OPHIR EMC

YOUR SOURCE FOR LISN'S, PROBES, TRANSIENT GENERATORS, LOOPS, AND AUDIO AMPLIFIERS

Welcome to OPHIR EMC

OPHIRRF, long known for manufacturing top quality, high power, solid state, broadband and band-specific RF amplifiers for over 20 years has expanded its product line with the creation of its newest division, **OPHIR**EMC.

OPHIREMC specializes in products for making EMI/EMC measurements. **OPHIR**EMC's extensive line of products include Line Impedance Stabilization Networks (LISN's), Current Probes, Injection Probes, Transient Generators, Transformers, Loops and Coupling/Decoupling Networks (CDN's). The EMC line is continuously expanding. Contact us for the latest product updates and information. The EMC line is continuously expanding. Contact us for the latest product updates and information.

The **OPHIR**EMC product line offers the same outstanding quality, performance and service you have come to expect from **OPHIR**RF.

OPHIR is ISO: 9001:2008 Registered with TUV Rheinland.

Certified to ISO 9001:2008

TÜVRheinland
Precisely Right.

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EMC Product Overview

Model OTG106 Transient Generator

The **Model OTG106 Transient Generator** is designed to meet the requirements of CS106 susceptibility testing as specified in Mil-Std-461F. The generator provides a 5 μS pulse with a 1.5 μS rise time. Amplitude is adjustable from 10 volts to 400 volts peak. Adjustable repetition rate from 1 to 10 p.p.s. Generator is capable of being computer controlled.

Model OTG617 Transient Generator

The **Model OTG617 Transient Generator** is designed to meet the requirements for Section 17 Voltage Spike tests of RTCA DO-160G. The generator provides a ≥10 μS pulse with a ≤2 μS rise time. Amplitude is adjustable from 10 volts to 600 volts peak with an output impedance of 50 Ω's. The repetition rate is adjustable from 1 to 10 p.p.s. Generator is capable of being computer controlled.

Model OPG115 Pulse Generator

The **Model OPG115 Pulse Generator** meets the requirements of CS115 susceptibility testing of Mil-Std-461E/F/G. The generator provides a 30 ηS pulse, adjustable amplitude between 0-2000 volts, repetition rate 1-50 p.p.s. Generator is capable of being computer controlled.

Model OTG116 Sinusoidal Damping Transient Generator System

The **Model OTG116 Transient Generator** is specifically designed to provide the damped sinusoidal pulses required by Mil-Std-461E/F/G CS116 susceptibility testing. The generator provides the six required frequencies as specified in CS116 through a single output. The **OTG116** is capable of single Pulse, auto pulsing of one frequency or all frequencies. Pulse rate is adjustable from 0.5 to 1 pulse per second. Generator is capable of being computer controlled. System includes injection clamp, monitoring probe, calibration fixture, 50 ohm high voltage load and cables.

Model OTG116A Sinusoidal Damping Transient Generator

The **Model OTG116A Transient Generator** is especially designed for the performance of pulse susceptibility tests in accordance with Mil-Std-461E/F/G section CS116. The solid state generator provides the six required frequencies through six individual outputs. The OTG116 is capable of a single pulse or auto pulsing of each of the frequencies at a rate of 1 p.p.s. Open loop voltage is displayed for each frequency being tested.

Model OTG117 Induced Lightning System

The **Model OTG117 Induced Lightning System** is a two part system designed to cover section CS117 or Mil-Std-461G. The system consists of two independent generators. **Model OTG117.1 Generator** is capable of producing Waveforms 1, 2, 4 and 5A Multiple Stroke. **Model OTG117.2** Generator is capable of producing Waveforms 3 (1MHz & 10MHz) Multiple Stroke and Multiple Burst and Waveform 6 Multiple burst.

Model OPA101 Audio Power Amplifier

The **Model OPA101 Audio Power Amplifier** is under development. It will be designed to meet the requirements of EMC standards Mil-Std-461G, RTCA DO-160 and additional EMC specifications. Preliminary design specs are frequency bandwidth 10 Hz to 200 kHz, Output power up to 500 watts at 1 kHz into a 2 ohm load. Amplifier will be designed to be used in conjunction with Model OCT101 Coupling Transformer.

Model OCT101 Coupling Transformer

The **Model OCT101 Coupling Transformer** is designed for making conducted audio susceptibility measurements as required by Mil-Std-461E/F/G and various automotive and aviation EMC specifications. Frequency bandwidth: 10 Hz to 250 kHz, Power rating: 200 watts, Current rating: 50 amps AC or DC.

Loops

The **Model OLS110 Loop Sensor** was designed to meet the requirements of radiated emissions and susceptibility testing as specified in Mil-Std-461E/F/G, RE101 and RS101, Def Stan 59-411 as well as additional EMC specifications. The **Model OLS110** is 13.3 cm in diameter, has 36 turns of #7-41 Litz Wire with a DCR of ≈10Ω's. Loop has electrostatic shielding. Frequency range is 20 Hz to 100 kHz. The **Models ORL110 Radiating Loop and OLS112 Loop Sensor** were designed to meet the radiated susceptibility testing per Mil-Std-461E/F/G RS101, Def Stan 59-411, ECSS-T-ST-07C as well as additional EMI/EMC specifications. The **Model ORL110** has a 12 cm diameter, 20 turns of #12 insulated copper wire. The **Model OLS112** has 51 turns of #7-14 Litz wire, diameter of 4 cm. The **OLS112** is electrostatic shielded. The frequency range **of Model ORL110 and OLS112** is 30 Hz to 100 kHz.

Line Impedance Stabilization Networks

Line Impedance Stabilization Networks (LISN's) are low pass filters used for conducted emissions measurements. LISN's stabilize line impedance for repeatable measurements and isolate equipment under test (EUT) from external power sources as well as providing a 50 ohm RF connection to measure EMI voltage generated by the EUT. Ophir EMC provides a wide selection of LISN's for pre-compliance and compliance testing in accordance with various EMC standards such as Mil-Std-461, RTCA DO-160, CISPR, IEC, ANSI and others.

Current and Injection Probes

OPHIREMC is developing an extensive line of Current and Injection Probes for various EMC standards such as Mil-Std-461, RTCA DO-160 and others. The Current Probes cover the frequency range of 20 Hz to 1 GHz. The Injection Probes frequency range coverage is 10 KHz to 1GHz. Probe Calibration Fixtures are also available.

Coupling/Decoupling Networks

Coupling/Decoupling Networks (CDN's) are used for RF conducted immunity testing per IEC/EN 61000-4-6, CISPR 15, CISPR 22 and other standards. **OPHIR**EMC will be following up on its initial release of EMI/EMC products with the release of a full line of CDN's within the coming months.

EMC Products Listing

Model Number
INSTRUMENTATION
OTG106 Transient Generator *Mil-Std-461F CS106*
OTG116 Transient System (Automated) Includes generator, clamps, loads, cables *Mil-Std-461F/G CS116* **OTG116A Transient Generator** *Mil-Std-461F/G CS116*
OPG115 Pulse Generator *Mil-Std-461F/G CS115*
OTG117 Induced Lightning System *Mil-Std-461G CS117*
OTG617 Transient Generator *RTCA DO-160G Section 17* *Boeing D6-16050-4 (7.5)*
ANTENNA
OLS110 Loop Sensor 13.3 cm *Mil-Std-461F/G RE101, RS101* *Def Stan 59-411*
ORL110 Radiating Loop 12 cm *Mil-Std-461F/G RS101* *ECSS-E-ST-07C (A.13)* *Ford EMC-C-2009, FMC1278* *Def Stan 59-411*
OLS112 Loop Sensor 4 cm *Mil-Std-461F/G RS101* *ECSS-E-ST-07C (A.13)* *Def Stan 59-411*
TRANSFORMER
OCT101 Coupling Transformer *Mil-Std-461F/G CS101, CS109* *RTCA DO-160G Section 18* *Boeing D6-16050-4 (7.2)* *ECSS-E-ST-20-07C (A.10)* *Ford EMC-ST-07C, FMC1278* *Def Stan 59-411*

