Dielectric®

**Antenna Model:** **TFU-31JSC/VP-R O4**

| | |
|---|---|
| Proposal Number: | **C-71028** |
| Date: | **1-Nov-17** |
| Customer: | **Nexstar** |
| Location: | **Vanderbilt, MI** |

## Electrical Specifications

| | | | | | |
|---|---|---|---|---|---|
| Polarization: | **Elliptical** | | | | |
| Azimuth Pattern: | **Omni** | | | | |
| Antenna Input: | **6-1/8"** | **75 Ohm** | **EIA/DCA** | | |
| VSWR: | Channel | **1.08 : 1** | | Band | **1.08 : 1** |
| Bandwidth: | **6 MHz** | | | | |
| Rated Input Power: | **55 kW** | **(17.40 dBk)** | **Maximum Average Power** | | |

## Mechanical Specifications

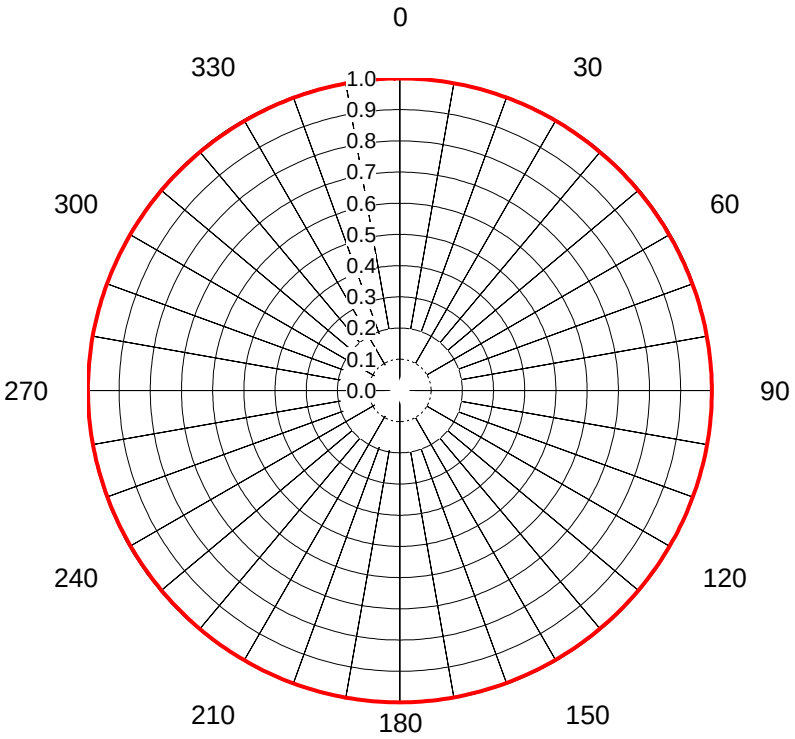
| | | | | |
|---|---|---|---|---|
| Mounting: | **Side Mounted** | | | |
| Environmental Protection: | **Full Radome** | | | |
| Height: | **65 ft (19.8m)** | | | |
| Weight: | **1900 lb (0.9t)** | Excludes Mounts | | |
| Effective Projected Area: | **64 ft² (5.9m²)** | **TIA-222-G** | Basic Wind Speed: | **90 m/h (144.8 km/h)** |

## Channel Specifications

| Call | CH | Freq | Hpol ERP | Vpol ERP | TPO | RMS Main Lobe Hpol Gain | RMS Main Lobe Vpol Gain | RMS at Horizontal Hpol Gain | RMS at Horizontal Vpol Gain |
|---|---|---|---|---|---|---|---|---|---|
| WFUP | 21 | 515 MHz | 1,000 kW (30.00 dBk) | 330 kW (25.19 dBk) | 50.6 kW (17.04 dBk) | 23.31 (13.68dB) | 7.69 (8.86dB) | 18.21 (12.60dB) | 6.01 (7.79dB) |

