

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-TGDA66, KX-TGDA63
Rating	2.4V DC (2x AA cells, NiMH)
Trademark	Panasonic
Serial number	4313630001
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	431363
Tested in period	2021-03-26 to 2021-04-13
Issue date	2021-04-30
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]	
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1 INFORMATION

1.1 Tested Item

Name	Panasonic
Model name	KX-TGDA66, KX-TGDA63
FCC ID	ACJ96NKX-TGDA66
FCC / IC Class	B
Serial number	4313630001
Hardware identity and/or version	PNLB2936
Software identity and/or version	SW400
Desktop Charger	PNLC1077(YA) with AC Adaptors PNLV233 (UC), PNLV233 (VJ), PNLV233 (ZC), PNLV233 (2A)
Power Supply	Secondary Batteries (2x AAA cells, 1.2V, 300mAh)

Description of Tested Device(s)

The tested equipment is a DECT Handset with Desktop Charger.

The models KX-TGDA66 and KX-TGDA63 are electrically identical, the only difference is the silk screen print on cabinet.

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 / Jan G. Eriksen

1.4 Test Equipment

See list of test equipment in clause 6.

1.5 Test Configurations

Test Configuration	EUT Standby in charger and charging.
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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".

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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.

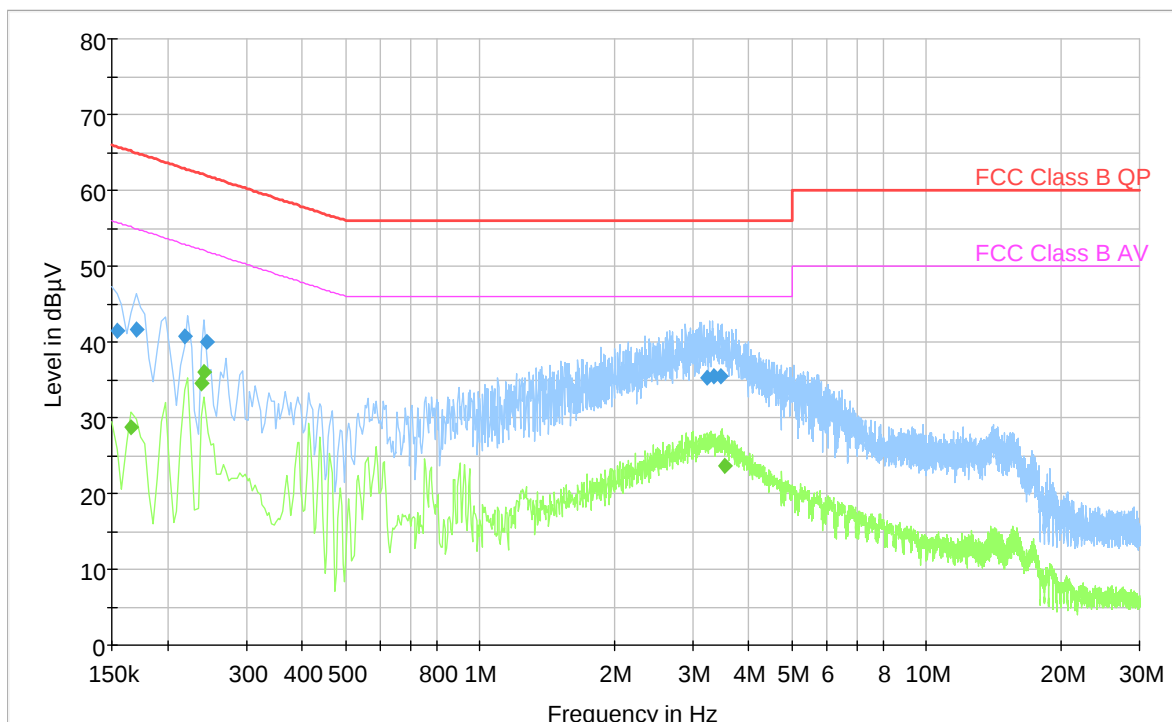
All tests were performed with 120V 60Hz AC

