Report No. 367960-06

Test Report

Product	Indoor Home Monitoring Camera with WiFi
Name and address of the applicant	Panasonic Corporation of North America Two Riverfront Plaza, 9th Floor Newark, NJ 07102-5490, USA
Name and address of the manufacturer	Same as above
Model	KX-HNC850 KX-HNC855C
Rating	Mains (120 V_{AC} 60 Hz)
Trademark	Panasonic
Serial number	/
Additional information	WiFi, 802.11a/b/g/n
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	367960
Tested in period	2018-11-26 to 2019-01-31
Issue date	2019-02-12
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway www.nemko.com SITE NUMBER: FCC: NO0001 IC: 2040D-1 ilac-MRA NORWEGIAN ACCREDITATION TEST 033 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [Frode Sveinsen]	Approved by [G. Suhanthakumar]

Nemko Norway
Nemko AS, Instituttveien 6, P.O. Box 96 Kjeller, 2027 Kjeller, Norway
TEL +47 22 96 03 30 FAX +47 22 96 05 50 EMAIL info@nemko.com
ENTERPRISE NUMBER NO974404532

CONTENTS

1 INFORMATION

1.1 Tested Item

Name	Panasonic
Model name	KX-HNC850 (US model) KX-HNC855C (Canada model)
FCC ID	ACJ96NKX-HNC850
ISED ID	216A-KXHNC855
FCC / IC Class	B
Serial number	/
Hardware identity and/or version	N/A
Software identity and/or version	N/A
Power Supply	AC Adaptor Model PNLV252 (Input: 120V 60Hz 350mA, Output: 12V_{DC} 1.0A)

Description of Tested Device(s)

The tested device is an Floor Standing Indoor Home Monitoring Camera with WiFi connection.

The KX-HNC850 is identical to the KX-HNC810 (FCC ID: ACJ96NKX-HNC810) except for the voltage regulator circuitry, and the KX-HNC850 is a floor standing model.

The models KX-HNC850 and KX-HNC855C 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.

All ports were populated during spurious emission measurements.

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

Version	Date	Comment	Sign
1.0	2019.02.12	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**

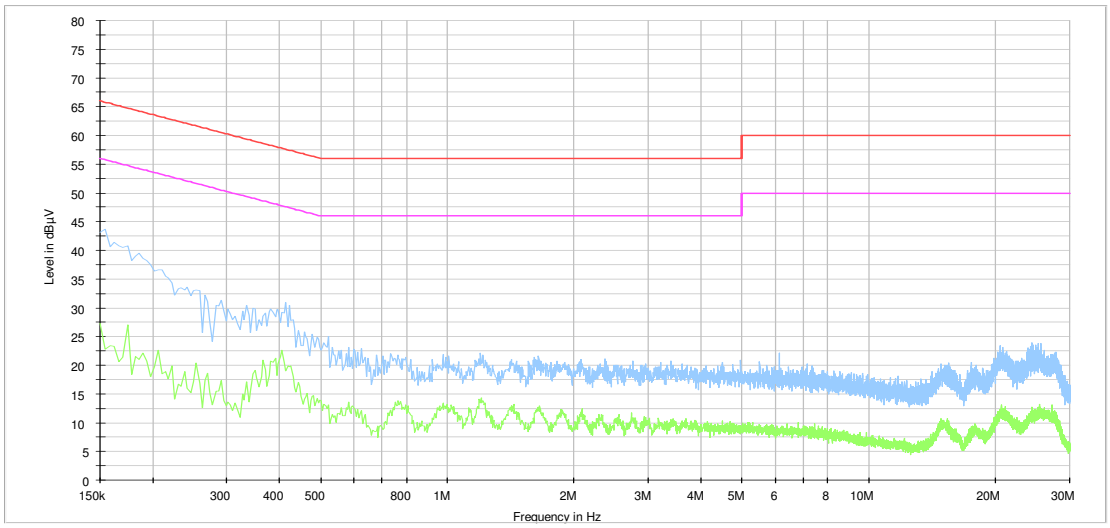
Highest measured value (L1 and N):