Model Number
LINE IMPEDANCE STABILATION NETWORKS
See LISN listing
CURRENT AND INJECTION PROBES
OCP212 Current Probe, 1MHz-1GHz, 32mm window
OCP217 Current Probe, 20Hz-150MHz, 32mm window
OCP218 Current Probe, 10kHz-500MHz, 32mm window
OCP219 Current Probe, 10kHz-150MHz, 32mm window
OCP220 Current Probe, 10kHz-100MHz, 32mm window
OCP321 Current Probe, 100kHz-500MHz, 67mm window
OCP324 Current Probe, 10kHz-300MHz, 67mm window
OCP405 Current Probe, 10KHz-400MHz, 51mm window
OIP257 Bulk Current Injection Probe, 100kHz-1GHz, 38mm window
OIP400 Bulk Current Injection Probe, 10kHz-400MHz, 51mm window
CALIBRATION FIXTURES
OFC120 BCI Calibration Fixture, 20Hz-500MHz, 10" x 7" x 6"
OFC121 BCI Calibration Fixture, 100kHz-1GHz, 10" x 7" x 7"
OFC123 BCI Calibration Fixture, 10kHz-400MHz, 12" x 7" x 7"
OFC403 Dual Wide Calibration Fixture, 10kHz-400MHz, 6.5" x 6" x 6.5"

Mil-Std-461F/461G Product List

CE101 Conducted Emissions, Power Leads, 30 Hz to 10 kHz
OCP217 Current Probe, 20 Hz-150 MHz
2014M-50-1-P-50-N LISN
2114D-5-1-P-50-N LISN (alternate)
CE102 Conducted Emission, Power Leads. 10 kHz-10 MHz
2014M-50-1-P-50-N LISN
2114D-5-1-P-50-N LISN (alternate)
CS101 Conducted Susceptibility, Power Leads, 30 Hz-150 kHz
OPA101 Audio Amplifier
OCT101 Coupling Transformer
2014M-50-1-P-50-N LISN
CS106 Conducted Susceptibility, Power Lead, Transients (461F only)
OTG106 Transient Generator, 5 μS, 400 V peak
2014M-50-1-P-50-N LISN
CS109 Conducted Susceptibility, Structure Current, 60 Hz-100 kHz
OPA101 Audio Amplifier
OCP217 Current Probe 20 Hz-150 kHz
OCT101 Coupling Transformer
CS114 Conducted Susceptibility, Bulk Current Injection, 10 kHz-200 MHz
OIP400 Current Injection Probe, 10 kHz-400 MHz
OCP405 Current Probe 10 kHz-400 MHz
OFC403 Calibration Fixture
7034 RF Power Amplifier, 10 kHz-400 MHz
OPA101 Audio Amplifier
2014M-50-1-P-50-N LISN
CS 115 Conducted Susceptibility, Bulk Current Injection, Impulse Excitation
OPG115 Pulse Generator, 30 ηS
OIP400 Current Injection Probe, 10 kHz-400 MHz
OCP405 Current Probe, 10 kHz-400 MHz
OFC403 Calibration Fixture
2014M-50-1-P-50-N LISN

CS116 Conducted Susceptibility, Damped Sinusoidal Transients
OTG116 Transient Generator (automated)*
OTG116A Transient Generator
OIP400 Current Injection Probe, 10 kHz-400 MHz*
OFC403 Calibration Fixture*
OCP405 Current Probe,10 kHz-500 MHz*
2014M-50-1-P-50-N LISN
ORL101 50 Ohm Resistive Load*
*** sold as system**

CS117 Lightning Induced Transients
OTG117 Induced Lightning System
2014M-50-1-P-50-N LISN

RE101 Radiated Emissions. Magnetic Field, 30 Hz- 100 kHz
OLS110 Loop Sensor 13.3 cm
2014M-50-1-P-50-N LISN

RE102 Radiated Emissions, Electrical Field, 10 kHz-18 GHz
2014M-50-1-P-50-N LISN

RS101 Radiated Susceptibility 30 Hz-100 MHz
ORL110 Radiating Loop
OLS112 Loop Sensor
OCP217 Current Probe 20 Hz-150 MHz
2014M-50-1-P-50-N LISN
OLS110 Loop Sensor, 13.3 cm

RS103 Radiated Susceptibility, Electrical Field, 2 MHz-40 GHz
5062 RF Power Amplifier, 1 MHz-1 GHz
5264 RF Power Amplifier, 700 MHz-4.2 GHz
6536 TWT Amplifier, 4 GHz-8 GHz
6535 TWT Amplifier, 7.5 GHz-18 GHz
6531 TWT Amplifier, 18 GHz-26.5 GHz
6532 TWT Amplifier, 26.5 GHz-40 GHz
2014M-50-1-P-50-N LISN

RS105 Radiated Susceptibility, EM Field, Transient
2014M-50-1-P-50-N LISN

Ophir EMC
Ophir RF
Pending product

Def Stan 59-411 Preliminary Product List

DCE01 Conducted Emissions Primary Power 20 Hz-150 MHz
OCP216 Current Probe, 20Hz-20MHz
OCP219 Current Probe, 10kHz-150MHz
2514D-5-1-P-100-N LISN
DCE02 Conducted Emissions Signal, Control & Secondary Power 20 Hz-150 MHz
OCP216 Current Probe, 20Hz-20MHz
OCP219 Current Probe, 10kHz-150MHz
2514D-5-1-P-100-N LISN
DCE02 Exported Transients Primary Power
2514D-5-1-P-100-N LISN
DCS01 Conducted Susceptibility Primary Power 20 Hz- 50kHz
OPA101 Audio Amplifier
OCT101 Coupling Transformer
2514D-5-1-P-100-N LISN
DCS02 Conducted Susceptibility Signal, Control and Power 50 kHz-400 MHz
Ophir 7034 RF Amplifier, 10kHz-400MHz
OIP400 Current Injection Probe, 10kHz-400MHz
OCP405 Current Probe, 10kHz-400MHz
OFC403 Calibration Fixture
2514D-5-1-P-100-N LISN
DCS03 Conducted Susceptibility, Control and Signal 20 Hz-50 kHz
OPA101 Audio Amplifier
2514D-5-1-P-100-N LISN
DCS04 Imported Transient Susceptibility (Air)
Transient Generator
Injection Clamps
OCP219 Current Probe, 10kHz-150MHz
2514D-5-1-P-100-N LISN
DCS05 Externally Generated Transient (Land/Sea)
Transient Generator
Injection Clamps
10 Ohm Calibration Jig
OCP219 Current Probe, 10kHz-150MHz
2514D-5-1-P-100-N LISN

DCS06 Imported Long Transients AC/DC (land/Sea)
Transient Generator
Injection Clamp
5 ohm Calibration Jig
Monitor Probe
2514D-5-1-P-100-N LISN

DCS08 Externally Generated Transient (Air)
Transient Generator
Injection Clamp
Monitor Probe
Voltage Probe
2514D-5-1-P-100-N LISN

DCS09 Imported Lightning Transient (Air)
Lightning Generator
2514D-5-1-P-100-N LISN

DCS10 ESD
ESD Generator Gun

DCS12 Imported Low Frequency Transient Power Line (Sea)
Transient Generator
2514D-5-1-P-100-N LISN

DRE01 Radiated Emissions E-Field 10KHz-18GHz
Antennas
2514D-5-1-P-100-N LISN

DRE02 Radiated Emissions H-Field 20Hz-250kHz
OLS110 Loop Sensor, 13.3 cm
2514D-5-1-P-100-N LISN

DRE03 Radiated Emission E-Field Tuned Antenna
2514D-5-1-P-100-N LISN

DRS01 Radiated Susceptibility H-Field 20Hz-100kHz
ORL110 Radiating Loop
OPA101 Audio Amplifier
2514D-5-1-P-100-N LISN

DRS02 Radiated Susceptibility E-Field 10kHz-18GHz
RF Amplifier
2514D-5-1-P-100-N LISN

DRS02 Magnetic Field (DC) Susceptibility
Helmholtz Coil

Ophir EMC
Ophir RF
Future Products

RTCA DO-160G Preliminary Product List

Section 17: Voltage Spike
OTG617 Transient Generator, 10 µS, 50 Ω

Section 18: Audio Frequency Susceptibility
OPA101 Audio Amplifier
OCT101 Coupling Transformer

