2303	4045290	Feb. 01, 2021 Jan. 19, 2022	1 year
☐	RF Communication Test Set	HP	8920A	3344A03297	Aug. 10, 2021	1 year

Note: N.C.R. = No Calibration Request.

For Radiated Emissions

Test Period: Sep. 28, 2021 ~ Feb. 07, 2022

Testing Engineer: Hung.Chou, Eva Lee

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	Jan. 15, 2021 Jan. 13, 2022	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Jan. 08, 2022 Jan. 05, 2022	1 year
☒	Spectrum Analyzer (2 Hz~50 GHz)	Keysight	N9030B	MY57143537	Apr. 19, 2021	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	Jan. 19, 2021 Jan. 14, 2022	1 year
☐	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A10961	Jul. 06, 2021	1 year
☐	Broadband Amplifier (100 kHz~1 GHz)	Titan	T0910E00014330A1F	001	Jul. 23, 2021	1 year
☐	Amplifier (1 GHz~26.5 GHz)	Agilent	8449B	3008A02237	Oct. 21, 2020 Oct. 21, 2021	1 year
☒	Broadband Amplifier (1 GHz~26.5 GHz)	Titan	T0912E01263025A1F	002	Jul. 26, 2021	1 year
☒	Preamplifier (26.5 GHz~40 GHz)	EMCI	EMC2654045	980028	Aug. 19, 2021	1 year
☐	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	Apr. 07, 2021	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	01146	Jul. 19, 2021	1 year
☐	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	416	Nov. 11, 2020 Nov. 17, 2021	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	02207	Jul. 09, 2021	1 year
☐	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	9120D-550	Aug. 24, 2021	1 year
☒	Broadband Horn Antenna (18 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	9170	9170-320	Aug. 24, 2021	1 year
☐	Horn Antenna (18 GHz~40 GHz)	ETS	3116	00086467	Dec. 03, 2020 Dec. 03, 2021	1 year
☐	RF Cable	EMCI	EMC104-N-N-6000	TE01-1	Feb. 19, 2021	1 year
☐	Microwave Cable	EMCI	EMC104-SM-SM-13000	170814	Feb. 19, 2021	1 year
☐	Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	Feb. 19, 2021	1 year

Note: N.C.R. = No Calibration Request.

For Radiated Emissions

Test Period: Sep. 28, 2021 ~ Feb. 07, 2022

Testing Engineer: Hung.Chou, Eva Lee

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Coaxial Cable	Titan	T0710AT327A10A 100	J11005	Aug. 06, 2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 900	J11004	Aug. 06, 2021	1 year
☒	Coaxial Cable	Titan	CFD400NL-LW	001	Aug. 06, 2021	1 year
☐	Bluetooth Tester	R&S	CBT	100350	Mar. 17, 2021	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	Jun. 02, 2021	1 year
☐	Power Supply	KEITHLEY	2303	4045290	Feb. 01, 2021 Jan. 19, 2022	1 year
☒	Software	EZ EMC	1.1.4.4	N/A	N.C.R.	---

Note: N.C.R. = No Calibration Request.

1.6. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	20-30
Humidity (%RH)	25-75	45-75

Test Setting Condition		
L.V.	Low Voltage	DC 9 V
N.V.	Normal Voltage	DC 24 V
H.V.	High Voltage	DC 30 V
L.T.	Low Temperature	-40 °C
N.T.	Normal Temperature	+25 °C
H.T.	High Temperature	+85 °C

1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted Output Average Power	1.1 dB
Effective Radiated Power / Equivalent Isotropic Radiated Power	6.3 dB
Frequency Stability	$1.2 \times 10^{-7} \times f_c$ (Hz)
Emission Bandwidth & Occupied Bandwidth	4.5 %
Peak to Average Ratio	1.1 dB
Channel Mask	1.1 dB
Conducted Spurious Emission	1.1 dB

1.8. Summary of Test Result

FCC Rule	Description	Result	Remark
§2.1046 §90.1215	Conducted Output Power	Pass	---
§90.1215	Power Spectral Density	Pass	---
§2.1049 §90.209	Emission Bandwidth & Occupied Bandwidth	Reference	---
§90.1215	Peak Excursion	Pass	---
§2.1051 §90.210	Emission Mask	Pass	---
§2.1051 §90.210	Conducted Spurious Emission	Pass	---
§2.1053 §90.210	Field Strength of Spurious Radiation	Pass	---
§2.1055 §90.213	Frequency Stability for Temperature & Voltage	Pass	---

Decision Rule

- ☒ Uncertainty is not included.
- ☐ Uncertainty is included.

2 Measurement Procedure

2.1. Conducted Output Power Test

■ Limit

Channel bandwidth (MHz)	Low power maximum conducted output power (dBm) (Note 1)	High power maximum conducted output power (dBm) (Note 2)
1	7	20
5	14	27
10	17	30
15	18.8	31.8
20	20	33

Note 1: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi.

Note 2: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

According FCC KDB 662911 D01 v02r01 – for power measurements,

■ Directional Gain Calculated For Maximum Conducted Output Power

Bandwidth (MHz)	Directional Gain (dBi)	
	SISO	MIMO
5	6	9.01
10	6	9.01
20	6	9.01

SISO mode:

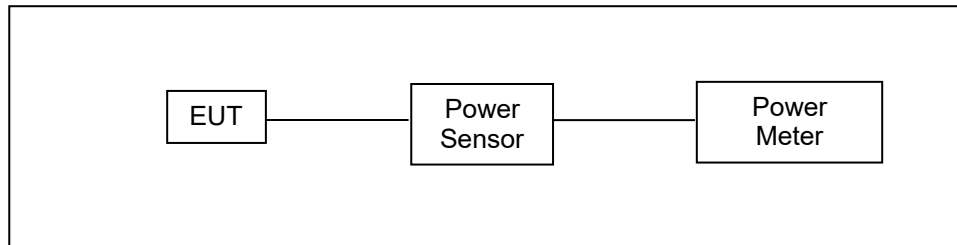
Directional = Max. Gain : 6 dBi < 9 dBi

MIMO mode:

Directional Gain = $G_{ANT} + 10 \cdot \log(N_{ANT}) = 9.01 \text{ dBi} > 9 \text{ dBi}$

- * power limit shall be reduced = $27 - 0.01 = 26.99 \text{ dBm}$ (5 MHz)
- * power limit shall be reduced = $30 - 0.01 = 29.99 \text{ dBm}$ (10 MHz)
- * power limit shall be reduced = $33 - 0.01 = 32.99 \text{ dBm}$ (20 MHz)

■ Test Setup



■ Test Procedure

- a. The EUT was set up for the maximum power with Test Mode.
- b. The test is performed in accordance with ANSI C63.26:2015 section 5.2.4.2 (a), Guidelines for Compliance Testing of licensed Devices.

2.2. Power Spectral Density Test

■ Limit

Power spectral density (dBm/MHz) (Note 1)	
Low power Device (Note 1)	High power (Note 2)
8	21

Note 1: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi.

Note 2: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

According FCC KDB 662911 D01 v02r01 – for power measurements,

■ Directional Gain Calculated For Power Spectral Density

Bandwidth (MHz)	Directional Gain (dBi)	
	SISO	MIMO
5	6	9.01
10	6	9.01
20	6	9.01

SISO mode:

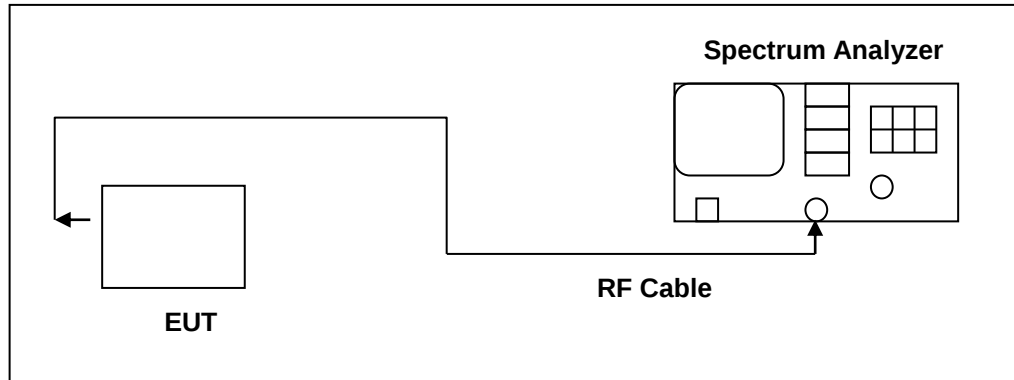
Directional = Max. Gain : 6 dBi < 9 dBi

MIMO mode:

Directional Gain = $G_{ANT} + 10 \cdot \log(N_{ANT}) = 9.01 \text{ dBi} > 9 \text{ dBi}$

* power limit shall be reduced = $21 - 0.01 = 20.99 \text{ dBm/MHz}$ (5 MHz / 10 MHz / 20 MHz)

■ Setup



■ Test Procedure

1. The EUT was set up for the maximum power with Test Mode.
2. The test is performed in accordance with ANSI C63.26:2015 section 5.2.4.5, Guidelines for Compliance Testing of licensed Devices.

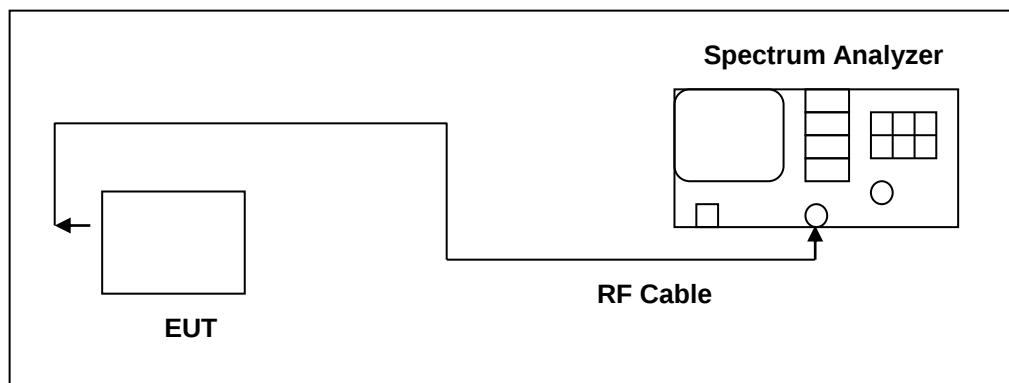
2.3. Emission Bandwidth & Occupied Bandwidth Test

■ Limit

The Occupied Bandwidth Limit:

N/A.

■ Setup



■ Test Procedure

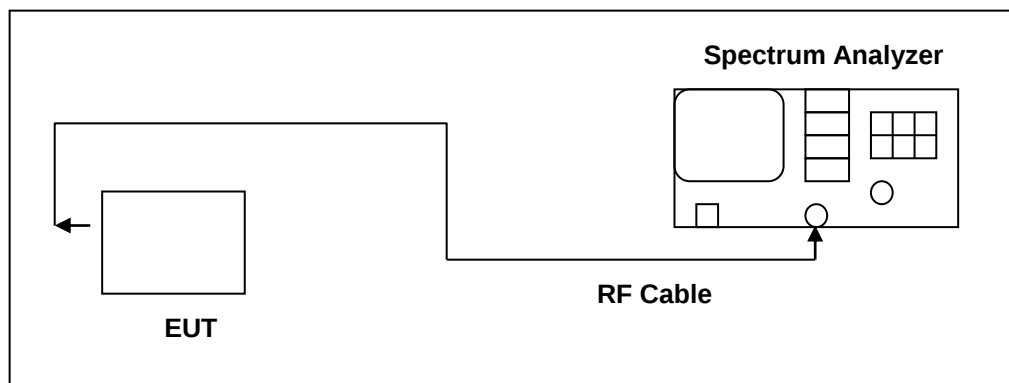
1. The EUT was set up for the maximum power with Test Mode.
2. The test is performed in accordance with ANSI C63.26:2015 section 5.4.3 & 5.4.4, Guidelines for Compliance Testing of licensed Devices.

2.4. Peak Excursion Test

■ Limit

The Peak Excursion Limit:
 ≤ 13 dB.

■ Setup



■ Test Procedure

1. The EUT was set up for the maximum power with Test Mode.
2. The test is performed in accordance with ANSI C63.26:2015 section 5.2.3.4, Guidelines for Compliance Testing of licensed Devices.

2.5. Channel Mask Test

■ Limit

The Emission Mask Limit:

§90.210(l) Emission Mask L.

For low power transmitters (20 dBm or less) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

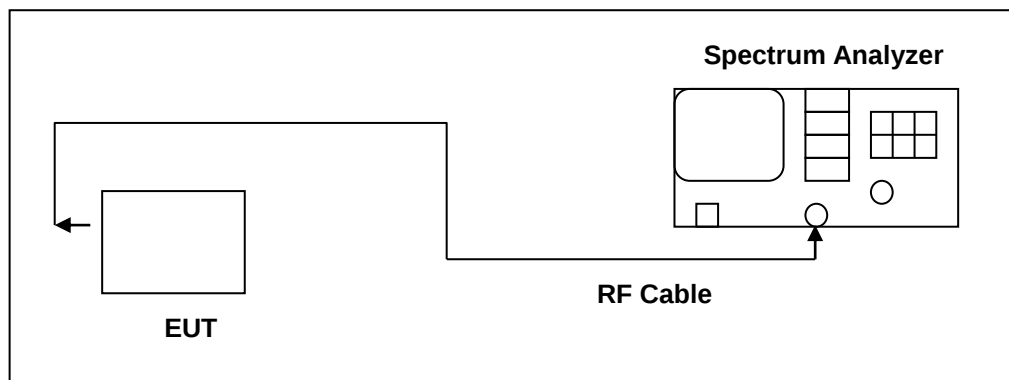
- (1) On any frequency removed from the assigned frequency between 0-45 % of the authorized bandwidth (BW): 0 dB.
- (2) On any frequency removed from the assigned frequency between 45-50 % of the authorized bandwidth: $219 \log (\% \text{ of } (BW)/45)$ dB.
- (3) On any frequency removed from the assigned frequency between 50-55 % of the authorized bandwidth: $10 + 242 \log (\% \text{ of } (BW)/50)$ dB.
- (4) On any frequency removed from the assigned frequency between 55-100 % of the authorized bandwidth: $20 + 31 \log (\% \text{ of } (BW)/55)$ dB attenuation.
- (5) On any frequency removed from the assigned frequency between 100-150 % of the authorized bandwidth: $28 + 68 \log (\% \text{ of } (BW)/100)$ dB attenuation.
- (6) On any frequency removed from the assigned frequency above 150 % of the authorized bandwidth: 40 dB.

§90.210(m) Emission Mask M.

For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

- (1) On any frequency removed from the assigned frequency between 0-45 % of the authorized bandwidth (BW): 0 dB.
- (2) On any frequency removed from the assigned frequency between 45-50 % of the authorized bandwidth: $568 \log (\% \text{ of } (BW)/45)$ dB.
- (3) On any frequency removed from the assigned frequency between 50-55 % of the authorized bandwidth: $26 + 145 \log (\% \text{ of } (BW)/50)$ dB.
- (4) On any frequency removed from the assigned frequency between 55-100 % of the authorized bandwidth: $32 + 31 \log (\% \text{ of } (BW)/55)$ dB.
- (5) On any frequency removed from the assigned frequency between 100-150 % of the authorized bandwidth: $40 + 57 \log (\% \text{ of } (BW)/100)$ dB.
- (6) On any frequency removed from the assigned frequency between above 150 % of the authorized bandwidth: 50 dB or $55 + 10 \log (P)$ dB, whichever is the lesser attenuation.

