

FİBER OPTİK KABLO PERFORMANSI



1.High speed LAN protocols

- 10BASE-FL
- 100BASE-FX
- 1000BASE-SX
- 1000BASE-LX
- 10GBASE-LX4
- 10GBASE-SX
- 10GBASE-LX
- 10GBASE-EX
- Fibre Channel (FC-PH) @1062Mbit/s
- FDDI LCF-PMD
- FDDI PMD
- FDDI SMF-PMD

Ethernet Standards (IEEE)	Cable Fiber Type	Max.Dist (IEEE)
Ethernet (10Base-FL)	50µm or 62.5µm Multimode @ 850nm	2km
Fast Ethernet (100Base-FX)	50µm or 62.5µm Multimode @ 1300nm	2km
Fast Ethernet (100Base-SX)	50µm or 62.5µm Multimode @ 850nm	300m
Gigabit Ethernet (1000Base-SX)	50µm Multimode @ 850nm	550m
Gigabit Ethernet (1000Base-SX)	62.5µm Multimode @ 850nm	220m
Gigabit Ethernet (1000Base-LX)	50µm or 62.5µm Multimode @ 1300nm	550m
Gigabit Ethernet (1000Base-LX)	9µm Singlemode @1310nm	5km
Gigabit Ethernet (1000Base-LH)	9µm Singlemode @1550nm	70km

2. Performans Kriterleri (F/O Multimode ve Single mode kablolarda)

- OM1 - standard 62.5 micron multi mode
- OM2 - standard 50 micron multi mode
- OM3 - next generation 50 micron multi mode
- OM4
- OS1 - 10 micron single mode

3. Standart Zayıflama Limitleri

STANDARDS BASED ATTENUATION LIMITS

Cable Type	Fibre Type	Maximum Attenuation (dB/km) 850nm	Maximum Attenuation (dB/km) 1300nm
OM1	O62	3.5	1.5
OM1*	H62	3.5	1.5
OM2	O50	3.5	1.5
OM2*	H50	3.5	1.5
OM3	OM3	3.5	1.5
OM3*	Z50	3.5	1.5

* Fibre is a higher bandwidth than standard. For full spec see P4

Cable Type	Fibre Type	Maximum Attenuation (dB/km) 1310nm	Maximum Attenuation (dB/km) 1500nm
OS1	O08	1.0	1.0
OS2	D08	0.4	0.4

Single mode fibre is Low Water Peak (LWP).

4. Transmisyon Mesafeleri (Band Geniřlięi)

1 & 10 Gb/s Transceiver Designation	Wavelength	62.5 um (OM1)	Std 50 um (OM2)	LO 50 um (OM3)	SM (OS1)
1000Base-SX (1 Gb/s)	850 nm Serial VCSEL	275	550	1,000	NA
1000Base-LX (1 Gb/s)	1300 nm Serial Laser	550 ¹	550 ¹	600	10,000
10GBase-SR (10 Gb/s)	850 nm Serial VCSEL	33	82	300	NA
10GBase-LX4 (10 Gb/s)	1300 nm CWDM Laser	300 ¹	300 ¹	300	10,000
10GBase-LRM (10 Gb/s)	1300 nm serial Laser/EDC	220 ¹	220 ¹	220	NA
10GBase-LR (10 Gb/s)	1300 nm Serial Laser	NA	NA	NA	10,000
10GBase-ER (10 Gb/s)	1550 nm Serial Laser	NA	NA	NA	40,000

