

RF MEASUREMENT REPORT

FCC ID: 2BAH7AQI01
Application: Procon Analytics LLC
Product: Arrow-QI
Model No.: 4-6360-20, 4-6360-17
Brand Name: Procon Analytics
FCC Rule Part(s): Part 2, 22 (H), 24 (E), 27
Result: Complies
Received Date: 2023-02-15
Test Date: 2023-02-16 ~ 2023-03-05

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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2212RSU049-U1	Rev. 01	Initial Report	2023-03-25	Valid

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1.1. Applicant

17361 Armstrong Avenue Irvine, CA 92614

Procon Analytics LLC

17361 Armstrong Avenue Irvine, CA 92614

☒	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	
	☐ R-20141	☐ G-20134	☐ C-20103	☐ T-20104	
☐	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	Arrow-QI
Model No.	4-6360-20, 4-6360-17
Brand Name	Procon Analytics
IMEI	868996064642986
E-UTRA Band	Cat M: Band 13, 25, 26, 66
Bluetooth Specification	BLE 5.0
Operating Temperature	-30 ~ 75 °C
Power Type	DC12V & 100mAh 3.7V Lithium-ion battery
Remark: - The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. - The difference between the two models is the SIM type. 4-6360-20 is the AerisPro SIM and 4-6360-17 is the Verizon SIM	

1.5. Radio Specification Under Testing

FDD Tx Frequency Range:	Band 13: 777 ~ 787 MHz; Band 25: 1850 ~ 1915 MHz Band 26: 824 ~ 849 MHz; Band 66: 1710 ~ 1780 MHz
FDD Rx Frequency Range:	Band 13: 746 ~ 756 MHz; Band 25: 1930 ~ 1995 MHz Band 26: 869 ~ 894 MHz; Band 66: 2110 ~ 2180 MHz
Modulation	QPSK, BPSK

Note: LTE band 26 transmit frequency for part 90 rule is 814 ~ 824MHz and part 22 rule is 824 ~ 849MHz.

1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	MaxPeak Gain (dBi)
LTE Band 13	777 ~ 787	Dipole	3.05
LTE Band 25	1850 ~ 1915		4.67
LTE Band 26	814 ~ 849		3.03
LTE Band 66	1710 ~ 1780		2.77

Note: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer.

