

TEST REPORT

No. 2007WLN0009

Product name GSM/WiFi Dual Mode Phone

Model Hipi2300

Client Paragon Wireless Inc.

**Telecommunication Metrology Center
of Ministry of Information Industry**

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Product	GSM/WiFi Dual Mode Phone	Model	Hipi2300	
		Trade mark		
Client	Paragon Wireless Inc.			
Manufacturer	Paragon Wireless Inc.			
Arrival Date of sample	Feb. 26, 2007	Carrier of the samples	Wang Wuji	
Quantity of the samples	2	Date of product	/	
Series number	/			
Standard(s)	FCC Part 15, Subpart C:15.207 Conducted limits, 15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz.			
Conclusion	<p>Conclusion: Pass.</p> <p align="right">Date of issue: 2007-4-6</p>			
Comment	The test result relates only to the tested samples.			

Approved by Lu Bingsong Reviewed by Xiao Li Tested by Zhang Ying
 (Lu Bingsong) (Xiao Li) (Zhang Ying)
 (Lu Bingsong- Deputy Director of the laboratory)

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1. Competence and Warranties

Telecommunication Metrology Center of Ministry of Information Industry is a test laboratory accredited by CNAL – China National Accreditation Committee for Laboratories, for the tests indicated in the Certificate No. **L0442**

Telecommunication Metrology Center of Ministry of Information Industry (hereinafter TMC of MII) is a test laboratory competent to carry out the tests described in this test report.

TMC of MII guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at **TMC of MII** at the time of execution of the test.

TMC of MII is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test.

2. Testing Laboratory

2.1. Testing Location

Name of Company :	Telecommunication Metrology Center of Ministry of Information Industry
Address:	No 52, Hua Yuanbei Road, Haidian District, Beijing, P.R.China
Postal Code:	100083
Telephone:	+86-10-62303288
Fax:	+86-10-62304793

2.2. Testing Environment

Shielding Room (4.5 meters×4 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

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Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

2.3. Testing Period

The performed test started on Feb. 27, 2007 and finished on Mar. 28, 2007.

3. Applicant Information

3.1. Client information

Name of Company:	Paragon Wireless Inc.
Address /Post:	A-1801, E-wing Center, NO.113 Zhichun Road, Haidian District
City:	Beijing
Postal Code:	100086
Country:	China
Telephone:	+86-10-6261-6660-270
Fax:	+86-10-6261-6669

3.2. Manufacturer information

Name of Company:	Paragon Wireless Inc
Address /Post:	A-1801, E-wing Center, No.113 Zhichun Road, Haidian District
City:	Beijing
Postal Code:	100086

Country:	China
Telephone:	+86-10-6261-6660-270
Fax:	+86-10-6261-6669

4. Equipment Under Test (EUT) and Ancillary Equipment (AE)

4.1. About EUT

Description:	GSM/WiFi Dual Mode Phone
Type:	Hipi2300
With WLAN	Yes
EUT operating voltage- Normal:	3.8V
Extreme Low Voltage:	3.6 V
Extreme High Voltage:	4.2V
Extreme temperature:	-20°C / + 55°C

Note: please refer to ANNEX A for Photographs of EUT in this test report.

4.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	/	MB03318T000	P1_WINMOBILE_PARAGON_A_3_00_00_SHIP_Build_W
EUT2	/	MB03318T000	P1_WINMOBILE_PARAGON_A_3_00_00_SHIP_Build_W

*EUT ID is used to identify the test sample in the lab internally.

4.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Charger	TS202W32	/

*AE ID: is used to identify the test sample in the lab internally.

5. Reference Documents

5.1. Documents supplied by applicant

EUT feature information is supplied by the client or manufacturer, which is the basis of testing.

5.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15, Subpart C	15.207 Conducted limits. 15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	10–1–99 Edition

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:

P Pass

F Fail

NA not applicable

NM not measured

See **ANNEX A** for detail.

SUMMARY OF MEASUREMENT RESULTS	Sub-clause	Verdict
Occupied 6dB Bandwidth	15.247(a)(2)	P
Maximum Peak Power Output	15.247(b)(1)	P
Conducted Spurious Emissions	15.247(c)	P
Radiated Spurious Emissions	15.247(c)	P
Peak Power Spectral Density	15.247(d)	P
Band Edges Measurement	15.247(c)	P
Powerline Conducted Emissions	15.207(a)	P

7. TEST EQUIPMENTS UTILIZED

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER
1	Test Receiver	ESS	847151/015	R&S
2	Test Receiver	ESI40	831564/002	R&S
3	Spectrum Analyzer	E4440A	MY41000262	Agilent
4	Vector Singal Analyzer	FSQ26	200136	R&S
5	Signal Generator	SMT06	831285/005	R&S
6	Signal Generator	SMP04	100070	R&S
7	Universal Radio Communication Tester	CMU200	100680	R&S
8	BiLog Antenna	3142B	9908-1403	EMCO
9	BiLog Antenna	3142B	9908-1405	EMCO
10	LISN	ESH2-Z5	829991/012	R&S
11	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO
12	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO
13	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO

ANNEX A: EUT PHOTOGRAPH

External Photo



Mobile Phone



Mobile Phone



Mobile Phone



Mobile phone



Charger (AC/DC Adapter)

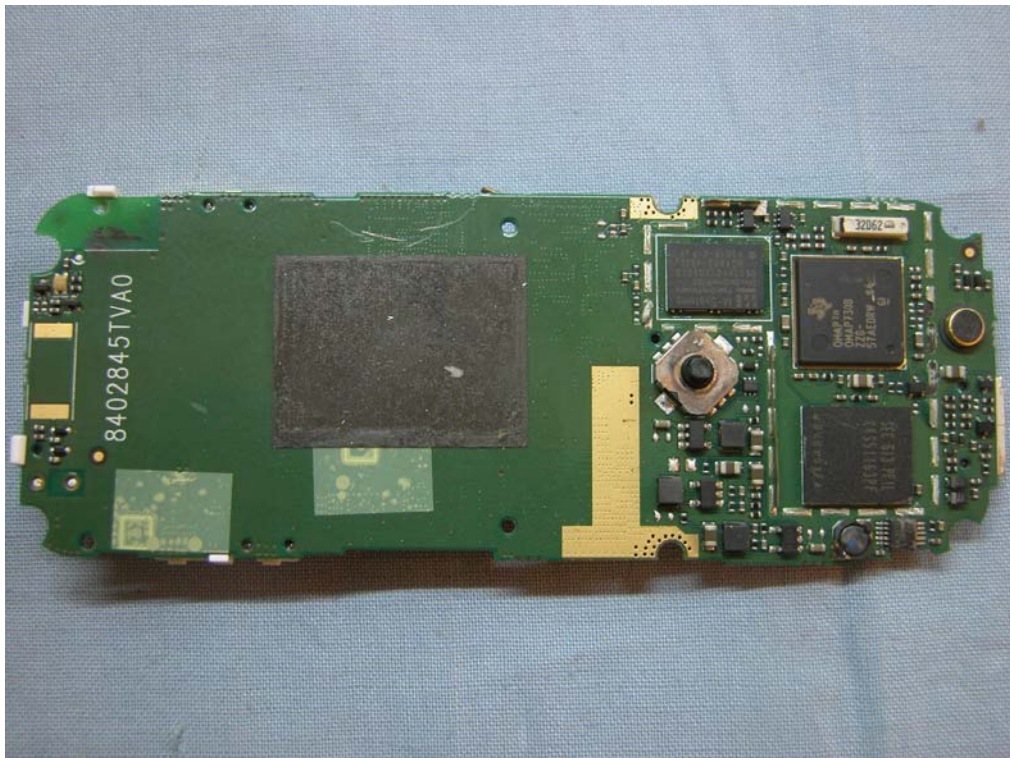


Charger (AC/DC Adapter)

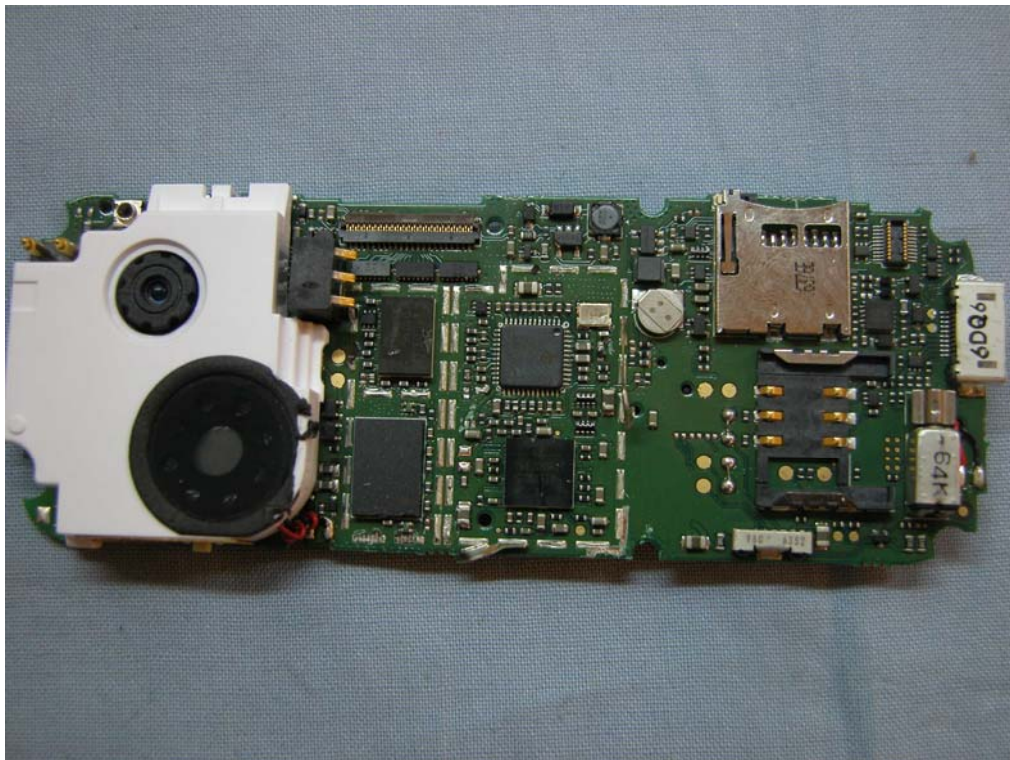
Internal Photo



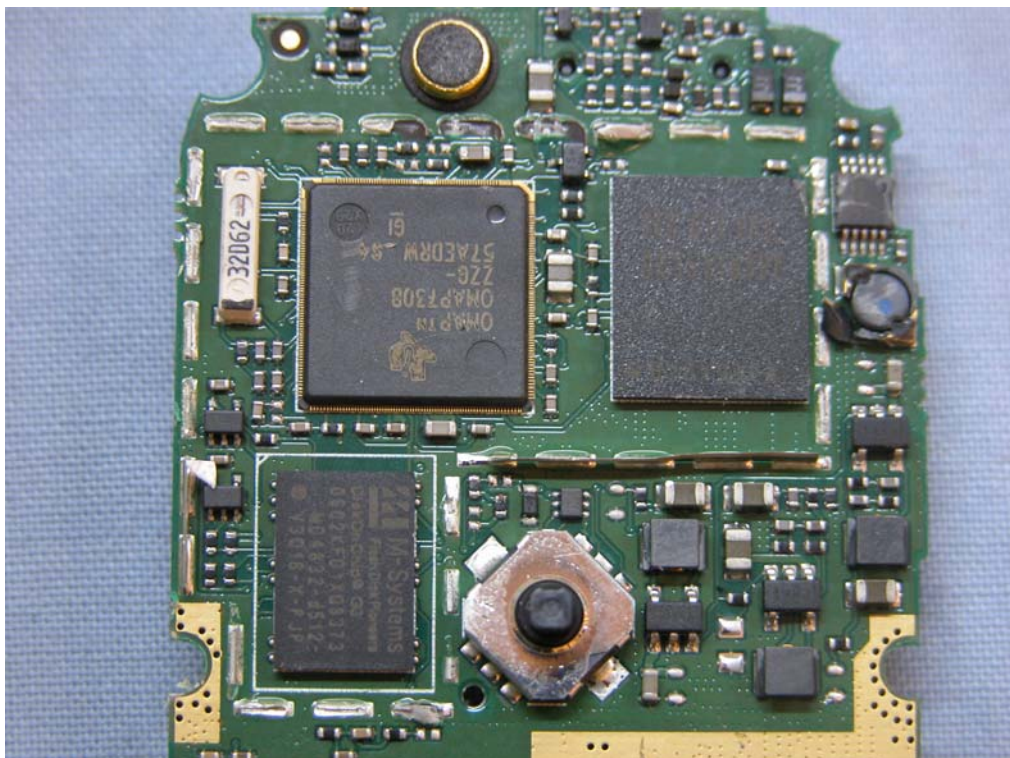
Mobile phone Disassembly



Mobile phone PCB back view



Mobile phone PCB front view



Mobile phone PCB front view

ANNEX B: MEASUREMENT RESULTS

B.1 Occupied 6dB Bandwidth

Method of Measurement:

Standard	Limit (kHz)
FCC Part 15 _ Clause 15.247 (a)(2)	≥ 500

Measurement Results:

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.1	9935	P
	6	Fig.2	9855	P
	11	Fig.3	9935	P
802.11g	1	Fig.4	16586	P
	6	Fig.5	16586	P
	11	Fig.6	16586	P

B.2 Maximum Peak Power Output

Method of Measurement:

Standard	Limit (dBm)
FCC Part 15 _ Clause 15.247(b)(1)	≤ 30

Measurement Results:

Mode	Maximum Peak Power Output (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	12.29	15.21	15.11
802.11g	16.01	16.44	15.82
Conclusion	P	P	P

B.3 Transmission Spurious Emission (Radiated & Conducted)

Method of Measurement:

Standard	Limit
FCC Part 15 _ Clause 15.247(c)	20 dB below the Peak

B.3.1 Conducted Spurious Emission

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.7	P
		30 MHz ~ 26 GHz	Fig.8	P
	6	2.437 GHz	Fig.9	P
		30 MHz ~26 GHz	Fig.10	P
	11	2.472 GHz	Fig.11	P

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		30 MHz ~26 GHz	Fig.12	P
802.11g	1	2.412 GHz	Fig.13	P
		30 MHz ~ 26 GHz	Fig.14	P
	6	2.437 GHz	Fig.15	P
		30 MHz ~ 26 GHz	Fig.16	P
	11	2.472 GHz	Fig.17	P
		30 MHz ~ 26 GHz	Fig.18	P

Conclusion: Pass.