110V 60Hz, Camera in Standby: None found

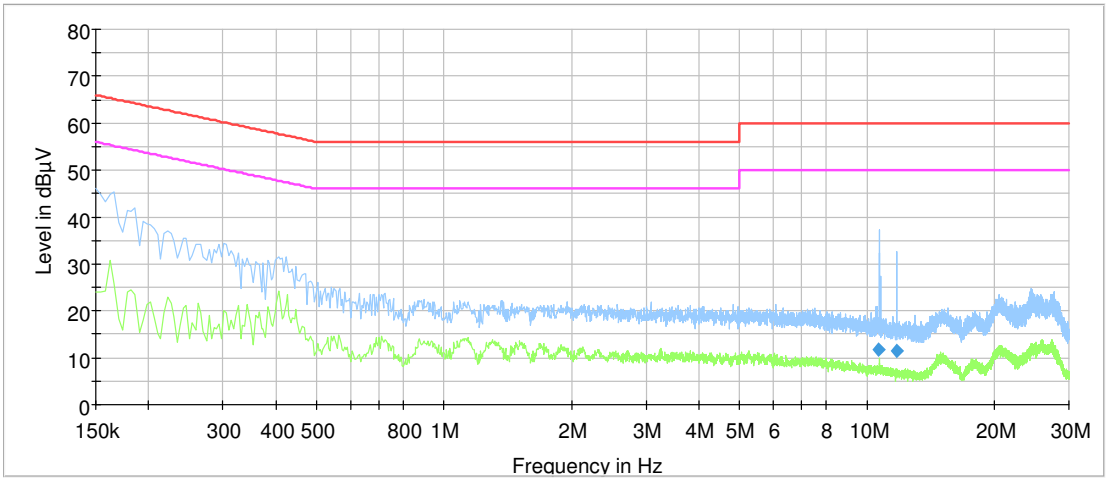
110V 60Hz, Camera Active:

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
10.648	11.82	---	60.00	48.18	1000	9	N	OFF
11.772	11.39	---	60.00	48.61	1000	9	L1	OFF

110V 60Hz, Camera in Standby:



110V 60Hz, Camera Active:



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: Peak

Measuring distance 3 m

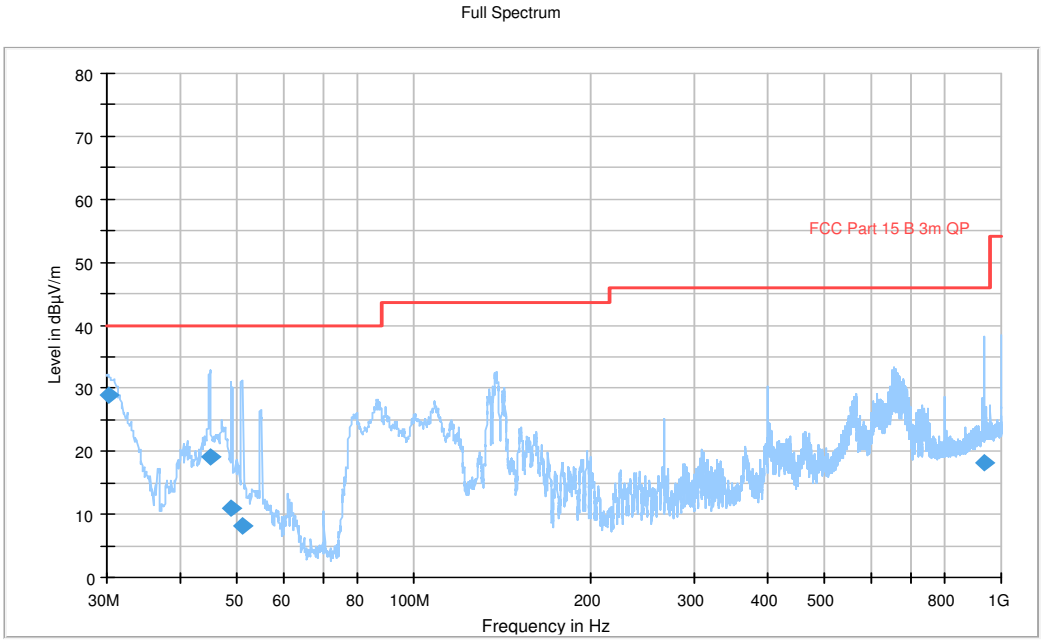
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
30.249944	28.82	40.00	11.18	1000.0	120.000	111.0	V	82.0
44.918650	19.06	40.00	20.94	1000.0	120.000	112.0	V	52.0
48.750150	11.06	40.00	28.94	1000.0	120.000	106.0	V	66.0
51.168050	8.22	40.00	31.78	1000.0	120.000	100.0	V	59.0
932.736700	18.12	46.00	27.88	1000.0	120.000	152.0	V	128.0

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
Above 960	500	54.0

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.



