

AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-70496**
 Date **14-Mar-17**
 Call Letters **KGCW**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22JSC-R C150**
 Gain **1.52 (1.82dB)**
 Calculated

| Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value |
|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| 0 | 0.870 | 36 | 0.490 | 72 | 0.190 | 108 | 0.390 | 144 | 0.790 | 180 | 1.000 | 216 | 0.940 | 252 | 0.990 | 288 | 0.930 |
| 1 | 0.860 | 37 | 0.480 | 73 | 0.190 | 109 | 0.410 | 145 | 0.800 | 181 | 1.000 | 217 | 0.940 | 253 | 0.990 | 289 | 0.930 |
| 2 | 0.850 | 38 | 0.470 | 74 | 0.200 | 110 | 0.420 | 146 | 0.820 | 182 | 1.000 | 218 | 0.940 | 254 | 0.990 | 290 | 0.930 |
| 3 | 0.840 | 39 | 0.450 | 75 | 0.200 | 111 | 0.440 | 147 | 0.830 | 183 | 1.000 | 219 | 0.940 | 255 | 0.990 | 291 | 0.930 |
| 4 | 0.820 | 40 | 0.440 | 76 | 0.200 | 112 | 0.450 | 148 | 0.840 | 184 | 1.000 | 220 | 0.930 | 256 | 0.990 | 292 | 0.930 |
| 5 | 0.810 | 41 | 0.420 | 77 | 0.200 | 113 | 0.470 | 149 | 0.850 | 185 | 1.000 | 221 | 0.930 | 257 | 0.990 | 293 | 0.930 |
| 6 | 0.800 | 42 | 0.410 | 78 | 0.200 | 114 | 0.480 | 150 | 0.860 | 186 | 1.000 | 222 | 0.940 | 258 | 0.990 | 294 | 0.930 |
| 7 | 0.790 | 43 | 0.390 | 79 | 0.200 | 115 | 0.500 | 151 | 0.880 | 187 | 1.000 | 223 | 0.940 | 259 | 0.990 | 295 | 0.940 |
| 8 | 0.780 | 44 | 0.380 | 80 | 0.190 | 116 | 0.510 | 152 | 0.890 | 188 | 1.000 | 224 | 0.940 | 260 | 0.990 | 296 | 0.940 |
| 9 | 0.760 | 45 | 0.360 | 81 | 0.190 | 117 | 0.520 | 153 | 0.900 | 189 | 1.000 | 225 | 0.940 | 261 | 0.990 | 297 | 0.940 |
| 10 | 0.750 | 46 | 0.350 | 82 | 0.190 | 118 | 0.530 | 154 | 0.910 | 190 | 1.000 | 226 | 0.940 | 262 | 0.990 | 298 | 0.940 |
| 11 | 0.740 | 47 | 0.330 | 83 | 0.190 | 119 | 0.540 | 155 | 0.920 | 191 | 1.000 | 227 | 0.940 | 263 | 0.990 | 299 | 0.940 |
| 12 | 0.730 | 48 | 0.320 | 84 | 0.190 | 120 | 0.550 | 156 | 0.930 | 192 | 1.000 | 228 | 0.940 | 264 | 0.990 | 300 | 0.950 |
| 13 | 0.720 | 49 | 0.310 | 85 | 0.190 | 121 | 0.560 | 157 | 0.940 | 193 | 1.000 | 229 | 0.950 | 265 | 0.990 | 301 | 0.950 |
| 14 | 0.710 | 50 | 0.290 | 86 | 0.190 | 122 | 0.570 | 158 | 0.940 | 194 | 1.000 | 230 | 0.950 | 266 | 0.990 | 302 | 0.950 |
| 15 | 0.700 | 51 | 0.280 | 87 | 0.200 | 123 | 0.580 | 159 | 0.950 | 195 | 1.000 | 231 | 0.950 | 267 | 0.980 | 303 | 0.960 |
| 16 | 0.690 | 52 | 0.270 | 88 | 0.200 | 124 | 0.590 | 160 | 0.960 | 196 | 1.000 | 232 | 0.950 | 268 | 0.980 | 304 | 0.960 |