B.3.2 Radiated Spurious Emission

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	11	2.4GHz~2.5GHz	Fig.19	/
	1	30 MHz ~1 GHz	Fig.20	P
		1 GHz ~ 3 GHz	Fig.21	P
		3 GHz ~ 18 GHz	Fig.22	P
	6	30 MHz ~ 1GHz	Fig.23	P
		1 GHz ~ 3 GHz	Fig.24	P
		3 GHz~ 18 GHz	Fig.25	P
	11	2.462 GHz	Fig.26	/
		30 MHz ~ 1 GHz	Fig.27	P
		1 GHz ~ 3 GHz	Fig.28	P
		3 GHz~ 18 GHz	Fig.29	P
	11	18 GHz~ 26 GHz	Fig.30	P

Conclusion: Pass.

Note: Fig.30 is the worst case of radiated spurious emission on channel 1, 6 and 11. Fig. 26 is captured to show the signal, which is very close to the limit line, more clearly.

B.4 Peak Power Spectral Density

Method of Measurement:

Standard	Limit
FCC Part 15 _ Clause 15.247(d)	< 8 dBm/3 kHz

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/3 kHz)	Test Results	Conclusion
802.11b	1	-19.63	Fig.31	P
	6	-17.60	Fig.32	P
	11	-15.53	Fig.33	P
802.11g	1	-24.48	Fig.34	P
	6	-21.64	Fig.35	P
	11	-20.62	Fig.36	P

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B.5 Band Edges Measurement

Method of Measurement:

Standard	Limit
FCC Part 15 _ Clause 15.247(c)	20 dB below the Peak

Measurement Results:

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.37	P
	11	Fig.38	P
802.11g	1	Fig.39	P
	11	Fig.40	P

B.6 Powerline Conducted Emissions

Method of Measurement: FCC Part 15 _ Clause 15.107/207

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi -Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

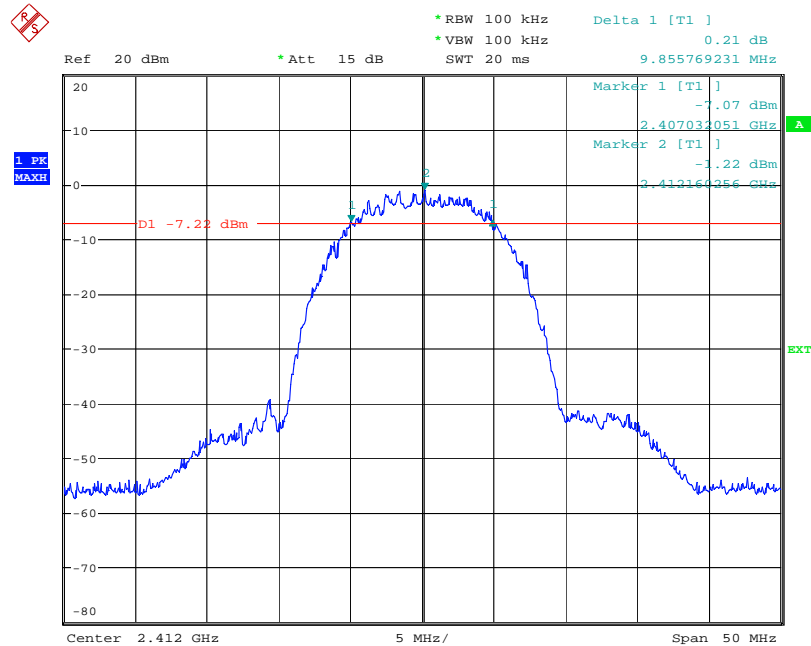
* Decreases with logarithm of the frequency

Measurement Results: DUT is a dual band GSM mobile phone.

Mode	Test Results	Conclusion
GSM850MHz	Fig.41	P
GSM1900MHz	Fig.42	P

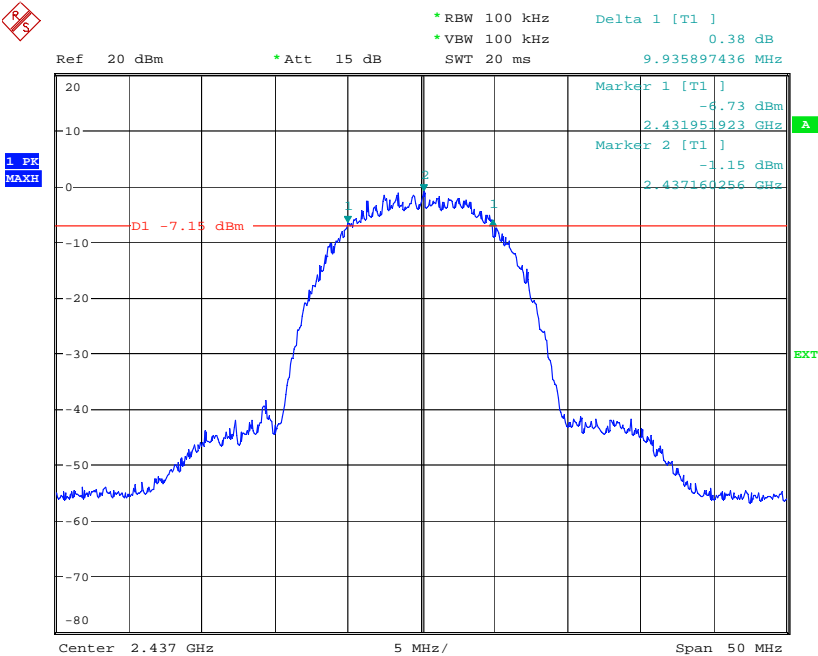
Conclusion: Pass.

ANNEX C : TEST FIGURE LIST



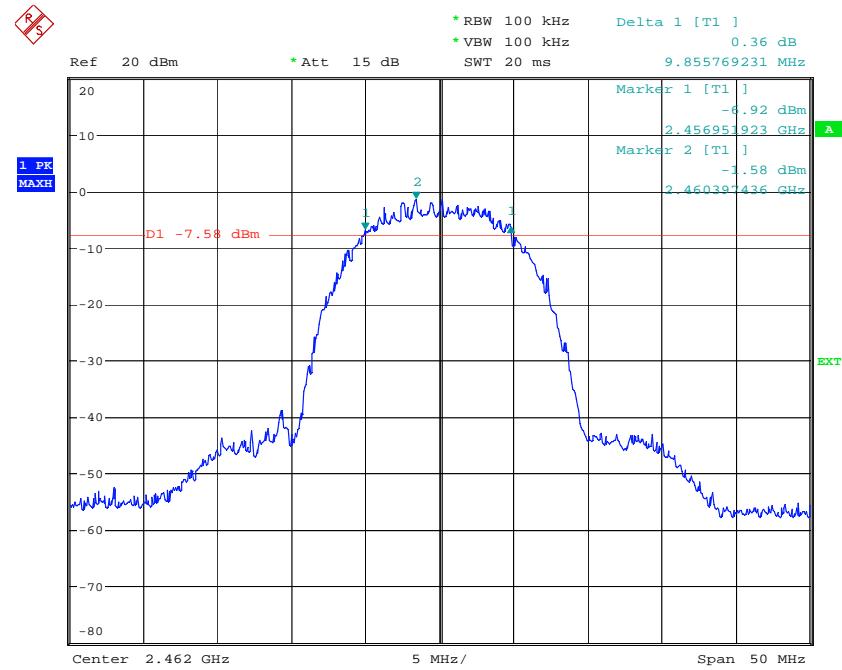
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Fig 1 Occupied 6dB Bandwidth (802.11b, Ch 1)



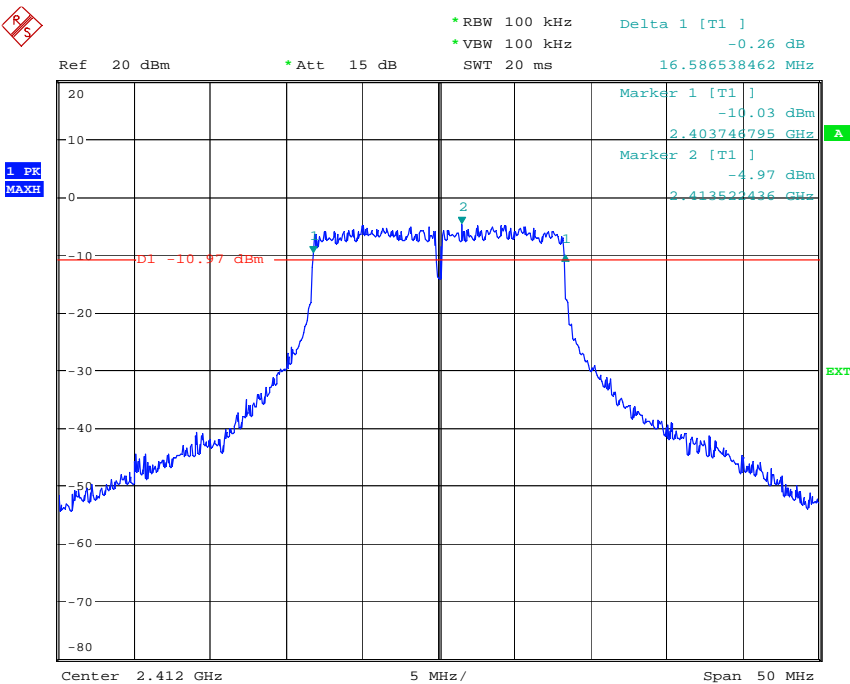
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Fig 2 Occupied 6dB Bandwidth (802.11b, Ch 6)



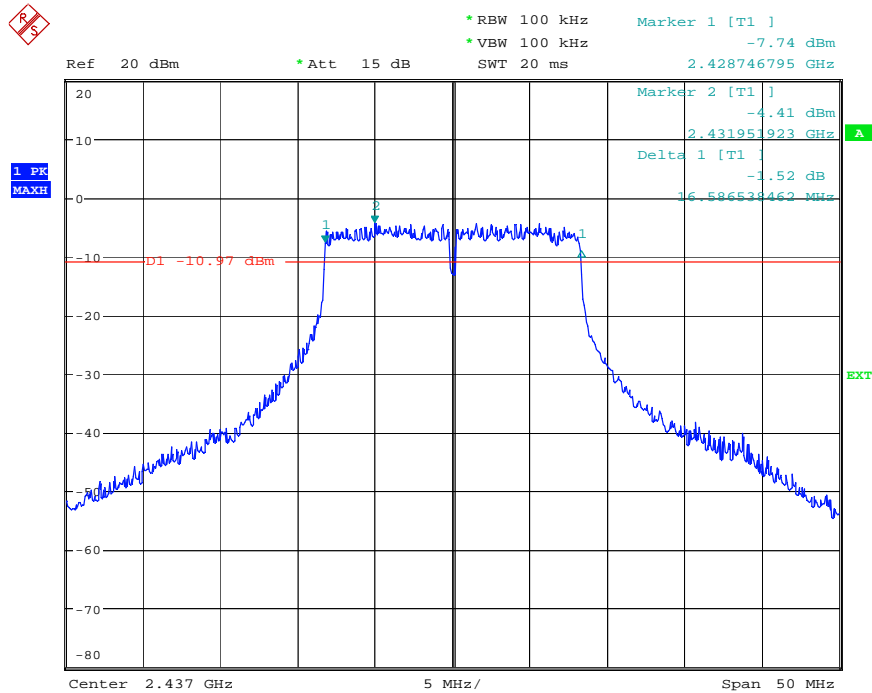
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Fig 3 Occupied 6dB Bandwidth (802.11b, Ch 11)



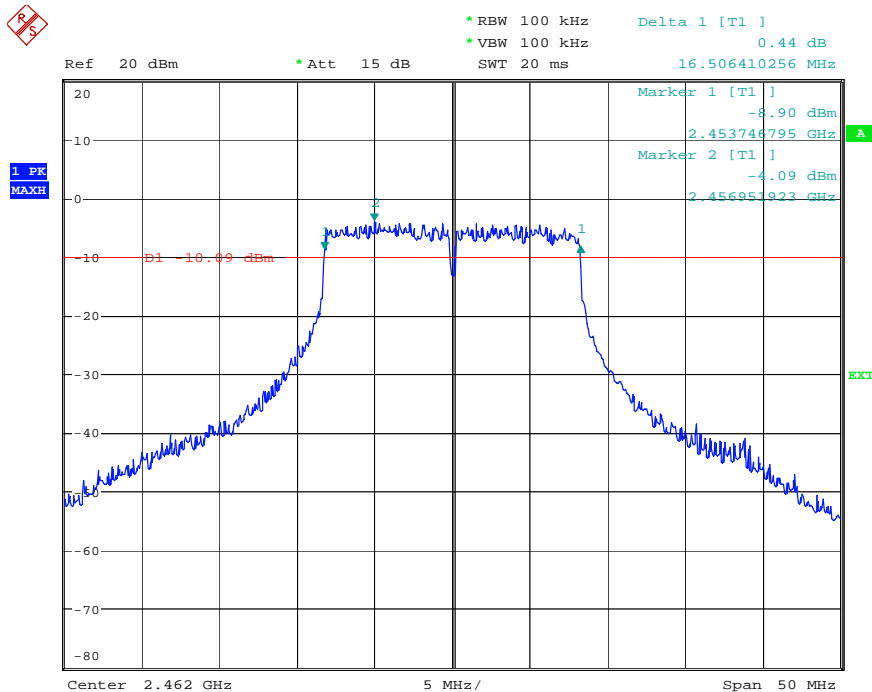
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Fig 4 Occupied 6dB Bandwidth (802.11g, Ch 1)



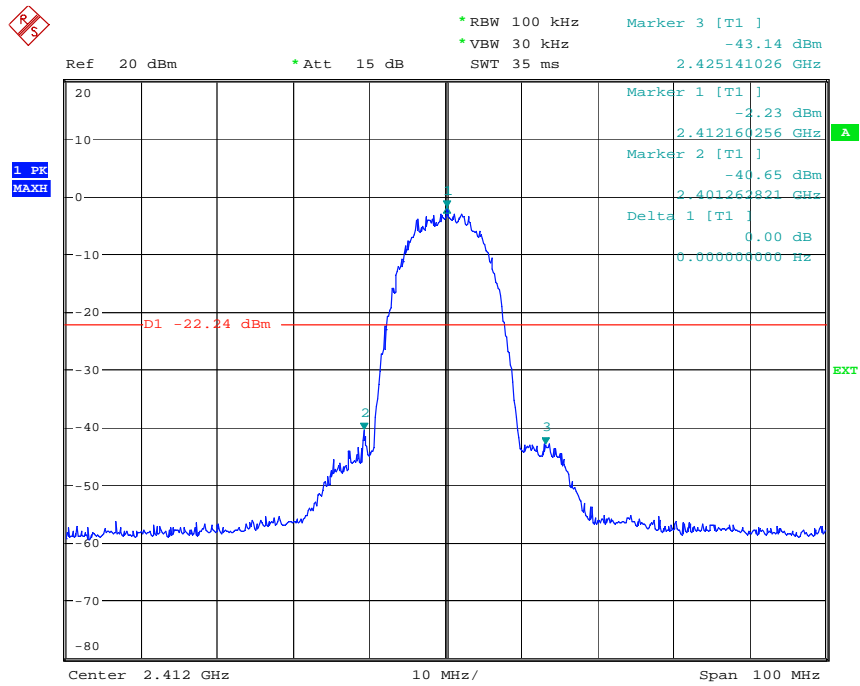
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Fig 5 Occupied 6dB Bandwidth (802.11g, Ch 6)