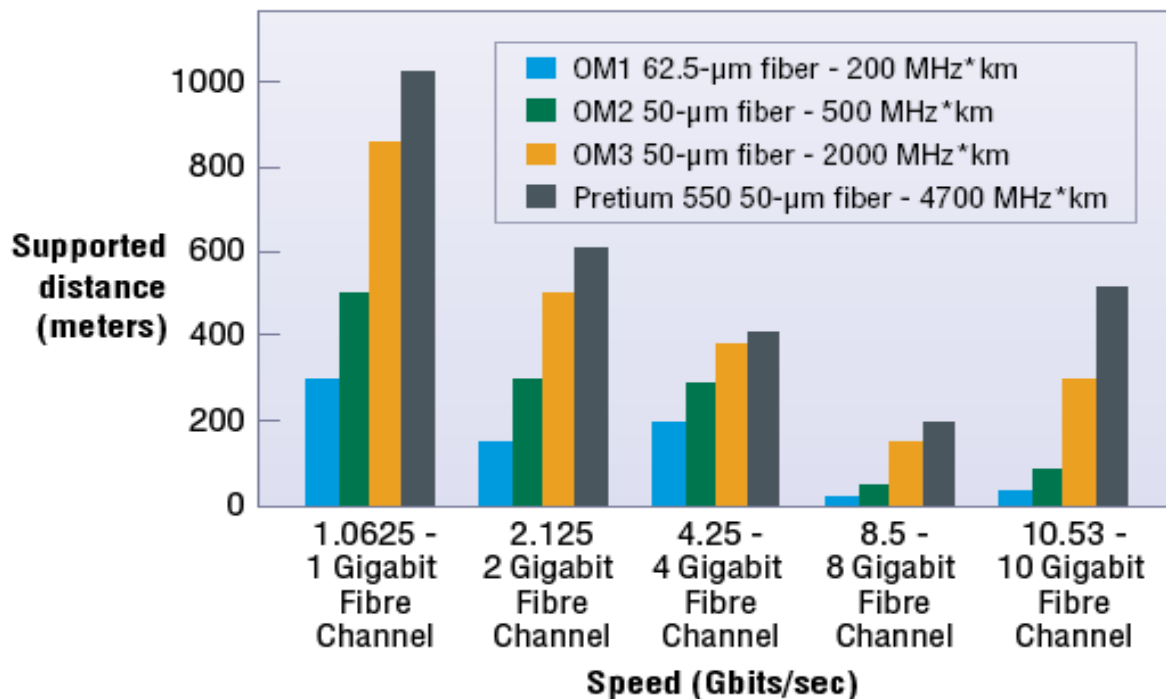
ISO/IEC 11801:2002 OPTICAL FIBER

Applications	OM1 (Multimode Fiber)		OM2 (Multimode Fiber)		OM3 (Multimode Fiber)		OS1 (Singlemode Fiber)	
	850 nm	1300 nm	850 nm	1300 nm	850 nm	1300 nm	1310 nm	1550 nm
ATM 622 Mbps	300 m	500m	300m	500m	300m	500m	2000m	-
Fiber Channel 1062 Mbps	300m	-	500m	-	500m	-	2000m	-
FDDI	-	2000m	-	2000m	-	2000m	-	-
100 Base-FX Ethernet	-	2000m	-	2000m	-	2000m	-	-
1000 Base-SX Ethernet	275m	-	550m	-	550m	-	-	-
1000 Base-LX Ethernet	-	550m	-	>550m	-	>500m	5000m	-
10G Base-LX4 Ethernet	-	300m	-	300m	-	-	10000m	-
10G Base-SR/SW Ethernet	33m	-	82m	--	300m	-	1000m	40000m

Channel insertion loss budgets for high data rates

Application	Standard	Designation	Data rate	Fiber type	Distance	Channel insertion loss budget (dB)
Ethernet	IEEE 802.3	10Base-FL	10 Mbits/sec	OM1	2 km	12.5
Fast Ethernet	IEEE 802.3	100Base-FX	100 Mbits/sec	OM1	2 km	11
1 Gbit Ethernet	IEEE 802.3.z	1000Base-SX	1,000 Mbits/sec	OM2	550 m	3.56
10 Gbit Ethernet	IEEE 802.3ae	10GBase-SR	10,000 Mbits/sec	OM3	300 m	2.6

Supported distances for Fibre Channel



Distances based on total connector insertion loss of 1.5 dB and draft FC-PI 4 guidelines

Source: Corning Cable Systems

BAKIR KABLO MESAFELERİ

Category	Type	Spectral B/W	Length	Applications	Notes
Cat5	UTP	100MHz	100m	100Base-T	Common
Cat5e	UTP	100MHz	100m	1000Base-T	Common
Cat6	UTP	250MHz	55m	10GBase-T	Emerging
Cat6a	UTP	400MHz	100m	10GBase-T	Emerging
Cat7	ScTP	600MHz	100m	10GBase-T	Emerging

