



**Test report no. : 147426-2**

**Item tested : KX-TG9321**

**Type of equipment : UPCS Base**

**FCC ID : ACJ96NKX-TG9321**

**Client : Panasonic System Networks Co., Ltd.**

**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)

**4 May 2010**

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

Egil Hauger  
Technical Verificator



## CONTENTS

<b>1</b>	<b>GENERAL INFORMATION</b> .....	<b>3</b>
1.1	Testhouse Info .....	3
1.2	Client Information .....	3
1.3	Responsible Manufacturer (if other than client) .....	3
<b>2</b>	<b>TEST INFORMATION</b> .....	<b>4</b>
2.1	Tested Item .....	4
2.2	Description of Tested Device .....	4
2.3	Exposure Evaluation .....	4
2.4	Test Environment .....	5
2.5	Test Period .....	5
2.6	Test Engineers .....	5
2.7	Test Equipment .....	5
2.8	Other Comments .....	5
<b>3</b>	<b>TEST REPORT SUMMARY</b> .....	<b>6</b>
3.1	General .....	6
3.2	Test Summary .....	7
<b>4</b>	<b>TEST RESULTS</b> .....	<b>8</b>
4.1	Power Line Conducted Emissions .....	8
4.2	Coordination with fixed microwave .....	13
4.3	Peak Power Output .....	14
<b>5</b>	<b>TEST SETUPS</b> .....	<b>17</b>
5.1	Power Line Conducted Emissions Test .....	17
5.2	Radiated Emissions Test, Fully Anechoic Chamber .....	17
<b>6</b>	<b>TEST EQUIPMENT USED</b> .....	<b>18</b>

## 1 GENERAL INFORMATION

### 1.1 Testhouse Info

Name : Nemko AS  
Address : Nemko Kjeller  
          Instituttveien 6  
          N-2007 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 # : 2040D-1  
Total Number of Pages: 18

### 1.2 Client Information

Name : Panasonic System Networks Co., Ltd.  
Address : 1-62, 4-Chome, Minoshima, Hakata-ku, Fukuoka 812-8531 Japan  
Telephone : +81-92-477-1405  
Fax : +81-92-477-1487

**Contact:**

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

### 1.3 Responsible Manufacturer (if other than client)

Name : /  
Address : /

## 2 Test Information

### 2.1 Tested Item

Name :	Panasonic
Model name :	KX-TG9321
FCC ID :	ACJ96NKX-TG9321
Industry Canada ID :	216A-KXTG9321
Serial number :	/
Hardware identity and/or version:	/
Software identity and/or version :	/
Tested to IC Radio Standard (RSS) :	RSS-213 Issue 2, RSS-GEN Issue 2
Test Site IC Reg. Number :	IC 2040D-1
Frequency Range :	1921.536 – 1928.448 MHz
Number of Channels :	5 RF Channels, 5x12 = 60 TDMA Duplex Channels
Type of Modulation :	Digital (Gaussian Frequency Shift Keying)
RF Power :	0.090 Watts (Conducted, Peak)
Occupied Bandwidth (99% BW) :	1266 kHz
Emission Designator (TRC-43) :	1M3F1E
Transmitter Spurious (worst case) :	Less than -48 dBm (Conducted)
Receiver Spurious (worst case) :	Less than -80 dBm (Conducted)
Antenna Connector :	None
Number of Antennas :	2
Antenna Diversity Supported :	Yes
Desktop Charger :	Integrated into Base
Power Supply :	Power Adaptor, Models: PQLV219(FW) and PQLV219(UC)

### 2.2 Description of Tested Device

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.

### 2.3 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.

## 2.4 Test Environment

Temperature:	22.4 - 23.2 °C
Relative humidity:	35 - 40 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

## 2.5 Test Period

Item received date:	2010-04-06
Test period :	from 2010-04-07 to 2010-04-09

## 2.6 Test Engineers

Frode Sveinsen / Thanh Tran

## 2.7 Test Equipment

See list of test equipment in clause 6.

## 2.8 Other Comments

The Model KX-TG9321 covered by this test report is identical to the previously tested model KX-TG9391 (FCC ID: ACJ96NKX-TG9391 and IC: 216A-KXTG9391), except for the antenna design and one of the AC adaptors.

This test report covers only re-tests for test results that may have changed due to the new antenna design and the new AC Adaptor. All other tests are covered by Nemko test report no. 106355-6 for Panasonic Model KX-TG9391, FCC ID: ACJ96NKX-TG9391 and IC: 216A-KXTG9391.

All tests in this report were performed radiated with the integral antennas.

### 3 TEST REPORT SUMMARY

#### 3.1 General

Manufacturer: Panasonic System Networks Co., Ltd.  
Model No.: KX-TG9321  
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. A description of the test facility is on file with the FCC and Industry Canada. The antenna gain tests were performed in a 3m fully anechoic chamber.

- |   |   |
|---|---|
| <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: 147426-2**

TESTED BY : Frode Sveinsen  
Frode Sveinsen, Job title

DATE: 12 April 2010

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### 3.2 Test Summary

Name of test	FCC CFR 47 Paragraph #	IC RSS-213 Paragraph #	Verdict
Power Line Conducted Emission	15.107(a) 15.207(a)	6.3 RSS-GEN 7.2.2	Complies
Peak transmit Power	15.319(c)(e), 15.31(e)	6.5	Complies

## 4 TEST RESULTS

### 4.1 Power Line Conducted Emissions

Para. No.: 15.207 (a)

Test Performed By: Thanh Tran	Date of Test: 9-April-2010
-------------------------------	----------------------------

Measurement procedure: ANSI C63.4-2003 using 50  $\mu$ H/50 ohms LISN.

