Report No. **389657-04-R00**

Test Report

Product	Home Monitoring Camera with WiFi and Bluetooth LE
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-HNC500, KX-HNC505C
Rating	Mains (120V ~60Hz, 350mA; $5V_{DC}$ 1.8A)
Trademark	Panasonic
Serial number	9KCFA000036
Additional information	WiFi 2.4GHz/5GHz, Bluetooth Low Energy
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	389657
Tested in period	2020-01-30 to 2020-02-05
Issue date	2020-03-10
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**

	
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1 INFORMATION

1.1 Tested Item

Name	Panasonic
Model name	KX-HNC500 (US Model) KX-HNC505C (Canada Model)
FCC ID	ACJ96NKX-HNC500
ISED ID	216A-KXHNC505
Serial number	9KCFA000036 (MAC: 4C:38:4E:87:37:CC)
Hardware identity and/or version	1.00
Software identity and/or version	00.40
FCC / IC Class	B
Operating Modes	802.11 b/g/n (HT20 only)
Type of Power Supply	AC Adaptor: PNLV251 (120V ~60Hz, 350mA; $5V_{DC}$ 1.8A)
Interfaces	None

Description of Tested Device(s)

The EUT is a Window Mounted Home Monitoring Camera with WiFi and Bluetooth LE.

The models KX-HNC500 and KX-HNC505C are identical.

1.2 Test Environment

Temperature:	20 – 25 °C
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(s)

Frode Sveinsen

1.4 Test Equipment

See list of test equipment in clause 6.

1.5 Other Comments

The measurements were done with the EUT powered by 120 V AC.

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 ISED.

☒ New Submission
☐ Class II Permissive Change
JAB Equipment Code

☒ Production Unit
☐ Pre-production Unit
☐ 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”.

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

Revision history

Revision	Date	Comment	Sign
00	2020.03.10	First Edition	FS

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.107 (a)

ISED ICES-003 Issue 6, Clause 6.1

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

Test Results: **Complies**

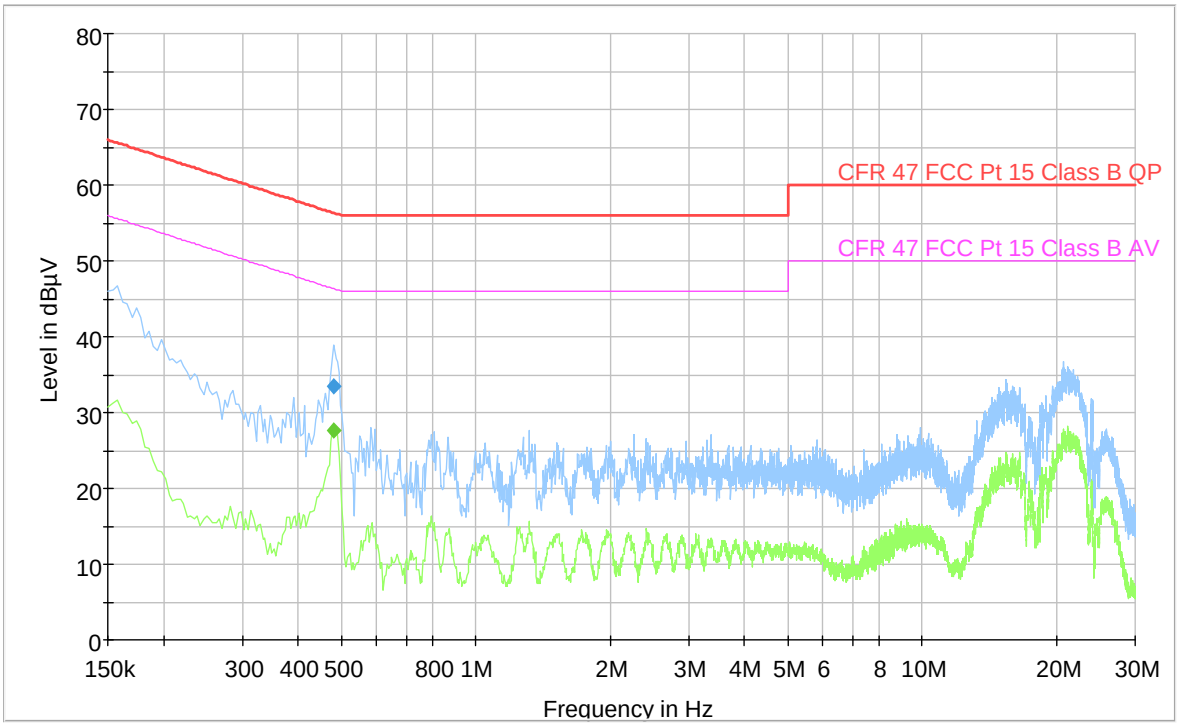
Measurement Data: **See attached plots**

