Report No. **379643-3**

Test Report

Product	Desktop Phone with DECT Base Station and Bluetooth Transceiver
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-TGF880, KX-TGF890C KX-TGFA88, KX-TGFA89C
Rating	Mains (120V, 60Hz)
Trademark	Panasonic
Serial number	/
Additional information	DECT 6.0, Bluetooth
Tested according to	**FCC Part 15, subpart B** Other Class B Digital Device **Industry Canada ICES-003, Issue 6** Information Technology Equipment (ITE)
Order number	379643
Tested in period	2019.08.20 to 2019.08.27
Issue date	2019.09.02
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway www.nemko.com CAB Number: FCC: NO0001 ISED: NO0470 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 [G.Suhanthakumar]

Template version: C

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1 INFORMATION

1.1 Tested Item

Name	Panasonic
Model name	Desktop Phone with DECT Base: KX-TGF880 (USA Model) KX-TGF890C (Canada Model) DECT Handset: KX-TGFA88 KX-TGFA89C
FCC ID	Desktop Phone with DECT Base: ACJ96NKX-TGF880 DECT Handset: ACJ96NKX-TGFA70
ISED ID	Desktop Phone with DECT Base: 216A-KXTGF890 DECT Handset: 216A-KXTGFA70
FCC / ISED Canada Class	B
Serial number	/
Hardware identity and/or version	KX-TGF880: PNLB2838 KX-TGFA88: PNLB2796
Software identity and/or version	KX-TGF880: SW202 KX-TGFA88: SW201
Radio Interfaces	2402 – 2480 MHz, GFSK, Bluetooth Classic 1921.536 – 1928.448 MHz, GFSK, DECT 6.0
Tested to IC Radio Standard (RSS)	RSS-GEN Issue 5; ICES-003 Issue 6
Test Site IC Reg. Number	2040D-1
Interfaces	PSTN
Desktop Charger	AC Adaptor PNLV226

1.2 Description of Tested Device

KX-TGF880 is a Desktop Phone with DECT Base Station. KX-TGFA88 is a DECT Handset.
See description of similarity in below table.

Description	US Model	Canada Model	FCC ID	IC ID	Comment
Desktop Phone with DECT Base	KX-TGF880	KX-TGF890C	ACJ96NKX-TGF880	216A-KXTGF890	All models are identical
DECT Handset	KX-TGFA88 KX-TGFA70	KX-TGFA89C KX-TGFA70C	ACJ96NKX-TGFA70	216A-KXTGFA70	All models are identical. Existing model is already certified.

The models KX-TGF880 and KX-TGF850 are also identical, but the Bluetooth module is removed on KX-TGF850.
Handset models KX-TGFA70 and KX-TGFA70C are existing models that are already certified.

1.3 Test Environment

Temperature:	20 – 25 °C
Relative humidity:	30 – 50 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

1.4 Test Engineer(s)

Frode Sveinsen

1.5 Test Equipment

See list of test equipment in clause 6.

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 6, Paragraph #	Verdict
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8	6.1	Complies
Spurious Emissions (Radiated)	15.109	7.3 / 8.9	6.2	Complies

