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**Antenna Model:** **THV-5A9/VP-R 04**

| | |
|---|---|
| **Proposal Number:** | C-70500-2 |
| **Date:** | 14-Mar-17 |
| **Customer:** | Nexstar |
| **Location:** | Tampa, FL |

## Electrical Specifications

| | | | |
|---|---|---|---|
| **Polarization:** | Elliptical | | |
| **Azimuth Pattern:** | Omni | | |
| **Antenna Input:** | 4-1/16" | 50 Ohm | EIA/DCA |
| **VSWR:** | Channel | 1.08 : 1 | |
| **Bandwidth:** | 6 MHz | | |
| **Rated Input Power:** | 20 kW | (13.01 dBk) | Maximum Average Power |

## Mechanical Specifications

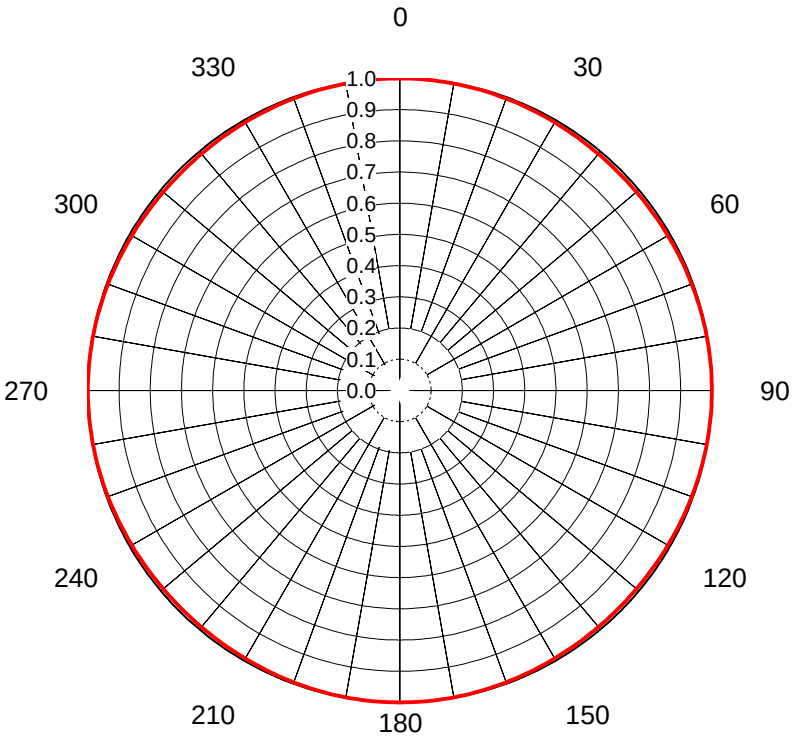
| | | | | |
|---|---|---|---|---|
| **Mounting:** | Top Mounted | | | |
| **Environmental Protection:** | Full Radome | | | |
| **Height:** | 36.4 ft (11.1m) | less Lightning Protector | 40.4 ft (12.3m) | with Lightning Protector |
| **Weight:** | 4200 lb (1.9t) | | | |
| **Effective Projected Area:** | 54.8 ft² (5.1m²) | TIA-222-G | **Basic Wind Speed:** | 120 m/h (193.1 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 |
|---|---|---|---|---|---|---|---|---|---|
| WFLA | 9 | 189 MHz | 32.0 kW (15.05 dBk) | 32.0 kW (15.05 dBk) | 18.1 kW (12.57 dBk) | 2.50 (3.98dB) | 2.50 (3.98dB) | 2.37 (3.75dB) | 2.37 (3.75dB) |

