

OVERVIEW TIA SPECIFICATIONS
May 22, 2000

TIA/EIA-568A Cat 5 as in TSB-95, with assumptions in []

Cat 5, TIA/EIA-568A, TSB-95, Cable									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return L Patch
1	2.0	62.3	60.3			[60.8]		[17.0]	
4	4.1	53.3	49.2			[48.7]		[18.8]	
8	5.8	48.8	43.0			[42.7]		[19.7]	
10	6.5	47.3	40.8			[40.8]		[20.0]	
16	8.2	44.3	36.0			[36.7]		[20.0]	
20	9.3	42.8	33.5			[34.7]		[20.0]	
25	10.4	41.3	30.9			[32.8]		[19.3]	
31.25	11.7	39.9	28.2			[30.9]		[18.6]	
62.5	17.0	35.4	18.4			[24.8]		[16.5]	
100	22.0	32.3	10.3			[20.8]		[15.1]	
All values are in dB									

Cat 5, TIA/EIA-568A, TSB-95, Connecting Hardware									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	0.0	80.1				[72.1]		23.0	
4	0.1	68.0				[60.1]		23.0	
8	0.1	62.0				[54.0]		23.0	
10	0.1	60.1				[52.1]		23.0	
16	0.2	56.0				[48.0]		23.0	
20	0.2	54.1				[46.1]		23.0	
25	0.2	52.1				[44.1]		14.0	
31.25	0.2	50.2				[42.2]		14.0	
62.5	0.3	44.2				[36.2]		14.0	
100	0.4	40.1				[32.1]		14.0	
All values are in dB									

Notes:

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TIA/EIA-568A Cat 5 as in TSB-95, with assumptions in []

Cat 5, TSB-67, TSB-95, Channel									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	2.2	60.0	57.8			57.0	54.4	15.0	
4	4.5	50.6	46.1			45.0	42.4	15.0	
8	6.3	45.6	39.3			38.9	36.3	15.0	
10	7.1	44.0	36.9			37.0	34.4	15.0	
16	9.1	40.6	31.6			32.9	30.3	15.0	
20	10.2	39.0	28.8			31.0	28.4	15.0	
25	11.4	37.4	26.0			29.0	26.4	14.0	
31.25	12.9	35.7	22.9			27.1	24.5	13.1	
62.5	18.6	30.6	12.0			21.1	18.5	10.1	
100	24.0	27.1	3.1			17.0	14.4	8.0	
All values are in dB									

Cat 5, TSB-67, TSB-95, Basic Link									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	2.0	60.0	58.0			57.0	54.4	15.0	
4	4.0	51.8	47.8			45.0	42.4	15.0	
8	5.7	47.1	41.4			38.9	36.3	15.0	
10	6.4	45.5	39.1			37.0	34.4	15.0	
16	8.1	42.3	34.1			32.9	30.3	15.0	
20	9.1	40.7	31.6			31.0	28.4	15.0	
25	10.3	39.1	28.9			29.0	26.4	14.3	
31.25	11.6	37.6	26.0			27.1	24.5	13.6	
62.5	16.7	32.7	15.9			21.1	18.5	11.5	
100	21.6	29.3	7.7			17.0	14.4	10.1	
All values are in dB									

Notes:

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TIA/EIA-568A Cat 5e as in Addendum #5 with assumptions in []

Enhanced Cat 5 Cable (Addendum #5 to TIA/EIA-568A)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return Loss Patch Cable
1	2.0	65.3	63.3	62.3	60.3	63.8	60.8	20.0	20.0
4	4.1	56.3	52.2	53.3	49.2	51.7	48.7	23.0	23.0
8	5.8	51.8	46.0	48.8	43.0	45.7	42.7	24.5	24.5
10	6.5	50.3	43.8	47.3	40.8	43.8	40.8	25.0	25.0
16	8.2	47.3	39.0	44.3	36.0	39.7	36.7	25.0	25.0
20	9.3	45.8	36.5	42.8	33.5	37.7	34.7	25.0	25.0
25	10.4	44.3	33.9	41.3	30.9	35.8	32.8	24.3	24.2
31.25	11.7	42.9	31.2	39.9	28.2	33.9	30.9	23.6	23.3
62.5	17.0	38.4	21.4	35.4	18.4	27.8	24.8	21.5	20.7
100	22.0	35.3	13.3	32.3	10.3	23.8	20.8	20.1	19.0
All values are in dB									

