5.6. BAND EDGES MEASUREMENT

5.6.1 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.6.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW and VBW of spectrum analyzer to 100KHz, 300khz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

5.6.3 EUT OPERATING CONDITION

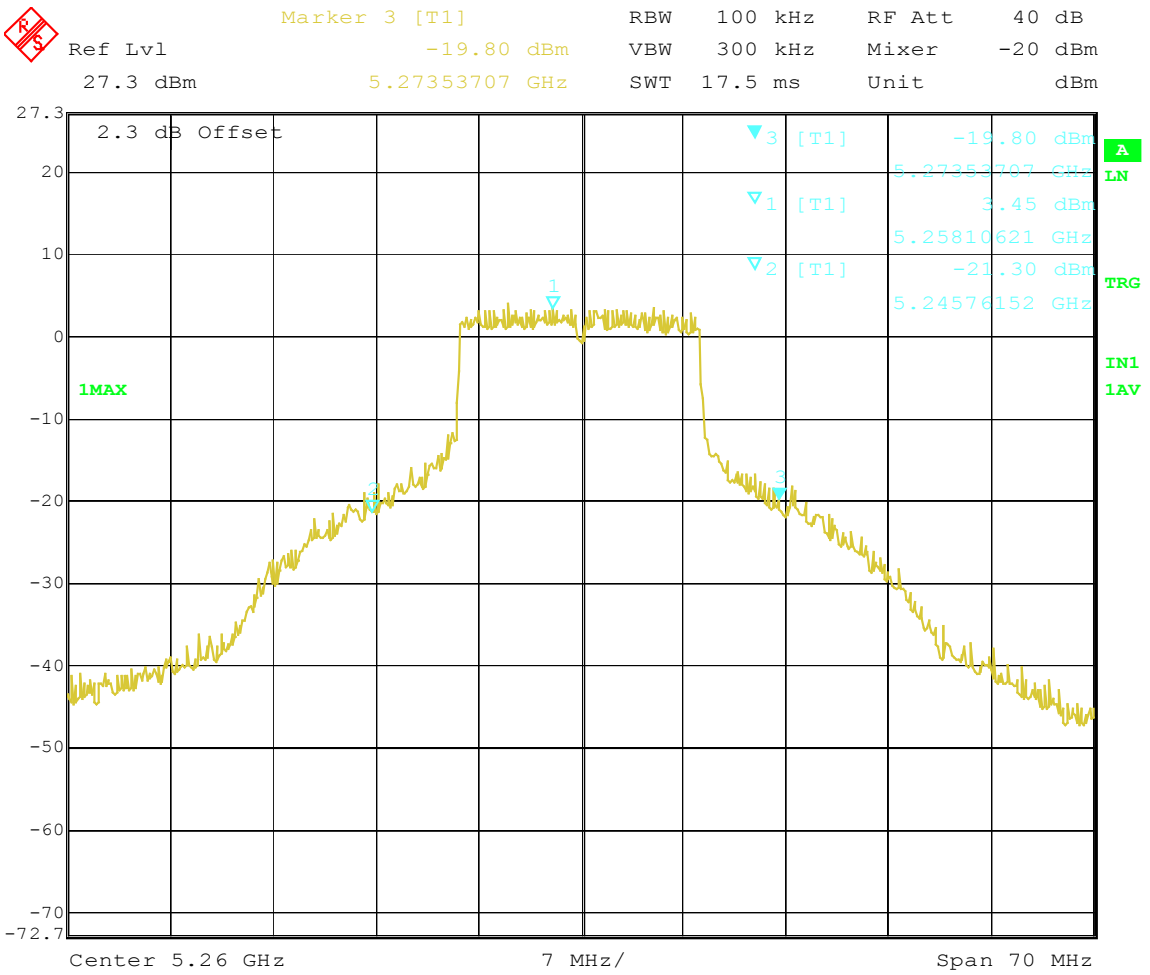
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle, and highest channel frequency individually.

5.6.4 TEST RESULTS

The spectrum plots are attached on the following pages. The marker indicates the highest level. It shows compliance with the requirement in part 15.247(C).

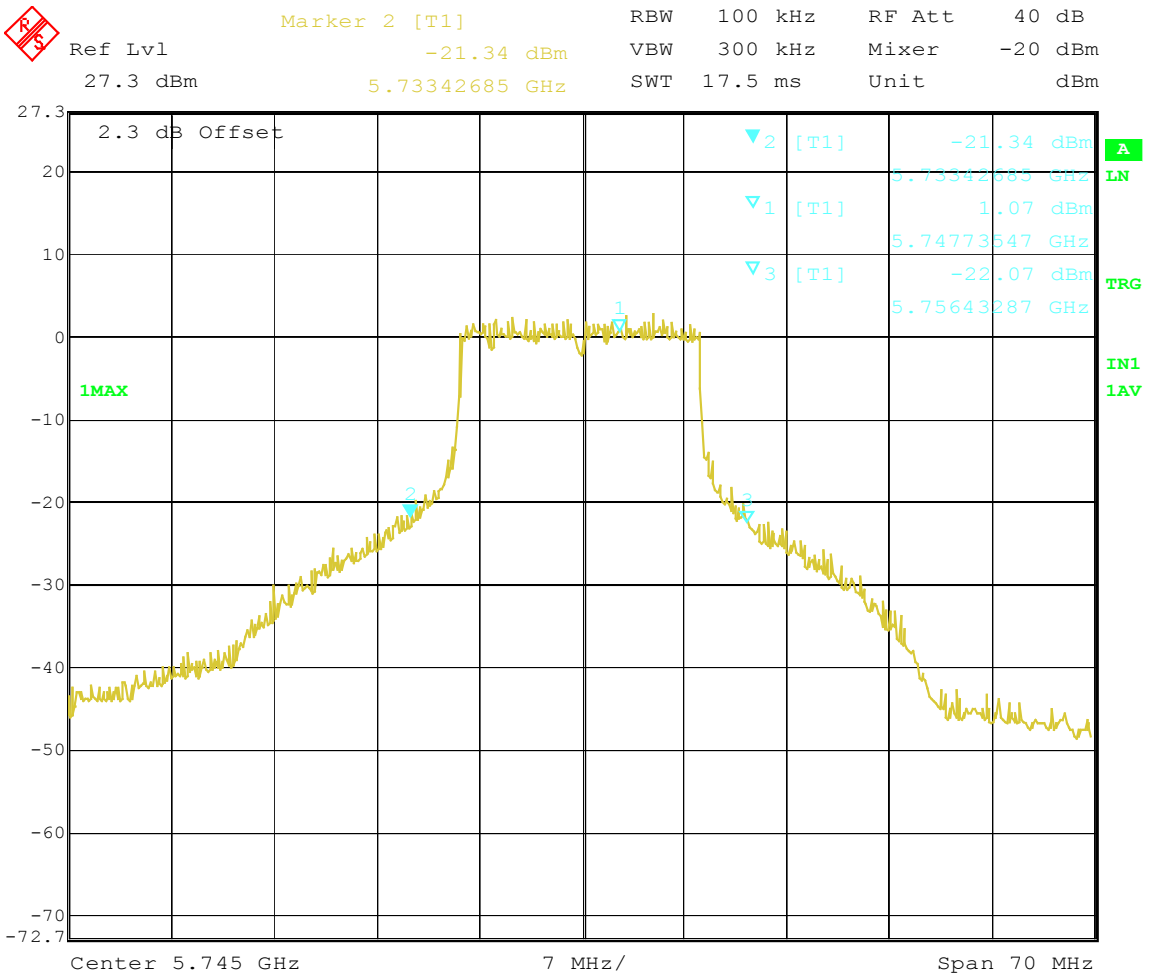
NOTE 1:
The Lower band edge emission plot on the following 2 pages for Channel 52,149) shows at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.25GHz, 5.725GHz), based on a RF conducted measurement.

Lower band edge
Channel 52
Data rate: 6Mbps



Title: 52-6-band edge
Date: 21.MAR.2005 15:27:45

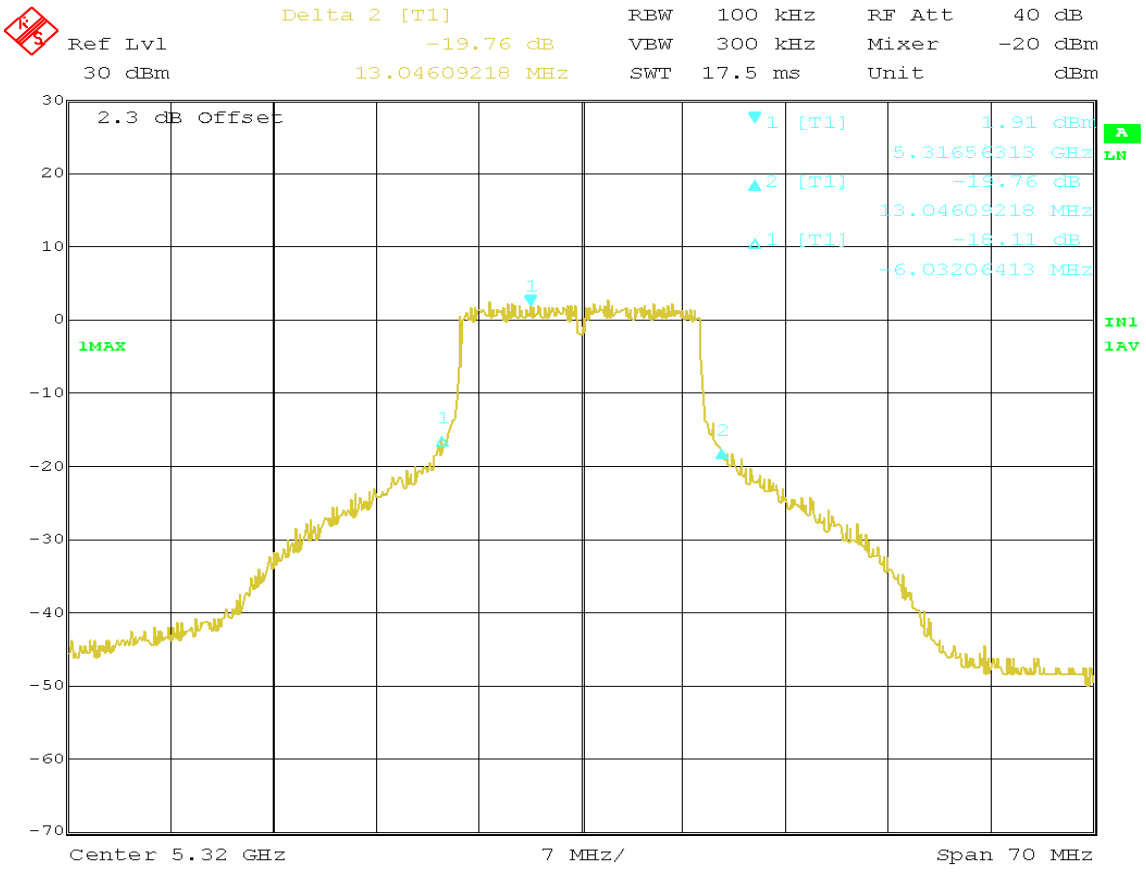
Lower band edge
Channel 149
Data rate: 6Mbps



Title: 149-6-band edge
Date: 21.MAR.2005 15:33:09

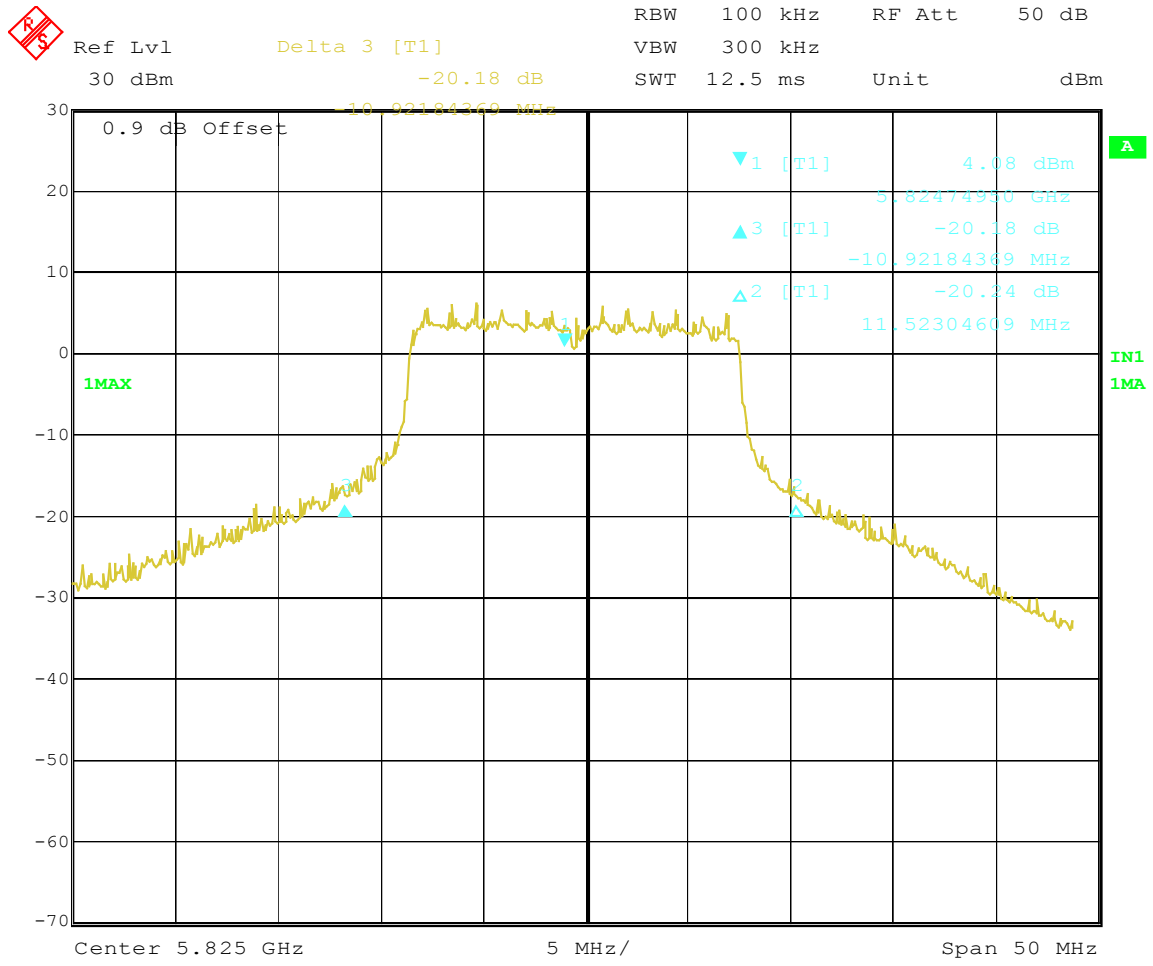
NOTE 2:
The Upper band edge emission plot on the following second 2 page for Channel(64,165) show at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.350GHz,5.850GHz), based on a RF conducted measurement.

