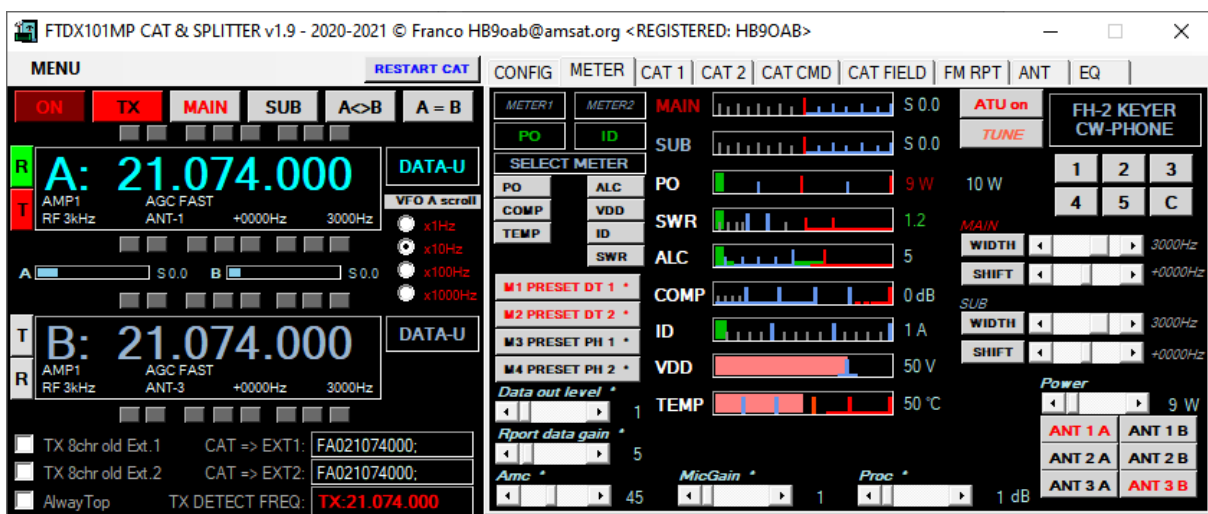


FTDX101 IN DIGITAL DATA DATA-U INSTEAD SSB USB

By hb9oab@amsat.org using [FTDX101 CAT & SPLITTER](#)

It would be recommended to use **DATA-U** instead of **USB** for **DATA/AFSK DIGITAL** activity for FT, JT, SSTV, etc ... in **DATA-U** (**DATA-L** for RTTY AFSK or **RTTY-L** in RTTY FSK) because leaving in SSB (USB or LSB), the FTDX101 is subject to the activation/deactivation of the **PROC** and **MIC-GAIN** and **EQ** commands. Leaving the **MIC-GAIN**, **PROC** and the two **EQs**, in **DATA-U/L** are automatically disabled.

Everything is controlled only with the first adjustment on the PC of your sound card, with the **AMC** and with the **RPORT data gain** (see image of our soft).



For example, using our **<FTDX101 CAT>** Windows application (<http://radioclub.no-ip.org/ftdx101cat>), is possible to adjust these levels very easily and immediately, interact with the meters.

On the radio they are not easily visible all together, but on the [soft FTDX101 CAT](#) are all the controls levels meters visible in real time, all together.

Interested in this case **ALC + COMP + PO** at the same time, easy to use and adjust with CAT SOFT!

Only three commands to use in **DATA-U/L** and it is easily done by observing the instruments in real time on the software (or manually without CAT SOFTWARE by changing the **METER_1** between **PO** and **COMP**, the **METER_2** fixed on **ALC**).

Note that when using external interfaces (not recommended having everything in the FTDX101 USB), you will have to use the **DATA OUT LEVEL** instead of **RPORT DATA GAIN**, and it will be the same thing.

Unfortunately, each soft has its output & input levels, its I/O adjustment and its audio needs, also depending on the signal to be decoded/encoded... and to always have a valid audio input/output, it will therefore be necessary to adapt all this from time to time and from soft to soft, to make sure you always have the cleanest sound possible without side spurs.

Those who say otherwise will surely have side harmonics with insufficient or too strong I / O.

A note: use of the **AMC** that between decaying the multiple theories of lowering **ALC** to decrease the power with respect to the linearity of the signal ... following the instruments of the **FTDX101** (by virtue or by

default..., this is not known except with one instrument that verifies the linearity of the signal) it is difficult to correctly evaluate the veracity.

