U.S. Amateur Radio HF Exposure Report

G5RV Exposure Report

G5RV positioned on East side of home and oriented North-to-South

Created: August 6, 2024

Brian Dennis Blackledge, W5BDB
brianblackledge@gmail.com

Disclaimer

The information and calculations provided by this website are intended for general informational purposes only. While we strive to ensure the accuracy and reliability of the content, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability, or availability with respect to the website or the information, calculations, or related graphics contained on the website for any purpose. Any reliance you place on such information is therefore strictly at your own risk.

By using this website, you agree that:

1. **Use at Your Own Risk:** The calculations and information provided by this website are to be used at your own risk. The results and outputs generated are for informational purposes only and should not be used as a sole source of guidance for any decisions or actions related to RF exposure or any other matters.
2. **No Liability:** The owners, operators, and developers of this website are not liable for any loss or damage, including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from loss of data or profits arising out of, or in connection with, the use of this website.
3. **Professional Advice:** This website does not replace professional advice. Users are encouraged to consult with a qualified professional for specific advice tailored to their situation.
4. **Changes and Updates:**> We may make changes to the website and its contents at any time without notice. We do not guarantee that the website will be available uninterrupted or error-free.

By using this website, you acknowledge that you have read, understood, and agree to be bound by this disclaimer. If you do not agree with any part of this disclaimer, please do not use our website.

This report is compliments of Amateur Radio Press

AMATEUR RADIO PRESS
The "publishing arm" of PC Information Group, Inc.

For more information go to **amateurradiopress.com** and **pcig.net**

G5RV Exposure Report

G5RV positioned on East side of home and oriented North-to-South

Transmission Watts: **80.0**

Mode Duty Factor (%): **1**

Gain (dBi): **2.0**

Transmit Time (min.): **1**

Ground Reflection: **True**

Receive Time (min.): **1**

Amateur Radio Band (meters)	Maximum Transmission Frequency (MHz)	Controlled Maximum Density (mW/cm²)	Controlled Minimum Distance (feet)	Uncontrolled Maximum Density (mW/cm²)	Uncontrolled Minimum Distance (feet)
160	2.000	100.000	0.373	45.000	0.556
80	4.000	56.250	0.497	11.250	1.112
60	5.300	32.040	0.659	6.408	1.473
40	7.300	16.889	0.907	3.378	2.029
30	10.150	8.736	1.261	1.747	2.821
20	14.074	4.544	1.749	0.909	3.911
17	18.168	2.727	2.258	0.545	5.049
15	21.450	1.956	2.666	0.391	5.961
12	24.990	1.441	3.106	0.288	6.945
10	29.700	1.020	3.691	0.204	8.254
6	54.000	1.000	3.728	0.200	8.337

RF Exposure Computation Report

U.S. Amateur Band (meters): 160

FREQUENCY
* Frequency (MHz): **2.0000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **100.00** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (100.00 * 3.14159)) = **11.3644**
Min Distance (cm): **11.3644** Min Distance (feet): **0.3728** Min Distance (meter): **0.1136**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **45.0000** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (45.00 * 3.14159)) = **16.9410**
Min Distance (cm): **16.9410** Min Distance (feet): **0.5558** Min Distance (meter): **0.1694**

U.S. Amateur Band (meters): 80

FREQUENCY
* Frequency (MHz): **4.0000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**
(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **56.25** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (56.25 * 3.14159)) = **15.1525**
Min Distance (cm): **15.1525** Min Distance (feet): **0.4971** Min Distance (meter): **0.1515**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **11.2500** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (11.25 * 3.14159)) = **33.8820**
Min Distance (cm): **33.8820** Min Distance (feet): **1.1116** Min Distance (meter): **0.3388**

U.S. Amateur Band (meters): 60

FREQUENCY
* Frequency (MHz): **5.3000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **32.04** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (32.04 * 3.14159)) = **20.0770**
Min Distance (cm): **20.0770** Min Distance (feet): **0.6587** Min Distance (meter): **0.2008**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **6.4080** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (6.41 * 3.14159)) = **44.8936**
Min Distance (cm): **44.8936** Min Distance (feet): **1.4729** Min Distance (meter): **0.4489**

U.S. Amateur Band (meters): 40

FREQUENCY
* Frequency (MHz): **7.3000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **16.89** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (16.89 * 3.14159)) = **27.6533**
Min Distance (cm): **27.6533** Min Distance (feet): **0.9073** Min Distance (meter): **0.2765**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **3.3780** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (3.38 * 3.14159)) = **61.8346**
Min Distance (cm): **61.8346** Min Distance (feet): **2.0287** Min Distance (meter): **0.6183**