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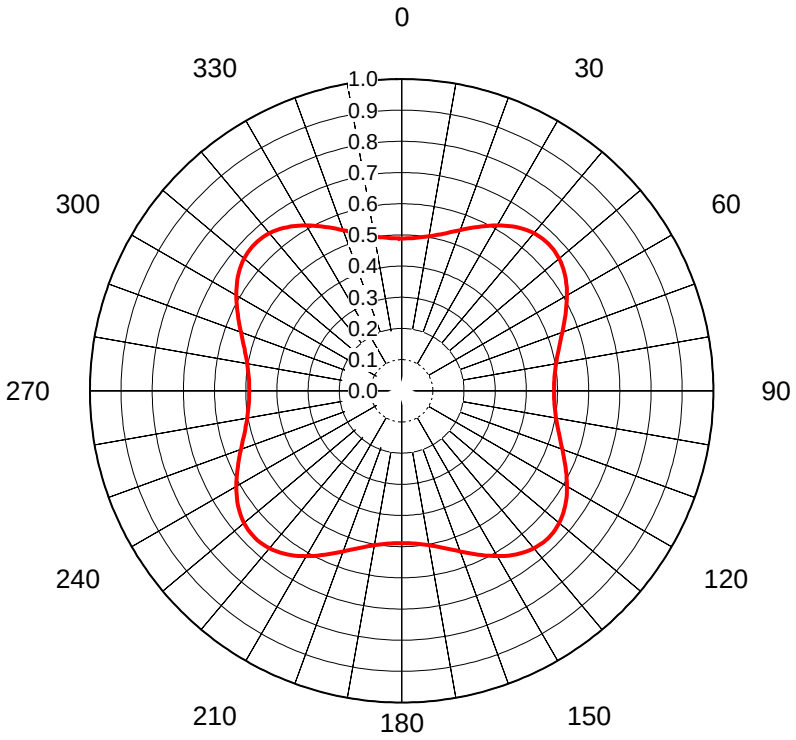

# AZIMUTH PATTERN
## Horizontal Polarization

In Free Space

| | |
|---|---|
| Proposal No. | **C-71028** |
| Date | **1-Nov-17** |
| Call Letters | **WFUP** |
| Channel | **21** |
| Frequency | **515 MHz** |
| Antenna Type | **TFU-31JSC/VP-R O4** |
| Gain | **1 (0.01dB)** |
| | Calculated |
| Circularity | **+/- 1.0 dB** |

| Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1.000 | 36 | 0.998 | 72 | 0.998 | 108 | 0.999 | 144 | 0.997 | 180 | 1.000 | 216 | 0.998 | 252 | 0.998 | 288 | 0.999 | 324 | 0.997 |
| 1 | 1.000 | 37 | 0.998 | 73 | 0.998 | 109 | 0.999 | 145 | 0.997 | 181 | 1.000 | 217 | 0.998 | 253 | 0.998 | 289 | 0.999 | 325 | 0.997 |
| 2 | 1.000 | 38 | 0.998 | 74 | 0.998 | 110 | 0.999 | 146 | 0.997 | 182 | 1.000 | 218 | 0.998 | 254 | 0.998 | 290 | 0.999 | 326 | 0.997 |
| 3 | 1.000 | 39 | 0.998 | 75 | 0.998 | 111 | 0.999 | 147 | 0.997 | 183 | 1.000 | 219 | 0.998 | 255 | 0.998 | 291 | 0.999 | 327 | 0.997 |
| 4 | 1.000 | 40 | 0.998 | 76 | 0.999 | 112 | 0.999 | 148 | 0.997 | 184 | 1.000 | 220 | 0.998 | 256 | 0.999 | 292 | 0.999 | 328 | 0.997 |
| 5 | 1.000 | 41 | 0.998 | 77 | 0.999 | 113 | 0.999 | 149 | 0.997 | 185 | 1.000 | 221 | 0.998 | 257 | 0.999 | 293 | 0.999 | 329 | 0.997 |
| 6 | 1.000 | 42 | 0.997 | 78 | 0.999 | 114 | 0.999 | 150 | 0.997 | 186 | 1.000 | 222 | 0.997 | 258 | 0.999 | 294 | 0.999 | 330 | 0.997 |
| 7 | 1.000 | 43 | 0.997 | 79 | 0.999 | 115 | 0.999 | 151 | 0.997 | 187 | 1.000 | 223 | 0.997 | 259 | 0.999 | 295 | 0.999 | 331 | 0.997 |
| 8 | 1.000 | 44 | 0.997 | 80 | 0.999 | 116 | 0.999 | 152 | 0.997 | 188 | 1.000 | 224 | 0.997 | 260 | 0.999 | 296 | 0.999 | 332 | 0.997 |
| 9 | 1.000 | 45 | 0.997 | 81 | 0.999 | 117 | 0.998 | 153 | 0.997 | 189 | 1.000 | 225 | 0.997 | 261 | 0.999 | 297 | 0.998 | 333 | 0.997 |
| 10 | 1.000 | 46 | 0.997 | 82 | 0.999 | 118 | 0.998 | 154 | 0.997 | 190 | 1.000 | 226 | 0.997 | 262 | 0.999 | 298 | 0.998 | 334 | 0.997 |
| 11 | 1.000 | 47 | 0.997 | 83 | 0.999 | 119 | 0.998 | 155 | 0.997 | 191 | 1.000 | 227 | 0.997 | 263 | 0.999 | 299 | 0.998 | 335 | 0.997 |
| 12 | 1.000 | 48 | 0.997 | 84 | 0.999 | 120 | 0.998 | 156 | 0.997 | 192 | 1.000 | 228 | 0.997 | 264 | 0.999 | 300 | 0.998 | 336 | 0.997 |
| 13 | 1.000 | 49 | 0.997 | 85 | 1.000 | 121 | 0.998 | 157 | 0.998 | 193 | 1.000 | 229 | 0.997 | 265 | 1.000 | 301 | 0.998 | 337 | 0.998 |
| 14 | 1.000 | 50 | 0.997 | 86 | 1.000 | 122 | 0.998 | 158 | 0.998 | 194 | 1.000 | 230 | 0.997 | 266 | 1.000 | 302 | 0.998 | 338 | 0.998 |
| 15 | 1.000 | 51 | 0.997 | 87 | 1.000 | 123 | 0.998 | 159 | 0.998 | 195 | 1.000 | 231 | 0.997 | 267 | 1.000 | 303 | 0.998 | 339 | 0.998 |
| 16 | 0.999 | 52 | 0.997 | 88 | 1.000 | 124 | 0.998 | 160 | 0.998 | 196 | 0.999 | 232 | 0.997 | 268 | 1.000 | 304 | 0.998 | 340 | 0.998 |
| 17 | 0.999 | 53 | 0.997 | 89 | 1.000 | 125 | 0.998 | 161 | 0.998 | 197 | 0.999 | 233 | 0.997 | 269 | 1.000 | 305 | 0.998 | 341 | 0.998 |