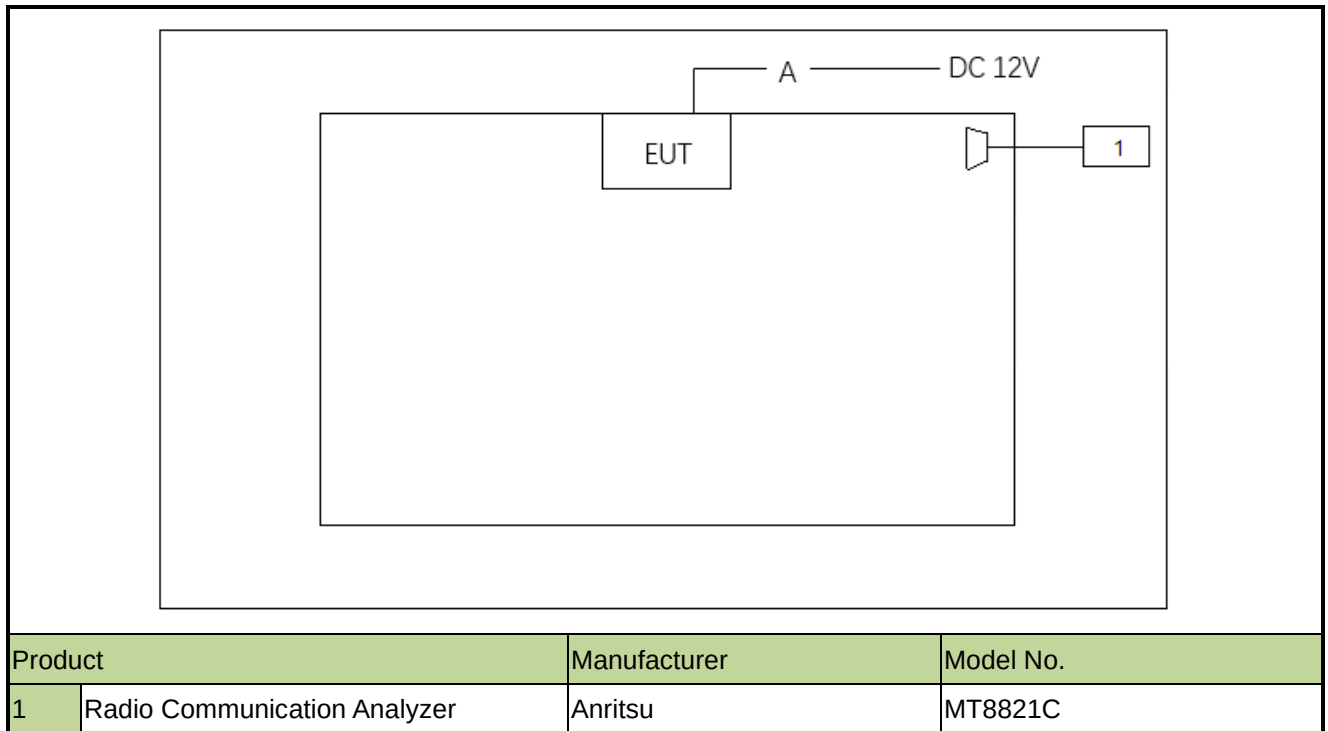
1.7. Test Methodology

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 2, Part 22, Part 24, Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices

2. Test Configuration

2.1. Test System Connection Diagram



2.2. Test Environment Condition

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

3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2023-12-28	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2023-08-22	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2023-05-08	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2023-06-21	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2023-04-21	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE06403	1 year	2023-06-06	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2023-12-28	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11039	1 year	2023-11-01	WZ-AC1
Radio Communication Analyzer	Anritsu	MT8821C	MRTSUE06960	1 year	2023-07-08	WZ

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & Turntable

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. 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 Spurious Emissions

Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$):

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

5. Test Result

5.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
2.1053, 22.917(a) 24.238(a), 27.53(c) (f) (h)	Spurious Emissions	Radiated	Pass

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) For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

5.2. Radiated Spurious Emissions Measurement

5.2.1. 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.

For LTE Band 13, For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (-40dBm/MHz) equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW (-50dBm) EIRP for discrete emissions of less than 700 Hz bandwidth.

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters. The emission limit equal to 82.3dB μ V/m.

5.2.2. Test Procedure

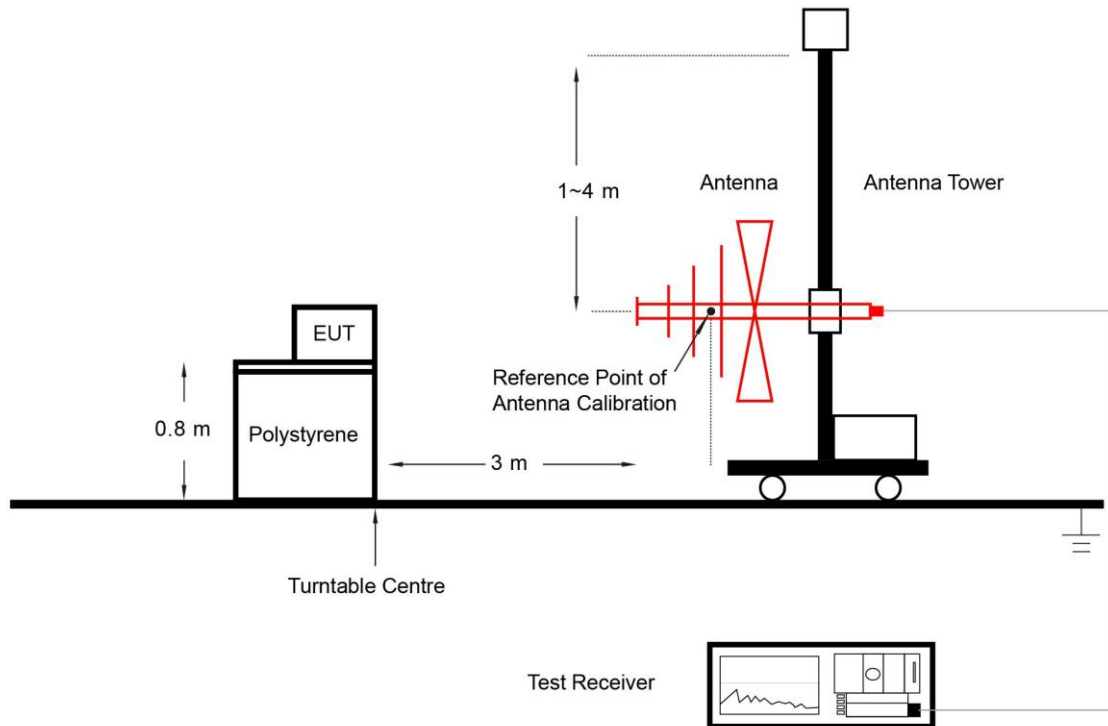
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.2.3. Test Setting