Enhanced Cat 5 Connecting Hardware (Addendum #5 to TIA/EIA-568A)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	0.0	83.0		[80.0]		75.1	[72.1]	35.0	
4	0.1	71.0		[68.0]		63.1	[60.1]	35.0	
8	0.1	64.9		[61.9]		57.0	[54.0]	35.0	
10	0.1	63.0		[60.0]		55.1	[52.1]	35.0	
16	0.2	58.9		[55.9]		51.0	[48.0]	35.0	
20	0.2	57.0		[54.0]		49.1	[46.1]	34.0	
25	0.2	55.0		[52.0]		47.1	[44.1]	32.0	
31.25	0.2	53.1		[50.1]		45.2	[42.2]	30.1	
62.5	0.3	47.1		[44.1]		39.2	[36.2]	24.1	
100	0.4	43.0		[40.0]		35.1	[32.1]	20.0	
All values are in dB									

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TIA/EIA-568A Cat 5e as in Addendum #5 with assumptions in []

Enhanced Cat 5 Channel (Addendum #5 to TIA/EIA-568A)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	2.2	60.0	57.8	57.0	54.8	57.4	54.4	17.0	
4	4.5	53.6	49.1	50.6	46.1	45.3	42.4	17.0	
8	6.3	48.6	42.3	45.6	39.3	39.3	36.3	17.0	
10	7.1	47.0	39.9	44.0	36.9	37.4	34.4	17.0	
16	9.1	43.6	34.5	40.6	31.5	33.3	30.3	17.0	
20	10.2	42.0	31.8	39.0	28.8	31.4	28.4	17.0	
25	11.4	40.4	28.9	37.4	25.9	29.4	26.4	16.0	
31.25	12.9	38.7	25.9	35.7	22.9	27.5	24.5	15.1	
62.5	18.6	33.6	15.0	30.6	12.0	21.5	18.5	12.1	
100	24.0	30.1	6.1	27.1	3.1	17.4	14.4	10.0	
All values are in dB									

Enhanced Cat 5 Basic Link (Addendum #5 to TIA/EIA-568A)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return Loss Patch Cord
1	2.0	60.0	58.0	57.0	55.0	60.0	57.0	17.0	25.0
4	4.0	54.8	50.8	51.8	47.8	48.0	45.0	17.0	25.0
8	5.7	50.0	44.4	47.0	41.4	41.9	38.9	17.0	25.0
10	6.4	48.5	42.1	45.5	39.1	40.0	37.0	17.0	25.0
16	8.1	45.2	37.1	42.2	34.1	35.9	32.9	17.0	25.0
20	9.1	43.7	34.5	40.7	31.5	34.0	31.0	17.0	25.0
25	10.3	42.1	31.8	39.1	28.8	32.0	29.0	16.3	24.0
31.25	11.6	40.6	29.0	37.6	26.0	30.1	27.1	15.6	23.1
62.5	16.7	35.7	18.9	32.7	15.9	24.1	21.1	13.5	20.1
100	21.6	32.3	10.7	29.3	7.7	20.0	17.0	12.1	18.0
All values are in dB									

Notes:

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TIA/EIA-568B Cat 5e as in draft 6.0 of B.2 with assumptions in []

Enhanced Cat 5 Cable (TIA/EIA-568B.2)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return Loss Patch Cable
1	2.0	65.3	63.3	62.3	60.3	63.8	60.8	20.0	20.0
4	4.1	56.3	52.2	53.3	49.2	51.7	48.7	23.0	23.0
8	5.8	51.8	46.0	48.8	43.0	45.7	42.7	24.5	24.5
10	6.5	50.3	43.8	47.3	40.8	43.8	40.8	25.0	25.0
16	8.2	47.3	39.0	44.3	36.0	39.7	36.7	25.0	25.0
20	9.3	45.8	36.5	42.8	33.5	37.7	34.7	25.0	25.0
25	10.4	44.3	33.9	41.3	30.9	35.8	32.8	24.3	24.2
31.25	11.7	42.9	31.2	39.9	28.2	33.9	30.9	23.6	23.3
62.5	17.0	38.4	21.4	35.4	18.4	27.8	24.8	21.5	20.7
100	22.0	35.3	13.3	32.3	10.3	23.8	20.8	20.1	19.0
All values are in dB									

