



CERTIFICATION TEST REPORT
FOR
FCC CFR 47, PART 15, SUBPART C
INDUSTRY CANADA RSS-210, ISSUE 8

PRODUCT NAME	Ford SYNC Gen 2
PRODUCT MODEL NUMBER	KMHSYNCG2-L
FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L
MANUFACTURER	Ford Motor Company
TEST REPORT NUMBER	GND1038AUT219-A
TEST REPORT DATE	16 th Mar 2011
TEST REPORT VERSION	1.7
ISSUED TO	David Orris Ford Motor Company Building 5, 20300 Rotunda Dr., Dearborn, MI 48124, United States Phone: 313-805-5627
ISSUED BY	TARANG Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India. Tel: +91-80-30292929 Fax: +91-80-30298200 Email: tarang.planet@wipro.com Web: www.wipro.com

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

REVISION HISTORY

S. No	Version	Date	Change History	Remarks
1	0.01	28 th Oct 2010	Initial version for internal review	
2	0.02	3 rd Nov 2010	Updated version after internal review	
3	0.03	11 th Nov 2010	Updated version after incorporation of additional review comments	
4	0.04	12 th Nov 2010	Updated to include the RE measurements for BT channels 40 and 78 as well	
5	0.05	16 th Nov 2010	Updated to include additional review comments and updates on PSD measurement, threshold levels for conducted spurious measurement	
6	0.06	18 th Nov 2010	Updated to add setup photographs	
7	1.0	23 rd Nov 2010	Approved report	
8	1.01	29 th Nov 2010	Updated BT peak conducted output power	
9	1.1	29 th Nov 2010	Approved report	
10	1.11	06 th Dec 2010	Update in Model Number of EUT	
11	1.2	06 th Dec 2010	Approved report	
12	1.21	09 th Dec 2010	Update in Product Name of EUT	
13	1.3	09 th Dec 2010	Approved Report	
14	1.4	09 th Feb 2011	Dwell time measurements updated.	
15	1.5	13 th Feb 2011	Approved Report	
16	1.6	2 nd Mar 2011	Updated to add hops per second in BT interface and unit for limits in band edge measurements. Approved report.	
17	1.7	16 th Mar 2011	Report split to show only Wifi interface results	

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

TABLE OF CONTENTS

1	TEST DESCRIPTION & RESULT.....	9
2	SUMMARY OF TESTS, FACILITY AND ACCREDITATION.....	10
2.1	TEST DETAILS	10
2.2	TEST FACILITY DETAILS.....	10
2.3	CALIBRATION.....	10
2.4	MEASUREMENT UNCERTAINTY	10
3	EQUIPMENT UNDER TEST (EUT).....	11
3.1	DESCRIPTION OF THE EUT.....	11
3.2	SOFTWARE AND FIRMWARE DETAILS.....	11
3.3	PRODUCT CONFIGURATION DETAILS (WORST CASE)	11
3.4	TRANSMIT POWER DETAILS.....	12
3.5	TEST SETUP DETAILS.....	12
3.5.1	Supporting equipment	12
3.5.2	I/O Cables and connectors.....	12
3.5.3	Test setup details.....	13
3.5.3.1	Radiated emission test setup details.....	13
3.5.3.2	Antenna conducted measurement test setup details.....	13
4	INSTRUMENTATION AND CALIBRATION	14
4.1	TEST AND MEASURING EQUIPMENT	14
4.2	EQUIPMENTS USED.....	14
5	APPLICABILITY OF TESTS	15
5.1	APPLICABLE TESTS FOR 802.11B AND 802.11G PORT	15
6	TEST RESULTS FOR WI-FI PORT	16
6.1	WI-FI 801.11B MODE.....	16
6.1.1	Restricted band of operation.....	16
6.1.1.1	Reference section & Limits	16
6.1.1.2	Test procedure.....	16
6.1.1.3	Result	16
6.1.1.4	Result (Supporting graphs / Data)	17
6.1.2	Radiated emission.....	18
6.1.2.1	Reference section & Limits	18
6.1.2.2	Test procedure.....	18
6.1.2.3	Result	18
6.1.2.4	Result (Supporting graphs / Data) – Channel 1	19
6.1.2.5	Result (Supporting graphs / Data) – Channel 6	24
6.1.2.6	Result (Supporting graphs / Data) – Channel 11.....	29
6.1.3	6dB Bandwidth	34
6.1.3.1	Reference section & Limits	34
6.1.3.2	Test procedure.....	34
6.1.3.3	Result	34
6.1.3.4	Result (Supporting graphs / Data)	35
6.1.4	Peak conducted output power.....	36
6.1.4.1	Reference section & Limits	36

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.4.2	Test procedure.....	36
6.1.4.3	Result	37
6.1.4.4	Result (Supporting graphs / Data)	37
6.1.5	Conducted spurious emission	39
6.1.5.1	Reference section & Limits	39
6.1.5.2	Test procedure.....	39
6.1.5.3	Result	39
6.1.5.4	Result (Supporting graphs / Data)	40
6.1.6	Power spectral density.....	41
6.1.6.1	Reference section & Limits	41
6.1.6.2	Test procedure.....	41
6.1.6.3	Result	42
6.1.6.4	Result (Supporting graphs / Data)	42
6.1.7	Band edge Measurements – Radiated	44
6.1.7.1	Reference section & Limits	44
6.1.7.2	Test procedure.....	44
6.1.7.3	Result	44
6.1.8	Band edge Measurements – Conducted.....	45
6.1.8.1	Reference section & Limits	45
6.1.8.2	Test procedure.....	46
6.1.8.3	Result (Supporting graphs / Data)	46
6.2	Wi-Fi 801.11G MODE	48
6.2.1	Restricted band of operation.....	48
6.2.1.1	Reference section & Limits	48
6.2.1.2	Test procedure.....	48
6.2.1.3	Result	48
6.2.1.4	Result (Supporting graphs / Data)	49
6.2.2	Radiated emission.....	50
6.2.2.1	Reference section & Limits	50
6.2.2.2	Test procedure.....	50
6.2.2.3	Result	50
6.2.2.4	Result (Supporting graphs / Data) – Channel 1	51
6.2.2.5	Result (Supporting graphs / Data) – Channel 6	56
6.2.2.6	Result (Supporting graphs / Data) – Channel 11.....	61
6.2.3	6dB Bandwidth	67
6.2.3.1	Reference section & Limits	67
6.2.3.2	Test procedure.....	67
6.2.3.3	Result	67
6.2.3.4	Result (Supporting graphs / Data)	68
6.2.4	Peak conducted output power.....	69
6.2.4.1	Reference section & Limits	69
6.2.4.2	Test procedure.....	69
6.2.4.3	Result	70
6.2.4.4	Result (Supporting graphs / Data)	70
6.2.5	Conducted spurious emission	72
6.2.5.1	Reference section & Limits	72
6.2.5.2	Test procedure.....	72
6.2.5.3	Result	72
6.2.5.4	Result (Supporting graphs / Data)	73
6.2.6	Power spectral density.....	74
6.2.6.1	Reference section & Limits	74
6.2.6.2	Test procedure.....	74

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.6.3	Result	75
6.2.6.4	Result (Supporting graphs / Data)	75
6.2.7	Band edge Measurements – Radiated	77
6.2.7.1	Reference section & Limits	77
6.2.7.2	Test procedure.....	77
6.2.7.3	Result	77
6.2.8	Band edge Measurements – Conducted.....	79
6.2.8.1	Reference section & Limits	79
6.2.8.2	Test procedure.....	79
6.2.8.3	Result (Supporting graphs / Data)	79
7	APPENDIX 1 – ACRONYMS	81
8	APPENDIX 2 – PHOTOGRAPH OF TEST SETUPS.....	82

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

LIST OF FIGURES

FIGURE 1: TEST SETUP FOR RADIATED EMISSION TEST	13
FIGURE 2: TEST SETUP FOR CONDUCTED MEASUREMENTS ON THE WIRELESS PORTS	13
FIGURE 3: MEASURED F_L AT CHANNEL 1 – 802.11b	17
FIGURE 4: MEASURED F_H AT CHANNEL 13 – 802.11b	17
FIGURE 5: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 1	19
FIGURE 6: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 1	19
FIGURE 7: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11b, CHANNEL 1	20
FIGURE 8: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 1	20
FIGURE 9: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11b, CHANNEL 1	20
FIGURE 10: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11b, CHANNEL 1	21
FIGURE 11: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 18 GHz TO 25 GHz – 802.11b, CHANNEL 1	21
FIGURE 12: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 1	22
FIGURE 13: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11b, CHANNEL 1	22
FIGURE 14: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11b, CHANNEL 1	23
FIGURE 15: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11b, CHANNEL 1	23
FIGURE 16: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 6	24
FIGURE 17: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 6	24
FIGURE 18: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11b, CHANNEL 6	24
FIGURE 19: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 6	25
FIGURE 20: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11b, CHANNEL 6	25
FIGURE 21: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11b, CHANNEL 6	26
FIGURE 22: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 18 GHz TO 25 GHz – 802.11b, CHANNEL 6	26
FIGURE 23: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 6	27
FIGURE 24: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11b, CHANNEL 6	27
FIGURE 25: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11b, CHANNEL 6	28
FIGURE 26: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11b, CHANNEL 6	28
FIGURE 27: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 11	29
FIGURE 28: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11b, CHANNEL 11	29
FIGURE 29: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11b, CHANNEL 11	30
FIGURE 30: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 11	30
FIGURE 31: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11b, CHANNEL 11	30
FIGURE 32: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11b, CHANNEL 11	31
FIGURE 33: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION 18 GHz TO 25 GHz – 802.11b, CHANNEL 11	31
FIGURE 34: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11b, CHANNEL 11	32
FIGURE 35: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11b, CHANNEL 11	32
FIGURE 36: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11b, CHANNEL 11	33
FIGURE 37: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11b, CHANNEL 11	33
FIGURE 38: 6dB BANDWIDTH – 802.11b, Low CHANNEL (1)	35
FIGURE 39: 6dB BANDWIDTH – 802.11b, Mid CHANNEL (6)	35
FIGURE 40: 6dB BANDWIDTH – 802.11b, High CHANNEL (11)	36
FIGURE 41: PEAK CONDUCTED OUTPUT POWER – 802.11b, Low CHANNEL (1)	37
FIGURE 42: PEAK CONDUCTED OUTPUT POWER – 802.11b, Mid CHANNEL (6)	38
FIGURE 43: PEAK CONDUCTED OUTPUT POWER – 802.11b, High CHANNEL (11)	38
FIGURE 44: CONDUCTED SPURIOUS EMISSION – 802.11b, Low CHANNEL (1)	40
FIGURE 45: CONDUCTED SPURIOUS EMISSION – 802.11b, Mid CHANNEL (6)	40
FIGURE 46: CONDUCTED SPURIOUS EMISSION – 802.11b, High CHANNEL (11)	41

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

FIGURE 47: POWER SPECTRAL DENSITY – 802.11B, LOW CHANNEL (1)	42
FIGURE 48: POWER SPECTRAL DENSITY – 802.11B, MID CHANNEL (6)	43
FIGURE 49: POWER SPECTRAL DENSITY – 802.11B, HIGH CHANNEL (11)	43
FIGURE 50: LOW BAND EDGE – 802.11B, LOW CHANNEL (1)	46
FIGURE 51: HIGH BAND EDGE – 802.11B, HIGH CHANNEL (13)	47
FIGURE 52: MEASURED F_L AT CHANNEL 1 – 802.11G	49
FIGURE 53: MEASURED F_H AT CHANNEL 13 – 802.11G	49
FIGURE 54: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 1	51
FIGURE 55: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 1	51
FIGURE 56: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11G, CHANNEL 1	52
FIGURE 57: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 1	52
FIGURE 58: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11G, CHANNEL 1	52
FIGURE 59: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11G, CHANNEL 1	53
FIGURE 60: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 1	53
FIGURE 61: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 1	54
FIGURE 62: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11G, CHANNEL 1	54
FIGURE 63: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11G, CHANNEL 1	55
FIGURE 64: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 1	55
FIGURE 65: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 6	56
FIGURE 66: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 6	56
FIGURE 67: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11G, CHANNEL 6	57
FIGURE 68: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 6	57
FIGURE 69: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11G, CHANNEL 6	58
FIGURE 70: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11G, CHANNEL 6	58
FIGURE 71: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 6	59
FIGURE 72: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 6	59
FIGURE 73: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11G, CHANNEL 6	60
FIGURE 74: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11G, CHANNEL 6	60
FIGURE 75: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 6	61
FIGURE 76: RADIATED EMISSION RESULTS (PEAK) – HORIZONTAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 11	61
FIGURE 77: RADIATED EMISSION RESULTS (PEAK) – VERTICAL POLARIZATION – 30 MHz TO 1 GHz – 802.11G, CHANNEL 11	62
FIGURE 78: RADIATED EMISSION RESULTS – QUASI-PEAK TABLE - 30 MHz TO 1 GHz – 802.11G, CHANNEL 11	62
FIGURE 79: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 11	63
FIGURE 80: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 2 GHz TO 8GHz – 802.11G, CHANNEL 11	63
FIGURE 81: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 8 GHz TO 18GHz – 802.11G, CHANNEL 11	64
FIGURE 82: RADIATED EMISSION RESULTS (AVERAGE) – HORIZONTAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 11	64
FIGURE 83: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 1 GHz TO 2 GHz – 802.11G, CHANNEL 11	65
FIGURE 84: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 2 GHz TO 8 GHz – 802.11G, CHANNEL 11	65
FIGURE 85: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 8 GHz TO 18 GHz – 802.11G, CHANNEL 11	66
FIGURE 86: RADIATED EMISSION RESULTS (AVERAGE) – VERTICAL POLARIZATION – 18 GHz TO 25 GHz – 802.11G, CHANNEL 11	66
FIGURE 87: 6dB BANDWIDTH – 802.11G, LOW CHANNEL (1)	68
FIGURE 88: 6dB BANDWIDTH – 802.11G, MID CHANNEL (6)	68
FIGURE 89: 6dB BANDWIDTH – 802.11G, HIGH CHANNEL (11)	69
FIGURE 90: PEAK CONDUCTED OUTPUT POWER – 802.11G, LOW CHANNEL (1)	70
FIGURE 91: PEAK CONDUCTED OUTPUT POWER – 802.11G, MID CHANNEL (6)	71
FIGURE 92: PEAK CONDUCTED OUTPUT POWER – 802.11G, HIGH CHANNEL (11)	71
FIGURE 93: CONDUCTED SPURIOUS EMISSION – 802.11G, LOW CHANNEL (1)	73
FIGURE 94: CONDUCTED SPURIOUS EMISSION – 802.11G, MID CHANNEL (6)	73

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.



Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

FIGURE 95: CONDUCTED SPURIOUS EMISSION – 802.11G, HIGH CHANNEL (11)	74
FIGURE 96: POWER SPECTRAL DENSITY – 802.11G, LOW CHANNEL (1)	75
FIGURE 97: POWER SPECTRAL DENSITY – 802.11G, MID CHANNEL (6)	76
FIGURE 98: POWER SPECTRAL DENSITY – 802.11G, HIGH CHANNEL (11)	76
FIGURE 99: LOW BAND EDGE – 802.11G, LOW CHANNEL (1)	79
FIGURE 100: HIGH BAND EDGE – 802.11G, HIGH CHANNEL (13)	80
FIGURE 101: TEST SETUP FOR RADIATED EMISSION (VERTICAL POLARIZATION) – 30MHZ TO 1GHZ	82
FIGURE 102: TEST SETUP FOR RADIATED EMISSION (HORIZONTAL POLARIZATION) – 30MHZ TO 1GHZ	82
FIGURE 103: TEST SETUP FOR RADIATED EMISSION (HORIZONTAL POLARIZATION) – ABOVE 1GHZ	83
FIGURE 104: TEST SETUP FOR RADIATED EMISSION (VERTICAL POLARIZATION) – ABOVE 1GHZ	83
FIGURE 105: TEST SETUP FOR CONDUCTED MEASUREMENTS	84

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

1 TEST DESCRIPTION & RESULT

Applicant	David Orris Ford Motor Company, Building 5, 20300 Rotunda Dr., Dearborn, MI 48124, United States. Phone: 313-805-5627; E-Mail: dorris@ford.com
Manufacturer	Ford Motor Company
Equipment Under Test	Ford SYNC Gen 2
Model	KMHSYNCG2-L
Serial Number	XM2J000H
No. of samples tested	One
Date of Test	18 th Sep 2010
Date of Submission	14 th Mar 2011
Venue of Test	Tarang Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.

Applicable Standard	Description	Criteria / Class	Results
FCC	CFR 47, Part 15, Subpart C	NA	Pass
Industry Canada	RSS-210, Issue 8	NA	Pass

Tarang lab tested **Ford SYNC Gen 2** as per the standards that are listed in the table above. Based on the observations during the test and interpretations by Tarang lab, results have been indicated. Any measurement uncertainties listed in this report are for information only and have not been taken into account in the results. The overall test results show that Ford SYNC Gen 2 is capable of demonstrating the compliance requirements of the standards listed above.

The results documented in this report apply only to the product / system tested. The results shall stand invalid, in case there are any modifications / additions / removals to the hardware or software or end use atmosphere to the product tested. Particulars on Manufacturer / Supplier / EUT configuration / Performance criteria, etc given in this report are based on the information given by the customer, along with test request. Tarang does not assume any responsibility for the correctness of that information for the above mentioned equipment under test.

Any change to this document that is not carried out by Tarang is unauthorized and this document shall stand invalid. This report must not be used by the client to claim product certification or approval or endorsement by any agency of the Federal Government or any Government.

Prepared by Sathesh Kumar L	Reviewed by Satheesh I	Approved by Nagaraj C S
		
Test Engineer	Technical Manager	Technical Manager

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

2 SUMMARY OF TESTS, FACILITY AND ACCREDITATION

2.1 TEST DETAILS

The tests documented in this report are performed according to the following standards:

- ANSI C63.4-2000
- FCC CFR 47, Part 15
- RSS-210 Issue 8

2.2 TEST FACILITY DETAILS

All the tests were carried out at Tarang –Product Qualification and Compliance Planet located at Wipro Limited, SJP2, Dodda Kanelli, Sarjapur road, Bangalore. Karnataka. India. 560 035.

Following are the accreditation and listing details for Tarang.

Accreditation / Listing body	Registration / Company / Certificate Number
NABL, India	Certificate No: T-1533 http://www.nabl-india.org/
FCC (Federal Communications Commission)	Registration Number: 799247 http://www.fcc.gov/
IC (Industry Canada)	Company Number: 9023A http://www.ic.gc.ca

2.3 CALIBRATION

All measuring instruments used to perform the tests listed and reported in this document are calibrated as per the manufacturer recommendation and are traceable to ISO17025.

2.4 MEASUREMENT UNCERTAINTY

The following measurement uncertainties are applicable to the relevant tests that are mentioned below:

Test	Uncertainty
Radiated Emission (30 MHz to 1 GHz), 3 meter	±4.12 dB (95% confidence)
Radiated Emission (1 GHz to 18 GHz), 3 meter	±4.25 dB (95% confidence)
Radiated Emission (18 GHz to 40 GHz), 3 meter	±4.63 dB (95% confidence)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.



Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

3 EQUIPMENT UNDER TEST (EUT)

3.1 DESCRIPTION OF THE EUT

Ford SYNC Gen 2 is part of Vehicle (car) Infotainment System. The product allows the driver and passenger to access and control their phone and media devices "hands free" through the use of voice commands and steering wheel controls. The product also provides a rich graphical display to provide touch screen input and present graphical and text information back to the user. An overview of functions that the supports are listed below:

The **Ford SYNC Gen 2** provides a gateway interface to the Vehicle Infotainment System (VIS) for:

- Bluetooth enabled Cellular Phone
- Portable Media Devices
- Wi-Fi Networks(802.11b/g)

Product powers from 12V DC.

3.2 SOFTWARE AND FIRMWARE DETAILS

CCPU Software Version: 4.1.10168

VMCU Software Version: 2.1.28

3.3 PRODUCT CONFIGURATION DETAILS (WORST CASE)

The product is a DC powered unit. A standard bench-top power supply was used during the test. The product has an LCD display unit, which provides the required user interface for this product. The scope of this certification is for the product excluding the display module. Hence the display was not used during the Radiated Emission tests based on customer input. The display was used for the purpose of configuration of the product.

The product supports 802.11b/g modes of operation on the Wi-Fi interface and Bluetooth band as well. The interfaces were configured to:

- a. The highest speed that is supported in each band
- b. The maximum power that is configurable
- c. The product also supported continuous transmit mode, which was enabled for the conducted measurements

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

3.4 TRANSMIT POWER DETAILS

The peak power output specification of the transmitter as per the device transceiver datasheet provided by the vendor at various modes is as listed below.

Frequency Range	Mode	Output power (dBm)	Output power (W)
2.412 to 2.472 GHz	802.11b	17.5	56 mW
2.412 to 2.472 GHz	802.11g	17.5	56 mW

3.5 TEST SETUP DETAILS

3.5.1 SUPPORTING EQUIPMENT

Item	Manufacturer	Model Number	Serial Number	FCC ID
Power Supply	Aplab	VSMPS 6010 ODI	710-VSMPS6010-152	NA
Standard keyboard with USB interface	Any	Any	NA	NA

3.5.2 I/O CABLES AND CONNECTORS

Port	No of similar ports	Connector	Cable type	Cable length
USB	2	USB A	Unshielded	3m
Power supply	1	0.1" Header	Unshielded	3m
Display connector	2	Customized	NA (No cable)	NA

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

3.5.3 TEST SETUP DETAILS

3.5.3.1 RADIATED EMISSION TEST SETUP DETAILS

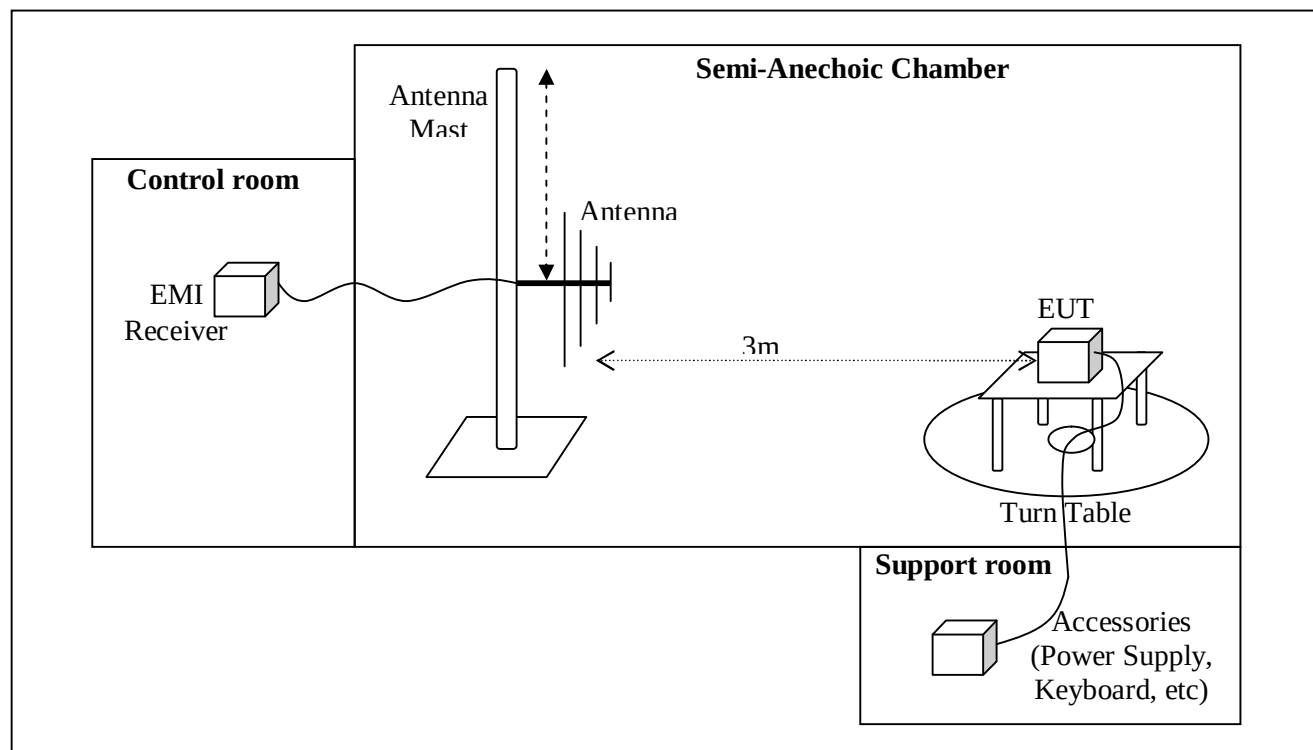


Figure 1: Test setup for Radiated Emission test

3.5.3.2 ANTENNA CONDUCTED MEASUREMENT TEST SETUP DETAILS

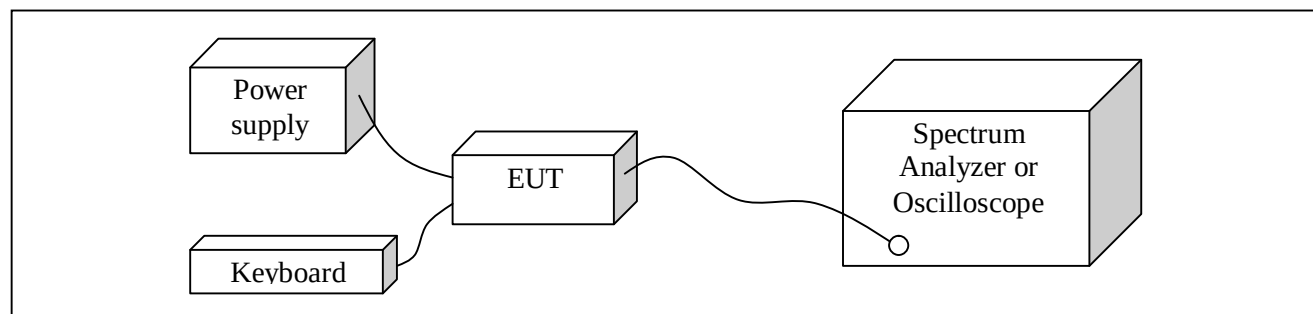


Figure 2: Test setup for Conducted measurements on the wireless ports

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

4 INSTRUMENTATION AND CALIBRATION

4.1 TEST AND MEASURING EQUIPMENT

The following list contains measuring equipments used for testing. The equipments confirm to the required standards. Calibration of all test and measuring equipments including any accessories that may affect such calibration are checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

4.2 EQUIPMENTS USED

Name of Equipment	Manufacture	Model No.	Serial No.	Calibration Due
Spectrum Analyzer	Agilent	E4407B	MY45112947	17 th Feb 2011
Oscilloscope	Tektronix	DPO71604	B010382	4 th Sep 2011
EMI receiver	Rohde & Schwarz	ESIB40	100306	31 st Aug 2011
Hybrid Log Periodic Antenna	TDK RF Solutions	HLP-3003C	130334	20 th Mar 2011
Broadband Horn Antenna	Schwarzbeck Mess Elektronik	BBHA 9170	9170-344	20 th Mar 2011
Double Ridge Broad Band Horn Antenna	Schwarzbeck Mess Elektronik	BBHA 9120 D	9120D-687	20 th Mar 2011
RF Cable	Colemann	M17-84/RG223	NA	NA

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

5 APPLICABILITY OF TESTS

The following table summarizes and provides reference to the tests that are applicable and carried out for this product.

5.1 APPLICABLE TESTS FOR 802.11b AND 802.11g PORT

S. No	Standard	Name of the test	Section of standard	Applicability	Port
1	FCC Part 15	Restricted bands of operation	15.205	Yes	WiFi
2	FCC Part 15	Conducted Emission	15.207	No (Product is DC powered)	NA
3	FCC Part 15	Radiated Emission	15.209	Yes	Product
4	FCC Part 15	6 dB bandwidth (≥ 500 KHz)	15.247 (a) (2)	Yes	WiFi
5	FCC Part 15	Peak conducted o/p power (≤ 1 W)	15.247 (b) (3)	Yes	WiFi
6	FCC Part 15	Directional antenna gains greater than 6 dBi	15.247 (c)	No (Antenna gain < 6 dBi)	NA
7	FCC Part 15	Conducted Spurious Emission	15.247 (d)	Yes	WiFi
8	FCC Part 15	Power Spectral Density in any 3KHz band	15.247 (e)	Yes	WiFi
9	FCC Part 15	Systems using hybrid modulation	15.247 (f)	No (No hybrid modulation used)	NA

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6 TEST RESULTS FOR WI-FI PORT

6.1 WI-FI 801.11b MODE

6.1.1 RESTRICTED BAND OF OPERATION

6.1.1.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limits
FCC Part 15, Subpart C	15.205	In the operating range of this product, the limits are: $f_L > 2.39 \text{ GHz}$, $f_H < 2.4835 \text{ GHz}$
RSS-210	2.2	In the operating range of this product, the limits are: $f_L > 2.39 \text{ GHz}$, $f_H < 2.655 \text{ GHz}$

f_L = Lower operating frequency range

f_H = Higher operating frequency range

6.1.1.2 TEST PROCEDURE

S. No	Procedure
1	Connect the transmitter output to a Spectrum Analyzer
2	Select the lowest possible channel of the carrier (Eg. 1 st channel)
3	Measure the frequency at 30dB below the peak power at this carrier and record this as f_L
4	Select the highest possible channel of the carrier (Eg. 13 th channel)
5	Measure the higher frequency at 30dB below the peak power at this carrier and record this as f_H

Note: While it may be sufficient that the center frequency of the carrier is within the limits, the lower and higher frequencies of the carrier envelop have been taken into account for this measurement.

6.1.1.3 RESULT

Parameter	Limit	Measured	Result
f_L	Min 2.39 GHz (FCC and RSS-210)	2.403171	Pass
f_H	Max 2.4835 GHz (FCC)	2.480816	Pass
f_H	Max 2.655 GHz (RSS-210)	2.480816	Pass

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNG2-L
IC ID	1422A-SYNG2L

6.1.1.4 RESULT (SUPPORTING GRAPHS / DATA)

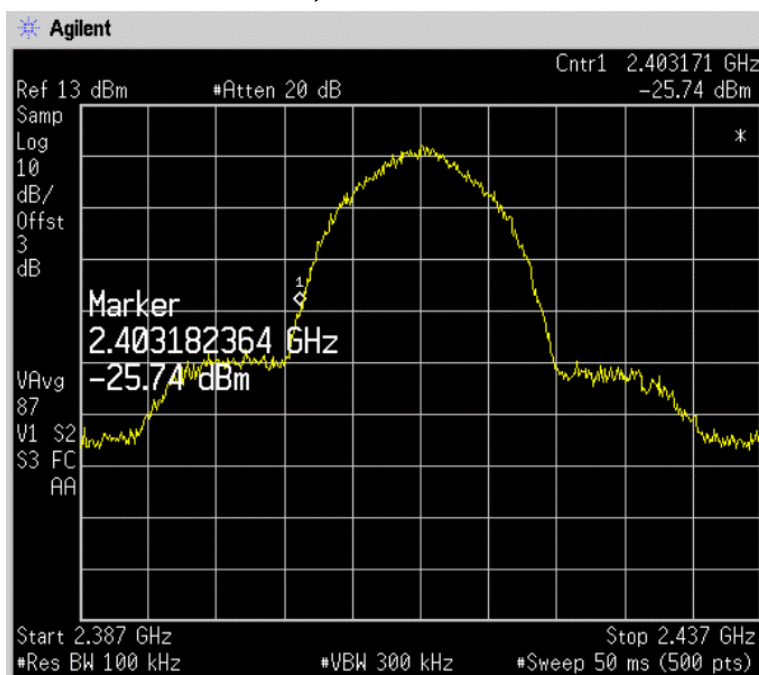


Figure 3: Measured f_L at Channel 1 – 802.11b

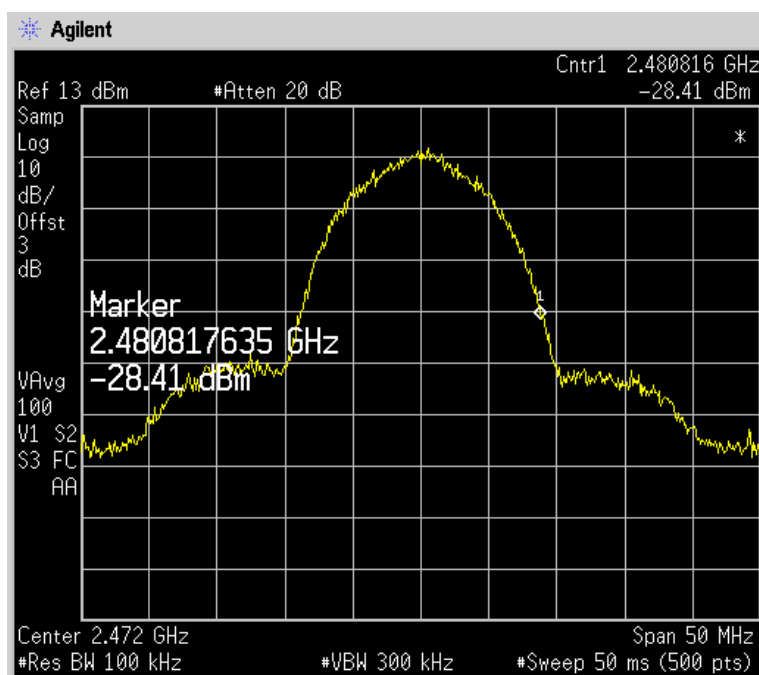


Figure 4: Measured f_H at Channel 13 – 802.11b

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.2 RADIATED EMISSION

6.1.2.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Frequency range	Max Limit (dBμV/m) at 3 meter
FCC Part 15, Subpart C	15.209	30 MHz to 88 MHz	40.0
		88 MHz to 216 MHz	43.5
		216 MHz to 960 MHz	46.0
		960 MHz to 1 GHz	54.0
		Above 1 GHz	54.0
RSS-210	2.6	30 MHz to 88 MHz	40.0
		88 MHz to 216 MHz	43.5
		216 MHz to 960 MHz	46.0
		960 MHz to 1 GHz	54.0
		Above 1 GHz	54.0

6.1.2.2 TEST PROCEDURE

S. No	Procedure
1	Test procedure is as per ANSI C63.4: 2000
2	EUT is placed on a 0.8m non-conductive table. This table is positioned on an automated turn table.
3	Antennas are positioned 3m away from the EUT
4	EUT is configured to function with the default channel in the selected band
5	A peak scan was carried out at various azimuth angles and antenna heights ranging from 1m to 4m.
6	The highest level of Radiated Emission was recorded
7	Quasi-peak measurements were carried out at the identified peaks for <1GHz and Average measurements were carried out above 1GHz
8	These values are compared against the limit specified by the standard

6.1.2.3 RESULT

Parameter	Limit	Measured	Result
Radiated Emission	Refer 6.1.2.1	Refer 6.1.2.4	Pass

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.2.4 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 1

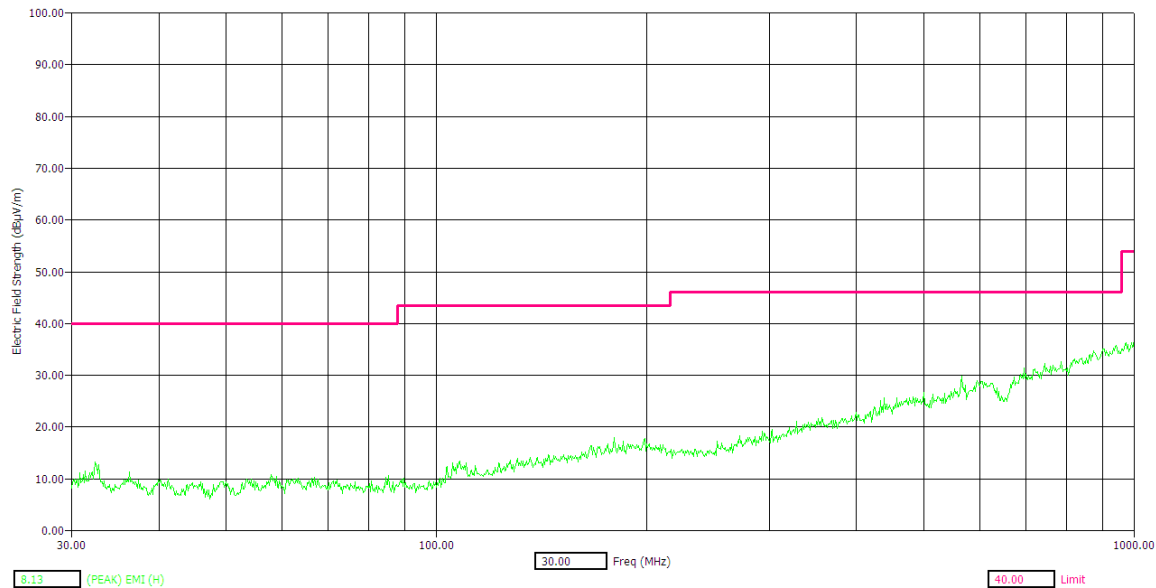


Figure 5: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11b, Channel 1

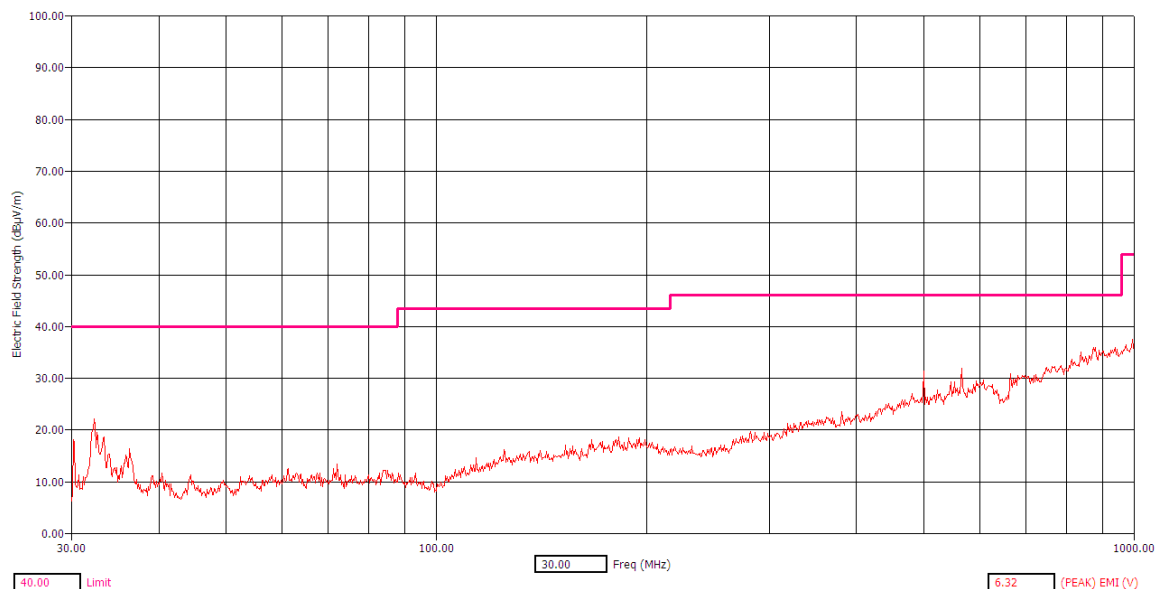


Figure 6: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11b, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbl Agl (deg)	Freq (Max) (MHz)
32.35	V	18.77	40.00	-21.23	39.46	115.00	2.21	9.50	32.41	25.40	32.41
32.35	H	3.99	40.00	-36.01	23.12	100.00	2.21	11.06	32.40	86.80	32.34
498.85	V	24.60	46.00	-21.40	28.57	100.00	10.17	18.19	32.34	180.10	499.04
565.30	H	21.90	46.00	-24.10	24.55	195.00	10.93	18.63	32.21	255.80	565.53
565.30	V	29.06	46.00	-16.94	31.31	100.00	10.93	19.02	32.21	3.20	565.34
566.00	H	20.74	46.00	-25.26	23.39	286.00	10.93	18.63	32.20	273.10	565.77

Figure 7: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11b, Channel 1

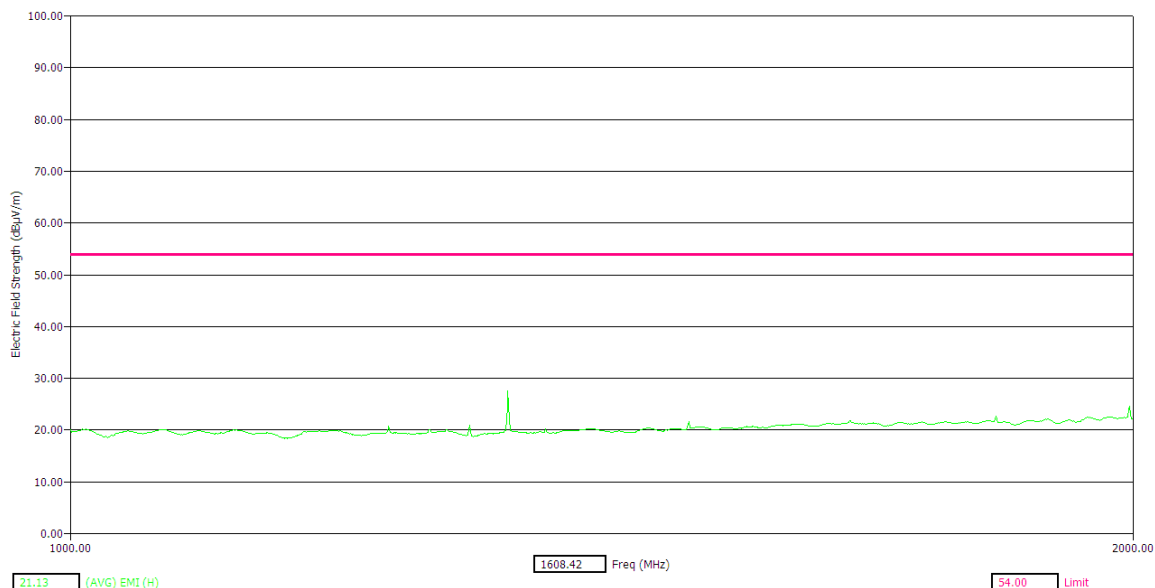


Figure 8: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11b, Channel 1

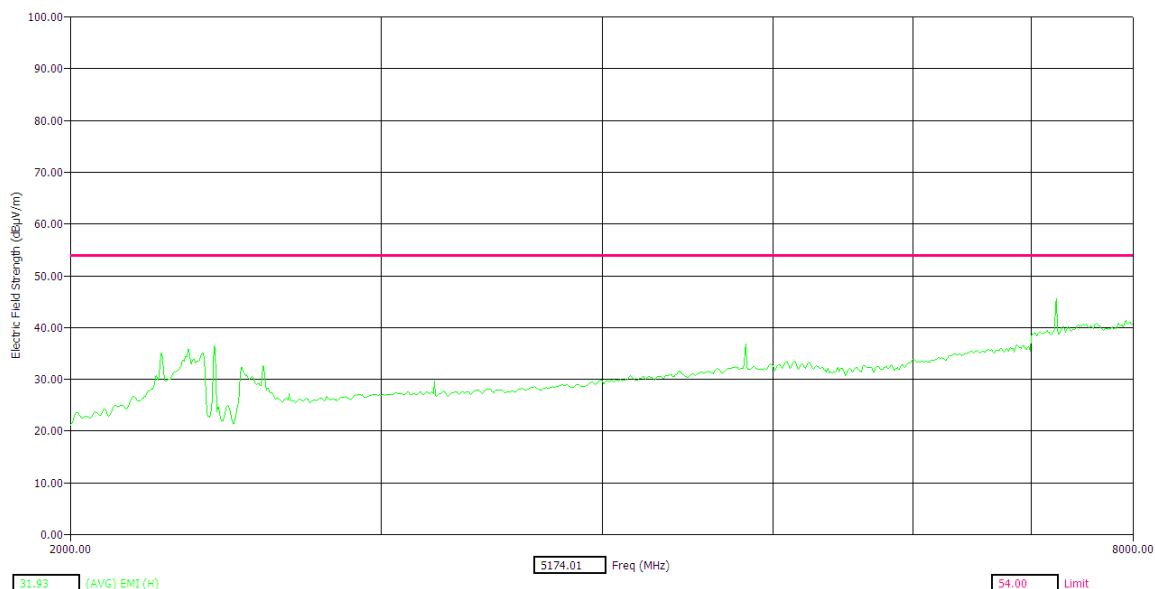


Figure 9: Radiated emission results (Average) – Horizontal polarization – 2 GHz to 8GHz – 802.11b, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

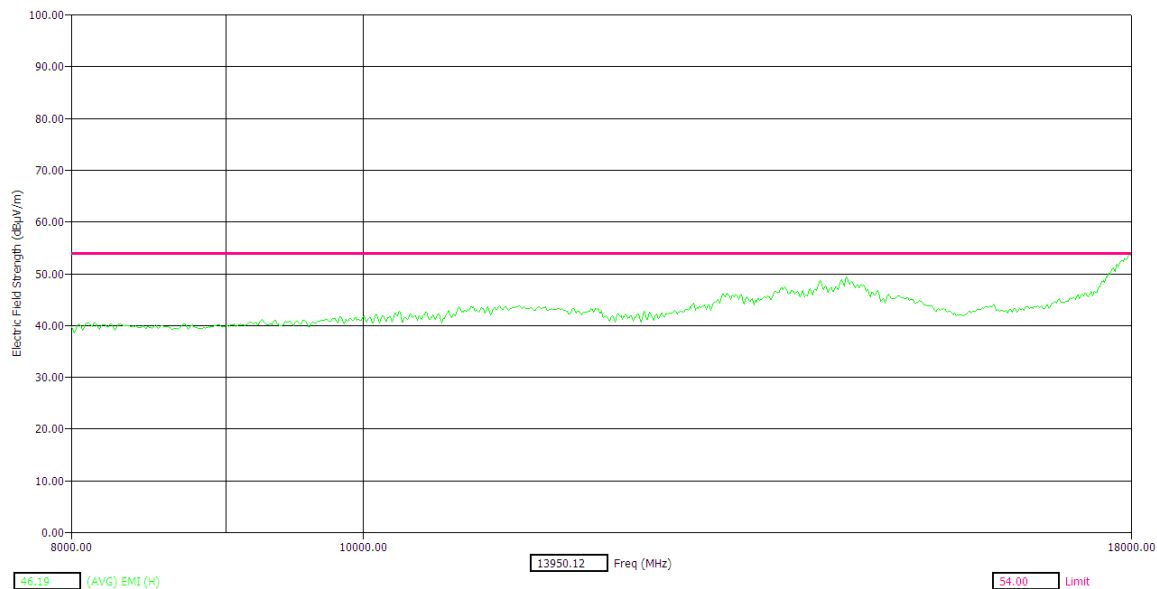


Figure 10: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11b, Channel 1

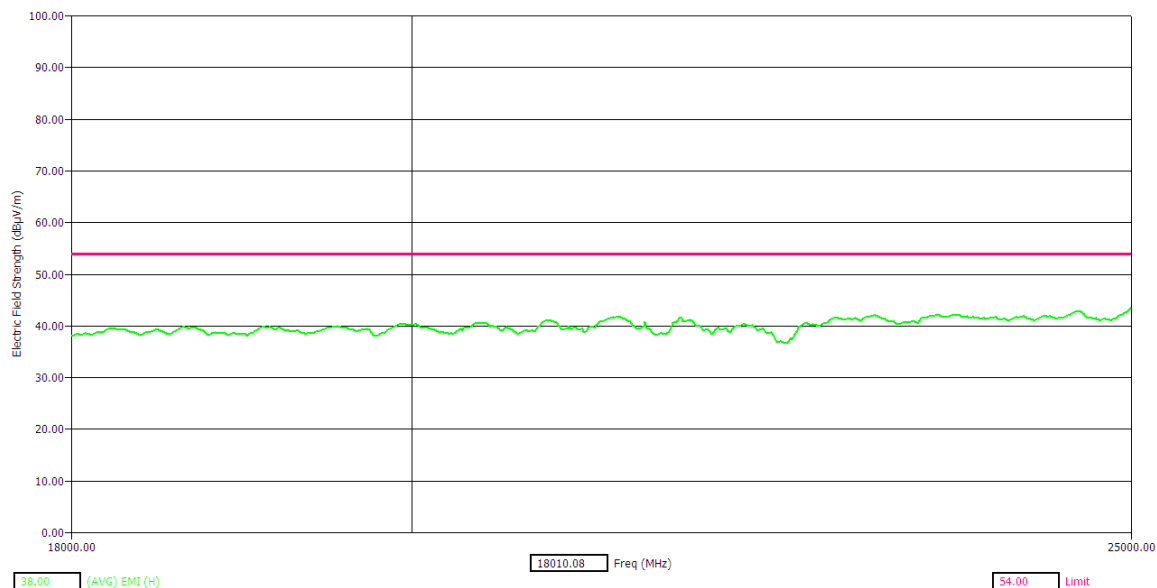


Figure 11: Radiated emission results (Average) – Horizontal polarization – 18 GHz to 25 GHz – 802.11b, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

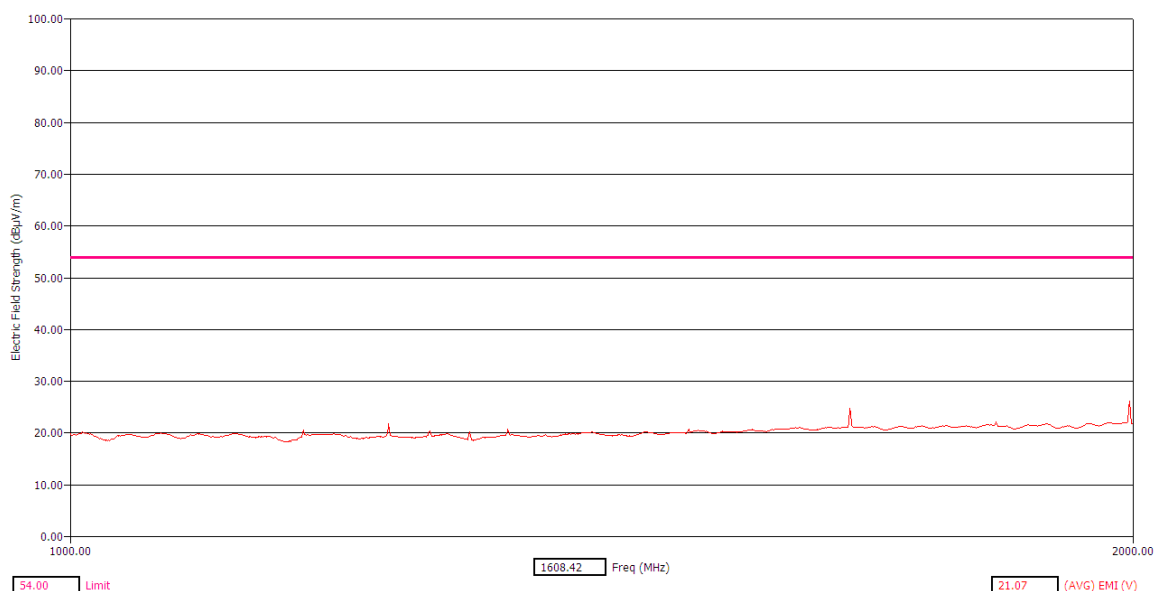


Figure 12: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11b, Channel 1

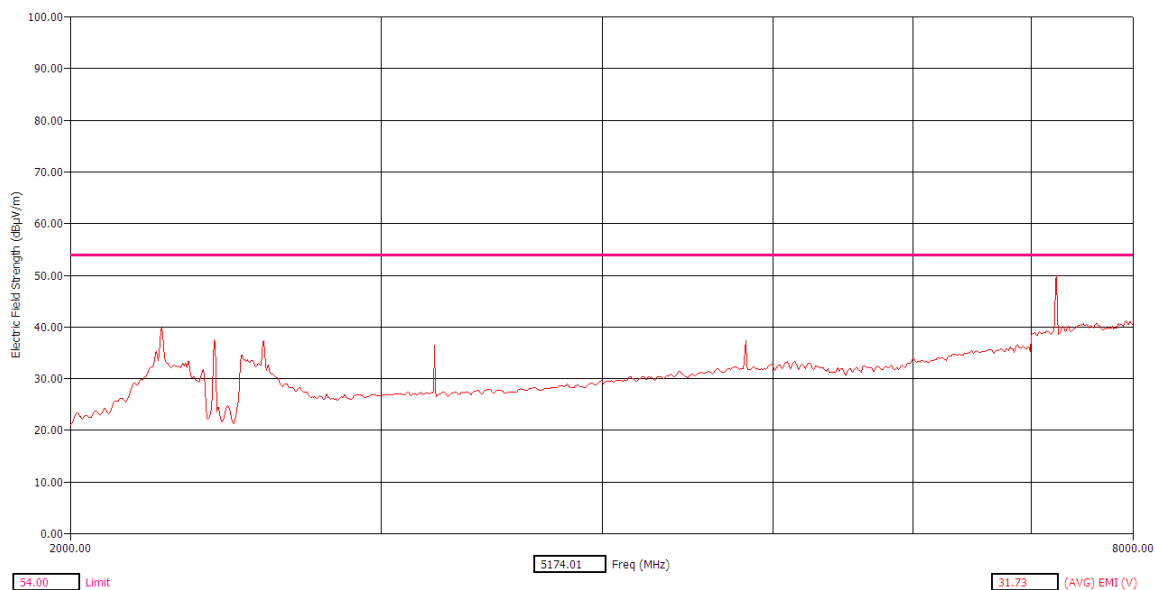


Figure 13: Radiated emission results (Average) – Vertical polarization – 2 GHz to 8 GHz – 802.11b, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

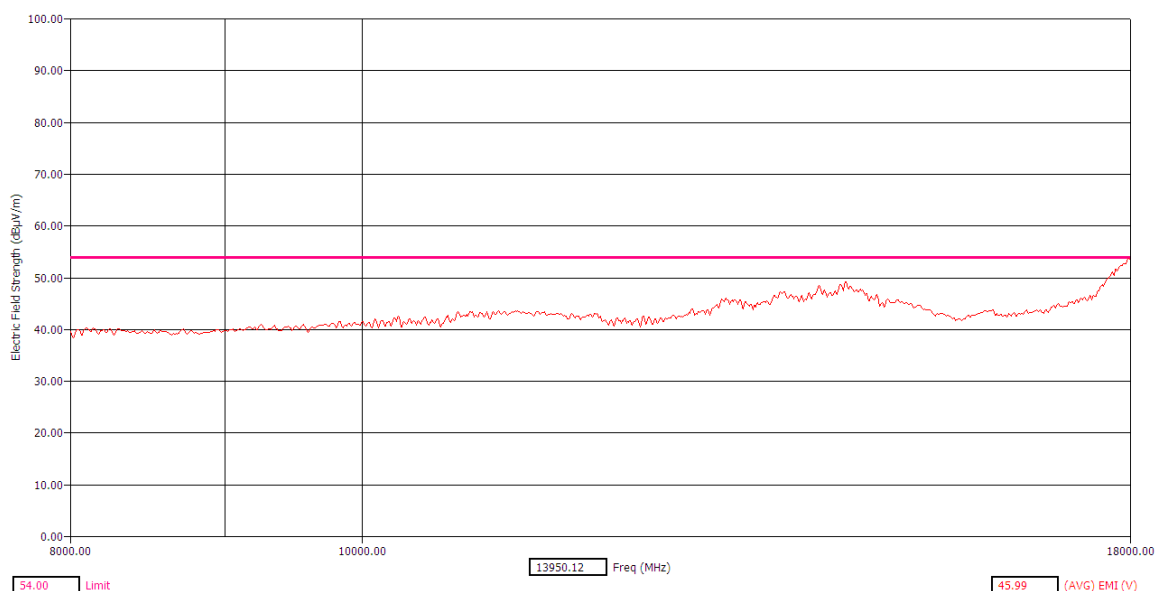


Figure 14: Radiated emission results (Average) – Vertical polarization –8 GHz to 18 GHz – 802.11b, Channel 1

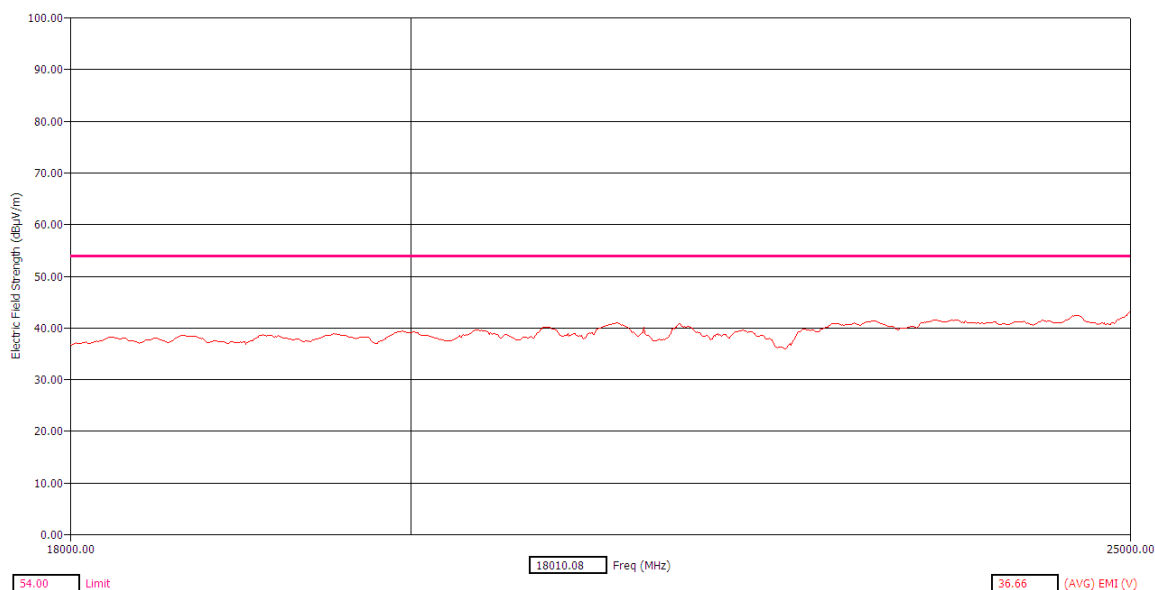


Figure 15: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11b, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.2.5 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 6

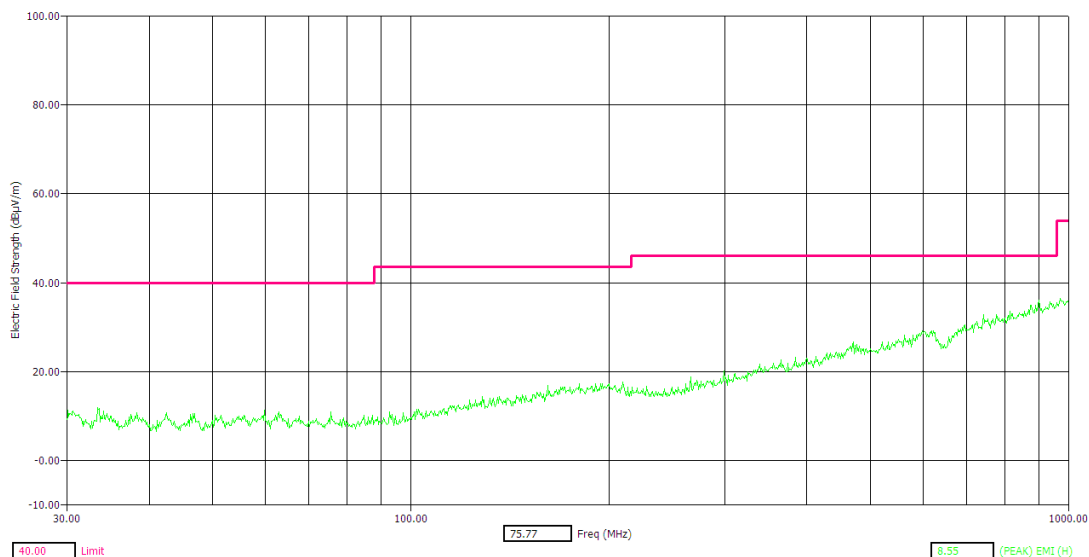


Figure 16: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11b, Channel 6

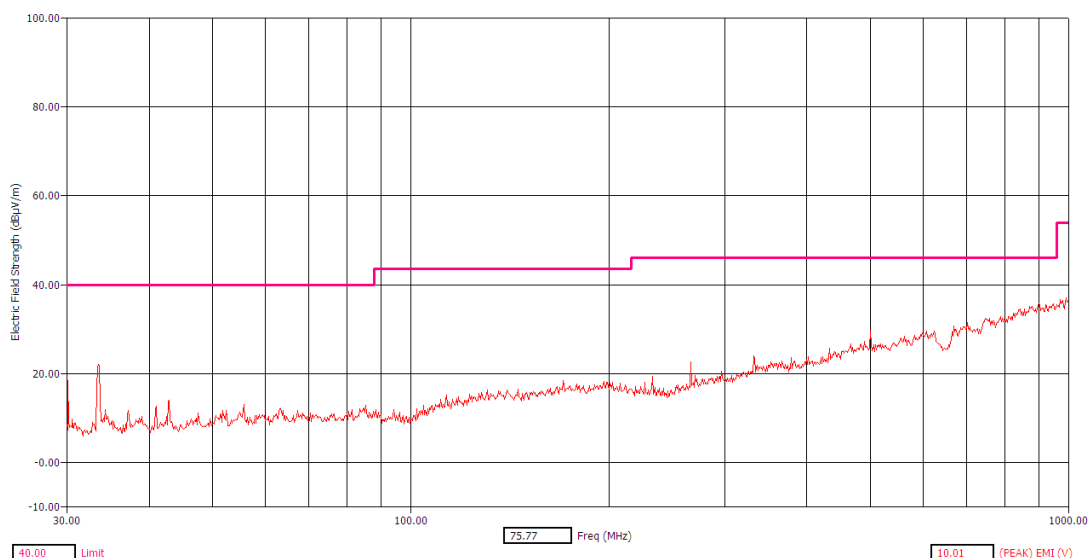


Figure 17: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11b, Channel 6

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbt Agl (deg)	Freq (Max) (MHz)
33.45	V	23.98	40.00	-16.02	44.59	100.00	2.24	9.57	32.42	180.10	33.27
33.45	H	3.78	40.00	-36.22	23.15	318.00	2.25	10.80	32.42	106.50	33.55
42.85	V	3.98	40.00	-36.02	24.13	104.00	2.55	9.84	32.54	190.40	42.95
75.50	H	3.13	40.00	-36.87	23.61	129.00	3.55	8.48	32.51	235.60	75.28
161.45	H	9.03	43.50	-34.47	23.71	114.00	5.50	12.26	32.45	262.40	161.42
266.06	V	12.58	46.00	-33.42	24.62	154.00	7.28	12.96	32.28	180.00	265.86
498.85	V	25.97	46.00	-20.03	29.93	104.00	10.17	18.19	32.33	7.80	498.83
814.90	H	25.67	46.00	-20.33	23.29	169.00	13.17	21.64	32.44	124.20	814.97

Figure 18: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11b, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

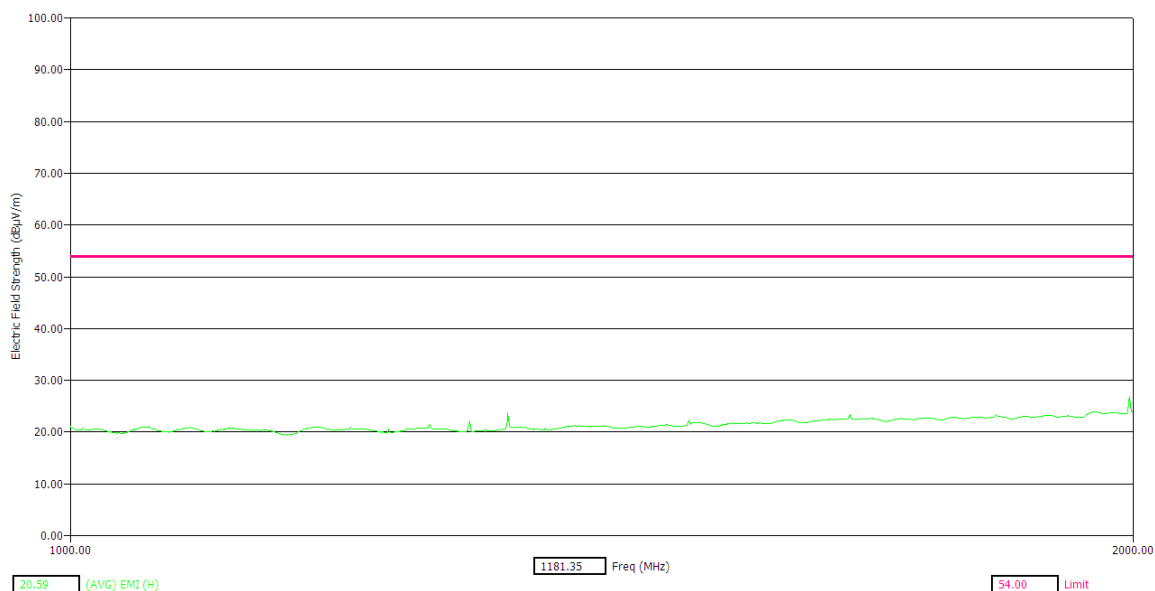


Figure 19: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11b, Channel 6

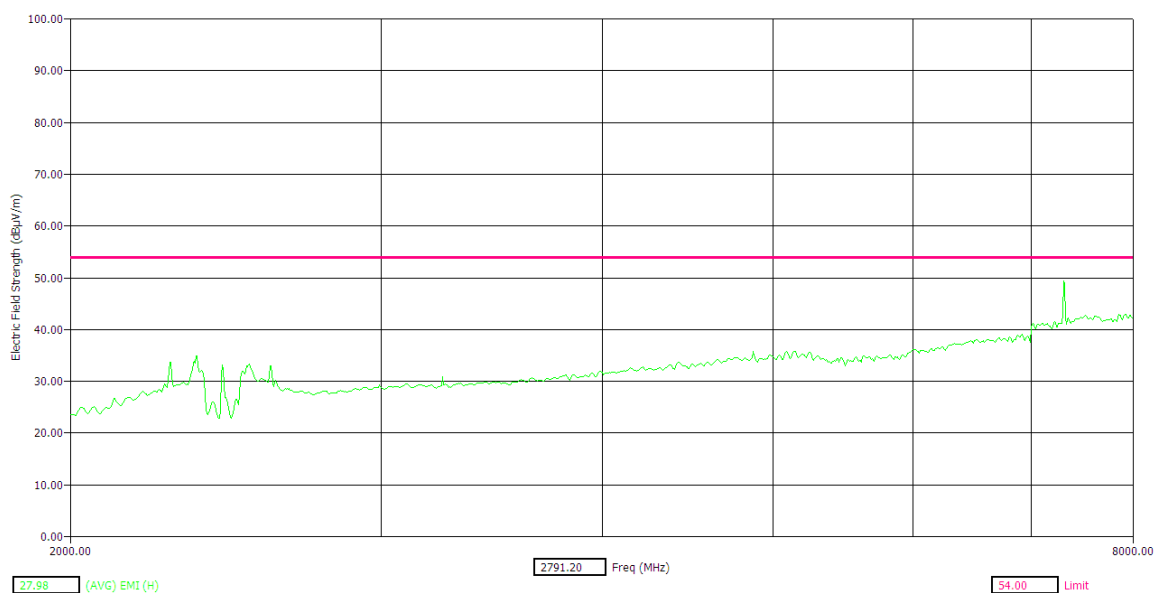


Figure 20: Radiated emission results (Average) – Horizontal polarization – 2 GHz to 8GHz – 802.11b, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

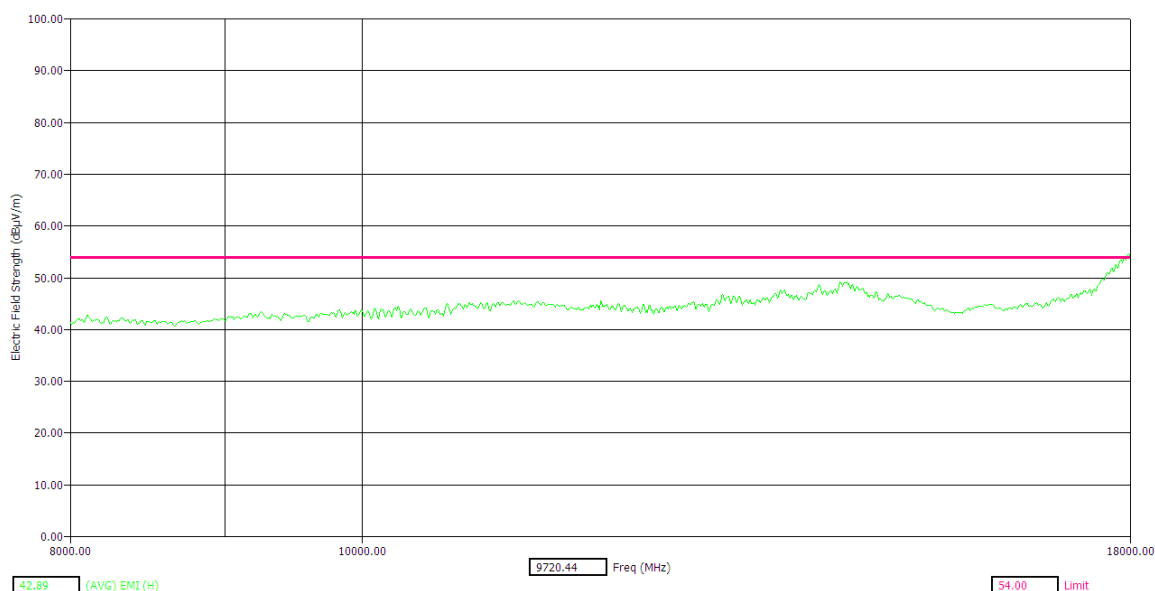


Figure 21: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11b, Channel 6

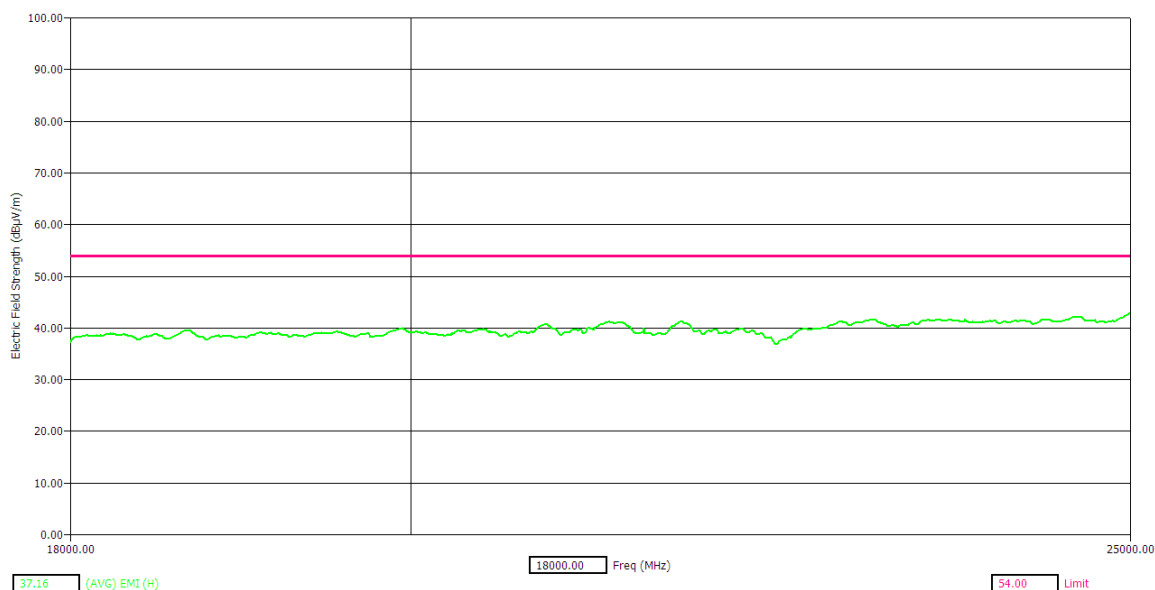


Figure 22: Radiated emission results (Average) – Horizontal polarization – 18 GHz to 25 GHz – 802.11b, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

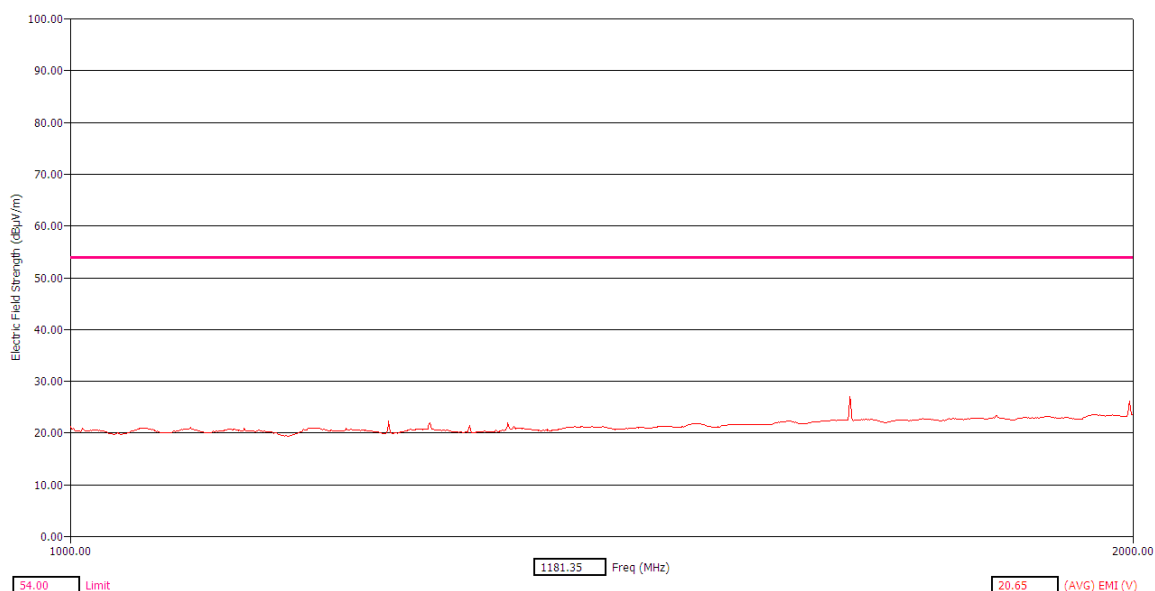


Figure 23: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11b, Channel 6

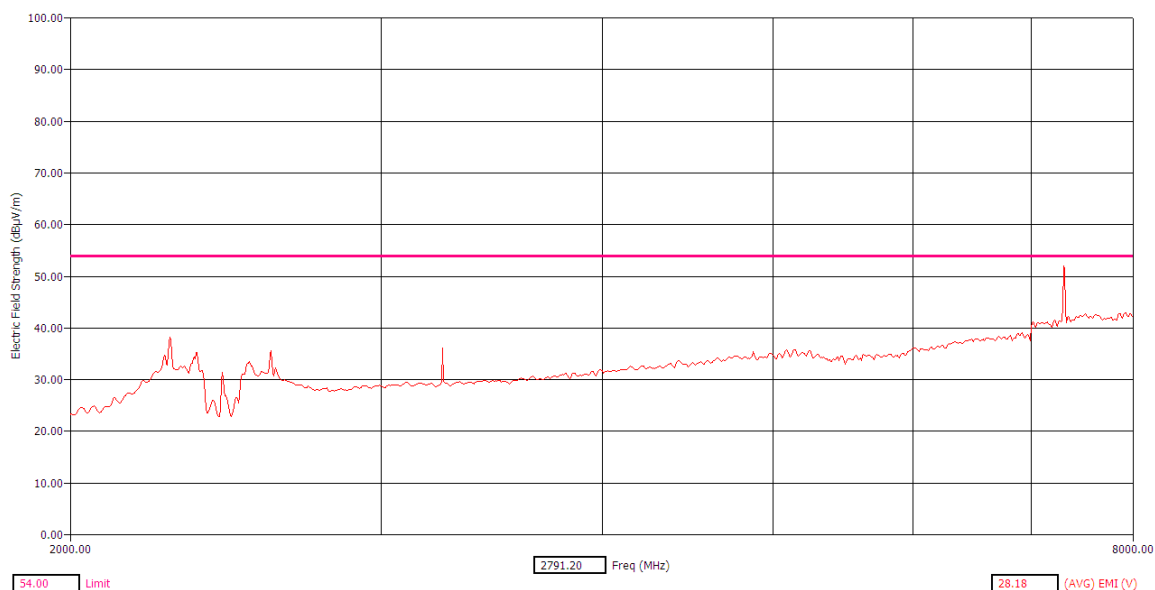


Figure 24: Radiated emission results (Average) – Vertical polarization – 2 GHz to 8 GHz – 802.11b, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

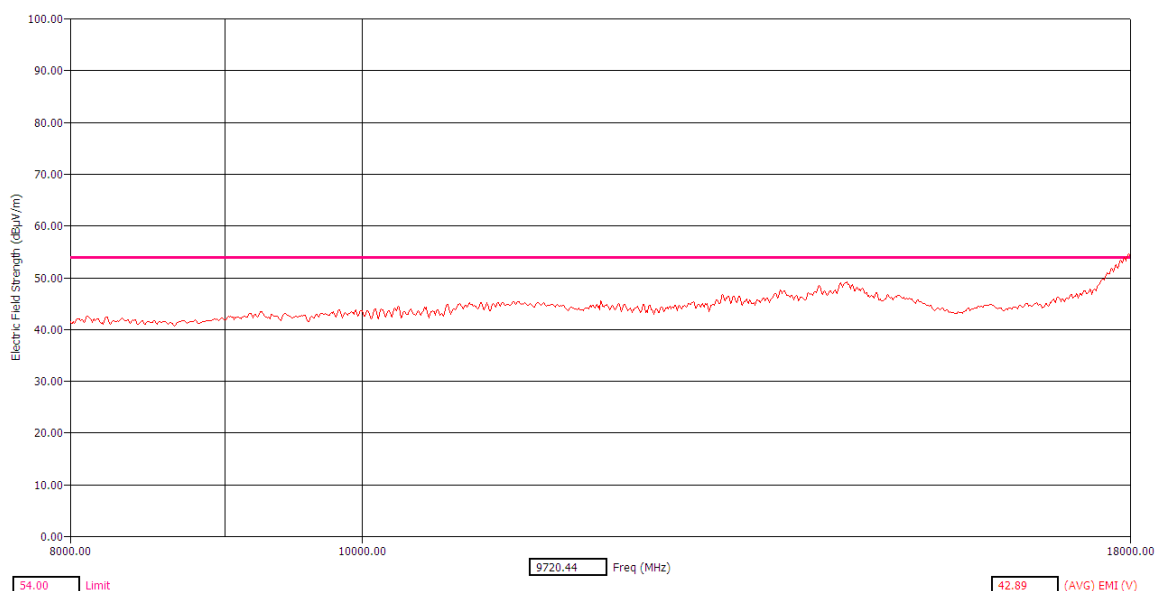


Figure 25: Radiated emission results (Average) – Vertical polarization –8 GHz to 18 GHz – 802.11b, Channel 6

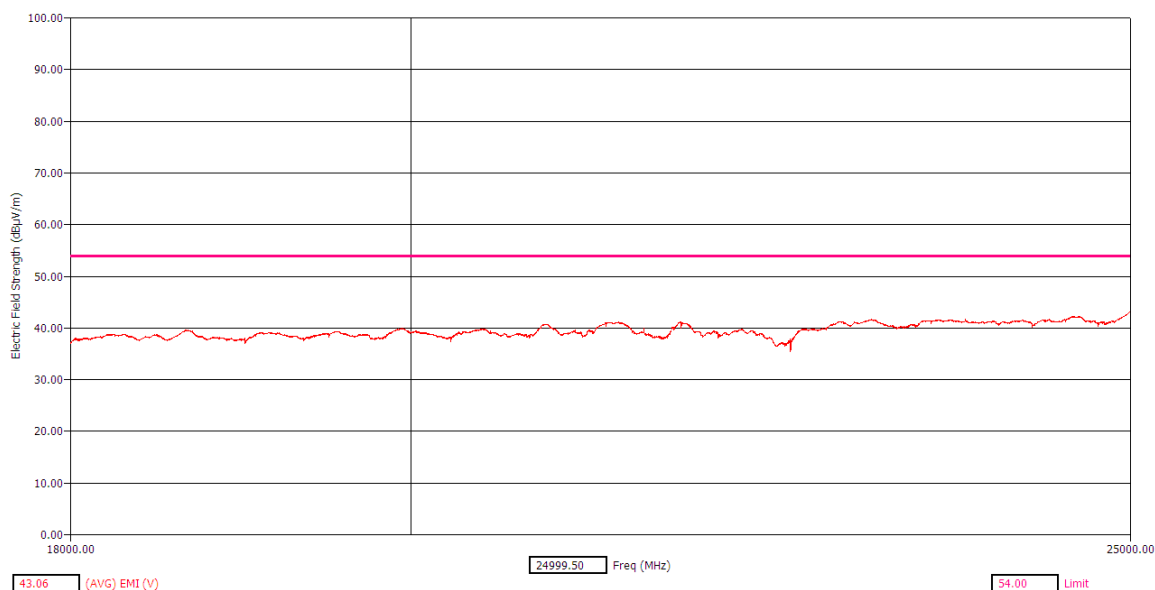


Figure 26: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11b, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

6.1.2.6 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 11

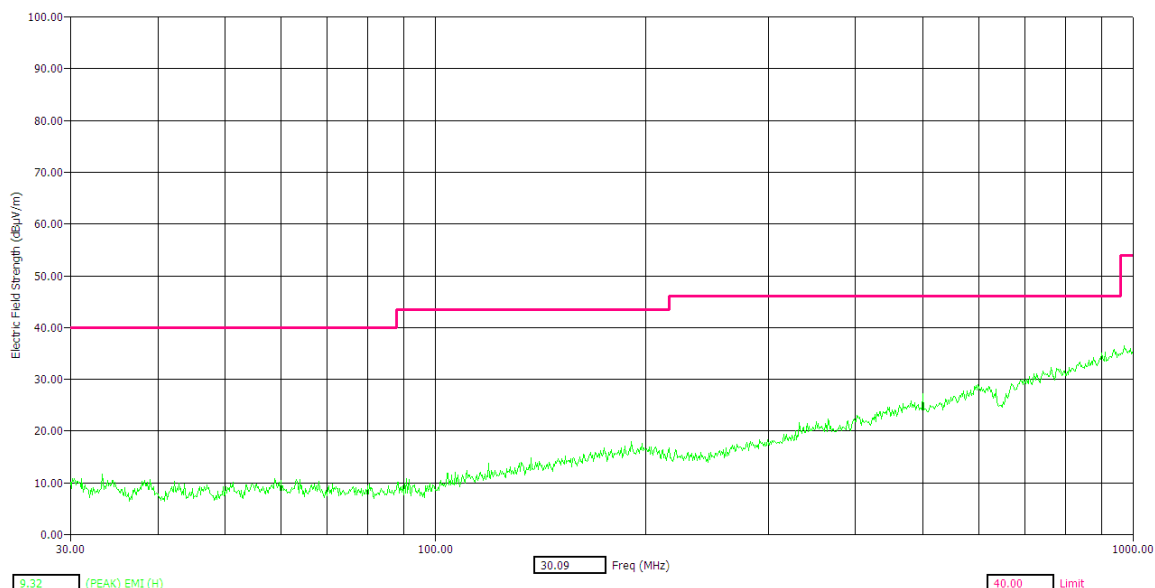


Figure 27: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11b, Channel 11

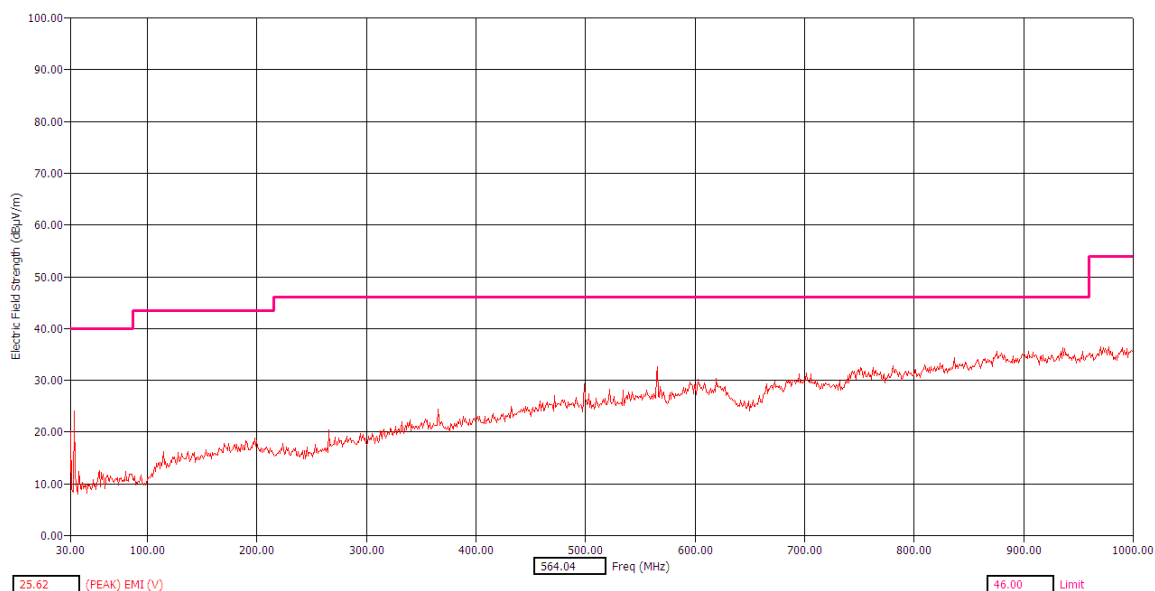


Figure 28: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11b, Channel 11

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbt Agl (deg)	Freq (Max) (MHz)
33.25	H	3.56	40.00	-36.44	22.90	100.00	2.25	10.83	32.42	103.60	33.43
119.05	H	6.07	43.50	-37.43	23.40	183.00	4.61	10.26	32.20	312.20	118.89
190.60	H	10.54	43.50	-32.96	23.36	168.00	6.05	13.29	32.17	344.30	190.60
498.80	H	24.41	46.00	-21.59	29.35	182.00	10.17	17.21	32.32	299.00	498.80

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbt Agl (deg)	Freq (Max) (MHz)
30.10	V	21.41	40.00	-18.59	42.39	104.00	2.09	9.30	32.37	279.80	29.92
33.60	V	21.75	40.00	-18.25	42.33	100.00	2.25	9.59	32.42	180.10	33.59
565.30	V	28.95	46.00	-17.05	31.21	100.00	10.93	19.02	32.21	226.60	565.26

Figure 29: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11b, Channel 11

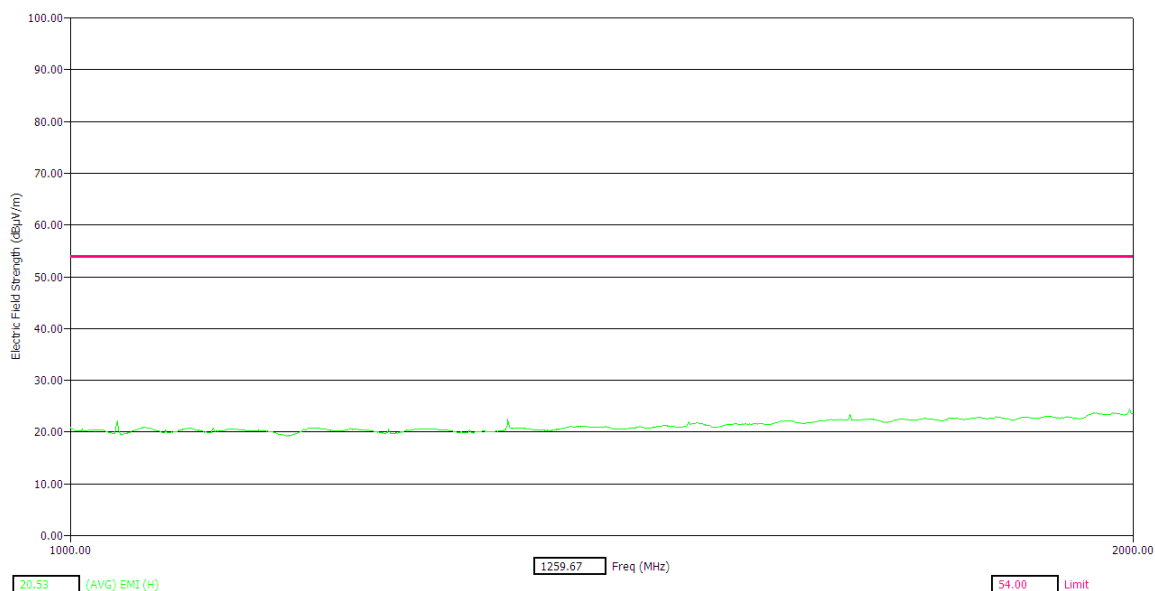


Figure 30: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11b, Channel 11

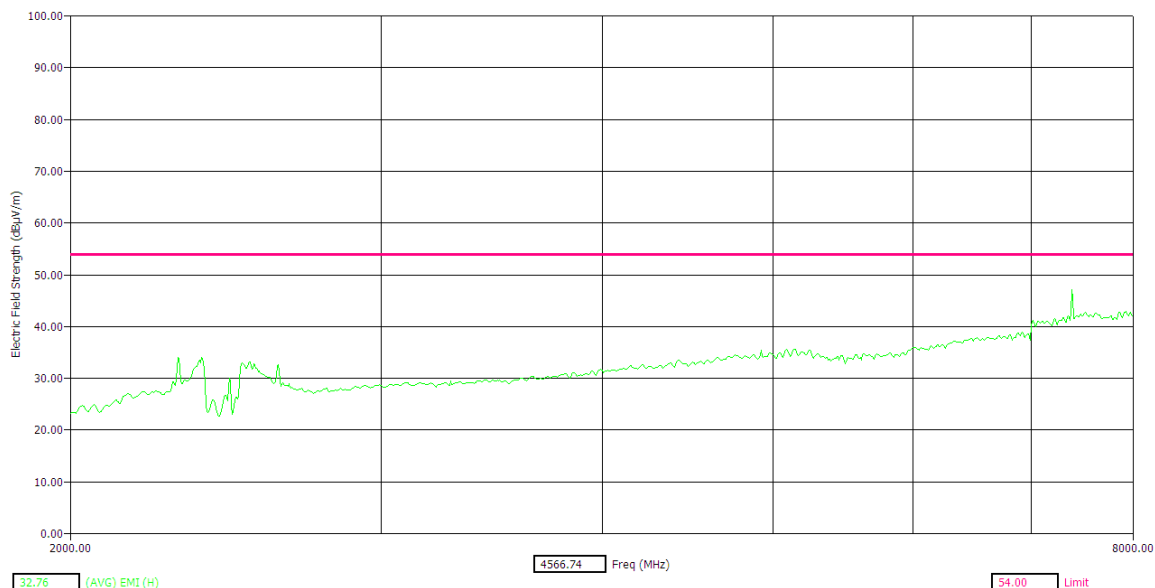


Figure 31: Radiated emission results (Average) – Horizontal polarization – 2 GHz to 8GHz – 802.11b, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

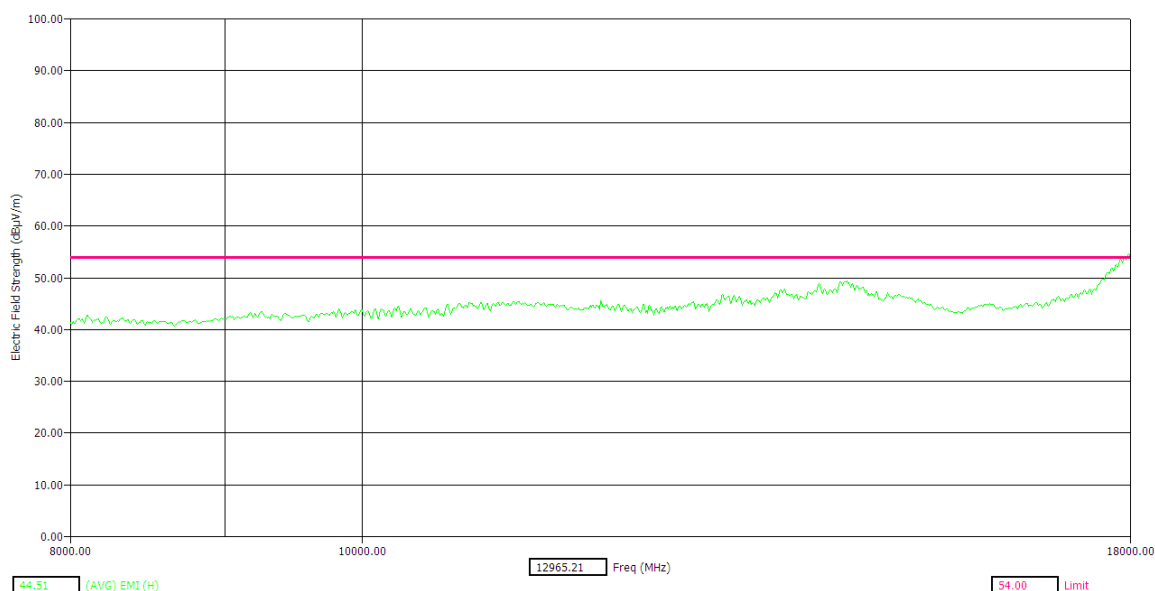


Figure 32: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11b, Channel 11

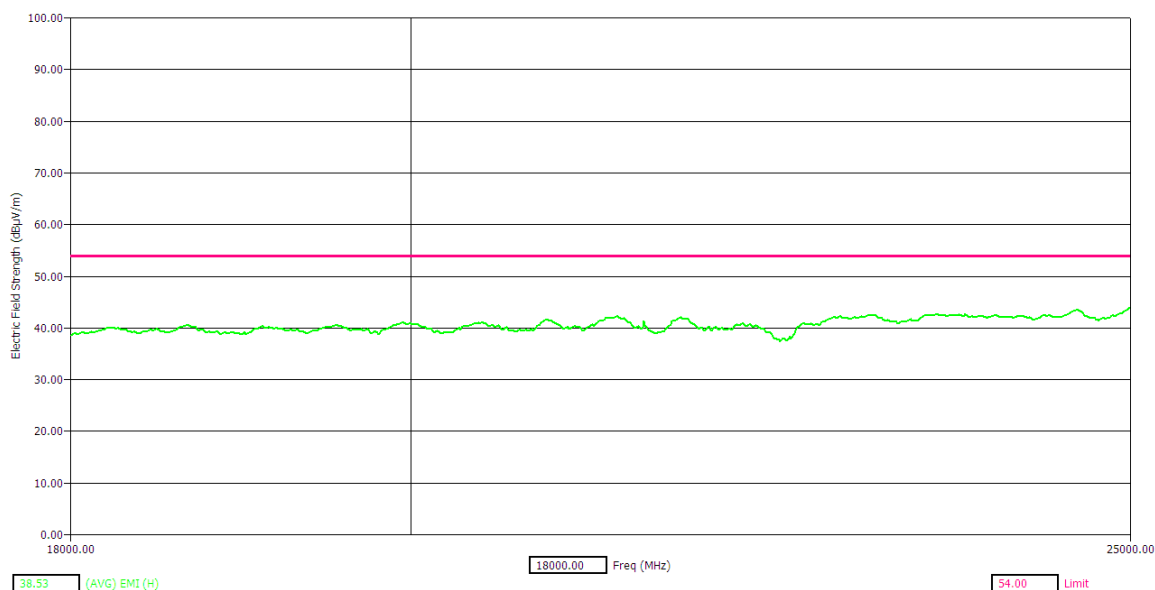


Figure 33: Radiated emission results (Average) – Horizontal polarization 18 GHz to 25 GHz – 802.11b, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

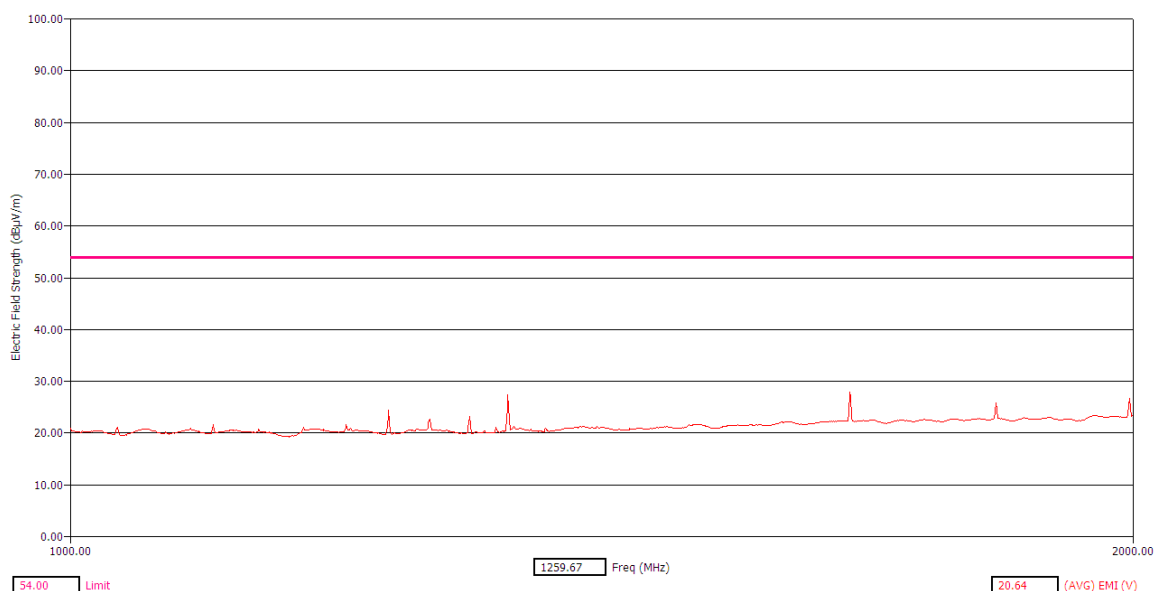


Figure 34: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11b, Channel 11

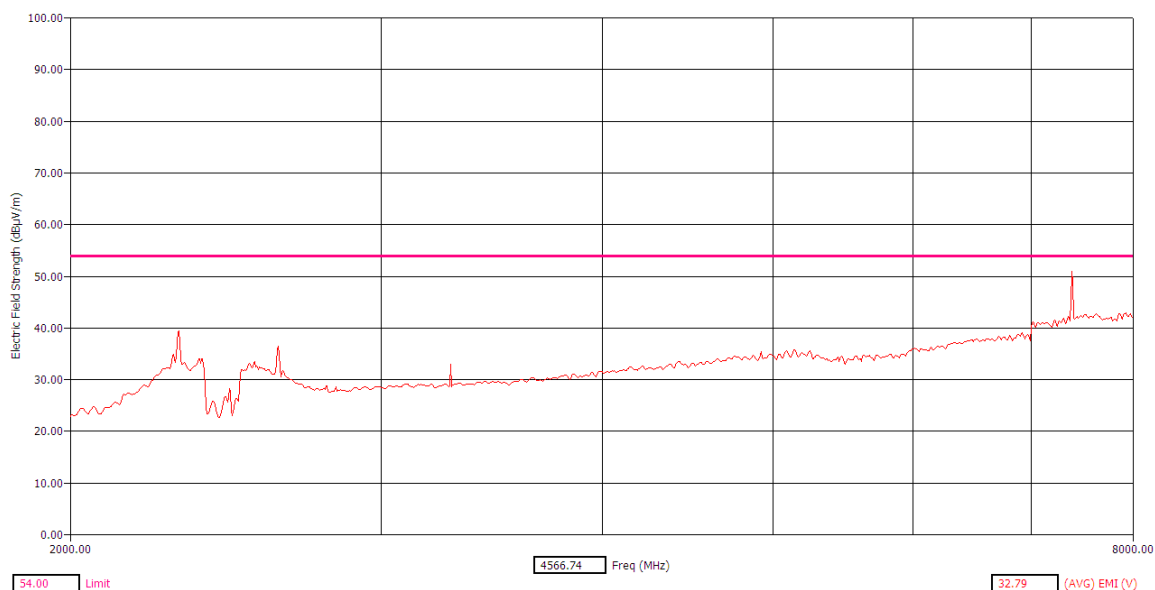


Figure 35: Radiated emission results (Average) – Vertical polarization – 2 GHz to 8 GHz – 802.11b, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

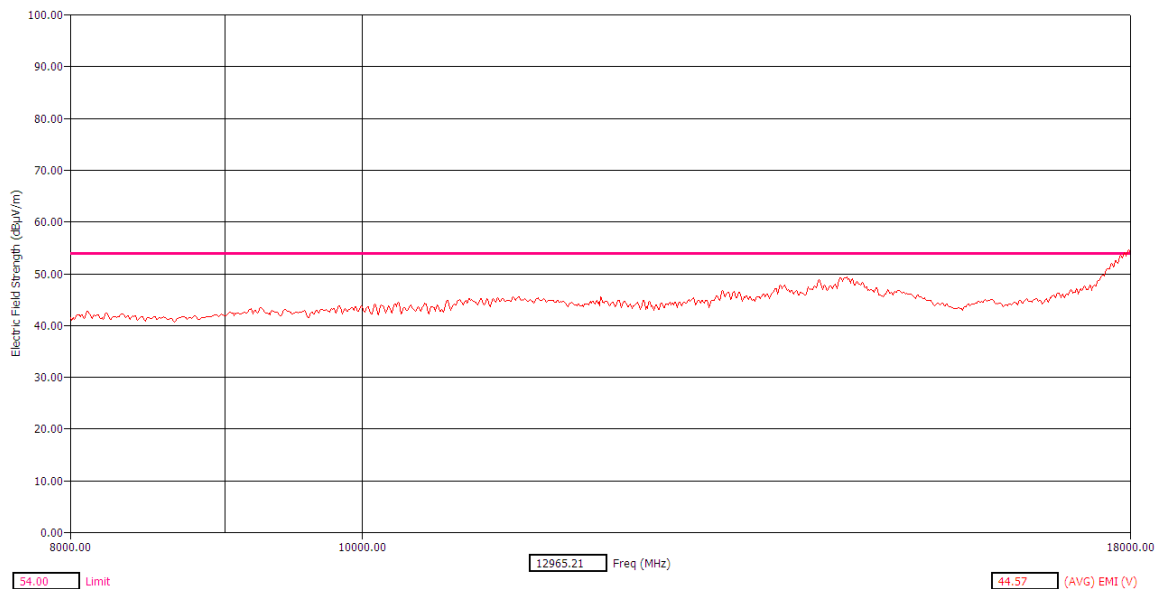


Figure 36: Radiated emission results (Average) – Vertical polarization – 8 GHz to 18 GHz – 802.11b, Channel 11

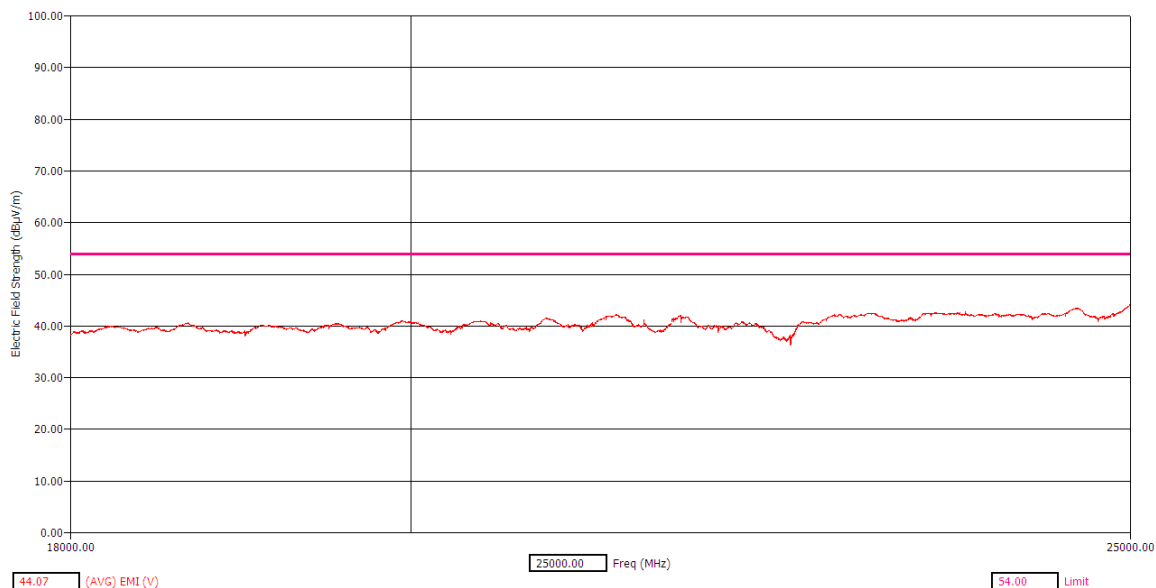


Figure 37: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11b, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.3 6dB BANDWIDTH

6.1.3.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (a) (2)	The 6dB bandwidth > 500 KHz
RSS-210	A8.2	The 6dB bandwidth > 500 KHz

6.1.3.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11b band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Detect the carrier envelop in the Spectrum Analyzer
4	The 6dB bandwidth below the peak power was calculated on the envelop
5	This measured bandwidth is compared against the limit and the result declared

6.1.3.3 RESULT

Band, Channel	Frequency (GHz)	Limit	Measured	Result
802.11b, 1 (Low)	2.412	500 KHz or more	8 MHz	PASS
802.11b, 6 (Mid)	2.437	500 KHz or more	9 MHz	PASS
802.11b, 11 (High)	2.462	500 KHz or more	9.875 MHz	PASS

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.3.4 RESULT (SUPPORTING GRAPHS / DATA)

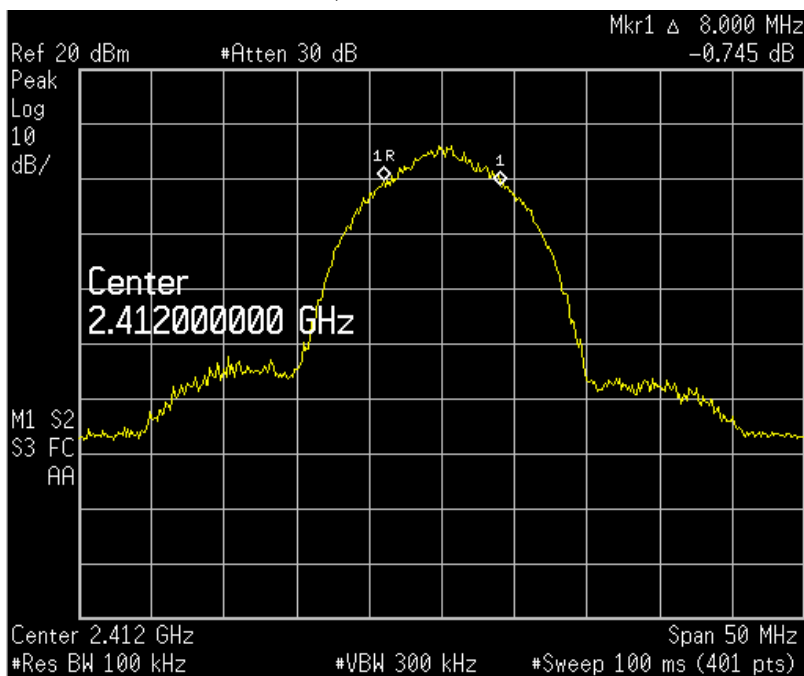


Figure 38: 6dB bandwidth – 802.11b, Low channel (1)

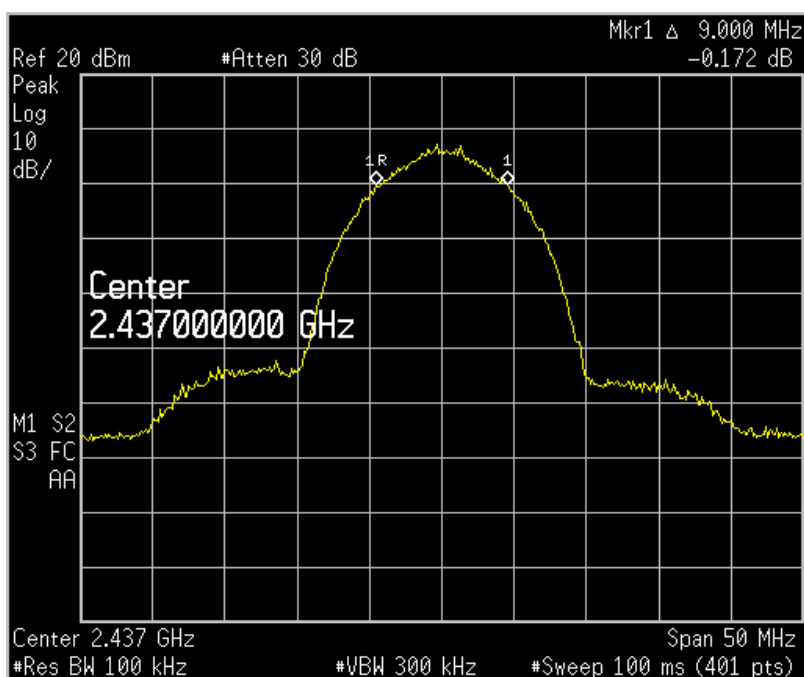


Figure 39: 6dB bandwidth – 802.11b, Mid channel (6)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

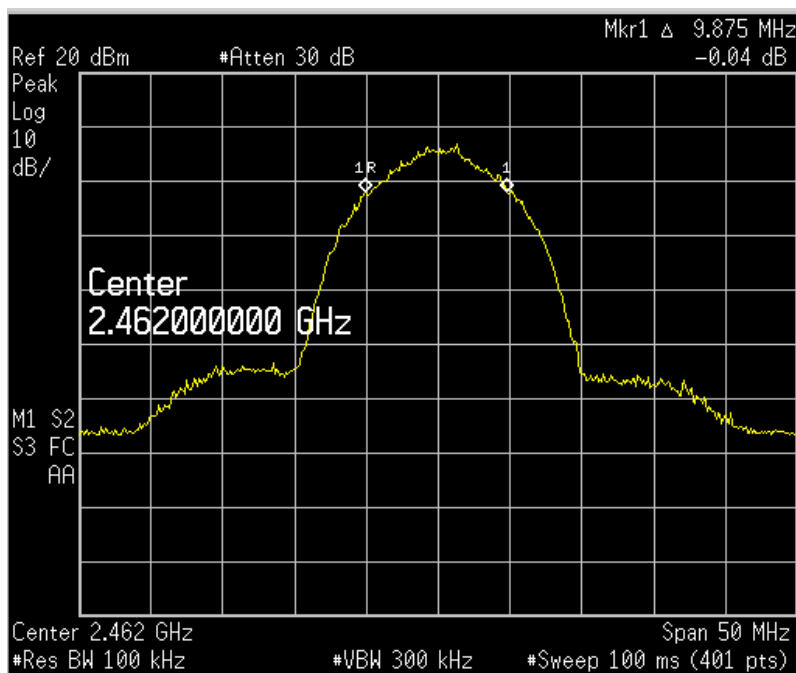


Figure 40: 6dB bandwidth – 802.11b, High channel (11)

6.1.4 PEAK CONDUCTED OUTPUT POWER

6.1.4.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (b) (3)	Peak conducted output power < 1 Watt
RSS-210	A8.4 (2)	Peak conducted output power < 1 Watt

6.1.4.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11b band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Appropriate Digital Transmission System test procedure is followed as per FCC recommendation. In this case, Option 2, Method 3 was selected based on the bandwidth of the carrier.
4	Add the measured cable loss of the cable that was used for the measurement (1.8dB)
5	This measured value is compared against the limit and the result declared

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.4.3 RESULT

Band, Channel	Frequency (GHz)	Measured power (dBm)	Cable loss (dB)	Total power (dBm)	Total power (mW)	Limit (mW)	Result
802.11b, 1 (Low)	2.412	12.76	1.8	14.56	28.57	1000	Pass
802.11b, 6 (Mid)	2.437	12.79	1.8	14.59	28.77	1000	Pass
802.11b, 11 (High)	2.462	12.31	1.8	14.11	25.76	1000	Pass

Note: Transmit duty cycle considered is = 1

No antenna gain is considered as this is conducted measurement without antenna

6.1.4.4 RESULT (SUPPORTING GRAPHS / DATA)

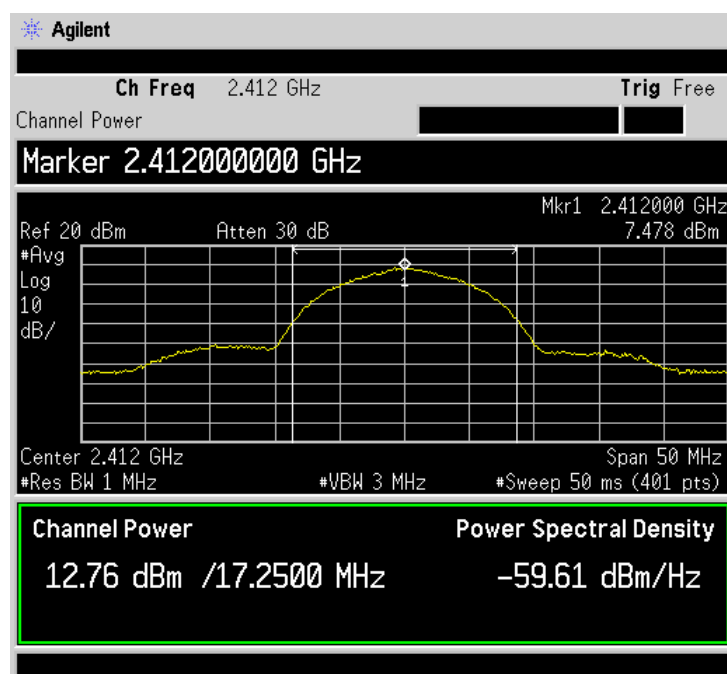


Figure 41: Peak conducted output power – 802.11b, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

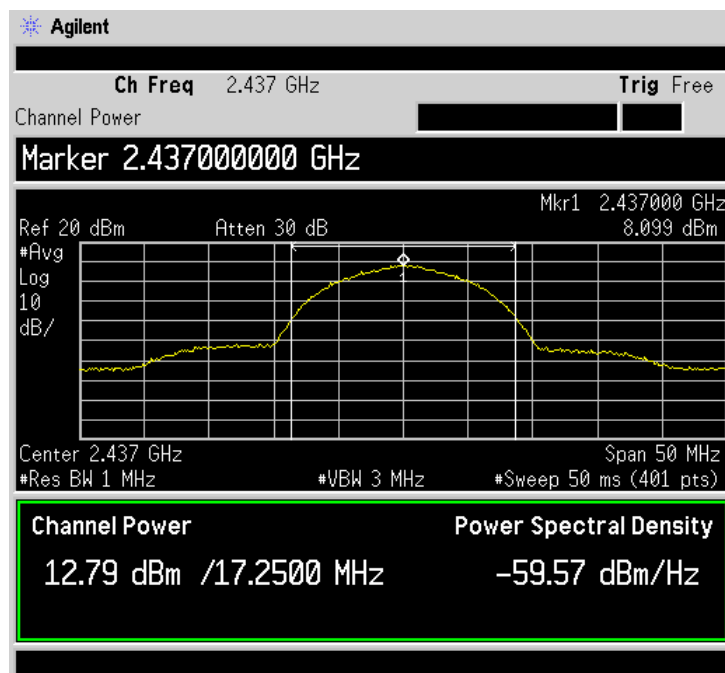


Figure 42: Peak conducted output power – 802.11b, Mid channel (6)

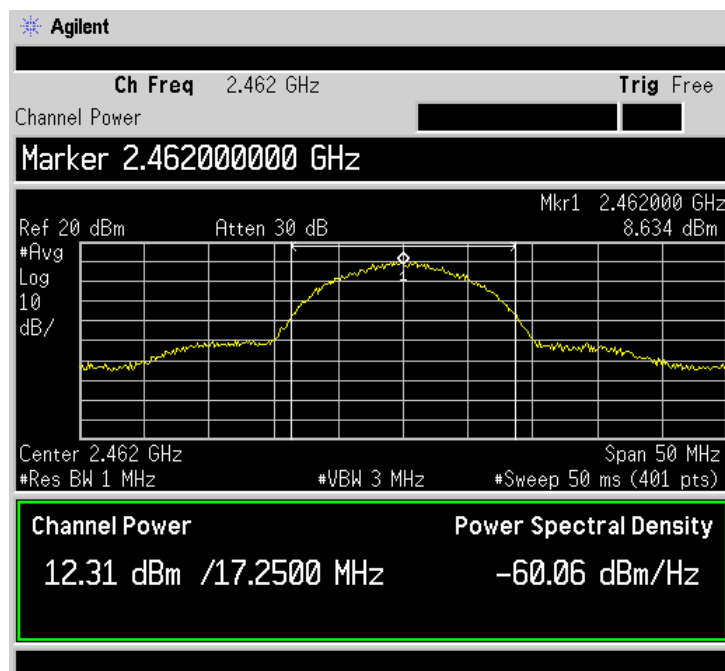


Figure 43: Peak conducted output power – 802.11b, High channel (11)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.5 CONDUCTED SPURIOUS EMISSION

6.1.5.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (d)	In any 100KHz band outside the intentional band, emissions shall be 30dB below the peak power
RSS-210	A8.5	In any 100KHz band outside the intentional band, emissions shall be 30dB below the peak power

6.1.5.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11b band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Set the start frequency on the Spectrum Analyzer as 40 MHz
4	Set the start frequency on the Spectrum Analyzer as 26.5 GHz
5	Examine the complete band for any spurious emissions that exceed the value that is 30dB below the peak power in the intentional band
6	Based on the measured spurious emissions outside the intentional band, the result is declared

6.1.5.3 RESULT

Band, Channel	Limit	Measured	Result
802.11b, 1 (Low)	30db below the peak power measured	Refer 6.1.5.4	Pass
802.11b, 6 (Mid)			
802.11b, 11 (High)			

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.5.4 RESULT (SUPPORTING GRAPHS / DATA)

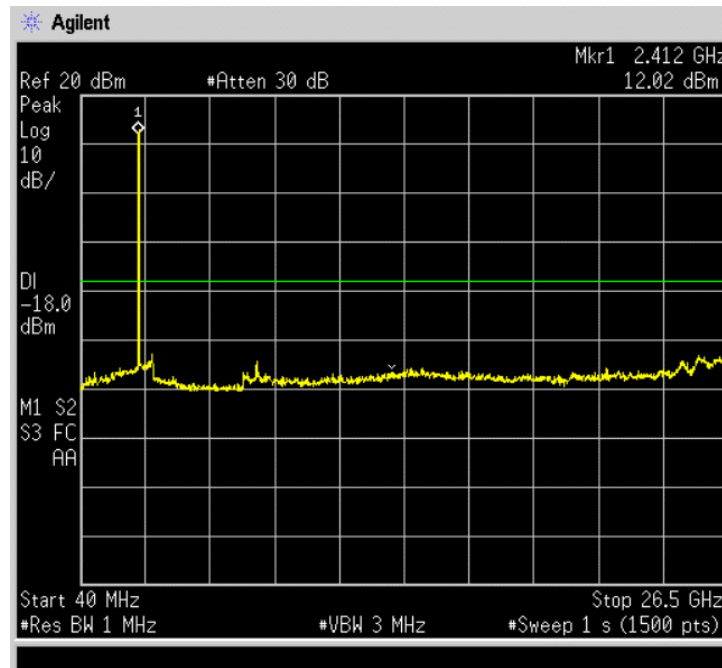


Figure 44: Conducted Spurious Emission – 802.11b, Low channel (1)

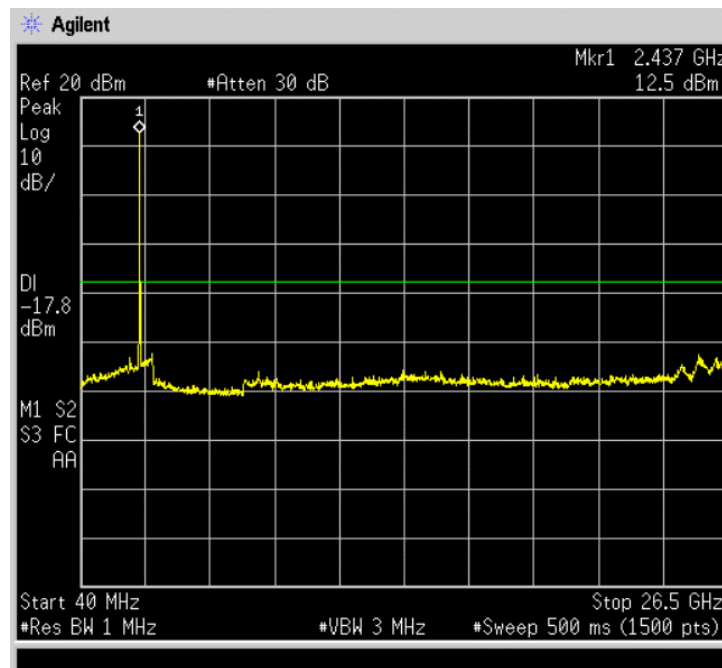


Figure 45: Conducted Spurious Emission – 802.11b, Mid channel (6)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

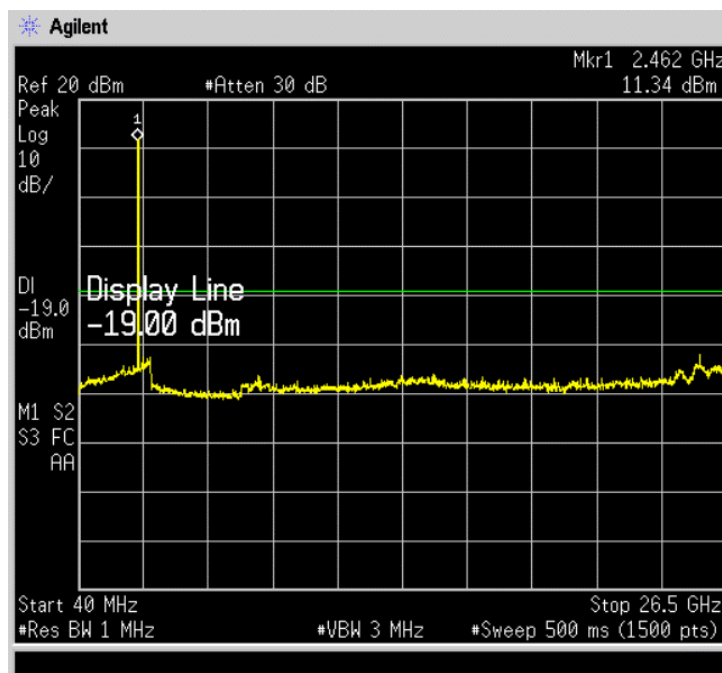


Figure 46: Conducted Spurious Emission – 802.11b, High channel (11)

6.1.6 POWER SPECTRAL DENSITY

6.1.6.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (e)	Conducted power spectral density shall not be greater than 8 dBm in any 3 kHz band
RSS-210	A8.2	Conducted power spectral density shall not be greater than 8 dBm in any 3 kHz band

6.1.6.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11b band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	In the Spectrum Analyzer set Resolution Bandwidth to 3 KHz and Video Bandwidth to 300KHz
4	Select Span of 300 KHz and Sweep time of 100s in the Spectrum Analyzer
5	Record the peak power shown as power spectral density
6	Based on the recorded value, the result is declared

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.6.3 RESULT

Band, Channel	Limit	Channel	Frequency (GHz)	Measured (dBm)	Result
802.11g, 1 (Low)	8 dBm	1	2.412	-6.788	Pass
802.11g, 6 (Mid)	8 dBm	6	2.437	-7.001	Pass
802.11g, 11 (High)	8 dBm	11	2.462	-7.015	Pass

6.1.6.4 RESULT (SUPPORTING GRAPHS / DATA)

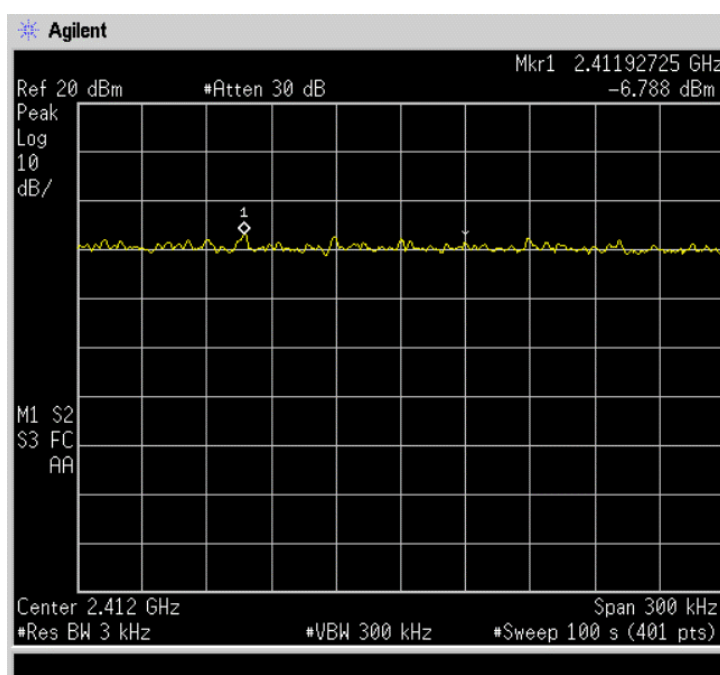


Figure 47: Power Spectral Density – 802.11b, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

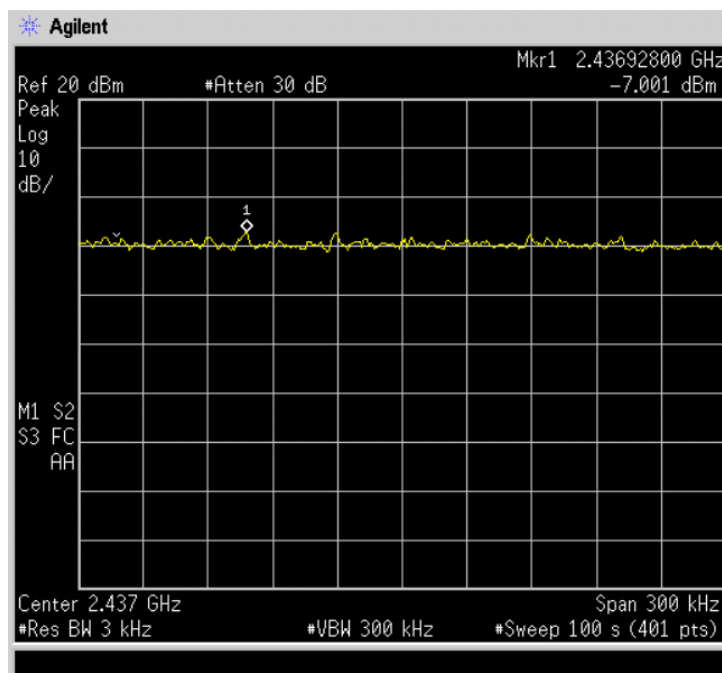


Figure 48: Power Spectral Density – 802.11b, Mid channel (6)

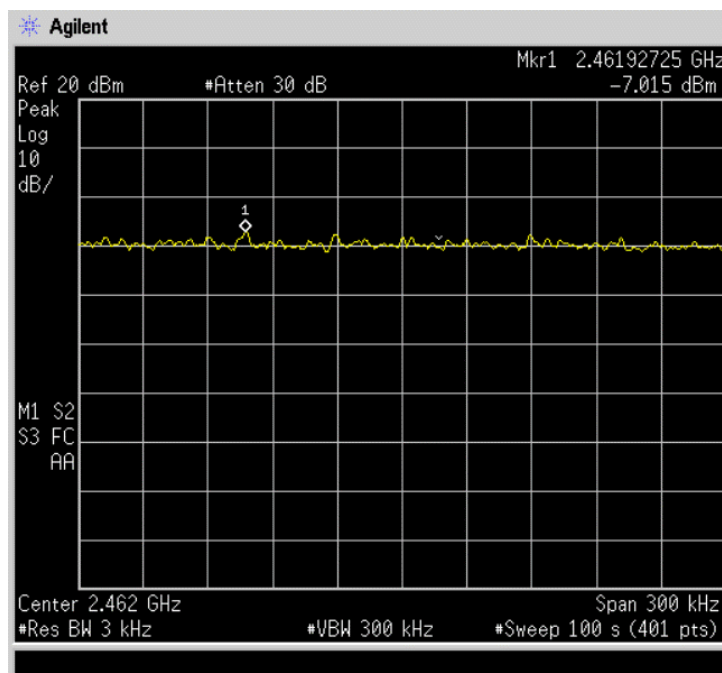


Figure 49: Power Spectral Density – 802.11b, High channel (11)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.1.7 BAND EDGE MEASUREMENTS – RADIATED

6.1.7.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Frequency range	Max Average Limit (dBμV/m) at 3 meter	Max Peak Limit (dBμV/m) at 3 meter
FCC Part 15, Subpart C	15.209	30 MHz to 88 MHz	40.0	60.0
		88 MHz to 216 MHz	43.5	63.5
		216 MHz to 960 MHz	46.0	66.0
		960 MHz to 1 GHz	54.0	74.0
		Above 1 GHz	54.0	74.0
RSS-210	2.6	30 MHz to 88 MHz	40.0	60.0
		88 MHz to 216 MHz	43.5	63.5
		216 MHz to 960 MHz	46.0	66.0
		960 MHz to 1 GHz	54.0	74.0
		Above 1 GHz	54.0	74.0

6.1.7.2 TEST PROCEDURE

S. No	Procedure
1	Test procedure is as per ANSI C63.4: 2000
2	EUT is placed on a 0.8m non-conductive table. This table is positioned on an automated turn table.
3	Antennas are positioned 3m away from the EUT
4	EUT is configured to function with the default channel in the selected band
5	A peak scan was carried out at various azimuth angles and antenna heights fixed to 1m.
6	The highest level of Radiated Emission was recorded
7	Peak and Average measurements were carried out above 1GHz
8	These values are compared against the limit specified by the standard

6.1.7.3 RESULT

Frequency (MHz)	Measured Value Horizontal (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result	Detector
2398.5	27.06	54	26.94	Pass	Average
2395	25.02	54	28.98	Pass	Average
2393	22.57	54	31.43	Pass	Average
2483.5	29.82	54	24.18	Pass	Average
2486	29.58	54	24.42	Pass	Average
2489	27.85	54	26.15	Pass	Average

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

Frequency (MHz)	Measured Value Vertical (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2398.5	26.06	54	27.94	Pass	Average
2395	24.02	54	29.98	Pass	Average
2393	22.57	54	31.43	Pass	Average
2483.5	28.31	54	25.69	Pass	Average
2486	28.01	54	25.99	Pass	Average
2489	26.52	54	27.48	Pass	Average

Frequency (MHz)	Measured Value Horizontal (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399.5	44.8	74	29.20	Pass	Peak
2395.5	45.27	74	28.73	Pass	Peak
2393	38.44	74	35.56	Pass	Peak
2484	38.96	74	35.04	Pass	Peak
2486	37.83	74	36.17	Pass	Peak
2488.5	39.17	74	34.83	Pass	Peak

Frequency (MHz)	Measured Value Vertical (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399.5	43.69	74	30.31	Pass	Peak
2395.5	41.01	74	32.99	Pass	Peak
2393	37.53	74	36.47	Pass	Peak
2484	38.06	74	35.94	Pass	Peak
2486	37.3	74	36.70	Pass	Peak
2488.5	36.87	74	37.13	Pass	Peak

6.1.8 BAND EDGE MEASUREMENTS – CONDUCTED

6.1.8.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (d)	Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

6.1.8.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1) and High(13) channels of the 802.11b band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	In the Spectrum Analyzer set Resolution Bandwidth to 100 KHz and Video Bandwidth to 100KHz
4	Select Span of 115 MHz and Sweep time of 1s in the Spectrum Analyzer
5	Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
6	Based on the recorded value, the result is declared

6.1.8.3 RESULT (SUPPORTING GRAPHS / DATA)

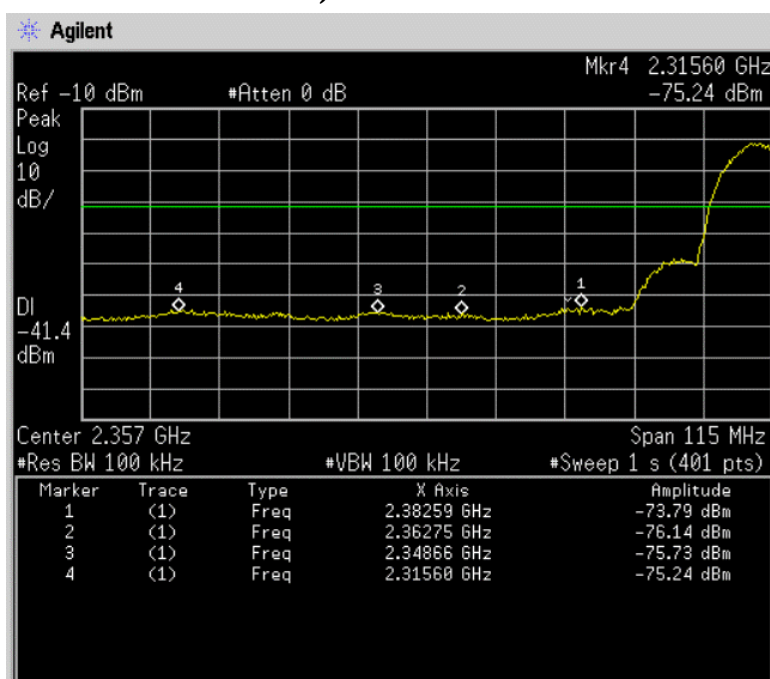


Figure 50: Low Band Edge – 802.11b, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

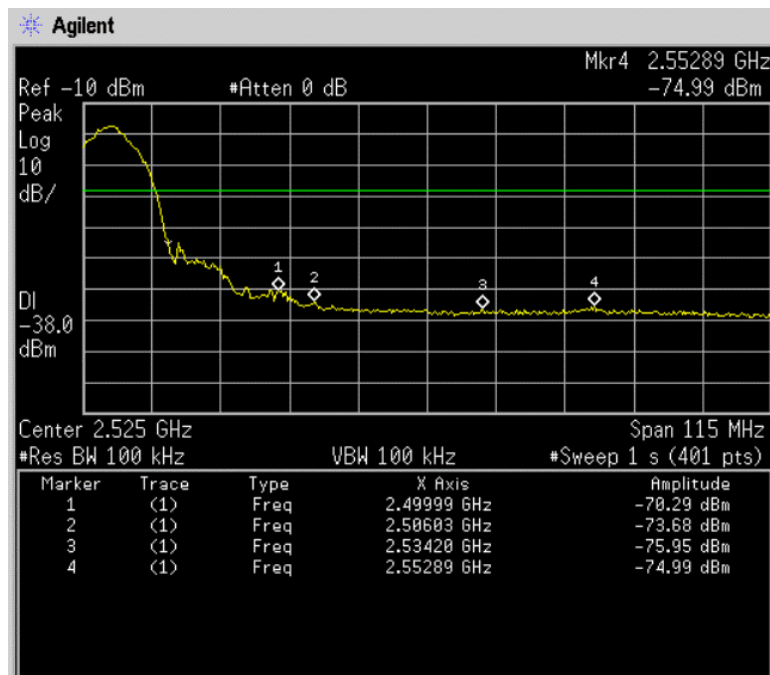


Figure 51: High Band Edge – 802.11b, High channel (13)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2 WI-FI 801.11g MODE

6.2.1 RESTRICTED BAND OF OPERATION

6.2.1.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limits
FCC Part 15, Subpart C	15.205	In the operating range of this product, the limits are: $f_L > 2.39 \text{ GHz}$, $f_H < 2.4835 \text{ GHz}$
RSS-210	2.2	In the operating range of this product, the limits are: $f_L > 2.39 \text{ GHz}$, $f_H < 2.655 \text{ GHz}$

f_L = Lower operating frequency range

f_H = Higher operating frequency range

6.2.1.2 TEST PROCEDURE

S. No	Procedure
1	Connect the transmitter output to a Spectrum Analyzer
2	Select the lowest possible channel of the carrier (Eg. 1 st channel)
3	Measure the frequency at 30dBm below the peak power at this carrier and record this as f_L
4	Select the highest possible channel of the carrier (Eg. 13 th channel)
5	Measure the higher frequency at 30dBm below the peak power at this carrier and record this as f_H

Note: While it may be sufficient that the center frequency of the carrier is within the limits, the lower and higher frequencies of the carrier envelop have been taken into account for this measurement.

6.2.1.3 RESULT

Parameter	Limit	Measured	Result
f_L	Min 2.39 GHz (FCC and RSS-210)	2.401578	Pass
f_H	Max 2.4835 GHz (FCC)	2.481516	Pass
f_H	Max 2.655 GHz (RSS-210)	2.481516	Pass

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.1.4 RESULT (SUPPORTING GRAPHS / DATA)

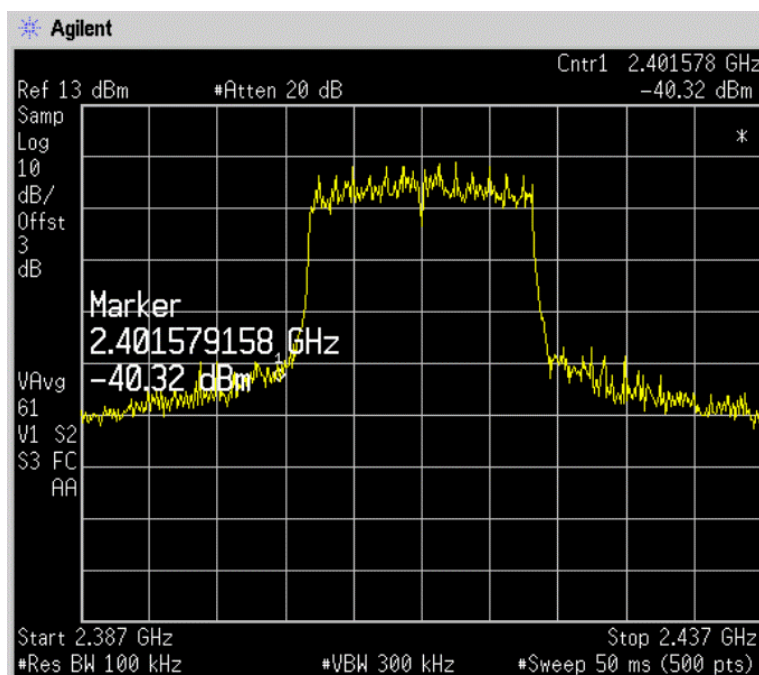


Figure 52: Measured f_L at Channel 1 – 802.11g

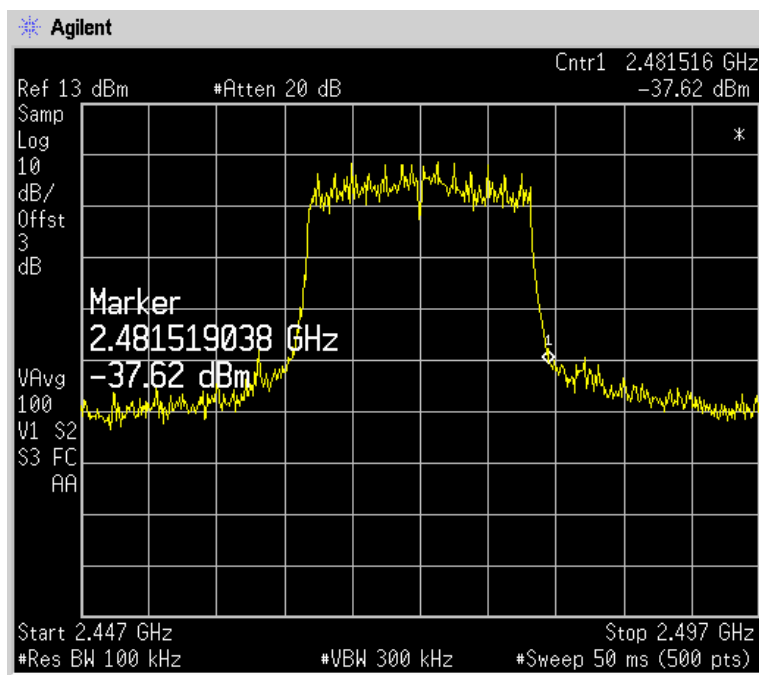


Figure 53: Measured f_H at Channel 13 – 802.11g

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.2 RADIATED EMISSION

6.2.2.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Frequency range	Max Limit (dBμV/m) at 3 meter
FCC Part 15, Subpart C	15.209	30 MHz to 88 MHz	40.0
		88 MHz to 216 MHz	43.5
		216 MHz to 960 MHz	46.0
		960 MHz to 1 GHz	54.0
		Above 1 GHz	54.0
RSS-210	2.6	30 MHz to 88 MHz	40.0
		88 MHz to 216 MHz	43.5
		216 MHz to 960 MHz	46.0
		960 MHz to 1 GHz	54.0
		Above 1 GHz	54.0

6.2.2.2 TEST PROCEDURE

S. No	Procedure
1	Test procedure is as per ANSI C63.4: 2000
2	EUT is placed on a 0.8m non-conductive table. This table is positioned on an automated turn table.
3	Antennas are positioned 3m away from the EUT
4	EUT is configured to function with the default channel in the selected band
5	A peak scan was carried out at various azimuth angles and antenna heights ranging from 1m to 4m.
6	The highest level of Radiated Emission was recorded
7	Quasi-peak measurements were carried out at the identified peaks for <1GHz and Average measurements were carried out above 1GHz
8	These values are compared against the limit specified by the standard

6.2.2.3 RESULT

Parameter	Limit	Measured	Result
Radiated Emission	Refer 6.1.2.1	Refer 6.1.2.4	Pass

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.2.4 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 1

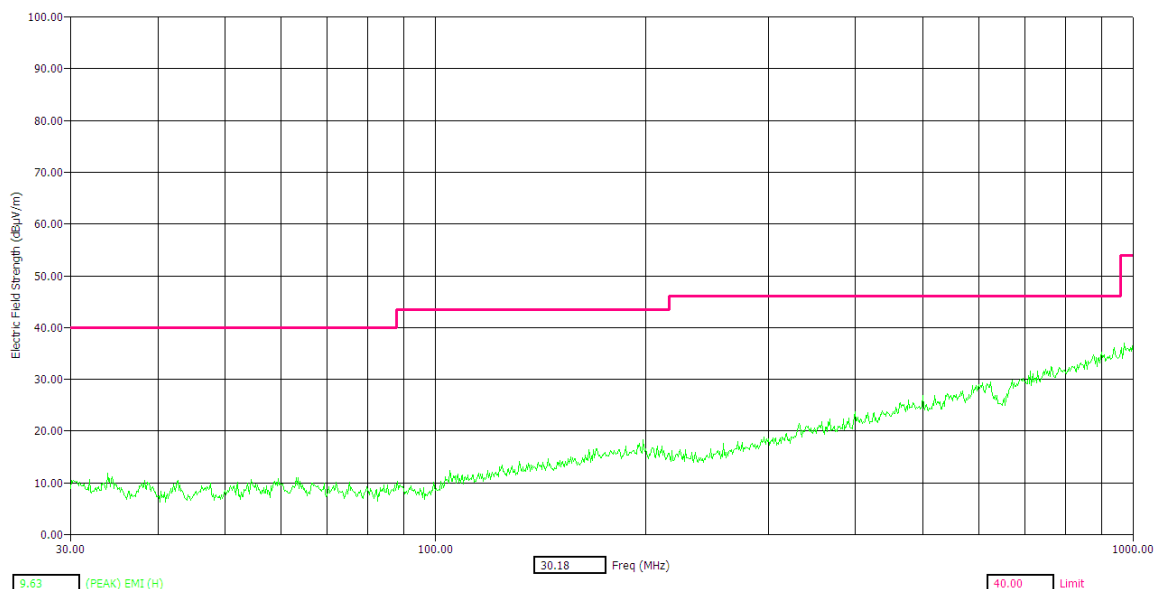


Figure 54: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11g, Channel 1

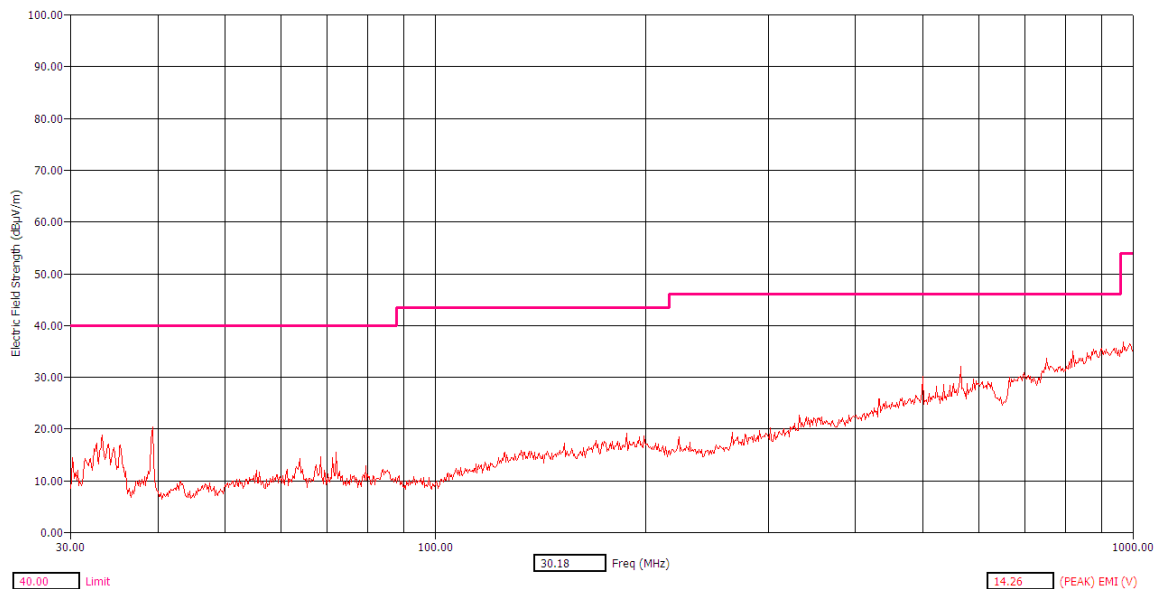


Figure 55: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11g, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbl Agl (deg)	Freq (Max) (MHz)
32.35	H	2.44	40.00	-37.56	21.57	100.00	2.21	11.06	32.40	185.10	32.34
39.35	V	13.18	40.00	-26.82	33.41	114.00	2.43	9.88	32.54	247.70	39.57
498.85	V	30.13	46.00	-15.87	34.09	100.00	10.17	18.19	32.33	171.50	498.83
565.25	V	29.97	46.00	-16.03	32.23	206.00	10.93	19.02	32.21	180.70	565.31
566.00	H	20.81	46.00	-25.19	23.46	303.00	10.93	18.63	32.20	184.00	565.82

Figure 56: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11g, Channel 1

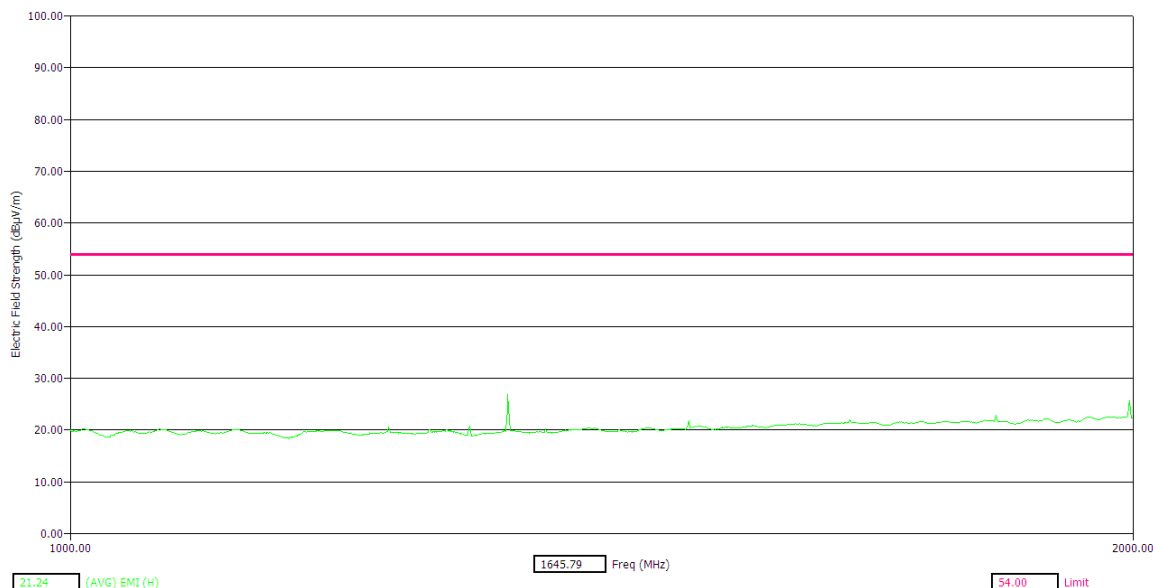


Figure 57: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11g, Channel 1

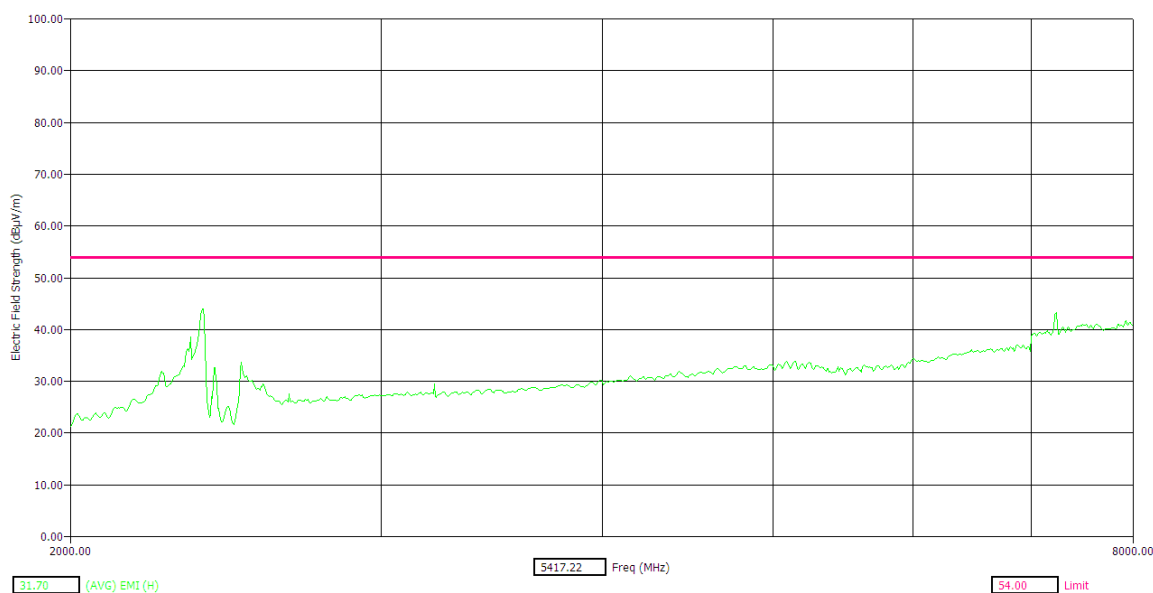


Figure 58: Radiated emission results (Average) – Horizontal polarization – 2 GHz to 8GHz – 802.11g, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNG2-L
IC ID	1422A-SYNG2L

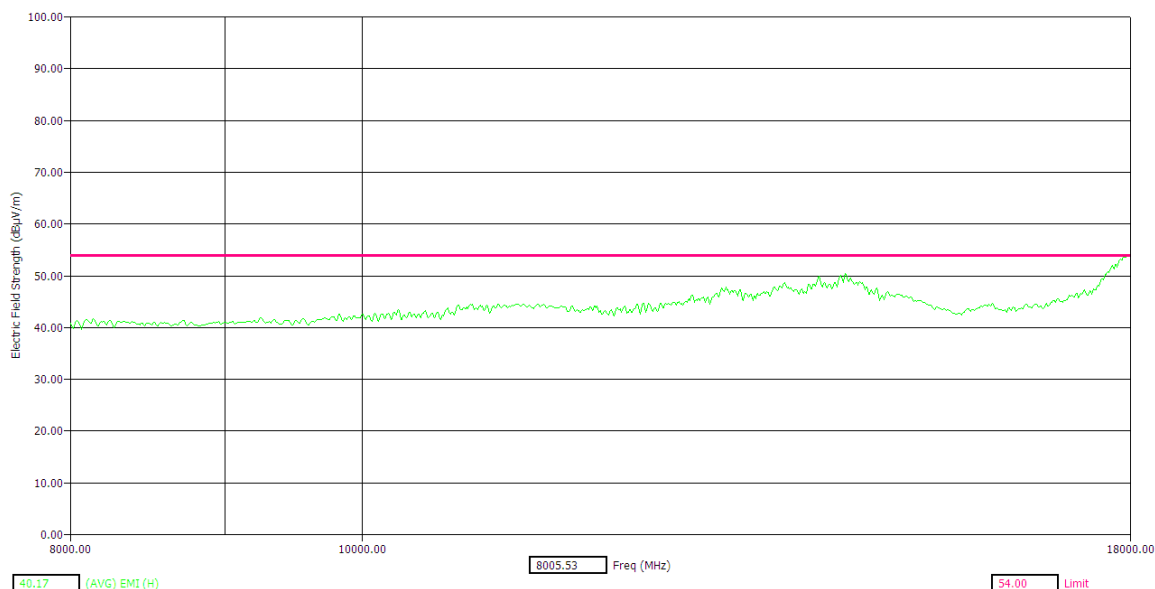


Figure 59: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11g, Channel 1

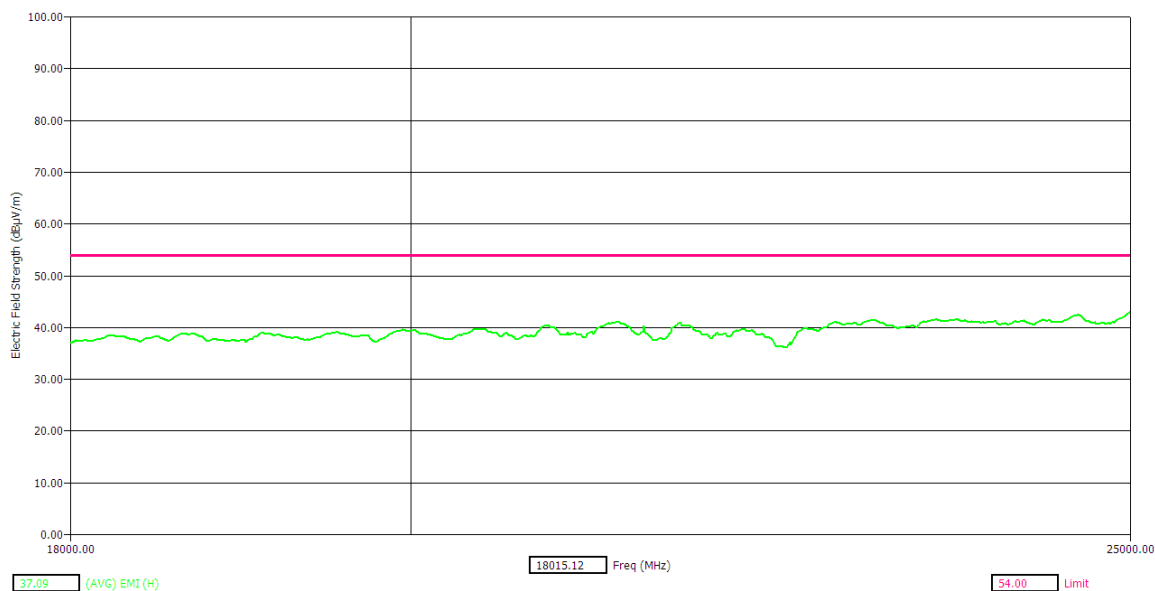


Figure 60: Radiated emission results (Average) – Horizontal polarization – 18 GHz to 25 GHz – 802.11g, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

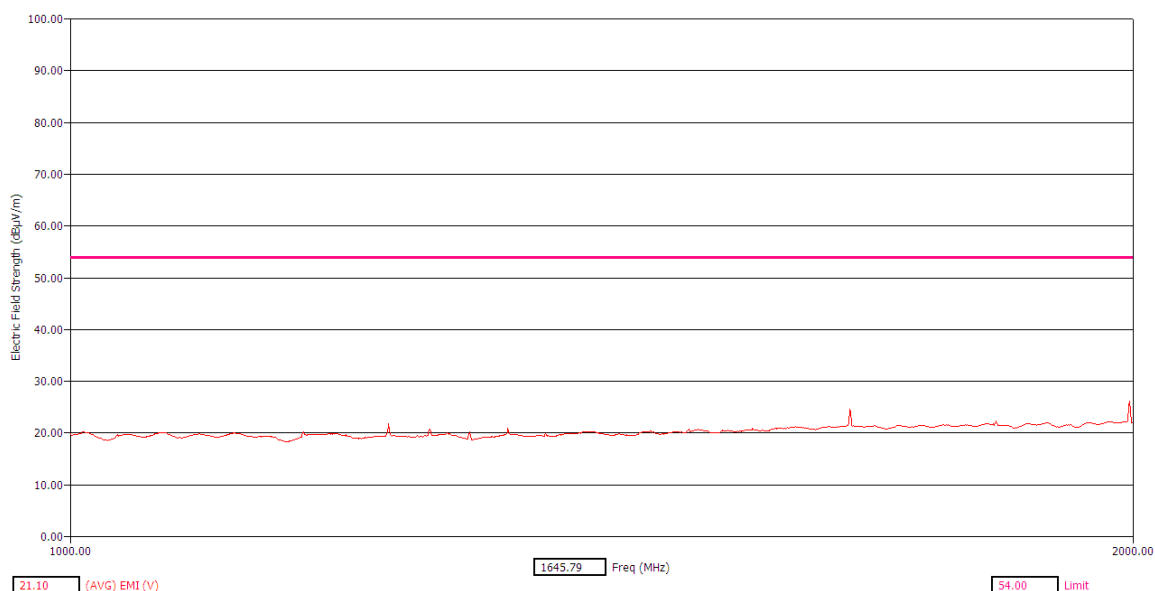


Figure 61: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11g, Channel 1

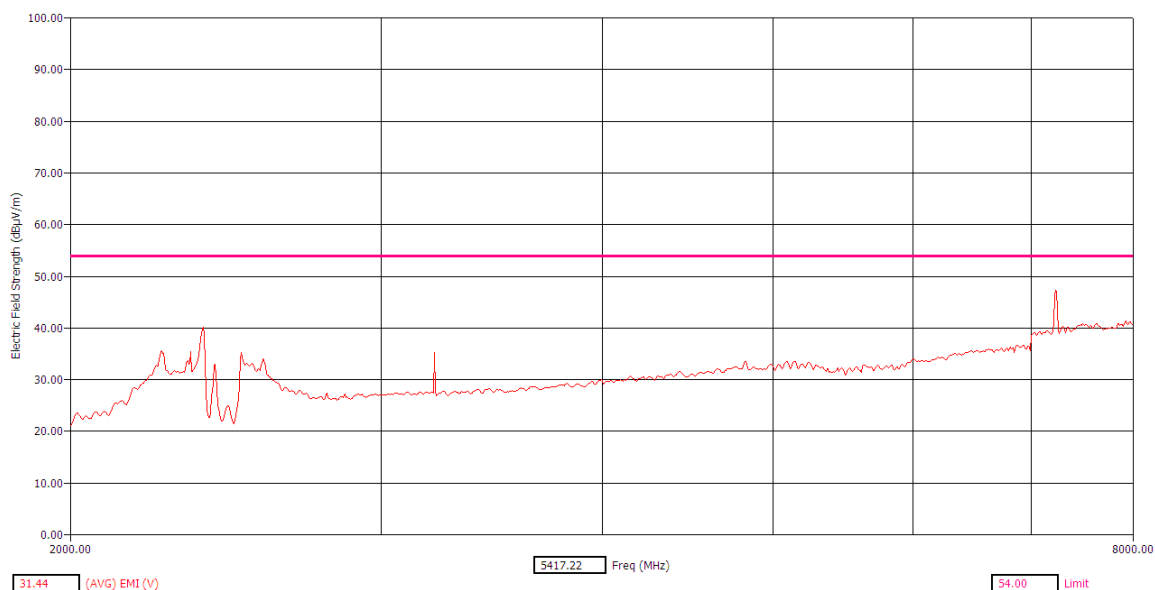


Figure 62: Radiated emission results (Average) – Vertical polarization – 2 GHz to 8 GHz – 802.11g, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

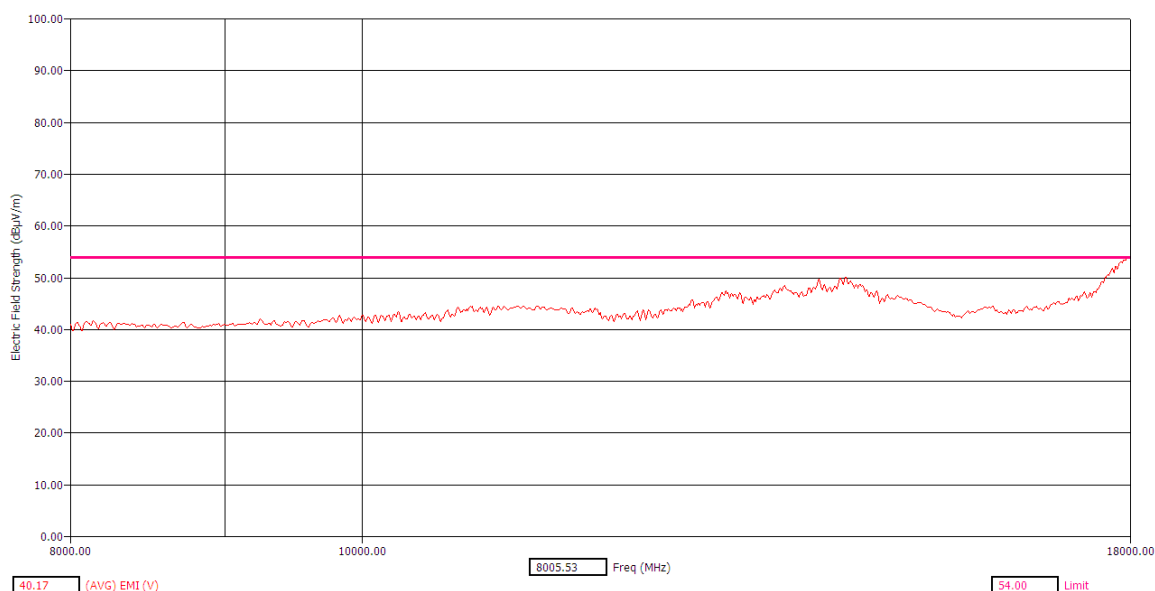


Figure 63: Radiated emission results (Average) – Vertical polarization –8 GHz to 18 GHz – 802.11g, Channel 1

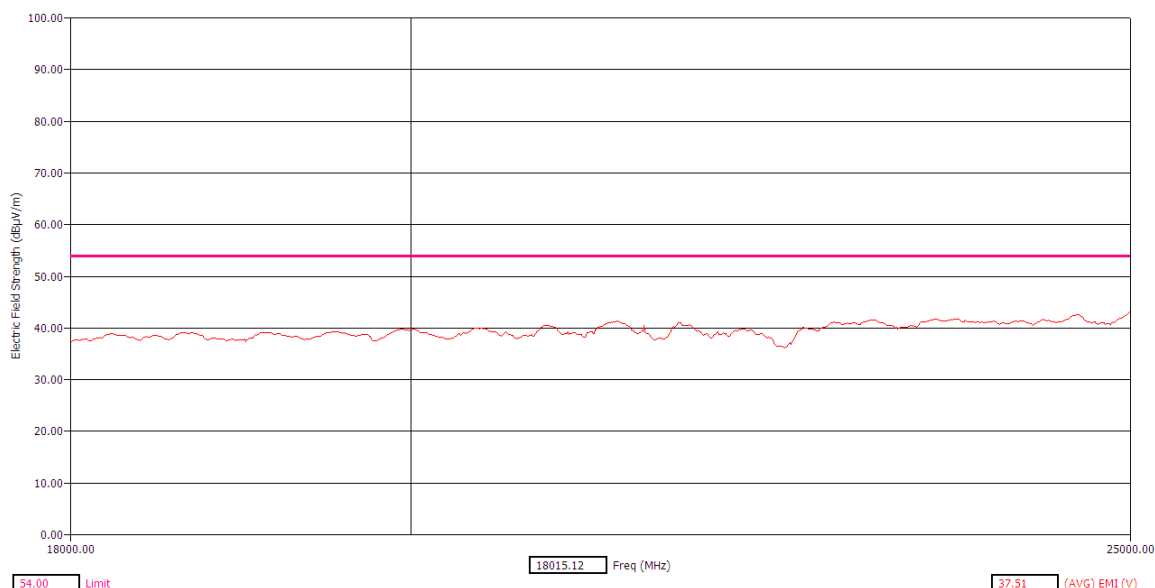


Figure 64: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11g, Channel 1

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.2.5 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 6

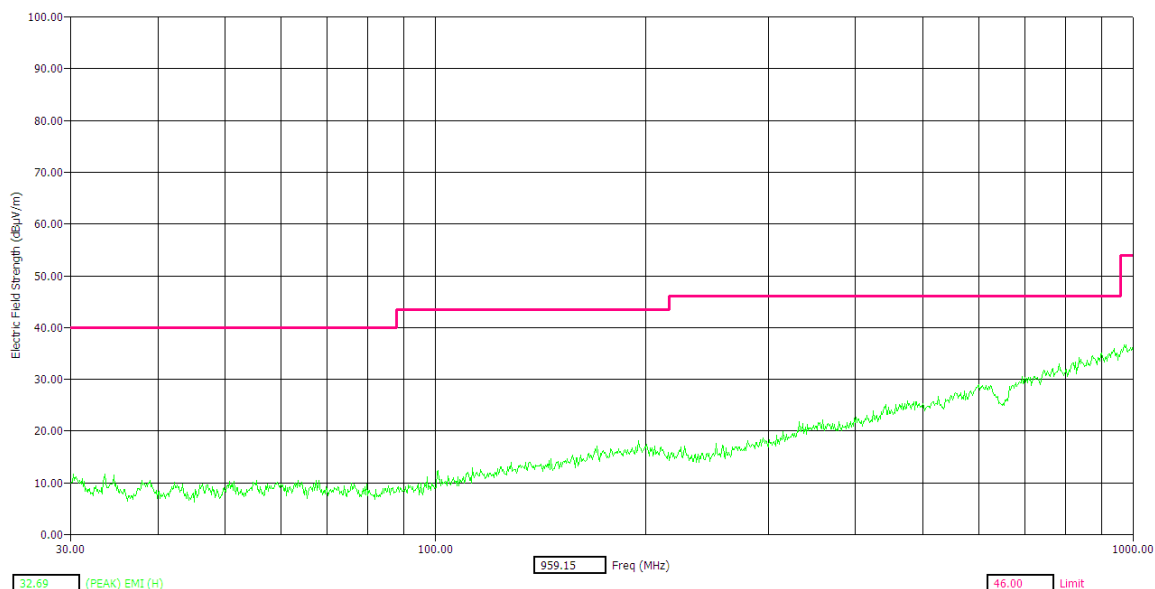


Figure 65: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11g, Channel 6

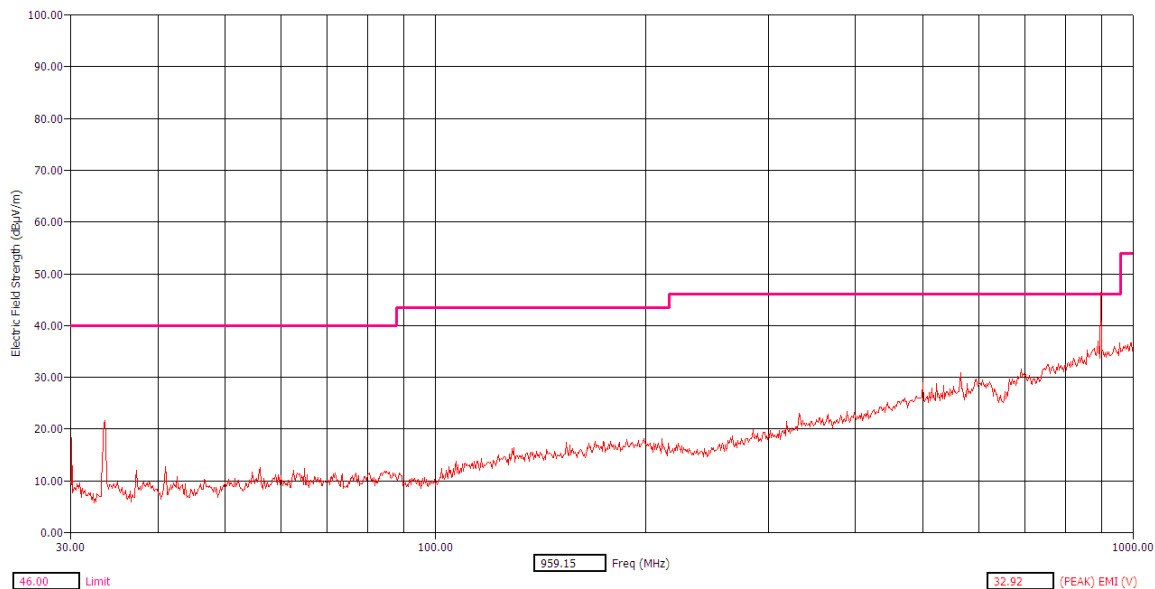


Figure 66: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11g, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Tbl Agl (deg)	Freq (Max) (MHz)
33.55	V	17.45	40.00	-22.55	38.02	105.00	2.25	9.60	32.42	179.90	33.62
565.30	V	30.11	46.00	-15.89	32.36	100.00	10.93	19.02	32.21	44.70	565.29
898.55	V	28.42	46.00	-17.58	22.85	100.00	13.74	23.51	31.68	180.10	898.54
899.10	V	28.51	46.00	-17.49	22.79	100.00	13.74	23.50	31.53	275.60	899.10

Freq (MHz)	Pol	(QP) EMI (dBμV/m)	Limit (dBμV/m)	(QP) Margin (dB)	(QP) Trace (dBμV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Tbl Agl (deg)	Freq (Max) (MHz)
33.55	H	4.29	40.00	-35.71	23.70	142.00	2.26	10.75	32.42	233.00	33.79
195.53	H	10.76	43.50	-32.74	23.38	194.00	6.17	13.35	32.13	246.20	195.59
280.34	H	11.19	46.00	-34.81	23.11	236.00	7.44	12.84	32.20	180.00	280.53
835.26	H	26.26	46.00	-19.74	22.89	392.00	13.25	21.92	31.80	335.20	835.12

Figure 67: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11g, Channel 6

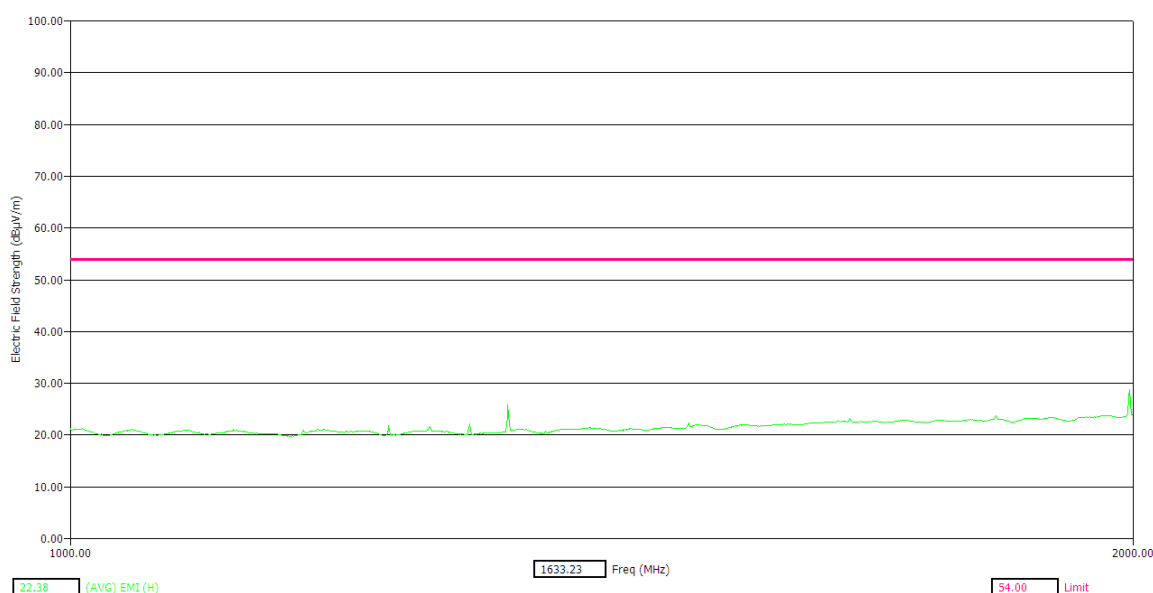


Figure 68: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11g, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

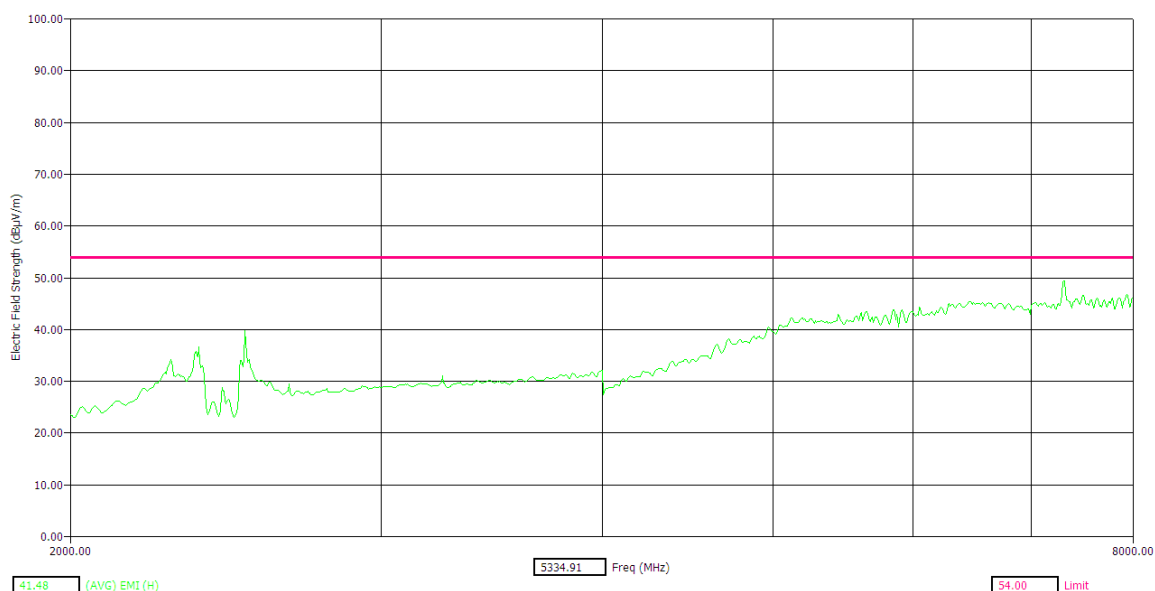


Figure 69: Radiated emission results (Average) – Horizontal polarization –2 GHz to 8GHz – 802.11g, Channel 6

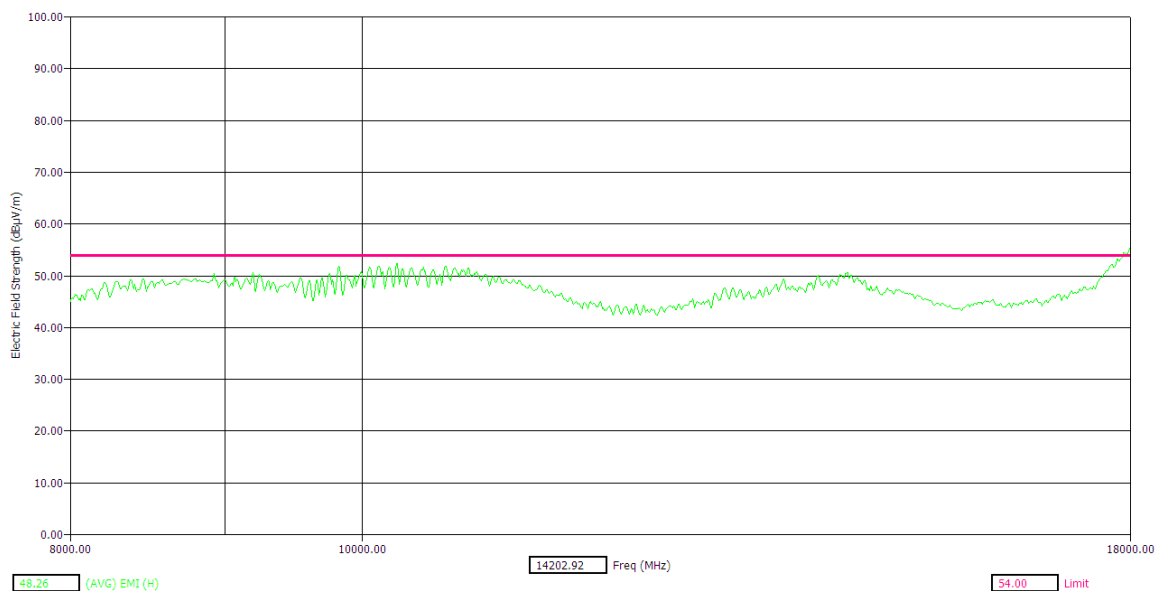


Figure 70: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11g, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

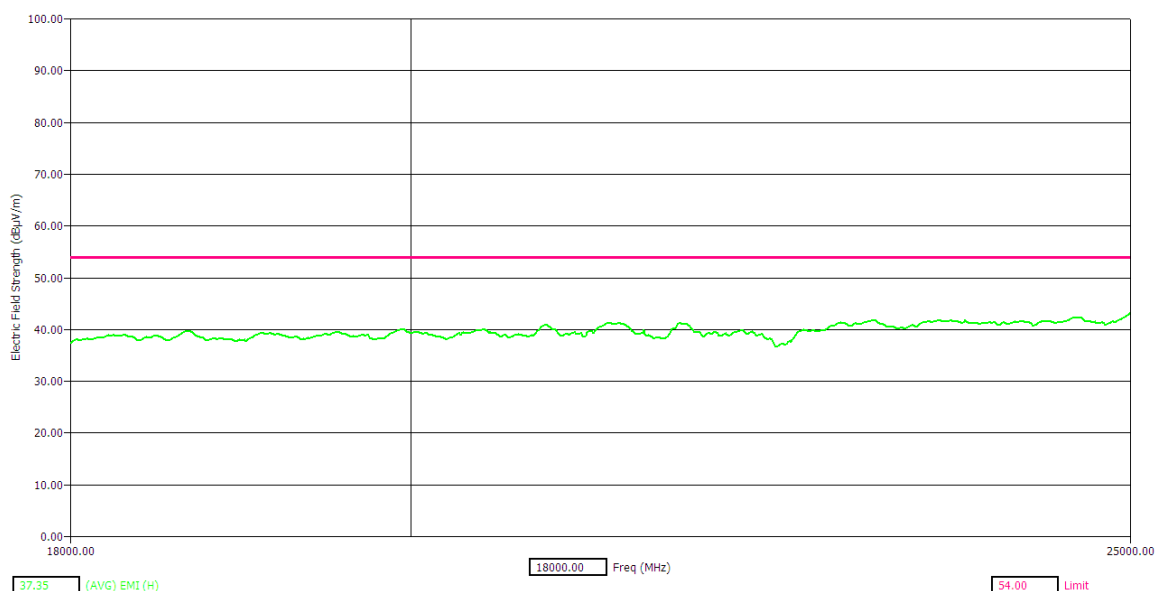


Figure 71: Radiated emission results (Average) – Horizontal polarization – 18 GHz to 25 GHz – 802.11g, Channel 6

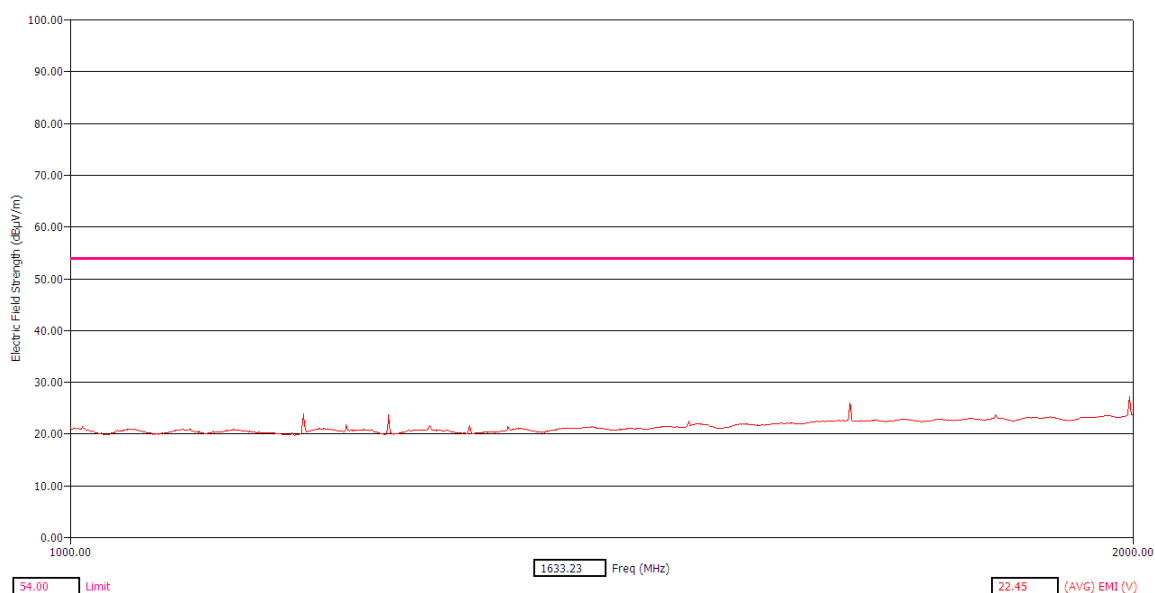


Figure 72: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11g, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

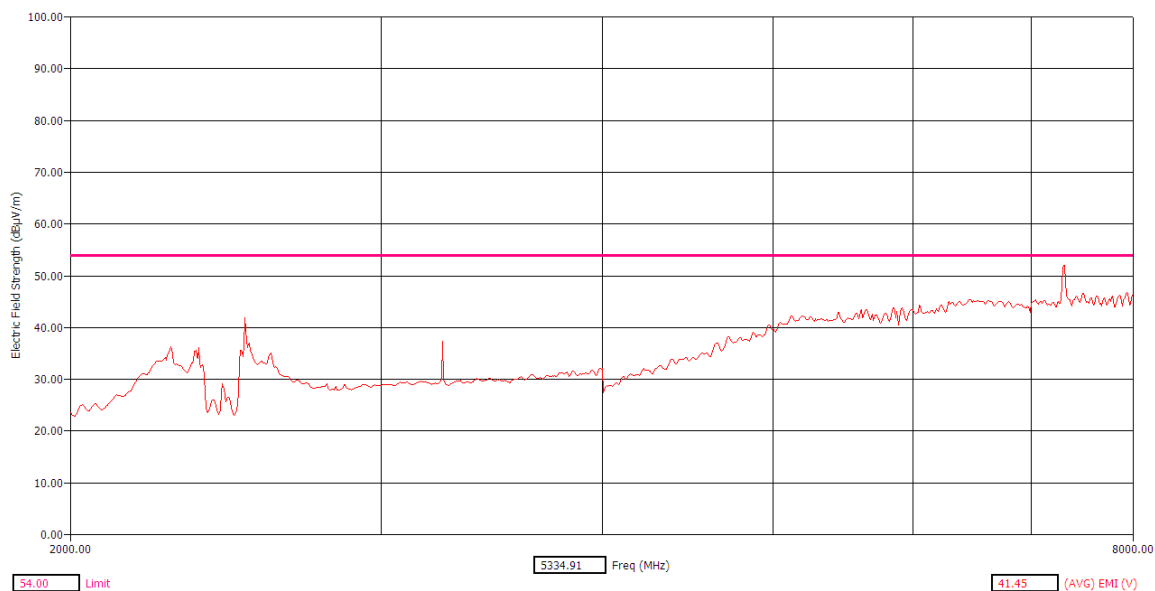


Figure 73: Radiated emission results (Average) – Vertical polarization –2 GHz to 8 GHz – 802.11g, Channel 6

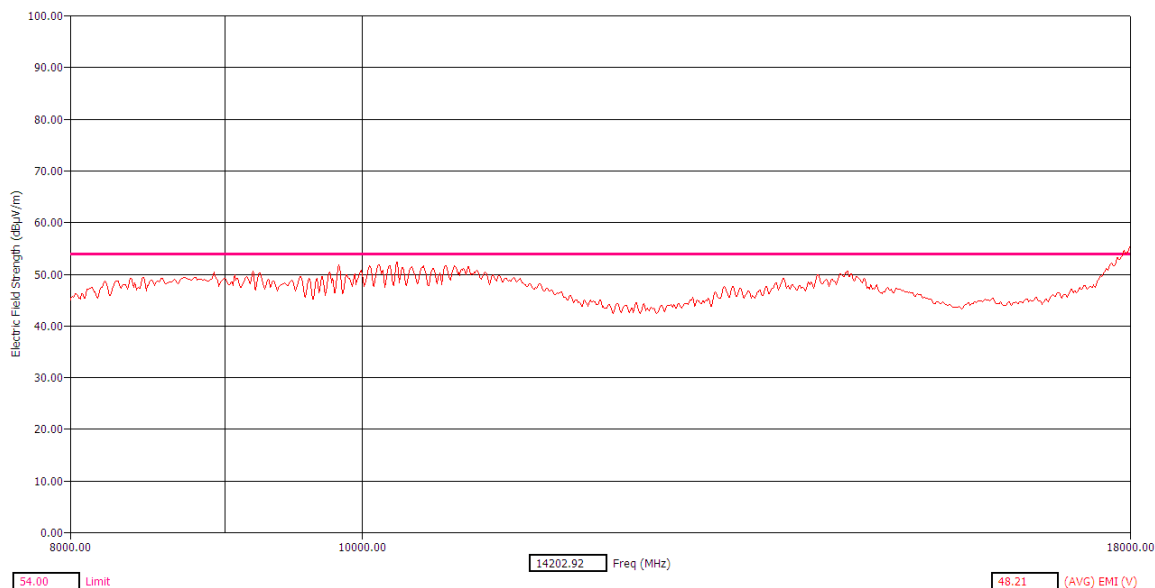


Figure 74: Radiated emission results (Average) – Vertical polarization –8 GHz to 18 GHz – 802.11g, Channel 6

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

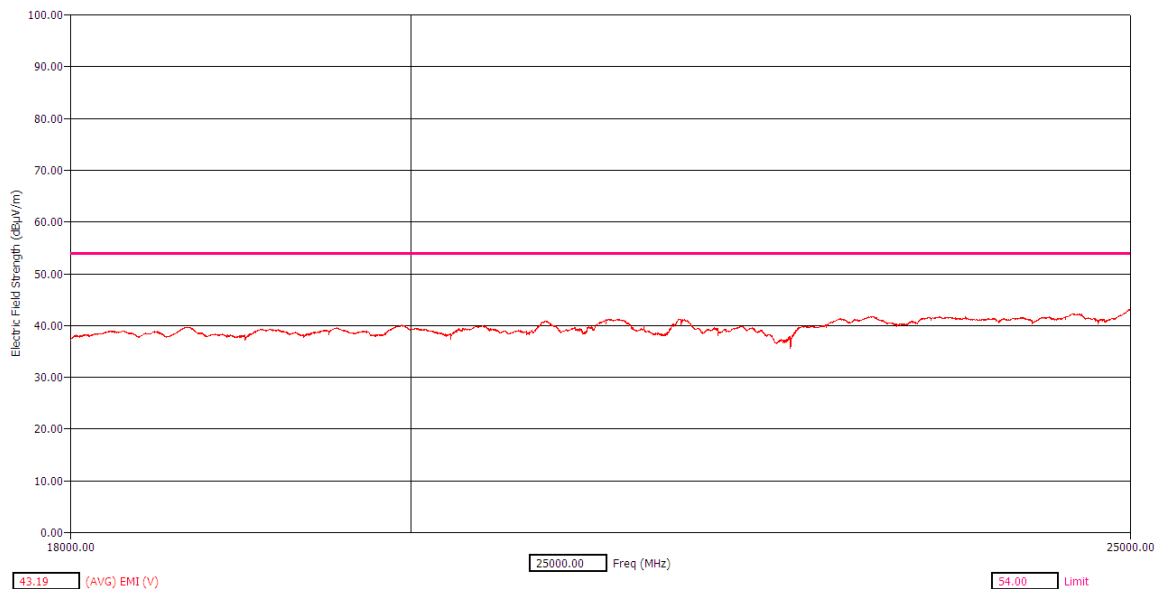


Figure 75: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11g, Channel 6

6.2.2.6 RESULT (SUPPORTING GRAPHS / DATA) – CHANNEL 11

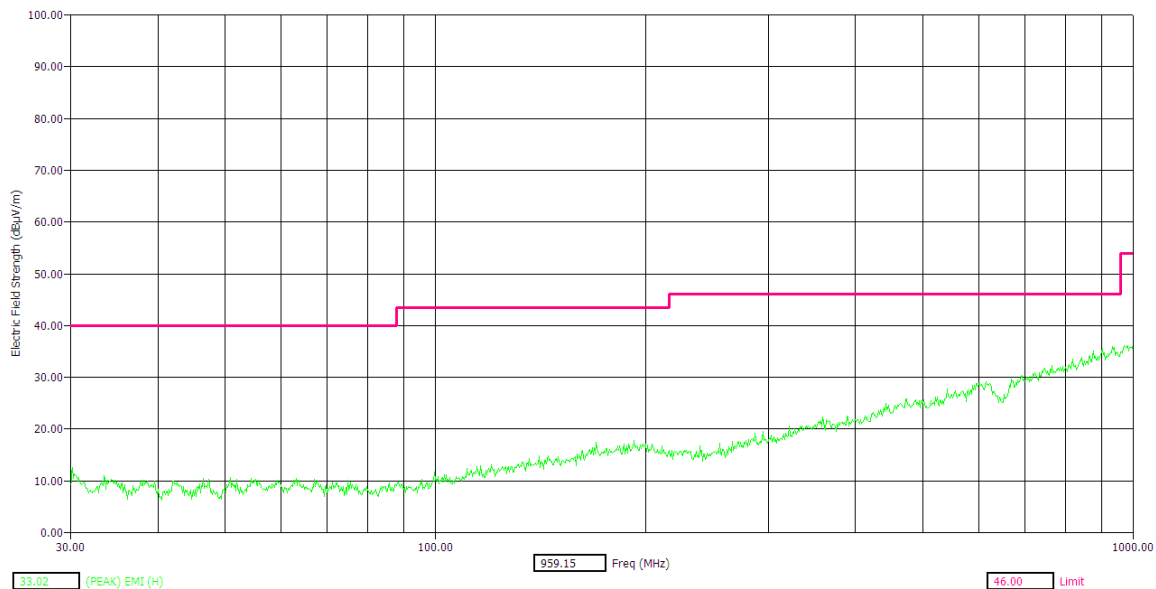


Figure 76: Radiated emission results (Peak) – Horizontal polarization – 30 MHz to 1 GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

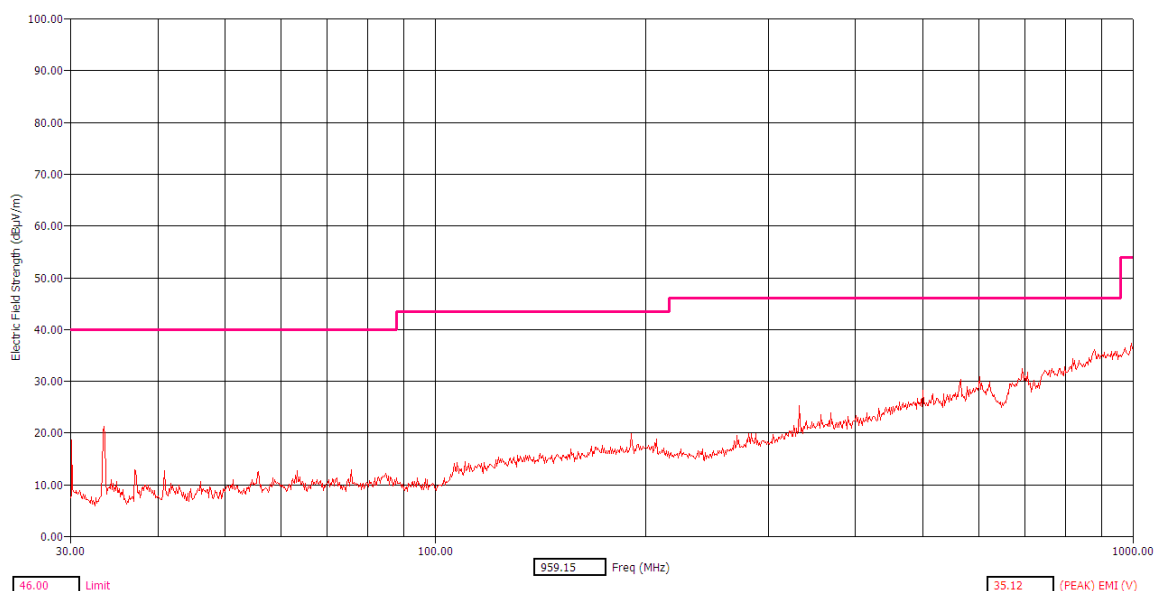


Figure 77: Radiated emission results (Peak) – Vertical polarization – 30 MHz to 1 GHz – 802.11g, Channel 11

Freq (MHz)	Pol	(QP) EMI (dBµV/m)	Limit (dBµV/m)	(QP) Margin (dB)	(QP) Trace (dBµV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbl Agl (deg)	Freq (Max) (MHz)
33.45	V	18.31	40.00	-21.69	38.90	128.00	2.25	9.59	32.42	180.00	33.50
602.10	V	26.19	46.00	-19.81	27.11	169.00	11.16	20.27	32.35	180.10	602.12

Freq (MHz)	Pol	(QP) EMI (dBµV/m)	Limit (dBµV/m)	(QP) Margin (dB)	(QP) Trace (dBµV)	Twr Ht (cm)	Cable (dB)	Transducer (dB)	Preamp (dB)	EUT Ttbl Agl (deg)	Freq (Max) (MHz)
50.90	H	4.16	40.00	-35.84	24.19	222.00	2.81	9.88	32.72	345.30	50.86
192.51	H	10.29	43.50	-33.21	23.04	129.00	6.09	13.31	32.15	165.00	192.35
332.57	V	19.86	46.00	-26.14	28.41	128.00	8.16	15.51	32.23	185.90	332.58
442.65	H	17.94	46.00	-28.06	23.50	400.00	9.53	16.86	31.96	315.30	442.48
534.58	V	21.66	46.00	-24.34	25.81	100.00	10.50	18.59	33.24	339.50	534.60
541.86	H	20.06	46.00	-25.94	23.54	372.00	10.59	18.25	32.32	287.70	542.04

Figure 78: Radiated emission results – Quasi-peak table - 30 MHz to 1 GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

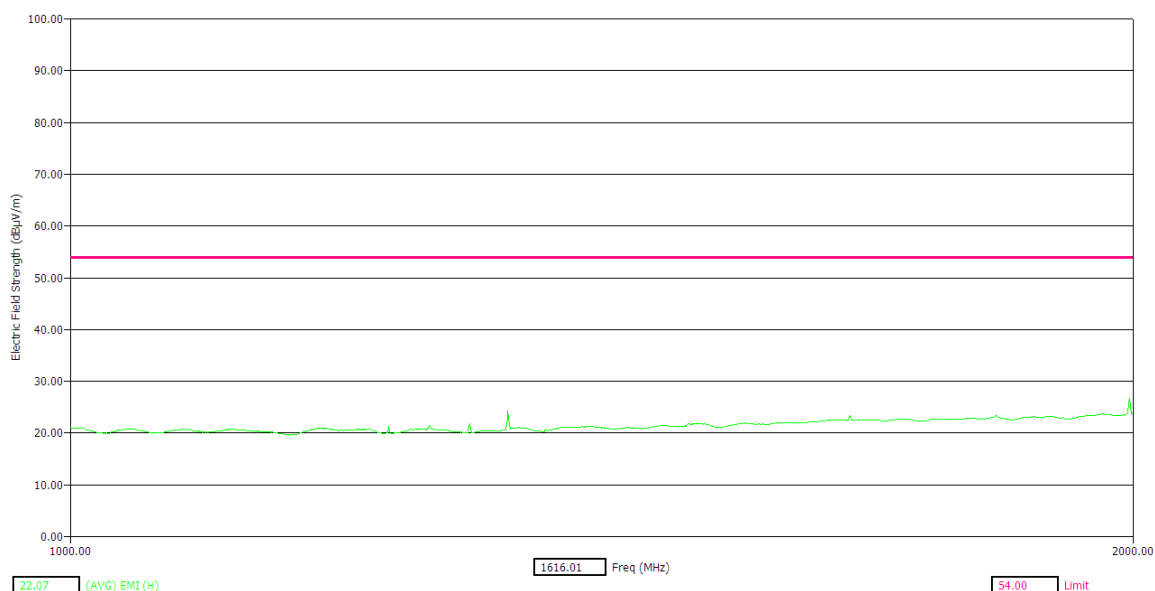


Figure 79: Radiated emission results (Average) – Horizontal polarization – 1 GHz to 2 GHz – 802.11g, Channel 11

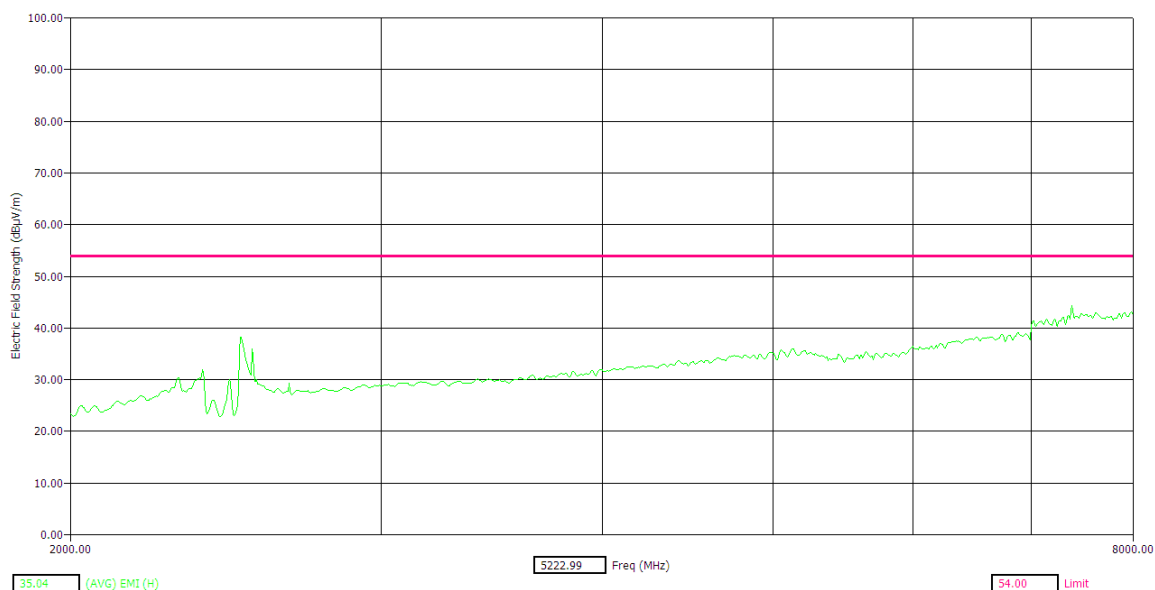


Figure 80: Radiated emission results (Average) – Horizontal polarization – 2 GHz to 8GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

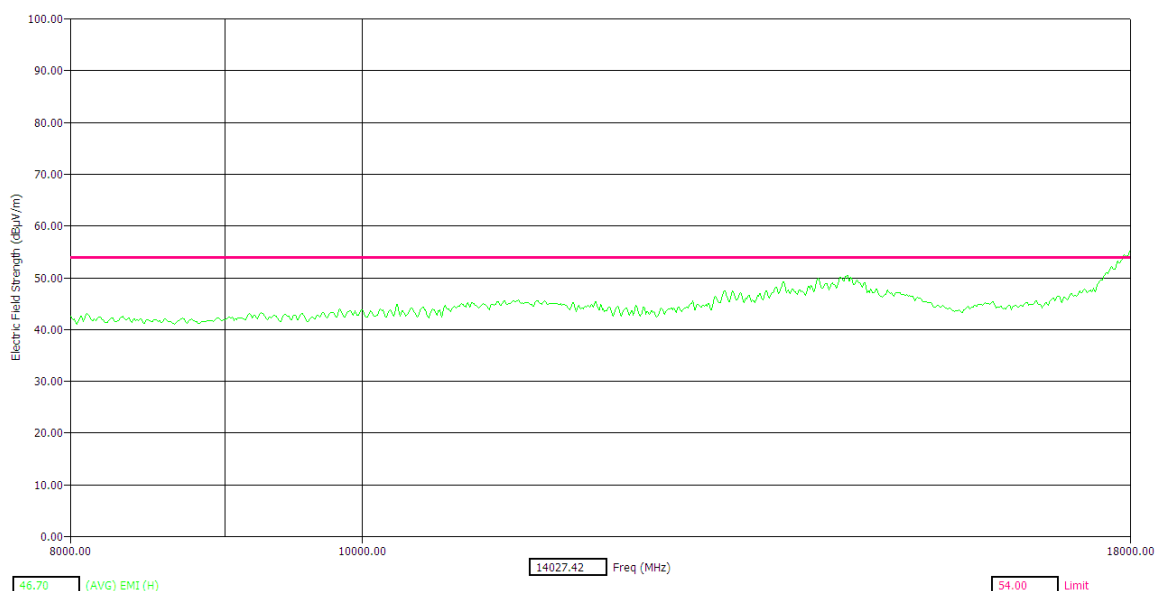


Figure 81: Radiated emission results (Average) – Horizontal polarization –8 GHz to 18GHz – 802.11g, Channel 11

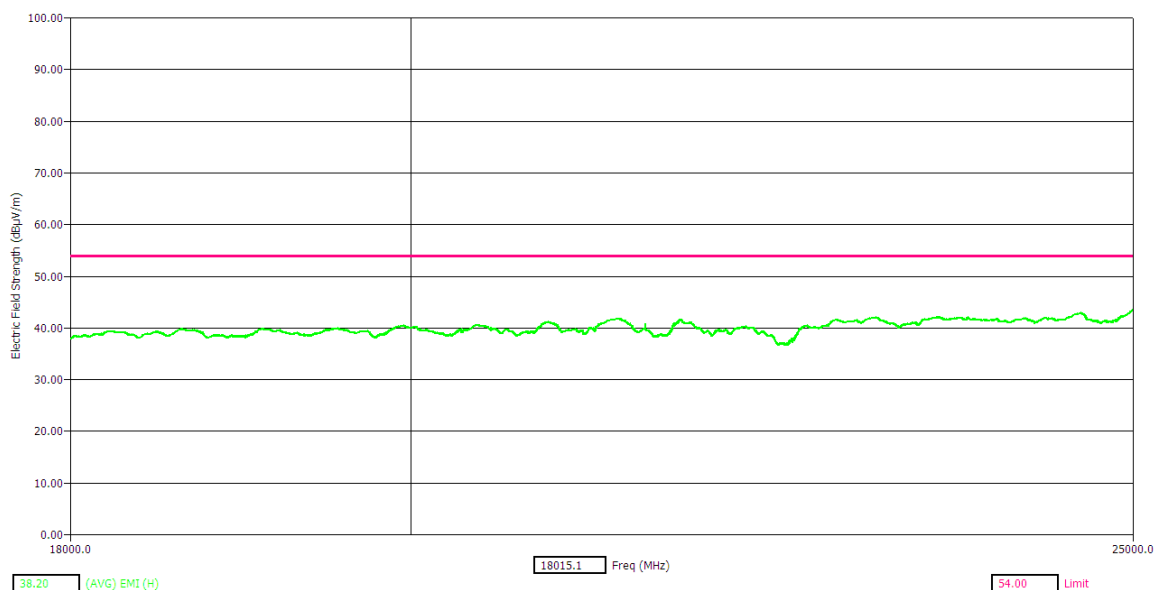


Figure 82: Radiated emission results (Average) – Horizontal polarization – 18 GHz to 25 GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNCG2-L
IC ID	1422A-SYNCG2L

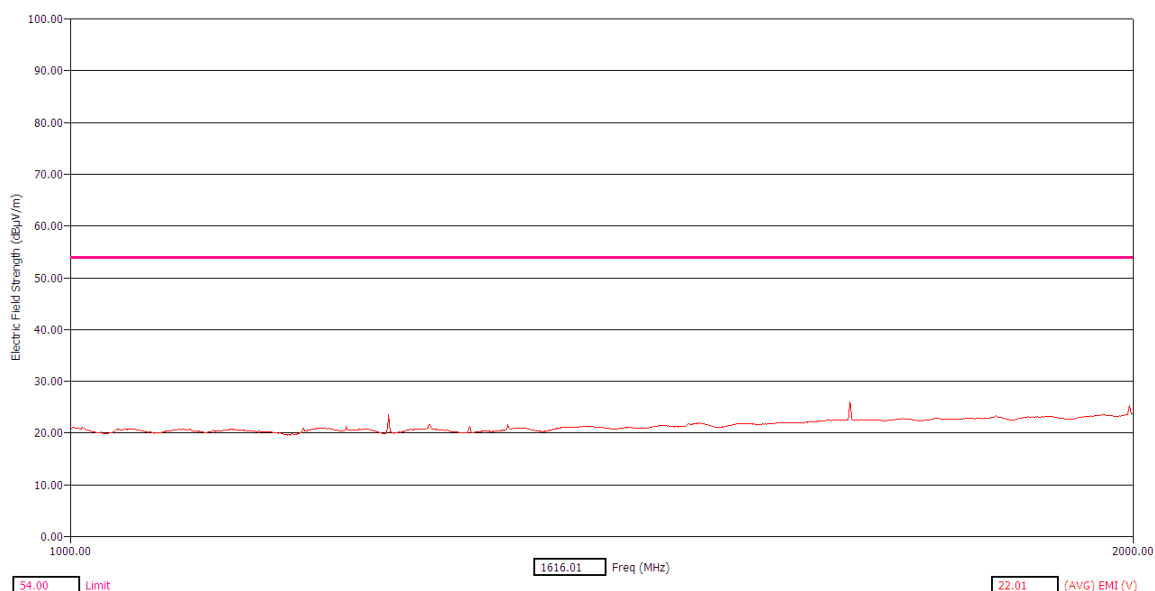


Figure 83: Radiated emission results (Average) – Vertical polarization – 1 GHz to 2 GHz – 802.11g, Channel 11

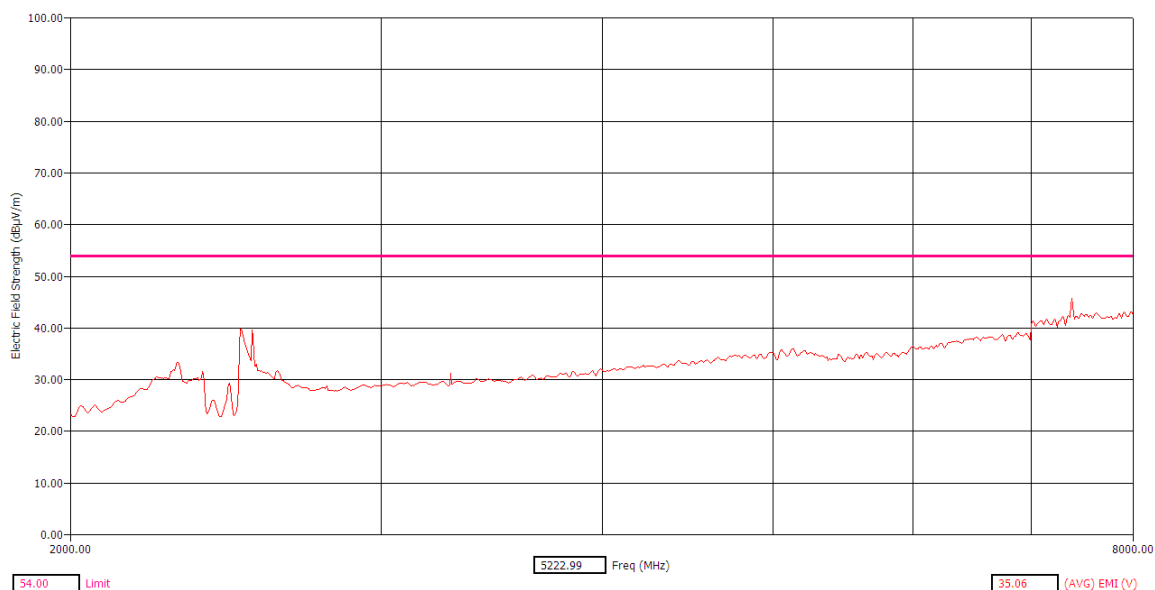


Figure 84: Radiated emission results (Average) – Vertical polarization – 2 GHz to 8 GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

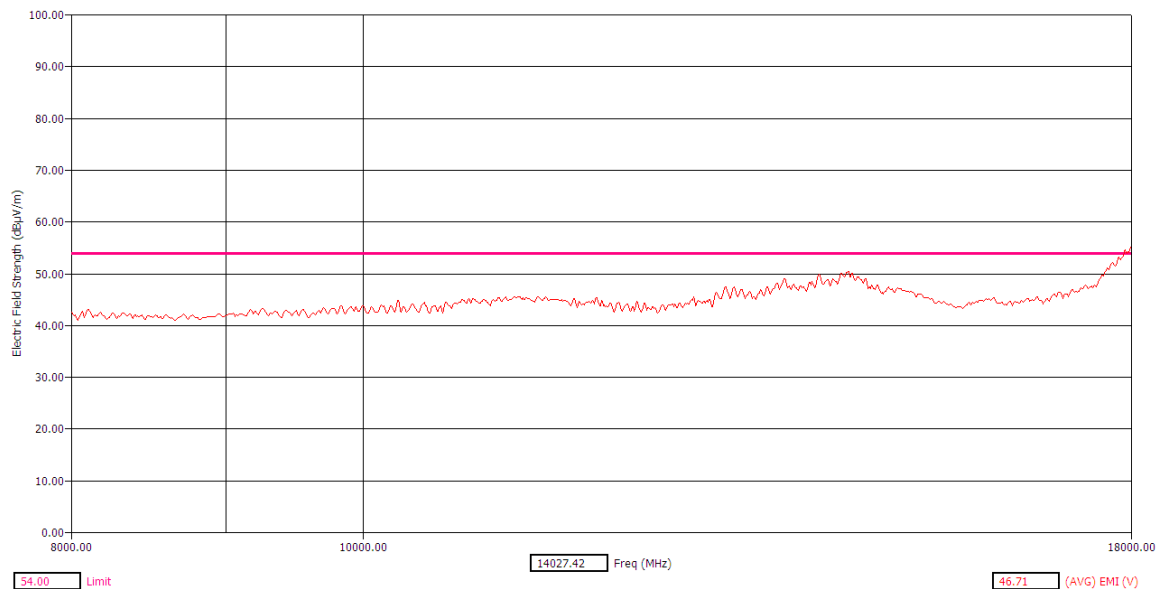


Figure 85: Radiated emission results (Average) – Vertical polarization –8 GHz to 18 GHz – 802.11g, Channel 11

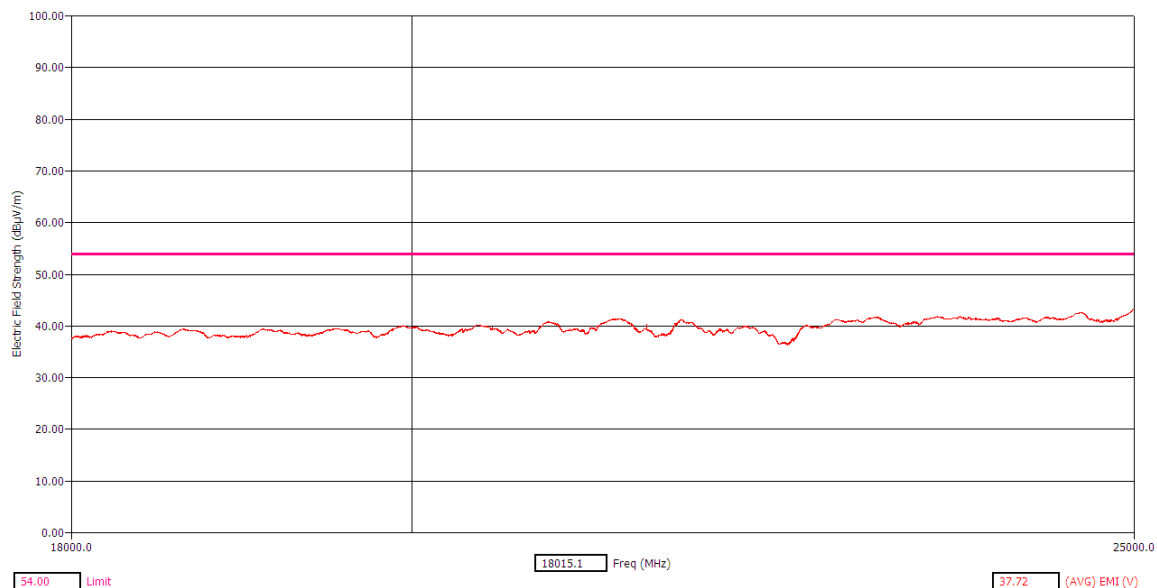


Figure 86: Radiated emission results (Average) – Vertical polarization – 18 GHz to 25 GHz – 802.11g, Channel 11

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNG2-L
IC ID	1422A-SYNG2L

6.2.3 6dB BANDWIDTH

6.2.3.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (a) (2)	The 6dB bandwidth > 500 KHz
RSS-210	A8.2	The 6dB bandwidth > 500 KHz

6.2.3.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11g band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Detect the carrier envelop in the Spectrum Analyzer
4	The 6dB bandwidth below the peak power was calculated on the envelop
5	This measured bandwidth is compared against the limit and the result declared

6.2.3.3 RESULT

Band, Channel	Frequency (GHz)	Limit	Measured	Result
802.11g, 1 (Low)	2.412	500 KHz or more	15.875 MHz	Pass
802.11g, 6 (Mid)	2.437	500 KHz or more	16.000 MHz	Pass
802.11g, 11 (High)	2.462	500 KHz or more	15.500 MHz	Pass

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNGG2-L
IC ID	1422A-SYNGG2L

6.2.3.4 RESULT (SUPPORTING GRAPHS / DATA)

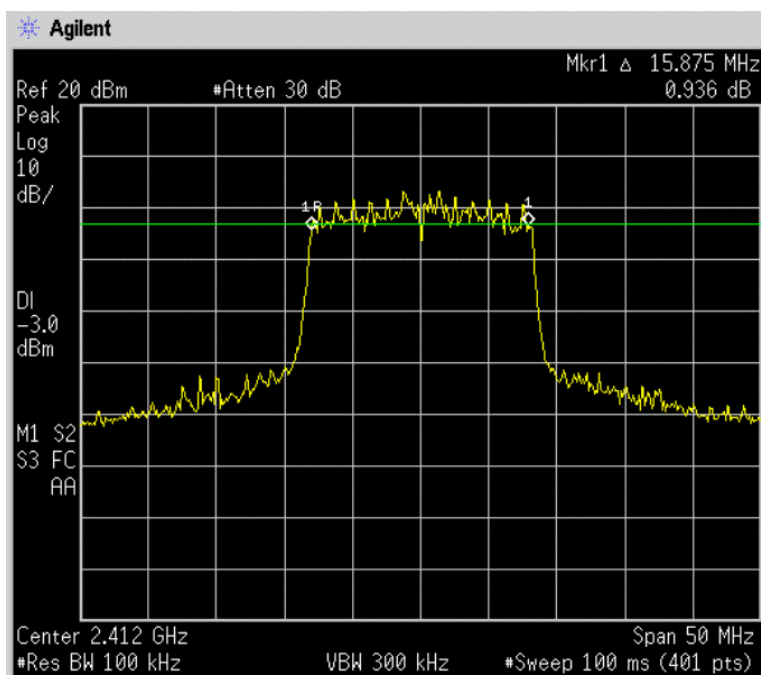


Figure 87: 6dB bandwidth – 802.11g, Low channel (1)

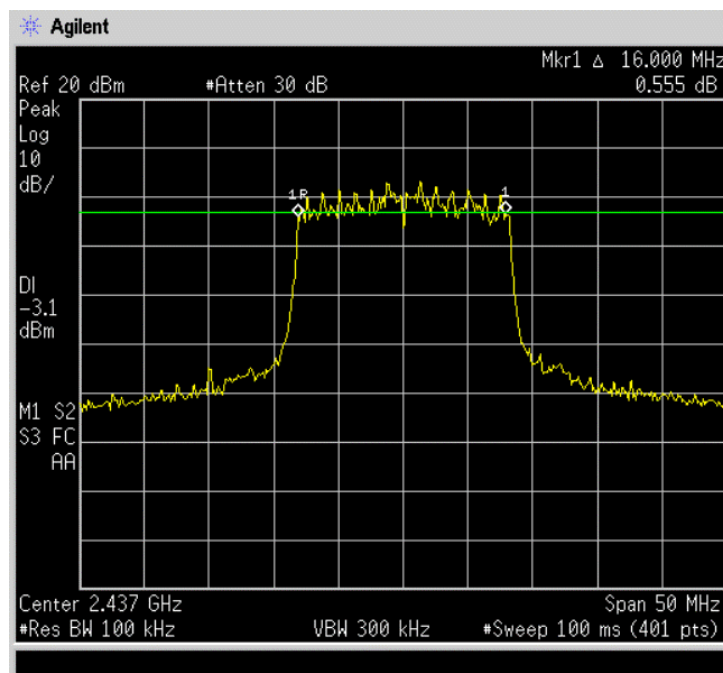


Figure 88: 6dB bandwidth – 802.11g, Mid channel (6)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMH5YNGG2-L
IC ID	1422A-SYNGG2L

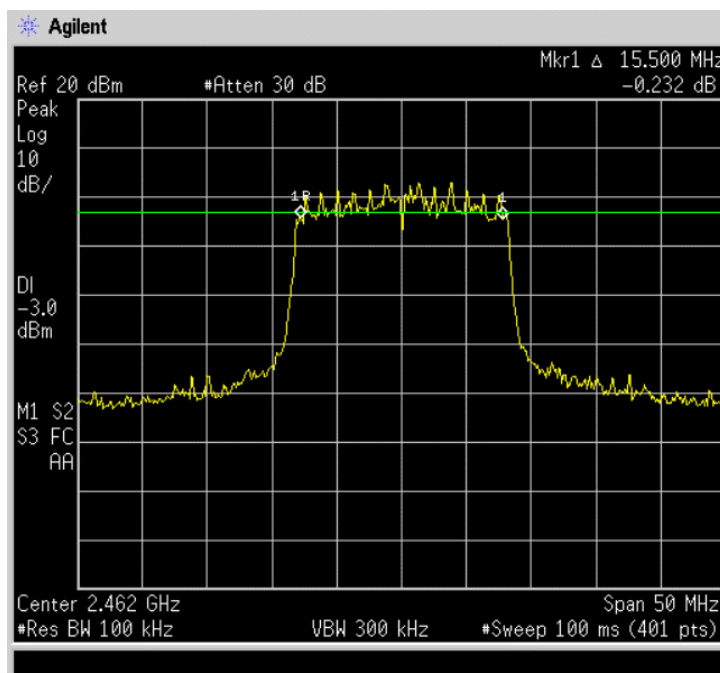


Figure 89: 6dB bandwidth – 802.11g, High channel (11)

6.2.4 PEAK CONDUCTED OUTPUT POWER

6.2.4.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (b) (3)	Peak conducted output power < 1 Watt
RSS-210	A8.4 (2)	Peak conducted output power < 1 Watt

6.2.4.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11g band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Appropriate Digital Transmission System test procedure is followed as per FCC recommendation. In this case, Option 2, Method 3 was selected based on the bandwidth of the carrier.
4	Add the measured cable loss of the cable that was used for the measurement (1.8dB)
5	This measured value is compared against the limit and the result declared

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNG2L

6.2.4.3 RESULT

Band, Channel	Frequency (GHz)	Measured power (dBm)	Cable loss (dB)	Total power (dBm)	Total power (mW)	Limit (mW)	Result
802.11g, 1 (Low)	2.412	10.94	1.8	12.74	18.79	1000	Pass
802.11g, 6 (Mid)	2.437	11.02	1.8	12.82	19.14	1000	Pass
802.11g, 11 (High)	2.462	10.84	1.8	12.64	18.36	1000	Pass

Note: Transmit duty cycle considered is = 1

No antenna gain is considered as this is conducted measurement without antenna

6.2.4.4 RESULT (SUPPORTING GRAPHS / DATA)

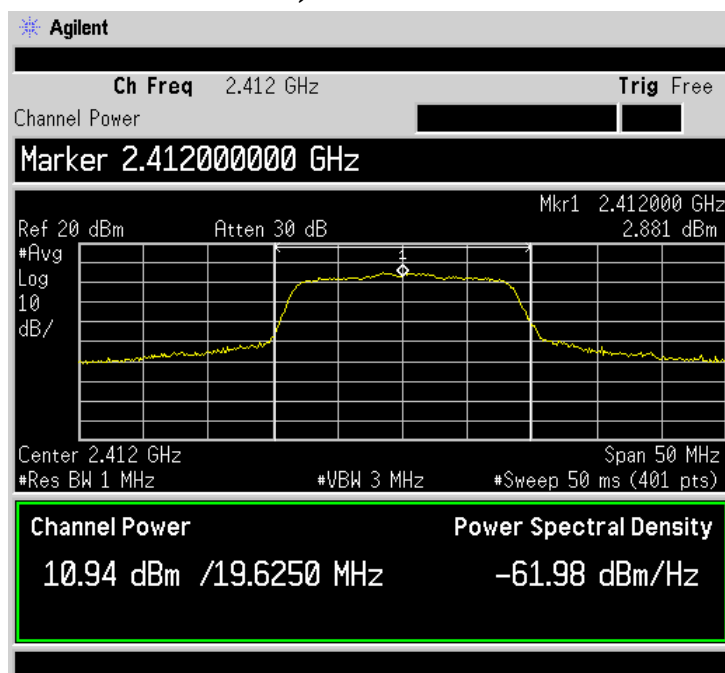


Figure 90: Peak conducted output power – 802.11g, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

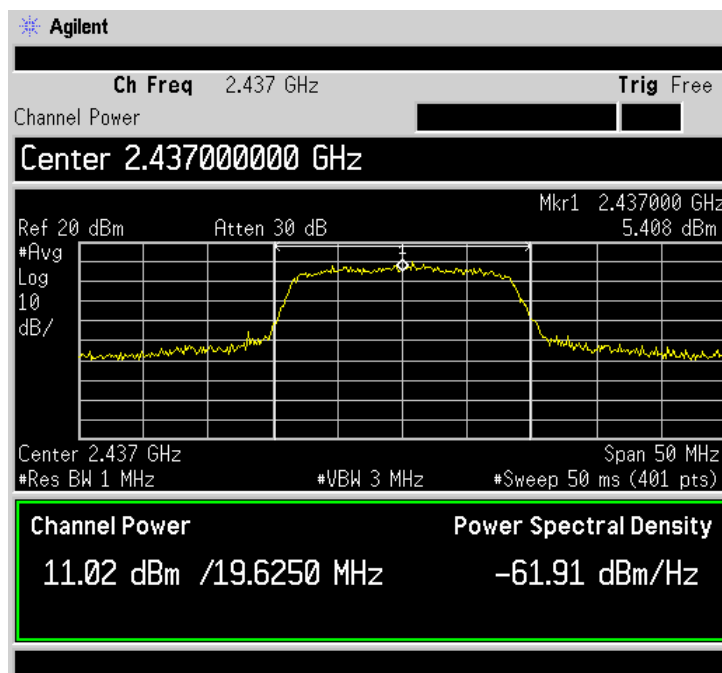


Figure 91: Peak conducted output power – 802.11g, Mid channel (6)

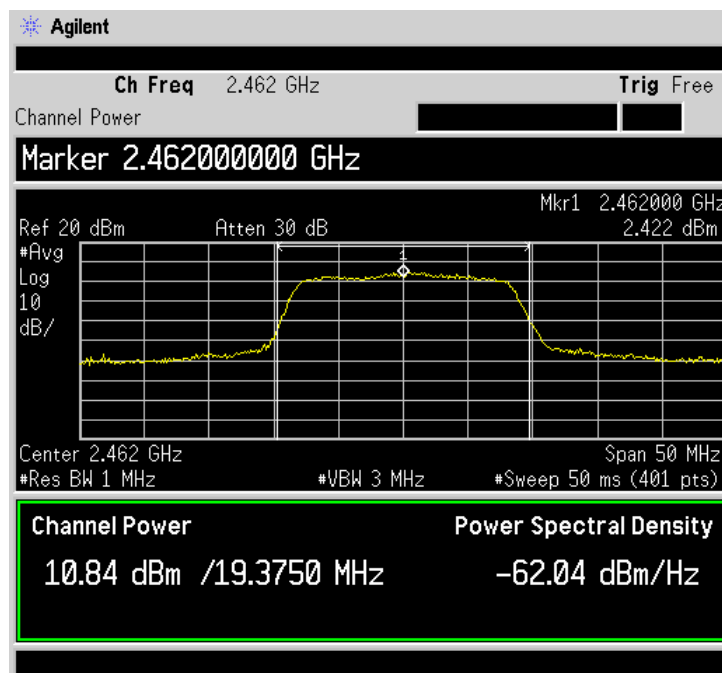


Figure 92: Peak conducted output power – 802.11g, High channel (11)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.5 CONDUCTED SPURIOUS EMISSION

6.2.5.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (d)	In any 100KHz band outside the intentional band, emissions shall be 30dB below the peak power
RSS-210	A8.5	In any 100KHz band outside the intentional band, emissions shall be 30dB below the peak power

6.2.5.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11g band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	Set the start frequency on the Spectrum Analyzer as 40 MHz
4	Set the start frequency on the Spectrum Analyzer as 26.5 GHz
5	Examine the complete band for any spurious emissions that exceed the value that is 30dB below the peak power in the intentional band
6	Based on the measured spurious emissions outside the intentional band, the result is declared

6.2.5.3 RESULT

Band, Channel	Limit	Measured	Result
802.11g, 1 (Low)	30db below the peak power measured	Refer 6.1.5.4	Pass
802.11g, 6 (Mid)			
802.11g, 11 (High)			

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.5.4 RESULT (SUPPORTING GRAPHS / DATA)

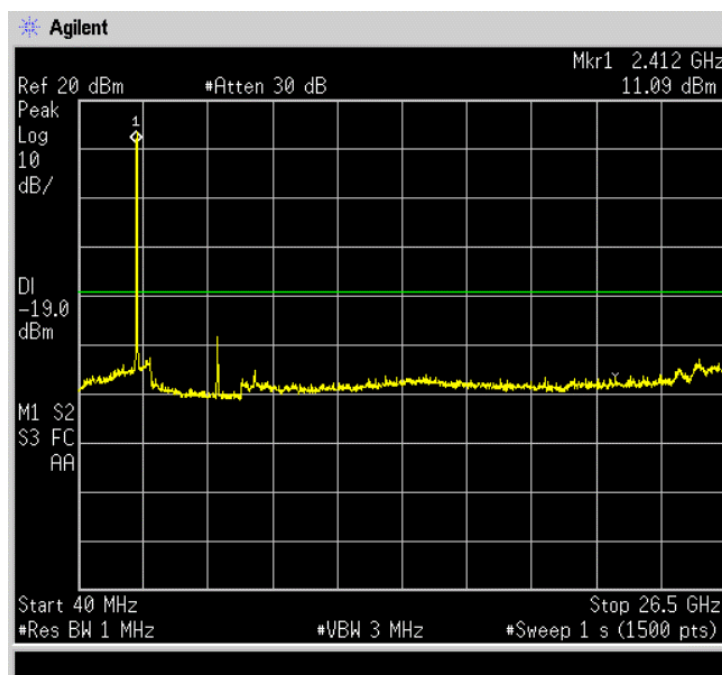


Figure 93: Conducted Spurious Emission – 802.11g, Low channel (1)

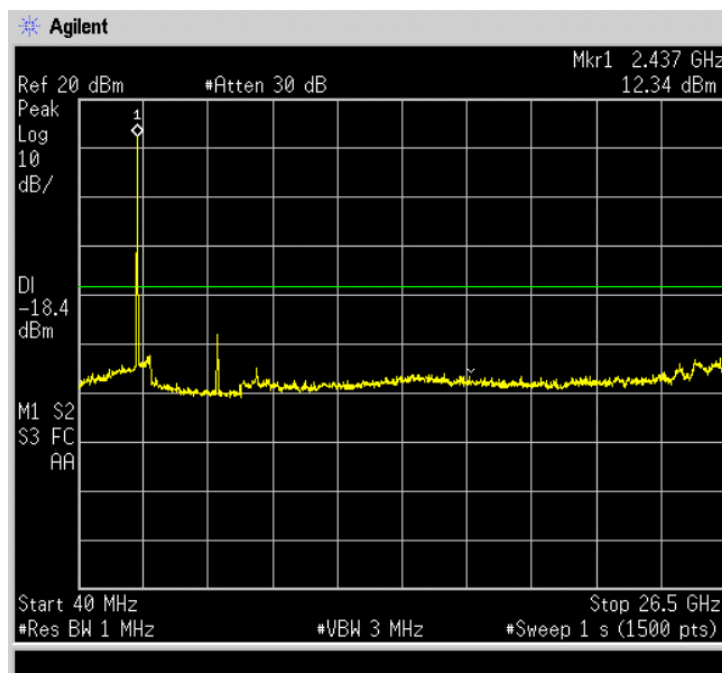


Figure 94: Conducted Spurious Emission – 802.11g, Mid channel (6)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

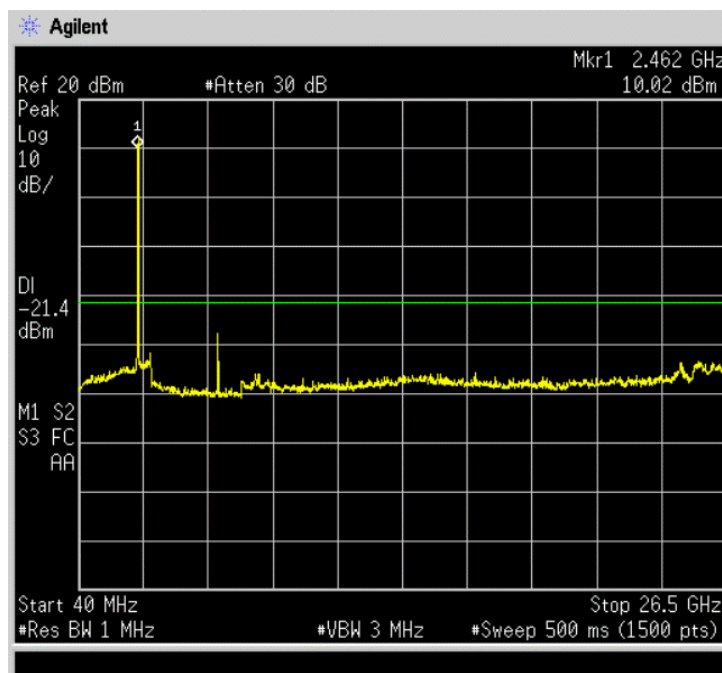


Figure 95: Conducted Spurious Emission – 802.11g, High channel (11)

6.2.6 POWER SPECTRAL DENSITY

6.2.6.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (e)	Conducted power spectral density shall not be greater than 8 dBm in any 3 kHz band
RSS-210	A8.2	Conducted power spectral density shall not be greater than 8 dBm in any 3 kHz band

6.2.6.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1), Mid(6) and High(11) channels of the 802.11g band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT
3	In the Spectrum Analyzer set Resolution Bandwidth to 3 KHz and Video Bandwidth to 300KHz
4	Select Span of 300 KHz and Sweep time of 100s in the Spectrum Analyzer
5	Record the peak power shown as power spectral density
6	Based on the recorded value, the result is declared

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.6.3 RESULT

Band, Channel	Limit	Channel	Frequency (GHz)	Measured (dBm)	Result
802.11b, 1 (Low)	8 dBm	1	2.412	-21.00	Pass
802.11b, 6 (Mid)	8 dBm	6	2.437	-19.19	Pass
802.11b, 11 (High)	8 dBm	11	2.462	-19.55	Pass

6.2.6.4 RESULT (SUPPORTING GRAPHS / DATA)

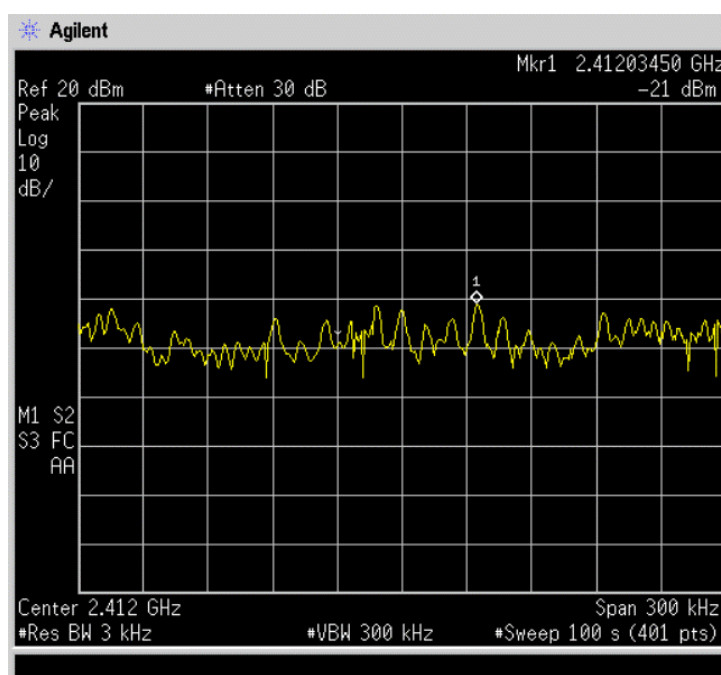


Figure 96: Power Spectral Density – 802.11g, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

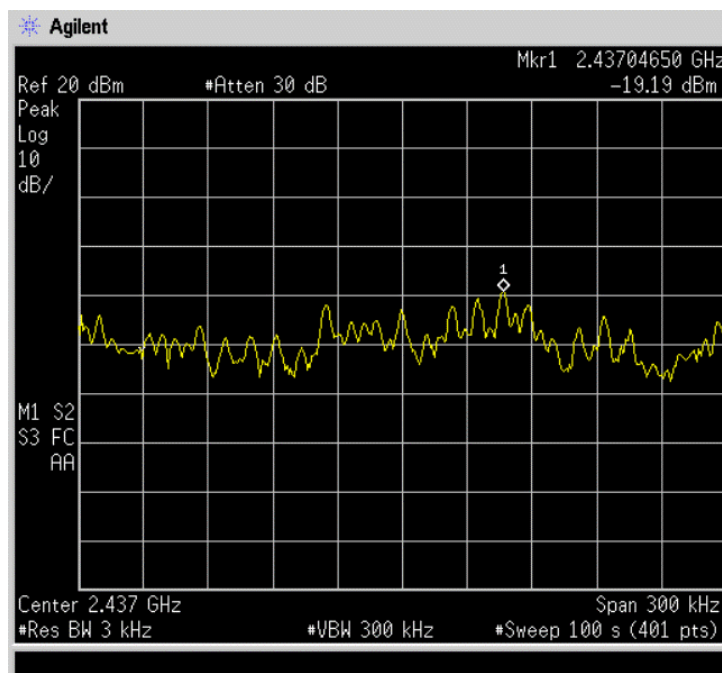


Figure 97: Power Spectral Density – 802.11g, Mid channel (6)

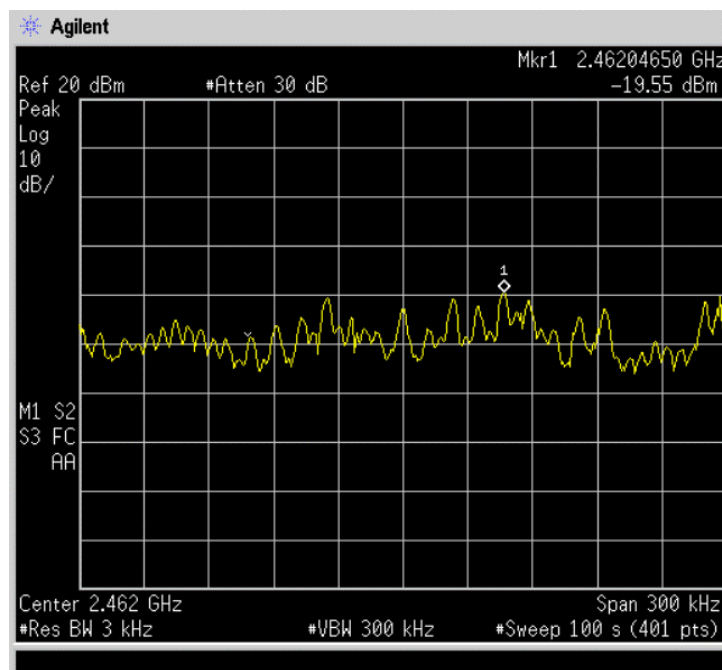


Figure 98: Power Spectral Density – 802.11g, High channel (11)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.7 BAND EDGE MEASUREMENTS – RADIATED

6.2.7.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Frequency range	Max Average Limit (dB μ V/m) at 3 meter	Max Peak Limit (dB μ V/m) at 3 meter
FCC Part 15, Subpart C	15.209	30 MHz to 88 MHz	40.0	60.0
		88 MHz to 216 MHz	43.5	63.5
		216 MHz to 960 MHz	46.0	66.0
		960 MHz to 1 GHz	54.0	74.0
		Above 1 GHz	54.0	74.0
RSS-210	2.6	30 MHz to 88 MHz	40.0	60.0
		88 MHz to 216 MHz	43.5	63.5
		216 MHz to 960 MHz	46.0	66.0
		960 MHz to 1 GHz	54.0	74.0
		Above 1 GHz	54.0	74.0

6.2.7.2 TEST PROCEDURE

S. No	Procedure
1	Test procedure is as per ANSI C63.4: 2000
2	EUT is placed on a 0.8m non-conductive table. This table is positioned on an automated turn table.
3	Antennas are positioned 3m away from the EUT
4	EUT is configured to function with the default channel in the selected band
5	A peak scan was carried out at various azimuth angles and antenna heights fixed to 1m.
6	The highest level of Radiated Emission was recorded
7	Peak and Average measurements were carried out above 1GHz
8	These values are compared against the limit specified by the standard

6.2.7.3 RESULT

Frequency (MHz)	Measured Value Horizontal (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399	29.74	54	24.26	Pass	Average
2396	28.03	54	25.97	Pass	Average
2392	25.47	54	28.53	Pass	Average
2483.5	39.28	54	14.72	Pass	Average
2485	35.36	54	18.64	Pass	Average
2487	31.96	54	22.04	Pass	Average

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

Frequency (MHz)	Measured Value Vertical (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399	26.55	54	27.45	Pass	Average
2396	25.46	54	28.54	Pass	Average
2392	22.74	54	31.26	Pass	Average
2483.5	39.56	54	14.44	Pass	Average
2485	36.93	54	17.07	Pass	Average
2487	36.11	54	17.89	Pass	Average

Frequency (MHz)	Measured Value Horizontal (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399.5	54.41	74	19.59	Pass	Peak
2393.5	52.63	74	21.37	Pass	Peak
2385.5	42.21	74	31.79	Pass	Peak
2484	54.99	74	19.01	Pass	Peak
2488	50.11	74	23.89	Pass	Peak
2486.5	49.96	74	24.04	Pass	Peak

Frequency (MHz)	Measured Value Vertical (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result	Detector
2399.5	51.46	74	22.54	Pass	Peak
2393.5	48.14	74	25.86	Pass	Peak
2385.5	36.91	74	37.09	Pass	Peak
2484	53.53	74	20.47	Pass	Peak
2488	49.96	74	24.04	Pass	Peak
2486.5	49.97	74	24.03	Pass	Peak

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

6.2.8 BAND EDGE MEASUREMENTS – CONDUCTED

6.2.8.1 REFERENCE SECTION & LIMITS

Standard	Reference section	Limit
FCC Part 15, Subpart C	15.247 (d)	Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

6.2.8.2 TEST PROCEDURE

S. No	Procedure
1	This test was carried out for Low(1) and High(13) channels of the 802.11g band
2	Connect the transmitter output to a Spectrum Analyzer. Select an appropriate channel on the EUT.
3	In the Spectrum Analyzer set Resolution Bandwidth to 100 KHz and Video Bandwidth to 100KHz
4	Select Span of 115 MHz and Sweep time of 1s in the Spectrum Analyzer
5	Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
6	Based on the recorded value, the result is declared

6.2.8.3 RESULT (SUPPORTING GRAPHS / DATA)

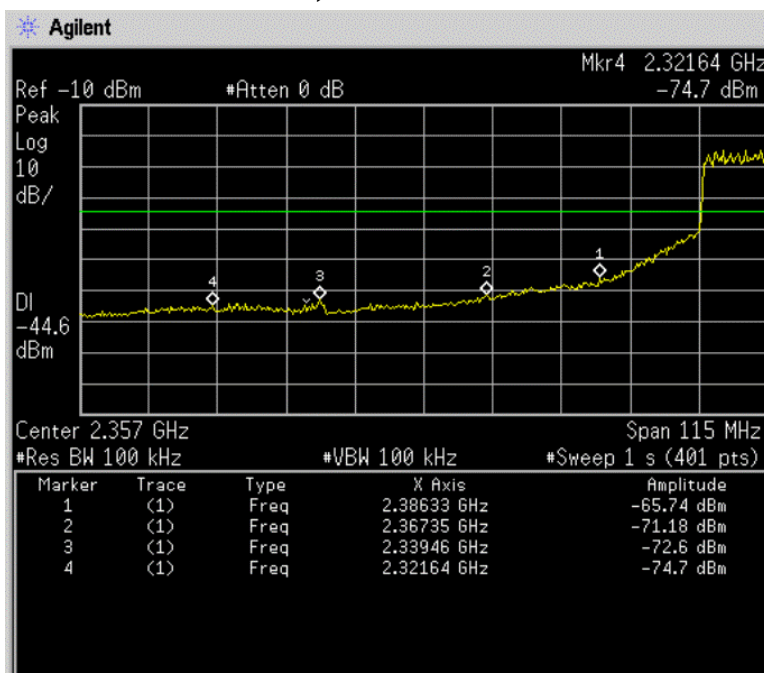


Figure 99: Low Band Edge – 802.11g, Low channel (1)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

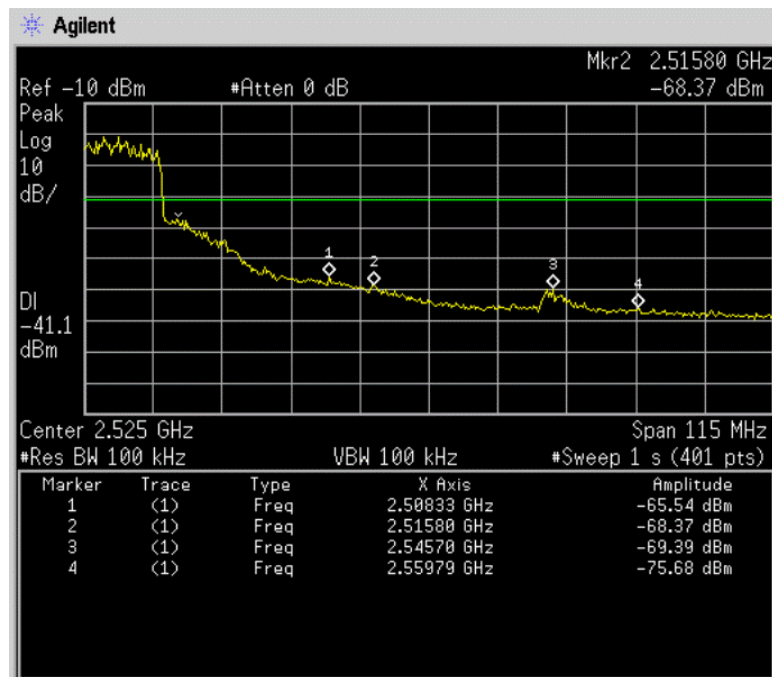


Figure 100: High Band Edge – 802.11g, High channel (13)

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L

7 APPENDIX 1 – ACRONYMS

WLAN	Wireless Local Area Network
CFR	Code of Federal Regulations
EUT	Equipment Under Test
NABL	National Accreditation Board for Testing and Calibration Laboratories, India
dBm	Decibel milliWatt
mW	milliWatt
WiFi	Wireless Fidelity
dBi	Decibel Isotropic
db μ V	Decibel microVolts
USB	Universal Serial Bus
FCC	Federal Communications Commission
IC	Industry Canada
KHz	Kilo Hertz
MHz	Mega Hertz
GHz	Giga Hertz

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNG2-L
IC ID	1422A-SYNG2L

8 APPENDIX 2 – PHOTOGRAPH OF TEST SETUPS



Figure 101: Test setup for Radiated Emission (Vertical polarization) – 30MHz to 1GHz



Figure 102: Test setup for Radiated Emission (Horizontal polarization) – 30MHz to 1GHz

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNCG2L



Figure 103: Test setup for Radiated Emission (Horizontal polarization) – Above 1GHz



Figure 104: Test setup for Radiated Emission (Vertical polarization) – Above 1GHz

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.

Date	16 th Mar 2011
Report Number	GND1038AUT219-A

FCC ID	KMHSYNCG2-L
IC ID	1422A-SYNG2L

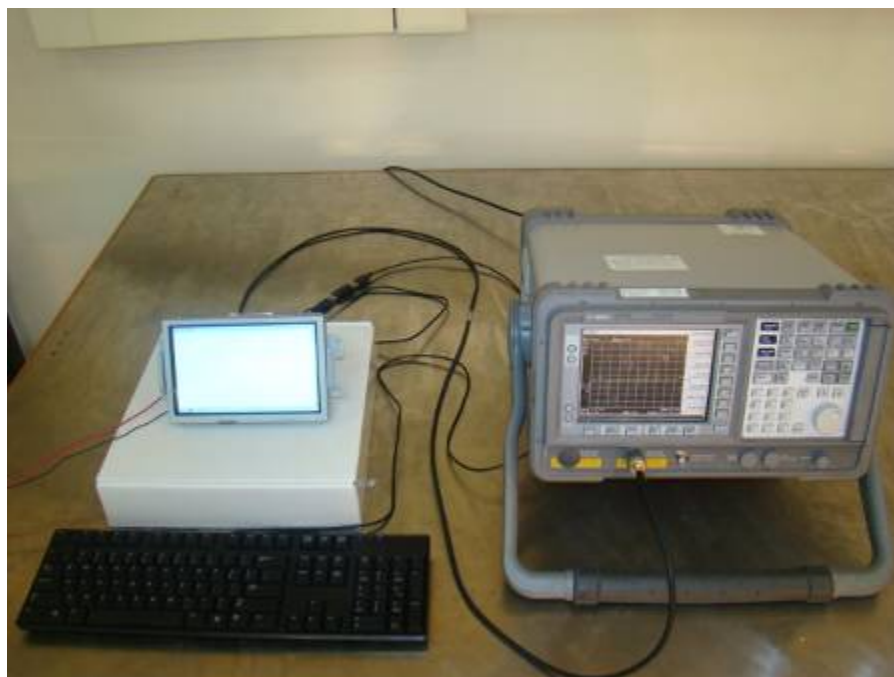


Figure 105: Test setup for Conducted measurements

Tarang

Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore-560 035. Karnataka. India.
Tel: +91-80-30298772 Fax: 91-80-28440054 E-mail: tarang.planet@wipro.com

This report must not be reproduced, except in full, without prior written permission from Tarang lab.