Upper band edge
Channel 64
Data rate: 6Mbps



Title: band edge ch 64
Date: 7.APR.2005 16:24:16

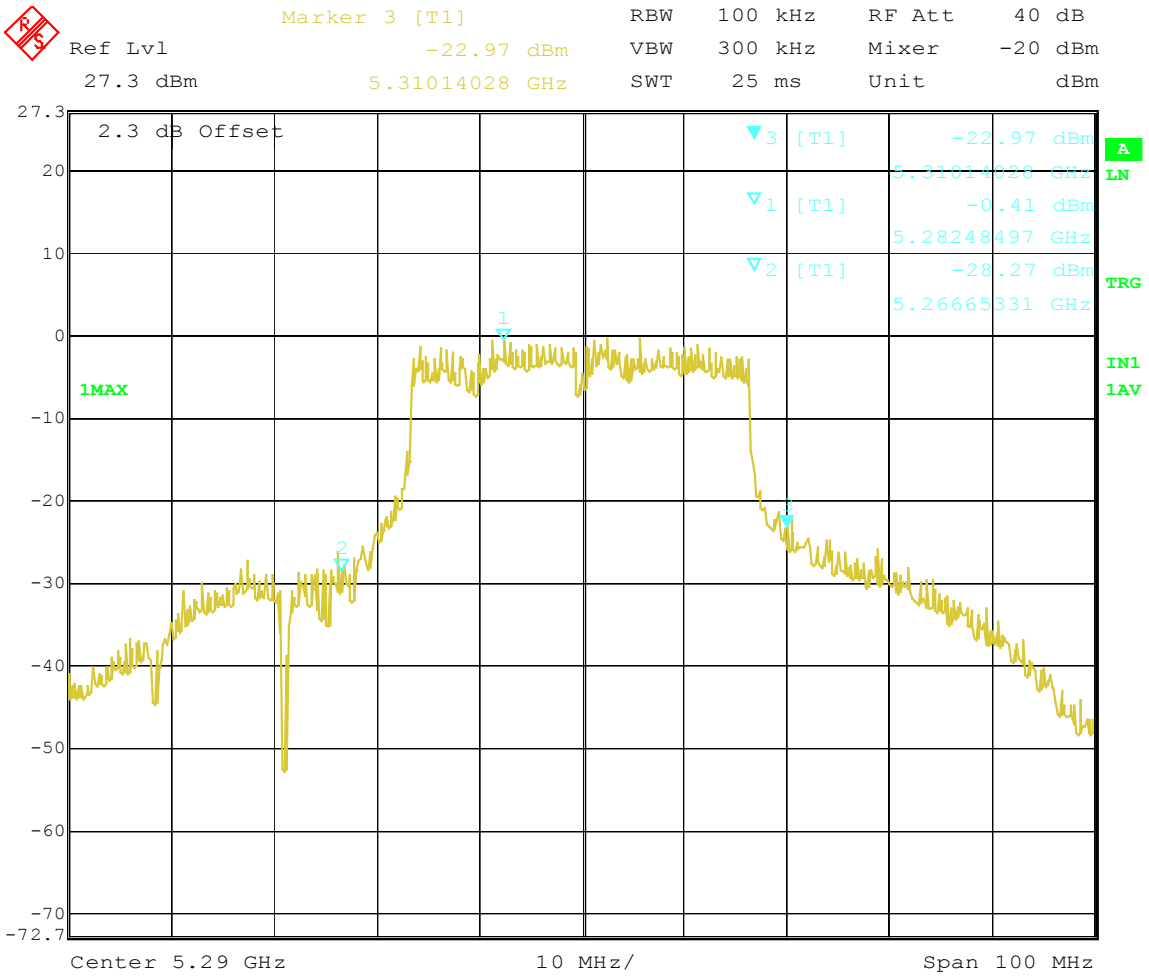
Upper band edge
Channel 165
Data rate: 6Mbps



Title: 165-6-band edge
Date: 31.MAR.2005 15:59:07

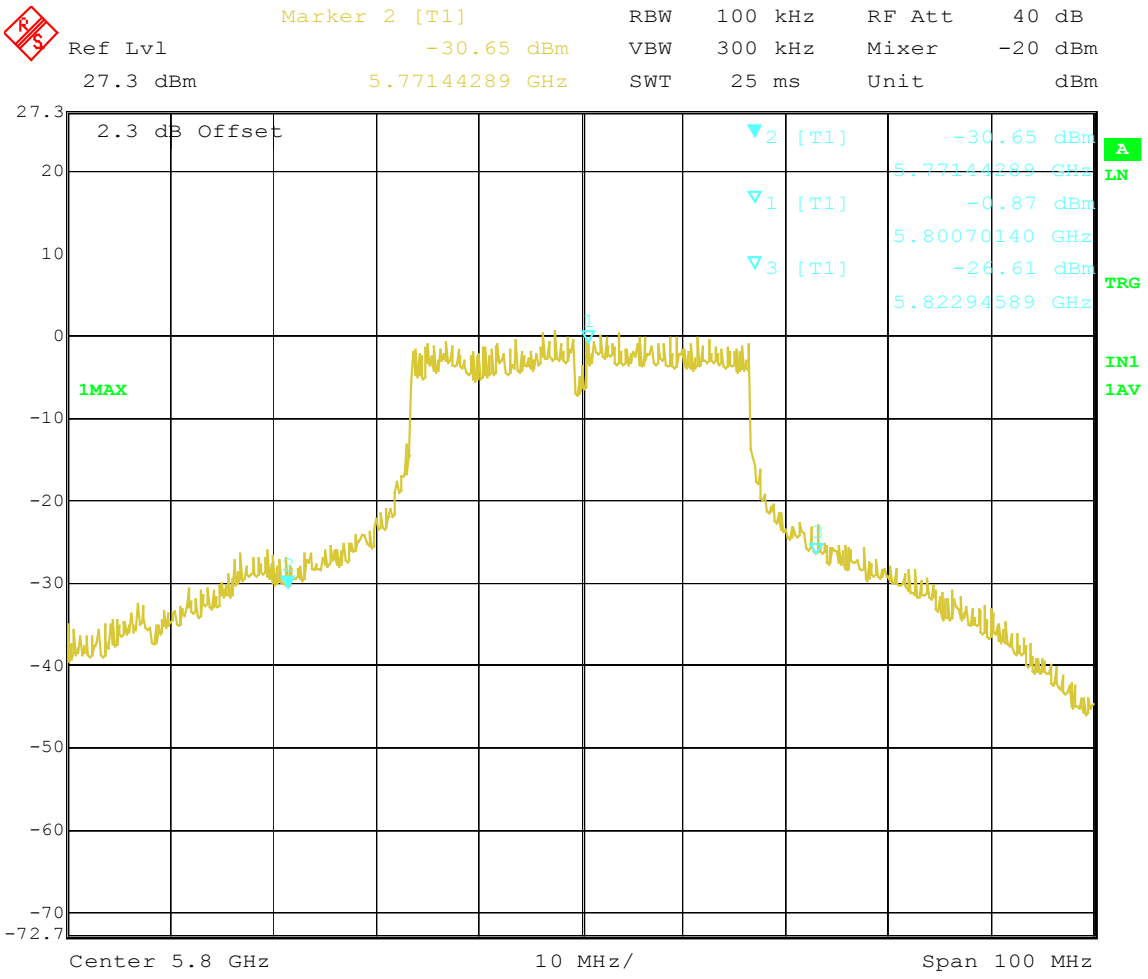
NOTE 3:
The Lower and Upper band edge emission plot on the following second 2 page for Turbo Channel(58,160) show at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.25 - 5.350GHz,5.725-5.825GHz), based on a RF conducted measurement.

Turbo Channel 58



Title: 58turbo-6-band edge
Date: 21.MAR.2005 15:19:22

Turbo Channel 160



Title: 160turbo-6-band edge
Date: 21.MAR.2005 15:15:57

5.7. RESTRICTED BANDS OF OPERATION

5.7.1 LIMITS OF RESTRICTED BANDS OF OPEARATION

54dBuV/m in the following restricted bands of operations: 4.5-5.15GHz, 5.35-5.46GHz.

5.7.2 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.7.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter Semi-Anechoic Chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a Horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would

be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz , 1MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1KHz for Average detection (AV) at frequency above 1GHz.

5.7.4 DEVIATION FROM TEST STANDARD

No deviation

5.7.5 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle channel frequency with all antenna.

5.7.6 TEST RESULTS

For signals in the restricted bands below and above the 5.15 to 5.35GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the Semi-Anechoic Chamber to calculate the field strength of the unintentional signals.

The emission level tables and spectrum plots (Peak RBW=1MHz, VBW=1MHz; Average RBW=1MHz, VBW=1KHz) are attached on the following pages.

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal, Channel 52,56,64 (6Mbps), w/all antenna	**FREQUENCY RANGE**	4500-5150MHz 5350-5460MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**: Sandra Sohn	

Vertical is worse case.

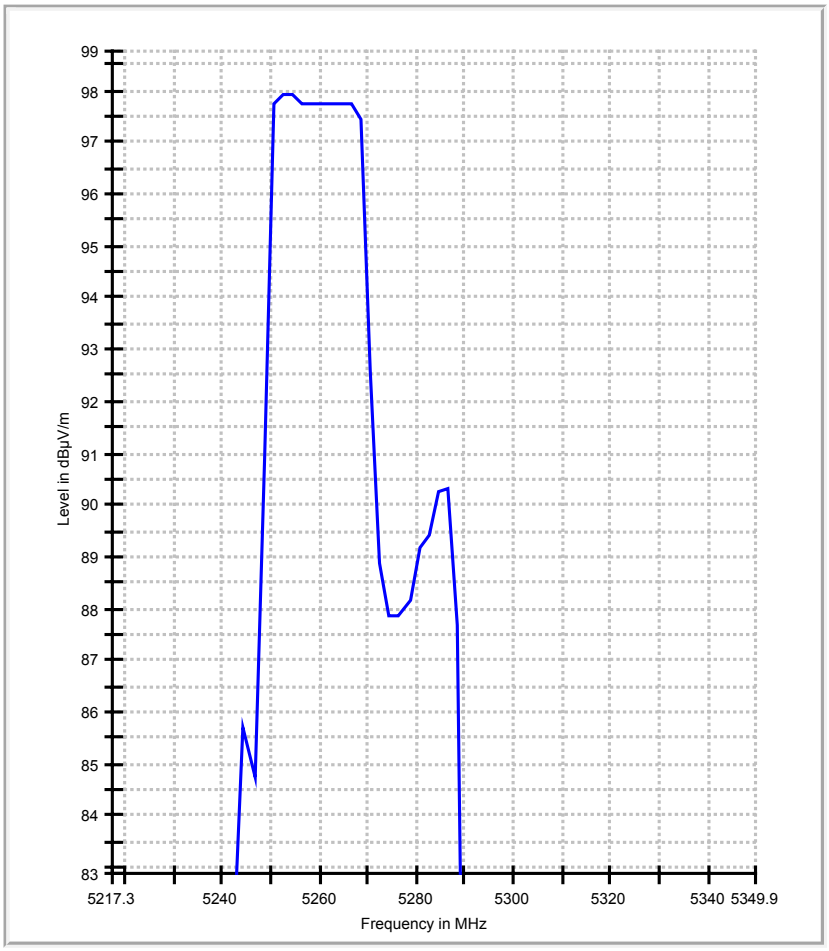
ANTENNA POLARITY & TEST DISTANCE: Vertical AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5138 (P)	55.5 (P)	74 (P)	-18.5	1	9	52.4 (P)	3.1
1	5138 (AV)	41.7 (AV)	54 (AV)	-12.3	1	9	38.6 (AV)	3.1
2	5375 (P)	65.25 (P)	74(P)	-8.75	1	11	62.1 (P)	3.15
2	5375 (AV)	38.45 (AV)	54 (A)	-15.55	1	11	35.3 (AV)	3.15

