MEASUREMENT REPORT

FCC PART 96

FCC ID:	PIDAV2700
Application:	Airspan Networks Inc
Application Type:	Certification
Product:	AirVelocity2700, 3.55-3.7GHz (n48),FM,PoE/DC
Model No.:	AV27-N48-P4CXP-FM-C
Brand Name:	Airspan
FCC Rule Part(s):	Part 96
Test Procedure(s):	ANSI C63.26: 2015
Test Date:	July 08 ~ September 08, 2021

Reviewed By: Sunny Sun

Approved By: Robin Wu

The test results relate only to the samples tested.

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

Revision History

Report No.	Version	Description	Issue Date	Note
2106RSU047-U1	Rev. 01	Initial Report	10-18-2021	Valid

CONTENTS

1. General Information

1.1. Applicant

Airspan Networks Inc

777 Yamato Road Suite 310 Boca Raton FL 33431 USA

1.2. Manufacturer

Airspan Networks Inc

777 Yamato Road Suite 310 Boca Raton FL 33431 USA

1.3. Testing Facility

☒	**Test Site - MRT Suzhou Laboratory**	
	Laboratory Location (Suzhou - Wuzhong)	
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
	Laboratory Location (Suzhou - SIP)	
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
	Laboratory Accreditations	
	A2LA: 3628.01	CNAS: L10551
	FCC: CN1166	ISED: CN0001
	VCCI: R-20025, G-20034, C-20020, T-20020	
☐	**Test Site - MRT Shenzhen Laboratory**	
	Laboratory Location (Shenzhen)	
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02	CNAS: L10551
	FCC: CN1284	ISED: CN0105
☐	**Test Site - MRT Taiwan Laboratory**	
	Laboratory Location (Taiwan)	
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
	Laboratory Accreditations	
	TAF: L3261-190725	
	FCC: 291082, TW3261	ISED: TW3261

1.4. Product Information

Product Name	AirVelocity2700, 3.55-3.7GHz (n48),FM,PoE/DC
Model No.	AV27-N48-P4CXP-FM-C
Operating Band (s)	5G NR n48 Band
CBSD Category	Category A CBSD
Frequency Range	3550 ~ 3700 MHz
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Max EIRP Density	2Tx Mode: 26.56 dBm/10MHz; 4Tx Mode: 23.51 dBm/10MHz
Antenna Information	Refer to section 1.5
Emission Designator	Refer to Section 1.6

1.5. Description of Available Antennas

Band Support	Antenna Type	Manufacturer	Antenna Gain
n48	Omni Internal	Galtronics	5.00 dBi

Remark:

1. This device can operate with 2Tx and 4Tx mode.
2. This device operate with Multiple Antennas Using Multiple-input, Multiple-output (MIMO) Technology for Uncorrelated Transmission.
3. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

1.6. Emission Designator

Bandwidth (MHz)	Modulation	Emission Designator
20	QPSK	18M2G7D
	16QAM	18M3W7D
	64QAM	18M2W7D
	256QAM	18M2W7D

1.7. Test Mode and Channel Detail

Test Item	Channel Bandwidth	Modulation
Equivalent Isotropically Radiated Power	20MHz	QPSK, 16QAM, 64QAM, 256QAM
Emission Bandwidth		
Peak to Average Ratio		QPSK
Conducted Spurious Emissions		
Band Edge Measurements		
Frequency Stability		
Radiated Spurious Emissions		

1.8. EMI Suppression Device(s)/Modifications

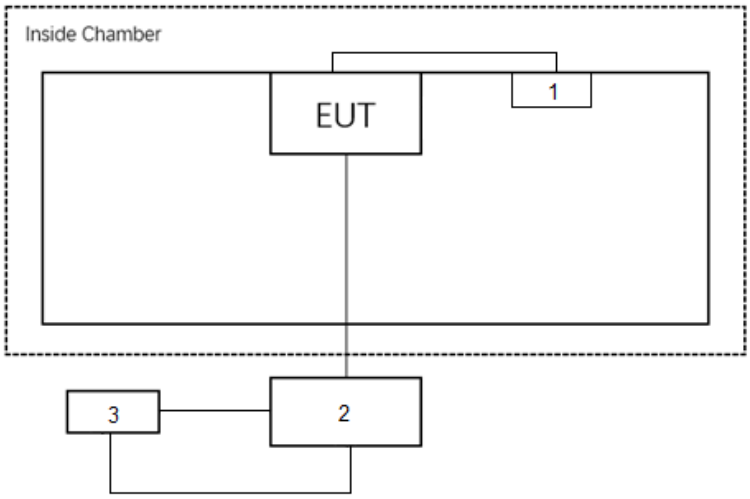
No EMI suppression device(s) were added and/or no modifications were made during testing.

1.9. Applicable Standards

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

- ANSI C63.26:2015
- FCC CFR 47 Part 96
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP
- FCC KDB 940660 D01 v03: Part 96 CBRS Eqpt

1.10. Configuration of Tested System



Product		Manufacturer	Model No.
1	Adapter	Asian Power Devices	DA-120A54
2	HUB	CIG	SC-60C O-DU Chassis
3	Personal Computer	HP	TPN-I125

1.11. Test Environment Condition

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

2. TEST EQUIPMENT CALIBRATION DATE

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/07/31
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2022/09/02
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022/03/30
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/02/21
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2022/08/07
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2022/07/31
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2021/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2021/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/02/22
Broad Band Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2021/12/14
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Conducted Test Equipment (WZ-SR6, WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/14
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2022/07/10
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/14
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/11/18
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
True RMS Clamp Meter	Fluke	319	MRTSUE06080	1 year	2022/05/05
Directional Coupler	Agilent	87301D	MRTSUE06082	1 year	2022/03/24
Dual Directional Coupler	Agilent	7778D	MRTSUE06083	1 year	2022/03/24
Attenuator	MVE	6dB	MRTSUE06534	1 year	2021/12/11
Attenuator	MVE	10dB	MRTSUE06543	1 year	2021/12/11
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2022/08/07

Software	Version	Function
EMI Software	V3	EMI Test Software

3. MEASUREMENT UNCERTAINTY

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

Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 9kHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 9kHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

4. TEST RESULT

4.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	Conducted	Pass	Section 4.2
2.1055	Frequency Stability	Refer to section 4.3		Pass	Section 4.3
96.41(g)	Peak-to-average power ratio	Refer to section 4.4		Pass	Section 4.4
96.41(b)	Equivalent Isotropic Radiated Power	Refer to section 4.5		Pass	Section 4.5
2.1051 96.41(e)	Spurious Emissions; Band Edge Emissions	Refer to section 4.6, 4.7		Pass	Section 4.6, 4.7
2.1053, 96.41(e)	Spurious Emissions	Refer to section 4.8	Radiated	Pass	Section 4.8

Notes:

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

4.2. Occupied Bandwidth Measurement

4.2.1.Test Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

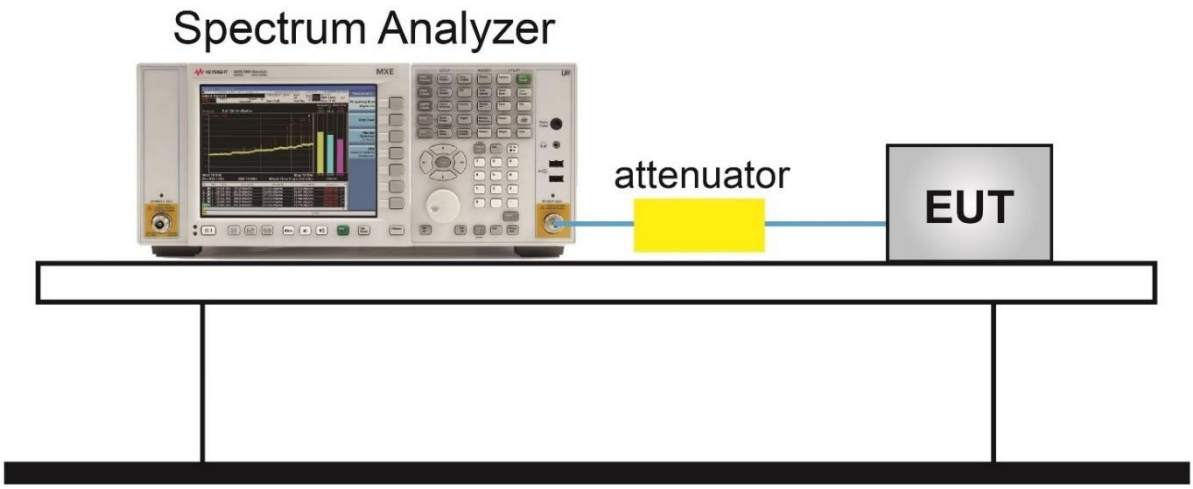
4.2.2.Test Procedure

ANSI C63.26-2015 - Section 5.4

4.2.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3. VBW≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

4.2.4.Test Setup



4.2.5.Test Result

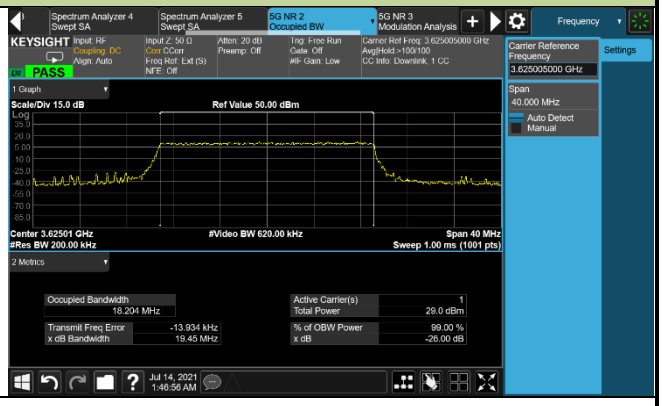
Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/14	Test Configuration	n48

Modulation	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK	3560.01	20	18.18
	3625.005		18.20
	3690.00		18.17
16QAM	3560.01	20	18.19
	3625.005		18.24
	3690.00		18.25
64QAM	3560.01	20	18.17
	3625.005		18.23
	3690.00		18.21
256QAM	3560.01	20	18.21
	3625.005		18.22
	3690.00		18.20

