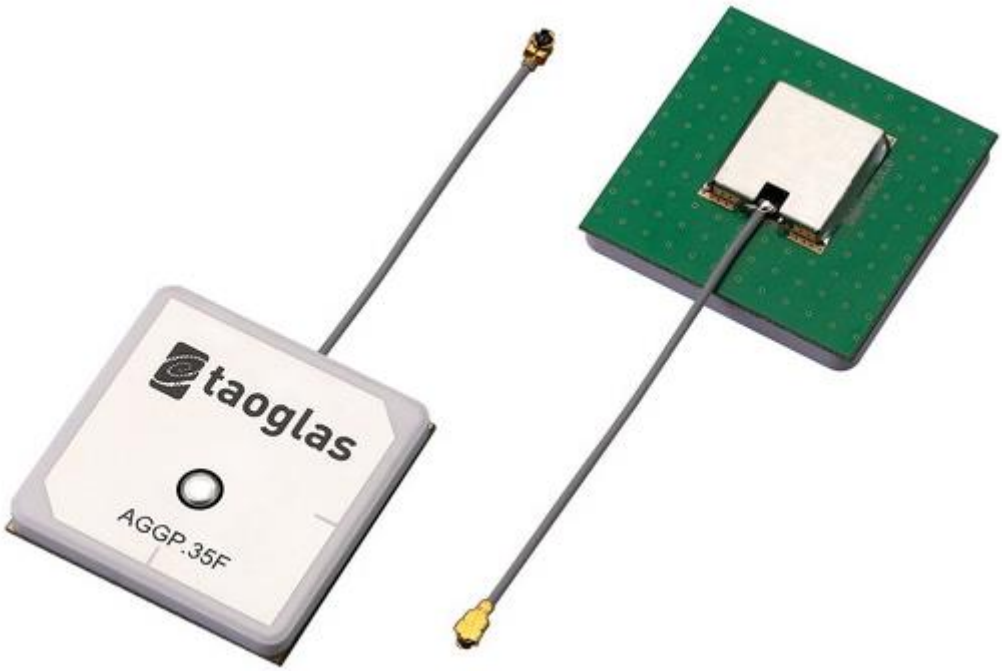
# THE DATASHEET OF

# AGGP.35F.07.0060A

# SPECIFICATION

| | | |
|---|---|---|
| Part No. | : | **AGGP.35F.07.0060A** |
| Product Name | : | 35mm Two Stage 28dB GPS-GLONASS-GALILEO GNSS Active Patch Antenna Module with Front-end Saw Filter |
| Features | : | Industry leading GPS/GLONASS/GALILEO antenna performance<br>35*35*6.9mm (Ground Plane)<br>60mm Ø1.13 IPEX MHFI (U.FL)<br>28dB LNA<br>Wide Input Voltage 1.8V to 5.5V<br>Low Power Consumption<br>RoHS Compliant |