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.205

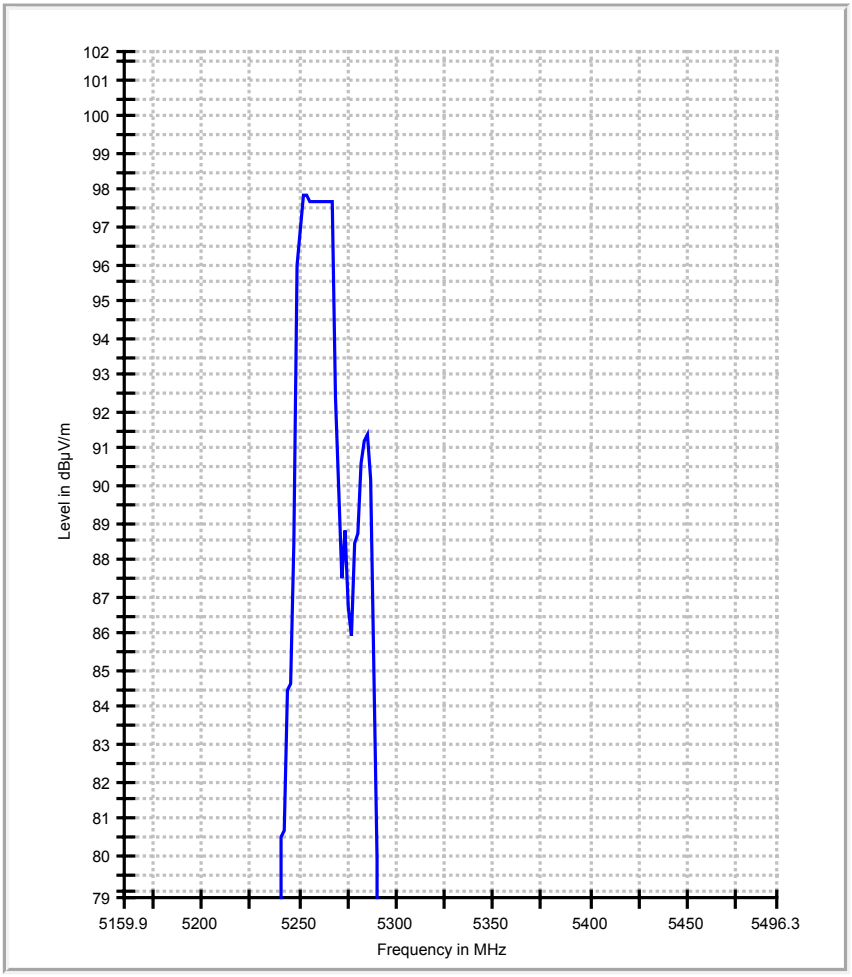
Channel 52,56,64
Data rate: 6 Mbps
MaxPeak No.1

Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz



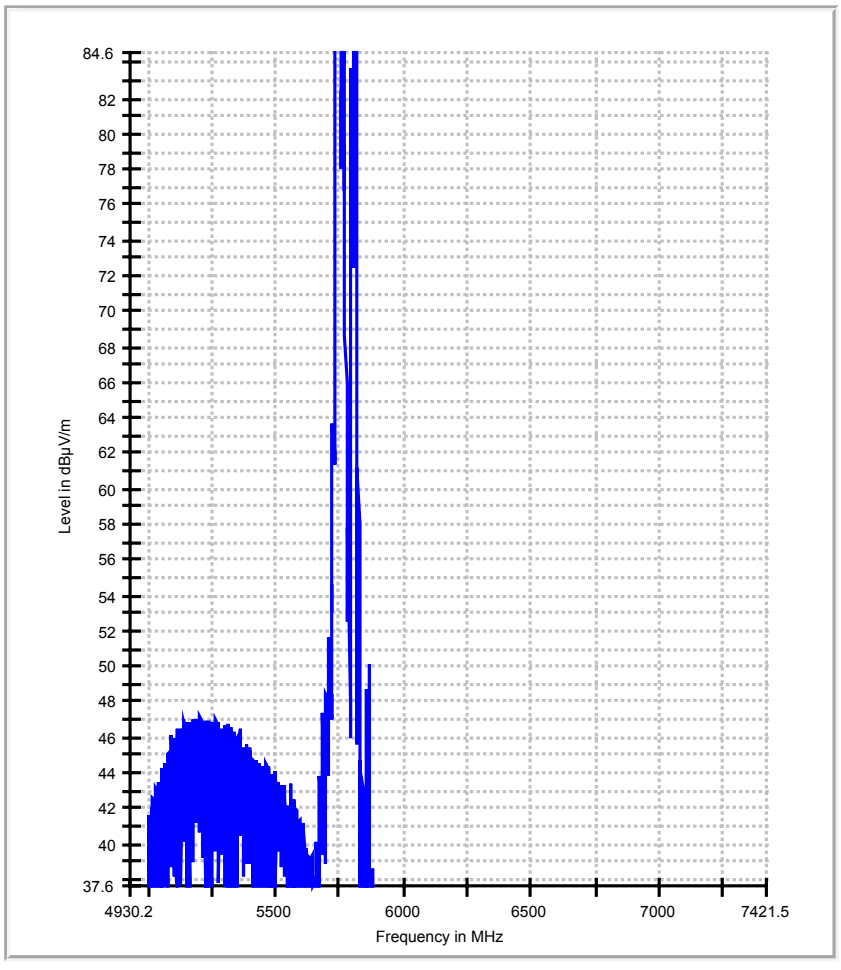
Channel 52,56,64
Data rate: 6 Mbps
MaxPeak No.2

Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz



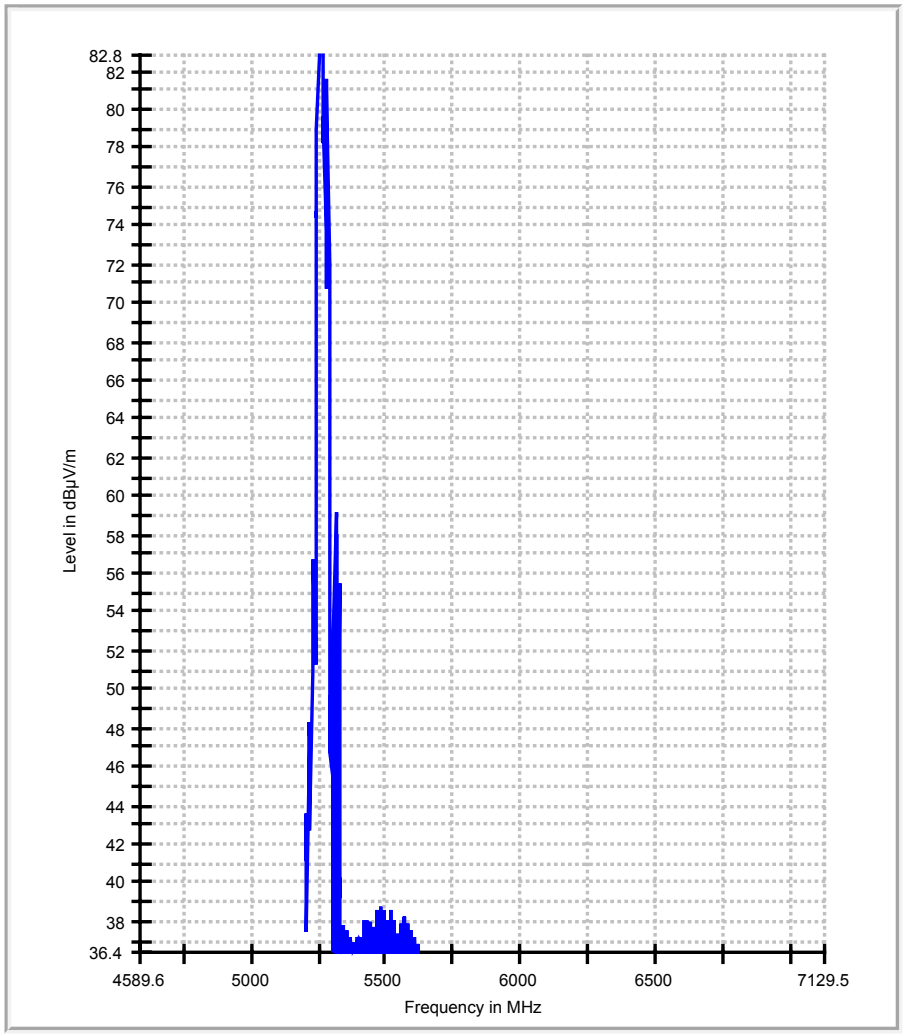
Channel 52,56,64
Data rate: 6Mbps
Average No.1

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 kHz



Channel 52,56,64
Data rate: 6Mbps
Average No.2

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 kHz



EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal, Channel 149,153,161 (6Mbps), w/all antenna	**FREQUENCY RANGE**	4500-5150MHz 5350-5460MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**: Sandra Sohn	

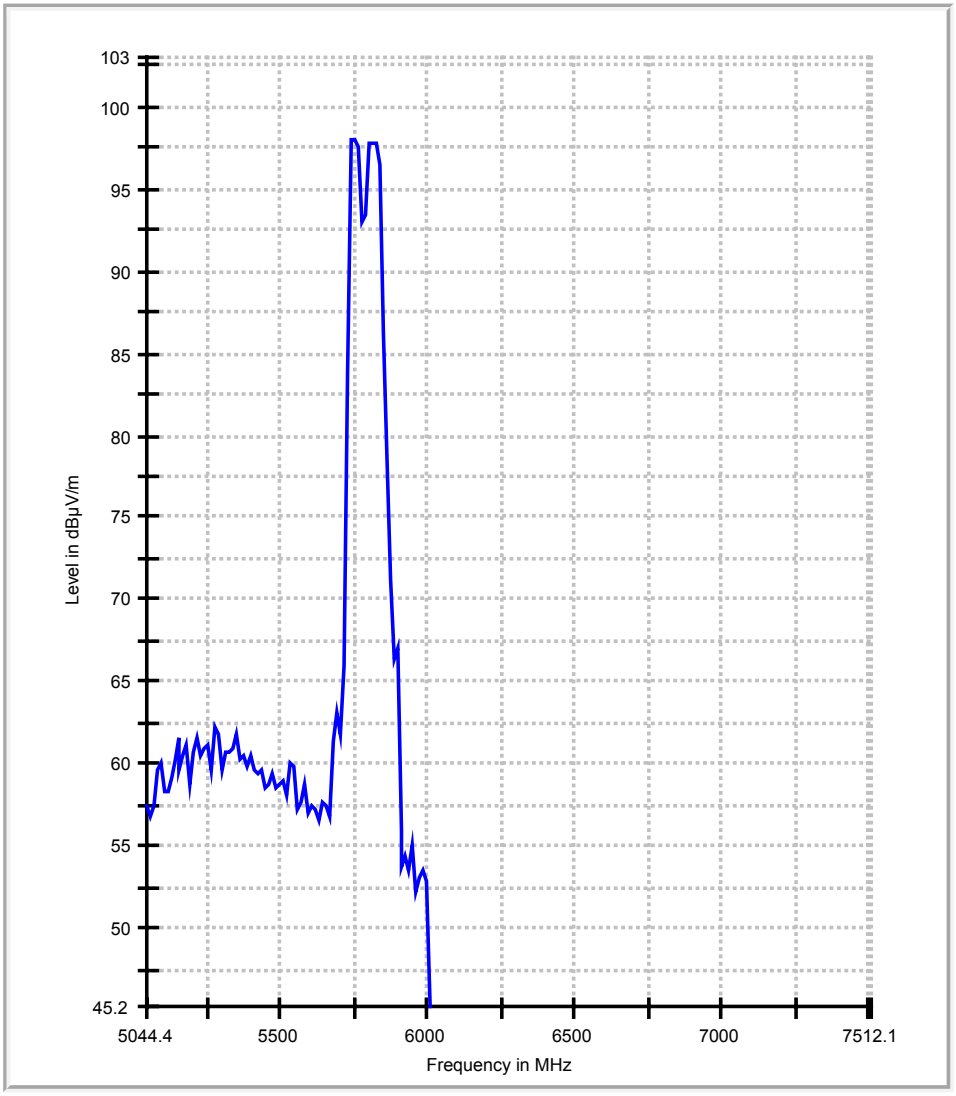
ANTENNA POLARITY & TEST DISTANCE: Vertical AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5148 (P)	64.6 (P)	74(P)	-9.4	1	10	61.5 (P)	3.1
1	5148 (AV)	50 (AV)	54(AV)	-4	1	10	46.9 (AV)	3.1
2	5352 (P)	64.85 (P)	74(P)	-9.15	1	12	61.7 (P)	3.15
2	5352 (AV)	48.96 (AV)	54(AV)	-5.04	1	12	45.8 (AV)	3.15

