

Radio test report

99561432

based on:
FCC part 15; subpart C; sections 15.209 and 15.249
(10-1-03 edition)

Wireless Network Controller
Sensite Solutions
HBL100

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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 bv
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 contents of this test report, if reproduced, shall be copied in full, unless special consent in writing for reproduction in part is granted by Telefication. Copyright of this test report is reserved to Telefication.

Ordering party:

Company name : Sensite Solutions B.V.
Address : Keizersgracht 23B
Zipcode : 5611 GC
City/town : Eindhoven
Country : The Netherlands
Date of order : 31 August 2004

2 Product

A sample of the following product was submitted for testing:

Product description	: Wireless Network Controller
Manufacturer	: Sensite Solutions
Trade mark	: Sensite Solutions
Type designation	: HBL100
FCC ID	: SQ4LogiSphere
Hardware version	: --
Serial number	: --
Software release	: --

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 locations:

Radiated measurements <1 GHz:

- TNO Electronic Products & Services (EPS) B.V
Smidshornerweg 18
9822 TL Niekerk
The Netherlands

FCC listed : 90828
Industry Canada : IC3501

All other measurements:

- Telefication, Zevenaar

The samples of the product were received on:

- 1 September 2004

Tests were carried out between:

- 1 September and 15 March 2005

4 Observations and comments

The output RF-level of the product during all tests was fixed at the value corresponding to the register setting 15F0.

5 Modifications to the sample

No modifications were made to the sample.

6 Summary

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

INTENTIONAL RADIATOR OPERATING IN THE FREQUENCY BAND 902 - 928 MHz

The sample was tested according to the following specification(s):

FCC part 15; subpart C; sections 15.209 and 15.249 (10-1-03 edition)

7 Conclusions

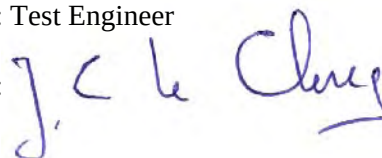
The samples of the product showed **NO NON-COMPLIANCES** to the specifications stated in chapter 6 of this report.

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

All tests are performed by:

name : ing. J.C. le Clercq

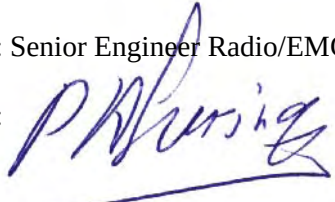
function : Test Engineer

signature : 

Review of test report by:

name : ing. P.A. Suringa

function : Senior Engineer Radio/EMC

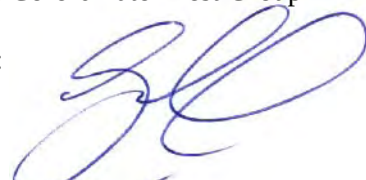
signature : 

The above conclusions have been verified by the following signatory:

Date : 23 March 2005

name : J.P. van de Poll

function : Co-ordinator Test Group

signature : 

Test results module

1 General information

1.1 Equipment information

Rated RF output power	n.a., integral antenna
Rated radiated RF power	--
Operating frequency range	909 to 925 MHz (single channel)
Modulation	FSK
Modulation bit rate	--
ITU emission class	--
FCC ID	SQ4LogiSphere

2 Emission tests

2.1 Field strength of intentional signal

Compliance standard : FCC part 15, subpart C, section 15.249 (a) & (e)
 Method of test : ANSI C63.4-2003, sections 5.5 & 8.2.4
 Test results :

Quasi-peak field strength:

Type	Frequency (MHz)	Test result @ 3 m distance (dB μ V/m)	Polarisation	Limit (dB μ V/m)	Limit (mV/m)
HBL100	909	89.3	H	93.98	50
HBL100	909	90.9	V	93.98	50
HBL100	915	90.1	H	93.98	50
HBL100	915	91.2	V	93.98	50
HBL100	925	88.3	H	93.98	50
HBL100	925	87.3	V	93.98	50

Measurement uncertainty: +1.6 dB / -2.4 dB

2.2 Field strength of unwanted emissions 30 –1000 MHz

Compliance standard : FCC part 15, subpart C, section 15.209 (a)
 Method of test : ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2;
 FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.

 EUT condition : transmitting on 909, 915 and 925 MHz respectively
 Test results :

average field strength:

Frequency (MHz)	Test result @ 3 m distance (dB μ V/m) (AV)	Polarisation	Limit (dB μ V/m)	Limit (μ V/m)
No unwanted emissions detected		H/V	53.98	500

peak field strength:

Frequency (MHz)	Test result @ 3 m distance (dB μ V/m) (PK)	Polarisation	Limit (dB μ V/m)	Limit (μ V/m)
No unwanted emissions detected		H/V	73.98	5000

Measurement uncertainty: N/A

2.3 Field strength of unwanted emissions > 1000 MHz

Compliance standard : FCC part 15, subpart C, section 15.209 (a) & 15.249 (a) & (e)
Method of test : ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2;
FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.

