

# ABA Industry, Inc.

## Specification for Approval

### Product Part Number

- TSP2304S03XX

### Product Description

- F/UTP, 23AWG solid bare copper, CAT.6A, CMP
- With cross filler
- Overall metal foil screen with drain wire

### Product Features

- High performance of transmission.
- High quality of safety property.
- Sweep frequency up to 660 MHz.

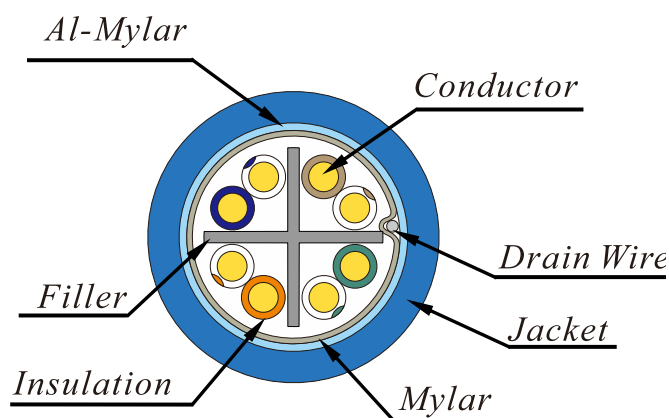
### Application

- Structure cabling for horizontal and building backbone cable.
- Transmission of digital and analogue for data, video and audio applications.
- Overall metal shielded providing good protection from EMI noise.
- IEEE 802.3an 10GBASE-T and legacy speeds.
- CDDI / ATM / Token Ring
- IEEE 802.3af (PoE) / IEEE 802.3at (PoE+)

### Applicable Standard

- Electrical Transmission
  - ANSI/TIA-568.2-D (2018)
  - ISO/IEC 11801-1
  - IEC 61156-5 (Edition 2.1)
- Flame Test
  - NFPA 262 (CMP)
- Material and Construction
  - UL 444 UL 444
  - LP-Rating 0.5A&0.6A
  - CSA 22.2 NO.214
- EU Directive 2011/65/EU & 2015/863/EU
- EU Directive 2006/95/EC (LVD)

### Sectional Drawing



**All Material According To SS-00259**

|                |            |         |     |              |            |
|----------------|------------|---------|-----|--------------|------------|
| Establish Date | 2014.03.01 | Edition | 1.5 | Revised Date | 2022.12.02 |
|----------------|------------|---------|-----|--------------|------------|

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### Material and Construction

|            |                                                                                                                                                                  |                                                        |                |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------|
| Conductor  | Material                                                                                                                                                         | 23AWG solid bare copper                                |                |
| Insulation | Material                                                                                                                                                         | Fluorinated Ethylene Propylene (FEP)                   |                |
|            | Color code & diameter                                                                                                                                            | Blue & white/blue stripe                               | 1.09 ± 0.02 mm |
|            |                                                                                                                                                                  | Orange & white/orange stripe                           | 1.02 ± 0.02 mm |
|            |                                                                                                                                                                  | Green & white/green stripe                             | 1.08 ± 0.02 mm |
|            |                                                                                                                                                                  | Brown & white/brown stripe                             | 1.02 ± 0.02 mm |
| Twisted    | Description                                                                                                                                                      | Left hand direction                                    |                |
| Filler     | Material                                                                                                                                                         | Fluorinated Ethylene Propylene (FEP)                   |                |
| Assembly   | Description                                                                                                                                                      | Left hand direction                                    |                |
| Shield     | Material                                                                                                                                                         | Mylar tape                                             |                |
| Drain wire | Material                                                                                                                                                         | 26AWG solid tinned copper                              |                |
| Shield     | Material                                                                                                                                                         | Al Mylar tape                                          |                |
|            | Description                                                                                                                                                      | 100 % coverage and mylar side facing out               |                |
| Jacket     | Material                                                                                                                                                         | Low smoke flame retardant polyvinyl chloride (LSFRPVC) |                |
|            | Diameter                                                                                                                                                         | 6.9 ± 0.2 mm                                           |                |
|            | Thickness                                                                                                                                                        | 0.40 ± 0.05 mm                                         |                |
|            | Color                                                                                                                                                            | Per customer's request                                 |                |
| Marking    | ELITE 10GS CAT 6A --- E142890 FTP 4PR 23AWG 90°C C(UL)US CMP-LP (0.6A)(PCC-FT6) ---<br>ETL VERIFIED TO TIA-568.2-D CAT 6A mmyy <sup>1</sup> RoHS COMPLIANT XXXFT |                                                        |                |
|            | Note 1: mmyy is date code.                                                                                                                                       |                                                        |                |

