

# 9N6J4-A5

## Lightware Testing Lab

### Cable Testing Method



## 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

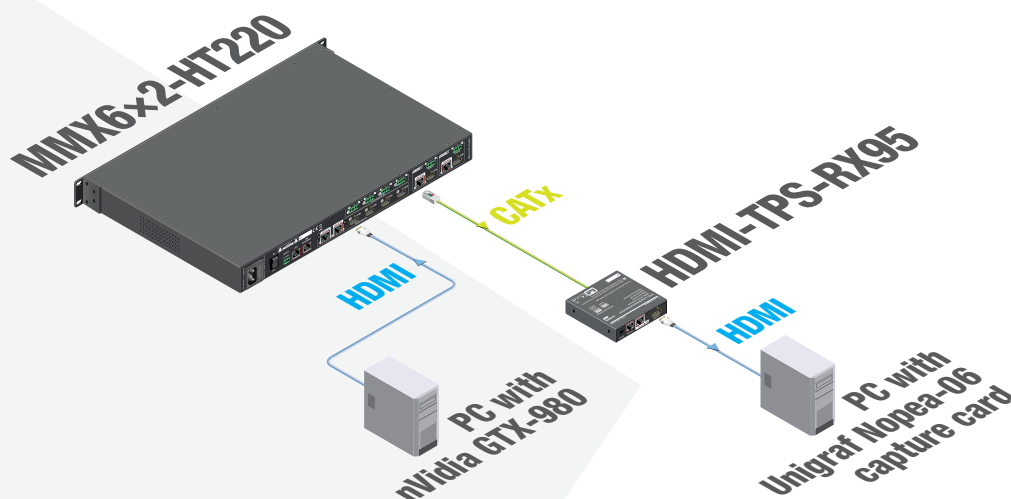
Measuring the performance of CAT cables is generally important, but it is even more useful to test the cables in a system containing HDBaseT™ transmitters and receivers.

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	UBEX	UBEX	4K 30 pseudorandom	95 m +2×0,5 m patch cable	4	5	5	14
HDBase™	UBEX	UBEX	1080p 60 pseudorandom	150,7 m +2×0,5 m patch cable	0	0	0	0

	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>-9</sup>	31,5 <sup>-9</sup>	10 <sup>-9</sup>	10 <sup>-9</sup>	14305	14305	14305	14305	21610	21610	21610	21610
HDBase™	0	0	0	0	0	0	0	0	0	0	0	0



## Cable ID: 9N6J4-A5 95m 1G

Test Limit: Measure All (1200 MHz)

Limits Version: V7.5

Date / Time: 10/07/2020 02:43:34 PM

Operator: Kovács András

Cable Type: Cat 6 F/UTP

NVP: 77.3%

Main: Versiv

S/N: 2797178

Software Version: V6.5 Build 5

Calibration Date: 05/12/2020

Adapter: DSX-5000 (DSX-CHA004)

S/N: 2895183

Remote: Versiv

S/N: 2797197

Software Version: V6.5 Build 5

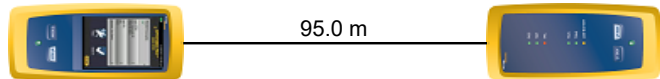
Calibration Date: 05/12/2020

Adapter: DSX-5000R (DSX-CHA004)

S/N: 2895154

**Test Summary: PASS**

Length (m)	[Pair 3,6]	95.0
Prop. Delay (ns)	[Pair 1,2]	416
Delay Skew (ns)	[Pair 1,2]	6
Resistance (ohms)	[Pair 1,2]	13.55
Resist. Unbal. (ohms)	[Pair 4,5]	0.043
Resist. P2P Unbal. (ohms)	[Pair 1,2-3,6]	0.051
Impedance (ohms)	[Pair 7,8]	102
Insertion Loss Margin (dB)	[Pair 3,6]	
Frequency (MHz)	[Pair 3,6]	1193.0
Limit (dB)	[Pair 3,6]	

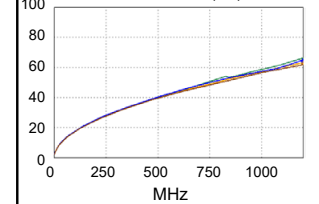


Wire Map (T568B)

PASS

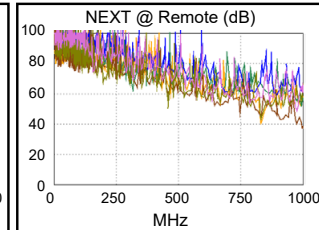
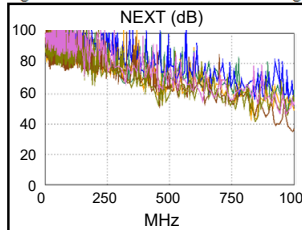


