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Okoljski inženiring (EE) - Nadzorovalni in krmilni vmesnik za infrastrukturno opremo (elektroenergetski, hladilni in stavbni okoljski sistemi v telekomunikacijskih omrežjih) - 8. del: Informacijski model za krmiljenje in nadzorovanje sistema za daljinsko električno napajanje

Environmental Engineering (EE) - Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks) - Part 8: Remote Power Feeding System control and monitoring information model

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Environmental Engineering (EE).

The present document is part 8 of a multi-part deliverable covering Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks), as identified below:

Part 1: "Generic Interface";

Part 2: "DC power system control and monitoring information model";

Part 3: "AC UPS power system control and monitoring information model";

Part 4: "AC distribution power system control and monitoring information model";

Part 5: "AC diesel back-up generator system control and monitoring information model";

Part 6: "Air conditioning system control and monitoring information model";

Part 7: "Other utilities system control and monitoring information model";

Part 8: "Remote Power Feeding System control and monitoring information model".

1 Scope

The present document applies to monitoring and control of remote power feeding systems for telecommunication equipment.

The present document defines:

- The monitored and controlled remote power feeding system architectures.
- The minimum set of exchanged information required at the interface, described in "natural language" in text tables.
- The XML files with tags and variables corresponding to the data in the tables.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ETSI ES 202 336-1: "Environmental Engineering (EE); Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks); Part 1: Generic Interface".

[2] ETSI EN 300 132-2: "Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)".

[3] ETSI EN 300 132-3: "Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 3: Operated by rectified current source, alternating current source or direct current source up to 400 V".

[4] ETSI EN 302 099: "Environmental Engineering (EE); Powering of equipment in access network".

[5] IEC/TR 62102: "Electrical safety - Classification of interfaces for equipment to be connected to information and communications technology networks".

[6] IEC 60950-21: "Information technology equipment - Safety - Part 21: Remote power feeding".

[7] ETSI ES 202 336-6: "Environmental Engineering (EE); Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks); Part 6: Air conditioning system control and monitoring information model".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

[i.1] IEC 60950-1: "Information technology equipment - Safety - Part 1: General requirements".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

NOTE: Terms referring to energy interface, equipment and distribution are described in power distribution standards EN 300 132-2 [2], EN 300 132-3 [3] for ac and dc interface and EN 302 099 [4] for access network equipment powering.

Remote Feeding Telecommunication circuit [6]: secondary circuit within the equipment, intended to supply or receive d.c. power via a telecommunication network at voltages exceeding the limits for TNV circuits, and on which overvoltages from telecommunication networks are possible

RFT-C circuit [6]: RFT circuit which is so designed and protected that under normal operating conditions and single fault conditions, the currents in the circuit do not exceed defined values

RFT-V circuit [6]: RFT circuit which is so designed and protected that under normal operating conditions and single fault conditions, the voltages are limited and the accessible area of contact is limited

TNV circuit (from IEC 60950-1 [i.1**]):** circuit that is in the equipment and to which the accessible area of contact is limited and that is so designed and protected that, under normal operating conditions and single fault conditions, the voltages do not exceed specified limit values

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CU	Control Unit of an equipment
DC	Direct Current
DGU	Data Gathering Unit
HTTP	HyperTex Transfer Protocol
IP	Internet Protocol
RFT circuit	Remote Feeding Telecommunication Circuit
TCP	Transmission Control Protocol for IP
XCU	XML enabled CU
XML	eXtensible Markup Language (see W3C)

4 Remote Power Feeding System

A remote power feeding system is used to transfer power from a central site to a remote site over multiple copper pairs. It is composed of multiple DC/DC up converter system at office site, and of one or multiple remote DC/DC down converter system on remote sites (EN 302 099 [4], IEC/TR 62102 [5]).

A remote power feeding system is a sub-equipment of an <energy_system> defined in core ES 202 336-1 [1].

A remote power feeding system addressed by the present document is depicted in figure 1. One single control unit XCU can monitor and control several remote power feeding systems through field bus. Field bus is outside the scope of the present document.

Mandatory monitoring/supervision information and functions are given in annex A.

Non-mandatory (optional) monitoring/ supervision information and functions are given in annex B.