Highest measured value (L1 and N):

AC Adaptor PNLV223 (UC):

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
0.154	41.44	---	65.78	24.34	1000	9	N	OFF
0.166	---	28.64	55.16	26.52	1000	9	L1	OFF
0.170	41.72	---	64.96	23.24	1000	9	N	OFF
0.218	40.70	---	62.90	22.19	1000	9	L1	OFF
0.238	---	34.51	52.17	17.66	1000	9	L1	OFF
0.242	---	35.91	52.03	16.12	1000	9	L1	OFF
0.244	40.04	---	61.96	21.92	1000	9	L1	OFF
3.216	35.22	---	56.00	20.78	1000	9	N	OFF
3.348	35.51	---	56.00	20.49	1000	9	N	OFF
3.452	35.46	---	56.00	20.54	1000	9	N	OFF
3.536	---	23.72	46.00	22.28	1000	9	N	OFF

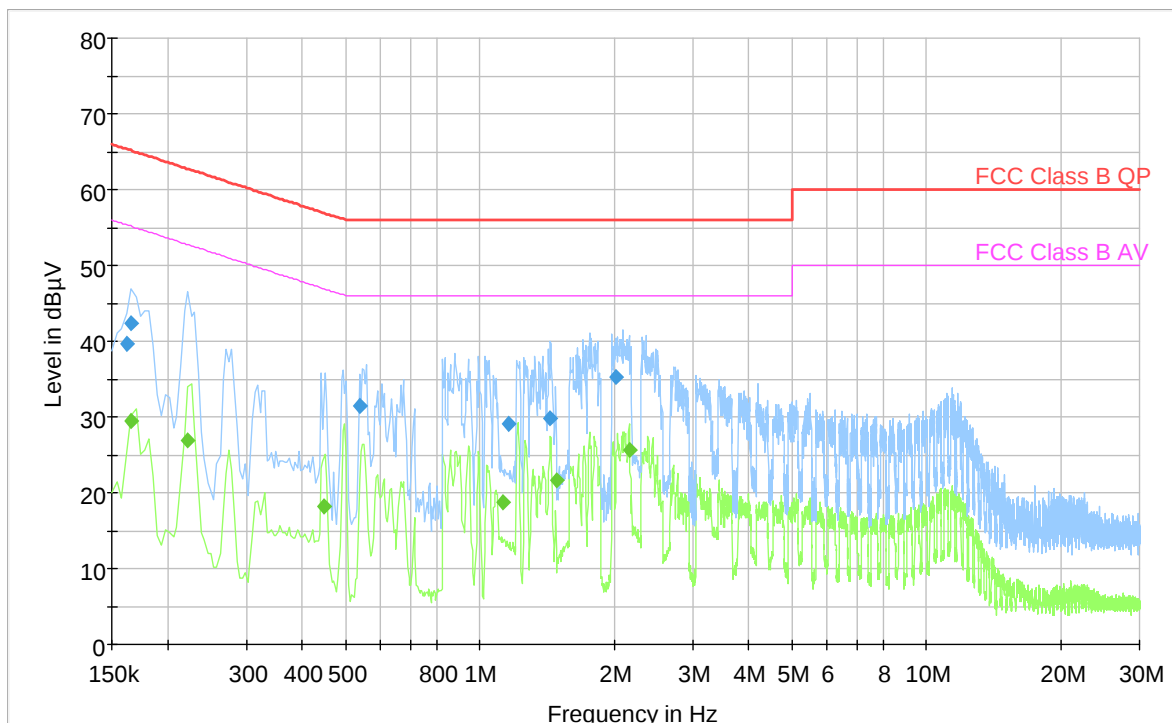
Full Spectrum



AC Adaptor PNLV223 (ZC):

