**3GPP TSG-SA4 Meeting # 121S4-221395**

 **Toulouse, Fr, 14. Nov. - 18. Nov. 2022**

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| *CR-Form-v12.2* |
| **Draft CHANGE REQUEST** |
|  |
|  | **26.517** | **CR** | **0003** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  |
| *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 | **x** | Radio Access Network |  | Core Network | **x** |

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|  |
| ***Title:***  | [5MBP3] Alignment of User Service Announcement with Stage 2 |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5MB3 |  | ***Date:*** | 11.8.2022 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | During the discussions with CT3 and CT4, a couple of inconsistencies of MBS User Service Announcement between Stage 3 and Stage 2 was detected. |
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| ***Summary of change:*** | Stage 3 text is clarified and aligned to stage 2 text. The json and xml schemas for Service Announcement are corrected. |
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| ***Consequences if not approved:*** | Inconsistent Specification |
|  |  |
| ***Clauses affected:*** | 5, Annex A.1.1, Annex A.1.2, Annext A.2, Annex B.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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\* First Change \*\*\*\*

# 5 MBS User Service Announcement

## 5.0 Overview

 MBS User Service Announcement (as defined in clauses 4.5.7 and 4.5.8 of TS 26.502 [3]) is provided by means of an *MBS User Service Description*, the syntax of which is defined in this clause.

## 5.1 MBS User Service Description data model

### 5.1.1 General

An MBS User Service Description is described by a set of metadata documents that are delivered as described in clause 4.3.2 of TS 26.502 [3]. The data model defined in this clause subdivides the parameters defined in [3] and groups them into a set of *metadata documents*. Each metadata document is divided into *metadata units*. A metadata unit is a single uniquely identifiable block of metadata. The metadata itself describes details of services. An obvious example of a metadata unit would be a single SDP document [8].

The metadata consists of:

- An *MBS User Service Bundle Description* metadata unit (see clause 5.2.2) describing a bundle of one or more MBS User Services, and containing one or more:

- *MBS User Service Description* metadata unit (see clause 5.2.3) describing an MBS User Service Session that is associated with:

- One or more *MBS Distribution Session Description* metadata units (see clause 5.2.4), each of which references a Session Description document [8] that may be packaged with the MBS User Service Bundle Description, and each of which may optionally reference an Object Repair Parameters document (see clause 5.2.7) describing the object repair parameters for the MBS Distribution Session.

- Zero or more *MBS Application Service Description* metadata units (see clause 5.2.5), each of which references an Application Service Entry Point document that may be packaged with the MBS User Service Bundle Description. Additional resources referenced by the entry point document may also be packaged with the MBS User Service Bundle Description.

- Zero or one *MBS Schedule Description* metadata unit (see clause 5.2.6) advertising the delivery schedule for the MBS User Service Session.

Figure 5.1‑1 illustrates the relationships between these metadata units using UML for a single MBS User Service Bundle.



NOTE: “N” means any number in each instance.

Figure 5.1-1: User Service Data Model simple description

An MBS User Service Bundle Description document shall contain one or more instances of the MBS User Service Description metadata unit, each of which describes a single MBS User Service Session within the MBS User Service Bundle.

Each instance of the MBS User Service Description metadata unit shall include at least one *MBS Distribution Service Description* metadata unit describing the set of MBS Distribution Sessions currently associated with the MBS User Service Session.

- The MBS Distribution Session Description metadata unit shall refer to one *Session Description document*.

- Each MBS Distribution Session Description metadata unit may contain a reference to an *Object Repair Parameters document*.

Each instance of the MBS User Service Description metadata unit may include zero or more *MBS Application Service Description* metadata units, each one referencing an Application Service Entry Point document (e.g. a DASH MPD, HLS Master Playlist or HTML document) which describes the root of the Application Service associated with this MBS User Service. When multiple Application Service Entry Point documents are referenced, an MBS Client shall select only one on the basis of a distinct MIME content type indicated in the Application Service Description.

Each instance of the MBS User Service Description metadata unit may include an *MBS Schedule Description* metadata unit. If included, the MBS Schedule Description shall refer to a *Schedule Description document*, and the UE can expect to receive MBS User Service data during the time periods described in the Schedule Description document.

