Alcatel·Lucent

Establishment GURGAON	**Alcatel-Lucent India Ltd.**
2011	**CREATION OF PRAD (PRI ON SMT PCMs)**

Area	:	ALCATEL 1000 E10 (OCB 283)
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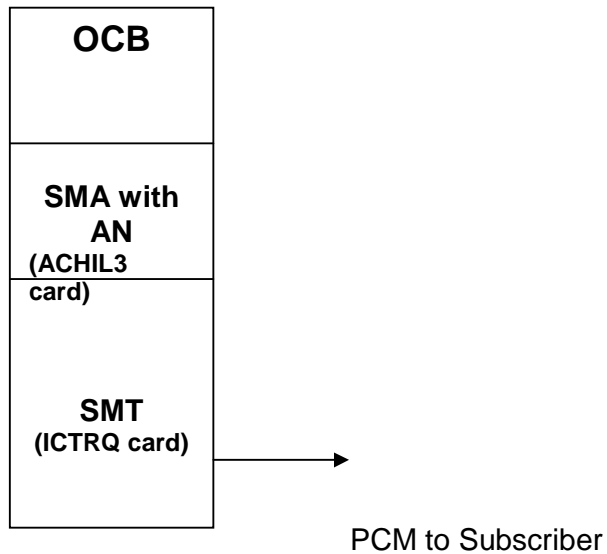# 1. INTRODUCTION

This technical note describes the procedure for setting up primary rate access directly connected to the exchange at trunk unit. This procedure is based on an example which you can adapt to fit your exchange's configuration.

PRI on Subscriber Line Unit Scenario

```
┌─────────────────┐
│      OCB        │
├─────────────────┤
│    SMA with     │
│     PUPE        │
├─────────────────┤      ┌──────────────┐
│     SMT         │      │   CSN        │
│  (ICTRQ card)   │ ───▶ │              │
│                 │      │   TADPB      │ ───▶
└─────────────────┘      └──────────────┘
```

                                                PCM to subscriber
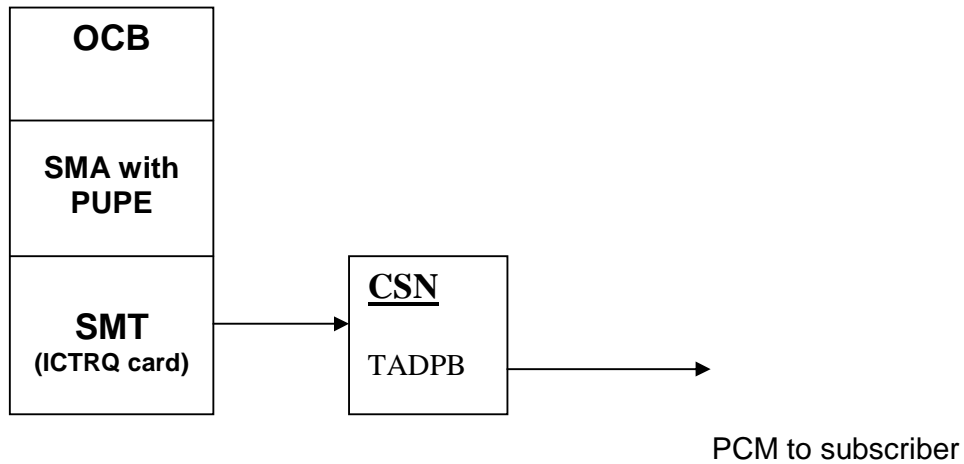
PRI on E1 interface with V5.2 protocol scenario

```
┌─────────────────┐
│      OCB        │
│                 │
├─────────────────┤
│    SMA with     │
│       AN        │
│   (ACHIL3       │
│    card)        │
├─────────────────┤
│     SMT         │
│  (ICTRQ card)   │ ───▶
│                 │
└─────────────────┘
```

                    PCM to Subscriber

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2.PREREQUISITE

1) The exchange must be additionally equipped with at least a pair of SMAs with AN functionality. Additionally, the site must be correctly dimensioned as the same SMA ANs will be used for the V52 functionality (DLC and WLL etc.) as well. Each PRAD need one V52 channel.

SMA can have one to four ACHIL3 cards.
Card-wise capacity details:
One ACHIL3 can have 16 channels of V52 signaling.
Two ACHIL3 can have 31 channels of V52 signaling.
Three ACHIL3 can have 47 channels of V52 signaling.
Four ACHIL3 can have 62 channels of V52 signaling.

Limitation :- One SMA can handle maximum 32 AFUR , so for PRAD purpose we advise not to have more than two ACHIL3 in one station.

Caution:- It is not possible to remove a ACHIL3 card from a SMA even a single AN is installed with that SMA.

2) Exchange should have free PCMs at SMT.

3. Entities involved in PRAD connection

Setting up a PRAD involves the following:

UR connection unit manages the PRAD. UR management is handled by ML AN.

ICTRQ is a board of the SMT2G that is used to connect PCM links.

