



ShenZhen Huaxinwei communication technology  
Co.,Ltd.

## Antenna test report

Customer Name: FreeYond

Designer: Li Jun xian

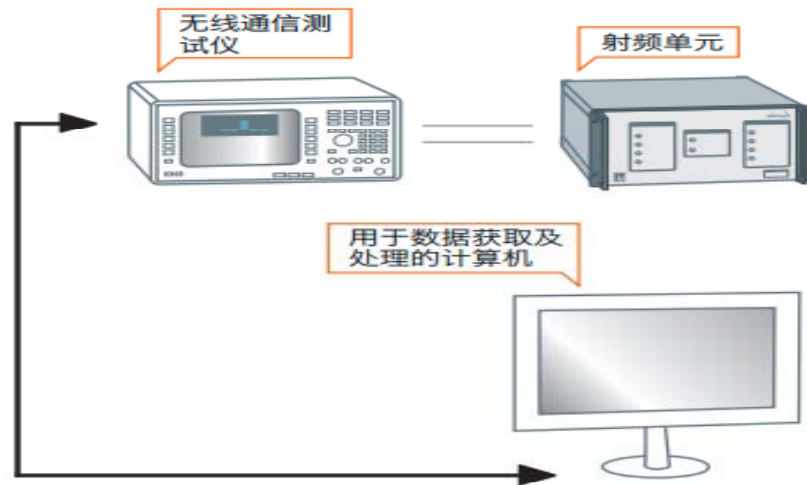
Date: 2023/07/07



|                   |                             |                                                                                                                                                           |              |    |
|-------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----|
| The customer name |                             | FreeYond                                                                                                                                                  | Project Name | M6 |
| NO.               | project                     | Detailed above                                                                                                                                            |              |    |
| 1                 | spectrum                    | GSM850/1900+WCDMA-B2/5+LTE-B1/2/3/4/5/7/8/12/17/20/28/66/38/40/41+GPS/WIFI/BT                                                                             |              |    |
| 2                 | Project type                | The testing environment for this antenna report is tested together with the phone.<br>( Shenzhen FreeYond Technology Co Ltd; FCC ID:2A8FE-F9S; Model: M6) |              |    |
| 3                 | Antenna space area          |                                                                                                                                                           |              |    |
| 4                 | Feed point type             |                                                                                                                                                           |              |    |
| 5                 | The sensitivity             |                                                                                                                                                           |              |    |
| 6                 | Type of antenna             |                                                                                                                                                           |              |    |
| 7                 | The length of the PCB board |                                                                                                                                                           |              |    |
| 8                 | note                        | Debugging prototype                                                                                                                                       |              |    |
| RF                |                             | Li Jun xian                                                                                                                                               | 1820807601   |    |

## 1、Test system and test equipment

System Brand: MVG(SATIMO) measurement features: gain • pattern beamwidth cross polarization resolution sidelobe level 3D cavity reflectance at any polarization cavity reflectance (line or arc) antenna efficiency TRP, TIS, EIRP and EIS. Frequency band: StarLab 6 GHZ - 650 MHZ to 6 GHZ



**TIS预计测量时间** (一个信道每隔30° 取样)

| 灵敏度算法 \ 标准       | GSM<br>GPRS<br>EDGE | CDMA<br>1 x RTT<br>1 x EvDO | WCDMA<br>HSDPA<br>LTE FDD/TDD | Wi-Fi<br>802.11<br>a/b/g/n | CTIA<br>批准方法   |
|------------------|---------------------|-----------------------------|-------------------------------|----------------------------|----------------|
| RSSI模式+线性化+TIS补偿 | 8 min               |                             | 10 min                        |                            | 是              |
| EIS模式+TIS补偿      |                     | 5 min                       |                               | 5 min                      | 是 <sup>2</sup> |
| 快速CDMA           |                     | 8 min                       |                               |                            | No             |
| EIRP模式+TIS补偿     |                     |                             |                               | 10 min                     | No             |

1、根据RTC  
2、根据协议



TIS 3D方位切割强度图



TRP 3D方位切割强度图

# Test Equipment

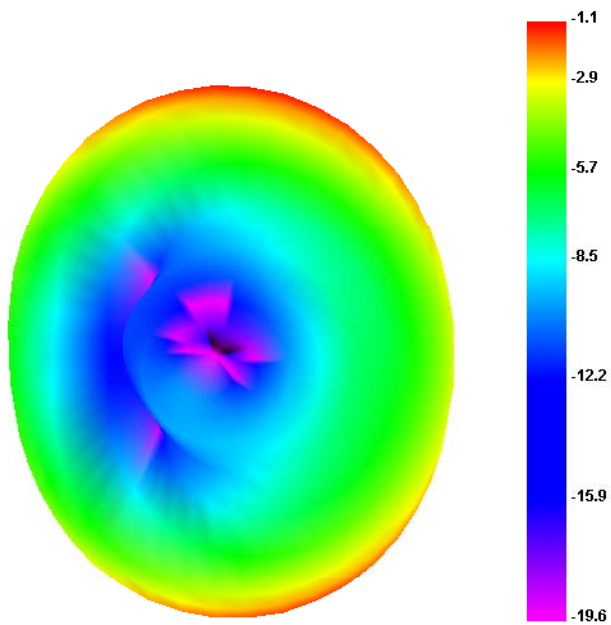


# Efficient ( 2G+3G+4G+2. 4G-WiFi /BT)

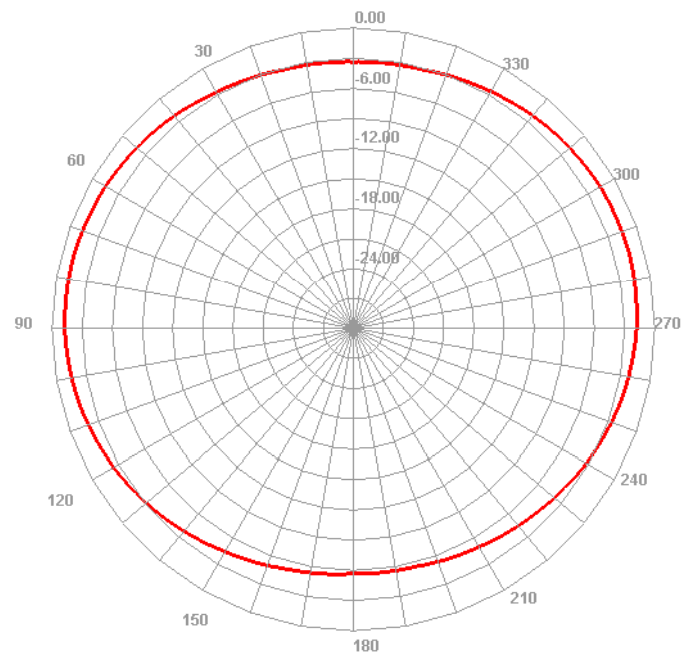
| Main PEAK GAIN |                 |        |          |
|----------------|-----------------|--------|----------|
| 2G:            | Frequency range | Effi % | Gaim dBi |
| GSM850         | 824~894Mhz      | 21.80  | -1.4     |
| 3G:            |                 |        |          |
| W5             | 824~894Mhz      | 21.80  | -1.4     |
| 4G:            |                 |        |          |
| LTE-B5         | 824~894Mhz      | 21.80  | -1.4     |
| Div PEAK GAIN  |                 |        |          |
| 2G:            | Frequency range | Effi % | Gaim dBi |
| PCS1900        | 1850~1990Mhz    | 40.81  | 1.83     |
| 3G:            |                 |        |          |
| W2             | 1850~1990Mhz    | 40.81  | 1.83     |
| 4G:            |                 |        |          |
| LTE-B1         | 1920~2170Mhz    | 37.85  | 1.55     |
| LTE-B2         | 1850~1990Mhz    | 40.81  | 1.83     |
| LTE-B3         | 1710~1880Mhz    | 38.62  | 1.58     |
| LTE-B4         | 1710~2155Mhz    | 39.07  | 1.50     |
| LTE-B7         | 2500~2690Mhz    | 28.01  | 0.94     |
| LTE-B8         | 880~960Mhz      | 20.84  | -1.1     |
| LTE-B12        | 698~746Mhz      | 19.03  | -1.58    |
| LTE-B17        | 704~746Mhz      | 19.04  | -1.58    |
| LTE-B20        | 791~862Mhz      | 21.84  | -1.4     |
| LTE-B28        | 708~798Mhz      | 19.05  | -1.58    |
| LTE-B66        | 1710~2170Mhz    | 39.08  | 1.50     |
| LTE-B38        | 2570~2620Mhz    | 28.02  | 0.94     |
| LTE-B40        | 2300~2400Mhz    | 29.21  | 1.38     |
| LTE-B41        | 2500~2690Mhz    | 28.03  | 0.94     |
| 2. 4G-WIFI     | 2400~2500Mhz    | 42.52  | 1.01     |
| 5. 18G WIFI    | 5000~5800Mhz    | 40.24  | 1.80     |
| 5. 8G WIFI     | 5000~5800Mhz    | 40.24  | 1.50     |
| BT             | 2400~2500Mhz    | 42.51  | 1.01     |
| GPS            | 1575Mhz         | 38.73  | 1.23     |