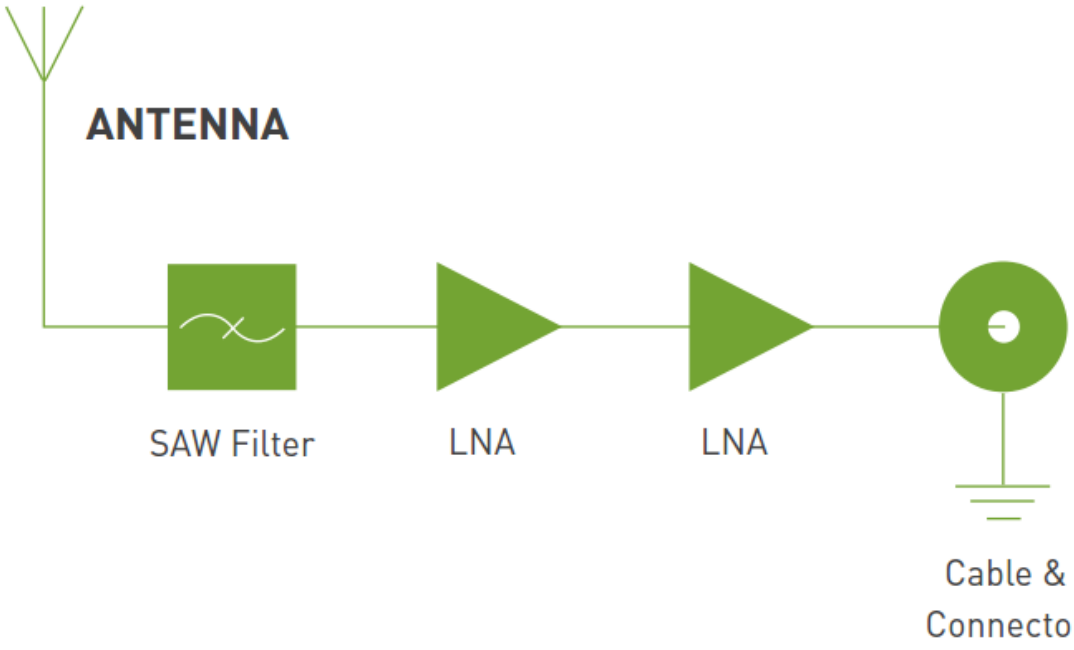
# 1. Introduction

The AGGP.35F GPS/GLONASS/GALILEO GNSS active patch antenna (along with the AGGP.25 model) is the best choice to use as an embedded antenna with the latest generation of GPS/GLONASS/GALILEO GNSS receivers. It utliizes a 35*35*3.5mm advanced wide-band ceramic patch antenna with optimized gain, radiation patttern and axial ratio at GPS, GALILEO and GLONASS centre frequencies.

The AGGP.35F aslo includes a two stage LNA and a front-end SAW filter to reduce out of band noise such as from nearby cellular transceiver, and improve probability of the wireless