

EMI/EMC Pre-compliance Test Set

Improve EMC Pre-compliance test work efficiency.



The combination of the new concept of near field probe set GKT-008 and GSP-9330's EMC pretest function improves the work efficiency of EMC pre-compliance test.

GKT-008 is an unprecedented new type of near-field probe set.

The less directional sensor helps engineers quickly find noise sources.

The EMC pre-compliance test function of the GSP-9330 provides a basic EMC measurement setting that enables more efficient measurement using the GKT-008.

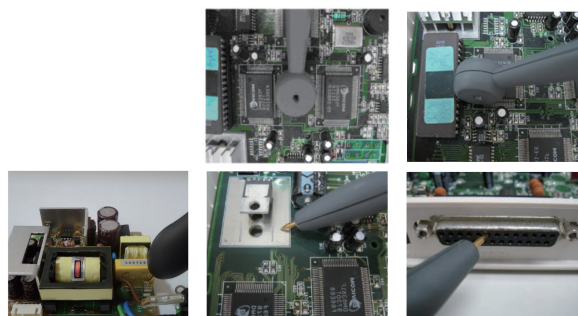
EMI Pretest Solution

EMC
Pretest

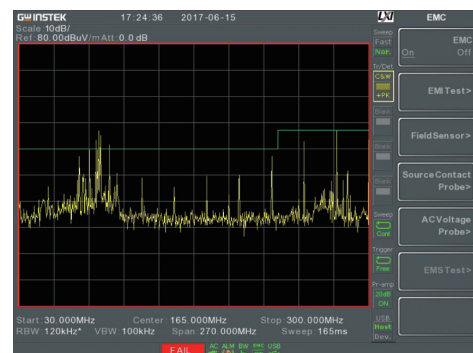
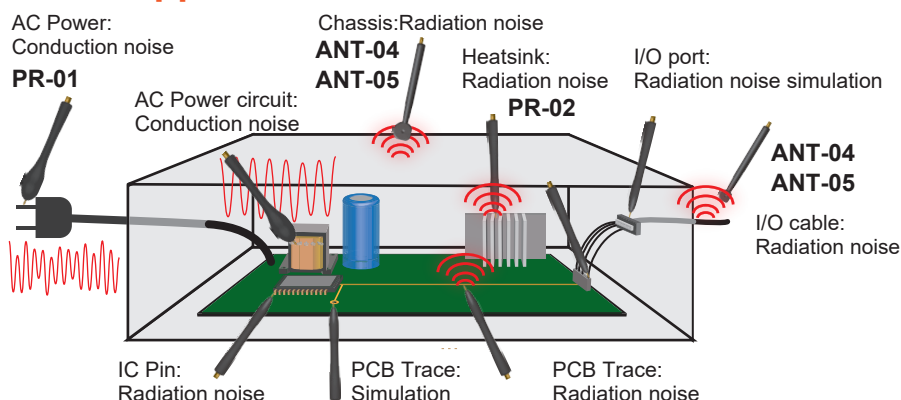


You just press the EMC button. You can easily start noise measurement!!

- Radiated noise from devices and equipment
- Radiated noise of parts and boards
- Radiated noise from cables and wires
- Confirmation of shield effect
- Conducted noise of power supply
- Susceptibility test



Probe Applications



「For those who are worried about measuring EMC noise in the near field...!」

It takes a long time to find the radiation source by changing the direction of the probe and measuring.



ANT-04/05 does not have any direction or angle issues and measure EM energy.

ANT-04

ANT-05



Difficult to measure at the same position. confirm the improvement effect, but it takes time



The PR-02 can measure the radiation noise by direct contact and confirm the effect of countermeasures pinpoint.

Before

After

Same Point



It takes time to set up for noise measurement



RBW, VBW, frequency range
And so on...



Start measurement simply by selecting a preset measurement frequency.

EMC
Pretest

Band A : 9k ~ 150kHz
Band B : 150k ~ 30MHz
Band C : 30M ~ 300MHz
Band D : 300M ~ 1GHz . . .
User Define: XX to YY

The EMC Room is full and I cannot measure.



I want to measure easily in my laboratory.

