

<b>Document Title</b>	SRS_SPALGeneral: Complete Change Documentation 4.3.0 - 4.3.1
<b>Document Owner</b>	AUTOSAR
<b>Document Responsibility</b>	AUTOSAR
<b>Document Identification No</b>	695

<b>Document Status</b>	Final
<b>Part of AUTOSAR Standard</b>	Classic Platform
<b>Part of Standard Release</b>	4.3.1

## Table of Contents

1	SRS_SPALGeneral	3
1.1	Specification Item SRS_SPAL_00157	3
1.2	Specification Item SRS_SPAL_12056	9
1.3	Specification Item SRS_SPAL_12057	16
1.4	Specification Item SRS_SPAL_12063	22
1.5	Specification Item SRS_SPAL_12064	29
1.6	Specification Item SRS_SPAL_12067	36
1.7	Specification Item SRS_SPAL_12163	42
1.8	Specification Item SRS_SPAL_12448	48

# 1 SRS\_SPALGeneral

## 1.1 Specification Item SRS\_SPAL\_00157

### Trace References:

RS\_BRF\_01064, RS\_BRF\_02232, RS\_BRF\_02168

### Content:

<b>Type:</b>	Valid
<b>Description:</b>	All drivers and handlers of the AUTOSAR Basic Software shall implement the following notification mechanisms (configurable per module) for use within the Basic Software:
<b>Rationale:</b>	Flexible integration
<b>Applies to:</b>	
<b>Use Case:</b>	The completion of an EEPROM write command can be signaled via a callback function or by setting status information (which is accessible via the module interface).
<b>Supporting Material:</b>	–

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #78035: SRS requirements refer to BMW specifications

#### Problem description:

AUTOSAR documents shall not relate to any particular company. The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processin

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties  
"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel  
"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel  
"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention  
"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]

to:

Supporting Material: –

====

CP\_SRS\_BSWGeneral

replace "BMW Standard Core Programming Guidelines" by "–" in SRS\_BSW\_00305

====

CP\_SRS\_COM

Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:

Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x

to:

Supporting Material: –

====

CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:

Supporting Material: BMW Specification MCAL V1.0a

to:

Supporting Material: –

====

CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:  
 Supporting Material: –

SRS\_Pwm\_12297:

Change from:  
 Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:  
 Supporting Material: –

====  
 CP\_SRS\_SPALGeneral  
 SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:  
 Supporting Material: BMW Specification MCAL V1.0a, ...  
 to:  
 Supporting Material: –  
 –Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.2 Specification Item SRS\_SPAL\_12056

**Trace References:**

RS\_BRF\_01064

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	All driver modules shall allow the static configuration of notification mechanisms.
<b>Rationale:</b>	Flexibility and scalability
<b>Applies to:</b>	
<b>Use Case:</b>	Give the possibility to run a driver within a protected operating system. Callbacks passed by the API and "pointing anywhere" cannot be used within a protected OS.
<b>Supporting Material:</b>	<b>BMW Specification MCAL V1.0a, MISRA-C.–</b>

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #78035: SRS requirements refer to BMW specifications

**Problem description:**

AUTOSAR documents shall not relate to any particular company.  
The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processin

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella."

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention

"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]

to:

Supporting Material: –

====

CP\_SRS\_BSWGeneral

replace "BMW Standard Core Programming Guidelines" by "-" in SRS\_BSW\_00305

====

CP\_SRS\_COM

Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:

Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x

to:

Supporting Material: –

====

CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,

SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:

Supporting Material: BMW Specification MCAL V1.0a

to:

Supporting Material: –

===

CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...  
 to:  
 Supporting Material: –  
 –Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

### 1.3 Specification Item SRS\_SPAL\_12057

**Trace References:**

RS\_BRF\_01096

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	All driver modules shall implement an interface for initialization.
<b>Rationale:</b>	Basic functionality.
<b>Applies to:</b>	
<b>Use Case:</b>	–
<b>Supporting Material:</b>	<b>BMW Specification MCAL V1.0a, MAL1.0.0–</b>

