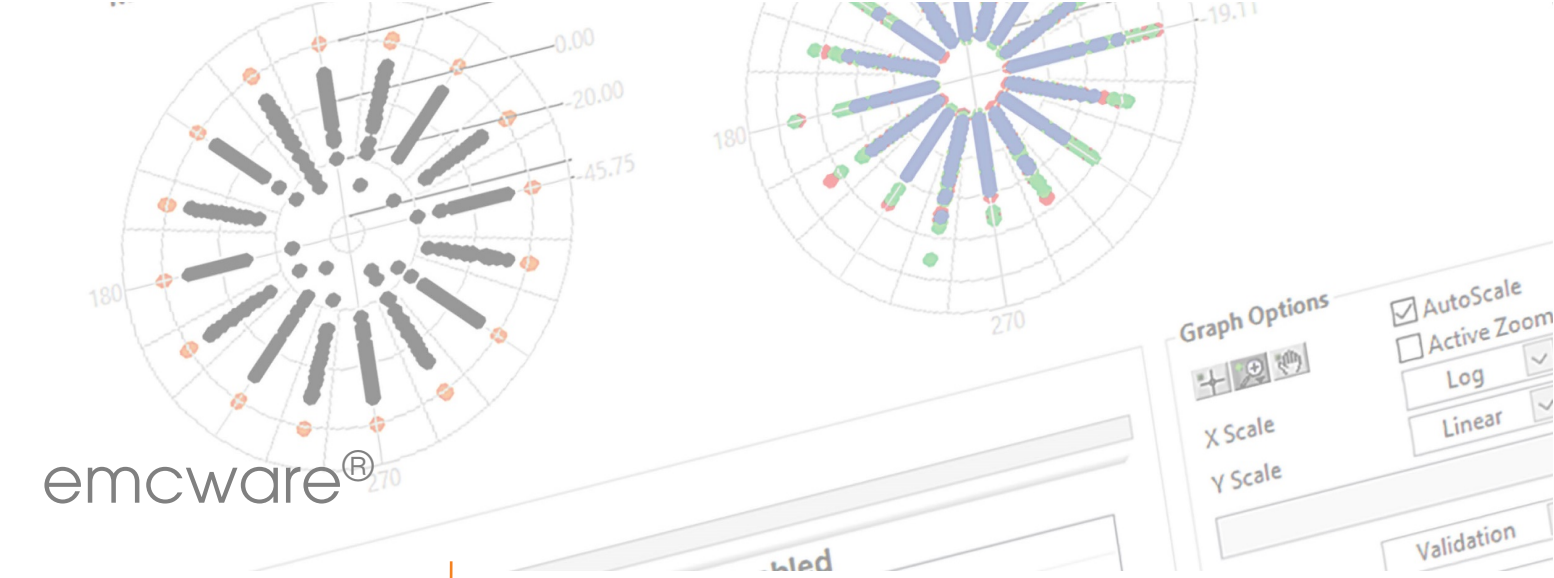

emcware®

EMC Software Suite
Version 6.0

- Radiated and conducted immunity
- Radiated and conducted emissions
- Pre-defined test standards
- Report generation
- Equipment driver library
- EUT monitoring
- Reverb method
- Multi-tone capable

To view our full portfolio, visit:

AR RF/Microwave Instrumentation
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Souderton, PA 18964
215.723.8181
info@arworld.us
www.arworld.us
ISO 9001:2015 Certified
ISO 17025:2017 Accredited

emcware® provides automated Electromagnetic Compatibility (EMC) testing with lightning-fast setup time, over 500 predefined test profiles, and all new multi-tone test capability.

Software Design

emcware is designed to be user-friendly, yet extremely flexible. It is broken up into modules based on different types of EMC testing. Within each module there are pre-defined test methods in accordance with EMC test standards. The ability to create custom test standards is also provided.

Equipment Management

A built-in Equipment List Manager allows for equipment to be entered one time and then accessed from within any of the modules. The Equipment List Manager also keeps track of calibration dates and can warn the user when the calibration date of a specific piece of equipment is approaching.