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
0.162	39.56	---	65.36	25.80	1000	9	L1	OFF
0.166	42.35	---	65.16	22.80	1000	9	N	OFF
0.166	---	29.41	55.16	25.75	1000	9	N	OFF
0.222	---	26.85	52.74	25.89	1000	9	N	OFF
0.448	---	18.20	46.91	28.71	1000	9	N	OFF
0.540	31.43	---	56.00	24.57	1000	9	L1	OFF
1.128	---	18.72	46.00	27.28	1000	9	N	OFF
1.156	29.09	---	56.00	26.91	1000	9	N	OFF
1.432	29.75	---	56.00	26.25	1000	9	N	OFF
1.488	---	21.66	46.00	24.34	1000	9	N	OFF
2.016	35.35	---	56.00	20.65	1000	9	L1	OFF
2.164	---	25.62	46.00	20.38	1000	9	L1	OFF

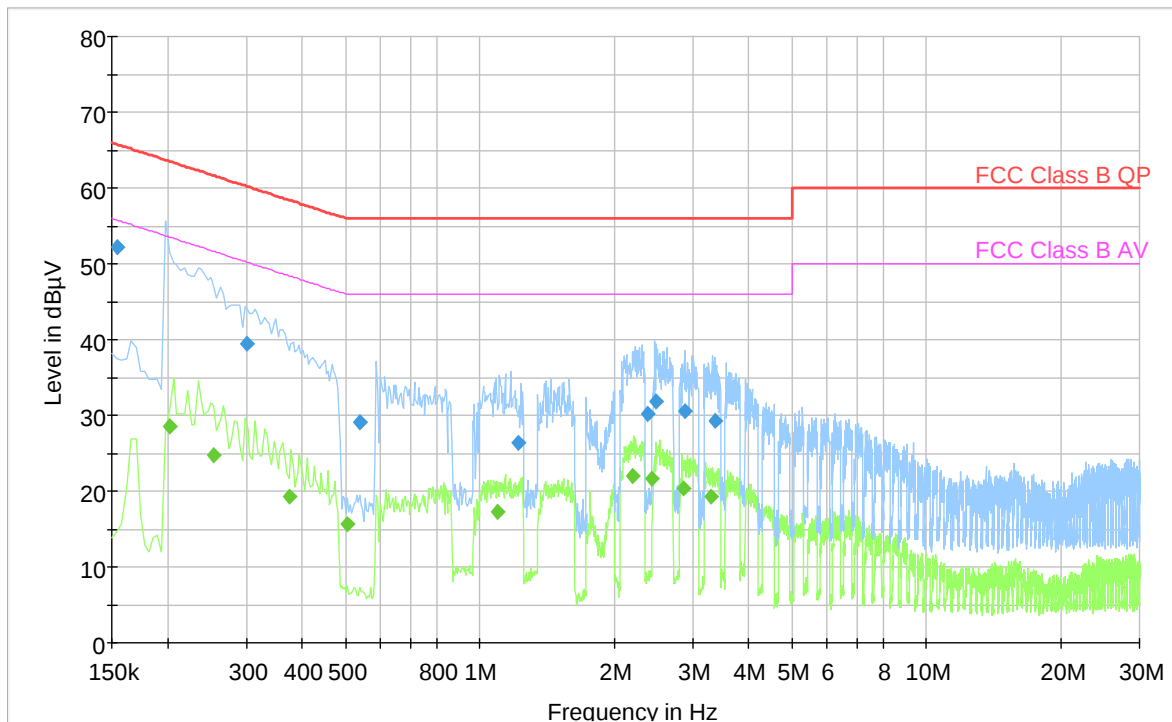
Full Spectrum



AC Adaptor PNLV223 (VJ):

