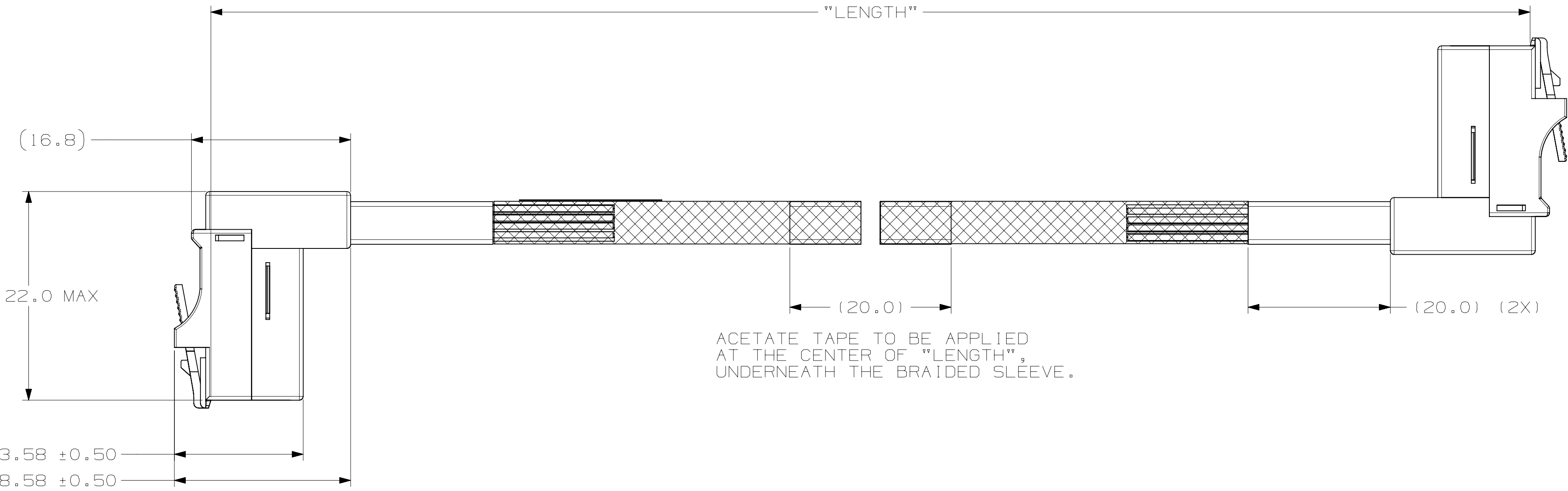
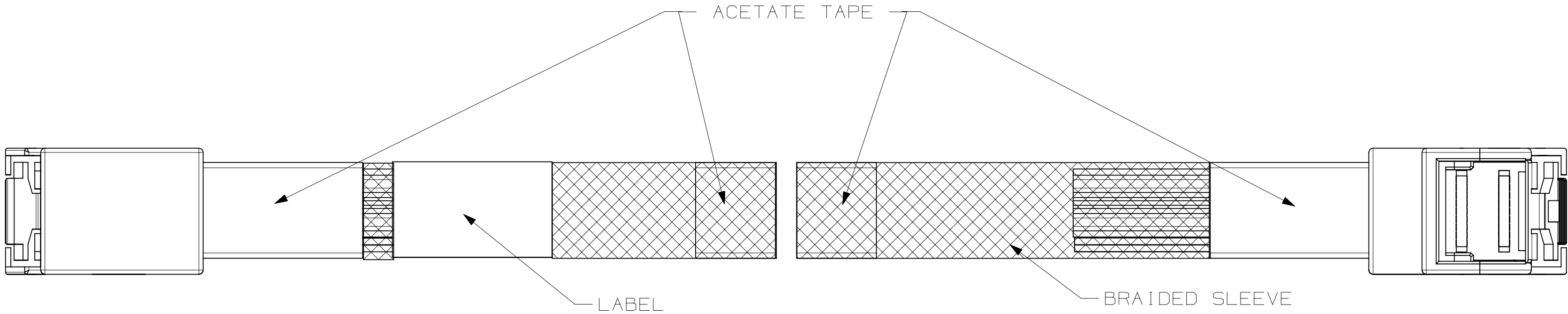
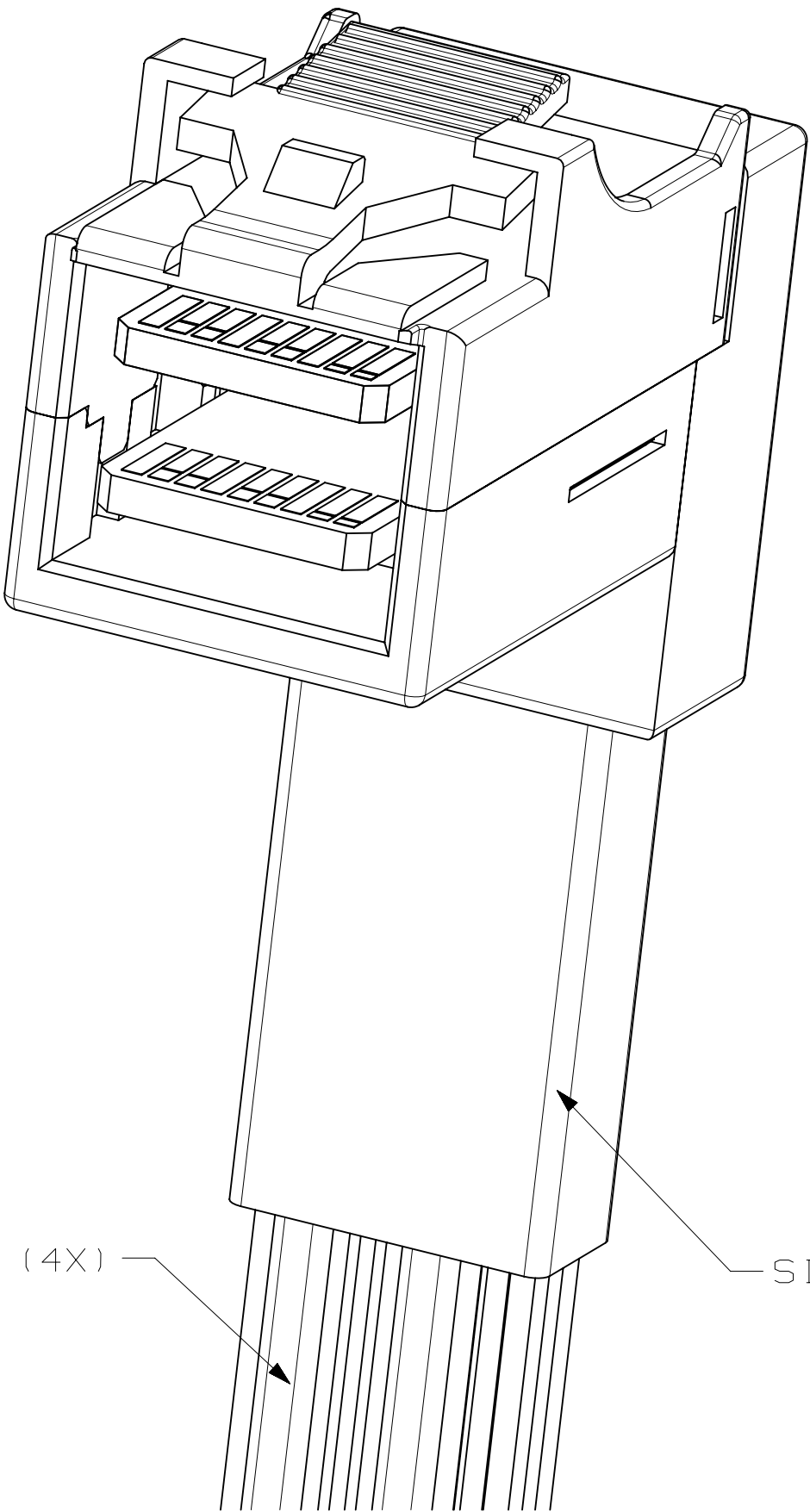
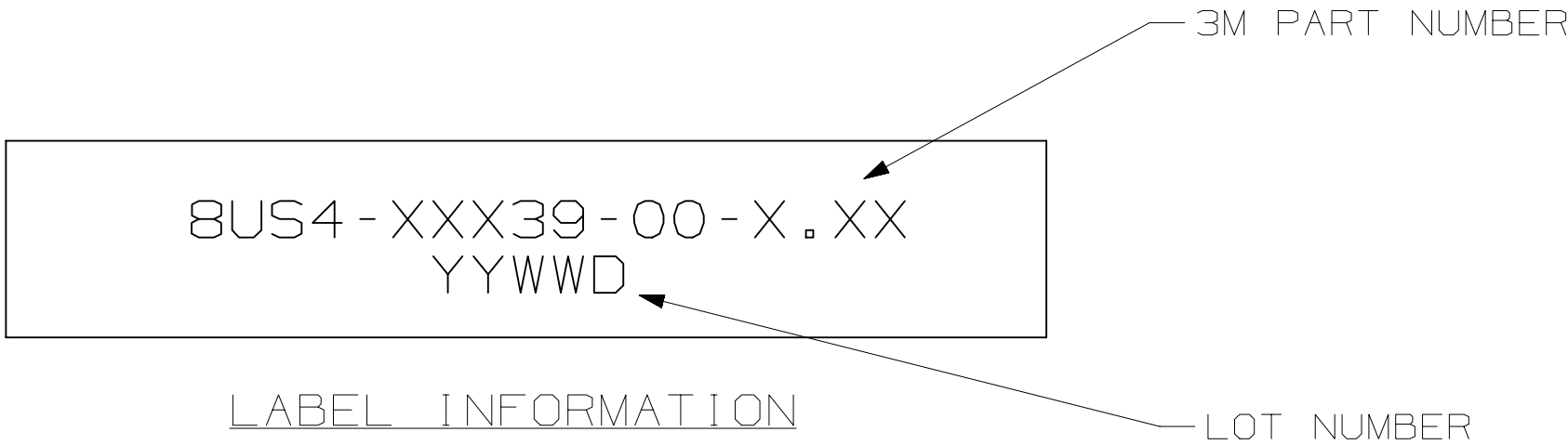