EUT Monitoring

Use custom equipment or a National Instruments DAQ card to monitor and report the status of the equipment under test (EUT). The National Instruments DAQ device can monitor Analog or Digital levels from the EUT or reset the EUT using the Digital Outputs. Custom equipment, in conjunction with dynamic link library (DLL) files, allows for complete EUT monitoring and control.

Instrument Drivers

Instrument control is provided through our extensive driver library. Creation of new drivers for equipment that is not currently supported is available upon request. Drivers can also be created and imported by the user in the form of dynamic link libraries (dll) files. For a list of supported remote interfaces, see the **Included Equipment Drivers** section.

Signal Routing

emcware is designed to allow the user to select between manual and automatic signal routing. Automatic signal routing is implemented using one or more AR RF/Microwave Instrumentation Model SC2000 System Controllers.

Reports

Extensive report generation capability is built into each module. These reports can be customized by the user. All reports are created in Microsoft Word or Microsoft Excel.

Help Instructions

A detailed help utility is included with emcware. The contents of the help instructions can be searched by keyword or topic. Open the help file using the context-sensitive help buttons located throughout the user interface.

Multi-Tone Capable

Radiated and Conducted Immunity testing can be accelerated by testing multiple frequencies simultaneously. emcware is capable of simultaneous control of up to two signal generators and managing the applied frequencies (see page 3).

Licensing

emcware is conveniently licensed using a USB license key that enables full functionality of the software for a single PC. For more details, see **Licensing Information** on Page 5.

AR Systems Compatibility

emcware can automatically control select AR Systems using built-in equipment setups. See **Compatible AR Systems** for a complete list.

INCLUDED PREDEFINED TEST STANDARDS/METHODS						
Organization	**Standard**	**Version**	**RS/RI**	**CS/CI**	**RE**	**CE**
CISPR	CISPR 11	Ed 5			✓	✓
	CISPR 13	Ed 4			✓	
	CISPR 22	Ed 6			✓	✓
	CISPR 25	Ed 2			✓	✓
	CISPR 32	Ed 1			✓	✓
Department of Defense	MIL-STD-461 RS103	D, E, F, G	✓			
	MIL-STD-461 RS103 (Reverb)	G	✓			
	MIL-STD-461 CS114	D, E, F, G		✓		
	MIL-STD-461 RE(101, 102)	D, E, F, G			✓	
	MIL-STD-461 CE (101, 102)	D, E, F, G				✓
RTCA	DO-160 Section 20	D, E, F, G	✓	✓		
	DO-160 Section 20.6 (Reverb)	F, G	✓			
	DO-160 Section 21	D, E, F			✓	✓
IEC	61000-4-3	Ed 3.1	✓			
	61000-4-6	Ed 4		✓		
	61000-4-21	2011	✓			
	50130-4	1996	✓	✓		
	60601-1-2	Ed 4	✓	✓		
	61000-6-1	Ed 3	✓	✓		
	61326	Ed 2	✓	✓		
	61000-6-2	Ed 3		✓		
Telcordia Technologies	GR-1089-Core	Issue 3, 6	✓			
International Organization for Standards	ISO-11452-(2, 3, 5)	Ed 2	✓			
	ISO-11452-4	Ed 4		✓		
Ford	ES-XW7T-1A278-AC	10/10/2003	✓	✓		
GM	GMW3097	02/2004	✓	✓		
	GMW3097	04/2012	✓			
	GMW3097	03/2019	✓	✓		
BMW	GS 95002	2004-10		✓		
Chrysler	DC-11224	2006-10		✓		
Fiat / Chrysler	CS.00054	A (2018-01)	✓	✓		
Renault	36-00-808	G (2004)		✓		
	36-00-808	N (2016)		✓		
Peugeot	B21 7110	B (2005-05)		✓		
	B21 7110	E (2015-09)	✓	✓		

LEGEND: **RS** (Radiated Susceptibility), **RI** (Radiated Immunity), **CS** (Conducted Susceptibility), **CI** (Conducted Immunity), **RE** (Radiated Emissions), **CE** (Conducted Emissions)

SPECIFICATIONS

RECOMMENDED PC HARDWARE REQUIREMENTS:

- Intel i5 or equivalent, 4 GB of RAM, Screen resolution 1,024 x 768 pixels and higher, 2 available USB (2.0) Ports

OPERATING ENVIRONMENTS:

- Windows 10, Windows 7 Service Pack 1, Windows 8.1

SUPPORTED INTERFACE HARDWARE (Not Included):

- National Instruments GPIB Controller
  - NI GPIB-USB-HS+ (AR P/N 10013688) or equivalent National Instruments device required for GPIB communications
- National Instruments DAQ (Data Acquisition) device
  - NI USB-6212 (AR P/N 10025318) is recommended, but the configuration is customizable

SUPPORTED COMMUNICATIONS INTERFACES:

- IEEE 488 (GPIB), National Instruments NI GPIB-USB-HS+ (AR P/N 10013688) or equivalent device required
- RS-232
- USB
- Ethernet (creation of a National Instruments VISA TCP/IP Resource required)

EQUIPMENT DRIVERS:

- A full list of included equipment drivers can be found at the end of this document.
- For equipment that is not currently supported, please contact the factory.
- Equipment drivers can be written by the user in a multitude of programming languages (LabVIEW, Visual Studios, etc.) and imported as dynamic link library (DLL) files.
  - Equipment Driver Templates are included for LabVIEW and Visual C++
- Includes demonstration drivers for all controllable equipment types to allow operation without equipment.

REPORTS:

- Microsoft Word/Excel 2010 or newer required for all output formats
- Output Formats
  - Microsoft Word / Excel
  - PDF
- Included Data
  - All data collected in numerical & graphical formats
  - Test information (test standard, file paths, completion date, etc.)
  - User and Customer information (optional)
  - EUT monitoring data including Pass / Fail status and user comments
  - Test setup information (test level, frequencies, dwell times and EUT monitoring setup)
  - Equipment names and calibration dates
  - Basic equipment interconnect diagram

SPECIAL FEATURES:

- Multi-tone capability for substitution method, Radiated and Conducted Immunity testing
  - Simultaneous control of up to two signal generators
  - A user-supplied, low-power resistive splitter is required to combine the generator outputs (e.g. Mini-Circuits p/n ZFRSC-183B-S+)
- Reverberation immunity tests supported
- Test up to 2 modulations in addition to CW per frequency during one test
- Pause, stop, and resume tests without data loss

SPECIAL FEATURES:

- User defined amplitude and frequency thresholding capability (Supports MIL STD 461 thresholding method)
- Pre-defined test standards
- Simple creation of custom test standards
- Graphical display of test levels
- Graphical display of RF path for easy test configurations and changes
- Automated harmonics check (IEC 61000-4-3)
- Automatic control of AR Systems (see **Compatible AR Systems**)
- Automatic software updates (requires Internet access)

COMPATIBLE AR SYSTEMS:

- CI00250A
- CI00400A
- CI00401A
- CI00402
- CI00403
- CI01000

LICENSE INFORMATION:

- See page 5

SUPPORT CONTRACT INFORMATION:

- See page 5

EXPORT COMPLIANCE:

- The export classification for this software is EAR99. This software is controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

Support Contract Information

An annual support contract provides the following additional services and can be accessed by phone, email, or Remote PC access (if available).

Available emcware® Services	emcware® purchase	Support Contract[1]
Access to emcware® Support Website		
Bug fixes, maintenance updates, and driver updates for current version	✓	✓
Free upgrades to new versions		✓
Automatic notification of available updates	✓	✓
Access to AR Applications and Software Engineers		
Setup support		✓
Problem acknowledgement within 24 hours		✓
Email, phone and remote support		✓
Dedicated support staff focused on providing solutions		✓
Equipment Driver Support		
Driver Creation	Available upon request[2]	
Driver Support	✓	✓
Driver Templates[3]	✓	✓
Driver Templates with example code[3]		✓

[1] *Support contract is valid for 12 months after time of purchase*
[2] *Additional charges may apply - Call for more information*
[3] *User knowledge of a programming language that can generate Windows Dynamic Link Library files (*.dll) is required*