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
0.154	52.20	---	65.78	13.58	1000	9	N	OFF
0.202	---	28.48	53.53	25.05	1000	9	N	OFF
0.254	---	24.67	51.63	26.95	1000	9	L1	OFF
0.300	39.46	---	60.24	20.79	1000	9	L1	OFF
0.376	---	19.20	48.37	29.16	1000	9	N	OFF
0.504	---	15.58	46.00	30.42	1000	9	L1	OFF
0.540	29.07	---	56.00	26.93	1000	9	N	OFF
1.092	---	17.34	46.00	28.66	1000	9	N	OFF
1.220	26.44	---	56.00	29.56	1000	9	N	OFF
2.204	---	22.06	46.00	23.95	1000	9	N	OFF
2.380	30.13	---	56.00	25.87	1000	9	L1	OFF
2.428	---	21.62	46.00	24.38	1000	9	N	OFF
2.488	31.74	---	56.00	24.26	1000	9	N	OFF
2.864	---	20.40	46.00	25.60	1000	9	N	OFF
2.876	30.48	---	56.00	25.52	1000	9	N	OFF
3.304	---	19.36	46.00	26.64	1000	9	N	OFF
3.376	29.34	---	56.00	26.66	1000	9	N	OFF

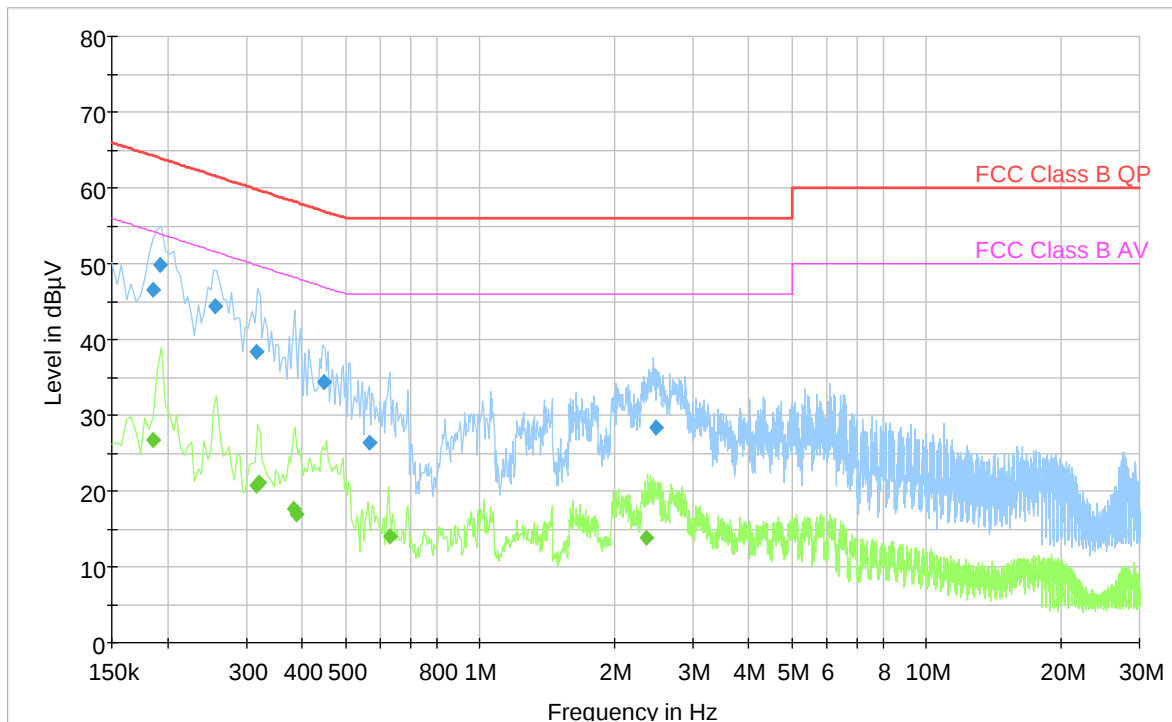
Full Spectrum



AC Adaptor PNLV223 (2A):

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter
0.186	46.54	---	64.21	17.67	1000	9	N	OFF
0.186	---	26.73	54.21	27.48	1000	9	L1	OFF
0.192	49.82	---	63.95	14.13	1000	9	N	OFF
0.256	44.35	---	61.56	17.21	1000	9	L1	OFF
0.316	---	20.67	49.81	29.14	1000	9	L1	OFF
0.316	38.40	---	59.81	21.41	1000	9	L1	OFF
0.320	---	21.14	49.71	28.57	1000	9	L1	OFF
0.384	---	17.58	48.19	30.61	1000	9	L1	OFF
0.388	---	16.83	48.11	31.27	1000	9	L1	OFF
0.448	34.38	---	56.91	22.53	1000	9	L1	OFF
0.568	26.37	---	56.00	29.63	1000	9	L1	OFF
0.628	---	14.03	46.00	31.97	1000	9	N	OFF
2.360	---	13.89	46.00	32.11	1000	9	N	OFF
2.476	28.38	---	56.00	27.62	1000	9	N	OFF

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.

