

## Feature

- ※ High gain
- ※ Omani-directional
- ※ Wide bandwidth

## Application

- ※GSM 850/900/DCS/PCS
  - ※WCDMA B1/B2/B4/B5/B8
  - ※LTE B1/B2/B3/B4/B5/B7/B8/B12/B17/B20/B28/B38/B40/B41/B66
  - ※NR N1/N3/N5/N7/N8/N12/N20/N28/N38/N40/N41/N77/N78
  - ※Bluetooth
  - ※WIFI 802.11b/g/n
  - ※GPS L1/L5
- communication applications

| Name and address of the antenna manufacturer                                                                                                                                                               | Model number of the antenna |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 名称：浙江海通通讯电子股份有限公司，<br>地址：上海市浦东新区秀浦路 2555 号 C5 栋 1 楼<br><br>Name: Zhejiang Haitong Communication<br>Electronics Co., Ltd.<br>Address: 1 floor, C5 building, 2555 Xiu Pu<br>Road, Pudong New Area, Shanghai. | CK9N-LDS-V0.3               |

| TYPE                  | Band & Frequency                   |
|-----------------------|------------------------------------|
| Transmitter Frequency | GSM 850/WCDMA B5/LTE B5:824-849MHz |
|                       | GSM 900/WCDMA B8/LTE B8:880-915MHz |
|                       | DCS/LTE B3:1710-1785MHz            |
|                       | PCS/WCDMA B2/LTE B2:1850-1910MHz   |
|                       | WCDMA B1/LTE B1:1920-1980MHz       |
|                       | WCDMA B4/LTE B4:1710-1755MHz       |
|                       | LTE B7:2500-2690MHz                |
|                       | LTE BAND12: 699-716MHz             |
|                       | LTE BAND17: 704-716MHz             |
|                       | LTE B20:832-862MHz                 |
|                       | LTE B28:703-748MHz                 |
|                       | LTE B66:1710-1780MHz               |
|                       | LTE B38:2570-2620MHz               |
|                       | LTE B40:2300-2400MHz               |
|                       | LTE B41:2535-2655MHz               |
|                       | NR N1:1920-1980MHz                 |
|                       | NR N3:1710-1785MHz                 |
|                       | NR N5:824-849MHz                   |
|                       | NR N7:2500-2690MHz                 |
|                       | NR N8:880-960MHz                   |
|                       | NR N12:699-716MHz                  |
|                       | NR N20:832-862MHz                  |
|                       | NR N28:703-748MHz                  |
|                       | NR N38:2570-2620MHz                |
|                       | NR N40:2300-2400 MHz               |
|                       | NR N41:2535-2655 MHz               |
|                       | NR N77:3300-4200MHz                |
|                       | NR N78:3300-3800MHz                |
| Receiver Frequency    | GSM 850/WCDMA B5/LTE B5:869-894MHz |
|                       | GSM 900/WCDMA B8/LTE B8:925-960MHz |
|                       | DCS/LTE B3:1805-1880MHz            |
|                       | PCS/WCDMA B2/LTE B2:1930-1990MHz   |
|                       | WCDMA B1/LTE B1:2110-2170MHz       |

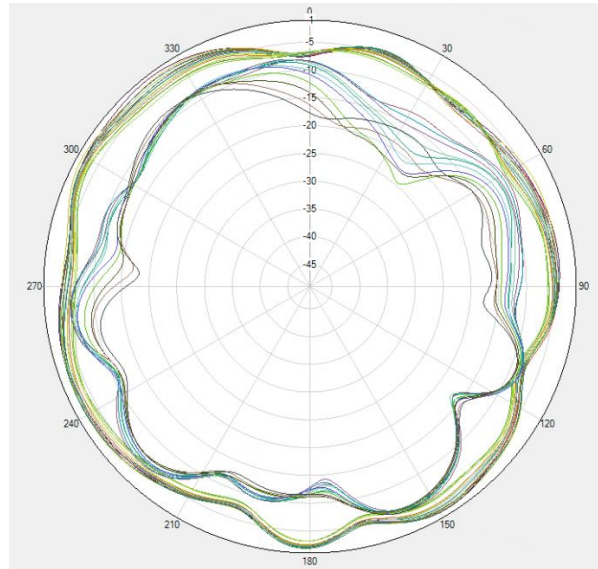
|                                                    |                                                                       |
|----------------------------------------------------|-----------------------------------------------------------------------|
|                                                    | WCDMA B4/LTE B4:2110-2155MHz                                          |
|                                                    | LTE B7:2620-2690MHz                                                   |
|                                                    | LTE B12:729-746MHz                                                    |
|                                                    | LTE B17:734-746MHz                                                    |
|                                                    | LTE B20:791-821MHz                                                    |
|                                                    | LTE B28:758-803MHz                                                    |
|                                                    | LTE B66:2110-2180MHz                                                  |
|                                                    | LTE B38:2570-2620MHz                                                  |
|                                                    | LTE B40:2300-2400MHz                                                  |
|                                                    | LTE B41:2535-2655MHz                                                  |
|                                                    | NR N1:2110-2170MHz                                                    |
|                                                    | NR N3:1805-1880MHz                                                    |
|                                                    | NR N5:869-894MHz                                                      |
|                                                    | NR N7:2620-2690MHz                                                    |
|                                                    | NR N8:925-960MHz                                                      |
|                                                    | NR N12:729-746MHz                                                     |
|                                                    | NR N20:791-821MHz                                                     |
|                                                    | NR N28:758-803MHz                                                     |
|                                                    | NR N38:2570-2620MHz                                                   |
|                                                    | NR N40:2300-2400 MHz                                                  |
|                                                    | NR N41:2535-2655 MHz                                                  |
|                                                    | NR N77:3300-4200MHz                                                   |
|                                                    | NR N78:3300-3800MHz                                                   |
| RF-Output Power<br>(E.I.R.P)                       | GSM850/900: 33+/-2dBm                                                 |
|                                                    | DCS/PCS: 30+/-2dBm                                                    |
|                                                    | LTE B1/B2/B3/B4/B5/B7/B8/B12/B17/B20/B28/B38/B40/B41/B66: 23+/-2.7dBm |
|                                                    | WCDMA B1/B2/B4/B5/B8: 24+1/-3dBm                                      |
|                                                    | NR N1/N3/N5/N7/N8/N12/N20/N28/N38/N40: 23+/-2.7dBm                    |
|                                                    | N41/N77/N78: 26+/-2.7dBm                                              |
| GPS L1&BT&WIFI<br>2.4G MIMO Antenna<br>(Peak Gain) | GPS: 0.28                                                             |
|                                                    | BT&WIFI 2.4G: -3.65                                                   |
| WIFI 5G MIMO<br>Antenna (Peak Gain)                | WIFI 5G: -0.91                                                        |
| N1/N3<br>DRX&N77/N78 PRX<br>Antenna (Peak Gain)    | N1: -0.95                                                             |
|                                                    | N3: -4.2                                                              |
|                                                    | N77: 2.1                                                              |
|                                                    | N78: 2.74                                                             |
| WIFI 2.4G&WIFI 5G<br>Antenna (Peak Gain)           | WIFI 2.4G: 2.01                                                       |
|                                                    | WIFI 5G: 1.7                                                          |

|                                                          |                                      |
|----------------------------------------------------------|--------------------------------------|
| LB PRX Antenna (Peak Gain)                               | GSM 850/WCDMA B5/LTE B5/NR N5: -6.84 |
|                                                          | GSM 900/WCDMA B8/LTE B8/NR N8: -7.0  |
|                                                          | LTE B12: -5.4                        |
|                                                          | LTE B17: -5.4                        |
|                                                          | LTE B20: -6.84                       |
|                                                          | LTE B28: -5.7                        |
| MHB DRX Antenna (Peak Gain)                              | DCS/LTE B3/NR N3: -3.3               |
|                                                          | PCS/WCDMA B2/LTE B2: -2.4            |
|                                                          | WCDMA B1/LTE B1/NR N1: -1.5          |
|                                                          | WCDMA B4/LTE B4: -1.5                |
|                                                          | LTE B7/B38/B41/NR N41: -0.4          |
|                                                          | LTE B40/NR N40: -1.4                 |
|                                                          | LTE B66/NR N66: -1.5                 |
| N77/N78 DRX(LDS) Antenna (Peak Gain)                     | N77: 0.6                             |
|                                                          | N78: 0.6                             |
| LB DRX&B7/B38/B40/B41 Antenna (Peak Gain)                | GSM 850/WCDMA B5/LTE B5/NR N5: -4.8  |
|                                                          | GSM 900/WCDMA B8/LTE B8/NR N8: -5.2  |
|                                                          | LTE B12/NR N12: -3.1                 |
|                                                          | LTE B17: -3.1                        |
|                                                          | LTE B20/NR N20: -2.3                 |
|                                                          | LTE B28/NR N28: -2.3                 |
|                                                          | B7: 0.1                              |
|                                                          | LTE B38/NR N39: 0.1                  |
|                                                          | LTE B40/NR N40: -0.1                 |
|                                                          | LTE B41/NR N41: 0.1                  |
|                                                          |                                      |
| N1/N3/N7/N38/N40/N41 PRX&N77/N78 DRX Antenna (Peak Gain) | N1: -1.38                            |
|                                                          | N3: -1.75                            |
|                                                          | N7: 1.2                              |
|                                                          | N38: 1.2                             |
|                                                          | N40: 0.7                             |
|                                                          | N41: 1.2                             |
|                                                          | N77: 0.5                             |
|                                                          | N78: 0.5                             |
|                                                          |                                      |
| MHB PRX Antenna (Peak Gain)                              | DCS/LTE B3/NR N3: -0.5               |
|                                                          | PCS/WCDMA B2/LTE B2: -0.3            |
|                                                          | WCDMA B1/LTE B1/NR N1: -0.3          |
|                                                          | WCDMA B4/LTE B4: -0.5                |
|                                                          | LTE B7/B38/B41&NR N7/38/41: -0.12    |
|                                                          | LTE B40&NR N40: 0.3                  |
|                                                          | LTE B66/NR N66: -0.5                 |
| N77/N78 PRX                                              | N77: -2.96                           |

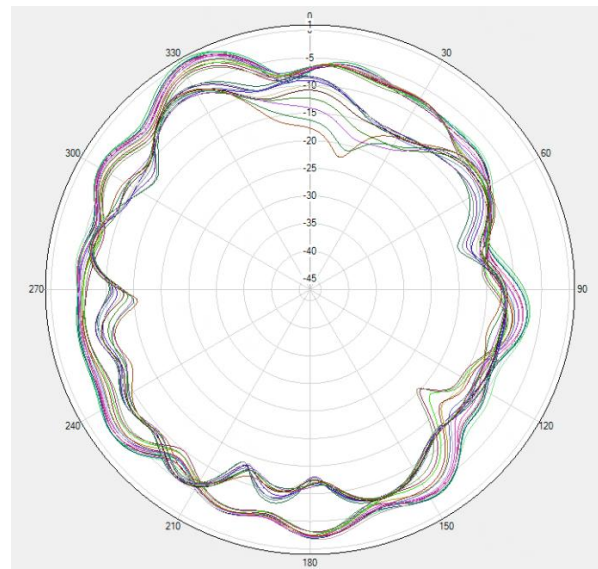
|                            |               |
|----------------------------|---------------|
| MIMO(LDS) (Peak Gain)      | N78: -2.88    |
| GPS L5 Antenna (Peak Gain) | GPS L5: -5.92 |
| Type of Modulation         |               |

