MEASUREMENT REPORT

FCC PART 27 Subpart O

FCC ID:	PIDAV2700CBL
Application:	Airspan Networks Inc
Application Type:	Certification
Product:	AirVelocity2700, 3.6-3.8GHz (n77P/78P),FM,PoE/DC
Model No.:	AV27-F360-P4CXP-FM-C, AV27-F360-P4CXP-CN-C
Brand Name:	Airspan
FCC Rule Part(s):	Part 27 Subpart O
Test Procedure(s):	ANSI C63.26: 2015
Test Date:	June 08 ~ June 25, 2021

Reviewed By: Sunny Sun

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2105RSU063-U1	Rev. 01	Initial Report	08-24-2021	Valid

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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, 3.6-3.8GHz (n77P/78P),FM,PoE/D
Model No.	AV27-F360-P4CXP-FM-C, AV27-F360-P4CXP-CN-C
Serial No.	1EU211900010, 1EU212000014
Hardware Version	AM5
Software Version	V1.5.X
Operating Band (s)	5G NR n77 Band
Frequency Range	3700 ~ 3800 MHz
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Max EIRP Power Density	AV27-F360-P4CXP-FM-C: 17.82dBm/MHz AV27-F360-P4CXP-CN-C: 31.52dBM/MHz
Antenna Information	Refer to section 1.5
Emission Designator	Refer to Section 1.6
Remark: 1. "AV27-F360-P4CXP-FM-C" is internal variant, "AV27-F360-P4CXP-CN-C" is the external variant; 2. The internal & external variants have the same circuits, only install the different antenna.	

1.5. Description of Available Antennas

Band Support	Antenna Type	Manufacturer	Model	Antenna Gain
n77	Omni Internal	Galtronics	02102466-07186-X	5.8 dBi
n77	Directional External	ALPHA	AW3647	19.5 dBi
			AW3035	17.0 dBi
			AW3023	18.0 dBi
Remark: 1. This device operate with Multiple Antennas Using Multiple-input, Multiple-output (MIMO) Technology for Uncorrelated Transmission. 2. 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
100	QPSK	97M1G7D
	16QAM	96M7W7D
	64QAM	97M0W7D
	256QAM	97M3W7D

1.7. Test Mode and Channel Detail

Test Item	Channel Bandwidth	Modulation
Equivalent Isotropically Radiated Power	100MHz	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

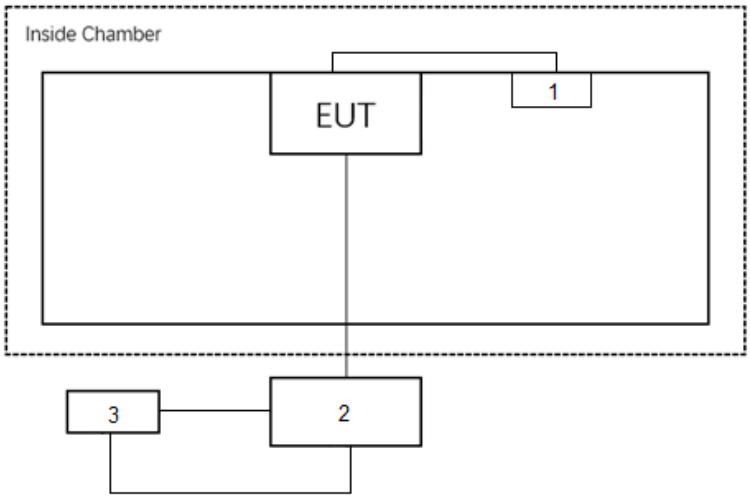
No EMI suppression device(s) were added and/or no modifications were made during testing.

1.9. Applicable Standards

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

- Part 27 Subpart O
- ANSI C63.26: 2015
- FCC KDB 971168 D01v03r01

1.10. Configuration of Tested System



Product		Manufacturer	Model No.
1	Adapter	Asian Power Devices	DA-120A54
2	HUB	Airspan	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	2021/08/01
UXM 5G Wireless Test Platform	Keysight	E7515B	MRTSUE06869	1 year	2022/05/24
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2021/09/03
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	2021/08/08
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	2021/08/01
UXM 5G Wireless Test Platform	Keysight	E7515B	MRTSUE06869	1 year	2022/05/24
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	2021/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/14
UXM 5G Wireless Test Platform	Keysight	E7515B	MRTSUE06869	1 year	2022/05/24
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	2021/08/08

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 Section(s)	Test Description	Test Condition	Test Result	Reference
2.1046; 27.50(j)(2)	Equivalent Isotropically Radiated Power	Conducted	Pass	Section 4.2
2.1055; 27.54	Frequency Stability		Pass	Section 4.3
2.1049	Emission Bandwidth		Pass	Section 4.4
27.53(i)(1)	Band Edge Measurements		Pass	Section 4.5
2.1046; 7.50(j)(4)	Peak to Average Ratio		Pass	Section 4.6
2.1051; 7.53(i)(1)	Conducted Spurious Emissions		Pass	Section 4.7
2.1053; 7.53(i)(1)	Radiated Spurious Emissions	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. Equivalent Isotropically Radiated Power Measurement

4.2.1.Test Limit

The Radiated Equivalent Isotropically Power shall be according to the specific rule Part 27.50(j)(2) that are limited to EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

4.2.2.Test Procedure

KDB 971168 D01v03r01 - Section 5.2.4 & 5.4 & 5.6

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

4.2.3.Test Setting

Average Power Measurement

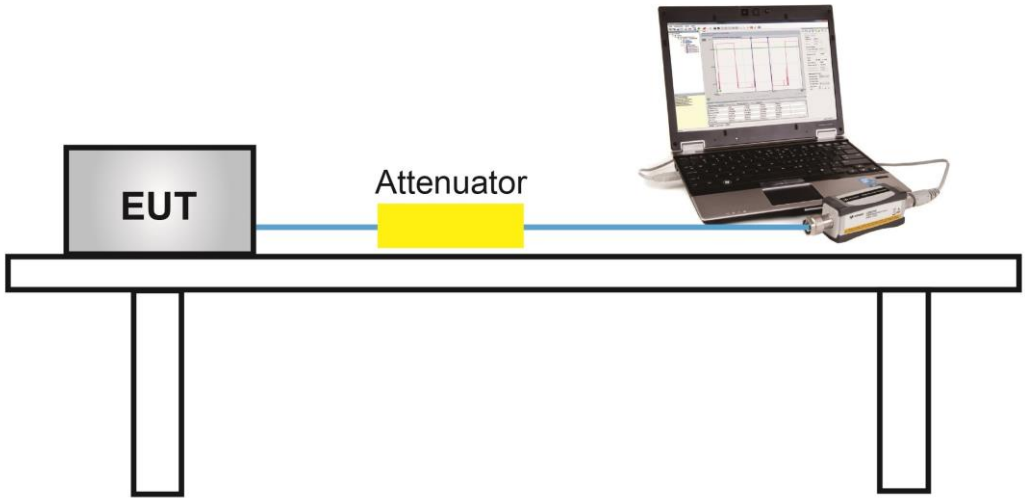
Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the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

