

# R&S®FPL1-K70 Vector Signal Analysis

## Flexible modulation analysis down to the bit level



### The perfect choice for

Troubleshooting digital transmitters and signal path components

Analysis of digital modulation signals

Finding signal errors such as incorrect filtering and spurious emissions

Equalizer for filter design optimization

Signal transmitter characterization

Bit error calculation on known data sequences

► For more information, visit  
[www.rohde-schwarz.com/catalog/FPL1000](http://www.rohde-schwarz.com/catalog/FPL1000)

### Key specifications

#### Modulation formats

- 2FSK, 4FSK
- MSK, GMSK, DMSK
- BPSK, QPSK, offset QPSK, DQPSK, 8PSK, D8PSK,  $\pi/4$ -DQPSK,  $3\pi/8$ -8PSK,  $\pi/8$ -D8PSK
- 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM, 1024QAM, 2048QAM, 4096QAM
- 16APSK (DVB-S2), 32APSK (DVB-S2), 2ASK, 4ASK,  $\pi/4$ -16QAM (EDGE),  $-\pi/4$ -16QAM (EDGE), SOQPSK

### Your benefit

Results automatically adapted to selected standard

Easy signal analysis of DVB-S2X signals

High flexibility

### Features

A lot of standards available

Additive option available for multicarrier modulation measurements

User-definable constellations and mappings

### Flexible modulation analysis down to the bit level

The R&S®FPL1-K70 option digitally analyzes modulated single-carrier signals down to the bit level. The clearly structured operating concept simplifies measurements despite the wide range of analysis tools.

- The R&S®FPL1-K70M multicarrier modulation analysis application allows DVB-S2X signals to be analyzed
- The R&S®FPL1-K70P allows measurement of raw bit error rate (BER) on PRBS data up to PRBS23

### Numerous standard-specific default settings

- User-definable constellations and mappings
- GSM, GSM/EDGE
- 3GPP WCDMA, EUTRA/LTE, CDMA2000®
- TETRA, APCO25
- Bluetooth®, ZigBee
- DECT
- DVB-S2

### Analysis of Bluetooth 3-DH1 signal

Analysis of a Bluetooth 3-DH1 signal. Constellation diagram, EVM, result summary, magnitude, spectrum and symbols with pattern detection all in one view.

### Analysis of a multi-modulation signal

Demodulation of a DVB-SX2 multi-modulation signal with the R&S®FPL1-K70M option (R&S®FPL1-K70 option required).

### Model configuration information

Description	Type
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
Vector network analyzer, two ports, 3 GHz	R&S®ZNL3 <sup>1)</sup>
<b>Options</b>	
Vector signal analysis	R&S®FPL1-K70
Multi-modulation analysis	R&S®FPL1-K70M <sup>2)</sup>
BER measurements with PRBS data	R&S®FPL1-K70P <sup>2)</sup>

<sup>1)</sup> requires option R&S®ZNL-B1  
<sup>2)</sup> requires option R&S®FPL1-K70

### Analysis of a 64QAM signal

Analysis of a 64QAM signal with the R&S®FPL1-K70 vector signal analysis option

Parameter	RMS	Peak	Unit
EVM	0.18	11.24	%
Peak	0.85	39.03	%
MER	55.02	18.98	dB
Peak	41.41	8.17	dB
Phase Error	0.10	7.91	deg
Peak	-0.39	65.46	deg
Magnitude Error	0.06	7.61	%
Peak	0.19	36.07	%
Carrier Frequency Error	70.46	108.22	Hz
Symbol Rate Error	-0.08	—	ppm
I/Q Skew	-76.83	—	ps
Rho	0.999 996	0.987 366	—
I/Q Offset	-51.95	-48.56	dB
I/Q imbalance	-73.54	-55.35	dB
Gain imbalance	0.00	0.03	dB
Quadrature Error	0.02	0.03	deg
Amplitude Droop	-0.000 00	0.000 023	dB/sym
Power	-10.81	-10.74	dBm

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