Radiated Emissions, 30 -1000 MHz, 2412 MHz, 802.11b, 1Mbps

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)
2132 MHz	62.7	74	11.3
Any other	< 54	74	>20

*Worst case

Average Detector, RBW=1 MHz

Measured Frequency	Measured Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1600 MHz	30.2	54	23.8
2132 MHz	47.9	54	6.1

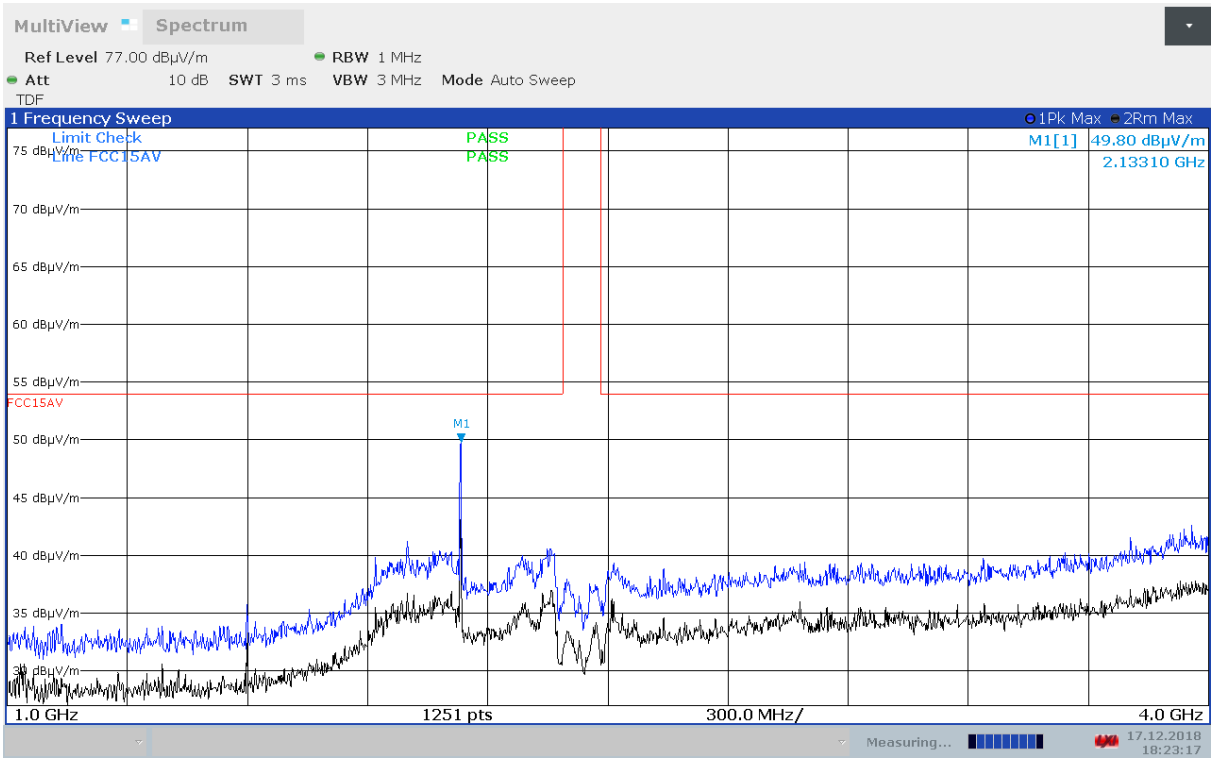
A Band Reject Filter was used for measurements from 1 GHz to 4 GHz.