device passing radiated spurious emissions certification. Produced in TS16949 automotive quality approved facility and 100% tested for gain (S21), return loss (S11) to ensure total consistency of performance.

Cable type, length and connectors can be customized and samples offered according to requirement, subject to minimum order quantities in production. Taoglas also offers custom tuning service based on minimum order quantities, contact your local regional sales office for details.

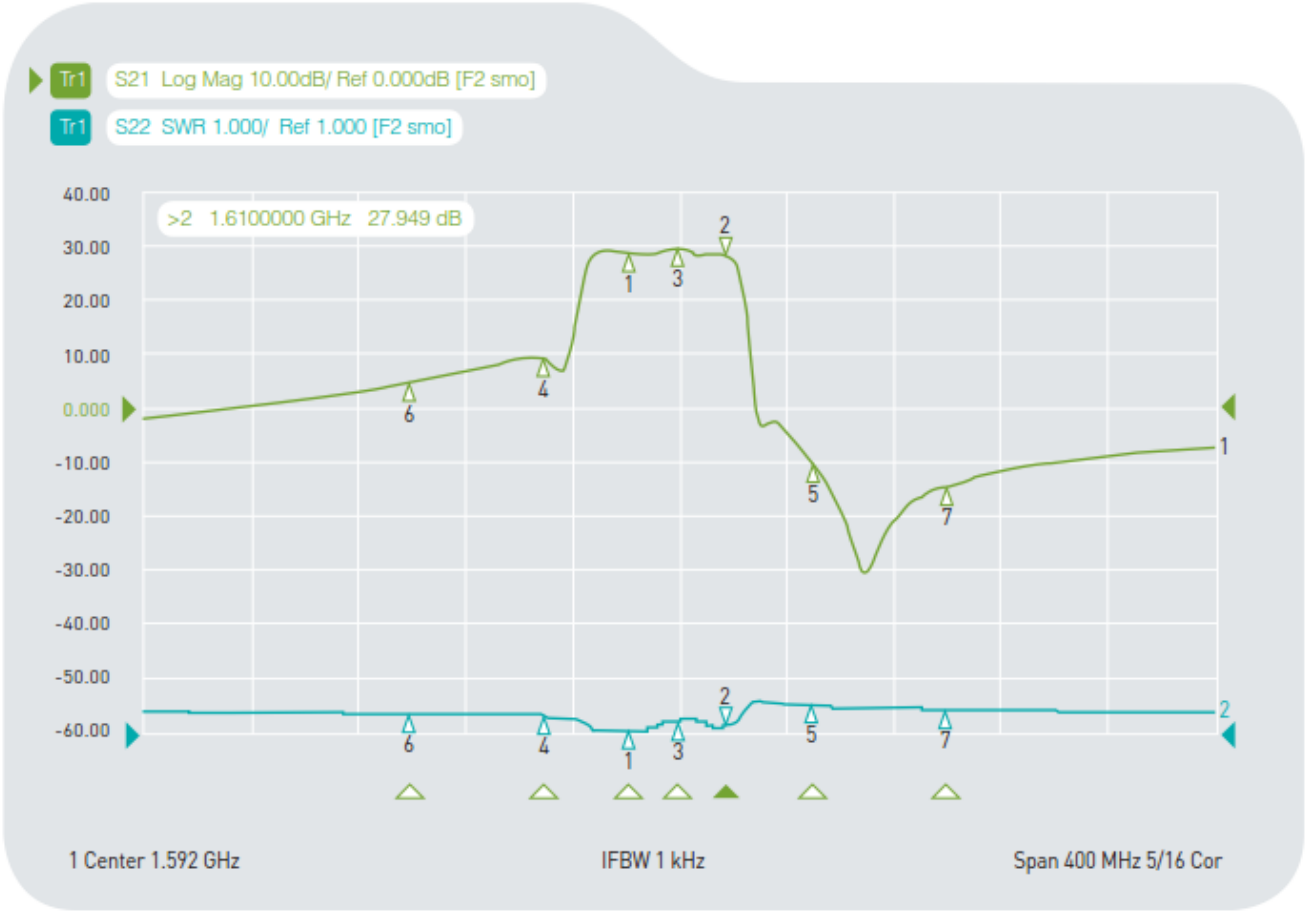
The AGGP.35F consists of 2 functional blocks – the LNA and also the patch antenna.