Average Power Spectral Density Measurement

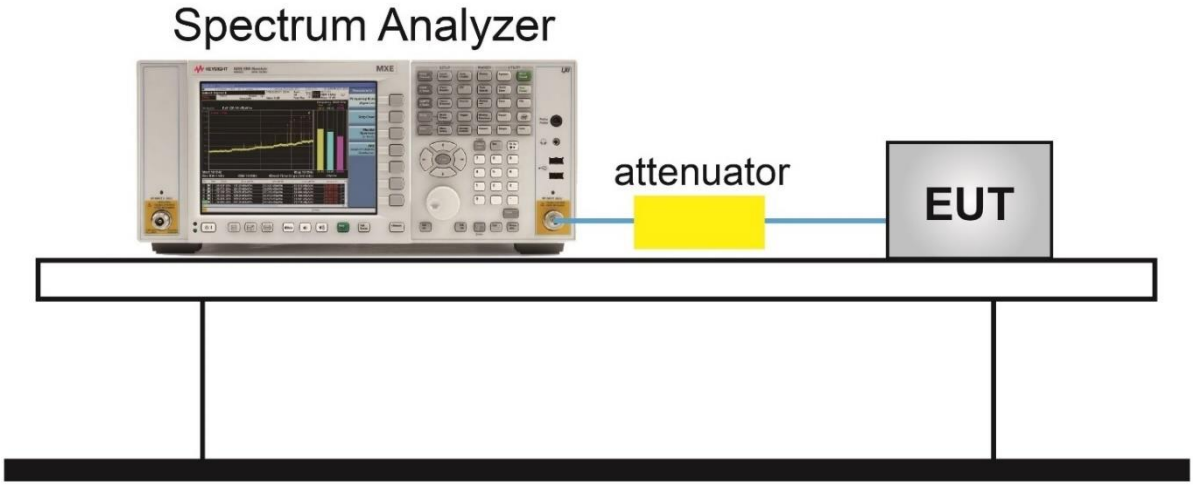
1. Span to 2 × to 3 × the OBW
2. RBW ≥ 1% to 5% of the OBW
3. VBW ≥ 3*RBW
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run”
7. If the EUT can be configured to transmit continuously, then set the trigger to free run
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.
9. The trace was allowed to stabilize
10. Compute the power by integrating the spectrum across the OBW of the signal using the Instrument’s band power measurement function, with the band/channel limits set equal to the OBW band edges.
11. EIRP = Output Power Level of S.G - T_X Cable Loss + Antenna Gain of Substitution Antenna.

4.2.4.Test Setup

Average Power Measurement



Power Spectral Density Measurement



4.2.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/06/09	Test Item	Power Density
Test Configuration	n77 (AV27-F360-P4CXP-CN-C)		

Frequency	Channel BW (MHz)	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	EIRP Density (dBm/MHz)	Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4			
QPSK								
3750	100	5.80	5.74	5.40	5.43	11.82	31.32	< 62.15
16QAM								
3750	100	6.00	5.94	5.80	5.85	12.02	31.52	< 62.15
64QAM								
3750	100	4.22	3.99	3.55	3.94	10.24	29.74	< 62.15
256QAM								
3750	100	4.27	4.11	3.94	4.00	10.29	29.79	< 62.15

Note 1: Total Power Density (dBm/MHz) = 10*log*{$10^{\wedge[\text{ANT 1 Power (dBm/MHz) / 10}]}$ + $10^{\wedge[\text{ANT 2 Power (dBm/MHz) / 10}]}$ + $10^{\wedge[\text{ANT 3 Power (dBm/MHz) / 10}]}$ + $10^{\wedge[\text{ANT 4 Power (dBm/MHz) / 10}]}$} (dBm/MHz).

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

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/06/09	Test Item	EIRP
Test Configuration	n77 (AV27-F360-P4CXP-CN-C)		

Frequency	Channel BW (MHz)	Output Power (dBm)				Total Power (dBm)	EIRP (dBm)	Limit (dBm)
		Ant 1	Ant 2	Ant 3	Ant 4			
QPSK								
3750	100	23.23	23.08	22.89	22.82	29.03	48.53	N/A
16QAM								
3750	100	23.36	23.31	23.16	23.12	29.26	48.76	N/A
64QAM								
3750	100	23.35	23.23	23.08	23.09	29.21	48.71	N/A
256QAM								
3750	100	23.15	23.12	23.05	22.97	29.09	48.59	N/A

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

Note 2: EIRP (dBm) = Total Power (dBm) + Max Antenna Gain (dBi).'

Note 3: Test is either not required/not applicable in the specified frequency band or is not applicable according to the specific for the equipment under test.

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/06/09	Test Item	Power Density
Test Configuration	n77 (AV27-F360-P4CXP-FM-C)		

Frequency	Channel BW (MHz)	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	EIRP Density (dBm/MHz)	Limit (dBm/MHz)
		Ant 1	Ant 2	Ant 3	Ant 4			
QPSK								
3750	100	5.80	5.74	5.40	5.43	11.82	17.62	< 62.15
16QAM								
3750	100	6.00	5.94	5.80	5.85	12.02	17.82	< 62.15
64QAM								
3750	100	4.22	3.99	3.55	3.94	10.24	16.04	< 62.15
256QAM								
3750	100	4.27	4.11	3.94	4.00	10.29	16.09	< 62.15

Note 1: Total Power Density (dBm/MHz) = $10*\log*\{10^{\wedge[\text{ANT 1 Power (dBm/MHz) / 10}]} + 10^{\wedge[\text{ANT 2 Power (dBm/MHz) / 10}]} + 10^{\wedge[\text{ANT 3 Power (dBm/MHz) / 10}]} + 10^{\wedge[\text{ANT 4 Power (dBm/MHz) / 10}]}\}$ (dBm/MHz).