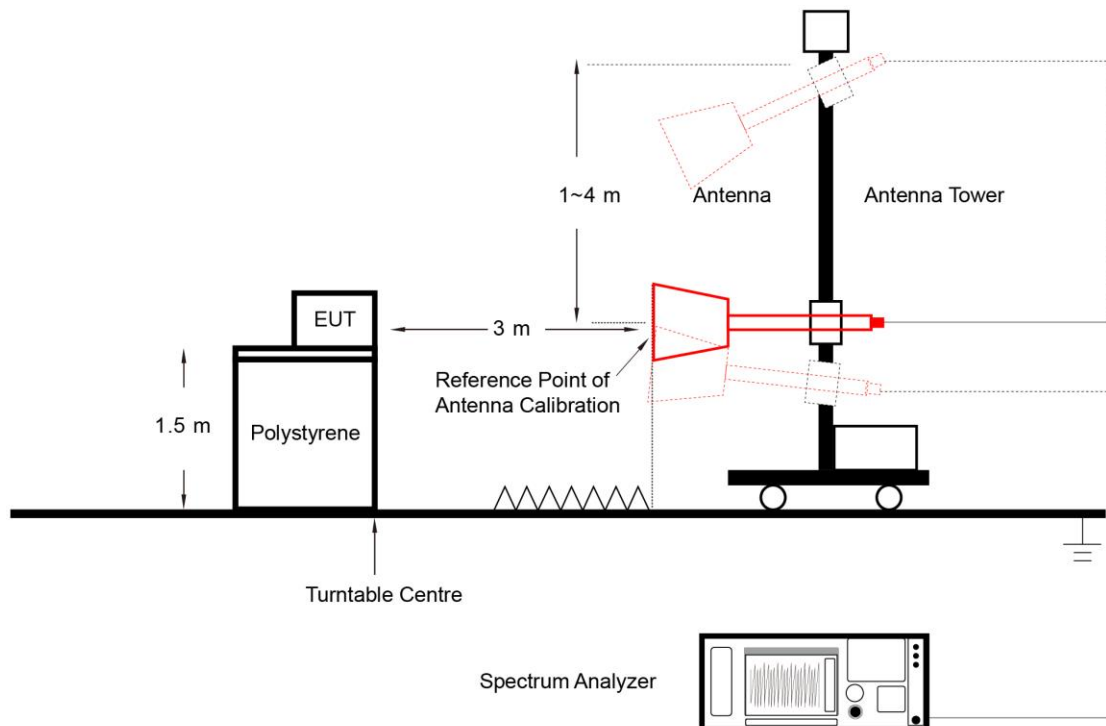
1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.2.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.2.5. Test Result

Refer to Appendix A.1.

Appendix A - Test Result

A.1 Radiated Spurious Emissions Test Result

Test Site	WZ-AC1	Test Engineer	Charles Zhang
Test Date	2023/02/18 ~ 2023/03/01	Test Band	LTE Band 25, 1RB, QPSK