Test Results: Complies

Measurement Data: See attached graph, (Peak detector).

Adaptor PQLV219(UC):

All measured values are below the Average Limit, even when measured with Peak Detector.

Adaptor PQLV219(FW):

Highest measured values (L1 and N):

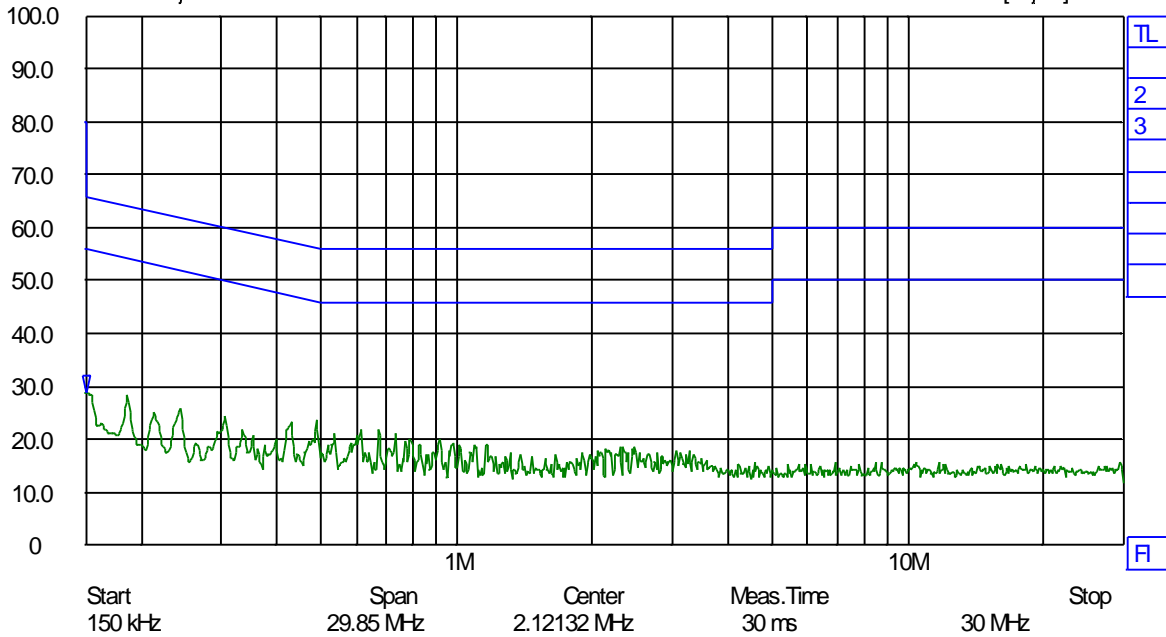
Frequency	Detector	Measured value	Limit	Margin
KHz	Peak/QP/AV	dB $\mu$ V	dB $\mu$ V	dB
2 263	QP	39.8	56	16.2
	AV	29.5	46	16.5
2 501	QP	38.9	56	17.1
	AV	30.2	46	15.8



Date 09.Apr.'10 Time 12:30:17  
 Ref.Lvl 100.00 dBuV  
 Marker 28.90 dBuV  
 150.00000 kHz

Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 10 dB  
 Unit [dBuV]



Mains N (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #1, on-hook and charger mode

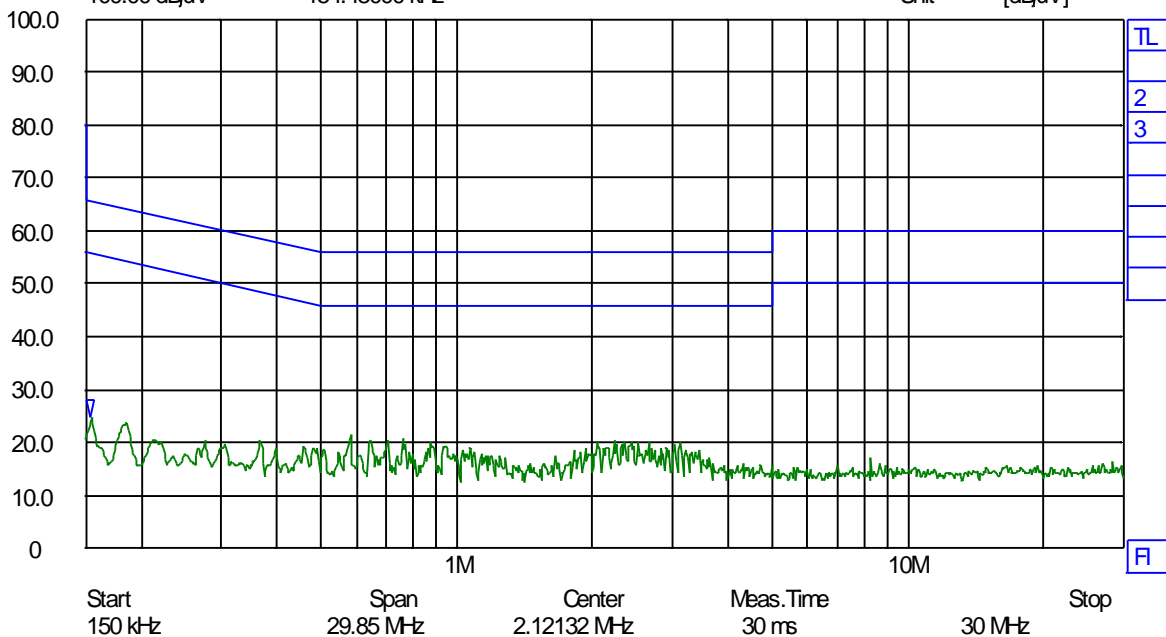
Mains N, On-Hook, Charger Mode, Adaptor PQLV219(UC)



