

Test Report

Product	DECT Handset
Name and address of the applicant	Panasonic Corporation of North America Two Riverfront Plaza, 9 th 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-TGDA99
Rating	2.4V DC (2x AA cells, NiMH)
Trademark	Panasonic
Serial number	4522120012
Additional information	DECT 6.0
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	452212
Tested in period	2021-10-21 to 2021-11-26
Issue date	2021-12-13
Name and address of the testing laboratory	 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   An accredited technical test executed under the Norwegian accreditation scheme
 Prepared by [Frode Sveinsen]  Approved by [G.Suhanthakumar]	
This report shall not be reproduced except in full without the written approval of Nemko. Opinions and interpretations expressed within this report are not part of the current accreditation. This report was originally distributed electronically with digital signatures. For more information contact Nemko.	

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).....	11
4	MEASUREMENT UNCERTAINTY	15
5	TEST SETUPS	16
5.1	Radiated Emissions Test	16
5.2	Power Line Conducted Emissions Test.....	16
6	TEST EQUIPMENT USED	17

1 INFORMATION

1.1 Tested Item

Name	Panasonic
Model name	KX-TGDA99
FCC ID	ACJ96NKX-TGDA99
FCC / IC Class	B
Serial number	4522120012
Hardware identity and/or version	S1
Software identity and/or version	SW200
Desktop Charger	PNLC1077(YA) with AC Adaptors PNLV233 (UC), PNLV233 (ZC), PNLV233 (2A)
Power Supply	Secondary Batteries (2x AAA cells, 1.2V, 400mAh)

Description of Tested Device(s)

The tested equipment is a DECT Handset with Desktop Charger.

1.2 Test Environment

Temperature:	20 – 23 °C
Relative humidity:	30 – 50 %
Normal test voltage:	2.4 V DC (Nominal Voltage)

The values are the limit registered during the test period.

1.3 Test Engineer(s)

Frode Sveinsen / Tore Løvlien

1.4 Test Equipment

See list of test equipment in clause 6.

1.5 Test Configurations

Test Configuration	EUT Standby in charger and charging.
--------------------	--------------------------------------

1.6 Other Comments

All tests were performed with the EUT in charger and charging.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

All tests were performed in 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".

Nemko Group authorizes the above named entity to reproduce this report provided it is reproduced in its entirety and for use by the entity's employees only. Any reproduction of parts of this report requires approval in writing from Nemko Group.

Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Group accepts no responsibility for damages suffered by any third party caused by decisions made or actions based on this report.

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

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 μ H/50 ohms LISN.

Test Results: Complies

Measurement Data: See attached plots.

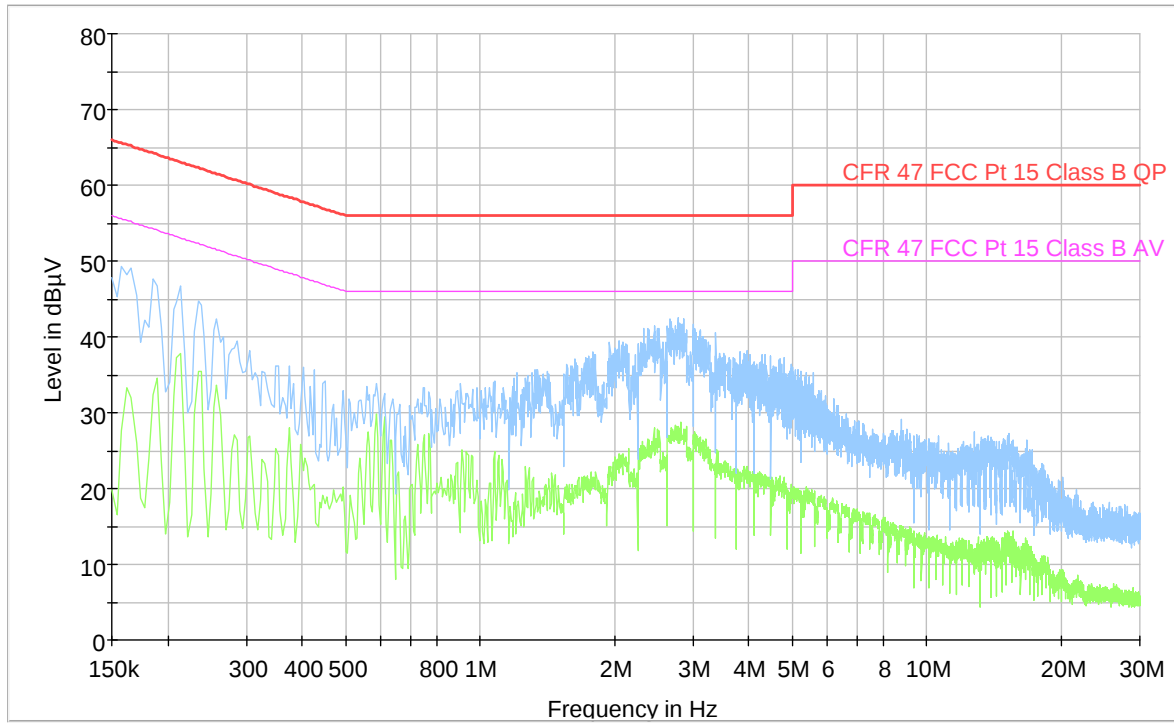
All tests were performed with 120V 60Hz AC

