

Program: Digital Modes & FIDigi

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Digital Mode Basics

Radio Digital Modes History

- Original Digital Modes

- ★ Telegraphy (Morse Code - CW); Teleprinter (Baudot - RTTY); Facsimile (FAX)

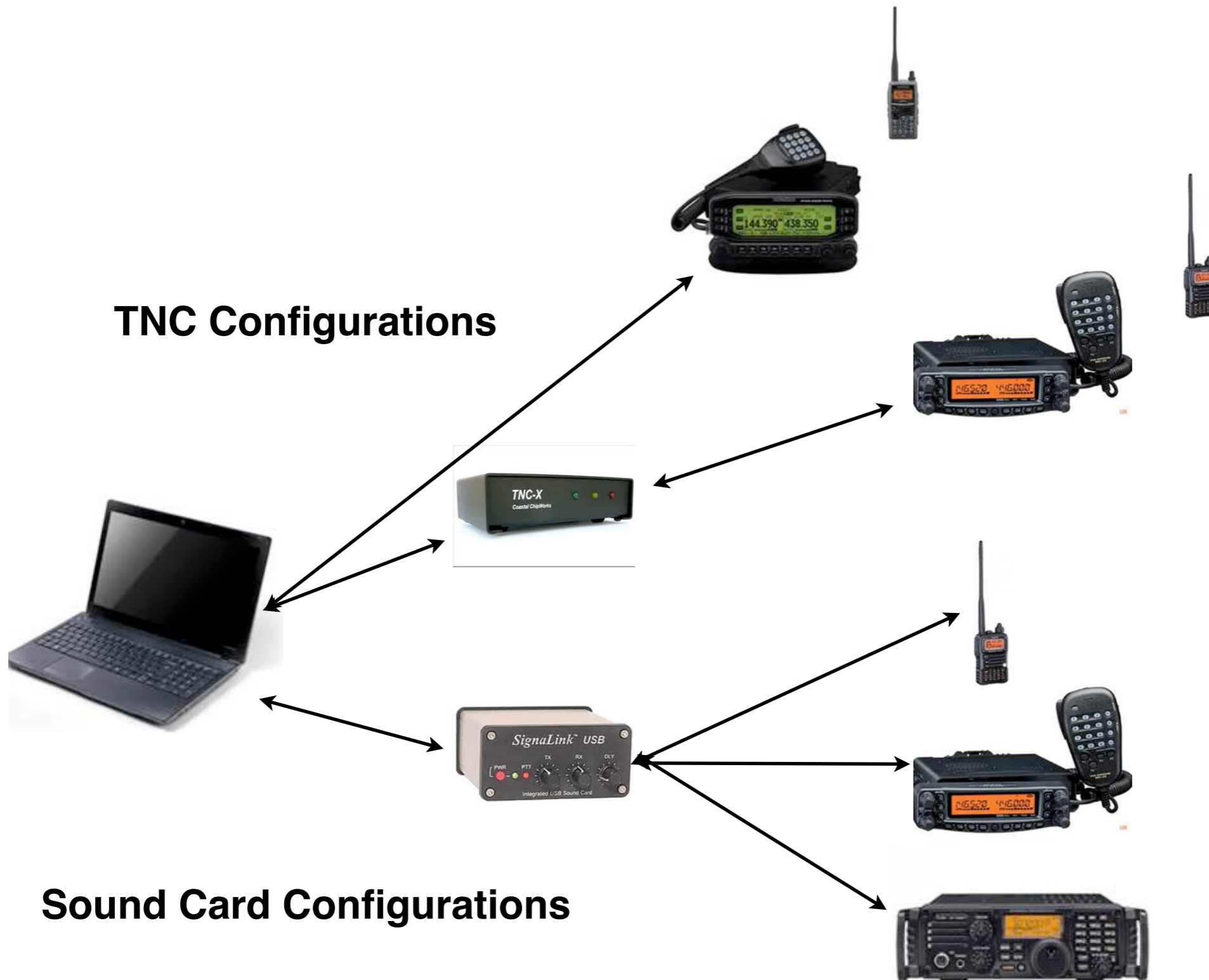
- Packet

- ★ A form of packet switching technology used to transmit digital data via radio or wireless communications links. Amateurs started experimenting with it in 1978.
- ★ It uses the same basic fundamentals used in communications via the Internet and Cellular networks. Example: GPRS is the packet data facility for GSM cellular telephone network.
- ★ Any station can act as a digipeater (digital repeater), thus allowing linkage between stations to pass data packets.
- ★ Layers (Open Systems Interconnection (OSI) Model)
 - ★ Physical Layer: Radio, Modem/TNC, Computer
 - ★ Data Link Layer: AX.25 (Amateur AX.25)
 - ★ Network Layer: Not really required between 2 operators, but used when automated routing is required

