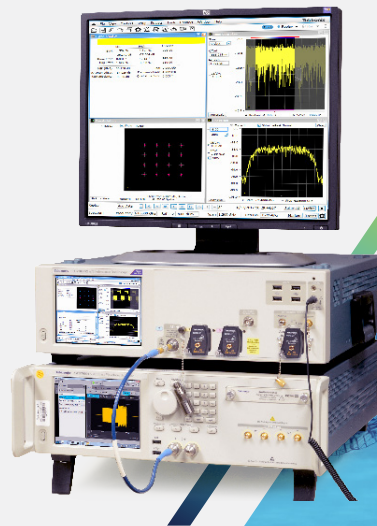




# Wideband Satellite Communications Test System

Ka & V Band Satellite Communications Test



## Ensure SATCOM Performance Through Various Attenuation, Amplification, Modulation, Demodulation, and Frequency Conversion Stages

When transmission frequencies are high it is vital to use a full bandwidth solution that can ensure proper representation of SATCOM error vector magnitude performance. This is especially important when wide modulation bandwidth and complex modulation schemes are occurring at higher transmission frequencies.

Tektronix provides robust support for wideband Ka and V band satellite systems with the low noise DP077002SX oscilloscope with 70 GHz of analog bandwidth, robust vector signal analysis software and 20 GHz of signal generation for testing the performance of a specific component of a satellite communication system, such as an IQ modulator, mixer, or signal-conditioning module. Signal generation includes signal calibration that applies a predistortion filter to the test signal to correct for amplitude and phase errors due to variations in the signal path.

## Features & Benefits

### Signal Capture without Downconversion

- 70 GHz of Analog Capture Bandwidth
- Low noise, solid EVM

### Flexible Signal Generation

- Direct RF, IF, or IQ format
- Broad range of modulation types
- Up to 20 GHz bandwidth for IQ Modulators or Mixers
- Signal correction using predistortion filters

### Robust Vector Signal Analysis Suite

- Full IQ analysis
- Digital Demodulation
- Constellation Diagram
- Eye Diagram
- EVM and Signal Quality
- Magnitude and Phase Error vs. Time



### Tek Service & Support

Tektronix stays with you through the integration of complex measurement processes in your lab or manufacturing operation. Our field application engineers are available on-site to provide expert level support for measurement connectivity, oscilloscope operation and analysis tool insights.



### Accuracy without Compromises

When mission performance is at stake. Evaluate with confidence directly from the DUT at EVM below 2%.



### Complete Test System

Calibrated testing response for generation and analysis up to 70 GHz means you are ready to begin measurements immediately.

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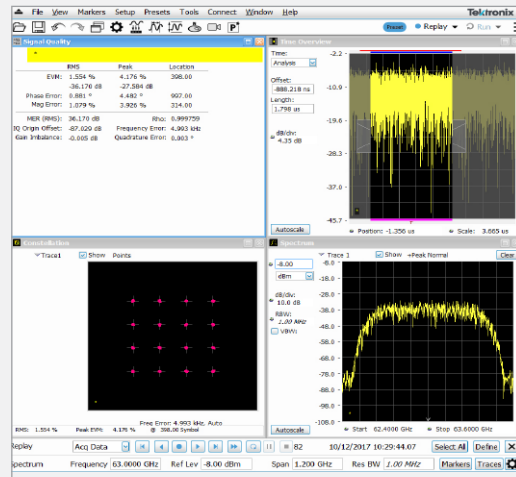
## Product Configuration

### Analyzer: DPO77002SX 70 GHz Oscilloscope

Analyzer Software: SVE – SignalVu Essentials, SVM – SignalVu Modulation Analysis, SDLA64 – Link Analysis

### Source: AWG70001A 50GS/sec Arbitrary Waveform Generator

Source Software: RFGENNL-SSO1, PRECOMNL-SS01



ANALYZER	TARGET SPECS
Analog Bandwidth	70 GHz
Vertical Noise (% of full scale)	0.56% @ 500 mVfs
DANL (10 mV/div for ATI channel)	≤-150 dBm/Hz, 19 dB NF
Residual EVM (measured at RF - 58 GHz to 65 GHz)*	$\pi/2$ BPSK = 1.9%, $\pi/2$ QPSK = 2.1%, $\pi/2$ 16QAM = 2.5%
SFDR (CF 65 GHz, span 6 GHz, 100 kHz RBW, 30 mV/div. Input -12 dBm @ any frequency from 62 GHz - 68 GHz)	≤-55 dBc
Amplitude Flatness	<b>All volts/div settings:</b> ±0.5 dB from DC to 20 GHz ±0.75 dB from >20 GHz to 30 GHz ±1.25 dB from >30 GHz to 68.5 GHz ±2 dB from >68.5 GHz to 69.5 GHz +2 / -3 dB at 70 GHz
ANALYSIS CAPABILITIES	TARGET SPECS
Acquisition Bandwidth	Up to 70 GHz
Measurements	Constellation Signal Quality EVM vs Time Magnitude/Phase Error vs Time Symbol Table Measurements
SOURCE GENERATION	TARGET SPECS
Waveform Memory	Up to 16 GS
DAC Resolution	10 bits
Effective Frequency Output	20 GHz
Modulation Bandwidth	15 GHz
Sample Rate	Up to 50 GS/sec
SFDR	-80 dBc

\*Note: Measurement uncertainty: ± 0.3% due to pre-compensation filter

Tektronix provides robust solutions to address a wide range of satellite communications test needs. For L, S, and C band satellite systems with narrow bandwidths, the Tektronix family of USB Real-time Spectrum Analyzers can provide high quality transmission analysis. For X, Ku, and K band satellites, the Tektronix RSA5100 and RSA7100 Real-time Spectrum Analyzers provide excellent signal fidelity testing with higher frequency and wider bandwidth.

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