ALLION Engineering Services

COMPLIANCE PROGRAM

TEST REPORT

DisplayPort Test Report
For DP40 Cable

Company Name:	HUI ZHOU DEHONG TECHNOLOGY CO., LTD
Marketing Name:	DisplayPort 40 Cable Assembly 1.8M
Model/Part Number:	310-61412
Report Date:	2023/06/02
Report Number:	CABDP20230194
Test Result:	**PASS**

Reporter : *Tony Hsieh* **Approver** *Brian Shih*

Legal Disclaimer

1. TEST RESULT IS VALID ONLY TO THE ORIGINAL TESTED DEVICE MODEL. ALLION RESERVES THE RIGHT TO PROHIBIT OTHERS TO DISTORT, ISOLATE, FALSIFY, COPIED AND/OR BY ANY PROCESS TO CHANGE THE CONTENT OF THIS TEST REPORT UNLESS IT IS PRIOR APPROVED BY ALLION.

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Table of Contents

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Applicant Information

Report No.	CABDP20230194
Applicant	Lisong
Applicant Address	DEHONG Industrial Park,Dongxing District,Dongjiang High-tech Zone,Huizhou
Telephone	15262522780
Test Cable	DisplayPort v2.1 CABLE
Quantity	1 pce
Date of Receipt	May. 29. 2023
Date of Testing	May. 30. 2023~ Jun. 02. 2023
Measure Environment	24°C / 55%RH

Product Description

Marketing Name	DisplayPort 40 Cable Assembly 1.8M
Model/Part Number	310-61412
Cable Assembly Length	1.8m
Wire AWG	30AWG*5P+30AWG*2C

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

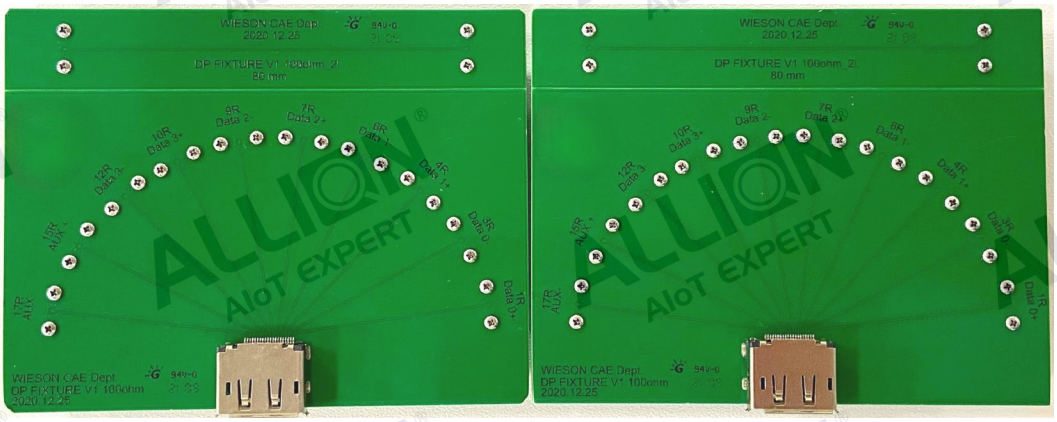
Product Photo

Fig.1 Cable Right Side

Fig.2 Cable Left Side

Fig.3 Cable Assembly

Test Fixture



Wieson Test Fixture

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Data Summary

Test Item	SPEC/Requirement	Result
Differential Impedance	Fixture: 95 ohm~105 ohm Footprint and mated pair contact: 75 ohm~95 ohm Cable: 80 ohm~90 ohm	**PASS**
Intra-pair Skew	Limited to 20 ps max.	**PASS**
Insertion Loss Fit at Nyquist Frequencies (ILfitatNq)	≥ −1.3 dB at 0.1 GHz ≥ −7.8 dB at 2.7 GHz ≥ −10.0 dB at 4.05 GHz ≥ −11.3 dB at 5.0 GHz ≥ −17.8 dB at 10 GHz	**PASS**
Integrated Return Loss (IRL)	IRL PWL limit=-26dB@ILfit -11.3dB IRL PWL limit<=-22dB@ILfit -4.3dB IRL PWL limit<=-22dB@ILfit -3dB	**PASS**
Integrated Crosstalk - DP	IXT_DP PWL limit=-42dB@ILfit -11.3dB IXT_DP PWL limit<=-31dB@ILfit -4.3dB IXT_DP PWL limit<=-31dB@ILfit -3dB	**PASS**
Differential-to -Common-Mode Conversion (SCD12/SCD21)	< -17dB from 100MHz to 15GHz	**PASS**
Resistor between Config 1 and Config 2 pins	680k +/-5% ohm for DP40 cable	**PASS**
Passive Cable DC Signals	HPD: Continuity detected DP Power: Continuity not detected	**PASS**

