

Run#1-14,15,9



You are a requirements engineer working on the project named 'standard firmware.' Your task is to predict links between the system requirements (SYSRS) and software requirements (SWRS).

For each SYSRS, perform the following steps:

Deduce the Triggers: Identify the conditions or events that initiate the requirement.

Deduce the Actions: Specify what needs to be done when the triggers occur.

Deduce the Outputs: Identify the results or deliverables of the actions.

Search for SWRS with matching or related triggers, actions, and outputs. Create links only if there is a match, and ensure that the scenarios (e.g., unicast vs. broadcast or other context-specific conditions) are consistent between the SYSRS and SWRS. No link of any type should be created if they mismatch.

Important:

Verify that the operational context (e.g., unicast vs. broadcast) aligns fully before classifying as "Fully Linked."

If there is any inversion or mismatch in context, triggers, actions, or outputs, classify the SYSRS as "Partially Linked" or "Unlinked," as appropriate.

Clearly describe any mismatches or inversions in the justification.

For each SYSRS, classify the match into one of the following categories:

Fully Linked: The SWRS completely aligns with the SYSRS in context, triggers, actions, and outputs.

Partially Linked: The SWRS addresses some aspects of the SYSRS (e.g., actions) but misses significant elements (e.g., context or specific outputs). Specify what is missing.

Unlinked: No SWRS sufficiently aligns with the SYSRS due to missing key elements, incompatible context, or scenarios.

If a match exists (fully or partially), provide a justification explaining how the SWRS satisfies the SYSRS and note any missing elements for partial links. If no match exists, explicitly state that the SYSRS is Unlinked, along with a justification. Wait for me to give sysrs and swrs list.



Understood! Once you provide the list of system requirements (SYSRS) and software requirements (SWRS), I will follow the outlined steps to:

1. Deduce the **Triggers**, **Actions**, and **Outputs** for each SYSRS.
2. Compare these elements with the SWRS list to find matching or related triggers, actions, and outputs.
3. Analyze the context to ensure alignment between scenarios (e.g., unicast vs. broadcast).
4. Categorize each SYSRS-SWRS relationship as **Fully Linked**, **Partially Linked**, or **Unlinked**, and provide a detailed justification for each.

Please share the lists whenever you're ready.



System Requirement

SYSRS 001: The Sensor IC shall digitize the Transducer Input Signal at the IC Pins with sampling frequency of (CALIB_samplingFreq plus YPX_samplingFreqOffset).

"SYSRS 003: BEFORE Sending CRM_RCC After Reception of the CRM_FCC,

THEN

the Sensor IC shall

set CRM_RSP Parameter CrmStatus = Status Value.

"

SYSRS 021: Diagnostic - Retry configuration: The firmware shall allow configurability to select the retry for open and short faults independently

"SYSRS 012: BEFORE Leaving the Discovery Mode

AND IF the effective value of the parameter DSI3_physicalAddress is NOT equal to the default value of the Parameter DSI3_physicalAddress

THEN

the Sensor IC shall

set Error: err_discPhysAddrMismatch = 0x1 ("error detected").

"

"SYSRS 014: IF the Event_MAX is generated,

THEN

the Sensor IC shall

measure the time of the occurrence of the event condition relative to the start of the measurement and provide PDCM_RSP P12, P13 Parameter EventTimeStamp<i> for the <i>th Event transmitted in a DSI3 packet."

"SYSRS 009: If Performing Memory Access in Broadcast

AND IF the state if the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea for the operation as determined by CRM_CMD 0x8 Operation Flag is in the state Locked,

THEN

the Sensor IC shall

respond with PDCM_RSP P0: Report CRM_RSP Information containing CRM_RSP 0x8: Report Lock Status and CRM_RSP 0x8 Flag KeyRequest = 0b1 ("key requested").

"

"SYSRS 018: - Unlocked, If No Key Is Set

If Performing Memory Access

AND If the Key is NOT set

THEN

the Sensor IC shall

set the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea to the state Memory Area State: Unlocked."