Digital Modes and Required Hardware

- Examples of those using a Terminal Node Controller (TNC)
 - ★ Packet BBS
 - ★ APRS
 - ★ WinLink
- Examples of those using a sound card interface (USB Signalink, Rigblaster)
 - ★ RTTY
 - ★ PSK31
 - ★ MT63
 - ★ Olivia
- Examples of those using Internet for long-haul transfer of data
 - ★ EchoLink
 - ★ WinLink
 - ★ D-Star

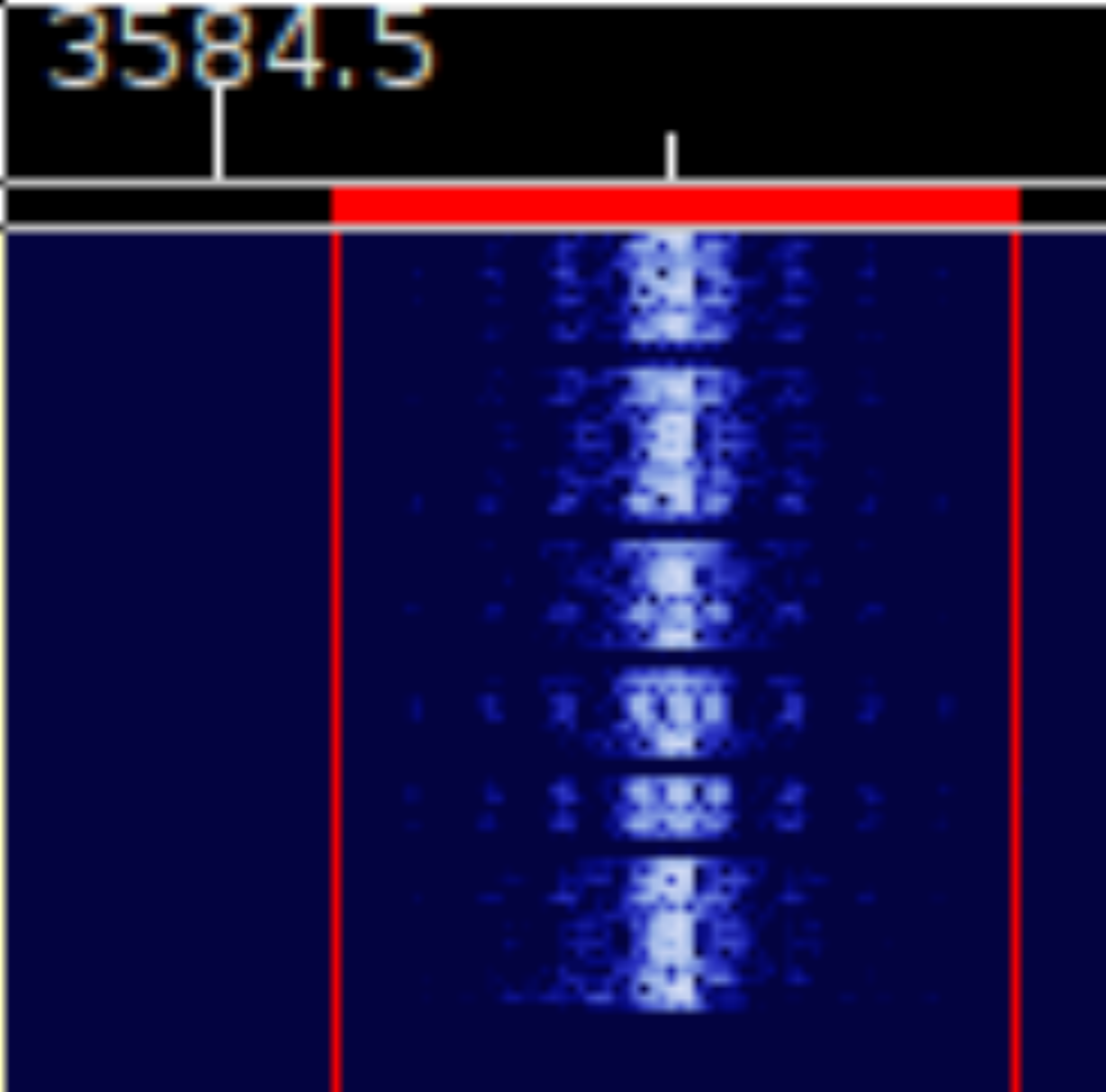
Hardware Configurations



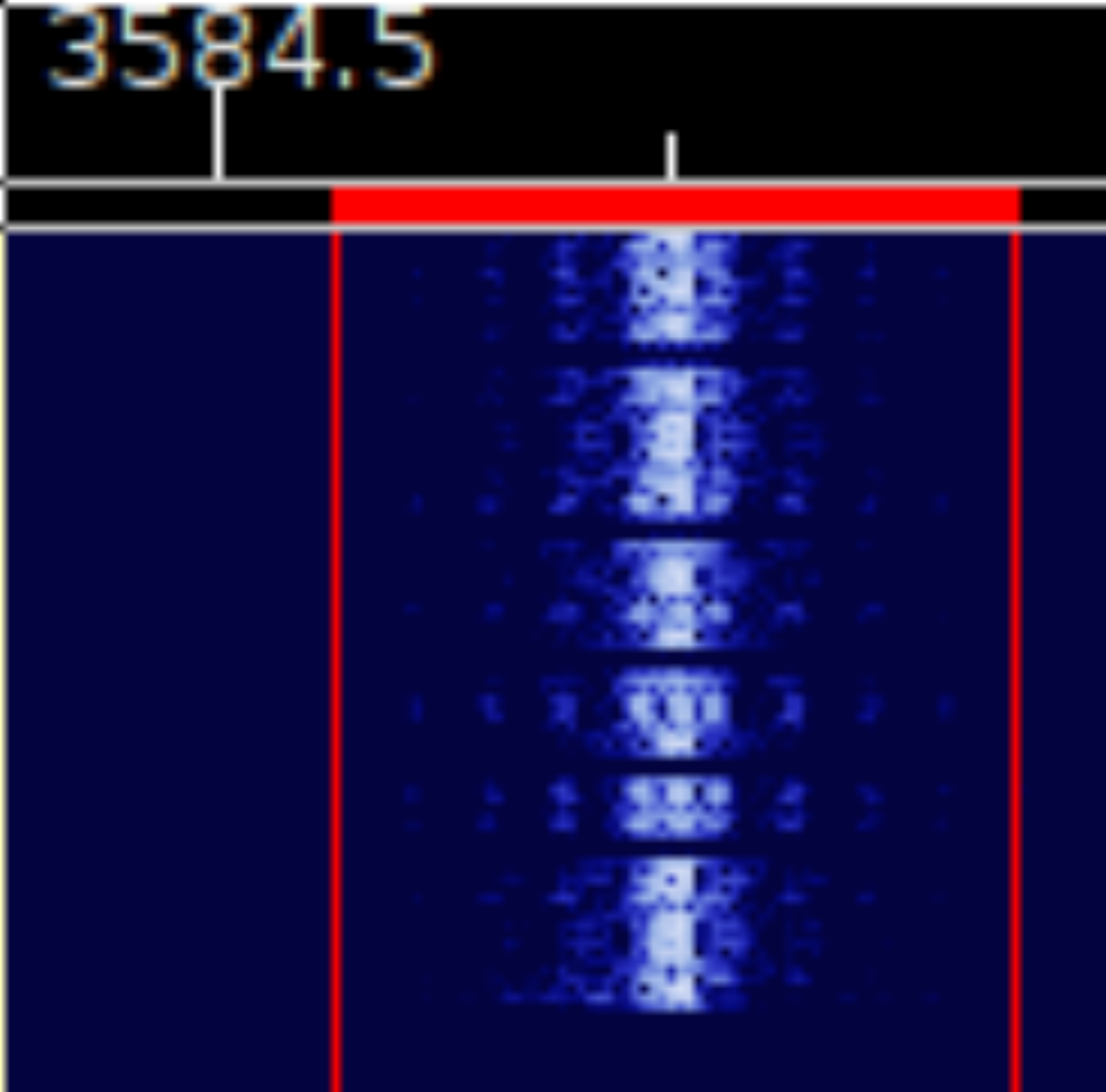
TNC Configurations

Sound Card Configurations

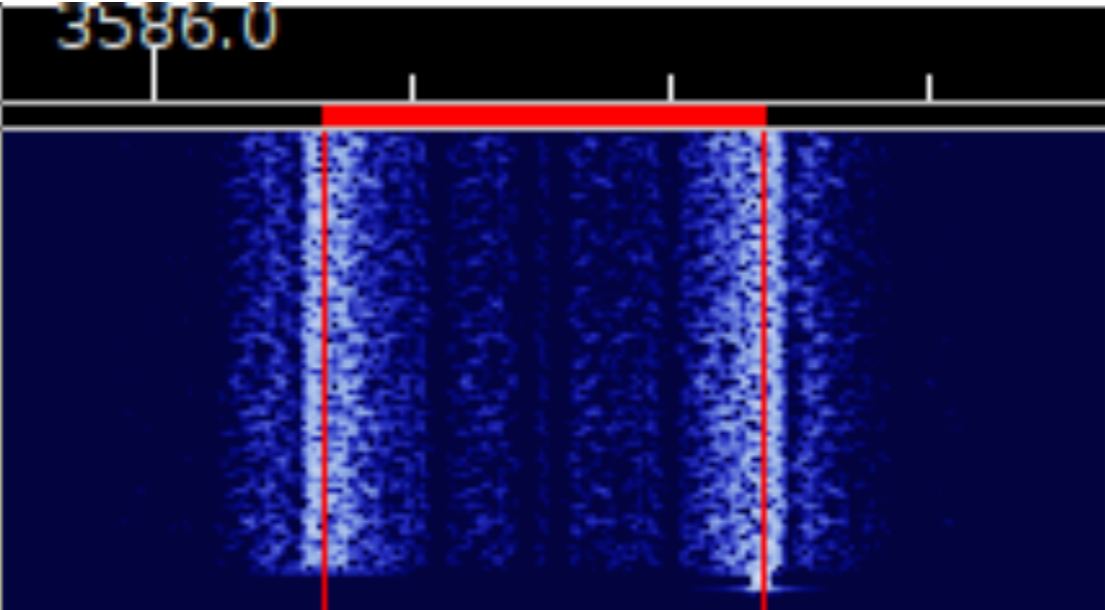
What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
CW - 20 WPM	 <p>3584.5</p>	

