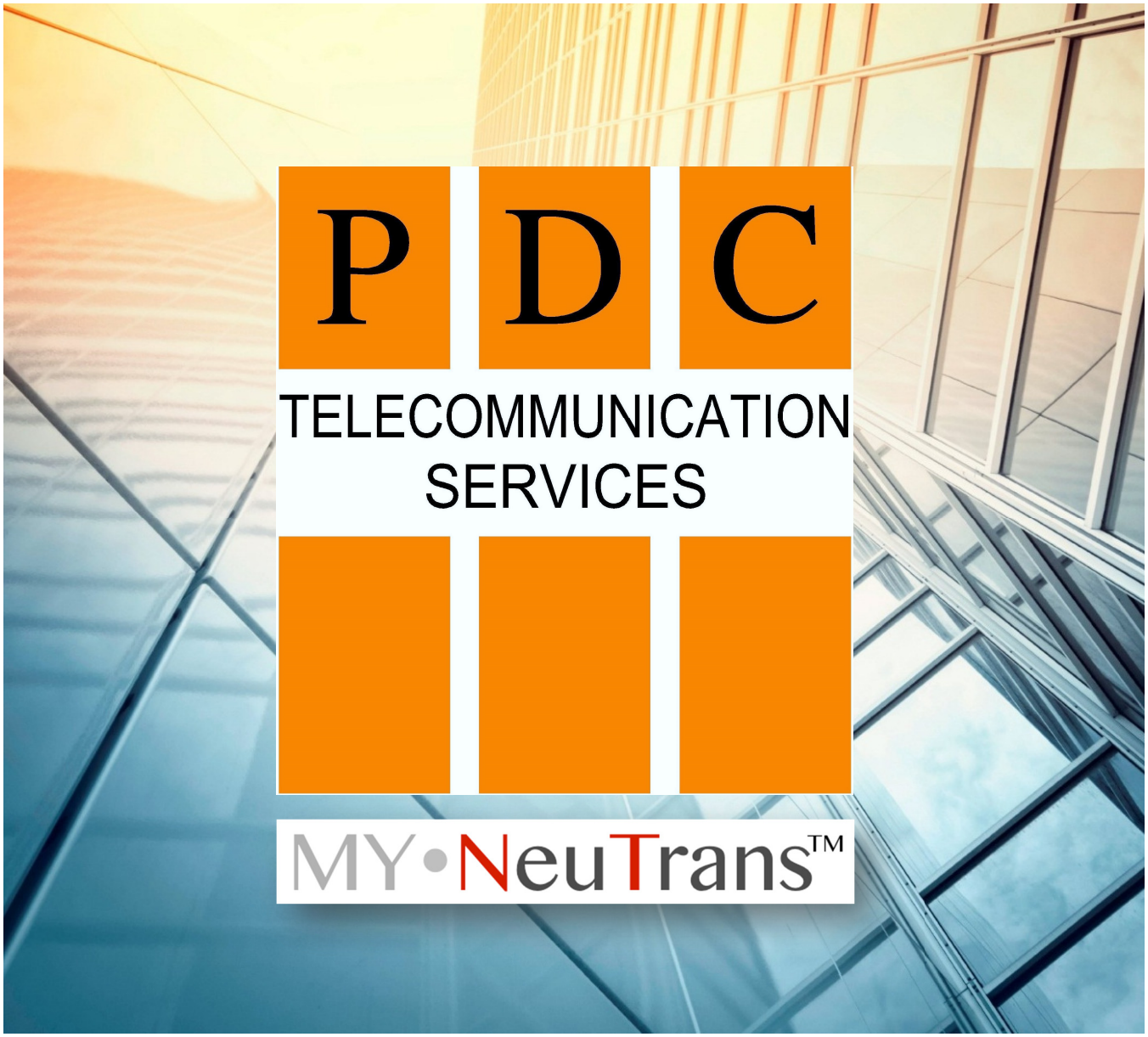

REQUEST FOR PROPOSAL – PNGN FTTX

TECHNICAL REQUIREMENT FOR OPTICAL DISTRIBUTION NETWORK COMPONENTS & ACCESSORIES

DATE: 1ST APRIL 2014

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Contact for Inquiries and Proposed Changes

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1. Introduction

1.1. This document defines the requirements of PDC Telecommunication Services Sdn Bhd (hereinafter referred to as PDC Telco) and Neutral Transmission Malaysia Sdn Bhd (hereinafter referred to as MY.NeuTrans) for the **Request for Proposal (RFP) of Optical Distribution Network Components & Accessories,** which would fulfil current and future Penang Next Generation Network (PNGN) requirement.