Highest measured value (L1 and N):

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
0.480	---	27.63	46.34	18.71	1000	9	N	OFF
0.480	33.54	---	56.34	22.80	1000	9	N	OFF

AC Adaptor, 120 V 60 Hz

Full Spectrum



3.2 Spurious Emissions (Radiated)

FCC Part 15.109

ISED ICES-003 Issue 6, Clause 6.2

Test Results: Complies

Test Results:

Radiated Emissions 30 - 1000 MHz.

Detector: Peak

Measuring distance 3 m

The EUT were rotated 360 degrees

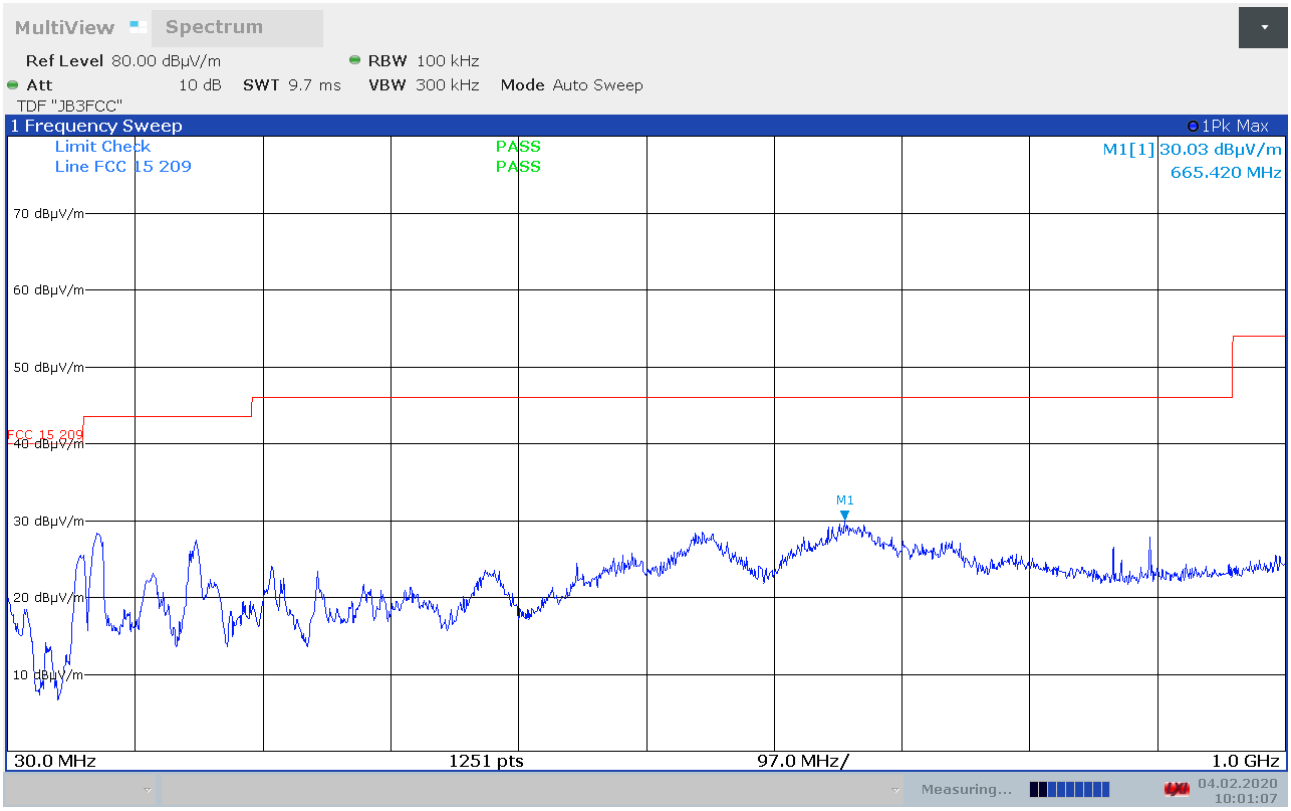
Frequency (MHz)	Measured Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30 – 88	< 30	40.0	> 10
88 – 216	< 29.5	43.5	> 14
216 – 960	< 30.5	46.0	> 15.5
960 – 1000	< 30	54.0	> 24