U.S. Amateur Band (meters): 30

FREQUENCY
* Frequency (MHz): **10.1500**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**
(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **8.74** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (8.74 * 3.14159)) = **38.4494**
Min Distance (cm): **38.4494** Min Distance (feet): **1.2615** Min Distance (meter): **0.3845**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **1.7470** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (1.75 * 3.14159)) = **85.9755**
Min Distance (cm): **85.9755** Min Distance (feet): **2.8207** Min Distance (meter): **0.8598**

U.S. Amateur Band (meters): 20

FREQUENCY
* Frequency (MHz): **14.0740**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **4.54** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (4.54 * 3.14159)) = **53.3140**
Min Distance (cm): **53.3140** Min Distance (feet): **1.7491** Min Distance (meter): **0.5331**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.9090** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.91 * 3.14159)) = **119.2137**
Min Distance (cm): **119.2137** Min Distance (feet): **3.9112** Min Distance (meter): **1.1921**

U.S. Amateur Band (meters): 17

FREQUENCY
* Frequency (MHz): **18.1680**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **2.73** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (2.73 * 3.14159)) = **68.8226**
Min Distance (cm): **68.8226** Min Distance (feet): **2.2580** Min Distance (meter): **0.6882**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.5450** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.55 * 3.14159)) = **153.8920**
Min Distance (cm): **153.8920** Min Distance (feet): **5.0489** Min Distance (meter): **1.5389**

U.S. Amateur Band (meters): 15

FREQUENCY
* Frequency (MHz): **21.4500**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **1.96** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (1.96 * 3.14159)) = **81.2552**
Min Distance (cm): **81.2552** Min Distance (feet): **2.6659** Min Distance (meter): **0.8126**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.3910** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.39 * 3.14159)) = **181.6921**
Min Distance (cm): **181.6921** Min Distance (feet): **5.9610** Min Distance (meter): **1.8169**

U.S. Amateur Band (meters): 12

FREQUENCY
* Frequency (MHz): **24.9900**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **1.44** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (1.44 * 3.14159)) = **94.6651**
Min Distance (cm): **94.6651** Min Distance (feet): **3.1058** Min Distance (meter): **0.9467**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.2880** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.29 * 3.14159)) = **211.6777**
Min Distance (cm): **211.6777** Min Distance (feet): **6.9448** Min Distance (meter): **2.1168**

U.S. Amateur Band (meters): 10

FREQUENCY
* Frequency (MHz): **29.7000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **1.02** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (1.02 * 3.14159)) = **112.5072**
Min Distance (cm): **112.5072** Min Distance (feet): **3.6912** Min Distance (meter): **1.1251**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.2040** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.20 * 3.14159)) = **251.5737**
Min Distance (cm): **251.5737** Min Distance (feet): **8.2537** Min Distance (meter): **2.5157**

U.S. Amateur Band (meters): 6

FREQUENCY
* Frequency (MHz): **54.0000**

POWER
* Power-PEP (W): **80**
* Power (mW): **80,000**
* Duty Factor: **1.00**
* Transmit Time Ratio: **0.5**

(P) Power (Effective) (mW): Power x Duty Factor x Transmit Time Ratio = 80,000 * 1.00 * 0.5 = **40,000**

ANTENNA GAIN
(G) Antenna Gain (Numeric): 10^(2.0 dBi/10) = **1.5849**

GROUND REFLECTION
(GRM) Ground Reflection Multiplier: **0.64**

REFACTORED BASE EQUATION FOR MINIMUM DISTANCE
(R) Radius (cm) = **sqrt((GRM x P x G) / (S* PI))**

CONTROLLED
Control Mode: **ControlMode.CONTROLLED**
(S) Controlled Maximum Density (mW/cm2): **1.00** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (1.00 * 3.14159)) = **113.6436**
Min Distance (cm): **113.6436** Min Distance (feet): **3.7285** Min Distance (meter): **1.1364**

UNCONTROLLED
Control Mode: **ControlMode.UNCONTROLLED**
(S) Uncontrolled Maximum Density (mW/cm2): **0.2000** (Lookup Table)
(R) Radius (cm): sqrt((GRM x P x G) / (S* PI)) = sqrt((0.64 x 40,000 x 1.5849) / (0.20 * 3.14159)) = **254.1149**
Min Distance (cm): **254.1149** Min Distance (feet): **8.3371** Min Distance (meter): **2.5411**