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Testing Condition

Test Item	Test Condition
Differential Impedance	Rise time：25ps (20-80%)
Intra-pair Skew	Rise time：25ps (20-80%) rise time at 15% voltage crossing
Insertion Loss Fit at Nyquist Frequencies (ILfitatNq)	Frequency range：10MHz to 20GHz IF Bandwidth：1kHz Number of Point：2000
Integrated Return Loss (IRL)	Frequency range：10MHz to 20GHz IF Bandwidth：1kHz Number of Point：2000
Integrated Crosstalk between DP Lanes	Frequency range：10MHz to 20GHz IF Bandwidth：1kHz Number of Point：2000
Integrated Crosstalk - DP	Frequency range：10MHz to 20GHz IF Bandwidth：1kHz Number of Point：2000
Differential-to -Common-Mode Conversion (SCD12/SCD21)	Frequency range：10MHz to 20GHz IF Bandwidth：1kHz Number of Point：2000
Resistor between Config 1 and Config 2 pins	Measure the resistance between pin Config 1 and Config 2.
Passive Cable DC Signals	HPD: Continuity detected DP Power: Continuity not detected

Testing Equipment

Equipment Name	Model No	Calibration Date	Due Date
Network Analyzer	E5071C-TDR	2022/06/20	2023/06/20

*Note: The above equipment will update.

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Testing Result

Testing Period: 2023/05/30~2023/06/02			
Differential Impedance	**Requirement**	**Fixture: 95 ohm~105 ohm Footprint and mated pair contact: 75 ohm~95 ohm Cable: 80 ohm~90 ohm**	
	Pair	Max (Ω)	Min (Ω)
Footprint and mated pair contact	Lane 0	92.804	81.827
	Lane 1	89.740	83.884
	Lane 2	91.238	83.032
	Lane 3	89.897	82.697
Cable	Lane 0	87.670	86.282
	Lane 1	87.150	85.474
	Lane 2	86.076	84.799
	Lane 3	86.650	85.552

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

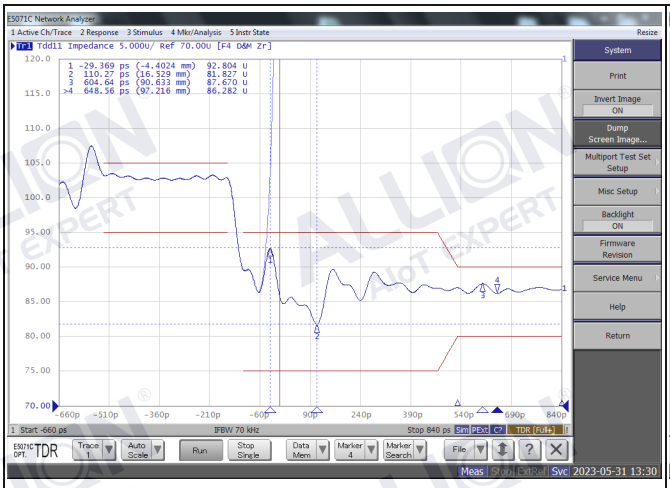


Fig.4 Impedance Lane 0 (Tdd11)

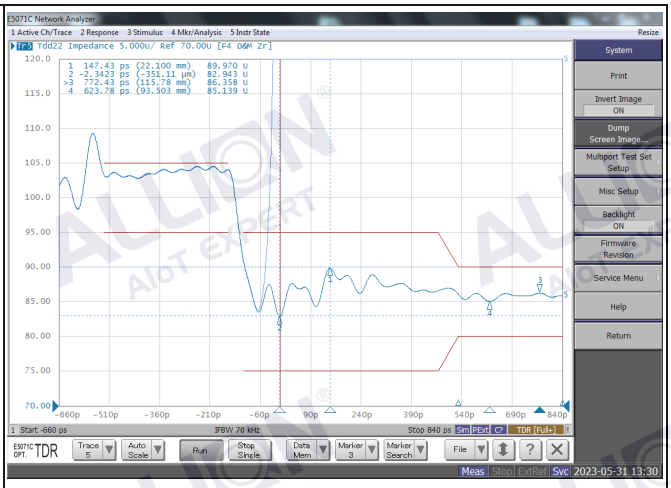


Fig.5 Impedance Lane 0 (Tdd22)

