

DATA SHEET

ARUBA 9004 LTE-ANTI INDOOR ANTENNA

R4Y94A

The 9004-LTE-ANTI is a high-performance omni-directional indoor dipole antenna. It is ideally designed for use with Aruba 9004-LTE Gateways. The 9004-LTE-ANTI plugs into onboard RP-SMA connectors on 9004-LTE Gateways as Main and Diversity antennas. The antenna can be used as a GPS antenna and can also be extended using an indoor antenna extender kit.



SPECIFICATIONS

A. Electrical Characteristics

| Frequency | V.S.W.R. | Peak Gain (max.) | Efficiency (avg.) |
|-----------------|------------------|------------------|-------------------|
| 700 ~ 960 MHz | < 3.0 | 0.1dBi | 45% |
| 1166 ~ 1186 MHz | < 2.5 | 1.3dBi | 45% |
| 1428 ~ 1600 MHz | < 2.5 | 2.9dBi | 55% |
| 1700 ~ 2700 MHz | < 2.5 | 3.7dBi | 75% |
| Polarization | Linear, vertical | | |
| Impedance | 50 Ohm | | |

B. Material & Mechanical Characteristics

| | |
|----------------------|------------------|
| Material of Radiator | PCB |
| Material of Plastic | PC / POM |
| Cable Type | RG-178U-03 |
| Connector Type | SMA Male |
| Radome Color | Black |
| Dimensions | 138.8 x 20 x 9.4 |

C. Environmental

| | |
|----------------------------|-------------------|
| Operation Temperature | - 40 °C ~ + 65 °C |
| Storage Temperature | - 40 °C ~ + 80 °C |
| Antenna Color Storage life | < 2 year |

GPS antenna range: 1448~1511MHz



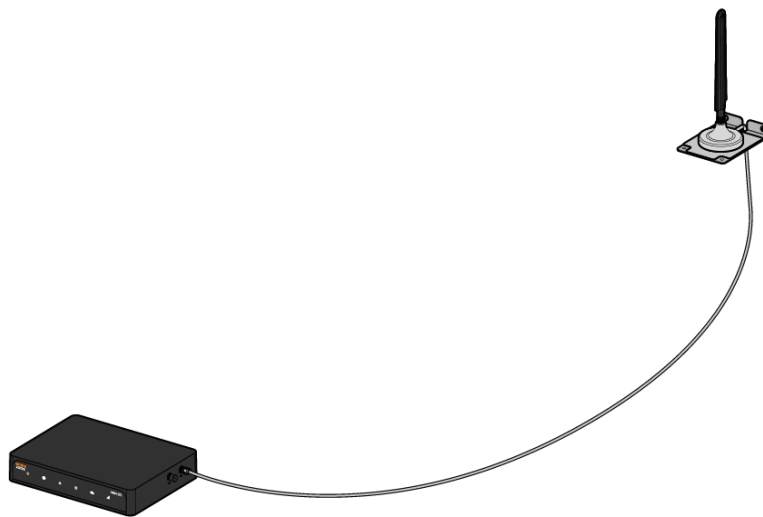
INDOOR ANTENNA EXTENDER KITS

The indoor antennas can be extended by 20 or 40 feet using the following extender kits:

| Part Number | Description |
|-------------|--|
| R4Y91A | Aruba 90xx-LTE Indoor Ant Ext Kit-20ft |
| R4Y92A | Aruba 90xx-LTE Indoor Ant Ext Kit-40ft |

Each kit is for extending one antenna. To extend both Main and Diversity antennas, two (2) kits are needed. To extend the GPS antenna, one additional kit is needed. To install, the LTE/GPS antenna connected to the 9004-LTE gateway would be detached and reattached to the other end of the extender cable as depicted below.

Please refer to Aruba 9004-LTE Gateway Installation Guide for installation steps.