# 2. Specification

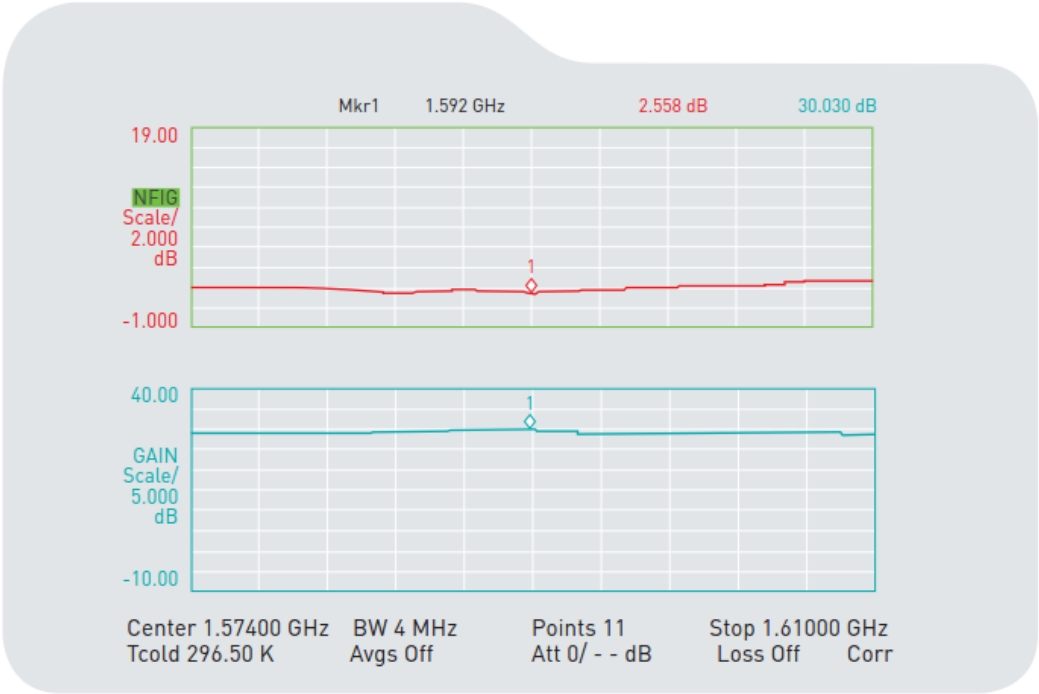
| ELECTRICAL | | | |
|---|---|---|---|
| Operation Frequency | 1574 ~ 1610MHz | | |
| Patch Gain | 1575.42MHz, 1dBic typ. @ zenith<br>1602MHz, 0.5dBic typ. @ zenith | | |
| Overall Gain | 1575.42MHz, 27 ± 3dBic typ. @ zenith<br>1602MHz, 28.5 ± 3dBic typ. @ zenith | | |
| Axial Ratio | 3.0dB max @ zenith. | | |
| Polarization | Right Hand Circular | | |
| VSWR | 2.0 :1 max | | |
| Impedance | 50Ω | | |
| DC input | 1.8V min. | 3.0V | 5.5V max. |
| LNA Gain | 22dB | 28dB | 31dB |
| Noise Figure | 2.6dB | 2.6dB | 2.9dB |
| Power Consumption | 5mA | 10mA | 23mA |
| Band Attenuation | 15dB @ 1592 ± 140MHz | | |
| MECHANICAL | | | |
| Antenna Dimensions | 35 x 35 x 3.7mm | | |
| Material | Ceramic | | |
| Cable | 60mm 1.13 co-axial | | |
| Connector | IPEX MHF1 | | |
| ENVIRONMENTAL | | | |
| Operation Temperature | -40°C to 85°C | | |
| Storage Temperature | -40°C to 105°C | | |
| Relative Humidity | 40% to 95% | | |

