

**Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

**RF Exposure evaluation****Report Reference No.....: GTS20210908006-1-9****FCC ID. ....: 2AYD5-I21D01**

Compiled by

( position+printed name+signature) : File administrators Peter Xiao

Supervised by

( position+printed name+signature) : Test Engineer Oliver Ou

Approved by

( position+printed name+signature) : Manager Simon Hu

Date of issue .....: Sep.28, 2021

**Representative Laboratory Name.: Shenzhen Global Test Service Co.,Ltd.**

Address .....: No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

**Applicant's name.....: Imin Technology Pte Ltd**

Address .....: 11 Bishan Street 21, #03-05 Bosch Building, Singapore 573943

**Test specification .....**Standard.....: **47CFR §1.1310 Basis and purpose**  
**47CFR §2.1091 Radiofrequency radiation exposure evaluation:**  
**mobile devices****KDB447498 D01 General RF Exposure Guidance v06**

TRF Originator.....: Shenzhen Global Test Service Co.,Ltd.

Master TRF .....: Dated 2014-12

**Shenzhen Global Test Service Co.,Ltd. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Global Test Service Co.,Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Global Test Service Co.,Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

**Test item description .....**

Trade Mark .....: iMin

Manufacturer .....: Imin Technology Pte Ltd

Model/Type reference .....: I21D01

Listed Models .....: N/A

Hardware Version .....: N/A

Software Version.....: N/A

Rating.....: DC 24V by adapter

Result .....: **PASS**

**TEST REPORT**

<b>Test Report No. :</b> GTS20210908006-1-9	Sep.28, 2021
	Date of issue

Equipment under Test : Mobile POS

Model /Type : I21D01

Listed model : N/A

**Applicant** : **Imin Technology Pte Ltd**

Address : 11 Bishan Street 21, #03-05 Bosch Building, Singapore 573943

**Manufacturer** : **Imin Technology Pte Ltd**

Address : 11 Bishan Street 21, #03-05 Bosch Building, Singapore 573943

<b>Test Result:</b>	<b>PASS</b>
---------------------	-------------

The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

# Contents

- 1. SUMMARY ..... 4**
  - 1.1 EUT CONFIGURATION..... 4
  - 1.2 PRODUCT DESCRIPTION ..... 4
- 2. TEST ENVIRONMENT ..... 6**
  - 2.1 ADDRESS OF THE TEST LABORATORY ..... 6
  - 2.2 TEST FACILITY ..... 6
  - 2.3 ENVIRONMENTAL CONDITIONS ..... 6
  - 2.4 STATEMENT OF THE MEASUREMENT UNCERTAINTY ..... 6
- 3. METHOD OF MEASUREMENT ..... 7**
  - 3.1 APPLICABLE STANDARD..... 7
  - 3.2 REQUIREMENT ..... 7
  - 3.3 LIMIT ..... 7
  - 3.4 MPE CALCULATION METHOD ..... 8
  - 3.5 ANTENNA INFORMATION ..... 8
- 4. CONDUCTED POWER RESULTS..... 9**
- 5. MANUFACTURING TOLERANCE ..... 11**
- 6. MEASUREMENT RESULTS ..... 14**
  - 6.1 STANDALONE MPE EVALUATION..... 14
  - 6.2 SIMULTANEOUS TRANSMISSION MPE ..... 15
- 7. CONCLUSION ..... 16**