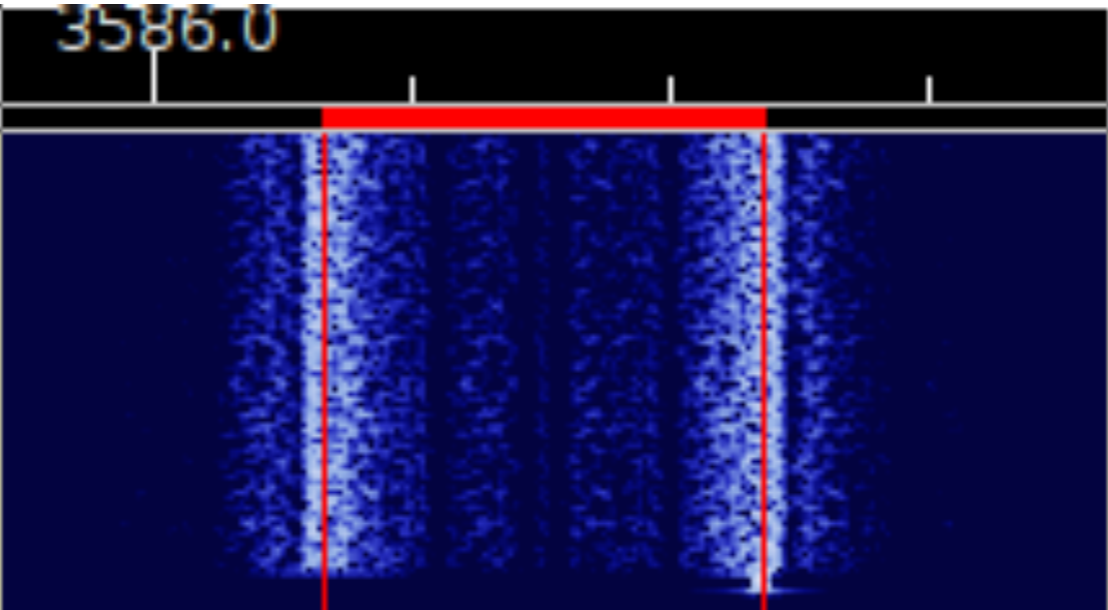
What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
CW - 20 WPM		

What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
RTTY - 170 Hz shift, 45 Baud	 <p>The waterfall plot displays a series of vertical lines representing the signal, with a red bar at the top indicating the current frequency. The frequency is labeled as 3586.0.</p>	

What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
RTTY - 170 Hz shift, 45 Baud	 <p>The Fldigi Waterfall plot shows a series of vertical lines representing characters, with a red bar at the top indicating the current frequency. The frequency is labeled as 3586.0. The plot shows a series of vertical lines representing characters, with a red bar at the top indicating the current frequency.</p>	

