

AI DSP NOISE SUPPRESSION QUICK REFERENCE

Brunswick Sciences & Amateur Radio Club (BSARC) • Technical Operating Guide

YAESU FTDX10 SETUP

SINGLE USB

FTDX10 → USB Cable → PC Codec → AI DSP → Headphones

1. PHYSICAL & DRIVER SETUP

- Install **Silicon Labs CP210x** virtual COM drivers on PC.
- Connect single **USB-A to USB-B** cable from FTDX10 rear port to PC.

2. FTDX10 MENU SETTINGS

- Press FUNC → RADIO SETTING → MODE SSB.
- Set **USB OUT LEVEL** to **30% – 40%**.
- (Optional) Set front panel **DNR** to **1 – 3** to smooth initial harsh static.

3. WINDOWS AUDIO ROUTING

- In Sound Settings, locate **Line (USB AUDIO CODEC)**.
- Set input level to **50% – 70%** (ensure signal peaks in green, no red clipping).
- Set AI software Input to **Line (USB AUDIO CODEC)**.

LEGACY ANALOG RADIO SETUP

3.5mm / AUX

Radio Audio Out → 3.5mm Aux → Line In → AI DSP → Headphones

1. PHYSICAL AUDIO CABLING

- Option A (Headphone Out):** 3.5mm stereo cable from **PHONES** jack to PC **Line In** (Blue) or Mic (Pink).
- Option B (Rear ACC Port):** Cable from rear **8-pin/13-pin DIN / DATA** port to PC for fixed line-level output.

2. RADIO GAIN ADJUSTMENT

- If using Headphone jack, set AF Gain (Vol) knob to **9 o'clock – 10 o'clock**.
- Avoid over-driving PC sound card (prevents audio distortion/harmonic artifacts).

3. WINDOWS AUDIO ROUTING

- In Windows Sound Settings, select **Line In (Realtek Audio)** or external USB Sound Card.
- Set AI Software Input to **Line In / Mic In**.

3-STEP OPERATING PROTOCOL FOR HEAVY ATTIC / INDOOR RFI (S8-S9 HASH)

- 1 Tame the Front End (Radio):** Engage **ATT (Attenuator)** or back off **RF Gain** until the S-meter drops slightly. Prevents front-end receiver overload from strong indoor RFI.
- 2 Clean Input Audio (PC):** Verify audio coming into PC peaks around **-12 dB to -6 dB**. Clear, unclipped audio is critical for AI neural networks to recognize speech formants.
- 3 Engage AI Noise Filter (Software):** Turn on AI DSP software. The neural engine drops non-speech hash by **25 dB – 30 dB**, extracting S2-S3 weak voice signals onto a silent background.

RECOMMENDED FREE / OPEN-SOURCE AI NOISE REDUCTION TOOLS

SOFTWARE	PLATFORM	MODEL TYPE	BEST USE CASE
RM Noise	Windows (Standalone)	Deep Learning RNNoise	Easiest setup for SSB ham radio. Simple slider control.
DeepFilterNet	Win / Mac / Linux (VST)	Full-Band Deep Neural Net	Ultra-low latency, highly effective against heavy impulse & switching RFI.
Krisp / VST Host	Windows / Mac	AI Voice Isolation	Broadband noise removal via virtual audio cable (VB-Cable).