※ Antenna Gain

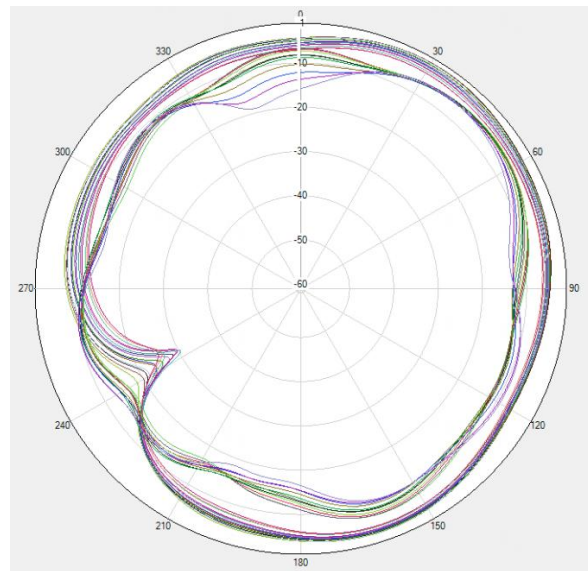
GPS L1&BT&WIFI 2.4G MIMO Antenna



$\Phi=0^\circ$



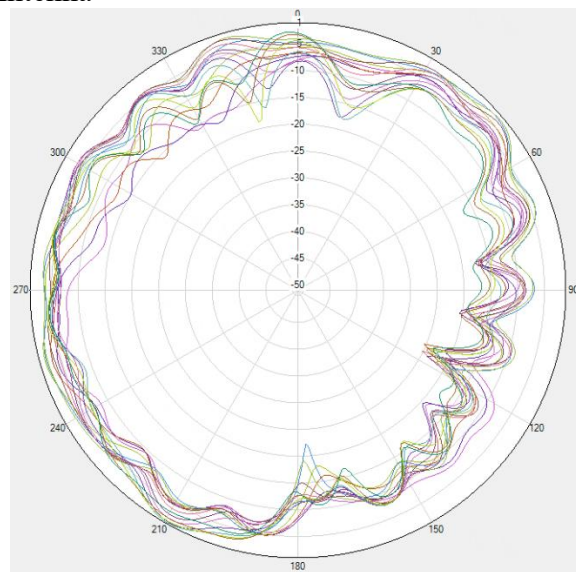
$\Phi=90^\circ$



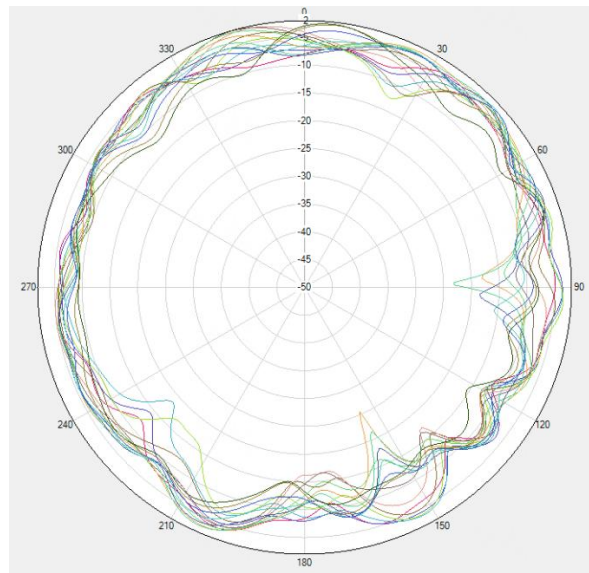
Theta=90deg

※ Antenna Gain

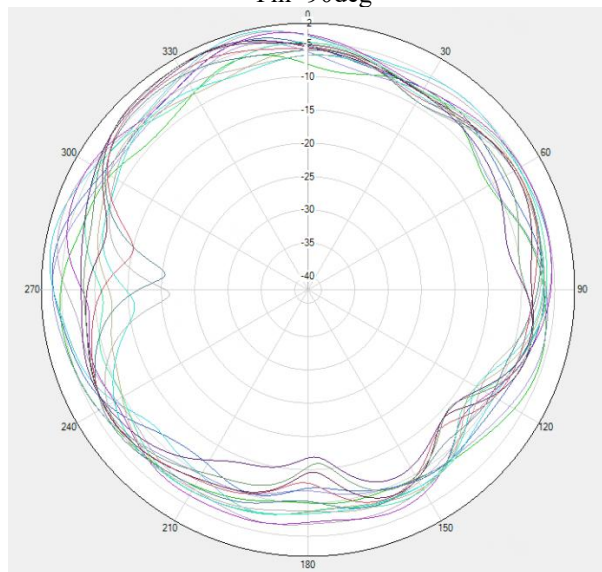
WIFI 5G MIMO Antenna



Phi=0deg



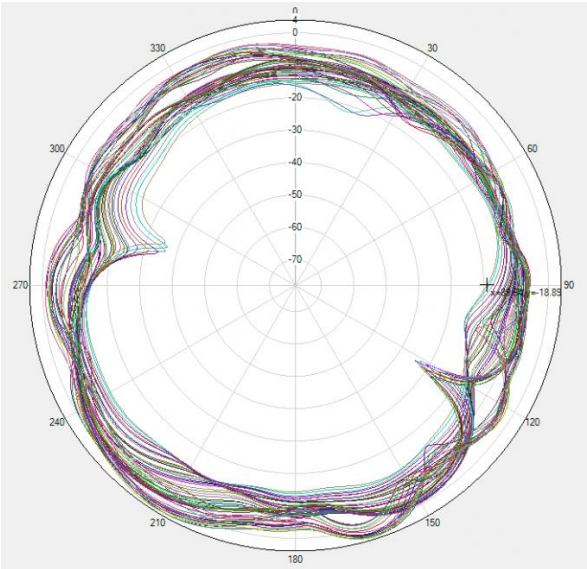
$\Phi = 90^\circ$



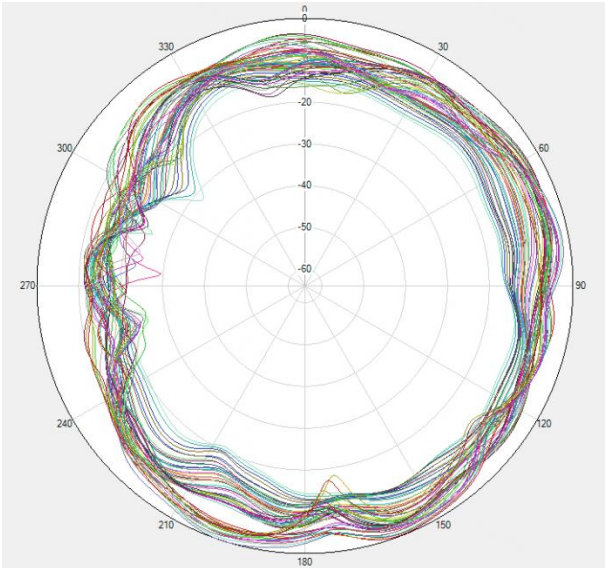
$\Theta = 90^\circ$

※ Antenna Gain

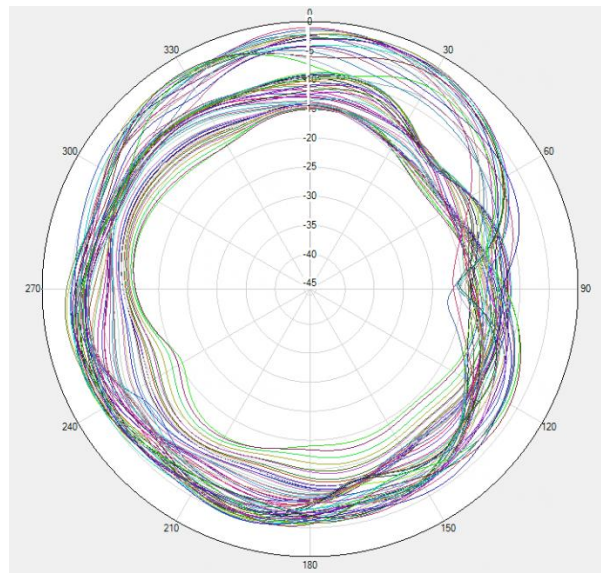
N1/N3 DRX&N77/N78 PRX Antenna



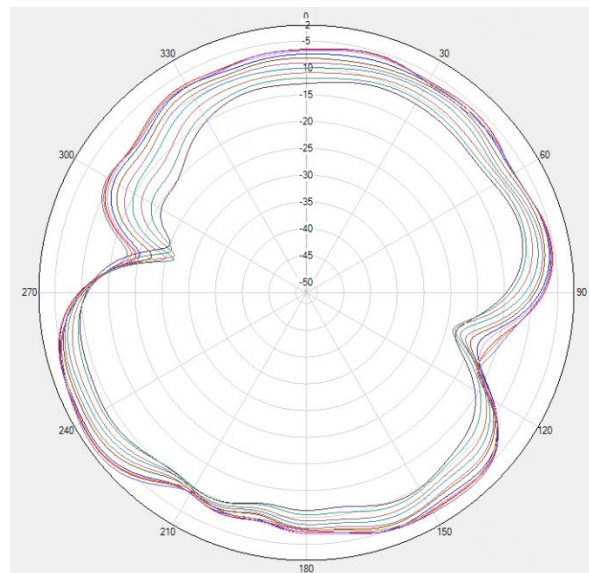
N1/N77/N78  $\Phi=0^\circ$



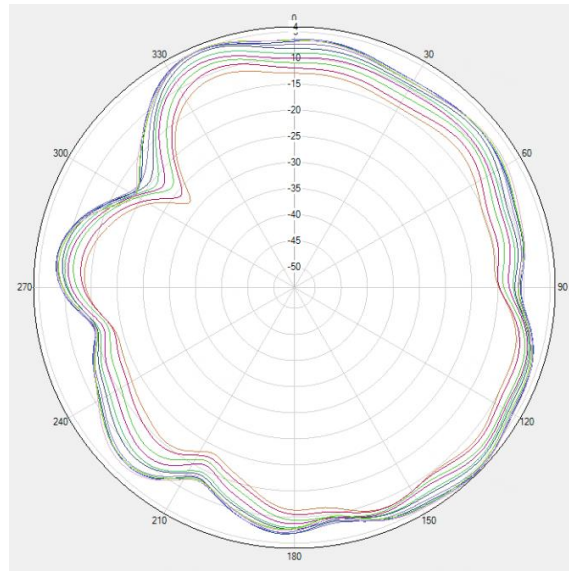
N1/N77/N78  $\Phi=90^\circ$



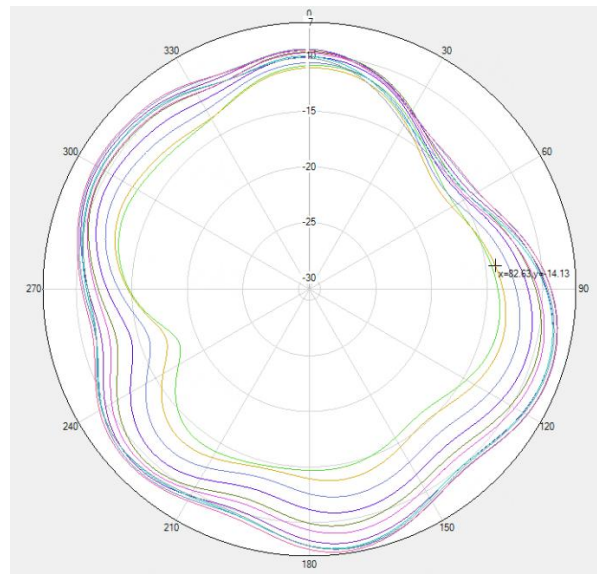
N1/N77/N78 Theta=90deg



N3 Phi=0deg



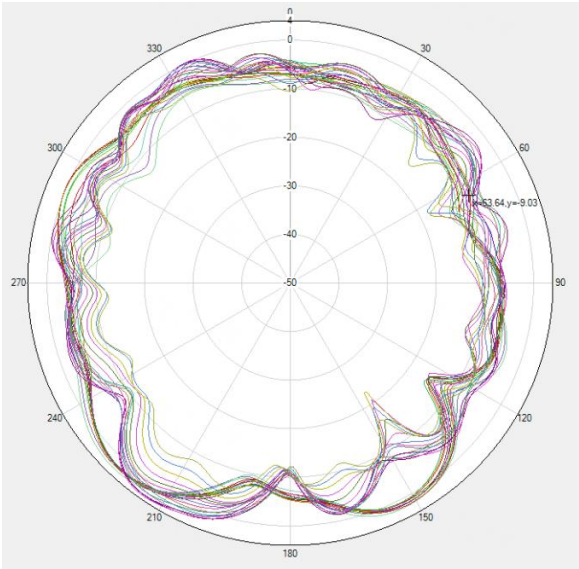
N3 Phi=90deg



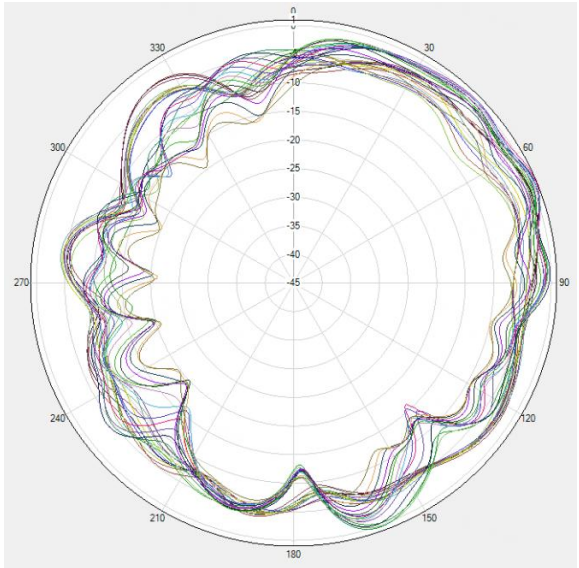