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #78035: SRS requirements refer to BMW specifications

**Problem description:**

AUTOSAR documents shall not relate to any particular company.  
 The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processing

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software

Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above  
Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention  
"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:  
\_\_\_\_\_

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages  
"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:  
\_\_\_\_\_

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group  
"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value  
"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group  
"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group  
"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs  
"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]

to:

Supporting Material: –

====

CP\_SRS\_BSWGeneral

replace "BMW Standard Core Programming Guidelines" by "–" in SRS\_BSW\_00305

===

#### CP\_SRS\_COM

Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

#### CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:

Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x

to:

Supporting Material: –

====

#### CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:

Supporting Material: BMW Specification MCAL V1.0a

to:

Supporting Material: –

===

#### CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...

to:

Supporting Material: –

–Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.4 Specification Item SRS\_SPAL\_12063

**Trace References:**

none

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	All driver modules shall only support raw value mode. In this mode values passed via the API services are used directly without further scaling.

<b>Rationale:</b>	Scaling and adaptation to physical values is task of the ECU Abstraction Layer.
<b>Applies to:</b>	
<b>Use Case:</b>	The I/O Hardware Abstraction converts a raw ADC value to a scaled value (e.g. voltage) and the other way round.
<b>Supporting Material:</b>	<b>BMW Specification MCAL V1.0a, MAL1.6.0–</b>

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #78035: SRS requirements refer to BMW specificatons

**Problem description:**

AUTOSAR documents shall not relate to any particular company.  
 The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written  
"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation  
"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time  
"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processing  
"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle  
"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism  
"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode  
"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention

"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]

to:

Supporting Material: –

====

CP\_SRS\_BSWGeneral

replace "BMW Standard Core Programming Guidelines" by "–" in SRS\_BSW\_00305

===

CP\_SRS\_COM

Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:

Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x

to:

Supporting Material: –

====

CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:

Supporting Material: BMW Specification MCAL V1.0a

to:

Supporting Material: –

===

CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...

to:

Supporting Material: –

–Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.5 Specification Item SRS\_SPAL\_12064

**Trace References:**

RS\_BRF\_02168, RS\_BRF\_01440

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations.
<b>Rationale:</b>	–
<b>Applies to:</b>	
<b>Use Case:</b>	The SPI EEPROM operation mode is valid during a running SPI communication sequence.
<b>Supporting Material:</b>	BMW Specification MCAL V1.0a, MAL1.5.2–

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #78035: SRS requirements refer to BMW specifications

**Problem description:**

AUTOSAR documents shall not relate to any particular company.

The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processing

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

## Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention

"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
 SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]  
to:  
Supporting Material: –

====

CP\_SRS\_BSWGeneral  
replace "BMW Standard Core Programming Guidelines" by "-" in SRS\_BSW\_00305

====

CP\_SRS\_COM  
Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages  
"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:  
Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x  
to:  
Supporting Material: –

====

CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:  
Supporting Material: BMW Specification MCAL V1.0a  
to:  
Supporting Material: –

====

CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...

to:

Supporting Material: –

–Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.6 Specification Item SRS\_SPAL\_12067

### Trace References:

RS\_BRF\_01104

### Content:

<b>Type:</b>	valid
<b>Description:</b>	All driver modules shall set their wake-up conditions depending on the selected operation mode.
<b>Rationale:</b>	Allow enabling of module specific wake-up interrupts.
<b>Applies to:</b>	
<b>Use Case:</b>	Example:
<b>Supporting Material:</b>	BMW Specification MCAL V1.0a, MAL1.5.0–

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #78035: SRS requirements refer to BMW specifications

#### Problem description:

AUTOSAR documents shall not relate to any particular company.  
 The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processin

