

WM29 Specification

1. Explanation of part number :

WAG - B - 01 - L - 0806
(1) (2) (3) (4) (5)

(1) Product Type : Wireless Antenna

(2) Material : FPC

(3) Frequency : 700-960Mhz, 1710-2690 Mhz

(4) Coaxial Cable Type : 00

(5) Suffix : 00

2. Electrical Specification :

2-1. Frequency Band:

| Frequency Band | MHz |
|----------------|--------------|
| GSM/WCDMA/LTE | 700-2690 MHz |

2-2. Antenna Pattern:PIFA

2-3. Impedance

50 ohm nominal

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

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SCALE :

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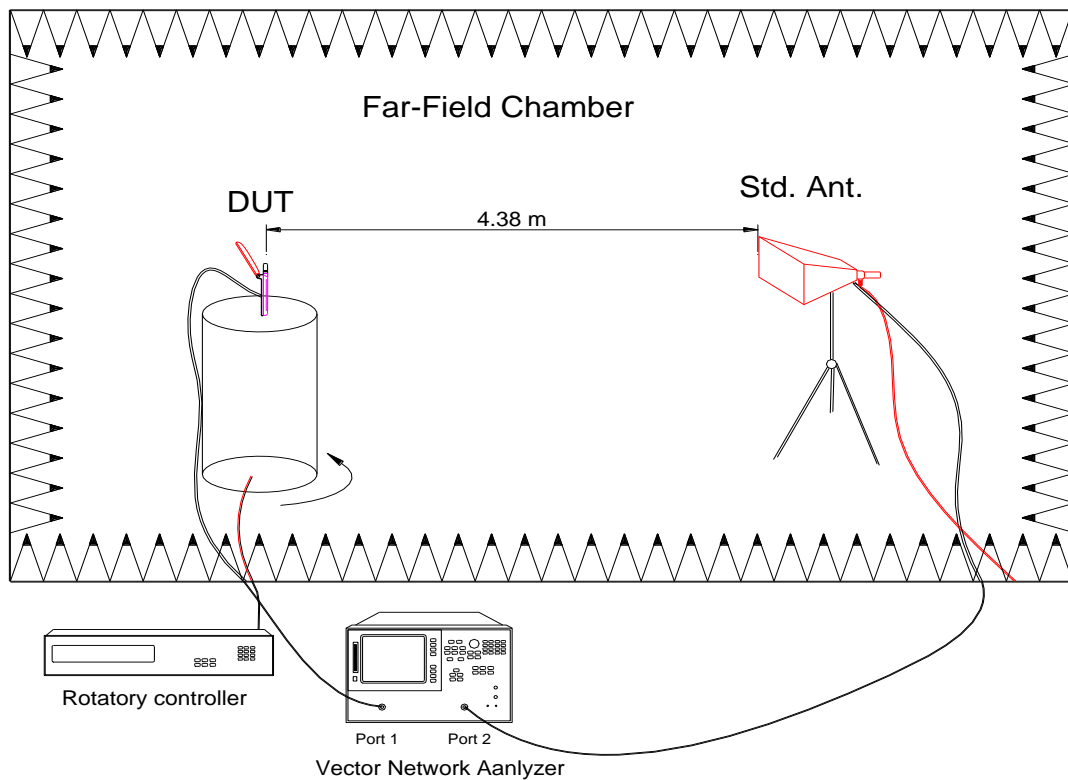
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2-3. Measure and Chamber

2-3-1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

2-3-2 Chamber definition



1. An anechoic chamber (8mx4mx3.5m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna

| | | |
|--|---------------------|---|
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| X=±2 | X.X=±0.1 X.XX=±0.05 | |
| ANGLES=± | HOLEDIA=± | THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION |
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2-3-3 Antenna Tune Switch Logic and Matching

| MA1501 | Main Antenna Matching | Main Antenna Switch Logic |
|------------|-----------------------|--|
| RF1(R2107) | 0Ω | GSM1800;LTE B3/40 |
| RF2(R2109) | 15PF | GSM900;W8;B8 |
| RF3(R2108) | 8.2NH | GSM850; W5; B5/20 |
| RF4(R2110) | 33NH | GSM1900; W1/2/4; B1/2/4/7/34/38/39/41/66 |
| ALL ISO | 33NH | B17/28 |