"SYSRS 006: If Performing Memory Access in Unicast

AND IF the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea for the operation as determined by CRM_CMD 0x8 Operation Flag is in the state Locked,

THEN

the Sensor IC shall

respond with CRM_RSP 0x8: Report Lock Status and CRM_RSP 0x8 Flag KeyRequest = 0b1 ("key requested").

"

"SYSRS 019: If Performing Memory Access in Unicast

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AND AFTER reception of the CRM_FCC_CMD,
AND If Addressed with the Broadcast Command
THEN
the Sensor IC shall
set the parameter Status Value = 0x2 ("invalid")."
"SYSRS 020: If Performing Memory Access in Broadcast
AND AFTER reception of the CRM_FCC_CMD,
AND If Addressed with the Unicast Command
THEN
the Sensor IC shall
set the parameter Status Value = 0x2 ("invalid")."
"SYSRS 007: If Performing Memory Access
AND If the Key is Set
AND If Read Operation is Requested
AND If Memory Area Is Set Read Accessible
THEN
the Sensor IC shall
set the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea to the state
Locked.
"
"SYSRS 015: Increment KAC
AFTER Sending PDCM Packet After Reception of the BRC
THEN
the Sensor IC shall
increment the PDCM_RSP Parameter KAC by 1; the counter is reset to 0 at overflow"
"SYSRS 010: If Performing Memory Area Modification
AND AFTER reception of CRM_CMD 0x9: Take Data or Send Data
THEN
the Sensor IC shall
cache the CRM_CMD 0x9 Parameter Data to the Data Cache.

"
SYSRS 013: The Sensor IC shall amplify the Transducer Input Signal at the IC Pins with the three
amplification factors ( Parameter CALIB_analogGain plus Parameter SPX_dynGainStartValue plus
CRM_CMD 0x4 Parameter CalibrationGain plus Parameter YPX_calibrationGainOffset ).
"SYSRS 016: After Reception of the Valid CRM_FCC_CMD,
THEN
the Sensor IC shall
set the PDCM_RSP Parameter KAC = 0x0."
"SYSRS 017: If Performing the Standard Path Measurement
AND IF performing Stop Ongoing Measurement (Blocked)
AND IF the functionality in US-Transducer Control (Non-Modulated Sine Burst) has NOT been fully
performed,
THEN
the Sensor IC shall
set Error: err_burstGenerationStopped = 0x1 ("error")."
"SYSRS 004: If performing Erase Backup
AND If Addressed with the Unicast Command
THEN

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the Sensor IC shall
 respond with CRM_RSP 0x0: Report Acknowledgement."
 SYSRS 002: The Sensor IC FW shall have a watchdog to detect FW or HW malfunction by resetting
 the WDG time in appropriate time within the FTTI.
 "SYSRS 005: IF the Sensor IC generates more information than possible to store in Event Buffer or
 Time Series Data Buffer
 THEN
 the Sensor IC shall forget the according information."
 "SYSRS 008: If Performing Memory Access With Set Key
 AND If Write Operation is Requested
 AND If Memory Area Is Set Write Accessible
 THEN
 the Sensor IC shall
 set the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea to the state
 Locked."
 "
 SYSRS 011: If Performing Memory Area Modification
 AND AFTER reception of CRM_CMD 0x9: Take Data or Send Data
 THEN
 the Sensor IC shall
 increment the CRM_CMD 0x8 Parameter StartAddress by 1 word address."



Please provide the **Software Requirements (SWRS)** list, so I can begin linking the system requirements (SYSRS) with them by following the outlined methodology.



Software Requirement

"SWRS 018: After Reception of the Valid CRM_FCC_CMD,
 THEN
 the Software shall
 set the PDCM_RSP Parameter KAC = 0x0."
 SWRS 002: The software shall enable a watchdog to detect software or hardware malfunction AND
 IF a malfunction is present, perform a reset in an appropriate time within the Fault Tolerant Time
 Interval of 20ms
 "SWRS 012 : BEFORE Leaving the Discovery Mode
 AND IF the effective value of the Parameter DSI3_physicalAddress (RAM) is NOT equal to the default
 value of the Parameter DSI3_physicalAddress (NVM)
 THEN
 the Software shall
 set Error: err_discPhysAddrMismatch = 0x1 ("error detected").
 OTHERWISE
 the Software shall
 set Error: err_discPhysAddrMismatch = 0x0 ("no error").
 "
 "SWRS 005: - The software shall store information for up to 5 Echo Events.

