





EMC TEST REPORT

Applicant Asiatelco Technologies Co.

FCC ID XYO-AN95

Product AN95

Brand ATEL

Model AN95

Report No. R2401A0058-E1

Issue Date March 4, 2024

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC Code CFR47 Part15B (2023)/ ANSI C63.4-2014. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of measurement results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	FCC Part15.109, ANSI C63.4-2014	PASS
2	Conducted Emission	FCC Part15.107, ANSI C63.4-2014	NA

Date of Testing: January 26, 2024 ~ February 5, 2024

Date of Sample Received: January 16, 2024

Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

1 Test Laboratory

1.1 Notes of the Test Report

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1.2 Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.

Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

City: Shanghai

Post code: 201201

Country: P. R. China

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E-mail: Jack.Fan@cpt.eurofinscn.com

2 General Description of Equipment Under Test

2.1 Applicant and Manufacturer Information

Applicant	Asiatelco Technologies Co.	
Applicant address	#68 HuaTuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong,	
Applicant address	Shanghai 201204, China	
Manufacturer	Asiatelco Technologies Co.	
Manufacturer address	#68 HuaTuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong,	
Manufacturer address	Shanghai 201204, China	

2.2 General Information

EUT Description						
Device Type	Device Type Module Device					
Model AN95						
Lab internal SN R2404A0058/S01						
HW Version	P2.0					
SW Version	5.6					
Power Rating	AC 4.5V from battery					
Connecting I/O Port(s)	Please refer to the User	s Manual.				
Antonno Timo	WWAN	PIFA Antenna				
Antenna Type	WLAN PCB Antenna					
	Band	Tx (MHz)	Rx (MHz)			
	GSM 850	824 ~ 849	869 ~ 894			
	GSM 1900	1850 ~ 1910	1930 ~ 1990			
	LTE-M Band 2	1850 ~ 1910	1930 ~ 1990			
	LTE-M Band 4	1710 ~ 1755	2110 ~ 2155			
	LTE-M Band 5	824 ~ 849	869 ~ 894			
	LTE-M Band 12	699 ~ 716	729 ~ 746			
Frequency	LTE-M Band 13	777 ~ 787	746 ~ 756			
	LTE-M Band 14	788 ~ 798	758 ~ 768			
	LTE-M Band 25	1850 ~ 1915	1930 ~ 1995			
	LTE-M Band 26A	814 ~ 824	859 ~ 869			
	LTE-M Band 26B	824 ~ 849	869 ~ 894			
	LTE-M Band 66	1710 ~ 1780	2110 ~ 2200			
	LTE-M Band 85	698 ~ 716	728 ~ 746			
	Bluetooth LE 2400 ~ 2483.5		2400 ~ 2483.5			
	EUT A	Accessory				
Battery	Battery Manufacturer: Fujian Nanping Nanfu new energy Co., LTD.					

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Model: LR63S1P-2P Input: 4.5V 6400mAh

Note:

1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.

2.3 Applied Standards

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

Test standards FCC Code CFR47 Part15B (2023) ANSI C63.4-2014

2.4 Test Mode

Test Mode					
Mode 1	EUT (with battery) + GSM/LTE/ Bluetooth LE Receiver				
Mode 2	EUT (with battery) + GSM/LTE/ Bluetooth LE Standby				

Test Type	Test Mode	Worst Mode
Radiated Emission	Mode 1, 2	Mode 1
Conducted Emission	1	1

During the test, the preliminary test was performed in all modes, the test data of the worst-case condition was recorded in this report.

3 Test Case Results

3.1 Radiated Emission

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 10 meters below 1GHz; 3 meters for above 1GHz. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated signal level.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz:

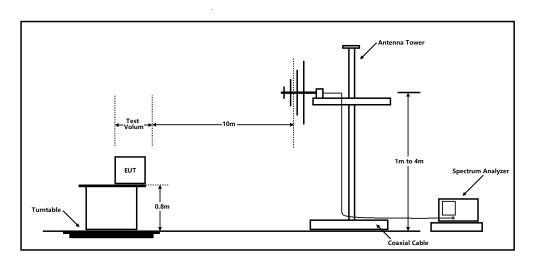
- (a) PEAK Detector: RBW=1MHz / VBW=3MHz/ Sweep=AUTO
- (b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

Test Setup

eurofins

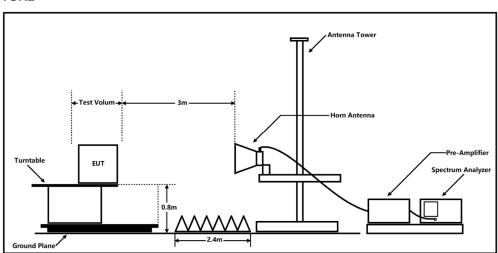
Below 1GHz



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Note: Area side: 21m x 12m

Above 1GHz



Note: Area side: 2.4mX3.6m

Antenna Tower meets ANSI C63.4 requirements for measurements above 1 GHz by keeping the antenna aimed at the EUT during the antenna's ascent/ descent along the antenna mast.