Date 09.Apr.'10 Time 12:46:43  
 Ref.Lvl 100.00 dBuV  
 Marker 24.84 dBuV  
 154.48000 kHz

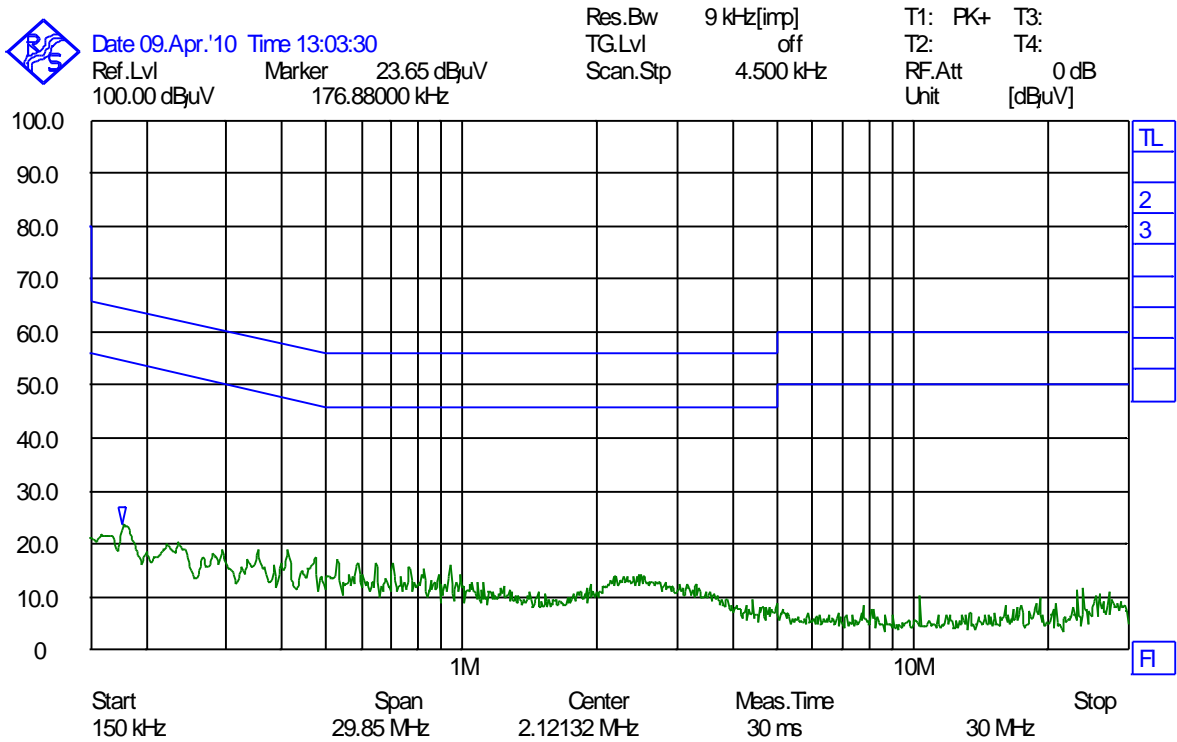
Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 10 dB  
 Unit [dBuV]



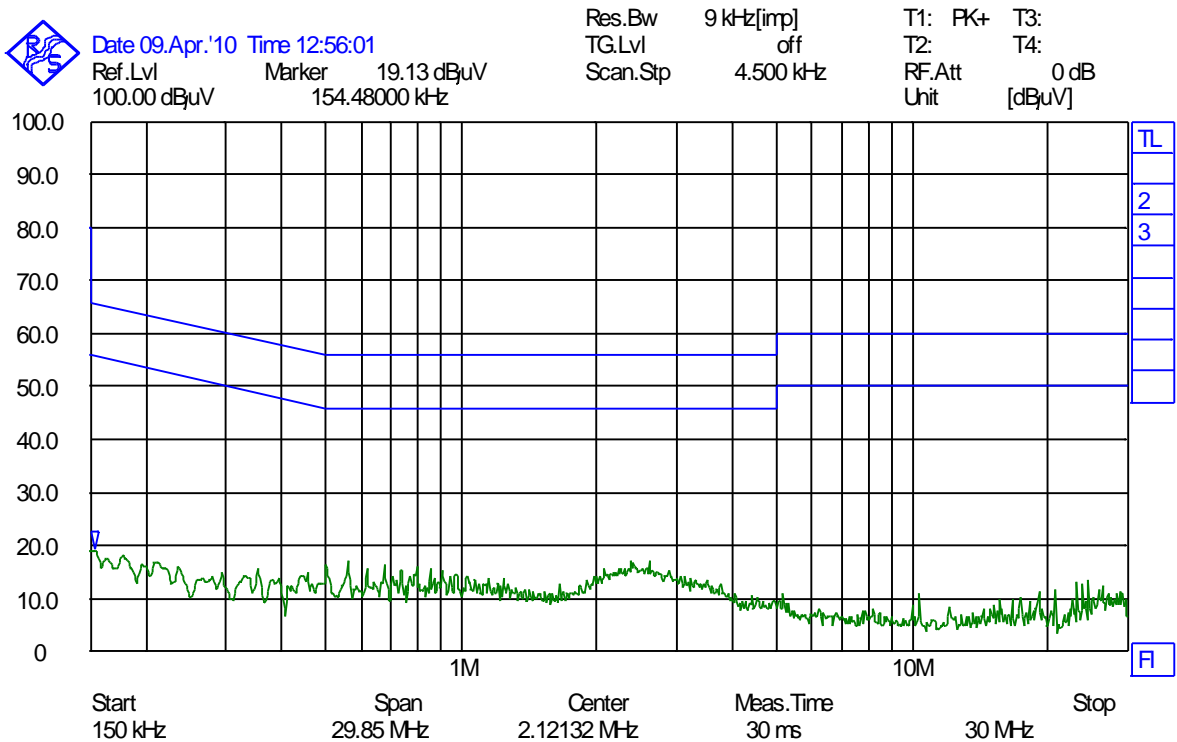
Mains L1 (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #1, on-hook and charger mode

