

RF Test Report

Applicant : Rajant Corporation
Product Type : Radio Module
Trade Name : VIZMONET
Model Number : RJ-1704
Applicable Standard : FCC 47 CFR PART 90Y
ANSI C63.26 2015
Received Date : Aug. 04, 2021
Test Period : Dec. 01, 2021 ~ Feb. 11, 2022
Issued Date : May 18, 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 18, 2022	Initial Issue	Snow Wang

Verification of Compliance

Applicant : Rajant Corporation

Product Type : Radio Module

Trade Name : VIZMONET

Model Number : RJ-1704

FCC ID : VJA-RJ1704

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

Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
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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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Appendix A. Test Setup Photographs

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-1704			
FCC ID	VJA-RJ1704			
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
	ANT-0/ANT-1	FP4959-22DP	External type (Directional Panel)	22
Operate Temp. Range	-40 ~ +85 °C			
EUT Power Rating	DC 3.3 V			

Omni-directional Antenna

Test Mode	Max. RF Output Power (dBm)	26 dB RF Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
Mode 1	26.14	8.905	4.549
Mode 2	26.13	18.590	8.820
Mode 3	26.22	36.610	18.963
Mode 4	26.13	8.471	4.388
Mode 5	26.21	18.390	9.006
Mode 6	26.19	39.240	19.100
Mode 7	26.30	6.617	4.238
Mode 8	28.85	17.960	9.592
Mode 9	28.99	35.650	19.542
Mode 10	26.52	5.791	4.224
Mode 11	29.10	18.520	9.301
Mode 12	28.99	37.640	19.260

Directional Panel Antenna

Test Mode	Max. RF Output Power (dBm)	26 dB RF Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
Mode 1	10.27	5.433	4.201
Mode 2	15.01	9.717	8.399
Mode 3	19.37	22.610	17.953
Mode 4	10.31	4.871	4.188
Mode 5	15.80	9.719	8.335
Mode 6	18.55	22.980	16.915
Mode 7	10.96	5.243	4.196
Mode 8	13.38	10.640	8.398
Mode 9	15.89	23.030	16.923
Mode 10	10.90	5.374	4.217
Mode 11	13.33	10.620	8.376
Mode 12	16.86	24.210	18.105

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-1 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

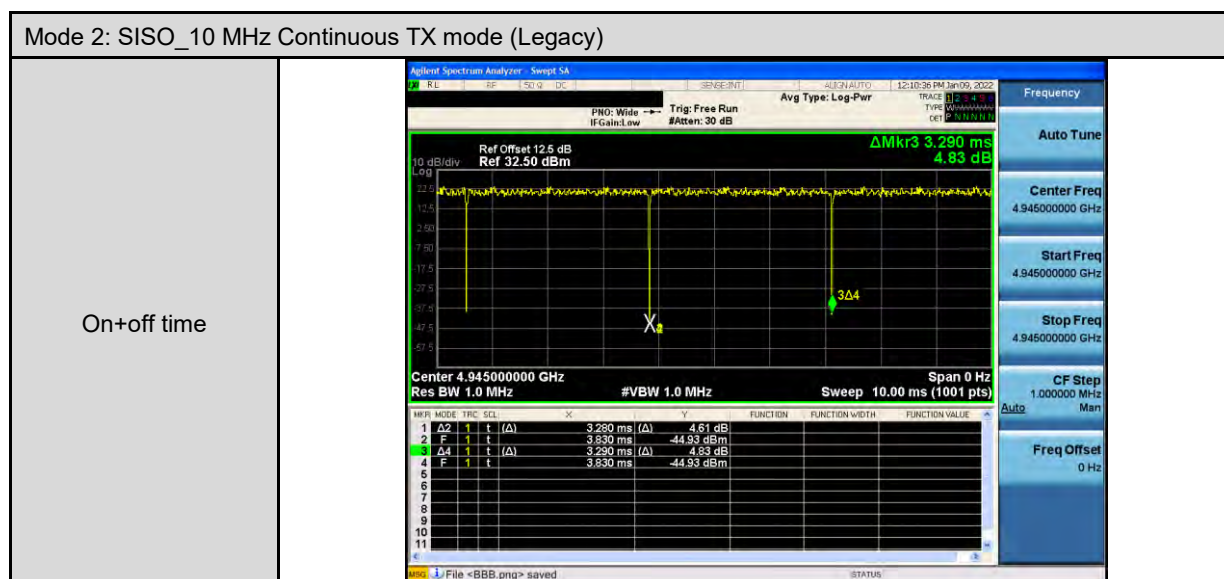
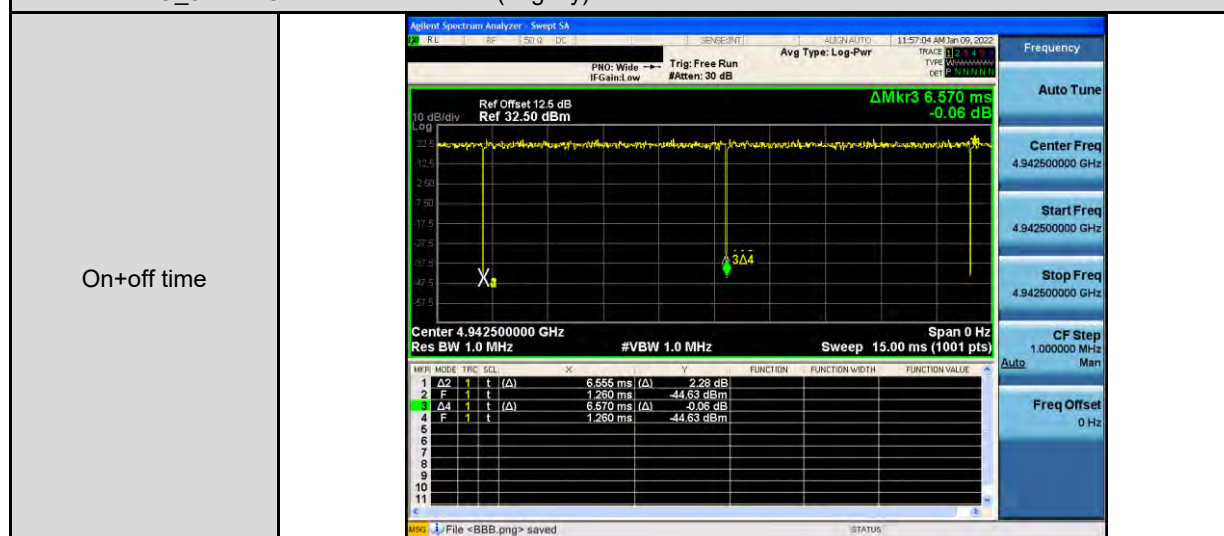
Test Mode	Antenna Delivery	Data Rate (Mbps)	Test Frequency (MHz)
Mode 1	1TX (Diversity)	6	4942.5, 4967.5, 4987.5
Mode 2	1TX (Diversity)	6	4945, 4965, 4985
Mode 3	1TX (Diversity)	6	4950, 4965, 4980
Mode 4	1TX (Diversity)	MCS0	4942.5, 4967.5, 4987.5
Mode 5	1TX (Diversity)	MCS0	4945, 4965, 4985
Mode 6	1TX (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

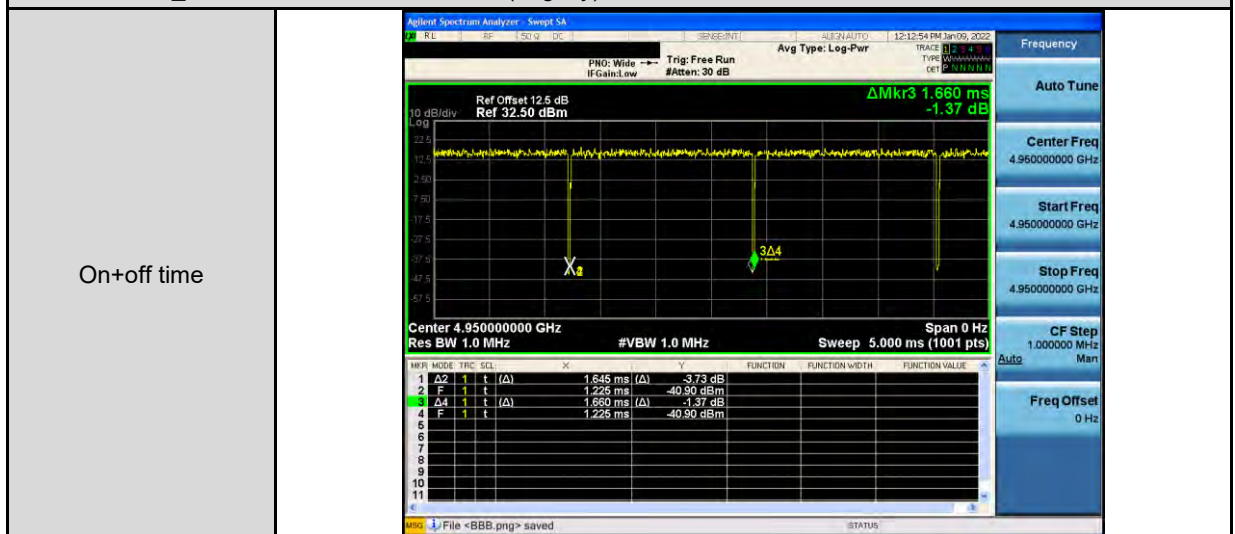
Omni-directional Antenna

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	4942.5	1.645	1.660	0.991	0.039	0.010
Mode 4	4942.5	6.570	6.585	0.998	0.010	0.010
Mode 5	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 6	4942.5	1.535	1.560	0.984	0.070	0.010
Mode 7	4942.5	6.560	6.580	0.997	0.013	0.010
Mode 8	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 9	4950.0	1.640	1.660	0.988	0.053	0.010
Mode 10	4942.5	6.560	6.580	0.997	0.013	0.010
Mode 11	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 12	4950.0	0.792	0.819	0.967	0.146	1.263

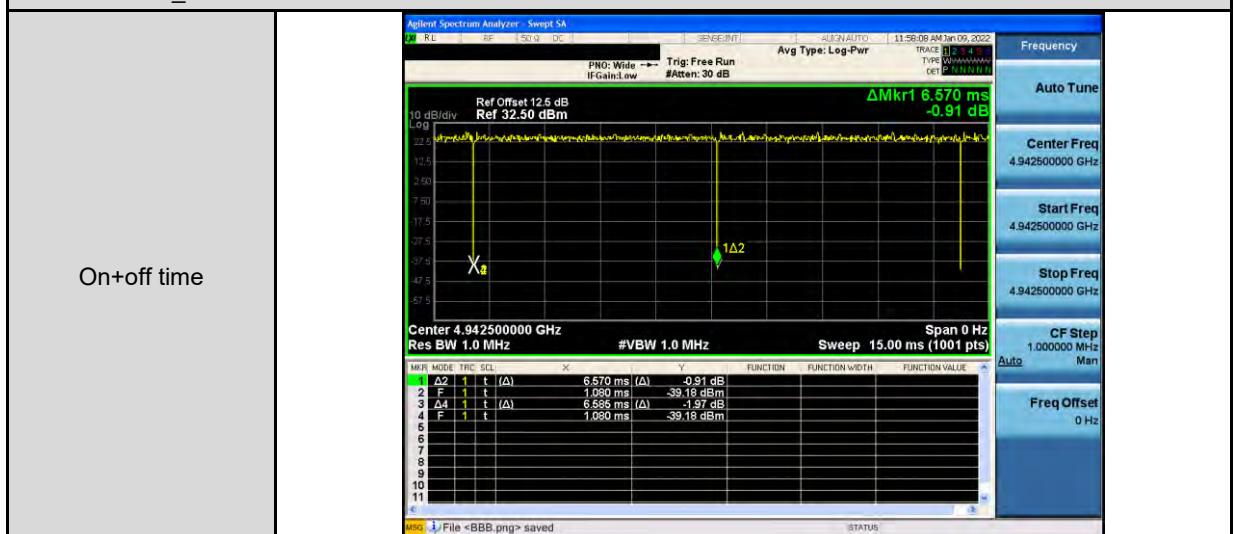
Mode 1: SISO 5 MHz Continuous TX mode (Legacy)



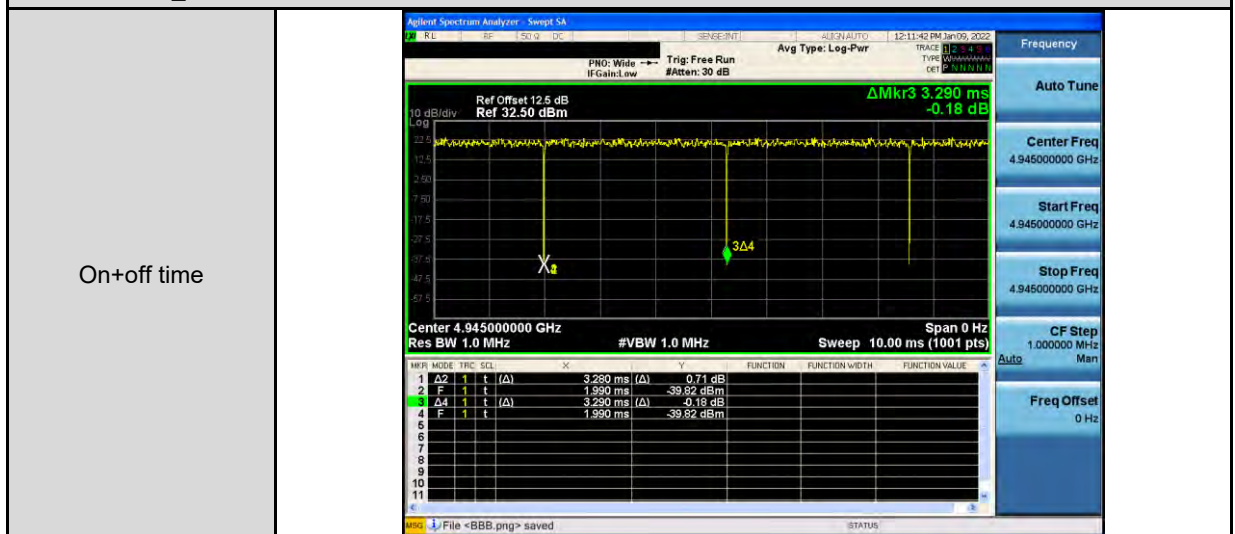
Mode 3: SISO_20 MHz Continuous TX mode (Legacy)



