

## Testhouse

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Final

P22\_0312\_IOPT\_CA-IF1044\_report00

Date of Approval: 2022-Dec-22

# Test Report

## Device Under Test

Device Family CA-IF1044S-Q1  
CA-IF11044VS-Q1  
CA-IF1044D-Q1  
CA-IF1044VD-Q1  
Manufacturer Chipanalog  
DUT Version CA-IF1044VD-Q1  
Sample marking 1044V D-01 DJ2N3

## Customer

Order No. P22\_0312  
Name Shanghai Chipanalog  
Microelectronics Co.,LTD  
Address 2F, Block C,GaoJing Road,Qingpu  
District  
Shanghai, 201601  
P.R. China

## Number of Pages

20

## Test Period

from ww50/2022 until ww50/2022

## Test Method / Test Requirement

CAN IOPT Test for devices  
- with CAN FD up to 5 Mbit/s  
- with low power

## Performed Tests and References

- 1 Interoperability test specification for high-speed CAN transceiver or equivalent devices IOPT.CAN v02
- 2 Static Tests based on:  
ISO 16845-2:2018, Road vehicles – Controller area network (CAN) conformance test plan – Part 2: High-speed medium access unit – Conformance test plan

## Conformance Test Results

- 1 Homogeneous Network with 16 Nodes / 8 Nodes  
  
Heterogeneous Network with 16 Nodes – Mix of 6  
8 Nodes – Mix of 5
- 2 Test type 1, static test cases

The Test Results refer to the delivered device.

**Pass**

**Pass**

**Pass**

For detailed information see chapter Test List at the following pages.

This Test Report shall not be reproduced without written approval of the test house, except in full and unchanged.

Approved by

Test performed by

L. Kukla, Project Manager

M.Mohammad, Project Engineer

# Table of Content

<b>REVISION HISTORY</b> .....	<b>3</b>
<b>1 DEVICE UNDER TEST (DETAILED)</b> .....	<b>4</b>
<b>2 SETUP FOR DEVICE UNDER TEST</b> .....	<b>5</b>
<b>3 TEST EQUIPMENT</b> .....	<b>6</b>
<b>4 TECHNICAL CORRESPONDENCE</b> .....	<b>7</b>
<b>5 TEST LIST</b> .....	<b>8</b>
5.1 STATIC CONFORMANCE TESTS (ISO 16845-2:2018) .....	8
5.2 DYNAMIC TESTS (CAN IOPT V02) .....	14
<i>IOPT 5.4 –Tests in Homogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus for “5 Mbit/s Devices”</i> .....	14
<i>IOPT 5.4 –Tests in Homogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus</i> .....	16
<i>IOPT 6.4 –Tests in Heterogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus for “5 Mbit/s Devices”</i> .....	17
<i>IOPT 6.4 –Tests in Heterogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus</i> .....	20

## Revision History

Old revision	New revision	Amendment Description	Editor
–	00	Final Version	LK

# 1 Device Under Test (detailed)

General	
Date of Sample Arrival	21.09.2022
Manufacturer	Chipanalog
Sample Marking	1044V D-01 DJ2N3
Test performed with DUT no.	#01 to #16 // #01 to #08 (homogenous) #01 to #04 // #01 to #02 (mixed)

Device Specification	
Device Family Name	CA-IF1044S-Q1 CA-IF11044VS-Q1 CA-IF1044D-Q1 CA-IF1044VD-Q1
DUT Version	CA-IF1044VD-Q1
Design step	-

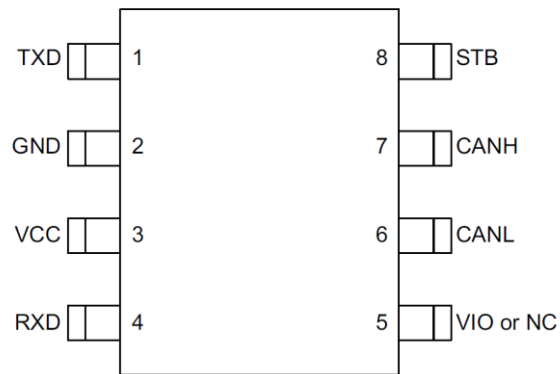
Documentation	
User manual / datasheet	CA-IF1044-Q1_datasheet_Version1.02_en_20221124

Device Classification	
CAN FD Transceiver	Data rates up to 5 Mbit/s

## 2 Setup for Device Under Test

Standard CAN HS Transceiver with 8 pins.