No components were detected

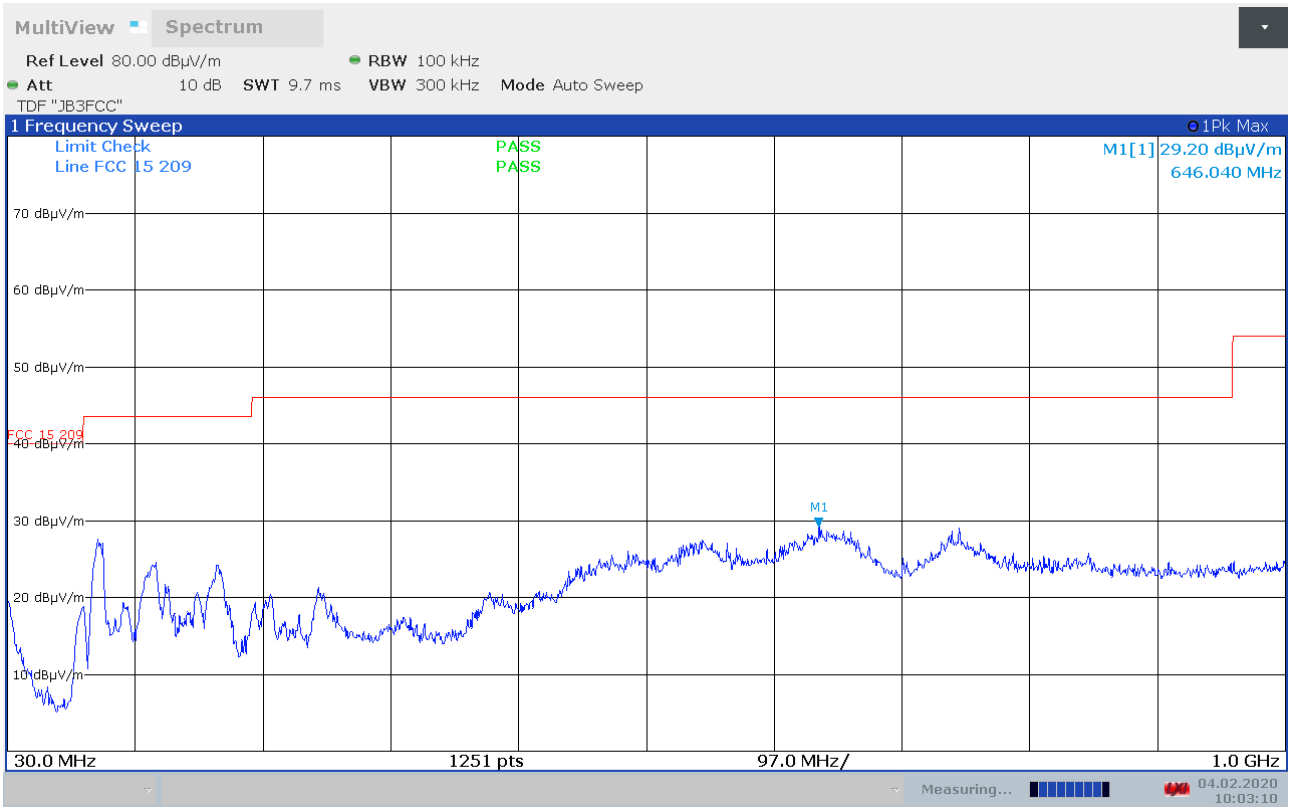
See attached plots

Requirements/Limit

FCC	Part 15.109	
	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



Radiated Emissions, 30 -1000 MHz, 2437 MHz, VP, 802.11b, 1Mbps



Radiated Emissions, 30 -1000 MHz, 2437 MHz, HP, 802.11b, 1Mbps

3.3 Radiated Emissions, 1 - 4 GHz

Measuring distance: 3m (1 – 4 GHz)

Peak Detector, RBW=1 MHz

Measured Frequency	Measured Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2332 MHz	48.2	74	25.8
Any other	< 54	74	>20

All emissions are below the Average Limit, even when measuring with Peak Detector.