2-3-4 Antenna OTA

| | 1 | | 2 | | 3 | | 4 | | 5 | |
|-----------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| TRP (dBm) | 18050 | 19.03 | 18650 | 19.44 | 19250 | 18.57 | 20000 | 19.14 | 20450 | 18.88 |
| | 18300 | 18.46 | 18900 | 18.79 | 19575 | 19.52 | 20175 | 19.3 | 20525 | 19.32 |
| | 18550 | 17.81 | 19150 | 18.17 | 19900 | 19.56 | 20350 | 19.59 | 20600 | 19.54 |
| TIS (dBm) | 550 | -96.47 | 1150 | -97.78 | 1900 | -98.52 | 2350 | -96.06 | 2600 | -95.37 |

| | 7 | | 8 | | 17 | | 20 | | 28 | | 34 | |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|--|
| 20800 | 17.01 | 21500 | 18.99 | 23780 | 16.53 | 24200 | 19.49 | 27260 | 16.87 | 36275 | 17.35 | |
| 21100 | 18.15 | 21625 | 19.44 | 23790 | 16.61 | 24300 | 19.71 | 27435 | 17.36 | | | |
| 21400 | 18.53 | 21750 | 18.86 | 23800 | 16.62 | 24400 | 19.22 | 27610 | 16.52 | | | |
| 3400 | -97.07 | 3750 | -96.96 | 5800 | -92.62 | 6400 | -96.68 | 9610 | -93.35 | 36275 | -95.32 | |

| | 38 | | 39 | | 40 | | 41 | | 66 | |
|-------|--------|-------|--------|-------|--------|-------|--------|--------|-------|--|
| 37850 | 18.23 | 38350 | 19.15 | 38750 | 16.85 | 39800 | 16.01 | 132022 | 18.89 | |
| 38000 | 18.16 | 38450 | 19.15 | 39150 | 17.11 | 40620 | 18.23 | 132322 | 19.64 | |
| 38150 | 17.89 | 38550 | 18.74 | 39550 | 17.34 | 41490 | 16.15 | 132622 | 19.81 | |
| 38150 | -92.28 | 38550 | -95.08 | 39550 | -90.68 | 41490 | -91.16 | 67086 | -95.5 | |

| | 850 | | 900 | | 1800 | | 1900 | | W1 | |
|-----------|-----|---------|-----|---------|------|---------|------|---------|-------|---------|
| TRP (dBm) | 128 | 28.07 | 975 | 27.67 | 512 | 24.95 | 512 | 25.44 | 9612 | 19.15 |
| | 190 | 28.08 | 38 | 27.72 | 699 | 24.63 | 661 | 26.31 | 9750 | 18.6 |
| | 251 | 28.17 | 124 | 26.81 | 885 | 24.4 | 810 | 26.7 | 9888 | 18.06 |
| TIS (dBm) | 251 | -103.87 | 124 | -102.58 | 885 | -105.15 | 810 | -106.09 | 10838 | -108.75 |

| | W2 | | W4 | | W5 | | W8 | |
|------|--------|------|---------|------|---------|------|--------|--|
| 9262 | 19.71 | 1312 | 18.08 | 4132 | 18.5 | 2712 | 18.49 | |
| 9400 | 19.09 | 1413 | 18.68 | 4183 | 18.76 | 2788 | 18.35 | |
| 9538 | 18.66 | 1513 | 19.2 | 4233 | 18.98 | 2863 | 17.76 | |
| 9938 | -107.8 | 1738 | -106.61 | 4458 | -107.73 | 3750 | -106.1 | |

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X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

SCALE :