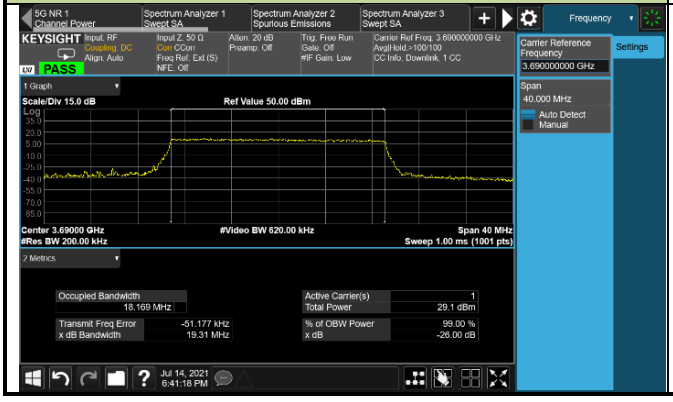
99% Bandwidth - QPSK

Low Channel

Middle Channel

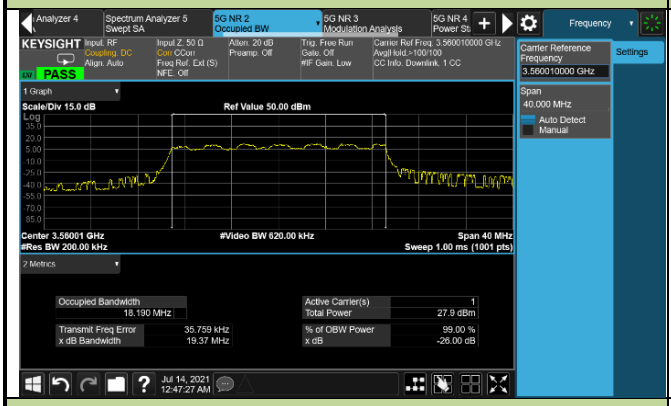


Top Channel

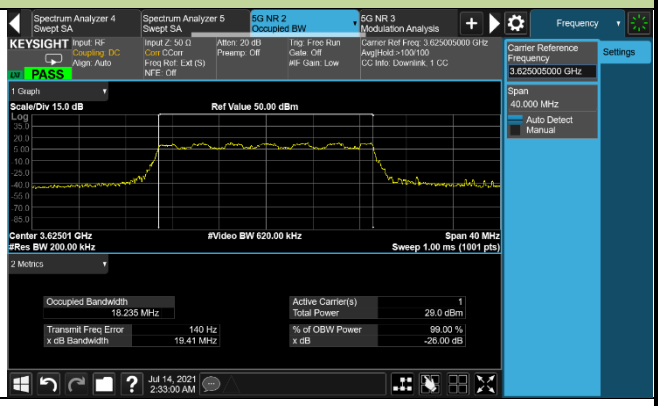


99% Bandwidth - 16QAM

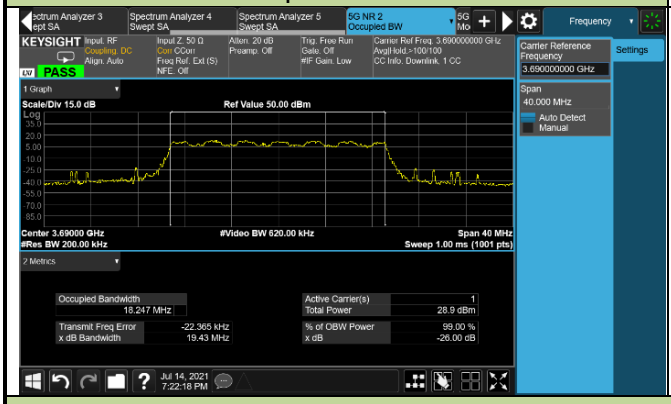
Low Channel



Middle Channel

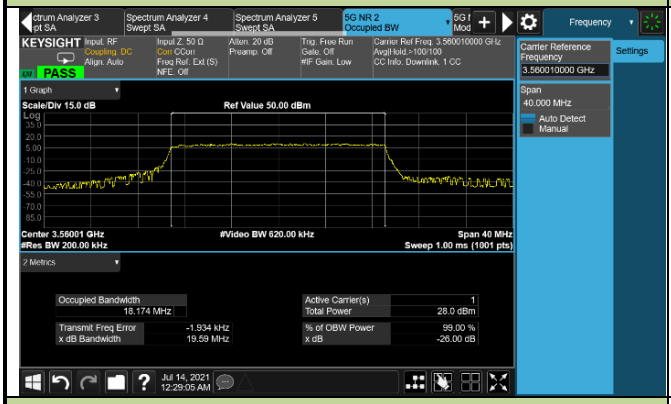


Top Channel

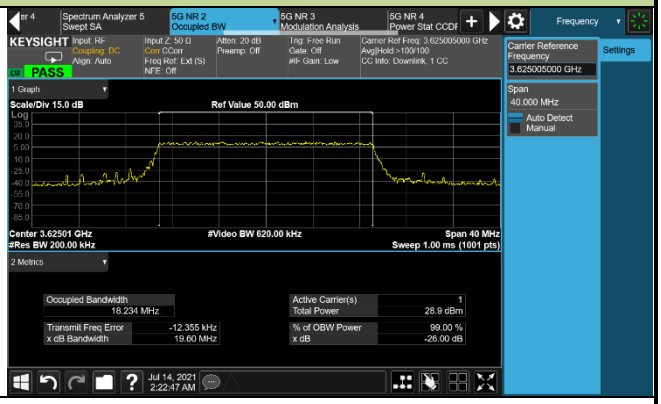


99% Bandwidth - 64QAM

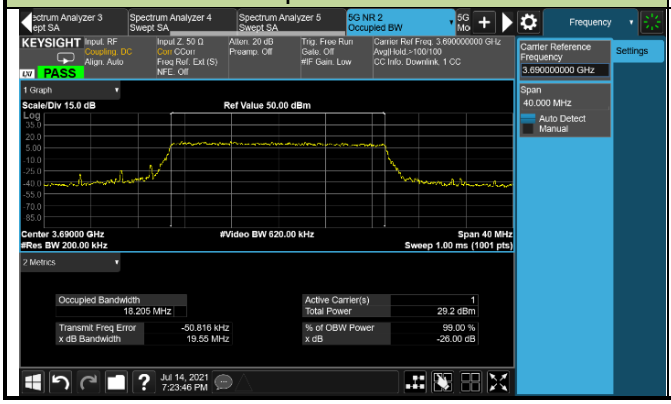
Low Channel

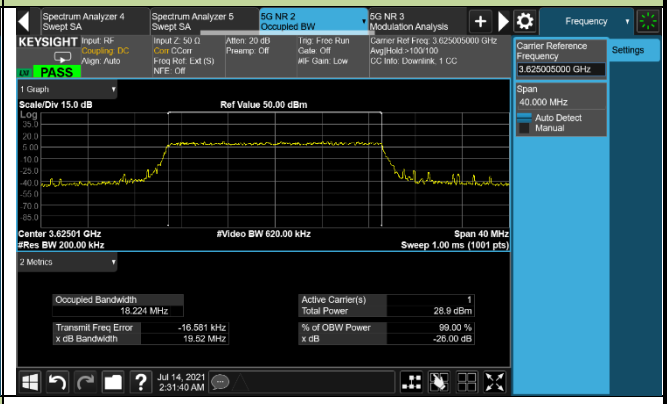
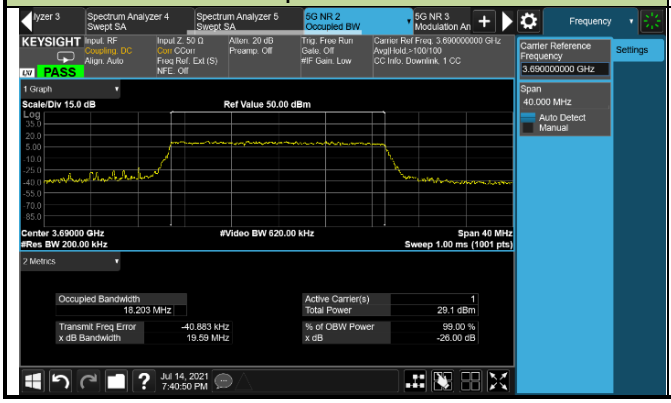


Middle Channel



Top Channel



99% Bandwidth - 256QAM	
Low Channel	Middle Channel
	
Top Channel	
	

4.3. Frequency Stability Measurement

4.3.1.Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

4.3.2.Test Procedure

ANSI C63.26-2015 - Section 5.6

4.3.3.Test Setting

Frequency Stability Under Temperature Variations:

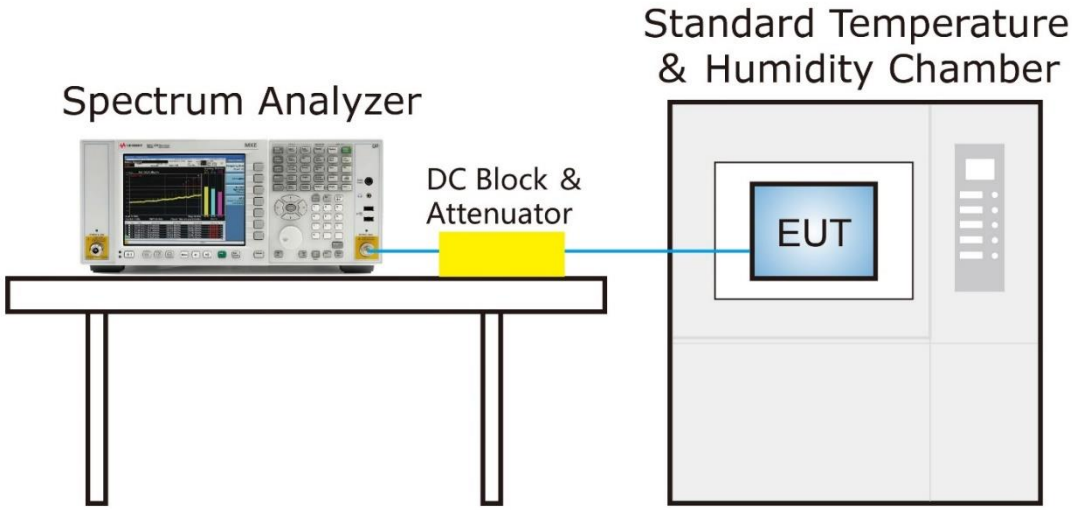
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint (If a product is specified to operate over a range of input voltage then the −15% variation is applied to the lowermost voltage and the +15%is applied to the uppermost voltage), recordthe maximum frequency change.

4.3.4.Test Setup



4.3.5.Test Setup

Test Site	WZ-TR3	Test Engineer	Cloud Guo
Test Date	20201/07/14	Test Configuration	BW=20MHz

Voltage (DC)	Temp (°C)	Frequency Tolerance (ppm)
54V	- 30	-0.003
	- 20	0.012
	- 10	-0.004
	0	-0.002
	+ 10	0.011
	+ 20	-0.010
	+ 30	0.015
	+ 40	0.009
	+ 50	-0.008
42.0V	+ 20	-0.004
57.0V	+ 20	0.005

4.4. Peak to Average Ratio Measurement

4.4.1.Test Limit

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

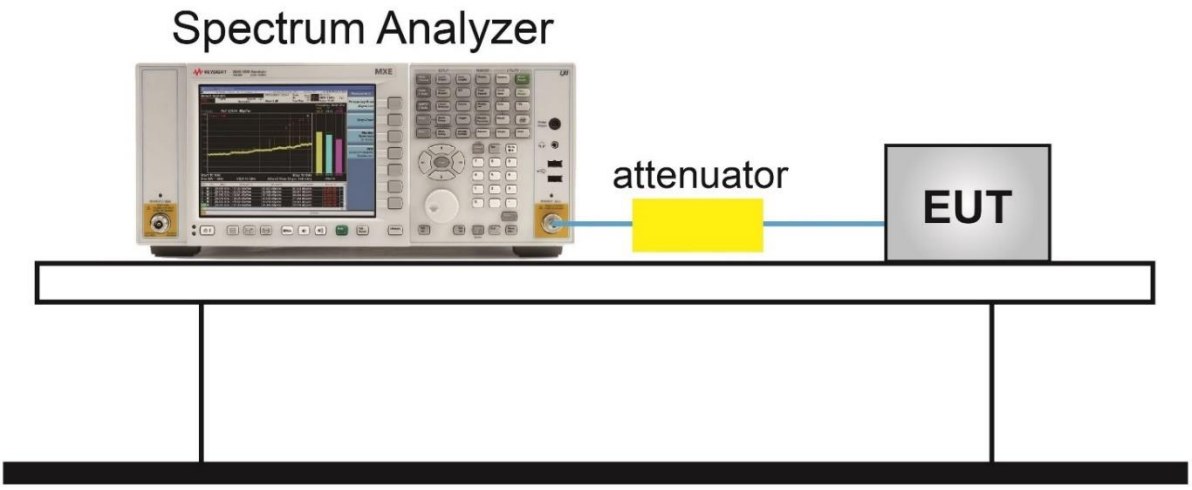
4.4.2.Test Procedure

ANSI C63.26-2015 - Section 5.2.6

4.4.3.Test Setting

1. Set the resolution / measurement bandwidth ≥ signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PARR level associated with a probability of 0.1%.