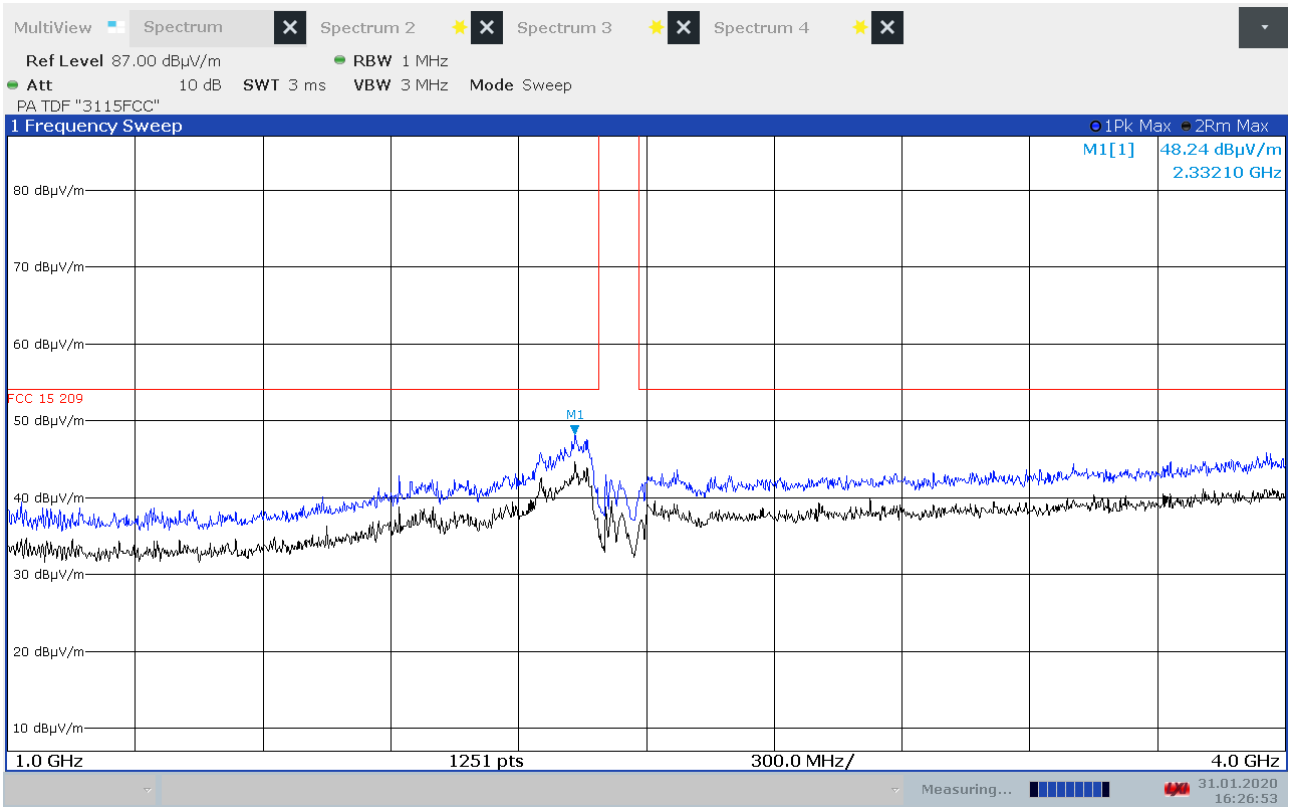
A Band Reject Filter was used for measurements from 1 GHz to 4 GHz.

Antenna factor, amplifier gain and cable loss are included in Spectrum Analyzer “Transducer factor”.

