TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: GN Netcom A/S
A7010 *Bluetooth* Hub

To: OET Bulletin 65 Supplement C: (2001-01)

Test Report Serial No:
RFI/SARE2/RP48143JD05B

Supersedes Test Report Serial No:
RFI/SARE1/RP48143JD05B

This Test Report Is Issued Under The Authority Of Andrew Brown, Operations Manager: **pp.** 	
Tested By: Richlieu Quoi 	**Checked By: Tony Henriques** 
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1. Customer Information

Company Name:	GN Netcom A/S
Address:	Metalbuen 66 Ballerup DK-27500 Denmark
Contact Name:	Jan Hildebrand

2. Equipment Under Test (EUT)

The following information (with the exception of the date of receipt) has been supplied by the customer:

2.1. Description of EUT

The equipment under test is a '*Bluetooth* connectivity hub' that primes your headset for dual use by enabling a desk phone for wireless *Bluetooth* communication. Once the *Bluetooth* Hub is connected, the Jabra JX10 headset can be used with both a desk phone and a mobile phone (when paired).

The *Bluetooth* Hub also allows you to connect a GN1000 (remote handset lifter) that automatically lifts and puts down the desk phone's handset, so you don't have to. With this handset lifter, you only tap your headset to answer or end calls through the desk phone.

2.2. Identification of Equipment Under Test (EUT)

Description:	*Bluetooth* Hub
Brand Name:	Jabra
Model Name or Number:	A7010
Serial Number:	035
Hardware Version Number:	V9
Software Version Number:	2.0.0
FCC ID Number:	BCE-A7010
Country of Manufacture:	China
Date of Receipt:	18 October 2006

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	Remote Handset Lifter
Brand Name:	GN Netcom
Model Name or Number:	GN1000
Serial Number:	None Stated on EUT
Cable Length and Type:	1.5m, 6 Core
Connected to Port	AUX socket on Bluetooth Hub

Description:	Bluetooth Hub Power Supply
Brand Name:	ATL Technology
Model Name or Number:	TEAD-41-070700V
Part Number:	26-00346
Cable Length and Type:	2.5m, 2 Core
Connected to Port	Power Supply Socket on Bluetooth Hub

Description:	Desk Phone – Bluetooth Hub Connection Cord
Brand Name:	Jabra
Model Name or Number:	8764-309
Serial Number:	Not Applicable
Cable Length and Type:	1.5m, 4 Core
Connected to Port	Hand Socket on Bluetooth Hub

2.5. Support Equipment

No support equipment was used to exercise the EUT during testing:

2.6. Additional Information Related to Testing

Equipment Category	*Bluetooth*		
Type of Unit	Portable (Powered via a mains regulated supply)		
Intended Operating Environment:	Within Bluetooth Coverage		
Transmitter Maximum Output Power Characteristics:	4 dBm		
Transmitter Frequency Range:	2402.0 MHz to 2480.0 MHz		
Transmitter Frequency Allocation of EUT When Under Test:	**Channel Number**	**Channel Description**	**Frequency (MHz)**
	39	Middle	2441
Modulation(s):	0 Hz		
Modulation Scheme (Crest Factor):	Bluetooth (Crest Factor 1)		
Antenna Length and Type:	Unknown Length / Internal Type		
Number of Antenna Positions:	1 (Fixed)		
Power Supply Requirement:	DC mains regulated power supply of 7.5V (0.7 A)		

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	OET Bulletin 65 Supplement C: (2001-01)
Title:	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
Purpose of Test:	To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above.

3.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

EN 62209-1: 2006
Title: Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz) (IEC 62209-1:2005).

ANSI/IEEE C95.1: 1999
IEEE standard for safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz.

Federal Communications Commission, “Evaluating compliance with FCC Guidelines for human exposure to radio frequency electromagnetic fields”, OET Bulletin 65 Supplement C, FCC, Washington, D.C, 20554, 2001.