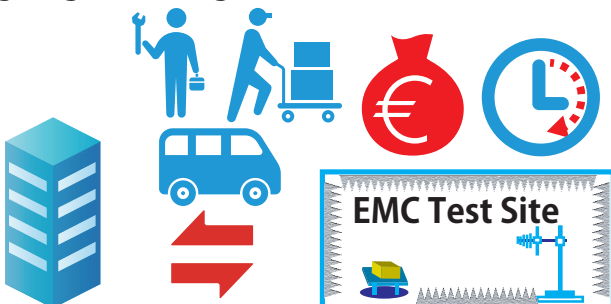
I want a compact system
DUT is too big to move



GSP-9330 weighs 4.5 kg and is compact, portable with a depth only 10 cm.
Operates for 2 hours on battery (optional).



You want to save money and time spent going to testing sites often.



Save site visits and time by comparing EMC pretest measurements with site data.



Optional
GPL-5010



ADB-008

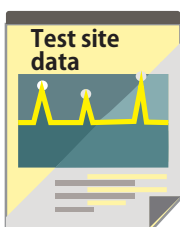


BA061

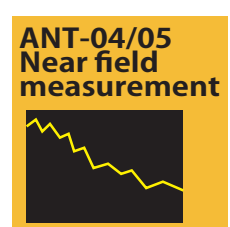
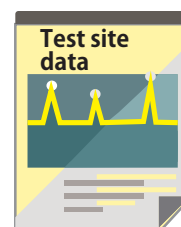


GSP-9330+GKT-008 set is very affordable!

There is no correlation in the near-field measurement with the measurement data of the test site.



ANT-04/05 measures electromagnetic energy.





Features of GKT-008

EMC
Pretest



GKT-008

Radiated noise :
30MHz ~ 3GHz

ANT-04

ANT-05

PR-02



Conducted noise
150kHz to 30MHz

PR-01



Useful with ANT-04 and ANT-05:

Improving noise search efficiency in the early stages of development

Shorten the time to confirm the effect of measures

The near-field probe ANT-04/05 is compact and highly sensitive.
You can efficiently search for the actual radiation source.

ANT-05



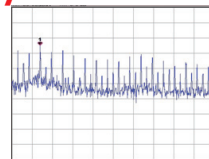
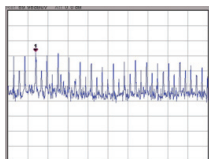
ANT-04



Since ANT-04/05 directly detects the energy of EM (electromagnetic wave) waves, there is no need to measure the electric field/magnetic field with separate probes as with general near-field probes.

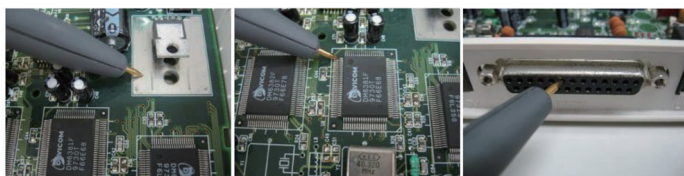
Since the ANT-04/05 has less directivity, you do not need to consider the angle and orientation problems during measurement like a general magnetic field probe.

Ultra-Low Directionality

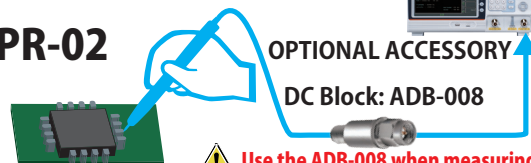


PR-02 can be measured pinpoint. It is effective for measuring the effect before and after taking measures.

The source contact probe PR-02 directly contacts and measures the radiation noise (30M-3GHz) such as PCB pattern, IC pin, I/O terminal, and ground pattern.



PR-02



OPTIONAL ACCESSORY
DC Block: ADB-008

Use the ADB-008 when measuring radiation noise with the PR-02.

The PR-01 can easily measure the voltage noise from the AC power source of the DUT.

The AC voltage probe PR-01 is used for the terminal voltage noise measurement (150kHz to 30MHz) of the power supply terminal.





You just press the EMC button. You can easily start noise measurement!!



Push
EMC Pretest
key.



Select Menu

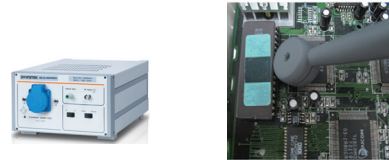


GSP-9330 can be used for various probes and LISN measurements.

