

# 7010

## EMI Receiver with built-in LISN



### Main Features

- 7010 Opt.01: 9 kHz to 1 GHz frequency range
- 7010 Opt.02: 9 kHz to 30 MHz frequency range
- 7010 Opt.03: 9 kHz to 3 GHz frequency range
- Built to CISPR 16-1-1 and CISPR 16-1-2 Standards
- Conducted and radiated emission tests
- Two built-in 16A Line Impedance Stabilization Networks (LISN)
- User port for driving external LISNs
- Free PES PMM Emission Suite Software with Smart Detector function (\*)
- Combination of EMI test receiver and spectrum analyzer
- Direct analog to digital conversion up to 30 MHz
- Robust, compact construction
- 140 dB $\mu$ V (2 W) maximum input level without damage

The 7010 EMI Receiver is a highly flexible and easy-to-use device suitable for conducted and radiated measurements from 9 kHz up to 3 GHz. Thanks to its built-in 16 A Line Impedance Stabilization Network (LISN), the 7010 performs complete conducted emission measurements and characterization of EUT with no external or additional equipment. The compact, rugged design makes the 7010 a perfect companion for product designers in-site testing, and laboratory EMI measurements.

The innovative 7010 EMI Receiver combines state-of-the-art digital technology with an RF front-end as required by CISPR standards, thus combining excellent accuracy with high flexibility.

The PMM Emission Suite software features a full set of user-friendly functions for all EMI applications.

The receiver can be ordered with three different frequency ranges: 9 kHz to 1 GHz (7010 opt.01), 9 kHz to 30 MHz (7010 opt.02) and 9 kHz to 3 GHz (7010 opt.03). Users can upgrade from one version to another at any time.

\*The innovative Smart Detector function in PMM receivers reduces test time and increases the productivity of the lab.



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### SPECIFICATIONS

<b>Frequency range</b>	9 kHz to 1 GHz (Opt.01) 9 kHz to 30 MHz (Opt.02) 9 kHz to 3 GHz (Opt.03) 10 Hz < 3 ppm		
Resolution	< 3 ppm		
Frequency accuracy	< 1,2; < 2 over 1 GHz		
<b>RF Input</b>	Zin 50 Ω, N fem.		
VSWR 10 dB RF att.	< 1,2; < 1,4 over 30 MHz; < 2 over 1 GHz		
0 dB RF att.	0 dB to 35 dB (5dB steps)		
Attenuator	0 dB to 50 dB (2dB steps) over 30 MHz Built-in up to 30 MHz		
<b>Pulse limiter</b>	Built-in up to 30 MHz		
<b>Max input level</b> (without equipment damage)	140 dBμV (2 W)		
Sinewave AC voltage	100 dBμV/MHz		
Pulse spectral density	9 kHz to 30 MHz 30 MHz to 1 GHz 1 GHz to 3 GHz		
<b>Preselector</b> (Permanent built-in)	9 kHz to 30 MHz 30 MHz to 1 GHz 1 GHz to 3 GHz		
<b>IF bandwidth</b>	1 (Opt.01, 02 & 03), 3, 10, 30, 100, 300 kHz, 1 MHz (Opt.03) 200 Hz (Opt.01, 02 & 03), 9 kHz and 120 kHz		
6dB bandwidth	1 (Opt.01, 02 & 03), 3, 10, 30, 100, 300 kHz, 1 MHz (Opt.03)		
CISPR 16-1-1	200 Hz (Opt.01, 02 & 03), 9 kHz and 120 kHz		
<b>Noise level</b> (Att 0 dB, 50 Ω term, Hold time 1 s)	0,009 to 0,15 MHz (200 Hz RBW)	< 0 dBμV (QP) (-130 dBm/Hz)	< -3 dBμV (AV) (-133 dBm/Hz)
	0,15 to 30 MHz (9 kHz RBW)	< 14 dBμV (QP) (-128 dBm/Hz)	< 7 dBμV (AV) (-135 dBm/Hz)
	30 to 1000 MHz (120 kHz RBW)	< 14 dBμV (QP) (-144 dBm/Hz)	< 7 dBμV (AV) (-151 dBm/Hz)
	1000 to 2700 MHz (1 MHz RBW)	< 16 dBμV (AV) (-151 dBm/Hz)	
	2700 to 3000 MHz (1 MHz RBW)	< 19 dBμV (AV) (-148 dBm/Hz)	
<b>Spurious response</b> (Att 0 dB, 50 Ω term, det. PK, Hold time 10 ms)	< 20 dBμV; < 23 dBμV over 2700 MHz		
<b>Detectors</b>	Peak, Quasi-Peak, Average, RMS, RMS-Avg (optional), C-Avg, Smart Detector function		
<b>Level measuring time</b> (hold time)	0,2 ms to 120 s (CISPR 16-1-1 as default)		
<b>Measurement accuracy</b> S/N > 20 dB	9 kHz to 1 GHz ± 1,0 dB 1 GHz to 3 GHz ± 1,5 dB		
<b>Main measuring functions</b> (With included PMM Emission Suite SW)	<ul style="list-style-type: none"> <li>• Marker, marker peak, marker to centre, highest peaks, move peak to Analyzer or Manual modes, automatic test report.</li> <li>• 80 to 200 dB selectable dynamic range.</li> <li>• Display unit: dBm, dBμV, dBμA, dBμV/m, dBpT, dBμA/m, dBpW.</li> <li>• Store-Load: traces, panels, conversion factors, limits.</li> </ul>		
<b>CISPR 16-1-1 compliance</b>	Standard compliant detectors down to 20 Hz PRF		
<b>Demodulation</b>	Built-in AM and FM demodulators (internal loudspeaker)		
<b>I/O Interface</b> (protocol available for software developers)	USB 2.0, RS-232, user port (drives LISNs and accessories)		
<b>Operating temperature</b>	-5° to 45°C		
<b>Power supply</b>	12 Volt DC, 0,8A (AC universal adapter)		
<b>Built-in LISN (compliant to CISPR 16-1-2)</b>	9 kHz to 30 MHz 16A 250 Vac – 350 Vdc DC to 60 Hz 50 Ω // (5 Ω + 50 μH) Schuko 2P+E IEC 60320 C20 4 mm socket		
Frequency range	9 kHz to 30 MHz		
Continuous rated output current	16A		
Max permissible operating voltage	250 Vac – 350 Vdc		
EUT supply frequency range	DC to 60 Hz		
CISPR equivalent circuit	50 Ω // (5 Ω + 50 μH)		
EUT power connector	Schuko 2P+E		
Line plug	IEC 60320 C20		
Artificial hand	4 mm socket		
<b>Dimensions (W x H x D)</b>	235 x 105 x 335 mm		
<b>Weight</b>	5,0 kg		



