ETSI TS 102 710-1 V5.2.1 (2016-02)

Core Network and Interoperability Testing (INT);
Interworking between the IP Multimedia (IM)
Core Network (CN) subsystem and
Circuit Switched (CS) networks;
Conformance Test Specification;
(3GPP™ Release 10);
Part 1: Protocol Implementation Conformance
Statement (PICS)

Reference
RTS/INT-00111-1

Keywords
interworking, ISUP, PICS, SIP, testing

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Sous-Préfecture de Grasse (06) N° 7803/88

Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Core Network and Interoperability Testing (INT).

The present document is part 1 of a multi-part deliverable covering the Conformance Test Specification to the Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (Release 10), as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS)";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP)".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document specifies the Protocol Implementation Conformance Statement for SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks based on ETSI TS 129 163 [1] (Release 10) and the interworking of SIP support of charging into ISUP support of charging based on ETSI TS 129 658 [2].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 129 163: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (3GPP TS 29.163 Release 10)".

[2] ETSI TS 129 658: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; TISPAN; SIP Transfer of IP Multimedia Service Tariff Information; Protocol specification (3GPP TS 29.658 Release 10)".

[3] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[4] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[5] ANSI Standard ATIS-1000113.2005(R2010) (07-2005): "Signalling System No. 7 (SS7) - Integrated Services Digital Network (ISDN) User Part".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Void.

[i.2] Void.

[i.3] Void.

[i.4] Void.

[i.5] Void.

[i.6] Void.

[i.7] Void.

[i.8] Void.

3 Definitions, symbols, abbreviations and conformance

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 129 163 [1], ETSI TS 129 658 [2], ISO/IEC 9646-1 [3], ISO/IEC 9646-7 [4] and the following apply:

PICS pro forma: document, in the form of a questionnaire, which when completed for an implementation or system becomes a PICS

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an implementation or system claimed to conform to a given protocol specification, stating which capabilities have been implemented

NOTE: This may contain additional information.

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI TS 129 163 [1] and ETSI TS 129 658 [2] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 129 163 [1], ETSI TS 129 658 [2] and the following apply:

ICS	Implementation Conformance Statement
IUT	Implementation Under Test
PICS	Protocol ICS
SCS	System Conformance Statement
SUT	System Under Test

3.4 Conformance to this PICS pro forma specification

If it claims to conform to the present document, the actual PICS pro forma to be filled in by a supplier shall be technically equivalent to the text of the PICS pro forma given in clause 4, and shall preserve the numbering/naming and ordering of the pro forma items.

A PICS which conforms to the present document shall be a conforming PICS pro forma completed in accordance with the guidance for completion given in clause 4.1.

4 PICS pro forma for ETSI TS 129 163 and ETSI TS 129 658

4.0 The right to copy

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS pro forma in this clause so that it can be used for its intended purposes and may further publish the completed PICS.

4.1 Guidance for completing the PICS pro forma (purposes and structure)

The purpose of this PICS pro forma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ETSI TS 129 163 [1] and ETSI TS 129 658 [2] may provide information about the implementation in a standardized manner.

The PICS pro forma is subdivided into clauses for the following categories of information:

- guidance for completing the PICS pro forma;
- identification of the implementation;
- identification of the ETSI TS 129 163 [1] and ETSI TS 129 658 [2];
- global statement of conformance;
- Statement of conformance to ETSI TS 129 163 [1] and ETSI TS 129 658 [2]:
    - Major capabilities
    - Basic call capabilities
    - Simulation service capabilities
    - Timers

4.2 Abbreviations and conventions

The PICS pro forma contained in this clause is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [4].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7 [4], are used for the status column:

m	mandatory - the capability is required to be supported.
o	optional - the capability may be supported or not.
ci	conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table.

Reference column

The reference column makes reference to ETSI TS 129 163 [1] and ETSI TS 129 658 [2] except where explicitly stated otherwise.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [4], are used for the support column:

Y or y	supported by the implementation.
N or n	not supported by the implementation.
N/A, n/a or -	no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

In case of protocol, the following text should be added:

NOTE: As stated in ISO/IEC 9646-7 [4], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
  example: 5 .. 20

- list of values: <value1>, <value2>, ..., <valueN>
  example: 2, 4, 6, 8, 9
  example: '1101'B, '1011'B, '1111'B
  example: '0A'H, '34'H, '2F'H

- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example: reject(1), accept(2)

- length: size (<min size> .. <max size>)
  example: size (1 .. 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

4.3 Instructions for completing the PICS pro forma

The supplier of the implementation shall complete the PICS pro forma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause 4.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the PICS pro forma.

5 Identification of the implementation

5.0 Introduction

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

5.1 Date of the statement

.....

5.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

5.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

.....

Operating system:

.....

