MPE Calculation

Product:	Smart Home Camera
Model no.:	CS-C6CN, CS-C6CN (4MP, W2), CS-C6CN-R100-8B4WF
FCC ID:	2APV2-CSC6CN8B4
Rating:	5VDC, 2A by adapter
RF Transmission Frequency:	For 2.4 Wi-Fi: 2412~2462 MHz
Modulation:	DSSS, OFDM
Antenna Type:	Internal Antenna
Max Antenna Gain:	2.73dBi for Ant1 2.5dBi for Ant2(PCB Antenna)
Description of the EUT:	The Equipment Under Test (EUT) is Smart Home Camera supports 2.4G Wi-Fi.

According to subpart 15.247(i)and subpart §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1,500	/	/	f/1500	30
1,500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:
Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

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Calculated Data:

For 2.4G Wi-Fi

Maximum peak output power at antenna input terminal (dBm):	15.77
Maximum peak output power at antenna input terminal (mW):	37.76
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	2.73
Maximum Antenna Gain (numeric):	1.87
The worst case is power density at predication frequency at 20 cm (mW/cm2):	0.0075
MPE limit for general population exposure at prediction frequency (mW/cm2):	1.0

The max power density 0.0075 (mW/cm^2) < 1 (mW/cm^2)

The result compliant Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091).

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