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.205

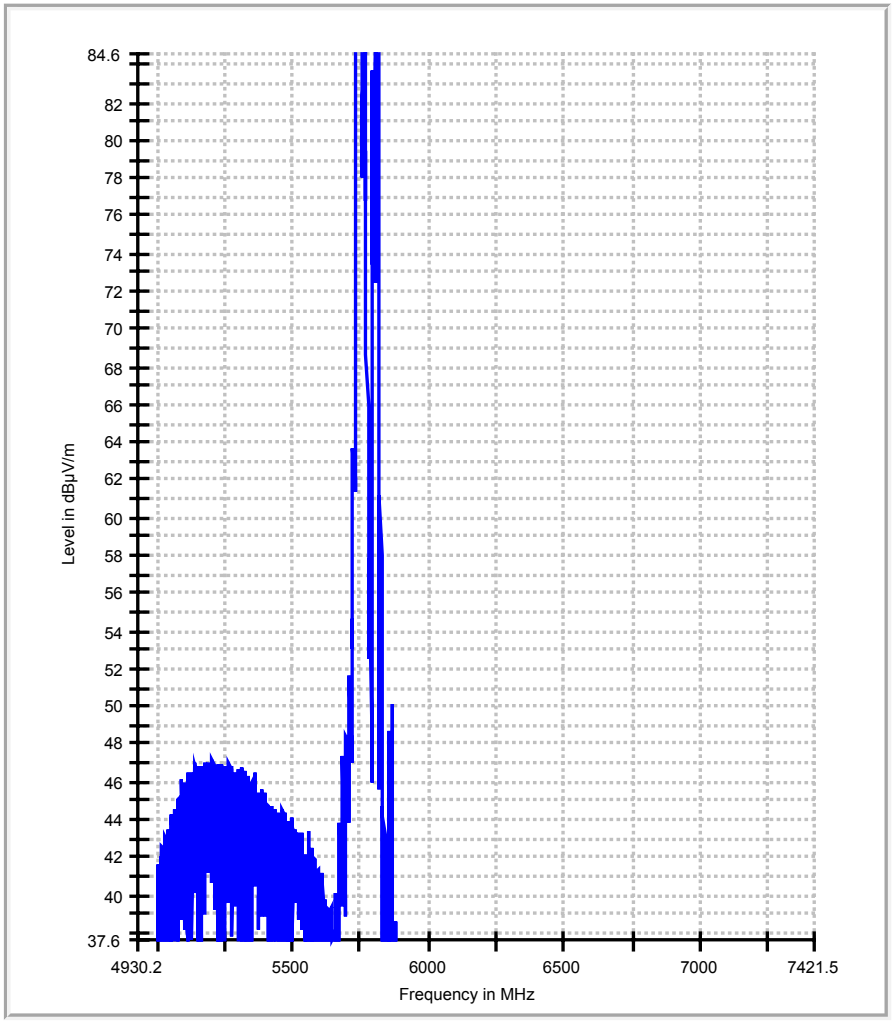
Channel 149,153,161
Data rate: 6Mbps
Peak

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



Channel 149,153,161
Data rate: 6Mbps
Average

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 kHz



5.8. 6dB BANDWIDTH MEASUREMENT

5.8.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.8.2 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.8.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.8.4 DEVIATION FROM TEST STANDARD

No deviation

5.8.5 TEST SETUP

5.8.6 EUT OPERATING CONDITIONS

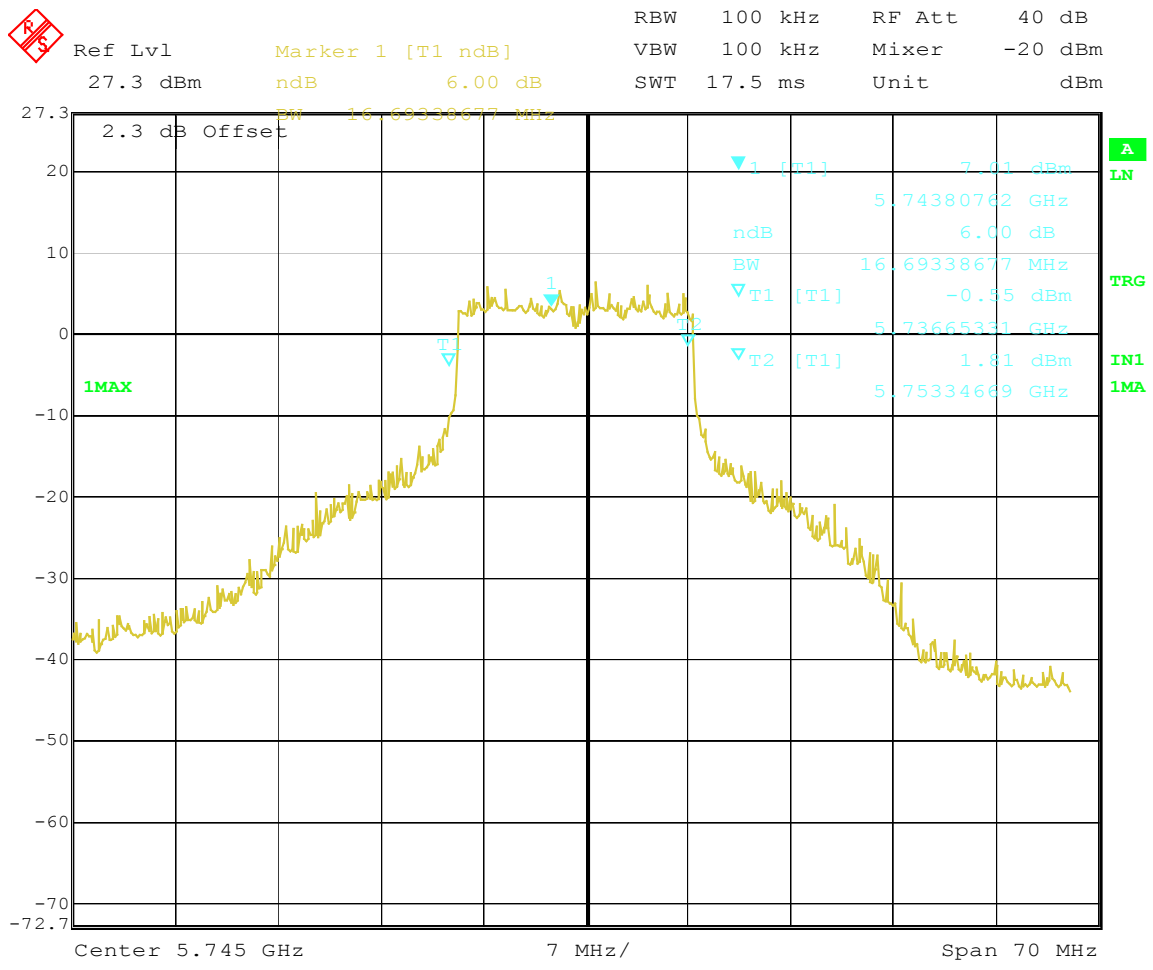
The software provided by client to enable the EUT under transmission condition continuously at low, middle, high channel frequencies individually.

5.8.7 TEST RESULTS

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal (6Mbps)	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**:	Sandra Sohn

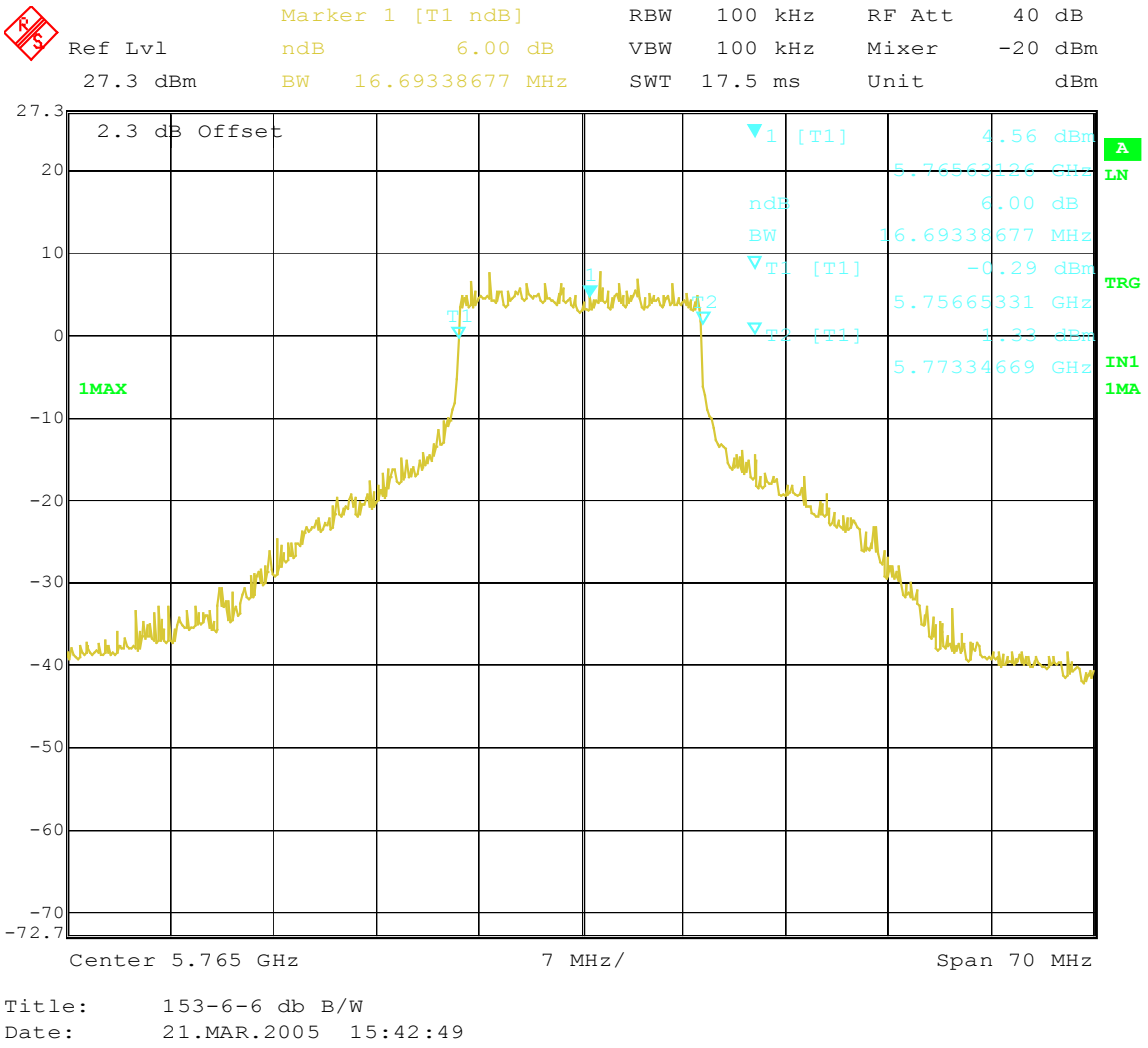
Channel	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
149	5745	16.69	0.5	PASS
153	5765	16.693	0.5	PASS
157	5785	16.26	0.5	PASS
161	5805	16.693	0.5	PASS
165	5825	16.693	0.5	PASS

6dB BW
Channel 149
Data rate: 6Mbps



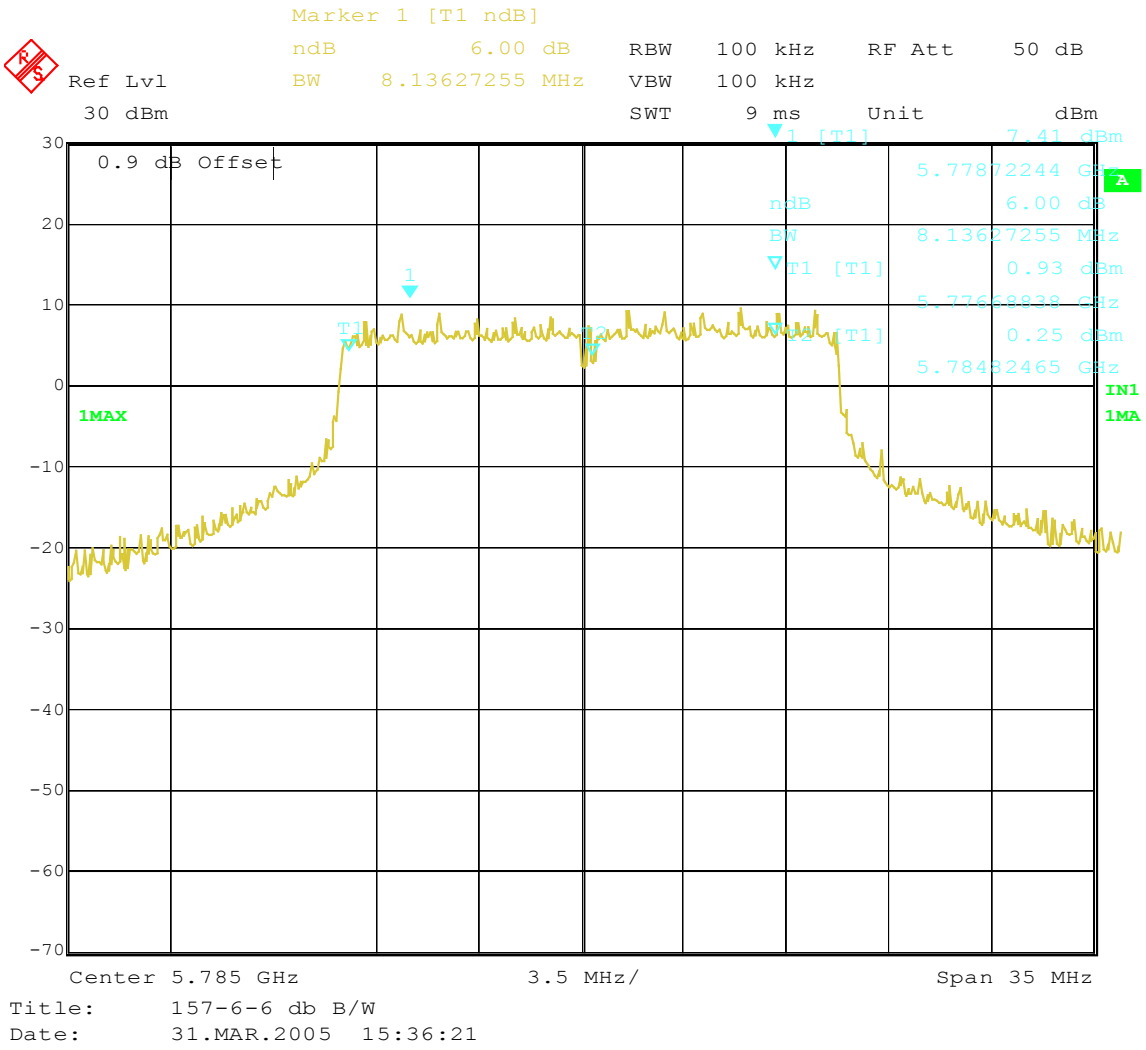
Title: 149-6-6 db B/W
Date: 21.MAR.2005 15:43:36