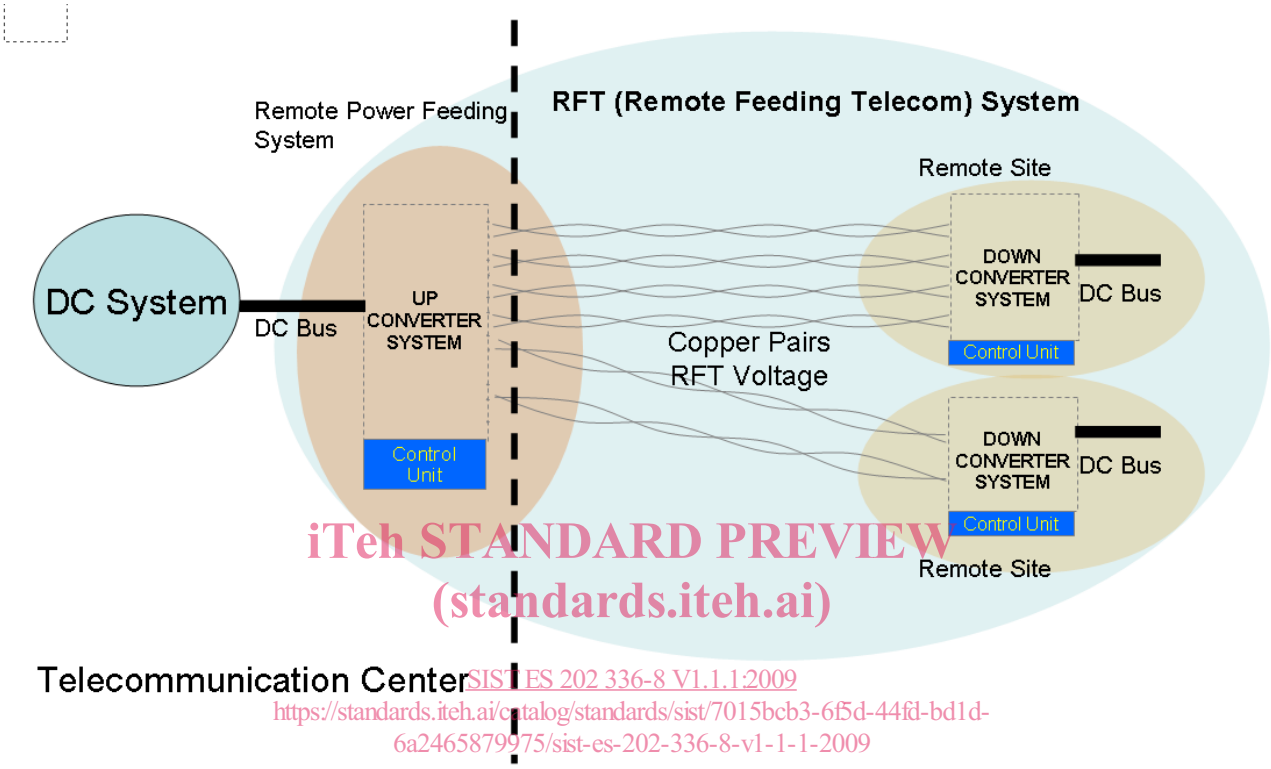

Figure 1: Example of Remote Power Feeding System

The main elements of **Remote Power Feeding System** are:

- One or more "**Up Converter system**": converts DC Bus voltage (e.g. -48V) to higher RFT (RFT-C or RFT-V) DC voltage (see standard IEC 60950-21 [6]). This voltage is applied on the copper pairs.
- One or more "**Remote Site**": which is a site (as described in ES 202 336-1 [1]) powered with a remote power feeding system.
- Multiple control unit (XCU).

A Remote Site can have subelements:

- Any equipment described in core part I, e.g. sensors and actuators, air conditioning, etc.
- One or more "**Down Converter System**": converts RFT (RFT-C or RFT-V) DC voltage on the copper pairs to DC Bus voltage (e.g. -48V).

Note that as the remote site is generally not complex in term of equipment hierarchy, all the information can be provided at the <remote_site> level.

Table TPx (tables from annex A) corresponds to mandatory data that shall be provided for a minimal Remote power feeding system, and TPx (tables from annex B) includes data that should be provided in addition to mandatory one.

Annex C standardizes XML coding structures for these data.