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# **Car Connectivity Consortium**

## **MirrorLink®**

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### **Handling of Application Developer Certificates Test Specification**

Version 1.1.4  
(CCC-TS-045)



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## 3 LIST OF CONTRIBUTORS

- |   |                           |                                 |
|---|---------------------------|---------------------------------|
| 4 | Pichon, Ed (Editor)       | E-Qualus (for CCC)              |
| 5 | Brakensiek, Jörg (Editor) | Car Connectivity Consortium LLC |

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## 1 TERMS AND ABBREVIATIONS

BT	Bluetooth
DUT	Device under test
ML	MirrorLink
RFB	Remote Framebuffer
UPnP	Universal Plug and Play
USB	Universal Serial Bus
VNC	Virtual Network Computing

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## 1 ABOUT

This document specifies all MirrorLink protocol test cases for handling application certificates.

The specification lists a series of requirements, either explicitly or within the text, which are mandatory elements for a compliant solutions. Recommendations are given, to ensure optimal usage and to provide suitable performance. All recommendations are optional.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are following the notation as described in RFC 2119 [1].

1. MUST: This word, or the terms "REQUIRED" or "SHALL", mean that the definition is an absolute requirement of the specification.
2. MUST NOT: This phrase, or the phrase "SHALL NOT", mean that the definition is an absolute prohibition of the specification.
3. SHOULD: This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.
4. SHOULD NOT: This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
5. MAY: This word, or the adjective "OPTIONAL", means that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option (except, of course, for the feature the option provides.)

## 2 DEFINITIONS

### 2.1 Execution of Test Cases

Every test case is uniquely identified by an identifier.

- A MirrorLink server MUST pass all test cases, starting with SR.
- A MirrorLink client MUST pass all test cases, starting with CL

Every test case description includes an entry, whether the test cases is considered mandatory or not.

- Test cases marked as MANDATORY, MUST be executed.
- Test cases marked as CONDITIONAL, MUST be executed if the given condition is met.
- Test cases marked as CONDITIONAL, MUST NOT be executed if the given condition is not met.
- Test cases marked as NONE, MUST NOT be executed

Note: To maintain system security, for certification testing purposes, the DUT must be configured to accept certificates and OCSP responses signed by the ACMS-TS root certificate. See [2] for additional information

### 2.2 Server Definitions

The following definitions are frequently used in different server and client test cases. Usage is indicated by the given designator name.

#### 2.2.1 MirrorLink Server Connect

This definition contains all necessary steps to make an UPnP “connection” to the UPnP Server.

Step	Name	Description	Expected Result
1	UPnP Connect	Preparing the UPnP connection by making an initialization, registering the client and waiting for the device to announce itself.	
2	UPnP MSearch	Send MSearch request	<ul style="list-style-type: none"><li>• Device announces itself</li></ul>
3	UPnP Device Description	Test the service description for parsable XML formatting and availability of service types and their control and event URLs.	<ul style="list-style-type: none"><li>• Valid device description (according to specification)</li><li>• Support for TmApplication-Server:1 service</li><li>• Support for TmClientProfile:1 service</li></ul>
4	Register UPnP Event	CTS registers to AppListUpdate event	<ul style="list-style-type: none"><li>• Initial event received</li></ul>

Table 1: MirrorLink Server Connect Test Step Definition

#### 2.2.2 Developer App Installation

The definition contains the necessary steps to install the application, retrieve the certificate and check for revocation. Application is available from the application listing.

Step	Name	Description	Expected Result
1	Application Uninstall	Uninstall developer app from DUT (if installed). Remove developer ID certificate from DUT (if installed)	

Step	Name	Description	Expected Result
2	Manual revocation	Test Engineer conducts a manual revocation check. Requires a MirrorLink app installed on the DUT (MUST be different from developer app). OCSP response: <ul style="list-style-type: none"> <li>• Query: 1h</li> <li>• R-Grace: 2h</li> <li>• NR-Grace: 3h</li> </ul>	OCSP request received
3	MirrorLink Server Connect	See Definitions	
4	Application Install	Test Engineer connects DUT to Internet. Test Engineer installs developer app onto DUT.	<ul style="list-style-type: none"> <li>• Application successfully installed on the DUT without an error.</li> </ul>

Table 2: MirrorLink Developer Application Installation Test Step Definition

### 2.2.3 Developer Certificate Retrieval

The definition contains the necessary steps to install the application, retrieve the certificate and check for revocation. Application is available from the application listing.

