NEC

CAN Conformance Certificate

V850E/PHO3™

32-bit Single-Chip Microcontroller

µPD70(F)3441

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NOTES FOR CMOS DEVICES

① VOLTAGE APPLICATION WAVEFORM AT INPUT PIN

Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (MAX) and V_{IH} (MIN) due to noise, etc., the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (MAX) and V_{IH} (MIN).

② HANDLING OF UNUSED INPUT PINS

Unconnected CMOS device inputs can be cause of malfunction. If an input pin is unconnected, it is possible that an internal input level may be generated due to noise, etc., causing malfunction. CMOS devices behave differently than Bipolar or NMOS devices. Input levels of CMOS devices must be fixed high or low by using pull-up or pull-down circuitry. Each unused pin should be connected to V_{DD} or GND via a resistor if there is a possibility that it will be an output pin. All handling related to unused pins must be judged separately for each device and according to related specifications governing the device.

③ PRECAUTION AGAINST ESD

A strong electric field, when exposed to a MOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop generation of static electricity as much as possible, and quickly dissipate it when it has occurred. Environmental control must be adequate. When it is dry, a humidifier should be used. It is recommended to avoid using insulators that easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors should be grounded. The operator should be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions need to be taken for PW boards with mounted semiconductor devices.

④ STATUS BEFORE INITIALIZATION

Power-on does not necessarily define the initial status of a MOS device. Immediately after the power source is turned ON, devices with reset functions have not yet been initialized. Hence, power-on does not guarantee output pin levels, I/O settings or contents of registers. A device is not initialized until the reset signal is received. A reset operation must be executed immediately after power-on for devices with reset functions.

⑤ INPUT OF SIGNAL DURING POWER OFF STATE

Do not input signals or an I/O pull-up power supply while the device is not powered. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Input of signals during the power off state must be judged separately for each device and according to related specifications governing the device.

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Readers

This document is intended for all users of the NEC product µPD70(F)3441, who need the CAN Conformance certification for their application.

Purpose

With this document, the CAN Conformance of the NEC product µPD70(F)3441 is certified.
The document is released, after the C&S CAN Conformance Test Suite has proven the CAN conformity of the product. NEC has licensed the CAN Conformance Test Suite from C&S, and is authorized by C&S to perform the CAN Conformance certification on their local test suite.

Organization

The CAN Conformance Test certificate is based on the following tests, which have been executed on the C&S CAN Conformance Test Suite:

- ISO Tests according to ISO 16845
- ISO Bit Timing Tests according to ISO 16845

Additionally, NEC is performing the following additional tests, which are extending the certificate, and which are performed as a special customer service (not required for ISO certification):

- Processor Interface Tests
- Special Processor Interface Tests
- Robustness Tests

The additional tests are subject to be changed or omitted by NEC without further notice.

Legend

Symbols and notation are used as follows:

Weight in data notation	:	Left is high-order column, right is low order column
Active low notation	:	$\overline{xxx}$ (pin or signal name is over-scored) or /xxx (slash before signal name)
Memory map address:	:	High order at high stage and low order at low stage
Note	:	Explanation of (Note) in the text
Caution	:	Information requiring particular attention
Remark	:	Supplementary explanation to the text
Numeric notation	:	Binary . . . xxxx or xxxB Decimal . . . xxxx Hexadecimal . . . xxxxH or 0x xxxx

Prefixes representing powers of 2 (address space, memory capacity)

K (kilo) : $2^{10} = 1024$
M (mega) : $2^{20} = 1024^2 = 1,048,576$
G (giga) : $2^{30} = 1024^3 = 1,073,741,824$

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Chapter 1 Certification

1.1 Authentication

NEC Electronics 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 AFCAN 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 AFCAN implementation on µPD70(F)3441, DS1.0, which comprises a n-channel AFCAN interface. For each AFCAN 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)3441

The tested products are containing the AFCAN interface version AFCAN 0A11 - V1.

1.4 Certification

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

The AFCAN macro as implemented in the device µPD70(F)3441, 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 AFCAN macro as implemented in the device µPD70(F)3441, 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 AFCAN macro to have good stability in their user (processor) interface and on high loaded CAN-Bus applications.

For details about the executed test cases, see the following pages.

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 AFCAN macro autonomously.

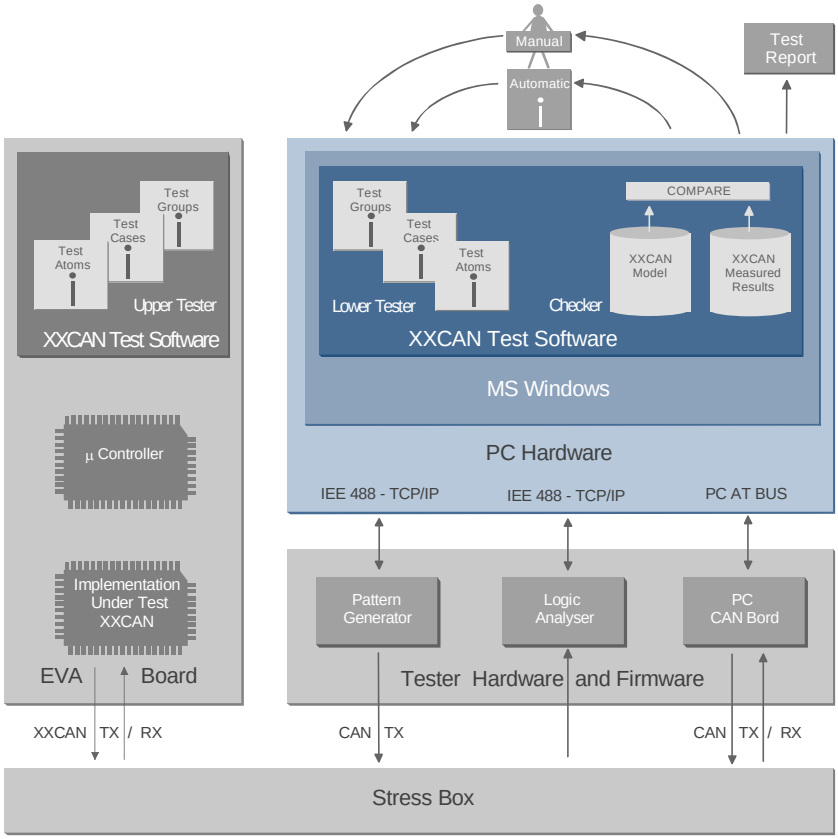

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Figure 2-1: CAN Conformance Test System Overview

2.2 Test Scopes

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

- CAN Conformance Test (CCT): About 600 testcases for the message level test (ISO) and about 250 Bit-Timing (BT) testcases per channel.
- Processor Interface Test (PCIF): 625 tests per channel, standard (PI) and special tests (SPI).
- Robustness Test (ROB): 40 tests per channel, running from 1 hour up to 4 hours per test, including error injection.

2.3 CAN Conformance Tests (CCT) 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 600 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
- 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 AFCAN 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 bit is tested individually for each message buffer. For the AFCAN macro in µPD70(F)3441, there are 625 tests available.

2.3.4 Robustness Tests

In order to prove the real-time behavior of the AFCAN, 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.

3.1 Tested Configurations

The device µPD70(F)3441 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.

Table 3-1: Configurations of IUT

Testsets	Baudrate[a]	CPU Clock Setting	AFCAN macro clock setting	AFCAN macro channel tested	Port I/O Selection	
					Transmit	Receive
ISO, PI, SPI	100 kbit/s	128 MHz PLL	16 MHz PLL	0	P3.4	P3.5
BT	variable			1	P3.6	P3.7
ISO	100 kbit/s		16 MHz OSC Direct	0	P3.4	P3.5
ROB, BT	variable			1	P3.6	P3.7

a. “Variable”: See “Used Bit Timing Test Settings” on page 39.

All other configuration settings are applied according to the actual User’s Manual of µPD70(F)3441.

4.1 ISO Tests

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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 TRANS-MISSION	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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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 on page 39*:* 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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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	

Table 4-1: ISO CAN Conformance Test Results

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 on page 39: 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

Table 4-1: ISO CAN Conformance Test Results

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

Table 4-1: ISO CAN Conformance Test Results

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.

NEC CAN macros are all of 'B' type.

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:

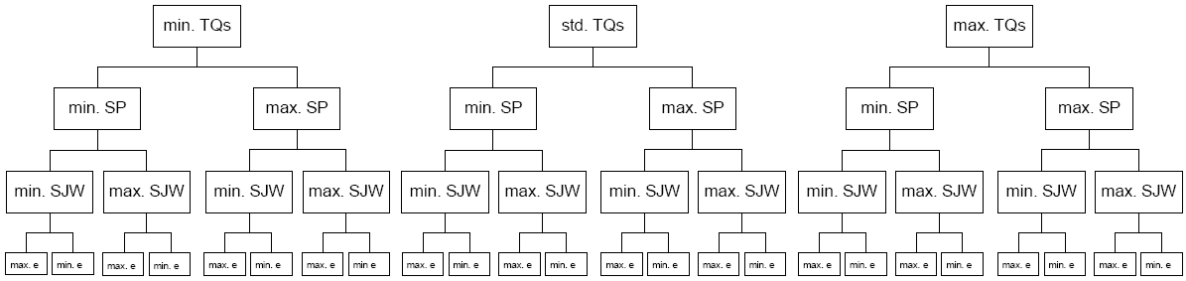

Figure 4-1: Bit Timing Test Cases

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

Table 4-2: 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	1	16 (min)	1 / 4	Min / Max	2
500 kbit/s	2	16 (min)	1 / 4	Min / Max	2
320 kbit/s	2	25 (max)	1 / 4	Min / Max	2
250 kbit/s	4	16 (min)	1 / 4	Min / Max	2
125 kbit/s	8	16 (min)	1 / 4	Min / Max	2
100 kbit/s	8	20 (typical)	1 / 4	Min / Max	2

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

Table 4-3: Bit Timing Test Results

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

4.3 Robustness Tests

4.3.1 Used Robustness Test Settings

Table 4-4: Used Robustness Test Settings

Baudrate	Number of Frames	Error Injection[a]
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 4-5: Robustness Test Results

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

4.4 Processor Interface Tests

Table 4-6: Processor Interface Test Results - PI Part

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	
401070xx	Receive into multiple buffers / receive buffer order(1 – x)	Pass	
401080xx	Reception of standard frames with no sorting into mailbox for 32 mailboxes (1 - x)	Pass	
401120xx	Receive into multiple buffers / receive buffer order (1 – x)	Pass	
401140xx	Receive NOT into single buffer / standard identifier and remote flag set (1 - x)	Pass	
401150xx	Receive NOT into single buffer / extended identifier and remote flag set (1 - x)	Pass	
401090xx	Transmit buffer order (ID priority) (1 – x)	Pass	
401100xx	Transmit buffer order (MB Nb. priority) (1 – x)	Pass	
401110xx	Transmit buffer order on error (1 – x)	Pass	
401130xx	Transmit buffer order (EXT) (1 – x)	Pass	
401160xx	Transmit from single buffer / extended identifier and remote	Pass	
401170xx	Transmit from single buffer / standard identifier and remote	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 (1 – x)	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	

Table 4-6: Processor Interface Test Results - PI Part

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	Bus Off state	Pass	

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

Table 4-7: Processor Interface Test Results - SPI 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	
6112010	Shut Down Independence from EFSD (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	
61120122	Global operating mode switch / CAN state & EFSD independancy CAN 1 not in Init	Pass	
61120123	Global operating mode switch / CAN state & EFSD independancy CAN 2 not in Init		Not applicable

Table 4-7: Processor Interface Test Results - SPI Part

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	
6241131	Transition Sleep to Stop Mode while bus traffic	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	

Table 4-7: Processor Interface Test Results - SPI Part

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	
3spi130	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	

Table 4-7: Processor Interface Test Results - SPI Part

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	
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	

Table 4-7: Processor Interface Test Results - SPI Part

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	

Table 4-7: Processor Interface Test Results - SPI Part

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	
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	

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CAN-Conformance Test System

Authentication

c&s group is a subdivision of the Fachhochschule Wolfenbüttel. As such c&s is worldwide recognized as a neutral expert in testing of communication systems such as CAN Transceivers, CAN, CAN Software Drivers, (CAN) Network Management.

Authentication Confirmation
on
Cooperative Conformance Tests between CAN Implementers and c&s

NEC Electronics (Europe) GmbH is the owner of c&s CAN Conformance Test Systems, and is fully capable to perform CAN Conformance tests based on

- c&s test suite PC based hardware and
- related software developed by c&s consisting essentially of:
  - A complete set of test Scripts for tests defined by ISO 16845
  - Processor Interface Test, exceeding the above referenced ISO standard
  - Robustness Tests, exceeding the above referenced ISO standard
  - Supervisor Software with included CAN Reference Model to control and verify the tests
  - Software templates for the Upper Tester software
- A maintenance contract between NEC and c&s group covering the CAN Conformance Test Systems and the dedicated test software parts for the NEC devices comprising the FCAN, DCAN, and aFCAN CAN macro cell.
- an online web-based Version update system to keep consistency with c&s further developments on the test suite

Thetest software parts for the tested devices are archived and checked at the c&s group. NEC and c&s cooperate closely within the maintenance contract or dedicated contracts by developing upper tester software for different NEC devices.

Wolfenbüttel, 01.08.2003

i.A. .....
Lawrenz, Director c&s

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[MEMO]