



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

F.813

(02/95)

**OPERATIONS AND QUALITY OF SERVICE
ISDN SERVICES**

**VIRTUAL PATH SERVICE FOR RESERVED
AND PERMANENT COMMUNICATIONS**

ITU-T Recommendation F.813

(Previously "CCITT Recommendation")

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (ITU). The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation F.813 was prepared by ITU-T Study Group 1 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 21st of February 1995.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

© ITU 1995

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

CONTENTS

	<i>Page</i>
1 Definition	1
2 Description	1
2.1 General description	1
2.2 Specific terminology	2
2.3 Abbreviations	3
3 Procedures	3
3.1 Provision and withdrawal	3
3.2 Normal procedures	6
3.3 Exceptional procedures	10
4 Interworking possibilities	10
Annex A – Attributes and values	10
A.1 Information transfer mode	10
A.2 Information transfer rate	11
A.3 Information transfer capability of VP	11
A.4 Structure of VPs	11
A.5 Establishment of communication	11
A.6 Symmetry of VP	11
A.7 Communication configuration	11
A.8 Access channels and rates	11
A.9 Access protocols	11
A.10 Supplementary services provided	12
A.11 QOS of VPs	12
A.12 Interworking possibilities	12
A.13 Operational and commercial aspects	12
Annex B – Normative references	12
Annex C – Reference configuration	13

SUMMARY

This Recommendation defines stage one of the broadband virtual path service for reserved and permanent communications (BVPS) for the public broadband integrated services digital network (B-ISDN).

This Recommendation does not specify the additional requirements where the service is provided to the user via a telecommunication network that is not the B-ISDN, but does not preclude requirements for interworking between other networks and the B-ISDN.

The BVPS allows the transfer of unrestricted information between user-to-network reference points (UNRPs).

Recommendation F.813**VIRTUAL PATH SERVICE FOR RESERVED
AND PERMANENT COMMUNICATIONS***(Geneva, 1994)***1 Definition**

According to Recommendation I.130 [4], this Recommendation defines stage one of the Broadband Virtual Path Service for reserved and permanent communications (BVPS) for the public Broadband Integrated Services Digital Network (B-ISDN).

The BVPS allows the transfer of unrestricted information between User-to-Network Reference Points (UNRPs). In the B-ISDN, the UNRP is T_B . It does not preclude the applicability of the BVPS to S_B .

The establishment of communication is either reserved or permanent.

The provision of the BVPS is based on ATM Virtual Path (VP) connections in the B-ISDN (see Recommendation I.340 [10]).

This Recommendation applies to stage two and stage three ITU-T Recommendations (see Recommendation I.130 [4] for the BVPS).

Charging Principles are outside the scope of this Recommendation, but could be contained in the appropriate ITU-T Recommendation(s).

2 Description**2.1 General description**

The BVPS permits communication in both directions between two users in a point-to-point configuration.

The provision of the BVPS is based on VP connections in the B-ISDN.

Several VPs can be multiplexed at a specific UNI (up to 256 VP can be allocated at the UNI of the B-ISDN according to Recommendation I.361 [12]).

The physical bit rate at the UNRP is defined by the existing UNIs according to Recommendation I.432 [14].

The parameter Peak Cell Rate (PCR) is associated with each VP.

A communication can be established in two different modes: either permanent or reserved (for non-periodic and periodic use).

In permanent establishment of communication, the subscriber can negotiate with the Service Provider (SP) any value of the PCR that is available at the UNRP and agreed by the SP.

In reserved establishment of communication, the subscriber can negotiate with the SP any value of the maximum bandwidth that is available at the UNI and agreed by the SP. Then, the manager can negotiate with the Service Management Entity (SME) any available value of the PCR within the subscribed maximum bandwidth.

The SP shall enforce user cells according to the Peak Cell Rate (PCR) reference algorithm specified in Recommendation I.371 [13]. According to the PCR reference algorithm in Recommendation I.371 [13], the cell conformance is defined with reference to the pair (T, τ) where T is the Peak Emission Interval (PEI) and τ is the Cell Delay Variation (CDV) tolerance. The SP shall provide the user the values of PEI and CDV tolerance that are part of the traffic contract.

User information transfer is unrestricted. It is structured in ATM cells. The cell format is of the User-to-Network Interface (UNI) type as defined in 2.2/I.361 [12]. The bit rate of the source can be CBR or VBR. The effective availability of the constant value of PCR (greater than zero) for a VP corresponds to a time slot as defined within this Recommendation.

**Documents**

Document Sharing Hub

Recommendation F.813 (02/95)**1**

In permanent establishment of communication, periodic or non-periodic VPs are possible. A permanent VP, either periodic or non-periodic, is subscribed providing all the parameters necessary for its establishment. A permanent VP is registered at subscription.

In reserved establishment of communication, periodic or non-periodic VPs are possible. The subscriber subscribes to the BVPS in reserved establishment of communication providing general service parameters (see 3.1.3), e.g. listing only the users involved in the use of the BVPS and the maximum number of VPs that can be established among these users in any configuration at the same time. Every reserved VP, either periodic or non-periodic, is established after a registration procedure. During this phase the parameters of the VP between the two involved users are negotiated.

2.2 Specific terminology

For the purpose of this Recommendation, the following definitions apply:

- 2.2.1 integrated services digital network:** See 2.3/I.112 [2], definition 308.
- 2.2.2 broadband:** See 2.1/I.113 [3], definition 101.
- 2.2.3 service, telecommunication service:** See 2.2/I.112 [2], definition 201.
- 2.2.4 asynchronous transfer mode:** See 2.2/I.113 [3], definition 204.
- 2.2.5 virtual channel:** See 4/I.113 [3], definition 401.
- 2.2.6 virtual channel identifier:** A number that identifies locally a specific Virtual Channel (VC) at a UNI.
- 2.2.7 virtual path:** From the user's point of view, a virtual end-to-end connection that ensures unidirectional or bidirectional transport of ATM cells belonging to VCs that are associated by a common VPI.
- 2.2.8 virtual path identifier:** A number that identifies locally a specific VP at a UNI.
- 2.2.9 global virtual path identifier:** The Global Virtual Path Identifier (GVPI) identifies a specific VP. It is used by the Service Management Entity (SME) for the management of the complete VP.
- 2.2.10 service management entity:** The functional entity (SME) to which manager's VP registration requests, VP modification requests and interrogation requests are addressed (see Figure C.1).
- 2.2.11 service management reference point:** This reference point (SMRP) is defined between the SME and the manager (see Figure C.1).
- 2.2.12 subscriber:** The logic entity that subscribes to the BVPS. The subscriber shall declare one manager at most and one or more related users.
- 2.2.13 manager:** The functional entity authorised to perform through SMRP all the service management functions, including VP registration requests, VP modification requests and interrogation requests, on behalf of the users to which it is related at subscription time (see Figure C.1).
- 2.2.14 user:** The functional entity authorised to perform through UNRP all the User plane functions, including sending and receiving User Information (see Figure C.1).
- 2.2.15 user-to-network reference point:** This reference point (UNRP) is defined between the user and the ATM capabilities (see Figure C.1). It is equal to T_B . This does not preclude the applicability of the BVPS to S_B .
- 2.2.16 initiating manager:** The manager issuing a request to the SME.
- 2.2.17 involved manager:** The manager receiving a request issued by another initiating manager.
- 2.2.18 peak cell rate:** See Recommendation I.371 [13]. The PCR is expressed as an integer number of cell(s) per second.

The network shall allocate the appropriate resources using the PCR value. There is no statistical multiplexing.