6dB BW
Channel 153
Data rate: 6Mbps

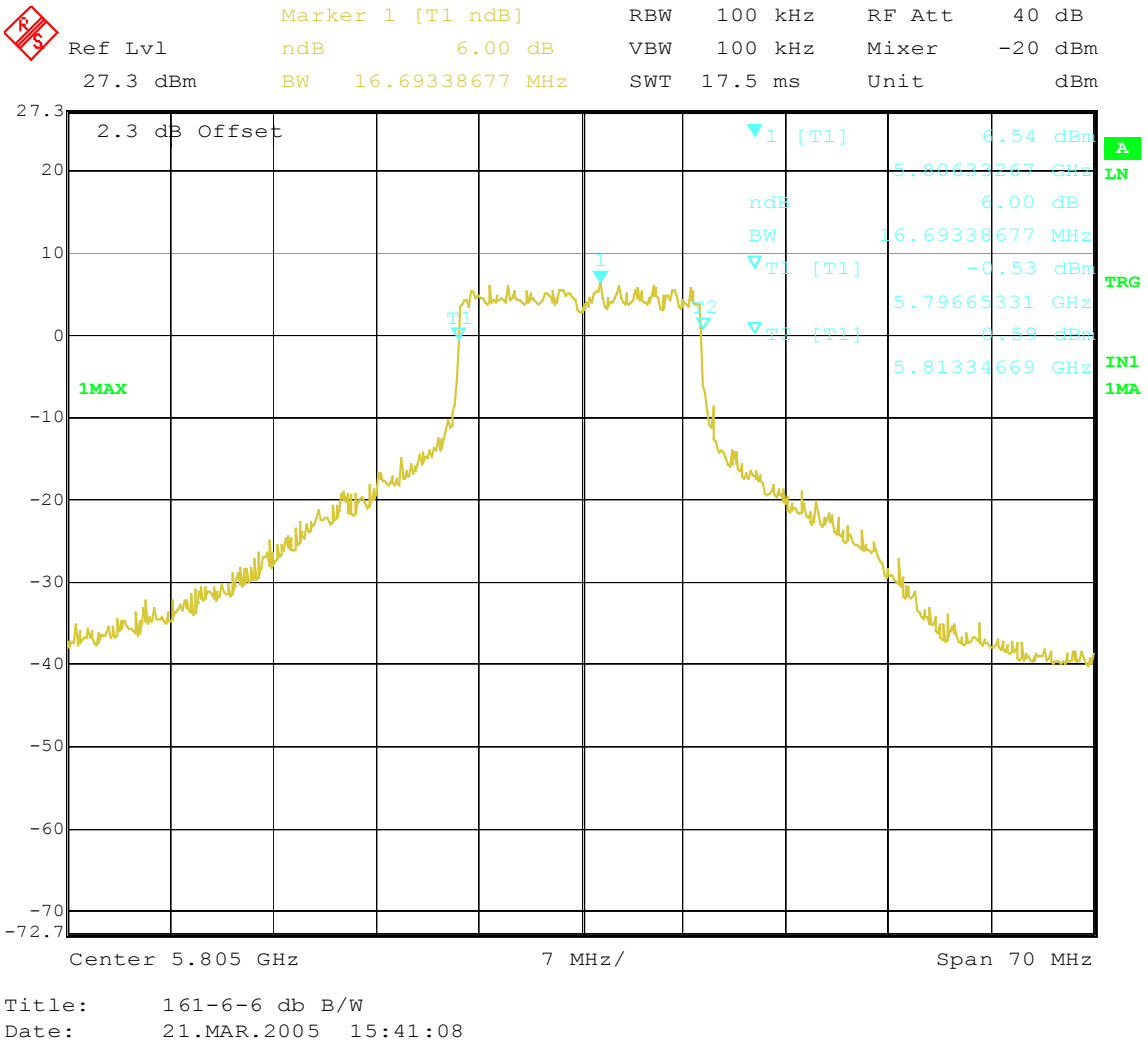


Title: 153-6-6 db B/W
Date: 21.MAR.2005 15:42:49

6dB BW
Channel 157
Data rate: 6Mbps

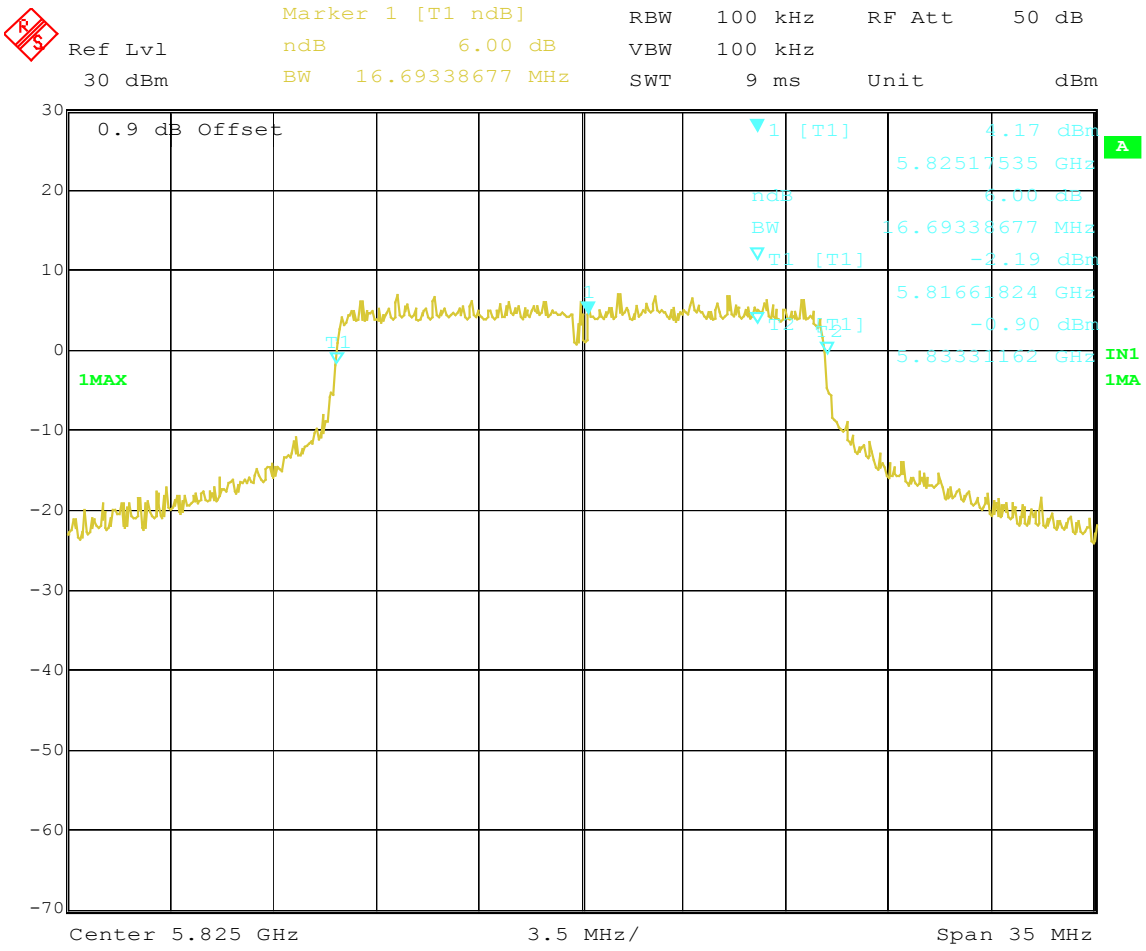


6dB BW
Channel 161
Data rate: 6Mbps



Title: 161-6-6 db B/W
Date: 21.MAR.2005 15:41:08

6dB BW
Channel 165
Data rate: 6Mbps

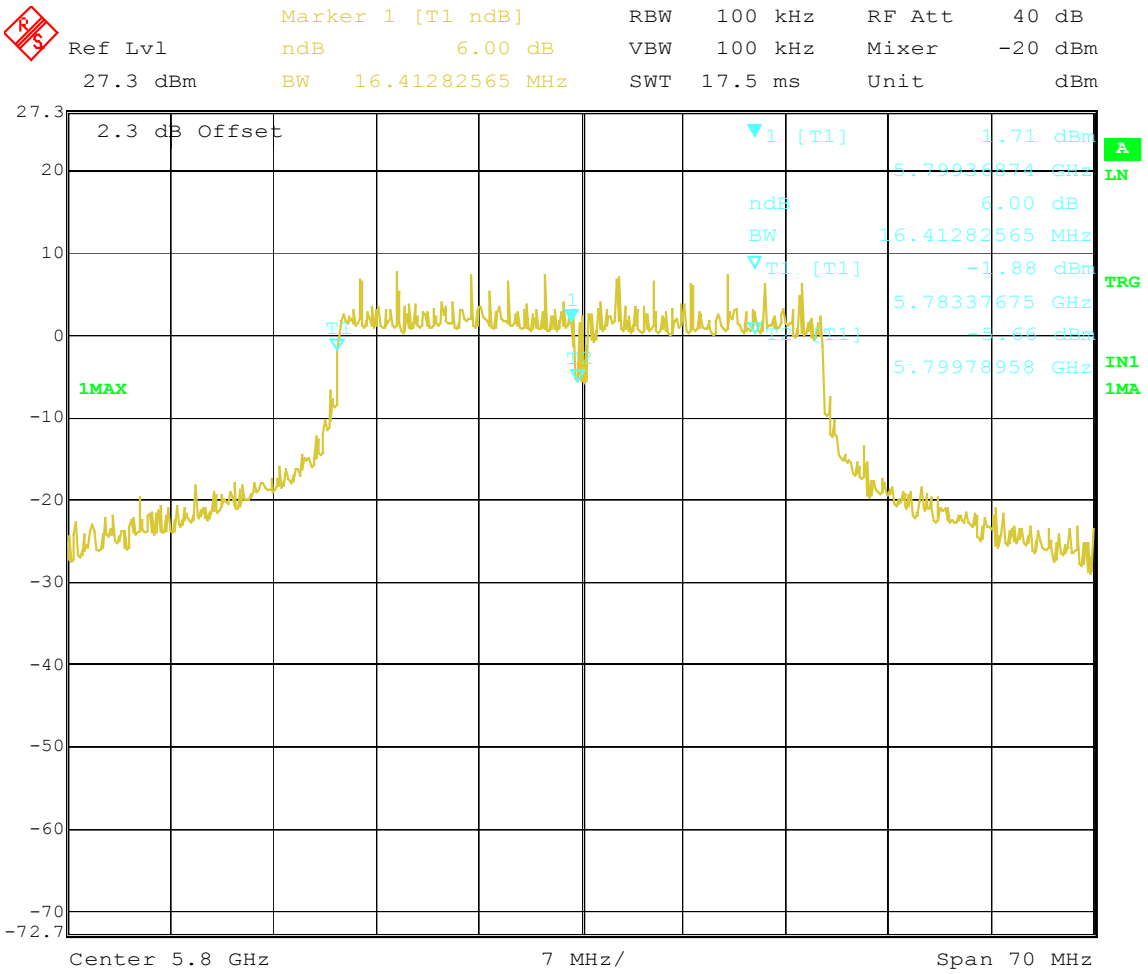


Title: 165-6-6 db B/W
Date: 31.MAR.2005 15:33:29

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Turbo	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**:	Sandra Sohn

Channel	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
160	5800	32.82	0.5	PASS

6dB BW
Channel 160
Turbo mode



Title: 160turbo-6-6 db B/W
Date: 21.MAR.2005 15:51:55

5.9. MAXIMUM PEAK OUTPUT POWER

5.9.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.9.2 INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.9.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.

