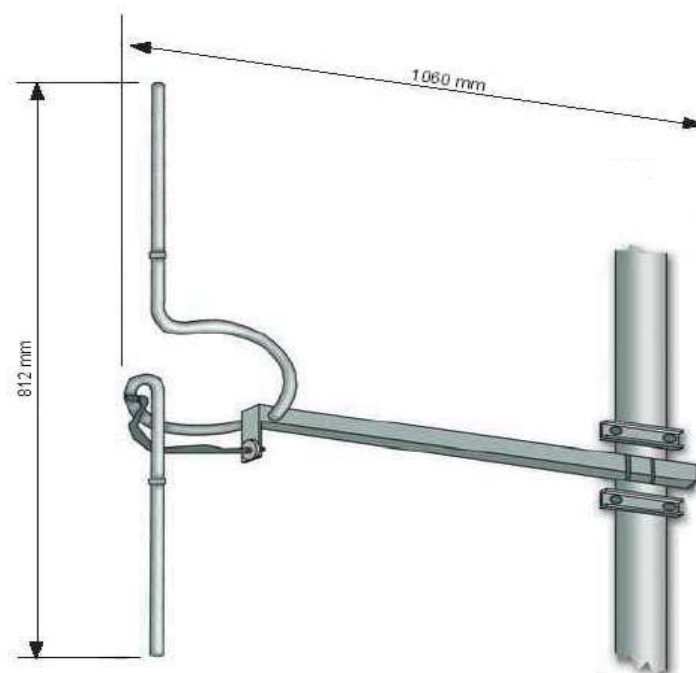


## 5 Bay TFC1K 98.1MHz

Novemebr 2015



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### General data of antenna System

|   |        |
|---|--------|
| TX station                                  |        |
| Site Name                                   |        |
| System of coordinates                       | WGS84  |
| Longitude                                   |        |
| Latitude                                    |        |
| Ground level a.s.l. (m)                     | 1.0    |
| Antenna system height (m)                   | 20.0   |
| Transmitter power(Watt)                     | 1.000  |
| Carrier wave frequency (MHz)                | 98.100 |
| Antenna system central frequency (MHz)      | 98.100 |
| Antenna base diagrams type 1                | TFC1K  |
| Polarization (H/V/C/X)                      | C      |
| Transmitting cable attenuation (dB)         | 0.0    |
| Additional attenuations(dB)                 | 0.0    |
| Base diagrams sectors (T = All, F = Front)  | T      |
| Velocity factor of cables to Antennas (0÷1) | 1.00   |
| Coordinate System(C = cartesian, P = polar) | P      |
| Mast side / diameter(cm)                    | 0.0    |
| Mast cross section (T/Q/C)                  | Q      |
| Structure rotation w.r.t. North (°)         | 0.0    |
| Mast rotation w.r.t. North (°)              | 0.0    |

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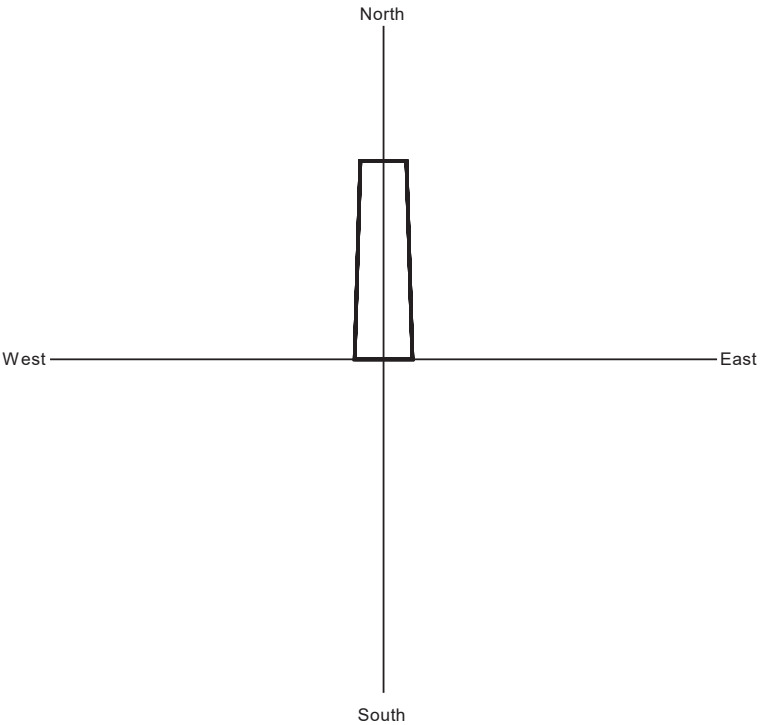
### Information about antennas used in the System

|                         |            |
|-------------------------|------------|
|                         | Antenna    |
| Manufacturer            | BEXTelecom |
| Antenna model           | TFC1K      |
| Band start(MHz)         | 87.5       |
| Band stop(MHz)          | 108        |
| diagrams Frequency(MHz) | 98.10      |
| Polariz (H/V/C/X)       | C          |
| Vertical dist (cm)      | 260        |
| Height (cm)             | 80         |
| Width (cm)              | 29         |
| Thickness (cm)          | 100        |
| Weight (Kg)             | 3          |
| Maximum power (KW)      | 0.8        |
| Gain (dBd)              | -3.3       |
| North E.C. (cm)         | 70         |
| East E.C. (cm)          | 0          |
| Return loss (dB)        | 0          |
| R.C.Phase (°)           | 0          |

**Geometrical and electrical data of antenna System**

|   | <i>Power<br/>(%)</i> | <i>Tilt<br/>(°)</i> | <i>Az.<br/>(°/N)</i> | <i>Phase<br/>(°)</i> | <i>V dist.<br/>(m)</i> | <i>Scr-d<br/>(cm)</i> | <i>Scr-Az<br/>(°/N)</i> | <i>Rot.<br/>(1÷4)</i> | <i>Type<br/>(1÷2)</i> | <i>L cables<br/>(cm)</i> | <i>Car. phase<br/>(°)</i> |
|---|----------------------|---------------------|----------------------|----------------------|------------------------|-----------------------|-------------------------|-----------------------|-----------------------|--------------------------|---------------------------|
| 1 | 20.000               | 0                   | 0                    | 0 +0.0               | 5.20                   | 0.0                   | 0.0                     | 1                     | 1                     | 0.0                      | 0.0                       |
| 2 | 20.000               | 0                   | 0                    | 0 +0.0               | 2.60                   | 0.0                   | 0.0                     | 1                     | 1                     | 0.0                      | 0.0                       |
| 3 | 20.000               | 0                   | 0                    | 0 +0.0               | 0.00                   | 0.0                   | 0.0                     | 1                     | 1                     | 0.0                      | 0.0                       |
| 4 | 20.000               | 0                   | 0                    | 0 +0.0               | -2.60                  | 0.0                   | 0.0                     | 1                     | 1                     | 0.0                      | 0.0                       |
| 5 | 20.000               | 0                   | 0                    | 0 +0.0               | -5.20                  | 0.0                   | 0.0                     | 1                     | 1                     | 0.0                      | 0.0                       |

