

## EXAMPLE ANTENNA USED IN TESTING 5G/4G Bands

| Band Number | 5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA |                      |                                           |                                       |                                                    |                                                |                                                      |                                                  |
|-------------|-------------------------------------------------------------------|----------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|------------------------------------------------|------------------------------------------------------|--------------------------------------------------|
|             | Uplink                                                            | Downlink             | Peak Gain (dBi)<br>Free space<br>Straight | Peak Gain (dBi)<br>Free space<br>Bent | Peak Gain (dBi)<br>30x30cm<br>GND edge<br>Straight | Peak Gain (dBi)<br>30x30cm<br>GND edge<br>bent | Peak Gain (dBi)<br>30x30cm<br>GND centre<br>Straight | Peak Gain (dBi)<br>30x30cm<br>GND centre<br>bent |
| 1           | UL: 1920 to 1980                                                  | DL: 2110 to 2170     | 1.49                                      | 2.83                                  | 2.05                                               | 0.64                                           | 2.88                                                 | 5.36                                             |
| 2           | UL: 1850 to 1910                                                  | DL: 1930 to 1990     | 1.62                                      | 2.92                                  | 2.15                                               | 1.13                                           | 3                                                    | 5.6                                              |
| 3           | UL: 1710 to 1785                                                  | DL: 1805 to 1880     | 1.6                                       | 3.44                                  | 2.26                                               | 2.03                                           | 3.85                                                 | 6.5                                              |
| 4           | UL: 1710 to 1755                                                  | DL: 2110 to 2155     | 1.51                                      | 3.44                                  | 2.26                                               | 1.86                                           | 3.85                                                 | 6.5                                              |
| 5           | UL: 824 to 849                                                    | DL: 869 to 894       | 0.54                                      | 1.01                                  | 2.82                                               | 0.4                                            | 1.52                                                 | -0.1                                             |
| 7           | UL: 2500 to 2570                                                  | DL: 2620 to 2690     | 2                                         | 2.2                                   | 1.49                                               | 0.97                                           | 2.38                                                 | 3.57                                             |
| 8           | UL: 880 to 915                                                    | DL: 925 to 960       | 0.46                                      | 1.39                                  | 3                                                  | 1.67                                           | 3.13                                                 | 0.78                                             |
| 9           | UL: 1749.9 to 1784.9                                              | DL: 1844.9 to 1879.9 | 1.6                                       | 3.37                                  | 2.19                                               | 2.03                                           | 3.68                                                 | 6.42                                             |
| 11          | UL: 1427.9 to 1447.9                                              | DL: 1475.9 to 1495.9 | -0.32                                     | 1.27                                  | 1.47                                               | -0.32                                          | 0.89                                                 | 4.09                                             |
| 12          | UL: 699 to 716                                                    | DL: 729 to 746       | -2.27                                     | -1.17                                 | 0.03                                               | -1.05                                          | -5.81                                                | -7.66                                            |
| 13          | UL: 777 to 787                                                    | DL: 746 to 756       | -2.34                                     | -2.21                                 | -0.29                                              | -2.21                                          | -5.43                                                | -5.19                                            |
| 14          | UL: 788 to 798                                                    | DL: 758 to 768       | -1.94                                     | -2.29                                 | 0.34                                               | -2.12                                          | -5.44                                                | -4.71                                            |
| 17          | UL: 704 to 716                                                    | DL: 734 to 746       | -2.27                                     | -1.17                                 | -0.34                                              | -1.15                                          | -5.81                                                | -7.66                                            |
| 18          | UL: 815 to 830                                                    | DL: 860 to 875       | 0.63                                      | 0.73                                  | 2.78                                               | -0.14                                          | 0.22                                                 | -0.84                                            |
| 19          | UL: 830 to 845                                                    | DL: 875 to 890       | 0.42                                      | 0.91                                  | 2.79                                               | 0.29                                           | 1.25                                                 | -0.24                                            |
| 20          | UL: 832 to 862                                                    | DL: 791 to 821       | 0.63                                      | 0.73                                  | 2.84                                               | -0.18                                          | -0.66                                                | -1.2                                             |
| 21          | UL: 1447.9 to 1462.9                                              | DL: 1495.9 to 1510.9 | -0.21                                     | 1.36                                  | 1.64                                               | -0.17                                          | 1.63                                                 | 4.76                                             |
| 22          | UL: 3410 to 3490                                                  | DL: 3510 to 3590     | 1.98                                      | 2.04                                  | -0.76                                              | 1.48                                           | 4.84                                                 | 4.26                                             |
| 23          | UL: 2000 to 2020                                                  | DL: 2180 to 2200     | 1.06                                      | 2.57                                  | 1.51                                               | 0.78                                           | 2.83                                                 | 5.03                                             |
| 24          | UL: 1625.5 to 1660.5                                              | DL: 1525 to 1559     | 0.45                                      | 3                                     | 1.79                                               | 0.6                                            | 3.41                                                 | 6.29                                             |