In the case of the Object Distribution Method, the Schedule Description document may include an object transmission schedule for objects associated with the MBS User Service Session. The UE may select which objects to receive based on the object transmission schedule information published in the Schedule Description document.

\*\*\*\* Next Change \*\*\*\*

# A.1 XML-based representation

### A.1.1 MBS User Service Description schema

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| --- |
| <?xml version="1.0" encoding="UTF-8"?><xs:schema xmlns="urn:3GPP:metadata:2022:MBS:userServiceDescription" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="urn:3GPP:metadata:2022:MBS:userServiceDescription" elementFormDefault="qualified"> <xs:element name="bundleDescription" type="bundleDescriptionType"/> <xs:complexType name="bundleDescriptionType"> <xs:sequence> <xs:element name="userServiceDescription" type="userServiceDescriptionType" maxOccurs="unbounded"/> <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/> </xs:sequence> <xs:anyAttribute processContents="skip"/> </xs:complexType> <xs:complexType name="userServiceDescriptionType"> <xs:sequence> <xs:element name="name" type="nameType" minOccurs="0" maxOccurs="unbounded"/> <xs:element name="serviceLanguage" type="xs:language" minOccurs="0" maxOccurs="unbounded"/> <xs:element name="distributionSessionDescription" type="distributionSessionDescriptionType" maxOccurs="unbounded"/> <xs:element ref="appService" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="availabilityInfo" minOccurs="0"/> <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/> </xs:sequence> <xs:attribute name="serviceId" type="xs:anyURI" use="required"/> <xs:anyAttribute processContents="skip"/> </xs:complexType> <xs:complexType name="distributionSessionDescriptionType"> <xs:sequence> <xs:element ref="mbsAppService" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="unicastAppService" minOccurs="0"/> <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/> </xs:sequence> <xs:attribute name="conformanceProfile" type="xs:anyURI" use="required"/> <xs:attribute name="sessionDescriptionURI" type="xs:anyURI" use="required"/> <xs:attribute name="objectRepairParametersURI" type="xs:anyURI" use="optional"/> <xs:attribute name="dataNetworkName" type="xs:anyURI" use="optional" /> <xs:anyAttribute processContents="skip"/> </xs:complexType> <xs:complexType name="nameType"> <xs:simpleContent> <xs:extension base="xs:string"> <xs:attribute name="lang" type="xs:language" use="optional"/> </xs:extension> </xs:simpleContent> </xs:complexType> <xs:element name="appService" type="appServiceType"/> <xs:complexType name="appServiceType"> <xs:sequence> <xs:element name="identicalContent" minOccurs="0" maxOccurs="unbounded"> <xs:complexType> <xs:sequence> <xs:element name="basePattern" type="xs:anyURI" minOccurs="2" maxOccurs="unbounded"/> <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:anyAttribute processContents="skip"/> </xs:complexType> </xs:element> <xs:element name="alternativeContent" minOccurs="0" maxOccurs="unbounded"> <xs:complexType> <xs:sequence> <xs:element name="basePattern" type="xs:anyURI" minOccurs="2" maxOccurs="unbounded"/> <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:anyAttribute processContents="skip"/> </xs:complexType> </xs:element> <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="mediaManifestDescriptionURI" type="xs:anyURI" use="required"/> <xs:attribute name="mimeType" type="xs:string" use="required"/> <xs:anyAttribute processContents="skip"/> </xs:complexType> <xs:element name="mbsAppService"> <xs:complexType> <xs:sequence> <xs:element name="basePattern" type="xs:anyURI" maxOccurs="unbounded"/> <xs:element name="serviceArea" type="xs:unsignedShort" minOccurs="0" maxOccurs="unbounded"/> <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:anyAttribute processContents="skip"/> </xs:complexType> </xs:element> <xs:element name="unicastAppService"> <xs:complexType> <xs:sequence> <xs:element name="basePattern" type="xs:anyURI" maxOccurs="unbounded"/> <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:anyAttribute processContents="skip"/> </xs:complexType> </xs:element> <xs:element name="availabilityInfo"> <xs:complexType> <xs:sequence> <xs:element name="infoBinding" maxOccurs="unbounded"> <xs:complexType> <xs:sequence> <xs:element ref="mbsServiceArea" minOccurs="0" maxOccurs="unbounded"/> <xs:element name="radioFrequency" type="xs:unsignedInt" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="mbsServiceArea"> <xs:complexType> <xs:sequence> <xs:element name="taiList" minOccurs="0" maxOccurs="unbounded"> <xs:complexType> <xs:sequence> <xs:element ref="tai" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="ncgiList" minOccurs="0" maxOccurs="unbounded"> <xs:complexType> <xs:sequence> <xs:element ref="ncgiTai" maxOccurs="unbounded"> </xs:sequence> </xs:complexType> </xs:element> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="tai"> <xs:complexType> <xs:sequence> <xs:element name="plmnId"> <xs:complexType> <xs:sequence> <xs:element name="mcc" type="xs:string"/> <xs:element name="mnc" type="xs:string"/> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="tac" type="xs:string"/> <xs:element name="nid" type="xs:string" minOccurs="0"/> </xs:sequence> </xs:complexType> </xs:element> <xs:element name=”ncgiTai”> <xs:complexType> <xs:sequence> <xs:element ref=”tai”/> <xs:element ref=”ncgi”/> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="ncgi"> <xs:complexType> <xs:sequence> <xs:element name="plmnId"> <xs:complexType> <xs:sequence> <xs:element name="mcc" type="xs:string"/> <xs:element name="mnc" type="xs:string"/> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="nrCellId" type="xs:string"/> <xs:element name="nid" type="xs:string" minOccurs="0"/> </xs:sequence> </xs:complexType> </xs:element></xs:schema> |