Plan of antenna system



Side of antenna system



## Antennas arrays data

**Note: calculation of single antennas arrays data (without taking into account mutual effects)**

|                                  |        |
|----------------------------------|--------|
| A. Antennas array azimuth (°/N)  | 0      |
| B. Number of antennas            | 5      |
| C. Nominal power supply (W)      | 1.00   |
| D. Losses (addit. + cables) (dB) | 0.0    |
| E. Effective power supply (W)    | 1.00   |
| F. Theor. maximum gain (dBd)     | 3.69   |
| G. Distribution losses (dB)      | 0.00   |
| H. Nominal max gain F - G (dBd)  | 3.69   |
| I. Compensation losses (dB)      | 0.07   |
| J. Effec. max gain H - I (dBd)   | 3.62   |
| K. Effec. max gain (times)       | 2.30   |
| L. Effec. max power E * K (KW)   | 0.0023 |
| M. Max power depr. angle (°)     | -0.1   |
| N. Max power az. angle (°)       | 0      |

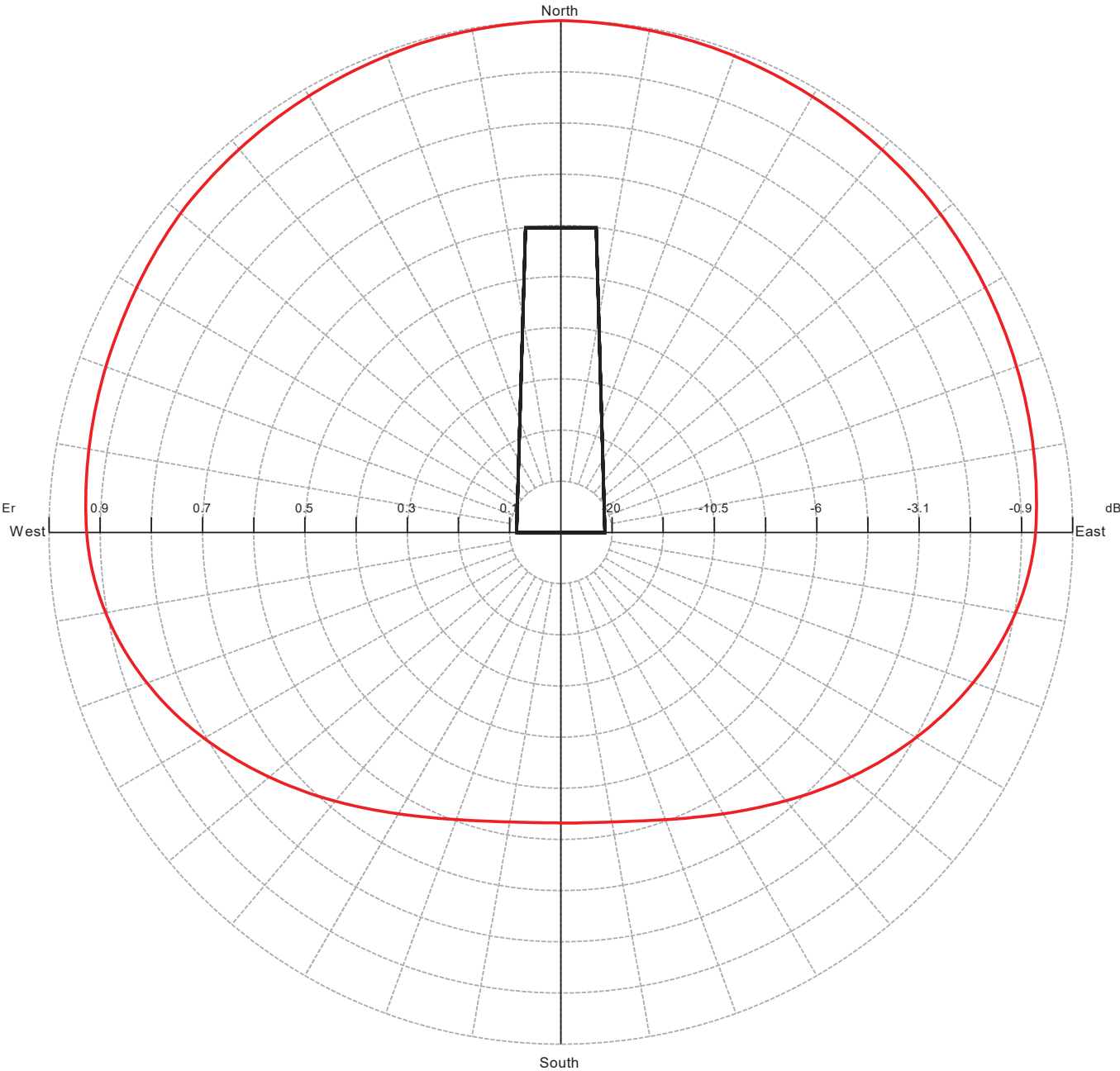
### Diagram in dBK calculated at horizon

| Az. (°/N) | dBK   | Az. (°/N) | dBK   | Az. (°/N) | dBK   | Az. (°/N) | dBK   |
|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 0         | -26.4 | 90        | -27.0 | 180       | -31.3 | 270       | -27.0 |
| 10        | -26.4 | 100       | -27.3 | 190       | -31.2 | 280       | -27.0 |
| 20        | -26.5 | 110       | -27.7 | 200       | -30.9 | 290       | -26.9 |
| 30        | -26.5 | 120       | -28.3 | 210       | -30.3 | 300       | -26.8 |
| 40        | -26.6 | 130       | -29.0 | 220       | -29.7 | 310       | -26.6 |
| 50        | -26.7 | 140       | -29.7 | 230       | -29.0 | 320       | -26.6 |
| 60        | -26.8 | 150       | -30.3 | 240       | -28.3 | 330       | -26.5 |
| 70        | -26.8 | 160       | -30.9 | 250       | -27.7 | 340       | -26.5 |
| 80        | -26.9 | 170       | -31.2 | 260       | -27.3 | 350       | -26.4 |