4.4.4.Test Setup



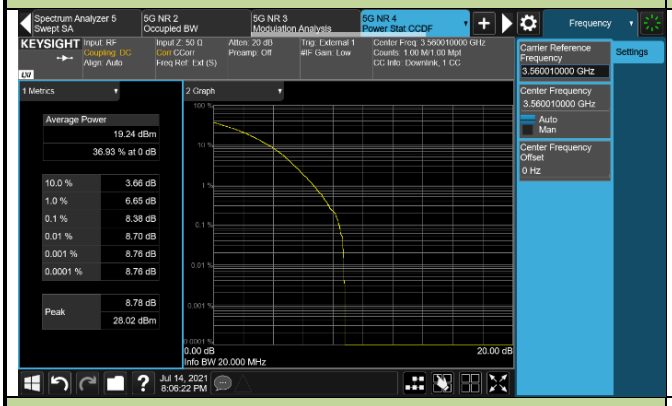
4.4.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	20201/07/14		

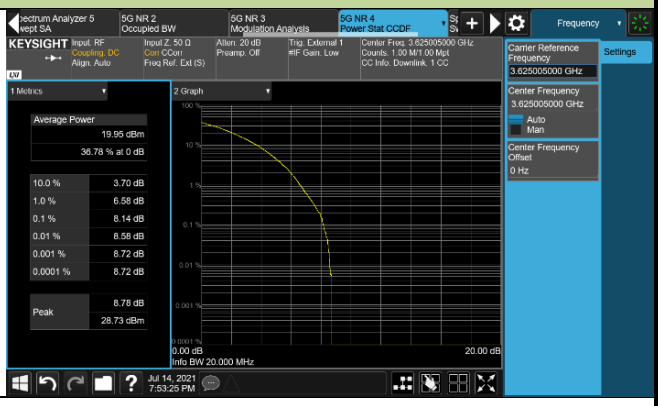
Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
3560.01	20	8.38	≤ 13.00	Pass
3625.005	20	8.14	≤ 13.00	Pass
3690.00	20	8.34	≤ 13.00	Pass

20MHz Channel Bandwidth

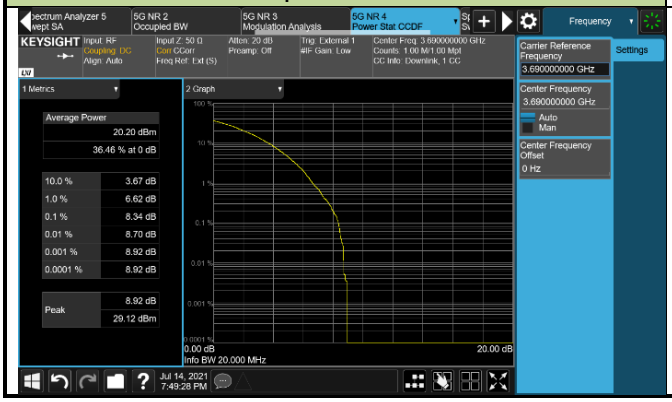
Bottom Channel



Middle Channel



Top Channel



4.5. Equivalent Isotropically Radiated Power Measurement

4.5.1.Test Limit

The maximum effective isotropic radiated power (EIRP) Category A CBSD is 30dBm/10MHz, Maximum PSD is 20dBm/MHz.

4.5.2.Test Procedure

ANSI C63.26-2015 - Section 5.2.4.4.2 &5.2.5.5

4.5.3.Test Setting

When the fundamental condition for average power measurements cannot be realized (i.e., the EUT can not be configured to transmit at full-power on a continuous basis (i.e., duty cycle < 98%) and the instrumentation cannot be configured to measure only during active full-power transmissions), then thefollowing procedure can be used if the EUT duty cycle is constant (i.e., duty cycle variations are less thanor equal to ±2%).

a) Set span to 2 × to 3 × the OBW.

b) Set RBW = 1% to 5% of the OBW.

c) Set VBW ≥ 3 × RBW.

d) Set number of measurement points in sweep ≥ 2 × span / RBW.

e) Sweep time:

1) Set = auto-couple, or

2) Set ≥ [10 × (number of points in sweep) × (transmission symbol period)] for single sweep (automation-compatible) measurement.

f) Detector = power averaging (rms).

g) Set sweep trigger to “free run.”

h) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

i) Using the marker function to identify the maximum PSD.

j) Add 10 log (1/duty cycle) to the measured power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25%.

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

ERP or EIRP = P_{Meas} + G_T (1)

where

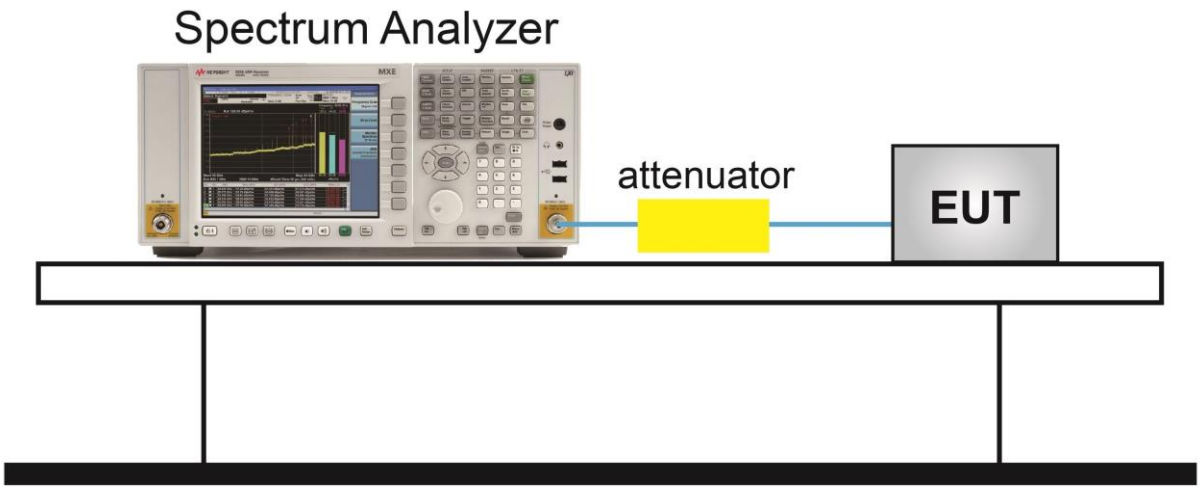
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

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

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

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

4.5.4.Test Setup



4.5.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/14	Test Configuration	4Tx Mode
Test Item	Maximum EIRP		

Frequency (MHz)	BW (MHz)	Output Power (dBm/10MHz)				Total Power (dBm/10MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
		Ant 1	Ant 2	Ant 3	Ant 4			
QPSK								
3560.01	20	10.92	11.61	10.74	10.86	17.07	22.07	30.00
3625.005	20	11.99	11.14	12.20	11.81	17.82	22.82	30.00
3690.00	20	12.41	12.73	12.07	12.30	18.41	23.41	30.00
16QAM								
3560.01	20	11.41	12.07	11.47	11.37	17.61	22.61	30.00
3625.005	20	12.45	12.60	12.65	12.25	18.51	23.51	30.00
3690.00	20	12.32	12.36	12.31	12.61	18.42	23.42	30.00
64QAM								
3560.01	20	10.90	11.65	11.00	10.86	17.14	22.14	30.00
3625.005	20	12.09	12.20	12.24	11.82	18.11	23.11	30.00
3690.00	20	12.46	12.72	12.02	12.30	18.40	23.40	30.00
256QAM								
3560.01	20	10.92	11.66	11.02	10.90	17.16	22.16	30.00
3625.005	20	11.90	12.19	12.25	11.83	18.06	23.06	30.00
3690.00	20	12.51	12.71	12.05	12.33	18.43	23.43	30.00
Verdict		Pass						

Note 1: Total Power = 10*log (10^(Ant 1 Power Density/10) + 10^(Ant 2 Power Density/10) + 10^(Ant 3 Power Density/10) + 10^(Ant 4 Power Density/10))

Note 2: EIRP = Total Power + Antenna Gain.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/09/08	Test Configuration	4Tx Mode
Test Item	Maximum EIRP (Reported Only)		

Frequency (MHz)	BW (MHz)	Output Power (dBm)				Total Power (dBm)	EIRP (dBm)
		Ant 1	Ant 2	Ant 3	Ant 4		
QPSK							
3560.01	20	13.50	13.94	13.45	13.52	19.63	24.63
3625.005	20	14.59	14.70	14.78	14.45	20.65	25.65
3690.00	20	14.68	14.97	14.44	14.78	20.74	25.74
16QAM							
3560.01	20	13.70	14.16	13.80	13.72	19.87	24.87
3625.005	20	14.82	14.93	15.01	14.61	20.87	25.87
3690.00	20	14.50	14.65	14.64	14.83	20.68	25.68
64QAM							
3560.01	20	13.67	13.93	13.59	13.50	19.70	24.70
3625.005	20	14.62	14.75	14.83	14.42	20.68	25.68
3690.00	20	14.70	15.02	14.42	14.68	20.73	25.73
256QAM							
3560.01	20	13.53	13.96	13.62	13.52	19.68	24.68
3625.005	20	14.61	14.72	14.80	14.47	20.67	25.67
3690.00	20	14.78	15.01	14.48	14.69	20.76	25.76

Note 1: Total Power = 10*log (10^(Ant 1 Ouput Power/10) + 10^(Ant 2 Ouput Power/10) + 10^(Ant 3 Ouput Power/10) + 10^(Ant 4 Ouput Power/10))

Note 2: EIRP = Total Power + Antenna Gain.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/14	Test Configuration	4Tx Mode
Test Item	Maximum PSD		

