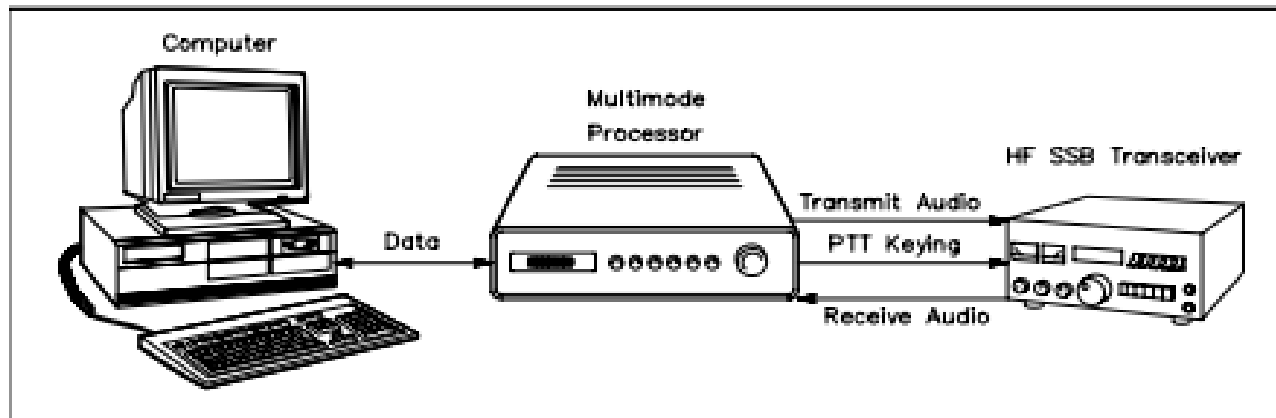


HF Digital Mode

SARC April 2018



IC7300 with FLDIGI 4.0 (HRD)
By Dirk Smith W0RI

Content

- Basic Operation Overview
- Most active area's, bands – Modes
- FCC Band Plan
- What is “PSK” vs RTTY etc.
- HRD DM 780 vs FLDIGI
- FLDIGI Main Screen
 - Configure, HRD & DX Cluster, MACRO's
- Contact Video
- Show and Tell
- Q&A

Let's take a closer look @ Digital Modes



Definitions....

PSK31 is a highly-efficient data mode that lets you work long distances, even when you can barely hear the signal. **PSK31** stands for Phase Shift Keying 31 baud (or 31 bits per second/bps). Unlike RTTY (radio teletype) the characters are formed by changing the phase of the sound wave, not by using different tones.



What is a Pactor?

PACTOR is an evolution of both AMTOR and packet radio; its name is a portmanteau of these two technologies. **PACTOR** combines the bandwidth efficiency of packet radio with the error-correction (CRC) and automatic repeat request (ARQ) of AMTOR. ... **PACTOR** is most commonly used on frequencies between 1 MHz and 30 MHz.

What is RTTY?

Radioteletype (**RTTY**) is a telecommunications system consisting originally of two or more electromechanical teleprinters in different locations connected by radio rather than a wired link.

PSK....(arrl.org)



So What is PSK31?

First, let's dissect the name. The "PSK" stands for Phase Shift Keying, the modulation method that is used to generate the signal; "31" is the bit rate. Technically speaking, the bit rate is really 31.25, but "PSK31.25" isn't nearly as catchy.

Think of Morse code for a moment. It is a simple binary code expressed by short signal pulses (*dits*) and longer signal pulses (*dahs*). By combining strings of dits and dahs, we can communicate the entire English alphabet along with numbers and punctuation. Morse uses gaps of specific lengths to separate individual characters and words. Even beginners quickly learn to recognize these gaps—they don't need special signals to tell them that one character or word has ended and another is about to begin.

When it comes to RTTY we're still dealing with binary data (dits and dahs, if you will), but instead of on/off keying, we send the information by shifting frequencies. This is known as Frequency Shift Keying or *FSK*. One frequency represents a *mark* (1) and another represents a *space* (0). If you put enough mark and space signals together in proper order according to the RTTY code, you can send letters, numbers and a limited amount of punctuation.

The RTTY code shuffles various combinations of five bits to represent each character. For example, the letter A is expressed as 00011. To separate the individual characters RTTY must also add "start" and "stop" pulses.



For PSK31 Peter devised a new code that combines the best of RTTY and Morse.

PSK31 Characteristics

PSK31 SUMMARY

PARAMETER		DETAILS
Symbol rate	★	21.25 baud
Typing speed		~35 wpm
Bandwidth		60 Hz
ITU description		60H0J2B

31.25

The Basic's.....

- ▶ **Do not need a booming set up....**
- ▶ PSK = Combination – Best of RTTY and CW, 60 hz signal
- ▶ **Power 5–35 Watt, no more than 40 watts**
- ▶ Low end of Bands, mostly just above CW area's
- ▶ **Waterfall Display of activity (on Radio etc.)**
 - SDR Display
- ▶ Laptop and/or Soundcard per Radio
 - Signal Link (per radio, programmed)
 - RigBlaster
 - Pi Set Up
 - Most new Transceivers do not need external soundcards....
- ▶ **Numerous Types of Digital Modes**
- ▶ **FREE Software..."FLDIGI" from Salesforge.com**
 - May need to download RADIO DRIVER...

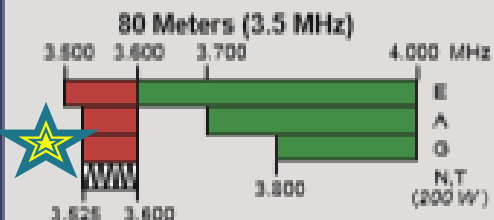
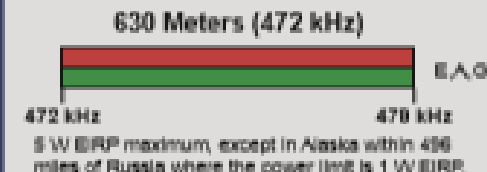
- **Raspberry Pi, shown at WFD**
 - Small footprint for field operation
 - Touch screen or keyboard...
- **Fun to operate when band conditions tank !!**
 - Can work the world...
 - From Short Conversation to Novels....
 - Contest are fun, MACRO's help
 - Simple typing or all MACRO set up.
 - Exchange: CALL Sign – RST 599....
 - Save log and upload–import