### Diagram in dBK calculated at horizon ( without -20dB's lower limit vs maximum power )

| Az. (°/N) | dBK   | Az. (°/N) | dBK   | Az. (°/N) | dBK   | Az. (°/N) | dBK   |
|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 0         | -26.4 | 90        | -27.0 | 180       | -31.3 | 270       | -27.0 |
| 10        | -26.4 | 100       | -27.3 | 190       | -31.2 | 280       | -27.0 |
| 20        | -26.5 | 110       | -27.7 | 200       | -30.9 | 290       | -26.9 |
| 30        | -26.5 | 120       | -28.3 | 210       | -30.3 | 300       | -26.8 |
| 40        | -26.6 | 130       | -29.0 | 220       | -29.7 | 310       | -26.6 |
| 50        | -26.7 | 140       | -29.7 | 230       | -29.0 | 320       | -26.6 |
| 60        | -26.8 | 150       | -30.3 | 240       | -28.3 | 330       | -26.5 |
| 70        | -26.8 | 160       | -30.9 | 250       | -27.7 | 340       | -26.5 |
| 80        | -26.9 | 170       | -31.2 | 260       | -27.3 | 350       | -26.4 |

Horizontal diagram at 0.0° tilt (Total Antenna)



0.0° Tilt (Total Antenna), Gain (dBd): 3.62

ERP T.Max(KW): 0.002 ERP E.Max(KW): 0.002

### Horizontal diagram at 0.0° tilt (Total Antenna)

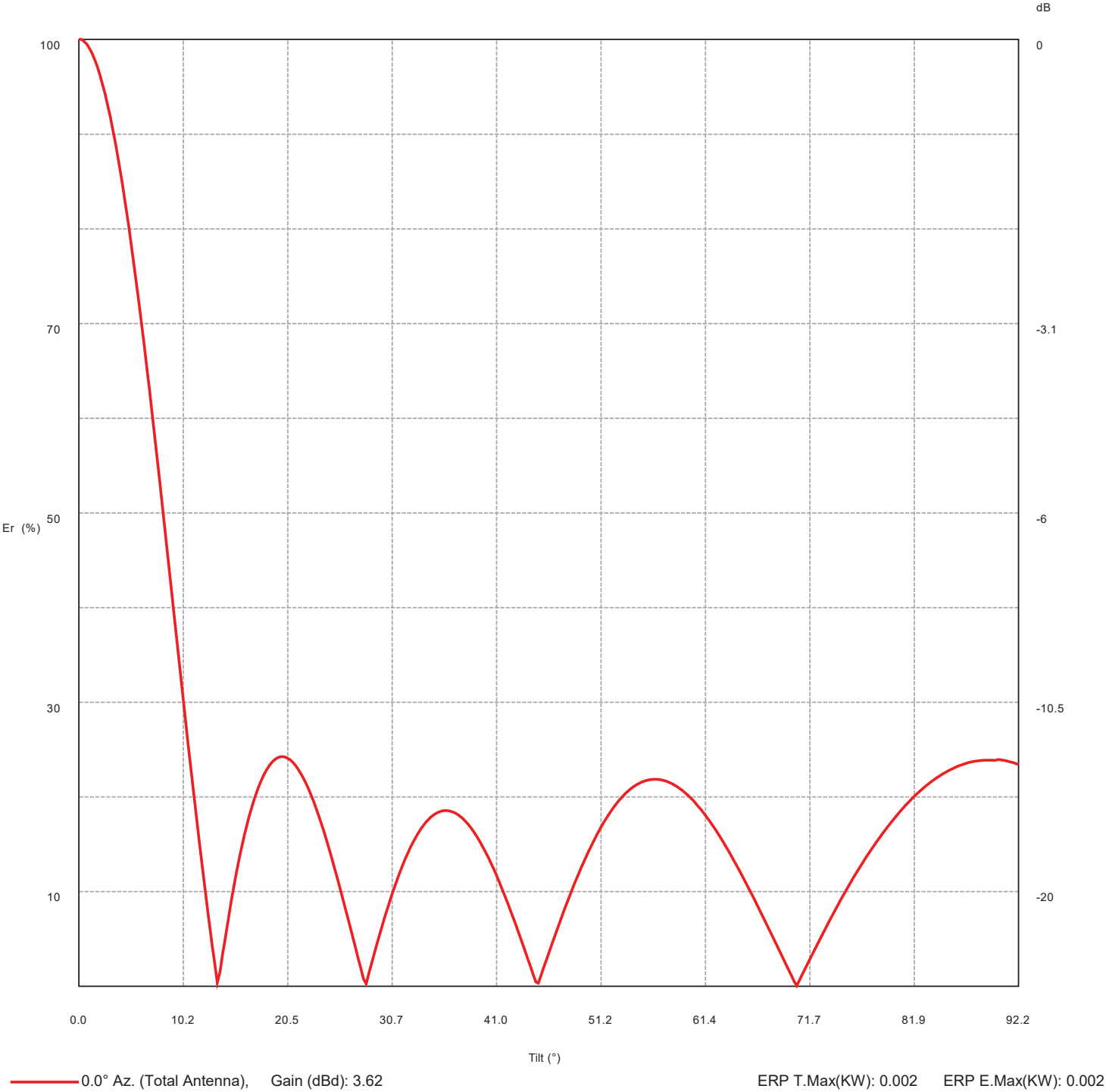
| Az (°) | Er (%) | ERP (W) | Az (°) | Er (%) | ERP (W) | Az (°) | Er (%) | ERP (W) |
|--------|--------|---------|--------|--------|---------|--------|--------|---------|
| 0.0    | 100.0  | 2.3     | 60.0   | 95.8   | 2.1     | 120.0  | 80.2   | 1.5     |
| 1.0    | 100.0  | 2.3     | 61.0   | 95.7   | 2.1     | 121.0  | 79.6   | 1.5     |
| 2.0    | 99.9   | 2.3     | 62.0   | 95.6   | 2.1     | 122.0  | 79.0   | 1.4     |
| 3.0    | 99.9   | 2.3     | 63.0   | 95.5   | 2.1     | 123.0  | 78.4   | 1.4     |
| 4.0    | 99.8   | 2.3     | 64.0   | 95.4   | 2.1     | 124.0  | 77.8   | 1.4     |
| 5.0    | 99.8   | 2.3     | 65.0   | 95.3   | 2.1     | 125.0  | 77.2   | 1.4     |
| 6.0    | 99.8   | 2.3     | 66.0   | 95.2   | 2.1     | 126.0  | 76.6   | 1.4     |
| 7.0    | 99.7   | 2.3     | 67.0   | 95.1   | 2.1     | 127.0  | 76.0   | 1.3     |
| 8.0    | 99.7   | 2.3     | 68.0   | 95.0   | 2.1     | 128.0  | 75.4   | 1.3     |
| 9.0    | 99.7   | 2.3     | 69.0   | 94.9   | 2.1     | 129.0  | 74.8   | 1.3     |
| 10.0   | 99.6   | 2.3     | 70.0   | 94.8   | 2.1     | 130.0  | 74.2   | 1.3     |
| 11.0   | 99.6   | 2.3     | 71.0   | 94.7   | 2.1     | 131.0  | 73.6   | 1.2     |
| 12.0   | 99.5   | 2.3     | 72.0   | 94.6   | 2.1     | 132.0  | 73.0   | 1.2     |
| 13.0   | 99.5   | 2.3     | 73.0   | 94.5   | 2.1     | 133.0  | 72.4   | 1.2     |
| 14.0   | 99.5   | 2.3     | 74.0   | 94.4   | 2.0     | 134.0  | 71.8   | 1.2     |
| 15.0   | 99.4   | 2.3     | 75.0   | 94.3   | 2.0     | 135.0  | 71.3   | 1.2     |
| 16.0   | 99.3   | 2.3     | 76.0   | 94.2   | 2.0     | 136.0  | 70.7   | 1.2     |
| 17.0   | 99.3   | 2.3     | 77.0   | 94.1   | 2.0     | 137.0  | 70.1   | 1.1     |
| 18.0   | 99.2   | 2.3     | 78.0   | 94.0   | 2.0     | 138.0  | 69.6   | 1.1     |
| 19.0   | 99.1   | 2.3     | 79.0   | 93.9   | 2.0     | 139.0  | 69.0   | 1.1     |
| 20.0   | 99.1   | 2.3     | 80.0   | 93.8   | 2.0     | 140.0  | 68.5   | 1.1     |
| 21.0   | 99.0   | 2.3     | 81.0   | 93.7   | 2.0     | 141.0  | 67.9   | 1.1     |