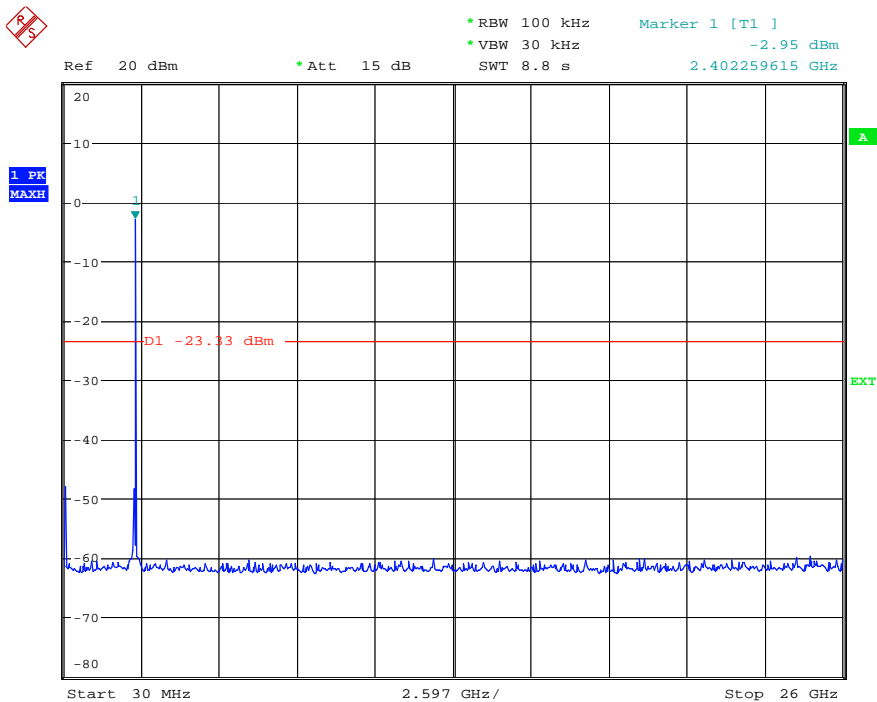
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Fig 6 Occupied 6dB Bandwidth (802.11g, Ch11)



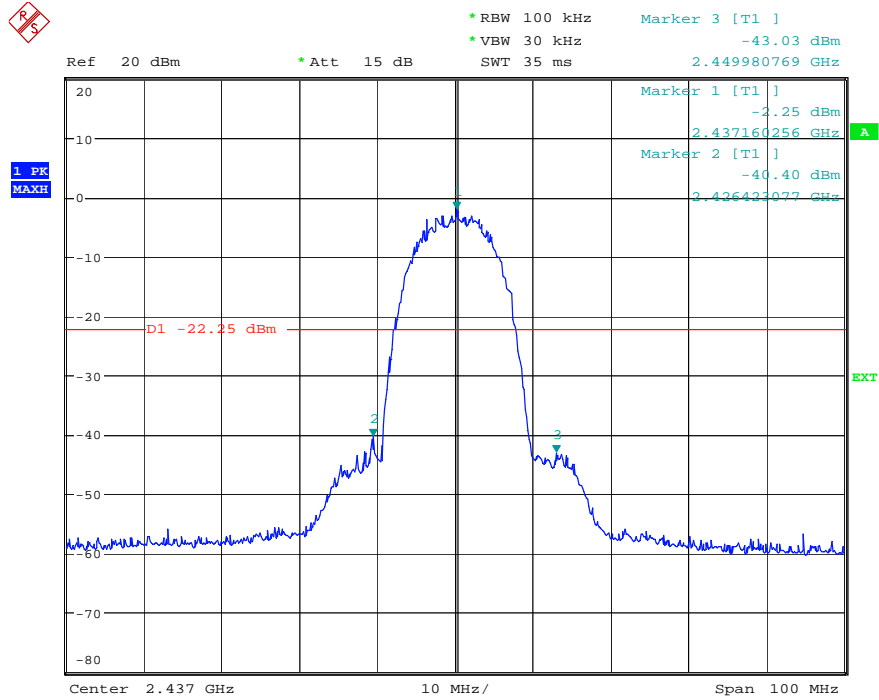
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Fig 7 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)



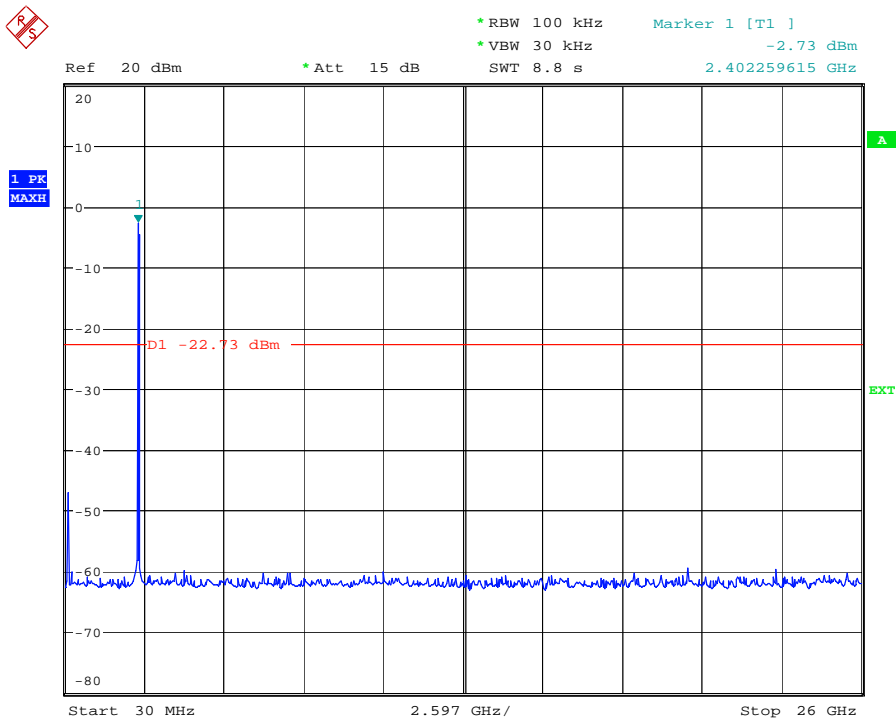
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Fig 8 Conducted Spurious Emission (802.11b, Ch1, 30 MHz~26 GHz)



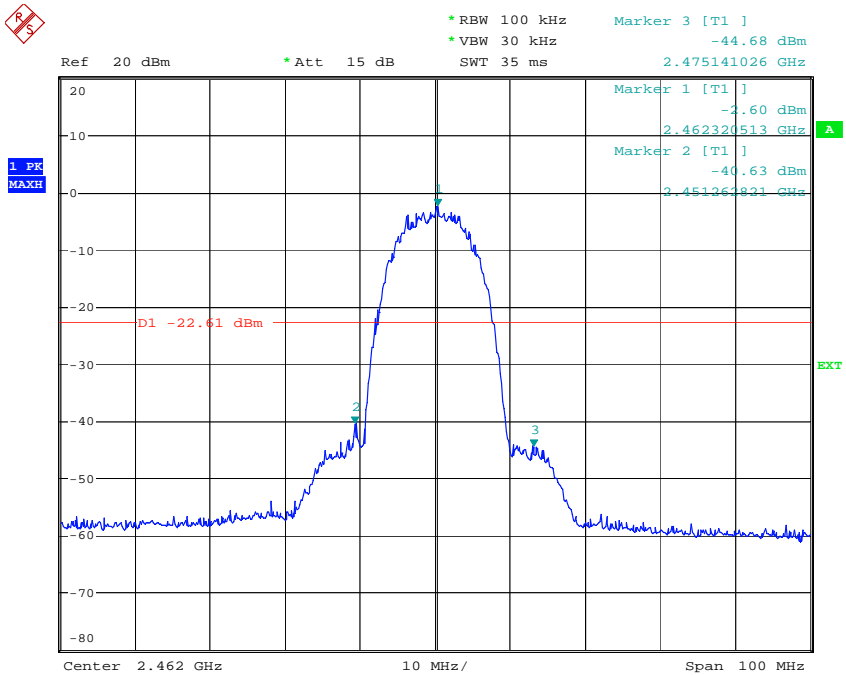
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Fig 9 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)



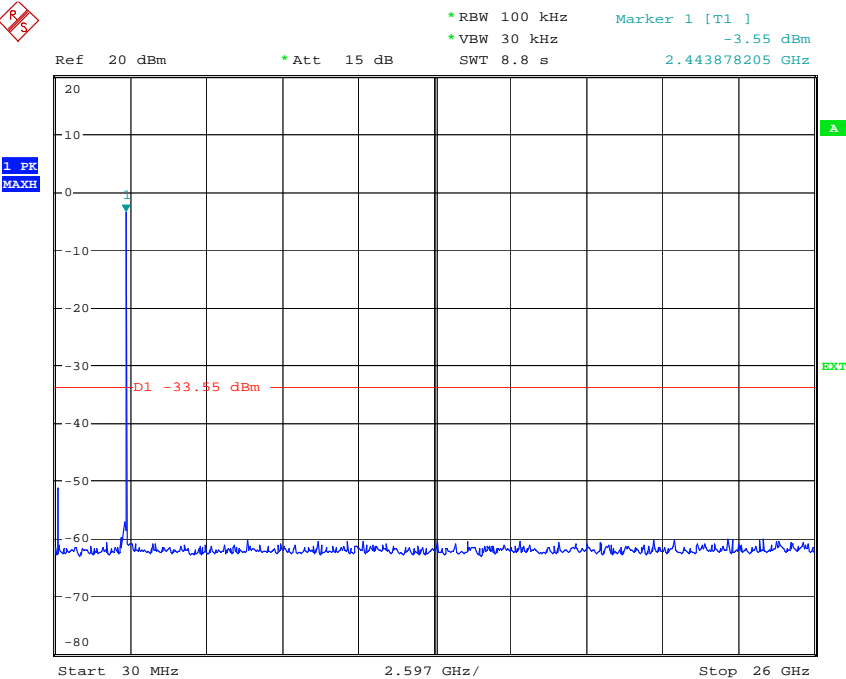
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Fig 10 Conducted Spurious Emission (802.11b, Ch6, 30 MHz~26 GHz)



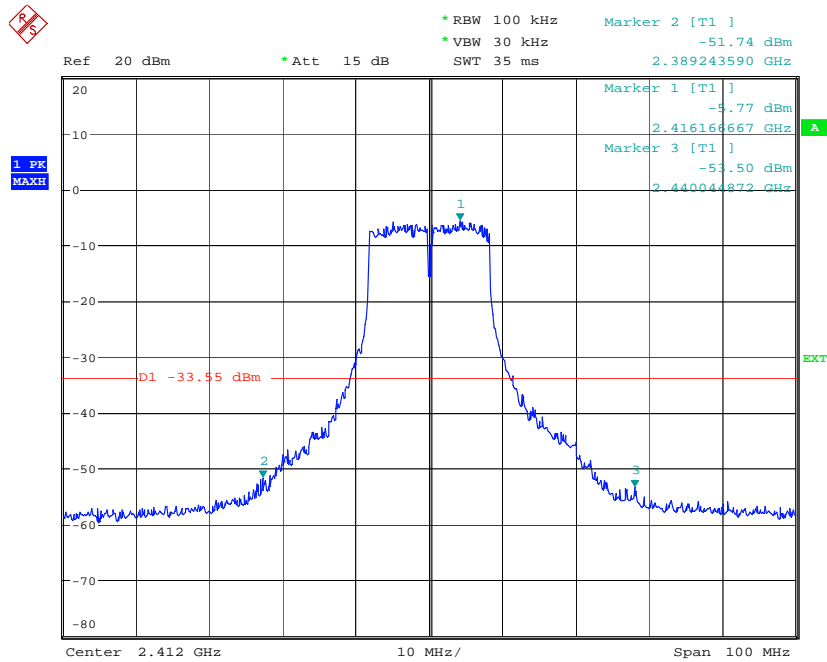
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Fig 11 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)



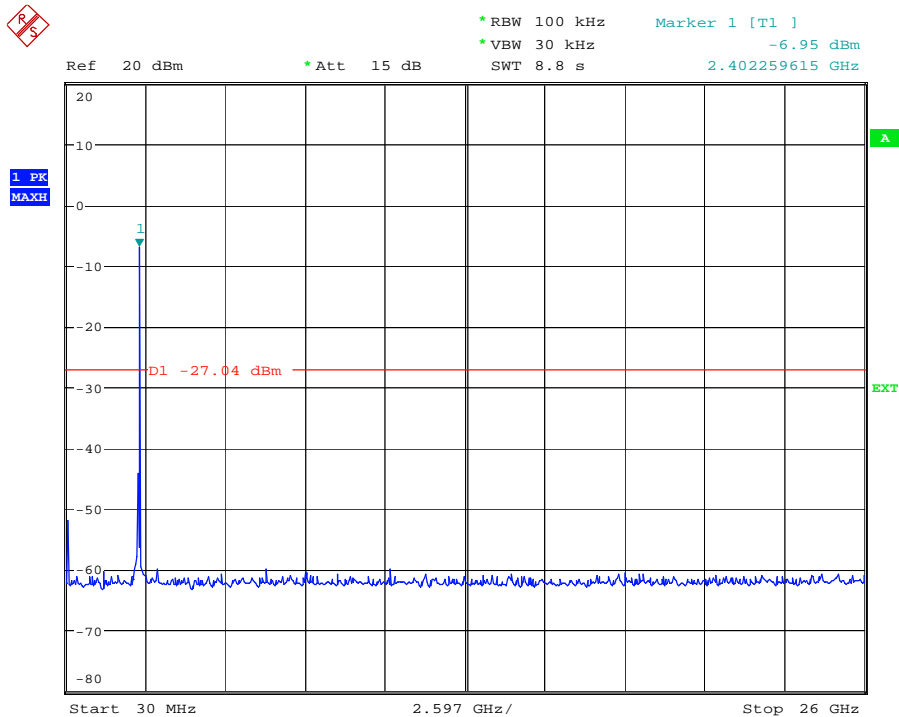
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Fig 12 Conducted Spurious Emission (802.11b, Ch11, 30 MHz~26 GHz)