EMC	Mes. Frequency range	Standard Int.	Frequency scale Type
Band> 300M-1GHz Amb.Noise Reject None Correction None Off RecallTest None Off Peak Table On More 1/2 Return	BandA 9k-150kHz BandB 150k-300MHz BandA+B 9k-300MHz BandC 30M-300MHz BandD 300M-1GHz BandC+D 30M-1GHz More 1/2 Return	10-30Hz User Define	None EN55022A EN5502B FCC A FCCB EN55015 User Define Return

EMI pretest: Measurement of radiation and conduction noise

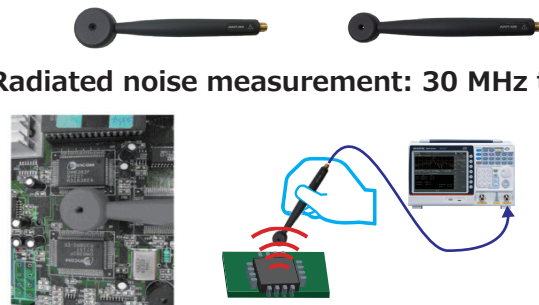
In addition to GKT - 008, it can be used for various probes and LISN.



Menu for ANT-04/05

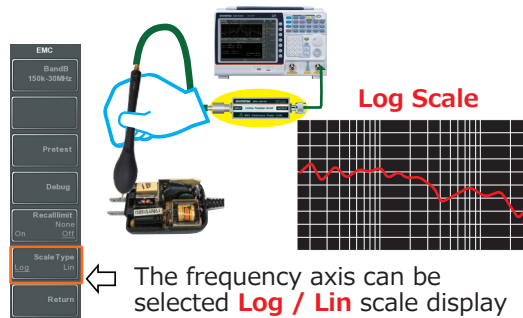
EMC	EMC	EMC	EMC
Band> 30M-300MHz Correction None Off RecallTest None Off Peak Table On Return	Band> 30M-300MHz 30M-300MHz 300M-1GHz 30M-1GHz User Define Return	None 3m 9m Other Factor Return	None EN55022A EN5502B FCC A FCCB User Define Return

Radiated noise measurement: 30 MHz to 3 GHz



Menu for PR-01

PR-01 is an AC voltage probe: 150 MHz to 30 MHz
PR-01 can maximally sustain CAT II, 300VAC



GPL-5010 is absolutely necessary

When you measure AC voltage by using PR-01, you should collocate with GPL-5010 transient limiter to avoid damaging spectrum analyzer and the RF input terminal of GSP-9330 or DUT receiver.

Optional: Transient limiter

GPL-5010

Input(BNC)-Output(N)



SMA-BNC adapter

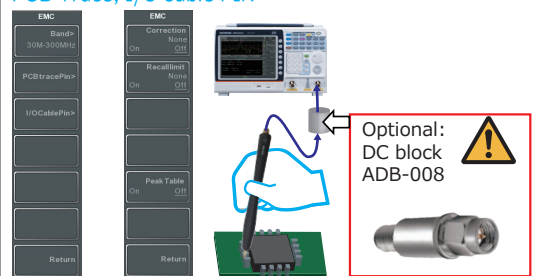
Menu for PR-02

Radiated noise measurement: 30 MHz to 3 GHz

Radiation noise countermeasure and effect check at pinpoint

Measure radiated band noise by directly contacting board pattern, radiator, ground plane, connector, I/O terminal etc.

PCB Trace, I/O cable PIN



EMS menu for ANT-04

Frequency range: 100 kHz to 3.25 GHz

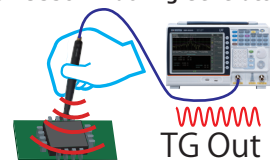
For the EMS function, it is possible to test the immunity (susceptibility) of the DUT using the field sensor ANT-04. Signal strength and frequency sweep range can be set.



※ To use this function, a tracking generator is required.

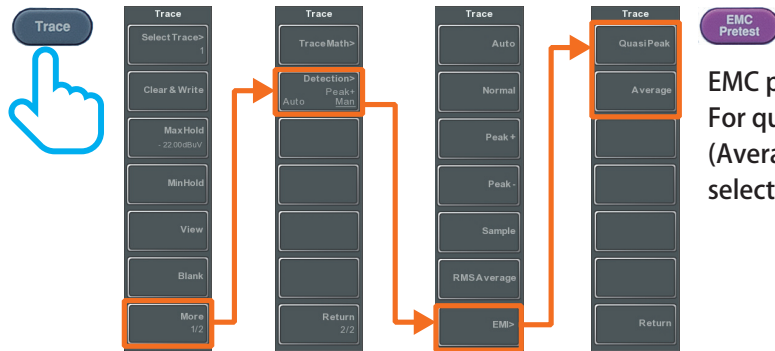
※ The tracking generator output signal is continuous wave. Signals can not be modulated.

