

VE3JW JT65-HF Operator's Guide

An introduction to JT65: A weak-signal high frequency digital mode.

By: VE3BUX

14.076 000

WSJT Modes

Mode	Typical Bands	Intended Propagation Mode	Minimum Transmission Duration (sec)	Notes
FSK411	2m & 70cm	Meteor Scatter	~1	Optimized for decoding "pings" of information less than 150ms in duration.
JT6M	4m & 6m	Meteor Scatter	~1	Also optimized for decoding transmission "pings" of very short duration.
JT65A	HF	Earth-Moon-Earth, Weak Signal	47	Computers must be synchronized. Transmissions occur on the minute.

WSJT modes of digital communication were originally developed by Joe Taylor (K1JT) in 2001 as a method of communicating via radio in conditions where other modes would not be intelligible.

These so called WSPR (weak signal propagation) modes use sophisticated DSP (digital signal processing) methods to decode signals which are not audible as they exist below the noise floor.

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14.076 000 20M RTTY

JT65: Overview

- Developed in 2003 for EME and Tropospheric propagation modes
- Intended to be a QRP mode in HF
 - QRO operation wreaks havoc around the world!
- Able to decode signals many dB below noise floor
- Intelligence sent using MFSK with 65 tones
- Each transaction takes 1 minute
 - Transmit duration is 47 seconds
- Forward error correction done via RS (Reed-Solomon)

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JT65: Requirements

- Computer clocks must be synchronized
 - The use of an NTP (network) time server such as time.nrc.ca is highly recommended
 - Any operating system can be set to synchronize with a central time server
 - When using JT65, ensure your time is correct as a difference of 10s may prevent operation
- Transmit on either even or odd minutes
 - Traditionally, Region 2 transmits on even minutes
 - In HF bands, the convention is generally followed but if conditions require, it is common to switch to odd frames

Station Setup: FLEX-3000 Radio

- PowerSDR is the front-end control software for the FLEX-3000 SDR radio
- The controls mimic the front-panel of a traditional radio set
- There are many advantages of an SDR platform, one of which is the spectrum view of the tuned band
- Ensure the antenna switch is set to the FLEX-3000 radio
- You must manually turn the radio on using the power switch on the left of the unit. Power the radio on now.

POWER	MIC PHONES	Software Defined Rackos
-	9	

Station Setup: Software Used

- Using the FLEX-3000 at VE3JW, two software packages are required for JT65 operation:
 - PowerSDR
 - JT65-HF



 Launch both applications now, starting with **PowerSDR**

PowerSDR: Basic Layout



- 1. On/Off
- 2. Drive (output power)

- 3. Band Selection / VFO Frequency
- 4. Spectrum display (set to "Panafall")

PowerSDR: Basic Layout

One major difference with an SDR platform is the ability to **see** the activity on the band which you have selected. This is visualized in the spectrum display window.



Using the FLEX-3000 via the PowerSDR software is very similar to using a traditional analog radio. Though the controls are displayed on a computer monitor, the functions are effectively the same.

To start, you must power on the unit (Start) and then select the band on which you wish to operate. Radio control is done by clicking on the associated icons in the software. If you wish to operate using SSB or CW, you may plug headphones into the FLEX-3000 and adjust the AF to a comfortable listening volume.

PowerSDR: Tuning

There are two ways to tune the FLEX-3000 transceiver. The first is by direct entry of the frequency in the box labelled VFO A.

Simply click in the VFO-A box and enter the desired frequency.



The second method of tuning involves using the spectrum display. With the display type set to "Panafall" (3) you will see an image similar to the one above. If/when you see a peak of interest, you are able to click on the peak and drag it into the pass-band area defined as the gray bar indicated above.

As you use the waterfall display, you will become familiar with various fingerprints which will give some indication as to the mode being received.

PowerSDR: Default Setup for JT65



#	Function	Setting	Notes
1	Frequency	XX.076	In most bands, the JT65 traffic is found at: XX.076 MHz near PSK-31 and RTTY traffic
2	AGC-T	80	AGC-T is similar to the traditional RF gain – this setting will effect the RX Gain
3	Drive	>30	This value is approximated to Watts. Recall that this is intended to be a QRP mode!
4	VAC	Enabled	Must be enabled to pass audio to external applications (i.e. JT65) – Virtual Audio Cable
5	RX Gain	-20	Use this setting to achieve an approximately "0" audio level in the JT65-HF software
6	Filter	2.7kHz	The software decodes ± 1.2kHz from the "center frequency"
7	Mode	DIGU	Must be set to digital upper sideband for digital modes to function properly

PowerSDR: Spectrum Example



You are able to zoom into the pass-band to which your radio is tuned by simply selecting the appropriate zoom level (1) using the slider-bar. This example shows the spectrum and waterfall (Panafall setting) fully zoomed in (to the right).

At this zoom level, we are able to see JT65 traffic.

JT65: Initial Setup

When the JT65 software first loads up, you will see the standard display. You are almost ready to operate! As with all modes, the best way to learn is to listen first.



To set up the software properly:

- Verify the audio input levels (this is tied to RX Gain in PowerSDR)
- 2. Check that the time displayed is properly synchronized
- 3. Confirm that "Multi Decoder" is enabled
- 4. Ensure that the PSKR reporter is enabled.
- 5. Right-click in the "QRG" box and select the frequency you are tuned to in PowerSDR

JT65: PTT Function

Setup Rig Control Raw Dec	E3JW] oder Stations Heard	Transmit Log Abour	t JT65-HF		
of L-7 C R-7	-1K	-500	, , , , , , , , , , , , , , , , , , ,	+500	+1K
Station Setup Rig Cont Enter your PTT port in PTT Port Test F COM17 Test Ham Radio 2 te Enable C	rol/PTT Heard I nto the input bo PTT will Key/Unk t PTT T U	List/PSKR Setup ox below in the key your Transcei Jse Alternate PTT (* Version 5	/RB Setup Macros 3 format COM###, for e ver. No audio will be s Method. Only enable OmniRig C Enabl	Si570 USB Control Colors example, COM11 ent during test. this if you have problems v e • Radio 1 Radio 2	with PTT.

