

# ANAM Electronics

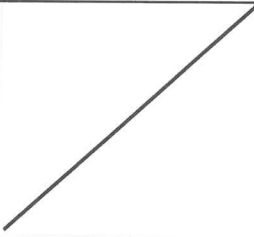
|            |           |
|------------|-----------|
| Model Name | DT Mini   |
| ANAM P/N   | CSA3A092Z |

Date : September 07, 2020

## PRODUCT SPECIFICATION

Product : Internal WIFI/Bluetooth Antenna

Part No. : KH-WFDI-AN007

| RF Eng'r                                                                            | Mfg. Eng'r                                                                          | Approved By                                                                          |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |
| 2020. 09. 07.                                                                       | -                                                                                   | 2020. 09. 07.                                                                        |

|                    |                                                                                     |             |    |
|--------------------|-------------------------------------------------------------------------------------|-------------|----|
| New Item           | <input checked="" type="checkbox"/>                                                 | Replacement |    |
| 承認區分(승인구분)         | MP 用                                                                                | ( )         | 限度 |
| ANAM Part's No.    | CSA3A092Z                                                                           |             |    |
| 適用 Model           | DTMINI                                                                              |             |    |
| RoHS 確認            |  |             |    |
| REACH 確認           |                                                                                     |             |    |
| Net-Weight         | 3.39g                                                                               |             |    |
| 承認番號(Approval No.) | 10818                                                                               |             |    |
| Replacement        | Befor 品番                                                                            |             |    |
|                    | 事由                                                                                  |             |    |

|                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 이書類를承認합니다.                                                                          |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
| 西紀 2020 年 9 月 21日                                                                   |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
| 亞南電子(株)附設 技術研究所                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
| 研究員                                                                                 | 主任                                                                                   | 先任                                                                                    | 責任                                                                                    | 首席                                                                                    |
|  |  |  |  |  |

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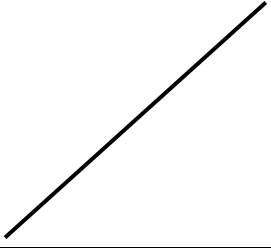
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|  |  |  |
| 2020. 09. 07.                                                                       | -                                                                                   | 2020. 09. 07.                                                                        |

## KWANG HYUN AIRTECH

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## 1. General

### 1.1 The Product

|              |                                  |
|--------------|----------------------------------|
| Model Name   | DT Mini WIFI / Bluetooth Antenna |
| Part No.     | KH-WFDI-AN007                    |
| Antenna Type | Dipole Antenna                   |
| Applications | WIFI 2.4~2.5 / 5.15~5.825        |

### 1.2 Electrical Properties

|                           |                              |                         |
|---------------------------|------------------------------|-------------------------|
| Frequency Range(Tx)       | 2.4~2.5 Ghz / 5.15~5.825 Ghz |                         |
| Frequency Range(Rx)       | 2.4~2.5 Ghz / 5.15~5.825 Ghz |                         |
| VSWR                      | 2.4~2.5                      | Less Than 2.0 : 1       |
|                           | 5.15~5.825                   | Less Than 2.0 : 1       |
| GAIN dBi<br>(Avr. / Peak) | 2.4~2.5                      | -1.6 ~ -2.6 / 2.4 ~ 2.6 |
|                           | 5.15~5.825                   | -3.5 ~ -4.5 / 0.7 ~ 2.1 |
| Polarization              | Vertical                     |                         |
| Impedance                 | 50Ω ± 10Ω                    |                         |

### 1.3 Mechanical Properties

|                         |                           |
|-------------------------|---------------------------|
| Dimension               | Ipex Cable : 400L         |
|                         | PCB : 40 x 8.0 x 0.8.t    |
| Operational Temperature | -30°C ~ +75°C             |
| Connector Type          | Ipex Connector + PCB Type |

## 2. Electrical Properties

### 2.1 Frequency Band

| Service \ Band | KH-WFDI-AN007                  |
|----------------|--------------------------------|
| Tx (MHz)       | 2,400 ~ 2,500<br>5,150 ~ 5,825 |
| Rx (MHz)       | 2,400 ~ 2,500<br>5,150 ~ 5,825 |

### 2.2 Impedance

#### 2.2.1 Normal Value

$50\Omega \pm 10\Omega$

#### 2.2.2 Measuring Method

The impedance over the frequency bands shall be as close as possible to  $50\Omega$  after matching. Both free space and talk position are considered.