Section 20: Conducted Susceptibility 10 kHz-400 MHz
2114D-5-1-P-50-N LISN
2514D-5-1-P-50-N LISN w/10 µF Capacitor
7034 RF Power Amplifier, 10 kHz-400 MHz, 400 watts,
OIP400 Injection Probe, 10 kHz-400 MHz
OCP405 Monitor Probe, 10 kHz-400 MHz
OFC403 Calibration Fixture
2514D-5-1-P-50-N LISN w/10 µF Capacitor
2114D-5-1-P-50-N LISN

Section 21: Conducted 150kHz-30MHz
OCP405 Current Probe, 10 kHz-400 MHz
2114D-5-1-P-50-N LISN
2514D-5-1-P-50-N LISN w/internal 10 µF Capacitor

Section 22: Lightning Induced Transients
2114D-5-1-P-50-N LISN

Product under development
Ophir EMC
Ophir RF

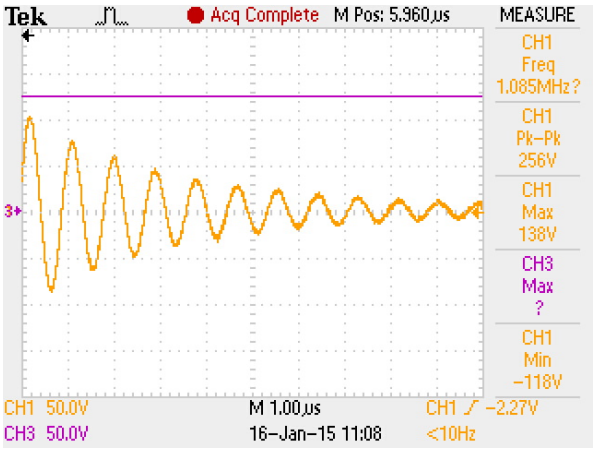
Model OTG116A
Sinusoidal Damping Transient Generator

OPHIREMC **Model OTG116A** Sinusoidal Damping Transient Generator is especially designed for the performance of a variety of pulse susceptibility tests on subsystems and/or equipment, in accordance with Mil-Std-461E/F/G section CS116.

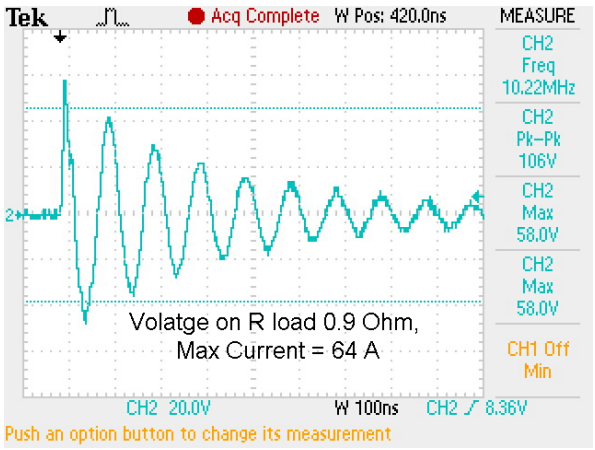
The Model OTG116A provides the six required damped sinusoidal frequencies as specified in Mil-Std-461F/G section CS116 through six individual outputs. The Model OTG116A is capable of a single pulse or auto pulsing of each of the frequencies at a pulse rate of 1 p.p.s. Open Loop Voltage is displayed for each frequency being tested.

Specifications:

Frequencies:	10 kHz, 100 kHz, 1 MHz, 10 MHz, 30 MHz, 100 MHz
Output Impedance:	≤ 100 ohms
Output Current:	0.1 to 10 Amperes (depending on frequency)
Damping Factor (Q):	15 ± 5
Repetition Rate:	Single, 1.0 p.p.s.
Power:	115V/230V, 50/60Hz
Dimensions:	19" wide x 5.21" high x 15.6" deep
	(48.3cm x 13.2cm x 39.6cm)
Weight:	33 lbs. (15 kgs.)

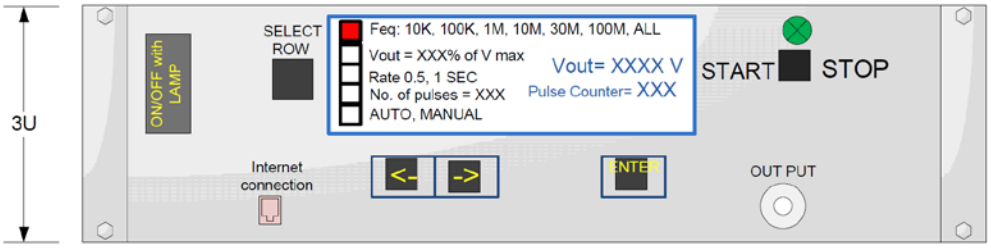


Typical 1MHz Output



Typical 10MHz Output

Accessories (sold separately)
OIP400 Injection Probe
OCP405 Monitoring Probe
OCF403 Calibration fixture
ORL101 50Ω Resistive Load



Model OTG116
Sinusoidal Damping Transient Generator

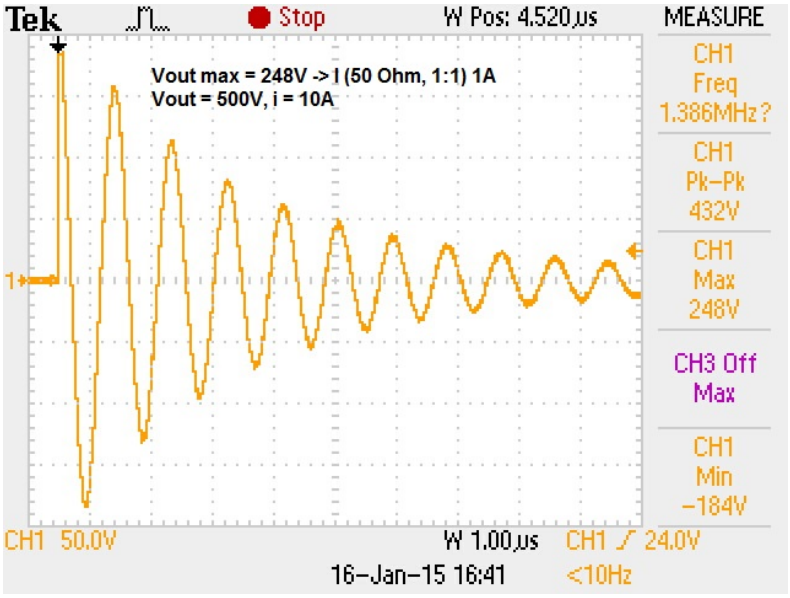
OPHIREMC **Model OTG116** Sinusoidal Damping Transient Generator is specifically designed to provide the damped sinusoidal pulses required by Mil-Std-461F/G section CS116. The Model OTG116 provides the six required frequencies as specified in Mil-Std-461F/G section CS116 through a single output. The Model OTG116 is capable of single pulse, auto pulsing of one frequency or all frequencies. The pulse rate is adjustable from 0.5 to 1 pulse per second. Open Loop Voltage is displayed for each frequency being tested. Generator can be externally control via computer interface.

