

Thamway TX-2200A 136kHz Tx

The first Japanese transmitter for the new LF band



The TX2200A is well built, quite compact and attractively workmanlike in its appearance.

NOT YAE-KEN-COM! Japanese amateurs were allocated the 135.7 – 137.8kHz band in 2009 and the first Japanese company to produce a rig for the band is not one of the 'big three' but the Thamway company of Fuji. They manufacture commercial RF equipment so they have the expertise, but they don't make much amateur equipment.

It isn't the first commercial rig for the band; the Dutch 'Ropex' TX appeared in 1998 and in many ways the Thamway TX2200A is similar. Like the Ropex, it runs 100W from a 13.8V supply and is designed as a CW-only transmitter, but whereas the Ropex was crystal controlled, the Thamway is synthesised and covers the whole band.

DESCRIPTION. It's about the same size as any small transceiver, being 200mm wide, 100mm high and around 260mm deep including the knobs and heatsink. It feels quite light and, apart from the slightly wobbly tuning knob, pretty solidly built. The supplied documentation is rather basic but adequate. It doesn't include any circuits.

On the front panel there is a clear backlit meter that can measure voltage, current, forward and reverse power. There is a two line LCD dot matrix display, Tx and on-off switches. All nice and simple.

At the rear is the large heatsink, a PL259 RF output socket, two phono sockets for receiver aerial and remote TX, a standard

jack socket for the key, a DC power input socket and fuse, plus the receiver mute control.

I can never resist taking the lid off a new radio so I had a peek inside and was impressed by the neat and tidy construction. There are four glassfibre circuit boards; the DDS and control board with the filter and aerial switching board underneath it, the PA board (fixed to the heatsink) and the display board behind the front panel.

OPERATION. Lid back on and the Thamway was connected into the system in place of my normal, much more powerful, 136kHz transmitter. The only adaptor required was for the phono receiver socket; I would prefer a BNC here but a 50p adaptor solved the problem.

The dot matrix display indicates frequency, power and TX hang delay. The function to be controlled by the rotary encoder is selected by pressing the small button to the bottom left of the display and is indicated by a cursor that moves to underline the active digit. All the settings are remembered when the rig is powered off. In VFO mode the cursor stops under the 10Hz digit and the DDS moves in 10Hz steps; pressing the control knob once moves it to the 100Hz digit, making QSYing a bit faster.

Power can be adjusted from 100W right down to 1W, which is a nice feature. The Tx hang delay varies between 1 and 9 where

1 is almost (but not quite) full break-in and 9 is about two seconds. I found 5 to be a good setting for my fairly slow CW. The automatic Tx facility only works when the BREAK-IN switch is in the up position, otherwise you need to flick the SEND switch up to enter the Tx mode. Flicking this switch down to CAL allows you to hear the DDS VFO and net onto another signal. If no key is plugged in, the rig will go straight into transmit as soon as the BREAK-IN or SEND switch is operated.

IN USE. If you aren't certain that the aerial is matched it's probably best to start at low power and check the reflected power first. All being well you can turn it up to 100W and do a final check. The transmitter will shut down if the reflected power exceeds an indicated 30W. The ID setting of the meter switch measures FET drain current and should show about 12A at full power. Pretty efficient, these Class D transmitters! I did accidentally transmit into an open circuit and nothing went pop so it seems that the TX is adequately protected against mismatch.

On the air the CW note sounds good. I had no reports of key clicks and the keying envelope looks well shaped and symmetrical on the 'scope. The transmitter doesn't have an electronic keyer built in.

There is no sidetone generator in the rig (although there seems to be provision on the circuit board) so you will need to listen on your receiver whilst transmitting. The RX-MUTE control on the back panel can be used to control the amount of signal getting to the receiver during transmission.



The CW keying waveform is quite acceptable, with rise and fall times of about 2ms.



The front panel of the transmitter is simple and uncluttered.



The internals are neatly laid out and sturdily constructed.



Simplicity is the keyword on the rear panel, dominated by a large heatsink.

ON THE AIR. Many QSOs on the 136kHz band are made using very slow CW, keyed by a computer, and the cool-running Thamway is well suited to this. Its automated switching means that you don't need to connect a Tx line, just the keying line. The keying current is only 9mA so an opto-coupler interface can be used. For DX work quite slow speeds are used, requiring very accurate frequency calibration and high stability. The Thamway I had on test was very well calibrated, being within 2Hz of the indicated frequency, but the 10Hz steps are a limitation at very slow speeds. 1Hz steps would enable one to avoid the Loran lines. Stability was adequate for QRSS10 but not quite good enough for QRSS60, the rig staying within 0.1Hz over an hour of testing.

BENCH TESTS. The power output at various settings was tested with the Tx on a 13.8V supply. Current drain at full power was 11A, giving a total efficiency of 74%. This means that the Thamway runs cool, even after long periods of key-down abuse.

Setting	Measured output
100W	112W
50W	53W
10W	9.7W
2W	1.7W
1W	0.4W

Second and third harmonics were more than 50dB down and higher ones very much

further down. The RF waveform looked nice and clean into a 50Ω resistive load. CW envelope rise and fall time was about 2ms.

CONCLUSION. This transmitter does exactly what it sets out to do and is a perfectly good starter rig for LF. Its limitations are the low power output (100W isn't going to get you very far with a poor aerial), the 10Hz minimum frequency steps and its CW-only mode. It is also quite expensive. On the other hand it's a pretty idiot-proof and well made piece of equipment, ideal for taking out portable, with an easy to use and accurate built-in DDS.

The Thamway TX2200A is available at £689.95 from Waters and Stanton, to whom I am grateful for the loan of the equipment.

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