| 18 | 0.999 | 54 | 0.997 | 90 | 1.000 | 126 | 0.998 | 162 | 0.998 | 198 | 0.999 | 234 | 0.997 | 270 | 1.000 | 306 | 0.998 | 342 | 0.998 |
| 19 | 0.999 | 55 | 0.997 | 91 | 1.000 | 127 | 0.998 | 163 | 0.998 | 199 | 0.999 | 235 | 0.997 | 271 | 1.000 | 307 | 0.998 | 343 | 0.998 |
| 20 | 0.999 | 56 | 0.997 | 92 | 1.000 | 128 | 0.998 | 164 | 0.998 | 200 | 0.999 | 236 | 0.997 | 272 | 1.000 | 308 | 0.998 | 344 | 0.998 |
| 21 | 0.999 | 57 | 0.997 | 93 | 1.000 | 129 | 0.998 | 165 | 0.998 | 201 | 0.999 | 237 | 0.997 | 273 | 1.000 | 309 | 0.998 | 345 | 0.998 |
| 22 | 0.999 | 58 | 0.997 | 94 | 1.000 | 130 | 0.998 | 166 | 0.999 | 202 | 0.999 | 238 | 0.997 | 274 | 1.000 | 310 | 0.998 | 346 | 0.999 |
| 23 | 0.999 | 59 | 0.997 | 95 | 1.000 | 131 | 0.998 | 167 | 0.999 | 203 | 0.999 | 239 | 0.997 | 275 | 1.000 | 311 | 0.998 | 347 | 0.999 |
| 24 | 0.999 | 60 | 0.997 | 96 | 1.000 | 132 | 0.997 | 168 | 0.999 | 204 | 0.999 | 240 | 0.997 | 276 | 1.000 | 312 | 0.997 | 348 | 0.999 |
| 25 | 0.999 | 61 | 0.997 | 97 | 1.000 | 133 | 0.997 | 169 | 0.999 | 205 | 0.999 | 241 | 0.997 | 277 | 1.000 | 313 | 0.997 | 349 | 0.999 |
| 26 | 0.999 | 62 | 0.997 | 98 | 1.000 | 134 | 0.997 | 170 | 0.999 | 206 | 0.999 | 242 | 0.997 | 278 | 1.000 | 314 | 0.997 | 350 | 0.999 |
| 27 | 0.998 | 63 | 0.997 | 99 | 1.000 | 135 | 0.997 | 171 | 0.999 | 207 | 0.998 | 243 | 0.997 | 279 | 1.000 | 315 | 0.997 | 351 | 0.999 |
| 28 | 0.998 | 64 | 0.997 | 100 | 1.000 | 136 | 0.997 | 172 | 0.999 | 208 | 0.998 | 244 | 0.997 | 280 | 1.000 | 316 | 0.997 | 352 | 0.999 |
| 29 | 0.998 | 65 | 0.997 | 101 | 1.000 | 137 | 0.997 | 173 | 0.999 | 209 | 0.998 | 245 | 0.997 | 281 | 1.000 | 317 | 0.997 | 353 | 0.999 |
| 30 | 0.998 | 66 | 0.997 | 102 | 1.000 | 138 | 0.997 | 174 | 0.999 | 210 | 0.998 | 246 | 0.997 | 282 | 1.000 | 318 | 0.997 | 354 | 0.999 |
| 31 | 0.998 | 67 | 0.998 | 103 | 1.000 | 139 | 0.997 | 175 | 1.000 | 211 | 0.998 | 247 | 0.998 | 283 | 1.000 | 319 | 0.997 | 355 | 1.000 |
| 32 | 0.998 | 68 | 0.998 | 104 | 1.000 | 140 | 0.997 | 176 | 1.000 | 212 | 0.998 | 248 | 0.998 | 284 | 1.000 | 320 | 0.997 | 356 | 1.000 |
| 33 | 0.998 | 69 | 0.998 | 105 | 1.000 | 141 | 0.997 | 177 | 1.000 | 213 | 0.998 | 249 | 0.998 | 285 | 1.000 | 321 | 0.997 | 357 | 1.000 |
| 34 | 0.998 | 70 | 0.998 | 106 | 0.999 | 142 | 0.997 | 178 | 1.000 | 214 | 0.998 | 250 | 0.998 | 286 | 0.999 | 322 | 0.997 | 358 | 1.000 |
| 35 | 0.998 | 71 | 0.998 | 107 | 0.999 | 143 | 0.997 | 179 | 1.000 | 215 | 0.998 | 251 | 0.998 | 287 | 0.999 | 323 | 0.997 | 359 | 1.000 |

