

Radio test report 99608334

based on Telefication test report 99608331

based on:
FCC Part 80 (10-1-04 Edition)

Maritime shipborne VHF radio telephone with
integrated DSC class A controller and channel 70
watchkeeping receiver
SAILOR
RT5020

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This report comprises of three modules. The total number of pages is: 12

Main module

1 Introduction

This report contains the result of tests performed by:

Telefication B.V.
Edisonstraat 12a
6902 PK Zevenaar
The Netherlands

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:1999. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie). The copyright of this test report is owned by Telefication bv and may not be reproduced except in full without the written approval of Telefication bv.

Ordering party:

Company name : Thrane & Thrane A/S
Address : Porsvej 2
Zipcode : 9200
City/town : Aalborg
Country : Denmark
Date of order : 22 December 2004

2 Product

A sample of the following product was submitted for testing:

Product name	:	Maritime shipborne VHF radio telephone with integrated DSC class A controller and channel 70 watchkeeping receiver
Product category	:	Stations in the maritime services
Manufacturer	:	Thrane & Thrane A/S
Trade mark	:	SAILOR
Type designation	:	RT5020
FCC ID	:	TCORT5020
Hardware version	:	--
Software version	:	Application (OS): 2.00 Boot Monitor (BM): 1.01/1.02 DSP: 1.25
Serial number	:	0001

3 Test schedule

Tests were carried out in accordance with the specification detailed in chapter 6 "Summary" of this report.

Tests were carried out at the following location:

- Telefication, Zevenaar

Tests were carried out between:

- 10 and 27 October 2005
-

4 Product documentation

For production of this report the following product documentation was used:

Description	Date	Identification
Operator's Manual	Issue C/0531	Sailor RT5022/RT5020 B5022GB0
Technical specification	February 2005	Sailor 5000

5 Observations and comments

This test report includes results of selected measurements on the duplex variant RT5020 in addition to the measurements on the simplex version RT5022.

Test results of the RT5022 are contained in test report 99608331.

The difference between the duplex variant and the simplex version RT5022 is the installed duplex filter.

6 Summary

The product is intended for use in the following application area:

Maritime ship borne communication equipment

The sample was tested according to the following specification:

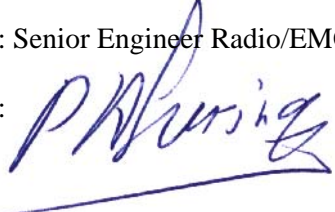
FCC Part 80 (10-1-04 Edition)

7 Conclusions

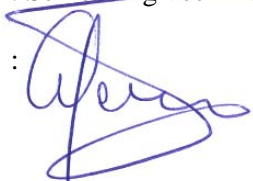
The sample of the product showed **NO NON-COMPLIANCES** to the specification stated in chapter 6 of this report.

The results of the tests as stated in this report, are exclusively applicable to the product item as identified in this report. Telefication does not accept any responsibility for the results stated in this report, with respect to the properties of product items not involved in these tests.


All tests are performed by:

name : ing. P.A. Suringa
function : Senior Engineer Radio/EMC
signature : 

Review of test methods and report by:

name : M.W. Jansen
function : Senior Engineer Maritime Radio
signature : 

The above conclusions have been verified by the following signatory:

date : 17 november 2005
name : J.P. van de Poll
function : Co-ordinator Test Group
signature : 

Test results module

1 Summary

According to FCC Part 80, the following tests have been performed:

Port	Reference	Phenomena	Result
Antenna	§ 80.211 (f) (3)	Conducted emissions	P
Antenna	§ 80.209 (a)	Frequency stability	P
Antenna	§ 80.215 (g) (1)	Transmitter power	P

Results:

P = pass
F = fail

NA = not applicable
NP = not performed

2 Transmitter tests

2.1 Conducted spurious (> 30 MHz)

Compliance standard : FCC part 80, section 80.211 (f) (3)

Compliance limit : attenuation > 43 dB + 10 log P = 43 + 14 = 57 dBc

Method : Compliance measurements have been carried out on the antenna connector.

Results :

Channel 16 Spurious Frequency (MHz)	SPURIOUS EMISSIONS (dBm)	
	High power	Low power
470.4	-47	< -60
301.6 (**)	-37	< -60
*	--	--
--	--	--
Measurement uncertainty	1.6 dB	

* : Other spurious emissions (harmonic and non-harmonic) are at least 20 dB below the limit

(**): Worst case level measured when TX at the lowest operating frequency 150.8 MHz.

2.2 Transmitter power

Compliance standard : FCC part 80, section 80.215 (g) (1)

Compliance limit : 25 W

Results :

CHANNEL	Test condition	Temperature °C	Power source voltage (Vdc)	HIGH POWER	LOW POWER
				Carrier power (W)	Carrier power (W)
CH16 156.800MHz	Normal	+20	24.0	22.3	0.71
		-15	10.8	22.6	0.72
	Extreme	-15	31.2	22.6	0.72
		-15	10.8	25.9	0.77
		+55	10.8	25.9	0.77
		+55	31.2	25.9	0.77

2.3 Frequency stability

Compliance standard : FCC part 80, section 80.209

Compliance limit : 10 ppm (1.57 kHz)

Results :

<i>Frequency error (Hz)</i>			
Temperature °C	Supply voltage Vdc	Tx power high	Tx power low
+20	24.0	-72	-72
-20	10.8	+20	+20
	31.2	+20	+20
-15	10.8	+3	+3
	31.2	+3	+3
+55	10.8	+70	+70
	31.2	+70	+70

Used test equipment module

This module contains the list of test equipment used.

Ref	Description	ID No.	Manufacturer	Model
1	Spectrum analyzer	TE 00099	HP	8562E
2	Audio analyzer	TE 00373	HP	8903A
3	Modulation meter	TE 00360	Marconi	TF 2300B
4	RF attenuator	TE 00380	Bird	8325
5	RF attenuator	TE 00127	Tenuline	8343-200
6	RF power meter	TE 00377	Bird	Analyst 4381
7	Frequency counter	TE 00252	HP	5350B
8	Digital multimeter	TE 00428	Fluke	8050A
9	Power supply	TE 00584	Delta	D050-10