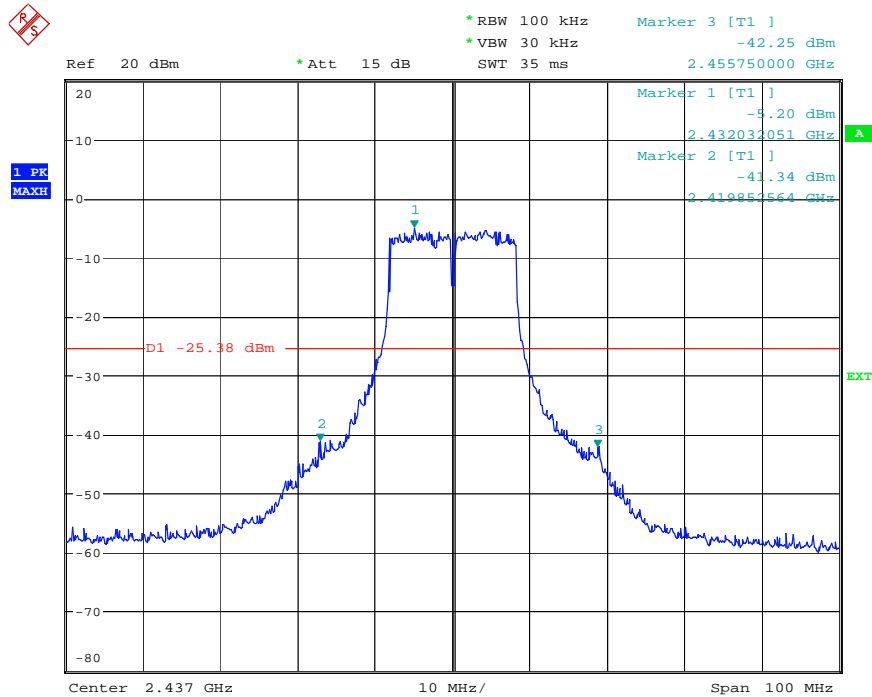
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Fig 13 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)



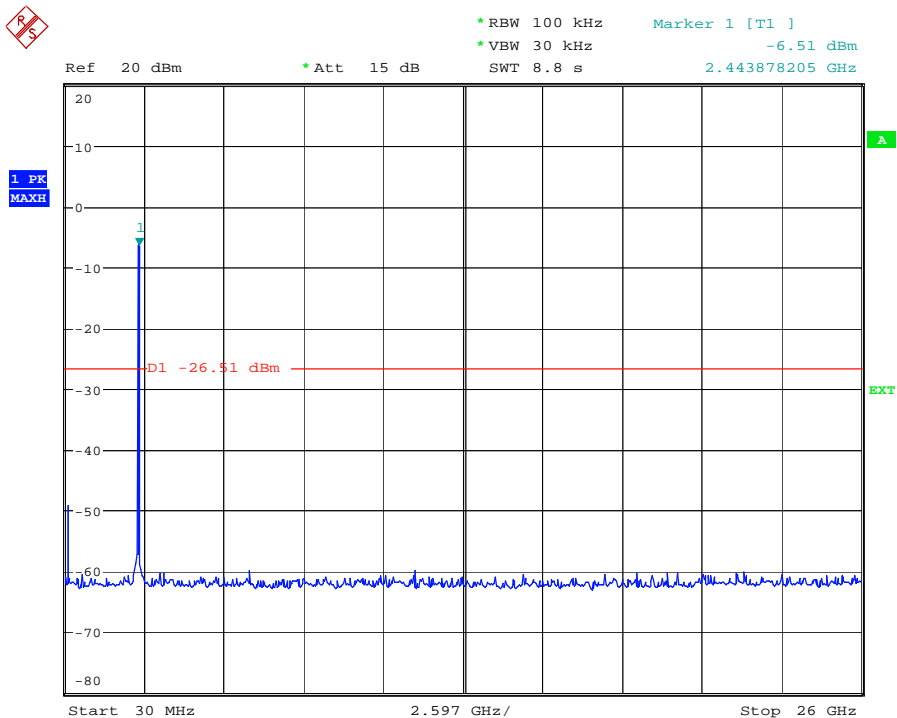
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Fig 14 Conducted Spurious Emission (802.11g, Ch1, 30 MHz~26 GHz)



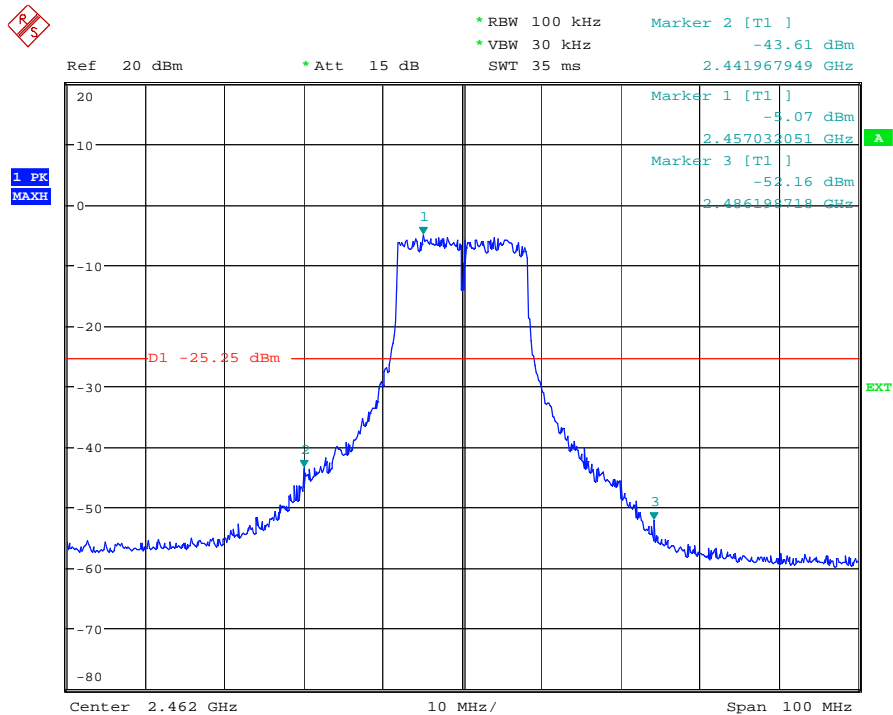
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Fig 15 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)



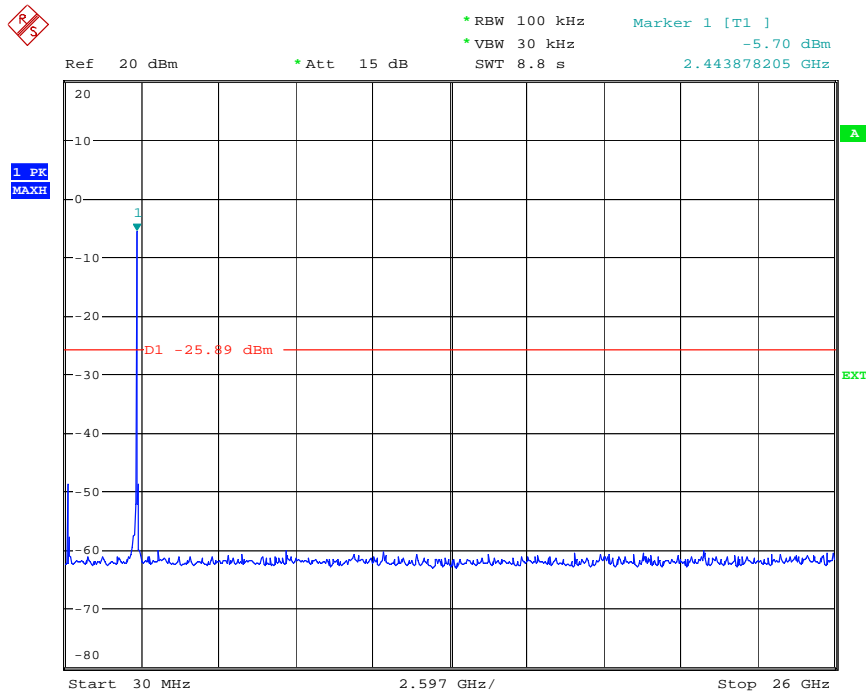
Date: 4.APR.2007 09:44:12

Fig 16 Conducted Spurious Emission (802.11g, Ch6, 30 MHz~26 GHz)



Date: 4.APR.2007 09:45:49

Fig 17 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)



Date: 4.APR.2007 09:46:45

Fig 18 Conducted Spurious Emission (802.11g, Ch11, 30 MHz~26 GHz)

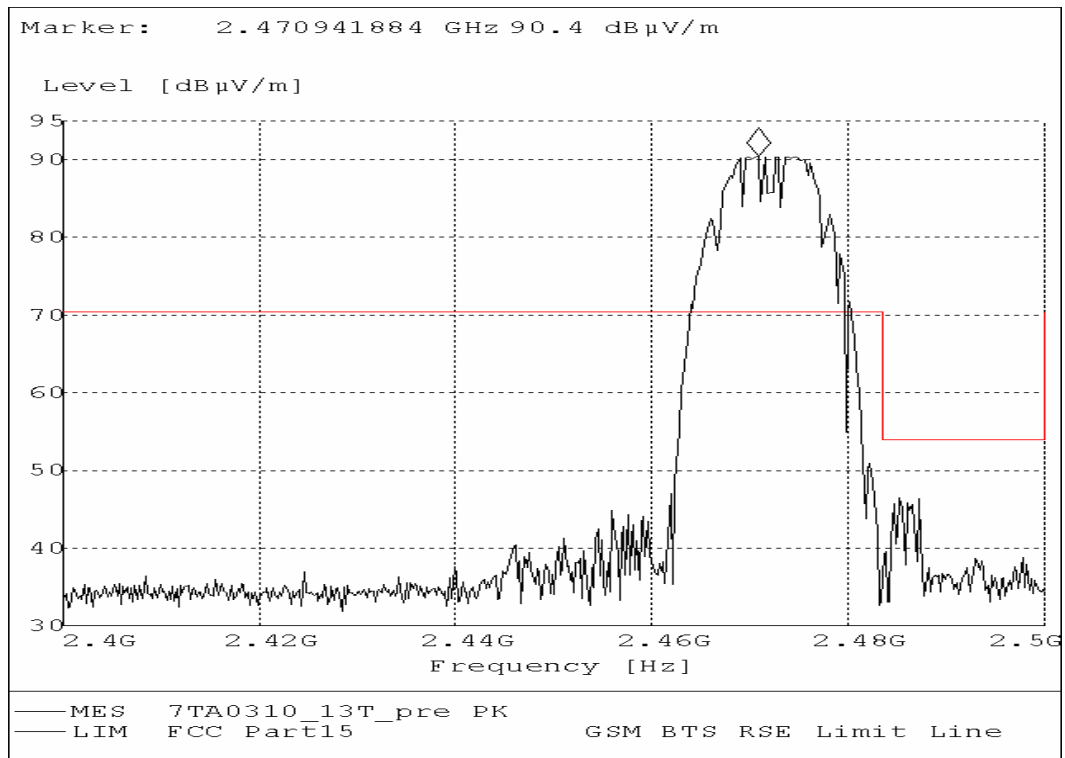


Fig 19 The Peak Power Output and Limit of Radiated Spurious Emission

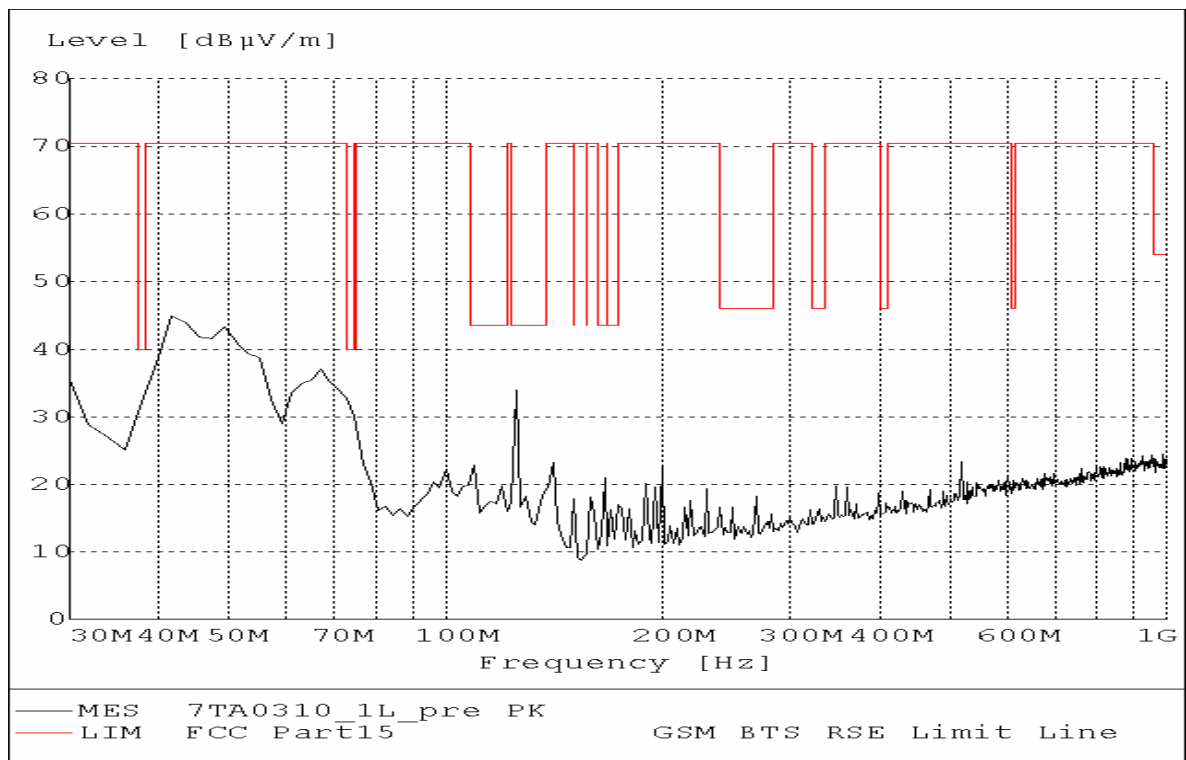


Fig 20 Radiated Spurious Emission (Ch 1, 802.11g, 30MHz ~1GHz)

