

EMI TEST RECEIVER – ERC-6

Full compliant with CISPR 16-1-1, Ed.3.1 – 9 kHz to 6 GHz



Description

Although the „ERC-6“ is the less expensive little brother of our flagship „ERX-6“, it is more than worth to have an intensive look on it. With the ERC-6 only properties, that are not required for full-compliance EMI measurements according to CISPR 16-1, have been reduced or omitted. The ERC-6 is therefore a good alternative to the „high-end-devices“ for many users, such as in-house developing departments. The Receiver can either be operated via the integrated touch-PC with 10“ monitor or by external software. The external software enables fully automated measurements including automatic control of antenna mast and turntable. Also the fast, FFT-based (time domain) measuring mode is already included in the ERC-6.

Key Features

- Frequency-range 9 kHz – 6 GHz
- Traditional EMI-receiver mode according to CISPR 16-1
- Fast, FFT-based (time domain) EMI-receiver mode acc. to CISPR 16-1-1, Ed.3.1
- Integrated touch-PC, with 10“- monitor
- Integrated 20 dB (15 dB > 1 GHz) pre-amplifier
- Full-compliant according to CISPR 16-1
- Peak, Quasi-Peak, Average, RMS, CISPR-Average detectors available (RMS-average optional)

About FFT-based time domain measurements:

EMI measurements with traditional EMI-receivers in frequency domain are very time consuming. Final acceptance measurements can take up to several hours or even longer, because the EUT's may have a lot of different operation modes, which all has to be tested.

In the year 2010 the new FFT-based measuring instruments, working in time domain have been introduced by CISPR 16-1-1.

A "revolution", because the new technology reduced hours of measuring time to a few seconds.

But it is not just a saving of measuring time and cost but also an acceleration of the developing work.

The benefits of FFT Technology can be used today for testing to all common standards (CISPR, EN/IEC, MIL-STD, ETSI).

Basically, we generally differentiate devices with hardware or only software based FFT technology.

Hardware based devices, like our ERX-6 offer the highest possible measuring speed, while software based solution, like our ERC-6 take some more time (but are still much faster than traditional receivers).



rear view

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Technical data	9 kHz – 30 MHz Input	30 MHz – 6 GHz Input
Frequency range	9 kHz to 30 MHz	30 MHz to 6 GHz
Resolution	0.1 Hz	100 Hz
Reference frequency	< 1 ppm	< 2 ppm
RF input	Z _{in} 50 Ω, BNC fem.	Z _{in} 50 Ω, N fem.
VSWR		
10 dB RF att.	< 1.2	< 1.2 ; < 2 above 1 GHz
0 dB RF att.	< 1.6	< 2 ; < 3 above 3 GHz
Attenuator	0dB to 35 dB (5 dB steps)	0 dB to 55 dB (5dB steps)
Pulse limiter	Built-in (selectable)	n.a.
Preamplifier gain	20 dB (selectable)	20 dB, 15 dB above 1 GHz
Max. input level (without equipment damage)		137 dBμV (1 W) ⁽¹⁾
Sinewave AC voltage Pulse spectral density		97 dBμV / MHz ⁽²⁾
Preselector		
Frequency ranges	9 kHz to 150 kHz (six bandpass filters) 150 kHz to 5.67 MHz 5.67 MHz to 11.19 MHz 11.19 MHz to 16.71 MHz 16.71 MHz to 22.23 MHz 22.23 MHz to 30 MHz	30 MHz to 72 MHz (four tracking filters and two bandpass filters) 72 MHz to 173 MHz 173 MHz to 416 MHz 416 MHz to 1 GHz 1 GHz to 3 GHz 3 GHz to 6 GHz
IF bandwidth	1, 3, 10, 30, 100, 300 kHz (6 dB) 200 Hz and 9 kHz (CISPR 16-1-1) 10, 100 Hz – 1, 10 kHz (MIL STD-461) ^(option)	3, 10, 30, 100, 300 kHz (6 dB) 120 kHz (CISPR 16-1-1) 1 MHz (CISPR 16-1-1)
Detectors	Peak, Quasi-peak, Average, RMS, CISPR-Average, (RMS-average option)	
Noise level (Preselector ON) (Preamplifier OFF) (Hold time 1000 ms)	9 to 150 kHz < -14 dBuV (AV) (200 Hz BW) 0.15 to 30 MHz < 0 dBuV (AV) (9 kHz BW)	30 to 300 MHz < 7 dBuV (AV) (120 kHz BW) 300 to 1000 MHz < 10 dBuV (AV) (120 kHz BW) 1000 to 4000 MHz < 13 dBuV (AV) (120 kHz BW) 4000 to 6000 MHz < 18 dBuV (AV) (120 kHz BW)

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Technical data	9 kHz – 30 MHz Input	30 MHz – 6 GHz Input
Noise level (Preselector ON) (Preamplifier ON) (Hold time 1000 ms)	9 to 150 kHz < -24 dBuV (QP) (200 Hz BW) 0.15 to 30 MHz < -10 dBuV (AV) (9 kHz BW)	30 to 300 MHz < -8 dBuV (AV) (120 kHz BW) 300 to 1000 MHz < -5 dBuV (AV) (120 kHz BW) 1000 to 4000 MHz < -1 dBuV (AV) (120 kHz BW) 4000 to 6000 MHz < +3 dBuV (AV) (120 kHz BW)
Scan time SWEEP MODE (Fill CISPR: preselector ON, QP detector)	A band (9 to 150 kHz) < 8s (hold time 1 s) 200 Hz RBW B band (150 kHz to 30 MHz) < 20 s (hold time 1 s) 9 kHz RBW	C+D band (30 MHz to 1 GHz) < 2.2s (H.T. lowest) 120 kHz RBW ⁽³⁾ < 76s (H.T. 100ms) < 746s (H.T. 1s) E band (1 to 6 GHz) 1 MHz RBW ⁽³⁾ < 6.7 s (H.T. lowest) < 800s (H.T. 100ms)
ANALYZER MODE (preselector OFF, Peak detector)	A band (9 to 150 kHz) < 0.5s (hold time lowest) 200 Hz RBW B band (150 kHz to 30 MHz) 9 kHz RBW < 1 s (hold time lowest)	C+D band (30 MHz to 1 GHz) 120 kHz RBW < 1.1 s (H.T. Lowest) 1 MHz RBW < 0.7 s (H.T. Lowest) E band (1 to 6 GHz) 1 MHz RBW < 5.7 s (H.T. Lowest)
Spurious response (Preselector ON / Preamp OFF) (AVG Ht 1 s) ⁽⁴⁾	< -10 dBuV, < 0 dBuV above 150 kHz	< 6 dBuV, < 15 dBuV above 2 GHz
Measurement accuracy S/N > 20 dB	± 0.0 dB	30 to 1000 MHz ± 1.0 dB 1 to 3 GHz ± 1.5 dB 3 to 6 GHz ± 2.0 dB
Demodulation	AM and FM (through internal speaker and 3.5mm earphones jack)	
I/O Interface	USB; RS-232; User port for accessories	
Operating temperature	0° C to 40° C	
Power supply	100 to 240 Vac – 50/60 Hz – 25 W	
Dimensions	Standard EIA Rack unit (2RU) – 482mm (19" w) x 95mm (3.7" h) x 485mm (19.1" d)	
Weight	7 kg	

⁽¹⁾ Min att ≥ 10 dB

⁽²⁾ Min att ≥ 10 dB, preselector ON

⁽³⁾ Smart detector function available

⁽⁴⁾ RBW 10 kHz prescan Ht lowest, then AVG 1s on the 10 worst peaks