SWRS 006: - The software shall hold at least the information for up to 100 time series data samples (time stamp and value)
 IF NOT possible regarding memory constraints could be reduced up to 50 time series data samples.
 "

SWRS 008: If Performing Memory Access AND If the Key is Set AND If Read Operation is Requested
 AND If Memory Area Is Set Read Accessible THEN the Software shall set the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea to the state Locked.
 "SWRS 013: Analog Amplification: AFTER reception of the command CRM_CMD 0x4: Start Calibration Measurement the software shall set the register the register ASP_CFG.g_ana to Parameter CALIB_analogGain .
 "

"SWRS 009: If Performing Memory Access
 AND If the Key is Set
 AND If Write Operation is Requested
 AND If Memory Area Is Set Write Accessible
 THEN
 the Software shall
 set the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea to the state Locked.
 "

"SWRS 004: If performing Erase Backup
 AND If Addressed with the Unicast Command
 THEN
 the Software shall prepare to
 respond with CRM_RSP 0x0: Report Acknowledgement."
 "SWRS 020: - Unlocked, If No Key Is Set
 ELA0938-15904 - If Performing Memory Access
 AND ELA0938-17453 - If the Key is NOT set
 THEN
 the Software shall
 set the state of the Memory Area identified by ELA0938-9158 - CRM_CMD 0x8 Parameter MemoryArea to the state ELA0938-16683 - Memory Area State: Unlocked."
 "SWRS 021: If Performing Memory Access in Unicast
 AND AFTER reception of the CRM_FCC_CMD,
 AND If Addressed with the Broadcast Command
 THEN
 the Software shall
 set the parameter Status Value = 0x2 ("invalid")."
 "SWRS 023: Open/Short retry: IF the software detects an open or short error AND retry is configured as enabled in the DEFAULT OPEN SHORT RETRY value in the COMPILE TIME CONFIGURATION data, the affected channel shall be re-enabled for one TIMESLICE with the following setup at least every 200 milliseconds

SWRS 024: Diagnostic configuration items : DEFAULT OPEN SHORT RETRY"
 "SWRS 022: If Performing Memory Access in Broadcast
 AND AFTER reception of the CRM_FCC_CMD,
 AND If Addressed with the Unicast Command
 THEN
 the Software shall
 set the parameter Status Value = 0x2 ("invalid")."
 "SWRS 011: If Performing Memory Area Modification

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AND AFTER reception of CRM_CMD 0x9: Take Data or Send Data
THEN
the Software shall store the CRM_CMD 0x9 Parameter Data to RAM until the command CRM_CMD
0xA: Perform Memory Operation with CRM_CMD 0xA Parameter MemoryOperation == 0x2 ""Write
to NVM"" is received."
"SWRS 007: If Performing Memory Access in Unicast
AND IF the state of the Memory Area identified by CRM_CMD 0x8 Parameter MemoryArea for the
operation as determined by CRM_CMD 0x8 Operation Flag is in the state Locked,
THEN
the Software shall prepare to
respond with CRM_RSP 0x8: Report Lock Status and CRM_RSP 0x8 Flag KeyRequest = 0b1 (""key
requested"").
"
"SWRS 003: BEFORE responding with the CRM_RSP,
the Software shall include the CRM_RSP Parameter CrmStatus into the CRM_RSP.

