

Optical Comms with JT4A. First proving-test of equipment

Andy Talbot G4JNT 28/8/2011

Tx 25kHz subcarrier generated by 16F628A PIC based DDS running *4FREQSOURCE* code. The four frequencies for a JT4A signal are prestored in the code, and selected depending on the state of two drive signals. Tx test source, high-brightness LED connected via 2k2 to OPamp filter output.

JT4A is generated by another 16F627A PIC running *JT4GEN* code. Timing generated from NMEA data supplied from a Garmin GPS module.

Daylight, conditions, receiver position adjusted to pick up just enough scattered light from the LED to give a barely detectable audio tone in the SDR-IQ (S/N 6dB in 2.4Hz) Audio wrapped round to decoder using WSJT 9.02

WSJT 9.02 by K1JT

File Setup View Mode Decode Save Band Help

Moon
Az: 120.98
El: 33.00
Dop: 116
Dgrd: -1.1

520 Mon_110828_081300

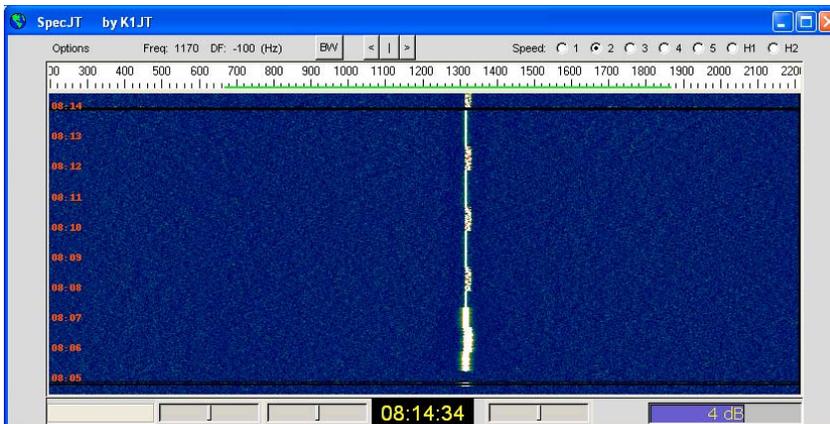
FileID	Sync	dB	DT	DF	W	DF (Hz)			
080800	20	-11	-0.2	61	31	*	JT4 MSG TEST	1	0 A
080900	0	-25	-1.1	57	17				
081000	17	-11	-0.1	61	28	*	JT4 MSG TEST	1	0 A
081100	0	-24	3.1	57	17				
081200	20	-11	-0.1	61	31	*	JT4 MSG TEST	1	0 A
081300	0	-21	5.4	55	17				

Log QSO Stop Monitor Decode Erase TxStop

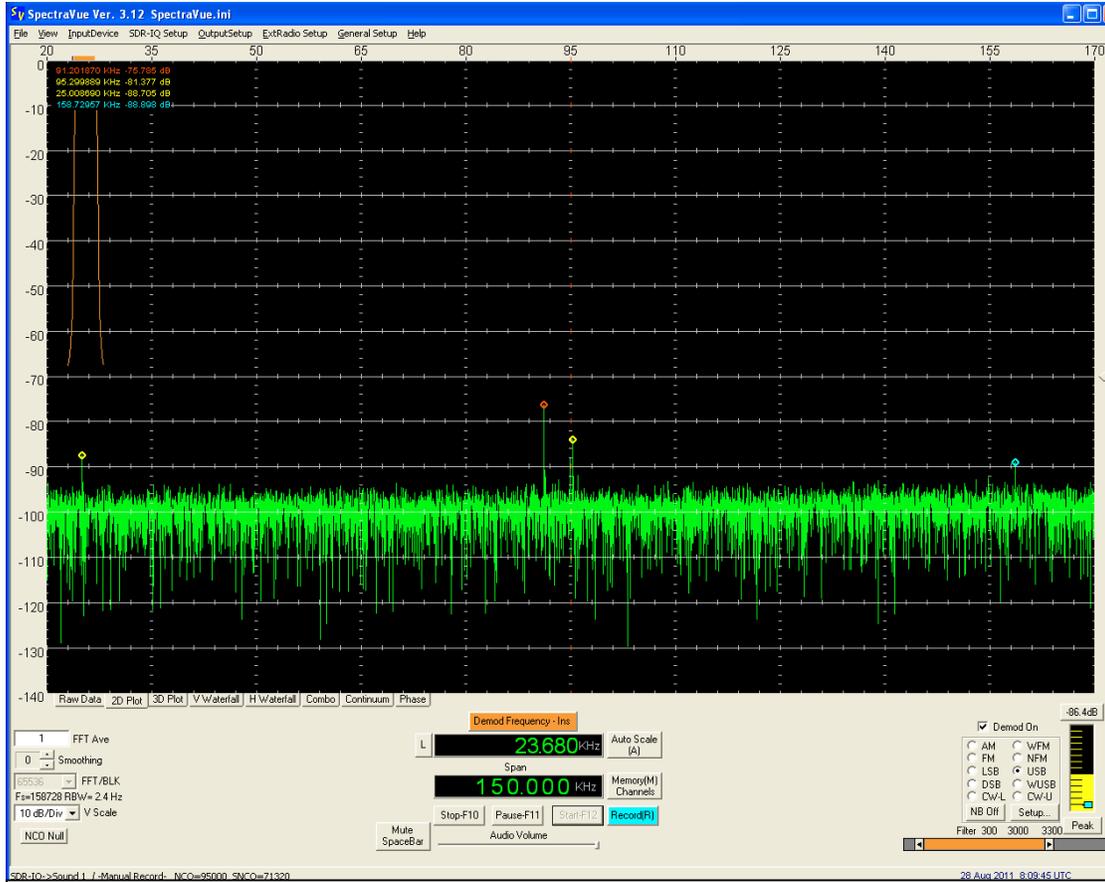
To radio: G4JNT Lookup
Grid: io90iv Add
Az: 0 0 mi
2011 Aug 28 08:14:13 Dsec 0.0
TxDF = 0
Gen Msgs Auto is OFF

G4JNT G4JNT IO90 Tx1
G4JNT G4JNT IO90 OOO Tx2
RO Tx3
RFR Tx4
73 Tx5
CQ G4JNT IO90 Tx6

1.0069 0.9999 JT4A Freeze DF: 0 Rx noise: 5 dB T/R Period: 60 s Receiving



WSJT User screens, decoding the signal shown below



The 25kHz subcarrier is the small peak on the left, within the envelope of the filter shown (the two peaks in the middle are from the two LCD screens on this PC)



