

Terms of Reference: Design and Implementation Fiber Optics backbone, Structured Cabling and Installation of Active Network Devices for Catanduanes State University's Smart Campus Project

ITEM	DESCRIPTION
OUTDOOR OPTICAL CABLE SPECIFICATION	
1	The Fiber cable must be used is multi loose tube cable construction consists of 1 up to 72 cores.
2	Consist of 250µm optical fibers in 12 fiber gel filled loose tubes with fillers.
3	With fiber reinforced plastic (FRP) central strength member with water swellable threads and water swellable tape.
4	Helically applied water blocking e-glass non-metallic strength members with ripcord and black high-density polyethylene (HDPE).
5	Suitable for internal and external applications.
6	Color Coded Fiber
7	Cable cores, number of tube and fiber per tube: 12core-3 tubes, 4 core per tube
8	Central Strength Member- FRP/PE
9	Water Resistance Material- Water Blocking Yarn and Tape
10	Armoured- Plastic Coated Tape
11	Cable Diameter: 72Core- 10mm, 48Core-9.5mm, 12Core-7.8mm
12	Outer Jacket- Polyethylene (HDPE)
13	Meets ROHS requirement
14	Max Tension (N), Short term-4000 and Long term- 2000
15	Crush Loading (N), Short terms-1000 and Long terms- 500
16	Optical Fiber Type- G.652D
17	Waveband-1310/1550 nm
18	Attenuation- 1310 ≤0.35 dB/km, 1550nm≤0.22 dB/km
19	No. of Core is 6core, 12core, 48core, 72 core Singlemode
20	The Service provider must have at least 10 years of operation in the business of providing information and technology (ICT) products and services, consulting, or systems integration/implementation
21	The Service provider must own and operate at least three (3) data centers in the Phils.
21	The Data center/s of the provider must be certified by TIA 942 or an equivalent certification by an international governing body. NexCenter certification is preferred but not required.
22	The service provider must also be able to operate at least three hundred (300) active network hardware components in its existing facilities
22	The Service Provider must be certified on: •ISO 9001:2008 – Quality Management System •ISO 27001:2013 – Information Security Management System •ISO 20000-1:2011 – IT Services Management System
23	Fiber Optic Cable should have a label of "PROPERTY OF CATANDUANES STATE UNIVERSITY"
FIBER OPTIC PATCH PANEL SPECIFICATION	
1	Standard 19" Rack Mountable
2	Integrated Splicing Unit
3	12, 16, 24, 28, 32, 48, 72, 92 or up to 144 ports SC
4	High quality sheet metal process and mist surface coating spraying
5	High quality fiber management and Structural accessories
6	Can be preloaded with different type of adapter plate
FIBER PATCH CORD SPECIFICATION	
1	Telcordia and RoHS compliant
2	Optic Performance (Singlemode), Insertion Loss- Max. 0.3dB, UPC better than 50dB. Typical: Typical 0.15 dB, APC better than 60 dB
3	Bend insensitive fibers G657A/B
SC PIG-TAIL SPECIFICATION	