US Amateur Radio Bands

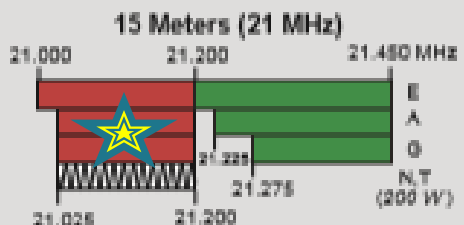
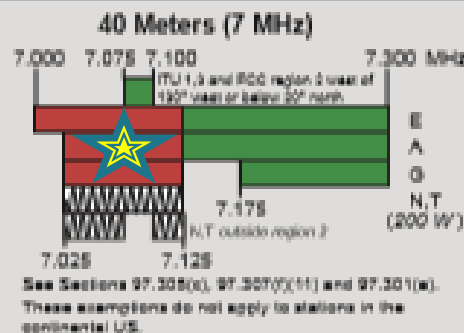
US AMATEUR POWER LIMITS

FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications.
 (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at <http://uts.cba.gov/uts-database/amateur-registration-process/>. You need only register once for each band.



General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.



*Geographical and power restrictions may apply to all bands above 430 MHz. See The ARRL Operating Manual for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz	132.25-133.0 GHz
2390-2400 MHz	24.0-24.25 GHz	124-141 GHz
3300-3500 MHz	47.0-47.3 GHz	241-250 GHz
5850-5925 MHz	76.0-81.0 GHz	All above 275 GHz

* No pulse emissions



ARRL The national association for AMATEUR RADIO®

KEY

Note:

CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.

Best transmissions are authorized above 51 MHz, except for 219-220 MHz

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = USB phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra
 A = Advanced
 G = General
 T = Technician
 N = Novice

See **ARRL Web** at www.arrl.org for detailed band plans.

ARRL We're At Your Service

ARRL Headquarters:
 800-594-0200 (Fax 800-594-0200)
 email: hq@arrl.org

Publication Orders:
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 Toll-Free 1-888-277-6269 (800-594-0355)
 email: orders@arrl.org

Membership/Circulation Desk:
www.arrl.org/membership
 Toll-Free 1-888-277-6269 (800-594-0355)
 email: membership@arrl.org

Getting Started in Amateur Radio:
 Toll-Free 1-800-328-5942 (800-594-0355)
 email: reshorn@arrl.org

Claims: 800-594-0200 email: ves@arrl.org

Digital Mode (Band Plan)

PSK 31 HF FREQUENCIES

AMATEUR BAND	UPPER SIDEBAND DIAL FREQUENCY
160 metres	1838.150 kHz
→ 80 metres	3580.150 kHz
→ 40 metres	7040 kHz
30 metres	10142.150 kHz
→ 20 metres	14070.150 kHz
17 metres	18100.150 kHz
15 metres	21080.150 kHz
12 metres	24920.150 kHz
→ 10 metres	28120.150 kHz

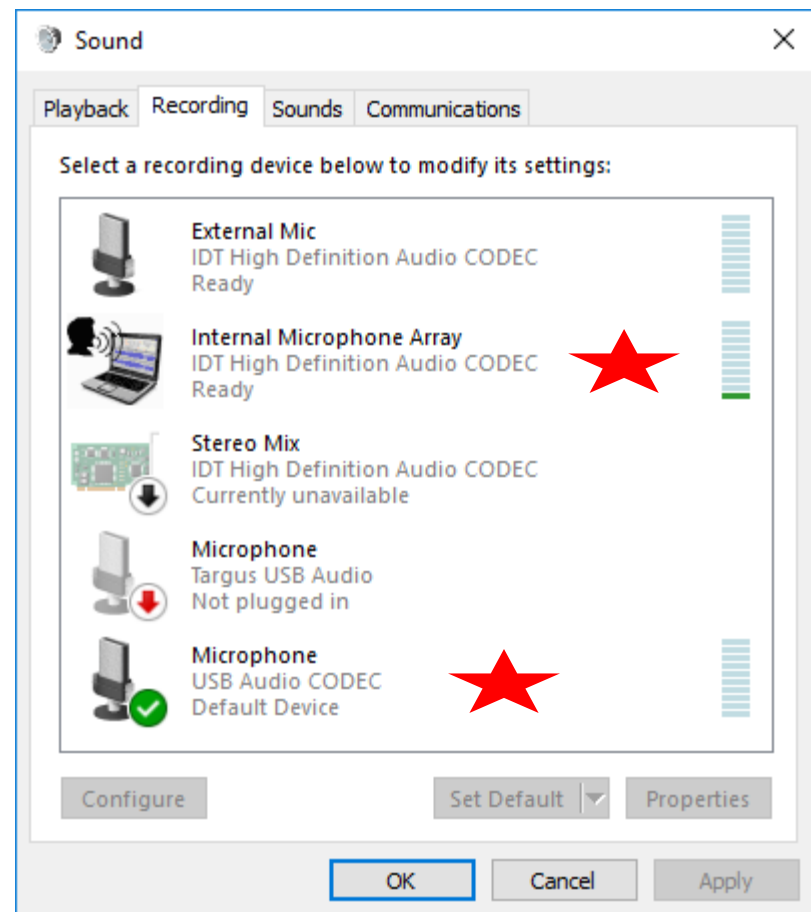
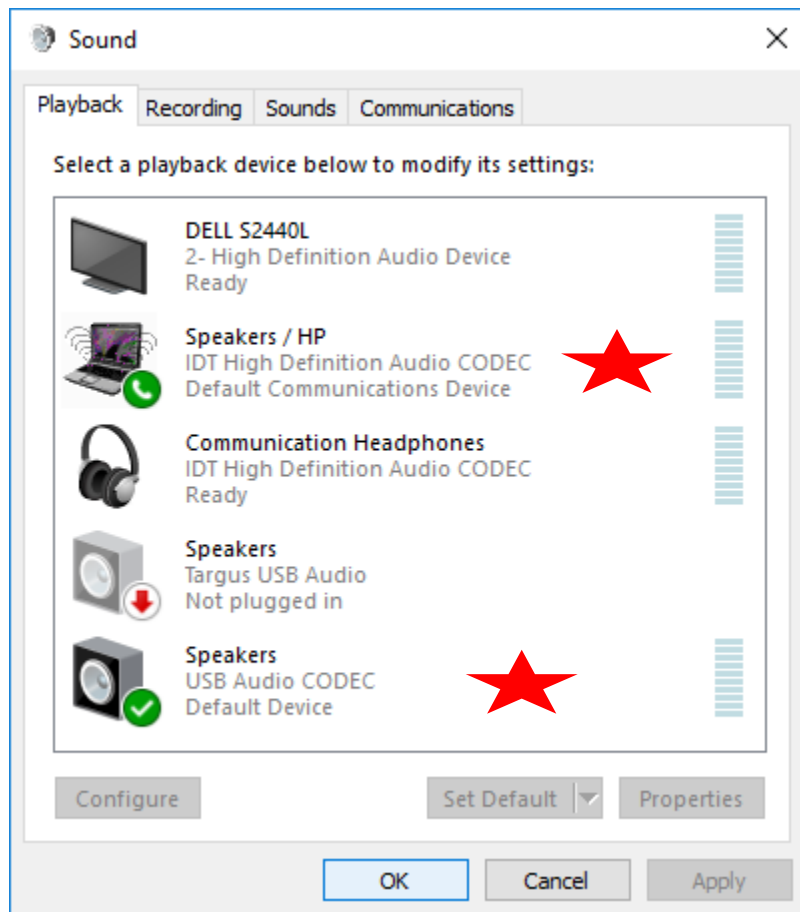
40M @ 7070