To transmit, JT65-HF must be able to engage the PowerSDR via a PTT (push to talk) serial connection.

To check that the PTT function will work:

- 1. Click on "Rig Control"
- 2. Ensure the PTT Port reads: "COM17"
- 3. Confirm PTT functionality by clicking on "Test PTT"

JT65: Receiving

The image displayed shows all signals decoded from the last few minutes.

The display speed (1) was set to "1" in an effort to better show the multiple exchanges in the spectrum display (top right).

The red horizontal bars in the spectrum view indicate the beginning of the next frame (minute). Notice the regions which seem squashed? Those show when a transmission was being made.



The data in the bottom left shows seven people calling CQ (green) and two QSOs in progress (gray). This region provides much information and warrants further discussion.

JT65: The QSO Window

UTC	Sync	dB	DT	DF	Exchange
17:22	6	-5	1.3	-161	B VE3JW RU3KS -12
17:20	10	-5	0.9	678	B RV6HFA MODEV R-09
17:20	10	-9	2.3	-8	B CQ WA4YBP EM95
17:20	5	-6	1.5	-164	B CQ RU3KS KO90
17:20	5	-7	3.1	-315	B CQ OZ1TMK JO45
17:20	2 ·	-20	1.4	-498	K CQ AE7CD DM35
17:20	6	-9	1.6	-985	B CQ HB9JNM JN47
17:19	6	-9	1.3	-5	B WA4YBP EA3AQS JN01
17:18	8	-6	2.3	-5	B CQ WA4YBP EM95

Colour Codes: Gray = QSO in progress Green = Someone Calling CQ Red = Someone replying to YOU

Header	What It Means
UTC	The time of the exchange (most recent at the top)
Sync	The number of synchronizing tones received as part of the transport layer protocol design. The more sync tones, the better. This is usually related to the received strength.
dB	Received strength (after decoding). The closer to 0, the stronger. Theoretically, the software is able to decode down to -26dB. Those are the fun signals!
DT	Time differential. Ideally, this value would be 0.3 to 0.1 – the fact everyone was showing +1 sec (average) suggests we are ahead by 1 second. Better re-sync that computer clock.
DF	Decoding frequency. This corresponds to where in the pass-band the signal was heard.
Exchange	The actual data payload – i.e The pre-defined "conversation".

JT65: A Standardized QSO

The nature of the optimized JT65 decoding algorithms requires each exchange to be very short in length. You are limited to a message of no more than 13 characters. The software uses some special tricks to squeeze more out of the protocol by using prosigns.

A standard QSO only consists of the following exchange:

a or CQ <my call=""> <my grid="">re reares reares</my></my>	- MErs	(on even minutes) s
<my call=""> <your call=""> <your grid=""></your></your></my>	- YOU	(on odd minutes)
<your call=""> <my call=""> <your db="" in="" rsq=""></your></my></your>	- ME	etc
<my call=""> <your call=""> R <my db="" in="" rsq=""></my></your></my>	- YOU	etc
<your call=""> <my call=""> RRR</my></your>	- ME	
<my call=""> <your call=""> 73</your></my>	- YOU	

People will sometimes exchange one last bit of information and the last transmission often looks like:

3EL 5W TU73 Which tells us they used a 3 element beam at 5W Notice that the entire (proper) QSO takes at least 6 minutes from start to finish!

JT65: Answering CQ

To answer someone's CQ call, the preferred method is to simply double click on the contact of interest in the QSO window.

Here I have only clicked once on the contact of interest to illustrate that the software highlights it by changing the text to white.

When you double click a CQ, the software will automatically generate the appropriate response text.



When answering a CQ, the convention is: <their callsign> <your callsign> <your grid>

JT65: Answering CQ continued

When you double click on a CQ call, the software does four things automatically:

- 1. Generates the appropriate response to the CQ
- 2. Displays the out-bound message to be transmitted
- 3. Enables the transmit mode
- 4. Disables multi-decoder

The software knows we are responding to a CQ call made during an "even frame" so it sets itself to transmit on an "odd frame" as appropriate.



The software disables multi-decoder to avoid spending too much time decoding signals not relating to your QSO. You should re-enable this when you are ready to listen again. After 2 frames of no decodes, the software re-enables multi-decoder by default.

JT65: Answering CQ continued

The other method of replying is to manually enter the information as follows:

- 1. call sign in the: "TX to Call Sign" box
- 2. the report in the "Rpt (-#)" box

When ready, simply click on the "Answer CQ" button.

It is advised that you stick to the double-click method as it is faster, and less prone to input error.



You have a very narrow window (less than 10 seconds) between the decoding phase and the start of the next transmission "frame". Thus, to answer a CQ you need to be quick and decisive.

