

ISO/IEC JTC1 SC25 WG3

- an overview -



Alan Flatman

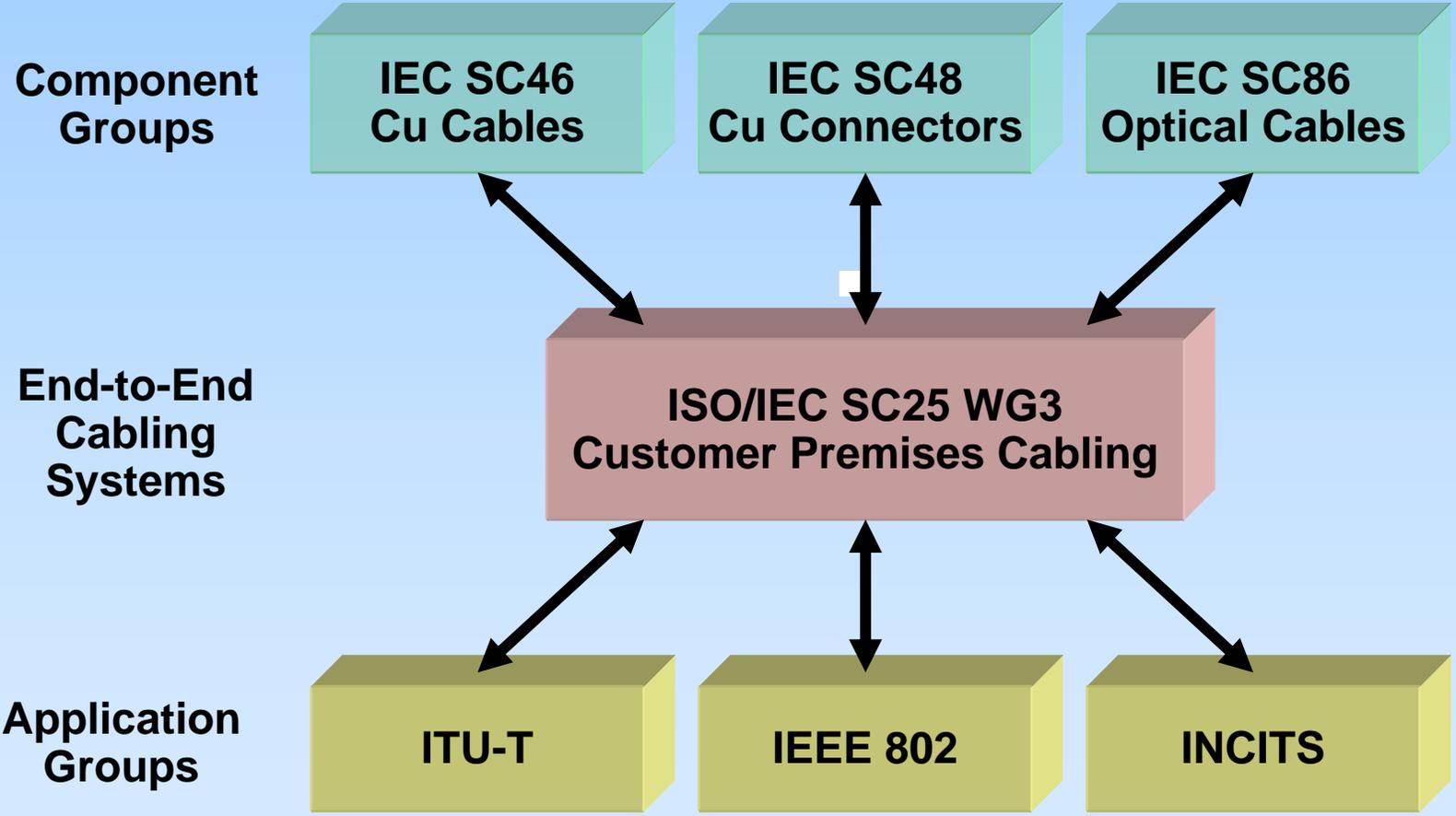
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Who are ISO/IEC SC25 WG3?