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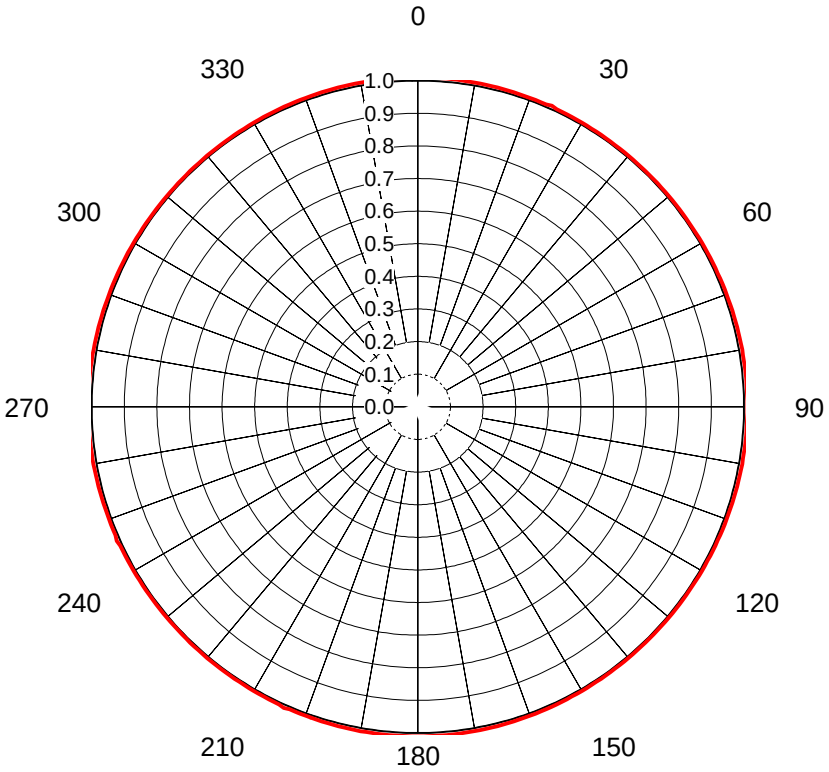

