

EXHIBIT 12 – TRANSMITTER POWER OUTPUT

The transmitter power output for the station is 27.5 watts. This has been calculated based on the following:

1. The authorized effective radiated power is 10.0 watts.
2. The transmission line is 43 meters of Andrew LDF4-50A coaxial cable. This type of cable has 2.23 dB loss per 100m¹, or 0.952 dB for the length in use. This equates to an efficiency of 80.3%.
3. A ferrite isolator is installed on the output of the translator to prevent potential intermodulation products between W291AP and other transmitters in close proximity. The isolator has 0.6 dB of measured insertion loss. Following the isolator is a low-pass filter which attenuates any harmonics produced by the isolator. This filter has 0.4 dB of measured insertion loss. In total, the isolator and filter add 1.0 dB to the total loss, or an efficiency of 79.4%.
4. The antenna gain is 0.57 maximum (relative field 1.00) in both the horizontal and vertical planes².
5. The transmitter power output is this calculated as follows:

| | |
|-------------------------------|--------------------|
| Effective radiated power: | 10.0 watts |
| Transmission line efficiency: | ÷ 80.3 % |
| Isolator/filter efficiency: | ÷ 79.4 % |
| Antenna gain: | ÷ 0.57 |
| Transmitter power output: | <u>27.56 watts</u> |

6. Rounding to the nearest 0.5 watt increment per 47 CFR §73.212(a), the transmitter output power is thus 27.5 watts.

¹ Manufacturer's specification

² Manufacturer's specifications – see attached relative field plot and tabulation

Measured Relative Field Tabulation

Antenna: PSIFML-1-DA

Temple University

Station: W291AP

Frequency: 106.1 MHz

Location: Scranton, PA

Reference: P112503-1

Horizontal Polarization

| Angle | Relative Field | Power Gain | Gain (dB) |
|-------|----------------|------------|-----------|
| 0 | 0.890 | 0.45 | -3.45 |
| 10 | 0.905 | 0.47 | -3.31 |
| 20 | 0.949 | 0.51 | -2.90 |
| 30 | 0.968 | 0.53 | -2.72 |
| 40 | 0.988 | 0.56 | -2.55 |
| 50 | 1.000 | 0.57 | -2.44 |
| 60 | 1.000 | 0.57 | -2.44 |
| 70 | 0.987 | 0.56 | -2.55 |
| 80 | 0.977 | 0.54 | -2.64 |
| 90 | 0.963 | 0.53 | -2.77 |
| 100 | 0.932 | 0.50 | -3.05 |
| 110 | 0.912 | 0.47 | -3.24 |
| 120 | 0.898 | 0.46 | -3.38 |
| 130 | 0.882 | 0.44 | -3.53 |
| 140 | 0.877 | 0.44 | -3.58 |
| 150 | 0.867 | 0.43 | -3.68 |
| 160 | 0.848 | 0.41 | -3.87 |
| 170 | 0.838 | 0.40 | -3.98 |
| 180 | 0.817 | 0.38 | -4.20 |
| 190 | 0.808 | 0.37 | -4.29 |
| 200 | 0.808 | 0.37 | -4.29 |
| 210 | 0.809 | 0.37 | -4.28 |
| 220 | 0.810 | 0.37 | -4.27 |
| 230 | 0.842 | 0.40 | -3.94 |
| 240 | 0.853 | 0.41 | -3.82 |
| 250 | 0.864 | 0.43 | -3.71 |
| 260 | 0.860 | 0.42 | -3.75 |
| 270 | 0.860 | 0.42 | -3.75 |
| 280 | 0.848 | 0.41 | -3.87 |
| 290 | 0.836 | 0.40 | -4.00 |
| 300 | 0.825 | 0.39 | -4.11 |
| 310 | 0.816 | 0.38 | -4.21 |
| 320 | 0.820 | 0.38 | -4.16 |
| 330 | 0.842 | 0.40 | -3.94 |
| 340 | 0.861 | 0.42 | -3.74 |
| 350 | 0.875 | 0.44 | -3.60 |

Maximum Value

Field 1.00

Gain .57 (-2.44 dB)

Azimuth Bearing 50-60 degrees

Minimum Field

Field 0.808

Gain .37 (-4.29 dB)

Azimuth Bearing 190-200 degrees

Vertical Polarization

| Angle | Relative Field | Power Gain | Gain (dB) |
|-------|----------------|------------|-----------|
| 0 | 0.962 | 0.53 | -2.78 |
| 10 | 0.948 | 0.51 | -2.91 |
| 20 | 0.950 | 0.51 | -2.89 |
| 30 | 0.965 | 0.53 | -2.75 |
| 40 | 0.985 | 0.55 | -2.57 |
| 50 | 0.850 | 0.41 | -3.85 |
| 60 | 0.835 | 0.40 | -4.01 |
| 70 | 0.931 | 0.49 | -3.06 |
| 80 | 0.950 | 0.51 | -2.89 |
| 90 | 0.960 | 0.53 | -2.80 |
| 100 | 0.975 | 0.54 | -2.66 |
| 110 | 0.988 | 0.56 | -2.55 |
| 120 | 1.000 | 0.57 | -2.44 |
| 130 | 0.992 | 0.56 | -2.51 |
| 140 | 0.965 | 0.53 | -2.75 |
| 150 | 0.918 | 0.48 | -3.18 |
| 160 | 0.881 | 0.44 | -3.54 |
| 170 | 0.820 | 0.38 | -4.16 |
| 180 | 0.787 | 0.35 | -4.52 |
| 190 | 0.766 | 0.33 | -4.76 |
| 200 | 0.738 | 0.31 | -5.08 |
| 210 | 0.725 | 0.30 | -5.23 |
| 220 | 0.702 | 0.28 | -5.51 |
| 230 | 0.695 | 0.28 | -5.60 |
| 240 | 0.690 | 0.27 | -5.66 |
| 250 | 0.690 | 0.27 | -5.66 |
| 260 | 0.700 | 0.28 | -5.54 |
| 270 | 0.738 | 0.31 | -5.08 |
| 280 | 0.792 | 0.36 | -4.47 |
| 290 | 0.846 | 0.41 | -3.89 |
| 300 | 0.900 | 0.46 | -3.36 |
| 310 | 0.928 | 0.49 | -3.09 |
| 320 | 0.948 | 0.51 | -2.91 |
| 330 | 0.972 | 0.54 | -2.69 |
| 340 | 0.978 | 0.55 | -2.63 |
| 350 | 0.971 | 0.54 | -2.70 |