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.207

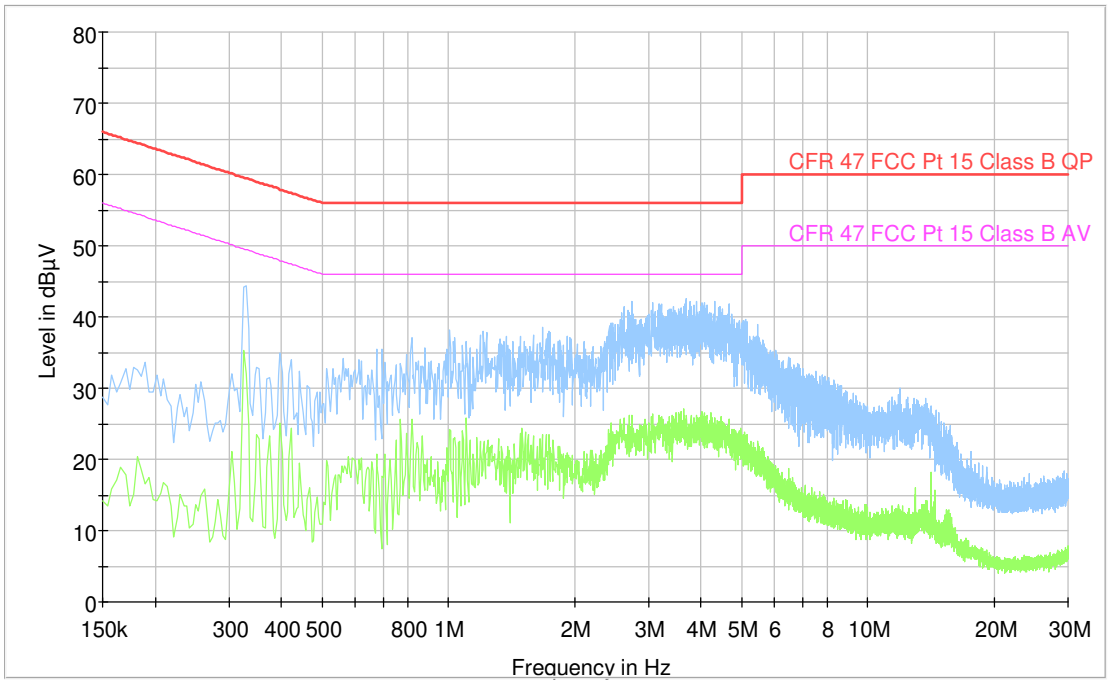
ISED RSS-213 Issue 3, Clause 6.3; RSS-GEN Issue 5, Clause 7.2 / 8.8

Measurement procedure: **ANSI C63.4-2014 using 50 µH/50 ohms LISN**

Test Results: **Complies**

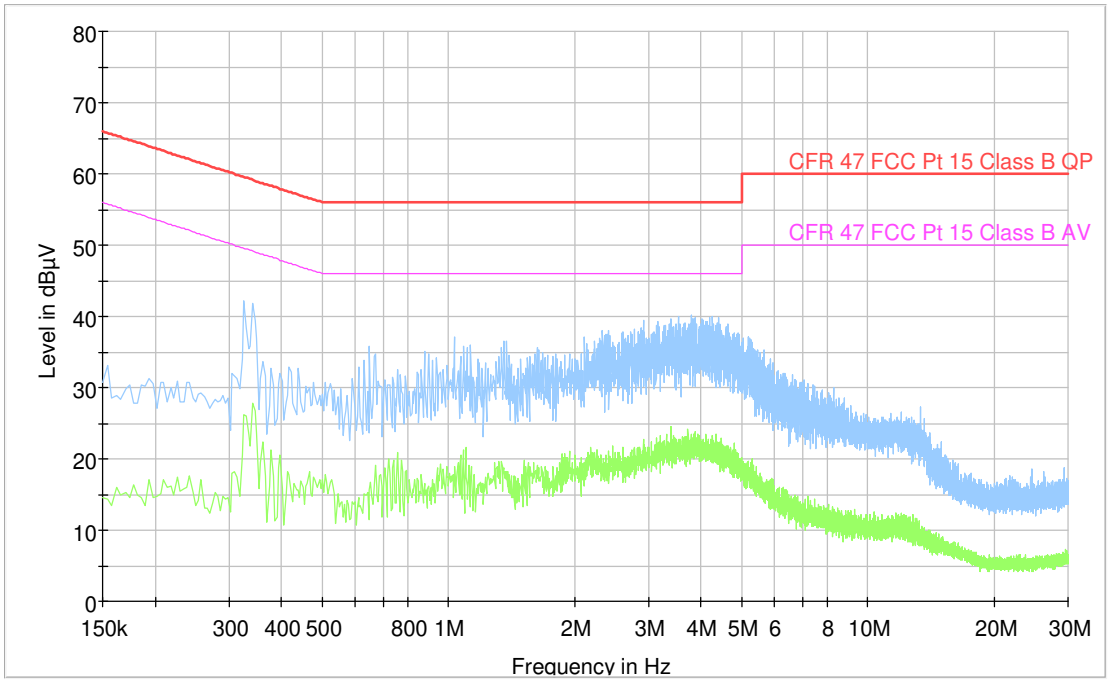
Measurement Data: **See attached plots.**

