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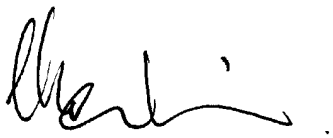
**Attention: Reviewing Engineer**

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.



Caroline Yu

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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 | | 0.080 | 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, $R_{nf} = D^2/4\lambda$, 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 (2m, $R_{nf}$)

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

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

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1/14/2004

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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:

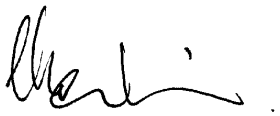
$S = EIRP/4\pi R^2 = 0.3\ W/m^2 = 0.03\ mW/cm^2 < 1\ mW/cm^2$

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,



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