

BOLETIN - AMSAT-EA

02/2019
FEBRERO

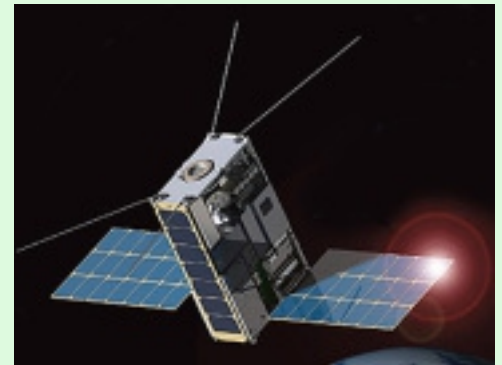
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Disponible la telemetría del satélite AISTECH-2

El segundo satélite de la serie AIS de la empresa española con sede en Barcelona AISTECH fué lanzado en la misión SSO-A del 27 de diciembre junto con el vigués LUME-1 y otros muchos. La misión principal de esta serie de satélites es proporcionar imágenes térmicas de la Tierra y también la realización de seguimiento de barcos y aeronaves. Para ello incorporan a bordo receptor AIS y ADS-B.

AISTECH nos ha proporcionado la telemetría para que la comunidad de radioaficionados pueda decodificar sus paquetes. Está disponible en PDF en la web de Amsat-EA.

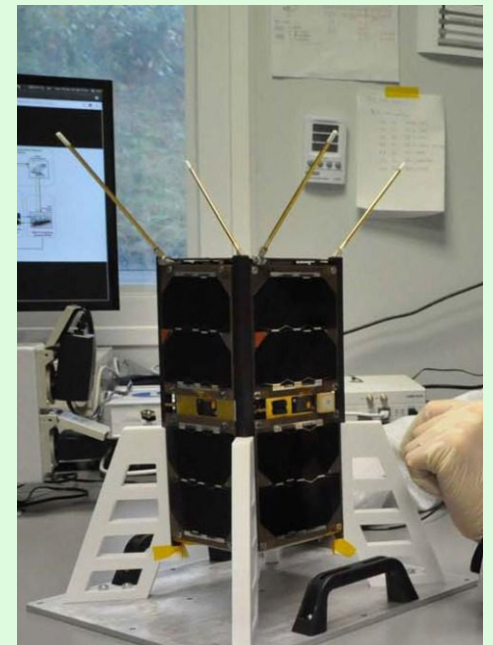


Colaboración con equipo del LUME-1

El cuarto satélite desarrollado por la Universidad de Vigo, el LUME-1, se encuentra en órbita y en correcto funcionamiento desde ayer día 27. El lanzamiento se ha producido desde el cosmódromo ruso de Vostochny, en Siberia y a bordo de un cohete Soyuz. El objetivo principal del satélite LUME-1 es analizar la viabilidad del proyecto FIRE-RS, consistente en la recepción vía satélite de alarmas de incendios generadas por sensores en Tierra y su retransmisión a una estación de recepción desde donde se podría coordinar una actuación, por ejemplo enviando drones al lugar.

La Universidad de Vigo ha puesto a disposición de los radioaficionados la información de telemetría que permite decodificar sus paquetes.

Desde AMSAT EA estamos colaborando con el equipo del satélite LUME-1 de la Universidad de Vigo de forma que éste pueda utilizarse pronto como digirepetidor AX.25, lo que sería una gran noticia para todos los radioaficionados y un gran hito para el satélite. El que el satélite LUME-1 ofrezca esta posibilidad hará que éste resulte mucho más instructivo y enriquecedor para la comunidad. Inicialmente el plan es utilizar AFSK 1k2 FM en la banda de UHF, porque si bien el satélite tiene capacidad para muchos más modos, éste, que es bastante común en el mundo del radiopaquete, posibilita que el máximo número de personas puedan disfrutarlo. Si todo sale según lo previsto el repetidor digital podría estar activo los fines de semana en horario diurno.



