


Rear-Roof Radio AM/FM Antenna

| Version | EDITOR | PAGE | PRODUCT NAME | DATE | VALID DATE |
|---------|--------|------|--------------|------|------------|
| P0 | | 10 | RRR-AF-02-A | | |
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| DESIGNED BY : 朱嘉宏 | APPROVED BY: 蘇志銘 | | |
| TITLE : RRR-AF-00-A | | DOCUMENT NO. | SPEC REV. P0 |

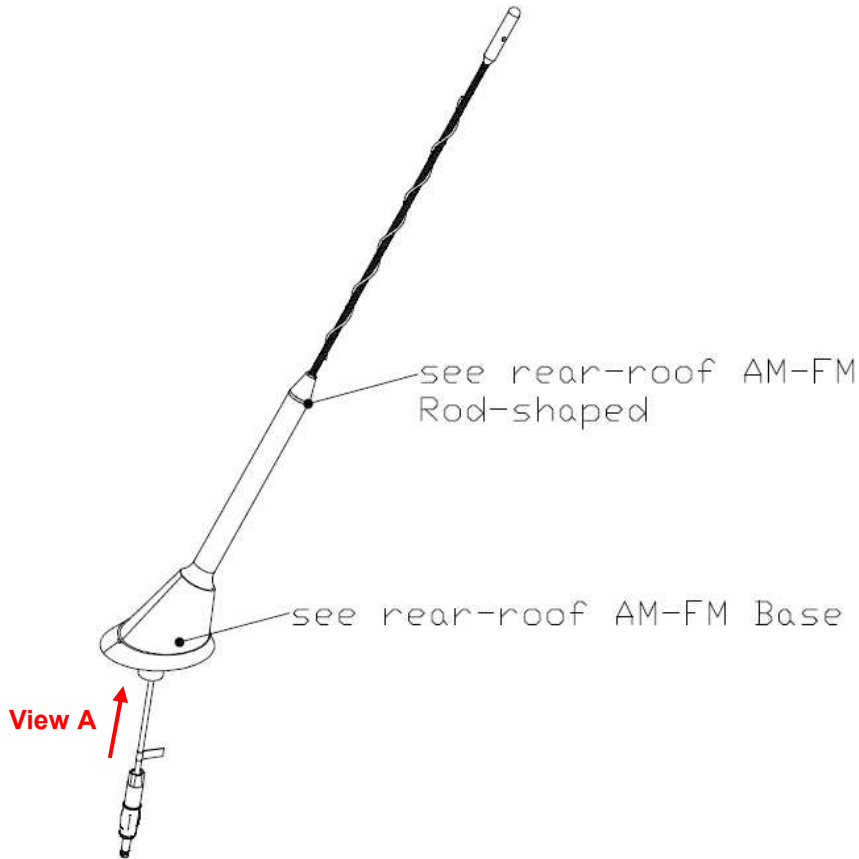
1. General features

The antenna is a roof-mounted rod antenna for AM/FM.

