

We provide inexpensive electromagnetic wave emission pattern measurement system which space-saving and installation work not necessary.

Ideal for developing small wireless devices, information communication devices, and antennas.

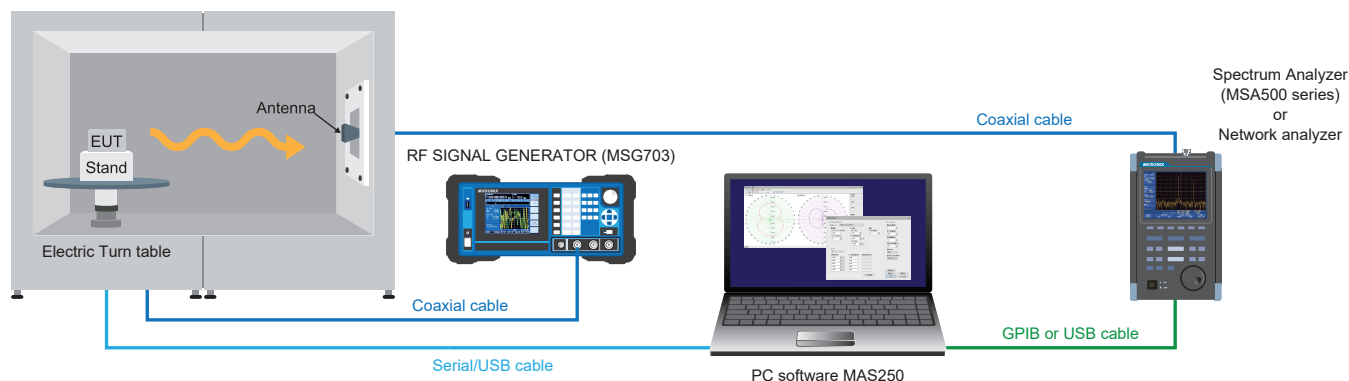


The electromagnetic radiation pattern measurement system (MRP770) is a system for measuring the radiation pattern of small wireless devices, information communication devices, antennas, etc.

With the rapid progress of IoT, wireless modules are installed in various terminals, and it is becoming more important to understand the antenna performance. This system is a material that introduces an example.

System diagram

Electromagnetic anechoic box MY5630ET



Measuring instrument

■ Spectrum analyzer

Measure the signal that is actively radiated from the EUT. It is mainly used for measuring wireless modules.

■ Network analyzer

Input a signal to the EUT and measure the signal radiated from the antenna. Mainly used to measure passive sources such as antennas.

■ Signal generator

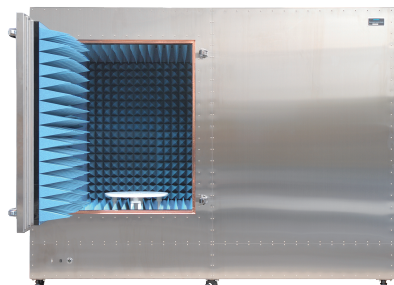
Input a signal to the EUT and measure the signal radiated from the antenna with a spectrum analyzer. Mainly used to measure passive sources such as antennas.

*Please contact us for compatible models.

Electromagnetic anechoic box

MY5630ET

A large anechoic box with excellent versatility, mainly for the sub-GHz to millimeter wave band.



Outside Dimensions (approx.)	2504(W)×1922(H)×1704(D)mm •excluding projections
Inside Dimensions (approx.)	2010(W)×1140(H)×1210(D)mm
Weight(approx.)	765kg
Radio wave absorber	Pyramidal absorber 8 inch
Reflection loss	30dB@1GHz 40dB@3GHz 50dB@5GHz •typ.
Shielding characteristics	more than 80dB@1 to 6GHz •typ. (when using shield sheet more than 60dB)
Front door	900(W)×1150(H)mm
Maintenance door	675(W)×675(H)mm
Turn table	φ500mm/30kg in load Uniform static load @center of table Structure POM(White)
Air intake and exhaust tube	Included
Interface	<div> <div> USB LAN </div> <div> Power supply(AC or DC) D-sub25 D-sub9 Shield sheet </div> </div> <div> <div> SMA(J)×5(left side×3, right side×2) </div> <div> } ×each 2pcs } ×each 1pc </div> </div>

MY5310SU-UP

A horizontally long anechoic box mainly for the 2 GHz band to the millimeter wave band (5G). Three-part structure.