Mains L1, On-Hook, Charger Mode, Adaptor PQLV219(UC)



Mains N (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #1, off-hook mode

Mains N, Off-Hook, Adaptor PQLV219(UC)



Mains L1 (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #1, off-hook mode

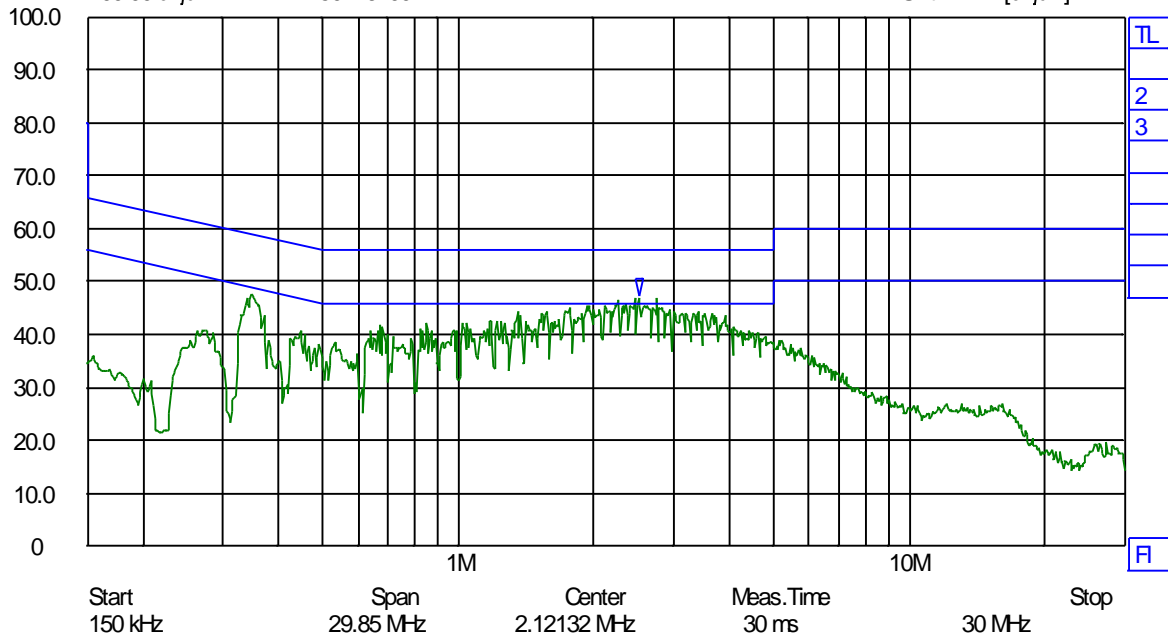
Mains L1, Off-Hook, Adaptor PQLV219(UC)



Date 09.Apr.'10 Time 13:46:28  
 Ref.Lvl 100.00 dBuV  
 Marker 47.08 dBuV  
 2.50146400 MHz

Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 10 dB  
 Unit [dBuV]



Mains N (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #2, on-hook and charger mode

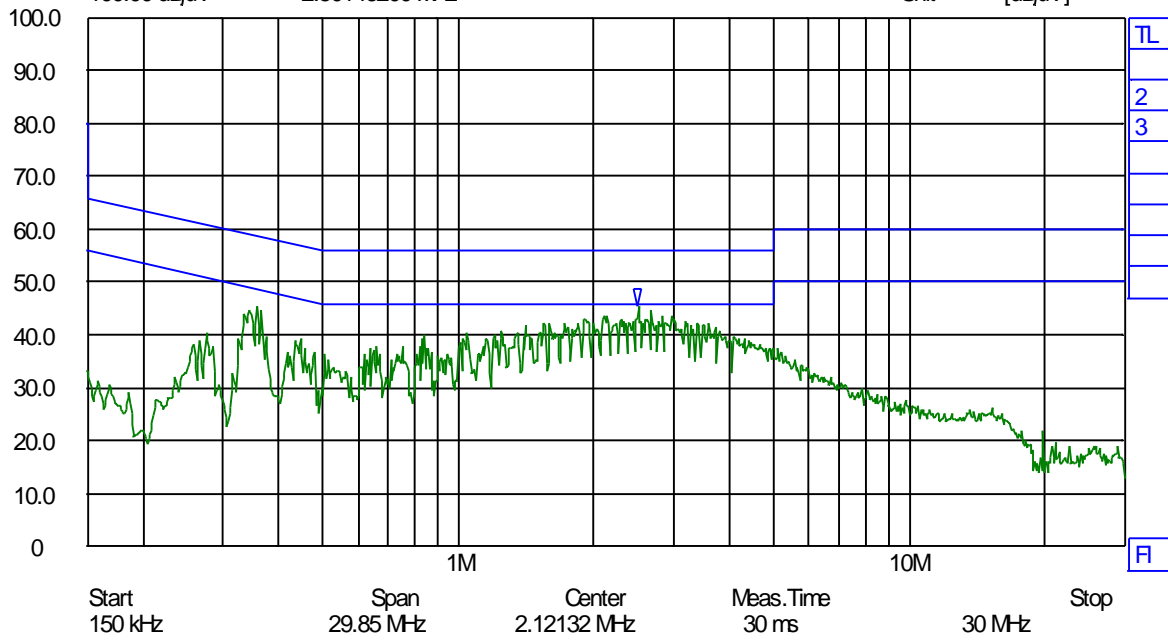
Mains N, On-Hook, Charger Mode, Adaptor PQLV219(FW)