JT65: QSO Established

JT65-HF Version 1.0.7 [de	E VE3JW]		and the second	
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Digital Audio Gain				
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to				
2011 Mar 22				
2011-Mar-22	Left click waterfall to	o set TX CF, Right click sets RX CF. Current 0	peration: Idle RX/TX	Progress
17.22.51	Color-map Brightn	ess Contrast Speed Gain	Message IO IX: RUSKS VES	
	Blue	Smooth	TX Text (13 Characters)	ENABLED
ouble click an entry in	list to begin a QSO.	Right click copies to clipboard.	E	nable TX Hait TX
UTC Sync dB	DT DF	Exchange	TX Generated	
17:22 6 -5	1.3 -161 E	VE3JW RU3KS -12	RU3KS VE3JW FN25	TX Even @ TX Odd
17:20 -5	0.9 678 E	RV6HFA M R-09	Use buttons below to call CO and	answer callers
17:20 0 -9	2.3 -8 F	CO WA4YBP EM95	Call CO Answer Caller	answer caners.
17.00 E 6	1 5 164 5		Lies buttens below when ensurering	a CO Seed 72
17:20 5 -6	1.5 -104 1	S CQ RUSKS ROSU	ose buttons below when answerin	g CQ. Sena 75
17:20 5 -7	3.1 -315 H	3 CQ OZITMK JO45	Answer CQ Se	and Report
17:20 2 -20	1.4 -498 F	CQ AE7CD DM35	TX DF RX DF	TX to Call Sign Rpt (-#)
17:20 6 -9	1.6 -985 H	CQ HB9JNM JN47	-164 🛨 -164 🛨 🔽 TX DF = RX DF	RU3KS -06
17:19 6 -9	1.3 -5 E	WA4YBP EA3AQS JN01	Zero Zero	Log QSO
17:18 8 -6	2.3 -5 E	CO WA4YBP EM95	Single Decoder BW 🔽 AFC	
		~	100 ÷ Noise Blank	Restore Defaults
			C Saabla Multi dagadar	Dial OPC KHa
			Reports	Sent Sent
			Enable RB	14076
Clear Decodes		Decode Again	Enable PSKR 15	Right Click for Menu
			-	rught onen for men

The station who we replied to has now sent our signal report (-12dB) and so we reply with their signal report (-5dB in this case) but we add R as a prefix.

RU3KS VE3JW <u>R</u>-05

This indicates to the recipient that we have received their signal report.

To have the software generate this automatically, simply double click on the QSO line. As usual, this should be done as quickly as possible to avoid missing the reply frame.

JT65: Sending a signal report

JT65-HF Version 1.0.7 [de	VE3/W]	
Setup Rig Control Raw De	coder Stations Heard Transmit Log About JT65	HF
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	17.24	
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R:0		
2011-Mar-22	Left click waterfall to set TX CF, Right click sets	IX CF. Current Operation: Transmitting RX/TX Progress
17.23.24	Color-map Brightness Contrast Speed G	in Transmitting: RU3KS VE3JW R-05
17.20.24	Blue ▼ -))- 1 ÷ 0	Smooth C TX Text (13 Characters) TX IN PROGRESS
Double click an entry in li	ist to begin a QSO. Right click copies to clip	board. Enable TX Halt TX
UTC Sync dB	DT DF Exchange	
17:22 6 -5 1	1.3 -161 B VE3JW RU3KS -	12 RU3KS VE3JW R-05 C TX Even © TX Odd
17:20 10 -5 0	0.9 678 B RV6HFA MODEV	R-09
17:20 10 -9 2	2.3 -8 B CO WA4YBP EM	5 Call CO Answer Caller Send RRR
17:20 5 -6 1	1 5 -164 B CO RUSKS KO90	Use buttons below when answering CO. Send 73
17.20 5 -0 1		Answer CO Send Report
17:20 5 -7 3	3.1 -315 B CQ OZITMK JOA	
17:20 2 -20 1	1.4 -498 K CQ AE7CD DM3	
17:20 6 -9 1	1.6 -985 В СО НВ9ЈИМ ЈИ4	
17:19 6 -9 1	1.3 -5 B WA4YBP EA3AQS	5 JN01 Zero Log QSO
17:18 8 -6 2	2.3 -5 B CQ WA4YBP EMS	5 Single Decoder BW V AFC
		100 : Noise Blank
		Enable Multi-decoder Dial QRG KHz
		Reports Sent 14076
a		Enable RB 14076
Clear Decodes		Decode Again F Enable PSKR 15 Right Click for Menu

By double-clicking on the QSO line, the software will automatically generate the reply:

RU3KS VE3JW R-05

This message will of course be transmitted on the next oddminute cycle (as is shown).

JT65: Missed frame

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2011-Mar-2	2 Left	click waterfi	II to set TX CF, Right click set	RX CF. Current O	Operation: Idle RX/T	X Progress
17.24.5	1 Cok	or-map Brig	htness Contrast Speed	Gain	Message To TX: RU3KS VE	3JW R-05
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ouble click an entry	in list to b	begin a QS	0. Right click copies to cl	ipboard.		Enable TX Halt TX
UTC Sync dE	DT	DF	Exchange		TX Generated	
17:24 7 -6	1.3	-153	B VE3JW RU3KS	-12	RU3KS VE3JW R-05	• TX Even • TX Odd
7:22 6 -5	1.3	-161	B VE3JW RU3KS	-12	Use buttons below to call CQ an	d answer callers.
7:20 10 -5	0.9	678	B RV6HFA MODEV	7 R-09	Call CQ Answer Caller	Send RRR
7:20 10 -9	2.3	-8	B CQ WA4YBP EN	195	Use buttons below when answe	ring CQ. Send 7.
7:20 5 -6	1.5	-164	B CO RU3KS KOS	0	Answer CQ	Send Report
7:20 5 -7	3.1	-315	B CO OZITMK JO	45	TX DF RX DF	TX to Call Sign Rpt (-
7.20 2 -20	1.4	-498	K CO AE7CD DM3	5	-161 🕂 -161 🕂 🔽 TX DF = RX I	OF RU3KS -05
7:20 6 -9	1.6	-985	B CO HERTON IN	47	Zero Zero	100.050
7.10 6 -0	1.0	-5	D WAAVED RACK	0. 70/01	Single Decoder BW	Log Q50
ri:Ta 0 -a	1.3	-5	B WA4IBP LASA	IS JNUL	100 - Noise Blank	Restore Defaults
	2.3	-5	B CQ WA4YBP EN	195		
L7:18 8 -6					Enable Multi-decoder	Dial QRG KHz
.7:18 8 -6						
.7:18 8 -6					Enable RB	14076

You may notice that the same exchange was transmitted by the distant station a second time.

There are many reasons for a repetitive exchange, one of which may be that they did not receive our reply.

On occasion, it is a result of the operator failing to generate the appropriate response in time and so the previous message was retransmitted.

By default, the JT65-HF software will only transmit a message 15 times before automatically disabling the TX function. This is to prevent run-away transmissions.

