



NEWSLETTER-AMSAT-EA

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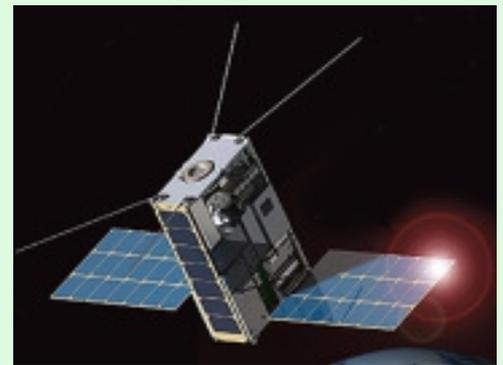
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Translation by Fernando EC1AME

AISTECH-2 TELEMETRY AVAILABLE

The second satellite in the AIS series, from the Spanish company AISTECH, based in Barcelona, was launched in the SSO-A mission on December 27, along with the Galician LUME-1 from the University of Vigo, Spain. Some other sats were also launched on that date.

The main mission of these satellites is to send thermic images of earth and keeping track of vessels and airplanes. To do it, they carry onboard both AIS and ADS-B receivers. AISTECH sends down telemetry for amateur radio ops to be able to decode its packets. It's available on a PDF in the AMSAT-EA website.



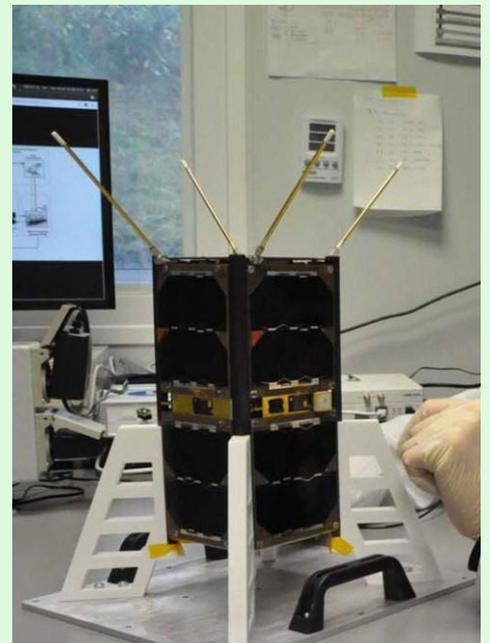
COLLABORATION WITH THE LUME-1 TEAM

LUME-1 is the fourth satellite developed by the University of Vigo in Galicia, Spain. It's in orbit and working as expected since December 27. It was launched from the Russian Vostochny cosmodrome in Siberia on board a Soyuz rocket. The main goal of the LUME-1 satellite is to analyze the viability of the FIRE-RS project which intends the reception of fire alarms thru satellite using sensors on earth that send data to the satellite and back to a control station where they can coordinate actions like sending drones to the affected area.

The Vigo University made the telemetry information available to ham radio ops for us to be able to decode its packets. From AMSAT-EA we are collaborating with the LUME-1 team at the University of Vigo, willing it can be soon used as an AX25 digipeater. Those would be good news for all ham radio operators around the world and a milestone for the satellite itself.

If the LUME-1 satellite offers that possibility it'd be a more instructive and enriching experience for the community.

First plans are to use AFSK 1k2 FM on UHF because, even when the sat can use many more modes, this one is often used when referring to radio packets and makes it available for many. If all goes as expected, this digital repeater may be active soon during sunlight hours on weekends.



NEXT ACTIVITIES



DRISS, 7X3DL

VY0ERC, Eureka ARC will be active agn from february 3 to march 29 from ER60, EQ79.

KI7UNK, Casey and Jonathan KI5EBX plan a trip “rover style” thru the state of Nevada from 8-11 february. They’ll try to activate these grids: DM15/16/25/26 and the cross lines DM16/26 DM17/18, DM27/28, DM27/37, DM36/37 .They will use only FM sats.

W5PFG, Clayton will be working sats “holiday style” from february 10-14 at DM80, and also DM71 DL79 & DI89.

3A/EA4NF, Philippe will be active from Monaco between February 15- 18 on FM and SSB sats, mostly on FM.