| 17 | 0.680 | 53 | 0.260 | 89 | 0.200 | 125 | 0.600 | 161 | 0.960 | 197 | 0.990 | 233 | 0.960 | 269 | 0.980 | 305 | 0.960 |
| 18 | 0.670 | 54 | 0.250 | 90 | 0.200 | 126 | 0.610 | 162 | 0.970 | 198 | 0.990 | 234 | 0.960 | 270 | 0.980 | 306 | 0.970 |
| 19 | 0.660 | 55 | 0.240 | 91 | 0.210 | 127 | 0.620 | 163 | 0.970 | 199 | 0.990 | 235 | 0.960 | 271 | 0.980 | 307 | 0.970 |
| 20 | 0.650 | 56 | 0.230 | 92 | 0.210 | 128 | 0.630 | 164 | 0.980 | 200 | 0.990 | 236 | 0.970 | 272 | 0.970 | 308 | 0.970 |
| 21 | 0.640 | 57 | 0.220 | 93 | 0.220 | 129 | 0.640 | 165 | 0.980 | 201 | 0.980 | 237 | 0.970 | 273 | 0.970 | 309 | 0.980 |
| 22 | 0.630 | 58 | 0.210 | 94 | 0.220 | 130 | 0.650 | 166 | 0.980 | 202 | 0.980 | 238 | 0.970 | 274 | 0.970 | 310 | 0.980 |
| 23 | 0.620 | 59 | 0.210 | 95 | 0.230 | 131 | 0.650 | 167 | 0.990 | 203 | 0.980 | 239 | 0.970 | 275 | 0.970 | 311 | 0.980 |
| 24 | 0.610 | 60 | 0.200 | 96 | 0.240 | 132 | 0.660 | 168 | 0.990 | 204 | 0.980 | 240 | 0.980 | 276 | 0.960 | 312 | 0.980 |
| 25 | 0.600 | 61 | 0.200 | 97 | 0.250 | 133 | 0.670 | 169 | 0.990 | 205 | 0.970 | 241 | 0.980 | 277 | 0.960 | 313 | 0.990 |
| 26 | 0.600 | 62 | 0.200 | 98 | 0.260 | 134 | 0.680 | 170 | 0.990 | 206 | 0.970 | 242 | 0.980 | 278 | 0.960 | 314 | 0.990 |
| 27 | 0.590 | 63 | 0.190 | 99 | 0.270 | 135 | 0.690 | 171 | 0.990 | 207 | 0.970 | 243 | 0.980 | 279 | 0.950 | 315 | 0.990 |
| 28 | 0.580 | 64 | 0.190 | 100 | 0.280 | 136 | 0.700 | 172 | 0.990 | 208 | 0.960 | 244 | 0.980 | 280 | 0.950 | 316 | 0.990 |
| 29 | 0.570 | 65 | 0.190 | 101 | 0.290 | 137 | 0.710 | 173 | 0.990 | 209 | 0.960 | 245 | 0.990 | 281 | 0.950 | 317 | 0.990 |
| 30 | 0.560 | 66 | 0.190 | 102 | 0.310 | 138 | 0.720 | 174 | 0.990 | 210 | 0.960 | 246 | 0.990 | 282 | 0.950 | 318 | 0.990 |
| 31 | 0.550 | 67 | 0.190 | 103 | 0.320 | 139 | 0.730 | 175 | 0.990 | 211 | 0.950 | 247 | 0.990 | 283 | 0.940 | 319 | 0.990 |
| 32 | 0.540 | 68 | 0.190 | 104 | 0.330 | 140 | 0.740 | 176 | 0.990 | 212 | 0.950 | 248 | 0.990 | 284 | 0.940 | 320 | 0.990 |
| 33 | 0.530 | 69 | 0.190 | 105 | 0.350 | 141 | 0.760 | 177 | 1.000 | 213 | 0.950 | 249 | 0.990 | 285 | 0.940 | 321 | 0.990 |
| 34 | 0.520 | 70 | 0.190 | 106 | 0.360 | 142 | 0.770 | 178 | 1.000 | 214 | 0.940 | 250 | 0.990 | 286 | 0.940 | 322 | 0.990 |
| 35 | 0.500 | 71 | 0.190 | 107 | 0.380 | 143 | 0.780 | 179 | 1.000 | 215 | 0.940 | 251 | 0.990 | 287 | 0.940 | 323 | 0.990 |