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2-3-5 Antenna Efficiency

RF1: GSM1800;LTEB3/40

| Fre | Eff(%) | Eff(db) | Gain(dBi) |
|------|--------|---------|-----------|
| 1710 | 36% | -4.40 | -1.04 |
| 1720 | 38% | -4.21 | -1.03 |
| 1730 | 38% | -4.20 | -1.25 |
| 1740 | 37% | -4.30 | -1.83 |
| 1750 | 36% | -4.48 | -1.39 |
| 1760 | 35% | -4.50 | -1.56 |
| 1770 | 34% | -4.71 | -1.68 |
| 1780 | 33% | -4.81 | -1.40 |
| 1790 | 32% | -4.94 | -1.30 |
| 1800 | 31% | -5.02 | -1.89 |
| 1810 | 31% | -5.14 | -1.77 |
| 1820 | 31% | -5.02 | -1.82 |
| 1830 | 31% | -5.02 | -1.98 |
| 1840 | 32% | -4.98 | -2.35 |
| 1850 | 31% | -5.11 | -2.38 |
| 1860 | 30% | -5.30 | -2.71 |
| 1870 | 29% | -5.39 | -2.98 |
| 1880 | 30% | -5.30 | -3.31 |
| 2300 | 26% | -5.84 | -1.49 |
| 2310 | 26% | -5.81 | -2.20 |
| 2320 | 27% | -5.72 | -2.88 |
| 2330 | 27% | -5.64 | -2.77 |
| 2340 | 28% | -5.52 | -3.39 |
| 2350 | 28% | -5.48 | -3.20 |
| 2360 | 28% | -5.53 | -2.85 |
| 2370 | 27% | -5.63 | -2.63 |
| 2380 | 27% | -5.65 | -2.44 |
| 2390 | 28% | -5.49 | -2.28 |
| 2400 | 29% | -5.40 | -2.02 |

RF2: GSM900;WCDMA Band8;LTEB8

| Fre | Eff(%) | Eff(db) | Gain(dBi) |
|-----|--------|---------|-----------|
| 880 | 28% | -5.60 | -1.98 |
| 890 | 30% | -5.28 | -2.21 |
| 900 | 30% | -5.27 | -2.83 |
| 910 | 28% | -5.55 | -3.59 |
| 920 | 25% | -6.08 | -4.10 |
| 930 | 21% | -6.73 | -4.61 |
| 940 | 18% | -7.50 | -5.09 |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

SCALE :

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| | | | |
|-----|-----|-------|-------|
| 950 | 14% | -8.41 | -6.16 |
| 960 | 12% | -9.38 | -7.02 |

RF3: GSM850; WCDMA Band5; LTEB5/20

| Fre | Eff(%) | Eff(db) | Gain(dBi) |
|-----|--------|---------|-----------|
| 790 | 17% | -8.86 | -4.11 |
| 800 | 20% | -7.84 | -3.22 |
| 810 | 24% | -6.91 | -2.48 |
| 820 | 28% | -6.23 | -1.73 |
| 830 | 30% | -5.83 | -1.54 |
| 840 | 31% | -5.73 | -1.68 |
| 850 | 30% | -5.91 | -2.08 |
| 860 | 27% | -6.29 | -2.33 |
| 870 | 24% | -6.93 | -2.89 |
| 880 | 20% | -7.67 | -3.57 |
| 890 | 16% | -8.34 | -4.42 |
| 900 | 13% | -9.02 | -5.60 |

RF4: GSM1900; WCDMA BAND1/2/4; LTEB1/2/4/7/34/38/39/41/66

| Fre | Eff(%) | Eff(db) | Gain(dBi) |
|------|--------|---------|-----------|
| 1710 | 36% | -4.39 | -1.04 |
| 1720 | 37% | -4.29 | -1.03 |
| 1730 | 37% | -4.30 | -1.25 |
| 1740 | 36% | -4.38 | -1.83 |
| 1750 | 35% | -4.54 | -1.39 |
| 1760 | 34% | -4.67 | -1.40 |
| 1770 | 33% | -4.85 | -1.30 |
| 1780 | 31% | -5.04 | -1.89 |
| 1790 | 30% | -5.28 | -1.77 |
| 1800 | 29% | -5.34 | -1.82 |
| 1810 | 29% | -5.44 | -1.89 |
| 1820 | 28% | -5.57 | -1.77 |
| 1830 | 28% | -5.54 | -1.82 |
| 1840 | 28% | -5.50 | -1.98 |
| 1850 | 27% | -5.61 | -1.52 |
| 1860 | 26% | -5.78 | -1.58 |
| 1870 | 26% | -5.85 | -1.51 |
| 1880 | 27% | -5.76 | -1.48 |
| 1890 | 27% | -5.70 | -3.31 |
| 1900 | 27% | -5.64 | -3.71 |
| 1910 | 28% | -5.58 | -3.69 |
| 1920 | 29% | -5.43 | -3.71 |
| 1930 | 29% | -5.43 | -3.69 |
| 1940 | 29% | -5.44 | -3.93 |
| 1950 | 28% | -5.54 | -4.34 |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