Enhanced Cat 5 Connecting Hardware (TIA/EIA-568B.2)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	0.1	83.0		[80.0]		75.1	[72.1]	30.0	
4	0.1	71.0		[68.0]		63.1	[60.1]	30.0	
8	0.1	64.9		[61.9]		57.0	[54.0]	30.0	
10	0.1	63.0		[60.0]		55.1	[52.1]	30.0	
16	0.2	58.9		[55.9]		51.0	[48.0]	30.0	
20	0.2	57.0		[54.0]		49.1	[46.1]	30.0	
25	0.2	55.0		[52.0]		47.1	[44.1]	30.0	
31.25	0.2	53.1		[50.1]		45.2	[42.2]	30.0	
62.5	0.3	47.1		[44.1]		39.2	[36.2]	24.1	
100	0.4	43.0		[40.0]		35.1	[32.1]	20.0	
All values are in dB									

Notes: Requirements for cable and connecting hardware are identical to those in Addendum #5 to TIA/EIA-568A.

OVERVIEW TIA SPECIFICATIONS
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TIA/EIA-568B Cat 5e as in draft 8.0 of B.1 with assumptions in []

Enhanced Cat 5 Channel (TIA/EIA-568B.1)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	2.5	60.0	57.5	57.0	54.5	57.4	54.4	17.0	
4	4.5	53.5	49.0	50.6	46.1	45.3	42.4	17.0	
8	6.3	48.6	42.3	45.6	39.3	39.3	36.3	17.0	
10	7.1	47.0	39.9	44.0	36.9	37.4	34.4	17.0	
16	9.1	43.6	34.5	40.6	31.5	33.3	30.3	17.0	
20	10.2	42.0	31.8	39.0	28.8	31.4	28.4	17.0	
25	11.4	40.3	28.9	37.4	25.9	29.4	26.4	16.0	
31.25	12.9	38.7	25.9	35.7	22.9	27.5	24.5	15.1	
62.5	18.6	33.6	15.0	30.6	12.0	21.5	18.5	12.1	
100	24.0	30.1	6.1	27.1	3.1	17.4	14.4	10.0	
All values are in dB									

Enhanced Cat 5 Permanent Link (TIA/EIA-568B.1)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return Loss Patch Cord
1	2.1	60.0	57.9	57.0	54.9	58.6	55.6	19.0	25.0
4	3.9	54.8	50.9	51.8	47.9	46.5	43.5	19.0	25.0
8	5.5	50.0	44.5	47.0	41.5	40.5	37.5	19.0	25.0
10	6.2	48.5	42.3	45.5	39.3	38.6	35.6	19.0	25.0
16	7.9	45.2	37.3	42.2	34.3	34.5	31.5	19.0	25.0
20	8.9	43.7	34.8	40.7	31.8	32.6	29.6	19.0	25.0
25	10.0	42.1	32.1	39.1	29.1	30.6	27.6	18.0	24.0
31.25	11.2	40.5	29.3	37.6	26.3	28.7	25.7	17.1	23.1
62.5	16.2	35.7	19.4	32.7	16.4	22.7	19.7	14.1	20.1
100	21.0	32.3	11.3	29.3	8.3	18.6	15.6	12.0	18.0
All values are in dB									

Notes: Requirements for the channel test configuration are identical to those in Addendum #5 to TIA/EIA-568A. The permanent link test requirements replace those for the basic link in TIA/EIA-568B.

OVERVIEW TIA SPECIFICATIONS
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TIA/EIA-568B Cat 6 as in Addendum #1 with assumptions in []

Cat 6 Cable (Addendum #1 to TIA/EIA-568B)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return L stranded
1	2.0	74.3	72.3	72.3	70.3	67.8	64.8	20.0	20.0
4	3.8	65.3	61.5	63.3	59.5	55.8	52.8	23.0	23.0
8	5.3	60.8	55.4	58.8	53.4	49.7	46.7	24.5	24.5
10	6.0	59.3	53.3	57.3	51.3	47.8	44.8	25.0	25.0
16	7.6	56.2	48.7	54.2	46.7	43.7	40.7	25.0	25.0
20	8.5	54.8	46.3	52.8	44.3	41.8	38.8	25.0	25.0
25	9.5	53.3	43.8	51.3	41.8	39.8	36.8	24.3	24.2
31.25	10.7	51.9	41.2	49.9	39.2	37.9	34.9	23.6	23.3
62.5	15.4	47.4	32.0	45.4	30.0	31.9	28.9	21.5	20.7
100	19.8	44.3	24.5	42.3	22.5	27.8	24.8	20.1	19.0
125	22.4	42.8	20.5	40.8	18.5	25.9	22.9	19.4	18.2
200	29.0	39.8	10.8	37.8	8.8	21.8	18.8	18.0	16.4
250	32.8	38.3	5.5	36.3	3.5	19.8	16.8	17.3	15.6
All values are in dB									