## 1. SUMMARY

### 1.1 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

● /	Length (m) :	/
	Shield :	/
	Detachable :	/

### 1.2 Product Description

Product Name	Mobile POS
Trade Mark	N/A
Model/Type reference	I21D01
List Models	N/A
Model Declaration	N/A
Power supply:	DC 24V by adapter
Sample ID	GTS20210908006-1-1# & GTS20210908006-1-2#
<b>Bluetooth</b>	
Operation frequency	2402-2480MHz
Channel Number	79 channels for Bluetooth (DSS) 40 channels for Bluetooth (DTS)
Channel Spacing	1MHz for Bluetooth (DSS) 2MHz for Bluetooth (DTS)
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8DPSK for Bluetooth (DSS) GFSK for Bluetooth (DTS)
<b>WIFI(2.4G Band)</b>	
Frequency Range	2412MHz ~ 2462MHz
Channel Spacing	5MHz
Channel Number	11 Channel for 20MHz bandwidth(2412~2462MHz) 7 Channel for 40MHz bandwidth(2422~2452MHz)
Modulation Type	802.11b: DSSS; 802.11g/n: OFDM
<b>WIFI(5.2G Band)</b>	
Frequency Range	5180MHz ~ 5240MHz
Channel Number	4 channels for 20MHz bandwidth(5180-5240MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	802.11a/n/ac: OFDM
<b>WIFI (5.8G Band)</b>	
Frequency Range	5745MHz ~ 5825MHz
Channel Number	5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	802.11a/n/ac: OFDM
Antenna Description	Internal Antenna, 0dBi(Max.) for 2.4G Band and 0dBi(Max.) for 5G Band
<b>2G</b>	
Support Band	GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900
Release Version	R99
GPRS Class	Class 12
EGPRS Class	Class 12
GSM/EDGE/GPRS Power Class	GSM850:Power Class 4/ PCS1900:Power Class 1
GPRS/EDGE Multislot Class	GPRS/EDGE: Multi-slot Class 12

Type Of Modulation	GMSK for GSM/GPRS; GMSK/8PSK for EGPRS
Antenna Description	Internal Antenna; 0dBi (max.) For GSM 850; 0dBi (max.) For DCS 1900;
<b>3G</b>	
UMTS Operation Frequency Band	UMTS FDD Band 2(1850 MHz -1910MHz) UMTS FDD Band 5(824 MHz -849MHz)
WCDMA Release Version	R7
HSDPA Release Version	Release 5
HSUPA Release Version	Release 6
HSPA+ Release Version	Release 7
Modulation Type	QPSK for UMTS
Antenna Description	Internal Antenna; 0dBi (max.) For WCDMA Band 2; 0dBi (max.) For WCDMA Band 5;
<b>LTE</b>	
LTE Operation Frequency Band	E-UTRA Band 5(824 MHz -849MHz) E-UTRA Band 7(2500 MHz -2570MHz) E-UTRA Band 41(2496 MHz -2690MHz)
LTE Release Version	R9
Type Of Modulation	QPSK/16QAM
Antenna Description	Internal Antenna; 0dBi (max.) For LTE Band 5; 0dBi (max.) For LTE Band 7; 0dBi (max.) For LTE Band 41;
<b>RFID(13.56MHz) (Optional)</b>	
Frequency Range	13.56MHz
Channel Number	1
Modulation Type	ASK
Antenna Description	Internal Antenna, 0dBi (Max.)
GPS(RX)	Support

## 2. TEST ENVIRONMENT

### 2.1 Address of the test laboratory

#### Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

### 2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L8169)

Shenzhen Global Test Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2019 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA (Certificate No. 4758.01)

Shenzhen Global Test Service Co., Ltd. has been assessed by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4758.01.

Industry Canada Registration Number. is 24189.

FCC Designation Number is CN1234.

FCC Registered Test Site Number is165725.

### 2.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

### 2.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3. METHOD OF MEASUREMENT

#### 3.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this 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.

According to §1.1310 and §2.1091 RF exposure is calculated.

KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

#### 3.2 Requirement

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 KDB447498 D01 General RF Exposure Guidance v06 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  $\leq 1.0$ . 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.

#### 3.3 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f <sup>2</sup> )*	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

### 3.4 MPE Calculation Method

Predication of MPE limit at a given distance  
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

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

As declared by the Applicant, the EUT transmits with the maximum source-based Duty Cycle of 100%-see the User manual, and the EUT is a wireless device used in a mobile application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum mobile separation distance,  $r = 20\text{cm}$ , as well as the gain of the used antenna is 0dBi for BT&WLAN, and the power drift from Turn-up Procedure provide by manufacturer as following states, the RF power density can be obtained.