Highest measured value (L1 and N):

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
---	---	---	---	---	---	---		

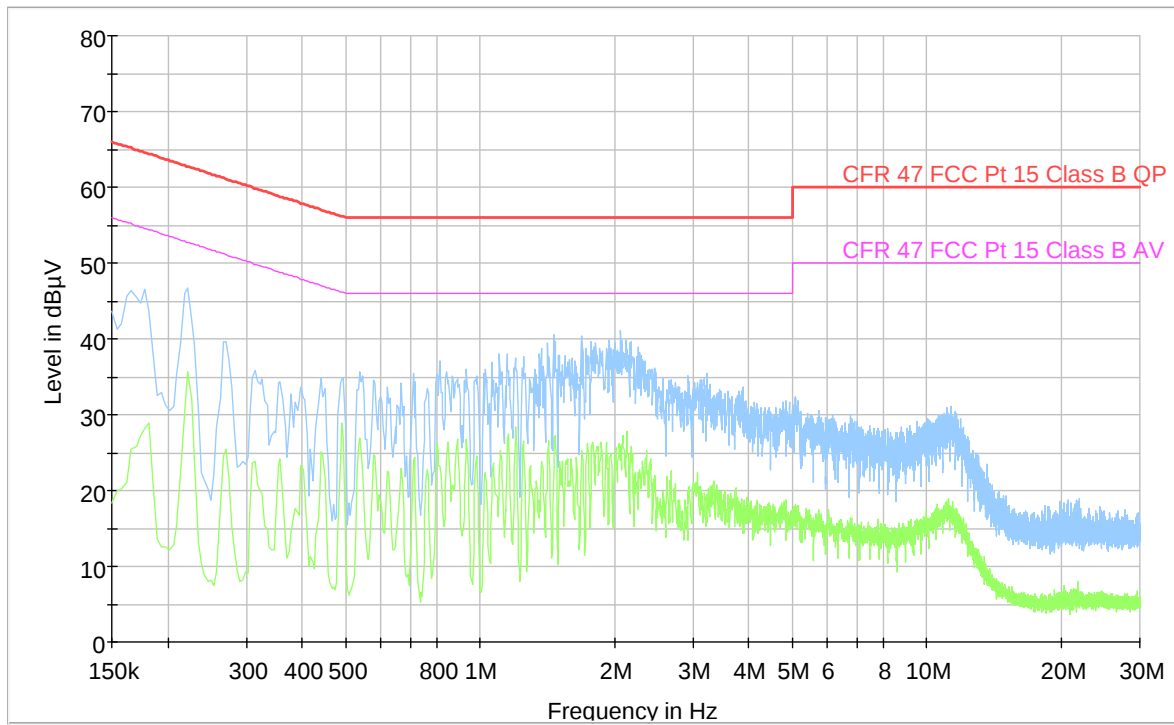
AC Adaptor PNLV223 (UC):

