EUTELSAT

OVERVIEW OF EUTELSAT EARTH STATION STANDARDS

(EESS'S)

EESS 100 (G)

ISSUE 6 - REV. 0

22 JANUARY 1999

EESS 100 REVISION HISTORY

Issue /Revision	Revision Date	Pages revised since the last version
1/0	14 April 1994	Original Issue
1/1	11 July 1994	i, 6, 7
2/0	17 October 1994	i, ii, 2, 3, 5, 6, 7
2/1	14 November 1994	i, 6, 7
3/0	17 August 1995	all pages
3/1	30 August 1996	i, 6, 7
4/0	6 December 1996	i, 6, 7
5/0	3 April 1998	i, 6
6/0	22 January 1999	i, 6, 7

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1 INTRODUCTION

Under EUTELSAT procedures, approval of earth stations for access to the EUTELSAT space segment is required (See ESOG Module 110).

EUTELSAT recognises that it is the User's responsibility to establish compatibility between all earth stations within their network and to comply with EUTELSAT criteria for minimising interference between earth stations and EUTELSAT satellites on which space segment capacity is provided. In order to assist prospective Users in this respect, EUTELSAT provides documents detailing performance characteristics which are necessary to achieve the following:

(a) Satisfy technical requirements in order to obtain EUTELSAT approval to access the space segment.

(b) Qualify for acceptance as a "Standard" earth station when accessing the EUTELSAT space segment.

The EUTELSAT Earth Station Standards (EESS) are published by EUTELSAT to provide Users with a common source of reference for performance characteristics required from earth stations and associated equipment for access to EUTELSAT space segment and the establishment of communication links.

2 STANDARDS, SPECIFICATIONS AND GUIDELINES

The purpose of the format and numbering system of the EESS's is to allow documents to be readily identified as belonging to EUTELSAT earth station standards, specifications or guidelines. It is necessary to distinguish between EUTELSAT standards or specifications on the one hand and guidelines on the other hand.

An earth station standard gives the technical requirements and recommendations for an entire earth station from the RF equipment to baseband equipment. A standard is usually designated by a letter (e.g. Standard T-2). The difference between types of standards can be simply the different values of the earth station gain-to-noise temperature ratio (G/T) e.g. the satellite multiservice system (SMS) S-1 type and S-2 type only differ in the value of G/T.

Associated with a particular standard, which covers the entire earth station, there can be an equipment / system specification which covers only a sub-system e.g. the TDMA/DSI System Specification.

Earth Station standards as well as system specifications have characteristics which are mandatory and are marked by a vertical line in the left-hand margin as shown for this paragraph, as an example.

The use of earth stations having performance characteristics and/or operational modes lower than those specified as mandatory, but meeting all other requirements, will be considered individually as they arise and on their merits. However, an earth station which does not meet all the mandatory requirements may demand additional satellite resources and, therefore, can attract higher space segment charges.

The EESS documents also contain “Guidelines” which are neither Standards nor Specifications and consequently do not contain mandatory requirements. Guidelines provide the technical and operational information necessary to establish transmissions for a particular service. The fact that it is a guideline and not a specification is indicated clearly on the cover page as well as by the number, which contains a ‘G’ (e.g. EESS 600 G).

3 EESS OVERVIEW

The EESS comprises six groups of documents, as shown in Table 1.

- Series 100 contains the introduction to the EESS and provides an overview of the documents.

- Series 200 relates to telephony services. It covers the T-2 Standard for the 120 Mbit/s TDMA service (EESS 200), as well as the TDMA/DSI System Specification (EESS 201) and the DCME Specification (EESS 202). Intermediate Rate Digital Carrier (IDC) earth stations standards I-1, I-2 and I-3 also come under the Series 200 (EESS 203).

- Series 300 refers to TV services. The V-1 standard, given in EESS 300, covers all TV stations, whether they are intended for high quality contribution links, TV transmissions to leased transponders or temporary TV transmissions, including SNG. It does not have a mandatory value of G/T, since it is essentially for uplinking, although recommended receive-side specifications are given for reference.

- Series 400 covers generic earth station standards providing TV, telephony or data services. EESS 400 contains the minimum technical and operational requirements for accessing leased capacity, Standard L. It does not make reference to the earth station G/T.