Specifications:

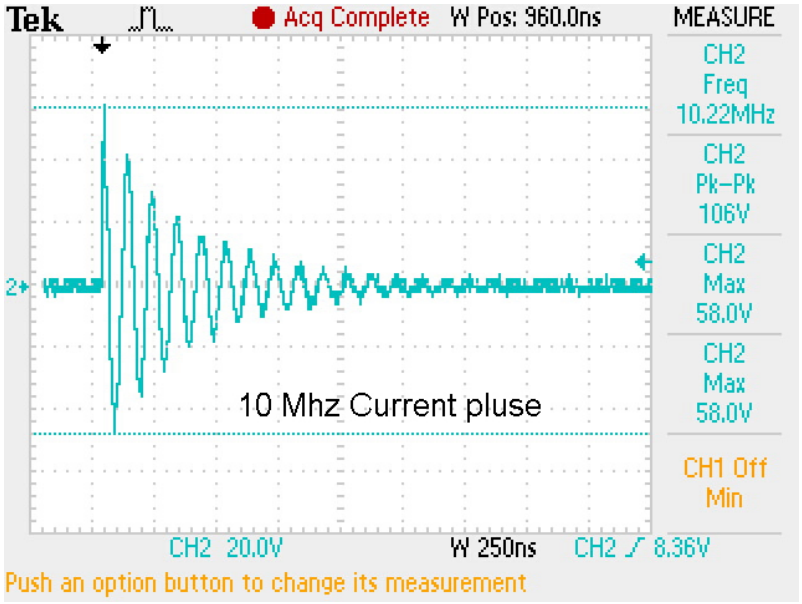
Frequencies:	10 kHz, 100 kHz, 1 MHz, 10 MHz, 30 MHz, 100 MHz
Output Impedance:	≤ 100 ohms
Output Current:	0.1 to 10 Amperes (depending on frequency)
Damping Factor (Q):	15 ± 5
Repetition Rate:	Single, 0.5 p.p.s.-1.0 p.p.s.
Power:	115V/230V, 50/60Hz
Dimensions:	19" wide x 5.21" high x 20"
Weight:	TBD

System includes:

OTG 116 Transient Generator
OIP400 Injection Probe
ORL101 50 Ohms loads (2)
OCP403 Monitoring Probe
Cables
Instruction Manual



Typical 1MHz output



Typical 10 MHz Output

Model OTG117
Induced Lightning System

OPHIREMC Model OTG117 Induced Lightning System is a two part system designed to cover the latest edition of Mil-Std-461G, CS117 consisting of OTG117.1 Multiple Stroke Generator covering Waveform 1-2 and 4-5 and OTG117.2 Multiple Stroke/Burse Generator covering Waveform 3 and 6. Cables and Probes/cores included with system.

MIL-STD-461G CS117 Waveform 1-2 and 4-5 Multiple Stroke Generator

OPHIREMC Model OTG117.1 Generator is capable of producing Current Waveform 1, Voltage Waveform 2 or Voltage Waveform 4, and Current Waveform 5A all in the Multiple Stroke format. Single event triggering is also available for engineering testing and level setting. It can produce these Waveforms at both the Internal and External Equipment Levels (see Table 1).

Table 1

Multiple Stroke			
Applicability	**Test Description**	**Internal Equipment Levels****	**External Equipment Levels****
All equipment installations	Waveform 2 (WF2)/ Waveform 1 (WF1)	First Stroke V_L = 300 V (WF2) I_T = 600 A (WF1) I_T = 60 A* Subsequent Strokes V_L = 150 V (WF2) I_T = 150 A (WF1) I_T = 30 A*	First Stroke V_L = 750 V (WF2) I_T = 1500 A (WF1) I_T = 150 A* Subsequent Strokes V_L = 375 V (WF2) I_T = 375 A (WF1) I_T = 75 A*
Equipment installations routed in areas with composite skin/structure.	Waveform 4 (WF4)/ Waveform 5A (WF5A)	First Stroke V_L = 300 V (WF4) I_T = 1000 A (WF5A) I_T = 300 A* Subsequent Strokes V_L = 75 V (WF4) I_T = 200 A (WF5A) I_T = 150 A*	First Stroke V_L = 750 V (WF4) I_T = 2000 A (WF5A) I_T = 750 A* Subsequent Strokes V_L = 187.5 V (WF4) I_T = 400 A (WF5A) I_T = 375 A*

Output: Waveforms 1-2 and 4-5, adjustable amplitude up to External Equipment Levels

Output Connector(s): 7/16 DIN Connector

Coupling Device: Lightning Injection Transformer/Core

Control Interface: 7" LCD Touchscreen Display

Safety Features: Door Interlock, Emergency shut-off switch, shunt resistor for generator discharge

Input Power: 208 volts, 20 amps

Dimensions: TBD

MIL-STD-461G CS117 Waveform 3 and 6 Multiple Stroke/Burst Generator

OPHIR EMC Model OTG117.2 Generator is capable of producing Waveform 3 (1MHz & 10MHz) Multiple Stroke and Multiple Burst, as well as Waveform 6 Multiple Burst. Single event triggering is also available for engineering testing and level setting. It can produce these Waveforms at both the Internal and External Equipment Levels (see Table 2).

Table 2

Multiple Stroke			
Applicability	**Test Description**	**Internal Equipment Levels**	**External Equipment Levels**
All equipment installations	Waveform 3 (WF3) – 1 MHz and 10 MHz	First Stroke V_T = 600 V (WF3) I_L = 120 A (WF3) I_L = 24 A* Subsequent Strokes V_T = 300 V (WF3) I_L = 60 A (WF3) I_L = 12 A*	First Stroke V_T = 1500 V (WF3) I_L = 300 A (WF3) I_L = 60 A* Subsequent Strokes V_T = 750 V (WF3) I_L = 150 A (WF3) I_L = 30 A*
Multiple Burst			
Applicability	**Test Description**	**Internal Equipment Levels**	**External Equipment Levels**
All equipment installations	Waveform 3 (WF3) – 1 MHz and 10 MHz	V_T = 360 V (WF3) I_L = 6 A (WF3)	V_T = 900 V (WF3) I_L = 15 A (WF3)
Equipment installations that utilize short, low impedance cable bundle installations.	Waveform 6 (WF6)	V_L = 600 V (WF6) I_T = 30 A (WF6)	V_L = 1500 V (WF6) I_T = 75 A (WF6)

Output: Waveforms 3 (1 & 10MHz) and 6, adjustable amplitude up to External Equipment Levels
Output Connector(s): N Connector
Coupling Device: Lightning Injection Transformer/Core
Control Interface: 7" LCD Touchscreen Display
Safety Features: Door Interlock, Emergency shut-off switch, shunt resistor for generator discharge
Input Power: 115 volts, 20 amps
Dimensions: TBD

Optional Voltage/Current Reducer for Level 1 & 2

OPHIR EMC Model OTG117.3 Voltage/Current Reducer is an adapter to reduce the output levels of Model OTG117.1 generator to the level 1 and level 2 requirements of Mil-Std-461G, CS117.

Model OTC617 Transient Generator

OPHIREMC **Model OTG617** Transient Generator is designed to meet the requirements for Section 17 Voltage Spike tests of RTCA DO-160G. The generator provides a ≥ 10 μS pulse with a rise time of ≤ 2 μS. Amplitude is adjustable from 10 volts to 600 volts peak with a 50 Ω output impedance. The repetition rate is adjustable from 1 to 10 p.p.s.

Specifications:

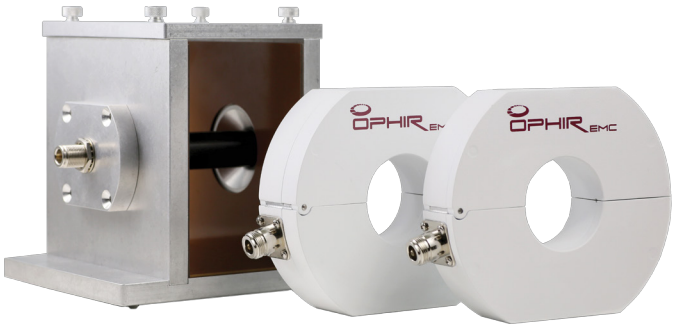
Pulse Duration:	≥ 10 μS
Pulse Rise time:	≤ 2μS
Output Impedance:	50 Ω
Pulse Amplitude:	Adjustable 10 to 600 volts
Repetition Rate:	1 to 10 p.p.s.
Power:	115V/230V, 50/60Hz
Dimensions:	19" wide x 5.21" high x 15.5"
Weight:	TBD

Model OPG115 Pulse Generator

OPHIREMC **Model OPG115 Pulse Generator** is designed to meet the requirements for CS115 susceptibility testing as specified in Mil-Std-461F/G. The Model OPG115 is used to provide pulse excitation on interconnecting cables through an injection probe. The Model OPG115 uses a coaxial charge line to generate a >30 ηS pulse with rise and fall time of less than 2 ηS. Pulse polarity reversible. Charge voltage displayed on front panel. Generator is capable of being computer controlled.

Specifications:

Charge Voltage:	0-2000 volts
Repetition Rates:	01-50 p.p.s.
Pulse Rise and Fall Times:	< 2 ηS
Pulse Duration:	>30 ηS
Output Impedance:	50 Ω
Output Connector	Type N
Power:	115V/230V, 50/60Hz
Dimensions:	TBD
Weight:	TBD



Current and Injection Probes

OPHIREMC series of current and injection probes are designed for testing to various EMC standards such as Mil-Std-461, RTCA-DO-160, CISPR, Automotive, and others.