License Information

The emcware® can be installed on any number of PCs at one time. The supplied USB license key will unlock the full feature list of the PC it is connected to (see below).

emcware® Features	USB License Key	No USB License Key
Equipment Setups	✓	✓
Test Setups	✓	✓
Immunity Calibrations	✓	
Immunity Tests	✓	
Emissions Tests	✓	
Report Generation	✓	✓

INCLUDED EQUIPMENT DRIVERS			
Amplifiers		**Probe Positioners**	
AR RF/MICRO INSTR	All Models Supported*	PROBOTIC SYSTEMS	801
Field Probes/Monitors		TDK	SI 300
AR RF/MICRO INSTR	All Models Supported*	INNCO	CO3000
CHAUVIN ARNOUX	CA43	MATURO	MCU
HOLADAY INDUSTRIES	HI-6105, HI-6100	**Reverberation Tuners**	
NARDA	EMC-20, NBM-520, EMR-200, EP60x Series, 8053B	COMTEST	LUF1000
TDK	SI-300	**Pulse Generators**	
Receivers		AGILENT/HP	3325A, 33220A, 8116A, 81101A
AGILENT/HP	MXE N9038A	**Signal Generators**	
KEYSIGHT	X Series Signal Analyzers	AR RF/MICRO INSTR	All Models Supported*
ROHDE & SCHWARZ	ESIB, ESCI, ESPI, ESU, ESW, ESR	AGILENT/HP/KEYSIGHT	DSO-X 3xxx Series, E8257C, E8257D, ESG, N51xxB, N51xxA, N9310A, 33120A, 33250A, 3336C, 8341, 8350B, 83620B, 83630B, 83731, 8642B, 8648, 8657A, 8657B, 8662A, 8663A, 8664A, 8673B
System Controllers		ANRITSU	MG3694A
AR RF/MICRO INSTR	All Models Supported*	BERKLEY NUCLEONICS	845/835-6
TDK	SI-300	FLUKE	6060A, 6061A, 6062A
Spectrum Analyzers		GIGATRONICS	1018, 6080A, 12000A
ADVANTEST	R3265A	HAMEG	HM8134-3, HM8135
AGILENT/HP	ESA Series, PSA Series, N90x0A (CXA, EXA, MXA, PXA), E740Xa, 856x Series, 859x Series, 8542E, 8546A	IFR	341x Series
KEYSIGHT	X Series Signal Analyzers, N9320B (BSA)	MARCONI	2022, 2023, 2024, 2025, 2030, 2031, 2032
RIGOL	DSA8xx	ROHDE & SCHWARZ	SMB, SMBV100A, SMC, SME, SMF, SMG, SMH, SML, SMP, SMR, SMT, SMX, SMY
ROHDE & SCHWARZ	FSL, FSP, FSV3000	WILTRON	6668B, 6747A
TEKTRONIX	RSA3408A	ANAPICO	APSINx000, 12G, 20G, 26G
Antenna Controllers		RIGOL	DSA8xx
SUNAR	(formerly Sunol Sciences) SC98VA, SC110VA	**Power Meters**	
ETS	1050, 1090A, 2090A, EMCenter (7006-001)(AUX)	AR RF/MICRO INSTR	All Models Supported*
FRANKONIA	FC06	AGILENT/HP	DSO-X 3xxx Series, EPM E44117, EPM E44118, EPM E44119, EPM 441A, EPM E442, N1913A, N1914A 436A, 437B, 438A
MATURO	MCU, NCD	BIRD	4421
Turntable Controllers		BOONTON	4230, 9200, BI 55xx
SUNAR	(formerly Sunol Sciences) SC98VT, SC110VT	DARE	RPR1004A, RPR1006A, RPR1018A
EMCO	1060, 1090T, 2090T, EMCenter(7006-001)	KEYSIGHT	U2000 Series
FRANKONIA	FC06	MARCONI	6960
HD	HD100	ROHDE & SCHWARZ	NRP, NRVS, NRVD, URV5
MATURO	NCD	TESEQ	PM6003
		TEKTRONIX	TDS 744A

NOTE: *AR models created after the current release of the software may not be fully supported, but will be supported in subsequent releases within the scope of the emcware® software.*