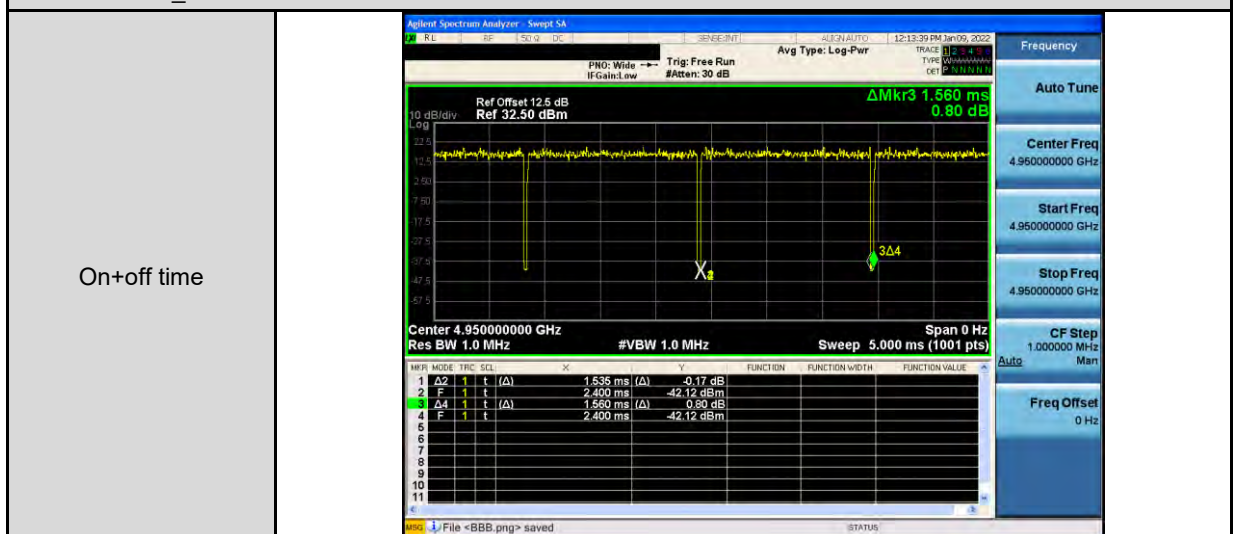
Mode 4: SISO_5 MHz Continuous TX mode



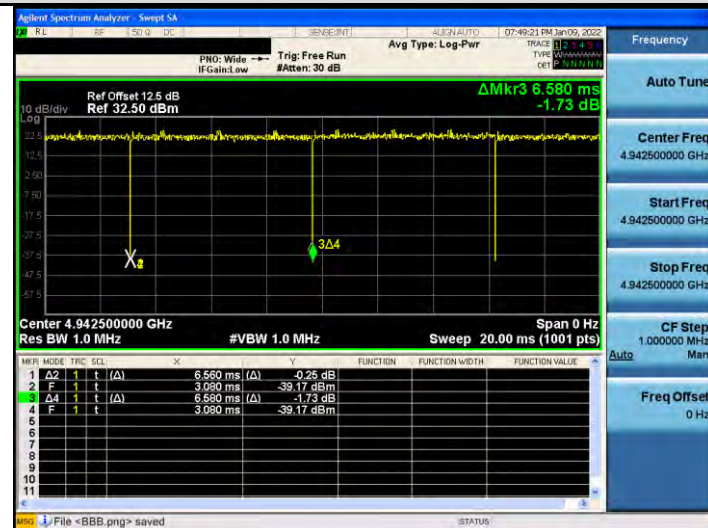
Mode 5: SISO_10 MHz Continuous TX mode



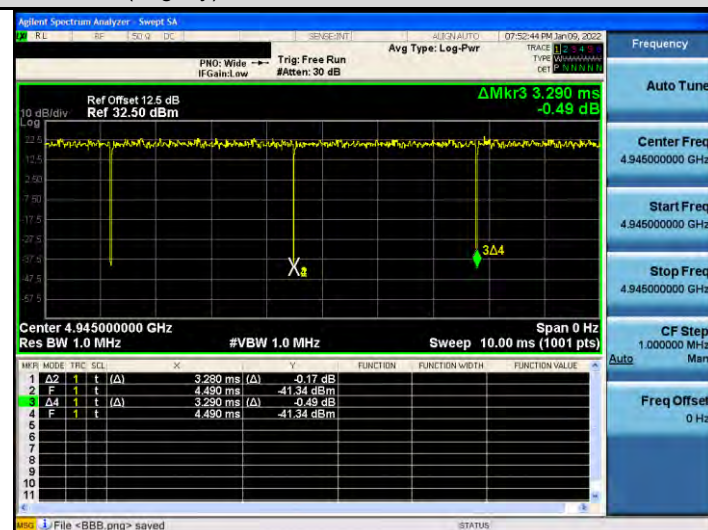
Mode 6: SISO_20 MHz Continuous TX mode



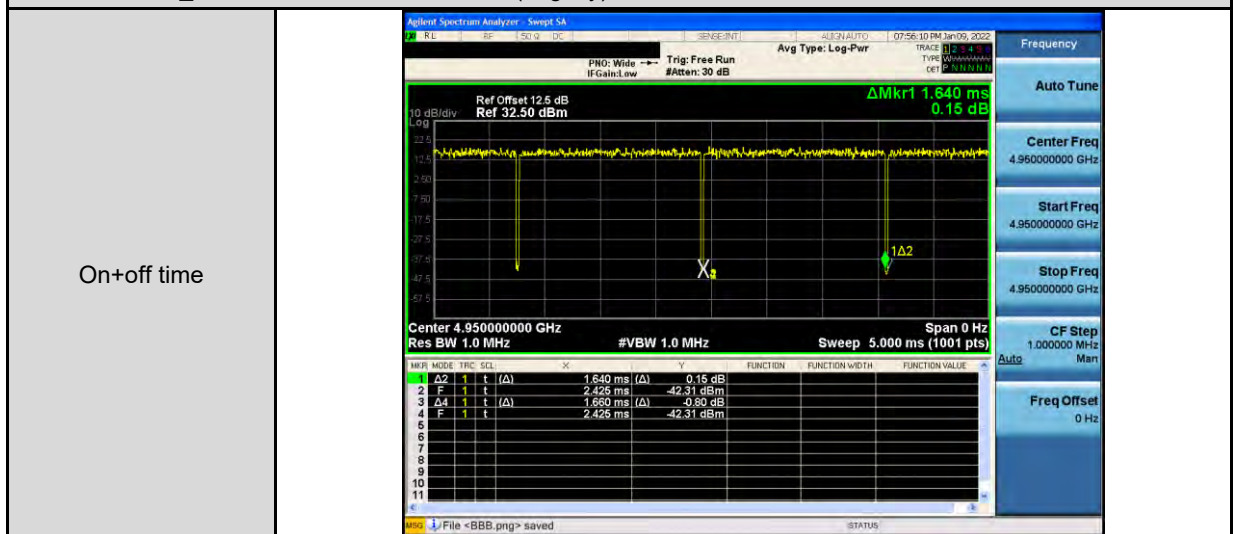
On+off time



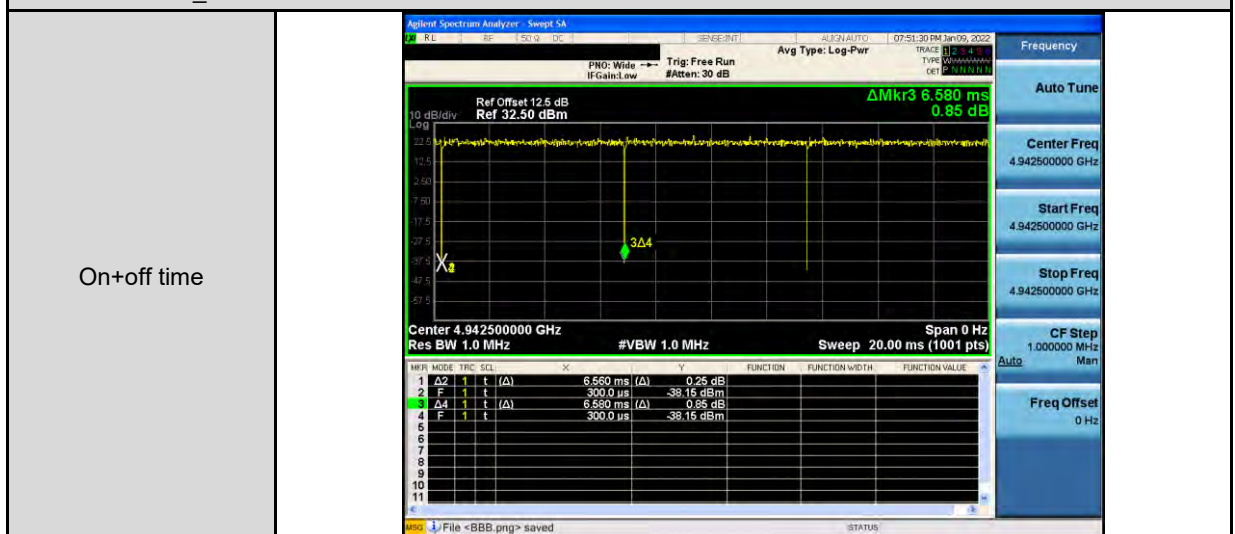
On+off time



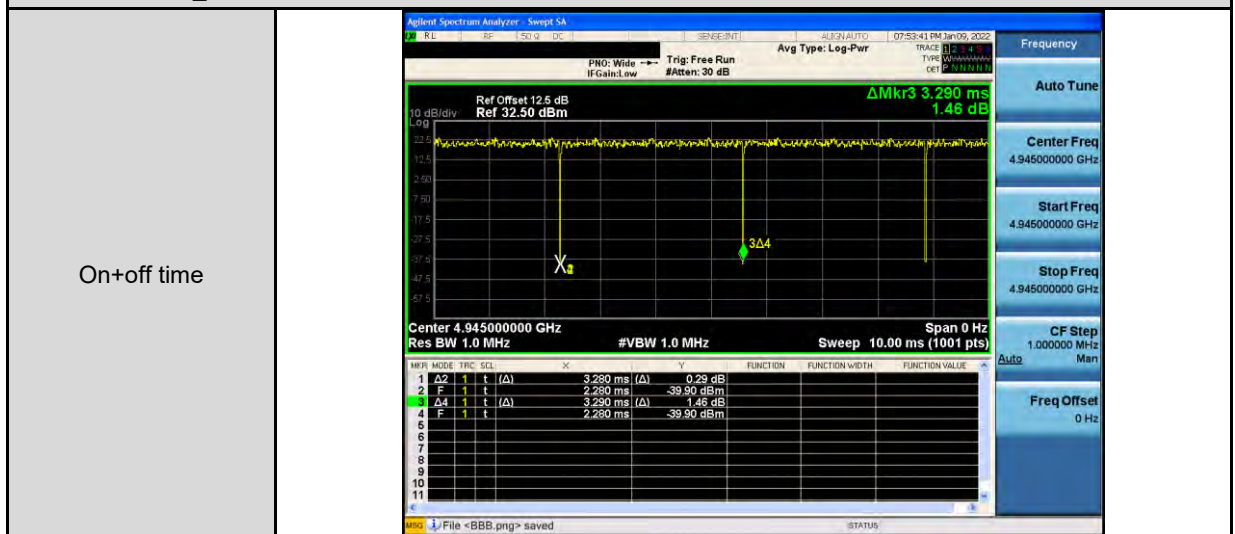
Mode 9: MIMO_20 MHz Continuous TX mode (Legacy)



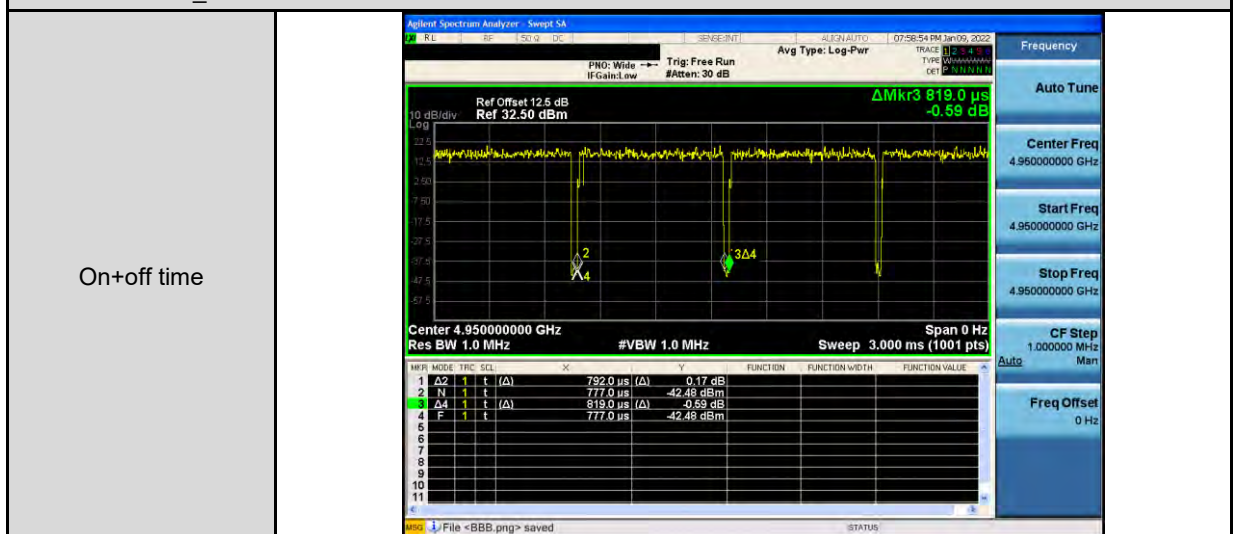
Mode 10: MIMO_5 MHz Continuous TX mode



Mode 11: MIMO_10 MHz Continuous TX mode



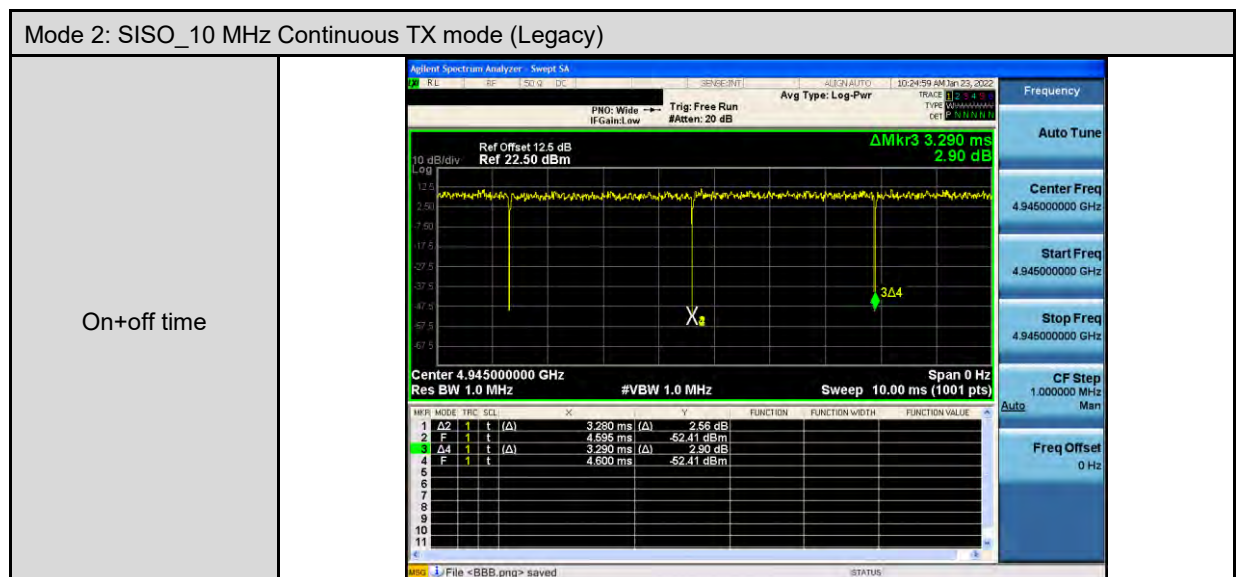
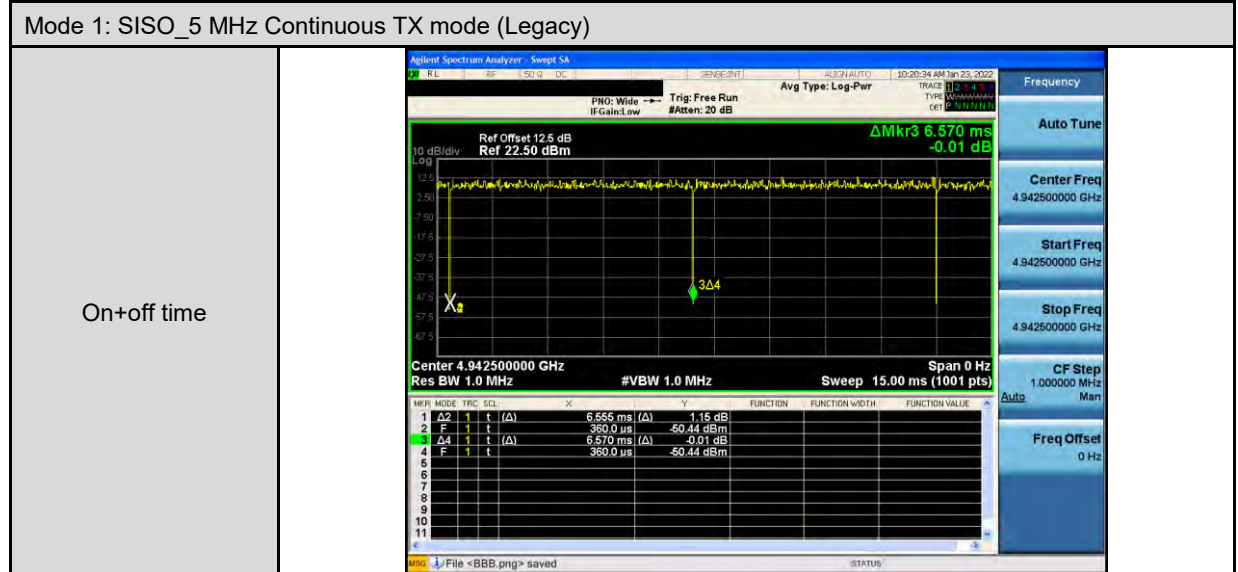
Mode 12: MIMO_20 MHz Continuous TX mode



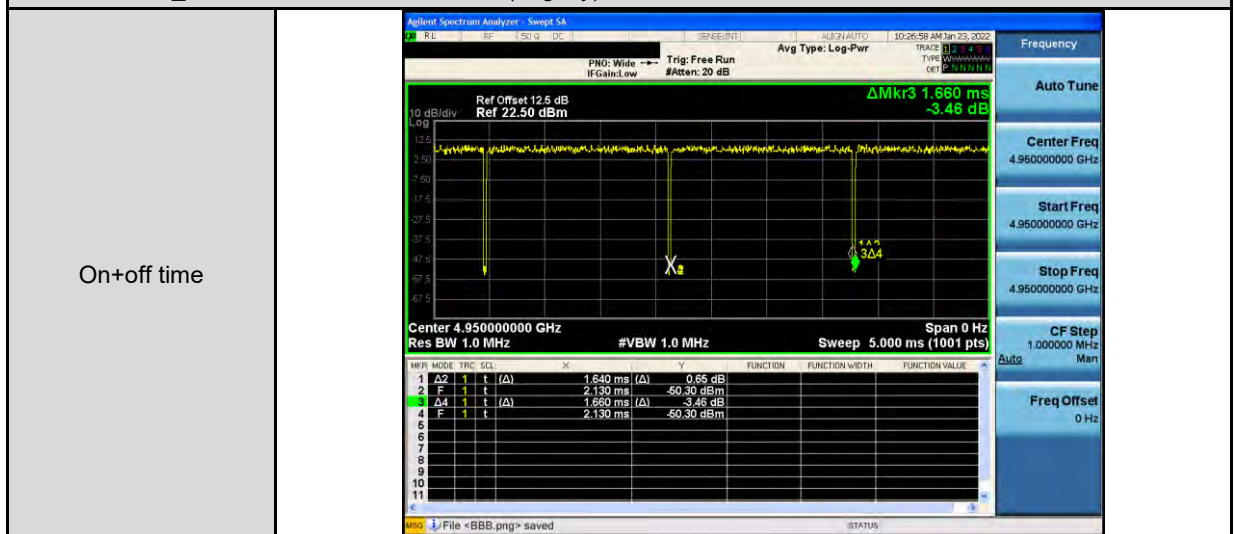
Directional Panel Antenna

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	4942.5	1.640	1.660	0.988	0.053	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	4942.5	1.535	1.560	0.984	0.070	0.010
Mode 7	4942.5	6.555	6.570	0.998	0.010	0.010
Mode 8	4945.0	3.280	3.290	0.997	0.013	0.010
Mode 9	4942.5	1.640	1.660	0.988	0.053	0.010
Mode 10	4942.5	6.555	6.570	0.998	0.010	0.010
Mode 11	4945.0	3.280	3.300	0.994	0.026	0.010
Mode 12	4942.5	0.795	0.820	0.970	0.134	1.258

