

# **INPAQ Antenna Report**

## **Antenna model: HDT565**

*Testing Date: 2023.11.24*

*Report Date : 2023.11.27*

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# Test Equipment

| Passive                         |                                                                          |
|---------------------------------|--------------------------------------------------------------------------|
| Antenna Type:<br>Antenna Model: | FPC antenna<br>HDT565                                                    |
| Antenna Gain                    | Free Space<br>L Earbud : 1.20 dBi<br>R Earbud : 1.42 dBi                 |
| Test Equipment                  | E5071C ENA Vector Network Analyzer – Keysight                            |
| Test chamber                    | ETS-lindgren_AMS-8500 Antenna Measurement                                |
| Testers                         | Frankie Chang                                                            |
| Test Software                   | ETS-Lindgren EMQuest                                                     |
| manufacturer                    | Inpaq                                                                    |
| Manufacturer Address.           | No. 90, Keyi St., Zhunan Township, Miaoli County 350402, Taiwan (R.O.C.) |

# TEST INSTRUMENTS

| TYPE OF EQUIPMENT                                 | MODEL                    | MANUFACTURER | CALIBRATION DATE | CALIBRATION DUE DATE |
|---------------------------------------------------|--------------------------|--------------|------------------|----------------------|
| Measurement Software                              | EM-Quest 1.16            | ETS-Lindgren | N/A              | N/A                  |
| Vector Network Analyzer<br>Customer provided unit | 5071C<br>S/N: MY46214689 | Keysight     | 2023/2/10        | 2024/2/9             |