3M™ HIGH ROUTABILITY INTERNAL MINISAS HD CABLE ASSEMBLIES, 8U SERIES

RIGHT-ANGLE - TO - RIGHT-ANGLE INTERNAL MINISAS HD CABLE ASSEMBLY



ACETATE TAPE TO BE APPLIED AT THE CENTER OF "LENGTH", UNDERNEATH THE BRAIDED SLEEVE.



|                        |  |                                    |  |                            |  |                            |  |             |    |
|------------------------|--|------------------------------------|--|----------------------------|--|----------------------------|--|-------------|----|
| DESIGN REFERENCE       |  | NEXT ASSEMBLY                      |  | A 0060617                  |  | OCT 17, 2014               |  | KHL         | SB |
| REV                    |  | ECO                                |  | ISSUE DATE AND DESCRIPTION |  | DRFT                       |  | CHKD        |    |
| DISTRIBUTION CODES     |  | DPT                                |  | KOK HOE LEE                |  | OCT 17, 2014               |  | MFG         |    |
| DIVISION               |  | CHD                                |  | YUNLONG QIAO               |  | OCT 17, 2014               |  | APPRV       |    |
| DO NOT SCALE DRAWING   |  | SCALE                              |  | 1/1                        |  | TOLERANCES EXCEPT AS NOTED |  | INCHES      |    |
| THIRD ANGLE PROJECTION |  | INTERPRET PER ASME Y14.5 - 1994    |  | MILLIMETERS                |  | 0 ± 1                      |  | .0 ± .5     |    |
| MAX SURFACE ROUGHNESS  |  | 125/                               |  | ALL SURFACES               |  | .000 ± .005                |  | .000 ± .005 |    |
| MARKED ONLY            |  | X                                  |  | ANGLES                     |  | ± 1°                       |  | SHT 1 OF 4  |    |
| TITLE                  |  | INTERNAL MINISAS HD CABLE ASSEMBLY |  | RIGHT-ANGLE CONNECTOR      |  | CAGE NUMBER                |  | DRAWING NO. |    |
| MODEL                  |  | DET                                |  | LTS                        |  | YES                        |  | NO          |    |
| CAGE NUMBER            |  | D                                  |  | 78-5100-2651-7             |  | REV.                       |  | A           |    |