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

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2021/06/09	Test Item	EIRP
Test Configuration	n77 (AV27-F360-P4CXP-FM-C)		

Frequency	Channel BW (MHz)	Output Power (dBm)				Total Power (dBm)	EIRP (dBm)	Limit (dBm)
		Ant 1	Ant 2	Ant 3	Ant 4			
QPSK								
3750	100	23.23	23.08	22.89	22.82	29.03	34.83	N/A
16QAM								
3750	100	23.36	23.31	23.16	23.12	29.26	35.06	N/A
64QAM								
3750	100	23.35	23.23	23.08	23.09	29.21	35.01	N/A
256QAM								
3750	100	23.15	23.12	23.05	22.97	29.09	34.89	N/A

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

Note 2: EIRP (dBm) = Total Power (dBm) + Antenna Gain (dBi).'

Note 3: Test is either not required/not applicable in the specified frequency band or is not applicable according to the specific for the equipment under test.

4.3. Frequency Stability Measurement

4.3.1.Test Limit

N/A

4.3.2.Test Procedure

KDB 971168 D01v03r01 - Section 9

ANSI C63.26-2015 - Section 5.6

4.3.3.Test Setting

Frequency Stability Under Temperature Variations:

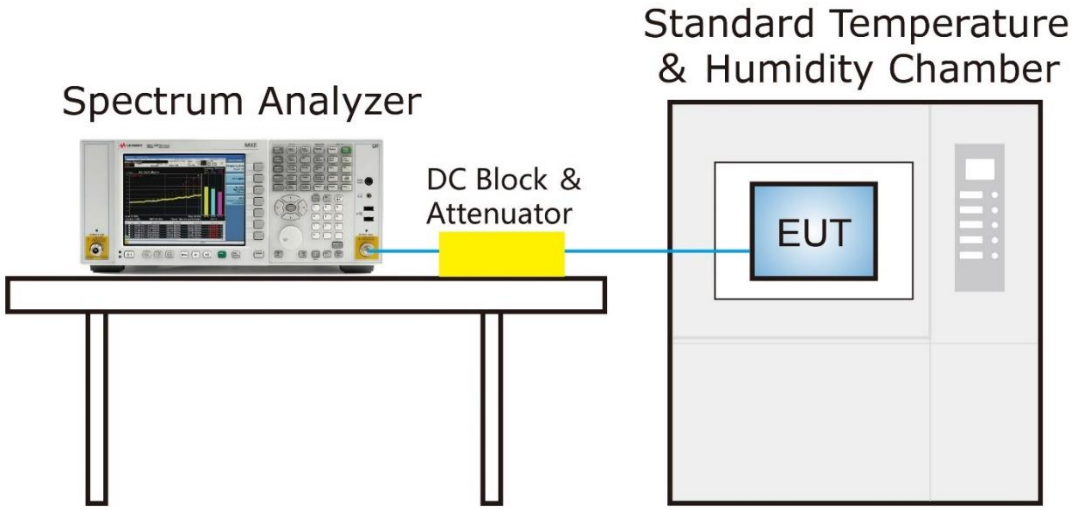
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain 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



6.3.5. Test Result

Test Site	WZ-TR3	Test Engineer	Cloud Guo
Test Date	20201/06/10	Test Configuration	BW=100MHz, QPSK

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

4.4. Emission Bandwidth

4.4.1.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.

4.4.2.Test Procedure

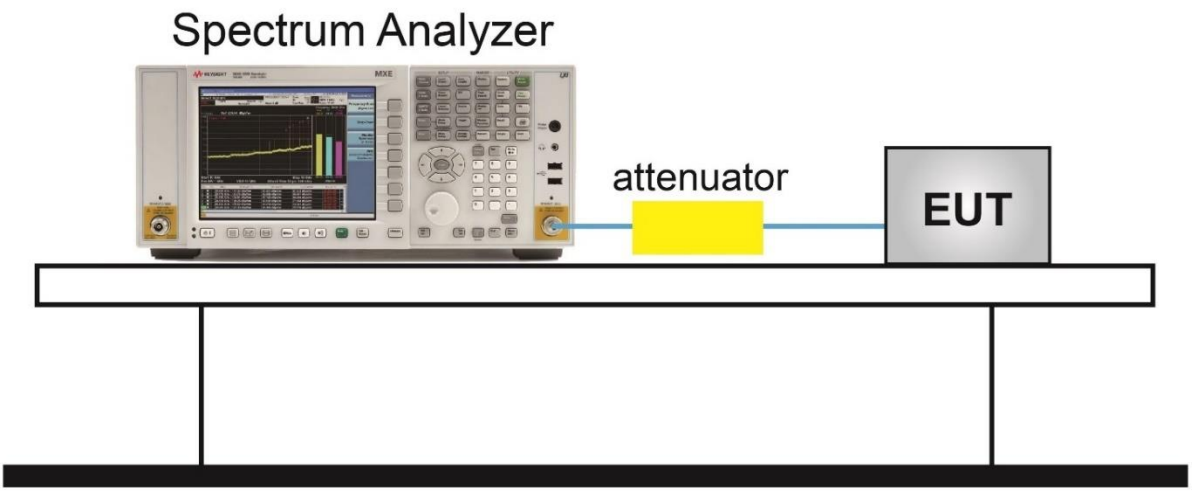
KDB 971168 D01v03r01 - Section 4.1 & 4.2

ANSI C63.26-2015 - Section 5.4.4

4.4.3.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. User the 99% OBW function to recored the OBW measurement result.