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

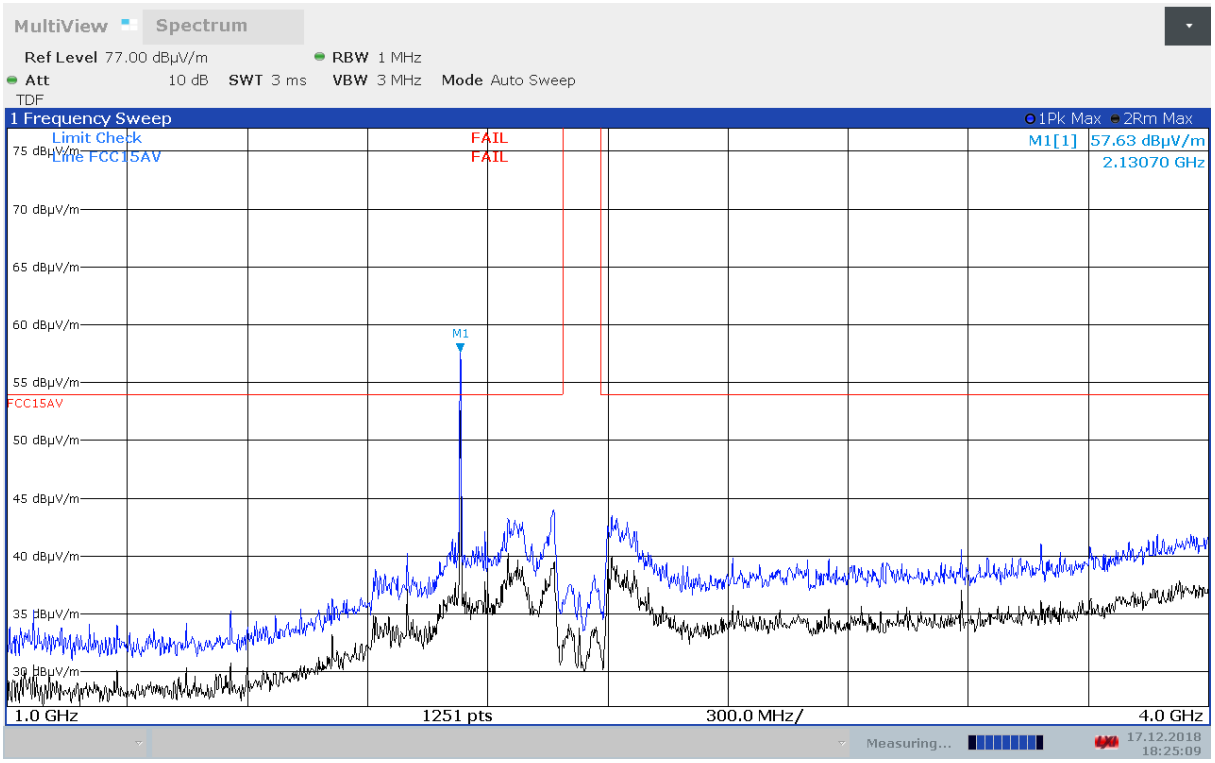
See attached plots.

