

Microwave absorber evaluation

1. Arch type absorber reflection amount measurement system

Absorber and Horn antenna / network analyzer for the antenna installation arch frame, the absorber installed table, and the unnecessary reflection defense: The amount of the reflection attenuation is measured by the sweep method that uses NA.



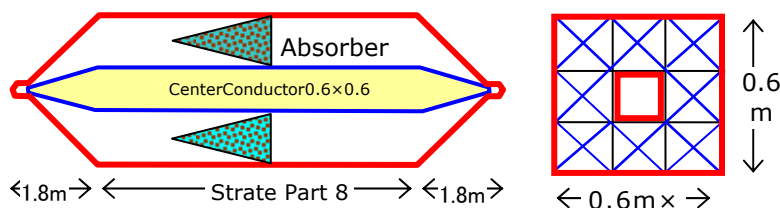
Specification 1G-40GHz the reflection attenuation amount measurement, the angle setting: 0-90°

It requests it by measuring and processing as follows;

- 1) The antenna is installed on the FRP arch, and the absorber installed stand measures amount of the reflection in the state of a metallic reflection.
 - 2) Put the EUT and measure the reflection amount characteristic of the absorber.
 - 3) The calculation processing of the amount of the reflection attenuation from the test data.
- *Undesired reflections are cut by setting the width of the gate of NA.

2. 1800 caliber corner type waveguide measurement system

Large-scale: S parameter is measured by the sweep method that sets up the microwave absorber of 600 caliber items in a rectangular waveguide of $L=11\text{m}\times 1.8\text{m}\times 1.8\text{m}$ (combination / conditions of performance with absorber unit / ferrite), and uses NA.



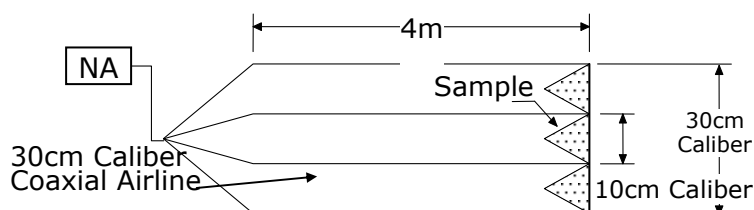
The reflection of specification 10-120MHz: S11/S22 and penetration S21 measurement.

It requests by measuring and processing as follows;

- 1)The absorber installed part calibrates the measurement system as open/short-circuited.
 - 2)Put the EUT and the S parameter measure for absorber.
 - 3)The calculation processing of the amount of the reflection attenuation from the measurement of S parameter of the absorber data.
- *Undesired reflections are cut by setting the width of the gate of NA.

3. 300 caliber corner rectangular waveguide measurement system

The material that clears corner holes of the base $10\times 10\text{cm}$ eight samples or $10\times 10\text{cm}$ is inserted in a rectangular waveguide of $L=4\text{m}\times 0.3\text{m}\times 0.3\text{m}$ and the amount of the reflection attenuation is measured.



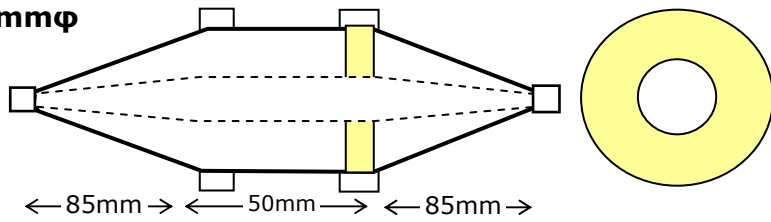
The reflection of specification 10-1GHz: S11/ S22 and penetration S21 measurement. It requests by measuring and processing as follows;

- 1)The absorber installed part is calibrating the measurement system as short-circuited.
 - 2)Put the EUT and measure the reflection amount characteristic of the absorber.
- *Undesired reflections are cut by setting the width of the gate of NA.

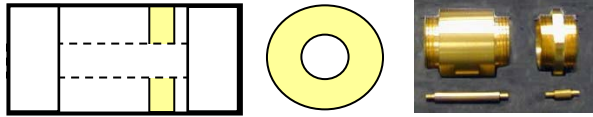
4. 39mmφ/7mmφ coaxial tubing evaluation system

It reflects by the sweep method by using a cylinder coaxial tube of 39mmφ or 7mmφ: S11/ S22 and penetration: The measurement and ϵ'/ϵ'' of S21 and μ'/μ'' are requested by the calculation.

39mmφ



7mmφ



aveguide	Sample shape	Sample caliber
39mm	38.8 +0.0/-0.1	16.9 +0.1/-0.0
7mm	6.9 +0.0/-0.1	3.0 +0.1/-0.0

Spec. 39mm: 1MHz~1GHz、 7mm: 1MHz~10GHz

S11/ S22 and penetration: The measurement and ϵ'/ϵ'' of S21 and μ'/μ'' are requested by the calculation.

It requests by measuring and processing as follows;

- 1)The absorber installed part calibrates the measurement system as open/short/50Ω-circuited.
 - 2)Installation of the thing that the calibration is measured and measure S parameter.
 - 3)Calculate from S parameter for ϵ'/ϵ'' and μ'/μ''
 - 4)Reflection when changing the material thickness / the penetration characteristic be simulated.
- *Undesired reflections are cut by setting the width of the gate of NA.

5. Dielectric substance lens absorber reflection amount measurement

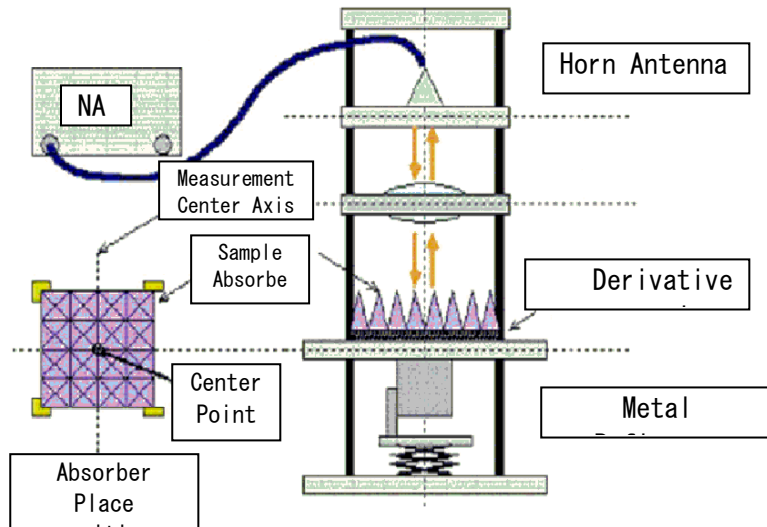
The amount of the reflection attenuation is measured by using the horn antenna and 40GHz NA according to the band with a good large-scale dielectric substance lens and directivity.

Specification 2.6G-40GHz and the size of the reflection attenuation amount measurement Sample size 60x60cm and the H: 60cm

It requests by measuring and processing as follows;

- 1) The absorber installed part is made a metallic side and the measurement system is calibrated.
- 2) Put the EUT and measure the reflection amount characteristic of the absorber.

*Undesired reflections are cut by setting the width of the gate of NA.



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