

# ABA Industry, Inc.

## Specification for Approval

### Product Part Number

- TPM2404N70XX

### Product Description

- U/UTP, 24AWG stranded bare copper, CAT.6, CM

### Product Features

- High performance of transmission.
- High quality of safety property.
- Sweep frequency up to 400 MHz.
- Reelex II carton and easy to pull out.
- Carton with one layer corrugated design providing sufficient strength and saving packaging space.

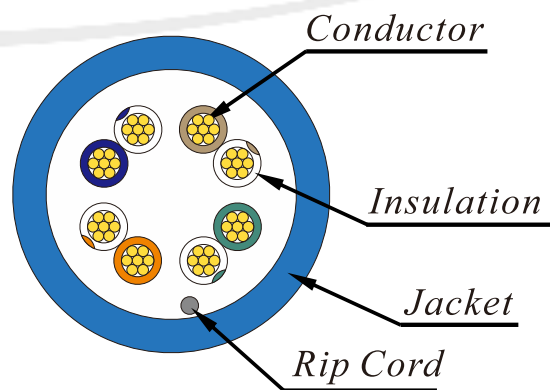
### Application

- Structure cabling for patch cable.
- Transmission of digital and analogue for data, video and audio applications.
- IEEE 802.3ab 1000BASE-T, 1000BASE-TX and legacy speeds.
- CDDI / ATM / Token Ring
- IEEE 802.3af (PoE) / IEEE 802.3at (PoE+)

### Applicable Standard

- Electrical Transmission
  - ANSI/TIA-568-C.2 (2009)
  - ISO/IEC 11801 (Edition 2.2)
  - IEC 61156-6 (Edition 2.0)
- Flame Test
  - UL 1685 (CM)
- Material and Construction
  - UL 444
  - CSA 22.2 NO.214
- EU Directive 2011/65/EC (RoHS2)
- EU Directive 2006/95/EC (LVD)
- CE compliance date: 2010.01.01

### Sectional Drawing



|                |            |         |     |              |  |
|----------------|------------|---------|-----|--------------|--|
| Establish Date | 2014.03.01 | Edition | 1.0 | Revised Date |  |
|----------------|------------|---------|-----|--------------|--|

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### Material and Construction

|            |                                                                                                                                                                                             |                                            |                |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------|
| Conductor  | Material                                                                                                                                                                                    | 24AWG stranded bare copper                 |                |
| Insulation | Material                                                                                                                                                                                    | Polyolefin (PO)                            |                |
|            | Color code & diameter                                                                                                                                                                       | Blue & white/blue Stripe                   | 1.01 ± 0.02 mm |
|            |                                                                                                                                                                                             | Orange & white/orange stripe               | 0.97 ± 0.02 mm |
|            |                                                                                                                                                                                             | Green & white/green stripe                 | 1.00 ± 0.02 mm |
|            |                                                                                                                                                                                             | Brown & white/brown stripe                 | 0.97 ± 0.02 mm |
| Twisted    | Description                                                                                                                                                                                 | Left hand direction                        |                |
| Assembly   | Description                                                                                                                                                                                 | Left hand direction                        |                |
| Jacket     | Material                                                                                                                                                                                    | Flame retardant polyvinyl chloride (FRPVC) |                |
|            | Diameter                                                                                                                                                                                    | 5.4 ± 0.2 mm                               |                |
|            | Thickness                                                                                                                                                                                   | 0.50 ± 0.05 mm                             |                |
|            | Color                                                                                                                                                                                       | Per customer`s request                     |                |
| Marking    | ELITE 1000X PATCH CABLE CAT 6 GIGASYSTEM---E142890 UTP 4PR 24AWG 75°C C(UL)US CM---ETL<br>VERIFIED TO TIA-568-C.2 mmyy <sup>1</sup> RoHS COMPLIANT XXXXFT<br><br>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 60°C                      |
| Minimum bending radius  |                    | $\geq 4$ times of overall diameter |
| Maximum pulling tension |                    | $\leq 110$ N                       |

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

|                                           |                   |
|-------------------------------------------|-------------------|
| Temperature & voltage rating              | 75°C / 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                   | ≤ 14 Ω/100m       |
| Resistance unbalance                      | ≤ 5%              |
| Dielectric strength                       | 1.5 KV ac for 2 s |
| Insulation resistance                     | ≥ 5000 MΩ • m     |
| Mutual capacitance                        | ≤ 5.6 nF/100m     |
| Capacitance unbalance pair-to-ground      | ≤ 160 pF/100m     |