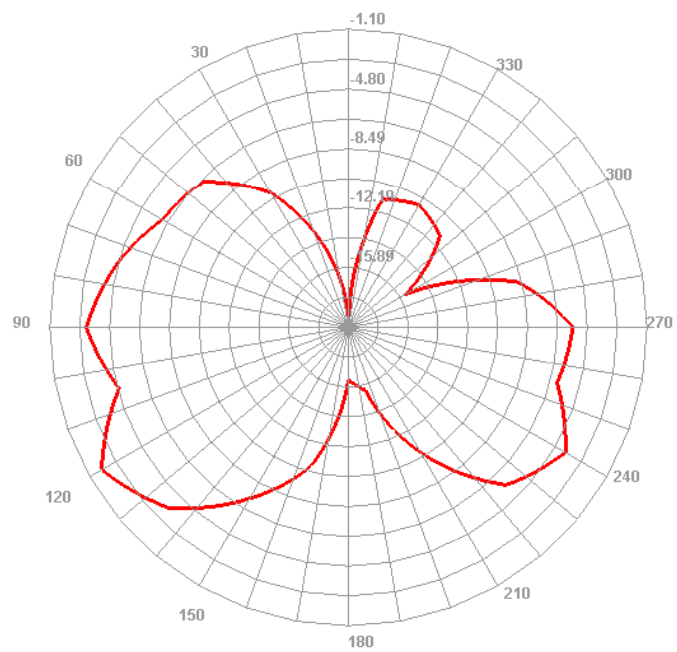
# GSM 900



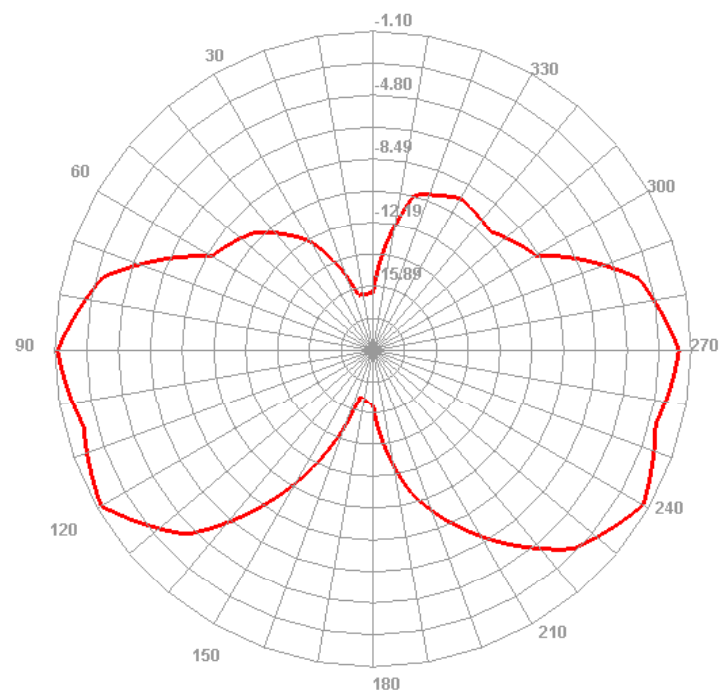
**H**



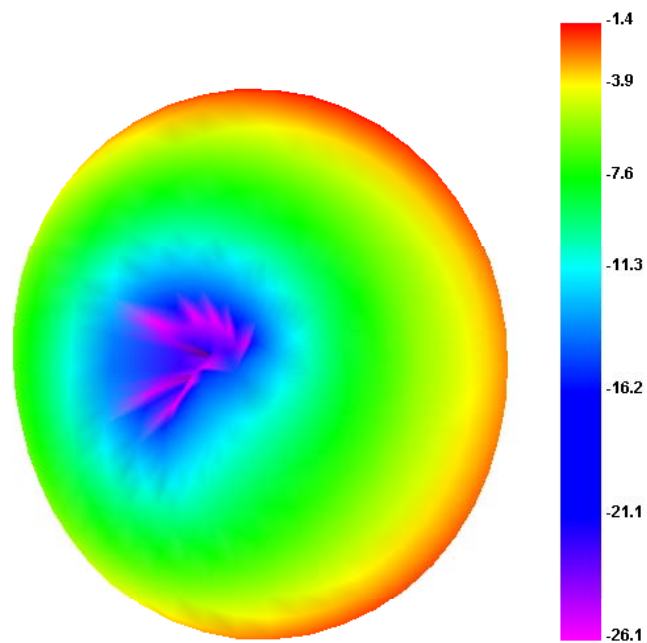
**E1**



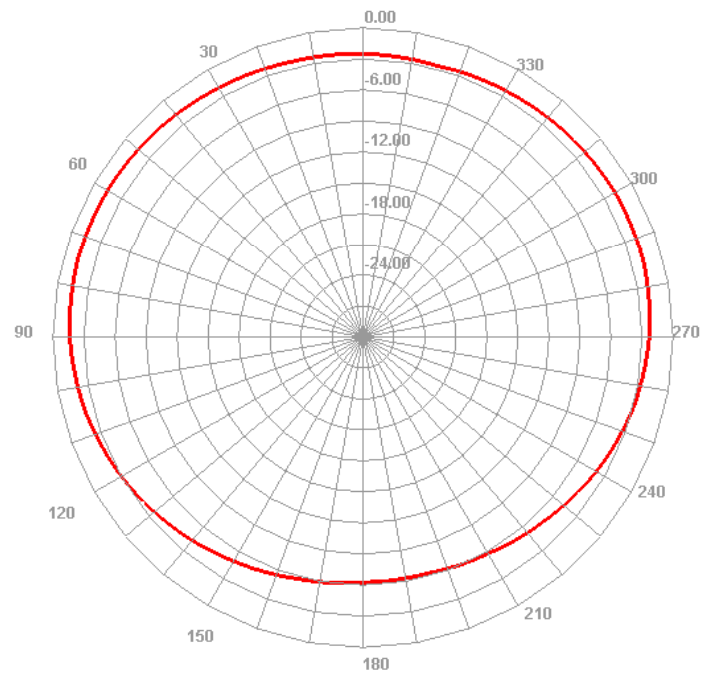
**E2**



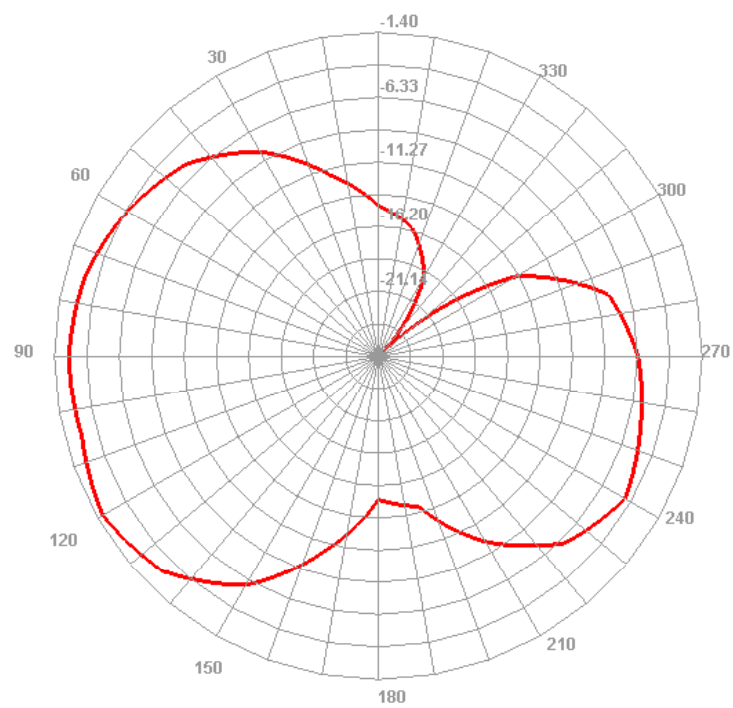
# GSM 850



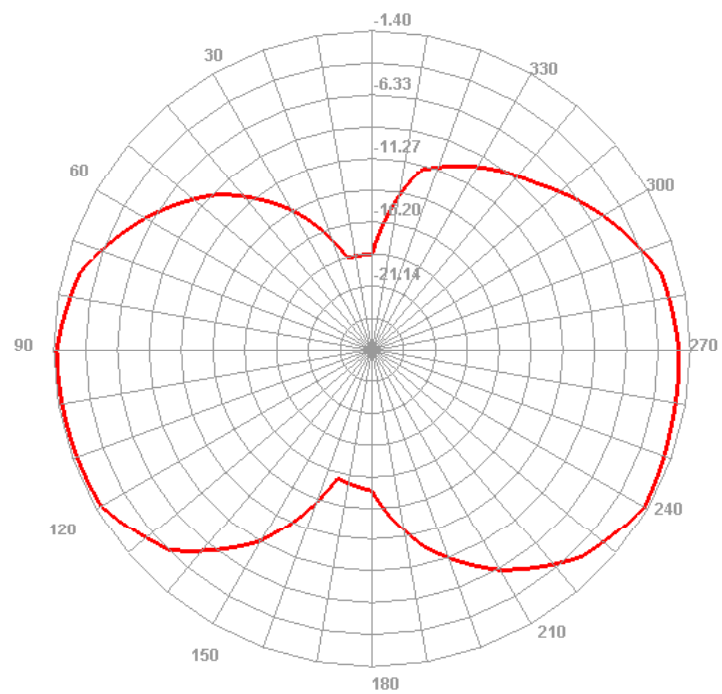
**H**



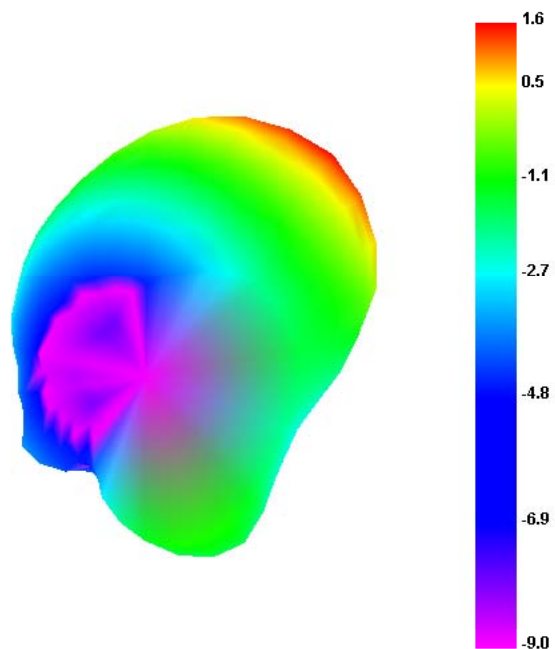
**E1**



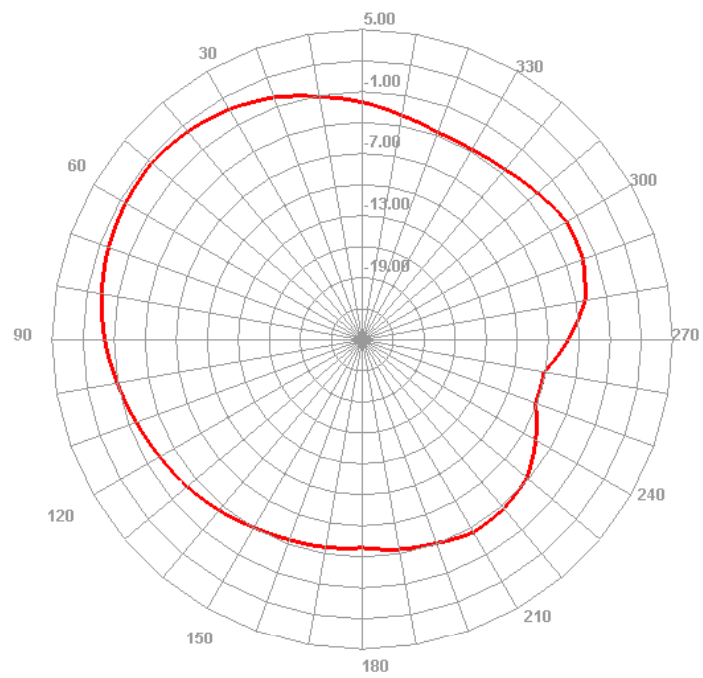
**E2**



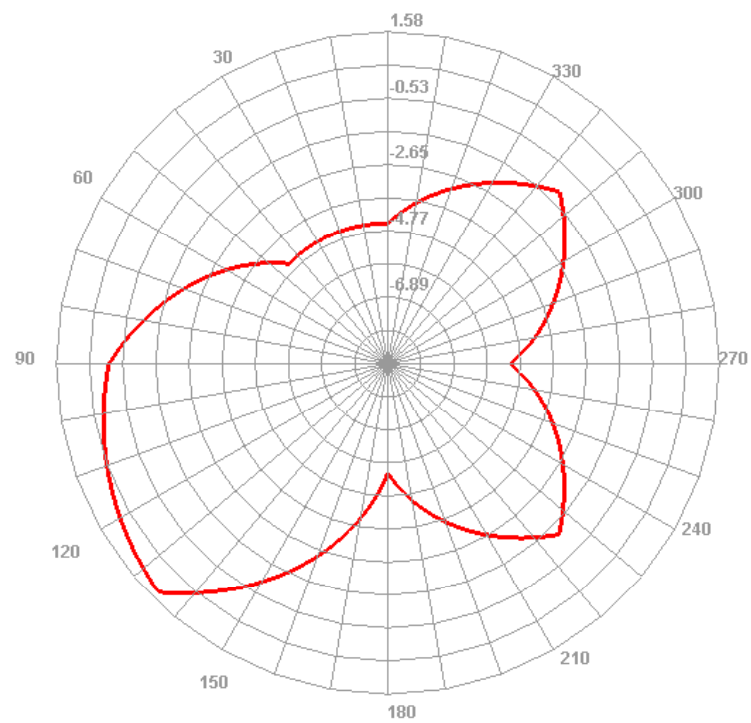
DCS1800



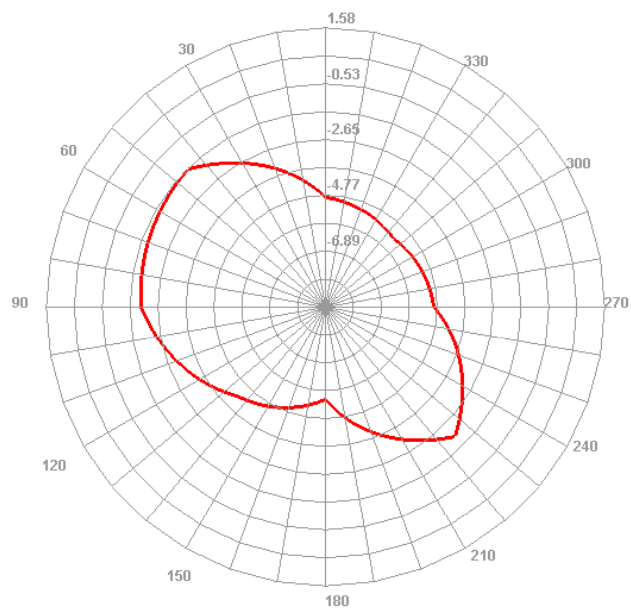
H



E2

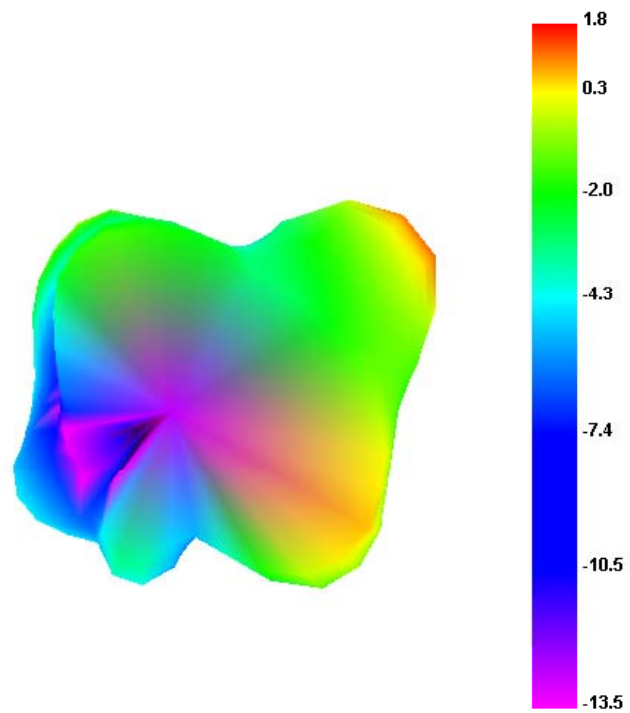


E1

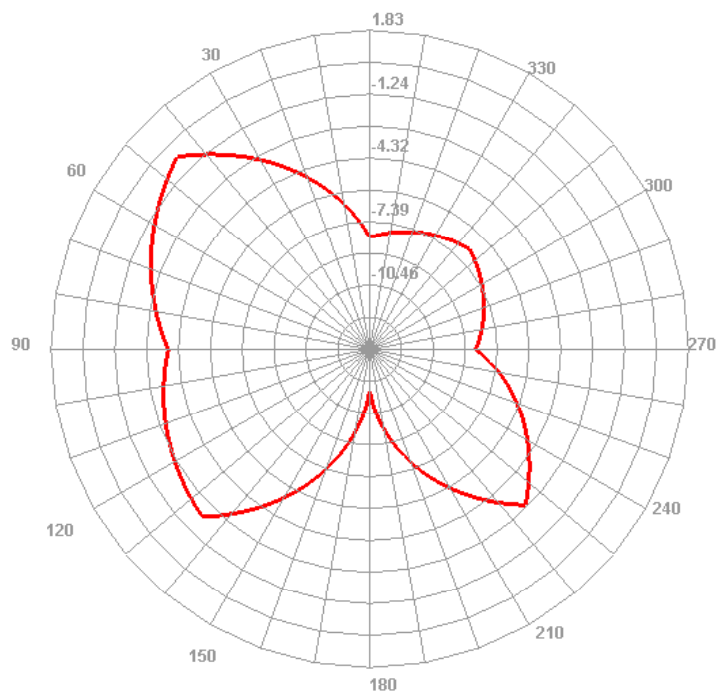




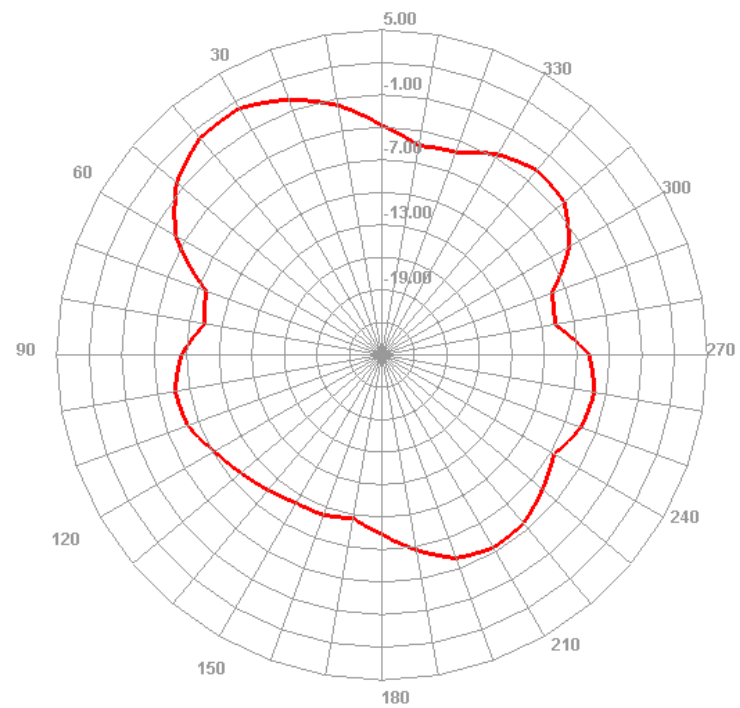
PCS1900



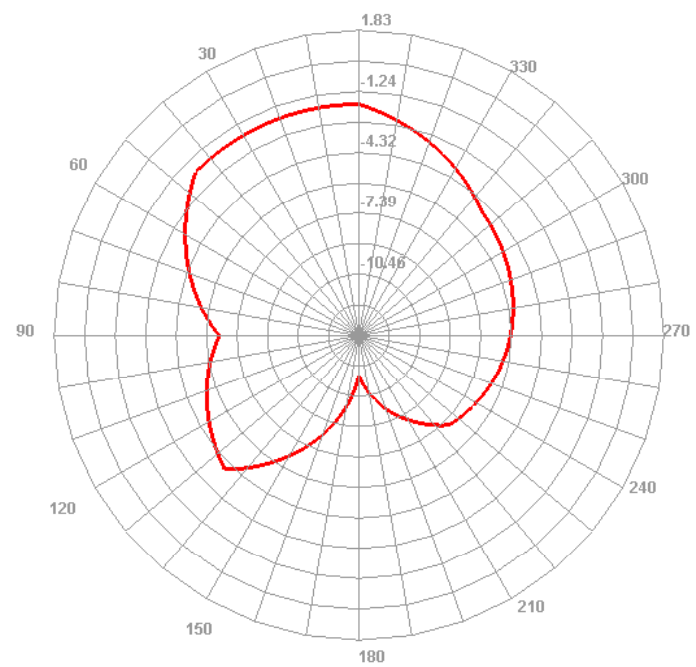
E1