EUT condition : transmitting on 909, 915 and 925 MHz respectively
Test results :

average field strength:

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)	Limit (µV/m)
HBL100	1818	harmonic	31.83	H	53.98	500
HBL100	2727	harmonic	35.33	H	53.98	500
HBL100	3636	harmonic	37.97	H	53.98	500
HBL100	1818	harmonic	32.83	V	53.98	500
HBL100	2727	harmonic	35.00	V	53.98	500
HBL100	3636	harmonic	38.47	V	53.98	500

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)	Limit (µV/m)
HBL100	1830	harmonic	31.37	H	53.98	500
HBL100	2745	harmonic	34.53	H	53.98	500
HBL100	3660	harmonic	35.87	H	53.98	500
HBL100	1830	harmonic	32.70	V	53.98	500
HBL100	2745	harmonic	34.20	V	53.98	500
HBL100	3660	harmonic	36.53	V	53.98	500

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)	Limit (µV/m)
HBL100	1850	harmonic	32.33	H	53.98	500
HBL100	2775	harmonic	35.77	H	53.98	500
HBL100	3700	harmonic	37.97	H	53.98	500
HBL100	1850	harmonic	32.67	V	53.98	500
HBL100	2775	harmonic	35.27	V	53.98	500
HBL100	3700	harmonic	38.63	V	53.98	500

peak field strength:

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dB μ V/m)	Polarisation	Limit (dB μ V/m)	Limit (μ V/m)
HBL100	1818	harmonic	45.83	H	73.98	5000
HBL100	2727	harmonic	49.50	H	73.98	5000
HBL100	3636	harmonic	52.13	H	73.98	5000
HBL100	1818	harmonic	46.50	V	73.98	5000
HBL100	2727	harmonic	49.17	V	73.98	5000
HBL100	3636	harmonic	52.47	V	73.98	5000

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dB μ V/m)	Polarisation	Limit (dB μ V/m)	Limit (μ V/m)
HBL100	1830	harmonic	45.53	H	73.98	5000
HBL100	2745	harmonic	48.70	H	73.98	5000
HBL100	3660	harmonic	50.20	H	73.98	5000
HBL100	1830	harmonic	62.50	V	73.98	5000
HBL100	2745	harmonic	61.00	V	73.98	5000
HBL100	3660	harmonic	58.67	V	73.98	5000

Type	Frequency (MHz)	Nature of emission	Test result @ 3 m distance (dB μ V/m)	Polarisation	Limit (dB μ V/m)	Limit (μ V/m)
HBL100	1850	harmonic	46.33	H	73.98	5000
HBL100	2775	harmonic	49.77	H	73.98	5000
HBL100	3700	harmonic	52.30	H	73.98	5000
HBL100	1850	harmonic	46.33	V	73.98	5000
HBL100	2775	harmonic	49.43	V	73.98	5000
HBL100	3700	harmonic	53.63	V	73.98	5000

Spurious emissions up to 10 GHz have been investigated.

Measurement uncertainty: +4.5 dB / -6.1 dB

Used test equipment module

The following measurement equipment was used:

Location Telefication Zevenaar:

Description	ID / SN	Manufacturer	Model
Spectrum Analyzer	TE 00481	Hewlett Packard	HP8563E
RF Preamplifier	TE 00124	Hewlett Packard	HP8349A
Biconilog antenna	TE 00700	EMCO	3143
Horn Antenna	TE 00531	EMCO	3115
Anechoic Chamber	--	Euroshield	RFD-F-100
Digital Thermometer	TE 00388	Fluke	Fluke 51
Antenna tower	--	HD	AS 620p
Turntable	--	HD	DS 412
Turntable controller	--	HD	HD 050

Location TNO Nierkerk:

Description	ID / SN	Manufacturer	Model
Plastic measurement room	12636	Polyforce	-
Open Area Test Site	13886	Comtest	-
Antenna mast 4 m	14277	Heinrich Deisel	MA240
Controller OATS	14278	Heinrich Deisel	HD100
Loop Antenna	1107	Chase	HLA6120
Biconilog antenna 30 MHz - 1000 MHz	15633	Chase	CBL6111B
EMI test receiver	15667	Rohde & Schwarz	ESCS 30
Turntable OATS	99108	Heinrich Deisel	HD050