



TOYO

EMC SELECTION CATALOG

2026-2027

EMC Solution Catalog

Table of Contents

Contents

Category

Emissions	P4-17
Immunity	P18-24
Vehicle EMI	P25
Vehicle EMS	P26-27
On-Vehicle Equipment EMI and EMS	P28-29
Vehicle and On-Vehicle/ Equipment EMC Test Accessories	P30-33
Transient Test for Equipment on Electric/Hybrid Vehicles	P34-39
Reverb./Shielding Effectiveness Test	P40-41
EMC Business	P42-43

Emissions Measurements for Consumer Electronics	4-5
Latest EMI Measurement Solutions	6-7
Pre-compliance Spectrum Analyzers X Series	8
EMI Test Receivers	9
Emissions Measurement Software "ES10"/EMINT	10
G-CELL	11
EMI Accessories	12-16
Microwave EMI Measurement Accessories	17
Immunity Test for Consumer Electronics	18-19
RF / MW Power Amplifiers	20
RF Power Amplifiers / RF Band Selectors	21
Immunity Accessories	22-23
System for IEC/EN 61000-4-31, -39	24
Full-Vehicle Emissions Measurement System	25
Full-Vehicle Immunity Test System	26-27
Emissions Measurements and Immunity Test for On-vehicle Equipment	28-29
RF Power amp TA0122 Series	30
EMC Test System for On-vehicle Electronic Equipment	31-33
Transient Test for Equipment on Electric/Hybrid Vehicles	34-35
Conducted Immunity Testers for Consumer and Industry Electronics	36
Emission / Immunity Testers for On-vehicle Equipment	37
Immunity Testers for HV On-vehicle Electronic Equipment	38
ESD Testers	39
Reverberation chamber / EMI Shielding Effectiveness Testing Equipment	40-41
EMC Business History & Global Business	42-43

TOYO EMC Solutions

With more than 40 years of experience and achievements in the field of EMC testing, we continue to provide EMC solutions not only domestically but internationally, including in regions such as China, Southeast Asia, and the US. Our EMC solutions help you conduct the EMC tests compliant with industry standards. These standards range from those for consumer electronics, automobiles, wireless devices, and information equipment, to those of the United States military (MIL-STD).

Emissions (EMI) Measurement Solutions

From the simplified tests for EMI evaluation and mitigation at the R&D stage to final certification measurements according to standards done in the anechoic chamber, we provide the optimal systems, products, and accessories to meet a variety of user needs.

Measurement Systems For Compliance

- Consumer (CISPR, EN, ETSI, FCC, VCCI, etc.)
- Vehicle (each radiation / conducted emissions standard, each vehicle manufacturer's standard)
- Aircraft, MIL
- Medical care (IEC60601-1-2, CISPR 11)
- Wireless device TS51.010-1, TS34.121 (3GPP) Mobile phone EN300 328, EN301 893 (ETSI) Wireless LAN, etc.

For Simpler Measurements

- G-Cell, G-TEM

Measurement Software

- EPX series
- ES10 series
- EP series

EMI Test Receiver (CISPR16-1-1 Compliant)

Accessories

- Antenna: 20Hz-40GHz
- Preamplifier: 9kHz-40GHz
- Artificial mains network
- ISN, AAN
- Absorbing clamp
- Comb generator



Immunity Test Solutions

Efficient and reliable immunity testing can be performed by automatically controlling optimal systems for the applicable product standards including signal generators, field probes, power meters, antenna masts, and other equipment. A wide variety of products for pulse immunity testing are also available.

Measurement Systems

- Consumer (IEC, EN, CISPR, JIS, national standards, etc.)
- Vehicle (ISO, standard of each vehicle manufacturer)
- Aircraft, Military
- Medical care
- Mobile phone (EN 301 489) and others

Measurement Software

- IM series

Power Amplifiers

- 9kHz-40GHz

Accessories

- Antenna: 10kHz-40GHz
- Power meter / sensor: 9kHz-40GHz
- CDN (CISPR16-1-2 compliant)
- Electric field sensor: 10kHz-40GHz
- Current probe
- Fiber optic link system, camera

Pulse Immunity Systems

- ESD tester (IEC61000-4-2, ISO10605 compliant)
- Pulse immunity simulator (Compliant with IEC61000-4-4, IEC61000-4-5, etc.)
- Pulsed immunity test system for on-vehicle devices

Vehicle-related Immunity Test System

- Radiation immunity test system
- Radar pulse compatible immunity test system
- Microwave radiated immunity test system
- Cell method (G-TEM, TEM CELL, TriPlate, Strip Line) immunity test system
- BCI method immunity test system
- Portable transmitter immunity test system
- Reverberation chamber test system

Other Solutions

- Shield effect measuring device

Emissions Measurements for Consumer Electronics

Summary

With the shift to digital and mobile electronic devices with the change to high-density packaging, identifying noise sources and taking mitigating measures for EMC have become increasingly difficult. Solutions for responding to yearly revisions in standards such as increases in frequencies at the upper measurement limit and maximizing the amount of data that is collected and saved for complicated noise fluctuations are in demand.

TOYO developed the "EPX" and "ES10" software series to respond to these demands. We supply and propose EMI measurement systems that suit a variety of users.

Our refined user interface dramatically improves ease of use, satisfying beginners and experts alike. From simplified tests for electronic device EMI mitigation to final compliance tests performed in accordance with standards, our automation of EMI measurement allows you to realize a clear increase in measurement efficiency. Basic measurement features include:

- Collection of spectrum data
- Selection of noise that needs the final measurement (QP, PK, AV)
- Measurement of a location at the maximum radiation (azimuth, height pattern, clamp location)
- QP and AV measurement of noise level
- Time-domain scan measurement
- Display, output, and saving of measurement results
- Support of latest Windows OS: most suitable hardware configuration

EMI Measurement Software Versions include:

- EPX/RE - Radiated Emissions Measurement and Analysis Software
- EPX/CE - Conducted Emissions Measurement and Analysis Software
- ES10/RE - Radiated Emissions Measurement Software
- ES10/CE - Conducted Emissions Measurement Software
- ES10/RFP - RF Power Emissions Measurement Software
- EP5/NSA - Site Attenuation Measurement Software
- ES10/LE - EMI Measurement Software Limited Edition
- EP5/RSE - Radiated Spurious Emissions Measurement Software

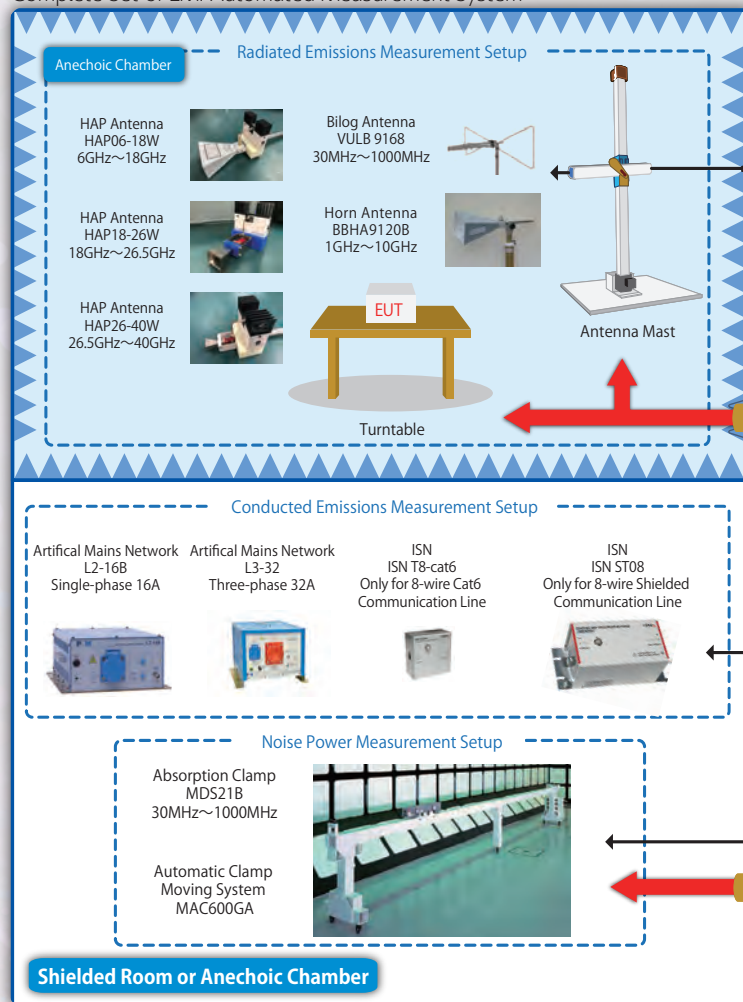
Viewer Software include:

- EPX/VIEW Series
- ES10/VIEW Series

Supported Standards include:

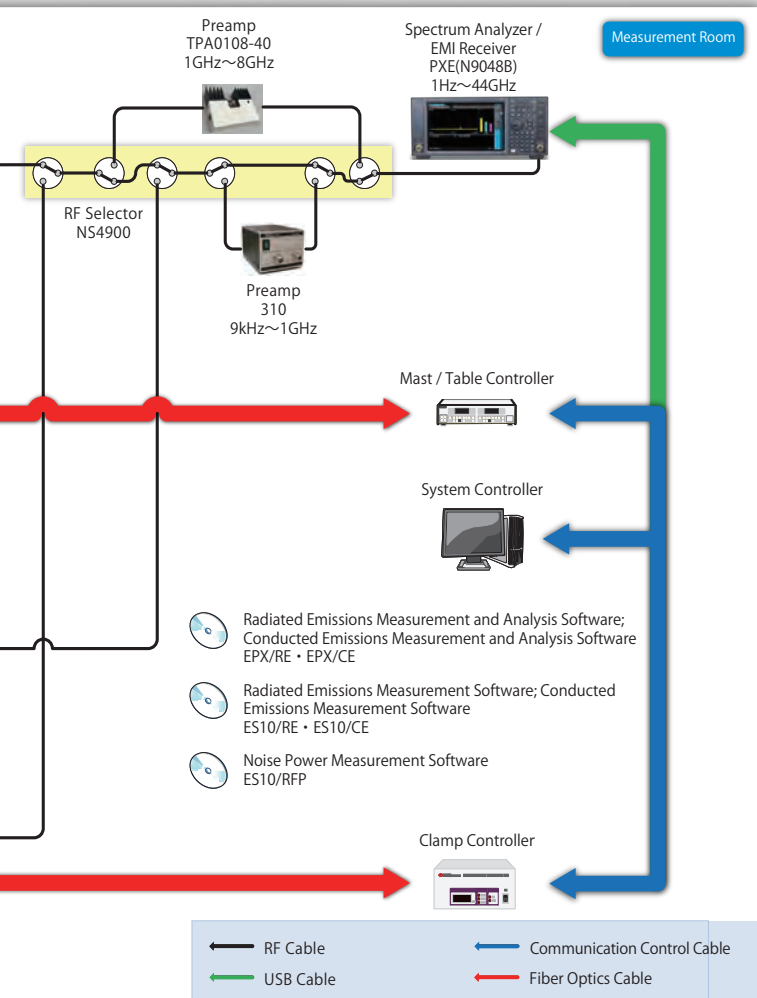
- For consumer electronics: CISPR, EN, ETS, FCC, VCCI, and others

Complete Set of EMI Automated Measurement System



Radiated Emissions Measurement and Analysis Software;
Conducted Emissions Measurement and Analysis Software
EPX/RE · EPX/CE





Measurement Systems

1. Automated Radiated Emissions Measurement System (30MHz - 40GHz)

Noise emitted from the equipment under test (EUT) is picked up by an antenna and passes through a spectrum analyzer, from which data can be obtained, or undergoes QP measurement on the EMI receiver. Features such as these allow this system to be used for applications including noise mitigation measurements or final compliance tests. For frequency expansion in the 1 GHz-40 GHz range, we propose a measurement system with an optimal combination of antenna, preamp, spectrum analyzer, and receiver.

2. Automated Conducted Emissions/ Radiated Magnetic Field Measurement System (9kHz - 30MHz)

Conducted noise from the EUT is measured with equipment such as an artificial mains network and a current probe. This system is also compatible with ISN and AAN, networks for communication ports that meet CISPR 22/32 requirements.

3. Noise Power Measurement System (30MHz)

Noise power from the EUT is detected with an absorbing clamp, and the frequency and level are measured with a spectrum analyzer or an EMI receiver. This system is also compatible with the automatic absorbing clamp moving system.

4. SVSWR Measurement System

This system is designed for carrying out the SVSWR method, which evaluates the test site in a GHz range. The use of a specialized transmitting antenna positioner allows for highly reproducible measurements.

5. Radiated Spurious Emission Measurement System

This system measures radiated spurious emissions from electromagnetic radiation emitting devices such as cell phones and wireless LANs. This system can perform effective radiated power and spurious emission measurements defined in the 3GPP and ETSI standards.

EMI Receiver N9048B PXE



Latest EMI Measurement Solutions

EMI Receiver "N9048B PXE" + Emissions Measurement and Analysis Software "EPX"

Are these problems all too familiar to you?

An FFT-based EMI Receiver may help.

- ✓ A wide variation in measurement values, no repeatability
- ✓ Measurement values differ every time even when the same DUT is measured
- ✓ Noise that exceeds the limit cannot be found easily or whether the measures taken are effective cannot be determined
- ✓ Being inexperienced to operate the EMI receiver, you have difficulty in measuring the target noise

Latest EMI Solutions



EMI solutions
website



EMC solutions
website

Keysight Technologies' Latest EMI Receiver – "N9048B PXE"



Expand Time-domain Frequency Range from 350MHz to 1GHz

Gapless Measurement (Realtime Scan)

Highly repeatable measurement and observation of all noise including constantly-varying noise and impulse-type noise is possible without missing any noise! More than 92% FFT overlaps has been achieved.

Scalability

The time-domain frequency range can be expanded from 350MHz to 1GHz by adding an expansion unit to the traditional PXE.

High frequency resolution (Best in industry)

The frequency resolution of RBW/4 has been achieved. This performance affects the level accuracy. Example: Frequency range: 30MHz-1GHz, Step frequency: 30kHz

Flexible RBW setting

RBW configurable in 3kHz, 120kHz or 1MHz, supporting EMC testing for on-vehicle electronics.

While the traditional PXE requires 3 measurements for the measurement from 30MHz to 1GHz, the new PXE (1GHz model) can complete the same measurement in one measurement, which further improves the productivity of the EMC measurements.

New Keysight EMI Receiver – “N9048B PXE”

EMI Receiver with World's First TDS Option – A-TDS (Accelerated Time Domain Scan) – Supporting the Industry's Widest Bandwidth of 1GHz

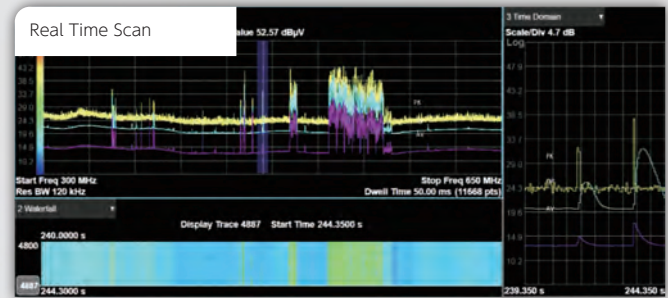
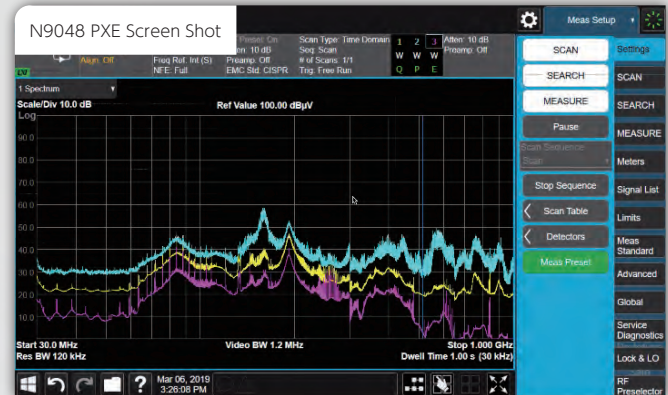
The EMI receiver “N9048B PXE” supports the latest TDS function (A-TDS) with a 1GHz FFT bandwidth – the frequency range in which measurement data can be converted into spectrum at one time, which is the widest FFT bandwidth in the world. Because it makes use of TDS, the FFT function is very different from that of an oscilloscope; it has a good pulse response, and it is also possible to perform evaluations with detectors with long time constants such as with QP detectors.

With A-TDS, Measurements in Only 1 Step

In conventional radiated emissions measurements in a range of 30MHz to 1000MHz, scans using a peak detector is performed while the receive frequency is changed over 13 steps to cover the entire range. Using the A-TDS function, measurement can be taken in 1 step. Scans using a QP detector that conventionally took 40 steps can be carried out in 1. This is particularly true for measurements using the QP detector; since scans can be completed in only 2 seconds, this leads to the reduction in the evaluation time when you perform EMI measurements for automobiles and on-vehicle electronic equipment.

Radiated Emissions Testing Using Real-Time Scan

Real-Time Scan (RTS) does not miss noise and detects all changes in fluctuating noise. As a result, RTS eliminates the problem of value discrepancies due to differences in measurement conditions or to the person taking the measurement, which is often seen in the measurement with conventional sweep-type spectrum analyzers and EMI receivers. In addition, with its simple operation, it can be used to observe noise behavior by R&D engineers focused on noise mitigation who may not be highly experienced at taking measurements, allowing them to concentrate on confirming the nature of and mitigating noise.

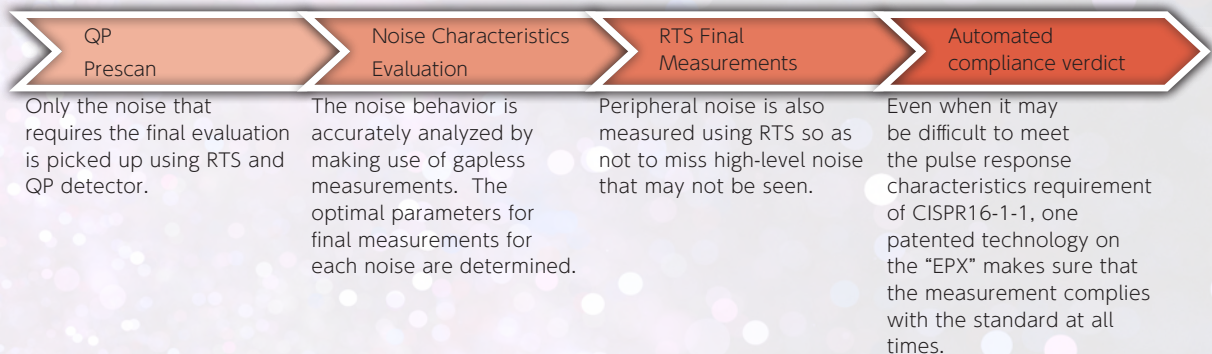


EPX Emissions Measurements Analysis Software

New EMI Measurement and Analysis Software Lead you to Success with the A-TDS Function

Integrating the automated measurements sequence on the “EPX Series” with the A-TDS function with the Keysight Technologies' newest EMI receiver, the “N9048B PXE,” allows highly reliable EMI measurements to be made without missing noise. This EMI measurement analysis software is completely new. Time-domain analysis is possible on the measured noise data in addition to a frequency domain, making it an effective tool for noise mitigation. Moreover, the “Unwanted Impulse Removal” and “Standards Compliance Evaluation” functions developed using our company's patented technologies are included, making it possible for anyone to carry out international standards compliance tests.

