International Telecommunication Union

ITU-T Study Group 5

Activity and methodology in the standardization work

Roberto POMPONI

Chairman of ITU-T SG 5

Telecom Italia Lab (TILAB)

Workshop on:
"EMC, safety and EMF effects in telecommunications"

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Title and Mandate

- Title
  - "Protection against electromagnetic environment effects"

- Mandate
  - "SG 5 is responsible for studies relating to electromagnetic compatibility (EMC) of telecommunication systems including to avoid hazard to human beings"

In this field, ITU-T SG 5 is the most experienced (oldest) and competent standardization body

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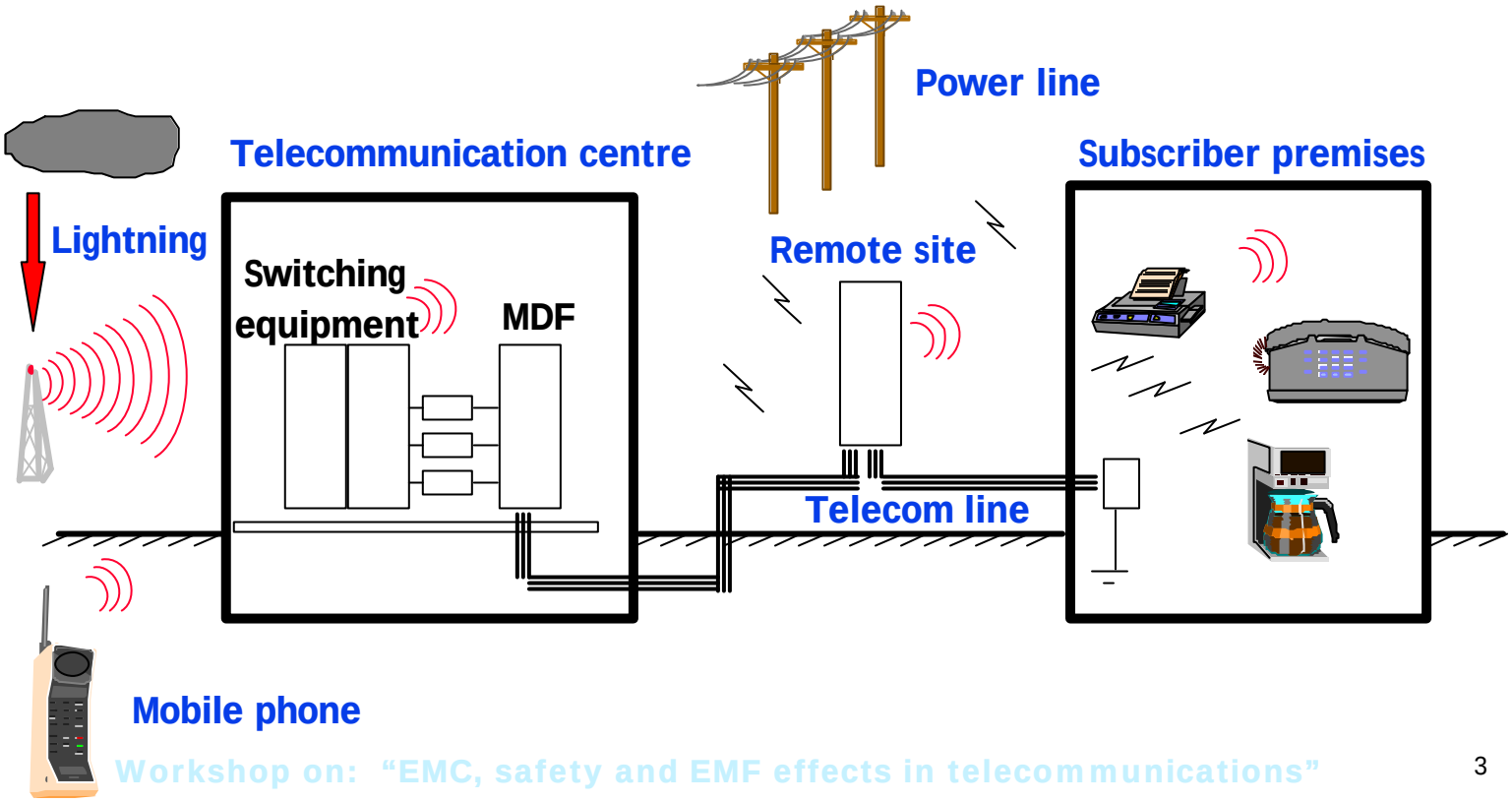
Meaning of the Mandate: Example