KP3RE, Isla del Culebra (Snake Island) in Puerto Rico FK78 , february 22-24 . It’s an IOTA Expedition: IOTA (NA-249), using these sate: AO91, AO92, SO50 y IO86.

AA5UK, Adrian will be active as VP5/AA5UK from Turks and Caicos, at FL31 from february 28 to march 9 . Mostly on SSB sats and some FM birds, crowd courtesy depending.



EB1AO, with URE Malaga.

PAST ACTIVITIES

EA4NF, Philippe, was active as F/EA4NF from IN87

F4DXV, Jerome was active from Luchon as F4DXV/P and EA2/F4DXV from JN02.

UT1FG/MM, Captain Yuri activated several ocean grids

EB1AO, Jose from IN73, IM78, IM77, IM76 using FM sats.

CU2ZG, Pedro called CQ from Hm58.

AD0DX y W9LID, Ron and Mike were active from Pelee National Park at En81.

AD0DX, Ron activated CM95, CM96, DM05, DM06.

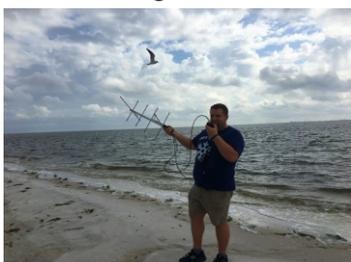
AD7DB, David did it from CM95, CM96, DM05, DM06.

N7JY, John activated DM23.

ED1AO, during december with some demonstrations



Pedro, CU2ZG from HM58.



Clayton, W5PFG



Ron, AD0DX



ED1AO

During the month of december 2018 we had several talks and meetings in schools in the city of Vigo, Galicia, Spain. Several kids, aged 10-12, took part in some demonstrations and talks where they could discover the world of satellites and made their first contacts using satellites. They were able to talk to some European and US stations. They used the special call sign ED1AO



TALKS AND MEETINGS

On January 12 there were talks and Q&A at the maritime Museum in Santa Cruz de La Palma, EA8. The themes treated were ham radio satellites and APRS.

MALAGA MEETING

On the first Friday of January, EB1AO traveled to Malaga, in Southern Spain, where Jesús EA7HTB & Manuel EA7TB took the opportunity to setup a radio meeting with more local hams from URE Malaga.. They made a demonstration on how to do a portable satellite operation. The Schedule and time of the passes didn't help but they had a great time all together.



7X3DL

Driss will be building up his sat station and will be soon on the air from Algeria. This will be the second satellite station available from this DXCC



REQUESTING A SPECIFIC GROUP OF WORK AT IARU

URE used the AMSAT EA request to create a specific group to work at the IARU to take part in the workshops to solve problems in the use of the satellite sub bands.

This request is expected to be debated in the next IARU meeting to be held in Vienna later in April, in the microwaves committee.

The text can be seen in the following pages:



International Amateur Radio Union Region 1 Interim Meeting – Vienna Austria 27-28 April 2019



Document number: VIE19 C5-029

Source: Dr. Daniel Estévez EA4GPZ, URE, AMSAT-EA

Subject: Satellites transmitting on Amateur bands with undocumented protocols or without permission

Committee: C5

Introduction

There is an ever-increasing number of small satellites being launched these days. Many of these resort to the Amateur satellite service as an inexpensive way of obtaining spectrum access. This is currently generating two problems: some of these satellites have not obtained IARU frequency coordination or other necessary permits but still transmit on the Amateur bands, others obtain IARU coordination but do not publish the specifications of the protocols they use, so Amateurs all over the world cannot decode the satellite signal.

Background

Over the last few years, many small satellites have been launched, and many more will be launched in the near future. Most of them are built by universities, research centres, educational institutions, small companies and start-ups. Their main mission usually ranges from concept or technology demonstrators, to in-orbit validation of certain technologies, to small research missions. These satellites do not currently have an appropriate segment of spectrum for telemetry and telecommand, so they are resorting to the Amateur satellite service as an inexpensive way of obtaining spectrum access.