N3 Theta=90deg

※ Antenna Gain

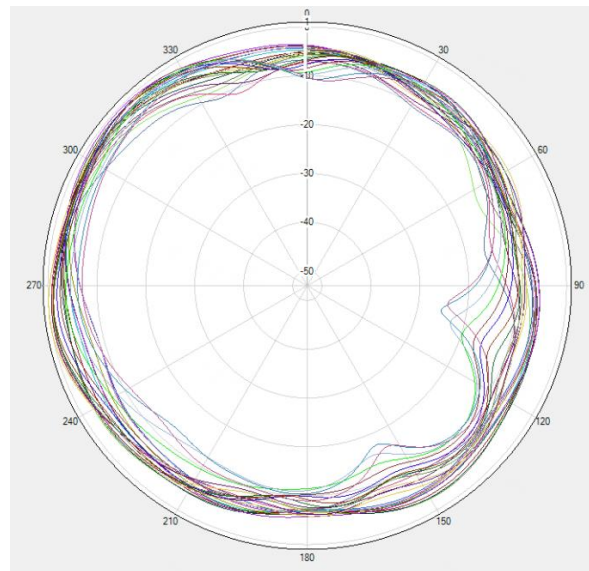
WIFI 2.4G&WIFI 5G Antenna



Phi=0deg



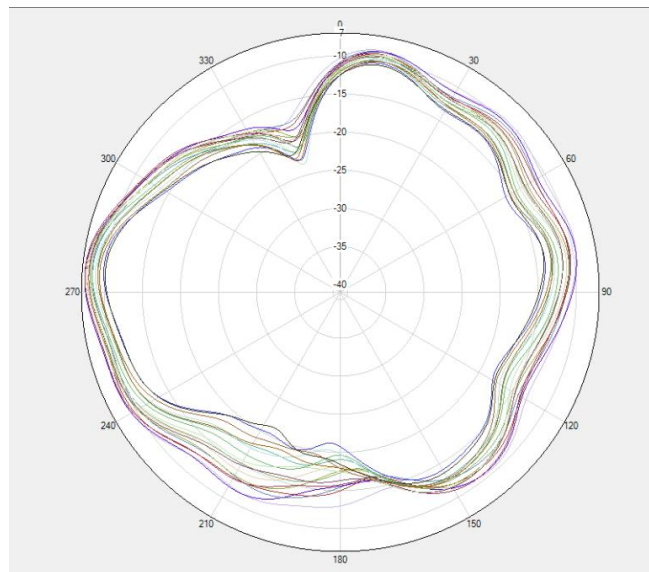
Phi=90deg



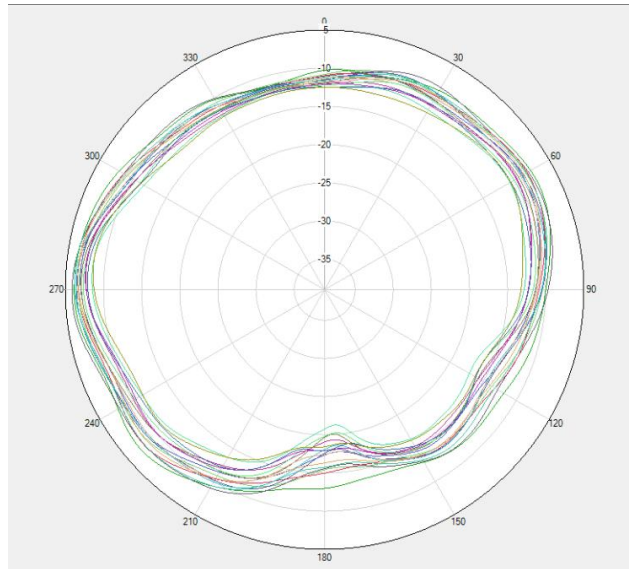
Theta=90deg

※ Antenna Gain

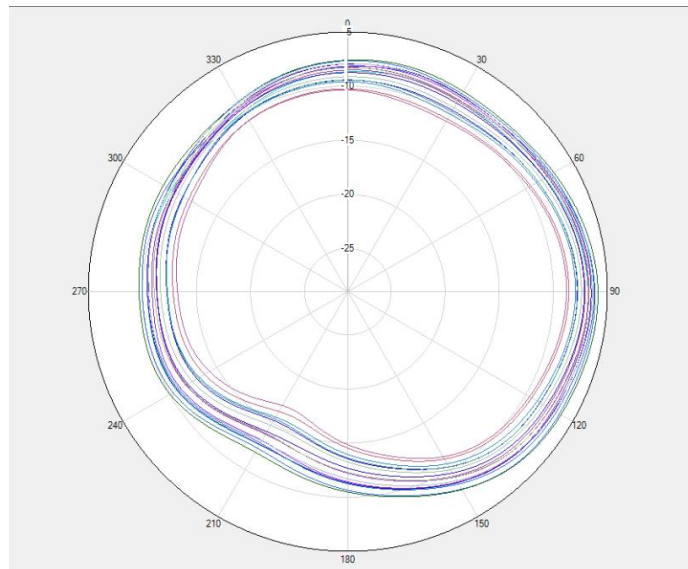
LB PRX Antenna



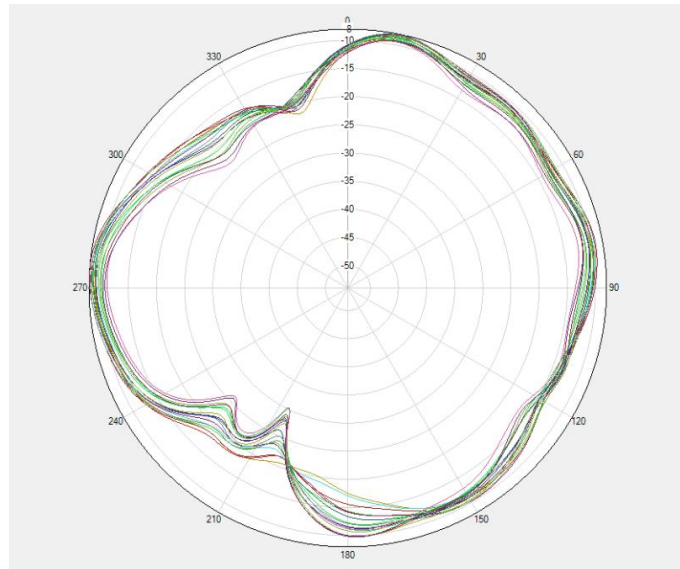
GSM 850/WCDMA B5/LTE B5/NR N5 Phi=0deg



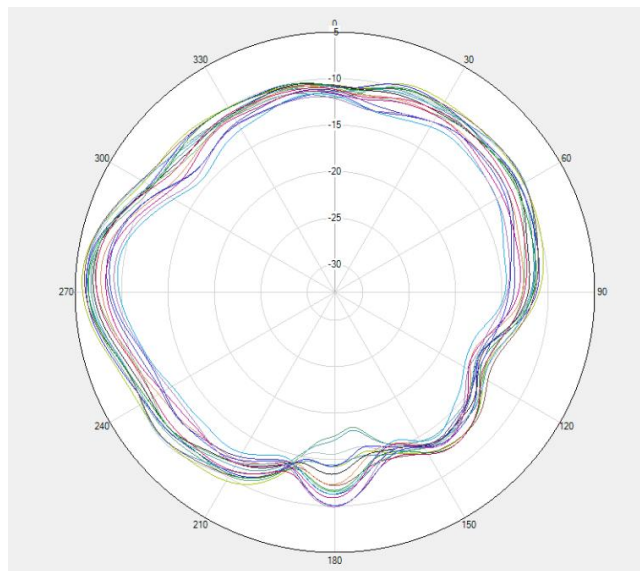
GSM 850/WCDMA B5/LTE B5/NR N5 Phi=90deg



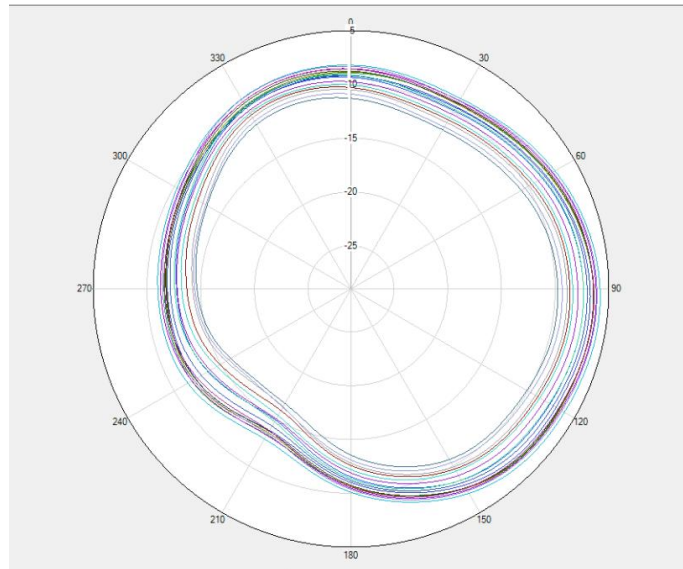
GSM 850/WCDMA B5/LTE B5/NR N5 Theta=90deg



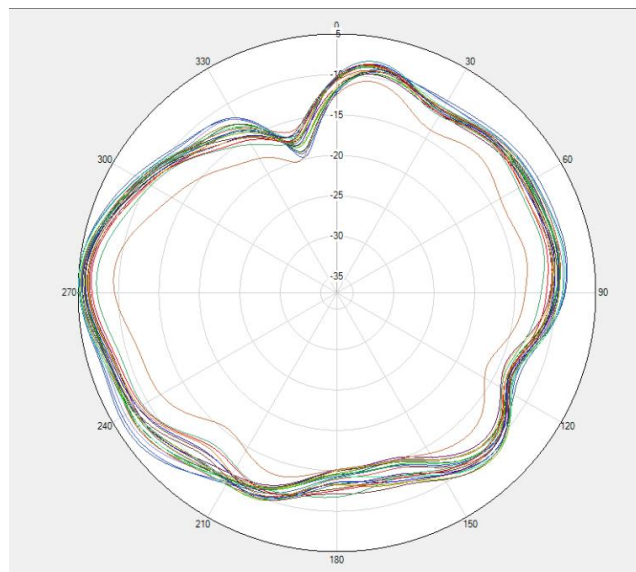
GSM 900/WCDMA B8/LTE B8/NR N8  $\Phi = 0^\circ$



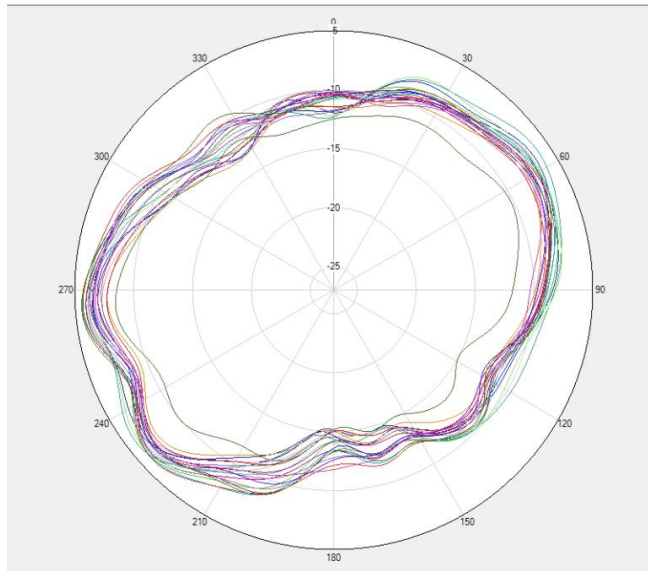
GSM 900/WCDMA B8/LTE B8/NR N8  $\Phi = 90^\circ$



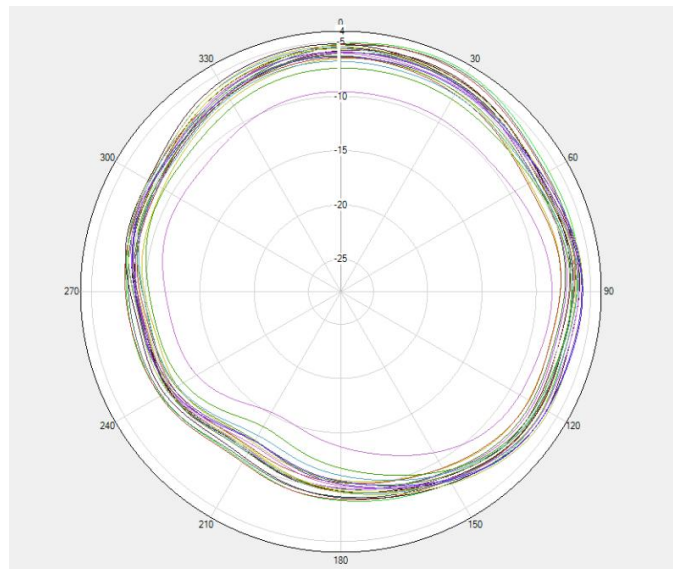
GSM 900/WCDMA B8/LTE B8/NR N8 Theta=90deg