MLAN is the access management software (PRAD, V5.2). MLAN operates in pairs. Each MLAN is located on a separate SMA.

PCM link supports the PRAD.

Primary rate access digital subscriber port is with 30 B channels and one D channel.

A directory number is assigned to this access point.

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4. Creating and activating a PRAD

To create and activate a PRAD, you must:

Create the PRAD type UR,
Create the PCM link supporting the PRAD,
Activate the PRAD type UR,
Create the primary rate access.

4.1 Activating a PRAD

To create and activate a PRAD, proceed as follows:
1. Create the UR managing the PRAD,
2. Create the PCM link supporting the PRAD,
3. Create the primary rate access.
4. End.

4.2 Creating the PRAD type UR

To create the PRAD type UR:

1. Choose a free UR number using the TELIN command :

```
TELIN:
CEN=1/99-10-13/17 H 28 MN 21/VISUALISATION EQUIPT.
TELEPHONIQUES
AFUR=1<223:
TRAITEMENT TPPMIL ACC
AFUR = ****001 ETAT = NEQ
AFUR = ****002 ETAT = NEQ
AFUR = ****003 ETAT = NEQ
...
AFUR = ****149 ETAT = NEQ
AFUR = PRAD150 ETAT = ES
AFUR = ****151 ETAT = NEQ
AFUR = ****152 ETAT = NEQ
...
AFUR = ****221 ETAT = NEQ
AFUR = ****222 ETAT = NEQ
AFUR = ****223 ETAT = NEQ
TRAITEMENT TPPMIL EXC
```

UR 151 is available. It can be used to manage PRADs.

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2. Choose an ML AN from those available in the exchange's SMAs using the ESMIN command .

```
ESMIN:
CEN=1/99-10-13/17 H 29 MN 47/INTERROGATION D'ETAT DE SM
AM=SMA;
TRAITEMENT TDRHM0 ACC
AM = SMA1 ETAT=ES AUTS=NON AGEO=S1-TR01-B06-A147-R014
AF = PUPE1 ETAT=ESRE
AF = ETA1 ETAT=ES
AM = SMA2 ETAT=ES AUTS=NON AGEO=S1-TR01-B06-A183-R014
AF = PUPE2 ETAT=ES
AF = ETA2 ETAT=ES
AM = SMA3 ETAT=ES AUTS=NON AGEO=S1-TR01-B03-A147-R014
AF = PUPE3 ETAT=ES
AF = ETA3 ETAT=ES
AM = SMA4 ETAT=ES AUTS=NON AGEO=S1-TR01-B07-A150-R001
AF = ANA1 ETAT=ES
AM = SMA5 ETAT=ES AUTS=NON AGEO=S1-TR01-B07-A175-R001
AF = ANB1 ETAT=ES
TRAITEMENT TDRHM0 EXC
```
In this example, just one ML AN is implemented in the exchange (AF=ANx1).

3. To improve UR defense capability, the number of URs in the two ML ANs of the pair should preferably be balanced. Choose the ML AN with the fewest URs using the T2DIL command :

```
T2DIL;
CEN=1/99-10-13/17 H 41 MN 46/LISTAGE UR PRAD
TRAITEMENT TPXEAN ACC
AFUR = 150 AF = ANA01 SEEF = 25
TRAITEMENT TPXEAN EXC
```

In this example, ML ANB01 does not handle any URs. ML ANB01 contains the
least amount of URs.

4. Create the UR on this ML AN using the T2DCR command :

```
T2DCR:
CEN=1/99-10-13/17 H 43 MN 53/CREATION UR PRAD
AFUR=151,AF=ANB01,SEEF=25;
TRAITEMENT TPXEAN ACC
AFUR = 151 AF = ANB01 SEEF = 25
TRAITEMENT TPXEAN EXC
```

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In which:

ANB01 is ML AN B of the ML AN 01 pair,
SEEF is the call completion ratio threshold on the UR. In our
example, an alarm is generated if more than 25% of calls
fail to be completed.

5. End.

4.3 Creating the PCM link

To create the PCM link:

1. Choose an SMT2G to connect the PCM link to be created.
2. Identify the PCM link connection point by its hardware address (AMET).

```
ETUIN:
CEN=1/99-10-08/11 H 37 MN 35/INTERROGATION ETAT ETU
AM=SMT,ETU=1<32;
TRAITEMENT TEETU0 ACC
AM = SMTA2
ETU ETAT AGEO SFET ETAT ET
---- -------- -------------------- ---- ----------------
---
01 ES S1-TR01-B07-A085-R057 TMIC ES ES ES ES
02 ES S1-TR01-B07-A085-R061 TMIC ES ES ES ES
03 ES S1-TR01-B07-A085-R065 TMIC ES ES ES ES
04 ES S1-TR01-B07-A085-R069 TMIC ES ES ES ES
05 ES S1-TR01-B07-A112-R057 TMIC ES ES ES ES
06 ES S1-TR01-B07-A112-R061 TMIC ES ES ES ES
07 ES S1-TR01-B07-A112-R065 TMIC ES ES ES ES
08 ES S1-TR01-B07-A112-R069 TMIC ES ES ES ES
09 ES S1-TR01-B07-A085-R081 TMIC NAFF ES NAFF ES
10 ES S1-TR01-B07-A085-R085 TMIC ES NAFF ES ES
11 ES S1-TR01-B07-A085-R089 TMIC NAFF ES NAFF ES
12 ES S1-TR01-B07-A085-R093 TMIC ES ES NAFF ES
...
31 NEQ
32 NEQ
TRAITEMENT TEETU0 EXC
```

