

Power in the Palm of Your Hand

Ivie IE-33 Audio Analyzer

by Frank Wells with
Johnny Garcia

The concept the Ivie Technologies IE-33 handheld acoustic analyzer is brilliant in its simplicity—take a standard PDA, build a microphone, preamp and converter package into a wraparound jacket, program the PDA to analyze and process the data for display and voila!—a portable test instrument is born. The HP/Compaq iPAQ PDA has a vivid color display, intelligently used by Ivie. In the world of handheld instruments, this combination of a feature-rich test menu, small size and stunning display are unique to the IE-33 in my experience. The iPAQ runs the PocketPC version of Windows, and still works as a full-featured PDA.

RTA functions, based on FFT analysis, are the bread-and-butter processes offered by the IE-33. The flexible displays can be set to user-defined resolutions and screen display range, display can be in 1/1, 1/3, 1/6 octave bar graphs, or a maximum-resolution, continuous line mode. Weightings can be chosen from A, C or flat. Data can be frozen and stored or even exported to Excel for analysis. Captured curves can be subtracted from one another and the result displayed. User-defined target "preferred curves" can be overlaid on the display, as can standard noise measurement plots. Even when packed with data, the relatively small screen stays easy to read through intelligent layout and use of color. You can even get the traditional LED-style RTA display, but with a great deal of control over the display parameters.

I used the RTA functions during a few live equipment demos and on my own surround setup, and found it very easy to use, flexible and powerful. The "frequency detect" mode proved handy when prowling a room looking for hot spots—the hottest frequency at any given time detected and displayed along with the RTA plot. A cursor can also be applied to the peak hold curve, on a frozen RTA screen or on a memory display, and manually swept displaying frequency and level—very effective



for fine analysis. Readings can also be averaged continuously or with user-triggered samples.

Sound pressure level (SPL) is displayed in a corner of the RTA screen, with A, C and flat frequency response weightings available, with fast, slow, peak and impulse time responses. The entire display can be given over to the SPL display where, in addition to the numeric display, a three-color bar graph can give a quick indication of level relative to user-defined thresholds. A "Seat to Seat" mode allows relative SPL measurements. Specific octave bands from 125 Hz to 4 kHz can also be monitored in the SPL modes. Additional tests include an oscilloscope function, a polarity and audio test signal generator, a polarity analyzer and a strip chart function.

All of the hardware for testing is housed in a standard jacket used by several vendors of third-party iPAQ accessories, including I/O. Inside are a low-noise mic preamp and 20-bit A/D converters. Dictated, I'm sure, by the size of the IE-33, signal I/O is what I would consider its only weakness. Though size understandably precludes balanced signals on XLR connectors, using the iPAQ headphone jack for signal output and RCA jacks for input requires adapter pigtail for a number of professional chores that can be a bit awkward. The additional circuitry in the jacket (over 50 percent, according to Ivie) is used for battery management. Software authorization is tied

to the jacket, not the iPAQ.

For a field test, Johnny Garcia, Signature Systems owner and FOH engineer for Diamond Rio, took the IE-33 with him on the road with the band. An HP Jornada PDA user, Garcia jumped right in with the IE-33 ("I guess it's a guy thing," he says. "You don't want to read the manual unless you absolutely have to"). Garcia found the IE-33 immediately useful and intuitive, but found the true depth of the unit after discussions with Ivie. "I was really shocked by all the stuff it had," he exclaims. "Everything that I would use it for; it's perfect."

Garcia used the RTA and SPL functions most extensively on the road, leaving the SPL meter up for entire shows. For one "corporate date" where he says, "they were all over me" about levels, the user-definable SPL bar graph made monitoring volume easy. "All I had to do was keep it out of the red."

The frequency analysis function of the RTA was helpful for finding hot spots, says Garcia. "Of course, I'm PA du jour every day, so listening to the PA, after I tune it to what I want to hear with a reference CD, I start tuning it around the vocal mics." Garcia said the frequency detection revealed all the hot spots on the lead vocal mic. "This thing's doing a lot of work for me." The Average mode on the RTA was unique in Garcia's experience, and also quite useful.

The built-in polarity tester was also a favored feature for Garcia, especially as he sees a new PA every night on the road. "I get in with people that shouldn't even be owning a PA, and all the sudden, I'm fixing their problems." Using the generator via a wired link was a limitation, but one that he figures to rectify by making a CD of the test signal. The only other limitation Garcia cited was the 90-minute life of the standard battery, though an option allows that to be doubled.

With many of the same venues coming up year after year for Garcia, he says the ability to store curves for later recall and comparison should prove useful. He says the IE-33 can replace several single-function tools in his arsenal, calling it "one of the best tools I've seen come out in a long time."

Garcia notes, "For me, I use my PDA, so that's just bonus to have that added to it." He says his wife has been eyeing his Jornada since he bought it, so the time is ripe to turn it over to her, and migrate to an iPAQ wrapped in an IE-33 shell, of course.

tech@psn in the field

The Drawing Board

Ivie Technologies has been involved in manufacturing acoustic measurement instruments for some 30 years. The company's IE-30 has been a standard-setting handheld instrument for much of that time, for spectrum analysis and both acoustic and electrical level measurement.

End-users had requested extensions to the IE-30 feature set, and director of marketing, Bill Raventos, says Ivie seriously investigated a complete hardware redesign a few times over the past several years, but the projections for the project showed it as too expensive and time consuming. "About a year and a half ago," he says, "we looked at the idea of leveraging this rapidly expanding market of hardware that embodies the PDA." With a 400 MHz or better processor on board, modern PDAs seemed to offer the power for the task, and with good product management and programmers, the IE-33 handheld measurement tool was born and introduced in short order.

"We discovered we could do what we needed to do on that [PDA] platform," Raventos elaborates. "Therefore, the requirement of the development of a new piece of hardware diminished, and we were able to focus on the development of the software itself. That alone enabled us to come out with the IE-33, and focus on its functions."

"Overwhelming" is not too strong a word to describe end-user response to the IE-33, says Raventos. "It's interesting to me how quickly the word got out and how interested people have become in it," he says, the response including serious interest and sales in Europe—Italy, Germany, Sweden, The Netherlands, Finland; and in Asia—most notably in Korea and China. Users have been "very generous" with both praise and ideas for the IE-33, says Raventos, adding that the "inordinate" amount of time spent making the instrument and its operation as intuitive as possible has paid off.

The second major software revision (free) will be released at NSCA, adding transmission loss and electrical level measurement features, among others. Some future specialist functions will likely come in the form of add-on software "function modules," according to Raventos, with RT60 analysis as a likely first such module.

The unit's visual appeal is given major credit for its success. "The fact that it has a color display," Raventos points out, "plays very well in advertising. Then when you have it in your hand, it makes a big difference. With full color, you can impart a lot more information in a small screen." Raventos says Ivie actually underestimated the allure of having an instrument that doubles as a PDA, but "the fact that we happen to have a really fine instrument built into it is a really good combination." This capability added to both the visuals and core functionality of the IE-33 puts it in the "ooh, cool" category of product wherever it is shown.

"From a marketing and sales standpoint," says Raventos, "you can have the best instrument in the world, but if it doesn't have a certain amount of 'cool factor,' you have a problem. We certainly have no problem with cool factor with this product."

Product information

Ivie Technologies
www.ivie.com