LTE B12/B17/B20/B28 Phi=0deg



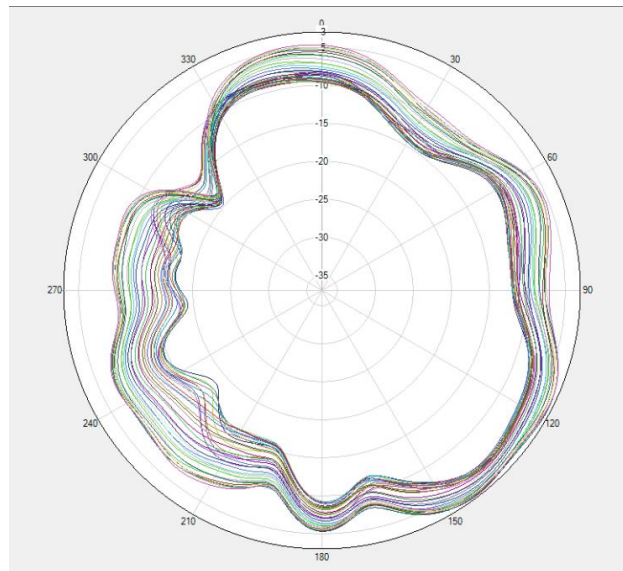
LTE B12/B17/B20/B28  $\Phi = 90^\circ$



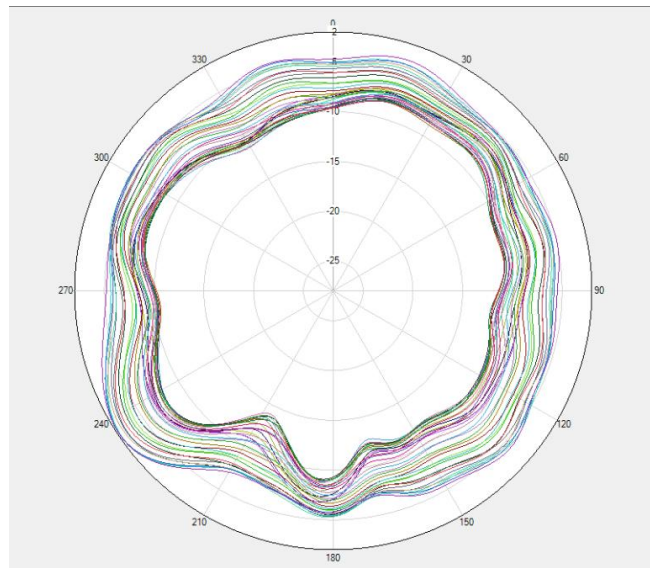
LTE B12/B17/B20/B28  $\Theta = 90^\circ$

※ Antenna Gain

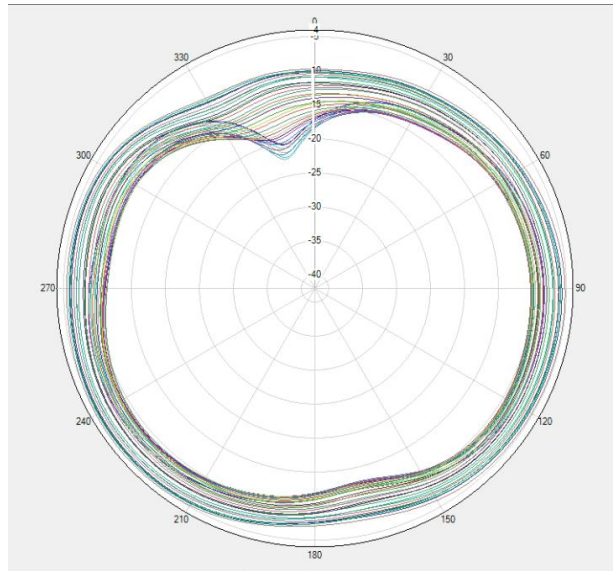
MHB DRX Antenna



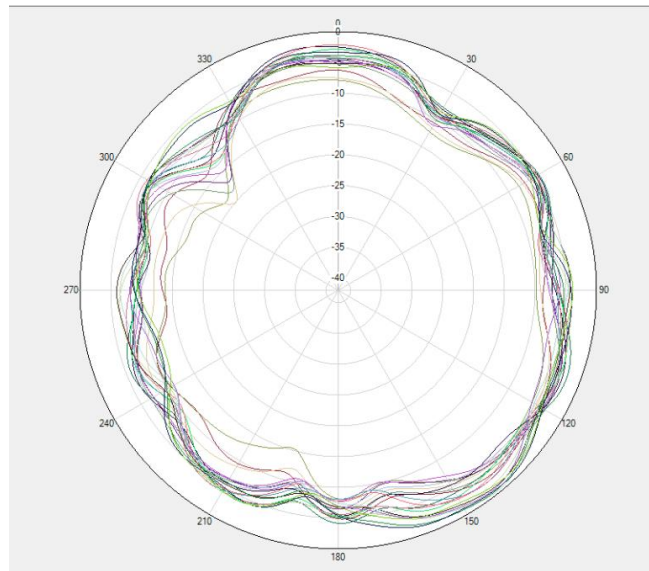
DCS/LTE B3/NR N3  $\Phi=0^\circ$



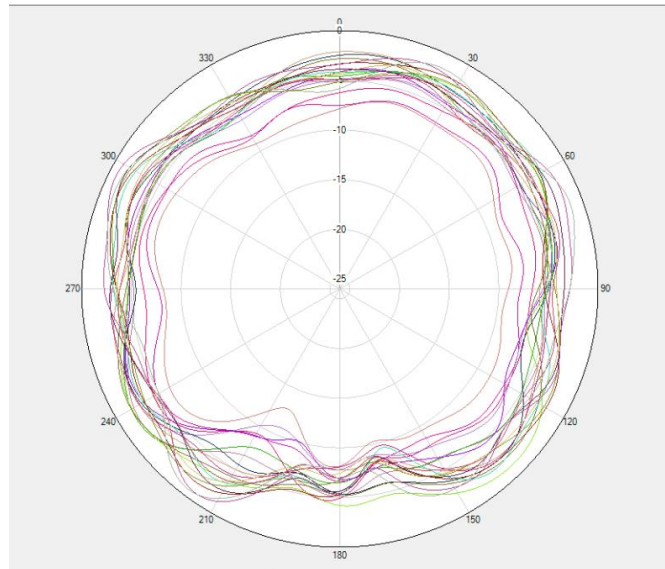
DCS/LTE B3/NR N3  $\Phi=90^\circ$



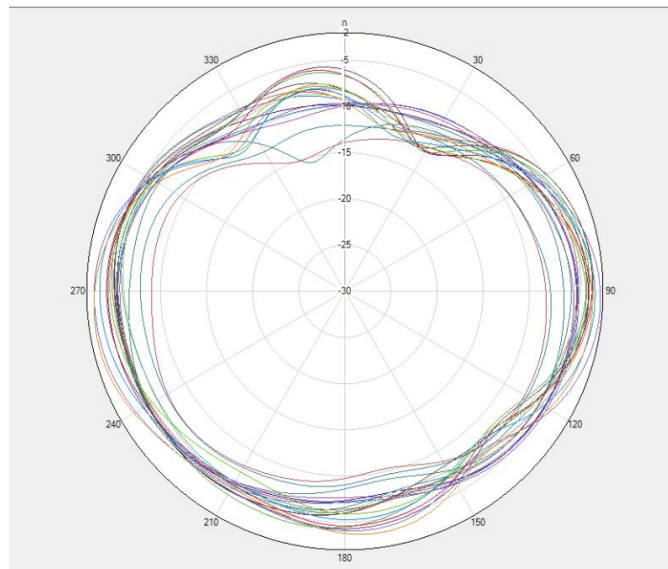
DCS/LTE B3/NR N3 Theta=90deg



PCS/WCDMA B1/B2/B4/LTE B1/B2/B4/B7/B38/B40/B41/B66 Phi=0deg



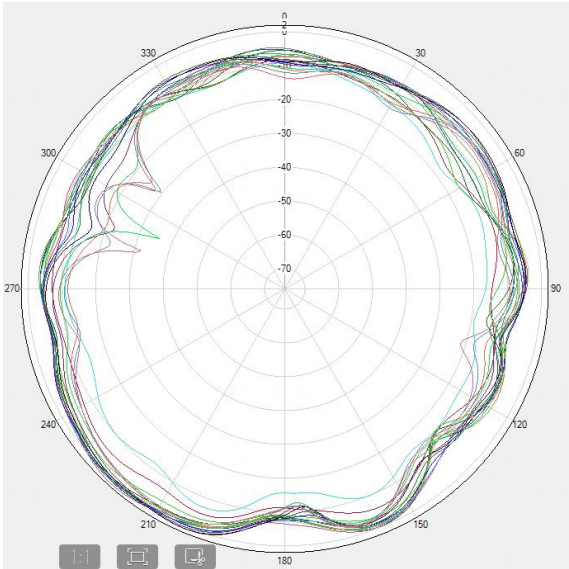
PCS/WCDMA B1/B2/B4/LTE B1/B2/B4/B7/B38/B40/B41/B66  $\Phi=90^\circ$



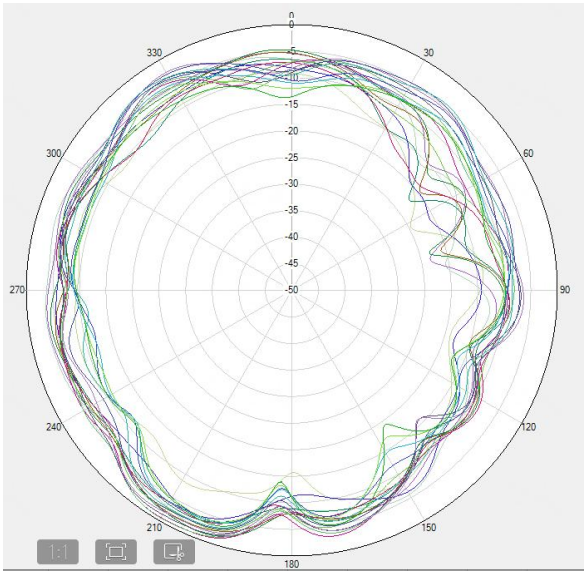
PCS/WCDMA B1/B2/B4/LTE B1/B2/B4/B7/B38/B40/B41/B66  $\Theta=90^\circ$

※ Antenna Gain

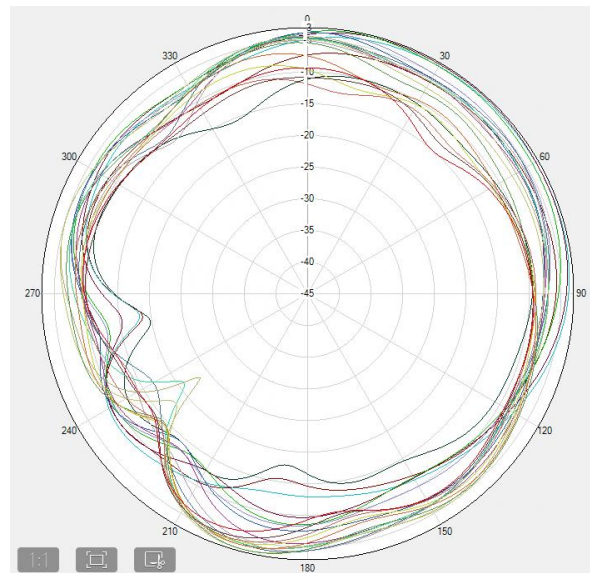
N77/N78 DRX(LDS) Antenna



Phi=0deg

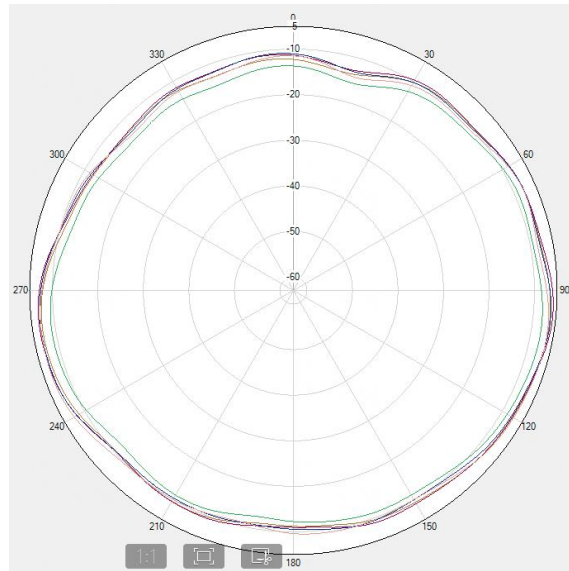


Phi=90deg

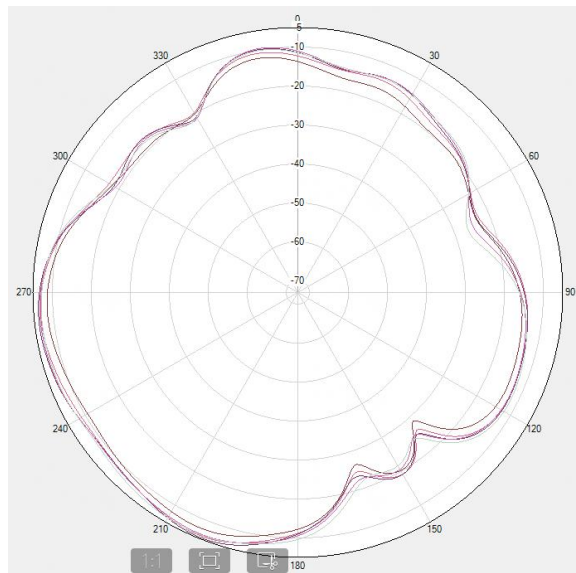


※ Antenna Gain

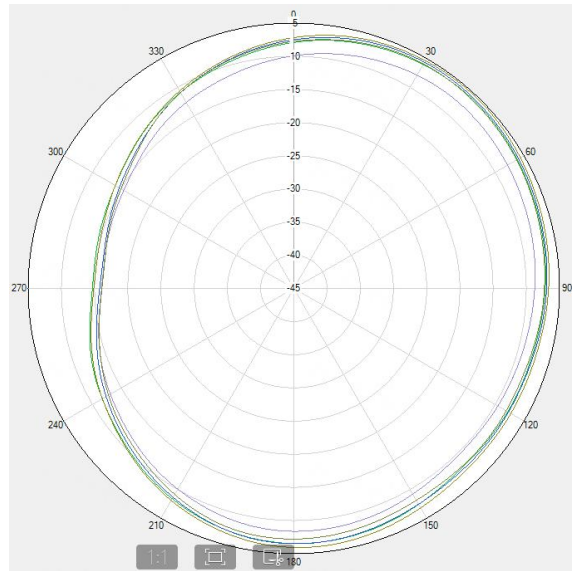
LB DRX&B7/B38/B40/B41 Antenna



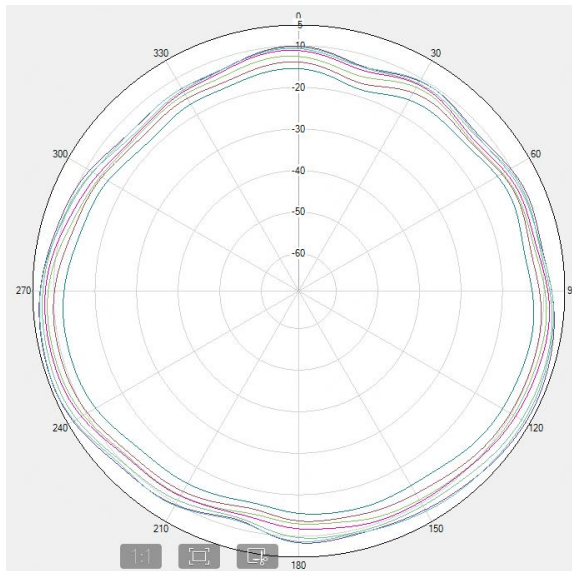
GSM 850/WCDMA B5/LTE B5/NR N5  $\Phi=0^\circ$