# AZIMUTH PATTERN
# Horizontal Polarization

| | |
|---|---|
| Proposal No. | **C-70500-2** |
| Date | **14-Mar-17** |
| Call Letters | **WFLA** |
| Channel | **9** |
| Frequency | **189 MHz** |
| Antenna Type | **THV-5A9/VP-R 04** |
| Gain | **1.01 (0.05dB)** |
| | 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 | 0.990 | 72 | 0.996 | 108 | 0.996 | 144 | 0.990 | 180 | 1.000 | 216 | 0.990 | 252 | 0.996 | 288 | 0.996 | 324 | 0.990 |
| 1 | 1.000 | 37 | 0.990 | 73 | 0.997 | 109 | 0.996 | 145 | 0.991 | 181 | 1.000 | 217 | 0.990 | 253 | 0.997 | 289 | 0.996 | 325 | 0.991 |
| 2 | 1.000 | 38 | 0.990 | 74 | 0.997 | 110 | 0.996 | 146 | 0.991 | 182 | 1.000 | 218 | 0.990 | 254 | 0.997 | 290 | 0.996 | 326 | 0.991 |
| 3 | 1.000 | 39 | 0.990 | 75 | 0.997 | 111 | 0.995 | 147 | 0.991 | 183 | 1.000 | 219 | 0.990 | 255 | 0.997 | 291 | 0.995 | 327 | 0.991 |
| 4 | 1.000 | 40 | 0.990 | 76 | 0.998 | 112 | 0.995 | 148 | 0.991 | 184 | 1.000 | 220 | 0.990 | 256 | 0.998 | 292 | 0.995 | 328 | 0.991 |
| 5 | 1.000 | 41 | 0.990 | 77 | 0.998 | 113 | 0.995 | 149 | 0.992 | 185 | 1.000 | 221 | 0.990 | 257 | 0.998 | 293 | 0.995 | 329 | 0.992 |
| 6 | 1.000 | 42 | 0.990 | 78 | 0.998 | 114 | 0.994 | 150 | 0.992 | 186 | 1.000 | 222 | 0.990 | 258 | 0.998 | 294 | 0.994 | 330 | 0.992 |
| 7 | 0.999 | 43 | 0.989 | 79 | 0.998 | 115 | 0.994 | 151 | 0.992 | 187 | 0.999 | 223 | 0.989 | 259 | 0.999 | 295 | 0.994 | 331 | 0.992 |
| 8 | 0.999 | 44 | 0.989 | 80 | 0.999 | 116 | 0.993 | 152 | 0.993 | 188 | 0.999 | 224 | 0.989 | 260 | 0.999 | 296 | 0.993 | 332 | 0.993 |
| 9 | 0.999 | 45 | 0.989 | 81 | 0.999 | 117 | 0.993 | 153 | 0.993 | 189 | 0.999 | 225 | 0.989 | 261 | 0.999 | 297 | 0.993 | 333 | 0.993 |
| 10 | 0.999 | 46 | 0.989 | 82 | 0.999 | 118 | 0.993 | 154 | 0.993 | 190 | 0.999 | 226 | 0.989 | 262 | 0.999 | 298 | 0.993 | 334 | 0.993 |
| 11 | 0.998 | 47 | 0.989 | 83 | 0.999 | 119 | 0.992 | 155 | 0.994 | 191 | 0.999 | 227 | 0.989 | 263 | 0.999 | 299 | 0.992 | 335 | 0.994 |
| 12 | 0.998 | 48 | 0.990 | 84 | 1.000 | 120 | 0.992 | 156 | 0.994 | 192 | 0.998 | 228 | 0.990 | 264 | 1.000 | 300 | 0.992 | 336 | 0.994 |
| 13 | 0.998 | 49 | 0.990 | 85 | 1.000 | 121 | 0.992 | 157 | 0.995 | 193 | 0.998 | 229 | 0.990 | 265 | 1.000 | 301 | 0.992 | 337 | 0.994 |
| 14 | 0.998 | 50 | 0.990 | 86 | 1.000 | 122 | 0.991 | 158 | 0.995 | 194 | 0.998 | 230 | 0.990 | 266 | 1.000 | 302 | 0.991 | 338 | 0.995 |
| 15 | 0.997 | 51 | 0.990 | 87 | 1.000 | 123 | 0.991 | 159 | 0.995 | 195 | 0.997 | 231 | 0.990 | 267 | 1.000 | 303 | 0.991 | 339 | 0.995 |
| 16 | 0.997 | 52 | 0.990 | 88 | 1.000 | 124 | 0.991 | 160 | 0.996 | 196 | 0.997 | 232 | 0.990 | 268 | 1.000 | 304 | 0.991 | 340 | 0.996 |
| 17 | 0.997 | 53 | 0.990 | 89 | 1.000 | 125 | 0.991 | 161 | 0.996 | 197 | 0.997 | 233 | 0.990 | 269 | 1.000 | 305 | 0.991 | 341 | 0.996 |
| 18 | 0.996 | 54 | 0.990 | 90 | 1.000 | 126 | 0.990 | 162 | 0.996 | 198 | 0.996 | 234 | 0.990 | 270 | 1.000 | 306 | 0.990 | 342 | 0.996 |
| 19 | 0.996 | 55 | 0.991 | 91 | 1.000 | 127 | 0.990 | 163 | 0.997 | 199 | 0.996 | 235 | 0.991 | 271 | 1.000 | 307 | 0.990 | 343 | 0.997 |
| 20 | 0.996 | 56 | 0.991 | 92 | 1.000 | 128 | 0.990 | 164 | 0.997 | 200 | 0.996 | 236 | 0.991 | 272 | 1.000 | 308 | 0.990 | 344 | 0.997 |
| 21 | 0.995 | 57 | 0.991 | 93 | 1.000 | 129 | 0.990 | 165 | 0.997 | 201 | 0.995 | 237 | 0.991 | 273 | 1.000 | 309 | 0.990 | 345 | 0.997 |
| 22 | 0.995 | 58 | 0.991 | 94 | 1.000 | 130 | 0.990 | 166 | 0.998 | 202 | 0.995 | 238 | 0.991 | 274 | 1.000 | 310 | 0.990 | 346 | 0.998 |
| 23 | 0.994 | 59 | 0.992 | 95 | 1.000 | 131 | 0.990 | 167 | 0.998 | 203 | 0.995 | 239 | 0.992 | 275 | 1.000 | 311 | 0.990 | 347 | 0.998 |
| 24 | 0.994 | 60 | 0.992 | 96 | 1.000 | 132 | 0.990 | 168 | 0.998 | 204 | 0.994 | 240 | 0.992 | 276 | 1.000 | 312 | 0.990 | 348 | 0.998 |
| 25 | 0.994 | 61 | 0.992 | 97 | 0.999 | 133 | 0.989 | 169 | 0.999 | 205 | 0.994 | 241 | 0.992 | 277 | 0.999 | 313 | 0.989 | 349 | 0.998 |
| 26 | 0.993 | 62 | 0.993 | 98 | 0.999 | 134 | 0.989 | 170 | 0.999 | 206 | 0.993 | 242 | 0.993 | 278 | 0.999 | 314 | 0.989 | 350 | 0.999 |
| 27 | 0.993 | 63 | 0.993 | 99 | 0.999 | 135 | 0.989 | 171 | 0.999 | 207 | 0.993 | 243 | 0.993 | 279 | 0.999 | 315 | 0.989 | 351 | 0.999 |
| 28 | 0.993 | 64 | 0.993 | 100 | 0.999 | 136 | 0.989 | 172 | 0.999 | 208 | 0.993 | 244 | 0.993 | 280 | 0.999 | 316 | 0.989 | 352 | 0.999 |
| 29 | 0.992 | 65 | 0.994 | 101 | 0.999 | 137 | 0.989 | 173 | 0.999 | 209 | 0.992 | 245 | 0.994 | 281 | 0.998 | 317 | 0.989 | 353 | 0.999 |
| 30 | 0.992 | 66 | 0.994 | 102 | 0.998 | 138 | 0.990 | 174 | 1.000 | 210 | 0.992 | 246 | 0.994 | 282 | 0.998 | 318 | 0.990 | 354 | 1.000 |
| 31 | 0.992 | 67 | 0.995 | 103 | 0.998 | 139 | 0.990 | 175 | 1.000 | 211 | 0.992 | 247 | 0.995 | 283 | 0.998 | 319 | 0.990 | 355 | 1.000 |
| 32 | 0.991 | 68 | 0.995 | 104 | 0.998 | 140 | 0.990 | 176 | 1.000 | 212 | 0.991 | 248 | 0.995 | 284 | 0.998 | 320 | 0.990 | 356 | 1.000 |
| 33 | 0.991 | 69 | 0.995 | 105 | 0.997 | 141 | 0.990 | 177 | 1.000 | 213 | 0.991 | 249 | 0.995 | 285 | 0.997 | 321 | 0.990 | 357 | 1.000 |
| 34 | 0.991 | 70 | 0.996 | 106 | 0.997 | 142 | 0.990 | 178 | 1.000 | 214 | 0.991 | 250 | 0.996 | 286 | 0.997 | 322 | 0.990 | 358 | 1.000 |
| 35 | 0.991 | 71 | 0.996 | 107 | 0.997 | 143 | 0.990 | 179 | 1.000 | 215 | 0.991 | 251 | 0.996 | 287 | 0.997 | 323 | 0.990 | 359 | 1.000 |

