Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093; IC RSS-Gen: RF Exposure

MPE Calculation – Co-Location of Telit module FCC ID: RI7GE865 and FCC ID: 2ADCL-EL2715C001

Equation from page 18 of OET 65, Edition 97-01: $S = EIRP / (4\pi r^2)$

FCC ID: RI7GE865 (for GSM 850)

EUT operating frequency range: 824 - 849 MHz.

Therefore, limit for uncontrolled exposure: 0.6 mW/cm^2

Conducted power = 31.8 dBm = 1.51 W

Antenna gain at 824 MHz = 1.49 dBi = 1.4 (numeric)

$S = (1510 * 1.4) / (4*3.14*20^2) = 0.42$ mW/cm^2 at 20 cm separation

FCC ID: RI7GE865 (for PCS 1900)

EUT operating frequency range: 1850 - 1910 MHz.

Therefore, limit for uncontrolled exposure: 1 mW/cm^2

Conducted power = 32.4 dBm = 1.74 W

Antenna gain at 1910 MHz = 2.4 dBi = 1.7 (numeric)

$S = (1740 * 1.7) / (4*3.14*20^2) = 0.6$ mW/cm^2 at 20 cm separation

FCC ID: 2ADCL-EL2715C001

EUT operating frequency: 452 MHz.

Therefore, limit for uncontrolled exposure: 0.3 mW/cm^2

Conducted power = 10 mW

Antenna gain at 452 MHz = -2.9 dBi = 0.5 (numeric)

$S = (10 * 0.5) / (4*3.14*20^2) = 0.001$ mW/cm^2 at 20 cm separation

MPE Summary

FCC ID	Frequency Range (MHz)	MPE (mW/cm^2)	Limit (mW/cm^2)
RI7GE865	824 – 849	0.42	0.6
RI7GE865	1850 – 1910	0.6	1.0
2ADCL-EL2715C001	452	0.001	0.3

Case 1

For the GSM 850 band, FCC requirement: MPE1 + MPE2 < 0.6

Combined MPE = 0.421 mW/cm^2

MPE as a fraction of the limit: 0.421 / 0.6 = 0.702 (which is <= 1.0)

Case 2

For the PCS 1900 band, FCC requirement: MPE1 + MPE2 < 1.0

Combined MPE = 0.601 mW/cm^2

MPE as a fraction of the limit: 0.601 / 1.0. = 0.601 (which is <= 1.0)

Therefore, the uncontrolled exposure limit is met at 20 cm when both transmitters are operating simultaneously.