

10GBASE-T Supported Cabling

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by

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Cabling Types & Distances (802.3an D2.1)

55m Cat 6 unshielded with no AXT mitigation
55-100m Cat 6 unshielded with AXT mitigation
100m Cat 6 shielded with no AXT mitigation

Cabling	Link segment length (max)	Cabling Reference
Class E/Cat 6	up to 100m ^a	ISO/IEC TR-24750/TIA TSB-155 D1.3
Class F	100m OK	ISO/IEC TR-24750
new Class E /Cat 6 Aug	100m OK	ISO/IEC 11801 Ed2.1/TIA 568-B.2-10 D1.4

^a see AXT-to-IL requirements

Are we being fair to our readers?

NO!

- **there is uncertainty concerning 55m unmitigated Cat 6 UTP**
- **there is sensitivity in making overt reference to screening**
- **802.3 has always stated supported cable types & distance**
 - » **twisted pair versions have exploited installed cabling**
 - » **generally oriented towards UTP, as this is worst case**
 - » **although.....100BASE-TX specifies 100m UTP + STP links**
- **unfair to expect readers to go elsewhere for fundamental data**
- **screened Class E is an obvious, high margin 100m solution**
- **we know this & the industry would not thank us for hiding it**

100m Class E/Cat 6 Feasibility

Flatman_2_0503

AXT measurements by Corning, Germany indicate >40dB advantage for Cat 6 cable with overall foil+braid compared with UTP

Cohen_2_0503

AXT measurements of screened Cat 5e cable showing that >10Gbit/s possible

Vaden_1_0903

presentation of robust 10GBASE-T link segment based on screened Cat 6 system

Dove_1_0304

FTP cabling system proposed to give good AXT isolation for 10GBASE-T

Kasturia_2_0304

screened Class E featured for existing and future installations, as meeting the high-end (100m) objective for 10GBASE-T

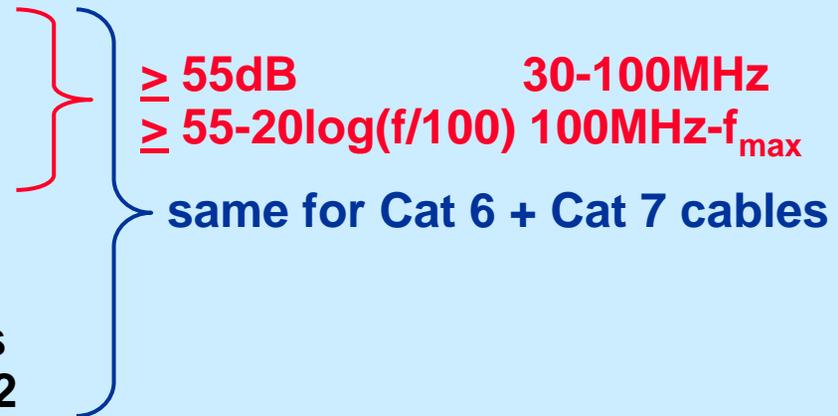
Screening Standards

ISO/IEC 11801: 2002

9.2.2.7 Cable Coupling Attenuation:
refer to 3.3.9 of IEC 61156-5: 2002, with
additional requirement, that for screened
Cables, Type II shall be met

9.2.2.8 Cable Transfer Impedance:
screened cables shall meet requirements
of Grade 2 in Table 2 of IEC 61156-5: 2002

10.2.4 Connector Transfer Impedance:
specified for screened Cat 6 connectors
Reference made to IEC 60603-7-5



Market Issues

- **screened Class E products have been launched by major suppliers as “10GBASE-T ready”**
- **substantial installed base of ISO/IEC-compliant screened Class E cabling (expected to be 100% re-usable)**
- **no significant cost or installation issues associated with screened Class E systems today**
- **specification of new Class E components and supporting test methods are expected to take some considerable time**

Proposed Cable Table

Table 55-8 Cabling Types and Distances

Cabling	AXT Mitigation	Max Distance	Cabling References
Class E screened	not required	100m	ISO/IEC TR-24750
Class E unscreened	not required	55m	ISO/IEC TR-24750
Cat 6 unscreened	not required	55m	TIA/EIA TSB-155
Class E unscreened	required	100m	ISO/IEC TR-24750
Cat 6 unscreened	required	100m	TIA/EIA TSB-155
Class F (screened)	not required	100m	ISO/IEC TR-24750
new Class E unscreened	not required	100m	ISO/IEC 11801 Ed 2.1
Augmented Cat 6 (unscreened)	not required	100m	TIA/EIA-568-B.2-10