Próximas Actividades



DRISS, 7X3DL

VY0ERC, Eureka ARC volverá a estar operativa del 3 de febrero al 29 de marzo desde ER60, EQ79.

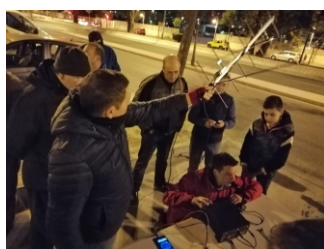
KI7UNK, Casey y Jonathan **KI5EBX** planean un rover por Nevada del 8 al 11 de febrero en el que preveen activar el corner DM15/16/25/26 y las líneas de cruce DM16/26 DM17/18, DM27/28, DM27/37, DM36/37 sólo en satélites FM.

W5PFG, Clayton estará del 10 al 14 de febrero en DM80, también activará DM71 DL79 y DL89 al estilo vacaciones.

3A/EA4NF, Philippe estará activo desde Mónaco entre el 15 y el 18 de febrero en satélites FM y SSB según sea posible priorizando FM.

KP3RE, Isla del Culebra en Puerto Rico FK78 del 22 al 24 de febrero en la expedición a IOTA (NA-249), satélites AO91, AO92, SO50 y IO86.

AA5UK, Adrian estará activo como VP5/AA5UK desde Turcos y Caicos FL31 del 28 de febrero al 9 de marzo. Principalmente en satélites lineales y algún pase FM dependiendo de la cortesía de los operadores.



EB1AO, con URE Malaga.

Actividades Pasadas

EA4NF, Philippe, estuvo activo como F/EA4NF desde IN87

F4DXV, Jerome estuvo activo desde Luchon como F4DXV/P y EA2/F4DXV en JN02.

UT1FG/MM, el capitán Yuri activando diferentes cuadrículas.

EB1AO, Jose desde IN73, IM78, IM77, IM76 satélites FM.

CU2ZG, Pedro estuvo desde Hm58.

AD0DX y W9LID, Ron y Mike desde el Parque Nacional Point Pelee EN81.

AD0DX, Ron activó CM95, CM96, DM05, Dm06.

AD7DB, David activó CM95, CM96, DM05, Dm06.

N7JY, John activó DM23.

ED1AO, durante el mes de Diciembre con demostraciones.



Clayton, W5PFG



Ron, AD0DX



Pedro, CU2ZG desde HM58.



ED1AO

Durante el mes de diciembre se realizaron varias charlas en colegios de Vigo y demostraciones en la que niños de 10-12 años pudieron descubrir el mundo de los satélites y realizar sus primeros contactos via satélite entre varias estaciones europeas y norteamericanas. Para ello se utilizó el indicativo especial ED1AO.



CHARLA COLOQUIO

El pasado 12 de enero tuvo lugar Charla-coloquio en el Museo Naval de Santa Cruz de La Palma sobre satélites de Radioaficionado y APRS.

QUEDADA EN MALAGA

El primer Viernes de enero aprovechando un viaje de EB1AO a Málaga, Jesús EA7HTB y Manuel EA7TB reunieron a varios amigos de la Sección Local de Ure Málaga para realizar una demostración del modo de operación de satélites en portable. El horario de los pases y la ubicación no nos acompañó mucho pero no impidió que pasáramos un buen rato....



7X3DL

Driss está montando su estación de satélites y en breve estara operativo desde Algeria... con esto tenemos ya 2 estaciones habituales desde este DXCC.



Solicitud de creación de un grupo específico de trabajo en la IARU

URE ha cursado la solicitud redactada por AMSAT-EA para la creación de un grupo específico de trabajo en la IARU de cara a tratar los problemas derivados del uso de las sub-bandas de satélites asignadas al servicio de radioaficionados por satélites ajenos a este servicio.

Se espera que esta solicitud sea debatida en la próxima reunión que este organismo llevará a cabo en la ciudad de Viena en Abril, dentro del comité asignado a microondas.

El texto de la misma puede consultarse en las siguientes páginas.



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.