# RIGHT-ANGLE - TO - RIGHT-ANGLE INTERNAL MINISAS HD CABLE ASSEMBLY

### 3M PART NUMBERING SCHEME

8US4 - XXX 39 - 00 - X.XX

“LENGTH” IN METERS

### "LENGTH" TOLERANCE

±10MM FOR "LENGTH" 0.5 METER MAX  
±15MM FOR "LENGTH" MORE THAN 0.5 METER

TABLE 1: DESCRIPTION FOR “XXX”

| XXX | PINOUT                                         | BRAIDED SLEEVE |
|-----|------------------------------------------------|----------------|
| AA1 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | YES            |
| AA2 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | NO             |
| CB1 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | YES            |
| CB2 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | NO             |

NOTES

1. MATERIALS:

HOUSING: THERMOPLASTIC

INNERMOULD: THERMOPLASTIC

3M™ TWIN AXIAL CABLE:  
CONDUCTORS: SOLID COPPER, Ag-PLATED SIGNALS  
INSULATOR: POLYOLEFIN  
SHIELDING: ALUMINIUM LAYER

SIDEBAND CABLE :  
CONDUCTORS : SOLID COPPER  
INSULATOR : THERMOPLASTIC ELASTOMER

PCB: LOW DIELECTRIC CONSTANT MATERIAL  
FOR HIGH SPEED APPLICATION

BRAIDED SLEEVE: THERMOPLASTIC

2. ROHS COMPLIANT. SEE REGULATORY INFORMATION APPENDIX IN "ROHS COMPLIANCE" SECTION AT [WWW.3M.COM/INTERCONNECT](http://WWW.3M.COM/INTERCONNECT) (E1 & C1 APPLY)

3. UNLESS OTHERWISE NOTED, REFERENCES TO INDUSTRY SPECIFICATIONS ARE INTENDED TO INDICATE SUBSTANTIAL COMPLIANCE TO THE MATERIAL ELEMENTS OF THE SPECIFICATION. SUCH REFERENCES SHOULD NOT BE CONSTRUED AS A GUARANTEE OF COMPLIANCE TO ALL REQUIREMENTS IN A GIVEN SPECIFICATION.

4. PRODUCT SPECIFICATION: 78-5102-0200-1

## WIRING DIAGRAMS

| P1       |           |   |   |           |   | P2       |  |
|----------|-----------|---|---|-----------|---|----------|--|
| POSITION | SYMBOL    |   |   | SYMBOL    |   | POSITION |  |
| D9       | GROUND    |   | — | GROUND    |   | B9       |  |
| D8       | Tx2 -     |   | → | Rx2 -     |   | B8       |  |
| D7       | Tx2+      |   | → | Rx2+      |   | B7       |  |
| D6       | GROUND    |   | — | GROUND    |   | B6       |  |
| D5       | Tx0 -     |   | → | Rx0 -     |   | B5       |  |
| D4       | Tx0+      |   | → | Rx0+      |   | B4       |  |
| D3       | GROUND    |   | — | GROUND    |   | B3       |  |
| D2       | SIDE BAND | 6 | ↔ | SIDE BAND | 5 | D1       |  |
| D1       | SIDE BAND | 5 | ↔ | SIDE BAND | 6 | D2       |  |
| C1       | SIDE BAND | 4 | ↔ | SIDE BAND | 2 | C2       |  |
| C2       | SIDE BAND | 2 | ↔ | SIDE BAND | 4 | C1       |  |
| C3       | GROUND    |   | — | GROUND    |   | A3       |  |
| C4       | Tx1 +     |   | → | Rx1 +     |   | A4       |  |
| C5       | Tx1 -     |   | → | Rx1 -     |   | A5       |  |
| C6       | GROUND    |   | — | GROUND    |   | A6       |  |
| C7       | Tx3+      |   | → | Rx3+      |   | A7       |  |
| C8       | Tx3-      |   | → | Rx3 -     |   | A8       |  |
| C9       | GROUND    |   | — | GROUND    |   | A9       |  |
| B9       | GROUND    |   | — | GROUND    |   | D9       |  |
| B8       | Rx2 -     |   | ← | Tx2 -     |   | B8       |  |
| B7       | Rx2+      |   | ← | Tx2+      |   | D7       |  |
| B6       | GROUND    |   | — | GROUND    |   | D6       |  |
| B5       | Rx0 -     |   | ← | Tx0 -     |   | D5       |  |
| B4       | Rx0+      |   | ← | Tx0+      |   | D4       |  |
| B3       | GROUND    |   | — | GROUND    |   | D3       |  |
| B2       | SIDE BAND | 1 | ↔ | SIDE BAND | 3 | B1       |  |
| B1       | SIDE BAND | 3 | ↔ | SIDE BAND | 1 | B2       |  |
| A1       | SIDE BAND | 7 | ↔ | SIDE BAND | 0 | A2       |  |
| A2       | SIDE BAND | 0 | ↔ | SIDE BAND | 7 | A1       |  |
| A3       | GROUND    |   | — | GROUND    |   | C3       |  |
| A4       | Rx1 +     |   | ← | Tx1 +     |   | C4       |  |
| A5       | Rx1 -     |   | ← | Tx1 -     |   | C5       |  |
| A6       | GROUND    |   | — | GROUND    |   | C6       |  |
| A7       | Rx3+      |   | ← | Tx3+      |   | C7       |  |
| A8       | Rx3-      |   | ← | Tx3-      |   | C8       |  |
| A9       | GROUND    |   | — | GROUND    |   | C9       |  |

| SYMBOLS |   |                                         |  |
|---------|---|-----------------------------------------|--|
| →       | ← | HIGH SPEED SERIAL<br>DIFFERENTIAL PAIRS |  |
| →       | ← |                                         |  |
| —       |   | SIGNAL RETURN                           |  |
| ↔       |   |                                         |  |
|         |   | POWER AND MANAGEMENT INTERFACE          |  |