GSP-9330+ Tracking Generator



Useful Feature

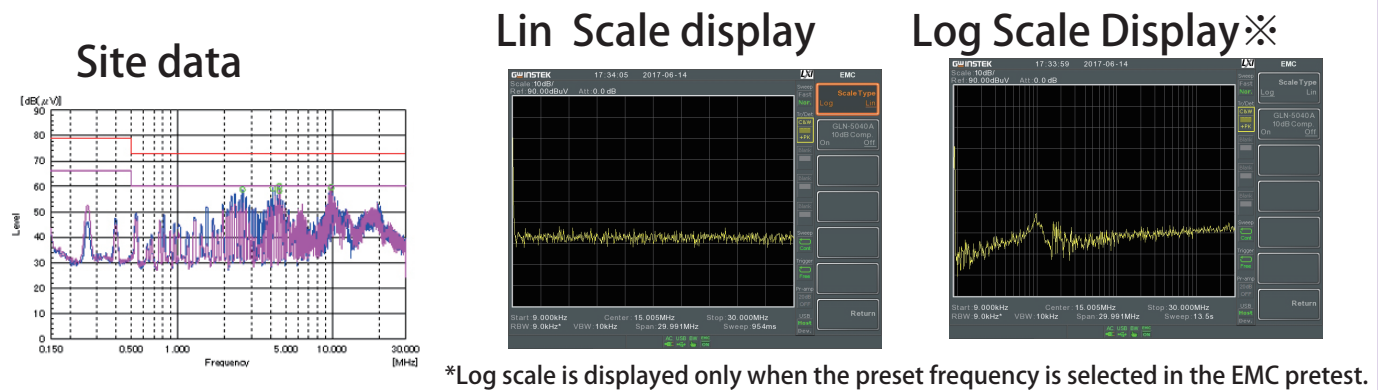
Standard support the quasi-peak detection and average detection



EMC pretest mode is usually measured with +Peak. For quasi-peak detection (QP) or average detection (Average), which takes a long time to measure, you can select from the Trace menu.

Useful Feature

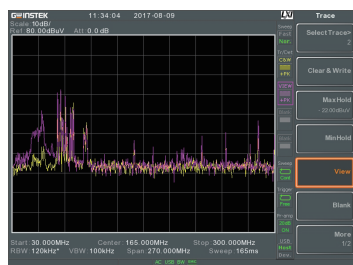
Log scale display makes it easy to compare directly with site data



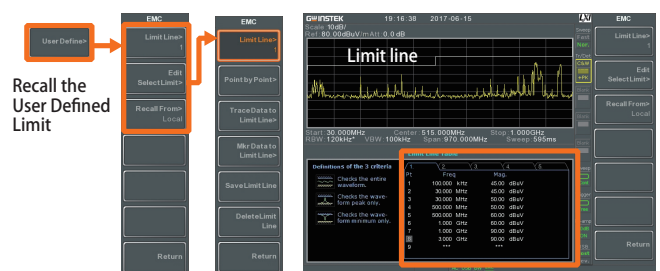
Useful tool Easy comparison of waveforms before and after countermeasures

You can save the waveform data immediately by the Quick Save key. You can easily compare the waveform before and after the waveform you measure it. by displaying the current waveform and then recalling the saved waveform data to another trace and displaying both on the screen.

Example:
Trace1 (yellow): Current waveform
Trace2 (purple): Recalled waveform



Useful tool Pass/Fail judgment limit can be defined



Five standard limits (EN, FCC) are built-in. In addition, it is user-definable. In addition to the five limit lines of the main unit, various limit values such as files in the main unit memory and external memory (USB, micro SD) can be set.

Useful tool Quick Save button Data can be saved immediately

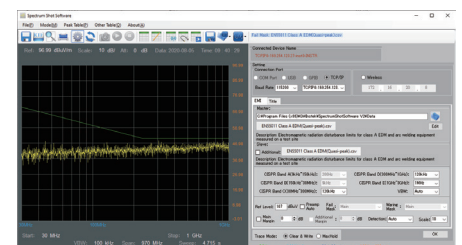
You can save the data immediately by pressing the Quick Save button on the front panel. Use the File button or Save button to set the data format to save.