Current Probes

Part No:	Freq	Zt	Max A 400Hz	Max CW	Max Pulse	Window
OCP212	1MHz-1GHz	1-7	200	20	50	1.25
OCP216	20Hz-20MHz	0.03	400	220	5000	1.25
OCP218	10kHz-500MHz	1-5	200	40	60	1.25
OCP219	10kHz-150MHz	1	350	4.2	100	1.25
OPC405	10kHz-400MHz	6	4	15		2.00
OCP321	100kHz-500MHz	8	200	25	50	2.62
OCP324	10KHz-300MHz	8	300	62	62	2.62

Bulk Current Injection Probes

Part No	Frequency	Wind A.	Watts	Window
OIP257	100kHz-1GHz		100	1.5
OIP400	10KHz-400MHz		100	2

Calibration Fixtures

Part No.	Frequency	Width	Height	Center
OFC120	20Hz-500MHz	10	7	6
OFC121	100kHz-1GHz	10	7	7
OFC403	10kHz-400MHz	6	6.5	6.5

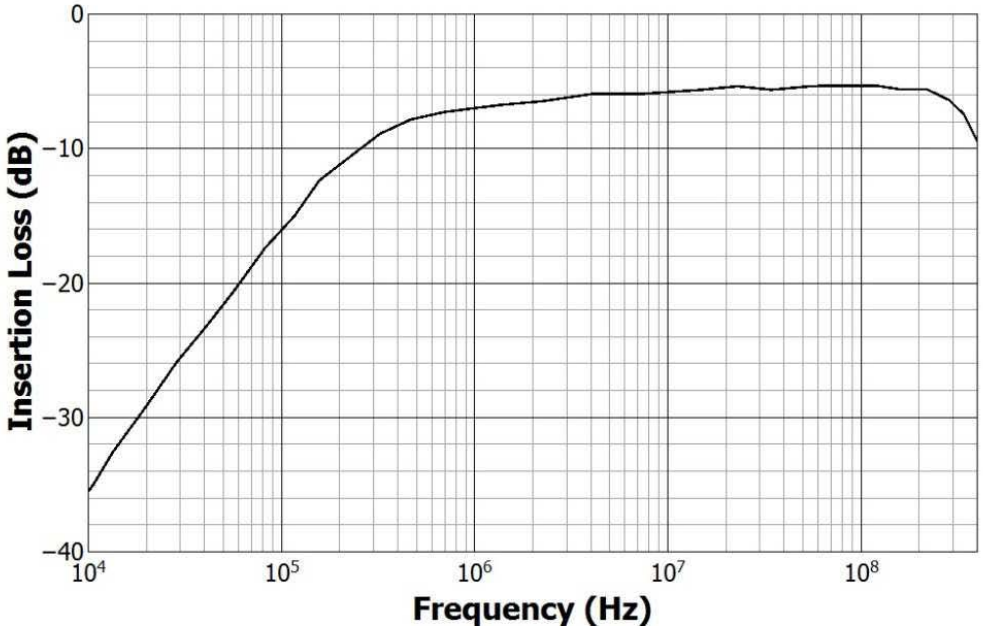
Model OIP400
Injection Current Probe

Model OIP400 Bulk Current Injection Probe is designed for testing to Mil-Std-461E/F/G CS114, CS115, CS116 and RTCA/DO-160G.

Specifications:

Frequency Range:	**10kHz to 400MHz**
Load Impedance:	**50Ω+j0Ω**
Maximum Current (Amps):	**--**
Maximum Power (Watts)	**200 watts for 30 minutes**
Insertion Loss (dB):	**-30dB to -6dB**
RF Connector:	**Type N Female**
Ratio:	**1:1**
Aperture:	**50.8 mm (2.0″)**
Height:	**127mm (5.0″)**
Width:	**147mm (5.75″)**
Thickness:	**41mm (1.63″)**
Weight:	**2.7kg (6lb)**

Model OIP400

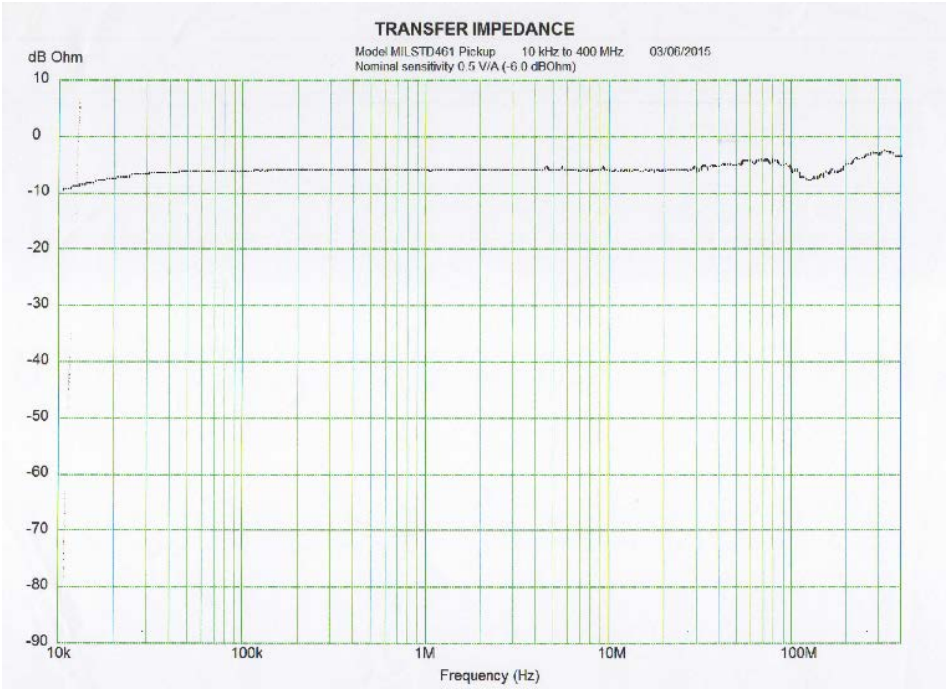


Model OCP405 Current Probe

Model OCP405 Current Probe is designed for testing to Mil-Std-461E/F/G CS114, CS115, CS116 as well or RTCA DO-160G and other conducted susceptibility specifications.

Specifications:

Frequency Range:	**10kHz-400MHz**
Load Impedance:	**50Ω+j0Ω**
Maximum Primary Current (Amps):	
DC-400 Hz:	**15 amps**
Pulse:	**15 amps**
RF (CW):	**4 amps**
Transfer Impedance (Ω):	**0.5**
Transfer Impedance (dBΩ):	**-10 to -3**
RF Connector:	**Type N Female**
Aperture:	**50.8mm (2.0″)**
Height:	**127mm (5.0″)**
Width:	**147mm (5.75″)**
Thickness:	**32mm (1.25″)**
Weight:	**1.0kg (2.2 lbs)**



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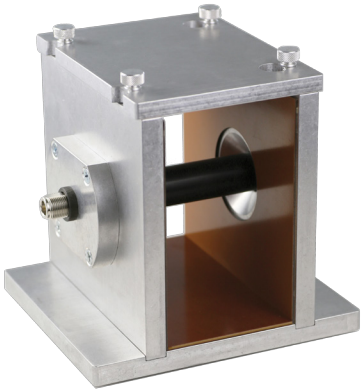
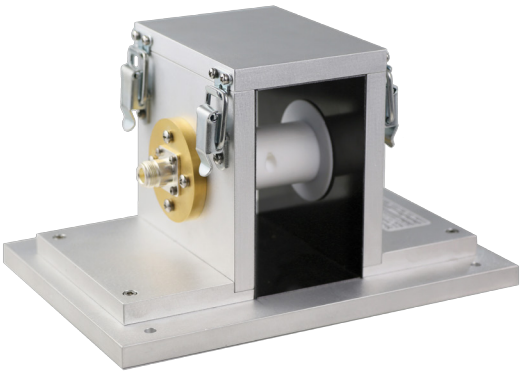


Model OFC403 Calibration Fixture

The **OPHREMC Model OFC403** Calibration Fixture is used to calibrate the Bulk Current Injection (BCI) Probe prior to performing compliance testing as required by Mil-Std-461G, CS114, CS115 and CS116 testing when used with Model OIP400 and OCP405 probes. The fixture accommodates both probes simultaneously eliminating the need for a second fixture during the calibration procedure of CS114. Model OFC403 exceeds the VSWR requirements of RTCA/DO-160G Section 20 for a standalone injection probe calibration fixture.

