# **R&S<sup>®</sup>Spectrum Rider FPH** Modulation analysis (R&S<sup>®</sup>FPH-K7) and receiver mode (R&S<sup>®</sup>FPH-K43)





The perfect choice for	
Verifying AM/FM transmitted signals	Testing DUTs using AM/FM modulation
EMI debugging	

Key specifications	
Frequency range	5 kHz to 31 GHz
Resolution bandwidth	1 Hz to 3 MHz
DANL at 3 GHz (preamp on)	< -163 dBm
Battery operation	> 6 hours
Weight	2.5 kg

Your benefit	Features
Easily upgradeable functions	User upgradeable software keycodes
Simple EMI troubleshooting setup	Fast EMI debugging with optional R&S®HZ-15/R&S®HZ-17 near-field probes
Portability	<ul> <li>Perform measurements anywhere</li> <li>Weighs only 2.5 kg</li> <li>&gt; 6 hours battery life</li> </ul>

# Buy only what is needed – invest when needed – upgrade as needed

### Modulation analysis

- R&S®FPH-K7 is used for analog modulation analysis. It measures the quality of amplitude or frequency modulated signals. The analog modulation display shows the waveform as well as measurement parameters such as carrier power, carrier offset, modulation index (depth) for AM signals, frequency deviation for FM signals, SINAD and THD. The modulation summary display provides user-definable limits for each measurement.
- This feature is especially useful for installing and maintaining AM/FM radio stations.

## Receiver mode

- The R&S<sup>®</sup>FPH offers the R&S<sup>®</sup>FPH-K43 receiver mode option for EMI debugging on circuit boards, integrated circuits or cable shielding. Cost-effective yet powerful, the R&S<sup>®</sup>Spectrum Rider FPH can be used to analyze and locate disturbance sources during EMI debugging.
- The R&S<sup>®</sup>FPH-B22 preamplifier compensates for coupling loss of probes and increases sensitivity to detect small interfering signals.



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Option Sheet | 01.00

#### **R&S®FPH-K7: Modulation analysis**

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🧇 Analog	j Modulat	ion					11 3.	36/2.88 +		j mouulauoi							311 3.3012.03
Carrier	Power -1	l4.2 dBm	Carrier Offset	1.7 Hz	Mod In	dex 49.8 %		9/8/2018	Carrier I	Power -29	.4 dBm	Carrier Offset	9.6 Hz	Freq Dev	iation 10.241	kHz	9/8/2018
AM	+Peak	-Peak	±Peak/2	RMS	Mod Freq	SINAD	THD	REF	FM	+Peak 13 882 kH	-Peak 7 -12 554 ki	±Peak/2	RMS 7 242 kHz	Mod Freq 5 000 kHz	SINAD	THD -37.2 dB	REF
	45.2 /0	-30.0 %	49.0 %	34.3 %	10.003 KHZ	J2.5 0D	-34.2 UD	-20 dBm		IO.OOL III		- 10.210 112		0.000 1012	10.1 40	01.2.00	-20 dBm
40 %	$\wedge$		$\wedge \vdash \wedge$	$-\Lambda$	$-\Lambda$	$- \wedge$	$\wedge$	ATT 0 dB	20 kHz -								ATT 0 dB
30 %							$\square$	PA OFF	NO KHZ	K	A A	h A	AN	AA	A	Α	PA
10 % 0 %								DBW •	S kHz -		MA	$\Lambda\Lambda$	$\Lambda \Lambda$	$\Lambda\Lambda$			DBW *
10 %		+						AUD	-5 KH2-	$\mathbb{V}$		$\mathcal{F}$	$\mathbb{N}$	$\vee \vee$	$\forall V$	fV	AUD
-20 %				$\left\{ \right\}$		+		1/1 MST	-15 kHz	U							1/1 MST
-40%-			-	$\bigvee$	$\vee$	f = V		25.5284 ms	-20 kHz —								49.232 ms
Center 1	00 MHz							⊙⊗-⊠-●	Center 1	00 MHz							<u>∘⊗⊡</u> ∙
AM Do	main	FM Domain		Au	dio Lowpass	Mod. Trace	Mo	d. Summary	Ref L	evel	Dev per Divisio	on Scale Ad	ljust		Att / Amp / Imp		

The R&S<sup>®</sup>FPH-K7 option is used for analog modulation analysis. It measures the quality of amplitude or frequency modulated signals. The analog modulation display shows the waveform as well as measurement parameters.

#### R&S<sup>®</sup>FPH-K43: Receiver mode

R&S°FPH-K43 is the receiver mode which includes quasi-peak detectors and CISPR bandwidths.

#### **Conducted measurement setup**

#### **EMI software**



LISN R&S®HM6050-2



00000 Spectrum analyzer R&S®FPH

#### Your EUT

The R&S<sup>®</sup>FPH can be combined with the R&S<sup>®</sup>HM6050-2 LISN and R&S®ELEKTRA software to create an economical EMI precompliance test setup for conducted measurements.



With near-field probe (R&S®HZ-15/R&S®HZ-17) provides a quick EMI debugging solution for radiated measurements. It can be used with or without the EMI software.

**Radiated measurement setup** 

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Frequency and preamplifier upgrade for 2 GHz	model
Spectrum analyzer frequency upgrade, ? GHz to 3 GHz	R&S®FPH-B3
Spectrum analyzer frequency upgrade, ? GHz to 4 GHz	R&S®FPH-B4
Preamplifier, 5 kHz to 4 GHz	R&S®FPH-B22
Frequency and preamplifier upgrade for 6 GHz	model
Spectrum analyzer frequency upgrade, S GHz to 8 GHz	R&S®FPH-B8
Preamplifier, 5 kHz to 8 GHz	R&S®FPH-B23
Frequency and preamplifier upgrade for 13.6 G	Hz model
Spectrum analyzer frequency upgrade, 3.6 GHz to 20 GHz	R&S®FPH-B20
Preamplifier, 5 kHz to 20 GHz	R&S®FPH-B24
Frequency and preamplifier upgrade for 26.5 G	Hz model
Spectrum analyzer frequency upgrade, 26.5 GHz to 31 GHz	R&S®FPH-B31

Choose your model and frequency

Preamplifier, 5 kHz to 31 GHz

**Base model** 

<b>Related options</b>	
R&S®FPH-K7	Modulation analysis
R&S®FPH-K43	Receiver mode

Related accessories for EMI debugging				
R&S®HZ-15	Near-field probe, 30 MHz to 3 GHz			
R&S®HZ-16	Amplifier, 100 kHz to 3 GHz			
R&S®HZ-17	Near-field probe, 30 MHz to 3 GHz			
R&S®HM6050-2	Line impedance stabilization network			
R&S®FPC-Z1	Cable set for R&S®HM6050-2			
R&S®EMCPC	License dongle			
R&S®ELEMI-E	EMI emissions test software			



R&S®FPH-B25

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