4.4.4.Test Setup

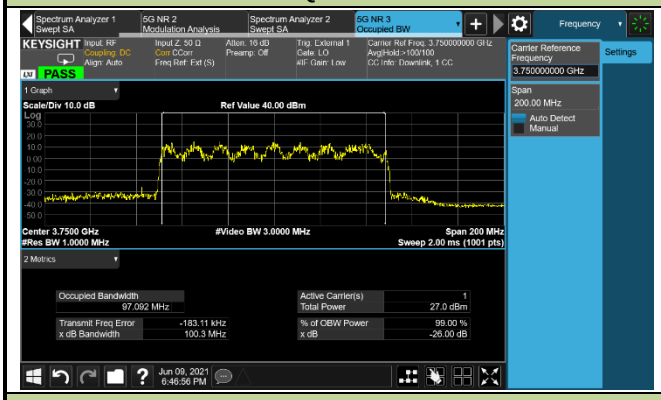


4.4.5.Test Result

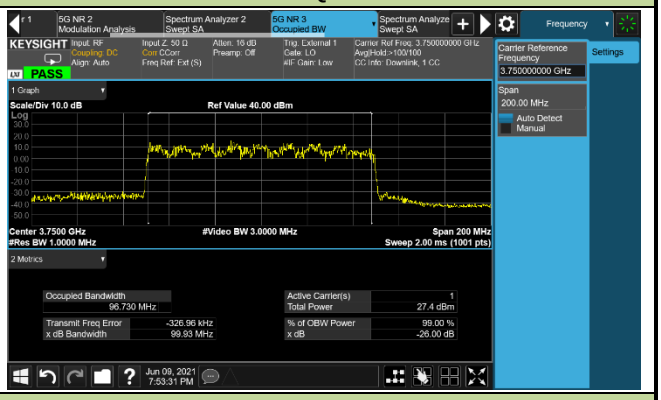
Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	20201/06/10	Test Configuration	n77

Frequency (MHz)	Bandwidth (MHz)	Modulation	99% Bandwidth (MHz)
3750	100	QPSK	97.09
		16QAM	96.73
		64QAM	97.04
		256QAM	97.27

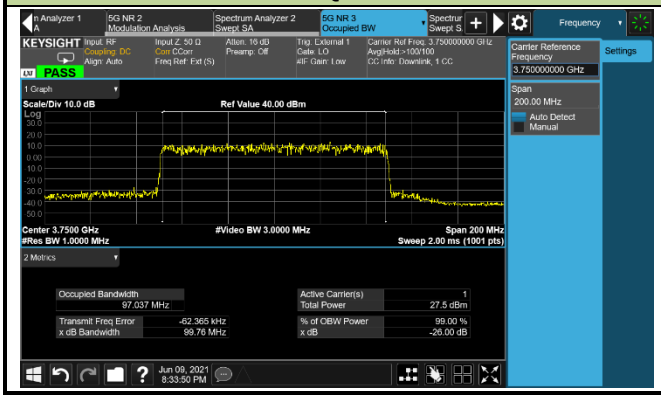
QPSK



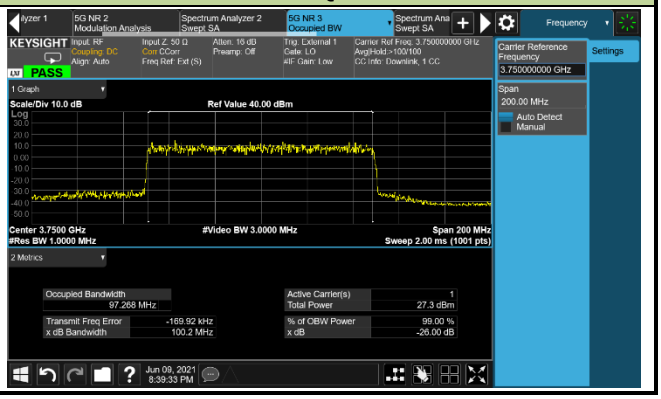
16QAM



64QAM



256QAM



4.5. Band Edge Measurement

4.5.1.Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

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

The limit is adjusted to -13 dBm - 10*log (4) = -19.02dBm

4.5.2.Test Procedure

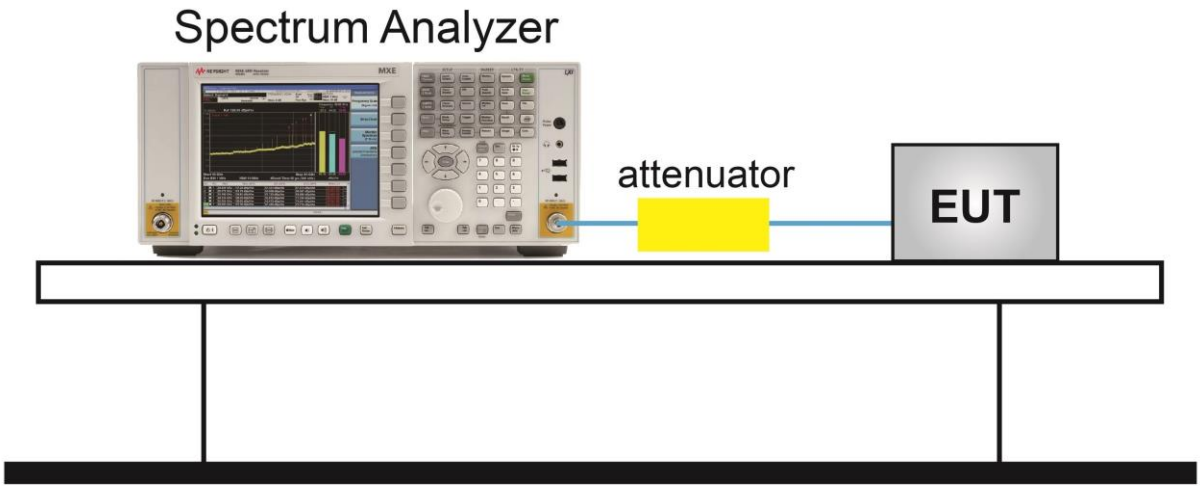
KDB 971168 D01v03r01 - Section 6.1

ANSI C63.26-2015 - Section 5.7.1

4.5.3.Test Setting

1. Set the analyzer frequency to Bottom or Top channel.
1. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
2. VBW ≥ 3*RBW
3. Sweep time = auto
4. Detector = power averaging (rms)
5. Set sweep trigger to “free run”
6. 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.

