

RF exposure information according to KDB 447498 D01 guidance

The ABR200 Module operating according to FCC part 15 subpart C section 15.209. The ABR200 Module operating at 134.196kHz that is a near field region. The radiated power within the 1-mW in the far-field region can be exempt and no evaluation is required according to §1.1307(b)(3)(i)(A).

Far-Field Region:

Power estimate via the far-field was described by the following equation:

$$P = 4\pi r^2 \frac{E^2}{Z_o}, \text{ where } Z = 120\pi$$

Near-Field Region:

Power estimate via the near-field was described by the following equation:

$$P = 4\pi r^2 \frac{E^2}{Z_o} \times \frac{1}{2} \times \left(1 + \frac{Z_o^2}{Z_w^2} \right)$$

Where: Z_o = free impedance in Far-Field region = 377Ω

$$Z_w = \frac{\text{measurement distance (m)}}{\frac{\lambda}{2\pi}} \times 377\Omega$$

Power calculation for Far-Field and Near-Field region

F, MHz	d, m	λ, m	$\lambda/2\pi, \text{m}$	$E, \text{dB}\mu\text{V}/\text{m}$	$E, \text{V}/\text{m}^*$	Z_w, Ω	Near-field formula		Far-field Formula	
							P, W	P, mW	P, W	P, mW
0.134	300	2238.80597	356.32	25.1	0.000018	317.41	0.000001	0.001170	0.000001	0.000971

*The Field strength that was used for power calculation is a level specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100 **	3
88–216	150 **	3
216–960	200 **	3
Above 960	500	3

Based on the above, the limit presented in the 47CFR, section 15.209 may be excluded. And all products that corresponding with the above limit can be considered complying with the RF exposure limitations.