

Technical Data Sheet

Microwave Absorber : MS-200TK

2020/1/14

Microwave Absorbers Inc.

Revision History

| Date | Contents |
|------|----------|
| | |

1. Scope

This TDS is applied to the Microwave Absorber MS-200TK

2. Materials

Absorber sheet : Carbonyle - Fe and Silicon rubber.

Double layer adhesive: No.500 of Nitto Denko

3. Standard Size

| Size | Thickness without tape |
|-----------------|------------------------|
| 200×200mm +2 mm | 1.0mmt ± 0.1mm |

The thickness of Adhesive tape No.500 is 0.17mmt

4. Outlook

There should not be impurities, abrasion, and through hall as below chart

| Standard | Judgement |
|--|-----------|
| 1. Size : < 1mm φ Numbers : < 12 pieces / sheet | OK |
| 2. Size : 1 mm φ < < 2mm φ Numbers : < 6 pieces/sheet | |
| 3. Size : 2 mm φ < < 3mm φ Numbers : < 3 pieces/sheet | |
| 4. Size : 3 mm φ < | No good |

5. Features

Rubber Sheet which absorbs Microwave

6. Operation temperature and stock temperature

Operation temperature : From -40 °C to 80 °C

Stock temperature : From -40 °C to 80 °C (after installation)

7. Test items

| Item | Numbers of test pieces |
|--------------------|-----------------------------------|
| Absorb Performance | N = 3 / Lot of sheet manufacture* |
| Gravity | N = 3 / Lot of sheet manufacture |
| Thickness | N = 13 / Lot of sheet manufacture |
| Size | N = 13 / Lot of sheet manufacture |

*Lot of Sheet manufacture means the same kind of sheets continuously manufactured by the same material lot and with the same machine.

8.Mecanical Data

| Item | Unit | Data | Test Method |
|--------------------------------|---------|----------------------------|----------------------------|
| Hardness (Durometer #A) | — | 60 ± 5 | JIS K 6253 |
| Gravity | — | 2.9 ± 0.1 | JIS Z 8807 |
| Absorb Performance (20 GHz) | dB | < -15 | Free Space NRL arch method |
| Tape Adhesive Strength | N/10mm | 4 < | JIS Z 0237, 1528 |
| Resistivity | Volume | $\Omega \cdot \text{cm}^3$ | $10^{10} <$ |
| | Surface | Ω | $10^7 <$ |

9.Environment Test

Environment test conditions

| Item | Conditions |
|----------|--|
| Heat | 100 ° C * 1000 h |
| Cold | -40 ° C * 1000 h |
| Humidity | 85 ° C , 85% RH * 1000 h |
| Cycle | -40° C *30 min. , 85 ° C * 30 min. 1000 cycles |

Test item after environment test conditions

| Item | Unit | Data | Test method |
|--------------------------------|---------|----------------------------|----------------------------|
| Absorb Performance (20 GHz) | dB | < -15 | Free Space NRL arch method |
| Tape Adhesive Strength | N/10mm | 4 < | JIS Z 0237, 1528 |
| Resistivity | Volume | $\Omega \cdot \text{cm}^3$ | $10^{10} <$ |
| | Surface | Ω | $10^7 <$ |

Test results

| Item | Absorb Performance (20 GHz) | Volume Resistivity | Surface Resistivity | Tape Adhesive Strength |
|----------|--------------------------------|----------------------------|-----------------------|------------------------|
| Unit | dB | $\Omega \cdot \text{cm}^3$ | Ω | N/10mm |
| - | -21.3 | 5.21×10^{15} | Over* | 6.8 |
| Heat | -20.6 | 2.54×10^{14} | 4.83×10^{15} | 6.0 |
| Cold | -21.9 | 5.54×10^{15} | Over* | 4.1 |
| Humidity | -21.0 | 4.45×10^{15} | Over* | 2.5 |
| Cycle | -21.9 | 8.61×10^{15} | Over* | 5.2 |

* "Over" means over limit measurement = $10^{15} \Omega <$

10.Storage

- 1) Products should be stored indoors under following conditions ;
Temperature -10 ° C to + 40 ° C, relative humidity 30 to 70%.,
refraining from being exposed to direct sunlight, heat, rain, vibration, etc.,
and also sudden changes in temperature and humidity during storage.
- 2) The storage period shall be 6 months from the date of shipment inspection.
If it exceeds 6 months, Please check the adhesiveness of tape.

11. Others

ODS (ozone depleting substance) is not used in the manufacturing process of this product.
In addition, if a problem occurs, or if the process, specifications, production location, etc. change,
we will deal with it after mutual consultation.

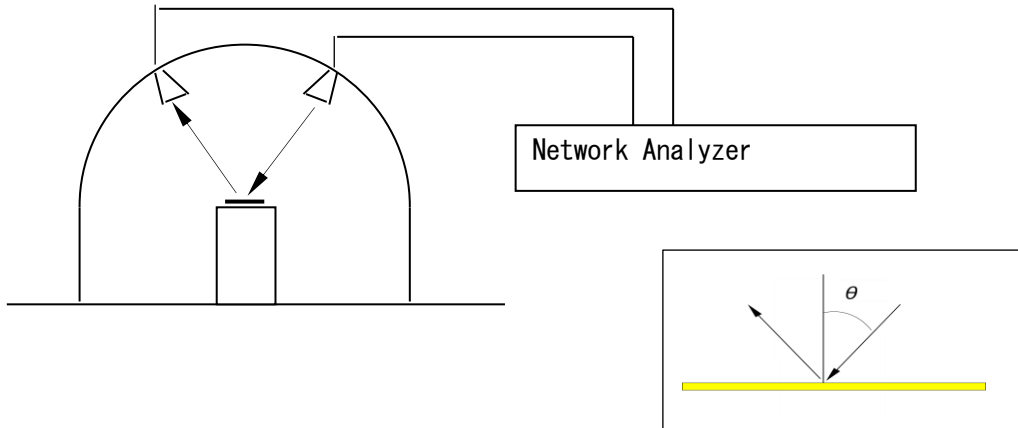
Appendix 1: Absorb performance test

1) Measurement Method

Location : Anechoic Chamber of National Defense Academy

Absorber : MS-200TK
Antenna : Guide Horn Antenna (Horizontal)
Network Analyzer : WILTRON360
Method : NRL free space Arch measurement method

2) Measurement Chart



3) Result : 30°