Requirements/Limit

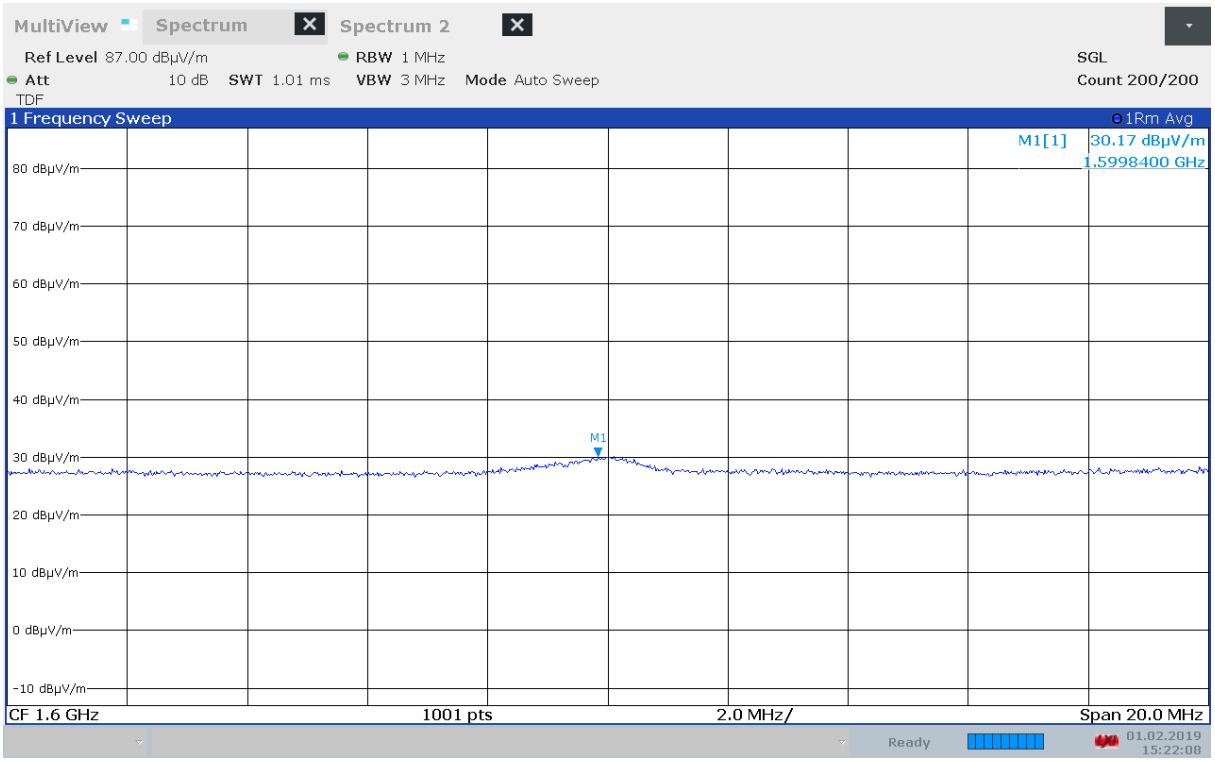
FCC	Part 15.109	
	Radiated emission limit @3 meters	
Frequency (MHz)	AV (dBµV/m)	Peak (dBµV/m)
Above 1 GHz	54.0	74.0



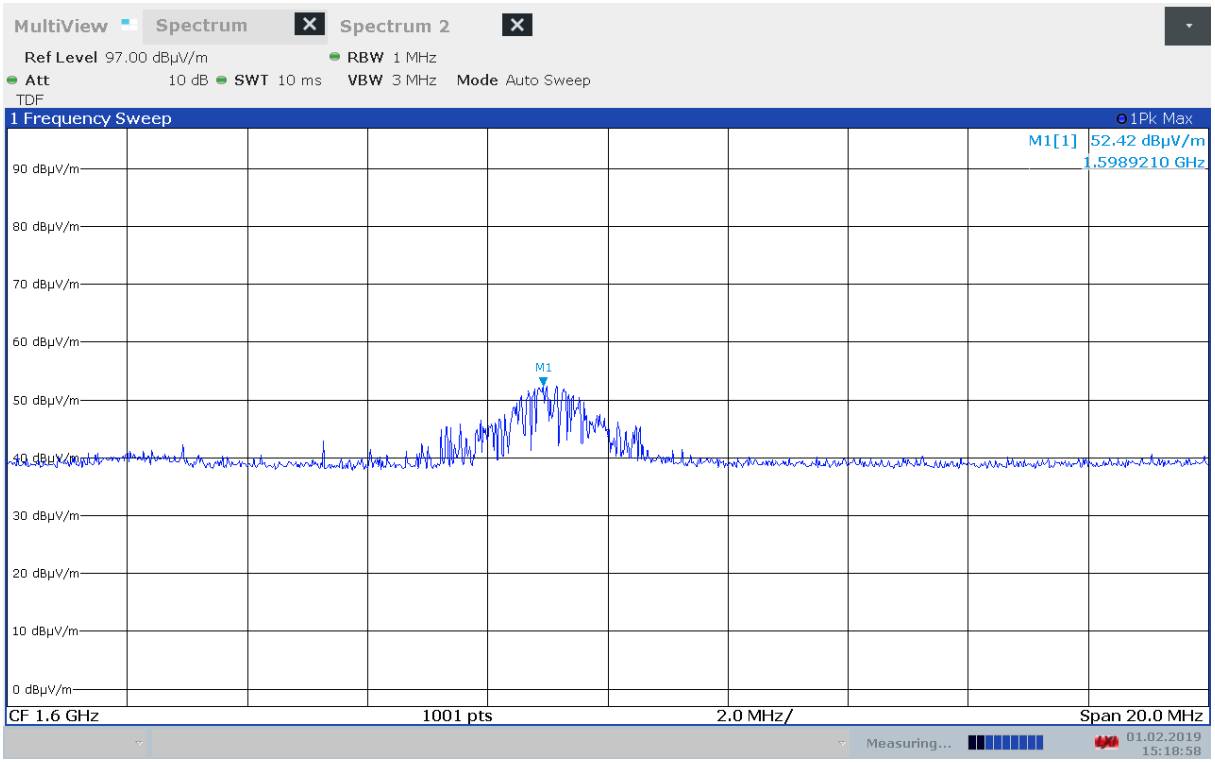
Radiated Emissions, 1000 -4000 MHz, 2412 MHz, VP, 802.11b, 1Mbps