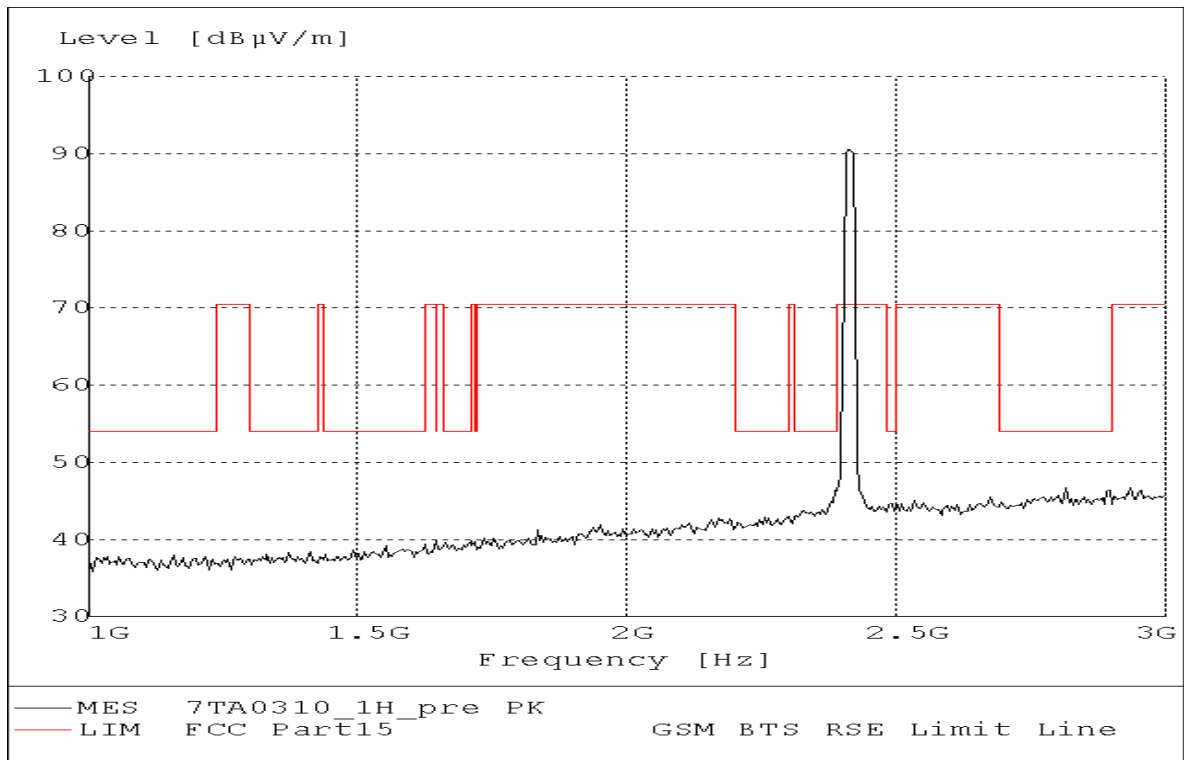


Fig 21 Radiated Spurious Emission(Ch1, 802.11g, 1GHz – 3GHz)

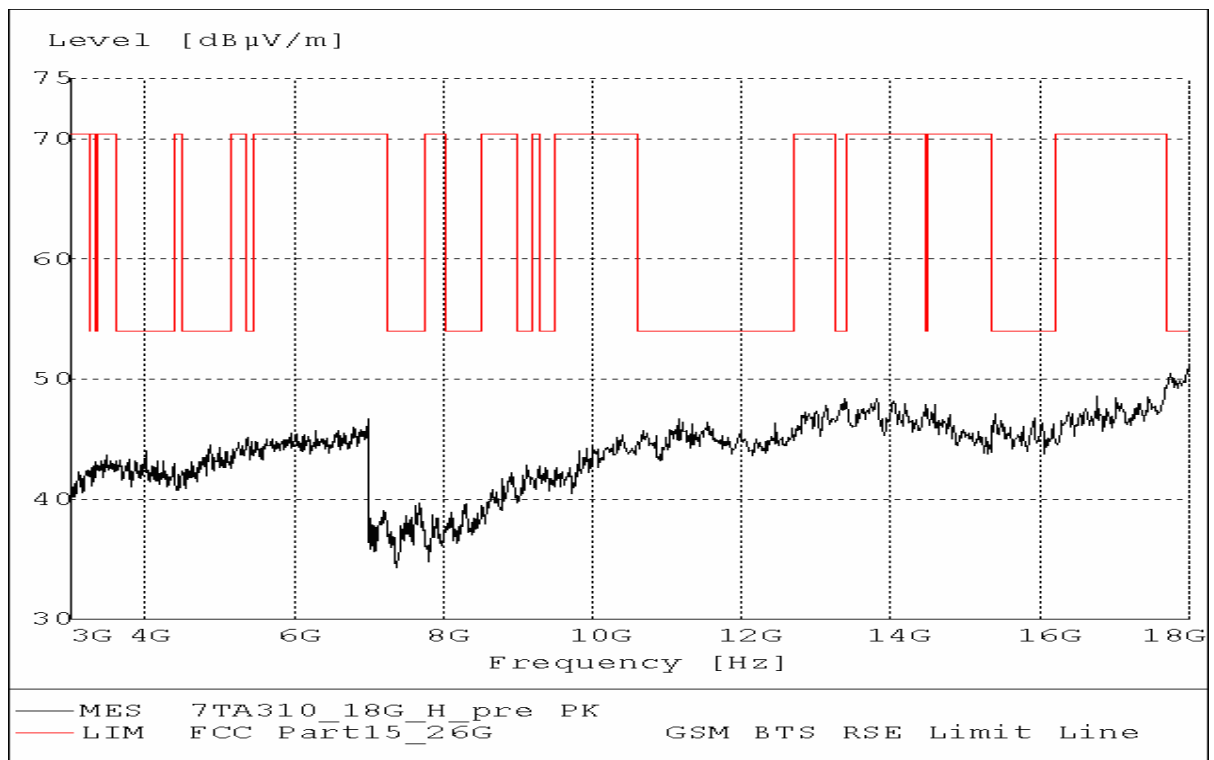


Fig 22 Radiated Spurious Emission (Ch 1, 802.11g, 3GHz ~18GHz)

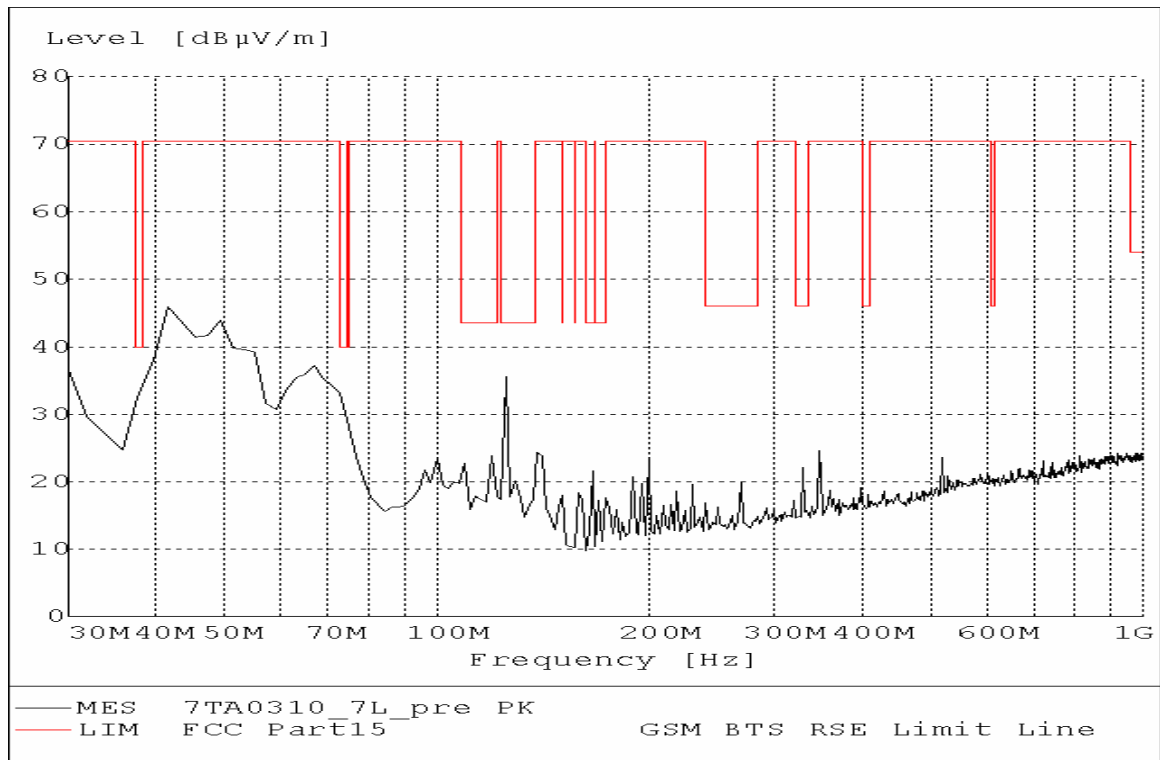


Fig 23 Radiated Spurious Emission (Ch 6, 802.11g, 30MHz ~1GHz)

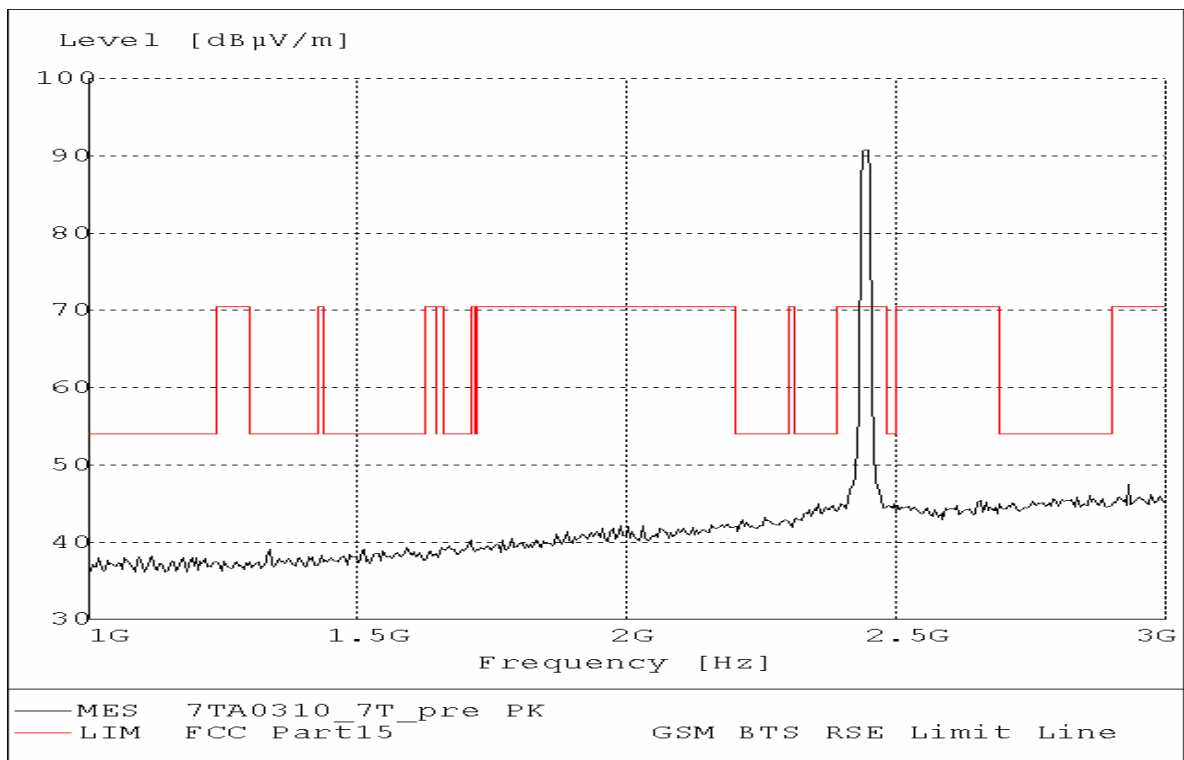


Fig 24 Radiated Spurious Emission (Ch 6, 802.11g, 1GHz ~3GHz)

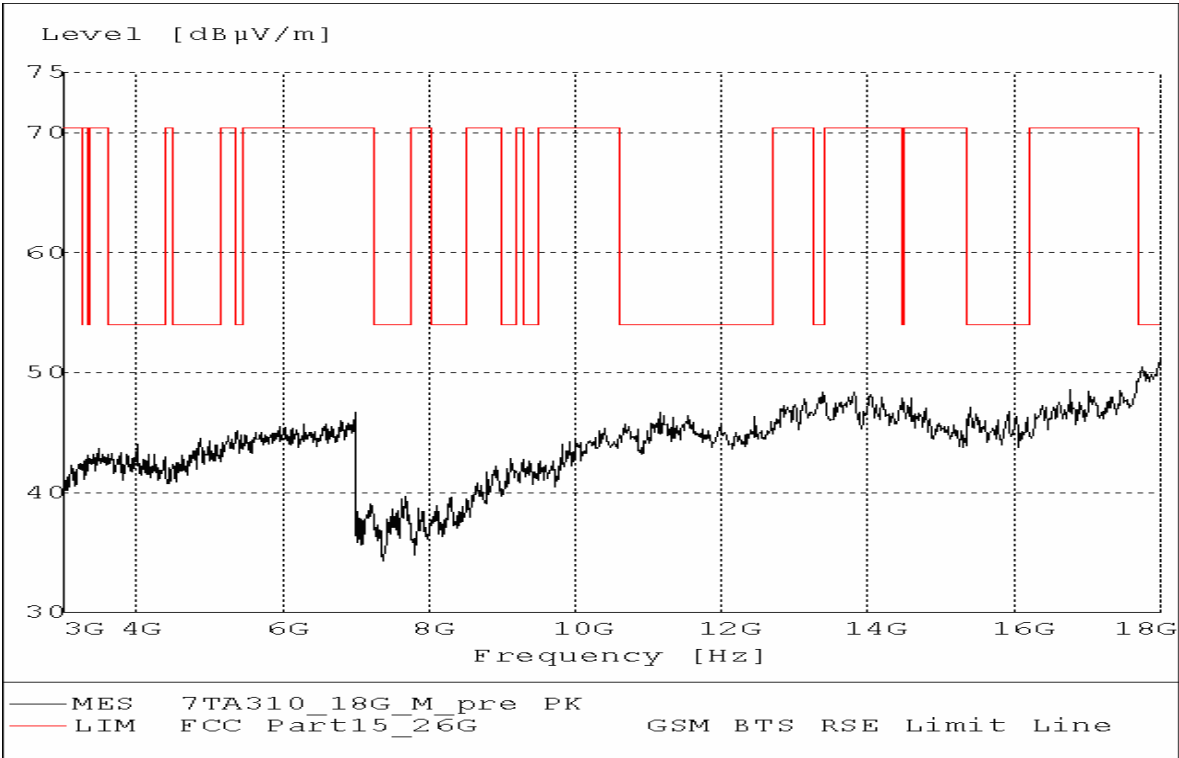


Fig 25 Radiated Spurious Emission (Ch 6, 802.11g, 3GHz~18GHz)

