



October 4, 2017

Compliance Testing, LLC
1724 S. Nevada Way
Mesa, AZ 85204

RE: Maximum Permissible Exposure

FCC ID: V5FDDS700LB

Model: DDS102

41dBm Cellular Remotes 700MHz LB

To Whom It May Concern:

The equipment operating in the 700MHz low band, 698MHz to 746MHz, requires a separation distance of at least **310.9cm**. 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:

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 calculated 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/cm ²)	Power density calculated (mW/cm ²)	Calculated safety distance (cm)
700LB	728	40	17	50.12	11749	0.49	117.15	310.9

* 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.



Sincerely,

A handwritten signature in black ink that reads "Amy L. Sanvido".

Amy L. Sanvido

On behalf of DeltaNode Solutions AB, a Bird Technologies Company

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