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CI PLUS LLP 1.4 SPECIFICATION

1. What is CI Plus LLP 1.4 Specification, and what is new?

The CI Plus LLP 1.4 Specification provides the description of the CI Plus LLP profile of TS 103 205 and the DVB Bluebook A173-2, specifying which parts are covered by the terms of the CI Plus Interim Licence Agreement. The latest CI Plus LLP 1.4 Specification version is downloadable from the CI Plus website (http://www.ci-plus.com).

The CI Plus LLP 1.4 Specification introduces the following new features:

- **Multi-Stream Handling:** The CI Plus LLP 1.4 Specification enables the delivery of multiple services from tuners and/or IP network interface of the Host to the CICAM via the TS interface, to descramble multiple services simultaneously. Watch & record use case using a single CICAM is now possible.

- **IP Delivered Content:** The CI Plus LLP 1.4 Specification introduces some mechanisms allowing for consumption of IP Delivered Content (IPTV and/or OTT). The Specification defines a 'Host Player Mode' where the Host can request the CICAM to decrypt ISOBMFF content, hence overcoming the previous limitation of TS only. It also defines a CICAM Player Mode where the CICAM may implement an HLS or DASH Player taking advantage of the IP connectivity of the Host with an improved version of the LSC resource (LSC Hybrid).

- **CICAM Application Launching:** The CI Plus LLP 1.4 Specification provides support for execution of HbbTV Applications at the request of the CICAM. Such Application can be delivered via broadband or hosted on the CAM File System. It also provides a mechanism, whereby the CICAM can offer a virtual channel that is added to the channel line-up of the Host. When such a virtual channel is selected, the CICAM typically launches the Operator Portal.

- **CI Plus Browser:** In recognition of the evolution of the TV middleware, the CI Plus browser is changed from mandatory to optional for all new Host registered after September 2017.

- **URI Extensions:** the CI Plus LLP 1.4 Specification extends the Content Control URI version V4, to signal trick mode restrictions, Numerical Output Control and increased retention limit.

- **Watermarking:** The CI Plus LLP 1.4 Specification allows the CICAM to perform watermarking operations on content or services that it is descrambling. The implementation of watermarking is out of the CI Plus LLP 1.4 Specification.

The CI Plus LLP 1.4 Specification describes mandatory and optional resources. The mandatory resources specify the parts which must be implemented and shall be formally tested during registration. The optional resources can be implemented at the choice of the Licensee. If implemented by the Licensee at device registration, optional resources must be declared and tested during device registration.

2. What is the difference between CICAM Player Mode and Host Player Mode?

CICAM Player Mode specifies a mode of operation whereby the Host provides the CICAM access to the Internet via the CI Plus Low Speed Communication resource and the CICAM retrieves and descrambles content from the Internet and sends it securely over the CI Plus interface to the TV for display. In CICAM Player mode support of streaming protocols is resident on the CICAM and the Host simply exposed its IP connection directly to the CICAM.

Host Player Mode specifies a mode of operation whereby the Host retrieves content from the Internet, a DRM system is present on the CICAM, and the Host sends the DRM protected content to the CICAM for descrambling in a similar manner to that for broadcast content. In Host Player mode support of streaming protocols is the responsibility of the Host and the CICAM role is simply to decrypt the DRM protected content.

3. What is Multi-Stream functionality?

Multi-Stream functionality allows the Host to send to the CICAM a single TS stream containing multiple services obtained from the various tuners or IP sources available to the Host. The Multi-Stream capable CICAM may then decrypt the services. This makes possible use cases, such as watch and record services originating from distinct physical transponders.

4. Is MHEG still required for the Host?

The MHEG browser is no longer mandatory for the Host since 15th Sep. 2017, the sunrise date of CI Plus LLP 1.4.

However, Host devices that implement the MHEG client for CI Plus must still follow the CI Plus LLP 1.4 Specification, and the MHEG related functionality must be tested during Device registration. Partial implementation of the CI Plus browser is not permitted.

5. Is DES still an option for TS out protection of CI Plus?

DES-56-ECB has been depreciated and is no longer permitted following the CI Plus LLP 1.4 sunrise in September 2017

6. How to resolve the conflict between the broadcast application and CICAM application?

The CI Plus LLP 1.4 Specification follows the DVB decision, as specified in TS 103 205 that the broadcast application has a higher priority than the CICAM Application.

7. Is CI Plus LLP 1.4 backward compatible with CI Plus 1.2/1.3?

Yes, the CI Plus LLP Specification is designed with the intention that there is backward compatibility between legacy Host and CICAM.