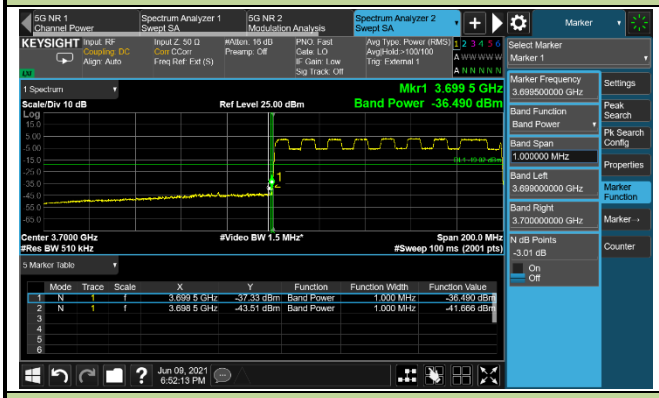
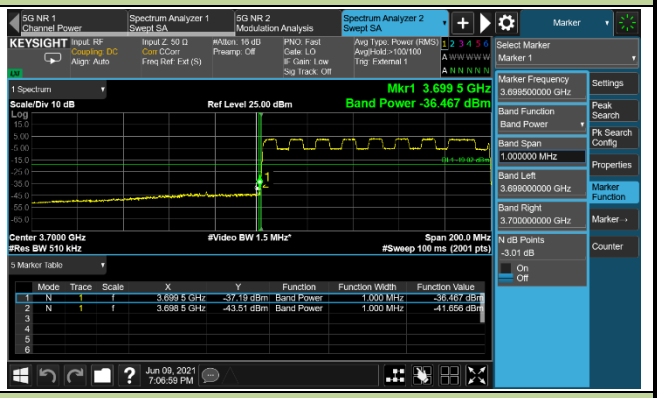
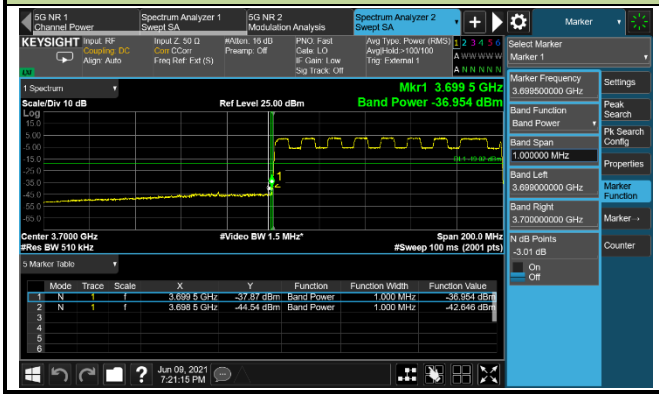
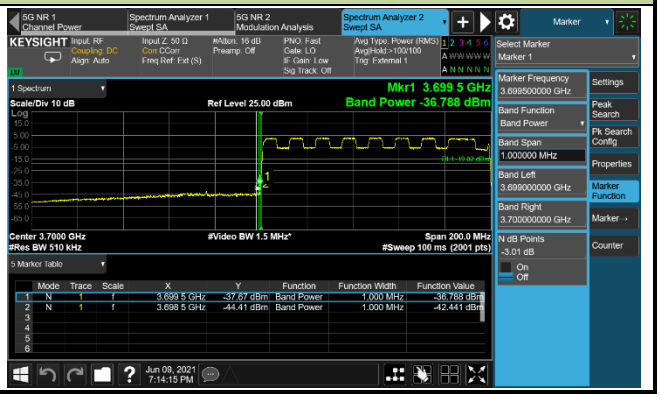
4.5.4.Test Setup



4.5.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	20201/06/10	Test Configuration	n77, QPSK

Frequency (MHz)	Channel BW (MHz)	Max Band Edge (dBm)				Limit (dBm)	Result
		Ant 1	Ant 2	Ant 3	Ant 4		
3750	100	-36.49	-36.47	-36.95	-36.79	≤ -19.02	Pass

Ant 1	Ant 2
	
Ant 3	**Ant 4**
	

4.6. Peak to Average Ratio

4.6.1.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.

4.6.2.Test Procedure

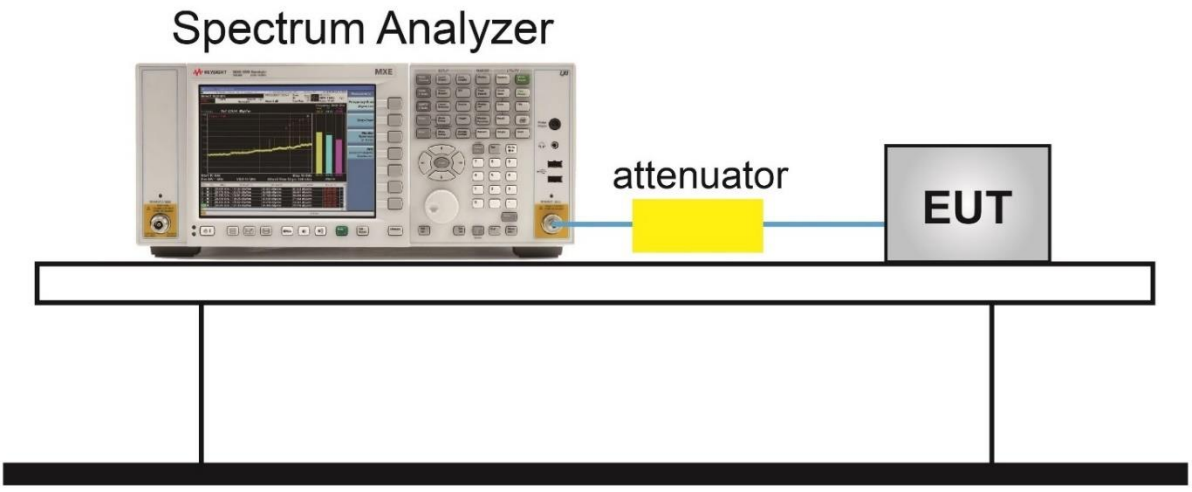
KDB 971168 D01v03r01 - Section 5.7

ANSI C63.26-2015 - Section 5.2.6

4.6.3.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%.