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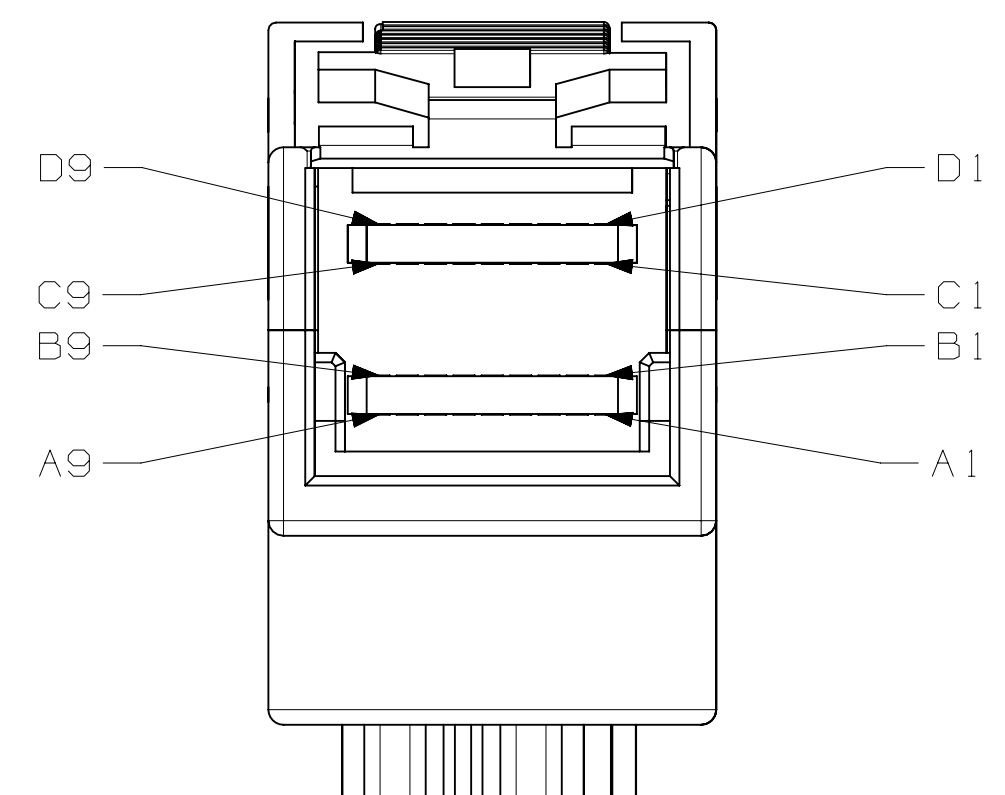
TABLE 2: WITH SIDEBANDS

| PINOUT 2 |        |   |        |          |  |
|----------|--------|---|--------|----------|--|
| P1       |        |   | P2     |          |  |
| POSITION | SYMBOL |   | SYMBOL | POSITION |  |
| D9       | GROUND | — | GROUND | B9       |  |
| D8       | Tx2-   | → | Rx2-   | B8       |  |
| D7       | Tx2+   | → | Rx2+   | B7       |  |
| D6       | GROUND | — | GROUND | B6       |  |
| D5       | Tx0-   | → | Rx0-   | B5       |  |
| D4       | Tx0+   | → | Rx0+   | B4       |  |
| D3       | GROUND | — | GROUND | B3       |  |
| C3       | GROUND | — | GROUND | A3       |  |
| C4       | Tx1+   | → | Rx1+   | A4       |  |
| C5       | Tx1-   | → | Rx1-   | A5       |  |
| C6       | GROUND | — | GROUND | A6       |  |
| C7       | Tx3+   | → | Rx3+   | A7       |  |
| C8       | Tx3-   | → | Rx3-   | A8       |  |
| C9       | GROUND | — | GROUND | A9       |  |
| B9       | GROUND | — | GROUND | D9       |  |
| B8       | Rx2-   | ← | Tx2-   | D8       |  |
| B7       | Rx2+   | ← | Tx2+   | D7       |  |
| B6       | GROUND | — | GROUND | D6       |  |
| B5       | Rx0-   | ← | Tx0-   | D5       |  |
| B4       | Rx0+   | ← | Tx0+   | D4       |  |
| B3       | GROUND | — | GROUND | D3       |  |
| A3       | GROUND | — | GROUND | C3       |  |
| A4       | Rx1+   | ← | Tx1+   | C4       |  |
| A5       | Rx1-   | ← | Tx1-   | C5       |  |
| A6       | GROUND | — | GROUND | C6       |  |
| A7       | Rx3+   | ← | Tx3+   | C7       |  |
| A8       | Rx3-   | ← | Tx3-   | C8       |  |
| A9       | GROUND | — | GROUND | C9       |  |

| SYMBOLS |   |                                         |
|---------|---|-----------------------------------------|
| →       | ← | HIGH SPEED SERIAL<br>DIFFERENTIAL PAIRS |
| →       | ← |                                         |
| —       |   | SIGNAL RETURN                           |
| ↔       |   | POWER AND MANAGEMENT INTERFACE          |