Digital Mode.....Abbreviations

ABBREVIATION	MEANING
K	Invitation for the other station to transmit (similar to "over" when using voice communications.
KN	Invitation for a particular station to transmit
VA	Used at the end of a contact. It means that you have finished transmitting to the other station
BTU	Back to you
TNX	Thanks
PSE	Please
OM	Used to refer to the other operator (when he is male). One tends to be a little more polite when ^{Ab} talking to ladies.
FB	Fine business - indicates that a transmission has been received well, etc.
GM	Good morning
GA	Good afternoon
GE	Good evening

Computer....Sound Configuration

(Playback & Record)



HRD DM 780 Main Screen...

HRD DM 780 Main Screen...

File Edit View QSO Logbook SSTV DataController SuperSweeper World Map Tools Window Help

16:17:53

QSO SuperSweeper Radio Soundcard Data Controller Waterfall Satellite Rig Control Logbook Rotator Program Options Full Screen

WØRI Home - EN52wa

Callsign Lookup

QRZ Log

Callsign

Licensee

Country

IOTA

CW

Default

Options

Call CQ

1) CQ x 2

2) CQ x 2

3) QRZ

Reply

4) Him de Me

5) Him de Me Pse K

6) Report, Name,

Default Tags

Input ...: External Mic

IDT High Definition Audio CODEC

Output ...: Communication Headphones

IDT High Definition Audio CODEC

16:16:49> Main

Send (F4) Auto (F2) Pause (F3) Stop (F5) Repeat

Call CQ Reply Closing Default

PSE K <stop>

Enter text to be sent

1478 Hz IMD: S/N: 0dB

Waterfall

Zoom: x1 Main: 1478 Signal: AFC Decode Options 160m 80m 40m 30m 20m 17m 15m 12m 10m Faves Modes

100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000

Ready CPU: 1% Audio: 0% Overload HRD Logbook: My Logbook RSID OVR CAP NUM SCRL 16:17

11:17 AM 4/16/2018

FLDIGI

Main Screen

fldigi ver4.0.16 - W0RI

FileOp ModeConfigureViewLogbookHelp

14070.000

Frq14068.519On1841Off1841InOut

CallNP4JLOpAz

QthStPrL C

S3S6S92040

ii\$eIUN,n
tVAe Aneol top ae ttteI elv
sR1eoÔ" I
e 5ic Lo_e teCoenooee r e,N ,ewe Ail'ttooA t e eee ye liteetl;e eCQ CQ de NP4JL NP4JL
CQ CQ de NP4JL NP4JL
PSE K
u%4JL ~

14068.52 L NP4JPSE K

3.2

Clear

CQ CQCQ - 10sTXSHACKCQ CQ CONTCQ CONT 10sCont EXCHTNX - QSO 73T/RTxRxxTX


ANSW - CQQTH - GRIDTNX QSO 73STOP TX73LOG INC CQ +CQ-ID

5001000150020002500

WF-2580x2NORM1481QSYStoreLkRvT/R

FLDIGI

Operator Set up.....

 Fldigi configuration — □ ✕

Operator	UI	Waterfall	Modems	Rig	Audio	ID	Misc	Web	Autostart	IO	PSM
----------	----	-----------	--------	-----	-------	----	------	-----	-----------	----	-----

Station / Operator

Station Callsign:

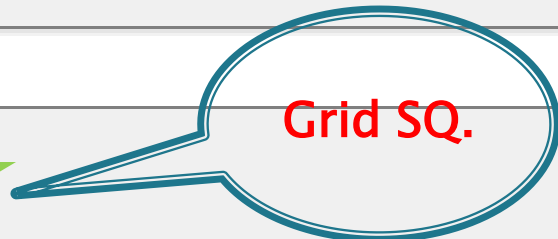

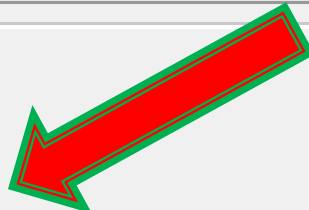
Station QTH:

Station Locator:

Operator Callsign:

Operator Name:

Antenna:



FLDIGI....Some Configuration....

Fldigi configuration

Operator | UI | Waterfall | Modems | **Rig** | Audio | ID | Misc | Web | Autostart | IO | PSM