- **International cabling systems group**
- **SC25: Interconnection of IT Equipment**
- **WG3: Customer Premises Cabling**
- **active participation by 20+ nations**
- **WG3 meets twice a year on average**

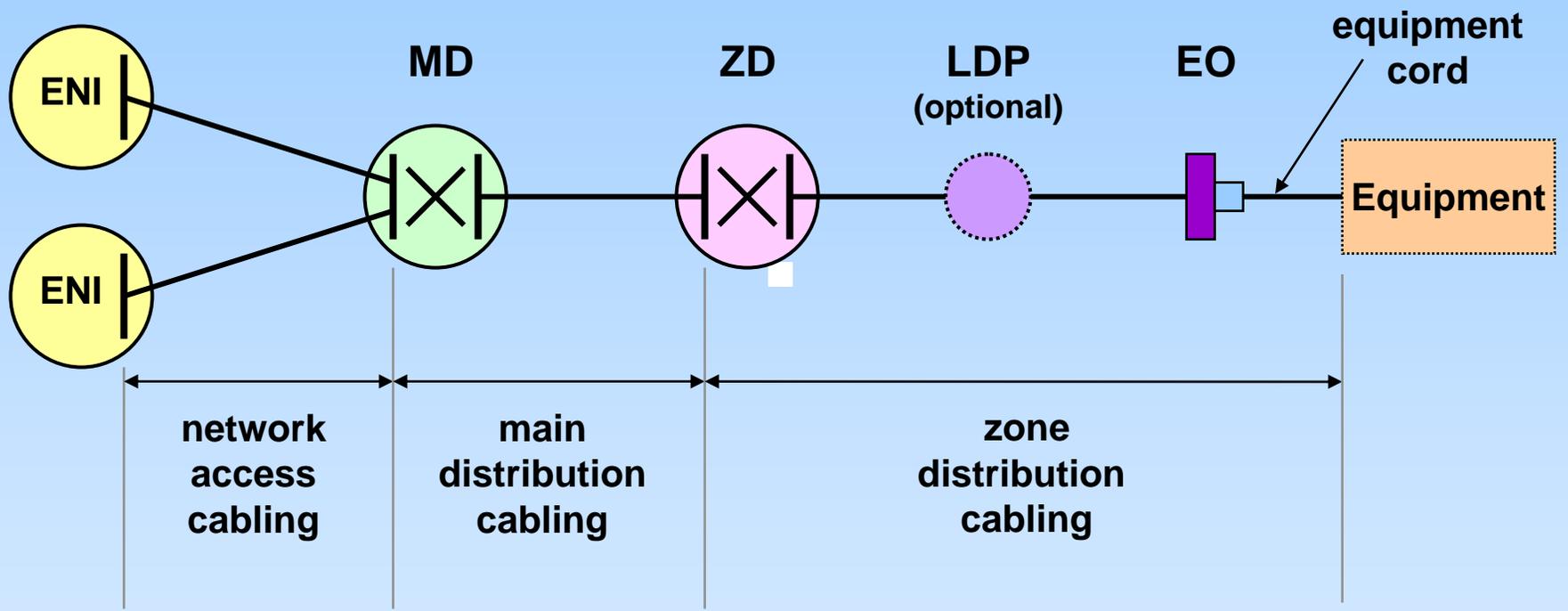
How does ISO/IEC SC25 WG3 Work?



ISO/IEC SC25 WG3 Recent Deliverables

Reference	Title	Status
ISO/IEC TR 24750	Supporting 10GBASE-T with Cat 6	approved 2007
ISO/IEC TR 29106	MICE Environmental Classification	approved 2008
ISO/IEC 24702 Am.1	Industrial Cabling	approved 2009
ISO/IEC 15018 Am.1	Home Cabling	approved 2009
ISO/IEC 11801 Ed.2 Amendment 1	Customer Premises Cabling: Addition of Class E _A & F _A channels with Electromagnetic Performance	approved 2008
ISO/IEC 11801 Ed.2 Amendment 2	Customer Premises Cabling: Addition of Cat 6 _A & 7 _A components	approved 2010
ISO/IEC 24764	Data Centre Cabling	approved 2010
ISO/IEC TR 29125	Guidelines on Remote Powering	approved 2010
ISO/IEC 14763-2	Cabling Planning & Installation	approved 2011