### 2.3 VSWR

#### 2.3.1 Maximum values in free space

| Service \ Band | KH-WFDI-AN007 |               |
|----------------|---------------|---------------|
|                | 2,400 ~ 2,500 | 5,150 ~ 5,825 |
| VSWR           | 2.0 : 1       | 2.0 : 1       |

#### 2.3.2 Measuring Method

A  $50\Omega$  coaxial cable is connected(soldered) to the  $50\Omega$  point, at the duplex-filter on the main PCB. The connection of the coaxial cable shall be done to introduce a minimum of mismatch. As much as possible the coaxial cable arrangement shall prevent influences from induced currents on the cable. In the other end, the coaxial cable is connected to a network analyzer. The measurement is performed at room temperature. The handset, including the PCB, must not in any significant way differ from the mass produced handset, i.e. the antenna feeding network has to be equivalent to the feeding network in mass production. The specification shall be met in the entire frequency band. The free space means that the handset is placed on a non-conductive surface of cellular plastic.

## 2.4 Gain(dBi)

### 2.4.1 Typical minimum values in maximum direction

| Band<br>Service | KH-WFDI-AN007           |                         |
|-----------------|-------------------------|-------------------------|
|                 | 2,400 ~ 2,500           | 5,150 ~ 5,825           |
| Gain(Avr./Peak) | -1.6 ~ -2.6 / 2.4 ~ 2.6 | -3.5 ~ -4.5 / 0.7 ~ 2.1 |

### 2.4.2 Measuring Method

The connection is done according to 2.3.2.

Radiation patterns are measured at 6 different frequencies : Txmin, Txmid, Txmax, Rxmin, Rxmid and Rxmax. The antenna is measured in the 3D