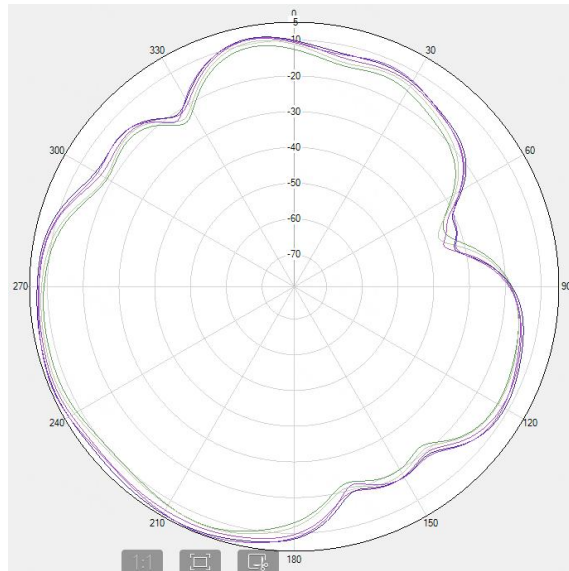
GSM 850/WCDMA B5/LTE B5/NR N5  $\Phi=90^\circ$



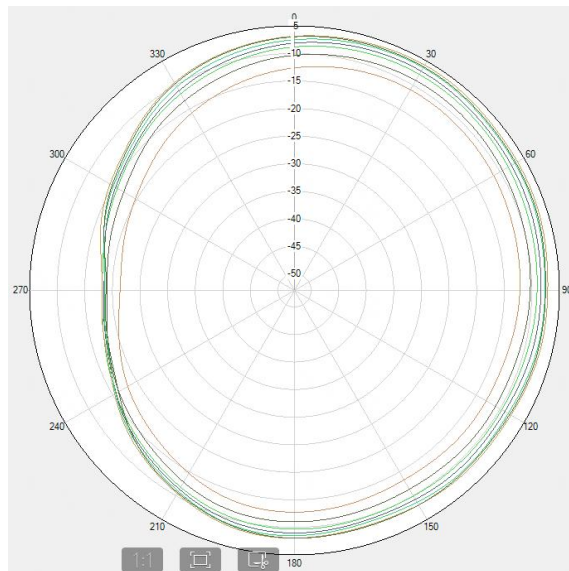
GSM 850/WCDMA B5/LTE B5/NR N5 Theta=90deg



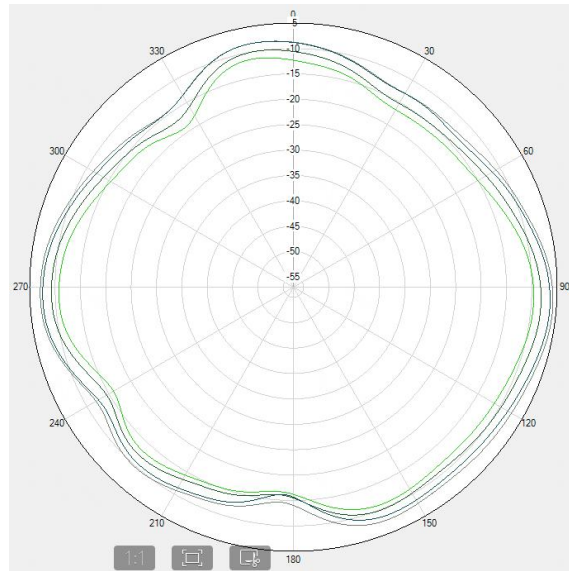
GSM 900/WCDMA B8/LTE B8/NR N8 Phi=0deg



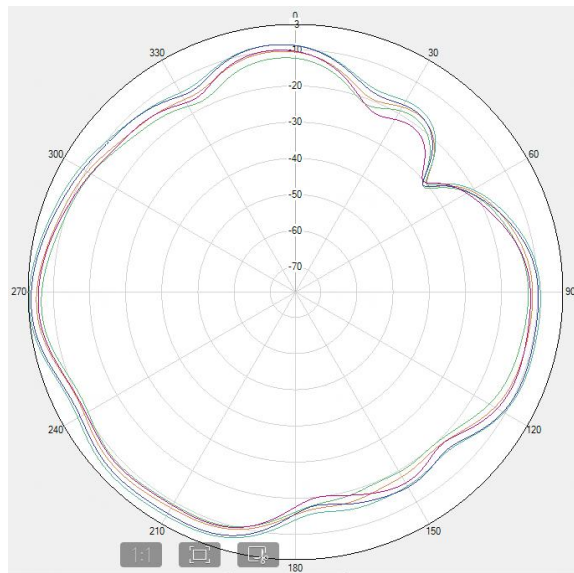
GSM 900/WCDMA B8/LTE B8/NR N8  $\Phi = 90^\circ$



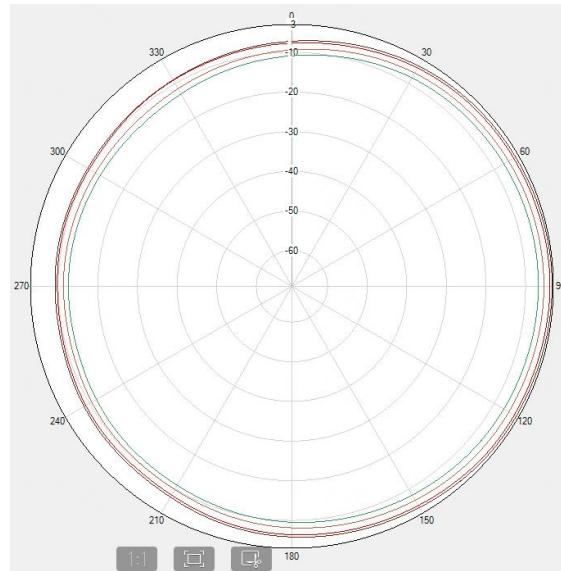
GSM 900/WCDMA B8/LTE B8/NR N8  $\Theta = 90^\circ$



