RF Exposure Report

Report No.:	SA170503E08
FCC ID:	2AHKM-CODA4589
Test Model:	CODA-4589
Received Date:	May 03, 2017
Test Date:	June 23, 2017
Issued Date:	June 23, 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
SA170503E08	Original release.	June 23, 2017

1 Certificate of Conformity

Product:	DOCSIS 3.1 WiFi Emta
Brand:	Hitron
Test Model:	CODA-4589
Sample Status:	ENGINEERING SAMPLE
Applicant:	HitronTechnologies
Test Date:	June 23, 2017
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 : Cindy Hsin , **Date:** June 23, 2017

Cindy Hsin / Specialist

Approved by : , **Date:** June 23, 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				
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 40cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna Set.	Transmitter Circuit	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type	Cable Length
A1	Chain (2)	AirGain	M2420SL0	3.69	2.4~2.4835	Dipole	i-pex(MHF)	50
A2	Chain (0)	AirGain	M2410CM	3.23	2.4~2.4835	Dipole	i-pex(MHF)	115
A3	Chain (1)	AirGain	M2420SL0	4.28	2.4~2.4835	Dipole	i-pex(MHF)	85
A4	Chain (2)	AirGain	M5X05C	4.51	5.15~5.85	Dipole	i-pex(MHF)	120
A5	Chain (1)	AirGain	M5X05C	6.1	5.15~5.85	Dipole	i-pex(MHF)	110
A6	Chain (0)	AirGain	M5X05C	4.94	5.15~5.85	Dipole	i-pex(MHF)	40
A7	Chain (3)	AirGain	M5X05C	4.83	5.15~5.85	Dipole	i-pex(MHF)	60

2.5 Calculation Result of Maximum Conducted Power

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	628.703	8.52	40	0.22239	1
5180-5240	548.147	11.14	40	0.35446	1
5745-5825	965.11	11.14	40	0.62409	1

NOTE:
2.4GHz: $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 8.52dBi$
5.GHz:
UNII-1 & UNII-3 Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.14dBi$

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 = 0.22239/1 + 0.62409/1 = 0.84648

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

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