

RF EXPOSURE INFORMATION

1. MPE Limits

The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1

According to FCC §1.1310 : the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency(RF) radiation as specified in §1.1307(b).

Table 1. Limits for Maximum

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits For Occupational / Control Exposures (f= frequency)				
30-300	61.4	0.163	1.0	6
300-1500	...	...	...	6
1500-100,000	...	...	...	6
(B) Limits For General Population / Uncontrolled Exposure (f=frequency)				
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

EUT information

Type of equipment : Wireless Microphone / DSS-Part15 Spread Spectrum Transmitter

Model Name : CMR24WAT

FCC ID : ROYCMR24WATR

Frequency Band : 2400 ~ 2483.5 MHz

Method/ System : Frequency Hopping System

Procedure

The procedure used to determine the RF power density was based upon a calculation for determining compliance with the MPE requirements.

The power generated by each transmitter used in this was initially measured by a power and the powers were recorded . Through use of the Friis transmission formula and knowledge of the maximum antenna gain to be used, the power density level is calculated at a distance of 20 cm.

The antenna gains of each antenna to be used with the WLAN and RFID transmitters were used to calculate the MPE in all relevant bands of operation.

Friis Transmission Formula

Friis transmission formula : $P_d = (P_{out} * G) / (4\pi r^2)$

Where,

P_d = Power Density (mW/cm²) π = 3.1416

P_{out} = out power to antenna(mW) r = distance between observation point and center of the radiator(cm)

Calculated MPE

The highest RF powered measured in each band was used to determine the maximum theoretical antenna gain in that band. The power density limit for General Population/Uncontrolled Exposure at each frequency is determined based on the information in Table 1.

Table 2. Calculated MPE Data

Frequency	2441.65 MHz
Limit	1 mW/cm ²
Distance (cm), R	20 cm
Power (dBm), P	21.45 dBm (139.6 mW)
Tx Ant Gain(dBi), G	1.83 (1.52 numeric)
Power Density (mW/cm²)	0.0422
Minimum Distance	4.1 cm