Date 09.Apr.'10 Time 13:37:31  
 Ref.Lvl 100.00 dBuV  
 Marker 45.33 dBuV  
 2.50146200 MHz

Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 10 dB  
 Unit [dBuV]



Mains L1 (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #2, on-hook and charger mode

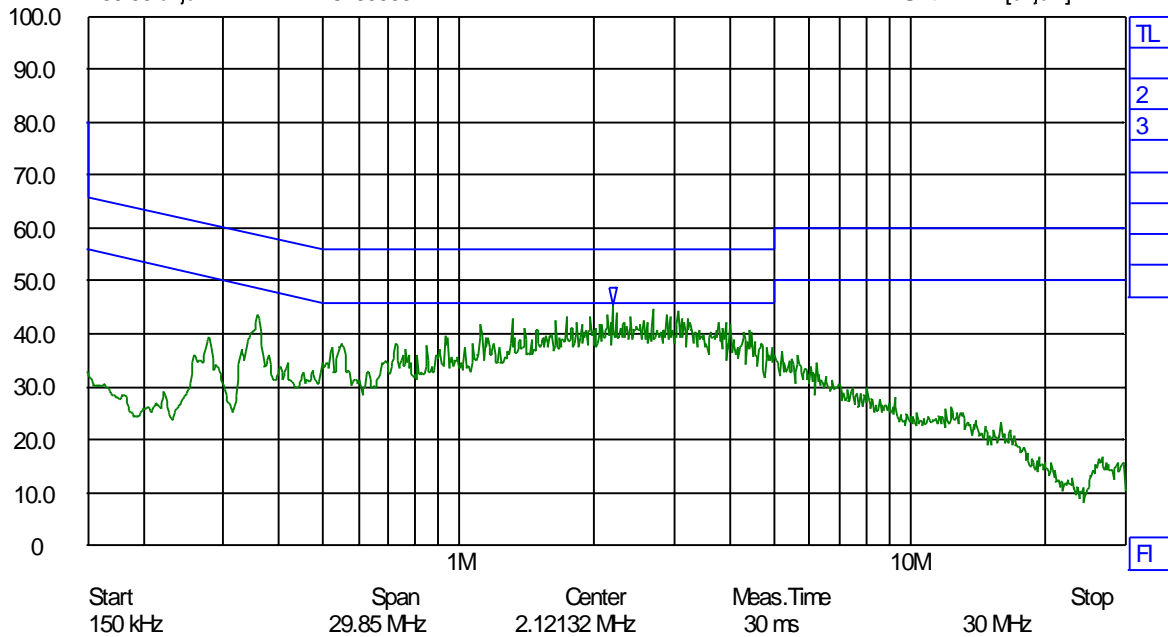
Mains L1, On-Hook, Charger Mode, Adaptor PQLV219(FW)



Date 09.Apr.'10 Time 13:13:47  
 Ref.Lvl 100.00 dBuV  
 Marker 45.51 dBuV  
 2.18469000 MHz

Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 0 dB  
 Unit [dBuV]



Mains N (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #2, off-hook mode

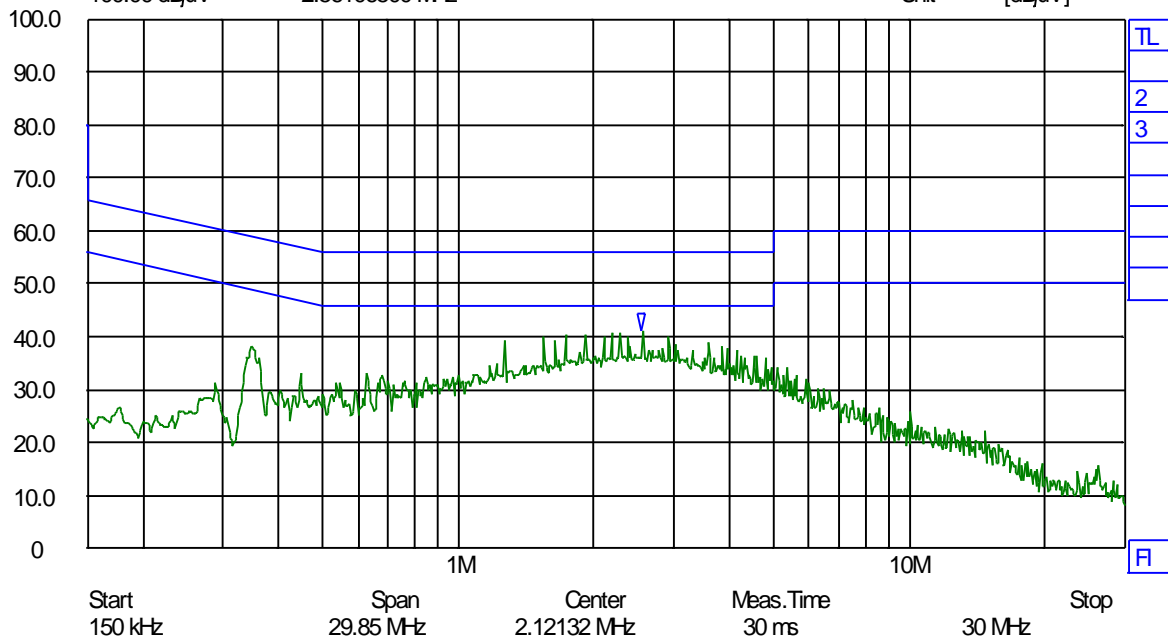
Mains N, Off-Hook, Adaptor PQLV219(FW)