### 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         | 2.43            | 77.30           | 75.30           | 74.87           | 72.87           | 70.80           | 67.80           | 20.00           | 570.00            | 45.00           |
| 4         | 4.54            | 68.27           | 66.27           | 63.73           | 61.73           | 58.76           | 55.76           | 23.01           | 552.00            |                 |
| 8         | 6.38            | 63.75           | 61.75           | 57.37           | 55.37           | 52.74           | 49.74           | 24.52           | 546.73            |                 |
| 10        | 7.14            | 62.30           | 60.30           | 55.16           | 53.16           | 50.80           | 47.80           | 25.00           | 545.38            |                 |
| 16        | 9.06            | 59.24           | 57.24           | 50.17           | 48.17           | 46.72           | 43.72           | 25.00           | 543.00            |                 |
| 20        | 10.16           | 57.78           | 55.78           | 47.62           | 45.62           | 44.78           | 41.78           | 25.00           | 542.05            |                 |
| 25        | 11.41           | 56.33           | 54.33           | 44.92           | 42.92           | 42.84           | 39.84           | 24.17           | 541.20            |                 |
| 31.25     | 12.81           | 54.88           | 52.88           | 42.07           | 40.07           | 40.90           | 37.90           | 23.33           | 540.44            |                 |
| 62.5      | 18.46           | 50.36           | 48.36           | 31.90           | 29.90           | 34.88           | 31.88           | 20.74           | 538.55            |                 |
| 100       | 23.76           | 47.30           | 45.30           | 23.54           | 21.54           | 30.80           | 27.80           | 18.99           | 537.60            |                 |
| 150       | 29.65           | 44.66           | 42.66           | 15.01           | 13.01           | 27.28           | 24.28           | 17.47           | 536.94            |                 |
| 200       | 34.78           | 42.78           | 40.78           | 8.00            | 6.00            | 24.78           | 21.78           | 16.40           | 536.55            |                 |
| 250       | 39.42           | 41.33           | 39.33           | N.A.            | N.A.            | 22.84           | 19.84           | 15.57           | 536.28            |                 |
| 300       | 43.71           | 40.14           | 38.14           | N.A.            | N.A.            | 21.26           | 18.26           | 14.89           | 536.08            |                 |
| 350       | 47.74           | 39.14           | 37.14           | N.A.            | N.A.            | 19.92           | 16.92           | 14.31           | 535.92            |                 |
| 400       | 51.56           | 38.27           | 36.27           | N.A.            | N.A.            | 18.76           | 15.76           | 13.81           | 535.80            |                 |

Values above 250MHz are for information only.

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### Shipping Information

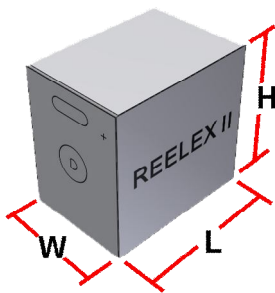
| Item             | Dimension             | Nominal net weight |
|------------------|-----------------------|--------------------|
| Cable            | 305 m                 | 9.73 kg (20.78 lb) |
| Reelex II Carton | L374 x W260 x H360 mm | 900 g              |
| Pallet           | 1150 x1150 x120 mm    | 14.1 kg            |

| Container type | Capacity of pallet | Capacity of carton |
|----------------|--------------------|--------------------|
| 20 feet        | 20                 | 600                |
| 40 feet        | 40                 | 1200               |

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

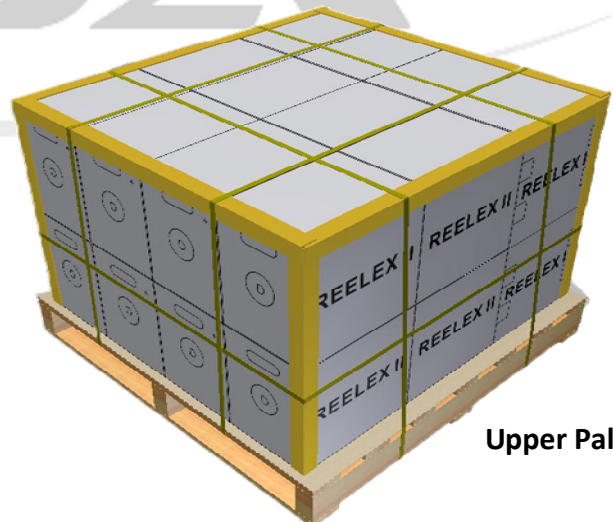
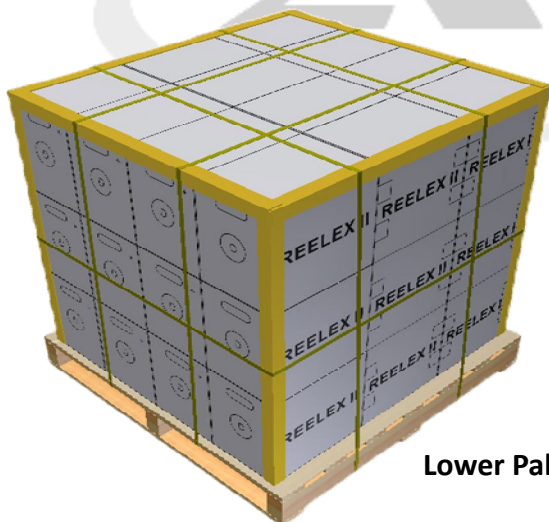
### Schematic Drawing of Carton

One layer corrugated Reelex II carton.



### Schematic Drawing of Package

Each package of pallet delivered with plastic wrap, packing strap and paper corner protector.



### Revised Information

| Edition | Revised Description | Revised Date |
|---------|---------------------|--------------|
|         |                     |              |
|         |                     |              |
|         |                     |              |