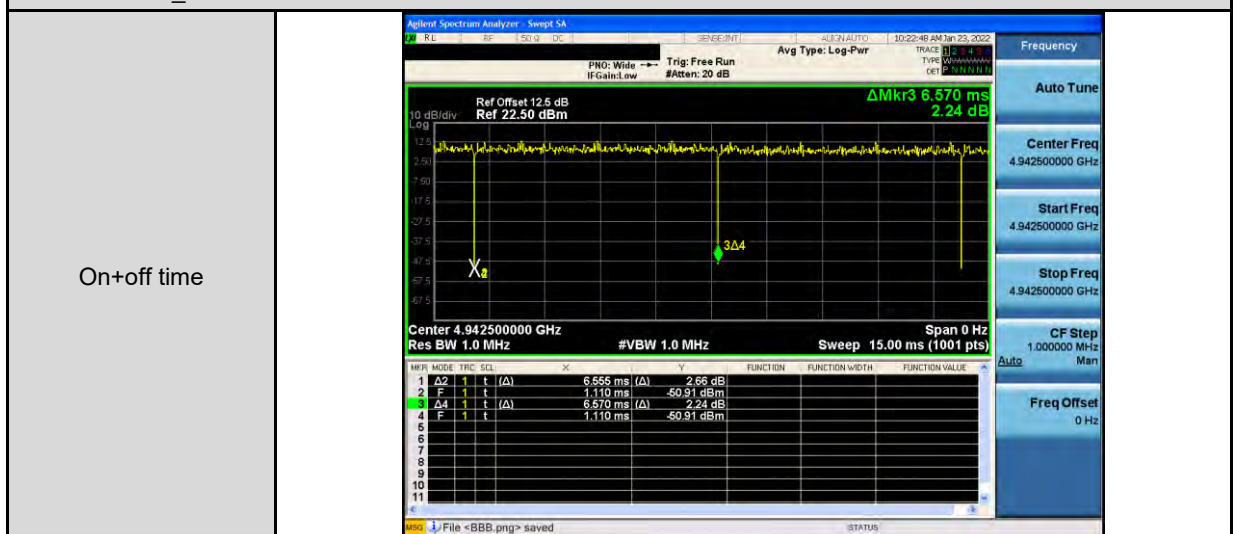
Duty Cycle Graphs



Mode 3: SISO_20 MHz Continuous TX mode (Legacy)



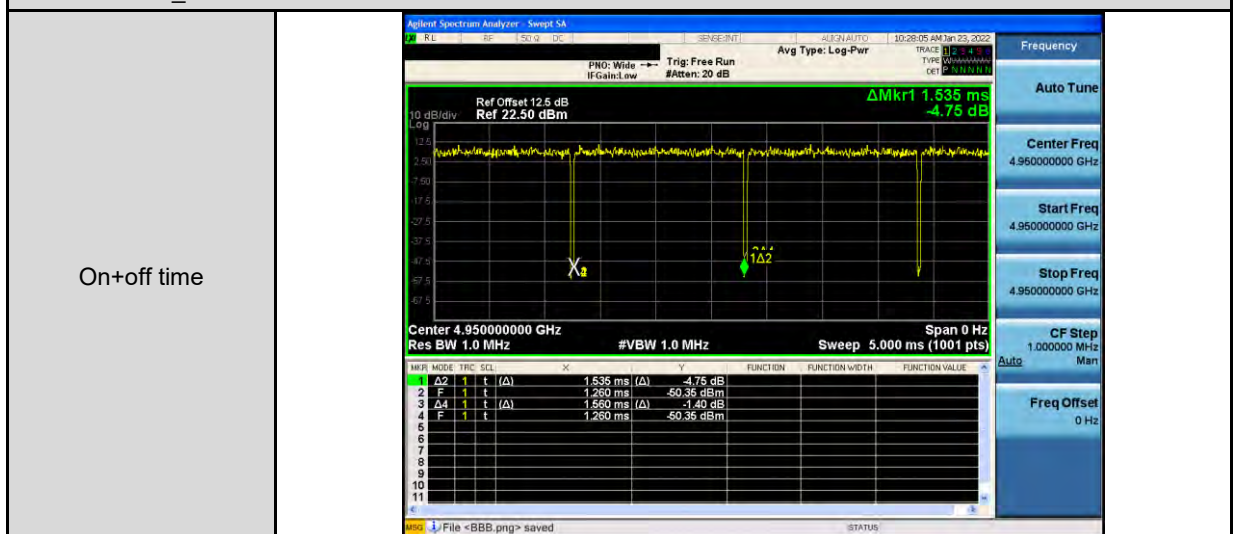
Mode 4: SISO_5 MHz Continuous TX mode



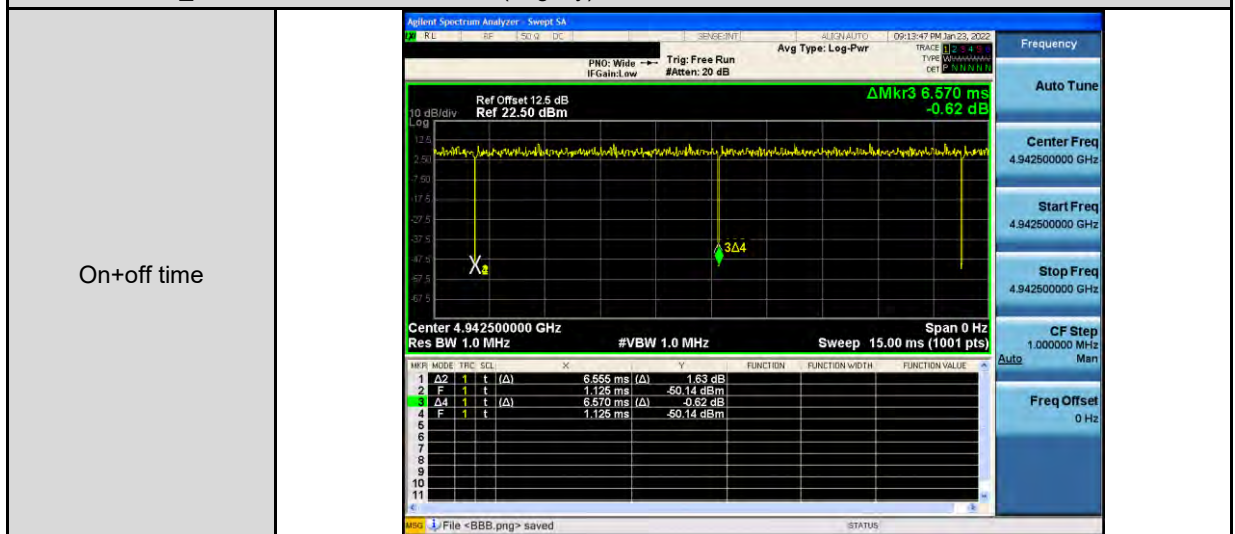
Mode 5: SISO_10 MHz Continuous TX mode



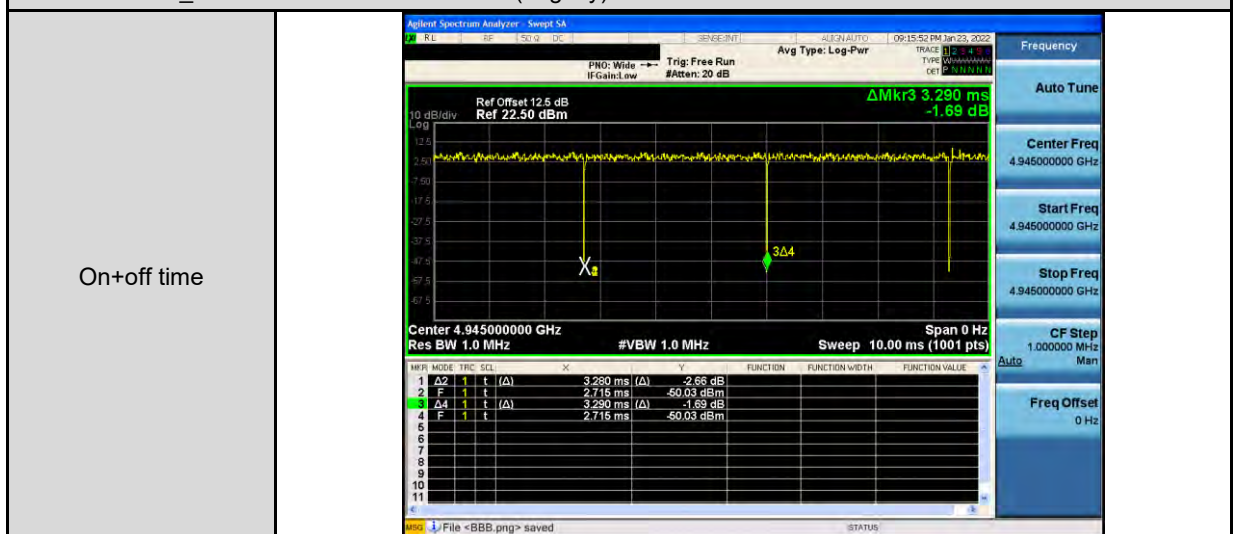
Mode 6: SISO_20 MHz Continuous TX mode



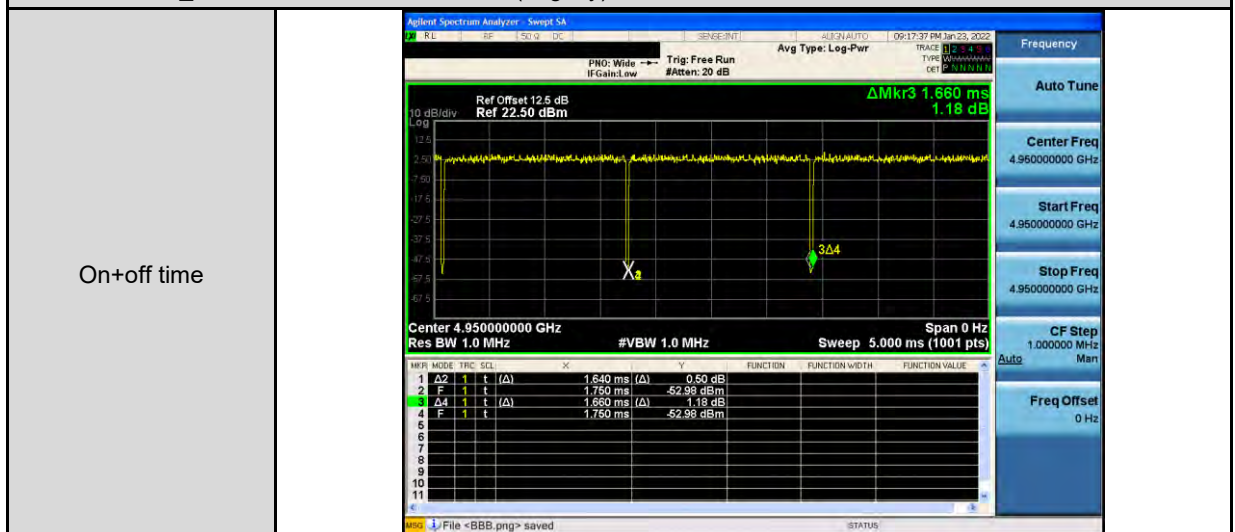
Mode 7: MIMO_5 MHz Continuous TX mode (Legacy)



Mode 8: MIMO_10 MHz Continuous TX mode (Legacy)



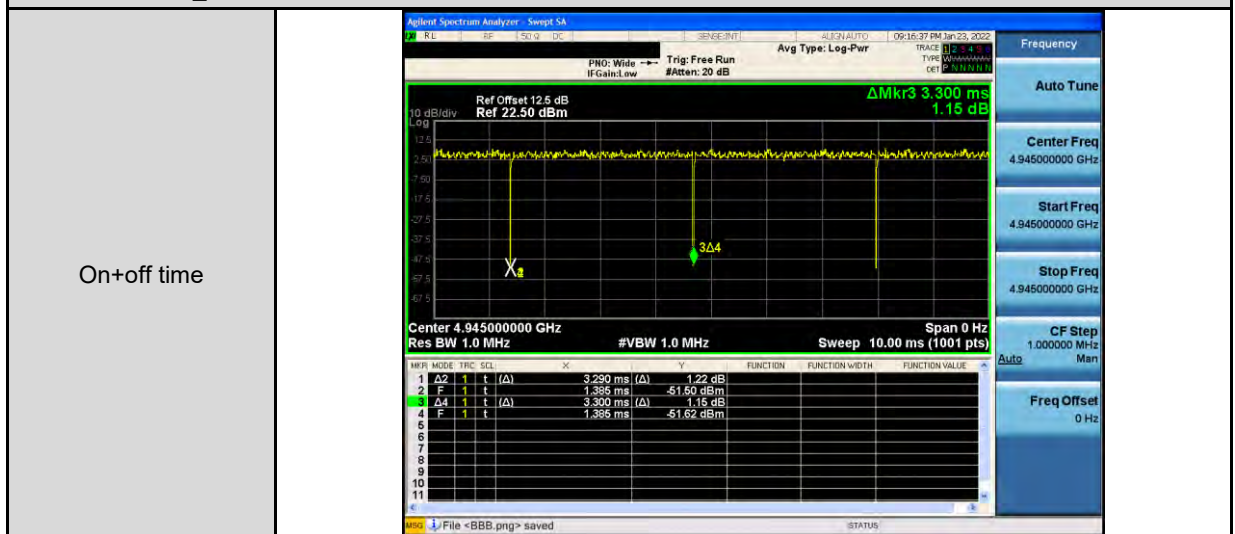
Mode 9: MIMO_20 MHz Continuous TX mode (Legacy)



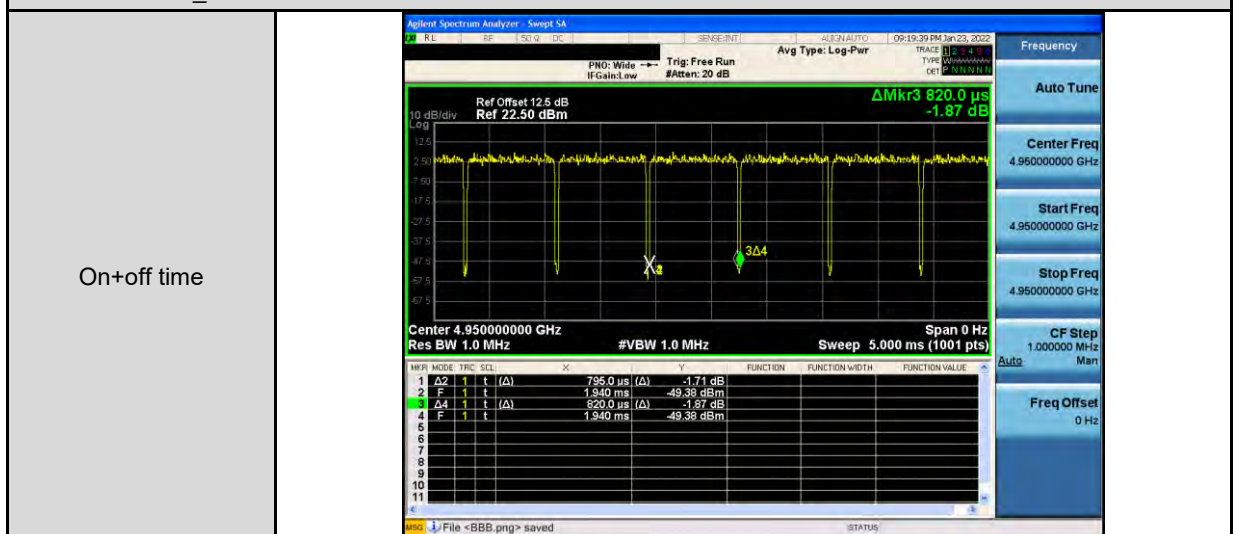
Mode 10: MIMO_5 MHz Continuous TX mode



Mode 11: MIMO_10 MHz Continuous TX mode



Mode 12: MIMO_20 MHz Continuous TX mode

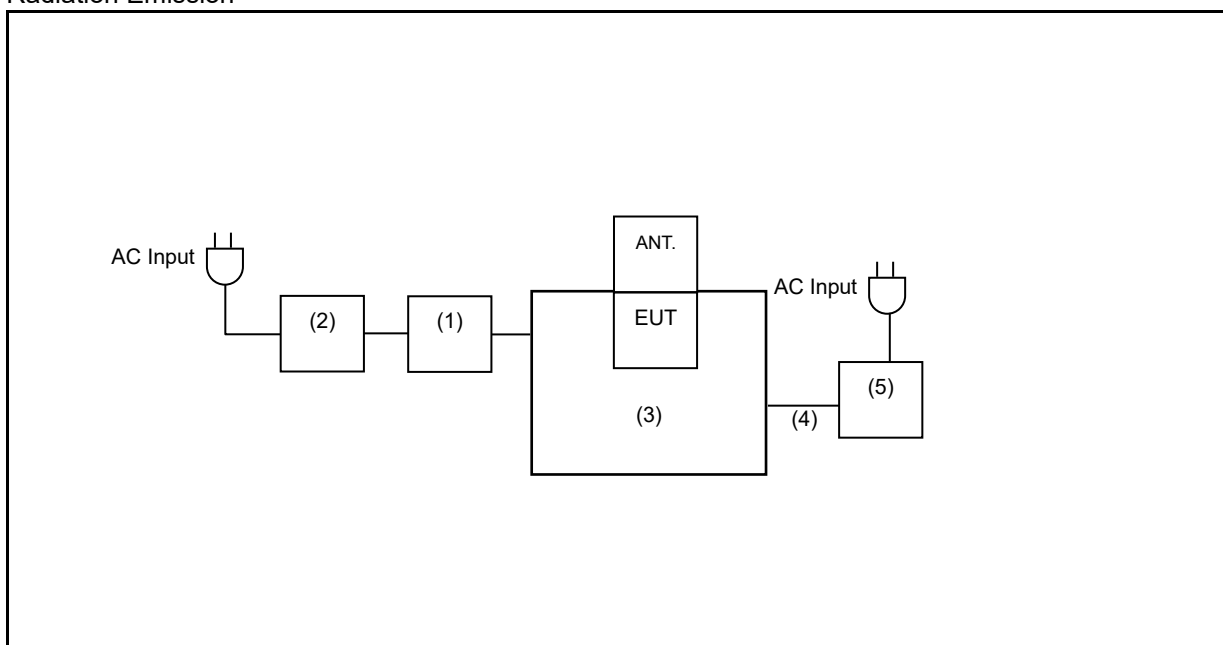


1.3. EUT Test Step

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	acer	N19C1	---	---
(2)	AC Adapter	chiicony	A18-045N2A	---	---
(3)	Fixture	FTDI	TTL-232R-3.3V	---	---
(4)	LAN Cable	BELDEN	900000433	---	---
(5)	PoE	Tycon Systems	TP-POE-24G	---	---