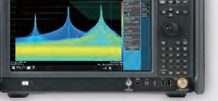
Automated measurement Sequence using A-TDS



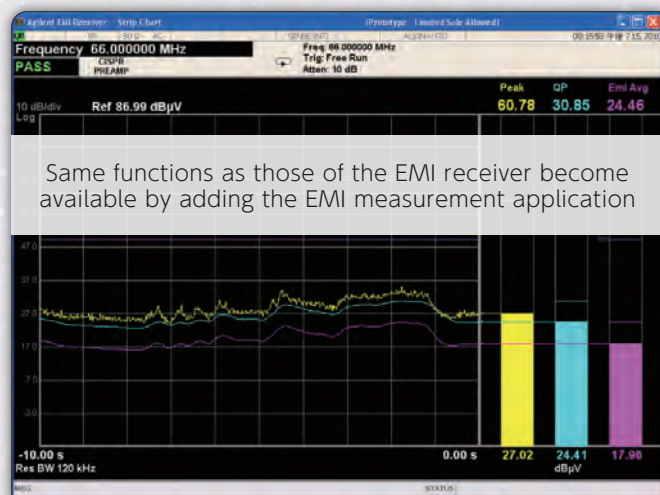
Pre-compliance Spectrum Analyzers: X Series

The addition of the EMI option to Keysight Technologies' X Series signal analyzer allows it to be equipped with EMI filters and detectors. The CPU, memory, hard drive, and I/O ports are upgradable. With license key-based upgrades, functions and applications can be added.

Pre-compliance Spectrum Analyzers: X Series

					
	N9000B CXA High-speed, low-priced model ideal for mass production	N9010B EXA Easy millimeter wave and microwave measurement	N9020B MXA R&D Optimal high performance	N9030B PXA Ultra-high performance for research	N9040B UXA Highest Performance
Frequency Band	9kHz-26.5GHz	10Hz-44GHz	10Hz-50GHz	2Hz-50GHz	2Hz-50GHz
Analysis Bandwidth	25MHz BW	40MHz BW	160MHz BW	510MHz BW	1GHz BW
Real-time Analysis Bandwidth	N/A	N/A	160MHz	255MHz	510MHz
Long Time Streaming	N/A	40MHz	40MHz	255MHz	255MHz
2dB Step Attenuator	option	option	standard	standard	standard
Noise floor Reduction Function	N/A	option	option	standard	standard
TG / 75 Ω 2nd Input	option	N/A	N/A	N/A	N/A
Frequency Range	10Hz -30MHz	30MHz - 300MHz	30MHz - 3GHz	30MHz -3GHz	30MHz - 3GHz

Equipped with a Real-time Spectrum Analyzer



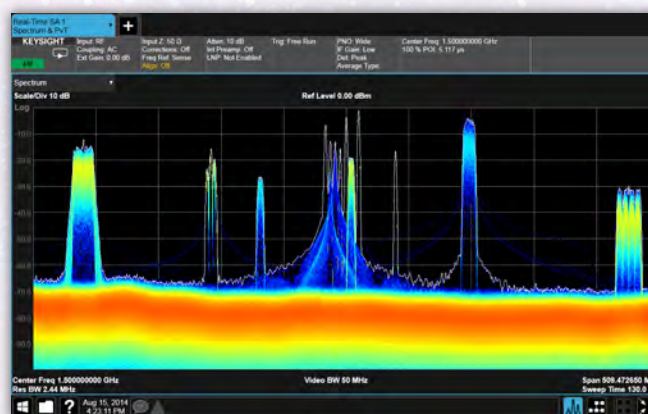
By adding Realtime Spectrum Analyzer (RTSA) functions, noise that is difficult to find is captured in real time

- A signal of 3.33ns is detectable with 100% POI (Probability of Intercept)
- Realtime signal analysis is possible at a frequency up to THz range using an external mixer
- Spectrum in all frequency ranges of the analyzer is being monitored in Step Density Display
- A spurious-free dynamic range of up to 7dB allows display of small signals even while large signals exist

The software provides innovative user experience with multi-touch display

- Intuitive operations like with modern smartphones
- Time-consuming operations can be completed in two or less steps

Function	EMI Measurement Application
CISPR 16-1-1 Detector	●
CISPR 16-1-1 Bandwidth	●
MIL-STD 461 Bandwidth	●
Log / Linear Display	●
Signal List	●
Scan Table	●
Simultaneous Detector	●
Automatic Limit Test	●
Marker Measuring Function	●
Difference from the Limit	●
Strip Chart	●
Step / Sweep Scan	●
Reporting Function	●
Time Domain Scan	●
Spectrum Monitor	●
Amplitude Probability Distribution	●
Interfering Wave Analyzer (click measurement)	●
UI Similar to MXE	●



Customer testimonials (using a multi-touch screen for the first time with UXA):

- "The signal enlargement / reduction function is certainly convenient."
- "Thanks to the tab function, you don't have to reset the settings to different settings."
- "Since the complex menu structure is gone, it is easier to use."

EMI Test Receivers

PMM 9010F, ER8000, ER9000

EMI Test Receiver – 9010 Series

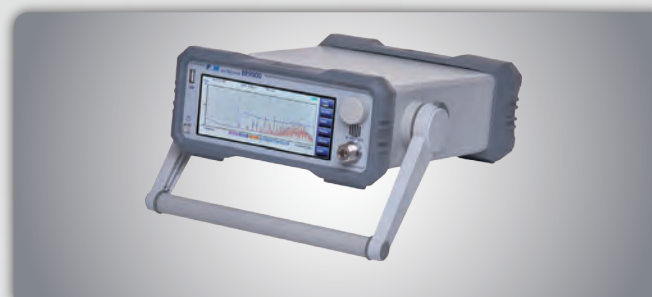
Narda Safety Test Solutions' EMI test receivers were developed with a design concept distinct from that of conventional EMI receivers. Their basic performance complies with CISPR 16-1-1. The 9010F EMI receiver is a compliance receiver specialized for conducted emissions measurements and have far better cost performance than conventional receivers used for radiated noise. Moreover, their design allows you to extend the basic models by adding functions such as frequency expansion and FFT, which helps reduce the measurement time, and can also be used for radiated noise measurement.

9010F FFT Time-Domain Digital EMI Receiver

- High-speed QP measurement for a wide band is possible using the FFT feature
- Support a measurement frequency band of 10Hz-30MHz

ER8000 FFT Time-Domain Digital EMI Receiver with LISN Built-in

- High-speed QP Measurement is possible in a wide bandwidth using the FFT feature
- QP and AV values for the entire frequency band (10kHz to 30MHz) for conducted emissions are obtained in 2 seconds
- Receiver with LISN (single phase, 16A) built in
- Receiver compliant with CISPR16-1-1



ER9000 FFT Time-Domain Digital EMI Receiver

- CISPR 16-1-1 Fully-compliant
- 10Hz - 30MHz Frequency range option Opt00
- 10Hz - 3GHz Frequency range option Opt01
- Gapless FFT
- Touch screen, color display

Specifications/Model Number	9010F	ER8000	ER9000 Opt00	ER9000 Opt01
Frequency Range	10Hz-30MHz	9kHz-30MHz (or 3GHz)	10Hz-30MHz	10Hz-3GHz
Resolution	0.1Hz	1Hz (100Hz for 30MHz or above)	0.1Hz, 10Hz (30MHz or above)	0.1Hz, 10Hz (30MHz or above)
Reference Frequency	< 1 ppm		< 1 ppm	< 1 ppm
RF Input	BNC fem., Zin 50 Ω		N fem., Zin 50 Ω	N fem., Zin 50 Ω
VSWR:10dB RF att.	< 1,2	< 1.2 (<2 for 1GHz or above)	<1.2 : <2 (1GHz or above)	<1.2 : <2 (1GHz or above)
VSWR:0 dB RF att.	< 1,6		< 1.6 : <2 (30MHz or above)	< 1.6 : <2 (30MHz or above)
Attenuator	0dB-35dB (5dB step)	0dB-45dB (5dB step)	0dB-55dB (5dB step)	0dB-55dB (5dB step)
Preamp Gain	20dB	20dB (10dB for 30MHz or above)	20dB; 10dB (30MHz or above)	20dB; 10dB (30MHz or above)
Pulse Limiter	Built-in (switchable)	Built-in (30MHz or below)	Built-in (30MHz or below)	Built-in (30MHz or below)
Maximum Input	137dBμV (1W)	140dBμV (2W)	140dB μ V(2W); 137dB μ V(1W 30MHz or above)	140dB μ V(2W); 137dB μ V(1W 30MHz or above)
Preselector	1LP filter, 6BP filter	7 BP filter, 10MHz BW to ADC	13BP filter, 7.5/15MHzBW ADC	13BP filter, 7.5/15MHzBW ADC
IF Bandwidth				
3 and 6dB	1, 3, 10, 30, 100, 300kHz	100, 300Hz, 1, 3, 10, 30, 100, 300kHz, 1, 3MHz	10,20,30,50,100,200,300,500,1k,2k,3k,5k,10k,20k,30k,50k,100k,200k,300k,500k,1M,2M,3MHz	10,20,30,50,100,200,300,500,1k,2k,3k,5k,10k,20k,30k,50k,100k,200k,300k,500k,1M,2M,3MHz
CISPR 16-1-1	200Hz, 9kHz	200Hz, 9, 120kHz, 1MHz	200Hz, 9, 120kHz, 1MHz	200Hz, 9, 120kHz, 1MHz
MIL-STD-461 (optional)	10, 100Hz, 1, 10kHz	N/A	Included	Included
Detector	Peak, QP, Average, RMS, RMS Ave (optional), C Ave, APD	Peak, QP, Average, RMS, RMS Ave (optional), C Ave., Smart detector function (30MHz or above)	Peak, QP, Average, RMS, RMS Ave., C-Ave, Smart detector function (30MHz or above)	Peak, QP, Average, RMS, RMS Ave., C-Ave, Smart detector function (30MHz or above)
I/O interface	RS232C, USB High Speed Optical (2ch) GPIB (optional)	USB 2.0 type B, RS-232 DB9, User port DB15	USB2.0 typeB, RS232 DB9, User port DB15, USB typeA (for memory stick), Serial optical interface RP02, Ethernet 10/100 Base RJ45	USB2.0 typeB, RS232 DB9, User port DB15, USB typeA (for memory stick), Serial optical interface RP02, Ethernet 10/100 Base RJ45
RF Output	BNC: fem. 50 Ω CW: 10Hz-50MHz Tracking mode: 10Hz-30MHz	BNC: fem. 50 Ω CW: 10Hz-50MHz Tracking mode: 10Hz-30MHz	BNC fem.50 Ω 10Hz-30MHz	BNC fem.50 Ω 10Hz-30MHz
Power	10-15Vdc, 2.5A battery (8 hours) AC adapter, charger included	10-15Vdc, 2.5A, AC universal adapter included	10-15Vdc, 2.5A AC Universal adapter included	10-15Vdc, 2.5A AC Universal adapter included
Dimensions (mm)	235 x 105 x 335mm	235 x 105 x 300 mm	235 x 105 x 300mm	235 x 105 x 300mm
Weight (kg)	4.3kg	5.2kg	5.0kg	5.0kg

Frequency Extension Modules

These are frequency extension modules for the 9010 Series receivers. An optical cable is used to connect to the 9010. By placing this module in an anechoic chamber, loss caused by the cable's frequency characteristics can be avoided.

- 9030: 30MHz-3GHz
- 9060: 30MHz-6GHz
- 9180: 30MHz-18GHz



Radiated Emission Measurement Software – ES10

Evolution from the EP5, EP7 and EP9 Series
New De-facto Standard with Enhanced Features
and Improved Usability

The new “ES10” EMI measurement software is a further evolution of the widely used and well-received global standard “EP5,” “EP7,” and “EP9” software. Using the “Time Domain Scan (TDS)” function in addition to the basic EMI measurement function, it is possible and more accurately and speedily measure noise and evaluate noise mitigation. This version is also more user-friendly, with features such as the “Difference Spectrum Graph” function and customizable screen, which can be tailored in numerous ways to suit user preferences. Basic measurement functions include:

- Scan Measurement (spectrum data acquisition)
- Creation of noise list for final measurement (QP, PK, AV)
- Interference level measurement (QP, PK, AV measurement at the highest radiation location)
- Display, output, and saving of measurement result

Difference Spectrum Graph

Multiple sets of spectrum data can be displayed in a graph at the same time, which helps understand the differences among them and how effective the noise mitigation measures taken are.

Time-domain Display

The noise fluctuation was displayed in a time domain just by clicking the spectrum.



Customizable display

The layout of the windows/panes can be flexibly changed according to user's preference.

EMI mitigation assistance software “EMINT”

AI-powered software helps reduce EMI noise ever more efficiently



EMINT helps developers identify effective EMI countermeasures using historical measurement data. Integrated with tools like EPX or ES10, it automatically organizes and analyzes results, enabling smarter insights from past data and pre-registered information.

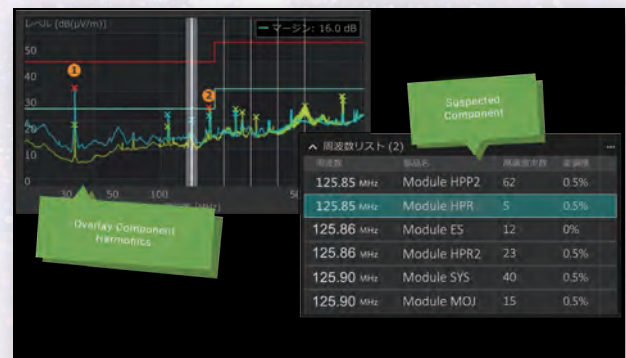
Identification of Noise Source Components

We identify the specific component responsible for generating noise by analyzing a comprehensive list of the clock frequencies associated with each part comprising the product. This approach is highly effective for narrowing down the specific areas requiring countermeasures.



Insights from Historical Data

Using AI, EMINT finds noise in past data similar to current issues and extracts useful countermeasure insights from recorded comments. All data is securely managed with user permissions, ensuring it remains private across teams or organizations.

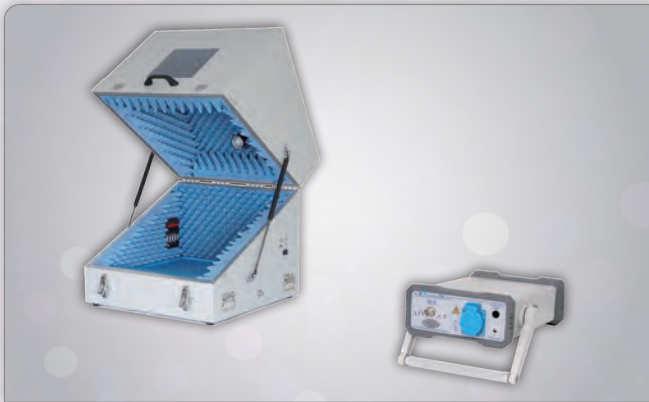


TEM Wave Wideband Transmission Line System – G-CELL

For Planning and Evaluation of EMC Countermeasures

A further development of a TEM cell, this cubical cell can easily measure radiated emissions and perform immunity tests on products (EUTs) via a transmission line placed on the floor. It can easily be installed in an office environment and is an optimal tool for performing preliminary measurements and countermeasures prior to final testing in an anechoic chamber or at an open test site. Features include:

- Easy EMI measurement with a spectrum analyzer connected
- Radiated immunity test where uniformity is obtained
- EUT can be placed in G-CELL easily with a wide-opening system
- Customizable power/signal filter
- Easily take EMC mitigation measures using G-CELL installed in an office environment

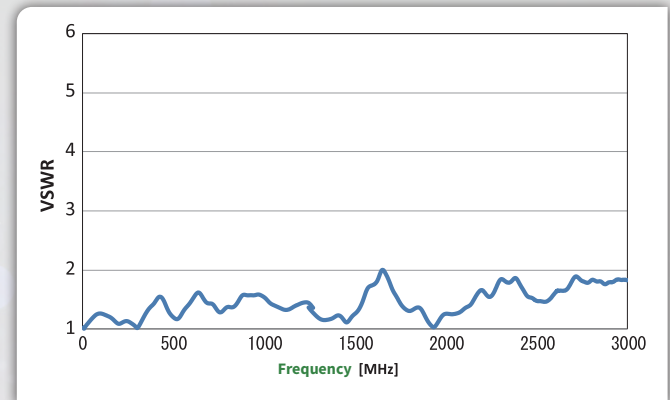


Specifications

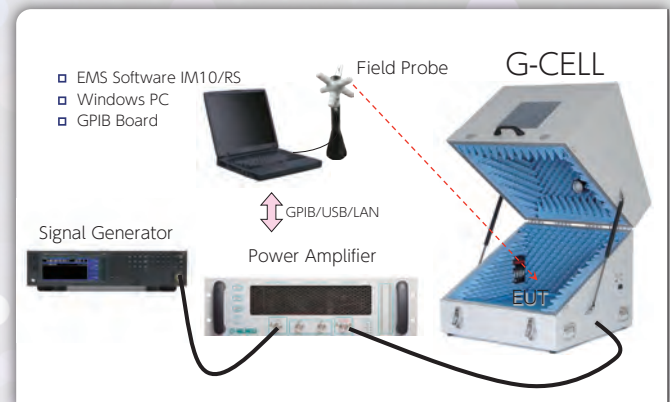
- Frequency range: 10k-1GHz (2GHz)
- Max. input power: 150W (N-type connector)
- Electric field strength: 30V/m@20W
- Outer size: 70 x 70 x 70cm (excl. protrusion)
- Max. EUT size: 40 x 40 x 40cm
- Equipped with: Shielded glass x 1 (Lighting x 1, AC filter (single-phase 20A) x 1, BNC terminal x 1, D-Sub 9-pin x 1, Optional panel x 1, Interlock function)
- Options: thru-hole, custom filter

Applications

- Radiated emissions measurements
- Radiated immunity test



Radiated Emissions Measurement Setup



EMI Accessories

EMI Measurement Antennas (AMETEK)

Model Number	Product Name	Frequency Range
BiLog® Antennas		
CBL 6111D	Ultra Wideband BiLog Antenna	30MHz-1GHz
CBL 6112D	Ultra Wideband BiLog Antenna	30MHz-2GHz
Compact X-Wing® BiLog Antenna		
CBL 6141B	Compact X-Wing BiLog Antenna	30MHz-2GHz
CBL 6143A	X-Wing BiLog Antenna	30MHz-3GHz
Verification Antenna for CISPR25		
RAD 6000	Modelled Long Wire Antenna	150k-1GHz
Loop Antennas		
HLA 6121	HF Loop Antenna	9kHz-30MHz

EMI Measurement Antennas (ETS Lindgren)

