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Daily inspection method of shield box

A low cost daily inspection system of electromagnetic anechoic box/shield box consisting of a spectrum analyzer/signal analyzer (MSA438TG/538TG) equipped with a tracking generator function and a sleeve antenna (M300/400 series) will be proposed.

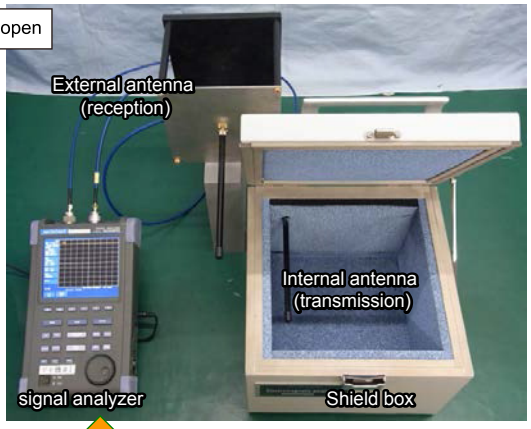
[*Application*]

When inspecting and evaluating using a shield box, there are cases where it's necessary to check whether shielding performance is secured. However, it is impractical to perform the regular calibration every time. By using a handheld spectrum/signal analyzer equipped with the TG function and a sleeve antenna, the daily inspection can be easily perform.

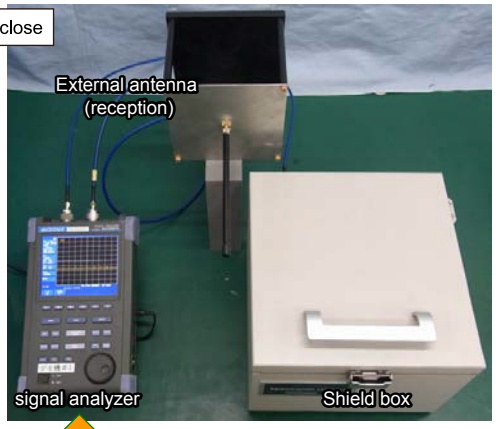
[*Solution*]

[Connection example]
Place a sleeve antenna inside a shield box newly introduced or calibrated periodically, and then place another sleeve antenna fixed outside. In this case, the measurement position and distance should be decided and then be the same position at each time of inspection. With the door of the box closed, the tracking generator is turned on and radio wave is transmitted from an internal antenna, and then the electric field strength is measured with an external antenna. It is the daily inspection that the relative comparison with this reference value is made.

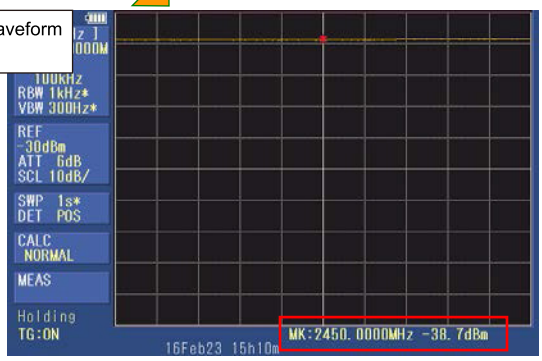
Door of box : open

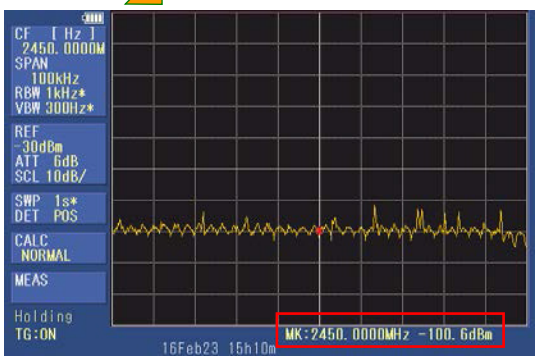


Door of box : close



Measured waveform @ open





In the connection example, when opening the door: -38.7dBm @ 2450 MHz, but when the door is closed: -100.6dBm @ 2450MHz. However, the measured value of "-100.6dBm" which is the reference value is important. It is judged that the shielding performance deteriorates if the electric field strength level goes upper than this reference value.

[*System constitution*]

- Handheld signal analyzer MSA538TG
- Lithium-ion Battery MB400
- Portable antenna M300 / 400
- Antenna and EUT mounting jig
- Others (cable and etc.)

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