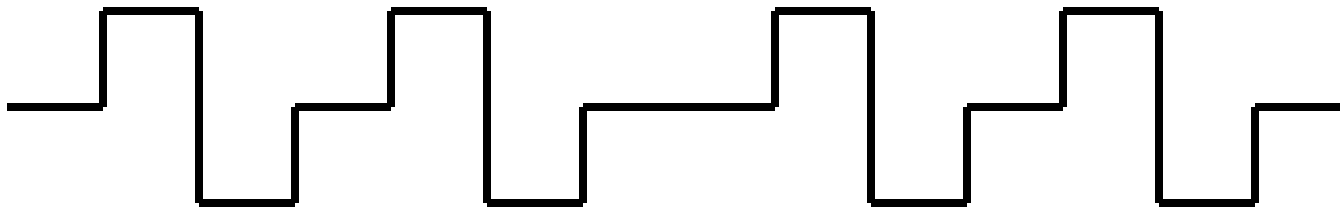


THOSE DIGITAL MODES



LARRY TELLES, K6SPP – FEBRUARY 2013

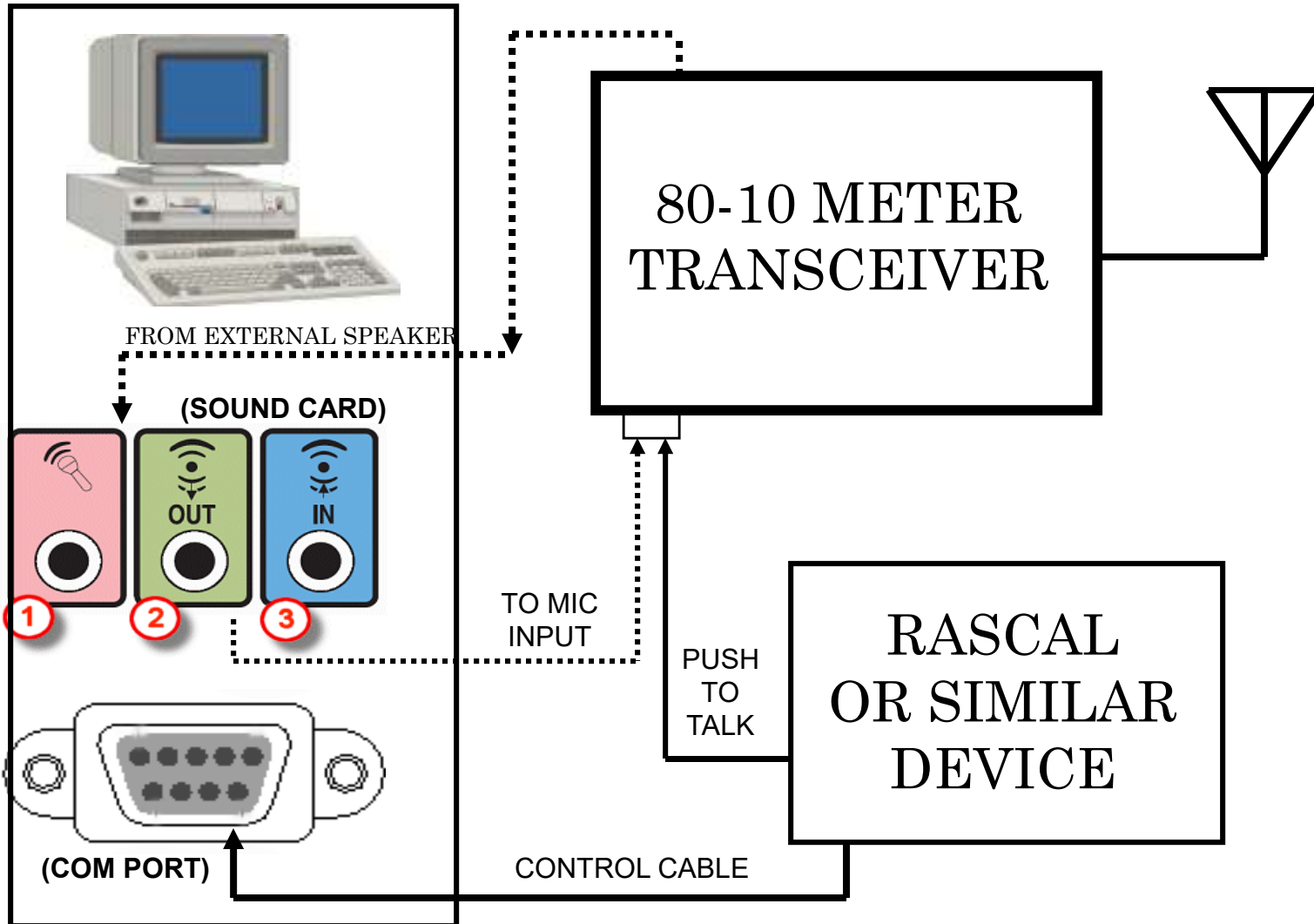
WHY DIGITAL MODES?