Frequency (MHz)	BW (MHz)	Power Density (dBm/MHz)				Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4		
QPSK							
3560.01	20	1.01	1.71	0.83	0.91	12.15	20.00
3625.005	20	2.07	2.29	2.12	1.85	13.11	20.00
3690.00	20	2.81	3.09	2.32	2.59	13.73	20.00
16QAM							
3560.01	20	2.89	3.71	3.01	2.92	14.17	20.00
3625.005	20	4.08	4.29	4.29	3.83	15.15	20.00
3690.00	20	4.26	4.47	4.17	4.38	15.34	20.00
64QAM							
3560.01	20	0.95	1.98	1.27	1.19	12.39	20.00
3625.005	20	2.37	2.53	2.56	2.03	13.40	20.00
3690.00	20	2.71	2.84	2.18	2.52	13.59	20.00
256QAM							
3560.01	20	1.24	2.07	1.12	1.19	12.44	20.00
3625.005	20	2.40	2.53	2.56	2.07	13.41	20.00
3690.00	20	2.96	3.13	2.47	2.56	13.81	20.00
Verdict		Pass					

Note: Total Power Density = 10*log (10^(Ant 1 Power Density/10) + 10^(Ant 2 Power Density/10) + 10^(Ant 3 Power Density/10) + 10^(Ant 4 Power Density/10)) + Antenna Gain.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/20	Test Configuration	2Tx Mode
Test Item	Maximum EIRP		

Frequency (MHz)	BW (MHz)	Output Power (dBm/10MHz)		Total Power (dBm/10MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
		Ant 1	Ant 2			
QPSK						
3560.01	20	16.79	17.58	20.21	25.21	30.00
3625.005	20	17.79	18.10	20.95	25.95	30.00
3690.00	20	18.21	18.34	21.28	26.28	30.00
16QAM						
3560.01	20	17.26	17.78	20.54	25.54	30.00
3625.005	20	18.18	18.38	21.29	26.29	30.00
3690.00	20	18.37	18.72	21.56	26.56	30.00
64QAM						
3560.01	20	16.80	17.50	20.17	25.17	30.00
3625.005	20	17.85	17.50	20.69	25.69	30.00
3690.00	20	18.18	18.41	21.31	26.31	30.00
256QAM						
3560.01	20	16.85	17.61	20.26	25.26	30.00
3625.005	20	17.46	18.05	20.78	25.78	30.00
3690.00	20	18.14	18.50	21.33	26.33	30.00
Verdict		Pass				

Note 1: Total Power = 10*log (10^(Ant 1 Power Density/10) + 10^(Ant 2 Power Density/10))

Note 2: EIRP = Total Power + Antenna Gain.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/09/08	Test Configuration	2Tx Mode
Test Item	Maximum EIRP (Reported Only)		

Frequency (MHz)	BW (MHz)	Output Power (dBm)		Total Power (dBm)	EIRP (dBm)
		Ant 1	Ant 2		
QPSK					
3560.01	20	19.44	19.87	22.67	27.67
3625.005	20	20.34	20.66	23.51	28.51
3690.00	20	20.43	20.58	23.52	28.52
16QAM					
3560.01	20	19.50	20.11	22.83	27.83
3625.005	20	20.58	20.77	23.69	28.69
3690.00	20	20.55	20.92	23.75	28.75
64QAM					
3560.01	20	19.34	19.87	22.62	27.62
3625.005	20	20.39	20.58	23.50	28.50
3690.00	20	20.45	20.76	23.62	28.62
256QAM					
3560.01	20	19.42	19.83	22.64	27.64
3625.005	20	20.41	20.53	23.48	28.48
3690.00	20	20.44	20.78	23.62	28.62

Note 1: Total Power = 10*log (10^(Ant 1 Ouput Power/10) + 10^(Ant 2 Ouput Power/10))

Note 2: EIRP = Total Power + Antenna Gain.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/20	Test Configuration	2Tx Mode
Test Item	Maximum PSD		

Frequency (MHz)	BW (MHz)	Power Density (dBm/MHz)		Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)
		Ant 1	Ant 2		
QPSK					
3560.01	20	6.74	7.61	15.21	20.00
3625.005	20	7.87	8.20	16.05	20.00
3690.00	20	8.50	8.67	16.59	20.00
16QAM					
3560.01	20	8.86	9.63	17.27	20.00
3625.005	20	9.88	9.91	17.91	20.00
3690.00	20	10.08	10.10	18.10	20.00
64QAM					
3560.01	20	6.83	7.56	15.22	20.00
3625.005	20	8.02	8.08	16.06	20.00
3690.00	20	8.44	8.82	16.64	20.00
256QAM					
3560.01	20	7.16	7.78	15.49	20.00
3625.005	20	8.17	8.45	16.33	20.00
3690.00	20	8.56	8.77	16.68	20.00
Verdict		Pass			

Note: Total PSD = 10*log (10^(Ant 1 Power Density/10) + 10^(Ant 2 Power Density/10)) + Antenna Gain

4.6. Band Edge Measurement

4.6.1.Test Limit

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed −25 dBm/MHz.

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

Note: This device can be impelement MIMO function, so the limit os spurious emissions needs to be reduced 10*log($Numbers_{Ant}$) according to FCC KDB 662911 D01 guidance.

For 4Tx Mode: The limit is adjusted to -13dBm - 10 * log(4) = -19.02dBm & -25dBm - 10 * log(4) = -31.02dBm.

For 2Tx Mode: The limit is adjusted to -13dBm - 10 * log(2) = -16.01dBm & -25dBm - 10 * log(2) = -28.01dBm.

4.6.2.Test Procedure

ANSI C63.26-2015 - Section5.7

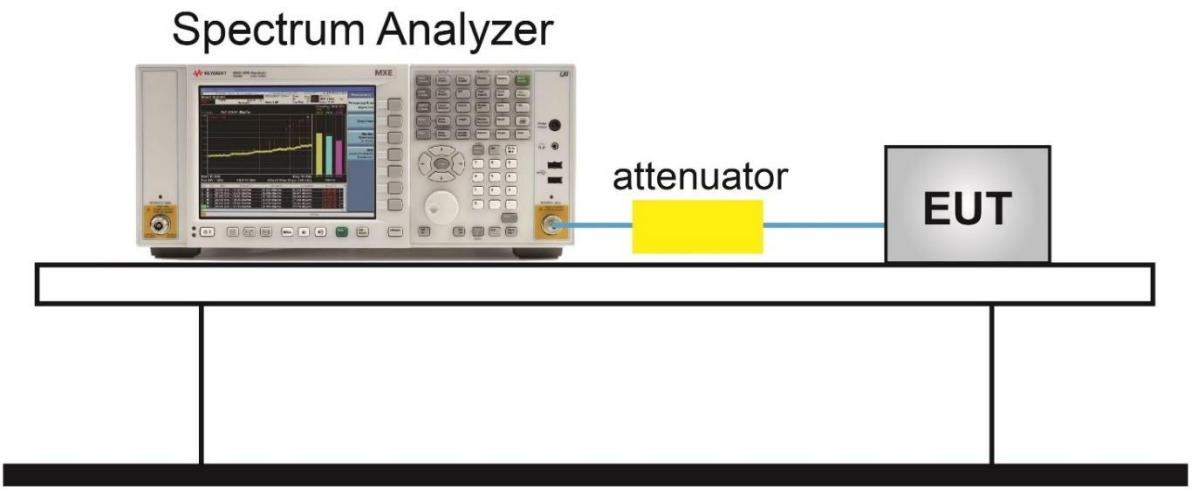
4.6.3.Test Setting

1. Set the analyzer frequency to low, middle, high channel.
2. RBW ≥ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This

integration should be performed using the spectrum analyzer's band power functions.

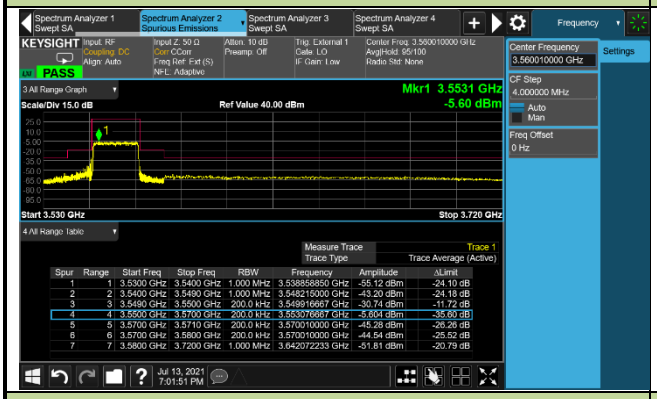
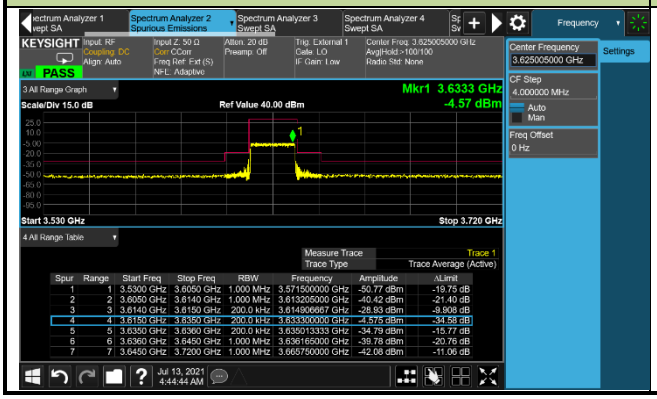
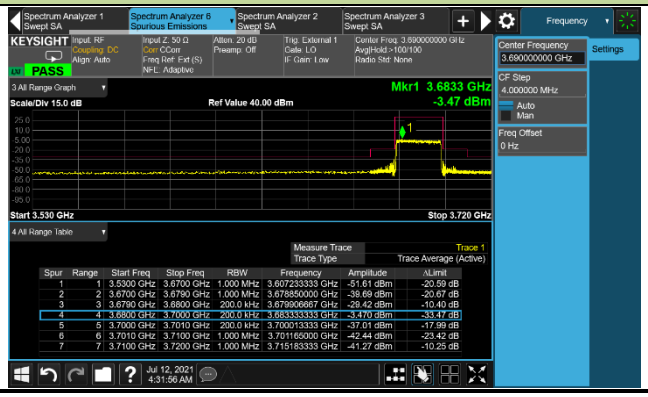
3. VBW ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.
9. Used power integration whenusing a measurement bandwidth smaller than the specified bandwidth.

