

CALIBRATION OF 10GHz RX SYSTEMS

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I was looking for a way to calibrate my 3cm dedicated receiver and just thought that if I looked at the harmonic relationship of my 23cms TV Tx that at 1,250MHz the 8th multiple would give me 10.0GHz.

So I set up with a dummy load of 50 ohms on my Camtech 0.5W TV Tx powered up, and stood the modified LNB with the open waveguide near the dummy load. Lo and behold a very strong signal observed on the receiver, but about 50MHz off frequency! So I adjusted the Camtech Tx to exactly 1,250MHz after waiting about an hour for it to stabilise, and then I was able to adjust the LNB DRO Puck Oscillator to align it correctly with the 950-1750 tunable input of the receiver.

By shifting the 23cm Tx frequency up by the table provided I was able to accurately set the calibration for the whole of the 3cm ATV Band.

A further check on a standard SKY satellite receiver with normal LNB revealed that a strong 9th harmonic could be seen clearly at 11.250GHz and with 23cm Tx. set at 1,300MHz a signal at 11.7GHz.

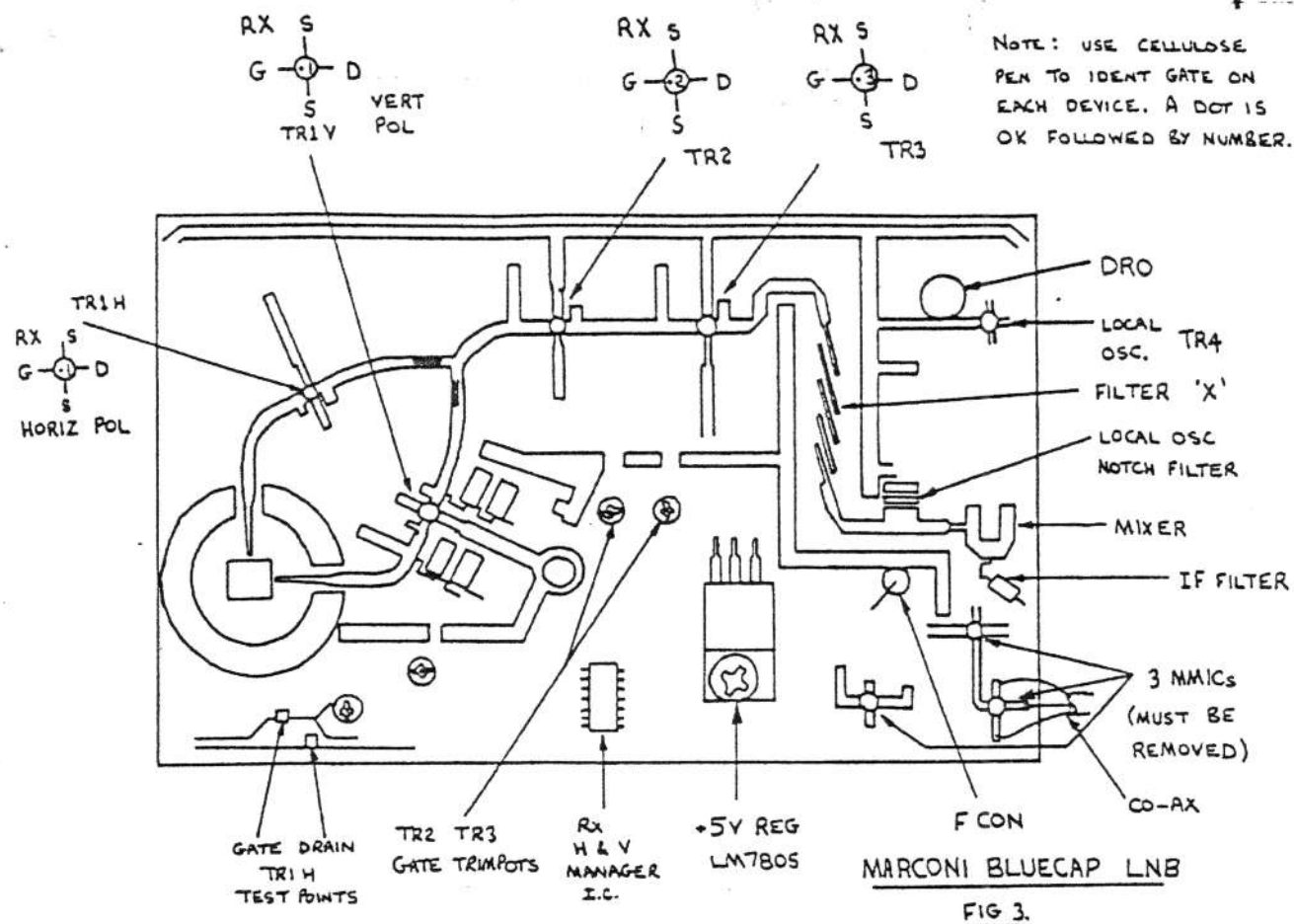
It also goes to prove that this sort of transmitter should always be used with a Band Pass Filter to avoid transmitting all those harmonics!

1250 x 8 = 10.00GHz	1287.5 x 8 = 10.300GHz
1262.5 x 8 = 10.10GHz	1300.0 x 8 = 10.400GHz
1275.0 x 8 = 10.20GHz	1312.5 x 8 = 10.500GHz

TABLE OF HARMONICS (GHz)

1.25	2.5	3.75	5.0	6.25	7.5	8.75	10.0	11.25	12.5
x1	x2	x3	x4	x5	x6	x7	x8	x9	x10
13.75	15.0	16.25	17.5	18.75	20.0	21.25	22.5	23.75	25.0
x11	x12	x13	x14	x15	x16	x17	x18	x19	x20

I feel sure that this will help to calibrate many different LNBs when modified to receive ATV signals, including LNBs on C Band to ATV frequencies, its all possible because of the very high gains in the RF stages of the LNBs.



PA3DEF
ATV10642

Fig 9 AMSTRAD BLUECAP LNB AS TRANSMITTER