CABLE LOSS

| Frequency (MHz) | Cable loss (dB) | | | |
|-----------------|-----------------|---------|---------|---------|
| | 20 Feet | | 40 Feet | |
| | Cable#1 | Cable#2 | Cable#1 | Cable#2 |
| 600 | 2.41 | 2.41 | 4.74 | 4.77 |
| 1200 | 3.61 | 3.59 | 7.07 | 7.10 |
| 1800 | 4.57 | 4.60 | 9.04 | 9.10 |
| 2400 | 5.57 | 5.59 | 10.91 | 11.00 |
| 3000 | 6.61 | 6.63 | 12.86 | 12.97 |



VSWR / ISOLATION

| Frequency (MHz) | VSWR | | Isolation (dB) |
|-----------------|------|-----------|----------------|
| | Main | Diversity | 90° |
| 699~960 | <4.0 | <4.0 | 20 |
| 1448~1511 | <2.0 | <2.0 | 25 |
| 1710~2170 | <2.0 | <2.0 | 25 |
| 2300~2700 | <2.0 | <2.0 | 25 |

EFFICIENCY / PEAK GAIN

| | Frequency (MHz) | Efficiency (%) | Peak Gain (dBi) |
|-----------|-----------------|----------------|-----------------|
| Main | 699~960 | 55 | 2.68 |
| | 1448~1511 | 55 | 0.95 |
| | 1710~2170 | 64 | 2.99 |
| | 2300~2700 | 51 | 3.19 |
| Diversity | 699~960 | 53 | 2.16 |
| | 1448~1511 | 57 | 1.34 |
| | 1710~2170 | 65 | 2.98 |
| | 2300~2700 | 54 | 3.17 |



EFFICIENCY / PEAK GAIN -698MHZ ~ 960MHZ

| EFFICIENCY | | | | |
|-------------|-----------|---------------|------------|------------|
| Frequency | Main (%) | Diversity (%) | w/20ft (%) | w/40ft (%) |
| 698 | 71 | 64 | 44 | 27 |
| 704 | 75 | 68 | 44 | 27 |
| 710 | 74 | 70 | 44 | 26 |
| 716 | 71 | 67 | 42 | 25 |
| 734 | 72 | 67 | 41 | 24 |
| 740 | 70 | 67 | 41 | 23 |
| 746 | 66 | 63 | 36 | 21 |
| 751 | 63 | 59 | 34 | 21 |
| 756 | 62 | 58 | 34 | 20 |
| 777 | 54 | 57 | 37 | 19 |
| 782 | 50 | 51 | 36 | 16 |
| 787 | 52 | 52 | 33 | 16 |
| 791 | 54 | 55 | 35 | 16 |
| 806 | 51 | 54 | 42 | 17 |
| 821 | 60 | 53 | 37 | 17 |
| 824 | 54 | 49 | 34 | 16 |
| 836 | 49 | 47 | 36 | 17 |
| 849 | 52 | 45 | 34 | 17 |
| 862 | 50 | 52 | 31 | 19 |
| 869 | 42 | 42 | 31 | 18 |
| 880 | 48 | 43 | 34 | 17 |
| 894 | 39 | 44 | 27 | 15 |
| 900 | 37 | 40 | 29 | 14 |
| 915 | 47 | 46 | 28 | 16 |
| 925 | 40 | 46 | 28 | 17 |
| 940 | 41 | 41 | 29 | 16 |
| 960 | 36 | 42 | 33 | 14 |
| Avg. | 55 | 53 | 35 | 19 |

