MPE Report

Applicant	:	Mobilehelp, LLC
Product Name	:	Cellular Base Station Gen4.0 Plus
Trade Name	:	MobileHelp
Model Number	:	DC-CBS4-03, DC-CBS4-13
Applicable Standard	:	47 CFR § 2.1091
Received Date	:	Aug. 17, 2022
Issue Date	:	Dec. 06, 2022

Issued by

Approved By : Kris Pan

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Taiwan Accreditation Foundation accreditation number: 1330

Note:
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3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Revisions	Revised By
00	Dec. 06, 2022	Initial Issue	Abby Hsu

Contents

1. General Information

1.1 Reference Applicable Standard

Standard	Description	Version
IEEE C95.1	American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York.	1992
47 CFR § 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.	-
47 CFR § 1.1310	Radiofrequency radiation exposure limits.	-

1.2 Testing Location

Site Name: Site Name: Eurofins E&E Wireless Taiwan Co., Ltd.

Site Address: ■ No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan (R.O.C.)

Site Address: □ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan (R.O.C.)

2. Description of Equipment under Test (EUT)

Applicant	Mobilehelp, LLC 5050 Conference Way North, Suite 125, Boca Raton, FL 33431
Manufacturer	Daviscomms (Malaysia) Sdn Bhd Plot 324A, Lorong Perindustrian Bukit Minyak 20, MK 13, Penang Science Park 14100 Simpang Ampat, Pulau Pinang, Malaysia
Product Name	Cellular Base Station Gen4.0 Plus
Trade Name	MobileHelp
Model Number	DC-CBS4-03, DC-CBS4-13
FCC ID	PXTCBS4-13
Frequency Range	LTE Band 2 (BW 1.4, 3, 5, 10, 15, 20 MHz)：1850 - 1910 LTE Band 4 (BW 1.4, 3, 5, 10, 15, 20 MHz)：1710 - 1755 LTE Band 5 (BW 1.4, 3, 5, 10 MHz)：824 - 849 LTE Band 12 (BW 1.4, 3, 5, 10 MHz)：699 - 716 LTE Band 13 (BW 5, 10 MHz)：777 - 787 LTE Band 14 (BW 5, 10 MHz)：788 - 798 LTE Band 66 (BW 1.4, 3, 5, 10, 15, 20 MHz)：1710 - 1780 LTE Band 71 (BW 5, 10, 15, 20 MHz)：663 - 698 Bluetooth：2402 - 2480 MHz RFID：300 - 450 MHz
Supported Modulations	LTE: QPSK / 16QAM
	Bluetooth : GFSK
	RFID: ASK
Device Category	Mobile

Note:

The above information of DUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Antenna Information					
Antenna	Band	Model	Type	Freq.(Min)	Max. Gain (dBi)
ANT 0	LTE Band 2	GACBS2LTE-M01	PCB Antenna	1850 - 1910	2.75
	LTE Band 4			1710 - 1755	3.02
	LTE Band 5			824 - 849	0.82
	LTE Band 12			699 - 716	1.16
	LTE Band 13			777 - 787	1.59
	LTE Band 14			788 - 798	1.59
	LTE Band 66			1710 - 1780	3.02
	LTE Band 71			663 - 698	1.16
	Bluetooth LE	GA123416BL02	Chip Antenna	2402 - 2480	2.28
	RFID	433 MHz Antenna	PCB Antenna	300 - 450	-1.94
ANT 1	LTE Band 2	GACBS2LTE-D01	PCB Antenna	1850 - 1910	2.70
	LTE Band 4			1710 - 1755	2.65
	LTE Band 5			824 - 849	2.14
	LTE Band 12			699 - 716	0.09
	LTE Band 13			777 - 787	0.09
	LTE Band 14			788 - 798	0.09
	LTE Band 66			1710 - 1780	2.65
	LTE Band 71			663 - 698	0.09

