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D2.2 Appendix 2

Product Characterization (ICS/IXIT)

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List of Abbreviations (Editor:)

3GPP	3rd Generation Partnership Project
App	Application
C	Conditional
ICS	Implementation Conformance Statement

IXIT	Implementation eXtra Information for Testing
M	Mandatory
O	Optional
SUT	System Under Test



1 Introduction

The purpose of this ICS/IXIT proforma is to provide a mechanism whereby a supplier of a device or application may provide information about such implementation in a standardized manner.

The appendix also defines the templates to be used for ICS and IXIT definition.

The Appendix includes common ICS tables applicable to all kind of products (application and devices). After those, specific tables are defined that apply to specific types of products.



2 ICS

This section lists the ICS items that have been defined in the TRIANGLE Test Specifications.

Manufacturers submitting a product for certification will provide the SUT ICS tables.

The meaning of the contents of the status tables is stated in Annex A.

2.1 Common

This section shows common ICS items that are applicable to all SUT. ICS items shown in this section may be used by all TRIANGLE Test Specifications (defined in D2.2 Appendices).

Table A.1. General Information

Item	Description	Status	Supported values	Support	Mnemonic
1	Type of product	M1	Application, Mobile device, IoT device		ICSG_ProductType
2	Type of IoT device: Grid Powered, Long Lasting battery or Short Lasting battery IoT device)	C01	GP-IoT, LL-IoT, SL-IoT		ICSG_IoTDeviceType
3	Supported use cases: Virtual Reality, Gaming, Augmented Reality, Content Distribution Streaming Services, Live Streaming Services, Social Networking, High Speed Internet, Patient Monitoring, Emergency Services, Smart Metering, Smart Grids and Connected Vehicles	Mn	VR, GA, AR, CS, LS, SN, HS, PM, ES, SM, SG, CV		ICSG_UseCases

C.01 IF (A.1/1 = IoT device) THEN Mn ELSE N/A

Note: This table requires values other than Boolean values.



2.2 Applications

This section shows ICS items that are applicable only to Applications. ICS items shown in this section may be used by all TRIANGLE Test Specifications.

Table A.2. Apps supported features (only applicable if A.1/1 = Application)

Item	Description	Status	Support	Mnemonic
1	Support of Login	O		ICSA_Login
2	Support of logout	C.03		ICSA_Logout
3	Support of open menu	O		ICSA_OpenMenu
4	Support of activate backgroundservice	O		ICSA_Background
5	Support of play content (video/song)	C.01		ICSA_CSPlay
6	Support of re-play content	C.01		ICSA_CSrReplay
7	Support of skip forward content	C.02		ICSA_CSSkipForward
8	Support of fast forward content	C.02		ICSA_CSFastForward
9	Support of skip backward content	C.02		ICSA_CSSkipBackward
10	Support of rewind content	C.02		ICSA_CSRewind
11	Support of pause content (video/song)	C.02		ICSA_CSPause
12	Support of X8 speed fast forward content	C.04		ICSA_CSFastForwardX8
13	Support of X8 speed rewind content	C.05		ICSA_CSRewindX8
14	Support of Download content for offline playing	C.02		ICSA_CSDownloadMedia
15	Support of post text	C.06		ICSA_SNPostText
16	Support of post text and image	C.07		ICSA_SNPostImage
17	Support of post text and video	C.07		ICSA_SNPostVideo
18	Support of post text and location	C.07		ICSA_SNPostLocation
19	Support of post file	C.07		ICSA_SNPostFile
20	Support of get image	C.07		ICSA_SNGetImage
21	Support of get video	C.07		ICSA_SNGetVideo
22	Support of get live video	C.07		ICSA_SNGetLiveVideo
23	Support of get location	C.07		ICSA_SNGetLocation



24	Support of get file	C.07		ICSA_SNGetFile
25	Support of save game session	C.09		ICSA_GASave
26	Support of pause game session	C.09		ICSA_GAPause
27	Support of search and seek	C.02		ICSA_CSSearchSeek
28	Support of play content with screen off	C.02		ICSA_CSPlayScreenOff
29	Support of broadcast live video with screen off	C.08		ICSA_LSBroadcastScreenOff

C.01 IF (A.1/3 INCLUDES CS) THEN M ELSE N/A
C.02 IF (A.1/3 INCLUDES CS) THEN O ELSE N/A
C.03 IF (A.2/1) THEN M ELSE N/A
C.04 IF (A.2/8) THEN O ELSE N/A
C.05 IF (A.2/10) THEN O ELSE N/A
C.06 IF (A.1/3 INCLUDES SN) THEN M ELSE N/A
C.07 IF (A.1/3 INCLUDES SN) THEN O ELSE N/A
C.08 IF (A.1/3 INCLUDES LS) THEN O ELSE N/A
C.09 IF (A.1/3 INCLUDES GA) THEN O ELSE N/A

Note: Items in this table only can take Boolean 'Yes' or 'No' values (Support column).



