Five Reasons Why FieldFox Is the Ideal Satellite Ground Station Maintenance Companion

Your Challenges

Satellite ground station maintenance is critical to various industry sectors that use satellite communications for long-range communications. To ensure success, satellite ground stations must provide very high uplink transmit power, receive very low signals on the downlink, and compensate for link variations due to weather and satellite/ground antenna changes. You need to test many sophisticated and delicate radio frequency (RF) components and subsystems in satellite ground stations such as antenna subsystems, waveguides, co-axial cables, filters, and more. In addition to components, you must verify and monitor the spectrum performance of the entire system during installation and operation. These maintenance activities become even more challenging when the ground station is located in a remote area.

Your Solution

FieldFox handheld analyzers are rugged and portable RF and microwave analyzers that incorporate the same measurement science as many of Keysight Technologies' high-performance benchtop test instruments. FieldFox is a multi-function tool that enables you to handle wider frequency ranges for satellite ground station installation testing, maintenance, and operation verification.

KEYSIGHT TECHNOLOGIES

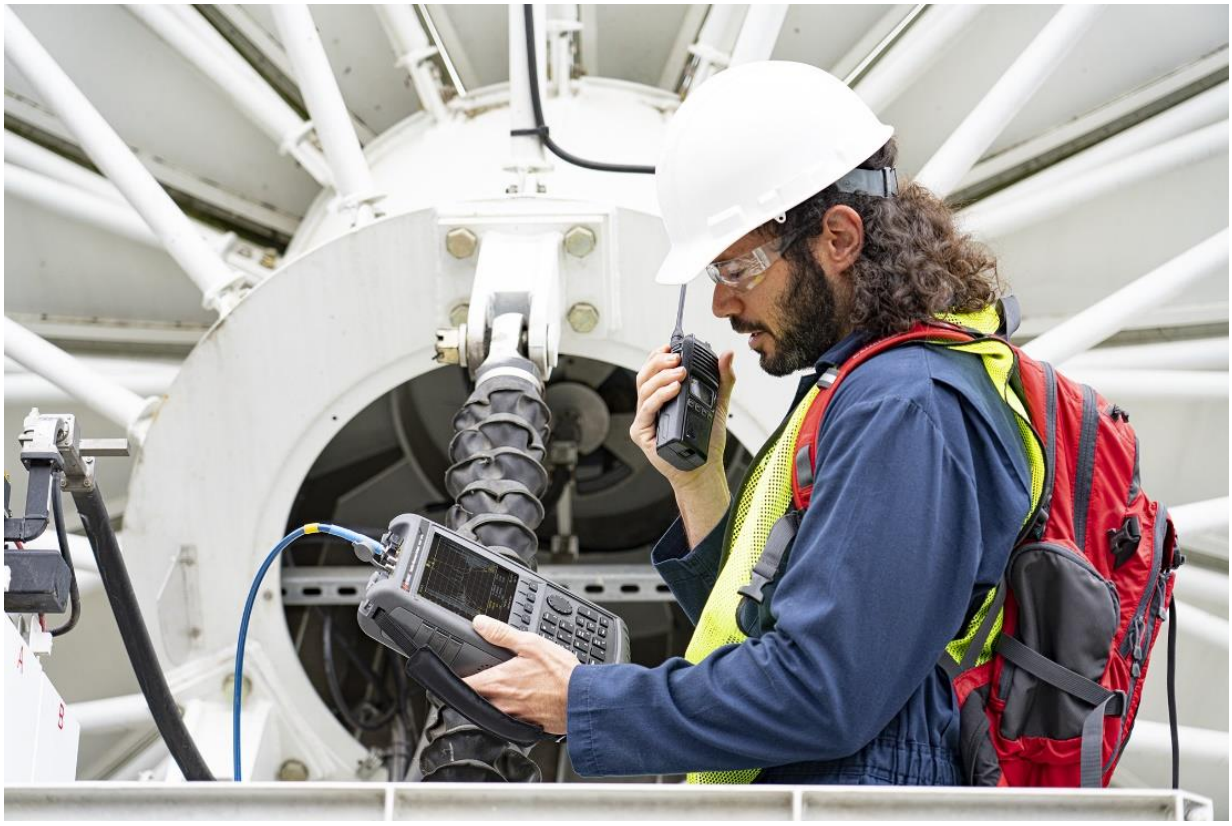
1. Quickly assure system performance with confidence

