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Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) - Prizemni letalski telefonski sistem (TFTS) - 1. del: Govorne storitve, zahteve za naprave

ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Terrestrial Flight Telecommunications System (TFTS); Part 1: Speech services, facilities and requirements

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Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Electromagnetic compatibility and Radio spectrum Matters (ERM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS has been split into three parts as follows:

Part 1: **"Speech services, facilities and requirements";**

Part 2: "Speech services, radio interface";

Part 3: "Speech services, network aspects".

Transposition dates	
Date of adoption of this ETS:	24 July 1998
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Introduction

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The Terrestrial Flight Telecommunication System (TFTS) aircraft station was specified by the European Airlines Electronic Committee (EAEC) and has subsequently been adopted as Aeronautical Radio Incorporated (ARINC) Characteristic 752 [2] by the Airlines Electronic Engineering Committee (AEEC).

ARINC Characteristic 752 [2] makes reference to this ETS for the specification of certain radio and telecommunication matters to avoid ambiguity. The TFTS aircraft station is one of a set of facilities within an overall architecture being defined for aircraft on-board telecommunications by the AEEC.

There are supplementary specifications defining the provision of functions or services outside the scope of this specification.

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1 Scope

This European Telecommunication Standard (ETS) specifies the minimum technical requirements of the services, facilities and functions that the Terrestrial Flight Telecommunication System (TFTS) supports to provide a pan-European terrestrial aeronautical public correspondence service.

This ETS contains the specification of equipment for the provision of a terrestrial aeronautical public correspondence service working in the frequency spectrum bands allocated at World Administrative Radio Conference 1992 (WARC 92) (1 670 to 1 675 MHz and 1 800 to 1 805 MHz).

This ETS fully specifies aspects of the radio interface and Terrestrial Flight Telecommunication System (TFTS) ground network required to maintain inter-operability of equipment. ERC Decision ERC/DEC/(92)01 [1] is applicable to the TFTS frequency spectrum within Europe.

This ETS includes a general description of the TFTS which is of informative nature.

The specification of data application and facsimile is the subject of ES 200 794 [12].

The delivery mechanism for Packet Data Services is defined in ETS 300 752 [11].

The commercial aspects of service definition are outside the scope of this ETS except where it is necessary for this information to be considered due to its impact on technical specification matters.

The scope of this part of the ETS has been confined to the set of services to be provided by the phase 1 standard. An informative subclause 5.4 has been included describing the service definitions that may subsequently be specified for uplink calling, facsimile, data services and low rate speech services.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1]   ERC Decision ERC/DEC/(92)01 (1991): "Decision on the frequency bands to be designated for the coordinated introduction of the Terrestrial Flight Telecommunications System (TFTS)".

[2]   ARINC Characteristic 752 (1993): "Terrestrial Flight Telecommunication System (TFTS) Airborne Radio Subsystem".

[3]   ARINC Characteristic 746: "Cabin Communications System".

[4]   ETS 300 085 (1990): "Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice Attachment requirements for handset terminals".

[5]   ETS 300 326-2: "Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Terrestrial Flight Telecommunications System (TFTS); Part 2: Speech services, radio interface".

[6]   ETS 300 326-3: "Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Terrestrial Flight Telecommunications System (TFTS); Part 3: Speech services, network aspects".

[7]   CCITT Recommendation G.165 (1988): "Echo cancellers".

[8]   CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".

[9]   Inmarsat Aeronautical Satellite System Definition Manual Module 5 (March 1993): "Circuit mode service voice codec algorithm and terminal interface function specification for facsimile and data services, Version 3 and corrigenda".

[10]   ARINC Characteristic 741: "Aviation satellite Communication System, Parts 1 to 4".

[11]   ETS 300 752: "Radio Equipment and Systems (RES); Terrestrial Flight Telecommunications System (TFTS); Packet mode data".

