



# Test Report

**Manufacturer:** TTS A/S  
**Product:** Nordic Vision  
**Standards:** DS/EN 12675  
**Report No:** B2006027

**Date and Signature:**

*13/6 2006 Kim Bøll*

## **Bolls Rådgivning**

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Ved Gadekæret 11F  
DK-3660 Stenløse  
Denmark

Tlf.: 48 18 35 66  
Fax: 48 18 35 30

E-mail: [info@bolls.dk](mailto:info@bolls.dk)  
web: [www.bolls.dk](http://www.bolls.dk)

<b>TEST REPORT</b> <b>DS/EN 12675</b> <b>Traffic signal controllers- Funtional safety requirements</b>	
Report reference No .....	: B2006027
Tested by .....	: Kim Boll Jensen
Approved by .....	: Kim Boll Jensen
Date of issue .....	: 2006-06-13
Testing Laboratory Name .....	: Bolls Rådgivning
Address .....	: Ved Gadekæret DK-3660 Stenløse, Denmark
Applicant's Name .....	: TTS A/S
Address .....	: Slotsherrensvej 215 DK-2610 Rødovre, Denmark
Test specification	
Standard .....	: DS/EN 12675 1.edition:approved 2000-11-06
Test Report Form No. ....	: IECEN
TRF originator .....	: Bolls Rådgivning
Master TRF .....	: dated 2004-11-04
Bolls Rådgivning have no responsibility for products produced and sold under names mentioned in this report, and can not be held responsible for any mistakes which could lead to non-compliance according to this report.	
Test item description .....	
Manufacturer .....	: TTS A/S
Trademark .....	: -
Model and/or type reference .....	: Nordic Vision
Serial number .....	: 70.012

Particulars: test item vs. test requirements	
Equipment mobility .....	permanent connection
Operating condition .....	continuous
Electrical data .....	See B2006026
Test case verdicts	
Test case does not apply to the test object .....	N/A
Test item does meet the requirement ..	P(ass)
Test item does not meet the requirement .....	F(ail)
Testing	
Date(s) of performance of test :	2006-06-08 -- 2006-06-12
General remarks	
This report shall not be reproduced except in full without the written approval of the testing laboratory.	
The test results presented in this report relate only to the item(s) tested.	
"(see appended table)" refers to a table appended to the report.	
“(see remark #)” refers to a remark appended to the report.	
“(see Annex #)” refers to an annex appended to the report.	
Throughout this report a comma (point) is used as the decimal separator.	

**General product information:**

This piece of equipment controls traffic signals by an internal controller facilitating external inputs.

The declared classes is according to Danish law.

**Picture of product**

See Report B2006026

DS/EN 12675				
Clause	Requirement - Test	Declared Class	Result	Verdict
4	FUNCTIONAL SAFETY REQUIREMENTS			-
4.1	General			-
4.2	Application of power		Normal check-up after power-up No change-over to control mode due to memory error ( forced by removing memory battery back-up).	P P
4.3	Dianostic checks of traffic signal controller logic system		Change to failure mode in less than 10s (forced by removal of buscard)	P
4.4	Classification of faults			-
4.4a	no checks allowed			P
4.4b	Record as specified in 5.4			P
4.4c	Declare accordingly			P
4.4d	Fault detection time		Time difference between buscard and green-green fault to signal low less than 0,3 s	P
4.4e	Luminous intensity		not part of control system	N/A
4.4f	Luminous intensity .....		not part of control system	N/A
4.5	Conflict faults.....		See below	-
4.5.1	Signal group conflicts (unwanted signals)		See a to e	-
4.5.1a	Green-green, A1 to B1, A1 to B2, A2 to B1	AA1	Failure at green-green, by forcing green hostile ON	P
4.5.1b	Green-yellow, A1y to B1g, A1y to B2g, B1y to A1g, B1y to A2g, B2y to A1g, B2y to A2g A2y to B1g, A1g to A1y, A2g to A2y B2y to B2g, B1g to B1y	AB1	Failure at green-yellow, by forcing yellow hostile ON	P

