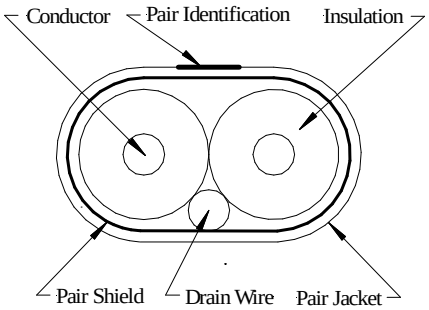
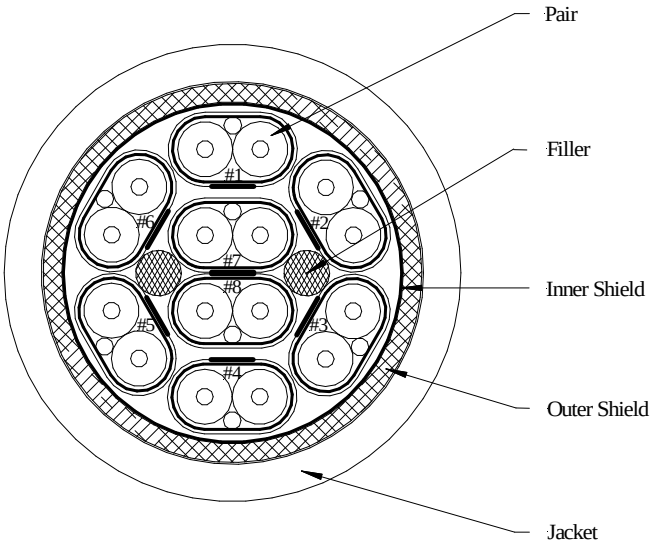
8 PAIR 28 AWG 25 GHz TURBOTWIN™ CABLE

PROPRIETARY DESIGN

Pair Component



Final Assembly



CONSTRUCTION

Pair Component
Conductor: 28 AWG Solid Silver Plated Copper, 0.0126 Inch [0.32 mm] Diameter
Insulation: 0.0157 Inches [0.40 mm] of Polyolefin, 0.044 Inch [1.12 mm] Diameter, Color – Natural
Pair: 2 Singles Laid Flat and Parallel
Drain Wire: 28 AWG Solid Silver Plated Copper, 0.0126 Inch [0.32 mm] Diameter
Pair Shield: Metallic Tape
Pair Jacket: Polyester Tape
Pair Minor Diameter: 0.054 Inches [1.37 mm] Nominal
Pair Major Diameter: 0.097 Inches [2.46 mm] Nominal
Pair Identification: To be printed on entire length of pair in 1/2 Inch [13 mm] intervals, see Table 1

Final Assembly
Core: 8 Pairs (#1-8) Cabled Together with Optional Fillers
Inner Shield: Aluminum/Polyester Tape, Aluminum Side Facing Out, 25% Overlap
Outer Shield: 38 AWG Tin Plated Copper Braid, 85% Coverage
Jacket: 0.020 Inches [0.51 mm] of Flexible PVC, Color – Black
Diameter: 0.301 Inches [7.65 mm] Nominal
Print Legend (White Ink): "MADISON CABLE {Mfg. Location Code}[1] (UL) TYPE CL2 75°C 28 AWG C(UL) TYPE CM 75°C TurboTwin™ 25G 104-2242 SUBSTANCE COMPLIANT 2011/65/EU {Date Code}[2]"

[1] Manufacturing location code, if applicable
[2] Date Code is a 4-digit code with the first two digits identifying the calendar week and the last two identifying the calendar year of manufacturing. Example – 0206 for cable manufactured in the second week of January 2006.

