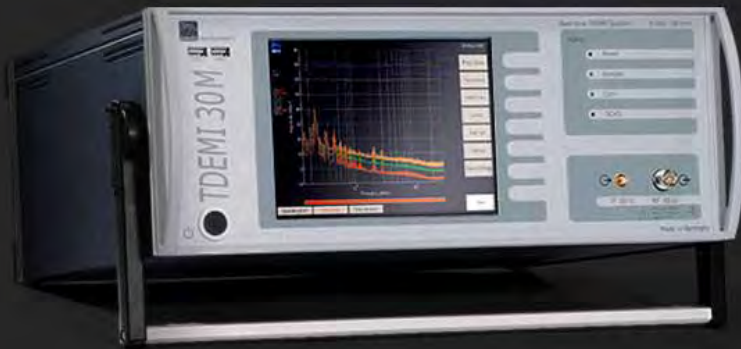


# TDEMI 30M

- 4000x faster than conventional EMI receivers
- Conducted emission measurements
- Automated report generation



The TDEMI 30M is the system with the smallest frequency range but it is unique regarding the measurement speed and other features. The frequency range 9 kHz - 30 MHz fits perfectly to a conducted emission measurement setup according to CISPR 16-2-1. It can be used for preinvestigations during development as well as for full compliance testing.

By its digital signal processing unit of the latest generation a really vast calculation power of more than 100 Gigamultiplications per second is achieved. A complete measurement at each frequency with quasi-peak detector up to 30 MHz can be carried out in about 12 seconds. This amazing short scan time for quasi-peak scans makes prescans with the peak detector and final measurements in the quasi-peak detector mode at critical disturbances completely obsolete. The measurement of instationary signals and transient emissions is performed reliable and reproducible with a single quasi-peak scan using the TDEMI Measurement System within such a short scan time.

A further unique feature of the TDEMI is its unparalleled dynamic range. The TDEMI 30M exhibits a multi-resolution system using several high resolution ADCs. Such a system provides a spurious free dynamic range of more than 90 dB. Signals with levels up to 100 dB $\mu$ V can be measured with a noise level below 0 dB $\mu$ V - also pulses

up to 60 dB $\mu$ V. This corresponds to pulses of several Volts. By an autorange stepped attenuator the dynamic range is enhanced up to 140 dB. For applications where this huge dynamic range is not enough, additional preselection for band A can be ordered optionally.

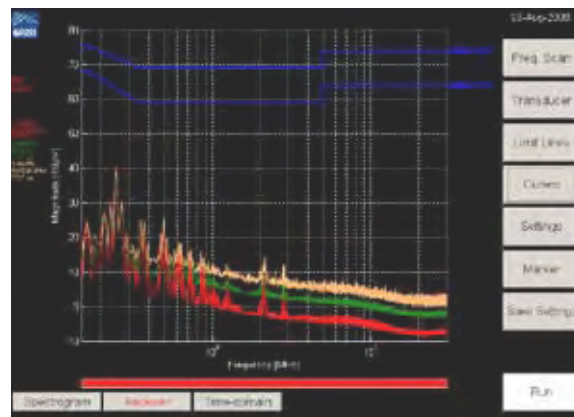


Fig. 21 – Emission measurement of a energy saving lamp in the frequency range 9 kHz - 30 MHz.

# TDEMI 30M Specifications

## FREQUENCY RANGE

9 kHz - 30 MHz

## REFERENCE (TCXO)

Temperature Drift (-40 .. 60° C)		± 50 ppm
SSB Phase Noise (1 Hz BW)	100 Hz	-75 dBc/Hz
(typ. @ 312.5 MHz)	1 kHz	-95 dBc/Hz
	10 kHz	-105 dBc/Hz
	100 kHz	-110 dBc/Hz

## RECEIVER MODE (CISPR Standard)

### IF Bandwidth 200 Hz (9 kHz - 150 kHz)

IF Filter: Gaussian Shaped Filter, Specification according to CISPR 16-1-1, Bandwidth Deviation < 10 %  
 Detector Modes: Peak, Quasi-Peak, Average, RMS, CISPR-AV  
 Displayed Average Noise Level (Input Level < 100 dBµV Sinus): < 0 dBµV typ.  
 Frequency Step < 100 Hz  
 typical Scan Time: 4x Measurement Time  
 e.g. Quasi-Peak: 12 s  
 Quasi-Peak: 6 s (with Option DSP-UG30M)