Insertion Loss (dB)

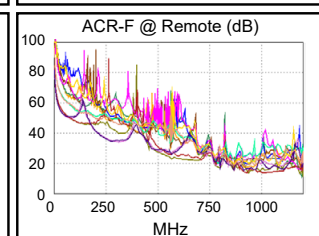
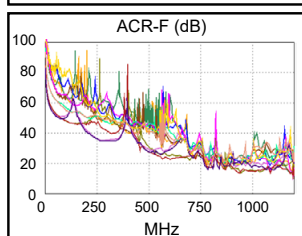


Worst Case Margin Worst Case Value

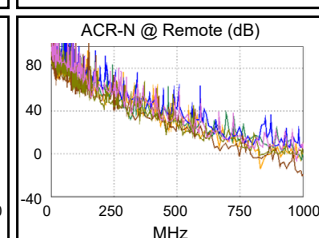
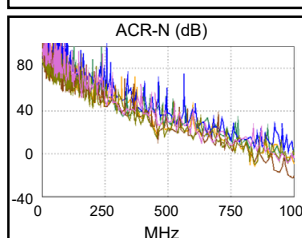
N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6-4,5	3,6-4,5
<b>NEXT (dB)</b>			35.1	37.1
Freq. (MHz)			994.0	1000.
Limit (dB)				
Worst Pair			3,6	4,5
<b>PS NEXT (dB)</b>			35.0	37.0
Freq. (MHz)			994.0	1000.
Limit (dB)				



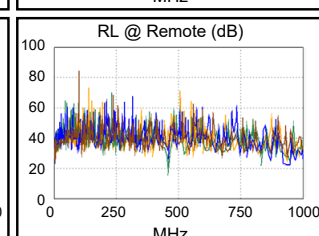
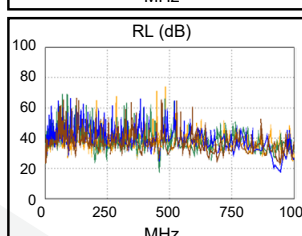
N/A	MAIN	SR	MAIN	SR
Worst Pair			4,5-3,6	1,2-4,5
<b>ACR-F (dB)</b>			10.8	11.1
Freq. (MHz)			939.0	1193.
Limit (dB)				
Worst Pair			3,6	4,5
<b>PS ACR-F (dB)</b>			9.3	9.2
Freq. (MHz)			1190.	1194.
Limit (dB)				



N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6-4,5	3,6-4,5
<b>ACR-N (dB)</b>			-22.7	-20.6
Freq. (MHz)			994.0	1000.
Limit (dB)				
Worst Pair			3,6	3,6
<b>PS ACR-N (dB)</b>			-23.5	-21.5
Freq. (MHz)			994.0	1000.
Limit (dB)				



N/A	MAIN	SR	MAIN	SR
Worst Pair			4,5	3,6
<b>RL (dB)</b>			17.7	18.6
Freq. (MHz)			945.0	458.0
Limit (dB)				



## Cable ID: 9N6J4-A5 95m 1G

Test Limit: Measure All (1200 MHz)

Limits Version: V7.5

Date / Time: 10/07/2020 02:43:34 PM

Operator: Kovács András

Cable Type: Cat 6 F/UTP

NVP: 77.3%

Main: Versiv

S/N: 2797178

Software Version: V6.5 Build 5

Calibration Date: 05/12/2020

Adapter: DSX-5000 (DSX-CHA004)

S/N: 2895183

Remote: Versiv

S/N: 2797197

Software Version: V6.5 Build 5

Calibration Date: 05/12/2020

Adapter: DSX-5000R (DSX-CHA004)

S/N: 2895154

**Test Summary: PASS**

	Worst Case Margin		Worst Case Value	
N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6	3,6
<b>TCL (dB)</b>			13.4	11.6
Freq. (MHz)			842.0	831.0
Limit (dB)				
N/A	MAIN	SR	MAIN	SR
Worst Pair			4,5	4,5
<b>TCTL (dB)</b>			32.3	32.3
Freq. (MHz)			29.6	32.3
Limit (dB)				
N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6-7,8	3,6-7,8
<b>CDNEXT (dB)</b>			16.3	16.1
Freq. (MHz)			835.0	835.0
Limit (dB)				
N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6	3,6
<b>CMRL (dB)</b>			10.6	10.7
Freq. (MHz)			3.0	1.8
Limit (dB)				
N/A	MAIN	SR	MAIN	SR
Worst Pair			3,6	3,6
<b>ELTCTL (dB)</b>			-7.3	-3.8
Freq. (MHz)			839.0	864.0
Limit (dB)				