To obtain permission to use the Amateur spectrum, the person responsible for the satellite must be an Amateur radio operator and go through the IARU frequency coordination process. He must submit certain technical documentation and describe the satellite mission, so that IARU can check that it would make reasonable use of the radio spectrum and that the mission is compatible with the Amateur service.

Other than the fact that the satellite responsible is a licensed Amateur operator, in many cases the involvement of the satellite team with the Amateur radio community is very small, so many of these satellites provide very little (if at all) value to the worldwide Amateur radio community.

Since the main motivation for the satellite builders to use the Amateur satellite service is to obtain spectrum access, and not to collaborate with the Amateur radio community, there are two kinds of problems which are appearing with several of these satellite projects.

The first problem is when a satellite team is denied IARU frequency coordination because the mission is not compatible with the Amateur service (or perhaps because the team does not request frequency coordination at all). In many of these cases, the satellite ends up transmitting on the Amateur radio bands without permission.

The second problem is when a satellite team goes through the IARU frequency coordination process successfully but does not publish enough technical information about the protocols

they use so that interested Amateurs can build a decoder software for the signals transmitted by this satellite.

The Amateur radio community has an excellent technical background and has made decoders that can work with many of the satellites that transmit on Amateur radio bands. Some examples are the gr-satellites project by the author of this paper, the Soundmodems by Andrey Kopanchuk UZ7HO and the telemetry decoders by Mike Rupprecht DK3WN. However, many satellites use completely ad-hoc protocols, so creating a new decoder for these satellites without the appropriate documentation is usually a daunting task.

Problems caused to the Amateur satellite service

Satellites transmitting on the Amateur bands without permission suppose a serious problem to the Amateur satellite service. Since the frequencies they use have not been coordinated by IARU, they can cause interference to authorized Amateur satellites. Additionally, the large number of satellites being launched lately means that the spectrum (especially the 435MHz band, but also the 145MHz band) is quite crowded nowadays. Having satellites which do not offer any value to the Amateur service or the Amateur radio community only makes matters worse.

For satellites using undocumented or “secret” protocols, the problem is that radio Amateurs cannot decode the telemetry or other data from these satellites. On the one hand, this means that the data from the satellite is only useful to the satellite designers and provides no value to the Amateur community. On the other hand, using undocumented protocols can be seen as a violation of the ITU Radio Regulations stating that Amateur stations cannot encode messages to obscure their meaning.

Often, interested Amateurs contact the satellite designers to try to get more information about the protocols they use, but usually they do not provide enough documentation (and in some cases they refuse to provide anything). Therefore, making a decoder for these satellites involves reverse-engineering, which is a difficult and tedious task, with no guarantees of success.

What can IARU R1 do about this?

Regarding the problem of satellites transmitting on Amateur bands without permission or IARU coordination, the author recognizes that IARU can do very little to try to solve this problem. It is the duty of national administrations to employ legal measures with these satellites. Still, the author thinks that the Amateur community should be well aware of this problem, which will tend to get worse in the future.

Regarding the problem of satellites using undocumented protocols, the author and URE itself think that some changes to the IARU frequency coordination process might help solve this problem. Ideally, we would require the satellite responsible to submit, together with the frequency coordination form, enough technical information so that interested Amateurs can make a complete decoder based on this information. However, requiring such detailed information early in the frequency coordination process can be unreasonable, so it is worth to study what kind of information should be required and how and when it should be submitted to IARU.

Proposal

The author and URE propose the formation of a working group within IARU R1 to decide what changes to the IARU frequency coordination process would guarantee that interested Amateurs have enough technical information to make a decoder software. There has already been identified a suitable small group of radio Amateurs that are willing to be involved in this working group. At this point, there is no specific need for a budget to support the activities of the working group.

Since the problems addressed in this proposal are not specific to IARU R1, but rather affect the worldwide Amateur collective, another task of this working group will be to coordinate with the other IARU regions, so that this matter can be treated in a global basis and a joint effort can be made.

Finally, one other task of the working group should be to inform universities through their national societies of the concerns and rules for Amateur bands use and to organize a prospective survey of potential satellite projects to help spread the information.