



## The International Amateur Radio Union

Since 1925, the Federation of National Amateur Radio Societies  
Representing the Interests of Two-Way Amateur Radio Communication

### AMATEUR SATELLITE FREQUENCY COORDINATION REQUEST<sup>1</sup>

**1. Self coordination.** For over 100 years, amateur radio operators have maintained an effective tradition of self-regulation. Amateurs are expected to coordinate their use of frequencies. (None of us has a right to use any particular frequency.) Coordination of many terrestrial stations, repeaters and beacons, for example, usually works well through IARU member national societies and local coordinating committees.

**2. Coordinating satellites.** Amateur radio satellites present a special problem because satellites have global effect. Only a global frequency coordination system can work. Uncoordinated satellites will cause harmful interference to stations around the world and receive interference from them — which could result in mission failure.

***Coordination serves everyone's best interests!***

**3. Coordination procedure.**

- a. Frequency coordination for amateur radio satellites is provided by the IARU through its Satellite Advisor, a senior official appointed by the IARU Administrative Council, its top policymaking body. The IARU Satellite Advisor is assisted by an Advisory Panel of qualified amateurs from all three IARU Regions. (Similar to ITU Regions.)
- b. In all other satellite services, frequency coordination is a mandatory process through the ITU Radiocommunication Bureau (BR). The procedure includes notification of all administrations (RR Article 11) and coordination with all administrations (RR Article 9) using BR publications and procedures.
- c. IARU strongly recommends that you work with your administration and encourage them to notify amateur-satellite service stations using the Article 11 procedure. This way, all administrations will see more clearly the value of the amateur-satellite service. (Help with the notification process will be provided in a separate document.)

**4. Getting Help.**

- a. **Start** by reading *Amateur Radio Satellites*, an IARU paper. You will find explanations and interpretations of Treaty provisions. IARU satellite frequency coordination follows

---

<sup>1</sup> Terms used here are defined in the IARU paper, *Amateur Satellites*. A PDF version is available at: <http://www.iau.org/satellite>.

these interpretations. Download the latest version from:

<http://www.iaru.org/satellite.html>

b. **Discuss** your project with the national amateur radio society of your country and your national AMSAT organisation, if there is one. They may be able to assist you in a variety of ways.

c. **Use information** available on-line.

i. For a list of national amateur radio societies (Member Societies of IARU), see: <http://www.iaru.org/member-societies.html>

ii. For a list of amateur satellite organisations, see: <http://www.amsat.org/amsat-new/links/>.

iii. A link budget spread sheet is at: <http://www.amsat.org.uk/iaru/spreadsheet1.asp>.

iv. Check frequencies of currently operating satellites at: <http://www.amsat.org/amsat-new/satellites/>. Check on coordinated and other planned amateur satellites at: <http://www.amsat.org.uk/iaru/>.

v. If you need help understanding the requirements or completing the coordination request, ask the Satellite Advisor or a Panel Member.

**5. When to make the frequency coordination request.** Make your frequency coordination request as far in advance as possible. Remember, coordination takes account of your own needs and the needs of others. Receiving coordination early enough makes design and construction easier and less expensive. In any event, be sure to make your request while it is still possible to change operating frequencies in response to the Satellite Advisor's recommendations.

**6. Who makes the frequency coordination request?** The prospective space station licensee must make the coordination request, as that person will be responsible for space station transmitter operations.

**7. Where to send your frequency coordination request.** Send frequency coordination requests to the IARU Satellite Advisor by e-mail to [satcoord@iaru.org](mailto:satcoord@iaru.org) with a copy to [wozane@gmail.com](mailto:wozane@gmail.com).

**8. What will happen?** The IARU Satellite Advisor will make recommendations to the licensee concerning plans based upon all available information and advice from the Satellite Advisory Panel. His goal is to help you and your project to succeed. Application status will be published at: <http://www.amsat.org.uk/iaru/>. When the process is complete, the licensee will receive a coordination letter with detailed information.

## VERY IMPORTANT!

**1. Submit only the request form;** do not send these instructions, please.

**2. Name the electronic document** you submit with the name of the proposed satellite followed by the submission date. Example: if the name before launch is Newsat A and the document is submitted in November 2009, the document file name should be: “newsata\_nov2009.doc.”