| 22.0   | 98.9   | 2.3     | 82.0   | 93.6   | 2.0     | 142.0  | 67.4   | 1.0     |
| 23.0   | 98.8   | 2.2     | 83.0   | 93.5   | 2.0     | 143.0  | 66.9   | 1.0     |
| 24.0   | 98.8   | 2.2     | 84.0   | 93.3   | 2.0     | 144.0  | 66.4   | 1.0     |
| 25.0   | 98.7   | 2.2     | 85.0   | 93.2   | 2.0     | 145.0  | 65.9   | 1.0     |
| 26.0   | 98.6   | 2.2     | 86.0   | 93.1   | 2.0     | 146.0  | 65.4   | 1.0     |
| 27.0   | 98.5   | 2.2     | 87.0   | 93.0   | 2.0     | 147.0  | 64.9   | 1.0     |
| 28.0   | 98.5   | 2.2     | 88.0   | 92.9   | 2.0     | 148.0  | 64.4   | 1.0     |
| 29.0   | 98.4   | 2.2     | 89.0   | 92.8   | 2.0     | 149.0  | 64.0   | 0.9     |
| 30.0   | 98.3   | 2.2     | 90.0   | 92.7   | 2.0     | 150.0  | 63.5   | 0.9     |
| 31.0   | 98.3   | 2.2     | 91.0   | 92.6   | 2.0     | 151.0  | 63.1   | 0.9     |
| 32.0   | 98.2   | 2.2     | 92.0   | 92.4   | 2.0     | 152.0  | 62.6   | 0.9     |
| 33.0   | 98.1   | 2.2     | 93.0   | 92.2   | 2.0     | 153.0  | 62.2   | 0.9     |
| 34.0   | 98.0   | 2.2     | 94.0   | 92.0   | 1.9     | 154.0  | 61.8   | 0.9     |
| 35.0   | 98.0   | 2.2     | 95.0   | 91.8   | 1.9     | 155.0  | 61.5   | 0.9     |
| 36.0   | 97.9   | 2.2     | 96.0   | 91.5   | 1.9     | 156.0  | 61.1   | 0.9     |
| 37.0   | 97.8   | 2.2     | 97.0   | 91.2   | 1.9     | 157.0  | 60.7   | 0.8     |
| 38.0   | 97.8   | 2.2     | 98.0   | 90.9   | 1.9     | 158.0  | 60.4   | 0.8     |
| 39.0   | 97.7   | 2.2     | 99.0   | 90.6   | 1.9     | 159.0  | 60.0   | 0.8     |
| 40.0   | 97.6   | 2.2     | 100.0  | 90.2   | 1.9     | 160.0  | 59.7   | 0.8     |
| 41.0   | 97.5   | 2.2     | 101.0  | 89.8   | 1.9     | 161.0  | 59.4   | 0.8     |
| 42.0   | 97.5   | 2.2     | 102.0  | 89.4   | 1.8     | 162.0  | 59.1   | 0.8     |
| 43.0   | 97.4   | 2.2     | 103.0  | 89.0   | 1.8     | 163.0  | 58.9   | 0.8     |
| 44.0   | 97.3   | 2.2     | 104.0  | 88.6   | 1.8     | 164.0  | 58.6   | 0.8     |
| 45.0   | 97.2   | 2.2     | 105.0  | 88.2   | 1.8     | 165.0  | 58.4   | 0.8     |
| 46.0   | 97.2   | 2.2     | 106.0  | 87.7   | 1.8     | 166.0  | 58.2   | 0.8     |
| 47.0   | 97.1   | 2.2     | 107.0  | 87.2   | 1.8     | 167.0  | 58.0   | 0.8     |
| 48.0   | 97.0   | 2.2     | 108.0  | 86.8   | 1.7     | 168.0  | 57.8   | 0.8     |
| 49.0   | 96.9   | 2.2     | 109.0  | 86.3   | 1.7     | 169.0  | 57.6   | 0.8     |
| 50.0   | 96.8   | 2.2     | 110.0  | 85.8   | 1.7     | 170.0  | 57.5   | 0.8     |
| 51.0   | 96.7   | 2.2     | 111.0  | 85.2   | 1.7     | 171.0  | 57.3   | 0.8     |
| 52.0   | 96.6   | 2.1     | 112.0  | 84.7   | 1.7     | 172.0  | 57.2   | 0.8     |
| 53.0   | 96.5   | 2.1     | 113.0  | 84.2   | 1.6     | 173.0  | 57.1   | 0.8     |
| 54.0   | 96.4   | 2.1     | 114.0  | 83.6   | 1.6     | 174.0  | 57.0   | 0.7     |
| 55.0   | 96.3   | 2.1     | 115.0  | 83.1   | 1.6     | 175.0  | 56.9   | 0.7     |
| 56.0   | 96.2   | 2.1     | 116.0  | 82.5   | 1.6     | 176.0  | 56.9   | 0.7     |
| 57.0   | 96.1   | 2.1     | 117.0  | 81.9   | 1.5     | 177.0  | 56.8   | 0.7     |
| 58.0   | 96.0   | 2.1     | 118.0  | 81.3   | 1.5     | 178.0  | 56.8   | 0.7     |
| 59.0   | 95.9   | 2.1     | 119.0  | 80.8   | 1.5     | 179.0  | 56.8   | 0.7     |