■ Setup



■ Test Procedure

1. The EUT was set up for the maximum power with Test Mode.
2. The following settings were used for the following measurements:
 - Emission mask frequency within 150 % of the authorized bandwidth
 - RBW: at least 1 % of the occupied bandwidth
 - VBW: 30 kHz
 - Detector: RMS
 - Sweep type: Average

2.6. Conducted Spurious Emission Test

■ Limit

The Conducted Spurious Emission Limit:

§90.210(l) Emission Mask L.

For low power transmitters (20 dBm or less) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

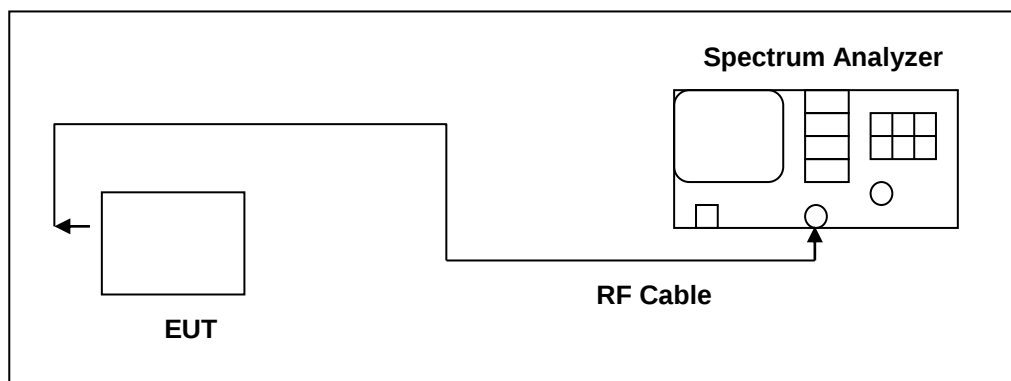
On any frequency removed from the assigned frequency above 150 % of the authorized bandwidth: 40 dB.

§90.210(m) Emission Mask M.

For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

On any frequency removed from the assigned frequency between above 150 % of the authorized bandwidth: 50 dB or $55 + 10 \log (P)$ dB, whichever is the lesser attenuation.

■ Setup



■ Test Procedure

1. The EUT was set up for the maximum power with Test Mode.
2. The following settings were used for the following measurements:
 - Emission mask frequency without 150 % of the authorized bandwidth
 - RBW: 1MHz at least 1 % of the occupied bandwidth
 - VBW: 30 kHz
 - Detector: RMS
 - Sweep type: Average

2.7. Field Strength of Spurious Radiation Test

■ Limit

§90.210(l) Emission Mask L.

For low power transmitters (20 dBm or less) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

On any frequency removed from the assigned frequency above 150 % of the authorized bandwidth: 40 dB.

§90.210(m) Emission Mask M.

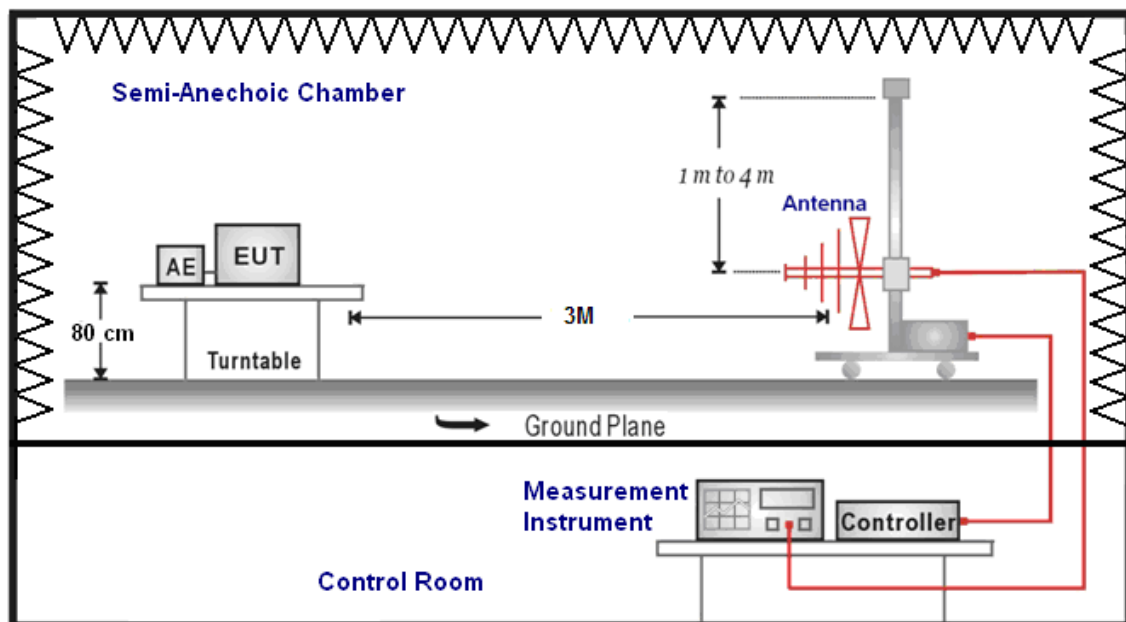
For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

On any frequency removed from the assigned frequency between above 150 % of the authorized bandwidth: 50 dB or $55 + 10 \log (P)$ dB, whichever is the lesser attenuation.

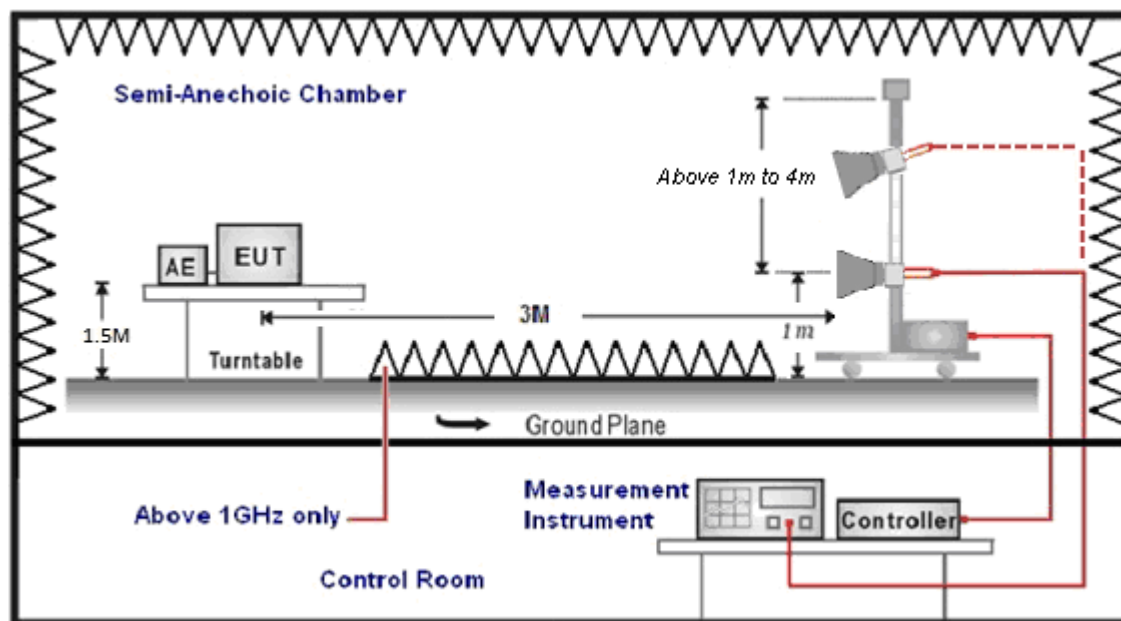
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

■ Setup

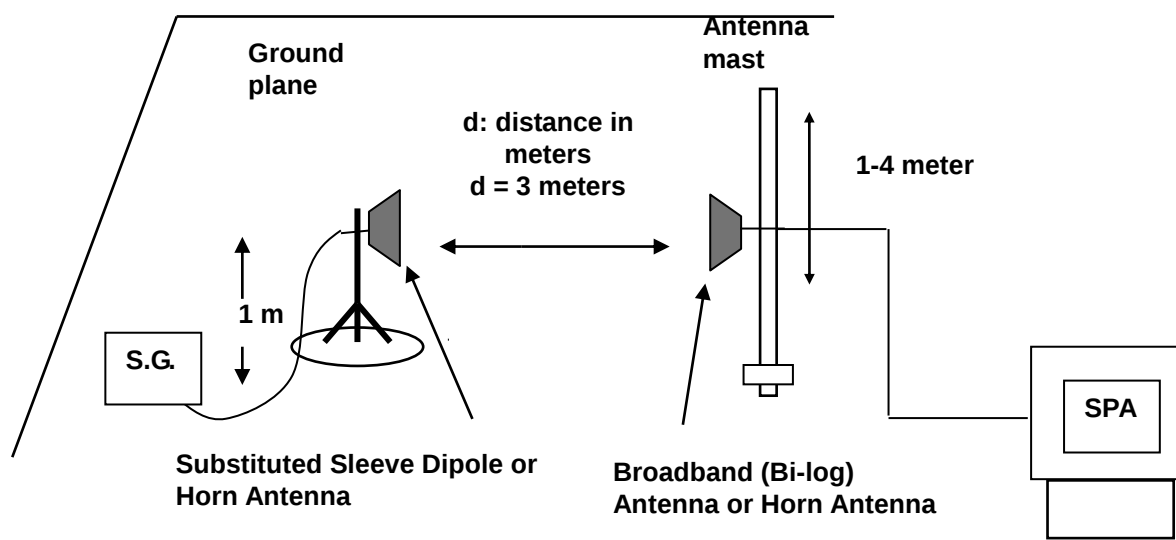
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



■ Test Procedure

- a. The EUT was set up for the maximum power with Test mode. The power was measured with Spectrum Analyzer (RBW: 1 MHz, VBW: 30 kHz, Detector: Average mode). All measurements were done at 3 channels (low, middle and high operational frequency range).
- b. E.I.R.P power measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (above 1 GHz for 1.5 m) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution antenna (Note:1 & 2) is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- d. E.I.R.P. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn
- e. E.R.P. = E.I.R.P.- 2.15 dB
- f. Measurement range 30 MHz - 10 th Harmonic

Note: 1. Below 1 GHz Substituted Method Test : Sleeve dipole antenna to Bi-Log Antenna

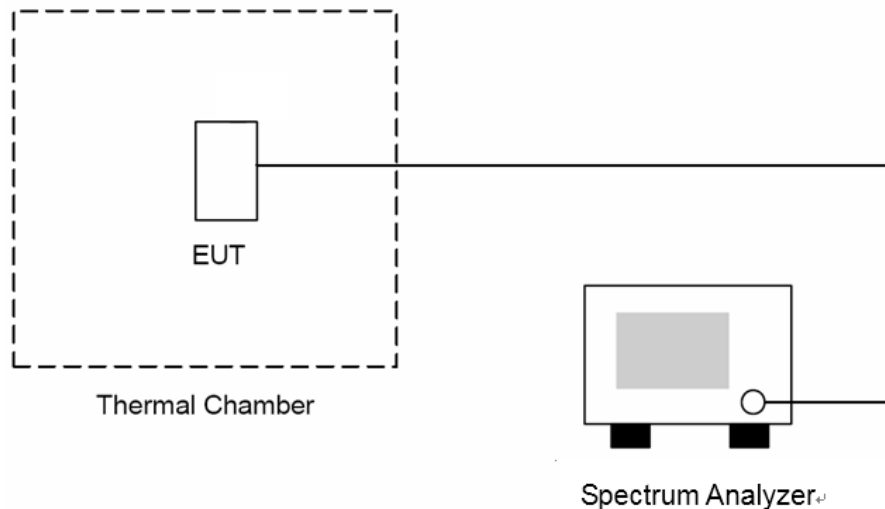
2. Above 1 GHz Substituted Method Test : Horn antenna to Horn Antenna

2.8. Frequency Stability (Temperature & Voltage Variation) Test

■ Limit

The applicant shall ensure frequency stability by showing that the occupied bandwidth is maintained within the band of operation when tested at the temperature and supply voltage variations.

■ Setup



■ Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to $-30\text{ }^{\circ}\text{C}$ and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in $10\text{ }^{\circ}\text{C}$ steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at $25 \pm 5\text{ }^{\circ}\text{C}$ and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115 % of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

3 Test Results

3.1. Conducted Output Power

Test Mode	Frequency (MHz)	RF Power setting in Test Software		Test Software Version
		ANT-0	ANT-1	
Mode 1	4942.5	27	27	Tera Term
	4967.5	28	28	
	4987.5	28	28	
Mode 2	4945.0	27	27	
	4965.0	28	28	
	4985.0	29	29	
Mode 3	4950.0	27	27	
	4965.0	28	28	
	4980.0	29	29	
Mode 4	4942.5	26	26	
	4967.5	27	27	
	4987.5	28	28	
Mode 5	4945.0	27	27	
	4965.0	27	27	
	4985.0	28	28	
Mode 6	4950.0	27	27	
	4965.0	28	28	
	4980.0	29	29	

Test Mode	Frequency (MHz)	RF Power setting in Test Software		Test Software Version
		ANT-0	ANT-1	
Mode 7	4942.5	27	27	Tera Term
	4967.5	28	28	
	4987.5	28	28	
Mode 8	4945.0	27	27	
	4965.0	29	29	
	4985.0	29	29	
Mode 9	4950.0	27	27	
	4965.0	28	28	
	4980.0	29	29	
Mode 10	4942.5	26	26	
	4967.5	27	27	
	4987.5	28	28	
Mode 11	4945.0	27	27	
	4965.0	28	28	
	4985.0	28	28	
Mode 12	4950.0	28	28	
	4965.0	28	28	
	4980.0	29	29	

Test Mode		Mode 1: SISO_5 MHz Continuous TX mode (Legacy)					
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)
			Max. Output Power				
			(dBm)	(W)	(dBm)	(W)	
4942.5	BPSK	6 M	24.44	0.278	23.54	0.226	≤ 27.00
4967.5			25.38	0.345	24.43	0.277	≤ 27.00
4987.5			26.39	0.436	24.95	0.313	≤ 27.00
4942.5	QPSK	12 M	24.16	0.261	23.36	0.217	≤ 27.00
4967.5			25.13	0.326	24.24	0.265	≤ 27.00
4987.5			26.14	0.411	24.72	0.296	≤ 27.00
4942.5		18 M	24.18	0.262	23.37	0.217	≤ 27.00
4967.5			25.24	0.334	24.08	0.256	≤ 27.00
4987.5			26.04	0.402	24.80	0.302	≤ 27.00
4942.5	16QAM	24 M	24.08	0.256	23.38	0.218	≤ 27.00
4967.5			25.24	0.334	24.23	0.265	≤ 27.00
4987.5			26.06	0.404	24.56	0.286	≤ 27.00
4942.5		36 M	24.32	0.270	23.38	0.218	≤ 27.00
4967.5			25.20	0.331	24.08	0.256	≤ 27.00
4987.5			26.10	0.407	24.58	0.287	≤ 27.00
4942.5	64QAM	48 M	24.13	0.259	23.20	0.209	≤ 27.00
4967.5			25.09	0.323	24.26	0.267	≤ 27.00
4987.5			26.13	0.410	24.78	0.301	≤ 27.00
4942.5		54 M	24.26	0.267	23.20	0.209	≤ 27.00
4967.5			25.19	0.330	24.17	0.261	≤ 27.00
4987.5			26.28	0.425	24.74	0.298	≤ 27.00

