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MAINTENANCE: DESIGNATIONS AND INFORMATION EXCHANGE

ESCALATION PROCEDURE FOR INTERNATIONAL LEASED CIRCUITS

Recommendation M.1560

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 M.1560 was prepared by Study Group IV and was approved under the Resolution No. 2 procedure on the 5th of October 1992.

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 M.1560

ESCALATION PROCEDURE FOR INTERNATIONAL LEASED CIRCUITS

(1992)

Abstract

This Recommendation defines an escalation procedure for the resolution of problems or difficulties in the provision or maintenance of international leased circuits where normal cooperation of maintenance elements does not. This procedure supplements the general escalation procedure given in Recommendation M.1550 [1].

Keywords

– escalation,

– fault restoration,

– leased circuit,

– maintenance,

– procedure.

1 General

Customers using international leased circuits, have ever increasing demands for

– faster installation times, and consequent need for cooperation between Administrations to achieve required in-service dates;

– higher availability of leased and special circuits, and hence faster resolution of faults or impairments,

and have an expectation that Administrations should meet these demands in delivering quality services over the international network.

Normally cooperation between maintenance elements in different Administrations will result in the efficient provision line-up, designation and restoration/repair of international leased circuits. There may be circumstances, however, where this escalation procedure needs to be used. Generally this will occur when:

– timings for certain activities in the procedures for provision and line-up (setting of international circuit test appointments) are in jeopardy or exceeded (failed);

– service is not restored or is not likely to be restored within agreed time periods (based on experience of average restoration time) (e.g. mean time to restore service MTRS);

– the same fault recurs within short intervals;

– indications of network malfunction persist despite repeated fault investigations.

This Recommendation supplements the procedure given in Recommendation M.1550 [1] in respect of the provision, line-up, designation and restoration/repair of international leased circuits.

2 Escalation process

In order to improve the quality of service to customers, Administrations shall (bilaterally or multilaterally) agree to apply time targets in performing functions related to the provision, line-up, designation and restoration/repair of international leased circuits on an end-to-end basis.

These agreements would normally be made by the technical service (see Recommendation M.75 [2]) between the Administrations concerned.

The general concept of escalation and the definition of an escalation point are given in Recommendation M.1550 [1], however, as it applies to international leased circuits, the following shall prevail:

– for provision of international leased circuits the time targets are usually applied during the normal working day;

– for maintenance of international leased circuits the time targets for restoration of service are to be applied on a 24 hours/day, 365 days/year end-to-end basis when customers require this level of performance. Administrations will need to agree on the level of performance bilaterally or multilaterally taking into consideration what organization they require to deliver this level of performance (see M.700-Series [3] and M.1000-Series [4] Recommendations).

A fault can be the result of any type of failure (see Recommendation M.20, § 3.2 [5]) either as reported by a customer to an Administration, or as notified by the network through an alarm or monitoring functions.

Administrations should encourage customers to normally contact escalation points within their own organization. Customers should only be encouraged, to contact the distant Administration if agreed by the Administrations involved.

For further information on interworking, see Annex D.

2.1 *Escalation levels/escalation points*

A number of escalation levels should be established (this will depend upon the specific organization of an Administration) and is subject to bilateral agreement. If there is more than one escalation point, then these must not be vested in the same person/organization element.

For example, in this Recommendation three levels of escalation have been used to demonstrate the principles to be used. At each level there will be an appointed "escalation point" which is an element of the general maintenance organization (see Recommendation M.85 [6]). The primary escalation point is the next level of management (supervision) within the organization of the Administration (see Recommendation M.75, § 2 [2]).

The person/organization unit receiving the escalation request should have the required expertise and authority to deploy the required resources/expertise to resolve the problems.

2.2 *Performance targets time interval*

These are targets for particular actions or activities which should be achieved within a particular time interval, e.g. where in the case of a faulty international leased circuit it is agreed that the circuit should be restored/repaired within an agreed time period.

A target is considered to be "in jeopardy" where a situation exists which will or may prevent the achievement of agreed target timings. Administrations should agree to advise each other when such situations arise. A target is considered to have been "exceeded", or "failed", when the agreed target has been missed, without the agreed action having taken place.

The targets to be applied are given in the following sub-sections.