### Horizontal diagram at 0.0° tilt (Total Antenna)

| Az (°) | Er (%) | ERP (W) | Az (°) | Er (%) | ERP (W) | Az (°) | Er (%) | ERP (W) |
|--------|--------|---------|--------|--------|---------|--------|--------|---------|
| 180.0  | 56.8   | 0.7     | 240.0  | 80.5   | 1.5     | 300.0  | 95.7   | 2.1     |
| 181.0  | 56.8   | 0.7     | 241.0  | 81.1   | 1.5     | 301.0  | 95.8   | 2.1     |
| 182.0  | 56.8   | 0.7     | 242.0  | 81.7   | 1.5     | 302.0  | 96.0   | 2.1     |
| 183.0  | 56.8   | 0.7     | 243.0  | 82.2   | 1.6     | 303.0  | 96.1   | 2.1     |
| 184.0  | 56.9   | 0.7     | 244.0  | 82.8   | 1.6     | 304.0  | 96.2   | 2.1     |
| 185.0  | 56.9   | 0.7     | 245.0  | 83.4   | 1.6     | 305.0  | 96.3   | 2.1     |
| 186.0  | 57.0   | 0.7     | 246.0  | 83.9   | 1.6     | 306.0  | 96.5   | 2.1     |
| 187.0  | 57.1   | 0.7     | 247.0  | 84.5   | 1.6     | 307.0  | 96.6   | 2.1     |
| 188.0  | 57.2   | 0.8     | 248.0  | 85.0   | 1.7     | 308.0  | 96.7   | 2.2     |
| 189.0  | 57.3   | 0.8     | 249.0  | 85.5   | 1.7     | 309.0  | 96.8   | 2.2     |
| 190.0  | 57.5   | 0.8     | 250.0  | 86.0   | 1.7     | 310.0  | 97.0   | 2.2     |
| 191.0  | 57.6   | 0.8     | 251.0  | 86.5   | 1.7     | 311.0  | 97.1   | 2.2     |
| 192.0  | 57.8   | 0.8     | 252.0  | 87.0   | 1.7     | 312.0  | 97.2   | 2.2     |
| 193.0  | 58.0   | 0.8     | 253.0  | 87.5   | 1.8     | 313.0  | 97.2   | 2.2     |
| 194.0  | 58.2   | 0.8     | 254.0  | 87.9   | 1.8     | 314.0  | 97.3   | 2.2     |
| 195.0  | 58.4   | 0.8     | 255.0  | 88.4   | 1.8     | 315.0  | 97.4   | 2.2     |
| 196.0  | 58.6   | 0.8     | 256.0  | 88.8   | 1.8     | 316.0  | 97.5   | 2.2     |
| 197.0  | 58.9   | 0.8     | 257.0  | 89.2   | 1.8     | 317.0  | 97.5   | 2.2     |
| 198.0  | 59.2   | 0.8     | 258.0  | 89.6   | 1.8     | 318.0  | 97.6   | 2.2     |
| 199.0  | 59.4   | 0.8     | 259.0  | 90.0   | 1.9     | 319.0  | 97.7   | 2.2     |
| 200.0  | 59.7   | 0.8     | 260.0  | 90.3   | 1.9     | 320.0  | 97.8   | 2.2     |
| 201.0  | 60.0   | 0.8     | 261.0  | 90.6   | 1.9     | 321.0  | 97.8   | 2.2     |
| 202.0  | 60.4   | 0.8     | 262.0  | 91.0   | 1.9     | 322.0  | 97.9   | 2.2     |
| 203.0  | 60.7   | 0.8     | 263.0  | 91.2   | 1.9     | 323.0  | 98.0   | 2.2     |
| 204.0  | 61.1   | 0.9     | 264.0  | 91.5   | 1.9     | 324.0  | 98.0   | 2.2     |
| 205.0  | 61.4   | 0.9     | 265.0  | 91.8   | 1.9     | 325.0  | 98.1   | 2.2     |
| 206.0  | 61.8   | 0.9     | 266.0  | 92.0   | 1.9     | 326.0  | 98.2   | 2.2     |
| 207.0  | 62.2   | 0.9     | 267.0  | 92.2   | 2.0     | 327.0  | 98.3   | 2.2     |
| 208.0  | 62.6   | 0.9     | 268.0  | 92.4   | 2.0     | 328.0  | 98.3   | 2.2     |
