



935 Stewart Drive, Sunnyvale, CA 94085, USA
Tel: +1 (408) 542-5200, Fax: +1 (408) 542-5300

Attention: Reviewing Engineer

The HZB-S58-GX1 radio is designed for fixed-mount point-to-point applications. The following table lists the RF exposure Power Density for all types and sizes of antennas intended to be used with the device. The power density calculation shows compliance to the limit for General Population/ Uncontrolled environment as specified in rule 1.1310.

Please contact the undersigned for any questions.

A handwritten signature in black ink, appearing to read "Caroline Yu", with a small dot at the end.

Caroline Yu

Regulatory Compliance Manager
Proxim Corporation

Power Density Calculation

	G (dB)	D (m)	OD (m)	A (m ²)	P (W)*	S _{surface} (w/m ²)	R _{nf} (m)	S _{nfmax} (w/m ²)	R _{ff} (m)	S _{t max} (w/m ²)	S _{ff} (w/m ²)
1' Panel	23.5	0.4310		0.0929	0.600	13.6097	0.8978	16.4594	2.1547	7.3885	2.3035
2' Panel	28.0	0.8620		0.3715	0.600	3.4024	3.5912	4.1148	8.6188	4.1148	0.4058
2' parabolic	28.5	0.6096		0.2917	0.600	4.3330	1.7961	8.2272	4.3107	7.3885	1.8200
4' parabolic	34.0	1.2192		1.1669	0.600	1.0832	7.1845	2.0568	17.2428	2.0568	0.4036
6' parabolic	38.0	1.8288		2.6254	0.600	0.4814	16.1651	0.9141	38.7963	0.9141	0.2003
8' parabolic	40.0	2.4384		4.6674	0.600	0.2708	28.7380	0.5142	68.9712	0.5142	0.1004

Where:

G: antenna gain

D: antenna diameter in meters, for panel antenna, $D = 1.414 \times$ the side length of the antenna; with omni antenna D represent the height of the antenna $D = h$

P: radio output power fed into the antenna, $P_{\max} = 10 \log 955 = 29.8 \text{ dBm}$ minimum connectors and cable loss is 2dB, $P = 29.8 - 2 = 27.8 \text{ dBm} = 0.6 \text{ W}$

A: physical area of the aperture antenna

S_{surface}: maximum power density at the antenna surface, $S_{\text{surface}} = 4P/A$

R_{nf}: extent of near field, $R_{\text{nf}} = D^2/4\lambda$, where λ is wavelength, at 5.8GHz, $\lambda = 0.052 \text{ m}$;

With omni antenna, R_{nf} is where $S_{\text{nf}} = S_{\text{ff}}$; $R_{\text{nf}} = Gh/2$, where G is the antenna gain

S_{nfmax}: maximum near field power density, $S_{\text{nf}} = 16\eta P/\pi D^2$; for worst case situation, η is assumed to be 1

R_{ff}: distance to beginning of far field; $R_{\text{ff}} = 0.6D^2/\lambda$

S_{t max}: maximum powre density in the transition region; $S_{\text{t max}} = S_{\text{nf}} * R_{\text{nf}}/R_{\text{min}}$; where $R_{\text{min}} = \min(2\text{m}, R_{\text{nf}})$

S_{ff}: far field power density (on axis); $S_{\text{ff}} = PG/4\pi R^2$

Note: Power density beyond 2m from the center of antenna must be within 10 W/m^2 or 1 mW/cm^2