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M.250

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SERIES M: GENERAL MAINTENANCE PRINCIPLES

Maintenance of international transmission systems and telephone circuits – General principles of maintenance and maintenance organization

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USE OF CCITT MAN-MACHINE LANGUAGE (MML) FOR MAINTENANCE

Reedition of CCITT Recommendation M.250 published in the Blue Book, Fascicle IV.1 (1988)

NOTES

1 CCITT Recommendation M.250 was published in Fascicle IV.1 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation M.250

USE OF CCITT MAN-MACHINE LANGUAGE (MML) FOR MAINTENANCE

1 MML as an instrument of maintenance

1.1 Introduction

This Recommendation provides an introduction to the subject of MML as an instrument of maintenance.

MML is a stored program controlled (SPC) facility which can operate only within a computer controlled environment. When considering international telephone system maintenance this will generally mean an SPC controlled exchange or network.

MML is the medium used by the operations and maintenance staff to communicate with the exchange control processor and vice versa[1].

The purposes of this Recommendation are to:

– bring to the attention of the user the range of functions and facilities offered by MML in the field of maintenance;

– identify the full range of MML functions and facilities provided to deal with maintenance;

– define a standard terminology to describe the conditions that can exist within an SPC network.

The objectives, tests and measurements for the maintenance of circuits between exchanges, remain as described in all relevant Series M Recommendations. This Recommendation does not seek to supplant existing Recommendations nor to provide alternative methods or values for maintenance but to give guidance on how the use of MML might be applied to existing standards and procedures.

1.2 *Definition of MML functions*

MML functions are those system functions which provide the MML user with the means of control of system functions by MML. The word "control" is assumed to include all types of inputs and outputs.

Any MML function can be subdivided into a general part which relates to items such as the syntax check, information transmission control, etc., and an application part which relates to the job in hand.

The relationship between actual jobs to be performed, MML functions and system functions is shown in Figure 1/M.250.

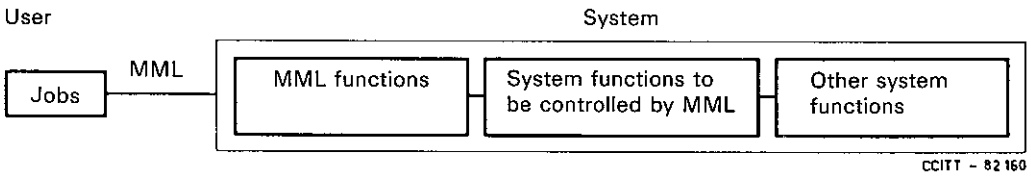

FIGURE 1/M.250

1.3 Although the purpose of this Recommendation is to cover the whole maintenance field, the following paragraphs deal only with maintenance of circuits between exchanges. The rest is for further study.

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[1] The structure, syntax and semantics of MML are fully described in the Series Z Recommendations published in Volume VI. Recommendation Z.311 describes the basis of the CCITT man-machine language and its fields of application. It also identifies the content of the other Series Z Recommendations all of which are addressed to the implementors of such languages rather than to the users.

2 List of system functions associated with the maintenance of circuits between exchanges

Table 1/M.250 presents a list of functions associated with the maintenance of circuits between exchanges which are considered to be controllable by means of MML.

TABLE 1/M.250

List of system functions

1	Tests/measurements of one circuit or a group of circuits and associated equipments
2	Observation and supervision of circuits and associated equipments between exchanges
3	Control of the status of a circuit or a group of circuits and associated equipments
4	Analysis of maintenance data
5	Administration and control of maintenance reports

The broad categories of system function shown in Table 1/M.250 relate to the activities engaged in by all Administrations with a responsibility for the maintenance of circuits interconnecting exchanges. The application of these activities will vary between Administrations as will the proportion of such activities that are performed by some degree of mechanization (partial or fully automatic).

System functions 4 and 5 may have such broad application that the extent of on-line and off-line treatment must be considered carefully by each Administration in relation to its requirements.

3 List of MML functions

Table 2/M.250 represents the list of MML functions necessary to control the system functions given in Table 1/M.250. The table presents the functions at their most basic level and does not necessarily represent the actual command structure of any real implementation of the man-machine language.

Each of the MML functions in the list could be implemented either by providing a separate and distinctive command, or several MML functions of the list could be implemented by means of a single command.

For example, in one implementation of MML, a single command CREATE, in which the object to be created will be defined as a parameter of the command (e.g. A MEASUREMENT), will perform internally precisely the same activities and functions as another implementation which provides a separate and distinctive command for the creation of each object (e.g. CREATE A MEASUREMENT). In this way the list of MML functions can be said to be system independent, as each function exists either implicitly or explicitly regardless of the methods of implementation chosen for particular systems.

The list of MML functions shown in Table 2/M.250 have a wider application than the maintenance of circuits between exchanges. Many of the functions identified are common to a wide range of maintenance and operational requirements, and the contents of the table should be considered whenever changes to the maintenance strategy and procedures are necessitated by the introduction or extension of MML in the maintenance field.

4 Terminology

The MML terminology to be used for maintenance is a subject for further study.

Note – Recommendation Z.341, Glossary of terms (for the man-machine language), suggests that a function may be considered as an “action upon an object”, e.g. create a routine test. Actions e.g. “CREATE” are defined in the Appendix I to Recommendation Z.333 which describes the methodology for the specification of a man-machine interface. Objects and their modifiers, e.g. routine test, are the subject of further study.

TABLE 2/M.250

List of MML functions

1.1	Create a routine test
1.2	Create a routine measurement
1.3	Create a test set
1.4	Create a measurement set
1.5	Create a list of circuits
1.6	Create a time data list
1.7	Create an output media list
1.8	Delete a test set
1.9	Delete a measurement set
1.10	Delete a list of circuits
1.11	Delete a time data list
1.12	Delete an output media list
1.13	Interrogate a test
1.14	Interrogate a test set
1.15	Interrogate a measurement
1.16	Interrogate a measurement set
1.17	Interrogate a list of circuits
1.18	Interrogate a time data list
1.19	Interrogate an output media list
1.20	Activate a routine test
1.21	Activate a routine measurement
1.22	Activate an on-demand test
1.23	Activate an on-demand measurement
1.24	Deactivate a routine test
1.25	Deactivate a routine measurement
1.26	Output the results of a routine test
1.27	Output the results of a routine measurement
2.1	Interrogate the status of a circuit(s) and/or associated equipment(s)
2.2	Input trouble or restoral report
3.1	Remove a circuit (or group of circuits)
3.2	Restore a circuit (or group of circuits)
4.1	Activate maintenance analysis functions
4.2	Deactivate maintenance analysis functions
4.3	Change analysis thresholds
4.4	Change analysis groups
4.5	Interrogate analysis thresholds
4.6	Interrogate analysis groups
4.7	Allow, inhibit, initialize a threshold
5.1	Sort trouble or restoral reports
5.2	Move reports to other files
5.3	Browse report files
5.4	Create summary reports
5.5	Activate a report on demand
5.6	Activate a report on routine
5.7	Deactivate a report on routine
5.8	Change report classification
5.9	Output summary reports
5.10	Route output of reports

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