Vio connected to Vcc (5V)



CA-IF1044x Pin Configuration

DUT: CA-IF1044VD-Q1 with Vio (DFN8)

### 3 Test Equipment

The following test equipment and test system have been used.

No.	Component	Manufacturer	Version / Type	Network
1	IOPT.CAN Tester T2	C&S	V1.1.0.232	Homogeneous, Heterogeneous
2	UT software version	C&S	IF1044	

## 4 Technical Correspondence

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## 5 Test List

### 5.1 Static Conformance Tests (ISO 16845-2:2018)

Used data sheet:

**CA-IF1044-Q1\_datasheet\_Version1.02\_en\_20221124**

“The motivation of static test cases is to check the availability and the boundaries in the data sheet of the IUT. For all integrated circuits every related parameter in Table 4 shall be part of the data sheet and fulfil the specified boundaries in terms of physical worst-case condition. Data sheet parameter names may deviate from the names in Table 4, but in this case a cross-reference list (data sheet versus Table 4) shall be provided for this test. Parameter conditions may deviate from the conditions in Table 4, if the data sheet conditions are according to the physical worst-case context in Table 4.”

HS-PMA types:

a - without low-power mode and partial network, **n/a**

**b - with low-power mode, normal biasing and without partial network,**

c - with low-power mode, automatic biasing and without partial network, **n/a**

d - with low-power mode, automatic biasing and partial network; **n/a**



No.	Parameter	Reference to ISO 11898-2:2016	Limits			Conditions <sup>d</sup>  <sup>d</sup> Parameters within the conditions are aligned with Figure 4 p for test.	Conformance test is passed if value		Rating
			Min	Max	Unit		≤	≥	
1	General maximum rating $V_{CAN\_H}$ and $V_{CAN\_L}$	Table 15	-27,0	+40,0	V	-/-	min	max	Pass Table 7.1 $V_{BUS}$
2	Extended maximum rating $V_{CAN\_H}$ and $V_{CAN\_L}$ (if supported)	Table 15	-58,0	+58,0	V	-/-	min	max	Pass Table 7.1 $V_{BUS}$
3	Maximum rating $V_{Diff}$	Table 15	-5,0	+10,0	V	The maximum rating for $V_{Diff}$ excludes that all combinations of $V_{CAN\_H}$ and $V_{CAN\_L}$ are compliant to this standard. $V_{Diff} = V_{CAN\_H} - V_{CAN\_L}$ . This is required regardless whether general or extended maximum rating for $V_{CAN\_H}$ and $V_{CAN\_L}$ is fulfilled	min	max	Pass Table 7.1 $V_{(DIFF)}$
4	Single ended recessive output voltage on CAN_H ( $V_{CAN\_H}$ ), bus biasing active	Table 5	+2,0	+3,0	V	All requirements in Table 5 apply concurrently. Therefore, not all combinations of $V_{CAN\_H}$ and $V_{CAN\_L}$ are compliant with the defined differential output voltage. See also ISO 11898-2:2016, Table 5.	max	min	Pass Table 7.5 $V_{O(REC)}$
5	Single ended recessive output voltage on CAN_L ( $V_{CAN\_L}$ ), bus biasing active	Table 5	+2,0	+3,0	V	All requirements in Table 5 apply concurrently. Therefore, not all combinations of $V_{CAN\_H}$ and $V_{CAN\_L}$ are compliant with the defined differential output voltage. See also ISO 11898-2:2016, Table 5.	max	min	Pass Table 7.5 $V_{O(REC)}$
6	Differential recessive output voltage ( $V_{Diff}$ ), bus biasing active	Table 5	-0,5	+0,05	V	All requirements in Table 5 apply concurrently. Therefore, not all combinations of $V_{CAN\_H}$ and $V_{CAN\_L}$ are compliant with the defined differential output voltage. See also ISO 11898-2:2016, Table 5.	max	min	Pass Table 7.5 $V_{OD(REC)}$
7	Single ended recessive output voltage on CAN_H ( $V_{CAN\_H}$ ), bus biasing inactive	Table 6	-0,1	+0,1	V	See ISO 11898-2:2016, 5.10 to determine when bias shall be inactive. See also ISO 11898-2:2016, Table 6.	max	min	Pass Table 7.5 $V_{O(STB)}$

