MPE TEST REPORT

Applicant	Asiatelco Technologies Co.
FCC ID	XYO-AN95
Product	AN95
Brand	ATEL
Model	AN95
Report No.	R2401A0058-M1V1
Issue Date	March 13, 2024

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310.** 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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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	March 4, 2024
Rev.1	Update data.	March 13, 2024
Note: This revised report (Report No.: R2401A0058-M1V1) supersedes and replaces the previously issued report (Report No.: R2401A0058-M1). Please discard or destroy the previously issued report and dispose of it accordingly.		

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1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

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.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25°C
Relative humidity	Min. = 20%, Max. = 80%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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2 Description of Equipment Under Test

Client Information

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

General Technologies

EUT Description			
Model	AN95		
Lab internal SN	R2404A0058/S01		
Hardware Version	P2.0		
Software Version	5.6		
Frequency	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
	LTE-M Band 13	777 ~ 787	746 ~ 756
	LTE-M Band 25	1850 ~ 1915	1930 ~ 1995
	LTE-M Band 26	814 ~ 849	859 ~ 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
Date of Sample Received	January 16, 2024		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. 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.			

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3 Maximum Output Power (Measured) /Tune up and Antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G)=10^(antenna gain/10)

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power (dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

Each Tx slots maximum tune up use the most strictest factor for evaluation by making calculation.

Band		Burst-Averaged output power (adjusted for tune up) (dBm)	Division Factors	Frame-Averaged output power (adjusted for tune up) (dBm)
GSM850	GSM	35.000	-9.03	25.97
	1 Txslot	35.000	-9.03	25.97
	2 Txslots	35.000	-6.02	28.98
	3 Txslots	33.200	-4.26	28.94
	4 Txslots	32.000	-3.01	**28.99**
GSM1900	GSM	32.000	-9.03	22.97
	1 Txslot	32.000	-9.03	22.97
	2 Txslots	32.000	-6.02	25.98
	3 Txslots	30.200	-4.26	25.94
	4 Txslots	29.000	-3.01	**25.99**

Note:
Division Factors

To average the power, the division factor is as follows:
1Txslot = 1 transmit time slot out of 8 time slots
=> conducted power divided by (8/1) => -9.03 dB
2Txslots = 2 transmit time slots out of 8 time slots
=> conducted power divided by (8/2) => -6.02 dB
3Txslots = 3 transmit time slots out of 8 time slots
=> conducted power divided by (8/3) => -4.26 dB
4Txslots = 4 transmit time slots out of 8 time slots
=> conducted power divided by (8/4) => -3.01 dB

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Band	Maximum Tune up Power		Antenna Gain (dBi)	Numeric Gain
	(dBm)	(mW)		
GSM 850	28.99	792.501	0.00	1.000
GSM 1900	25.99	397.192	1.00	1.259
LTE-M Band 2	25.70	371.535	1.00	1.259
LTE-M Band 4	25.70	371.535	1.00	1.259
LTE-M Band 5	25.70	371.535	0.00	1.000
LTE-M Band 12	25.70	371.535	0.00	1.000
LTE-M Band 13	25.70	371.535	0.00	1.000
LTE-M Band 25	25.70	371.535	1.00	1.259
LTE-M Band 26A	25.70	371.535	0.00	1.000
LTE-M Band 26B	25.70	371.535	0.00	1.000
LTE-M Band 66	25.70	371.535	1.00	1.259
LTE-M Band 85	25.70	371.535	0.00	1.000
Band	Maximum Output Power (Measured)		Antenna Gain (dBi)	Numeric Gain
	(dBm)	(mW)		
Bluetooth LE	4.19	2.624	1.00	1.259

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4 MPE Limit

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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The maximum permissible exposure for 300~1500 MHz is f/1500, for 1500~100,000MHz is 1.0. So

Band	The Maximum Permissible Exposure (mW/cm^2)
GSM 850	0.549
GSM 1900	1.000
LTE-M Band 2	1.000
LTE-M Band 4	1.000
LTE-M Band 5	0.549
LTE-M Band 12	0.466
LTE-M Band 13	0.518
LTE-M Band 25	1.000
LTE-M Band 26A	0.543
LTE-M Band 26B	0.543
LTE-M Band 66	1.000
LTE-M Band 85	0.465
Bluetooth LE	1.000

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5 RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01，this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

$$S= PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)
P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)
G = the numeric gain of the antenna
R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Maximum Tune up (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	PG (mW)	Result (mW/cm^2)	Limit Value (mW/cm^2)	The MPE Ratio
GSM 850	28.99	0.00	28.990	792.501	0.158	0.549	**0.287**
GSM 1900	25.99	1.00	26.990	500.035	0.099	1.000	0.099
LTE-M Band 2	25.70	1.00	26.700	467.735	0.093	1.000	0.093
LTE-M Band 4	25.70	1.00	26.700	467.735	0.093	1.000	0.093
LTE-M Band 5	25.70	0.00	25.700	371.535	0.074	0.549	0.135
LTE-M Band 12	25.70	0.00	25.700	371.535	0.074	0.466	0.159
LTE-M Band 13	25.70	0.00	25.700	371.535	0.074	0.518	0.143
LTE-M Band 25	25.70	1.00	26.700	467.735	0.093	1.000	0.093
LTE-M Band 26A	25.70	0.00	25.700	371.535	0.074	0.543	0.136
LTE-M Band 26B	25.70	0.00	25.700	371.535	0.074	0.543	0.136
LTE-M Band 66	25.70	1.00	26.700	467.735	0.093	1.000	0.093
LTE-M Band 85	25.70	0.00	25.700	371.535	0.074	0.465	0.159
Band	**Maximum Output Power (Measured)**	**Antenna Gain (dBi)**	**Maximum EIRP (dBm)**	**PG (mW)**	**Result (mW/cm^2)**	**Limit Value (mW/cm^2)**	**The MPE Ratio**
Bluetooth LE	4.19	1.00	5.190	3.304	0.001	1.000	**0.001**
Note: **R** = 20cm **π**= 3.1416 The MPE Ratio = Mac Result÷Limit Value							

So the simultaneous transmitting antenna pairs as below:
∑of MPE ratios=Main Antenna + Bluetooth =0.287 + 0.001 = 0.288 <1

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Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

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ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

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

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