Thomas Schmid, Oliver Egger and Neils Kuster, “Automated E-field scanning system for dosimetric assessments”, IEEE Transaction on microwave theory and techniques,
Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, “Dosimetric evaluation of mobile communications equipment with know precision”, IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

The EUT was tested with a programmable data cable interface point attached and was powered using a DC 7.5 V *Bluetooth* Hub power supply.

5. Operation and Configuration of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating mode(s) unless otherwise stated:

Bluetooth active with continuous transmission in test mode.

The reason for choosing this configuration was that it has been defined by the customer as being typical of normal use and likely to be worst case.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration(s) unless otherwise stated:

Portable *Bluetooth* hub with peripherals (remote handset lifter, *Bluetooth* hub power supply, Desk Phone – *Bluetooth* hub connection cord) and Programmable data cable interface point attached.

Body Configuration

a) The EUT was placed in a normal operating position where the centre of EUT aligned with the centre reference point on the flat section of the 'SAM' phantom.

b) With EUT touching the phantom the imaginary centre line of the EUT was aligned with an marked plane (X and Y axis) consisting of two lines.

c) For the touch-safe position the handset was gradually moved towards the flat section of the 'SAM' phantom until any point of the EUT touched the phantom.

d) For position(s) greater then 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to operate continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the handset and its antenna.

The EUT was transmitting at full power throughout the duration of the test.

6. Summary of Test Results

Test Name	Specification Reference	Compliancy Status
Specific Absorption Rate (SAR) *Bluetooth* – Body Configuration	FCC OET Bulletin 65 Supplement C: (2001-01)	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to section 8 for details of measurement uncertainties.

7.2. Test Results

7.2.1. Specific Absorption Rate – *Bluetooth* – Body Configuration

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.029

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.7 to 23.7

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	39	0.008	1.600	1.592	1	Complied
Rear of EUT Facing Phantom	Flat (SAM)	39	0.029	1.600	1.571	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 0mm from the 'SAM' phantom flat section.*

7.2.2. EIRP Measurement

Channel	Frequency (MHz)	TX Power before Test (dBm)
Middle	2441	4

Note(s):

1. *EIRP measurements are performed before testing only.*

8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Test Name	Confidence Level	Calculated Uncertainty
Specific Absorption Rate - 2400 MHz	95%	± 17.12%

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Measurement Uncertainty (Continued)

Specific Absorption Rate Uncertainty at 2400 MHz, Bluetooth Modulation Scheme calculated in accordance with IEEE 1528-200X

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	c_i	Standard Uncertainty		υ_i or υ_{eff}	Note
							+ u (%)	- u (%)		
B	Probe calibration	8.900	8.900	normal (k=2)	2.0000	1.0000	4.450	4.450	∞	
B	Axail Isotropy	0.100	0.100	normal (k=2)	2.0000	1.0000	0.050	0.050	∞	
B	Hemispherical Isotropy	0.100	0.100	normal (k=2)	2.0000	1.0000	0.050	0.050	∞	
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞	
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞	
B	Linearity	2.330	2.330	Rectangular	1.7321	1.0000	1.345	1.345	∞	
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞	
B	Readout Electronics	0.650	0.650	normal (k=2)	2.0000	1.0000	0.325	0.325	∞	
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞	
B	Integration Time	0.001	0.001	Rectangular	1.7321	1.0000	0.000	0.000	∞	
B	RF Ambinet conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞	
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞	
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞	
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞	
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10	
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10	
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞	
B	Drit of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞	
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞	
B	Liquid Conductivity (measured value)	2.440	2.440	Rectangular	1.7321	1.0000	1.409	1.409	∞	
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞	
B	Liquid Permittivity (measured value)	2.440	2.440	Rectangular	1.7321	1.0000	1.409	1.409	∞	
	Combined standard uncertainty			t-distribution			8.74	8.74	>500	
	Expanded uncertainty			k = 1.96			17.12	17.12	>500	