1.5. Test Instruments

For Radiated Emissions

Test Period: Dec. 01, 2021 ~ Feb. 11, 2022

Testing Engineer: Hung Chou

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. 18, 2021 Jan. 13, 2022	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Jan. 08, 2021 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. 15, 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	T0910E00014330 A1F	001	Jul. 23, 2021	1 year
☐	Amplifier (1 GHz~26.5 GHz)	Agilent	8449B	3008A02237	Oct. 21, 2021	1 year
☒	Broadband Amplifier (1 GHz~26.5 GHz)	Titan	T0912E01263025 A1F	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. 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, 2021 Dec. 03, 2022	1 year
☐	RF Cable	EMCI	EMC104-N-N-600 0	TE01-1	Feb. 19, 2021	1 year
☐	Microwave Cable	EMCI	EMC104-SM-SM- 13000	170814	Feb. 19, 2021	1 year

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

Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	Feb. 19, 2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A100	J11005	Aug. 06, 2021	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A900	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	Jan. 19, 2021 Feb. 01, 2021	1 year
☒	Software	EZ EMC	1.1.4.4	N/A	N.C.R.	---

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

For Conducted

Test Period: Jan. 09 ~ Jan. 30, 2022

Testing Engineer: Louis Shen

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Power Sensor	Anritsu	MA2411B	1126022	Sep. 03, 2021	1 year
☐	Power Meter	Anritsu	ML2495A	1135009	Sep. 03, 2021	1 year
☒	Power Sensor	Agilent	N1921A	MY45241957	Dec. 06, 2021	1 year
☒	Power Meter	Agilent	N1911A	MY45101619	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. 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
☒	Power Supply	IDRC	CP-268	268711	Nov. 30, 2021	1 year
☐	RF Communication Test Set	HP	8920A	3344A03297	Aug. 10, 2021	1 year

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,

Omni-directional Antenna

■ **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)

Directional Panel Antenna

■ **Directional Gain Calculated For Maximum Conducted Output Power**

Bandwidth (MHz)	Directional Gain (dBi)	
	SISO	MIMO
5	22	25.01
10	22	25.01
20	22	25.01

SISO mode:

Directional = Max. Gain : 22 dBi > 9 dBi

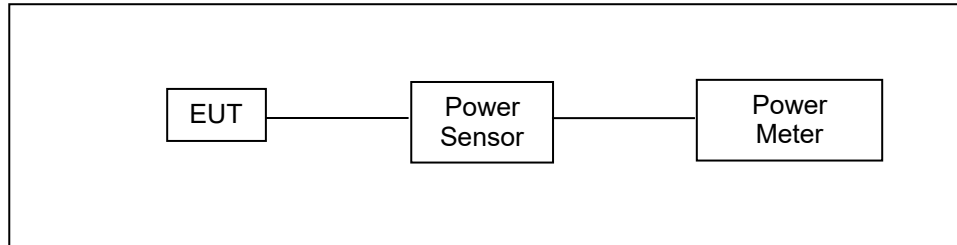
- * power limit shall be reduced = $27 - 13 = 14 \text{ dBm}$ (5 MHz)
- * power limit shall be reduced = $30 - 13 = 17 \text{ dBm}$ (10 MHz)
- * power limit shall be reduced = $33 - 13 = 20 \text{ dBm}$ (20 MHz)

MIMO mode:

Directional Gain = $G_{ANT} + 10 \cdot \log(N_{ANT}) = 25.01 \text{ dBi} > 9 \text{ dBi}$

- * power limit shall be reduced = $27 - 16.01 = 10.99 \text{ dBm}$ (5 MHz)
- * power limit shall be reduced = $30 - 16.01 = 13.99 \text{ dBm}$ (10 MHz)
- * power limit shall be reduced = $33 - 16.01 = 16.99 \text{ dBm}$ (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,

Omni-directional Antenna

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

Directional Panel Antenna

■ **Directional Gain Calculated For Power Spectral Density**

Bandwidth (MHz)	Directional Gain (dBi)	
	SISO	MIMO
5	22	25.01
10	22	25.01
20	22	25.01

SISO mode:

Directional = Max. Gain : 22 dBi > 9 dBi

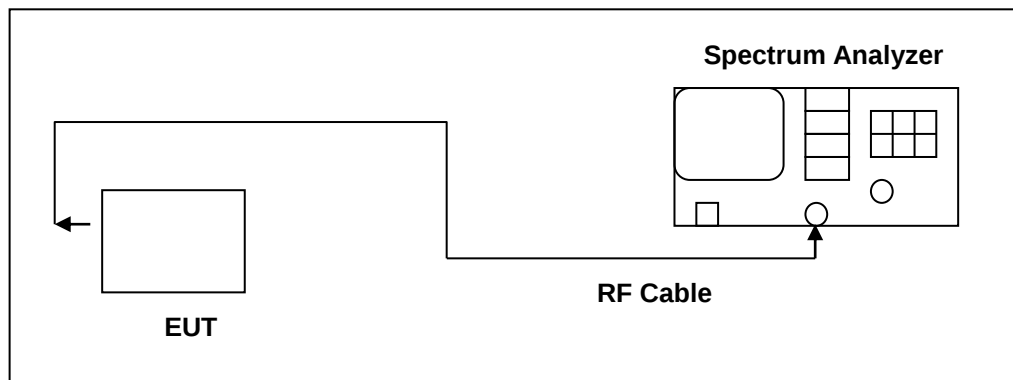
power limit shall be reduced = $21 - 13 = 8$ dBm/MHz (5 MHz / 10 MHz / 20 MHz)

MIMO mode:

Directional Gain = $G_{ANT} + 10 \cdot \log(N_{ANT}) = 25.01$ dBi > 9 dBi

* Power Spectral Density limit shall be reduced = $21 - 16.01 = 4.99$ 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.

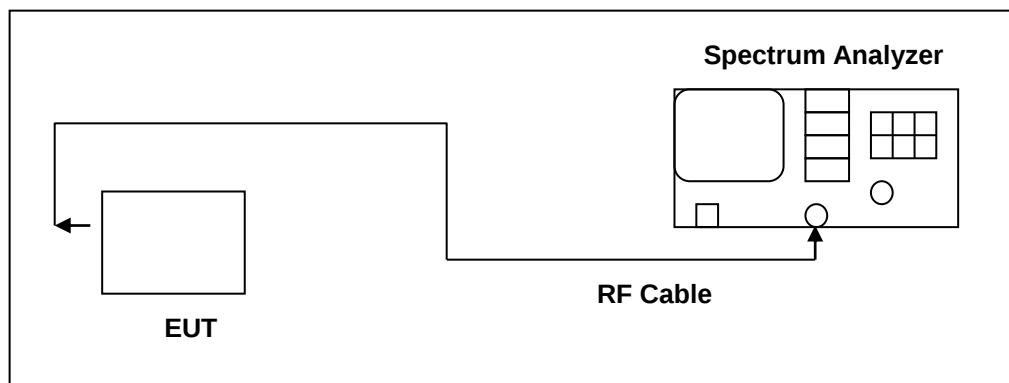
2.3. Emission Bandwidth & Occupied Bandwidth Test

■ Limit

The Occupied Bandwidth Limit:

N/A.

■ Setup



■ Test Procedure

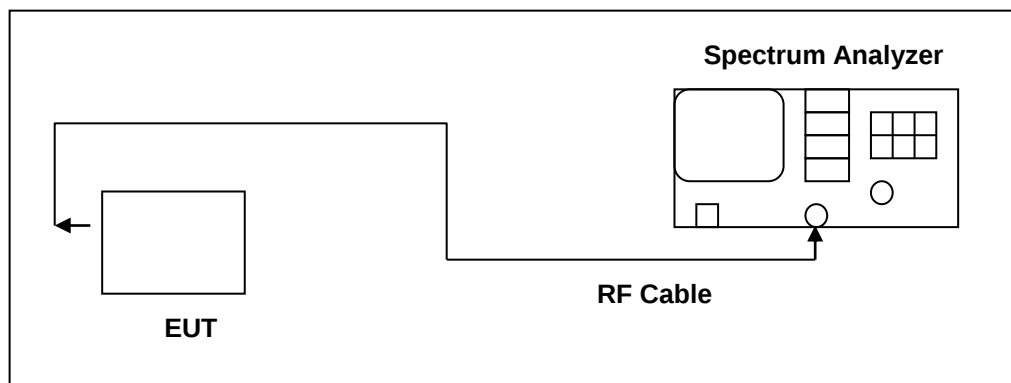
1. The EUT was set up for the maximum power with Test Mode.
2. The test is performed in accordance with ANSI C63.26:2015 section 5.4.3 & 5.4.4, Guidelines for Compliance Testing of licensed Devices.

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:

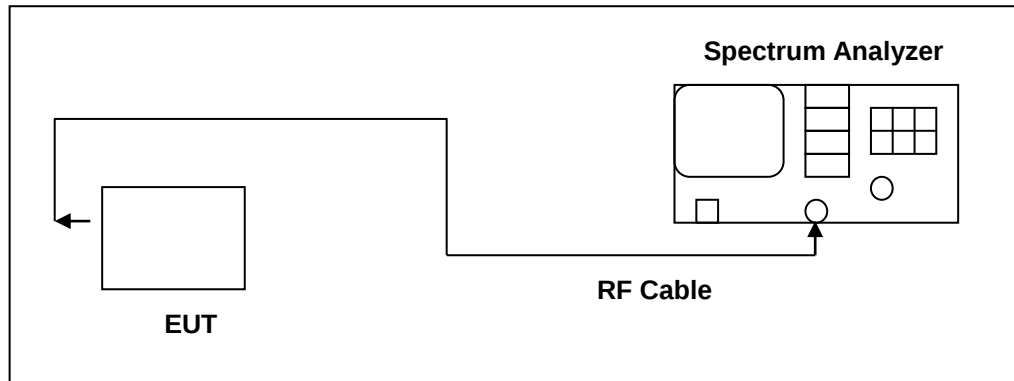
- (1) On any frequency removed from the assigned frequency between 0-45 % of the authorized bandwidth (BW): 0 dB.
- (2) On any frequency removed from the assigned frequency between 45-50 % of the authorized bandwidth: $219 \log (\% \text{ of } (BW)/45)$ dB.
- (3) On any frequency removed from the assigned 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:

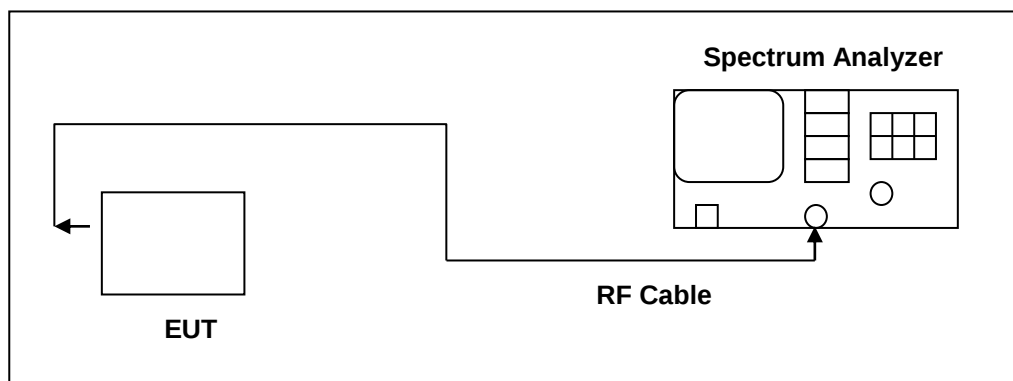
On any frequency removed from the assigned frequency above 150 % of the authorized bandwidth: 40 dB.

§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.

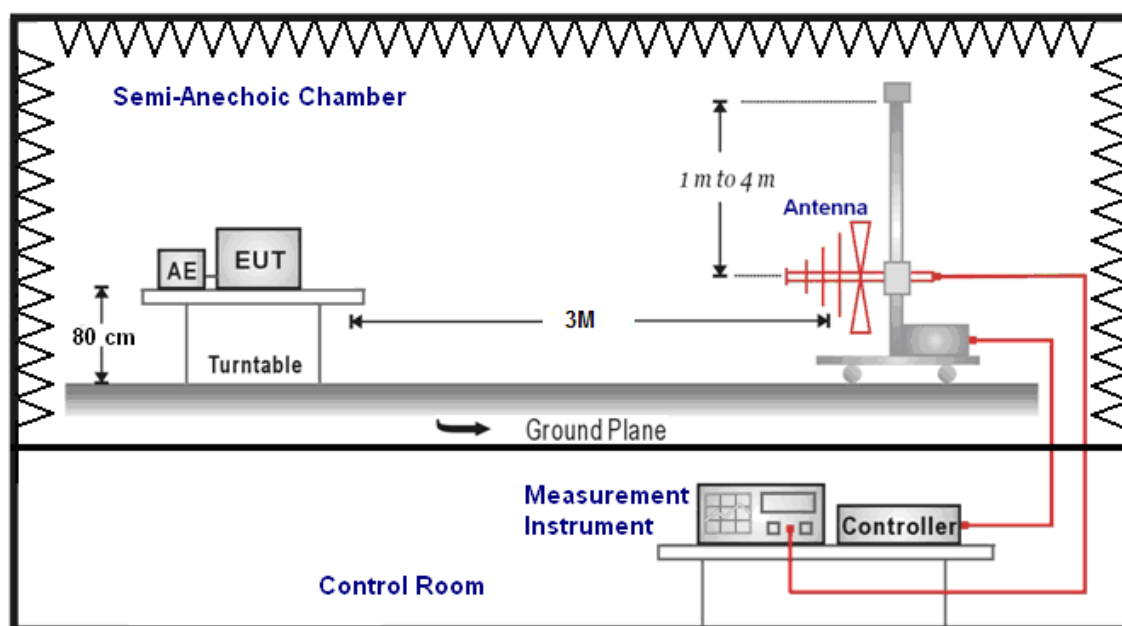
For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

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.