3. RF Exposure Limit

For devices that operate at larger distances from persons, where there are minimal RF coupling interactions between a device and the user or nearby persons, RF exposure compliance using maximum permissible exposure (MPE) limits is applied. The limits for MPE is listed as below:

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	($180 / f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	F / 1,500	30
1,500-100,000	-	-	1.0	30
Limits for Occupational / Controlled 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)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1,842 / f	4.89 / f	($900 / f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1,500	-	-	F / 300	6
1,500-100,000	-	-	5	6

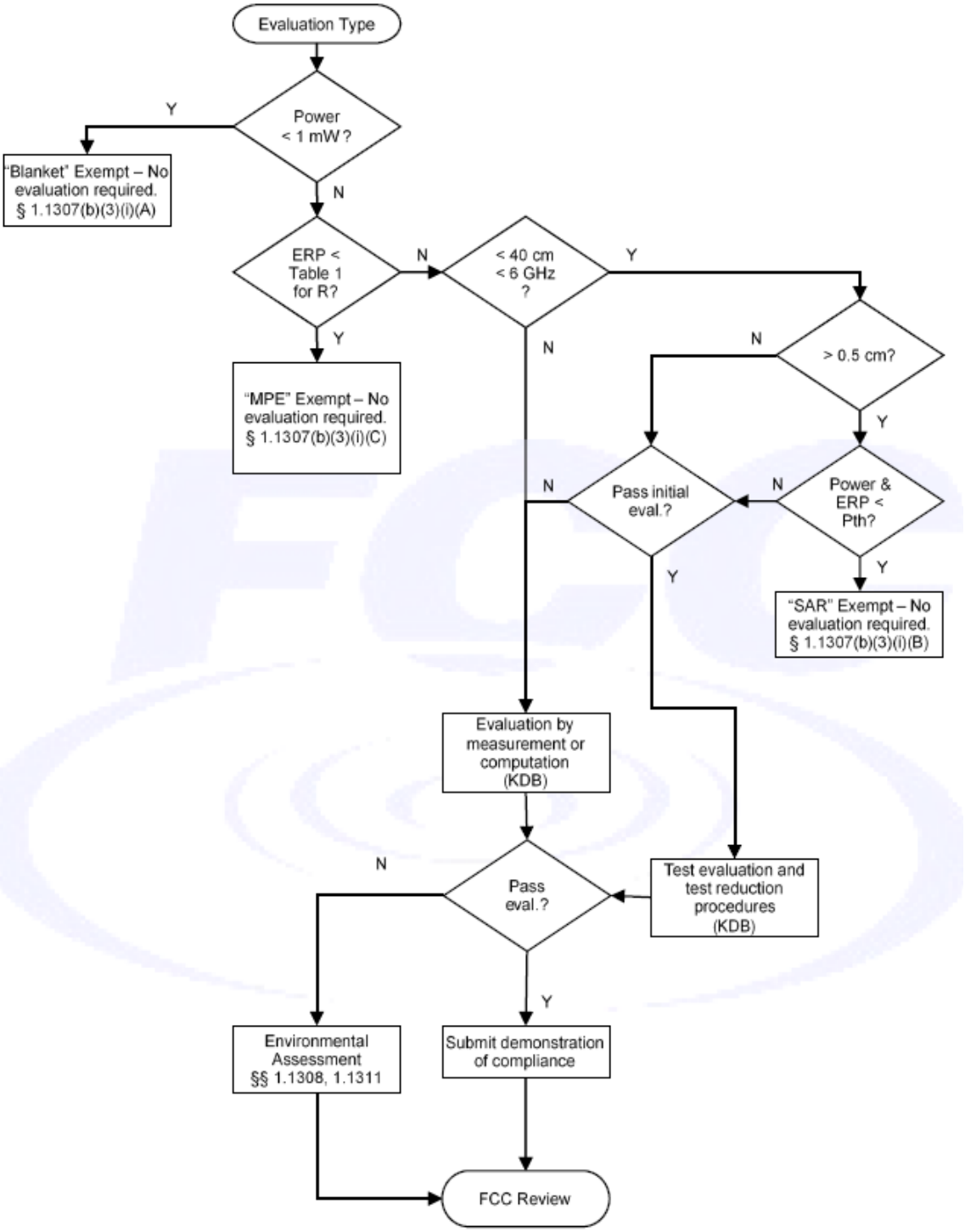
f = frequency in MHz. * = Plane-wave equivalent power density.