flrig | RigCAT | Hamlib | XML-RPC | Hardware PTT | GPIO

☐ Use RigCAT

Rig description file: IC-7300 (1).xml

Device: COM5

Retries: 2 Retry interval (ms): 10 Baud rate: 9600

Write delay (ms): 50 Init delay (ms): 200 Stopbits: 1

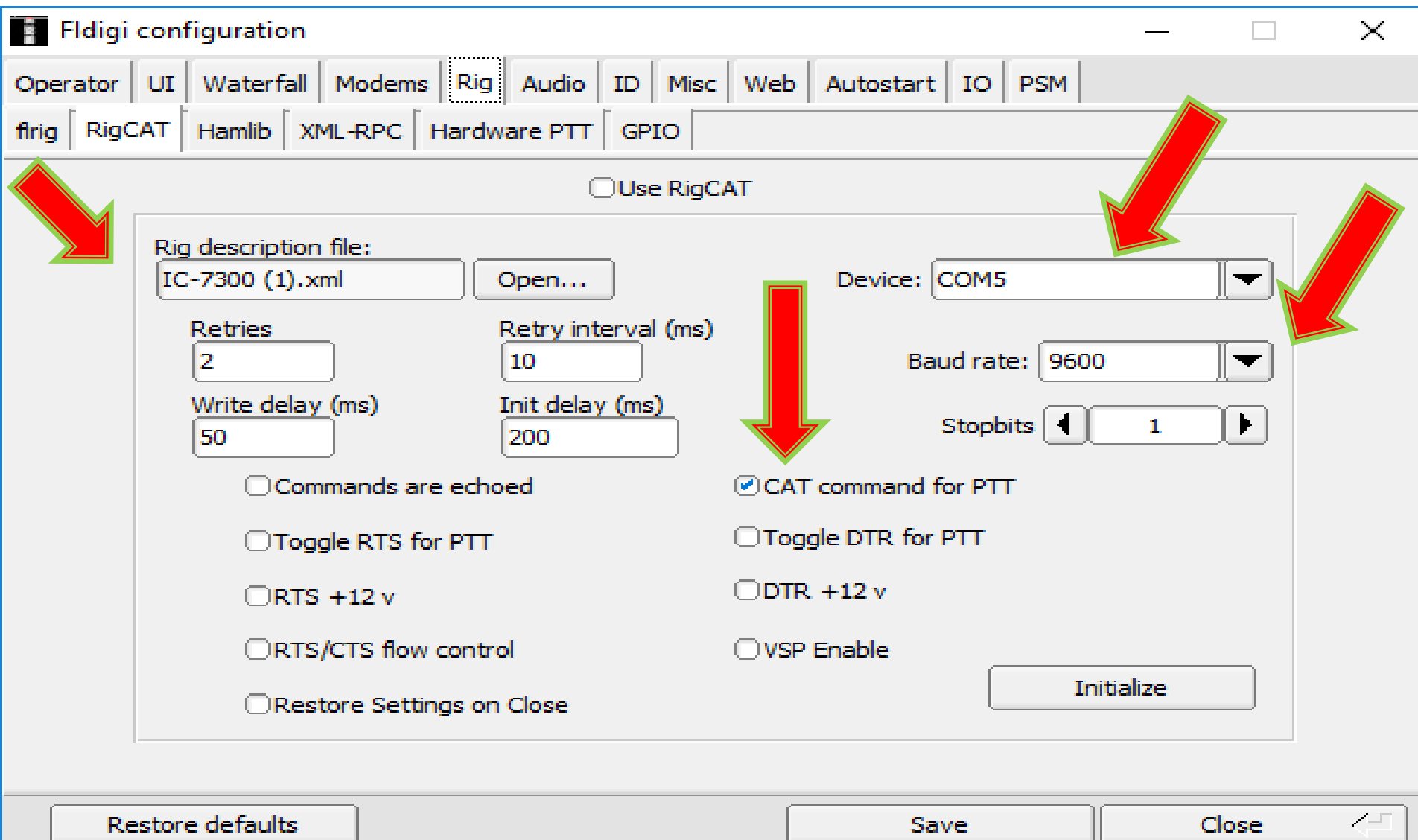
☐ Commands are echoed ☒ CAT command for PTT

☐ Toggle RTS for PTT ☐ Toggle DTR for PTT

☐ RTS +12 v ☐ DTR +12 v


☐ RTS/CTS flow control ☐ VSP Enable

☐ Restore Settings on Close



The screenshot shows the 'Rig' tab of the Fldigi configuration window. Four red arrows with green outlines point to specific settings: the top-left arrow points to the 'Rig' tab; the top-right arrow points to the 'Device' dropdown menu; the bottom-right arrow points to the 'CAT command for PTT' checkbox; and the bottom-center arrow points to the 'Init delay (ms)' input field.

FLDIGI...Some Configuration.....

 Fldigi configuration

Operator | UI | Waterfall | Modems | Rig | **Audio** | ID | Misc | Web | Autostart | IO | PSM

Devices | Settings | Right channel | Wav | Alerts

☐ OSS Device:

☒ PortAudio

Capture:

Playback:

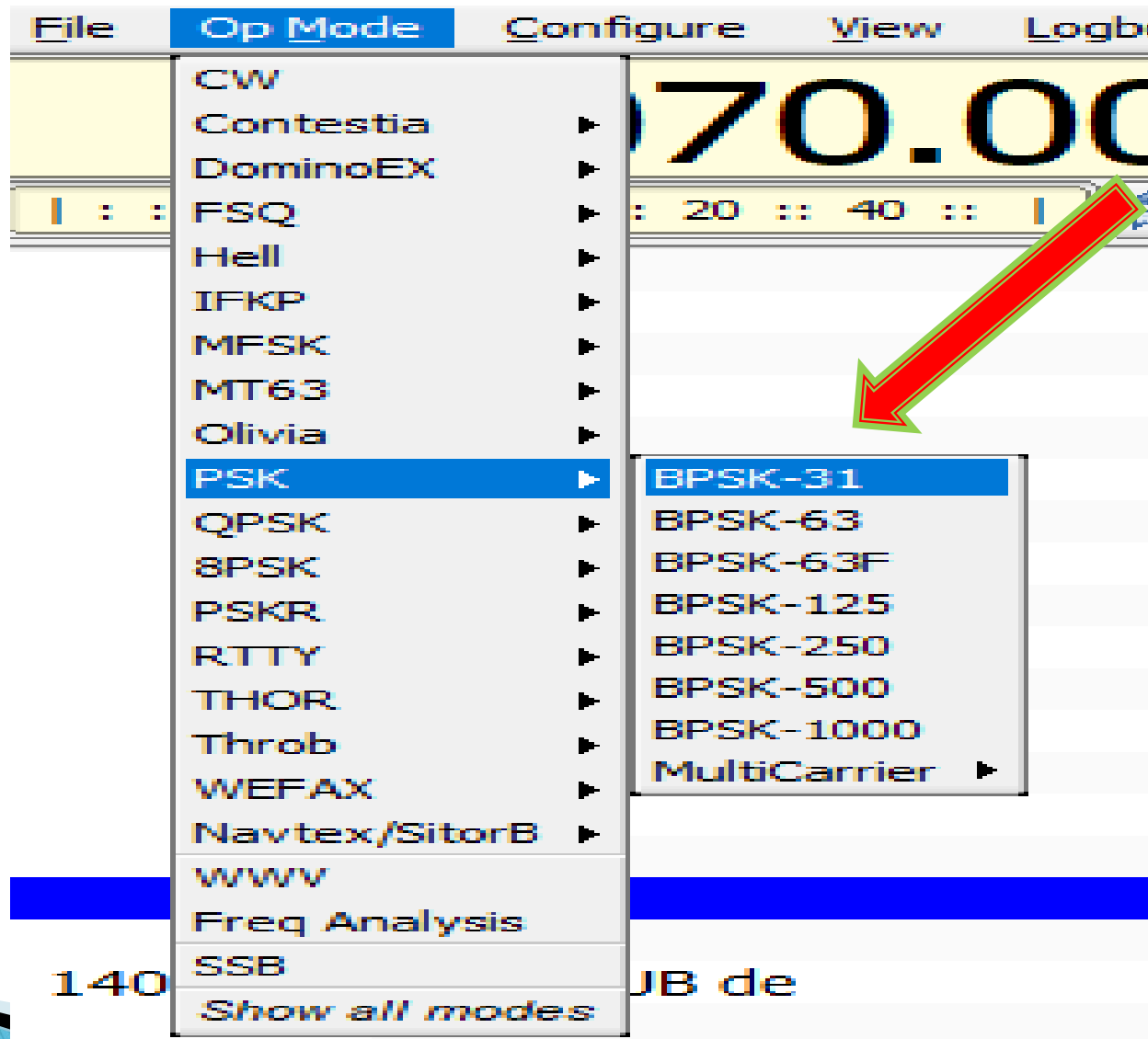
☐ PulseAudio Server string:

☐ File I/O only

☒ Device supports full duplex

Restore defaults Save Close

Digital Types



14070.000

Frq 14068.519 On 1841 Off 1842 In Out
Call NP4JL Op Az
St Pr L C

PSE K

u%4JL ~ teiSIT eiT2IFT CT2IFI aÜnyiN Et_ea iiyee iieLe teleto n o me e□ ra -ce c

Hi OM,

Report : 599 5

Macro editor - C:\Users\Dirk\Desktop\RADIO\macros.mdf

Macro Text

<TX>
CQ CQ de <MYCALL> <MYCALL>
CQ CQ de <MYCALL> <MYCALL> pse k
<RX>

Macro Button Label CQ CQ

Apply Close

Select Tag

<FREQ>	my frequency
<MODE>	mode
<MYCALL>	my call
<MYLOC>	my locator
<MYNAME>	my name
<MYQTH>	my QTH
<MYRST>	my RST
<MYCLASS>	my FD class
<MYSECTION>	my FD section
<ANTENNA>	my antenna
<BAND>	my band

Macro's

3.2 Clear

CQ CQ	CQ - 10s	TX	SHACK	CQ CQ CONT	CQ CONT 10s	Cont EXCH	TNX - QSO 73	T/R
ANSW - CQ	QTH - GRID	TNX QSO 73	STOP TX	73			LOG INC	CQ +


7070.000

Frq	7068.122	On	2045	Off	2045	In		Out	
Call	WM7Z		Op			Az			
Qth			St		Pr		L		C

⌘ n aeÜü eh
TsI d At o tti neF e eet -eo d r si#P ree die eo ti¹ rWa e e=no
=d WM7Z WM7Z
CQ CQ CQ DE WM7Z WM7Z W

7067.91

7068.12 E WM7Z WM7Z W

Q
3.2   Clear

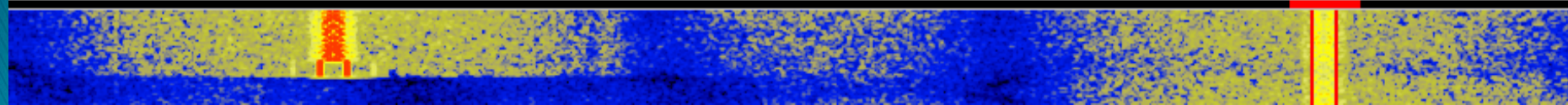
CQ CQ	CQ - 10s	TX	SHACK	CQ CQ CONT	CQ CONT 10s	Cont EXC	TNX - QSO 73
ANSW - CQ	QTH - GRID	TNX QSO 73	STOP TX	73			LOG INC

500

1000

1500

2000



7070.000



Frq

7068.917

On

Off

2032

In

Out



Call

Op

Scott

Az



Qth

oeUloeÖ

St

Pr

L

Thee

C

| : : S3 : : S6 : : S9 : : 20 : : 40 : : |



a o et ae

eton

h DOeSKA i-LOC.JO80 =I

Good to meet you Robert and thanks for the report. Thee

H JO80CI16,=e Scott and the QTH is Kanab utah Kanab Utah We are at the south end of the state near Ariz

aid eze I antenna.. your RST is 579 579 Here I am running 40 watts The equipment is as follows:

Ri

7068.13 W4AFB W4AFB

7068.92 follows: Rig

CQ

3.2



Clear

CQ CQ

CQ - 10s

TX

SHACK

CQ CQ CONT

CQ CONT 10s

Cont EXCH

TNX - QSO 73

T/R

Tx

Rx

ANSW - CQ

QTH - GRID

TNX QSO 73

STOP TX

73

LOG INC

CQ +

CQ-ID

500

1000

1500

2000

2500

HRD Logbook - [My Logbook]

FileEditViewCalendarCountriesLogbookToolsWindowHelp

OpenLayout ALayout B

Satellite TrackingRig ControlDigital MasterRotator

Tune-MainTune-SubAddManager

Full Screen

WØRI
Home - ENS2wa

16:12:01

14.069.990

Lookup

QRZ.comLogbookResetSpot

Callsign: TR8CA

Callsign

LoTW: Yes eQSL: Yes

20m modes

Bands

Modes

Licensee

ALAIN COMBELLES

LIBREVILLE

acombelles@gmail.com

JJ40ql

0.478108°, 9.400827°

6,588 miles, 85°

Country

Gabon

DXCC=420, Cont=AF

Favorites

Lookup

Radio Pane

My LogbookCalendarAward TrackingAward TrackingAward Tracking

AddContestDeleteView

CutCopyPasteRef

LayoutEdit SelectionsQRZ.com

Awards TrackingBackupMore...