Full Spectrum



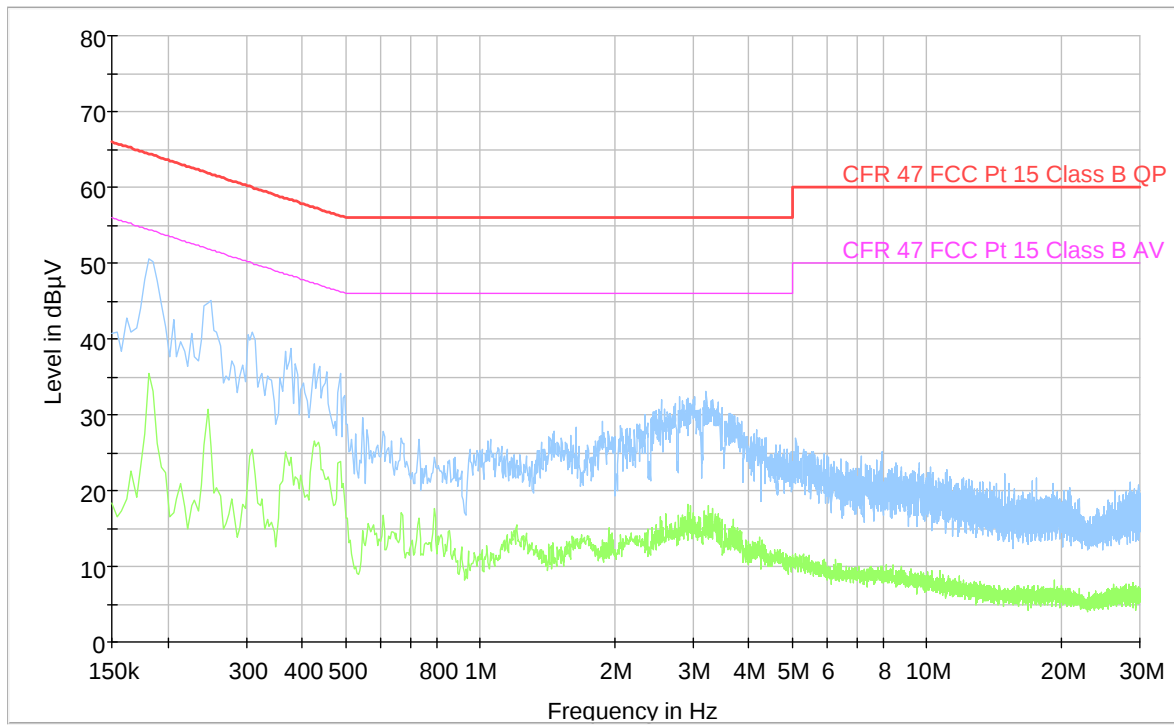
AC Adaptor PNLV223 (ZC):

Full Spectrum



AC Adaptor PNLV223 (2A):

Full Spectrum



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: Peak (Pre-scan, measurements with QP detector)

Measuring distance 3m

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

PNLV233 (UC):

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
54.702700	24.99	40.00	15.01	1000.0	120.000	116.0	V	213.0
76.429500	24.36	40.00	15.64	1000.0	120.000	105.0	V	313.0

PNLV233 (ZC):

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
47.570600	27.10	40.00	12.90	1000.0	120.000	100.0	V	172.0

PNLV233 (2A):

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
34.314650	27.66	40.00	12.34	1000.0	120.000	100.0	V	178.0
36.325450	28.80	40.00	11.20	1000.0	120.000	123.0	V	1.0
49.526250	25.24	40.00	14.76	1000.0	120.000	103.0	V	188.0
53.070550	24.03	40.00	15.97	1000.0	120.000	126.0	V	161.0