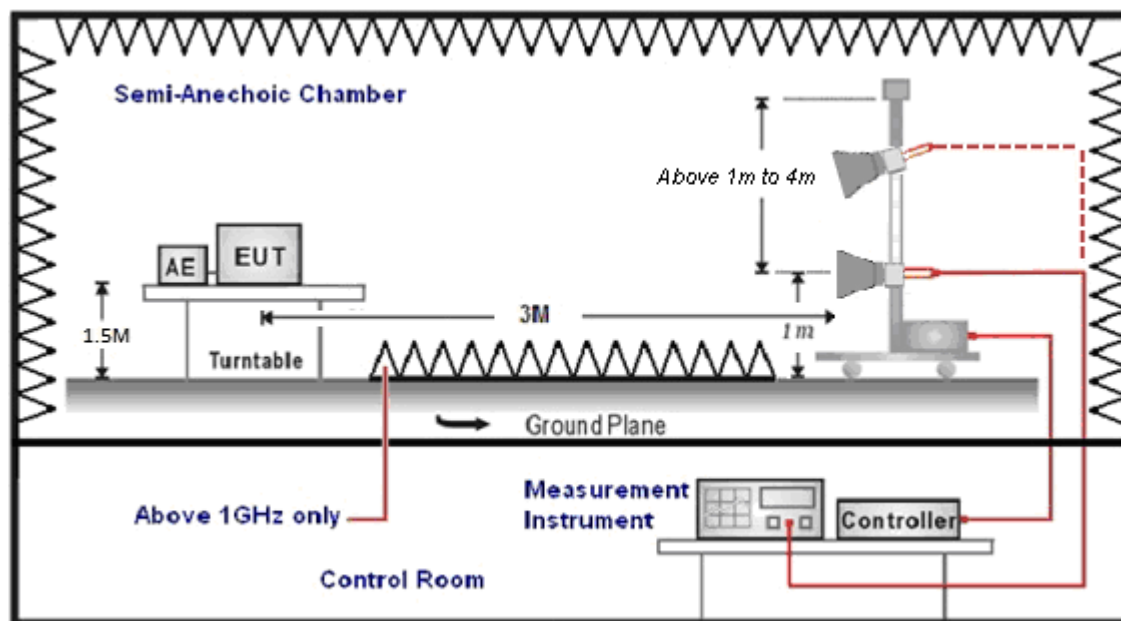
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

■ Setup

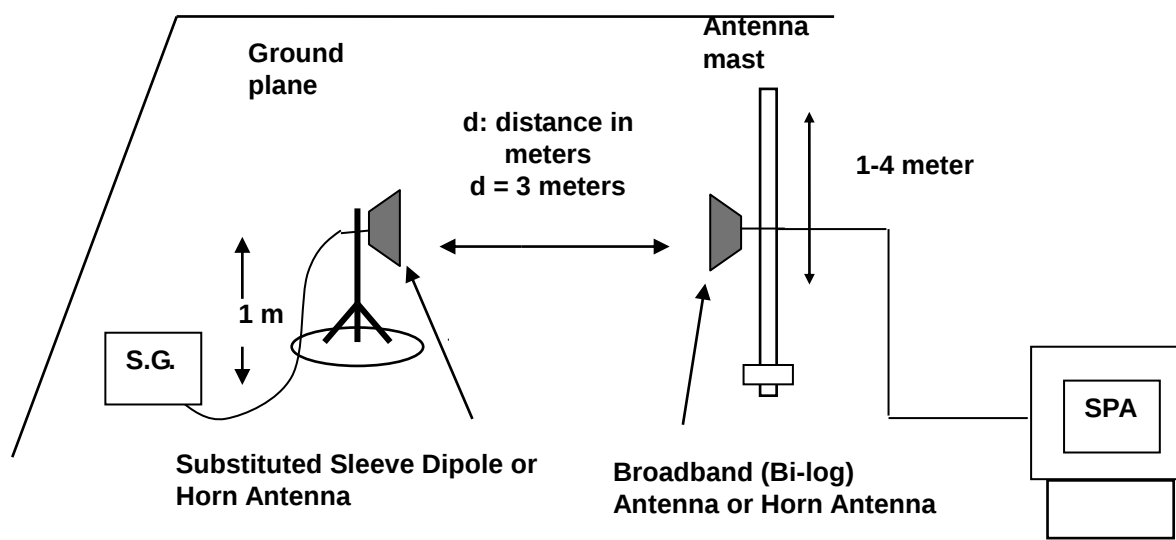
Below 1 GHz



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. $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e. $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$
- f. Measurement range 30 MHz - 10 th Harmonic

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

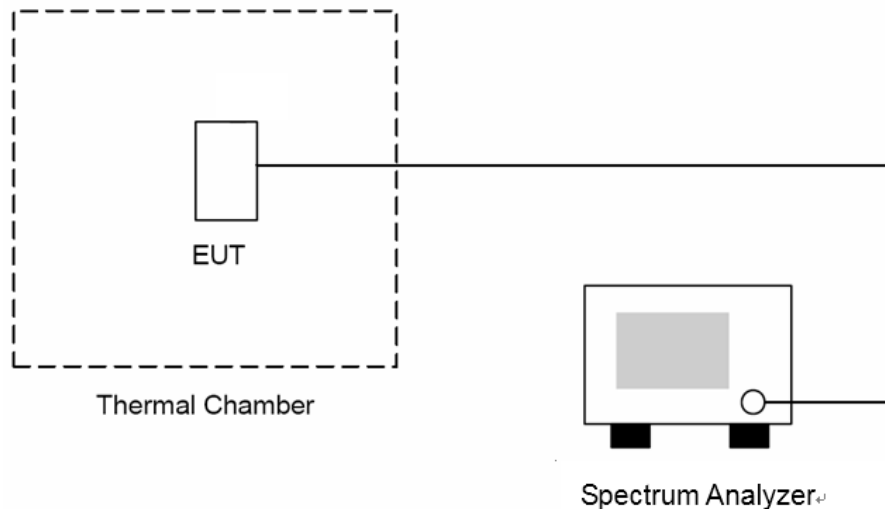
2. Above 1 GHz Substituted Method Test : Horn antenna to Horn Antenna

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

Omni-directional Antenna				
Test Mode	Frequency (MHz)	RF Power setting in Test Software		Test Software Version
		ANT-0	ANT-1	
Mode 1	4942.5	24	24	Tera Term
	4967.5	23	23	
	4987.5	24	24	
Mode 2	4945.0	24	24	
	4965.0	24	24	
	4985.0	24	24	
Mode 3	4950.0	23	23	
	4965.0	24	24	
	4980.0	24	24	
Mode 4	4942.5	24	24	
	4967.5	23	23	
	4987.5	24	24	
Mode 5	4945.0	24	24	
	4965.0	24	24	
	4985.0	24	24	
Mode 6	4950.0	24	24	
	4965.0	24	24	
	4980.0	24	24	
Mode 7	4942.5	20	20	
	4967.5	20	20	
	4987.5	19	19	
Mode 8	4945.0	23	23	
	4965.0	22	22	
	4985.0	22	22	
Mode 9	4950.0	22	22	
	4965.0	23	23	
	4980.0	23	23	
Mode 10	4942.5	20	20	
	4967.5	20	20	
	4987.5	19	19	
Mode 11	4945.0	23	23	
	4965.0	22	22	
	4985.0	22	22	
Mode 12	4950.0	23	23	
	4965.0	23	23	
	4980.0	23	23	

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	25.34	0.342	25.65	0.367	≤ 27.00
4967.5			24.94	0.312	25.01	0.317	≤ 27.00
4987.5			25.46	0.352	26.14	0.411	≤ 27.00
4942.5	QPSK	12 M	25.15	0.327	25.43	0.349	≤ 27.00
4967.5			24.73	0.297	24.86	0.306	≤ 27.00
4987.5			25.29	0.338	25.98	0.396	≤ 27.00
4942.5		18 M	25.01	0.317	25.35	0.343	≤ 27.00
4967.5			24.60	0.288	24.74	0.298	≤ 27.00
4987.5			25.12	0.325	25.81	0.381	≤ 27.00
4942.5	16QAM	24 M	25.03	0.318	25.26	0.336	≤ 27.00
4967.5			24.66	0.292	24.64	0.291	≤ 27.00
4987.5			25.18	0.330	25.77	0.378	≤ 27.00
4942.5		36 M	24.92	0.310	25.21	0.332	≤ 27.00
4967.5			24.57	0.286	24.56	0.286	≤ 27.00
4987.5			25.13	0.326	25.76	0.377	≤ 27.00
4942.5	64QAM	48 M	24.85	0.305	25.19	0.330	≤ 27.00
4967.5			24.43	0.277	24.51	0.282	≤ 27.00
4987.5			25.03	0.318	25.69	0.371	≤ 27.00
4942.5		54 M	24.82	0.303	25.18	0.330	≤ 27.00
4967.5			24.47	0.280	24.50	0.282	≤ 27.00
4987.5			24.92	0.310	25.63	0.366	≤ 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	25.43	0.349	25.83	0.383	≤ 30.00
4965.0			25.77	0.378	26.13	0.410	≤ 30.00
4985.0			25.52	0.356	26.03	0.401	≤ 30.00
4945.0	QPSK	12 M	25.27	0.337	25.67	0.369	≤ 30.00
4965.0			25.58	0.361	25.94	0.393	≤ 30.00
4985.0			25.31	0.340	25.86	0.385	≤ 30.00
4945.0		18 M	25.11	0.324	25.47	0.352	≤ 30.00
4965.0			25.42	0.348	25.79	0.379	≤ 30.00
4985.0			25.23	0.333	25.66	0.368	≤ 30.00
4945.0	16QAM	24 M	25.04	0.319	25.51	0.356	≤ 30.00
4965.0			25.47	0.352	25.78	0.378	≤ 30.00
4985.0			25.24	0.334	25.72	0.373	≤ 30.00
4945.0		36 M	24.99	0.316	25.36	0.344	≤ 30.00
4965.0			25.46	0.352	25.73	0.374	≤ 30.00
4985.0			25.23	0.333	25.57	0.361	≤ 30.00
4945.0	64QAM	48 M	24.98	0.315	25.41	0.348	≤ 30.00
4965.0			25.32	0.340	25.64	0.366	≤ 30.00
4985.0			25.09	0.323	25.58	0.361	≤ 30.00
4945.0		54 M	24.96	0.313	25.29	0.338	≤ 30.00
4965.0			25.28	0.337	25.61	0.364	≤ 30.00
4985.0			24.99	0.316	25.48	0.353	≤ 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	24.84	0.305	25.03	0.318	≤ 33.00
4965.0			25.71	0.372	26.22	0.419	≤ 33.00
4980.0			25.82	0.382	25.91	0.390	≤ 33.00
4950.0	QPSK	12 M	24.67	0.293	24.86	0.306	≤ 33.00
4965.0			25.49	0.354	26.05	0.403	≤ 33.00
4980.0			25.67	0.369	25.77	0.378	≤ 33.00
4950.0		18 M	24.50	0.282	24.72	0.296	≤ 33.00
4965.0			25.35	0.343	25.85	0.385	≤ 33.00
4980.0			25.49	0.354	25.60	0.363	≤ 33.00
4950.0	16QAM	24 M	24.53	0.284	24.63	0.290	≤ 33.00
4965.0			25.36	0.344	25.89	0.388	≤ 33.00
4980.0			25.51	0.356	25.56	0.360	≤ 33.00
4950.0		36 M	24.38	0.274	24.62	0.290	≤ 33.00
4965.0			25.37	0.344	25.78	0.378	≤ 33.00
4980.0			25.50	0.355	25.47	0.352	≤ 33.00
4950.0	64QAM	48 M	24.40	0.275	24.62	0.290	≤ 33.00
4965.0			25.25	0.335	25.79	0.379	≤ 33.00
4980.0			25.40	0.347	25.43	0.349	≤ 33.00
4950.0		54 M	24.36	0.273	24.49	0.281	≤ 33.00
4965.0			25.21	0.332	25.67	0.369	≤ 33.00
4980.0			25.34	0.342	25.37	0.344	≤ 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	MCS0	25.33	0.341	25.71	0.372	≤ 27.00
4967.5			24.91	0.310	25.03	0.318	≤ 27.00
4987.5			25.52	0.356	26.13	0.410	≤ 27.00
4942.5	QPSK	MCS1	25.13	0.326	25.59	0.362	≤ 27.00
4967.5			24.71	0.296	24.86	0.306	≤ 27.00
4987.5			25.37	0.344	25.96	0.394	≤ 27.00
4942.5		MCS2	25.05	0.320	25.43	0.349	≤ 27.00
4967.5			24.60	0.288	24.68	0.294	≤ 27.00
4987.5			25.24	0.334	25.84	0.384	≤ 27.00
4942.5	16QAM	MCS3	24.96	0.313	25.40	0.347	≤ 27.00
4967.5			24.62	0.290	24.73	0.297	≤ 27.00
4987.5			25.23	0.333	25.80	0.380	≤ 27.00
4942.5		MCS4	24.90	0.309	25.26	0.336	≤ 27.00
4967.5			24.62	0.290	24.58	0.287	≤ 27.00
4987.5			25.22	0.333	25.72	0.373	≤ 27.00
4942.5	64QAM	MCS5	24.86	0.306	25.22	0.333	≤ 27.00
4967.5			24.47	0.280	24.55	0.285	≤ 27.00
4987.5			25.11	0.324	25.66	0.368	≤ 27.00
4942.5		MCS7	24.86	0.306	25.21	0.332	≤ 27.00
4967.5			24.39	0.275	24.51	0.282	≤ 27.00
4987.5			25.03	0.318	25.59	0.362	≤ 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	MCS0	25.49	0.354	25.87	0.386	≤ 30.00
4965.0			25.81	0.381	26.21	0.418	≤ 30.00
4985.0			25.51	0.356	26.12	0.409	≤ 30.00
4945.0	QPSK	MCS1	25.33	0.341	25.72	0.373	≤ 30.00
4965.0			25.69	0.371	26.03	0.401	≤ 30.00
4985.0			25.30	0.339	25.90	0.389	≤ 30.00
4945.0		MCS2	25.19	0.330	25.52	0.356	≤ 30.00
4965.0			25.48	0.353	25.86	0.385	≤ 30.00
4985.0			25.15	0.327	25.79	0.379	≤ 30.00
4945.0	16QAM	MCS3	25.13	0.326	25.52	0.356	≤ 30.00
4965.0			25.46	0.352	25.85	0.385	≤ 30.00
4985.0			25.22	0.333	25.74	0.375	≤ 30.00
4945.0		MCS4	25.12	0.325	25.45	0.351	≤ 30.00
4965.0			25.45	0.351	25.80	0.380	≤ 30.00
4985.0			25.17	0.329	25.66	0.368	≤ 30.00
4945.0	64QAM	MCS5	25.06	0.321	25.40	0.347	≤ 30.00
4965.0			25.33	0.341	25.74	0.375	≤ 30.00
4985.0			25.04	0.319	25.63	0.366	≤ 30.00
4945.0		MCS7	25.03	0.318	25.33	0.341	≤ 30.00
4965.0			25.27	0.337	25.76	0.377	≤ 30.00
4985.0			25.00	0.316	25.62	0.365	≤ 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	MCS0	25.49	0.354	25.91	0.390	≤ 33.00
4965.0			25.63	0.366	26.19	0.416	≤ 33.00
4980.0			25.71	0.372	25.81	0.381	≤ 33.00
4950.0	QPSK	MCS1	25.33	0.341	25.77	0.378	≤ 33.00
4965.0			25.50	0.355	26.02	0.400	≤ 33.00
4980.0			25.58	0.361	25.69	0.371	≤ 33.00
4950.0		MCS2	25.13	0.326	25.62	0.365	≤ 33.00
4965.0			25.33	0.341	25.92	0.391	≤ 33.00
4980.0			25.37	0.344	25.49	0.354	≤ 33.00
4950.0	16QAM	MCS3	25.10	0.324	25.57	0.361	≤ 33.00
4965.0			25.33	0.341	25.85	0.385	≤ 33.00
4980.0			25.39	0.346	25.50	0.355	≤ 33.00
4950.0		MCS4	25.05	0.320	25.54	0.358	≤ 33.00
4965.0			25.33	0.341	25.75	0.376	≤ 33.00
4980.0			25.36	0.344	25.44	0.350	≤ 33.00
4950.0	64QAM	MCS5	25.01	0.317	25.46	0.352	≤ 33.00
4965.0			25.19	0.330	25.72	0.373	≤ 33.00
4980.0			25.30	0.339	25.38	0.345	≤ 33.00
4950.0		MCS7	25.01	0.317	25.36	0.344	≤ 33.00
4965.0			25.08	0.322	25.65	0.367	≤ 33.00
4980.0			25.19	0.330	25.28	0.337	≤ 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	22.65	0.184	23.17	0.207	25.93	0.392	≤ 26.99
4967.5			23.16	0.207	23.42	0.220	26.30	0.427	≤ 26.99
4987.5			21.84	0.153	22.80	0.191	25.36	0.344	≤ 26.99
4942.5	QPSK	12 M	22.52	0.179	22.96	0.198	25.76	0.377	≤ 26.99
4967.5			23.00	0.200	23.28	0.213	26.15	0.412	≤ 26.99
4987.5			21.71	0.148	22.65	0.184	25.22	0.333	≤ 26.99
4942.5		18 M	22.32	0.171	22.85	0.193	25.60	0.363	≤ 26.99
4967.5			22.83	0.192	23.10	0.204	25.98	0.396	≤ 26.99
4987.5			21.49	0.141	22.49	0.177	25.03	0.318	≤ 26.99
4942.5	16QAM	24 M	22.23	0.167	22.75	0.188	25.51	0.356	≤ 26.99
4967.5			22.75	0.188	23.04	0.201	25.91	0.390	≤ 26.99
4987.5			21.44	0.139	22.42	0.175	24.97	0.314	≤ 26.99
4942.5		36 M	22.21	0.166	22.75	0.188	25.50	0.355	≤ 26.99
4967.5			22.76	0.189	22.98	0.199	25.88	0.387	≤ 26.99
4987.5			21.41	0.138	22.43	0.175	24.96	0.313	≤ 26.99
4942.5	64QAM	48 M	22.25	0.168	22.74	0.188	25.51	0.356	≤ 26.99
4967.5			22.73	0.187	22.96	0.198	25.86	0.385	≤ 26.99
4987.5			21.43	0.139	22.36	0.172	24.93	0.311	≤ 26.99
4942.5		54 M	22.20	0.166	22.72	0.187	25.48	0.353	≤ 26.99
4967.5			22.76	0.189	22.97	0.198	25.88	0.387	≤ 26.99
4987.5			21.44	0.139	22.34	0.171	24.92	0.310	≤ 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	25.43	0.349	26.22	0.419	28.85	0.767	≤ 29.99
4965.0			25.07	0.321	25.93	0.392	28.53	0.713	≤ 29.99
4985.0			24.69	0.294	25.64	0.366	28.20	0.661	≤ 29.99
4945.0	QPSK	12 M	22.47	0.177	23.00	0.200	25.75	0.376	≤ 29.99
4965.0			25.27	0.337	26.05	0.403	28.69	0.740	≤ 29.99
4985.0			24.85	0.305	25.76	0.377	28.34	0.682	≤ 29.99
4945.0		18 M	24.34	0.272	25.29	0.338	27.85	0.610	≤ 29.99
4965.0			22.84	0.192	23.06	0.202	25.96	0.394	≤ 29.99
4985.0			21.48	0.141	22.51	0.178	25.04	0.319	≤ 29.99
4945.0	16QAM	24 M	22.30	0.170	22.75	0.188	25.54	0.358	≤ 29.99
4965.0			22.77	0.189	23.03	0.201	25.91	0.390	≤ 29.99
4985.0			21.42	0.139	22.37	0.173	24.93	0.311	≤ 29.99
4945.0		36 M	22.23	0.167	22.78	0.190	25.52	0.356	≤ 29.99
4965.0			22.72	0.187	22.97	0.198	25.86	0.385	≤ 29.99
4985.0			21.41	0.138	22.43	0.175	24.96	0.313	≤ 29.99
4945.0	64QAM	48 M	22.20	0.166	22.80	0.191	25.52	0.356	≤ 29.99
4965.0			22.71	0.187	23.03	0.201	25.88	0.387	≤ 29.99
4985.0			21.46	0.140	22.42	0.175	24.98	0.315	≤ 29.99
4945.0		54 M	22.20	0.166	22.75	0.188	25.49	0.354	≤ 29.99
4965.0			22.71	0.187	22.99	0.199	25.86	0.385	≤ 29.99
4985.0			21.42	0.139	22.36	0.172	24.93	0.311	≤ 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	24.65	0.292	25.41	0.348	28.06	0.640	≤ 32.99
4965.0			25.50	0.355	26.42	0.439	28.99	0.793	≤ 32.99
4980.0			25.45	0.351	26.06	0.404	28.78	0.755	≤ 32.99
4950.0	QPSK	12 M	24.45	0.279	25.23	0.333	27.87	0.612	≤ 32.99
4965.0			25.32	0.340	26.29	0.426	28.84	0.766	≤ 32.99
4980.0			25.29	0.338	25.85	0.385	28.59	0.723	≤ 32.99
4950.0		18 M	24.30	0.269	25.06	0.321	27.71	0.590	≤ 32.99
4965.0			25.14	0.327	26.14	0.411	28.68	0.738	≤ 32.99
4980.0			25.13	0.326	25.70	0.372	28.43	0.697	≤ 32.99
4950.0	16QAM	24 M	24.21	0.264	25.00	0.316	27.63	0.579	≤ 32.99
4965.0			25.06	0.321	25.98	0.396	28.55	0.716	≤ 32.99
4980.0			25.06	0.321	25.65	0.367	28.38	0.689	≤ 32.99
4950.0		36 M	24.19	0.262	25.03	0.318	27.64	0.581	≤ 32.99
4965.0			25.11	0.324	26.02	0.400	28.60	0.724	≤ 32.99
4980.0			25.04	0.319	25.66	0.368	28.37	0.687	≤ 32.99
4950.0	64QAM	48 M	24.28	0.268	25.00	0.316	27.67	0.585	≤ 32.99
4965.0			25.07	0.321	26.04	0.402	28.59	0.723	≤ 32.99
4980.0			25.05	0.320	25.60	0.363	28.34	0.682	≤ 32.99
4950.0		54 M	24.21	0.264	24.97	0.314	27.62	0.578	≤ 32.99
4965.0			25.06	0.321	25.97	0.395	28.55	0.716	≤ 32.99
4980.0			25.01	0.317	25.65	0.367	28.35	0.684	≤ 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	MCS8	22.83	0.192	23.44	0.221	26.16	0.413	≤ 26.99	
4967.5			23.29	0.213	23.71	0.235	26.52	0.449	≤ 26.99	
4987.5			21.74	0.149	22.87	0.194	25.35	0.343	≤ 26.99	
4942.5	QPSK	MCS9	22.67	0.185	23.22	0.210	25.96	0.394	≤ 26.99	
4967.5			23.08	0.203	23.51	0.224	26.31	0.428	≤ 26.99	
4987.5			21.60	0.145	22.72	0.187	25.21	0.332	≤ 26.99	
4942.5		MCS10	22.52	0.179	23.16	0.207	25.86	0.385	≤ 26.99	
4967.5			22.99	0.199	23.34	0.216	26.18	0.415	≤ 26.99	
4987.5			21.42	0.139	22.60	0.182	25.06	0.321	≤ 26.99	
4942.5		16QAM	MCS11	22.47	0.177	23.07	0.203	25.79	0.379	≤ 26.99
4967.5				22.91	0.195	23.28	0.213	26.11	0.408	≤ 26.99
4987.5				21.36	0.137	22.50	0.178	24.98	0.315	≤ 26.99
4942.5	MCS12		22.41	0.174	22.98	0.199	25.71	0.372	≤ 26.99	
4967.5			22.85	0.193	23.29	0.213	26.09	0.406	≤ 26.99	
4987.5			21.35	0.136	22.49	0.177	24.97	0.314	≤ 26.99	
4942.5	64QAM	MCS13	22.39	0.173	23.06	0.202	25.75	0.376	≤ 26.99	
4967.5			22.90	0.195	23.29	0.213	26.11	0.408	≤ 26.99	
4987.5			21.27	0.134	22.44	0.175	24.90	0.309	≤ 26.99	
4942.5		MCS15	22.37	0.173	22.98	0.199	25.70	0.372	≤ 26.99	
4967.5			22.91	0.195	23.31	0.214	26.12	0.409	≤ 26.99	
4987.5			21.33	0.136	22.42	0.175	24.92	0.310	≤ 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	MCS8	25.96	0.394	26.21	0.418	29.10	0.813	≤ 29.99	
4965.0			25.43	0.349	26.00	0.398	28.73	0.746	≤ 29.99	
4985.0			25.27	0.337	25.80	0.380	28.55	0.716	≤ 29.99	
4945.0	QPSK	MCS9	25.79	0.379	26.03	0.401	28.92	0.780	≤ 29.99	
4965.0			25.22	0.333	25.87	0.386	28.57	0.719	≤ 29.99	
4985.0			25.05	0.320	25.65	0.367	28.37	0.687	≤ 29.99	
4945.0		MCS10	25.67	0.369	25.87	0.386	28.78	0.755	≤ 29.99	
4965.0			25.07	0.321	25.71	0.372	28.41	0.693	≤ 29.99	
4985.0			24.96	0.313	25.47	0.352	28.23	0.665	≤ 29.99	
4945.0		16QAM	MCS11	25.53	0.357	25.83	0.383	28.69	0.740	≤ 29.99
4965.0				25.07	0.321	25.56	0.360	28.33	0.681	≤ 29.99
4985.0				24.85	0.305	25.39	0.346	28.14	0.652	≤ 29.99
4945.0	MCS12		25.57	0.361	25.78	0.378	28.69	0.740	≤ 29.99	
4965.0			24.99	0.316	25.58	0.361	28.31	0.678	≤ 29.99	
4985.0			24.80	0.302	25.42	0.348	28.13	0.650	≤ 29.99	
4945.0	64QAM	MCS13	25.59	0.362	25.81	0.381	28.71	0.743	≤ 29.99	
4965.0			25.03	0.318	25.63	0.366	28.35	0.684	≤ 29.99	
4985.0			24.86	0.306	25.38	0.345	28.14	0.652	≤ 29.99	
4945.0		MCS15	25.58	0.361	25.82	0.382	28.71	0.743	≤ 29.99	
4965.0			25.00	0.316	25.55	0.359	28.29	0.675	≤ 29.99	
4985.0			24.82	0.303	25.33	0.341	28.09	0.644	≤ 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)	Modulation	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)	
			Max. Output Power							
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
4950.0	BPSK	MCS8	25.44	0.350	26.16	0.413	28.83	0.764	≤ 32.99	
4965.0			25.46	0.352	26.45	0.442	28.99	0.793	≤ 32.99	
4980.0			25.51	0.356	26.26	0.423	28.91	0.778	≤ 32.99	
4950.0	QPSK	MCS9	25.32	0.340	26.00	0.398	28.68	0.738	≤ 32.99	
4965.0			25.27	0.337	26.28	0.425	28.81	0.760	≤ 32.99	
4980.0			25.35	0.343	26.09	0.406	28.75	0.750	≤ 32.99	
4950.0		MCS10	25.08	0.322	25.85	0.385	28.49	0.706	≤ 32.99	
4965.0			25.09	0.323	26.18	0.415	28.68	0.738	≤ 32.99	
4980.0			25.16	0.328	25.90	0.389	28.56	0.718	≤ 32.99	
4950.0		16QAM	MCS11	25.03	0.318	25.72	0.373	28.40	0.692	≤ 32.99
4965.0				25.08	0.322	26.04	0.402	28.60	0.724	≤ 32.99
4980.0				25.12	0.325	25.81	0.381	28.49	0.706	≤ 32.99
4950.0	MCS12		25.02	0.318	25.78	0.378	28.43	0.697	≤ 32.99	
4965.0			25.00	0.316	26.00	0.398	28.54	0.714	≤ 32.99	
4980.0			25.08	0.322	25.82	0.382	28.48	0.705	≤ 32.99	
4950.0	64QAM	MCS13	25.04	0.319	25.74	0.375	28.41	0.693	≤ 32.99	
4965.0			25.04	0.319	26.01	0.399	28.56	0.718	≤ 32.99	
4980.0			25.10	0.324	25.89	0.388	28.52	0.711	≤ 32.99	
4950.0		MCS15	25.06	0.321	25.78	0.378	28.45	0.700	≤ 32.99	
4965.0			25.00	0.316	26.08	0.406	28.58	0.721	≤ 32.99	
4980.0			25.13	0.326	25.87	0.386	28.53	0.713	≤ 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.