Date 09.Apr.'10 Time 13:23:50  
 Ref.Lvl 100.00 dBuV  
 Marker 41.27 dBuV  
 2.56106500 MHz

Res.Bw 9 kHz[imp]  
 TG.Lvl off  
 Scan.Stp 4.500 kHz

T1: PK+ T3:  
 T2: T4:  
 RF.Att 0 dB  
 Unit [dBuV]



Mains L1 (120Vac/60Hz), Base KX-TG9321 with adaptor PQLV219 type #2, off-hook mode

Mains L1, Off-Hook, Adaptor PQLV219(FW)

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## 4.2 Coordination with fixed microwave

The affidavit from UTAM, Inc. is included in the documentation supplied by the applicant:

Yes

No

### Requirement, FCC 15.307 (b):

Each application for certification of equipment operating under the provisions of this Subpart must be accompanied by an affidavit from UTAM, Inc. certifying that the applicant is a participating member of UTAM, Inc. In the event a grantee fails to fulfill the obligations attendant to participation in UTAM, Inc., the Commission may invoke administrative sanctions as necessary to preclude continued marketing and installation of devices covered by the grant of certification, including but not limited to revoking certification.

### 4.3 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	19.5*	19.8	+0.3
2	1924.992	19.4*	20.0	+0.5
0	1928.448	19.4*	20.6	+1.2

\* Conducted Output Power values are from Nemko Report no. 106355-6 for the original model KX-TG9391.

The Radiated Output Power 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.

**Limit:**

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

FCC 15.319(c)(e): 21.4 dBm (137 mW)

RSS-213, Issue 2: 20.6 dBm (116 mW)

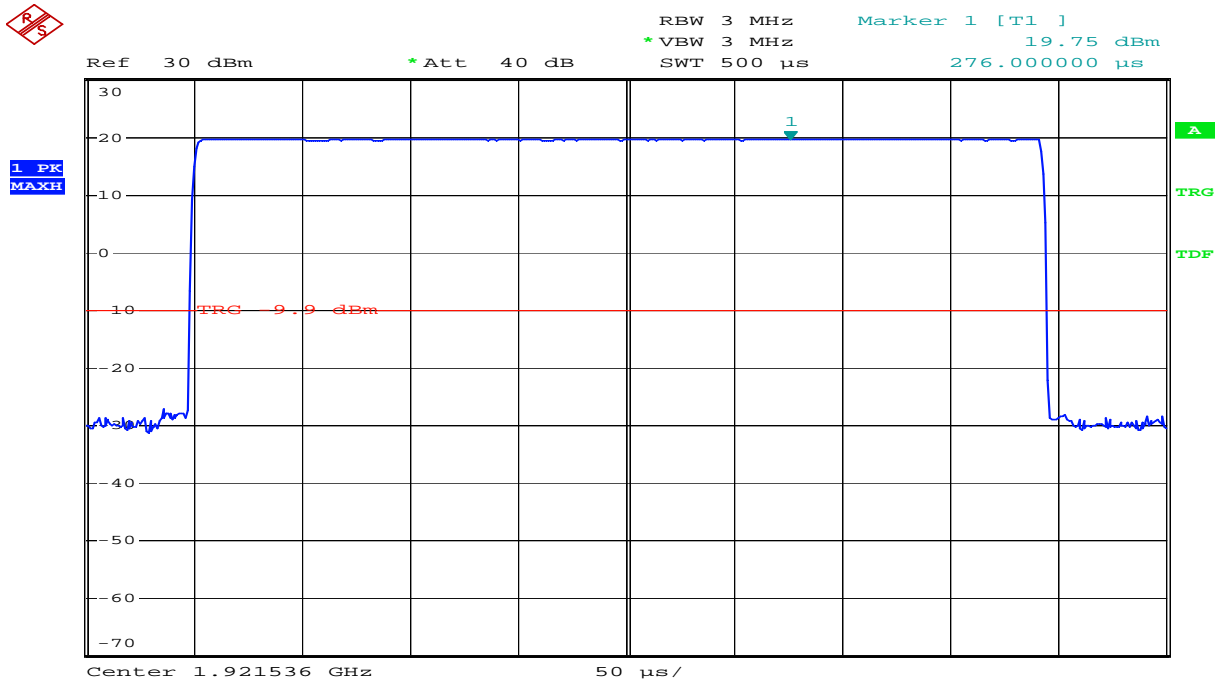
The antenna gain is below 3 dBi, no reduction in transmit power is necessary.