Fig.6 Impedance Lane 1 (Tdd11)

Fig.7 Impedance Lane 1 (Tdd22)

Fig.8 Impedance Lane 2 (Tdd11)

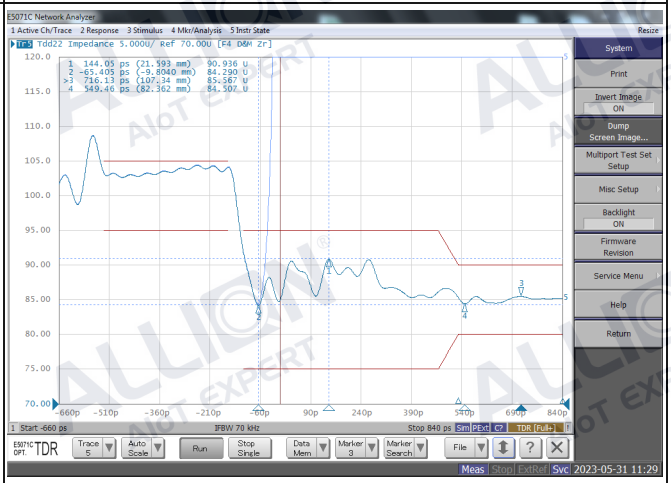


Fig.9 Impedance Lane 2 (Tdd22)

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

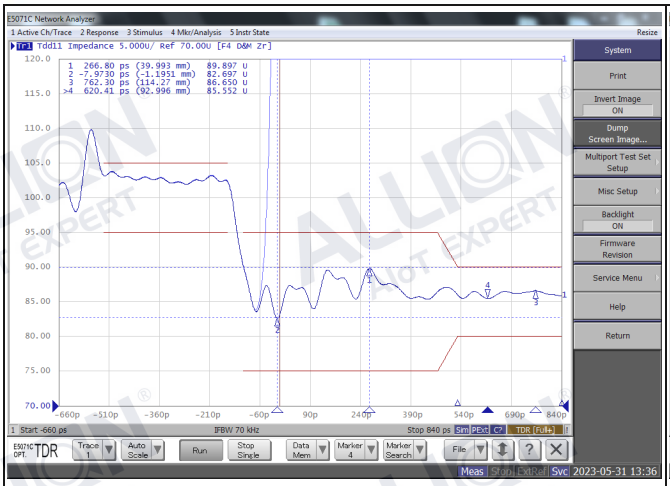


Fig.10 Impedance Lane 3 (Tdd11)

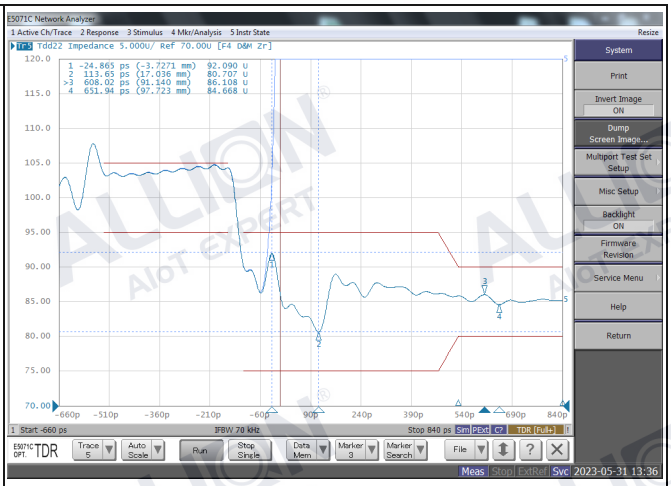


Fig.11 Impedance Lane 3 (Tdd22)

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Intra-Pair Skew	**Requirement**	**20 ps max.**			
		Lane 0 (ps)	Lane 1 (ps)	Lane 2 (ps)	Lane 3 (ps)
	DUT	3.9872	1.3437	0.3164	2.4173
Resistor between Config 1 and Config 2 pins	**Requirement**	**680 +/-5% (kΩ)**			
	DUT	L Side		R Side	
		673.0		674.0	
Insertion Loss Fit at Nyquist Frequencies (ILfitatNq)	The sample mets the signal integrity requirements as DP specified and tool (GetiPar). Please refer to Table 1.				
Integrated Multi-Reflection					
Integrated Return Loss (IRL)					
Integrated Crosstalk - DP					
Differential-to -Common-Mode Conversion (SCD12/SCD21)					