### 3.5 Antenna Information

I21D01 can only use antennas certificated as follows provided by manufacturer;

Internal Identification	Antenna Identification in Internal photos	Antenna type and antenna number	Operate frequency band	Maximum antenna gain
Antenna 0	BT&WLAN&GPS(RX) ANT 0	Internal antenna	2.4 – 2.5 GHz 5.0 – 6.0 GHz	0dBi(Max.) for 2.4G band 0dBi(Max.) for 5G band
Antenna 1	GSM&WCDMA&LTE ANT 1	Internal antenna	850 – 1000 MHz 1.0 – 3.0 GHz	0dBi(Max.)



## 4. Conducted Power Results

Antenna 0:

### Bluetooth

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	4.29
	39	2441	4.13
	78	2480	4.30
$\pi/4$ DQPSK	0	2402	5.64
	39	2441	5.63
	78	2480	5.71
8DPSK	0	2402	4.78
	39	2441	4.82
	78	2480	4.01
GFSK(BT LE)	0	2402	1.78
	19	2440	1.93
	39	2480	0.73

### 2.4G WLAN

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
802.11b	01	2412	16.61
	06	2437	16.36
	11	2462	16.35
802.11g	01	2412	19.33
	06	2437	19.20
	11	2462	19.34
802.11n(HT20)	01	2412	19.29
	06	2437	19.42
	11	2462	19.27
802.11n(HT40)	03	2422	18.18
	06	2437	16.61
	09	2452	16.26

### 5.2G WLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	36	5180	10.73
	40	5200	10.41
	48	5240	10.12
802.11n20	36	5180	10.63
	40	5200	10.72
	48	5240	10.75
802.11ac20	36	5180	10.31
	40	5200	10.14
	48	5240	10.50
802.11n40	38	5190	10.07
	46	5230	10.98
802.11ac40	38	5190	10.33
	46	5230	10.61
802.11ac80	42	5210	10.25

**5.8GWLAN**

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	149	5745	10.39
	157	5785	10.80
	165	5825	10.71
802.11n20	149	5745	10.78
	157	5785	10.95
	165	5825	10.86
802.11ac20	149	5745	10.83
	157	5785	10.36
	165	5825	10.01
802.11n40	151	5755	10.45
	159	5795	10.96
802.11ac40	151	5755	10.14
	159	5795	10.51
802.11ac80	155	5775	10.14

**Antenna 1:**

**<GSM Max Conducted Power>**

Test Mode	Channel	Frequency (MHz)	Max Conducted Power (dBm)
GSM 900	LCH	824.2	32.63
	MCH	836.6	32.61
	HCH	848.8	32.58
GSM 1800	LCH	1850.2	29.58
	MCH	1880.0	29.61
	HCH	1909.8	29.62

**<WCDMA Max Conducted Power>**

Test Mode	Channel	Frequency (MHz)	Max Conducted Power (dBm)	
WCDMA	Band 2	LCH	1852.4	23.63
		MCH	1880.0	23.53
		HCH	1907.6	23.61
WCDMA	Band 5	LCH	826.4	23.54
		MCH	836.6	23.61
		HCH	846.6	23.53

**<LTE Max Conducted Power>**

Test Mode	Channel	Frequency (MHz)	Max Conducted Power (dBm)	
	Band 5	LCH	824.7	23.89
		MCH	836.5	23.90
		HCH	848.3	23.93
	Band 7	LCH	2502.5	21.84
		MCH	2535.0	21.99
		HCH	2567.5	21.68
	Band 41	LCH	2498.5	21.14
		MCH	2593.0	20.63
		HCH	2687.5	19.79

## 5. Manufacturing Tolerance

Antenna 0:

### Bluetooth

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi$ /4DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	5.0	5.0	5.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
GFSK BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

### 2.4GWLAN

IEEE 802.11b (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	16.0	16.0	16.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	19.0	19.0	19.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	19.0	19.0	19.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	18.0	16.0	16.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

