**3GPP TSG-SA4 Meeting #128 *S4-240897***

**Jeju, Korea (Republic Of), 20th May 2024 - 24th May 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.517** | **CR** | **0014** | **rev** | **-** | **Current version:** | **18.0.1** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Support for RedCap UEs in MBS Broadcast | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Germany, Huawei | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18, 5MBS\_Ph2 | | | | |  | ***Date:*** | | | 2024-05-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | In order for RedCap UEs to be able to receive 5MBS service in broadcast mode, NG-RAN needs to be able to determine the specific broadcast MBS service identified by the MBS Session ID and it should be received by RedCap UEs.In order for NG-RAN to know that the MBS Service is to be received by RedCap UEs, information needs to be provided by the AF to the NEF/MBSF at the MBS Session Creation.  With respect to how to communicate the information about the support for RedCap UEs to NG-RAN, it is proposed to use explicit optional information in N2 SM Information from MB-SMF to AMF and from AMF to NG-RAN to indicate whether the broadcast MBS session is intended only for NR RedCap UEs, both for NR RedCap UEs and non-RedCap UEs, or only by non-RedCap UEs.  SA2 has approved 23247-CR0341 to address the issue.  A stage-2 CR for TS 26.502 has been prepared in 26502-0029.  Stage-3 extensions are needed. | | | | | | | | |
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| ***Summary of change:*** | | Addition of NR RedCap UE Information to MBS User Service Announcement | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | “NR RedCap UE Information” is not available to MBS UEs | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.9, A.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS/TR 26502 CR 0029 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | An alternative solution may be the definition of a new conformance profile for RedCap UEs.  As another CR is created also affecting 5.2.9, the two should be combined in one. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

FIRST CHANGE

### 5.2.9 Availability Information data type

The AvailabilityInformation data type provides additional information pertaining to the availability of the MBS Distribution Session within the 5G Network:

- The serviceArea property declares the one or more service areas in which the MBS Session corresponding to this MBS Distribution Session is currently available.

- In the case of a broadcast MBS Session corresponding to this MBS Distribution Session:

- The mbsFSAId property identifies a preconfigured area within which, and in proximity to, the cell(s) announce the MBS Frequency Selection Area (FSA) ID and its associated frequency.

- The nrRedCapUEInfo property indicates which classes of UE the MBS Distribution Session is suitable for consumption by.

NOTE: This is used to guide frequency selection by the UE for a broadcast MBS Session.

- The radioFrequencyproperty indicates the one or more radio frequencies in the NG-RAN downlink which transmit the MBS Session corresponding to this MBS Distribution Session in the service area(s) identified by the serviceArea property.

Table 5.2.9-1 provides the detailed semantics for the AvailabilityInformation data type.

Table 5.2.9-1: Semantics of AvailabilityInformation data type

| Property name | Type | P | Cardinality | Description |
| --- | --- | --- | --- | --- |
| mbsService‌Area | array(Mbs‌Service‌Area) | O | 1..N | The *Target service areas* of this MBS Distribution Session, as defined in table 4.5.8‑1 of TS 26.502 [6]. |
| mbs‌FSA‌Id | MbsFsaId | O | 0..1 | The *MBS Frequency Selection Area (FSA) Identifier* of the (broadcast) MBS Distribution Session in the parent service area, as defined in table 4.5.8‑1 of TS 26.502 [6]. |
| radio‌Frequency | array(Uinteger) | M | 1..N | The transmission frequency (expressed in Hertz) associated with the *MBS Frequency Selection Area (FSA) Identifier* in the parent service area. |
| nrRedCapUEInfo | NrRedCapUeInfo | O | 0..1 | Indicates whether the MBS session is suitable for consumption by NR RedCap UEs and/or non-RedCap UEs as defined by *Target UE classes* in TS 26.502 [6]. The data type and its enumerated values are specified in TS 29.571 [30].  If omitted, no information is known and the value NON\_REDCAP\_UE\_ONLY may be assumed. |

NEXT CHANGE

## A.2.1 MBS User Service Announcement schema

Below is the schema specifying the format of User Service Descriptions instance documents using a JSON-based representation. Documents following this schema shall be identified with the MIME type application/mbs-user-service-descriptions+json as registered in clause E.2.1. The schema filename is TS26517\_MBSUserServiceAnnouncement.yaml.