| PEAK GAIN | | | | |
|-------------|-------------|-------------|-------------|-------------|
| Frequency | Main | Diversity | w/20ft | w/40ft |
| 698 | 2.45 | 1.59 | 0.78 | 0.30 |
| 704 | 2.68 | 1.88 | 0.64 | 0.19 |
| 710 | 2.64 | 2.10 | 0.35 | 0.07 |
| 716 | 2.44 | 1.94 | -0.20 | -0.28 |
| 734 | 2.50 | 2.10 | 0.75 | -0.63 |
| 740 | 2.23 | 2.16 | 0.69 | -0.76 |
| 746 | 1.81 | 1.86 | 0.05 | -1.11 |
| 751 | 1.51 | 1.61 | -0.40 | -1.35 |
| 756 | 1.35 | 1.43 | -0.47 | -1.57 |
| 777 | 0.71 | 1.40 | 0.39 | -1.81 |
| 782 | 0.45 | 0.93 | 0.27 | -2.53 |
| 787 | 0.69 | 1.11 | -0.16 | -2.77 |
| 791 | 0.85 | 1.38 | 0.00 | -3.09 |
| 806 | 0.92 | 1.44 | 0.76 | -2.75 |
| 821 | 1.10 | 1.26 | 0.76 | -2.26 |
| 824 | 0.58 | 0.93 | 0.44 | -2.73 |
| 836 | 0.01 | 0.71 | 0.72 | -2.28 |
| 849 | 0.40 | 0.49 | 0.59 | -2.45 |
| 862 | 0.39 | 1.13 | -0.16 | -1.68 |
| 869 | -0.30 | 0.18 | 0.11 | -2.17 |
| 880 | 0.56 | 0.31 | 0.52 | -2.18 |
| 894 | -0.26 | 0.37 | -0.65 | -2.48 |
| 900 | -0.80 | 0.06 | -0.21 | -2.41 |
| 915 | -0.09 | 0.61 | -0.41 | -2.43 |
| 925 | -0.80 | 0.48 | 0.01 | -2.17 |
| 940 | -0.73 | -0.23 | 0.23 | -2.43 |
| 960 | -1.01 | -0.11 | 0.84 | -2.90 |
| Max. | 2.68 | 2.16 | 0.84 | 0.30 |



EFFICIENCY / PEAK GAIN – 1448MHZ ~ 1511MHZ

| EFFICIENCY | | | | |
|-------------|-----------|---------------|------------|------------|
| Frequency | Main (%) | Diversity (%) | w/20ft (%) | w/40ft (%) |
| 1448 | 49 | 54 | 35 | 13 |
| 1455 | 46 | 50 | 34 | 13 |
| 1463 | 51 | 48 | 34 | 13 |
| 1476 | 57 | 60 | 37 | 14 |
| 1486 | 52 | 54 | 35 | 13 |
| 1496 | 64 | 60 | 38 | 14 |
| 1503 | 64 | 67 | 38 | 14 |
| 1511 | 56 | 61 | 35 | 13 |
| Avg. | 55 | 57 | 36 | 14 |

| PEAK GAIN | | | | |
|-------------|-------------|-------------|-------------|--------------|
| Frequency | Main | Diversity | w/20ft | w/40ft |
| 1448 | -0.39 | 0.22 | 0.06 | -3.91 |
| 1455 | -0.63 | -0.15 | -0.02 | -3.70 |
| 1463 | -0.17 | -0.33 | 0.02 | -4.19 |
| 1476 | 0.43 | 0.68 | 0.33 | -3.80 |
| 1486 | 0.09 | 0.22 | 0.15 | -3.97 |
| 1496 | 0.93 | 0.81 | 0.61 | -3.72 |
| 1503 | 0.95 | 1.34 | 0.66 | -3.56 |
| 1511 | 0.43 | 1.02 | 0.37 | -3.46 |
| Max. | 0.95 | 1.34 | 0.66 | -3.46 |

EFFICIENCY / PEAK GAIN – 1710MHZ ~ 2170MHZ

| EFFICIENCY | | | | |
|-------------|-----------|---------------|------------|------------|
| Frequency | Main (%) | Diversity (%) | w/20ft (%) | w/40ft (%) |
| 1710 | 71 | 70 | 25 | 10 |
| 1733 | 72 | 71 | 24 | 9 |
| 1750 | 71 | 73 | 25 | 9 |
| 1770 | 67 | 67 | 24 | 8 |
| 1785 | 60 | 66 | 23 | 8 |
| 1805 | 66 | 65 | 24 | 8 |
| 1840 | 61 | 64 | 22 | 8 |
| 1850 | 56 | 62 | 22 | 7 |
| 1880 | 61 | 66 | 24 | 8 |
| 1910 | 64 | 66 | 25 | 8 |
| 1920 | 63 | 65 | 25 | 8 |
| 1930 | 65 | 65 | 25 | 8 |
| 1950 | 63 | 66 | 26 | 8 |
| 1960 | 64 | 66 | 27 | 8 |
| 1980 | 63 | 65 | 26 | 8 |
| 1990 | 62 | 63 | 26 | 8 |
| 2010 | 62 | 63 | 26 | 8 |
| 2018 | 61 | 63 | 27 | 8 |
| 2025 | 59 | 63 | 26 | 8 |
| 2110 | 66 | 62 | 28 | 8 |
| 2140 | 62 | 58 | 25 | 8 |
| 2170 | 62 | 57 | 24 | 7 |
| Avg. | 64 | 65 | 25 | 8 |