| 209.0  | 63.1   | 0.9     | 269.0  | 92.5   | 2.0     | 329.0  | 98.4   | 2.2     |
| 210.0  | 63.5   | 0.9     | 270.0  | 92.6   | 2.0     | 330.0  | 98.5   | 2.2     |
| 211.0  | 64.0   | 0.9     | 271.0  | 92.7   | 2.0     | 331.0  | 98.5   | 2.2     |
| 212.0  | 64.4   | 1.0     | 272.0  | 92.8   | 2.0     | 332.0  | 98.6   | 2.2     |
| 213.0  | 64.9   | 1.0     | 273.0  | 92.9   | 2.0     | 333.0  | 98.7   | 2.2     |
| 214.0  | 65.4   | 1.0     | 274.0  | 93.0   | 2.0     | 334.0  | 98.7   | 2.2     |
| 215.0  | 65.9   | 1.0     | 275.0  | 93.1   | 2.0     | 335.0  | 98.8   | 2.2     |
| 216.0  | 66.4   | 1.0     | 276.0  | 93.2   | 2.0     | 336.0  | 98.9   | 2.3     |
| 217.0  | 66.9   | 1.0     | 277.0  | 93.3   | 2.0     | 337.0  | 98.9   | 2.3     |
| 218.0  | 67.4   | 1.0     | 278.0  | 93.4   | 2.0     | 338.0  | 99.0   | 2.3     |
| 219.0  | 68.0   | 1.1     | 279.0  | 93.5   | 2.0     | 339.0  | 99.1   | 2.3     |
| 220.0  | 68.5   | 1.1     | 280.0  | 93.6   | 2.0     | 340.0  | 99.1   | 2.3     |
| 221.0  | 69.1   | 1.1     | 281.0  | 93.7   | 2.0     | 341.0  | 99.2   | 2.3     |
| 222.0  | 69.7   | 1.1     | 282.0  | 93.8   | 2.0     | 342.0  | 99.3   | 2.3     |
| 223.0  | 70.2   | 1.1     | 283.0  | 93.9   | 2.0     | 343.0  | 99.4   | 2.3     |
| 224.0  | 70.8   | 1.2     | 284.0  | 94.0   | 2.0     | 344.0  | 99.4   | 2.3     |
| 225.0  | 71.4   | 1.2     | 285.0  | 94.1   | 2.0     | 345.0  | 99.5   | 2.3     |
| 226.0  | 72.0   | 1.2     | 286.0  | 94.2   | 2.0     | 346.0  | 99.5   | 2.3     |
| 227.0  | 72.6   | 1.2     | 287.0  | 94.3   | 2.0     | 347.0  | 99.5   | 2.3     |
| 228.0  | 73.2   | 1.2     | 288.0  | 94.4   | 2.1     | 348.0  | 99.6   | 2.3     |
| 229.0  | 73.8   | 1.3     | 289.0  | 94.5   | 2.1     | 349.0  | 99.6   | 2.3     |
| 230.0  | 74.4   | 1.3     | 290.0  | 94.6   | 2.1     | 350.0  | 99.6   | 2.3     |
| 231.0  | 75.0   | 1.3     | 291.0  | 94.7   | 2.1     | 351.0  | 99.7   | 2.3     |
| 232.0  | 75.6   | 1.3     | 292.0  | 94.8   | 2.1     | 352.0  | 99.7   | 2.3     |
| 233.0  | 76.2   | 1.3     | 293.0  | 94.9   | 2.1     | 353.0  | 99.7   | 2.3     |
| 234.0  | 76.8   | 1.4     | 294.0  | 95.0   | 2.1     | 354.0  | 99.8   | 2.3     |
| 235.0  | 77.4   | 1.4     | 295.0  | 95.1   | 2.1     | 355.0  | 99.8   | 2.3     |
| 236.0  | 78.0   | 1.4     | 296.0  | 95.2   | 2.1     | 356.0  | 99.9   | 2.3     |
| 237.0  | 78.6   | 1.4     | 297.0  | 95.3   | 2.1     | 357.0  | 99.9   | 2.3     |
| 238.0  | 79.3   | 1.4     | 298.0  | 95.4   | 2.1     | 358.0  | 99.9   | 2.3     |
| 239.0  | 79.9   | 1.5     | 299.0  | 95.6   | 2.1     | 359.0  | 100.0  | 2.3     |



