

USE OF THE EARTH STATIONS LOCATED ON BOARD VESSELS (ESVs)

The XVI meeting of the Permanent Consultative Committee III: Radiocommunications,

CONSIDERING:

- a) That WRC 2000 agreed on Resolution 82 (WRC-2000) “Provisions relating to earth stations located on board vessels which operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz” (see Resolution 82 and annexes that are attached);
- b) That Resolution 82 establishes provisional guidelines for bilateral or multilateral agreements between concerned administrations;
- c) That CITEL administrations presented a common proposal on the WRC-2000 agenda item and supported the approved Resolution 82;
- d) The need to protect the stations operating in the fixed service in the same band;
- e) That ESVs operate in the fixed-satellite service networks in the same band under No. S4.4 of the Radio Regulations;
- f) That there are currently no procedures for identifying potential sources of ESV interference to terrestrial stations;
- g) That CITEL countries would benefit if a common procedure could be developed for the use of ESVs;
- h) That the ESVs should have a license issued by a telecommunications administration according the ITU and IMO rules, and
- i) That port authorities may inspect, in accordance with the Radio Regulations, the radiocommunications equipment on board ships,

NOTING:

- a) That regulatory framework and technical and operational standards to quantify and prevent unacceptable interference from ESVs to the allocated services are yet to be completed and are being developed in the ITU-R, and
- b) That CITEL administrations should take this into account when implementing the use of ESVs,

¹ document PCC.III/doc.1752/00.

RESOLVES:

1. To request that the Working Group relative to Satellite Systems to provide Fixed and Mobile Services of PCC.III develop procedures that could be used by CITEL administrations for the provision of services by ESVs in the bands 3700 - 4200 and 5925 – 6425 MHz.
2. That WRC-2000 Resolution 82 be used as the guidelines for developing these procedures (see Resolution 82 and annexes that are attached).
3. To encourage administrations to facilitate agreements between themselves in order to allow the use of ESVs.
4. To encourage CITEL administrations and ESVs operators to work together to develop detailed procedures for coordination.

INVITES CITEL ADMINISTRATIONS:

- a) To inform the Executive Secretary concerning their use of the fixed service (or other terrestrial services) in coastal areas in the band 5 925-6 425 MHz along with an estimate of the number of these stations within 200 km of the coast;
- b) To analyze which procedures will be used to issue ESVs licenses and which procedures will be used by their port authorities during on-board inspections, and
- c) To participate in ITU-R Study Groups and IMO committees concerned with this subject.

INSTRUCTS THE EXECUTIVE SECRETARY:

To inform other regional groups about this Resolution and follow the work of these groups.

ATTACHMENT TO RESOLUTION PCC.III/RES. 108(XVI-00)

RESOLUTION 82 (WRC-2000)

**Provisions relating to earth stations located on board vessels
which operate in fixed-satellite service networks in the
bands 3 700-4 200 MHz and 5 925-6 425 MHz**

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a)* that there is a demand for global wideband satellite communication services on vessels;
- b)* that the technology exists that enables earth stations on board vessels (ESVs) to use fixed-satellite service (FSS) networks operating in the 3 700-4 200 MHz and 5 925-6 425 MHz bands;
- c)* that ESVs have the potential to cause unacceptable interference to other services in the band 5 925-6 425 MHz;
- d)* that ESVs operating in these bands require considerably less than the full bandwidth in this FSS allocation and only a portion of the visible geostationary arc;
- e)* that there are a limited number of geostationary FSS systems that have global coverage;
- f)* that the number of vessels equipped with ESVs may be such as to place a heavy coordination burden on some administrations, especially those in developing countries;
- g)* that in order to ensure the protection and future growth of other services, ESVs shall operate with requisite technical and operational constraints;
- h)* that, based on appropriate assumptions, a minimum distance can be calculated beyond which an ESV will not have the potential to cause unacceptable interference to other services in this band,

noting

- a)* that ESVs may operate in fixed-satellite service networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz under No. **S4.4** of the Radio Regulations and shall not claim protection from, nor cause interference to, other services having allocations in the band;
- b)* that there is no need for new regulatory procedures for ESVs operating at specified fixed points,

recognizing

- a)* that progress has been made within ITU-R in determining the technical and operational provisions under which ESVs could operate;
- b)* that further studies are needed,

resolves

1 to invite ITU-R to continue to study, as a matter of urgency, the regulatory, technical and operational constraints to be applied to ESV operations, having regard to the provisional guidelines for ESV use in Annex 1 and the provisional technical guidelines given in Annex 2 and, in particular, to determine the appropriate value for the minimum distance from ESV stations beyond which these stations are assumed not to have the potential to cause unacceptable interference to stations of other services of any administration and beyond which no coordination would be required;

