Make ideas real



# **R&S®FPL1-K54 EMI MEASUREMENT APPLICATION**

# Detecting and eliminating electromagnetic interference



Max. peak detector-based signal sweep (top) and quasi-peak detector-based disturbance maxima analysis (bottom)

## The perfect choice for

Detection and analysis of unwanted emissions (radiated or conducted)

EMI precompliance testing in line with commercial, automotive, avionic and military standards (CISPR, EN, FCC, D0-160, MIL-STD-461)

Key specifications	
EMI filters (6 dB)	CISPR 16-1-1: 200 Hz, 9 kHz, 120 kHz, 1 MHz MIL-STD-461: 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz
EMI detectors (CISPR 16-1-1)	quasi-peak, CISPR-average, RMS-average
Number of meas. markers	1 to 16

### **Detecting and eliminating electromagnetic interference**

The R&S®FPL1-K54 EMI measurement application adds EMI diagnostic functionality to the R&S®FPL signal and spectrum analyzer. It is the ideal tool for debugging and precompliance applications.

- ► Emission measurements in line with EMI standards
- ► Extensive limit line library for quick pass/fail decisions
- ► Transducer factor library with correction value tables for EMI accessories (LISNs, antennas, clamps, preamplifiers, cables and attenuators)

- ▶ Remote control of line impedance stabilization networks (LISN) from Rohde & Schwarz with the R&S®FPL1-B5 option
- ► Acoustic analysis using FM and AM signal demodulation with the R&S®FPL1-B5 option
- ► Logarithmic spectrum display
- Measurement automation: signal sweep with max. peak detector and subsequent disturbance maxima analysis with CISPR detectors

Your benefit	Features
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Fast and reliable disturbance detection	automatic disturbance maxima detection and analysis with CISPR detectors
Smooth EMI certification process	RBWs and detectors in line with CISPR 16-1-1 and MIL-STD-461



#### Example of emission analysis: voltage mains measurement of a lamp Ref Level 87.00 dBµV RBW (CISPR) 9 kHz EMI Spectrum Att 16 dB • SWT 2 s (~4.6 s) VBW 100 kHz Mode Auto FFT ГО • 1Pk Clrw • 2Av ClrwLin **Res BW** 38.90 dBµV M9[2] Line EN 55015 Voltage Mains AV 781.338 kHz Line EN 55015 Voltage Mains QP M1[1] 50.23 dBμV Res BW 582.450 kHz Auto Peak Search Bandwidth Config Marker Config LISN 150.0 kHz 200001 pts 30.0 MHz Config 2 Result Summary Type Ref Trace Final Test ΔLimit Final Result EMI 50.23 dBμV 57.52 dBμV 50.65 dBμV 582.45 kHz M1 Quasi-Peak EN 55015 Voltage Mains QP Config 194.187 kHz 388.171 kHz Quasi-Peak EN 55015 Voltage Mains QP M2 **M**3 Quasi-Peak EN 55015 Voltage Mains QP 47.45 dBμV 54.02 dBμV 970.838 kHz M4 Quasi-Peak EN 55015 Voltage Mains QP CISPR Avg EN 55015 Voltage Mains AV 194.331 kHz M6 M7 -2.41 dB 585.916 kHz 43.39 dBµV 43.59 dBuV CISPR Avg EN 55015 Voltage Mains AV M8 M9 390.336 kHz 781.338 kHz 44.86 dBμV 38.90 dBμV CISPR Avg EN 55015 Voltage Mains AV Overview

Two detectors are used for the sweep: positive peak (yellow curve) and average (blue curve). Pass/fail information is given according to the defined limits (red lines). The identified maxima ("Auto Peak Search") are automatically measured using the related CISPR detectors (quasi-peak and average) and listed in the results table. The final pass/fail status is clearly shown. The R&S®FPL applies the correction values (transducer factor) of the used LISN to the measurement results.

CISPR Avg EN 55015 Voltage Mains AV

### Rohde & Schwarz Representative

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Model configuration information	
Description	Item
Signal and spectrum analyzer, 5 kHz to 3 GHz	R&S®FPL1003
Signal and spectrum analyzer, 5 kHz to 7.5 GHz	R&S®FPL1007
Signal and spectrum analyzer, 5 kHz to 14 GHz	R&S®FPL1014
Signal and spectrum analyzer, 5 kHz to 26.5 GHz	R&S®FPL1026
Required options	
EMI measurement application	R&S®FPL1-K54
Additional interfaces (required for audio demodulation and LISN remote control)	R&S®FPL1-B5
Recommended option	
RF preamplifier	R&S®FPL1-B22