# 3. LNA Gain and Out Band Rejection @3.0V




| | | | | | |
|---|---|---|---|---|---|
| Ch1 | Tr1 | S21 | 1 | 1.5740000 GHz | 28.186 dB |
| Ch1 | Tr1 | S21 | >2 | 1.6100000 GHz | 27.949 dB |
| Ch1 | Tr1 | S21 | 3 | 1.5920000 GHz | 29.044 dB |
| Ch1 | Tr1 | S21 | 4 | 1.5420000 GHz | 9.0245 dB |
| Ch1 | Tr1 | S21 | 5 | 1.6420000 GHz | -10.035 dB |
| Ch1 | Tr1 | S21 | 6 | 1.4920000 GHz | 4.4105 dB |
| Ch1 | Tr1 | S21 | 7 | 1.6920000 GHz | -14.431 dB |

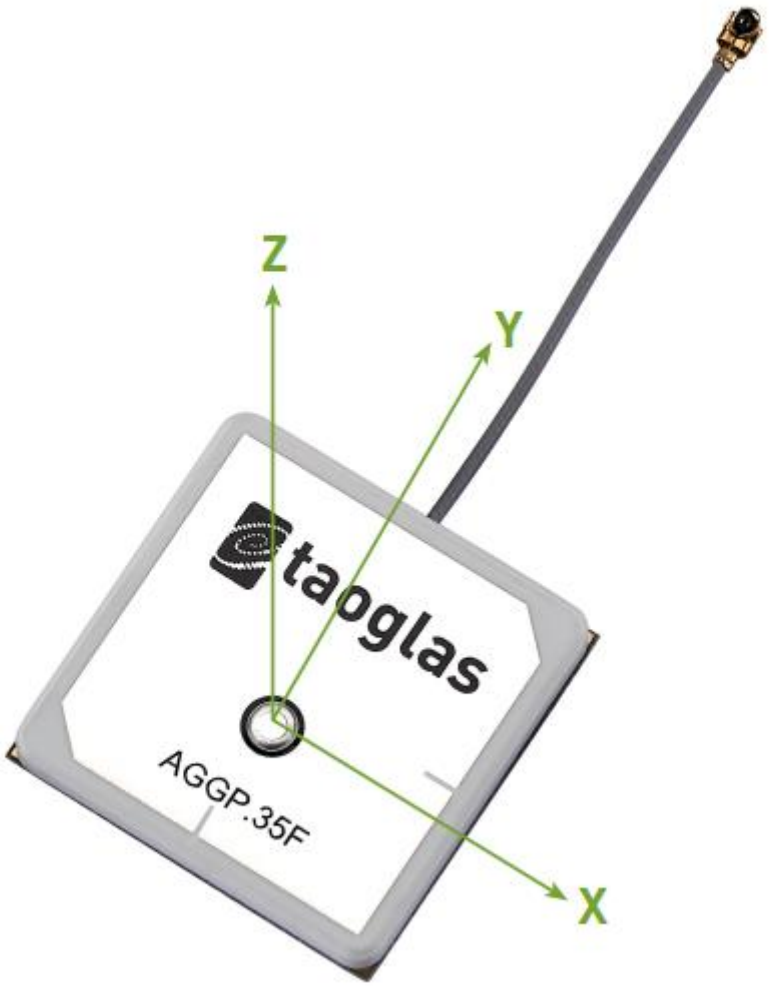
## 4. LNA Noise Figure @3.0V




## 5. Total Specification (through Antenna, LNA, Cable and Connector)

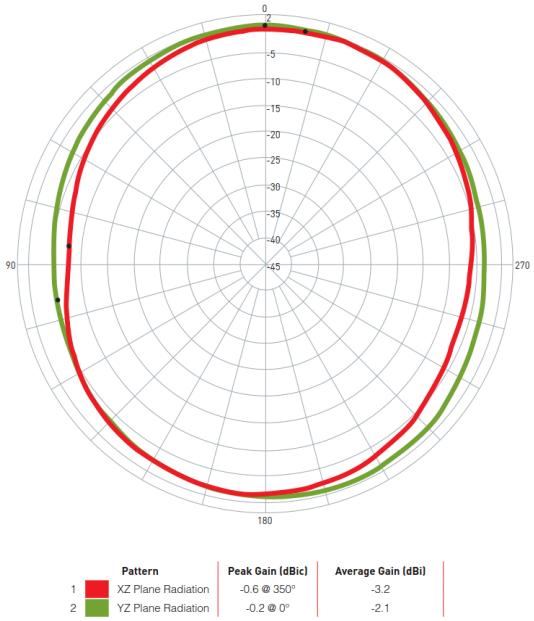
| Parameter | Specification |
|---|---|
| **Frequency** | 1574~1610MHz |
| **Gain at 90°** | 1575.42MHz: 27 ± 3dBic |
| | 1602MHz: 28.5 ± 3dBic |
| **Output Impedance** | 50Ω |
| **Polarization** | RHCP |
| **Output VSWR** | Max 2.0 |
| **Operation Temperature** | -40°C to + 85°C |
| **Storage Temperature** | -40°C to + 85°C |
| **Relative Humidity** | 40% to 95% |
| **Input Voltage** | Min. 1.8V, Typ. 3.0V, Max. 5V |
| **Antenna** | 35*35*6.9mm |