Maximum Value

Field 1.00

Gain .57 (-2.44 dB)

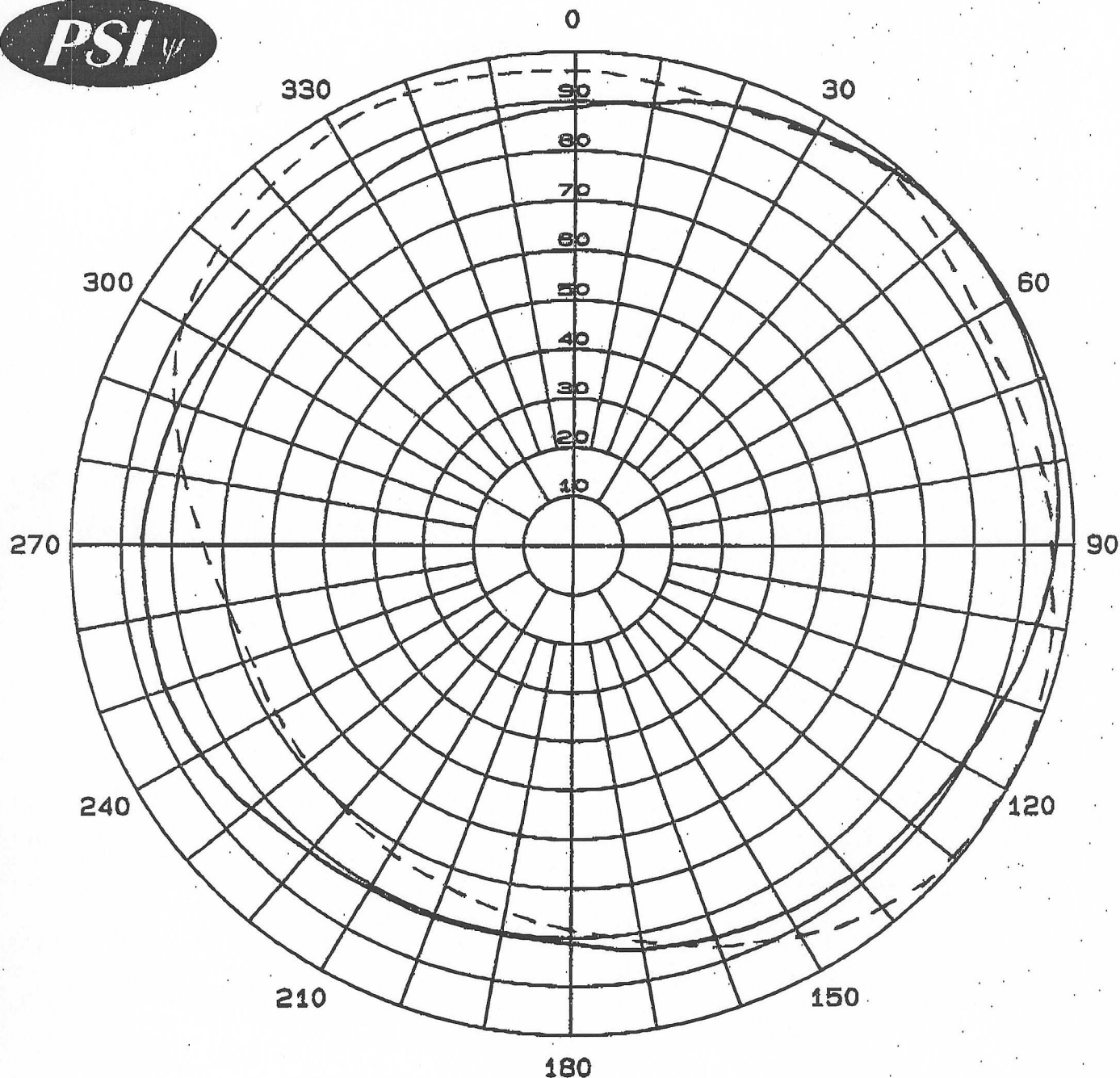
Azimuth Bearing 120 degrees

Minimum Field

Field 0.690

Gain .27 (-5.66 dB)

Azimuth Bearing 240-250 degrees



Measured Relative Field
Azimuth Plane Pattern
Antenna: PSIFML-1-DA
Type: 1-Bay Directional FM
Gain: H-pol (solid) .57 (-2.44 dB)
Gain: V-pol (dash) .57 (-2.44 dB)
Station: W291AP
Ref. P112503-1

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