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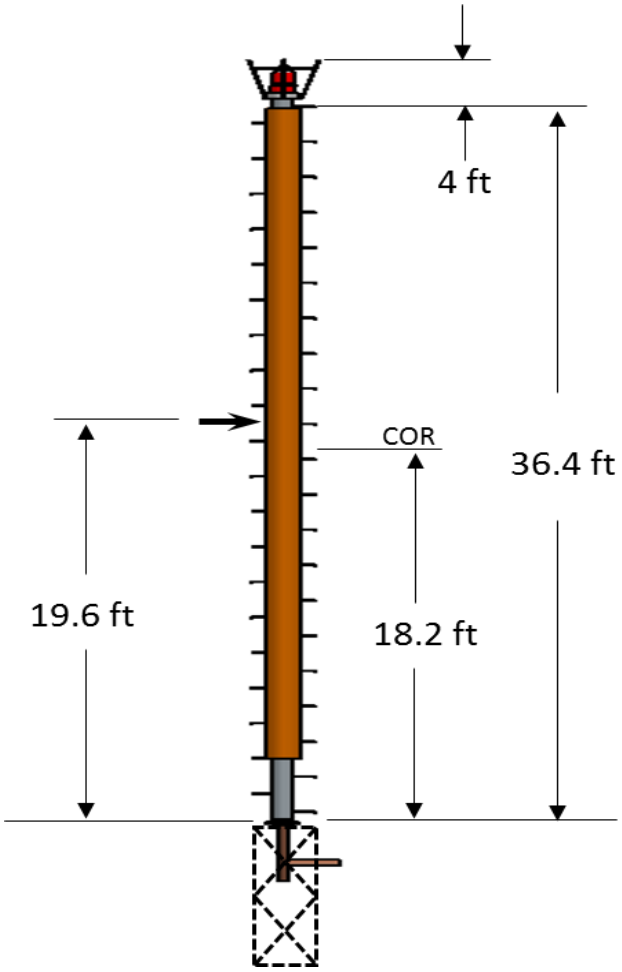