| PEAK GAIN | | | | |
|-------------|-------------|-------------|-------------|--------------|
| Frequency | Main | Diversity | w/20ft | w/40ft |
| 1710 | 2.05 | 1.73 | 0.75 | -4.45 |
| 1733 | 2.03 | 1.63 | 0.74 | -4.14 |
| 1750 | 2.26 | 1.57 | 1.03 | -4.00 |
| 1770 | 2.10 | 1.31 | 0.95 | -4.16 |
| 1785 | 1.53 | 1.48 | 0.81 | -4.59 |
| 1805 | 1.71 | 1.58 | 1.09 | -3.85 |
| 1840 | 1.39 | 1.83 | 0.59 | -4.13 |
| 1850 | 1.06 | 1.63 | 0.60 | -4.08 |
| 1880 | 1.57 | 2.16 | 0.77 | -3.91 |
| 1910 | 2.11 | 2.47 | 0.88 | -3.82 |
| 1920 | 2.17 | 2.39 | 0.53 | -3.98 |
| 1930 | 2.37 | 2.38 | 0.37 | -4.14 |
| 1950 | 2.27 | 2.55 | 0.01 | -4.44 |
| 1960 | 2.23 | 2.71 | -0.02 | -4.20 |
| 1980 | 2.33 | 2.67 | -0.28 | -4.67 |
| 1990 | 2.46 | 2.62 | -0.32 | -4.73 |
| 2010 | 2.82 | 2.88 | -0.35 | -5.20 |
| 2018 | 2.83 | 2.98 | -0.45 | -5.08 |
| 2025 | 2.64 | 2.85 | -0.68 | -5.35 |
| 2110 | 2.99 | 2.62 | -0.99 | -6.26 |
| 2140 | 2.88 | 2.82 | -1.52 | -6.45 |
| 2170 | 2.85 | 2.79 | -1.85 | -6.94 |
| Max. | 2.99 | 2.98 | 1.09 | -3.82 |



EFFICIENCY / PEAK GAIN – 2300MHZ ~ 2700MHZ

| EFFICIENCY | | | | |
|-------------|-----------|---------------|------------|------------|
| Frequency | Main (%) | Diversity (%) | w/20ft (%) | w/40ft (%) |
| 2300 | 53 | 52 | 19 | 6 |
| 2305 | 52 | 55 | 18 | 6 |
| 2315 | 47 | 55 | 17 | 5 |
| 2325 | 49 | 48 | 17 | 5 |
| 2350 | 50 | 54 | 17 | 5 |
| 2375 | 51 | 57 | 17 | 5 |
| 2400 | 51 | 55 | 16 | 5 |
| 2500 | 48 | 54 | 19 | 5 |
| 2515 | 50 | 54 | 19 | 5 |
| 2535 | 51 | 54 | 19 | 5 |
| 2555 | 53 | 55 | 19 | 5 |
| 2570 | 53 | 54 | 20 | 5 |
| 2595 | 52 | 52 | 19 | 5 |
| 2620 | 51 | 55 | 19 | 5 |
| 2630 | 54 | 51 | 19 | 5 |
| 2655 | 50 | 54 | 19 | 5 |
| 2680 | 51 | 55 | 19 | 5 |
| 2690 | 49 | 52 | 18 | 5 |
| 2700 | 55 | 50 | 18 | 5 |
| Avg. | 51 | 54 | 18 | 5 |