2. Set span to encompass the entire emission bandwidth of the signal.

3. Set RBW to 1MHz, VBW to 3MHz.

4. Using the spectrum analyzer's channel power measurement function to measure the output power.

5.9.4 DEVIATION FROM TEST STANDARD

No deviation

5.9.5 TEST SETUP

5.9.6 EUT OPERATING CONDITIONS

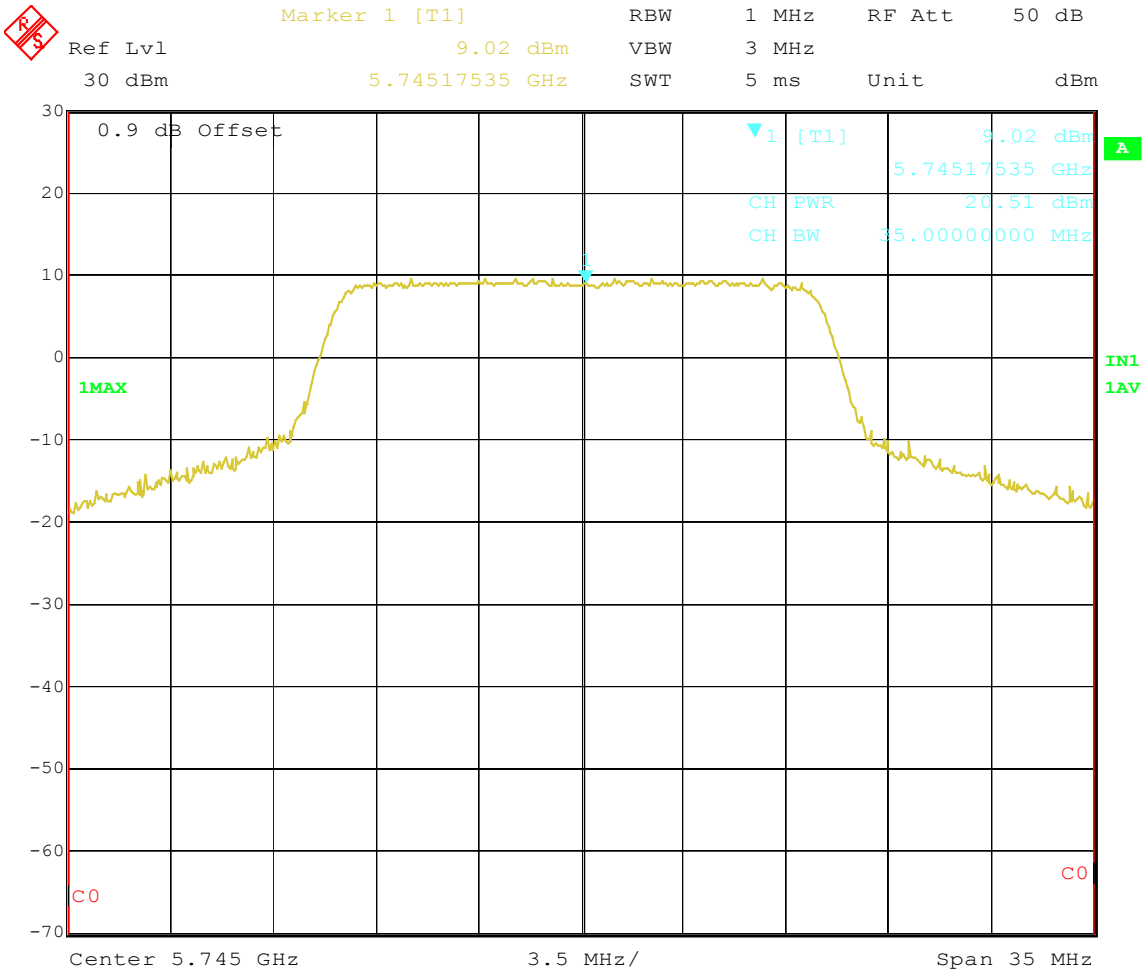
The software provided by client to enable the EUT under transmission condition continuously at low, middle, high channel frequencies individually.

5.9.7 TEST RESULTS

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal (6Mbps)	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**:	Sandra Sohn

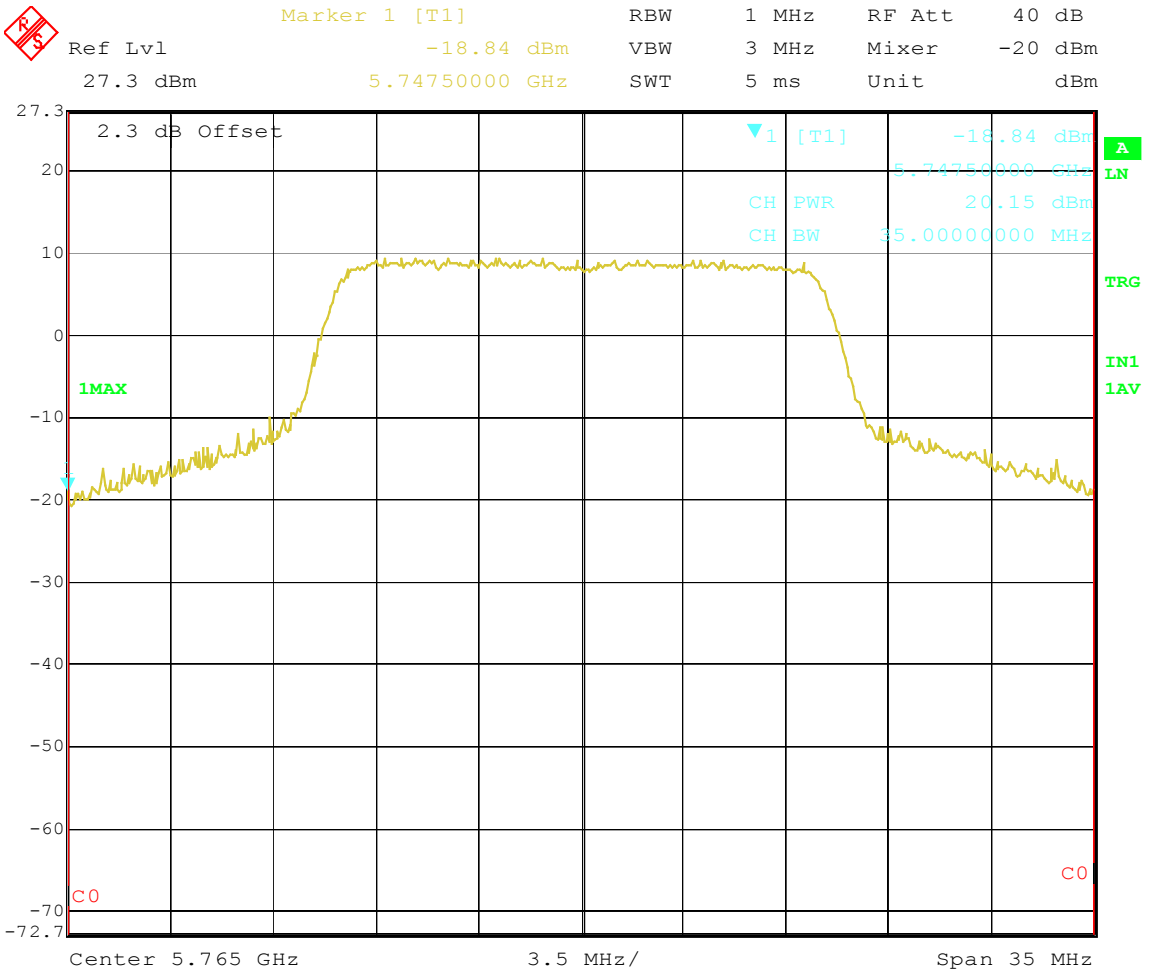
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
149	5745	20.51	30	PASS
153	5765	20.15	30	PASS
157	5785	20.07	30	PASS
161	5805	19.36	30	PASS
165	5825	19.56	30	PASS

Peak Power
Channel 149
Data rate 6Mbps



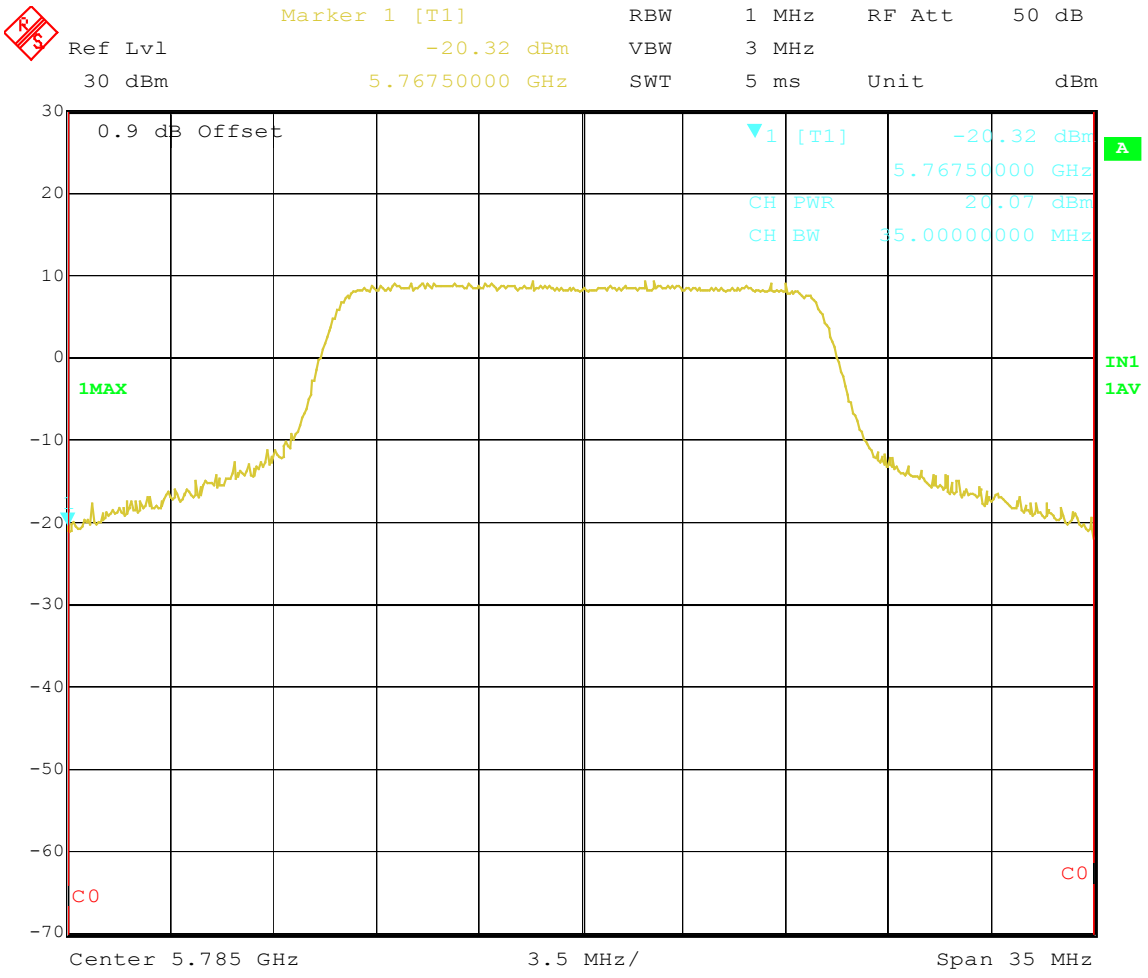
Title: 149-6-pk power
Date: 31.MAR.2005 15:40:13

Peak Power
Channel 153
Data rate: 6Mbps



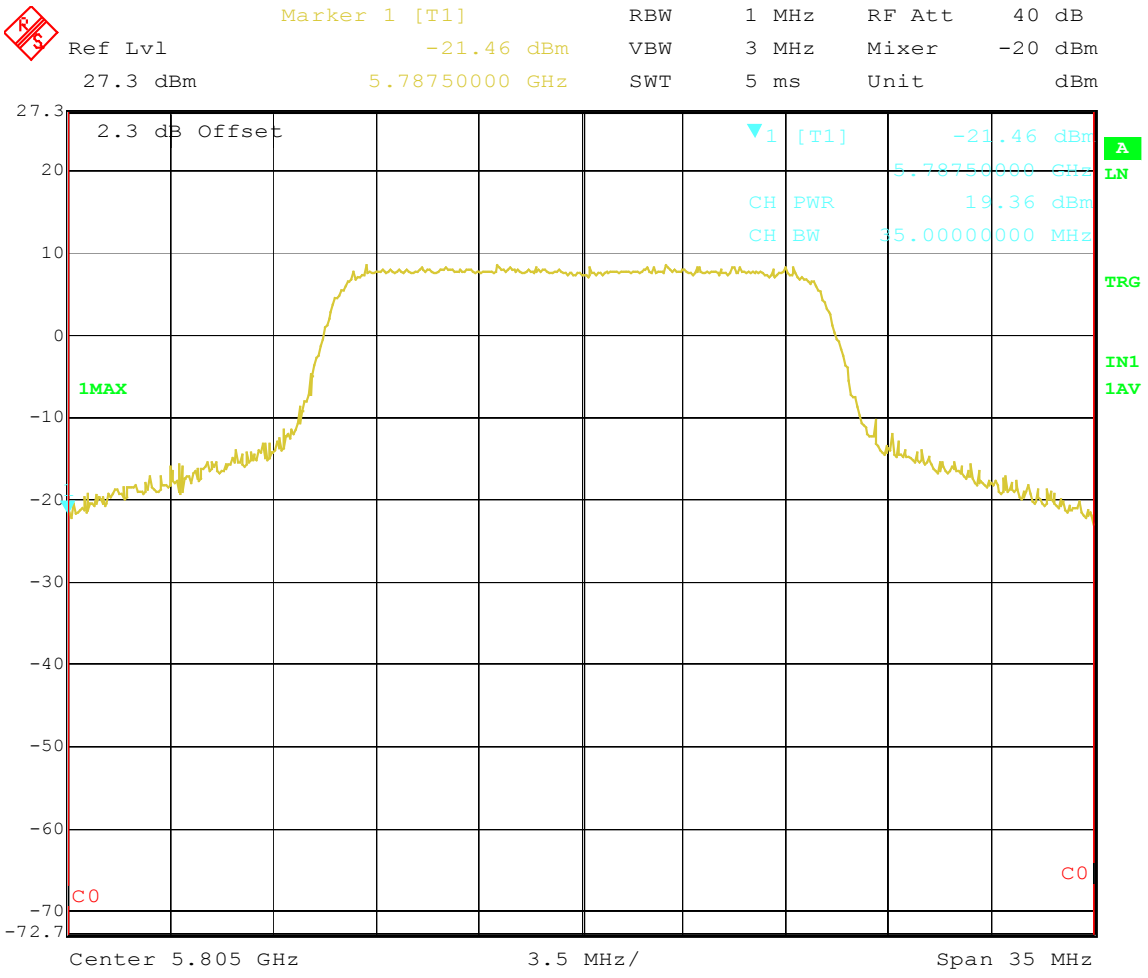
Title: 153-6-channel power
Date: 21.MAR.2005 13:43:16