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8. What is the sunrise date of CI Plus LLP 1.4?

The CI Plus LLP 1.4 sunrise date was 15th September 2017. All new CI Plus devices (Host and CICAM) registered thereafter must comply with the CI Plus LLP 1.4 Specification.

9. How does self-test registration work for CI Plus LLP?

The self-test registration is available only for the Hosts. The Host self-test registration is allowed as long as the Licensee complies with the requirements described in the section 5.2 of the CI Plus Interim License Agreement.

For the avoidance of doubt, the self-test period cannot extend indefinitely and the maximum permitted period is 2.5 years from the last normal registration as defined in the section 5.2 of the ILA.

10. Can a Licensee enable optional features after a Device registration?

Yes, however the Licensee remains at all-time responsible that registered Devices fully comply with the terms of the ILA even if optional features are added after Device registration.

CI PLUS REVOCATION

11. How does CI Plus LLP 1.4 and 2.0 improve revocation functionality?

The Host revocation functionality is required as a mandatory feature for new CICAM device registration since 1st July 2017. This means that new CICAM products registered after this date would be tested and capable to CI Plus revocation.

In the event of security breach by CI Plus Host in the market, CI Plus LLP has well defined process for identifying Licensee responsible for such breaches and is equipped to provide revocation list to the Broadcasters and Operators who have sign the Content Distributor Agreement (CDA) in a timely manner.

CI PLUS LLP ECP SPECIFICATION

12. Does CI Plus LLP 1.4 and 2.0 support the UHD content delivery?

All versions of CI Plus LLP Specifications are technically capable of carriage of UHD content although the capabilities of individual products to decode content will vary.

Individual commercial discussions and agreements between each content owner and Operator will define what type of content they will permit using CI Plus and which security requirements will apply to what type of content (including UHD Content). These discussions generally focus on the perceived value of the content.

CI Plus LLP is actively working with MovieLabs, Studios, other content owners as well as security experts on promoting CI Plus ECP (Enhanced Content Protection) Specification to be used for distribution of premium UHD content.

13. What is CI Plus ECP Specification?

In order to follow latest developments in content security technology, and to support the MovieLabs Specifications for Next Generation Video and Enhanced Content Protection, CI Plus LLP has defined a new CI Plus ECP Security Level based on an updated definition of Robustness and Compliance rules.

CI Plus LLP believes that the CI Plus ECP Security Level will satisfy the content industry's requirements to support premium content that requires ECP.

The latest CI Plus ECP Specification version is downloadable from the CI Plus website (http://www.ci-plus.com).

14. Why does CI Plus ECP require 2nd Root of Trust?

CI Plus LLP has defined a CI Plus 2nd Root of Trust to provide a higher level of security for Premium content based on the SHA256 Hash algorithm.

The support of the CI Plus 2nd Root of Trust (SHA-2) is mandatory for CI Plus ECP devices.

CI Plus LLP has developed an operational scheme to maximise the interoperability of the coexistence of CI Plus and CI Plus ECP devices on the market.

15. Is CI Plus ECP mandatory?

CI Plus would continue to support the current CI Plus generation of devices for a foreseeable future. The latest version is CI Plus v1.4 introduced in September 2017.

CI Plus ECP is a new specification designed for products targeting consumption of Premium content.

It is the choice of the Licensee whether to implement CI Plus v1.4 product or whether to implement CI Plus ECP.

