


# TECHNICAL SPECIFICATIONS

## Planar Optical Splitter Module (1 \_ 2 □ N ISO Color)

|   |                            |              |               |
|---|----------------------------|--------------|---------------|
|  | <b>PLC Splitter Module</b> | Document No. | YX - SP-S06-1 |
| <b>YAAX Communications</b>  |                            | Date         | June.18.2014  |
|   |                            | Page         |               |

## 1. Document History

| Rev. | Approve Date  | Originator | Change Description  |
|------|---------------|------------|---------------------|
| 01   | Aug. 24, 2010 | LGI KMW    | Initial Optical     |
| 02   | Jan. 16, 2013 | OSI        | Specifications      |
| 03   | Mar. 16, 2014 |            | Re - specifications |
|      |               |            |                     |

## 2. General Description

This document details specifications of 1□N / 2□N PLC splitter modules manufactured by **Yaax Communications**

## 3. Optical Characteristic

### 3.1 Specification (without Connector)

| Parameter                   | Unit | Specifications                      |       |       |        |        |        |
|-----------------------------|------|-------------------------------------|-------|-------|--------|--------|--------|
|                             |      | 1 □ 2                               | 1 □ 4 | 1 □ 8 | 1 □ 16 | 1 □ 32 | 1X64   |
| Insertion loss (max., S/P)  | dB   | ≤ 4.0                               | ≤ 7.2 | ≤10.5 | ≤13.8  | ≤17.2  | ≤ 21.0 |
| Loss uniformity (max., S/P) | dB   | ≤ 0.6                               | ≤ 0.7 | ≤1.0  | ≤1.2   | ≤1.5   | ≤ 1.8  |
| PDL (max., S/P)             | dB   | ≤ 0.2                               | ≤ 0.2 | ≤0.2  | ≤0.3   | ≤0.3   | ≤ 0.35 |
| Return loss (min)           | dB   | ≥ 55.0                              |       |       |        |        |        |
| Directivity (min)           | dB   | ≥ 55.0                              |       |       |        |        |        |
| Case type                   |      | According to customer's requirement |       |       |        |        |        |

Measured at room temperature, and wavelength of 1260nm & 1620nm

### 3.2 Specification (without Connector)

| Parameter                   | Unit | Specifications                      |         |       |        |        |        |
|-----------------------------|------|-------------------------------------|---------|-------|--------|--------|--------|
|                             |      | 2 □ 2                               | 2 □ 4   | 2 □ 8 | 2 □ 16 | 2 □ 32 | 2X64   |
| Insertion loss (max., S/P)  | dB   | 4.5                                 | ≤7.6    | ≤11.0 | ≤14.5  | ≤17.5  | ≤ 21.5 |
| Loss uniformity (max., S/P) | dB   | ≤ 0.8                               | ≤ 1 . 0 | ≤1.2  | ≤1.5   | ≤1.8   | ≤ 2    |
| PDL (max., S/P)             | dB   | ≤ 0.2                               | ≤0.2    | ≤0.3  | ≤0.4   | ≤0.4   | ≤ 0.4  |
| Return loss (min)           | dB   | ≥ 50.0                              |         |       |        |        |        |
| Directivity (min)           | dB   | ≥ 50.0                              |         |       |        |        |        |
| Case type                   |      | According to customer's requirement |         |       |        |        |        |
| Connector                   | dB   | SC/FC/LC                            |         |       |        |        |        |