No.	Parameter	Reference to ISO 11898-2:2016	Limits			Conditions <sup>d</sup>	Conformance test is passed if value		Rating
			Min	Max	Unit		≤	≥	
8	Single ended recessive output voltage on CAN_L ( $V_{CAN\_L}$ ), bus biasing inactive	Table 6	-0,1	+0,1	V	See ISO 11898-2:2016, 5.10 and Table 6.	max	min	Pass Table 7.5 $V_{O(STB)}$
9	Differential recessive output voltage ( $V_{Diff}$ ), bus biasing inactive	Table 6	-0,2	+0,2	V	See ISO 11898-2:2016, 5.10 and Table 6.	max	min	Pass Table 7.5 $V_{O(STB)}$
10	Single ended voltage on CAN_H, dominant output ( $V_{CAN\_H}$ )	Table 2	+2,75	+4,50	V	$R_L = 50 \Omega \dots 65 \Omega$	max	min	Pass Table 7.5 $V_{O(DOM)}$
11	Single ended voltage on CAN_L, dominant output ( $V_{CAN\_L}$ )	Table 2	+0,5	+2,25	V	$R_L = 50 \Omega \dots 65 \Omega$	max	min	Pass Table 7.5 $V_{OD(DOM)}$
12	Differential voltage on normal bus load, dominant output ( $V_{Diff}$ )	Table 2	+1,5	+3,0	V	$R_L = 50 \Omega \dots 65 \Omega$	max	min	Pass Table 7.5 $V_{OD(DOM)}$
13	Differential voltage on effective resistance during arbitration, dominant output ( $V_{Diff}$ )	Table 2	+1,5	+5,0	V	$R_L = 2240 \Omega$	max	min	Pass Table 7.5 $V_{OD(DOM)}$
14	Differential voltage on extended bus load, dominant output ( $V_{Diff}$ ) (if supported)	Table 2	+1,4	+3,3	V	$R_L = 45 \Omega \dots 70 \Omega$	max	min	Not supported
15	Driver symmetry ( $V_{SYM}$ ), with a frequency that corresponds to the highest bit rate for which the HS-PMA implementation is intended, however, at most 1 MHz (2 MBit/s)	Table 3	+0,9	+1,1	-/-	$R_L = 60 \Omega$ ; $C_1 = 4,7 \text{ nF}$	max	min	Pass Table 7.5 $V_{SYM}$
16	Absolute current on CAN_H ( $I_{CAN\_H}$ ), Maximum driver output current	Table 4	-/-	+115	mA	$-3,0 \text{ V} \leq V_{CAN\_H} \leq +18,0 \text{ V}$ See also ISO 11898-2:2016, Table 4.	max	-/-	Pass Table 7.5 $I_{OS(SS\_DOM)}$
17	Absolute current on CAN_L ( $I_{CAN\_L}$ ), Maximum driver output current	Table 4	-/-	+115	mA	$-3,0 \text{ V} \leq V_{CAN\_L} \leq +18,0 \text{ V}$ See also	max	-/-	Pass Table 7.5

