Interface and strategy for K3 operation with N1MM logger in CW or FSK in MMTTY (no not AFSK) for seamless Mode Switching with no S/W or H/W changeovers needed using a true RS-232 serial port on your PC (plus a USB-Serial converter devoted to radio control/comms).

The object of this exercise is to use N1MM (in, say, DX mode) with your K3 and, with no significant changeovers from one to the other, to operate either FSK or CW. This can be done and some pieces of the needed information can be found at:

http://www.n3me.net/elecraftk3andmmtty.htm describes how to set up MMTTY to run AFSK (and perhaps FSK?) on a K3 – does not address N1MM

http://www.mail-archive.com/elecraft@mailman.qth.net/msg111410.html K3 FSK interface info

http://dir.groups.yahoo.com/group/N1MMLogger/message/83198   K3 and n1mm and the K3 RS PPT-Key Config

http://www.aa8ia.org/category/n1mm/ has info on setting up n1mm+mmtty for fsk but not for K3

The H/W situation here is a PC laptop (XP) with a single RS232 port and USB ports. This task might be doable using a pair of USB-Serial converters (and special USB features of MMTTY) but that has not been tried.

It is widely agreed that the whole mission cannot be accomplished with a single serial cable unless you are prepared to give up radio control needed to provide band info to the logger. Note that it is possible to operate CW and the radio with a single serial cable, but not FSK.

Through the PC RS232 port you can provide data to the K3 Accessory port: CW keying, FSK keying and a PPT line that is needed for FSK. CW can be operated in QSK mode so no PPT is needed.

The interface to convert the RS232 levels to the ground or open conditions for the Accessary port requires, in simplest form, three of the conventional NPN transistor switches – one each for CW, FSK and PPT. These have inputs from the RS232 of TXD(FSK), RTS(PPT) and DTR(CW). The outputs go to the K3 ACC DB15 pin 4 (FSK) and pin 1(PPT) plus the K3 ¼ " Key jack (not paddle). The grounded pins in both the RS232 and K3 ACC are connected to the cable shields. A rough diagram, with some hand notes, is provided at the end of this write up. For my case, rather than try to find suitable shielded cables and then try to wire the connector plugs, two shielded extension cables of the correct connector persuasion were purchased and cut in two. It is not certain this the best plan due to tiny size of some of the wires and other issues – but it worked (thanks to the miracle of heat shrink tubing). The junk box yielded a venerable and motley collection of almost right parts, compromises were made and the deed was done (worked on only the second try).

Of course, for operation the serial connector goes to the PC RS232 port, the AUX connector connects to the K3 ACC port and the phono plug goes to the K3 KEY jack.

Now the setups of N1MM and MMTTY (assumed to be installed already) and K3 are carried out as follows:

N1MM Configurer:

Hardware tab defines the ports. Com 1 is the real serial port and it is selected for both CW and Digital with DTR as the CW line and RTS set to always off (BUT RTS will be active for PPT in RTTY mode in spite of this since MMTTY apparently overrides it). Com 4 is the pseudo-Serial port defined for the USB-Serial converter (U232-P9(2.4) from pccables) and it is exclusively for radio control.
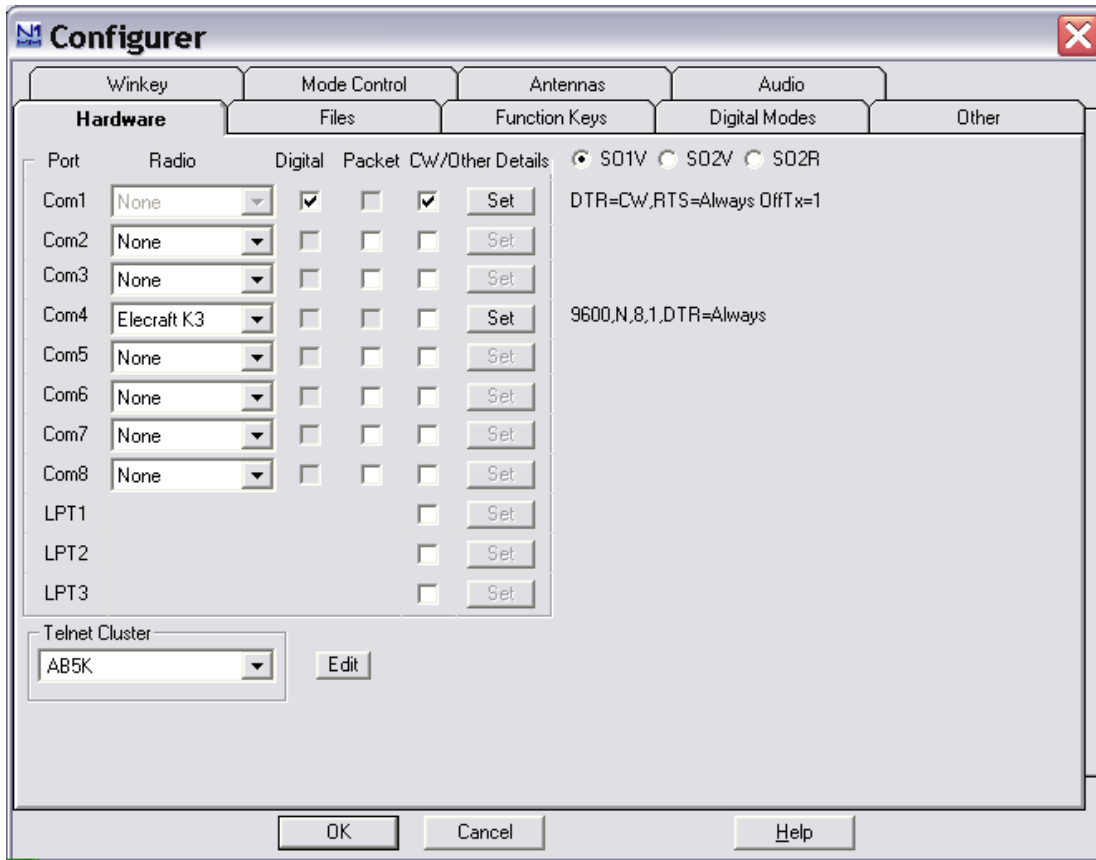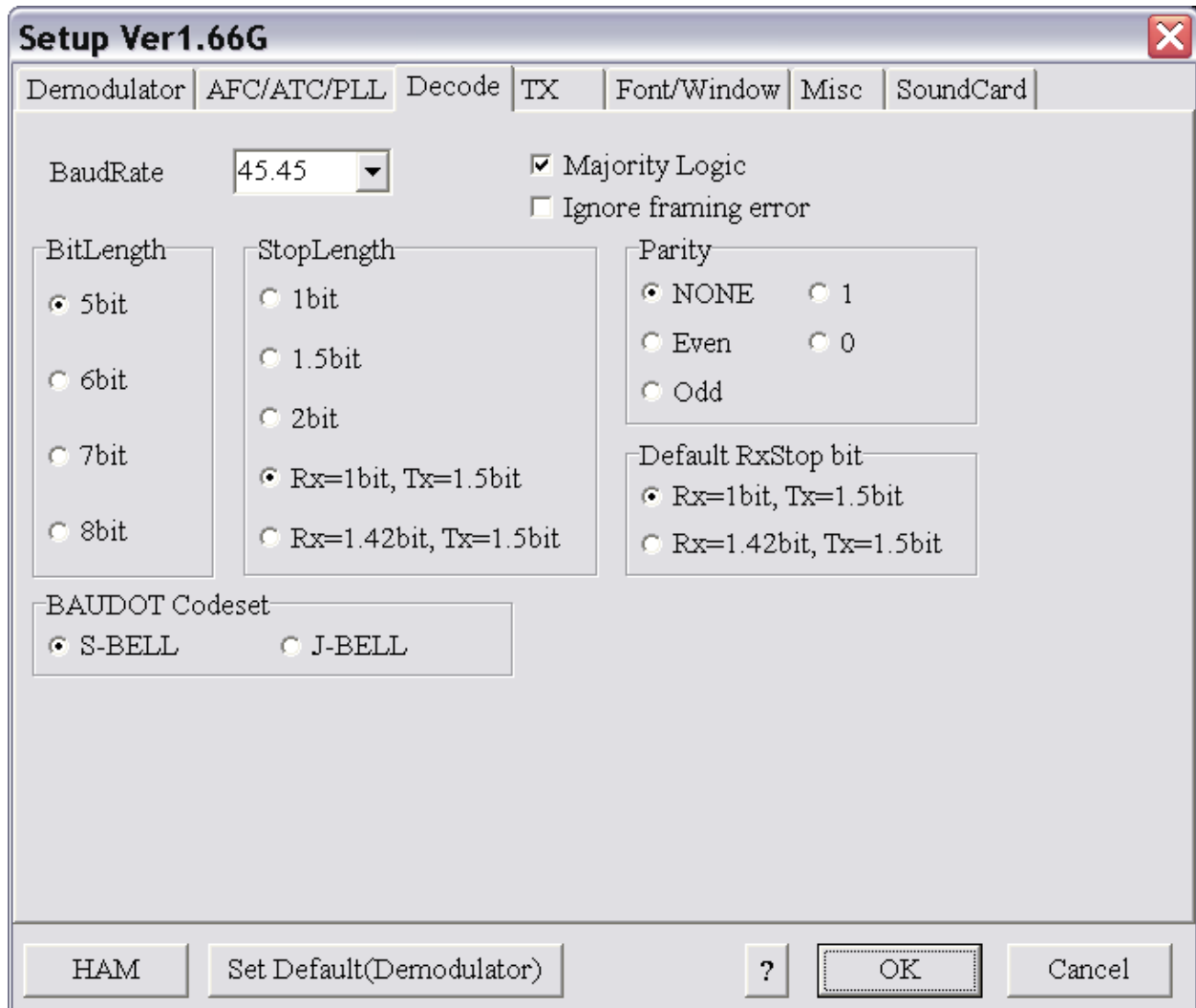