Peak Power
Channel 157
Data rate: 6Mbps



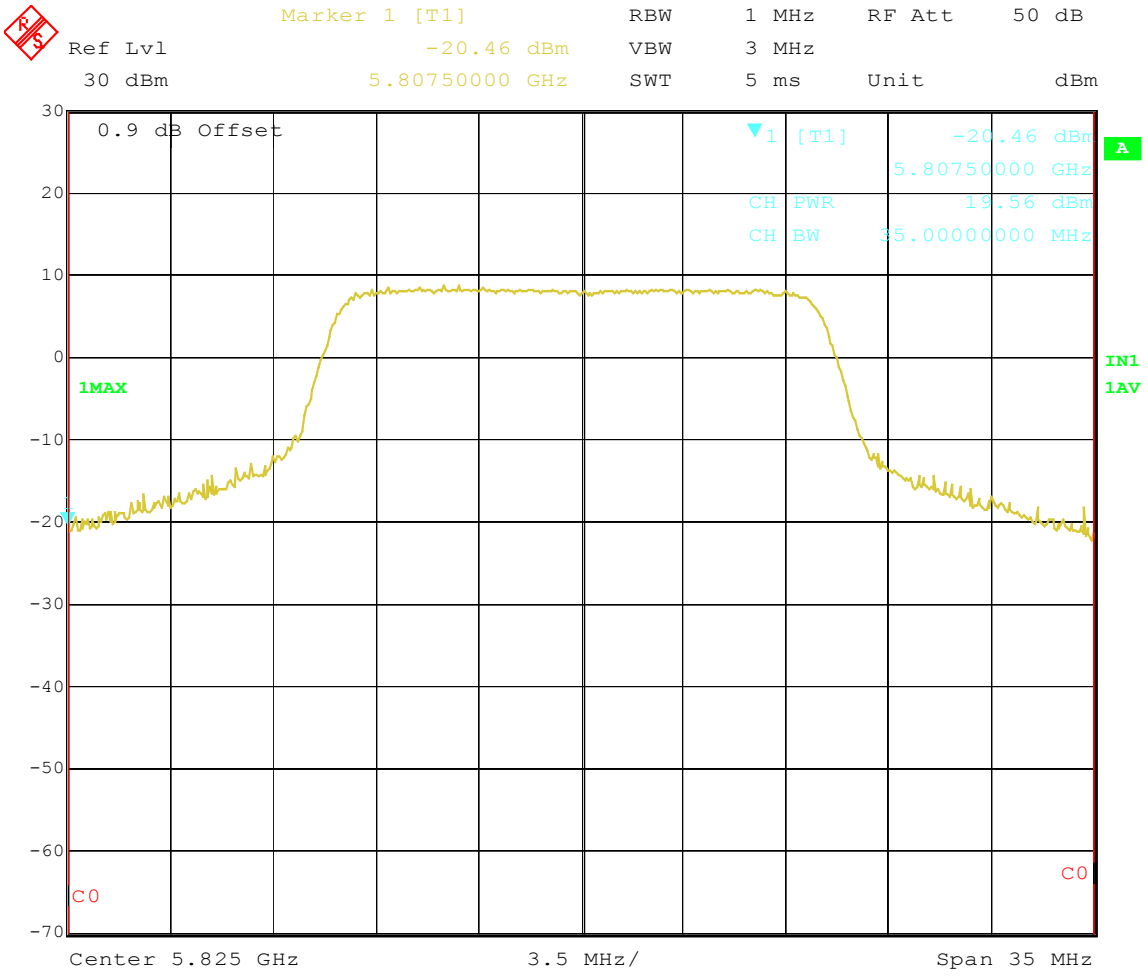
Title: 157-6-pk power
Date: 31.MAR.2005 15:41:42

Peak Power
Channel 161
Data rate: 6Mbps



Title: 161-6-channel power
Date: 21.MAR.2005 13:44:16

Peak Power
Channel 165
Data rate: 6Mbps

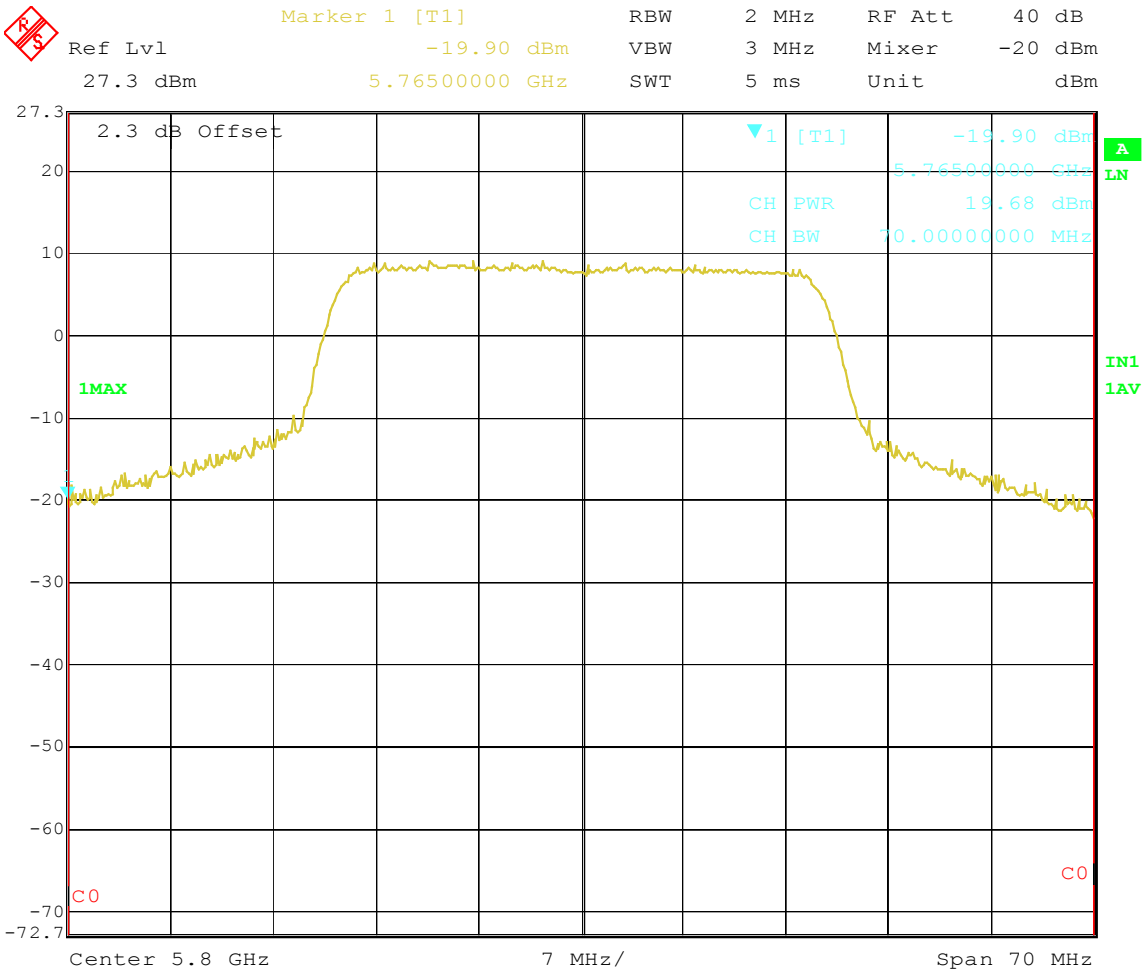


Title: 165-6-pk power
Date: 31.MAR.2005 15:43:16

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Turbo	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**:	Sandra Sohn

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
160	5800	19.68	30	PASS

Peak Power
High Turbo Channel 160



Title: 160turbo-6-channel power
Date: 21.MAR.2005 13:53:37

5.10. POWER SPECTRAL DENSITY MEASUREMENT

5.10.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.10.2 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.10.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 KHz RBW and 10 KHz VBW, set sweep time = span/3.5 MHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3.5 MHz for a full response of the mixer in the spectrum analyzer.

5.10.4 DEVIATION FROM TEST STANDARD

No deviation

5.10.5 TEST SETUP

5.10.6 EUT OPERATING CONDITION

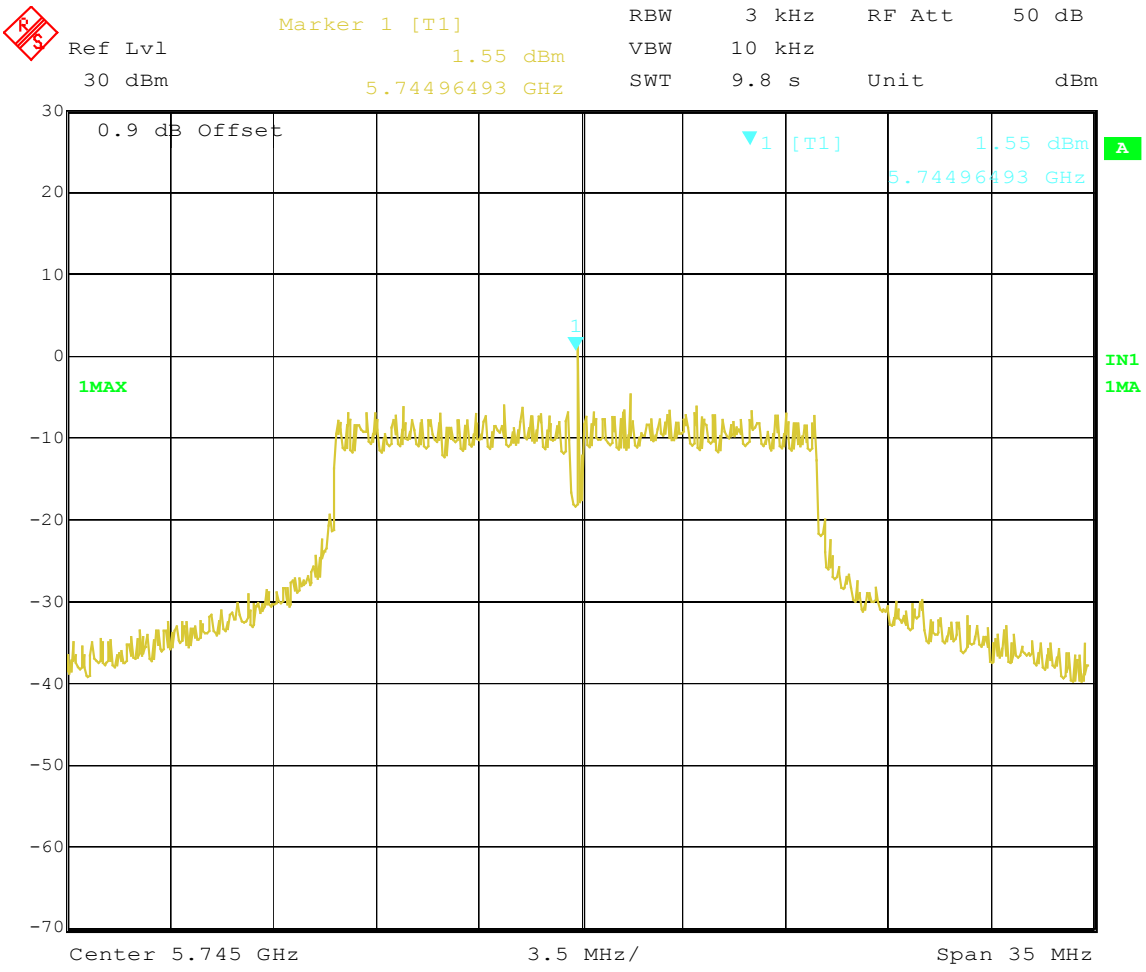
The software provided by client to enable the EUT under transmission condition continuously at low, middle, high channel frequency individually.

5.10.7 TEST RESULTS

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal (6Mbps)	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	**TESTED BY**:	Sandra Sohn

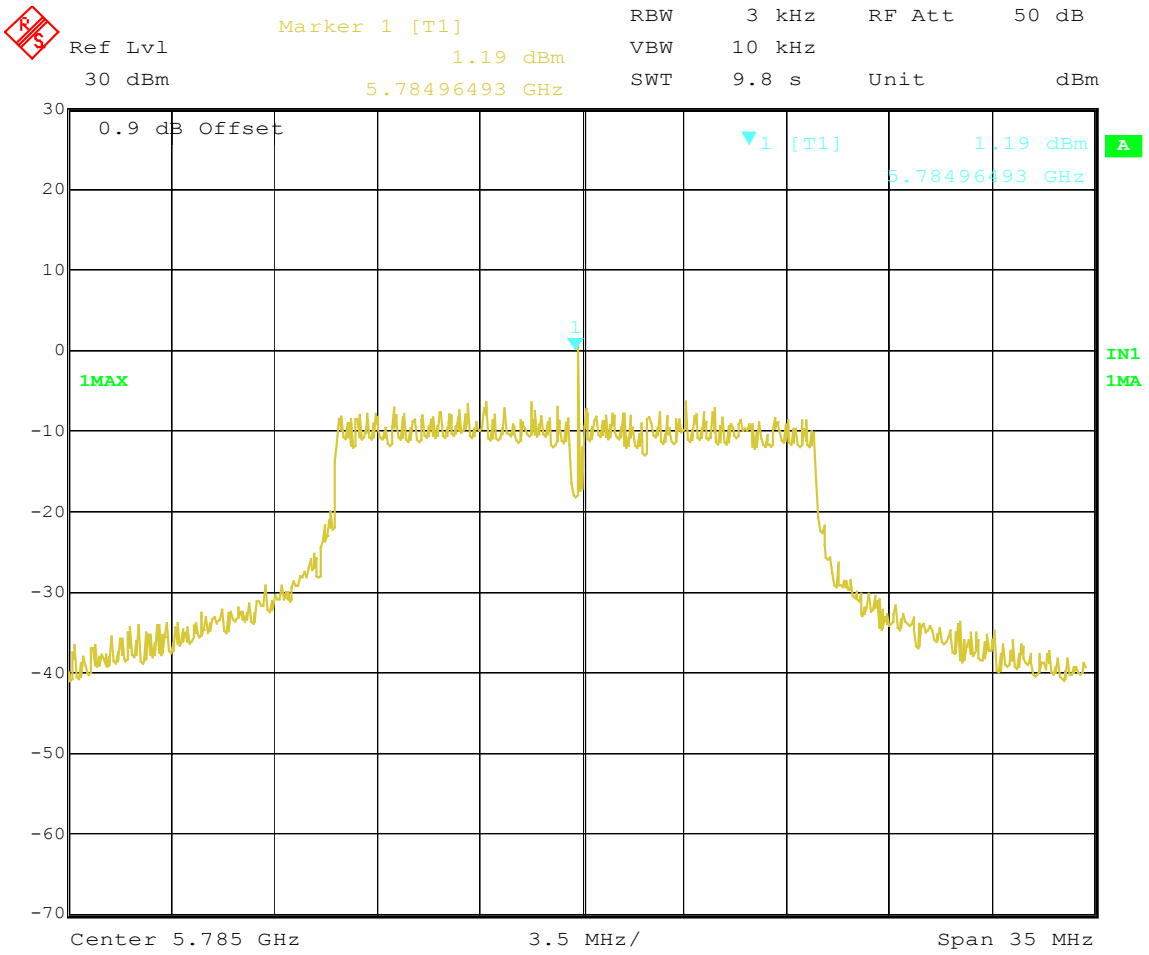
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
149	5745	1.55	8	PASS
157	5785	1.19	8	PASS
165	5825	0.79	8	PASS