JT65: End of QSO

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etop ny c	omror	Naw De	-1K	stations rie	-500	rar 0	+500	+18
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2011-	Mar	-22	Left c	lick waterf	all to set TX CF. Right click sets f	X CF. Current Or	peration: Transmitting RX	TX Progress
47.0	-	~	Color	r-map Brig	htness Contrast Speed Ga	in	Transmitting: RU3KS VE3	JW 73
17:2	27:	21	Blue			÷ ⊏ Sm	C TX Text (13 Characters)	TX IN PROGRESS
while clici	k an er	try in l	ist to be	egin a OS	O. Right click copies to clin	board.		Enable TX Halt TX
UTC ST	vnc	dB	DT	DF	Exchange		TX Generated	
7:26	4	-9	1.3	-143	B VE3JW RU3KS R	RR	RU3KS VE3JW 73	C TX Even C TX Odd
7:24	7	-6	1.3	-153	B VE3JW RU3KS -	12	lise buttons below to call CO a	nd answor callors
7:22	6	-5	1.3	-161	B VE3JW RU3KS -	12	Call CO Answer Caller	Send RRR
7:20 1	10 -	-5	0.9	678	B RV6HFA MODEV	B-09	Use buttons below when answe	ering CQ. Send 73
7.20 1		-0	2 3	-8	B CO WAAVED ENG	5	Answer CQ	Send Report
7.20	Ē.,	é i	1 5	-164	P CO DURVE VOOD	Ŭ	TX DF RX DF	TX to Call Sign Rpt (-#)
7.20	-	2	2.5	-21.5	B CQ KUSKS KUSU	-	-143143 - V TX OF - RX	DF RU3KS -09
7:20	5	- /		-315	B CQ OZITAK JO4	5	Zero Zero	1 - 000
7:20	2 -:	20	1.4	-498	K CQ AE7CD DM35		Single Decoder BW	Log QSO
7.20	6	-9	1.6	-985	B CQ HB9JNM JN4	7	100 - Noise Blan	Restore Defaults
	-	-9	1.3	-5	B WA4YBP EA3AQS	JN01		
7:19	0							DI LODO MIL
.7:19 .7:18	8	-6	2.3	-5	B CQ WA4YBP EMS	5	Enable Multi-decoder	Dial QRG KHz
7:19 7:18	8	-6	2.3	-5	B CQ WA4YBP EM9	5	Enable Multi-decoder Rep	orts Sent 14076

The second last step of a JT65 QSO is the exchange of RRR and 73 prosigns.

Whomever calls CQ is the one who is supposed to send RRR as their final exchange.

It is common courtesy to respond to the RRR with a 73.

As usual, double clicking on a QSO line with RRR will generate the 73 response automatically.

JT65: QRT - End of transmission

JT65-HF Version 1.0.7 [de	VE3/W]	
Setup Rig Control Raw De	coder Stations Heard Transmit Log About JT65-HF	a
Audio Input Levels		
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only background noise present.	王····································	
Digital Audio Gain	Report Reported	Entra-
L:0	14 (A.1)	
R: 0)	A DESCRIPTION OF THE OWNER OF THE	Dense P 1 haven
2011-Mar-22	Left click waterfall to set TX CF. Right click sets RX CF.	Current Operation: Receiving RX/TX Progress
47.00.00	Color-map Brightness Contrast Speed Gain	Message To TX: RU3KS VE3JW 73
17:28:00		Smooth C TX Text (13 Char 2 TX OFF
Double click an entry in li	ist to begin a OSO. Bight click copies to cliphoard	Enable TX Halt TX
LITC Sync dB	DT DE Exchange	C TX Generated
17:26 4 -9 1	1.3 -143 B VE3JW RU3KS RRR	RU3KS VE3JW 73
17:24 7 -6	1.3 -153 B VE3.7W BU3KS -12	
17.22 6 -5 1		Use buttons below to call CQ and answer callers.
		Call CQ Answer Caller Send KKK
17:20 10 -5 0	0.9 678 B RV6HFA MODEV R-09	Ose buttons below when answering CQ. Send 73
17:20 10 -9 2	2.3 -8 B CQ WA4YBP EM95	Answer CQ Send Report
17:20 5 -6 3	1.5 -164 B CQ RU3KS KO90	TX DF RX DF TX to Call Sign Rpt (-#)
17:20 5 -7 3	3.1 -315 B CQ OZ1TMK JO45	-140 ± -140 ± ✓ 1X DF = RX DF RU3KS -09
17:20 2 -20 1	1.4 -498 K CQ AE7CD DM35	Log QSO
17:20 6 -9 1	1.6 -985 B CQ HB9JNM JN47	Single Decoder BW V AFC Restore Defaults
17:19 6 -9 1	1.3 -5 B WA4YBP EA3AQS JNO	1 Noise Blank
17:18 8 -6 2	2.3 -5 B CQ WA4YBP EM95	3 Enable Multi-decoder Dial QRG KHz
		Reports Sent 14076
Clear Decoder	Decod	Again Franks PSVD 17 Disk of Life Man
cital becodes	Decou	Right Click for Menu

Once you are done transmitting your regards, be sure to halt any further transmissions.

- 1. Simply click on "Halt TX"
- 2. Ensure TX OFF is seen
- 3. Re-enable multi-decodes

If you forget to halt your transmission, the software will continue transmitting your last message 15 times before being halted automatically.

To log your QSO, a suggested convention is as follows: (note the time)

Date	Time (UTC)	Freq. (MHz)	Mode	RXQ	TXQ	Details	Operator
22 Mar	1727	14.076	JT65	-6	-12	Andrey from Russia – sent using 20W	VE3BUX

JT65: Calling CQ

Calling CQ is simple.

Unlike in answering a CQ, you must click on a button to initiate the call.

The procedure is as follows:

- Tune to a vacant region of the spectrum by left-clicking in the black space.
- 2. Decide whether to call CQ on an even or an odd frame and select the appropriate choice.
- 3. Click on Call CQ



JT65: Calling CQ

When you "tune" in before transmitting, you will notice a red bar appear (1).