FilterQSLAward

LOTW UploadLOTW Download

QSO dateTime onCallModeSentRcvdBandNameCountryLOTW received

4/10/201803:53:57WB6D...PSK3159959920mJOSEPH G PERRY, JRUnited StatesNo

4/6/201810:07:55TG9AHMP SK3159959920mMIERES G. (Manny)GuatemalaNo

3/30/201814:53:40S57DXUSB585820mSLAVKO CELARCItalyNo

3/27/201821:42:49KK4WLUSB595920mGREG E GAINESUnited StatesNo

3/27/201821:15:58YV5ENIUSB595920mLUIS ROMAGNIVenezuelaNo

3/25/201804:18:44VE3OTLLSB595940mBrent MacMillanCanadaVerified (Match)

3/25/201804:11:14AP5ALSB595940mTom Georgens, W2SCPakistanNo

DX Cluster: Spots: WØRI on HB9DRV-9 * (DXSpider)

CloseShow ALLWSI Filter NoneAlarmsOptionsQRZ.comSpot

189 spots0 updating

BMCSTimeModeFreqDX CallCountry (ARRL Prefix)SpotterComment~Dist

✓✗✓✗1611ZCWW14.074.0EA4FVGSpain (EA)SV2EVSFT8, tnx4229

✓✓✓✗1611ZUSB14.280.0N9MMUnited States (K)KW1HFNPOTA 59 in WV900

✗✓✓✗1610ZLSB3.642.0IQ8WN/PItaly (I)IZ8XXEDCI CE014 WCAI-02432 DAI CP-4878

✗✗✗✗1610ZCW14.003.3JY5HXJordan (JY)NO3KQSX 14005.0 UP 1.706211

✗✗✗✗1610ZCW28.074.0TR8CAGabon (TR)9K2ODLL49AI<ft8>JJ40GL6743

✗✗✗✗1610ZCW21.018.0TM3YFrance (F)OS0Seu06+4 CORRECT iota4229

✗✗✗✗1609ZCW28.074.0TR8CAGabon (TR)9K2ODcq ft86743

✗✗✗✗1609ZCW14.040.0TM3YFrance (F)UA3RFEU-0644229

✗✗✗✗1609ZCW28.074.04Z5OZIsrael (4X)PY5ODFT8 736211

30 Day Solar Data

Solar Cycle Progression

DX Cluster: Spots: WØRI on HB9DRV-9 * (DXSpider)

Ready

NUM

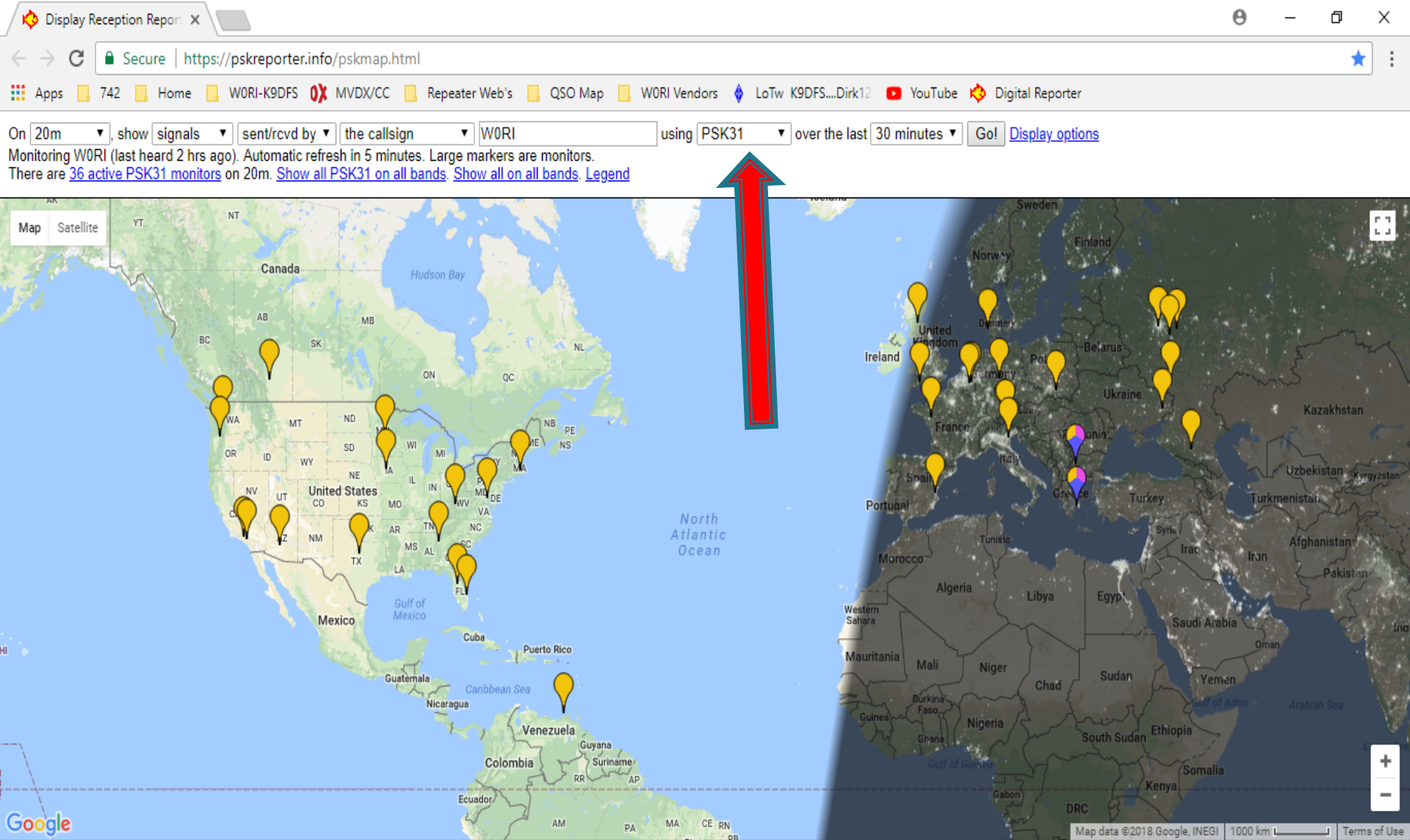
11:12 AM
4/16/2018

DX Cluster in HRD

DX Cluster: Spots: WOR1 on HB9DRV-9 * (DXSpider)