SCALE :

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| | | | |
|------|-----|-------|-------|
| 1960 | 27% | -5.62 | -4.85 |
| 1970 | 27% | -5.71 | -4.57 |
| 1980 | 26% | -5.78 | -4.54 |
| 1990 | 26% | -5.88 | -4.29 |
| 2000 | 25% | -5.94 | -4.57 |
| 2010 | 25% | -6.00 | -4.54 |
| 2020 | 25% | -5.94 | -4.34 |
| 2030 | 25% | -6.05 | -4.85 |
| 2040 | 25% | -6.05 | -4.57 |
| 2050 | 25% | -5.96 | -4.54 |
| 2060 | 26% | -5.80 | -4.29 |
| 2070 | 27% | -5.67 | -4.59 |
| 2080 | 28% | -5.54 | -4.30 |
| 2090 | 29% | -5.35 | -3.84 |
| 2100 | 31% | -5.14 | -2.42 |
| 2110 | 32% | -4.99 | -1.71 |
| 2120 | 32% | -4.92 | -1.52 |
| 2130 | 33% | -4.83 | -1.54 |
| 2140 | 34% | -4.74 | -1.82 |
| 2150 | 33% | -4.76 | -1.98 |
| 2160 | 33% | -4.80 | -2.35 |
| 2170 | 33% | -4.78 | -2.38 |
| 2500 | 19% | -7.90 | -4.30 |
| 2510 | 21% | -7.46 | -3.84 |
| 2520 | 23% | -6.94 | -3.61 |
| 2530 | 25% | -6.39 | -3.49 |
| 2540 | 26% | -5.96 | -3.20 |
| 2550 | 29% | -5.42 | -2.88 |
| 2560 | 32% | -4.92 | -2.77 |
| 2570 | 35% | -4.60 | -1.68 |
| 2580 | 36% | -4.40 | -1.51 |
| 2590 | 38% | -4.24 | -1.52 |
| 2600 | 39% | -4.12 | -1.54 |
| 2610 | 38% | -4.19 | -1.68 |
| 2620 | 37% | -4.32 | -1.60 |
| 2630 | 36% | -4.39 | -1.70 |
| 2640 | 36% | -4.48 | -1.89 |
| 2650 | 34% | -4.64 | -1.77 |
| 2660 | 33% | -4.79 | -1.82 |
| 2670 | 32% | -4.96 | -1.98 |
| 2680 | 31% | -5.13 | -2.35 |
| 2690 | 29% | -5.31 | -2.38 |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

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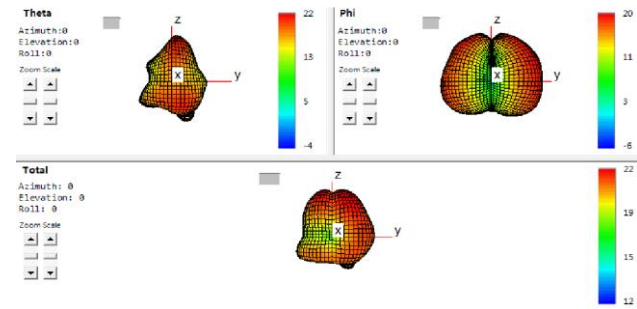
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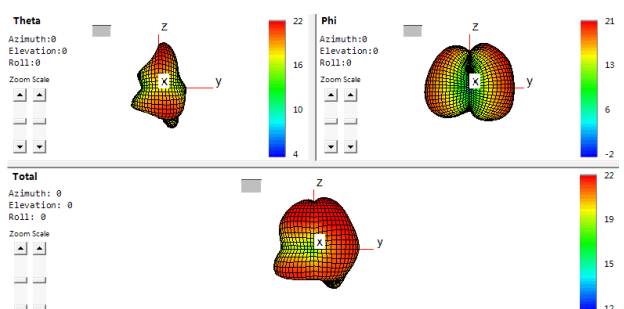
| Fre | Eff(%) | Eff(db) | Gain(dBi) |
|-----|--------|---------|-----------|
| 700 | 19% | -7.17 | -2.73 |
| 710 | 23% | -6.34 | -2.44 |
| 720 | 25% | -5.95 | -2.74 |
| 730 | 25% | -6.07 | -1.99 |
| 740 | 22% | -6.59 | -1.96 |
| 750 | 19% | -7.31 | -2.10 |
| 760 | 16% | -8.04 | -2.93 |
| 770 | 14% | -8.68 | -4.01 |
| 780 | 11% | -9.71 | -5.22 |
| 790 | 8% | -10.95 | -6.31 |
| 800 | 6% | -12.31 | -7.43 |