2.2.1 *Provision and line-up*

The prime objective is to ensure that Administrations are able to deliver the required type of circuit, working to specification, on the required date, to the customers. To do this the following targets should be set:

– *Circuit routing proposal:* The date by which Administrations should have made a response to proposals (see Recommendation M.1045 [7]) received from the other Administration(s).

– *Line-up:* The date by which the line-up date is to be reviewed with the objective of ensuring that the agreed Ready for Service (RFS) date can be met.

– *National circuit section tests:* The date by which the national circuit section tests are to be performed, completed and advised to the partner Administration.

– *International circuit section tests:* The date by which the international circuit section tests are performed, completed and advised to the partner Administration.

– *End-to-end tests:* The date by which the end-to-end tests are to be performed and completed.

– *Ready for service date:* The date by which the circuit is to be ready for customer service.

2.2.2 *Maintenance (fault localization, repair and make good)*

The prime objective is to ensure that Administrations are able to restore service to the customers/users within an agreed time period. To do this the following types of targets should be set:

– *Service restoration:* The period within which fault localization and repair or make good, to restore service to the customer is achieved (see Recommendation M.1016 [8]).

– *Intermittent fault recurrence:* Where there are more than an agreed number of faults within an agreed period (e.g. ≥ *x* faults/y days).

2.2.3 *Maintenance performance*

Escalation will only occur for the following criteria if no identifiable reason can be established for the deterioration in performance, e.g. a major cable failure (which would be subject to escalation procedures in Recommendation M.1550 [1]).

– *Fault rate:* Where the agreed fault rate of circuits (generally expressed as number of faults per 100 circuits per month) between Administrations is exceeded in a three month period.

– *Restoration time:* Where the agreed average restoration time (expressed as the mean hours/faults/month) between administrations is exceeded in a three month period.

– *% circuits restored in x hours:* Where the performance (expressed as % of faulty circuits restored in *x* hours/faults/month) drops below the agreed % in a three month period.

Examples of escalation target criteria are given in Annex B.

2.3 *Escalation steps*

In general the following steps shall be taken to escalate a problem or situation in the provision, line-up, designation and restoration/repair of international leased circuits. The principle of the following three step escalation procedure (see also Figure 1/M.1560), aiming at a close and coordinated cooperation of Administrations is recommended in order to reduce the number and frequency of occasions of failure to meet targets.

– *Step 1* – When the initial target (T_0) is in jeopardy, or has been exceeded (failed), the organization element of one Administration informs its First Level Escalation Point which is then expected to assume the responsibility and control over all actions associated with the resolution of the target failure within step 1 period (T_1). If the distant Administration's cooperation is required to resolve the problem, then the matter should also be escalated to the distant First Level Escalation Point of the equivalent organization element.

– *Step 2* – If step 1 fails a Second Level Escalation Point within the organization is to be advised of the situation and requested to initiate further actions suitable to resolve the reported problem within step 2 period (T_2) Also information about the actions taken up to this time for clearing the reported problem can be given (when appropriate) to the customer/user concerned during step 2. If the distant Administration's cooperation is still required to resolve the problem, then the matter should be escalated to the distant Second Level Escalation Point by the First Level Escalation Point in the distant Administration.

– *Step 3* – In the event that steps 1 and 2 fail the Third Level Escalation Point, within the organization which is not normally concerned with the day-to-day operation of international services, will be alerted by the Second Level Escalation Point mentioned in step 2 above. If the distant Administration's cooperation is still required to resolve the problem, then the matter should be escalated to the distant Third Level Escalation Point by the Second Level Escalation Point in the distant Administration. Step 3 period (T_3) is initiated during which information can (when appropriate) also be given to the customer/user concerned.