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

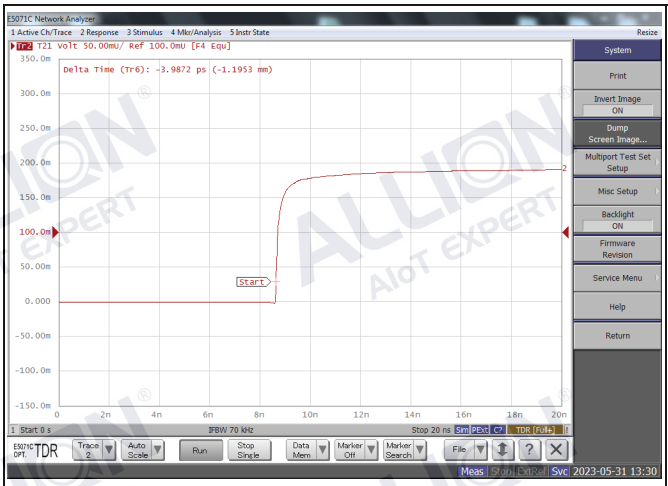


Fig.12 Skew Lane 0

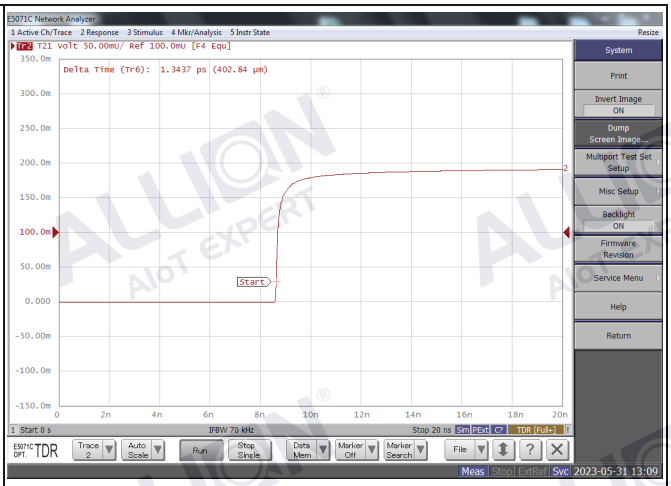


Fig.13 Skew Lane 1

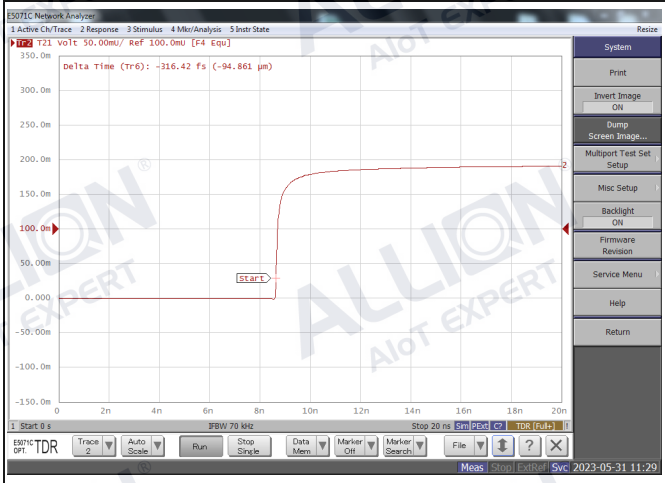


Fig.14 Skew Lane 2

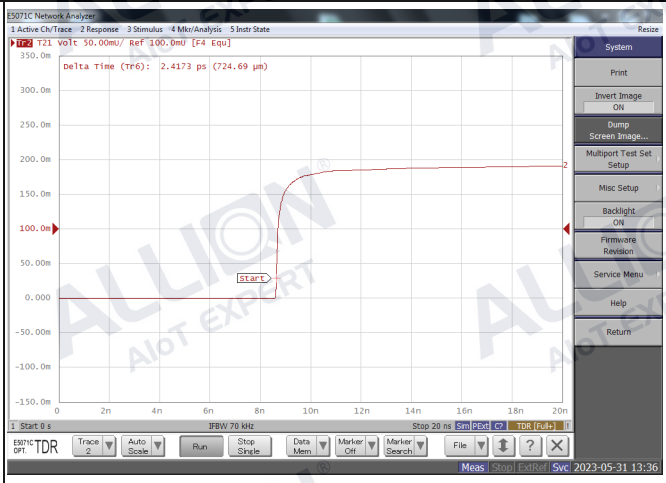


Fig.15 Skew Lane 3

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

Table 1 High Speed result

	L2 (L)	L2 (R)	L3 (L)	L3 (R)	L1 (L)	L1 (R)	L0 (L)	L0 (R)	Limit	Pass/Fail
ILfit@0.1GHz	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.88	-0.88	-1.3	Pass
ILfit@2.7GHz	-5.82	-5.82	-5.96	-5.96	-5.81	-5.81	-5.9	-5.9	-7.8	Pass
ILfit@4.05GHz	-7.28	-7.28	-7.44	-7.44	-7.28	-7.28	-7.38	-7.38	-10	Pass
ILfit@5GHz	-8.2	-8.2	-8.4	-8.4	-8.21	-8.21	-8.31	-8.31	-11.3	Pass
ILfit@10GHz	-13.42	-13.42	-13.82	-13.82	-13.6	-13.6	-13.55	-13.55	-17.8	Pass
IMR	-47.08	-47.08	-45.06	-45.06	-45.38	-45.38	-44.61	-44.61	-42.01	Informative
IRL	-28.9	-28.9	-28.81	-28.81	-29.25	-29.25	-29.65	-29.65	-24.34	Pass
C2D	-34.95	-31.44	-25.89	-30.68	-30.97	-31.61	-26.56	-25.51	-17	Pass
D2C	-34.93	-31.38	-25.84	-30.71	-31	-31.41	-26.59	-25.53	-17	Pass
IXT_DP	-39.82	-40.71	-41.71	-40.07	-40.67	-40.06	-40.09	-41.32	-37.45	Pass

