KDB 447498 D04 Interim General RF Exposure Guidance v01 - MPE Exemption

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency.
For the exemption in Table 1 to apply, R must be at least λ/2π, where λ is the free-space operating wavelength in meters.
If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

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^2f.
1,500-100,000	19.2R^2.

minimum sep: 0.2 m 0.2 to 0.4

Calculation of minimum distance R
Lowest f 2402 MHz
minimum R 0.020 m

Summation according to §1.1307(b)(3)(ii)(B)

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

	f [MHz]	wavelength [m]	wavelength/2pi [m]	wavelength/4 [m]	ERPth [W]	conducted [W]	max gain [dBi]	EIRP [W]	ERP [W]	Fraction ERP/ERPth [1]
FCC Grant 2AL6KBL-M8821CU1, Part 15 DSS, peak conducted	2402-2480	0.12	0.02	0.03	0.768	0.031	2	0.049	0.030	0.039
FCC Grant 2AL6KBL-M8821CU1, Part 15 DTS, peak conducted	2402-2480	0.12	0.02	0.03	0.768	0.0024	2	0.004	0.002	0.003
FCC Grant 2AL6KBL-M8821CU1, Part 15 DTS, peak conducted	2412-2462	0.12	0.02	0.03	0.768	0.0394	2	0.062	0.038	0.050
FCC Grant 2AL6KBL-M8821CU1, Part 15 DTS, peak conducted	2422-2452	0.12	0.02	0.03	0.768	0.0238	2	0.038	0.023	0.030
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5180-5240	0.06	0.01	0.01	0.768	0.0194	2	0.031	0.019	0.024
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5190-5230	0.06	0.01	0.01	0.768	0.0175	2	0.028	0.017	0.022
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5210-5210	0.06	0.01	0.01	0.768	0.0176	2	0.028	0.017	0.022
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5745-5825	0.05	0.01	0.01	0.768	0.0124	2	0.020	0.012	0.016
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5755-5795	0.05	0.01	0.01	0.768	0.0108	2	0.017	0.010	0.014
FCC Grant 2AL6KBL-M8821CU1, Part 15 UNII, average conducted	5775-5775	0.05	0.01	0.01	0.768	0.0106	2	0.017	0.010	0.013
									sum	0.233

The device 2A2LQ-LTS-1-00 uses a single module: 2AL6KBL-M8821CU1
max. Antenna Gain of 2 dBi according to datasheet, which is also the max. allowed gain on the module grant
As a conservative consideration it was assumed that all transmissions could occur simultaneously.
The sum of ERP/ERPth is well below 1.
The module grant requests 20 cm minimum separation distance, which is still valid under the new KDB 447498 D04 v01.
The device 2A2LQ-LTS-1-00 was determined to be "MPE exempt".

Dr. techn. Gerald Artner
TÜV AUSTRIA Services GmbH
Vienna, Austria, February 8th 2022