Limits

Class B

Frequency (MHz)	Field Strength (dBµV/m)	Detector
30 -88	30.0	Quasi-peak
88-216	33.5	Quasi-peak
216 – 960	36.0	Quasi-peak
960-1000	44.0	Quasi-peak
1000-5 th harmonic of the highest	54	Average
frequency or 40GHz, which is lower	74	Peak

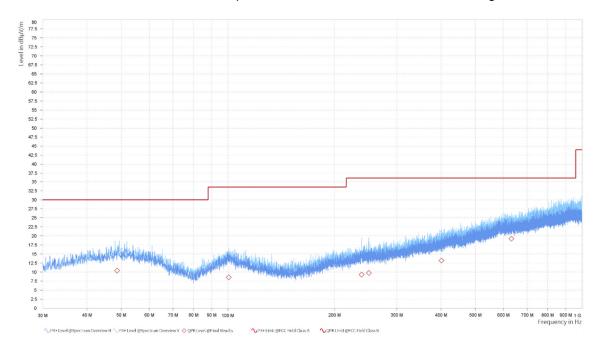
Frequency range of radiated measurements

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier.

The following graphs display the maximum values of horizontal and vertical by software. For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

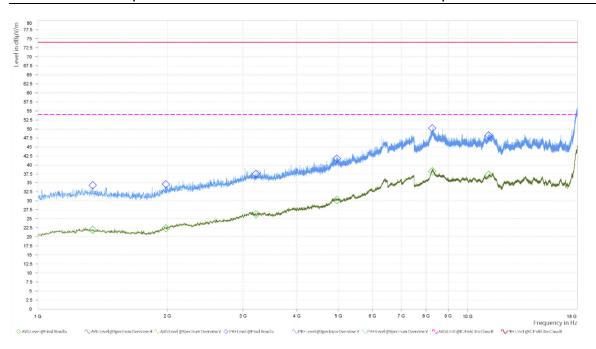


Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (m)	Polarization	Azimuth (deg)	Correct Factor (dB)
48.653	10.40	30.00	19.60	1.05	V	168	-8.47
100.607	8.54	33.50	24.96	2.25	V	79.2	-9.63
238.526	9.28	36.00	26.72	1.21	V	258.1	-8.69
250.154	9.75	36.00	26.25	1.86	V	182.7	-8.50
400.953	13.19	36.00	22.81	1.25	V	61.7	-4.58
631.657	19.25	36.00	16.75	1.11	V	105.3	-0.68

Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss+amplifier gain)

2. Margin = Limit - Quasi-Peak



Radiated Emission from 1GHz to 18GHz

Radiated Effission from 1902 to 10902									
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dB V/m)	Margin (dB)	Meas. Time (ms)	Height (m)	Pol	Azimuth (deg)	Corr. (dB/m)
1,341.490	34.26	-	74.00	39.74	1.000	2.22	Н	50.4	-13.30
1,984.053	34.55	-	74.00	39.45	1.000	2.08	Н	167.4	-10.92
3,215.173	37.53	-	74.00	36.47	1.000	2.12	V	189.9	-6.58
4,961.380	41.79	-	74.00	32.21	1.000	1.79	Н	322.9	-1.44
8,265.001	50.18	-	74.00	23.82	1.000	1.75	V	14.4	8.35
11,183.074	48.20	-	74.00	25.80	1.000	2.21	Н	294.1	7.23
1,341.490	-	21.90	54.00	32.10	1.000	2.22	Н	50.4	-13.30
1,984.053	-	22.37	54.00	31.63	1.000	2.08	Н	167.4	-10.92
3,215.173	-	26.18	54.00	27.82	1.000	2.12	V	189.9	-6.58
4,961.380	-	30.20	54.00	23.80	1.000	1.79	Н	322.9	-1.44
8,265.001	-	38.26	54.00	15.74	1.000	1.75	V	14.4	8.35
11,183.074	-	37.28	54.00	16.72	1.000	2.21	Н	294.1	7.23

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Peak Margin = Limit -MAX Peak/ Average

3.2 Conducted Emission

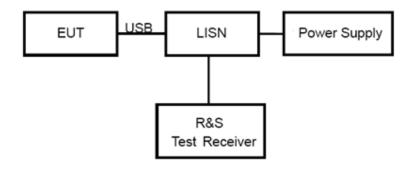
Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage 120V/60Hz.

Limits

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)			
	Quasi-peak	Average	Quasi-peak	Average		
0.15 - 0.5	79	66	66 to 56 *	56 to 46*		
0.5 - 5	73	60	56	46		
5 - 30	73	60	60	50		
* Decreases with the logarithm of the frequency.						

Note: The EUT should meet CLASS B limit.

Test Results

The equipment doesn't connected to public network, therefore this requirement do not apply.

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4 Uncertainty Measurement

Case	Uncertainty	Factor k	
Radiated Emission 30MHz – 200MHz	3.39 dB	1.96	
Radiated Emission 200MHz – 1GHz	3.82 dB	1.96	
Radiated Emission 1GHz – 18GHz	6.51 dB	1.96	

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Main Test Instruments

Name of Equipment	Manufacturer	Type/Model	Serial Number	Calibration Date	Expiration Time				
Radiated Emission									
EMI Test Receiver	R&S	ESR	102389	2023-05-12	2024-05-11				
Signal Analyzer	R&S	FSV40	101186	2023-05-12	2024-05-11				
Signal Analyzer	R&S	FSV3044	103495	2023-09-19	2024-09-18				
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1023	2023-07-14	2026-07-13				
Horn Antenna	ETS-Lindgren	3160-09	00102643	2021-10-10	2024-10-09				
Amplifier	MicroWave	KLNA-18040050	220826001	2023-05-12	2024-05-11				
Horn Antenna	R&S	BBHA9120D	02728	2023-09-19	2026-09-18				
Software	R&S	EMC32	9.26.01	/	/				



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

***** END OF REPORT *****

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