Report No. **410056-03-R00**

Test Report

Product	DECT Base Station with Bluetooth
Name and address of the applicant	Panasonic Corporation of North America Two Riverfront Plaza, 9th Floor Newark, 07102-5490, NJ, USA
Name and address of the manufacturer	Panasonic Corporation 1-62, 4-chome, Minoshima, Hakata-ku Fukuoka, 812-8531, Japan
Model	KX-TGF770 / KX-TGF780 / KX-TGF970 KX-TGF770C / KX-TGF780C / KX-TGF790C / KX-TGF980C
Rating	120V 60Hz (Input: 120V ~60Hz 0.1A; Output: 5.5V 0.5A, 2.75W)
Trademark	Panasonic
Serial number	4100560002
Additional information	DECT 6.0, Bluetooth Basic Rate
Tested according to	**FCC Part 15, subpart B** Other Class B Digital Device **Industry Canada ICES-003, Issue 7** Information Technology Equipment (ITE)
Order number	410056
Tested in period	2020-11-19 to 2020-12-16
Issue date	2020-12-18
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway www.nemko.com CAB Number: FCC: NO0001 ISED: NO470 TEL: +47 22 96 03 30 FAX: +47 22 96 05 50 ilac-MRA NORWEGIAN ACCREDITATION TEST 033 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [Frode Sveinsen]	Approved by [Jan G Eriksen]

Template version: C

CONTENTS

1 INFORMATION 3
1.1 Tested Item 3
1.2 Test Environment 4
1.3 Test Engineer(s) 4
1.4 Test Equipment 4
1.5 Test Configurations 4
1.6 Other Comments 4

2 TEST REPORT SUMMARY 5
2.1 General 5
2.2 Test Summary 6

3 TEST RESULTS 7
3.1 Power Line Conducted Emissions 7
3.2 Spurious Emissions (Radiated) 9

4 MEASUREMENT UNCERTAINTY 11

5 TEST SETUPS 12
5.1 Radiated Emissions Test 12
5.2 Power Line Conducted Emissions Test 12

6 TEST EQUIPMENT USED 13

1 INFORMATION

1.1 Tested Item

Name	**Panasonic**
Model name	**KX-TGF770 / KX-TGF780 / KX-TGF970 (US Models)** **KX-TGF770C / KX-TGF780C / KX-TGF790C / KX-TGF980C (Canadian Models)**
FCC ID	**ACJ96NKX-TGF780A**
FCC / ISED Class	**B – Residential Use**
Serial number	**4100560002**
Hardware identity and/or version	**PNLB2793**
Software identity and/or version	**SW200**
AC Adaptor(s)	**AC Adaptor PNLV226 (Input: 120V ~60Hz 0.1A, Output: 5.5V_{DC} 0.5A, 2.75W)**
Interfaces	**PSTN**

Description of Tested Device

The tested equipment is a DECT Base Station with Bluetooth transceiver.

The tested model KX-TGF970 is identical to the already certified models KX-TGF770 / KX-TGF780 (FCC ID: ACJ96NKX-TGF780), except that the Bluetooth Part is changed in the new models.

1.2 Test Environment

Temperature:	**20 – 25 ºC**
Relative humidity:	**30 – 50 %**
Normal test voltage:	**120 V 60 Hz**

The values are the limit registered during the test period.

1.3 Test Engineer

Frode Sveinsen / Thanh Tran

1.4 Test Equipment

See list of test equipment in clause 6.

1.5 Test Configurations

Test Configuration	**The test was performed with the EUT connected to a 120 V 60 Hz power source**
AC adaptors	**All tests were performed with the supplied AC adaptor PNLV226.**
Connections	**The PSTN line was terminated in 50 Ohm during all tests.**

1.6 Other Comments

All tests were performed with all ports populated and operating.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

All tests were performed is accordance with ANSI C63.4-2014 where applicable. Radiated emissions are made in a 10m semi-anechoic chamber. A description of the test facility is on file with FCC and Industry Canada.

