**3GPP TSG-SA5 Meeting #162 *S5-253950***

Goteborg, Sweden, 25 - 29 August 2025

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.541** | **CR** | **1595** | **rev** | **1** | **Current version:** | **19.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Rel-19 CR TS 28.541 Correction on diagram and description on EP\_Rx | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI19 | | | | |  | ***Date:*** | | | 2025-08-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. Missing and wrong name for EP\_Rx in class diagram of 5GC NFs: 2. In Figure 5.2.1.1-6, EP\_NRx should be EP\_Rx. 3. In Figure 5.2.1.2-2, EP\_Rx is missing. 4. Rx interface between PCF and AF is defined in TS 23.503, not TS 23.501 5. Add PCF NRM relationship diagram | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Correction on wrong diagrams and references for Rx interface. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect stage 2 leads to incorrect implementation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.1.1, 5.2.1.2, 5.4.43, Q.1.x (new), Q.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | No impact on stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***Start of First change***

#### 5.2.1.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for NRM of 5GC NFs definitions. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.

…

The Figure 5.2.1.1-6 shows the transport view of PCF NRM.

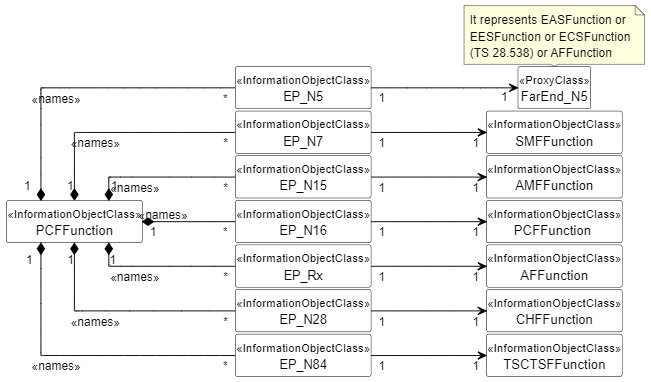


Figure 5.2.1.1-6: Transport view of PCF NRM

***Next change***

#### 5.2.1.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 5.2.1.2-1 shows the inheritance hierarchy from IOC ManagedFunction related to the 5GC NF NRM.

