Report No. 311698-2

Test Report

Product	UPCS Center Module with Dual Wireless Modules
Name and address of the applicant	Panasonic Corporation of North America
Name and address of the manufacturer	Panasonic System Networks Co., Ltd. 1-62, 4-chome, Minoshima, Hakata-ku Fukuoka 812-8531, Japan
Model	WX-CC412A
Rating	120V AC (Mains Powered)
Trademark	Panasonic
Serial number	/
Additional information	DECT 6.0
Tested according to	**FCC Part 15, subpart D** Isochronous UPCS Device, 1920 – 1930 MHz **Industry Canada RSS 213, Issue 3** 2 GHz License-Exempt Personal Communications Services (LE-PCS) Devices
Order number	311698
Tested in period	2016.06.29 to 2016.07.04
Issue date	2016.07.07
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway FCC No: 994405 IC OATS: 2040D-1 TEL: +47 22 96 03 30 FAX: +47 22 96 05 50

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 :	WX-CC412A
FCC ID :	ACJ9TAWX-CC412A
Industry Canada ID :	216A-WXCC412A
Serial number :	ES1
Hardware identity and/or version:	/
Software identity and/or version :	V0.04R00
Tested to IC Radio Standard (RSS) :	RSS-213 Issue 3, RSS-GEN Issue 4
Test Site IC Reg. Number :	IC 2040D-1
Frequency Range :	1921.536 – 1928.448 MHz
Number of Channels :	5 RF Channels, 5x12 = 60 TDMA Duplex Channels
Type of Modulation :	Digital (Gaussian Frequency Shift Keying)
Conducted Output Power :	89 mW (Peak)
Antenna Connector :	None
Number of Antennas :	2
Antenna Diversity Supported :	Yes
Desktop Charger :	N/A
Power Supply :	Integral (AC mains connection)
Interface :	Ethernet, PSTN

1.2 Description of Tested Device

The EUT is a DECT Base Station and is a responding device as described in ANSI C63.17 and is designed to operate together with DECT Headsets, which are the initiating device.

This model contains 2 Wireless Modules.

1.3 Test Environment

Temperature:	22.2 – 25.9 °C
Relative humidity:	34 – 44 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

1.4 Test Engineer(s)

Frode Sveinsen
Thomas Danglé (Power Line Conducted Emissions)

1.5 Other Comments

All tests were performed radiated on a sample with integral antennas and with all ports populated and operating.

This report shows only limited tests after change of components, for all other tests see Nemko test report no.: 245599-2 (FCC ID: ACJ9TAWX-CC412).

Test report no. 245599-1 refers to ANSI C63.4-2009 and ANSI C63.17.2006. However, the reference to C63.4-2009 is only for the Power Line Conducted Emissions test, and this test has been retested and is covered by this test report. The only change in ANSI C63.17-2006 is that the test procedures for Monitoring Tests have been updated to reflect that Upper Limit is removed from FCC Part 15D, however an equipment that implements Upper Limit and passes C63.17-2006 will also pass the 2013 version since all other levels are the same.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR47 Part 15D for Isochronous UPCS Devices and Industry Canada RSS-213 Issue 3 / RSS-GEN Issue 4 / RSP-100 Issue 11.

All tests were conducted is accordance with ANSI C63.4-2014 and ANSI C63.17-2013. Antenna Gain tests were made in a 3m fully-anechoic chamber.

A description of the test facility is on file with the FCC and Industry Canada.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-production Unit

PUB Equipment Code ☐ 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 #	IC RSS-213 Paragraph #	Verdict
Power Line Conducted Emission	15.107(a) 15.207(a)	5.4 RSS-GEN 8.8	Complies
Spurious Emissions (Radiated)	15.319(g) 15.109(a) 15.209(a)	RSS-GEN 8.9	Complies[1]

[1] Only tested below 1 GHz (See Nemko test report no. 245599-2 for Out of Band Emissions above 1 GHz)

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.207(a)