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”.

2.2 Test Summary

Name of test	FCC CFR 47, Paragraph #	ISED RSS-GEN, Issue 5, Paragraph #	ISED ICES-003, Issue 7, Paragraph #	Verdict
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2	3.2.1	Complies
Spurious Emissions (Radiated)	15.109	7.3	3.2.2	Complies

Revision history

Revision	Date	Comment	Sign
00	2020-12-18	First Edition	FS

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.107 (a)

ISED RSS-Gen Issue 5, Clause 7.2

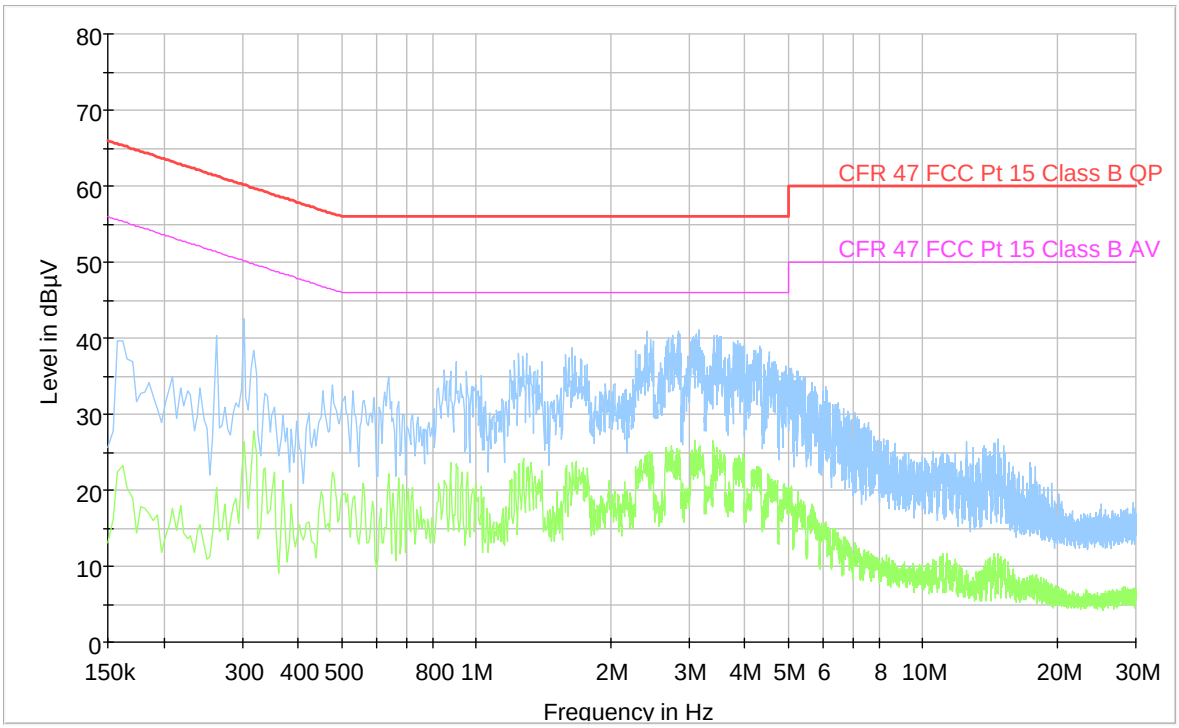
ISED ICES-003 Issue 7, Clause 3.2.1

Measurement procedure:	**ANSI C63.4-2014 using 50 µH/50 ohms LISN.**
Test Results:	**Complies**
Measurement Data:	**See attached plots.**

Highest measured value (L1 and N):