### A.1.2 Object Repair Parameters schema

Below is the formal XML syntax of associated distribution procedure description instances. Documents following this schema can be identified with the MIME type "application/mbs‑object-repair-parameters+xml". The schema filename of distribution procedure description is objectrepairparameters.xsd.

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| --- |
| <?xml version="1.0" encoding="UTF-8"?><xs:schema  xmlns="urn:3gpp:metadata:2020:MBS:associatedProcedure" xmlns:xs="http://www.w3.org/2001/XMLSchema"  targetNamespace="urn:3gpp:metadata:2022:MBS:associatedProcedure" elementFormDefault="qualified" version="1"> <xs:element name="associatedProcedureDescription" type="associatedProcedureType"/> <xs:complexType name="associatedProcedureType"> <xs:sequence> <xs:element name="postObjectRepair" type="basicProcedureType" minOccurs="0"/> <xs:element name="mbsObjectRepair" type="mbsObjectRepairType" minOccurs="0"/> <xs:any namespace="##other" processContents="skip" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element> <xs:complexType name="basicProcedureType"> <xs:sequence> <xs:element name="serviceURI" type="xs:anyURI" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="offsetTime" type="xs:unsignedLong" use="optional"/> <xs:attribute name="randomTimePeriod" type="xs:unsignedLong" use="required"/> </xs:complexType> <xs:complexType name="mbsObjectRepairType"> <xs:attribute name="sessionDescriptionURI" type="xs:anyURI" use="required"/> </xs:complexType></xs:schema> |