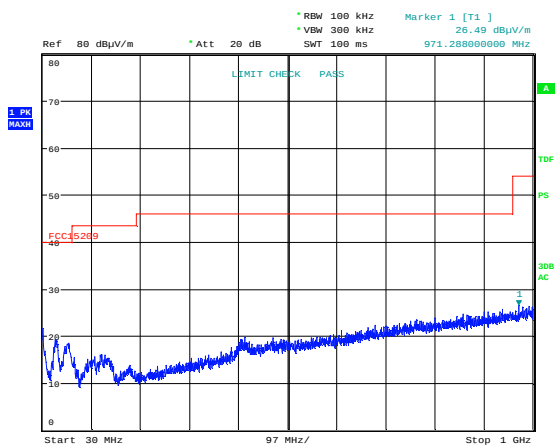
Frequency MHz	Dist. corr. Factor dB	Field strength @3m QP Det., dB μ V/m	Limit dB μ V/m	Margin dB
30 – 88	0	< 32	40.0	> 8
88 - 216	0	< 30	43.5	> 13.5
216 – 960	0	< 30	46.0	> 16
960 - 1000	0	< 30	54.0	> 24

Requirements/Limit

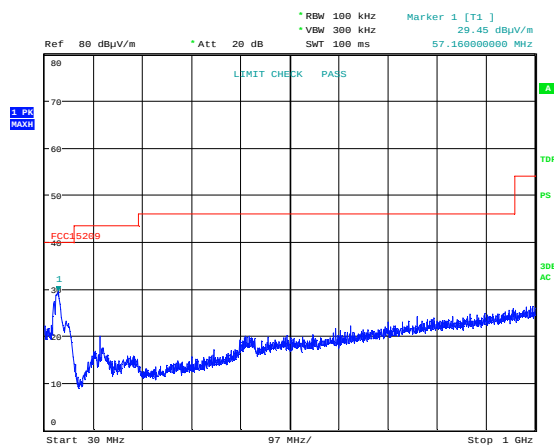
FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 4, Clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency (MHz)	Quasi Peak (μ V/m)	Quasi Peak (dB μ V/m)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

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):

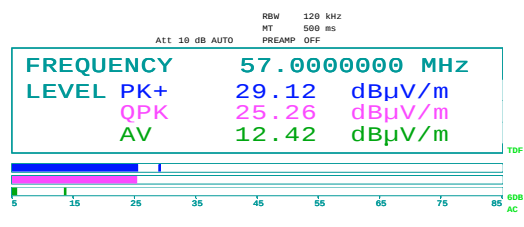


Date: 26.MAR.2021 17:27:10

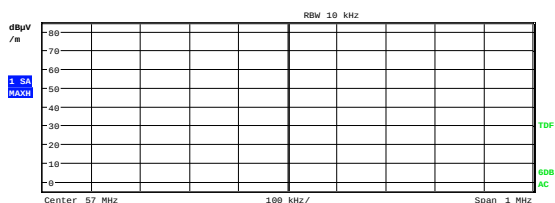


Date: 26.MAR.2021 17:21:18

Radiated Emissions 30 – 1000 MHz, HP



Radiated Emissions 30 – 1000 MHz, VP



Date: 26.MAR.2021 17:44:26

Radiated Emissions 57.00 MHz, VP

Ref 80 dBuV/m * Att 20 dB RBW 100 kHz Marker 1 [T1]
 VBW 1 MHz 22.43 dBuV/m
 SWT 235 ms 994.95600000 MHz