The left edge of this region (250Hz wide) will be placed where you click.

The hard-copy of this guide may not show the bar very well, so be sure to try it for yourself and observe the results of clicking on various locations in the spectrum.



When you call CQ, the "enable multi-decoder" function should automatically be disabled (2). If you see otherwise, be sure to disable the multi-decoder.

JT65: Answering a station

	-1K	-500		0 +50	0
Audio Input Levels					and the second
@ L 2		1 92 - 22	51		in the second
C R3					13.141
Optimum input level is 0 with only background noise present.	1 180				
Digital Audio Gain		120	The state		No. M.
R:0	1 191002		Parate		
2011 Mar-22				CHILDREN SHITTLE AND	
2011-1101-22	Celes man. Bright and	Contract food of	ex cr. Current c	Message To TX: CO VE3	JW FN25
18:02:50	Blue		am 그러 드 Smooth	← TX Text (13 Characters)	TX ENABLED
Souble eliek en entre in li	the basis a OSO_ Big	۲ ت ۲ ۲			Enable TX Halt T
UTC Sync dP	א גע אפעווים עסט. אוק	Exchance	poodra.	C TX Generated	
18:02 4 -11		EXChange	JTN 4 5	CO VE3 IW EN25	C TX Even @ TX Odd
				Use buttons below to call CO	and answer callers
				Call CO Answer Caller	Send RRR
				Use buttons below when ans	wering CQ. Send
				Answer CQ	Send Report
				TX DF RX DF	TX to Call Sign Rpt
				TX DF RX DF	TX to Call Sign Rpt
				TX DF RX DF	TX to Call Sign Rpt
				TX DF RX DF 400 - 400 - 7 7 TX DF = 2ero 2ero	TX to Call Sign Rpt RX DF Log QSO
				TX DF RX DF 400 400 ▼ TX DF = 2em 2em ✓ TX DF = Single Decoder BW ▼ AFC 100 ▼ ■ Noise Bi	TX to Call Sign Rpt
				TX DF RX DF 400 - 400 - 7 TX DF = 2ee 2ee 2ee 3 Single Decoder BW V AFC 100 - Noise Bi Enable Multi-decoder	RX DF Log QSO ank Restore Default Dial QRG KH
				TX DF RX DF 400 - 400 - 7 TX DF = 2em 2em Single Decoder BW 7 AFC 100 - 1 Noise BI Enable Multi-decoder Fnable RB	TX to Call Sign Rpt RX DF Log QSO Ank Restore Defaults Dial QRG KH Log QSO Ank Dial QRG KH

When you receive an answer to your CQ, the resulting QSO will be colour coded as red.

Be sure to decide whether to answer or not quickly!

This was a quick decode, giving a full 10 seconds before it was my turn to either continue calling CQ or to answer the caller.

JT65: Answering a station

	coder stations neard 1	ransmit Log About 31	no-HP			
Audio Input Levels	1	-500	1 1 1	1 1 1	+900	
@L4						
CRA		A.0.		and the second second		E and a
Outine in a thread in the						
only background noise present.	100					
Digital Audio Gain		1975	Inothe			14.00 0
L:0	10.000					
R: 0 j	120435		A Prest of a			
2011-Mar-22	Left click waterfall to as	at TX CE Bight click ant	RX CE Current	Operation: Transmitting	DXITY Dee	OFFEE
2011 1111 22	Color man Brightness	Contrast Speed	Gain	Transmitting: IK2	UEC VE3JW -	11
18:03:13	Blue -		이크	C TX Text (13 Chara	cters) TXI	N PROGR
Double click an entry in li	int to begin a OSO_ Pir	abt click copies to cl	inhoard		Ena	ble TX H
Double click all entry in a	ist to begin a 450. Kij	gin enex copies to ci	ipooara.			
ITTC Curne dp 1	077 072	Probance		TX Generated		
UTC Sync dB 1	DT DF	Exchange	TN45	TX Generated IK2UEC VE3 IW .11	C 12	X Even 🔍 TX
UTC Sync dB 1 18:02 4 -11	DT DF 6.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11	СТ	X Even 🔍 TX
UTC Sync dB 1	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to	call CQ and and	X Even © TX
UTC Sync dB 1	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answer Answer	c T)	X Even © TX swer callers.
18:02 4-11 0	DT DF 5.3 401 B 1	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below to	c T	X Even © TX swer callers. nd RRR CQ. S
18:02 4-11	DT DF 5.3 401 B 1	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answe	call CQ and and r Caller Sen then answering (rer CQ Send	X Even © TX swer callers. ad RRR CQ. S I Report
18:02 -11	DT DF 6.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF Ititate Ititititate Ititate Ititate Ititate	c all CQ and and r Caller Send then answering (ther CQ Send 1	X Even (* TX swer callers. d RRR CQ. S I Report S I Report S I Report S
18:02 4-11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 - 401 - 7	c all CQ and and r Caller Sen then answering (rer CQ Send r TX DF = RX DF	X Even © TX swer callers. ad RRR CQ. I Report I Report IK to Call Sign IK2UEC
18:02 4-11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 ÷ 401 ÷ 2m	c all CQ and and r Caller Sen then answering (ver CQ Send 7 7 TX DF = RX DF	X Even © TX swer callers. d RRR CQ. S I Report IX to Call Sign IK2UEC Log QS
18:02 4-11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	C TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 ÷ 401 ÷ ↓ 2ero 2ero Single Decoder BW ↓	c TJ o call CQ and ans r Caller Ser then answering (rer CQ Send 7 TX DF = RX DF	X Even © TX swer callers. d RRR CQ. S I Report IX to Call Sign IK2UEC Log QS
18:02 4-11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 -2 401 -2 Zero Zero Single Decoder BW 100 -2 TX	c TJ c call CQ and ans r Caller Ser then answering (rer CQ Send T TX DF = RX DF AFC Noise Blank	X Even © TX swer callers. d RRR CQ. S I Report IX to Call Sign IK2UEC Log QS Restore Det
18:02 4-11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 - 401 - 200 Single Decoder BW 100 - F Enable Multi-decode	c T c call CQ and ans r Caller Ser then answering (rer CQ Send r TX DF = RX DF AFC Noise Blank	X Even © TX swer callers. d RRR CQ. S I Report Y IX to Call Sign IK2UEC Log QS Restore De Dial QR
18:02 -11	DT DF 5.3 401 B	Exchange VE3JW IK2UEC	JN45	TX Generated IK2UEC VE3JW -11 Use buttons below to Call CQ Answe Use buttons below w Answ TX DF RX DF 401 - 401 - 7 2m 2m Single Decoder BW 100 - 7 Enable Multi-decode Enable Multi-decode	C T c call CQ and and r Caller Ser then answering (rer CQ Send T TX DF = RX DF AFC Noise Blank Reports Ser ablo DB	X Even © TX swer callers. ad RRR CQ. S I Report J IX to Call Sign IK2UEC Log QS Restore Del Dial QR nt 140