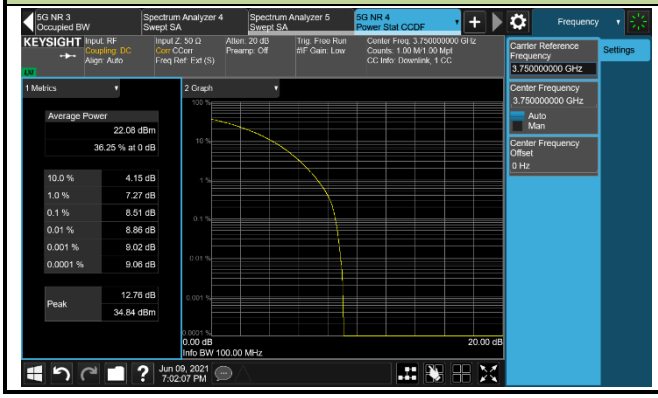
4.6.4.Test Setup



4.6.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	20201/06/09	Test Configuration	n77, QPSK

Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
3750	100	8.51	≤ 13.00	Pass

100MHz Channel Bandwidth	
	

4.7. Conducted Spurious Emissions

4.7.1.Test Limit

In the FCC 24.238, on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) at least 43 + 10*log(P) dB, the emission limit equal to -13dBm.

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.

The limit is adjusted to -13dBm - 10 * log(4) = -19.02dBm

4.7.2.Test Procedure

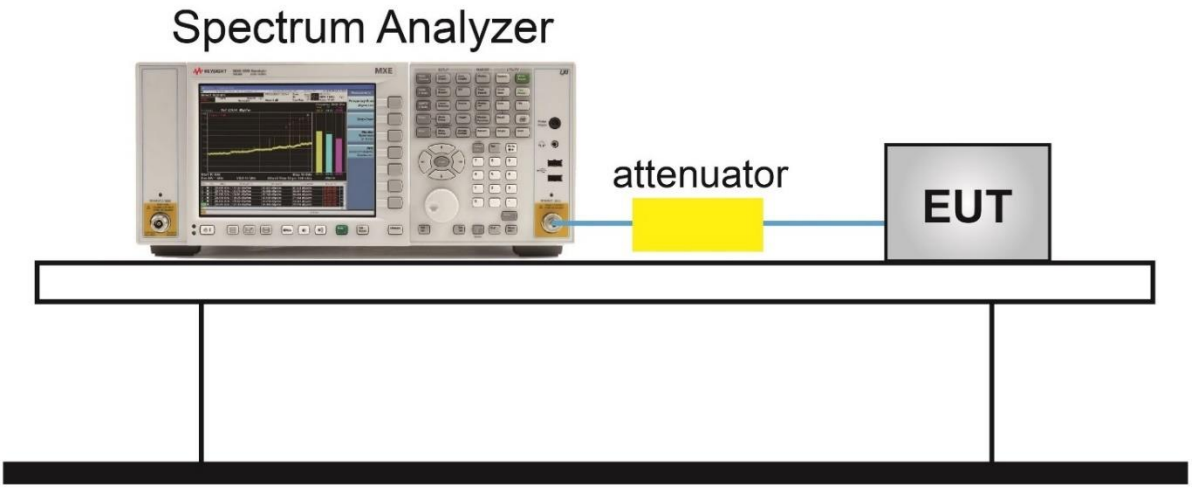
KDB 971168 D01v03r01 - Section 6

ANSI C63.26-2015 - Section 6.4.4.2

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.

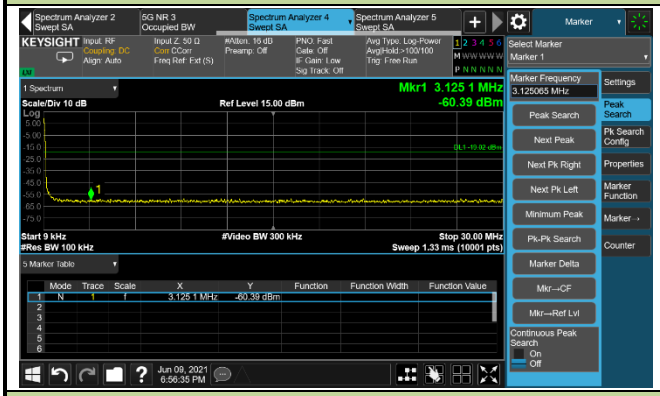
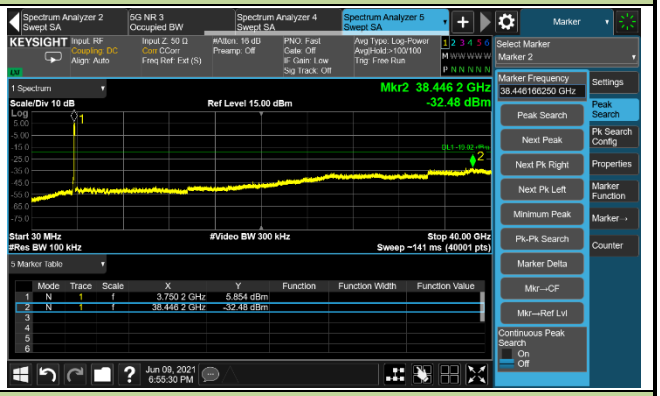
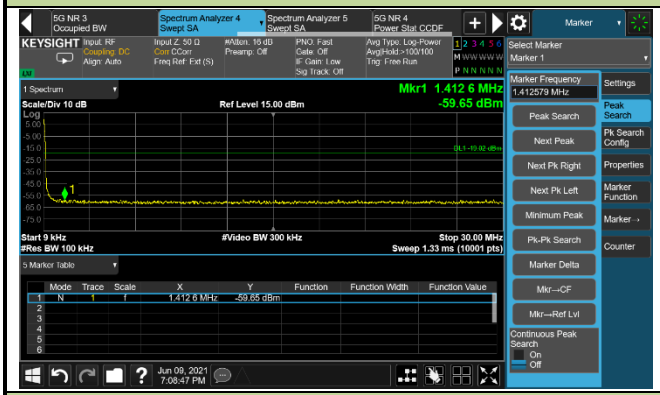
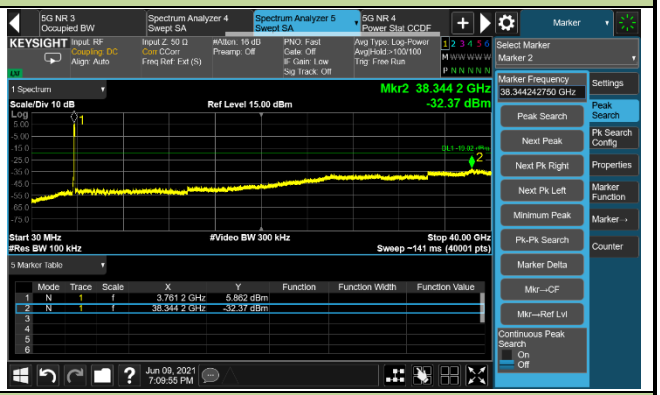
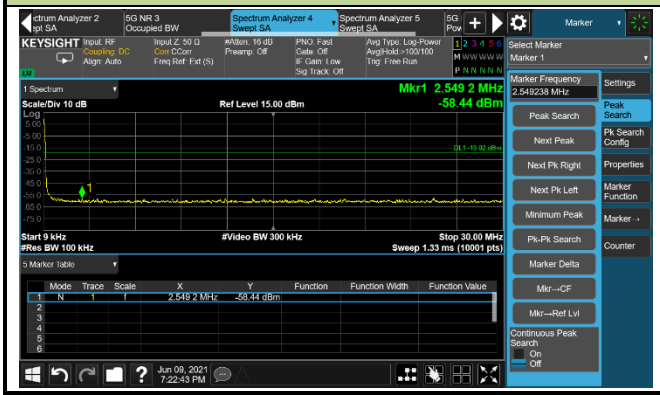
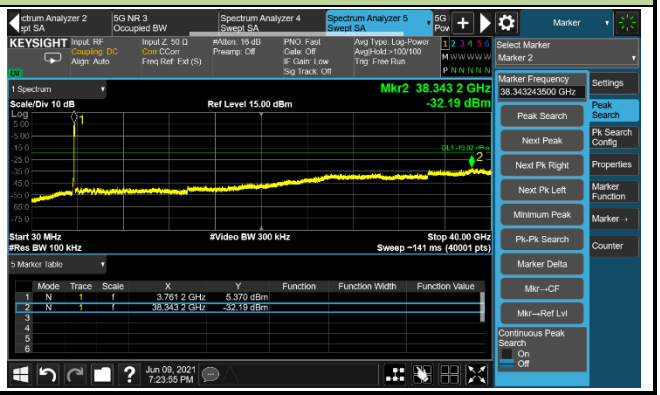
4.7.4.Test Setup