## 6. Radiation Patterns



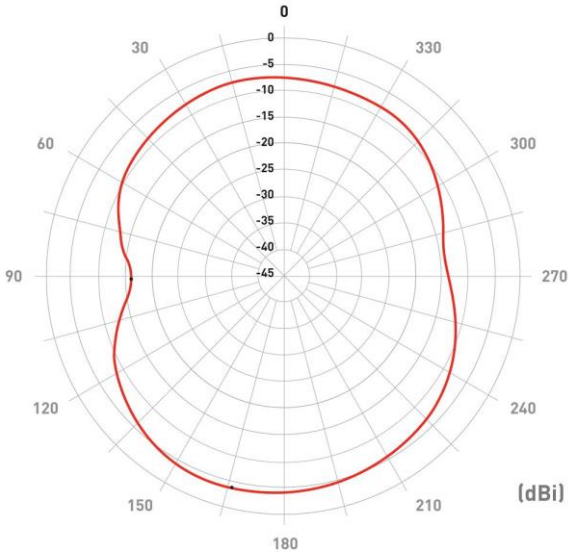
## 6.1. 1575.42MHz

### 6.1.1. XZ & YZ Plane



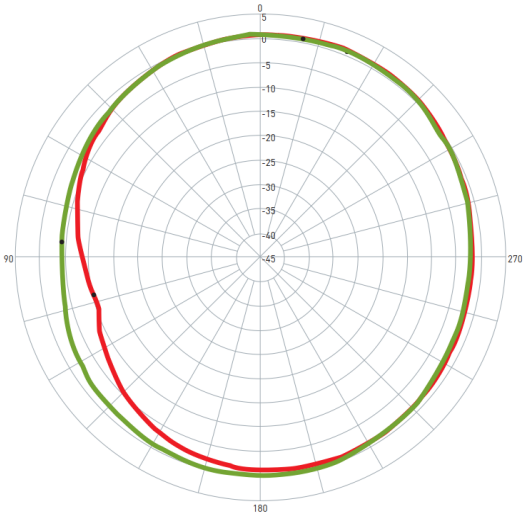

| | Pattern | Peak Gain (dBic) | Average Gain (dBi) |
|---|---|---|---|
| 1 | XZ Plane Radiation | -0.6 @ 350° | -3.2 |
| 2 | YZ Plane Radiation | -0.2 @ 0° | -2.1 |

### 6.1.2. XY Plane




## 6.2. 1602MHz

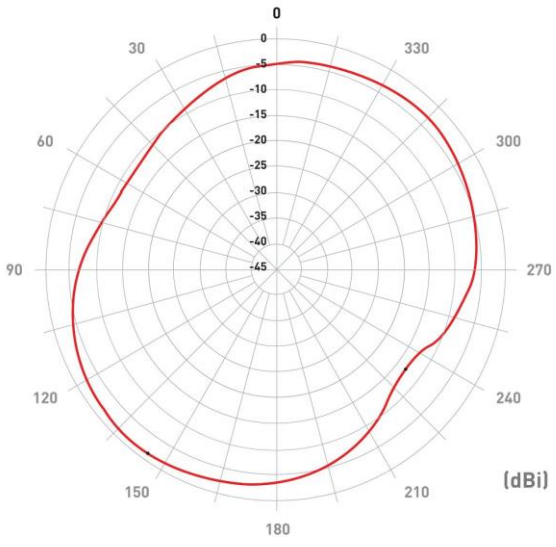
### 6.2.1. XZ & YZ Plane




| | Pattern | Peak Gain (dBic) | Average Gain (dBi) |
|---|---|---|---|
| 1 | XZ Plane Radiation | 0.9 @ 337° | -1.8 |
| 2 | YZ Plane Radiation | 0.8 @ 348° | -1.2 |

(unit : dBi)