**3. Indicate** in your request form the URL’s for pictures, sketches, drawings, and other pertinent information.

**4. Indicate** whether or not you feel that the proposed operation in the amateur-satellite service is consistent with the radio regulations as interpreted by the IARU Satellite Advisor. If not, please, explain your interpretation of the radio regulations.

**5. Licensee**, please, sign and date the form.

**— detach instructions, please —**



## The International Amateur Radio Union

Since 1925, the Federation of National Amateur Radio Societies  
Representing the Interests of Two-Way Amateur Radio Communication

### AMATEUR SATELLITE FREQUENCY COORDINATION REQUEST

(Make a separate request for each space station to be operated in the amateur-satellite service.)

#### Administrative information:

<b>0</b>	<b>DOCUMENT CONTROL</b>	
0a	Date submitted	
0b	Expected launch date	
0c	Document revision number	
<b>1</b>	<b>SPACECRAFT (published)</b>	
1a	Name before launch	
1b	Proposed name after launch	
1c	Country of license	
<b>2</b>	<b>LICENSEE OF THE SPACE STATION (published)</b>	
2a	First (given) name	
2b	Last (family) name	
2c	Call sign	
2d	Postal address	
2e	Telephone number (including country code)	
2f	E-mail address (licensee will be our point of contact and receive all correspondence)	
2g	Skype name (if available)	
2h	Licensee's position in any organisation referenced in item 3a.	
2i	List names and e-mail addresses of <i>additional</i> people who should receive copies of correspondence.	
<b>3</b>	<b>ORGANISATIONS (published) — complete this section for EACH participating organization</b>	
3a	Name of organisation	
3b	Physical address	
3c	Postal address	
3d	Telephone number (including country code)	
3e	E-mail address	
3f	Web site URL	
3g	National Amateur Radio Society	

	(including contact information)	
3h	National Amateur Satellite organisation (including contact information)	
3i	Have you involved your National Amateur Satellite organization and/or National Amateur Radio Society? Please, explain.	

### Space station information:

<b>4</b>	<b>SPACE STATION (published)</b>	
4a	Mission(s). <i>Describe in detail what the space station is planned to do. Use as much space as you need.</i>	
4b	Planned duration of each part of the mission.	
4c	Proposed space station <b>transmitting</b> frequency <sup>2</sup> plan.  <i>List for each frequency or frequency band:</i>  → <i>frequency or frequency band (e.g. 435-438 MHz)</i>  → <i>output power</i>  → <i>ITU emission designator<sup>3,4</sup></i>  → <i>common description of the emission<sup>5</sup></i>  → <i>antenna gain and pattern</i>  → <i>attitude stabilisation, if used</i>	
4d	Proposed space station <b>receiving</b> frequency <sup>6</sup> plan.	

<sup>2</sup> Show all frequencies numerically in Hz, kHz, MHz, or GHz.

<sup>3</sup> ITU emission designators are explained at: <http://life.itu.int/radioclub/rr/ap01.htm>. (Thank you, 4U1ITU.) Effect of Doppler shift is NOT included when determining bandwidth.

<sup>4</sup> If using a frequency changing transponder, indicate the transmitting bandwidth. Effect of Doppler shift is NOT included when determining bandwidth.

<sup>5</sup> Common emission description means terms like transponder, NBFM, PSK31, 1200 baud packet (AFSK on FM), etc.

<sup>6</sup> Show all frequencies numerically in Hz, kHz, MHz, or GHz.

	<p>List for each frequency or frequency band:</p> <ul style="list-style-type: none"> <li>→ frequency or frequency band</li> <li>→ ITU emission designator</li> <li>→ common description of the emission</li> <li>→ noise temperature</li> <li>→ associated antenna gain and pattern</li> </ul>	
4e	<p>Physical structure. General description, including dimensions, mass, antennas and antenna placement, whether stabilized or tumbling, etc. Give URL's for drawings.</p>	
4f	<p>Functional Description. Describe each sections function within the satellite.</p>	
4g	<p>Power budget. Describe each power source, power consuming section, power storage, and overall power budget.</p>	
<b>5 TELECOMMAND (NOT published)</b>		
5a	<p><b>Telecommand</b> frequency plan.</p> <p>List:</p> <ul style="list-style-type: none"> <li>→ space station telecommand frequencies or frequency bands,</li> <li>→ ITU emission designator(s)</li> <li>→ common description of the emission</li> <li>→ link power budget(s)</li> <li>→ a general description of any cipher system</li> </ul>	
5b	<p>Positive space station transmitter control. Explain how <b>telecommand</b> stations will turn off the space station transmitter(s) immediately, even in the presence of <b>user traffic</b> and/or space station <b>computer system failure</b>.</p>	