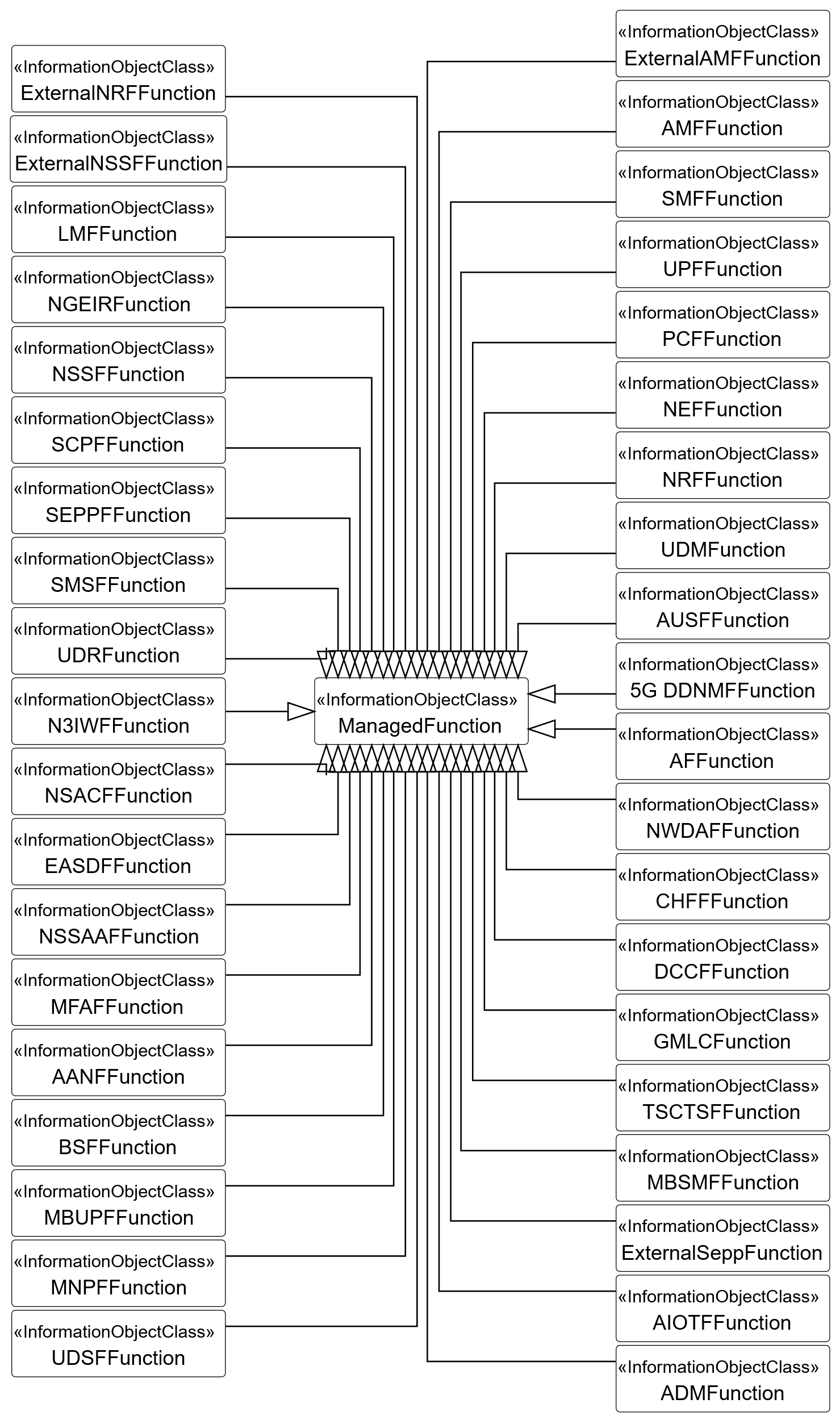


Figure 5.2.1.2-1: Inheritance hierarchy from IOC ManagedFunction related to the 5GC NF NRM

Figure 5.2.1.2-2 shows the inheritance hierarchy from IOC EP\_RP related to 5GC NF NRM.