1 94 MAX1

80
 70
 60
 50
 40
 30
 20
 10
 0

Start 30 MHz 97 MHz/ Stop 1 GHz

LIMIT CHECK PASS

FCC 45209

TDF
 LNA
 PS
 60dB
 AC

Date: 12.APR.2021 12:26:05

Ref 80 dB μ V/m * Att 20 dB RBW 100 kHz Marker 1 [T1]
 VEM 1 MHz 26.87 dB μ V/m
 SWT 235 ms 45.520000000 MHz

80
 70
 60
 50
 40
 30
 20
 10
 0

LIMIT CHECK PASS

FCC 15209

Start 30 MHz 97 MHz/ Stop 1 GHz

PS
 TD
 LN
 AC

Date: 12.APR.2021 12:20:12

Ref 80 dBμV/m Att 20 dB RBW 100 kHz VBW 300 kHz Marker 1 [T1] 24.07 dBμV/m SWT 100 ms 944.128000000 MHz

80
70
60
50
40
30
20
10
0

LIMIT CHECK PASS

FCC 5209

1

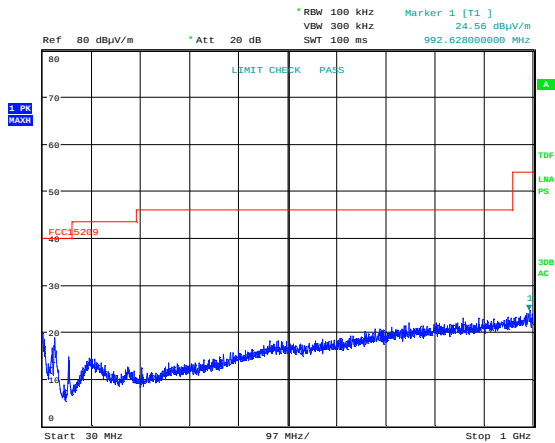
Start 30 MHz 97 MHz/ Stop 1 GHz

Date: 12.APR.2021 12:42:35

Date: 12.APR.2021 12:38:41

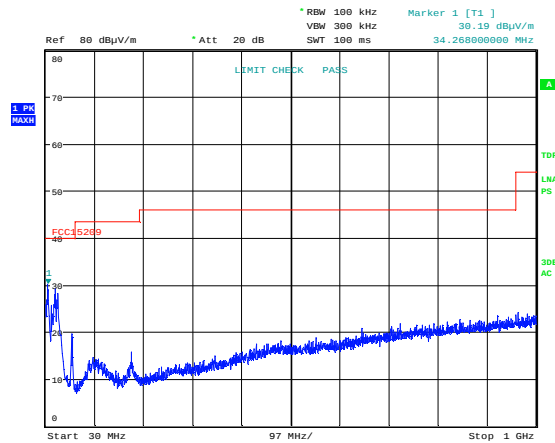
Radiated Emissions 30 – 1000 MHz, VP

AC Adaptor PNLV223 (2A):