4.6.4.Test Setup



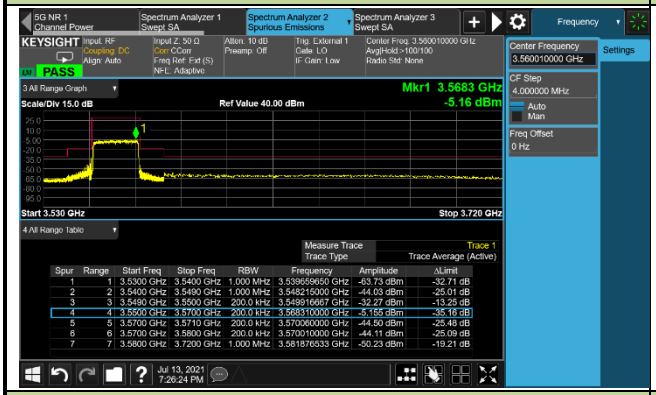
4.6.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/13	Test Configuration	4Tx Mode

20MHz Channel Bandwidth - Ant 1	
Low Channel ACP	Extended Band Edge
	
MiddleChannel ACP	High Channel ACP
	

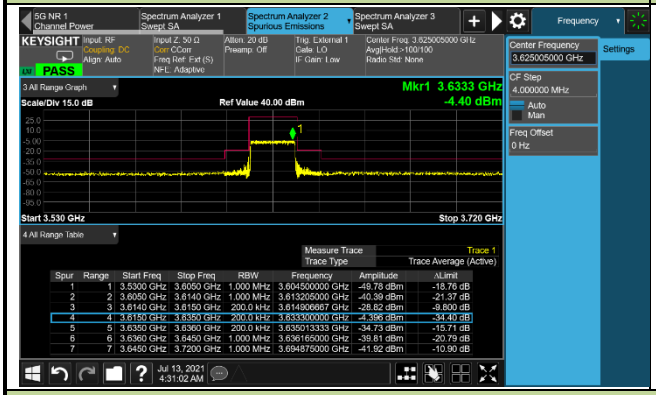
20MHz Channel Bandwidth - Ant 2

Low Channel ACP

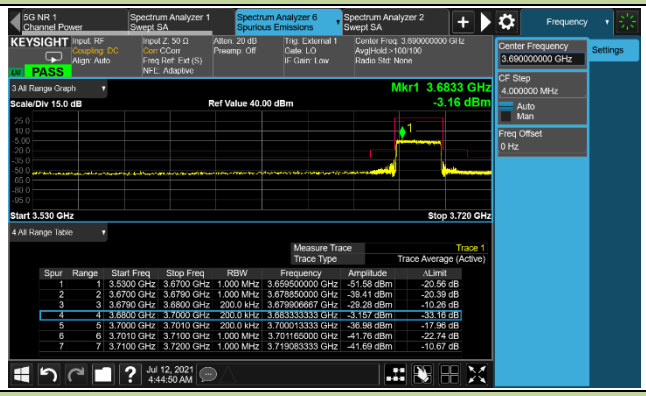


Extended Band Edge

MiddleChannel ACP

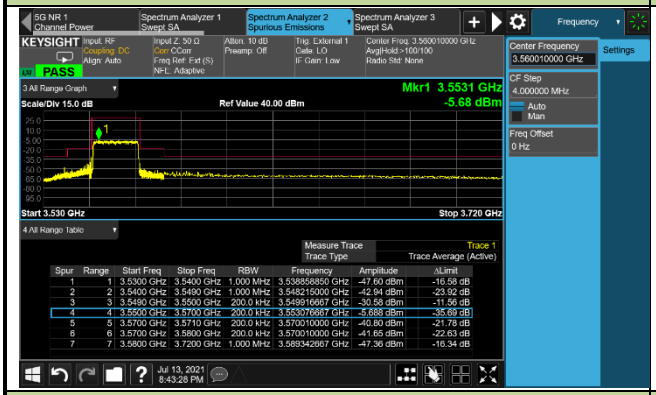


High Channel ACP



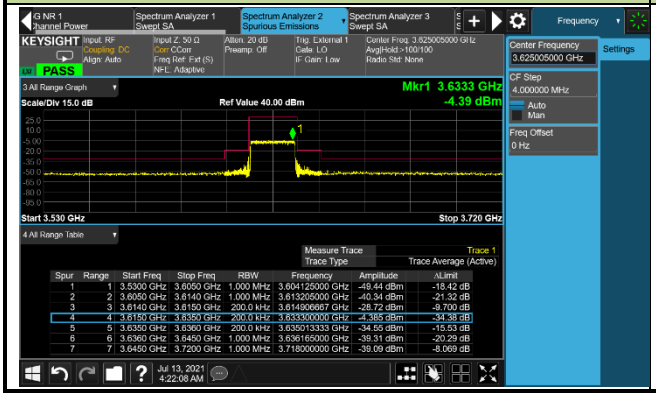
20MHz Channel Bandwidth - Ant 3

Low Channel ACP

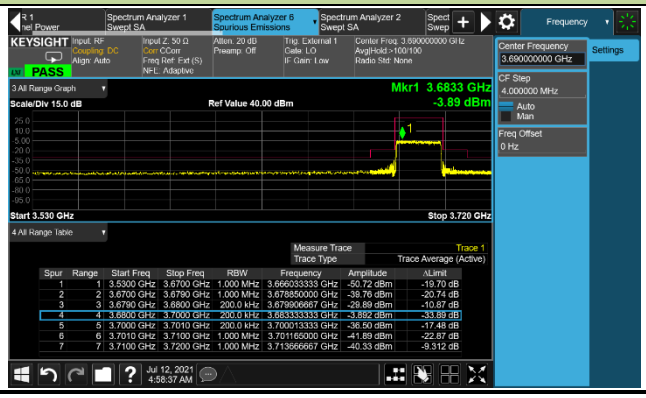


Extended Band Edge

MiddleChannel ACP

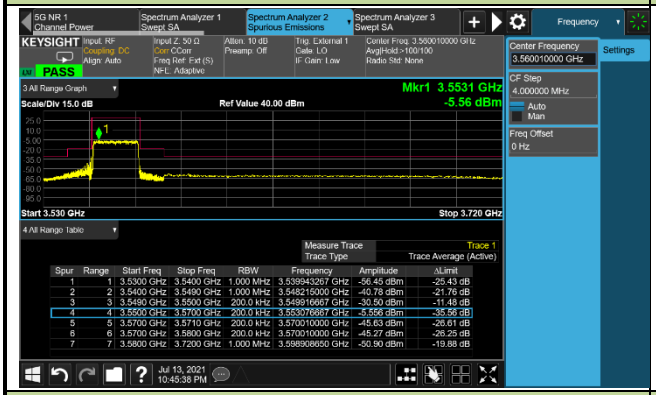


High Channel ACP

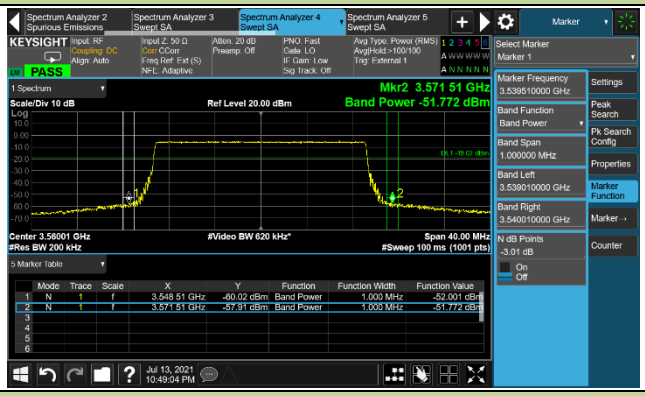


20MHz Channel Bandwidth - Ant 4

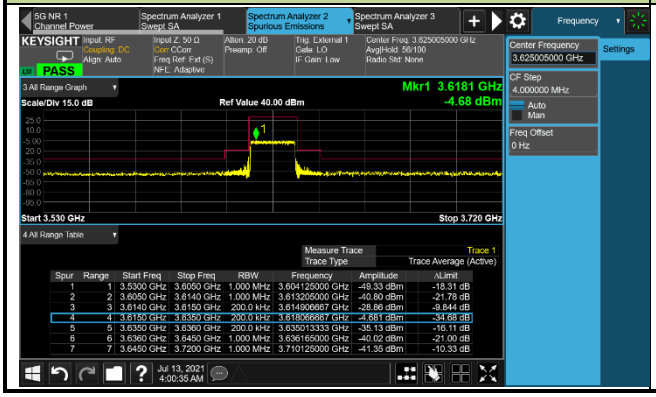
Low Channel ACP



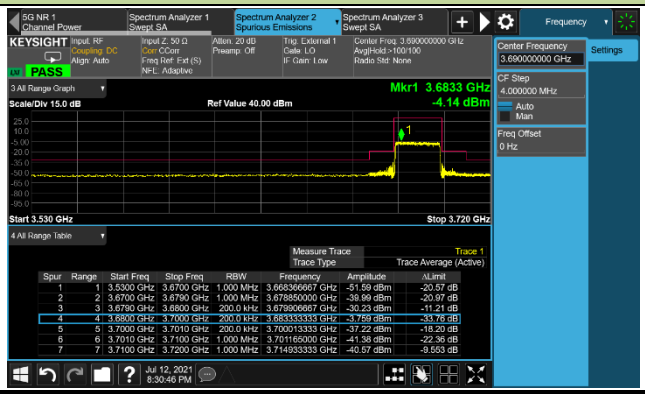
Extended Band Edge



MiddleChannel ACP



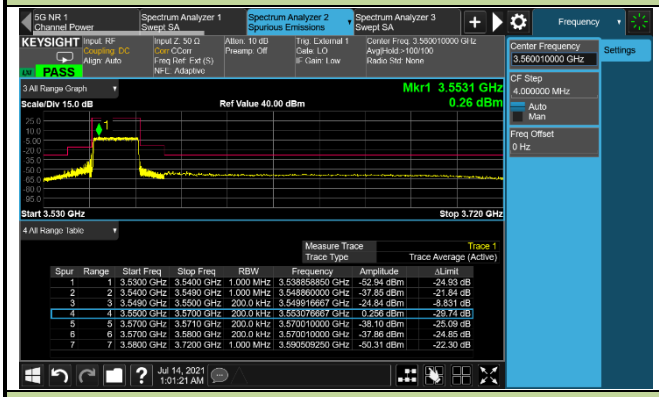
High Channel ACP



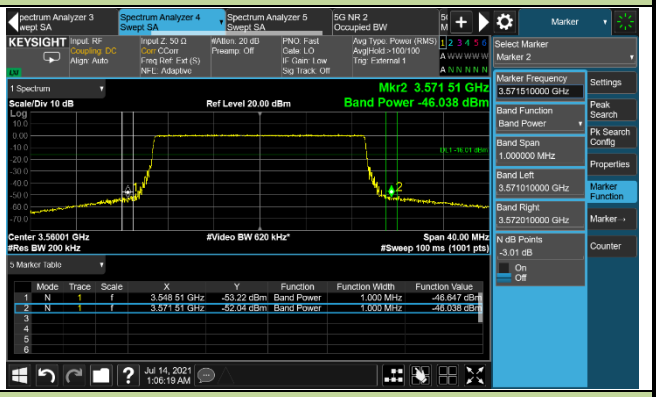
Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/14	Test Configuration	2Tx Mode