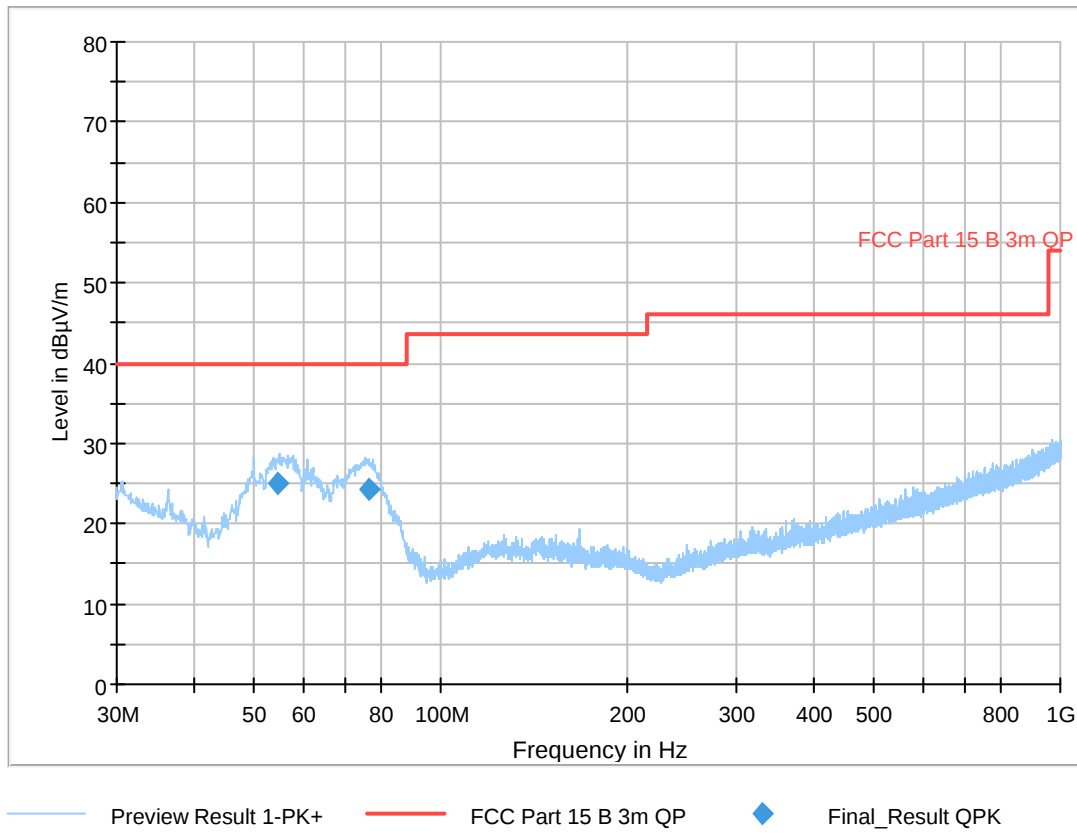
Requirements/Limit

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
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.

AC Adaptor PNLV223 (UC):

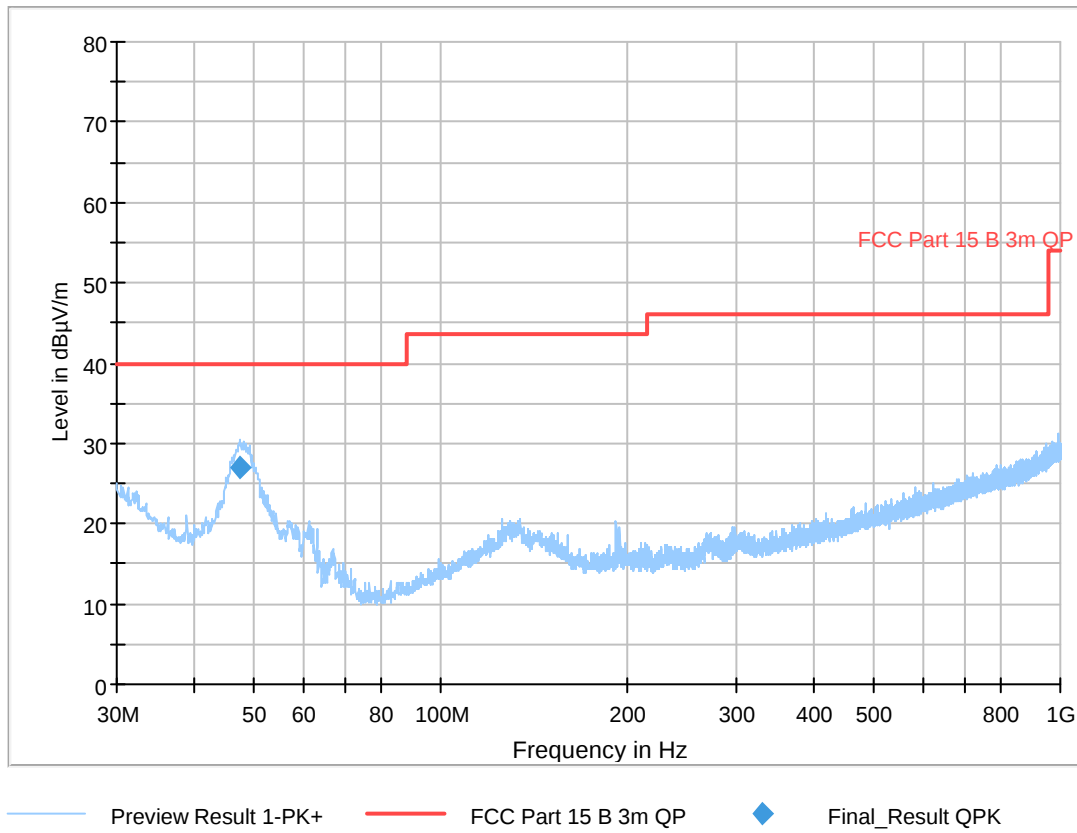
Full Spectrum



Radiated Emissions 30 – 1000 MHz

AC Adaptor PNLV223 (ZC):