# AZIMUTH PATTERN
## Vertical Polarization

| | |
|---|---|
| Proposal No. | **C-70500-2** |
| Date | **14-Mar-17** |
| Call Letters | **WFLA** |
| Channel | **9** |
| Frequency | **189 MHz** |
| Antenna Type | **THV-5A9/VP-R 04** |
| Gain | **1.01 (0.03dB)** 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 | 1.010 | 36 | 1.005 | 72 | 1.008 | 108 | 1.008 | 144 | 1.005 | 180 | 1.010 | 216 | 1.005 | 252 | 1.008 | 288 | 1.008 | 324 | 1.005 |
| 1 | 1.010 | 37 | 1.005 | 73 | 1.008 | 109 | 1.008 | 145 | 1.005 | 181 | 1.010 | 217 | 1.005 | 253 | 1.008 | 289 | 1.008 | 325 | 1.005 |
| 2 | 1.010 | 38 | 1.005 | 74 | 1.008 | 110 | 1.008 | 146 | 1.005 | 182 | 1.010 | 218 | 1.005 | 254 | 1.008 | 290 | 1.008 | 326 | 1.005 |
| 3 | 1.010 | 39 | 1.005 | 75 | 1.009 | 111 | 1.007 | 147 | 1.006 | 183 | 1.010 | 219 | 1.005 | 255 | 1.009 | 291 | 1.007 | 327 | 1.006 |
| 4 | 1.010 | 40 | 1.005 | 76 | 1.009 | 112 | 1.007 | 148 | 1.006 | 184 | 1.010 | 220 | 1.005 | 256 | 1.009 | 292 | 1.007 | 328 | 1.006 |
| 5 | 1.010 | 41 | 1.005 | 77 | 1.009 | 113 | 1.007 | 149 | 1.006 | 185 | 1.010 | 221 | 1.005 | 257 | 1.009 | 293 | 1.007 | 329 | 1.006 |
| 6 | 1.010 | 42 | 1.005 | 78 | 1.009 | 114 | 1.007 | 150 | 1.006 | 186 | 1.010 | 222 | 1.005 | 258 | 1.009 | 294 | 1.007 | 330 | 1.006 |
| 7 | 1.010 | 43 | 1.005 | 79 | 1.009 | 115 | 1.007 | 151 | 1.006 | 187 | 1.010 | 223 | 1.005 | 259 | 1.009 | 295 | 1.007 | 331 | 1.006 |
| 8 | 1.010 | 44 | 1.005 | 80 | 1.010 | 116 | 1.007 | 152 | 1.006 | 188 | 1.010 | 224 | 1.005 | 260 | 1.010 | 296 | 1.007 | 332 | 1.006 |
| 9 | 1.010 | 45 | 1.005 | 81 | 1.010 | 117 | 1.006 | 153 | 1.006 | 189 | 1.010 | 225 | 1.005 | 261 | 1.010 | 297 | 1.006 | 333 | 1.006 |
| 10 | 1.010 | 46 | 1.005 | 82 | 1.010 | 118 | 1.006 | 154 | 1.007 | 190 | 1.010 | 226 | 1.005 | 262 | 1.010 | 298 | 1.006 | 334 | 1.007 |
| 11 | 1.009 | 47 | 1.005 | 83 | 1.010 | 119 | 1.006 | 155 | 1.007 | 191 | 1.009 | 227 | 1.005 | 263 | 1.010 | 299 | 1.006 | 335 | 1.007 |
| 12 | 1.009 | 48 | 1.005 | 84 | 1.010 | 120 | 1.006 | 156 | 1.007 | 192 | 1.009 | 228 | 1.005 | 264 | 1.010 | 300 | 1.006 | 336 | 1.007 |
| 13 | 1.009 | 49 | 1.005 | 85 | 1.010 | 121 | 1.006 | 157 | 1.007 | 193 | 1.009 | 229 | 1.005 | 265 | 1.010 | 301 | 1.006 | 337 | 1.007 |
| 14 | 1.009 | 50 | 1.005 | 86 | 1.010 | 122 | 1.006 | 158 | 1.007 | 194 | 1.009 | 230 | 1.005 | 266 | 1.010 | 302 | 1.006 | 338 | 1.007 |
| 15 | 1.009 | 51 | 1.005 | 87 | 1.010 | 123 | 1.006 | 159 | 1.007 | 195 | 1.009 | 231 | 1.005 | 267 | 1.010 | 303 | 1.006 | 339 | 1.007 |
| 16 | 1.008 | 52 | 1.005 | 88 | 1.010 | 124 | 1.005 | 160 | 1.008 | 196 | 1.008 | 232 | 1.005 | 268 | 1.010 | 304 | 1.005 | 340 | 1.008 |