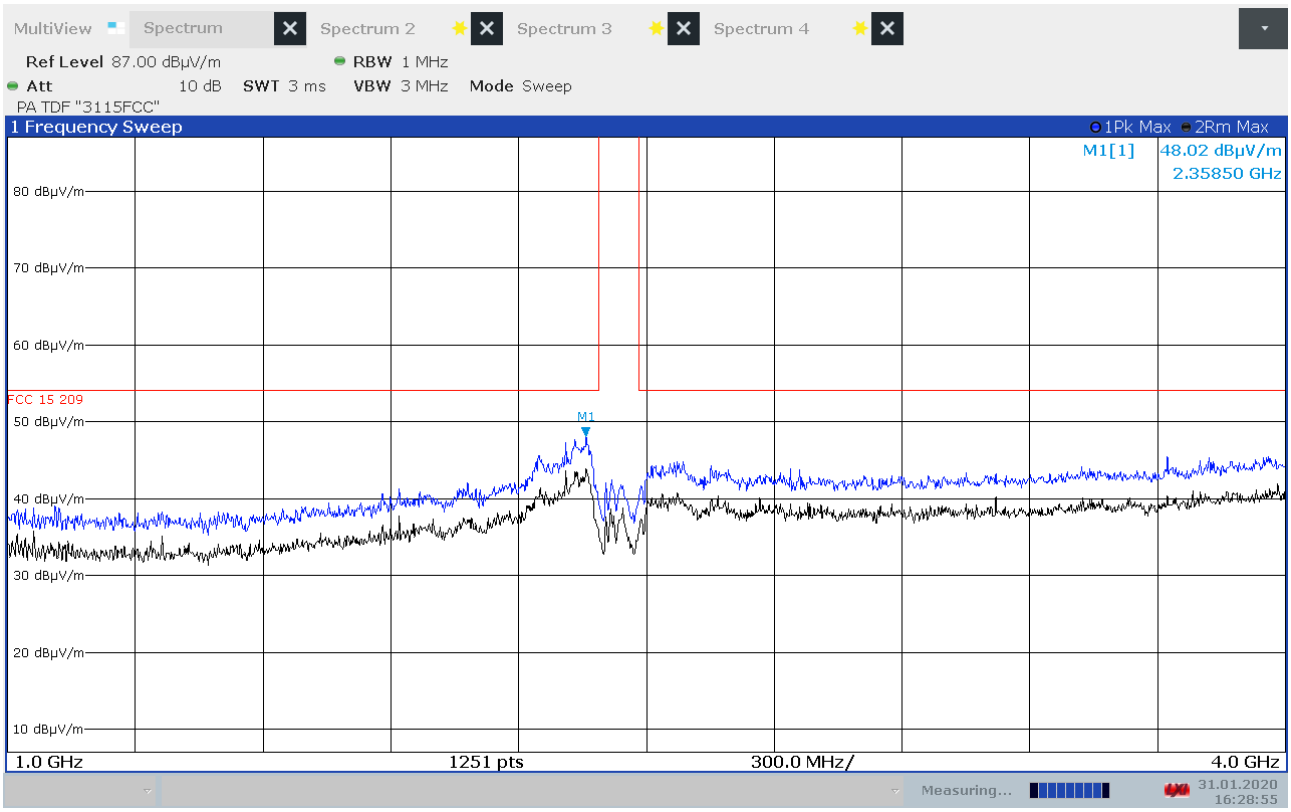
See attached plots.

Requirements/Limit

FCC	Part 15.109	
ISED	RSS-GEN Issue 5, clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency (MHz)	AV (dBµV/m)	Peak (dBµV/m)
Above 1 GHz	54.0	74.0