Screen image (*.jpg), waveform data (*.tra), etc.

The extension "*.tra" file is a CSV format file. You can open it with spreadsheet software.

Useful tool PC Software "SpectrumShot"

Spectrum Shot can save the result of EMI measurement to PC.



EMI Field Sensor ANT-04 and ANT-05

Use of ANT-04/05 improves pre-compliance testing and debugging efficiency for radiation source search

Radiated noise measurement

ANT-04 ANT-05

30MHz to 3GHz

50Vdc CAT I

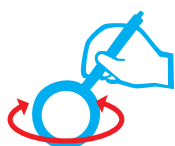
Input Impedance 1MΩ

1. Small size (2.6cm, 1.6cm), high sensitivity and good frequency characteristics
2. Direct measurement of EM waveform energy (no need to measure separately with electric/magnetic field probe)
3. Extremely low directivity. Since the problem of the angle and directionality is small, there is less radiation source judgment error and there is reproducibility in remeasurement.
4. Far mode measurement (3m or 10m) can be simulated in EMC mode (using GSP-9330 EMC mode)

Useful tool

Since ANT-04/05 directly detects the energy of EM (electromagnetic) waves, there is no need to measure the electric field and magnetic field with separate probes as with general near-field probes.

Use both H probe and E probe



EMI Field Sensor



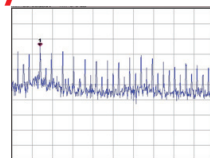
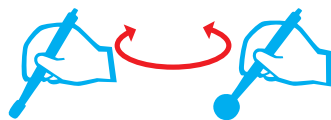
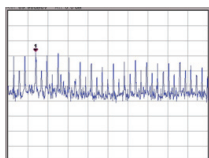
One probe

Simple and Fast

Useful tool

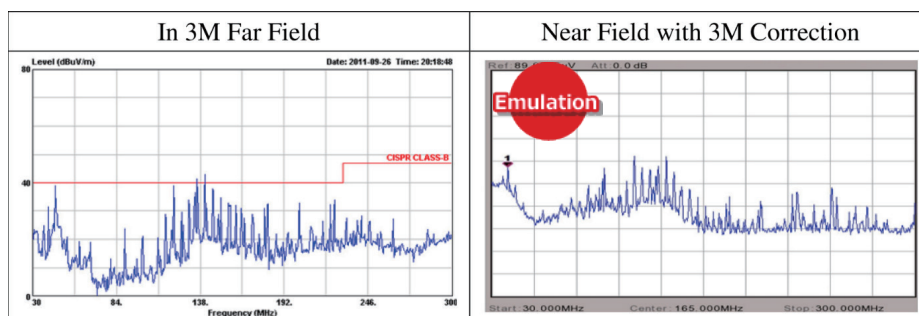
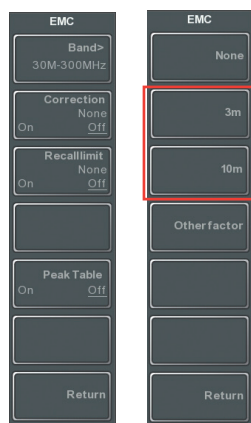
Since the ANT-04/05 has less directivity, you do not need to consider the angle and orientation problems during measurement like a general magnetic field probe.

Ultra-Low Directionality



Useful tool

GSP-9330 has a function exclusively for GKT-04/05 that can emit radiation close to the far field (3m/10m)!



The 3m / 10m measurement reference data from the test site will make the emulation more useful.