Full Spectrum



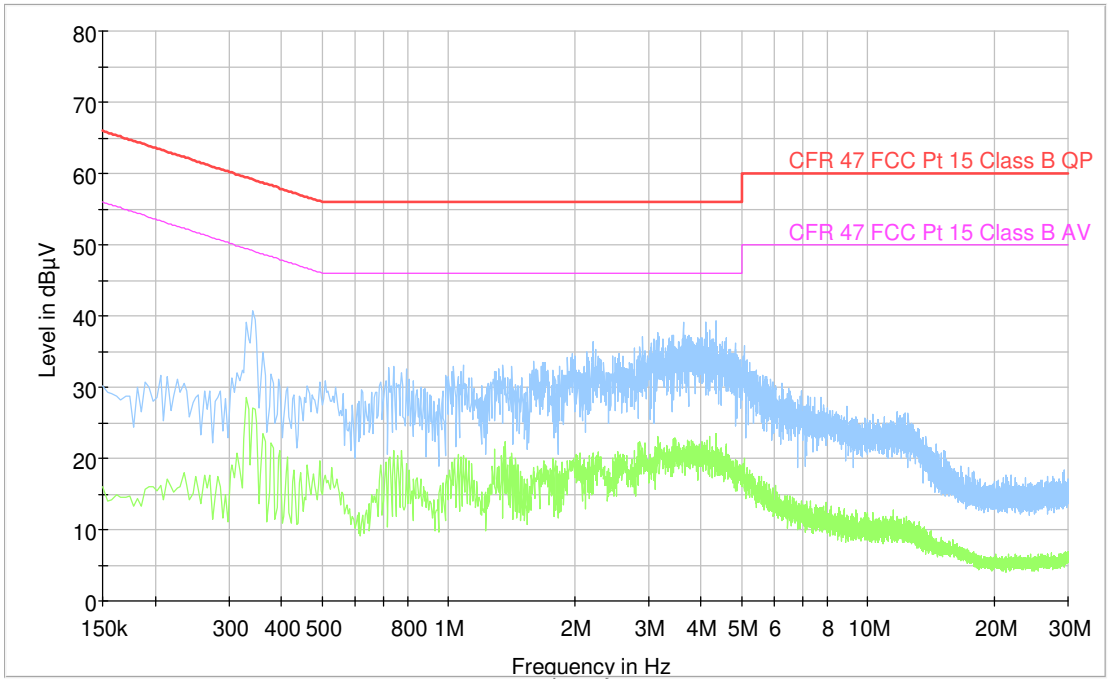
120V 60Hz, Bluetooth Active

Full Spectrum



120V 60Hz, OFF Hook

Full Spectrum



120V 60Hz, ON Hook

3.2 Spurious Emissions (Radiated)

FCC Part 15.109

ISED ICES-003 Issue 6, Clause 6.2

Test Results:

Radiated Emissions 30 - 1000 MHz.