Radiated Emissions, 1000 -4000 MHz



Radiated Emissions, 1000 -4000 MHz

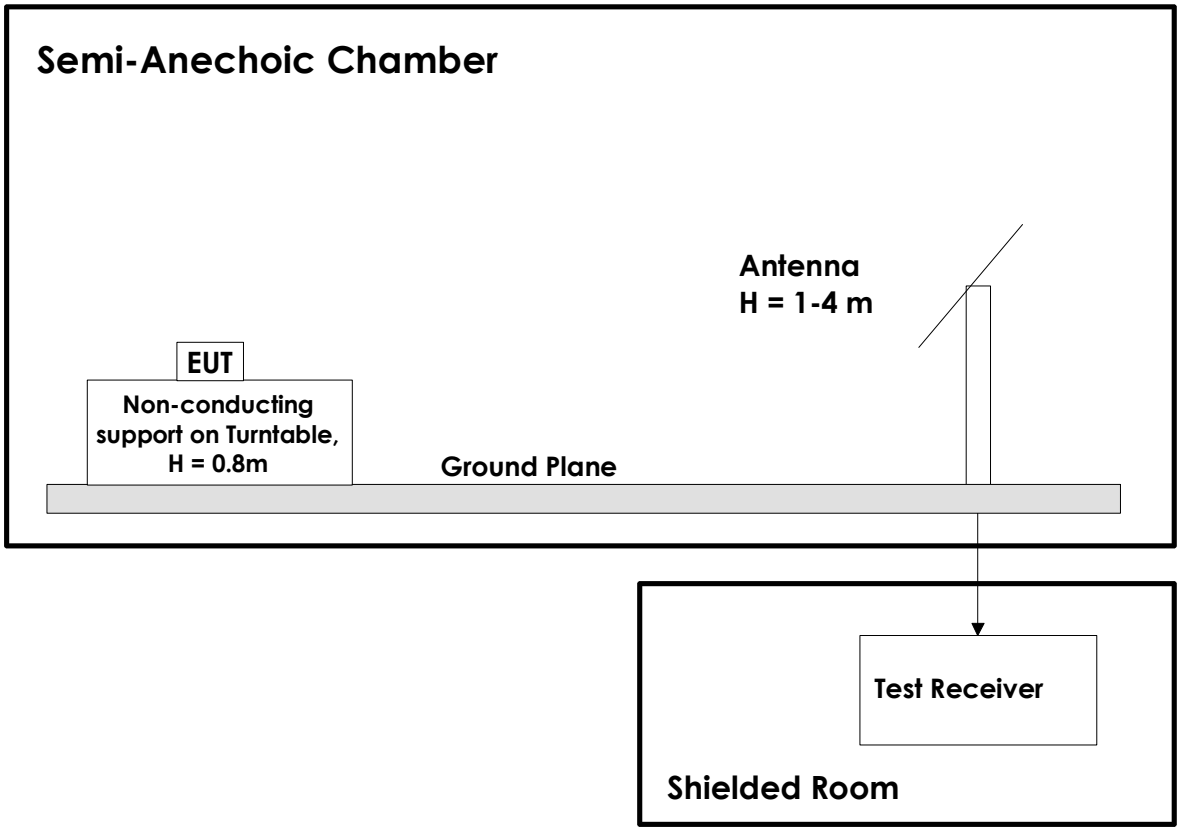
4 Measurement Uncertainty

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

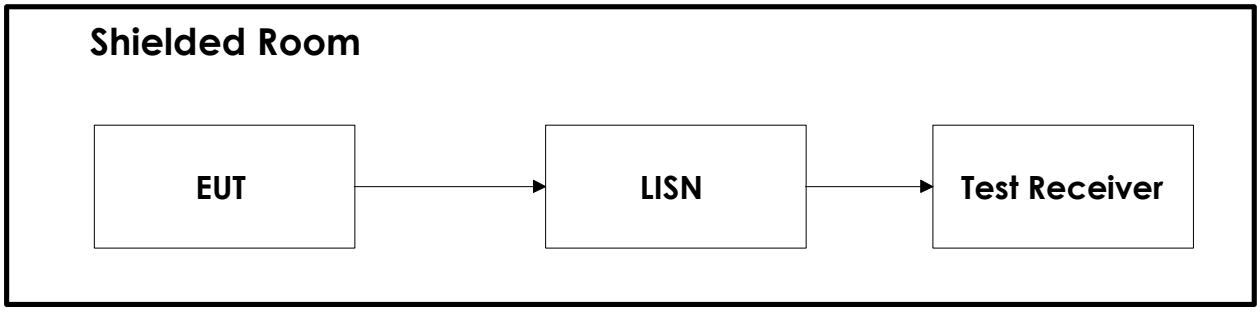
5.1 Radiated Emissions Test



Test Set-Up 1

This test setup is used for all radiated emissions tests. The measuring distance is 3m for all frequencies. Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna. All measurements at 1 GHz and above were performed with the ground plane covered by absorbers. A pre-amplifier is used for all measurements.

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 Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2020-01	2021-01
2	6810.17B	Attenuator	Narda	LR 1669	2019-07	2020-07
3	JB1	BiLog Antenna	SunAR	LR 1734	2018-05	2021-05
4	317	Preamplifier	Sonoma Inst.	LR 1687	2019-07	2020-07
5	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2019-07	2020-07
6	3115	Horn Antenna	EMCO	LR 1330	2016-10	2021.10
7	Model 87 V	Multimeter	Fluke	LR 1597	2018-02	2020-02
8	6812B	AC Power Source	Agilent	LR 1515	COU	
9	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2019-11	2021-11
10	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2019-10	2021-10
11	ST18/SMA/N/72	RF Cable	Suhner	LR 1705	COU	

Note: COU – calibrate on use; N/A – Not Applicable

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	Rohde & Schwarz	GPIBShot	2.7	Screenshots from R&S Spectrum Analyzers