- By simply double clicking on the QSO, the software will respond by giving a signal report.
- 2. In this case, the response is:

VE3JW IK2UEC -11

Keep in mind that if the station you are attempting to communicate with is coming in weak, it may take 2 or more cycles to receive a response.

JT65: Answering a station

and the second se	-16	-500	100 U.S. 100	0	+500		+
Audio Input Levels							
@ L-5							
C 8-5		110%		Constant.	F. State		1. 1. The
Optimum input level is 0 with	time time					in the second se	
ony background noise present. Digital Audio Gain						1	
	10 40						
R: 0 j		107	The second			140	
2011-Mar-22	Left click waterfall to s	et TX CF, Right click se	ts RX CF. Current	Operation: Transmitting	RX/TX	Progress	
18.05.02	Color-map Brightnes	s Contrast Speed	Gain	Transmitting: IK	2UEC VE3J	W -11	
10.00.02	Blue -	는 이 크	0 ÷ □ Smooth	C TX Text (13 Cha	racters) T	X IN PRO	GRESS
Double click an entry in li	st to begin a QSO. Ri	ight click copies to	clipboard.			nable IX	Halt T
		Tuchange		C TV Concentral	_		
UTC Sync dB I	OT DF	Exchange	1	IX Generated		TYENA	
UTC Sync dB 1 18:04 2 -10 1	.7 401 B	VE3JW IK2UE	C R-16	IK2UEC VE3JW -1	1	TX Even	• TX Odd
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	7 401 B 3 401 B	VE3JW IK2UE VE3JW IK2UE	C R-16 C JN45	IK2UEC VE3JW -1	to call CQ and	TX Even	TX Odd
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF DF 7 401 B 5.3 401 B	VE3JW IK2UE VE3JW IK2UE	CR-16 CJN45	IK2UEC VE3JW -1 Use buttons below Call CQ Answ	to call CQ and ver Caller	TX Even	• TX Odd
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE VE3JW IK2UE	C R-16 C JN45	IK2UEC VE3JW -11 Use buttons below Call CQ Answ Use buttons below	to call CQ and ver Caller	TX Even @ answer calle Send RRR ng CQ.	• TX Odd ers. Send 7
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 1.3 401 B	VE3JW IK2UE	C R-16 C JN45	IK2UEC VE3JW -1" Use buttons below Call CQ Answ Use buttons below Answ	to call CQ and ver Caller when answeri swer CQ S	TX Even answer calle Send RRR ng CQ. end Report	• TX Odd ers. Send 7
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 3.3 401 B	VE3JW IK2UE	CR-16 CJN45	IK2UEC VE3JW -1" Use buttons below Call CQ Answ Use buttons below Answ TX DF RX DF	to call CQ and ver Caller when answeri swer CQ S	answer calle Send RRR ng CQ. end Report	TX Odd ers. Send 7 gn Rpt (
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	CR-16 CJN45	IK2UEC VE3JW -11 Use buttons below Call CQ Answ Use buttons below Answ TX DF RX DF 401 ÷ 401 ÷	to call CQ and ver Caller when answeri swer CQ S	TX Even answer calle Send RRR ng CQ. end Report TX to Call Se IK2UEC	TX Odd rs. Send 7 gn Rpt (
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	: CR-16 CJN45	IX Generated IK2UEC VE3JW -1* Use buttons below Call CQ Answ Use buttons below Ans TX OF RX DF 401 - 2ero 2ero	to call CQ and ver Caller when answeri swer CQ S	TX Even answer calle Send RRR ng CQ. end Report TX to Call Sk [K2UEC	TX Odd TS. Send 7 gn Rpt (-11
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	с R-16 С JN45	IX Generated IK2UEC VE3JW -1* Use buttons below Call CQ Answ Use buttons below Answ TX DF RX DF 401 2m Single Decoder BW	to call CQ and ver Caller when answeri swer CQS	TX Even answer calle Send RRR ng CQ. end Report TX to Call Si IK2UEC Log	TX Odd rrs. Send 7 gn Rpt (-11 g QSO
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	CR-16 CJN45	IX Generated IK2UEC VE3JW -1* Use buttons below Call CQ Answ Use buttons below Answ TX DF 401 2mo 2mo Single Decoder BW 100	to call CQ and ver Caller when answeri swer CQS V TX OF - RX OU V AFC Noise Blank	TX Even answer calle Send RRR ng CQ. end Report TX to Call Si IK2UEC Log Restore	TX Odd TS. Send 7 gn Rpt (11 3 QSO P Defaults
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	CR-16 CJN45	IX Generated IK2UEC VE3JW -1* Use buttons below Call CQ Answ Use buttons below Ans TX DF RX DF 401 401 Zaro Zaro Single Decoder BW 100	to call CQ and ver Caller when answeri swer CQ S TX DF - RX DI AFC Noise Blank	TX Even (answer calle Send RRR ng CQ. end Report TX to Call Se IK2UEC Log Restore	TX Odd rrs. Send 7 gn Rpt (-11 g QSO b Defaults
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	CR-16 CJN45	IK2UEC VE3JW -fr Use buttons below Call CQ Answ Use buttons below Answ TX DF RX DF 401 - 401 - 2mo 2mo Single Decoder BW 100 - - Enable Multi-decoder	to call CQ and ver Caller when answeri swer CQS TX DF = RX DI AFC Noise Blank der Report	TX Even (answer calle Send RRR ng CQ. End Report TX to Call Se IK2UEC Log Restore Sent	TX Odd TS. Send 7 gn Rpt (11 3 QSO b Defaults 1 QRG KH
UTC Sync dB I 18:04 2 -10 1 18:02 4 -11 6	DF 1.7 401 B 5.3 401 B	VE3JW IK2UE	CR-16 CJN45	IK2UEC VE3JW -11 Use buttons below Call CQ Answ Use buttons below Ans TX DF RX DF 401 401 Zero Zero Single Decoder BW 100 - Enable Multi-decoder	to call CQ and ver Caller when answeri swer CQ S TX DF - RX DI AFC Noise Blank der Report Enable RB	TX Even (answer calle Send RRR ng CQ. end Report TX to Call Se IK2UEC Log Restore s Sent 1	F TX Odd Frs. Send 7 gn Rpt (11 g QSO to Defaults al QRG KH 4076

