

**Recommendation T/R 75-04 (Odense 1986)**

**EXCHANGE OF DATA BETWEEN ADMINISTRATIONS AND BETWEEN ADMINISTRATIONS  
AND INTERNATIONAL ORGANISATIONS RELATING TO SPACE SYSTEMS**

Recommendation proposed by the "Radiocommunications" Working Group T/WG 3 (R)

*Revised text of Recommendation adopted by the "Telecommunications" Committee:*

“The European Conference of Postal and Telecommunications Administrations,

*considering*

- (a) that it is a matter of greatest interest that Administrations should be able to exchange information relating to frequency assignments to stations of space systems in a standardised form,
- (b) that the administration of space systems encompasses four major categories of operation which require the exchange of data between Administrations or between Administrations and international organisations, namely: the advance publication of satellite networks, coordination between satellite networks, coordination between earth stations and terrestrial stations, and the notification to the IFRB of frequency assignments to stations of space systems (space stations and earth stations),
- (c) that the presentation of information in a standardised form facilitates processing by computer,
- (d) that in recent years the cost to CEPT Administrations of frequency administration has significantly increased with the substantial growth in number of satellite networks involving or affecting member countries of the CEPT,

*recommends*

that Administrations exchanging information relating to space systems should do so using the relevant information and the format indicated in the Annex to this Recommendation.”

**Explanatory note on the presentation of information in the following Annex**

The information is set out in four columns:

- The *name* of the data appears in the first column. Their exact definitions may be found in Appendices 3 and 4 of the Radio Regulations and in IFRB Circular No. 536.
- The type of data appears in the second column; this may be numeric (NUM), alphanumeric (ALF) or graphic (GRA).
- The *format* of the data appears in the third column. This format is as follows:
  - Alphanumeric data are given either in the form X(N), where N is the number of characters, or else showing the exact position of each type of character. (For example: Geographical coordinates of the earth station: 999 x 9999 – 99 x 9999);
  - Integral numerical data are given either in the form 9(N), where N is the number of characters, or in an expanded form, (For example:  $\pm 999$  represents a three figure integer which may be either positive or negative);
  - Decimal numerical data are given in the format 9(N<sub>1</sub>), 9(N<sub>2</sub>), where N<sub>1</sub> is the number of characters of the integer number and N<sub>2</sub> is the number of characters of the decimal fraction. They may sometimes be given in an expanded form. (For example:  $\pm 9.99$  represents a positive or negative decimal number consisting of a single-figure integer and a two-figure decimal fraction);
  - Where necessary the appropriate unit symbols appear after the data;
  - For graphical data a reference to the corresponding Annex is given in the fourth column.
- Any supplementary remarks on the data are given in the fourth column. The expression "refer to corresponding annex" which appears in the "remarks column" means that for exchanging the corresponding data it is necessary to provide them by an annex that could consist of a graph, a table, or a formula.

**Annex to Recommendation**

**1. CHARACTERISTICS RELATING TO THE SATELLITE**

**1.1. Orbit and network characteristics**

Name of data	Type	Format	Remarks
Name of satellite	ALF	X (20)	
Type of orbit	ALF	X (1)	X = G Geostationary Orbit X = N Non-geostationary Orbit
Nominal longitude	ALF	999.99X (°)	X = E East X = W West
Longitudinal tolerance	ALF	9.99W – 9.99 E (°)	
Inclination excursion	NUM	9.99 (°)	
Visible arc	ALF	999X – 999X (°)	X = E East X = W West The visible arc must be given West to East
Service arc	ALF	999X – 999X (°)	X = E East X = W West
Angle of inclination of the orbit	NUM	99.99 (°)	
Satellite period	ALF	999 × 99	If X =D the period is expressed in days and hours If X =H the period is expressed in hours and minutes
Altitude of the apogee	NUM	9 (7) km	
Altitude of the perigee	NUM	9 (7) km	
Number of satellites	NUM	99	

**1.2. Characteristics relating to satellite antennas**

**1.2.1. For each transmitting antenna**

Identity of the transmitting beam	ALF	X (9)	
Isotropic gain of the antenna	NUM	± 99.9 dB	
Radiation pattern or gain contour plotted on the Earth's surface	GRA		Refer to corresponding Annex
Polarisation of the antenna	ALF	X (4)	For symbols refer to IFRB circular No. 536
Reference coordinates for pointing of the antenna	ALF	999.9X; 99.9X (°)	The first X may be E or W The second X may be N or S
Pointing accuracy of the antenna	NUM	9.99 (°)	

1.2.2. *For each receiving antenna*

Identity of the receiving beam	ALF	X (9)	
Isotropic gain of the antenna	NUM	± 99.9 dB	
Reception pattern or gain contour plotted on the Earth's surface	GRA		Refer to corresponding Annex
Polarisation of the antenna	ALF	X (4)	For symbols refer to IFRB circular No. 536
Reference coordinates for pointing of the antenna	ALF	999.9X; 99.9X (°)	The first X may be E or W The second may be N or S
Pointing accuracy of the antenna	NUM	9.99 (°)	

1.3. **Characteristics of the satellite transponder** *(to be given for each transponder)*

Name of data	Type	Format	Remarks
Identity of the transponder (name or number)	ALF	X (2)	
Central transmitting frequency of the transponder	ALF	99999.99999X Hz	X = } K Kilo M Mega G Giga
Central receiving frequency of the transponder	ALF	99999.99999X Hz	X = } K Kilo M Mega G Giga
Assigned frequency band	NUM	9 (7), 9 (1) kHz	
Transmitting antennas associated with the transponder	ALF	X (9)	
Receiving antennas associated with the transponder	ALF	X (9)	
Total peak envelope power of the transponder	NUM	± 99.9 dBW	
Maximum power density per Hz	NUM	± 99.9 dB (W/Hz)	
Receiving system noise temperature of the satellite	NUM	9 (5) (K)	