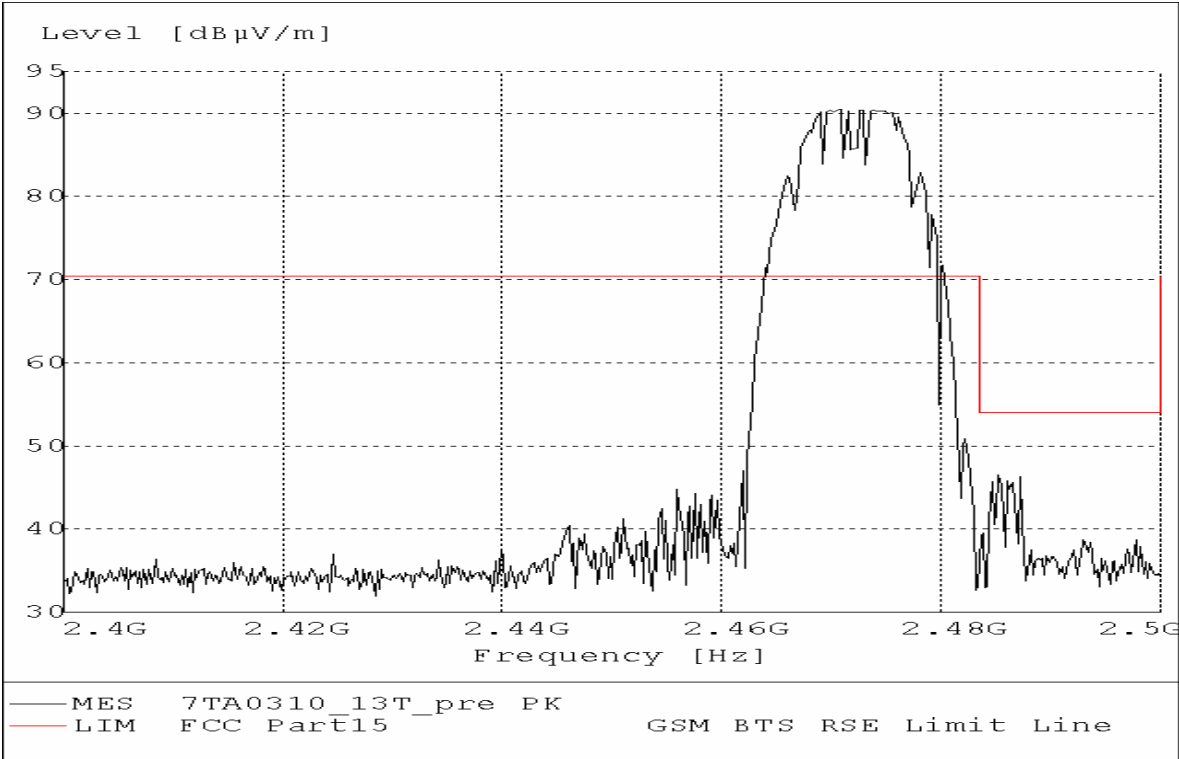


Fig 26 Radiated Spurious Emission (Ch 11, 802.11g, Center Frequency)

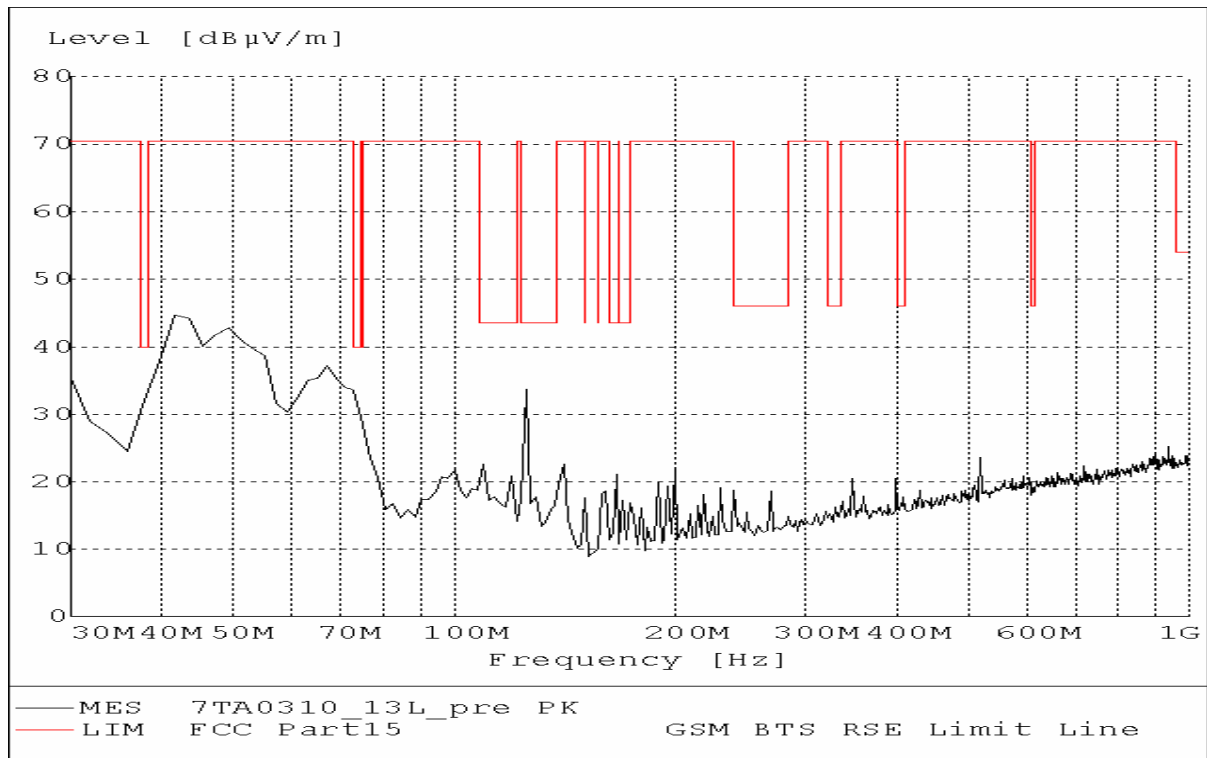


Fig 27 Radiated Spurious Emission (Ch 11, 802.11g, 30MHz ~1GHz)

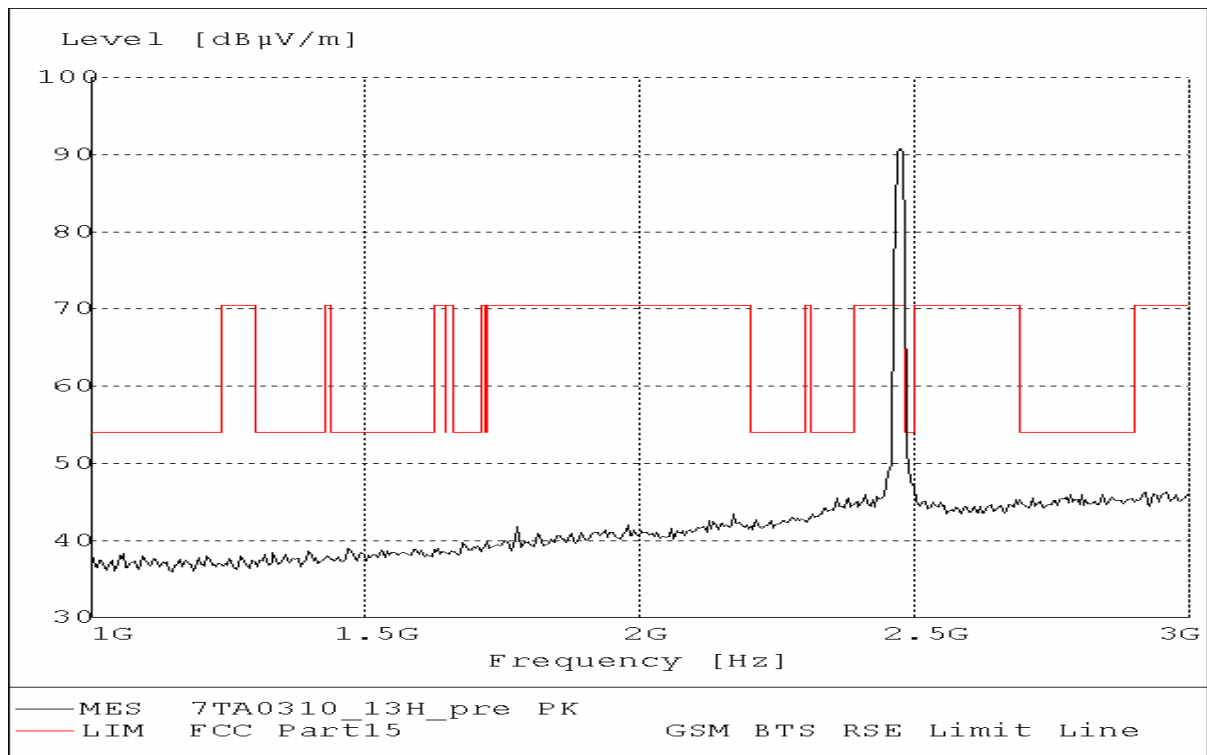


Fig 28 Radiated Spurious Emission (Ch 11, 802.11g, 1GHz ~3GHz)

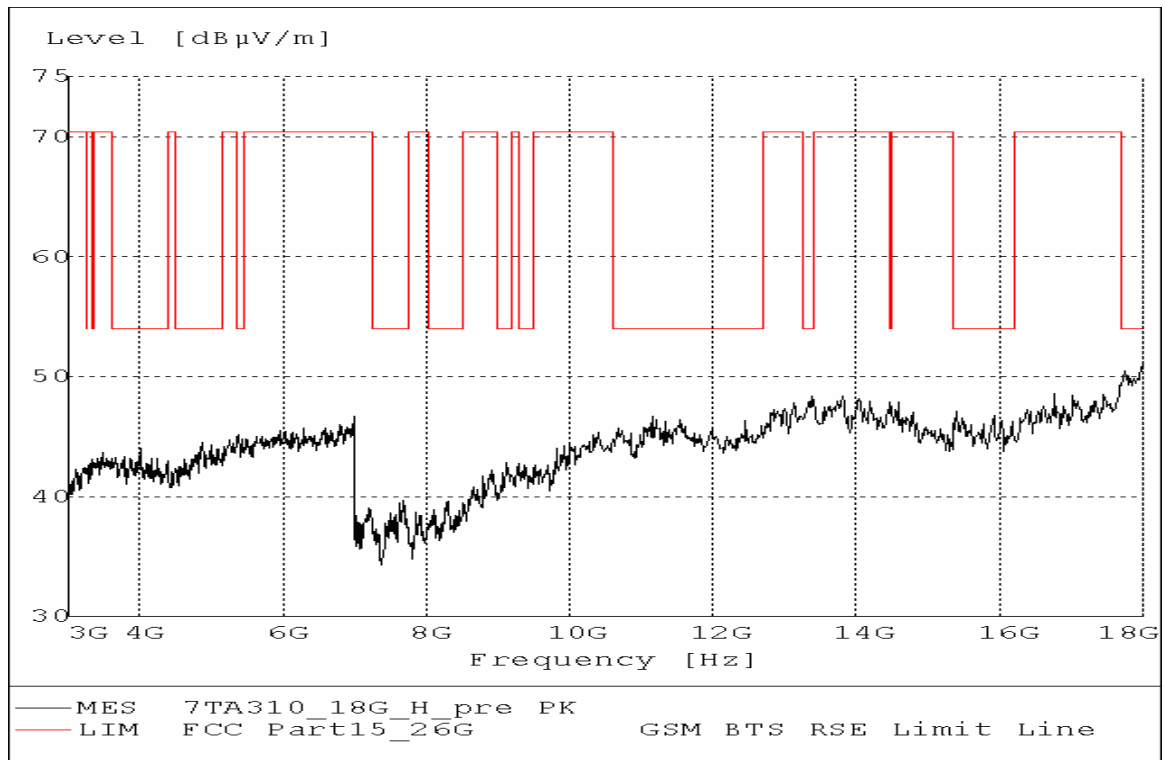


Fig 29 Radiated Spurious Emission (Ch 11, 802.11g, 3GHz ~18GHz)