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 2: SISO_10 MHz Continuous TX mode (Legacy)					
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)
			Max. Output Power				
			(dBm)	(W)	(dBm)	(W)	
4945.0	BPSK	6 M	24.35	0.272	24.34	0.272	≤ 30.00
4965.0			25.32	0.340	25.11	0.324	≤ 30.00
4985.0			26.49	0.446	25.81	0.381	≤ 30.00
4945.0	QPSK	12 M	24.09	0.256	24.03	0.253	≤ 30.00
4965.0			25.12	0.325	24.72	0.296	≤ 30.00
4985.0			26.21	0.418	25.55	0.359	≤ 30.00
4945.0		18 M	24.04	0.254	23.87	0.244	≤ 30.00
4965.0			24.94	0.312	24.74	0.298	≤ 30.00
4985.0			26.20	0.417	25.47	0.352	≤ 30.00
4945.0	16QAM	24 M	24.06	0.255	24.06	0.255	≤ 30.00
4965.0			24.91	0.310	24.76	0.299	≤ 30.00
4985.0			26.24	0.421	25.58	0.361	≤ 30.00
4945.0		36 M	24.05	0.254	24.04	0.254	≤ 30.00
4965.0			25.11	0.324	24.95	0.313	≤ 30.00
4985.0			26.34	0.431	25.60	0.363	≤ 30.00
4945.0	64QAM	48 M	24.21	0.264	24.05	0.254	≤ 30.00
4965.0			25.07	0.321	24.88	0.308	≤ 30.00
4985.0			26.19	0.416	25.70	0.372	≤ 30.00
4945.0		54 M	24.11	0.258	24.26	0.267	≤ 30.00
4965.0			25.04	0.319	24.81	0.303	≤ 30.00
4985.0			26.12	0.409	25.74	0.375	≤ 30.00

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 3: SISO_20 MHz Continuous TX mode (Legacy)					
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)
			Max. Output Power				
			(dBm)	(W)	(dBm)	(W)	
4950.0	BPSK	6 M	24.55	0.285	24.03	0.253	≤ 33.00
4965.0			25.23	0.333	25.00	0.316	≤ 33.00
4980.0			26.14	0.411	25.90	0.389	≤ 33.00
4950.0	QPSK	12 M	25.03	0.318	24.74	0.298	≤ 33.00
4965.0			25.96	0.394	25.60	0.363	≤ 33.00
4980.0			26.19	0.416	25.55	0.359	≤ 33.00
4950.0		18 M	24.04	0.254	23.96	0.249	≤ 33.00
4965.0			25.16	0.328	24.67	0.293	≤ 33.00
4980.0			26.29	0.426	25.51	0.356	≤ 33.00
4950.0	16QAM	24 M	24.18	0.262	23.87	0.244	≤ 33.00
4965.0			25.10	0.324	24.84	0.305	≤ 33.00
4980.0			26.15	0.412	25.47	0.352	≤ 33.00
4950.0		36 M	25.10	0.324	24.68	0.294	≤ 33.00
4965.0			25.97	0.395	25.77	0.378	≤ 33.00
4980.0			26.30	0.427	25.57	0.361	≤ 33.00
4950.0	64QAM	48 M	24.22	0.264	24.08	0.256	≤ 33.00
4965.0			25.25	0.335	24.99	0.316	≤ 33.00
4980.0			26.44	0.441	25.55	0.359	≤ 33.00
4950.0		54 M	24.22	0.264	24.17	0.261	≤ 33.00
4965.0			25.28	0.337	24.82	0.303	≤ 33.00
4980.0			26.24	0.421	25.69	0.371	≤ 33.00

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 4: SISO_5 MHz Continuous TX mode						
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)	
			Max. Output Power					
			(dBm)	(W)	(dBm)	(W)		
4942.5	BPSK	MSC0	24.36	0.273	21.54	0.143	≤ 27.00	
4967.5			23.93	0.247	22.74	0.188	≤ 27.00	
4987.5			24.65	0.292	23.67	0.233	≤ 27.00	
4942.5	QPSK	MSC1	24.16	0.261	21.37	0.137	≤ 27.00	
4967.5			23.72	0.236	22.57	0.181	≤ 27.00	
4987.5			24.45	0.279	23.51	0.224	≤ 27.00	
4942.5		MSC2	24.05	0.254	21.20	0.132	≤ 27.00	
4967.5			23.63	0.231	22.46	0.176	≤ 27.00	
4987.5			24.33	0.271	23.33	0.215	≤ 27.00	
4942.5		16QAM	MSC3	23.94	0.248	21.11	0.129	≤ 27.00
4967.5				23.53	0.225	22.37	0.173	≤ 27.00
4987.5				24.29	0.269	23.25	0.211	≤ 27.00
4942.5	MSC4		23.96	0.249	21.10	0.129	≤ 27.00	
4967.5			23.56	0.227	22.28	0.169	≤ 27.00	
4987.5			24.18	0.262	23.29	0.213	≤ 27.00	
4942.5	64QAM	MSC5	23.91	0.246	21.14	0.130	≤ 27.00	
4967.5			23.48	0.223	22.29	0.169	≤ 27.00	
4987.5			24.22	0.264	23.27	0.212	≤ 27.00	
4942.5		MSC7	23.96	0.249	21.12	0.129	≤ 27.00	
4967.5			23.54	0.226	22.28	0.169	≤ 27.00	
4987.5			24.24	0.265	23.26	0.212	≤ 27.00	

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 5: SISO_10 MHz Continuous TX mode					
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)
			Max. Output Power				
			(dBm)	(W)	(dBm)	(W)	
4945.0	BPSK	MSC0	24.94	0.312	22.69	0.186	≤ 30.00
4965.0			23.80	0.240	23.48	0.223	≤ 30.00
4985.0			24.58	0.287	24.14	0.259	≤ 30.00
4945.0	QPSK	MSC1	24.74	0.298	22.53	0.179	≤ 30.00
4965.0			23.65	0.232	23.29	0.213	≤ 30.00
4985.0			24.41	0.276	23.99	0.251	≤ 30.00
4945.0		MSC2	24.65	0.292	22.41	0.174	≤ 30.00
4965.0			23.50	0.224	23.17	0.207	≤ 30.00
4985.0			24.25	0.266	23.85	0.243	≤ 30.00
4945.0	16QAM	MSC3	24.57	0.286	22.28	0.169	≤ 30.00
4965.0			23.41	0.219	23.10	0.204	≤ 30.00
4985.0			24.13	0.259	23.75	0.237	≤ 30.00
4945.0		MSC4	24.56	0.286	22.26	0.168	≤ 30.00
4965.0			23.41	0.219	23.01	0.200	≤ 30.00
4985.0			24.21	0.264	23.69	0.234	≤ 30.00
4945.0	64QAM	MSC5	24.49	0.281	22.24	0.167	≤ 30.00
4965.0			23.38	0.218	23.02	0.200	≤ 30.00
4985.0			24.18	0.262	23.70	0.234	≤ 30.00
4945.0		MSC7	24.51	0.282	22.28	0.169	≤ 30.00
4965.0			23.40	0.219	23.09	0.204	≤ 30.00
4985.0			24.17	0.261	23.72	0.236	≤ 30.00

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 6: SISO_20 MHz Continuous TX mode						
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		Limit (dBm)	
			Max. Output Power					
			(dBm)	(W)	(dBm)	(W)		
4950.0	BPSK	MSC0	24.47	0.280	24.04	0.254	≤ 33.00	
4965.0			25.17	0.329	25.00	0.316	≤ 33.00	
4980.0			26.08	0.406	25.83	0.383	≤ 33.00	
4950.0	QPSK	MSC1	24.17	0.261	23.88	0.244	≤ 33.00	
4965.0			24.80	0.302	24.69	0.294	≤ 33.00	
4980.0			25.79	0.379	25.59	0.362	≤ 33.00	
4950.0		MSC2	24.00	0.251	23.71	0.235	≤ 33.00	
4965.0			24.70	0.295	24.76	0.299	≤ 33.00	
4980.0			25.76	0.377	25.46	0.352	≤ 33.00	
4950.0		16QAM	MSC3	24.13	0.259	23.79	0.239	≤ 33.00
4965.0				24.74	0.298	24.82	0.303	≤ 33.00
4980.0				25.67	0.369	25.57	0.361	≤ 33.00
4950.0	MSC4		24.28	0.268	23.79	0.239	≤ 33.00	
4965.0			24.95	0.313	24.63	0.290	≤ 33.00	
4980.0			26.03	0.401	25.62	0.365	≤ 33.00	
4950.0	64QAM	MSC5	24.33	0.271	23.69	0.234	≤ 33.00	
4965.0			24.89	0.308	24.66	0.292	≤ 33.00	
4980.0			25.86	0.385	25.42	0.348	≤ 33.00	
4950.0		MSC7	24.19	0.262	23.66	0.232	≤ 33.00	
4965.0			25.12	0.325	24.61	0.289	≤ 33.00	
4980.0			25.82	0.382	25.39	0.346	≤ 33.00	

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 7: MIMO_5 MHz Continuous TX mode (Legacy)							
Frequency (MHz)	Modula tion	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4942.5	BPSK	6 M	22.71	0.187	22.42	0.175	25.58	0.361	≤ 26.99
4967.5			24.01	0.252	23.64	0.231	26.84	0.483	≤ 26.99
4987.5			24.63	0.290	22.60	0.182	26.74	0.472	≤ 26.99
4942.5	QPSK	12 M	22.57	0.181	22.25	0.168	25.42	0.348	≤ 26.99
4967.5			23.74	0.237	23.31	0.214	26.54	0.451	≤ 26.99
4987.5			24.31	0.270	22.26	0.168	26.42	0.439	≤ 26.99
4942.5		18 M	22.46	0.176	22.11	0.163	25.30	0.339	≤ 26.99
4967.5			23.78	0.239	23.41	0.219	26.61	0.458	≤ 26.99
4987.5			24.48	0.281	22.39	0.173	26.57	0.454	≤ 26.99
4942.5	16QAM	24 M	22.53	0.179	22.04	0.160	25.30	0.339	≤ 26.99
4967.5			23.78	0.239	23.49	0.223	26.65	0.462	≤ 26.99
4987.5			24.39	0.275	22.38	0.173	26.51	0.448	≤ 26.99
4942.5		36 M	22.53	0.179	22.13	0.163	25.34	0.342	≤ 26.99
4967.5			23.86	0.243	23.56	0.227	26.72	0.470	≤ 26.99
4987.5			24.39	0.275	22.38	0.173	26.51	0.448	≤ 26.99
4942.5	64QAM	48 M	22.65	0.184	22.31	0.170	25.49	0.354	≤ 26.99
4967.5			23.93	0.247	23.44	0.221	26.70	0.468	≤ 26.99
4987.5			24.57	0.286	22.31	0.170	26.60	0.457	≤ 26.99
4942.5		54 M	22.66	0.185	22.10	0.162	25.40	0.347	≤ 26.99
4967.5			23.91	0.246	23.38	0.218	26.66	0.463	≤ 26.99
4987.5			24.43	0.277	22.41	0.174	26.55	0.452	≤ 26.99

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 8: MIMO_10 MHz Continuous TX mode (Legacy)							
Frequency (MHz)	Modula tion	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4945.0	BPSK	6 M	22.87	0.194	22.73	0.187	25.81	0.381	≤ 29.99
4965.0			26.01	0.399	24.84	0.305	28.47	0.703	≤ 29.99
4985.0			24.93	0.311	23.64	0.231	27.34	0.542	≤ 29.99
4945.0	QPSK	12 M	22.61	0.182	22.46	0.176	25.55	0.359	≤ 29.99
4965.0			25.72	0.373	24.55	0.285	28.18	0.658	≤ 29.99
4985.0			24.73	0.297	23.34	0.216	27.10	0.513	≤ 29.99
4945.0		18 M	22.58	0.181	22.33	0.171	25.47	0.352	≤ 29.99
4965.0			25.64	0.366	24.35	0.272	28.05	0.638	≤ 29.99
4985.0			24.49	0.281	23.18	0.208	26.89	0.489	≤ 29.99
4945.0	16QAM	24 M	22.49	0.177	22.39	0.173	25.45	0.351	≤ 29.99
4965.0			25.60	0.363	24.46	0.279	28.08	0.643	≤ 29.99
4985.0			24.49	0.281	23.36	0.217	26.97	0.498	≤ 29.99
4945.0		36 M	22.59	0.182	22.63	0.183	25.62	0.365	≤ 29.99
4965.0			25.65	0.367	24.58	0.287	28.16	0.655	≤ 29.99
4985.0			24.75	0.299	23.40	0.219	27.14	0.518	≤ 29.99
4945.0	64QAM	48 M	22.53	0.179	22.62	0.183	25.59	0.362	≤ 29.99
4965.0			25.61	0.364	24.66	0.292	28.17	0.656	≤ 29.99
4985.0			24.52	0.283	23.57	0.228	27.08	0.511	≤ 29.99
4945.0		54 M	22.65	0.184	22.47	0.177	25.57	0.361	≤ 29.99
4965.0			25.63	0.366	24.62	0.290	28.16	0.655	≤ 29.99
4985.0			24.58	0.287	23.39	0.218	27.04	0.506	≤ 29.99

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 9: MIMO_20 MHz Continuous TX mode (Legacy)							
Frequency (MHz)	Modula tion	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4950.0	BPSK	6 M	23.28	0.213	22.46	0.176	25.90	0.389	≤ 32.99
4965.0			23.85	0.243	23.43	0.220	26.66	0.463	≤ 32.99
4980.0			24.83	0.304	24.39	0.275	27.63	0.579	≤ 32.99
4950.0	QPSK	12 M	22.99	0.199	22.27	0.169	25.66	0.368	≤ 32.99
4965.0			23.46	0.222	23.33	0.215	26.41	0.438	≤ 32.99
4980.0			24.51	0.282	24.23	0.265	27.38	0.547	≤ 32.99
4950.0		18 M	22.88	0.194	22.21	0.166	25.57	0.361	≤ 32.99
4965.0			23.55	0.226	23.30	0.214	26.44	0.441	≤ 32.99
4980.0			24.54	0.284	24.36	0.273	27.46	0.557	≤ 32.99
4950.0	16QAM	24 M	23.02	0.200	22.40	0.174	25.73	0.374	≤ 32.99
4965.0			23.60	0.229	23.27	0.212	26.45	0.442	≤ 32.99
4980.0			24.48	0.281	24.21	0.264	27.36	0.545	≤ 32.99
4950.0		36 M	23.06	0.202	22.39	0.173	25.75	0.376	≤ 32.99
4965.0			23.69	0.234	23.38	0.218	26.55	0.452	≤ 32.99
4980.0			24.62	0.290	24.11	0.258	27.38	0.547	≤ 32.99
4950.0	64QAM	48 M	23.11	0.205	22.28	0.169	25.73	0.374	≤ 32.99
4965.0			23.71	0.235	23.27	0.212	26.51	0.448	≤ 32.99
4980.0			24.50	0.282	24.15	0.260	27.34	0.542	≤ 32.99
4950.0		54 M	22.96	0.198	22.19	0.166	25.60	0.363	≤ 32.99
4965.0			23.75	0.237	23.25	0.211	26.52	0.449	≤ 32.99
4980.0			24.67	0.293	24.17	0.261	27.44	0.555	≤ 32.99

