# NEWSLETTER-AMSAT-EA

## 01/2021 *JANUARY*
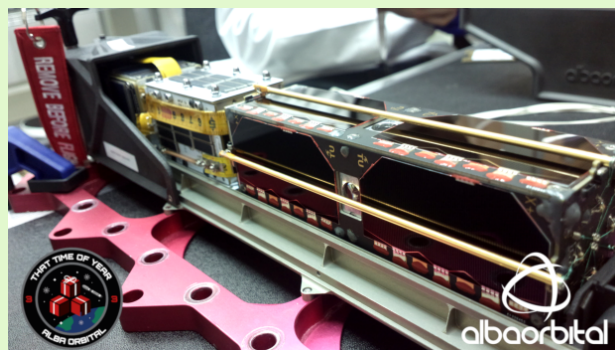
## EASAT-2 and Hades launch delayed

The space broker Alba Orbital has reported the delay in the launch of its cluster-3 picosatellites, scheduled for January 14, 2021 and which includes the AMSAT-EA EASAT-2 and Hades satellites. This delay, attributable to Momentus, has as a result a delay till march,coinciding with the Starlink mission in that same month, also with SpaceX. Apart from the AMSAT-EA sats many other integrated in the pod of Alba Orbital are also affected, among them, the DelfiPQ, from the University of Delft,as well as other Europeans and Israel.



*Hades, EASAT-2 and on the right DelfiPQ in the Alba Orbital Pod*

More information about Alba Orbital cluster 3 in this link:

http://www.albaorbital.com/integration

## RadFXSat-2 / Fox-1E

LauncherOne is scheduled to be launch on january 13 at 13:OO EST.



The launcherOne vehicle will carry 11 sats, including AMSAT´s cubesat Vanderbilt RadFXSat-2.

The RadFXSat-2/Fox-1E frequencies will be:

Telemetry- 435.750 Mhz

Inverted Transponder:
      Uplink e    145,860 MHz - 145,890 MHz
      Downlink   435,760 MHz - 435,790 MHz

## End of Full Sun season AO-7

On December 26, AO-7 began to enter in eclipses in each orbit after two months of continuous sunlight. This means that the 24 hour timer will no longer change the satellite between Mode A and Mode B every day,since the satellite normally turns on in the Mode B after exiting the eclipse.



*Portable station of KE9AJ, Joe*

Joe Werth, KE9AJ, was a strong advocate of  operation in Mode A this season, making 18 QSOs, including 4 transatlantic QSOs,using a 10m moxon for the downlink . On October 19, operating portable at EN50, Jérôme worked LeCuyer, F4DXV, on JN15, a distance of 7,088 km. Although they have certainly performed longer distance QSO in AO-7 Mode A, this represents the QSO of Longer claimed distance for AMSAT records.

## FO-29 activations program

The FO-29 activation periods for the months of January and February, will be as follows:

| Jan.2021 | Feb. 2021 |
|---|---|
| Day 1 -  01:40, 03:25 | Day 7 - 02:45 |
| Day 3 -  01:35, 03:20 | Day 11 - 02:35 |
| Day 9 -  01:20, 03:05 | Day 21- 02:10 |
| Day 10 - 02:10, 03:55 | Day 23 - 02:05 |
| Day 11 - 01:15, 03:00 | Day 27 - 01:55, 03:40 |
| Day 30 - 01:20,  03:05 | Day 28 - 02:45 |
| Day 31 - 02:10, 03:55 | |

## 31st Anniversary of LUSAT (LO-19)



Amsat Argentina (LU7AA) will be active celebrating the 31 anniversary of the launch of LUSAR (LO 19).It will be between january 16 and 24, 2021 in HF bands in SSB, FT8,CW QRS, and VHF / UHF / FM Satellites .They offer a digital and free Certificate and commemorative QSL.