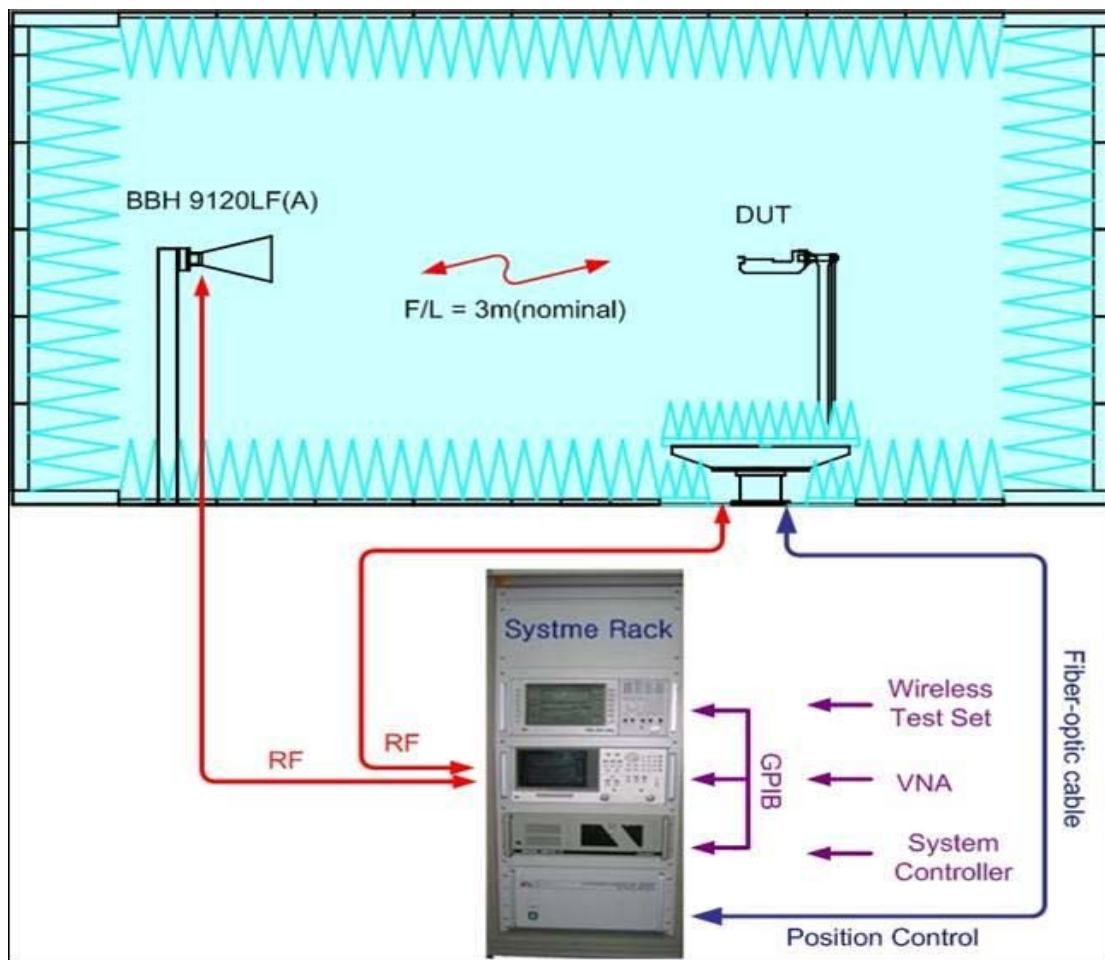
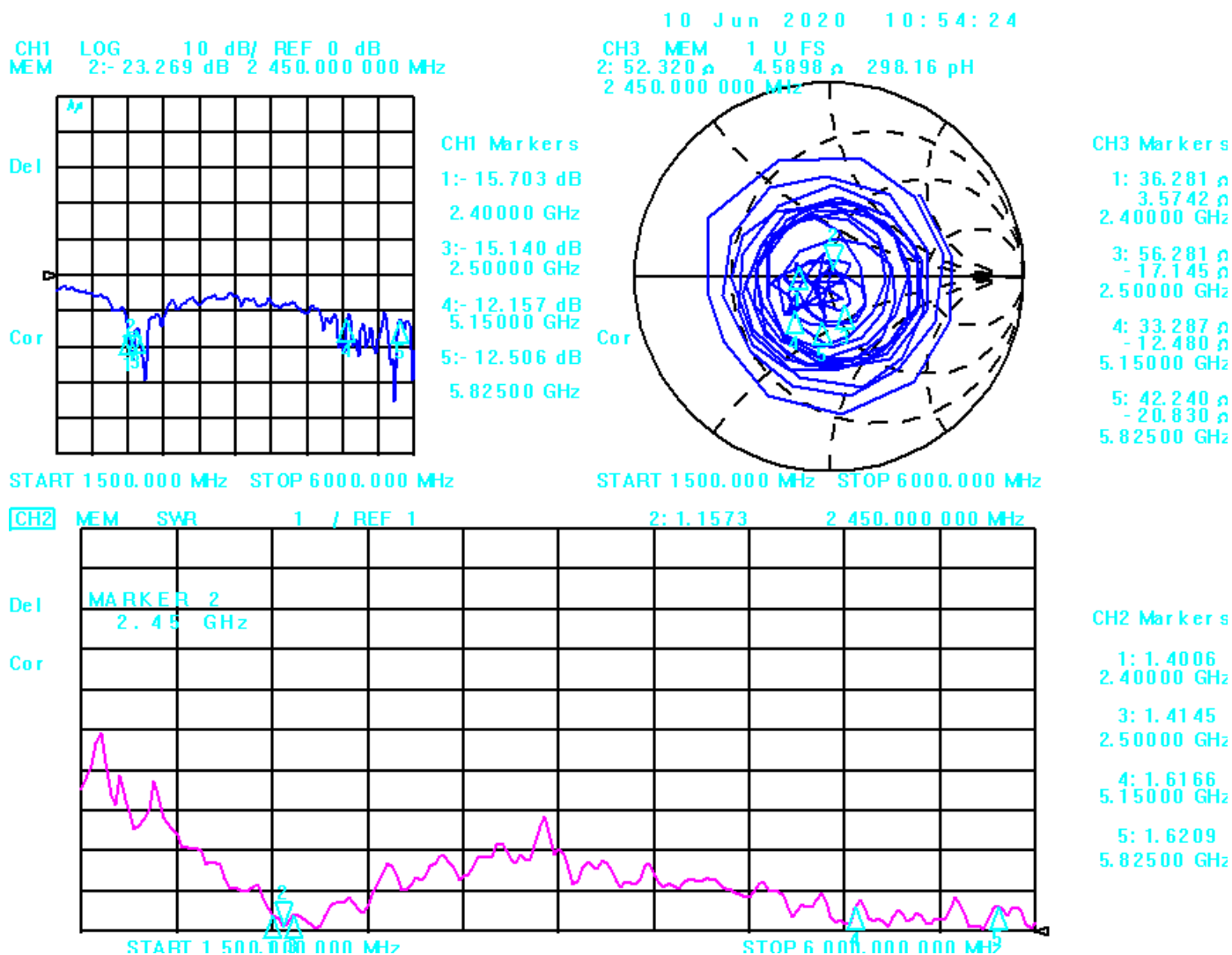