What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
Facsimile		

What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
Facsimile		

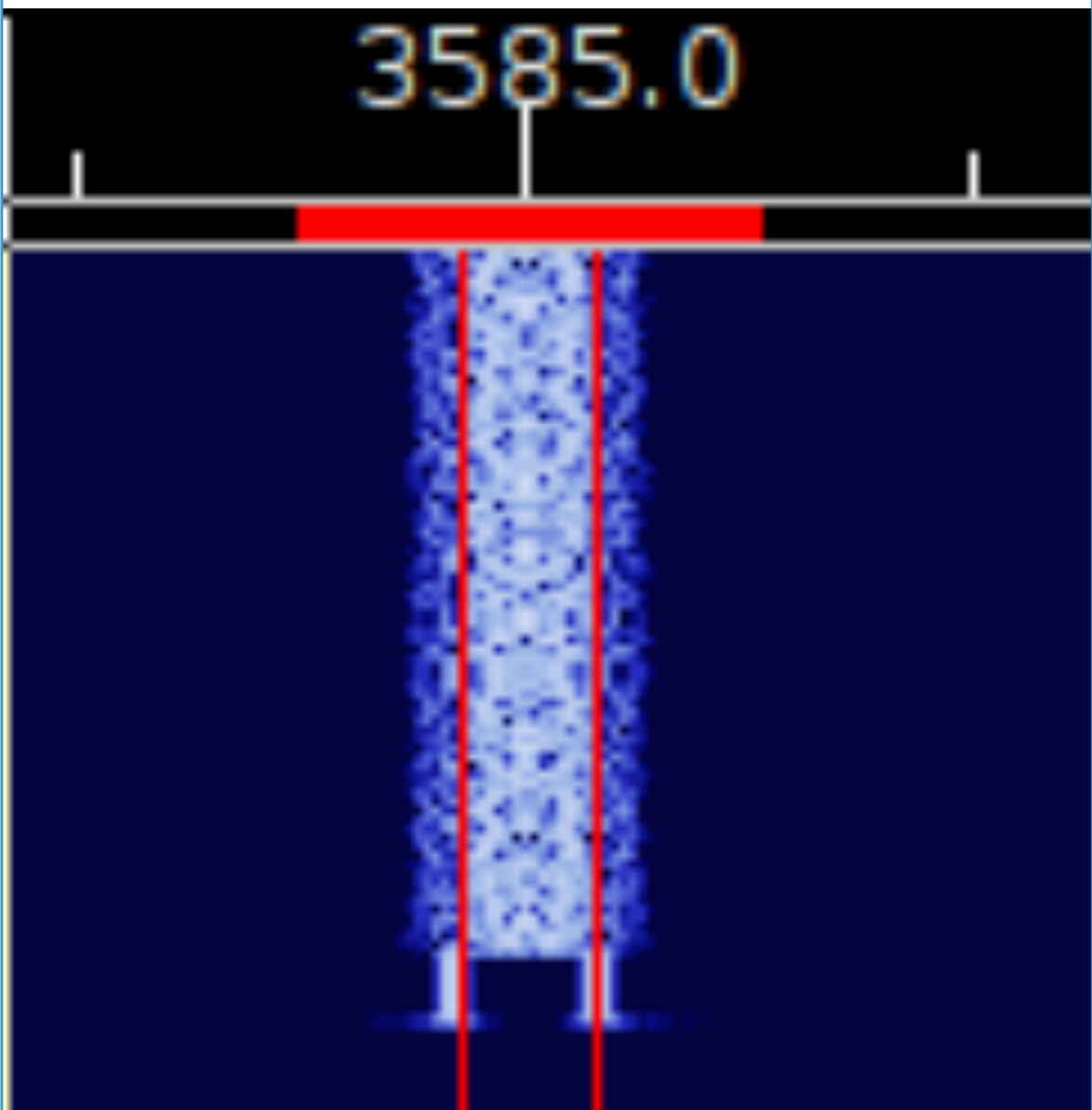
What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
Packet - 300 Baud		

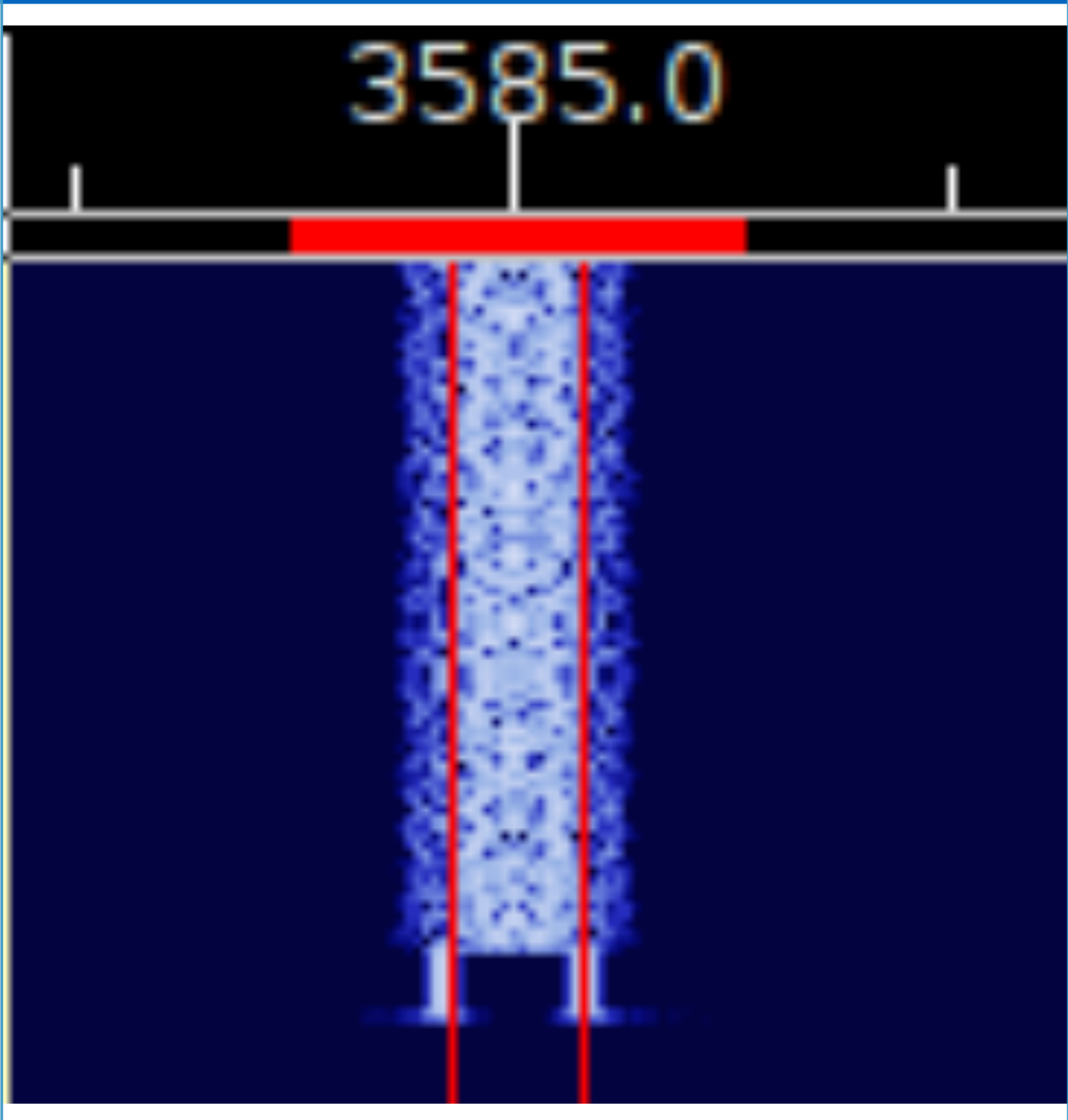
What Do These Modes Look/Sound Like?