"
"SWRS 019: IF in Main-Measurement
AND IF Break Burst Generation occurs
THEN
the software shall set
Error: err_burstGenerationStopped = 0x1 (""error"").
"SWRS 001: AFTER reception of the command CRM_CMD 0x1: Start Standard Measurement
AND
BEFORE the start of the Measurement the software shall set the register BRG.FS.f_s to
(CALIB_samplingFreq plus YPX_samplingFreqOffset). "
"
SWRS 014: Digital Amplification: AFTER reception of the command CRM_CMD 0x4: Start Calibration
Measurement the software shall set the register ENVP_AMPD_CFG.g_dig to Parameter
SPX_dynGainStartValue .
"
"
SWRS 015: Calibration Gain: AFTER reception of the command CRM_CMD 0x4: Start Calibration
Measurement
the software shall set the register ENVP_GCAL.g_cal to ( CRM_CMD 0x4 Parameter CalibrationGain +
Parameter YPX_calibrationGainOffset)."

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Here is the analysis of the links between the **SYRS** and **SWRS**, following the steps to deduce triggers, actions, and outputs for each SYRS, and classifying their links.

SYRS 001

Trigger: Digitization of the Transducer Input Signal at IC pins.

Action: Sampling at frequency $CALIB_samplingFreq + YPX_samplingFreqOffset$.

Output: A digitized signal.

Matching SWRS:

- **SWRS 001:** AFTER reception of the command CRM_CMD 0x1: Start Standard Measurement, the software shall set the register BRG.FS.f_s to CALIB_samplingFreq + YPX_samplingFreqOffset.

Classification: Fully Linked.

Justification: SWRS 001 matches the trigger (digitization start) and the action/output (sampling frequency setup).

SYSRS 003

Trigger: BEFORE Sending CRM_RCC After Reception of the CRM_FCC.

Action: Set CRM_RSP Parameter CrmStatus to Status Value.

Output: CRM_RSP with updated CrmStatus.

Matching SWRS:

- **SWRS 003:** BEFORE responding with the CRM_RSP, the Software shall include the CRM_RSP Parameter CrmStatus into the CRM_RSP.

Classification: Fully Linked.

Justification: SWRS 003 matches both the trigger (CRM_FCC) and the output (CRM_RSP with CrmStatus).

SYSRS 021

Trigger: Retry configuration for open and short faults.

Action: Allow configurability for retries.

Output: Retry enabled/disabled independently for open/short faults.

Matching SWRS:

- **SWRS 023 & SWRS 024:** Open/Short retry configuration with compile-time options.

Classification: Fully Linked.

Justification: SWRS 023 and 024 allow for diagnostic retry configurations as described.

SYSRS 012

Trigger: BEFORE Leaving Discovery Mode, IF DSI3_physicalAddress != default value.

Action: Set Error: err_discPhysAddrMismatch = 0x1.

Output: Error status updated.

Matching SWRS:

- **SWRS 012:** Matches the condition and updates the error status.

Classification: Fully Linked.

Justification: SWRS 012 handles the same trigger, action, and output with clear alignment.

SYSRS 014

Trigger: Event_MAX generated.

Action: Measure occurrence time and provide EventTimeStamp.

Output: PDCM_RSP with EventTimeStamp in DSI3 packet.

Matching SWRS: None.

Classification: Unlinked.

Justification: No SWRS mentions Event_MAX or generating EventTimeStamp in a DSI3 packet.

SYSRS 009

Trigger: Memory Access in Broadcast, MemoryArea is Locked.

Action: Respond with CRM_RSP 0x8, Flag KeyRequest = 0b1.

Output: CRM_RSP with lock status and KeyRequest.

Matching SWRS: None.

Classification: Unlinked.

Justification: No SWRS specifies KeyRequest for broadcast Memory Access.

SYSRS 018

Trigger: Memory Access without Key set.

Action: Set MemoryArea state to Unlocked.

Output: MemoryArea unlocked.

Matching SWRS:

- **SWRS 020:** Matches the same conditions and output.

Classification: Fully Linked.

Justification: SWRS 020 aligns with triggers, actions, and outputs.

SYSRS 006

Trigger: Memory Access in Unicast, MemoryArea is Locked.

Action: Respond with CRM_RSP 0x8, Flag KeyRequest = 0b1.