Dedicated application developer accounts are available on the ACMS-TS system. A set of developer applications is available as well, suitable for the different developer accounts. CTS MUST use those dedicated application developer accounts and applications during testing.

Step	Name	Description	Expected Result
1	Certificate Retrieval	DUT installs the developer ID certificate on the DUT. ACMS response: <ul style="list-style-type: none"> <li>• Error: 200 (Ok)</li> </ul>	<ul style="list-style-type: none"> <li>• Single HTTP-Get request</li> <li>• Correct HTTP-Get request format</li> <li>• Correct developer identifier value</li> <li>• Correct server identifier value</li> </ul> Note: CTS either knows the expected identifier value or it will have the test engineer compare the received value with the provided value from the DUT vendor (PIXIT)
2	Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>• Query: 1h</li> <li>• R-Grace: 2h</li> <li>• NR-Grace: 3h</li> <li>• Cert: Ok</li> </ul>	<ul style="list-style-type: none"> <li>• Single OCSP request</li> <li>• Correct OCSP request format</li> <li>• Correct certificate identifier value</li> </ul>
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>• All apps are drive-certified</li> <li>• AppListUpdate event received</li> </ul>

Table 3: MirrorLink Developer Application Installation Test Step Definition

### 2.2.4 App Certification Status

The definition contains the necessary steps to validate the application's certification status.



Step	Name	Description	Expected Result
1	UPnP App List Event	DUT sends an AppListUpdate event, if the certified app listing is expected to change.	<ul style="list-style-type: none"> <li>Application identifier listed, of applications, which have changed; multiple changed apps may be included in one or in multiple events.</li> </ul>
2	UPnP Application Listing	CTS retrieves UPnP Application listings (GetApplicationList)	<p><b>App is certified:</b></p> <ul style="list-style-type: none"> <li>Application is listed in the received application listing</li> <li>Trust levels set to 0x00A0</li> <li>Application Certificate is available from the appCertificateURL</li> <li>App listing content matches certificate content.</li> </ul> <p><b>App is not certified:</b></p> <ul style="list-style-type: none"> <li>Application MAY be listed in the received application listing</li> <li>If listed, trust levels set to 0x0080 or below</li> <li>If listed, app listing content matches certificate content.</li> </ul>
3	UPnP Certified Application Listing	CTS retrieves UPnP Certified Applications Listing (GetCertifiedApplicationsList)	<p><b>App is certified:</b></p> <ul style="list-style-type: none"> <li>Application identifier is listed in certified application listings</li> </ul> <p><b>App is not certified:</b></p> <ul style="list-style-type: none"> <li>Application identifier is not listed in certified application listings</li> </ul>
4	UPnP Certificate Info	CTS retrieves the Certificate Information for the new Application (GetApplicationCertificateInfo)	<p><b>App is certified:</b></p> <ul style="list-style-type: none"> <li>DEVELOPER certifying entity replaced by CCC.</li> <li>Certificate info content matches certificate content.</li> <li>nonRestricted element contains list of locales.</li> <li>restricted element contains list of locales</li> </ul> <p><b>App is not certified:</b></p> <ul style="list-style-type: none"> <li>Certificate info content matches certificate content.</li> <li>nonRestricted element is empty.</li> <li>restricted element is empty.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Certificate info does not exist</li> </ul>

Table 4: App Certification Status Test Step Definition

## 2.3 Client Definitions

The following definitions are frequently used in different server and client test cases. Usage is indicated by the given designator name.

There are no Client Definitions.

## 3 SERVER FEATURE TEST CASES

### 3.1 Developer ID Certificate Retrieval

#### 3.1.1 SR/DEV CERT/HTTP/HttpErrorResponse

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server does not list the test development application in case of different error responses when retrieving the Developer ID certificate.

The test case requires multiple developer ID certificates and individual test development applications linked to the developer ID certificates.