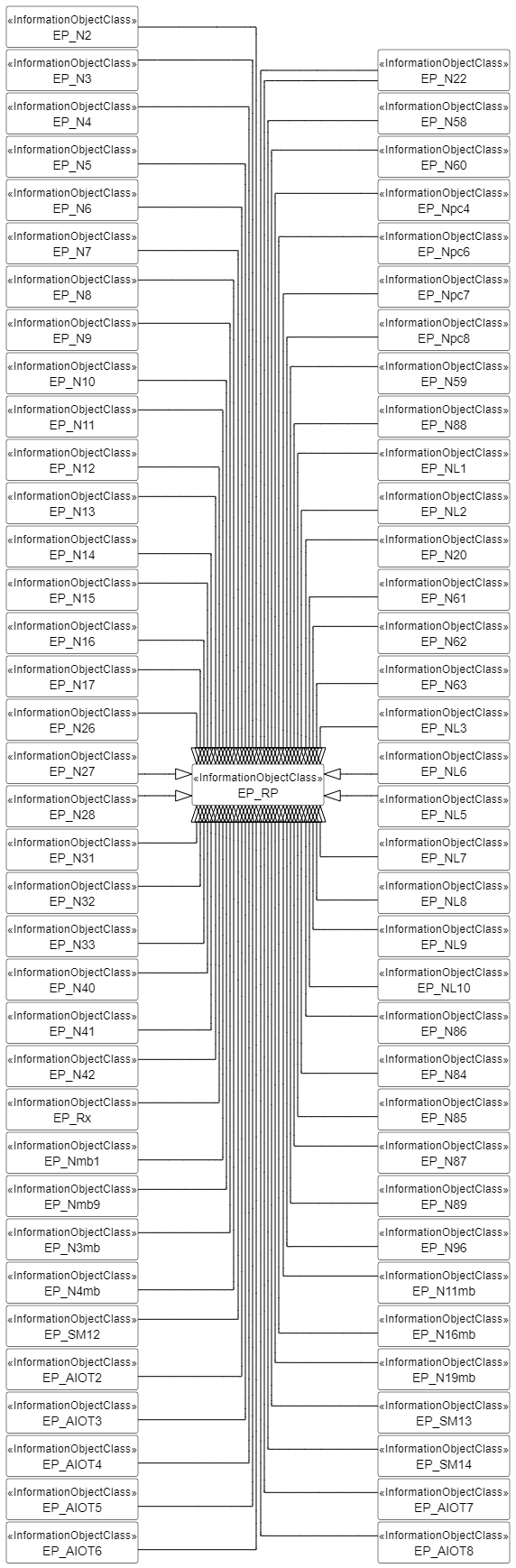


Figure 5.2.1.2-2: Inheritance hierarchy from IOC EP\_RP related to the 5GC NF NRM



Figure 5.2.1.2-3: Inheritance hierarchy for IOC QFQoSMonitoringControl



Figure 5.2.1.2-4: Inheritance hierarchy for IOC GtpUPathQoSMonitoringControl



Figure 5.2.1.2-5: Inheritance hierarchy for IOC Configurable5QISet



Figure 5.2.1.2-6: Inheritance hierarchy for IOC FiveQiDscpMapping



Figure 5.2.1.2-7: Inheritance hierarchy for predefined PCC rule modeling



Figure 5.2.1.2-8: Inheritance hierarchy for IOC Dynamic5QISet



Figure 5.2.1.2-9: Inheritance hierarchy for EcmConnectionInfo



Figure 5.2.1.2-10: FiveQICharacteristics Inheritance



Figure 5.2.1.2-11: Inheritance hierarchy for AnLFFunction

A diagram of a computer

Description automatically generated

Figure 5.2.1.2-12: Inheritance hierarchy for ManagedNFService

***Next change***

### 5.3.43 EP\_Rx

#### 5.3.43.1 Definition

This IOC represents the Rx interface between PCF and AF, which is defined in 3GPP TS 23.503 [59].

#### 5.3.43.2 Attributes

The EP\_Rx IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622 [30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | S | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.43.3 Attribute constraints

None.

#### 5.3.43.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

***Next change***

## Q.1.x The Figure 5.2.1.1-6 for the transport view of PCF NRM

'Figure 5.2.1.1-6: Transport view of PCF NRM

@startuml Figure 5.2.1.1-6: Transport view of PCF NRM

hide empty members

hide circle

skinparam class {

BackgroundColor White

ArrowColor Black

BorderColor Black

}

skinparam ClassStereotypeFontStyle normal

skinparam linetype ortho

skinparam nodesep 2

skinparam ranksep 100

left to right direction

class PCFFunction <<InformationObjectClass>>

class EP\_N5 <<InformationObjectClass>>

class EP\_N7 <<InformationObjectClass>>

class EP\_N15 <<InformationObjectClass>>

class EP\_N16 <<InformationObjectClass>>

class EP\_Rx <<InformationObjectClass>>

class EP\_N28 <<InformationObjectClass>>

class EP\_N84 <<InformationObjectClass>>

class FarEnd\_N5 <<ProxyClass>>

class SMFFunction <<InformationObjectClass>>

class AMFFunction <<InformationObjectClass>>

class "PCFFunction " <<InformationObjectClass>>

class AFFunction <<InformationObjectClass>>

class CHFFunction <<InformationObjectClass>>

class TSCTSFFunction <<InformationObjectClass>>

PCFFunction "1" \*-- "\*" EP\_N5: <<names>>

PCFFunction "1" \*-- "\*" EP\_N7: <<names>>

PCFFunction "1" \*-- "\*" EP\_N15: <<names>>

PCFFunction "1" \*-- "\*" EP\_N16: <<names>>

PCFFunction "1" \*-- "\*" EP\_Rx: <<names>>

PCFFunction "1" \*-- "\*" EP\_N28: <<names>>

PCFFunction "1" \*-- "\*" EP\_N84: <<names>>

EP\_N5 "1" --> "1" FarEnd\_N5

note top of FarEnd\_N5

It represents EASFunction or

EESFunction or ECSFunction

(TS 28.538) or AFFunction

end note

EP\_N7 "1" --> "1" SMFFunction

EP\_N15 "1" --> "1" AMFFunction

EP\_N16 "1" --> "1" "PCFFunction "