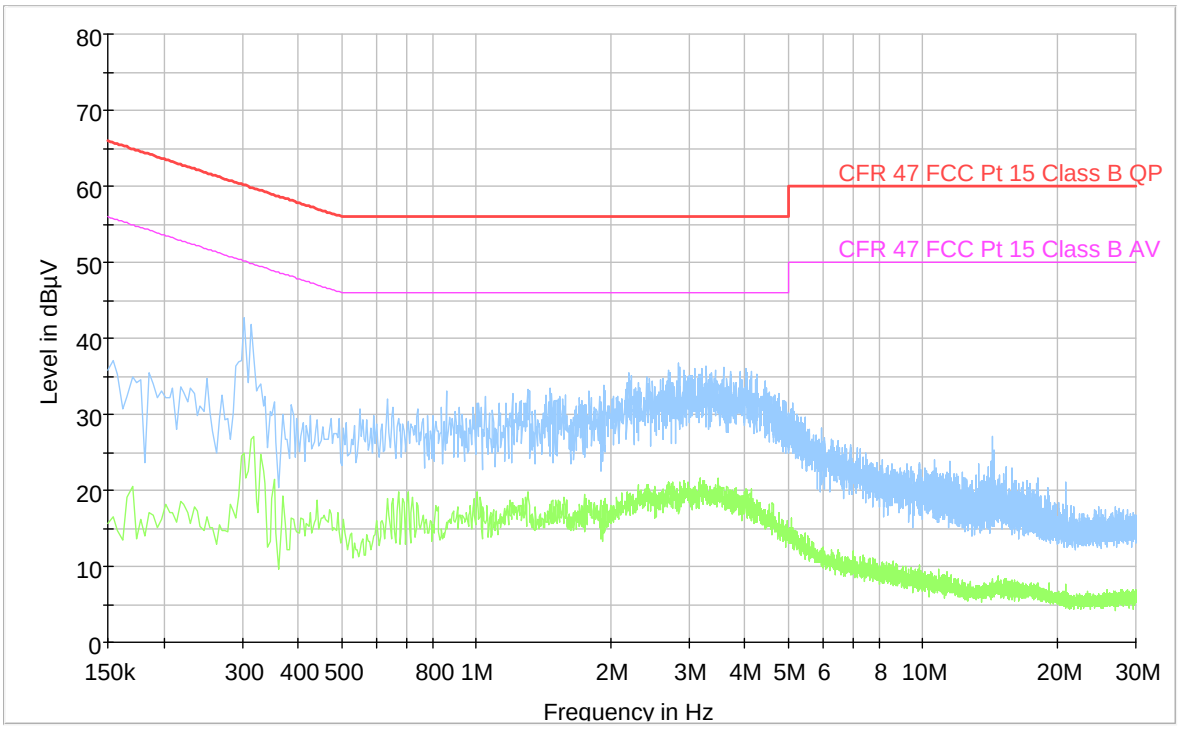
All values are below the Average Limit even when measured with Peak Detector.

Full Spectrum



PNLV226, On-Hook, Handset Charging, 120V 60Hz

Full Spectrum



PNLV226, Off-Hook, 120V 60Hz

3.2 Spurious Emissions (Radiated)

FCC Part 15.109

ISED RSS-Gen Issue 5, Clause 7.3

ISED ICES-003 Issue 7, Clause 3.2.2

Test Results:

Radiated Emissions 30 - 1000 MHz.

Detector: Quasi-Peak

Measuring distance 3 m

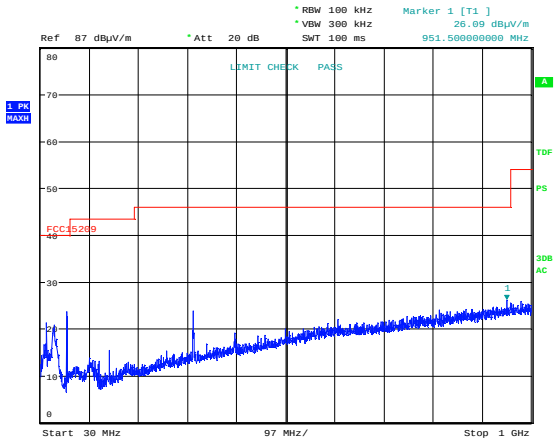
The EUT were rotated 360 degrees and the antenna height varied between 1 and 4 m on all found frequencies.