- **POWER NECESSARY**
- **BASIC COMMUNICATIONS**
- **BAND CONDITIONS**
- **EMERGENCY COMMUNICATIONS**
- **COST OF NECESSARY EQUIPMENT**
- **BEST OF ALL**

TOPICS OF THIS TALK

- **FIVE BASIC COMPONENTS FOR DIGITAL MODES**
- **CABLES AND CONNECTORS NEEDED**
- **INTERFACE (COMPUTER TO TRANSCEIVER)**
- **TYPES OF DIGITAL MODES**
- **SOFTWARE NECESSARY**

HARDWARE – FOUR COMPONENTS



SIMPLE CABLE INTERFACE

**COMPUTER &
SOUND CARD**

**SSB
TRANSCEIVER**

INPUT



SPEAKER OUT

OUTPUT



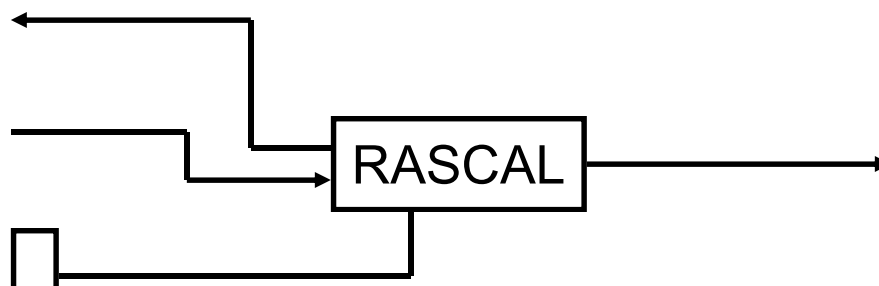