| 17 | 1.008 | 53 | 1.005 | 89 | 1.010 | 125 | 1.005 | 161 | 1.008 | 197 | 1.008 | 233 | 1.005 | 269 | 1.010 | 305 | 1.005 | 341 | 1.008 |
| 18 | 1.008 | 54 | 1.005 | 90 | 1.010 | 126 | 1.005 | 162 | 1.008 | 198 | 1.008 | 234 | 1.005 | 270 | 1.010 | 306 | 1.005 | 342 | 1.008 |
| 19 | 1.008 | 55 | 1.005 | 91 | 1.010 | 127 | 1.005 | 163 | 1.008 | 199 | 1.008 | 235 | 1.005 | 271 | 1.010 | 307 | 1.005 | 343 | 1.008 |
| 20 | 1.008 | 56 | 1.005 | 92 | 1.010 | 128 | 1.005 | 164 | 1.008 | 200 | 1.008 | 236 | 1.005 | 272 | 1.010 | 308 | 1.005 | 344 | 1.008 |
| 21 | 1.007 | 57 | 1.006 | 93 | 1.010 | 129 | 1.005 | 165 | 1.009 | 201 | 1.007 | 237 | 1.006 | 273 | 1.010 | 309 | 1.005 | 345 | 1.009 |
| 22 | 1.007 | 58 | 1.006 | 94 | 1.010 | 130 | 1.005 | 166 | 1.009 | 202 | 1.007 | 238 | 1.006 | 274 | 1.010 | 310 | 1.005 | 346 | 1.009 |
| 23 | 1.007 | 59 | 1.006 | 95 | 1.010 | 131 | 1.005 | 167 | 1.009 | 203 | 1.007 | 239 | 1.006 | 275 | 1.010 | 311 | 1.005 | 347 | 1.009 |
| 24 | 1.010 | 60 | 1.006 | 96 | 1.010 | 132 | 1.005 | 168 | 1.009 | 204 | 1.010 | 240 | 1.006 | 276 | 1.010 | 312 | 1.005 | 348 | 1.009 |
| 25 | 1.007 | 61 | 1.006 | 97 | 1.010 | 133 | 1.005 | 169 | 1.009 | 205 | 1.007 | 241 | 1.006 | 277 | 1.010 | 313 | 1.005 | 349 | 1.009 |
| 26 | 1.007 | 62 | 1.006 | 98 | 1.010 | 134 | 1.005 | 170 | 1.010 | 206 | 1.007 | 242 | 1.006 | 278 | 1.010 | 314 | 1.005 | 350 | 1.010 |
| 27 | 1.006 | 63 | 1.006 | 99 | 1.010 | 135 | 1.005 | 171 | 1.010 | 207 | 1.006 | 243 | 1.006 | 279 | 1.010 | 315 | 1.005 | 351 | 1.010 |
| 28 | 1.006 | 64 | 1.007 | 100 | 1.010 | 136 | 1.005 | 172 | 1.010 | 208 | 1.006 | 244 | 1.007 | 280 | 1.010 | 316 | 1.005 | 352 | 1.010 |
| 29 | 1.006 | 65 | 1.007 | 101 | 1.009 | 137 | 1.005 | 173 | 1.010 | 209 | 1.006 | 245 | 1.007 | 281 | 1.009 | 317 | 1.005 | 353 | 1.010 |
| 30 | 1.006 | 66 | 1.007 | 102 | 1.009 | 138 | 1.005 | 174 | 1.010 | 210 | 1.006 | 246 | 1.010 | 282 | 1.009 | 318 | 1.005 | 354 | 1.010 |
| 31 | 1.006 | 67 | 1.007 | 103 | 1.009 | 139 | 1.005 | 175 | 1.010 | 211 | 1.006 | 247 | 1.007 | 283 | 1.009 | 319 | 1.005 | 355 | 1.010 |
| 32 | 1.006 | 68 | 1.007 | 104 | 1.009 | 140 | 1.005 | 176 | 1.010 | 212 | 1.006 | 248 | 1.007 | 284 | 1.009 | 320 | 1.005 | 356 | 1.010 |
| 33 | 1.006 | 69 | 1.007 | 105 | 1.009 | 141 | 1.005 | 177 | 1.010 | 213 | 1.006 | 249 | 1.007 | 285 | 1.009 | 321 | 1.005 | 357 | 1.010 |
| 34 | 1.005 | 70 | 1.008 | 106 | 1.008 | 142 | 1.005 | 178 | 1.010 | 214 | 1.005 | 250 | 1.008 | 286 | 1.008 | 322 | 1.005 | 358 | 1.010 |
| 35 | 1.005 | 71 | 1.008 | 107 | 1.008 | 143 | 1.005 | 179 | 1.010 | 215 | 1.005 | 251 | 1.008 | 287 | 1.008 | 323 | 1.005 | 359 | 1.010 |