### 3.3 PLC splitter (Component packing dimensions)

| No. | Parameter     | Unit      | Customer Specification |     |     |      |      |      |
|-----|---------------|-----------|------------------------|-----|-----|------|------|------|
|     |               |           | 1x2                    | 1x4 | 1x8 | 1x16 | 1x32 | 1x64 |
| 1   | Module type   | Width     | 4                      |     | 7   | 7    | 12   |      |
|     |               | Height mm | 4                      |     | 4   | 4    | 4    |      |
|     |               | Length    | 40                     |     | 55  | 55   | 60   |      |
| 2   | ABS type      | Width     | 80                     |     |     | 80   | 114  |      |
|     |               | Height mm | 10                     |     |     | 18   | 18   |      |
|     |               | Length    | 100                    |     |     | 120  | 140  |      |
| 3   | Minicase type | Width     | 7                      |     | 12  | 20   | 40   |      |
|     |               | Height mm | 4                      |     | 4   | 6    | 6    |      |
|     |               | Length    | 55                     |     | 60  | 80   | 100  |      |

## 4. Module type Splitter

### 4.1.1. 1 × 8 PLC Splitter (Module type)

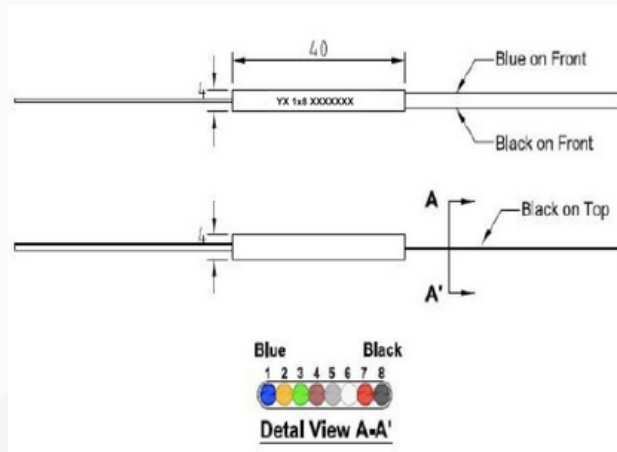


Figure 3. Color coding of 1 × 8 PLC splitter module with full pitch output V-groove

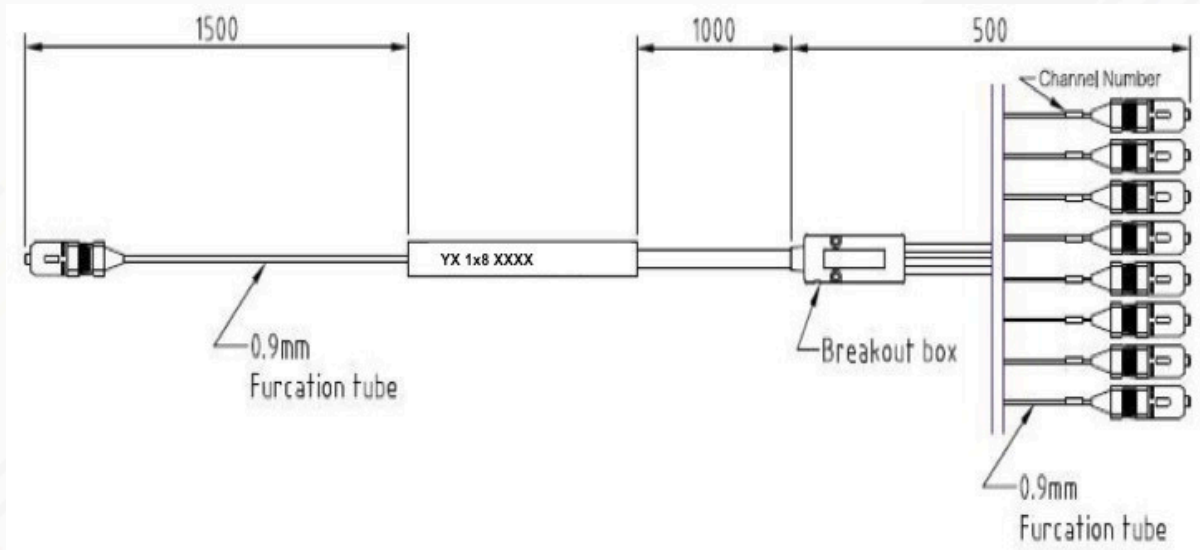
| Port Number | Ribbon 1 | 1    | 2      | 3     | 4     | 5     | 6     | 7   | 8     |
|-------------|----------|------|--------|-------|-------|-------|-------|-----|-------|
| Fiber Color |          | Blue | Orange | Green | Brown | Slate | White | Red | Black |