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# AZIMUTH PATTERN
## Vertical Polarization

In Free Space

| | |
|---|---|
| Proposal No. | **C-71028** |
| Date | **1-Nov-17** |
| Call Letters | **WFUP** |
| Channel | **21** |
| Frequency | **515 MHz** |
| Antenna Type | **TFU-31JSC/VP-R O4** |
| Gain | **1.35 (1.29dB)** Calculated |
| Circularity | **+/- 2.0 dB** |

| Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.489 | 36 | 0.645 | 72 | 0.537 | 108 | 0.537 | 144 | 0.645 | 180 | 0.489 | 216 | 0.645 | 252 | 0.537 | 288 | 0.537 | 324 | 0.645 |
| 1 | 0.489 | 37 | 0.650 | 73 | 0.532 | 109 | 0.543 | 145 | 0.641 | 181 | 0.489 | 217 | 0.650 | 253 | 0.532 | 289 | 0.543 | 325 | 0.641 |
| 2 | 0.489 | 38 | 0.653 | 74 | 0.527 | 110 | 0.548 | 146 | 0.636 | 182 | 0.489 | 218 | 0.653 | 254 | 0.527 | 290 | 0.548 | 326 | 0.636 |
| 3 | 0.490 | 39 | 0.657 | 75 | 0.522 | 111 | 0.554 | 147 | 0.630 | 183 | 0.490 | 219 | 0.657 | 255 | 0.522 | 291 | 0.554 | 327 | 0.630 |
| 4 | 0.491 | 40 | 0.660 | 76 | 0.517 | 112 | 0.561 | 148 | 0.624 | 184 | 0.491 | 220 | 0.660 | 256 | 0.517 | 292 | 0.561 | 328 | 0.624 |
| 5 | 0.492 | 41 | 0.662 | 77 | 0.513 | 113 | 0.567 | 149 | 0.619 | 185 | 0.492 | 221 | 0.662 | 257 | 0.513 | 293 | 0.567 | 329 | 0.619 |
| 6 | 0.494 | 42 | 0.664 | 78 | 0.510 | 114 | 0.573 | 150 | 0.612 | 186 | 0.494 | 222 | 0.664 | 258 | 0.510 | 294 | 0.573 | 330 | 0.612 |
| 7 | 0.496 | 43 | 0.665 | 79 | 0.506 | 115 | 0.580 | 151 | 0.606 | 187 | 0.496 | 223 | 0.665 | 259 | 0.506 | 295 | 0.580 | 331 | 0.606 |
| 8 | 0.498 | 44 | 0.666 | 80 | 0.503 | 116 | 0.587 | 152 | 0.600 | 188 | 0.498 | 224 | 0.666 | 260 | 0.503 | 296 | 0.587 | 332 | 0.600 |
| 9 | 0.500 | 45 | 0.666 | 81 | 0.500 | 117 | 0.593 | 153 | 0.593 | 189 | 0.500 | 225 | 0.666 | 261 | 0.500 | 297 | 0.593 | 333 | 0.593 |
| 10 | 0.503 | 46 | 0.666 | 82 | 0.498 | 118 | 0.600 | 154 | 0.587 | 190 | 0.503 | 226 | 0.666 | 262 | 0.498 | 298 | 0.600 | 334 | 0.587 |
| 11 | 0.506 | 47 | 0.665 | 83 | 0.496 | 119 | 0.606 | 155 | 0.580 | 191 | 0.506 | 227 | 0.665 | 263 | 0.496 | 299 | 0.606 | 335 | 0.580 |
| 12 | 0.510 | 48 | 0.664 | 84 | 0.494 | 120 | 0.612 | 156 | 0.573 | 192 | 0.510 | 228 | 0.664 | 264 | 0.494 | 300 | 0.612 | 336 | 0.573 |
| 13 | 0.513 | 49 | 0.662 | 85 | 0.492 | 121 | 0.619 | 157 | 0.567 | 193 | 0.513 | 229 | 0.662 | 265 | 0.492 | 301 | 0.619 | 337 | 0.567 |
| 14 | 0.517 | 50 | 0.660 | 86 | 0.491 | 122 | 0.625 | 158 | 0.561 | 194 | 0.517 | 230 | 0.660 | 266 | 0.491 | 302 | 0.625 | 338 | 0.561 |
| 15 | 0.522 | 51 | 0.657 | 87 | 0.490 | 123 | 0.630 | 159 | 0.554 | 195 | 0.522 | 231 | 0.657 | 267 | 0.490 | 303 | 0.630 | 339 | 0.554 |
| 16 | 0.527 | 52 | 0.653 | 88 | 0.489 | 124 | 0.636 | 160 | 0.548 | 196 | 0.527 | 232 | 0.653 | 268 | 0.489 | 304 | 0.636 | 340 | 0.548 |