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 10: MIMO_5 MHz Continuous TX mode								
Frequency (MHz)	Modulation	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)	
			Max. Output Power							
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
4942.5	BPSK	MSC8	24.18	0.262	20.94	0.124	25.87	0.386	≤ 26.99	
4967.5			23.49	0.223	21.91	0.155	25.78	0.378	≤ 26.99	
4987.5			24.60	0.288	22.65	0.184	26.74	0.472	≤ 26.99	
4942.5	QPSK	MSC9	24.02	0.252	20.81	0.121	25.72	0.373	≤ 26.99	
4967.5			23.33	0.215	21.69	0.148	25.60	0.363	≤ 26.99	
4987.5			24.47	0.280	22.44	0.175	26.58	0.455	≤ 26.99	
4942.5		MSC10	23.85	0.243	20.61	0.115	25.54	0.358	≤ 26.99	
4967.5			23.17	0.207	21.59	0.144	25.46	0.352	≤ 26.99	
4987.5			24.31	0.270	22.37	0.173	26.46	0.443	≤ 26.99	
4942.5		16QAM	MSC11	23.83	0.242	20.51	0.112	25.49	0.354	≤ 26.99
4967.5				23.13	0.206	21.47	0.140	25.39	0.346	≤ 26.99
4987.5				24.21	0.264	22.29	0.169	26.37	0.434	≤ 26.99
4942.5	MSC12		23.74	0.237	20.56	0.114	25.45	0.351	≤ 26.99	
4967.5			23.04	0.201	21.53	0.142	25.36	0.344	≤ 26.99	
4987.5			24.21	0.264	22.22	0.167	26.34	0.431	≤ 26.99	
4942.5	64QAM	MSC13	23.73	0.236	20.54	0.113	25.43	0.349	≤ 26.99	
4967.5			23.07	0.203	21.49	0.141	25.36	0.344	≤ 26.99	
4987.5			24.17	0.261	22.26	0.168	26.33	0.430	≤ 26.99	
4942.5		MSC15	23.80	0.240	20.49	0.112	25.46	0.352	≤ 26.99	
4967.5			23.06	0.202	21.48	0.141	25.35	0.343	≤ 26.99	
4987.5			24.14	0.259	22.19	0.166	26.28	0.425	≤ 26.99	

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 11: MIMO_10 MHz Continuous TX mode							
Frequency (MHz)	Modula tion	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4945.0	BPSK	MSC8	24.62	0.290	21.87	0.154	26.47	0.444	≤ 29.99
4965.0			25.29	0.338	22.64	0.184	27.17	0.521	≤ 29.99
4985.0			24.19	0.262	22.47	0.177	26.42	0.439	≤ 29.99
4945.0	QPSK	MSC9	24.48	0.281	21.70	0.148	26.32	0.429	≤ 29.99
4965.0			25.07	0.321	22.49	0.177	26.98	0.499	≤ 29.99
4985.0			23.99	0.251	22.30	0.170	26.24	0.421	≤ 29.99
4945.0		MSC10	24.26	0.267	21.60	0.145	26.14	0.411	≤ 29.99
4965.0			24.99	0.316	22.29	0.169	26.86	0.485	≤ 29.99
4985.0			23.89	0.245	22.16	0.164	26.12	0.409	≤ 29.99
4945.0	16QAM	MSC11	24.25	0.266	21.45	0.140	26.08	0.406	≤ 29.99
4965.0			24.90	0.309	22.26	0.168	26.79	0.478	≤ 29.99
4985.0			23.82	0.241	22.10	0.162	26.05	0.403	≤ 29.99
4945.0		MSC12	24.16	0.261	21.40	0.138	26.01	0.399	≤ 29.99
4965.0			24.92	0.310	22.17	0.165	26.77	0.475	≤ 29.99
4985.0			23.72	0.236	22.01	0.159	25.96	0.394	≤ 29.99
4945.0	64QAM	MSC13	24.20	0.263	21.44	0.139	26.05	0.403	≤ 29.99
4965.0			24.85	0.305	22.22	0.167	26.74	0.472	≤ 29.99
4985.0			23.76	0.238	22.05	0.160	26.00	0.398	≤ 29.99
4945.0		MSC15	24.23	0.265	21.47	0.140	26.08	0.406	≤ 29.99
4965.0			24.87	0.307	22.19	0.166	26.74	0.472	≤ 29.99
4985.0			23.75	0.237	22.06	0.161	26.00	0.398	≤ 29.99

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

Test Mode		Mode 12: MIMO_20 MHz Continuous TX mode							
Frequency (MHz)	Modula tion	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4950.0	BPSK	MSC8	25.81	0.381	23.06	0.202	27.66	0.583	≤ 32.99
4965.0			23.81	0.240	23.59	0.229	26.71	0.469	≤ 32.99
4980.0			24.85	0.305	24.38	0.274	27.63	0.579	≤ 32.99
4950.0	QPSK	MSC9	25.68	0.370	22.71	0.187	27.45	0.556	≤ 32.99
4965.0			23.72	0.236	23.25	0.211	26.50	0.447	≤ 32.99
4980.0			24.61	0.289	24.07	0.255	27.36	0.545	≤ 32.99
4950.0		MSC10	25.55	0.359	22.60	0.182	27.33	0.541	≤ 32.99
4965.0			23.65	0.232	23.14	0.206	26.41	0.438	≤ 32.99
4980.0			24.55	0.285	24.08	0.256	27.33	0.541	≤ 32.99
4950.0	16QAM	MSC11	25.69	0.371	22.66	0.185	27.44	0.555	≤ 32.99
4965.0			23.57	0.228	23.17	0.207	26.38	0.435	≤ 32.99
4980.0			24.62	0.290	23.88	0.244	27.28	0.535	≤ 32.99
4950.0		MSC12	25.77	0.378	22.73	0.187	27.52	0.565	≤ 32.99
4965.0			23.58	0.228	23.31	0.214	26.46	0.443	≤ 32.99
4980.0			24.75	0.299	24.08	0.256	27.44	0.555	≤ 32.99
4950.0	64QAM	MSC13	25.79	0.379	22.79	0.190	27.55	0.569	≤ 32.99
4965.0			23.64	0.231	23.34	0.216	26.50	0.447	≤ 32.99
4980.0			24.81	0.303	23.96	0.249	27.42	0.552	≤ 32.99
4950.0		MSC15	25.65	0.367	22.86	0.193	27.49	0.561	≤ 32.99
4965.0			23.57	0.228	23.39	0.218	26.49	0.446	≤ 32.99
4980.0			24.72	0.296	24.11	0.258	27.44	0.555	≤ 32.99

Note 1: The conducted power testing result was used average detector.

Note 2: The relevant measured result has the offset with cable loss already.

3.2. Power Spectral Density

Test Mode	Frequency (MHz)	ANT-0			Limit (dBm/MHz)
		Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	
Mode 1	4942.5	17.830	0.010	17.840	≤ 21.00
	4967.5	19.274	0.010	19.284	≤ 21.00
	4987.5	20.490	0.010	20.500	≤ 21.00
Mode 2	4945.0	15.765	0.013	15.778	≤ 21.00
	4965.0	16.979	0.013	16.992	≤ 21.00
	4985.0	18.020	0.013	18.033	≤ 21.00
Mode 3	4950.0	13.092	0.039	13.131	≤ 21.00
	4965.0	13.777	0.039	13.816	≤ 21.00
	4980.0	14.788	0.039	14.827	≤ 21.00
Mode 4	4942.5	18.194	0.010	18.204	≤ 21.00
	4967.5	17.958	0.010	17.968	≤ 21.00
	4987.5	18.953	0.010	18.963	≤ 21.00
Mode 5	4945.0	16.492	0.013	16.505	≤ 21.00
	4965.0	15.513	0.013	15.526	≤ 21.00
	4985.0	16.588	0.013	16.601	≤ 21.00
Mode 6	4950.0	12.659	0.070	12.729	≤ 21.00
	4965.0	13.703	0.070	13.773	≤ 21.00
	4980.0	14.627	0.070	14.697	≤ 21.00

Note: Method SA-2, Power density = measured result + 10 log(1/duty cycle) = measured result + duty factor.

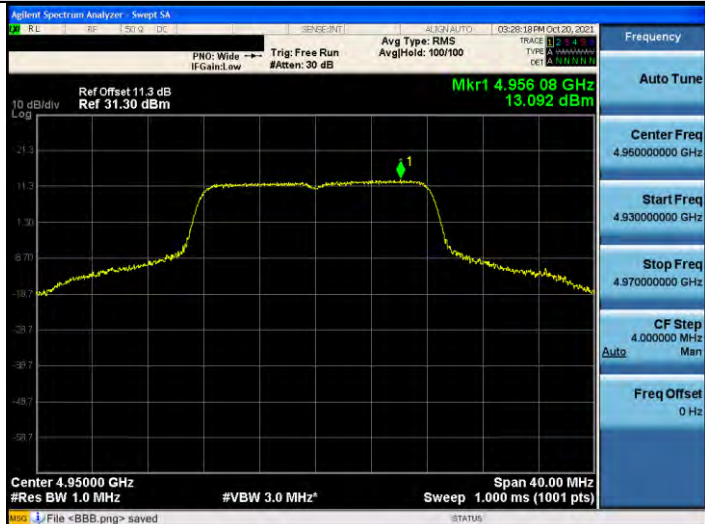
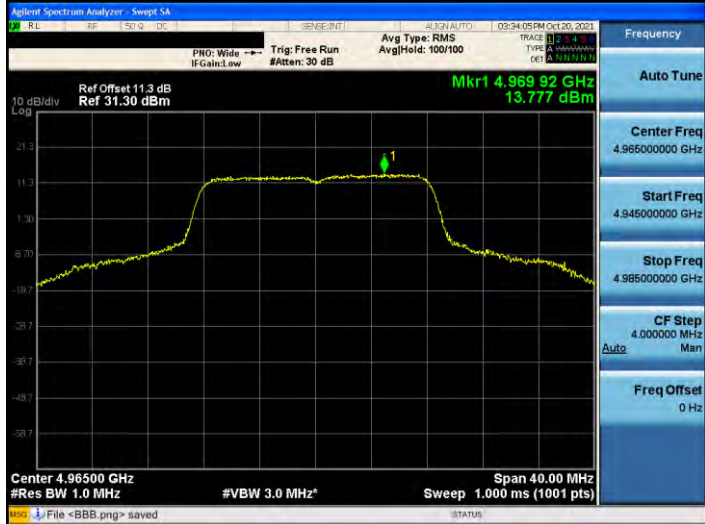
Test Mode	Frequency (MHz)	ANT-0			ANT-1			ANT-0+1	Limit (dBm/MHz)
		Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Measurement (dBm/MHz)	
Mode 7	4942.5	17.458	0.039	17.497	16.648	0.039	16.687	20.122	≤ 20.99
	4967.5	18.010	0.039	18.049	17.554	0.039	17.593	20.838	≤ 20.99
	4987.5	18.738	0.039	18.777	16.547	0.039	16.586	20.829	≤ 20.99
Mode 8	4945.0	14.493	0.013	14.506	14.417	0.013	14.430	17.479	≤ 20.99
	4965.0	17.760	0.013	17.773	16.401	0.013	16.414	20.157	≤ 20.99
	4985.0	16.712	0.013	16.725	15.185	0.013	15.198	19.039	≤ 20.99
Mode 9	4950.0	12.016	0.066	12.082	11.333	0.066	11.399	14.764	≤ 20.99
	4965.0	12.828	0.066	12.894	11.914	0.066	11.980	15.471	≤ 20.99
	4980.0	13.489	0.066	13.555	13.143	0.066	13.209	16.395	≤ 20.99
Mode 10	4942.5	17.105	0.010	17.115	14.279	0.010	14.289	18.938	≤ 20.99
	4967.5	16.829	0.010	16.839	15.556	0.010	15.566	19.259	≤ 20.99
	4987.5	18.027	0.010	18.037	16.498	0.010	16.508	20.350	≤ 20.99
Mode 11	4945.0	15.123	0.013	15.136	12.927	0.013	12.940	17.186	≤ 20.99
	4965.0	16.175	0.013	16.188	13.958	0.013	13.971	18.230	≤ 20.99
	4985.0	15.200	0.013	15.213	14.089	0.013	14.102	17.703	≤ 20.99
Mode 12	4950.0	14.039	0.070	14.109	11.352	0.070	11.422	15.981	≤ 20.99
	4965.0	11.968	0.070	12.038	11.904	0.070	11.974	15.017	≤ 20.99
	4980.0	13.564	0.070	13.634	13.041	0.070	13.111	16.391	≤ 20.99

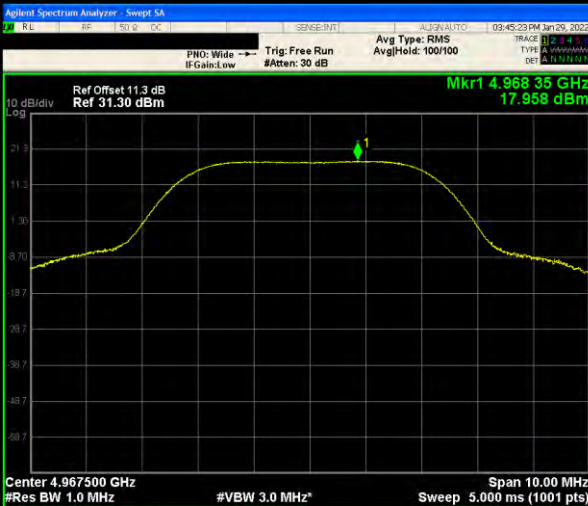
Note: Method SA-2, Power density = measured result + 10 log(1/duty cycle) = measured result + duty factor.