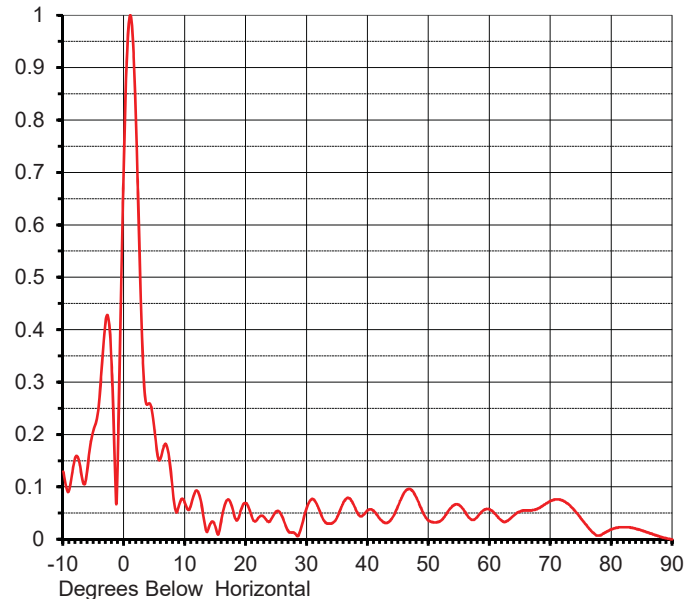
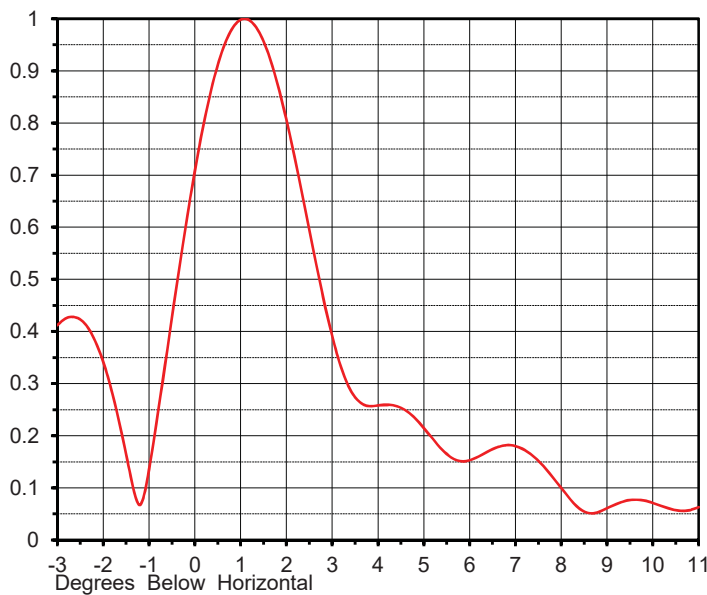
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ELEVATION PATTERN

Proposal No. **C-70496**
 Date **14-Mar-17**
 Call Letters **KGCW**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22JSC-R C150**

RMS Directivity at Main Lobe **20.0 (13.01 dB)**
 RMS Directivity at Horizontal **10.0 (10.00 dB)**
Calculated

