



RF EXPOSURE EVALUATION REPORT

APPLICANT : Shareasy Inc Pte Ltd
PRODUCT NAME : Charge System
MODEL NAME : ML-108
BRAND NAME : Brezze
FCC ID : 2ARR4-ML10801
STANDARD(S) : 47CFR 2.1091
: KDB 447498
RECEIPT DATE : 2018-11-19
TEST DATE : 2018-12-10
ISSUE DATE : 2018-12-11

Edited by:

Su Jinhai
Su Jinhai (Rapporteur)

Approved by:

Peng Huarui
Peng Huarui(Supervisor)

NOTE: This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.





DIRECTORY

1. Technical Information.....	3
1.1 Applicant and Manufacturer Information.....	3
1.2 Equipment Under Test (EUT) Description.....	3
1.3 Applied Reference Documents.....	4
2. Device Category and RF Exposure Limit.....	5
3. Measurement of RF Output Power.....	6
4. RF Exposure Evaluation.....	9
Annex A General Information.....	10

Version	Date	Description	Test Engineer
1.0	2018-12-11	Original	Su Jinhai



1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	Shareasy Inc Pte Ltd
Applicant Address:	7 Kaki Bukit Road 1, #04-09 Eunos Technolink, Singapore 415937
Manufacturer:	Shenzhen Manunited Electronics Co., Ltd
Manufacturer Address:	8 building 2 Floor, Yu Sheng Industrial District, Xixiang Street, Baoan District, Shenzhen

1.2 Equipment Under Test (EUT) Description

EUT Type:	Charge System
Hardware Version:	20180904 V1.3
Software Version:	MM10_20181023_M3A.0.0
Frequency Bands:	GSM 850: 824.2 MHz ~848.8 MHz GSM 1900: 1850.2 MHz ~1909.8 MHz WCDMA Band II: 1852.4 MHz ~1907.6 MHz WCDMA Band IV: 1712.4 MHz ~1752.6 MHz WCDMA Band V: 826.4 MHz ~846.6 MHz
Modulation Mode:	GPRS: QPSK , EDGE:8PSK WCDMA: QPSK/16QAM
Antenna Type:	FPC Antenna
Antenna Gain:	850MHz:0.8dBi; 1700MHz: 2.6dBi; 1900MHz:1.7dBi

Note:

1. For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



1.3.1 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	20180904 V1.3	MM10_20181023_M3A.0.0

1.3 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance

2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(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/f ²)	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

3. Measurement of RF Output Power

<GSM Conducted Power>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS 1Tx slots	33.37	33.07	33.44	33.50	24.37	24.07	24.44	24.50
GPRS 2Tx slots	32.40	32.08	32.41	32.50	26.40	26.08	26.41	26.50
GPRS 3Tx slots	30.66	30.28	30.89	31.00	26.40	26.02	26.63	26.74
GPRS 4Tx slots	29.84	29.50	30.09	30.50	26.84	26.50	27.09	27.50
EDGE 1 Tx slot	26.80	26.86	26.88	27.00	17.80	17.86	17.88	18.00
EDGE 2 Tx slots	25.87	25.94	26.01	26.50	19.87	19.94	20.01	20.50
EDGE 3 Tx slots	23.92	24.04	24.05	24.50	19.66	19.78	19.79	20.24
EDGE 4 Tx slots	23.41	23.17	23.26	23.50	20.41	20.17	20.26	20.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS 1Tx slots	28.80	28.89	29.02	29.50	19.80	19.89	20.02	20.50
GPRS 2Tx slots	27.93	27.95	28.02	28.50	21.93	21.95	22.02	22.50
GPRS 3Tx slots	26.16	26.11	26.15	26.50	21.90	21.85	21.89	22.24
GPRS 4Tx slots	25.37	25.31	25.34	25.50	22.37	22.31	22.34	22.50
EDGE 1 Tx slot	24.73	24.31	24.15	25.00	15.73	15.31	15.15	16.00
EDGE 2 Tx slots	23.47	23.06	22.94	23.50	17.47	17.06	16.94	17.50
EDGE 3 Tx slots	21.59	21.23	21.11	22.00	17.33	16.97	16.85	17.74
EDGE 4 Tx slots	20.06	19.92	19.76	20.50	17.06	16.92	16.76	17.50