2-3-6 3D Field Pattern

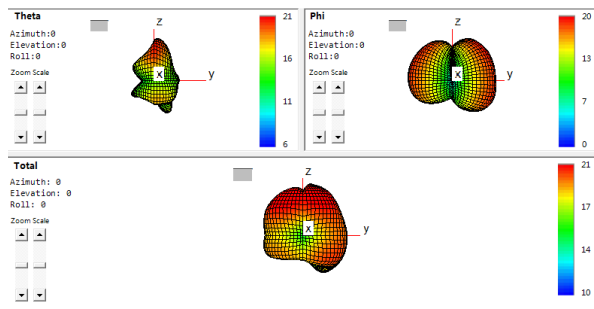
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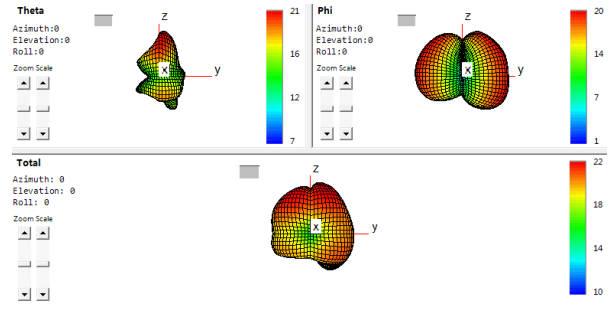
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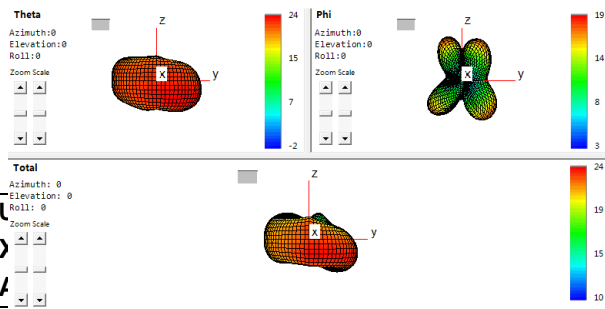
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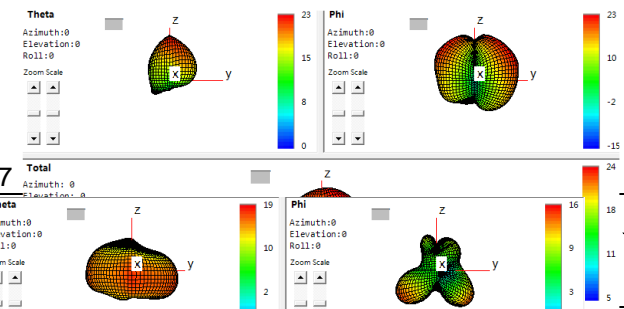
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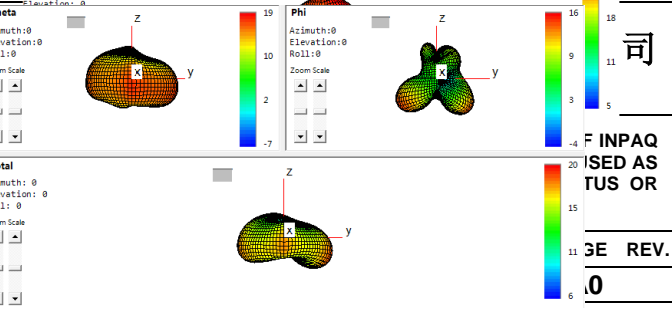
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B7

