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भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

No: 64-03/09-Broadband (P-2)

Dt: 02-03-2010

To
CGM's
All Telecom Circles / Metro Districts

Sub: Upgradation of connectivity of OCLAN / DSLAM of Rural Broadband to Broadband Multiplay Network:

Ref: 64-03/07-Broadband dt 01/03/2007 & 10/07/2007

Kindly refer above subject and letter under reference where in connectivity guidelines were issued for the OCLAN and DSLAM equipments procured through Rural Broadband Tender.

1. In order to commission the DSLAM's on priority basis, it was planned to connect the DSLAM's to the OCLAN switch over 4 E1 converters
2. The OCLAN's were also planned to be connected to the RPR-TI over 8 E1 converters where ever media was not available.

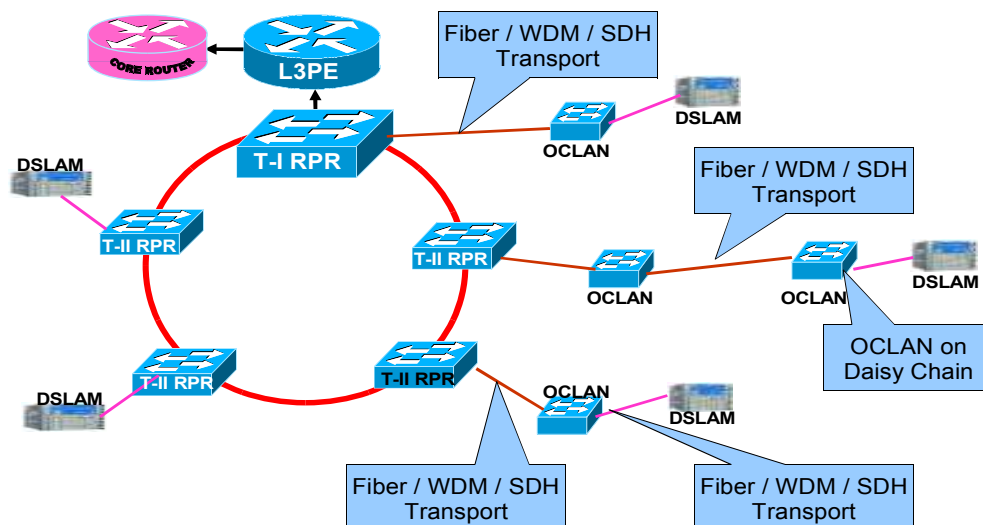
Inter SDCA DWDM and MADM equipments are planned in all the circles and the equipments started getting commissioned. The number of customers per DSLAM has also been increased where in the 4/8 E1 back end connectivity is found insufficient to meet the traffic requirements. Hence there is an urgent need for upgradation of back end connectivity of the DSLAM's and the OCLAN switches.

The interfaces available in various equipments are as follows for your ready reference.

Type of Equipment	Available interfaces
64P DSLAM procured through Rural Broadband tender	FE Electrical Port – 1 No GE Optical 1550nm (20Km) – 1 No
120P / 240P / 480P DSLAM	GE Optical 1550nm – 2 Nos
960P DSLAM	GE Optical 1550nm – 4 Nos
OC LAN Switches	GE Optical 1550nm (20Km) – 12 Nos FE Optical 850nm (500mt) – 32 Nos
RPR T-I / T-II switches	GE Optical 1550nm FE Optical 850nm
STM-1 ADM/CPE SDH Equipments	FE (10/100 Base T) Electrical Port FE (100 Base Fx) Optical Port
STM-16 MADM SDH equipments	FE (10/100 Base T) Electrical Port FE (100 Base Fx) Optical Port GE (1000 Base LH) Optical interface 1550 nm

A revised connectivity diagram is given in figure below.

Revised Connectivity for Network Upgradation



The salient points for the connectivity are as follows:

1. The main objective of the connectivity is to bring all the network elements into a Fiber network progressively due to the huge bandwidth requirements for the IP traffic.
2. Where ever the connectivity is over 4/8 E1, the same has to be upgraded to FE/GE connectivity.
3. The inter SDCA DWDM/MADM equipments getting commissioned can be used for providing connectivity for the OCLAN switches located at the SDCA's to the RPR-TI/II switches.
4. The E1 to Ethernet converters becoming free because of the upgradation can be used for the further remote locations new DSLAM commissioning.
5. Additional OCLAN may be installed in intermediate transmission centers so that so that more number of DSLAM's can get connected over Fiber itself.
6. Connectivity of OCLAN to the RPR T-I/II.
 - a) **Option-1:** If OCLAN is located within 20Km from the RPR-TI/II switch and direct Fiber is available, OCLAN may be connected over Fiber using GE Optical interfaces
 - b) **Option-2:** Passive WDM splitters (1310nm/1550nm) can be used in case the existing Fiber is having a system working at 1310nm.
 - c) **Option-3:** Through GE optical interface of STM-16 systems which are being commissioned. The number of STM-1 payloads mapped inside the GE payload shall depend upon the traffic.
 - d) **Option-4:** Through FE port of STM-1 or STM-16 systems. The number of E1's mapped into the FE payload shall depend upon the traffic requirements.
 - e) **Option-5:** Through FE to STM-1 converter and then transport over STM-1 interface of STM-16 systems
 - f) **Option-6:** One OCLAN may be connected over Daisy chain to the next OCLAN over any of the methods above.

7. Connectivity of DSLAM to the OCLAN: Any one of the Options from 1 to 5 can be applied for the connectivity of DSLAM to the OCLAN.

Circles are requested to implement the network upgradation progressively.

1. The requirement of OCLAN switches if any for this upgradation may be communicated to this office.
2. The 4/8 E1 to Ethernet converters becoming spare because of the upgradation may be intimated periodically so that these converters can be diverted to other needy circles where there is a severe shortage of Transmission media.



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Copy to:

1. Director (CFA) for information please
2. CGM Project Circles / Maintenance Regions / BNW Circle for information please
3. GM (NWP-BB) / GM(CNP) for information please.