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RF Exposure Statement for the Datapaq TM21 Transceiver Module

FCC ID: YEETM21

The Datapaq TM21 Transceiver Module complies with the FCC limits for RF exposure as laid out in OET Bulletin 65.

The TM21 Transceiver module is used in transmit mode at distances greater than 20cm from the user, in most cases considerably greater, therefore, it can be classified as a 'Mobile Device' for the purposes of RF exposure.

It is not co-located with other transmitters when in operation so only the individual TM21 output need be considered.

Although it is used in an industrial environment and not by the general public the more stringent limits for the General Public/Uncontrolled Use have been considered. These limits are $f/1500 \text{ mW/cm}^2$ for frequencies between 300MHz and 1500MHz (where f is the frequency in MHz). The TM21 uses frequencies at around 464MHz which equates to 0.31 mW/cm^2 .

The output of the TM21 is 10mW with the maximum gain antenna specified for use with the system (monopole with ground plane; gain = 1.5dBd). The power density (PD) from a 10mW source at a distance (d) of 20cm can be calculated using the formula:

$$\begin{aligned} \text{PD} &= \text{power} / (4 * \pi * d^2) \\ \text{where PD is in mW/cm}^2, \text{ power is in mW and distance is in cm.} \\ &= 10 / (4 * 3.1416 * 400) \\ &= 0.002 \text{ mW/cm}^2 \end{aligned}$$

This value is well below the Maximum Permissible Exposure limit of 0.31 mW/cm^2 .

Finally, it is worth noting that the TM21 is not used in continuous transmit mode. It can transmit at a sample period of 0.5 seconds but would typically be used with longer sample periods than this. The transmit frame is typically two 120ms long bursts with about 70ms between them, but occasionally (every 16 frame) a third 120ms burst is added resulting in a transmission burst of about 0.5 seconds.