INTERNATIONAL TELECOMMUNICATION UNION

CCITT D.91

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

GENERAL TARIFF PRINCIPLES

CHARGING AND ACCOUNTING IN INTERNATIONAL TELECOMMUNICATIONS SERVICES

TRANSMISSION IN ENCODED FORM OF MARITIME TELECOMMUNICATIONS ACCOUNTING INFORMATION

Recommendation D.91

Geneva, 1991

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT 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 Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation D.91 was prepared by Study Group III and was approved under the Resolution No. 2 procedure on the 22 of March 1991.

CCITT NOTE

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

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Recommendation D.91

TRANSMISSION IN ENCODED FORM OF MARITIME TELECOMMUNICATIONS ACCOUNTING INFORMATION

(Melbourne, 1988, revised 1990)

1 Introduction

1.1 Under the provision of Recommendation D.90, Administrations engage in international accounting for radiocommunications handled each month.

1.2 A growing number of Administrations are processing this monthly international accounting data using computer based accounting systems. Information is drawn from traffic history tapes or manually encoded from data such as inward international accounts and statistical summaries prepared by manual abstraction from copies of traffic tickets.

1.3 It is usual at present to complete computer processing by producing conventional printed accounts following the specifications described in the various accounting Recommendations (D.90). Where the receiving Administration also uses computer facilities, however, this information has to be re-encoded for processing through its system.

1.4 Transmission of data in encoded form avoids the decoding/re-encoding step. It also offers a faster transfer of information than by printed forms through the mail. The latter remains true even if the forwarding Administration has prepared the data by manual/mechanical means.

2 Aim

2.1 The aim of this Recommendation is:

2.1.1 To enable Administrations using computer based accounting systems to transfer information to each other in encoded form, without the need for decoding into conventional printed form and subsequent encoding into machine-readable form.

2.1.2 To enable other Administrations, if they so desire, to benefit from the greater efficiency of speedier transfer of information to them and to prepare themselves for the introduction of computer working by introducing transmission of data in encoded form in advance of installation of a computer.

2.1.3 To facilitate provision of printed output from computer based systems in a format suitable for manual/mechanical processing where it is to be forwarded to Administrations not using computer facilities.

2.1.4 To facilitate provision of printed output from manual/mechanical accounting systems in a format suitable for data encoding where it is to be forwarded to Administrations employing computer processing.

3 Method

3.1 *Data record*

3.1.1 The aim of this Recommendation can be met by use of a standard data record format for the various elements of information to be transferred. The information elements and their sequence must be compatible with the provisions of the various accounting Recommendations so that decoding to and encoding from printed output for exchange of information with Administrations using manual/mechanical systems will be as simple as possible.

3.1.2 Between Administrations operating computer based accounting systems, adherence to the standard data record format for data transmission purposes will ensure that only one interface programme will be needed to enable any one computer installation to generate suitable input for, and accept output from, other computer installations.

3.2 *Data transfer*

3.2.1 Procedures already exist for transfer of data in conventional (printed) form through the mails. Data in encoded form could be transferred by mailing of magnetic or paper tapes, paper tape transmission by telex or data transmission over circuits utilized for this purpose.

3.2.2 While mailing of tapes avoids the encoding task for the receiving Administration there can be delays and loss in transit. In addition, there can be difficulties caused by the fragility of paper tape and incompatibility of various forms of magnetic tape recording.

3.2.3 Transfer of data via the telex service using paper tape transmission and reception can be advantageous for Administrations whether they have computer based accounting systems or manual/mechanical systems. As both page copy and punched paper tape can be generated at the receiving point, users of either type of accounting system can benefit. Page copy can be used for checking paper tape, with the latter becoming input to a computer. Page copy can also be used as the incoming international account avoiding the need for use of the postal service.

3.2.4 Where large volumes of data are to be exchanged, transmission over higher speed circuits offers significant benefits. Where suitable data links are in use for service transmissions, these could be utilized. Data terminals and modems capable of transmission speed in the range 600 to 2400 bits per second should be sufficient, but higher speeds could be used. For manual/mechanical systems, data received on data terminals can be reproduced as page copy representing an incoming international account. For computer based accounting systems, data transmission offers the possibility of complete automation of the process by computer-to-computer transfer.

4 Specific recommendations

4.1 It is recommended that:

4.1.1 Where possible data transferred in printed form should be replaced by data transferred in encoded form.

4.1.2 For data transferred in encoded form, the standard data record format detailed in Annex A should be followed.

4.1.3 Transmission of data in encoded form should be by the following means:

a) physical transfer of magnetic tapes (the standard file structure is given in Annex A),

b) use of data transmission over telephone circuits, dedicated circuits, telegraph circuits or special data links.

4.1.4 Transmission methods (international packet switching service, electronic mailbox, etc.), operating practices and technical standards should be agreed between the Administrations concerned and should conform to the appropriate CCITT Recommendations.

5 Code maintenance

5.1 The Secretariat of the CCITT is responsible for maintenance of the table of service codes and the table of facility codes in Appendices I and II.