SPD

1	Optic Performance (Singlemode), Insertion Loss- Max. 0.3dB, UPC better than 50dB. Typical: Typical 0.15 dB, APC better than 60 dB
2	Bend insensitive fibers G657A/B
CAT 6 UTP CABLE SPECIFICATION	
1	Application
1.1	▪ Voice 4
1.2	▪ Fast Ethernet(IEEE802.3)
1.3	▪ 100Vg-AnyLAN(IEEE 802.12)
1.4	▪ Token Ring(IEEE 802.5)
1.5	▪ TP-PMD(ANSI X3T9.5)
1.6	▪ 100Base-T Ethernet(IEEE 802.3u)
1.7	▪ 155/622 Mbps 1.2/ 2.4 Gbps ATM
1.8	▪ 1000Base-T Ethernet 4
1.9	▪ 50 MHz Broadband video
2	Industry Standard
2.1	▪ UL, ETL Verified
2.2	▪ TIA/EIA 568C.2
2.3	▪ ISO/IEC 11801
2.4	▪ EN 50173
3	Cable Data
3.1	▪ No. of Pairs:4
3.2	▪ Jacket Color:Gray
3.3	▪ Insulation Thickness: 0.22mm
3.4	▪ Nom.O.D.:6.5mm
3.5	▪ Flame Rating:CM
3.6	▪ Transmission quality verified up to 250MHz
4	Product Electrical Characteristics
4.1	▪ Impedance:100±15 ohms
4.2	▪ Mutual Capacitance, max. nf/ 100m: 5.6
4.3	▪ DC Resistance, max. Ohms/ 100m: 9.38
4.4	▪ Capacitance Unbalance(Pair to Ground): 330pf/ 100m max.
CAT 6 PATCH PANEL SPECIFICATION	
1	110 Enhanced Cat.6 Patch Panel
1.1	▪ UL Listed
1.2	▪ High performance, exceeds TIA/EIA 568B.2-1 Category 6 Hardware transmission performance
1.3	▪ 110 and dual type IDC terminatio
1.4	▪ 19" 24 port patch panel, 1U size & 48 port panel, 2U size
1.5	▪ Accepts 22-26 AWG, stranded or solid wire
1.6	▪ Wiring:T568A/ B
2	Features
2.1	▪ Meet TIA/EIA-568-B.2-1 Cat.6 15M Short Link requirements
2.2	▪ 110 and krone dual type IDC termination
2.3	▪ 19" 24 port patch panel, 1U size & 48 port panel, 2U size
2.4	▪ Accept 22~24AWG, stranded or solid wire
2.5	▪ Short contact design to improve transmission performance
2.6	▪ Modular jack meet FCC part 68
2.7	▪ Wiring: T568A/B
3	Industry Standard
3.1	▪ UL Listed
3.2	▪ TIA/EIA 568B.2-1
3.3	▪ ISO/IEC 11801
3.4	▪ EN 50173
4	Physical
4.1	▪ Housing: High-impact, flame-retardant plastic,UL94V-0 rated
4.2	▪ Contact material: Phosphor Bronze Alloy
4.3	▪ Plating: 50u" gold plated over 100u" nickel

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4.4	▪ Plate: SPCC-SD 16G
5	Mechanical
5.1	▪ Insertion/Extraction life: 750 cycles min
5.2	▪ Number of IDC terminations: 200 cycles min
6	Electrical
6.1	▪ Insulation resistance: 500 Mega ohms min.
6.2	▪ Dielectric with standing voltage: 1,000 Volts , RMS, 60Hz, 1min.
6.3	▪ Contact resistance: 20 milli ohms max.
6.4	▪ Current rating: 1.5 AMPS at 20°C
7	CAT6 Information Outlet
7.1	▪ Meet ANSI/TIA-568-C.2 Cat.6 15M Short Link requirements
7.2	▪ Accept 22~24AWG, stranded or solid wire
7.3	▪ IDC connector with large space of each pair to improve crosstalk
7.4	▪ Modular jack meet FCC part 68
7.5	▪ Wiring: T568A/B
7.6	▪ ETL Verified Certificate Of Conformance
7.7	▪ UL Verified
7.8	▪ ISO/IEC11801 2nd edition
7.9	▪ ANSI/TIA Standard 568-2.D
7.10	▪ CENELEC EN 50173
8	Features
8.1	▪ Vertical and Horizontal Jack versions available
8.2	▪ All-in-one Punch down of 8 wires
8.3	▪ Even wire trim process
8.4	▪ Maintains gas tight IDC connections
8.5	▪ Minimizes return loss & cross talk
8.6	▪ Multi use Keystones, can be used in Ezi-Tool and also standard punch down tool
9	Benefits
9.1	▪ Maintains gas tight IDC connections
9.2	▪ Insertion Loss reduction
9.3	▪ Removes risk of insulation and/or keystone jack damage
9.4	▪ Multi use ezi-JACKS, can be used in ezi-TOOL and also standard punch down tool
9.5	▪ Wires pushed down over IDC instead of impact 110 style
9.6	▪ Removal of impacting to terminate improves return loss and cross-talk at termination points
9.7	▪ Less termination failures and better overall bandwidth for customer
U/UTP PATCH CORD SPECIFICATION	
1	Application
1.1	▪ Voice
1.2	▪ ISDN
1.3	▪ 10Base T(IEEE 802.3)
1.4	▪ Fast Ethernet(IEEE802.3)
1.5	▪ 100Vg-AnyLAN(IEEE 802.12)
1.6	▪ Token Ring(IEEE 802.5)
1.7	▪ TP-PMD(ANSI X3T9.5)
1.8	▪ 100Base-T Ethernet(IEEE 802.3u)
1.9	▪ 155/622 Mbps ATM
1.10	▪ 1000Base-T
1.11	▪ 550 MHz Broadband video
2	Standards
2.1	▪ UL, ETL Verified
2.2	▪ ANSI/TIA-568-C.2
2.3	▪ ISO/IEC 11801
2.4	▪ EN 50173
3	Product Description
3.1	▪ Meet all category 6 channel performance requirements specified in ANSI/TIA-568-C.2