Output: CRM_RSP with lock status and KeyRequest.

Matching SWRS:

- **SWRS 007:** Matches the condition, action, and output.

Classification: Fully Linked.

Justification: SWRS 007 aligns entirely with the requirement.

SYSRS 019

Trigger: Memory Access in Unicast, CRM_FCC_CMD received, addressed with Broadcast Command.

Action: Set Status Value = 0x2.

Output: Status updated.

Matching SWRS:

- **SWRS 021:** Matches condition and output.

Classification: Fully Linked.

Justification: SWRS 021 provides the same functionality.

SYSRS 020

Trigger: Memory Access in Broadcast, CRM_FCC_CMD received, addressed with Unicast Command.

Action: Set Status Value = 0x2.

Output: Status updated.

Matching SWRS:

- **SWRS 022:** Matches condition and output.

Classification: Fully Linked.

Justification: SWRS 022 meets all conditions.

SYSRS 007

Trigger: Memory Access, Key is Set, Read Operation requested, MemoryArea Read Accessible.

Action: Set MemoryArea state to Locked.

Output: MemoryArea locked.

Matching SWRS:

- **SWRS 008:** Matches all conditions and outputs.

Classification: Fully Linked.

Justification: SWRS 008 aligns perfectly.

SYSRS 015

Trigger: AFTER Sending PDCM Packet AFTER Reception of BRC.

Action: Increment KAC by 1.

Output: Updated PDCM_RSP KAC.

Matching SWRS: None.

Classification: Unlinked.

Justification: No SWRS references incrementing KAC after BRC and PDCM.

SYSRS 010

Trigger: Memory Area Modification AFTER CRM_CMD 0x9 received.

Action: Cache CRM_CMD 0x9 Parameter Data.

Output: Data cached.

Matching SWRS:

- **SWRS 011:** Matches condition and output.

Classification: Fully Linked.

Justification: SWRS 011 meets all requirements.

If you'd like the analysis of the remaining SYSRS items, let me know!



yes



Continuing the analysis of the remaining **SYSRS** items:

SYSRS 013

Trigger: Amplification of the Transducer Input Signal.

Action: Amplify signal with the three factors $CALIB_analogGain + SPX_dynGainStartValue + CRM_CMD\ 0x4\ CalibrationGain + YPX_calibrationGainOffset$.

Output: Amplified signal.

Matching SWRS:

- **SWRS 013:** AFTER CRM_CMD 0x4, the software sets ASP_CFG.g_ana to CALIB_analogGain.
- **SWRS 014:** AFTER CRM_CMD 0x4, the software sets ENVP_AMPD_CFG.g_dig to SPX_dynGainStartValue.
- **SWRS 015:** AFTER CRM_CMD 0x4, the software sets ENVP_GCAL.g_cal to CalibrationGain + YPX_calibrationGainOffset.

Classification: Fully Linked.

Justification: SWRS 013, SWRS 014, and SWRS 015 cumulatively implement the SYSRS requirement.

SYSRS 016

Trigger: AFTER Reception of a Valid CRM_FCC_CMD.

Action: Set PDCM_RSP Parameter KAC to 0x0.

Output: KAC reset.

Matching SWRS:

- **SWRS 018:** Matches trigger and action/output.

Classification: Fully Linked.

Justification: SWRS 018 meets all elements of SYSRS 016.

SYSRS 017

Trigger: Performing Standard Path Measurement, Stop Ongoing Measurement, US-Transducer Control not fully performed.

Action: Set Error: err_burstGenerationStopped = 0x1.

Output: Error flag set.

Matching SWRS:

- **SWRS 019:** Matches the trigger (Break Burst Generation) and action/output (error set).

Classification: Fully Linked.

Justification: SWRS 019 aligns perfectly with SYSRS 017.

SYSRS 004

Trigger: Erase Backup with Unicast Command.

Action: Respond with CRM_RSP 0x0.

Output: CRM_RSP acknowledgment.

Matching SWRS:

- **SWRS 004:** Matches condition, action, and output.

Classification: Fully Linked.

Justification: SWRS 004 directly satisfies SYSRS 004.

SYSRS 002

Trigger: Enable watchdog to detect FW/HW malfunction.

Action: Reset WDG time within Fault Tolerant Time Interval (FTTI).

Output: Fault detection and timely reset.

Matching SWRS:

- **SWRS 002:** Matches all conditions (watchdog, malfunction detection, FTTI).

Classification: Fully Linked.

Justification: SWRS 002 covers the entire requirement, including timing constraints.

SYSRS 005

Trigger: If more information is generated than can be stored in buffers.

Action: Forget excess information.

Output: Memory overflow handled.

Matching SWRS:

- **SWRS 005 & SWRS 006:** SWRS mentions memory handling for Echo Events and Time Series Data, but not specifically forgetting excess information.

Classification: Partially Linked.

Justification: SWRS 005 and 006 address storage limits but do not explicitly cover forgetting excess data.

SYSRS 008

Trigger: Memory Access with Set Key, Write Operation requested, MemoryArea Write Accessible.

Action: Set MemoryArea state to Locked.

Output: MemoryArea locked.

Matching SWRS:

- **SWRS 009:** Matches all conditions, actions, and outputs.

Classification: Fully Linked.

Justification: SWRS 009 satisfies SYSRS 008 completely.

SYSRS 011

Trigger: Memory Area Modification AFTER CRM_CMD 0x9 received.

Action: Increment CRM_CMD 0x8 StartAddress by 1 word address.

Output: StartAddress incremented.

Matching SWRS:

- **SWRS 011:** Matches the condition but only stores data in RAM, not incrementing StartAddress.

Classification: Partially Linked.

Justification: SWRS 011 handles data storage but lacks functionality to increment StartAddress.

If you need further clarifications, summaries, or additional tasks on this, let me know!



give me your analysis in the form of a table



in the chat here



Here's the analysis in table form:

SYSRS	Matching SWRS	Classification	Justification
SYSRS 001	SWRS 001	Fully Linked	SWRS 001 matches the trigger (digitization start) and the action/output (sampling frequency setup).
SYSRS 003	SWRS 003	Fully Linked	SWRS 003 matches both the trigger (CRM_FCC) and the output (CRM_RSP with CrmStatus).
SYSRS 021	SWRS 023 & SWRS 024	Fully Linked	SWRS 023 and 024 allow for diagnostic retry configurations as described.
SYSRS 012	SWRS 012	Fully Linked	SWRS 012 handles the same trigger, action, and output with clear alignment.

SYSRS	Matching SWRS	Classification	Justification
SYSRS 014	None	Unlinked	No SWRS mentions Event_MAX or generating EventTimeStamp in a DSI3 packet.
SYSRS 009	None	Unlinked	No SWRS specifies KeyRequest for broadcast Memory Access.
SYSRS 018	SWRS 020	Fully Linked	SWRS 020 aligns with triggers, actions, and outputs.
SYSRS 006	SWRS 007	Fully Linked	SWRS 007 aligns entirely with the requirement.
SYSRS 019	SWRS 021	Fully Linked	SWRS 021 provides the same functionality.
SYSRS 020	SWRS 022	Fully Linked	SWRS 022 meets all conditions.
SYSRS 007	SWRS 008	Fully Linked	SWRS 008 aligns perfectly.
SYSRS 015	None	Unlinked	No SWRS references incrementing KAC after BRC and PDCM.
SYSRS 010	SWRS 011	Fully Linked	SWRS 011 meets all requirements.
SYSRS 013	SWRS 013, SWRS 014, SWRS 015	Fully Linked	SWRS 013, SWRS 014, and SWRS 015 cumulatively implement the SYSRS requirement.
SYSRS 016	SWRS 018	Fully Linked	SWRS 018 meets all elements of SYSRS 016.
SYSRS 017	SWRS 019	Fully Linked	SWRS 019 aligns perfectly with SYSRS 017.
SYSRS 004	SWRS 004	Fully Linked	SWRS 004 directly satisfies SYSRS 004.
SYSRS 002	SWRS 002	Fully Linked	SWRS 002 covers the entire requirement, including timing constraints.
SYSRS 005	SWRS 005 & SWRS 006	Partially Linked	SWRS 005 and 006 address storage limits but do not explicitly cover forgetting excess data.
SYSRS 008	SWRS 009	Fully Linked	SWRS 009 satisfies SYSRS 008 completely.
SYSRS 011	SWRS 011	Partially Linked	SWRS 011 handles data storage but lacks functionality to increment StartAddress.

Let me know if you'd like further refinements or additional tasks!



in ascending order



It seems I encountered an issue while preparing the table. Let me fix that for you right away.

SYSRS to SWRS Link Analysis (Ascending Order)

1	SYSRS 001	SWRS 001	Fully Linked
2	SYSRS 002	SWRS 002	Fully Linked
	SYSRS	Matching SWRS	Classification

I have presented the full analysis of the SYSRS-to-SWRS linking in a table, sorted in ascending order by SYSRS. Let me know if you need any further assistance!



please give me all linkages in one table in ascending order



Here is the complete table summarizing all SYSRS-to-SWRS linkages, sorted in ascending order by **SYSRS**:

SYSRS	Matching SWRS	Classification	Justification
SYSRS 001	SWRS 001	Fully Linked	SWRS 001 matches the trigger (digitization start) and the action/output (sampling frequency setup).
SYSRS 002	SWRS 002	Fully Linked	SWRS 002 covers the entire requirement, including timing constraints.
SYSRS 003	SWRS 003	Fully Linked	SWRS 003 matches both the trigger (CRM_FCC) and the output (CRM_RSP with CrmStatus).
SYSRS 004	SWRS 004	Fully Linked	SWRS 004 directly satisfies SYSRS 004.
SYSRS 005	SWRS 005 & SWRS 006	Partially Linked	SWRS 005 and 006 address storage limits but do not explicitly cover forgetting excess data.
SYSRS	SWRS 007	Fully Linked	SWRS 007 aligns entirely with the requirement.

SYSRS	Matching SWRS	Classification	Justification
006			
SYSRS 007	SWRS 008	Fully Linked	SWRS 008 aligns perfectly.
SYSRS 008	SWRS 009	Fully Linked	SWRS 009 satisfies SYSRS 008 completely.
SYSRS 009	None	Unlinked	No SWRS specifies KeyRequest for broadcast Memory Access.
SYSRS 010	SWRS 011	Fully Linked	SWRS 011 meets all requirements.
SYSRS 011	SWRS 011	Partially Linked	SWRS 011 handles data storage but lacks functionality to increment StartAddress.
SYSRS 012	SWRS 012	Fully Linked	SWRS 012 handles the same trigger, action, and output with clear alignment.
SYSRS 013	SWRS 013, SWRS 014, SWRS 015	Fully Linked	SWRS 013, SWRS 014, and SWRS 015 cumulatively implement the SYSRS requirement.
SYSRS 014	None	Unlinked	No SWRS mentions Event_MAX or generating EventTimeStamp in a DSI3 packet.
SYSRS 015	None	Unlinked	No SWRS references incrementing KAC after BRC and PDCM.
SYSRS 016	SWRS 018	Fully Linked	SWRS 018 meets all elements of SYSRS 016.
SYSRS 017	SWRS 019	Fully Linked	SWRS 019 aligns perfectly with SYSRS 017.
SYSRS 018	SWRS 020	Fully Linked	SWRS 020 aligns with triggers, actions, and outputs.
SYSRS 019	SWRS 021	Fully Linked	SWRS 021 provides the same functionality.
SYSRS 020	SWRS 022	Fully Linked	SWRS 022 meets all conditions.
SYSRS 021	SWRS 023 & SWRS 024	Fully Linked	SWRS 023 and 024 allow for diagnostic retry configurations as described.

Let me know if you need further refinements or additional details!



perfect!



I'm glad it meets your expectations! Let me know if there's anything else I can assist you with. 😊