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
56.7	2.6	17.8	20.4	82.3	-61.9	Peak	Horizontal
502.9	5.2	23.2	28.4	82.3	-53.9	Peak	Horizontal
101.8	10.7	13.5	24.2	82.3	-58.1	Peak	Vertical
434.0	8.6	21.9	30.5	82.3	-51.8	Peak	Vertical
5547.5	41.0	3.7	44.7	82.3	-37.6	Peak	Horizontal
14379.0	36.7	14.7	51.4	82.3	-30.9	Peak	Horizontal
5547.5	40.9	3.7	44.6	82.3	-37.7	Peak	Vertical
14634.0	37.6	14.8	52.4	82.3	-29.9	Peak	Vertical
Middle Channel							
39.2	4.0	18.2	22.2	82.3	-60.1	Peak	Horizontal
752.2	4.0	28.2	32.2	82.3	-50.1	Peak	Horizontal
102.3	10.1	13.6	23.7	82.3	-58.6	Peak	Vertical
476.2	7.7	22.7	30.4	82.3	-51.9	Peak	Vertical
5649.5	39.4	3.9	43.3	82.3	-39.0	Peak	Horizontal
14209.0	36.6	14.6	51.2	82.3	-31.1	Peak	Horizontal
5649.5	42.6	3.9	46.5	82.3	-35.8	Peak	Vertical
14149.5	37.4	14.3	51.7	82.3	-30.6	Peak	Vertical
High Channel							
55.2	3.1	17.9	21.0	82.3	-61.3	Peak	Horizontal
771.6	4.5	28.2	32.7	82.3	-49.6	Peak	Horizontal
160.0	6.6	18.2	24.8	82.3	-57.5	Peak	Vertical
434.0	7.6	21.9	29.5	82.3	-52.8	Peak	Vertical
5743.0	41.6	4.2	45.8	82.3	-36.5	Peak	Horizontal
14302.5	35.7	14.5	50.2	82.3	-32.1	Peak	Horizontal
5743.0	42.3	4.2	46.5	82.3	-35.8	Peak	Vertical
14608.5	35.4	15.0	50.4	82.3	-31.9	Peak	Vertical

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

Test Site	WZ-AC1	Test Engineer	Charles Zhang
Test Date	2023/02/18 ~ 2023/03/01	Test Band	LTE Band 66, 1RB, QPSK

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
161.0	3.2	18.2	21.4	82.3	-60.9	Peak	Horizontal
927.3	3.9	30.0	33.9	82.3	-48.4	Peak	Horizontal
100.8	10.2	13.4	23.6	82.3	-58.7	Peak	Vertical
434.0	8.7	21.9	30.6	82.3	-51.7	Peak	Vertical
3422.5	51.9	-1.3	50.6	82.3	-31.7	Peak	Horizontal
5131.0	46.9	3.6	50.5	82.3	-31.8	Peak	Horizontal
3422.5	52.3	-1.3	51.0	82.3	-31.3	Peak	Vertical
5131.0	48.5	3.6	52.1	82.3	-30.2	Peak	Vertical
Middle Channel							
44.1	2.2	18.4	20.6	82.3	-61.7	Peak	Horizontal
899.6	7.0	29.4	36.4	82.3	-45.9	Peak	Horizontal
33.4	9.2	17.5	26.7	82.3	-55.6	Peak	Vertical
434.0	9.4	21.9	31.3	82.3	-51.0	Peak	Vertical
3490.5	45.9	-0.9	45.0	82.3	-37.3	Peak	Horizontal
5233.0	45.0	3.4	48.4	82.3	-33.9	Peak	Horizontal
3490.5	47.5	-0.9	46.6	82.3	-35.7	Peak	Vertical
5233.0	47.8	3.4	51.2	82.3	-31.1	Peak	Vertical
High Channel							
145.4	3.5	17.8	21.3	82.3	-61.0	Peak	Horizontal
895.7	7.2	29.3	36.5	82.3	-45.8	Peak	Horizontal
120.2	8.4	15.8	24.2	82.3	-58.1	Peak	Vertical
434.0	8.0	21.9	29.9	82.3	-52.4	Peak	Vertical
10010.0	36.3	12.6	48.9	82.3	-33.4	Peak	Horizontal
13571.5	37.5	13.6	51.1	82.3	-31.2	Peak	Horizontal
5335.0	39.7	3.4	43.1	82.3	-39.2	Peak	Vertical
9789.0	36.3	12.7	49.0	82.3	-33.3	Peak	Vertical

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

Test Site	WZ-AC1	Test Engineer	Charles Zhang
Test Date	2023/02/18 ~ 2023/03/01	Test Band	LTE Band 26, 1RB, QPSK