Test Graphs

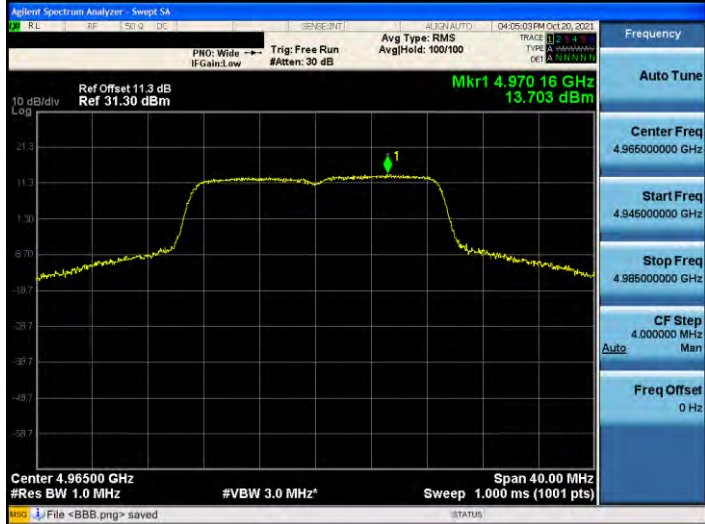
Mode 1: SISO_5 MHz Continuous TX mode (Legacy) _ANT-0		
4942.5 MHz		
4967.5 MHz		
4987.5 MHz		

Mode 2: SISO_10 MHz Continuous TX mode (Legacy) _ANT-0		
4945 MHz		
4965 MHz		
4985 MHz		

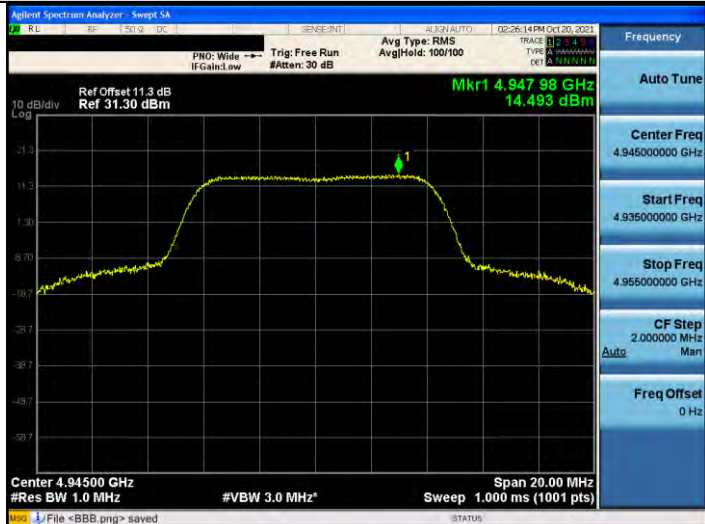
Mode 3: SISO_20 MHz Continuous TX mode (Legacy) _ANT-0		
4950 MHz		
4965 MHz		
4980 MHz		

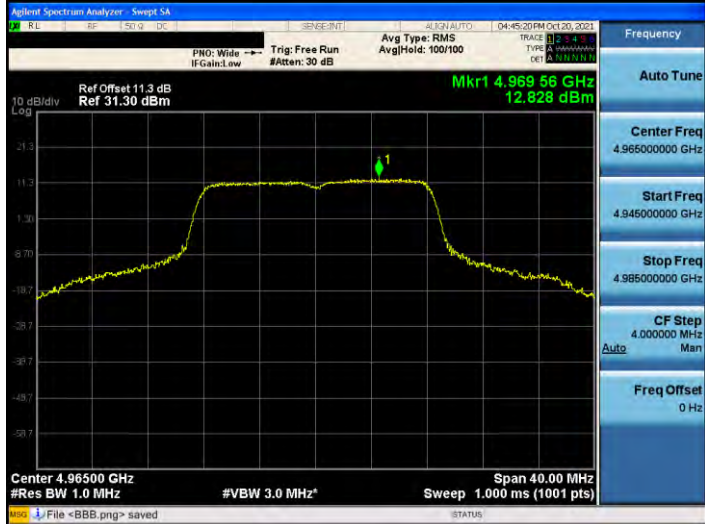
Mode 4: SISO_5 MHz Continuous TX mode_ANT-0		
4942.5 MHz		Frequency Auto Tune Center Freq 4.94250000 GHz Start Freq 4.93750000 GHz Stop Freq 4.94750000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz
4967.5 MHz		Frequency Auto Tune Center Freq 4.96750000 GHz Start Freq 4.96250000 GHz Stop Freq 4.97250000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz
4987.5 MHz		Frequency Auto Tune Center Freq 4.98750000 GHz Start Freq 4.98250000 GHz Stop Freq 4.99250000 GHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz

Mode 5: SISO_10 MHz Continuous TX mode_ANT-0		
4945 MHz		Frequency Auto Tune Center Freq 4.94490000 GHz Start Freq 4.93490000 GHz Stop Freq 4.95490000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Auto Tune Center Freq 4.96500000 GHz Start Freq 4.95500000 GHz Stop Freq 4.97500000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz
4985 MHz		Frequency Auto Tune Center Freq 4.98500000 GHz Start Freq 4.97500000 GHz Stop Freq 4.99500000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz

Mode 6: SISO_20 MHz Continuous TX mode_ANT-0		
4950 MHz		
4965 MHz		
4980 MHz		

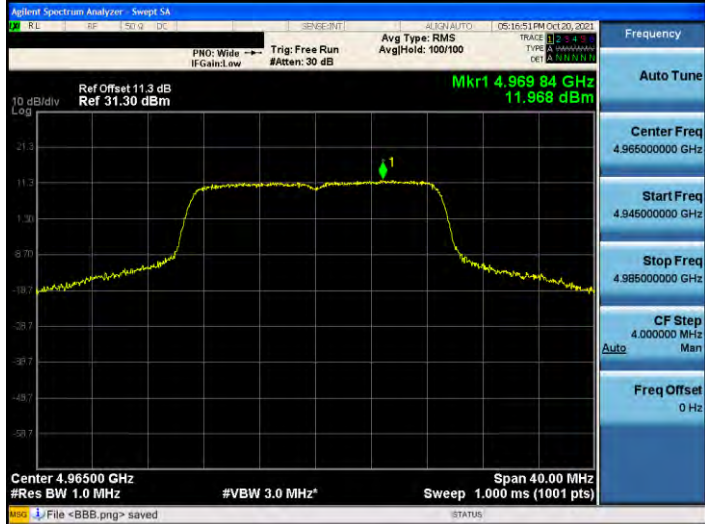
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy) _ANT-0		
4942.5 MHz		
4967.5 MHz		
4987.5 MHz		

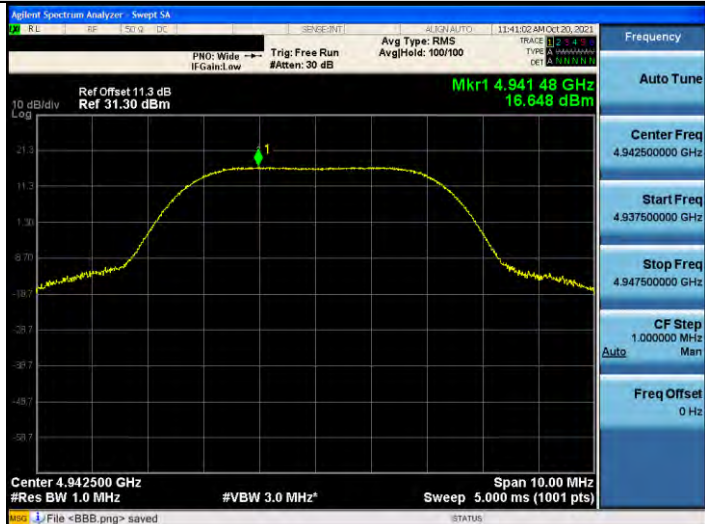
Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-0		
4945 MHz		Frequency Auto Tune Center Freq 4.94500000 GHz Start Freq 4.93500000 GHz Stop Freq 4.95500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz		Frequency Auto Tune Center Freq 4.96500000 GHz Start Freq 4.95500000 GHz Stop Freq 4.97500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4985 MHz		Frequency Auto Tune Center Freq 4.98500000 GHz Start Freq 4.97500000 GHz Stop Freq 4.99500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz

Mode 9: MIMO_20 MHz Continuous TX mode (Legacy) _ANT-0		
4950 MHz		
4965 MHz		
4980 MHz		

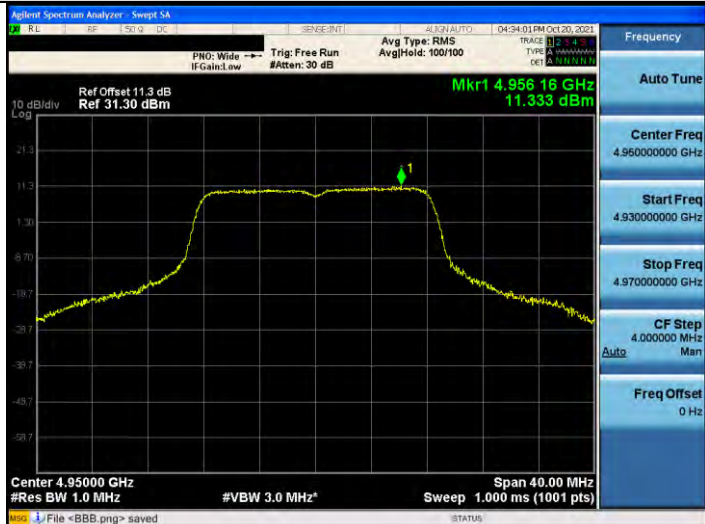
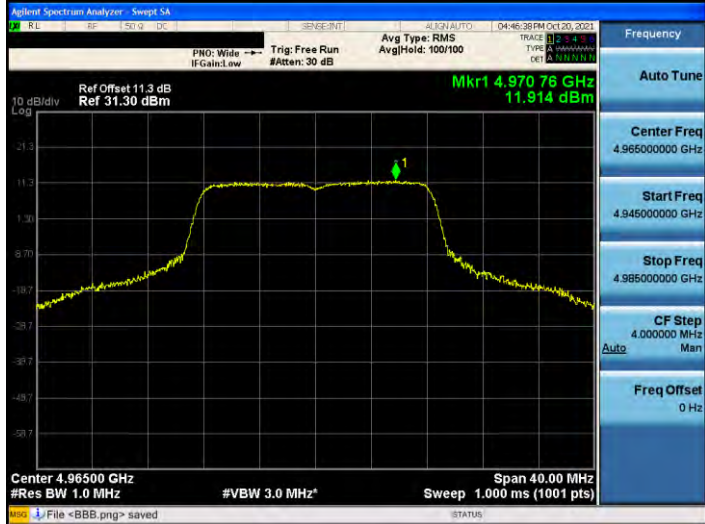
Mode 10: MIMO_5 MHz Continuous TX mode_ANT-0		
4942.5 MHz		Agilent Spectrum Analyzer - Sweep SA RL RF 150 Q DC 1 SENSE-INT 4.942500 07:12:19 PM Jan 29, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 30 dB Ref Offset: 11.3 dB Ref: 31.30 dBm Mkr1 4.941 75 GHz 17.105 dBm Center 4.942500 GHz Span 10.00 MHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 5.000 ms (1001 pts) File <BBB.png> saved Frequency Auto Tune Center Freq 4.94250000 GHz Start Freq 4.937500000 GHz Stop Freq 4.947500000 GHz CF Step 1.000000 MHz Man Freq Offset 0 Hz
4967.5 MHz		Agilent Spectrum Analyzer - Sweep SA RL RF 150 Q DC 1 SENSE-INT 4.967500 07:14:23 PM Jan 29, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 30 dB Ref Offset: 11.3 dB Ref: 31.30 dBm Mkr1 4.968 43 GHz 16.829 dBm Center 4.967500 GHz Span 10.00 MHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 5.000 ms (1001 pts) File <BBB.png> saved Frequency Auto Tune Center Freq 4.96750000 GHz Start Freq 4.962500000 GHz Stop Freq 4.972500000 GHz CF Step 1.000000 MHz Man Freq Offset 0 Hz
4987.5 MHz		Agilent Spectrum Analyzer - Sweep SA RL RF 150 Q DC 1 SENSE-INT 4.987500 07:15:10 PM Jan 29, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 30 dB Ref Offset: 11.3 dB Ref: 31.30 dBm Mkr1 4.988 42 GHz 18.027 dBm Center 4.987500 GHz Span 10.00 MHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 5.000 ms (1001 pts) File <BBB.png> saved Frequency Auto Tune Center Freq 4.98750000 GHz Start Freq 4.982500000 GHz Stop Freq 4.992500000 GHz CF Step 1.000000 MHz Man Freq Offset 0 Hz

Mode 11: MIMO_10 MHz Continuous TX mode_ANT-0		
4945 MHz		
4965 MHz		
4985 MHz		

Mode 12: MIMO_20 MHz Continuous TX mode_ANT-0		
4950 MHz		
4965 MHz		
4980 MHz		

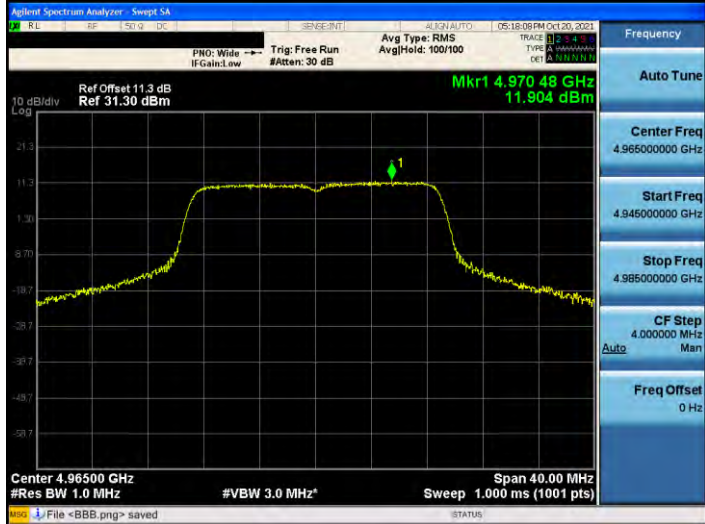
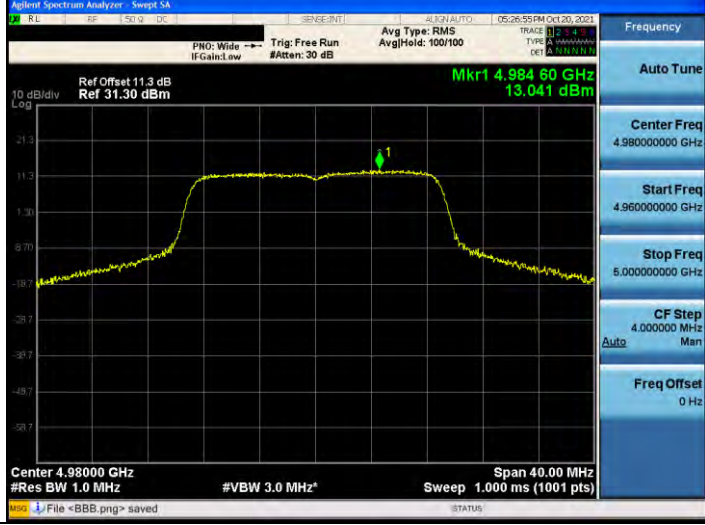
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy) _ANT-1		
4942.5 MHz		
4967.5 MHz		
4987.5 MHz		

Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-1		
4945 MHz		
4965 MHz		
4985 MHz		

Mode 9: MIMO_20 MHz Continuous TX mode (Legacy) _ANT-1		
4950 MHz		
4965 MHz		
4980 MHz		

Mode 10: MIMO_5 MHz Continuous TX mode_ANT-1		
4942.5 MHz		
4967.5 MHz		
4987.5 MHz		

Mode 11: MIMO_10 MHz Continuous TX mode_ANT-1		
4945 MHz		
4965 MHz		
4985 MHz		

Mode 12: MIMO_20 MHz Continuous TX mode_ANT-1		
4950 MHz		
4965 MHz		
4980 MHz		

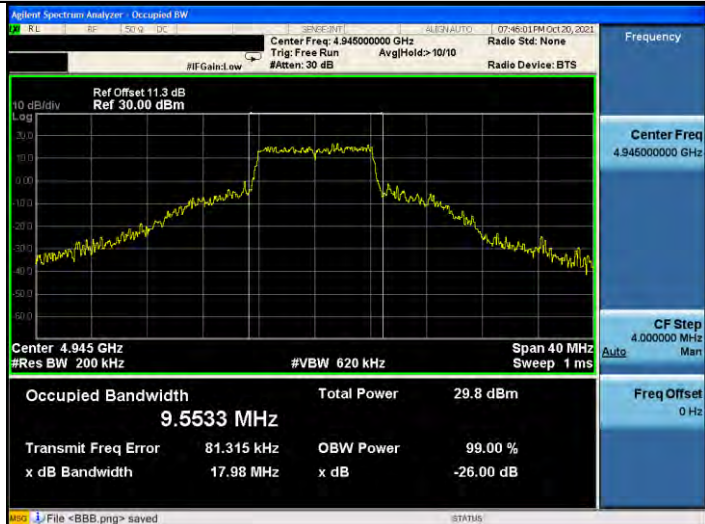
3.3. Emission Bandwidth & Occupied Bandwidth

