FCC RF EXPOSURE EVALUATION REPORT

FCC ID: R6H-HZJGSM6031

Project No.	:	**1806C012**
Equipment	:	**FIXED WIRELESS PHONE**
Model	:	**CF 6031, GW3600**
Applicant	:	**HUIZHOU QIAOXING FAMOUS SCIENCE&TECHNOLOGY CO.LTD**
Address	:	**: QIAOXING SCIENCE INDUSTRIAL PARK, TANGQUAN, HUIZHOU CITY,GAUNGDONG P.R.C**
Exposure category	:	**General population/uncontrolled environment**
EUT Type:	:	**Production Unit (Engineer Sample)**
Device Type	:	**Mobile Device**

1. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.
In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

2. Limits for General Population/Uncontrolled Exposure

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

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

3. Refer Evaluation Method

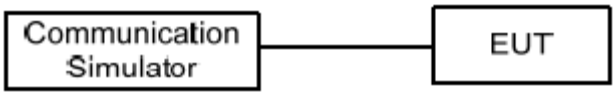
ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
FCC KDB publication 447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.
FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.
FCC CFR 47 part2 2.1093: Radiofrequency radiation exposure evaluation: portable devices

4. Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S=PG/4\pi R^2$
Where:
S=power density
P=power input to antenna
G=power gain of the antenna in the direction of interest relative to an isotropic radiator
R=distance to the center of radiation of the antenna

5. Conducted Power Results

5.1 Test Setup



5.2 Test Equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wideband Radio Communication Tester	R&S	CMW500	152372	Mar. 11, 2019

Remark: all calibration period of equipment list is one year.

5.3 Test Procedure

a) Place the EUT on a bench and set it in transmitting mode.
b) Connect a low loss RF cable from the antenna port to a CMW500 by an Att.
c) EUT Communicate with CMW500 then selects a channel for testing.
d) Add a correction factor to the display CMW500, and then test.
e) Reading burst average power in CMW500.

5.4 Test Results and Manufacturing Tolerance

GSM850					
Modulation		Maximum Burst Average Output Power declared by Manufacturer (dBm)	Duty Cycle	Division Factors	Maximum Frame-Average Output Power declared by Manufacturer (dBm)
GSM(GMSK)	Voice	≤32.00	12.5%	-9.03	≤22.97
GPRS/EGPRS (GMSK)	1 TX Slot	≤32.00	12.5%	-9.03	≤22.97
	2 TX Slots	**≤30.00**	**25.0%**	**-6.02**	**≤23.98**
	3 TX Slots	≤28.00	37.5%	-4.26	≤23.74
	4 TX Slots	≤26.00	50.0%	-3.01	≤22.99
EGPRS(8PSK)	1 TX Slot	≤25.50	12.5%	-9.03	≤16.47
	2 TX Slots	≤25.00	25.0%	-6.02	≤18.98
	3 TX Slots	**≤24.00**	**37.5%**	**-4.26**	**≤19.74**
	4 TX Slots	≤22.00	50.0%	-3.01	≤18.99
GSM1900					
Modulation		Maximum Burst Average Output Power declared by Manufacturer (dBm)	Duty Cycle	Division Factors	Maximum Frame-Average Output Power declared by Manufacturer (dBm)
GSM(GMSK)	Voice	≤29.00	12.5%	-9.03	≤19.97
GPRS/EGPRS (GMSK)	1 TX Slot	≤29.00	12.5%	-9.03	≤19.97
	2 TX Slots	≤27.00	25.0%	-6.02	≤20.98
	3 TX Slots	**≤26.00**	**37.5%**	**-4.26**	**≤21.74**
	4 TX Slots	≤23.50	50.0%	-3.01	≤20.49
EGPRS(8PSK)	1 TX Slot	≤25.00	12.5%	-9.03	≤15.97
	2 TX Slots	**≤25.00**	**25.0%**	**-6.02**	**≤18.98**
	3 TX Slots	≤23.00	37.5%	-4.26	≤18.74
	4 TX Slots	≤21.00	50.0%	-3.01	≤17.99

WCDMA Band V		
Modulation	Maximum Burst Average Output Power declared by Manufacturer (dBm)	Duty Cycle
QPSK	≤22.00	100%
HSDPA	≤21.00	100%
WCDMA Band II		
Modulation	Maximum Burst Average Output Power declared by Manufacturer (dBm)	Duty Cycle
QPSK	≤22.00	100%
HSDPA	≤21.00	100%

Notes:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

6. Antenna Information

Antenna	Manufacturer	Model Name	Antenna Type	Connector	Maximum Peak Gain (dBi)
Antenna 1	RongXin	CF6031	External	SMA	0.95 for GSM850/WCDMA Band V 3.45 dBi for GSM1900/WCDMA Band II

7. Evaluation Results

7.1 Standalone

Antenna1

Mode	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm^2)	MPE Limits (mW/cm^2)
	(dBm)	(mW)					
GSM850	30.00	1000.0000	0.95	1.2445	25.0%	0.0619	0.5493
EDGE850	24.00	251.1886	0.95	1.2445	37.5%	0.0233	0.5493
GSM1900	26.00	398.1072	3.45	2.2131	37.5%	0.0658	1.0000
EDGE1900	25.00	316.2278	3.45	2.2131	25.0%	0.0348	1.0000
WCDMA Band V	22.00	158.4893	0.95	1.2445	100%	0.0393	0.5493
WCDMA Band II	22.00	158.4893	3.45	2.2131	100%	0.0698	1.0000

Remark:

1. *Maximum power including tune-up tolerance;*
2. *EIRP including tune-up tolerance;*
3. *MPE use distance is 20 cm from manufacturer declaration of user manual.*

7.2 Simultaneous Transmission for SAR Exclusion

The sample support one antenna for cellular modular, no need consider simultaneous transmission;

8. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.