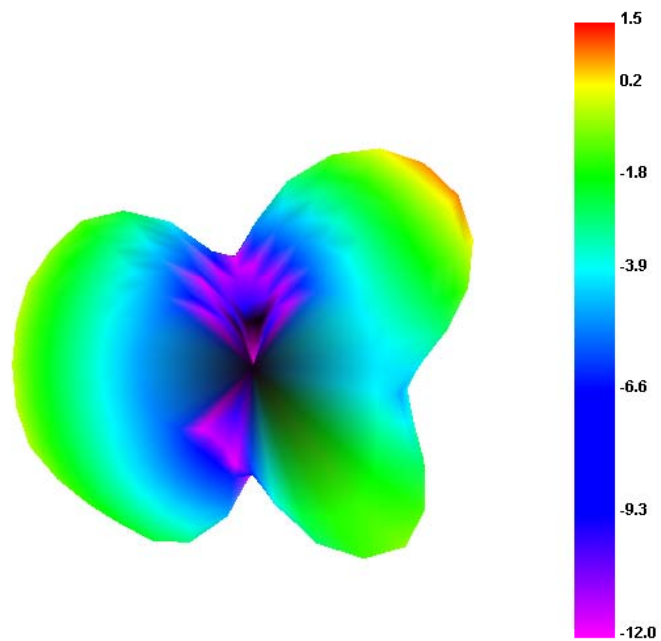
H



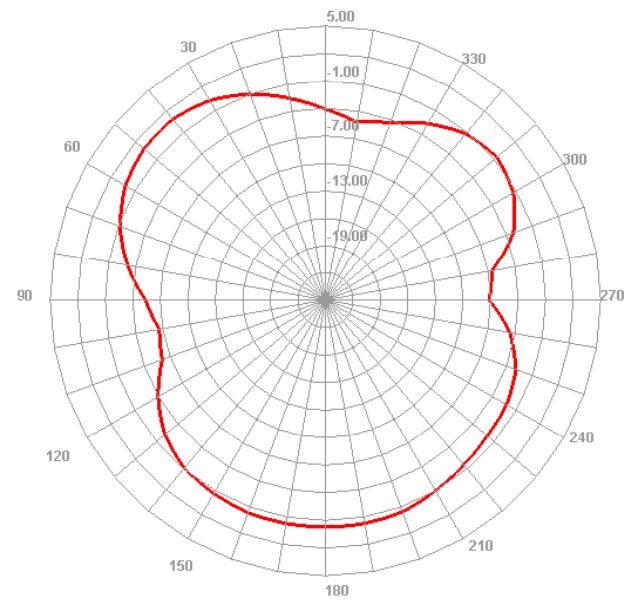
E2



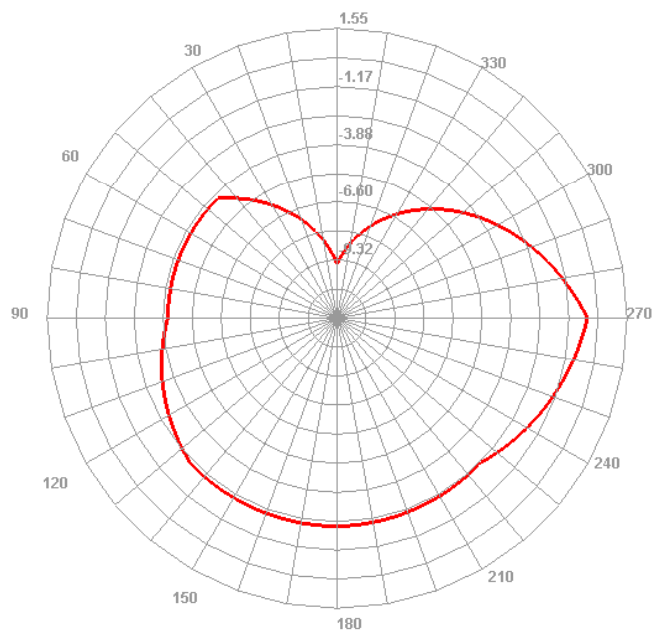
W2100



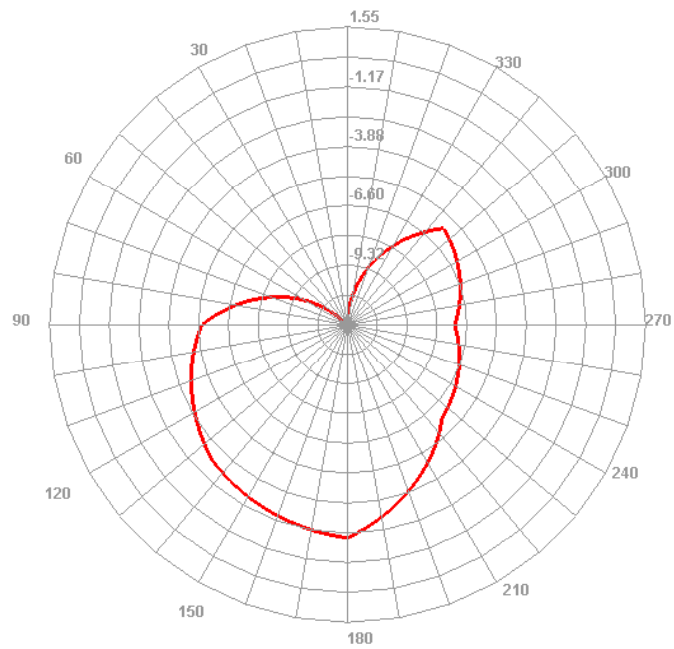
H



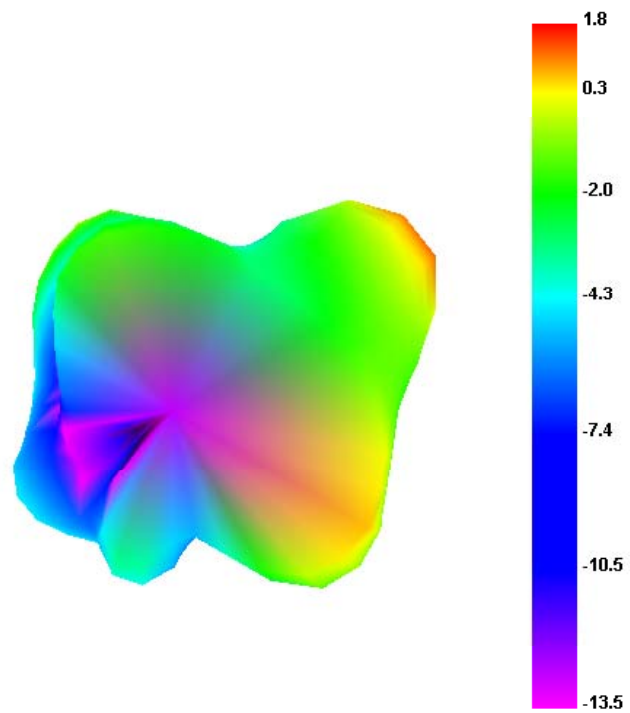
E1



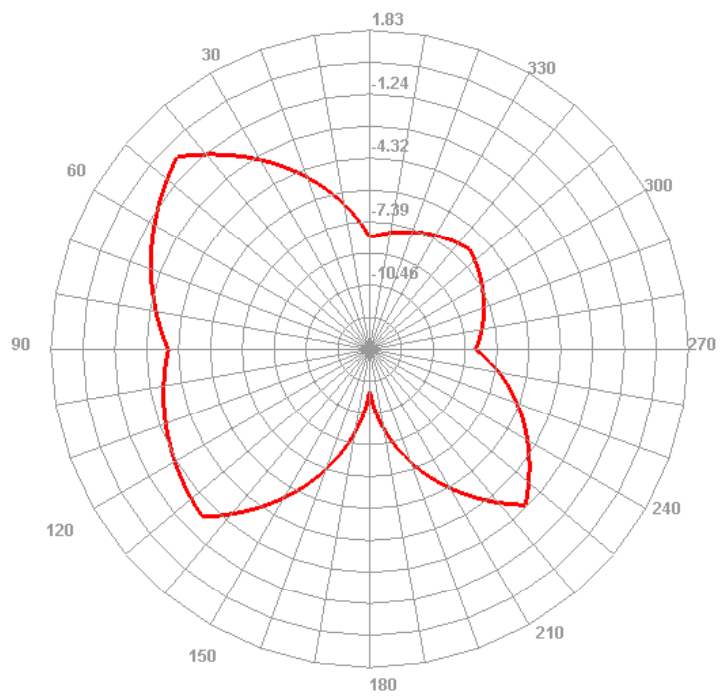
E2



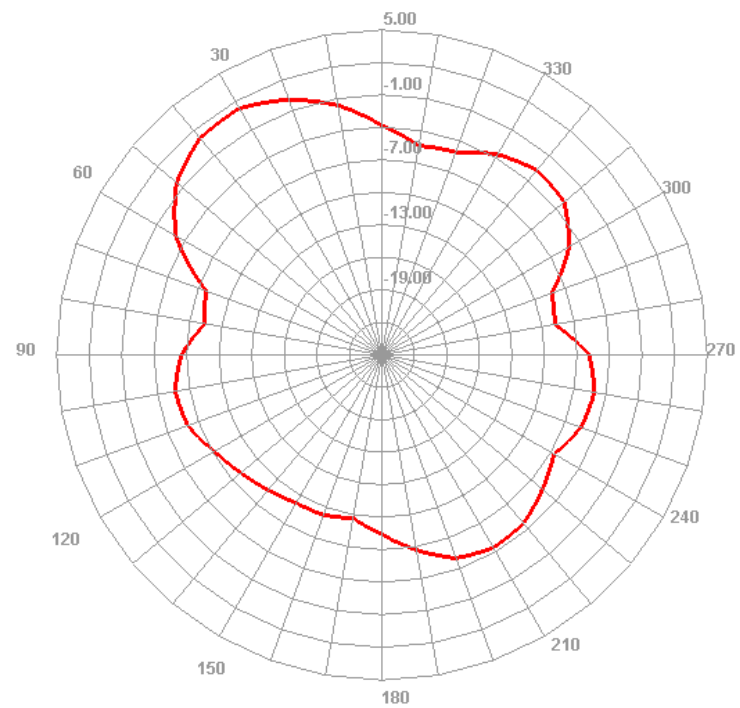
W1900



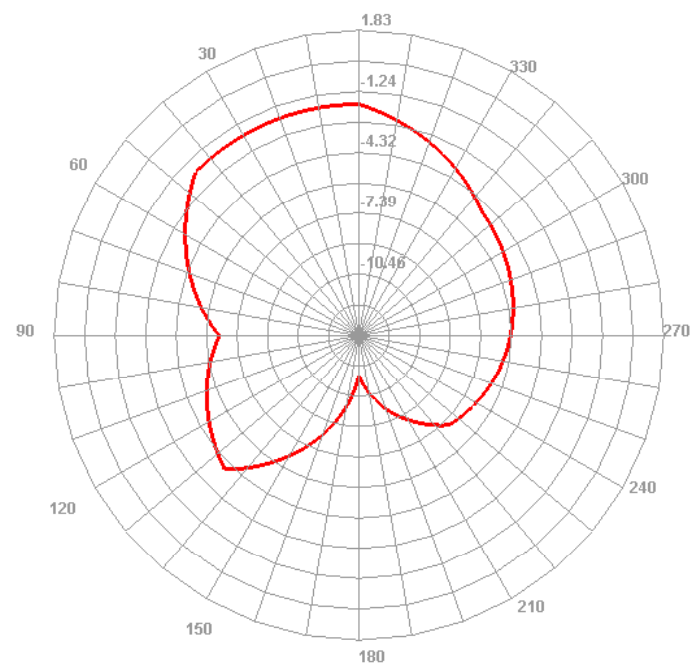
E1



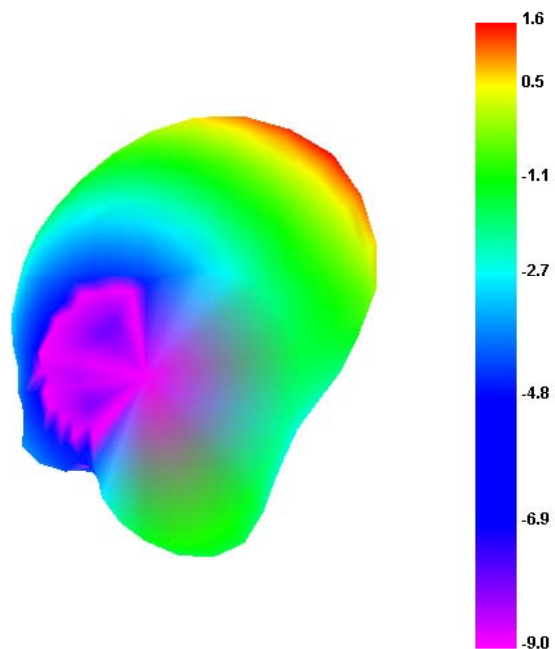
H



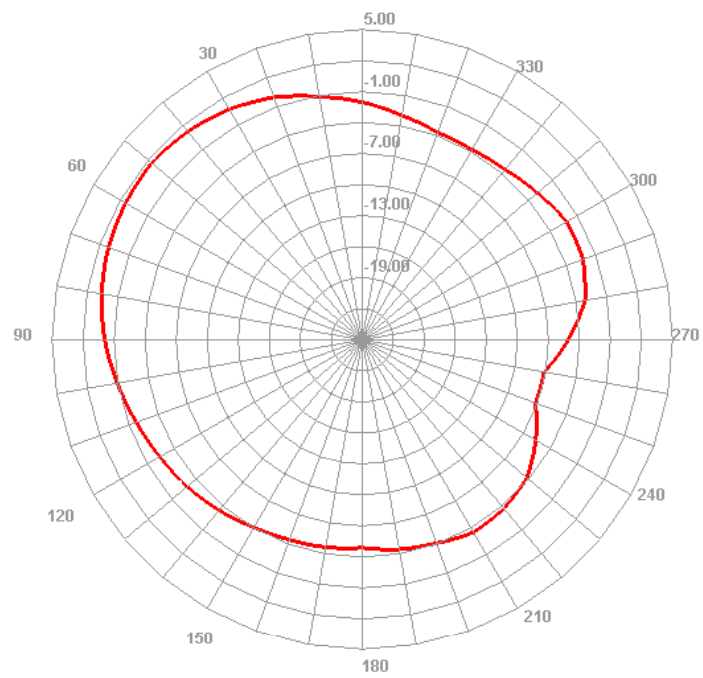
E2



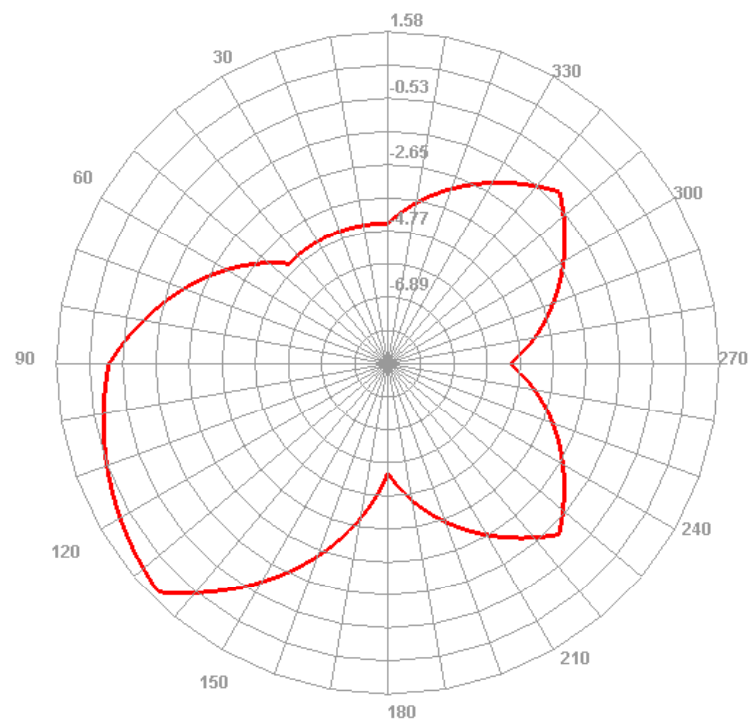
W1700



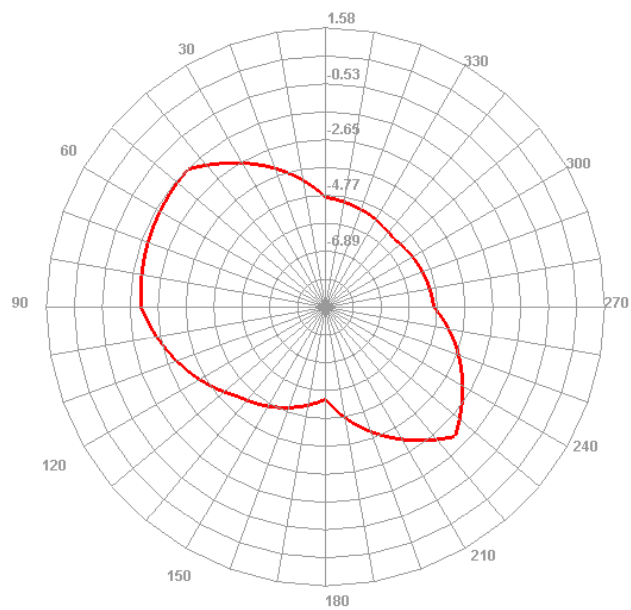
H



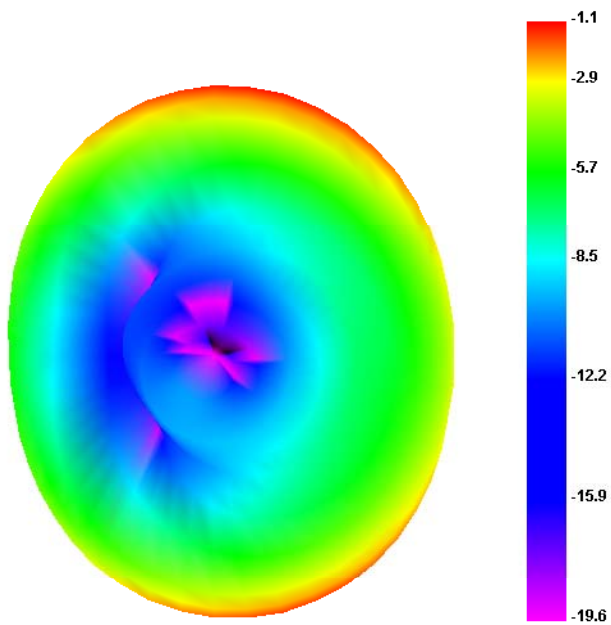
E2



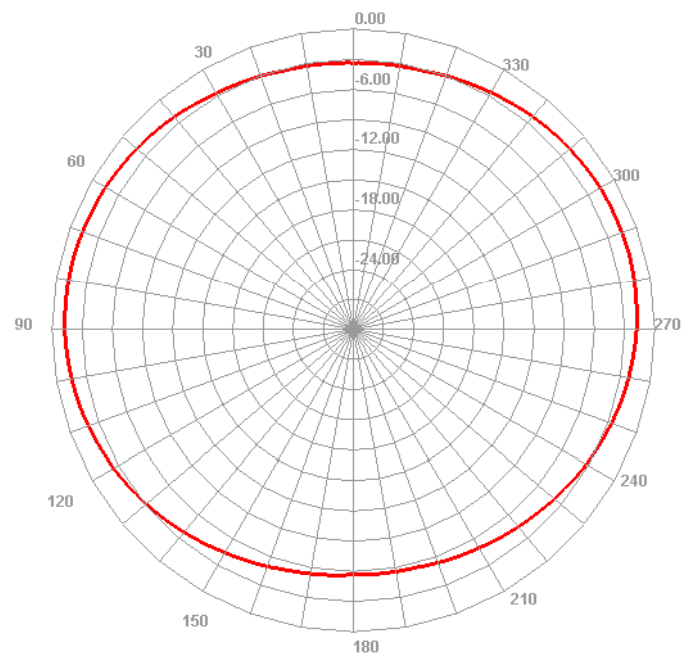
E1



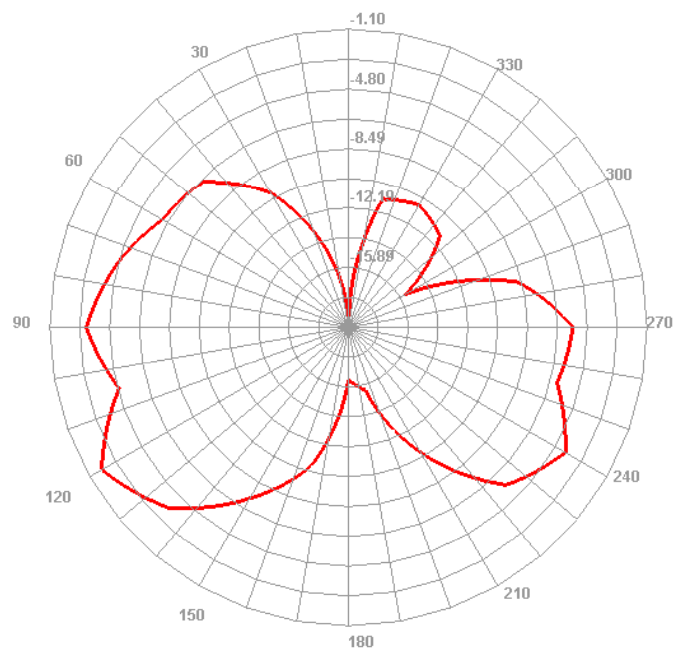