2 to invite ITU-R, as a matter of urgency:

- to develop Recommendations on methods for coordination between terrestrial services and ESVs;
- to study the feasibility of mitigation techniques, such as various frequency arrangements or dual-band systems, as a way to avoid the need for detailed coordination of ESVs without constraining existing services;
- to study, as a complement to the 3 700-4 200 MHz and 5 925-6 425 MHz bands, the use of other FSS allocations for ESVs transmitting in the 6 GHz and 14 GHz bands;

3 to invite WRC-03 to assess, in the light of these studies, the provisions under which ESVs could operate in FSS networks in the bands 3 700-4 200 MHz and 5 925-6 425 MHz, without causing unacceptable interference to radiocommunication services operating in accordance with the Radio Regulations;

4 that, until a decision is adopted for ESVs by WRC-03, agreement between the administrations licensing ESVs and affected administrations should be reached on a bilateral or multilateral basis, in accordance with the guidelines in Annexes 1 and 2;

5 that, until a decision is adopted for ESVs by WRC-03, administrations licensing ESVs that enter into bilateral or multilateral agreements under *resolves* 4 above should ensure that, as part of the licensing process, ESVs operate in compliance with such agreements, taking into consideration the interests of concerned neighbouring countries,

encourages concerned administrations

to cooperate with administrations which license ESVs while seeking agreement under *resolves* 4,

encourages ESV licensing administrations

to consider registering their ESV frequency assignments in the Master International Frequency Register, for information purposes only,

urges all administrations

to participate actively in the above-mentioned studies by submitting contributions,

instructs the Secretary-General

to bring this resolution to the attention of the Secretary-General of the International Maritime Organization and to invite IMO to participate in the work on this issue.

ANNEX 1 TO RESOLUTION 82 (WRC-2000)

Provisional guidelines for ESV use

- 1 The administration that issues the licence for the use of ESVs in these bands (licensing administration) shall ensure that such stations do not cause unacceptable interference to the services of other concerned administrations.
- 2 Operators of ESVs shall comply with the technical guidelines listed in Annex 2 and/or those agreed by the licensing and concerned administrations.
- 3 ESVs shall not claim protection from transmissions of other services operating in accordance with the Radio Regulations.
- 4 Any transmissions from ESVs within an agreed distance, as identified in *resolves* 1 of this resolution, shall be based upon the prior agreement of the concerned administration.
- 5 Administrations which issue ESV licences shall ensure that ESV operators endeavour to provide the necessary assistance to the concerned administrations in order to facilitate the agreement.
- 6 Administrations, in determining the distance referred to in item 4 above, are encouraged to exclude those parts of their territory, such as remote small islands, where other services in the band 5 925-6 425 MHz are neither operating nor planned.
- 7 If an administration changes its actual or planned deployment of stations in other services, it may require revision of the agreement with the ESV licensing administration(s).
- 8 The ESV system should include means of identification and automatic mechanisms to terminate transmissions whenever the station operates outside its authorized geographic (see item 4 above) or operational limits.
- 9 ESVs should be equipped so as to enable the licensing administration under the provisions of Article **S18** to verify earth station performance and to terminate ESV transmissions immediately upon request by an administration whose services may be affected.
- 10 When ESVs operating beyond the territorial waters but within a specified distance (as referred to in item 4 above) fail to comply with the terms required by the concerned administration pursuant to items 2 and 4, then that administration may:
 - request the ESV to comply with such terms or cease operation immediately; or
 - request the licensing administration to require such compliance or immediate cessation of the operation.
- 11 Any licensing authority that licenses ESVs should maintain at all times a point of contact that may be contacted by a concerned administration.

ANNEX 2 TO RESOLUTION 82 (WRC-2000)

**Provisional technical guidelines applicable to ESVs operating in
the bands 3 700-4 200 MHz and 5 925-6 425 MHz**

Minimum diameter of ESV antenna:	2.4 m
Maximum half-power beamwidth of ESV antenna:	1.5°
Minimum elevation angle of ESV antenna:	10°
Maximum necessary bandwidth per vessel:	2.346 MHz
Maximum necessary bandwidth in a single operating area:	36 MHz (see Note)
Maximum ESV transmitter power spectral density at the input to the antenna:	17 dB(W/MHz)
Tracking accuracy of ESV antenna:	0.2°

NOTE – The actual bandwidth required in an operating area will depend on the number of ESVs that would be present simultaneously in that area, and in many areas the required bandwidth will be less than 36 MHz. In addition, because ESVs are frequency agile, the necessary bandwidth per vessel (2.346 MHz) can be generally identified anywhere within the 4/6 GHz bands and does not have to be contiguous with bandwidth of other ESVs.