



Summary of Isolation Requirements

802.3-2015, Clause 126, & Clause 145 D3.0

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August 17, 2017

Isolation Requirements & Discrepancies

	Isolation from all MDI leads to	AC & DC tests			Impulse test			Pass/Fail criteria	
		Vrms	Vdc	Test method	Wave shape	Application	Defined	During	After
10BASE-T (w/o PI) (14.3.1.1)	DTE Physical Layer circuits including frame ground	1500V	2250V	5.2.2 of IEC 60950-1:2001	2400V 1.2/50 μs	10 of alternating polarity	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
10BASE-T (w/ PI) (33.4.1)	all accessible external conductors, including frame ground (if any) [Accessible external conductors are specified in subclause 6.2.1 b) of IEC 60950-1:2001]	1500V	2250V	5.2.2 of IEC 60950-1:2001	1500V 10/700 μs	10 times	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
100BASE-TX (w/o PI) (25.4.6)	frame ground	1500V	2250V	5.2.2 of IEC 60950-1:2001	2400V 1.2/50 μs	10 of alternating polarity	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
100BASE-TX (w/ PI) (33.4.1)	all accessible external conductors, including frame ground (if any) [Accessible external conductors are specified in subclause 6.2.1 b) of IEC 60950-1:2001]	1500V	2250V	5.2.2 of IEC 60950-1:2001	1500V 10/700 μs	10 times	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
1000BASE-T (w/o PI) (40.6.1.1)	port device circuits, including frame ground (if any)	1500V	2250V	5.2.2 of IEC 60950-1:2001	2400V 1.2/50 μs	10 of alternating polarity	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
1000BASE-T (w/ PI) (33.4.1)	all accessible external conductors, including frame ground (if any) [Accessible external conductors are specified in subclause 6.2.1 b) of IEC 60950-1:2001]	1500V	2250V	5.2.2 of IEC 60950-1:2001	1500V 10/700 μs	10 times	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc

Isolation Requirements & Discrepancies (cont.)

	Isolation from all MDI leads to	AC & DC tests			Impulse test			Pass/Fail criteria	
		Vrms	Vdc	Test method	Wave shape	Application	Defined	During	After
10GBASE-T (w/o PI) (55.5.1)	port device circuits, including frame ground (if any)	1500V	2250V	5.2.2 of IEC 60950-1:2001	2400V 1.2/50 μs	10 of alternating polarity	Annex N of IEC 60950-1:2001	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
10GBASE-T (w/ PI) (N/A)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.5GBASE-T & 5GBASE-T (w/o PI) (126.5.1)	port device circuits, including frame ground (if any)	1500V	2250V	5.2.2 of IEC 60950-1:2001	2400V 1.2/50 μs	10 of alternating polarity	Annex N of IEC 60950-1:2001	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
2.5GBASE-T & 5GBASE-T (w/ PI) (N/A)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DTE Power via MDI (33.4.1)	all accessible external conductors, including frame ground (if any) [Accessible external conductors are specified in subclause 6.2.1 b) of IEC 60950-1:2001]	1500V	2250V	5.2.2 of IEC 60950-1:2001	1500V 10/700 μs	10 times	IEC 60950-1:2001 Annex N	no insulation breakdown per 5.2.2 of IEC 60950-1:2001	resistance shall be at least 2 MΩ, measured at 500 V dc
PoE over 4 Pairs (145.4.1-D3.0)	all accessible external conductors, including frame ground (if any) [Accessible external conductors are specified in subclause 6.2.1 b) of IEC 60950-1 and subclause 5.4.10.1 b) of IEC 62368-1]	1500V	2250V	5.2.2 of IEC 60950-1 or 5.4.9 of IEC 62368-1	1500V 10/700 μs	10 times	IEC 60950-1 Annex N or 5.4.10 of IEC 62368-1	no insulation breakdown per 5.2.2 of IEC 60950-1 or 5.4.9 of IEC 62368-1	resistance shall be at least 2 MΩ, measured at 500 V dc

