

**Test report no. : 95029-5**

**Item tested : KX-TH1211**

**Type of equipment : UPCS Base Station with  
Bluetooth Transceiver**

**FCC ID : ACJ96NKX-TH1211**

**Client : Panasonic Communications Co. Ltd.**

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**FCC Part 15, subpart D**

Isochronous UPCS Device  
1920 - 1930 MHz

**Industry Canada RSS-213, Issue 2**

2 GHz Licence-exempt Personal  
Communications Service Devices  
(LE-PCS)

**28 January 2008**

**Authorized by :** ..... 

Egil Hauver  
Technical Verificator

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## 1 GENERAL INFORMATION

### 1.1 Testhouse Info

Name : Nemko Comlab  
Address : Gåsevikveien 8, Box 96  
N-2027 Kjeller, NORWAY  
Telephone : +47 64 84 57 00  
Fax : +47 64 84 57 05  
E-mail: comlab@nemko.com  
FCC test firm  
registration # : 994405  
IC OATS  
registration # : 4443  
Total Number  
of Pages: 15

### 1.2 Client Information

Name : Panasonic Communications Co. Ltd.  
Address : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan  
Telephone : +81 92 477 1405

**Contact:**

Name : Mr. Junji Sumi  
Telephone : +81 92 477 1405  
E-mail : sumi.junji@jp.panasonic.com

### 1.3 Manufacturer (if other than client)

Name : /  
Address : /  
Telephone : /  
E-mail : /

## 2 Test Information

### 2.1 Tested Item

Name :	Panasonic
FCC ID :	ACJ96NKX-TH1211
Industry Canada ID :	216A-KXTH1211
Model/version :	KX-TH1211
Serial number :	/
Hardware identity and/or version:	/
Software identity and/or version :	/
Frequency Range :	1921.536 – 1928.448 MHz
Number of Channels :	5 RF Channels, 5x12 = 60 TDMA Duplex Channels
Type of Modulation :	GFSK
User Frequency Adjustment :	None
Rated Output Power :	87 mW Peak Power, 4 mW Time Averaged Power
Type of Power Supply :	Power Adaptor: PQLV207
Antenna Connector :	None
Antenna Diversity Supported :	Yes
Number of Antennas :	2

#### Description of Tested Device(s)

The tested equipment is a DECT base which complies with ETSI EN 300 175. The frequencies have been reprogrammed, the output power reduced and the software updated to comply with the FCC requirements to an Isochronous UPCS device after FCC Part 15D.

The EUT is an responding device as described in ANSI C63.17 and is designed to operate together with a DECT portable part (i.e. a handset), which is then the initiating device.

#### Exposure Evaluation

The EUT is designed to be fixed to a wall etc. and the user manual contains text that it shall be mounted with a separation distance of at least 20cm from any persons. For the purposes of exposure evaluation this EUT is a mobile or fixed device. MPE Calculation at 20cm satisfying FCC requirements is submitted as a separate document.

The EUT is exempted from RF Exposure Evaluation to Industry Canada SAR requirements since the output power is below the limit in RSS-102 Issue 2, clause 2.5.2 for General Public Use.

## 2.2 Test Environment

Temperature:	21 – 24 °C
Relative humidity:	20 – 40 %
Normal test voltage:	115 V AC

The values are the limit registered during the test period.

## 2.3 Test Period

Item received date:	2008-01-02
Test period :	from 2008-01-14 to 2008-01-25

## 2.4 Test Engineer(s)

Frode Sveinsen

## 2.5 Test Equipment

See list of test equipment in clause 6.

## 2.6 Other Comments

This test report covers only Antenna Gain. For all other test results see Nemko Comlab test report **93830-5** (FCC ID: ACJ96NKX-TG9331).

Since the UPCS part of this model is identical to the previously certified model KX-TG9331 except for the antennas, only the antenna gain has been retested.