#### 4.2. Input & Output leads

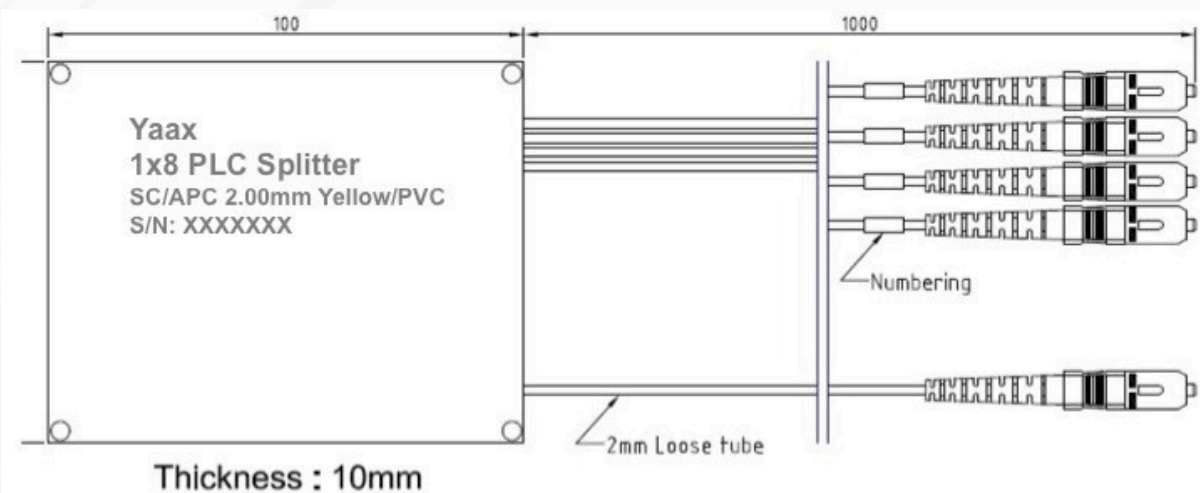
| Parameter     | Specifications   |       |        |        |        |
|---------------|--|-------|--------|--------|--------|
|               | 1 □ 4  | 1 □ 8 | 1 □ 16 | 1 □ 32 | 1 □ 64 |
| Input lead*   | 0.25mm Bare Fiber or 0.9mm Loose & Tight Buffer        |       |        |        |        |
| Output leads* | 0.25mm Ribbon Fibers or 0.9mm Loose & Tight Buffer     |       |        |        |        |
| Fiber Type    | single mode fibers in accordance with ITU-T 657A/G657B |       |        |        |        |
| Length        | According to customer's requirement                    |       |        |        |        |

### 5. PLC Splitter with Connector

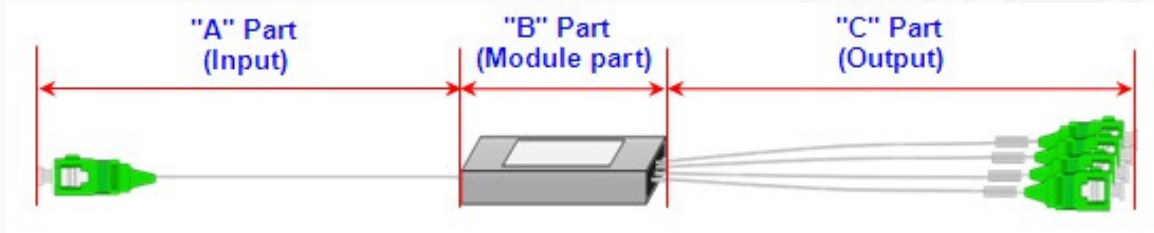
#### 5.1. Type A (Fan-out type Splitter)



