

# Updated proposal Electrical Parameters of DME (Comment 547)

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**NVIDIA** 

January 2025 802.3dj Interim meeting







#### • Proposed update Electrical Parameters of DME

# References

 Shared Jan 9<sup>th</sup> 802.3dj Optics Joint with Electrical and Logic ad hoc <u>https://www.ieee802.org/3/dj/public/adhoc/optics/0125\_OPTX/simms\_3dj\_optx\_02a\_250109.pdf</u>



#### CI 73 SC 73.5.1

#### Dawe, Piers

#### Comment Type TR

The ancient "DME electrical characteristics" table needs updating. Compare the proposed default preset to start training: 800 to 1000 \*0.75 +/-0.025 which is 580 to 775 mV, the traditional C2M max, 900 mV, and the XLPPI max, 850 mV.

#### SuggestedRemedy

Bring Table 73-1, DME electrical characteristics, into the draft. It contains: Transmit differential peak-to-peak output voltage 600 to 1200 mV Receive differential peak-to-peak input voltage 200 to 1200 mV. Add two more rows, for anything capable of 200G/lane: Transmit differential peak-to-peak output voltage 600 to 900 mV Receive differential peak-to-peak input voltage 200 to 1000 mV. Recommend that new product should comply to the newer limits, except product that only does 1000BASE-KX and/or 10GBASE-KX4 whose output should be 600 to 1000 mV (so they don't have to change voltage swing when going from AN to regular mode - their min is 800 mV). If the recommendation has to go through maintenance, add an editor's note "It has been proposed that" to gather feedback and build consensus.

# **Review of Comment 547**

#### P118

#### L 38

#### Nvidia

#### Comment Status D

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#### AN DME swing



# Updated proposed change to Table 73-1 as discussed Jan 20th To address DME during AN

Propose change to 73-1 to decrease max value from 1200 to 1000mV for 200G/lane links and higher

#### Table 73-1 DME electrical characteristics

Parameter

Transmit differential peak-to-peak output Receive differential peak-to-peak output

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		Max Value PHY	Max Value PHY	
	Min Value	≥200Gbps per	≤100Gbps per	Units
		Lane	Lane	
ıt voltage	600	1000	1200	mV
tvoltage	200	1000	1200	mV



# **Review of DME discussion on Jan 20<sup>th</sup>**

- Draft 1.3 reduced Vf from 0.6V to 0.5V for 200G/Lane devices
- - Suggestion to reduce only for 200G/Lane devices
  - Make new limit forward looking: for 200G/Lane and higher rates
- Current table shown

#### Table 73–1—DME electrical characteristics

#### Parameter

Transmit differential peak-to-peak output voltage

Receive differential peak-to-peak input voltage

• Suggestion to reduce DME differential peak-to-peak output voltage from 1200mV to 1000mV to align • Out of scope due to backward compatibility (requires Maintenance to update)

• Discussion to reduce for TX only (This proposal still has both reduced for now)

• AUIs do not use transmit AN but CR and C2M share the same connector styles so interconnection between them is likely

Value	Units
600 to 1200	mV
200 to 1200	mV



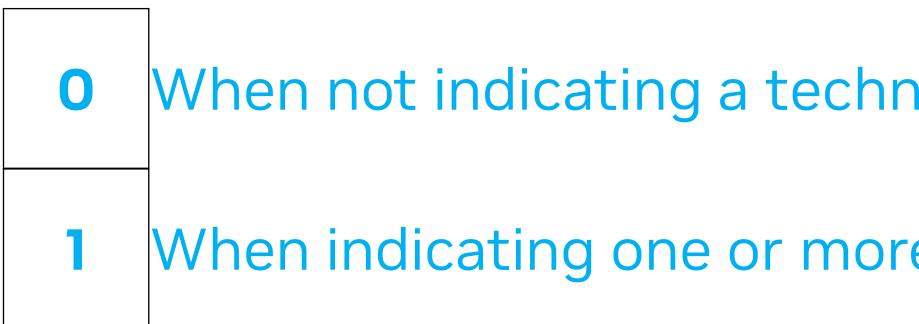
# Updated proposed change to Table 73-1 The Extended Technology Ability Field in Table 73A–1a is for 200G/lane CR and KR

### **Table 73-1 DME electrical characteristics**

### Black existing: Blue proposal

Parameter

### Transmit differential peak-to-pea **Receive differential peak-to-pea**



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	Techn	ology Ability	Group	Units
	All	0	1	
	Min Value	Max Value	Max Value	
eak output voltage	600	1200	1000	mV
ak output voltage	200	1200	1200	mV