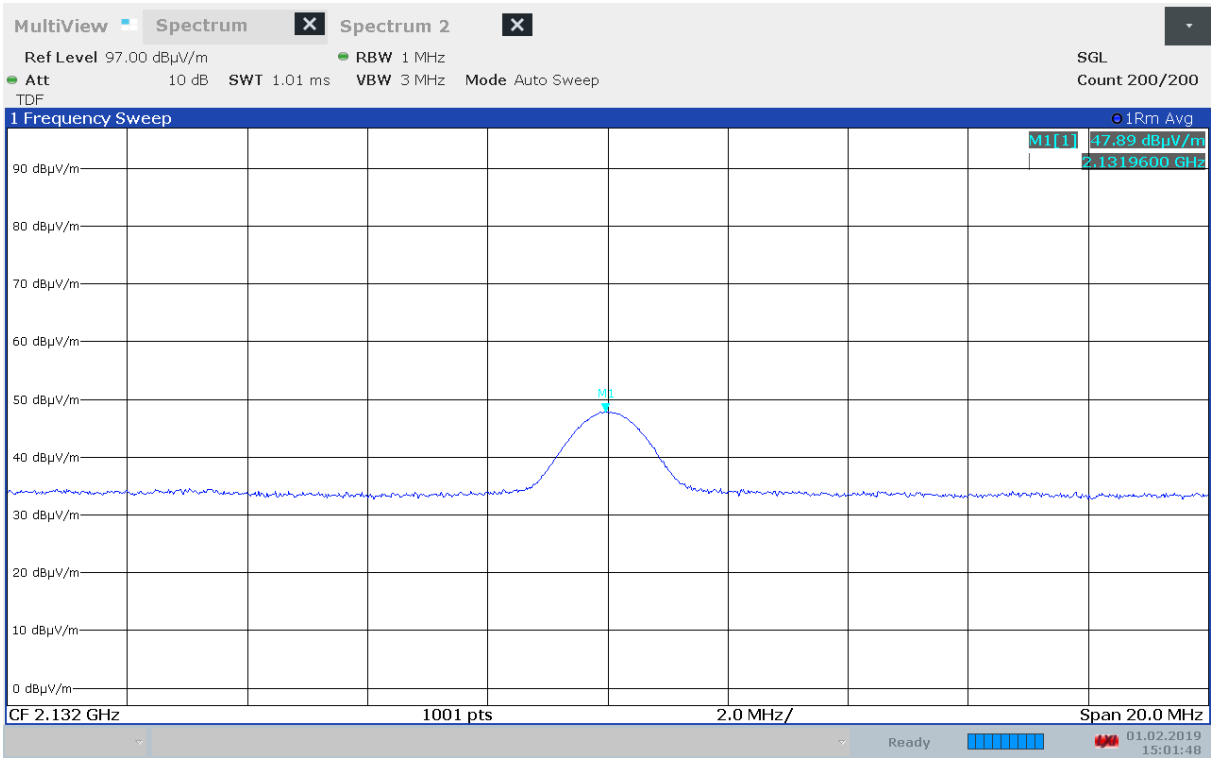
Radiated Emissions, 1000 -4000 MHz, 2412 MHz, HP, 802.11b, 1Mbps



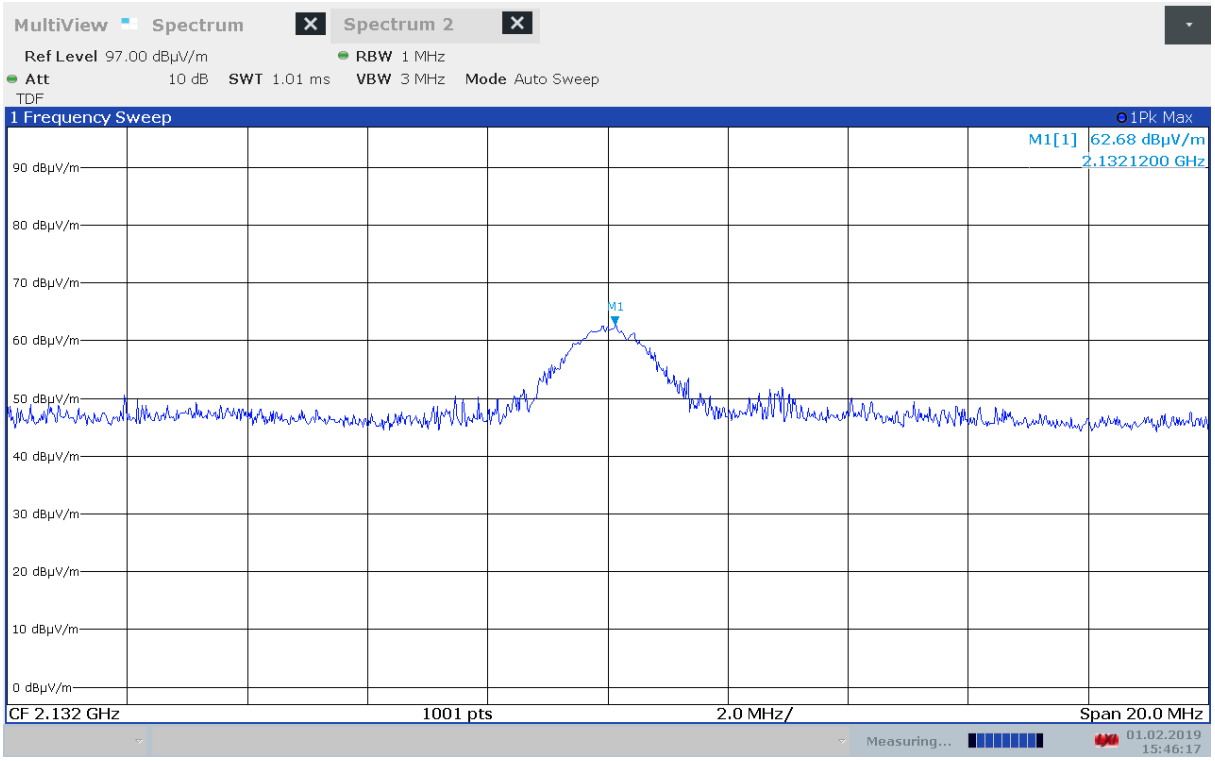
Radiated Emissions, 1600 MHz, 2412 MHz, 802.11g, 6Mbps (Max: VP), Average