It was checked that 85% of the lowest and 115% of the operating voltage did not have any influence on the measurement results.

### 3 TEST REPORT SUMMARY

#### 3.1 General

Manufacturer: Panasonic  
Model No.: KX-TH1211  
Serial No.: /

All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR47 Part 15D for Isochronous UPCS Devices and Industry Canada RSS-213 Issue 2.

The conducted test methods have been in accordance with ANSI C63.17-2006 where applicable.

Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made in a 10m semi-anechoic chamber. A description of the test facility is on file with the FCC and Industry Canada.

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> New Submission  | <input checked="" type="checkbox"/> Production Unit |
| <input type="checkbox"/> Class II Permissive Change | <input type="checkbox"/> Pre-production Unit        |
| <b>PUB</b> Equipment Code                           | <input type="checkbox"/> Family Listing             |

**THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.**

**Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".**



**TEST REPORT NO: 95029-5**

TESTED BY : Frode Sveinsen  
Frode Sveinsen, Chief Engineer

DATE: 28 January 2008

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### 3.2 Test Summary

Name of test	FCC CFR 47 Paragraph #	IC RSS-213 Paragraph #	Verdict
Digital Modulation Techniques	15.319(b)	6.1	Complies
Labeling requirements	15.19(a)(3)	RSS-GEN 5.2	Complies
Antenna Requirement	15.317, 15.203	4.1(e)	Complies
Peak transmit Power	15.319(c)(e), 15.31(e)	6.5	Complies <sup>5</sup>

<sup>1</sup> Only applies for EUT that can be initiating device

<sup>2</sup> The client declares that the tested equipment does not implement this provision

<sup>3</sup> The tested equipment has integrated antennas only

<sup>4</sup> Not required if the Conducted Out-of-Band Emissions test is Passed

<sup>5</sup> See Nemko Comlab test report **93830-5** (FCC ID: ACJ96NKX-TG9331) for Conducted test

## 4 TEST RESULTS

### 4.1 Digital Modulation Techniques

The tested equipment is based on DECT technology described in the ETSI standard EN 300175, the only difference is that the channel allocation is modified to operate in the 1920-1930 MHz band.

The EUT used Multi Carrier / Time Division Multiple Access / Time Division Duplex and Digital GFSK modulation.

For further details see the operational description provided by the applicant.

#### Requirement, FCC 15.319(b):

All transmissions must use only digital modulation techniques.

### 4.2 Labeling Requirements

See separate documents showing the label design and the placement of the label on the EUT.

#### Requirements FCC 15.19

The FCC Identifier shall be displayed on the label, and the device(s) shall bear the following statement in a conspicuous location on the device or in the user manual if the device is too small:

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

The label itself shall be of a permanent type, not a paper label, and shall last the lifetime of the equipment.

### 4.3 Antenna Requirement

Does the EUT have detachable antenna(s)?  Yes  No

If detachable, is the antenna connector(s) non-standard?  Yes  No

The tested equipment has only integral antennas. The conducted tests were performed on a sample with a temporary antenna connector.

**Requirement: FCC 15.203, 15.204, 15.317.**

#### 4.4 Channel Frequencies

UPCS CHANNEL	FREQUENCY (MHz)
Upper Band Edge	1930.000
0 (Highest)	1928.448
1	1926.720
2	1924.992
3	1923.264
4 (Lowest)	1921.536
Lower Band Edge	1920.000

**Requirement: FCC 15.303 (d), (g)**

Within 1920 -1930 MHz band for isochronous devices.

#### 4.5 Automatic Discontinuation of Transmission

Does the EUT transmit Control and Signaling Information?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TYPE OF EUT :	<input type="checkbox"/> INITIATING DEVICE	<input checked="" type="checkbox"/> RESPONDING DEVICE

The following tests simulate the reaction of the EUT in case of either absence of information to transmit or operational failure after a connection with the companion device is established.

