



SUBJECT	3400MHz Amateur Satellite Allocation		
Society	RSGB	Country:	UK
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Introduction

Significant new Amateur Satellite developments highlight the need to prioritise achieving 3400-3410MHz Amateur Satellite Service allocations in Region-1. This is vital in order to share the same benefits that will be available to Region-2/3 when the Amsat Phase-IV Lite Geostationary and Eagle satellite programmes come to fruition; and create a globally harmonised allocation.

Background

At the 2007 Vienna IARU-R1 Interim Conference RSGB Paper B13 [1] highlighted progress in relation to Region-1 3.4GHz terrestrial Amateur Service allocations (notably in the CEPT area). That paper included allocation maps and made important observations in respect of amateur activity (including EME) and WRC-07 allocations for future Mobile Radio services (known as 'IMT-Advanced', effective from 17-Nov-2010). For the Amateur Satellite Service the 3.4GHz band is an excellent alternative to the 2.4GHz allocation which suffers from ISM interference.

In 2006 Amsat-NA developed the Eagle satellite concept which featured an advanced payload in an elliptical orbit that would utilise uplinks in the 3400-3410 Amateur Satellite Service band, already allocated in Regions-2 and 3. Most significantly, in October 2007 Amsat announced that an exciting new application of this payload would offer a reliable 24/7 downlink service from geostationary orbit, particularly suitable for emergency communications - See Annex.

In Region-1 there are almost no countries with specific allocations for the Amateur Satellite Service in 3400-3410, although as Vienna Paper B13 highlighted, an increasing number of countries make the band available to the terrestrial Amateur Service (which also permits EME use as highlighted in a new RSGB Information paper). Operations over many years have resulted in no interference reports and excellent compatibility with Primary users.

Key points and proposal

Extending the 3.4GHz Amateur Satellite Service allocation to Region-1 has been an official IARU Spectrum requirement [2] for many years, but has not received much attention so far. However with both Amsat and commercial developments gathering pace, this needs to change.

Societies and IARU-R1 EC should understand the significance and attractiveness of a global 24/7/365 amateur satellite service with convenient terminal equipment and increase efforts to achieve allocations on a Secondary non-interference basis, ideally before November-2010.

[1] "Allocations at 3400 MHz", IARU Region-1 Interim conference, February 2007, Paper-B13

[2] IARU Spectrum Requirements - <http://www.iau.org/ac-spec06.html>

Recommendations

- 1) National Societies should take all necessary steps in seeking 3400-3410MHz allocations on a Secondary non-interference basis as quickly as possible.
- 2) All Societies should explicitly include the Amateur Satellite Service (both S-E and E-S) in such requests on the basis that many years of terrestrial and EME operations (notably in the CEPT area) have not resulted in interference reports from other users.
- 3) National Societies and IARU–R1 should collaborate more closely to assist those Societies who in the past have not been able to achieve such allocations.
- 4) Societies should collectively obtain a critical mass of national allocations so that footnotes in regional allocation tables can be extended or acquired that include the Amateur Satellite Service
- 5) IARU-R1 to prioritise this band and to take active steps in support of these goals

Annex - Amateur Radio Phase IV Lite Geostationary Payload Announced - October-2007

On 26-28 October 2007 AMSAT held a very successful Space Symposium in Pittsburgh, Pennsylvania.

Rick Hambly, W2GPS, AMSAT President along with Bob McGwier, N4HY, AMSAT Vice-President of Engineering were able to make public the results of their recent work which **will change the face of amateur radio** going forward.

AMSAT has been in consultation with Intelsat regarding an application of an Intelsat platform carrying our amateur radio satellites into geosynchronous orbit. Engineering studies, funding studies, among other negotiations are continuing at this point. However Bob, N4HY made the following observation of the project AMSAT has termed **Phase IV Lite**, *"There is enough in place at this time that AMSAT needs to begin planning engineering work and possible construction of a geosynchronous payload so we are ready if Intelsat says they have a ride for us."*

The **Phase IV Lite Geosynchronous Payload** is planned to consist of similar transponders already under development for the Phase-3 satellites. Accelerated development on the digital Advanced Communication Package is anticipated.

In addition to the communication payload flown to space, AMSAT plans to develop an earth station attainable by the average ham so that users can immediately take advantage of the audio, digital messaging, and video services.

The Advanced Communication Package would be a self-contained earth station which could be sent with amateur radio communication teams or delivered to disaster areas for 24/7/365 emergency communications.

These teams would be able to point a small dish at a predictable spot in the sky and immediately begin delivering disaster communication support without depending on HF propagation.

A Phase IV payload could also be used to provide TDRSS-like relay of ARISS communications. The ten minute school contact could now be expanded to hours-long contact with the International Space Station. This opens possibilities for student involvement with experiments aboard the space station. The Intelsat geosynchronous platform would be able to provide the AMSAT Phase IV Lite payload with approximately 400 watts of DC power for 15 years. The primary payload

would also perform the GTO boost phase as well as perform station keeping and antenna pointing once it has arrived on station.

Bob, N4HY summarized, "The Intelsat team would be doing all the things nearly impossible for amateurs and that enables AMSAT to do what we do best ... **build a communication system that changes amateur radio for the better!**"

Rick Hambly, W2GPS, Amsat President & Bob McGwier, N4HY, Amsat Engineering-VP