Directional Panel Antenna

Test Mode	Frequency (MHz)	RF Power setting in Test Software		Test Software Version
		ANT-0	ANT-1	
Mode 1	4942.5	9	9	Tera Term
	4967.5	9	9	
	4987.5	9	9	
Mode 2	4945.0	13	13	
	4965.0	13	13	
	4985.0	13	13	
Mode 3	4950.0	17	17	
	4965.0	16	16	
	4980.0	16	16	
Mode 4	4942.5	9	9	
	4967.5	9	9	
	4987.5	9	9	
Mode 5	4945.0	14	14	
	4965.0	13	13	
	4985.0	13	13	
Mode 6	4950.0	16	16	
	4965.0	16	16	
	4980.0	16	16	
Mode 7	4942.5	7	7	
	4967.5	6	6	
	4987.5	7	7	
Mode 8	4945.0	9	9	
	4965.0	8	8	
	4985.0	8	8	
Mode 9	4950.0	11	11	
	4965.0	11	11	
	4980.0	11	11	
Mode 10	4942.5	7	7	
	4967.5	6	6	
	4987.5	6	6	
Mode 11	4945.0	9	9	
	4965.0	8	8	
	4985.0	8	8	
Mode 12	4950.0	12	12	
	4965.0	12	12	
	4980.0	12	12	

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	9.49	0.009	9.61	0.009	≤ 14.00
4967.5			9.59	0.009	10.17	0.010	≤ 14.00
4987.5			10.11	0.010	10.27	0.011	≤ 14.00
4942.5	QPSK	12 M	9.31	0.009	9.43	0.009	≤ 14.00
4967.5			9.40	0.009	9.97	0.010	≤ 14.00
4987.5			9.92	0.010	10.07	0.010	≤ 14.00
4942.5		18 M	9.19	0.008	9.34	0.009	≤ 14.00
4967.5			9.32	0.009	9.87	0.010	≤ 14.00
4987.5			9.83	0.010	9.97	0.010	≤ 14.00
4942.5	16QAM	24 M	9.09	0.008	9.23	0.008	≤ 14.00
4967.5			9.22	0.008	9.80	0.010	≤ 14.00
4987.5			9.73	0.009	9.89	0.010	≤ 14.00
4942.5		36 M	9.08	0.008	9.20	0.008	≤ 14.00
4967.5			9.17	0.008	9.75	0.009	≤ 14.00
4987.5			9.71	0.009	9.86	0.010	≤ 14.00
4942.5	64QAM	48 M	9.09	0.008	9.19	0.008	≤ 14.00
4967.5			9.17	0.008	9.75	0.009	≤ 14.00
4987.5			9.70	0.009	9.85	0.010	≤ 14.00
4942.5		54 M	9.21	0.008	9.60	0.009	≤ 14.00
4967.5			9.31	0.009	10.14	0.010	≤ 14.00
4987.5			9.82	0.010	10.25	0.011	≤ 14.00

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	14.55	0.029	15.01	0.032	≤ 17.00
4965.0			14.81	0.030	14.83	0.030	≤ 17.00
4985.0			14.55	0.029	14.61	0.029	≤ 17.00
4945.0	QPSK	12 M	14.33	0.027	14.83	0.030	≤ 17.00
4965.0			14.68	0.029	14.70	0.030	≤ 17.00
4985.0			14.42	0.028	14.44	0.028	≤ 17.00
4945.0		18 M	14.22	0.026	14.70	0.030	≤ 17.00
4965.0			14.46	0.028	14.50	0.028	≤ 17.00
4985.0			14.21	0.026	14.26	0.027	≤ 17.00
4945.0	16QAM	24 M	14.17	0.026	14.60	0.029	≤ 17.00
4965.0			14.40	0.028	14.44	0.028	≤ 17.00
4985.0			14.18	0.026	14.25	0.027	≤ 17.00
4945.0		36 M	14.14	0.026	14.63	0.029	≤ 17.00
4965.0			14.40	0.028	14.40	0.028	≤ 17.00
4985.0			14.14	0.026	14.19	0.026	≤ 17.00
4945.0	64QAM	48 M	14.11	0.026	14.54	0.028	≤ 17.00
4965.0			14.38	0.027	14.41	0.028	≤ 17.00
4985.0			14.10	0.026	14.17	0.026	≤ 17.00
4945.0		54 M	14.15	0.026	14.58	0.029	≤ 17.00
4965.0			14.35	0.027	14.46	0.028	≤ 17.00
4985.0			14.14	0.026	14.20	0.026	≤ 17.00

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	18.61	0.073	19.37	0.086	≤ 20.00
4965.0			18.65	0.073	18.73	0.075	≤ 20.00
4980.0			18.36	0.069	18.85	0.077	≤ 20.00
4950.0	QPSK	12 M	18.48	0.070	19.23	0.084	≤ 20.00
4965.0			18.52	0.071	18.57	0.072	≤ 20.00
4980.0			18.16	0.065	18.71	0.074	≤ 20.00
4950.0		18 M	18.25	0.067	19.10	0.081	≤ 20.00
4965.0			18.35	0.068	18.39	0.069	≤ 20.00
4980.0			18.02	0.063	18.50	0.071	≤ 20.00
4950.0	16QAM	24 M	18.21	0.066	18.97	0.079	≤ 20.00
4965.0			18.23	0.067	18.28	0.067	≤ 20.00
4980.0			17.99	0.063	18.50	0.071	≤ 20.00
4950.0		36 M	18.23	0.067	18.97	0.079	≤ 20.00
4965.0			18.27	0.067	18.28	0.067	≤ 20.00
4980.0			17.90	0.062	18.48	0.070	≤ 20.00
4950.0	64QAM	48 M	18.17	0.066	18.93	0.078	≤ 20.00
4965.0			18.27	0.067	18.35	0.068	≤ 20.00
4980.0			17.94	0.062	18.39	0.069	≤ 20.00
4950.0		54 M	18.15	0.065	18.96	0.079	≤ 20.00
4965.0			18.22	0.066	18.35	0.068	≤ 20.00
4980.0			17.96	0.063	18.46	0.070	≤ 20.00