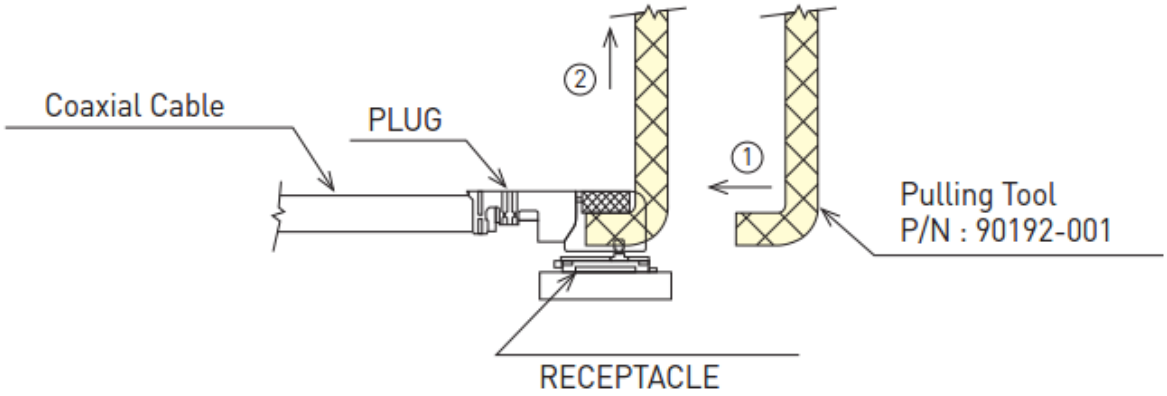
### 6.2.2. XY Plane



# 7. Plugs Usage Precautions

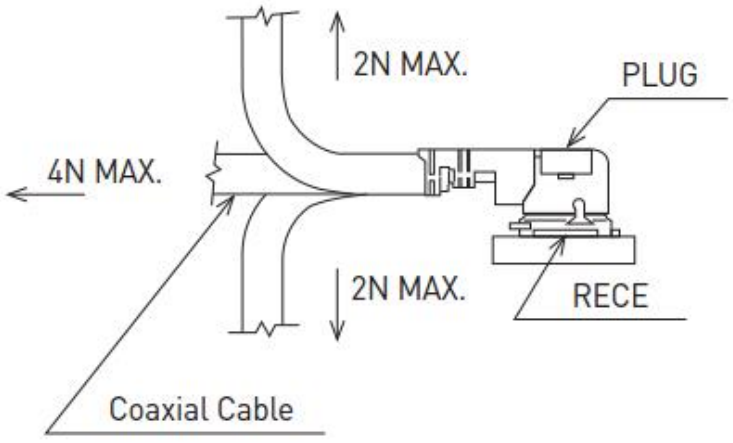
## 7.1. Mating / Unmating

(1) To disconnect connectors, insert the end portion of I-PEX under the connector flanges and pull off vertically, in the direction of the connector mating axis.
(2) To mate the connectors, the mating axes of both connectors must be aligned and the connectors can be mated. The "click" will confirm fully mated connection. Do not attempt to insert on an extreme angle.