Frequency MHz	Field strength @3m QP Det., dBµV/m	Limit dBµV/m	Margin dB
41.47	**30.2**	**40.0**	**9.8**
82.94	**30.4**	**40.0**	**9.6**
All other freq.	**< 30**	**40/43.5/46/54**	**>10**
All other freq.	**< 30**	**40/43.5/46/54**	**>10**

Requirements/Limit

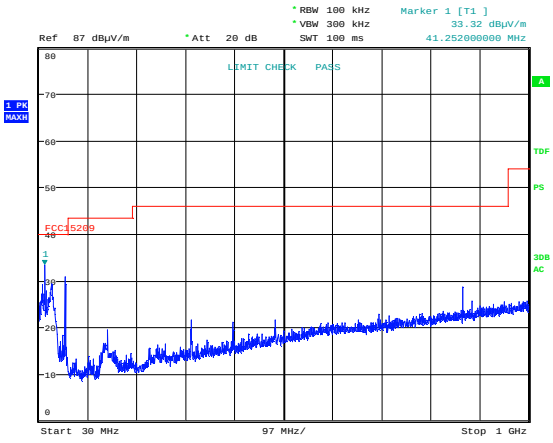
FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 4, Clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency (MHz)	**Quasi Peak (µV/m)**	**Quasi Peak (dBµV/m)**
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

[1] The limit above 1000 MHz is specified for Average Detector, when the measurement is performed with a Peak Detector a Duty-Cycle Correction Factor has to be calculated to find the corresponding Average Detector value.