No.	Parameter	Reference to ISO 11898-2:2016	Limits			Conditions <sup>d</sup>	Conformance test is passed if value		Rating
			Min	Max	Unit		≤	≥	
						ISO 11898-2:2016, Table 4.			IOS(SS_DOM)
18	Transmit dominant time out ( $t_{dom}$ ), (if supported) <i>b) The minimum value of 0,3 ms is accepted for legacy implementations.</i>	Table 7	+0,8 <sup>b</sup>	+10,0	ms	-/-	max	min	Pass Table 7.6 $t_{DOM}$
19	Receiver recessive state differential input voltage range, bus biasing active ( $V_{Diff}$ )	Table 8	-3,0	+0,5	V	$-12,0 V \leq V_{CAN\_L} \leq +12,0 V$ $-12,0 V \leq V_{CAN\_H} \leq +12,0 V$	min	max	Pass Table 7.5 $V_{DIFF\_R}$
20	Receiver dominant state differential input voltage range, bus biasing active ( $V_{Diff}$ )	Table 8	+0,9	+8,0	V	$-12,0 V \leq V_{CAN\_L} \leq +12,0 V$ $-12,0 V \leq V_{CAN\_H} \leq +12,0 V$	min	max	Pass Table 7.5 $V_{DIFF\_D}$
21	Receiver recessive state differential input voltage range, bus biasing inactive ( $V_{Diff}$ ), (if supported)	Table 9	-3,0	+0,4	V	$-12,0 V \leq V_{CAN\_L} \leq +12,0 V$ $-12,0 V \leq V_{CAN\_H} \leq +12,0 V$	min	max	Pass Table 7.5 $V_{DIFF\_R(STB)}$
22	Receiver dominant state differential input voltage range, bus biasing inactive ( $V_{Diff}$ ), (if supported)	Table 9	+1,15	+8,0	V	$-12,0 V \leq V_{CAN\_L} \leq +12,0 V$ $-12,0 V \leq V_{CAN\_H} \leq +12,0 V$	min	max	Pass Table 7.5 $V_{DIFF\_D(STB)}$
23	Differential internal resistance, receiver input resistance ( $R_{Diff}$ )	Table 10	12	100	k $\Omega$	$-2,0 V \leq V_{CAN\_H} \leq +7,0 V$ $-2,0 V \leq V_{CAN\_L} \leq +7,0 V$	max	min	Pass Table 7.5 $R_{DIFF}$
24	Single ended internal resistance, receiver input resistance ( $R_{CAN\_H}$ , $R_{CAN\_L}$ )	Table 10	6	50	k $\Omega$	$-2,0 V \leq V_{CAN\_H} \leq +7,0 V$ $-2,0 V \leq V_{CAN\_L} \leq +7,0 V$	max	min	Pass Table 7.5 $R_{IN}$
25	Matching of receiver internal resistance ( $m_R$ )	Table 11	-0,03	+0,03	-/-	$V_{CAN\_H} = +5,0 V$ $V_{CAN\_L} = +5,0 V$	max	min	Pass Table 7.5 $R_{DIFF} (M)$
26	Loop delay ( $t_{loop}$ )	Table 12	-/-	255	ns	$R_L = 60 \Omega$ , $C_2 = 100 \text{ pF}$ , $C_{RXD} = 15 \text{ pF}$	max	-/-	Pass Table 7.6 / Figure 8 $t_{loop1} / t_{loop2}$
27	Transmitted recessive bit width @ 2 Mbit/s ( $t_{Bit(BUS)}$ ), (if supported)	Table 13	435	530	ns	$R_L = 60 \Omega$ , $C_2 = 100 \text{ pF}$ , $C_{RXD} = 15 \text{ pF}$	max	min	Pass Table 7.6