Model Number	Product Name	Frequency Range
Biconical Antennas		
3104D	Biconical Antenna (50W)	20MHz-200MHz
3110C	Biconical Antenna (250mW)	30MHz-300MHz
Log Periodic Antennas		
3147	Log Periodic Dipole Array Antenna	200MHz-5GHz
3148B	Log-Periodic Dipole Array for CISPR16-1 Measurements	200MHz-2GHz
BiConiLog Antennas		
3140B	BiConiLog Antenna	26MHz-6GHz
3142E	BiConiLog Antenna	30MHz-6GHz
3143B	BiConiLog Antenna	30MHz-1GHz
3149	Hybrid Log Periodic and Bowtie (BiConiLog) Antenna	80MHz-6GHz
Dipole Antenna		
3121D	Dipole Antenna	30MHz-1GHz
Double-Ridged Guide Antennas		
3106B	Double-Ridged Guide Antenna	200MHz-2.5GHz
3112	Double-Ridged Guide Antenna	100MHz-1GHz
3115	Double-Ridged Guide Antenna	750MHz-18GHz
3115-PB	Double-Ridged Guide Antenna with Preamplifier	1GHz-40GHz
3116C	Double-Ridged Guide Antenna	10GHz-40GHz
3116C-PA	Double-Ridged Guide Antenna with Preamplifier	18GHz-40GHz
3117	Double-Ridged Guide Antenna	1GHz-18GHz
3117-PB	Double-Ridged Guide Antenna with Preamplifier	1GHz-18GHz
3160	Pyramidal Standard Gain Antenna	960MHz-40GHz
3161	Octave Horn Antenna	1GHz-8GHz
Conical Log Spiral Antenna		
3102	Conical Log Spiral Antenna	1GHz-10GHz
Monopole Antennas		
3301C	Monopole Antenna	30Hz-50MHz
3303	Monopole Antenna	1kHz-30MHz
Loop Antennas		
6502	Loop Antenna	9kHz-30MHz
6507	Loop Antenna	1kHz-30MHz
6511	Loop Antenna	20Hz-5MHz
6512	Loop Antenna	9kHz-30MHz
7604	Shielded Coil Antenna (MIL applications)	20Hz-500kHz
7605/7606	Antenna/Shielded Coil (MIL applications)	30Hz-100kHz
Mini-Bicon Antenna		
3183B	Broadband Mini-Bicon Antenna for Measurements	1GHz-18GHz

3117 Double-Ridged Waveguide Horn Antenna



CBL 6111D BiLog Antenna



CBL 6141B Compact X-Wing BiLog Antenna



3142E BiConiLog Antenna



3149 Hybrid Log Periodic and Bowtie Antenna



3102 Conical Log Spiral Antenna



3301C Active Monopole Antenna



3160 Pyramidal Standard Gain Antenna



EMI Antennas (Schwarzbeck)

Model Number	Product Name	Frequency
Dipole Antenna / Balun		
VHAP	VHF Precision Half-Wave Dipole Antenna	30MHz-300MHz
UHAP	UHF Precision Half-Wave Dipole Antenna	300MHz-1GHz
VHA 9103	VHF Half-Wave Dipole	30MHz-300MHz
UHA 9105	UHF Half-Wave Dipole	300MHz-1GHz
UHA 9125C	UHF Half-Wave Dipole	0.75-2GHz
VHA 9103B	Balun with Collapsible Cone Elements	30MHz-300MHz
VHBA 9123	Antenna Holder/Balun 50 Ω /200 Ω	25MHz-300MHz, 50W
VHBB 9124	Antenna Holder/Balun (BBA, BBAL, BBAK, BBVK)	25MHz-300MHz, 10W
Biconical Antennas		
BBA 9106	Biconical Elements (VHA, VHBB, VHBA)	30-300MHz
BBAL 9136	Biconical Elements (VHA, VHBB, VHBA)	20-200MHz
BBAK 9137	Biconical Elements (VHA, VHBB, VHBA)	45-450MHz
BBVK 9138	Biconical Elements (VHA, VHBB, VHBA)	60-600MHz
BBUK 9139	Biconical Elements (UBAA9114/9115)	160-1200MHz
Wideband Biconical Antennas		
SBA 9119	Microwave Biconical Broadband Antenna	1GHz-6GHz
SBA 9112	Microwave Biconical Broadband Antenna	3GHz-18GHz
Log Periodic Antennas		
UHALP 9108A	Log Periodic Antenna	250-2400MHz, 1kW
VULP 9118A	Log Periodic Antenna	180-1500MHz, 1kW
USLP 9142	Log Periodic Antenna	0.7GHz-5GHz, 50W
USLP 9143	Log Periodic Antenna	0.3GHz-5GHz, 50W
VUSLP 9111 B	Log Periodic Antenna	0.2GHz-3GHz, 1kW
ESLP 9145	Microlog Periodic Antenna	1GHz-18GHz
Wideband Antennas		
VULB 9162	TRILOG Broadband Antenna	30MHz-7GHz, 200W
VULB 9164	TRILOG Broadband Antenna	30MHz-3000MHz, 1kW
VULB 9168	TRILOG Broadband Antenna	30Hz-1000MHz, 10W
Wideband Horn Antennas		
BBHA 9120A	Wideband Horn Antenna, N-type Connector	0.8GHz-5 (10) GHz
BBHA 9120B	Wideband Horn Antenna, N-type Connector	1GHz-10GHz
BBHA 9120C	Wideband Horn Antenna, N-type Connector	2GHz-18GHz
BBHA 9120D	Wideband Horn Antenna, N-type Connector	1GHz-18GHz
BBHA 9120LF	Wideband Horn Antenna, N-type Connector	0.7GHz-6GHz
BBHA 9170	Wideband Horn Antenna, SMA-type Connector	15GHz-26.5 (40)GHz
Dual Polarization Wideband Horn Antenna		
CTIA 0710	Wideband Horn Antenna, SMA-type Connector	0.7GHz-10GHz
BBHX 9120 LF	Wideband Horn Antenna, N-type Connector	1GHz-8GHz
Magnetic Field, Loop Antenna		
HFRAE 5160	Receive VHF-UHF loop Antenna	ϕ 50 mm
HXYZ 9170	Triple Loop Antenna (CISPR 15)	ϕ 2 m

VHAP/UHAP Precision DiPole Antenna

BBA 9106/
VHBB9124
Biconical Antenna

BBHA 9120A Horn Antenna



VULP 9118A Log Periodic Antenna



SBA 9119 Wideband BiConiCal Antenna for SVSWR Measurements

POD16 Wideband Dipole Antenna
for SVSWR Measurements

EMI Measurement Antenna (SEIBERSDORF)

Model Number	Product Name	Frequency
POD16	SVSWR Broadband Dipole Antenna	1GHz-6GHz
POD618	SVSWR Broadband Dipole Antenna	6GHz-18GHz
PCD3100	Precision Conical Dipole Antenna for Site Validation Measurements	30MHz-1GHz
PCD8250	Precision Conical Dipole Antenna for Site Validation Measurements	80MHz-3GHz

EMI Accessories

Artificial Mains Network (AMN) (Narda STS)	
Model Number	Product Name/Specifications
L2-16B	(2 x 16A), Single-phase 16A
L3-32, 64, 00, 500	(4 x 32, 64, 100, 500A), Three-phase 32, 64, 100, 500A
L1-150M	DC150A (100kHz-200MHz)
L1-500	DC150A (9kHz-30MHz)

Artificial Mains Network (AMN) (AMETEK)	
Model Number	Product Name/Specifications
Single Phase HV	
HV-AN 150	5 μ H/50 Ω , 150A, DC1000V, AC500V, For Automotive/MIL/DO160G
HV-AN 200	5 μ H/50 Ω , 200A, DC1000V, AC500V, For Automotive

CDN for CISPR15 - 30MHz-300MHz (TESEQ)	
Model Number	Product Name/Specifications
CDNE M210	CDNE M2 10A
CDNE M310	CDNE M3 10A

Artificial Mains Network (AMN) (Schwarzbeck)	
Model Number	Product Name/Specifications
50 Ω AMN	
NSLK 8126	(4 x 16A) AC 10A, 3 phase 25A
NSLK 8127	(2 x 16A) AC Schuko socket
NSLK 8128	(4 x 32A) AC 10A, 3 phase 50A
NNLK 8121	(4 x 100A) Wing Terminal option 1 Large current option 2:400V/700V
NNLK 8129	(4 x 200A) Wing Terminal, Low voltage drop option:400V/700V
NNLK 8130	(4 x 400A) Wing Terminal, cooling fan

HF- Probe	
TK 9421	HF - probe, 150 Ω High voltage probe 1.5k Ω , 4pF
TK 9422	HF - probe, 1.5k Ω High voltage probe 5k Ω , 4pF
TK 9417	HF - probe, 2.5k Ω
VT 9420	High voltage probe 1.5k Ω , 4pF

Single phase AMN	
NNHV 8123	5 μ H/50 Ω , 70(100)A, CISPR25Ed.4, BMW GS 95025-1
NNBM 8124	5 μ H/50 Ω , 70A, For automotive, BCI
NNBM 8126A 890	5 μ H/50 Ω , 70A, DC600V, AC270V
NNHV 8123	5 μ H/50 Ω , 70(100)A, For automotive
NNHV 8123-200	5 μ H/50 Ω , 200A, For automotive
NNBL 8225	50 μ H/50 Ω , 10(16)A, Mil.Std 461/462
NNBL 8226	50 μ H/50 Ω , 100A, Mil. Std 461/462
HVSE 8600/8601	NNHV Shield box for 2 units



ISN/AAN for CISPR22	
Model Number	Product Name/Specifications
AMETEK	
ISN T8 cat 6	Only for 8-wire Cat6 communication line
ISN T8	For 8-wire communication line (ADS T800, T8x0 adapter, cable (Cat.3,5) attached)
ISN ST 08	Only for 8-wire shielded communication line
ISN T2A	For 2-wire communication line (ADSADS T246, ADS T2X0 Adapter, case, cable (Cat.3, 5) attached)
FCC	
F-110729-1057-1	For 8-wire communication line

Capacitive Voltage Probe for CISPR22	
Model Number	Product Name/Specifications
CVP 2200A	CISPR22 ISN For alternative methods, 150k-30MHz

Preamp (SONOMA)			
Model Number	Frequency Range	Gain	N.F.
310	9kHz-1GHz	32dB	1.8dB typ. (5-500MHz)
317	10kHz-2.5GHz	38dB	4.8dB (10M-2GHz)
315	10kHz-1GHz	51dB	1.8dB typ. at (10-500MHz)
352	10kHz-5GHz	26dB	6.0dB typ at (10M-2.5GHz)
354	10kHz-3GHz	19dB	4.8dB (10M-2GHz)

Pulse Limiter	
Specifications/Model	VTSD 9561F
Insertion loss	10dB $\pm$ 0.5dB
Frequency Range	DC - 200MHz
RF Connector	BNC, N(f/m), 50 Ω

Comb Generator / Wideband Noise Generator				
Model Number	Frequency Range	Line Spacing	Connector	Dimensions (L x W x D) mm
Seibersdorf				
RefRad X	10kHz-3GHz	10kHz, 1MHz, 5MHz	N	134 (diameter) x 110
COM POWER				
CGO-501	1MHz-1500MHz	1MHz	BNC (f)	177 (diameter) x 19
CGO-505	5MHz-1000MHz	5MHz	BNC (f)	177 (diameter) x 19
CG-515	1MHz-1500MHz	1MHz or 5MHz	BNC (f)	74 x 79 x 79
CGO-515	1MHz-1500MHz	1MHz or 5MHz	BNC (f)	177 (diameter) x 19
CGO-520	20MHz-4500MHz	20MHz	SMA (f)	177 (diameter) x 25
CGC-255E	50kHz-115MHz	50k/250kHz		132 x 5.9 x 5.9
CGC-510E	100kHz-115MHz	100k/500kHz		132 x 5.9 x 5.9

Microwave Comb Generator (Eurofin E&E UK)					
Model Number	Frequency Range	Step Size	Connector	Dimensions (D x H) mm	Weight (kg)
CGE05	434MHz-26GHz	434MHz or 500MHz	SMA	56 x 17.5 x 65	0.75
CGE06	915MHz-40GHz	915MHz or 1GHz	2.92mm	56 x 17.5 x 65	0.75

Model Number	Frequency Range	Step Size	Connector	Dimensions (D x H) mm
YRS05	1KHZ-1GHZ	Continuous, 1kHz, 10kHz; (Depending on the selected frequency range)	N	85 x 85 x 85; 0.8kg
YRS06	20HZ-6GHZ	Continuous, 25Hz, 100Hz (Depending on the selected frequency range)	N	85 x 85 x 85; 0.8kg

Comb Generator / Reference Radiator (Seibersdorf Laboratories)				
Model Number	Frequency Range	Step Size	Connector	Frequency Stability
RefRad X	10kHz-3GHz	10kHz, 1MHz, 5MHz	N	$\pm$ 20ppb
RefRad 18	1-18GHz	50MHz-200MHz	N	$\pm$ 20ppb

310



VTSD 9561



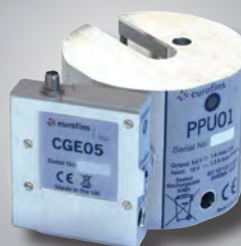
CG-515



YRS05



CGE05



RefRad X



RefRad 18



EMI Accessories

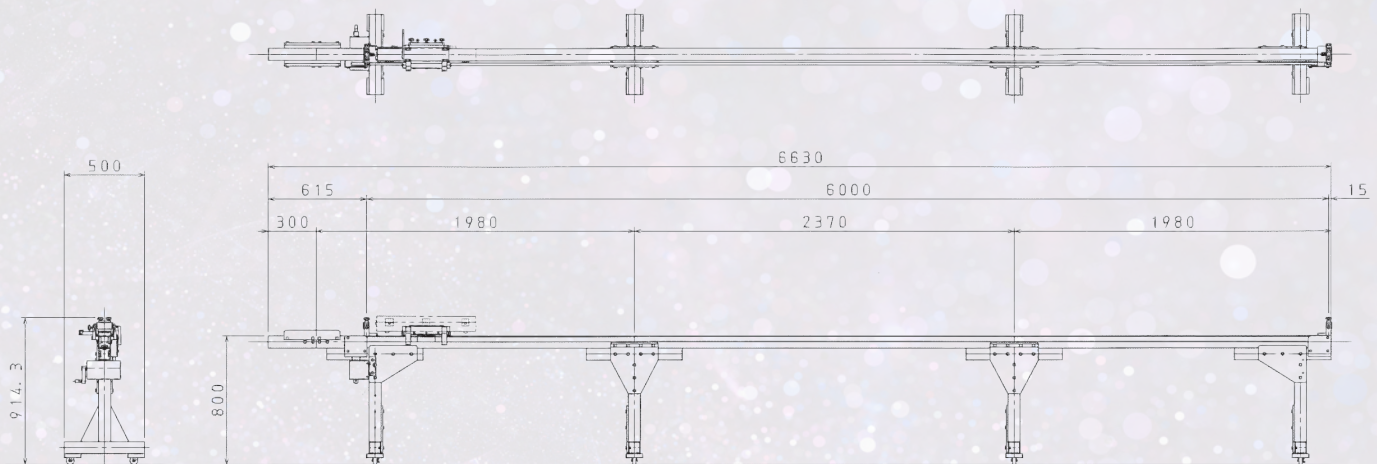
Automatic Clamp Moving System - MAC600GA

The system is suitable for measurements using absorbing clamps such as CISPR14, Denan Law, EN55020 (main material: FRP), and can be operated manually from the controller and automatically run by GPIB control.

- Main material of traveling equipment: FRP (reinforced glass fiber plastic)
- Caster: With adjust hook
- Drive method: Timing belt drive method
- Material: Non-metal (excluding drive train and casters)
- Load capacity: 30 kg in the vertical direction

External Dimensions (W x D x H) mm

- Base Unit: 215 x 280 x 88
- Operation Unit 75 x 130 x 40 (because it is inclined, it is 40mm at high places and 40 mm at low places. 25mm)
- Drive unit 380 x 170 x 340
- Driving platform



RF selector NS4900 series

An RF selector consisting of 8 (or 10) switches (SPDP). All band switches are installed on the rear panel and are connected via external terminals. The measurement path can be set according to your needs and can be automatically selected by the software. It can also be controlled manually using the changeover switch on the front panel.

Model Number	NS4900NA-JE	NS4900SA-JE
Input/Output Connector	50 Ω N-type	50 Ω SMA-type
Frequency Range	DC - 12.4GHz	DC - 18GHz
Maximum Input Power	100W	
Number of Switch Channels	2-8ch	2-10ch
Attenuation per Switch	≤ 1dB	
Control I / F	GPIB	
Power	AC100V, 50 - 60Hz	
Dimensions	426(W) x 430(D) x 143(H) mm	
Weight	8kg	



Microwave EMI Measurement Accessories

High-Gain Preamp – TPA Series

TPA Series preamps have the high gain and low noise figure demanded for EMI measurement above 1 GHz. Designed with the specifications listed to the right, they have the sensitivity to carry out EMI measurements in a measurement room. Due to their small form-factor, they can be placed in the pit of an anechoic chamber or directly under a receiving antenna.



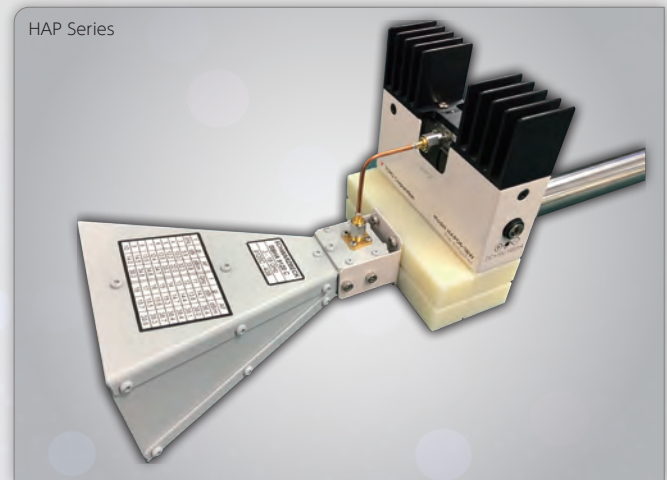
Model Number	TPA0108-40	TPA0118-35
Frequency	1-8GHz	1-18GHz
Gain	40dB (Min)	40dB (Min)
Flatness	± 1dB (Max)	± 2dB (Max)
Noise Figure	1.6dB (Max)	2.3dB (Max)
Saturation Output Level @ 1dB	+13dBm (Min)	+13dBm (Min)
Input/Output VSWR	2.0:1 (Max)	2.5:1 (Max)
Input/Output Connector	SMA (F)	SMA (F)
External Dimensions (cm)	6.5(W) x 8.5(H) x 7.0(D)	14 (W) x 6(H) x 7(D)

* DC power supply included as standard

Horn Antenna Preamp Assemblies – HAP Series

By directly attaching a receiving antenna to a preamp, a received signal can be amplified, maximizing measurement sensitivity. A horn assembly is available for each frequency band (6-18GHz, 18-26.5GHz, 26.5-40GHz), so by simply changing the antenna, users can set up an optimal measurement system. Moreover, the antenna and preamp can be separated, allowing for things such as separate calibration of the antenna and preamp or the insertion of a filter.

- Antenna and preamp directly connected
- Maximize measurement S/N
- For EMI measurement in a GHz band
- DC power supply included



TYPE	WIDE BEAM TYPE		
Model Number	HAP06-18W	HAP18-26W	HAP26-40W
Frequency Range (GHz)	6-18	18-26.5	26.5-40
Antenna Gain (dBi)	5 ~ 16	16.8	17
(Size of EUT) E-side 3db bandwidth	29 (1.55m)	27 (1.44m)	27 (1.44m)
H-side 3db bandwidth (Size of EUT)	26 (1.38m)	27 (1.44m)	27 (1.44m)
Preamp Gain db (Min)	45	47	60
Preamp N/F db (Max)	1.5	2	3.2
P1dm (dBm)	10	8	8
Cable Connector	SMA (m)	3.5mm (m)	K (m)
Low Loss Cable	SF 104A 5.5m	SF 104A 5.5m	-

Immunity Test for Consumer Electronics

Summary

This system is used to evaluate elimination capability (tolerance) in response to electromagnetic interference waves from electronic devices. This system controls equipment that is necessary for immunity testing such as the signal generator, power amp, field strength meter, power meter, and antenna mast, ensuring tests can be efficiently performed by anyone. The test results can be printed and saved to a hard drive or another storage device. Supported standards include:

- IEC 61000-4-3
- IEC 61000-4-6
- EN 61000-4-3
- EN 61000-4-6
- JIS C 61000-4-3
- IEC 61000-4-39
- JIS C 61000-4-6

Basic Features

Uniformity Measurement

The field uniformity method that was added in IEC 61000-4-3 Ed. 2 can be selected, and the independent window method, an equivalent test method for frequencies 1 GHz and above that is defined in Annex J, can also be performed using this system.