5.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

5.5 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

5.6 PICS contact person

(A person to contact if there are any queries concerning the content of the PICS)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

5.7 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No) .....

NOTE: Answering "No" to this question indicates non-conformance to the ETSI TS 129 163 [1] and ETSI TS 129 658 [2] specification. Non-supported mandatory capabilities are to be identified in the ICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS pro forma.

6 Statement of conformance to ETSI TS 129 163 and ETSI TS 129 658

6.1 Major capabilities

Table 6.1.1: Major capabilities

Item	Item description	Reference	Status	Support
1	Is the System Under Test interconnected with an ISUP network?	7.2	o.1	
2	Is the System Under Test interconnected with a BICC network?	7.3	o.1	
o.1:	It is mandatory to support exactly one of these items.			
Comments:				

6.2 Basic call capabilities

Table 6.2.1: Basic call capabilities

Item	Item description	Reference	Status	Support
1	Is the System able to support preconditions requested in the Supported header or Require header?	7.2.3.1.1	o	
2	Does the SUT sends the IAM indicating the COT procedure immediately after the reception of the INVITE and precondition extension is included in the SIP Supported or Require header?	7.2.3.1.1	c6211	
3	The SUT sends the INVITE request without waiting for an outstanding COT message?	7.2.3.2.1.2	o.2	
4	Does the SUT defers the sending of the INVITE request until receiving a COT message?	7.2.3.2.3	o.2	
5	Does the SUT support the PSTN XML Schema to be used for providing the BearerCapability, Low Layer Compatibility, High Layer Compatibility and Progress indicator embedded as body in SIP messages?	F.2	o	
6	Is the Forward call indicators Interworking indicator set to '0', and is the ISDN user part/BICC indicator set to '1', and is the ISDN access indicator set to '1' if the TMR in the IAM is sent with the value '64 kbit/s unrestricted'?	7.2.3.1.2.3	o	

Item	Item description	Reference	Status	Support
7	Is the sending of the User Teleservice Information parameter supported driven from the PSTN XML HighLayerCharacteristics element?	7.2.3.1.2.5	c6212	
8	Is the HOP counter procedure supported and is mapping from/to the Max-Forwards header supported?	7.2.3.1.2.9	o	
9	Does the SUT support the interworking of the cause value received in a Reason header in an 18x into the Cause indicators parameter in the ACM or CPG?	7.2.3.2.6.0	o	
10	Does the SUT generate a Call-Info header field, or an Alert-Info header field to provide media instead of the in-band media received from the PSTN?	7.2.3.1.4, 7.2.3.1.4A	o	
11	Does the SUT sends an INR message to request the calling party number and not to send the INVITE request until receiving an INF message with calling party number If no calling party number is received in the incoming IAM message?	7.2.3.2.1.3	o	
12	If no calling party number is received in the INF message the SUT rejects the communication?	7.2.3.2.1.3	c6213	
13	Does the MGCF supports the interworking of SIP support of charging into ISUP support of charging and vice versa	4.6.1 [2]	o	
14	Has the SUT the knowledge that the call is transited to a PSTN network, the SUT decides not to generate the awaiting answer indication when receiving the 180 Ringing message and backward early media is not authorized?	7.2.3.2.4	o	
15	Does the SUT supports capabilities associated with the Alert-Info header field?	7.2.3.2.4	o	
16	The SUT **initiates** the sending of the awaiting answer indication if the header authorizes backward early media?	7.2.3.2.4	o	
17	Does the SUT **terminate** the sending of the awaiting answer indication if the header authorizes backward early media?	7.2.3.2.4	o	
18	Is the Backward call indicators Interworking indicator is set to '0', ISDN user part/BICC indicator set to '1', ISDN access indicator is set to '1' if the TMR in the IAM was received with the value '64 kbit/s unrestricted'?	7.2.3.2.5.1	o	
19	Does the SUT instructs the MGW to send media available at the associated URL to the PSTN leg of the communication if a reINVITE is received containing a Call-Info header field?	7.2.3.2.11A	o	
20	Does the SUT supporting the capabilities associated with the Error-Info header field the SUT instruct the IM-MGW to play out media available at the associated URL towards the PSTN?	7.2.3.2.12	o	
21	Is the PSTN XML sendingCompleteIndication, if present, mapped to the sending terminated digit (hexadecimal digit F) in the address signals field of the Called Party Number parameter?	7.2.3.1.2.1	o	
22	Does the O-MGCF supports the "User Teleservice Information" parameter?	7.2.3.2.2.7	o	
23	Is the P-Early-Media header supported?	7.2.3.1.4, 7.2.3.1.4A, 7.2.3.1.4B	o	
24	Is the ANSI standard [5] supported?	C.1, C.2/ [5]	o	
o.2:	It is optional to support exactly one of these items.			
c6211:	IF 6.2.1/1 THEN o ELSE n/a			
c6212:	IF 6.2.1/5 THEN o ELSE n/a			
c6213:	IF 6.2.1/11 THEN o ELSE n/a			

