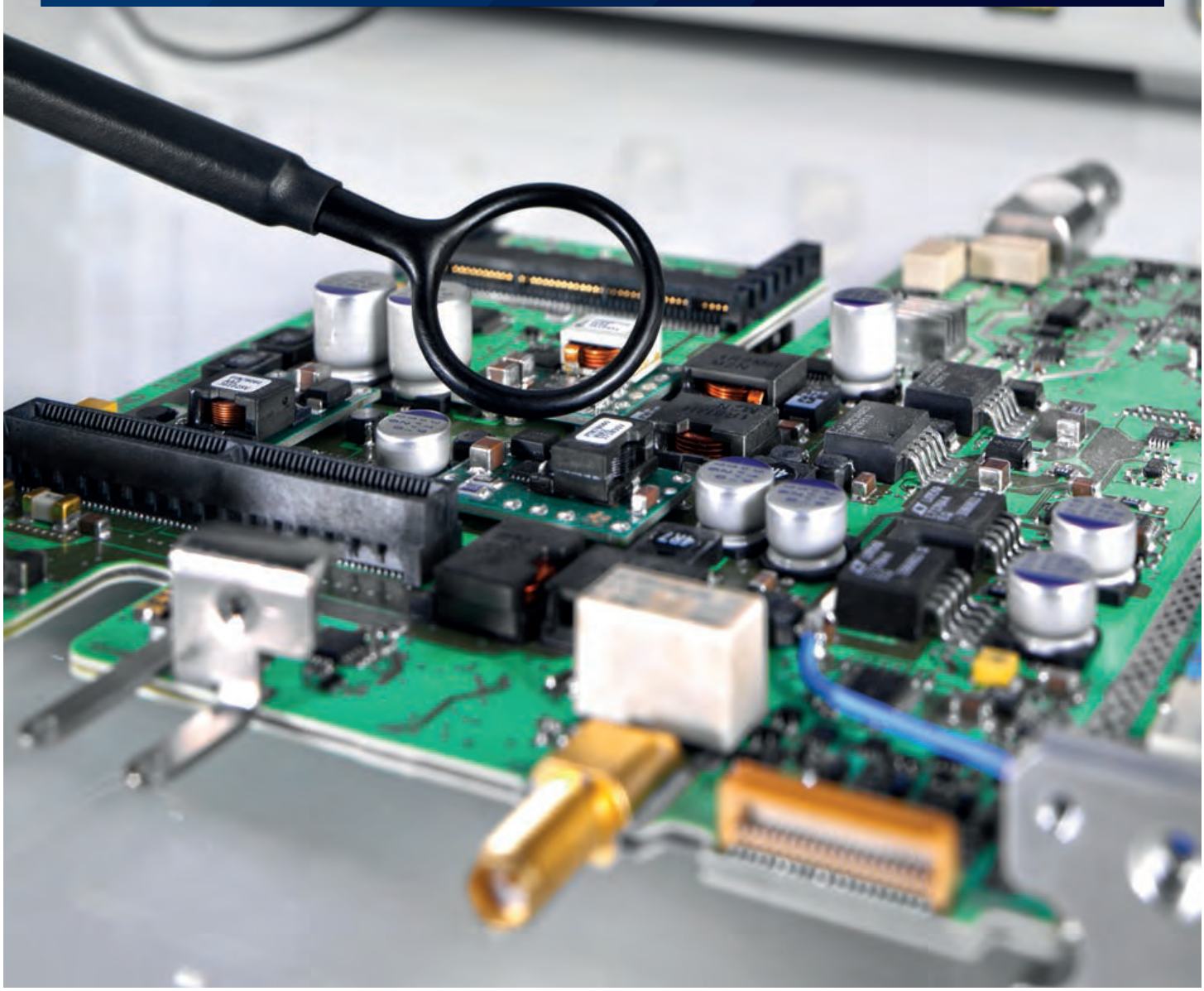
ROHDE&SCHWARZ
Make ideas real

EMI PRECOMPLIANCE SOLUTION NAVIGATOR

Choose the most suitable EMI debugging or precompliance solution



Research & Development

- Sufficient measurement 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
- Time frequency correlation capable

Precompliance

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

Compliance

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.

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®FPC
Unexpected 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 & 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 precompliance 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 on general (non-RF) electronics.

R&S®RTM3000
See more of your signal with the power of 10

- 10-bit ADC
- dBuV scale
- Time-frequency correlation

R&S®RTE1000 / RTO2000
Truly uncompromised in performance

- 16-bit HD mode
- Advanced trigger and analysis capabilities
- Very deep memory

OUR TIP Use your oscilloscope to verify EMI filters or debug EMI during prototyping to work on power electronics or general electronics non RF designs.

OUR TIP Use an oscilloscope for EMI measurements to correlate EMI with time-domain signals or synchronized input channels for measurement.

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

COMPARISON OF PRECOMPLIANCE TESTING SOLUTIONS

Feature	EMI receiver	Spectrum analyzer	Oscilloscope
Dynamic range & sensitivity	Very high (frequency selective measurement, preselector, autoranging)	High (frequency selective measurement)	Medium (Full-bandwidth measurement)
EMI detectors & 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	Remote control via PC	R&S®FPL1-B5	R&S®FSV3-B5	Base unit
LISN remote control cable	R&S®FPC-Z1 (for HM6050)	R&S®EZ-21 (for ENVxxx)	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®FSV-B22
DC power supply	–	R&S®FPL1-B30	–	R&S®FSV-B30
Li-Ion battery pack	–	R&S®FPL1-B31	–	R&S®FSV-B32

Oscilloscopes

Description	R&S®RTM3000	R&S®RTE1000	R&S®RTO2000
Spectrum analysis and spectrogram software option	R&S®RTM-K37	–	–
Spectrum analysis software option	–	R&S®RTE-K18	R&S®RTO-K18

LISNs and near field probes (examples)

Description	Type
2-line V-network, 9 kHz to 30 MHz, for disturb. voltage measurements	R&S®ENV216
Line impedance stabilization network, 9 kHz to 30 MHz	R&S®HM6050-2
HZ-15 probe set for E and H near field emissions 30 MHz to 3 GHz	R&S®HZ-15,
HZ-17 probe set for H near field emission measurements 30 MHz to 3 GHz	R&S®HZ-17

System software

Description	Type
EMI emission test software (for spectrum analyzer and EMI receiver)	R&S®ELEMI-E
ELEKTRA license dongle (for spectrum analyzer and EMI receiver)	R&S®EMCPC

PD 3609.0095.32 | Version 01.01 | February 2021
EMI Precompliance solution navigator
Data without tolerance limits is not binding | Subject to change

3609095532
3609.0095.32 01.00 PDP 1 en