

According to KDB 447498 D04 Interim General RF Exposure Guidance v01

### 1. MPE-Based Exemption

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

**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 <sup>2</sup>
1.34-30	3 450 R <sup>2</sup> /f <sup>2</sup>
30-300	3.83 R <sup>2</sup>
300-1 500	0.012 8 R <sup>2</sup> f
1 500-100 000	19.2 R <sup>2</sup>

## 2. RF Exposure Test Exemptions for Single Source

Mode	Frequency Range (MHz)	Maximum Average Power (dBm)	Antenna Gain (dBi)	Minimum Separation Distance (cm)	ERP		Threshold ERP (mW)	Ratio	Result
					(dBm)	(mW)			
Bluetooth Low Energy	2 400 ~ 2 483.5	-9.0	-0.49	40	-11.64	0.069	3072	<u>0.000 022</u>	Pass
WCDMA II	1 850 ~ 1 910	25.0	1.58	40	24.43	277.332	3072	0.090 277	Pass
WCDMA IV	1 710 ~ 1 755	25.0	1.79	40	24.64	291.072	3072	0.094 750	Pass
WCDMA V	824 ~ 849	25.0	1.77	40	24.62	289.734	1688	0.171 643	Pass
LTE 2	1 850 ~ 1 910	25.0	1.58	40	24.43	277.332	3072	0.090 277	Pass
LTE 4	1 710 ~ 1 755	25.0	1.79	40	24.64	291.072	3072	0.094 750	Pass
LTE 5	824 ~ 849	25.0	1.77	40	24.62	289.734	1688	0.171 643	Pass
LTE 12	699 ~ 716	25.0	-0.09	40	22.76	188.799	1432	0.131 843	Pass
LTE 13	777 ~ 787	25.0	0.73	40	23.58	228.034	1591	0.143 327	Pass
LTE 25	1 850 ~ 1 915	25.0	1.58	40	24.43	277.332	3072	0.090 277	Pass
LTE 26	814 ~ 824	25.0	1.77	40	24.62	289.734	1667	<u>0.173 806</u>	Pass
LTE 26	824 ~ 849	25.0	1.77	40	24.62	289.734	1688	0.171 643	Pass
LTE 41	2 496 ~ 2 690	25.0	1.60	40	24.45	278.612	3072	0.090 694	Pass

Note ;

- Maximum average target power is the manufacturer's declared rated power.
- Maximum average power = Maximum average target power (dBm) + Maximum tune up (dB).
- ERP (dBm) = Maximum average Power (dBm) + Antenna Gain (dBi) -2.15

## 3. Simultaneous Transmission SAR Test Exemption with Respect to Multiple Exemption Criteria

Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (Evaluated<sub>k</sub> term) shall be used to determine exemption for simultaneous transmission according to Formula (C.1) [repeated from § 1.1307(b)(3)(ii)(B)].

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

Bluetooth Low Energy + LTE 26: 0.000 022 + 0.173 806 = 0.173 828 < 1

## 4. Conclusion: No SAR is required.