2.3 Devices

2.3.1 Mobile devices

Table A3. Mobile devices Features (Only applicable if A.1/1 = Mobile device)

Item	Description	Status	Support	Mnemonic
1	Support of Video Playing	M		ICSDM_PlayVideo
2	Support of Video Recording	O		ICSDM_RecordVideo
3	Support of Virtual Reality	O		ICSDM_VirtualReality
4	Support of Augmented Reality	O		ICSDM_AugmentedReality

Note: Items in this table only can take Boolean 'Yes' or 'No' values (Support column).

2.3.1 IoT devices

Table A4. IoT devices Features (Only applicable if A.1/1 = IoT device)

Item	Description	Status	Support	Mnemonic
1	Support of Video Playing	O		ICS DI_PlayVideo
2	Support of Video Recording	O		ICS DI_RecordVideo
3	Support of Audio Playing	O		ICS DI_PlayAudio
4	Support of Audio Recording	O		ICS DI_RecordAudio
5	Support of Idle mode	O		ICS DI_IdleMode
6	Support of Audio Recording without Video	C.01		ICS DI_RecordAudio WithoutVideo
7	Support of Audio Playing without Video	C.02		ICS DI_PlayAudio WithoutVideo
C.01 IF A.4/4 THEN O ELSE N/A				
C.02 IF A.4/3 THEN O ELSE N/A				

Note: Items in this table only can take Boolean 'Yes' or 'No' values (Support column).



3 IXIT

3.1 Applications

This section shows IXIT items that are applicable only to applications

Table B1. Applications IXIT (Only applicable if A.1/1 = Application)

Item	Name	Supported values	Mnemonic	Value
1	Operating System	Android, iOS	IXITD_OperatingSystem	

3.2 Devices

This section shows IXIT items that are applicable only to devices (mobile devices and IoT devices).

Table B2. Devices IXIT (Only applicable if A.1/1 = Mobile device OR A.1/1 = IoT device)

Item	Name	Supported values	Mnemonic	Value
1	Supported cellular technologies	GSM, UMTS, LTE, 5G	IXITD_CellularTechnology	
2	Supported frequency bands	As per TS 36.521-2 Table A.4.3-3	IXITD_Bands	
3	UE Power Class	As per TS 36.521-2 Table A.4.3-3b	IXITD_UEPowerClass	
4	Supported channel bandwidths	As per TS 36.521-2 Table A.4.3-3a	IXITD_Bandwidths	
5	UE Category	As per TS 36.521-2 Table A.4.3-4 and Table A.4.3-4a0	IXITD_UECategory	
6	UE Downlink Category	As per TS 36.521-2 Table A.4.3-4a and Table A.4.3-4aa	IXITD_DLCategory	
7	UE Uplink Category	As per TS 36.521-2 Table A.4.3-4b and Table A.4.3-4ba	IXITD_ULCategory	
8	Nominal working voltage		IXITD_NormalVoltage	



4 Annex A. ICS template

This Annex indicates the ICS proformas to be used by the ICS tables.

The supplier of the device or application implementation shall complete the ICS proformas by filling the 'Support' column.

Two ICS proforma templates are defined depending of the supported values of the 'Support' column.

4.1 Support column with Boolean values

ICS tables with items that can only take a Boolean value in the 'Support' column will use the following template.

Table 1 –ICS template for Support column with Boolean values

Item	Description	Status	Support	Mnemonic
1				
2				
3				
....				
List of conditional expressions				

4.2 Support column with multiple values

ICS tables with items that can take multiple values in the 'Support' column will use the following template.

Table 2 – ICS template for Support column with multiple values

Item	Description	Status	Supported values	Support	Mnemonic
1					
2					
3					
....					
List of conditional expressions					

The description of the columns contents for both templates is detailed in the table below.



Table 3 – ICS Proforma columns

Column	Description
<i>Item</i>	The item column contains a number which identifies the item in the table.
<i>Description</i>	The item column contains the ICS name
<i>Status</i>	<p>The following notations are used for the status column:</p> <p>M mandatory – the capability is required to be supported.</p> <p>M1 mandatory, only 1 option may be supported</p> <p>Mn mandatory, at least one option is supported; many options may be supported.</p> <p>O optional – the capability may be supported or not.</p> <p>N/A not applicable – in the given context, it is impossible to use the capability.</p> <p>C.i conditional – the requirement on the capability ("M", "O" or "N/A") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities.</p>
<i>Support</i>	<p>The support column shall be filled in by the supplier of the implementation. The following common notations are used for the support column:</p> <p>Y or y supported by the implementation</p> <p>N or n not supported by the implementation</p> <p>N/A, n/a or - no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status)</p>
<i>Mnemonic</i>	The Mnemonic column contains mnemonic identifiers for each item.
<i>Supported values</i>	List of supported vales



5 Annex B. IXIT template

This Annex indicates the IXIT proforma to be used for the definition of IXIT items..

The table below will be used as IXIT template for the required IXIT tables

Table 4 –IXIT template

<i>Item</i>	Description	Supported values	Mnemonic	Value
1				
2				
3				
.....				