When not indicating a technology in the Extended Technology Ability Field

When indicating one or more technologies in the Extended Technology Ability Field





# Thank You









# Backup







# Updated proposed change to Table 73-1 The Extended Technology Ability Field in Table 73A–1a is for 200G/lane CR and KR

### **Table 73-1 DME electrical characteristics**

### Black existing: Blue proposal

Parameter

### Transmit differential peak-to-pea **Receive differential peak-to-pea**

0	When indicating one or more technology in the Extended
1	When indicating one or more technologies in the Extended
2	When indicating one or more indicating a technology in the technology in tec

		Fechnology A	bility Group		Units
	All	0	1	2	
	Min Value	Max Value	Max Value	Max Value	
eak output voltage	600	1200	1000	1000	mV
ak output voltage	200	1200	1200	1000	mV

- re technologies in the Technology Ability Field and not indicating a Technology Ability Field
- re technologies in the Technology Ability Field and one or more ed Technology Ability Field
- re technologies in the Extended Technology Ability Field and not he Technology Ability Field
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# Alternate Proposal: Proposed change to Table 73-1 The Extended Technology Ability Field in Table 73A–1a is for 200G/lane CR and KR

- Addresses the details of the comment
- Black Existing: Blue Proposal : Purple: May involve Maintenance

#### Parameter

### Transmit differential peak-to-peak Receive differential peak-to-peak

0	When indicating one or m
	in the Extended Technolog
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	technology in the Technol
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		Techn	ology Ability	Group		Units
	AII	0	1	2	3	
	Min Value	Max Value	Max Value	Max Value	Max Value	
k output voltage	600	1200	1000	900	900	mV
k output voltage	200	1200	1200	1200	1000	mV

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- ore technologies in the Technology Ability Field and one or more technologies gy Ability Field
- ore technologies in the Extended Technology Ability Field ore technologies in the Extended Technology Ability Field and not indicating a logy Ability Field
- plementations that indicate 1000BASE-KX and/or 10GBASE-KX4 ability but no chnology Ability Field, follow the limits of Technology Ability Group 1 plementations that do not indicate 1000BASE-KX or 10GBASE-KX4 ability ded Technology Ability Field follow the limits of Technology Ability Group 2
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# **Alternate 1: Black: existing Blue: proposed (different table layout)** The Extended Technology Ability Field in Table 73A–1a is for 200G/lane CR and KR

### Parameter

Transmit differential peak-to Receive differential peak-to-

Transmit differential peak-to Receive differential peak-to-

0	When indicating one or technology in the External
1	When indicating one or
	technologies in the Ext
2	When indicating one or
	indicating a technology

	Val	lue					Units
to-peak output voltage	600 tc	) 1200					mV
o-peak input voltage	200 tc	1200					mV
		Techn	ology A	<b>bility</b> G	iroup		
	(	)	-			2	
	Min	Max	Min	Max	Min	Max	
to-peak output voltage	600	1200	600	1000	600	1000	mV
o-peak input voltage	200	1200	200	1200	200	1000	mV

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### **Alternate 3: Black: existing** Blue: alt. proposal, alt. layout Purple: may involve maintenance

#### Parameter

Transmit differential peak-to-pe Receive differential peak-to-pea

Transmit differential peak-to-pe Receive differential peak-to-pea

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	in the Extended Technolog
1	When indicating one or m
	in the Extended Technolog
2	When indicating one or m
3	When indicating one or m
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or an	y technology in the Extend
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The Extended Technology Ability Field in Table 73A–1a is for 200G/lane CR and KR

Units							lue	Va	
mV							) 1200	600 to	beak output voltage
mV							) 1200	200 to	eak input voltage
			Group	oility	ogy Ab	hnolo	Tec		
	3		2		1			C	
X	n Max	Min	Max	Min	Max	Min	Max	Min	
<mark>0</mark> mV	0 <mark>900</mark>	600	<mark>900</mark>	600	1000	600	1200	600	beak output voltage
00 mV	0 1000	200	1200	200	1200	200	1200	200	eak input voltage
)	0 90	<b>Min</b> 600	2 Max 900	Min 600	1 Max 1000	Min 600	) Max 1200	Min 600	

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logy Ability Field

plementations that indicate 1000BASE-KX and/or 10GBASE-KX4 ability but no chnology Ability Field, follow the limits of Technology Ability Group 1 plementations that do not indicate 1000BASE-KX or 10GBASE-KX4 ability ded Technology Ability Field follow the limits of Technology Ability Group 2

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