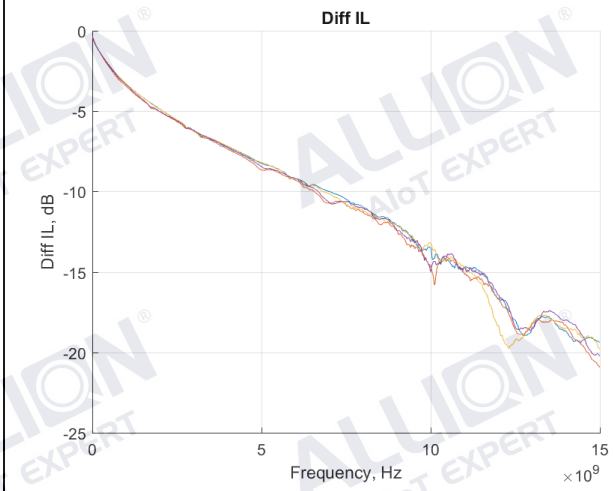


Fig.16 Cable Insertion Loss

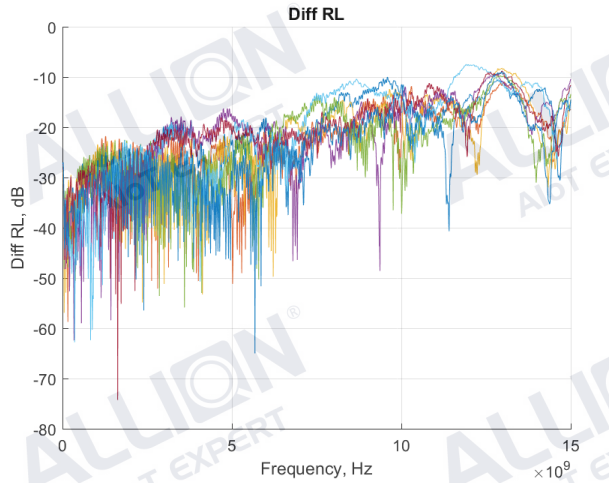


Fig.17 Cable Return Loss