W900



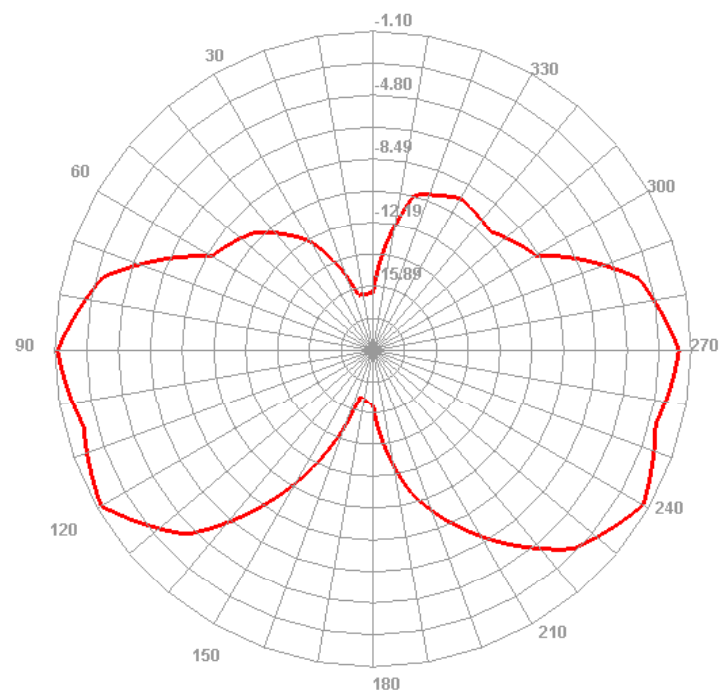
H



E1

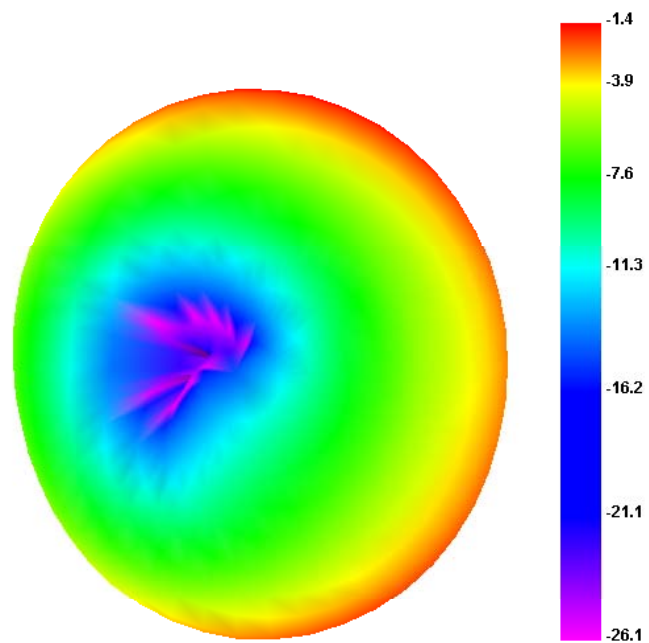


E2

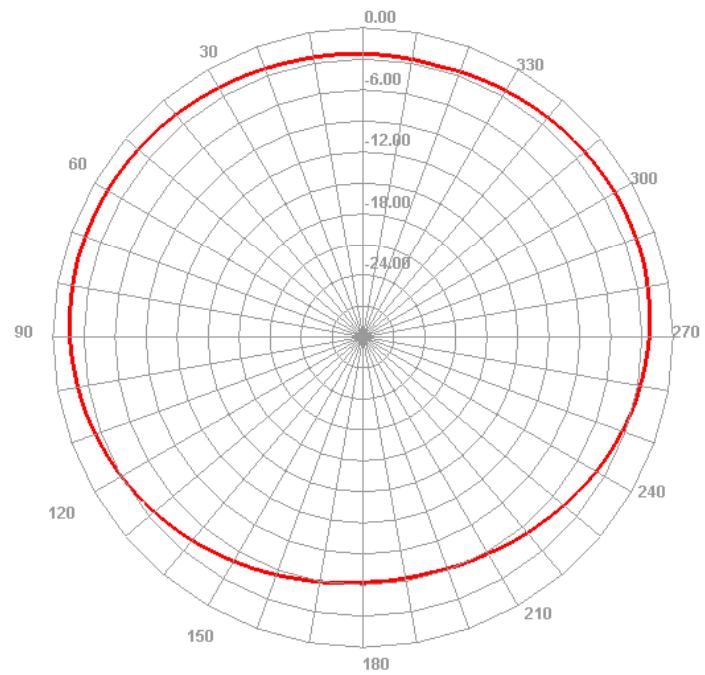




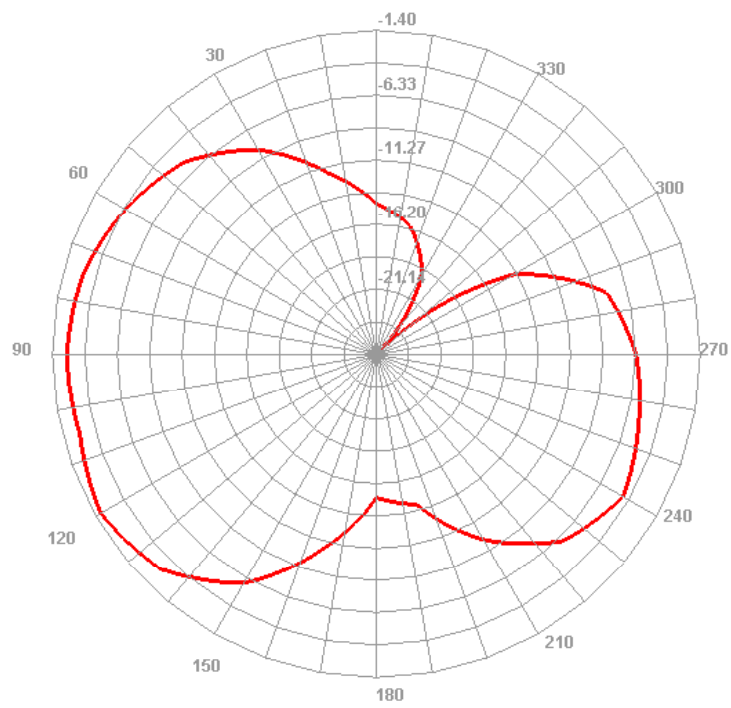
W850



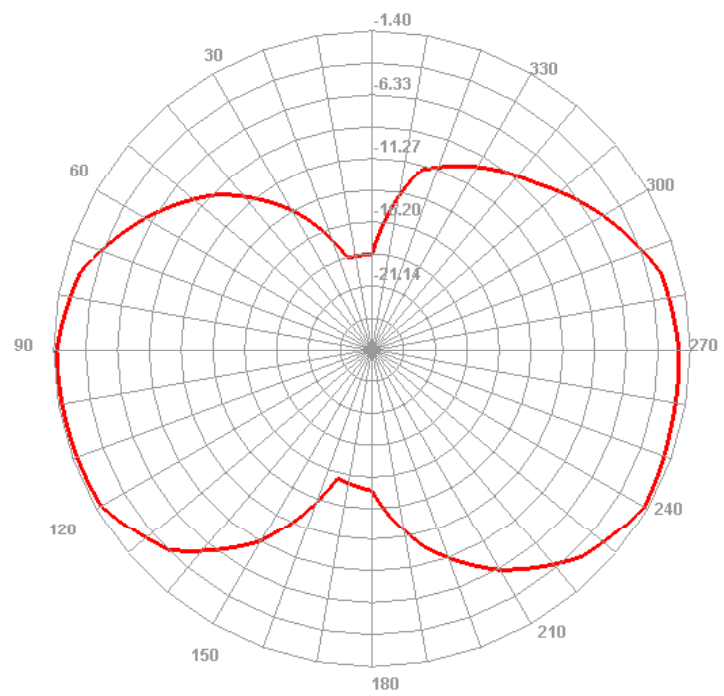
H



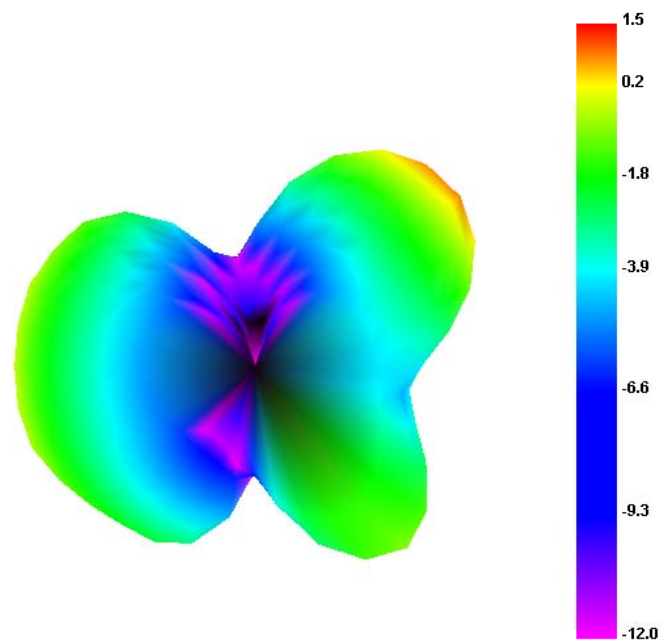
E1



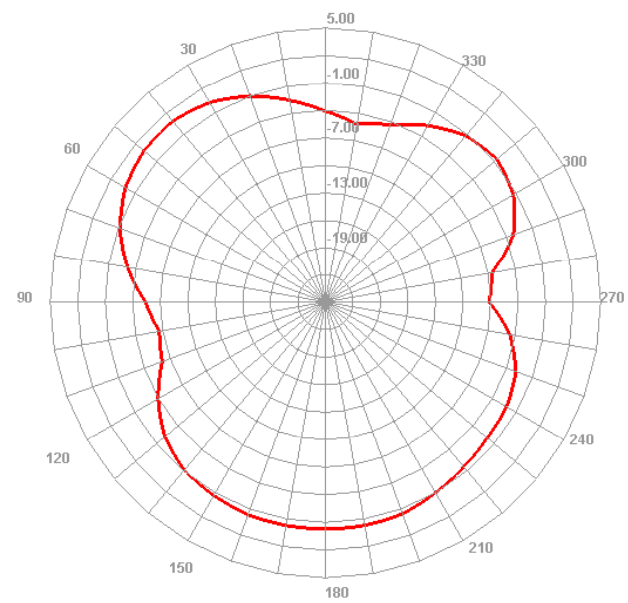
E2



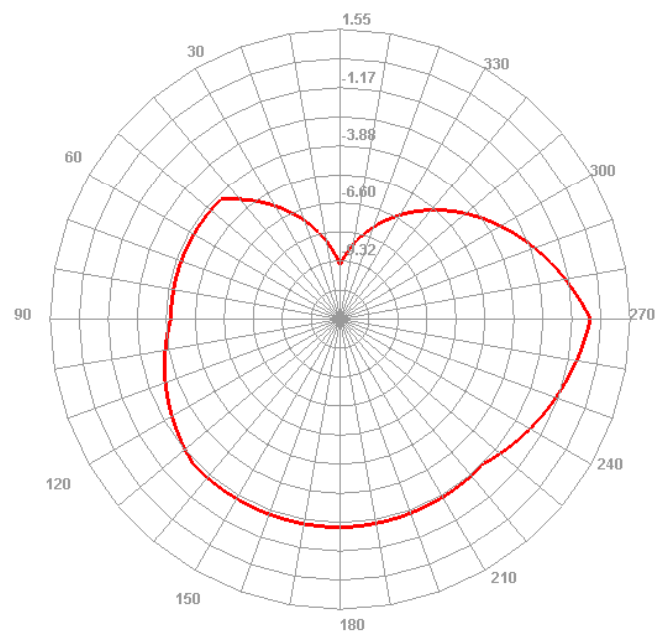
# LTE-B1



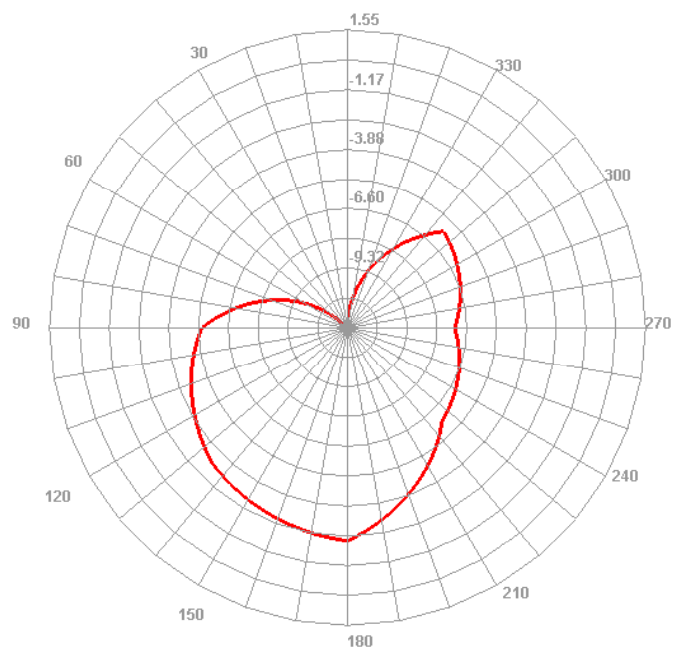
**H**



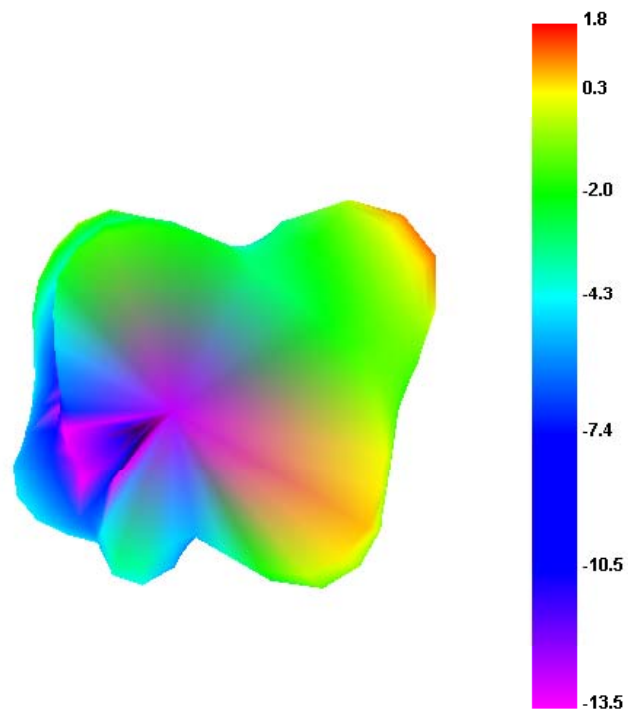
**E1**



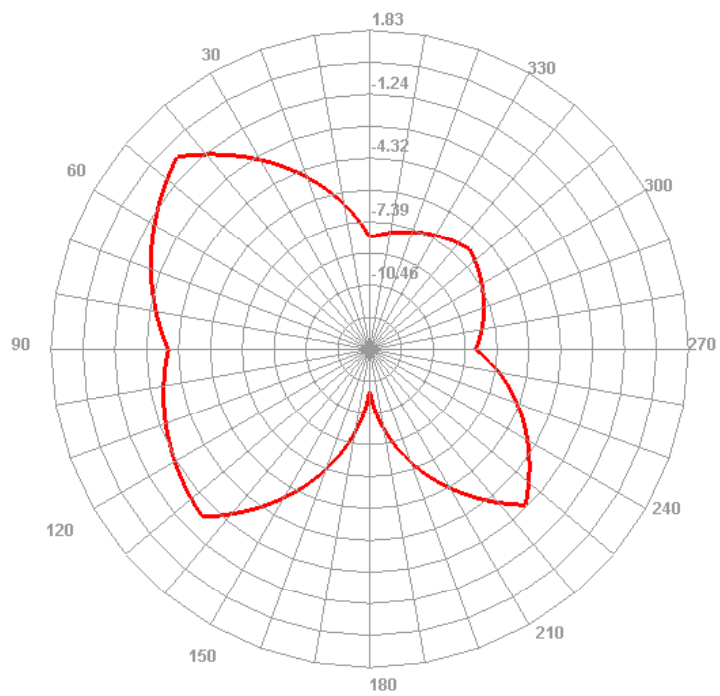
**E2**



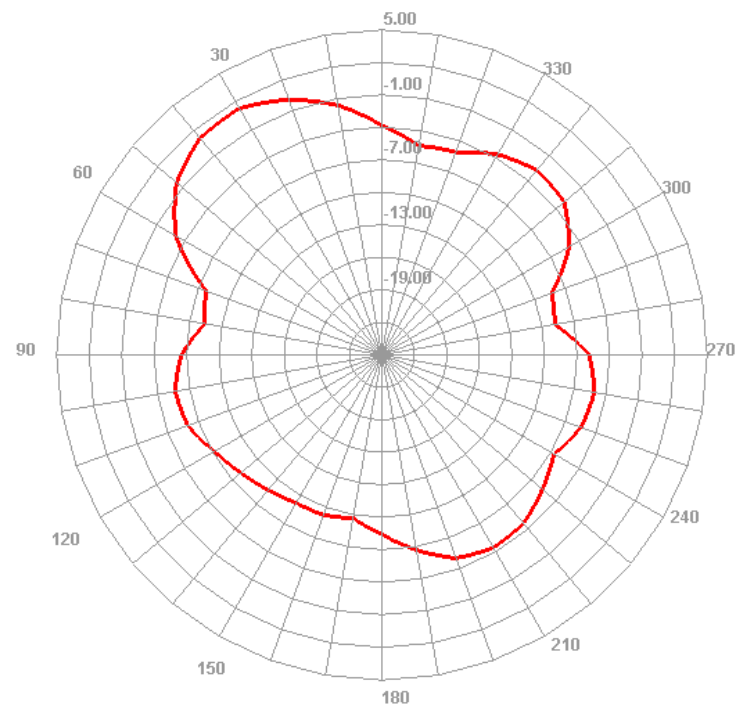
# LTE-B2



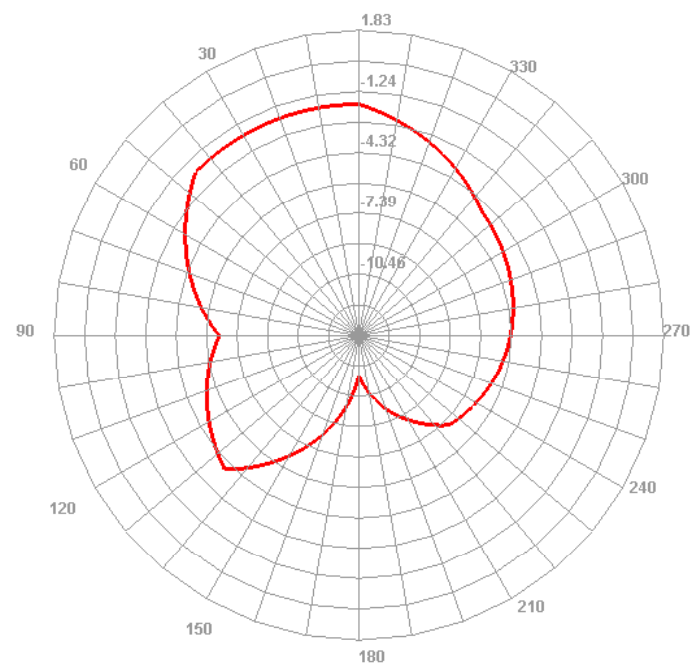
**E1**



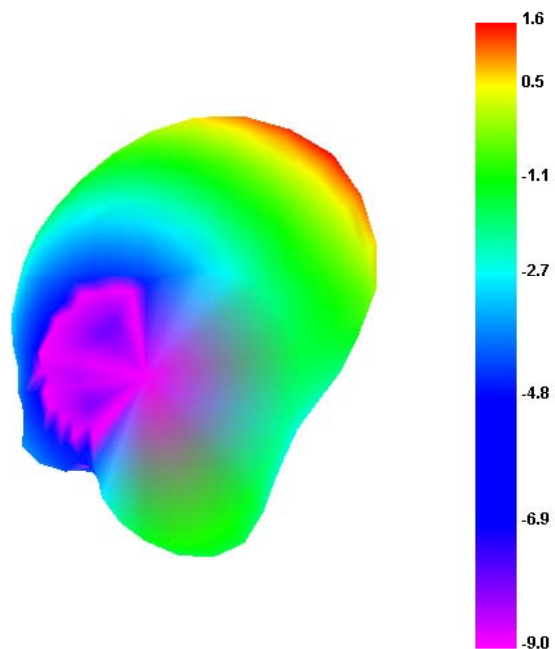