The complete information,rules, operational schedule and details are in:

http://lu4aao.org/lu7aa/cert_31_aniv_lusat_2021.htm

https://www.qrz.com/db/LU4AAO

## EASAT-2 and Hades broadcast format available

*EA4GQS - Felix - AMSAT-EA CEO*

Description now available with detailed information on the EASAT-2 and Hades satellite transmissions .These AMSAT-EA sats will be released aboard a SpaceX Falcon 9 rocket from Cape Canaveral in the United States.

There are 9 types of transmissions :

- Fast FSK telemetry (every 60 seconds)
- Slow FSK telemetry (2 times every 14 minutes)
- Statistics FSK telemetry (every 14 minutes)
- CW beacon (every 14 minutes)
- Vocoder FM (digitized voice) (every 2 minutes)
- SSTV Robot36 (every 14 minutes, HADES only)
- FSK data spin experiment (every 14 minutes)
- FSK data experiment radiometer (every 14 minutes)
- FSK data lunar basaltic experiment (every 14 minutes, only EASAT-2)

Apart from these transmissions generated by the satellites themselves, two types of retransmissions are available as a service for hams:

- FM voice tansmissions
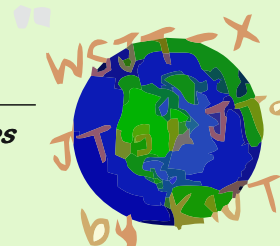- FSK data retransmissions at 50 bits per second

## DXCC on LEO Satellites

We want to congratulate our satellite colleague Phillipe - EA4NF that has recently managed to work 100 DXCC entities on LEO satellites and without having a fixed station. This achievement has been achieved in a bit more than 2 years of activity.

All the contacts were made using his portable setup with a Yaesu 817 and the arrow antenna.

*Congratulations !!!*

# Ft4 ON SATELLITES. MY EXPERIENCES

*EA3HAH - Carlos T. Flores*

## INTRODUCTION

This article is a summary (with a few updates), of which I published in the URE Radioaficionado magazine in October 2020("FT4 on ssb satellites. An opportunity for modest stations").

As we all know, working sats has its "little" complication. Doppler, tracking, language, short passes. Can you simplify something and reduce stress? I guessed yes. I thought it would be interesting to use some digital mode that at least removed the stress of the language and incidentally could simplify in something the installation to work satellites ...

When I saw the ANS n° 152 of AMSAT-NA. This newsletter gave me the idea of what that I am dealing with here. In the article they explained how a group of American hams had been testing FT8 and FT4 in SSB sats. As a result I found that the FT4 was better and did not cause problems for other satellite users. So I decided I had to test it. And I got down to work.

## MY CONDITIONS

Rig: Kenwoos TS2000. Antennas: VHF 6 elements, UHF 10 elements, bot in vertical polarization at abour 15 degrees fixed elevation.
Preamps: VV-144VOX and VV-430VOX from SHF Elektronik, with about 20 db of gain each. Yaesu G-450C rotor with manual control.
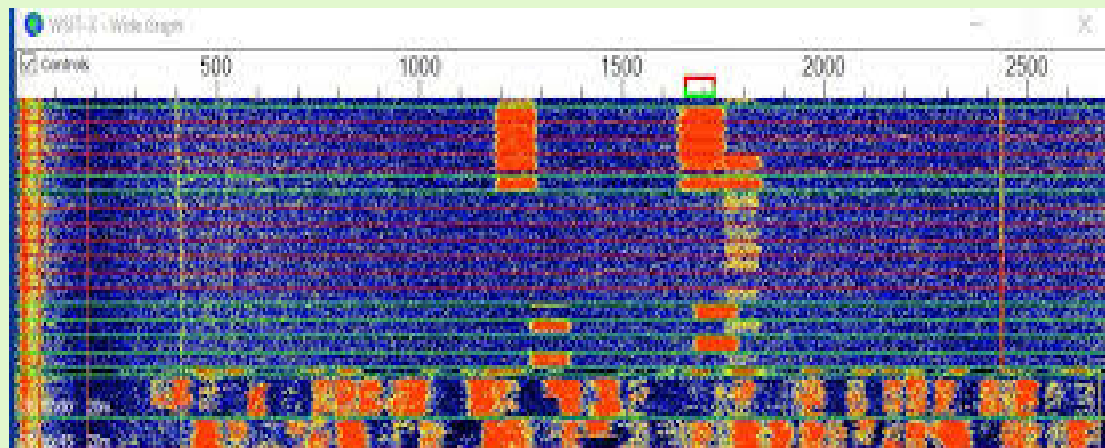
As tracking software I use the best one, the SatPC32. And it's almost mandatory to set the Cat speed correction in x10 (later will tell you why).

