



# LTE-M RAT Indication Support

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## Feature Summary and Revision History

### Summary Data

Applicable Product(s) or Functional Area	MME
Applicable Platform(s)	<ul style="list-style-type: none"><li>• ASR 5500</li><li>• VPC-DI</li><li>• VPC-SI</li></ul>
Feature Default	Disabled - Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	<ul style="list-style-type: none"><li>• <i>Command Line Interface Reference</i></li><li>• <i>MME Administration Guide</i></li><li>• <i>Statistics and Counters Reference</i></li></ul>

### Revision History

Revision Details	Release
First introduced.	21.27

## Feature Description

MME parses and stores the LTE-M RAT Indication IE in UE Capability Info Indication message. For Category M UEs, MME sends the RAT type of LTE-M (9) in the RAT type IE to S-GW. MME requests S-GW to pass the LTE-M RAT type to P-GW. The request to P-GW is based on the LTE-M RAT type indication configuration under call-control profile and mme-service. Based on the configuration, the LTEMPPI ( LTE-M RAT type reporting to P-GW Indication ) bit in Indication IE is set in the create session request and modify bearer request messages to S-GW. The LTEMPPI bit set to 1 indicates that the S-GW forwards the LTE-M RAT type to P-GW.

The Inter-MME changes the source and sends the LTE-M indication to the target MME. The source MME sends the indication message through the LTEMPUI (LTE M UE Indication) bit in forward relocation request message and context response message over S10. The LTEMPUI is set to 1 for Category M UEs. For other RAT types, the value is set to 0.

## Configuration Support for LTE-M RAT Type Reporting to P-GW

### Configuring LTEMPPI Flag under Call Control Profile

Use the following configuration commands to configure the LTEMPPI flag under call control profile:

```
configure
  call-control-profile profile_name
    lte-m-rat flag-LTEMPPI { 1 | 0 }
    [ no | default | remove ] lte-m-rat
  end
```

#### NOTES:

- **lte-m-rat**: Enables configuration for LTE-M Access type.
- **flag-LTEMPPI**: Configures LTE-M RAT Indication to S-GW to pass the LTE-M RAT type to the P-GW.
- **[ no | default | remove ]**: Removes the configuration from call-control profile and fallback to the mme-service configuration.

### Configuring LTEMPPI Flag under MME Profile

Use the following configuration commands to configure the LTEMPPI flag under MME profile:

```
configure
  context context_name
    mme-service service_name
      lte-m-rat flag-LTEMPPI { 0 | 1 }
      [ no | default ] lte-m-rat
    end
```

#### NOTES:

- **lte-m-rat**: Enables configuration for LTE-M Access type.
- **flag-LTEMPI**: Configures LTE-M RAT Indication to S-GW to pass the LTE-M RAT type to the P-GW.
- **[ no | default | remove ]**: Removes the configuration from call-control profile and fallback to the mme-service configuration.

## Monitoring and Troubleshooting

This section provides information on how to monitor and troubleshoot using show commands available in support of this feature.

### Show Command and Output

This section provides information about the show commands and outputs in support of this feature.

**show mme-service { all | name <service name> }**

The output of this command displays the following field:

Field	Description
LTE-M RAT Indication to S-GW to pass the LTE-M RAT type to the P-GW (Enabled/Disabled)	Displays the enabled or disabled status of the LTE-M RAT Indication to P-GW.

**show call-control-profile full { all | name <ccp name> }**

The output of this command displays the following field:

Field	Description
LTE-M RAT Indication to S-GW to pass the LTE-M RAT type to the P-GW (Enabled/Disabled)	Displays the enabled or disabled status of the LTE-M RAT Indication to P-GW.

**show subscribers mme-only { all | full all | wf1 all } imsi <imsi\_name>**

The output of this command displays the following field:

Field	Description
Access Tech : (R) - LTE-M	Displays the Access Tech as 'R' (LTE-M) for Category M UEs.

**show subscribers mme-service <service\_name> imsi**

The output of this command displays the following field:

Field	Description
Access Tech : (R) - LTE-M	Displays the Access Tech as 'R' (LTE-M) for Category M UEs.

## Bulk Statistics

This section provides information on the bulk statistics variables for the MME schema:

Bulk Statistics Variables	Description
LTE-M Attached Calls	Displays the current total number of attached low power Subscribers operating in Category M.