

ISO/IEC SC25/WG3 Meeting

Edinburgh, UK: 26-30 September 2005

- Structured Cabling Systems -

report for IEEE 802.3an by Alan Flatman

Items

- TR-24750 10GBASE-T Cabling forwarded as a PDTR (25N1104 posted)
- ISO/IEC 11801 Edition 2.1 new Class E + F forwarded as a FPDAM (25N1096 posted)
- EM performance requirements now mature
- new Data Centre Cabling project initiated



62 Participants

18 Nations

ISO/IEC TR-24750

Installed Class E/F to Support 10GBASE-T

- Technical Reports created as *industry guides*
- TR will define channel only, not components
- TR contains alien crosstalk mitigation methods
- TR will reference AXT test methods, if available
- being circulated as Proposed Draft TR (PDTR)
- planned to go to DTR in Feb 2006 for 3m vote
 - no technical changes permitted at DTR stage
- mirrors technical requirements of 802.3an D2.3
- **currently compatible with TIA/EIA TSB-155**

ISO/IEC 11801 Edition 2.1

New Class E & Class F Cabling

- 11801 Ed 2.1 will define channel + components
- better than existing Class E + Class F cabling
- intent to meet AXT requirements “by design”
- initial spec defines channel, components later
- circulated as Final Proposed Draft Am (FPDAM)
- planned to go to DAM in Feb 2006 for 2m vote
 - no technical changes permitted at DAM stage
- captures technical requirements of 802.3an D2.3
- **technically different to TIA “Cat 6 Augmented”**

ISO/IEC 11801 Edition 2.1

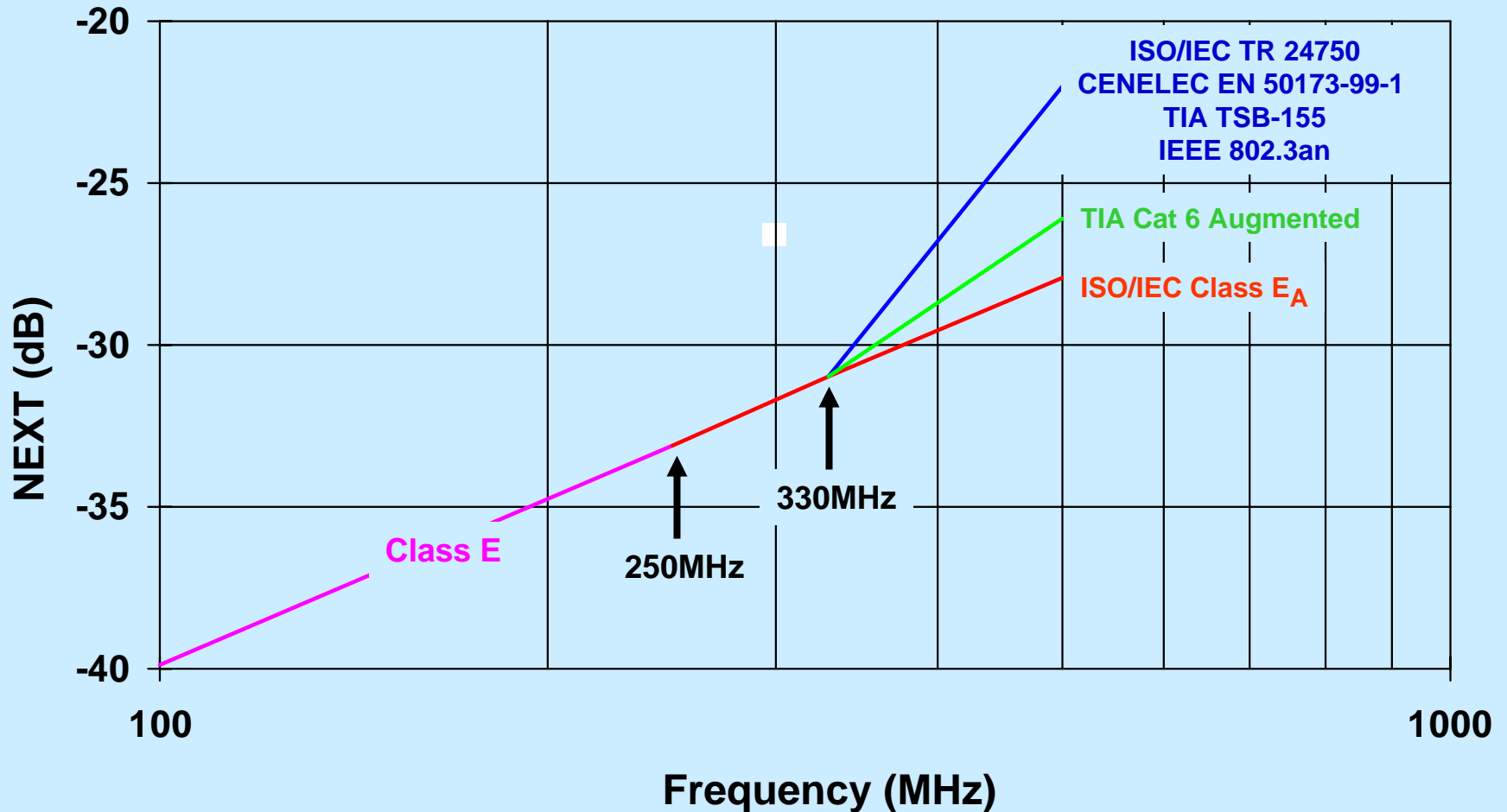
New Class E & Class F Cabling Names

Existing channels unchanged as Class E, Class F
Existing components unchanged as Cat 6, Cat 7