**H**



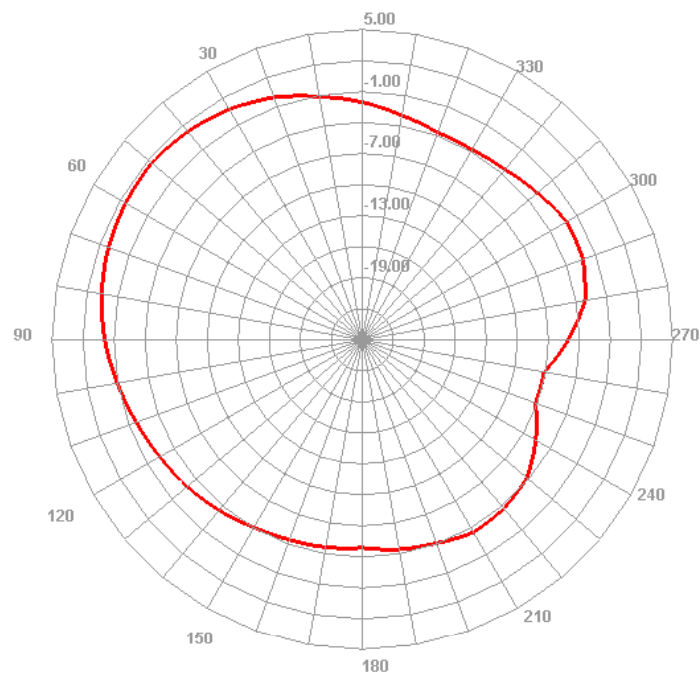
**E2**



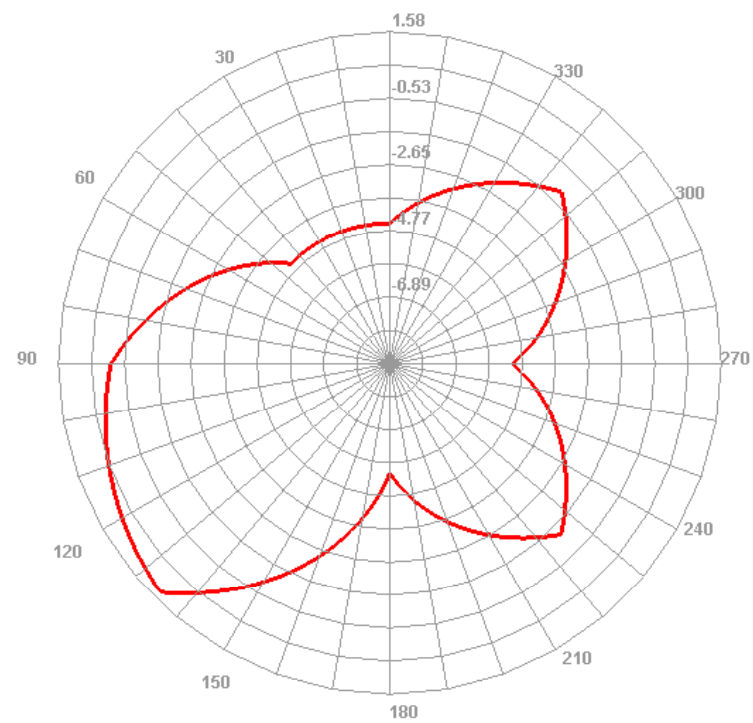
LTE-B3



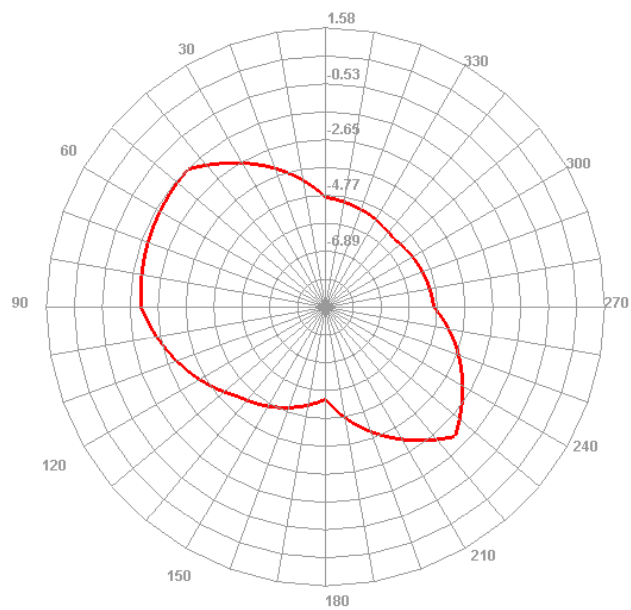
H



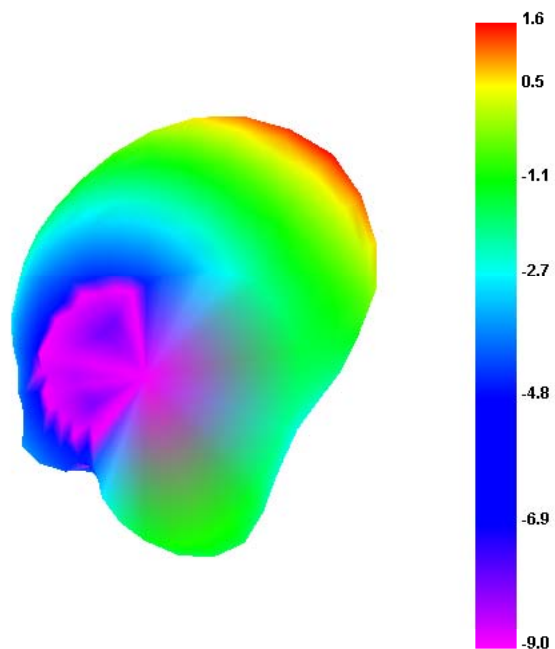
E2



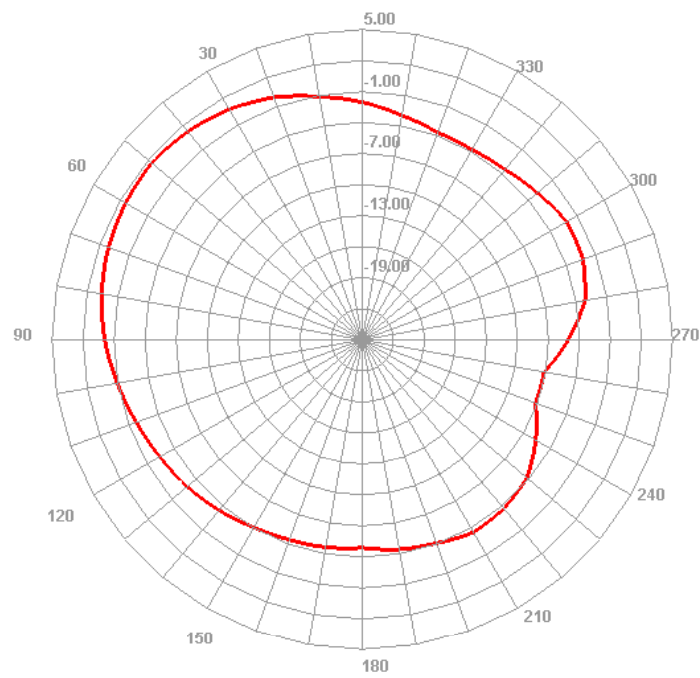
E1



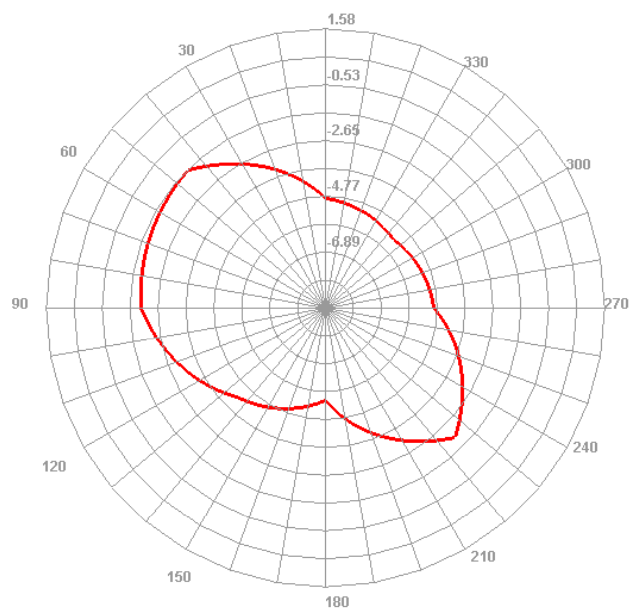
LTE-B4



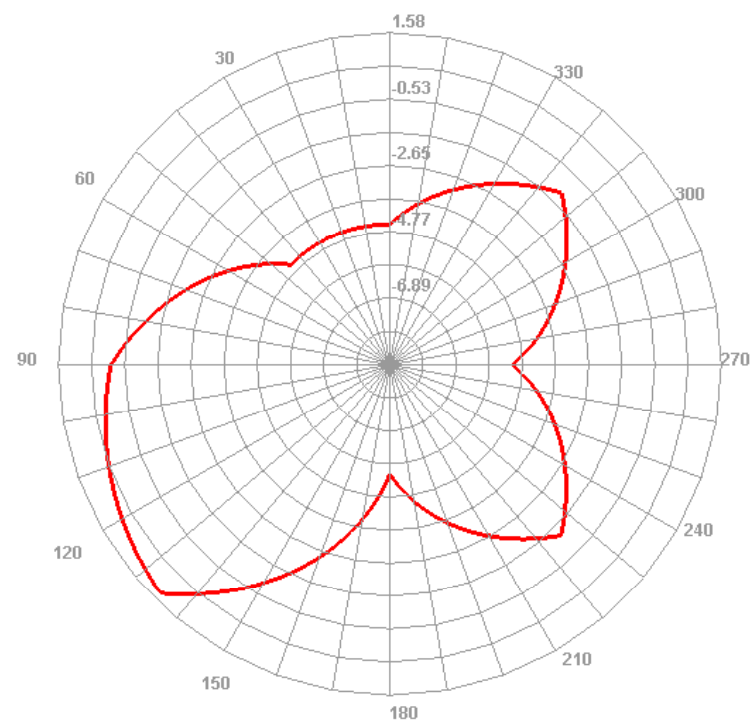
H



E1



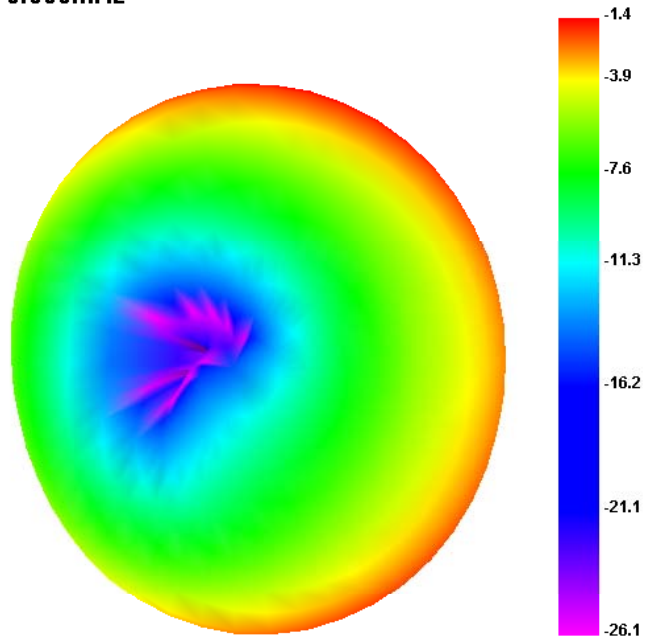
E2



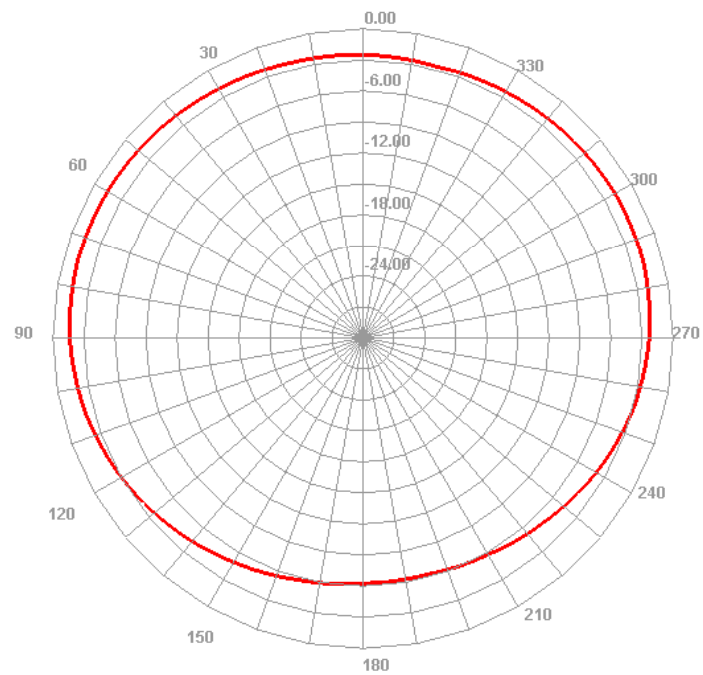


# LTE-B5

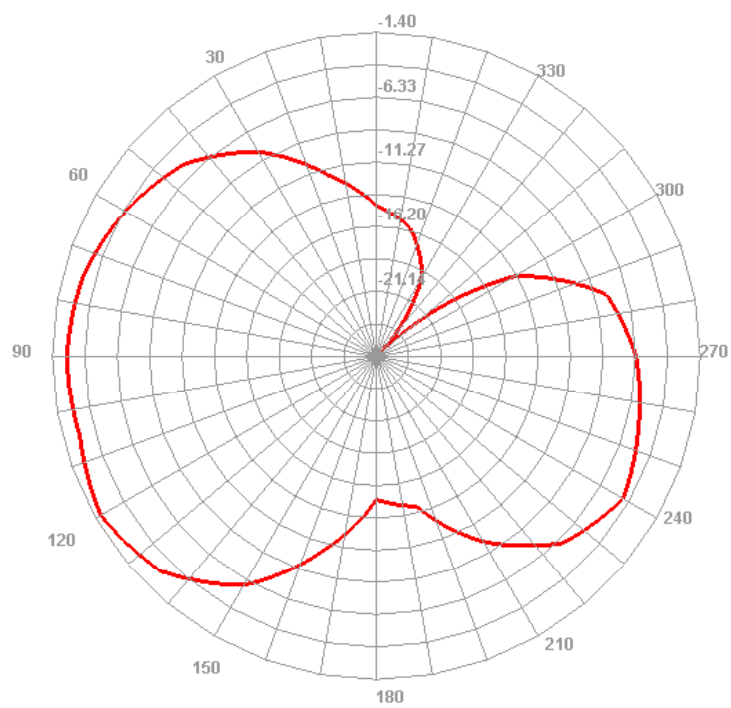
870.000MHz



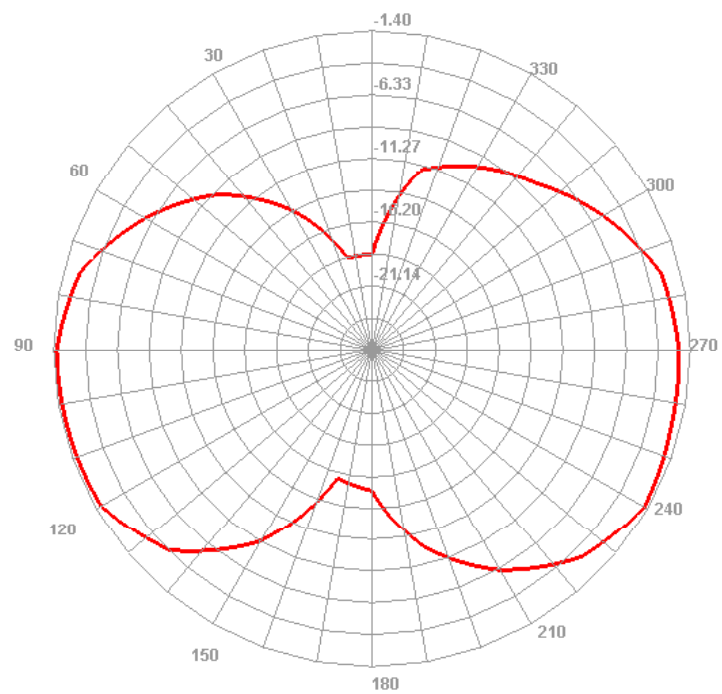
H



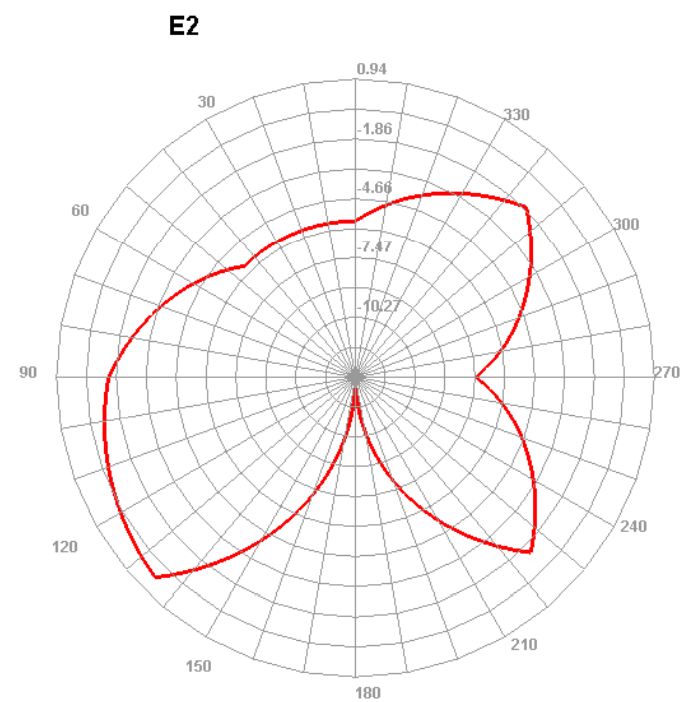
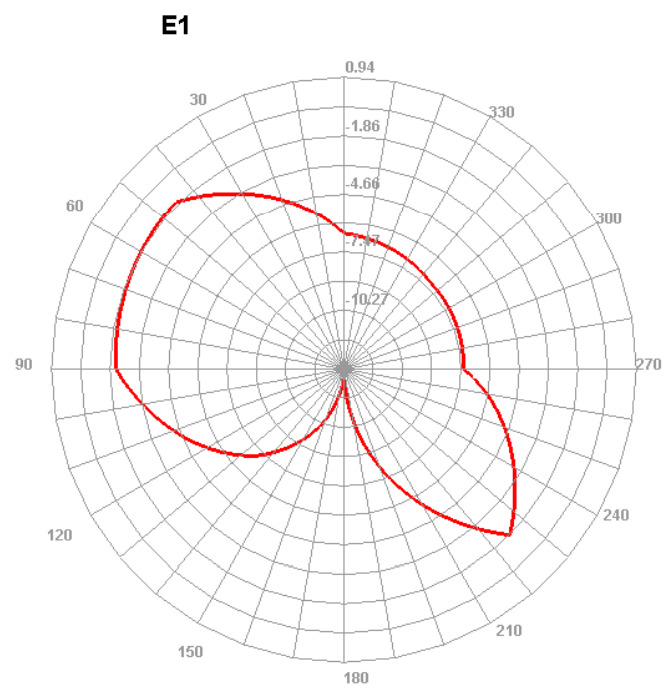
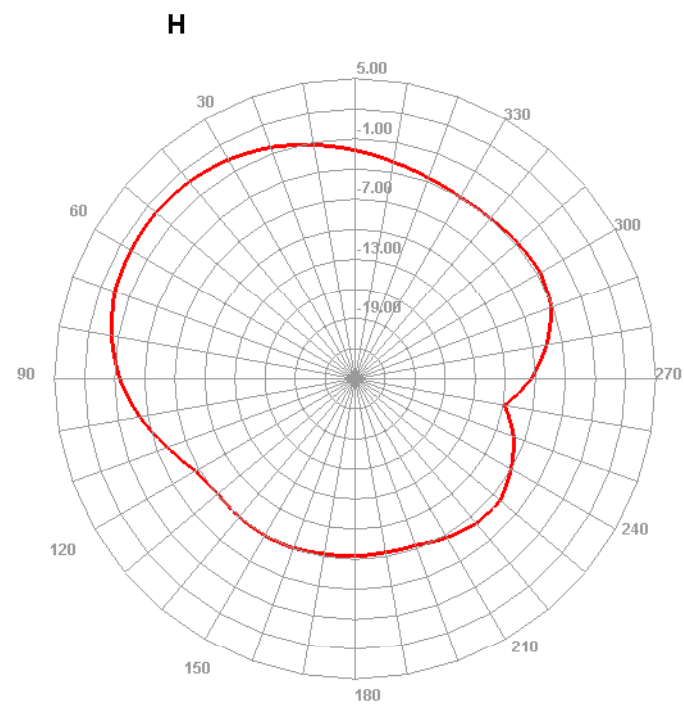
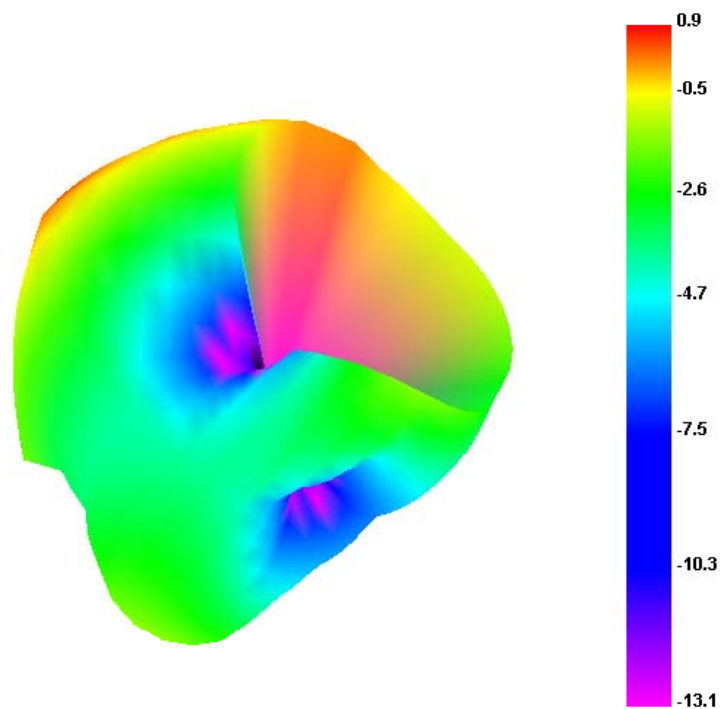
E1