Vertical diagram at an azimuth of 0.0°



### Vertical diagram at an azimuth of 0.0°

| Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) |
|---------|--------|---------|---------|--------|---------|---------|--------|---------|
| 0.0     | 100.1  | 2.3     | 15.4    | 11.5   | 0.0     | 30.7    | 9.8    | 0.0     |
| 0.3     | 100.0  | 2.3     | 15.6    | 12.9   | 0.0     | 31.0    | 10.6   | 0.0     |
| 0.5     | 99.8   | 2.3     | 15.9    | 14.2   | 0.0     | 31.2    | 11.3   | 0.0     |
| 0.8     | 99.5   | 2.3     | 16.1    | 15.5   | 0.1     | 31.5    | 12.1   | 0.0     |
| 1.0     | 99.1   | 2.3     | 16.4    | 16.6   | 0.1     | 31.7    | 12.8   | 0.0     |
| 1.3     | 98.5   | 2.2     | 16.6    | 17.7   | 0.1     | 32.0    | 13.5   | 0.0     |
| 1.5     | 97.9   | 2.2     | 16.9    | 18.7   | 0.1     | 32.3    | 14.1   | 0.0     |
| 1.8     | 97.1   | 2.2     | 17.2    | 19.6   | 0.1     | 32.5    | 14.7   | 0.0     |
| 2.0     | 96.3   | 2.1     | 17.4    | 20.5   | 0.1     | 32.8    | 15.2   | 0.1     |
| 2.3     | 95.3   | 2.1     | 17.7    | 21.2   | 0.1     | 33.0    | 15.7   | 0.1     |
| 2.6     | 94.3   | 2.0     | 17.9    | 21.9   | 0.1     | 33.3    | 16.2   | 0.1     |
| 2.8     | 93.1   | 2.0     | 18.2    | 22.4   | 0.1     | 33.5    | 16.6   | 0.1     |
| 3.1     | 91.8   | 1.9     | 18.4    | 22.9   | 0.1     | 33.8    | 17.0   | 0.1     |
| 3.3     | 90.4   | 1.9     | 18.7    | 23.3   | 0.1     | 34.0    | 17.4   | 0.1     |
| 3.6     | 89.0   | 1.8     | 18.9    | 23.7   | 0.1     | 34.3    | 17.7   | 0.1     |
| 3.8     | 87.4   | 1.8     | 19.2    | 23.9   | 0.1     | 34.6    | 17.9   | 0.1     |
| 4.1     | 85.8   | 1.7     | 19.5    | 24.1   | 0.1     | 34.8    | 18.1   | 0.1     |
| 4.4     | 84.1   | 1.6     | 19.7    | 24.2   | 0.1     | 35.1    | 18.3   | 0.1     |
| 4.6     | 82.3   | 1.6     | 20.0    | 24.2   | 0.1     | 35.3    | 18.4   | 0.1     |
| 4.9     | 80.4   | 1.5     | 20.2    | 24.2   | 0.1     | 35.6    | 18.5   | 0.1     |
| 5.1     | 78.4   | 1.4     | 20.5    | 24.1   | 0.1     | 35.8    | 18.6   | 0.1     |
| 5.4     | 76.4   | 1.3     | 20.7    | 23.9   | 0.1     | 36.1    | 18.6   | 0.1     |
| 5.6     | 74.3   | 1.3     | 21.0    | 23.6   | 0.1     | 36.4    | 18.5   | 0.1     |
| 5.9     | 72.1   | 1.2     | 21.2    | 23.3   | 0.1     | 36.6    | 18.4   | 0.1     |
| 6.1     | 69.9   | 1.1     | 21.5    | 22.9   | 0.1     | 36.9    | 18.3   | 0.1     |
| 6.4     | 67.6   | 1.1     | 21.8    | 22.5   | 0.1     | 37.1    | 18.2   | 0.1     |
| 6.7     | 65.3   | 1.0     | 22.0    | 22.0   | 0.1     | 37.4    | 18.0   | 0.1     |
| 6.9     | 63.0   | 0.9     | 22.3    | 21.4   | 0.1     | 37.6    | 17.7   | 0.1     |
| 7.2     | 60.6   | 0.8     | 22.5    | 20.8   | 0.1     | 37.9    | 17.4   | 0.1     |
| 7.4     | 58.1   | 0.8     | 22.8    | 20.1   | 0.1     | 38.1    | 17.1   | 0.1     |
| 7.7     | 55.6   | 0.7     | 23.0    | 19.4   | 0.1     | 38.4    | 16.8   | 0.1     |
| 7.9     | 53.1   | 0.6     | 23.3    | 18.7   | 0.1     | 38.7    | 16.4   | 0.1     |
| 8.2     | 50.6   | 0.6     | 23.6    | 17.9   | 0.1     | 38.9    | 16.0   | 0.1     |
| 8.4     | 48.1   | 0.5     | 23.8    | 17.0   | 0.1     | 39.2    | 15.6   | 0.1     |
| 8.7     | 45.5   | 0.5     | 24.1    | 16.2   | 0.1     | 39.4    | 15.1   | 0.1     |
| 9.0     | 42.9   | 0.4     | 24.3    | 15.3   | 0.1     | 39.7    | 14.6   | 0.0     |
| 9.2     | 40.4   | 0.4     | 24.6    | 14.3   | 0.0     | 39.9    | 14.1   | 0.0     |
| 9.5     | 37.8   | 0.3     | 24.8    | 13.4   | 0.0     | 40.2    | 13.5   | 0.0     |
| 9.7     | 35.2   | 0.3     | 25.1    | 12.4   | 0.0     | 40.4    | 12.9   | 0.0     |
| 10.0    | 32.7   | 0.2     | 25.3    | 11.4   | 0.0     | 40.7    | 12.3   | 0.0     |
| 10.2    | 30.1   | 0.2     | 25.6    | 10.4   | 0.0     | 41.0    | 11.7   | 0.0     |
| 10.5    | 27.6   | 0.2     | 25.9    | 9.3    | 0.0     | 41.2    | 11.0   | 0.0     |
| 10.8    | 25.1   | 0.1     | 26.1    | 8.3    | 0.0     | 41.5    | 10.4   | 0.0     |
| 11.0    | 22.7   | 0.1     | 26.4    | 7.2    | 0.0     | 41.7    | 9.7    | 0.0     |
| 11.3    | 20.2   | 0.1     | 26.6    | 6.1    | 0.0     | 42.0    | 9.0    | 0.0     |
| 11.5    | 17.8   | 0.1     | 26.9    | 5.1    | 0.0     | 42.2    | 8.2    | 0.0     |
| 11.8    | 15.5   | 0.1     | 27.1    | 4.0    | 0.0     | 42.5    | 7.5    | 0.0     |
| 12.0    | 13.2   | 0.0     | 27.4    | 2.9    | 0.0     | 42.8    | 6.7    | 0.0     |
| 12.3    | 10.9   | 0.0     | 27.6    | 1.9    | 0.0     | 43.0    | 6.0    | 0.0     |
| 12.5    | 8.7    | 0.0     | 27.9    | 0.8    | 0.0     | 43.3    | 5.2    | 0.0     |
| 12.8    | 6.5    | 0.0     | 28.2    | 0.3    | 0.0     | 43.5    | 4.4    | 0.0     |
| 13.1    | 4.4    | 0.0     | 28.4    | 1.3    | 0.0     | 43.8    | 3.6    | 0.0     |
| 13.3    | 2.4    | 0.0     | 28.7    | 2.3    | 0.0     | 44.0    | 2.9    | 0.0     |
| 13.6    | 0.4    | 0.0     | 28.9    | 3.3    | 0.0     | 44.3    | 2.1    | 0.0     |
| 13.8    | 1.5    | 0.0     | 29.2    | 4.3    | 0.0     | 44.5    | 1.3    | 0.0     |
| 14.1    | 3.4    | 0.0     | 29.4    | 5.3    | 0.0     | 44.8    | 0.5    | 0.0     |
| 14.3    | 5.2    | 0.0     | 29.7    | 6.2    | 0.0     | 45.1    | 0.3    | 0.0     |
| 14.6    | 6.9    | 0.0     | 30.0    | 7.2    | 0.0     | 45.3    | 1.1    | 0.0     |
| 14.8    | 8.5    | 0.0     | 30.2    | 8.1    | 0.0     | 45.6    | 1.9    | 0.0     |
| 15.1    | 10.0   | 0.0     | 30.5    | 8.9    | 0.0     | 45.8    | 2.7    | 0.0     |