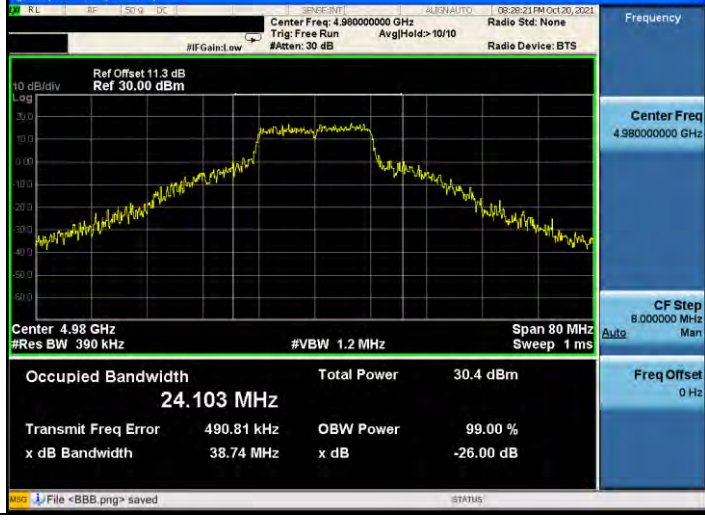
Test Mode	Frequency (MHz)	26 dB RF Bandwidth	99 % Occupied Bandwidth
		ANT-0 (MHz)	ANT-0 (MHz)
Mode 1	4942.5	8.958	4.459
	4967.5	9.340	5.285
	4987.5	9.759	6.555
Mode 2	4945.0	17.980	9.553
	4965.0	19.320	11.223
	4985.0	19.280	12.992
Mode 3	4950.0	37.340	19.817
	4965.0	36.890	19.985
	4980.0	38.740	24.103
Mode 4	4942.5	9.393	4.693
	4967.5	9.316	4.337
	4987.5	8.814	4.643
Mode 5	4945.0	18.660	9.818
	4965.0	18.150	8.725
	4985.0	18.650	9.175
Mode 6	4950.0	37.090	19.243
	4965.0	38.260	19.689
	4980.0	43.220	21.382

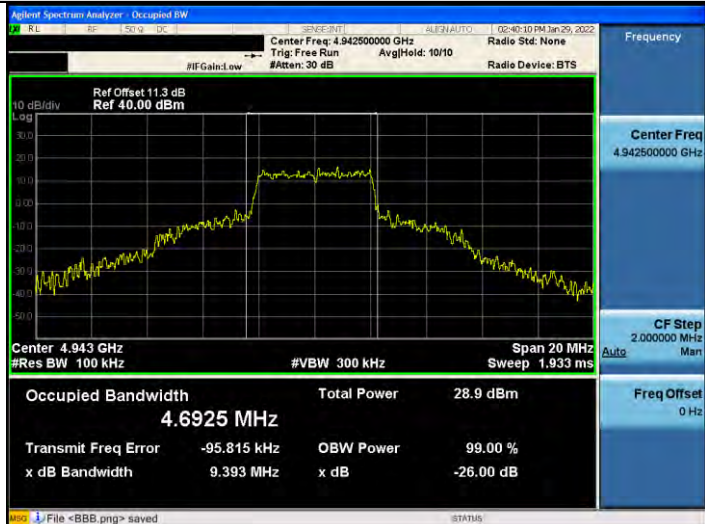
Test Mode	Frequency (MHz)	26 dB RF Bandwidth		99 % Occupied Bandwidth	
		ANT-0 (MHz)	ANT-1 (MHz)	ANT-0 (MHz)	ANT-1 (MHz)
Mode 7	4942.5	9.026	8.456	4.522	4.291
	4967.5	9.808	8.948	5.908	4.377
	4987.5	9.647	7.637	5.807	4.305
Mode 8	4945.0	17.350	14.610	8.822	8.560
	4965.0	18.100	19.050	9.046	10.033
	4985.0	19.490	18.020	10.559	8.725
Mode 9	4950.0	36.940	29.130	29.245	17.450
	4965.0	37.510	33.780	19.823	17.965
	4980.0	36.910	34.880	22.717	18.677
Mode 10	4942.5	7.882	6.125	4.355	4.208
	4967.5	7.725	5.740	4.266	4.213
	4987.5	8.448	7.270	4.327	4.246
Mode 11	4945.0	19.420	12.550	9.285	8.462
	4965.0	17.920	17.330	9.589	8.521
	4985.0	18.770	15.550	8.712	8.470
Mode 12	4950.0	37.850	33.570	19.683	18.617
	4965.0	39.040	35.190	19.346	18.854
	4980.0	41.830	39.280	22.395	19.311

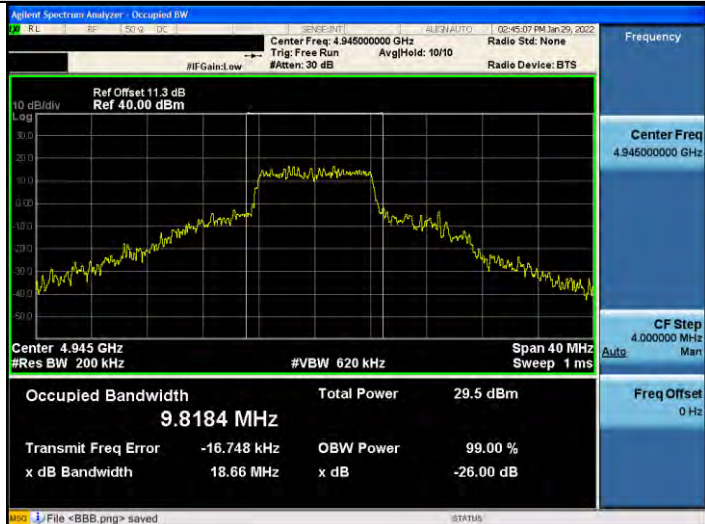
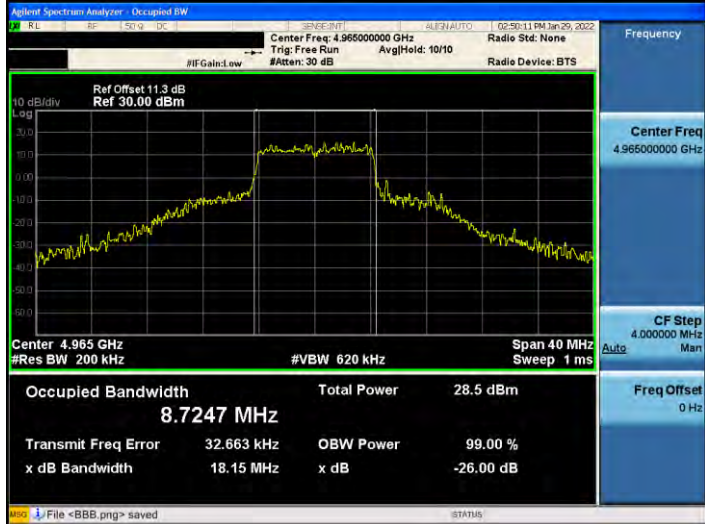
Test Graphs

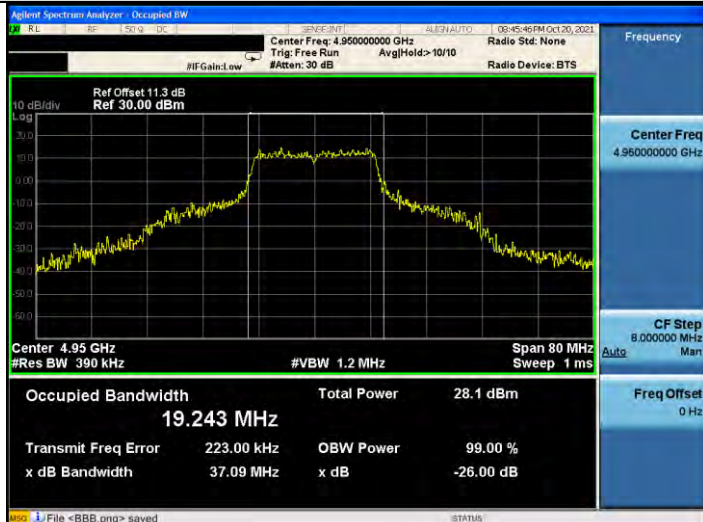
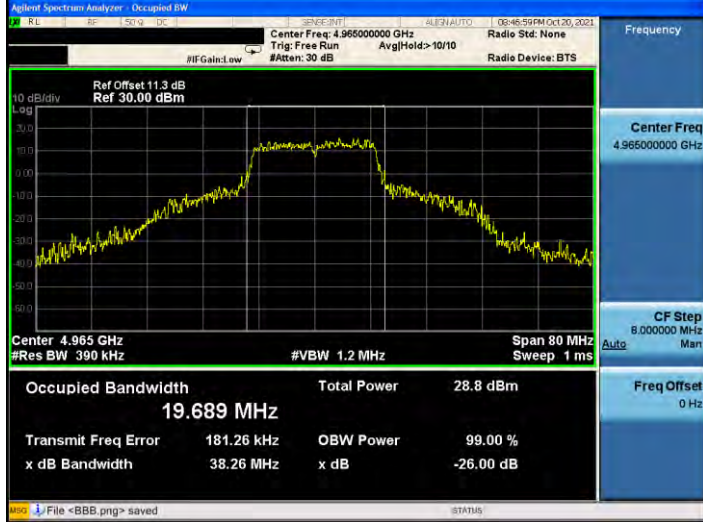
Mode 1: SISO_5 MHz Continuous TX mode (Legacy) _ANT-0	
4942.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94250000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.943 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.4589 MHz Total Power 29.8 dBm Transmit Freq Error 6.645 kHz OBW Power 99.00 % x dB Bandwidth 8.958 MHz x dB -26.00 dB File <BBB.png> saved Frequency Center Freq 4.94250000 GHz CF Step 2.000000 MHz Freq Offset 0 Hz
4967.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96750000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.968 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 5.2850 MHz Total Power 32.0 dBm Transmit Freq Error 64.172 kHz OBW Power 99.00 % x dB Bandwidth 9.340 MHz x dB -26.00 dB File <BBB.png> saved Frequency Center Freq 4.96750000 GHz CF Step 2.000000 MHz Freq Offset 0 Hz
4987.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98750000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.988 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 6.5549 MHz Total Power 32.4 dBm Transmit Freq Error -8.329 kHz OBW Power 99.00 % x dB Bandwidth 9.759 MHz x dB -26.00 dB File <BBB.png> saved Frequency Center Freq 4.98750000 GHz CF Step 2.000000 MHz Freq Offset 0 Hz

Mode 2: SISO_10 MHz Continuous TX mode (Legacy) _ANT-0	
4945 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.945 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 9.5533 MHz Total Power 29.8 dBm Transmit Freq Error 81.315 kHz OBW Power 99.00 % x dB Bandwidth 17.98 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.94500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.965 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 11.223 MHz Total Power 31.5 dBm Transmit Freq Error 376.51 kHz OBW Power 99.00 % x dB Bandwidth 19.32 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.96500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4985 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.985 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 12.992 MHz Total Power 31.4 dBm Transmit Freq Error 277.67 kHz OBW Power 99.00 % x dB Bandwidth 19.28 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.98500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz

Mode 3: SISO_20 MHz Continuous TX mode (Legacy) _ANT-0		
4950 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.95000000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.95 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 19.817 MHz Total Power 29.9 dBm Transmit Freq Error 480.91 kHz OBW Power 99.00 % x dB Bandwidth 37.34 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)	Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.965 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 19.985 MHz Total Power 29.6 dBm Transmit Freq Error 363.90 kHz OBW Power 99.00 % x dB Bandwidth 36.89 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)	Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4980 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98000000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.98 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 24.103 MHz Total Power 30.4 dBm Transmit Freq Error 490.81 kHz OBW Power 99.00 % x dB Bandwidth 38.74 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)	Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz

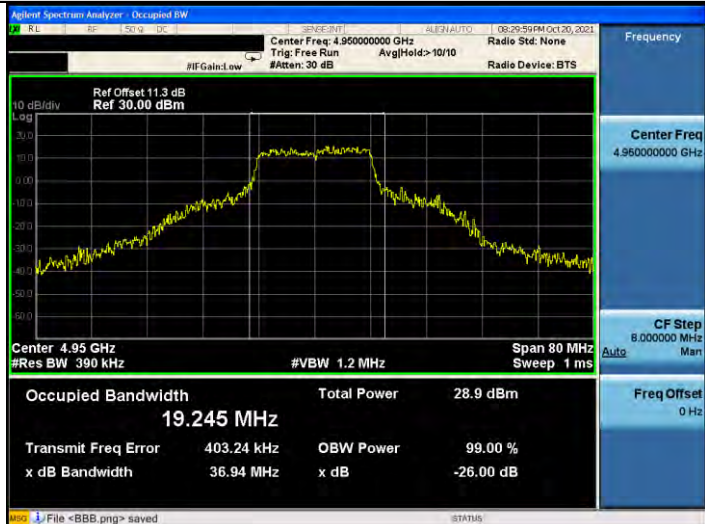
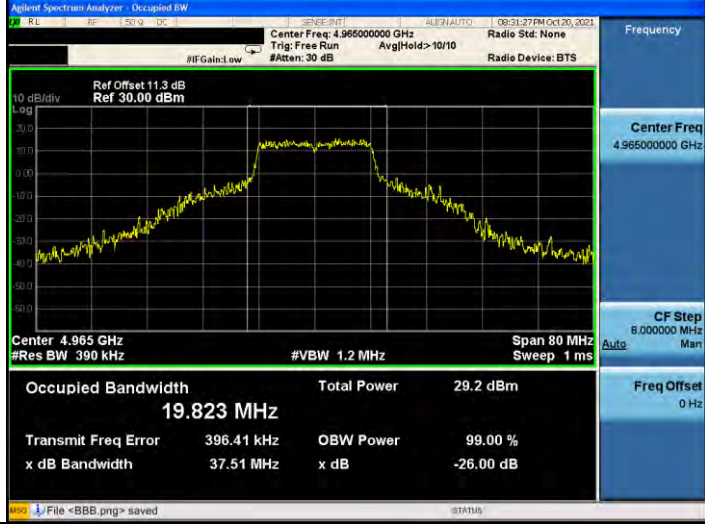
Mode 4: SISO_5 MHz Continuous TX mode_ANT-0	
4942.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94250000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 40.00 dBm Center 4.943 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.6925 MHz Total Power 28.9 dBm Transmit Freq Error -95.815 kHz OBW Power 99.00 % x dB Bandwidth 9.393 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)
4967.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96750000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm Center 4.968 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.3373 MHz Total Power 28.7 dBm Transmit Freq Error 1.312 kHz OBW Power 99.00 % x dB Bandwidth 9.316 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)
4987.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98750000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm Center 4.988 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.6426 MHz Total Power 30.3 dBm Transmit Freq Error -97.051 kHz OBW Power 99.00 % x dB Bandwidth 8.814 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)