20MHz Channel Bandwidth - Ant 1

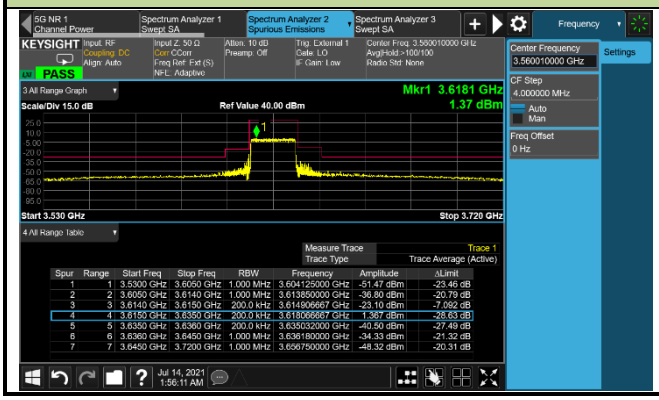
Low Channel ACP



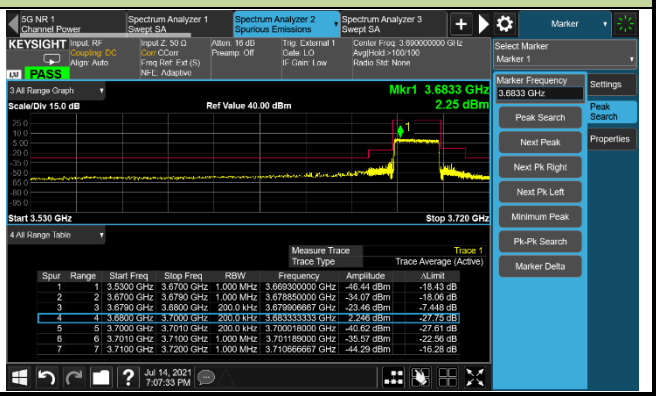
Extended Band Edge



MiddleChannel ACP

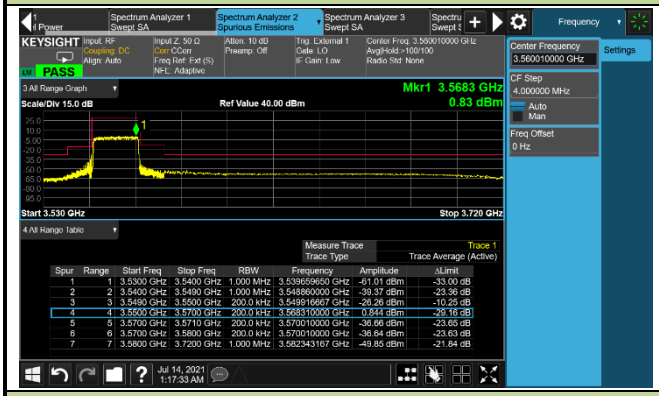


High Channel ACP

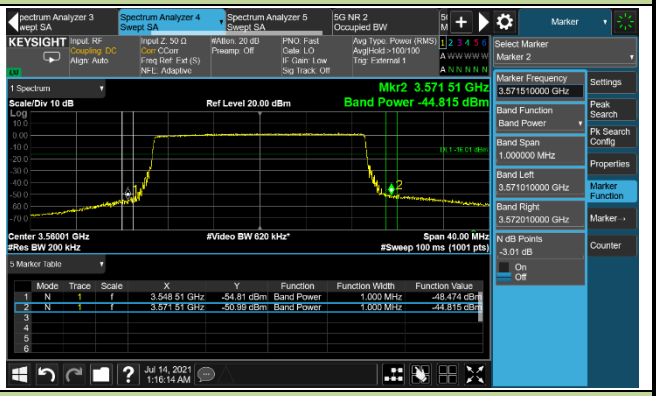


20MHz Channel Bandwidth - Ant 2

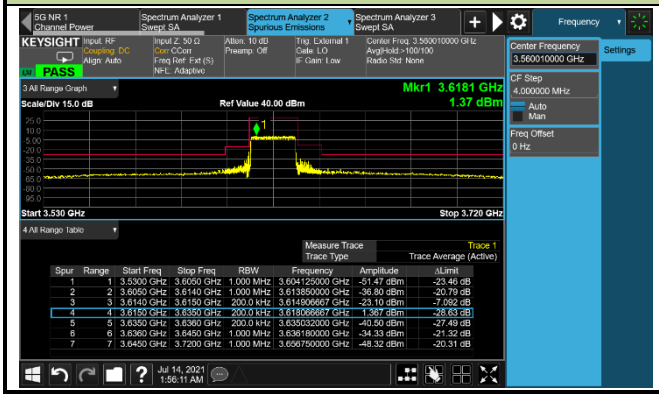
Low Channel ACP



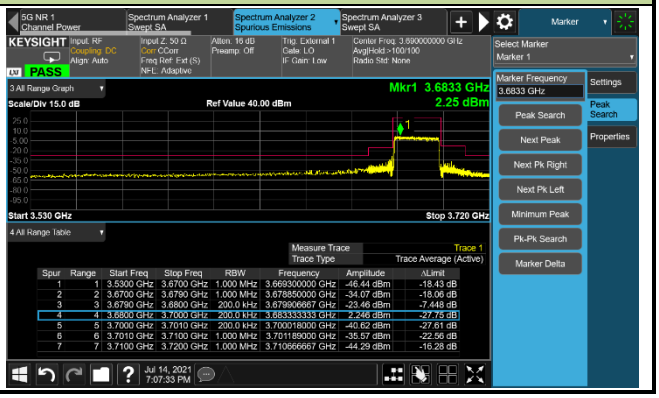
Extended Band Edge



MiddleChannel ACP



High Channel ACP



4.7. Conducted Spurious Emissions Measurement

4.7.1.Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10^{th} harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

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

Note: This device can be impelement MIMO function, so the limit os spurious emissions needs to be reduced $10*\log(Numbers_{Ant})$ according to FCC KDB 662911 D01 guidance.

For 4Tx Mode: The limit is adjusted to -40dBm - 10 * log(4) = -46.02dBm.

For 2Tx Mode: The limit is adjusted to -40dBm - 10 * log(2) = -43.01dBm.

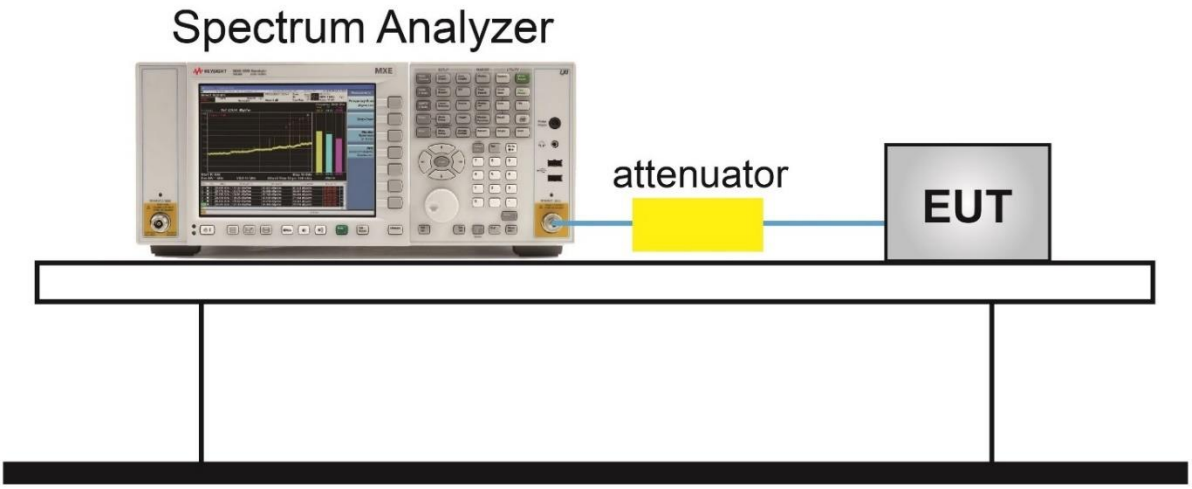
4.7.2.Test Procedure

ANSI C63.26-2015 - Section 5.7

4.7.3.Test Setting

1. Set the analyzer frequency to low or high channel.
2. RBW = 100kHz or 1MHz
3. VBW ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run.”
7. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

4.7.4.Test Setup



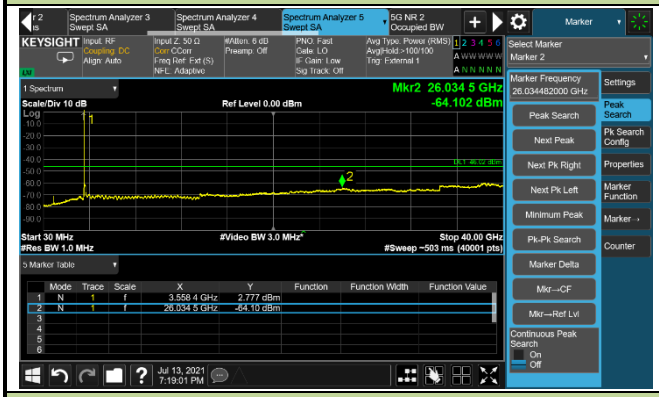
4.7.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/13	Test Configuration	4Tx Mode

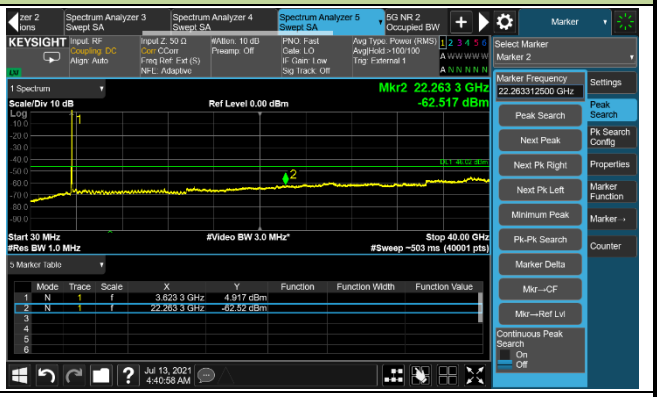
Frequency (MHz)	Channel BW (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
Ant 1					
3560.01	20	30 ~ 40000	-64.10	≤ -46.02	Pass
3625.005	20	30 ~ 40000	-62.52	≤ -46.02	Pass
3690.00	20	30 ~ 40000	-64.10	≤ -46.02	Pass
Ant 2					
3560.01	20	30 ~ 40000	-64.07	≤ -46.02	Pass
3625.005	20	30 ~ 40000	-62.25	≤ -46.02	Pass
3690.00	20	30 ~ 40000	-63.80	≤ -46.02	Pass
Ant 3					
3560.01	20	30 ~ 40000	-63.76	≤ -46.02	Pass
3625.005	20	30 ~ 40000	-62.94	≤ -46.02	Pass
3690.00	20	30 ~ 40000	-64.09	≤ -46.02	Pass
Ant 4					
3560.01	20	30 ~ 40000	-64.32	≤ -46.02	Pass
3625.005	20	30 ~ 40000	-62.10	≤ -46.02	Pass
3690.00	20	30 ~ 40000	-64.24	≤ -46.02	Pass