AC Voltage Probe PR-01 with GSP-9330



PR-01

150kHz to 30MHz

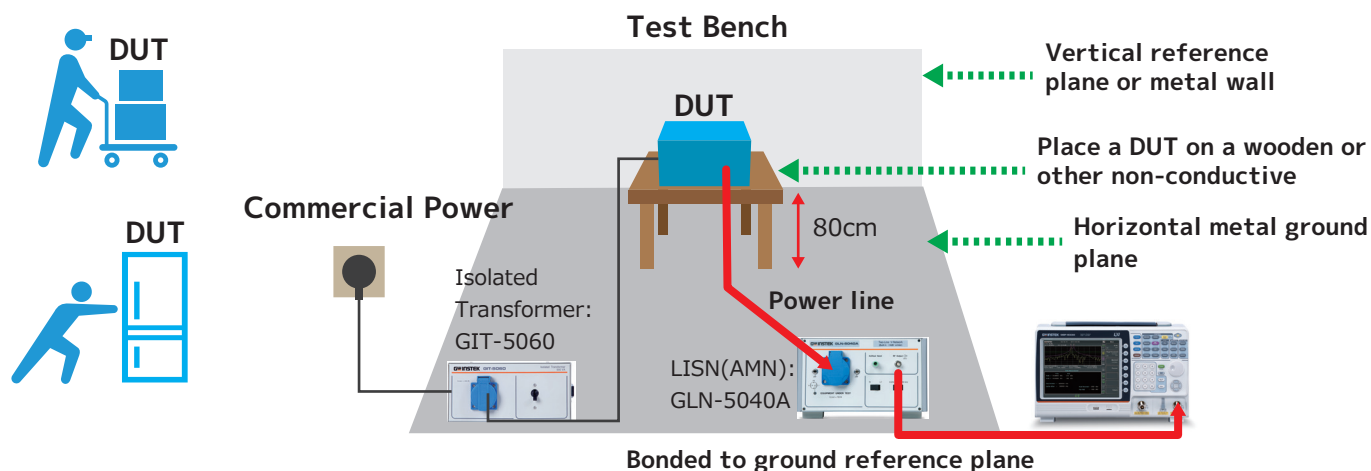
300Vac CAT I/CAT II

Input Impedance 10MΩ

In order to measure the conducted noise correctly, the location where the measuring device is properly installed is required. Therefore, Engineers need to carry the DUT to the place for measuring the conducted noise.

However, if he can measure it on his own workbench, it will be more efficient if he can confirm the effect before and after.

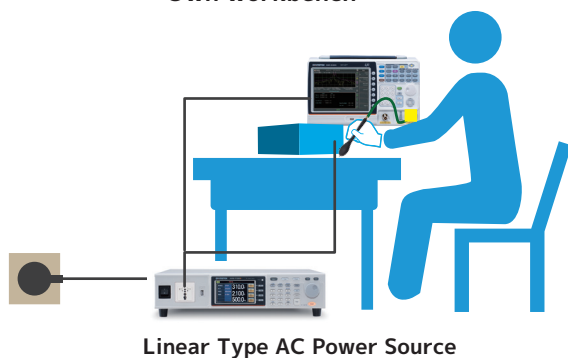
System example: Conductive noise Test Layout



System example: Conductive noise Test Layout

The GKT-008 AC voltage probe "PR-01" and GSP-9330 AC voltage probe settings enable simple measurement of the noise terminal voltage (CISPR16-1-2) of the AC power supply (LINE).

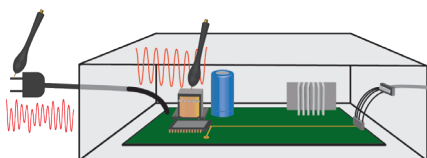
Own workbench



Linear Type AC Power Source



Use the Transient Limiter GPL-5010 to avoid damaging the RF input terminals of the instrument.

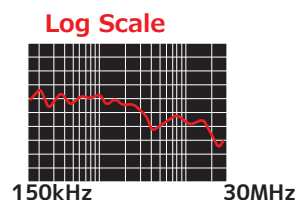


Useful tool

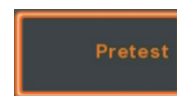
PR-01 with GSP-9330

GSP-9330 EMC menu: AC Voltage probe

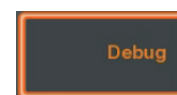
The frequency axis can be selected **Log / Lin** scale display. The LOG scale can be displayed directly on the GSP-9330 screen.



Simulation mode: Measurement similar to LISN noise terminal voltage test



Debug mode: Measurement mode for evaluating AC power supply circuits and components





Evaluation

Improve EMI pre-compliance test efficiency : Pinpoint Test

GW INSTEK
Simply Reliable Since 1975

EMI Probe PR-02



PR-02

30MHz to 3GHz

50Vdc CAT I

Input Impedance 1M Ω

Optional:
DC block
ADB-008



Menu for PR-02

PR-02 is effective for the following measurements.