Detector: Quasi-Peak

Measuring distance 3 m

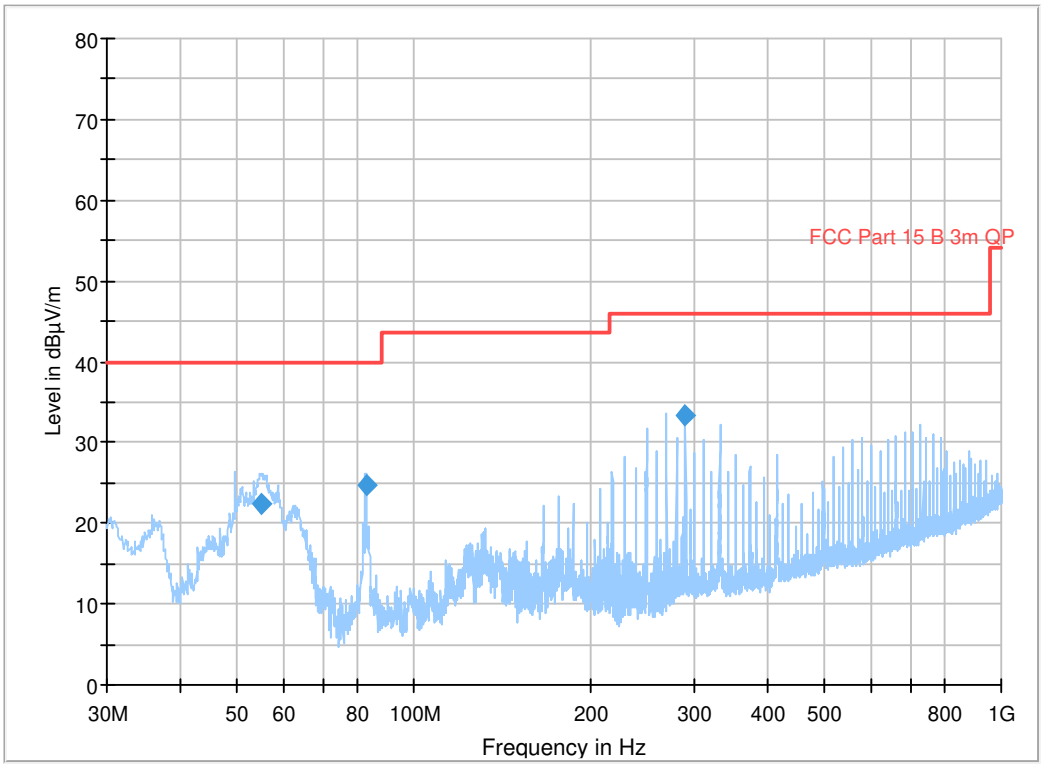
The EUT were rotated 360 degrees and the antenna height varied between 1 and 4 m on all found frequencies.

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
54.900900	22.41	40.00	17.59	1000.0	120.000	149.0	V	196.0
82.931100	24.76	40.00	15.24	1000.0	120.000	117.0	V	190.0
290.303600	33.44	46.00	12.56	1000.0	120.000	102.0	H	119.0