### IF Bandwidth 9 kHz (9kHz - 30 MHz)

IF Filter: Gaussian Shaped Filter, Specification according to CISPR 16-1-1, Bandwidth Deviation < 10 %  
 Detector Modes: Peak, Quasi-Peak, Average, RMS, CISPR-AV  
 Displayed Average Noise Level (Input Level < 100 dBµV Sinus): < 0 dBµV typ.  
 Frequency Step < 400 Hz  
 typical Scan Time: 4x Measurement Time  
 e.g. Quasi-Peak: 12 s  
 Quasi-Peak: 6 s (with Option DSP-UG30M)

## WEIGHTED REAL-TIME SPECTROGRAM

Weighted Spectrogram Mode	Peak, Average, RMS
Time-domain	Fully gapless
Minimum Time Step	50 ms

### Band A (9 kHz - 150 kHz)

Frequency Step: 140 Hz for 200 Hz IF Bandwidth  
 Frequency Step Interpolation: 100 Hz for 200 Hz IF Bandwidth

### Band B (150 kHz - 30 MHz)

Frequency Step: 7 kHz for 9 kHz IF Bandwidth  
 Frequency Step Interpolation: 5 kHz for 9 kHz IF Bandwidth

## TIME-DOMAIN ANALYSIS (RF)

Bandwidth	30 MHz
Sampling Rate	312.5 MS/s
Acquisition Memory	32000 Samples

## ABSOLUTE MAXIMUM RATINGS (ATTENUATION 0 dB)

Maximum DC Input Level, Pulses	6 V
RF-CW Signal	120 dBµV

## INDICATION (ATTENUATION 0 dB)

Maximum DC Input Level, Pulses	5 V
RF-CW Signal	95 dBµV
Pulses according to CISPR 16-1-1 (Quasi-Peak)	55 dBµV

## ATTENUATOR

0 - 20 dB, 20 dB Steps, Auto Attenuation	
max. Input Power:	1W CW

## PRESELECTION (OPTION PRE-UG)

Preselection Band A, Highpass Filter	150 kHz
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## INTERMODULATION, NONLINEARITIES

CW Signals: Two Tone	< -40 dB (typ. -60 dB)
Harmonics (> 40 dBµV, > 1 MHz)	< -40 dB (typ. <-90 dB)
Inherent Reception Points	< -40 dB (typ. <-60 dB)
Total Dynamic Range (9 kHz IF Bandwidth)	> 140 dB
CISPR Intermodulation Test	> 36 dB

## MEASUREMENT TIME

1 ms – 60 s (Average, RMS)  
 1 ms – infinite (Peak, Quasi-Peak)

## MEASUREMENT ACCURACY

Sinusoidal Signals	± 1 dB
Pulses according to CISPR 16-1-1	

## RF INPUT

50 Ohm  
 VSWR < 1.7 (typ. 1.3), with 0 dB Attenuation  
 VSWR < 1.2 typ., with 10 dB Attenuation

## REMOTE CONTROL

Ethernet (LAN), Commands according to SCPI Standard

## DISPLAY

XGA 8,4" 800 x 600 True Color  
 Touchscreen

## PC

Intel Celeron M 1.86 GHz, 1 GB RAM, 160 GB Hard Disk  
 Interface: USB, Ethernet, VGA, serial, IEEE 1394, Audio  
 Windows XP

## POWER SUPPLY

230 V, 50 Hz or 110 V, 60 Hz

## WEIGHT

ca. 15 kg

## MAIN OPTIONS

AT - UG30M	Attenuator 0 - 30 dB, 10 dB Steps
DSP - UG30M	Enhanced DSP Unit with doubled Frequency Resolution
PRE - UG	Preselection Band A
LISN - UG	Controller for Measuring Accessories (TTL, 5V)
LISNCable - UG	Customized Control Cable for Accessories, e.g. LISN
TG - UG	Carrying Handle
PC - UG	Intel Core 2 Duo, 2.16 GHz, 2 GB RAM, 320 GB Hard Disk
KB - UG	Compact Keyboard incl. Touchpad
RG - UG	Report Generator
CAL - UG	Manufacturer Calibration with Certificate
CALD - UG	DKD Calibration with Certificate
CLICK - UG	Click Rate Analyzer, fully integrated
SLIDE - UG	Software for Disturbance Power Measurements