FCC MPE Report

Applicant	:	***Mobilehelp, LLC***
Product Name	:	***Cellular Base Station 5.0 PLUS***
Trade Name	:	***MobileHelp***
Model Number	:	***DC-CBS5-03, DC-CBS5-13***
Applicable Standard	:	***47 CFR § 2.1091***
Received Date	:	***Oct. 05, 2023***
Issued Date	:	***Nov. 09, 2023***

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Taiwan Accreditation Foundation accreditation number: 1330

Note:
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Approved By :

Ted_Hsieh

Testing Laboratory
1330

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Revision History

Rev.	Issued Date	Description	Revised by
00	Nov. 09, 2023	Initial Issue	Nicole Chu

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

Test Facilities

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

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Laboratory Accreditation

Location	TAF	FCC	ISED
No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan	Accreditation No.: 1330	Designation No.: TW0010	Company No.: 7381A CAB ID: TW1330
No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan	Accreditation No.: 1330	Designation No.: TW0034	Company No.: 28922 CAB ID: TW1330

2. Description of Equipment under Test (EUT)

Applicant	Mobilehelp, LLC 5050 Conference Way North, Suite 125, Boca Raton, FL 33431				
Product Name	Cellular Base Station 5.0 PLUS				
Trade Name	MobileHelp				
Model Number	DC-CBS5-03, DC-CBS5-13				
Models different description	DC-CBS5-03 is for AT&T and DC-CBS5-13 is for Verizon				
FCC ID	PXTCBS5-13				
Use Distance	20 cm				
Antenna Information	Antenna	Model No.	Type	Band	Gain (dBi)
	LTE Main Antenna	GACBS2LTE-M01	PCB Antenna	Band 2	2.75
		GACBS2LTE-M01	PCB Antenna	Band 4	3.02
		GACBS2LTE-M01	PCB Antenna	Band 5	0.82
		GACBS2LTE-M01	PCB Antenna	Band 12	1.16
		GACBS2LTE-M01	PCB Antenna	Band 13	1.59
		GACBS2LTE-M01	PCB Antenna	Band 14	1.59
		GACBS2LTE-M01	PCB Antenna	Band 66	3.02
		GACBS2LTE-M01	PCB Antenna	Band 71	1.16
	LTE Diversity Antenna	GACBS2LTE-D01	PCB Antenna	Band 2	2.70
		GACBS2LTE-D01	PCB Antenna	Band 4	2.65
		GACBS2LTE-D01	PCB Antenna	Band 5	2.14
		GACBS2LTE-D01	PCB Antenna	Band 12	0.09
		GACBS2LTE-D01	PCB Antenna	Band 13	0.09
		GACBS2LTE-D01	PCB Antenna	Band 14	0.09
		GACBS2LTE-D01	PCB Antenna	Band 66	2.65
		GACBS2LTE-D01	PCB Antenna	Band 71	0.09
	SRD-433MHz Antenna	433 MHz Antenna	PCB Antenna	---	-1.94

Accessory Information				
Battery 1	Trade Name	Shinergy	Model Number	884169
	3.7 V, 2500 mAh			
Battery 2	Trade Name	ZCF	Model Number	854374
	3.7 V, 3000 mAh			
Power adapter	Trade Name	Keen Ocean	Model Number	S09-012-0050-02000
	I/P: 100-240 Vac, 50/60 Hz, 0.4 A			
	O/P: 5.0 Vdc, 2000 mA			
Neck Pendant	Trade Name	MobileHelp	Model Number	IGP-02
Wrist Button	Trade Name	MobileHelp	Model Number	IGPWS-02W, IPGWS-02B
Mobile Device	Trade Name	MobileHelp	Model Number	DC-MD5-01
Cardle Charger	Trade Name	MobileHelp	Model Number	DC-MD5CC-01
Cardle Charger Adapter	Trade Name	Keen Ocean	Model Number	S13-005-0050-01000
	I/P: 100-240 Vac, 50/60 Hz, 0.18 A max			
	O/P: 5 Vdc, 1000 mA			

Note:

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

2.1 RF Specification

LTE				
Operation Band (EUTRA) :	☒ Band 2	☒ Band 4	☒ Band 5	☒ Band 12
	☒ Band 13	☒ Band 14	☒ Band 66	☒ Band 71
Support type:	☒ Single Carrier	☐ CA-UL	☐ CA-DL	☐ MIMO-UL
	☐ CAT NB1	☐ CAT-M		
Modulation type:	☒ QPSK	☐ 16QAM	☐ 64QAM	
Power Class:	☒ Class 3	☐ Class 5		
RFID				
Operation Frequency	300 - 450			
Modulation	ASK			

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/cm²)	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 / f2)*	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/cm²)	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 / f2)*	6
30-300	61.4	0.163	1.0	6
300-1,500	-	-	F / 300	6
1,500-100,000	-	-	5	6

