Compliance with 47 CFR 15.247(b)(5)

"Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter."

The EUT will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47CFR 2.1091 (b). The GSM EUT can be configured for either the 850 or 1900 band. This document will provide calculations for the 850 band. The GSM EUT has two antenna ports. One antenna port is for transmit and the other is receive. The EUT will only be used in the applicant's access point. The access point can accommodate seven radios. However the system only has enough power for a total of six transmitters. The access point can be configured for a maximum of two 802.11b radios (FCC ID: PURDH2) and a of four GSM transmitters (FCC ID: PURBSERIESGSMNA10) or a maximum of six GSM transmitters (FCC ID: PURBSERIESGSMNA10).

The maximum peak power was measured to be 16.22mW (ERP) for FCC ID: PURBSERIESGSMNA10 and 76.7mW (ERP) for FCC ID: PURDH2. The EUT meets the requirement that it will be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines (ref. 47 CFR 1.1307, 1.1310, 2.1091 and 2.1093. Also OET Bulletin 65, Supplement C).

The MPE Estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1 mw/cm². The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$S=(PG)/4\pi R^2$
Where: S = Power Density (1 mw/cm²)
P = power input to the antenna (mW)
G = numeric power gain relative to an isotropic radiator
R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)
PG = EIRP

Solving for S, the maximum power densities 20 cm from the transmitting antennas are summarized in the following tables:

FCC ID: PURDH2
802.11b Radio

Antenna Type	Antenna Part #	Transmit Frequency	Max Peak Conducted Output Power	Antenna Gain	Minimum Antenna Cable Loss	Power Density @20 cm	General Population Exposure Limit from 1.1310	Ratio of Power Density to the Exposure Limit
		(MHz)	(mW)	(dBi)	(dB)	(mW/cm²)	(mW/cm²)	
Omni	ANT-2.4-RCT	2400	76.7	3.85	0	0.037	1	0.037

FCC ID: PURBSERIESGSMNA10
GSM 850 Radio

Antenna Type	Distance to Antenna (cm)	Transmit Frequency (MHz)	Max Peak Conducted Output Power (mW)	Antenna Gain (dBi)	Minimum Antenna Cable Loss (dB)	Power Density @ 20 cm (mW/cm^2)	General Population Exposure Limit from 1.1310 (mW/cm^2)	Ratio of Power Density to the Exposure Limit
Omni	20	880.4	16.44	0	0	0.003	0.58693	0.006

Excerpts from TCB training

" Devices operating in multiple frequency bands

- *When RF exposure evaluation is required for TCB approval*
  - *<u>Separate antennas</u> – estimated separation distances may be considered for the frequency bands that do not require evaluation or TCB approval, however, the estimated distance should take in to account the effect of co-located transmitters. (Note 24)*
  - *<u>Note 24</u> – According to multiple exposure frequency criteria, the ratio of field strength or power density to the applicable exposure limit at the exposure location should be determined for each transmitter and the sum of these ratios must not exceed 1.0 for the location to be compliant."*

Exposure Scenarios for Access Point

Per Note 24 shown below, the Sum of Worst Case Power Ratios cannot exceed .567 mW/cm²

	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
Senerio 1	802.11(b/g)	802.11(b/g)	GSM 850	GSM 850	GSM 850	GSM 850
Senerio 2	GSM 850	GSM 850	GSM 850	GSM 850	GSM 850	GSM 850

	Slot 1 Worst Case Ratio of Power Density to the Exposure Limit	Slot 2 Worst Case Ratio of Power Density to the Exposure Limit	Slot 3 Worst Case Ratio of Power Density to the Exposure Limit	Slot 4 Worst Case Ratio of Power Density to the Exposure Limit	Slot 5 Worst Case Ratio of Power Density to the Exposure Limit	Slot 6 Worst Case Ratio of Power Density to the Exposure Limit
Senerio 1	0.037	0.037	0.006	0.006	0.006	0.006
Senerio 2	0.006	0.006	0.006	0.006	0.006	0.006

	Sum of Worst Case Ratio of Power Density to the Exposure Limits	FCC Limit for Sum of Worst Case Ratios	
Senerio 1	0.098	0.567	**PASS**
Senerio 2	0.036	0.567	**PASS**

The sum of the worst-case power ratios (in any scenario) does not exceed 1.0; therefore, the exposure condition is compliant with FCC rules. (See Note 24 above)