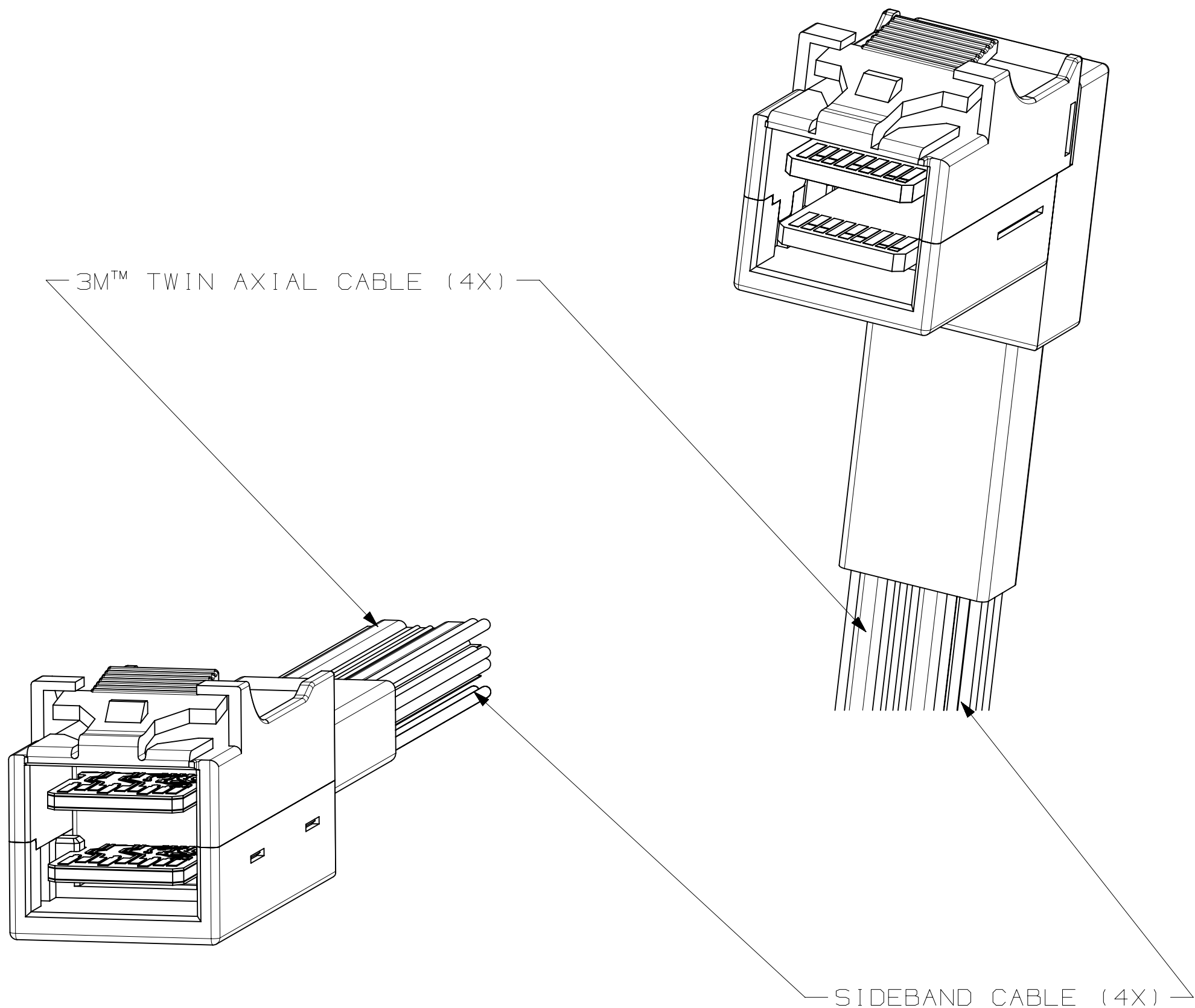
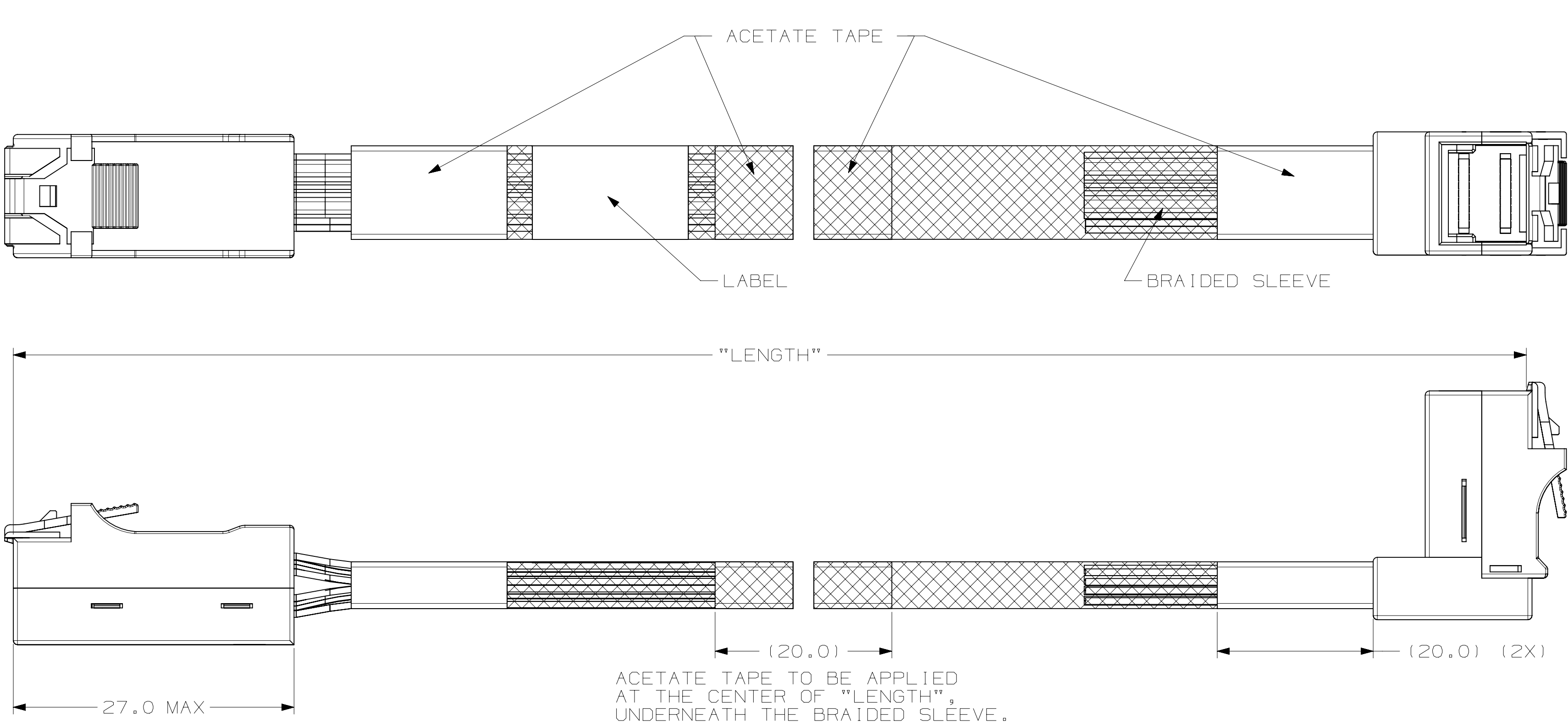
TABLE 3: WITHOUT SIDEBANDS



