



APPENDIX I RADIO FREQUENCY EXPOSURE

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.

EUT Specification

EUT	Full HD Golf Camcorder		
Model	HD-13EW, SS-6		
RF Module	Fortune Tech System Ltd.	Model:	AF-N-31GL
Model Discrepancy	Difference of the two model numbers (list on this report) is just for marketing purpose only.		
Frequency band (Operating)	<input checked="" type="checkbox"/> 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz <input type="checkbox"/> Others		
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others		
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)		
Antenna Specification	MAGIC / MW2412 2.4GHz: Antenna Gain : 2.82 dBi (Numeric gain 1.91)		
Maximum Average output power	IEEE 802.11b Mode: 13.98 dBm (25.003 mW) IEEE 802.11g Mode: 12.52 dBm (17.865 mW) IEEE 802.11n HT 20 Mode: 8.62 dBm (7.278 mW)		
Maximum Tune up Power	IEEE 802.11b Mode: 15.50 dBm (35.481 mW) IEEE 802.11g Mode: 14.50 dBm (28.184 mW) IEEE 802.11n HT 20 Mode: 10.50 dBm (11.220 mW)		
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A		



Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2015/3/9	Initial Issue	ALL	Becca Chen



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:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

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

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

**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 / cm²

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
11	2462	35.481	1.91	20	0.0135	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	28.184	1.91	20	0.0107	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
11	2462	11.220	1.91	20	0.0043	1