- Study Electromagnetic (e.m.) Phenomena which can cause damages or disturbances to telecommunication installation or injury to telecommunication personnel or health effect to population



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Objective

- Study electromagnetic phenomena to define PROTECTIVE MEASURES and/or INSTALLATION TECHNIQUES by means
  - Recommendations
  - Directives
  - Handbooks

- for limiting the risk of
  - Damages to telecommunication installation and equipment
  - Disturbances to telecommunication systems
  - Injury to people

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Working method

- Preparing QUESTIONS, e.g. subjects to be studied during the 4 years period (2001-2004)
  - Prepared by SG 5 and approved by WTSA-2000
- Nominating
  - The MANAGEMENT TEAM of SG 5 (by WTSA and SG 5)
  - the "RAPPORTEUR" for each Question (by SG 5), e.g. person charged to coordinate the activities to be carried out
- Defining a WORKING PROGRAM (by SG 5)
  - New or revision of existing Recommendations
  - New or revision of existing Handbooks
  - Updating Directives

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How the new Questions are built

Applying the specific competences on

- Resistibility
- Electromagnetic compatibility (EMC): Immunity & Emission
- Safety
- Lightning
- Earthing & Bonding
- Protection

To business areas

- Telecommunication Network (metallic, optical fibre, wireless), in particular
  - Broadband Access Network
  - Wireless Access Network
  - Mobile
- Telecommunication equipment (all services), in particular new equipment (e.g. routers)
- Software development

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SG 5 Organization

- 14 Questions to be studied
  - 7 out of 14 are new Questions
  - 7 are rewording of Questions studied during the preview Study Period
- 2 Working Parties (WP)
  - WP 1 “Preventing damages and safety”
    - Chairman: Ahmed Zeddam (France Telecom R&D)
  - WP 2 “Emission, immunity and electromagnetic fields”
    - Chairman: Mitsuo Hattori (NTT)

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SG 5 Management Team

- **Roberto Pomponi** (Telecom Italia Lab): Chairman of SG 5
- **György Varju** (Matav): Vice-Chairman of SG 5
- **Ahmed Zeddam** (France Telecom R&D): Vice-Chairman of SG 5 and Chairman of WP 1
- **Mitsuo Hattori** (NTT): Chairman of WP 2
- **Judit Katona-Kiss**: Counsellor, TSB

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Workshop on "EMC, safety and EMF effects in tlc"

Subject	Speaker
Resistibility requirements and testing in telecommunications (Q. 4 and 13)	Day Philip - Telstra (Australia)
Lightning protection for telecommunication systems (Q. 5)	Celio Fonseca Barbosa CPQD (Brazil)
EMF environmental characterization, guidance for human exposure (Q. 3)	Jeffrey Boksiner – Telcordia (USA)
Safety criteria in telecommunications environment (Q. 11)	Olivier Daguillon – France Telecom RD (France)
Review of Study Group 5 Publications; safety limits, sharing the responsibility (Q. 9)	György Varju – Matav (Hungary) Hans-Göran Öhlin - Telia (Sweden)