E2

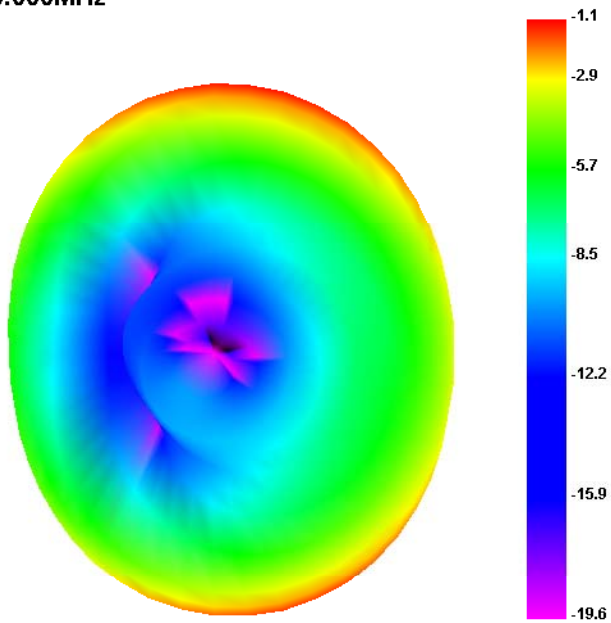


LTE-B7

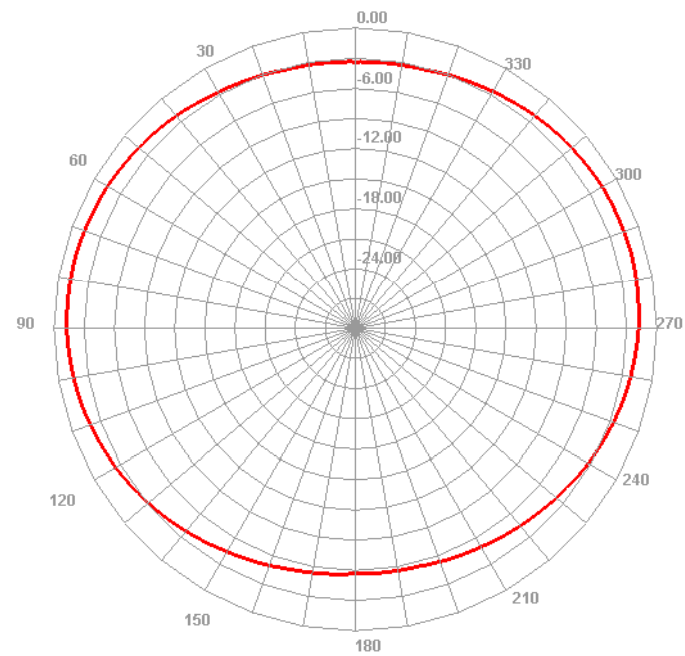


# LTE-B8

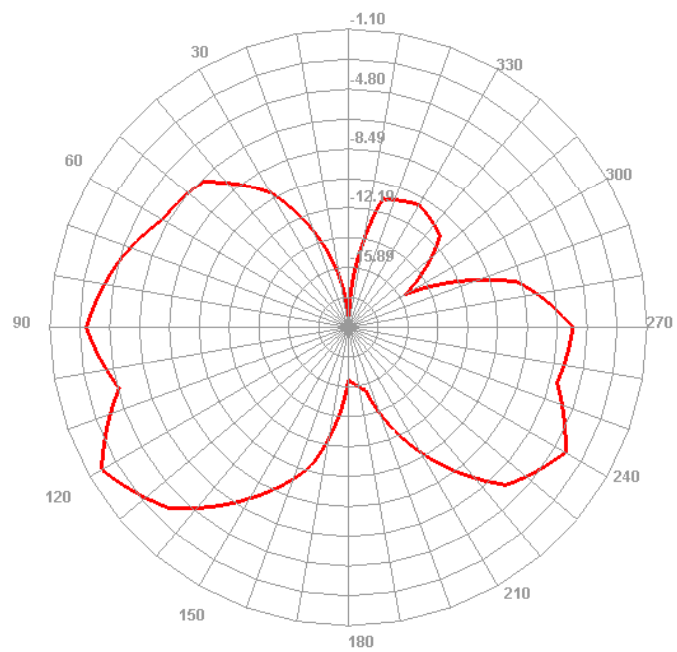
910.000MHz



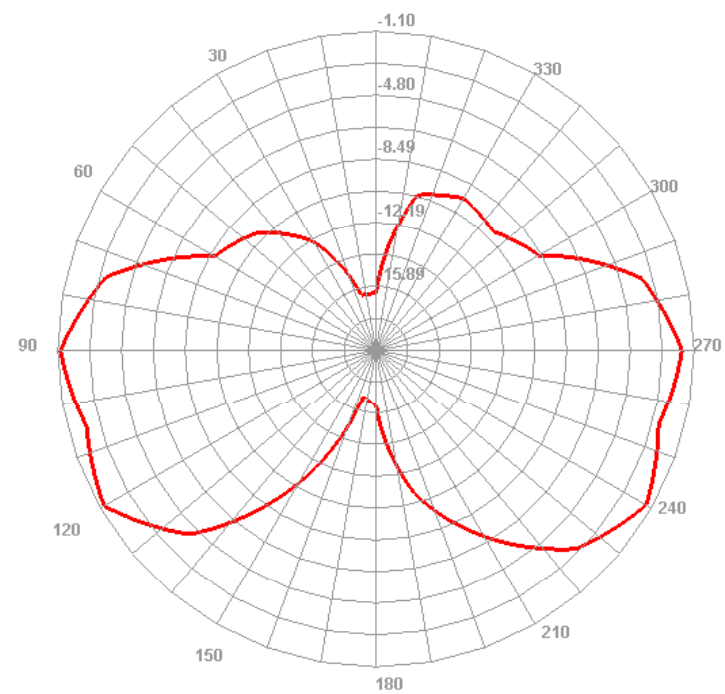
H



E1

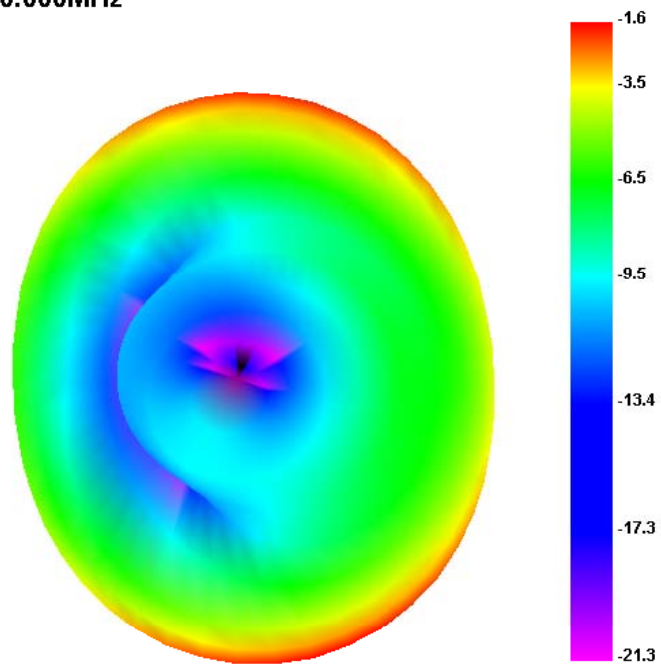


E2

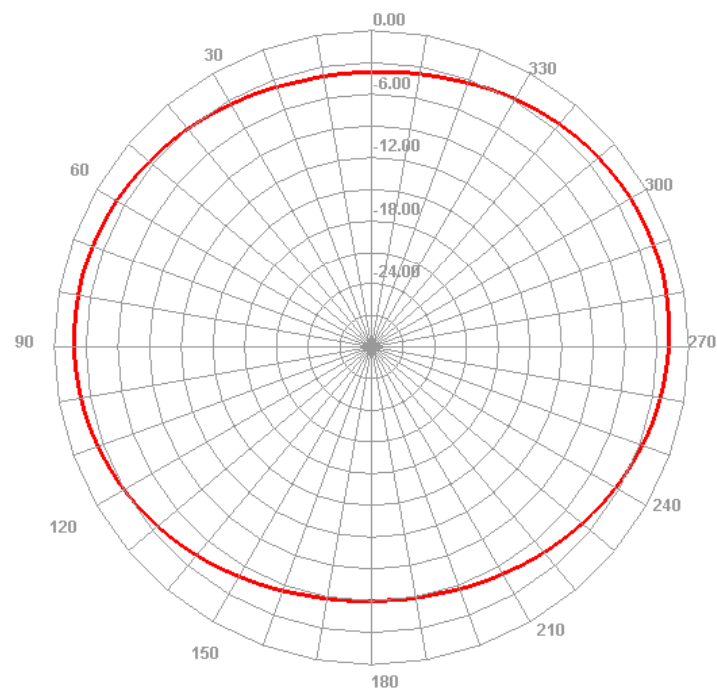


# LTE-B12

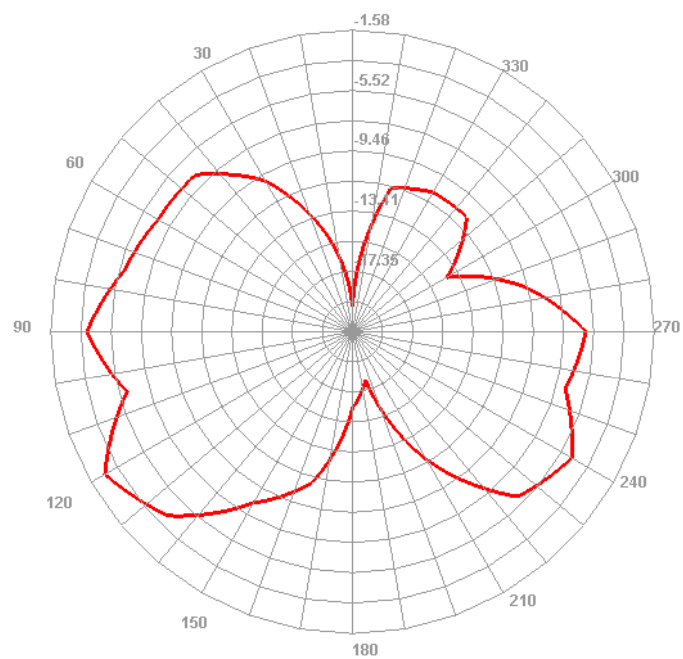
920.000MHz



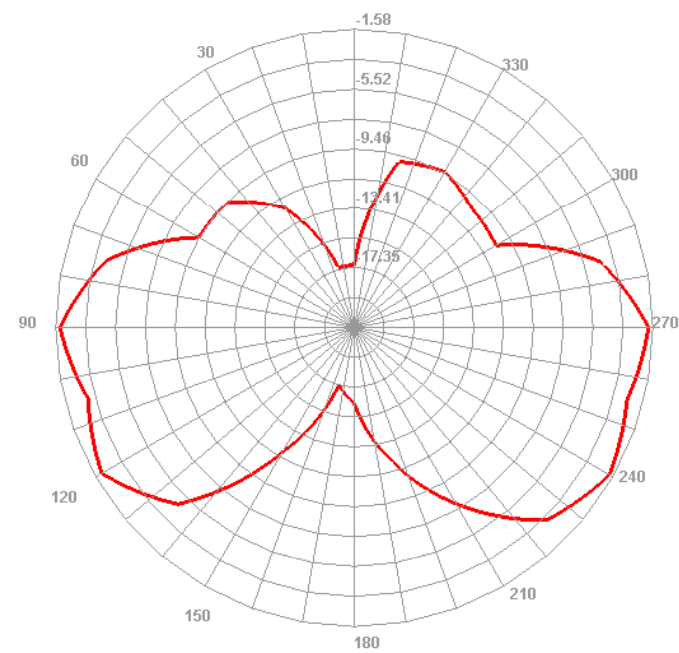
**H**



**E1**

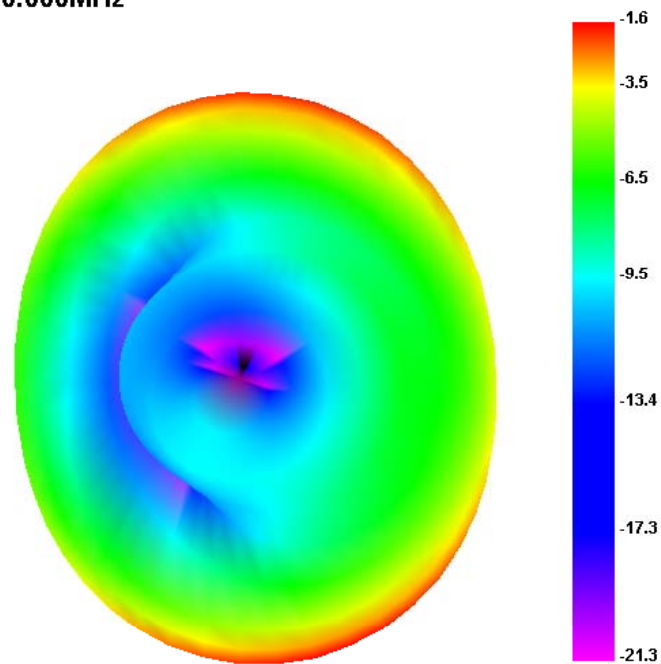


**E2**

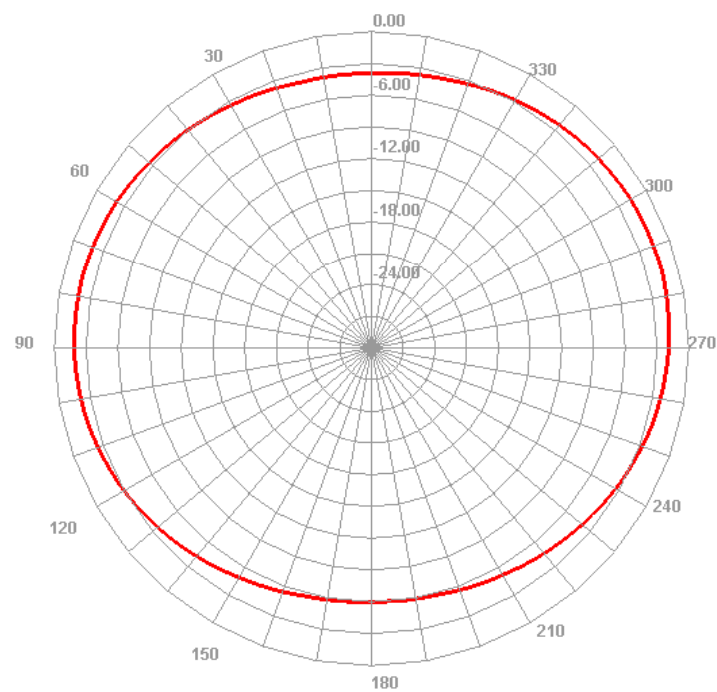


# LTE-B17

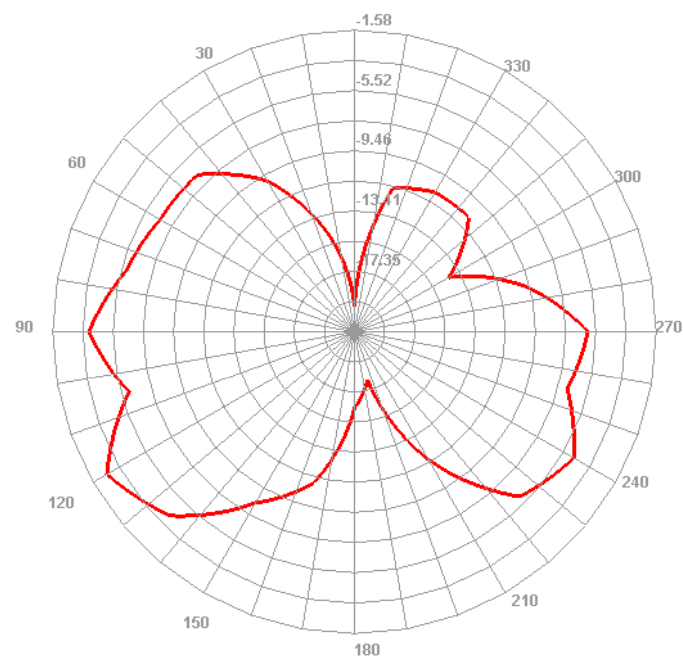
920.000MHz



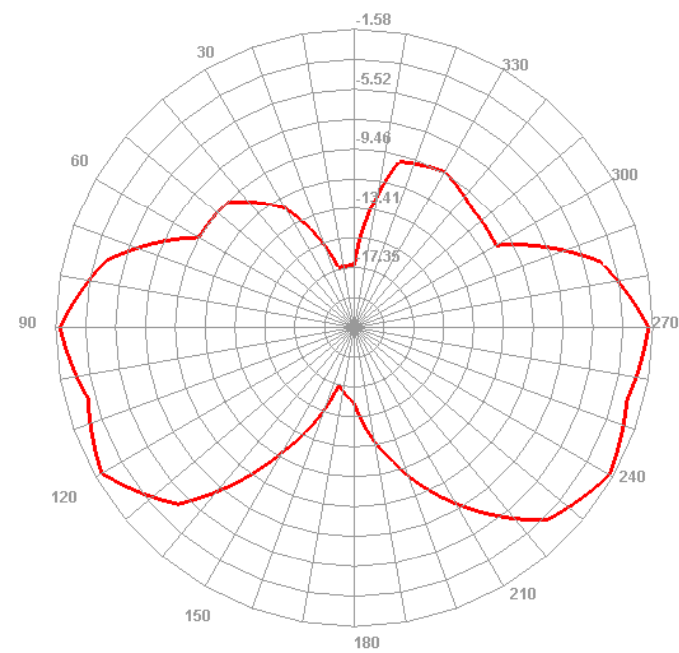
## H



## E1



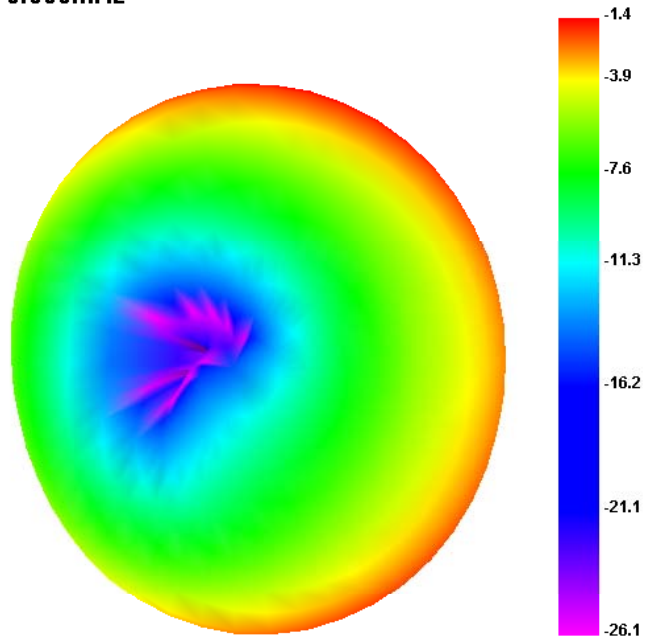
## E2



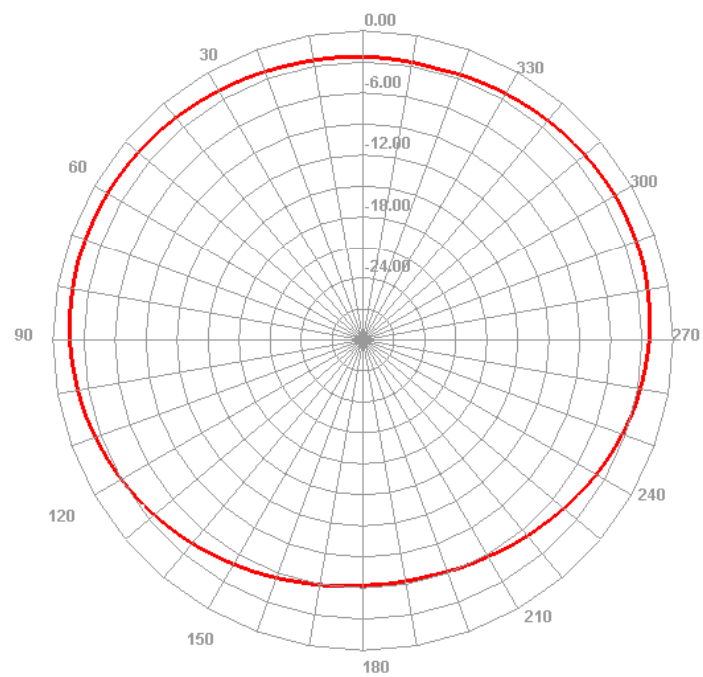


# LTE-B20

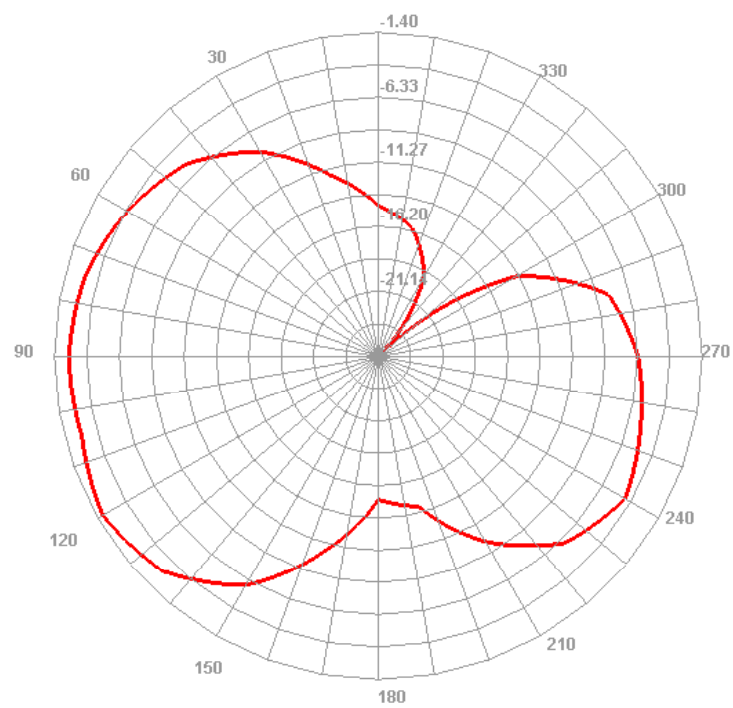
870.000MHz



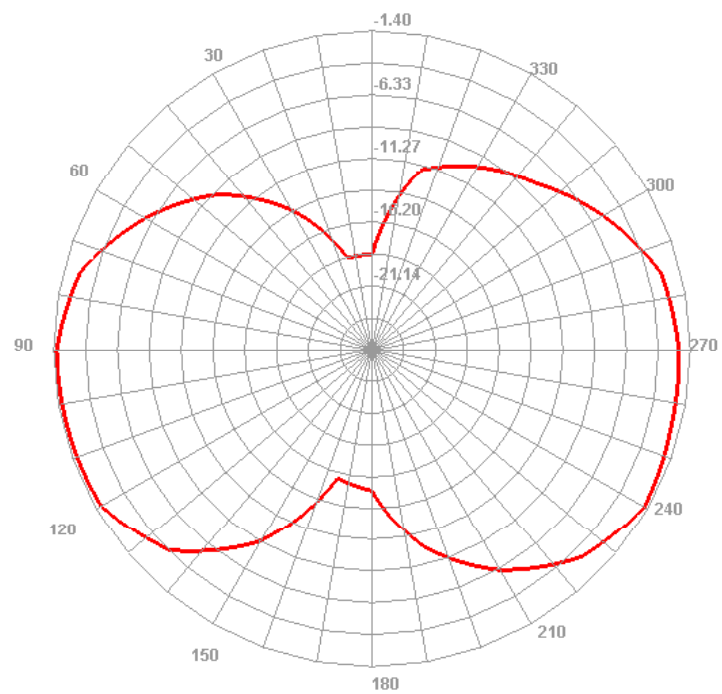