5.2 New codes can be allocated by the authority of the Director of the CCITT. Applications should be made through the CCITT Secretariat who will arrange for the notification of new codes in the Operational Bulletin.

ANNEX A

(to Recommendation D.91)

Monthly international accounting information

Fixed record formats

A.1 *File description*

A.1.1 The file has EBCDIC-format (Extended Binary Coded Decimal Interchange Code). The length of the formatted records is 160 characters, blocked by 10.

A.1.2 The tape, which will contain a header and a trailer record, may consist of several batches. For each accounting authority or country there may be a batch (or, if more than one currency is involved, one batch for each currency) for each of the following services:

– satellite from-ship traffic;

– terrestrial radio from-ship traffic;

– terrestrial radio to-ship telephone and telegram traffic;

– terrestrial radio to-ship telex traffic;

– credit card/reversed charge from-ship traffic for both services.

Each of the traffic batches will contain an accounting authority header record followed by the traffic items and ended by the summary record.

A.1.3 *Record description*

Fields in numeric format should be right justified with zero filling. Fields in alphanumeric format should be left justified with space filling. Similarly unused field should be zero or blank filled as appropriate.

A.1.3.1 *Main header record*

Position	Length	Format	Name of field	Contents
1	2	Numeric	CODART	Determination of record code
3	8	Alphanumeric	CDAAIC	AAIC of tape originator
11	6	Numeric	CREATN	Creation date of tape YYMMDD
17	20	Alphanumeric	REFERN	Invoice number
37 to 160	–	Alphanumeric	–	Unused field (space fill)

A.1.3.2 *Record accounting authority*

Position	Length	Format	Name of field	Contents
1	2	Numeric	CODART	Determination of record code to 01
3	8	Alphanumeric	CDAAIC	AAIC of accounting authority if traffic code 3 or 4, of origin (or recipient in the case of XCF or CC calls) Administration if traffic code 1, 2 or 5 in field CDDIRE
11	1	Numeric	CDDIRE	Traffic codes: 1 = Terrestrial telephone and telegram traffic chargeable to the shore customer 2 = Terrestrial telex traffic chargeable to the shore customer 3 = Terrestrial traffic chargeable to the ship customer 4 = Satellite traffic chargeable to the ship customer 5 = Credit card/reversed charge originating from ship (for use only if such traffic is not included in code 1 records)
12	50	Alphanumeric	NATADM	Name of Administration if codes 1, 2 or 5. Name of accounting authority if codes 3 or 4
62	3	Alphanumeric	CDCURR	Monetary unit or currency of invoice using ISO codes e.g., gold franc = XFO; Special Drawing Rights = XDR; Pound Sterling = GBP; US Dollar = USD; Deutsche Mark = DEM
65	8	Numeric	RATCON	Rate of conversion (zero filled if not applicable), 1 unit of invoice currency = XXXXXX units of currency of settlement
73	1	Numeric	DECIMN	Number of decimal places in RATCON
74	4	Numeric	YEAMON	Month in which the bulk of the traffic was transmitted YYMM
78	1	Alphanumeric	CDSUPP	Supplement; if there are any charges for backdated traffic filed before the month stated in YEAMON, insert “s”, if not space fill
79 to 160	—	Alphanumeric	—	Unused field (spaces)

A.1.3.3 *Record communication (traffic)*

Position	Length	Format	Name of field	Contents
1	2	Numeric	CODART	Determination of record code to 02
3	7	Alphanumeric	CDCS/CES	Code of coast station/CES
10	6	Numeric	DATCOM	Date of traffic format YYMMDD
16	4	Numeric	TMETFC	Time of commencement of traffic HHMM (UTC), space fill if not applicable
20	20	Alphanumeric	CALSIG	Call sign of vessel/ID code
40	32	Alphanumeric	NAMORG	Origin identification[a)]
72	32	Alphanumeric	NAMDES	Destination identification[a)]
104	2	Numeric	CDKING	Code kind of traffic (see Appendix I)
106	2	Numeric	CDFACI	Facility code
108	6	Numeric	NUMWRD	Number of words or duration of call format HHMMSS
114	8	Numeric	TXAMOU	Amount of facility charge, otherwise zero fill
122	10	Numeric	BITNUM	Number of bits
132	6	Numeric	MERENU	Message reference number
138	1	Numeric	CHARAT	Charge rate: e.g., 1 = peak; 2 = cheap; 3 = standard
139	10	Numeric	TAXTOT	Total amount of charge (negative amounts possible)
149	1	Numeric	DECIMN	Number of decimal digits in TXAMOU and TAXTOT
150 to 160	—	Alphanumeric	—	Unused field (spaces)

a) If possible, insert the ITU country code (1 or 3 characters) of the land based subscriber (ships name in the other direction). For credit card calls, the credit card number should be shown in the origin field.

