

Product name: DGC1384 UHD
 Manufacturer: SAGEMCOM BROADBAND SAS
 FCC Id: VW3DGC1384

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2} \quad (\text{formula 1}) \qquad PG = \frac{(Ed)^2}{30} \quad (\text{formula 2})$$

where: S = power density
 P = power input to the antenna
 G = power gain of the antenna in the direction of interest relative to an isotropic radiator
 R = distance to the center of radiation of the antenna
 PG = Effective Isotropic Radiated Power (EIRP)
 E = Electric field measured at distance R distance
 d = measurement distance

Transmitter n°1 (Wi-Fi: 2400-2483,5 MHz)

Maximum peak output power at the antenna terminal: 29.64 (dBm)
 Maximum peak output power at the antenna terminal: 920.4495718 (mW)
 Antenna gain(typical): 5.9 (dBi)
 Maximum antenna gain: 3.89045145 (numeric)
 Prediction distance: 30 (cm)
 Prediction frequency: 2412 (MHz)
 MPE limit for uncontrolled exposure at prediction frequency (limit table FCC §1.1310): 1 (mW/cm²)
 Power density at prediction frequency: 0.316627 (mW/cm²) (formula 1)

Transmitter n°2 (Wi-Fi: 5150-5850 MHz)

Maximum peak output power at the antenna terminal: 27.80 (dBm)
 Maximum peak output power at the antenna terminal: 602.5595861 (mW)
 Antenna gain(typical): 8 (dBi)
 Maximum antenna gain: 6.309573445 (numeric)
 Prediction distance: 30 (cm)
 Prediction frequency: 5150 (MHz)
 MPE limit for uncontrolled exposure at prediction frequency (limit table FCC §1.1310): 1 (mW/cm²)
 Power density at prediction frequency: 0.336161 (mW/cm²) (formula 1)

Transmitter n°3 (Bluetooth EDR: 2400-2483,5 MHz)

Maximum peak output power at the antenna terminal: 9.93 (dBm)
 Maximum peak output power at the antenna terminal: 9.840111058 (mW)
 Antenna gain(typical): 2.6 (dBi)
 Maximum antenna gain: 1.819700859 (numeric)
 Prediction distance: 30 (cm)
 Prediction frequency: 2402 (MHz)
 MPE limit for uncontrolled exposure at prediction frequency (limit table FCC §1.1310): 1 (mW/cm²)
 Power density at prediction frequency: 0.001583 (mW/cm²) (formula 1)

Transmitter n°4 (Bluetooth LE: 2400-2483,5 MHz)

Maximum peak output power at the antenna terminal: 6.81 (dBm)
 Maximum peak output power at the antenna terminal: 4.797334486 (mW)
 Antenna gain(typical): 2.6 (dBi)
 Maximum antenna gain: 1.819700859 (numeric)
 Prediction distance: 30 (cm)
 Prediction frequency: 2402 (MHz)
 MPE limit for uncontrolled exposure at prediction frequency (limit table FCC §1.1310): 1 (mW/cm²)
 Power density at prediction frequency: 0.000772 (mW/cm²) (formula 1)

Transmitter n°5 (RFID : 13.56MHz)

Maximum vertical electric field measured at 13,56MHz: 66.0 (dBµV/m)
 Maximum horizontal electric field measured at 13,56MHz: 62.2 (dBµV/m)
(see associated FCC application test report)
 Total electric field value at 13,56MHz (quadratic sum): 2.38E-03 (V/m)
 Measurement distance: 3 (m)
 PG: 1.69E-03 (mW) (formula 2)
 Prediction distance: 30 (cm)
 Prediction frequency: 13.56 (MHz)
 MPE limit for uncontrolled exposure at prediction frequency (limit table FCC §1.1310): 0.978 (mW/cm²)
 Power density at prediction frequency: 1.50E-07 (mW/cm²) (formula 1)

Transmitter n°1 + Transmitter n°2 + Transmitter n°3 + Transmitter n°4 + Transmitter n°5 :

$[Pd(1)/LPd(1)] + [Pd(2)/LPd(2)] + [Pd(3)/LPd(3)] + [Pd(4)/LPd(4)] + [Pd(5)/LPd(5)] = 0.66$ < 1
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