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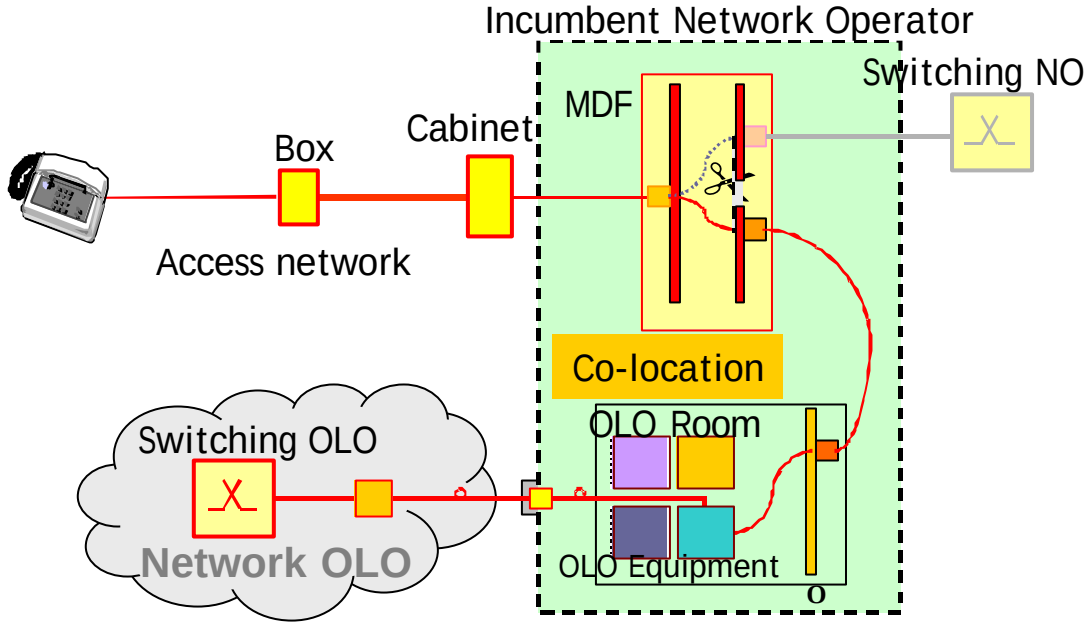
Question 1
Rapporteur
R. Kobayasi
NTT
(Japan)

Unbundling and interoperability in telecommunication networks

- With the ever-increasing liberalization in telecommunications networks, unbundling and interoperability grow ever more in important.
- Requirements to ensure safe and problem-free operation in the multiple licensed operator environments shall be produced



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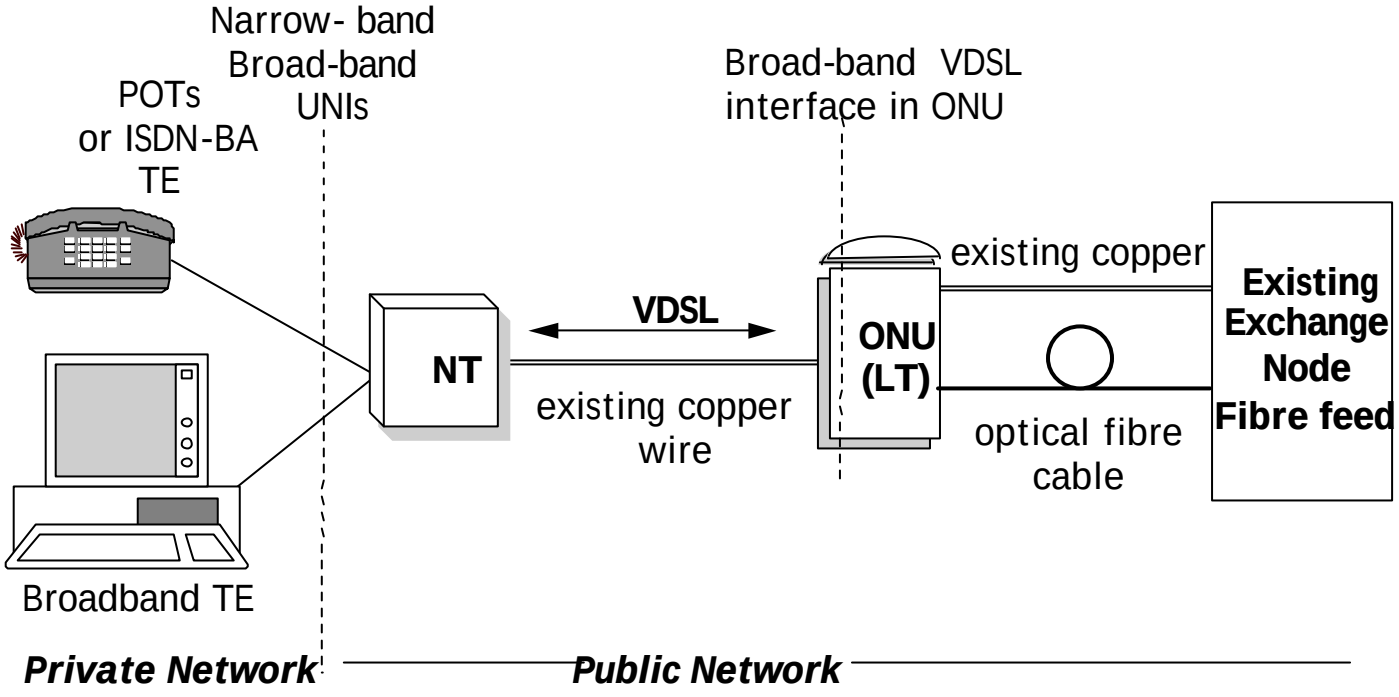
Question 2
Rapporteur
C. Monney
Swisscom
(Switzerland)