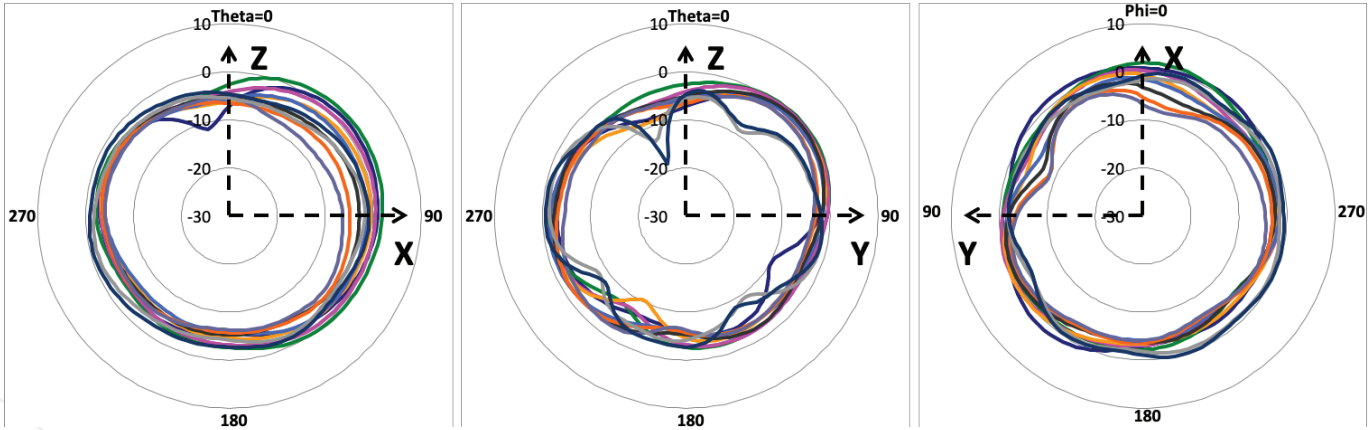
| PEAK GAIN | | | | |
|-------------|-------------|-------------|--------------|--------------|
| Frequency | Main | Diversity | w/20ft | w/40ft |
| 2300 | 2.69 | 2.47 | -2.85 | -7.75 |
| 2305 | 2.58 | 2.68 | -3.20 | -7.83 |
| 2315 | 2.18 | 2.66 | -3.37 | -7.96 |
| 2325 | 2.29 | 2.29 | -3.27 | -8.36 |
| 2350 | 2.42 | 2.38 | -3.25 | -8.14 |
| 2375 | 2.58 | 2.74 | -3.07 | -8.30 |
| 2400 | 2.85 | 2.87 | -2.99 | -8.09 |
| 2500 | 2.14 | 2.77 | -2.60 | -7.80 |
| 2515 | 2.28 | 2.90 | -2.55 | -7.97 |
| 2535 | 2.66 | 3.05 | -2.58 | -7.74 |
| 2555 | 3.07 | 3.08 | -2.72 | -8.04 |
| 2570 | 3.19 | 2.93 | -2.72 | -8.18 |
| 2595 | 2.87 | 2.99 | -3.19 | -8.42 |
| 2620 | 2.74 | 2.74 | -2.97 | -8.50 |
| 2630 | 3.13 | 3.03 | -3.12 | -8.77 |
| 2655 | 2.72 | 3.17 | -3.45 | -8.72 |
| 2680 | 2.66 | 2.43 | -3.60 | -9.40 |
| 2690 | 2.55 | 3.07 | -3.57 | -9.68 |
| 2700 | 3.03 | 2.82 | -3.58 | -9.67 |
| Max. | 3.19 | 3.17 | -2.55 | -7.74 |