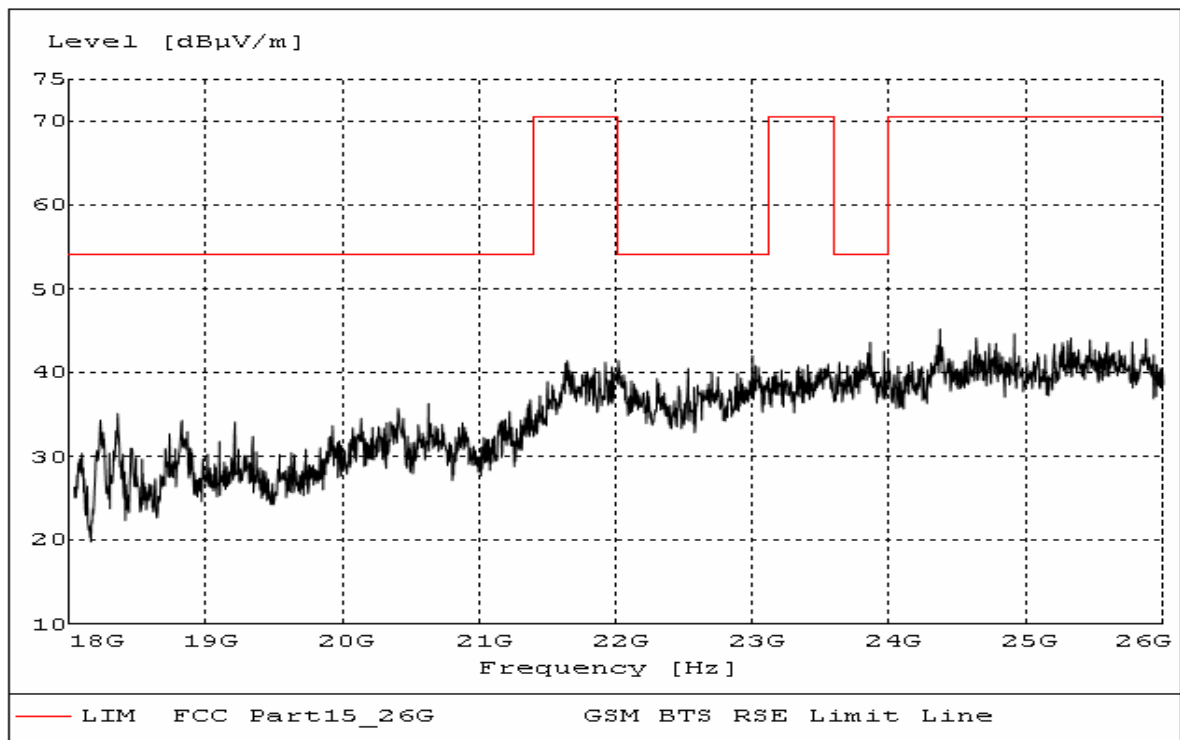
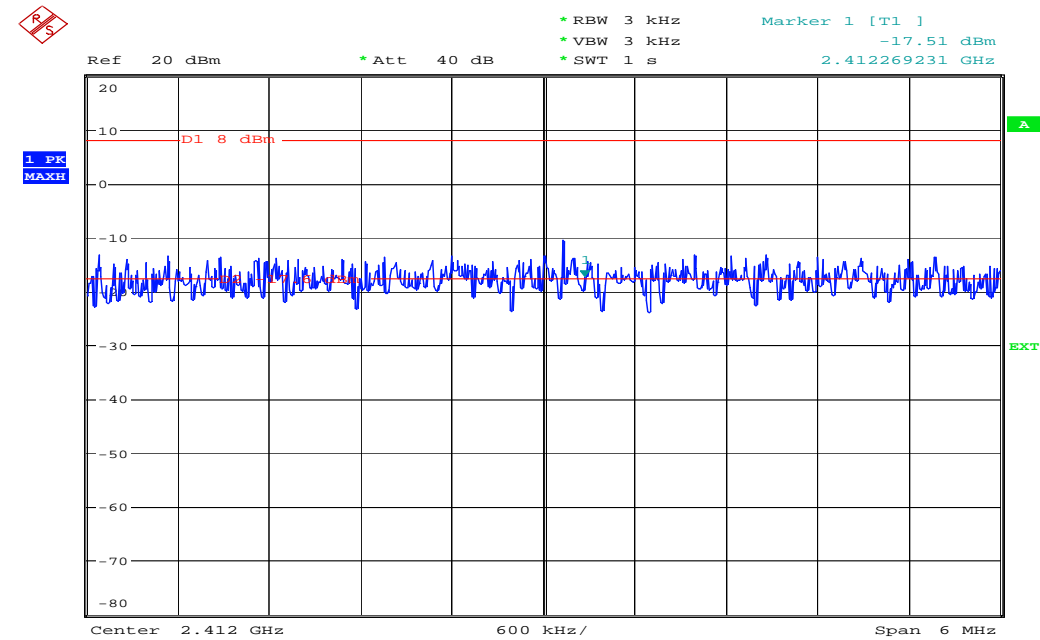
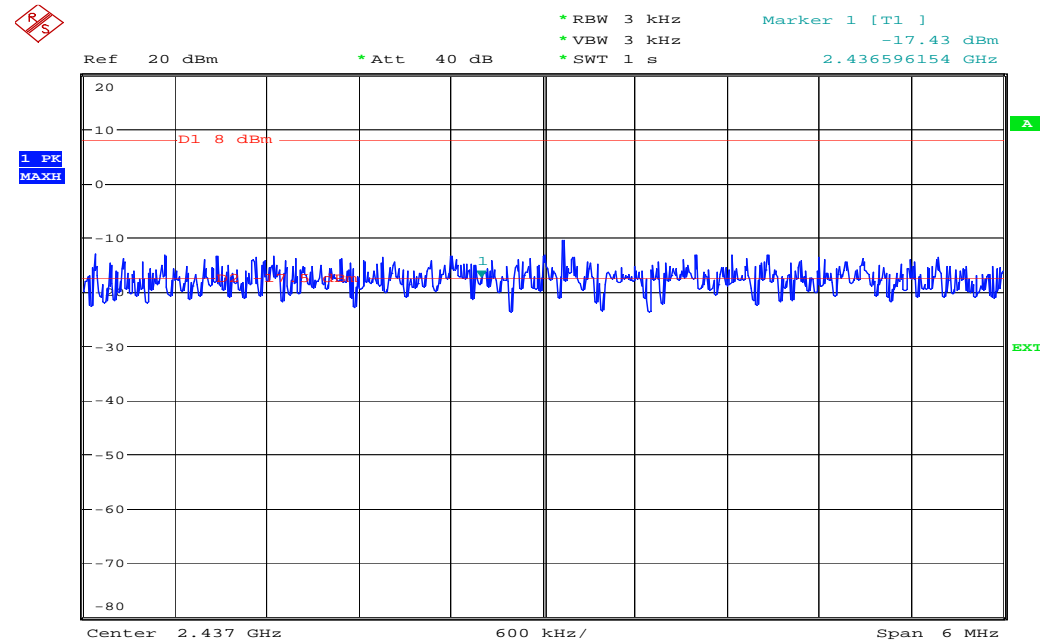


Fig 30 Radiated Spurious Emission (Ch 11, 802.11g, 18GHz-26GHz)



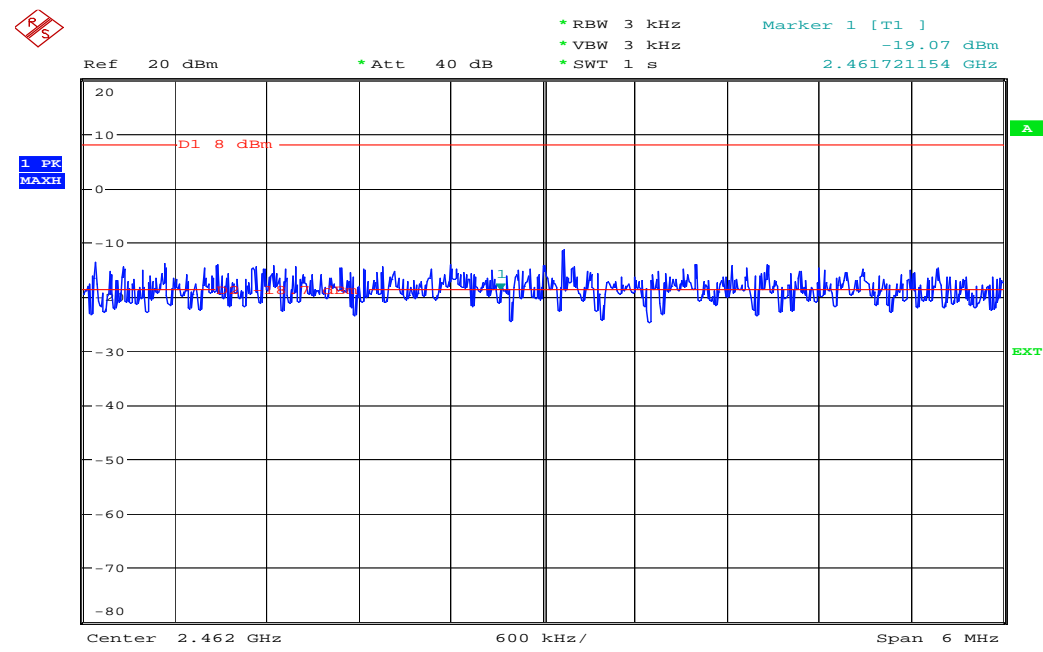
Date: 28.FEB.2007 10:04:54

Fig 31 Peak Power Spectral Density (802.11b Ch 1)



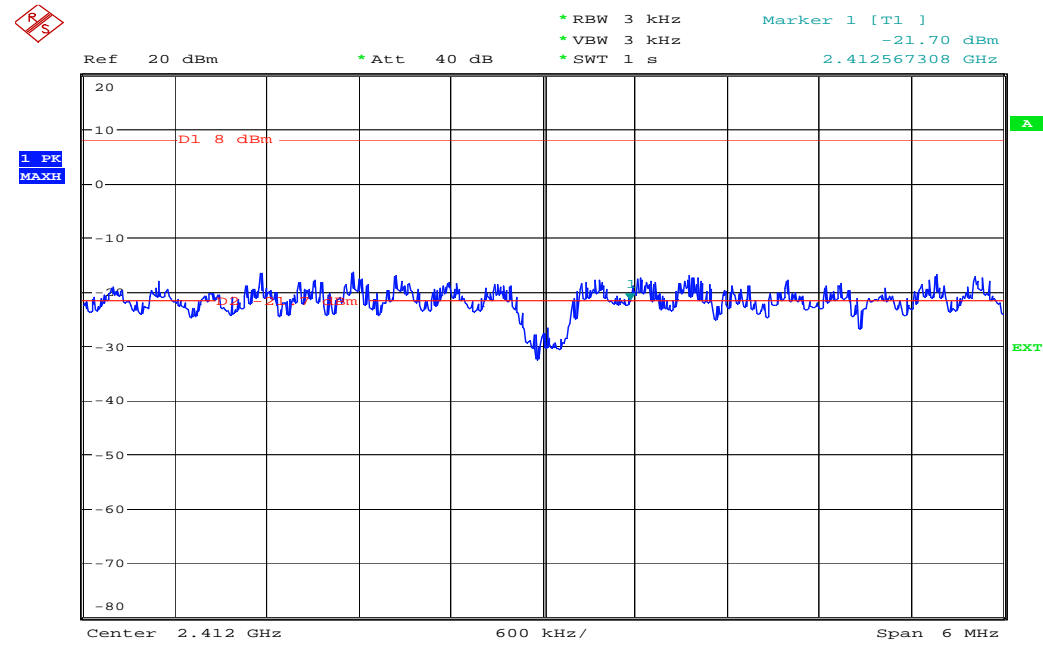
Date: 28.FEB.2007 10:08:07

Fig 32 Peak Power Spectral Density (802.11b, Ch 6)



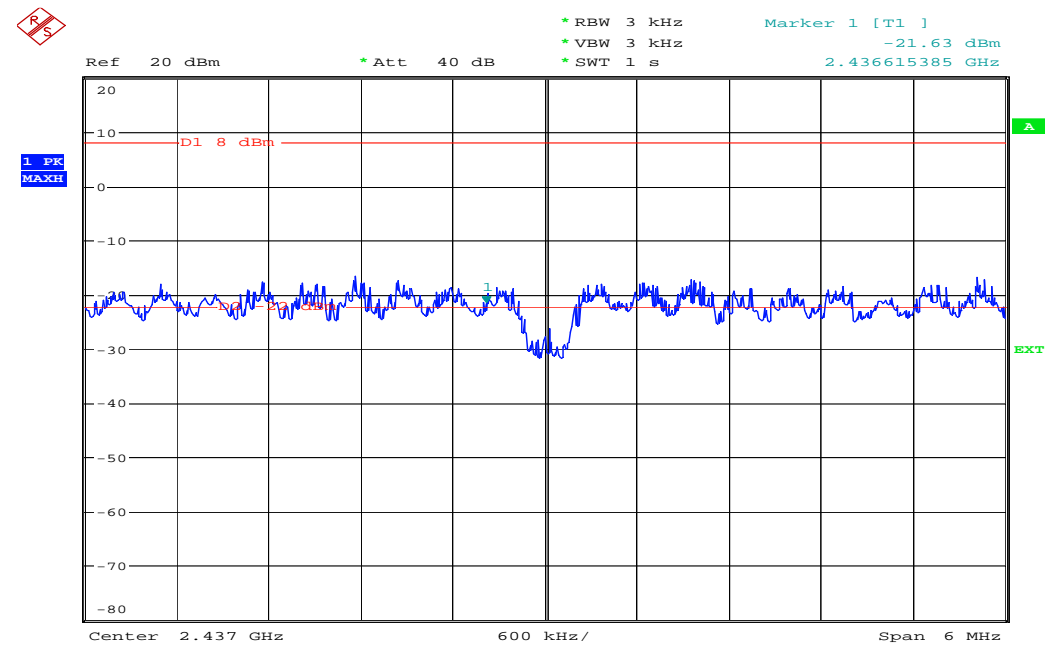
Date: 28.FEB.2007 10:08:50

Fig 33 Peak Power Spectral Density (802.11b, Ch11)



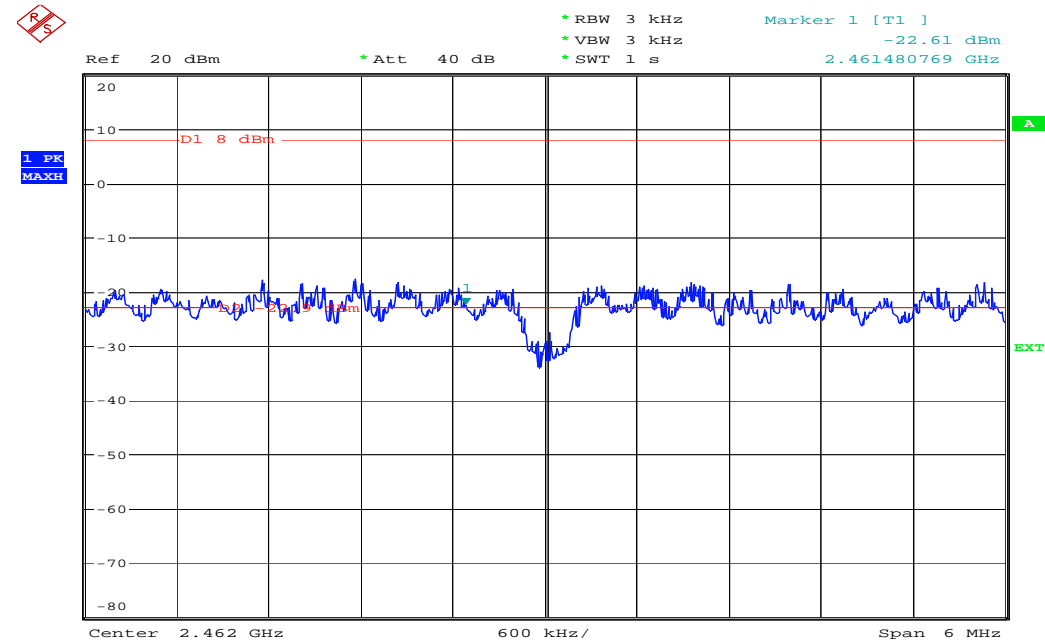
Date: 28.FEB.2007 10:06:16

Fig 34 Peak Power Spectral Density (802.11g, Ch 1)