Outside Dimensions (approx.)	1963(W)×1323(H)×1140(D)mm •excluding projections
Inside Dimensions (approx.)	1710(W)×775(H)×775(D)mm
Weight(approx.)	500kg
Radio wave absorber	Pyramidal absorber 4 inch
Reflection loss	20dB@1GHz 30dB@3GHz 40dB@5GHz •typ.
Shielding characteristics	more than 65dB@1 to 6GHz •typ
Front door	516(W)×926(H)mm •same for both sides
Turn table	φ500mm/30kg in load Uniform static load @center of table Structure Metal
Air intake and exhaust tube	Not included
Interface	<div> AC outlet DC power terminal block(3P) LAN D-sub25 </div> <div> N(J)×2(left/right side ×each 1pc) </div> <div> } ×each 1pc </div>

MY5310S-UP

A space-saving anechoic box mainly for the 2.4 GHz to 5 GHz band. Two-part structure.



Outside Dimensions (approx.)	1345(W)×1323(H)×1140(D)mm •excluding projections
Inside Dimensions (approx.)	1107(W)×775(H)×775(D)mm
Weight(approx.)	350kg
Radio wave absorber	Pyramidal absorber 4 inch
Reflection loss	20dB@1GHz 30dB@3GHz 40dB@5GHz •typ.
Shielding characteristics	more than 65dB@1 to 6GHz •typ
Front door	516(W)×926(H)mm
Turn table	φ220mm/10kg in load Uniform static load @center of table Structure acrylic
Air intake and exhaust tube	Not included
Interface	<div> AC outlet LAN </div> <div> USB×2 SMA(J)×8(left/right side ×each4) </div> <div> } ×each 1pc </div>

PC software MAS250

PC software for automatically measuring the radiation pattern of horizontal or vertical polarization.

Setting screen

Set the spectrum analyzer, network analyzer, and electric turntable. You can also save and read the set values.

Spectrum analyzer setting area

Electric turntable setting area

[Vertical axis]

Set the reference level and display scale.

[Horizontal axis]

Set the measurement point, center frequency, and frequency span.

[Measurement function]

Set the averaging count.

[Marker]

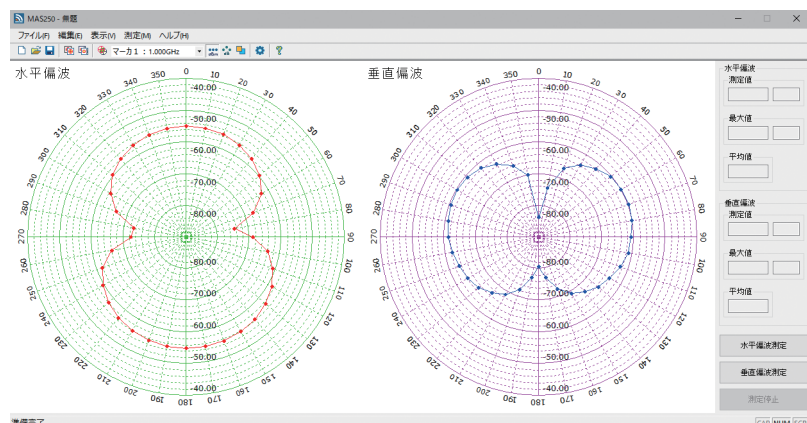
You can specify a maximum of 5 points for the marker within the set frequency span range.

[Turntable]

- Specify the measurement start position and end position in steps of 1 degree.
- The rotation step interval is at least 1 degree.
- Set the waiting time in ms unit until the angle to be measured is reached and the spectrum analyzer measurement is started.
- Set the measurement direction to either one-way (CCW) or round-trip (CCW+CW).

Measurement screen

Turn the turntable to the specified angle and perform sweep measurement with the spectrum analyzer. Automatically plot the signal level at the specified frequency on the polar graph.



•Horizontal polarization and vertical polarization are measured separately, and the measurement results are displayed on the same GUI.

•Displays the measured, maximum, and average values for both horizontal and vertical polarization.

•Measurement data can be output as a CSV file.

•The unit of measurement of the polar coordinate graph can be switched between absolute value display (dBm) and relative value display (dB). The relative value display is based on the maximum measured value.