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of

the operation mode leads to degradation of running operations

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention

"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port  
"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels  
"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port  
"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port  
"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel  
"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCDriver  
SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]

to:

Supporting Material: –

====

CP\_SRS\_BSWGeneral  
replace "BMW Standard Core Programming Guidelines" by "–" in SRS\_BSW\_00305

===

CP\_SRS\_COM  
Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages  
"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

## CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:

Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x

to:

Supporting Material: –

====

## CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:

Supporting Material: BMW Specification MCAL V1.0a

to:

Supporting Material: –

===

## CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...

to:

Supporting Material: –

–Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.7 Specification Item SRS\_SPAL\_12163

**Trace References:**

RS\_BRF\_01096

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	All driver modules shall implement an interface for de-initialization.
<b>Rationale:</b>	Shut down the module. Create the same conditions like before initialization. Empty queues.
<b>Applies to:</b>	
<b>Use Case:</b>	–
<b>Supporting Material:</b>	<a href="#">HIS I/O Driver Specification</a>

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #73567: [diverse] references to HIS

**Problem description:**

The HIS website is no more available.  
We should check what is the impact on the AUTOSAR documents.

There is already RfC 64155 which will make us rid of some references, but I assume some will remain:

- \* SHE
- \* list of vendor IDs
- \* IO driver API
- \* bootloader
- ...

I tried to list the document where the HIS reference will survive RfC 64155 to avoid duplicate ITs.

**Agreed solution:**

Generic approach for the solutions (to be refined per document by documents owners (see below)

- \* Check the need for an external reference
- \* Try to find a replacement
- \* Backup: ask PL solution

**AUTOSAR\_SRS\_BSW\_GENERAL**

=====

Create new reference to the AUTOSAR Vendor ID List in §6.1:

[VENDOR\_ID\_LIST] AUTOSAR Vendor ID List

<https://www.autosar.org/documents/vendor-id/>

**SRS\_BSW\_00374:**

Remove reference "(according to HIS)" in the Description

Supporting Material:

replace reference "HIS Software Supplier Identifications

[STD\_HIS\_SUPPLIER\_IDS]"

to "AUTOSAR Vendor ID List [VENDOR\_ID\_LIST]"

Remove Chapter 6.2.2 HIS

**SRS\_COM**

=====

Remove Chapter 7.4 HIS

(the reference is not used anymore)

#### SRS\_CryptoStack

=====

Remove abbreviation SHE from table in chapter 3 Acronyms and abbreviations

#### SRS\_DIODriver

=====

Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations.

#### SRS\_EEPROMDriver

=====

Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations.  
Remove chapter 6.2 Related standards and norms.

#### SRS\_FlashDriver

=====

- remove HIS from list of abbreviations
- remove requirement SRS\_Fls\_12083
- remove HIS Flash Driver document from reference list

#### SRS\_FlashTest

=====

- Remove HIS from the table of acronyms in chapter 3

#### SRS\_GPTDriver

=====

- Remove abbreviation HIS from table in chapter 4 Acronyms and abbreviations
- Remove from Chapter 7.2 the reference "[5] HIS API I/O Driver Specification [www.automotive-his.de/results/ API\\_IODriver\\_2.1.3.pdf](http://www.automotive-his.de/results/API_IODriver_2.1.3.pdf)".

#### SRS\_ICUDriver

=====

- Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations
- Remove Chapter 7.1.1 HIS

### SRS\_IOHWAbstraction

=====

Remove chapter 7.2 Related standards and norms.

### SRS\_MCUDriver

=====

- Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations
- Remove from Chapter 7.2 the reference "[5] HIS API I/O Driver Specification [www.automotive-his.de/results/ API\\_IODriver\\_2.1.3.pdf](http://www.automotive-his.de/results/API_IODriver_2.1.3.pdf)".