4. RF Exposure Assessment

4.1 Exemption Evaluation

Exemption evaluation was performed according to the appendix A and B in KDB447498 D04.

The General Sequence for Determination of Procedure demonstrated in Figure A.1 of KDB447498 D04 was applied.



4.2 Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled “Radiofrequency radiation exposure limits”, generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device 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 cm is normally maintained between the transmitter’s radiating structure(s) and the body of the user or nearby persons.”

Exposure evaluation
$$S_{eirp} = \frac{EIRP}{4\pi d^2} = \frac{PG}{4\pi d^2}\left(W/m^2\right)$$ Where S: is the input power (W); G: is the antenna gain; d : is the distance between antennas and evaluation point (m).

5. Maximum Tune-up Power

Operate Band	Frequency (MHz)	ANT 0	ANT 1
LTE Band 2	1850 - 1910	24.00	24.00
LTE Band 4	1710 - 1755	24.00	24.00
LTE Band 5	824 - 849	24.00	24.00
LTE Band 12	699 - 716	24.00	24.00
LTE Band 13	777 - 787	24.00	24.00
LTE Band 14	788 - 798	24.00	24.00
LTE Band 66	1710 - 1780	24.00	24.00
LTE Band 71	663 - 698	24.00	24.00

Operate Band	Frequency (MHz)	ANT 0
Bluetooth	2402 - 2480	0.00
RFID	300 - 450	-19.00

6. Test Result

Band	Frequency (MHz)	Distance (cm) [R]	Tune-up Power (dBm) [P]	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle (mW) [P]x[G]	Power Density (mW/cm^2) [S]	Standalone Limit (mW/cm^2)	Antenna	Evaluated / Exposure Limit
LTE Band 2	1850 - 1910	20.0	24.00	2.75	1.88	1	472.23	0.0940	1.00	ANT 0	0.0940
LTE Band 4	1710 - 1755	20.0	24.00	3.02	2.00	1	502.38	0.1000	1.00	ANT 0	0.1000
LTE Band 5	824 - 849	20.0	24.00	2.14	1.64	1	411.95	0.0820	0.55	ANT 1	0.1490
LTE Band 12	699 - 716	20.0	24.00	1.16	1.31	1	329.06	0.0655	0.47	ANT 0	0.1393
LTE Band 13	777 - 787	20.0	24.00	1.59	1.44	1	361.71	0.0720	0.52	ANT 0	0.1384
LTE Band 14	788 - 798	20.0	24.00	1.59	1.44	1	361.71	0.0720	0.53	ANT 0	0.1358
LTE Band 66	1710 - 1780	20.0	24.00	3.02	2.00	1	502.38	0.1000	1.00	ANT 0	0.1000
LTE Band 71	663 - 698	20.0	24.00	1.16	1.31	1	329.06	0.0655	0.44	ANT 0	0.1488
Bluetooth	2402 - 2480	20.0	0.00	2.28	1.69	1	1.69	0.0003	1.00	ANT 0	0.0003
RFID	300 - 450	20.0	-19.00	-1.94	0.64	1	0.01	0.0000	0.30	ANT 0	0.0000

Note:

1. The Numeric Gain calculated by 10^(ant. Gain(dBi) /10).
2. Each band max power which perform MPE of any configurations.

Simultaneous Transmitting：

Total MPE = WWAN MPE + Bluetooth MPE + RFID MPE = 0.1003 mW/cm^2 < 1 mW/cm^2

7. Conclusion

The result shows that this device is compliance with the exposure limits in 47 CFR §1.1310.

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