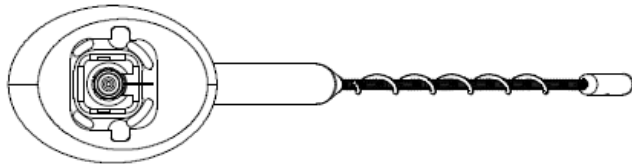
2. Technical features


2-1. Antenna overview

2-1-1. ISO view

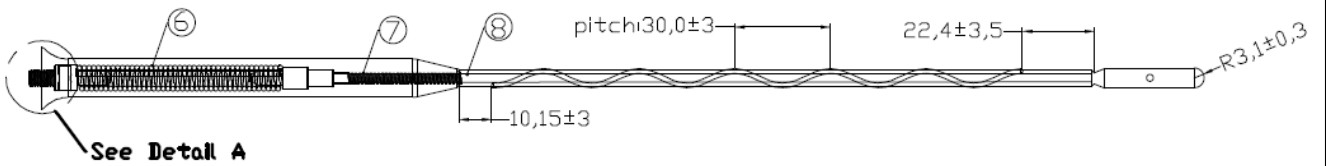
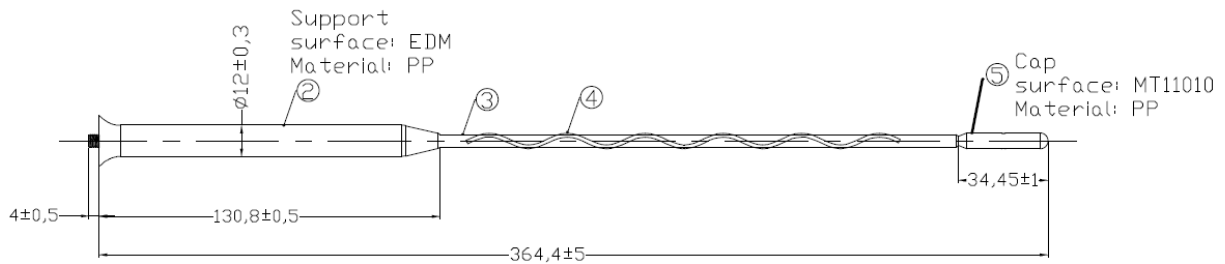
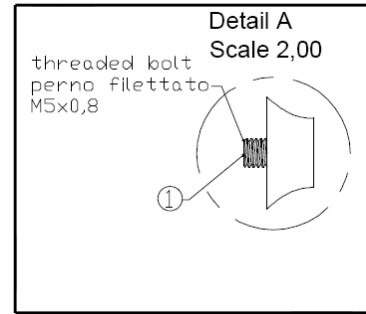
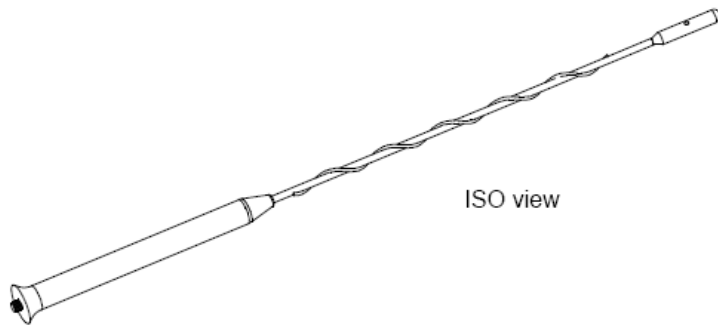


View A



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2-1-2. Antenna (rod)



| | | | |
|------|-----------------------|--------------------|--------------|
| 8 | Glass – Fiber Whip | White | Plastic |
| 7 | Coli | Copper | Cu |
| 6 | Helical Spring | Ni Plated(Bu) | Spring steel |
| 5 | Cap | Black | PP |
| 4 | Anti-wind Spiral wire | White | PA |
| 3 | Shrink Tube | Black | PE |
| 2 | Plastic Support | Black <EDM>MT11010 | TPU |
| 1 | Screw | Ni Plated(Bu) | Brass |
| Item | DESCRIPTION | Color/Plating | Material |

| Range (mm)º | Tolerance (mm)º |
|-------------|-----------------|
| 111 aboveº | +/- 0.35º |
| 51-110º | +/- 0.30º |
| 21-50º | +/- 0.25º |
| 6-20º | +/- 0.20º |
| 5 belowº | +/- 0.10º |