\*\*\*\* Next Change \*\*\*\*

## A.2 JSON-based representation

### A.2.1 MBS User Service Bundle Description schema

|  |
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| openapi: 3.0.0info: title: 'MBS User Service Announcement Element units’ definition' version: 1.1.0 description: | MBS User Service Announcement Element units. © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC). All rights reserved.externalDocs: description: 3GPP TS 26.517 V17.3.0; 5G System; 5G MBSF; Stage 3. url: http://www.3gpp.org/ftp/Specs/archive/26\_series/26.517/paths: {}components: schemas:  bundleDescription: type: array items: $ref: '#/components/schemas/userServiceDescription' minItems: 1  userServiceDescription: type: object properties: name: type: array items:  type: string serviceLanguage: type: array items:  type: string serviceId:  type: string distributionSessionDescription: $ref: '#/components/schemas/distributionSessionDescription appServiceDescription: $ref: '#/components/schemas/mbsAppService' scheduleDescription: $ref: '#/components/schemas/scheduleDescription' availabilityInfo: $ref: '#/components/schemas/availabilityInfo' required: - distributionMethod - serviceId distributionSessionDescription: type: object  properties: conformanceProfile: type: string sessionDescriptionURI: type: string objectRepairParameters: $ref: '#/components/schemas/associatedProcedureDescription' dataNetworkName: type: string mbsAppService: type: array items: $ref: '#/components/schemas/appService' unicastAppServices: type: array items: type: object properties: unicastAppService: type: array items: $ref: '#/components/schemas/appService' required: - sessionDescriptionURI mbsAppService:  type: object properties:  MediaManifestDescriptionURI: type: string mimeType: type: string identicalContents: type: array items:type: object properties: unicastAppService: type: array items: $ref: '#/components/schemas/appService' minItems: 2 alternativeContents: type: array items:  type: array items: $ref: '#/components/schemas/appService'  appService: type: object properties: basePattern: type: string required: - basePattern  MbsServiceArea: description: MBS Service Area type: object properties: ncgiList: type: array items: $ref: '#/components/schemas/NcgiTai' minItems: 1 description: List of NR cell Ids  taiList: type: array items: $ref: '#/components/schemas/Tai' minItems: 1 description: List of tracking area Ids NcgiTai: description: List of NR cell ids, with their pertaining TAIs type: object properties: tai: $ref: '#/components/schemas/Tai' cellList: type: array items: $ref: '#/components/schemas/Ncgi' minItems: 1 description: List of List of NR cell ids required: - tai - cellList Tai: description: Contains the tracking area identity as described in 3GPP 23.003 type: object properties: plmnId: $ref: '#/components/schemas/PlmnId' tac: $ref: '#/components/schemas/Tac' nid: $ref: '#/components/schemas/Nid' required: - plmnId - tac Ncgi: description: Contains the NCGI (NR Cell Global Identity), as described in 3GPP 23.003 type: object properties: plmnId: $ref: '#/components/schemas/PlmnId' nrCellId: $ref: '#/components/schemas/NrCellId' nid: $ref: '#/components/schemas/Nid' required: - plmnId - nrCellId PlmnId: type: object properties: mcc: $ref: '#/components/schemas/Mcc' mnc: $ref: '#/components/schemas/Mnc' description: When PlmnId needs to be converted to string (e.g. when used in maps as key), the string shall be composed of three digits "mcc" followed by "-" and two or three digits "mnc". required: - mcc - mnc Mcc: type: string pattern: '^\d{3}$' description: Mobile Country Code part of the PLMN, comprising 3 digits, as defined in clause 9.3.3.5 of 3GPP TS 38.413. Mnc: type: string pattern: '^\d{2,3}$' description: Mobile Network Code part of the PLMN, comprising 2 or 3 digits, as defined in clause 9.3.3.5 of 3GPP TS 38.413. Tac: type: string pattern: '(^[A-Fa-f0-9]{4}$)|(^[A-Fa-f0-9]{6}$)' description: 2 or 3-octet string identifying a tracking area code as specified in clause 9.3.3.10 of 3GPP TS 38.413, in hexadecimal representation. Each character in the string shall take a value of "0" to "9", "a" to "f" or "A" to "F" and shall represent 4 bits. The most significant character representing the 4 most significant bits of the TAC shall appear first in the string, and the character representing the 4 least significant bit of the TAC shall appear last in the string. Nid: type: string pattern: '^[A-Fa-f0-9]{11}$' description: This represents the Network Identifier, which together with a PLMN ID is used to identify an SNPN (see 3GPP TS 23.003 and 3GPP TS 23.501 clause 5.30.2.1). NrCellId: type: string pattern: '^[A-Fa-f0-9]{9}$' description: 36-bit string identifying an NR Cell Id as specified in clause 9.3.1.7 of 3GPP TS 38.413, in hexadecimal representation. Each character in the string shall take a value of "0" to "9", "a" to "f" or "A" to "F" and shall represent 4 bits. The most significant character representing the 4 most significant bits of the Cell Id shall appear first in the string, and the character representing the 4 least significant bit of the Cell Id shall appear last in the string. availabilityInfo: type: array items: $ref: '#/components/schemas/infoBinding' infoBinding: type: object properties: mbsServiceArea: type: array items: $ref: '#/components/schemas/MbsServiceArea' radioFrequency: type: array items: type: integer minimum: 0  associatedProcedureDescription: type: object properties: postObjectRepair:  $ref: '#/components/schemas/postObjectRepair' mbsObjectRepair: $ref: '#/components/schemas/mbsObjectRepair' postObjectRepair: type: object properties: serviceURI: type: array items: type: string offsetTime: type: integer randomTimePeriod: type: integer mbsObjectRepair: type: object properties: "sessionDescriptionURI": type: string  scheduleDescription: type: array items: $ref: '#/components/schemas/serviceSchedule'  serviceSchedule: type: object properties: sessionSchedule:  $ref: '#/components/schemas/sessionSchedule' sessionScheduleOverride:  $ref: '#/components/schemas/sessionScheduleOverride' objectSchedule: $ref: '#/components/schemas/objectSchedule' serviceId:  type: string serviceClass: type: string required: - serviceId - serviceClass - serviceSchedule sessionSchedule: type: array items: type: object properties: start: type: string stop: type: string reoccurencePattern: type: string numberOfTimes: type: integer reoccurenceStopTime: type: string index: type: integer FDTInstanceURI: type: string required: - start - stop sessionScheduleOverride: type: array items:  type: object properties: start: type: string stop: type: string index: type: integer cancelled: type: boolean sessionDescriptionURI: type: string  objectSchedule: type: array items: type: object properties:  objectURI:  type: string sessionId: type: string objectEtag: type: string unicastOnly: type: boolean deliveryInfo: type: array items: type: object properties: start: type: string stop: type: string |