- Series 500 relates to the SMS services. The SMS system employs FDMA/SCPC for transmitting mainly data carriers. EESS 500 gives essentially the r.f. performance characteristics of the four standard S earth stations, S-0, S-1, S-2 and S-3. EESS 501 covers the standard structured utilization, or "open network" aspects. It specifies the baseband and modulation equipment for QPSK transmissions using either rate 3/4 or rate 1/2 FEC with VITERBI decoding. With rate 1/2 FEC, the user bit-rates covered range from 64 kbit/s to 2 Mbit/s (8 Mbit/s for rate 3/4 FEC).

- EESS 502, the Standard M, gives the minimum technical and operational requirements for accessing the SMS transponders in FDMA/SCPC mode by "non-standard" structured types of SMS carriers. These transmissions are referred to as "closed network". In the Standard M no reference is made to the earth station G/T.

- EESS 600 (G) contains a brief description of the EUTELTRACS system, a two-way data communication and position reporting service for mobiles, operating in the 11-12/14 GHz bands.

4 REVISION OF EESS DOCUMENTS

The purpose of the EESS format is to enable Users to readily identify documents relevant to the procurement of earth station equipment.

Documents given in Table 1 which are due for revision will be re-issued with the EESS format throughout. Those documents which are not due for revision in substance will be re-issued with a new cover page giving the EESS number and title. The body of the document will remain with the original EUTELSAT BS reference number for the present.

5 DATE OF APPLICABILITY OF REVISED SPECIFICATIONS

In general, revisions to standards, specifications or guidelines shall take effect from the date of issue of the revised standard, specification or guideline and revisions are not intended to be applied retrospectively. If, as a result of new safety regulations or radio regulations, a revision has to be applied retrospectively, this will be clearly stated in the revision.

The above also applies to the first issue of an EESS module, which is viewed as a ‘revision’ if it was derived from a standard, specification or guideline which has been issued as a BS document.

Table 1

EUTELSAT EARTH STATION STANDARDS & RELATED GUIDELINES

EESS No.	Issue / Rev.	Date of Issue	Earth Station Standard	Title / Description	Pages revised since last version	EUTELSAT previous Reference No.
100(G)	6/0	22 January 1999	-	Overview of EUTELSAT Earth Station Standards (EESS's)	i, 6 and 7	-
200	3/0	22 January 1999	T-2*	120 Mbit/s Time Division Multiple Access (TDMA) Earth Station Standard.	all	BS 10 - 10 Corr. No. 1
201	1/0	24 May 1994	-	TDMA / DSI System Specification	-	BS 17 - 17 Rev. 1
202	1/0	24 May 1994	-	DCME Specification	-	BS 14 - 49 Corr No. 1
203	4/0	3 April 1998	I-1 I-2 I-3	Intermediate Rate Digital Carrier (IDC) Earth Station Standard	all	-
300	2/0	6 December 1996	V-1	Performance Characteristics of TV-only Earth Stations.	all	BS 11 - 11 BS 34 - 34

* The T-1 standard applied to TDMA Transmissions on EUTELSAT I and has been replaced by the T-2 standard.

Table 1 (cont'd)

400	4/0	22 January 1999	L	Minimum Technical and Operational Requirements for Earth Stations Accessing Leased Capacity in the EUTELSAT Space Segment - Standard L.	all	BS 26 - 26 Rev. 2
500	4/0	22 January 1999	S-0 S-1 S-2 S-3	Satellite Multiservice System (SMS) Earth Station Standard	all	BS 7 - 40 Rev. 2 Appendix
501	2/0	30 August 1996	-	SMS QPSK/FDMA System Specification	all	-
502	4/0	22 January 1999	M	Minimum Technical and Operational Requirements for Earth Stations Accessing a EUTELSAT SMS Transponder for Non-standard Structured Types of SMS Transmissions - Standard M	all	BS 10 - 26 Rev. 3
600(G)	2/0	30 August 1996	-	EUTELTRACS System Description	all	-

Reference Documents Related to the Earth Station Standards
EUTELSAT I Satellite Handbook BS 14-43
EUTELSAT II Handbook