	<p><b>NOTE:</b> <i>Transmitter turn off control from the ground is absolutely required. Good engineering practice is to make this capability independent of all other systems.</i></p> <p>Be sure to read the paper available at: <a href="http://www.iau.org/satellite">http://www.iau.org/satellite</a>.</p>	
5c	<p><b>Telecommand</b> stations.  <i>List telecommand stations, including contact details, for sufficient Earth command stations to be established before launch to insure that any harmful interference caused by emissions from a station in the amateur-satellite service can be terminated immediately. See RR 25.11 and RR 22.1</i></p>	
5d	<p>Optional: Give the complete space station turn off procedure.</p> <p><i>As a service, the IARU Satellite Advisor will keep the space station turn off procedure as a backup for your operation. Only the space station licensee may request the information. If interference occurs and the licensee cannot be located, the licensee grants the Satellite Advisor permission to use the turn off procedure. Please note that the Satellite Advisor will use his best efforts, but cannot guarantee success. The space station licensee is still held responsible for the space station transmitter(s) by the licensing administration.</i></p>	
<b>6</b>	<b>Telemetry (published)</b>	
6a	<p>Telemetry frequencies</p> <p>List:</p> <ul style="list-style-type: none"> <li>➔ all telemetry frequencies or frequency bands,</li> <li>➔ ITU emission designators</li> <li>➔ common description of the emission</li> <li>➔ link budgets.</li> <li>➔ URL with telemetry decoding</li> </ul>	

	<i>information.</i>	
6b	Telemetry formats and equations. <i>Describe telemetry format(s), including telemetry equations. NOTE: Final equations must be published as soon as available.</i>	
6c	Is the telemetry transmission format commonly used by radio amateurs? If not, describe how and where it will be published.  Be sure to read: RR 25.2A. Text is included in the paper available at: <a href="http://www.iaru.org/satellite">http://www.iaru.org/satellite</a>	
<b>7</b>	<b>Launch plans (published)</b>	
7a	Launch agency	
7b	Launch location	
7c	Planned orbit. <i>Include planned orbit apogee, perigee, inclination, and period.</i>	
7d	List other amateur satellites expected to share the same launch.	

### Earth station information:

<b>8</b>	<b>Typical Earth station — transmitting</b>	
8a	Describe a typical Earth station used to transmit signals to the planned space station.	
8b	Link power budget. <i>Show complete link budgets for all Earth station transmitting frequencies, except telecommand.</i>	
<b>9</b>	<b>Typical Earth station — receiving</b>	
9a	Describe a typical Earth station to receive signals from the planned satellite.	
9b	Link power budget. <i>Show complete link budgets for all Earth station receiving frequencies.</i>	

### Additional information:

Do not attach large files. Indicate the URL where the information is available.



<b>10</b>	Please, supply any additional information that may assist the Satellite Advisor to coordinate your request(s).
-----------	--

### Certification:

<b>11*</b>	<input type="checkbox"/> The licensee of the planned space station has reviewed all relevant laws, rules, and regulations, and certifies that this request complies with all requirements to the best of his/her knowledge.
	<input type="checkbox"/> The licensee of the planned space station has reviewed all relevant laws, rules, and regulations and disagrees with IARU interpretations of Treaty requirements. The IARU Satellite Advisor is asked to consider the following interpretation. Explanation follows.

\* Please tick appropriate box.

### Signature:

<b>12</b>	
	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%; border-top: 1px solid black; text-align: center;">Signature of space station licensee.</div> <div style="width: 45%; border-top: 1px solid black; text-align: center;">Date submitted for coordination.</div> </div>