**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.

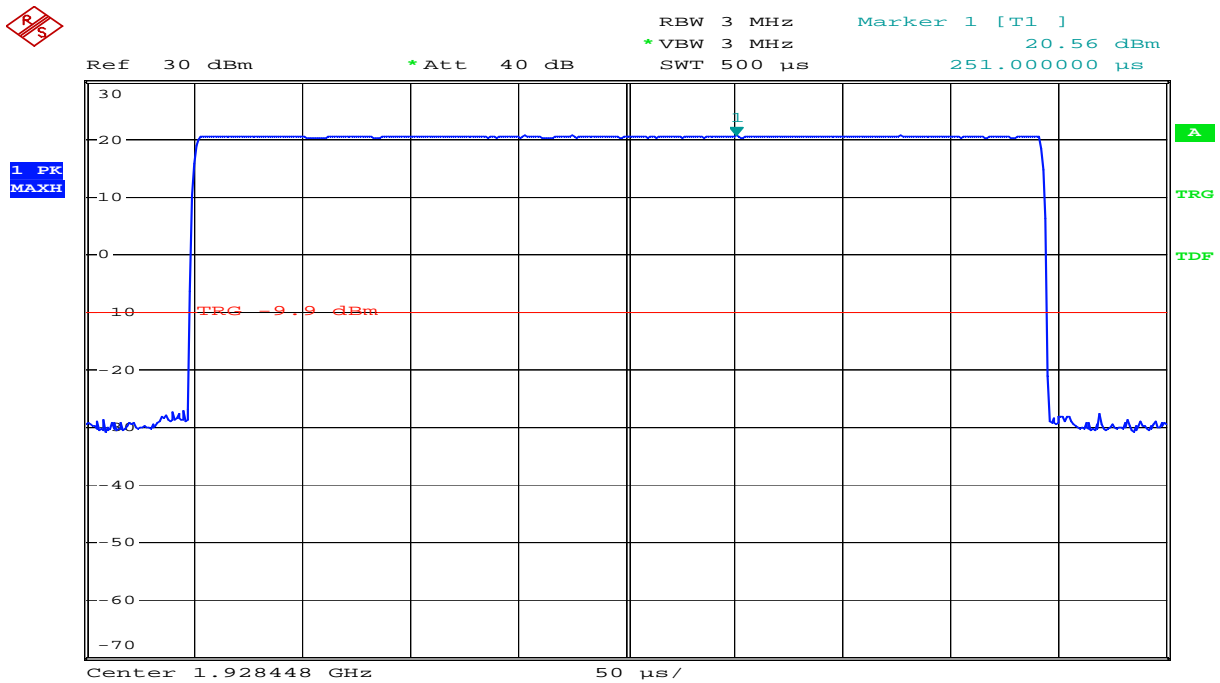
The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

**Radiated Peak Output Power**



Date: 7.APR.2010 12:08:02

**Lower Channel (Max: Ant 1, VP)**

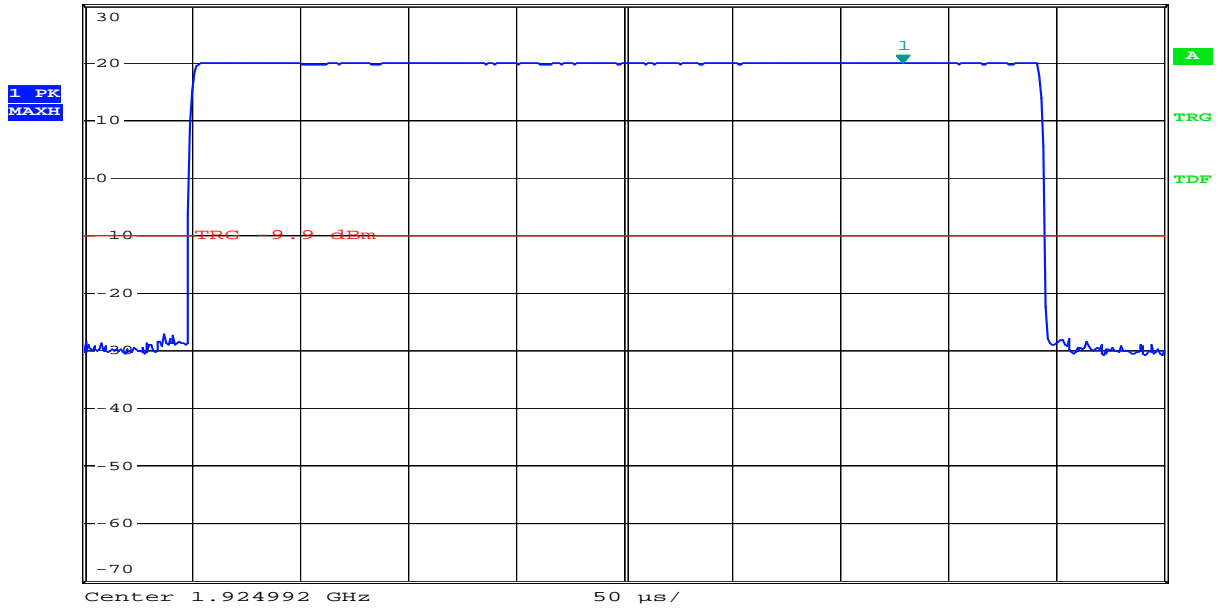


Date: 7.APR.2010 11:13:15

**Upper Channel (Max: Ant 1, VP)**



Ref 30 dBm      \*Att 40 dB      RBW 3 MHz      Marker 1 [T1]      19.98 dBm  
 \*VBW 3 MHz      329.000000 μs  
 SWT 500 μs