RADIATION PATTERN -698MHZ ~ 1511 MHZ

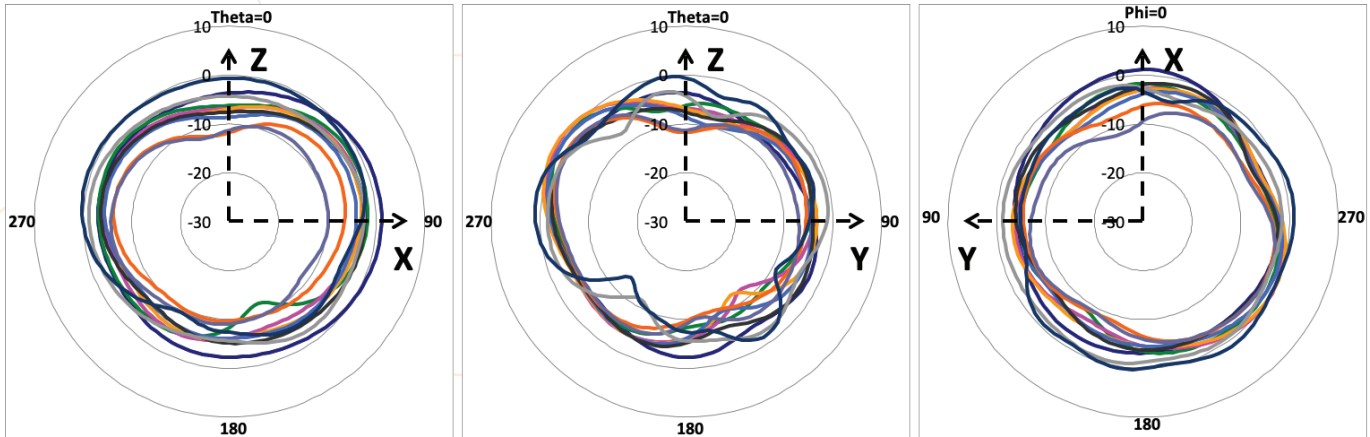
Main Antenna

- | | | |
|----------|----------|-----------|
| — 698MHz | — 836MHz | — 1448MHz |
| — 734MHz | — 880MHz | — 1511MHz |
| — 756MHz | — 925MHz | |
| — 791MHz | — 960MHz | |



Diversity antenna

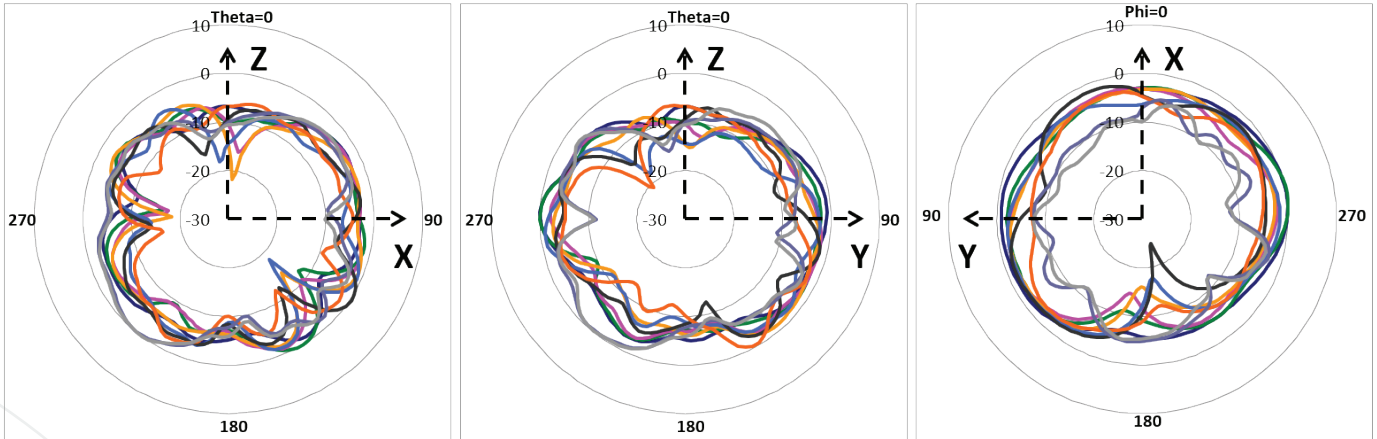
- | | | |
|----------|----------|-----------|
| — 698MHz | — 836MHz | — 1448MHz |
| — 734MHz | — 880MHz | — 1511MHz |
| — 756MHz | — 915MHz | |
| — 791MHz | — 960MHz | |