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4.5.1c	Yellow-yellow A1 to B2, A2 to B2, A1 to B1, A2 to B1	AC0	Failure at yellow-yellow	P
4.5.1d	Green-red/yellow	AD0	Covered by 4.5.1b	P
4.5.1e	Green-green/yellow	AE0	Covered by 4.5.1a, 4.5.1b, 4.6a	P
4.5.2	Signal group greenN/Absent red conflict		See a to c	-
4.5.2a	Absence of any conflicting red signal	AF0		NA
4.5.2b	Absence of conflicting red on specified signal heads	AG0		NA
4.5.2c	Absence of the last conflicting red signal	AH0	Covered by 4.7.1b	P
4.5.3	Absent red/absent red conflicts	AJ0		P
4.6	National signal regulations		See a to f	-
4.6a	National signal regulation (infringement)	BA1	Failure at green/yellow and green/red, by forcing one hostile ON	P
4.6b	Standby mode (flashing)	BB0		N/A
4.6c	Failure mode (flashing signals)	BC0		N/A
4.6d	Rate and duration of flashing signals during standby mode	BD0		N/A
4.6e	Rate and duration of flashing signals during failure mode	BE0		N/A
4.6f	National signal regulation	None		N/A
4.7	Absent signals		See below	-
4.7.1	Absent signal group red signals		See a to d	-
4.7.1a	Absence of a red signal on a specified signal group	CA1	Failure of red, by disconnecting 1 of 3 causes failure registration	P
4.7.1b	Absence of the last red signal	CB1	Failure of red, by disconnecting 3 of 3 , causes failure registration	P

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4.7.1c	Absence of a number of red signals	CC1	Failure of red, by disconnecting 2 of 3 , causes failure registration	P
4.7.1d	Absence of specified red signals	CD1	Failure of any red causes failure registration	P
4.7.2	Absent signal groups, yellow or green signals	CE0		N/A
4.8	Compliance checking	DA1	Signal specifications checked by system engineer for compliance.	P
4.9	Safety timings		See a to e	-
4.9a	Stored values of timings	FA1	Checked by varying watchdog out- side limits set, and try to force green under 6 sek. which software corrects	P
4.9b	Time base frequency. Checked by varying scantime outside limits.	FB1	CPU runs slow gives all signals OFF	P
4.9c	Minimum values of time settings	FC1	Adjusting interval below limit causes failure	P
4.9d	Maximum values of time settings	FD1	Adjusting interval above limit causes failure.	P
4.9e	Duration of timings	FE1	Adjusting scan time outside limits causes failure.	P
4.10	National signal sequences		See a to c	-
4.10a	National signal sequences, infringement of basic pattern : green to yellow to red to red+yellow to green	GA1	green to yellow+red causes failure yellow+green causes failure	P P
4.10b	Specified signal group green to signal group green movements	GB0		N/A
4.10c	Specified signal start up sequence signal group movements	GC0		N/A
4.11	Faults of external inputs	HA1	Programmed external input, e.g. pedestrian pushbutton, forced high causes failure.	P

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Clause	Requirement - Test	Declared Class	Result	Verdict

5	FAULT CONDITION		See 5.2 and 5.3	-
5.2	Major faults Major faults excluding controller and power supply failure do not affect master clock.		Controller power off cause failure Major failures as seen in test do not affect master clock.	P P
5.3	Minor faults		Detector low or 1 lamp off causes minor fault	P
5.4	Storage of faults		See a to b	-
5.4a	Details of type of fault by code or text		Both code and text	P
5.4b	Date and time of fault entry		Date and time saved	P

6	USER DOCUMENTATION		See a to f	-
6.a	Specification for traffic signal controller		Included	P
6.b	Type of input/output equipment compatible		Included	P
6.c	Installation procedures		Included	P
6.d	Recommended maintenance procedures		Included	P
6.e	List of facilities		Included	P
6.f	Means of programming facilities on site and off site described		Included	P

7	MARKING AND LABELLING			-
	Safety marking Memory and module marking Requirements according to HD 638		See testreport B2006026	P