Table 6.2.2: Number portability and Carrier based routing

Item	Item description	Reference	Status	Support
1	Is the Number Portability Separate Directory Number Addressing Method used?	7.2.3.1.2A.1.1	o.3	
2	Is the Number Portability Concatenated Addressing Method used?	7.2.3.1.2A.1.2	o.3	
3	Is the Number Portability Separate Network Routing Number Addressing Method used?	7.2.3.1.2A.1.3	o.3	
4	Is the Number Portability Forward Information parameter sent?	7.2.3.1.2A.2	o	
5	Is the Carrier-based routeing supported?	7.2.3.1.2B, 7.2.3.2.2B	o	
6	Is the Transit Network Selection parameter sent?	7.2.3.1.2B.1	c6221	
7	Is the Carrier Selection Information parameter sent?	7.2.3.1.2B.2	c6221	
8	Is the sending of 'cic' parameter supported?	7.2.3.2.2B1	c6221	
o.3:	It is optional to support exactly one of these items.			
c6221:	IF 6.2.2/5 THEN o ELSE n/a			

Table 6.2.3: Overlap capability

Item	Item description	Reference	Status	Support
1	Is the 'In-dialogue Method' supported?	7.2.3.1.3A.2	o	
2	Is the 'Multiple INVITE Method' supported?	7.2.3.1.3A.3	o	
3	If the end of the address signalling is determined does the SUT inserts the PSTN XML sendingCompleteIndication?	7.2.3.2.1.4	c6231	
c6231:	IF 6.2.1/5 THEN o ELSE n/a			

Table 6.2.4: ISDN bearer capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT supports the interworking of a CLEARMODE codec in the received INVITE request and PSTN XML Bearer Capability element is present?	7.2.3.1.1	o	
2	Does the SUT supports the interworking of Transmission Medium Requirement 64 kbit/s received in the IAM?	7.2.3.2.1	o	
3	Does the SUT supports the interworking of TMR 'speech' to a G.711 speech codec?	7.2.3.2.2.2 Table 10b	o	
4	Does the SUT supports the interworking of TMR 'audio 3,1 kbit/s' to a G.711 speech codec?	7.2.3.2.2.2 Table 10b	o	
5	Does the SUT supports the transcoding or interworking of G.711 A-law codec into the TMR 'audio 3,1 kbit/s'?	7.2.3.1.2.5 Table 2a	o	
6	Does the SUT supports the Fax T.38 codec in an 'image' m line?	7.2.3.1.2.5 Table 2a 7.2.3.2.2.2 Table 10b	o	
7	Does the SUT supports the Fallback connection type?	7.2.3.1.2.5a 7.2.3.2.1.5	o	
8	Does the SUT supports the transcoding or interworking of G.711 µ-Law codec into the TMR 'audio 3.1 kbit/s?	7.2.3.1.2.5 Table 2a	o	
9	Is the processing of PCMA or PCMU as dynamic payload type supported?	Table 2a	o	

6.3 Simulation service capabilities

Table 6.3.1: Void

Table 6.3.2: Simulation service interworking capabilities

Item	Item description	Reference	Status	Support
1	Is the interworking of Calling line identification presentation/restriction (CLIP/CLIR) respectively Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) supported?	7.4.1, 7.5.1	o	
2	Is the Connected line presentation and restriction (COLP/COLR) supported?	7.4.2	o	
3	Is the interworking of Malicious call identification respectively Malicious Communication Identification (MCID) supported?	7.4.4	o	
4	Is the interworking of Subaddressing (SUB) supported?	7.4.5	o	
5	Is the interworking of Call Forwarding Busy (CFB)/ Call Forwarding No Reply (CFNR)/Call Forwarding Unconditional (CFU)/Call Deflection (CD) respectively Communication Diversion (CDIV) supported?	7.4.6, 7.4.7	o	
6	Is the interworking of Explicit Call Transfer (ECT) respectively supported?	7.4.8,	o	
7	Is the interworking of Call Waiting (CW) supported?	7.4.9	o	
8	Is the interworking of Call Waiting (CW) supported?	7.5.12	o	
9	Is the interworking of Call Hold (HOLD) respectively Communication Hold (HOLD) supported?	7.4.10, 7.5.5	o	
10	Is the interworking of Call Completion on busy subscriber (CCBS) supported?	7.4.11	o	
11	Is the interworking of Completion of Calls on No Reply (CCNR) supported?	7.4.12	o	
12	Is the interworking of Terminal Portability (TP) supported?	7.4.13	o	
13	Is the interworking of Conference calling (CONF)/ Three-Party Service (3PTY) supported?	7.4.14	o	
14	Is the interworking of Closed User Group (CUG) supported?	7.4.16	o	
15	Void			
16	Void			
17	Void			
18	Is the interworking of User-to-User Signalling (UUS) supported?	7.4.21	o	
19	Is the interworking of Anonymous Call rejection (ACR) supported?	7.4.23	o	
20	Is the interworking Conference call (CONF) supported?	7.5.6	o	
21	Is the interworking of Anonymous Communication Rejection (ACR) and Communication Barring (CB) supported?	7.5.7	o	
22	Is the interworking of Message Waiting Indication (MWI) supported?	7.5.8	o	
23	Is the interworking of Closed User Group (CUG) supported?	7.5.10	o	
24	Is the interworking of CCBS/CCNR supported?	7.5.11	o	
25	Is the Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) supported?	7.5.2	o	
26	Is the interworking of Malicious call identification respectively Malicious Communication Identification (MCID) supported?	7.5.9	o	
27	Is the interworking of Call Forwarding Busy (CFB)/ Call Forwarding No Reply (CFNR) / Call Forwarding Unconditional (CFU) / Call Deflection (CD) respectively Communication Diversion (CDIV) supported?	7.5.4	o	