| 17 | 0.532 | 53 | 0.650 | 89 | 0.489 | 125 | 0.641 | 161 | 0.542 | 197 | 0.532 | 233 | 0.650 | 269 | 0.489 | 305 | 0.641 | 341 | 0.542 |
| 18 | 0.537 | 54 | 0.645 | 90 | 0.489 | 126 | 0.645 | 162 | 0.537 | 198 | 0.537 | 234 | 0.645 | 270 | 0.489 | 306 | 0.645 | 342 | 0.537 |
| 19 | 0.543 | 55 | 0.641 | 91 | 0.489 | 127 | 0.650 | 163 | 0.532 | 199 | 0.543 | 235 | 0.641 | 271 | 0.489 | 307 | 0.650 | 343 | 0.532 |
| 20 | 0.548 | 56 | 0.636 | 92 | 0.489 | 128 | 0.653 | 164 | 0.527 | 200 | 0.548 | 236 | 0.636 | 272 | 0.489 | 308 | 0.653 | 344 | 0.527 |
| 21 | 0.554 | 57 | 0.630 | 93 | 0.490 | 129 | 0.657 | 165 | 0.522 | 201 | 0.554 | 237 | 0.630 | 273 | 0.490 | 309 | 0.657 | 345 | 0.522 |
| 22 | 0.561 | 58 | 0.624 | 94 | 0.491 | 130 | 0.660 | 166 | 0.517 | 202 | 0.561 | 238 | 0.624 | 274 | 0.491 | 310 | 0.660 | 346 | 0.517 |
| 23 | 0.567 | 59 | 0.619 | 95 | 0.492 | 131 | 0.662 | 167 | 0.513 | 203 | 0.567 | 239 | 0.619 | 275 | 0.492 | 311 | 0.662 | 347 | 0.513 |
| 24 | 0.573 | 60 | 0.612 | 96 | 0.494 | 132 | 0.664 | 168 | 0.510 | 204 | 0.573 | 240 | 0.612 | 276 | 0.494 | 312 | 0.664 | 348 | 0.510 |
| 25 | 0.580 | 61 | 0.606 | 97 | 0.496 | 133 | 0.665 | 169 | 0.506 | 205 | 0.580 | 241 | 0.606 | 277 | 0.496 | 313 | 0.665 | 349 | 0.506 |
| 26 | 0.587 | 62 | 0.600 | 98 | 0.498 | 134 | 0.666 | 170 | 0.503 | 206 | 0.587 | 242 | 0.600 | 278 | 0.498 | 314 | 0.666 | 350 | 0.503 |
| 27 | 0.593 | 63 | 0.593 | 99 | 0.500 | 135 | 0.666 | 171 | 0.500 | 207 | 0.593 | 243 | 0.593 | 279 | 0.500 | 315 | 0.666 | 351 | 0.500 |
| 28 | 0.600 | 64 | 0.587 | 100 | 0.503 | 136 | 0.666 | 172 | 0.498 | 208 | 0.600 | 244 | 0.587 | 280 | 0.503 | 316 | 0.666 | 352 | 0.498 |
| 29 | 0.606 | 65 | 0.580 | 101 | 0.506 | 137 | 0.665 | 173 | 0.496 | 209 | 0.606 | 245 | 0.580 | 281 | 0.506 | 317 | 0.665 | 353 | 0.496 |
| 30 | 0.612 | 66 | 0.573 | 102 | 0.510 | 138 | 0.664 | 174 | 0.494 | 210 | 0.612 | 246 | 0.573 | 282 | 0.510 | 318 | 0.664 | 354 | 0.494 |
| 31 | 0.619 | 67 | 0.567 | 103 | 0.513 | 139 | 0.662 | 175 | 0.492 | 211 | 0.619 | 247 | 0.567 | 283 | 0.513 | 319 | 0.662 | 355 | 0.492 |
| 32 | 0.625 | 68 | 0.561 | 104 | 0.517 | 140 | 0.660 | 176 | 0.491 | 212 | 0.625 | 248 | 0.561 | 284 | 0.517 | 320 | 0.660 | 356 | 0.491 |
| 33 | 0.630 | 69 | 0.554 | 105 | 0.522 | 141 | 0.657 | 177 | 0.490 | 213 | 0.630 | 249 | 0.554 | 285 | 0.522 | 321 | 0.657 | 357 | 0.490 |
| 34 | 0.636 | 70 | 0.548 | 106 | 0.527 | 142 | 0.653 | 178 | 0.489 | 214 | 0.636 | 250 | 0.548 | 286 | 0.527 | 322 | 0.653 | 358 | 0.489 |
| 35 | 0.641 | 71 | 0.542 | 107 | 0.532 | 143 | 0.650 | 179 | 0.489 | 215 | 0.641 | 251 | 0.542 | 287 | 0.532 | 323 | 0.650 | 359 | 0.489 |