|  |
| --- |
| openapi: 3.0.0  info:  title: 'MBS User Service Announcement'  version: 2.0.0  description: |  MBS User Service Announcement Element units.  © 2024, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  externalDocs:  description: 3GPP TS 26.517 V18.1.0; 5G Multicast-Broadcast User Services; Protocols and Formats  url: http://www.3gpp.org/ftp/Specs/archive/26\_series/26.517/  paths:  /user-service-descriptions:  get:  operationId: discoverUserServiceDescriptions  summary: 'Discover User Service Descriptions'  description: 'Discover User Service Descriptions that match the supplied query filter(s). At least one filter query parameter must be included in the request URL.'  parameters:  - in: query  name: service-class  schema:  type: string  required: true  description: 'Filter for User Service Descriptions tagged with the supplied service class term identifier expressed as a fully-qualified URI string from a controlled vocabulary'  responses:  '200':  # OK  description: "Success"  content:  multipart/related:  schema:  type: string  '204':  # No Content (no matching User Service Descriptions)  description: "No Matches Found"  '500':  # Internal Server Error  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  # Service Unavailable  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /user-service-descriptions/{externalServiceId}:  get:  operationId: retrieveUserServiceDescription  summary: 'Retrieve User Service Description'  description: 'Retrieve the User Service Description of a single service by supplying its external service identifier.'  parameters:  - name: externalServiceId  in: path  required: true  schema:  type: string  description: 'The external service identifier of a User Service provisioned in the MBSF.'  responses:  '200':  # OK  description: "Success"  content:  multipart/related:  schema:  type: string  '404':  # Not Found  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '500':  # Internal Server Error  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  # Service Unavailable  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  components:  schemas:  UserServiceDescriptions:  description: 'A document announcing one or more MBS User Services.'  type: object  properties:  version:  type: integer  minimum: 1  userServiceDescriptions:  type: array  items:  $ref: '#/components/schemas/UserServiceDescription'  minItems: 1  required:  - userServiceDescriptions  UserServiceDescription:  description: 'A description of a single MBS User Service.'  type: object  properties:  serviceIds:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  minItems: 1  class:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  names:  type: array  items:  type: object  properties:  name:  type: string  lang:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  required:  - name  - lang  minItems: 1  descriptions:  type: array  items:  type: object  properties:  description:  type: string  lang:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  required:  - description  - lang  minItems: 1  serviceLanguage:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  distributionSessionDescriptions:  type: array  items:  $ref: '#/components/schemas/DistributionSessionDescription'  minItems: 1  serviceScheduleDescriptions:  type: array  items:  $ref: '#/components/schemas/ServiceScheduleDescription'  minItems: 1  required:  - serviceIds  - class  - distributionSessionDescriptions  DistributionSessionDescription:  type: object  properties:  distributionMethod:  $ref: '#/components/schemas/DistributionMethod'  conformanceProfiles:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  minItems: 1  sessionDescriptionLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  applicationServiceDescriptions:  type: array  items:  $ref: '#/components/schemas/ApplicationServiceDescription'  minItems: 1  postSessionObjectRepairParameters:  $ref: '#/components/schemas/ObjectRepairParameters'  availabilityInfos:  type: array  items:  $ref: '#/components/schemas/AvailabilityInformation'  minItems: 1  securityDescription:  $ref: '#/components/schemas/SecurityDescription'  required:  - distributionMethod  - sessionDescriptionLocator  DistributionMethod:  anyOf:  - type: string  enum:  - OBJECT  - PACKET  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  ApplicationServiceDescription:  type: object  properties:  entryPointLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  contentType:  type: string  pattern: '^[a-zA-Z]+\/[a-zA-Z]+$'  example: 'application/dash+xml'  required:  - entryPointLocator  - contentType  AvailabilityInformation:  type: object  properties:  mbsServiceArea:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsServiceArea'  minItems: 1  mbsFSAId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsFsaId'  radioFrequency:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  minItems: 1  nrRedCapUEInfo:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/NrRedCapUeInfo'  required:  - radioFrequency  ObjectRepairParameters:  type: object  properties:  backOffParameters:  $ref: '#/components/schemas/BackOffParameters'  objectDistributionBaseLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  objectRepairBaseLocator:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/AbsoluteUrl'  BackOffParameters:  type: object  properties:  offsetTime:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  randomTimePeriod:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  anyOf:  - required: [offsetTime]  - required: [randomTimePeriod]  ServiceScheduleDescription:  type: object  properties:  id:  type: string  version:  type: integer  minimum: 1  start:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  stop:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  required:  - id  - version  - start  - stop  SecurityDescription:  type: object  properties:  mBSSFAddresses:  type: array  items:  $ref: 'TS26512\_CommonData.yaml#/components/AbsoluteUrl'  minItems: 1  mBSServiceKeyInfo:  type: object  properties:  mBSId:  type: string  mBSDomainId:  type: string  required:  - mBSId  - mBSDomainId  uICCKeyManagement:  type: boolean  2GGBAallowed:  type: boolean  backOffParameters:  $ref: '#/components/schemas/BackOffParameters'  required:  - mBSSFAddresses  - mBSSessionKeyInfo |

END OF CHANGES