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Robin Howell, director of Wire Broadcast, reviews the new Tektronix WFM2200.

Testing times

OK, so we've taken delivery of the brand new Tektronix WFM2200 waveform monitor. We unpacked it and checked we had all the bits. I then spent 10 minutes having a quick play to see that all was in order. The main unit, power supply and lead all fit snugly inside the custom-made soft carry case which has also just started shipping. And that's it - you're good to go. You have a video and an AES generator along with a waveform monitor for these signal types, combined with the ability to display reference and timecode. And it's in your rucksack, next to your iPad or paperwork....

Over the last six months, Wire Broadcast has been fortunate to have undertaken projects in Amsterdam,



Robin Howell,
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Singapore and Mexico and we have more foreign travel coming up over the next couple of months. As engineers, our trips are usually short, a week or so, whilst we undertake the testing and commissioning of the system at the end of the project. Up until now we have been taking a collection of test equipment, and at the start of the year we decided we wanted to invest in more appropriate, portable solutions. For us, as system integrators, there was a lot of box ticking when we got our hands on a demo WFM2200, and we decided to buy one. Having had the unit for a month now here are our initial thoughts.

The unit is powered either by mains or by replaceable Li-Ion rechargeable batteries with the charge status indicated on a level meter in the bottom right of the status display. The large-capacity battery pack takes about four hours to charge and runs the WFM2200 for a similar amount of time. I would guess that nine times out of 10 there will be power available on our installation sites, so this should be ample, and additional battery packs and charging unit are also available which allows the WFM2200 to operate continuously on battery power all day long.

Two SDI inputs (terminated) are present and they auto-detect SD, HD and 3G in multi-standards. 3G is optional on this unit, and if you don't purchase this from day one it's a simple upgrade key to add the



functionality. We occasionally have a requirement to measure dual link video formats and happily that's supported as well. A quick trip to the back of a Sony HDCAM SR confirmed this worked automatically as expected. Three further inputs for AES, timecode and reference are included, all in the BNC format.

In a big plus for us, the unit also includes two outputs - a multi-standard video signal generator and an AES test tone generator. Currently the video generator has three output options, bars at 100% and 75% and the pathological test. This is perfect for buzzing a signal around your system/studio and seeing that it all returns entirely as it left. This is done by monitoring the error section read-outs and watching for an increase in



The new Tektronix
WFM2200.

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the CRC errors. We recently carried out an expansion of the post-production facilities of Envy Post which involved establishing a new floor of suites a couple of doors down from the flagship building on Rathbone Place, London. Luckily we managed to pick a route up and down a few risers and corridors to link the new building with the old. This allowed all the facilities of the main routing system to be available to the new site. By linking the in and outs of our inter-area tie lines together, we were pushing the limits of transmission length for HD-SD. However, sending and returning our self-generated test signal we

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were quickly able to verify that all was in order.

Of course, similar loopback testing can be carried out with the AES audio test tone generator. The generator can appear embedded in the video as well as the AES output. There are internal stereo speakers and a headphone output selectable via the custom button. A headphone icon clearly indicates the audio you are listening to and this can be moved around the pairs you have and can also be split if that is your preference. Embedding AES in to the video preview outputs of a high-end graphic machine is a common practice in our post installation. Its handy to have the track count displayed in front of you and have a DAC'd version on headphones or speakers.

You soon start moving around the displays and if you are used to the Tektronix monitoring family, this unit will be very straightforward for you. Diamond and Arrowhead, timing and lighting displays are all there. The displays can be combined into the now traditional quad tile format. A single button push zooms you to full screen mode for more precise measurements and a large 6.5inch LED back-lit display looks crystal clear. We had a quick look at the unit outdoors and it's fine there too, so you should be OK over at Stratford in the summer.

Interestingly, Tektronix has decided to display the reference and the LTC signals, and I think this is a first for its modern WFM's. Somehow, when HD was first developed, the great and good left the reference signal as analogue, deciding (in a salute to the past) to just add a third/tri level. Oh, how we laughed! It's crazy but it's true. The ability to display syncs is a

great feature and one we have already used when sorting out a system-wide reference issue.

As you would expect you can go further with the analogue reference signal, comparing its synchronicity with the HD/SD input. As well as seeing that input digital signals are locked to external reference, the timing display gives you a graphic indication of the relative timing between the two.

Once you have set your generator and got the right quad split in place for your measurement requirement, you'll want to store this for another day. There are 32 locations in four banks of eight, A1 through to D8. For our requirements this is going to be more than enough. I'm even struggling to see how we are going to get off the first bank. This is either an indication that we are never going to be power-users or perhaps that the simple stuff is just easy to do? I think, taking everything into account, I'll opt for it being a device with great functionality and that is easy to use!



About the Tektronix WFM2200

The WFM2200 portable video waveform monitor provides an ideal solution for basic video and audio monitoring needs with an integrated high-brightness, low-power consumption LED backlit display in a convenient portable form factor. This versatile instrument can operate with an internal battery and DC input through an AC-DC converter unit.

Standard configuration provides multi-format support for HD-SDI (SMPTE 292), SD-SDI (ITU-R BT.601), and Dual Link (SMPTE 372) signal formats. The instrument provides automatic format detection, and with Option 3G supports Level A and Level B SMPTE 425/424 formats.

Audio monitoring support for up to 16 channels of embedded AES/EBU audio provides a variety of audio level bar monitoring and flexible Lissajous display. An internal speaker or headphone port can be used for easy compliance verification of digital audio without the need for an additional piece of equipment.

This instrument provides the reliability of the Tektronix waveform

monitors family in a portable, basic monitoring product. The WFM2200 offers uncompromised monitoring quality with sharp CRT-like traces, patented gamut displays, picture thumbnail, display freeze, and an error log for 10,000 events for efficient content compliance verification.

In summary:

- An ideal tool for field applications with 6.5inch LED back-lit display.
- Weighs less than 1.8kg.
- Rechargeable/replaceable battery system for extended periods of operation.
- Four tile monitoring displaying the necessary signal information at a glance, with flexible configuration.
- ANC data inspector, data list, and closed caption decode.
- Analogue external reference signal monitoring with waveform.
- Tektronix patented timing display to ensure synchronisation of the facility.
- Multi-format video and audio generator with colour bar, pathological signal generation with AES/embedded test tones.
- 16-channel embedded AES audio monitoring.