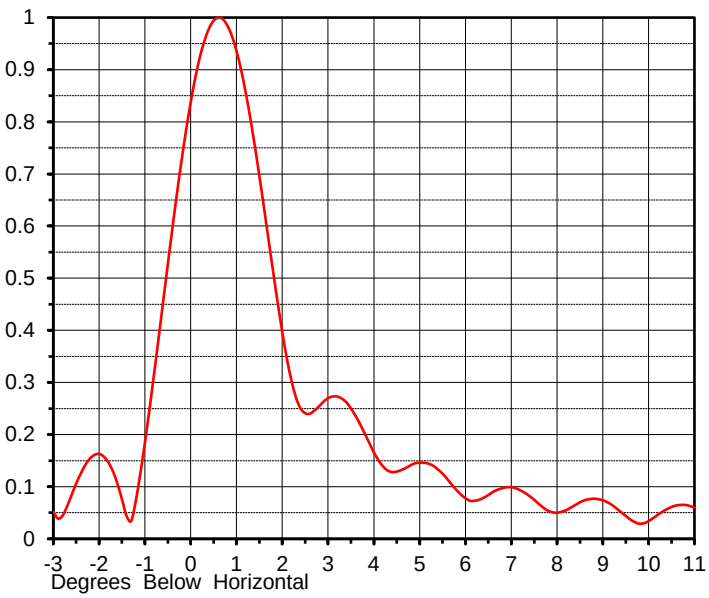
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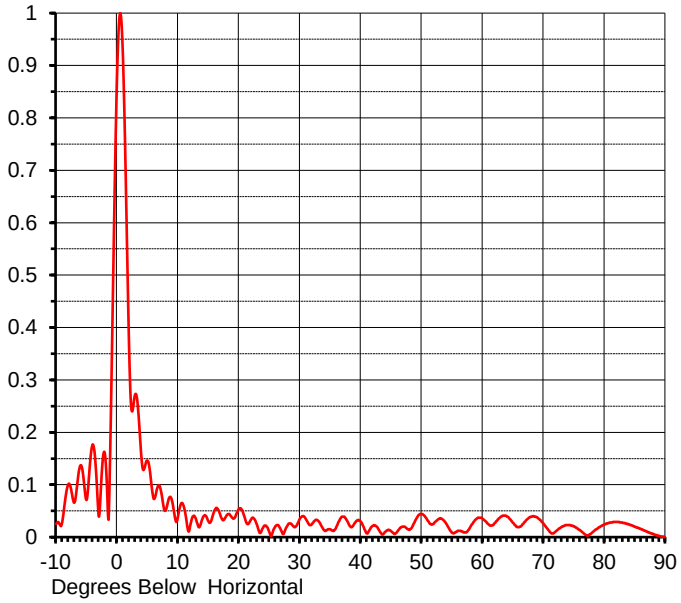
# ELEVATION PATTERN