EMC related to broadband access systems

High bandwidth connections for data services

Reuse existing access systems and hardware (on cost grounds): use of higher frequencies (e.g. VDSL)



These techniques introduce a new family of EMC issues

Bonding & Earthing

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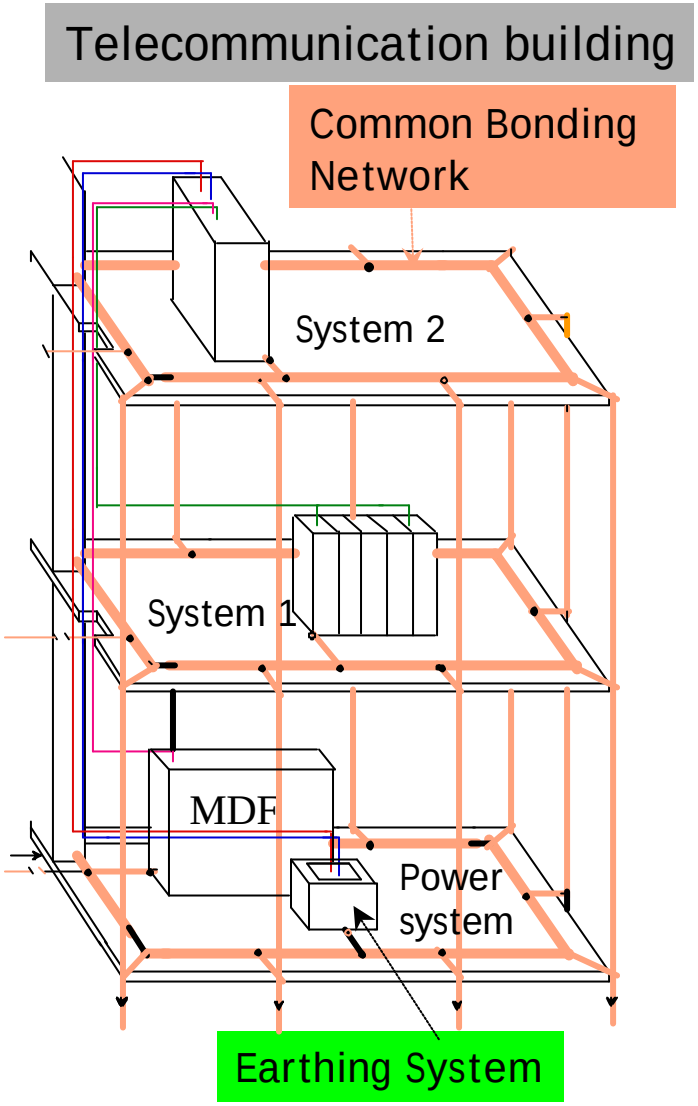
Question 6
Rapporteur
H. Kijima
Polytechnic
University
(Japan)

- Implementation methods of bonding configurations and earthing to new and existing buildings
- Revision of Handbook "Earthing of telecommunication installations"