Number	Test	EUT Reaction	Verdict
1	Power removed from the EUT	A	Pass
2	EUT Switch Off	NA	Pass
3	Hook-On by companion device	B	Pass
4	Hook-On by EUT	NA	Pass
5	Power Removed from Companion Device	B	Pass
6	Companion Device Switch Off	B	Pass

- A - Connection breakdown, Cease of all transmissions
- B - Connection breakdown, EUT transmits control and signaling information
- C - Connection breakdown, Companion Device transmits control and signaling information
- NA - Not Applicable (the EUT does not have an on/off switch and can not perform Hook-On)

#### Requirements, FCC 15.319(f)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

## 4.6 Peak Power Output

### Test Method:

ANSI C63.17, clause 6.1.2.

**Test Results: Complies**

### Measurement Data:

#### Maximum Conducted Output Power

Channel No.	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Maximum Radiated Output Power (dBm)	Maximum Antenna Gain (dBi)
4	1921.536	19.4	21.1	1.7
2	1924.992	19.3	20.9	1.6
0	1928.448	19.3	20.8	1.5

The Radiated Output Power (EIRP) is measured as Output Power with correction factors stored in the Spectrum Analyzer.

For this test it was also checked that input voltage variation of 85 and 115% of nominal value did not have any effect on the measured output power, neither radiated nor conducted.

The Values for Conducted Output Power are copied from Nemko Comlab test report no. **93830-5**.

### Limit:

Conducted:  $100 \mu\text{W} \times \text{SQRT}(B)$  where  $B$  is the measured Emission Bandwidth in Hz

FCC 15.319(c)(e): 20.8 dBm (120 mW)

RSS-213, Issue 2: 20.7 dBm (117 mW)

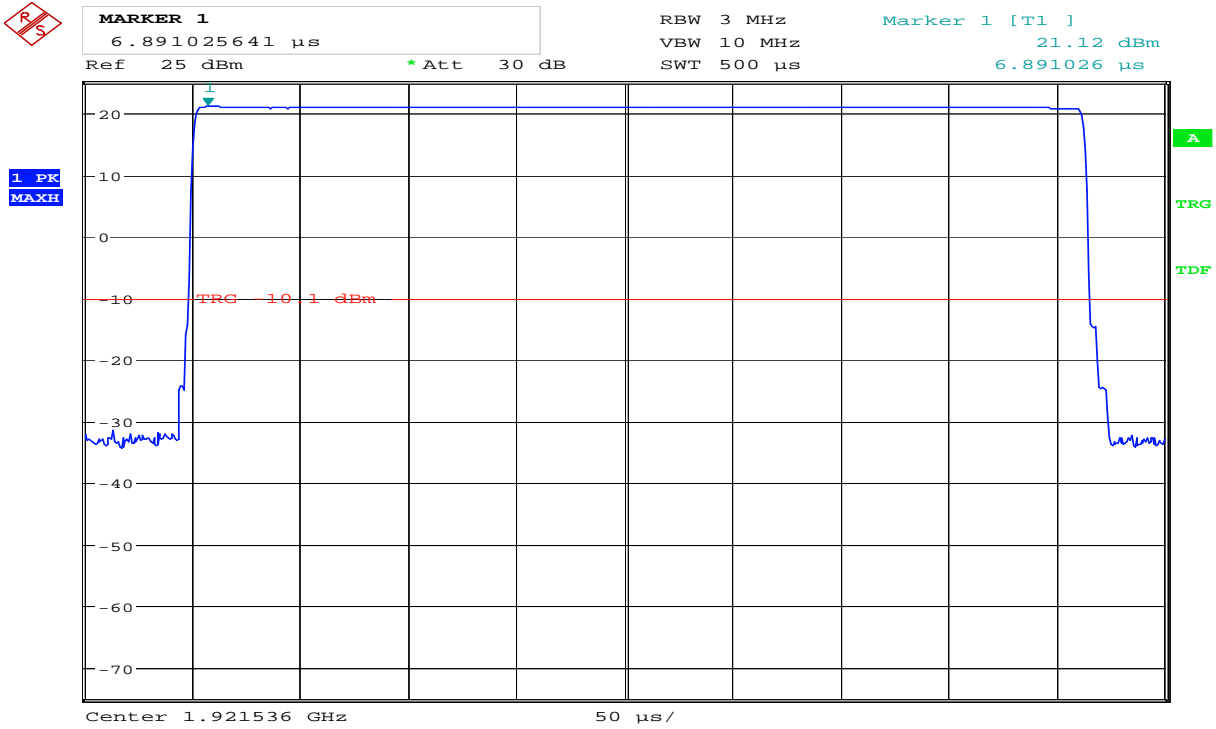
The antenna gain is below 3 dBi, the power limit is not reduced.