[12]   ES 200 794: "Electromagnetic Compatibility and Radio spectrum Matters (ERM); Terrestrial Flight Telecommunications System (TFTS); Circuit-mode voice-band data services; Part 1: Group 3 fax support".

[13]   ITU-T Recommendation V.21 (1988): "300 bits per second duplex modem standardized for use in the general switched telephone network".

[14]   ITU-T Recommendation V.22 bis (1988):"2 400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of this ETS, the following definitions apply:

bearer service: A type of telecommunication service that provides the capability for the transmission of signals between user - network interfaces.

teleservice: A type of telecommunication service that provides the complete capability, including terminal equipment functions, for communication between users according to protocols established by agreement between administrations and/or Recognized Private Operating Agencies (RPOAs).

3.2   Abbreviations

For the purposes of this ETS, the following abbreviations apply:

AEC	Aircraft Equipment Code
AEEC	Airlines Electronic Engineering Committee
AEN	Aircraft Equipment Number
ARINC	Aeronautical Radio INCorporated
AS	Aircraft Station
ASI	Aircraft Station Identity
AT	Avionics Termination
ATE	Aircraft Telecommunications Equipment
ATEI	Aircraft Termination Equipment Identifier
ATISDN	Aircraft Termination ISDN
CCITT	Consultative Committee on International Telegraphy and Telephony
CDS	Cabin Distribution System
CS	Cabin Systems
CTU	Cabin Telecommunications Unit
DTMF	Dual Tone Multi Frequency
EAEC	European Airlines Electronics Committee
FAC	Final Assembly Code
GCC	Ground switching Centre Code
GCT	Ground station Cell Type
GEN	Ground station Equipment Number
GS	Ground Station
GSC	Ground Switching Centre
GSIC	Ground Station Identity Code
GSLAT	Ground Station Latitude
GSLONG	Ground Station Longitude
GSN	Ground station Serial Number
GSS	Ground Station System

ICAO	International Civil Aviation Organization
ISDN	Integrated Services Digital Network
MM	Mobility Management
MSB	Most Significant Bit
NDC	National Destination Code
NM	Network Management
PAD	Packet Assembler-Disassembler
PWRCTL	PoWeR ConTroL level adjustment
RMIN	Receiver MINimum acceptable signal level
RPOA	Recognized Private Operating Agency
SNR	Serial NumbeR
SP	Service Provider
TAC	Type Approval Code
TDMA	Time Division Multiple Access
TFTS	Terrestrial Flight Telecommunication System
TIM	network TIMe
TO	Telecom Operator
UN	User Number
UTC	Coordinated Universal Time
WARC 92	World Administrative Radio Conference 1992

4 General description of the TFTS

This clause contains an informative description of the TFTS. The basic TFTS architecture is described together with a brief explanation of the various functional entities of the system. When appropriate, reference is made to other parts of this ETS where more detailed descriptions of functional entities are provided. Reference has also been made to possible connections to external systems which are beyond the scope of this ETS. These references are not intended to imply any technical or commercial implementation for the service provided by TFTS.

4.1 Purpose of the TFTS

The TFTS provides a radio communication link between aircraft and ground stations which have access to public fixed telecommunications networks. This enables aircraft passengers or users to access public telecommunications services from the air. The principal services supported by the TFTS are as follows:

a) telephony;

b) facsimile group 3;

c) paging services;

d) data services.

The services provided by TFTS are primarily aimed at commercial airliners but this does not preclude use of the system by smaller commercial regional aircraft operators or the general aviation sector.

4.2 Service coverage

The radio system of the TFTS is similar in nature to the cellular systems of the land mobile service. There are some important differences, especially the cell radii (typically 240 km) and the height coverage (in excess of 43 000 feet). The mobiles of the service are aircraft in flight or on the ground in the starting or finishing phases of flight.

Three cell types are specified:

en-route: providing a large area coverage at altitude;

intermediate: providing coverage at lower altitude where required, especially in the vicinity of airports; and

airport stations: for use on or immediately above the ground.