

FCC ID: NZLUAHL5H

RF Exposure/ S A R Statement

Applicant: Gentex Corporation

Model: UAHL5H

Calculations (902.25 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5H" 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 $f/1500\text{mW}/\text{cm}^2$ ($0.602\text{mW}/\text{cm}^2$) uncontrolled exposure limit. The power density formula used was:

$$S = (\text{EIRP}) / (4 * \text{PI} * r^2) = (P * G) / (4 * \text{PI} * r^2)$$

Where

P = -12.229 dBm (Max conducted Peak Output: 902.25MHz)

G = 0.37 dBd (Numerical Antenna Gain)

R = 20.0cm

(P+G) = -11.859dBm + 1.0dB (for maximum tolerance adjustment) Converting -10.859dBm to mW = 0.082 mW ERP

The Power Density S = .0000163mW/cm²

This is less than the above limit as well as the RSS-102 limit in Section 2.5 Table 1 at a separation distance of $\geq 50\text{mm}$.

Calculations (288 MHz) :

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5H" 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/cm² uncontrolled exposure limit. The power density formula used was:

$$S = \text{EIRP} / (4 * \text{PI} * r^2)$$

Where

EIRP=-16.31dBm =0.0234mW

R = 20.0cm

The Power Density $S = 0.00000466\text{mW/cm}^2$

This is less than the above limit as well as the RSS-102 limit in Section 2.5 Table 1 at a separation distance of $\geq 50\text{mm}$.

Calculations (310 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5H" 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 $f/1500\text{mW}/\text{cm}^2$ ($0.207\text{mW}/\text{cm}^2$) uncontrolled exposure limit. The power density formula used was:

$$S = \text{EIRP} / (4 * \text{PI} * r^2)$$

Where

EIRP= -15.11dBm=0.031mW

R = 20.0cm

The Power Density $S = 0.00000617\text{mW}/\text{cm}^2$

This is less than the above limit as well as the RSS-102 limit in Section 2.5 Table 1 at a separation distance of $\geq 50\text{mm}$.

Calculations (365 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5H" 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 $f/1500\text{mW}/\text{cm}^2$ ($0.243\text{mW}/\text{cm}^2$) uncontrolled exposure limit. The power density formula used was:

$$S = \text{EIRP} / (4 * \text{PI} * r^2)$$

Where

EIRP= -11.13 dBm=0.077mW

R = 20.0cm

The Power Density $S = 0.0000153\text{mW}/\text{cm}^2$

This is less than the above limit as well as the RSS-102 limit in Section 2.5 Table 1 at a separation distance of $\geq 50\text{mm}$.

Calculations (430 MHz):

The following information provides the minimum separation distance for the antenna as part of the design for the "UAHL5H" 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 $f/1500\text{mW/cm}^2$ (0.287mW/cm^2) uncontrolled exposure limit. The power density formula used was:

$$S = (\text{EIRP}) / (4 * \text{PI} * r^2)$$

Where

EIRP= -9.68 dBm=0.108mW

R = 20.0cm

The Power Density $S = 0.0000215\text{mW/cm}^2$

This is less than the above limit as well as the RSS-102 limit in Section 2.5 Table 1 at a separation distance of $\geq 50\text{mm}$.

Summary

	Frequency (MHz)	Power Density (mW/cm2)	Limit (mW/cm2)
Low Band (High, Mid, Low)	288	0.00000466	0.2
	310	0.00000617	0.207
	365	0.0000153	0.243
	430	0.0000215	0.287
High Band	902.25	0.0000119	0.602

Total Power Density-simultaneous transmission between low and high band channels	
Frequency (MHz)	Total Power Density (mW/cm2)
288 + 902.25	0.00001656
310 + 902.25	0.00001807
365 + 902.25	0.0000272
430 + 902.25	0.0000334