### Requirements, FCC 15.319(c)(e), RSS-213, Issue 2

Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in Hertz.

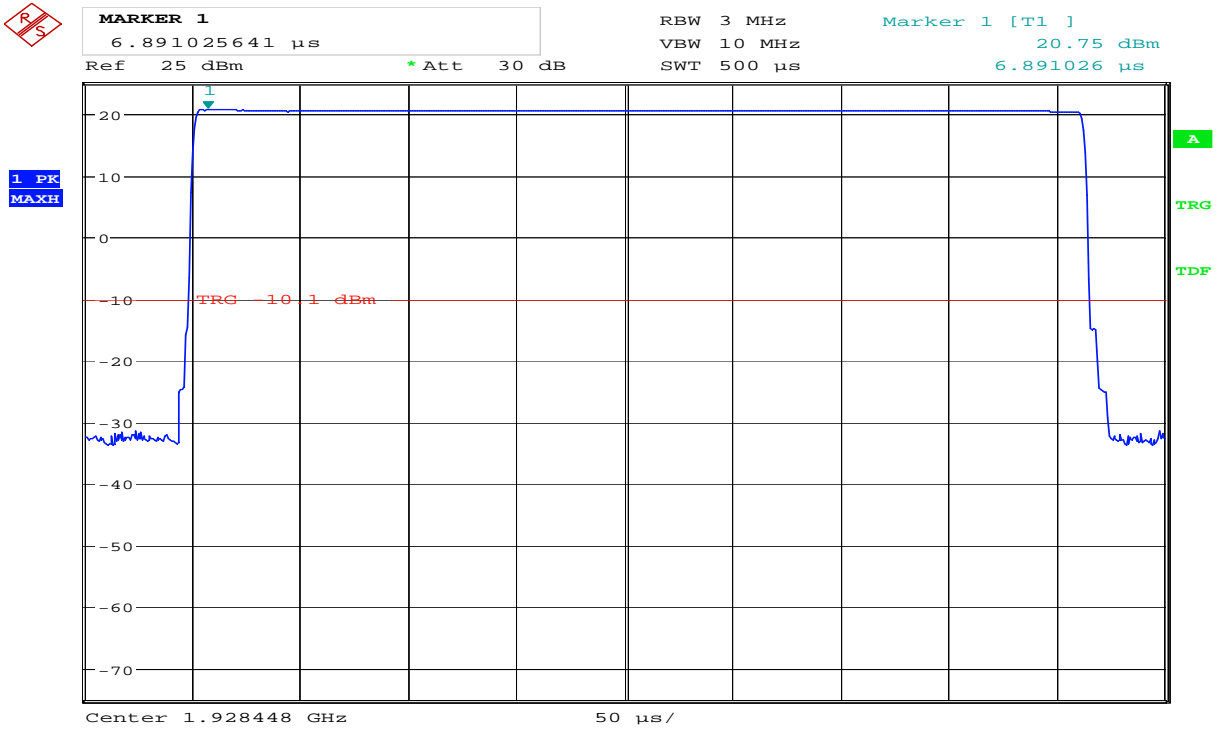
The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

