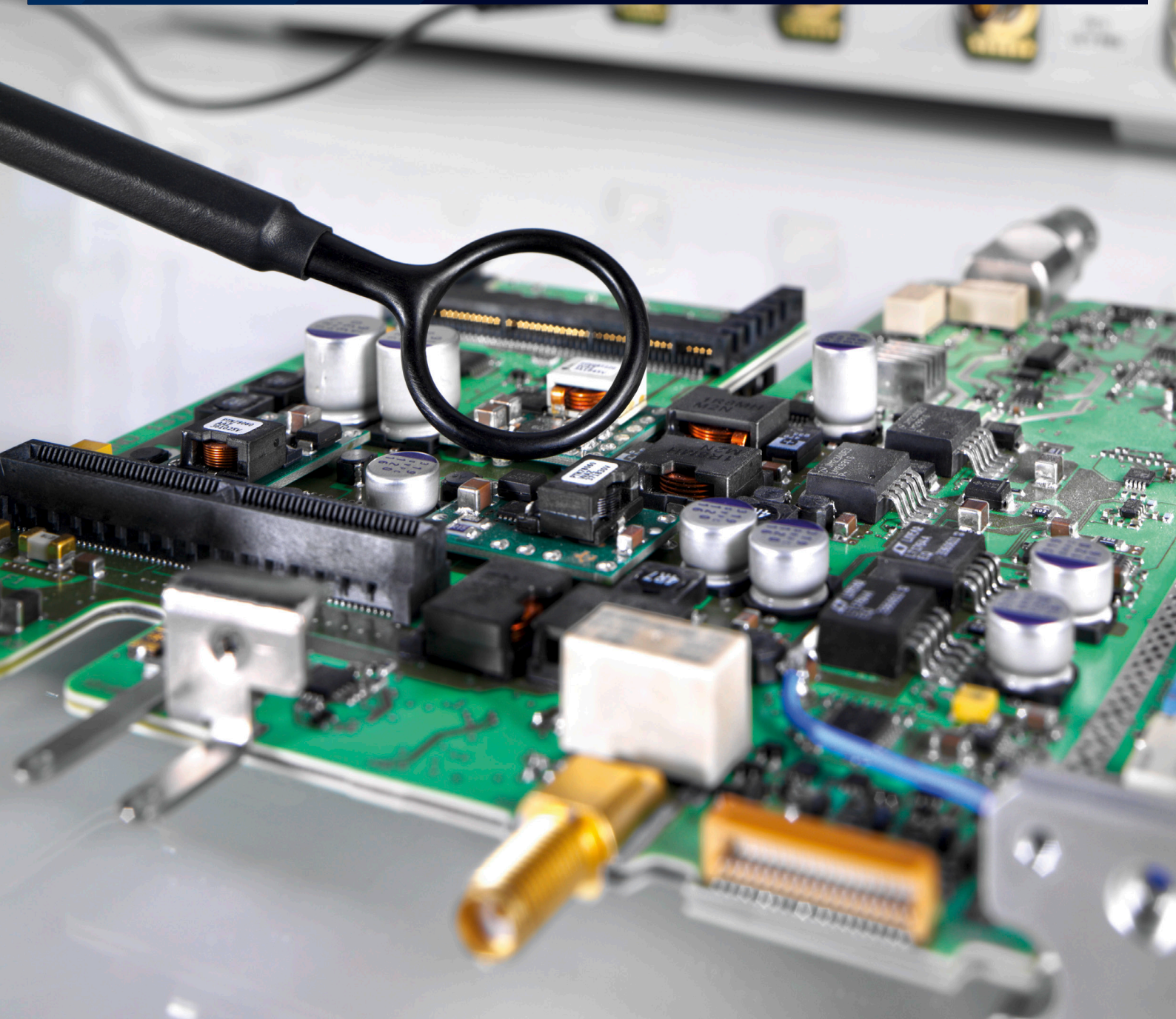
ROHDE&SCHWARZ
Make ideas real

EMI PRECOMPLIANCE SOLUTION NAVIGATOR

Choose the most suitable EMI debugging or precompliance solution



Research & development

- Sufficient dynamic range to capture small EMI signals
- Standard EMI frequency settings for easy setup
- Solution should be affordable and include EMI measurement capability as standard or as feature upgrade
- Capable of time-frequency correlation

Precompliance

- Measure as close to standard as possible
- EMI bandwidth and detector
- Limit line library
- High dynamic range

FREQUENCY DOMAIN

Choose a spectrum analyzer for EMI debugging in R&D for working in the frequency domain, such as IoT devices, antennas or RF components.

R&S®FPC1000/FPC1500

Unrivaled performance in entry class

- Spectrum analyzer with tracking generator
- Vector network analyzer
- Modulation analysis

R&S®FPL1000

Experience high performance wherever you take it

- Signal and spectrum analysis
- Tracking generator
- Battery option

R&S®FSV(A)3000

Ahead with demanding applications

- Wide analysis bandwidth
- Outstanding RF performance
- Signal analysis applications

+

R&S®FPC-K43
R&S®FPL1-K54
R&S®FSV3-K54

Receiver mode option/EMI measurement application

OUR TIP Choose EMI measurement application/receiver mode option to enable precompliance test functions in a standard spectrum analyzer and make the instrument suitable for precompliance test setups.