**5.2GWLAN**

IEEE 802.11a (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n VHT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	10.0	10.0	/
Tolerance ±(dB)	1.0	1.0	/
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	10.0	10.0	/
Tolerance ±(dB)	1.0	1.0	/
IEEE 802.11ac VHT80 (Average)			
Channel	Channel 42	/	/
Target (dBm)	10.0	/	/
Tolerance ±(dB)	1.0	/	/

**5.8GWLAN**

IEEE 802.11a (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	10.0	10.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n VHT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	10.0	10.0	/
Tolerance ±(dB)	1.0	1.0	/
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	10.0	10.0	/
Tolerance ±(dB)	1.0	1.0	/
IEEE 802.11ac VHT80 (Average)			
Channel	Channel 155	/	/
Target (dBm)	10.0	/	/
Tolerance ±(dB)	1.0	/	/

**Antenna 1:****GSM**

Mode	Target Power
GSM 900	$32 \pm 1.0$ dBm
GSM 1800	$29 \pm 1.0$ dBm

**WCDMA**

Mode	WCDMA Band II	WCDMA Band V
RMC	$23.0 \pm 1$ dBm	$23.0 \pm 1$ dBm

**LTE**

Mode	Target Power
LTE BAND 5	$23 \pm 1.0$ dBm
LTE BAND 7	$23 \pm 1.0$ dBm
LTE BAND 41	$21 \pm 1.0$ dBm

## 6. Measurement Results

### 6.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance,  $r = 20\text{cm}$ , as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

#### Antenna 0:

##### BT

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
GFSK	5.00	3.1623	0	1.0000	0.0006	1.0000
$\pi/4$ DQPSK	6.00	3.9811	0	1.0000	0.0008	1.0000
8DPSK	5.00	3.1623	0	1.0000	0.0006	1.0000
GFSK(BT LE)	2.00	1.5849	0	1.0000	0.0003	1.0000

##### 2.4G WLAN

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11b	17.00	50.1187	0	1.0000	0.0100	1.0000
802.11g	20.00	100.0000	0	1.0000	0.0199	1.0000
802.11n(HT20)	20.00	100.0000	0	1.0000	0.0199	1.0000
802.11n(HT40)	19.00	79.4328	0	1.0000	0.0158	1.0000

##### 5.2G WLAN

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11a	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11n20	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac20	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11n40	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac40	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac80	11.00	12.5893	0	1.0000	0.0025	1.0000

##### 5.8G WLAN

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11a	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11n20	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac20	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11n40	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac40	11.00	12.5893	0	1.0000	0.0025	1.0000
802.11ac80	11.00	12.5893	0	1.0000	0.0025	1.0000

**Antenna 1:**

**GSM&WCDMA& LTE**

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
GSM 900	33.00	1995.2623	0	1.0000	0.3969	0.5493
GSM 1800	30.00	1000.0000	0	1.0000	0.1989	1.0000
WCDMA Band II	24.00	251.1886	0	1.0000	0.0500	1.0000
WCDMA Band V	24.00	251.1886	0	1.0000	0.0500	0.5493
LTE Band 5	24.00	251.1886	0	1.0000	0.0500	0.5493
LTE Band 7	24.00	251.1886	0	1.0000	0.0500	1.0000
LTE Band 41	22.00	158.4893	0	1.0000	0.0315	1.0000

*Remark:*

1. Output power including tune-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer;

**6.2 Simultaneous Transmission MPE**

The sample support one Bluetooth & WLAN modular, one GSM&LTE modular, and one Bluetooth & WLAN antenna, and one GSM&LTE antenna, Need consider simultaneous transmission ;

According to KDB447498 D01 General RF Exposure Guidance v06 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\Sigma$  of MPE ratios  $\leq$  1.0

**6.2.1 Summary simultaneous transmission results**

Maximum Simultaneous transmission MPE Ratios for **2.4GWLAN, GSM** .

Maximum MPE ratio 2.4GWLAN	Maximum MPE ratio GSM	$\Sigma$ MPE ratios	Limit	Results
0.0199	0.7226	0.7425	1.0	PASS

## **7. Conclusion**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB447498 D01 General RF Exposure Guidance v06, No SAR is required.

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