ISO/IEC 24764 Data Centre Cabling Model



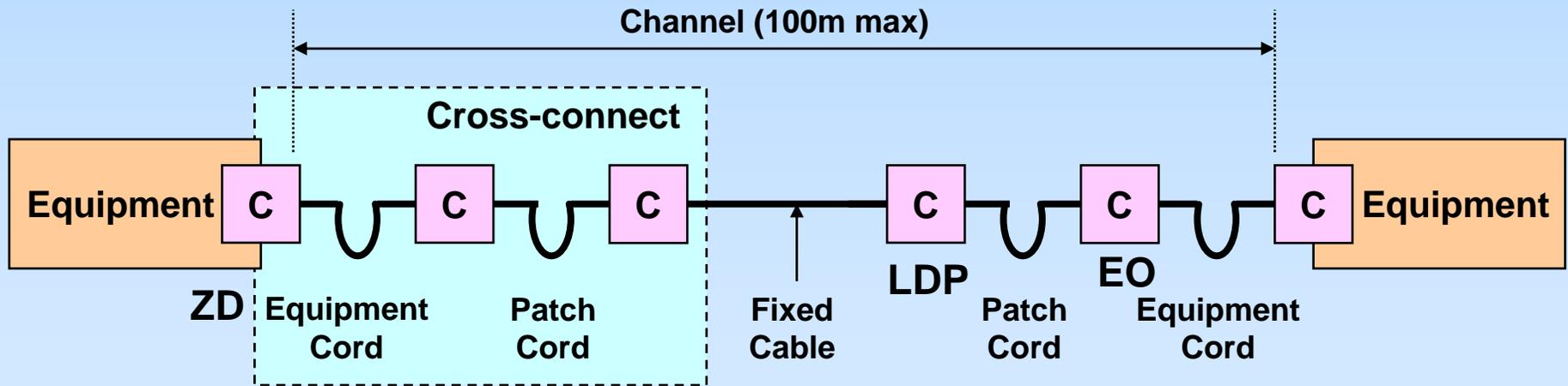
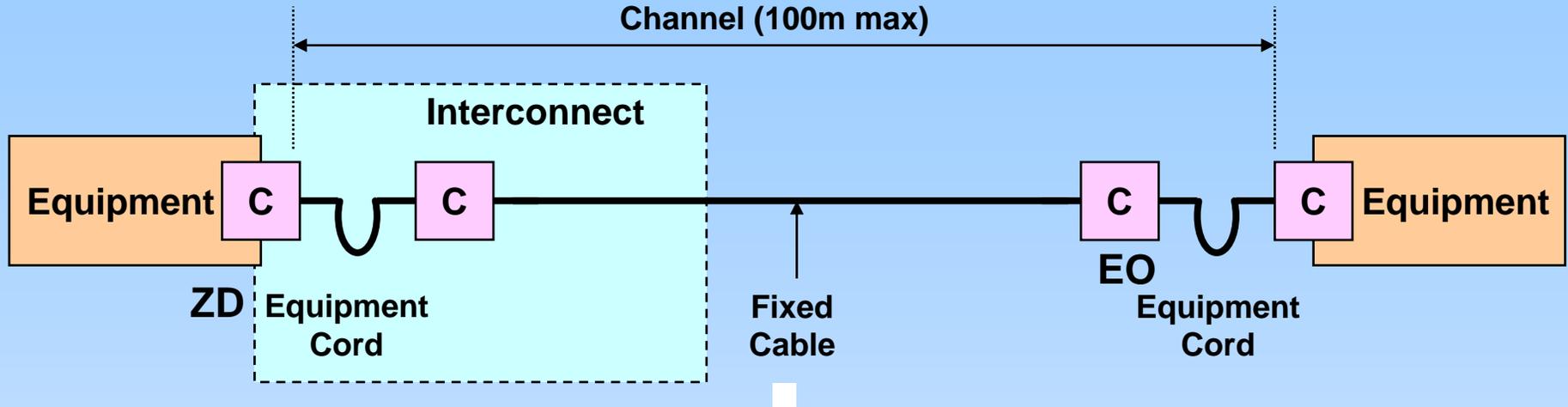
ENI = Equipment Network Interface
MD = Main Distributor
ZD = Zone Distributor