| | |
|---|---|
| Proposal No. | **C-71028** |
| Date | **1-Nov-17** |
| Call Letters | **WFUP** |
| Channel | **21** |
| Frequency | **515 MHz** |
| Antenna Type | **TFU-31JSC/VP-R O4** |

| | | | |
|---|---|---|---|
| RMS Directivity at Main Lobe | **31.0 ( 14.91 dB )** | Beam Tilt | **0.50 deg** |
| RMS Directivity at Horizontal | **24.2 ( 13.84 dB )** | Pattern Number | **31J310050** |

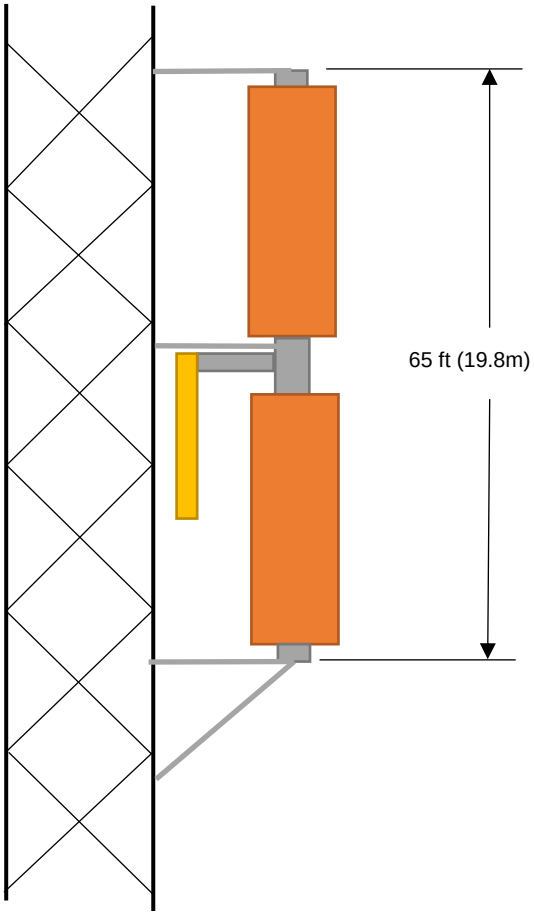
**Calculated**




| Angle | Field | Angle | Field | Angle | Field | Angle | Field | Angle | Field |
|---|---|---|---|---|---|---|---|---|---|
| -10.0 | 0.025 | 10.0 | 0.040 | 30.0 | 0.035 | 50.0 | 0.044 | 70.0 | 0.025 |
| -9.0 | 0.029 | 11.0 | 0.056 | 31.0 | 0.034 | 51.0 | 0.031 | 71.0 | 0.010 |
| -8.0 | 0.101 | 12.0 | 0.022 | 32.0 | 0.025 | 52.0 | 0.026 | 72.0 | 0.011 |
| -7.0 | 0.066 | 13.0 | 0.032 | 33.0 | 0.031 | 53.0 | 0.036 | 73.0 | 0.020 |
| -6.0 | 0.137 | 14.0 | 0.035 | 34.0 | 0.013 | 54.0 | 0.026 | 74.0 | 0.023 |
| -5.0 | 0.071 | 15.0 | 0.030 | 35.0 | 0.015 | 55.0 | 0.008 | 75.0 | 0.020 |
| -4.0 | 0.177 | 16.0 | 0.051 | 36.0 | 0.020 | 56.0 | 0.012 | 76.0 | 0.013 |
| -3.0 | 0.039 | 17.0 | 0.040 | 37.0 | 0.039 | 57.0 | 0.009 | 77.0 | 0.004 |
| -2.0 | 0.158 | 18.0 | 0.042 | 38.0 | 0.025 | 58.0 | 0.020 | 78.0 | 0.009 |
| -1.0 | 0.248 | 19.0 | 0.036 | 39.0 | 0.027 | 59.0 | 0.035 | 79.0 | 0.018 |
| 0.0 | 0.884 | 20.0 | 0.054 | 40.0 | 0.029 | 60.0 | 0.035 | 80.0 | 0.024 |
| 1.0 | 0.900 | 21.0 | 0.035 | 41.0 | 0.007 | 61.0 | 0.024 | 81.0 | 0.028 |
| 2.0 | 0.346 | 22.0 | 0.034 | 42.0 | 0.022 | 62.0 | 0.027 | 82.0 | 0.029 |
| 3.0 | 0.273 | 23.0 | 0.022 | 43.0 | 0.013 | 63.0 | 0.039 | 83.0 | 0.027 |
| 4.0 | 0.151 | 24.0 | 0.019 | 44.0 | 0.010 | 64.0 | 0.039 | 84.0 | 0.024 |
| 5.0 | 0.146 | 25.0 | 0.009 | 45.0 | 0.011 | 65.0 | 0.027 | 85.0 | 0.020 |
| 6.0 | 0.073 | 26.0 | 0.021 | 46.0 | 0.011 | 66.0 | 0.019 | 86.0 | 0.015 |
| 7.0 | 0.097 | 27.0 | 0.011 | 47.0 | 0.020 | 67.0 | 0.030 | 87.0 | 0.010 |
| 8.0 | 0.052 | 28.0 | 0.023 | 48.0 | 0.014 | 68.0 | 0.039 | 88.0 | 0.006 |
| 9.0 | 0.070 | 29.0 | 0.020 | 49.0 | 0.033 | 69.0 | 0.037 | 89.0 | 0.002 |
| | | | | | | | | 90.0 | 0.000 |

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# MECHANICAL SPECIFICATIONS

| | |
|---|---|
| Proposal No. | **C-71028** |
| Date | **1-Nov-17** |
| Call Letters | **WFUP** |
| Channel | **21** |
| Frequency | **515 MHz** |
| Antenna Type | **TFU-31JSC/VP-R O4** |

## Preliminary Specifications

### Side Mounted

### With ice TIA-222-G

| | |
|---|---|
| **Basic Wind Speed** | 90 m/h (144.8 km/h) |
| **Structure Class** | II |
| **Exposure Category** | C |
| **Topography Category** | 3 |
| **Height of Crest** | 200 ft (61 m) |
| Design Ice | 0.5 in $t_{iz}$ = 1.39 in |
| Wind Speed w/Ice | 40 m/h (64.4 km/h) |

| **Mechanical Specifications** | | **without ice** | **with ice** | |
|---|---|---|---|---|
| Height | H2 | 65 ft (19.8m) | | |
| Height of Center of Radiation | H3 | 32.5 ft (9.9m) | | |
| Effective Projected Area | $(EPA)_A$ | 64 ft² (5.9m²) | 146.1 ft² (13.6m²) | Mounts Excluded |
| Weight | W | 1900 lb (0.9t) | 4500 lb (2t) | Mounts Excluded |

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

**Prepared by:** CAB **Date:** 1-Nov-17 **ME:** SPJC **EE:**

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## Summary

| | |
|---|---|
| Proposal No. | **C-71028** |
| Date | **1-Nov-17** |
| Call Letters | **WFUP** |
| Channel | **21** |
| Frequency | **515 MHz** |
| Antenna Type | **TFU-31JSC/VP-R O4** |

## Antenna

| | Hpol | | Vpol | |
|---|---|---|---|---|
| **ERP:** | **1,000 kW** | **( 30.00 dBk )** | **330 kW** | **( 25.19 dBk )** |
| RMS Gain* | 23.31 | ( 13.68 dB ) | 7.69 | ( 8.86 dB) |

## Antenna Input Power

**42.9 kW** **( 16.32 dBk )**

## Transmission Line

| | | | |
|---|---|---|---|
| Type: | **Rigid** | Attenuation: | **( 0.71 dB )** |
| Size: | **6-1/8"** | Efficiency: | **84.8%** |
| Impedance: | **75 Ohm** | | |
| Length: | **650 ft** | **198.1 m** | |

## Transmitter Output

**50.6 kW** **( 17.04 dBk )**

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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