

# ABA Industry, Inc.

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## Specification for Approval

### SPECIFICATION

STYLE F/UTP 23AWG x 4P (SOLID)  
CAT.6 CMR

P/N TSR2404N70XX

DATE 2024/05/09

EDITION 1.8

CUSTOMER APPROVE

*Jimmy Chang*

TM

DATE 2024/05/15

| APPROVAL        | CONFIRM          | MAKER            |
|-----------------|------------------|------------------|
| <i>Glen Lin</i> | <i>W.J. Wang</i> | <i>Benson Li</i> |

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### ISSUE AND REVISION RECORD

| REV. No. | DESCRIPTION               | DATE       |
|----------|---------------------------|------------|
| 1.6      | Modify plywood reel size. | 2024/05/09 |



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### Product Part Number

- TSR2404N70XX

### Product Description

- F/UTP, 23AWG solid bare copper, CAT.6, CMR
- 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 550 MHz.

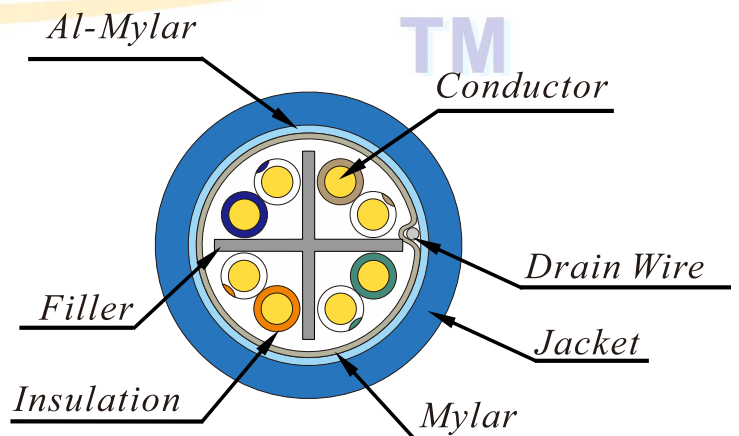
### Application

- 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 802.3ab 1000BASE-T, 1000BASE-TX and legacy speeds.
- CDDI / ATM / Token Ring
- IEEE 802.3af (PoE) / IEEE 802.3at (PoE+) / IEEE 802.3bt (PoE++)

### Applicable Standard

- Electrical Transmission
  - ANSI/TIA-568.2-D (2018)
  - ISO/IEC 11801-1
  - IEC 61156-5 (Edition 2.1)
- Flame Test
  - UL 1666 (CMR)
- Material and Construction
  - UL 444
  - CSA 22.2 NO.214
- EU Directive 2011/65/EU & 2015/863/EU
- EU Directive 2006/95/EC (LVD)
- CPR Class Eca

### Sectional Drawing



All Material According To SS-00259

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### Material and Construction

|                            |                                                                                                                                                                                                       |                                            |                |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------|
| Conductor                  | Material                                                                                                                                                                                              | 23AWG solid bare copper                    |                |
| Insulation                 | Material                                                                                                                                                                                              | Polyolefin (PO)                            |                |
|                            | Color code & diameter                                                                                                                                                                                 | Blue & white/blue                          | 1.08 ± 0.02 mm |
|                            |                                                                                                                                                                                                       | Orange & white/orange                      | 1.05 ± 0.02 mm |
|                            |                                                                                                                                                                                                       | Green & white/green                        | 1.08 ± 0.02 mm |
|                            |                                                                                                                                                                                                       | Brown & white/brown                        | 1.05 ± 0.02 mm |
| Twisted                    | Description                                                                                                                                                                                           | Left hand direction                        |                |
| Filler                     | Material                                                                                                                                                                                              | Polyolefin (PO)                            |                |
| 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                                                                                                                                                                                              | Flame retardant polyvinyl chloride (FRPVC) |                |
|                            | Diameter                                                                                                                                                                                              | 7.2 ± 0.2 mm                               |                |
|                            | Thickness                                                                                                                                                                                             | 0.45 ± 0.05 mm                             |                |
|                            | Color                                                                                                                                                                                                 | Per customer's request                     |                |
| Marking                    | ELITE 1000X CAT 6 GIGASYSTEM TESTED TO 550MHz---E142890 FTP 4PR 23AWG 75°C C(UL)US<br>CMR-LP (0.5A)---FT4 ETL & 3P VERIFIED TO TIA-568.2-D ISO/IEC 11801-1 mmyy <sup>1</sup> RoHS<br>COMPLIANT XXXXFT |                                            |                |
| 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 75°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                      | ≤ 5%              |
| 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           | 68%               |