System / Linearity Verification

This feature carries out the test system linearity verification added in IEC 61000-4-3 Ed. 3. Test systems unable to achieve 2 dB of gain compression cannot be used.

Immunity Test

Using reference factors obtained from uniformity measurements and factors obtained from electric field measurements, a specified electric field is applied to EUT, and immunity testing is performed.

Magnetic Field Reference/Verification Measurement

This measurement is conducted to improve the measurement accuracy of the immunity test.

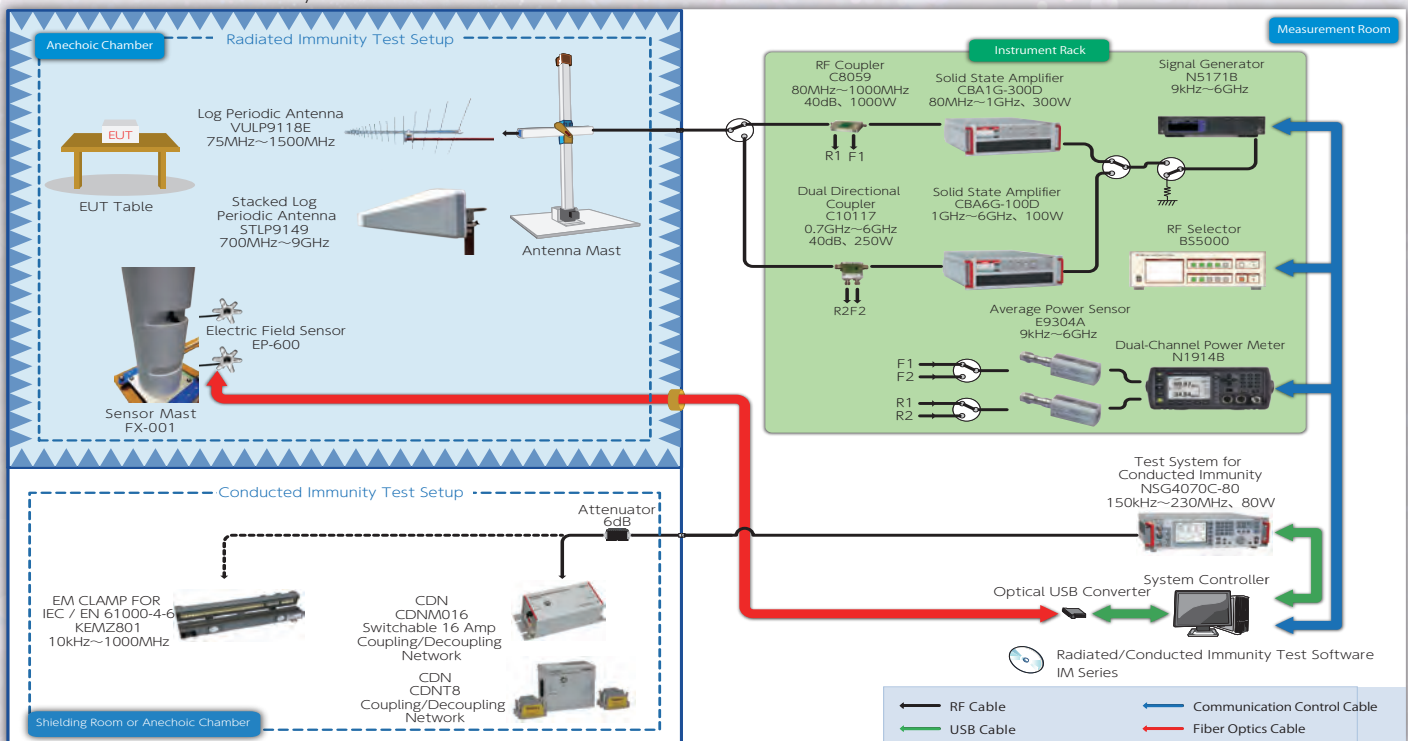
Test Results View

The test results screen corresponding to the selected test type is displayed and can show measurement results. Data from the screen can be printed or saved in CSV format.

Report Generation

The results obtained from each test are exported as a report with a format specified in the wizard.

EMS Automatic Measurement System



Introducing New Immunity Test Software "IM10" Series

IM10/RS

Specifications

Supported Standards

- Consumer electronic, automotive, other radiated immunity test standards"

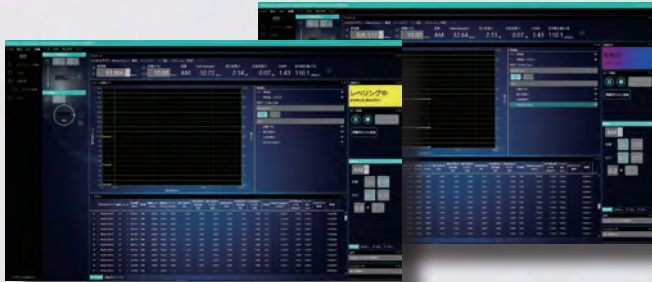
Uniformity Evaluations

- Number of points for uniformity evaluation: Any number (max. 10 x 10)
- Number of simultaneously used field probes: 16 units

Amplifier Saturation Check

Immunity test

- Modulation signal: CW, AM, Pulse, Radar pulse, AWGN, others various digital modulation types



New Immunity Test Software "IM10" Series

Main Features

- Building on decades of software expertise gained through developing the "IM5" and "VI5" series
- Same UI and usability as TOYO's emissions measurement software such as "EPX" and "ES10"
- Centralized management of multiple test scenarios in cases where EUT needs to undergo the test in various operation modes
- API that helps easily build an automated test system is available
- Platform facilitating easy integration with external systems, enabling a wide range of test automation"

Example of automated tests

Synchronized operation of EUT

- Driving robots, chassis dyno, Automatic test system for EUT

Evaluation of EUT malfunction (automatic evaluation, automatic measurement)

- Image recognition
- Voltage/current
- CAN
- S/N, Sound pressure

Product line

IM10/RS Radiated immunity test software

IM10/CS Conducted immunity test software

Test Systems

1. Radiated Immunity Test System

With the radiated immunity test software IM10/RS at its core, we tailor systems optimally suited to each customer's needs. So that you can obtain a strong and uniform electric field, we select an antenna, power amp, electric field sensor, and RF cable, and we will recommend a test system tailored to your preferences and budget.

- IEC 61000-4-3, IEC 61000-4-39 Compliant
- For automotive standards including 2004/104/EC, ISO 11452-1/2, SAE, JASO
- Field strength: 10V/m or above, Distance 1m - 3m (*4-3)
- Frequency: 26MHz - 6GHz (up to 40GHz supported)
- Feature to measure field uniformity, automatic check function
- IM series supporting the latest Windows OS

2. Conducted and Magnetic Field Immunity Test System

Including the selection of a signal generator, an RF amp and CDN, we will recommend systems, with the IM10/CS conducted immunity test software at the core, tailored to each customer's needs.

- IEC 61000-4-6, IEC 61000-4-39 Compliant
- Test level: 10V (e.m.f) or above, 10A/m or above
- Frequency: 150k - 80MHz (9k - 230MHz)
- IM series supporting the latest Windows OS
- For Automotive/on-vehicle equipment standards including 2004/104/EC, ISO 11452-4/8/9



RF/MW Power Amplifiers

3 Year
Warranty

RF Power Amplifiers 4 kHz – 6 GHz (AMETEK)

TESEQ's CBA series comprises solid-state Class A and Class AB amplifiers supporting frequency and power range optimal for immunity testing. Tough and reliable, the amplifiers in the series have achieved stable operation and low running costs. There are plans to continue expanding the model lineup with the addition of new power and frequency ranges. For immunity tests on devices such as wireless communication equipment, the CBA-D series has a low-noise design that minimizes the influence of noise produced by the amplifier itself on communication.

- Solid-state, Class A, AB amps
- Frequency range: 4kHz-6GHz
- Quality amps specifically designed and tested for EMC testing
- Safe operation at 4kHz-6GHz circuit/short circuit
- Output suitable for EMC test purposes

CBA Series (4kHz-6GHz, 25W-3kW)

Model Number	Frequency	Output
CBA1G-030D	1MHz-1GHz	30W
CBA1G-100D	1MHz-1GHz	100W
CBA1G-150D	80MHz-1GHz	150W
CBA1G-300D	80MHz-1GHz	300W
CBA1G-600D	80MHz-1GHz	600W
CBA1G-1200D	80MHz-1GHz	1200W
CBA4G-030D	0.8GHz-4.0GHz	30W
CBA4G-060D	0.8GHz-4.0GHz	60W
CBA4G-100D	0.8GHz-4.0GHz	100W
CBA4G-200D	0.8GHz-4.0GHz	200W
CBA4G-400D	0.8GHz-4.0GHz	400W
CBA4G-800D	0.8GHz-4.0GHz	800W
CBA4G-900/600R	800MHz-4GHz	800MHz-4GHz: 400W 1.2GHz-1.4GHz: 900W 2.7GHz-3.1GHz: 600W
CBA6G-030D	1GHz-6GHz	30W
CBA6G-050D	1GHz-6GHz	50W
CBA6G-100D	1GHz-6GHz	100W
CBA6G-200D	1GHz-6GHz	200W
CBA6G-400D	1GHz-6GHz	400W
CBA6G-900/600R	800MHz-6GHz	800MHz-6GHz: 400W 1.2GHz-1.4GHz: 900W 2.7GHz-3.1GHz: 600W
CBA100M-110	10kHz-100MHz	110W
CBA100M-400	10kHz-100MHz	400W
CBA100M-1100	10kHz-100MHz	1100W
CBA230M-035	150kHz-230MHz	35W
CBA230M-080	150kHz-230MHz	80W
CBA250M-2500	150kHz-230MHz	2500W
CBA250M-200	150kHz-230MHz	200W
CBA250M-400	150kHz-230MHz	400W
CBA250M-800	150kHz-230MHz	800W
CBA400M-260	10kHz-400MHz	260W
CBA4K400M-100E	4kHz-400MHz	100W

CBA 4G-900/600R



CBA-1G-1200D



RF Power Amplifiers / RF Band Selectors

RF Power Amplifiers (BONN Elektronik)

BONN Elektronik is a long-established amplifier maker and designs and produces wideband, high-power amplifiers that can meet a variety of needs. The company provides two types of wideband amplifiers: solid-state and TWT.



RF Band Selector – BS5000 Series

The BS5000 series frequency band selector changes the route of the RF signal used in EMS testing. It is composed of a multichannel RF switch and can be controlled either manually or via the GPIB interface. It comes standard equipped with an interlock function, which stops tests when the door to the anechoic chamber is opened during testing.

Item	Specifications
Connector	50-ohm N
Input Frequency Range	DC-10GHz
Input / Output Power	500W (< 1GHz) *
	500W (1-5GHz)
	300W (5-10GHz)
Number of Bands	1-5 (selectable)
Control I / F	GPIB
Power	AC100V, 50-60Hz
Attenuation per channel switch	≤ 1dB
Dimensions (mm)	426(W) x 430(D) x 143(H)
Weight (kg)	8

* Please consult with us before using a power amplifier with an output of 1 kW.

BSA Series (4kHz - 6GHz, 1W - 20kW, Solid State)					
Model Number	Frequency Range	Output Power P1dB (min.)	Gain (Typical)	Size (Height, Depth)	Weight (kg)
BSA0101-250D	9kHz-1GHz	250W	54	4HU, 630mm	4kg
BSA0106-200D	9kHz-6GHz	200W	53	8HU, 630mm	8kg

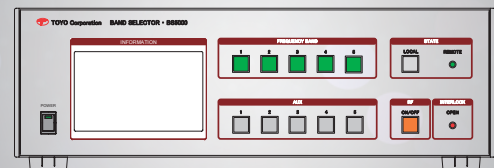
BLMA Series (0.1GHz - 60GHz, 0.1W - 2.5kW, Solid State)					
Model Number	Frequency Range	Output Power P1dB (min.)	Gain (Typical)	Size (Height, Depth)	Weight (kg)
BLMA0860-100	0.8GHz-6GHz	100W	50	3HU, 430mm	21kg
BLMA6018-100	6GHz-18GHz	100W	50	4HU, 630mm	25kg
BLMA1018-100D	1GHz-18GHz	100W	50	5HU, 630mm	55kg
BLMA1840-100	18GHz-40GHz	100W	50	4HU, 630mm	32kg

Narrow Band (800MHz - 1000MHz, 1.7GHz - 2.7GHz, 10W - 600W, Solid State)					
Model Number	Frequency Range	Output Power P1dB (min.)	Gain (Typical)	Size (Height, Depth)	Weight (kg)
BLWA8010-175	800 MHz-1000MHz	175W	52.4	4HU, 630 mm	35kg
BLM 2325-150	2.3GHz-2.5GHz	150W	50	4HU, 630mm	45kg

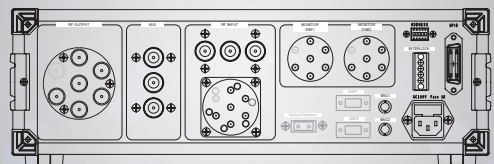
BLWA Series (1MHz - 1GHz, 1W - 40kW, Solid State)

TWAL Series (1GHz - 50GHz, 20W - 1kW, Traveling Wave Tube)

Front Panel



Back Panel



Immunity Accessories

Antennas for Radiated Immunity (ETS)		
Model Number	Product Name	Frequency Range
Log Periodic Antennas		
3144	Log-Periodic Dipole Array Antenna	80MHz-2GHz, 1kW
3148B	Log-Periodic Dipole Array Antenna	200MHz-2GHz, 1kW
BiConiLog Antennas		
3140B	Hybrid Log Periodic and Bowtie (BiConiLog) Antenna	26MHz-3GHz, 1kW
3142E	Hybrid Log Periodic and Bowtie (BiConiLog) Antenna	30MHz-6GHz, 1kW
Double-Ridged Guide Antennas		
3106B	Double-Ridged Guide Antenna	200MHz-2.5GHz, 800W
3115	Double-Ridged Guide Antenna	750MHz-18GHz, 300W
3119B	Double-Ridged Guide Antenna	400MHz-6GHz, 1500W
3160	Pyramidal Standard Gain Antenna	0.96GHz-40GHz, 10W-550W
Magnetic Loop Antenna		
6509	Magnetic Field Loop Antenna	1MHz-30MHz, 1kW

Antenna for Radiated Immunity Test (Schwarzbeck)		
Model Number	Product Name	Frequency Range
Dipole Antenna / Antenna Balun		
VHBC 9133	High Power Broadband Balun (BBA, BBAL, BBFA, FBAB)	25MHz-300 MHz, 1 kW
Log Periodic Antenna		
VULP 9118E	Log Periodic Antenna	75MHz-1500 MHz, 1 kW
STLP 9129	Stacked Log Periodic Antenna	70MHz-10GHz
STLP 9149	Stacked Log Periodic Antenna	0.7GHz-9GHz, 150W

CDN for Conducted Immunity Test (FCC, AMETEK)

CDN for Power Lines
CDN M1 ~ M5

CDN for Unscreened, Unbalanced Lines
CDN A Series

CDN for Screened Lines
CDN S Series

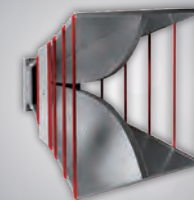
CDN for Communication Lines
CDN T Series

Cam7 EMC Shielded Color Camera (AUDIO)

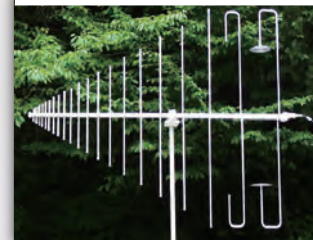
A camera designed to tolerate strong electromagnetic fields is integrated into this measurement system, which can monitor the EUT during immunity tests.

- Radiated immunity test
 - ISO 11452: 200V/m. Up to 18GHz (upgradable up to 40GHz)
 - HIRF RTCA DO 160 G: >3000V/m
- EMC CISPR 25 Class 5 Compliant
- Automatic/manual focus
- Image stabilizer installed
- Compact (100 (D) x 190 (L)mm)
- Pan/tilt feature available as an option

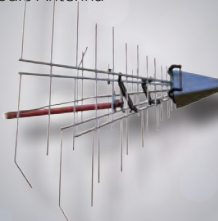
3106B - Double-Ridged Guide Antenna



VULP 9118E - Log Periodic Antenna



STLP 9129 - Stacked Log Periodic Antenna



STLP 9149 - Stacked Microwave Log-Periodic Antenna



AMETEK CDN



FCC CDN



Cam7 EMC



Immunity Accessories

Wideband electric field probes (Narda STS) EP-600/EP-601/EP-602/EP-603/EP-604

Features

- High sensitivity, wide dynamic range
- Excellent isotropy (0.3dB)
- Operational with a battery for up to 80 hours (battery replacement possible locally)
- Directly connected to PC with an RS0232C/USB conversion adapter using an optical cable
- Ultra compact, lightweight (25g)



Specifications / Model Number	EP-600	EP-601	EP-602	EP-603	EP-604
Frequency Range	100kHz-9.25GHz	10kHz-9.25GHz	5kHz-9.25GHz	300kHz-18GHz	300kHz-26.5GHz
Flatness	0.4dB: 0.3MHz-7.5GHz	0.4dB:0.05MHz-7.5GHz	0.4dB:0.05MHz-7.5GHz	0.4dB:0.3MHz-18GHz	0.4dB:0.3MHz-26.5GHz
Dynamic Range	0.14-140V/m (60dB)	0.5-500V/m (60dB)	1.5-1500V/m (60dB)	0.14-170V/m (60dB)	0.4-800V/m (66dB)
Linearity	0.4dB@50MHz/ 0.3-100V/m	0.4dB@50MHz/ 1-500V/m	0.4dB@50MHz/ 2.5-1000V/m	0.4dB@50MHz/ 0.3-170V/m	0.4dB@50MHz/ 0.8-800V/m
Isotropic Deviation	0.5dB[0.3dB typical]@50MHz			0.4dB[0.2dB typical]@50MHz	
Maximum Electric Field Strength	300V/m	1000V/m	3000V/m	350V/m	1600V/m
Measurement Data	Measurable for each X-Y-Z axis				
Built-in Battery	3V-5mAh Lithium Battery (Li-Mn)				
Operable Time	80 hours (rechargeable lithium battery)				
Communication	Bidirectional fiber optic link (RS232, USB)				
Fiber Optic Length	Standard: 10m, Option: 20m / 40m				
PC Connection From Fiber Optics	Optical / RS232 converter, RS232 / USB converter				
Operating Temperature Range (°C)	-10~+50				
Dimensions	Overall: 53mm; Diameter: 17mm				
Weight	25g				

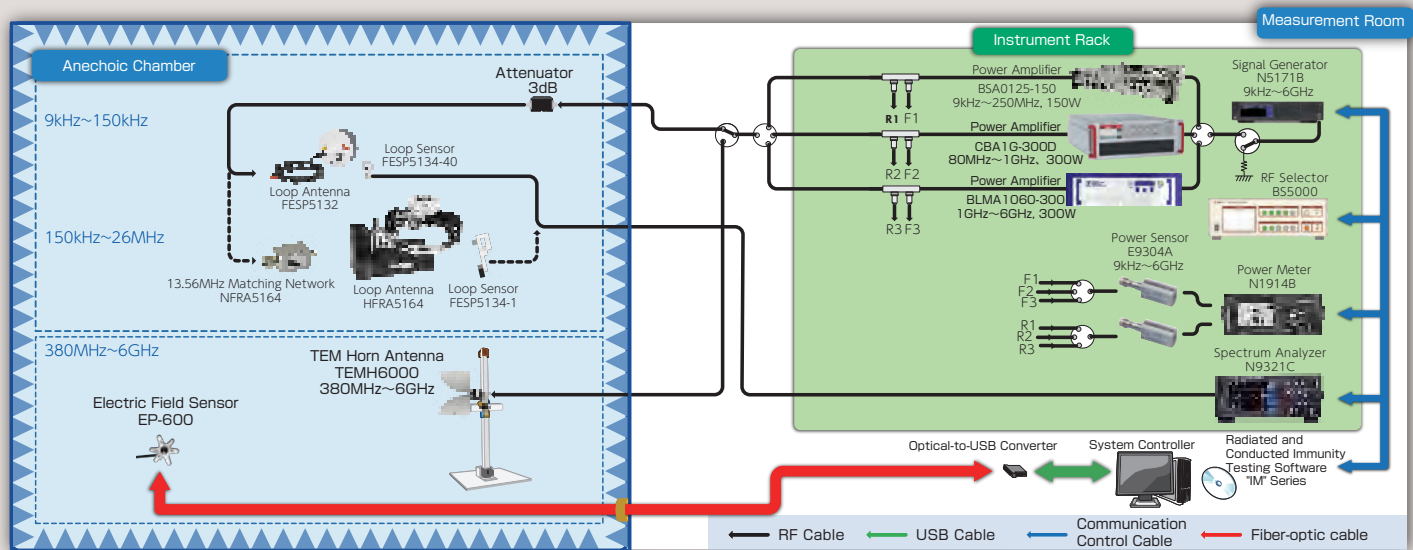
Directional Electric Field / Magnetic Field RF Probes (ETS Lindgren)

Ideal for applications demanding levels of measurement accuracy and speed that standard wideband probes cannot provide, this isotropic (X-, Y-, and Z-axis) probe has a unique design with features such as display of the electromagnetic field strength along each axis independently, vector sum display, and continuous auto-zero adjustment (which eliminates things such as the need for internal zero adjustment and errors due to temperature drift). Electromagnetic field disturbances are minimized thanks to the isolation provided by the optical fiber connection, allowing you to obtain accurate measurement results.