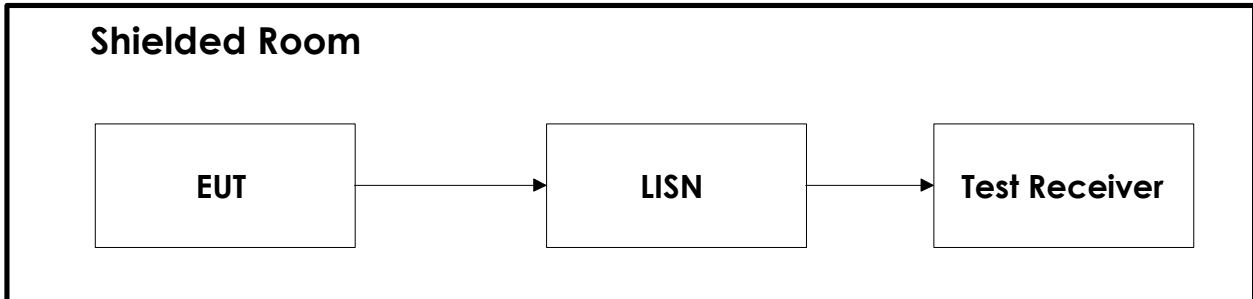


Date: 7.APR.2010 11:32:22

**Middle Channel (Max: Ant 1, VP)**

## 5 Test Setups

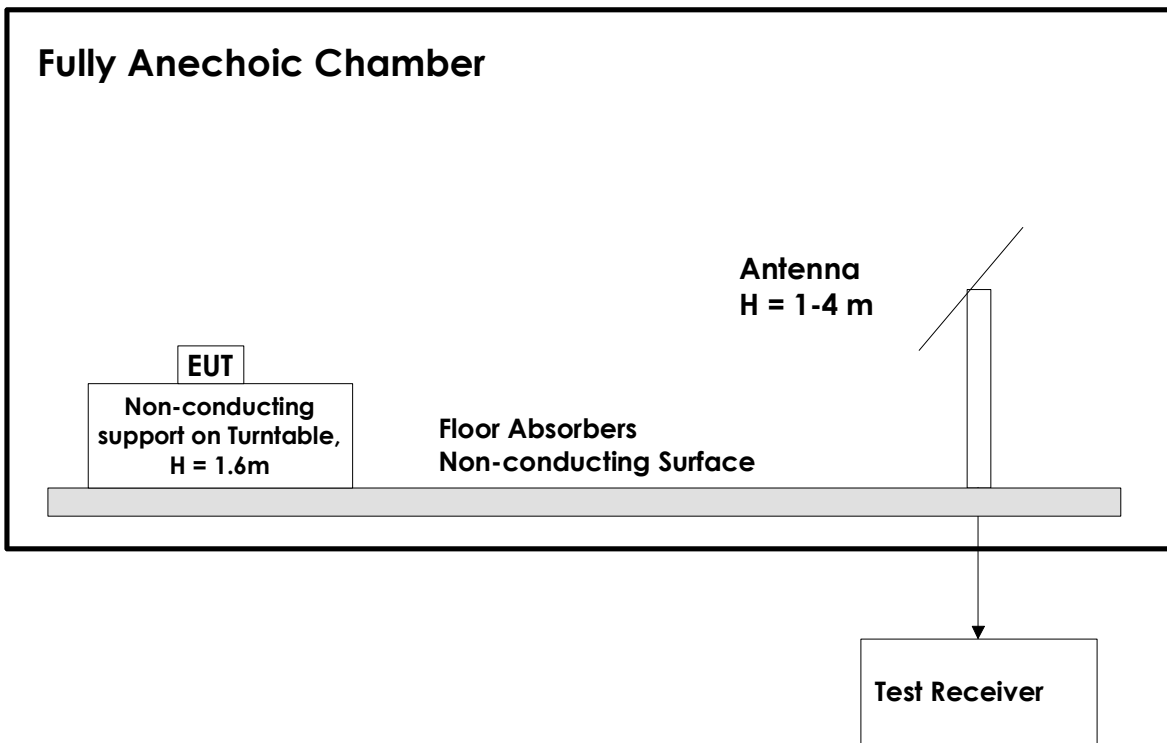
### 5.1 Power Line Conducted Emissions Test



Test equipment: 1, 3, 4, 8

#### Test Set-Up 1

### 5.2 Radiated Emissions Test, Fully Anechoic Chamber



Test equipment: 2, 5, 6, 7

#### Test Set-Up 2

This test setup is used for measuring radiated output power. The measurements are performed in a 3m Fully Anechoic Chamber with a Spectrum Analyzer and Horn Antenna, a preamplifier may be used after the antenna. The measuring distance is 3m.

## 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.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. due
1	ESAI	Measuring Receiver	Rohde & Schwarz	LR 1090	2010.03.04	2012.03.04
2	3115	Horn Antenna	EMCO	LR 1226	2008.11.06	2010.11.06
3	ESH3-Z5	Two Line V-Network	Rohde & Schwarz	LR 1076	2009.10.22	2011.10.22
4	80S	Signal Generator	Powertron	LT 502	cal B4 use	N/A
5	6812B	AC Power Source	Agilent	LR 1515	2009.04.21	2010.04.21
6	FSP30	Spectrum Analyzer	Rohde & Schwarz	LR 1551	2009-02	2011-02
7	JS3	Pre-Amplifier	Miteq	LR 1552	2009.03.18	2011.03.18
8	Model 77	Multimeter	Fluke	LR 312	2009.04.23	2011.04.23