RF Exposure Report

Report No.:	SA180522E31
FCC ID:	PBLISL500001
Test Model:	IDG500
Series Model:	IDG400, IOP500, IOP560, IOG500, IOG400
Received Date:	May 22, 2018
Test Date:	June 29, 2018
Issued Date:	July 13, 2018
Applicant:	AMIT Wireless Inc.
Address:	No.28, Lane 31, Sec. 1, Huandong Rd., Sinshih District., Tainan City 74146, Taiwan (R.O.C.)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA180522E31	Original release.	July 13, 2018

1 Certificate of Conformity

Product: IIoT 4G

Brand: AMIT

Test Model: IDG500

Series Model: IDG400, IOP500, IOP560, IOG500, IOG400

Sample Status: ENGINEERING SAMPLE

Applicant: AMIT Wireless Inc.

Test Date: June 29, 2018

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.
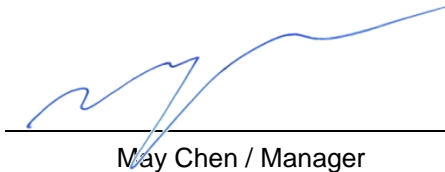
Prepared by : _____ , **Date:** _____July 13, 2018_____

Cindy Hsin / Specialist

Approved by : _____ , **Date:** _____July 13, 2018_____

May Chen / Manager

2   RF Exposure

2.1   Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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

2.2   MPE Calculation Formula

Pd = (Pout*G) / (4*pi*r^2)

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3   Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4   Antenna Gain

Antenna No.	Frequency range (GHz)	Ant. Net Gain (dBi)	Antenna Type	Antenna Connector
1	2.4 ~ 2.4835	4.04	Dipole	R-SMA
2	2.4 ~ 2.4835	2.38	Dipole	R-SMA

2.5 Calculation Result

For WLAN

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN 2.4GHz	2437	99.312	4.04	20	0.05009	1

For WWAN Worst case (FCC ID: XMR201605EC25A)

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA B5	826.4	205	1.85	20	0.06244	0.5509*

Note: *Limit of Power Density = F/1500

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WCDMA =0.05009 / 1+ 0.06244 / 0.5509= 0.16342

Therefore the maximum calculations of above situations are less than the "1" limit.

Appendix

3G/LTE module
MPE Evaluation for FCC ID: XMR201605EC25A Radio Module with distance 20cm

Mode	Equipment Category	Transmitter Range (MHz)		Maximum		Antenna Gain (dBi)	Distance to Human Body (cm)	Power Density (mW/cm^2)		Ratio
		Start	Stop	(dBm)	(W)			Vaule	Limit	
UMTS	Band 2	1852.4	1907.6	23.201	0.209	2.22	20	0.06932	1	0.06932
	Band 4	1712.4	1752.6	22.601	0.182	3.05	20	0.07308	1	0.07308
	Band 5	826.4	846.6	23.117	0.205	1.85	20	0.06244	0.5509	0.11334
LTE	Band 2	1850.7	1909.3	23.874	0.244	2.22	20	0.08093	1	0.08093
	Band 4	1710.7	1754.3	23.802	0.24	3.05	20	0.09637	1	0.09637
	Band 12	699.7	715.3	23.838	0.242	-1.62	20	0.03315	0.4664	0.07108

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