• E-mail: teleniuslowe@gmail.com

Review: INRAD M629 & DMS-1 Desk Mic System

Steve Telenius-Lowe PJ4DX looks at an interesting new microphone from US vendor INRAD.

Fig. 1: The INRAD M629 microphone in the DMS-1 desk microphone stand.

The INRAD M629 is a hand microphone and the DMS-1 a stand that allows the M629 to be used as a desk microphone as well as providing PTT switching for the microphone. The two items are sold separately, and either can be used without the other but together they form an integrated unit, **Fig. 1**.

INRAD (short for International Radio) is perhaps better known for its high-quality replacement filters and roofing filters for many well-known transceivers but in recent years it has expanded its product range to include a very popular modification to provide a separate receive-only antenna input for the Icom IC-7300 transceiver, an HF triplexer – and now the 'DMS' microphone systems.

Description

Unboxing, the first impression is that both the microphone and the stand are quality pieces of equipment. They look and feel good. The M629, **Fig. 2**, is a professional-looking hand microphone of the sort used by musicians and is matt black in colour with blue lettering. The microphone has a built-in on/off switch, useful to prevent unwanted triggering of the VOX if you use that method of TX/RX switching (note that the on/off switch does not in itself provide TX/RX switching).

The DMS-1 desk stand comes in several parts, **Fig. 3**, which are quickly and simply assembled, **Fig. 4**. A four-sided illustrated instruction sheet is included. It is a chunky piece of kit, weighing in at about 1.1kg (2.5lb) and has four rubber feet which, together with its weight, means it won't slide around the operating desk. There is a 'CE' mark sticker on the back of the unit.

On top of the DMS-1 is a wide PTT bar, labelled *"TALK"* and, above it, a silver-coloured sliding PTT *"LOCK"* switch (ideal for those really l-o-n-g 'natter net' overs!)

Connections

At the back of the M629 microphone is an XLR3 connector, **Fig. 5**. A short lead with XLR3 connector to 1/8-inch mono audio plug, **Fig. 6**, is provided as standard. This lead is connected to the DMS-1 stand or, if the M629 is used without the DMS-1, it can instead be connected directly to the transceiver via an appropriate adapter cable.

At the back of the DMS-1 mic stand is a 1/8-inch socket to accept the audio from the microphone and a male XLR4 socket, **Fig. 7**, into which a cable is plugged to take the audio and PTT switching to the transceiver. INRAD provides cables suitable for Icom, Kenwood/Elecraft, Yaesu round-pin or Yaesu RJ45 mic sockets.

This arrangement makes the DMS-1 quite versatile because it can easily be used as a stand and to provide PTT switching for other microphones.

Specifications

The M629 is a 600Ω dynamic microphone with a cardioid directivity pattern. The cardioid pattern provides a high degree of rejection of unwanted sounds from behind the microphone.

XLR (aka 'Cannon') connectors, while commonly found in professional music and sound broadcasting equipment, are not often used in amateur radio circles. A good description is to be found on Wikipedia at: https://en.wikipedia.org/wiki/XLR_connector

The M629 is specifically designed to provide what INRAD describes as *"nice sounding, well-articulated speech via SSB transmission".* Its frequency response is 40Hz to 16kHz, but it is not 'flat' across this whole spectrum. Rather, there is gradually rising sensitivity from a few hundred Hertz up to about 6kHz, as shown in **Fig. 8**. The frequencies between about 1 and 4kHz are particularly important for conveying intelligibility of the spoken voice. INRAD has produced a helpful guide to human voice characteristics and the microphone frequency response required. A PDF can be downloaded from the Vibroplex (parent company of INRAD) website at:
www.vibroplex.com/techdocs/INRAD/Radio_Amateur_Response.pdf

But How Does it Sound?

I used the M629 and DMS-1 with my Yaesu FT-2000 transceiver. Because the M629 is designed to provide good quality speech 'out of the box', without any requirement for external audio tailoring, I first delved into the FT-2000's menus and changed all the transceiver's equalisation ('EQ') settings to off, i.e. 'flat'. I also ensured the FT-2000's transmit bandwidth was at the default setting of 300 to 2700Hz.

I did a series of tests with two other microphones, both with the FT-2000's speech processor switched off and with it switched on. The other two microphones were a stock hand microphone (of the sort supplied with many transceivers), and a microphone on a headset that provides pre-emphasis and has a large peak in sensitivity around 3kHz.

Without knowing which microphone was which, my QSO partner thought that with the processor switched off, all three microphones sounded fine. The M629 and the hand microphone both provided natural sounding audio, he said, and unsurprisingly the headset microphone with pre-emphasis was described as sounding more *"DX-y"*, exactly as expected.

Turning the speech processor on provided a slightly unexpected response. Now the hand microphone sounded similar to the headset microphone with what was described as *"contest audio"*, possibly a little too 'harsh' for general operating. The M629, on the other hand, continued to provide good quality, natural-sounding audio. Turning the speech processor off and on several times confirmed this: while the speech processor increased the 'punch' of the signal somewhat, the M629 was still providing good quality natural-sounding audio without being 'over the top'.

Fig. 2: The M629 is a stylish professional-looking hand microphone of the sort used by musicians.

Fig. 3: The DMS-1 out of the box.

As mentioned, all the above tests were carried out with the FT-2000's equalisation off. As such, the M629 would be perfectly suitable for use with the older generation of transceivers in which it isn't possible to adjust equalisation. However, these days most new transceivers do allow users to adjust the spectrum of their transmitted audio for the best possible fit to the microphone they are using as well as to their own voice characteristics (see *Improving Your SSB Audio Quality*, *PW*, May 2017). The M629 provided good quality clear audio with no EQ but I wondered if it could be improved even further by using some equalisation?