1.2. The objective of this RFP is to identify suitable components and accessories that are to be used in the PNGN. The issuing of this RFP does not create an obligation for either PDC Telco or MY.NeuTrans to proceed with the project or to commit to any particular actions, products or services. This RFP is issued to elicit responses to PDC Telco and MY.NeuTrans' requirements. It is therefore an invitation to treat and not an offer.

1.3. The purpose of this document is to function as a reference specification that can be used in evaluating and comparing the offered items. The intention is also to be transparent and to define a balanced specification sufficiently broad in order to obtain maximum advantage for PNGN.

1.4. PDC Telco and MY.NeuTrans is not liable for damages resulting from, or attributable to the provision of this specification. Users of the specification do so at their own risk. The contents of this specification may not be published, advertised, or given to a third party without prior written permission from PDC Telco and MY.NeuTrans.

1.5. Scope of Work of this RFP shall include but not limited to:

- The supply of technical and marketing information on proposed products based on the technical specifications.
- The supply of indicative pricing based on various quantities.
- To provide sufficient detailed demonstration and samples for evaluation.

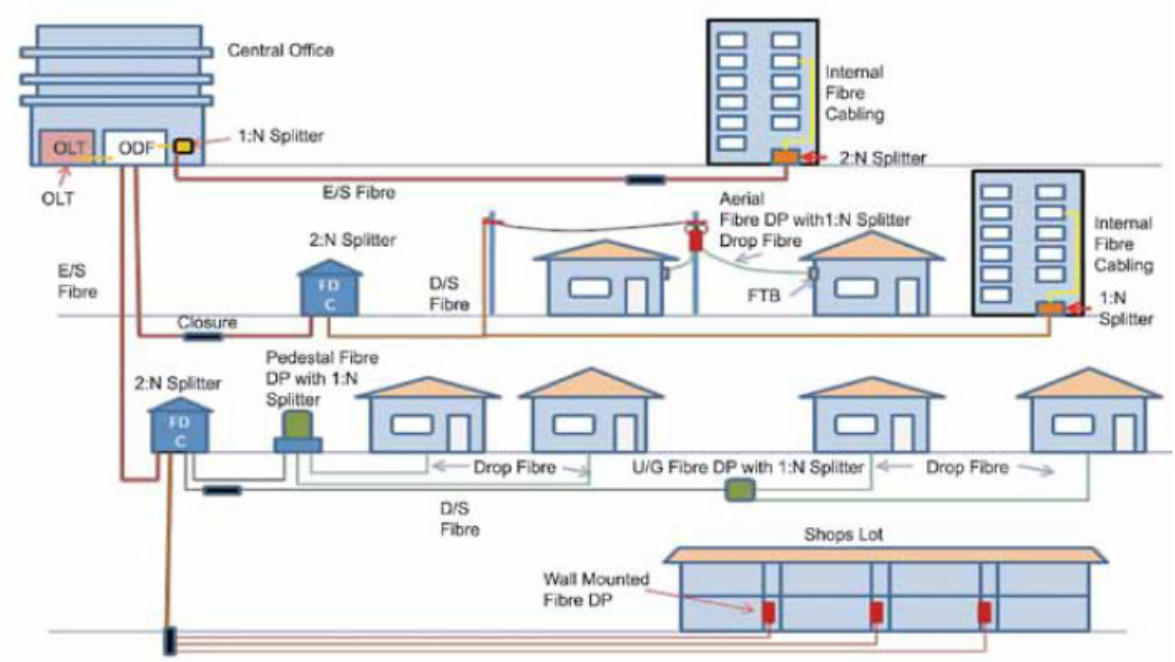
2. RFP Scope

2.1. This document specifies the technical requirements that have to be met by Optical Distribution Network (ODN) components & accessories in order to be considered for acceptance by PDC Telco and MY.NeuTrans.

2.2. Product list and requirements are depicted in Section 3.

2.3. Applications of these products shall be, but not limited to:

- Outside Plant – Aerial, Grade Level and Below Grade Level
- Inside Plant – Aerial, Grade Level and Below Grade Level



Source: MCMC/MTSFB

3. Technical Requirements

3.1. All proposed products must be licensed. Unlicensed or counterfeit products shall be rejected.

3.2. Samples shall be required to be submitted for evaluation. Any sample submitted without the test report shall be rejected.

3.3. A test report by a traceable ISO 17025:2005 Accredited Independent Test Laboratory may be requested on all or any of the proposed items. A copy of the accreditation certificate must be submitted with the test reports.