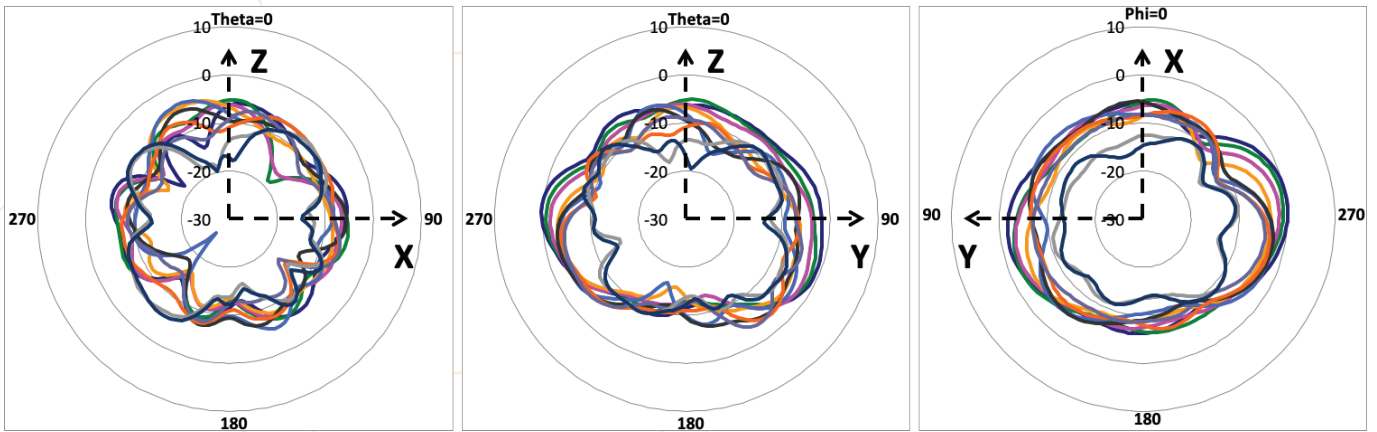
Antenna w/ 20ft. cable

- | | | |
|----------|-----------|-----------|
| — 698MHz | — 836MHz | — 1511MHz |
| — 734MHz | — 880MHz | |
| — 756MHz | — 925MHz | |
| — 791MHz | — 1448MHz | |



Antenna w/ 40ft. cable

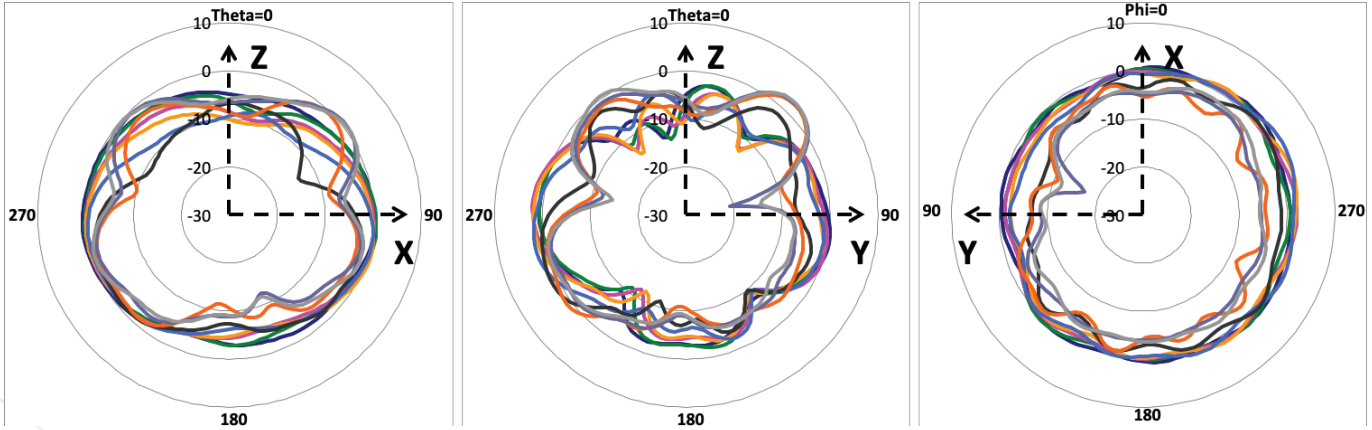
- | | | |
|----------|----------|-----------|
| — 698MHz | — 836MHz | — 1448MHz |
| — 734MHz | — 880MHz | — 1511MHz |
| — 756MHz | — 925MHz | |
| — 791MHz | — 960MHz | |