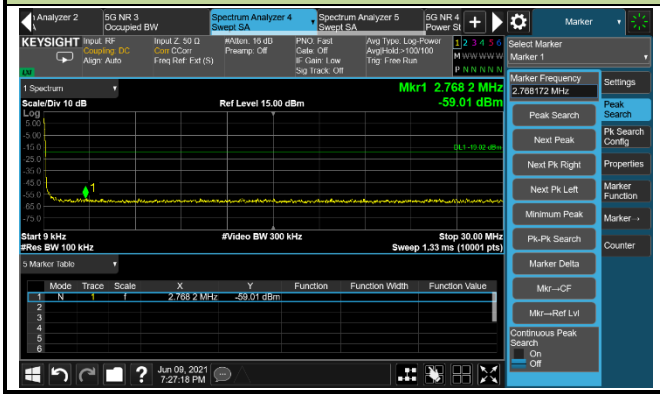
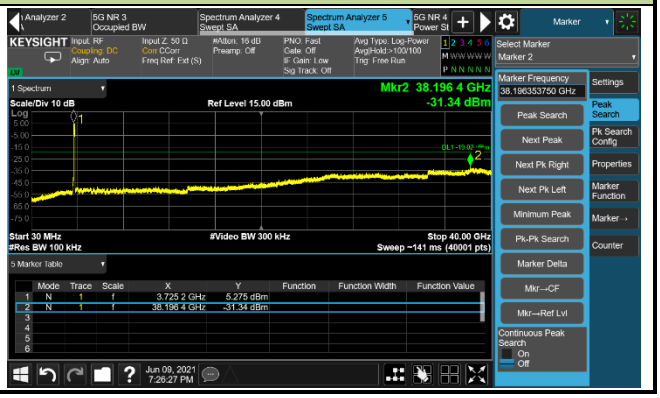


4.7.5.Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	20201/06/09	Test Configuration	n77, QPSK

Frequency (MHz)	Channel BW (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
Ant 1					
3750	100	0.009 ~ 30	-60.39	≤ -19.02	Pass
		30 ~ 40000	-32.48	≤ -19.02	Pass
Ant 2					
3750	100	0.009 ~ 30	-59.65	≤ -19.02	Pass
		30 ~ 40000	-32.37	≤ -19.02	Pass
Ant 3					
3750	100	0.009 ~ 30	-58.44	≤ -19.02	Pass
		30 ~ 40000	-32.19	≤ -19.02	Pass
Ant 4					
3750	100	0.009 ~ 30	-59.01	≤ -19.02	Pass
		30 ~ 40000	-31.34	≤ -19.02	Pass

Ant 1	
9kHz ~ 30MHz	30MHz ~ 40GHz
	
Ant 2	
9kHz ~ 30MHz	30MHz ~ 40GHz
	
Ant 3	
9kHz ~ 30MHz	30MHz ~ 40GHz
	

Ant 4	
9kHz ~ 30MHz	30MHz ~ 40GHz
	

4.8. Radiated Spurious Emissions Measurements

4.8.1.Test Limit

Out of band emissions: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dBμV/m.