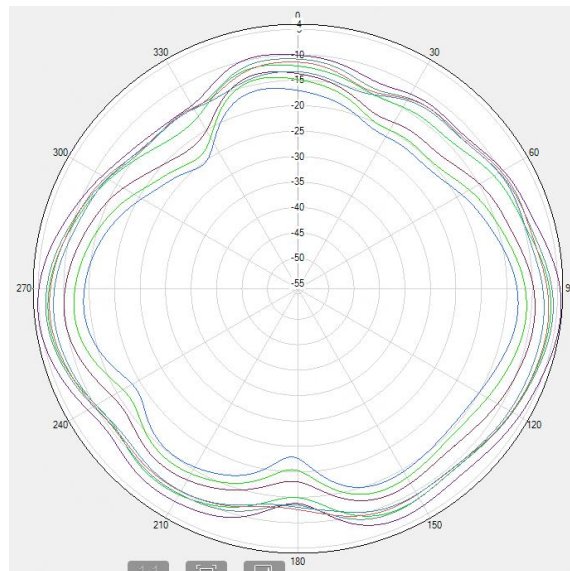
LTE B12/B17  $\Phi=0^\circ$



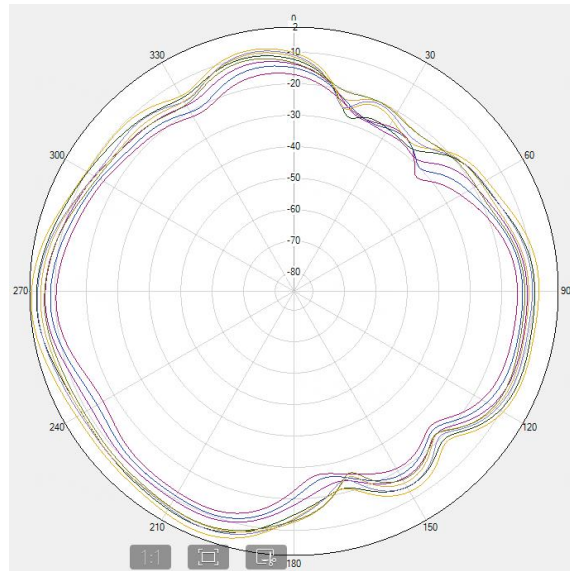
LTE B12/B17  $\Phi=90^\circ$



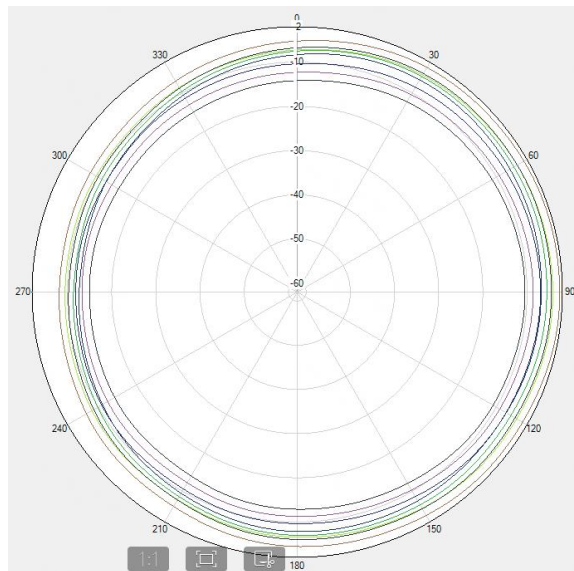
LTE B12/B17 Theta=90deg



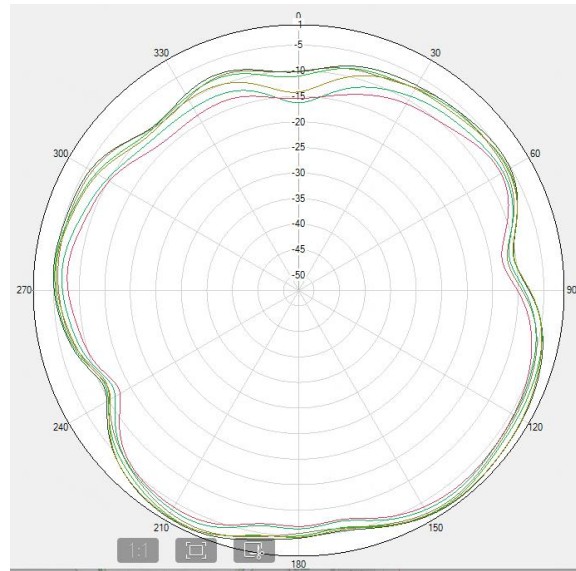
LTE B20/B28 Phi=0deg



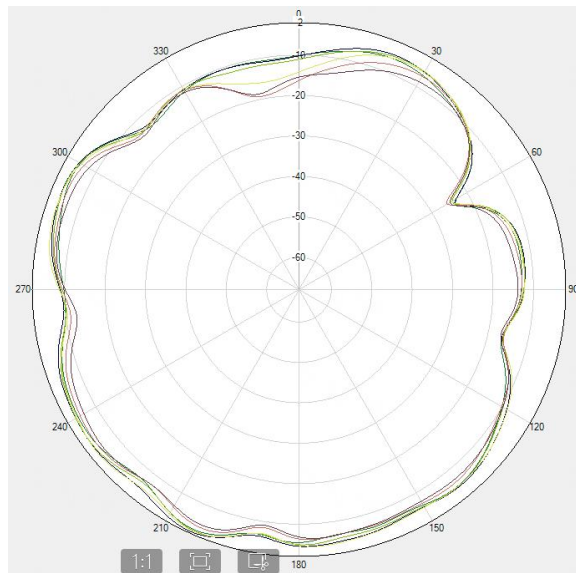
LTE B20/B28  $\Phi = 90^\circ$



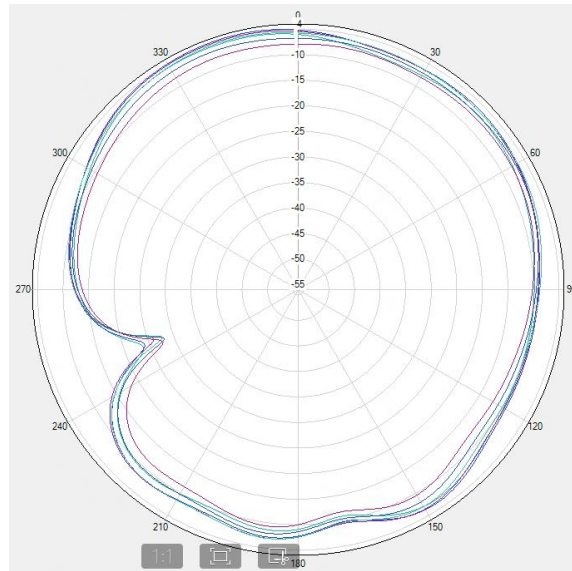
LTE B20/B28  $\Theta = 90^\circ$



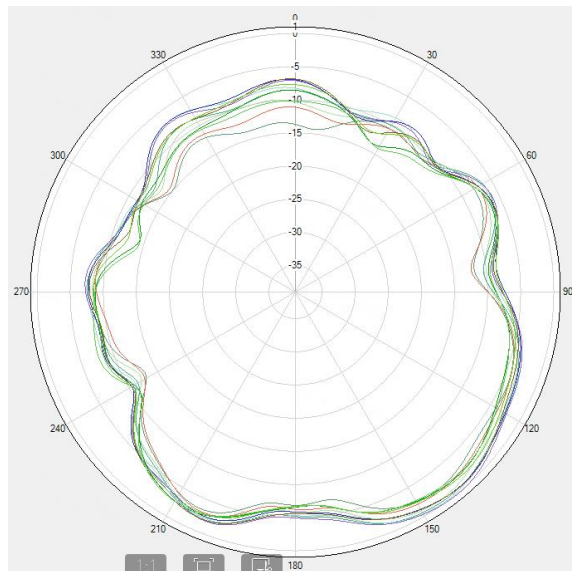
LTE B40  $\Phi = 0^\circ$



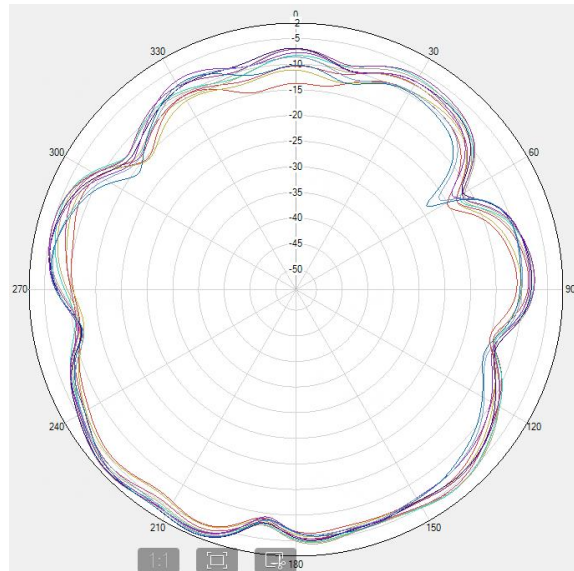
LTE B40  $\Phi = 90^\circ$



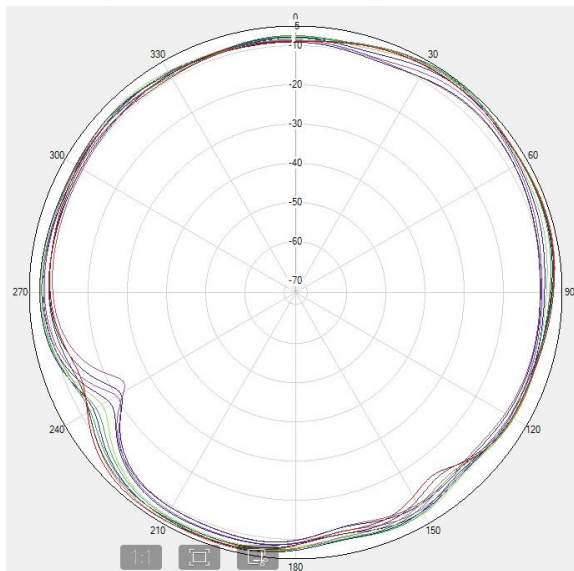
LTE B40 Theta=90deg



LTE B7/B38/B41 Phi=0deg



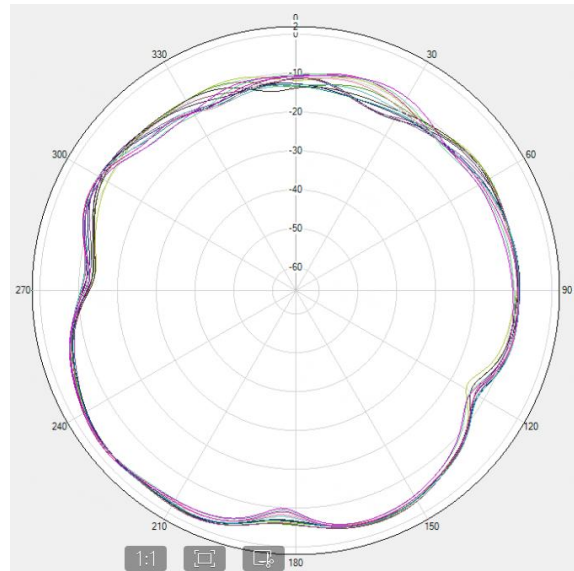
LTE B7/B38/B41 Phi=90deg



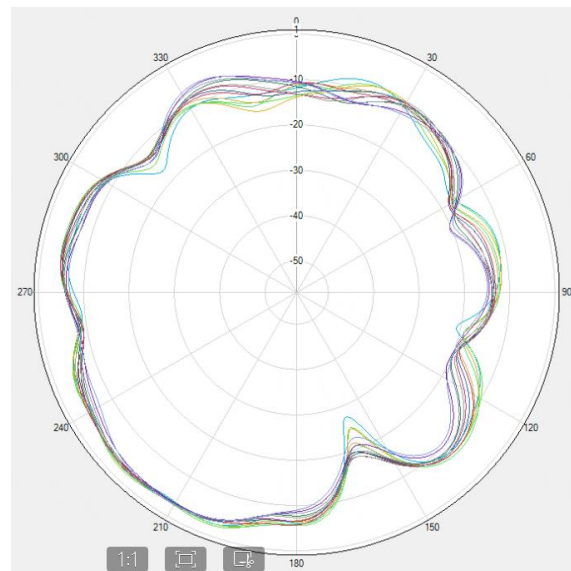
LTE B7/B38/B41 Theta=90deg

※ Antenna Gain

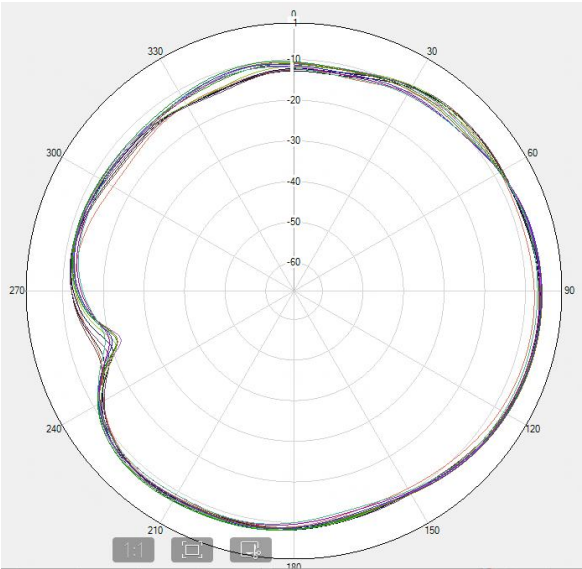
N1/N3/N7/N38/N40/N41 PRX&N77/N78 DRX Antenna