<WCDMA Conducted Power>

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	RMC 12.2Kbps	22.78	22.91	22.62	23.00
3GPP Rel 6	HSDPA Subtest-1	21.97	22.06	21.77	22.50
3GPP Rel 6	HSDPA Subtest-2	21.92	22.08	21.74	22.50
3GPP Rel 6	HSDPA Subtest-3	21.44	21.58	21.29	22.00
3GPP Rel 6	HSDPA Subtest-4	21.41	21.55	22.27	22.50
3GPP Rel 6	HSUPA Subtest-1	19.88	19.88	19.67	20.00
3GPP Rel 6	HSUPA Subtest-2	19.88	19.98	19.68	20.00
3GPP Rel 6	HSUPA Subtest-3	20.87	20.98	20.72	21.00
3GPP Rel 6	HSUPA Subtest-4	19.34	19.38	19.16	19.50
3GPP Rel 6	HSUPA Subtest-5	21.83	21.99	21.70	22.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.22	20.31	20.35	20.50

Band		WCDMA IV			Tune-up Limit (dBm)
TX Channel		1312	1413	1513	
Rx Channel		1537	1638	1738	
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	22.90	22.69	22.97	23.00
3GPP Rel 6	HSDPA Subtest-1	22.00	21.73	22.04	22.50
3GPP Rel 6	HSDPA Subtest-2	21.96	21.72	21.98	22.50
3GPP Rel 6	HSDPA Subtest-3	21.47	21.24	21.52	22.00
3GPP Rel 6	HSDPA Subtest-4	21.47	21.22	21.47	22.00
3GPP Rel 6	HSUPA Subtest-1	19.93	19.65	19.92	20.00
3GPP Rel 6	HSUPA Subtest-2	19.89	19.63	19.90	20.00
3GPP Rel 6	HSUPA Subtest-3	20.89	20.72	20.98	21.00
3GPP Rel 6	HSUPA Subtest-4	19.39	19.11	19.37	20.00
3GPP Rel 6	HSUPA Subtest-5	21.97	21.74	21.98	22.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.19	20.11	20.23	20.50



Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.62	23.49	23.56	24.00
3GPP Rel 6	HSDPA Subtest-1	22.64	22.48	22.57	23.00
3GPP Rel 6	HSDPA Subtest-2	22.60	22.43	22.53	23.00
3GPP Rel 6	HSDPA Subtest-3	22.11	21.98	22.07	22.50
3GPP Rel 6	HSDPA Subtest-4	22.07	21.93	22.05	22.50
3GPP Rel 6	HSUPA Subtest-1	20.60	20.47	20.53	21.00
3GPP Rel 6	HSUPA Subtest-2	20.59	20.47	20.53	21.00
3GPP Rel 6	HSUPA Subtest-3	21.59	21.48	21.52	22.00
3GPP Rel 6	HSUPA Subtest-4	19.97	19.85	19.98	20.00
3GPP Rel 6	HSUPA Subtest-5	22.57	22.48	22.49	23.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.81	20.92	20.78	21.00



4. RF Exposure Evaluation

Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Maximum Tune-up Limit (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power density (mW/cm ²)	Limit for MPE (mW/cm ²)
GSM 850	848.8	30.50	0.8	1348.96	0.269	0.566
GSM 1900	1909.8	28.50	1.7	1047.13	0.208	1
WCDMA Band II	1880.0	23.00	1.7	295.12	0.059	1
WCDMA Band IV	1752.6	23.00	2.6	363.08	0.072	1
WCDMA Band V	826.4	24.00	0.8	302.00	0.060	0.551

Note:

1. MPE calculation method

$$\text{Power Density} = \text{EIRP} / 4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

_____ END OF REPORT _____