

## IEEE 802.3an Standard

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IEEE Model	Standard	Media	Distance
1	ISO Class F (individual shields)	S/FTP	100m
	ISO Class EA	UTP	100m
	TIA Augmented Cat 6	UTP	100m
2,3,4	Shielded Cat 6 (overall shield)	F/UTP, ScTP, STP	100m
	TIA Standard Cat 6/ ISO Class E	UTP	< 55m

ANSI/EIA/TIA-568-B.2-ad10 (Augmented Category 6) and ISO 11801 (Class EA) cable specifications are based on IEEE models.

The IEEE created four models, which specify distance limitations based on media types.

100 meters over UTP is only guaranteed when using Augmented Category 6 or ISO Class EA compliant cabling systems.

TIA-568-B.2-ad10 Augmented Cat 6 or ISO 11801 Class EA cables.

10 Gigabit Ethernet Channel Applications			
Application	10GBase Fiber (802.3ae)	10GBase-T	10GBase-CX4 (802.3ak)
Data Center (Server Clustering)	Yes	Yes	Yes (< 15m)
Horizontal (In Building)	No	Yes	No
Vertical (Risers)	Yes	No	No
Campus/Metro	Yes	No	No

In the chart above, the recommended application roadmaps for 10 Gigabit Ethernet cabling and protocol types have been provided. The choice of which media to use will revolve around three variables:

- Circuit distances
- Cost
- Active equipment interfaces (connectors).

10GBASE Fiber will maintain traditional application in backbones and risers and also in the data center for server clustering.

10GBASE-T copper will remain in the traditional areas of application (in horizontal building cabling but also in the data center between servers and clusters).

10GBASE-CX4 defines a multi-conductor copper solution primarily designed to connect servers and switches over short distances.