MICROPHONE IN

INPUT

OUTPUT

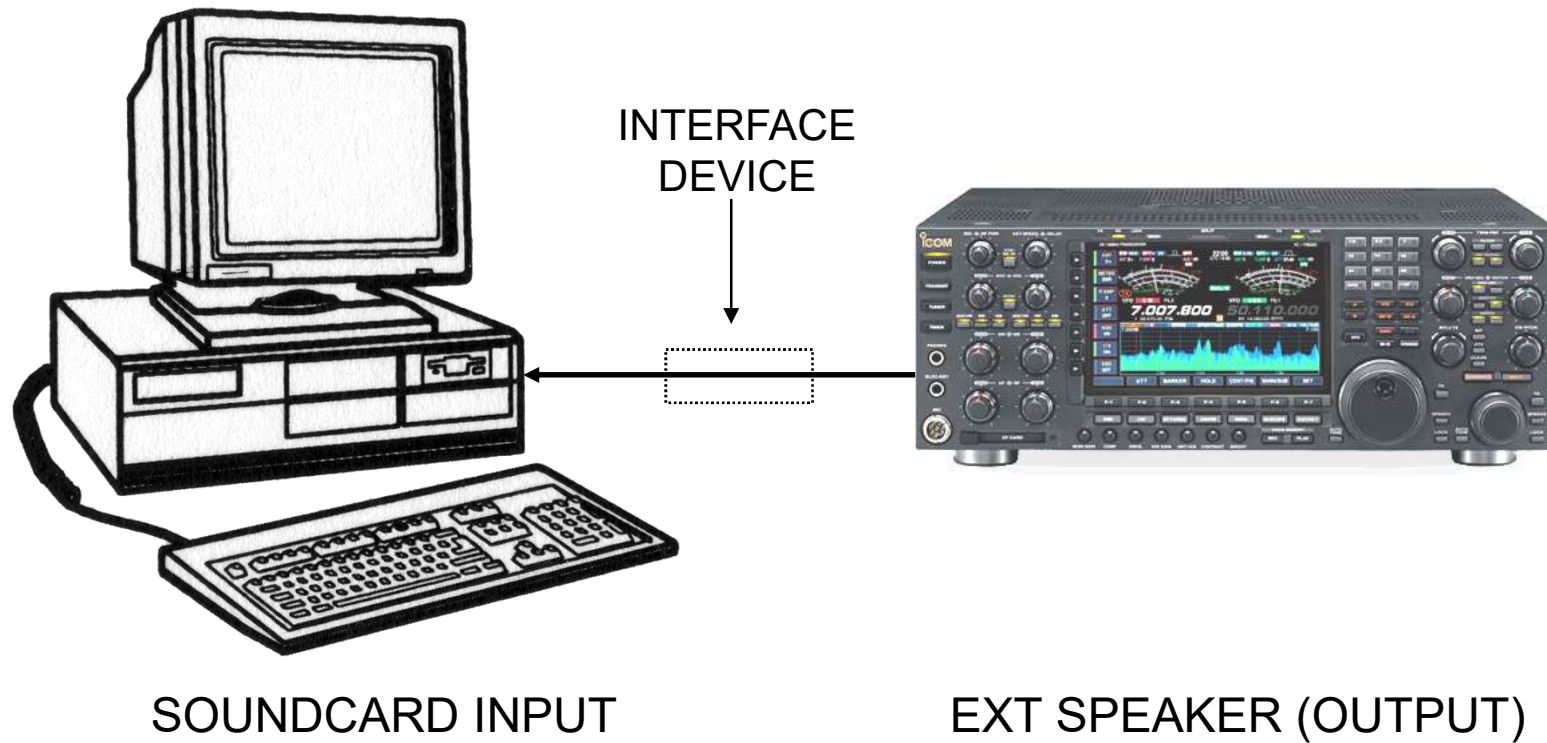
SERIAL
PORT

DB-9

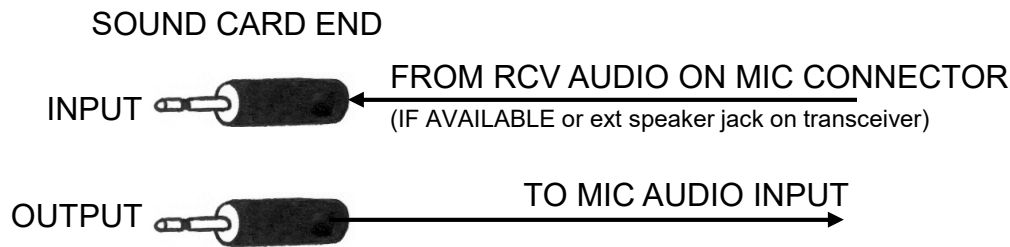


TRANSMIT,
RECEIVE,
AND
PTT

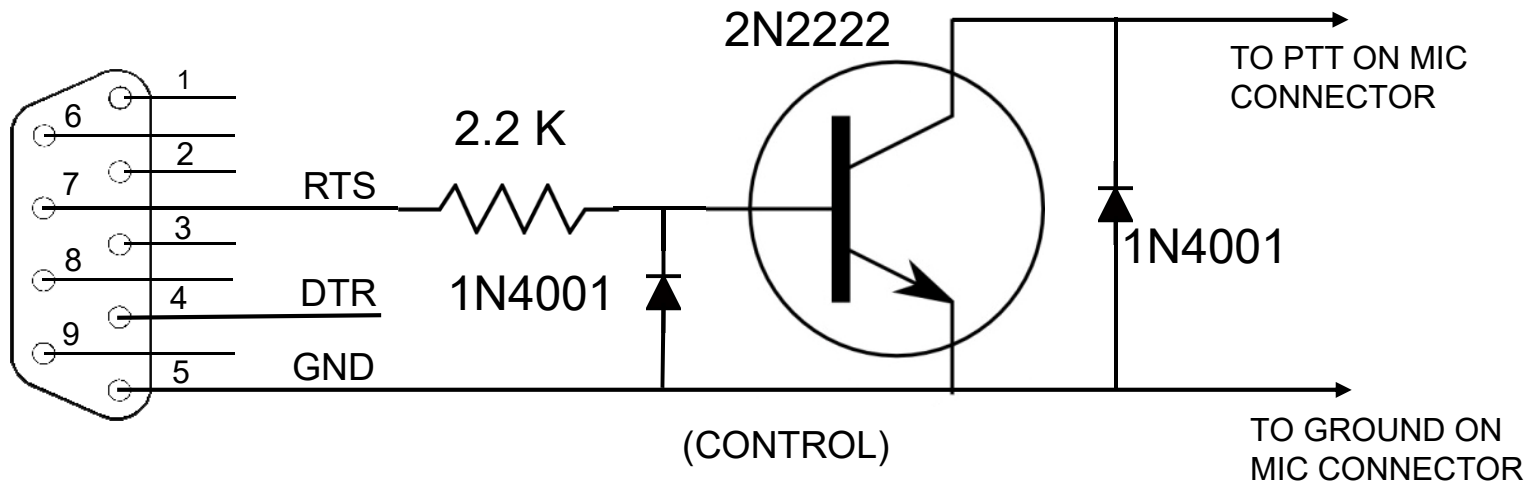
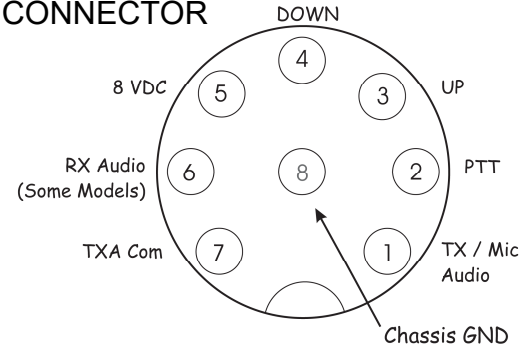
DIGITAL MODE (RECEIVE ONLY)



