

8. RADIO FREQUENCY EXPOSURE

8.1. Limit

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

Table: Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Power Density (S) (mW/cm ²)
0.3–1.34	*(100)
1.34–30	*(180/f ²)
30–300	0.2
300–1500	f/1500
1500–100,000	1.0

F = frequency in MHz

* = Plane-wave equivalent power density

Maximum Permissible Exposure

The MPE was calculated at 20cm to show compliance with the power density limit.

$$S = PG/4\pi R^2$$

S = Power density

P = power input to 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.

Note:

1. Manufacturer declared that the maximum antenna gain is 0dBi(Max.).
2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.
3. Only record worst case data.

Conducted Power Results

Mode	Channel	Frequency (MHz)	Conducted Output Power (dBm)	Tolerance ±(dB)
GFSK	00	2402	4.37	4.0 ± 1.0
	39	2441	4.20	4.0 ± 1.0
	78	2480	4.06	4.0 ± 1.0
π/4DQPSK	00	2402	3.46	4.0 ± 1.0
	39	2441	4.16	4.0 ± 1.0
	78	2480	3.98	4.0 ± 1.0
8-DPSK	00	2402	3.52	4.0 ± 1.0
	39	2441	3.00	4.0 ± 1.0
	78	2480	3.05	4.0 ± 1.0
BLE	01	2402	4.36	4.0 ± 1.0
	20	2440	4.03	4.0 ± 1.0
	40	2480	4.15	4.0 ± 1.0

Test Mode	Channel	Max. Tune Up Power (dBm)	Max. Tune Up Power (mW)	MPE (mW/cm²)	Limit (mW/cm²)
GFSK	Low	5.0	3.16	0.0006	1.0
	Middle	5.0	3.16	0.0006	1.0
	High	5.0	3.16	0.0006	1.0
π/4DQPSK	Low	5.0	3.16	0.0006	1.0
	Middle	5.0	3.16	0.0006	1.0
	High	5.0	3.16	0.0006	1.0
8-DPSK	Low	5.0	3.16	0.0006	1.0
	Middle	5.0	3.16	0.0006	1.0
	High	5.0	3.16	0.0006	1.0
BLE	Low	5.0	3.16	0.0006	1.0
	Middle	5.0	3.16	0.0006	1.0
	High	5.0	3.16	0.0006	1.0

Antenna Gain (typical): 0dBi, 1.0(numeric)

Prediction distance: >=20cm

The power density level worst case at 20 cm is below the uncontrolled exposure limit.

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