LDP = Local Distribution Point
EO = Equipment Outlet

Data Centre Cabling Media & Connectors

- channel length is determined by media choice
- Class E_A min performance for copper channel
- 2, 3 or 4 mated connectors per copper channel
- OM3 min performance per MMF optical channel
- duplex LC connector specified at EO for 2 fibres
- MPO connector specified at EO when > 2 fibres

ISO/IEC 24764 Zone Distribution Models (Copper)



C = connection (mated pair)

Copper Cabling Classes

Class A link or channel specified up to 100 kHz

Class B link or channel specified up to 1 MHz

Class C link or channel specified up to 16 MHz

Class D link or channel specified up to 100 MHz

Class E link or channel specified up to 250 MHz

Class E_A link or channel specified up to 500 MHz

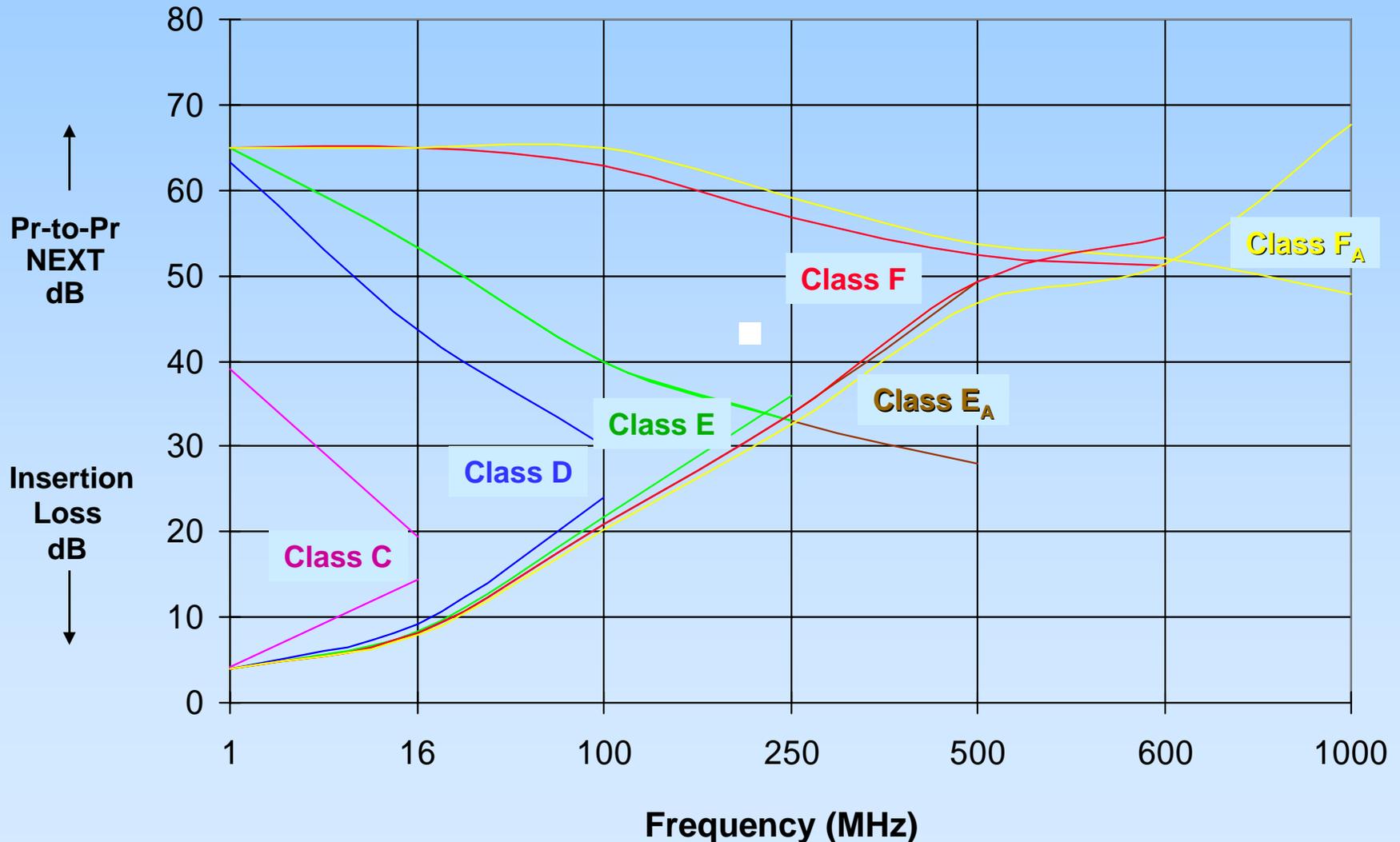
Class F link or channel specified up to 600 MHz