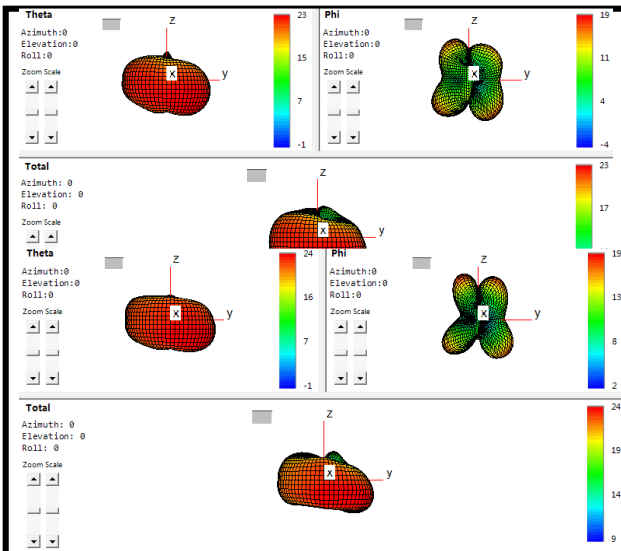


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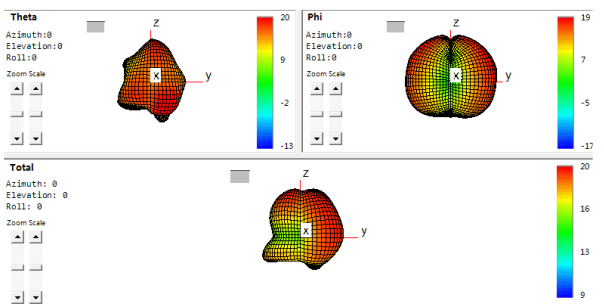


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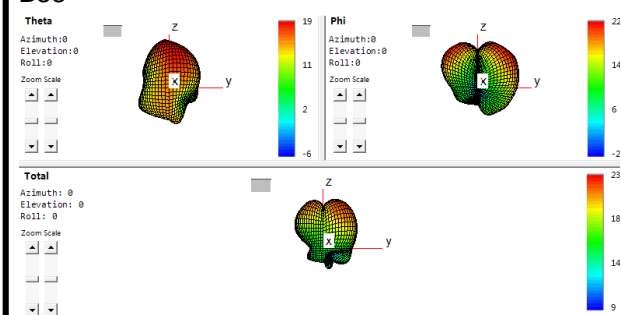
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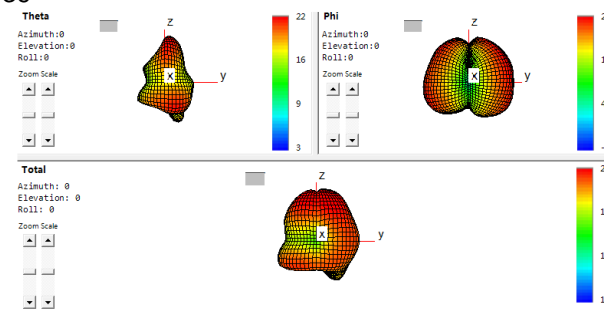
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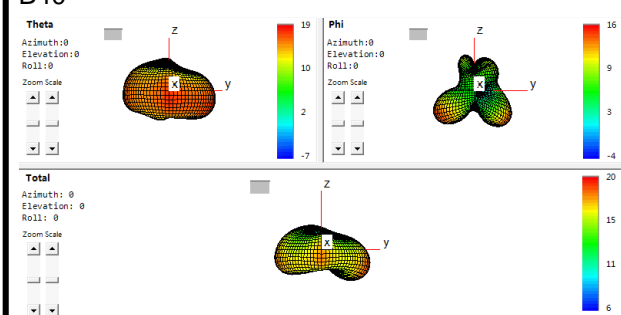
B38



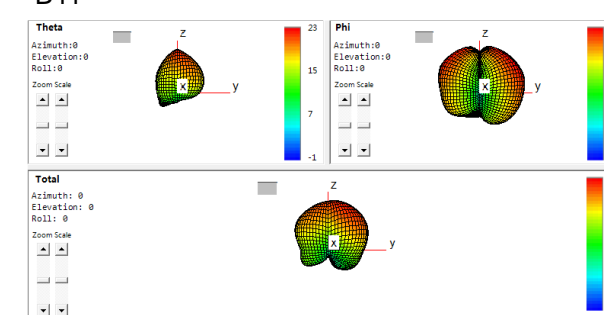
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B40