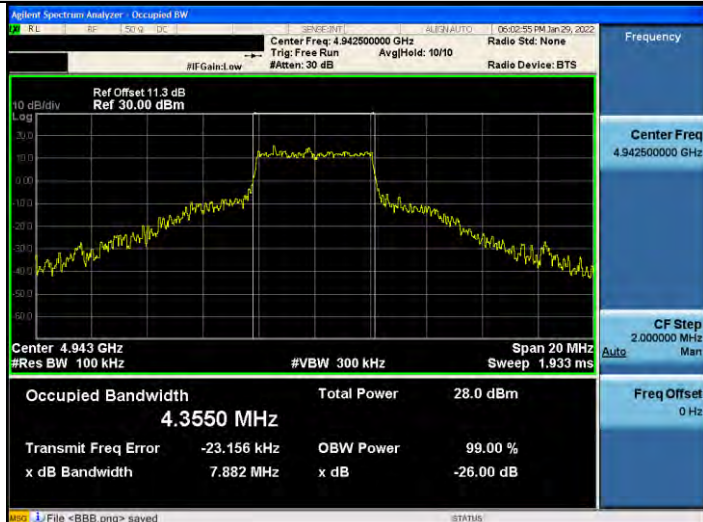
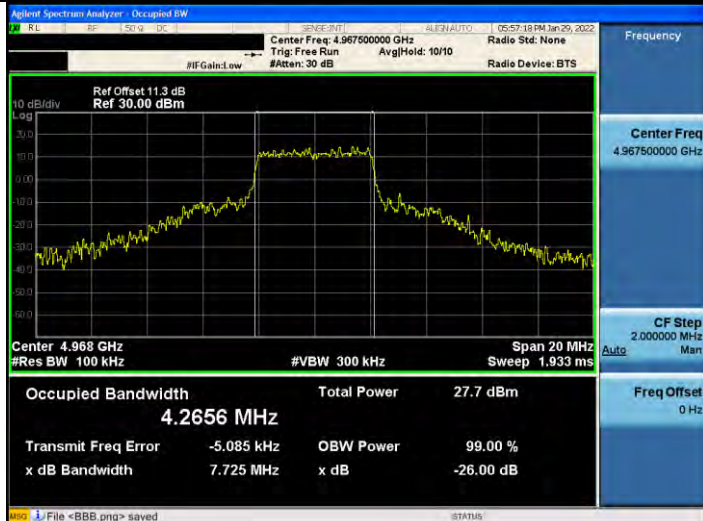
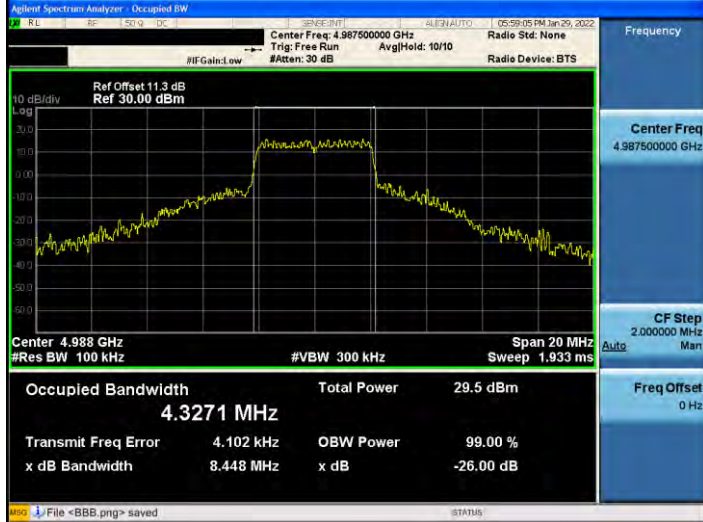
Mode 5: SISO_10 MHz Continuous TX mode_ANT-0		
4945 MHz		Frequency Center Freq 4.94500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz		Frequency Center Freq 4.96500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4985 MHz		Frequency Center Freq 4.98500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz

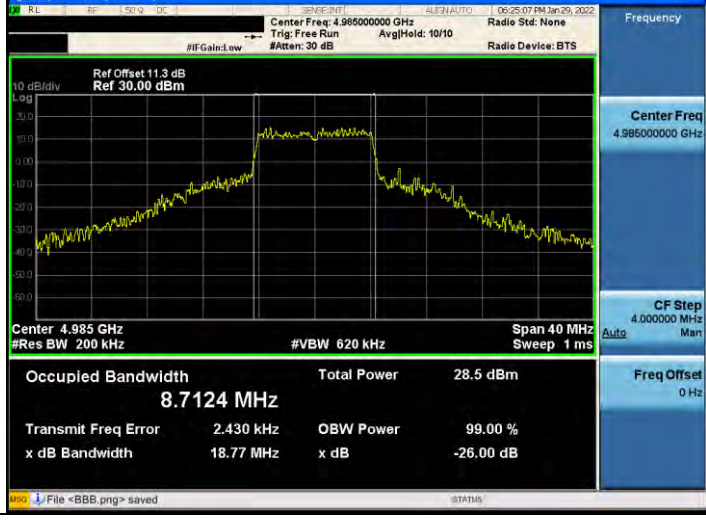
Mode 6: SISO_20 MHz Continuous TX mode_ANT-0	
4950 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.95000000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.95 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 19.243 MHz Total Power 28.1 dBm Transmit Freq Error 223.00 kHz OBW Power 99.00 % x dB Bandwidth 37.09 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.965 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 19.689 MHz Total Power 28.8 dBm Transmit Freq Error 181.26 kHz OBW Power 99.00 % x dB Bandwidth 38.26 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4980 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98000000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.98 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 21.382 MHz Total Power 29.8 dBm Transmit Freq Error 412.27 kHz OBW Power 99.00 % x dB Bandwidth 43.22 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz

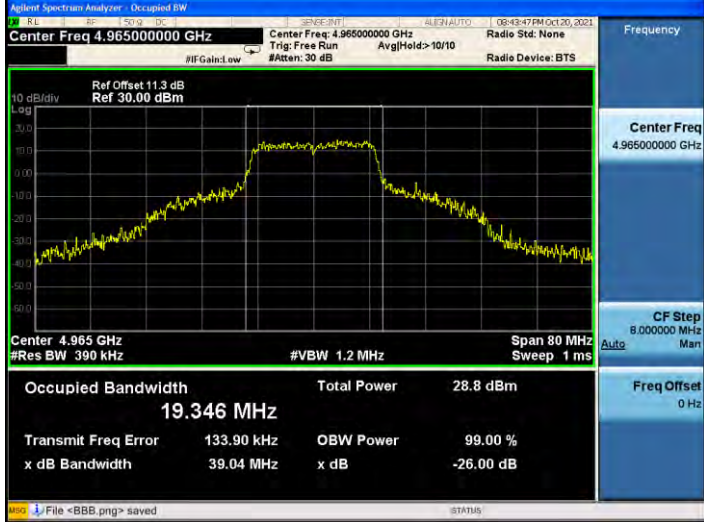
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy) _ANT-0	
4942.5 MHz	 Center Freq: 4.94250000 GHz Span: 20 MHz Res BW: 100 kHz Occupied Bandwidth: 4.5221 MHz Total Power: 30.6 dBm Transmit Freq Error: 20.536 kHz x dB Bandwidth: 9.026 MHz
4967.5 MHz	 Center Freq: 4.96750000 GHz Span: 20 MHz Res BW: 100 kHz Occupied Bandwidth: 5.9083 MHz Total Power: 32.4 dBm Transmit Freq Error: 77.837 kHz x dB Bandwidth: 9.808 MHz
4987.5 MHz	 Center Freq: 4.98750000 GHz Span: 20 MHz Res BW: 100 kHz Occupied Bandwidth: 5.8073 MHz Total Power: 31.8 dBm Transmit Freq Error: 104.16 kHz x dB Bandwidth: 9.647 MHz

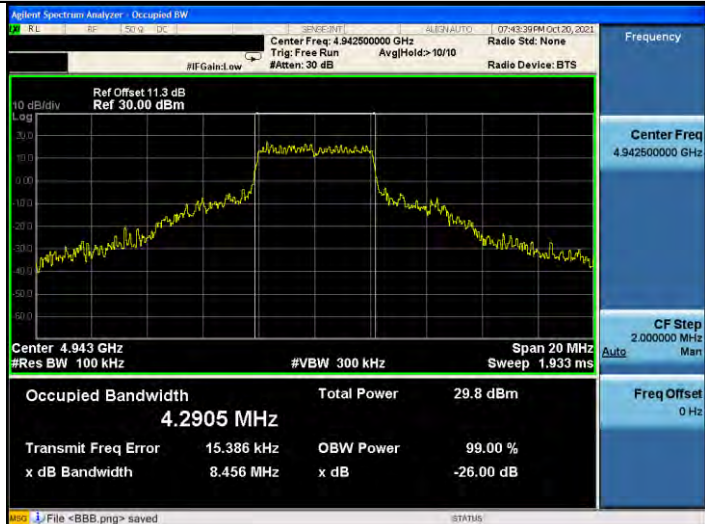
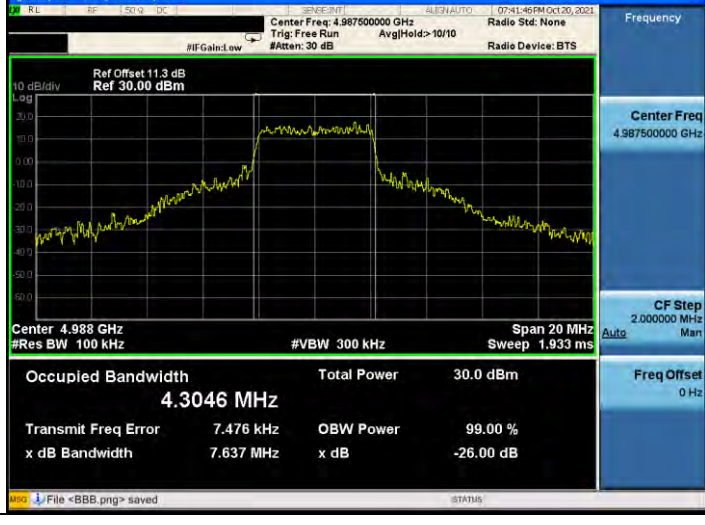
Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-0		
4945 MHz		Frequency Center Freq 4.94500000 GHz CF Step 4.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Center Freq 4.96500000 GHz CF Step 4.000000 MHz Man Freq Offset 0 Hz
4985 MHz		Frequency Center Freq 4.98500000 GHz CF Step 4.000000 MHz Man Freq Offset 0 Hz

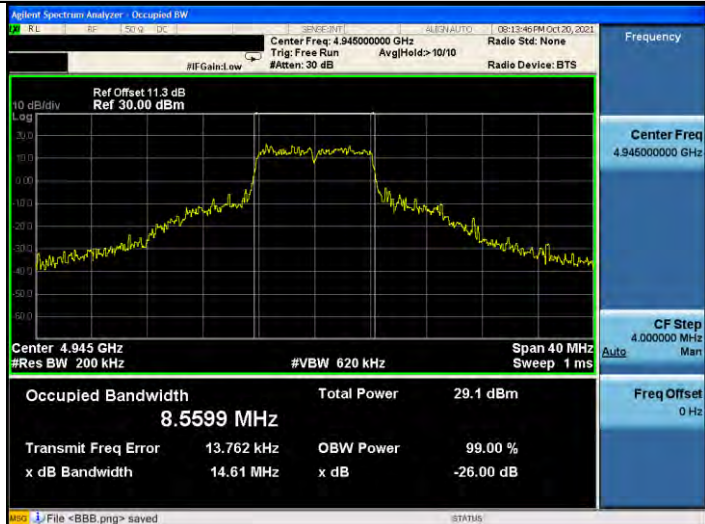
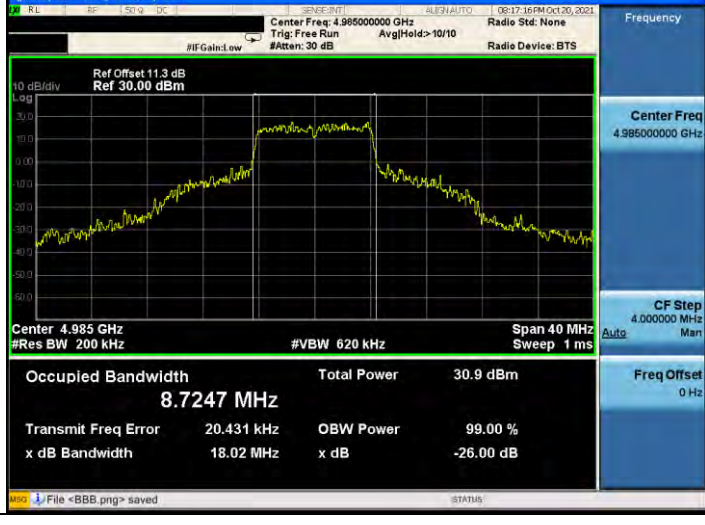
Mode 9: MIMO_20 MHz Continuous TX mode (Legacy) _ANT-0		
4950 MHz		Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4980 MHz		Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz

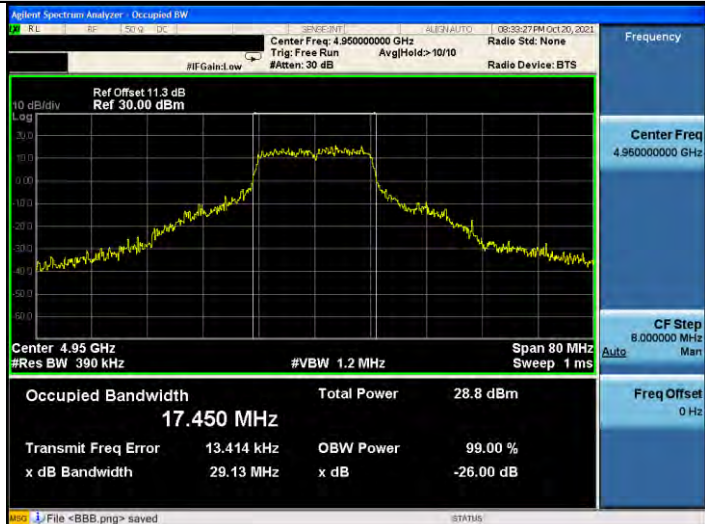
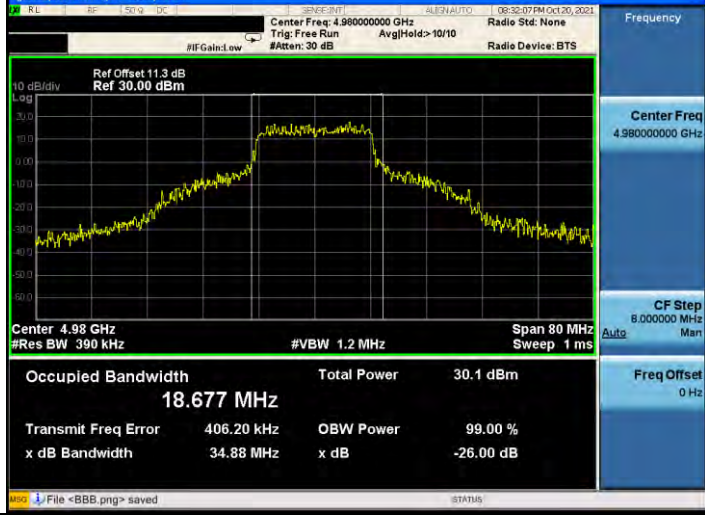
Mode 10: MIMO_5 MHz Continuous TX mode_ANT-0		
4942.5 MHz	 Center 4.943 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.3550 MHz Total Power 28.0 dBm Transmit Freq Error -23.156 kHz OBW Power 99.00 % x dB Bandwidth 7.882 MHz x dB -26.00 dB	Frequency Center Freq 4.942500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4967.5 MHz	 Center 4.968 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.2656 MHz Total Power 27.7 dBm Transmit Freq Error -5.085 kHz OBW Power 99.00 % x dB Bandwidth 7.725 MHz x dB -26.00 dB	Frequency Center Freq 4.967500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4987.5 MHz	 Center 4.988 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.3271 MHz Total Power 29.5 dBm Transmit Freq Error 4.102 kHz OBW Power 99.00 % x dB Bandwidth 8.448 MHz x dB -26.00 dB	Frequency Center Freq 4.987500000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz

