September 05, 2017

Intertek Semko AB
Torshamnsgatan 43, Box 1103
SE-164 22 Kista, Sweden

RE: Maximum Permissible Exposure

FCC ID: V5FDDR2300
Model: DDR-2300
33dBm Fiber DAS Remote

To Whom It May Concern:

The equipment operating in the WCS band, 2305MHz to 2360MHz, requires a separation distance of at least ***97.7cm.*** This distance must be maintained between the user and antenna when the product is used with a 17dBi antenna.

This was calculated by the following:

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Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	$*(900/f^2)$	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	$*(180/f^2)$	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

The power density can be calculated from the equation below (equation #4 from OET Bulletin 65, 97-01 edition, page 19).

$$S = \frac{P*G}{4*pi*R^2}$$

S Power Density (mW/cm2)
P Conducted Power (mW)
R Distance (cm)
G Numerical Antenna Gain

From this equation we can calculate the safety distance needed to fulfill the MPE limits.

In the calculations we have assumed no feeder loss and the max antenna gain was calculted based on the noise figure limits.

				G	P	S	S	R
Amplifier	**Freq (MHz)**	**Output power to antenna (dBm)**	**Antenna Gain (max) (dBi)**	**Antenna Gain Numerical**	**TX Power conducted (mW)**	**Power density limit* (mW/cm2)**	**Power density calculated (mW/cm2)**	**Calculated safety distance (cm)**
2300M Band	2305-2360	33	17	50.12	2394	1.0	23.87	97.7

* Limit for General Population/Uncontrolled Exposure

The uplink path in the EUT is not radiated by an antenna. It is connected directly to the base station.

Please contact me if there is any other information you may need.

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Sincerely,

Amy L. Sanvido

On behalf of DeltaNode Solutions AB, a Bird Technologies Company

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