Step	Name	Description	Expected Result
1	Developer App Installation	See definitions	
2	Certificate Retrieval	Test Engineer executes necessary steps to install the developer ID certificates on the DUT. ACMS does not deliver the certificate <ul style="list-style-type: none"> <li>• Dev 1: Error 400</li> <li>• Dev 2: Error 500/800</li> <li>• Dev 3: Error 500/801</li> <li>• Dev 4: Error 500/8xx</li> <li>• Dev 5: Error 500/900</li> <li>• Dev 6: Error 500/9yy</li> </ul> xx and yy are random values	<ul style="list-style-type: none"> <li>• Single HTTP-Get request for each developer ID certificate</li> <li>• Correct HTTP-Get request format</li> <li>• Correct developer identifier value</li> <li>• Correct server identifier value</li> </ul>
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>• All apps are non-certified</li> </ul>
4	Retry	DUT performs HTTP-Get request for developer ID certificates. ACMS response: <ul style="list-style-type: none"> <li>• Error 200 (Ok)</li> </ul> Retry may need to be performed manually for cert 2 & 4.	<ul style="list-style-type: none"> <li>• Single HTTP-Get request for developer ID certificates 2 &amp; 3 &amp; 4</li> <li>• No HTTP-Get request for developer ID certificates 1 &amp; 5 &amp; 6</li> <li>• Correct HTTP-Get request format</li> <li>• Correct developer identifier value</li> <li>• Correct server identifier value</li> <li>• Request for certificate 3 received between 1h and 24h after the initial HTTP-Get request.</li> <li>• Request for certificates 2 &amp; 4 received between 50% and 100% of the query period after the initial HTTP-Get request</li> </ul>
5	OCSP Request	DUT performs OCSP request for developer ID certificates. OCSP response: <ul style="list-style-type: none"> <li>• Query: 1h</li> <li>• R-Grace: 2h</li> </ul>	<ul style="list-style-type: none"> <li>• Single OCSP request for developer ID certificates 2 &amp; 3 &amp; 4</li> <li>• No OCSP request for developer ID certificates 1 &amp; 5 &amp; 6</li> <li>• Correct OCSP request format</li> <li>• Correct certificate identifier value</li> </ul>

Step	Name	Description	Expected Result
		<ul style="list-style-type: none"> <li>NR-Grace: 3h</li> <li>Cert: Ok</li> </ul>	
6	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App 1 &amp; 5 &amp; 6 are non-certified</li> <li>App 2 &amp; 3 &amp; 4 are drive-certified</li> <li>AppListUpdate event received</li> </ul>
7	MirrorLink Server Disconnect	See Definitions	

Table 5: Retrieval of the Developer ID Certificate – HTTP Response Error

### 3.1.2 SR/DEV CERT/HTTP/HttpOkResponseNoRetry

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server validates the Developer ID certificate (signature, trust chain).

The test case requires multiple developer ID certificates and individual test development applications linked to the developer ID certificates.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definitions	
2	Certificate Retrieval	Test Engineer executes necessary steps to install the developer ID certificate on the DUT. ACMS delivers certificate <ul style="list-style-type: none"> <li>Error: 200 (Ok)</li> <li>Dev 1: Wrong intermediate certificate signature</li> <li>Dev 2: Wrong developer ID certificate signature</li> <li>Dev 3: Wrong intermediate CA issuer common name (CN)</li> </ul>	<ul style="list-style-type: none"> <li>Single HTTP-Get request for each developer ID certificate 1–3</li> <li>Correct HTTP-Get request format</li> <li>Correct developer identifier value</li> <li>Correct server identifier values</li> </ul>
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are non-certified</li> </ul>
4	Certificate Retrieval	CTS waits for 2h	<ul style="list-style-type: none"> <li>No HTTP-Get request received</li> <li>No OCSP request received</li> </ul>
5	MirrorLink Server Disconnect	See Definitions	

Table 6: Validation of the Developer ID Certificate – HTTP Ok Response (No Retry)

### 3.1.3 SR/DEV CERT/HTTP/HttpOkResponseRetry

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server validates the Developer ID certificate (expiration date, server identifier, client manufacturer identifier).