|                                 |  |  |  |  |  |               |  |  |  |                                                                                          |  |         |  |                            |  |                     |  |                   |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
|---------------------------------|--|--|--|--|--|---------------|--|--|--|------------------------------------------------------------------------------------------|--|---------|--|----------------------------|--|---------------------|--|-------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--------------------------------------------------------------------------------|--|------------|--|
|                                 |  |  |  |  |  |               |  |  |  | A                                                                                        |  | 0060617 |  | OCT 17, 2014               |  |                     |  | KHL               |  | SB                                                                                                                                                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| DESIGN REFERENCE                |  |  |  |  |  | NEXT ASSEMBLY |  |  |  | REV                                                                                      |  | ECO     |  | ISSUE DATE AND DESCRIPTION |  |                     |  | DRFT              |  | CHKD                                                                                                                                                                                                                                                                                                             |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| DISTRIBUTION CODES              |  |  |  |  |  |               |  |  |  | CHG KOK                                                                                  |  | HOE LEE |  | DATE OCT 17, 2014          |  | MFG                 |  | DATE              |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| DIVISION                        |  |  |  |  |  |               |  |  |  | CHD YUNLON                                                                               |  | QIAO    |  | DATE OCT 17, 2014          |  | APPRV SAJJUT BANDHU |  | DATE OCT 17, 2014 |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| DO NOT SCALE DRAWING            |  |  |  |  |  |               |  |  |  | TOLERANCES EXCEPT AS NOTED                                                               |  |         |  |                            |  |                     |  |                   |  | <div>© 3M COPYRIGHT 2015</div> <div>3M Center<br/>St. Paul,<br/>MN 55144</div> <div>This document and the information it contains are 3M property and may not be reproduced or further distributed without 3M permission, or used or disclosed other than for 3M authorized purposes. All rights reserved.</div> |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
|                                 |  |  |  |  |  |               |  |  |  | INCHES                                                                                   |  |         |  |                            |  |                     |  |                   |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| THIRD ANGLE PROJECTION          |  |  |  |  |  |               |  |  |  | MILLIMETERS                                                                              |  |         |  |                            |  |                     |  |                   |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |
| INTERPRET PER ASME Y14.5 - 1994 |  |  |  |  |  |               |  |  |  | .0 ±<br>.00 ±<br>.000 ±<br>.0000 ±                                                       |  |         |  |                            |  |                     |  |                   |  | CASE NUMBER<br><b>D</b> 78-5100-2651-7                                                                                                                                                                                                                                                                           |  |  |  |  |  |  |  |  |  | REV. A                                                                         |  |            |  |
| MAX SURFACE ROUGHNESS 125       |  |  |  |  |  |               |  |  |  | <input type="checkbox"/> ALL SURFACES<br><input checked="" type="checkbox"/> MARKED ONLY |  |         |  |                            |  |                     |  |                   |  | SIZE DRAWING NO.<br><b>D</b> 78-5100-2651-7                                                                                                                                                                                                                                                                      |  |  |  |  |  |  |  |  |  | DET. LISTS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |  | SHT 2 OF 4 |  |
|                                 |  |  |  |  |  |               |  |  |  | ANGLES ± 1°                                                                              |  |         |  |                            |  |                     |  |                   |  |                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                                |  |            |  |

3M™ HIGH ROUTABILITY INTERNAL MINISAS HD CABLE ASSEMBLIES, 8U SERIES

RIGHT-ANGLE - TO - STANDARD INTERNAL MINISAS HD CABLE ASSEMBLY



NOTES

1. FOR DETAILS ON RIGHT-ANGLE INTERNAL MINISAS HD CABLE ASSEMBLY, REFER TO SHEET 1 AND 2.
2. FOR DETAILS ON STANDARD INTERNAL MINISAS HD CABLE ASSEMBLY, REFER TO DRAWING NO. 78-5100-2555-0.

3M PART NUMBERING SCHEME

BUS4 - XXX 49 - 00 - X.XX

"LENGTH" IN METERS

"LENGTH" TOLERANCE

±10MM FOR "LENGTH" 0.5 METER MAX  
±15MM FOR "LENGTH" MORE THAN 0.5 METER

TABLE 4: DESCRIPTION FOR "XXX"

| XXX | PINOUT                                         | BRAIDED SLEEVE |
|-----|------------------------------------------------|----------------|
| AA1 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | YES            |
| AA2 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | NO             |
| CB1 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | YES            |
| CB2 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | NO             |