3.4. Details of each item are as follows:

Items	Description	Specification	Reference Standards
Optical Distribution Frames (ODF)	The ODF shall provide interconnection between outside plant cables to inside plant optical equipment by using fibre patch cord.	• Standard ETSI rack system • Modular cassette with SC/APC adapters for Exchange & Multi Dwelling Unit (MDU) Installation • Patch cord routing management with guides facilities at every shelf level • Fibre guides to ensure the optical fibre bending radius is always greater than 30mm • Products shall be compatible for 250, 500, 1000 SC/APC terminations	Telcordia GR-449-Core, Issue 3, March 2012 or equivalent
Fibre Distribution Cabinets (FDC)	The FDC shall provide above ground level interconnection between trunk feeder and distribution cables. Applications shall be, but not limited to Outside Plant applications	• Products shall be compatible for 300 or 500 SC/APC terminations • Patch cord routing management with guides facilities at every shelf level • Fibre guides to ensure the optical fibre bending radius is always greater than 30mm	Telcordia GR-3125-Core, Issue 1, March 2006 or equivalent

Fibre Optic Splice Closures (FOSC)	The FOSC shall provide below ground level interconnection between trunk feeder and distribution cables. Applications shall be, but not limited to Outside Plant applications.	• The FOSC shall be suitable for mounting inside manhole, pit, Joint Box (JC9C/JRC7) • Products shall be compatible for 24, 48, 72, 96, 144, 192 and 216 core blown cables and relevant 1mm ~ 2mm thick PE microducts • Provisions for straight joint and branch joint facilities shall be included in the joint closures • Must be rated IP67 or better	Telcordia GR-771-Core Issue 1, July 2008 or equivalent
Fibre Termination Box (FTB)	The FTB is referred as the fibre termination point at the riser room for the MDU or Outside wall of the SDU. The FTB shall provide interconnection between MDU vertical cables and horizontal cables or SDU internal and drop cables.	• Fibre termination box shall be design with different capacities of 2, 4, 8, 16 and 24 SC/APC termination • Fibre guides to ensure the optical fibre bending radius is always greater than 30mm	Telcordia GR-49-Core, Issue 3, July 2013 or equivalent Telcordia GR-2898-Core, Issue 2, December 1999 or equivalent
Fibre Wall Sockets (FWS)	Fibre Wall Socket shall be used to terminate the internal fibre cable in the customer premise. Applications shall be, but not limited to Inside Plant applications	• The Fibre Wall Socket shall consist of pre-assembled simplex or duplex shuttered SC/APC adapter for fibre patching and other accessories deem necessary. • Fibre guides to ensure the optical fibre bending radius is always greater than 30mm	Telcordia GR-3126-Core, Issue 1, December 2005 or equivalent

Fibre Distribution Point (FDP)	A FDP refers to a fibre enclosure which demarcates between the distribution cables and the drop cables.	• Types of FDP shall include:
		  ○ Aerial FDP
		  ○ Underground FDP
		  ○ Above ground Pedestal FDP
		  ○ Wall-mounted FDP
		• All above ground FDP must comply to IP55
		• All below ground FDP must comply to IP67
		• All underground DP must be suitable for mounting in a JRC7 or JC9C comparable size joint box
			Telcordia GR-3125-Core Issue 1, March 2006 or equivalent
			Telcordia GR-771-Core Issue 1, July 2008 or equivalent
			Telcordia GR-13-Core Issue 4, July 2008 or equivalent
			Telcordia GR-2898-Core, Issue 2, December 1999 or equivalent

Fibre Joint Boxes / Manholes	Fibre Joint Boxes shall be used to store the FOSC and also slack cables and microducts. Suitable for both Inside and Outside Plant applications	• Products shall be comparable in size to JB30, JRC7 and JC9C
		• Applications of these products shall be, but not limited to:
		  ○ Motor carriage way
		  ○ Pedestrian walkway
		  ○ Grass or Soil ground
		  ○ In-building ground
		• For Motor carriage way, a loading strength of 22.5 Metric Tonne is required.
			Telcordia GR-902-CORE, Issue 1, July 2008 or equivalent

Riser Cables	Riser Cables is referred to the riser cabling from the ODF to the FTB for MDU application.	• Fibre type must be from Single-Mode and meets specification ITU-T G.657A2 • Fibre count varies from 8, 12, 24 and 48 cores • Complies to Appendix C or Appendix D MTSFB 002:2009	Telcordia GR-20-CORE, Issue 2, July 1998 and GR-409-CORE, Issue 1, June 1994 or equivalent
Drop Cables	Drop Cables is referred to the aerial or underground cabling from the DP to the FTB for SDU application.	• Fibre type must be from Single-Mode and meets specification ITU-T G.657A2 • Fibre count varies from 2,4 and 8 cores	Telcordia GR-20-CORE, Issue 2, July 1998 or equivalent
Internal Cables	Internal Cable is referred to the in-building cabling from FTB to FWS.	• Fibre type must be from Single-Mode and meets specification ITU-T G.657A2 • Fibre count varies from 2 to 4 cores • Complies to Appendix C or Appendix D MTSFB 002:2009	Telcordia GR-20-CORE, Issue 2, July 1998 and GR-409-CORE, Issue 1, June 1994 or equivalent