### SRS\_NetworkManagement

=====

- Remove section 7.2.2 "HIS"

### SRS\_OCUDriver

=====

- Remove abbreviation HIS from table in chapter 2 Acronyms and abbreviations
- Remove whole chapter 5.2 Related standards and norms (including the single subchapter 5.2.1 HIS)

### SRS\_OS

=====

- Remove abbreviation HIS from table in chapter 2.2 Acronyms and abbreviations
- Remove chapter 5.2.2 HIS

### SRS\_PortDriver

=====

- Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations
- Remove reference [STD\_HIS\_IO\_DRIVER] in chapter 6.1 Deliverables of AUTOSAR "[STD\_HIS\_IO\_DRIVER] HIS API IO Driver, V2.1.3, April 29th, 2004, [http://www.automotive-his.de/download API\\_IODriver\\_2\\_1\\_3.pdf](http://www.automotive-his.de/download/API_IODriver_2_1_3.pdf)"
- Remove chapter 6.2 Related standards and norms

### SRS\_PWMDriver

=====

- Remove abbreviation HIS from table in chapter 4 Acronyms and abbreviations
- Remove Supporting Material for requirement SRS\_Pwm\_12299

#### SRS\_RAMTest

=====

- Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations

#### SRS\_SPALGeneral

=====

- Remove HIS from acronym table in chapter 3
- Set "Supporting Material:" of SRS\_SPAL\_12163 to –
- Remove section 7.2 "Related standards and norms"

#### SRS\_SPIHandlerDriver

=====

- Remove abbreviation HIS from table in chapter 3 Acronyms and abbreviations

#### SRS\_WatchdogDriver

=====

Remove from Chapter 7.2 the reference "[5] HIS API I/O Driver Specification [www.automotive-his.de/results/ API\\_IODriver\\_2.1.3.pdf](http://www.automotive-his.de/results/API_IODriver_2.1.3.pdf)".

#### SRS\_ADCCDriver

=====

- Remove chapter 7.2 Related standards and norms.
- Remove abbreviation HIS from table in chapter 4 Acronyms and abbreviations

#### SRS\_DIAGNOSTIC

=====

Remove in SRS\_Diag\_04098 the part of the sentence : "(according HIS [FL-504])"

#### SWS\_BSWGeneral

=====

- Remove HIS from section 3.2 "Related standards and norms"
- Remove the sentence "The ID is the same as in HIS Software Supplier Identifications [19]." from the description of the line "<MIP>\_VENDOR\_ID" in

## SWS\_BSW\_00059

### SWS\_DiagnosticCommunicationManager

=====

Remove last 3 occurrences sentences in SWS\_Dcm\_00988:

"HIS representation of FL\_ExtProgRequestType".

"HIS representation of FL\_ApplicationUpdateType."

"HIS representation of FL\_ResponseRequiredType."

### SWS\_DIODriver

=====

Remove chapter 3.2 Related standards and norms.

### SWS\_EEPROMDriver

=====

Remove chapter 3.2 Related standards and norms.

### SWS\_FlashDriver

=====

- remove SRS\_Fls\_12083 from traceability Matrix (should be done automatically by the update)

- remove HIS Flash Driver document from reference list

### SWS\_FlexRayDriver

=====

- Remove HIS from abbreviation table in chapter 2

### SWS\_FlexRayISOTransportLayer

=====

- Remove HIS from acronym table in chapter 2

- Remove reference to HIS MISRA subset from section 3.2

### SWS\_FlexRayTransceiverDriver

=====

- remove HIS from table Acronyms and abbreviations

SWS\_OS

=====

- remove HIS from table in chapter 2 "Acronyms and abbreviations"
- remove chapter 3.2.2 "HIS" completely
- remove reference to HIS document in chapter 4.1 ("HIS Protected OSEK")

SWS\_XCP

=====

- Remove abbreviation HIS from table in chapter 2 Acronyms and abbreviations
- Last change on issue 73567 comment 49-

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.8 Specification Item SRS\_SPAL\_12448

**Trace References:**

RS\_BRF\_02232

**Content:**

<b>Type:</b>	Valid
<b>Description:</b>	In case of a development error detection, all driver modules shall
<b>Rationale:</b>	Uniform behavior of all SPAL modules.
<b>Applies to:</b>	
<b>Use Case:</b>	The development error detection is enabled for a Driver.
<b>Supporting Material:</b>	-

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #78035: SRS requirements refer to BMW specifications

**Problem description:**

AUTOSAR documents shall not relate to any particular company. The requirements below reference various BMW specifications and have to be corrected.