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
960 – 1000	500	54.0

Full Spectrum



Radiated Emissions, 30 – 1000 MHz

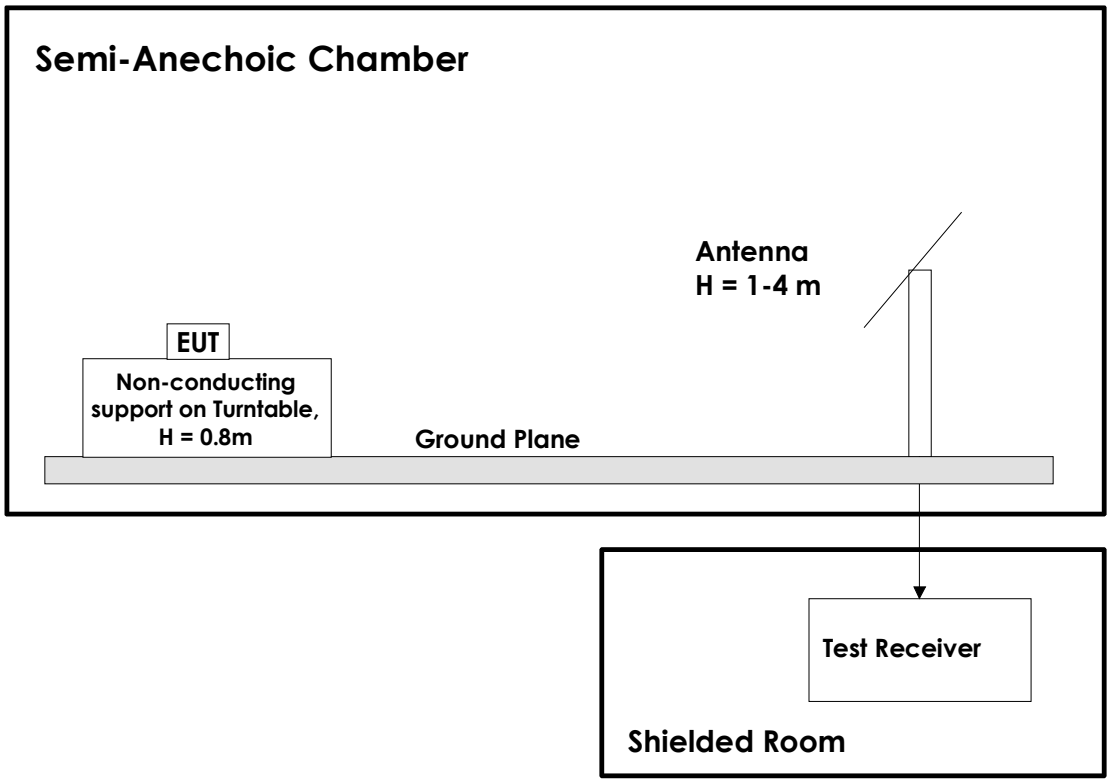
4 Measurement Uncertainty

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

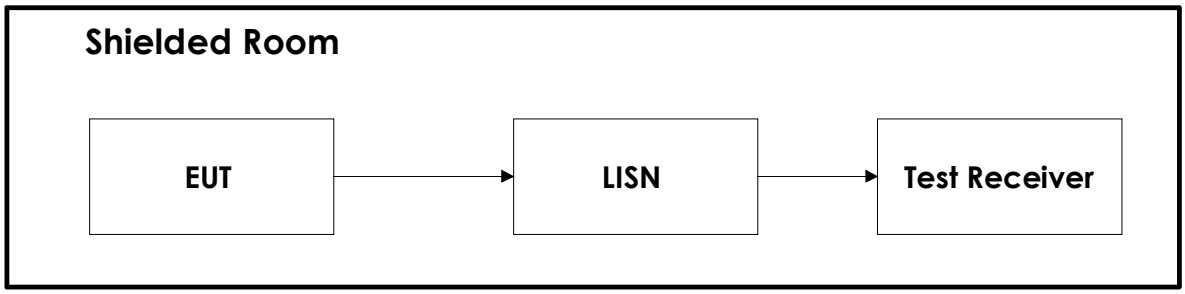
5.1 Radiated Emissions Test



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	2019.01	2020.01
2	JB3	BiLog Antenna	Sunol Sciences	N-4525	2017.11	2020.11
3	317	Pre-amplifier	Sonoma Inst.	LR 1687	2019.07	2020.07
4	Model 87V	Multimeter	Fluke	LR 1599	2019.03	2021.03
5	6812B	AC Power Source	Hewlett Packard	LR 1515	COU	
6	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2017.09	2019.09
7	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2017.11	2019.11
8	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	

COU = Cal on use

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

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.40.10	Conducted Emissions test software
2	Rohde & Schwarz	GPIBShot	2.7	Screenshots from R&S Spectrum Analyzers

Revision history

Version	Date	Comment	Sign
1.0	2019.09.02	First Edition	FS