H



E1

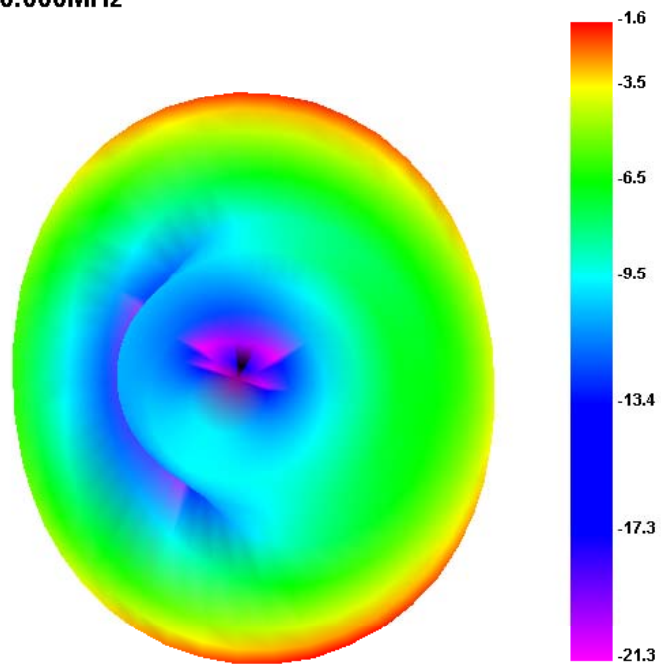


E2

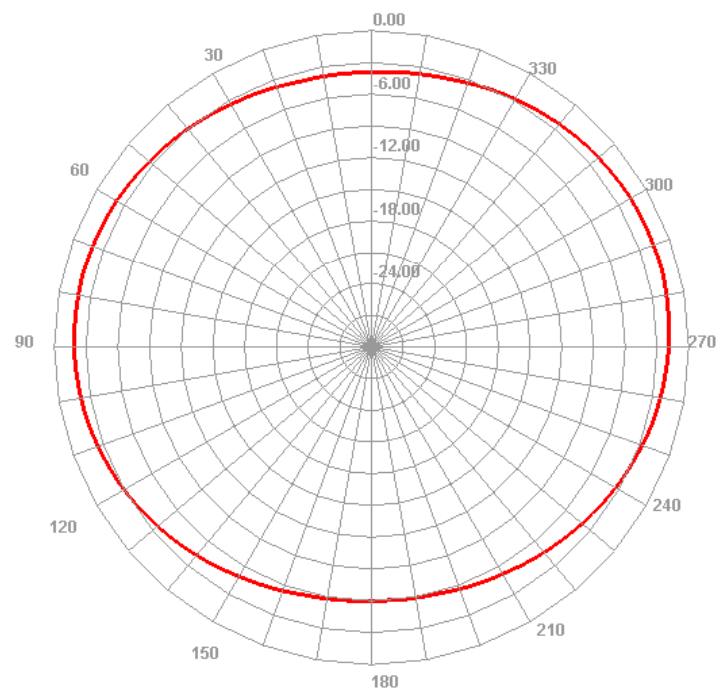


# LTE-B28

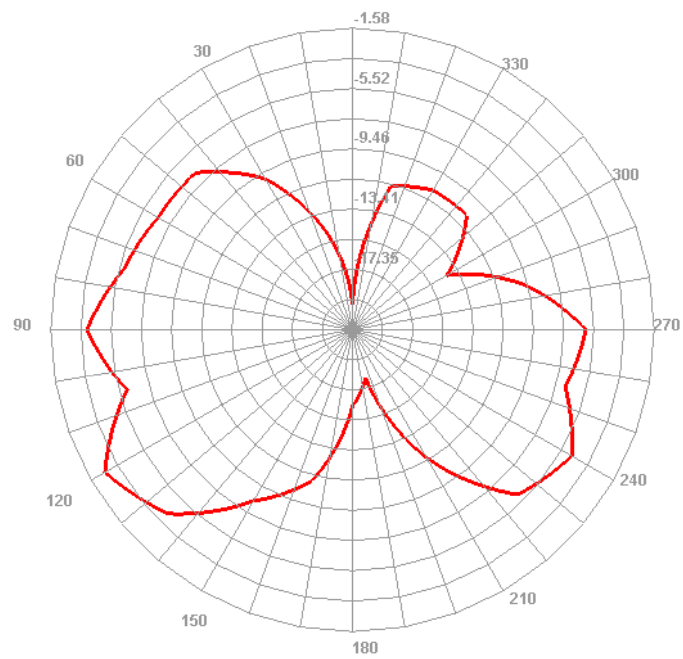
920.000MHz



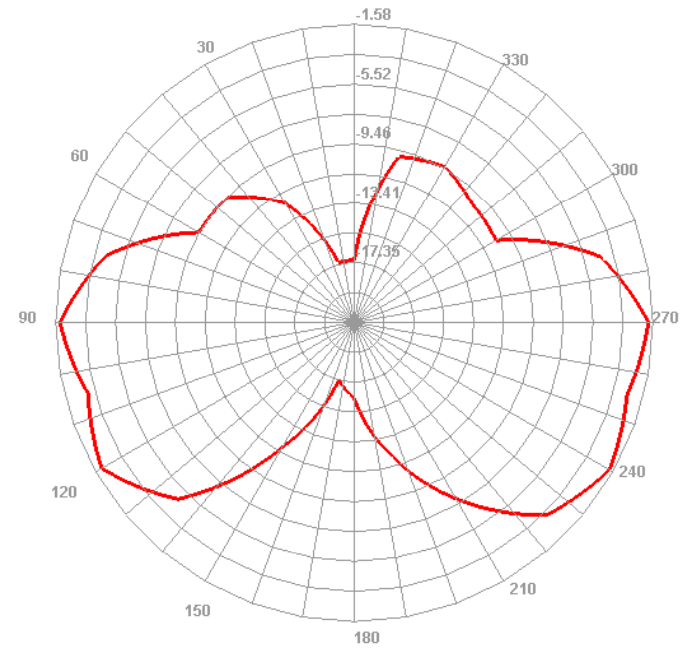
**H**



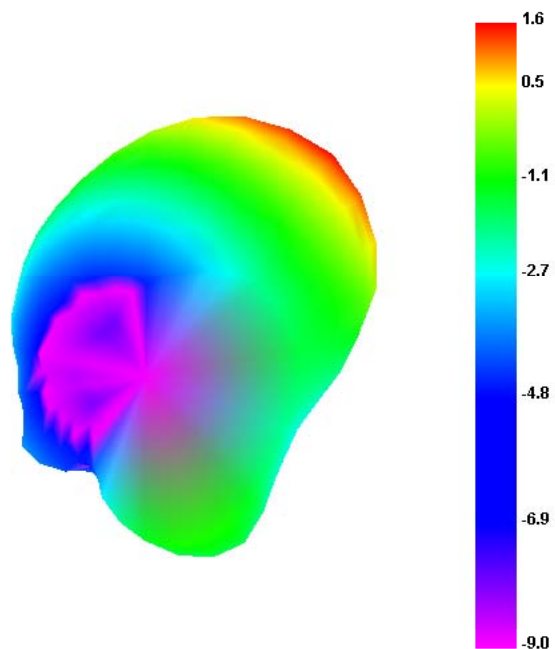
**E1**



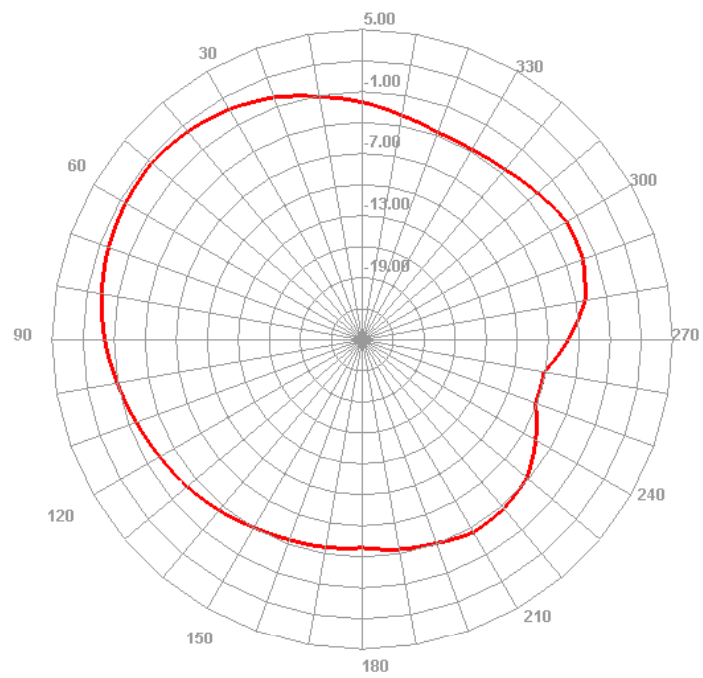
**E2**



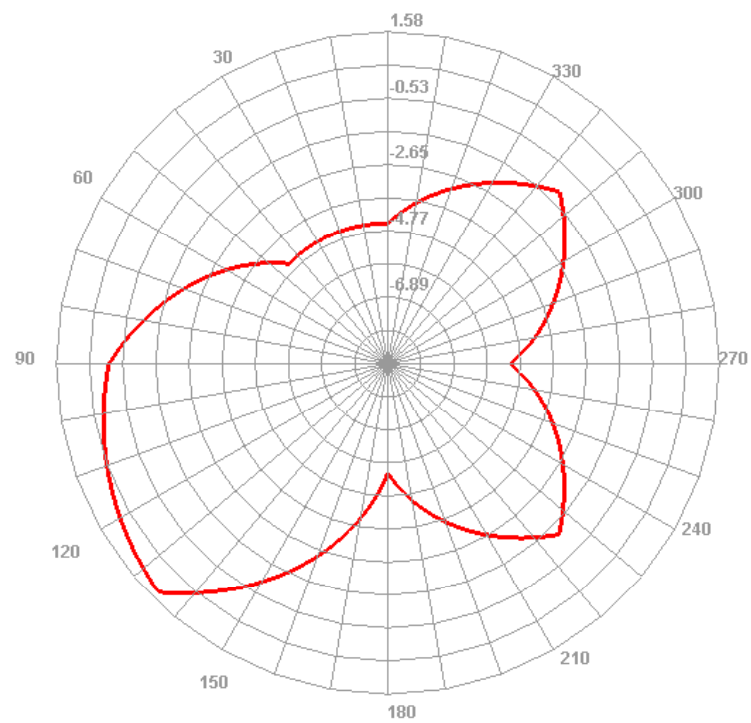
LTE-B66



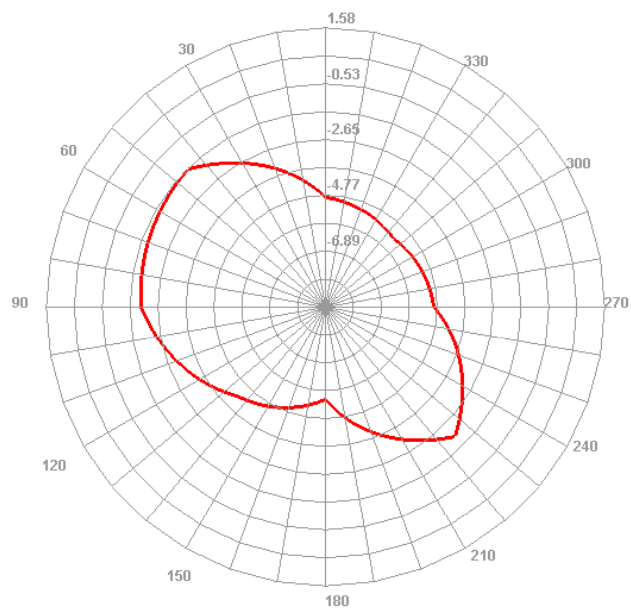
H



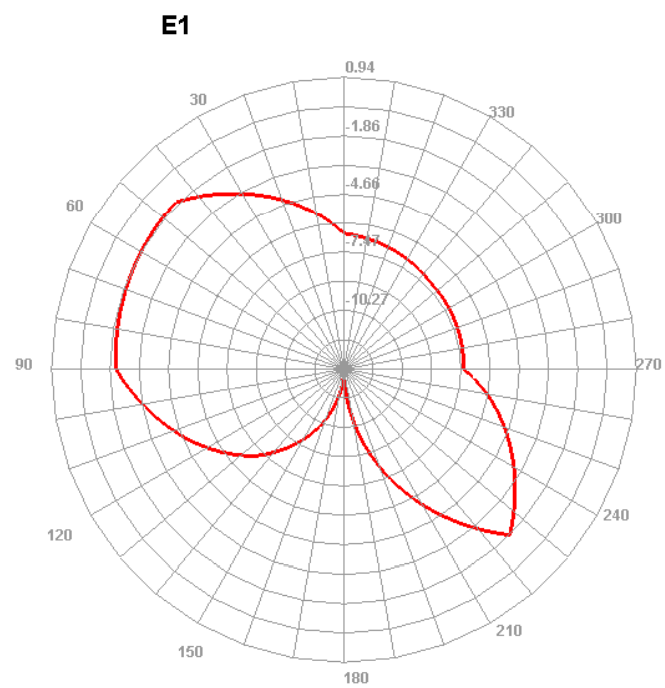
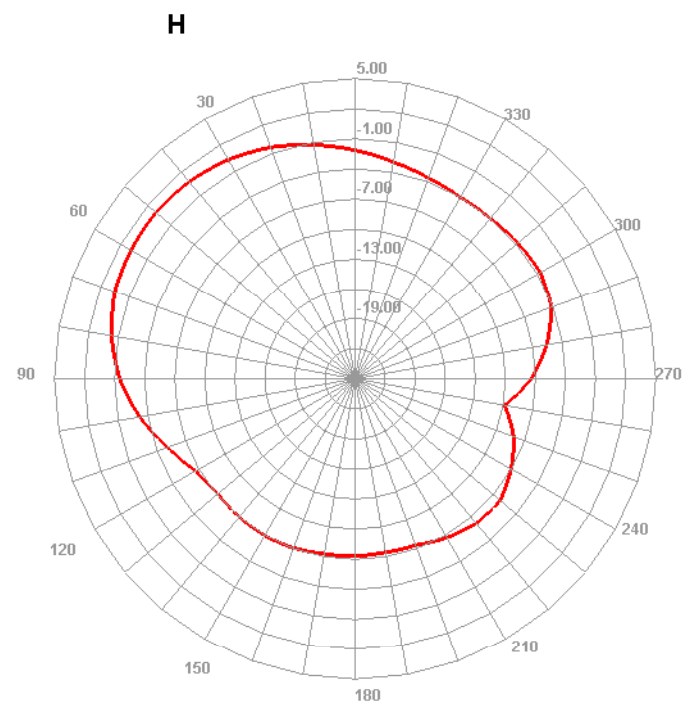
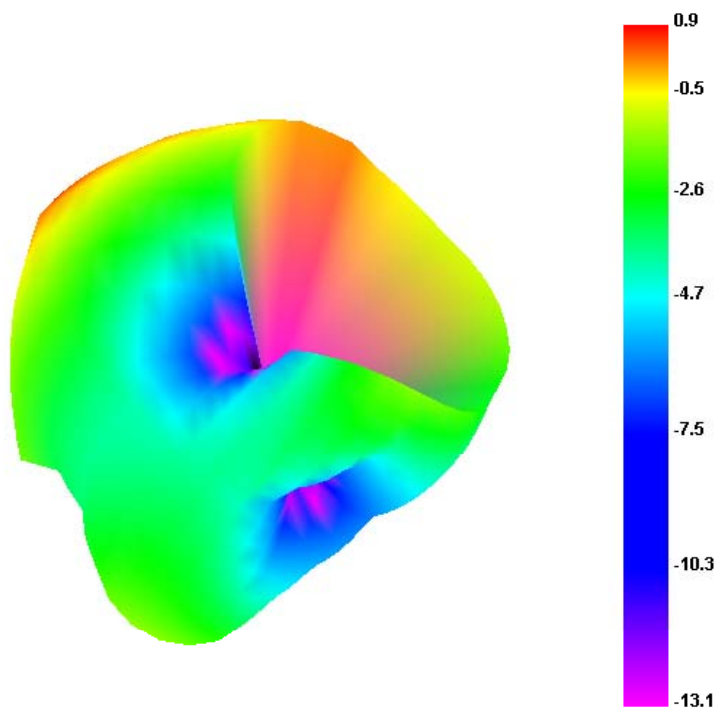
E2



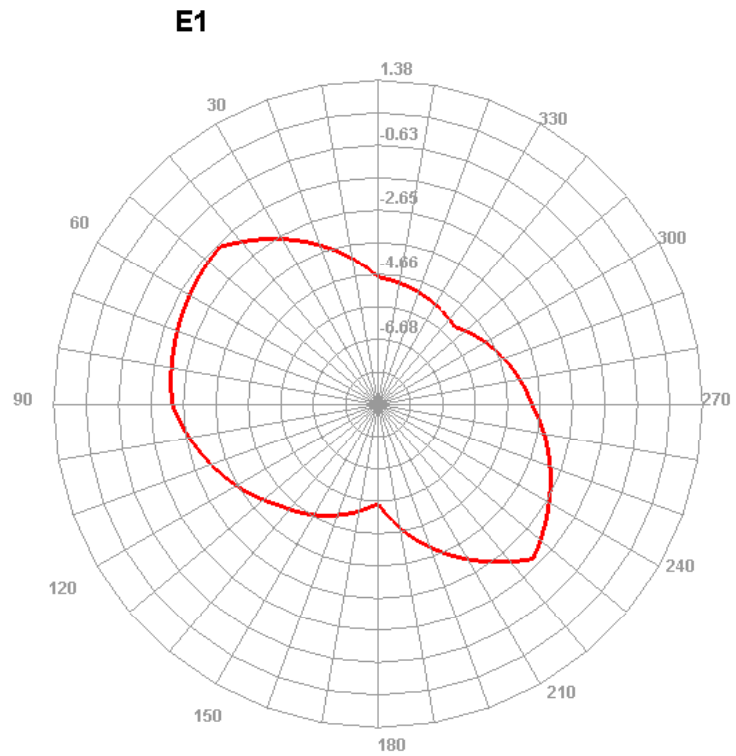
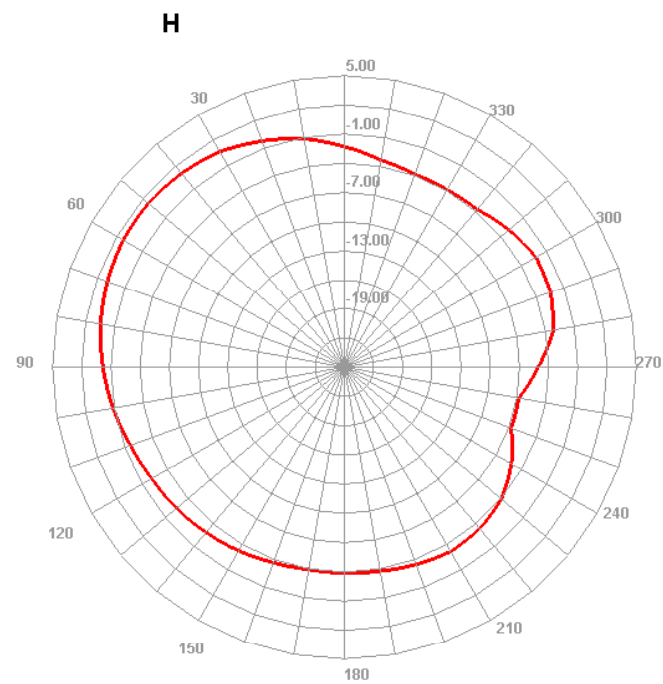
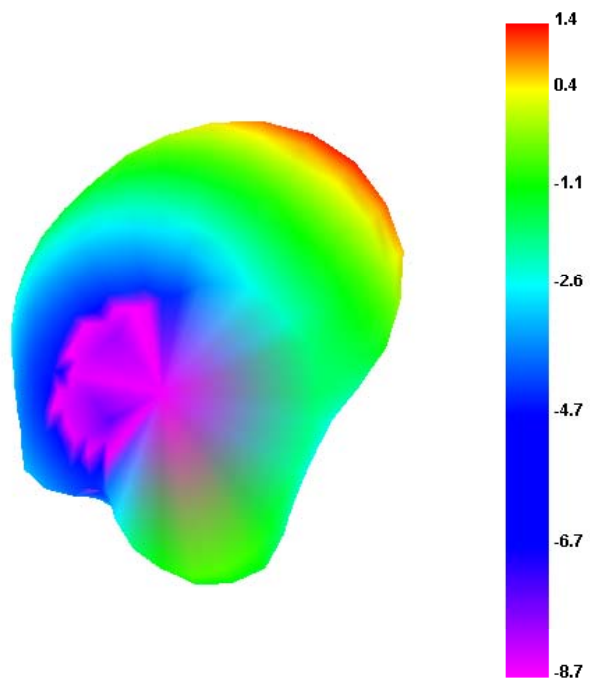
E1



# LTE-B38

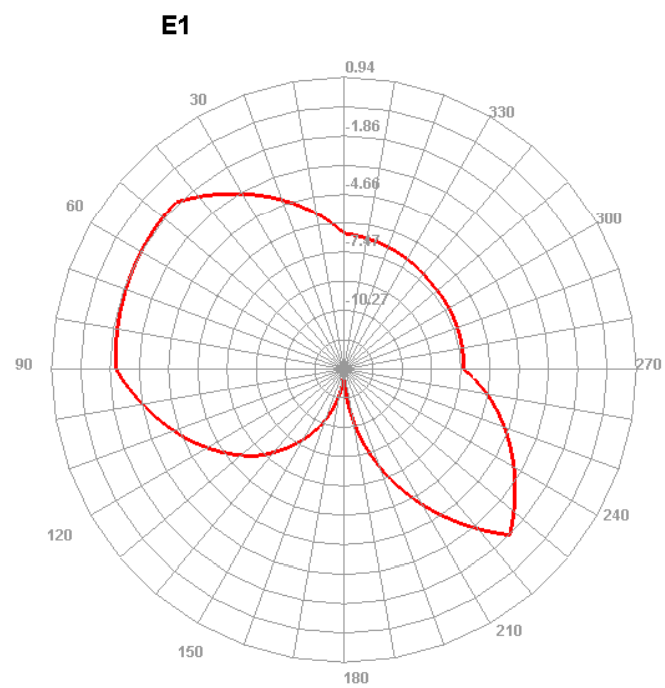
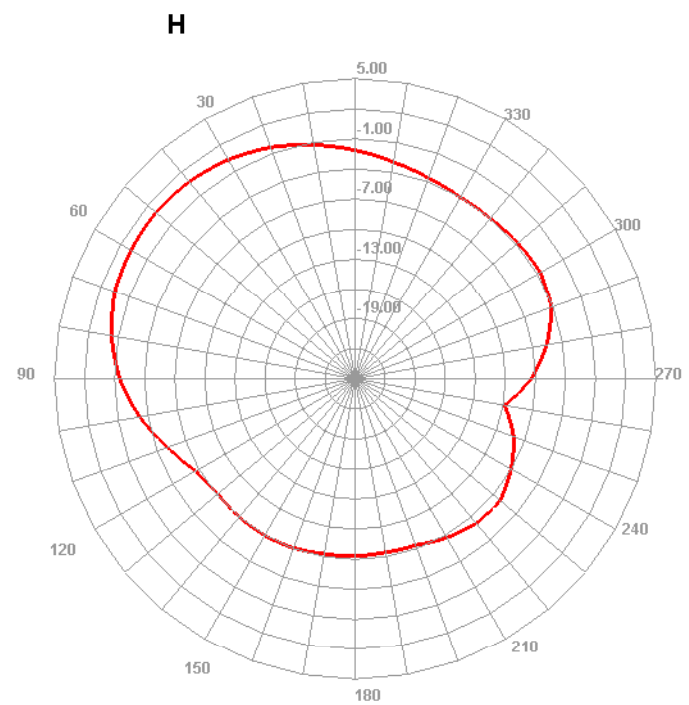
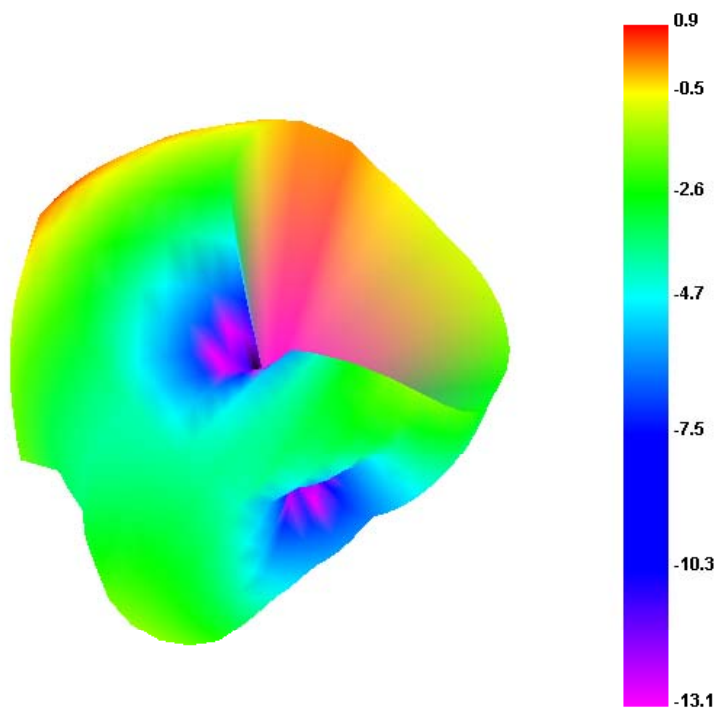