Beam Tilt **1.00 deg**
 Pattern Number **22Z200100**



| Angle | Field | Angle | Field | Angle | Field | Angle | Field | Angle | Field |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| -10.0 | 0.129 | 10.0 | 0.068 | 30.0 | 0.062 | 50.0 | 0.035 | 70.0 | 0.073 |
| -9.0 | 0.095 | 11.0 | 0.067 | 31.0 | 0.076 | 51.0 | 0.032 | 71.0 | 0.076 |
| -8.0 | 0.157 | 12.0 | 0.092 | 32.0 | 0.056 | 52.0 | 0.036 | 72.0 | 0.074 |
| -7.0 | 0.122 | 13.0 | 0.044 | 33.0 | 0.032 | 53.0 | 0.051 | 73.0 | 0.066 |
| -6.0 | 0.139 | 14.0 | 0.026 | 34.0 | 0.030 | 54.0 | 0.064 | 74.0 | 0.054 |
| -5.0 | 0.210 | 15.0 | 0.023 | 35.0 | 0.044 | 55.0 | 0.065 | 75.0 | 0.039 |
| -4.0 | 0.279 | 16.0 | 0.040 | 36.0 | 0.071 | 56.0 | 0.051 | 76.0 | 0.025 |
| -3.0 | 0.420 | 17.0 | 0.076 | 37.0 | 0.078 | 57.0 | 0.037 | 77.0 | 0.012 |
| -2.0 | 0.313 | 18.0 | 0.048 | 38.0 | 0.057 | 58.0 | 0.044 | 78.0 | 0.007 |
| -1.0 | 0.189 | 19.0 | 0.050 | 39.0 | 0.044 | 59.0 | 0.056 | 79.0 | 0.013 |
| 0.0 | 0.756 | 20.0 | 0.069 | 40.0 | 0.056 | 60.0 | 0.057 | 80.0 | 0.019 |
| 1.0 | 1.000 | 21.0 | 0.041 | 41.0 | 0.053 | 61.0 | 0.047 | 81.0 | 0.022 |
| 2.0 | 0.767 | 22.0 | 0.041 | 42.0 | 0.038 | 62.0 | 0.035 | 82.0 | 0.023 |
| 3.0 | 0.358 | 23.0 | 0.042 | 43.0 | 0.031 | 63.0 | 0.036 | 83.0 | 0.023 |
| 4.0 | 0.259 | 24.0 | 0.036 | 44.0 | 0.041 | 64.0 | 0.046 | 84.0 | 0.020 |
| 5.0 | 0.204 | 25.0 | 0.053 | 45.0 | 0.065 | 65.0 | 0.053 | 85.0 | 0.017 |
| 6.0 | 0.156 | 26.0 | 0.041 | 46.0 | 0.090 | 66.0 | 0.055 | 86.0 | 0.013 |
| 7.0 | 0.177 | 27.0 | 0.014 | 47.0 | 0.095 | 67.0 | 0.056 | 87.0 | 0.009 |
| 8.0 | 0.089 | 28.0 | 0.011 | 48.0 | 0.078 | 68.0 | 0.059 | 88.0 | 0.005 |
| 9.0 | 0.065 | 29.0 | 0.021 | 49.0 | 0.052 | 69.0 | 0.066 | 89.0 | 0.002 |
| | | | | | | | | 90.0 | 0.000 |

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MECHANICAL SPECIFICATIONS

| | |
|--------------|-------------------------|
| Proposal No. | C-70496 |
| Date | 14-Mar-17 |
| Call Letters | KGCW |
| Channel | 21 |
| Frequency | 515 MHz |
| Antenna Type | TFU-22JSC-R C150 |

Preliminary Specifications

Side Mounted

Without ice TIA/EIA-222-F

| | |
|------------------|---------------------|
| Height AGL | 1250 ft (381 m) |
| Basic Wind Speed | 80 m/h (128.7 km/h) |

Mechanical Specifications

| | | | |
|-------------------------------|------|---|-----------------|
| Height | H2 | 47.8 ft (14.6m) | |
| Height of Center of Radiation | H3 | 23.9 ft (7.3m) | |
| Force Coeff. x Projected Area | CaAc | 76.8 ft ² (7.1m ²) | |
| Weight | W | 960 lb (0.4t) | Mounts Excluded |

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA/EIA-222-F

| | | | | | |
|---------------------|-----|--------------|-----------|------------|------------|
| Prepared by: | KLP | Date: | 14-Mar-17 | ME: | EE: |
| | jls | Date: | 16-Mar-17 | | |

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