Advanced LCR

This document will attempt to simplify the more common advanced features regularly assigned in LCR. These include…

- Toll restriction
- 6 digit toll restriction
- Tenant routing
- LCR for CCIS
- Type Plan and Network Specific Facilities (LCR for ISDN)

Toll Restriction

As with most features in LCR, toll restriction is assigned in the LCR pattern (See Beginners LCR). The setting reverts back to a chart assigned in CM 81. The default chart is usually adequate for most toll restriction assignments.

The most common toll restriction is local, toll free only and 911 only. In this scenario 3 trunk restriction classes are required. These are set in **CM 1201**.

Example:

Stations that are unrestricted:-	**CM 1201>XXXX>11** Where **XXXX** is the station number and 11 represents a class **1** in day mode and a class **1** in night mode.
Local and toll free only:-	**CM 1201>XXXX>22** Where **XXXX** is the station number and **22** represents a class **2** in day mode and a class **2** in night mode.
911 Emergency only:-	**CM 1201>XXXX>33** Where **XXXX** is the station number and **33** represents a class **3** in day mode and a class **3** in night mode.

In LCR you must assign a different **Route Pattern** and **LCR Pattern** for each of the call types explained above (See Beginners LCR for Route Pattern assignment).

Example:

Unrestricted calls:-	8A**0000**>1>**000**XX
Local and toll free only:-	8A**0001**>1>**001**XX
911 Emergency only:-	8A**0011**>1>**011**XX

A trunk restriction pattern is then assigned to the LCR pattern for each of the call types. You must choose the pattern from the chart in CM 81. The X axis of this graph represents what is assigned to the LCR pattern while the Y axis is what is assigned to the actual station in **CM 1201**. The box where the X and Y axis meet determines whether the call can complete or not. **3 = Yes**, **0 = No**.

Taken from chart shown in CM 81

Restriction Class (CM 1201)	Trunk Restriction Pattern For LCR				
	01	**02**	**03**	**04**	**05**
1	3	0	3	3	3
2	3	0	3	3	0
3	3	0	3	0	0
4	3	0	0	0	0
5	3	0	0	0	0
6	3	0	0	0	0
7	3	0	0	0	0
8	3	0	0	0	0

So from this chart you can see that anyone who is a trunk restriction class **22** cannot dial an LCR pattern restricted to an **05** but can dial an LCR pattern restricted to an **04** (local/toll free) or an **03** (911 calls). The restriction patterns are assigned as shown below in the example.

Example:

Unrestricted Calls (11):-	8A5000>000>05
Local and Toll free only (22):-	8A5001>000>04
911 Emergency only (33):-	8A5011>000>15 (Default all classes 1~8 =3)

Six Digit Toll Restriction

This feature is utilized to restrict callers from certain office codes within a specific area code. To do this the entire area code must be pointed to a Route Pattern in the Development Pattern. For the example **1-214-262-XXXX** is to be restricted from callers with Trunk Restriction Class 2.

Example:

        CM 8A4005>1214>0000
        CM 8A0000>1>000XX

A **6-digit Toll restriction Pattern No.** must then be assigned to the **LCR Pattern**.

Example:

        CM 8A5000>020>8000 (50 patterns are available **8000~8048**)

The **6-digit Toll restriction Pattern No.** contains all area codes 200~999 and all by default are allowed for dialing. To restrict the office code it must be set to a **0**. For the example office code 262 is to be restricted.

Example:

        CM 8A8000>262>0

Then the Trunk restriction Class for the station to be restricted must be enabled. The 1st data for this assignment is **021~028** which represents Trunk Restriction Class **1~8**. In the example Class **2** will have the 6-digit Toll restriction enabled.

Example:

        CM 8A5000>022>0

Finally the stations to be restricted from dialing must be assigned the trunk restriction class assigned for the 6-digit restriction as explained in the previous step. For the example station **2456** will be assigned class **2** which will restrict it from dialing **1-214-262-XXXX**.

Example:

        CM 1201>2456>22

Tenant Routing

Tenant routing allows users to all access LCR via a common access code but, based on tenant, route the call with different LCR patterns and trunk routes. For the example calls to 12 ~ 19 will be routed to a **Tenant Pattern**.

Example:

        CM 8A4005>12>1000

        CM 8A4005>19>1000

The Tenant Pattern is then assigned a **Route Pattern** (**1000~1015**) on a tenant basis. For the example Tenants 01, 02, and 03 will be routed to individual Route Patterns so that individual trunk routes and routing can be utilized.

Example:

        CM 8A1000>01>0000
        CM 8A1000>02>0001
        CM 8A1000>03>0002

Now tenant 01, 02, and 03 all will use a different **Route Pattern** even though they all dialed the same LCR access code. At this point regular LCR programming for each **Route Pattern** (See Beginners LCR) would be required allowing you to assign different restrictions and other routing options based on the individual tenant.

Finally the stations would need to be assigned to the required tenant numbers. For the example stations **2000**, **2001**, and **2002** will each be assigned to their individual tenant.

Example:

        CM 1204>2000>01
        CM 1204>2001>02
        CM 1204>2002>03

LCR for CCIS

There are four LCR groups available for assignment. LCR groups **0~2** (**A126~A128**) have you route that call based on the digits dialed *after* the LCR access code. **LCR group 3** (**A129**) routes the call on the access code assigned in CM 20 as well as the digits in the Development Pattern if necessary.

This feature is mainly utilized for seamless station to station dialing over CCIS trunks.

For the example calls to stations starting with a **40** are to be routed, to another site in the network, over a CCIS trunk route.

Example:
>   **CM 200>40>A129**
>   **CM 8AA000>3>4007**
>   **CM 8A4007>40>0050**

All that is left to do is complete the appropriate assignments for the **Route Pattern,** as described in Beginners LCR, pointing the call to the CCIS trunks.

The other popular use for this feature is to route all calls out from a fax machine or modem without requiring the user to dial a 9 first. This cannot be done in the same PBX that is supporting CCIS routing as explained above.

LCR for ISDN

Sometimes calls out on ISDN spans required additional information based on the type of carrier routing the call or the protocol utilized for layer 3 information. All the assignments are made to the **LCR Pattern** (See Beginners LCR). In most cases you should be informed by the carrier, of the ISDN circuit, on what details they would like to see on an outgoing setup message. Unfortunately many times you will not know, nor will the tester person with the carrier know, so it is a matter of assigning different types until the outgoing call completes.

Example:

8A5XXX>157>00 **8A5XXX>158>00**	Assigned for a Called Party Number Identifier with a type/plan of **UNKNOWN**.
8A5XXX>157>01 **8A5XXX>158>01**	Assigned for a Called Party Number Identifier with a type/plan of **INTERNATIONAL**
8A5XXX>157>02 **8A5XXX>158>01**	Assigned for a Called Party Number Identifier with a type/plan of **NATIONAL**
8A5XXX>157>04 **8A5XXX>158>01**	Assigned for a Called Party Number Identifier with a type/plan of **LOCAL**
8A5XXX>163>01	Network Specific Facilities for **SDN** (Software Defined Network)
8A5XXX>163>03	Network Specific Facilities for **MEGACOM**

The above example shows the most common and widely used features assigned for ISDN. Others are available and can be found in the NEAX 2000 IPS Command Manual under CM 8A.