GSM5218 SAR Usage Declaration

Based on FCC OET65 Source Based Time Averaging method

The GSM5218 (Spider AT 3000 and Spider AT 3010) Asset Tracking device is designed as a device for keeping a general update on where a company's assets are and for performing limited real time the location of assets in transit.

Typical reporting periods for the device are around 1 report per day, but in some instances it is necessary to move to a faster reporting profile (for tracking of lost or stolen goods) in these circumstances the device can move to 1 minute reporting to facilitate in the location/recovery of the asset. As such the below calculations assume the 1 minute reporting model. Typical durations of functions and transmissions over the GSM network:

+CFUN=1 (registering and activation)

8s to reach GSM registration (Limited duration of transmission)

5s to reach GPRS activation (Limited duration of transmission)

$NMEA=xxx (transmitting GPS NMEA GGA, RMC, and GSA)

200ms transmit of approximately **312 ASCII characters**

$EVTEST=27,0 (transmitting serving and neighbor cell info, in case of no GPS)

300ms transmit of approximately **442 ASCII characters**

Total time of communications: under **15 Seconds** (this includes the time of registration where limited transmissions are made.)

- Source-Based Time-Averaged Duty Factor: 15/60 = 0.25 =25%
- GPRS Class 8 operation is 1 out of 8 uplink slots = 0.125 = 12.5 %
- (0.25)(0.125) = 0.03125 = **3.1235** % maximum duty factor

If P<60/f then SAR not required

- 60/f at 850 MHz: 60/0.85 = 70.6 mw
- 60/f at 1900 MHz: 60/1.9 = 31.6 mw

For this device with maximum duty factor applied to the **maximum** measured conducted power level:

- 850 MHz: 1.862 watts * (0.03125) = 58.2 mw; below threshold, SAR testing not required
- 1900 MHz: 0.891 watts * (0.03125) = 27.85 mw below threshold, SAR testing not required

Further information regard this application can be found in FCC inquiry #881611.