#### 5.2. Type B (Cascade type Splitter)



### 5.3 Type C (Minicase type Splitter)



## 6. Operating and Storage Conditions

| Parameter              | Specifications    |
|------------------------|-------------------|
| Operating Temperature* | -40°C ~ 85°C 1260 |
| Operating Wavelength*  | nm ~ 1650 nm      |
| Storage Temperature    | -40°C ~ 85°C      |
| Storage Humidity       | 30 ~ 85% RH       |

\* Typical temperature and wavelength dependence of IL & PDL could be supplied

## 7. Reliabilities

**Yaax** PLC splitters are fully compliant with Telcordia GR-1209 and GR1221 reliability stipulations.

## 8. Test Reports

1) Data sheet shipped with PLC splitter reports the following test results:

- Insertion loss
- Polarization dependent loss
- Loss uniformity

2) The following data is provided on a statistical sampling basis:  
 - Return loss

<1\*4ch Example>

| <b><i>Test Report</i></b> |                   |                    |         |         |             |                 |         |             |           |           |
|---------------------------|-------------------|--------------------|---------|---------|-------------|-----------------|---------|-------------|-----------|-----------|
| <b>Product Name</b>       |                   | 1x4 Splitter       |         |         |             |                 |         |             |           |           |
| <b>Inspection Date</b>    |                   | 09/19/12           |         |         |             |                 |         |             |           |           |
| <b>QA RESULTS</b>         |                   | Pass               |         |         |             |                 |         |             |           |           |
| <b>Serial Number</b>      |                   | F123456789         |         |         |             |                 |         |             |           |           |
| Function                  | Item              | Insertion Loss(dB) |         | PDL(dB) |             | Return Loss(dB) |         | Directivity |           | Pass/Fail |
|                           | Wavelength(nm)    | 1310               | 1550    | 1310    | 1550        | 1310            | 1550    | 1310        | 1550      |           |
|                           | Specification(dB) | <= 7.40            | <= 7.40 | <= 0.2  | <= 0.2      | >= 55.0         | >= 55.0 | >= 55.0     | >= 55.0   |           |
|                           | Port 1            | 7.20               | 7.00    | 0.02    | 0.01        | >=55.0          | >=55.0  | >=55.0      | >=55.0    | Pass      |
|                           | Port 2            | 7.30               | 7.10    | 0.03    | 0.01        | >=55.0          | >=55.0  | >=55.0      | >=55.0    | Pass      |
|                           | Port 3            | 7.10               | 7.20    | 0.04    | 0.10        | >=55.0          | >=55.0  | >=55.0      | >=55.0    | Pass      |
|                           | Port 4            | 7.20               | 7.30    | 0.05    | 0.01        | >=55.0          | >=55.0  | >=55.0      | >=55.0    | Pass      |
| Uniformity(dB)            | <= 0.60           | 0.20               | 0.30    |         |             | -               | -       | -           | -         | Pass      |
| Dimension                 | Item              | Specification      |         |         | Measurement |                 |         |             | Pass/Fail |           |
|                           | Housing           | Length(mm)         |         |         |             |                 |         |             |           | Pass      |
|                           |                   | Width(mm)          |         |         |             |                 |         |             |           | Pass      |
|                           |                   | Height(mm)         |         |         |             |                 |         |             |           | Pass      |
|                           | 1ch Length(mm)    |                    |         |         |             |                 |         |             | Pass      |           |
| 4ch Length(mm)            |                   |                    |         |         |             |                 |         | Pass        |           |           |
| Visual inspection         | Item              | Description        |         |         |             |                 |         |             |           | Pass/Fail |
|                           | Housing           |                    |         |         |             |                 |         |             |           | Pass      |
|                           | Optical Fiber     |                    |         |         |             |                 |         |             |           | Pass      |
|                           | Connector Type    |                    |         |         |             |                 |         |             |           | Pass      |