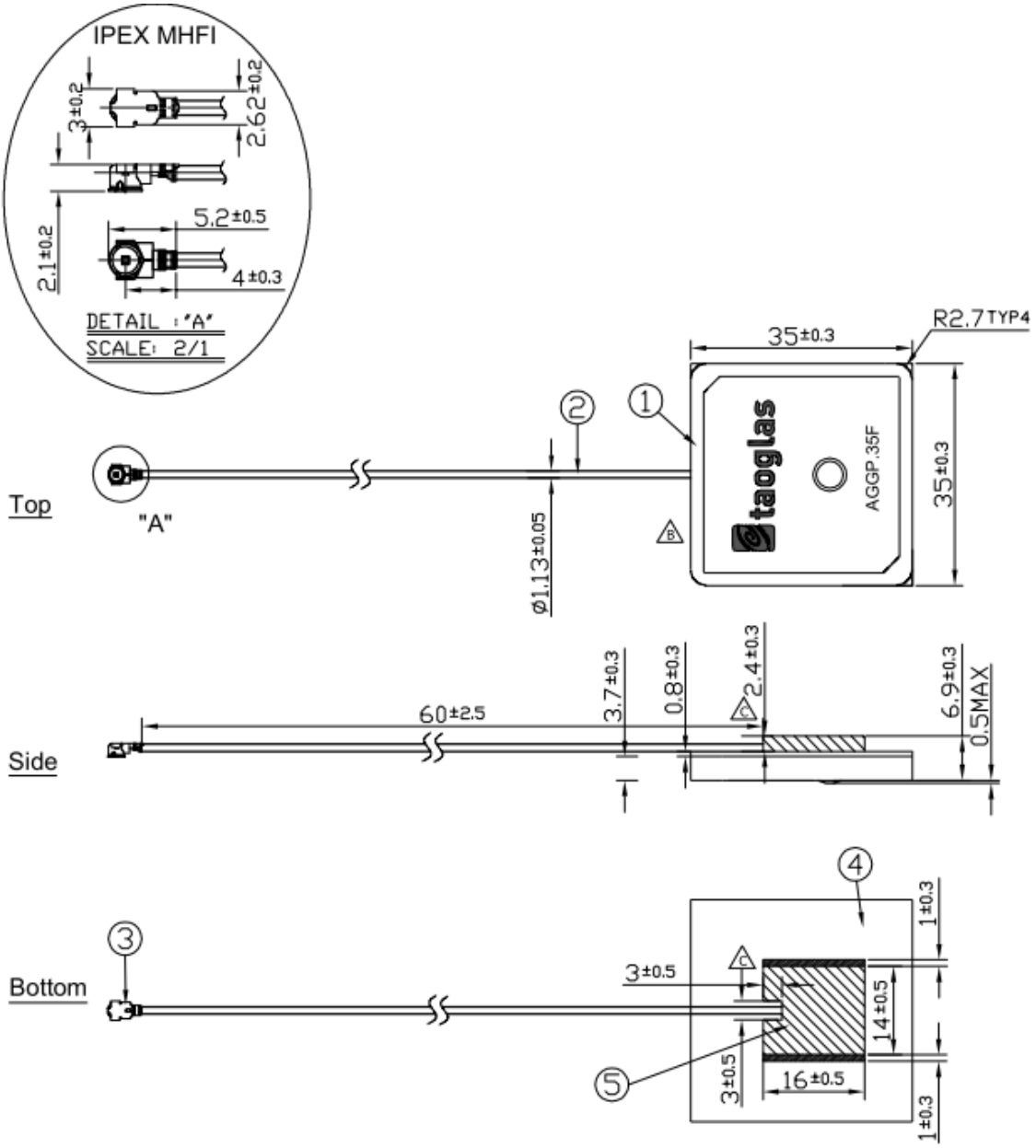



## 7.2. Pull forces on the cable after connectors are mated

After the connectors are mated, do not apply a load to the cable in excess of the values indicated in the diagram below.



# 8. Technical Drawing




**NOTE:**
1. Soldered area
2. Shielding case area
3. All material must be RoHS compliant.
4. The connector orientation has a fixed position to the antenna as per drawing.

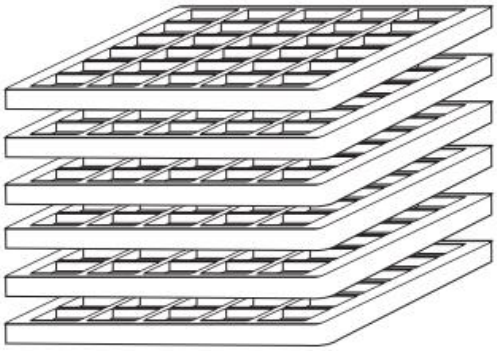
| | Name | P/N | Material | Finish | QTY |
|---|---|---|---|---|---|
| 1 | AGGP.35F Patch (35*35*3.7mm) | AGGP.35F | Ceramic | Clear | 1 |
| 2 | 1.13 Coaxial Cable | OD.113.CM | FEP | Gray | 1 |
| 3 | IPEX MHF1 Connector | IPEX.MHFI.113 | Brass | Gold | 1 |
| 4 | PCB | | FR4 0.8t | Green | 1 |
| 5 | Shielding Case | | (Tin)SPTE | Tin Plated | 1 |

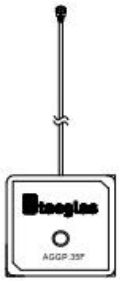
# 9. Packaging

Packaged in plastic tray with foam

Each comparment in tray contains 1 pcs of AGGP.35F

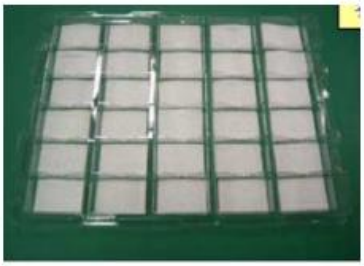
30 pcs of antenna per tray



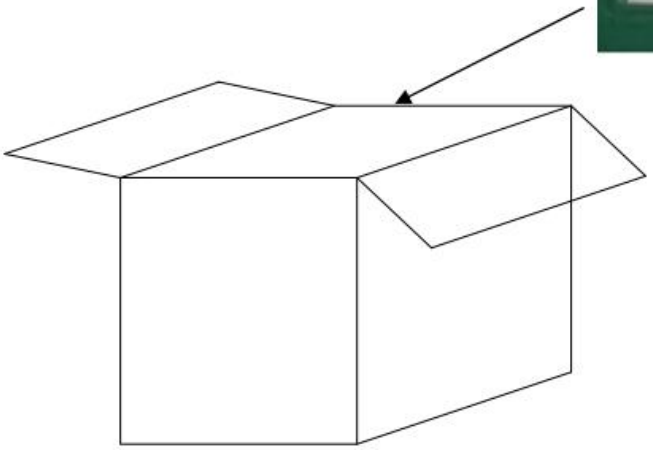


AGGP.35F

6 trays together in one section



Tray



3 sections per carton

540 pcs of antenna per carton

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