Specifications/ Model Number	HI-6006	HI-6023	HI-6053
Frequency Range	100 kHz-6.0 GHz	10 kHz-1 GHz	10 MHz - 40 GHz
Frequency Response	500kHz-2GHz: -2.5, +1.0dB 2GHz-5.5GHz: -4.5, +3.5dB 5.5GHz-6GHz: -6.0, +2.0dB	10kHz-30kHz: -2.5, +0.5dB 30kHz-1 GHz: ± 1.0dB	10MHz - 100MHz: -4.0, + 3.0dB 100MHz - 1GHz: -0.5, +3.0dB 1GHz - 18GHz: -2.0, +4.0dB 18GHz - 40GHz: -4.5, +3.5dB
Response Time	< 1 msec.		500 msec.
Isotropic Deviation	± 0.5 dB typical		± 1.0 dB typical
Dynamic Range	0.5-800 V/m typical	2-800 V/ m typical	
Damage Level	1500 V/m	1500 V/m	-
Sampling rate	> 70 / sec.	> 70 / sec.	> 70 / sec
Power	NiMH Battery Operating Time 8 hrs.	NiMH Battery Operating Time 8 hrs.	NiMH Battery Operating Time 30 hrs.
Dimensions	43mm Sensor cap	32mm Sensor cap	438mm x 57mm (L x W)
Weight (g)	80		
Operating Temperature (°C)	10-40		
Controller	EMCenter, HI-4413usb		

System for IEC / EN 61000-4-31 and -39



Complete Vehicle EMS Test System

Horn Antenna for Near-field Immunity Tests – TEM HORN

This horn antenna is used for the near-field immunity tests required by IEC / EN 61000-4-39

Specifications/Model	TESEQ TEM HORN	Schwarzbeck TEMH6000
Frequency Range	600MHz-6GHz	380MHz-6GHz
Maximum Input	250W	300W
Others	Extendable for use for TETRA-400 and GMR54 60/FRS 460 using match-network	Dimensions: 260x300mm (500) x210mm

Loop Antenna and Sensor for Near-field Immunity Tests

This set includes the antenna and sensor antenna required by IEC / EN 61000-4-39

Loop Antenna

LAS6100/6120 (AMETEK)

- Spacer for level setting included
- 13.56MHz matching network included
- Frequency range: 9kHz-150kHz (LAS6120) 150kHz-30MHz (LAS6100)

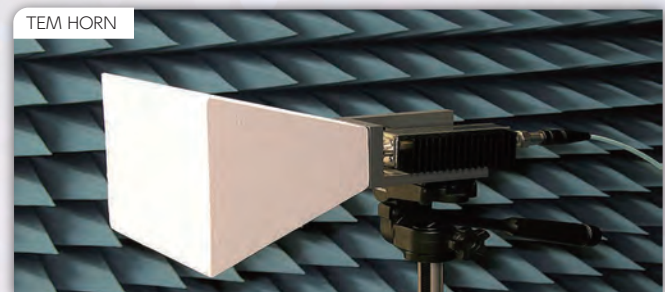
FESP 5132/HFRA 5164 (Schwarzbeck)

- Frequency range: 15Hz-150kHz (FESP 5132); 0.01-120MHz (HERA 5164)

Broadband Immunity Test System – NSG 4031A

Equipped with a white noise generator with four different broadband filters, this broadband immunity test system was designed for the tests conforming to IEC / EN 61000-4-31. Its built-in firmware is powerful and user-friendly and can be used without a PC or control software.

- Designed to support IEC/EN 61000-4-31
- Perfect white noise generator 150kHz – 80MHz
- 3 Power meter inputs
- Class A power amp with >80W, covering 150kHz to 80MHz



Full-Vehicle Emissions Measurement System

Summary

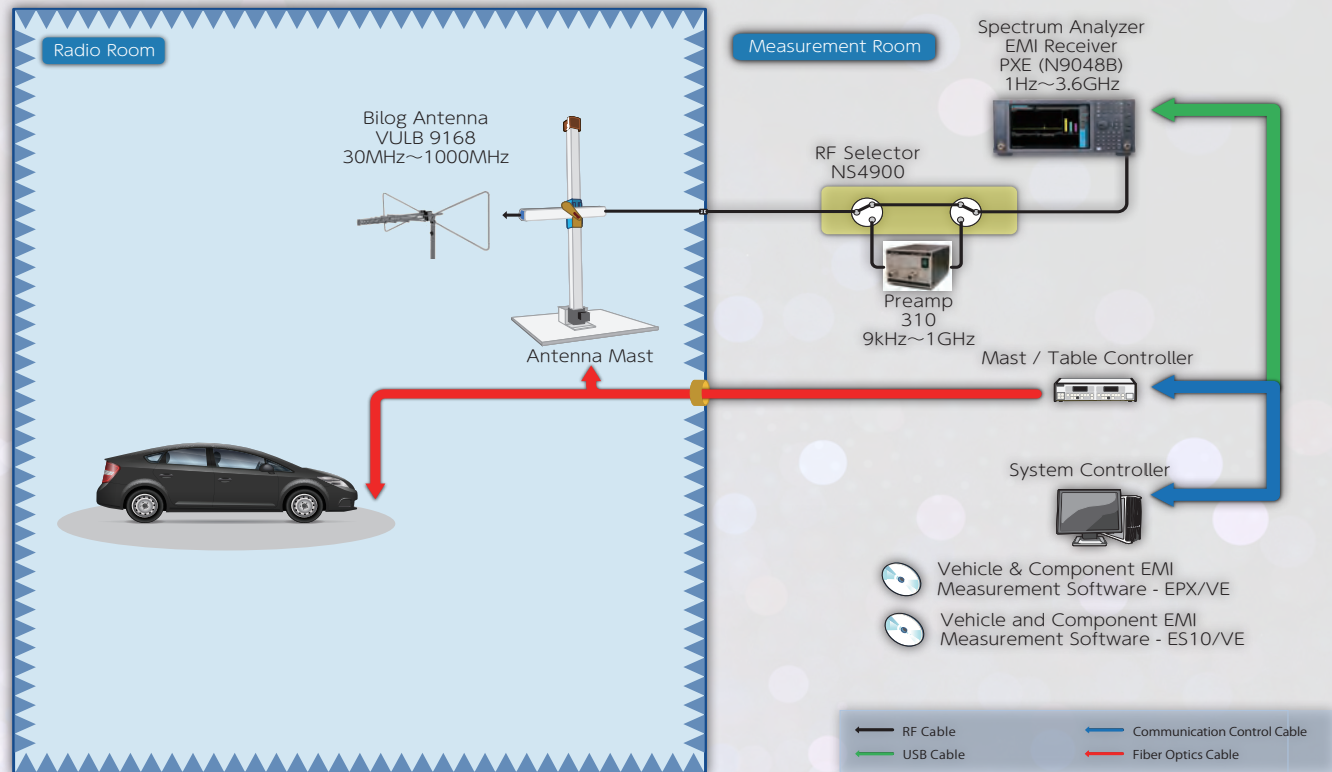
Over a measurement frequency range of 150 kHz - 18 GHz (40GHz), electromagnetic noise radiated from vehicles is received by an antenna placed in an anechoic chamber and measured by an EMI test receiver. Supported standards include:

- CISPR 12
- CISPR 25
- ECE R10
- Automakers' standards

Emissions Measurement Software for Vehicle

- EPX/VE - Emissions Measurement and Analysis Software for Automobile and On-vehicle Equipment
- ES10/VE - Vehicles and Components Emission Measurement Software

Full Vehicle EMI Measurement Solution



Emissions Measurement and Analysis Software for Vehicle and On-vehicle Equipment - EPX/VE



EMI Receiver - PXE



Full-Vehicle Immunity Test System

Summary

Radiated immunity tests are performed on vehicles over a 10 kHz-18 GHz frequency range. We will propose an appropriate system conforming to the following regulations and standards.

- ISO11451-2, ISO11452-2
- ISO11451-4/11452-4, 7, 8
- ECE R.10
- Automakers' Standards

Software

- IM10/RS Radiated Immunity Test Software for Vehicles
- IM10/CS Conducted Immunity Test Software

Test System / Equipment

1. Radiated Immunity Test System (ISO 11451-2 for Vehicles)

This system exposes an automobile's body to strong electromagnetic field noise while it is running, and tests its tolerance to interference. Based on the international standard ISO 11451-2, this system can be built to meet the standards of every automobile maker. We will select the equipment, including the antenna, power amplifier, electric field sensor, and RF cable, according to the needs of each customer.

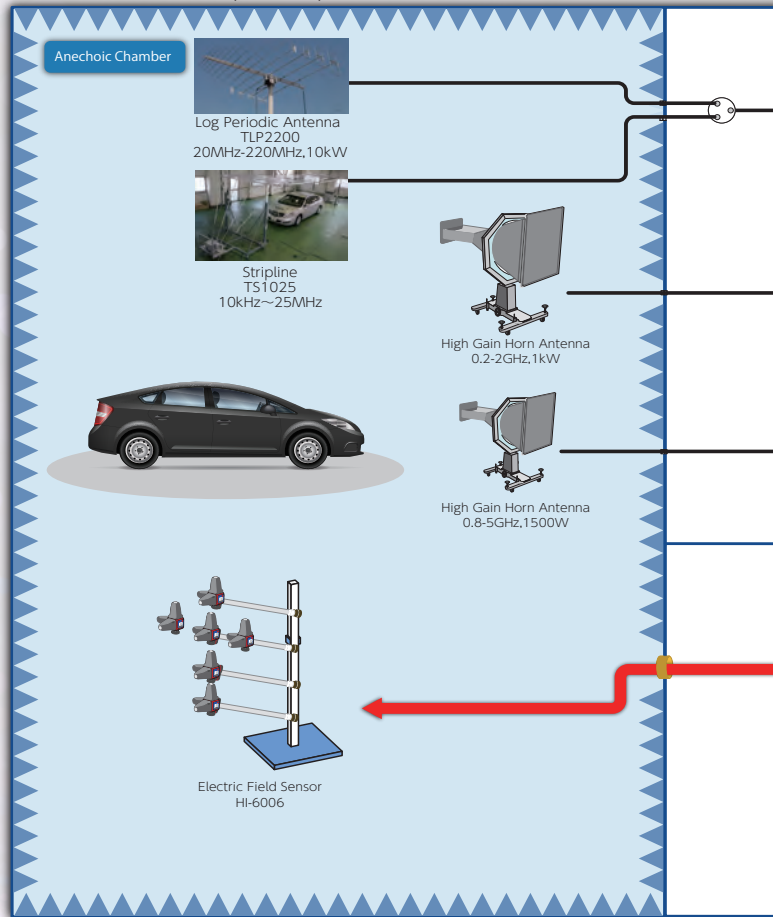
- Supported standards: ISO11451-2, ECE R.10, automakers standards
- Supported spec:
 - Frequency range: 10kHz - 18GHz
 - Electric field strength: 200V/m, distance d=2m
- Propose the most suitable antenna and power amp for your needs
- Stable operation at short/open circuit
- Automatic control is possible with the latest Windows OS
- Frequency and strength of generated electric field are easily changed

2. Vehicle Monitoring System for Radiated Immunity Tests

Normally, deciding whether the EUT is malfunctioning during an immunity test is done by humans. With TOYO's "Malfunction Detection Immunity Test System," this can be done automatically. Malfunctions are determined based on the tolerances set in advance, and the monitor values are displayed in the test software, eliminating the ambiguity involved in determinations made by humans and reducing the workload for testers.

- This system is able to control and retrieve data from each type of hardware, such as chassis dynamometers, masts, and turntables. We will propose an all-around system, built around radiated immunity test software, that works together with the measuring devices and the PC that determines malfunctions.
- Supported monitoring equipment
 - CAN/LIN BUS
 - Digital / Analog Signal
 - Camera Images
 - Voice

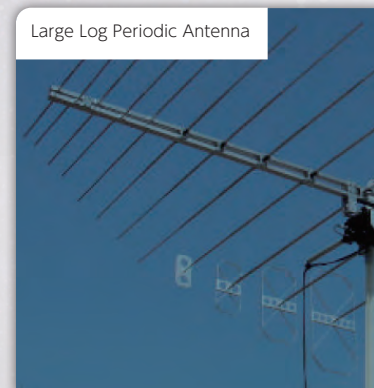
Full Vehicle Immunity Test System

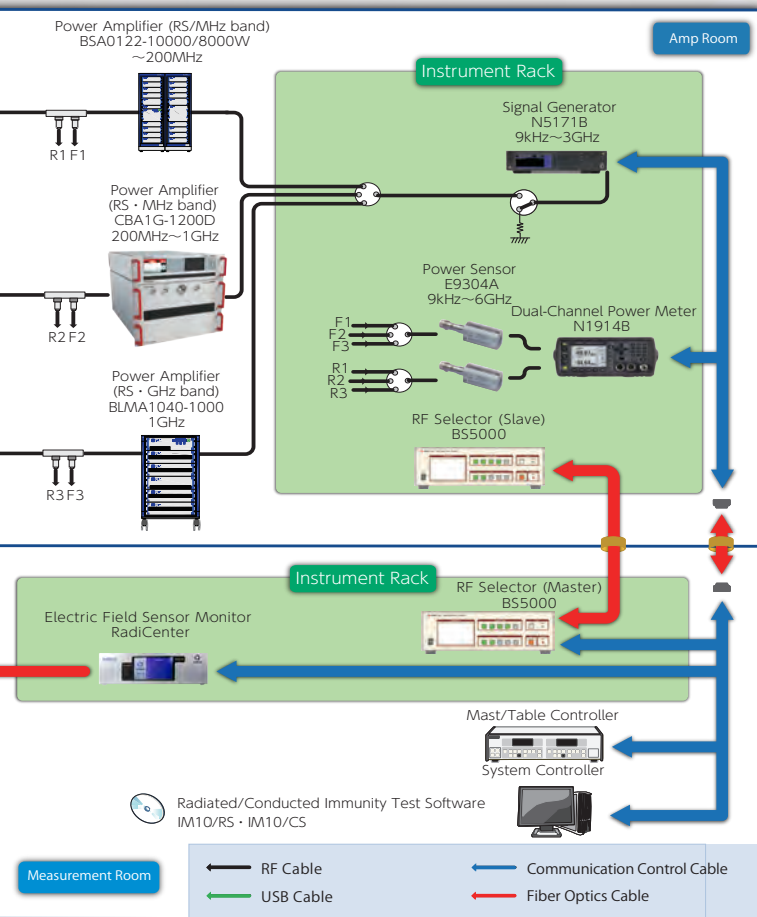


Full Vehicle Immunity System



Large Log Periodic Antenna

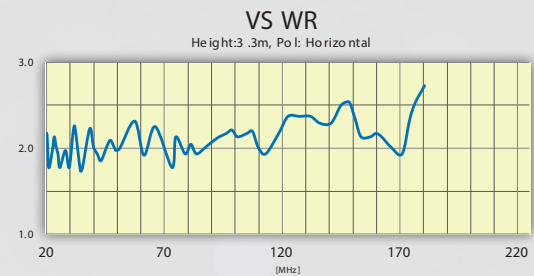




3. Large Log-periodic Antenna

The TLP2200 is a large log-periodic antenna applicable for vehicle immunity tests (ISO 11451-2). To increase the electric field strength in the low range, this antenna achieves particularly low VSWR (average: below 2:1) from 20MHz-30MHz.

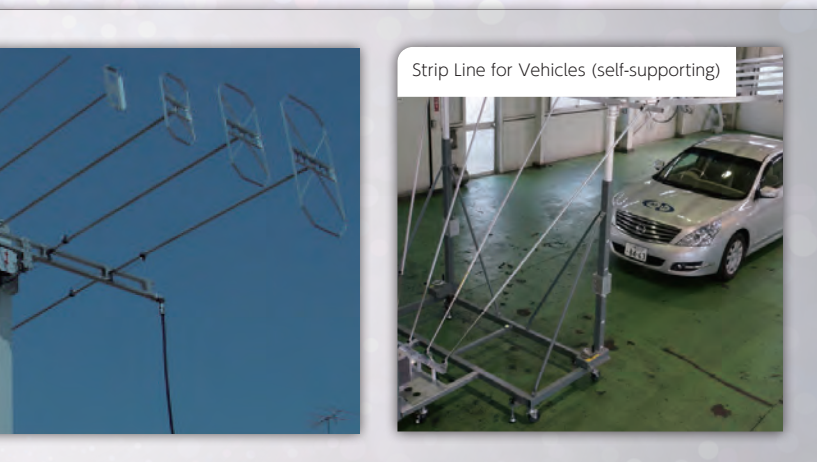
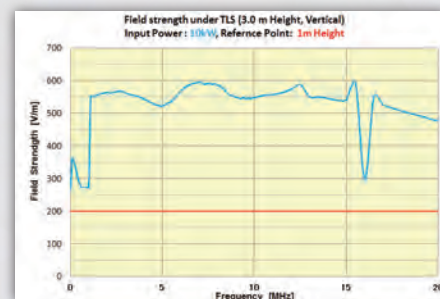
- Frequency range: 20MHz-220MHz
- VSWR (nominal): 2.0:1
- RF tolerance: 10kW (LC Connector)
- non-metal mast included
- The height, polarization and tilt (elevation) can be adjusted or switched automatically
- Rotary joint to support heavy and hard high voltage cable



4. Stripline for Automobile (Self-Standing)

The TS1025 is a TLS (transmission line system) applicable for vehicle immunity tests (ISO 11451-2). Because it is freestanding, it does not need to be hung from the ceiling of an anechoic chamber and can be assembled and installed in your current chamber without any modifications.

