



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 90 Subpart S
Test Procedure(s): ANSI C63.26: 2015
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-U2	Rev. 01	Initial Report	2023-03-25	Valid

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1.1. Applicant

17361 Armstrong Avenue Irvine, CA 92614

Procon Analytics LLC

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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:	Cat M Band 26: 814 ~ 824 MHz
FDD Rx Frequency Range:	Cat M Band 26: 859 ~ 869 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.

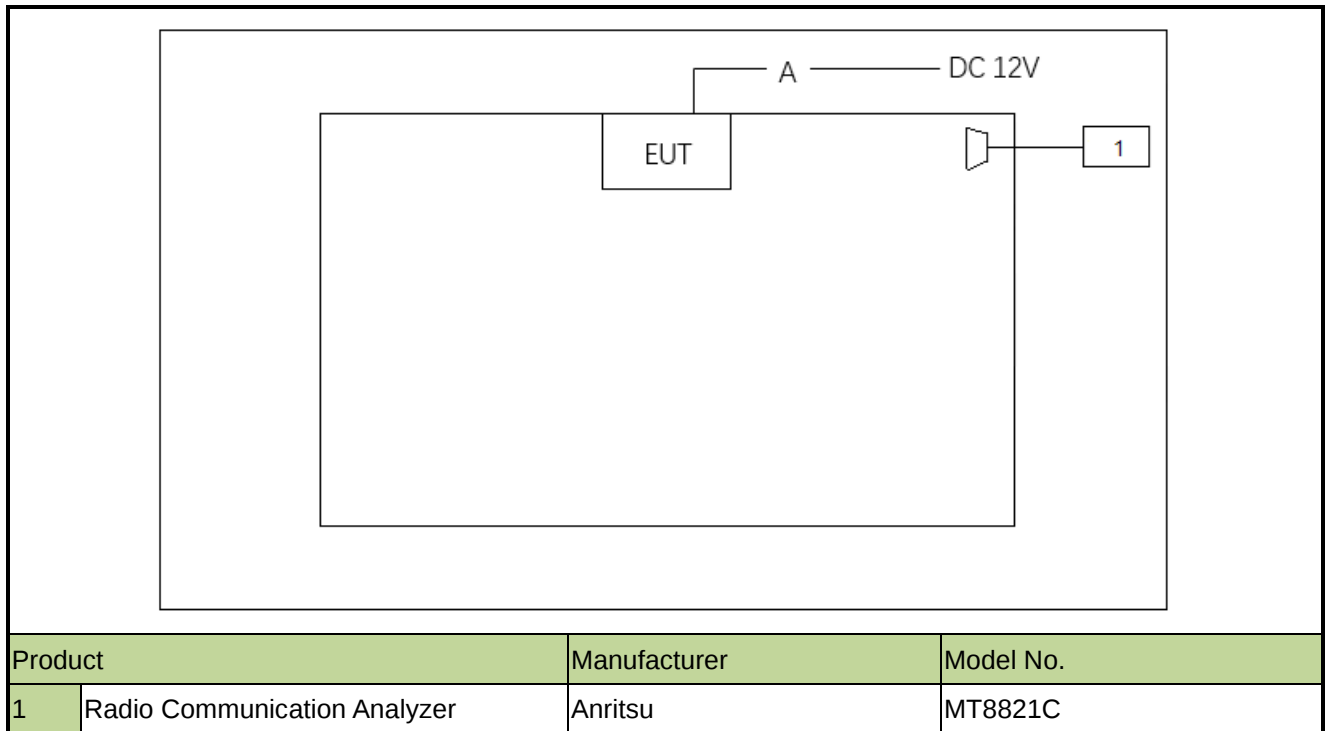
1.7. Test Methodology

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 90
- 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, 90.691(a)	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

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.

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

5.2.2. Test Procedure

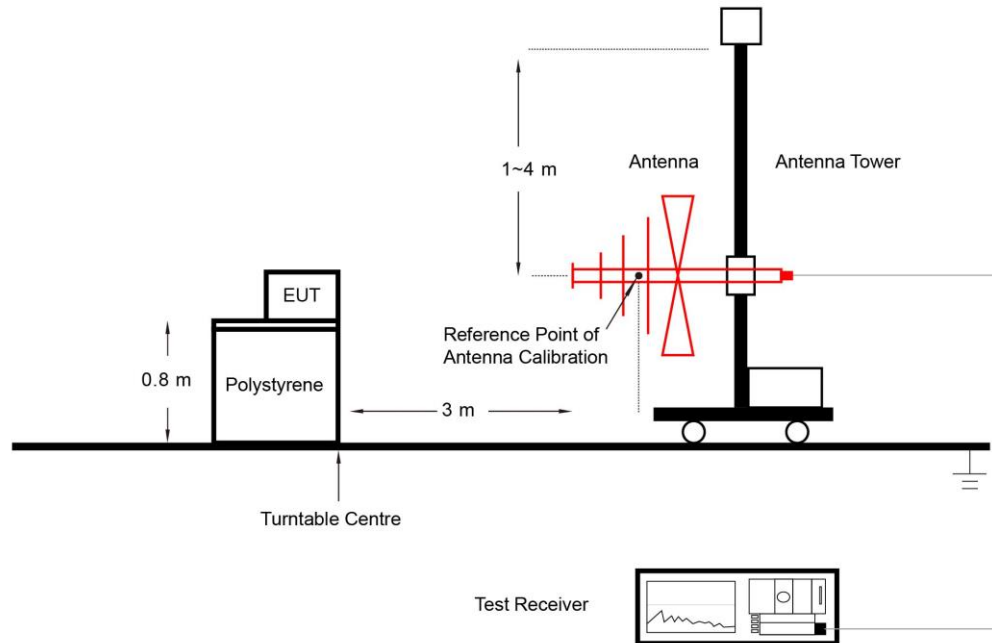
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.2.3. Test Setting