### Ordering information:

**7010 Option 01** (9 kHz to 1 GHz)  
**7010 Option 02** (9 kHz to 30 MHz)  
**7010 Option 03** (9 kHz to 3 GHz)  
 Includes: LISN mains cable, RS232 cable, USB-RS232 serial converter, USB cable, N-m to BNC-f adapter, AC/DC power adapter, PES PMM Emission Suite Software, soft carrying case, user's manual, standard calibration certificate

### Optional accessories:

**9010/RAV** RMS-Avg detector, **9010-RMA** rack mount adapter for 19" rack  
 Upgrades:  
**7010/UP/01** from 7010 to 7010 Opt. 01 (9 kHz to 1 GHz)  
**7010/02/UP/01** from 7010 Opt. 02 to 7010 Opt. 01 (9 kHz to 1 GHz)  
**7010/UP/03** from 7010 to 7010 Opt. 03 (9 kHz to 3 GHz)  
**7010/01/UP/03** from 7010 Opt. 01 to 7010 Opt. 03 (9 kHz to 3 GHz)  
**7010/02/UP/03** from 7010 Opt. 02 to 7010 Opt. 03 (9 kHz to 3 GHz)

## Related products

### Receivers

- ER8000/00 EMI Receiver 9 kHz to 30 MHz
- ER8000/01 EMI Receiver 9 kHz to 3 GHz
- ER9000/00 EMI Receiver 10 Hz to 30 MHz
- ER9000/01 EMI Receiver 10 Hz to 3 GHz
- 9010F: EMI Receiver 10 Hz to 30 MHz
- 9010/03P: EMI Receiver 10 Hz to 300 MHz
- 9010/30P: EMI Receiver 10 Hz to 3 GHz
- 9010/60P: EMI Receiver 10 Hz to 6 GHz
- 9030: EMI Receiver 30 MHz to 3 GHz
- 9060: EMI Receiver 30 MHz to 6 GHz
- 9180: EMI Receiver 6 GHz to 18 GHz
- FR4003: Field Receiver 9 kHz to 30 MHz

### Antennas

- BC-01: Biconical Antenna 30 to 200 MHz
- BL-01: Biconical Log Periodic Antenna 30 MHz to 6 GHz
- DR-01: Double-ridged Horn Antenna 6 to 18 GHz
- LP-02: Log Periodic Antenna 200 MHz to 3 GHz
- LP-03: Log Periodic Antenna 800 MHz to 6 GHz
- LP-04: Log Periodic Antenna 200 MHz to 6 GHz
- VDH-01: Van der Hoofden Test Head 20 kHz to 10 MHz
- TR-01: Antenna Tripod
- Antenna Set AS-02 (BC01+LP02+TR01)
- Antenna Set AS-03 (BC01+LP02+LP03+TR01)
- Antenna Set AS-04 (BC01+LP04+TR01)
- Antenna Set AS-05 (BC01+LP04+DR01+TR01)
- Antenna Set AS-06 (BC01+LP02+LP03+DR01+TR01)
- Antenna Set AS-07 (BL01+TR01)
- Antenna Set AS-08 (BL01+DR01+TR01)
- RA-01: Rod Antenna 9 kHz to 30 MHz
- RA-01-HV: Rod Antenna 150 kHz to 30 MHz
- RA-01-MIL: Rod Antenna 9 kHz to 30 MHz

### LISNs/Probes

- L2-16B: single phase AMN, 16 A
- L3-32: 4 lines, 3-phase AMN, 32 A
- L3-64: 4 lines, 3-phase AMN, 63 A
- L3-64/690V: 4 lines, 3-phase AMN, 63 A
- L3-100: 4 lines, 3-phase AMN, 100 A
- L1-150M: single-path, 50 Ohm AMN, 150 A
- L1-150M1: single-path, 50 Ohm AMN, 150 A
- L1-500: single phase AMN, 500 A
- L3-500: 4 lines, 3-phase AMN, 500 A
- SBRF4: RF Switching Box
- SHC-1/1000: Voltage probe, 1000 Vac, 35 dB
- SHC-2/1000: Voltage probe, 1000 Vac, 30 dB



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