Frequency Range:	10 kHz – 400 MHz
Nominal Impedance:	50 Ω
Connector:	Type N Female
Overall Dimensions: (LxWxH)	165 mm (6.5″) X 152 mm (6″) X 165 mm (6.5″)
Window Dimensions:	137 mm (5.4″) x 76 mm (3″)
Center Conductor:	24 mm (0.94″) diameter
VSWR (w/o probe installed:	< 3:1
Weight:	≈ 3 kgs (6.5#)

Additional Models
OFC120, 20Hz-500MHz, 25.4cm (10″) x 17.7cm (7″) x 15.2cm (6″)
OFC121, 100kHz-1GHz, 25.4cm (10″) x 17.7cm (7″) x 15.2cm (6″)
OFC123, 10kHz-400MHz, 30.48cm (12″) x 17.7cm (7″) x 17.7cm (7″)



Model OFC120 Calibration Fixture

The **OPHREMC Model OFC120** Calibration Fixture is used to calibrate the Bulk Current Injection (BCI) Probe prior to performing compliance testing as required by RTCA/DO-160G, Mil-Std-461F/G, IEC/EN 61000-4-6 and other EMC specifications. Model OFC120 exceeds the VSWR requirements of RTCA/DO-160G Section 20 for a standalone injection probe calibration fixture to 400 MHz

Frequency Range:	20 Hz – 500 MHz
Nominal Impedance:	50 Ω
Connector:	Type N Female
Overall Dimensions: (LxWxH)	254 mm (10″) X 177 mm (7″) X 152 mm (6″)
Window Dimensions:	120 mm (4.72″) x 70 mm (2.75″)
Center Conductor:	15 mm (0.59″) diameter
With centering spacer:	36.5 mm (1.437″) diameter
VSWR (w/o probe installed:	≤ 3.5:1 @ 400 MHz
Weight:	≈ 4.5 kgs (10#)

Additional Models

OFC121, 100kHz-1GHz, 25.4cm (10″) x 17.7cm (7″) x 15.2cm (6″)
OFC123, 10kHz-400MHz, 30.48cm (12″) x 17.7cm (7″) x 17.7cm (7″)
OFC403, 10kHz-400MHz, 16.51cm (6.5″) x 15.24cm (6″) x 16.51cm (6.5″)

Model OLS110 Loop Sensor

OPHIR$_{EMC}$ Model OLS110 Loop Sensor was designed to meet the requirements of Mil-Std-461E/F/G RE101 for the measurements of radiated magnetic field emissions from 30 Hz to 100 kHz. Model OLS110 is also used for radiated susceptibility testing as specified in RS101 alternative test procedure using AC Helmholtz coil. The Model OLS110 meets the requirements for compliance testing of other specifications and standards.

Specifications

Frequency Range:	20 Hz to 100 kHz
Connector:	Type BNC female
Coil Diameter:	13.3 cm (5.24″)
Turns:	36
Wire:	#7-41 Litz wire
DC Resistance:	Approximately 10 ohms
Shielding:	Electrostatic

Model ORL110 Radiating Loop
and
Model OLS112 Loop Sensor

OPHIREMC **Model ORL110** Radiating Loop and **Model OLS112** Loop Sensor are designed to meet the requirements for radiated magnetic field susceptibility testing from 30 Hz to 100 kHz as specified in Mil-Std-461F/G for RS101 testing. The ORL110 Radiating Loop is used in conjunction with the OLS112 Loop Sensor to verify the magnetic field generated by the ORL110 as required by RS101 of Mil-Std-461F/G. The ORL110 coil form positions the coil 5 cm from the EUT when placed against the EUT
The loops are also compliant with other EMC standards and specifications.

Specifications

ORL110 Radiating Loop

Coil Diameter:	12 cm (4.72″)
Overall Dimensions:	13.3 cm (5.25″) O.D. x 6 cm (2.37″)
Termination:	Standard ¾″ Binding Post
Turns:	20
Wire:	#12 insulated Copper Magnet Wire
Magnetic Flux Density:	9.5×10^7 pT/ampere of applied current at a distance of 5 cm from the plane of the loop.

OLS112 Loop Sensor

Coil Diameter:	4 cm (1.57″)
Overall Dimensions:	5 cm (2″) O.D. x 1.9 cm (.749″)
Connector:	Type BNC Receptacle
Turns:	51
Wire:	#7-41 Litz wire
Shielding:	Electrostatic

LISN Product List

Style P shown

P/N	Current	Inductance	Voltage 60 Hz	400 Hz	800 Hz	DC	Circuits	Frequency Range
for Mil-Std-461F/461G								
2014M-50-2-P1-15-B	15	50µH	270	130	n/a	400	dual	10kHz-50MHz
2014M-50-2-P2-25-B	30	50µH	270	130	n/a	400	dual	10kHz-50MHz
2014M-50-2-P-50-N	50	50µH	270	130	n/a	400	dual	10kHz-50MHz
2014M-50-1-P-100-N	100	50µH	270	130	n/a	400	single	10kHz-50MHz
2114D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-2-P1-25-B	30	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-2-P-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-1-P-100-N	100	5µH	480	240	130	800	single	150kHz-400 MHz
for DO-160G								
2114D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-2-P2-25-B	30	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-2-P-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz
2114D-5-1-P-100-N	100	5µH	480	240	130	800	single	150kHz-400 MHz
2514D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	9kHz-400MHz*
2514D-5-2-P2-25-B	30	5µH	480	240	130	800	dual	9kHz-400MHz*
2514D-5-2-P-50-N	50	5µH	480	240	130	800	dual	9kHz-400MHz*
2514D-5-1-P-100-N	100	5µH	480	240	130	800	single	9kHz-400MHz*
for Def Stan 59-411, Euro Fighter								
2514D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	1kHz-400MHz*
2514D-5-1-P-100-N	100	5µH	480	240	130	800	single	1kHz-400MHz*
2514D-5-1-T-500-N	500	5µH	480	240	130	800	single	1kHz-400MHz*
for CISPR 25								
2314C-5-1-P1-10-B	10	5µH	240	130	n/a	400	single	100kHz-108MHz
2314C-5-1-P2-25-B	25	5µH	240	130	n/a	400	single	100kHz-108MHz
2314C-5-1-P-50-N	50	5µH	240	130	n/a	400	single	100kHz-108MHz
2314C-5-1-P-100-N	100	5µH	240	130	n/a	400	single	100kHz-108MHz
for ISO-7637-2								
2414I-5-1-P1-10	10	5µH	240	130	n/a	400	single	100kHz-108MHz
2414I-5-1-P2-25	25	5µH	240	130	n/a	400	single	100kHz-108MHz
2414I-5-1-P-50	50	5µH	240	130	n/a	400	single	100kHz-108MHz
2414I-5-1-P-100	100	5µH	240	130	n/a	400	single	100kHz-108MHz
for CISPR 16-1-2, CISPR 22, ANSI 63.4								
2214C-50-2-P1-15-B	15	50µH	240	130	n/a	400	dual	150kHz-30MHz
2214C-50-2-P2-25-B	25	50µH	240	130	n/a	400	dual	150kHz-30MHz
2214C-50-2-P-50-N	50	50µH	240	130	n/a	400	dual	150kHz-30MHz
2214C-50-2-P-100-N	100	50µH	240	130	n/a	400	dual	150kHz-30MHz
for CISPR 16-1-2, CISPR 15								
2214C-50/250-2-P1-15-B	15	250µH/50µH	240	130	n/a	400	dual	9kHz-30MHz
2214C-50/250-2-P2-25-B	25	250µH/50µH	240	130	n/a	400	dual	9kHz-30MHz
2214C-50/250-2-P-50-N	50	250µH/50µH	240	130	n/a	400	dual	9kHz-30MHz
2214C-50/250-2-P-100-N	100	250µH/50µH	240	130	n/a	400	dual	9kHz-30MHz