### Vertical diagram at an azimuth of 0.0°

| Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) |
|---------|--------|---------|---------|--------|---------|---------|--------|---------|
| 46.1    | 3.5    | 0.0     | 61.4    | 18.1   | 0.1     | 76.8    | 12.9   | 0.0     |
| 46.3    | 4.3    | 0.0     | 61.7    | 17.7   | 0.1     | 77.1    | 13.4   | 0.0     |
| 46.6    | 5.1    | 0.0     | 62.0    | 17.3   | 0.1     | 77.3    | 13.8   | 0.0     |
| 46.8    | 5.9    | 0.0     | 62.2    | 16.9   | 0.1     | 77.6    | 14.2   | 0.0     |
| 47.1    | 6.6    | 0.0     | 62.5    | 16.5   | 0.1     | 77.8    | 14.6   | 0.0     |
| 47.4    | 7.4    | 0.0     | 62.7    | 16.0   | 0.1     | 78.1    | 15.0   | 0.1     |
| 47.6    | 8.1    | 0.0     | 63.0    | 15.6   | 0.1     | 78.3    | 15.4   | 0.1     |
| 47.9    | 8.8    | 0.0     | 63.2    | 15.1   | 0.1     | 78.6    | 15.8   | 0.1     |
| 48.1    | 9.6    | 0.0     | 63.5    | 14.7   | 0.0     | 78.8    | 16.2   | 0.1     |
| 48.4    | 10.3   | 0.0     | 63.7    | 14.2   | 0.0     | 79.1    | 16.6   | 0.1     |
| 48.6    | 10.9   | 0.0     | 64.0    | 13.7   | 0.0     | 79.4    | 16.9   | 0.1     |
| 48.9    | 11.6   | 0.0     | 64.3    | 13.2   | 0.0     | 79.6    | 17.3   | 0.1     |
| 49.2    | 12.3   | 0.0     | 64.5    | 12.7   | 0.0     | 79.9    | 17.6   | 0.1     |
| 49.4    | 12.9   | 0.0     | 64.8    | 12.2   | 0.0     | 80.1    | 18.0   | 0.1     |
| 49.7    | 13.5   | 0.0     | 65.0    | 11.7   | 0.0     | 80.4    | 18.3   | 0.1     |
| 49.9    | 14.1   | 0.0     | 65.3    | 11.2   | 0.0     | 80.6    | 18.6   | 0.1     |
| 50.2    | 14.7   | 0.0     | 65.5    | 10.7   | 0.0     | 80.9    | 18.9   | 0.1     |
| 50.4    | 15.3   | 0.1     | 65.8    | 10.1   | 0.0     | 81.2    | 19.2   | 0.1     |
| 50.7    | 15.8   | 0.1     | 66.0    | 9.6    | 0.0     | 81.4    | 19.5   | 0.1     |
| 50.9    | 16.3   | 0.1     | 66.3    | 9.0    | 0.0     | 81.7    | 19.8   | 0.1     |
| 51.2    | 16.8   | 0.1     | 66.6    | 8.5    | 0.0     | 81.9    | 20.1   | 0.1     |
| 51.5    | 17.3   | 0.1     | 66.8    | 7.9    | 0.0     | 82.2    | 20.3   | 0.1     |
| 51.7    | 17.7   | 0.1     | 67.1    | 7.4    | 0.0     | 82.4    | 20.6   | 0.1     |
| 52.0    | 18.2   | 0.1     | 67.3    | 6.8    | 0.0     | 82.7    | 20.8   | 0.1     |
| 52.2    | 18.6   | 0.1     | 67.6    | 6.2    | 0.0     | 82.9    | 21.1   | 0.1     |
| 52.5    | 19.0   | 0.1     | 67.8    | 5.7    | 0.0     | 83.2    | 21.3   | 0.1     |
| 52.7    | 19.3   | 0.1     | 68.1    | 5.1    | 0.0     | 83.5    | 21.5   | 0.1     |
| 53.0    | 19.7   | 0.1     | 68.4    | 4.5    | 0.0     | 83.7    | 21.7   | 0.1     |
| 53.2    | 20.0   | 0.1     | 68.6    | 4.0    | 0.0     | 84.0    | 21.9   | 0.1     |
| 53.5    | 20.3   | 0.1     | 68.9    | 3.4    | 0.0     | 84.2    | 22.1   | 0.1     |
| 53.8    | 20.5   | 0.1     | 69.1    | 2.8    | 0.0     | 84.5    | 22.3   | 0.1     |
| 54.0    | 20.8   | 0.1     | 69.4    | 2.2    | 0.0     | 84.7    | 22.4   | 0.1     |
| 54.3    | 21.0   | 0.1     | 69.6    | 1.7    | 0.0     | 85.0    | 22.6   | 0.1     |
| 54.5    | 21.2   | 0.1     | 69.9    | 1.1    | 0.0     | 85.2    | 22.8   | 0.1     |
| 54.8    | 21.3   | 0.1     | 70.1    | 0.5    | 0.0     | 85.5    | 22.9   | 0.1     |
| 55.0    | 21.5   | 0.1     | 70.4    | 0.1    | 0.0     | 85.8    | 23.0   | 0.1     |
| 55.3    | 21.6   | 0.1     | 70.7    | 0.6    | 0.0     | 86.0    | 23.2   | 0.1     |
| 55.6    | 21.7   | 0.1     | 70.9    | 1.2    | 0.0     | 86.3    | 23.3   | 0.1     |
| 55.8    | 21.8   | 0.1     | 71.2    | 1.8    | 0.0     | 86.5    | 23.4   | 0.1     |
| 56.1    | 21.8   | 0.1     | 71.4    | 2.3    | 0.0     | 86.8    | 23.5   | 0.1     |
| 56.3    | 21.9   | 0.1     | 71.7    | 2.9    | 0.0     | 87.0    | 23.6   | 0.1     |
| 56.6    | 21.9   | 0.1     | 71.9    | 3.4    | 0.0     | 87.3    | 23.6   | 0.1     |
| 56.8    | 21.8   | 0.1     | 72.2    | 4.0    | 0.0     | 87.6    | 23.7   | 0.1     |
| 57.1    | 21.8   | 0.1     | 72.4    | 4.5    | 0.0     | 87.8    | 23.8   | 0.1     |
| 57.3    | 21.7   | 0.1     | 72.7    | 5.1    | 0.0     | 88.1    | 23.8   | 0.1     |
| 57.6    | 21.7   | 0.1     | 73.0    | 5.6    | 0.0     | 88.3    | 23.8   | 0.1     |
| 57.9    | 21.5   | 0.1     | 73.2    | 6.1    | 0.0     | 88.6    | 23.9   | 0.1     |
| 58.1    | 21.4   | 0.1     | 73.5    | 6.7    | 0.0     | 88.8    | 23.9   | 0.1     |
| 58.4    | 21.3   | 0.1     | 73.7    | 7.2    | 0.0     | 89.1    | 23.9   | 0.1     |
| 58.6    | 21.1   | 0.1     | 74.0    | 7.7    | 0.0     | 89.3    | 23.9   | 0.1     |
| 58.9    | 20.9   | 0.1     | 74.2    | 8.2    | 0.0     | 89.6    | 23.9   | 0.1     |
| 59.1    | 20.7   | 0.1     | 74.5    | 8.7    | 0.0     | 89.9    | 23.9   | 0.1     |
| 59.4    | 20.5   | 0.1     | 74.8    | 9.2    | 0.0     | 90.1    | 24.0   | 0.1     |
| 59.6    | 20.2   | 0.1     | 75.0    | 9.7    | 0.0     | 90.4    | 23.9   | 0.1     |
| 59.9    | 20.0   | 0.1     | 75.3    | 10.2   | 0.0     | 90.6    | 23.9   | 0.1     |
| 60.2    | 19.7   | 0.1     | 75.5    | 10.7   | 0.0     | 90.9    | 23.8   | 0.1     |
| 60.4    | 19.4   | 0.1     | 75.8    | 11.1   | 0.0     | 91.1    | 23.8   | 0.1     |
| 60.7    | 19.1   | 0.1     | 76.0    | 11.6   | 0.0     | 91.4    | 23.7   | 0.1     |
| 60.9    | 18.8   | 0.1     | 76.3    | 12.1   | 0.0     | 91.6    | 23.6   | 0.1     |
| 61.2    | 18.4   | 0.1     | 76.5    | 12.5   | 0.0     | 91.9    | 23.5   | 0.1     |