3.2	▪ 110 type IDC termination
3.3	▪ Accept 22~26AWG, stranded or solid wire
3.4	▪ Modular jack meet FCC part 68
3.5	▪ Wiring: T568A/B
4	Environmental Conditions
4.1	▪ Temperature range: Storage: -40 to +70°C Operational: -10 to +60°C
4.2	▪ Relative humidity (operational): max. non-condensing 93% Electrical Characteristics
4.3	▪ Insulation resistance between any two conductors: 500 Mega-Ohms min.
4.4	▪ Dielectric with standing voltage: 1000V, RMS, 60HZ, 1 MIN.
4.5	▪ Current rating: 1.5 AMPS at 20°C
4.6	▪ DC resistance: Max. 0.1 Ohms
4.7	▪ Contact resistance: 20 Milli-Ohms max.
5	Physical Characteristics
5.1	▪ Housing: High-impact, Flame Retardant, UL94V-0 rated, spring wire/contact blades.
5.2	▪ Contact material: Phosphor bronze alloy
5.3	▪ Contact plating: 24 Karat hard gold (50 micro-inch plating thickness) over 100 micro-inch nickel.
6	Mechanical Characteristics
6.1	▪ Total mating force: 800 grams for a 8 wire leads minimum.
6.2	▪ Retention: 30lbs min between the jack and plug.
6.3	▪ Insertion/Extraction life: 750 cycles minimum.
6.4	▪ Number of IDC terminations: 200 minimum
7	Faceplate
7.1	▪ These faceplates are made from high-impact ABS plastic to ensure years of durable usage
7.2	▪ Accept all kinds of Cat 3, Cat 5e and Cat 6 UTP keystones to fit with different performance requirements2
7.3	▪ Available in 1 port to 4 ports
8	Certification and Other Documents
8.1	Provide Original Letter from Cabling System Manufacturer for the commitment support to its partner.
8.2	Submit Original Letter from Cabling System Manufacturer stating end-to-end manufacturing of structured cabling system - copper and fiber optic cables and their accessories one manufacturer only.
8.3	Cabling System Manufacturer plant shall be ISO 9001:2015
8.4	Provide Original Letter from the Cabling System Manufacturer stating that the bidder is an authorized business partner and certified installer of that Cabling System Manufacturer. Submit copy of training certification of the bidder's engineers.
8.5	Submit Original Letter of Warranty Support from the Cabling System Manufacturer stating that the Cabling Installation of the bidder shall be supported by 25-Year System Warranty to be issued by the Cabling System Manufacturer (not by the bidder) which would cover the end to end copper and fiber solution.
8.6	Submit five(5) list of Engineers/Installer with certification for the specific brand to be used.
8.7	The bidder must be in business for a minimum of three (3) years (must submit pertinent documents as a proof

PER FLOOR PER BUILDING MATERIALS

ITEM	DESCRIPTION	UOM	QTY
1	ADMIN - GF		
1.1	Data Cabinet 12RU	set/s	3
1.2	Expansion Bolt and shield	set/s	12
1.3	Amco Box	set/s	50
1.4	Information Outlet CAT6	set/s	50
1.5	Face Plate Duplex	set/s	50

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