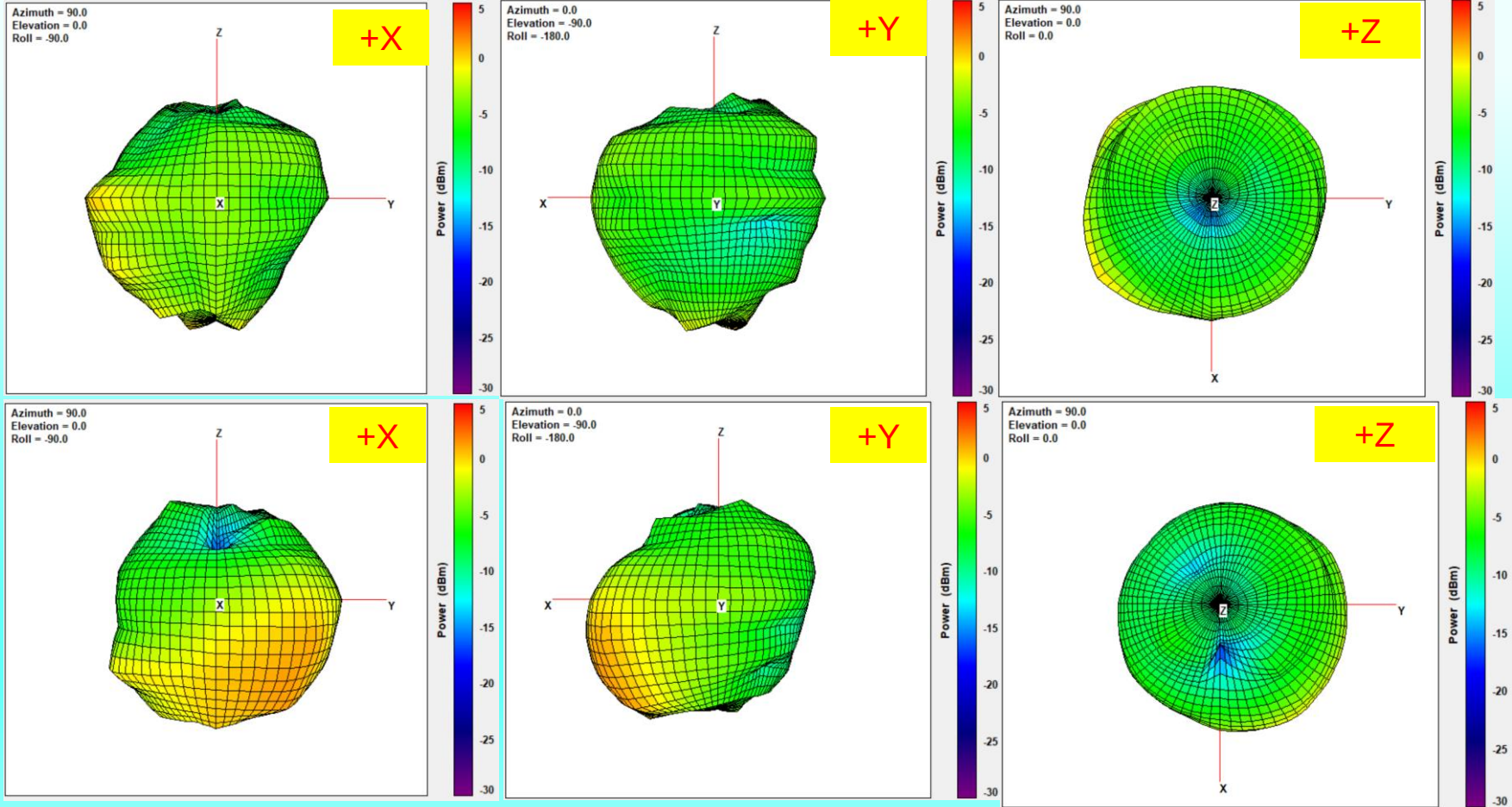
# Antenna Efficiency

## Free Space

| Merry HDT565 <b>L</b> FS_2000~3000MHz |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency (MHz)                       | 2400  | 2410  | 2420  | 2430  | 2440  | 2450  | 2460  | 2470  | 2480  |
| Point Values                          |       |       |       |       |       |       |       |       |       |
| Ant. Port Input Pwr. (dBm)            | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Tot. Rad. Pwr. (dBm)                  | -5.33 | -5.36 | -5.29 | -5.19 | -4.98 | -4.82 | -4.61 | -4.48 | -4.35 |
| Peak EIRP (dBm)                       | 0.24  | 0.15  | 0.11  | 0.11  | 0.16  | 0.29  | 0.57  | 0.89  | 1.20  |
| Directivity (dBi)                     | 5.58  | 5.51  | 5.39  | 5.30  | 5.14  | 5.11  | 5.19  | 5.37  | 5.56  |
| Efficiency (dB)                       | -5.33 | -5.36 | -5.29 | -5.19 | -4.98 | -4.82 | -4.61 | -4.48 | -4.35 |
| Efficiency (%)                        | 29.28 | 29.10 | 29.60 | 30.27 | 31.80 | 32.96 | 34.57 | 35.68 | 36.72 |
| Gain (dBi)                            | 0.24  | 0.15  | 0.11  | 0.11  | 0.16  | 0.29  | 0.57  | 0.89  | 1.20  |

| Merry HDT565 <b>R</b> FS_2000~3000MHz |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency (MHz)                       | 2400  | 2410  | 2420  | 2430  | 2440  | 2450  | 2460  | 2470  | 2480  |
| Point Values                          |       |       |       |       |       |       |       |       |       |
| Ant. Port Input Pwr. (dBm)            | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Tot. Rad. Pwr. (dBm)                  | -6.13 | -5.91 | -5.69 | -5.48 | -5.18 | -5.04 | -4.88 | -4.82 | -4.73 |
| Peak EIRP (dBm)                       | 0.86  | 0.96  | 1.06  | 1.11  | 1.22  | 1.25  | 1.15  | 1.30  | 1.42  |
| Directivity (dBi)                     | 6.99  | 6.88  | 6.75  | 6.59  | 6.41  | 6.29  | 6.03  | 6.13  | 6.15  |
| Efficiency (dB)                       | -6.13 | -5.91 | -5.69 | -5.48 | -5.18 | -5.04 | -4.88 | -4.82 | -4.73 |
| Efficiency (%)                        | 24.36 | 25.62 | 26.97 | 28.28 | 30.31 | 31.32 | 32.51 | 32.92 | 33.63 |
| Gain (dBi)                            | 0.86  | 0.96  | 1.06  | 1.11  | 1.22  | 1.25  | 1.15  | 1.30  | 1.42  |

# Radiation Pattern



# Measurements description

## Conducted Measurements

Conducted measurements was done using Network Analyzer – Keysight, the Return Loss of the Antenna was obtained to ensure the efficiency over the operation frequency.

## Antenna Radiation Pattern Measurements

Radiation Pattern Measurements was done in the ETS-lindgren anechoic chamber through radiation, the earbud was set to continuous radiation and the AMS-8500 receive the RF power in 360degree angel with rotation of EUT.

## Antenna Gain Calculation

The antenna gain was calculated as the difference between the measured Peak EIRP(dBm) and Ant. port input pwr(dBm) in previous page.