No.	Parameter	Reference to ISO 11898-2:2016	Limits			Conditions <sup>d</sup> <sup>d</sup> Parameters within the conditions are aligned with Figure 4 p for test.	Conformance test is passed if value		Rating
			Min	Max	Unit		≤	≥	
									t <sub>bit(bus)</sub>
28	Received recessive bit width @ 2 Mbit/s (t <sub>Bit(RXD)</sub> ), (if supported)	Table 13	400	550	ns	R <sub>L</sub> = 60 Ω, C <sub>2</sub> = 100 pF, C <sub>RXD</sub> = 15 pF	max	min	Pass Table 7.6 t <sub>bit(rxd)</sub>
29	Receiver timing symmetry @ 2 Mbit/s (Δt <sub>Rec</sub> ), (if supported)	Table 13	-65	+40	ns	R <sub>L</sub> = 60 Ω, C <sub>2</sub> = 100 pF, C <sub>RXD</sub> = 15 pF	max	min	Pass Table 7.6 t <sub>rec</sub>
30	Transmitted recessive bit width @ 5 Mbit/s (t <sub>Bit(BUS)</sub> ), (if supported)	Table 14	155	210	ns	R <sub>L</sub> = 60 Ω, C <sub>2</sub> = 100 pF, C <sub>RXD</sub> = 15 pF	max	min	Pass Table 7.6 t <sub>bit(bus)</sub>
31	Received recessive bit width @ 5 Mbit/s (t <sub>Bit(RXD)</sub> ), (if supported)	Table 14	120	220	ns	R <sub>L</sub> = 60 Ω, C <sub>2</sub> = 100 pF, C <sub>RXD</sub> = 15 pF	max	min	Pass Table 7.6 t <sub>bit(rxd)</sub>
32	Receiver timing symmetry @ 5 Mbit/s (Δt <sub>Rec</sub> ), (if supported)	Table 14	-45	+15	ns	R <sub>L</sub> = 60 Ω, C <sub>2</sub> = 100 pF, C <sub>RXD</sub> = 15 pF	max	min	Pass Table 7.6 t <sub>rec</sub>
33	Leakage current on CAN_H, CAN_L (I <sub>CAN_H</sub> , I <sub>CAN_L</sub> ), maximum leakage currents, unpowered	Table 16	-10	+10	μA	V <sub>CAN_H</sub> = 5 V, V <sub>CAN_L</sub> = 5 V, All supply inputs connected to GND.	max	min	Pass Table 7.5 I <sub>LKG</sub>
34	CAN activity filter time, long (t <sub>Filter</sub> ), (if supported)	Table 20	0,5	5,0	μs	-/-	max	min	Pass Table 7.6 T <sub>wk_FILTER</sub>
35	CAN activity filter time, short (t <sub>Filter</sub> ), (if supported)	Table 20	0,15	1,8	μs	-/-	max	min	Pass Table 7.6 T <sub>wk_FILTER</sub>
36	Wake-up timeout (t <sub>wake</sub> ), (if supported) c) For legacy implementations a minimum value of 350 μs is acceptable.	Table 20	800,0 <sup>c</sup>	10000,0	μs	-/-	max	min	Pass Table 7.6 T <sub>wk_FILTEROUT</sub>
37	Timeout for bus inactivity (t <sub>Silence</sub> )	Table 20	0,6*10 <sup>6</sup>	1,2*10 <sup>6</sup>	μs	-/-	max	min	n/a
38	Bus Bias reaction time (t <sub>Bais</sub> )	Table 20	-/-	250,0	μs	-/-	max	-/-	n/a

No.	Parameter	Reference to ISO 11898-2:2016	Limits			Conditions <sup>d</sup> <small><sup>d</sup> Parameters within the conditions are aligned with Figure 4 p for test.</small>	Conformance test is passed if value		Rating
			Min	Max	Unit		≤	≥	
39	Number of recessive bits before a new SOF shall be accepted ( $n_{\text{Bits\_idle}}$ ) (if supported)	Table 18	6	10	-/-	-/-	max	min	n/a
40	CAN FD data phase glitch filter (slow) ( $p\text{Glitch}_{\text{slow}}$ ) (if supported)	Table 19	5,00	17,50	% of arbitration bit time	-/-	min	max	n/a
41	CAN FD data phase glitch filter (fast) ( $p\text{Glitch}_{\text{fast}}$ ) (if supported)	Table 19	2,50	8,75	% of arbitration bit time	-/-	min	max	n/a

## 5.2 Dynamic Tests (CAN IOPT v02)

Following test case numeration relates on the corresponding test specification.

### IOPT 5.4 –Tests in Homogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus for “5 Mbit/s Devices”

No.	Tests in Homogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus	Result	Comment
<b>5.4.1</b>	<b>Test Flow 1</b> Op. mode variation after recovery at normal mode, failure application on startup		<i>Performed in 8-node-network with 5 Mbit/s</i>
5.4.1.1.x	GND Shift = 0V	n/a	
5.4.1.2.x	GND Shift = +1V	n/a	
5.4.1.3.x	GND Shift = -1V	n/a	
<b>5.4.2</b>	<b>Test Flow 2</b> Op. mode variation after recovery at normal mode, failure application in normal mode		4224 Test cases
5.4.2.1.x	GND Shift = 0V	E/Pass	
5.4.2.2.x	GND Shift = +1V	E/Pass	
5.4.2.3.x	GND Shift = -1V	E/Pass	
<b>5.4.3</b>	<b>Test Flow 3</b> Op. mode variation before recovery at normal Mode, failure application in normal mode		4224 test cases
5.4.3.1.x	GND Shift = 0V	E/Pass	
5.4.3.2.x	GND Shift = +1V	E/Pass	
5.4.3.3.x	GND Shift = -1V	E/Pass	
<b>5.4.4</b>	<b>Test Flow 4</b> Op. mode variation with failure before recovery at normal mode, failure application on startup		264 Test cases
5.4.4.1.x	GND Shift = 0V	E/Pass	
5.4.4.2.x	GND Shift = +1V	E/Pass	
5.4.4.3.x	GND Shift = -1V	E/Pass	

No.	Tests in Homogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus	Result	Comment
<b>5.4.5</b>	<b>Test Flow 5</b> Op. mode variation with failure before recovery at low-power mode, failure application in normal mode		4224 Test cases
5.4.5.1.x	GND Shift = 0V	E/Pass	
5.4.5.2.x	GND Shift = +1V	E/Pass	
5.4.5.3.x	GND Shift = -1V	E/Pass	
<b>5.4.6</b>	<b>Test Flow 6</b> Op. mode variation with failure before recovery at low-power mode, failure application in low-power mode		4224 Test cases
5.4.6.1.x	GND Shift = 0V	E/Pass	
5.4.6.2.x	GND Shift = +1V	E/Pass	
5.4.6.3.x	GND Shift = -1V	E/Pass	
<b>5.4.7</b>	<b>Test Flow 7</b> Op. mode variation with failure before recovery at normal mode, failure application in low-power mode		264 Test cases
5.4.7.1.x	GND Shift = 0V	E/Pass	
5.4.7.2.x	GND Shift = +1V	E/Pass	
5.4.7.3.x	GND Shift = -1V	E/Pass	

## Signs and symbols

E      executed

## IOPT 5.4 –Tests in Homogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus

No.	Tests in Homogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus	Result	Comment
5.4.1	<b>Test Flow 1</b> Op. mode variation after recovery at normal mode, failure application on startup		1088 Test cases
5.4.1.1.x	GND Shift = 0V	E/Pass	
5.4.1.2.x	GND Shift = +1V	E/Pass	
5.4.1.3.x	GND Shift = -1V	E/Pass	