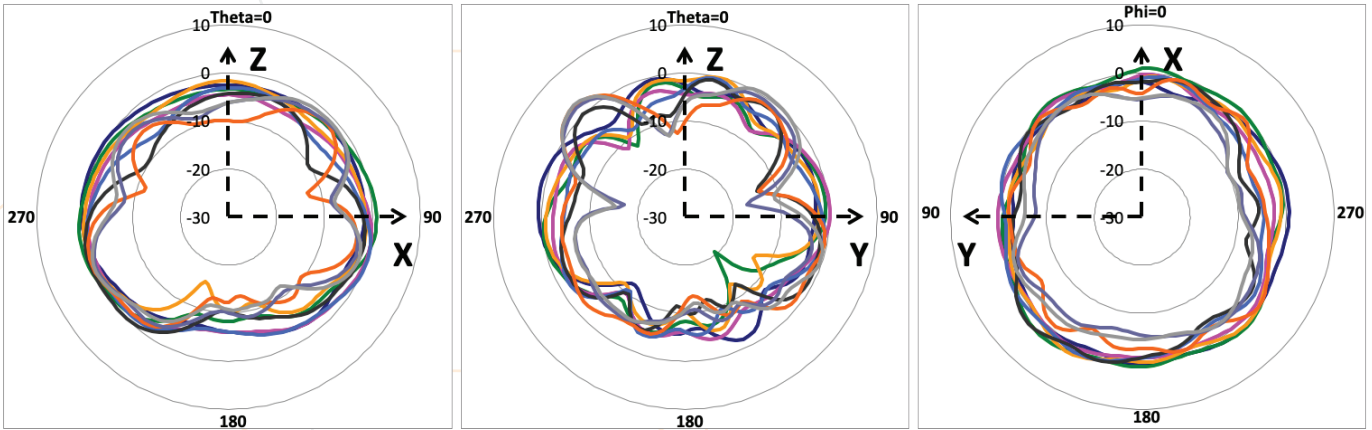


RADIATION PATTERN - 1710MHZ ~ 2700 MHZ

Main Antenna

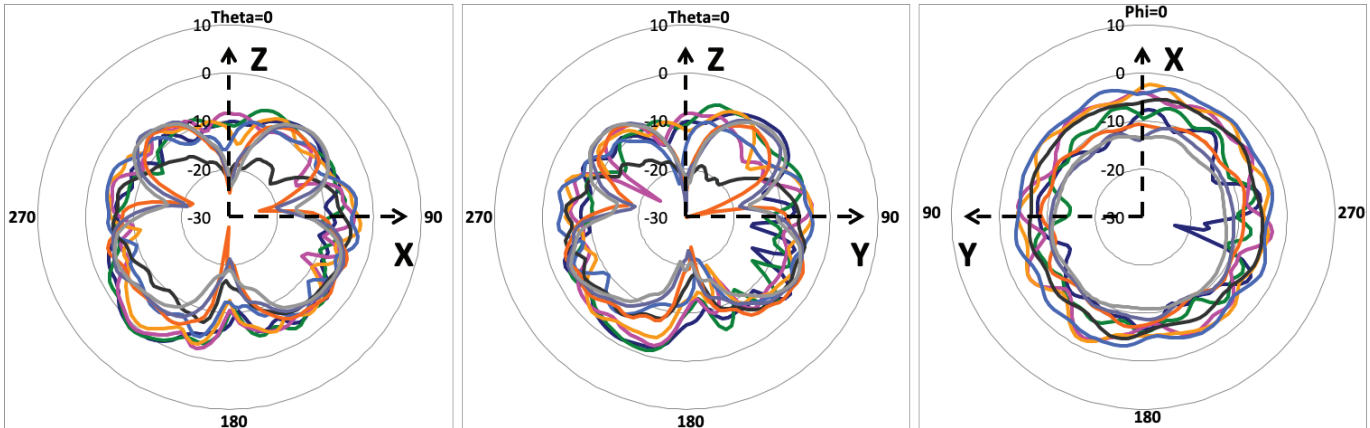


Diversity antenna





Antenna w/ 20ft. cable



Antenna w/ 40ft. cable