Cat 6 Connecting Hardware (Addendum #1 to TIA/EIA-568B)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	0.0	94.0		[90.0]		83.1	[80.1]	30.0	
4	0.0	82.0		[78.0]		71.1	[68.1]	30.0	
8	0.1	75.9		[71.9]		65.0	[62.0]	30.0	
10	0.1	74.0		[70.0]		63.1	[60.1]	30.0	
16	0.1	69.9		[65.9]		59.0	[56.0]	30.0	
20	0.1	68.0		[64.0]		57.1	[54.1]	30.0	
25	0.1	66.0		[62.0]		55.1	[52.1]	30.0	
31.25	0.1	64.1		[60.1]		53.2	[50.2]	30.0	
62.5	0.2	58.1		[54.1]		47.2	[44.2]	28.1	
100	0.2	54.0		[50.0]		43.1	[40.1]	24.0	
125	0.2	52.1		[48.1]		41.2	[38.2]	22.1	
200	0.3	48.0		[44.0]		37.1	[34.1]	18.0	
250	0.3	46.0		[42.0]		35.1	[32.1]	16.0	
All values are in dB									

Notes:

OVERVIEW TIA SPECIFICATIONS
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TIA/EIA-568B Cat 6 as in Addendum #1 with assumptions in []

Cat 6 Channel (Addendum #1 to TIA/EIA-568B)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	Return Loss Patch Cord
1	2.1	65.0	62.9	62.0	59.9	63.3	60.3	19.0	25.0
4	4.0	63.0	59.0	60.5	56.5	51.2	48.2	19.0	25.0
8	5.7	58.2	52.5	55.6	49.9	45.2	42.2	19.0	25.0
10	6.3	56.6	50.2	54.0	47.7	43.3	40.3	19.0	25.0
16	8.0	53.2	45.2	50.6	42.5	39.2	36.2	19.0	25.0
20	9.0	51.6	42.6	49.0	39.9	37.2	34.2	19.0	25.0
25	10.1	50.0	39.9	47.3	37.2	35.3	32.3	18.0	24.0
31.25	11.4	48.4	37.0	45.7	34.3	33.4	30.4	17.1	23.1
62.5	16.5	43.4	26.9	40.6	24.1	27.3	24.3	14.1	20.1
100	21.3	39.9	18.6	37.1	15.8	23.3	20.3	12.0	18.0
125	24.1	38.3	14.2	35.4	11.3	21.3	18.3	11.0	17.0
200	31.5	34.8	3.2	31.9	0.3	17.2	14.2	9.0	15.0
250	36.0	33.1	-2.8	30.2	-5.8	15.3	12.3	8.0	14.0
All values are in dB									

Cat 6 Permanent Link (Addendum #1 to TIA/EIA-568B)									
Frequency (MHz)	Insertion loss	NEXT pp	ACR pp	NEXT ps	ACR ps	ELFEXT pp	ELFEXT ps	Return Loss	
1	1.9	65.0	63.1	62.0	60.1	64.2	61.2	19.0	
4	3.5	64.1	60.6	61.8	58.3	52.1	49.1	19.0	
8	5.0	59.4	54.4	57.0	52.1	46.1	43.1	19.0	
10	5.6	57.8	52.3	55.5	49.9	44.2	41.2	19.0	
16	7.0	54.6	47.6	52.2	45.2	40.1	37.1	19.0	
20	7.9	53.1	45.2	50.7	42.8	38.2	35.2	19.0	
25	8.9	51.5	42.7	49.1	40.2	36.2	33.2	18.3	
31.25	10.0	50.0	40.0	47.5	37.6	34.3	31.3	17.6	
62.5	14.4	45.1	30.8	42.7	28.3	28.3	25.3	15.5	
100	18.5	41.8	23.4	39.3	20.8	24.2	21.2	14.1	
125	20.9	40.3	19.4	37.7	16.8	22.3	19.3	13.4	
200	27.1	36.9	9.9	34.3	7.2	18.2	15.2	12.0	
250	30.7	35.3	4.6	32.7	2.0	16.2	13.2	11.3	
All values are in dB									

Notes: