Test Report

32

CAN Conformance

V850E2 / DK4-H

32-bit Single-Chip Microcontroller

µPD70(F)3529

Renesas Electronics
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General Precautions in the Handling of MPU/MCU Products

The following usage notes are applicable to all MPU/MCU products from Renesas. For detailed usage notes on the products covered by this manual, refer to the relevant sections of the manual. If the descriptions under General Precautions in the Handling of MPU/MCU Products and in the body of the manual differ from each other, the description in the body of the manual takes precedence.

1. Handling of unused Pins

   Handle unused pins in accord with the directions given under Handling of Unused Pins in the manual.

   – The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible. Unused pins should be handled as described under Handling of Unused Pins in the manual.

2. Processing at power-on

   The state of the product is undefined at the moment when power is supplied.

   – The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the moment when power is supplied.

     In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the moment when power is supplied until the reset process is completed.

     In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the moment when power is supplied until the power reaches the level at which resetting has been specified.

3. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited.

   – The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

4. Clock signals

   After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has stabilized.

   – When the clock signal is generated with an external resonator (or from an external oscillator) during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Moreover, when switching to a clock signal produced with an external resonator (or by an external oscillator) while program execution is in progress, wait until the target clock signal is stable.

5. Differences between products

   Before changing from one product to another, i.e. to one with a different part number, confirm that the change will not lead to problems.

   – The characteristics of MPU/MCU in the same group but having different part numbers may differ because of the differences in internal memory capacity and layout pattern. When changing to products of different part numbers, implement a system-evaluation test for each of the products.

Table of Contents

Chapter 1 Certification

1.1 Authentication

Renesas owns a licensed and maintained CAN Conformance Test Suite from C&S. The CAN Conformance Tests are performed by using this CAN Conformance Test Suite. See the Appendix section for the authentification certificate from C&S.

1.2 Preamble

This report is also valid for all subsequent versions of the device, including production versions, unless the FCN macro itself, its layout (i.e. metal layer fixes) or its interconnection had been functionally changed, herewith causing a re-evaluation necessity and replacement of this report.
The report is also valid for the ROM derivatives of the device, which have the same device number, but without the (F) letter.

1.3 Concerned Products and Tested Object

The test was executed on the FCN implementation on 70F3529, DS1.0, which comprises a 3-channel FCN interface. For each FCN interface, one single channel test (CCT) was applied.

The following products are covered by this CAN Conformance Test, due to identical CAN macro implementations:

µPD70(F)3529

The tested products are containing the FCN interface version FCN 0C11 - V1.

1.4 Certification

All executed tests did not show any failures that would indicate any functional errors.

The FCN macro as implemented in the device 70F3529, DS1.0 (and higher), and all other devices mentioned within the “Concerned Products” sections, are conform to ISO 11898. This has been tested according to ISO 16845. The test cases for ISO certification (ISO) and Bit-Timing (BT) have all been executed successfully.

Further, the FCN macro as implemented in the device 70F3529, DS1.0 (and higher), and all other devices mentioned within the “Concerned Products” sections, have been tested with additional Processor Interface (PI), Special (SPI), and Robustness (ROB) tests. These tests are classifying the FCN macro to have good stability in their user (processor) interface and on high loaded CAN-Bus applications.

Chapter 2 Test Environment

2.1 CAN Conformance Test System Overview

The block diagram below illustrates the test setup according to the ISO reference model.

All tests applied to the Implementation Under Test (IUT), which is the tested device, are located on the Lower Tester (LT). The Upper Tester (UT) is represented by device specific software. The UT is responsible for the support of the test sequence, because not all test can be performed by the FCN macro autonomously.

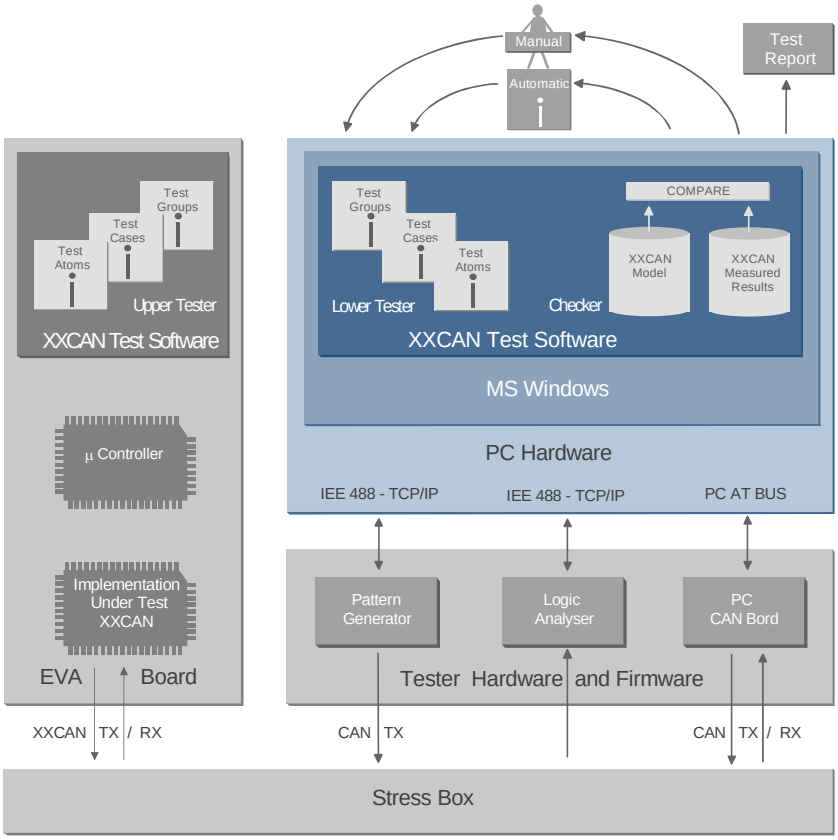

Figure 2-1 CAN Conformance Test System Overview

2.2 Test Scopes

There are 3 types of tests that at least need to be applied to verify the correct behavior of the FCN macro:

- CAN Conformance Test (CCT): About 680 testcases for the message level test (ISO) and about 350 Bit-Timing (BT) testcases per channel.
- Processor Interface Test (PCIF): 753 tests per channel, standard (PI) and special tests (SPI).
- Robustness Test (ROB): 32 tests per channel, running from 1 hour up to 4 hours per test, including error injection.

2.3 CAN Conformance Tests according to ISO 16845

The testscope for the CCT is the verification of the CAN protocol. The ISO document defines 150 test items. Each test item comprises several elementary tests that take account to the permutations of the value of message objects (i.e. identifiers, data length codes). The CCT can be divided into message level test and bit timing tests.

2.3.1 Message Level Tests

Message level tests are executed at a baudrate of 100 kBaud. There are 6 test classes defined:

- Valid frame format
- Error detection
- Error frame management
- Overload frame management
- Passive error state
- Error counter management

Every test class is applied for transmitted, received, and remote frames separately leading to a total of about 680 elementary tests.

2.3.2 Bit Timing Tests

The bit timing tests are grouped in a separate test class. Each test needs to be executed individually for wide spectrum of baud rates. For the CAN Conformance Tester from C&S, a dedicated generator creates for selectable baudrates, the set of bit-timing testcases. Within this test, used baudrates are:

- 1000 kbit/s
- 500 kbit/s
- 250 kbit/s
- 200 kbit/s
- 125 kbit/s
- 100 kbit/s

In the course of these tests, numerous permutations of pre-scalar settings versus sample point positions and synchronization settings are applied.

2.3.3 Processor Interface Tests (PCIF)

The second group of tests targets the interaction between the FCN macro and the processor. Interrupts, special operating modes (i.e. sleep, stop mode) and the addressing of message buffers including masking of these are checked by the PCIF tests. Every mask is tested individually for each message buffer. For the FCN macro in 70F3529, there are 753 tests available.

2.3.4 Robustness Tests

In order to prove the real-time behavior of the FCN, robustness tests needs to be run. These tests penetrate the device with 100% busload for a given time. Substantial tests however require at least 1.000.000 frames, which have been executed. The tests use pseudo random patterns for the generation of message identifiers. The tests are applied with and without error injection.

Robustness tests are executed at the baudrates: 100 kbit/s, 250 kbit/s, 500 kbit/s and 1000 kbit/s.

Chapter 3 IUT Configurations

3.1 Tested Configurations

The device 70F3529 was tested in the configurations shown in the table below. This means, that for each indicated test set of a configuration, all tests of this test set have been run for all configurations.

Testsets	Baudrate[a]	CPU Clock Setting	FCN macro clock setting	FCN macro channel tested	Port I/O Selection	
					Transmit	Receive
ISO, PI, SPI	100 kbit/s	80 MHz PLL	40 MHz PLL divided, Macro Prescaler Factor /2	0	P0.4	P0.5
				1	P0.7	P0.6
				2	P0.9	P0.8
ROB, BT	variable			0	P0.4	P0.5
				1	P0.7	P0.6
				2	P0.9	P0.8

a) "Variable": See "Used Bit Timing Test Settings" on page 34.

Table 3-1 Configurations of IUT

All other configuration settings are applied according to the actual User's Manual of 70F3529.

Chapter 4 Detailed Test Results

4.1 ISO Tests

Reference	Name	CAN Version [a]	Verdict	Comment
1.	Receiver Tests			
1.1.	Valid frame format class			
1.1.1.1	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.2	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.3	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.4	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.5	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.6	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.7	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.8	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.1.9	Identifier and number of data test in standard format	A, B, BP	Pass	
1.1.2.1	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.2	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.3	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.4	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.5	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.6	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.7	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.8	Identifier and number of data test in extended format test 1	B	Pass	
1.1.2.9	Identifier and number of data test in extended format test 1	B	Pass	
1.1.3.1	Identifier and number of data test in extended format test 2	BP	Pass	

1.1.3.2	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.3	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.4	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.5	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.6	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.7	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.8	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.3.9	Identifier and number of data test in extended format test 2	BP	Pass	
1.1.4.	Acceptance of « r1,r0 » combination non-nominal value in standard format	A		Not applicable
1.1.5.0	Acceptance of « IDE,r0 » combination non-nominal value in standard format	B, BP	Pass	
1.1.6.1	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.2	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.3	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.4	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.5	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.6	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.6.7	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 1	B	Pass	
1.1.7.1	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.7.2	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.7.3	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.7.4	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.7.5	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.7.6	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	

1.1.7.7	Acceptance of « SRR, r1, r0 » combination non-nominal value in extended format test 2	BP	Pass	
1.1.8.1	DLC greater than 8	A, B, BP	Pass	
1.1.8.2	DLC greater than 8	A, B, BP	Pass	
1.1.8.3	DLC greater than 8	A, B, BP	Pass	
1.1.8.4	DLC greater than 8	A, B, BP	Pass	
1.1.8.5	DLC greater than 8	A, B, BP	Pass	
1.1.8.6	DLC greater than 8	A, B, BP	Pass	
1.1.8.7	DLC greater than 8	A, B, BP	Pass	
1.1.9.1	Absent bus idle	A, B, BP	Pass	
1.1.9.2	Absent bus idle	A, B, BP	Pass	
1.1.10.1	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.2	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.3	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.4	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.5	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.6	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.7	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.8	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.9	Stuff acceptance test 1	A, B, BP	Pass	
1.1.10.10	Stuff acceptance test 1	A, B, BP	Pass	
1.1.11.1	Stuff acceptance test 2	B, BP	Pass	
1.1.11.2	Stuff acceptance test 2	B, BP	Pass	
1.1.11.3	Stuff acceptance test 2	B, BP	Pass	
1.1.11.4	Stuff acceptance test 2	B, BP	Pass	
1.1.11.5	Stuff acceptance test 2	B, BP	Pass	
1.1.11.6	Stuff acceptance test 2	B, BP	Pass	
1.1.11.7	Stuff acceptance test 2	B, BP	Pass	
1.1.12.0	Message validation	A, B, BP	Pass	
1.2.	Error detection class			
1.2.1.0	BIT ERROR in data frame	A, B, BP	Pass	
1.2.2.1	STUFF ERROR test 1	A, B, BP	Pass	

1.2.2.2	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.3	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.4	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.5	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.6	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.7	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.8	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.9	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.10	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.11	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.12	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.13	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.14	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.15	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.16	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.17	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.18	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.19	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.20	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.21	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.22	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.23	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.24	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.25	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.26	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.27	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.28	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.29	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.30	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.31	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.32	STUFF ERROR test 1	A, B, BP	Pass	

1.2.2.33	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.34	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.35	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.36	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.37	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.38	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.39	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.40	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.41	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.42	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.43	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.44	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.45	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.46	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.47	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.48	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.49	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.50	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.51	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.52	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.53	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.54	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.55	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.56	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.57	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.58	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.59	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.60	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.61	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.62	STUFF ERROR test 1	A, B, BP	Pass	
1.2.2.63	STUFF ERROR test 1	A, B, BP	Pass	

1.2.3.1	STUFF ERROR test 2	B, BP	Pass	
1.2.3.2	STUFF ERROR test 2	B, BP	Pass	
1.2.3.3	STUFF ERROR test 2	B, BP	Pass	
1.2.3.4	STUFF ERROR test 2	B, BP	Pass	
1.2.3.5	STUFF ERROR test 2	B, BP	Pass	
1.2.3.6	STUFF ERROR test 2	B, BP	Pass	
1.2.3.7	STUFF ERROR test 2	B, BP	Pass	
1.2.3.8	STUFF ERROR test 2	B, BP	Pass	
1.2.3.9	STUFF ERROR test 2	B, BP	Pass	
1.2.3.10	STUFF ERROR test 2	B, BP	Pass	
1.2.3.11	STUFF ERROR test 2	B, BP	Pass	
1.2.3.12	STUFF ERROR test 2	B, BP	Pass	
1.2.3.13	STUFF ERROR test 2	B, BP	Pass	
1.2.3.14	STUFF ERROR test 2	B, BP	Pass	
1.2.3.15	STUFF ERROR test 2	B, BP	Pass	
1.2.3.16	STUFF ERROR test 2	B, BP	Pass	
1.2.3.17	STUFF ERROR test 2	B, BP	Pass	
1.2.3.18	STUFF ERROR test 2	B, BP	Pass	
1.2.3.19	STUFF ERROR test 2	B, BP	Pass	
1.2.3.20	STUFF ERROR test 2	B, BP	Pass	
1.2.3.21	STUFF ERROR test 2	B, BP	Pass	
1.2.3.22	STUFF ERROR test 2	B, BP	Pass	
1.2.3.23	STUFF ERROR test 2	B, BP	Pass	
1.2.3.24	STUFF ERROR test 2	B, BP	Pass	
1.2.3.25	STUFF ERROR test 2	B, BP	Pass	
1.2.3.26	STUFF ERROR test 2	B, BP	Pass	
1.2.3.27	STUFF ERROR test 2	B, BP	Pass	
1.2.3.28	STUFF ERROR test 2	B, BP	Pass	
1.2.3.29	STUFF ERROR test 2	B, BP	Pass	
1.2.3.30	STUFF ERROR test 2	B, BP	Pass	
1.2.3.31	STUFF ERROR test 2	B, BP	Pass	

1.2.3.32	STUFF ERROR test 2	B, BP	Pass	
1.2.3.33	STUFF ERROR test 2	B, BP	Pass	
1.2.3.34	STUFF ERROR test 2	B, BP	Pass	
1.2.3.35	STUFF ERROR test 2	B, BP	Pass	
1.2.3.36	STUFF ERROR test 2	B, BP	Pass	
1.2.3.37	STUFF ERROR test 2	B, BP	Pass	
1.2.3.38	STUFF ERROR test 2	B, BP	Pass	
1.2.3.39	STUFF ERROR test 2	B, BP	Pass	
1.2.3.40	STUFF ERROR test 2	B, BP	Pass	
1.2.3.41	STUFF ERROR test 2	B, BP	Pass	
1.2.3.42	STUFF ERROR test 2	B, BP	Pass	
1.2.3.43	STUFF ERROR test 2	B, BP	Pass	
1.2.3.44	STUFF ERROR test 2	B, BP	Pass	
1.2.3.45	STUFF ERROR test 2	B, BP	Pass	
1.2.3.46	STUFF ERROR test 2	B, BP	Pass	
1.2.3.47	STUFF ERROR test 2	B, BP	Pass	
1.2.3.48	STUFF ERROR test 2	B, BP	Pass	
1.2.3.49	STUFF ERROR test 2	B, BP	Pass	
1.2.3.50	STUFF ERROR test 2	B, BP	Pass	
1.2.3.51	STUFF ERROR test 2	B, BP	Pass	
1.2.3.52	STUFF ERROR test 2	B, BP	Pass	
1.2.3.53	STUFF ERROR test 2	B, BP	Pass	
1.2.3.54	STUFF ERROR test 2	B, BP	Pass	
1.2.3.55	STUFF ERROR test 2	B, BP	Pass	
1.2.3.56	STUFF ERROR test 2	B, BP	Pass	
1.2.3.57	STUFF ERROR test 2	B, BP	Pass	
1.2.3.58	STUFF ERROR test 2	B, BP	Pass	
1.2.3.59	STUFF ERROR test 2	B, BP	Pass	
1.2.3.60	STUFF ERROR test 2	B, BP	Pass	
1.2.3.61	STUFF ERROR test 2	B, BP	Pass	
1.2.3.62	STUFF ERROR test 2	B, BP	Pass	

1.2.3.63	STUFF ERROR test 2	B, BP	Pass	
1.2.3.64	STUFF ERROR test 2	B, BP	Pass	
1.2.3.65	STUFF ERROR test 2	B, BP	Pass	
1.2.3.66	STUFF ERROR test 2	B, BP	Pass	
1.2.3.67	STUFF ERROR test 2	B, BP	Pass	
1.2.3.68	STUFF ERROR test 2	B, BP	Pass	
1.2.3.69	STUFF ERROR test 2	B, BP	Pass	
1.2.3.70	STUFF ERROR test 2	B, BP	Pass	
1.2.3.71	STUFF ERROR test 2	B, BP	Pass	
1.2.3.72	STUFF ERROR test 2	B, BP	Pass	
1.2.3.73	STUFF ERROR test 2	B, BP	Pass	
1.2.3.74	STUFF ERROR test 2	B, BP	Pass	
1.2.3.75	STUFF ERROR test 2	B, BP	Pass	
1.2.3.76	STUFF ERROR test 2	B, BP	Pass	
1.2.3.77	STUFF ERROR test 2	B, BP	Pass	
1.2.3.78	STUFF ERROR test 2	B, BP	Pass	
1.2.3.79	STUFF ERROR test 2	B, BP	Pass	
1.2.3.80	STUFF ERROR test 2	B, BP	Pass	
1.2.3.81	STUFF ERROR test 2	B, BP	Pass	
1.2.3.82	STUFF ERROR test 2	B, BP	Pass	
1.2.3.83	STUFF ERROR test 2	B, BP	Pass	
1.2.4.1	CRC ERROR test 1	A, B, BP	Pass	
1.2.4.2	CRC ERROR test 1	A, B, BP	Pass	
1.2.5.0	Combination of CRC ERROR and FORM ERROR test	A, B, BP	Pass	
1.2.6.0	FORM ERROR in data frame test 1	A, B, BP	Pass	
1.2.7.0	FORM ERROR in data frame test 2	A, B, BP	Pass	
1.2.8.1	FORM ERROR in data frame test 3	A, B, BP	Pass	
1.2.8.2	FORM ERROR in data frame test 3	A, B, BP	Pass	
1.2.8.3	FORM ERROR in data frame test 3	A, B, BP	Pass	
1.2.9.0	Message non-validation	A, B, BP	Pass	
1.3.	Error frame management class			

1.3.1.1	ERROR FLAG longer than 6 bits	A, B, BP	Pass	
1.3.1.2	ERROR FLAG longer than 6 bits	A, B, BP	Pass	
1.3.1.3	ERROR FLAG longer than 6 bits	A, B, BP	Pass	
1.3.2.0	Data frame starting on the third bit of intermission field	A, B, BP	Pass	
1.3.3.1	BIT ERROR in ERROR FLAG	A, B, BP	Pass	
1.3.3.2	BIT ERROR in ERROR FLAG	A, B, BP	Pass	
1.3.3.3	BIT ERROR in ERROR FLAG	A, B, BP	Pass	
1.3.4.1	FORM ERROR in ERROR DELIMITER	A, B, BP	Pass	
1.3.4.2	FORM ERROR in ERROR DELIMITER	A, B, BP	Pass	
1.3.4.3	FORM ERROR in ERROR DELIMITER	A, B, BP	Pass	
1.4.	Overload frame management class			
1.4.1.1	MAC overload generation during intermission field following a data frame	A, B, BP	Pass	
1.4.1.2	MAC overload generation during intermission field following a data frame	A, B, BP	Pass	
1.4.2.0	Last bit of EOF	A, B, BP	Pass	
1.4.3.1	Eighth bit of an ERROR and OVERLOAD DELIMITER	A, B, BP	Pass	
1.4.3.2	Eighth bit of an ERROR and OVERLOAD DELIMITER	A, B, BP	Pass	
1.4.4.1	BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.4.4.2	BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.4.4.3	BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.4.5.1	FORM ERROR in OVERLOAD DELIMITER	A, B, BP	Pass	
1.4.5.2	FORM ERROR in OVERLOAD DELIMITER	A, B, BP	Pass	
1.4.5.3	FORM ERROR in OVERLOAD DELIMITER	A, B, BP	Pass	
1.4.6.1_CS	MAC overload generation during intermission field following an error frame	A, B, BP	Pass	
1.4.6.2_CS	MAC overload generation during intermission field following an error frame	A, B, BP	Pass	
1.4.7.1_CS	MAC overload generation during intermission field following an overl. frame	A, B, BP	Pass	
1.4.7.2_CS	MAC overload generation during intermission field following an overl. frame	A, B, BP	Pass	
1.5.	Passive error state class			
1.5.1.1	Passive ERROR FLAG completion test 1	A, B, BP	Pass	
1.5.1.2	Passive ERROR FLAG completion test 1	A, B, BP	Pass	

1.5.1.3	Passive ERROR FLAG completion test 1	A, B, BP	Pass	
1.5.2.0	Data frame acceptance after passive ERROR FRAME TRANSMISSION	A, B, BP	Pass	
1.5.3.1	Acceptance of 7 consecutive dominant bits after PASSIVE ERROR FLAG	A, B, BP	Pass	
1.5.3.2	Acceptance of 7 consecutive dominant bits after PASSIVE ERROR FLAG	A, B, BP	Pass	
1.5.3.3	Acceptance of 7 consecutive dominant bits after PASSIVE ERROR FLAG	A, B, BP	Pass	
1.5.4.0	'error passive' state unchanged on further errors	A, B, BP	Pass	
1.5.5.1	Passive ERROR FLAG completion test 2	A, B, BP	Pass	
1.5.5.2	Passive ERROR FLAG completion test 2	A, B, BP	Pass	
1.5.5.3	Passive ERROR FLAG completion test 2	A, B, BP	Pass	
1.5.6.1	FORM ERROR in passive ERROR DELIMITER	A, B, BP	Pass	
1.5.6.2	FORM ERROR in passive ERROR DELIMITER	A, B, BP	Pass	
1.5.6.3	FORM ERROR in passive ERROR DELIMITER	A, B, BP	Pass	
1.5.7.0_CS	Transition from Active to Passive ERROR FLAG	A, B, BP	Pass	C&S Add-on
1.6.	Error counter management class			
1.6.1.1	REC increment on BIT ERROR in ACTIVE ERROR FLAG	A, B, BP	Pass	
1.6.1.2	REC increment on BIT ERROR in ACTIVE ERROR FLAG	A, B, BP	Pass	
1.6.1.3	REC increment on BIT ERROR in ACTIVE ERROR FLAG	A, B, BP	Pass	
1.6.2.1	REC increment on BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.6.2.2	REC increment on BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.6.2.3	REC increment on BIT ERROR in OVERLOAD FLAG	A, B, BP	Pass	
1.6.3.0	REC increment when active ERROR FLAG is longer than 13 bits	A, B, BP	Pass	
1.6.4.0	REC increment when OVERLOAD FLAG is longer than 13 bits	A, B, BP	Pass	
1.6.5.0	REC increment on BIT ERROR in the ACK field	A, B, BP	Pass	
1.6.6.0	REC increment on Form Error in a frame	A, B, BP	Pass	
1.6.7.0	REC increment on FORM ERROR at ACK DELIMITER	A, B, BP	Pass	
1.6.8.1	REC increment on FORM ERROR in EOF Field	A, B, BP	Pass	
1.6.8.2	REC increment on FORM ERROR in EOF Field	A, B, BP	Pass	
1.6.8.3	REC increment on FORM ERROR in EOF Field	A, B, BP	Pass	

1.6.9.1	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.2	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.3	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.4	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.5	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.6	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.7	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.9.8	REC increment on STUFF ERROR	A, B, BP	Pass	
1.6.10.0	REC increment on CRC ERROR	A, B, BP	Pass	
1.6.11.0	REC increment on dominant bit after end of ERROR FLAG	A, B, BP	Pass	
1.6.12.1	REC increment on FORM ERROR in ERROR DELIMITER	A, B, BP	Pass	
1.6.12.2	REC increment on FORM ERROR in ERROR DELIMITER	A, B, BP	Pass	
1.6.13.1	REC increment on FORM ERROR in OVERLOAD DELIMITER	A, B, BP	Pass	
1.6.13.2	REC increment on FORM ERROR in OVERLOAD DELIMITER	A, B, BP	Pass	
1.6.14.0	REC decrement on valid frame reception	A, B, BP	Pass	
1.6.15.0	REC decremented on valid frame reception during passive state	A, B, BP	Pass	
1.6.16.0	REC non-increment on last bit of EOF field	A, B, BP	Pass	
1.6.17.0	REC non-increment on 13-bit length OVERLOAD FLAG	A, B, BP	Pass	
1.6.18.0	REC non-increment on 13-bit length ERROR FLAG	A, B, BP	Pass	
1.6.19.0	REC non-increment on last bit of Error Delimiter	A, B, BP	Pass	
1.6.20.0	REC non-increment on last bit of Overload Delimiter	A, B, BP	Pass	
1.7.	Bit timing class	*See 4.2.1 "Generation of Bit Timing Test Atoms" on page 34 :* Generation of Bit Timing Test Atoms		
2.	Transmitter Tests			
2.1.	Valid frame format class			
2.1.1.1	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.2	Identifier and number of data bytes test in standard format	A, B, BP	Pass	

2.1.1.3	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.4	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.5	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.6	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.7	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.8	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.1.9	Identifier and number of data bytes test in standard format	A, B, BP	Pass	
2.1.2.1	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.2	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.3	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.4	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.5	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.6	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.7	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.8	Identifier and number of data bytes test in extended format	B	Pass	
2.1.2.9	Identifier and number of data bytes test in extended format	B	Pass	
2.1.3.1	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.2	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.3	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.4	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.5	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.6	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.7	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.8	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.9	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.10	Arbitration in standard format frame	A, B, BP	Pass	

2.1.3.11	Arbitration in standard format frame	A, B, BP	Pass	
2.1.3.12	Arbitration in standard format frame	A, B, BP	Pass	
2.1.4.1	Arbitration in extended format frame test	B	Pass	
2.1.4.2	Arbitration in extended format frame test	B	Pass	
2.1.4.3	Arbitration in extended format frame test	B	Pass	
2.1.4.4	Arbitration in extended format frame test	B	Pass	
2.1.4.5	Arbitration in extended format frame test	B	Pass	
2.1.4.6	Arbitration in extended format frame test	B	Pass	
2.1.4.7	Arbitration in extended format frame test	B	Pass	
2.1.4.8	Arbitration in extended format frame test	B	Pass	
2.1.4.9	Arbitration in extended format frame test	B	Pass	
2.1.4.10	Arbitration in extended format frame test	B	Pass	
2.1.4.11	Arbitration in extended format frame test	B	Pass	
2.1.4.12	Arbitration in extended format frame test	B	Pass	
2.1.4.13	Arbitration in extended format frame test	B	Pass	
2.1.4.14	Arbitration in extended format frame test	B	Pass	
2.1.4.15	Arbitration in extended format frame test	B	Pass	
2.1.4.16	Arbitration in extended format frame test	B	Pass	
2.1.4.17	Arbitration in extended format frame test	B	Pass	
2.1.4.18	Arbitration in extended format frame test	B	Pass	
2.1.4.19	Arbitration in extended format frame test	B	Pass	
2.1.4.20	Arbitration in extended format frame test	B	Pass	
2.1.4.21	Arbitration in extended format frame test	B	Pass	
2.1.4.22	Arbitration in extended format frame test	B	Pass	
2.1.4.23	Arbitration in extended format frame test	B	Pass	
2.1.4.24	Arbitration in extended format frame test	B	Pass	
2.1.4.25	Arbitration in extended format frame test	B	Pass	
2.1.4.26	Arbitration in extended format frame test	B	Pass	
2.1.4.27	Arbitration in extended format frame test	B	Pass	
2.1.4.28	Arbitration in extended format frame test	B	Pass	
2.1.4.29	Arbitration in extended format frame test	B	Pass	

2.1.4.30	Arbitration in extended format frame test	B	Pass	
2.1.4.31	Arbitration in extended format frame test	B	Pass	
2.1.4.32	Arbitration in extended format frame test	B	Pass	
2.1.5.0	Message validation	A, B, BP	Pass	
2.1.6.1	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.6.2	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.6.3	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.6.4	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.6.5	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.6.6	STUFF bit generation capability in standard frame	A, B, BP	Pass	
2.1.7.1	STUFF bit generation capability in extended frame	B, BP	Pass	
2.1.7.2	STUFF bit generation capability in extended frame	B, BP	Pass	
2.1.7.3	STUFF bit generation capability in extended frame	B, BP	Pass	
2.2.	Error detection class			
2.2.1.1	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.2	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.3	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.4	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.5	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.6	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.7	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.8	Bit Error in standard frame test	A, B, BP	Pass	
2.2.1.9	Bit Error in standard frame test	A, B, BP	Pass	C&S Add-on (RTR)
2.2.1.10	Bit Error in standard frame test	A, B, BP	Pass	C&S Add-on (r0)
2.2.2.1	Bit Error in extended frame test	B	Pass	
2.2.2.2	Bit Error in extended frame test	B	Pass	
2.2.2.3	Bit Error in extended frame test	B	Pass	
2.2.2.4	Bit Error in extended frame test	B	Pass	
2.2.2.5	Bit Error in extended frame test	B	Pass	
2.2.2.6	Bit Error in extended frame test	B	Pass	
2.2.2.7	Bit Error in extended frame test	B	Pass	

2.2.2.8	Bit Error in extended frame test	B	Pass	
2.2.2.9	Bit Error in extended frame test	B	Pass	C&S Add-on (RTR)
2.2.2.10	Bit Error in extended frame test	B	Pass	C&S Add-on (r0)
2.2.2.11	Bit Error in extended frame test	B	Pass	C&S Add-on (r1)
2.2.3.1	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.2	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.3	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.4	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.5	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.6	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.7	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.8	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.9	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.10	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.11	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.12	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.13	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.14	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.15	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.16	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.17	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.18	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.19	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.20	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.21	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.22	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.23	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.24	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.25	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.26	Stuff Error test in standard frame	A, B, BP	Pass	

2.2.3.27	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.28	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.29	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.30	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.31	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.32	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.33	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.34	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.3.35	Stuff Error test in standard frame	A, B, BP	Pass	
2.2.4.1	Stuff Error test in extended frame	B	Pass	
2.2.4.2	Stuff Error test in extended frame	B	Pass	
2.2.4.3	Stuff Error test in extended frame	B	Pass	
2.2.4.4	Stuff Error test in extended frame	B	Pass	
2.2.4.5	Stuff Error test in extended frame	B	Pass	
2.2.4.6	Stuff Error test in extended frame	B	Pass	
2.2.4.7	Stuff Error test in extended frame	B	Pass	
2.2.4.8	Stuff Error test in extended frame	B	Pass	
2.2.4.9	Stuff Error test in extended frame	B	Pass	
2.2.4.10	Stuff Error test in extended frame	B	Pass	
2.2.4.11	Stuff Error test in extended frame	B	Pass	
2.2.4.12	Stuff Error test in extended frame	B	Pass	
2.2.4.13	Stuff Error test in extended frame	B	Pass	
2.2.4.14	Stuff Error test in extended frame	B	Pass	
2.2.4.15	Stuff Error test in extended frame	B	Pass	
2.2.4.16	Stuff Error test in extended frame	B	Pass	
2.2.4.17	Stuff Error test in extended frame	B	Pass	
2.2.4.18	Stuff Error test in extended frame	B	Pass	
2.2.4.19	Stuff Error test in extended frame	B	Pass	
2.2.4.20	Stuff Error test in extended frame	B	Pass	
2.2.4.21	Stuff Error test in extended frame	B	Pass	
2.2.4.22	Stuff Error test in extended frame	B	Pass	

2.2.4.23	Stuff Error test in extended frame	B	Pass	
2.2.4.24	Stuff Error test in extended frame	B	Pass	
2.2.4.25	Stuff Error test in extended frame	B	Pass	
2.2.4.26	Stuff Error test in extended frame	B	Pass	
2.2.4.27	Stuff Error test in extended frame	B	Pass	
2.2.4.28	Stuff Error test in extended frame	B	Pass	
2.2.4.29	Stuff Error test in extended frame	B	Pass	
2.2.4.30	Stuff Error test in extended frame	B	Pass	
2.2.4.31	Stuff Error test in extended frame	B	Pass	
2.2.4.32	Stuff Error test in extended frame	B	Pass	
2.2.4.33	Stuff Error test in extended frame	B	Pass	
2.2.4.34	Stuff Error test in extended frame	B	Pass	
2.2.4.35	Stuff Error test in extended frame	B	Pass	C&S Add-on
2.2.5.1	FORM ERROR	A, B, BP	Pass	
2.2.5.2	FORM ERROR	A, B, BP	Pass	
2.2.5.3	FORM ERROR	A, B, BP	Pass	
2.2.5.4	FORM ERROR	A, B, BP	Pass	
2.2.5.5	FORM ERROR	A, B, BP	Pass	
2.2.6.0	Acknowledgement Error	A, B, BP	Pass	
2.3.	Error Frame Management Class			
2.3.1.1	ERROR FLAG longer than 6 Bits	A, B, BP	Pass	
2.3.1.2	ERROR FLAG longer than 6 Bits	A, B, BP	Pass	
2.3.1.3	ERROR FLAG longer than 6 Bits	A, B, BP	Pass	
2.3.2.0	Transmission on the third bit of intermission field	A, B, BP	Pass	
2.3.2.0_CS	Transmission on the third bit of intermission field	A, B, BP	Pass	
2.3.2.1_CS	Transmission on the third bit of intermission field with recessive ID bits	A, B, BP	Pass	C&S Add-on
2.3.2.2_CS	Transmission on the third bit of intermission field with recessive ID bits	A, B, BP	Pass	C&S Add-on
2.3.2.3_CS	Transmission on the third bit of intermission field	A, B, BP	Pass	C&S Add-on
2.3.2.4	Transmission on the third bit of intermission field	A, B, BP	Pass	C&S Add-on
2.3.3.1	BIT ERROR in ERROR FLAG	A, B, BP	Pass	
2.3.3.2	BIT ERROR in ERROR FLAG	A, B, BP	Pass	

2.3.3.3	BIT ERROR in ERROR FLAG	A, B, BP	Pass	
2.3.4.1_CS	Form Error in ERROR DELIMITER	A, B, BP	Pass	C&S Add-on
2.3.4.2	Form Error in ERROR DELIMITER	A, B, BP	Pass	
2.3.4.3_CS	Form Error in ERROR DELIMITER	A, B, BP	Pass	C&S Add-on
2.3.4.4	Form Error in ERROR DELIMITER	A, B, BP	Pass	
2.3.4.5_CS	Form Error in ERROR DELIMITER	A, B, BP	Pass	C&S Add-on
2.3.4.6_CS	Form Error in ERROR DELIMITER	A, B, BP	Pass	C&S Add-on
2.3.4.7	Form Error in ERROR DELIMITER	A, B, BP	Pass	
2.3.4.8_CS	Form Error in ERROR DELIMITER	A, B, BP	Pass	C&S Add-on
2.4.	Overload frame management class			
2.4.1.1	MAC Overload generation in Intermission field	A, B, BP	Pass	
2.4.1.2	MAC Overload generation in Intermission field	A, B, BP	Pass	
2.4.2.1	Eighth bit of an ERROR and OVERLOAD DELIMITER	A, B, BP	Pass	
2.4.2.2	Eighth bit of an ERROR and OVERLOAD DELIMITER	A, B, BP	Pass	
2.4.3.0	Transmission on the third Bit of Intermission Field	A, B, BP	Pass	
2.4.3.0_CS	Transmission on the third Bit of Intermission Field	A, B, BP	Pass	
2.4.4.1	Bit Error in Overload FLAG	A, B, BP	Pass	
2.4.4.2	Bit Error in Overload FLAG	A, B, BP	Pass	
2.4.4.3	Bit Error in Overload FLAG	A, B, BP	Pass	
2.4.5.1	Form Error in OVERLOAD DELIMITER	A, B, BP	Pass	
2.4.5.2	Form Error in OVERLOAD DELIMITER	A, B, BP	Pass	
2.4.5.3	Form Error in OVERLOAD DELIMITER	A, B, BP	Pass	
2.5.	Passive error state and BUS-OFF class			
2.5.1.1	Acceptance of Active Error Flag overwriting Passive Error Flag	A, B, BP	Pass	
2.5.1.2	Acceptance of Active Error Flag overwriting Passive Error Flag	A, B, BP	Pass	
2.5.1.3	Acceptance of Active Error Flag overwriting Passive Error Flag	A, B, BP	Pass	
2.5.2.0	Frame acceptance after passive Error Frame transmission	A, B, BP	Pass	
2.5.3.1	Acceptance of 7 consecutive dominant bits after Passive Error Flag	A, B, BP	Pass	
2.5.3.2	Acceptance of 7 consecutive dominant bits after Passive Error Flag	A, B, BP	Pass	
2.5.3.3	Acceptance of 7 consecutive dominant bits after Passive Error Flag	A, B, BP	Pass	

2.5.4.1	Reception of a frame during Suspend Transmission Field	A, B, BP	Pass	
2.5.4.2	Reception of a frame during Suspend Transmission Field	A, B, BP	Pass	
2.5.4.3	Reception of a frame during Suspend Transmission Field	A, B, BP	Pass	
2.5.5.0	Transmission of a frame after Suspend Transmission Field test 1	A, B, BP	Pass	
2.5.6.0	Transmission of a frame after Suspend Transmission Field test 2	A, B, BP	Pass	
2.5.7.0	Transmission of a frame after Suspend Transmission Field test 3	A, B, BP	Pass	
2.5.8.0	Transmission of a frame without Suspend Transmission Field	A, B, BP	Pass	
2.5.9.0	No transmission of a frame on the third bit of Intermission field	A, B, BP	Pass	
2.5.9.1_CS	No-transmission of frame on the 7th bit of suspend field	A, B, BP	Pass	C&S Add-on
2.5.10.0	BUS-OFF state	A, B, BP	Pass	
2.5.11.1	BUS-OFF Recovery	A, B, BP	Pass	
2.5.11.2	BUS-OFF Recovery	A, B, BP	Pass	
2.5.12.0	Completion condition for a Passive Error Flag	A, B, BP	Pass	
2.5.13.1	Form Error in passive Error Delimiter	A, B, BP	Pass	
2.5.13.2	Form Error in passive Error Delimiter	A, B, BP	Pass	
2.5.13.3	Form Error in passive Error Delimiter	A, B, BP	Pass	
2.5.14.0	Maximum Recovery time after a corrupted frame	A, B, BP	Pass	
2.5.15.0 _CS	Transition from Active to Passive Error Flag	A, B, BP	Pass	C&S Add-on
2.6.	Error Counter Management Class			
2.6.1.1	TEC increment on Bit Error during Active Error Flag	A, B, BP	Pass	
2.6.1.2	TEC increment on Bit Error during Active Error Flag	A, B, BP	Pass	
2.6.1.3	TEC increment on Bit Error during Active Error Flag	A, B, BP	Pass	
2.6.2.1	TEC increment on Bit Error during Overload Flag	A, B, BP	Pass	
2.6.2.2	TEC increment on Bit Error during Overload Flag	A, B, BP	Pass	
2.6.2.3	TEC increment on Bit Error during Overload Flag	A, B, BP	Pass	
2.6.3.0	TEC increment when Active Error Flag is followed by dominant bits	A, B, BP	Pass	
2.6.4.0	TEC increment when Passive Error Flag is followed by dominant bits	A, B, BP	Pass	

2.6.5.0	TEC increment when Overload Flag is followed by dominant bits	A, B, BP	Pass	
2.6.6.1	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.2	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.3	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.4	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.5	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.6_CS	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.7_CS	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.6.8_CS	TEC increment on Bit Error in data frame	A, B, BP	Pass	
2.6.7.1	TEC increment on Form Error in a frame	A, B, BP	Pass	
2.6.7.2	TEC increment on Form Error in a frame	A, B, BP	Pass	
2.6.7.3	TEC increment on Form Error in a frame	A, B, BP	Pass	
2.6.7.4	TEC increment on Form Error in a frame	A, B, BP	Pass	
2.6.7.5	TEC increment on Form Error in a frame	A, B, BP	Pass	
2.6.8.0	TEC increment on Acknowledgement Error	A, B, BP	Pass	
2.6.9.1	TEC increment on Form Error in Error Delimiter	A, B, BP	Pass	
2.6.9.2	TEC increment on Form Error in Error Delimiter	A, B, BP	Pass	
2.6.9.3	TEC increment on Form Error in Error Delimiter	A, B, BP	Pass	
2.6.10.1	TEC increment on Form Error in Overload Delimiter	A, B, BP	Pass	
2.6.10.2	TEC increment on Form Error in Overload Delimiter	A, B, BP	Pass	
2.6.11.0	TEC decrement on successful Frame transmission for TEC < 128	A, B, BP	Pass	
2.6.12.0	TEC decrement on successful Frame transmission for TEC > 127	A, B, BP	Pass	
2.6.13.0	TEC non-increment on 13-bits long Overload FLAG	A, B, BP	Pass	
2.6.14.0	TEC non-increment on 13-bit long Error Flag	A, B, BP	Pass	
2.6.15.0	TEC non-increment on Form Error at last bit of Overload Delimiter	A, B, BP	Pass	
2.6.16.0	TEC non-increment on Form Error at last bit of Error Delimiter	A, B, BP	Pass	
2.6.17.0	TEC non-increment on Acknowledgement Error in Passive State	A, B, BP	Pass	
2.6.18.0	TEC increment on Acknowledgement Error in Passive State	A, B, BP	Pass	
2.6.19.0	TEC non-increment on Stuff Error during arbitration	A, B, BP	Pass	

2.7.	Bit timing class	*See 4.2.1 "Generation of Bit Timing Test Atoms" on page 34* : Generation of Bit Timing Test Atoms		
3.	Remote Tests			
3.1.	Valid frame format class			
3.1.1.1_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.2_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.3_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.4_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.5_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.6_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.7_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.8_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.1.9_CS	Receive standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.2.1_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.2_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.3_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.4_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.5_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.6_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.7_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.8_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.2.9_CS	Receive extended remote frame and number of data	B, BP	Pass	C&S Add-on
3.1.3.1_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.2_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.3_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.4_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.5_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.6_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.3.7_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.4.1_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.2_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.3_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.4_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on

3.1.4.5_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.6_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.7_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.8_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.4.9_CS	Transmit standard remote frame and number of data	A, B, BP	Pass	C&S Add-on
3.1.5.1_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.2_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.3_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.4_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.5_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.6_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.7_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.8_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.5.9_CS	Transmit extended remote frame and number of data	B	Pass	C&S Add-on
3.1.6.1_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.2_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.3_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.4_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.5_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.6_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.6.7_CS	DLC greater than 8	A, B, BP	Pass	C&S Add-on
3.1.7.0_CS	Arbitration in standard format	A, B, BP	Pass	C&S Add-on
3.1.8.0_CS	Arbitration in extended format	B	Pass	C&S Add-on

a) *CAN Version: Test is applicable for following CAN node types*
A: IUT is handling 11 bit identifiers,
B: IUT is handling 11 and 29 bit identifiers,
BP: IUT is handling 11 identifiers and tolerating 29 bit identifiers.

Renesas CAN macros are all of 'B' type.

Table 4-1 ISO CAN Conformance Test Results

4.2 Bit Timing

4.2.1 Generation of Bit Timing Test Atoms

To reduce the test time of the bit timing, the following configurations are tested instead of all possible setups. These configurations are the most critical timing setups where errors can occur. If an error is found with this setup, these configuration are expanded to isolate the error. If the IUT passes these test setups, the normal timing setups shall can be expected to be pass, too.

Bit Timing Configurations:

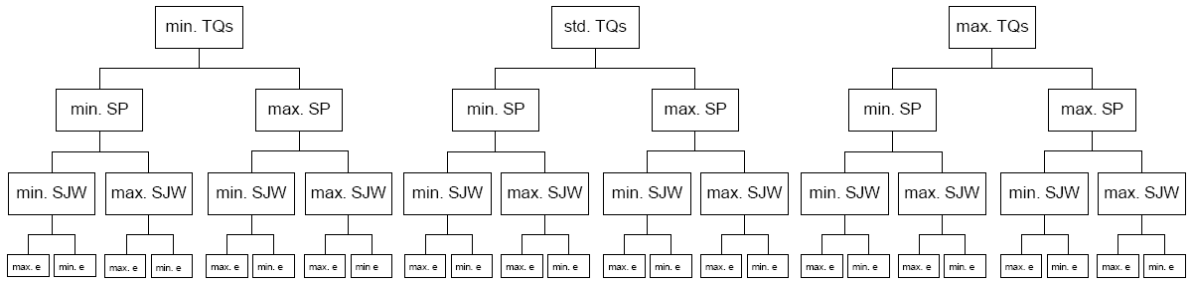

Figure 4-1 Bit Timing Test Cases

Notes

1. std / min / max TQs:
   The standard, minimal and maximal number of Time Quanta per Bit Time.
2. min / max SP:
   The minimal and maximal Sample Point configuration which is possible.
3. min / max SJW:
   The minimal and maximal Resynchronization Jump Width
4. min / max e:
   The minimal and maximal phase error "e". This is used only at the synchronization and glitch tests.

4.2.2 Used Bit Timing Test Settings

Baudrate	BRP[a] Setting	TQ[b] / Bit Setting	RSJW[c] Min / Max Setting	Sample Point on	IPT[d] Setting
1000 kbit/s	2	10 (typical)	1 / 4	Min / Max	2
500 kbit/s	2	20 (typical)	1 / 4	Min / Max	2
250 kbit/s	10	8 (min)	1 / 4	Min / Max	2
200 kbit/s	10	10 (typical)	1 / 4	Min / Max	2
125 kbit/s	10	16 (typical)	1 / 4	Min / Max	2
100 kbit/s	8	25 (max)	1 / 4	Min / Max	2

a) Bit Rate Prescaler
b) Time Quanta
c) Resynchronisation Jump Width
d) Information Processing Time

Table 4-2 Used Bit Timing Test Settings

Reference	Name	Verdict	**Comment**
1.7.1	Receiver		
1.7.1.1	Sample point test	Pass	All Baudrates
1.7.1.2	Hard synchronization on SOF reception	Pass	All Baudrates
1.7.1.3	Synchronization when e>0 and e≤SJW	Pass	All Baudrates
1.7.1.4	Synchronization when e>0 and e>SJW	Pass	All Baudrates
1.7.1.5	Synchronization when e<0 and |e|≤SJW	Pass	All Baudrates
1.7.1.6	Synchronization when e<0 and |e|>SJW	Pass	All Baudrates
1.7.1.7	Glitch filtering test on positive phase error	Pass	All Baudrates
1.7.1.8	Glitch filtering test on negative phase error	Pass	All Baudrates
1.7.1.9	Non-Resynchronization after a dominant sampled bit	Pass	All Baudrates
1.7.1.10	Glitch filtering during bus idle	Pass	All Baudrates
2.7.1	Transmitter		
2.7.1.1	Sample Point Test	Pass	All Baudrates
2.7.1.2	Hard Synchronization on SOF Reception before sample point	Pass	All Baudrates
2.7.1.3	Hard Synchronization on SOF Reception after sample point	Pass	All Baudrates
2.7.1.4	Synchronization when e < 0 and |e| ≤ SJW	Pass	All Baudrates
2.7.1.5	Synchronization for e < 0 and |e| > SJW	Pass	All Baudrates
2.7.1.6	Glitch filtering test on negative phase error	Pass	All Baudrates
2.7.1.7	Non-synchronization on dominant bit transmission	Pass	All Baudrates
2.7.1.8	Synchronization before information processing time	Pass	All Baudrates
2.7.1.9	Synchronization after sample point while sending a dominant bit	Pass	All Baudrates

Table 4-3 Bit Timing Test Results

4.3 Robustness Tests

4.3.1 Used Robustness Test Settings

Baudrate	Number of Frames	Error Injection[a]
1000 kbit/s	10.000.000	YES and NO
500 kbit/s	5.000.000	YES and NO
250 kbit/s	2.500.000	YES and NO
100 kbit/s	1.000.000	YES and NO

a) YES and NO: Two tests, with and without error injection.

Table 4-4 Used Robustness Test Settings

Reference	Name	Verdict	Comment
5.1	Valid Standard Frames Only		
5.1.1	Standard Random Test - LT: Odd Identifiers	Pass	All Baudrates
5.1.2	Standard Random Test - LT: Even Identifiers	Pass	All Baudrates
5.2	Standard Frames With Errors		
5.2.1	Standard Random Test - LT: Odd Identifiers with Errors	Pass	All Baudrates
5.2.2	Standard Random Test - LT: Even Identifiers with Errors	Pass	All Baudrates
5.3	Valid Extended Frames Only		
5.3.1	Extended Random Test - LT: Odd Identifiers	Pass	All Baudrates
5.3.2	Extended Random Test - LT: Even Identifiers	Pass	All Baudrates
5.4	Extended Frames With Errors		
5.4.1	Extended Random Test - LT: Odd Identifiers with Errors	Pass	All Baudrates
5.4.2	Extended Random Test - LT: Even Identifiers with Errors	Pass	All Baudrates

Table 4-5 Robustness Test Results

4.4 Processor Interface Tests

Reference[a]	Name	Verdict	Comment
401010xx	Rx into / Tx from single buffer / standard identifier (1 – x)	Pass	
401020xx	Rx into / Tx from single buffer / extended identifier (1 – x)	Pass	
401030xx	Acceptance Mask Check with Mask 1 and Mailbox xx	Pass	
401040xx	Acceptance Mask Check with Mask 2 and Mailbox xx	Pass	
401050xx	Acceptance Mask Check with Mask 3 and Mailbox xx	Pass	
401060xx	Acceptance Mask Check with Mask 4 and Mailbox xx	Pass	
40103axx	Acceptance Mask Check with Mask 5 and Mailbox xx	Pass	
40104axx	Acceptance Mask Check with Mask 6 and Mailbox xx	Pass	
40105axx	Acceptance Mask Check with Mask 7 and Mailbox xx	Pass	
40106axx	Acceptance Mask Check with Mask 8 and Mailbox xx	Pass	
401070xx	Receive into multiple buffers / receive buffer order(1 – x)	Pass	
401080xx	Reception of standard frames with no sorting into buffers for xx buffers	Pass	
401090xx	Transmit buffer order (ID priority) (1 – x)	Pass	
401110xx	Transmission of standard frames in reverse order for xx buffers	Pass	
401120xx	Reception of extended frames in normal order for xx buffers	Pass	
401130xx	Transmission of extended Frames for xx buffers	Pass	
401140xx	Receiving standard remote frames for xx buffers	Pass	
401150xx	Reception of extended remote frames in xx buffers	Pass	
401160xx	Transmission of extended Remote frames for xx buffers	Pass	
401170xx	Transmission of standard Remote frames for xx buffers	Pass	
401200xx	Overwrite if new data is already set (1 – x)	Pass	
40120bxx	Overwrite with RTR frame if new data is already set (1 – x)	Pass	
401210xx	Discard if new data is already set (1 – x)	Pass	
401250xx	Transmit buffer order / arbitration lost for xx buffers	Pass	
402010xx	Abort transmission after send (1 – x)	Pass	
402020xx	Abort transmission before message send (1 – x)	Pass	
402030xx	Abort transmission arbitration lost (1 – x)	Pass	

402040xx	Abort transmission in message with error (1 – x)	Pass	
402050xx	Abort transmission after message send (1 – x)	Pass	
40301000	Entering standby mode during transmission	Pass	
40302000	Entering standby mode during transmission	Pass	
40303000	Entering standby mode during transmission / bus – errors	Pass	
40304000	Entering standby mode during transmission / bus – errors	Pass	
40305000	Entering standby mode during transmission / bus - errors	Pass	
40306000	Entering standby mode during transmission / arbitration lost	Pass	
40307000	Entering standby mode during transmission / arbitration lost	Pass	
40308000	Entering standby mode during transmission / arbitration lost	Pass	
40309000	Entering standby mode during transmission	Pass	
40122000	Status change due to REC	Pass	
40123000	Status change due to TEC	Pass	
40124000	Status change due to TEC bus off	Pass	

a) xx: For each available Message Buffer, one test is executed.

Table 4-6 Processor Interface Test Results - PI Part

Reference	Name	Verdict	Comment
Additional Processor Interface Tests (SPI-1)			
6111000	Access CAN module registers access	Pass	
6111001	Access CAN message buffer registers	Pass	
6111003	Access CAN module registers (no error int.)	Pass	
6111004	Access CAN message buffer registers (no error int.)	Pass	
6112011	No Shut Down when EFSD is cleared (no error int.)	Pass	
6112012	Shut Down when EFSD is set (no error int.)	Pass	
61120110	Global operating mode switch / CAN state independancy	Pass	
61120111	Global operating mode switch / CAN state independancy	Pass	
61120112	Global operating mode switch / CAN state independancy	Pass	
61120113	Global operating mode switch / CAN state independancy	Pass	
61120120	Global operating mode switch / CAN state & EFSD independancy CAN 0 not in Init	Pass	
61120121	Global operating mode switch / CAN state & EFSD independancy CAN 0 not in Init	Pass	

61120123	Global operating mode switch / CAN state & EFSD independancy CAN 2 not in Init		Not applicable
6140040	Get Version Information	Pass	
6140041	Get Configuration Information	Pass	
6211100	Transition Idle to Init	Pass	
6211101	Transition Normal to Init	Pass	
6211102	Transition Sleep to Init	Pass	
6211103	Transition Stop to Init	Pass	
6221110	Transition Init to Normal	Pass	
6222111	Transition Normal to (sleep to) Normal	Pass	
6223112	Transition Sleep to Normal by Clearing Sleep Bit	Pass	
6223113	Transition Sleep to Normal by Bus Activities	Pass	
6231120	Transition Normal to Sleep State	Pass	
6231121	Transition STOP to SLEEP State	Pass	
6241130	Transition Sleep to Stop Mode	Pass	
64827101	Single Shot Mode	Pass	
64827102	Single Shot Mode	Pass	
6484730	Valid Frame Detection Flag	Pass	
6491800	Multi Receive Buffer Array	Pass	
Additional Processor Interface Tests (SPI-2)			
65000104	Global operation mode clear while CAN module sleep mode (no error int.)	Pass	
65000105	EFSD set while CAN module sleep mode	Pass	
65000106	Global operation mode clear while CAN module stop mode (no error int.)	Pass	
65000107	EFSD set while CAN module stop mode	Pass	
65001012	Transition Normal to Init (while Transmit operation)	Pass	
65001013	Transition Normal to Init (while Receive operation)	Pass	
65001014	Transition Normal to Init and Init to Normal while bus is busy	Pass	
65001015	Transition Bus-Off to Init (changed behavior)	Pass	
65001016	Transition Error passive to Init (Bus Idle)	Pass	
65001017	Transition Error passive to Init (While Transmit)	Pass	

65001018	Transition Error passive to Init (While Receive)	Pass	
65001019	Transition Stop mode to Sleep mode (Bus busy)	Pass	
65001022	Bus activities while Stop mode	Pass	
65001048	Single Buffer Transmit (1-X) / No Set RDY Flag	Pass	
65001049	Single Buffer Receive (1-X) / No Set RDY Flag	Pass	
65001050	Transmit Remote Frame from Transmit Message Buffer / Transmit Interrupt Enable / Disable	Pass	
65001053	Receive Remote Frame into Transmit Message Buffer / Receive Interrupt Enable / Disable	Pass	
65001054	Error Passive or Bus Off status for Transmission Interrupt Enable / Disable	Pass	
65001055	Error Passive status for Reception Interrupt Enable / Disable	Pass	
65001057	CAN Bus Error Interrupt Enable / Disable (TX)	Pass	
6501057B	CAN Bus Error Interrupt Enable / Disable (RX)	Pass	
65001066	Receive (extended identifier) into multiple buffer / setting IDE mask, standard identifier and Local message filters (1-X) (mask1-4)	Pass	
65001067	Receive (standard identifier) into multiple buffer / setting IDE mask, extended identifier and Local message filters (1-X) (mask1-4)	Pass	
Additional Processor Interface Tests (SPI-3)			
3spi1100	Memory and Register Access Tests / Initial Values	Pass	
3spi1200	Memory and Register Access Tests / Positive Access Test	Pass	
3spi1300	Memory and Register Access Tests / Illegal Access Test	Pass	
3spi2100	Macro Initialization and Control / Forced Shut Down (EFSD bit)	Pass	
3spi2210	Transition from INIT Into the operational mode “Normal Operating Mode”	Pass	
3spi2220	Transition from INIT Into the operational mode "Normal Operating Mode with Automatic Block Transmission"	Pass	
3spi222a-c	Transition from INIT Into the operational mode “Normal Operating Mode with Automatic Block Transmission”	Pass	additional tests
3spi2231	Transition from INIT Into the operational mode “Receive-only Mode”	Pass	
3spi2232	Transition from INIT Into the operational mode “Receive-only Mode”	Pass	
3spi2233	Transition from INIT Into the operational mode “Receive-only Mode”	Pass	

3spi2241	Transition from INIT Into the operational mode “Single shot Mode”	Pass	
3spi2242	Transition from INIT Into the operational mode “Single shot Mode”	Pass	
3spi2243	Transition from INIT Into the operational mode “Single shot Mode”	Pass	
3spi2250	Transition from INIT Into the operational mode “Self-test Mode”	Pass	
3spi2301	Direct Operational Mode Change Requests	Pass	
3spi2302	Direct Operational Mode Change Requests	Pass	
3spi2410	Nesting of Macro Interrupts 1	Pass	
3spi2420	Nesting of Macro Interrupts 2	Pass	
3spi3101	Remote Frame Reception	Pass	
3spi3102	Remote Frame Reception	Pass	
3spi3211	Receive History List function (RHL function)	Pass	
3spi3212	Receive History List function (RHL function)	Pass	
3spi3213	Receive History List function (RHL function)	Pass	
3spi3221	Receive History List function (RHL function)	Pass	
3spi3222	Receive History List function (RHL function)	Pass	
3spi4111	Transmit History List (THL function)	Pass	
3spi4112	Transmit History List (THL function)	Pass	
3spi4113	Transmit History List (THL function)	Pass	
3spi4121	Transmit History List (THL function)	Pass	
3spi4122	Transmit History List (THL function)	Pass	
3spi4200	Transmission Request Abort	Pass	
3spi4311	Automatic Block Transmission function (ABT function)	Pass	
3spi4312	Automatic Block Transmission function (ABT function)	Pass	
3spi4313	Automatic Block Transmission function (ABT function)	Pass	
3spi4321	Automatic Block Transmission function (ABT function)	Pass	
3spi4322	Automatic Block Transmission function (ABT function)	Pass	
3spi4323	Automatic Block Transmission function (ABT function)	Pass	
3spi4324	Automatic Block Transmission function (ABT function)	Pass	
3spi4325	Automatic Block Transmission function (ABT function)	Pass	
3spi4326	Automatic Block Transmission function (ABT function)	Pass	

3spi4327	Automatic Block Transmission function (ABT function)	Pass	
3spi4328	Automatic Block Transmission function (ABT function)	Pass	
3spi4331	Automatic Block Transmission function (ABT function)	Pass	
3spi4332	Automatic Block Transmission function (ABT function)	Pass	
3spi4333	Automatic Block Transmission function (ABT function)	Pass	
3spi5101	CAN Protocol Error Detection Interface Receive Error Counter	Pass	
3spi5102	CAN Protocol Error Detection Interface Receive Error Counter	Pass	
3spi5201	CAN Protocol Error Detection Interface TX error counter / state	Pass	
3spi5203	CAN Protocol Error Detection Interface TX error counter / state	Pass	
3spi5204	CAN Protocol Error Detection Interface TX error counter / state	Pass	
3spi5311	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5312	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5313	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5314	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5315	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5316	CAN Protocol Error Detection Interface CAN Error States Displaying	Pass	
3spi5321	CAN Protocol Error Detection Interface CAN Error Interrupts	Pass	
3spi5322	CAN Protocol Error Detection Interface CAN Error Interrupts	Pass	
3spi5323	CAN Protocol Error Detection Interface CAN Error Interrupts	Pass	
3spi5324	CAN Protocol Error Detection Interface CAN Error Interrupts	Pass	
3spi5325	CAN Protocol Error Detection Interface CAN Error Interrupts	Pass	
3spi5410	CAN Protocol Error Detection Interface CAN module recovery from CAN Error State “Bus-Off”	Pass	
3spi5420	CAN Protocol Error Detection Interface CAN module recovery from CAN Error State “Bus-Off”	Pass	
3spi5501	CAN Protocol Error Detection Interface Resetting of the CAN module error counter during INIT mode	Pass	

3spi5502	CAN Protocol Error Detection Interface Resetting of the CAN module error counter during INIT mode	Pass	
3spi6101	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6102	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6103	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6104	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6105	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6106	Power Save Modes SLEEP Mode and STOP mode transitions	Pass	
3spi6200	Power Save Modes SLEEP Wake-up by CAN bus	Pass	
3spi6300	Power Save Modes STOP mode release	Pass	
3spi7101	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7102	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7103	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7104	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7105	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7106	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7107	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7108	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Receiveonly Mode	Pass	
3spi7201	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Singleshot Mode	Pass	
3spi7202	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Singleshot Mode	Pass	
3spi7204	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Singleshot Mode	Pass	
3spi7205	Tests in Single-shot mode (AL=1 no ACK)	Pass	
3spi7206	Tests in Single-shot mode (AL=0 no ACK)	Pass	
3spi7301	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Self-test Mode	Pass	
3spi7302	CAN Module Special Operational Modes and Diagnosis Utilities Tests in Self-test Mode	Pass	

3spi8101	Bus activity status check Bus activity signalling during receive status	Pass	
3spi8102	Bus activity status check Bus activity signalling during receive status	Pass	
3spi8103	Bus activity status check Bus activity signalling during receive status	Pass	
3spi8104	Bus activity status check Bus activity signalling during receive status	Pass	
3spi8201	Bus activity status check Bus activity signalling during transmit status	Pass	
3spi8202	Bus activity status check Bus activity signalling during transmit status	Pass	
3spi8203	Bus activity status check Bus activity signalling during transmit status	Pass	
3spi8204	Bus activity status check Bus activity signalling during transmit status	Pass	
3spi8300	Bus activity status check Special test case	Pass	

Table 4-7 Processor Interface Test Results - SPI Part

Appendix A Certificate of Authentication from C&S

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C&S

Authentication

on CAN Conformance Test System

RENESAS Electronics

P06_0160_NEC_Main_Auth_CAN_Test_System_R03.doc
Date of Approval: 2010-11-22

C&S is worldwide recognized as a neutral expert in testing of communication systems such as CAN transceiver, CAN, CAN software drivers, (CAN) network management, FlexRay and LIN.

Herewith C&S group is proud to confirm that RENESAS Electronics is owner of C&S CAN conformance test system and performs tests based on software developed by C&S group. The test system consists of the following essential parts:

- Test scripts for tests defined by ISO 16845
- Supervisor software **CCT** including the CAN reference model to control and verify the tests
- Software templates for the upper tester software

RENESAS Electronics and C&S group have entered into a maintenance agreement for the following items:

- C&S CAN Data Link Layer Conformance Test System for:

Test system 1, owned by:	**Test system 2, owned by:**
RENESAS Electronics Europe GmbH	**NES NEC Software Tohoku**
Located in: Arcadiastraße 10 40472 Düsseldorf Germany	**Located in:** Ltd. 10-23, Ichibanchou 1-chome Aoba-ku Sendai Miyagi, 9080-0811 Japan

- Upper Tester Software for following device and its respective derivates:
  FCN (including DCN)

This authentication is valid while the maintenance contract between and C&S group for the above-mentioned devices is active.

ppa. F. Fischer
F. Fischer, CTO

S. L. Kukla
L. Kukla, Project Manager

Note The Authentication Certificate is Copyright by C&S.
For this CAN Conformance Certificate, Renesas refers to this authentication.

Revision History

The table below gives an overview about the revision history of this document.

Rev.	Date	Summary
01.00	Oct 18, 2011	first edition

V850E2 / DK4-H
CAN Conformance Test Report
EACT-TR-5093

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Refer to "http://www.renesas.com/" for the latest and detailed information.

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