- Frequency range: 10kHz-25MHz
- VSWR (nominal): 2.0:1
- RF input tolerance: 15kW
- Stripline height: 2.0-3.0m variable
- Generated field strength: 200V/m or higher (at a 10kW input)



5. Other Immunity Test Systems

There are a wide variety of vehicle tests other than radiated emission and immunity tests (see list below), and we will propose a system in accordance with your preferences. In addition, the tests for electric and hybrid automobiles are often based on standards for consumer appliances. If you are looking for a test system for such applications, please contact us.

- Full vehicle tests
- ISO11451-3 On-board transmitter simulation test
- ISO11451-4 BCI test
- ISO10605 ESD test

Emissions Measurements and Immunity Test for On-vehicle Equipment

Emission Measurement System (CISPR 25, Automaker's Own Standards)

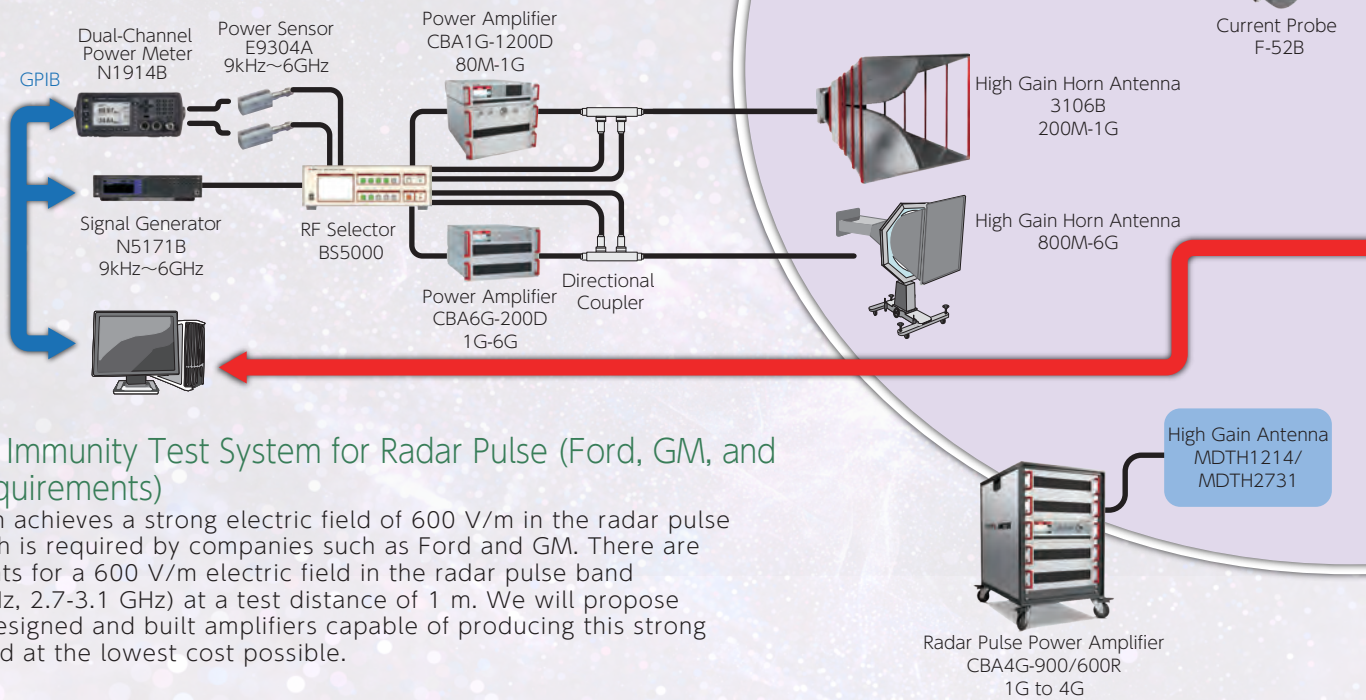
Electromagnetic noise in the 150 kHz to 18 GHz (40GHz) frequency range emitted from on-vehicle electronic equipment is received by an installed device such as an antenna, LISN, or current probe and measured by an EMI receiver. Supported standards include:

- CISPR25
- ECE R.10
- Automaker's own standards

Radiated Immunity Test System (ISO 11452-2, Automaker's Own Standards)

Using this system, on-vehicle electronic equipment and connected harnesses are exposed to strong electromagnetic field noise, and tolerance to interference is tested. Based on the international standard ISO 11452-2, this system can be constructed to meet the standards of every vehicle maker. In accordance with each customer's needs, we will select an antenna, amplifier, electric field sensor, and RF cable, and propose a test system tailored to their preferences and budget.

- Support ISO11452-2 and Automakers' Standards
- Test frequency: 200MHz-6GHz
 - Test distance: 200V/m at 1m
 - Consult with us for other frequencies
- Stable operation at open/short circuit
- Automatic control on latest Windows OS
- Easily changeable frequency and strength of the generated electric field
- Support malfunction detection with CAN/LIN Bus, digital/analog signal, image recognition
- A system to monitor EUT's condition during immunity testing can be proposed



Radiated Immunity Test System for Radar Pulse (Ford, GM, and other Requirements)

This system achieves a strong electric field of 600 V/m in the radar pulse band, which is required by companies such as Ford and GM. There are requirements for a 600 V/m electric field in the radar pulse band (1.2-1.4 GHz, 2.7-3.1 GHz) at a test distance of 1 m. We will propose specially designed and built amplifiers capable of producing this strong electric field at the lowest cost possible.

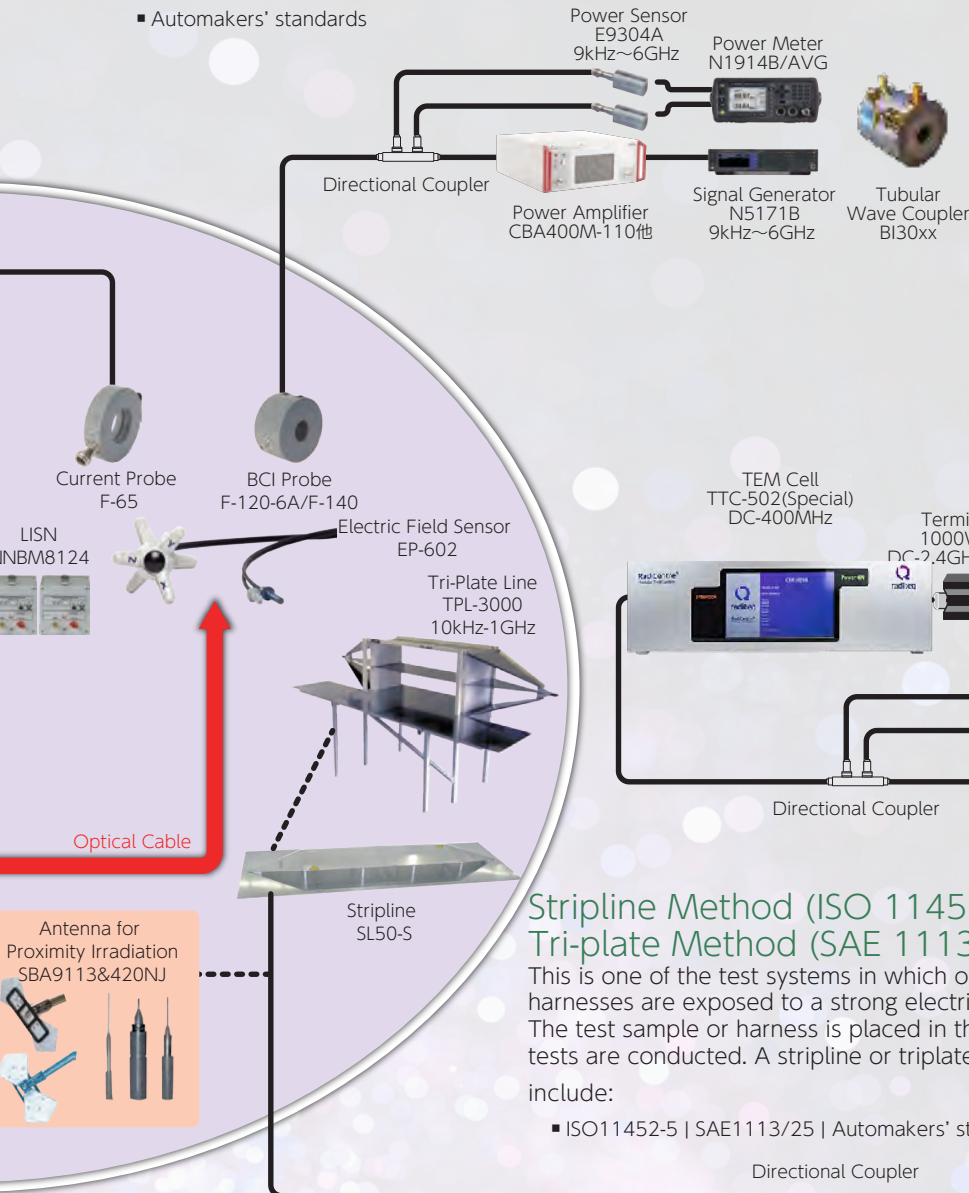
AMETEK

- CBA4G-900/600R
- CBA6G-400D
- Power amp supporting radar pulse testing

BCI Immunity Test System (ISO 11452-4, Automaker's Own Standards)

This BCI (bulk current injection) immunity test system for in-vehicle electronic equipment complies with standards including ISO 11452-4, ECE R.10, SAE, and JASO. With a BCI probe, noise is injected into each line (harness). Tolerance is confirmed to ensure there are no malfunctions. In the IM5/CS conducted immunity test software, the substitution method, which makes use of a correction value (factor) measured in advance, and the feedback method, in which the noise injection level is monitored via a current probe during the test, can be selected. In case the device being tested malfunctions during an immunity test, a variety of automatic error detection functions and measurement sequences are available. Supported standards include:

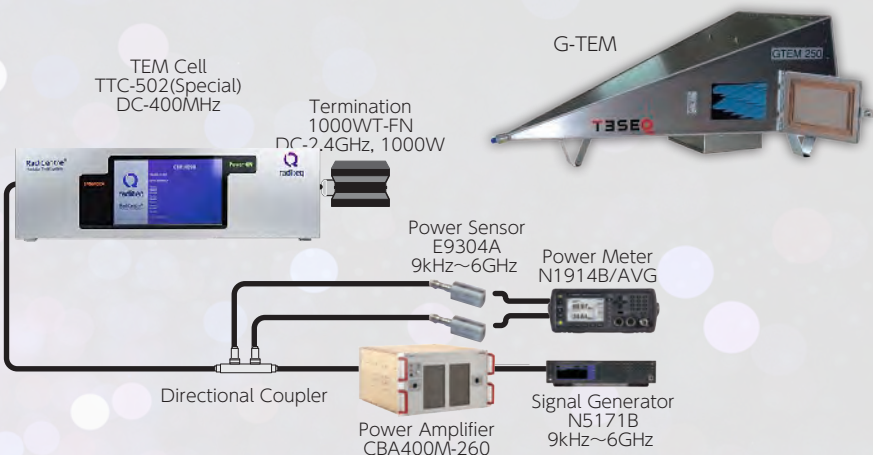
- ISO11452-4
- Automakers' standards



TEM Cell Method (ISO 11452-3)

In a TEM cell, the equipment being tested is placed in the space between the parallel plates of the central and peripheral conductors and exposed to an electromagnetic field generated there, and malfunctions and degradation are evaluated. The upper limit frequencies are determined by the distance between the conductors in the TEM cell, and we recommend that the test area be 1/3 of the distance between the conductors. Supported standards include:

- ISO11452-3
- Automakers' standards



Stripline Method (ISO 11452-5, Automaker's Own Standards) Tri-plate Method (SAE 1113/25)

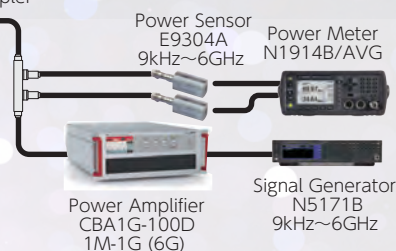
This is one of the test systems in which on-vehicle electronic equipment and connected harnesses are exposed to a strong electric field, and tolerance to interference is evaluated. The test sample or harness is placed in the space between two parallel plates, and tolerance tests are conducted. A stripline or triplate method system are available. Supported standards include:

- ISO11452-5 | SAE1113/25 | Automakers' standards

Portable Transmitter Immunity Test System (ISO 11452-9)

In this test system, electromagnetic fields simulating those emitted by things such as wireless devices or portable transmitters are generated, and immunity tests are performed. An EUT is placed in the vicinity of antennas (mobile antennas, helical antennas, sleeve antennas, etc.) supporting the frequency required by individual automaker's requirements, and tests are conducted in a strong electric field of hundreds of V/m. Supported standards include:

- ISO11452-9
- Automakers' standards



RF Power Amp TA0122 Series

Overview: TA0122-2.5 (2.5kW) / TA0122-5.0 (5kW) / TA0122-10 (10kW)

The TA0122 series power amplifiers from Toyo Technica are high-power, solid-state units designed for exceptional output linearity, stability, and maintainability. They are built entirely from identical, interchangeable RF units, enabling simplified servicing.

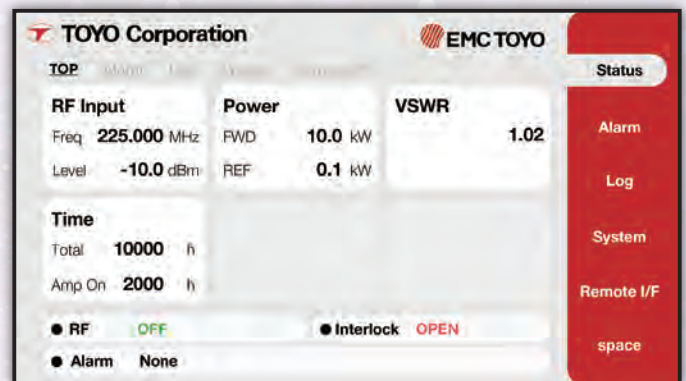
This modular design allows the RF output section to be repaired by replacing only the affected RF unit. Because each unit includes its own dedicated power supply—unlike conventional systems—a single failure does not result in a total loss of RF output. On-site restoration is quick and requires no recalibration, significantly reducing downtime. When used with Toyo Technica's "IM10" series immunity testing software, the system can log key operational data such as RF output power, transistor voltage and current, and internal temperatures. This data supports failure analysis and preventive maintenance.

Additionally, the 2.5 kW and 5 kW models can be upgraded to a 10 kW configuration by adding RF units. Features include:

- Rapid maintenance via RF unit replacement
- Easy fault analysis in the event of a failure thanks to internal data storage capabilities
- Output power can be upgraded simply by adding an RF unit



Specifications	
Item	Details
Output Power (Psat)	10 kW (10 kHz to 100 MHz, CW) 100 MHz to 225 MHz: derated to 6 kW at 32 W/MHz (CW)
Output Power (P1dB)	7.0 kW (10 kHz to 100 MHz, CW) 100 MHz to 225 MHz: derated to 4 kW at 24 W/MHz (CW)
Gain	70 dB or higher
Input Power for Psat Output	+3.3 dBm or less
Protection Function	Output is shut down if reflected power exceeds 50% of output power
Harmonics	− 20 dBc or less (≤ 6 kW output; derating applies above 100 MHz)
Spurious	− 70 dBc or less (≤ 6 kW output; derating applies above 100 MHz)
Power Supply	190–250 VAC ± 15%, 50/60 Hz Three-phase power, ≤ 55 kVA
Input Connector	N-R (rear panel)
Output Connector	1-5/8" EIA flange (rear panel)
Interface	GPIO, USB, Ethernet (rear panel)
Remote Functions	Antenna mode setting Alarm and monitor status check Alarm threshold adjustment
Cooling Method	Forced air cooling
Weight	≤ 1000 kg
Dimensions	570 mm (W) × 1000 mm (D) × 1984 mm (H) × 2 units
Log Contents	VSWR, over-input, reflected power, temperature (center unit & power unit), FET current, intake temperature, exhaust temperature
Warranty Period	3 years



Control Unit GUI

EMC Test System for On-vehicle Electronic Equipment

Portable Transmitter Immunity Test System (ISO 11452-9)

This system is used to perform immunity tests, generating electromagnetic fields that simulate those emitted by things such as wireless devices or portable transmitters. The EUT is placed in the vicinity of antennas (mobile antennas, helical antennas, sleeve antennas, etc.) generating each required frequency, and a strong electric field of hundreds of V/m is applied. This test method conforms to automobile maker requirements for immunity tests of wireless devices and cell phone antennas in close proximity and of portable transmitters. The calibration function can be used to decide the antenna's input power so that the required electric field strength can be achieved, and to control the signal generator so that the proper amount of power is provided.