Document: SRS\_EEPROMDriver:

---

[SRS\_Eep\_00087] The EEPROM driver shall provide an asynchronous read function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00088] The EEPROM driver shall provide an asynchronous write function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00089] The EEPROM driver shall provide an asynchronous erase function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00090] The EEPROM driver shall provide a synchronous cancel function

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00091] The EEPROM driver shall provide a synchronous function which returns the job processing status

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00096] EEPROM driver static shall be configured

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00092] The EEPROM driver shall only write data if at least one data value of the affected erasable block is different from the data value to be written

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00094] The EEPROM driver shall handle the EEPROM memory segmentation

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_00095] The EEPROM driver shall handle only one job at the same time

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12047] The EEPROM driver shall provide a function that has to be called for job processing

"Supporting Material: BMW Specification MCAL V1.0a"

[SRS\_Eep\_12050] The job processing function of the EEPROM driver shall process only as much data as the EEPROM hardware can handle

"Supporting Material: BMW Specification MCAL V1.0a"

Document: SRS\_SPALGeneral:

---

[SRS\_SPAL\_12056] All driver modules shall allow the static configuration of notification mechanism

"Supporting Material: BMW Specification MCAL V1.0a, [...]"

[SRS\_SPAL\_12057] All driver modules shall implement an interface for initialization

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.0.0"

[SRS\_SPAL\_12063] All driver modules shall only support raw value mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.6.0"

[SRS\_SPAL\_12064] All driver modules shall raise an error if the change of the operation mode leads to degradation of running operations

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.2"

SRS\_SPAL\_12067 All driver modules shall set their wake-up conditions depending on the selected operation mode

"Supporting Material: BMW Specification MCAL V1.0a, MAL1.5.0"

Document: SRS\_PWMDriver:

---

[SRS\_Pwm\_12293] The PWM driver shall allow the static configuration of PWM channel properties

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4 The idle level configuration covers the active phase requirement from Hella.

[SRS\_Pwm\_12295] The PWM driver shall provide a service for setting the duty cycle of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.x"

[SRS\_Pwm\_12297] The PWM driver shall provide a service for setting the period of a selected channel

"Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0; Kojak movies (in case you do not know Kojak)"

Document: SRS\_BSWGeneral:

---

## Chapter 5 "General Requirements on Basic Software"

The ECU application experience is taken from the following concrete applications:

Sunroof and power window ECU

Diesel engine ECU

ESP ECU

BMW, DC and VW standard software packages (Standard Core, Standard Software Platform, Standard Software Core) including OSEK OS, communication modules, bootloader, basic diagnostic functions for the domains listed above

Infotainment control ECU

[SRS\_BSW\_00305] Data types naming convention

"Supporting Material: BMW Standard Core Programming Guidelines"

Document: SRS\_COM:

---

[SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages

"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, particularly for future concepts running at BMW (reuse an ECU within another vehicle product line with different and incompatible communication layouts)."

Document: SRS\_ADCDriver:

---

[SRS\_Adc\_12280] The ADC Driver shall allow a specific result access modes for each ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.2.0."

[SRS\_Adc\_12283] The ADC driver shall mask out information bits from the conversion result not belonging to the ADC value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.1."