*internal 10 µF Capacitor

Terminal Styles Available

Plug & Sockets
P1- Binding Post, 5-way contact
P2-Supercon Plug and Safety Socket
P-Supercon Plug and Safety Socket
Receptacles
R0-NEMA 5-15 15 amp receptacle
R1-Schuko CEE7 outlet
R2-French/Belgian 16 amp outlet
R3-Australian 16 amp outlet
R4-UK 13 amp outlet
R5-India/South Africa outlet
R6-Denmark outlet
R7-NEMA L6-30 30 amp outlet
R8-IEC-60309 30 amp outlet
R9-IEC-60309-60 amp outlet
R10-IEC-60309-100 amp outlet
Threaded Terminals
10 amp - 10-32 threaded stud
15 amp - 10-32 threaded stud
25 amp - 1/4-20 threaded stud
50 amp - 1/4-20 threaded stud
100 amp - 3/8-16 threaded stud
500 amp - 750 MCM threaded stud
RFConnnector Styles
B - Type BNC
N - Type N
Blank - none

CISPR 16-1-2 Line Impedance Stabilization Network

OPHIREMC offers a wide selection of Line Impedance Stabilization Networks (LISN's) also referred to as Artificial Mains Networks for CISPR 16-1-2 compliance testing requirements. LISN's also meet suitable for CISPR 22, CISPR 15, ANSI 63.4 and other EMC specifications. LISN's are available in three and four circuit configurations. Additional current and voltage ratings are available.

			Voltage					Opt					
P/N	Current	Ind	60 Hz	400 Hz	DC	Circuit	Frequency Range						
for CISPR 16-1-2, CISPR 22, ANSI 63.4 (50Ω/50µH Circuit)													
2214C-50-2-P1-15-B	15	50µH	240	130	400	dual	150kHz-30MHz	P2					
2214C-50-2-P1-25-B	25	50µH	240	130	400	dual	150kHz-30MHz	P2					
2214C-50-2-P-50-N	50	50µH	240	130	400	dual	150kHz-30MHz						
2214C-50-2-P-100-N	100	50µH	240	130	400	dual	150kHz-30MHz						
2214C-50-1-P1-15-B	15	50µH	240	130	400	single	150kHz-30MHz	P2					
2214C-50-1-P1-25-B	25	50µH	240	130	400	single	150kHz-30MHz	P2					
2214C-50-1-P-50-N	50	50µH	240	130	400	single	150kHz-30MHz						
2214C-50-1-P-100-N	100	50µH	240	130	400	single	150kHz-30MHz						
2214C-50-2-R0-15-B	15	50µH	240	130	400	dual	150kHz-30MHz	R1	R2	R3	R3	R5	R6
2214C-50-2-R7-25-B	25	50µH	240	130	400	dual	150kHz-30MHz	R8					
2214C-50-2-R9-50-N	50	50µH	240	130	400	dual	150kHz-30MHz						
2214C-50-2-R10-100-N	100	50µH	240	130	400	dual	150kHz-30MHz						
for CISPR 16-1-2, CISPR 15 (50Ω/50µH+5Ω Circuit)													
2214C-50/250-2-P1-15-B	15	250µH/50µH	240	130	400	dual	9kHz-30MHz	P2					
2214C-50/250-2-P1-25-B	25	250µH/50µH	240	130	400	dual	9kHz-30MHz	P2					
2214C-50/250-2-P-50-N	50	250µH/50µH	240	130	400	dual	9kHz-30MHz						
2214C-50/250-2-P-100-N	100	250µH/50µH	240	130	400	dual	9kHz-30MHz						
2214C-50/250-1-P1-15-B	15	250µH/50µH	240	130	400	single	9kHz-30MHz	P2					
2214C-50/250-1-P1-25-B	25	250µH/50µH	240	130	400	single	9kHz-30MHz	P2					
2214C-50/250-1-P-50-N	50	250µH/50µH	240	130	400	single	9kHz-30MHz						
2214C-50/250-1-P-100-N	100	250µH/50µH	240	130	400	single	9kHz-30MHz						
2214C-50/250-2-R0-15-B	15	250µH/50µH	240	130	400	dual	9kHz-30MHz	R1	R2	R3	R4	R5	R6
2214C-50/250-2-R7-25-B	25	250µH/50µH	240	130	400	dual	9kHz-30MHz	R8					
2214C-50/250-2-R9-50-N	50	250µH/50µH	240	130	400	dual	9kHz-30MHz						
2214C-50/250-2-R10-100-N	100	250µH/50µH	240	130	400	dual	9kHz-30MHz						

Legend:

Termination	Ckts	RF Conn		R Style	
P Insulated Plug	1	B-Type BNC		Current Rating	Load
R-AC Receptacle	2	N-Type N	R0	15	NEMA 5 -15
	3		R1	15	Schuko CEE7
	4		R2	15	French/Belgian
			R3	15	Australian
			R4	15	UK
			R5	15	India/South Africa
			R6	15	Denmark
			R7	25	NEMA L6-30
			R8	25	IEC-60309 30 amp
			R9	50	IEC-60309 60 amp
			R10	100	IEC-60309 100 amp

	P Styles	Current Rating	
	Load		Line
	BP30R10R	10	BP30R10R
P1	BP30R10R	15	BP30R10R
P2	RP25GR	25	RS25GR
	RP50GR	50	RS50GR
	RP100GR	100	RS100GR

Mil-Std-461G Line Impedance Stabilization Network

OPHIREMC manufactures a wide selection of Line Impedance Stabilization Networks (LISN's) for pre-compliance and compliance conducted emissions testing in accordance with various EMC standards. The 2014M series of LISN's meet the requirements of Mil-Std-461F and 461G as well as earlier versions of the specification. The 2114D series meet the requirement for a 5µH LISN as specified in Appendix A of Mil-Std-461G. Additionally, the 2114D series of LISN are compliant with RTCA DO-160G when used with an external 10µF capacitor. LISN's are available in three and four circuit configurations. Additional current and voltage ratings are available.

				Voltage					Opt					
P/N	Current	Ind	60 Hz	400 Hz	800 Hz	DC	Circuit	Frequency Range						
2014M-50-1-P1-15-B	15	50µH	270	130	n/a	400	single	10kHz-50MHz	P2					
2014M-50-1-P1-25-B	25	50µH	270	130	n/a	400	single	10kHz-50MHz	P2					
2014M-50-1-P-50-N	50	50µH	270	130	n/a	400	single	10kHz-50MHz						
2014M-50-1-P-100-N	100	50µH	270	130	n/a	400	single	10kHz-50MHz						
2114D-5-1-P1-15-B	15	5µH	480	240	130	800	single	150kHz-400 MHz	P2					
2114D-5-1-P1-25-B	25	5µH	480	240	130	800	single	150kHz-400 MHz	P2					
2114D-5-1-P-50-N	50	5µH	480	240	130	800	single	150kHz-400 MHz						
2114D-5-1-P-100-N	100	5µH	480	240	130	800	single	150kHz-400 MHz						
2014M-50-2-P1-15-B	15	50µH	270	130	n/a	400	dual	10kHz-50MHz	P2					
2014M-50-2-P1-25-B	25	50µH	270	130	n/a	400	dual	10kHz-50MHz	P2					
2014M-50-2-P-50-N	50	50µH	270	130	n/a	400	dual	10kHz-50MHz						
2014M-50-2-P-100-N	100	50µH	270	130	n/a	400	dual	10kHz-50MHz						
2114D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz	P2					
2114D-5-2-P1-25-B	25	5µH	480	240	130	800	dual	150kHz-400 MHz	P2					
2114D-5-2-P-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz						
2114D-5-2-P-100-N	100	5µH	480	240	130	800	dual	150kHz-400 MHz						
2014M-50-2-R0-15-B	15	50µH	270	130	n/a	400	dual	10kHz-50MHz	R1	R2	R3	R4	**R5**	**R6**
2014M-50-2-R7-25-B	25	50µH	270	130	n/a	400	dual	10kHz-50MHz	R8					
2014M-50-2-R9-50-N	50	50µH	270	130	n/a	400	dual	10kHz-50MHz						
2014M-50-2-R10-100-N	100	50µH	270	130	n/a	400	dual	10kHz-50MHz						
2114D-5-2-R0-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz	R1	R2	R3	R4	R5	R6
2114D-5-2-R7-25-B	25	5µH	480	240	130	800	dual	150kHz-400 MHz	R8					
2114D-5-2-R9-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz						
2114D-5-2-R10-100-N	100	5µH	489	240	130	800	dual	150kHz-400 MHz						