BUS4-XXX49-00-X.XX  
YYWWD

LABEL INFORMATION

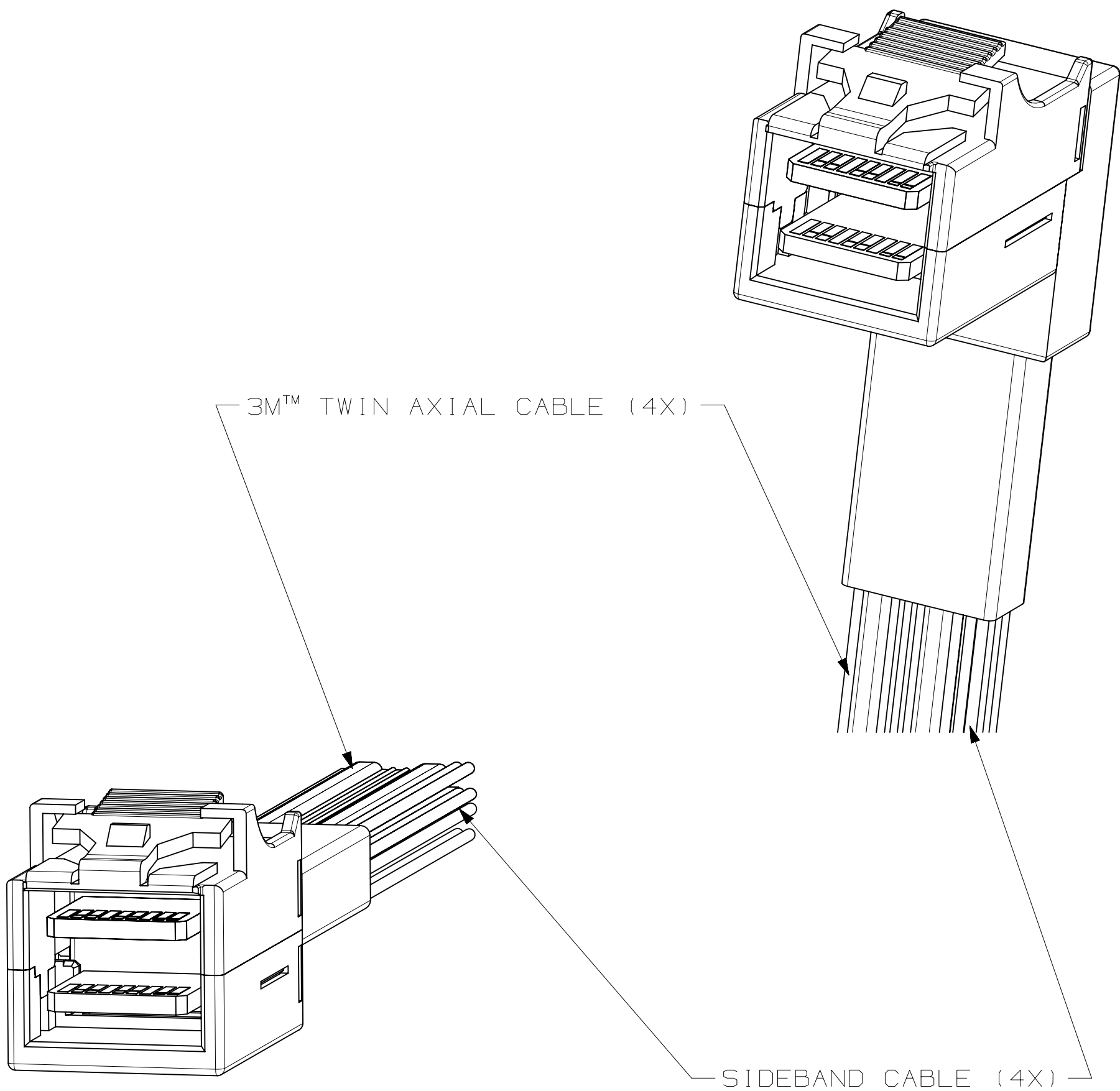
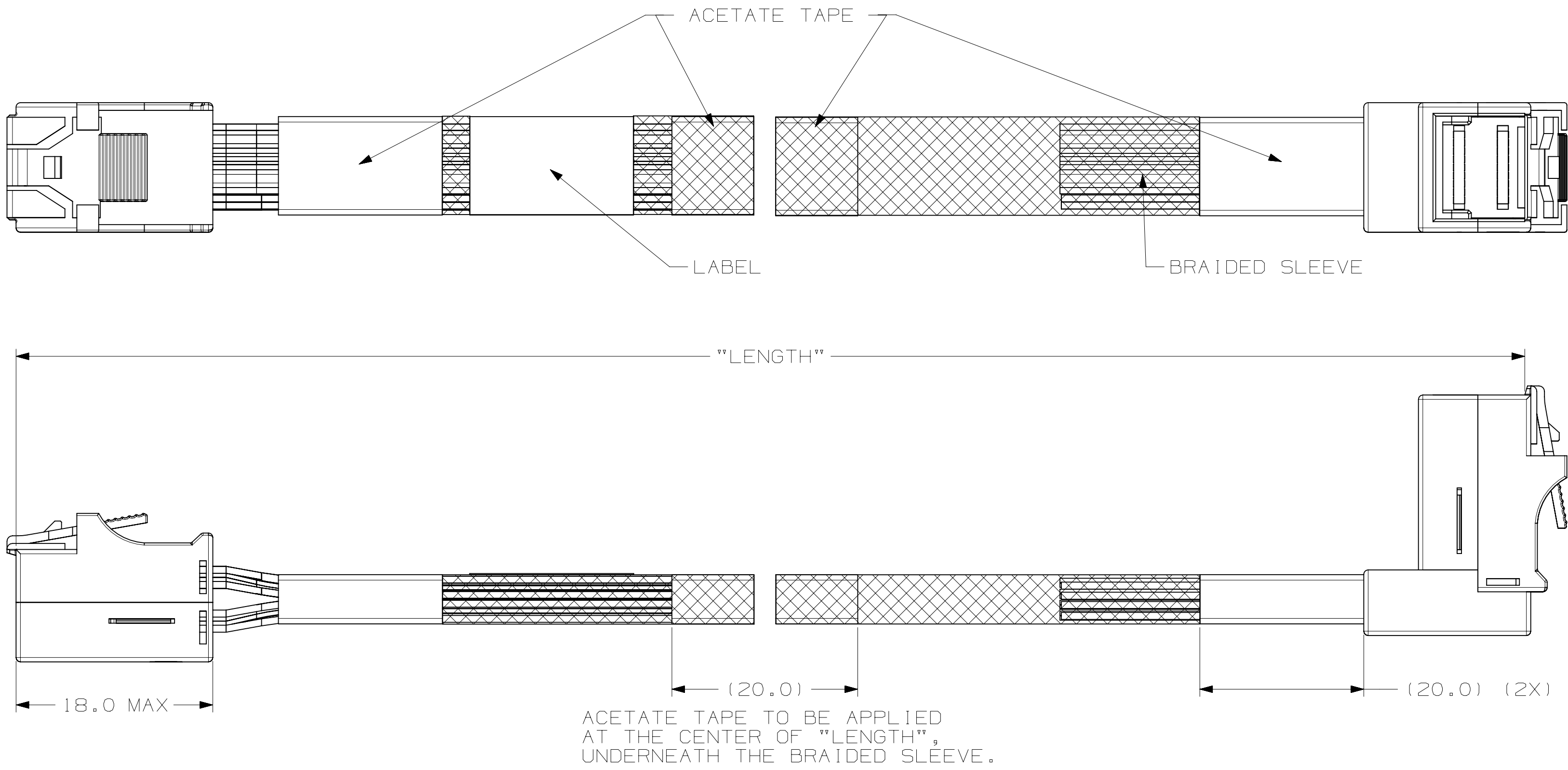
3M PART NUMBER