I adjusted the FT-2000's EQ until the audio sounded 'crisp', rather than 'well-rounded', in my own headphones, using

Fig. 4: The DMS-1 assembled.

Fig. 5: XLR3 connector on the back of the M629 microphone.

Fig. 6: A Cannon XLR3 to 1/8-inch audio plug lead is provided as standard.

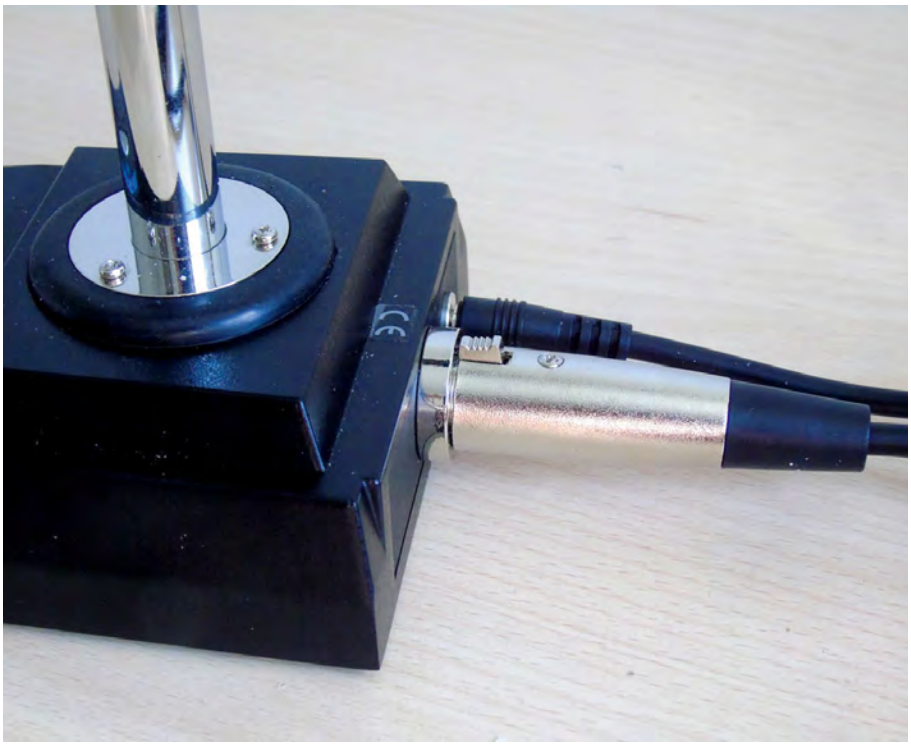

Fig. 7: Back of the DMS-1, showing the two cables connected.

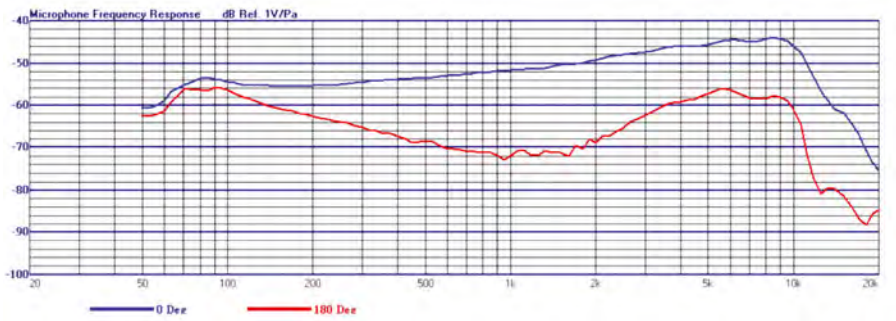

Fig. 8: The frequency response of the M629 microphone is in blue. (The red trace shows the response off the back of the microphone, approximately 20dB down over most voice frequencies.)

the transceiver's 'Monitor' facility. This involved reducing the lower frequencies a little, putting a boost of about 5dB to the mid-range frequencies, and a boost of 10dB to the high-end frequencies. I then went on 20m SSB and at random called the first station I heard who was calling CQ. It turned out to be a Ukrainian amateur who spoke fluent English. I asked for an audio report and his response was *"Excellent strong audio, excellent audio for DXing"*. All subsequent reports I received over the air were equally complimentary.

The M629 sounds best when used from a distance of about 15 to 20cm (6 to 7in). With many microphones this could result in a high level of background noise caused by reflections from walls, fans and the like, but the cardioid pattern of the M629 means that sounds from behind the microphone are attenuated by around 20dB.

To Sum Up

The bottom line is that the INRAD M629 microphone is a good-quality wide-range microphone providing clear, clean, natural-sounding audio with no form of external audio tailoring required. If your transceiver does allow you to adjust the equalisation, you can also tailor it precisely to how you want it to sound, whether this be 'crisp' for DXing or contest operating, or more rounded, natural-sounding audio for local contacts on, say, 80m or 40m. The M629 covers all bases.

It also represents good value for money with some of its competitors costing more than twice as much. The M629 could be used by itself as a hand microphone (or attached to an existing 'studio' type boom, perhaps) and either VOX, MOX or a footswitch used for TX/RX switching. The matching DMS-1 desk stand provides a neat and convenient base with PTT switching included and the two complement each other nicely.

The INRAD range of microphones and accessories is available in the UK from Nevada Radio, Unit 1 Fitzherbert Spur, Farlington, Portsmouth, Hants PO6 1TT; telephone: 023 92 313090; e-mail: **sales@nevada.co.uk** **www.nevadaradio.co.uk**