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Nokia BSC/TCSM S11 Product Documentation

BSS10004: AMR

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1 Activating and testing AMR

Before you start

Make sure that the following procedures have been completed before the installation and activation of AMR:

1. Hardware is correctly installed and the A and Abis interfaces are created as instructed in *BSS Integration.*
2. HR channels are created to the cells that are used for the AMR HR testing.

   HR channel creation and activation is instructed in *BSS6115: Radio Channel Allocation Enhancements, Half Rate, Activating and testing Half Rate.*

1.1 Activating AMR

AMR is activated by setting the feature-specific parameters on.

You can activate AMR FR (step 1) or AMR HR (step 2) or both.

After activating the feature, you need to create an AMR pool. You can either create a new A interface pool for AMR; see instructions in *BSS Integration, Creating the A interface,* sections:

- *Creating the transcoder services/Creating the TCSM2*
- *Creating the speech channels*

Or you can modify an existing pool to support AMR; see instructions in section *Modifying speech circuits.*

Note

FACCH call set-up with AMR will fail if the BTS does not support AMR.

Steps

1. **Set the feature-specific control parameter AMR_CODEC_USED on (WOA)**

   ```
   ZWOA:2,619,A;
   ```

2. **Set the feature-specific control parameter AMR_HR_IN_USE_IN_BSC on (WOA)**

   ```
   ZWOA:2,760,A;
   ```

1.2 Modifying speech circuits

The following procedure is executed once per TCSM2. There are two alternative ways to do the modification:

- speech circuits are removed and added during modification
- speech circuits are transferred automatically during modification

The second way is simpler in the sense that it contains fewer MMI commands than the first one.

Note

The modification is possible only between the types that use the same number of bits in the Ater interface, in other words the submultiplexing scheme is the same for the current and the new pool.

In the following procedures, the type of the first TC-PCM is changed from FR to AMR (pool 1 → pool 23).

Choose one of the following procedures:

1.2.1 Modifying circuits with circuit removal and addition

Steps

1. **Remove speech circuits of the first TC-PCM from the circuit group that contains circuits of pool 1 (CEC, RCR)**

   a. `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:BA;`

   or:

   `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:BL;`

   b. `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:NU;`

   c. `ZRCR:NCGR=<circuit group name for pool 1>, ETPCM=<circuit>,CRCT=1-1&&-31;`

2. **Modify the TC-PCM type (WGM)**

   `ZWGM:<et_pcm number>,1:POOL=23;`

3. **Restart the TCSM unit (USU)**

   `ZUSU:TCSM,<et_pcm number>;`

   The TCSM must be restarted because the TC-PCM type in the TCSM2 is changed and the TCSM unit is in WO-EX state. The Transcoder Configuration MML notifies about this during the execution of `WGM` command.

4. **Add speech circuits to the circuit group that contains circuits of pool 23 (RCA, CEC)**

   a. `ZRCA:NCGR=<circuit group name for pool 23>, ETPCM=<circuit>,CRCT=1-1&&-31,CCSPCM=3;`

   b. `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:BA;`

   c. `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:WO;`

1.2.2 Modifying circuits with automatic circuit transfer

Steps

1. **Block speech circuits of the TC-PCM (CEC)**

   `ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:BA;`

   or:

```
ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:BL;
```

2. Modify the TC-PCM type (WGM)

Note that the target circuit group has to exist. If the circuit group does not exist, create it with command `RCC` .

```
ZWGM:<et_pcm number>,1:POOL=23:NCGR=<circuit group
name for pool 23>;
```

3. Restart the TCSM unit (USU)

```
ZUSU:TCSM,<et_pcm number>;
```

The TCSM must be restarted because the TC-PCM type in the TCSM2 is changed and the TCSM unit is in WO-EX state. The Transcoder Configuration MML notifies about this during the `WGM` command.