Success!

The operator at the far-end acknowledges their signal report by responding with ours preceded by an R as follows:

VE3JW IK2UEC R-16

This means we are coming in fairly weak (recall -26dB is the lower limit) and so we may have to transmit the same message more than once to complete the QSO.

JT65: Finishing QSO with RRR

	-16	-500		0 +500	
Audio Input Levels	1 1 1	1 1 1			
@L4					
CR4				Province and	
Ontinum insurt level is 0 with			10.543		1.20
only background noise present.					Pastalle
Digital Audio Gain	1000				
L:0					
R: 0			In Augusta		1 100 Th 78.
2044 Mar 22			I. BARANT.		
2011-Mai-22	Left click water	fall to set TX CF, Righ	t click sets RX CF. Curren	t Operation: Idle RX/TX I	Progress
18:05:53	Color-map Brig	ghtness Contrast	Speed Gain	Message IO IX: IK2DEC VE	
10.00.00	Blue -	-,,-	◎ ± ◎ ± □ Smoot	h IX lext (13 Characters)	ENABLED
Double click an entry in lis	st to begin a QS	SO. Right click co	pies to clipboard.	E	nable IX Halt D
UTC Sync dB I	DT DF	Excl	hange	TX Generated	
18:04 2 -10 1	7 401	B VE3JW 1	IK2UEC R-16	IK2UEC VE3JW RRR	TX Even (• TX Odd
18:02 4 -11 6	.3 401	B VE3JW 1	IK2UEC JN45	Use buttons below to call CO and a	answer callers
18:02 4 -11 6	.3 4 01	B VE3JW 1	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Apswer Caller S	answer callers. Send RRR
18:02 4 -11 6	5.3 401	B VE3JW 1	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S	answer callers. Send RRR
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CO S	answer callers. Gend RRR g CQ. Send 7
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se	answer callers. Gend RRR g CQ. Send 7 end Report
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF	answer callers. Gend RRR g CQ. Send 7 end Report TX to Call Sign Rpt (
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 \pm 401 \pm 7 TX DF = RX DF	answer callers. Gend RRR g CQ. Send 7 end Report TX to Call Sign Rpt (IK2UEC -10
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 $\stackrel{-1}{\rightarrow}$ 401 $\stackrel{-1}{\rightarrow}$ 7X DF = RX DF 2es 2es	answer callers. Gend RRR g CQ. Send 7 end Report TX to Call Sign Rpt (IK2UEC -10 Log QSO
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 - 401 - 7 TX DF = RX DF 2es 2es Single Decoder BW 7 AFC	answer callers. Gend RRR g CQ. Send 7 end Report TX to Call Sign Rpt (IK2UEC -10 Log QSO
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 $\stackrel{+}{\rightarrow}$ 401 $\stackrel{+}{\rightarrow}$ 7 X DF = RX DF 2em Zem Single Decoder BW \checkmark AFC 100 $\stackrel{+}{\rightarrow}$ Noise Blank	answer callers. G CQ. Send 7 and Report Send 7 TX to Call Sign Ret (IK2UEC -10 Log QSO Restore Defaults
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 $\stackrel{+}{\rightarrow}$ 401 $\stackrel{+}{\rightarrow}$ \checkmark TX DF = RX DF 2es 2es Single Decoder BW \checkmark AFC 100 $\stackrel{+}{\rightarrow}$ Noise Blank	answer callers. G CQ. Send 7 and Report Send 7 TX to Call Sign Rpt (IK2UEC -10 Log QSO Restore Defaults Dial OPC KH
18:02 4 -11 6	5.3 401	B VE3JW :	IK2UEC JN45	Use buttons below to call CQ and a Call CQ Answer Caller S Use buttons below when answerin Answer CQ Se TX DF RX DF 401 $\stackrel{+}{\rightarrow}$ 401 $\stackrel{+}{\rightarrow}$ \bigtriangledown TX DF = RX DF 2ee 2ee Single Decoder BW \bigtriangledown AFC 100 $\stackrel{+}{\rightarrow}$ Noise Blank	answer callers. Send RRR g CQ. Send 7 end Report TX to Call Sign Rpt (IK2UEC -10 Log QSO Restore Defaults Dial QRG KH Sent

As always, double clicking the most recent QSO line will autogenerate the response dictated by the protocol which is:

IK2UEC VE3JW RRR

Because we initially called the CQ, we are the one who terminates the QSO by sending the prosign RRR.

To log your QSO, a suggested convention is as follows: (again, note the time)

Date	Time (UTC)	Freq. (MHz)	Mode	RXQ	TXQ	Details	Operator
22 Mar	1806	14.076	JT65	-10	-16	Bruno from Italy – sent using 10W	VE3BUX

JT65: Final transaction

Sature Dis Control Pro Des	oder Stations H	and Transmit!	About (T65-ME		
etup kig control kaw Dec	-1K	eard Transmit Log -50	0	0 +500	
Audio Input Levels	1 1 1	1 1 1			
@ L5					
CR5				- The second second	
Ontinum input level is 0 with				1	
only background noise present.					
Digital Audio Gain					Decomp
L:0)					
*o	1				
2011-Mar-22	Left click water	dail to set TX CE Biol	ht click sets BY CE	Surrent Operation: Min. PX	TX Propress
2011-1101-22	Color man Bri	abtoese Contrast	Seend Cain	Message To TX: IK2UEC	E3JW RRR
18:06:50	Blue -		o a o a r	mooth C TX Text (13 Characters)	TX ENABLED
and the state of a state in the					Enable TX Halt T
Jouble click an entry in its	st to begin a U	SO. Right click co	opies to clipboard.	G TX Constrated	
OTC SYNC dB 1	T DF	EXC.	nange		C TX Even @ TX Odd
19:00 4 -10 1		B VESSW	INZUEC 73	INZUEC VESSIV RRR	
18:04 2 -10 1	.7 401	B VE3JW	IK2UEC R-16	Use buttons below to call CQ a	nd answer callers.
18:02 4 -11 6	.3 401	B VE3JW	IK2UEC JN45	Call CQ Answer Caller	Send RRR
				Use buttons below when answ	ering CQ. Send
				Answer CQ	Send Report
				TX DF RX DF	TX to Call Sign Rpt
				401 ÷ 401 ÷ ▼ TX DF = R)	OF IK2UEC -1
				Zero Zero	Log QSO
				Single Decoder BW 🔽 AFC	
				100 ÷ Noise Blar	Restore Default
				Enable Multi-decoder	Dial OPC K
				Enable Multi-decoder	ords Sent
				Keç	44070
				Enable RB	14076

1

The final transaction is the courtesy 73 from the other operator.

I usually log this as the QSO time since it was the last transaction between the two of us.

JT65: Final Words



Part of using the JT65 software should include automatic submission of PSKR reports which serve to provide a centralized real-time propagation map. You can view the results at:

http://pskreporter.info/pskmap.html

JT65 Troubleshooting: No RX

FlexRadio System:	" PowerSDR" v2.0.19 RC1 FLEX-3	000: 0710-0493	the state of the s		-	and a second
Setup Memory V	/ave Equalizer XVTRs CWX Mp	er ATU Report Bug				
	14 20M RT	.076 000	FO Sync Tune Step Ik-Hz 000000 Save Restore		7.000 000 40M Extra CW	RXI Meter TX Meter Signal Find Pwr - -101 dBm
MOX ATU	14.030 14.040	14.050 14	.060 14.070	14.080 1	4.090 14.100	
MUT BYP	40					160 80 60
AF: 0	-80					40200202000_2000000
T	remellionermore march	mulantemerch	معياليا للالغاب سعسي فالترو	الاياد المجرود وراجر والمريد المريد المريد والم	and an an enter bus man war war	17 <u>15</u> 12
AGC-T: 90	-140					
	14 030 14 040	14.050 14	060 14.070	14.080 1	4 090 14 100	VHE+ WWV GEN
Drive: 20			11 11		and a country of the state of the	
	and the second second			 A second s	•	
AGC Preamp						CWL CWU EMN
Med + Off +						A SAM SPEC
SQL: -150						
				-13988.9	lz -79.2dBm 14.062.011 /	WHE
	Parc		Center Zoor	n 🔄 🚹	0.5x 1x 2x	4x 3.0k 2.5k 2.0k
	SPLT A > B A < B	NR ANF NB NB2	Pariafal -	VAC RX Gain: -20	Sample Pate	600 300 150 75 Var 1 Var 2
22/03/2011	IF->V A <> B	SR BIN	AVG Peak	TXGain: 0		Low 🛛 📑 High 1998
LOC 19:27:52	XIT 0 RIT 0					Width
	0	- I-I	- MultiRX	TX Profile: Detail		Shift
	CPU 2:40.4	T	Swap	Letaur •		Heset

Two important settings to verify in the PowerSDR software are:

- 1. VAC. The virtual audio cable must be enabled for the PowerSDR software to output the received audio to other applications (i.e. JT65-HF)
- 2. DIGU. The mode selection must be set to digital upper sideband

JT65 Troubleshooting: No TX

If you are unable to transmit in the JT65 software, be sure that the PTT Port is set to:

1. COM17

Test this by clicking on:

2. Test PTT

If you are still unable to transmit, try shutting down the JT65-HF software as well as PowerSDR.

PTT Port Test PTT will Key/Ur	nkey your Transceiver. N	o audio will be sent during test.	
Ham Ra	Use Alternate P11 Metho	od. Only enable this if you have problems v	Commander
□ Ena □ ○ Version 4	Version 5	□ Enable Radio 1 Radio 2	Enable

Next, ensure there are no other radio related applications running which include: Fldigi, Ham Radio Deluxe, Digipan, etc.

Restart PowerSDR and JT65-HF and review all of the settings (as per this guide)

Conclusion

Hopefully you are now familiar with the basic operating procedures for using the JT65 mode of HF digital communications. Please remember this is a QRP oriented mode, and it is considered bad operating practice to produce more than 30W output power.

I wish you all the best of luck using this fantastic mode – I have no doubt we will see regular JT65 (and related) contacts to the far reaches of the globe using very little power in the upcoming increase in solar activity.

If you have any suggestions for this operating guide, or have any corrections to be made, please do not hesitate to let me know on the OVMRC forum or by email.

Thanks for reading! 73,

James Buck – VE3BUX james@ve3bux.com

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