New channels to be Class E_A, Class F_A
New components to be Cat 6_A, Cat 7_A

Channel Parameter	Installed Class E+F PDTR	Class E _A FPDAM	Class F _A FPDAM
Return Loss	Ed.2 RL extrapolated to 500 MHz + 6dB plateau	Ed.2 RL extrapolated to 500 MHz + 8dB plateau @ 251.2 MHz	Ed.2 RL extrapolated to 1000 MHz + 8dB plateau @ 251.2 MHz
Insertion Loss	Ed.2 Class E IL extrapolated to 500 MHz	Ed.2 Class F IL extrapolated to 500 MHz	$1.05(1.8\sqrt{f})+0.005(f)+0.25/\sqrt{f}) + 4 \times 0.02\sqrt{f}$
NEXT	Ed.2 Class E NEXT extrapolated to 330 MHz, $31-50\log(f/330)$ in range 330-500 MHz	Ed.2 Class E NEXT extrapolated to 500 MHz	Ed.2 Class F NEXT extrapolated to 1000 MHz with values >600 MHz “ffs”
PSNEXT	Ed.2 Class E NEXT extrapolated to 330 MHz, $28-42\log(f/330)$ in range 330-500 MHz	Ed.2 Class E NEXT extrapolated to 500 MHz	Ed.2 Class F NEXT extrapolated to 1000 MHz with values >600 MHz “ffs”
ELFEXT	Ed.2 Class E ELFEXT extrapolated to 500 MHz	Ed.2 Class E ELFEXT extrapolated to 500 MHz	Ed.2 Class F ELFEXT extrapolated to 1000 MHz with values >600 MHz “ffs”
PSELFEXT	Ed.2 Class E ELFEXT extrapolated to 500 MHz	Ed.2 Class E ELFEXT extrapolated to 500 MHz	Ed.2 Class F ELFEXT extrapolated to 1000 MHz with values >600 MHz “ffs”
PSANEXT	$27.48+IL_{(250)}/1.04-10\log(f/100)$ 1-100 MHz $27.48+IL_{(250)}/1.04-15\log(f/100)$ 100-500 MHz	$80-10\log(f)$ 1-100 MHz $90-15\log(f)$ 100-500 MHz	$95-10\log(f)$ 1-100 MHz $105-15\log(f)$ 100-1000 MHz currently marked as “ffs”
PSAELFEXT	$22.22+IL_{(250)}/2.29-20\log(f/100)$ 1-500 MHz $-10\log(L/100)$ 1-500 MHz	$77-20\log(f)$ 1-500 MHz	$92-20\log(f)$ 1-1000 MHz currently marked as “ffs”

ISO/IEC vs CENELEC vs TIA vs IEEE 802.3an Channel NEXT values (Oct 2005)



Balanced Cabling EM Performance E₁

		unscreened	screened
Balance (dB)	TCL Class D Class E, E _A , F, F _A	1MHz to max f for Class 40-10log(f) 60-20log(f)	not specified
	ELTCTL Class E, E _A , F, F _A	1-30MHz 30-20log(f)	not specified
EM attenuation (dB)	screening attenuation	not applicable	not specified
	coupling attenuation Class D, E, E _A , F, F _A	not specified	30 30- 100MHz 70-20log(f) 100-1000MHz

Balanced Cabling EM Performance E₂

		unscreened	screened
Balance (dB)	TCL Class D Class E, E _A , F, F _A	1MHz to max f for Class 70-20log(f) 70-20log(f)	not specified
	ELTCTL Class E, E _A , F, F _A	1-30MHz 40-20log(f)	not specified
EM attenuation (dB)	screening attenuation	not applicable	not specified
	coupling attenuation Class D, E, E _A , F, F _A	not specified	40 30- 100MHz 80-20log(f) 100-1000MHz

Balanced Cabling EM Performance E₃

		unscreened	screened
Balance (dB)	TCL Class D Class E, E _A , F, F _A	1MHz to max f for Class 80-20log(f) 80-20log(f)	not specified
	ELTCTL Class E, E _A , F, F _A	1-30MHz 50-20log(f)	not specified
EM attenuation (dB)	screening attenuation	not applicable	not specified
	coupling attenuation Class D, E, E _A , F, F _A	not specified	50 30- 100MHz 90-20log(f) 100-1000MHz

Future Meetings

ISO/IEC SC25 WG3	06-10 Feb 2006	Buenos Aires
ISO/IEC SC25 WG3	18-21 Sep 2006	Berlin
ISO/IEC SC25 Plenary	22 Sep 2006	Berlin