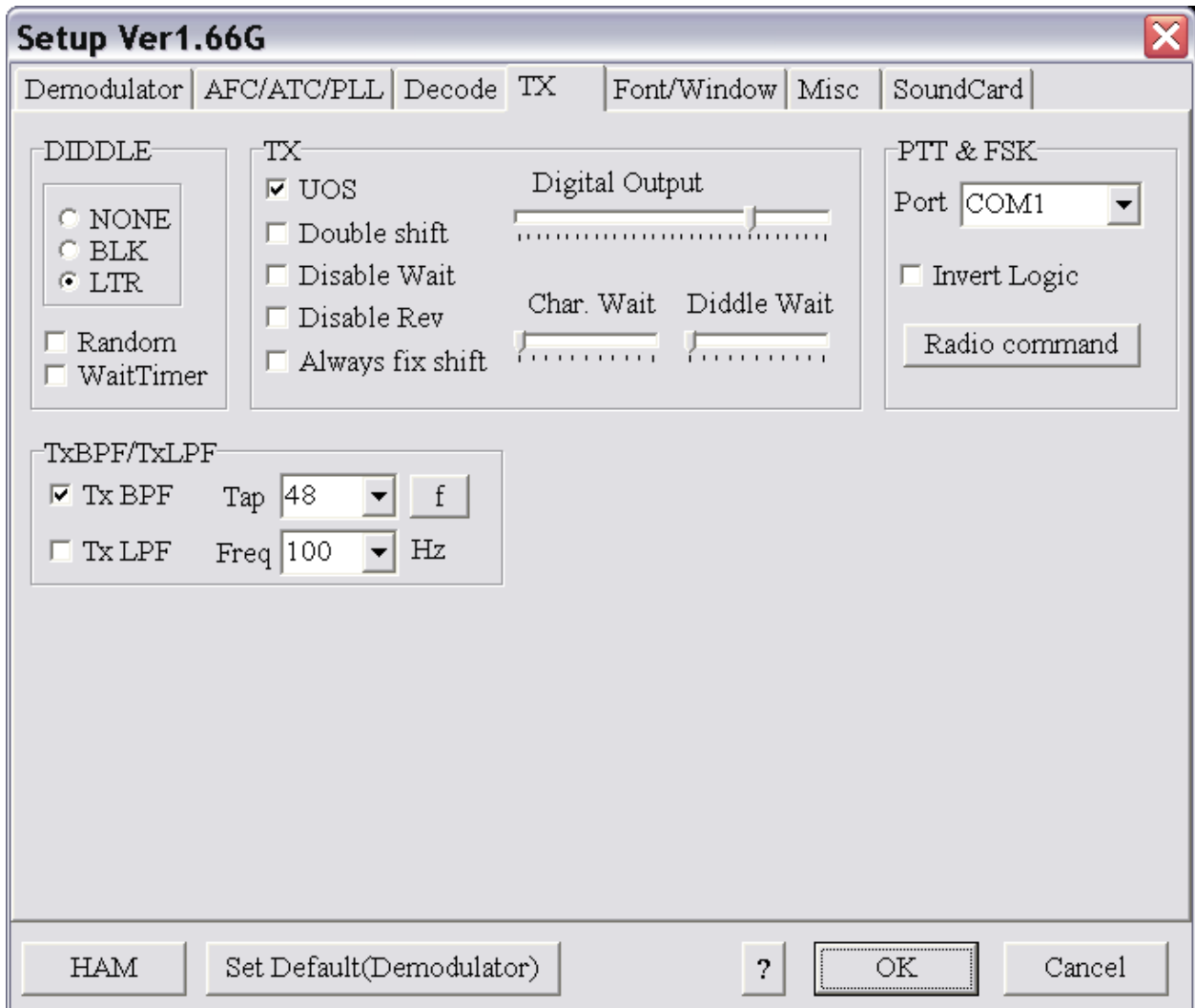
Under the Com 1 "Set" button:
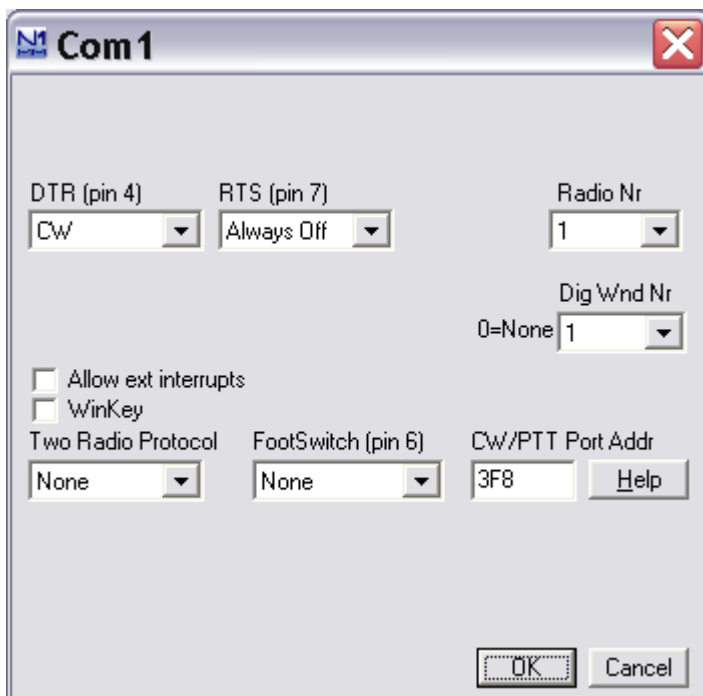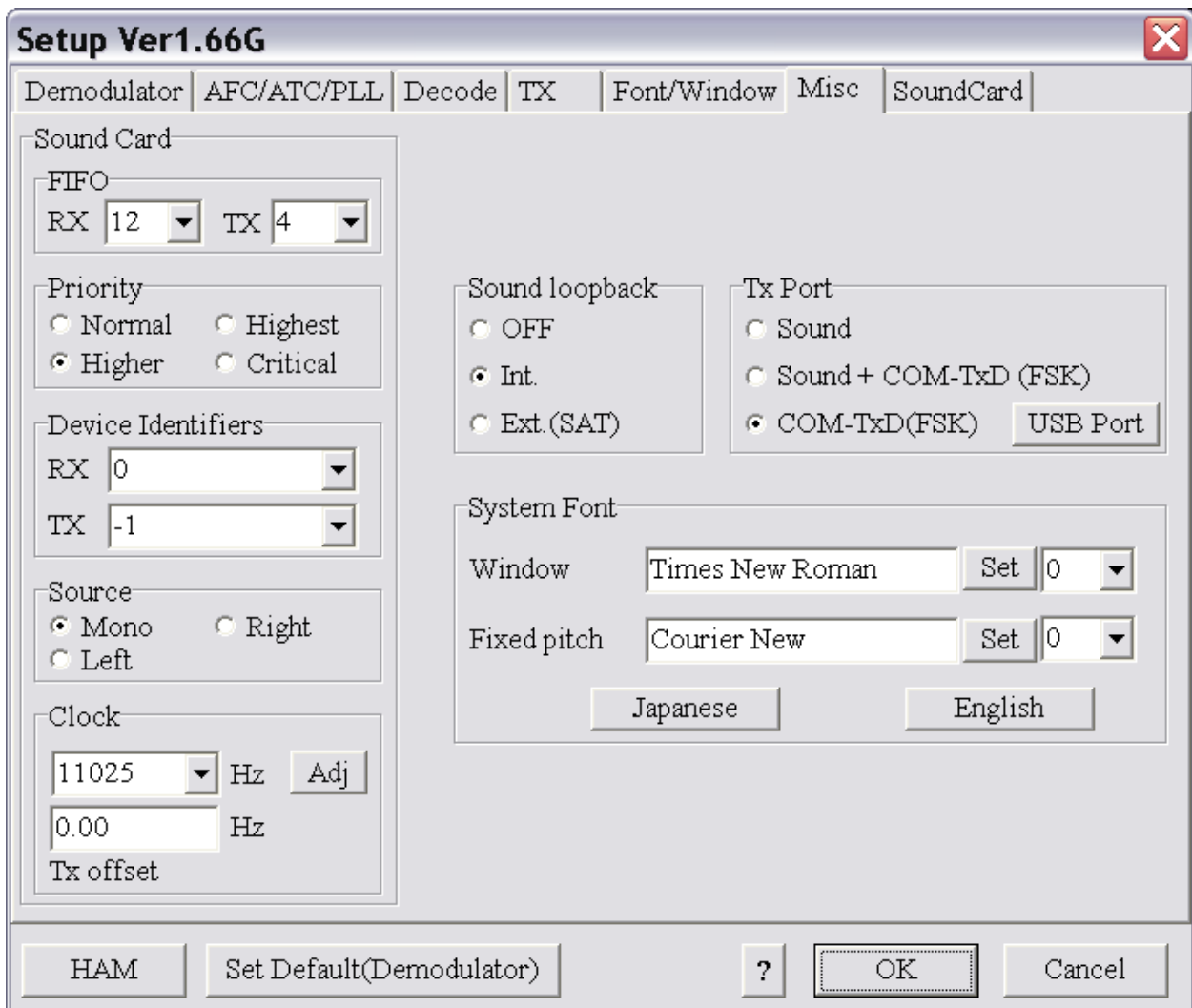
For the MMTTY Setup:

Decode is (perhaps default values):

TX is:

Select COM 1 for Port (or whichever serial port you use)

Setup Ver1.66G

Demodulator | AFC/ATC/PLL | Decode | TX | Font/Window | Misc | SoundCard

DIDDLE
- ○ NONE
- ○ BLK
- ● LTR
- ☐ Random
- ☐ WaitTimer

TX
- ☑ UOS
- ☐ Double shift
- ☐ Disable Wait
- ☐ Disable Rev
- ☐ Always fix shift

Digital Output

Char. Wait   Diddle Wait

PTT & FSK
Port COM1 ▼

☐ Invert Logic

Radio command

TxBPF/TxLPF
- ☑ Tx BPF   Tap 48 ▼   f
- ☐ Tx LPF   Freq 100 ▼   Hz

HAM | Set Default(Demodulator) | ? | OK | Cancel

Misc is:

Select Com-TxD (FSK) but not the USB button

Setup Ver1.66G

Tabs: Demodulator | AFC/ATC/PLL | Decode | TX | Font/Window | Misc | SoundCard

Sound Card

FIFO
RX 12   TX 4

Priority
○ Normal   ○ Highest
◉ Higher   ○ Critical

Device Identifiers
RX 0
TX -1

Source
◉ Mono   ○ Right
○ Left

Clock
11025 Hz   Adj
0.00 Hz
Tx offset

Sound loopback
○ OFF
◉ Int.
○ Ext.(SAT)

Tx Port
○ Sound
○ Sound + COM-TxD (FSK)
◉ COM-TxD(FSK)   USB Port

System Font
Window   Times New Roman   Set 0
Fixed pitch   Courier New   Set 0
Japanese   English

HAM | Set Default(Demodulator) | ? | OK | Cancel
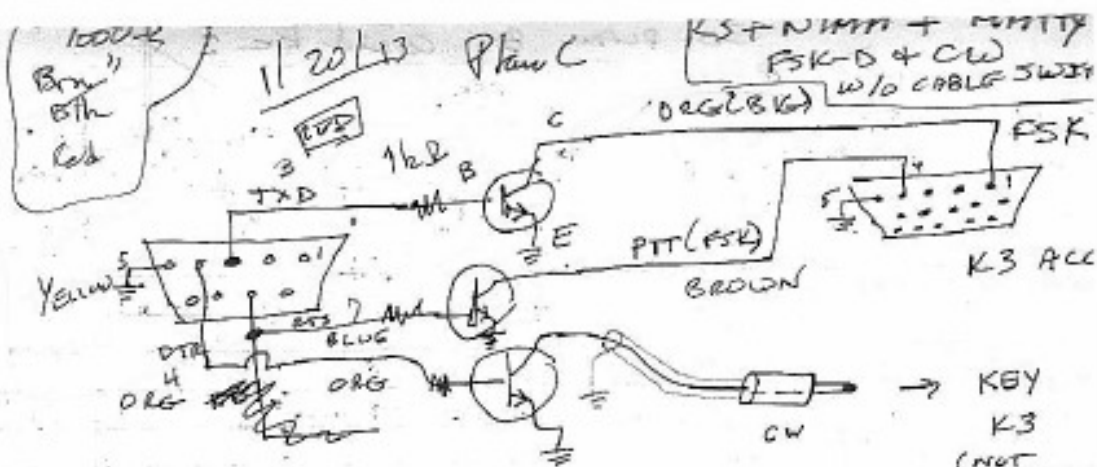
Soundcard is:

Select under Reception your card (Transmission would be for AFSK so not used)
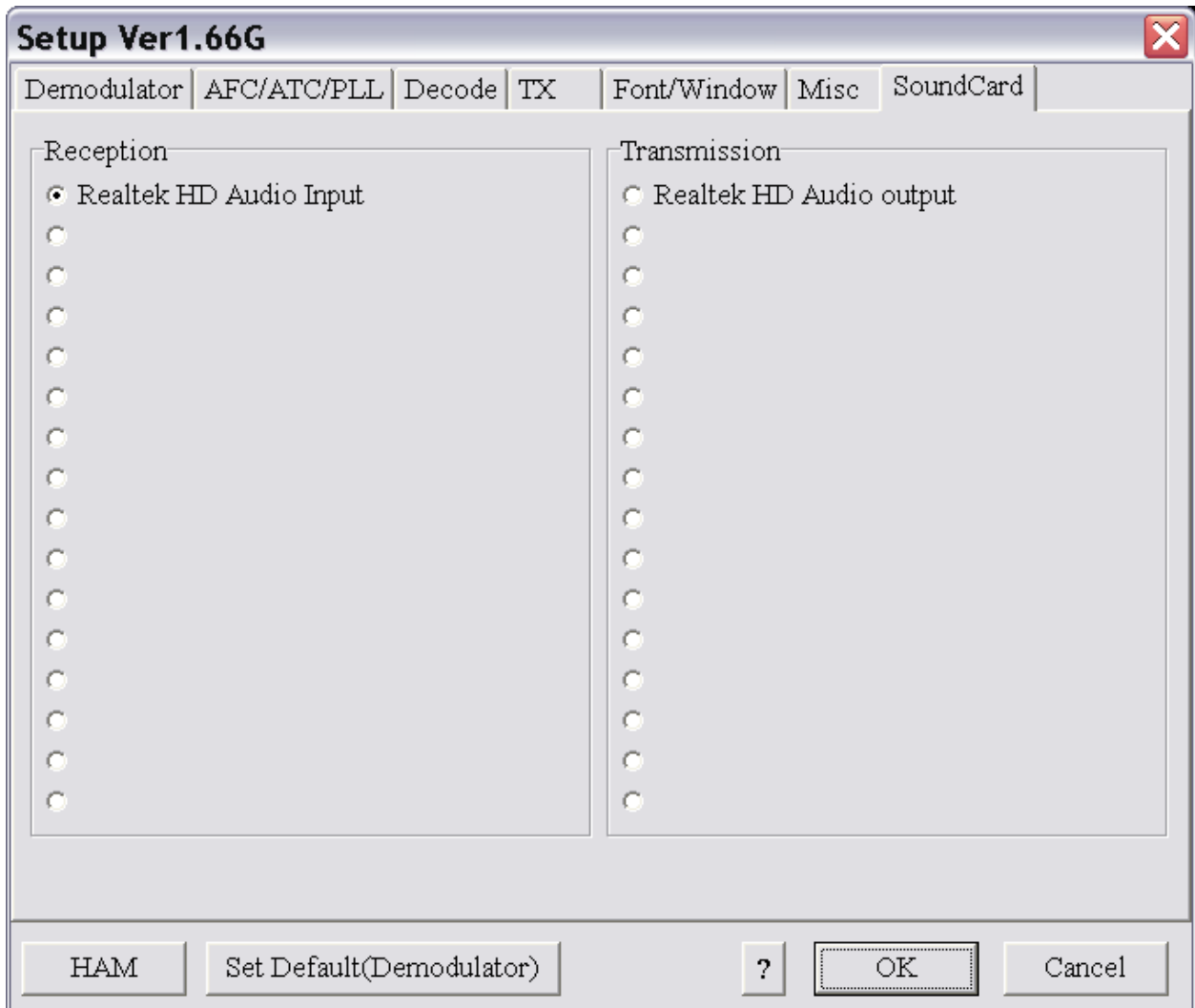
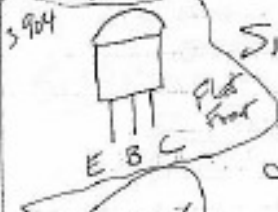Finally, On the K3 Config PPT-Key set to Off-Off (not certain this is needed)

Now in N1MM, in DX mode, in the CALL field if you type "RTTY" the MMTTY module is called into play for FSK and if you type "CW" N1MM does CW without MMTTY. Of course you can also do SSB. The K3 must be switched to mode/band in the usual way.

Finally MMTTY needs audio from the K3 to decode the RTTY. This requires a cable from the audio out port to the MIC input of the PC (which has no line-in capability). This required a 40 dB pad to get a level suitable for the MIC input.

This is a hand-drawn wiring schematic and notes. Notable text labels include:

1/20/13 Plan C

K3 + N1MM + RTTY
FSK-D + CW
0RG(2BK) w/o CABLE SWIT

FSK

TXD

K3 ACC

PTT (FSK)
BROWN

YELLOW

DTR

ORG

KEY
K3
(NOT PADDLE)

CW

NOTES:
THIS IS EQUIV TO W3YY interface

3904

DTR is set low = FSK PTT BUT
Does not key FSK (like the paddle would) (bd)

RTS must be set ALWAYS OFF (or ist ON#)
in CW mode OK NOW
@ 0V indep of keying
(IF N1MM set
up correctly)

SINGLE CABLE FOR
N1MM FSK + CW

E B C

& No H/W switching needed for RTTY ≈ CW
only. SW Scored on N1MM
+ K3 mode Switched with button

Needs 3 wire shielded DB9 Plus
a mini box for the level NPN
converters

YES

NEED to VERIFY THAT RTS
can switch properly RTTY ≈ CW
with proper CW setting

This should work