EP\_Rx "1" --> "1" AFFunction

EP\_N28 "1" --> "1" CHFFunction

EP\_N84 "1" --> "1" TSCTSFFunction

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***Next change***

## Q.2.2 Figure 5.2.1.2-2 the inheritance hierarchy from IOC EP\_RP related to 5GC NF NRM

@startuml igure 5.2.1.2-2: Inheritance hierarchy from IOC EP\_RP related to the 5GC NF NRM

hide empty members

skinparam ClassStereotypeFontStyle normal

hide circle

skinparam class {

BackgroundColor White

ArrowColor Black

BorderColor Black

}

left to right direction

skinparam linetype ortho

'skinparam BoxPadding 40

skinparam nodesep 2

class EP\_RP <<InformationObjectClass>>

class EP\_N2 <<InformationObjectClass>>

class EP\_N3 <<InformationObjectClass>>

class EP\_N4 <<InformationObjectClass>>

class EP\_N5 <<InformationObjectClass>>

class EP\_N6 <<InformationObjectClass>>

class EP\_N7 <<InformationObjectClass>>

class EP\_N8 <<InformationObjectClass>>

class EP\_N9 <<InformationObjectClass>>

class EP\_N10 <<InformationObjectClass>>

class EP\_N11 <<InformationObjectClass>>

class EP\_N12 <<InformationObjectClass>>

class EP\_N13 <<InformationObjectClass>>

class EP\_N14 <<InformationObjectClass>>

class EP\_N15 <<InformationObjectClass>>

class EP\_N16 <<InformationObjectClass>>

class EP\_N17 <<InformationObjectClass>>

'class EP\_N18 <<InformationObjectClass>>

class EP\_N22 <<InformationObjectClass>>

class EP\_N26 <<InformationObjectClass>>

class EP\_N27 <<InformationObjectClass>>

class EP\_N28 <<InformationObjectClass>>

class EP\_N31 <<InformationObjectClass>>

class EP\_N32 <<InformationObjectClass>>

class EP\_N33 <<InformationObjectClass>>

class EP\_N40 <<InformationObjectClass>>

class EP\_N41 <<InformationObjectClass>>

class EP\_N42 <<InformationObjectClass>>

class EP\_N58 <<InformationObjectClass>>

class EP\_N60 <<InformationObjectClass>>

class EP\_Rx <<InformationObjectClass>>

class EP\_Npc4 <<InformationObjectClass>>

class EP\_Npc6 <<InformationObjectClass>>

class EP\_Npc7 <<InformationObjectClass>>

class EP\_Npc8 <<InformationObjectClass>>

class EP\_N59 <<InformationObjectClass>>

class EP\_N88 <<InformationObjectClass>>

class EP\_NL1 <<InformationObjectClass>>

class EP\_NL2 <<InformationObjectClass>>

class EP\_N20 <<InformationObjectClass>>

class EP\_N22 <<InformationObjectClass>>

' AANFFunction

class EP\_N61 <<InformationObjectClass>>

class EP\_N62 <<InformationObjectClass>>

class EP\_N63 <<InformationObjectClass>>' GMLC

class EP\_NL3 <<InformationObjectClass>>

class EP\_NL6 <<InformationObjectClass>>

class EP\_NL5 <<InformationObjectClass>>

class EP\_NL7 <<InformationObjectClass>>

class EP\_NL8 <<InformationObjectClass>>

class EP\_NL9 <<InformationObjectClass>>

class EP\_NL10 <<InformationObjectClass>>