Optical Fibre Jumpers & Adapters (pigtails, patch cords and adapters)	Products shall include SC/APC, SC/APC, LC/APC and LC/APC assembly on:
	• Pigtails – single fibre cord with an optical connector pre-installed on one end and a length of exposed fiber at the other end
	• Patch cords – A short single fiber cable with identical connectors on both ends
		• Applications of these products shall be, but not limited to:
		  ○ Indoor/Outdoor Optical Distribution Frames
		  ○ Indoor/Outdoor Optical Distribution Cabinets
		  ○ Aerial/Underground Closures
		  ○ Indoor/Outdoor Demarcation Boxes
		  ○ Fibre Wall Sockets
		• IEC 61753-1 Edition 1.0 2007-03
		  ○ Random mated Insertion Loss equal or better than Grade B
			Telcordia GR-326-CORE Issue 4, February 2010 or equivalent

	used for interconnecting other cables or testing • Bend Insensitive Patch cords – ruggedized patch cords with bending radius of 15mm, 7.5mm and 2.5mm. • Adapters - An adapter is a mechanical device designed to align fiber-optic connectors. It contains the split sleeve, also known as the interconnect sleeve, that holds the two ferrules together	○ Random mated Return Loss of equal or better than Grade 1 • All jumpers (excluding Bend Insensitive Patch Cord) must be assembled using ITU-T G.657A2 tight buffered white in colour optical fibres, reinforced jacketed jumpers. • For outdoor applications, all sheath material shall be Polyvinyl Chloride (PVC) • For indoor applications, all sheath material shall be Low Smoke Zero Halogen	
Optical Splitters	Applications of these products shall be, but not limited to: • Indoor/Outdoor Optical Distribution Frames • Indoor/Outdoor Optical Distribution Cabinets • Aerial/Underground Closures • Indoor/Outdoor Fibre Termination Boxes	• Products shall be in various splitting combination of: ○ 1:2 splitting ratio ○ 1:4 splitting ratio ○ 1:8 splitting ratio ○ 1:16 splitting ratio ○ 1:32 splitting ratio ○ 1:64 splitting ratio • The Cassette Splitter type shall be equipped with minimum of one (1) meter ruggedized pigtail with and without SC/APC connector. • The input of Micro-splitter type shall be equipped with minimum of one (1) meter tight buffered tube with and without SC/APC connector. • The Module Splitter type shall be packaged into a compact 1U package with SC/APC adapters and to be installed onto an optical distribution rack.	Telcordia GR-1209-CORE, Issue 1, July 2008 or equivalent Telcordia GR-1221-CORE, Issue 3, September 2010 or equivalent
Field Installable Connectors (FIC)	FICs are factory pre-polished Single Mode Optical Field Installable Connectors field installable connectors.	• Products shall include SC/APC approved use on: ○ 250um tight buffered optical fibres ○ 900um tight buffered optical fibres	Telcordia GR-1081-CORE Issue 2, October 2010 or equivalent

		○ FRP Indoor and Outdoor Cable with 250um tight buffered optical fibres • Applications of these products shall be, but not limited to: ○ Indoor/Outdoor Optical Distribution Frames ○ Indoor/Outdoor Optical Distribution Cabinets ○ Aerial/Underground Closures ○ Indoor/Outdoor Demarcation Boxes ○ Fibre Wall Sockets	
Splice Protection Sleeves	Products shall be suitable for: • Single 250um tight buffered optical fibre to a 250 um optical fibre • Single 250um tight buffered optical fibre to a 900 um optical fibre	• Applications of these products shall be, but not limited to: ○ Indoor/Outdoor Optical Distribution Frames ○ Indoor/Outdoor Optical Distribution Cabinets ○ Aerial/Underground Closures ○ Indoor/Outdoor Demarcation Boxes ○ Fibre Wall Sockets	Telcordia GR-1380-Core , Issue 1, July 1994 or equivalant

4. Commercial Requirements

4.1. The offered product and its associated accessories shall be commercially available (in current production) and has been commercially deployed. A prototype and unproven product shall be disqualified. Supplier to submit evidence to prove the product are field proven and in current production.