R&S®ESRP

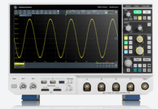
EMI measurements with higher precision and comfort

- Time domain scan
- Preselector
- EMI-specific UI

OUR TIP Choose a dedicated test receiver, such as the R&S®ESRP, to measure close to compliance with high precision and comfort.

TIME DOMAIN

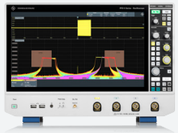
Choose an oscilloscope for EMI debugging in R&D for working in the time domain, such as power electronics or general (non-RF) electronics.



R&S®MXO 4

Next generation oscilloscope for accelerated insight

- 12 bit ADC
- 4.5 million waveforms per second
- 45 000 FFT/s



R&S®RTO6

The oscilloscope you can trust

- 16 bit HD mode
- Advanced trigger and analysis capabilities
- 9.4 ENOB

OUR TIP Use your oscilloscope to verify EMI filters or debug EMI during prototyping when working with power electronics or general electronics (non-RF) designs.

OUR TIP Use an oscilloscope to correlate unwanted EMI emissions to dedicated time periods in the signal for efficient detection and debugging.

Compliance

OUR TIP For fully compliant measurements, see the EMI compliance measurement solutions from Rohde&Schwarz.

EMI testing throughout the product development process, especially in early stages, has considerable advantages. The earlier crucial design problems are discovered, the easier and more cost effective the correction. In later product design stages, EMI problems can lead to expensive redesigns and time to market delays. This means the right precompliance solution is important, regardless of the product development stage.

COMPARISON OF PRECOMPLIANCE TESTING SOLUTIONS

Feature	EMI receiver	Spectrum analyzer	Oscilloscope
Dynamic range and sensitivity	Very high (frequency-selective measurement, preselector, autoranging)	High (frequency-selective measurement)	Medium (full-bandwidth measurement)
EMI detectors and bandwidth	Standard	Optional	–
Limit line library	Standard	Optional	Only masks/indicative
Logarithmic frequency axis	Standard	Optional	(Some models)
Scan types	All (sweep, step, time domain, zero span)	Some (sweep, zero span)	No scan (full-bandwidth measurement)
Time-frequency correlation possible	With spectrogram (standard)	With spectrogram (standard)	Standard
Multichannel FFT (spectrum)	–	–	(Some models)
Typically used in	In-house EMC lab and R&D	In-house EMC lab and R&D	R&D department

RECOMMENDED PRODUCTS FOR EMI DEBUGGING AND PRECOMPLIANCE

Spectrum analyzers and EMI receiver

Description	R&S®FPC1000/1500	R&S®FPL1000	R&S®FSV(A)3000	R&S®ESRP
Receiver mode/ EMI measurement application	R&S®FPC-K43	R&S®FPL1-K54	R&S®FSV3-K54	Base unit (R&S®FSV-B22 for MIL bandwidth)
Time domain scan	–	–	–	R&S®ESRP-K53
Preselection (with RF preamplifier)	–	–	–	R&S®ESRP-B2
RF preamplifier	R&S®FPC-B22	R&S®FPL1-B22	R&S®FSV3-B24	R&S®FSV-B22
LISN remote control interface	–	R&S®FPL1-B5	R&S®FSV3-B5	Base unit
Control cable	–	R&S®EZ-21 (for ENVxx)	R&S®EZ-29 (for ENVxx)	R&S®EZ-29 (for ENVxx)
AM/FM audio output	Base unit	R&S®FPL1-B5	R&S®FSV3-B3	Base unit
Internal generator	R&S®FPC1500	R&S®FPL1-B9	–	R&S®FSV-B9
External generator control	–	–	R&S®FSV3-B10	R&S®ESR-B10
DC power supply	–	R&S®FPL1-B30	–	R&S®FSV-B30
Lithium-ion battery pack	–	R&S®FPL1-B31	–	R&S®FSV-B32

Oscilloscopes

Description	R&S®MXO 4	R&S®RTO6
Spectrum analysis and spectrogram software option	–	R&S®RTO6-K37

LISNs and near field probes (examples)

Description	Type
Two-line V-network, 9 kHz to 30 MHz, for disturbance voltage measurements	R&S®ENV216
Two-line V-network, 9 kHz to 30 MHz, for disturbance voltage measurements	R&S®AMN6500
Probe set for E and H near field measurements, 30 MHz to 3 GHz	R&S®HZ-15
Probe set for E and H near field measurements, 30 MHz to 3 GHz	R&S®HZ-17

System software

Description	Type
Essential EMI test software, for spectrum analyzers and EMI receivers	R&S®ELEMI-E
Test package with R&S®EMCPC license dongle	R&S®ELEMI-EP
License dongle, for spectrum analyzers and EMI receivers	R&S®EMCPC

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EMI precompliance solution navigator
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