\*\*\*\* Next Change \*\*\*\*

# B.2 JSON-based representation

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| --- |
| { "bundleDescription":[ { "userServiceDescription":{ "name":[ "test1" ], "serviceLanguage":[ "en-us" ], "serviceId":"urn:test:test:D4-Service:D4-SB:D4-US", "distributionSessionDescription":{ "conformanceProfile":"urn:3gpp:...", "sessionDescriptionURI":"http://www.test.com/D4-Service/D4-SB/D4-US.sdp", "dataNetworkName":"media-dnn", "mbsAppService":[ {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"}, {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"} ], "unicastAppServices":[ {"unicastAppService":[ {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/1024/"}, {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}] }, {"unicastAppService":[ {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"}, {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}] }  ]  }, "mbsAppService":{ "MediaManifestDescriptionURI":"http://www.test.com/D4-Service/D4-SB/D4-US/adpd.xml", "mimeType":"application/dash+xml;profiles=urn:3GPP:PSS:profile:DASH10", "identicalContents":[ { "identicalContent":[ {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/1024/"}, {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"} ], },{ "identicalContent":[ {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"} ]  }] }, "availabilityInfo":[ { "infoBinding":{ "mbsServiceArea":[ { "ncgiList":[ { "NcgiTai":{ "tai":{ "plmnId":{ "mcc":"860", "mnc":"15" }, "tac":"0fa0" }, "cellList":[ { "Ncgi":{ "plmnId":{ "mcc":"860", "mnc":"15" }, "nrCellId":"999999999" } }, { "Ncgi":{ "plmnId":{ "mcc":"860", "mnc":"15" }, "nrCellId":"999999998" } } ] } } ], "taiList":[ { "tai":{ "plmnId":{ "mcc":"860", "mnc":"15" }, "tac":"0fa0" } }, { "tai":{ "plmnId":{ "mcc":"860", "mnc":"15" }, "tac":"0fa0" } } ] } ], "radioFrequency":[ "9410" ] } } ] } } ]} |

\*\*\*\* Last Change \*\*\*\*