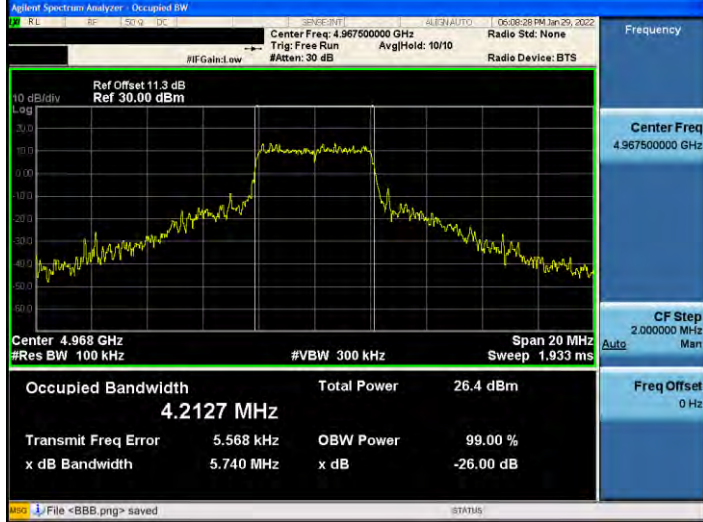
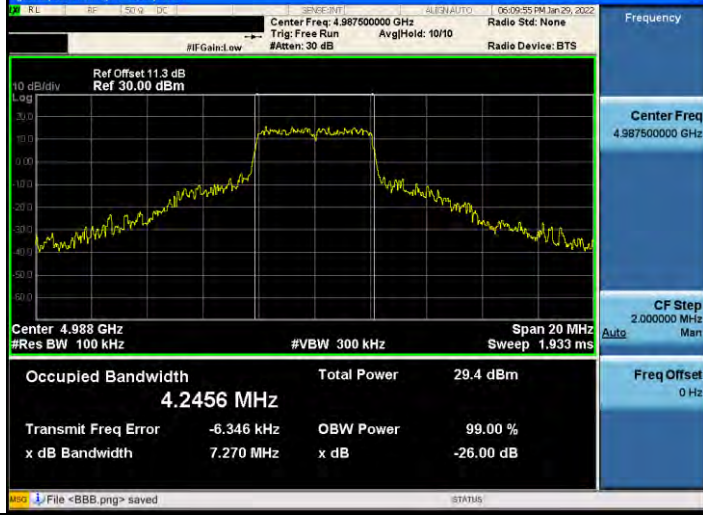
Mode 11: MIMO_10 MHz Continuous TX mode_ANT-0	
4945 MHz	
4965 MHz	
4985 MHz	

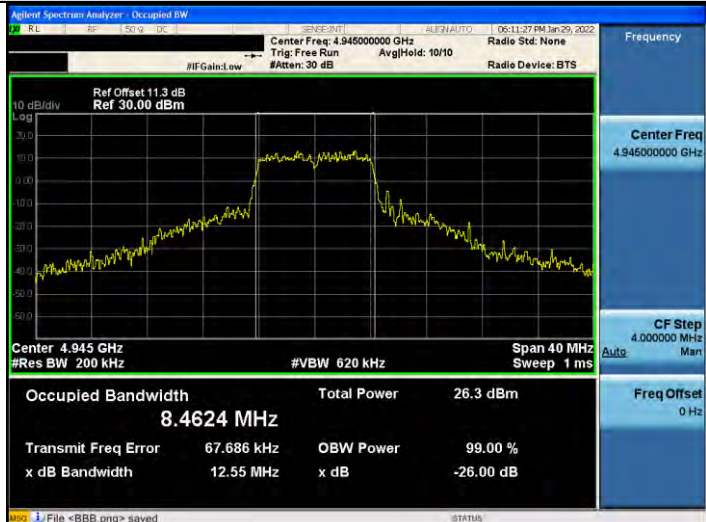
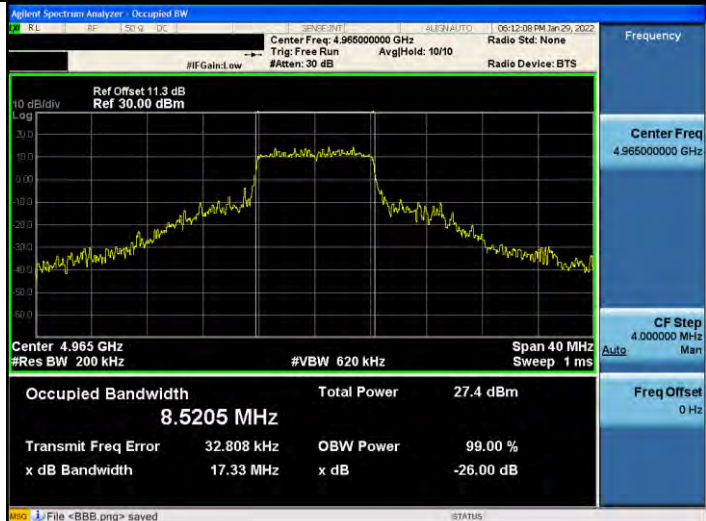
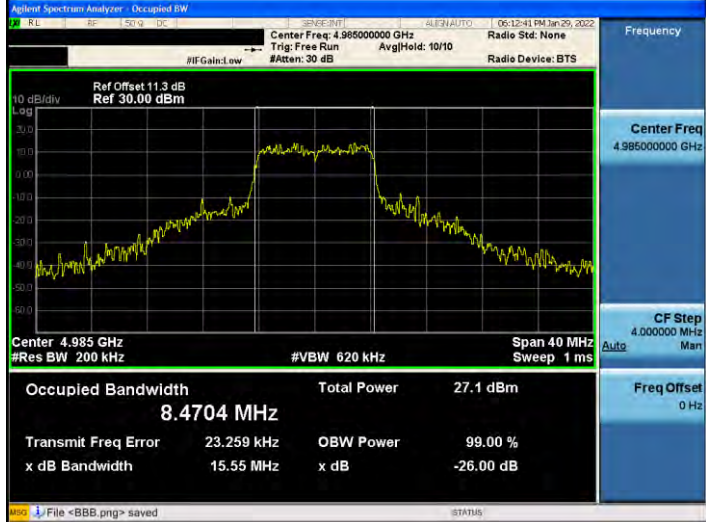
Mode 12: MIMO_20 MHz Continuous TX mode_ANT-0		
4950 MHz		Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4980 MHz		Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz

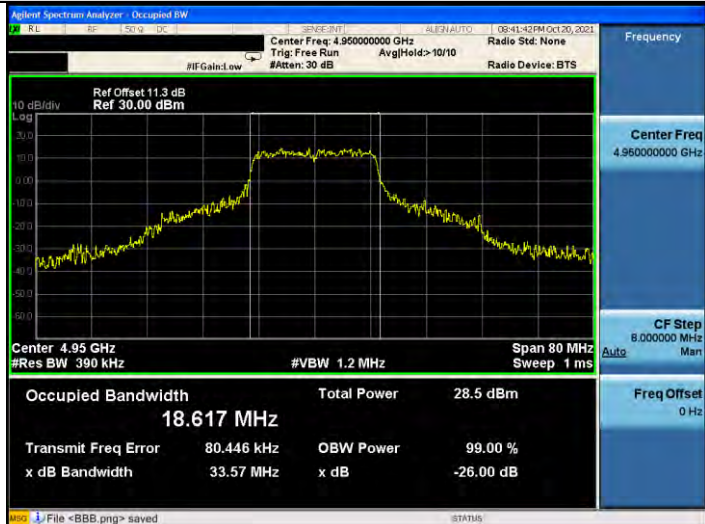
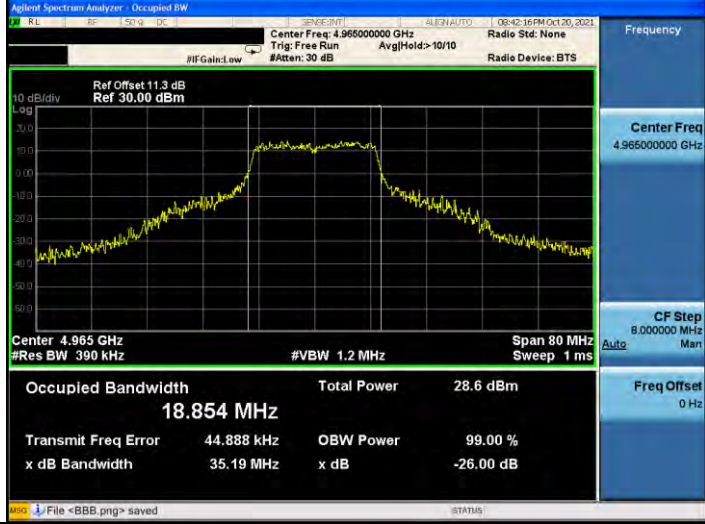
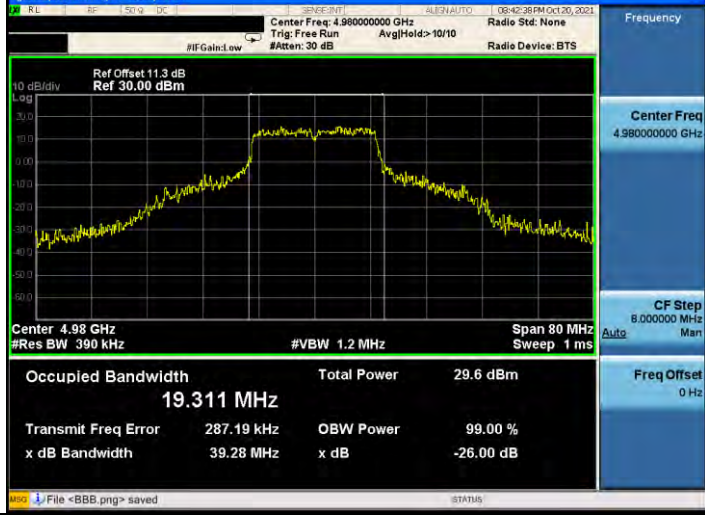
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy) _ANT-1	
4942.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94250000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm Center 4.943 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.2905 MHz Total Power 29.8 dBm Transmit Freq Error 15.386 kHz OBW Power 99.00 % x dB Bandwidth 8.456 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)
4967.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96750000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm Center 4.968 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.3774 MHz Total Power 30.6 dBm Transmit Freq Error 4.039 kHz OBW Power 99.00 % x dB Bandwidth 8.948 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)
4987.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98750000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm Center 4.988 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.3046 MHz Total Power 30.0 dBm Transmit Freq Error 7.476 kHz OBW Power 99.00 % x dB Bandwidth 7.637 MHz x dB -26.00 dB File <BBB.png> saved (STATUS)

Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-1	
4945 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.945 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 8.5599 MHz Total Power 29.1 dBm Transmit Freq Error 13.762 kHz OBW Power 99.00 % x dB Bandwidth 14.61 MHz x dB -26.00 dB File <BBB.png> saved STATUS
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.965 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 10.033 MHz Total Power 30.9 dBm Transmit Freq Error 134.34 kHz OBW Power 99.00 % x dB Bandwidth 19.05 MHz x dB -26.00 dB File <BBB.png> saved STATUS
4985 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div Center 4.985 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 8.7247 MHz Total Power 30.9 dBm Transmit Freq Error 20.431 kHz OBW Power 99.00 % x dB Bandwidth 18.02 MHz x dB -26.00 dB File <BBB.png> saved STATUS

Mode 9: MIMO_20 MHz Continuous TX mode (Legacy) _ANT-1	
4950 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.95000000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.95 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 17.450 MHz Total Power 28.8 dBm Transmit Freq Error 13.414 kHz OBW Power 99.00 % x dB Bandwidth 29.13 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.965 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 17.965 MHz Total Power 30.2 dBm Transmit Freq Error 208.99 kHz OBW Power 99.00 % x dB Bandwidth 33.78 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
4980 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98000000 GHz Trig: Free Run #Atten: 30 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.98 GHz #Res BW 390 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1 ms Occupied Bandwidth 18.677 MHz Total Power 30.1 dBm Transmit Freq Error 406.20 kHz OBW Power 99.00 % x dB Bandwidth 34.88 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz

Mode 10: MIMO_5 MHz Continuous TX mode_ANT-1	
4942.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94250000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.943 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.2080 MHz Total Power 25.4 dBm Transmit Freq Error 2.067 kHz OBW Power 99.00 % x dB Bandwidth 6.125 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.94250000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4967.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96750000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.968 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.2127 MHz Total Power 26.4 dBm Transmit Freq Error 5.568 kHz OBW Power 99.00 % x dB Bandwidth 5.740 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.96750000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz
4987.5 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98750000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 9g Center 4.988 GHz #Res BW 100 kHz #VBW 300 kHz Span 20 MHz Sweep 1.933 ms Occupied Bandwidth 4.2456 MHz Total Power 29.4 dBm Transmit Freq Error -6.346 kHz OBW Power 99.00 % x dB Bandwidth 7.270 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.98750000 GHz CF Step 2.000000 MHz Auto Man Freq Offset 0 Hz

Mode 11: MIMO_10 MHz Continuous TX mode_ANT-1	
4945 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.94500000 GHz Trig: Free Run Ave/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.945 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 8.4624 MHz Total Power 26.3 dBm Transmit Freq Error 67.686 kHz OBW Power 99.00 % x dB Bandwidth 12.55 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.94500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4965 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.96500000 GHz Trig: Free Run Ave/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.965 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 8.5205 MHz Total Power 27.4 dBm Transmit Freq Error 32.808 kHz OBW Power 99.00 % x dB Bandwidth 17.33 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.96500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
4985 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 4.98500000 GHz Trig: Free Run Ave/Hold: 10/10 Radio Std: None Radio Device: BTS Ref Offset 11.3 dB Ref 30.00 dBm 10 dB/div L 99 Center 4.985 GHz #Res BW 200 kHz #VBW 620 kHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 8.4704 MHz Total Power 27.1 dBm Transmit Freq Error 23.259 kHz OBW Power 99.00 % x dB Bandwidth 15.55 MHz x dB -26.00 dB File <BBB.png> saved (STATUS) Frequency Center Freq 4.98500000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz

Mode 12: MIMO_20 MHz Continuous TX mode_ANT-1		
4950 MHz		Frequency Center Freq 4.95000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Center Freq 4.96500000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz
4980 MHz		Frequency Center Freq 4.98000000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz