

RF Test Report

Applicant : Celona Inc.,
Product Name : Celona Ruggedized Access Point AP 25
Trade Name : CELONA
Model Number : AP25-48
Applicable Standard : FCC 47 CFR PART 96
ANSI C63.26 2015
Received Date : Oct. 16, 2025
Test Period : Oct. 16, 2025 ~ Nov. 13, 2025
Issued Date : Dec. 15, 2025

Issued by

Eurofins E&E Wireless Taiwan Co., Ltd.
No. 140-1, Changan Street, Bade District,
Taoyuan City, 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
Bade test site :
Test Firm Registration Number: 226252
Test Firm Designation Number: TW0010
Wugu test site :
Test Firm Registration Number: 191812
Test Firm Designation Number: TW0034

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 Eurofins E&E Wireless Taiwan Co., Ltd.
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	Description	Revised by
00	Dec. 15, 2025	Initial Issue	Snow Wang

Verification of Compliance

Applicant : Celona Inc.,

Product Name : Celona Ruggedized Access Point AP 25

Trade Name : CELONA

Model Number : AP25-48

FCC ID : 2AWNP-AP25-48

Applicable Standard : FCC 47 CFR PART 96
ANSI C63.26 2015

Test Result : Complied

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Eurofins E&E Wireless Taiwan Co., Ltd. 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 Eurofins E&E Wireless Taiwan Co., Ltd. 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 : Chi Chang

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1 General Information

1.1. Summary of Test Result

FCC Rule	Description	Result
§2.1046	Conducted Output Power	Reference
§96.41(b)	Equivalent Isotropic Radiated Power	Pass
§96.41(b)	Maximum Power Spectral Density	Pass
§2.1055	Frequency Stability	Pass
§2.1049	Emission Bandwidth & Occupied Bandwidth	Reference
§96.41(g)	Peak to average power ratio	Pass
§2.1051 §96.41(e)	Band Edge	Pass
§2.1051 §96.41(e)	Conducted Spurious Emissions	Pass
§2.1053 §96.41(e)	Radiated Spurious Emissions	Pass

Decision Rule

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

1.2. Testing Location

Lab Name: Eurofins E&E Wireless Taiwan Co., Ltd.

Site Address: ☐ No. 140-1, Changan Street, Bade District, Taoyuan City, Taiwan (R.O.C.)

Site Address: ☒ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan (R.O.C.)

1.3. Measurement Uncertainty

Parameter	Uncertainty			
	BD	WG		
Conducted Output Average Power	1.1 dB	1.1 dB		
Effective Radiated Power / Equivalent Isotropic Radiated Power	1.1 dB	1.1 dB		
Frequency Stability	1.3 x 10 ⁻⁷ x fc (Hz)	1.3 x 10 ⁻⁷ x fc (Hz)		
Emission Bandwidth & Occupied Bandwidth	4.5 %	4.5 %		
Peak to Average Ratio	1.1 dB	1.1 dB		
Band Edge	1.1 dB	1.1 dB		
Conducted Spurious Emission	1.1 dB	1.1 dB		
Parameter	Uncertainty			
	96601-BD	96603-BD	96602-WG	96603-WG
Radiated Emission	6.3 dB	6.3 dB	6.3 dB	6.3 dB

1.4. Test Site Environment

Items	Required (IEC 68-1)	Interval(*)
Temperature (°C)	15-35	20-30
Humidity (%RH)	25-75	45-75

(*)The measurement ambient temperature is within this range.

2 EUT Description

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Applicant	Celona Inc., 900 East Hamilton Avenue, Suite 200, Campbell, CA 95008, US
Product Name	Celona Ruggedized Access Point AP 25
Trade Name	CELONA
Model Number	AP25-48
Models different description	The product has two different kind of power supply design, one is internal power supply design, the other is external power supply design; other product's hardware and radio design are the same.
FCC ID	2AWNP-AP25-48
Operate Temp. Range	-40 ~ 55 °C
EUT Power Rating	90 ~ 264 Vac

EUT Description :

The EUT has two types of power supply design, the RF technical and electrical aspects are identical.
After the evaluation, all tests are performed on the SKU1, SKU2 only retest radiated emission, conducted item results refer SKU1 based on above differences.

DUT	Brand name	Model name
SKU1 (internal power supply)	Askey	1411-00W9S00
SKU2 (external power supply)	MEAN WELL	HEP-480-54A

Testing Sample No.	
Test Item	Sample Number
Radiation	C25O196_A002 / A005
Conducted	C25O196_A002

5G NR	
Operation Band (NR):	☒ n48 ☐ n77 ☐ n78
Support type:	☒ Standalone ☐ EN-DC
	☐ CA-UL ☐ CA-DL ☒ MIMO-UL
Modulation type:	QPSK, 64QAM, 256QAM
Note: Detail Power information shall refer to power table.	

NR n48	QPSK			64QAM / 256QAM		
BW(MHz)	Occupied Bandwidth (MHz)	Emission Desigator	Maximum EIRP (W) (dBm/10MHz)	Occupied Bandwidth (MHz)	Emission Desigator	Maximum EIRP (W) (dBm/10MHz)
10	8.599	8M60G7D	35.156	8.606	8M61W7D	32.5087

EUT Modify Description :

Modify Description:
 Enable the 10 MHz bandwidth specification via software.

After the evaluation, retest of all test items is required.

2.1. Product Specification of Equipment Under Test

Antenna information				
ANT	Model	Type	Max. Gain (dBi)	
Omni Antenna 1 / 2	1415-01RGT00	Omni Antenna	n48	5.05
Directional Antenna 1 / 2	1415-01RHJ00	Dipole Antenna	n48	11.56

Note: The above information is provided by the manufacturer.

Channel Bandwidth: (TDD)

5G FR1 Bands																
FCC Part 96																
Bands	Support Mode	Support / Non supportive	SCS (kHz)	Channel bandwidth (MHz)												
				5	10	15	20	25	30	40	50	60	70	80	90	100
n48	SA	N/A	15	X	X	X	X	X	X	X	X	X	X	X	X	X
		Support	30	X	V	X	V	X	V	V	X	X	X	X	X	X
		N/A	60	X	X	X	X	X	X	X	X	X	X	X	X	X

Note: The above information is provided by the manufacturer.

2.2. Mode of Operation

Three channels had been tested for each channel bandwidth.

5G NR n48 (FCC Part 96)				
Channel Bandwidth	10 MHz		15 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	637000	3555	637168	3557.52
Middle CH	641666	3624.99	641666	3624.99
High CH	646332	3694.98	646166	3692.49
Channel Bandwidth	20 MHz		40 MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	637334	3560.01	638000	3570
Middle CH	641666	3624.99	641666	3624.99
High CH	646000	3690	645332	3679.98

Note: 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.

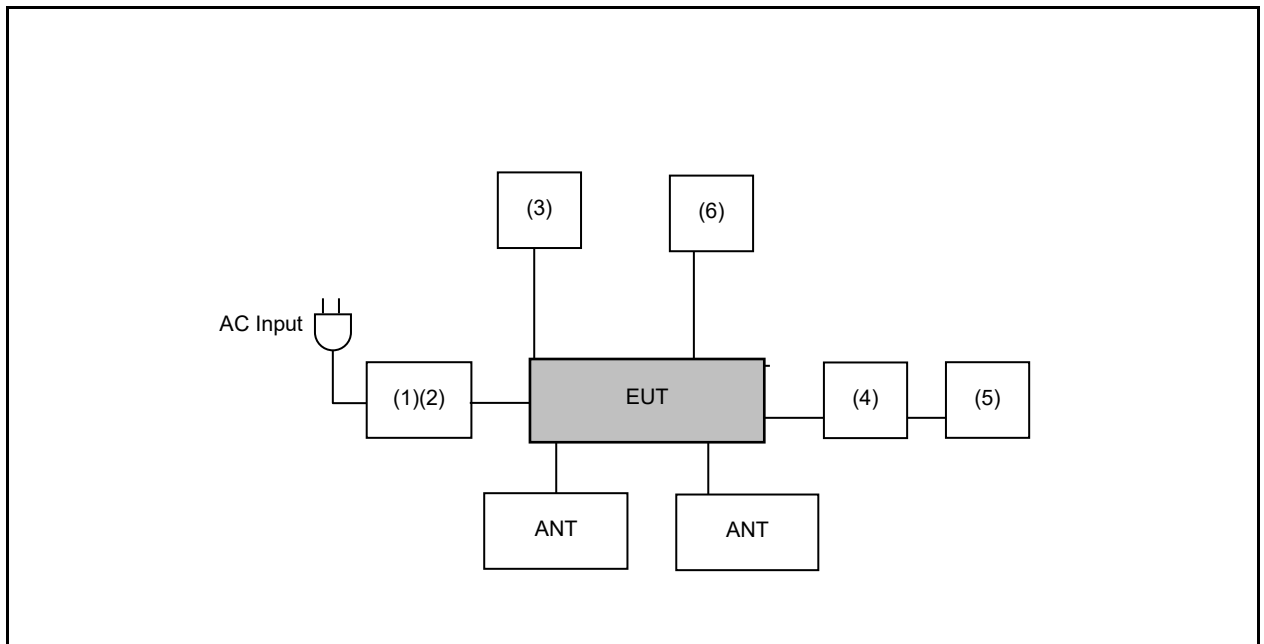
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test Item	NR Band	Bandwidth (MHz)				Modulation			RB Config.	Channel		
		10	20	30	40	QPSK	64 QAM	256 QAM	100 %	L	M	H
Max. output Power	n48	v	v	v	v	v	v	v	v	v	v	v
E.R.P / E.I.R.P	n48	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average-Ratio	n48	v	v			v	v	v	v		v	
26dB and 99% Bandwidth	n48	v	v	v	v	v	v	v	v		v	
Conducted Band Edge	n48	v	v	v	v	v	v	v	v	v	v	v
Conducted Spurious Emission	n48	v	v	v	v	v			v	v	v	v
Frequency Stability	n48	v	v			v			v	v		v
Radiated Spurious Emission	n48	v	v		v	v			v	v	v	v

2.3. EUT Test Step

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

2.4. Configuration of Test System Details



	Product	Manufacturer	Model Number	Serial Number	Power Cord
(1)	Power Cable (for internal power supply)	ASKEY	1411-00W9S00	---	3000mm
(2)	External PSU (for external power supply)	MEAN WELL	HEP-480-54A	---	Input: 100-240V, 5.5-2.2A, 50/60Hz Output: 54V, 8.9A
(3)	GPS ANT	---	---	231301938	---
(4)	Fixture	Transend	---	---	---
(5)	GPS Disciplined Oscillator	---	BG7TBL	---	---
(6)	Notebook	Lenovo	L14	---	---

2.5. Test Instruments

For Conducted

Test Period: Oct. 16, 2025 ~ Oct. 20, 2025

Testing Engineer: Yang Wang

Test Site		RF01-WG				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Spectrum Analyzer (10 Hz~44 GHz)	R&S	FSV3044	101416	Oct. 29, 2024	1 year
☒	Humidity/Temp. Meter	Giant Force	GTH-408-40-CP-SD	MAA2202-001	Jan. 02, 2025	1 year

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

For Radiated Emissions
Test Period: Nov. 13, 2025
Testing Engineer: Jason Yeh

Radiation test sites		Semi Anechoic Room 96603-WG				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	LOOP Antenna (9 kHz~30 MHz)	Schwarzbeck Mess-Elektronik	FMZB 1513-60	00031	Mar. 06, 2025	1 year
☒	Trilog Broadband Antenna (30 MHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	1276	Jan. 20, 2025	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	RF SPIN	DRH18-E	210307A18ES	Dec. 10, 2024	1 year
☒	Broadband Horn Antenna (15 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	BBHA9170	1133	Jan. 14, 2025	1 year
☒	Spectrum Analyzer (2 Hz~50 GHz)	KEYSIGHT	N9030B	MY57143537	Mar. 10, 2025	1 year
☒	Pre-Amplifier	EMCI	EMC001330	980859	Nov. 27, 2024	1 year
☒	Pre-Amplifier	EMCI	EMC118A45SE	980818	Dec. 12, 2024	1 year
☒	Pre-Amplifier	EMCI	EMC184045SE	980861	Dec. 18, 2024	1 year
☒	Coaxial Cable (9 kHz~1000 MHz)	EMCI	EMCCFD400-NM-NM-2000	211011	Dec. 25, 2024	1 year
☒	Coaxial Cable (9 kHz~1000 MHz)	EMCI	EMCCFD400-NM-NM-2000	211012	Dec. 25, 2024	1 year
☒	Coaxial Cable (9 kHz~1000 MHz)	EMCI	EMCCFD400-NM-NM-6000	211017	Dec. 25, 2024	1 year
☒	Coaxial Cable (1 GHz~18 GHz)	EMCI	EMC104-SM-SM-1000	211028	Dec. 25, 2024	1 year
☒	Coaxial Cable (1 GHz~18 GHz)	EMCI	EMC104-SM-SM-2000	211034	Dec. 25, 2024	1 year
☒	Coaxial Cable (1 GHz~18 GHz)	EMCI	EMC104-SM-SM-8000	211039	Dec. 25, 2024	1 year
☒	Coaxial Cable (18 GHz~40 GHz)	EMCI	EMC101G-KM-KM-600	211211	Jan. 15, 2025	1 year
☒	Coaxial Cable (18 GHz~40 GHz)	EMCI	EMC101G-KM-KM-2000	211210	Jan. 15, 2025	1 year
☒	Coaxial Cable (18 GHz~40 GHz)	EMCI	EMC101G-KM-KM-6000	211209	Jan. 15, 2025	1 year
☒	Highpass Filter	Warison	STI15-9796	001	Oct. 24, 2024	1 year
☒	Highpass Filter	Warison	WFIL-H3000-20000F	WR4BBFWC2B1	Oct. 24, 2024	1 year
☒	Highpass Filter	Warison	WFIL-H6000-26500F	WR4BBFWC4B1	Oct. 24, 2024	1 year
☒	Wireless Test Platform	Anritsu	MT8000A	6272524702	Aug. 28, 2025	1 year
☒	Software	R_RAM	V1.4	N/A	N.C.R.	---

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

3 Measurement Procedure

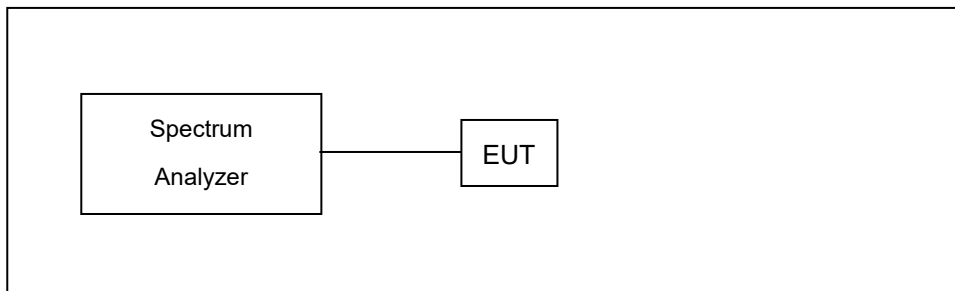
3.1. Conducted Output Power and Power Density Test

■ Limit

N/A

■ Test Setup

(For dBm/Channel BW , dBm/10 MHz , dBm/1 MHz)



■ Test Procedure

For Output power (dBm/Channel BW, dBm/10 MHz)

- a. The EUT was set up for the maximum power by test software.
- b. Set the EUT to transmit under low, middle and high channel and record the power level.
- c. Set instrument center frequency to OBW center frequency.
- d. Set span to at least 2 to 3 times the OBW.
- e. Set the RBW = 1% to 5% of the OBW.
- f. Set VBW $\geq 3 \times$ RBW.
- g. Detector = RMS (power averaging).
- h. Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i. Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- j. Sweep time = auto-couple.
- k. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW band edges.
- l. If Duty cycle < 98%, Add $10 \log (1/\text{duty cycle})$ to the measured power level to compute the average power during continuous transmission.
- m. For per 10MHz method, channel power integrating bandwidth 10MHz is used for bandwidth 10M, 20M, 30M and 40M. For full power method, channel power integrating bandwidth 10MHz is used for bandwidth 10M, integrating bandwidth 20MHz is used for bandwidth 20M, integrating bandwidth 30MHz is used for bandwidth 30M, integrating bandwidth 40MHz is used for bandwidth 40M

For PSD (dBm/1MHz)

- a. The EUT was set up for the maximum power by test software.
- b. Set the EUT to transmit under low, middle and high channel and record the power level.
- c. Set instrument center frequency to OBW center frequency.
- d. Set span to at least 2 to 3 times the OBW.
- e. Set the RBW to the specified reference bandwidth (often 1 MHz).
- f. Set VBW $\geq 3 \times$ RBW.
- g. Detector = RMS (power averaging).
- h. Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i. Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- j. Sweep time = auto-couple.
- k. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).

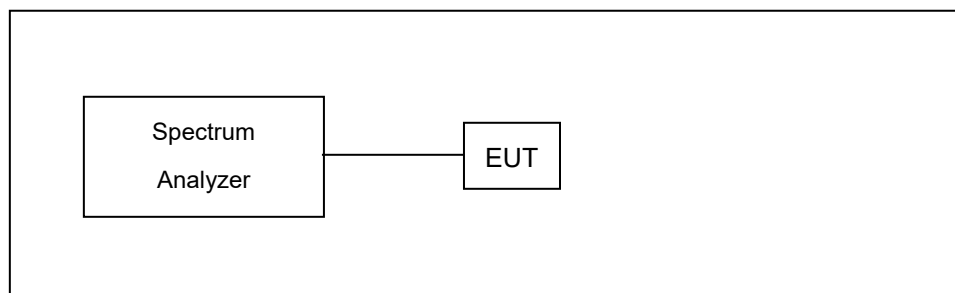
3.2. Equivalent Isotropic Radiated Power and Maximum Power Spectral Density Test

■ Limit

FCC Part 96:

Device		Maximum EIRP (dBm/10 MHz)	Maximum PSD (EIRP) (dBm/MHz)
☐	End User Device	23	N/A
☐	Category A CBSD	30	20
☒	Category B CBSD	47	37

■ Test Setup



■ Test Procedure

- The EUT was set up for the maximum power with WWAN data modulation. The power was measured with a spectrum analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).
- The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_T + G_T - L_C, \text{ E.R.P.} = \text{E.I.R.P.} - 2.15 \text{ dB, where}$$

P_T = transmitter output power, expressed in dBm

G_T = gain of the transmitting antenna, in dBi

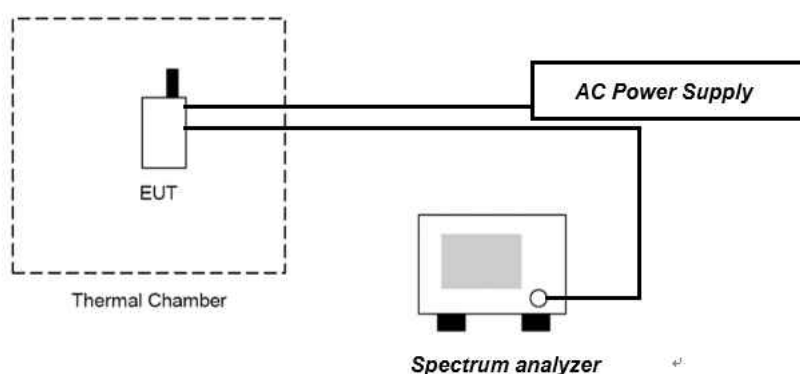
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB

3.3. Frequency Stability Test

■ Limit

According to the FCC or IC rule shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation. The test extreme voltage is according to the 2.1055(d)(1) or Section 6.11 of RSS-Gen Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1) or Section 6.11 of RSS-Gen -30 °C ~ 50 °C.

■ 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 °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 °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 ± 5 °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.

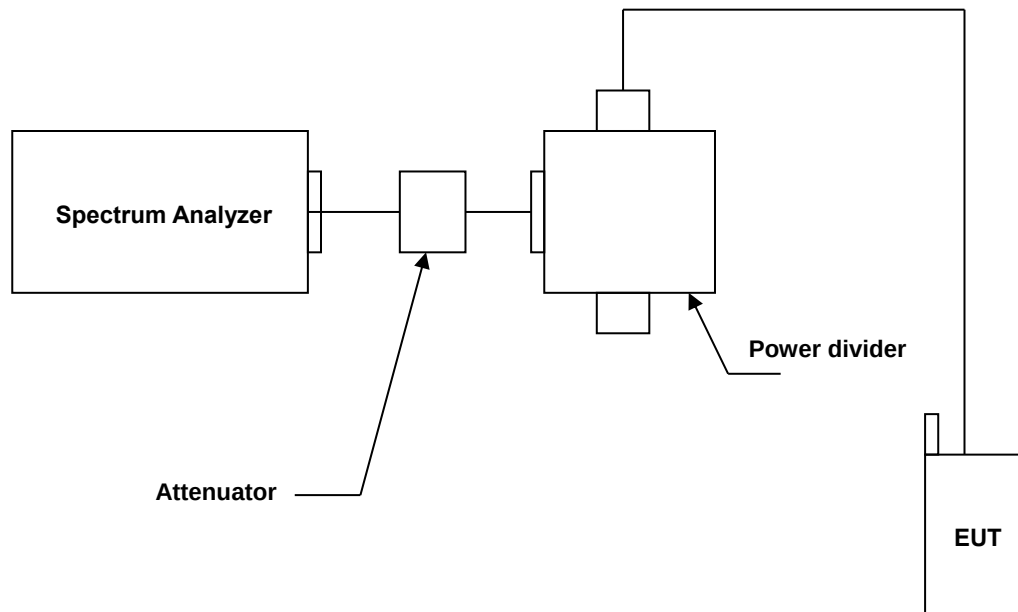
3.4. Emission Bandwidth & Occupied Bandwidth Test

■ Limit

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

■ Setup



■ Test Procedure

- The EUT was connected to spectrum analyzer via a power divider.
- The conducted occupied bandwidth used the power splitter via EUT RF power connected to spectrum analyzer.
- The EUT was configured by test software to set data modulation and maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % or 26 dB occupied bandwidth.

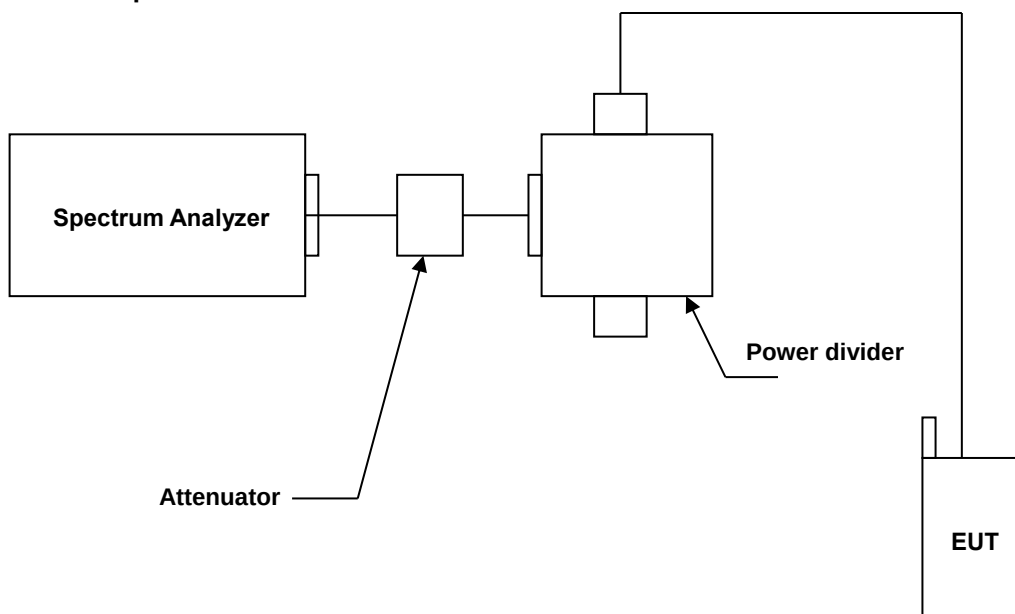
3.5. Peak to Average Power Ratio Test

■ Limit

FCC Part 96:

In measuring transmissions in this band using an average power technique, the peak to-average power ratio (PAPR) of the transmission may not exceed 13 dB.

■ Setup



■ Test Procedure

- Set resolution/measurement bandwidth signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1 %.

3.6. Band Edge Test

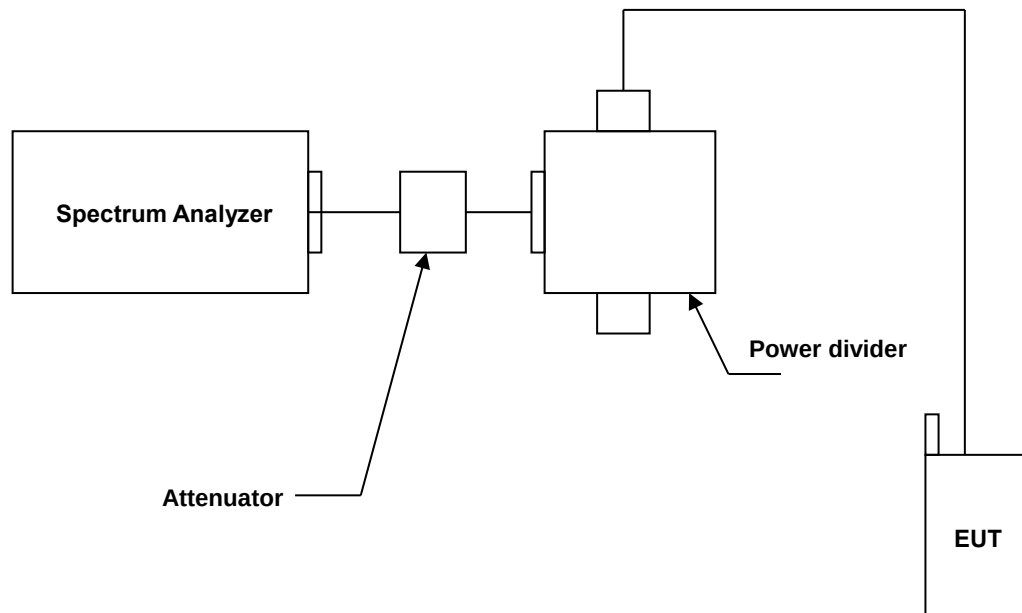
■ Limit

FCC Part 96:

Device		Power of emission outside the fundamental	Limit (dBm/MHz)
☐	End User Device	Within 0 MHz to B MHz above and below the assigned channel.	-13
		Greater than B MHz above and below the assigned channel.	-25
		The conducted power of emissions below 3540 or above 3710 MHz.	
		The conducted power of emissions below 3530 or above 3720 MHz.	-40
		The Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.	
☐	Category A CBSD	Within 0 MHz to 10 MHz above and below the assigned channel.	-13
		Greater than 10 MHz above and below the assigned channel.	-25
	■ Category B CBSD	The conducted power of emissions below 3540 or above 3710 MHz.	
		The conducted power of emissions below 3530 or above 3720 MHz.	-40

Note: Where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device.

■ Setup



■ Test Procedure

- The EUT was set up for the maximum peak power with WWAN data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low / mid / high operational frequency range.)
- The band edge measurement used the power splitter connected to spectrum analyzer. This splitter loss and cable loss are the worst loss in the transmitted path track.
- Record the max trace plot into the test report.

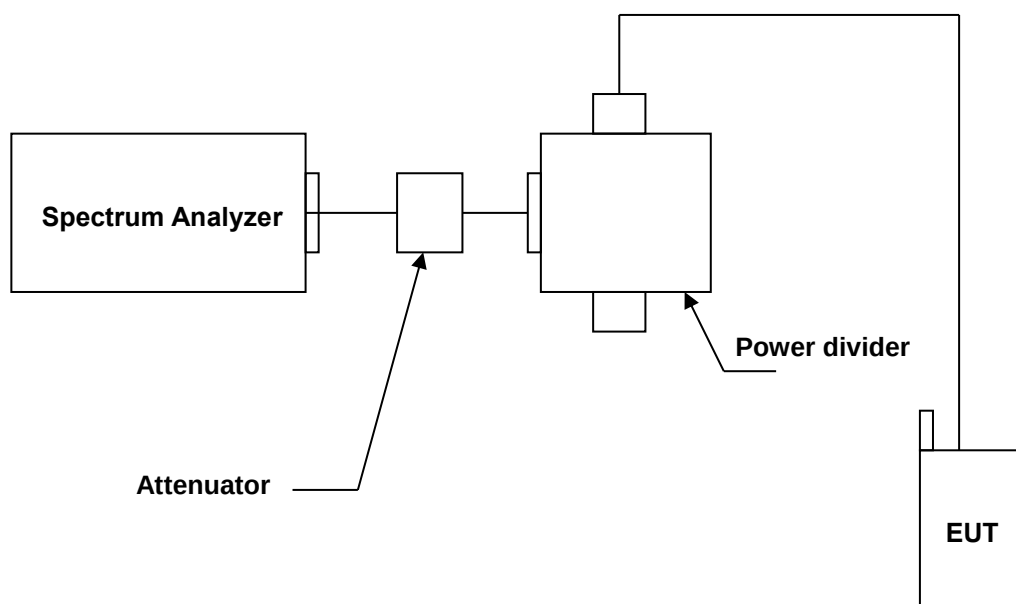
3.7. Conducted Spurious Emission Test

■ Limit

FCC Part 96:

The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

■ Setup



■ Test Procedure

- The EUT was set up for the maximum peak power with WWAN data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range.).
- The conducted spurious emission used the power splitter via EUT RF power connected to spectrum analyzer.
- Record the max trace plot into the test report

3.8. Radiated Emission Test

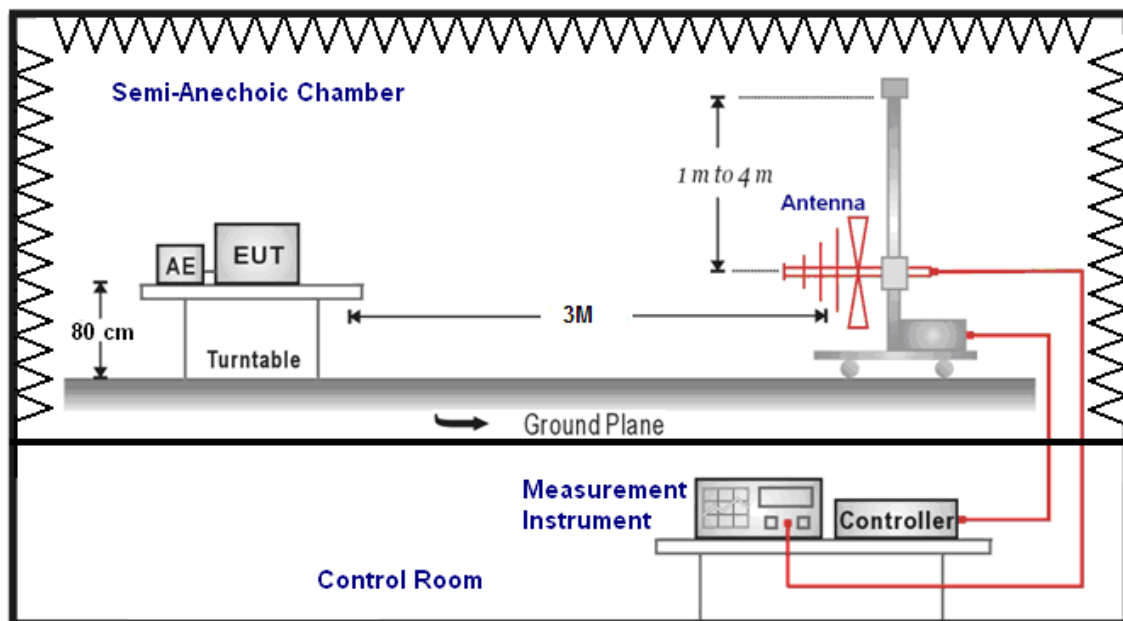
■ Limit

FCC Part 96:

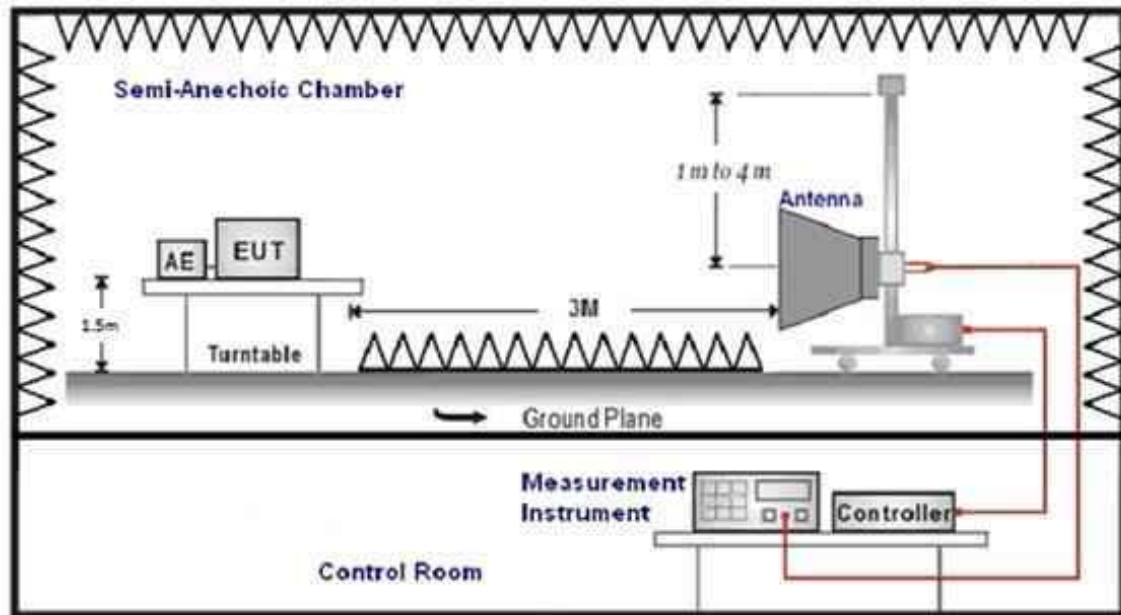
The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

■ Setup

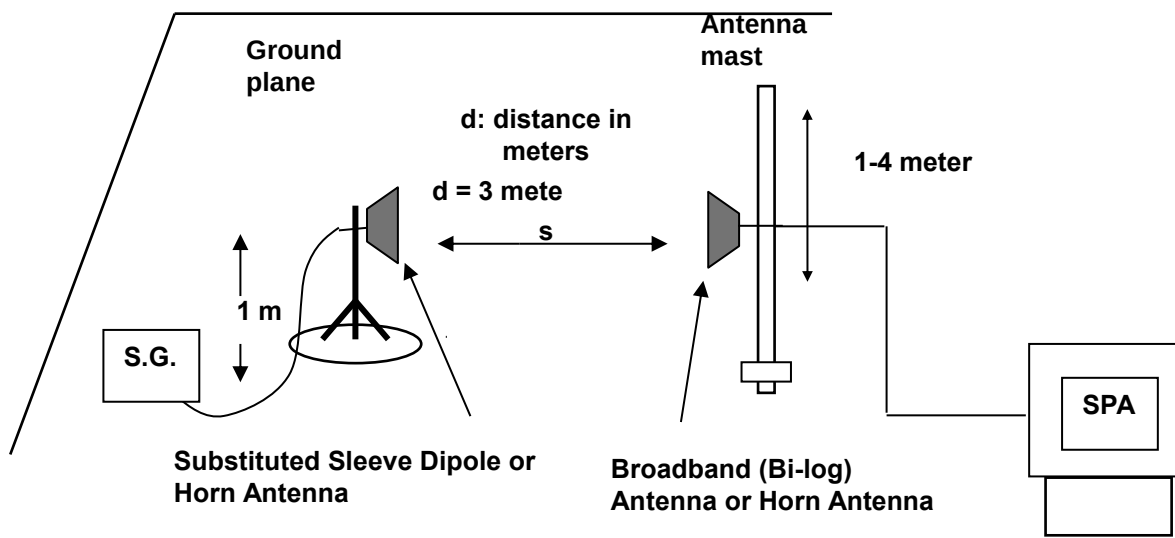
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



■ Test Procedure

- The EUT was set up for the maximum power with WWAN data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).
- Radiation Emission measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (1.5 m for above 1 GHz) 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.
- 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.
- E.I.R.P. = Output power level of S.G - TX cable loss + Antenna gain of substitution horn
- E.R.P. = E.I.R.P- 2.15 dB

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.

4 Test Results

4.1. Conducted Output Power and Power Density / Equivalent Isotropic Radiated Power and Maximum Power Spectral Density

Maximum EIRP (Per 10M)

NR Band	BandWidth	Arfcn	Freq (MHz)	Modulation	Setting	ANT1 Power (dBm)	ANT2 Power (dBm)	Conducted Power (dBm)	EIRP (dBm)	EIRP (W)
48	10	637000	3555	QPSK	280	27.55	28.02	30.80	45.37	34.4350
48	10	637000	3555	64 QAM	280	27.31	27.59	30.46	45.03	31.8420
48	10	637000	3555	256 QAM	280	27.38	27.62	30.51	45.08	32.2107
48	10	641666	3624.99	QPSK	275	27.73	27.69	30.72	45.29	33.8065
48	10	641666	3624.99	64 QAM	275	27.35	27.58	30.47	45.04	31.9154
48	10	641666	3624.99	256 QAM	275	27.29	27.63	30.47	45.04	31.9154
48	10	646332	3694.98	QPSK	280	27.65	28.10	30.89	45.46	35.1560
48	10	646332	3694.98	64 QAM	280	27.49	27.59	30.55	45.12	32.5087
48	10	646332	3694.98	256 QAM	280	27.46	27.57	30.52	45.09	32.2849

Remark: The above Maximum EIRP value is compliance with limit EIRP 47dBm/10MHz.

*EIRP (dBm/10MHz) = Conducted Output Power (dBm/10MHz) + Directional Gain (dBi).

*Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 10 \log[(10^{11.56/20} + 10^{11.56/20})^2/2] = 14.57 \text{ dBi}$.

Maximum EIRP Power Density

NR Band	BandWidth	Arfcn	Freq (MHz)	Modulation	Setting	ANT1 Power (dBm)	ANT2 Power (dBm)	Conducted Power (dBm)	EIRP (dBm)	EIRP (W)
48	10	637000	3555	QPSK	280	18.77	19.31	22.06	36.63	4.6026
48	10	637000	3555	64 QAM	280	19.19	19.43	22.32	36.89	4.8865
48	10	637000	3555	256 QAM	280	19.30	19.36	22.34	36.91	4.9091
48	10	641666	3624.99	QPSK	275	19.43	19.17	22.31	36.88	4.8753
48	10	641666	3624.99	64 QAM	275	19.01	19.06	22.04	36.61	4.5814
48	10	641666	3624.99	256 QAM	275	18.78	19.38	22.10	36.67	4.6452
48	10	646332	3694.98	QPSK	280	19.12	19.57	22.36	36.93	4.9317
48	10	646332	3694.98	64 QAM	280	18.28	19.08	21.70	36.27	4.2364
48	10	646332	3694.98	256 QAM	280	19.05	19.21	22.14	36.71	4.6881

Remark: The above Maximum EIRP PSD value is compliance with limit EIRP 37dBm/1MHz.

*EIRP PSD = Conducted Output Power Density + Directional Gain (dBi).

*Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 10 \log[(10^{11.56/20} + 10^{11.56/20})^2/2] = 14.57 \text{ dBi}$.

4.2. Emission Bandwidth & Occupied Bandwidth / Peak to Average Ratio / Band Edge / Conducted Spurious Emission

The equipment passed the requirement of this clause, the detail results refer to Appendix A. Test Results_Band n48

26dB and 99% Bandwidth

NR n48 (ANT 1)				
Modulation	Channel Bandwidth	Frequency	26dB Bandwidth	Occupied Bandwidth
		(MHz)	(MHz)	(MHz)
QPSK	10 MHz	3624.99	9.71	8.599
64 QAM	10 MHz	3624.99	9.51	8.603
256 QAM	10 MHz	3624.99	9.45	8.606

NR n48 (ANT 2)				
Modulation	Channel Bandwidth	Frequency	26dB Bandwidth	Occupied Bandwidth
		(MHz)	(MHz)	(MHz)
QPSK	10 MHz	3624.99	9.49	8.583
64 QAM	10 MHz	3624.99	9.49	8.572
256 QAM	10 MHz	3624.99	9.43	8.593

4.3. Frequency Stability

Frequency Stability (Temperature Variation)

QPSK	NR Band 48_BW 10MHz	Fq(MHz) : 3555.00
Temperature (°C)	Deviation (ppm)	
-30	-0.06	
-20	-0.04	
-10	-0.05	
0	0.03	
10	0.02	
20	-0.04	
30	-0.06	
40	0.03	
50	-0.02	

Frequency Stability vs. Voltage

QPSK	NR Band 48_BW 10MHz	Fq(MHz) : 3555.00
Voltage(V)	Deviation (ppm)	
VN (120V)	-0.03	
VL (102V)	-0.04	
VH (138V)	0.02	

QPSK	NR Band 48_BW 10MHz	Fq(MHz) : 3694.98
Temperature (°C)	Deviation (ppm)	
-30	-0.04	
-20	-0.05	
-10	-0.06	
0	-0.02	
10	-0.02	
20	-0.06	
30	-0.01	
40	-0.03	
50	-0.02	

Frequency Stability vs. Voltage

QPSK	NR Band 48_BW 10MHz	Fq(MHz) : 3694.98
Voltage(V)	Deviation (ppm)	
VN (120V)	-0.06	
VL (102V)	-0.05	
VH (138V)	-0.03	

4.4. Radiated Emission

Internal power supply
Omni Antenna

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	269.59	-49.43	-12.24	-61.67	-40.00	-21.67	PEAK
2	289.96	-49.97	-11.39	-61.36	-40.00	-21.36	PEAK
3	320.03	-45.57	-10.64	-56.21	-40.00	-16.21	PEAK
4	329.73	-49.68	-10.32	-60.00	-40.00	-20.00	PEAK
5	459.71	-49.85	-7.08	-56.93	-40.00	-16.93	PEAK
6	500.45	-58.55	-6.73	-65.28	-40.00	-25.28	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	269.59	-47.88	-12.24	-60.12	-40.00	-20.12	PEAK
2	289.96	-50.55	-11.39	-61.94	-40.00	-21.94	PEAK
3	299.66	-51.57	-11.21	-62.78	-40.00	-22.78	PEAK
4	419.94	-50.08	-8.19	-58.27	-40.00	-18.27	PEAK
5	459.71	-48.53	-7.08	-55.61	-40.00	-15.61	PEAK
6	500.45	-54.56	-6.73	-61.29	-40.00	-21.29	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3555 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-68.01	8.07	-59.94	-40.00	-19.94	PEAK
2	10665.00	-66.67	9.02	-57.65	-40.00	-17.65	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3555 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-69.92	8.07	-61.85	-40.00	-21.85	PEAK
2	10665.00	-69.23	9.02	-60.21	-40.00	-20.21	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3624.99 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-69.57	7.90	-61.67	-40.00	-21.67	PEAK
2	10874.97	-68.60	8.61	-59.99	-40.00	-19.99	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3624.99 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-70.67	7.90	-62.77	-40.00	-22.77	PEAK
2	10874.97	-68.74	8.61	-60.13	-40.00	-20.13	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3694.98 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.80	7.87	-61.93	-40.00	-21.93	PEAK
2	11084.94	-68.49	8.50	-59.99	-40.00	-19.99	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3694.98 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.49	7.87	-61.62	-40.00	-21.62	PEAK
2	11084.94	-68.49	8.50	-59.99	-40.00	-19.99	PEAK

Directional Antenna

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	269.59	-47.16	-12.24	-59.40	-40.00	-19.40	PEAK
2	280.26	-43.45	-11.69	-55.14	-40.00	-15.14	PEAK
3	299.66	-48.74	-11.21	-59.95	-40.00	-19.95	PEAK
4	320.03	-48.57	-10.64	-59.21	-40.00	-19.21	PEAK
5	359.80	-55.14	-9.92	-65.06	-40.00	-25.06	PEAK
6	459.71	-52.05	-7.08	-59.13	-40.00	-19.13	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	53.28	-57.46	-11.47	-68.93	-40.00	-28.93	PEAK
2	229.82	-54.96	-14.50	-69.46	-40.00	-29.46	PEAK
3	320.03	-57.48	-10.64	-68.12	-40.00	-28.12	PEAK
4	500.45	-55.45	-6.73	-62.18	-40.00	-22.18	PEAK
5	519.85	-55.78	-6.24	-62.02	-40.00	-22.02	PEAK
6	540.22	-59.52	-6.25	-65.77	-40.00	-25.77	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3555 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-68.99	8.07	-60.92	-40.00	-20.92	PEAK
2	10665.00	-67.74	9.02	-58.72	-40.00	-18.72	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3555 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-69.33	8.07	-61.26	-40.00	-21.26	PEAK
2	10665.00	-68.12	9.02	-59.10	-40.00	-19.10	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3624.99 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-69.13	7.90	-61.23	-40.00	-21.23	PEAK
2	10874.97	-68.67	8.61	-60.06	-40.00	-20.06	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3624.99 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-69.01	7.90	-61.11	-40.00	-21.11	PEAK
2	10874.97	-68.75	8.61	-60.14	-40.00	-20.14	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3694.98 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.93	7.87	-62.06	-40.00	-22.06	PEAK
2	11084.94	-69.50	8.50	-61.00	-40.00	-21.00	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK BW:10M		
	3694.98 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.79	7.87	-61.92	-40.00	-21.92	PEAK
2	11084.94	-69.50	8.50	-61.00	-40.00	-21.00	PEAK

External power supply
Omni Antenna

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	33.88	-34.56	-13.17	-47.73	-40.00	-7.73	PEAK
2	64.92	-36.77	-13.01	-49.78	-40.00	-9.78	PEAK
3	127.00	-35.82	-13.64	-49.46	-40.00	-9.46	PEAK
4	137.67	-35.47	-12.56	-48.03	-40.00	-8.03	PEAK
5	179.38	-32.57	-13.22	-45.79	-40.00	-5.79	PEAK
6	191.99	-30.45	-14.51	-44.96	-40.00	-4.96	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	67.83	-32.10	-13.33	-45.43	-40.00	-5.43	PEAK
2	79.47	-28.75	-16.43	-45.18	-40.00	-5.18	PEAK
3	100.81	-33.58	-16.25	-49.83	-40.00	-9.83	PEAK
4	133.79	-36.13	-12.86	-48.99	-40.00	-8.99	PEAK
5	190.05	-33.03	-14.42	-47.45	-40.00	-7.45	PEAK
6	199.75	-31.91	-14.77	-46.68	-40.00	-6.68	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3555 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-67.38	8.07	-59.31	-40.00	-19.31	PEAK
2	10665.00	-68.42	9.02	-59.40	-40.00	-19.40	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3555 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-64.38	8.07	-56.31	-40.00	-16.31	PEAK
2	10665.00	-67.42	9.02	-58.40	-40.00	-18.40	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3624.99 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-68.92	7.90	-61.02	-40.00	-21.02	PEAK
2	10874.97	-68.10	8.61	-59.49	-40.00	-19.49	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3624.99 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-68.23	7.90	-60.33	-40.00	-20.33	PEAK
2	10874.97	-67.47	8.61	-58.86	-40.00	-18.86	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3694.98 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-68.82	7.87	-60.95	-40.00	-20.95	PEAK
2	11084.94	-68.01	8.50	-59.51	-40.00	-19.51	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3694.98 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-68.93	7.87	-61.06	-40.00	-21.06	PEAK
2	11084.94	-67.56	8.50	-59.06	-40.00	-19.06	PEAK

Directional Antenna

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	69.77	-30.63	-14.04	-44.67	-40.00	-4.67	PEAK
2	122.15	-31.95	-14.05	-46.00	-40.00	-6.00	PEAK
3	136.70	-35.16	-12.70	-47.86	-40.00	-7.86	PEAK
4	154.16	-36.02	-11.59	-47.61	-40.00	-7.61	PEAK
5	164.83	-33.77	-11.93	-45.70	-40.00	-5.70	PEAK
6	188.11	-33.10	-14.15	-47.25	-40.00	-7.25	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	Transmit mode		
Polarization:	Vertical		
Remark:	big 196		

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	68.80	-33.15	-13.71	-46.86	-40.00	-6.86	PEAK
2	72.68	-33.59	-14.63	-48.22	-40.00	-8.22	PEAK
3	158.04	-37.70	-11.59	-49.29	-40.00	-9.29	PEAK
4	170.65	-33.17	-12.26	-45.43	-40.00	-5.43	PEAK
5	181.32	-32.15	-13.49	-45.64	-40.00	-5.64	PEAK
6	210.42	-34.55	-14.76	-49.31	-40.00	-9.31	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3555 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-68.99	8.07	-60.92	-40.00	-20.92	PEAK
2	10665.00	-67.95	9.02	-58.93	-40.00	-18.93	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3555 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7110.00	-69.11	8.07	-61.04	-40.00	-21.04	PEAK
2	10665.00	-68.14	9.02	-59.12	-40.00	-19.12	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3624.99 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-68.43	7.90	-60.53	-40.00	-20.53	PEAK
2	10874.97	-67.73	8.61	-59.12	-40.00	-19.12	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3624.99 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7249.98	-69.37	7.90	-61.47	-40.00	-21.47	PEAK
2	10874.97	-68.64	8.61	-60.03	-40.00	-20.03	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3694.98 MHz		
Polarization:	Horizontal		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.83	7.87	-61.96	-40.00	-21.96	PEAK
2	11084.94	-67.51	8.50	-59.01	-40.00	-19.01	PEAK

Test Site:	96603 - WG	Standard:	Part 96
Test Mode:	n48 NR 30k QPSK		
	BW:10M 3694.98 MHz		
Polarization:	Vertical		
Remark:			

ID	Frequency MHz	Reading dBm	Correct Factor dB/m	Result dBm	Limit dBm	Margin dB	Remark
1	7389.96	-69.20	7.87	-61.33	-40.00	-21.33	PEAK
2	11084.94	-68.18	8.50	-59.68	-40.00	-19.68	PEAK

--- END---