Mode	Fldigi Waterfall	Sound
Packet - 300 Baud		

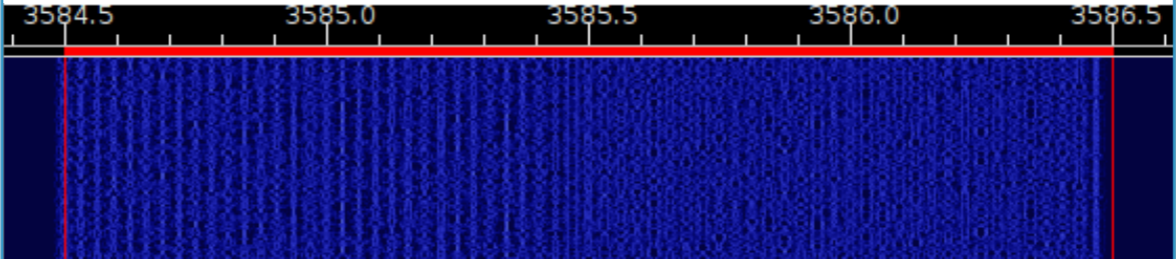
What Do These Modes Look/Sound Like?

Mode	FIDigi Waterfall	Sound
BPSK31	 <p>3585.0</p>	

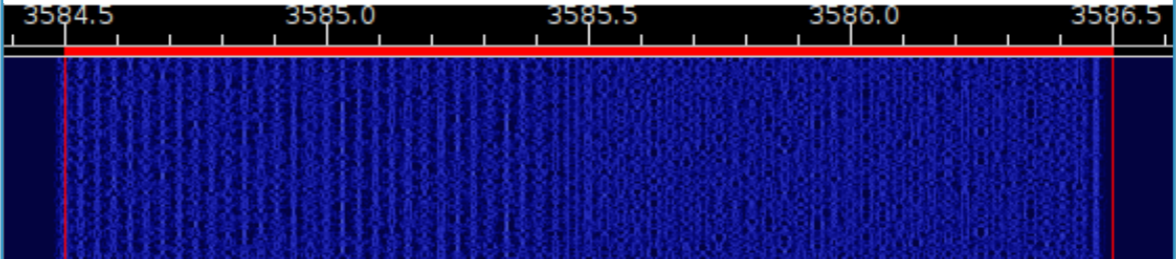
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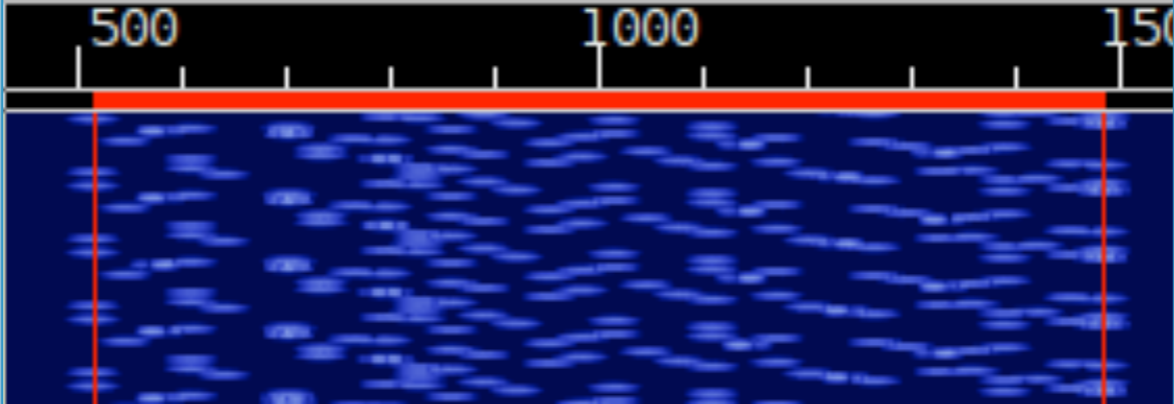
What Do These Modes Look/Sound Like?