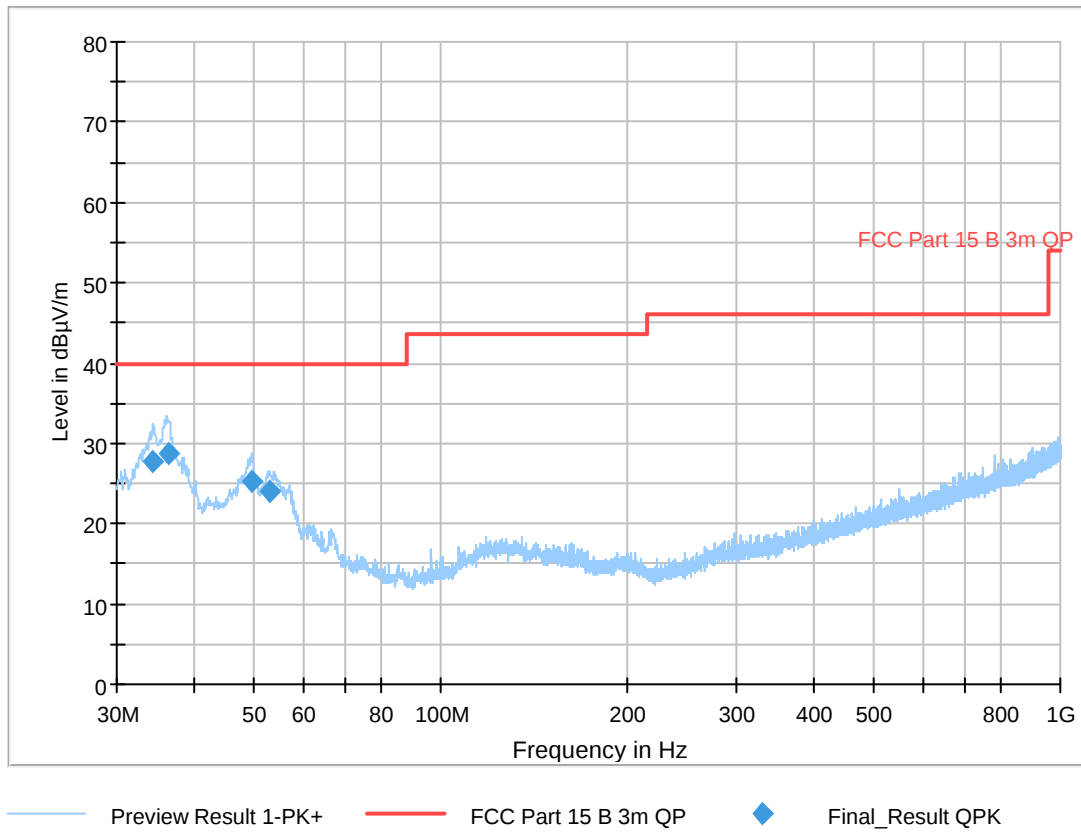
Full Spectrum



Radiated Emissions 30 – 1000 MHz

AC Adaptor PNLV223 (2A):