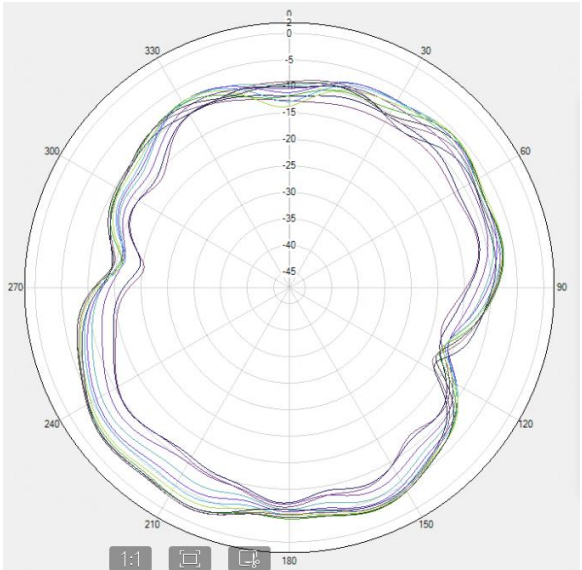
N1  $\Phi = 0^\circ$



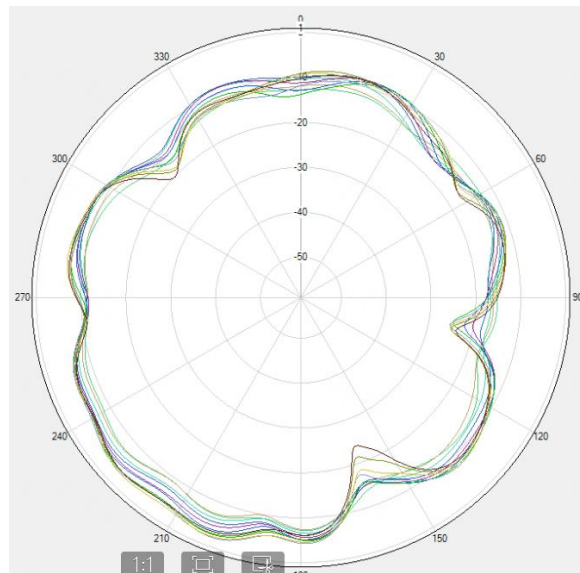
N1  $\Phi = 90^\circ$



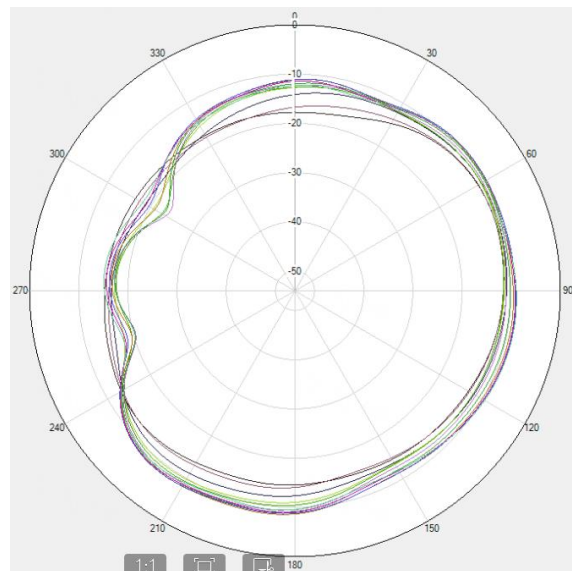
N1 Theta=90deg



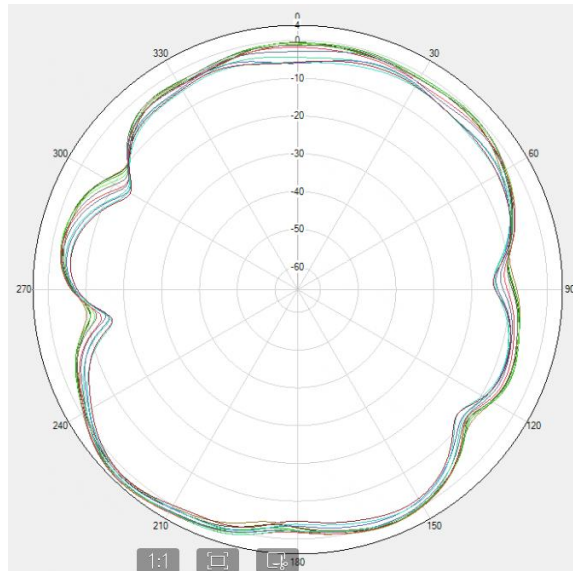
N3 Phi=0deg



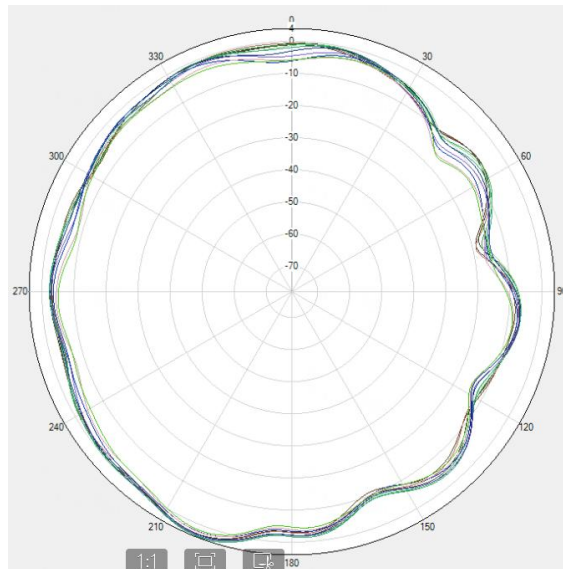
N3  $\Phi = 90^\circ$



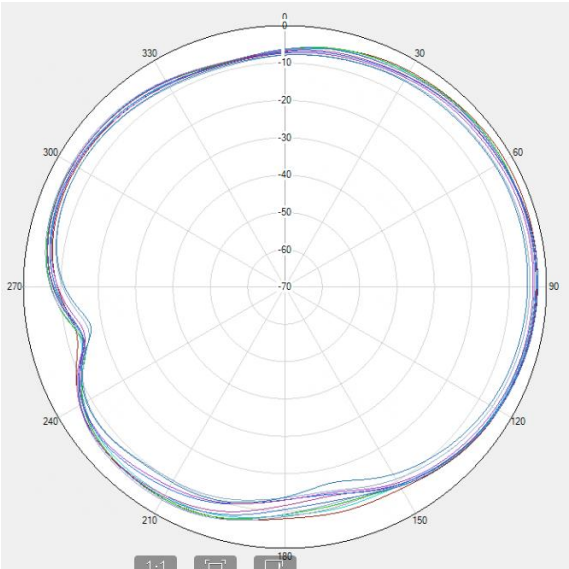
N3  $\Theta = 90^\circ$



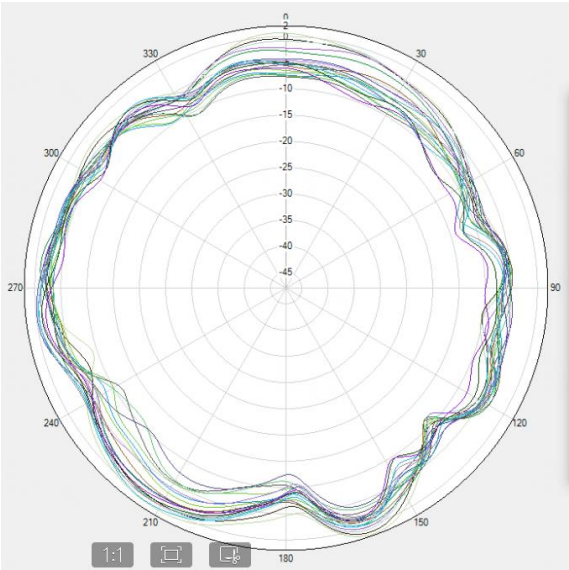
N7/N40/N41  $\Phi = 0^\circ$



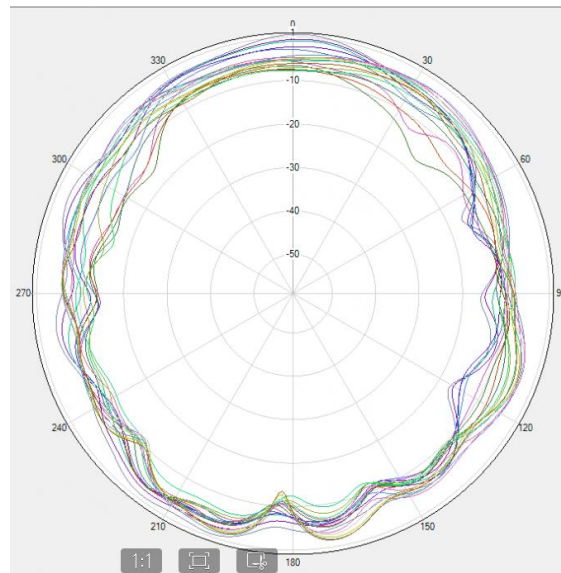
N7/N40/N41  $\Phi = 90^\circ$



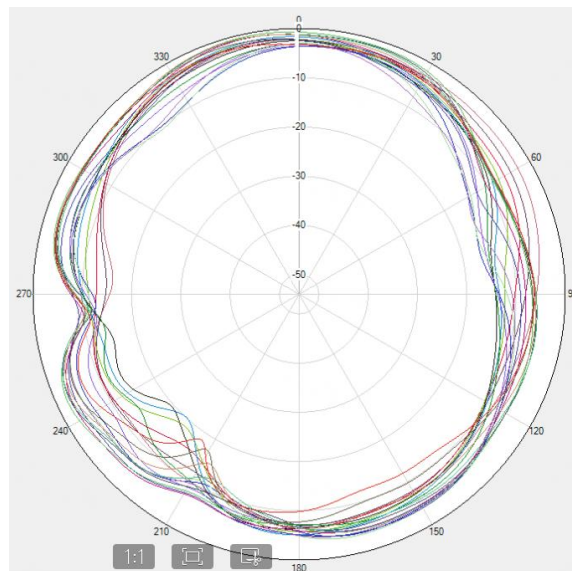
N7/N40/N41 Theta=90deg



N77/N78 Phi=0deg



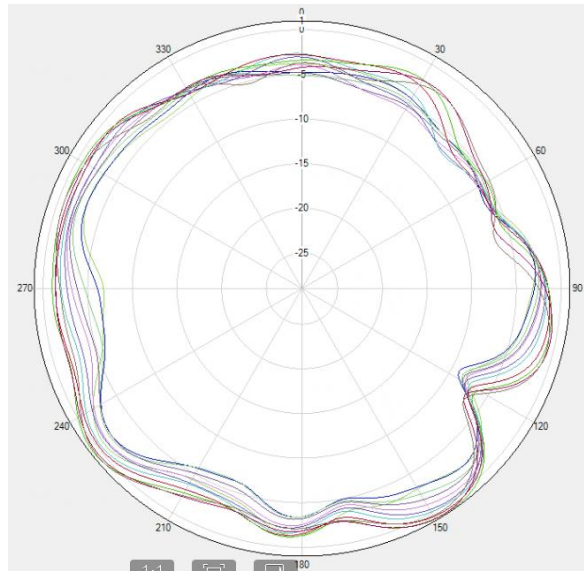
N77/N78 Phi=90deg



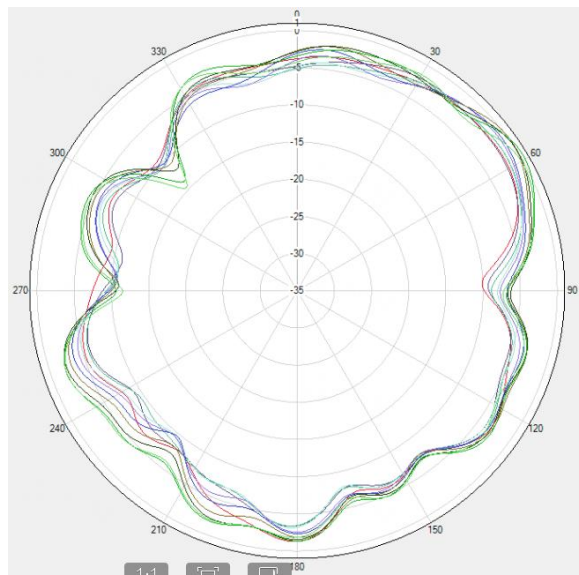
N77/N78 Theta=90deg

※ Antenna Gain

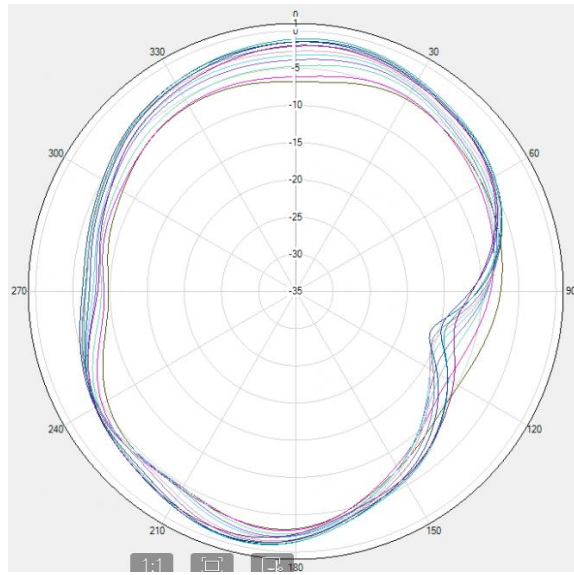
MHB PRX Antenna



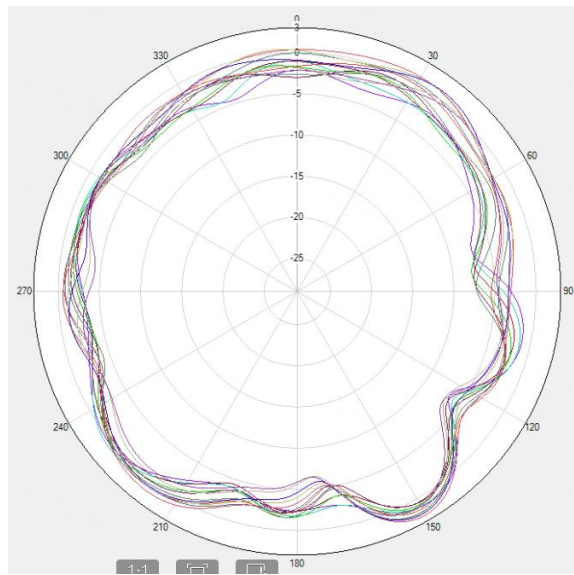
DCS/WCDMA B4/LTE B3/B4/B66  $\Phi=0^\circ$



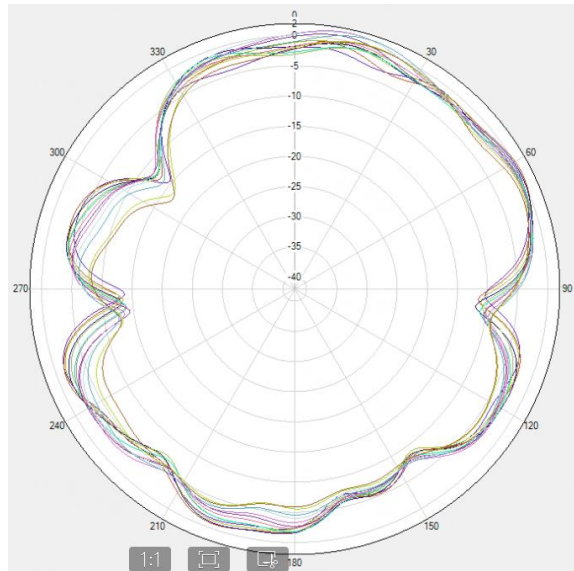
DCS/WCDMA B4/LTE B3/B4/B66  $\Phi=90^\circ$



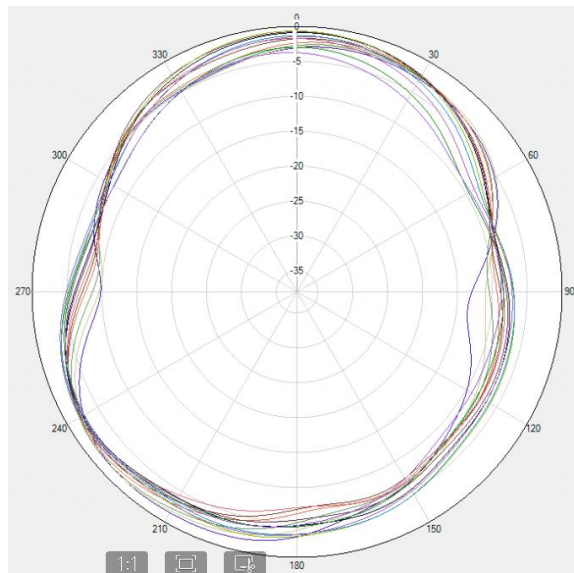
DCS/WCDMA B4/LTE B3/B4/B66 Theta=90deg



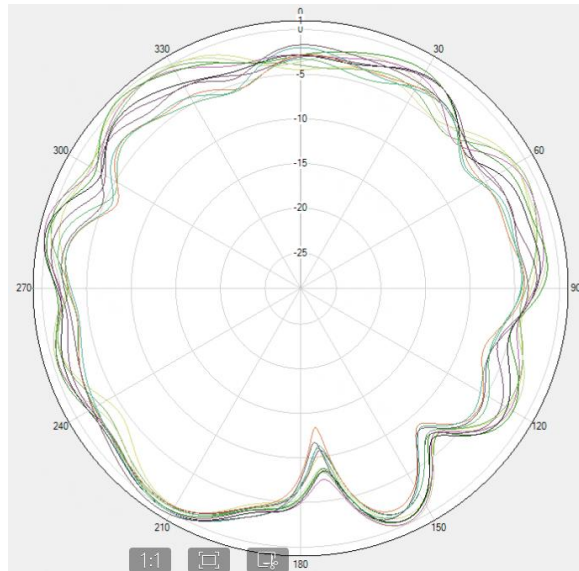
PCS/WCDMA B1/B2/LTE B1/B2 Phi=0deg



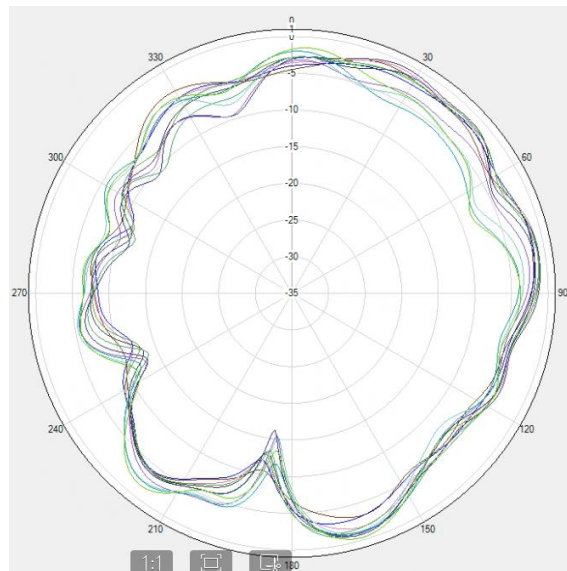
PCS/WCDMA B1/B2/LTE B1/B2  $\Phi=90^\circ$