| 25          | UL: 1850 to 1915                                                  | DL: 1930 to 1995     | 1.68                                      | 2.97                                  | 2.19                                               | 1.13                                           | 3.03                                                 | 5.6                                              |
| 26          | UL: 814 to 849                                                    | DL: 859 to 894       | 0.63                                      | 1.01                                  | 2.82                                               | 0.4                                            | 1.52                                                 | -0.1                                             |
| 27          | UL: 807 to 824                                                    | DL: 852 to 869       | 0.63                                      | 0.73                                  | 2.84                                               | -0.18                                          | 0.05                                                 | -0.85                                            |
| 28          | UL: 703 to 748                                                    | DL: 758 to 803       | -1.6                                      | -1.12                                 | 0.34                                               | -1.15                                          | -5.29                                                | -4.58                                            |
| 29          | UL: -                                                             | DL: 717 to 728       | -2.09                                     | -1.12                                 | -1.22                                              | -1.44                                          | -5.93                                                | -8.12                                            |
| 30          | UL: 2305 to 2315                                                  | DL: 2350 to 2360     | 1.25                                      | 2.14                                  | 1.84                                               | 0.88                                           | 2.01                                                 | 4.14                                             |
| 31          | UL: 452.5 to 457.5                                                | DL: 462.5 to 467.5   | ×                                         | ×                                     | ×                                                  | ×                                              | ×                                                    | ×                                                |
| 32          | UL: -                                                             | DL: 1452 – 1496      | -0.21                                     | 1.36                                  | 1.64                                               | -0.17                                          | 1.63                                                 | 4.76                                             |
| 35          | 1850 to 1910                                                      |                      | 1.62                                      | 2.92                                  | 2.15                                               | 1.13                                           | 3                                                    | 5.6                                              |
| 38          | 2570 to 2620                                                      |                      | 1.14                                      | 2.18                                  | 1.24                                               | 0.21                                           | 1.99                                                 | 3.21                                             |
| 39          | 1880 to 1920                                                      |                      | 1.68                                      | 2.97                                  | 2.19                                               | 0.82                                           | 3.03                                                 | 5.52                                             |
| 40          | 2300 to 2400                                                      |                      | 1.42                                      | 2.14                                  | 1.84                                               | 0.88                                           | 2.62                                                 | 4.14                                             |
| 41          | 2496 to 2690                                                      |                      | 2                                         | 2.2                                   | 1.49                                               | 0.97                                           | 2.47                                                 | 3.57                                             |
| 42          | 3400 to 3600                                                      |                      | 1.98                                      | 2.06                                  | -0.76                                              | 1.48                                           | 4.84                                                 | 4.26                                             |
| 43          | 3600 to 3800                                                      |                      | 2.61                                      | 2.51                                  | -0.65                                              | 1.63                                           | 4.82                                                 | 4.29                                             |
| 48          | 3550 to 3700                                                      |                      | 2.61                                      | 2.51                                  | -0.65                                              | 1.43                                           | 4.82                                                 | 4.29                                             |
| 66          | UL: 1710-1780                                                     | DL: 2110-2200        | 3.44                                      | 2.26                                  | 2.03                                               | 3.85                                           | 6.5                                                  | 6.5                                              |
| 71          | 617 to 698                                                        |                      | 1.68                                      | 1.72                                  | 2.1                                                | 1.99                                           | ×                                                    | ×                                                |
| 74/75/76    | 1427 to 1518                                                      |                      | -0.21                                     | 1.54                                  | 1.68                                               | 0.17                                           | 1.91                                                 | 4.82                                             |
| 77          | 3300 to 4200                                                      |                      | 2.61                                      | 2.51                                  | -0.65                                              | 1.63                                           | 4.84                                                 | 4.29                                             |
| 78          | 3300 to 3800                                                      |                      | 2.61                                      | 2.51                                  | -0.65                                              | 1.63                                           | 4.84                                                 | 4.29                                             |
| 79          | 4400 to 5000                                                      |                      | 2.64                                      | 2.16                                  | -0.14                                              | 1.74                                           | 2.79                                                 | 5.06                                             |

NO ANTENNA IS SOLD WITH PRODUCT