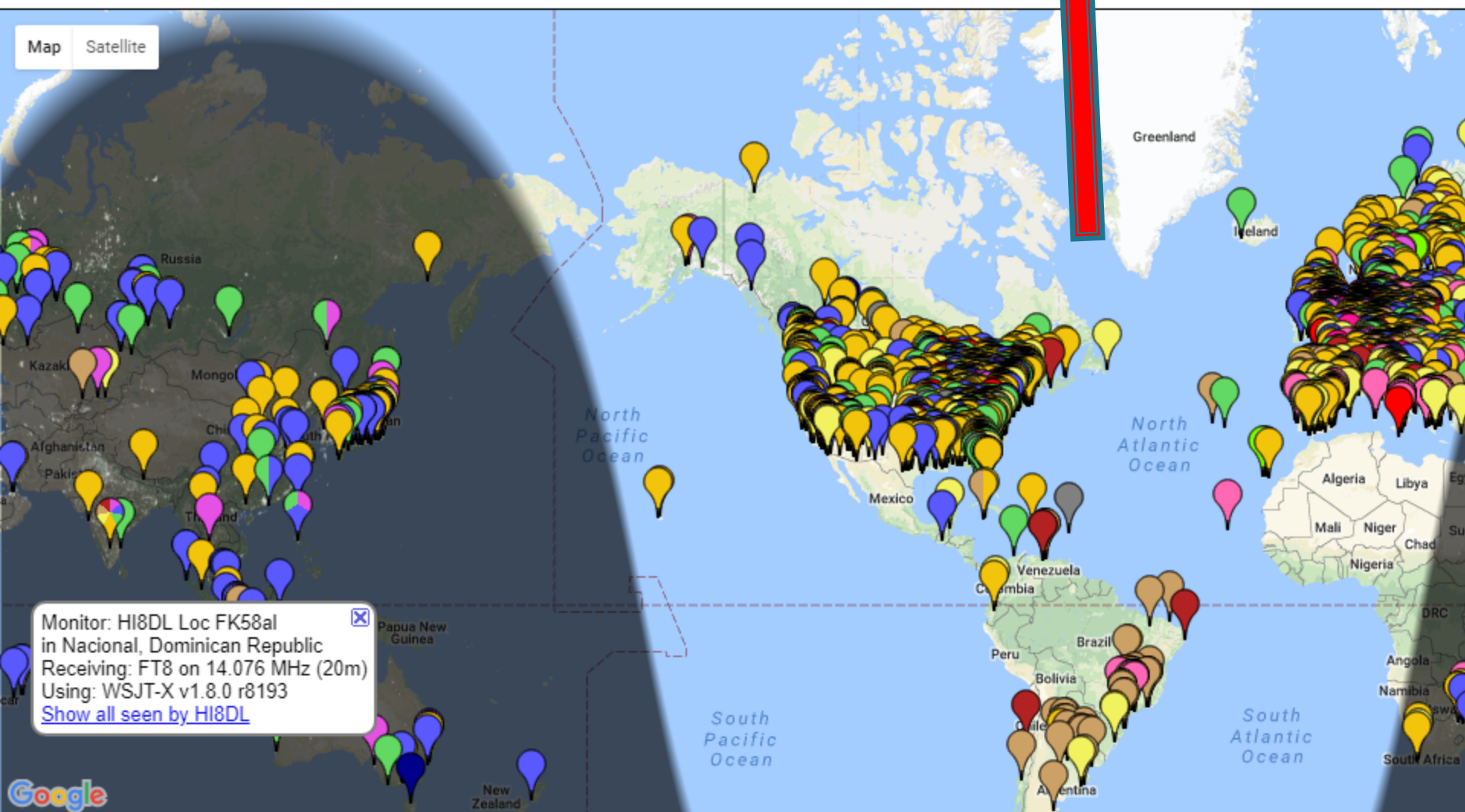
Close		Show ▾	ALL ▾	WSI Filter	None ▾	Alarms ▾		Options	QRZ.com	Spot	200 spots	0 updating
B	M	C	S	Time	Mode	Freq	DX Call	Country (ARRL Prefix)		Spotter	Comment	
✓	✓	✓	✗	2033Z	USB	14.278.0	VA7XWVE2	Canada (VE)		PY6BA	59 tnx	
✗	✗	✗	✗	2032Z	DIGI	7.076.0	VK7XX	Australia (VK)		PD3HF	TnX QSO!	
✓	✓	✓	✗	2032Z	DIGI	7.074.0	W4JNC	United States (K)		VE3PV	FT-8, NC	
✗	✗	✗	✗	2031Z	USB	21.298.8	XQ6CFX	Chile (CE)		PY1LV	cqcdx buenas Wladimir	
✗	✗	✗	✗	2031Z	USB	14.175.0	S92HP	Sao Tome & Principe (S9)		PP5VA	tnx	
✗	✗	✗	✗	2031Z	CW	7.014.5	JH1HDT	Japan (JA)		OK2AP	599 +++ good sig	
✗	✗	✗	✗	2030Z	LSB	3.667.0	HP2MD	Panama (HP)		W4WLF		
✗	✗	✓	✗	2030Z	CW	10.122.0	S57V	Slovenia (S5)		VA2RF		
✗	✗	✓	✗	2030Z	DIGI	18.102.3	HK4FZ	Colombia (HK)		W1KDA		

PSKREPORTER.info (mid day)



On **all bands**, show **signals** rcvd by **the callsign** using **FT8** over the last **30 minutes**

No recent reception reports. Automatic refresh in 4 minutes. Large markers are monitors.

There are **2549 active FT8 monitors**: **1041 on 20m**, **436 on 40m**, **333 on 30m**, **274 on 17m**, **160 on 15m**, **89 on 2m**, **59 on 10m**, **49 on 80m**, 24 on unknown

QSO.....

CQ CQ de W0RI W0RI

CQ CQ de W0RI W0RI pse k (or KN)

Answer with MACRO's

Manual FREE Text – Typing TX/RX

QSO:

Call Sign

RST=599 (include your grid many chase grids)

Log as “PSK” or “Digital”

14070.000

Frq

14069.002

On

1540

Off

1622

In

Out

Call

Op

Az

Qth

St

Pr

L

C

QSO's

rs

Cet ☐ dt

toe ieeMa.t\ yeEee

en

C-ro penDs .ot y y o 1 tn s a ol D lf iee e t e nifoip au

ePeo ☐ e eh te oo C ☐ =ree utteaE o ai%eU

** CQ CQ de WORL

Calling
CQ

** CQ CQ de WORL WORL

** CQ CQ de WORL WORL pse k

^r

14068.51 fse

14068.58 te

CQ

3.2

Clear

CQ CQ

CQ - 10s

DEMO

WX etc.