RSS-213 Clause 6.3, RSS-GEN Clause 8.8

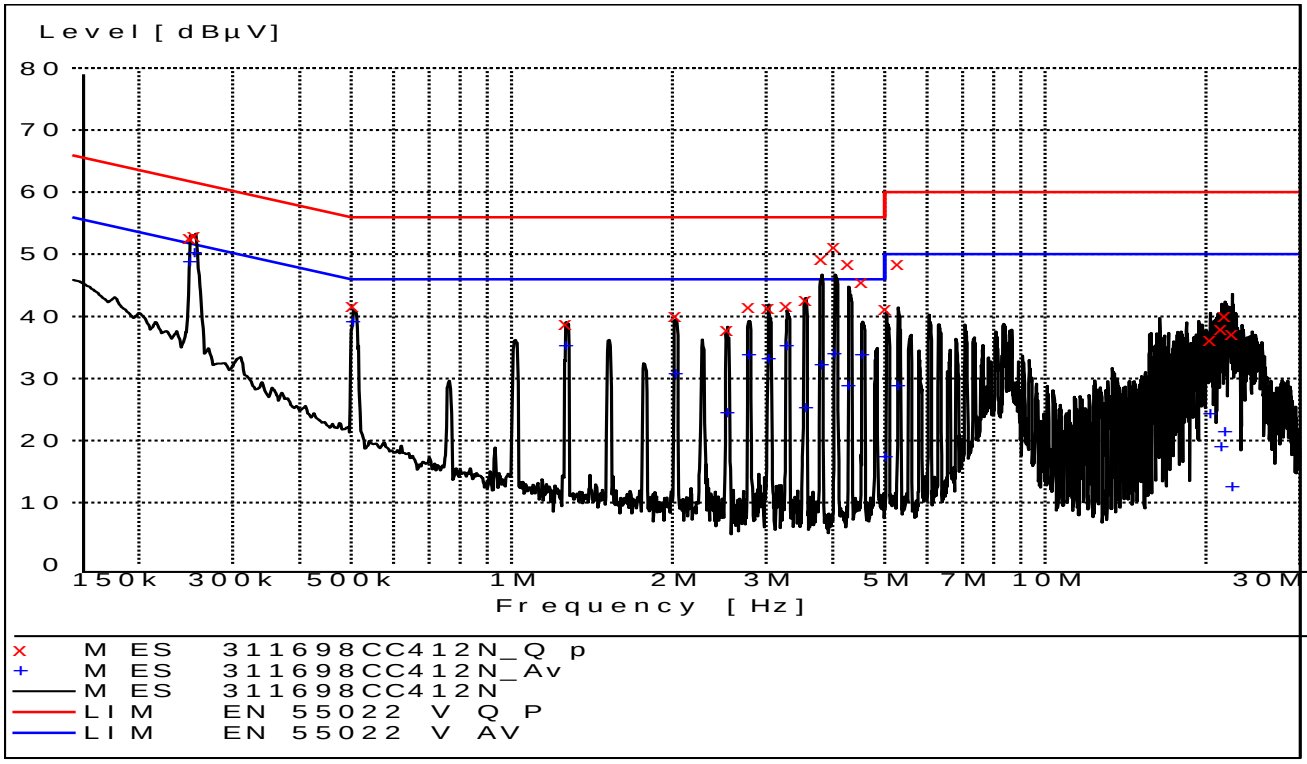
Test Performed By: Thomas Danglé	Date of Test: 4-July-2016

Measurement procedure:	**ANSI C63.4-2014 using 50 μH/50 ohms LISN.**
Test Results:	**Complies**
Measurement Data:	**See attached graph, (Peak detector).**

Highest measured value (L1 and N):

120V 60Hz:

Frequency [MHz]	Level [dBuV]	Af [dB]	Limit [dBuV]	Margin [dB]	Det	Position	Verdict [Pass/Fail]
0.250000	52.80	10.60	61.80	9.00	QP	L1	Pass
0.255000	52.90	10.60	61.60	8.70	QP	L1	Pass
0.505000	41.80	10.20	56.00	14.20	QP	N	Pass
1.265000	38.90	10.40	56.00	17.10	QP	L1	Pass
2.030000	40.20	10.40	56.00	15.80	QP	N	Pass
2.540000	37.80	10.40	56.00	18.20	QP	L1	Pass
2.785000	41.60	10.40	56.00	14.40	QP	N	Pass
3.030000	41.40	10.40	56.00	14.60	QP	L1	Pass
3.285000	41.70	10.40	56.00	14.30	QP	L1	Pass
3.570000	42.70	10.40	56.00	13.30	QP	L1	Pass
3.820000	49.30	10.40	56.00	6.70	QP	L1	Pass
4.035000	51.30	10.50	56.00	4.70	QP	L1	Pass
4.285000	48.50	10.50	56.00	7.50	QP	N	Pass
4.545000	45.50	10.50	56.00	10.50	QP	N	Pass
5.040000	41.20	10.50	60.00	18.80	QP	N	Pass
5.295000	48.50	10.50	60.00	11.50	QP	N	Pass
20.435000	36.30	10.90	60.00	23.70	QP	L1	Pass
21.470000	38.00	10.90	60.00	22.00	QP	L1	Pass
21.735000	40.10	10.90	60.00	19.90	QP	L1	Pass
22.440000	37.30	10.90	60.00	22.70	QP	L1	Pass
0.250000	48.80	10.60	51.80	3.00	AV	L1	Pass
0.255000	50.20	10.60	51.60	1.40	AV	L1	Pass
0.505000	39.10	10.20	46.00	6.90	AV	N	Pass
1.265000	35.20	10.40	46.00	10.80	AV	L1	Pass
2.030000	30.70	10.40	46.00	15.30	AV	N	Pass
2.540000	24.50	10.40	46.00	21.50	AV	L1	Pass
2.785000	33.80	10.40	46.00	12.20	AV	N	Pass
3.030000	33.20	10.40	46.00	12.80	AV	L1	Pass
3.285000	35.20	10.40	46.00	10.80	AV	L1	Pass
3.570000	25.30	10.40	46.00	20.70	AV	L1	Pass
3.820000	32.20	10.40	46.00	13.80	AV	L1	Pass
4.035000	33.90	10.50	46.00	12.10	AV	L1	Pass
4.285000	28.90	10.50	46.00	17.10	AV	N	Pass
4.545000	33.70	10.50	46.00	12.30	AV	N	Pass
5.040000	17.40	10.50	50.00	32.60	AV	N	Pass
5.295000	28.80	10.50	50.00	21.20	AV	N	Pass
20.435000	24.30	10.90	50.00	25.70	AV	L1	Pass
21.470000	18.90	10.90	50.00	31.10	AV	L1	Pass
21.735000	21.30	10.90	50.00	28.70	AV	L1	Pass
22.440000	12.50	10.90	50.00	37.50	AV	L1	Pass


Level [dBµV]
80
70
60
50
40
30
20
10
0
150k
300k
500k
1M
2M
3M
5M
7M
10M
30M
Frequency [Hz]
MES 311698CC412N_Q p
MES 311698CC412N_Av
MES 311698CC412N
LIM EN 55022 V Q P
LIM EN 55022 V AV

120V 60Hz

3.2 Spurious Emissions (Radiated)

Measurement Procedure:

FCC 15.209

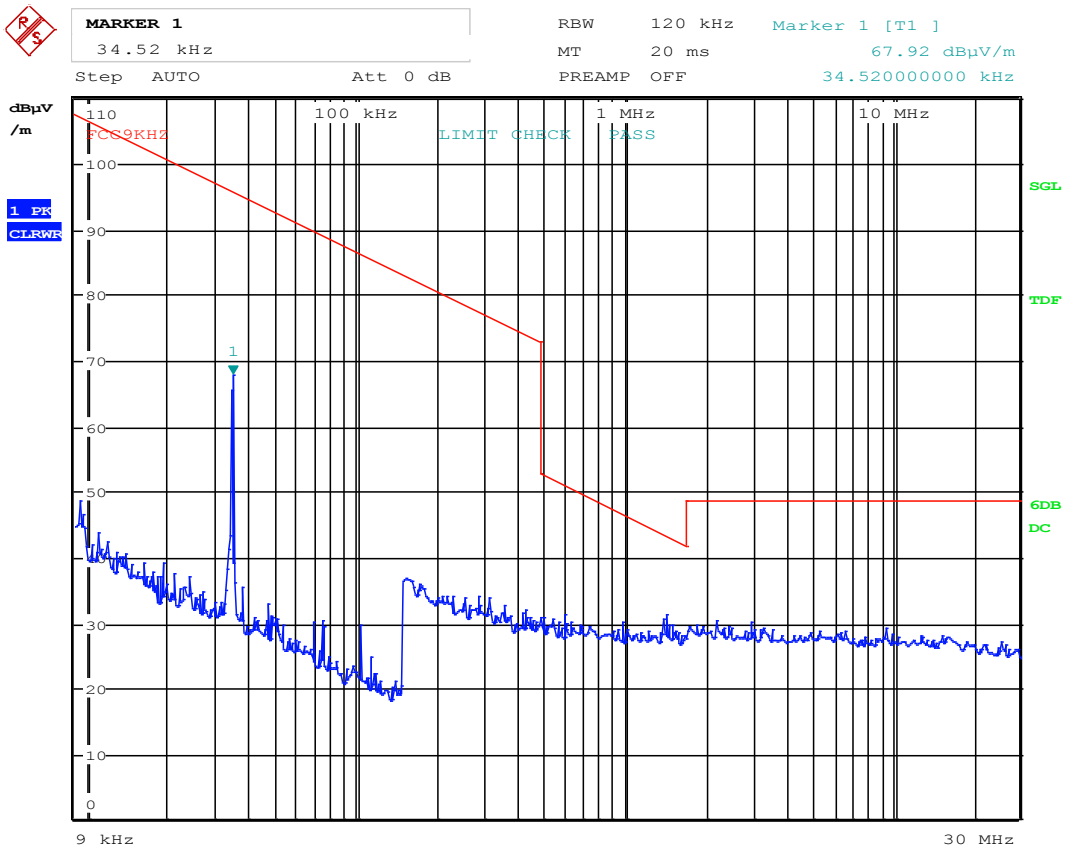
Test Results:

Radiated emission 9 kHz - 30 MHz.

Measuring distance 10m, measured with Peak detector.

No component detected, see attached graph.

Limit is converted to 10m using 40 dB/decade according to 15.31 (f) (2).



Date: 1.JUL.2016 14:12:51

Spurious Emissions 9 kHz - 30 MHz, Peak Detector

Radiated Emissions 30 - 1000 MHz.

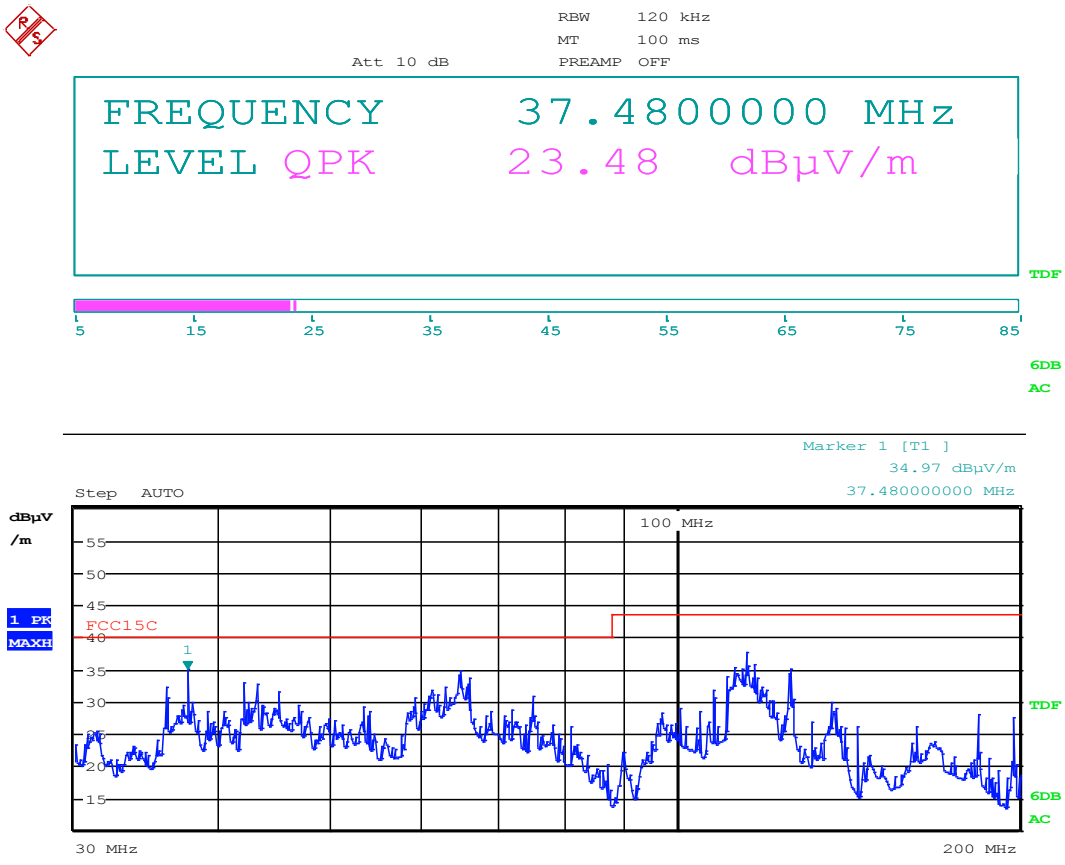
Detector: Quasi-Peak

Measuring distance 3m.

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

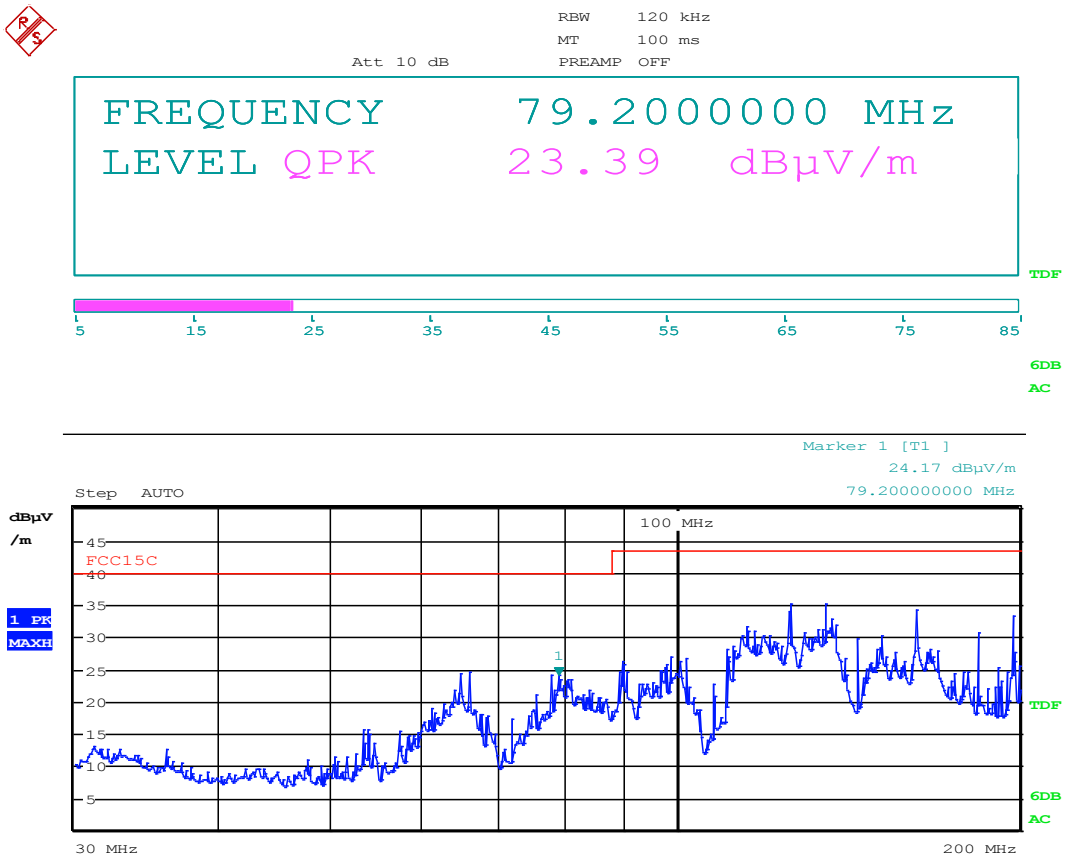
Transmitter active, 120V 60Hz

Frequency	Polarization	Distance correction factor	Field Strength @3 m	Limit	Margin
MHz	V/H	dB	dBµV/m	dBµV/m	dB
37.5	V	0	23.5	40	16.5
64.8	V	0	33.6	40	6.4
79.2	H	0	23.4	40	16.6
115.2	V	0	27.0	43.5	16.5
126.0	H	0	34.0	43.5	9.5
135.0	H	0	29.8	43.5	13.7
162.0	H	0	33.1	43.5	10.4
196.8	H	0	18.9	43.5	24.6
262.6	V	0	20.3	46	25.7
328.2	H	0	26.8	46	19.2
393.6	H	0	38.2	46	7.8
432.0	V	0	34.5	46	11.5
476.2	V	0	31.2	46	14.8
525.3	V	0	40.5	46	5.5
792.0	H	0	22.0	46	24.0
919.3	V	0	38.6	46	7.4