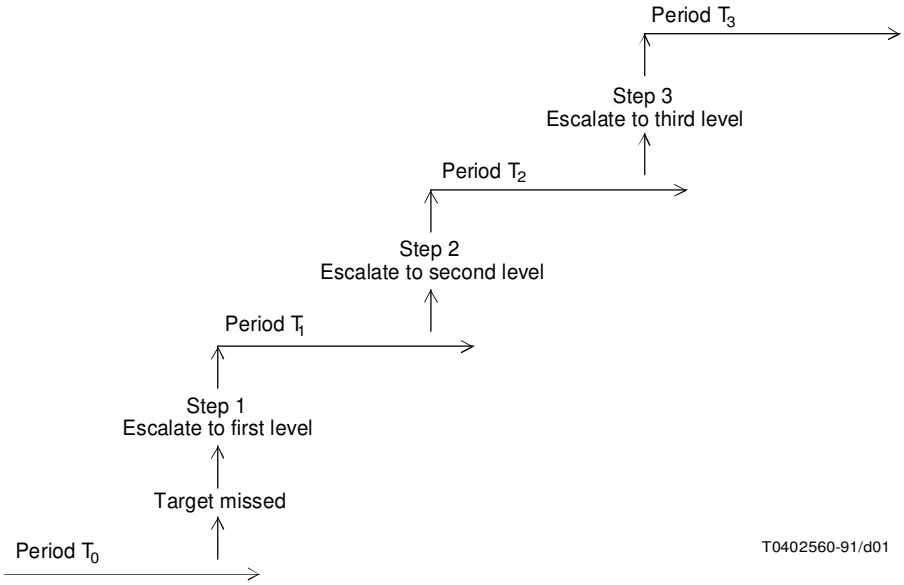

FIGURE 1/M.1560
Escalation steps

Where a problem or situation is escalated, an acknowledgement should be issued by the Escalation Point receiving the escalation to the contact point which is escalating the problem.

Examples of escalation timings between escalation levels are given in Annex C.

2.4 *Escalation communication*

Escalation communications between Administrations should normally occur (horizontally in diagram below) between peer levels, e.g. escalation communications should only occur between the same escalation levels. However, in exceptional circumstances, communication can occur between Administrations between different escalation levels.

In cases where language difficulties exist it is recommended that electronic text communication be used which can be translated by the receiving point if necessary.

3 Exchange of information

It is recommended that information be exchanged between Administrations in a standardized format to convey fault information, escalation points, and contact points.

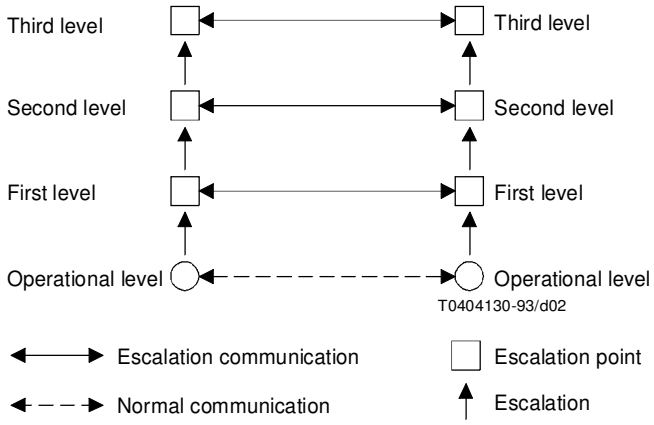

FIGURE 2/M.1560

Escalation communication paths

In order to facilitate the communication between

– provision liaison points;

– fault report points;

– escalation points;

as covered in this Recommendation, standardized information must be provided updated and exchanged, as detailed in Annex A.

ANNEX A

(to Recommendation M.1560)

Information to be provided and exchanged

A.1 *Maintenance information exchange*

Part 1 – *Centre-to-centre information*

1 Designation of fault report point (see Recommendation M.95 [6])

2 Operating hours

3 Designation of the Administration

4 Telephone numbers (at least two)

5 Facsimile number

6 Telex number

7 Designation and responsibility of First Level Escalation Point

8 Relevant telephone, fax and telex numbers

9 Designation and responsibility of Second Level Escalation Point

10 Relevant telephone, fax and telex numbers

11 Position and responsibility of Third Level Escalation Point

12 Relevant telephone, fax and telex numbers

13 Out of hours contact and escalation points if different from above

14 Designation of customer's organization

15 Operating hours of control and sub-control stations (see Recommendation M.1510 [9])

Part 2 – (variable) *Information concerning the circuit*

1 Designation of the international leased circuit

2 Urgency of restoration

3-14 Other relevant information (according to Recommendation M.1400 [10])

15 Information on whether circuit is permanent or temporary

16 Designation of customer's organization (Note)

17 Customer's telephone number (Note)

Part 3 – (variable) *Information concerning the fault report*

1 Time of fault reporting (UTC)

2 Time of fault incidence (UTC)

3 Name and position of person reporting the fault

4 Symptoms of the fault

5 Fault report number/code

6 Statement from customer that circuit can be used for testing and fault clearance and whether or not a loop-back is available

