

MERIDIAN CDR COMPACT DISC RECORDER



MERIDIAN have actively pursued higher standards in digital audio since the earliest days of compact disc. Their modifications to the basic Philips transport and electronics have consistently impressed technical commentators and reduced such harmful side-effects as quantization noise and jitter, first in the 16-bit format and more recently in the one-bit Bitstream configuration. As a logical development from designing high quality D/A converters for replaying CDs, they recently produced improved A/D converters and Digital Signal Processing units which have received favourable reactions from professional recording engineers whose basic A/D conversion of analogue microphone signals into the digital domain was falling behind the standards of the best consumer D/A units.

Now Meridian have put the whole thing together with the thermo-optical CD-R mechanics to produce a sophisticated CD-R machine. At £4,500 the Meridian CDR is at the high end of current CD-R recorders but claims a number of special features. For example, improvements in subcode performance are claimed to reduce jitter on digital inputs and outputs, whilst the error correction system is so powerful that recorded CDs may actually sound better or "renewed" compared with the one being copied.

As a machine for the professional market, there is provision for every kind of input and output: for analogue, a choice between unbalanced phono, balanced XLR and jackplug (microphone) sockets; for digital, the choice is between electrical (standard SPDIF coaxial or AES/EBU balanced) and optical (Toslink plastic or SMA glass fibre) connectors. A consumer/professional changeover switch changes the subcode data on the digital outputs.

In appearance the CDR resembles a fairly bulky CD player and indeed this resemblance is enhanced by

enclosing most of the controls behind a flip-down cover which runs the full width of the front panel. All we see are the disc drawer, display panel and basic controls for drawer Open/Close, Play, Pause, Stop, Track Skip, Fast Search, Repeat Play, A-B Repeat, Shuffle (random track play), Scan (automatically playing the first 10 seconds of each track in turn), headphone socket and volume control, plus a Time button which switches the display between track elapsed time, track or total time remaining.

In fact a couple of extra features do give the game away that this is a recorder: the red-coded Record key, Mute key (to record 3 seconds of silence), large rotary Recording level knob, Balance control and of course the twin bargraph level meter.

Lowering the flap reveals 21 more pushbuttons covering: Direct track number selection, 1-9 + 0 digit keys, Store, Clear and Review buttons for programming a sequence of tracks (up to 20), analogue/digital Input Select, New Track Auto/Manual numbering of tracks and Increment for individual manual track numbering, Skip and Unskip buttons to 'suppress' or restore unwanted tracks, and Fix-up to complete the Table of Contents when a disc is fully recorded. A conventional cordless handset duplicates all the playback controls and there is an RC5 socket to provide remote control of synchronized recording when connected to a suitably equipped hi-fi system.

I can reassure potential users that this machine is very easy to operate, despite the plethora of sockets and controls. The procedure for playback is just like that for any modern CD deck, using either the professional or consumer output connections. Incidentally, an analogue version of the input is provided at the analogue output sockets for monitoring purposes, even when recording from a digital source.

SPECIFICATION

Record/playback digital: full digital reproduction

Record/playback analogue:

Frequency response: 20-20,000Hz ± 0.1 dB

Total harmonic distortion: 84dB inc. noise

Signal-to-noise ratio: 89dB

Channel separation: 86dB

Output: 2V fixed

Dimensions (W x H x D): 420 x 137 x 347mm

Weight: 9.5kg

Manufacturer: Meridian Audio Ltd., 13 Clifton Road, Huntingdon, Cambs. PE18 7EJ.

Tel: 0480 434334

UK retail price: £4,500.00

How it performed

Making recordings is easier than I had imagined. If a brand new blank disc is loaded, the letters OPC (Optimum Power Calibration) are illuminated and the machine adjusts the power of the laser to match the particular CD-R disc. Pressing the Record button puts the machine in the recording/standby mode, activates the level meter and displays Track 1, time 00:00. To record from a digital source, that is all; you simply press Play, start the CD player or other source and the recording begins. With Auto track numbering selected, the track IDs and other data are transferred to the new recording automatically. Alternatively, in the Manual mode, you can increment your own track numbers, perhaps at more points than on the original. If you enter the Pause mode, and then press Play to resume recording, the track number will be incremented automatically. Pressing Stop will terminate the recording.

If you have filled up the disc or are quite sure that you will not want to add more recorded material later, or use the Skip feature to pass over unwanted tracks, you simply press Fix-up then Record and the recording is stored permanently along with its full TOC. Otherwise you can remove the disc and subsequently play those recorded tracks (on the CD-R machine only) or record further tracks whenever you feel like it. In my innocence I had supposed that I would need to cue to the end of the old recording before re-entering the Record mode, as we do in tape recording. Not so: loading a partly recorded (unfixed) disc produces a display of the total number of recorded tracks and the total recorded time, say "7" and "12:37". Then, pressing Record to enter the Recording Standby mode, automatically cues the laser to the end of the recorded area and displays Track "8", lap time "00:00". Nothing could be easier.

Recording from the analogue inputs is a little more difficult. First there is the need to set the recording level, though this will be most unpredictable on live microphone recording, and should soon become routine when recording from ready controlled sources such as the analogue output of a CD player, radio tuner or hi-fi amplifier. Second there is the need to introduce one's own track numbers (preferably with sensitive or artistic spacing between the start ID point and the start of the music) and generally keep a log of the disc contents.

Technically I have found the CD-R medium superb and a definite advance on DAT or the old Sony PCM F1 digital system. This Meridian version of

the basic Philips Bitstream format turned in both an excellent set of measurements and impressive sound quality. The specification was met on all counts, with the digital in/out measurements at state-of-the-art levels and analogue only marginally less good in regard to distortion and low-level linearity. Error correction and insulation from external bumps or radiation were also excellent. Mechanical noise was very low, access time to any track from start-up was three seconds or less and track skipping almost instantaneous.

Straight playback of known CDs was crisp and natural in tone, confirming to my ears that the D/A conversion and analogue interface in this machine are well up to the best Meridian standards as exemplified in their 200 and 600 Series units, such as the 200 CD transport and 203 D/A converter which I reviewed in December 1990. Recording demanding material and then playing it back on the CD-R machine produced sounds which were for all practical purposes indistinguishable from the originals under the most stringent listening conditions. Once the discs were 'fixed up' they could be played without problems on the assortment of CD players I had to hand.

In my opinion the CD-R medium surpasses any other available if both convenience and performance are taken into account. Professionals will surely seize on it for many broadcasting and recording applications, whilst continuing to use 20-bit monsters and the strictly specified Sony 1630/U-Matic tapes as masters for CD manufacture.

Consumers will need to wait and see. Before CD-R becomes easily affordable we shall have lived through the product launches of the rival Philips DCC (Digital Compact Cassette) and Sony MD (Mini Disc) formats. These both keep cost down by resorting to severe bit-rate reduction technology but can offer tantalizingly high sound quality. If the proponents of either really get their act together, low-cost CD-R may never happen. However, all these consumer-orientated media depend very much on the availability of compatible pre-recorded material. If the hoped-for avalanche of prerecorded DCC cassettes or MD discs fails to materialize, CD-R could take over. After all, a CD-R recorder makes a superb CD player and so prerecorded software is already stacked high in all the shops and is an established favourite in many households. JOHN BORWICK.

(John Borwick gives a technical update on CD-R on page 132)