However for simplicity, with the **FTDX101**, here is how I would recommend proceeding and how I did it with excellent instrumental and auditory (**IMD**) results:

1. Select **DATA-U** on the radio (you must also select the bandwidth in the FTDX101 menu:

FUNC> RADIO SETTING> MODE PSK / DATA>

LCUT 100Hz and HCUT 4000Hz

(according to the DATA MODE of the RTX AUDIO in use but this default is "good" for all the used digital modes)

2. Adjust input (**MIC**) and output (**AUX** or **SPKR**) of the **FTDX101** sound card on your computer setup/config following the information available, who says zero db, who puts it in half, however at a "normal" level...

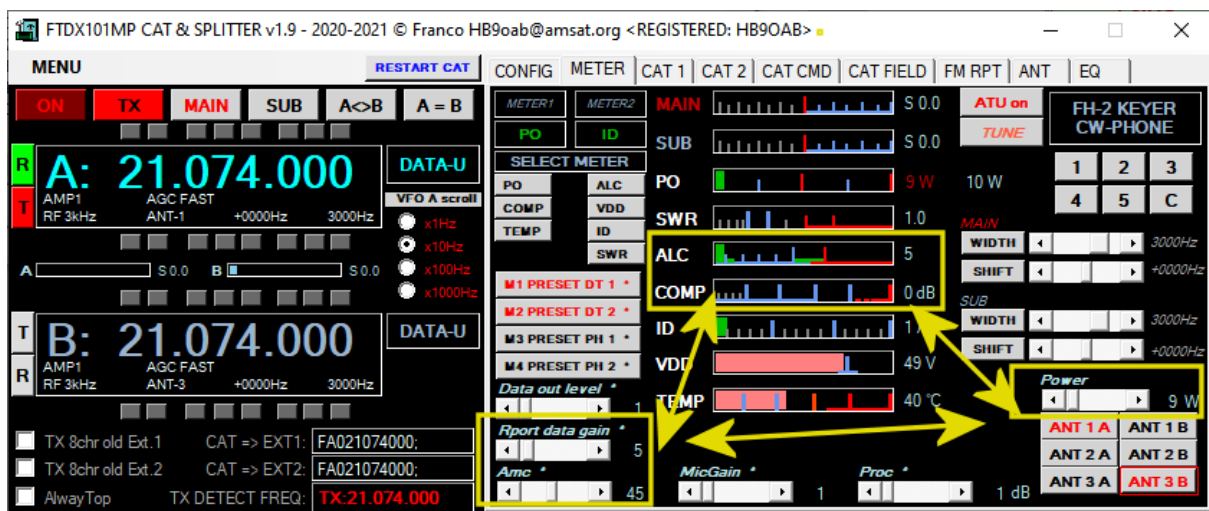
3. Adjust the audio input <**MIC**> of the USB RADIO> PC AUDIO sound card (IN MIC) in your PC so that the audio signal on the soft application level in use is sufficient on your PC SOFT WaterFall or RX level.

4. Going to TX, adjust the audio TX signal (AUX or SPKR) on the radio with the RPORT DATA GAIN command.

5. Now adjust only also the **AMC** level (towards ~30-50 would seem better) so that on the soft **FTDX101 CAT** which has the tools in real time:

> DO NOT LIFT THE COMP INSTRUMENT (it must remain at zero)

> the ALC remains low towards ~0-10/15 at the most



A COMPROMISE BETWEEN ALC at MINIMUM and COMP at ZERO!

At this point you will see that

> if you raise **AMC** then **ALC**, you raise the **ALC** and decreases **COMP**

> if you lower **AMC** and then the **ALC**, you raise the **COMP** ...

If we lower **AMC** to lower the power, we will see the **COMP** increase considerably which if it is real, we will have a compression of the audio signal that is not good.

So to lower the power we will have to interact with the radio command **RFpower 5-100w** on the **FTDX101D** and **5-200w** on the **FTDX101MP**

Whether this **COMP** measurement is a FW programming error is unknown... 😊

By following this very simple procedure that finds a compromise between **ALC** and **COMP**, using the RFpower for the output power, you will always have an excellent audio output in TX stable and practically equal from <400Hz to> 2500Hz and slightly lower as **ALC** on the sides but immediately compensated by modifying both <**AMC**> and <**RPORT DATA GAIN**> using the [SOFT FTDX101 CAT](#) or on the software by increasing the audio output <**AUX-SPKR**>.

Eventually increase or decrease the "LEVELS" of the audio card of the radio on the USB port.

You will see that using the [FTDX101 CAT & SPLITTER](#) Windows software everything will be visible and easily usable and adjustable for the best signal.

*Who says you can forget the **COMP**, who says you adjust **ALC COMP EQ** etc*

Everyone will do as they see fit, you read everything and more.

This could be a simple and valid solution:

*We measured the signal and this is the result of our test, monitoring both the digital audio TX and RX signal using **DATA-U** and **DATA-L** on other devices and measuring the input/output audio signal itself.*

73

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<http://computerclub.no-ip.org/ftdx101>