Class F_A link or channel specified up to 1000 MHz

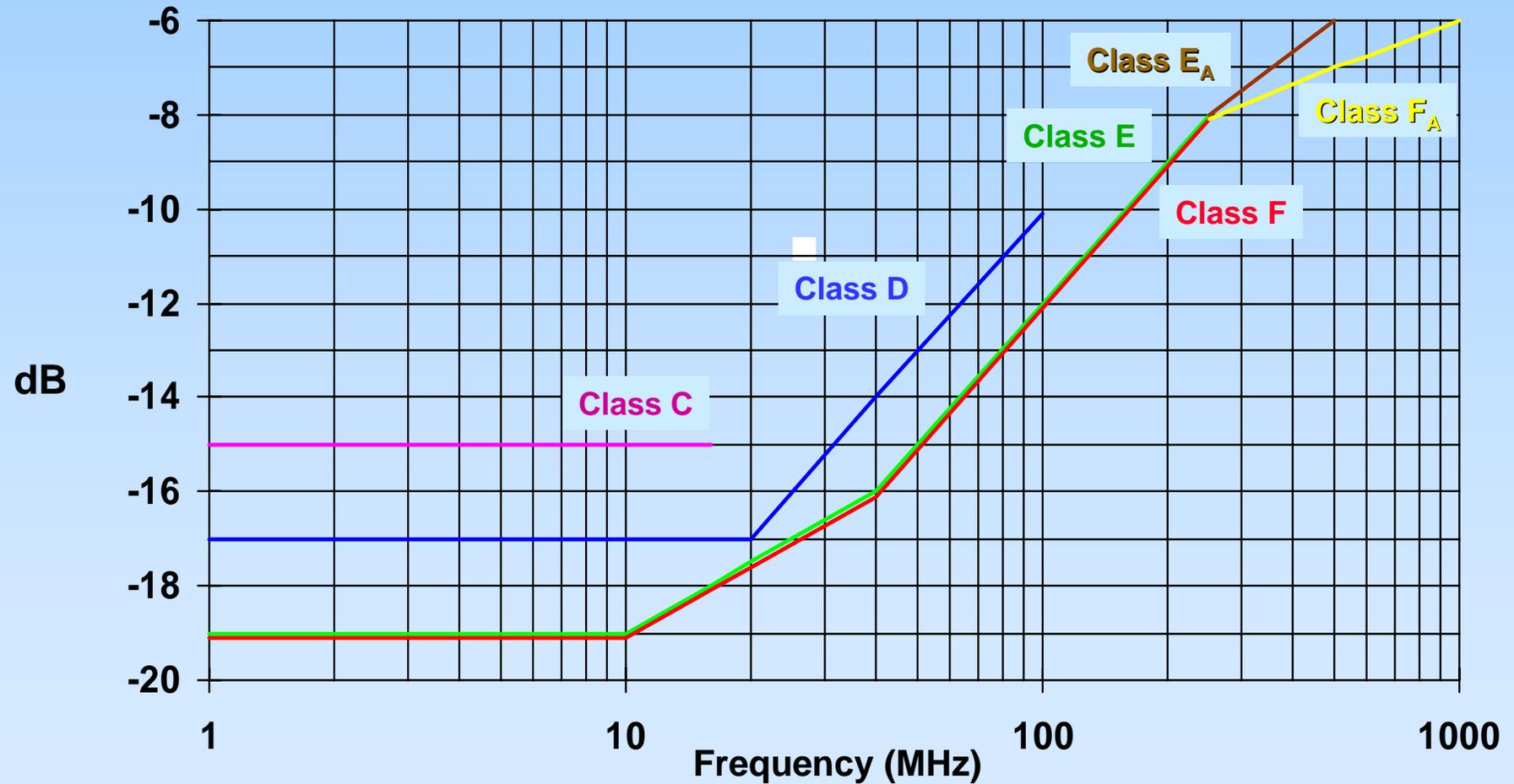
Copper Cabling Categories

Category 3	cable, connector and cord specified up to	16 MHz
Category 5	cable, connector and cord specified up to	100 MHz
Category 6	cable, connector and cord specified up to	250 MHz
Category 6_A	cable, connector and cord specified up to	500 MHz
Category 7	cable, connector and cord specified up to	600 MHz
Category 7_A	cable, connector and cord specified up to	1000 MHz

ISO/IEC 11801 Channel Insertion Loss & NEXT



ISO/IEC 11801 Channel Return Loss



ISO/IEC 29106

MICE Environmental Classification

	Class 1 (commercial office)	Class 2 (light industrial)	Class 3 (heavy industrial)
Mechanical	M₁	M₂	M₃
Ingress (IP rating)	I₁ ■	I₂	I₃
Climatic	C₁	C₂	C₃
Electromagnetic	E₁	E₂	E₃

- environmental classes may be mixed (eg M₁I₂C₃E₂)
- MICE requirements may be fulfilled by component choice and channel requirements met “by design”

ISO/IEC 14763-2

Cabling Planning & Installation

- **derived from worldwide industry best practices:**
 - IEC & ISO/IEC
 - CENELEC
 - TIA
 - BICSI
- **to complement ISO/IEC cabling design standards**
- **expected to become the definitive industry *handbook***
- **could be referenced in many tenders and contracts**

ISO/IEC 14763-2 Content & Structure

1. Scope
2. References
3. Definitions & Abbreviations
4. Conformance
5. Installation specification
6. Quality planning
7. Installation planning
8. Installation practices
9. Documentation & administration
10. Testing
11. Inspection
12. Operation
13. Maintenance
14. Repair

Annex A Multi-tenant premises

Annex B Pin-pair configuration & optical fibre polarity