7 Statement by the Administration that customer will be kept informed of progress as regards fault clearance

8 Access times at renter's premises

A.2 *Provision information exchange*

Part 1 – *Provision liaison point-to-point information*

1 Designation of Provision Liaison Centre

2 Operating hours

3 Designation of the Administration

4 Telephone numbers (at least two)

5 Facsimile number

6 Telex number

7 Designation and responsibility of First Level Escalation Point

8 Relevant telephone, fax and telex numbers

9 Designation and responsibility of Second Level Escalation Point

10 Relevant telephone, fax and telex numbers

11 Designation and responsibility of Third Level Escalation Point

12 Position and relevant telephone, fax and telex numbers

13 Out of hours contact and escalation points if different from above

14 Operating hours of provision control and sub-control stations

Part 2 – (variable) *Information concerning the order*

1 Intended designation of the international leased circuit (if available)

2 Customer required by date (date when customer wants service)

3-14 Other relevant information (according to Recommendation M.1045 [7])

Part 3 – (variable) *Information concerning the order problem*

1 Customer required by date (date when customer wants service)

2 Proposed/agreed ready for service date

3 Name and position of person reporting the problem

4 Nature of the problem

5 Report number/code

6 Statement by the Administration that customer will be kept informed of progress as regards resolution of the problem

7 Access times at renter's premises

8 Designation of customer's organization (see Note)

9 Customer's telephone number (see Note)

Note – This information is only to be exchanged where the support of the One-Stop-Shopping (OSS) arrangements is required (see Recommendation F.14 [11]).

ANNEX B

(to Recommendation M.1560)

Examples of escalation target criteria

The examples given as targets below are considered to be feasible, however, the exact nature of each of these targets should be subject to agreement between Administrations. Administrations may decide to agree on different targets for different circuit types (e.g. analogue and digital):

B.1 *Maintenance (fault localization, repair and make good)*

– Service restoration: 2 hours;

– Intermittent fault recurrence (repeat faults): ≥ 2 faults/60 days;

B.2 *Maintenance performance*

– Fault rate: 25 faults/100 circuits/month;

– Mean time to restore service (over a 3 month period): 1.5 hours;

– % circuits restored in 3 hours in a 3 month period: 85%;

– % circuits restored in 24 hours in a 3 month period: 100%.

ANNEX C

(to Recommendation M.1560)

Examples of escalation timings between escalation levels

The escalation timings for leased and special circuits should be agreed bilaterally/multilaterally between Administrations. The example timings below are considered feasible but are for demonstration purposes only.

C.1 *Escalation timings*

C.1.1 *Provision and line-up*

– Replies to information exchange (see Recommendation M.1045 [7])

  T_0 5 days after transmission

  T_1 10 days after transmission

  T_2 15 days after transmission

– Setting of international circuit test appointment

  T_0 10 days before Ready For Service (RFS)

  T_1 5 days (5 days before RFS)

  T_2 2 days (3 days before RFS)

– International circuit section tests

  T_0 5 days before RFS

  T_1 3 days (2 days after RFS)

  T_2 2 days (5 days after RFS)

– National circuit section end-to-end tests

  T_0 10 days before RFS

  T_1 5 days (5 days before RFS)

  T_2 5 days (0 days before RFS)

C.1.2 *Maintenance (fault localization, repair and make good)*

– Service restoration

  T_0 2 hours after fault report

  T_1 2 hours

  T_2 2 hours

  T_3 2 hours

– Intermittent fault recurrence (repeat faults)

  T_0 ≥ 2 faults/60 days

  T_1 10 days

  T_2 10 days

  T_3 10 days

C.1.3 *Maintenance performance*

– Fault rate

T_0 1 month

T_1 1 month

T_2 1 month

T_3 1 month

– Restoration time

T_0 1 month

T_1 1 month

T_2 1 month

T_3 1 month

– % circuits restored in x hours

T_0 1 month

T_1 1 month

T_2 1 month

T_3 1 month

ANNEX D

(to Recommendation M.1560)

Examples of interworking

D.1 *Maintenance (fault localization, repair and make good)*

The following escalation procedure is recommended in order to reduce the number and frequency of occasions of failing/exceeding targets (see § 2.1). It is aimed at a close and coordinated cooperation both betwwen Fault Report Points and with customers/users who have reported a faulty international leased circuit.