' TSCTSFFunction

class EP\_N86 <<InformationObjectClass>>

class EP\_N84 <<InformationObjectClass>>

class EP\_N85 <<InformationObjectClass>>

class EP\_N87 <<InformationObjectClass>>

class EP\_N89 <<InformationObjectClass>>

class EP\_N96 <<InformationObjectClass>>

' MB-SMF & MB-UPF

class EP\_N11mb <<InformationObjectClass>>

class EP\_N16mb <<InformationObjectClass>>

class EP\_N19mb <<InformationObjectClass>>

class EP\_Nmb1 <<InformationObjectClass>>

class EP\_Nmb9 <<InformationObjectClass>>

class EP\_N3mb <<InformationObjectClass>>

class EP\_N4mb <<InformationObjectClass>>

' MNPF

class EP\_SM12 <<InformationObjectClass>>

class EP\_SM13 <<InformationObjectClass>>

class EP\_SM14 <<InformationObjectClass>>

' AIOT

class EP\_AIOT2 <<InformationObjectClass>>

class EP\_AIOT3 <<InformationObjectClass>>

class EP\_AIOT4 <<InformationObjectClass>>

class EP\_AIOT5 <<InformationObjectClass>>

class EP\_AIOT6 <<InformationObjectClass>>

class EP\_AIOT7 <<InformationObjectClass>>

class EP\_AIOT8 <<InformationObjectClass>>

EP\_N2 --|> EP\_RP

EP\_N3 --|> EP\_RP

EP\_N4 --|> EP\_RP

EP\_N5 --|> EP\_RP

EP\_N6 --|> EP\_RP

EP\_N7 --|> EP\_RP

EP\_N8 --|> EP\_RP

EP\_N9 --|> EP\_RP

EP\_N10 --|> EP\_RP

EP\_N11 --|> EP\_RP

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EP\_N13 --|> EP\_RP

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EP\_N22 --|> EP\_RP

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EP\_N27 --|> EP\_RP

EP\_N28 --|> EP\_RP

EP\_N31 --|> EP\_RP

EP\_N32 --|> EP\_RP

EP\_N33 --|> EP\_RP

EP\_N40 --|> EP\_RP

EP\_N41 --|> EP\_RP

EP\_N42 --|> EP\_RP

EP\_Rx --|> EP\_RP

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EP\_Nmb1 --|> EP\_RP

EP\_Nmb9 --|> EP\_RP

EP\_N3mb --|> EP\_RP

EP\_N4mb --|> EP\_RP

EP\_SM12 --|> EP\_RP

EP\_AIOT2 --|> EP\_RP

EP\_AIOT3 --|> EP\_RP

EP\_AIOT4 --|> EP\_RP

EP\_AIOT5 --|> EP\_RP

EP\_AIOT6 --|> EP\_RP

EP\_RP <|-- EP\_N58

EP\_RP <|-- EP\_N60

EP\_RP <|-- EP\_Npc4

EP\_RP <|-- EP\_Npc6

EP\_RP <|-- EP\_Npc7

EP\_RP <|-- EP\_Npc8

EP\_RP <|-- EP\_N59

EP\_RP <|-- EP\_N88

EP\_RP <|-- EP\_NL1

EP\_RP <|-- EP\_NL2

EP\_RP <|-- EP\_N20

EP\_RP <|-- EP\_N22

EP\_RP <|-- EP\_N61

EP\_RP <|-- EP\_N62

EP\_RP <|-- EP\_N63

EP\_RP <|-- EP\_NL3

EP\_RP <|-- EP\_NL6

EP\_RP <|-- EP\_NL5

EP\_RP <|-- EP\_NL7

EP\_RP <|-- EP\_NL8

EP\_RP <|-- EP\_NL9

EP\_RP <|-- EP\_NL10

EP\_RP <|-- EP\_N86

EP\_RP <|-- EP\_N84

EP\_RP <|-- EP\_N85

EP\_RP <|-- EP\_N87

EP\_RP <|-- EP\_N89

EP\_RP <|-- EP\_N96

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EP\_RP <|-- EP\_N11mb

EP\_RP <|-- EP\_N16mb

EP\_RP <|-- EP\_N19mb

EP\_RP <|-- EP\_SM13

EP\_RP <|-- EP\_SM14

EP\_RP <|-- EP\_AIOT7

EP\_RP <|-- EP\_AIOT8

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