The test case requires multiple developer ID certificates and individual test development applications linked to the developer ID certificates.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definitions	
2	Certificate Retrieval	Test Engineer executes necessary steps to install the developer ID certificate on the DUT. ACMS delivers certificate <ul style="list-style-type: none"> <li>• Error: 200 (Ok)</li> <li>• Dev 1: Expiration date in the past</li> <li>• Dev 2: Server ID not included</li> <li>• Dev 3: Client manufacturer blacklisted</li> </ul>	<ul style="list-style-type: none"> <li>• Single HTTP-Get request for each developer ID certificate 1–3</li> <li>• Correct HTTP-Get request format</li> <li>• Correct developer identifier value</li> <li>• Correct server identifier values</li> </ul>
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>• All apps are non-certified</li> </ul>
4	Retry	DUT performs HTTP-GET request for app certificate ACMS response: <ul style="list-style-type: none"> <li>• Error 200</li> </ul> Retry may need to be performed manually.	<ul style="list-style-type: none"> <li>• Single HTTP-Get request for each developer ID certificate 1–3</li> <li>• Correct HTTP-Get request format</li> <li>• Correct app identifier value</li> <li>• Request received between 50% and 100% of the query period after the initial HTTP-Get request.</li> </ul>
5	OCSP Request	DUT performs OCSP request for developer ID certificates OCSP response: <ul style="list-style-type: none"> <li>• Query: 1h</li> <li>• R-Grace: 2h</li> <li>• NR-Grace: 3h</li> </ul> Cert: Ok	<ul style="list-style-type: none"> <li>• Single OCSP request for developer ID certificates 1–3</li> <li>• Correct OCSP request format</li> <li>• Correct certificate identifier value</li> </ul>
6	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>• All apps are certified</li> <li>• <code>AppListUpdate</code> event received</li> </ul>
7	MirrorLink Server Disconnect	See Definitions	

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Table 7: Validation of the Developer ID Certificate – HTTP Ok Response (Retry)

## 3.2 Certificate Revocation Check

### 3.2.1 SR/DEVCERT/OCSP/FailureNoRetry

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server checks from the ACMS whether a developer ID certificate has been revoked. The ACMS responds with error messages, which require the DUT to not retry the request.

The test case requires a test development application, which has an included self-signed application development certificate.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition	
2	Developer Certificate Retrieval	See Definition	
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are certified</li> </ul>
4	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> <li>Dev 1: Unknown</li> <li>Dev 2: Malformed request</li> <li>Dev 3: Sig required</li> <li>Dev 4: Unauthorized</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request for each developer ID certificate</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request.</li> </ul>
5	Wait	Wait until the query period has expired	
6	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are non-certified</li> <li>AppListUpdate event received</li> </ul>
7	Wait	Wait for 2h	<ul style="list-style-type: none"> <li>No OCSP request received</li> </ul>
8	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are non-certified</li> </ul>
9	MirrorLink Server Disconnect	See Definitions	

Table 8: Revocation of the Developer ID Certificate – Failure with no Retry

### 3.2.2 SR/DEVCERT/OCSP/FailureRetry

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server checks from the ACMS whether a developer ID certificate has been revoked. The ACMS responds with error messages, which require the DUT to retry the request within the query or grace period.

The test case requires multiple developer ID certificates and individual test development applications linked to the developer ID certificates.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition	
2	Developer Certificate Retrieval	See Definition	
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are certified.</li> </ul>
4	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> <li>Dev 1: try Later</li> <li>Dev 2: Wrong nonce</li> <li>Dev 3: Wrong intermediate certificate signature</li> <li>Cert 4: Wrong developer ID certificate signature</li> <li>Dev 5: internal Error</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request for each developer ID certificate</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request.</li> </ul>
5	Wait	Wait until the query period has expired	
6	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are non-certified</li> <li>AppListUpdate event received</li> </ul>
7	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Ok</li> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> </ul> Retry may need to be performed manually.	<ul style="list-style-type: none"> <li>Single OCSP request for each developer ID certificate</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request (if done automatically) for Dev 1-4.</li> <li>OCSP request received between 50% and 100% of the grace period after last OCSP request (if done automatically) for Dev 5.</li> </ul>
8	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are certified</li> <li>AppListUpdate event received</li> </ul>
9	MirrorLink Server Disconnect	See Definitions	

Table 9: Revocation of the Developer ID Certificate – Failure with Retry

### 3.2.3 SR/DEVCERT/OCSP/Query

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server checks from the ACMS whether a developer ID certificate has been revoked. In this test case it has not been revoked.

The test case requires a test development application, which has an included self-signed application development certificate.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition	
2	Developer Certificate Retrieval	See Definition	
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All apps are certified</li> </ul>
4	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> <li>Dev 1: Ok</li> <li>Dev 2: Ok</li> <li>Dev 3: Ok</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request.</li> </ul>
5	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>All app are certified</li> </ul>
6	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> <li>Dev 1: Ok</li> <li>Dev 2: Update</li> <li>Dev 3: Revoke</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request.</li> </ul>
7	Certificate Retrieval	DUT performs HTTP-Get request for app certificate 2. ACMS response: <ul style="list-style-type: none"> <li>App 2: Error 200</li> <li>App 3: Error 500/900</li> </ul>	<ul style="list-style-type: none"> <li>No HTTP-Get request for app 1</li> <li>Single HTTP-Get request for app 2</li> <li>Single HTTP-Get request for app 3</li> <li>Correct HTTP-Get request format</li> <li>Correct app identifier value</li> </ul>
8	Application certificate revocation	DUT performs Revocation Check for app 2. OCSP response: <ul style="list-style-type: none"> <li>Cert 2: Ok</li> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request for app certificate 2</li> <li>No OCSP request for app certificate 1 &amp; 3</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> </ul>
9	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App 1 is certified.</li> <li>App 2 is certified.</li> <li>App 3 is non-certified.</li> </ul>
10	MirrorLink Server Disconnect	See Definitions	