### Usage & Environmental Condition

|                         |                    |                               |
|-------------------------|--------------------|-------------------------------|
| Temperature range       | Storage & shipping | -20°C to 75°C                 |
|                         | Installation       | 0°C to 60°C                   |
|                         | Operation          | -20°C to 90°C                 |
| Minimum bending radius  |                    | ≥ 8 times of overall diameter |
| Maximum pulling tension |                    | ≤ 110 N                       |

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### Physical & Electrical Characteristics (at 20°C)

|                                           |                   |
|-------------------------------------------|-------------------|
| Voltage rating                            | 300V              |
| Spark test                                | 2.5 KV DC         |
| AC leakage current through overall jacket | ≤ 10mA (1.5KV AC) |
| Cable cold bend                           | -20°C for 4 hr    |
| Conductor DC resistance                   | ≤ 9.38 Ω/100m     |
| Resistance unbalance                      | ≤ 4%              |
| Dielectric strength                       | 1.5 KV ac for 2 s |
| Insulation resistance                     | ≥ 5000 MΩ • km    |
| Mutual capacitance                        | ≤ 5.6 nF/100m     |
| Capacitance unbalance pair-to-ground      | ≤ 330 pF/100m     |
| Nominal Velocity of Propagation           | 70%               |

### Transmission Performance (at 20°C)

| Frequency | IL              | NEXT            | PS.<br>NEXT     | ACR             | PS.<br>ACR      | ACRF            | PS.<br>ACRF     | RL              | Propagation<br>Delay | Delay<br>Skew   |
|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|-----------------|
| (MHz)     | Max.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Min.<br>dB/100m | Max.<br>ns/100m      | Max.<br>ns/100m |
| 1         | 2.08            | 74.30           | 72.30           | 72.22           | 70.22           | 67.80           | 64.80           | 20.00           | 570.00               | 45.00           |
| 4         | 3.80            | 65.27           | 63.27           | 61.47           | 59.47           | 55.76           | 52.76           | 23.01           | 552.00               |                 |
| 8         | 5.31            | 60.75           | 58.75           | 55.44           | 53.44           | 49.74           | 46.74           | 24.52           | 546.73               |                 |
| 10        | 5.93            | 59.30           | 57.30           | 53.37           | 51.37           | 47.80           | 44.80           | 25.00           | 545.38               |                 |
| 16        | 7.49            | 56.24           | 54.24           | 48.75           | 46.75           | 43.72           | 40.72           | 25.00           | 543.00               |                 |
| 20        | 8.38            | 54.78           | 52.78           | 46.41           | 44.41           | 41.78           | 38.78           | 25.00           | 542.05               |                 |
| 25        | 9.38            | 53.33           | 51.33           | 43.95           | 41.95           | 39.84           | 36.84           | 24.32           | 541.20               |                 |
| 31.25     | 10.50           | 51.88           | 49.88           | 41.37           | 39.37           | 37.90           | 34.90           | 23.64           | 540.44               |                 |
| 62.5      | 14.99           | 47.36           | 45.36           | 32.37           | 30.37           | 31.88           | 28.88           | 21.54           | 538.55               |                 |
| 100       | 19.14           | 44.30           | 42.30           | 25.17           | 23.17           | 27.80           | 24.80           | 20.11           | 537.60               |                 |
| 150       | 23.68           | 41.66           | 39.66           | 17.98           | 15.98           | 24.28           | 21.28           | 18.87           | 536.94               |                 |
| 200       | 27.58           | 39.78           | 37.78           | 12.21           | 10.21           | 21.78           | 18.78           | 18.00           | 536.55               |                 |
| 250       | 31.07           | 38.33           | 36.33           | 7.26            | 5.26            | 19.84           | 16.84           | 17.32           | 536.28               |                 |
| 300       | 34.27           | 37.14           | 35.14           | 2.88            | 0.88            | 18.26           | 15.26           | 16.77           | 536.08               |                 |
| 350       | 37.25           | 36.14           | 34.14           | N.A.            | N.A.            | 16.92           | 13.92           | 16.30           | 535.92               |                 |
| 400       | 40.05           | 35.27           | 33.27           | N.A.            | N.A.            | 15.76           | 12.76           | 15.89           | 535.80               |                 |
| 450       | 42.71           | 34.50           | 32.50           | N.A.            | N.A.            | 14.74           | 11.74           | 15.53           | 535.70               |                 |
| 500       | 45.26           | 33.82           | 31.82           | N.A.            | N.A.            | 13.82           | 10.82           | 15.21           | 535.61               |                 |
| 550       | 47.70           | 33.19           | 31.19           | N.A.            | N.A.            | 12.99           | 9.99            | 14.92           | 535.54               |                 |
| 600       | 50.05           | 32.63           | 30.63           | N.A.            | N.A.            | 12.24           | 9.24            | 14.66           | 535.47               |                 |
| 650       | 52.33           | 32.11           | 30.11           | N.A.            | N.A.            | 11.54           | 8.54            | 14.42           | 535.41               |                 |
| 660       | 52.77           | 32.01           | 30.01           | N.A.            | N.A.            | 11.41           | 8.41            | 14.37           | 535.40               |                 |

Values above 500MHz are for information only.

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### Shipping Information

| Item         | Dimension                    | Nominal net weight  |
|--------------|------------------------------|---------------------|
| Cable        | 305 m                        | 16.82 kg (37.08 lb) |
| Plywood reel | D380 x d220 x H334 x h310 mm | 3.5 kg              |
| Pallet       | 1100 x1150 x110 mm           | 14.1 kg             |

| Container type | Capacity of pallet | Pallet of reel | Capacity of reel |
|----------------|--------------------|----------------|------------------|
| 20 feet        | 20                 | 24/24          | 480              |
| 40 feet        | 38                 | 24/24          | 912              |
| 40 feet HQ     | 38                 | 24/24          | 912              |

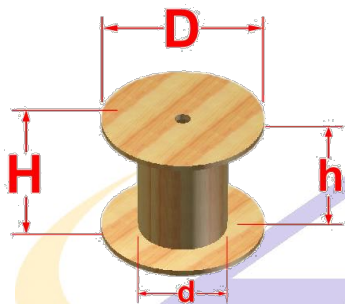
Shipping could use standard delivery form or per customer's request.

Package information above is calculated by maximum container capacity, and for reference only.

All shipments must follow your local transportation regulation for gross weight limit.

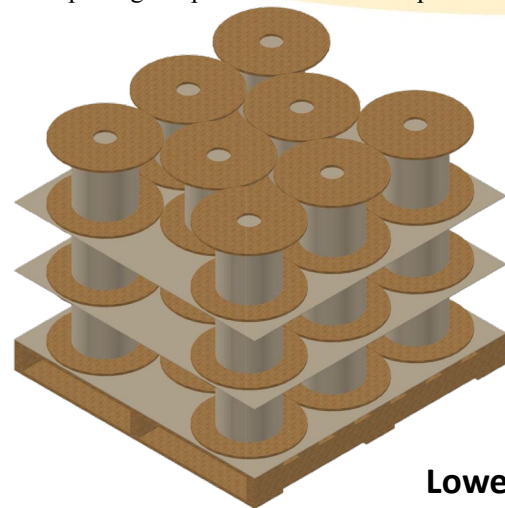
### Schematic Drawing of Reel & Package

Fumigated plywood reel.

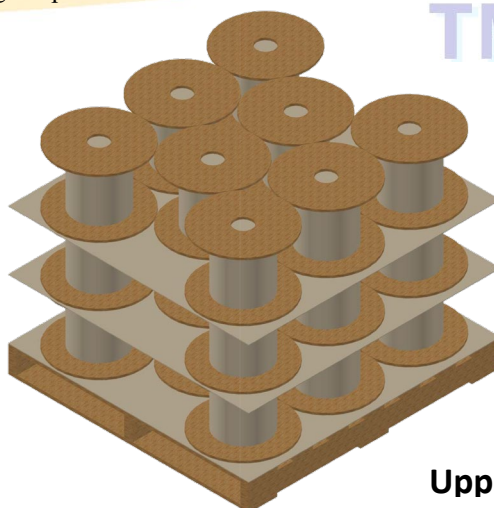


### Schematic Drawing of Package

Each package of pallet delivered with plastic wrap and packing strap.



**Lower Pallet**



**Upper Pallet**

AK001 / 210×297 / 1.1

### Revised Information

| Edition | Revised Description                                             | Revised Date |
|---------|-----------------------------------------------------------------|--------------|
| 1.3     | Revised the size of the pallet                                  | 2022.04.29   |
| 1.4     | Add Voltage rating                                              | 2022.07.27   |
| 1.5     | Revised the Temperature range, and remove the Temperature rated | 2022.12.02   |