LOT NUMBER

|                            |  |                                                          |  |                            |              |                               |             |      |               |
|----------------------------|--|----------------------------------------------------------|--|----------------------------|--------------|-------------------------------|-------------|------|---------------|
| DESIGN REFERENCE           |  | NEXT ASSEMBLY                                            |  | REV                        | ECO          | ISSUE DATE AND DESCRIPTION    |             | DRFT | CHKD          |
| DISTRIBUTION CODES         |  |                                                          |  | DRP                        | KOK HOE LEE  | DATE                          | OCT 17,2014 | MFG  | DATE          |
| DIVISION                   |  | DIVISION CODE                                            |  | CHD                        | YUNLONG QIAO | DATE                          | OCT 17,2014 | APRV | SAUJIT BANDHU |
| DO NOT SCALE DRAWING       |  | SCALE 1/1                                                |  | TOLERANCES EXCEPT AS NOTED |              | INCHES                        |             |      |               |
| THIRD ANGLE PROJECTION     |  | INTERPRET PER ASME Y14.5 - 1994                          |  | MILLIMETERS                |              | 0 ± .1                        |             |      |               |
| MAX SURFACE ROUGHNESS 125/ |  | ALL SURFACES MARKED ONLY                                 |  | ANGLES ± 1°                |              | 0 ± .1<br>0 ± .05<br>0 ± .005 |             |      |               |
| TITLE                      |  | INTERNAL MINISAS HD CABLE ASSEMBLY RIGHT-ANGLE CONNECTOR |  | CAGE NUMBER                |              | SIZE                          | DRAWING NO. | REV. |               |
| MODEL                      |  | DET                                                      |  | LISTS                      |              | YES                           | NO          | SHT  | 3 OF 4        |

3M™ HIGH ROUTABILITY INTERNAL MINISAS HD CABLE ASSEMBLIES, 8U SERIES

RIGHT-ANGLE - TO - SHORTENED INTERNAL MINISAS HD CABLE ASSEMBLY



NOTES

1. FOR DETAILS ON RIGHT-ANGLE INTERNAL MINISAS HD CABLE ASSEMBLY, REFER TO SHEET 1 AND 2.
2. FOR DETAILS ON SHORTENED INTERNAL MINISAS HD CABLE ASSEMBLY, REFER TO DRAWING NO. 78-5100-2658-2.

3M PART NUMBERING SCHEME

8US4 - XXX 59 - 00 - X.XX

"LENGTH" IN METERS

"LENGTH" TOLERANCE

±10MM FOR "LENGTH" 0.5 METER MAX  
±15MM FOR "LENGTH" MORE THAN 0.5 METER

TABLE 5: DESCRIPTION FOR "XXX"

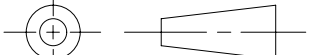
| XXX | PINOUT                                         | BRAIDED SLEEVE |
|-----|------------------------------------------------|----------------|
| AA1 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | YES            |
| AA2 | STD MINISAS HD 4i WITH SIDEBANDS (SEE TABLE 2) | NO             |
| CB1 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | YES            |
| CB2 | MINISAS HD 4i WITHOUT SIDEBANDS (SEE TABLE 3)  | NO             |

8US4-XXX59-00-X.XX  
YYWWD

LABEL INFORMATION

3M PART NUMBER

LOT NUMBER

|                                                                                       |  |                                       |  |                                            |  |                              |  |                                    |  |                                                                                                                                                                                                                             |  |
|---------------------------------------------------------------------------------------|--|---------------------------------------|--|--------------------------------------------|--|------------------------------|--|------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| DESIGN REFERENCE                                                                      |  | NEXT ASSEMBLY                         |  | A 0060617                                  |  | OCT 17, 2014                 |  | KHL                                |  | SB                                                                                                                                                                                                                          |  |
| REV                                                                                   |  | ECO                                   |  | ISSUE DATE AND DESCRIPTION                 |  | DRFT                         |  | CHKD                               |  |                                                                                                                                                                                                                             |  |
| DISTRIBUTION CODES                                                                    |  |                                       |  | KOK HOE LEE                                |  | OCT 17, 2014                 |  | INFO                               |  | DATE                                                                                                                                                                                                                        |  |
| CHD                                                                                   |  | YUNLONG QIAO                          |  | DATE                                       |  | OCT 17, 2014                 |  | APPR                               |  | SAJJU BANDHU                                                                                                                                                                                                                |  |
| DATE                                                                                  |  |                                       |  |                                            |  |                              |  | DATE                               |  | OCT 17, 2014                                                                                                                                                                                                                |  |
| DIVISION                                                                              |  |                                       |  | DIVISION CODE                              |  |                              |  |                                    |  |                                                                                                                                                                                                                             |  |
| DO NOT SCALE DRAWING                                                                  |  | SCALE 1/1                             |  | TOLERANCES EXCEPT AS NOTED                 |  | 3M Center St. Paul, MN 55144 |  | © 3M COPYRIGHT 2015                |  | This document and the information it contains are 3M property and may not be reproduced or further distributed without written permission, or used or disclosed other than for 3M authorized purposes. All rights reserved. |  |
|  |  |                                       |  | INCHES .00 .01 .000 ± .0000 ±              |  | TITLE                        |  | INTERNAL MINISAS HD CABLE ASSEMBLY |  | RIGHT-ANGLE CONNECTOR                                                                                                                                                                                                       |  |
| THIRD ANGLE PROJECTION                                                                |  |                                       |  | MILLIMETERS 0 ±1 .0 ±.5 .0 ±.05 .000 ±.005 |  | CAGE NUMBER                  |  | SIZE                               |  | DRAWING NO.                                                                                                                                                                                                                 |  |
| INTERPRET PER ASME Y14.5 - 1994                                                       |  |                                       |  |                                            |  | D                            |  | 78-5100-2651-7                     |  | REV.                                                                                                                                                                                                                        |  |
| MAX SURFACE ROUGHNESS 125/                                                            |  | <input type="checkbox"/> ALL SURFACES |  | ANGLES ±1°                                 |  | MODEL                        |  | DET                                |  | YES                                                                                                                                                                                                                         |  |
| <input checked="" type="checkbox"/> MARKED ONLY                                       |  |                                       |  |                                            |  |                              |  | LISTS                              |  | YES                                                                                                                                                                                                                         |  |
|                                                                                       |  |                                       |  |                                            |  |                              |  | SHT                                |  | 4 OF 4                                                                                                                                                                                                                      |  |

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