### Signs and symbols

E      executed



## IOPT 6.4 –Tests in Heterogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus for “5 Mbit/s Devices”

No.	Tests in Heterogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus – Mix of 6*: 2xA / 3xB / 2xC / 2xD / 3xE / 4xIUT	Result	Comment
<b>6.4.1</b>	<b>Test Flow 1</b> Op. mode variation after recovery at normal mode, failure application on startup		<i>Performed in 8-node-network with 5 Mbit/s</i>
6.4.1.1.x	GND Shift = 0V	n/a	
6.4.1.2.x	GND Shift = +1V	n/a	
6.4.1.3.x	GND Shift = -1V	n/a	
<b>6.4.2</b>	<b>Test Flow 2</b> Op. mode variation after recovery at normal mode, failure application in normal mode		4224 Test cases
6.4.2.1.x	GND Shift = 0V	E/Pass	
6.4.2.2.x	GND Shift = +1V	E/Pass	
6.4.2.3.x	GND Shift = -1V	E/Pass	
<b>6.4.3</b>	<b>Test Flow 3</b> Op. mode variation before recovery at normal Mode, failure application in normal mode		4224 Test cases
6.4.3.1.x	GND Shift = 0V	E/Pass	
6.4.3.2.x	GND Shift = +1V	E/Pass	
6.4.3.3.x	GND Shift = -1V	E/Pass	
<b>6.4.4</b>	<b>Test Flow 4</b> Op. mode variation with failure before recovery at normal mode, failure application on startup		264 Test cases
6.4.4.1.x	GND Shift = 0V	E/Pass	
6.4.4.2.x	GND Shift = +1V	E/Pass	
6.4.4.3.x	GND Shift = -1V	E/Pass	

No.	Tests in Heterogeneous Network with 16 Nodes – 2 Mbit/s with wake-up via bus – Mix of 6*: 2xA / 3xB / 2xC / 2xD / 3xE / 4xIUT	Result	Comment
<b>6.4.5</b>	<b>Test Flow 5</b> Op. mode variation with failure before recovery at low-power mode, failure application in normal mode		4224 Test cases
6.4.5.1.x	GND Shift = 0V	E/Pass	
6.4.5.2.x	GND Shift = +1V	E/Pass	
6.4.5.3.x	GND Shift = -1V	E/Pass	
<b>6.4.6</b>	<b>Test Flow 6</b> Op. mode variation with failure before recovery at low-power mode, failure application in low-power mode		4224 Test cases
6.4.6.1.x	GND Shift = 0V	E/Pass	
6.4.6.2.x	GND Shift = +1V	E/Pass	
6.4.6.3.x	GND Shift = -1V	E/Pass	
<b>6.4.7</b>	<b>Test Flow 7</b> Op. mode variation with failure before recovery at normal mode, failure application in low-power mode		264 Test cases
6.4.7.1.x	GND Shift = 0V	E/Pass	
6.4.7.2.x	GND Shift = +1V	E/Pass	
6.4.7.3.x	GND Shift = -1V	E/Pass	

## Signs and symbols

E executed

### Abbreviations to identify components:

- 2 x A TJA1044GT
- 3 x B TJA1043T
- 2 x C TLE9252
- 2 x D TLE9255WSK
- 3 x E TLE9251
- 4 x IUT Implementation Under Test

Positions of the reference devices in 500 kbit/s and 2 Mbit/s reference environments:

Node:	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16
TRX:	B	A	IUT	C	E	D	IUT	B	E	A	IUT	B	C	D	IUT	E

## IOPT 6.4 –Tests in Heterogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus

No.	Tests in Heterogeneous Network with 8 Nodes – 5 Mbit/s with wake-up via bus – Mix of 5*: 1xA / 2xB / 1xC / 2xD / 2xIUT	Result	Comment
6.4.1	<b>Test Flow 1</b> Op. mode variation after recovery at normal mode, failure application on startup		1088 Test cases
6.4.1.1.x	GND Shift = 0V	E/Pass	
6.4.1.2.x	GND Shift = +1V	E/Pass	
6.4.1.3.x	GND Shift = -1V	E/Pass	

### Signs and symbols

E      executed

### Abbreviations to identify components:

- 1 x A      TJA1044GT
- 2 x B      TJA1043T
- 1 x C      TLE9252
- 2 x D      TLE9251
- 2 x IUT    Implementation Under Test

Positions of the reference devices in 5 Mbit/s reference environments:

Node:	#1	#2	#3	#4	#5	#6	#7	#8
TRX:	A	B	IUT	C	B	D	IUT	D