TABLE 1

Pair #	Pair Identification
1	|-|1 |-|1 |-|1 |-|1
2	|--|2 |--|2 |--|2 |--|2
3	|---|3 |---|3 |---|3 |---|3
4	||-||4 ||-||4 ||-||4 ||-||4
5	||--||5 ||--||5 ||--||5 ||--||5
6	||---||6 ||---||6 ||---||6 ||---||6
7	|||-|||7 |||-|||7 |||-|||7 |||-|||7
8	|||--|||8 |||--|||8 |||--|||8 |||--|||8

ELECTRICAL CHARACTERISTICS[3]

Production Performance Testing:
Differential Impedance: 100 ± 5 Ohms @ TDR
Attenuation (SDD21)[4]: 15.5 db/4m Maximum @ 12.89 GHz
Return Loss (SDD11): ≤ -19.5 + 2√*f* for 0.01 GHz < *f* < 4.1 GHz
≤ -13.6 + 14 Log*(*f* /5.5) for 4.1 GHz < *f* < 19 GHz
SCD21-SDD21:
≤ -12 for 0.01 GHz < *f* < 12.89 GHz
≤ -29 + (29/22)**f* for 12.89 GHz < *f* < 15.7 GHz
≤ -8.3 for 15.7 GHz < *f* < 19 GHz
Pair-to-Pair IL Variation: 0.5 dB @ 12.89 GHz Nominal (abs(Max IL – Min IL)) among all pairs

Qualification Testing:
Mutual Capacitance[5]: 12 pF/ft [39 pF/m] Nominal
Insertion Loss Deviation: ILD_{min} = -0.8
ILD_{max} = +0.8
Differential to Common Mode Return Loss (SCD11):
≤ -24 + (20/25.78)**f* for 0.01 GHz < *f* < 12.89 GHz
≤ -17 + (6/25.78)**f* for 12.89 GHz < *f* < 19 GHz
NEXT: -50 dB Maximum from 0.01 GHz to 19 GHz
FEXT: -50 dB Maximum from 0.01 GHz to 19 GHz
Conductor DC Resistance[5]: 0.067 Ohms/ft [220 Ohms/km] Nominal @ 20°C

[3] All SI measurments made @ 20°C
[4] Tested/Functional to 25 GHz over a 4 meter length
[5] Values are for informational purposes only

PHYSICAL CHARACTERISTICS

Temperature Rating:
Operating: -10°C to +60°C
Transport/Installation: -25°C to +80°C

TE connectivity
Madison Cable
125 Goddard Memorial Drive
Worcester, MA 01603 USA
(508) 752-2884 (877) MADISON

REVISION HISTORY

1	04/04/18	JT	Initial Release
2	04/18/18	JT	Revised Pair Diameter and Drawing
3	05/14/18	BS	Revised Insulation, Pair and Jacket Diameter
4	05/16/18	BS	Revised the Print Legend
5	05/23/18	BS	Revised Pair Minor and Jacket Diameter
6	06/14/18	BS	Revised the Print Legend & Safety Certification

Spec Number:	**104-2242**	**Prepared By:**	B. Strunk	**Page**
Part Number:	**16PD2LF014**			
Customer:		**Reviewed By:**	T. Grzysiewicz	1 of 2
Customer #:				

MECHANICAL CHARACTERISTICS

Dynamic/Static Bend Radius: **(7 X OD)**: 2.1 Inches [53 mm] Minimum
Cable Stress Test: Per QS-505 (Exhibit A)
Temperature Cycle Test: Per QS-506 (Exhibit A)
Humidity Cycle Test: Per QS-507
Flex Cycle Test Conductor Failure: Per QS-508
Flex Cycle Test – SI Dynamic Bend: Per QS-509 (Exhibit A)
Bend Radius Test – Static: Per QS-510

INDUSTRY STANDARDS

IEEE 802.3bj: Physical Layer Specifications and Management Parameters for 100 Gb/s Operation Over Backplanes and Copper Cables
InfiniBand™ Architecture (Extended Data Rate): 1X = 25 Gb/s
4X = 100 Gb/s

SAFETY CERTIFICATION

UL Listing: Type CL2 as specified in Article 725 of the National Electrical Code
C(UL) Listing: Type CM as specified in Article 800 of the National Electrical Code
RoHS II Material Compliance: In accordance with EU Directive 2011/65/EU for the Restriction of Hazardous Substances

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