

Date: November 28, 2012

GSM2378

Source Based Time Average Transmitter Power

The GSM 2378 (MT 3050) supports a maximum of 1 transmit timeslot (GPRS Multi-Slot class 2) in the GPRS mode of operation, this Multi-slot class is configured in the factory during manufacturing and it is not possible for a sure or installer to configure the GSM2378 to use more than 1 transmit time slot.

Therefore a source based time average calculation is used to reduce calculated average transmit power. Since the number of GSM/GPRS timeslots available in a single burst is 8 and only 1 of these are used the average power would be 1/8 of the measured ERP/EIRP.

In addition the GSM2378 is controlled by SW to only support the user to set a maximum of one location or event every 2 seconds. Each report sent over the wireless network takes under 200ms.

- Source based time averaged duty factor = $0.2/2=0.1=10\%$
- GPRS Class 2 operation duty factor = $1/8 = 0.125 = 12.5\%$
- Maximum duty factor = $0.1*0.125 = 1.25\%$ maximum duty factor

- 850MHz power = 2W; with duty factor applied = $2*0.0125 = 25\text{mW}$
- 1900MHz power = 1W; with duty factor applied = $1*0.0125 = 12.5\text{mW}$

Limits for SAR applicability = $60/f$

$$\text{@850MHz} = 60/0.85 = 70.6\text{mW}$$

$$\text{@1900MHz} = 60/1.9 = 31.6\text{mW}$$

In conclusion, since the output power with duty factor applied is less than the limit in both bands SAR testing is not applicable.