A.1.3.4 *Summary record*

Position	Length	Format	Name of Field	Contents
1	2	Numeric	CODART	Determination of record code to 03
3	16	Numeric	AMTTOT	Total amount (negative amounts possible)
19	1	Numeric	DECIMN	Number of decimal digits in AMTTOT
20 to 160	–	Alphanumeric	–	Unused field (spaces)

A.1.3.5 *Trailer record*

Position	Length	Format	Name of field	Contents
1	2	Numeric	CODART	Determination of record code to 99
3	2	Numeric	NOBATC	Number of batches
5	16	Numeric	AMTTOT	Total amount of all charges
21	1	Numeric	DECIMN	Number of decimal digits in AMTTOT
22 to 160	–	Alphanumeric	–	Unused field (spaces)

A.2 *Characteristics and structure of the tape*

A.2.1 *Physical structure of recording*

For recording, the ISO-Norm 1863 is to be used, except that the recording density will be 1600 BPI.

Method of recording: EBCDIC
Record density: 1600 BPI
Number of tracks: 9
Width of tape: 1/2 inch
Interblock gap: 0.6 inch
Block prefix 3 inch.

A.2.2 *Structure of tape*

Mono-tape, mono-file.

A.2.3 *Tape and file label*

Character code for label and EBCDIC code

Volume header label: Volume 1 (see Appendix III)

First file header label and end of file label: HDR1 and EOF1 (see Appendix IV)

Second file header label and end of file label: HDR2 and EOF2 (see Appendix V)

APPENDIX I

(to Annex A to Recommendation D.91)

Table of service codes (CDKIND)

Code	Description
02	Telephone satellite automatic — Standard A
03	Telephone satellite manual — Standard A
04	Telephone VHF automatic
05	Telephone VHF manual
06	Telephone medium-wave automatic
07	Telephone medium-wave manual
08	Telephone short-wave automatic
09	Telephone short-wave manual
12	Telex satellite automatic — Standard A
13	Telex satellite manual — Standard A
14	Telex VHF automatic
15	Telex VHF manual
16	Telex medium-wave automatic
17	Telex medium-wave manual
18	Telex short-wave automatic
19	Telex short-wave manual
22	Telegram satellite — Standard A
23	Telegram VHF
24	Telegram medium-wave
25	Telegram short-wave
26	Telephone aeronautical — Terrestrial
27	Telephone aeronautical — Satellite
28	Data transmission aeronautical — Terrestrial
29	Data transmission aeronautical — Satellite
30	Telex multi-address parent — Standard A
31	Telex multi-address offspring — Standard A
32	Telegram
33 to 39	Unused
40	Telex single address — Standard C
41	Telex multi-address parent — Standard C
42	Telex multi-address offspring — Standard C
43	PSS single address — Standard C
44	PSS multi-address parent — Standard C
45	PSS multi-address offspring — Standard C
46	Telegram — Standard C
47	Status request — Standard C
48	Data report/poll response — Standard C
49 to 54	—

APPENDIX II

(to Annex A to Recommendation D.91)

Table of facility codes (CDFACI)

Code	Description
34	Personal call
35	Reversed charge (collect) call
36	Credit card call
37	Advice of duration and charge (ADC)
38	Personal call with ADC
39 to 50	–
51	Telex letter
52	–
53	Voice bank
54	Data base access (telephone or telex)

APPENDIX III

(to Annex A to Recommendation D.91)

Volume header label

Position	Assignment of field	Contents
1 to 4	Label identifier and number	Volume 1
5 to 10	Volume No.	6 characters alphanumeric
11	Access	1 character (space)
12 to 31 + 32 to 37	Reserved	A (space)
38 to 50	Identification of owner	13 characters alphanumeric
51	Record density	A (space)
52 to 79	Reserved	A (space)
80	Version of standard label	3
81 to 160	–	Unused field (spaces)

APPENDIX IV

(to Annex A to Recommendation D.91)

First file header label and end of file label

Position	Assignment of field	Contents	
1 to 4	Label identification and number	HDR1	EOF1
5 to 21	File identification	All characters alphanumeric	
22 to 27	Total file identification	Spaces	Spaces
28 to 31	Number of file section	"0001"	"0001"
32 to 35	Number of file sequence	"0001"	"0001"
36 to 39	Number of generation	"0001"	"0001"
40 to 41	Version number on generation	"00"	"00"
42 to 47	Creation date	YYMMDD	
48 to 53	Expiry date	Spaces	Spaces
54	Access	Spaces	Spaces
55 to 60	Block counting	Zero	Block count
61 to 73	System code	All characters alphanumeric	
74 to 160	Reserved field	Spaces	Spaces

APPENDIX V

(to Annex A to Recommendation D.91)

Second file header label and end of file label

Position	Assignment of field	Contents	
1 to 4	Label identifier and number	HDR2	EOF2
5	Record format	"F"	"F"
6 to 10	Length of block	"10"	"10"
11 to 15	Length of record	"00160"	"00160"
16 to 50	Reserve system	All characters alphanumeric	
51 to 52	Length of offset cell buffer	"00"	"00"
53 to 160	Reserved field	Spaces	Spaces