In SMT 2, on ETU 9, ETs (exchange terminations) 1 and 3 are in the NAFF
state. They can be used to connect the PCM link. The hardware addresses
(AMET) 2-9-1 and 2-9-3 are possible connections.
3. Identify an available PCM link number on the UR using the EQTIN
command

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```
EQTIN:
CEN=1/99-10-13/17 H 43 MN 35/LISTAGE EQUIPEMENTS
TELEPHONIQUES
AFLR=151-0<15;
TRAITEMENT TPXLIS ACC
TRAITEMENT TPXLIS EXC
```

In which:
AFLR gives the numbers of PCM links 0 to 15 of UR 151,
EQTIN lists the PCM links that already exist. If the UR has just
been created as is the case in our example, all the PCM
link numbers are available

4. Link the PCM link to the UR created in section 4.3 using the MICCR command:

```
MICCR:
CEN=1/99-10-13/17 H 50 MN 57/CREATION DE MULTIPLEX
AFLR=151-2,AMET=02-09-01,TYMIC=MIC2G,DIS=CCA1:
TRAITEMENT TPXEXT ACC
TRAITEMENT TPXEXT EXC
```

In which:

AFLR is the PCM link number as seen by UR 151,
AMET is SMT 2, ETU 9, PCM interface 1,
TYMIC represents a second generation PCM link,
CCA1 is used to send PCM alarms.

5. If malfunction report R3179/005 is displayed after using the MICCR command,
the supporting ML AN is overloaded. Delete the UR using the T2DSU
command and return to step 4.2 with another SMA .

6. End.
Note : For the PCM links to operate correctly, the CRC-4 (cyclic redundancy
check – 4) function must be the same (CRC-4 active or inactive) at each end
of the PCM link. This essentially means that if CRC4 is active on the PBX,
then execute
```
QMCMO:
AFLR=xxx-xx, CRC=ACT;
```

If , on the other hand ,the CRC4 function is either not activated or not
supported by the PBX, then execute

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```
QMCMO:
AFLR=xxx-xx,CRC=NACT;
```

4.4 Activating the PRAD type UR

To activate the PRAD type UR:

1. Set the PRAD type UR to ES using the TELEMO command :

```
TELEMO:
CEN=1/99-10-13/17 H 54 MN 20/MODIF.ETAT EQUIPEMENTS
TELEPHONIQUES
AFUR=151,ETAT=ES;
TRAITEMENT TPPMIL ACC
AFUR = PRAD151 ETAT = INIT (BLOM)
TRAITEMENT TPPMIL EXC
* *R0410/000/NCEN=L25 /99-10-13/17H54MN 36/FIN
INITIALISATION
/AFUR=PRAD 151
```

2. End.

Note : When the UR exchanges to the ES state, all the PCM links that it
controls automatically changes to the ES state.

4.5 Creating the primary rate access point

To create the primary rate access point:

1. Link the ND of the installation at the end of the PRAD to the NE (equipment
number) using the ABOCR command :

```
ABOCR:
CEN=1/99-10-13/17 H 55 MN 40/CREATION D'UNE LIGNE
D'ABONNE
ND=96500001,NE=151-00-003,TY=PRAD+NBS2+NBA30,CAT=NAT2:

TRAITEMENT TGLACR ACC

ND=96500001 NE =151-00-003
TAX = 00000000 + 00000000 + 00000000 + 00000000
TY= NBS2+ NBA30+PRAC3+PRAD
```

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```
CAT= NAT2+CLAB4

TRAITEMENT TGLACR EXC
```

In which:

ND is the installation telephone number,
NE is the PCM link associated with the installation, in the form
UR-0-(PCM link number+1) with the URs and the PCM link
defined in sections 4.3 and 4.4,
PRAD indicates that the line is a primary rate access line connected
directly to the exchange,
NBS2 indicates that the subscriber access is a primary rate access
(30B+D),
NBA30 indicates that 30 channels are available on the port,
NAT2 indicates that it is a digital subscriber access.

2. Check out operation of the PRAD you have created using the ABFASE command.

3. End.

Note : You can create numbers for directly accessing the terminals in the subscriber's
installation by creating a DDI (direct dialling-in) facility .

4.6 Creating additional PRADs

To create an additional PRAD on an existing UR:

1. Refer to section 4.4 for how to create a PCM link.
2.Set the PCM link to the ES state using the TELEMO command .
2. Refer to section 4.6 for how to create a primary rate access link.
4. End.

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