RF Exposure Report

Report No.: SA161031E04

FCC ID: 2AHKM-CODA4782

Test Model: CODA-4782

Series Model: CODA-4682, CODA-4580, CODA-4582

Received Date: Oct. 31, 2016

Test Date: Nov. 22, 2016

Issued Date: Jan. 13, 2017

Applicant: HitronTechnologies

Address: NO. 1-8, LISING 1ST RD., HSINCHU SCIENCE PARK, HSINCHU,300, TAIWAN.

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.

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Release Control Record

Issue No.	Description	Date Issued
SA161031E04	Original release.	Jan. 13, 2017

1   Certificate of Conformity

Product:	DOCSIS 3.1 wifi Gateway
Brand:	Hitron
Test Model:	CODA-4782
Sample Status:	R&D SAMPLE
Applicant:	HitronTechnologies
Test Date:	Nov. 22, 2016
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:** _____Jan. 13, 2017_____

Claire Kuan / Specialist

Approved by : _____ ,   **Date:** _____Jan. 13, 2017_____

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				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

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 21cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Transmitter Circuit	Brand	Model	Antenna Gain(dBi)	Frequency range	Antenna Type	Connecter Type	Cable Length (mm)
Chain 0	AirGain	M5X05C	4.94	5.15~5.85GHz	Dipole	i-pex(MHF)	30
Chain 1	AirGain	M5X05C	6.1	5.15~5.85GHz	Dipole	i-pex(MHF)	105
Chain 2	AirGain	M5X05C	4.51	5.15~5.85GHz	Dipole	i-pex(MHF)	110
Chain 3	AirGain	M5X05C	4.83	5.15~5.85GHz	Dipole	i-pex(MHF)	55

2.5 Calculation Result Of Maximum Conducted Power

For 15.247 and 15.407 (U-NII-1 band and U-NII-3 band) data was refer from the original test report (Report No.: T160919S01-RP1-2)

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	328.095	4.28	21	0.1586	1
5180-5240	229.615	11.14	21	0.5387	1
5260-5320	233.122	11.14	21	0.54693	1
5500-5720	268.839	11.14	21	0.19763	1
5745-5825	278.612	11.14	21	0.6536	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 4.28$ dBi

5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.14$ dBi.

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 + WLAN 5GHz = 0.1586 / 1 + 0.6536 / 1 = 0.8122

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

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