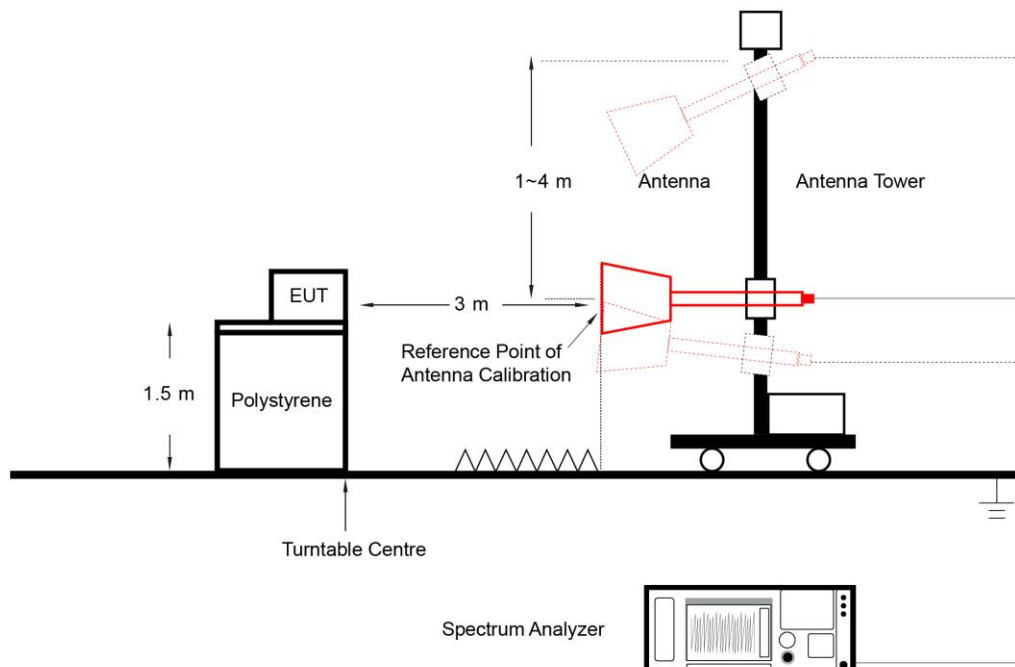
1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

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 Suprious Emissions Test Result

Test Site	WZ-AC1	Test Engineer	Charles Zhang
Test Date	2023/02/18 ~ 2023/03/01	Test Band	LTE Band 26, 1.4MHz, 1RB

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
48.4	24.0	18.3	42.3	82.3	-40.0	Peak	Horizontal
751.7	26.7	28.2	54.9	82.3	-27.4	Peak	Horizontal
50.9	24.1	18.2	42.3	82.3	-40.0	Peak	Vertical
619.3	25.8	25.8	51.6	82.3	-30.7	Peak	Vertical
1629.0	46.6	-6.4	40.2	82.3	-42.1	Peak	Horizontal
2445.0	54.2	-3.4	50.8	82.3	-31.5	Peak	Horizontal
2445.0	57.3	-3.4	53.9	82.3	-28.4	Peak	Vertical
3261.0	43.8	-1.4	42.4	82.3	-39.9	Peak	Vertical
Middle Channel							
52.8	23.9	18.0	41.9	82.3	-40.4	Peak	Horizontal
613.0	25.7	25.7	51.4	82.3	-30.9	Peak	Horizontal
51.3	24.3	18.2	42.5	82.3	-39.8	Peak	Vertical
631.4	25.4	26.1	51.5	82.3	-30.8	Peak	Vertical
1637.5	50.9	-6.4	44.5	82.3	-37.8	Peak	Horizontal
2453.5	56.0	-3.4	52.6	82.3	-29.7	Peak	Horizontal
1637.5	45.8	-6.4	39.4	82.3	-42.9	Peak	Vertical
2453.5	60.0	-3.4	56.6	82.3	-25.7	Peak	Vertical
High Channel							
48.9	24.0	18.3	42.3	82.3	-40.0	Peak	Horizontal
745.4	26.1	28.0	54.1	82.3	-28.2	Peak	Horizontal
40.2	24.4	18.2	42.6	82.3	-39.7	Peak	Vertical
748.8	26.0	28.1	54.1	82.3	-28.2	Peak	Vertical
1646.0	45.5	-6.4	39.1	82.3	-43.2	Peak	Horizontal
2470.5	50.3	-3.4	46.9	82.3	-35.4	Peak	Horizontal
2020.0	49.7	-5.0	44.7	82.3	-37.6	Peak	Vertical
2470.5	55.6	-3.4	52.2	82.3	-30.1	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.