Annex C Specific needs for ISO/IEC 11801 Office Cabling

Annex D Specific needs for ISO/IEC 15018 Home Cabling

Annex E Specific needs for ISO/IEC 24764 Data Centre Cabling

Annex F Specific needs for ISO/IEC 24702 Industrial Cabling

Annex G Specific needs for ISO/IEC 24704 WAP Cabling

Re-structuring of ISO/IEC Cabling Design Standards

- **ISO/IEC cabling standards re-structured into single family:**
- **ISO/IEC 11801-1 General Requirements (structure, dimensioning, channel)**
- **ISO/IEC 11801-2 Commercial Office Environment (unique aspects)**
- **ISO/IEC 11801-3 Industrial Environment (unique aspects)**
- **ISO/IEC 11801-4 Residential Environment (unique aspects)**
- **ISO/IEC 11801-5 Data Centre (unique aspects)**
- **ISO/IEC 11801-6 *for future use***

- **will be baseline spec for planned ISO/IEC 11801 3rd Edition**

Guidance on 40GBASE-T Cabling

Technical Report being developed with following scope:

1. Characterisation of a 25m channel with 2 connectors based on *legacy* Cat 6_A components to their existing upper frequency.
2. Characterisation of a 25/50m channels with 2 connectors based on *legacy* Cat 7_A components to their existing upper frequency.
3. Characterisation of a 50m channel with 2 connectors based on *improved* Cat 6_A components with an upper frequency of at least 1.6GHz (possibly extended to a maximum of 2GHz TBD).
4. Characterisation of a 50m channel with 2 connectors based on *improved* Cat 7_A components with an upper frequency of at least 1.6GHz (possibly extended to a maximum of 2GHz TBD).
5. Tutorials on expected channel capacity & other expected PHY-related aspects for all above.