1.4. **Other data relating to the satellite**

Class of station	ALF	X (2)	For code refer to IFRB circular No. 536
Nature of service	ALF	X (2)	For code refer to IFRB circular No. 536
Operating lifetime of the satellite	NUM	9 (2) years	
Date (foreseen or actual) of bringing into use	ALF	JJ/MM/AA	

## 2. CHARACTERISTICS RELATING TO EARTH STATIONS

### 2.1. Data relating to each site

Name of earth station	ALF	X (20)	
Country or geographical area in which earth station is located	ALF	X (3)	Symbol of the Preface to the International Frequency List
Geographical coordinates of earth station (degrees, minutes and seconds)	ALF	999X9999 – 99X9999	X = E or W for the first X X = N or S for the second X
Altitude	NUM	± 9999 m	
Angle of elevation of the horizon around earth station	TABLE or GRA		Refer to corresponding Annex
Standard defined transmission/reception zone (zone represented by a symbol)	ALF	X (20)	
Types of earth station at this site	ALF	X (10)	
Minimum angle of elevation of the earth station antenna	NUM	± 99.9 (°)	

### 2.2. Data relating to each type of earth station

Name of data	Type	Format	Remarks
Type of earth station	ALF	X (10)	
Frequency band	ALF	X (15)	
Isotropic gain of the antenna when transmitting	NUM	± 99.9 dB	
Isotropic gain of the antenna when receiving	NUM	± 99.9 dB	
Radiation pattern of the antenna when transmitting	ALF or GRA	or X (12)	Refer to corresponding Annex
Radiation pattern of the antenna when receiving	ALF or GRA	or X (12)	Refer to corresponding Annex
Polarisation of the antenna when transmitting	ALF	X (4)	For code refer to IFRB circular No. 536
Polarisation of the antenna when receiving	ALF	X (4)	For code refer to IFRB circular No. 536
Width of main radiation beam when transmitting	NUM	9 (3), 9 (2) (°)	
Width of main radiation beam when receiving	NUM	9 (3), 9 (2) (°)	
Receiving system noise temperature of the earth station	NUM	9 (5) (K)	

2.3. **Other data relating to the earth station**

Class of station	ALF	X (2)	For code refer to IFRB circular No. 536
Nature of service	ALF	X (2)	For code refer to IFRB circular No. 536
Date (foreseen or actual) of bringing into use	ALF	JJ/MM/AA	

3. **CHARACTERISTICS RELATING TO THE CARRIERS**

3.1. **For each carrier**

Name or number of the transponder(s) used for the type of carrier	ALF	N X (2)	
Maximum value of peak envelope power supplied to the input of the antenna			
— for the earth station	NUM	± 99.9 dBW	
— for the satellite	NUM	± 99.9 dBW	
Maximum power density per Hz	NUM	± 99.9 dB (W/Hz)	
Class of emission	ALF	X (5)	
Indication, if possible, of the frequency (-ies) used for the type of carrier	ALF	N 99999.99999X Hz	X = } K Kilo M Mega G Giga
Necessary (occupied) bandwidth	NUM	9 (7), 9 (1) kHz	
Bandwidth allotted on the satellite	NUM	9 (7), 9 (1) kHz	

3.2. **For FDM/FM or SCPC/FM carriers**

Name of data	Type	Format	Remarks
Telephone channel capacity of each carrier of this type	NUM	9 (4)	
Highest frequency of the baseband	NUM	9 (4) kHz	
Lowest frequency of the baseband	NUM	9 (4) kHz	
R.m.s. frequency deviation of the 0 dBm0 test-tone	NUM	9 (4) kHz	
R.m.s. frequency deviation of a multi-channel signal	NUM	9 (4) kHz	
Characteristics of the energy dispersal where relevant	—		Refer to corresponding Annex
Peak-to peak frequency deviation	NUM	9 (4) kHz	
Sweep frequency of the energy dispersal waveform	NUM	9 (4) kHz	
Pre-emphasis characteristics	—		Refer to corresponding Annex

3.3. **For TV/FM carriers**

Type of multiplexing of the video signal and the sound signal(s) or other signal(s)	—		Refer to corresponding Annex
Standard of the TV signal			
— TV system	ALF	X (1)	For code refer to IFRB circular No. 536
— Colour system	ALF	X (1)	For code refer to IFRB circular No. 536
Pre-emphasis characteristics	—		Refer to corresponding Annex
Frequency deviation for the reference frequency of the pre-emphasis characteristic	NUM	9 (4) kHz	

3.4. **For digital carriers**

Bit rate	ALF	999X bit/s	X = K Kilo X = M Mega
Type of modulation and number of phases	ALF	X (5)	
Type of demodulation (coherent or differential)	ALF	X (1)	C = Coherent D = Differential

4. **OTHER CHARACTERISTICS ASSOCIATED WITH THE SATELLITE NETWORK**

Minimum equivalent noise temperature of the satellite link	NUM	9 (5) (K)	
Associated transmission gain	NUM	± 99.9 (dB)	
Annexed special section of the IFRB weekly circular in which advance publication of the satellite network appeared	ALF	X (16)	
Annexed special section of the IFRB weekly circular in which the request for coordination with other satellite networks appeared	ALF	X (16)	