### Transmission Performance (at 20°C)

| Frequency | IL              | NEXT            | PS.NEXT         | ACR             | PS.ACR          | ACRF            | PS.ACRF         | RL              | Propagation Delay | Delay 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         | 2.03            | 74.30           | 72.30           | 72.28           | 70.28           | 67.80           | 64.80           | 20.00           | 570.00            | 45.00           |
| 4         | 3.78            | 65.27           | 63.27           | 61.49           | 59.49           | 55.76           | 52.76           | 23.01           | 552.00            |                 |
| 8         | 5.32            | 60.75           | 58.75           | 55.43           | 53.43           | 49.74           | 46.74           | 24.52           | 546.73            |                 |
| 10        | 5.95            | 59.30           | 57.30           | 53.35           | 51.35           | 47.80           | 44.80           | 25.00           | 545.38            |                 |
| 16        | 7.55            | 56.24           | 54.24           | 48.68           | 46.68           | 43.72           | 40.72           | 25.00           | 543.00            |                 |
| 20        | 8.47            | 54.78           | 52.78           | 46.31           | 44.31           | 41.78           | 38.78           | 25.00           | 542.05            |                 |
| 25        | 9.51            | 53.33           | 51.33           | 43.83           | 41.83           | 39.84           | 36.84           | 24.32           | 541.20            |                 |
| 31.25     | 10.67           | 51.88           | 49.88           | 41.20           | 39.20           | 37.90           | 34.90           | 23.64           | 540.44            |                 |
| 62.5      | 15.38           | 47.36           | 45.36           | 31.98           | 29.98           | 31.88           | 28.88           | 21.54           | 538.55            |                 |
| 100       | 19.80           | 44.30           | 42.30           | 24.50           | 22.50           | 27.80           | 24.80           | 20.11           | 537.60            |                 |
| 150       | 24.71           | 41.66           | 39.66           | 16.95           | 14.95           | 24.28           | 21.28           | 18.87           | 536.94            |                 |
| 200       | 28.98           | 39.78           | 37.78           | 10.80           | 8.80            | 21.78           | 18.78           | 18.00           | 536.55            |                 |
| 250       | 32.85           | 38.33           | 36.33           | 5.48            | 3.48            | 19.84           | 16.84           | 17.32           | 536.28            |                 |
| 300       | 36.43           | 37.14           | 35.14           | 0.72            | N.A.            | 18.26           | 15.26           | 16.77           | 536.08            |                 |
| 350       | 39.79           | 36.14           | 34.14           | N.A.            | N.A.            | 16.92           | 13.92           | 16.30           | 535.92            |                 |
| 400       | 42.97           | 35.27           | 33.27           | N.A.            | N.A.            | 15.76           | 12.76           | 15.89           | 535.80            |                 |
| 450       | 46.01           | 34.50           | 32.50           | N.A.            | N.A.            | 14.74           | 11.74           | 15.53           | 535.70            |                 |
| 500       | 48.94           | 33.82           | 31.82           | N.A.            | N.A.            | 13.82           | 10.82           | 15.21           | 535.61            |                 |
| 550       | 51.76           | 33.19           | 31.19           | N.A.            | N.A.            | 12.99           | 9.99            | 14.92           | 535.54            |                 |

Values above 250MHz are for information only.

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### Shipping Information

| Item         | Dimension                    | Nominal net weight  |
|--------------|------------------------------|---------------------|
| Cable        | 305 m                        | 15.14 kg (33.38 lb) |
| Plywood reel | D380 x d220 x H270 x h250 mm | 2.1 kg              |
| Pallet       | 1100 x1150 x110 mm           | 15.0 kg             |

| Container type | Capacity of pallet | Pallet of reel | Capacity of reel |
|----------------|--------------------|----------------|------------------|
| 20 feet        | 20                 | 24/32          | 560              |
| 40 feet        | 38                 | 24/32          | 1064             |
| 40 feet HQ     | 34                 | 32/32          | 1088             |

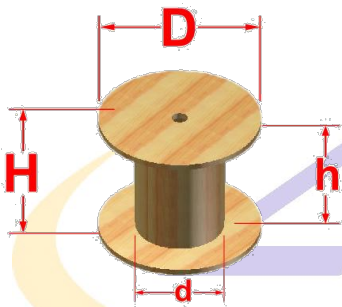
Shipping could use standard delivery form or per customer's request.

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.

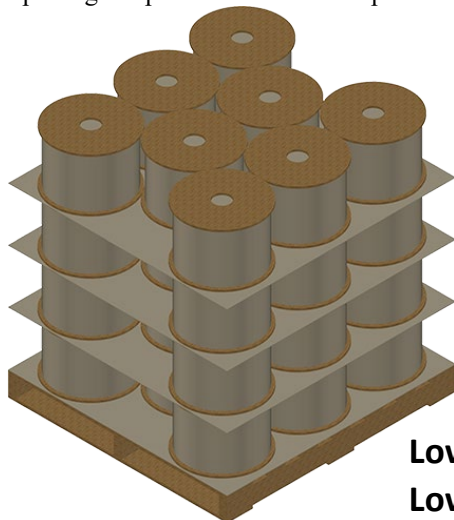
### Schematic Drawing of Reel & Package

Fumigated plywood reel.

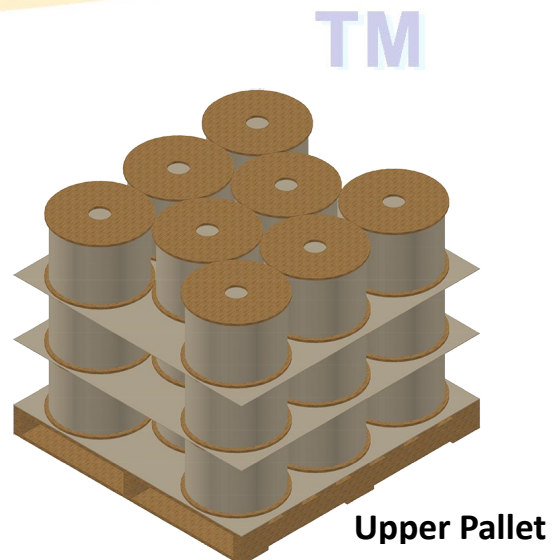


### Schematic Drawing of Package

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



**Lower Pallet**  
**Lower Pallet(HQ)**  
**Upper Pallet(HQ)**



**Upper Pallet**

AK001 / 210×297 / 1.1