IEEE C95.1 2005 KDB 447498 D01 V06 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Smart Home Gateway



Issued to

Sercomm Corporation 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) http://www.ccsrf.com service@ccsrf.com Issued Date: July 27, 2016





Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2016/07/27	Initial Issue	ALL	Angel Cheng

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1. LIMIT

According to §15.247(i), 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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

2. EUT SPECIFICATION

EUT	Smart Home Gateway						
	Model Name	Trade Mark					
	NA301-ZBxxxxxxx (the 1st x should be "blank" or "-"; the rest x could be 0 to 9, A to Z, "blank" or "-" for marketing purpose	SERCOM					
Model Number /	G150-ZBxxxxx (the 1st x should be "blank" or "-"; the rest x could be 0 to 9, A to Z, "blank" or "-" for marketing purpose	MiOS					
naue Name	VeraEdge-ZBxxxxx (the 1st x should be "blank" or "-"; the rest x could be 0 to 9, A to Z, "blank" or "-" for marketing purpose	Verter Home Control					
	F2-ZB	ozom ©connect					
Model Discrepancy	All the specification and layout are model numbers for marketing purp	identical except they come with different oses.					
RF Module	MEDIATEK Model	: MT7620A					
Frequency band (Operating)	 802.11b/g/n HT20: 2.412GHz 802.11n HT40: 2.422GHz ~ 2 Zigbee: 2405~2480MHz 	~ 2.462GHz 452GHz					
Device category	 Portable (<20cm separation) Mobile (>20cm separation) Others 						
Exposure classification	 — Occupational/Controlled exposure (S = 5mW/cm²) M General Population/Uncontrolled exposure (S=1mW/cm²) 						
Antenna Specification	PIFA Antenna Zigbee: Antenna WLAN: Directional gain = 3.46 dBi +10log (Gain:4.92 dBi (Numeric gain: 3.10) 2) = 6.47 dBi (Numeric gain 4.44)					

Rev.00

ECERF Compliance Certification Services Inc. FCC ID: P27NA301ZB

Report No.: T160616D10-MF

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Maximum Average output power	IEEE 802.11b Mode: IEEE 802.11g Mode: IEEE 802.11n HT 20 Mode: IEEE 802.11n HT 40 Mode: Zigbee:	19.40 dBm (87.096 mW) 21.88 dBm (154.170 mW) 21.48 dBm (140.605 mW) 16.23 dBm (41.976 mW) 16.01 dBm (39.902 mW)	
Maximum Tune up Power	IEEE 802.11b Mode: IEEE 802.11g Mode: IEEE 802.11n HT 20 Mode: IEEE 802.11n HT 40 Mode: Zigbee:	21.00 dBm (125.893 mW) 23.00 dBm (199.526 mW) 23.00 dBm (199.526 mW) 18.00 dBm (63.096 mW) 18.00 dBm (63.096 mW)	
Evaluation applied	MPE Evaluation* SAR Evaluation		

3. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$ Where E = Field strength in Volts / meter P = Power in Watts G = Numeric antenna gain d = Distance in meters S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377d^2}$$

Changing to units of mW and cm, using:

$$P(mW) = P(W) / 1000$$
 and
 $d(cm) = d(m) / 100$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$
 Equation 1

Where d = Distance in cm P = Power in mW G = Numeric antenna gain S = Power density in mW / cm^2

4. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

 $S = 0.000199 \times P \times G$

Where P = Power in mW

G = *Numeric* antenna gain

 $S = Power density in mW / cm^{2}$

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	125.893	4.44	20	0.1112	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	199.526	4.44	20	0.1763	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	199.526	4.44	20	0.1763	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	63.096	4.44	20	0.0557	1

Zigbee:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
Mid	2440	63.096	3.1	20	0.0389	1