4.2. The Supplier is required to submit a complete sample when requested for evaluation purpose. The sample shall provide PDC Telco/MY.NeuTrans to verify and validate the specifications claimed in the RFP document

4.3. The Supplier shall prepare mock-up item if required for verification. The item for mock-up shall be notified to Supplier.

4.4. Information brochures, catalogues, certificate etc., which describe the product(s) offered shall be in English. The information shall be in hardcopy and softcopy (CD) and shall be submitted during RFP submission. Supplier shall provide support and expertise on the offered product

4.5. All pricing provided shall be DDP – Delivered Duty Paid. Pricing may be grouped based on quantities.

4.6. Supplementary commercial information:

- Production and Delivery Capacity
- Delivery Lead-Time
- Name of Manufacturer
- Country of Origin

5. RFP Submission

5.1. All submission in both hardcopy and softcopy shall be delivered to:

Dr. Mohamed Awang Lah
Neutral Transmission Malaysia Sdn Bhd
A-3A-5, Capital 1, Oasis Square
47301 Jalan PJU 1A/7A, Ara Damansara
Petaling Jaya, Selangor
Malaysia
Email : mal@myjaring.net or mohamed.awang.lah@gmail.com

5.2. All submission has to be received by 11:59pm (GMT + 8hr) 11th April 2014 (Malaysian Time).

5.3. Faxed Responses shall not be accepted.

5.4. Any Responses that do not comply with the terms and requirements of this RFP may not be considered. PDC Telco/MY.NeuTrans shall have absolute discretion as to whether or not it considers such Responses.

5.5. During the evaluation phases, Respondents may be requested to provide clarification of parts of their Response or to provide supplementary information. Such requests shall include indications of the time allowed to respond.

5.6. Regardless of the methods by which requests and responses are conveyed, written confirmation of all responses must be provided by Respondents at the earliest opportunity.

5.7. By submitting a Response to this RFP, Respondents acknowledge that they have read, understood, and accepted all of the requirements and obligations contained in this RFP (including in the Response Form), other than as expressly noted in the Response.

5.8. The Respondents should include in the Response all relevant information that can assist PDC Telco/MY.NeuTrans to evaluate the Response. These shall include company profile and track records. PDC Telco/MY.NeuTrans shall rely on information provided by, or on behalf of, a Respondent during this RFP process. All aspects of the Response shall constitute a legal offer that is capable of acceptance.

5.9. All Responses submitted shall become the property of PDC Telco/MY.NeuTrans and do not have to be kept, destroyed or returned to the Respondent.

5.10. Responses are valid for six months from date of submission and, once submitted, cannot be withdrawn or modified except with the written consent of PDC Telco/MY.NeuTrans.

5.11. PDC Telco/MY.NeuTrans shall not be obligated to accept any Response, nor to acquire any of the services included in any Response, nor to discuss the reasons why any Response was accepted or rejected.

5.12. The decision of PDC Telco/MY.NeuTrans shall be final and no further discussions shall be entered into.

5.13. Respondents must not provide any form of individual incentive to PDC Telco/MY.NeuTrans representatives.

5.14. Nothing in this RFP shall limit PDC Telco/MY.NeuTrans' right to enter into direct contract discussions with a Respondent to this RFP.

5.15. If PDC Telco/MY.NeuTrans and a selected Respondent cannot negotiate acceptable terms then no agreement shall come into existence between PDC Telco/MY.NeuTrans and that Respondent.

6. Liability and Rights Reserved

6.1. PDC Telco/MY.NeuTrans makes no representation, gives no warranty and, to the maximum extent permitted by law, has no liability to any Respondent or other person as to the accuracy or sufficiency of the RFP itself, any information contained in the RFP or other information provided by PDC Telco/MY.NeuTrans as part of the RFP process.

6.2. PDC Telco/MY.NeuTrans shall not be liable for any direct or indirect damage, loss or cost (including legal costs and response preparation costs) to any Respondent or other person in relation to this RFP process.

7. Confidentiality

7.1. All information contained in this RFP (together with any other information disclosed during the evaluation process) is confidential and must not be disclosed to any third party. Respondents are not to use any information given to them, either in writing or verbally, for any purpose other than to prepare their Response for this RFP.

7.2. All information submitted in the Responses shall be treated in confidence. Responses to this RFP may be disclosed to the relevant personnel within PDC Telco and MY.NeuTrans and to PDC Telco/MY.NeuTrans' outsourcing partners who need to know for the purposes of assessing Responses. PDC Telco and MY.NeuTrans reserve the right to make a limited number of controlled-distribution copies of the Response documents for the purposes of completing its evaluation.