HF-Module und Empfänger Updaten von ACCST D16-V1 auf D16-V2

Seit Mitte 2019 ist Frsky dabei mit Hilfe von ein paar europäischen HF-Spezialisten ihre HF-Software für die Sender HF-Module XJT, IXJT, ISRM und bei allem Empfängern zu verbessern um kurze Servoimpulsfehler die sehr selten unter LBT, und noch viel seltener unter FCC,auftreten zu beheben.

Dies war zum einen nötig wg der immer stärken Belegung des 2,4GHz Band und der damit verbunden möglichen Übertragungsstörungen (Framelost), zum anderen wg höherer Datenrate, kurzer Framezeiten und den neuen, viel empfindlicheren HF-Prozessoren, TI CC2650 Simple Link Serie mit internem STM32 Prozessor (statt bisher nur TI CC2500).

Dabei wurde die Übertragungssicherheit nochmal stark verbessert, das CRC erweitert, das LBT-Verfahren angepasst, 100mW/25mW (MU10% auf belegtem Kanal) die Frequenzfeinabstimmung beim Binden optimiert, Viele weitere Dinge die in ACCESS schon enthalten sind wurde auch für ACCST angepasst und übernommen.

Da es dazu eine Vielzahl von Kombinationen (ca. 360) von Sendern und Empfängern gibt, war die Prüfung und Anpassung sehr sehr aufwändig.

Ich denke nach 10 Jahren ist es ganz gut wenn auch mal das HF-Protokoll ein Update erfährt. OpenTx auf >V2.3.5 flashen dann kann man damit das interne und externe HF-Modul direkt flashen, auch die X10, X12 Sender, ohne Umweg über FROS. D8 wurde nicht verändert.

Man muss nicht updaten, man sollte aber updaten, das wird dringend empfohlen. Wenn man updatet dann MÜSSEN alle bisherigen internen HF-Module der Sender UND alle Empfänger neu geflasht werden, damit sie wieder untereinander und miteinander funktionieren und auf gleichen Softwarestand sind.

Sender und Empfänger ab Feb/März 2020 haben schon diese neue HF-Software drauf. Sie funktionieren dann aber nicht mit Sendern und Empfängern auf altem D16-V1 Softwarestand, deshalb alte HF-Software updaten!

Bei Fa. Engel und bei Frsky gibt es dazu eine Übersicht was schon verfügbar ist. Auch für ACCESS wird es ein Protokoll-Update geben (ca. Feb/März 2020)

Ja, das ist lästig. Andere Hersteller haben ähnliche Probleme, die ducken sich einfach weg, weil sie sich den Aufwand gar nicht leisten können.

Bitte Empfänger, Sender, HF-Module die mit neuer Software geflasht wurden kennzeichnen mit: D16-V2.x.x tt.mm.jj das erspart viel Ärger und Verwirrung!

FrSky update from ACCST D16-V1 to ACCST D16-V2

FrSky announced the release of an update to the FrSky ACCST D16 radio protocol.
The upgrade is recommended to all users.
The new version has been marked with 2.0.0 (the last update has version 2.0.1)
and in this article it will be called *ACCST D16 v2* or simply *D16 v2*.
To distinguish the protocol used so far, we will call *ACCST D16 v1 or D16 v1*.

The original FrSky message can be found here:
Important Firmware Update – ACCST D16 2.X.X
In this article we present the Polish translation of the original FrSky message, along with our commentary. The comment is presented based on additional information that we obtained from FrSky and as a result of our own analysis.
This article will be updated regularly, as long as new information is available.

Why was ACCST D16 v2 released?

The purpose of the upgrade is to increase the reliability and performance of the ACCST D16 protocol in difficult broadcasting conditions. In such very specific conditions, with strong radio interference, the D16 v1 protocol could have uncontrolled movements (vibrations) of servos (or - more generally - RC control channels).
Uncontrolled movement of servos appeared extremely rarely, so that for many years this problem remained virtually unnoticed and had no impact on the vast majority of users. Due to such a rare manifestation of the problem, its diagnostics of the problem was extremely difficult, nevertheless, FrSky finally isolated the cause and prepared a firmware update - ACCST D16 v2.