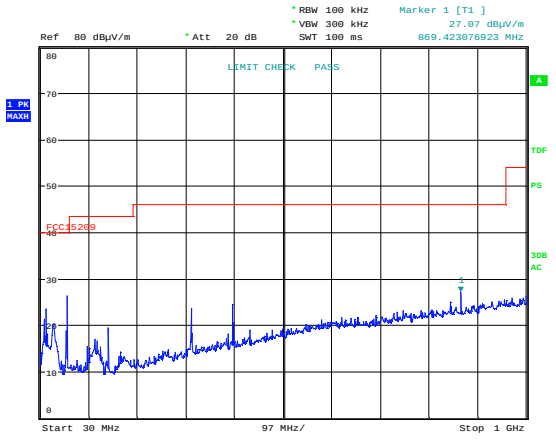
Date: 19.NOV.2020 13:11:11

Handset Charging, Horisontal Polarization



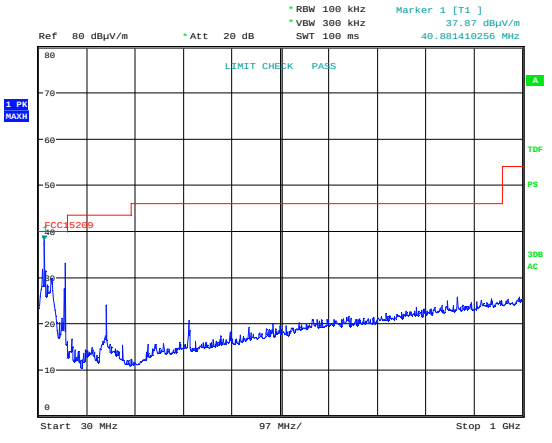
Date: 19.NOV.2020 13:07:21

Handset Charging, Vertical Polarization



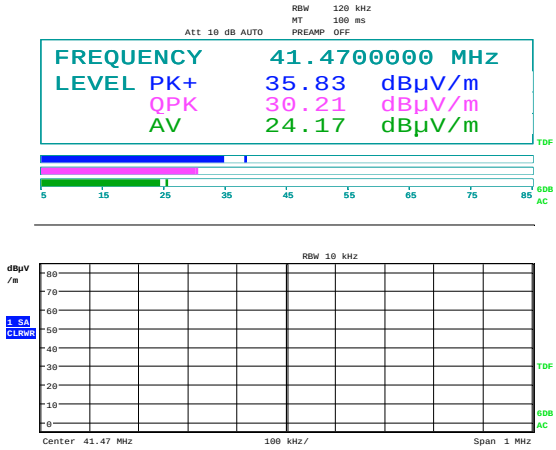
Date: 19.NOV.2020 13:35:00

Hook Off, Horisontal Polarization



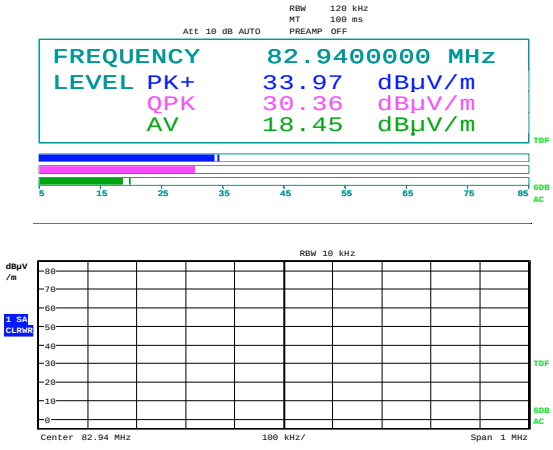
Date: 19.NOV.2020 13:32:48

Hook Off, Vertical Polarization



Date: 19.NOV.2020 14:03:14

Spurious 41.47 MHz, Max: VP



Date: 19.NOV.2020 14:45:20

Spurious 82.94 MHz, Max: VP

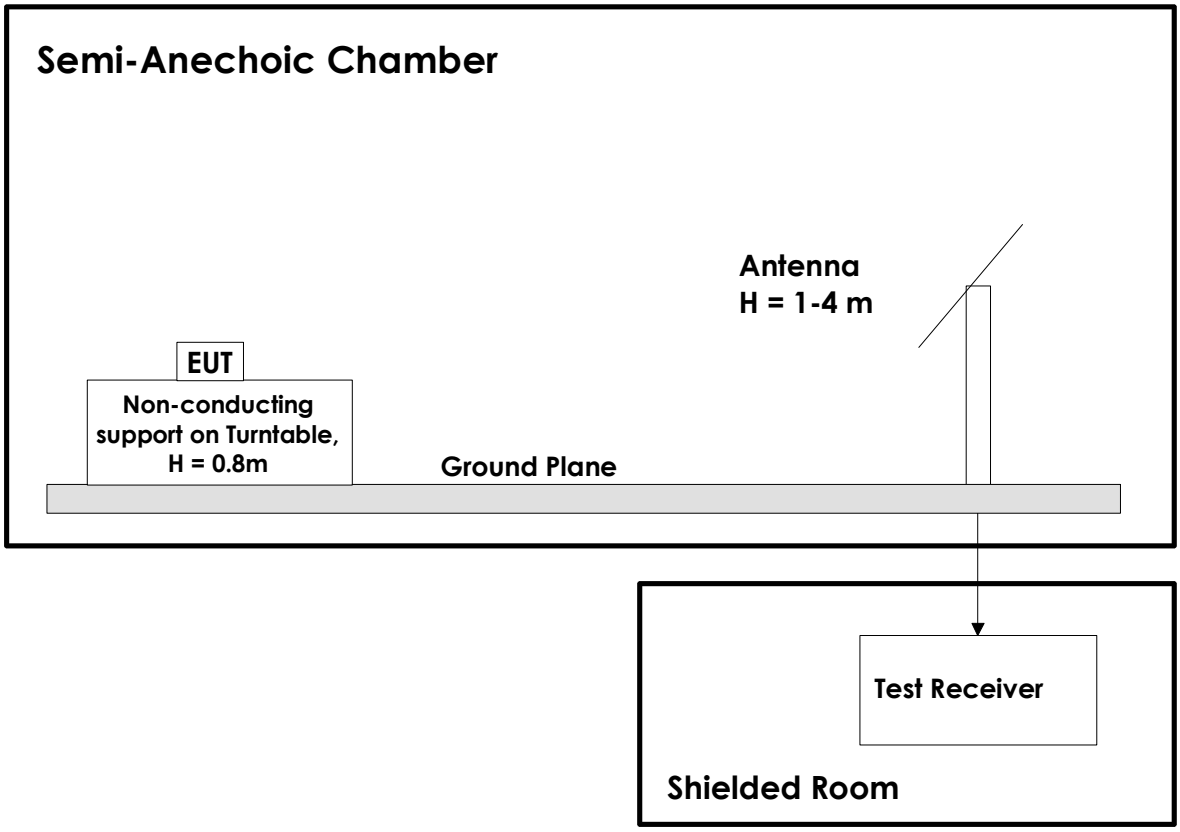
4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		**Uncertainty**
Spurious Emissions, Radiated	**< 1 GHz**	±2.5 dB
	> 1 GHz	±2.2 dB
Power Line Conducted Emissions		+2.9 / -4.1 dB
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 Test Setups