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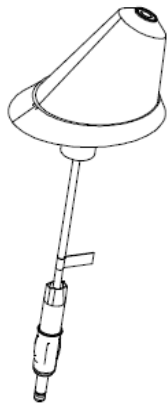
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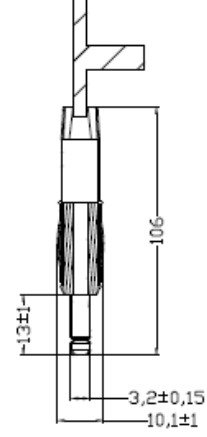
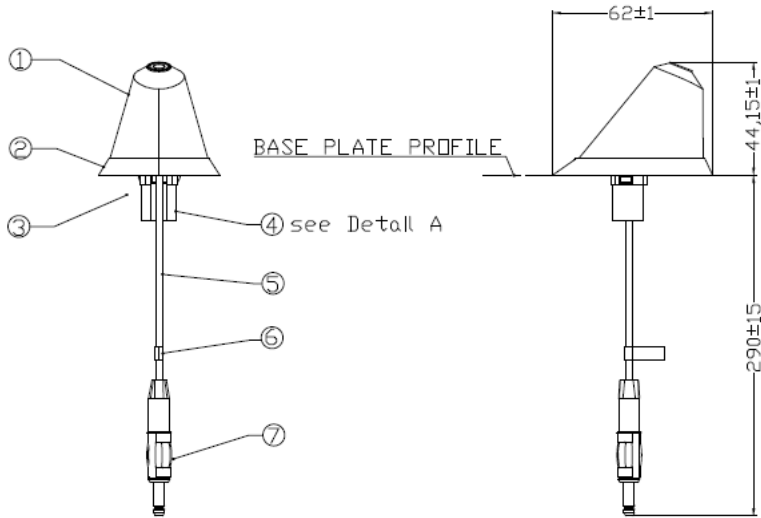
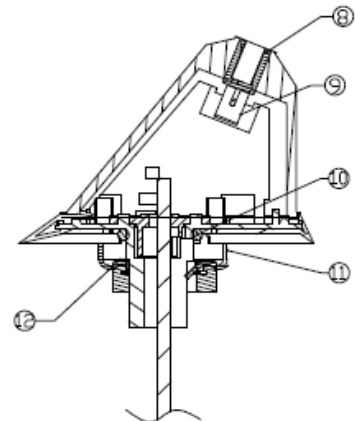
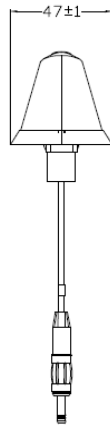
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2-1-3. Antenna (base)



ISO view



SECTION A-A
SCALE 2,00

| | | | |
|------|----------------------|---------------|-------------|
| 12 | Ring | Black | PA66 |
| 11 | GND Washer | Zi plated(Bu) | SPCC |
| 10 | Waterproof ring | Rubber | EPDM |
| 9 | Connector plate | Sn plated | SUS304 1/2H |
| 8 | Nut on plastic cover | Ni plated(Bu) | Brass |
| 7 | Connector – jaso | Black | (Multi) |
| 6 | Label | White | TLSM |
| 5 | Cable - RG59 | Black | (Multi) |
| 4 | Die cast base | Sliver | Zinc-Alloy |
| 3 | NUT | Zi plated | 0235 |
| 2 | Rubber gasket | Black | EPDM |
| 1 | Plastic Cover | Black | PA66 |
| Item | DESCRIPTION | Color/Plating | Material |

| Range (mm)⊖ | Tolerance (mm)⊖ |
|-------------|-----------------|
| 111 above⊖ | +/- 0.35⊖ |
| 51-110⊖ | +/- 0.30⊖ |
| 21-50⊖ | +/- 0.25⊖ |
| 6-20⊖ | +/- 0.20⊖ |
| 5 below⊖ | +/- 0.10⊖ |

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SCALE :