What was changed?

FrSky has improved the error correction to minimize interference,
even under extremely strong radio interference.

At the same time, the data transmission error correction has been increased and an additional security has been introduced in the form of transmission encryption - similar as it is used in the latest FrSky ACCESS radio protocol (the ACCESS protocol is used in the 2019 model series of FrSky transmitters).

Which products ACCST D16 v2 upgrade applies to?

The upgrade applies to all transmitting modules and FrSky receivers currently operating in ACCST D16 v1 mode. This also applies to internal transmission modules in Taranis and Horus radios.
To date FrSky has released the D16 v2 firmware for the following products.

XJT & IXJT transmitter modules
- XJT transmitter module
- Taranis X7 / X7S / X9D / X9D+ / X9D+ SE / X9E / X-Lite radios
- Horus X10 / X10S / X12S radios

Receivers
- XM / XM+
- XSR / XSR-SIM
- X4R / X4RSB / X6R / X8R
- R-XSR / RX4R / RX6R / RX8R / RX8R PRO
- G-RX6 / G-RX8
- S6R / S8R

Embedded receivers
- XSR-FC (OMNIBUS F4 NANO V7) / RXSR-FC (OMNINXT-F7) / RXSR-FC (OMNIBUS F4 FIREWORKS V2) / RXSR-FC (OMNIBUS F4 V6) / RXSRF3OM

Few receivers and transmitting modules are still missing on the above lists, e.g. XMR, XSR-M, XJT Lite, etc. Soon FrSky will also publish updates for ACCESS transmitting modules (ISRM series transmitter modules built into i.e. Horus X10 / S Express, X-Lite S / Pro), which can also work in D16 mode. In this case, however, the update will only be relevant if ACCST D16 is actively used. If the ISRM transmitter module is used in ACCESS mode only, it is not necessary to update it due to the ACCST D16 v2 upgrade. The FrSky plans for R9 ACCST D16 receivers and transmitting modules are not yet known.

Which products are not affected?
The upgrade does not apply to transmitter modules or receivers operating in D8 and LR12 modes. These are all transmitter modules and receivers of the V series, D series and LR - i.e. V8FR-II, D4R-II, D8R-II Plus, L9R receivers; DJT, DHT, DFT transmitter modules.
The update also does not apply to receivers operating in the ACCESS protocol.
Some receivers - e.g. RX4R, R-XSR, etc. - can work with ACCST or ACCESS firmware, at user's discretion. If they work with the ACCESS firmware, the upgrade does not apply to them. However, if they work with ACCST firmware - the firmware should be updated to the latest available ACCST D16 v2 version.
As new information becomes available, we will update the above lists on an ongoing basis.

Recommendation
FrSky recommends updating all your ACCST D16 receivers and transmitter modules.

Impact of upgrading / Compatibility
Due to the improved validation of ACCST D16 v2 data transmission, and introduced additional security (encryption), the ACCST D16 v1 and v2 protocols are not compatible with each other. Therefore, the upgrade to ACCST D16 v2 should be carried out for all D16 receivers and transmitter modules, also build-in modules of Taranis and Horus radios (see the above lists).
Most likely newly distributed D16 receivers will be delivered with ACCST D16 v2 firmware only. This will also apply to the D16 mode on ACCESS transmitting modules.
ACCST D16 v2 does not change anything about FCC and EU-LBT compatibility. As before the firmware of the transmitter modules and receivers will have to be aligned, that means that FCC or EU-LBT should be used in all your transmitting modules and receivers (EU-LBT firmware should be used in Europe).

How to upgrade firmware?

Firmware upgrade is a simple operation that is recommended to do as a normal maintenance regardless of the ACCST D16 v2 release.

Updating the firmware of FrSky receivers and transmitter modules (more generally FrSky Smart Port devices) is possible using a computer and a special programmer, or using any FrSky radio (with FrOS or OpenTX 2.1 or newer).

We have prepared the following articles to help with the upgrade:

- [Updating Smart Port devices](#)
- [Updating Smart Port devices via OpenTX 2.1](#)
- [FrSky Smart Port interfaces and applications](#)