

MICRONIX

Wideband field uniformity in anechoic box

Wideband anechoic box suitable for development of multi-band/UWB radio system or EMC evaluation

***** Application *****

Demand on launching wideband radio test environment for development of multi-band/UWB radio system or EMC evaluation at low cost has became to increase. Such environment using anechoic box contributes to reduce initial cost of launching and shorten TAT(turn around time) by debugging easily a product to be tested.

Solution

Wideband anechoic box with high uniformity inside, consisting of shield box and wave absorber with suitable properties, is offered. The following is an example that electric field at each of four points in a vertical plane of the distance 0.6 m from a transmitting antenna in an anechoic box was measured by a electric field probe.

Conditions

[Measurement frequency band]

- 1 GHz to 6 GHz
- [Anechoic box]
- •Size: about $1 \text{ m} \times 1 \text{ m} \times 1 \text{ m}$
- •Shielding effect: more than 60 dB @ 2.4 GHz
- •Pyramid-type wave absorber (Reflectivity: -20 dB @ more
- than 1.5 GHz)
- [Transmitting antenna]
- ·LPDA (Log-periodic dipole antenna)
- [Calculation method of electric field strength(cal E)]

•Electric field strength is calculated from antenna input power, antenna gain(typ) and attenuation in free space.





In above figure, variation of measured electric field at each point is within ± 15 % at the frequencies over 1.5 GHz. Also, good agreement of calculated and measured shows that anechoic box inside is similar to free space in a wide band.

* System configuration *

Example

2. Transmitting/Receiving antenna

1. Anechoic box

- 3. Jigs to mount antenna and EUT
- 4. Spectrum analyzer [MSA558]
- 5. Others(PC, I/F modules, cables, etc)

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