B41



UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±2 X.X=±0.1 X.XX=±0.05

ANGLES=±

HOLEDIA=±

SCALE :

UNIT : mm

DRAWN BY :

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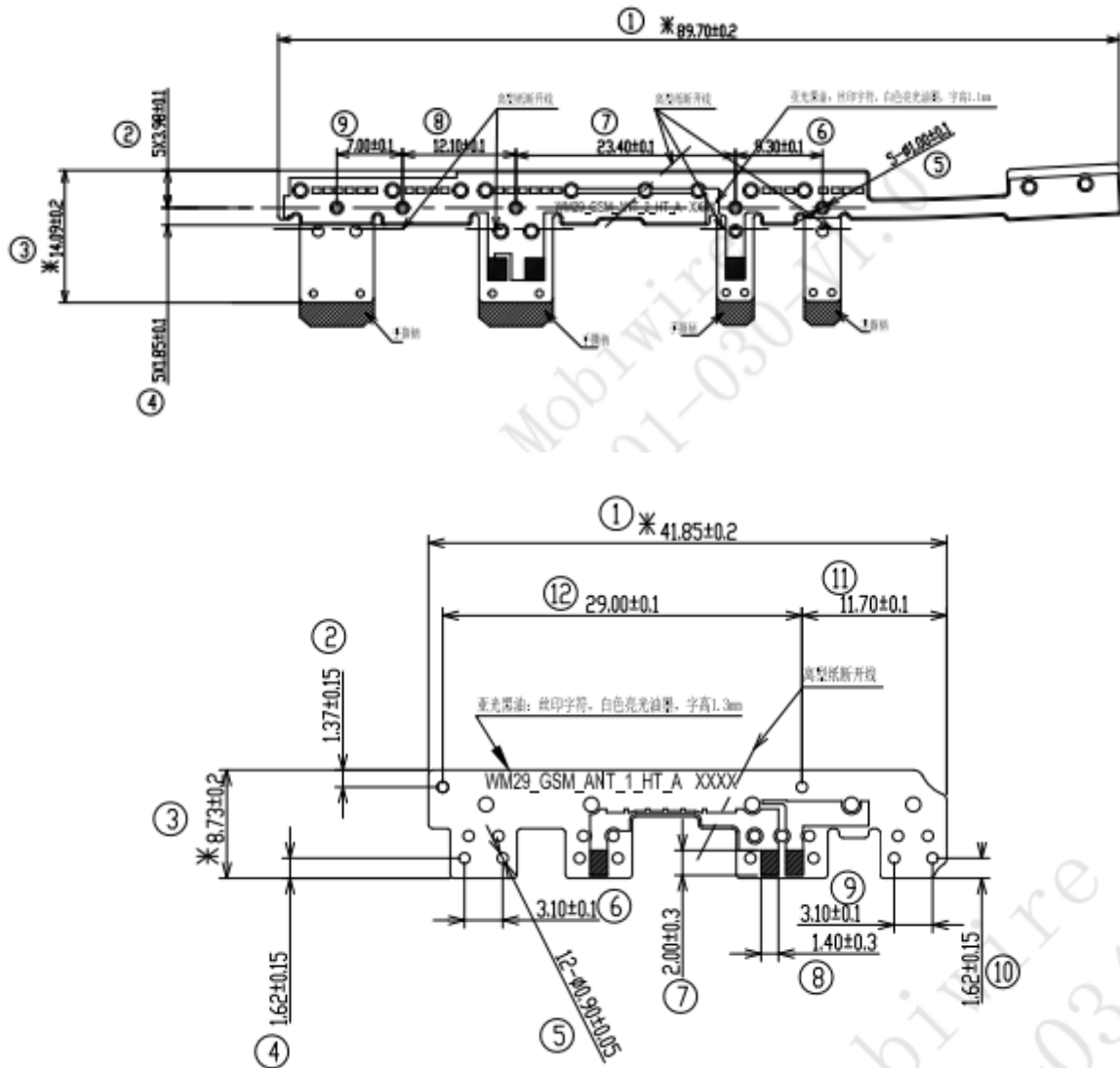
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1. Antenna Dimensions:



UNLESS OTHER SPECIFIED TOLERANCES ON :

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ANGLES=±

HOLEDIA=±

SCALE :

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