

# BELDEN 1886ENH

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## Lightware Testing Lab

### Cable Testing Method

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## Professional Cable Performance Analysis

We use Fluke DSX-5000 cable analyzers in the Lightware Testing Lab to measure the properties of the cable relevant to signal transmission. Measured data include the DC resistance of the cable, the loss of signal strength of a signal (attenuation) at one or more frequencies, measuring the isolation between pairs of multi-pair cable threads, cross talk and many more.

This phase of testing can outline the general performance of the cable itself, without the modifying effects of a connected HDBaseT™ device.

## Application Tests

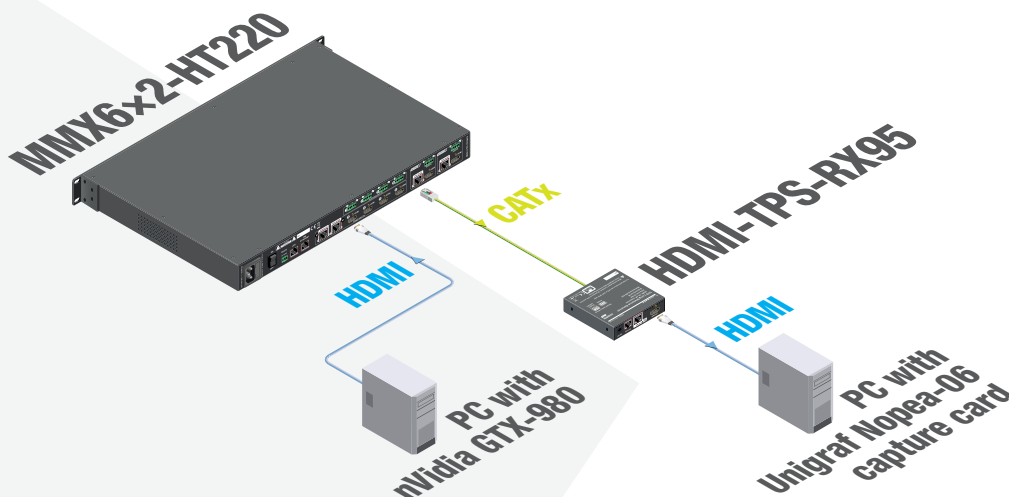
Measuring the performance of CAT cables is generally important, but it is even more useful to test the cables in a system containing HDBaseT™ transmitters and receivers.

These devices along with the used cable greatly affect the overall system performance. HDBaseT™ transmitters and receivers have HDMI input/output stage, reclocking features and other factors that can modify system performance.

We believe that in order to provide the most valuable information for integrators about the HDBaseT™ chain, it is best to test the cables together with HDBaseT™ compatible Lightware TPS products.

Therefore we always run cable performance tests in working applications as well.

Test criteria: Bit Error Rate is under  $10^{-9}$



## Test Results

Test Results					Pixel errors over 200 sec			
	TX	RX	Test Pattern	Length (m)	Red	Green	Blue	Total
Lightware Long Reach Mode	MMX6x2	HDMI-TPS-RX95 ENG-2068	1080p60 pseudorandom	170 m +2x0,3 m patch cable	0	0	0	0
HDBaseT™	MMX6x2	HDMI-TPS-RX95 ENG-2068	2160p30 pseudorandom	100 m +2x0,3 m patch cable	9	9	16	34

	Bit Error Rate				Tx Error Rate				Rx Error Rate			
	total_ber (tx side)	video_ber (rx side)	audio_ber (rx side)	control_ber (rx_side)	A	B	C	D	A	B	C	D
Lightware Long Reach Mode	10 <sup>-09</sup>	10 <sup>-09</sup>	10 <sup>-09</sup>	10 <sup>-09</sup>	45.4	45.4	45.4	45.4	52.3	52.3	52.3	52.3
HDBaseT™	10 <sup>-09</sup>	8.4 <sup>-08</sup>	10 <sup>-09</sup>	10 <sup>-09</sup>	37.6	37.6	37.6	37.6	63.7	63.7	63.7	63.7



## Cable ID: 2 BELDEN 1886ENH

Date / Time: 2017-01-24 01:43:40 PM

Test Limit: Measure All

Cable Type: Cat 6A F/UTP

NVP: 74.0%

Software Version: V4.8 Build 1

Limits Version: V4.8

Calibration Date:

Main (Module): 2016-02-03

Remote (Module): 2016-02-03

## Test Summary: PASS

Model: DSX-5000

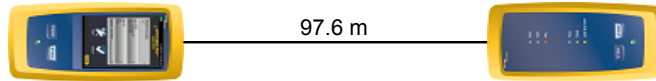
Main S/N: 2797178

Remote S/N: 2797197

Main Adapter: DSX-CHA004

Remote Adapter: DSX-CHA004

Length (m)	[Pair 78]	97.6
Prop. Delay (ns)	[Pair 12]	453
Delay Skew (ns)	[Pair 12]	13
Resistance (ohms)	[Pair 12]	13.11
Resist. Unbal. (ohms)	[Pair 78]	0.023
Resist. P2P Unbal. (ohms)	[Pair 12-78]	0.050
Impedance (ohms)	[Pair 36]	100
Insertion Loss Margin (dB)	[Pair 36]	
Frequency (MHz)	[Pair 36]	1200.0
Limit (dB)	[Pair 36]	

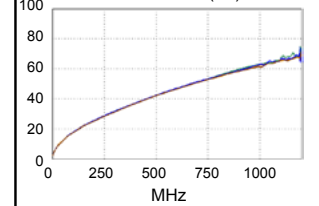


Wire Map (T568B)

PASS

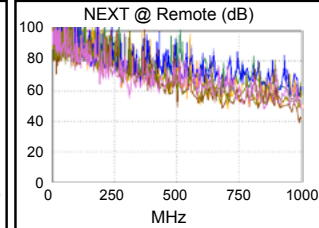
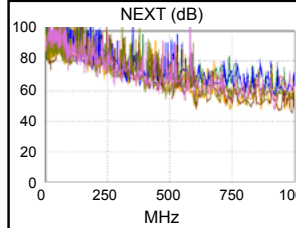


Insertion Loss (dB)

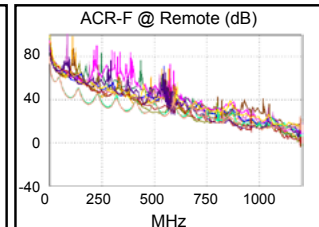
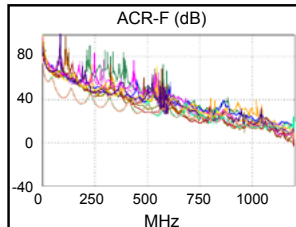


Worst Case Margin Worst Case Value

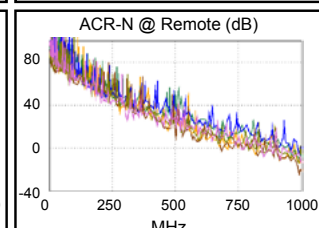
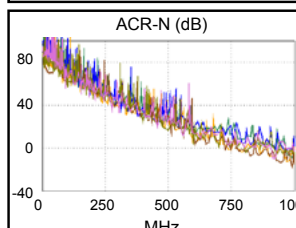
N/A	MAIN	SR	MAIN	SR
Worst Pair			36-45	36-45
<b>NEXT (dB)</b>			45.1	39.5
Freq. (MHz)			989.0	991.0
Limit (dB)				
Worst Pair			36	36
<b>PS NEXT (dB)</b>			44.7	38.9
Freq. (MHz)			989.0	991.0
Limit (dB)				



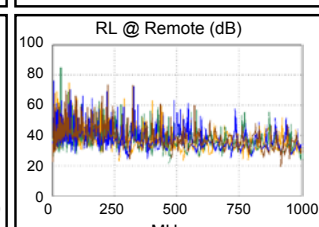
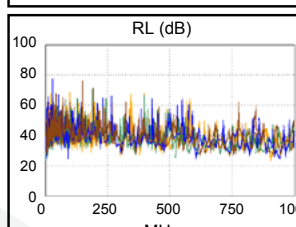
N/A	MAIN	SR	MAIN	SR
Worst Pair			45-36	45-36
<b>ACR-F (dB)</b>			-2.2	-0.4
Freq. (MHz)			1200.	1200.
Limit (dB)				
Worst Pair			36	36
<b>PS ACR-F (dB)</b>			-4.0	-3.0
Freq. (MHz)			1200.	1200.
Limit (dB)				



