**Cable**

**Application :**

1. Cat 5 : Ethernet, Fast Ethernet, Token Ring
2. Cat 5E : Ethernet, Fast Ethernet, Gigabit Ethernet
3. Cat 6 : Gigabit Ethernet, 10G Ethernet ( 55 meters )
4. Cat 7 : Gigabit Ethernet, 10G Ethernet ( 100 meters )

**Data Rate :**

1. Cat 5 : Up to 100 Mbps
2. Cat 5E : Up to 1 Gbps
3. Cat 6 : Up to 10 Gbps
4. Cat 7 : Up to 10 Gbps

**Frequency :**

1. Cat 5 : 100 MHz
2. Cat 5E : 100 MHz
3. Cat 6 : 250 MHz
4. Cat 7 : 600 MHz

**Length :**

1. Cat 5 : 100 meters
2. Cat 5E : 100 meters
3. Cat 6 : 250 meters
4. Cat 7 : 600 meters

**Optic**

**Application**

1. Transmit telephone signal
2. Internet Communication
3. Cable television signal

**Frequency :**

180 THz – 330 THz

**Data Rate :**

1. Single Mode : Up to 10 Gbps
2. Multimode : Up to 1 Gbps

**Bandwidth :**

1. Single Mode : 20GHz
2. Multimode : Virtually unlimited

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Application** | **Data Rate** | **Length** | **Frequency** |
| Cat 5 | Ethernet, Fast Ethernet, Token Ring | Up to 100 Mbps | 100 meters | 100 MHz |
| Cat 5E | Ethernet, Fast Ethernet, Gigabit Ethernet | Up to 1 Gbps | 100 meters | 100 MHz |
| Cat 6 | Gigabit Ethernet, 10G Ethernet ( 55 meters ) | Up to 10 Gbps | 250 meters | 250 MHz |
| Cat 7 | Gigabit Ethernet, 10G Ethernet ( 100 meters ) | Up to 10 Gbps | 600 meters | 600 MHz |

**Table of comparison of Cable ( UTP and STP )**

**Table of comparison of Optical Fiber**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Application** | **Data Rate** | **Frequency** | **Bandwidth** |
| Single Mode | 1. Transmit telephone signal 2. Internet Communication 3. Cable television signal | Up to 10 Gbps | 180 THz – 330 THz | 20 GHz |
| Multimode | Up to 1 Gbps | Virtually Unlimited |