EMC prediction through mathematical modelling

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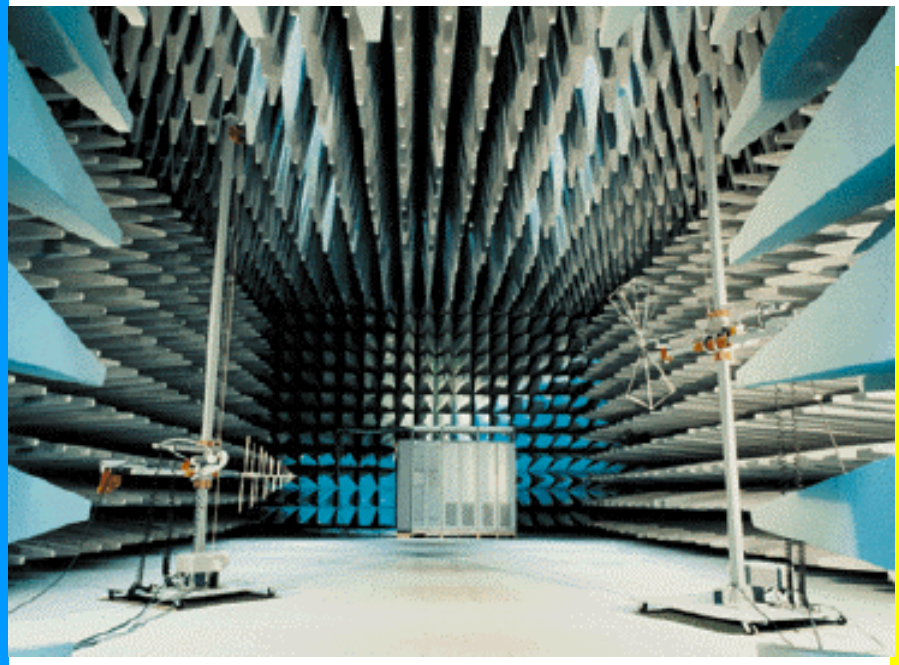
Question 7
Rapporteur
D. Carpenter
BT
(UK)



Measurements inside Semi-Anechoic Chamber

Large System

- EMC testing by a combination of modular and *in situ* measurements.
- Expensive and high experimental uncertainty.
- Mathematically based technique for minimizing the cost and maximizing the confidence of EMC compliance at the system level.

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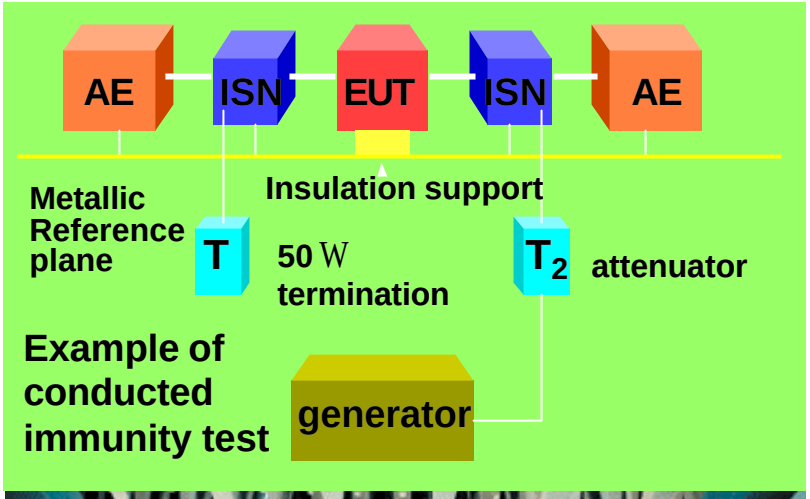
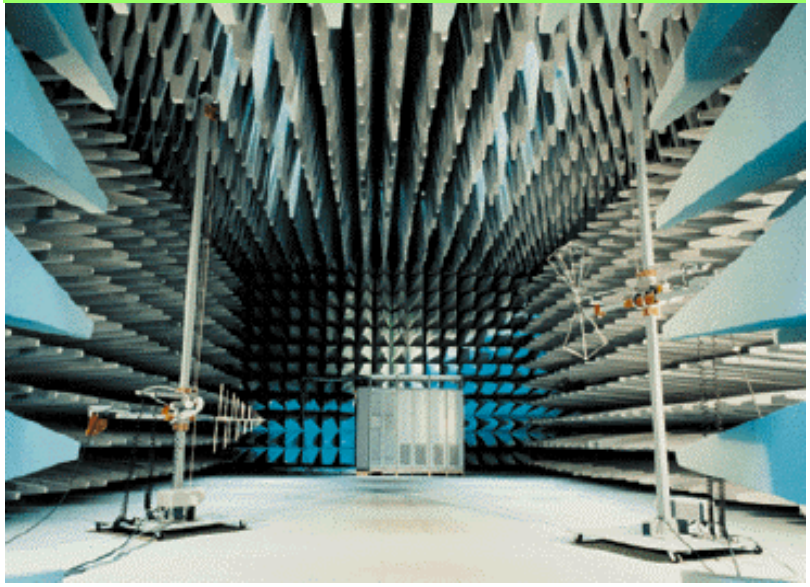
Question 8
Rapporteur
A. Bochicchio
Siemens
(Italy)