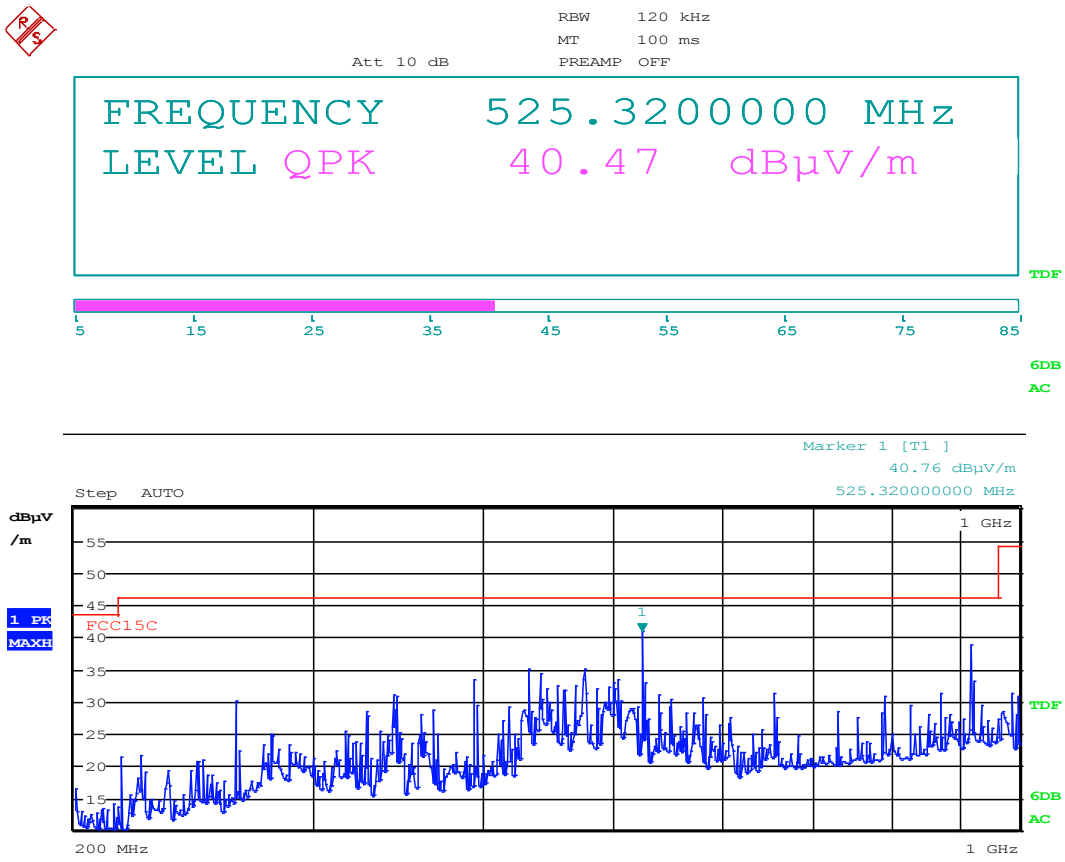
Date: 29.JUN.2016 15:16:17

Spurious Emissions 30 – 200 MHz, Peak Detector, Vertical Polarization



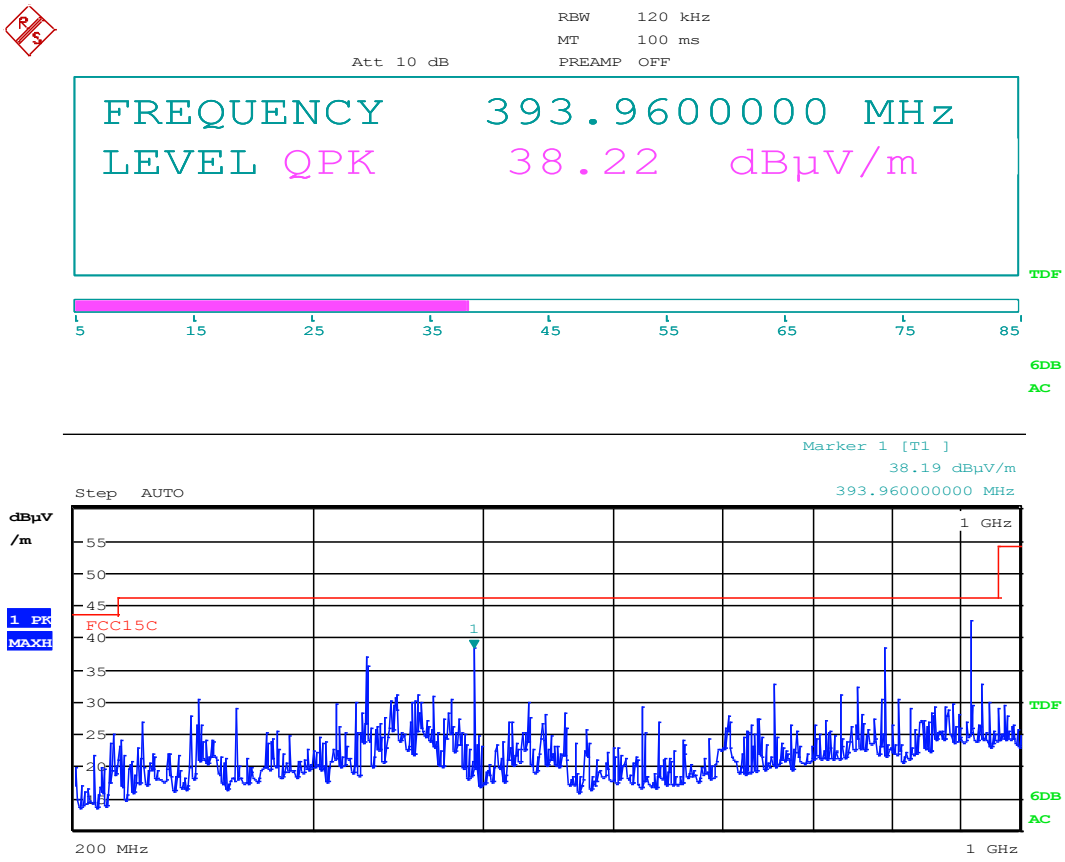
Date: 29.JUN.2016 15:32:23

Spurious Emissions 30 – 200 MHz, Peak Detector, Horizontal Polarization



Date: 29.JUN.2016 14:55:14

Spurious Emissions 200 - 1000 MHz, Peak Detector, Vertical Polarization



Date: 29.JUN.2016 14:41:55

Spurious Emissions 200 - 1000 MHz, Peak Detector, Horizontal Polarization

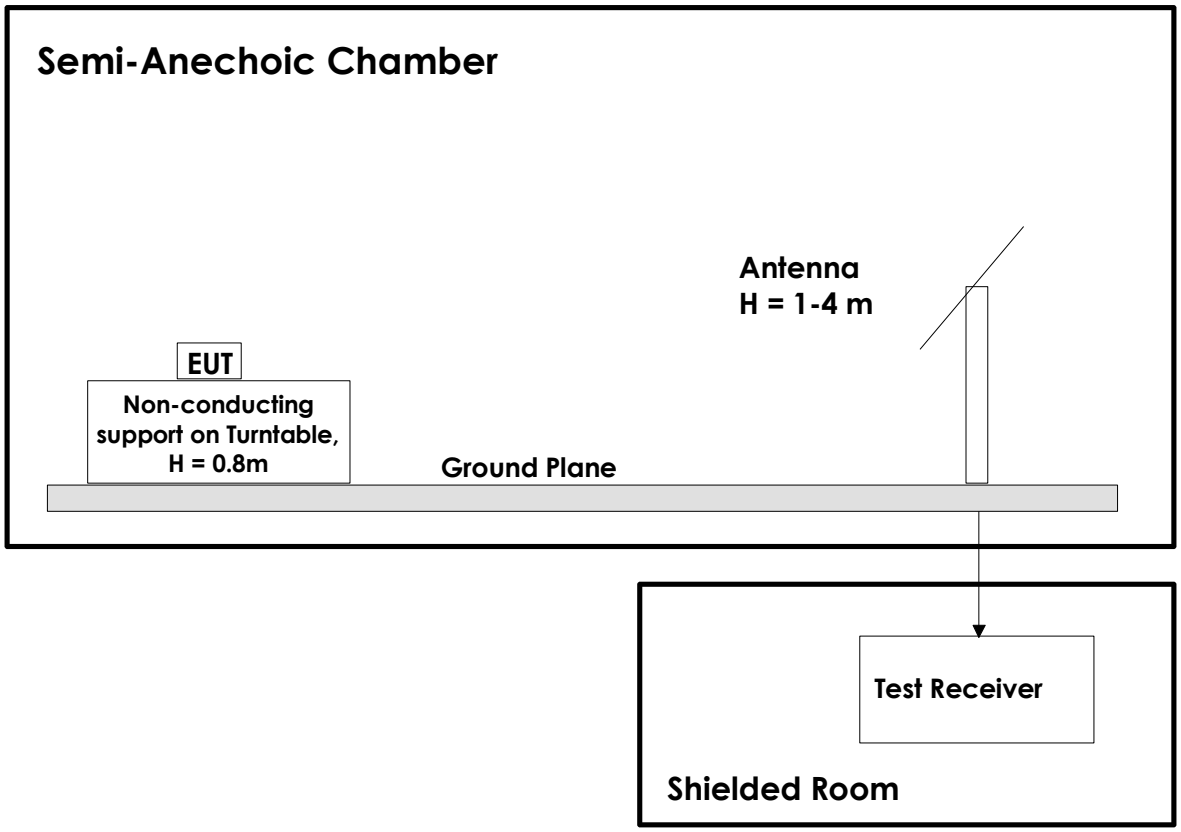
4 Measurement Uncertainty

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

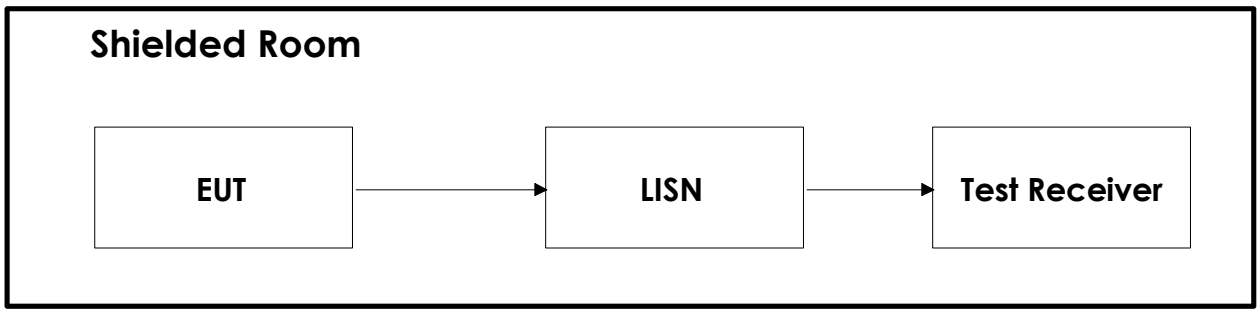
5.1 Radiated Emissions Test, Semi-Anechoic Chamber



Test Set-Up 1

This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance was 10 m, for 30 -1000 MHz the distance was 3m. The turntable height was 0.8m for all tests.

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	LR1639	2015.11	2016.11
2	ESHS10	Measuring Receiver	Rohde & Schwarz	N- 3528	2015.08	2016.08
3	ESH3-Z5	Two Line V-Network	Rohde & Schwarz	LR 1076	Cal b4 use	
4	ESH3-Z2	Pulse Limiter	Rohde & Schwarz	LR 1074	Cal b4 use	
5	6812B	AC Power Source	Agilent	LR 1515	2015.12	2016.12
6	HK116	Biconical Antenna	Rohde & Schwarz	LR 1260	2013.12	2016.12
7	HL223	LogPeriod Antenna	Rohde & Schwarz	LR 1261	2013.12	2016.12
8	HFH2-Z2	Active Loop Antenna	Rohde & Schwarz	LR 1660	2014.10	2017.10
9	317	Preamplifier	Sonoma	LR 1687	2016.05	2017.05

Revision history

Version	Date	Comment	Sign
1.0	2016.07.07	First Edition	FS