

Contesting in Europe with a TEN-TEC JUPITER

(by DJ0IP)

BACKGROUND:

The Jupiter was put to test in this year's running of the [CQWW DX CW Contest](#), using a simple dipole and vertical antennas. The QTH was located in a rural area about 10 miles south of Munich.

TRANSMITTER:

There's not much to be said about the transmitter other than "typical Ten-Tec". It purred like a kitty cat and thanks to the optional fan, just barely got warm. A neighbor 2 miles away said my signal (500w with help of a Henry SS750HF) was 60 over 9, yet very clean above and below the TX frequency. I ran it in semi-QSK without the TX Loop (using the single EXT RLY connection) at speeds up to about 45 wpm and it always keyed the combination transceiver/amp flawlessly.

RECEIVER:

RX Sensitivity:

The sensitivity was adequate for all bands except 15 and 10 meters, where perhaps another 6dB would have helped pull in some of the weak ones.

RX IP2:

There were no significant "ghosts" on 20m, whether on the vertical or 120 ft. dipole. I could hear several heterodynes across the band, but they were S1 to S3. Many other rigs in this price class (e.g., the IC-706 MKII-G) produce a multitude of S9+ ghosts across the entire 20m band and the rig can only be used effectively on this band by inserting a preselector or using an external bandpass filter (e.g., Dunestar). These signals are the result of the mixing of signals from shortwave broadcast stations on two shortwave broadcast bands. If Ten-Tec ever re-engineers its TX bandpass filters, perhaps the addition of one more stage of filtering on the 20m bpf could solve this problem completely.

RX IP3:

This is one of the weakest points of the Jupiter. Beginning at dusk until about midnight local time, there is a significant amount of intermodulation on 40m, to the extent that it is impossible to copy really weak signals (e.g., JA stations which are normally easy to work during this time). Switching in the Attenuator eliminates the unwanted heterodynes and other intermod garbage, but it also reduces the signal strength of the desired weak signal. Reducing the RF gain had no effect on this problem. The problem is not unique to the Jupiter and there is a simple cure: the use of an external preselector. There is no provision for this in the Jupiter, so the user is left on his own to perform this simple modification. It would make life a lot easier if Ten-Tec had mounted a couple of "Spare" RCA phono jacks on the back panel. Drilling holes in the rear panel after the rig is assembled is a bit dangerous! Better yet, Ten-Tec should just incorporate this mod and then place a jumper across the two jacks.

RX Selectivity:

This is the second weak point of the Jupiter. Perhaps the best description of the filters is "Barn Door". In retrospect, I should have used an external AF filter which would have helped considerably. In many cases, the blocking was so bad that even an AF filter would not have helped. After a while, my ears began to filter as good as they used to in the days prior to owning

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the ORION, or the OMNI VI+ with cascaded 250 Hz filters! I doubt that this issue can be addressed without adding significant cost to the rig.

RX Dynamic Range (?):

Not sure if I chose the right subtitle here. I found myself having to adjust the AF gain control a lot more than I ever did with the ORION or the OMNI's. I will guess that it is an AGC issue. The problem was most concerning on 40m where I was turning the Attenuator on and off quite a bit to try and find the best position for avoiding intermod, yet being able to hear a weak signal. Each time I pressed the attenuator button, I had to adjust the AF gain about 25% (either up or down). Since the Sidetone tracked the AF gain control, when the Attenuator was in and the AF gain up, the sidetone was blowing my eardrums away. Finally I chose a middle position for the sidetone and was able to live with the problem.

ERGONOMICS:

The strength of the Jupiter is its ease of use and its enhancements through external computer control software (e.g., N4PY). No computer control software was used in this contest, except for CW keying generated from the CT contest logging program.

There were a couple of minor points which might be able to be addressed. First and foremost, please never build a radio again without a separate, dedicated AF gain control. The concept of a "Multi" knob and push button selection is excellent, but please separate the AF gain from this process.

There is an old discussion whether or not to have the sidetone track the AF gain control. The minds are split on this issue. However, in a radio where the AF gain must be adjusted a lot (like described above), it would certainly be advantageous to have the option of fixing the ST level independent of the AF gain.

The final negative point concerns running "Split". Operational, everything was excellent (traditional, like in all other rigs, rather than like the Orion). My problem (maybe it's me) was that I forgot several times that I was in "Split" mode and after calling for several minutes without making any contacts, it dawned on me that I was transmitting on another frequency. The indicators on the Jupiter are the tiny letters "Tx" and "Rx". Without a color display, there probably is no easy fix for this. Perhaps a simple RED LED next to the "Split" push-button which blinks when transmitting would solve this. Too late for the Jupiter but please consider it in future rigs.

The Jupiter actually froze once during the contest. I can't recall what I did to make it happen. Switching it off and back on quickly solved the problem. It sure was nice having it back up in 4 seconds instead of 12 (like the Orion).

The speed of the Bandwidth adjustment is wonderful. Sure wish the Orion would work like this (maybe it does with a step adjustment – I need to go read the manual again). The Passband Tuning seemed to be too slow. I can't find a way to increase the speed of the PBT. Both of these points are only important when contesting, not for day-to-day work.

The "Tune" position puts out a nice power level for European watt meters (i.e., under 15 watts). When more than 15 watts (like on the Orion), we have an issue because our European watt meters are typically 15/150/1500 watts whereas the U.S. models are 20/200/2000 watts.

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I was unable to key the Jupiter with the computer and at the same time use the Jupiter's internal keyer. First, there is only one jack and second, to use the computer, the internal keyer must be turned off. This is not a big issue for me – I simply used one of my several external keyers. Perhaps there's a simple solution for this (at least for future rigs). The ORION and OMNI VI+ could be keyed both ways.

SUMMARY:

The Jupiter is a great general purpose radio, but not a great contest radio. I knew this before I bought the Jupiter and I bought it anyway. It's still currently my favorite rig for daily use, but I don't think I would run another CQWW DX contest with it. Though the IP3 and sensitivity issues could be addressed easily by use of an external "Braun Preselector with Preamp", the selectivity issue remains the primary challenge. The IP2 issue really isn't a big deal because it is almost OK as is.

The Jupiter is a great radio for the average ham who wants a modern radio which can interface smoothly to a computer and be used for a multitude of modes. It's also OK for the casual contester. It is the rig which I will use the most (computer controlled) for my daily ham activities. For contesting, I recommend an Orion, Omni VI+, or K2 (in that order).

Contest Results on next page.

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Contest Results: *

CQ WORLD WIDE DX CONTEST -- 2004

Call: DJ0IP
Category: Single Operator
Power: High Power
Band: All Band
Mode: CW
Country: Fed. Rep. of Germany
Zone: 14

BAND QSOs QSO PTS PTS/QSO ZONES COUNTRIES

160	66	69	1.05	5	29
80	372	437	1.17	12	58
40	225	415	1.84	25	79
20	130	258	1.98	16	43
15	108	262	2.43	17	36
10	40	117	2.92	19	25

Totals 941 1558 1.66 94 270 => 567,112

* The results reflect the operator's ability (or inability) as well as the Jupiter's performance. Time On-the-Air was 24.5 hours. Time Off was 23.5 hours. The antenna was lousy on 160m. Conditions were lousy on 10m, especially on Sunday.