CQ Contest

CQ Cont 10s

Cont EXCH

TNX - QSO 73

T/R

Tx >>

Rx ||

TX >>

ANSWER

QTH - GRID

QSO.. 73

SHACK

Start-Stop

TEST

73

LOG INC

CQ +

CQ-ID >>

500

1000

1500

2000

2500

WF

-20

75

x2

NORM

998

QSY

Store

Lk

Rv

T/R

Digital is fun.....

► It's fun

- Great during bad band conditions
- All Bands, watch Band Plan....
- Many different Modes to try
- ISS – Does Digital mode on 2 M, BUT that takes some practice....to track station....HRD will help.
- Short or long QSO
- Digital Imaging Anyone!!!!

Sources....Demo Items

- ▶ Ham Radio Deluxe
- ▶ ARRL.org
 - Band Plan Chart
 - Digital Mode Details
- ▶ Fldigi
- ▶ QST March 1992, January 2001
- ▶ You Tube.....KE0OG...Dave
- ▶ Signal Link Box...from DX Engineering \$99+
- ▶ Portable Monitor, PI w/FLDIGI
 - By Mike Sorensen K9KQX

[You Tube....search FLDGI...PSK31](#)

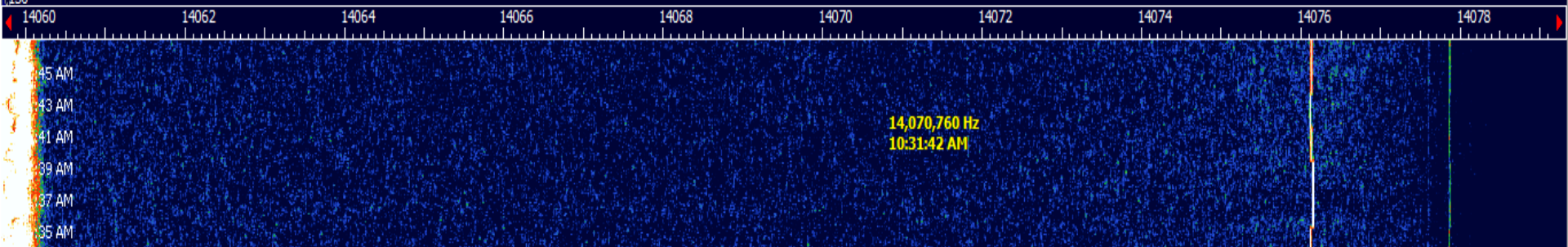
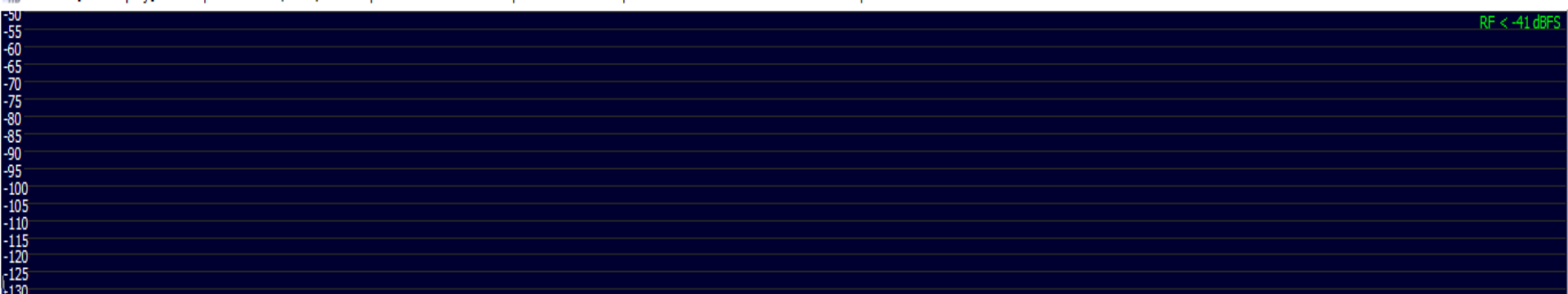
Troubleshooting....(OE's)

- ❖ Correct Digital Mode selected?
- ❖ Correct Operating software with FLDIGI downloaded.
- ❖ Computer...Sound Card Setting?
- ❖ Com Port setting.....Rig to Laptop?
 - ❖ Com Port Enabled?
- ❖ Correct cable.....Rig to Laptop?
- ❖ “SIGNAL LINK”.....wrong jumper setting?
- ❖ Rig triggers, No output, check soundcard setting
- ❖ Great “You Tube” Video's which can help

Short Video Clip

- ▶ IC 7300,
 - [IC7300 DIG \(1\).MOV](#)

- ▶ FLDIGI
 - [IC7300 DIG FLDIGI .MOV](#)



Peak

AM ☐ ECSS ☐ FM ☐ LSB ☐ **USB** ☐ CW ☐ DRM ☐

LO A **0014.056.934**

Tune **0014.048.195**

Volume

AGC Thresh.

S0 -4 dB

4/17/2018 10:31:46 AM

CPU HDSDR: 7%
CPU Total: 36%

Waterfall Spectrum RBW 5.9 Hz 2 Avg Speed

Zoom

AF < -31 dBFS

Waterfall Spectrum RBW 5.9 Hz 2 Avg Speed

Zoom

Links

- ▶ Sourceforge.net
- ▶ FLDIGI 4.0.xx @ Sourceforge...search on FLDIGI
 - PSK31others
- ▶ FT8.....program “WSJT-X”, search web
 - CAUTION...Make sure your computer clock is set to exact time...seconds matter (K9KQX)
- ▶ PSKREPORTER.INFO.....active digital signals
 - Set mode and recent QSO's 5 minutes refresh !!! Hit “GO” button....
- ▶ DX WATCH-CLUSTER.....shows all HF signals or report of countries
 - QRZ..has HF Watch links as well...

FLDIGI...Download Link

Secure | <https://sourceforge.net/directory/os:windows?q=fldigi>

742 Home K9DFS MVDX/CC Repeater Web's QSO Map WORL Vendors LoTw K9DFS...Dirk12 YouTube Digital Reporter

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fldigi

Ham Radio Digital Modem Application

Fldigi is a modem program for most of the digital modes used by radio amateurs today: CW, PSK, MFSK, RTTY, Hell, DominoEX, Olivia, and Throb are all supported. It can help calibrate a sound card to a time signal and do frequency measurement tests. NOTICE: You must proceed to the Files section to locate the correct **fldigi**, flrig etal download for your particular operating system. Do not... [Expand](#)

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