

Field Guide

by Dennis Baldrige

LP Technologies LPT-3000 Spectrum Analyzer

Broadcast engineers need good test equipment. From basic hand-held tools to digital multi-meters and oscilloscopes, quality test equipment enables accurate testing, evaluation and calibration within the broadcast facility.

MEETING BROADCAST NEEDS

Observing the RF bands requires a spectrum analyzer. Analyzing FM IBOC signals or digital TV signals necessitates a quality and dependable instrument. For NRSC tests in the AM broadcast band, a resolution bandwidth (RBW) of 300 Hz or less is mandated by the FCC Rules (73.44a).

A spectrum analyzer with this feature usually costs significantly more (on the order of tens of thousands of dollars), than would a typical low-end unit. Often this price tag places access of such a unit beyond the reach of many broadcast engineers. Inopportunistly, the broadcaster is left to borrow, rent the equipment, or hire another engineer to perform the tests. The need for a reasonably priced, fully featured spectrum analyzer is a reality.

LP Technologies, Inc. (www.lptech.com) has produced a low cost spectrum analyzer which has the capability of 300 Hz RBW as well as many of the bells and whistles of units costing significantly more. The LPT-3000 is a fully digital, synthesized spectrum analyzer covering from 9 kHz through 3 GHz.

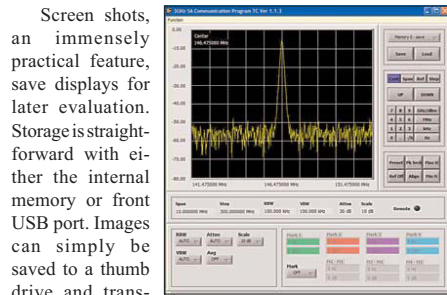


The LP Technologies LPT-3000

EASY LEARNING CURVE

The LPT-3000 is designed to be user friendly. When the analyzer is turned on it goes through a series of self tests, band alignments and calibrations ending up in a full spectrum view.

Once up and running, the LPT-3000 offers simple user controls which allow the novice or the seasoned expert to use the analyzer right out of the box. One example is the AUTOSSET feature which automatically locates the strongest signal and centers the analyzer's display on that frequency. With this function, the initial detection of a signal directly connected to the input is a snap.



A screen shot.

Screen shots, an immensely practical feature, save displays for later evaluation. Storage is straightforward with either the internal memory or front USB port. Images can simply be saved to a thumb drive and transported to your computer for later use. In addition, there is a LAN option allowing control and use of the LPT-3000 via TCP-IP. The accompanying software makes it easy to control the analyzer and save images directly to your computer.

NRSC AND HD MASKS

Of special interest to the broadcaster are the built in measurement masks. This allows quick verification of the RF signal under test with the FCC's requirements.

The masks are upgradeable, allowing future improvements as requirements change. Included are the AM NRSC mask and HD radio masks for both AM & FM. DTV templates are also included in the system.

The internal analysis software will evaluate the signal to verify it remains within the prescribed mask and give a Pass/Fail response in addition to the image.

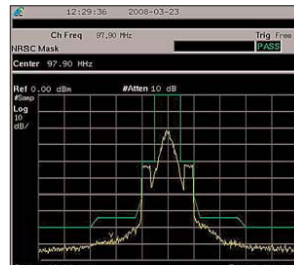


The AM IBOC mask.

SPECIFICATIONS

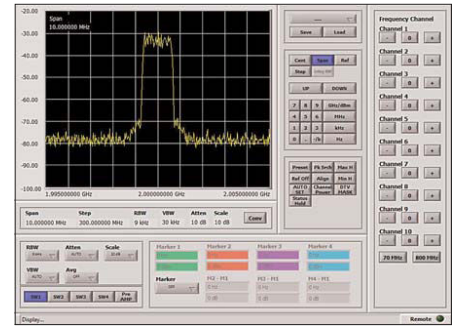
The LPT-3000 is a high-performance digital, synthesized analyzer. The wide frequency range of 9 kHz to 3.0 GHz is accompanied by an equally impressive resolution of 1 Hz and 0.5 ppm high precision reference. The built-in preamp is a feature boasting a wide dynamic range of -130 dBm to +20 dBm.

The unit is compact, portable, and has easy to use key buttons with various interface options such as USB and LAN. The analyzer is not only capable of broadcast analysis, used with or without RF masks, but also does CDMA measurements including ACPR, ACLR, OCWB and Channel Power.



The FM NRSC mask shows pass/fail.

The spectrum analyzer is also available as a rack-mounted unit which boasts four RF inputs to monitor multiple devices. With this arrangement the broadcaster can perform TV, AM/FM HD testing and troubleshooting remotely through the LAN connection with the remote control software.



The unit can be remotely controlled with software.

With this feature intermittent conditions would be easier to discover and isolate, making the unit invaluable for diagnosing and analyzing problems remotely.

PRICING BY OPTION

The LPT-3000 is reasonably priced. Options can be added, as needed, to satisfy the needs of the broadcaster. This allows customization to each application. The following table contains the list prices for the spectrum analyzer and several of the most commonly chosen options.

3.0GHz Spectrum Analyzer	LPT-3000	\$4,500
Tracking Generator Option	TKG-3000	\$1,500
Remote Control Option	REM-3000	\$195
Ethernet Option	ETH-3000	\$350
300HZ RBW Option	RBW-300HZ	\$350
Pre-Amplifier	PRE-AMP	\$350
FCC Mask Meas. Option	FCC-3000	\$320
Soft Carrying Case	SCC-3000	\$280

Additional options for the LPT-3000 include the following:

- CDMA (CDMA2000, WCDMA) Signal Generator
- GPIB Interface (IEEE488 Bus)
- Soft Carrying Case
- General Kit Set-CATV Kit Set (cable set)
- Return Loss Bridge Kit Set

The LPT-3000 from LP Technologies, Inc. is a quality, broadcast ready, spectrum analyzer at a modest price, loaded with features and options to meet the most demanding requirements.

A 30 year broadcast veteran, Dennis Baldrige (CPBE, AMD, CBNT), is a Contract Engineer in Wisconsin, as well as an ABIP inspector for WBA. He can be contacted at info@7db.net

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