4.8.2.Test Procedure

KDB 971168 D01v03r01 - Section 5.8 & 7

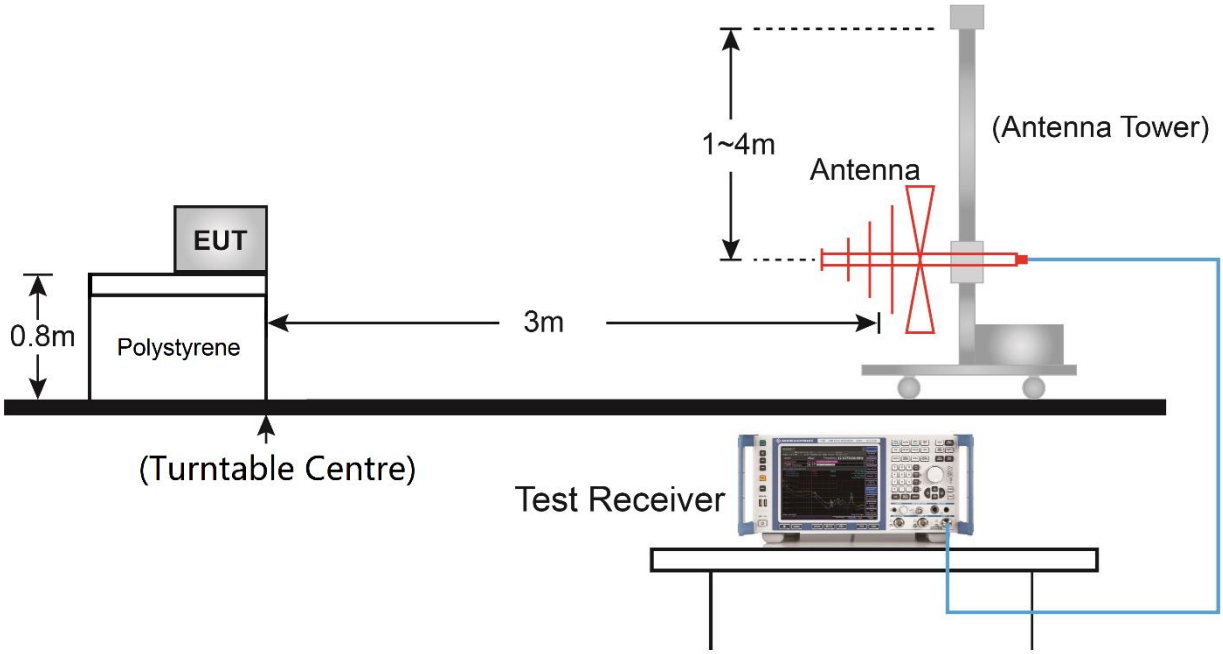
ANSI C63.26-2015 - Section 5.2.7 & 5.5

4.8.3.Test Setting

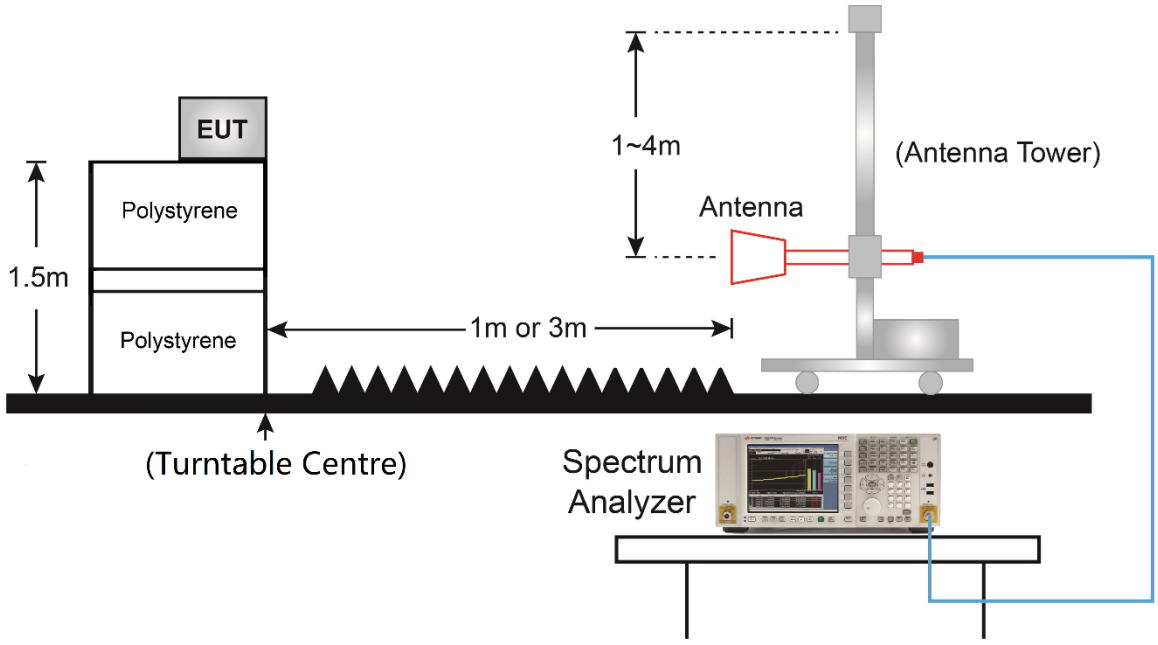
1. RBW = 100kHz or 1MHz
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

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	2021/06/18		
Test Configuration	n77(AV27-F360-P4CXP-CN-C), QPSK, BW = 100MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
38.25	15.61	17.21	32.82	82.30	-49.48	Peak	Horizontal
734.22	4.24	27.74	31.98	82.30	-50.32	Peak	Horizontal
37.28	21.24	17.13	38.37	82.30	-43.93	Peak	Vertical
78.02	17.65	14.14	31.79	82.30	-50.51	Peak	Vertical
8794.50	33.96	14.12	48.08	82.30	-34.22	Peak	Horizontal
13427.00	32.33	21.56	53.89	82.30	-28.41	Peak	Horizontal
8089.00	34.46	12.95	47.41	82.30	-34.89	Peak	Vertical
13172.00	32.87	20.97	53.84	82.30	-28.46	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	2021/06/18		
Test Configuration	n77(AV27-F360-P4CXP-FM-C), QPSK, BW = 100MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
141.55	13.23	15.04	28.27	82.30	-54.03	Peak	Horizontal
742.95	4.04	29.57	33.61	82.30	-48.69	Peak	Horizontal
39.70	11.99	19.21	31.21	82.30	-51.09	Peak	Vertical
141.07	13.95	15.05	29.00	82.30	-53.30	Peak	Vertical
8531.00	32.79	12.94	45.73	82.30	-36.57	Peak	Horizontal
12662.00	31.04	20.20	51.25	82.30	-31.05	Peak	Horizontal
8820.00	32.49	14.10	46.59	82.30	-35.71	Peak	Vertical
12679.00	31.17	20.23	51.40	82.30	-30.90	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)							

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 “2105RSU063-UT” file.

Appendix B - EUT Photograph

Refer to “2105RSU063-UE” file.