Radiated Emissions, 1600 MHz, 2412 MHz, 802.11g, 6Mbps (Max: VP), Peak



Radiated Emissions, 2132 MHz, 2412 MHz, 802.11g, 6Mbps (Max: HP), Average



Radiated Emissions, 2132 MHz, 2412 MHz, 802.11g, 6Mbps (Max: HP), Peak

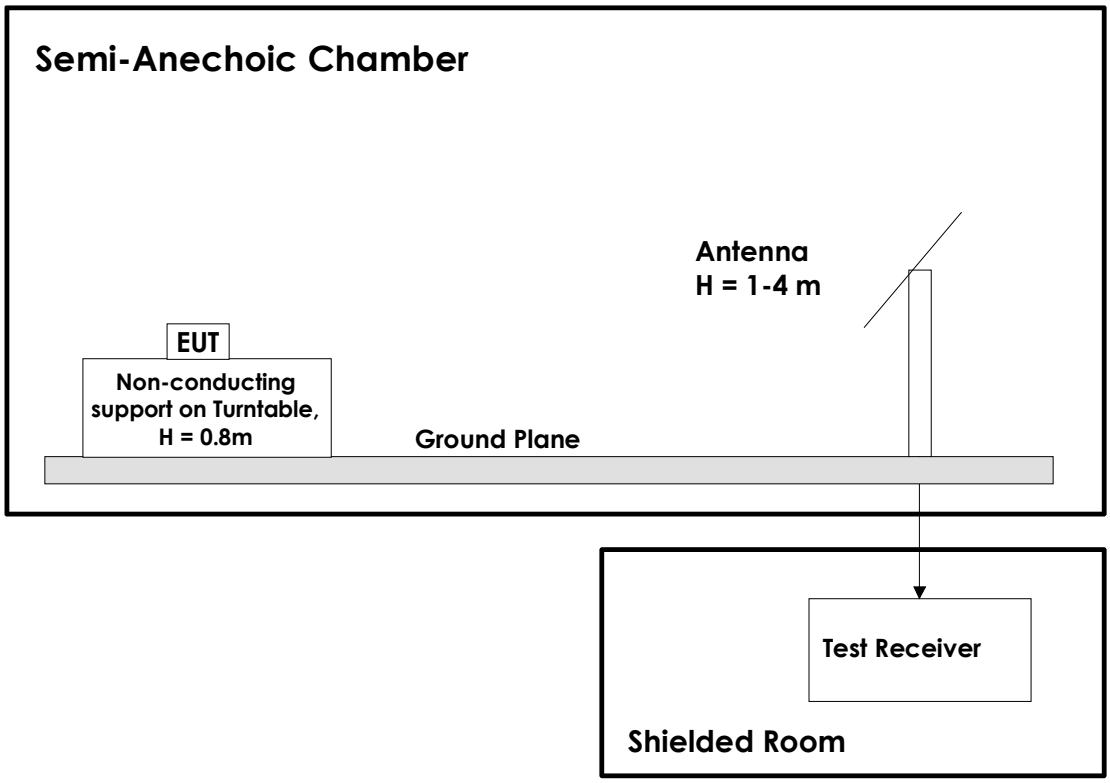
4 Measurement Uncertainty

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

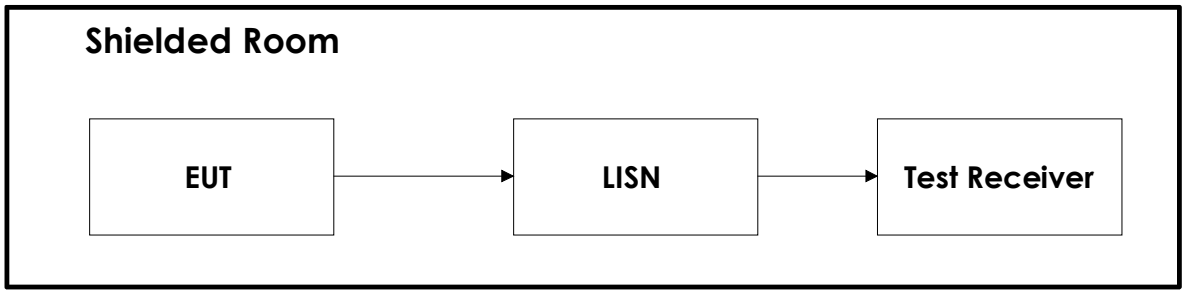
5.1 Radiated Emissions Test



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. All measurements at 1 GHz 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	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2018.01 2019.01	2019.01 2020.01
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2018.03 2019.01	2019.03 2020.01
3	JB3	BiLog Antenna	Sunol Sciences	N-4525	2016.05	2019.05
4	317	Preamplifier	Sonoma Inst.	LR 1687	2018.07	2019.07
5	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2018.07	2019.07
6	3115	Horn Antenna	EMCO	LR 1330	2016.10	2019.12
7	WRCG2400/2483.5	Band Reject Filter	Wainwright Inst.	LR 1530	COU	
8	Model 87 V	Multimeter	Fluke	LR 1597	2018.02	2019.02
9	6812B	AC Power Source	Agilent	LR 1515	COU	
10	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2017.11	2019.11
11	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2017.10	2019.10

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	10.20.10	Power Line Conducted test software
2	Rohde & Schwarz	EMC32	10.20.10	Radiated Emission test software
3	Rohde & Schwarz	GPIBShot	2.7	Screenshots from R&S Spectrum Analyzers