Mode	FIDigi Waterfall	Sound
MT63 - 2K		

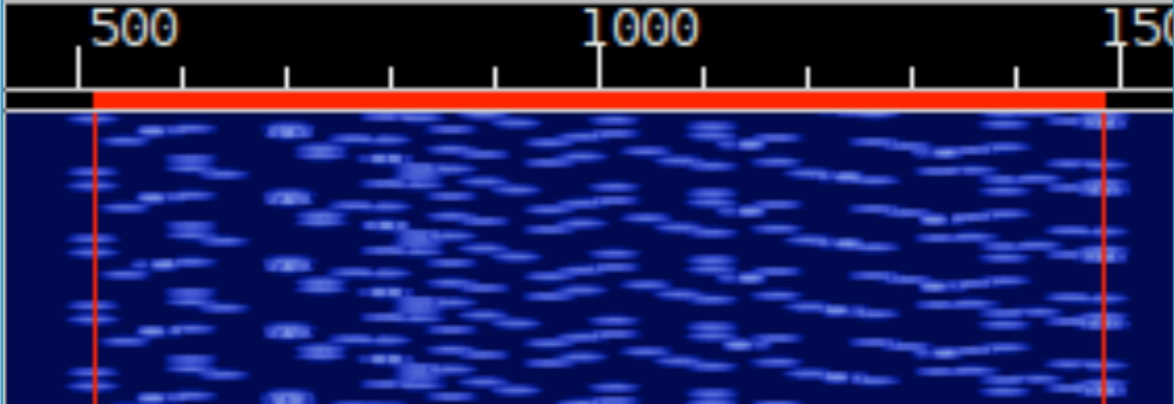
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Mode	FIDigi Waterfall	Sound
MT63 - 2K		

What Do These Modes Look/Sound Like?

Mode	FIDigi Waterfall	Sound
Olivia - 32/1K		

What Do These Modes Look/Sound Like?

Mode	FIDigi Waterfall	Sound
Olivia - 32/1K		

Some Favorite Software

- Those using a Terminal Node Controller (TNC)
 - ★ APRS: APRSISCE (Windows)
 - ★ WinLink: RMS Express (Windows)
- Those using a sound card interface (Computer, USB Signalink, Rigblaster)
 - ★ ***FIDigi Suite of Programs (Windows, Linux, Mac OS X)***
 - ★ MixW (Windows)
 - ★ Ham Radio Deluxe - Digital Master 780 (Windows)
 - ★ DigiPan (Windows)
 - ★ WinWarbler (Windows)
- Those using Internet for long-haul transfer of data
 - ★ EchoLink: Available for Windows, Mac OSX, iOS, but not Linux

FIDigi Basics

FIDigi Software - Main User Interface

The screenshot displays the FIDigi software interface with the following labeled components:

- Frequency Area:** Located at the top left, showing the current frequency set to 14.070.
- Signal Browser Area:** A large text area on the left side for displaying received signals.
- Macro Bar:** A horizontal bar below the signal browser containing various call letters and modes like CQ, ANS, QSO, KN, SK, Me/Qth, Brag, T/R, Tx, Rx, and TX.
- QSO Info Area:** A yellow highlighted area at the top right for displaying call information.
- Output Area:** A yellow highlighted area below the QSO info area for displaying transmitted audio.
- Input Area:** A large light blue area for displaying received audio.
- WF/TX/RX Control Bars:** A horizontal bar at the bottom containing various control buttons and sliders for the waterfall, TX, and RX sections.
- Waterfall Area:** A large black area at the bottom for displaying a frequency waterfall plot.
- Docked Scope:** A small circular scope window on the right side of the waterfall area.