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
42.1	23.6	18.3	41.9	82.3	-40.4	Peak	Horizontal
166.3	25.5	18.0	43.5	82.3	-38.8	Peak	Horizontal
49.9	24.4	18.2	42.6	82.3	-39.7	Peak	Vertical
131.4	26.2	16.8	43.0	82.3	-39.3	Peak	Vertical
1646.0	51.5	-6.4	45.1	82.3	-37.2	Peak	Horizontal
2470.5	50.5	-3.4	47.1	82.3	-35.2	Peak	Horizontal
2470.5	56.8	-3.4	53.4	82.3	-28.9	Peak	Vertical
10928.0	35.7	13.5	49.2	82.3	-33.1	Peak	Vertical
Middle Channel							
58.1	24.6	17.6	42.2	82.3	-40.1	Peak	Horizontal
626.1	25.5	26.0	51.5	82.3	-30.8	Peak	Horizontal
41.6	23.9	18.3	42.2	82.3	-40.1	Peak	Vertical
583.9	25.0	25.0	50.0	82.3	-32.3	Peak	Vertical
1671.5	54.2	-6.5	47.7	82.3	-34.6	Peak	Horizontal
2504.5	41.2	-3.4	37.8	82.3	-44.5	Peak	Horizontal
1671.5	54.2	-6.5	47.7	82.3	-34.6	Peak	Vertical
2504.5	44.6	-3.4	41.2	82.3	-41.1	Peak	Vertical
High Channel							
62.5	24.7	17.2	41.9	82.3	-40.4	Peak	Horizontal
648.9	25.4	26.2	51.6	82.3	-30.7	Peak	Horizontal
48.9	24.0	18.3	42.3	82.3	-40.0	Peak	Vertical
650.3	25.3	26.2	51.5	82.3	-30.8	Peak	Vertical
1697.0	48.5	-6.6	41.9	82.3	-40.4	Peak	Horizontal
2547.0	42.8	-3.2	39.6	82.3	-42.7	Peak	Horizontal
1697.0	49.8	-6.6	43.2	82.3	-39.1	Peak	Vertical
2547.0	48.2	-3.2	45.0	82.3	-37.3	Peak	Vertical

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

Test Site	WZ-AC1	Test Engineer	Charles Zhang
Test Date	2023/02/18 ~ 2023/03/01	Test Band	LTE Band 13, 1RB, QPSK

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
46.0	24.1	18.4	42.5	82.3	-39.8	Peak	Horizontal
161.4	24.5	18.1	42.6	82.3	-39.7	Peak	Horizontal
51.3	24.4	18.2	42.6	82.3	-39.7	Peak	Vertical
152.2	23.9	18.1	42.0	82.3	-40.3	Peak	Vertical
1603.5	41.0	-6.3	34.7	55.3	-20.6	Peak	Horizontal
2334.5	57.0	-3.1	53.9	82.3	-28.4	Peak	Horizontal
1586.5	41.5	-6.3	35.2	55.3	-20.1	Peak	Vertical
2334.5	58.0	-3.1	54.9	82.3	-27.4	Peak	Vertical
Middle Channel							
167.7	25.1	17.9	43.0	82.3	-39.3	Peak	Horizontal
511.6	26.1	23.4	49.5	82.3	-32.8	Peak	Horizontal
152.7	25.3	18.1	43.4	82.3	-38.9	Peak	Vertical
646.4	25.1	26.2	51.3	82.3	-31.0	Peak	Vertical
1561.0	51.5	-6.3	45.2	55.3	-10.1	Peak	Horizontal
2343.0	60.6	-3.2	57.4	82.3	-24.9	Peak	Horizontal
1561.0	44.3	-6.3	38.0	55.3	-17.3	Peak	Vertical
2343.0	63.2	-3.2	60.0	82.3	-22.3	Peak	Vertical
High Channel							
47.5	24.2	18.3	42.5	82.3	-39.8	Peak	Horizontal
326.8	26.2	19.3	45.5	82.3	-36.8	Peak	Horizontal
37.8	25.1	18.0	43.1	82.3	-39.2	Peak	Vertical
516.5	26.0	23.5	49.5	82.3	-32.8	Peak	Vertical
1561.0	51.2	-6.3	44.9	55.3	-10.4	Peak	Horizontal
2351.5	57.6	-3.2	54.4	82.3	-27.9	Peak	Horizontal
1569.5	44.7	-6.3	38.4	55.3	-16.9	Peak	Vertical
2351.5	61.8	-3.2	58.6	82.3	-23.7	Peak	Vertical

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

Appendix B - Test Setup Photograph

Refer to “2212RSU049-UT” file.

Appendix C - EUT Photograph

Refer to “2212RSU049-UE” file.