Calibration example of the EIRP

① Antennas with known gains measure in the boresight direction. ① ②

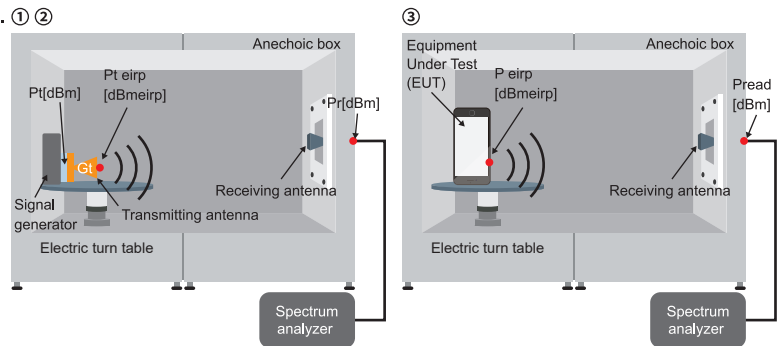
Pt[dBm]	Effective radiated power (ERP)
Gt[dB]	Antenna gain
Pt eirp[dBmeirp]	Equivalent isotropically radiated power Pt [dBm] + Gt [dB]
Pr[dBm]	Received power of RF connector part of Electromagnetic anechoic box through receiving antenna + coaxial cable

② Find the degree of antenna coupling.

K[dB]	Pt eirp[dBmeirp]-Pr[dBm]
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③ Can be measured radiation electricity of measured device (EUT) in reception system same as calibration.

P eirp[dBmeirp]	Pread[dBm]+K[dB]
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System configuration (Example of wireless module measurement from 1GHz to 8.5GHz)

Product Name	Model	Quantity
Electromagnetic anechoic box (Built-in Electric turn table)	MY5630ET	1
Shield sheet (Maintenance door side)	MY5630-03	1
Wooden base	MY5630-04	1
Double Ridge Horn Antenna Set (1 to 18GHz)	MY5630-01	1
Spectrum analyzer	MSA558	1
USB Cable	MI400	1
Coaxial cable (0.5m, Receiving antenna to Electromagnetic anechoic box)	MC201	1
Coaxial cable (4m, Electromagnetic anechoic box to Spectrum analyzer)	MC203	1
Conversion adapter	MA306	1
PC software	MAS250	1
PC for Measurement		1
Serial/USB cable		1
Calibration Kit		
SI costs (comprehensive testing, coupling measurement, etc.)		
Carry-in costs (transportation, carry-in, installation, etc.)		

Option (Example of anechoic box MY5630ET)

■ Doubleridge horn antenna set

Model	MY5630-01
Type	Doubleridge horn
Frequency	1 to 18GHz
Connectors	SMA(J)
Other	One set of fixing jig(*1)
Features	<ul style="list-style-type: none"> •Small antenna suitable for broadband measurement with sharp directivity. •Mounted on a fixed base, and receive and measure in horizontal / vertical plane using rotating mechanism. •Antenna evaluation such as mobile phone, wireless LAN terminal, base station.

■ Log periodic antenna set

Model	MY5630-02
Type	Log periodic dipole array
Frequency	700MHz to 6GHz
Connectors	SMA(J)
Other	One set of fixing jig(*1)
Features	<ul style="list-style-type: none"> •Correspond to high gain, wide bandwidth and high power output. •Mounted on a fixed base, receive in horizontal / vertical plane using rotating mechanism and then measure. •Combined with SG and high-frequency amplifier, enable to evaluate radiation immunity. •It is possible to evaluate receiving characteristics of base station and 4K broadcasting equipment.

(*1)Include connecting cables and connectors inside shield box.

■ Shield sheet (Maintenance door side)

Model	MY5630-03
Features	<ul style="list-style-type: none"> •Same as shield sheet equipped on the front of main body. •Set on the maintenance door side. •For drawing IF and coaxial, optical fiber and special cable.

■ Wooden base

Model	MY5630-04
Features	<ul style="list-style-type: none"> •Attach around the turntable and prevent interference of cables during rotation. •Since DUT can be placed once on wooden base between door and turntable, the burden of installation is reduced. <p>The surface of wooden base is 5mm lower than the surface of turntable.</p>

*Please contact us for details and combination of the system.

*MICRONIX Corporation reserves the right to make a change in design, specification and other information without prior notice.

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