# LTE-B40

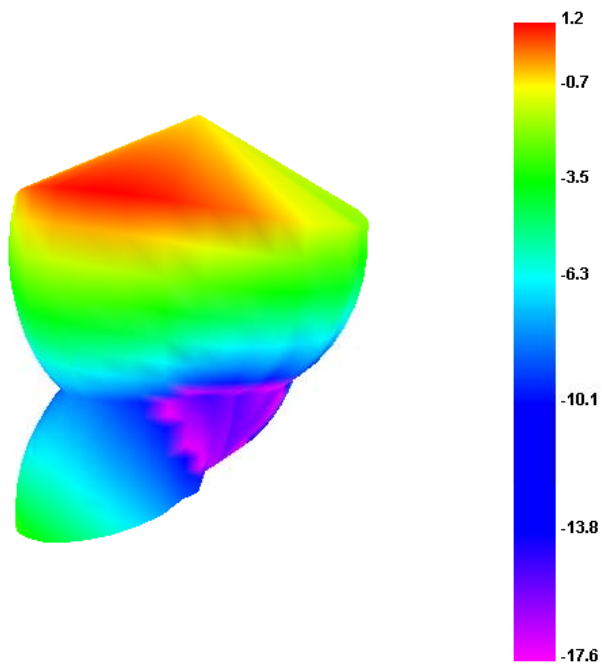




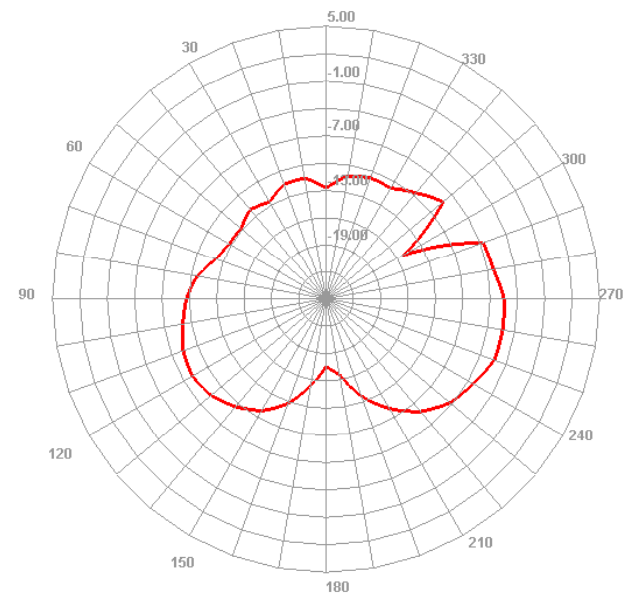
# LTE-B41



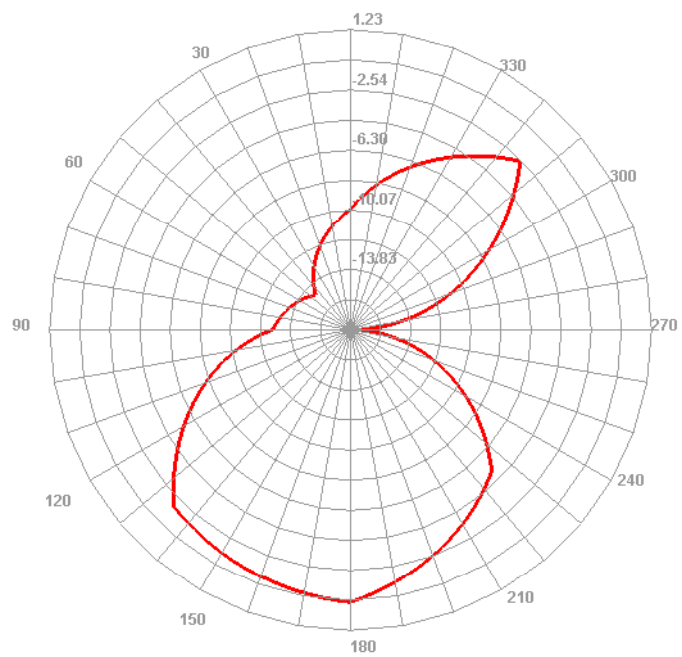
GPS



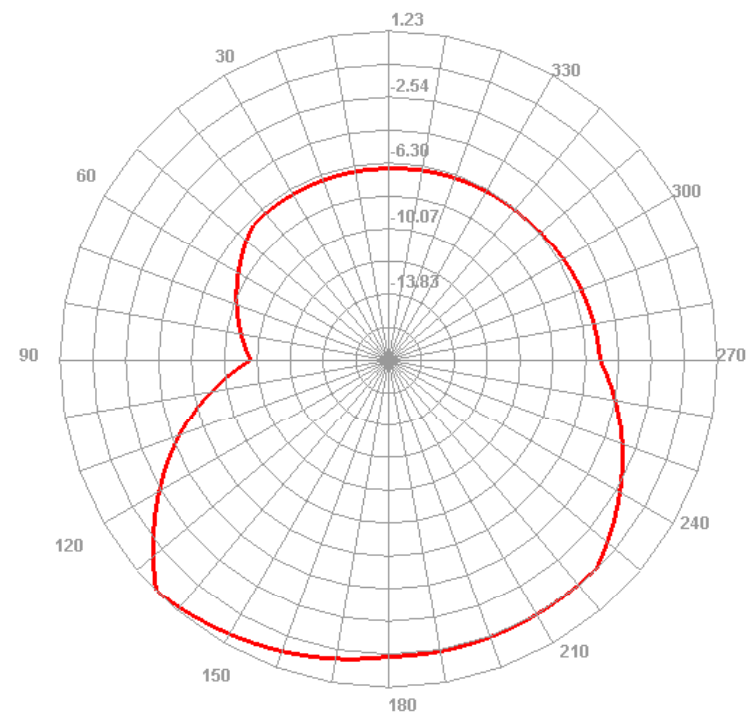
H



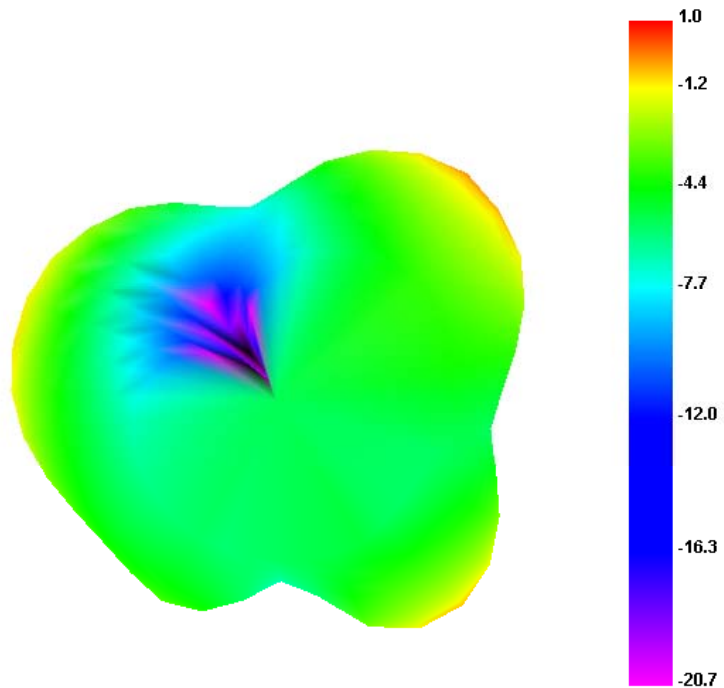
E1



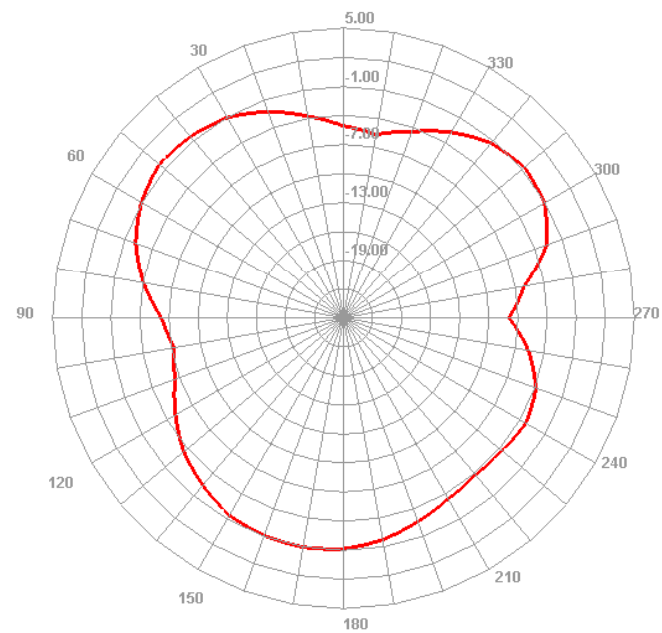
E2



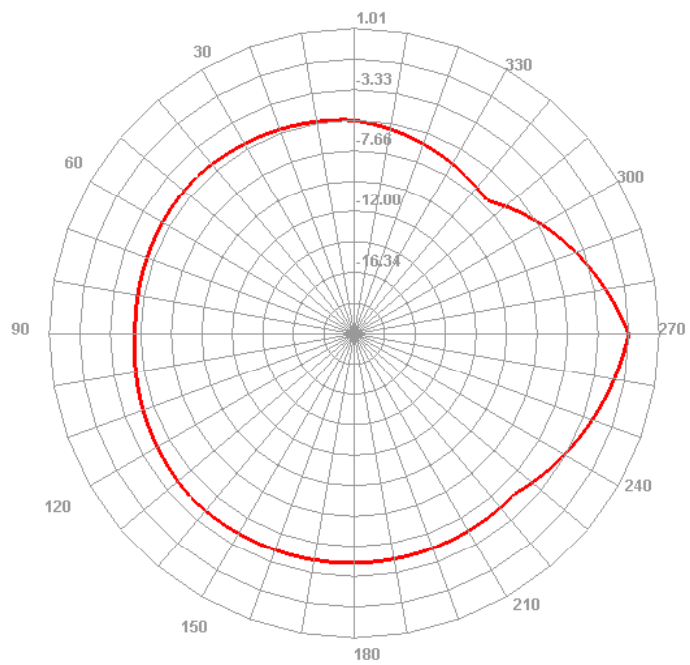
# 2.4G WiFi



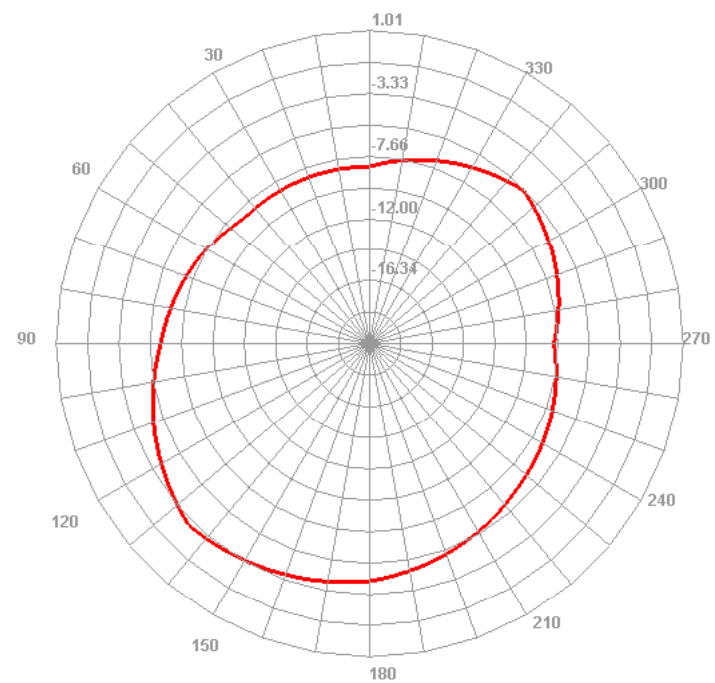
H



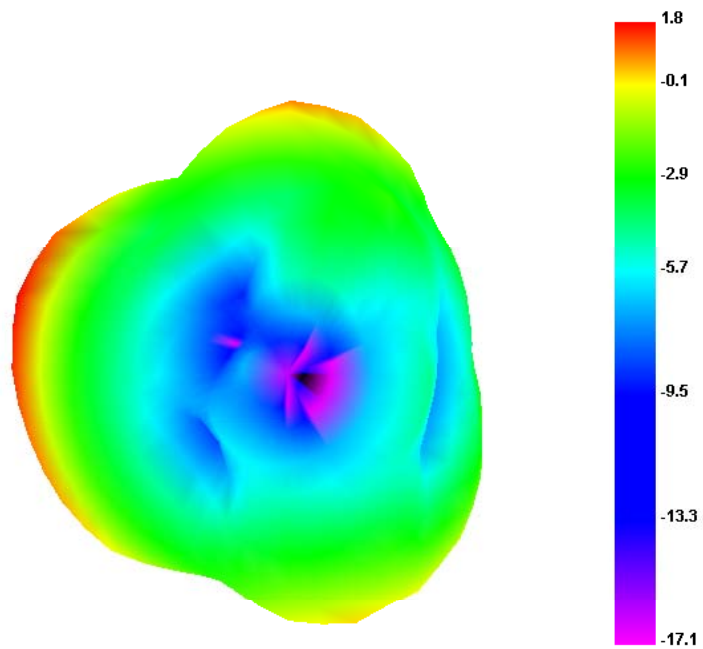
E1



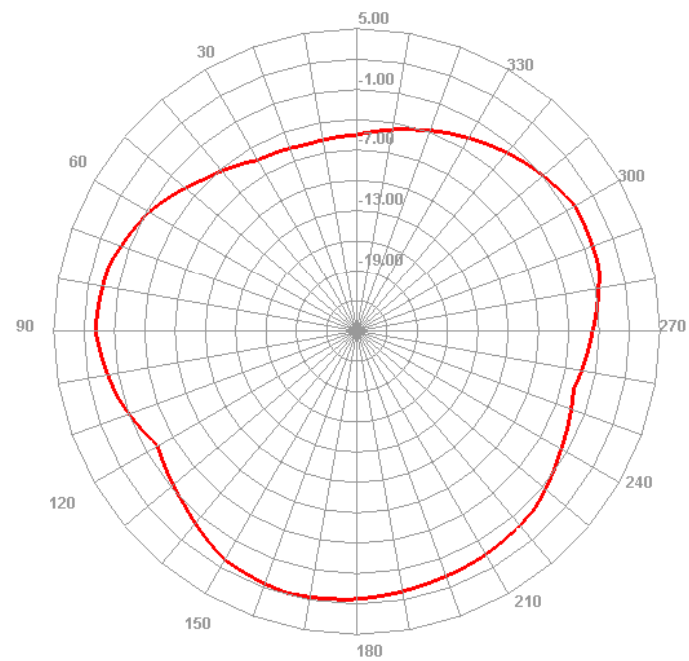
E2



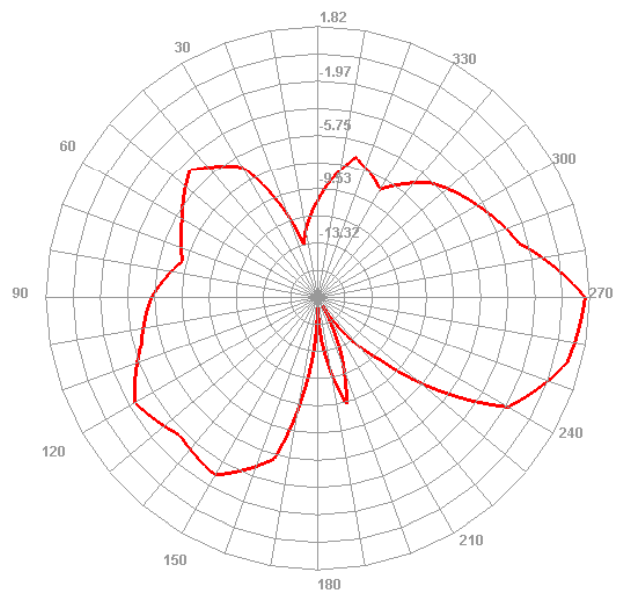
# 5.18G WiFi



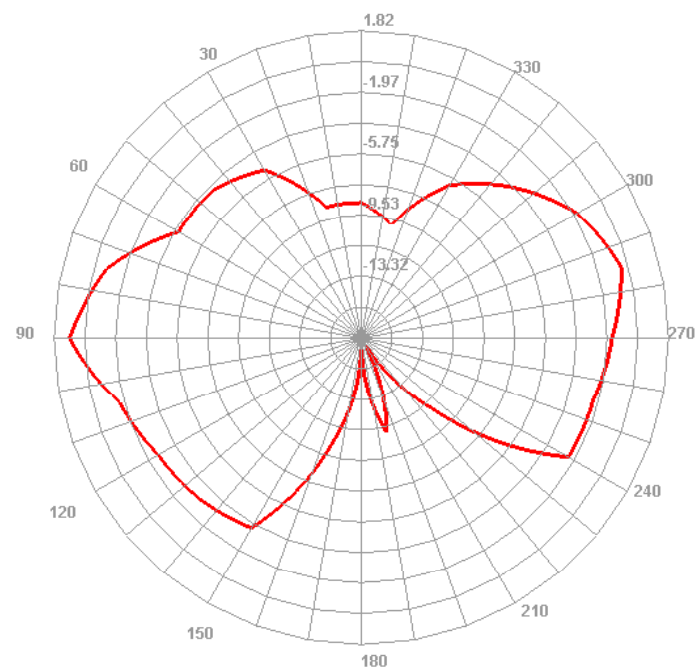
H



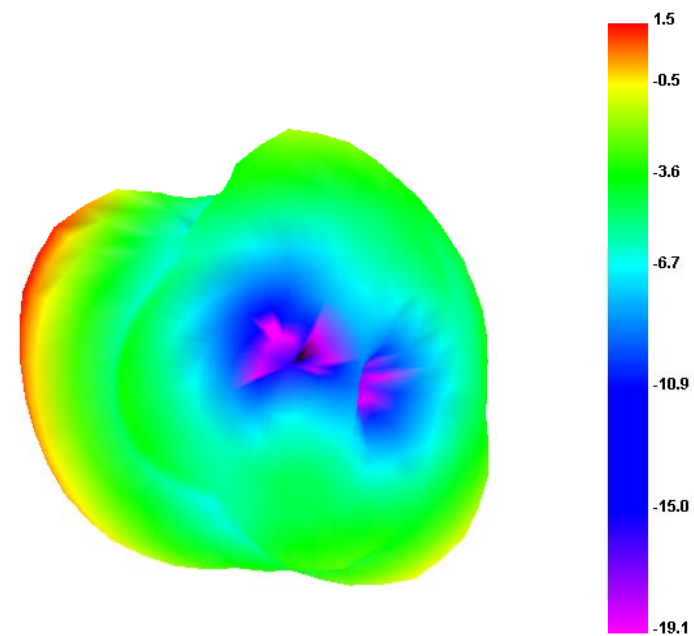
E1



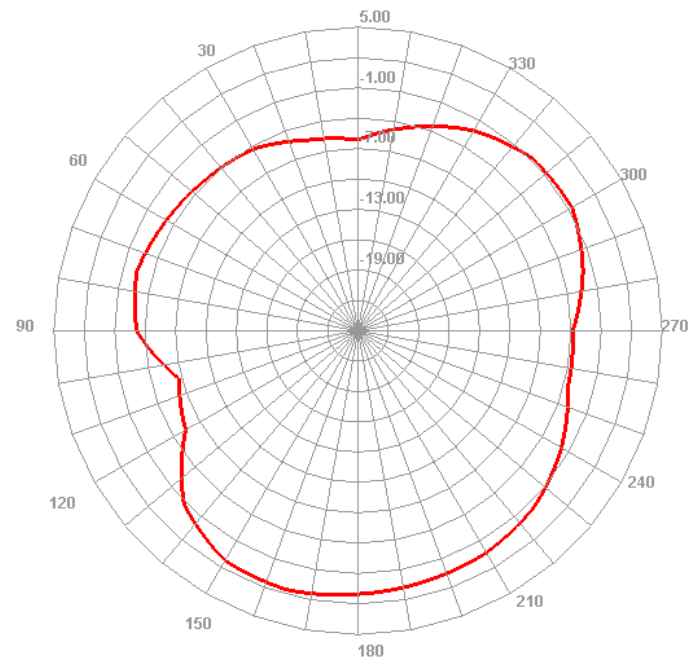
E2



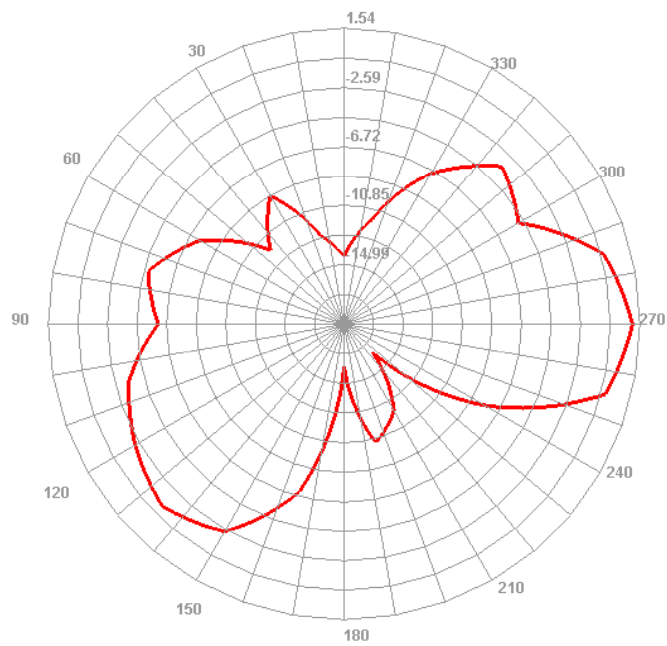
# 5.8G WiFi



**H**



**E1**



**E2**

