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Attention: Reviewing Engineer

The HZB-S58-S60 radio (connectorized) 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.

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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)
Omni 7.5	7.5	0.2760	0.0254		0.080	3.6343	0.7760	3.6343	0.7760		0.0595
Omni 9	9.0	0.5000	0.0400		0.080	1.2739	1.9858	1.2739	1.9858		0.0128
Omni 12	12.0	0.8300	0.0560		0.080	0.5481	6.5773	0.5481	6.5773		0.0023
1' Panel	23.5	0.4310		0.0929	0.080	13.6097	0.8978	2.1946	2.1547	0.9851	0.3071
2' Panel	28.0	0.8620		0.3715	0.080	3.4024	3.5912	0.5486	8.6188	0.5486	0.0541
2' parabolic	28.5	0.6096		0.2917	0.080	4.3330	1.7961	1.0970	4.3107	0.9851	0.2427
4' parabolic	34.0	1.2192		1.1669	0.080	1.0832	7.1845	0.2742	17.2428	0.2742	0.0538
6' parabolic	38.0	1.8288		2.6254	0.080	0.4814	16.1651	0.1219	38.7963	0.1219	0.0267
8' parabolic	40.0	2.4384		4.6674	0.080	0.2708	28.7380	0.0686	68.9712	0.0686	0.0134

Where:

G: antenna gain

D: antenna diameter in meters, for panel antenna, D = 1.414x 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} = 10log120-minimum connectors and cable loss=20.8dBm-2dBm< 80mW

A: physical area of the aperture antenna

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

R_{nf}: extent of near field, R_{nf} = D²/4λ, where λ is wavelength, at 5.8GHz, λ=0.052m;

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

S_{nfmax}: maximum near field power density, S_{nf} = 16ηP/πD²; for worst case situation, η is assumed to be 1

R_{ff}: distance to beginning of far field; R_{ff}= 0.6D²/λ

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

S_{ff}: far field power density (on axis); S_{ff} = PG/4πR²

Note: Power density beyond 2m from the center of antenna must be within 10W/m² or 1mW/cm²



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Attention: Reviewing Engineer

The HZB-S58-S60 (integrated) radio is designed for fixed-mount point-to-point applications. The device is integrated to an array antenna with maximum gain of 21dBi.

The maximum EIRP for the antenna integrated model of HZB-S58-S60 is 20.8+21=41.8dBm. The power density at 2 meters from an antenna is:

$$S = \text{EIRP}/4\pi R^2 = 0.3 \text{ W/m}^2 = 0.03 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

Where: S = Power density

R = distance to the center of radiation of the antenna

Therefore, the power density is compliant with the limit for General Population/ Uncontrolled Exposure as specified in rule 1.1310.

If you should have any questions regarding this submission, please feel free to contact the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read "Caroline Yu".

Caroline Yu

Regulatory Compliance Manager
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