FCC ID: NZLUAHL5R

RF Exposure/ S A R Statement
Applicant: Gentex Corporation
Model: UAHL5R

Calculations (902.25 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5R" as calculated from the FCC OET Bulletin 65, Appendix A, Table (B) Limits for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering an f/1500mW/cm^2 (0.602mW/cm^2) uncontrolled exposure limit. The power density formula used was:

$$S = (EIRP)/ (4*PI*r^2) = (P*G)/ (4*PI*r^2)$$

Where
 P = 6.667 dBm (Max conducted Peak Output: 902.25MHz)
 G = -7.53 dBi=0.18 (Numerical Antenna Gain)
 R = 20.0cm

 (P*G) = where P=6.667 + 1.0dB (for maximum tolerance adjustment) and Antenna Gain (Numerical) is 0.18. Converting 7.667dBm to mW = 5.844mW EIRP

 The Power Density S = 0.00021mW/cm^2
This is less than the above limit as well as the RSS-102 limit in Section 6.3 Table 11 at a separation distance of $\geq$50mm.

Calculations (288 MHz) :

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5R" as calculated from the FCC OET Bulletin 65, Appendix A, Table (B) Limits for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system and considering a 0.2mW/cm^2 uncontrolled exposure limit. The power density formula used was:

$S = EIRP/ (4*PI*r^2)$

Where
Peak EIRP=83.09 dBuV/m at 3m= -12.14dBm =0.061mW
R = 20.0cm

The Power Density S = 0.000012mW/cm^2
This is less than the above limit as well as the RSS-102 limit in Section 6.3 Table 11 at a separation distance of ≥50mm.

Calculations (310 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5R" as calculated from the FCC OET Bulletin 65, Appendix A, Table (B) Limits for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system and considering an $f/1500mW/cm^2$ ($0.207mW/cm^2$) uncontrolled exposure limit. The power density formula used was:

$S = EIRP/ (4*PI*r^2)$

Where
Peak EIRP=82.72 dBuV/m at 3m= -12.51dBm=0.06mW
R = 20.0cm

The Power Density S = $0.000012mW/cm^2$
This is less than the above limit as well as the RSS-102 limit in Section 6.3 Table 11 at a separation distance of $\geq$50mm.

Calculations (365 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5R" as calculated from the FCC OET Bulletin 65, Appendix A, Table (B) Limits for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system and considering an $f/1500mW/cm^2$ ($0.243mW/cm^2$) uncontrolled exposure limit. The power density formula used was:

$$S = EIRP/ (4*PI*r^2)$$

Where
Peak EIRP= 87.00 dBuV/m at 3m= -8.23 dBm=0.15mW
R = 20.0cm

The Power Density S = $0.00003mW/cm^2$
This is less than the above limit as well as the RSS-102 limit in Section 6.3 Table 11 at a separation distance of $\geq$50mm.

Calculations (430 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5R" as calculated from the FCC OET Bulletin 65, Appendix A, Table (B) Limits for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system and considering an f/1500mW/cm^2 (0.287mW/cm^2) uncontrolled exposure limit. The power density formula used was:

$S = (EIRP)/ (4*PI*r^2)$

Where
Peak EIRP=89.38 dBuV/m= -5.85 dBm=0.26mW
R = 20.0cm

The Power Density S = 0.000052mW/cm^2
This is less than the above limit as well as the RSS-102 limit in Section 6.3 Table 11 at a separation distance of ≥50mm.

Summary

	Frequency (MHz)	Power Density (mW/cm2)	Limit (mW/cm2)
Low Band (High, Mid, Low)	288	0.000012	0.2
	310	0.000012	0.207
	365	0.000030	0.243
	430	0.000052	0.287
High Band	902.25	0.000210	0.602

Total Power Density-simultaneous transmission between low and high band channels	
Frequency (MHz)	Total Power Density (mW/cm2)
288 + 902.25	0.000222
310 + 902.25	0.000222
365 + 902.25	0.000240
430 +902.25	0.000262