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# MECHANICAL SPECIFICATIONS

| | |
|---|---|
| Proposal No. | **C-70500-2** |
| Date | **14-Mar-17** |
| Call Letters | **WFLA** |
| Channel | **9** |
| Frequency | **189 MHz** |
| Antenna Type | **THV-5A9/VP-R 04** |

Preliminary Specifications

## Top Mounted

### Without ice TIA-222-G

| | |
|---|---|
| **Height AGL(z)** | 1500 ft (457.2 m) |
| **Basic Wind Speed** | 120 m/h (193.1 km/h) |
| **Structure Class** | II |
| **Exposure Category** | C |
| **Topography Category** | 1 |

### Mechanical Specifications

| | | |
|---|---|---|
| Height with Lightning Protector | H4 | 40.4 ft (12.3m) |
| Height less Lightning Protector | H2 | 36.4 ft (11.1m) |
| Height of Center of Radiation | H3 | 18.2 ft (5.5m) |
| Effective Projected Area | $(EPA)_S$ | 54.8 ft² (5.1m²) |
| Moment Arm | D1 | 19.4 ft (5.9m) |
| Weight | W | 4200 lb (1.9t) |

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

**Prepared by:** KLP **Date:** 14-Mar-17 **ME:** RS **EE:**

**Rev. No.2 by:** RMS **Date:** 23-May-17

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## Summary

| | |
|---|---|
| Proposal No. | **C-70500-2** |
| Date | **14-Mar-17** |
| Call Letters | **WFLA** |
| Channel | **9** |
| Frequency | **189 MHz** |
| Antenna Type | **THV-5A9/VP-R 04** |

## Antenna

| | Hpol | | Vpol | |
|---|---|---|---|---|
| **ERP:** | 32.0 kW | **( 15.05 dBk )** | 32.0 kW | **( 15.05 dBk )** |
| RMS Gain* | 2.50 | ( 3.98 dB ) | 2.50 | ( 3.98 dB) |

## Antenna Input Power **12.8 kW ( 11.07 dBk )**

## Transmission Line

| | | | |
|---|---|---|---|
| Type: | **Rigid** | Attenuation: | **( 1.50 dB )** |
| Size: | **4-1/16"** | Efficiency: | **70.8%** |
| Impedance: | **50 Ohm** | | |
| Length: | **1630 ft** | **496.8 m** | |

## Transmitter Output

**18.1 kW ( 12.57 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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