20MHz Channel Bandwidth - Ant1

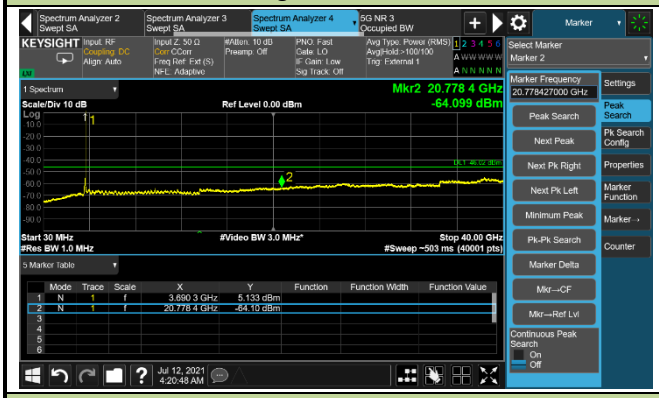
Low Channel



Middle Channel

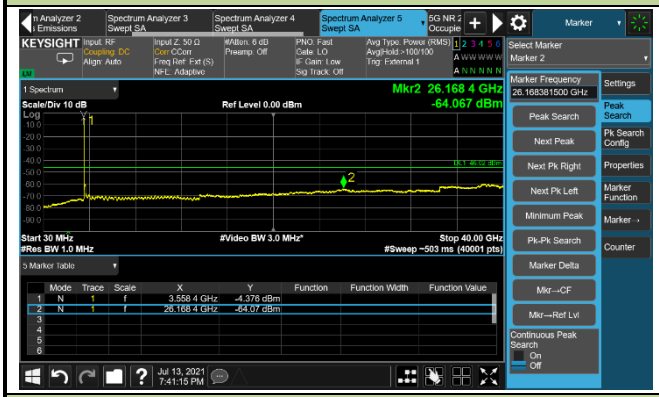


High Channel

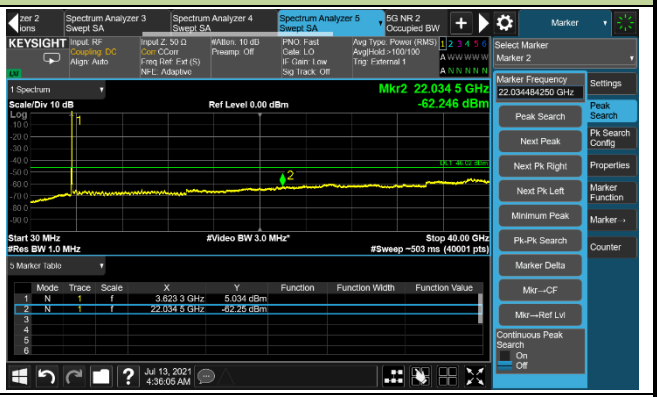


20MHz Channel Bandwidth - Ant2

Low Channel



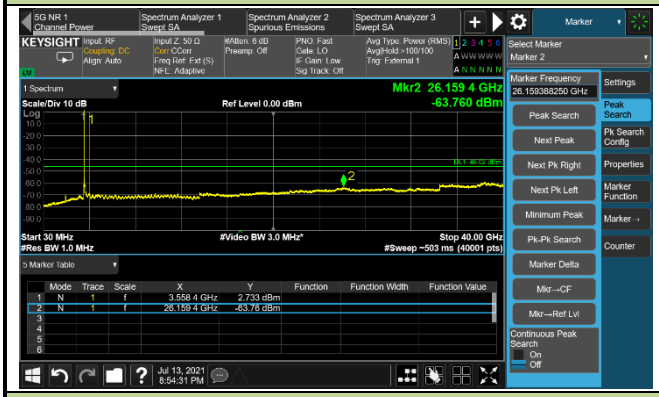
Middle Channel



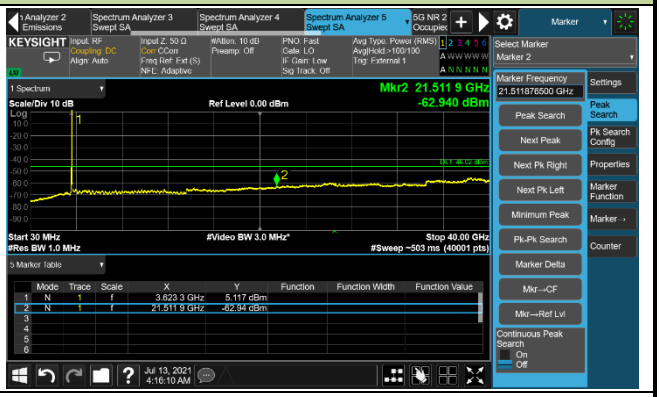
High Channel

20MHz Channel Bandwidth - Ant3

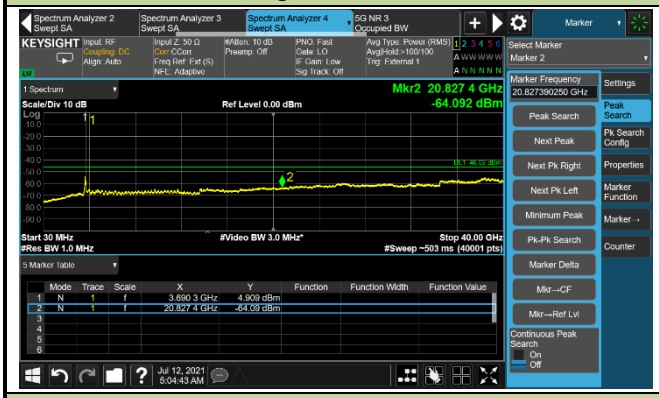
Low Channel



Middle Channel

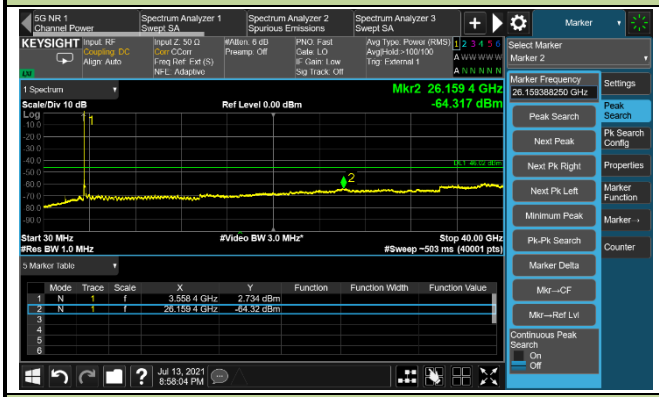


High Channel

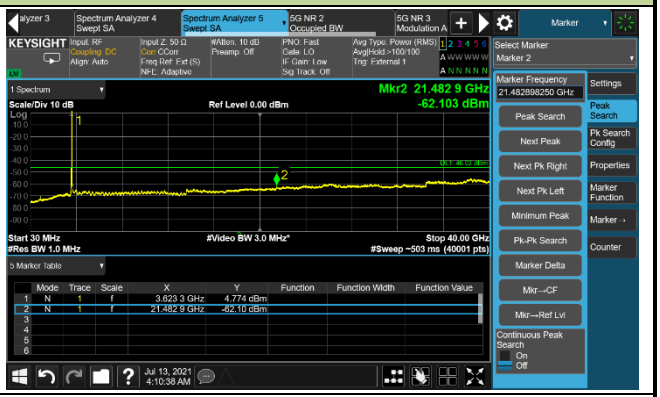


20MHz Channel Bandwidth - Ant4

Low Channel



Middle Channel



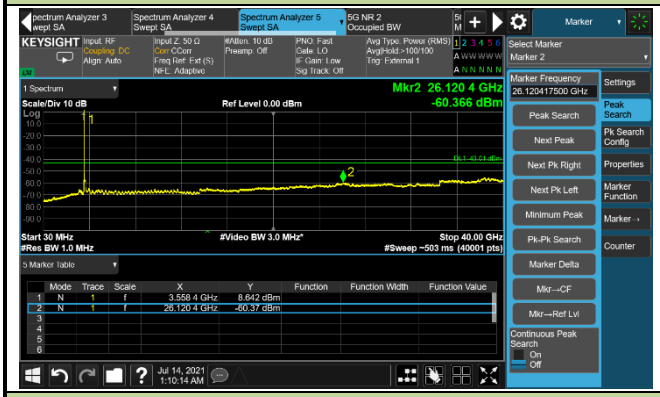
High Channel

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/07/14	Test Configuration	2Tx Mode

Frequency (MHz)	Channel BW (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
Ant 1					
3560.01	20	30 ~ 40000	-60.37	≤ -43.01	Pass
3625.005	20	30 ~ 40000	-57.59	≤ -43.01	Pass
3690.00	20	30 ~ 40000	-58.33	≤ -43.01	Pass
Ant 2					
3560.01	20	30 ~ 40000	-59.86	≤ -43.01	Pass
3625.005	20	30 ~ 40000	-57.57	≤ -43.01	Pass
3690.00	20	30 ~ 40000	-60.22	≤ -43.01	Pass

20MHz Channel Bandwidth - Ant1

Low Channel



Middle Channel

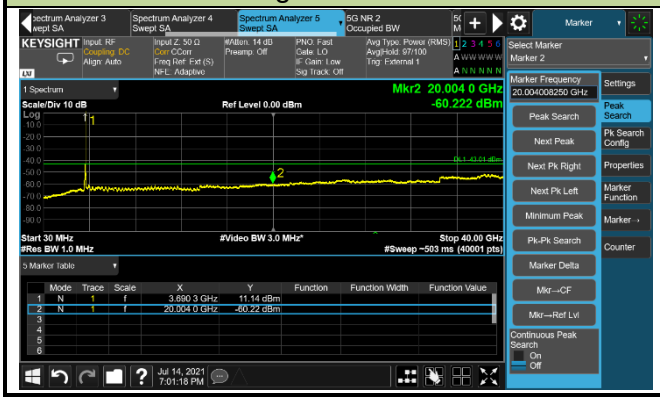
High Channel

20MHz Channel Bandwidth - Ant2

Low Channel

Middle Channel

High Channel



4.8. Radiated Spurious Emissions Measurement

4.8.1.Test Limit

Out of band emissions: The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 55.3dBμV/m.

