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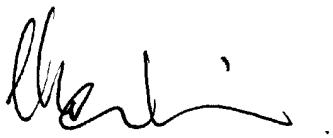
Attention: Reviewing Engineer

The HZB-S58-S60C 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.



Caroline Yu

Regulatory Compliance Manager
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Power Density Calculation

	G (dB)	D (m)	OD (m)	A (m^2)	P (W)	$S_{surface}$ (w/m2)	$R_{nf\ (m)}$	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		0.050	2.2714	0.7760	2.2714	0.7760		0.0372
Omni 9	9.0	0.5000	0.0400		0.050	0.7962	1.9858	0.7962	1.9858		0.0080
Omni 12	12.0	0.8300	0.0560		0.050	0.3426	6.5773	0.3426	6.5773		0.0015
1' Panel	23.5	0.4310		0.0929	0.050	13.6097	0.8978	1.3716	2.1547	0.8209	0.1920
2' Panel	28.0	0.8620		0.3715	0.050	3.4024	3.5912	0.3429	8.6188	0.3429	0.0338
2' parabolic	28.5	0.6096		0.2917	0.050	4.3330	1.7961	0.6856	4.3107	0.6856	0.1517
4' parabolic	34.0	1.2192		1.1669	0.050	1.0832	7.1845	0.1714	17.2428	0.1714	0.0336
6' parabolic	38.0	1.8288		2.6254	0.050	0.4814	16.1651	0.0762	38.7963	0.0762	0.0167
8' parabolic	40.0	2.4384		4.6674	0.050	0.2708	28.7380	0.0428	68.9712	0.0428	0.0084

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, P_{max} = 0.050 W

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

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

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

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

$S_{t\ max}$: maximum powre density in the transition region; $S_{t\ max}=S_{nf} * R_{nf}/R_{min}$; where R_{min} = min (1.5m, R_{nf})

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

Note: Power density beyond 1.5m from the center of antenna must be within $10W/m^2$ or $1mW/cm^2$

Created by: Caroline Yu
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