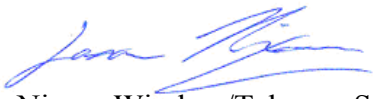
Nemko Test Report:	119068-1TRFWL
Applicant:	Thomas and Betts 1811 boul. Hymus Dorval, Quebec H9P 1J5 Canada
Apparatus:	RF module for applications with internal and external antennas
FCC ID:	W3BGC822843
In Accordance With:	FCC Part 15 Subpart C, 15.249 Operation in the 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHz and 24.0–24.25 GHz
Authorized By:	 Jason Nixon, Wireless/Telecom Specialist
Date:	May 1, 2009
Total Number of Pages:	24

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Section 1 : Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. Radiated tests were conducted in accordance with ANSI C63.4-2003.

The assessment summary is as follows:

Apparatus Assessed:	RF module for applications with internal and external antennas
Specification:	FCC Part 15 Subpart C, 15.249
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release
Test Location:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Registration Number:	176392 (3 m Semi-Anechoic Chamber)
Tests Performed By:	Andrey Adelberg, EMC/Wireless Specialist
Test Dates:	March 19 to 25, 2009

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Section 2 : Equipment Under Test

2.1 Identification of Equipment Under Test (EUT)

The following information identifies the EUT under test:

Type of Equipment:	RF module for applications with internal and external antennas
Brand Name:	Lumacell
Model Name or Number:	PCB Nexus Wireless Mod
Part Number	039059
Serial Number:	4
Nemko Sample Number:	1
FCC ID:	W3BGC822843
Date of Receipt:	December 17, 2008

2.2 Accessories

No additional accessories were used to exercise the EUT during testing.

2.3 EUT Description

The EUT is a RF module for installations within emergency light and signs applications and part of the Nexus network. The Nexus network is based on the Chipcon transceiver chip that operates in the 915 MHz ISM band. One setting is used for the mesh network, that is, normal operation. The other setting is used in the backdoor mode. The differences between the normal and backdoor channel mode are that in normal mode the aim is to have the largest possible radio distance while still having a reasonable data rate. The backdoor channel is intended to be used in close range only.

2.4 Technical Specifications of the EUT

Operating Band: 902–928 MHz

Operating Frequency: 918.0, 918.6–925.8 MHz

Channel Separation: 600 kHz (GFSK)

Transmit Power: −5.6 dBm (J-Pole and Patch), −6.7 dBm (Whip)

Modulation: MSK (Backdoor), GFSK

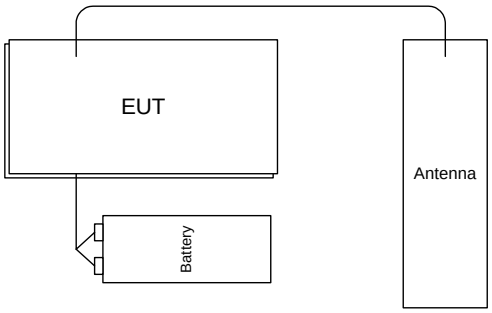
Occupied Bandwidth: 589.7 kHz (MSK), 323.7 kHz (GFSK)

Emission Designator: 590KD1D (MSK), 324KD1D (GFSK)

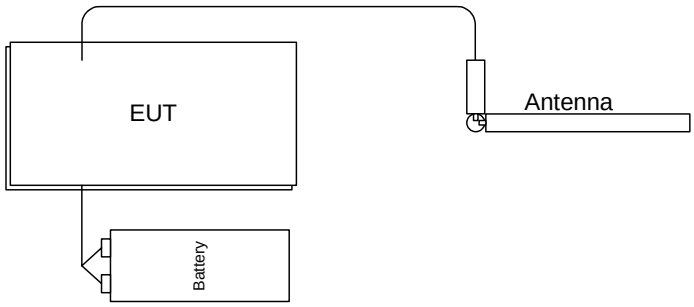
Antenna Data: Nexus J-Pole antenna P/N: 199.0557
Nexus Patch antenna P/N: 199.0558
Nexus Whip antenna ¼ wave RP; P/N: 199.0559

Power Supply Requirements: 9 VDC from host application

2.5 EUT Setup diagram



J-Pole and Patch antennas configuration



Whip antenna configuration

2.6 Operation of the EUT during testing

The customer provided modified sample, which transmit at desired frequency and output power.

2.7 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

Section 3 : Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.249
Operation in the 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHz and 24.0–24.25 GHz bands

3.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15–30 °C
Humidity range	:	20–75 %
Pressure range	:	86–106 kPa
Power supply range	:	±5 % of rated voltages

3.4 Measurement Uncertainty

Nemko Canada measurement uncertainty has been calculated using guidance of UKAS LAB 34:2003 and TIA-603-B Nov 7, 2002. All calculations have been performed to provide a confidence level of 95 % and can be found in Nemko Canada document MU-003.

3.5 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Cal. Date	Next Cal.
3 m EMI Test Chamber	TDK	SAC-3	FA002047	May 06/08	May 06/09
Bilog	Sunol	JB3	FA002108	Jan. 27/09	Jan. 27/10
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Dec. 16/08	Dec. 16/09
Horn Antenna #2	EMCO	3115	FA000825	Jan. 21/09	Jan. 21/10
1 – 18 GHz Amplifier	JCA	JCA118-503	FA002091	Oct 2/08	Oct 2/09
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 02/08	Sept. 02/09
50 Coax cable	HUBER + SUHNER	None	FA002015	Aug. 05/08	Aug. 05/09

COU – Calibrate on Use
NCR – No Calibration Required

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart C : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No : not applicable / not relevant.

Y Yes : Mandatory i.e. the apparatus shall conform to these tests.

N/T Not Tested, mandatory but not assessed. (See Report Summary)

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.31(e)	Variation of power supply	Y	Pass
15.207(a)	Powerline Conducted Emissions	Y	Pass
15.209(a)	Radiated Emissions within Restricted Bands	Y	Pass
15.215(c)	20 dB Bandwidth	Y	Pass
15.249(a)	Radiated emissions not in Restricted Bands	Y	Pass
15.249(b)	Fixed Point-to-Point operation in the 24.0–24.25 GHz Band	N	
15.249(d)	Spurious emissions (except Harmonics)	Y	Pass

Appendix A : Test Results

Clause 15.207(a) Powerline Conducted Emissions

Frequency of Conducted limit (dBµV)

Emission (MHz)	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

* Decreases with the logarithm of the frequency.

Test Results: Pass

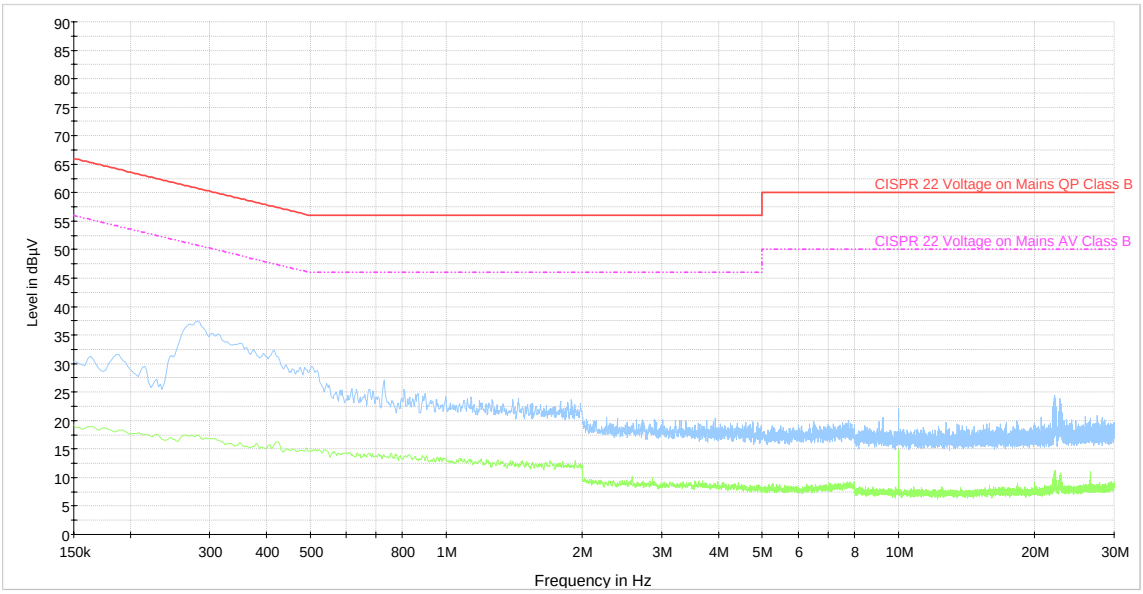
Additional Observations:

All plots were obtained using a sweeping receiver with an IF of 9 kHz using a Peak and Average detector. The plots have been corrected with the cable loss and LISN loss to show compliance.

Only the worst case presented in this test report.

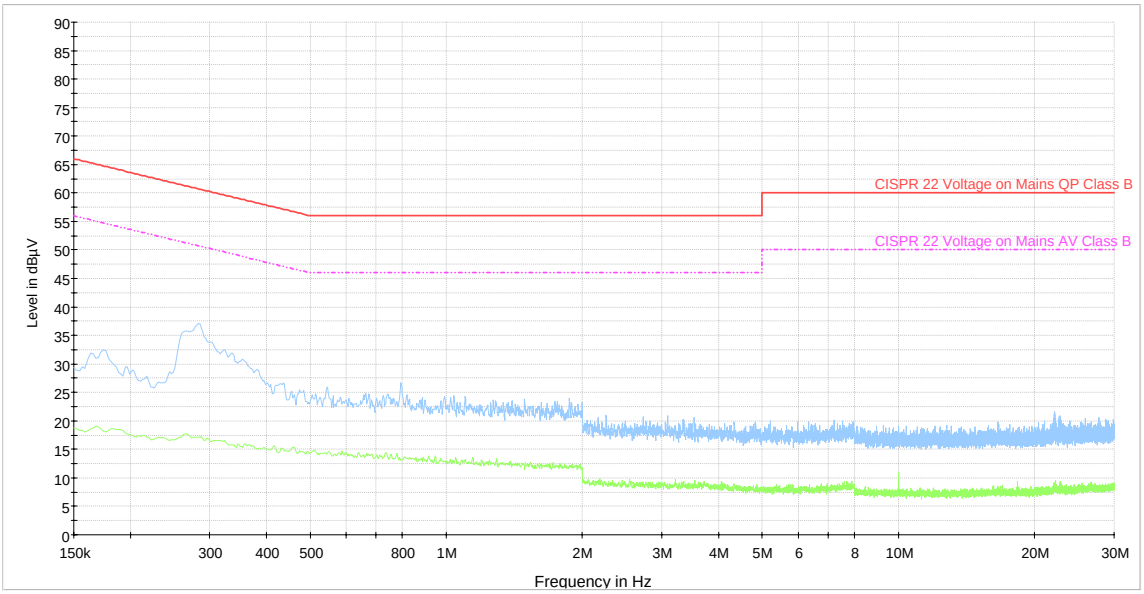
No emissions were detected within 6 dB of the limits.

Phase



Conducted Emissions on Phase Line
CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Peak Result
Preview Average Result

Neutral



Conducted Emissions on Neutral Line
CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Peak Result
Preview Average Result

Clause 15.209(a) Radiated Emissions within Restricted Bands

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength	Measurement Distance
	microvolts/m	m
0.009–0.490	2400/F (kHz)	300
0.490–1.705	24000/F (kHz)	30
1.705–30.0	30	30
30–88	100 (3 nW)	3
88–216	150 (6.8 nW)	3
216–960	200 (12 nW)	3
Above 960	500 (75 nW)	3

Test Results: Pass

Additional Observations:

The Spectrum was searched from 30 MHz to the 10th Harmonic.

These results apply to emissions found in the Restricted bands defined in FCC Part 15 Subpart C, 15.205.

New battery was used during the test.

Peak Detector with 100 kHz RBW was used below 1 GHz and Peak Detector with 1 MHz was used for measurements above 1 GHz.

The EUT was measured on three orthogonal axis for Patch and Whip antennas and on single applicable axis for J-Pole antenna applications.

All measurements were performed at 3 m distance.

Antenna	Channel	Harmonic	Frequency MHz	Peak dBµV/m	Correction dB	Average Limit dBµV/m	Margin dB
Patch	Backdoor	3	2754.000	43.0	-11.3	54.0	11.0
Patch	Backdoor	4	3672.000	45.5	-8.8	54.0	8.5
Patch	Backdoor	5	4590.000	46.1	-6.5	54.0	7.9
Patch	Backdoor	8	7344.000	51.8	1.3	54.0	2.2
Patch	Backdoor	9	8262.000	43.7	-7.7	54.0	10.3
Patch	Backdoor	10	9180.000	44.7	-6.1	54.0	9.3
Patch	Low	3	2754.000	42.9	-11.3	54.0	11.1
Patch	Low	4	3672.000	45.5	-8.8	54.0	8.5
Patch	Low	5	4593.000	46.2	-6.5	54.0	7.8
Patch	Low	8	7348.800	51.9	1.3	54.0	2.1
Patch	Low	9	8267.400	43.6	-7.7	54.0	10.4
Patch	Low	10	9186.000	44.6	-6.1	54.0	9.4
Patch	Mid	3	2766.600	43.2	-11.3	54.0	10.8
Patch	Mid	4	3688.800	45.3	-8.7	54.0	8.7
Patch	Mid	5	4611.000	46.5	-6.4	54.0	7.5
Patch	Mid	8	7377.600	51.4	1.4	54.0	2.6
Patch	Mid	9	8299.800	45.5	-7.6	54.0	8.5
Patch	High	3	2777.400	43.2	-11.2	54.0	10.8
Patch	High	4	3703.200	44.9	-8.6	54.0	9.1
Patch	High	5	4629.000	46.1	-6.3	54.0	7.9
Patch	High	8	7406.400	51.2	1.4	54.0	2.8
Patch	High	9	8332.200	45.1	-7.5	54.0	8.9
J-Pole	Backdoor	3	2754.000	42.2	-11.3	54.0	11.8
J-Pole	Backdoor	4	3672.000	44.6	-8.8	54.0	9.4
J-Pole	Backdoor	5	4590.000	45.6	-6.5	54.0	8.4
J-Pole	Backdoor	8	7344.000	51.5	1.3	54.0	2.5
J-Pole	Backdoor	9	8262.000	43.1	-7.7	54.0	10.9
J-Pole	Backdoor	10	9180.000	44.3	-6.1	54.0	9.7
J-Pole	Low	3	2756.000	43.2	-11.3	54.0	10.8
J-Pole	Low	4	3674.400	45.1	-8.8	54.0	8.9
J-Pole	Low	5	4593.200	45.5	-6.5	54.0	8.5
J-Pole	Low	8	7348.800	51.1	1.3	54.0	2.9
J-Pole	Low	9	8267.600	43.2	-7.7	54.0	10.8
J-Pole	Low	10	9186.000	45.6	-6.1	54.0	8.4
J-Pole	Mid	3	2766.800	43.9	-11.3	54.0	10.1
J-Pole	Mid	4	3688.800	44.9	-8.7	54.0	9.1
J-Pole	Mid	5	4611.200	46.0	-6.4	54.0	8.0
J-Pole	Mid	8	7377.600	50.6	1.4	54.0	3.4
J-Pole	Mid	9	8299.600	44.6	-7.6	54.0	9.4
J-Pole	High	3	2777.600	43.0	-11.2	54.0	11.0
J-Pole	High	4	3703.200	44.3	-8.6	54.0	9.7
J-Pole	High	5	4629.200	46.0	-6.3	54.0	8.0
J-Pole	High	8	7406.400	50.8	1.4	54.0	3.2
J-Pole	High	9	8332.400	43.8	-7.5	54.0	10.2

Antenna	Channel	Harmonic	Frequency MHz	Peak dBµV/m	Correction dB	Average Limit dBµV/m	Margin dB
Whip	Backdoor	3	2754.000	44.2	-11.3	54.0	9.8
Whip	Backdoor	4	3672.000	45.2	-8.8	54.0	8.8
Whip	Backdoor	5	4590.000	45.8	-6.5	54.0	8.2
Whip	Backdoor	8	7344.000	51.0	1.3	54.0	3.0
Whip	Backdoor	9	8262.000	43.7	-7.7	54.0	10.3
Whip	Backdoor	10	9180.000	44.0	-6.1	54.0	10.0
Whip	Low	3	2756.000	44.7	-11.3	54.0	9.3
Whip	Low	4	3674.400	45.7	-8.8	54.0	8.3
Whip	Low	5	4593.200	46.3	-6.5	54.0	7.7
Whip	Low	8	7348.800	51.5	1.3	54.0	2.5
Whip	Low	9	8267.600	44.2	-7.7	54.0	9.8
Whip	Low	10	9186.000	44.5	-6.1	54.0	9.5
Whip	Mid	3	2766.800	44.1	-11.3	54.0	9.9
Whip	Mid	4	3688.800	45.1	-8.7	54.0	8.9
Whip	Mid	5	4611.200	46.1	-6.4	54.0	7.9
Whip	Mid	8	7377.600	51.1	1.4	54.0	2.9
Whip	Mid	9	8299.600	45.1	-7.6	54.0	8.9
Whip	High	3	2777.600	44.4	-11.2	54.0	9.6
Whip	High	4	3703.200	44.9	-8.6	54.0	9.1
Whip	High	5	4629.200	46.7	-6.3	54.0	7.3
Whip	High	8	7406.400	51.4	1.4	54.0	2.6
Whip	High	9	8332.400	45.0	-7.5	54.0	9.0

Clause 15.215(c) 20 dB Bandwidth

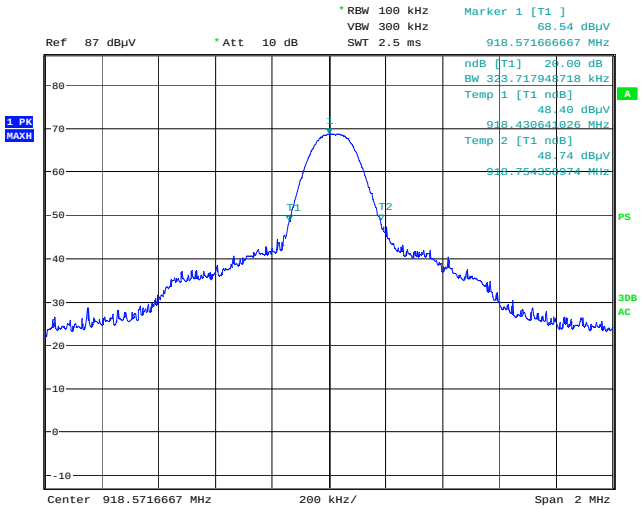
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80 % of the permitted band in order to minimize the possibility of out-of-band operation.

Test Results: Pass

20 dB Bandwidth:

Antenna	Channel	20 dB BW, kHz	Low bandedge limit, MHz	Low bandedge, MHz	High bandedge limit, MHz	High bandedge, MHz
J-Pole	Low	323.718	902.000	918.438	928.000	918.762
J-Pole	Mid	314.103	902.000	922.043	928.000	922.357
J-Pole	High	314.103	902.000	925.643	928.000	925.957
J-Pole	Backdoor	576.923	902.000	917.712	928.000	918.288
Patch	Low	326.923	902.000	918.437	928.000	918.763
Patch	Mid	314.103	902.000	922.043	928.000	922.357
Patch	High	314.103	902.000	925.643	928.000	925.957
Patch	Backdoor	583.333	902.000	917.708	928.000	918.292
Whip	Low	323.718	902.000	918.438	928.000	918.762
Whip	Mid	310.897	902.000	922.045	928.000	922.355
Whip	High	310.897	902.000	925.645	928.000	925.955
Whip	Backdoor	589.743	902.000	917.705	928.000	918.295

J-Pole antenna, low frequency:



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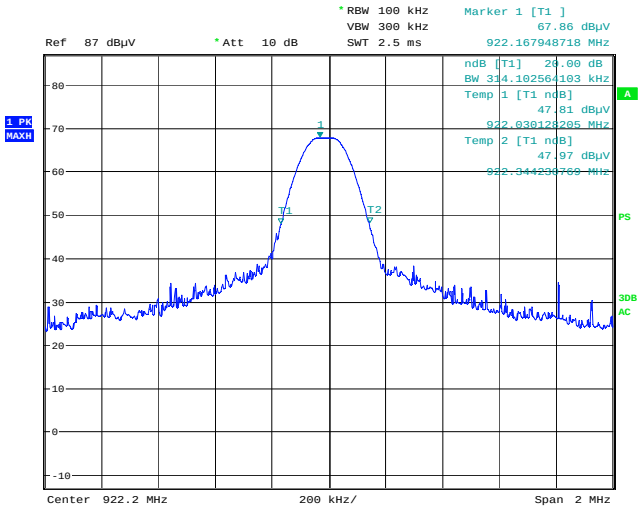
J-Pole antenna, mid frequency:



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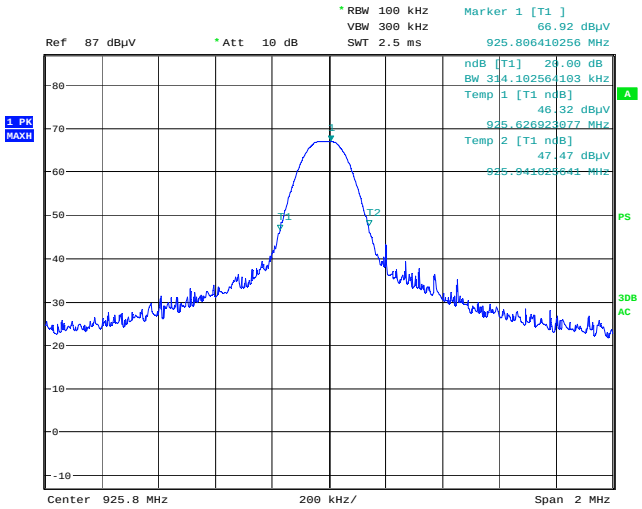
J-Pole antenna, high frequency:



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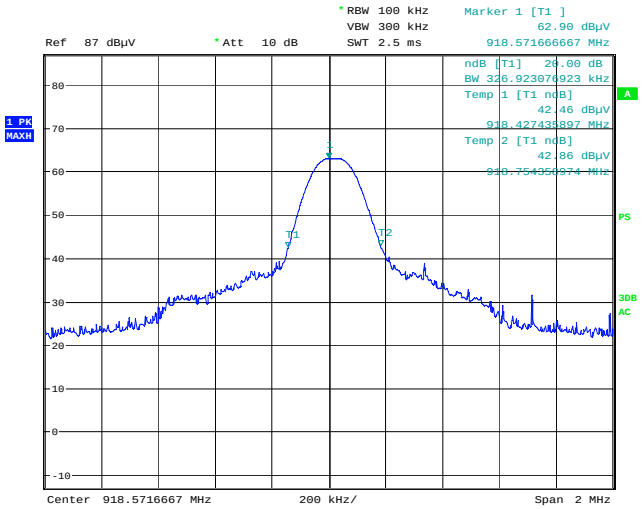
Patch antenna, low frequency:



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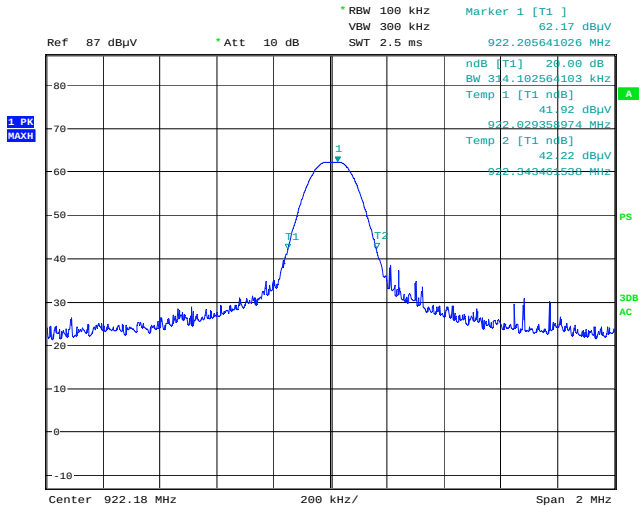
Patch antenna, mid frequency:



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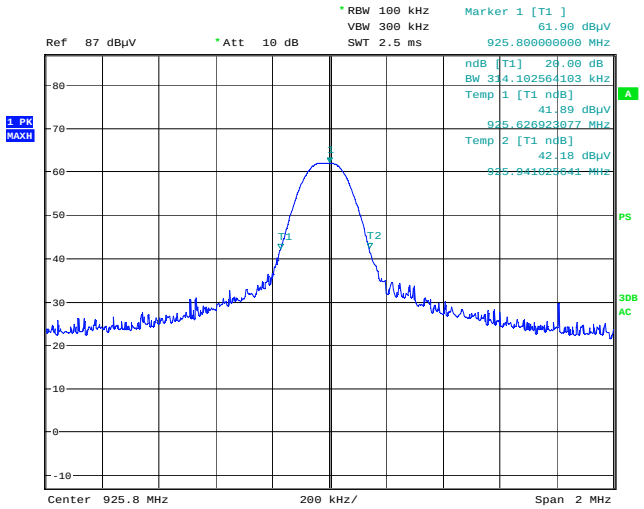
Patch antenna, high frequency:



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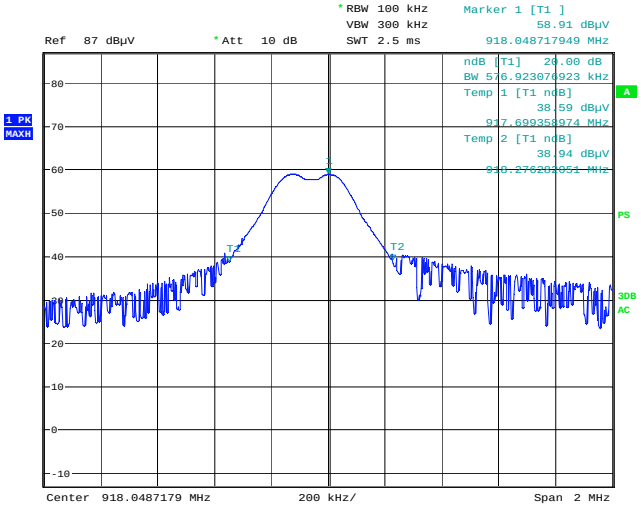
J-Pole antenna, backdoor:



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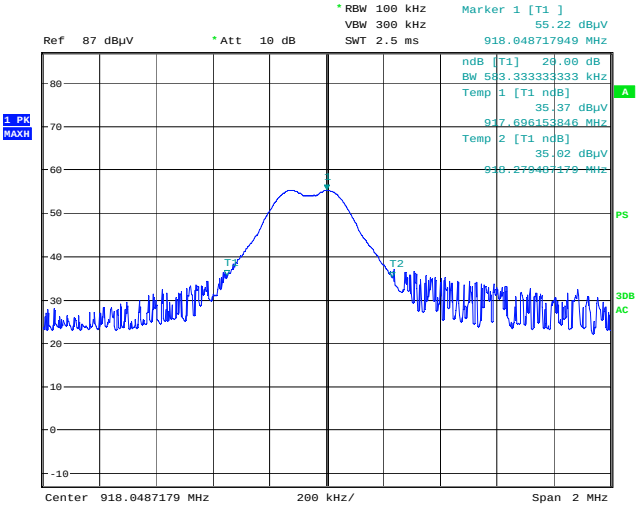
Patch antenna, backdoor:



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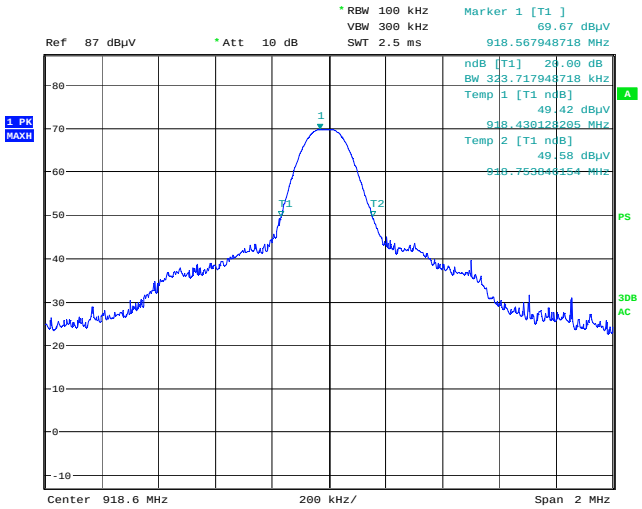
Whip antenna, Low frequency:



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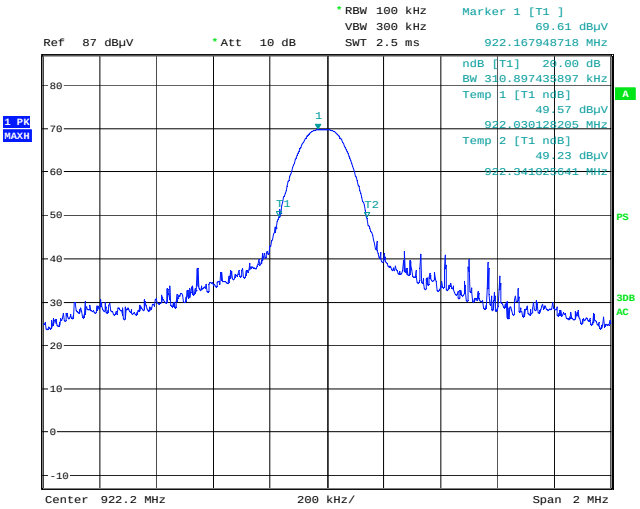
Whip antenna, Mid frequency:



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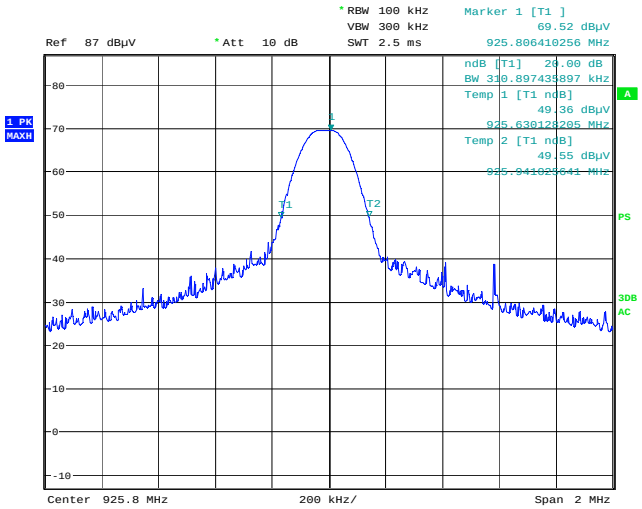
Whip antenna, High frequency:



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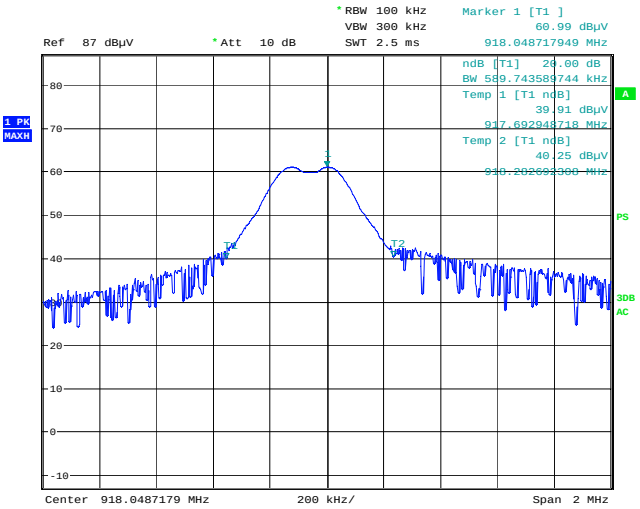
Whip antenna, Backdoor mode:



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Clause 15.249(a) Radiated emissions not in Restricted Bands

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

Test Results: Pass

Additional Observations:

The Spectrum was searched from 30 MHz to the 10th Harmonic.

New battery was used during the test.

The EUT was measured on three orthogonal axis for Patch antenna and on single applicable axis for J-Pole antenna applications.

Peak Detector with 100 kHz RBW was used below 1 GHz and Peak Detector with 1 MHz was used for measurements above 1 GHz.

The EUT was measured on three orthogonal axis for Patch and Whip antennas and on single applicable axis for J-Pole antenna applications.

All measurements were performed at 3 m distance.

Fundamental emissions

Antenna	Channel	EUT Position	Frequency MHz	Quasi-Peak dBµV/m	Correction dB	Quasi-Peak Limit dBµV/m	Margin dB
Patch	Backdoor	Stand Up	918.000	74.6	25.5	94.0	19.4
Patch	Backdoor	Stand Up	918.000	83.0	25.5	94.0	11.0
Patch	Low	Stand Up	918.600	93.5	25.5	94.0	0.5
Patch	Low	Stand Up	918.600	84.8	25.5	94.0	9.2
Patch	Low	On side	918.600	89.9	25.5	94.0	4.1
Patch	Low	On side	918.600	82.8	25.5	94.0	11.2
Patch	Low	Lay Down	918.600	83.5	25.5	94.0	10.5
Patch	Low	Lay Down	918.600	84.0	25.5	94.0	10.0
Patch	Mid	Stand Up	922.200	83.8	25.5	94.0	10.2
Patch	Mid	Stand Up	922.200	81.9	25.5	94.0	12.1
Patch	Mid	On side	922.200	82.8	25.5	94.0	11.2
Patch	Mid	On side	922.200	89.9	25.5	94.0	4.1
Patch	Mid	Lay Down	922.200	93.4	25.5	94.0	0.6
Patch	Mid	Lay Down	922.200	84.6	25.5	94.0	9.4
Patch	High	Stand Up	925.800	93.3	25.5	94.0	0.7
Patch	High	Stand Up	925.800	84.3	25.5	94.0	9.7
Patch	High	On side	925.800	88.3	25.5	94.0	5.7
Patch	High	On side	925.800	81.9	25.5	94.0	12.1
Patch	High	Lay Down	925.800	81.2	25.5	94.0	12.8
Patch	High	Lay Down	925.800	85.2	25.5	94.0	8.8
J-Pole	Backdoor	Stand Up	918.000	76.2	25.5	94.0	17.8
J-Pole	Backdoor	Stand Up	918.000	85.0	25.5	94.0	9.0
J-Pole	Low	Stand Up	918.600	93.9	25.5	94.0	0.1
J-Pole	Low	Stand Up	918.600	81.2	25.5	94.0	12.8
J-Pole	Mid	Stand Up	922.200	92.5	25.5	94.0	1.5
J-Pole	Mid	Stand Up	922.200	79.0	25.5	94.0	15.0
J-Pole	High	Stand Up	925.800	91.1	25.5	94.0	2.9
J-Pole	High	Stand Up	925.800	76.7	25.5	94.0	17.3

Antenna	Channel	EUT Position	Frequency MHz	Quasi-Peak dBµV/m	Correction dB	Quasi-Peak Limit dBµV/m	Margin dB
Whip	Backdoor	Side	918.000	78.8	25.5	94.0	15.2
Whip	Backdoor	Side	918.000	84.5	25.5	94.0	9.5
Whip	Backdoor	Top	918.000	86.0	25.5	94.0	8.0
Whip	Backdoor	Top	918.000	78.5	25.5	94.0	15.5
Whip	Low	Side	918.600	91.2	25.5	94.0	2.8
Whip	Low	Side	918.600	93.7	25.5	94.0	0.3
Whip	Mid	Side	922.200	93.1	25.5	94.0	0.9
Whip	Mid	Side	922.200	90.7	25.5	94.0	3.3
Whip	High	Side	925.800	92.6	25.5	94.0	1.4
Whip	High	Side	925.800	90.3	25.5	94.0	3.7
Whip	Low	Top	918.600	87.4	25.5	94.0	6.6
Whip	Low	Top	918.600	93.3	25.5	94.0	0.7
Whip	Mid	Top	922.200	92.5	25.5	94.0	1.5
Whip	Mid	Top	922.200	86.4	25.5	94.0	7.6
Whip	High	Top	925.800	85.4	25.5	94.0	8.6
Whip	High	Top	925.800	91.6	25.5	94.0	2.4
Whip	Backdoor	Side	918.000	78.8	25.5	94.0	15.2
Whip	Backdoor	Side	918.000	84.5	25.5	94.0	9.5
Whip	Backdoor	Top	918.000	86.0	25.5	94.0	8.0
Whip	Backdoor	Top	918.000	78.5	25.5	94.0	15.5

Harmonics emissions

Antenna	Channel	Harmonic	Frequency MHz	Peak dBµV/m	Correction dB	Average Limit dBµV/m	Margin dB
Patch	Backdoor	2	1836.000	38.9	-15.9	54.0	15.1
Patch	Backdoor	6	5508.000	49.3	-2.3	54.0	4.7
Patch	Backdoor	7	6426.000	50.2	0.3	54.0	3.8
Patch	Low	2	1836.000	39.2	-15.9	54.0	14.8
Patch	Low	6	5511.600	49.1	-2.3	54.0	4.9
Patch	Low	7	6430.200	50.2	0.4	54.0	3.8
Patch	Mid	2	1844.400	39.5	-15.8	54.0	14.5
Patch	Mid	6	5533.200	49.4	-2.2	54.0	4.6
Patch	Mid	7	6455.400	50.2	0.4	54.0	3.8
Patch	Mid	10	9222.000	45.3	-6.0	54.0	8.7
Patch	High	2	1851.600	39.8	-15.8	54.0	14.2
Patch	High	6	5554.800	49.7	-2.2	54.0	4.3
Patch	High	7	6480.600	49.6	0.5	54.0	4.4
Patch	High	10	9258.000	46.0	-6.0	54.0	8.0
J-Pole	Backdoor	2	1836.000	41.4	-15.9	54.0	12.6
J-Pole	Backdoor	6	5508.000	48.2	-2.3	54.0	5.8
J-Pole	Backdoor	7	6426.000	49.2	0.3	54.0	4.8
J-Pole	Low	2	1837.200	40.9	-15.9	54.0	13.1
J-Pole	Low	6	5511.600	49.1	-2.3	54.0	4.9
J-Pole	Low	7	6430.200	49.8	0.4	54.0	4.2
J-Pole	Mid	2	1844.400	41.3	-15.8	54.0	12.7
J-Pole	Mid	6	5533.200	49.2	-2.2	54.0	4.8
J-Pole	Mid	7	6454.400	50.0	0.4	54.0	4.0
J-Pole	Mid	10	9222.000	45.3	-6.0	54.0	8.7
J-Pole	Mid	2	1851.600	42.4	-15.8	54.0	11.6
J-Pole	High	6	5554.800	49.1	-2.2	54.0	4.9
J-Pole	High	7	6480.800	49.3	0.5	54.0	4.7
J-Pole	High	10	9258.000	45.2	-6.0	54.0	8.8
Whip	Backdoor	2	1836.000	38.8	-15.9	54.0	15.2
Whip	Backdoor	6	5508.000	48.7	-2.3	54.0	5.3
Whip	Backdoor	7	6426.000	50.2	0.4	54.0	3.8
Whip	Low	2	1837.200	39.3	-15.9	54.0	14.7
Whip	Low	6	5511.600	49.2	-2.3	54.0	4.8
Whip	Low	7	6430.400	50.7	0.4	54.0	3.3
Whip	Mid	2	1844.400	39.7	-15.8	54.0	14.3
Whip	Mid	6	5533.200	49.2	-2.2	54.0	4.8
Whip	Mid	7	6455.600	50.2	0.4	54.0	3.8
Whip	Mid	10	9222.000	45.1	-6.0	54.0	8.9
Whip	High	2	1851.600	39.4	-15.8	54.0	14.6
Whip	High	6	5554.800	50.1	-2.2	54.0	3.9
Whip	High	7	6480.800	49.8	0.5	54.0	4.2
Whip	High	10	9258.000	45.5	-6.0	54.0	8.5

Band edge emissions:

Lower band edge, J-Pole antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	916.669872 MHz
Band edge limit:	902 MHz
Margin:	14.669872 MHz
Lower band edge, Patch antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	916.629808 MHz
Band edge limit:	902 MHz
Margin:	14.629808 MHz
Lower band edge, Whip antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	916.205128 MHz
Band edge limit:	902 MHz
Margin:	14.205128 MHz
Higher band edge, J-Pole antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	926.421474 MHz
Band edge limit:	928 MHz
Margin:	1.578526 MHz
Higher band edge, Patch antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	926.413462 MHz
Band edge limit:	928 MHz
Margin:	1.586538 MHz
Higher band edge, Whip antenna:	
Frequency beyond which the emission dropped 50 dB below the carrier emission:	926.533654 MHz
Band edge limit:	928 MHz
Margin:	1.466346 MHz

Clause 15.249(d) Spurious emissions (except Harmonics)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Test Results: Pass

Peak Detector with 100 kHz RBW was used below 1 GHz and Peak Detector with 1 MHz was used for measurements above 1 GHz.

The EUT was measured on three orthogonal axis for Patch and Whip antennas and on single applicable axis for J-Pole antenna applications.

All measurements were performed at 3 m distance.

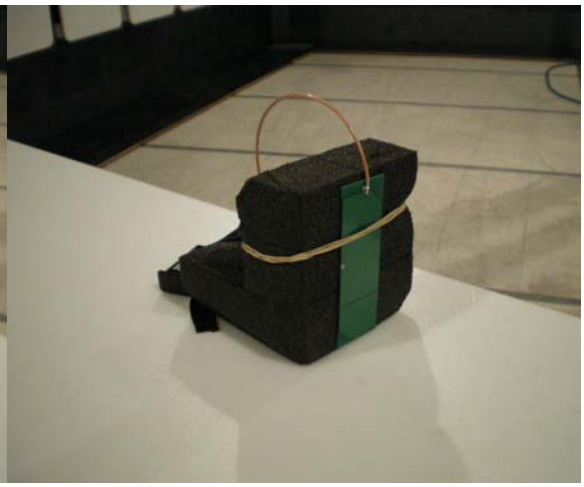
No spurious emissions except for harmonics were detected.

Appendix B : Setup Photographs

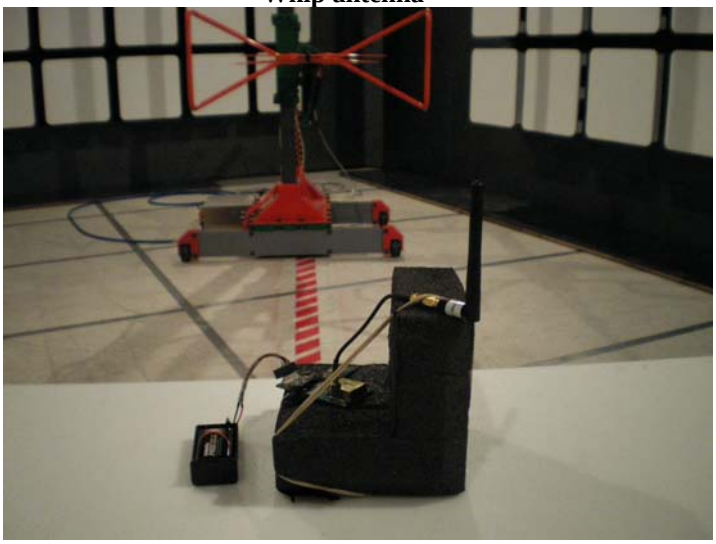
Spurious Emissions Setup:

J-Pole antenna

Patch antenna

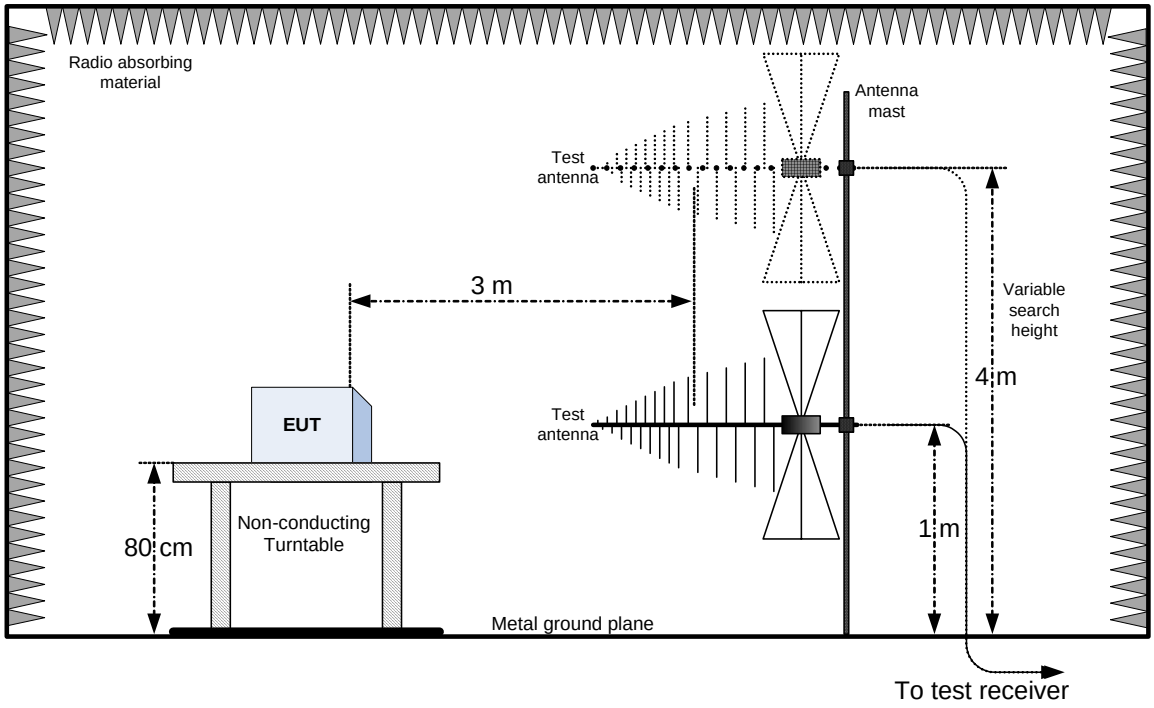


Whip antenna



Appendix C : Block Diagram of Test Setups

Radiated Emissions above 30 MHz Test Site



Conducted Emissions Test Site