- Conform to Automakers' requirements for close proximity immunity test of wireless devices and cell phone antennas
- Conform to the requirements for immunity test for portable transmitters (simulating transmitter is available)
- Measure power required to generate the expected electric field in pre-test calibration
- Immunity test using the Substitution method/Closed loop method
- Wizard-type test report
- Burn-in for amp prior to tests
- Support new standard, ISO11452-9:2021

Sleeve Antennas for Close Proximity Immunity Test of Wireless Device Antennas (recommended by ISO11452-9)

Model Number	Frequency	Product Name
CV07-114	144MHz	1/4 Sleeve Antenna
CV07-430	430MHz	1/4 Sleeve Antenna
CV07-835	835MHz	1/4 Sleeve Antenna
CV07-900	900MHz	1/4 Sleeve Antenna
CV07-940	940MHz	1/4 Sleeve Antenna
CV07-1280	1280MHz	1/4 Sleeve Antenna
CV07-1440	1440MHz	1/4 Sleeve Antenna
CV07-1750	1750MHz	1/4 Sleeve Antenna
CV07-1880	1880MHz	1/4 Sleeve Antenna
CV-1000SA	2590MHz	1/2 Sleeve Antenna
CV-5800SA	5800MHz	1/2 Sleeve Antenna

Contact us for other frequencies



CV07-430 430MHz 1/4 λ Sleeve antenna
CV07-1880 1880MHz 1/4 λ Sleeve antenna
CV07-835 835MHz 1/4 λ Sleeve antenna

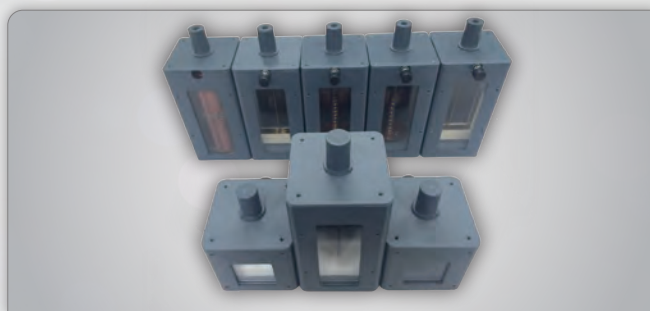
Biconical Antennas for Immunity Test of Portable Transmitters (recommended by ISO11452-9)

Model Number	Frequency	Product Name
420NJ	360MHz-2.7GHz	Flat, Broadband Antenna Elements for the SBA 9113 Balun
422NJ	800MHz-6GHz	Flat, Broadband Antenna Elements for the SBA 9119 Balun



Antennas/Cable for Immunity Test of Portable Transmitters (recommended by ISO11452-9)

Model Number	Product Name & Frequency
EGG 900	Monopole Antenna for 890-915MHz
EGG 1860	Monopole Antenna for 1710-2025MHz
PCD 2440	Monopole Antenna for 2402-2480MHz
HLC 27	Monopole Antenna for 26.96-27.4MHz
HLC 146	Monopole Antenna for 144-148MHz
HLC 170	Monopole Antenna for 168-173MHz
Ferrite cable	Cable with ferrites to block braid currents evolving during the test especially with the HLC antennas
FAN 405	Monopole Antenna for 380-430MHz
FAN 450	Monopole Antenna for 430-470MHz

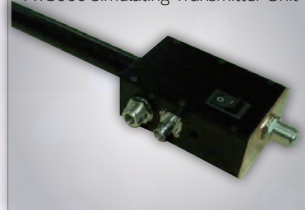


Antennas for Immunity Test of Portable Transmitters

Model Number	Frequency	Product Name
EMC-28	28MHz	28Mhz Helical Antenna 20W
EMC-40	40MHz	40Mhz Helical Antenna 20W
EMC-52	52MHz	52Mhz Helical Antenna 20W
EMC-75	75MHz	75Mhz Helical Antenna 20W
EMC-125	125MHz	125Mhz Helical Antenna 20W
EMC-145	145MHz	145Mhz Helical Antenna 20W
EMC-155	155MHz	155Mhz Helical Antenna 20W
EMC-165	165MHz	165Mhz Helical Antenna 20W
EMC-190	190MHz	190Mhz Helical Antenna 20W
EMC-223	223MHz	223Mhz Helical Antenna 20W
EMC-350	350MHz	350Mhz Helical Antenna 20W

- AT5000: Simulating transmitter unit (BS5000 or NS 01-B is required.)
- FS1000: Interlock fit switch (BS500 or NS 01-B is required.)
- NS01-B: 1CH coaxial switch for A T5000/FS1000
- BS5000: RF band selector
- Contact us for other frequencies

AT5000 Simulating Transmitter Unit



EMC-145 145MHz 1/4 λ Helical Antenna



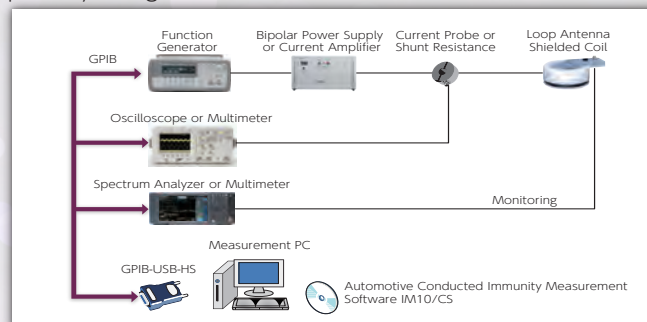
EMC Test System for Automotive Equipment

Magnetic Field Immunity Measurement System

The magnetic field immunity test system we offer can conduct tests at DC-150 kHz or even up to 200kHz (optional), which is in accordance with ISO 11452-8. In addition, we will propose an optimal system that conforms to the requirements of each automobile maker. We can also offer loop coils and gauss meters specially designed for DC tests.

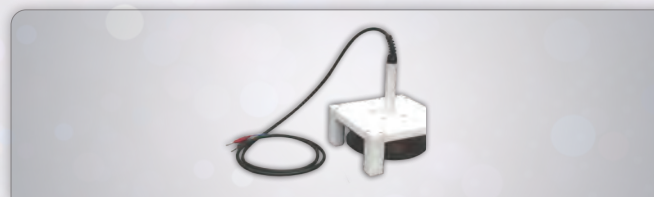
IM Series: Magnetic Field Immunity Test Software

- Measurement steps that substantially reduce measurement time
- Measurement results in CSV format
- Easily create, save, edit the settings including the limit values, factor values, measurement conditions in separate files
- Support hardware from various suppliers
- Support versatile password function that separates test engineers from administrators
- Start measurement with a single mouse click
- Easily conduct additional measurements



FESB5133-1330 Loop Coil for DC

- Number of Turns: 225
- Max coil current: 20A
- Magnetic field strength per 1A (a distance of 50mm): 858.2A/m
- Dimensions: 190 x 190 x 290mm
- Weight: 5.3kg



Accessories for Immunity Test for On-Vehicle Equipment

Bulk Current Injection Probe (FCC)			
Model Number	Frequency Range	Power	Inner Diameter (mm)
F-120-6A	10kHz-400MHz	100W	40
F-120-8	10kHz-400MHz	200W	40
F-120-9A	10kHz-230MHz	125W	40
F-130A-1	1MHz-400MHz	100W	40
F-140	1MHz-1GHz	100W	40
F-150	800MHz-2.1GHz	250W	32

Injection Probe & Calibration Fixtures



Current Probe (ETS, FCC)			
Model Number	Frequency Range	dB Ω	Power (CW)
91550-1(L)	(20H)10k-100MHz	5	42W
94111-1(L)	(20H)1M-1GHz	1-10	20W
F-14	10Hz-500 kHz	-18	50W
F-33-2	1kHz-250 MHz	0	2W
F-52B	10kHz-400MHz	13	2W
F-2000-32mm-1	10MHz-2.1GHz	22	3W

ETS Current Probe



FCC Current Probe



Tubular Wave Coupler Supporting 3GHz

These couplers are used for ISO11452-4-compliant test at up to 3GHz and also as a current probe for emissions measurement in a range of 150kHz to 3GHz.

Frequency Range: 400MHz-3GHz (EMS)
150kHz-3GHz (EMI)

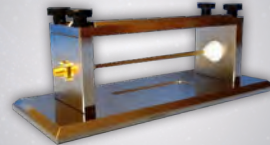
Tubular Wave Coupler				
Model Number	Insertion Loss (average)	Insertion Loss (<20dB)	Inner Diameter (mm)	Outer Diameter (mm)
BI30410	7	0.15-3GHz	10	40
BI30413	8.5	0.15-3GHz	13	40
BI30416	10	0.2-3GHz	16	40
BI30520	12	0.15-2.5GHz	20	50
BI30526	15	0.2-2.5GHz	26	50

Calibration Fixture			
Model Number	Frequency Range	Maximum Input Power	Dimensions (mm)
CF30000	400MHz-3GHz	4W	230 x 95 x 90

BI30416



CF30000



EMS Accessories for Automotive Equipment

Laser-Powered Electric Field Probes and Power Sensors

The RadiSense® 10 electric field probe is a world-class E-field probe covering a wide frequency range of 9 kHz to 10 GHz. Capable of high-speed measurements at up to 100 readings per second, it supports a broad spectrum of EMC testing applications across the automotive, defense, and industrial sectors. When paired with the RadiCentre®, it enables the construction of flexible and efficient systems, dramatically enhancing both measurement accuracy and testing efficiency. The RadiPower® power sensor features high-speed sampling capabilities of up to 1 million samples per second, allowing for the high-precision measurement of CW, RMS, and peak power across a wide dynamic range. Compatible with both the RadiCentre® system and direct PC connections, it offers the flexibility ideally suited for EMC testing environments.

Specifications/Model #	RSS2010I
Frequency Range	9kHz-10GHz
Frequency Response	± 1dB (9 kHz-10 GHz)
Isotropy	< ± 0.25dB up to 1GHz < ± 0.5dB up to 3GHz < ± 1.0dB up to 6GHz < ± 2.0dB up to 10GHz
Resolution	0.01V/m
Dynamic Range	0.1-750V/m
Overload Limit	1,000V/m
Measurement Speed	100 measurements/s
Power Supply	Laser Power Transfer
Dimensions	49 × 49 × 49mm
Operating Temperature Range	0°C -40°C
Controller	RadiCentre

Specifications/Model #	RPR2006P	RPR2018P
Frequency Range	9kHz-6GHz	80MHz-18GHz
Power Range	-55dB+10dB	-45dB+10dB
Measurement Mode	RMS, Peak	
RF Connector	N	

Specifications/Model #	RadiCentre Pro CTR1009B	RadiCentre CTR1004B	RadiCentre Slim CTR1001S
No of slots	7	2	1
Display	-55dB+10dB -45dB+10dB		-45dB+10dB
Interface	USB and LAN. IEEE-488 optional		USB, RS232
Dimensions	132 mm (3U) × 312mm × 19inch (Rack-mountable)		50 × 254 × 180mm



FO Series - Fiber Optic Shielded Converter

- Radiated Immunity: 200 V/m (18 GHz)
- EMC: CISPR 25 Class 5 Compliant
- Battery-Powered or AC Operation
- Transmits signals via fiber optics—without the use of electrical signals—between the anechoic chamber and the measurement room



Communication Types Supported by the FO Series

Ethernet / LAN	HDMI	Automotive Ethernet
USB	RS232/RS485	Car charger
CAN	General I/O	LIN

Transient Test for Equipment on Electric / Hybrid Vehicles

Summary

Standards including ECE-R10, IEC 61851-1, and IEC 21498-2 are placing increasing focus on the transient immunity of electric vehicles, charging systems, and high-voltage battery lines. AMETEX (TESEQ) has been working toward providing immunity and emission solutions for motor ripples and high-voltage switching by motor drives. They provide a full range of simulation solutions, from internal battery cell monitoring and charging station immunity tests to emission tests for high-voltage lithium battery voltage ripples and transient phenomena.

Burst / Surge / Power Fluctuation Test

The ProfLine2100 system is a highly efficient harmonics and flicker measurement system compliant with the latest IEC/EN standards. The AC/DC power supply can also be used for a wide range of power quality and immunity tests as well as for harmonics and flicker testing.

NSG3060A, NSG3040A, NSG3150



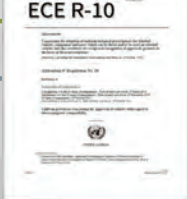
ISO 7637-1/-2/-3: Transient Test

The NSG5500 is the most compact test system intended for immunity tests for automobile components. Based on the requirements in ISO 7637-2 and -3, it conforms to the standards of a wide range of makers.

NSG 5500



Standards Mapping

		ECE R-10	
International Standards	 		
	SAE J2894 SAE J1772 IEC 61851 Series IEC 62198 Series		
	IEC 61000-3-2/-3-12 High Frequency IEC 61000-3-3/-3-11 Flicker IEC 61000-4-11 Power Fluctuation IEC 61000-4-4 Burst / EFT IEC 61000-4-5 Surge		
AutoMaker Standards	BMW • PSA • Renault • Mercedes Ford • GM • Volvo • Tesla		

ISO 16750-2, LV124, LV148

This can be used for transient test, low-frequency tests of up to 200 kHz, battery simulation tests, and low-frequency magnetic field tests. It conforms to LV 124, LV 148, and ISO 16750.

NSG5500 + PA5840



ISO7637-4: Ripple & Switching Transient

The NSG4070 ISO simulates the ringing brought about by the operation of high-voltage semiconductor switching.

- ISO7637-4:1MHz-10MHz
- MBN10284-3:50KHz-50MHz

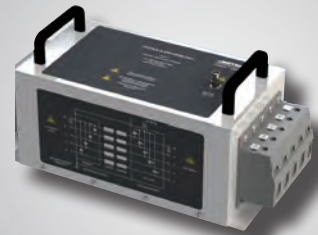
NSG 4070D-A400-50+BAL4070



ISO DTS 7637-4: HV Line Burst

This is a coupling network for applying fast transient burst to the BEV power line. It supports up to DC 1500V/400A.

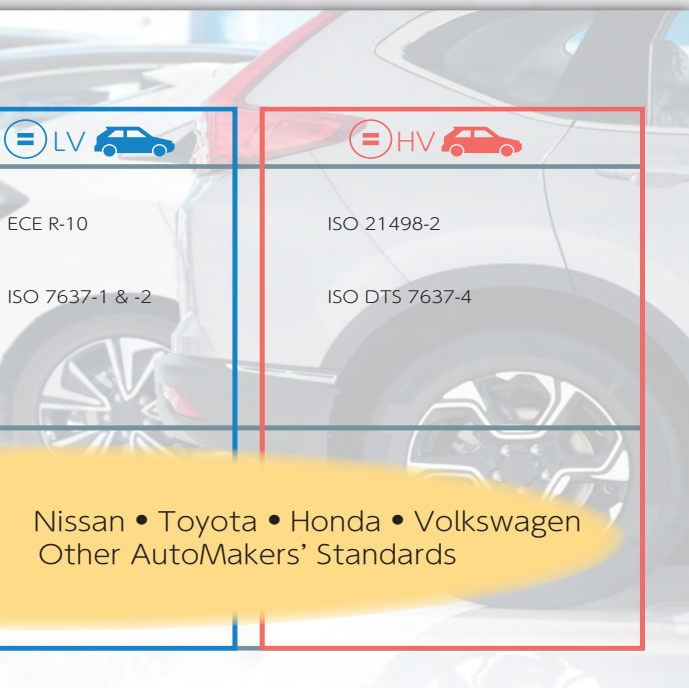
PCD 8-DC b-1-1500-400



ISO DTS 7637-4: HV Line Surge

This is a coupling network for applying combination surge to the BEV power line.

PCD 8-DC s-1-1500-200/400



Conducted Immunity Testers for Consumer and Industry Electronics

IEC61000-4-4, 4-5, 4-8, 4-9, 4-11, 4-12, 4-29 Burst/Surge/Power Fluctuation Tester NSG3060A

This is an immunity tester conforming to IEC/EN standards. A ring wave can be installed for IEC 61000-4-12.

- Compliant with IEC/EN standards
- Support burst tests of up to 4.8V, surge tests of up to 6.6kV, dips, interrupts, and variations tests, and magnetic field tests
- Built-in single-phase, AC/DC 300V, 16A full automatic CDN
- Full-automatic CDN externally extendable to single or 3-phase AC480V, 32A, 63A, 100A

The NSG3150 is the most compact 15 kV surge tester that complies with IEC/EN 61000-4-5. Fully automatic coupling between the specialized coupling circuit (CDN 3153-S63) and the single-phase/three-phase line (AC690V/63A) is possible.

- No mercury switch is used
- Dimensions: W550mm x H260mm x D500mm
- CDN315-S63 supports 3 ranges from 0 to 63A of IEC standards' current category
- Support DC 1000V/63A by adding INA3151 DC Coupling Option

NSG3060A



NSG3150



NSG4070



IEC/EN 61000-4-6, BCI Conducted Immunity Test System NSG4070D-Axx

This is an immunity test system for EMC in the 4kHz to 1 GHz range. Within its compact housing, a signal generator, power amplifier, power meter, directional coupler, and EUT monitoring interface are installed. The system is suitable for tests based on IEC/EN 61000-4-6, ISO 11452-4 (BCI), and other standards applicable to the same frequency band.

- Built-in signal generator 4kHz-1GHz
- 3ch Power meter
- Saturation output check (monitor the saturation level at modulation)

Model Number	Power Amp		IEC 61000-4-6	ISO 11452-4	MIL STD-461G, CS114	DO-160G, Section 20	ISO 7637-4, Pulse A	IEC 61000-4-39
	Power	Frequency Range	150kHz-230MHz	100kHz-400MHz	10kHz (4 kHz)-200MHz	10kHz-400MHz	1MHz-10MHz	9kHz-26MHz
NSG 4070D-A-0	*	*	*	*	*	*	*	*
NSG 4070D-A230-50	50 W	150 kHz to 230 MHz	✓	×	×	×	✓	×
NSG 4070D-A230-100	100 W	150 kHz to 230 MHz	✓	×	×	×	✓	×
NSG 4070D-A400-50	50 W	4 kHz to 400 MHz	✓	✓	✓	✓	✓	✓

IEC/EN 61000-4-16, 61000-4-19 Low-Frequency Immunity Test System - NSG4060

This is an immunity test system for EMC in the 15 Hz-150 kHz range. It is built with a sine wave generator, power amplifier, and EUT monitoring interface. This system is suitable for tests based on IEC/EN 61000-4-16, IEC 61000-4-19, and other standards applicable to the same frequency band.

- Signal generator and built-in power amplifier for 15kHz -150kHz
- Compliant with IEC/EN61000-4-16 with a suitable extension unit
- Compliant with IEC/EN61000-4-19 and other standards

NSG4060



Transient Emissions Measurement System – AES5500

This system, which includes an electronic switch, a mechanical switch, an artificial mains network, and a control station, is compliant with ISO 7637-2 for emission measurements. It provides an unprecedented level of user-friendliness and quality.

- Max. 100A
- Completed system
- 4-unit system: 5 μ F AMN, 300ns electronic switch, voltage drop, mechanical switch, system controller
- Exchangeable relay according to your needs
- 12, 24 or 42V relay voltage

AES5500



Pulse Immunity Tester – NSG5500

The NSG5500 has an internal capacitive generator circuit and a unique pulse generator function that utilizes TESEQ's exclusive Gemini technology. As a result, it fully satisfies all immunity-related requirements in ISO 7637-2:2004.

- Built-in 100A battery switch and coupler (peak: 250A)
- Gemini technology-based modular structure allows for easy upgrade
- Conform to the requirement for "capacitive discharge into pulse shaping network"
- JT5510/JT5550 JASO module and NT5510 module (for automaker N)
- Pulse 3a/b generator supporting two pulse widths based on the old and new standards (5/100ns and 5/150ns)
- Pulses 6 and 7 are added for compatibility with the old standards while Pulses 1 and 2 are generated to cover all the latest standards
- Pulse 5 generator – only generator that satisfies all the requirements for load dump

NSG5500

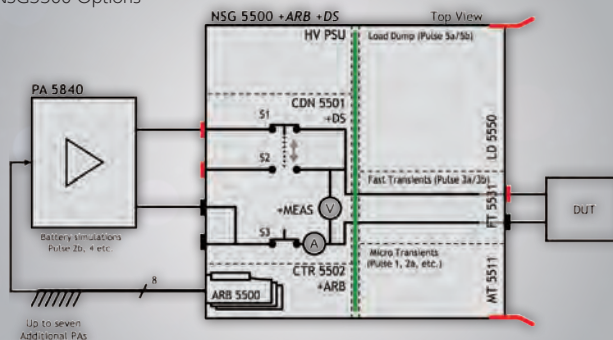


Enhancement Option for NSG5500

On the back of the NSG5500, a programmable signal generator and a power line interruption switch module can be installed. With these, the starting voltage fluctuation, voltage dip and interruption, and trans-coupling transient and ripple noise tests can be carried out. This option is compliant with ISO 16750, VDA 320, and LV standards.

- Powerful function generator with graphical display and flexibility
- Up to 8 signal generators can be installed and synchronized
- "Clone" function for digital capture and duplication from an oscilloscope, or import from MathCAD and Excel
- Support direct programming for sine wave, rectangular wave and triangle wave, exponential function, DC offset, ramp
- Interrupt switch instantaneously shuts down Hi/Low line with a minimum width of 1 μ sec

NSG5500 Options



PA5840



Battery Simulator / Power Amplifier – PA5840

The PA5840, with a unique capacitive stability mode installed, puts to use years of automotive industry experience with high-speed power amplifiers. It has a variety of features including low impedance, large current, extremely high inrush current, a wide band, and stability in the presence of the complex load changes that occur in on-vehicle electronic systems.