[SRS\_Adc\_12819] The ADC Driver shall provide a synchronous service for reading the last valid conversion results of the selected channel group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12291] The ADC Driver shall provide a service for querying the status of an ADC Channel Group

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12288] Based on the channel group configuration the ADC driver shall be able to handle the buffers of stream jobs

"Supporting Material: BMW Specification MCAL V1.0a."

[SRS\_Adc\_12292] If the ADC provides signed values, the ADC driver shall put the sign bit into the MSB of the return value

"Supporting Material: BMW Specification MCAL V1.0a, MAL14.4.2."

Document: SRS\_DIODriver:

---

[SRS\_Dio\_12003] The DIO Driver shall provide a service that writes a data word to the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.0"

[SRS\_Dio\_12004] The DIO Driver shall provide a service that writes a selectable number of adjoining bits to an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.3.1"

[SRS\_Dio\_12005] The DIO Driver shall provide a service for write access to single DIO channels

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12006] The DIO Driver shall provide a service for reading a data word from the assigned DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.0"

[SRS\_Dio\_12007] The DIO Driver shall provide a service for reading a selectable number of adjoining bits from an assigned part of a DIO port

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.4.1"

[SRS\_Dio\_12008] The DIO Driver shall provide a service for reading one bit of an assigned DIO channel

"Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.6.0"

**Agreed solution:**

CP\_SRS\_ADCCDriver

SRS\_Adc\_12280, SRS\_Adc\_12283, SRS\_Adc\_12819, SRS\_Adc\_12291,  
 SRS\_Adc\_12288, SRS\_Adc\_12292

Change from:

Supporting Material: BMW Specification MCAL V1.0a, [...]  
to:  
Supporting Material: –

====

CP\_SRS\_BSWGeneral  
replace "BMW Standard Core Programming Guidelines" by "-" in SRS\_BSW\_00305

====

CP\_SRS\_COM  
Update [SRS\_Com\_00177] AUTOSAR COM and LargeDataCOM shall support multiple configuration stages  
"Use Case: It must be possible to configure the handled bus frames after compile- or build-time, for example when reusing an ECU within another vehicle product line with different and incompatible communication layouts."

====

CP\_SRS\_DIODriver

SRS\_Dio\_12003, SRS\_Dio\_12004, SRS\_Dio\_12005, SRS\_Dio\_12006,  
SRS\_Dio\_12007, SRS\_Dio\_12008

Change from:  
Supporting Material: BMW Specification MCAL V1.0a, REQ MAL10.x.x  
to:  
Supporting Material: –

====

CP\_SRS\_EEPROMDriver

SRS\_Eep\_00087, SRS\_Eep\_00088, SRS\_Eep\_00089, SRS\_Eep\_00090,  
SRS\_Eep\_00091, SRS\_Eep\_00092, SRS\_Eep\_00094, SRS\_Eep\_00095,  
SRS\_Eep\_00096, SRS\_Eep\_12047, SRS\_Eep\_12050

Change from:  
Supporting Material: BMW Specification MCAL V1.0a  
to:  
Supporting Material: –

====

CP\_SRS\_PWMDriver

SRS\_Pwm\_12293:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.1.4. The idle level configuration covers the active phase requirement from Hella.

Change to:

Supporting Material: –

SRS\_Pwm\_12295:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.x

Change to:

Supporting Material: –

SRS\_Pwm\_12297:

Change from:

Supporting Material: BMW Specification MCAL V1.0a, MAL13.8.0. Kojak movies (in case you do not know Kojak)

Change to:

Supporting Material: –

===

CP\_SRS\_SPALGeneral

SRS\_SPAL\_12056, SRS\_SPAL\_12057, SRS\_SPAL\_12063, SRS\_SPAL\_12064,  
 SRS\_SPAL\_12067

Change from:

Supporting Material: BMW Specification MCAL V1.0a, ...

to:

Supporting Material: –

–Last change on issue 78035 comment 14–

**BW-C-Level:**

Application	Specification	Bus
1	1	1