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	MCS0	9.57	0.009	9.67	0.009	≤ 14.00	
4967.5			9.74	0.009	10.21	0.010	≤ 14.00	
4987.5			9.91	0.010	10.31	0.011	≤ 14.00	
4942.5	QPSK	MCS1	9.40	0.009	9.48	0.009	≤ 14.00	
4967.5			9.54	0.009	10.04	0.010	≤ 14.00	
4987.5			9.73	0.009	10.11	0.010	≤ 14.00	
4942.5		MCS2	9.30	0.009	9.39	0.009	≤ 14.00	
4967.5			9.45	0.009	9.94	0.010	≤ 14.00	
4987.5			9.61	0.009	10.03	0.010	≤ 14.00	
4942.5		16QAM	MCS3	9.17	0.008	9.29	0.008	≤ 14.00
4967.5				9.35	0.009	9.82	0.010	≤ 14.00
4987.5				9.53	0.009	9.94	0.010	≤ 14.00
4942.5	MCS4		9.15	0.008	9.27	0.008	≤ 14.00	
4967.5			9.34	0.009	9.80	0.010	≤ 14.00	
4987.5			9.48	0.009	9.88	0.010	≤ 14.00	
4942.5	64QAM	MCS5	9.14	0.008	9.24	0.008	≤ 14.00	
4967.5			9.31	0.009	9.80	0.010	≤ 14.00	
4987.5			9.49	0.009	9.90	0.010	≤ 14.00	
4942.5		MCS7	9.29	0.008	9.65	0.009	≤ 14.00	
4967.5			9.46	0.009	10.17	0.010	≤ 14.00	
4987.5			9.64	0.009	10.29	0.011	≤ 14.00	

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	MCS0	14.55	0.029	15.80	0.038	≤ 17.00	
4965.0			14.81	0.030	14.83	0.030	≤ 17.00	
4985.0			14.71	0.030	14.73	0.030	≤ 17.00	
4945.0	QPSK	MCS1	14.37	0.027	15.61	0.036	≤ 17.00	
4965.0			14.64	0.029	14.62	0.029	≤ 17.00	
4985.0			14.54	0.028	14.51	0.028	≤ 17.00	
4945.0		MCS2	14.26	0.027	15.49	0.035	≤ 17.00	
4965.0			14.49	0.028	14.50	0.028	≤ 17.00	
4985.0			14.43	0.028	14.38	0.027	≤ 17.00	
4945.0		16QAM	MCS3	14.20	0.026	15.45	0.035	≤ 17.00
4965.0				14.43	0.028	14.38	0.027	≤ 17.00
4985.0				14.29	0.027	14.36	0.027	≤ 17.00
4945.0	MCS4		14.10	0.026	15.37	0.034	≤ 17.00	
4965.0			14.39	0.027	14.42	0.028	≤ 17.00	
4985.0			14.26	0.027	14.34	0.027	≤ 17.00	
4945.0	64QAM	MCS5	14.15	0.026	15.35	0.034	≤ 17.00	
4965.0			14.38	0.027	14.37	0.027	≤ 17.00	
4985.0			14.33	0.027	14.27	0.027	≤ 17.00	
4945.0		MCS7	14.18	0.026	15.42	0.035	≤ 17.00	
4965.0			14.41	0.028	14.40	0.028	≤ 17.00	
4985.0			14.30	0.027	14.35	0.027	≤ 17.00	

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	MCS0	18.33	0.068	18.35	0.068	≤ 20.00
4965.0			18.46	0.070	18.55	0.072	≤ 20.00
4980.0			18.01	0.063	18.18	0.066	≤ 20.00
4950.0	QPSK	MCS1	18.12	0.065	18.16	0.065	≤ 20.00
4965.0			18.34	0.068	18.36	0.069	≤ 20.00
4980.0			17.86	0.061	18.00	0.063	≤ 20.00
4950.0		MCS2	18.02	0.063	18.07	0.064	≤ 20.00
4965.0			18.16	0.065	18.22	0.066	≤ 20.00
4980.0			17.66	0.058	17.88	0.061	≤ 20.00
4950.0	16QAM	MCS3	17.90	0.062	17.92	0.062	≤ 20.00
4965.0			18.05	0.064	18.18	0.066	≤ 20.00
4980.0			17.61	0.058	17.76	0.060	≤ 20.00
4950.0		MCS4	17.93	0.062	17.90	0.062	≤ 20.00
4965.0			18.00	0.063	18.17	0.066	≤ 20.00
4980.0			17.61	0.058	17.71	0.059	≤ 20.00
4950.0	64QAM	MCS5	17.93	0.062	17.90	0.062	≤ 20.00
4965.0			18.04	0.064	18.14	0.065	≤ 20.00
4980.0			17.63	0.058	17.77	0.060	≤ 20.00
4950.0		MCS7	17.93	0.062	17.94	0.062	≤ 20.00
4965.0			18.04	0.064	18.15	0.065	≤ 20.00
4980.0			17.63	0.058	17.76	0.060	≤ 20.00

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	7.49	0.006	8.08	0.006	10.81	0.012	≤ 10.99
4967.5			6.78	0.005	7.16	0.005	9.98	0.010	≤ 10.99
4987.5			7.57	0.006	8.29	0.007	10.96	0.012	≤ 10.99
4942.5	QPSK	12 M	7.35	0.005	7.87	0.006	10.63	0.012	≤ 10.99
4967.5			6.65	0.005	7.01	0.005	9.84	0.010	≤ 10.99
4987.5			7.39	0.005	8.15	0.007	10.80	0.012	≤ 10.99
4942.5		18 M	7.14	0.005	7.73	0.006	10.46	0.011	≤ 10.99
4967.5			6.41	0.004	6.84	0.005	9.64	0.009	≤ 10.99
4987.5			7.24	0.005	8.02	0.006	10.66	0.012	≤ 10.99
4942.5	16QAM	24 M	7.09	0.005	7.69	0.006	10.41	0.011	≤ 10.99
4967.5			6.41	0.004	6.74	0.005	9.59	0.009	≤ 10.99
4987.5			7.19	0.005	7.88	0.006	10.56	0.011	≤ 10.99
4942.5		36 M	7.09	0.005	7.68	0.006	10.41	0.011	≤ 10.99
4967.5			6.36	0.004	6.71	0.005	9.55	0.009	≤ 10.99
4987.5			7.18	0.005	7.84	0.006	10.53	0.011	≤ 10.99
4942.5	64QAM	48 M	7.10	0.005	7.62	0.006	10.38	0.011	≤ 10.99
4967.5			6.36	0.004	6.71	0.005	9.55	0.009	≤ 10.99
4987.5			7.12	0.005	7.91	0.006	10.54	0.011	≤ 10.99
4942.5		54 M	7.10	0.005	7.64	0.006	10.39	0.011	≤ 10.99
4967.5			6.36	0.004	6.69	0.005	9.54	0.009	≤ 10.99
4987.5			7.13	0.005	7.90	0.006	10.54	0.011	≤ 10.99

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	10.27	0.011	10.46	0.011	13.38	0.022	≤ 13.99
4965.0			9.08	0.008	9.89	0.010	12.51	0.018	≤ 13.99
4985.0			9.09	0.008	9.80	0.010	12.47	0.018	≤ 13.99
4945.0	QPSK	12 M	10.09	0.010	10.26	0.011	13.19	0.021	≤ 13.99
4965.0			8.90	0.008	9.68	0.009	12.32	0.017	≤ 13.99
4985.0			8.90	0.008	9.66	0.009	12.31	0.017	≤ 13.99
4945.0		18 M	9.92	0.010	10.14	0.010	13.04	0.020	≤ 13.99
4965.0			8.74	0.007	9.61	0.009	12.21	0.017	≤ 13.99
4985.0			8.75	0.007	9.48	0.009	12.14	0.016	≤ 13.99
4945.0	16QAM	24 M	9.91	0.010	10.07	0.010	13.00	0.020	≤ 13.99
4965.0			8.65	0.007	9.51	0.009	12.11	0.016	≤ 13.99
4985.0			8.71	0.007	9.39	0.009	12.07	0.016	≤ 13.99
4945.0		36 M	9.88	0.010	10.01	0.010	12.96	0.020	≤ 13.99
4965.0			8.64	0.007	9.50	0.009	12.10	0.016	≤ 13.99
4985.0			8.68	0.007	9.37	0.009	12.05	0.016	≤ 13.99
4945.0	64QAM	48 M	9.87	0.010	10.05	0.010	12.97	0.020	≤ 13.99
4965.0			8.62	0.007	9.43	0.009	12.05	0.016	≤ 13.99
4985.0			8.70	0.007	9.40	0.009	12.07	0.016	≤ 13.99
4945.0		54 M	9.88	0.010	10.08	0.010	12.99	0.020	≤ 13.99
4965.0			8.66	0.007	9.48	0.009	12.10	0.016	≤ 13.99
4985.0			8.70	0.007	9.39	0.009	12.07	0.016	≤ 13.99

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)	Modulation	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	12.56	0.018	12.77	0.019	15.68	0.037	≤ 16.99
4965.0			12.61	0.018	13.13	0.021	15.89	0.039	≤ 16.99
4980.0			12.77	0.019	12.84	0.019	15.82	0.038	≤ 16.99
4950.0	QPSK	12 M	12.44	0.018	12.60	0.018	15.53	0.036	≤ 16.99
4965.0			12.44	0.018	12.98	0.020	15.73	0.037	≤ 16.99
4980.0			12.59	0.018	12.64	0.018	15.63	0.037	≤ 16.99
4950.0		18 M	12.24	0.017	12.40	0.017	15.33	0.034	≤ 16.99
4965.0			12.31	0.017	12.86	0.019	15.60	0.036	≤ 16.99
4980.0			12.43	0.017	12.51	0.018	15.48	0.035	≤ 16.99
4950.0	16QAM	24 M	12.19	0.017	12.33	0.017	15.27	0.034	≤ 16.99
4965.0			12.23	0.017	12.72	0.019	15.49	0.035	≤ 16.99
4980.0			12.38	0.017	12.41	0.017	15.41	0.035	≤ 16.99
4950.0		36 M	12.13	0.016	12.32	0.017	15.24	0.033	≤ 16.99
4965.0			12.23	0.017	12.71	0.019	15.49	0.035	≤ 16.99
4980.0			12.37	0.017	12.41	0.017	15.40	0.035	≤ 16.99
4950.0	64QAM	48 M	12.12	0.016	12.32	0.017	15.23	0.033	≤ 16.99
4965.0			12.16	0.016	12.69	0.019	15.44	0.035	≤ 16.99
4980.0			12.33	0.017	12.40	0.017	15.38	0.035	≤ 16.99
4950.0		54 M	12.17	0.016	12.31	0.017	15.25	0.033	≤ 16.99
4965.0			12.24	0.017	12.74	0.019	15.51	0.036	≤ 16.99
4980.0			12.32	0.017	12.42	0.017	15.38	0.035	≤ 16.99

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	MCS8	7.55	0.006	8.20	0.007	10.90	0.012	≤ 10.99
4967.5			6.99	0.005	7.16	0.005	10.09	0.010	≤ 10.99
4987.5			7.01	0.005	7.48	0.006	10.26	0.011	≤ 10.99
4942.5	QPSK	MCS9	7.39	0.005	8.07	0.006	10.75	0.012	≤ 10.99
4967.5			6.81	0.005	6.97	0.005	9.90	0.010	≤ 10.99
4987.5			6.85	0.005	7.35	0.005	10.12	0.010	≤ 10.99
4942.5		MCS10	7.21	0.005	7.93	0.006	10.60	0.011	≤ 10.99
4967.5			6.66	0.005	6.88	0.005	9.78	0.010	≤ 10.99
4987.5			6.74	0.005	7.17	0.005	9.97	0.010	≤ 10.99
4942.5	16QAM	MCS11	7.19	0.005	7.79	0.006	10.51	0.011	≤ 10.99
4967.5			6.57	0.005	6.78	0.005	9.69	0.009	≤ 10.99
4987.5			6.61	0.005	7.04	0.005	9.84	0.010	≤ 10.99
4942.5		MCS12	7.16	0.005	7.77	0.006	10.49	0.011	≤ 10.99
4967.5			6.61	0.005	6.75	0.005	9.69	0.009	≤ 10.99
4987.5			6.62	0.005	7.04	0.005	9.85	0.010	≤ 10.99
4942.5	64QAM	MCS13	7.09	0.005	7.80	0.006	10.47	0.011	≤ 10.99
4967.5			6.52	0.004	6.73	0.005	9.64	0.009	≤ 10.99
4987.5			6.58	0.005	7.08	0.005	9.85	0.010	≤ 10.99
4942.5		MCS15	7.16	0.005	7.77	0.006	10.49	0.011	≤ 10.99
4967.5			6.54	0.005	6.73	0.005	9.65	0.009	≤ 10.99
4987.5			6.57	0.005	7.02	0.005	9.81	0.010	≤ 10.99

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)	Modulation	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4945.0	BPSK	MCS8	10.19	0.010	10.44	0.011	13.33	0.022	≤ 13.99
4965.0			9.84	0.010	10.29	0.011	13.08	0.020	≤ 13.99
4985.0			9.24	0.008	9.78	0.010	12.53	0.018	≤ 13.99
4945.0	QPSK	MCS9	10.04	0.010	10.27	0.011	13.17	0.021	≤ 13.99
4965.0			9.67	0.009	10.08	0.010	12.89	0.019	≤ 13.99
4985.0			9.10	0.008	9.65	0.009	12.39	0.017	≤ 13.99
4945.0		MCS10	9.86	0.010	10.08	0.010	12.98	0.020	≤ 13.99
4965.0			9.52	0.009	9.94	0.010	12.75	0.019	≤ 13.99
4985.0			8.89	0.008	9.46	0.009	12.19	0.017	≤ 13.99
4945.0	16QAM	MCS11	9.78	0.010	10.02	0.010	12.91	0.020	≤ 13.99
4965.0			9.47	0.009	9.87	0.010	12.68	0.019	≤ 13.99
4985.0			8.83	0.008	9.38	0.009	12.12	0.016	≤ 13.99
4945.0		MCS12	9.75	0.009	9.98	0.010	12.88	0.019	≤ 13.99
4965.0			9.42	0.009	9.83	0.010	12.64	0.018	≤ 13.99
4985.0			8.83	0.008	9.34	0.009	12.10	0.016	≤ 13.99
4945.0	64QAM	MCS13	9.81	0.010	10.06	0.010	12.95	0.020	≤ 13.99
4965.0			9.38	0.009	9.86	0.010	12.64	0.018	≤ 13.99
4985.0			8.86	0.008	9.40	0.009	12.15	0.016	≤ 13.99
4945.0		MCS15	9.75	0.009	10.02	0.010	12.90	0.019	≤ 13.99
4965.0			9.47	0.009	9.89	0.010	12.70	0.019	≤ 13.99
4985.0			8.86	0.008	9.34	0.009	12.12	0.016	≤ 13.99

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)	Modulation	Data Rate	ANT-0		ANT-1		ANT-0+1		Limit (dBm)
			Max. Output Power						
			(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
4950.0	BPSK	MCS8	13.48	0.022	13.74	0.024	16.62	0.046	≤ 16.99
4965.0			13.70	0.023	13.99	0.025	16.86	0.049	≤ 16.99
4980.0			13.78	0.024	13.81	0.024	16.81	0.048	≤ 16.99
4950.0	QPSK	MCS9	13.32	0.021	13.59	0.023	16.47	0.044	≤ 16.99
4965.0			13.53	0.023	13.77	0.024	16.66	0.046	≤ 16.99
4980.0			13.56	0.023	13.68	0.023	16.63	0.046	≤ 16.99
4950.0		MCS10	13.19	0.021	13.43	0.022	16.32	0.043	≤ 16.99
4965.0			13.37	0.022	13.66	0.023	16.53	0.045	≤ 16.99
4980.0			13.50	0.022	13.53	0.023	16.53	0.045	≤ 16.99
4950.0	16QAM	MCS11	13.11	0.020	13.39	0.022	16.26	0.042	≤ 16.99
4965.0			13.26	0.021	13.58	0.023	16.43	0.044	≤ 16.99
4980.0			13.35	0.022	13.44	0.022	16.41	0.044	≤ 16.99
4950.0		MCS12	13.10	0.020	13.29	0.021	16.21	0.042	≤ 16.99
4965.0			13.25	0.021	13.52	0.022	16.40	0.044	≤ 16.99
4980.0			13.33	0.022	13.43	0.022	16.39	0.044	≤ 16.99
4950.0	64QAM	MCS13	13.04	0.020	13.33	0.022	16.20	0.042	≤ 16.99
4965.0			13.28	0.021	13.60	0.023	16.45	0.044	≤ 16.99
4980.0			13.33	0.022	13.37	0.022	16.36	0.043	≤ 16.99
4950.0		MCS15	13.06	0.020	13.33	0.022	16.21	0.042	≤ 16.99
4965.0			13.32	0.021	13.58	0.023	16.46	0.044	≤ 16.99
4980.0			13.33	0.022	13.34	0.022	16.35	0.043	≤ 16.99

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

Omni-directional Antenna					
Test Mode	Frequency (MHz)	ANT-1			Limit (dBm/MHz)
		Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	
Mode 1	4942.5	19.845	0.010	19.855	≤ 21.00
	4967.5	19.582	0.010	19.592	≤ 21.00
	4987.5	20.853	0.010	20.863	≤ 21.00
Mode 2	4945.0	17.594	0.013	17.607	≤ 21.00
	4965.0	18.395	0.013	18.408	≤ 21.00
	4985.0	18.375	0.013	18.388	≤ 21.00
Mode 3	4950.0	14.185	0.039	14.224	≤ 21.00
	4965.0	15.515	0.039	15.554	≤ 21.00
	4980.0	15.297	0.039	15.336	≤ 21.00
Mode 4	4942.5	19.861	0.010	19.871	≤ 21.00
	4967.5	19.599	0.010	19.609	≤ 21.00
	4987.5	20.980	0.010	20.990	≤ 21.00
Mode 5	4945.0	17.751	0.013	17.764	≤ 21.00
	4965.0	18.475	0.013	18.488	≤ 21.00
	4985.0	18.382	0.013	18.395	≤ 21.00
Mode 6	4950.0	15.131	0.070	15.201	≤ 21.00
	4965.0	15.096	0.070	15.166	≤ 21.00
	4980.0	14.902	0.070	14.972	≤ 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
		Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Measurement (dBm/MHz)	(dBm/MHz)
Mode 7	4942.5	17.064	0.013	17.077	17.470	0.013	17.483	20.295	≤ 20.99
	4967.5	17.539	0.013	17.552	17.890	0.013	17.903	20.742	≤ 20.99
	4987.5	16.612	0.013	16.625	17.622	0.013	17.635	20.170	≤ 20.99
Mode 8	4945.0	17.637	0.013	17.650	17.840	0.013	17.853	20.763	≤ 20.99
	4965.0	17.065	0.013	17.078	17.319	0.013	17.332	20.217	≤ 20.99
	4985.0	17.120	0.013	17.133	17.589	0.013	17.602	20.384	≤ 20.99
Mode 9	4950.0	13.755	0.053	13.808	14.351	0.053	14.404	17.126	≤ 20.99
	4965.0	14.786	0.053	14.839	15.501	0.053	15.554	18.221	≤ 20.99
	4980.0	14.612	0.053	14.665	15.170	0.053	15.223	17.963	≤ 20.99
Mode 10	4942.5	17.451	0.013	17.464	17.461	0.013	17.474	20.480	≤ 20.99
	4967.5	17.857	0.013	17.870	17.889	0.013	17.902	20.897	≤ 20.99
	4987.5	16.852	0.013	16.865	17.440	0.013	17.453	20.179	≤ 20.99
Mode 11	4945.0	17.510	0.013	17.523	18.042	0.013	18.055	20.808	≤ 20.99
	4965.0	17.300	0.013	17.313	17.736	0.013	17.749	20.547	≤ 20.99
	4985.0	17.060	0.013	17.073	17.814	0.013	17.827	20.477	≤ 20.99
Mode 12	4950.0	14.415	0.146	14.561	14.852	0.146	14.998	17.795	≤ 20.99
	4965.0	14.422	0.146	14.568	15.055	0.146	15.201	17.906	≤ 20.99
	4980.0	14.555	0.146	14.701	15.456	0.146	15.602	18.185	≤ 20.99

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

Directional Panel Antenna

Test Mode	Frequency (MHz)	ANT-1			Limit (dBm/MHz)
		Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	
Mode 1	4942.5	2.922	0.010	2.932	≤ 8.00
	4967.5	3.749	0.010	3.759	≤ 8.00
	4987.5	4.106	0.010	4.116	≤ 8.00
Mode 2	4945.0	6.375	0.013	6.388	≤ 8.00
	4965.0	6.812	0.013	6.825	≤ 8.00
	4985.0	6.743	0.013	6.756	≤ 8.00
Mode 3	4950.0	7.869	0.053	7.922	≤ 8.00
	4965.0	7.567	0.053	7.620	≤ 8.00
	4980.0	7.218	0.053	7.271	≤ 8.00
Mode 4	4942.5	3.016	0.010	3.026	≤ 8.00
	4967.5	3.795	0.010	3.805	≤ 8.00
	4987.5	3.849	0.010	3.859	≤ 8.00
Mode 5	4945.0	7.514	0.013	7.527	≤ 8.00
	4965.0	6.536	0.013	6.549	≤ 8.00
	4985.0	6.646	0.013	6.659	≤ 8.00
Mode 6	4950.0	6.832	0.070	6.902	≤ 8.00
	4965.0	7.371	0.070	7.441	≤ 8.00
	4980.0	6.910	0.070	6.980	≤ 8.00

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	1.769	0.010	1.779	1.537	0.010	1.547	4.675	≤ 4.99
	4967.5	1.874	0.010	1.884	0.971	0.010	0.981	4.466	≤ 4.99
	4987.5	0.313	0.010	0.323	2.412	0.010	2.422	4.508	≤ 4.99
Mode 8	4945.0	1.837	0.013	1.850	1.701	0.013	1.714	4.793	≤ 4.99
	4965.0	1.275	0.013	1.288	0.950	0.013	0.963	4.139	≤ 4.99
	4985.0	1.150	0.013	1.163	1.221	0.013	1.234	4.209	≤ 4.99
Mode 9	4950.0	1.560	0.053	1.613	0.855	0.053	0.908	4.285	≤ 4.99
	4965.0	1.711	0.053	1.764	1.570	0.053	1.623	4.704	≤ 4.99
	4980.0	1.755	0.053	1.808	1.005	0.053	1.058	4.459	≤ 4.99
Mode 10	4942.5	1.520	0.010	1.530	1.797	0.010	1.807	4.681	≤ 4.99
	4967.5	1.652	0.010	1.662	0.918	0.010	0.928	4.321	≤ 4.99
	4987.5	1.445	0.010	1.455	1.560	0.010	1.570	4.523	≤ 4.99
Mode 11	4945.0	1.940	0.026	1.966	1.472	0.026	1.498	4.749	≤ 4.99
	4965.0	1.232	0.026	1.258	1.098	0.026	1.124	4.202	≤ 4.99
	4985.0	1.427	0.026	1.453	1.669	0.026	1.695	4.586	≤ 4.99
Mode 12	4950.0	1.499	0.134	1.633	1.612	0.134	1.746	4.701	≤ 4.99
	4965.0	1.576	0.134	1.710	1.903	0.134	2.037	4.887	≤ 4.99
	4980.0	1.790	0.134	1.924	1.860	0.134	1.994	4.970	≤ 4.99

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

Omni-directional Antenna

■ Test Graphs

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		
4965 MHz		
4985 MHz		

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		
4967.5 MHz		
4987.5 MHz		

Mode 11: MIMO_10 MHz Continuous TX mode_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

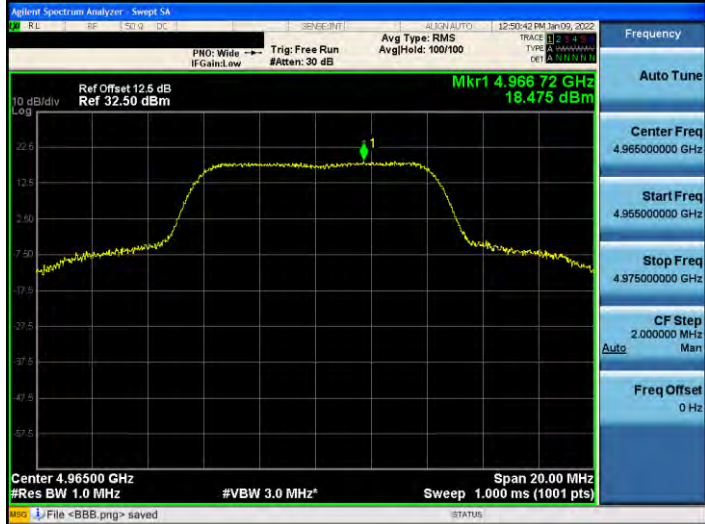
Mode 12: MIMO_20 MHz Continuous TX mode_ANT-0		
4950 MHz		
4965 MHz		
4980 MHz		

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

Mode 2: SISO_10 MHz Continuous TX mode (Legacy) _ANT-1		
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 3: SISO_20 MHz Continuous TX mode (Legacy) _ANT-1		
4950 MHz		
4965 MHz		
4980 MHz		

Mode 4: SISO_5 MHz Continuous TX mode_ANT-1		
4942.5 MHz		Frequency Auto Tune Center Freq 4.94250000 GHz Start Freq 4.937500000 GHz Stop Freq 4.947500000 GHz CF Step 1.000000 MHz Auto Freq Offset 0 Hz
4967.5 MHz		Frequency Auto Tune Center Freq 4.96750000 GHz Start Freq 4.962500000 GHz Stop Freq 4.972500000 GHz CF Step 1.000000 MHz Auto Freq Offset 0 Hz
4987.5 MHz		Frequency Auto Tune Center Freq 4.98750000 GHz Start Freq 4.982500000 GHz Stop Freq 4.992500000 GHz CF Step 1.000000 MHz Auto Freq Offset 0 Hz

Mode 5: SISO_10 MHz Continuous TX mode_ANT-1		
4945 MHz		
4965 MHz		
4985 MHz		

Mode 6: SISO_20 MHz Continuous TX mode_ANT-1		
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		

Directional Panel Antenna

■ Test Graphs

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

4942.5 MHz



4967.5 MHz

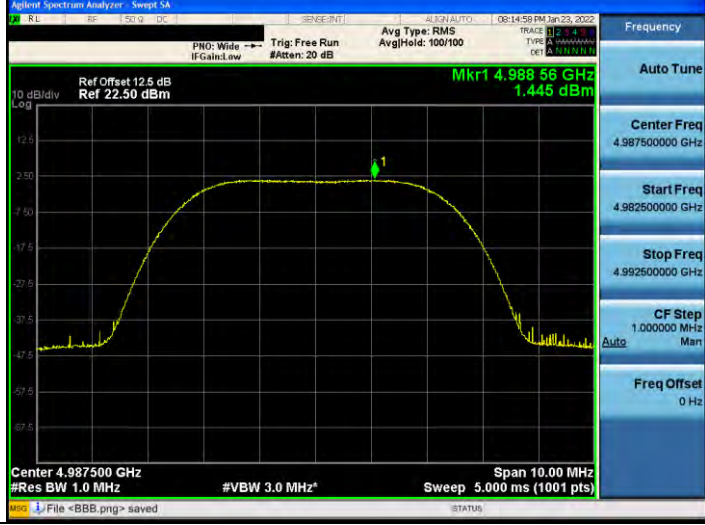


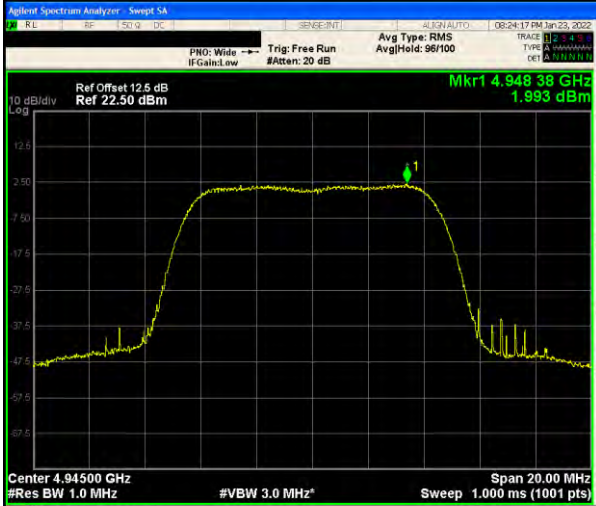
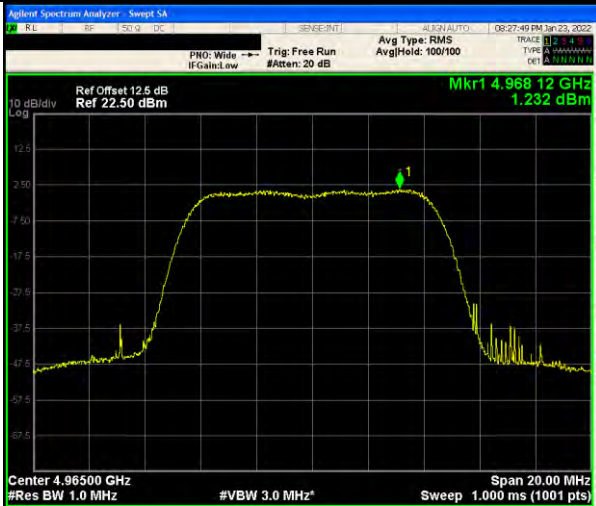
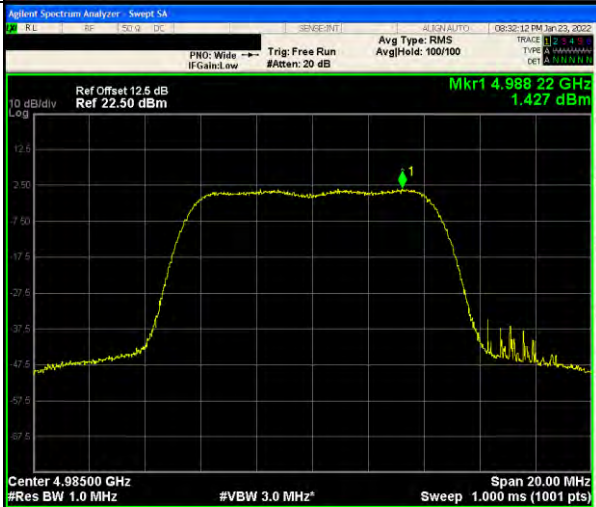
4987.5 MHz

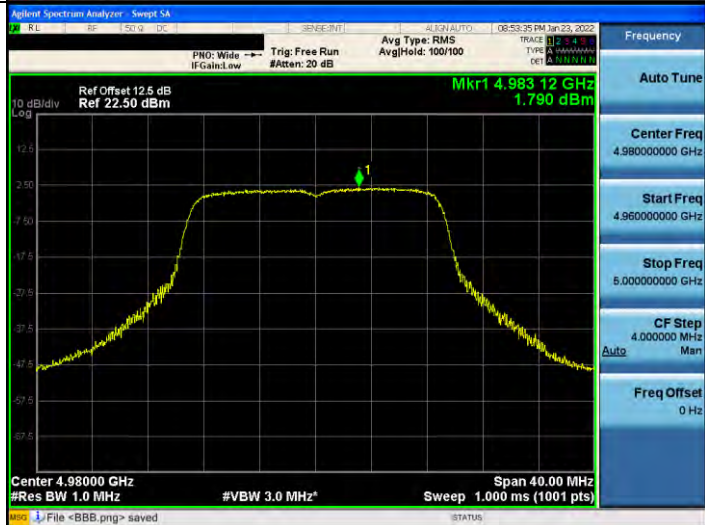


Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-0		
4945 MHz		Frequency Auto Tune Center Freq 4.94500000 GHz Start Freq 4.93500000 GHz Stop Freq 4.95500000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Frequency Auto Tune Center Freq 4.96500000 GHz Start Freq 4.95500000 GHz Stop Freq 4.97500000 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 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		
4967.5 MHz		
4987.5 MHz		

Mode 11: MIMO_10 MHz Continuous TX mode_ANT-0		
4945 MHz		Agilent Spectrum Analyzer - Swept SA Ref Offset: 12.5 dB Ref: 22.50 dBm Mkr1 4.948 38 GHz 1.993 dBm Center 4.94500 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.000 ms (1001 pts) Frequency Auto Tune Center Freq 4.945000000 GHz Start Freq 4.935000000 GHz Stop Freq 4.955000000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz
4965 MHz		Agilent Spectrum Analyzer - Swept SA Ref Offset: 12.5 dB Ref: 22.50 dBm Mkr1 4.968 12 GHz 1.232 dBm Center 4.96500 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.000 ms (1001 pts) Frequency Auto Tune Center Freq 4.965000000 GHz Start Freq 4.955000000 GHz Stop Freq 4.975000000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz
4985 MHz		Agilent Spectrum Analyzer - Swept SA Ref Offset: 12.5 dB Ref: 22.50 dBm Mkr1 4.988 22 GHz 1.427 dBm Center 4.98500 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.000 ms (1001 pts) Frequency Auto Tune Center Freq 4.985000000 GHz Start Freq 4.975000000 GHz Stop Freq 4.995000000 GHz CF Step 2.000000 MHz Man Freq Offset 0 Hz

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

Mode 1: SISO_5 MHz Continuous TX mode (Legacy) _ANT-1		
4942.5 MHz		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		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		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 2: SISO_10 MHz Continuous TX mode (Legacy) _ANT-1		
4945 MHz		
4965 MHz		
4985 MHz		

Mode 3: SISO_20 MHz Continuous TX mode (Legacy) _ANT-1		
4950 MHz		
4965 MHz		
4980 MHz		

Mode 4: SISO_5 MHz Continuous TX mode_ANT-1		
4942.5 MHz		
4967.5 MHz		
4987.5 MHz		

Mode 5: SISO_10 MHz Continuous TX mode_ANT-1		
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 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-1		
4950 MHz		
4965 MHz		
4980 MHz		

Mode 7: MIMO_5 MHz Continuous TX mode (Legacy) _ANT-1		
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 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 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 Man Freq Offset 0 Hz

Mode 8: MIMO_10 MHz Continuous TX mode (Legacy) _ANT-1		
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 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 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		Agilent Spectrum Analyzer - Sweep SA RL RF 150 Q DC 1 SENSE INT 4 ENH AUTO 08:06:38 PM Jun 23, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 20 dB Ref Offset: 12.5 dB Ref 22.50 dBm Mkr1 4.941 60 GHz 1.797 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 ENH AUTO 08:12:17 PM Jun 23, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 20 dB Ref Offset: 12.5 dB Ref 22.50 dBm Mkr1 4.968 42 GHz 0.918 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 ENH AUTO 08:16:46 PM Jun 23, 2022 PN0: Wide → Trig: Free Run Avg Type: RMS Avg/Hold: 100/100 IF Gain: Low #Atten: 20 dB Ref Offset: 12.5 dB Ref 22.50 dBm Mkr1 4.988 76 GHz 1.560 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-1		
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 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 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 Freq Offset 0 Hz

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