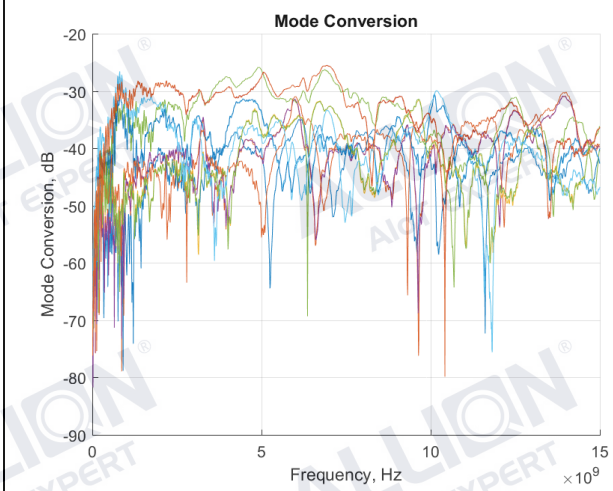


Fig.18 Mode Conversion(C2D/D2C)

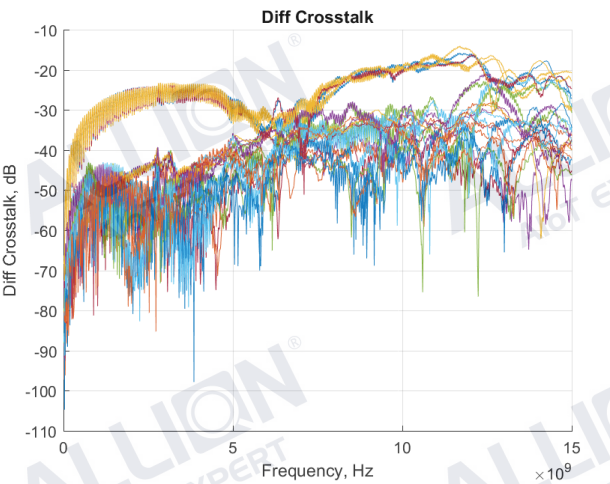
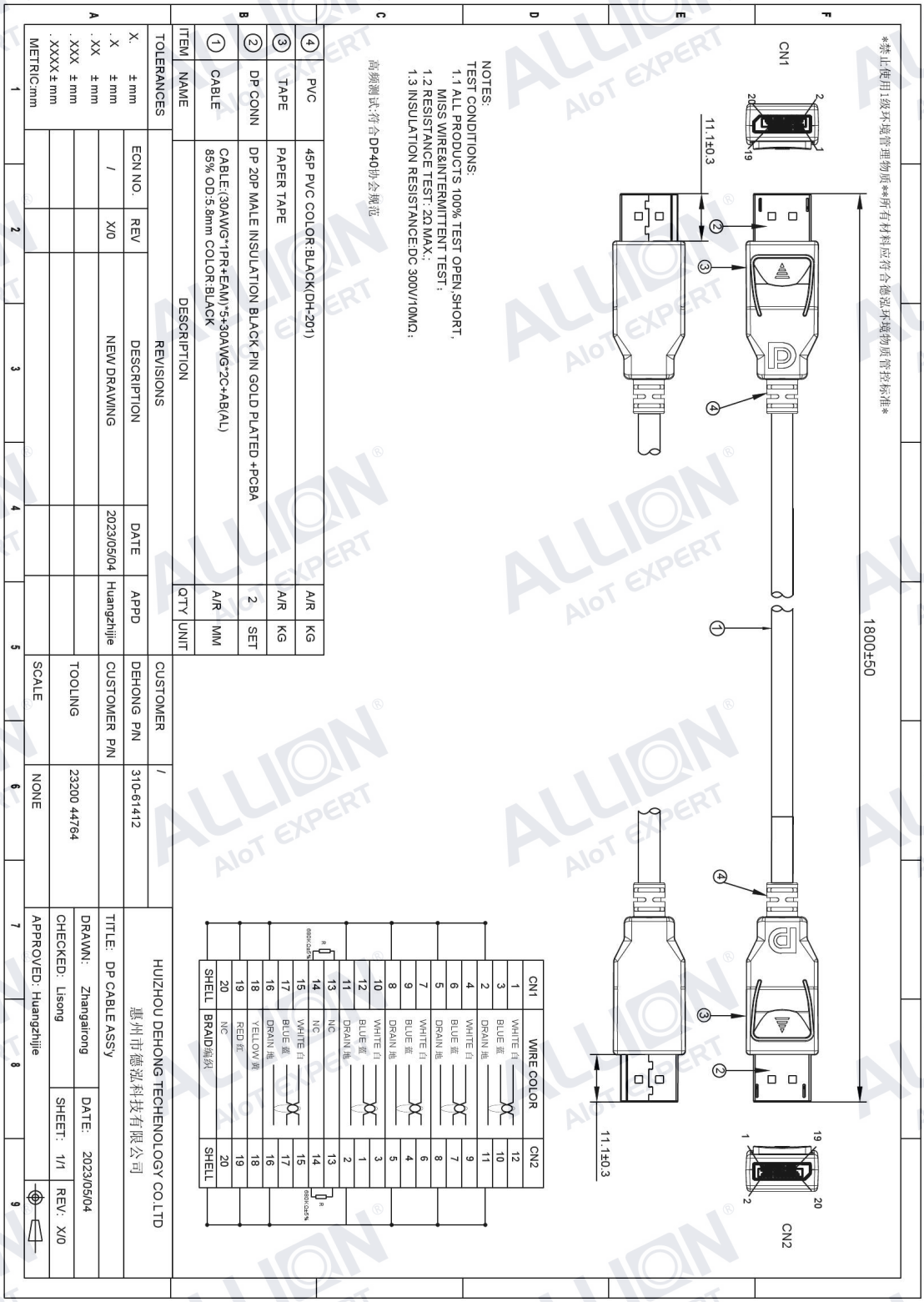