**Radiated Peak Output Power**



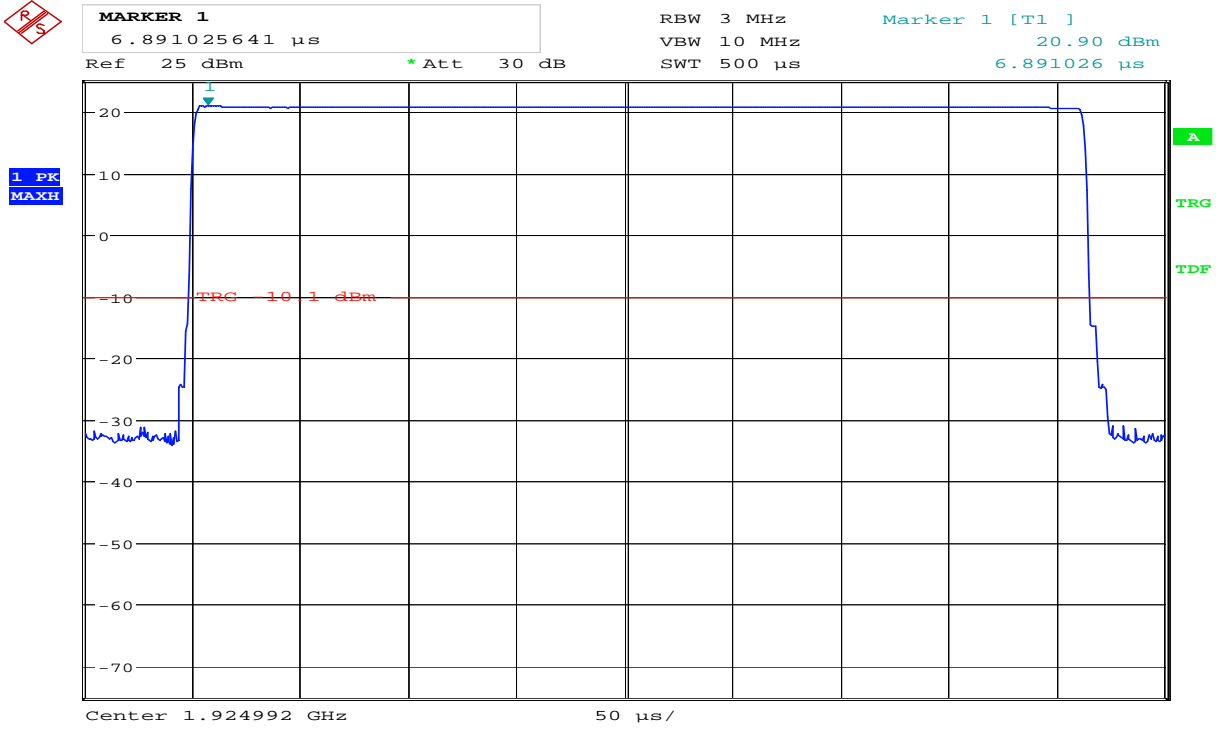
Date: 25.JAN.2008 15:46:08

**Lower Channel (Max: Ant 2, HP)**



Date: 25.JAN.2008 15:48:32

**Upper Channel (Max: Ant 2, HP)**

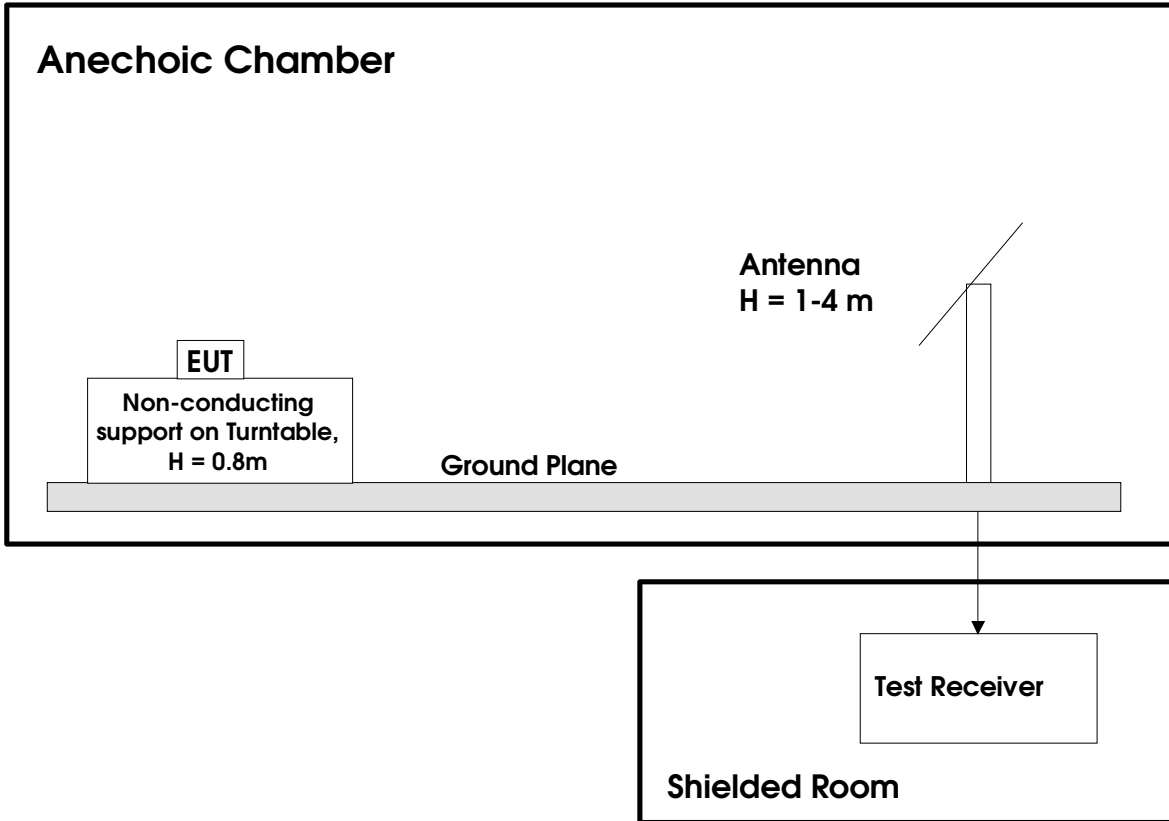


Date: 25.JAN.2008 15:42:53

**Middle Channel (Max: Ant 2, HP)**

## 5 Test Setups

### 5.1 Radiated Emissions Test



Test equipment: 1, 2, 3, 4, 5, 6, 7

#### Test Set-Up 4

This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10m, for all other frequencies it is 3m or 1m. Emissions above 1 GHz were measured with a Spectrum Analyzer and Horn Antenna and with the preamplifier after the antenna. For measurements above 18 GHz the test receiver is moved inside the anechoic chamber and located next to the antenna to minimize the cable loss.

## 6 Test Equipment Used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Testhouse.

No.	Instrument/ancillary	Type of instrument/ancillary	Manufacturer	Ref. no.
1	SMP04	Signal generator	Rohde & Schwarz	LR 1336
2	8449B	Preamplifier	Hewlett Packard	LR 1322
3	6810.17B	Attenuator	Narda	LR 1212
4	6810.17A	Attenuator	Narda	LR 1184
5	3115	Horn Antenna	EMCO	LR 1226
6	FSU26	Spectrum Analyzer	Rohde & Schwarz	LR 1504
7	6812B	AC Power Source	Agilent	LR 1515