Legend:

Termination	Ckts	RF Conn		R Style	
P Insulated Plug	1	B-Type BNC		Current Rating	Load
R-AC Receptacle	2	N-Type N	R0	15	NEMA 5 -15
T-Threaded Stud	3		R1	15	Schuko CEE7
	4		R2	15	French/Belgian
			R3	15	Australian
			R4	15	UK
			R5	15	India/South Africa
			R6	15	Denmark
			R7	25	NEMA L6-30
			R8	25	IEC-60309 30 amp
			R9	50	IEC-60309 60 amp
			R10	100	IEC-60309 100 amp

	P Styles	Current Rating	
	Load		Line
	BP30R10R	10	BP30R10R
P1	BP30R10R	15	BP30R10R
P2	RP25GR	25	RS25GR
	RP50GR	50	RS50GR
	RP100GR	100	RS100GR

RTCA-DO-160G Line Impedance Stabilization Networks

OPHIREMC 2114D series and 2514D series of Line Impedance Stabilization Networks (LISN's) are designed to meet the requirements of commercial aviation specification RTCA-DO-160G. The 2114D series require the use of an external 10µF capacitor for DO-160 applications. The 2514D series LISN include the 10µF capacitor internally and additionally meets the requirements of Def-Std 59-411 and Euro Fighter specifications. 2114D series of LISN's is complaint with the requirements for optional 5 µH LISN as specified in Mil-Std-461F/G Appendix A. LISN's are available in three and four circuit configurations. Additional current and voltage ratings are available.

				Voltage					Opt							
P/N	Current	Ind	60 Hz	400 Hz	800 Hz	DC	Circuit	Frequency Range								
2114D-5-1-P1-15-B	15	5µH	480	240	130	800	single	150kHz-400 MHz	P2							
2114D-5-1-P1-25-B	25	5µH	480	240	130	800	single	150kHz-400 MHz	P2							
2114D-5-1-P-50-N	50	5µH	480	240	130	800	single	150kHz-400 MHz								
2114D-5-1-P-100-N	100	5µH	480	240	130	800	single	150kHz-400 MHz								
2514D-5-1-P1-15-B	15	5µH	480	240	130	800	single	9kHz-400MHz*	P2							
2514D-5-1-P1-25-B	25	5µH	480	240	130	800	single	9kHz-400MHz*	P2							
2514D-5-1-P-50-N	50	5µH	480	240	130	800	single	9kHz-400MHz*								
2514D-5-1-P-100-N	100	5µH	480	240	130	800	single	9kHz-400MHz*								
2114D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz	P2							
2114D-5-2-P1-25-B	25	5µH	480	240	130	800	dual	150kHz-400 MHz	P2							
2114D-5-2-P-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz								
2114D-5-2-P-100-N	100	5µH	480	240	130	800	dual	150kHz-400 MHz								
2514D-5-2-P1-15-B	15	5µH	480	240	130	800	dual	9kHz-400 MHz*	P2							
2514D-5-2-P1-25-B	25	5µH	480	240	130	800	dual	9kHz-400 MHz*	P2							
2514D-5-2-P-50-N	50	5µH	480	240	130	800	dual	9kHz-400 MHz*								
2514D-5-2-P-100-N	100	5µH	480	240	130	800	dual	9kHz-400 MHz*								
2114D-5-2-R0-15-B	15	5µH	480	240	130	800	dual	150kHz-400 MHz	R01	R02	R1	R2	R3	R4	R5	R6
2114D-5-2-R7-25-B	25	5µH	480	240	130	800	dual	150kHz-400 MHz	R8							
2114D-5-2-R9-50-N	50	5µH	480	240	130	800	dual	150kHz-400 MHz								
2114D-5-2-R10-100-N	100	5µH	480	240	130	800	dual	150kHz-400 MHz								
2514D-5-2-R0-15-B	15	5µH	480	240	130	800	dual	9kHz-400 MHz*	R01	R02	R1	R2	R3	R4	R5	R6
2514D-5-2-R7-25-B	25	5µH	480	240	130	800	dual	9kHz-400 MHz*	R8							
2514D-5-2-R9-50-N	50	5µH	480	240	130	800	dual	9kHz-400 MHz*								
2514D-5-2-R10-100-N	100	5µH	480	240	130	800	dual	9kHz-400 MHz*								

*internal 10µF capacitor

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Legend:

Termination	Ckts	RF Conn		R Style	
P Insulated Plug	1	B-Type BNC		Current Rating	Load
R-AC Receptacle	2	N-Type N	R0	15	NEMA 5 -15
T-Threaded Stud	3		R01	15	NEMA 5-15 Round
	4		R02	15	NEMA 5-15 covered
			R1	15	Schuko CEE7
			R2	15	French/Belgian
			R3	15	Australian
			R4	15	UK
			R5	15	India/South Africa
			R6	15	Denmark
			R7	25	NEMA L6-30
			R8	25	IEC-60309 30 amp
			R9	50	IEC-60309 60 amp
			R10	100	IEC-60309 100 amp

	P Styles	Current Rating	
	Load		Line
	BP30R10R	10	BP30R10R
P1	BP30R10R	15	BP30R10R
P2	RP25GR	25	RS25GR
	RP50GR	50	RS50GR
	RP100GR	100	RS100GR

Line Impedance Stabilization Networks for Automotive Specifications

OPHIREMC 2414I and 2314C series Line Impedance Stabilization Networks (LISN's) are designed for vehicular conducted emissions testing in accordance with ISO-7637-2, CISPR 25 and various automotive EMC standards. The 2314C series includes a measurement port and 1µF as specified in CISPR 25. 2414I series is compliant with ISO-7637-2.
Additional current and voltage ratings are available.

				Voltage				Opt
P/N	Current	Ind	60 Hz	400 Hz	DC	Circuit	Frequency Range	
for ISO-7637-2								
2414I-5-1-P-10	10	5µH	240	130	400	single	100kHz-108MHz	
2414I-5-1-P1-25	25	5µH	240	130	400	single	100kHz-108MHz	P2
2414I-5-1-P-50	50	5µH	240	130	400	single	100kHz-108MHz	
2414I-5-1-P-100	100	5µH	240	130	400	single	100kHz-108MHz	
for CISPR 25								
2314C-5-1-P-10-N	10	5µH	240	130	400	single	100kHz-108MHz	
2314C-5-1-P1-25-N	25	5µH	240	130	400	single	100kHz-108MHz	P2
2314C-5-1-P-50-N	50	5µH	240	130	400	single	100kHz-108MHz	
2314C-5-1-P-100-N	100	5µH	240	130	400	single	100kHz-108MHz	

Legend:

	P Styles	Current Rating	
	Load		Line
	BP30R10R	10	BP30R10R
P1	BP30R10R	15	BP30R10R
P2	RP25GR	25	RS25GR
	RP50GR	50	RS50GR
	RP100GR	100	RS100GR

Model OCT101 Audio Coupling Transformer

OPHIREMC **Model OCT101** Audio Coupling Transformer designed for making conducted audio frequency susceptibility tests as required by Mil-Std-461F/G and various automotive and aviation EMI specifications. Transformer is CE certified.

Specifications:

Frequency Response:	10 Hz to 250 kHz
Audio Power:	200 Watts
Secondary Saturation:	50 Amps, AC or DC
Turns Ratio:	2:1 Step down
Primary Impedance:	< 5 Ohms
Secondary Impedance:	¼ of primary impedance
Primary Connectors:	5-way insulated binding posts
Secondary Connectors:	50 amp insulated plug receptacle
Dielectric Voltage:	4,000 Volts
Secondary Inductance:	Approximately 1 mH.
Dimensions:	13.65cm (5⅜") x 22.22cm (8¾") x 15.24cm (5¼")
Weight:	26 pounds

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