Fig.19 Differential Crosstalk

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

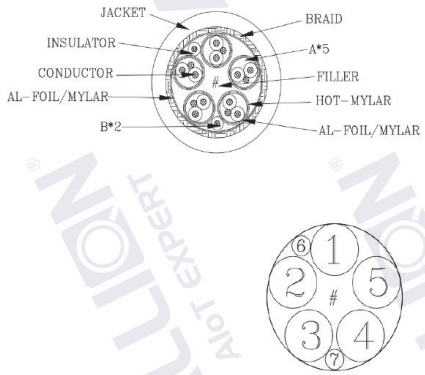
Appendix A：Drawing



Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)

30AWGX5P+30AWGX2C+FADB OD5.8 PVC **Customer :** **P/No. :** **Rev.: A/0**

Cross Section



Marking

Marking Color

Description

Product Standard Certification:	UL
File No.:	E508028
Rated Temperature (°C):	80
Rated Voltage (V):	30

Reference Standard

Appliance Wiring Material UL 758& UL1581
& CSA C22.2 No. 210.2

Application

Internal wiring or external interconnection of electronic equipment in Class 2 circuits only.

Construction

	A	B
Conductor	**Copper Alloy**	**Copper Alloy**
AWG	30AWG	30AWG
Insulation	**Foam-PE**	**PP**
Minimum Thickness (mm)	0.18	0.09
Min. Average Thickness (mm)	0.22	0.12
Diameter(mm)	0.76±0.08	0.55±0.05
Drain wire	**Copper Alloy**	
Shield	**Al-mylar**	
Coverage (%)	≧25%	
Tape	**Hot-Mylar**	
Coverage (%)	≧25%	
Shield	**Al-mylar**	
Coverage (%)	≧25%	
Drain Wire	**Copper Alloy**	
Braid	**AL-Mg Alloy**	
Coverage (%)	≧85%	
Jacket	**PVC**	
Minimum Thickness (mm)	0.43	
Min. Average Thickness (mm)	0.51	
Diameter(mm)	5.8±0.3	
Surface	Plane	
Visual Luminosity	Matt	

Color

Jacket: Black

Revision History

Electrical Characteristics

Dielectric Strength (kv/1min)	0.5

Mechanical Characteristics

Test Object	**Insulation**	**Jacket**
Test Material	PP	PVC
Before Aging		
Tensile Strength (Kgf/mm^2)	≧2.11	≧1.05
Elongation (%)	≧150	≧100
After Aging		
Tensile Strength (Kgf/mm2)	≧70of original	≧70of original
Elongation (%)	≧70of original	≧65of original
Flame Test	VW-1	
Diff Impedance(TMDS):	85±5Ω	

Environmental Data

EU 2002/95/EC Restriction on Hazardous Substances (RoHS).

HL科技集團
HL TECHNOLOGY GROUP

Approved By	Checking By	Design By
Johnson	Lorry	Lwei

HLXGQ-E00008A

Allion Lab, Inc.
Tel: +886-2-7722-8800 Fax: +886-2-2655-7879 http://www.allion.com
9F, No.3-1, Yuan Ku Street, Taiwan 11503 R.O.C (NanKang Software Park Bldg. G)