

FCC §1.1307 (b) (3) & §2.1091- RF EXPOSURE

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power	Antenna Gain		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBm)	(dBi)	(dBd)	(dBm)	(W)		
LTE B7	2500-2570	24.0	-2.99	-5.14	18.86	0.077	0.2	0.768
LTE B14	788-798	24.0	-0.93	-3.08	20.92	0.124	0.2	0.403
LTE B30	2305-2315	24.0	-2.39	-4.54	19.46	0.088	0.2	0.768
5G n2	1850-1910	24.0	-1.66	-3.81	20.19	0.107	0.2	0.768
5G n5	824-849	24.0	-0.66	-2.81	21.19	0.132	0.2	0.422

Note:

1. The tune up conducted power and antenna gain was declared by the applicant.
2. 0dBd=2.15dBi

For below frequency bands were refer to the original granted FCC ID: XHG-M2500 granted on 2022-08-03.

Mode	Frequency (MHz)	Tune up conducted power	Antenna Gain		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBm)	(dBi)	(dBd)	(dBm)	(W)		
WCDMA B2	1850-1910	24.0	-1.66	-3.81	20.19	0.104	0.2	0.768
WCDMA B4	1710-1755	24.0	-1.56	-3.71	20.29	0.107	0.2	0.768
WCDMA B5	824-849	25.0	-0.66	-2.81	22.19	0.166	0.2	0.422
LTE B2	1850-1910	23.0	-1.66	-3.81	19.19	0.083	0.2	0.768
LTE B4	1710-1755	23.5	-1.56	-3.71	19.79	0.095	0.2	0.768
LTE B5	824-849	23.5	-0.66	-2.81	20.69	0.117	0.2	0.422
LTE B12	699-716	24.0	-1.43	-3.58	20.42	0.110	0.2	0.358
LTE B25	1850-1915	23.0	-1.66	-3.81	19.19	0.083	0.2	0.768
LTE B26	814-849	24.0	-0.66	-2.81	21.19	0.132	0.2	0.417
LTE B41	2496-2690	27.0	-2.99	-5.14	21.86	0.153	0.2	0.768
LTE B48	3550-3700	23.0	-1.71	-3.86	19.14	0.082	0.2	0.768
LTE B66	1710-1780	23.5	-1.56	-3.71	19.79	0.095	0.2	0.768
LTE B71	663-698	24.0	-2.75	-4.90	19.10	0.081	0.2	0.339
5G n25	1850-1915	24.5	-1.54	-3.69	20.81	0.121	0.2	0.768
5G n41	2496-2690	26.0	-2.18	-4.33	21.67	0.147	0.2	0.768
5G n66	1710-1780	24.0	-1.19	-3.34	20.66	0.116	0.2	0.768
5G n48	3550-3700	23.5	-1.71	-3.86	19.64	0.092	0.2	0.768
5G n71	663-698	24.5	-2.75	-4.90	19.60	0.091	0.2	0.339
5G n77	3450-3550/ 3700-3980	26.0	-1.49	-3.64	22.36	0.172	0.2	0.768

For EN-DC mode consider, use the worst LTE and 5G NR bands to calculate:

The ratio= $\text{ERP}_{\text{LTE}}/\text{ERP}_{\text{Limit}} + \text{ERP}_{\text{5G NR}}/\text{ERP}_{\text{5G NR}} = 0.132/0.417 + 0.132/0.422 = 0.629 < 1$

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.