With FieldFox's InstAlign, the spectrum analyzer's internal amplitude alignment occurs automatically as environmental conditions change, without any user intervention. This feature provides unprecedented amplitude accuracy up to 0.2 dB for spectrum analysis and power measurements. Better yet, FieldFox provides accurate spectrum measurements immediately upon instrument turn on and requires no warm-up.

2. Obtain greater efficiency and consistency to maintain the antenna subsystem

Each FieldFox instrument supports CalReady at both RF ports, immediately following power-on or preset. This means that upon powerup, it is already calibrated and ready to make measurements such as one-port cable loss, voltage standing wave ratio (VSWR), return loss, and distance to fault (DTF) measurements at the test port.

FieldFox allows you to make broadband calibrations to calibrate the instrument over the maximum frequency span. After a broadband calibration, you can change the frequency range or number of points without recalibrating the instrument. In addition to CalReady and QuickCal, FieldFox also supports open-short-load-thru (OSLT) calibration, waveguide calibration, and external electronic calibration (ECal). FieldFox provides the most comprehensive calibration techniques in a handheld cable and antenna analyzer and vector network analyzer (VNA).



3. Quickly diagnose ground station faults

In order to make critical tests and measurements of RF systems in satellite ground stations, FieldFox provides a spectrum analyzer, VNA, power meter, and frequency converter measurement tool all in a single handheld box with frequency coverage up to 54 GHz.

In addition, FieldFox provides measurement tools and functions for cable and antenna analysis such as an independent signal source, an interference analyzer with record/playback, a vector voltmeter, an RF pulse measurement, a built-in global positioning system (GPS) receiver, and a direct current (DC) voltage source.

4. Pinpoint performance issues quickly

- Record the spectrum of interest and replay it to enable a fast and detailed analysis and performance-issue determination.
- Use real-time spectrum analysis (RTSA) to locate and identify intermittent interferers.
- Make data exchange easy and efficient with modern computer input-output (I/O) interfaces — ethernet, universal serial bus (USB), standard definition (SD) card slot.
- Monitor and control FieldFox remotely using a PC, or an iOS/Android-device with a local area network (LAN) or Wi-Fi network connection.
- Program FieldFox on a remote basis via standard commands for programmable instruments (SCPI) to perform automated tasks.

5. Meet military (MIL) specifications with FieldFox's ruggedness

- Maintain measurement stability in harsh environments with a sealed instrument enclosure.
- Protect RF connectors from damage due to drops or other external impacts with a specially-designed connector bay.
- Water-resistant chassis, keypad, and case withstand wide temperature ranges, in addition to salty and humid environments, shocks, and vibration.
- Operates on a wide operating temperature range from -10 to +55 ºC (14 to 131 ºF).
- Meets MIL-PRF-28800F Class 2 requirements, IEC/EN 60529 IP53 requirements for protection from dust and water, and MIL-STD-810G, and Method 511.5, Procedure I requirements for operation in explosive environments.

Conclusion

Satellites and earth stations are complex systems requiring high performance and reliability. In order to assure the highest uptime for earth stations, routine maintenance, occasional troubleshooting, and repair must be done quickly, accurately, and in any weather condition. A FieldFox handheld analyzer can replace multiple instruments including a spectrum analyzer, vector network analyzer, signal generator, and power meter with frequency coverage up to 54 GHz. To learn more about FieldFox's use at satellite ground stations, read the application note "Precision Validation, Maintenance and Repair of Satellite Earth Stations FieldFox Handheld Analyzers."

Visit www.keysight.com/find/fieldfox to learn more.

Learn more at: www.keysight.com

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