FCC §1.1307 (b) – RF EXPOSURE

Applicable Standard

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D04 Interim General RF Exposure Guidance v01, clause 2.1.3.1-SAR-Based Exemption:

A more comprehensive exemption, considering a variable power threshold that depends on both the separation distance and power, is provided in § 1.1307(b)(3)(i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with test separation distances between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions.

Accordingly, a RF source is considered an RF exempt device if its available maximum time-averaged (matched conducted) power or its effective radiated power (ERP), whichever is greater, are below a specified threshold. This exemption threshold was derived based on general population 1-g SAR requirements and is detailed in Appendix C.

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

d = the separation distance (cm);

Result

For worst case:

Mode	Frequency	Maximum Time based Average Power	Antenna Gain		ERP	ERP_{20cm}	Distance	SAR-Based Exclusion Threshold		SAR-Based Exclusion
	(MHz)	(dBm)	(dBi)	(dBd)	(dBm)	(mW)	(mm)	(mW)	(dBm)	
GSM850	824-849	**26**	0	-2.15	**23.85**	2040f	200	1680	**32.25**	Yes
PCS1900	1850-1910	**23**	0	-2.15	**20.85**	3060	200	3060	**34.85**	Yes

Note 1: 0dBd=2.15dBi.
Note 2: f = frequency in GHz.
Note 3: The tune-up power was declared by the applicant.

Mode	Tune-up Conducted Power (dBm)	Time based Average Power (dBm)
GSM 850	33.5	24.5
PCS 1900	30	21

Mode	Tune-up Conducted Power (dBm)				Time based Average Power (dBm)			
	1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots
GPRS 850	33	32	30	29	24	**26**	25.75	**26**
GPRS 1900	30	29	27	26	21	**23**	22.75	**23**

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

Result: Compliant.