Table 10: Revocation of the Developer ID Certificate – No revocation

### 3.2.4 SR/DEV CERT/OCSP/ZeroQueryPeriod

Requirement: MANDATORY

Condition: None

- 1 Test Case verifies that the MirrorLink Server does a revocation check within the query period. As the query
- 2 period is set to zero, the revocation check is done with every MirrorLink Connection Setup.
- 3 The test case requires a test development application, which has an included self-signed application develop-
- 4 ment certificate.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition	
2	Developer Certificate Retrieval	See Definition	
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is certified</li> </ul>
4	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Ok</li> <li>Query period: 0h</li> <li>Grace periods: 10h</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> <li>OCSP request received between 50% and 100% of the query period after last OCSP request.</li> </ul>
5	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is certified</li> </ul>
6	MirrorLink Server Disconnect	See Definitions	
7	MirrorLink Server Connect	See Definitions	
8	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is not certified</li> </ul>
9	Application revocation	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Ok</li> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value.</li> </ul>
10	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is certified</li> </ul>
11	MirrorLink Server Disconnect	See Definitions	

Table 11: Revocation of the Developer ID Certificate – Zero Query Period

### 3.2.5 SR/DEV CERT/OCSP/QueryExpiration

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server gives no grace period for Dev ID Certificates.

The test case requires a test development application, which has an included self-signed application development certificate.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition	
2	Developer Certificate Retrieval	See Definition	



Step	Name	Description	Expected Result
3	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is certified</li> </ul>
4	Disable Connectivity	Disconnect DUT from the Internet	
5	Wait	Wait for 1.5h	
6	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is not certified</li> </ul>
7	Enable Connectivity	Connect DUT to the Internet	
8	Wait for Certificate Revocation Check	DUT performs OCSP request for developer ID certificate. OCSP response: <ul style="list-style-type: none"> <li>Ok</li> <li>Query: 1h</li> <li>R-Grace: 2h</li> <li>NR-Grace: 3h</li> </ul>	<ul style="list-style-type: none"> <li>Single OCSP request</li> <li>Correct OCSP request format</li> <li>Correct certificate identifier value</li> </ul>
9	App Certification Status	See Definitions	<ul style="list-style-type: none"> <li>App is certified</li> </ul>
10	MirrorLink Server Disconnect	See Definitions	

Table 12: Revocation of the Developer ID Certificate – Query Expiration

## 3.3 Application Development Certificate

### 3.3.1 SR/DEV CERT/APPDEV CERT/Failure

Requirement: MANDATORY

Condition: None

Test Case verifies that the MirrorLink Server validates the self-signed Application Development Certificate installed with a development application.

The test case requires 3 test development applications, which have an included self-signed application development certificate, are available.

Step	Name	Description	Expected Result
1	Developer App Installation	See Definition <ul style="list-style-type: none"> <li>App 1: Self-signed developer app certificate is expired.</li> <li>App 2: Self-signed developer app certificate has invalid App identifier.</li> <li>App 3: Self-signed developer app certificate has wrong Developer ID.</li> </ul>	
2	Developer Certificate Retrieval	See Definition	
3	App Certification Status	See Definitions	All apps are not certified No HTTP-Get request received

Step	Name	Description	Expected Result
4	MirrorLink Server Disconnect	See Definitions	

1 Table 13: Application Development Certificate Validation – Invalid App Certificates

Approved

## 1 **4 CLIENT FEATURE TEST CASES**

2 No Client Feature Test Cases.

Approved

## 5 REFERENCES

- [1] IETF, RFC 2119, “Keys words for use in RFCs to Indicate Requirement Levels”, March 1997.  
<http://www.ietf.org/rfc/rfc2119.txt>
- [2] Car Connectivity Consortium, “MirrorLink – Handling of Application Developer Certificates”,  
Version 1.1, CCC-TS-044

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