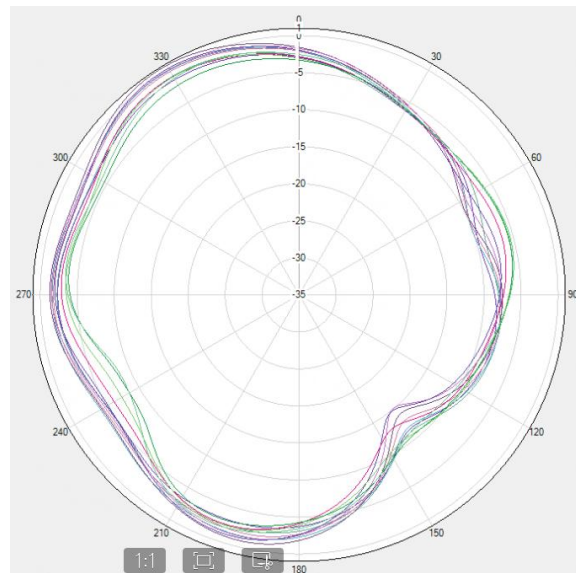
PCS/WCDMA B1/B2/LTE B1/B2  $\Theta=90^\circ$



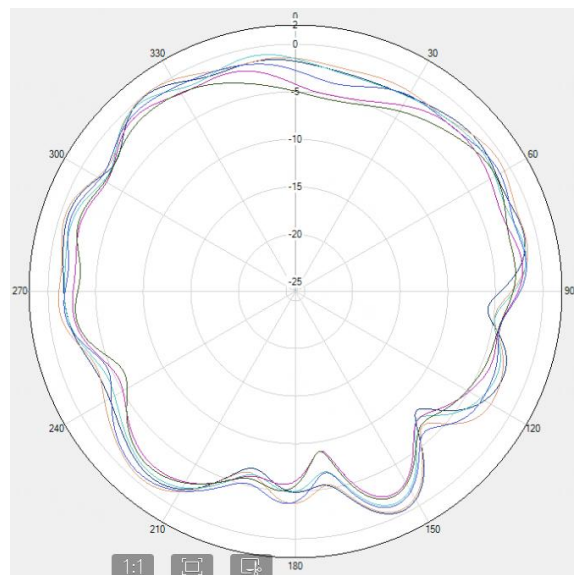
LTE B7/B38/B41  $\Phi=0^\circ$



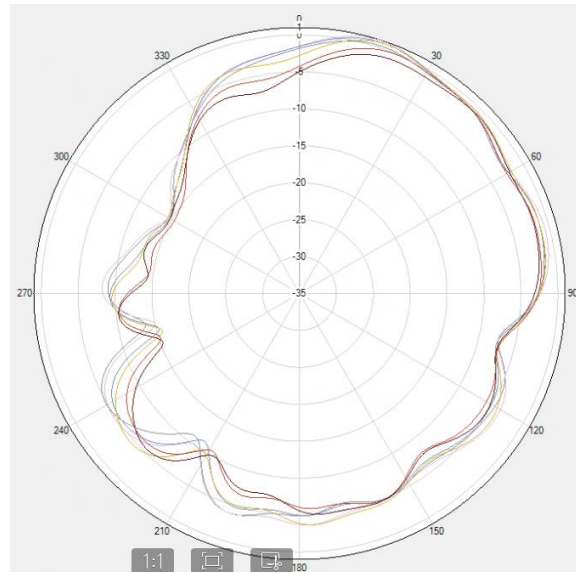
LTE B7/B38/B41  $\Phi=90^\circ$



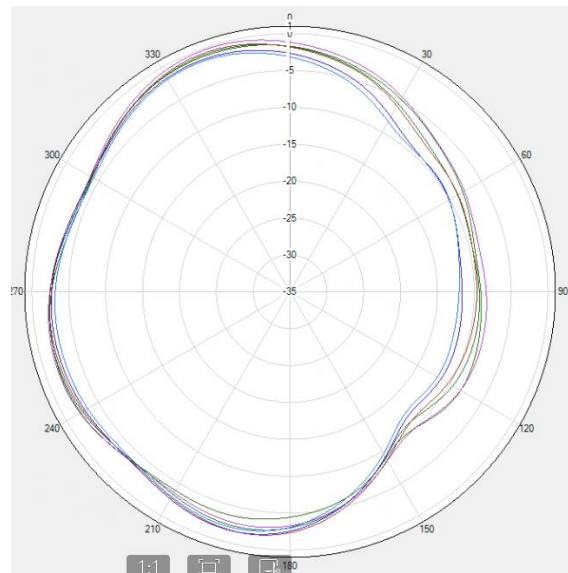
LTE B7/B38/B41 Theta=90deg



LTE B40 Phi=0deg



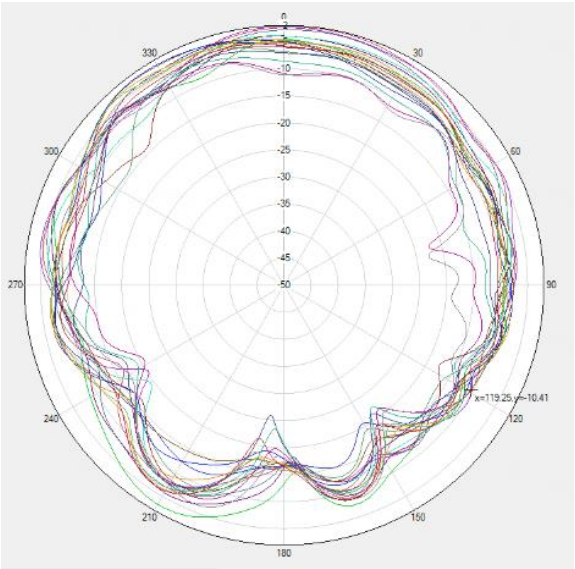
LTE B40  $\Phi=90^\circ$



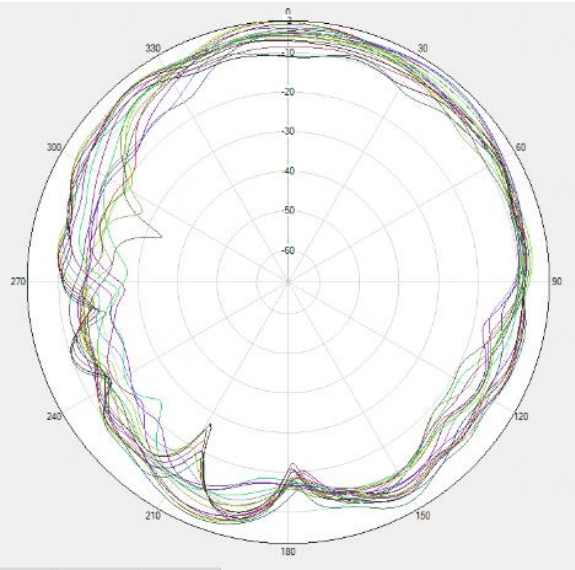
LTE B40  $\Theta=90^\circ$

※ Antenna Gain

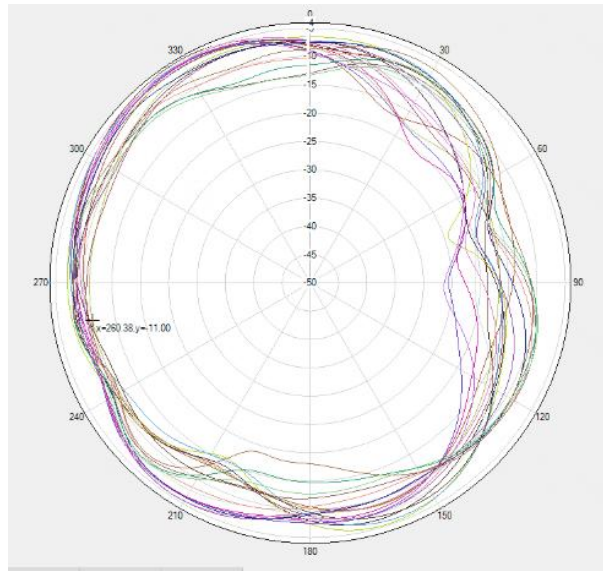
N77/N78 PRX MIMO(LDS) Antenna



$\Phi=0^\circ$



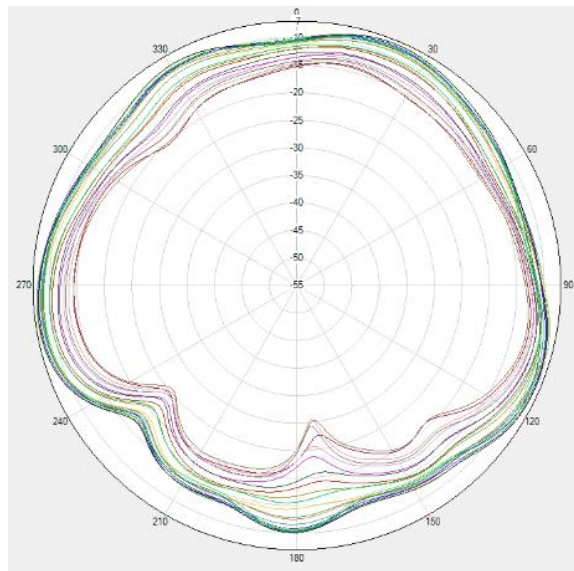
$\Phi=90^\circ$



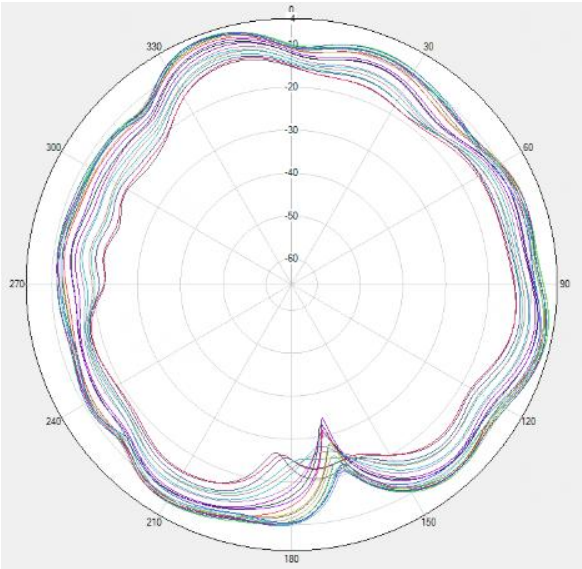
Theta=90deg

※ Antenna Gain

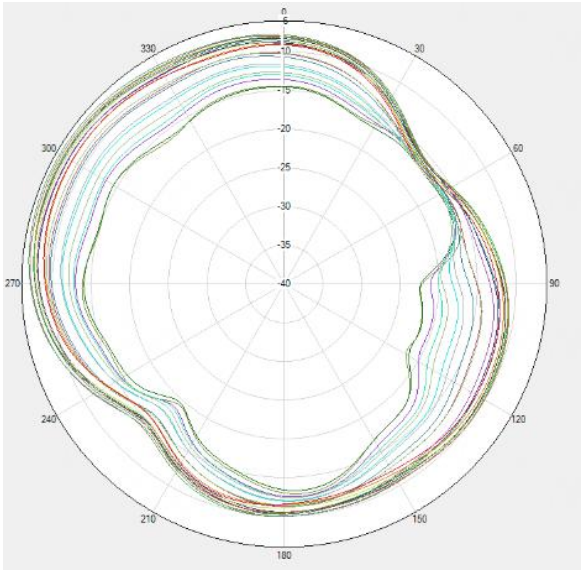
GPS L5 Antenna



Phi=0deg



Phi=90deg



Theta=90deg

|             |           |             |        |  |
|-------------|-----------|-------------|--------|--|
| PREPARED BY | CHECKEDBY | APPROVAL BY | S.R.NO |  |
|             |           |             | DATE:  |  |