Full Spectrum



Radiated Emissions 30 – 1000 MHz

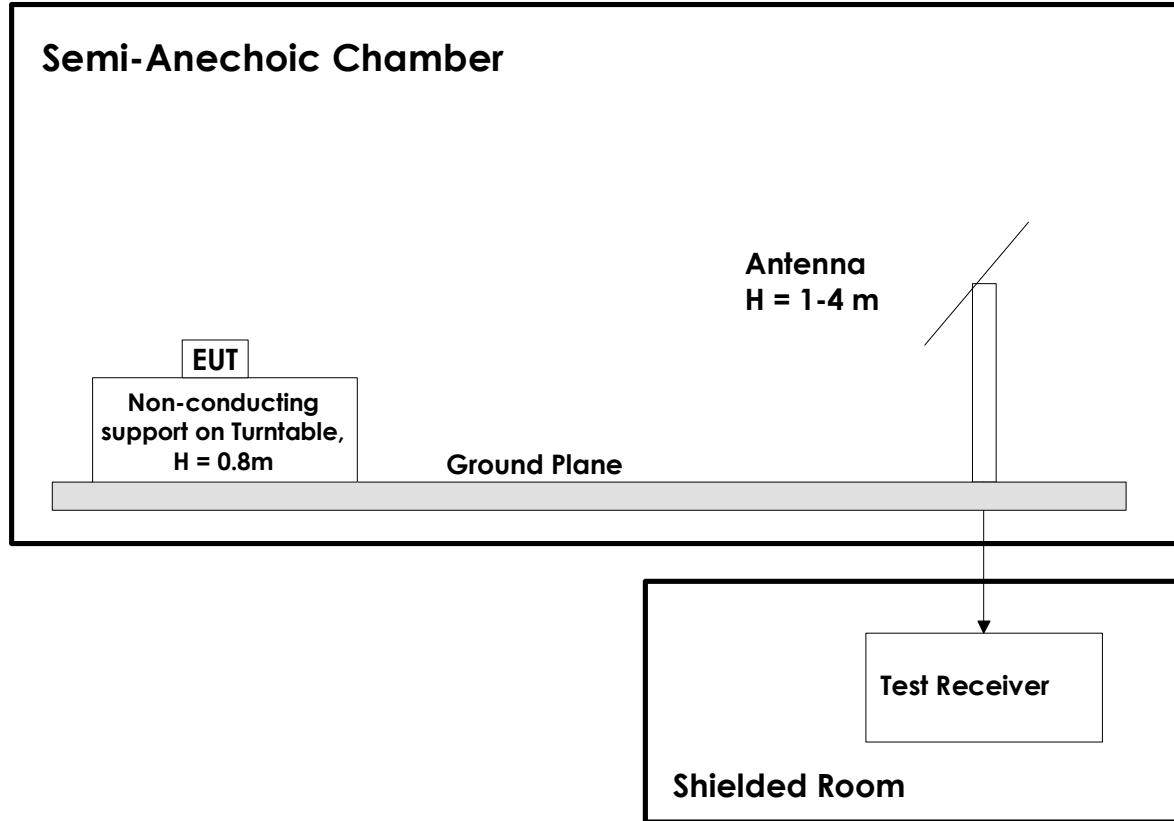
4 Measurement Uncertainty

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

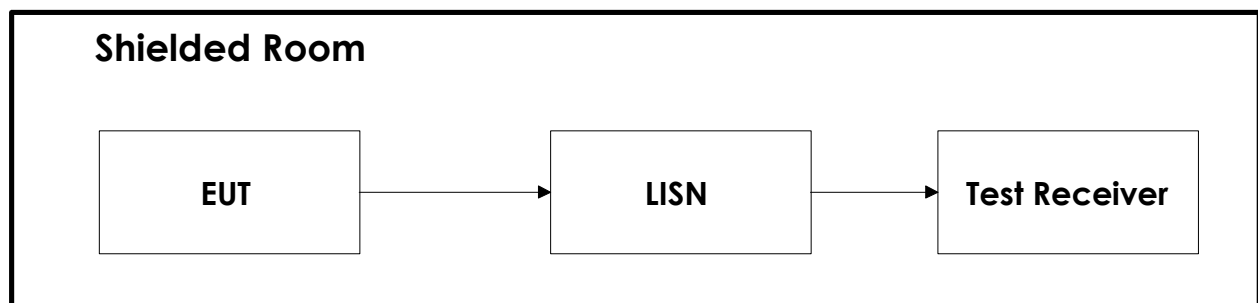
5.1 Radiated Emissions Test



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	2021-02	2022-02
2	NO324415	Band Reject Filter	Microwave Circuits	LR 1760	2021-08	2022-08
3	JB3	BiLog Antenna	Sunol	N-4525	2020-03	2023-03
4	310	Preamplifier	Sonoma Inst.	LR 1686	2021-08	2022-08
5	6812B	AC Power Source	Agilent	LR 1515	2020-04	2022-04
6	ESC13	Measuring Receiver	Rohde & Schwarz	N-4259	2021.10	2023.10
7	ESH2-Z5	Two Line V-Network	Rohde & Schwarz	N-4097	2020-04	2022-04
8	ESH3-Z2	Pulse Limiter	Rohde & Schwarz	LR 1074	COU	

COU = Calibrate on Use

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

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.10	Power Line Conducted test software
2	Nemko AS	RSPlot	1.0.8.0	Screenshots from R&S Spectrum Analyzers

Revision history

Revision	Date	Comment	Sign
00	2021-12-07	First edition	FS