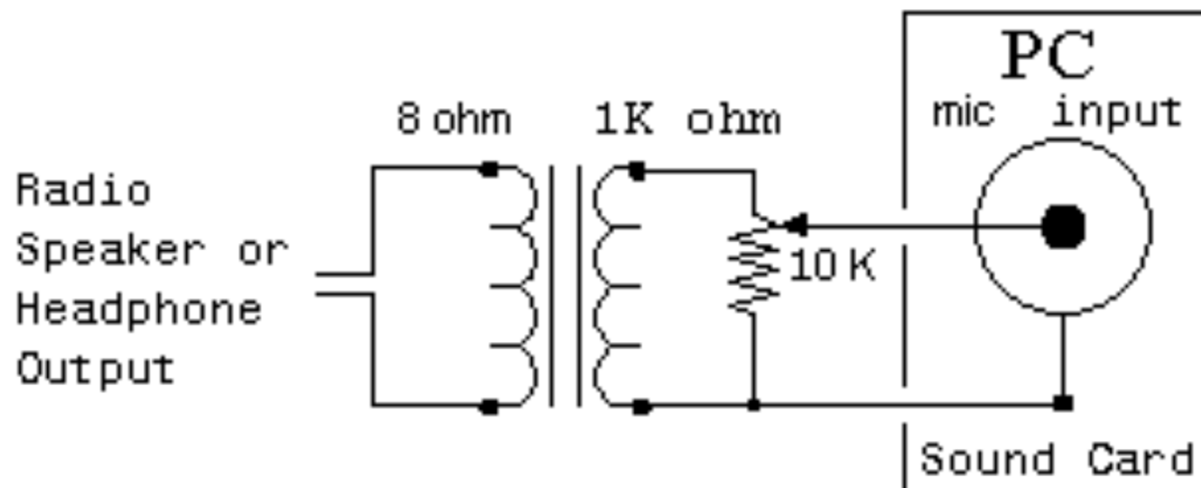
HOMEBREW RASCAL



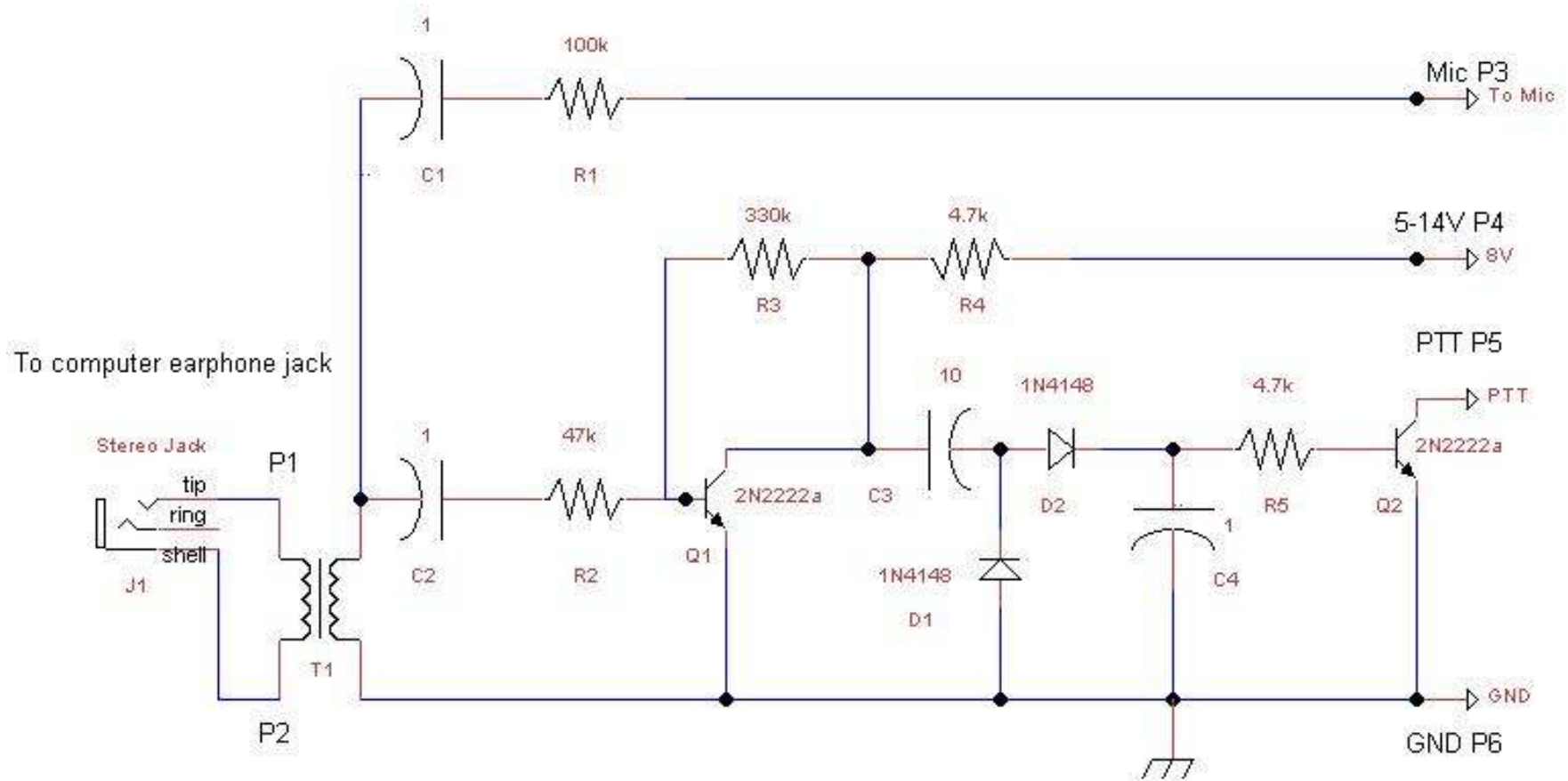
TYPICAL KENWOOD
MIC CONNECTOR



INTERFACE CAUTION (ISOLATION & ATTENUATION)

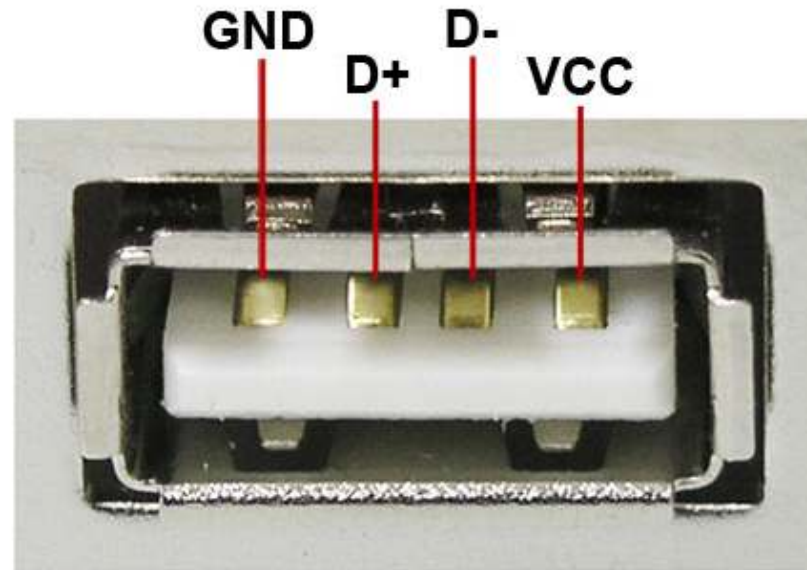


ANOTHER HOMEBREW RASCAL



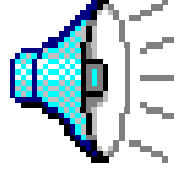
THE USB CONNECTOR

Signal	Color	Pin
+Data	Green	3
-data	White	2
VCC	Red	1
GND	Black	4



- ALL NEW LAPTOP & DESKTOP COMPUTERS NO LONGER HAS COM PORTS.
- A COM PORT TO USB (UNIVERSAL SERIAL BUS) CONVERTER MUST BE USED.