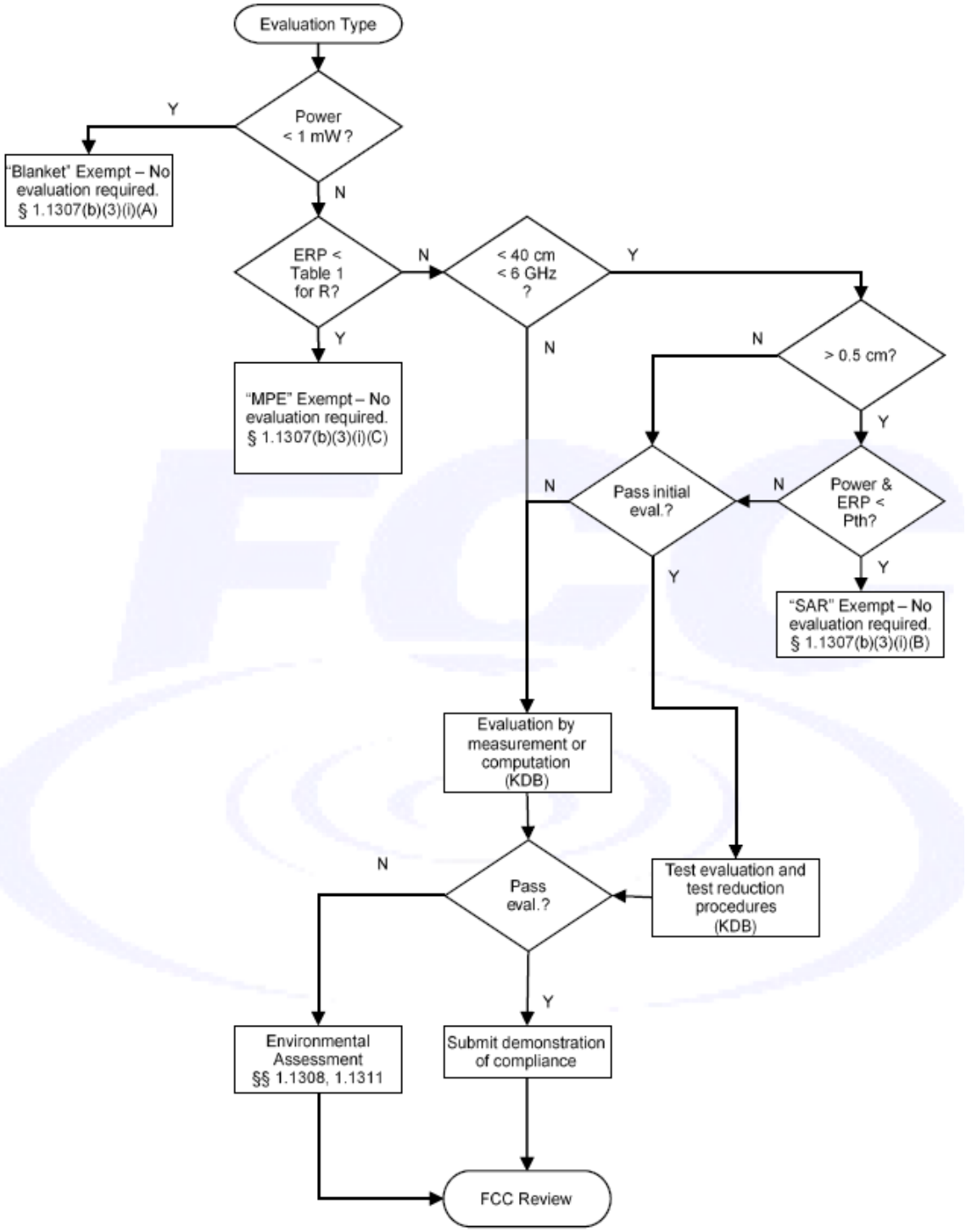
f = frequency in MHz. * = Plane-wave equivalent power density.

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 Transmitting Mode Evaluation

Antenna transmission description
LTE Band: 1Tx(Diversity) RFID: 1Tx(Diversity)

6. Result

Band	Frequency (MHz)	Conducted Power (dBm) [P]	ANT Gain (dBi)	Numeric Gain [G]	Power with Duty cycle (mW) [P]x[G]	Power Density (mW/cm^2) [S]	Standalone Limit (mW/cm^2)	Evaluated / Exposure Limit
LTE Band 2	1850.7 - 1909.3	24.00	2.75	1.88	472.23	0.09	1.00	0.09
LTE Band 4	1710.7 - 1754.3	24.00	3.02	2.00	502.38	0.10	1.00	0.10
LTE Band 5	824.7 - 848.3	24.00	2.14	1.64	411.95	0.08	0.55	0.15
LTE Band 12	699.7 - 715.3	24.00	1.16	1.31	329.06	0.07	0.47	0.15
LTE Band 13	779.5 - 784.5	24.00	1.59	1.44	361.71	0.07	0.52	0.13
LTE Band 14	790.5 - 795.5	24.00	1.59	1.44	361.71	0.07	0.53	0.13
LTE Band 66	1710.7 - 1779.3	24.00	3.02	2.00	502.38	0.10	1.00	0.10
LTE Band 71	665.5 - 695.5	24.00	1.16	1.31	329.06	0.07	0.44	0.16

Note:

1. The calculation uses the minimum distance defined by the regulations of 20 cm, which is more conservative than the actual use distance of the product.

2. The maximum power and gain were applied to evaluate MPE.

Band	Frequency (MHz)	Near-Field Result (dBuA/m)	Power Density (mW/cm^2) [S]	Standalone Limit (W/m^2)
RFID	433.92	76.24	0.00000001116	0.30

Note:

1. EIRP of RFID is converted by the Near-Field radiated test result.

MAX MPE: 0.1 mW/cm^2

Simultaneous Transmitting：

MAX WWAN + RFID

TER = 0.16 = MAX WWAN PD / Standalone Limit = 0.16(0.07 / 0.44) + RFID / Standalone Limit = 0.00 (0.00000001116 / 0.30)

7. Conclusion

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

********** End of Report **********