Table 6.3.3: OIP interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT includes a network provided E.164 Calling party number if no P-Asserted-Identity was received?	7.5.1, 7.2.3.1.2.6	o	
2	Does the SUT omits the Address signals of the Calling party number if no P-Asserted-Identity was received?	7.5.1, 7.2.3.1.2.6	c6331	
3	Does the SUT sets the APRI of the Calling party number to '*Address not available*' if no P-Asserted-Identity was received?	7.5.1, 7.2.3.1.2.6	c6332	
4	Does the SUT sets the APRI of the Calling party number to 'presentation restricted by network' instead of the 'presentation restricted' if no P-Asserted-Identity was received?	7.5.1, 7.2.3.1.2.6	o	
5	Does the SUT omits the additional calling party number parameter if the Calling party number has been omitted if no P-Asserted-Identity was received?	7.5.1, 7.2.3.1.2.6	c6332	
6	Does the SUT omits the additional calling party number parameter if the P-Asserted-Identity has been received?	7.5.1, 7.2.3.1.2.6	o	
o.4:	It is mandatory to support exactly one of these items.			
c6331	IF 6.3.3/1 THEN o.4 ELSE n/a			
c6332	IF 6.3.3/2 THEN o ELSE n/a			

Table 6.3.4: COLP interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT invokes the COLP service by setting the "Connected Line Identity Request indicator" field of the "Optional forward call indicators" parameter in the sent IAM to "requested"?	7.4.2.1.1	o	

Table 6.3.5: CDIV interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT maps the escaped Reason header in the second last hi-targeted-uri into the Event indicator of the CPG national values?	7.4.6.2.2, table 7.4.6.2.2.7	o	
2	Does the SUT maps the Redirecting reason in the Call diversion information into the Reason header in the second last hi-targeted-to-uri in the History-Info header?	7.4.6.3.3, table 7.4.6.3.3.5	o	
3	Does the SUT maps the cause parameter in the last hi-targeted-uri into the Event indicator national values?	7.5.4.2.1 table 7.5.4.2.1.7	o	

Table 6.3.6: HOLD interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT allows to hold and retrieve a session in the early dialogue?	7.4.10	o	

Table 6.3.7: REV interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the SUT discards the REV service invocation without affect the call?	7.4.20	o.5	
2	Does the SUT returns an explicit rejection of the REV service invocation?	7.4.20	o.5	
o.5:	It is optional to support exactly one of these items.			

Table 6.3.8: User-to-user interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the MGCF supports the User-to-user indicator (the User-to-user indicator is recognized)?	7.4.21.2, 7.4.21.3, 7.4.21.4	o	

Table 6.3.9: CONF interworking capabilities

Item	Item description	Reference	Status	Support
1	Is the conference event package option implemented?	7.5.6.2	o	

Table 6.3.10: CUG interworking capabilities

Item	Item description	Reference	Status	Support
1	Does the IMS network not supports the CUG supplementary service?	7.5.6.2	o	
2	Does the PSTN/ISDN network not supports the CUG supplementary service?	Table 7.5.10.1.4	o	

6.4 Timers

Table 6.4.1: Timers

Item	Item description	Reference	Status	Support	Values [seconds]	
					Allowed	**Supported**
1	Ti/w1	7.2.3.3	m		4 .. 6 (default 4)	
2	Ti/w2	7.2.3.3	m		4 .. 20 (default 4)	
3	Ti/w3	7.2.3.3	m		4 .. 6 (default 4)	
4	T_{TIR1}	7.5.2.4	o		0,1 .. 2 (default 0,1)	

History

Document history		
V3.1.1	May 2011	Publication
V5.1.1	February 2013	Publication
V5.2.1	February 2016	Publication