Date: 12. APR. 2021 12:57:15

Radiated Emissions 30 – 1000 MHz, HP



Date: 12. APR. 2021 12:53:20

Radiated Emissions 30 – 1000 MHz, VP

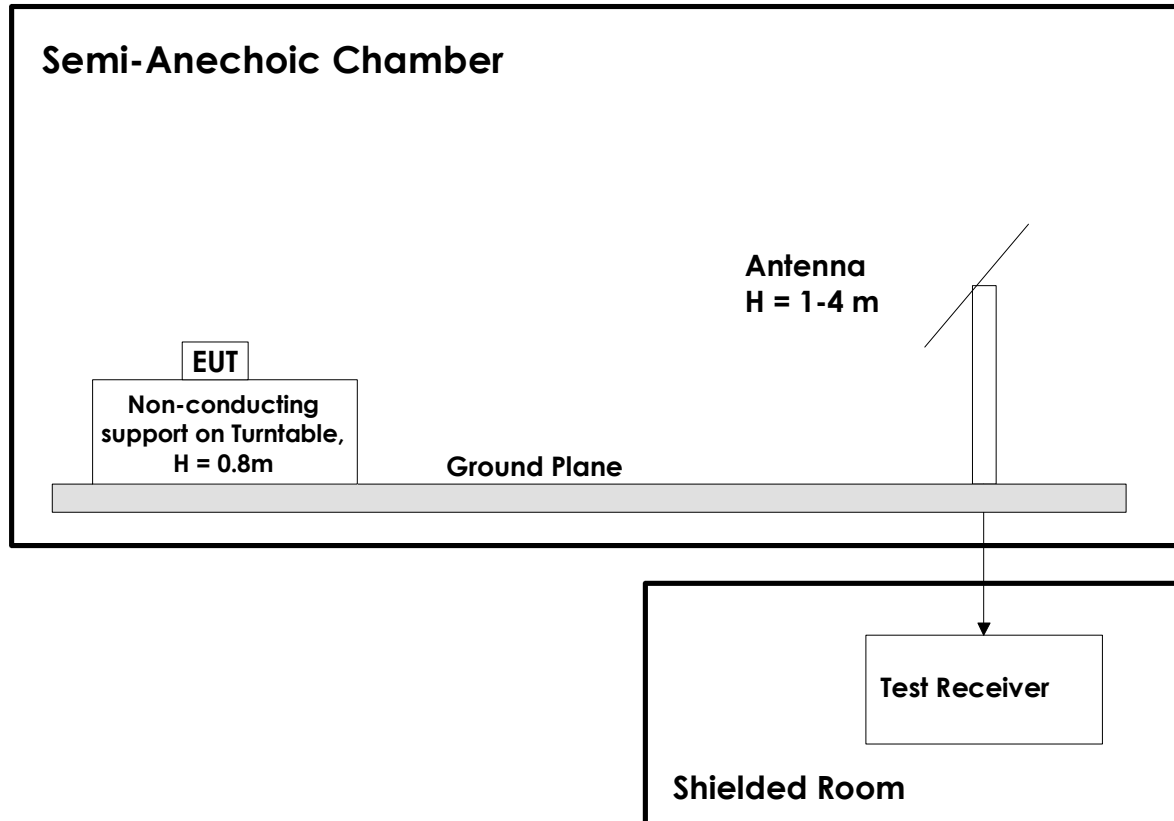
4 Measurement Uncertainty

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

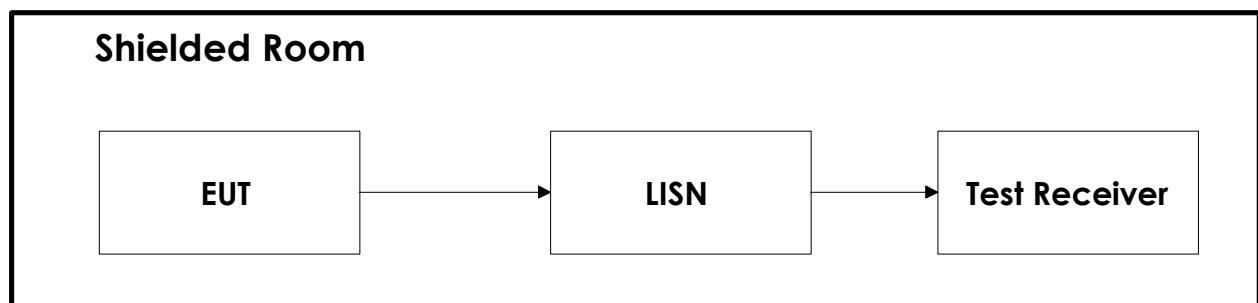
5.1 Radiated Emissions Test



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 2021-02	2020-01 2022-02
2	NO324415	Band Reject Filter	Microwave Circuits	LR 1760	2020-08	2021-08
3	JB3	BiLog Antenna	Sunol	N-4525	2020-03	2023-03
4	317	Preamplifier	Sonoma Inst.	LR 1687	2020-08	2021-08
5	6812B	AC Power Source	Agilent	LR 1515	2020-04	2022-04
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	

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	2021-04-28	First edition	FS