UNIT : mm

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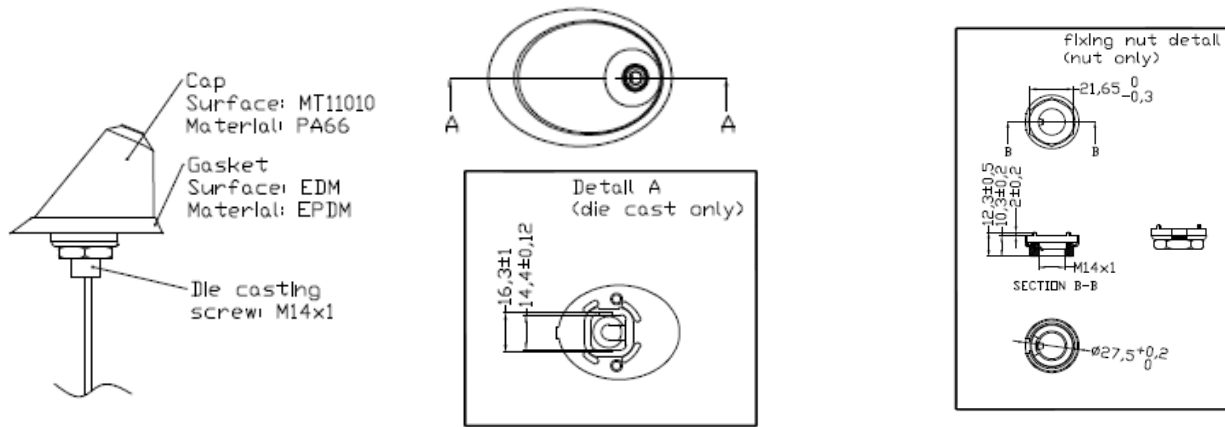
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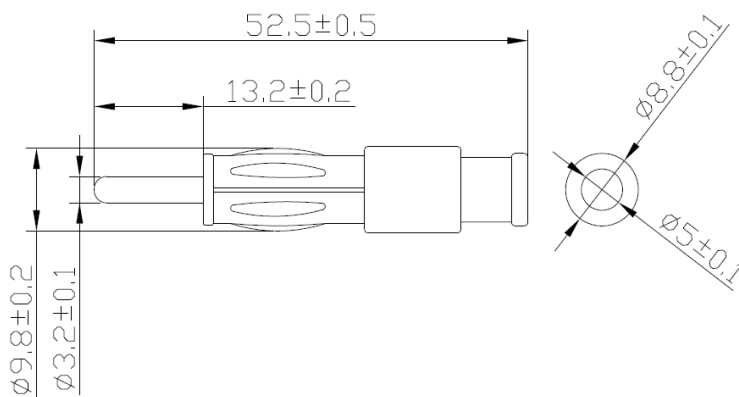
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2-1-4. Other features



2-1-5. Connector appearance

Jaso



2-2. Electrical specification

| | | |
|--|---------------------|---------------------|
| Frequency Range | AM 520 ~ 1710KHz | FM 87.5 ~ 108MHz |
| Frequency Response (dB) | -3±2 | |
| Polarization | Linear | |
| Impedance (ohm) | 75 | |
| Cable | RG59 | |
| VSWR | <5.0 | |
| Operation Supply Voltage (V) | 13.0 typ | |
| Current (mA) | 15.0 typ | |
| AM Gain Variation by change of operating Voltage (dB) | +/- 1.0 | |
| AM and FM Gain Variation by change of operating Temperature (dB) | +/- 1.0 | |
| AM Output Noise Voltage (dBuV) | -1 | LW Band |
| | -6 | MW Band |

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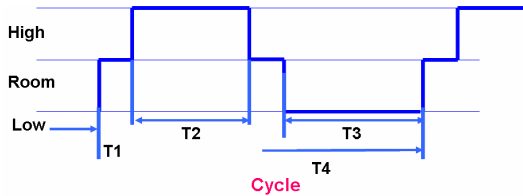
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| Time (min) | Temperature (°C) |
|------------|------------------|
| 0 | +20 |
| 60 | -40 |
| 150 | -40 |
| 210 | +20 |
| 300 | +80 |
| 420 | +80 |
| 480 | +20 |

(Check electrical specification and mechanical appearance after test)

(d) Thermal Shock Test



Test Cycle: 100 cycles

T1.T2 < 30s, T3.T4=30min

High= +85 °C, Low=-40 °C

(Check electrical specification and mechanical appearance after test)