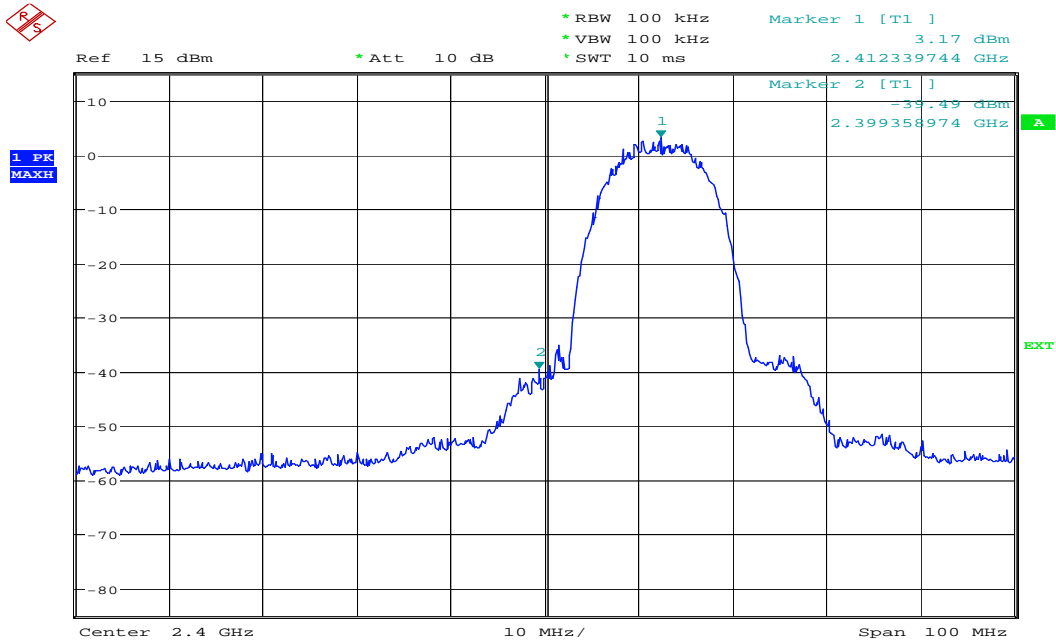
Date: 28.FEB.2007 10:07:19

Fig 35 Peak Power Spectral Density (802.11g, Ch 6)



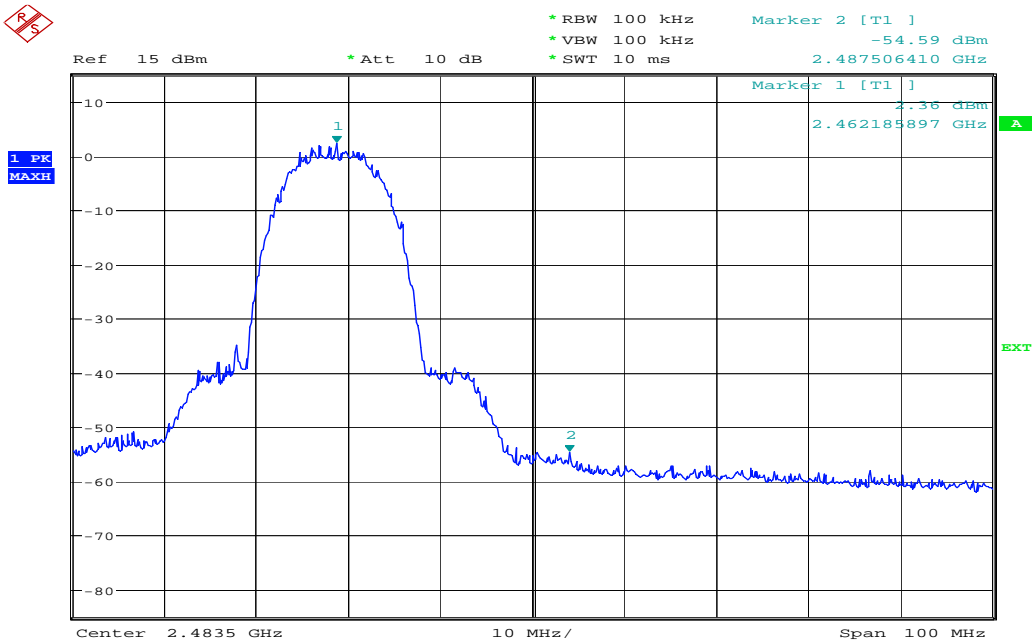
Date: 28.FEB.2007 10:09:34

Fig 36 Peak Power Spectral Density (802.11g Ch11)



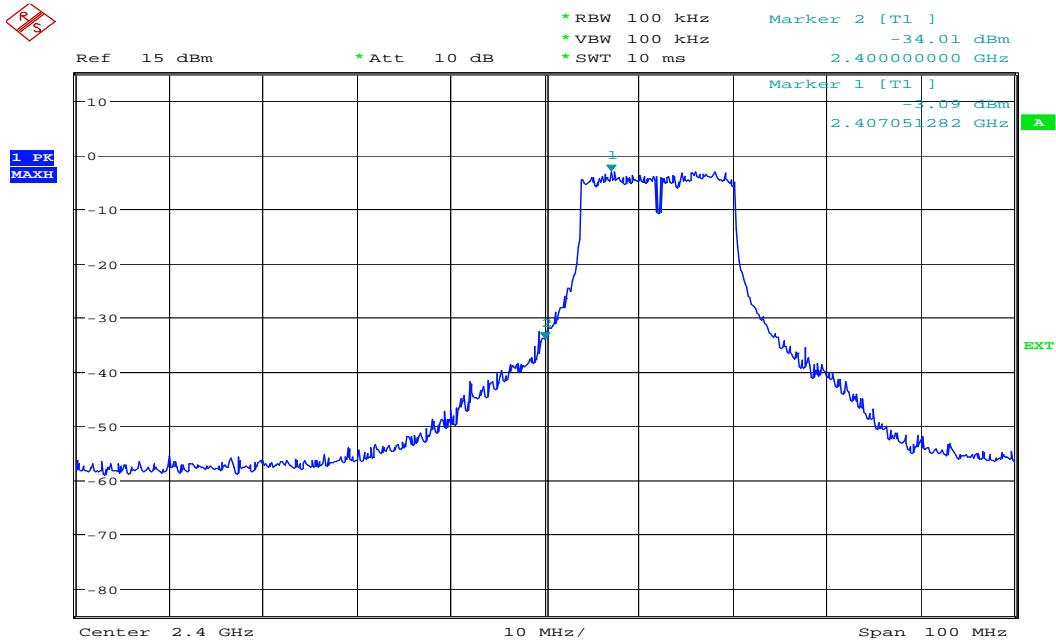
Date: 28.FEB.2007 10:13:56

Fig 37 Band Edges (802.11b, Ch 1)



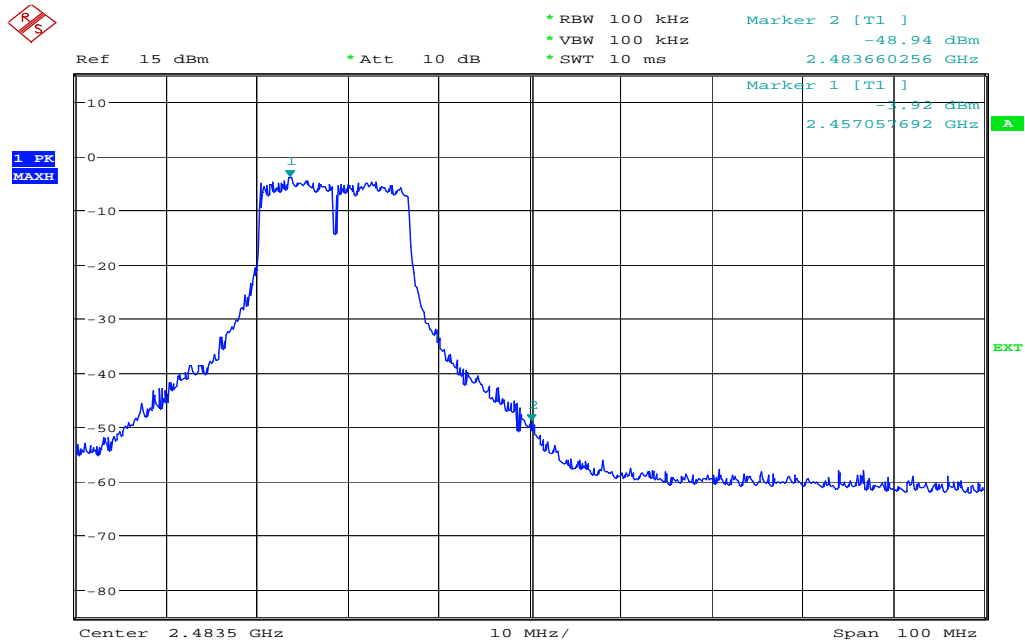
Date: 28.FEB.2007 10:16:33

Fig 38 Band Edges (802.11b Ch 11)



Date: 28.FEB.2007 10:14:58

Fig 39 Band Edges (802.11g Ch 1)



Date: 28.FEB.2007 10:17:10

Fig 40 Band Edges (802.11g Ch 11)

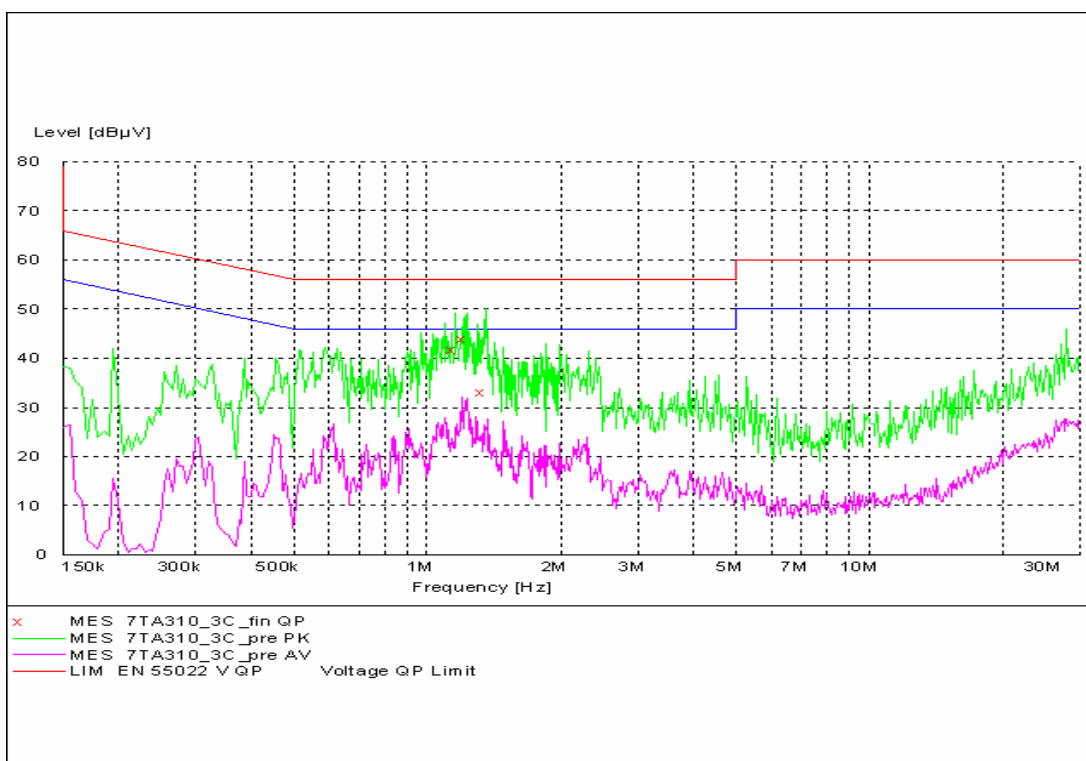


Fig 41 Powerline Conducted Emission for GSM850 MHz

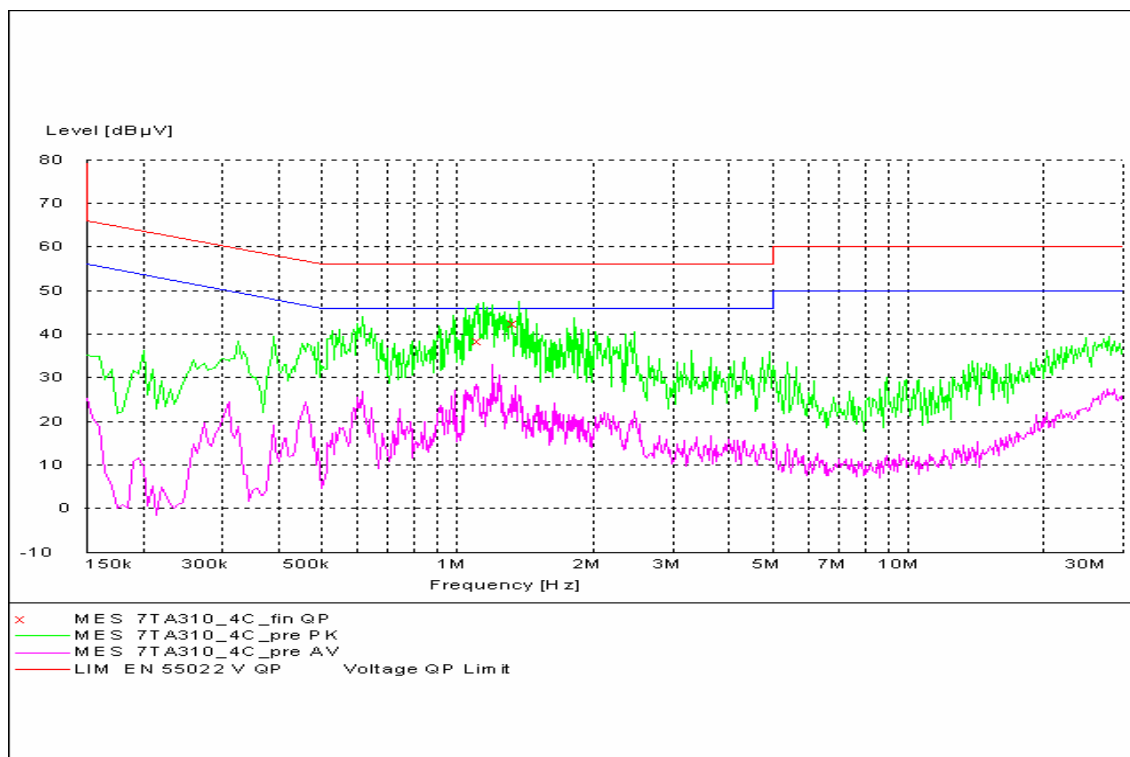


Fig 42 Powerline Conducted Emission for GSM1900 MHz

ANNEX D: TEST LAYOUT

Photo of Radiated Spurious Emission Test



END OF REPORT BODY