For FT4 I use WSJT-X with two sessions or instances and no CAT control of the frequency. Of course you can also use the JTDX. The satellites were, the XW-2A / F series, the CAS-4A / B and the RS-44.

## RESULTS AND TESTS

The results were very good. The power I used was between 1-2 W and I was able to decode without problems in almost all calls No matter the elevation of the satellite. With the RS-44 I had to use a little more power (between 10-15 W) but still decoded me without problems. And of course you had to try it with other hams. I asked for help in the URE forum and these are the results. The first test I did was with EA5WU. It was on July 15, 2020, on the 6:40 UTC pass of the XW-2B satellite; the "bird" would reach a maximum elevation of 26°. We only used a FT4 program instance. We were around 145.735 MH. He came out with about 3 W. And I used some 5 W. At first I made a call, and Pascual heard me before hearing myself. In 2:30 min we already had made the first contact and with -13 dB. And and the US hams said, voice transmissions do not disturb the FT4, since there was a colleague calling "CQ Sat" and we were able to complete the Contact. Then Pascual made a call, it was a little worse, due to a slight mistake of mine (with the emotion hadn't moved the antennas enough) and the signals to me were lower. But finally a complete success.



On november 21, 2020 at 18.29z , I made another test with Jordi, EA3GCV. The satellite was CAS-4B. As soon as I saw the sat was coming, we did the QSO. However, then it was impossible for us, even in other "birds". After investigating, we realized that Jordi had not put the CAT correction speed of SatPC32 at x10 and therefore the FT4 program was not decoding, despite we saw our signals and heard each other. But the doppler of the signal was too much for good decoding. Once the cat speed was corrected, we had no problems.

As you can imagine, I have continued to test on my own and I confirm the first impressions; I receive without problems in different satellites and at different elevations.

## FINAL THOUGHTS

I can say without a doubt that the FT4 digital mode is very valid for Making a QSO via SSB satellites (and also for FM satellites, but it should be approved and / or regulated).

Also, due to the sensitivity of the mode, modest stations with Rigs such as 857, 817-8, 706, 705, 7100, etc and with omnidirectional antennas could make contacts with little difficulty (I did tests with my 857 and vertical 1/4 wave VHF antenna and I decoded without difficulty).

However, as I have already explained, to be successful in QSOs using FT4, it is imperative to use the cat frequency setting speed of the SatPC32 at x10 . From these lines I formally request the IARU or AMSAT to assign sub-bands within satellites (or if it's FM, maybe one day per week) to be able to use this mode in ramdom and it doesn't have to be like until now by appointment. I have carried out the tests between 3-5 KHz over the lower limit of the downlink of those satellites, so I suggest this area. I also encourage satellite operators to start testing,prepare your favorite FT4 program and transmit and / or receive on that Mode.  Although I work shifts, I will try to be every Monday in FT4 in the passes I can do as my job permits. I wait for you (this will be after the publication of this review). And if you are reading this, you can spread it out.

As doubts may arise about the operation, I am at your disposal For any clarification and / or suggestion you need, my e-mail is: ea3hah@yahoo.es

*EA3HAH - Carlos T. Flores*

## EP3AS on LEO sats

Last December taking advantage of a trip of work, EA5GX Sergio has activated IRAN on LEO satellites.