(e) Climatic Sequence Test

| Test Cycles times | | Humidity (°C±2 °C) | Time (hr) | Relative humidity (%RH) | Power |
|-------------------|----------|--------------------|-----------|-------------------------|-------|
| 10 Cycles | 2 Cycles | 25→65 | 2 | 90-96 | ON |
| | | 65 | 3.5 | 90-96 | ON |
| | | 65→25 | 2 | 80-96 | OFF |
| | | 25 | 0.5 | 80-96 | ON |
| | 1 Cycles | 25 | 1.5 | 80→96 | ON |
| | | 25→-10 | 0.5 | Out of control | OFF |
| | | -10 | 3 | Out of control | OFF |
| | | -10→25 | 1.5 | 90-96 | ON |
| | | 25 | 1.5 | 90-96 | ON |

(Check electrical specification after test)

(f) Corrosion Test

The solution contains commercial cleaning detergents. Place 30mm*30mm cotton towel and soak it in the solution and then place it on the product. Air dry for 15 seconds and put aside for 48 hrs then observe it.

(Check electrical specification after test)

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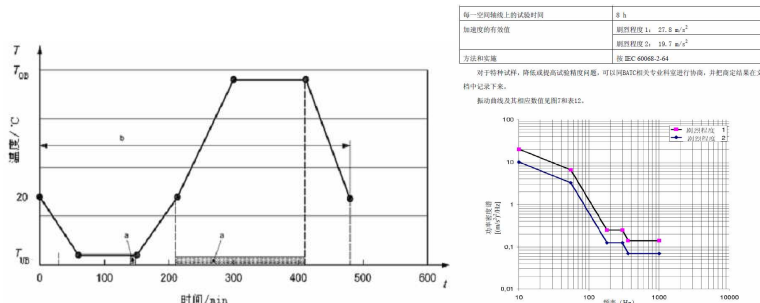
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(g) Free Fall Test

To drop it from 1m height above ground, test each component for twice with the same direction at different surface dimension

(Check electrical specification and mechanical appearance after test)

(h) Vibration with Temperature Change Test 1



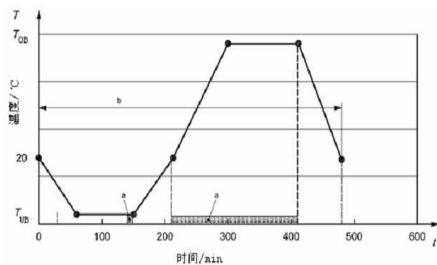
(Check electrical specification and mechanical appearance after test)

(i) Vibration with Temperature Change Test 2

85 °C, working 656hrs

(Check electrical specification and mechanical appearance after test)

(j) Vibration with Temperature Change Test 3



(Check electrical specification and mechanical appearance after test)

(h) Salt Spray Test


Spray 5±1% NaCl solvent (35±2 °C) to the specimens for 96hours.

(Check electrical specification after test)

(i) CL-02: Step temperature test (refer ISO 16750-4 5.2)

Each step dwell 20min, 1 °C /min -40 °C ~ +85 °C, Temperature step: 5K, 20hrs

(Check electrical specification and mechanical appearance after test)

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(j) VI-02: Vibration (random) with temperature change
Change 10-1000Hz; 2.78g RMS; -40°C ~ +85°C
(Check electrical specification and mechanical appearance after test)


(k) CH-01: Intrusion Protection (Dust)
IP6X, 8hrs
(Check electrical specification after test)

(l) CL-04: Damp Heat, Cyclic, 10 cycles,(IEC60068-2-38 Z/AD)
Cycle sequence:
Alternate cycles with and without frost, odd cycles with frost.
Operating mode sequence: 1.2 / 3.2
When reaching the upper temperature of 65 °C operate the samples for 15 min with
3.2.Remaining time is operating mode 1.2
(Check electrical specification after test)

(m) CH-06: Chemical Resistance: (refer IEC60068-2-60)
CORROSIVE ATMOSPHERE (H₂S, NO₂, CL₂, SO₂), 10days
(Check electrical specification after test)

6. Supply packaging condition

All of the packaging specification (include label, bag, box, carton...) can up to the customer's request.

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