N/A	MAIN	SR	MAIN	SR
Worst Pair			36-45	36-45
<b>ACR-N (dB)</b>			-18.3	-24.3
Freq. (MHz)			989.0	991.0
Limit (dB)				
Worst Pair			36	36
<b>PS ACR-N (dB)</b>			-18.8	-24.6
Freq. (MHz)			990.0	992.0
Limit (dB)				



N/A	MAIN	SR	MAIN	SR
Worst Pair			12	78
<b>RL (dB)</b>			23.9	22.8
Freq. (MHz)			905.0	919.0
Limit (dB)				



LinkWare™ PC Version 9.6

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Model: DSX-5000

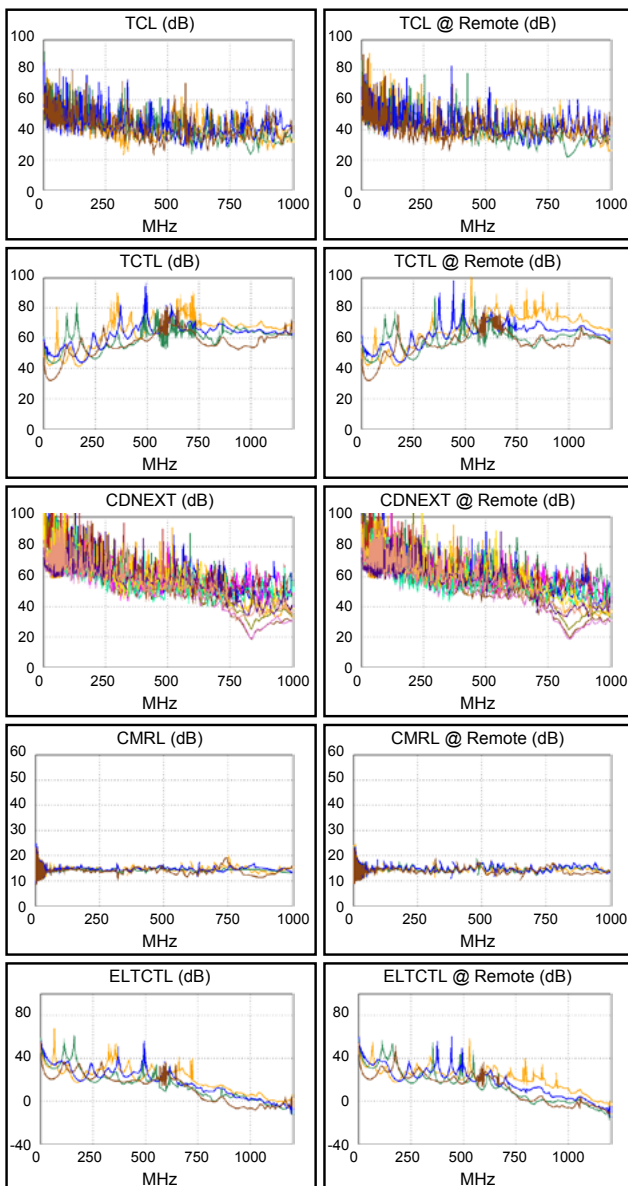
Main S/N: 2797178

Remote S/N: 2797197

Main Adapter: DSX-CHA004

Remote Adapter: DSX-CHA004

		Worst Case Margin		Worst Case Value	
N/A	MAIN	SR	MAIN	SR	
Worst Pair			36	36	
<b>TCL (dB)</b>			23.7	21.7	
Freq. (MHz)			835.0	826.0	
Limit (dB)					
N/A	MAIN	SR	MAIN	SR	
Worst Pair			78	78	
<b>TCTL (dB)</b>			32.1	32.0	
Freq. (MHz)			33.5	37.3	
Limit (dB)					
N/A	MAIN	SR	MAIN	SR	
Worst Pair			36-12	36-78	
<b>CDNEXT (dB)</b>			18.1	17.6	
Freq. (MHz)			835.0	835.0	
Limit (dB)					
N/A	MAIN	SR	MAIN	SR	
Worst Pair			78	78	
<b>CMRL (dB)</b>			10.6	10.5	
Freq. (MHz)			1.8	1.8	
Limit (dB)					
N/A	MAIN	SR	MAIN	SR	
Worst Pair			36	36	
<b>ELTCTL (dB)</b>			-12.8	-14.4	
Freq. (MHz)			1200.	1200.	
Limit (dB)					



LinkWare™ PC Version 9.6