THOSE DIGITAL MODES

- **PACKET** 
- Written Record
- Faster Than Voice

THOSE DIGITAL MODES

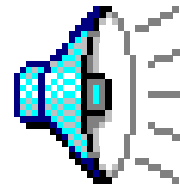
- **PSK31** 
- Most Popular Mode
- Narrow Bandwidth

THOSE DIGITAL MODES

- **RTTY** 
- Each Bit 22ms Long
- 45 Baud Most popular

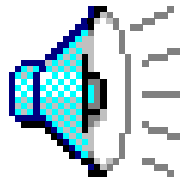
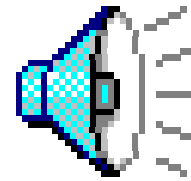
THOSE DIGITAL MODES

- **AMTOR**

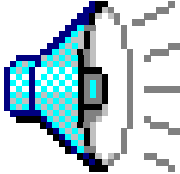


- FSK Modulation
- Not Very Popular Now

THOSE DIGITAL MODES

- **PACTOR**  I  II
- Error Correction
- 200 Baud Transfer Rate

THOSE DIGITAL MODES

- **G-TOR** 
- FSK
- Robust Mode

THOSE DIGITAL MODES

- **CLOVER** 
- PSK
- Full Duplex Operation

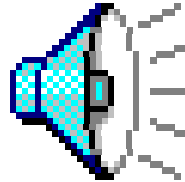
THOSE DIGITAL MODES

- **MT-63** 
- Fast
- Wide Bandwidth

THOSE DIGITAL MODES

- **THROB** 
- 3 Speeds
- Experimental Mode

THOSE DIGITAL MODES

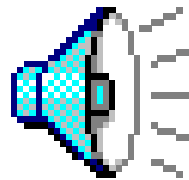
- **HELLSCHREIBER**
- Very Old Mode 
- Use by Germans in WWII

THOSE **HELLSCHREIBER** FREQUENCIES

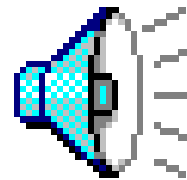
- 160 METERS 17 METERS
- 80 METERS 15 METERS
- 40 METERS 12 METERS
- 30 METERS 10 METERS
- 20 METERS 6 METERS

THOSE DIGITAL MODES

- **OLIVIA**



500 -16



1000-32

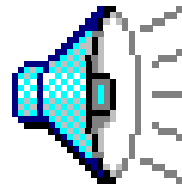
- **CONTESTIA** 

- MFSK Mode

- Mode created in 2005

THOSE DIGITAL MODES

- **JT-65**



- Dr. Joe Taylor (K1JT)
- Weak Signal Mode

THOSE DIGITAL MODES

- **SSTV**
- Slow Scan Television
- Transmitting Images

THOSE DIGITAL MODES

- **DOMINEOF - DOMINEX**
- **THOR**
- **WSPR**

(NO SOUNDS FOR ANY OF THE ABOVE MODES)

MIXW DIGITAL SOFTWARE

AM	PACTOR
FM	AMTOR
CW	MFSK
BPSK31	THROB
QPSK31	MT63
FSK31	HELLSCHREIBER
RTTY	FAX
PACKET	SSTV

MULTIPSK+

DIGITAL SOFTWARE

	CW	PACTOR 1
BPSK31-63-125-250		AMTOR
QPSK31-63-125-250		MFSK
	RTTY	THROB
	PACKET	MT63
	OLIVIA	HELLSCHREIBER
	CONTESTIA	DOMINOF- DOMINOEX
	JT-65	SSTV

FLDIGI
DIGITAL SOFTWARE

CW	MFSK
BPSK	THROB
QPSK	MT63
RTTY	HELLSCHREIBER
OLIVIA	DOMINOEX
CONTESTIA	THOR

THOSE DIGITAL MODES CD

- DIGITAL MODE SOUNDS
- MULTIPSK PROGRAM
- FLDIGI PROGRAM
- DIGIPAN PROGRAM
- HAMSCOPE PROGRAM
- INTERFACE DIAGRAMS

THOSE DIGITAL MODES (SUMMARY)

- COMPUTER OR LAPTOP
- SOUND CARD
- CONNECTING CABLES
- PC – TRANSCEIVER INTERFACE
- DIGITAL SOFTWARE