Quality processes using electromagnetic compatibility

- The telecommunications equipment normally fulfils its EMC requirements.
- Some EMC requirements could be an effective tool for checking telecommunication equipment quality.
- This question seeks to define an appropriate quality process using electromagnetic compatibility.





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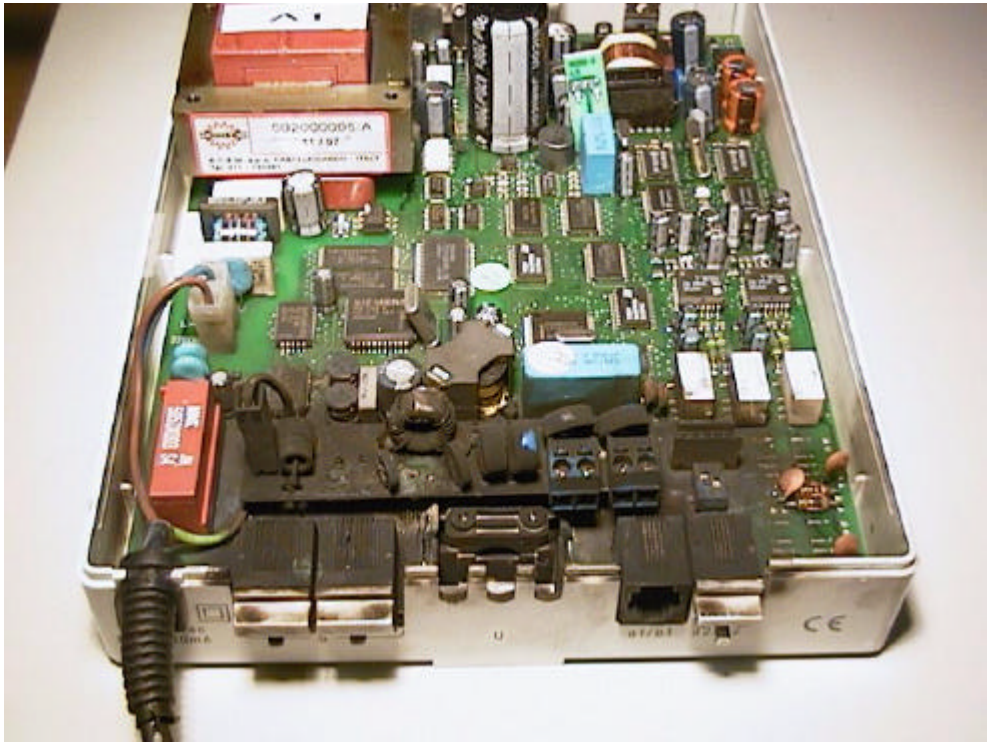
Question 10
Rapporteur
K. Murakawa
NTT
(Japan)

Electromagnetic problems in telecommunication installations

This question will provide the route for solving electromagnetic problems in telecommunication installations emerging during the field.



Example of telecommunication equipment damaged in the field

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Question 12
Rapporteur
P. Gemma
Siemens
(Italy)

Maintenance and enhancement of existing EMC recommendations

Electromagnetic environment around tlc equipment

This question will provide the route for maintenance of **laboratory test methods** and **mitigation techniques**

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Question 14
Rapporteur
P. Whelan
BT
(UK)

Terminology

- The production of EMC recommendations, handbooks and Directives by Study Group 5 require a large amount of cooperation between other ITU study groups and international bodies, when taking into account the variety of technology to be studied.
- For the results of Study Group 5 work to be comprehensible to all parties, the terminology used has to be well-defined and unambiguous