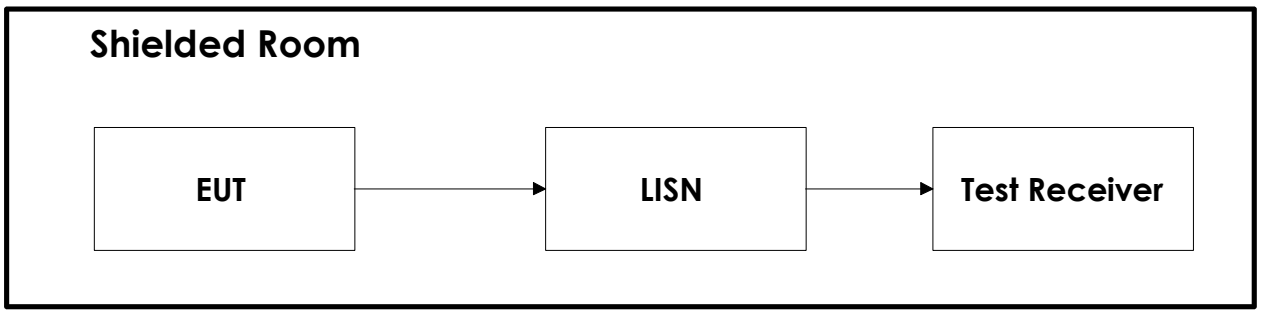
5.1 Radiated Emissions Test



Test Set-Up 1

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 are measured with a Spectrum Analyzer and Horn 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. All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers. A pre-amplifier is used for all measurements above 30 MHz.

5.2 Power Line Conducted Emissions Test



Test Set-Up 2

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	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2020-01	2021-01
2	VULB 9163	BiLog Antenna	Schwarzbech	LR 1616	2020-01	2023-01
3	317	Preamplifier	Sonoma Inst.	LR 1687	2020-08	2021-08
4	WLK5-1100-1485-7000-40SS	Low Pass Filter	Wainwright Inst.	LR 1761	2020-08	2021-08
5	6812B	AC Power Source	Agilent	LR 1515	2020-04	2021-04
6	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2019.10	2021.10
7	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2019-11	2021-11
8	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	

The software listed below has been used for one or more tests in this report.

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.10	Power Line Conducted test software
2	Nemko AS	RSPlot	1.0.10.0	Screenshots from R&S Spectrum Analyzers