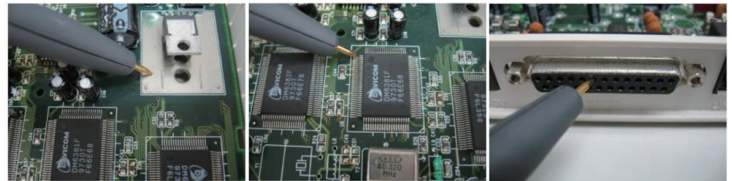
Radiated noise of ground and power supply

Radiated noise of PCB pattern

Radiated noise from IC pin

Radiated noise on I/O pins

Check the validity of the filter



Measure radiated band noise by directly contacting board pattern, radiator, ground plane, connector, I/O terminal etc.

How do you verify the effect after the measures?

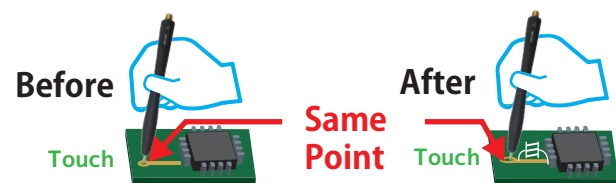
With a general loop antenna, it is difficult to measure noise at the same location (position) due to the influence of directivity and noise from other parts.

Therefore, it takes time for the engineer to confirm the improvement effect.



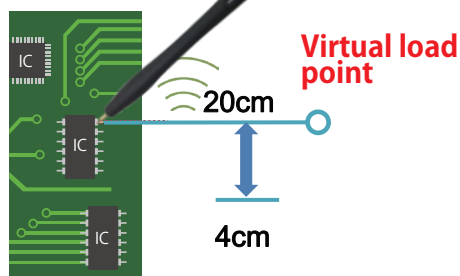
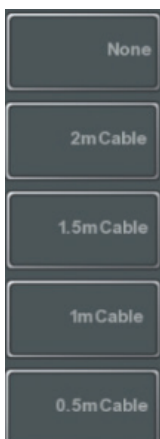
Solution!

PR-02 measures the noise by directly touching the measurement location, so engineer can confirm the effect of the countermeasures in pinpoint.

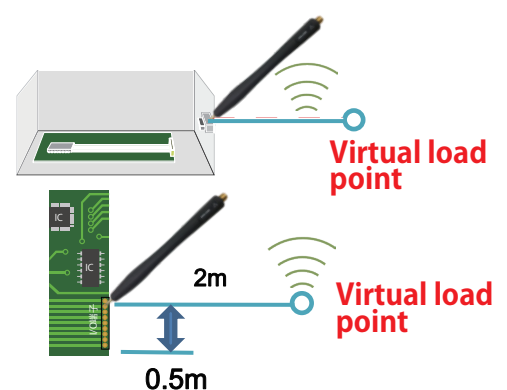
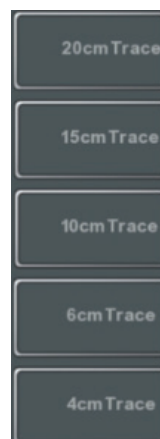


Useful tool PR-01 with GSP-9330

Emulate pattern length



Emulate cable length



Example of combination of EMC measurement

Radiated noise measurement

1. GPS-9330, GKT-008
2. GSP-9330, GKT-008, ADB-008

Spectrum Analyzer:
GSP-9330



EMI Near Field Probe Set:
GKT-008



DC Block:
ADB-008



Radiated noise measurement + simple EMS

1. GPS-9330+TG, GKT-008
2. GSP-9330+TG, GKT-008, ADB-008

Spectrum Analyzer:
GSP-9330



EMI Near Field Probe Set:
GKT-008



DC Block:
ADB-008



Simple Conducted / Radiated noise measurement + simple EMS

GSP-9330+TG, GKT-008, GPL-5010*, ADB-008

Spectrum Analyzer:
GSP-9330



EMI Near Field Probe Set:
GKT-008



Transient Limiter:
GPL-5010



DC Block:
ADB-008



Full Conducted / Radiated noise measurement + simple EMS+Battery

GSP-9330+TG, GKT-008, GPL-5010*, ADB-008, Option 02 (Battery Pack)

Spectrum Analyzer:
GSP-9330



EMI Near Field Probe Set:
GKT-008



Transient Limiter:
GPL-5010



DC Block:
ADB-008



Two-Line V-Network(LISN):
GLN-5040A



Isolated Transformer:
GIT-5060



SMA-BNC Adaptor



When using GPL-5010, SMA-BNC conversion adapter is required.

Europe Subsidiary

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