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IEEE C95.1
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

Waterproof HD IP Camera

Model: OC835-ADT

Trade Name: Sercomm

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
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Testing Laboratory
1309

Revision History

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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	Waterproof HD IP Camera		
Model	OC835-ADT		
RF Module	REALTEK	Model:	RTL8192EU
Model Discrepancy	N/A		
Frequency band (Operating)	☒ 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz ☒ 802.11 n HT40: 2.422GHz ~ 2.452GHz ☐ Others		
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others		
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)		
Antenna Specification	1. PIFA Antenna / P/N: 617210HS 2.4GHz: Antenna Gain : 2.14 dBi (Numeric gain 1.64) 2. PIFA Antenna / P/N: 617210HR 2.4GHz: Antenna Gain : 2.69 dBi (Numeric gain 1.86) 3. PIFA Antenna / P/N: 617210K8 2.4GHz: Antenna Gain : 2.18 dBi (Numeric gain 1.65)		
Maximum Average output power	IEEE 802.11b Mode: 18.31 dBm (67.764 mW) IEEE 802.11g Mode: 16.34 dBm (43.053 mW) IEEE 802.11n HT 20 Mode: 18.24 dBm (66.681 mW) IEEE 802.11n HT 40 Mode: 18.26 dBm (66.988 mW)		
Maximum Tune up Power	IEEE 802.11b Mode: 18.50 dBm (70.795 mW) IEEE 802.11g Mode: 18.00 dBm (63.096 mW) IEEE 802.11n HT 20 Mode: 18.50 dBm (70.795 mW) IEEE 802.11n HT 40 Mode: 18.50 dBm (70.795 mW)		
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A		

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:

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

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	70.795	1.86	20	0.0262	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
11	2462	63.096	1.86	20	0.0234	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	70.795	1.86	20	0.0262	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
9	2452	70.795	1.86	20	0.0262	1