D.1.1 *Fault restoration*

– *Step 1* – When the time limit of the initial restoration target has been missed, the customer or one of the involved Fault Report Points informs a First Level Manager (supervisor of the fault report point) about the situation, who is then expected to assume the responsibility and control over all actions associated with the repair/restoration of the failed service within step 1 period (T_1). If distant Administration cooperation is required to resolve the problem, then the matter should also be communicated by the First Level Manager to the distant First Level Manager.

– *Step 2* – If step 1 fails a Second Level Escalation Point is to be advised of the situation by the First Level Manager and requested to initiate further repair/restoration actions suitable to resolve the reported problem within step 2 period (T_2). Information about the actions taken up to this time for clearing the reported fault can (where Administration's cooperation is still required to resolve the problem, then the matter should also be communicated by the Second Level Escalation Point to the distant Second Level Escalation Point.

– *Step 3* – In the event that steps 1 and 2 fail the Third Level Escalation Point, not normally concerned with the day-to-day operation of international services, will be alerted by the Second Level Escalation Point mentioned in step 2 above. If distant Administration's cooperation is still required to resolve the problem, then the matter should also be communicated by the Third Level Escalation Point to the distant Third Level Escalation Point. Step 3 period (T_3) is initiated during which information can (when appropriate) also be given to the customer/user concerned.

Although the responsibility and control over all actions associated with the repair/restoration of the failed service is escalated to higher levels, the responsibility for day-to-day contact stays with the relevant Fault Report Point or Transmission Maintenance Point – International Line.

If reported faults are due to known major failures, or satisfactory action is being taken to clear the fault, escalation steps 1 and 2 can be omitted. However, after 12 hours have elapsed a fault must be escalated to the Third Level Escalation Point by means of electronic text communication.

It is further recognized that in order to achieve the restoration of service to customers, Administrations may need to agree to nominate reserve circuits on diverse routes. Such reserve circuits should be utilized to "make good" service to customers in fault restoration after an agreed time period (e.g. T_2) has elapsed; also such reserve circuits can be utilized to restore service on recurrent faults by agreement between Administrations. Further to this, reserve circuits should not be overly used for long term "make good" of circuits unless all avenues of investigation cannot lead to successful fault correction.

D.1.2 *Intermittent faults*

Where there are more than a pre-agreed number of faults on a circuit within a rolling period (e.g. ≥ 2 faults/60 days), the occurrence of this should be escalated to the first level. The first level managers of each Administration should discuss and agree an action plan for the investigation of the problem with an agreed resolution date. The same procedure as defined in § 2.3 can be followed with the examples of time periods given in Annex B.

D.2 *Maintenance performance*

Information on maintenance shall be exchanged between nominated contact points in Administrations in order to:

– agree what actual performance levels are being attained, through the matching of perceptions from each Administration's viewpoint;

– identify areas for continuous improvement in performance, within and between, the maintenance organizations (staffing, testing facilities, procedures etc.).

Such information should form the basis for agreement of action plans for improvement, both in terms of delivery of service to the customer, and the efficiency and effectiveness of interworking between Administrations.

Such information should be exchanged under terms of confidence between Administrations, and such exchanged information should not be published in any way to customers/users without the agreement of all Administrations involved.

References

[1] CCITT Recommendation M.1550 *Escalation procedure.*

[2] CCITT Recommendation M.75 *Technical service.*

[3] CCITT Recommendation M.700-Series *Maintenance organization; fault report point; testing point; circuit control station etc.*

[4] CCITT Recommendation M.1000-Series *International leased circuits.*

[5] CCITT Recommendation M.20 *Maintenance philosophy for telecommunications networks.*

[6] CCITT Recommendation M.85 *Fault report points.*

[7] CCITT Recommendation M.1045 *Preliminary exchange of information for the provision of international leased circuits.*

[8] CCITT Recommendation M.1016 *Assessment of service availability performance of international leased circuits.*

[9] CCITT Recommendation M.1510 *Exchange of contact point information for the maintenance of international services and international network.*

[10] CCITT Recommendation M.1400 *Designation of international network etc.*

[11] CCITT Recommendation F.14 *General provisions for one-stop-shopping arrangements.*