4. Unblock speech circuit of the TC_PCM (CEC)

```
ZCEC:ETPCM=<circuit>,CRCT=1-1&&-31:WO;
```

1.3 Testing AMR

After the software update the parameters are in off state. The parameters become valid after five minutes; therefore a five-minute delay is needed before testing the feature.

Channel rate and speech codec change control in internal and external handovers is handled via the MMLs of the command groups EQ and EE. The default value of these parameters is sufficient when testing AMR. Also, default values of AMR-specific parameters are sufficient when testing AMR.

Before you start

Make sure you have the following AMR-supporting equipment available for testing:

- one MSC
- one BSC
- one TCSM2

- one BTS
- two MSs

Steps

1. Configure the BTS to have both HR and FR timeslots (ERS, ERM)

Note

Do not use DR timeslots.

a. Lock the TRX:

```
ZERS:BTS=<id>,TRX=<id>:L;
```

b. Modify timeslots:

```
ZERM:BTS=<id>,TRX=<id>,CH1=HR,CH2=FR;
```

c. Unlock the TRX:

```
ZERS:BTS=<id>,TRX=<id>:U;
```

2. Make a call using only AMR FR codec (FR speech version 3)

This means that AMR FR codec is the only allowed codec in assignment.

Expected outcome

The call is successful.

3. Lock all FR timeslots in the TRX and make a call using only AMR HR codec (HR speech version 3)

This means that AMR HR codec is the only allowed codec in assignment.

```
ZERS:BTS=<id>,TRX=<id>,CH=2&&7:L;
```

Expected outcome

The call is successful.

4. Create and start a measurement to confirm a successful call; optional (TPM, TPS)

In case of AMR FR, the related BTS-specific counter of traffic measurement is FULL_TCH_SEIZ_SPEECH_VER_3.

In case of AMR HR, the related BTS-specific counter of traffic measurement is HALF_TCH_SEIZ_SPEECH_VER_3.

The counters can be accessed from the database of Nokia NetAct.

a. Create a measurement.

```
ZTPM:MEASUR,TRAFFIC:<measurement day>,
<measurement interval>,<output interval>:;
```

b. Start a measurement.

```
ZTPS:MEASUR,TRAFFIC:<start date>,<stop date>:;
```

Further information:

- *Enhanced Speech Codecs: AMR and EFR*
- *Deactivating and testing AMR*

2 Deactivating and testing AMR

If the AMR-capable pool is no longer needed, remove it as instructed in *BSS Integration,* section *Creating the A interface,* but in the reverse order.

Alternatively, you can modify the AMR pool as instructed in *Activating and testing AMR.*

Telecom support for AMR is switched off with the feature-specific control parameters. The parameters become valid after five minutes, therefore a five-minute delay is needed before testing the deactivation.

Steps

1. Switch off the AMR_CODEC_USED parameter (WOA)

```
ZWOA:2,619,D;
```

2. Switch off the AMR_HR_IN_USE_IN_BSC parameter (WOA)

```
ZWOA:2,760,D;
```

3. Test the deactivation

a. Make a call using only the AMR FR codec (FR speech version 3), meaning that the AMR FR codec is the only allowed codec in the assignment. The expected result is an unsuccessful call.

b. Make a call using only the AMR HR codec (HR speech version 3), meaning that the AMR HR codec is the only allowed codec in the assignment. The expected result is an unsuccessful call.

c. You can also use the related BTS-specific traffic measurement counters to confirm the deactivation. The expected result is that the number of successful calls remains the same as before the deactivation.

In case of AMR FR, the counter is FULL_TCH_SEIZ_SPEECH_VER_3 (ID=01110).

In case of AMR HR, the counter is HALF_TCH_SEIZ_SPEECH_VER_3 (ID=01113).

You can stop the measurement after reading the value of either counter. Use the command:

```
ZTPE:MEASUR,TRAFFIC:<stop date>:;
```

Further information:

Enhanced Speech Codecs: AMR and EFR