- Capacitive stability mode and unique features developed for on-vehicle electronics testing are mounted
- Output range: -15V - +60V
- Bandwidth: - 150kHz
- Rise time of 10 μ s or shorter does not require a switch for most voltage dip or interrupt tests
- 3 current types are available: 25A, 50A or 100A continuous
- Peak inrush current of three times higher than the continuous rated current (up to 200ms)
- Rackmountable and upgradable. Module type

Immunity Tester for HV On-vehicle Electronic Equipment

ISO/TS 7637-4 Pulse-A

In high-voltage supply lines, the types of switching occurring between various devices result in different types of transients, such as the ringing caused by high-voltage semiconductor switching. Transients including grid harmonics and sine waves resulting from electric propulsion motor rotation are also typical ones. This tester can be used with all types of electric road vehicles, including battery-powered electric vehicles (BEVs), hybrid electric vehicles (HEVs), and plug-in hybrid electric vehicles (PHEVs).

HV/EHV high-voltage line sine wave transient system

- NSG4070D Axx / signal generator, power amplifier
- HV-AN500 (DC 1000V/500A) / High voltage Artificial Mains Network
- BAL4070 / Balun 50kHz - 50MHz
- 50-ohm attenuator



High Voltage Artificial Mains Network Shielded Box

This shielded metal enclosure (SME), designed to hold two HV-AN150 high voltage artificial mains networks, conforms to ISO/DTS 7673-4 and the high voltage part of the CISPR 12 (draft), CISPR 25, and ECE No. 10R05/06.



ISO 61851-21

This new surge CDN uses an auto-adaptive back filter, allowing it to satisfy the decoupling filtering and voltage drop requirements over the full range of 1 to 100A. TESEQ's auto-adaptive choke technology eliminates the need for switching between multiple CDNs. It can be used at up to DC 1500V/400 A.

PCD 8 b-3-690-1000-200 Main data

Parameter	Value
Parameter	Value
Impulse voltage burst	max. 8.0kV
Coupling mode	Common mode, L1 (DC+), L2, L3, N(DC-), and PE simultaneous
Coupling capacitor	33nF
Residual voltage	<400V@4000V burst
EUT	
Line	L1(DC+), L2, L3, N(DC-), PE
AC voltage	max. 3x690V (p-p)
DC voltage	max. 1000V
AC/DC current	max. 200A (continuous)

PCD 8 s-3-690-1000-200 Main data

Parameter	Value
Parameter	Value
Impulse voltage burst	max. 8.kV
Coupling mode	Lx - Lx and Lx - PE (including SCU (surge coupling unit) at delivery)
Decoupling inductance	0.2mH +/-10%
Residual voltage	<3000 @ 6000V surge, <2000V typical
EUT	
Line	L1(DC+), L2, L3, N(DC-), PE
AC voltage	max. 3x690V (p-p)
DC voltage	max. 1000V
AC/DC current	max. 200A (continuous); IEC: 32 - 200A, ANSI: 32 - 200A



ESD Testers

IEC 61000-4-2 & ISO 10605

ESD Tester – 30 kV (Contact / Air) – NSG438/NSG437

It has a large, easy-to-see color LCD display and provides necessary data from the discharge gun during tests.

- Support IEC/EN standards and ISO10605 automotive standard
- Improves the test efficiency with its automatic discharge function
- A circuit conforming to the standard is used, and the voltage is maintained for 5 seconds or longer (not affected by temperature or humidity)
- Flexible lead eliminates the need to move the discharge gun

Compact Multi-function Tester for Consumer and Industry Electronics

IEC 61000-4-4, 4-5, 4-8, 4-9, 4-11, 4-29

Burst / Surge / Power Fluctuation Multi-Function Tester – NSG3040A

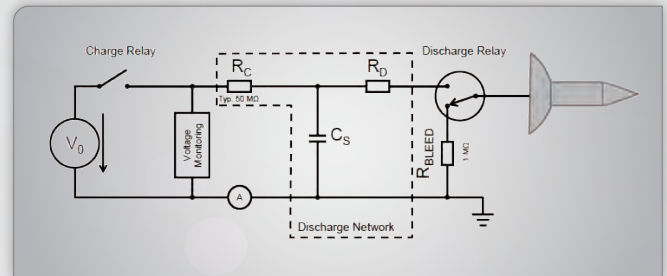
This product is available in either single-function type or multi-functional type – a combination of burst, surge, and power fluctuation tests. Its compact housing fits in a 19-inch rack and is 3U high.

- Compliant with IEC/EN standards
- Support burst tests of up to 4.8kV, surge tests of up to 4.8kV, dip & interrupts tests, variation tests, magnetic immunity tests
- Built-in single-phase AC/DC300V, 16A full-automatic CDN

Magnetic Field Generator MFG40-100

This has an output range of 80mA - 4.1A at 50 Hz/60 Hz. It can operate at up to 130 A/m with the MFC300 multi-turn magnetic field antenna and up to 40 A/m and a pulse magnetic field of 1200 A/m with the MFC30.

NSG438



NSG3040A



MFG40-100



MFC30



MFC300



Reverberation Chamber

Summary

In recent years, noise sources inside EVs and HVs have continued to increase, causing a more complex and severe environment for EMC.

Small malfunctions in vehicles such as automobiles can lead to serious accidents. Immunity tests designed for automobiles must verify safety in an electromagnetic environment in which strong electromagnetic stress is applied at levels tens to hundreds of times stronger than that in tests for information processing equipment or home appliances. Moreover, EMC tests, which are based on estimates of a wide range of noise types and sources that automobiles may encounter, are extremely important.

In radiated immunity tests using a reverberation chamber, the electric field applied to the object being tested is not unidirectional but radiates in a number of directions, allowing for immunity tests that match the environment we currently live in. To prepare for the coming age of self-driving vehicles, the reverberation chamber, which can create an environment of complex electromagnetic interference, can realize more sophisticated and accurate tests for automobile safety and reliability.

- Create a larger test area than that created by conventional direct radiation of electric field in an anechoic chamber
- Test area having a isotropic and homogeneous RF field, which is said to be similar to actual electromagnetic interference environment

Software

Immunity Test Software

IM5/Rvc Reverberation Test Software

- Compliant with Mode-Tuned method defined in IEC 61000-4-21, ISO 11452-11
- Maximum angle mode for non-compliant simpler test method that saves time is available
- Test in frequency-priority mode is available
- More hardware is to be supported



Reverberation chamber Main Specifications	
Item	Specifications
Supported Standards	ISO 11452-11, IEC 6100-4-21, RTCA DO-160F/G, SAE J1113/27, MIL-STD-461F/G
Size, Structure	Shield dimensions: 515(L)x377(W)x317.5(H)mm Assemble with shield panels Valid dimentions: 499(L) x 362(W) x 300(H)mm Metal floor
Shield Performance	150kHz-6GHz -100dB, 6GHz-18GHz -80db
Power line cutoff characteristics	150kHz-6GHz -100dB, 6GHz-18GHz -80db
Field uniformity characteristics	ISO 11452-11 compliant Frequency range: 200MHz - 6GHz Test Volume: 413mm3 Standard deviation: 100MHz: 6dB, 200 - 400MHz: within 3dB, 400MHz or above: 3dB
Stirrer	Aluminum, vertically installed *The drive motor is installed outside the chamber. Rotation speed: 1-10rpm
GPIB Controller for Stirrer	Standard: IEEE-488 compliant (optical cable link type) Control method: Local control (Manual operation) and GPIB control Display Resolution: 0.1 degrees

EMI Shielding Effectiveness Testing Equipment

JSE-KEC6G / JSE-KEC

Readily and quickly perform relative evaluations of shielding materials. With shielding material evaluation equipment developed by organizations such as the KEC Electronic Industry Development Center, the transmission loss of shielding film and shielding sheets can be easily evaluated. Features include:

- Require no complicated processing of the materials under test
- Can evaluate the materials easily just by placing them between the measurements
- Cover wide frequency ranges of 100kHz to 1GHz and of 1GHz to 6GHz
- Support automatic measurement of shielding effect using TOYO's measurement software
- A system with a network analyzer and measurement software together with this evaluation equipment can be proposed

Measurement Fixture Specifications		
	JSE-KEC	JSE-KEC6G
Compliant Standard / Measurement Method	KEC Standard	GHz KEC Standard
Frequency Range	100kHz-1GHz	1GHz-6GHz
Dynamic Range	80dB (Nominal, depending on input level and receiver measurement limits)	
Sample Dimensions	Approximately 110X100mm-Thickness 6mm or less	Approximately 30 to 50 mm square Thickness 1 mm or less
Fixture Dimensions (W x D x H) (mm)	350 x 350 x 500 (Excluding protrusions)	300 x 350 x 350 (Excluding protrusions)
Weight (kg)	-25	
Accessories	Blind plate: 1 sheet Thickness calibration plate: 3 each	Blind plate: 1 sheet

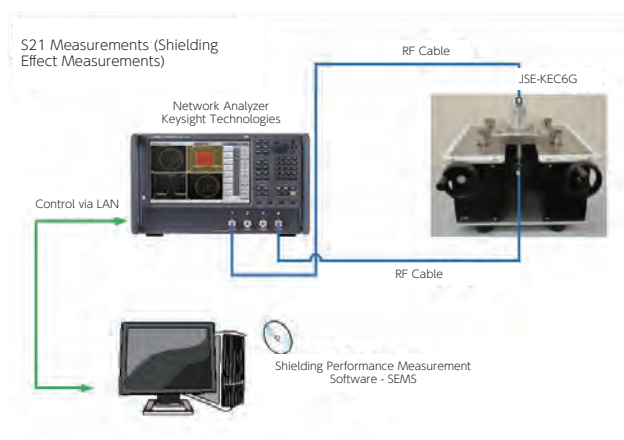
SEMS Measurement Software

With this software, you can select the measurement fixture to be used and make the initial settings of a network analyzer. Measurement results, displayed as "Shielding effect (dB)" on an Excel sheet, can be confirmed at a glance.

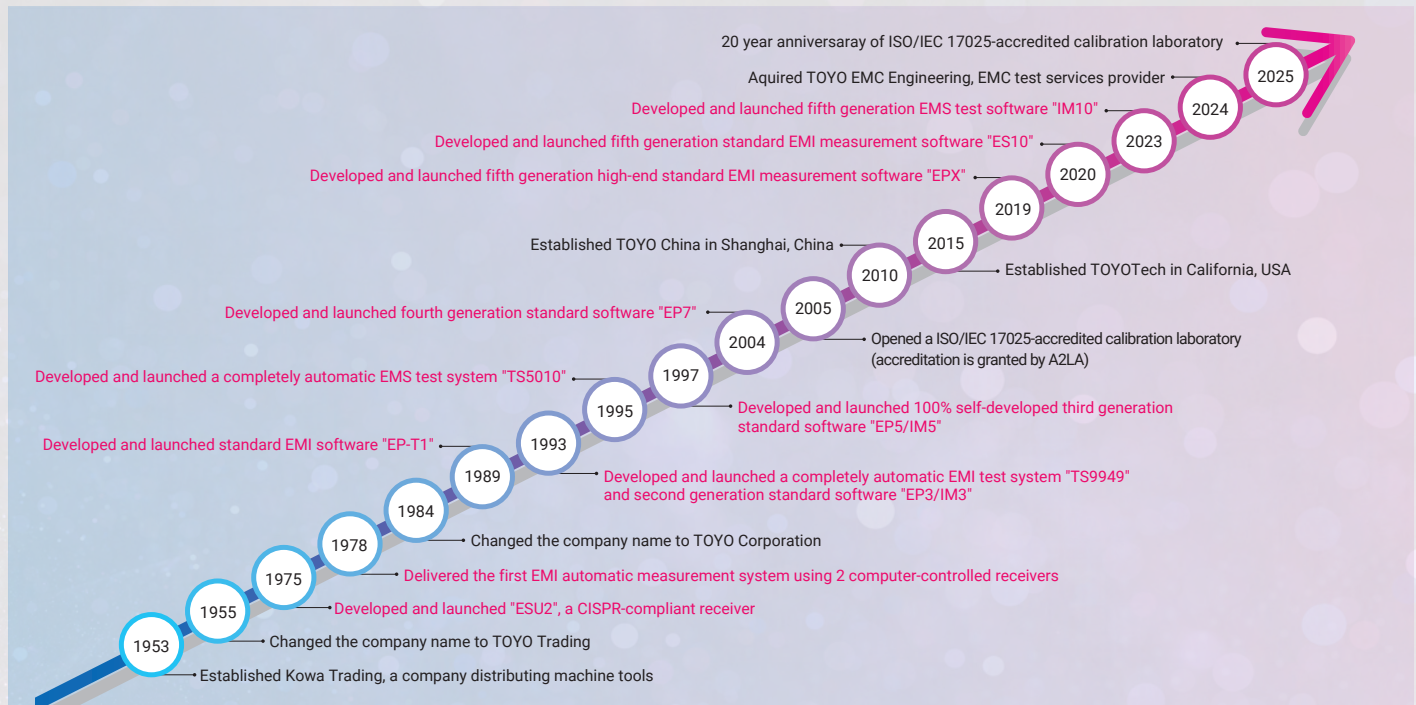


Standard Configuration of Measurement System	
Model Number	Description
JSE-KEC	Shield effect measuring Fixture
JSE-KEC6G	
SEMS	Measurement Software
3dB Attenuator, Coaxial Cable	
E5071C	Network Analyzer

System Wiring Example for JSE-KEC6G (for Transmission Loss Measurements S21)



EMC Business History



Years of Experience; Proven Track Record

TOYO Corporation's EMC history reflects decades of continuous growth, innovation, and global expansion in electromagnetic compatibility (EMC) testing. The company was founded in 1953 as Kowa Trading, originally focused on distributing machine tools. It later became TOYO Trading and ultimately TOYO Corporation, marking its transition into advanced technology development and system integration.

Early on, TOYO established a strong technical foundation in EMC through the development of key measurement technologies. One of its first major achievements was the ESU2, a CISPR-compliant receiver demonstrating adherence to international standards. This was followed by the first automated EMI measurement system using two computer-controlled receivers, representing a significant step toward automation and efficiency.

During the 1980s and 1990s, TOYO accelerated innovation with increasingly advanced automated systems and software platforms. The company introduced fully automatic EMI and EMS test systems, including the TS9949 and TS5010, improving testing accuracy and repeatability. In parallel, it developed multiple generations of EMI measurement software, from EP-T1 to second-generation platforms such as EP3/IM3, establishing the foundation for integrated, software-driven testing environments.

By the late 1990s and early 2000s, TOYO reached a key milestone with the fully in-house development of its third-generation software, EP5/IM5. This enabled tighter hardware-software integration and greater flexibility. Continued progress led to the fourth-generation platform, EP7, enhancing performance and compliance with evolving standards.

As its capabilities expanded, TOYO strengthened its global infrastructure. The company established an ISO/IEC 17025-accredited calibration laboratory, accredited by A2LA, reinforcing its commitment to precision and quality. It also marked the 20-year anniversary of this accreditation, highlighting long-term consistency in calibration services.

TOYO also expanded its capabilities through the acquisition of TOYO EMC Engineering, strengthening its ability to deliver comprehensive EMC solutions that combine equipment, testing services, and technical support.

In recent years, the company has continued to lead through the development of fifth-generation EMC software platforms, including EPX for high-end EMI measurement, ES10 for standard EMI applications, and IM10 for EMS testing. These solutions represent decades of innovation, offering improved efficiency, accuracy, and flexibility.

Today, TOYO Corporation is a global leader in EMC testing technology, with a strong presence across Asia and North America. Its long-standing commitment to innovation, quality, and customer-focused solutions continues to drive its success in an evolving global market.

Global Business Reach



Focused on Asia and North America

Across global markets, TOYO Corporation has established itself as a trusted and preferred provider of electromagnetic compatibility (EMC) testing systems and solutions. With a strong presence spanning Asia and North America, the company is recognized for delivering reliable, high-performance technologies that meet the evolving demands of modern industries, particularly in automotive, electronics, and advanced research applications.

At the core of TOYO's success is its unwavering commitment to quality and customer support. The company provides industry-leading solutions backed by comprehensive service, ensuring that customers receive not only advanced equipment but also the expertise needed to maximize performance and efficiency. Its EMC testing software—widely regarded for its functionality and ease of use—is available in English, enabling seamless adoption across international markets. In addition, TOYO maintains close and responsive communication with its customers, allowing for a deep understanding of project requirements and the ability to deliver tailored solutions. Leveraging long-standing relationships with a wide network of global suppliers, the company is uniquely positioned to propose and integrate a broad range of products and system configurations.

TOYO began its expansion into Southeast Asia in 1995, marking the start of a steady and strategic international growth trajectory. Over the years, the company has

broadened its reach to include key markets such as South Korea, the People's Republic of China, and the United States. This expansion has been supported by strong regional partnerships and a commitment to localized service.

In 2002, TOYO formed strategic alliances with Singapore-based JS Denki and South Korea's Eretec. Through these partnerships, the company has successfully delivered more than 350 EMC systems, demonstrating both technical capability and consistent execution across diverse customer environments.

TOYO established TOYO Corporation China in Shanghai in 2010 as a wholly owned subsidiary. This was followed by the opening of a Beijing office a few years later, enhancing the company's ability to support customers across the region. In China, we have built a strong track record, supplying advanced EMC solutions to national laboratories, research institutions, and emerging automotive manufacturers.

In 2015, TOYO expanded into North America with the establishment of TOYOTech LLC in California, a wholly owned U.S. subsidiary. This strategic move enabled the company to directly address the growing demand for EMC testing systems in the region. Since its inception, TOYOTech LLC has played a key role in delivering advanced solutions, providing local technical support, and strengthening relationships with customers across the United States.

ABOUT TOYO CORPORATION

TOYO Corporation (TSE: 8151) is a Japanese technology company headquartered in Tokyo, Japan, with subsidiaries in the United States and China. Since its founding in 1953, TOYO has become the leading distributor of advanced measurement instruments and systems in Japan. TOYO also engages in original product designs and develops advanced solutions for many of markets that it serves including automotive, sustainable energy, and cyber security industries. TOYO's innovative products are used by many leading companies in Japan, the United States and APAC countries, helping TOYO's customers accelerate development, reduce time-to-market, and improve product quality.

The company serves major market segments including:

- Automotive Test and Measurement
- Information Communication Technology/Cyber Security Services
- Mechatronics/Noise & Vibration/Sensors
- Materials/Energy
- Electromagnetic Compatibility/Antenna Systems
- Ocean/Defense & Security
- Software Quality and Productivity
- Nano Imaging
- Medical Systems

TOYO Corporation has designed and developed EMC measurement software for more than 40 years. Throughout the world, more than 1,500 TOYO systems have been chosen by governmental, communications and regulating agencies, and major companies to form the core and standard of their test and evaluation installations.

Supporting a wide range of needs, from design improvement to final qualification test, TOYO continues as the world's first choice in integrated EMC test systems and software because TOYO places exceptional importance on user feedback.

ABOUT TOYOTECH

TOYOTech, founded in Fremont, California in 2015, is a wholly-owned local subsidiary of TOYO Corporation. TOYOTech provides the customers in the US and several other countries with TOYO Corporation's self-developed products incorporating the know-how and technologies accumulated over many decades, as well as TOYOTech's own-developed products that are unique in the markets – these include test and measurement solutions for automobile, new materials, ICT, and EMC applications among others.

At the same time, TOYOTech keeps a keen eye on the newly emerging technologies and up-to-date information in Silicon Valley, an area of innovation, actively collaborating with startups and seeking M&A opportunities.

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47623 Lakeview Blvd, Fremont, CA, 94538

Phone 510-438-9548

web: <http://www.toyotechus.com>

email: info@toyotechus.com