Figure 1. 3D Antenna Gain Test

### 3. Test Data

#### 3.1 Network Data

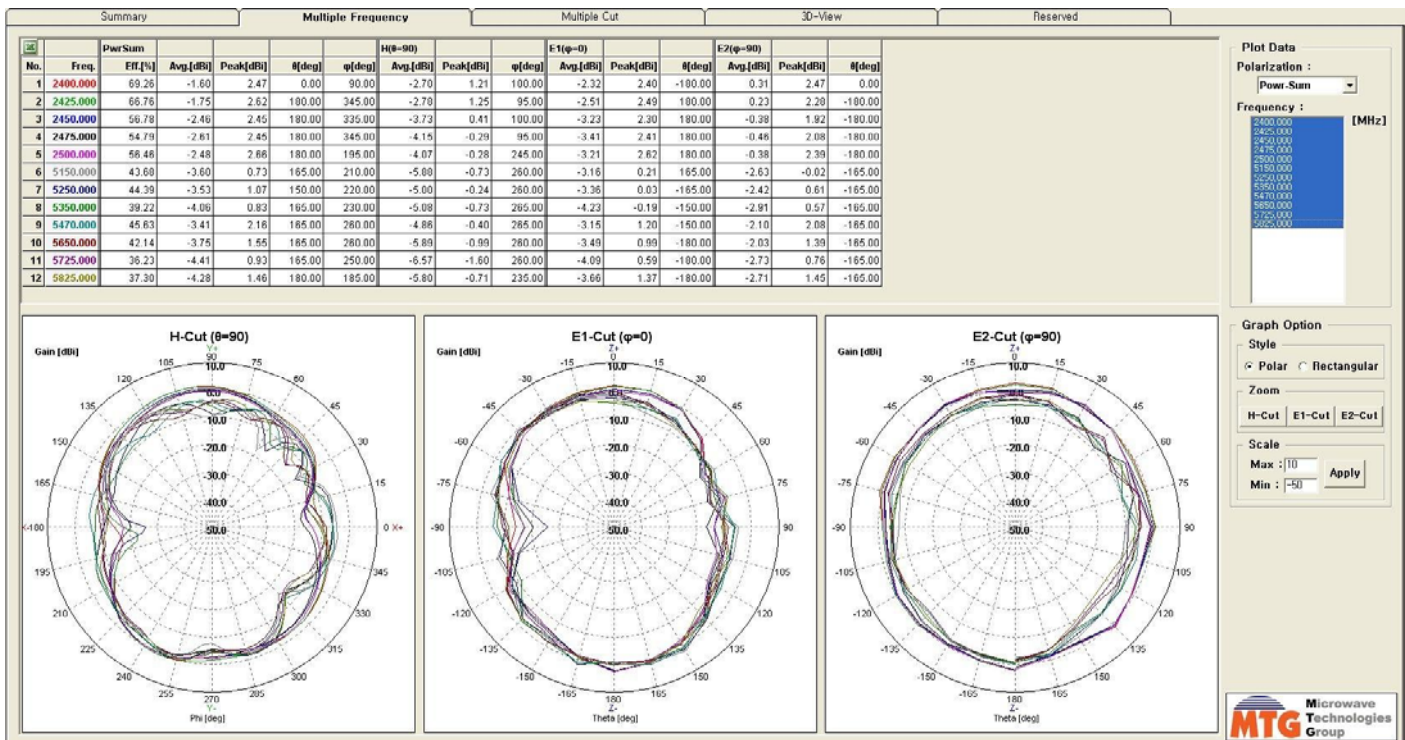
- KH-WFDI-AN007



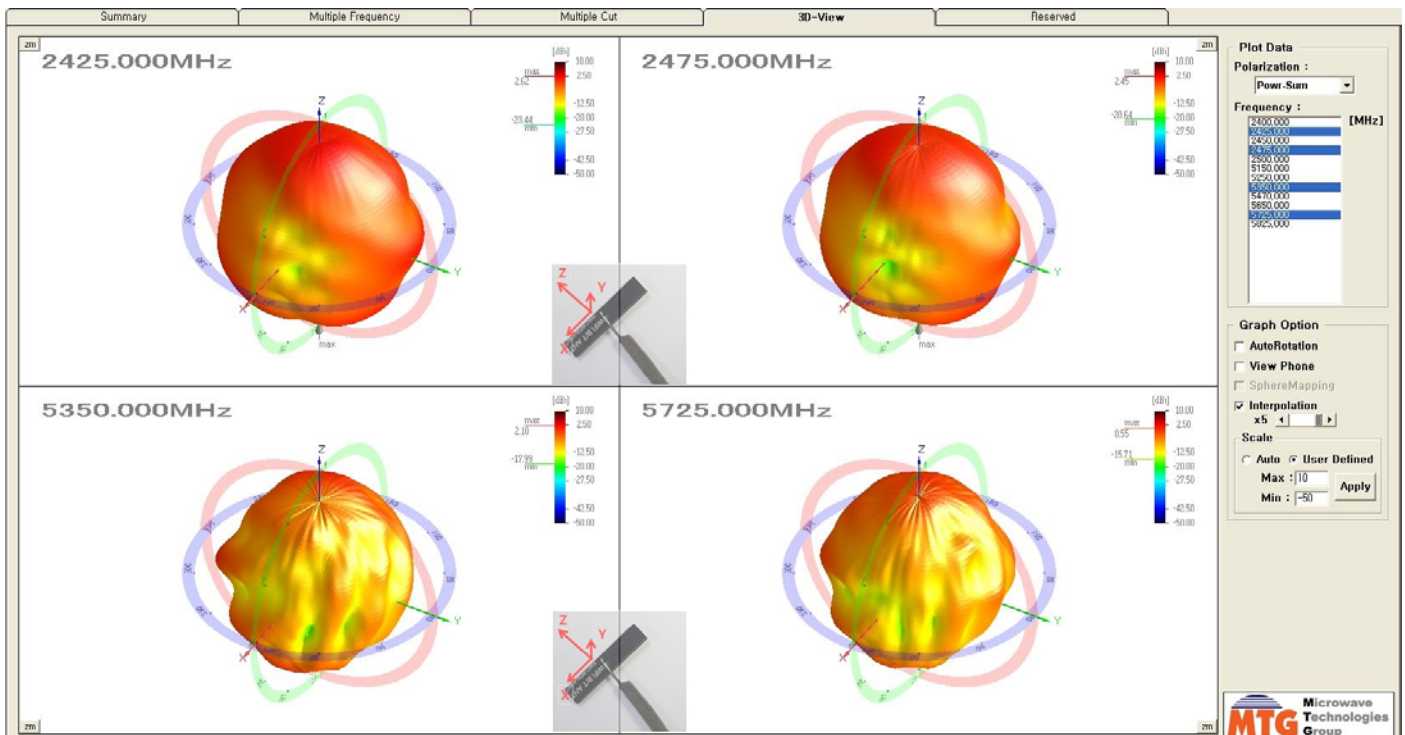
### 3.2 Radiation Pattern Data

- KH-WFDI-AN007

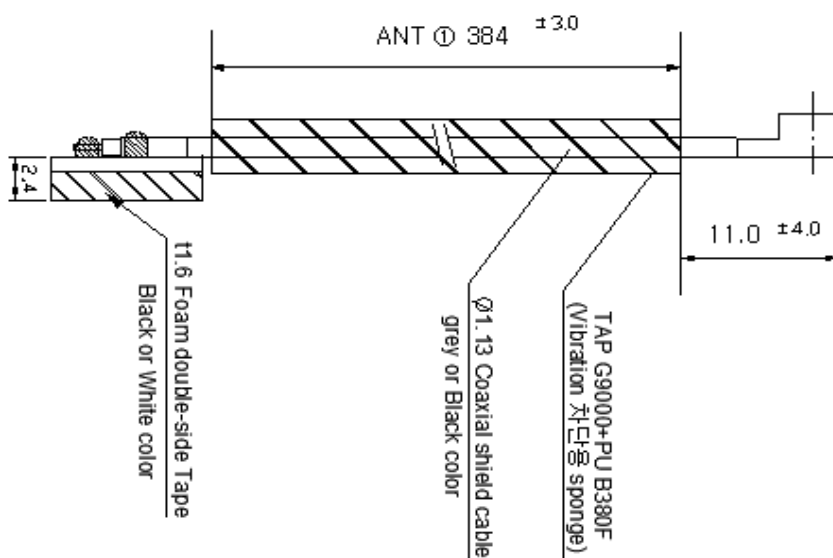
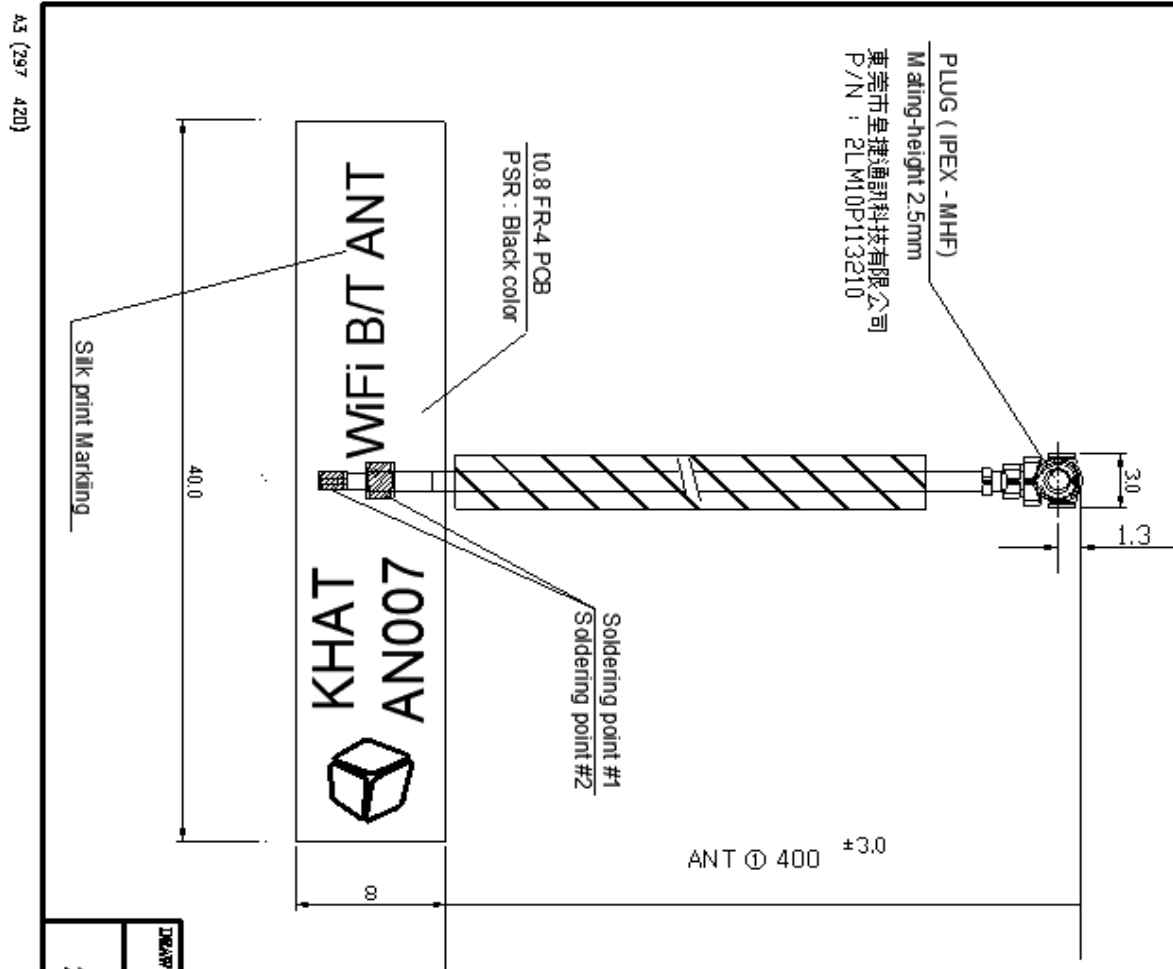
#### -Radiation



#### -3D View



#### 4. Mechanical Drawing



| ALPHABET | DATE | DESCRIPTION | REMARK |
|----------|------|-------------|--------|
|          |      |             |        |

|                     |                                     |                       |                |            |
|---------------------|-------------------------------------|-----------------------|----------------|------------|
| DRAW BY<br>E.T. Kim | CHECK BY<br><del>MOORE, MAUDE</del> | APPROVE BY<br>J.C. Ha | SCALE<br>N/S   | DATE<br>MM |
| 2020.06.09          | DT - Mini                           |                       | KHAT-WFD-AN007 |            |