4.8.2.Test Procedure

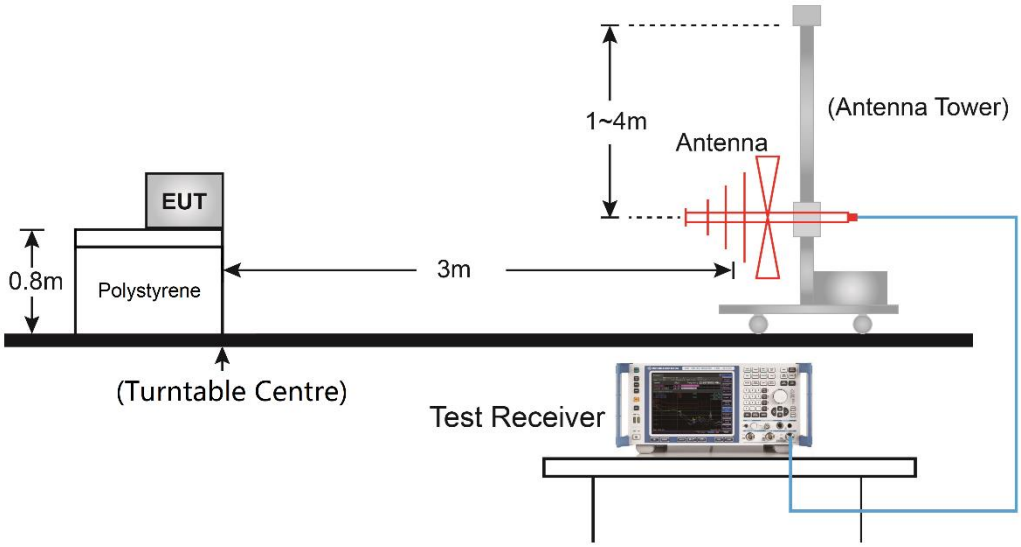
ANSI C63.26-2015 - Section 5.2.7 & 5.5

4.8.3.Test Setting

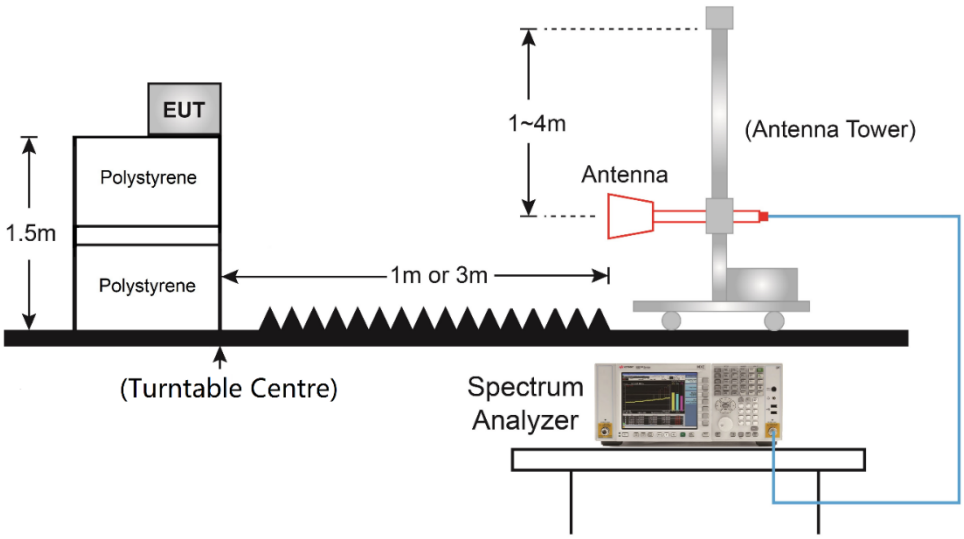
1. RBW = 100kHz or 1MHz
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

4.8.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.8.5.Test Result

Test Site	WZ-AC1	Test Engineer	Cloud Guo
Test Date	2021/07/28	Test Configuration	4Tx Mode

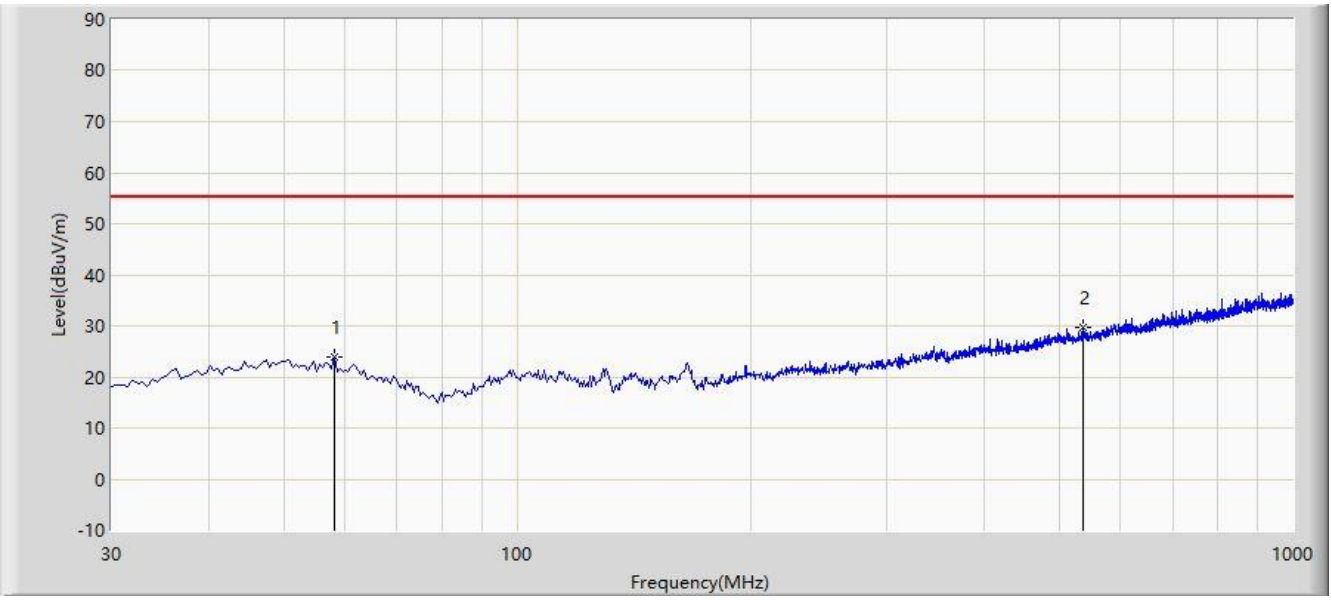
Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
7165.00	34.15	12.02	46.17	55.30	-9.13	Peak	Horizontal
9707.50	34.85	14.86	49.71	55.30	-5.59	Peak	Horizontal
7390.00	34.22	12.12	46.34	55.30	-8.96	Peak	Vertical
9670.00	35.80	14.93	50.73	55.30	-4.57	Peak	Vertical
Middle Channel							
7832.50	34.78	12.11	46.89	55.30	-8.41	Peak	Horizontal
10270.00	33.91	16.34	50.25	55.30	-5.05	Peak	Horizontal
7420.00	34.16	12.53	46.69	55.30	-8.61	Peak	Vertical
9587.50	34.28	15.00	49.28	55.30	-6.02	Peak	Vertical
Top Channel							
7210.00	34.98	12.35	47.33	55.30	-7.97	Peak	Horizontal
9490.00	33.93	15.04	48.97	55.30	-6.33	Peak	Horizontal
7172.50	34.78	12.00	46.78	55.30	-8.52	Peak	Vertical
9595.00	34.16	14.96	49.12	55.30	-6.18	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)							
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)							

Test Site	WZ-AC1	Test Engineer	Cloud Guo
Test Date	2021/07/28	Test Configuration	2Tx Mode

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
7105.00	34.41	11.68	46.09	55.30	-9.21	Peak	Horizontal
10015.00	35.14	15.34	50.48	55.30	-4.82	Peak	Horizontal
7405.00	34.02	12.35	46.37	55.30	-8.93	Peak	Vertical
10285.00	33.85	16.35	50.20	55.30	-5.10	Peak	Vertical
Middle Channel							
7345.00	35.09	12.33	47.42	55.30	-7.88	Peak	Horizontal
9220.00	33.82	15.46	49.28	55.30	-6.02	Peak	Horizontal
7277.50	34.56	12.27	46.83	55.30	-8.47	Peak	Vertical
9220.00	33.21	15.46	48.67	55.30	-6.63	Peak	Vertical
Top Channel							
7622.50	34.64	11.98	46.62	55.30	-8.68	Peak	Horizontal
9580.00	34.83	15.03	49.86	55.30	-5.44	Peak	Horizontal
7660.00	34.04	12.12	46.16	55.30	-9.14	Peak	Vertical
10240.00	34.70	16.17	50.87	55.30	-4.43	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)							
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)							

The Worst Case of Radiated Emission below 1GHz:

Site: WZ-AC1	Time: 2021/07/20 - 10:42
Limit: FCC_Part 96_RSE (3m)	Engineer: Lucas Wang
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: AirVelocity2700, 3.55-3.7GHz (n48),FM,PoE/DC	Power: By PoE



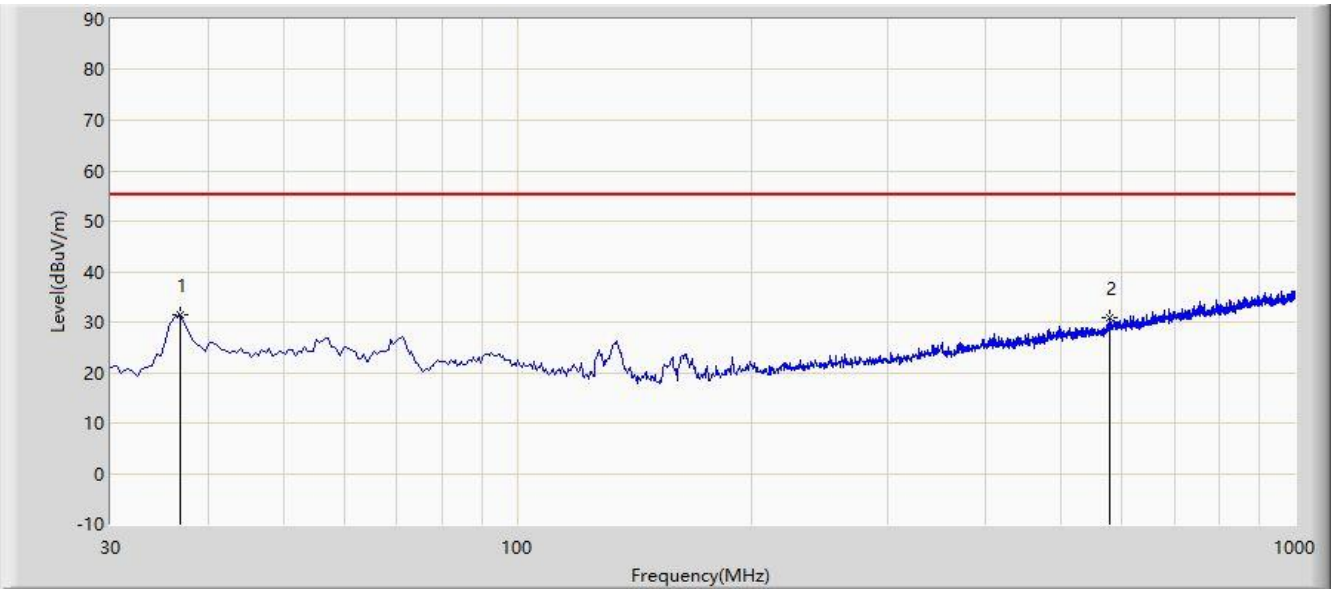
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			58.130	24.032	4.333	-31.268	55.300	19.699	PK
2		*	535.855	29.817	4.205	-25.483	55.300	25.612	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: WZ-AC1	Time: 2021/07/20 - 10:45
Limit: FCC_Part 96_RSE (3m)	Engineer: Lucas Wang
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: AirVelocity2700, 3.55-3.7GHz(n48),FM,PoE/DC	Power: By PoE



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	36.790	31.495	13.056	-23.805	55.300	18.440	PK
2			579.020	30.754	3.939	-24.546	55.300	26.815	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

5. CONCLUSION

The data collected relate only the item(s) tested and show that the unit is compliance with FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “2106RSU047-UT” file.

Appendix B - EUT Photograph

Refer to “2106RSU047-UE” file.