16. How does the end user identify CI Plus ECP products?

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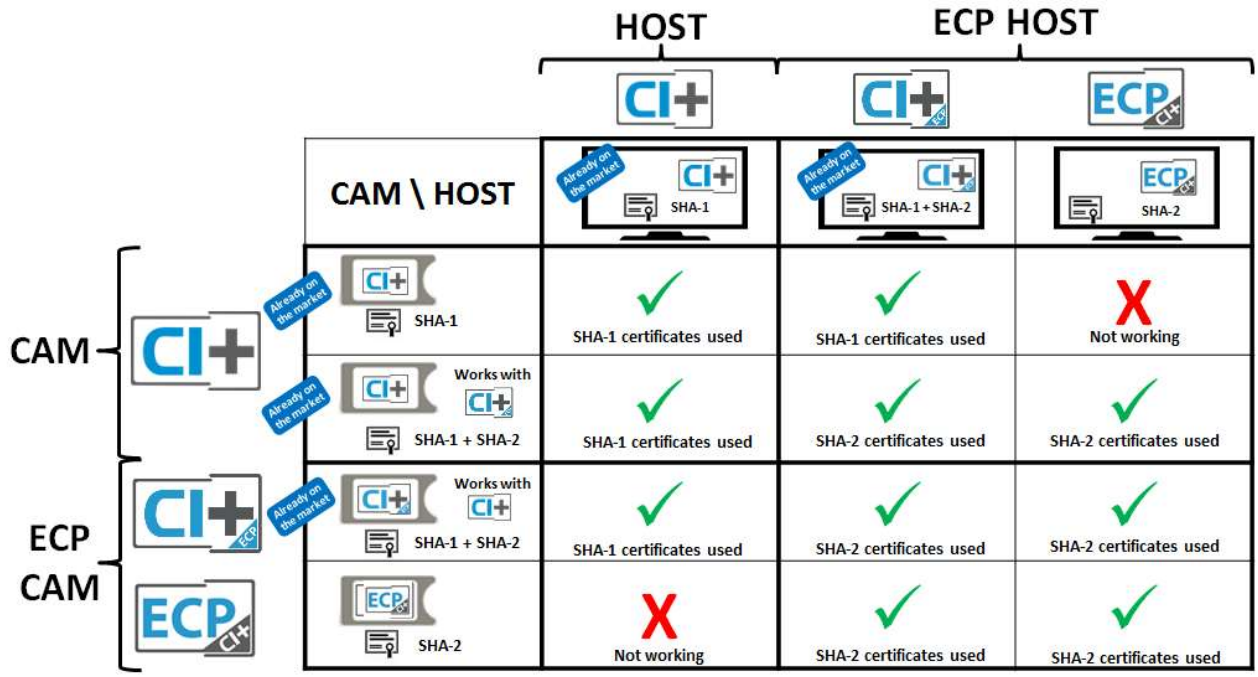
CI Plus LLP introduced “CI Plus ECP-1 Logo” for Host and CICAM compliant with ECP security level and CI Plus v1.4 and which has been provisioned with both Roots of Trust (CI Plus Root of Trust and CI Plus 2nd Root of Trust).

At the beginning of 2020, CI Plus LLP also introduced “CI Plus ECP-2 Logo” for ECP device which has been provisioned with the CI Plus 2nd Root of Trust.

The operational scheme can be seen in the table below.

Compatibility table



Notes:

- The CI Plus logo on the device indicates the corresponding registered Device Type: CI Plus Standard (Non-ECP) Device or CI Plus ECP Device
- For CI Plus ECP Device, there are 2 possible logos: one is for devices supporting current CI Plus Root of Trust (SHA-1) and CI Plus 2nd Root of Trust (SHA-2), and one is for devices which support the CI Plus 2nd Root of Trust (SHA-2)

CI PLUS LLP 2.0 SPECIFICATION

17. What is CI Plus LLP 2.0 Specification?

The CI Plus LLP 2.0 Specification provides the description of a CI Plus LLP profile of TS 103 605, specifying implementation for a device supporting the USB form factor, and which parts are covered by the terms of the CI Plus Interim Licence Agreement. The latest CI Plus

LLP 2.0 Specification version is downloadable from the CI Plus website (http://www.ci-plus.com).

18. Does a USB CI Plus device still need to support PCMCIA form factor?

A USB CI Plus CICAM shall support the USB form factor as specified in TS 103 605, in compliance with the CI Plus LLP 2.0 Specification, and shall not support the PCMCIA form factor as specified in EN 50221.

A USB CI Plus Host shall provide at least one USB CI Plus Slot with the USB form factor as specified in TS 103 605, in compliance with the CI Plus LLP 2.0 Specification. A USB CI Plus Host may provide CI Plus slots with the PCMCIA form factor as specified in EN 50221, in compliance with the CI Plus 1.4 Specification. A USB CI Plus Host may support one CI Plus slot or multiple CI Plus slots, with the same or different form factors.

19. Does a USB CI Plus Host still need to support the lower versions of a mandatory resource?

A USB CI Plus Host may support lower versions of mandatory resources on its USB CI Plus Slot(s).

A USB CI Plus Host that does not support lower versions of a mandatory resource shall respond with resource non-existent when a CICAM requests the opening of that resource with a version lower than supported.

20. How does the USB CI Plus device to support the IP connection?

A USB CI Plus Host that supports an IP connection shall support the Low Speed Communication resource version 4 as defined in TS 103 205 with device type 0x60 (IP connection) on all its USB CI Plus Slots.