

# **Detailed Design (DD)**

## **ADC (Analog to Digital Converter)**

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## **APIs**

1. Initialization API
2. Start Conversion Asynchronous API
3. Start Conversion Synchronous API
4. Start Chain Conversion API

## 1. Initialization API

|                     |   |
|---------------------|---|
| Name                | Initialization Function   |
| Prototype           | STD MCAL_ADC_u8Init(void);  |
| Parameter in        | -   |
| Parameter out       | -   |
| Parameter in-out    | -   |
| Return Type         | STD OK \ STD NOK  |
| Description         | This Function is responsible of initializing the ADC:<br>1. Choose Reference voltage<br>2. Choose prescaller<br>3. Enable ADC |
| Covered Requirement | [SRS_ADC_3.1], [SRS_ADC_4.1], [SRS_ADC_4.2]   |

## 2. Start Conversion Asynchronous API

|                     |   |
|---------------------|---|
| Name                | Start Conversion Asynchronous   |
| Prototype           | STD MCAL_ADC_u8StartConversionAsynch(u8 Copy_u8Channel,u8* Copy_pu8Reading, <b>void</b> (*Copy_pvNotificationFunc)( <b>void</b> )); |
| Parameter in        | u8 Copy_u8Channel, u8* Copy_pu8Reading, <b>void</b> (*Copy_pvNotificationFunc)( <b>void</b> )                                       |
| Parameter out       | -   |
| Parameter in-out    | -   |
| Return Type         | STD OK \ STD NOK  |
| Description         | This Function is responsible of: Conversion of the ADC Reading Asynchronous.  |
| Covered Requirement | [SRS_ADC_3.3], [SRS_ADC_4.1]  |

### 3. Start Conversion Synchronous API

|                     |   |
|---------------------|---|
| Name                | Start Conversion Synchronous  |
| Prototype           | STD MCAL_ADC_u8StartConversionSynch(u8 Copy_u8Channel,u8* Copy_pu8Reading); |
| Parameter in        | u8 Copy_u8Channel, u8* Copy_pu8Reading                                      |
| Parameter out       | -   |
| Parameter in-out    | -   |
| Return Type         | STD OK \ STD NOK  |
| Description         | This Function is responsible of: Conversion of the ADC Reading Synchronos.  |
| Covered Requirement | [SRS_ADC_3.2], [SRS_ADC_4.2], [SRS_ADC_4.3]                                 |

### 4. Start Chain Conversion API

|                     |  |
|---------------------|--|
| Name                | Start Chain Conversion   |
| Prototype           | u8 MCAL_ADC_u8StartChainAsynch(struct * Copy_Chain);                                   |
| Parameter in        | struct * Copy_Chain  |
| Parameter out       | -  |
| Parameter in-out    | -  |
| Return Type         | STD OK \ STD NOK   |
| Description         | This Function is responsible of: Multiple Conversions of the ADC Reading Asynchronous. |
| Covered Requirement | [SRS_ADC_3.4], [SRS_ADC_4.3], [SRS_ADC_4.2]  |