FIDigi Software - Macro Tags and Example

Partial Tag List

<FREQ> = my frequency
<MODE> = mode
<MYCALL> = configuration call
<MYLOC> = configuration locator
<MYNAME> = configuration name
<MYQTH> = configuration QTH
<MYRST> = my RST
<ANTENNA> = configuration antenna
<VER> = Fldigi version

<CALL> = other stations callsign
<LOC> = other stations locator
<NAME> = other stations name
<QTH> = other stations QTH
<RST> = other stations RST

Macro Examples

CQ Button

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

Resolves to:

```
CQ CQ CQ de WG5L WG5L WG5L  
CQ CQ CQ de WG5L WG5L WG5L pse k
```

Me/OTH Button

```
my name ... <MYNAME> <MYNAME>  
my QTH .... <MYQTH>  
my LOC .... <MYLOC>
```

Resolves to:

```
my name ... Gary Gary  
my QTH .... Longview, TX  
my LOC .... em22pn
```

SK Button (with Jim - AJ1MQ as contact)

```
tnx fer QSO <NAME>, 73, God bless.  
<ZDT> <CALL> de <MYCALL> sk
```

Resolves to:

```
tnx fer QSO Jim, 73, God bless.  
06/13/13 01:06Z AJ1MQ de WG5L sk
```

FIDigi Software - Field Day Macro Examples

CQ Button (with K5LET as MYCALL)

```
<TX>  
CQ FD CQ FD de <MYCALL> <MYCALL> k  
<RX>
```

Resolves to:

```
CQ FD CQ FD de K5LET K5LET k
```

Reply Button (with K5LET as MYCALL and K4ABC as CALL)

```
<TX>  
<CALL> de <MYCALL> <MYCALL> kn  
<RX>
```

Resolves to:

```
K4ABC de K5LET K5LET kn
```

Report Button (with K5LET as MYCALL, K4ABC as CALL, 2F NFL as XIN and 3F NTX as XOUT)

```
<TX>  
<CALL> QSL your <XIN> pse cpy <XOUT> <XOUT> QSL?  
<CALL> de <MYCALL> kn  
<RX>
```

Resolves to:

```
K4ABC QSL your 2F NFL pse cpy 3F NTX 3F NTX QSL?  
K4ABC de K5LET kn
```

Repeat Button (with K5LET as MYCALL, K4ABC as CALL and 3F NTX as XOUT)

```
<TX>  
<CALL> pse cpy <XOUT> pse rpt your exchange  
<CALL> de <MYCALL> kn  
<RX>
```

Resolves to:

```
K4ABC pse cpy 3F NTX pse rpt your exchange  
K4ABC de K5LET kn
```

73 Button (with K5LET as MYCALL and K4ABC as CALL)

```
<TX>  
<CALL> QSL 73 gl de <MYCALL> sk  
<RX>
```

Resolves to:

```
K4ABC QSL 73 gl de K5LET sk
```

73 Dup Button (with K5LET as MYCALL, K4ABC as CALL and 3F NTX as XOUT)

```
<TX>  
<CALL> dup, we are <XOUT> 73 gl de <MYCALL> sk  
<RX>
```

Resolves to:

```
K4ABC dup, we are 3F NTX 73 gl de K5LET sk
```


FIMsg and Forms

FIMsg Software - Message Forms

FLMSG: 1.1.32

File Form Template Config AutoSend Help

ICS-213 report file: default.213

Originator Responder

To Pos.

Fm Pos.

Sub.

Date Time

Message:

Sig. Pos.

Comp base64 DOMX22

FLMSG: 1.1.32

File Form Template Config AutoSend Help

ICS-2 file: new.213

Originator

To Pos.

Fm Pos.

Sub.

Date Time

Message:

Sig. Pos.

Comp base64 DOMX22

- Drag-n-Drop
- ICS
 - ICS203
 - ICS205
 - ICS205A
 - ICS206
 - ICS213
 - ICS214
 - ICS216
 - ICS309
- HICS
- MARS
- IARU
- Radiogram
- Red Cross
- Hurricane Wx
- Plaintext
- CSV
- Blank
- Transfer

FLMSG: 1.1.32

File Form Template Config AutoSend Help

ICS-2 file: default.213

Originator

To Pos.

Fm Pos.

Sub.

Date Time

Message:

Sig. Pos.

Comp base64 DOMX22

- Drag-n-Drop
- ICS
- HICS
- MARS
 - Daily
 - IN/EEI
 - Net
 - Army
 - Navy
- IARU
- Radiogram
- Red Cross
- Hurricane Wx
- Plaintext
- CSV
- Blank
- Transfer

FLMSG: 1.1.32

File Form Template Config AutoSend Help

ICS-2 file: default.213

Originator

To Pos.

Fm Pos.

Sub.

Date Time

Message:

Sig. Pos.

Comp base64 DOMX22

- Drag-n-Drop
- ICS
- HICS
- MARS
- IARU
- Radiogram
- Red Cross
 - Welfare
 - 5739
 - 5739A
 - 5739B
- Hurricane Wx
- Plaintext
- CSV
- Blank
- Transfer