For this he contacted Abbas, EP3AS, a young man in the city of Qarchak that had equipment to be able to work in ssb on RS-44. Sergio was equipped with an Arrow antenna with which I was able to make many communications with European stations.
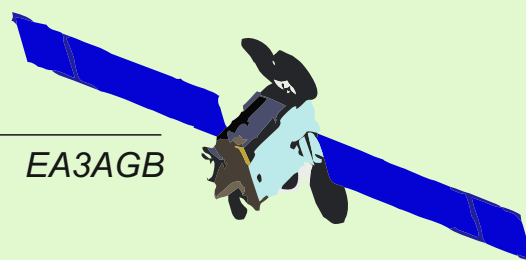
On the QRZ page of Abbas he tells that the traffic of the QSLs of the contacts made via satellite will be made from EA by Sergio EA5GX . These QSLs are already being designed and They will be printed soon thanks to the collaboration of EA5RKX (URE Cullera).

And to thank Abbas for this, several satellite operators have contributed and has managed to buy an Icom 707 station to send it to him as well as a multiband wire antenna.
T hank you very much to all who collaborated and if anyone is interested in collaborating can do so in Sergio's paypal account.

ea5gx@hotmail.com

# QO-100

*EA3AGB*

| INDICATIVO | LOCATOR | MODO | QSL VIA |
|------------|---------|------|---------|
| 4X5UK | M17JG | SSB | QRZ.COM |
| 9K2OK | LL49AE | SSB | LOTW |
| A41ZZ/P | LL72WO | SSB/CW | LOTW |
| A41ZZ/P | LL73XO | SSB/CW | LOTW |
| A71QND | LL55RI | SSB | BURO/DIR |
| A71UN | LL55SH | SSB | LOTW |
| A75GT | LL55SH | SSB | LOTW |
| BG0AUB | NN34CH | SSB | LOTW |
| AO50UPCI | N80AM | SSB | QRZ.COM |
| AO50UPC | JN11CK | SSB | QRZ.COM |
| AO50UPC | IM85MG | SSB | QRZ.COM |
| AO50UPC | JN01SE | SSB | QRZ.COM |
| EA9MH | IM85MG | SSB | QRZ.COM |
| FR4OZ | LG78SV | SSB | DIRECT |
| GB2YOTA | IO90BS | SSB | QRZ.COM |
| GU6EFB | IN89RK | SSB | QRZ.COM |
| HS0AJ/P | NK98PL | SSB/CW | BURO |
| II9YOTA | JN55JE | SSB | OQRS |
| SX2500S | KM18UA | SSB | BURO/LOTW |
| S0S | Il56CI | SSB | OQRS |
| TF3YOTA | HP94AB | SSB | LOTW |
| TR8CA | JJ40QL | SSB | LOTW |
| TT8SN | JK72MC | SSB | LOTW |
| HS0AJ/P | NK99JH | SSB/CW | BURO |
| UA3XCR | KO73FU | CW | QRZ.COM |
| RC4HAA | LO53CF | SSB | QRZ.COM |
| RN6LGA | KN97UF | CW | QRZ.COM |
| R7DX | Ln13 | SSB | RN6BY |
| RA9DA | MO17MP | SSB | BURO/DIR |
| RZ9SP | LO71NT | SSBE | QSL |
| VU2JFA | NL24EQ | SSB | EMAIL |
| VU3FMM | MK68VN | SSB | QRZ.COM |
| PY2SFY/P | GG67LN | SSB | QRZ.COM |
| PY4ZT | GH80BC | SSB | LOTW-EQSL |
| PY5ZUE | GG24VV | SSB | LOTW-EQSL |


*New VU station from MK81*


*IK3VE*


*DP0GVN/MM, Felix and Theresa from S/C Polarstern*

**J28JP, appeared sporadically in QO-100, hopefully in a near future can be added to the new DXCC entities worked on and confirmed for many operators.**

**I take this opportunity to wish you a good 2021, full of health and lots of new DX and grids.**

**If you want to post future events or see photos of your activities or of your station In this newsletter, you can send the info to contacto@amsat-ea.org eb1ao@amsat-ea.org**

*EA3AGB Javier  AMSAT EA # 377*

# AMSAT-EA products in the URE store

    For several weeks you have at your disposal several products of AMSAT-EA personalized with your callsign on the URE website.

Don´t hesitate
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