PSD
Channel 149
Data rate: 6Mbps



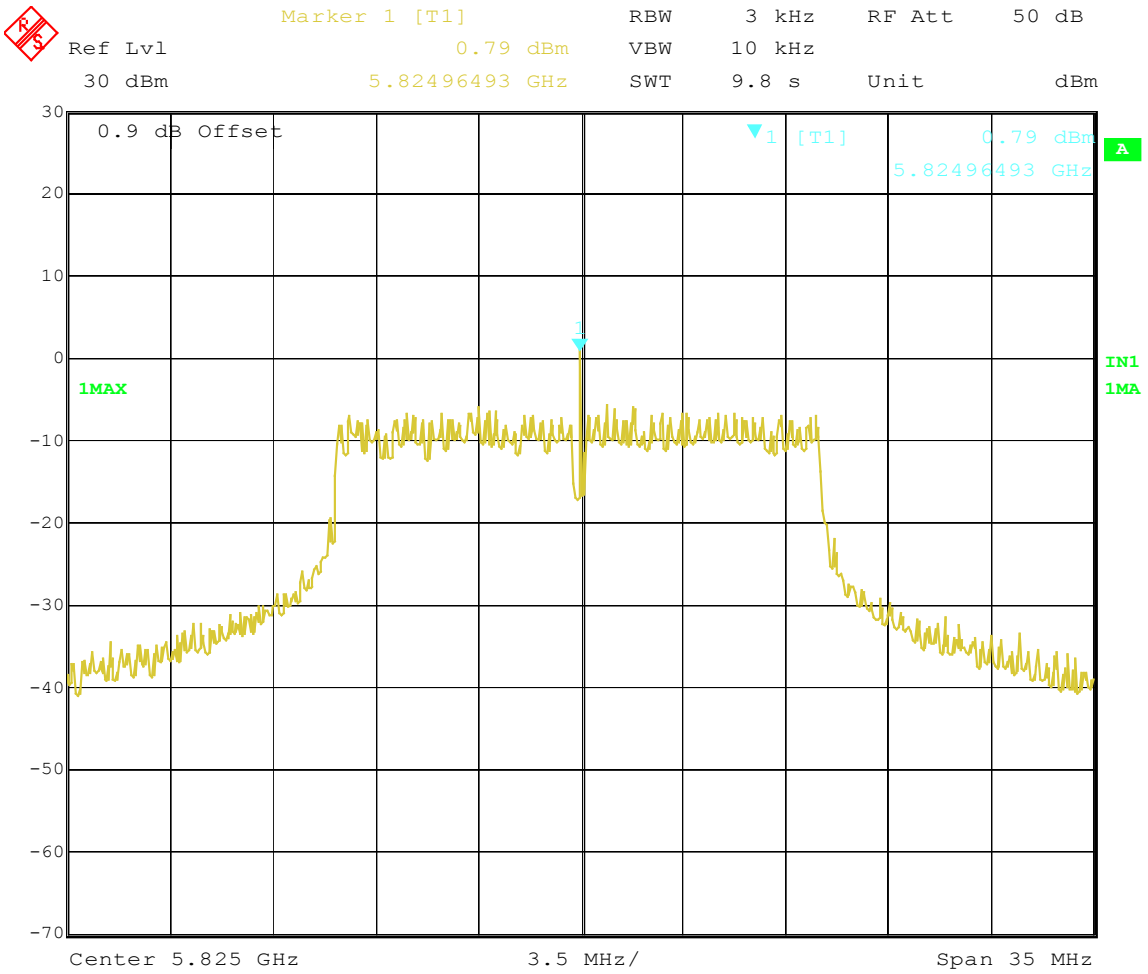
Title: 149-6-psd
Date: 31.MAR.2005 15:51:38

PSD
Channel 157
Data rate: 6Mbps



Title: 157-6-psd
Date: 31.MAR.2005 15:49:52

PSD
Channel 165
Data rate: 6Mbps



Title: 165-6-psd
Date: 31.MAR.2005 15:48:34

5.11. BAND EDGES MEASUREMENT

5.11.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

5.11.2 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

5.11.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.

5.11.4 DEVIATION FROM TEST STANDARD

No deviation

5.11.5 EUT OPERATING CONDITION

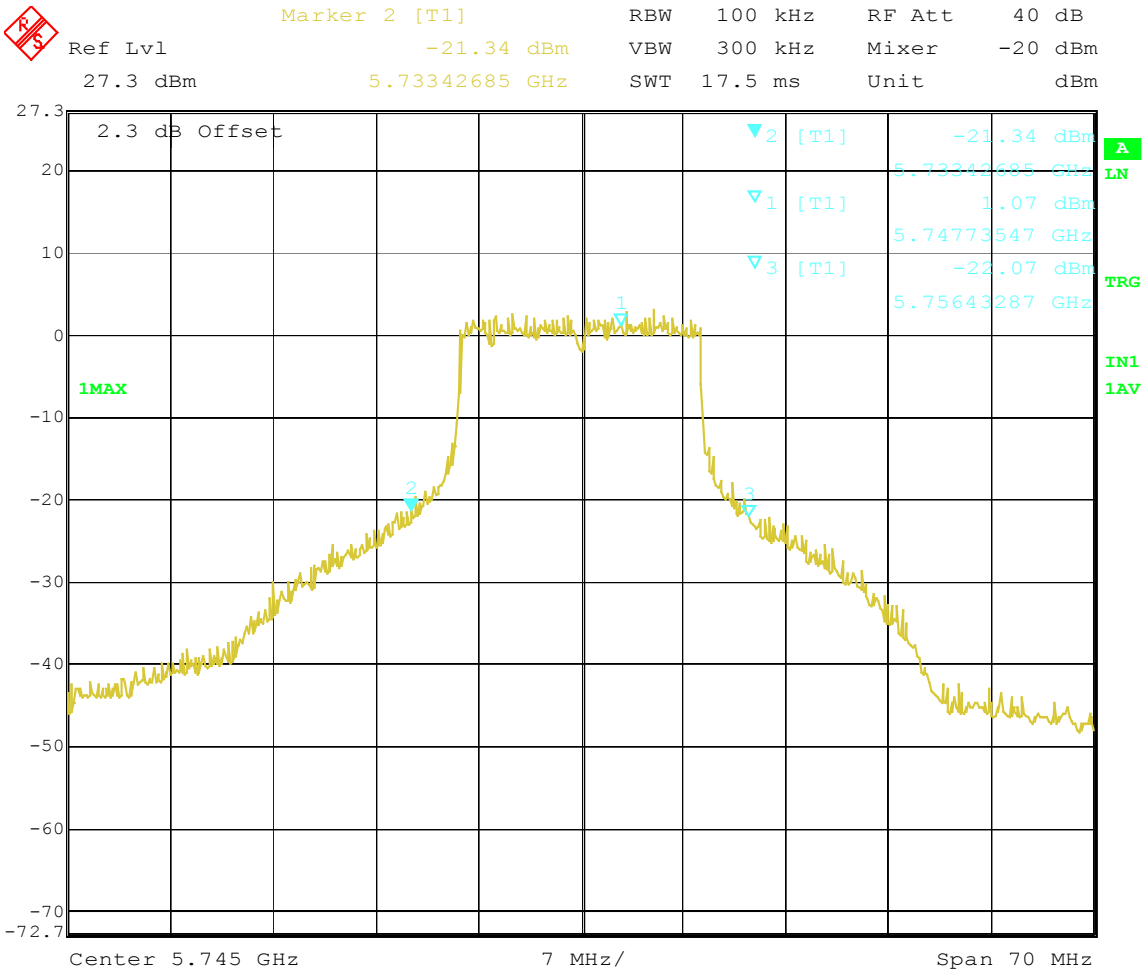
The software provided by client to enable the EUT under transmission condition continuously at lowest, highest channel frequency individually.

5.11.6 TEST RESULTS

The spectrum plots are attached on the following pages. The marker indicates the highest level. It shows compliance with the requirement in part 15.247(C).

NOTE 1:
The Lower band edge emission plot on the following first 1 page for Channel 149 shows at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.725GHz), based on a RF conducted measurement.

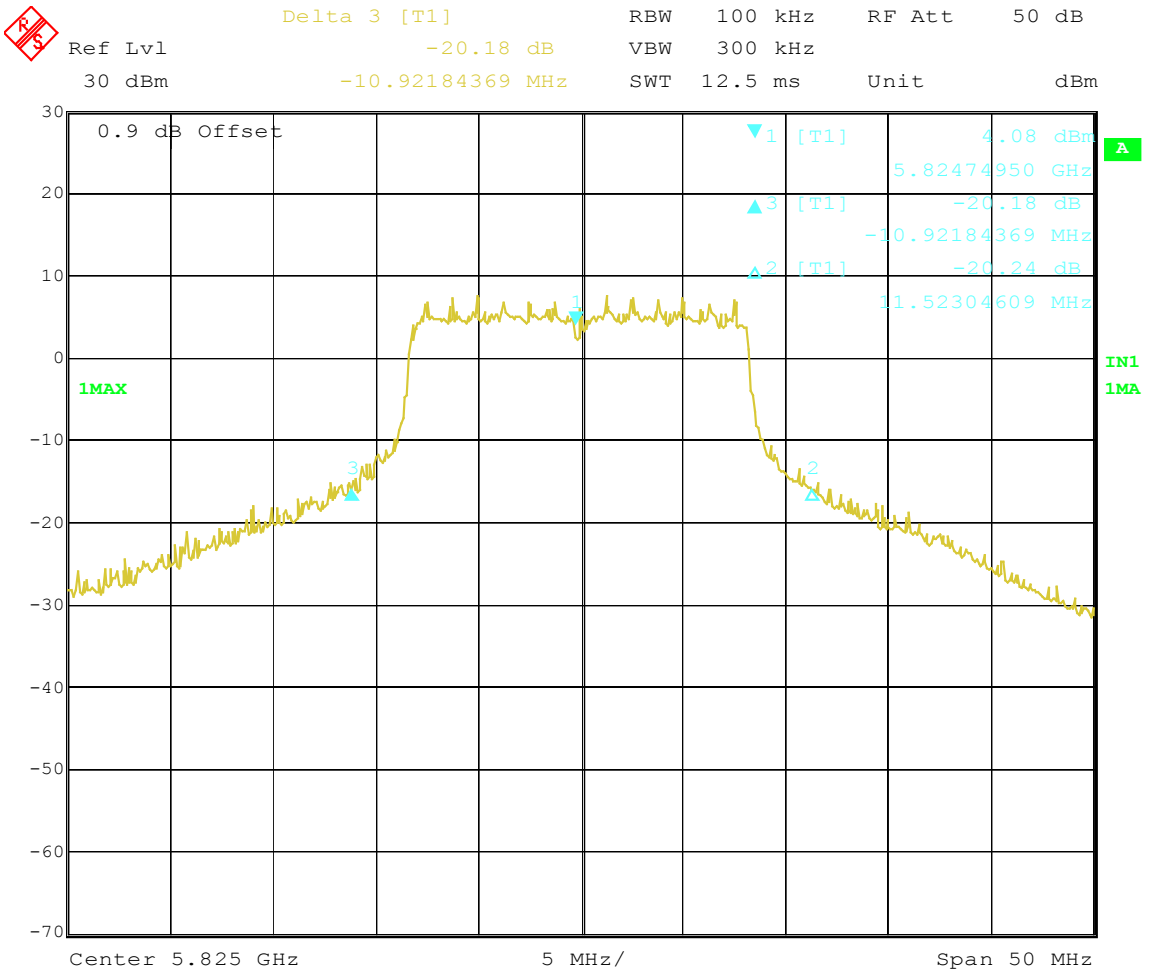
Lower band edge
Channel 149
Data rate: 6Mbps



Title: 149-6-band edge
Date: 21.MAR.2005 15:33:09

NOTE 2:
The Upper band edge emission plot on the following first 1 page for Channel 165 shows at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.850GHz), based on a RF conducted measurement.

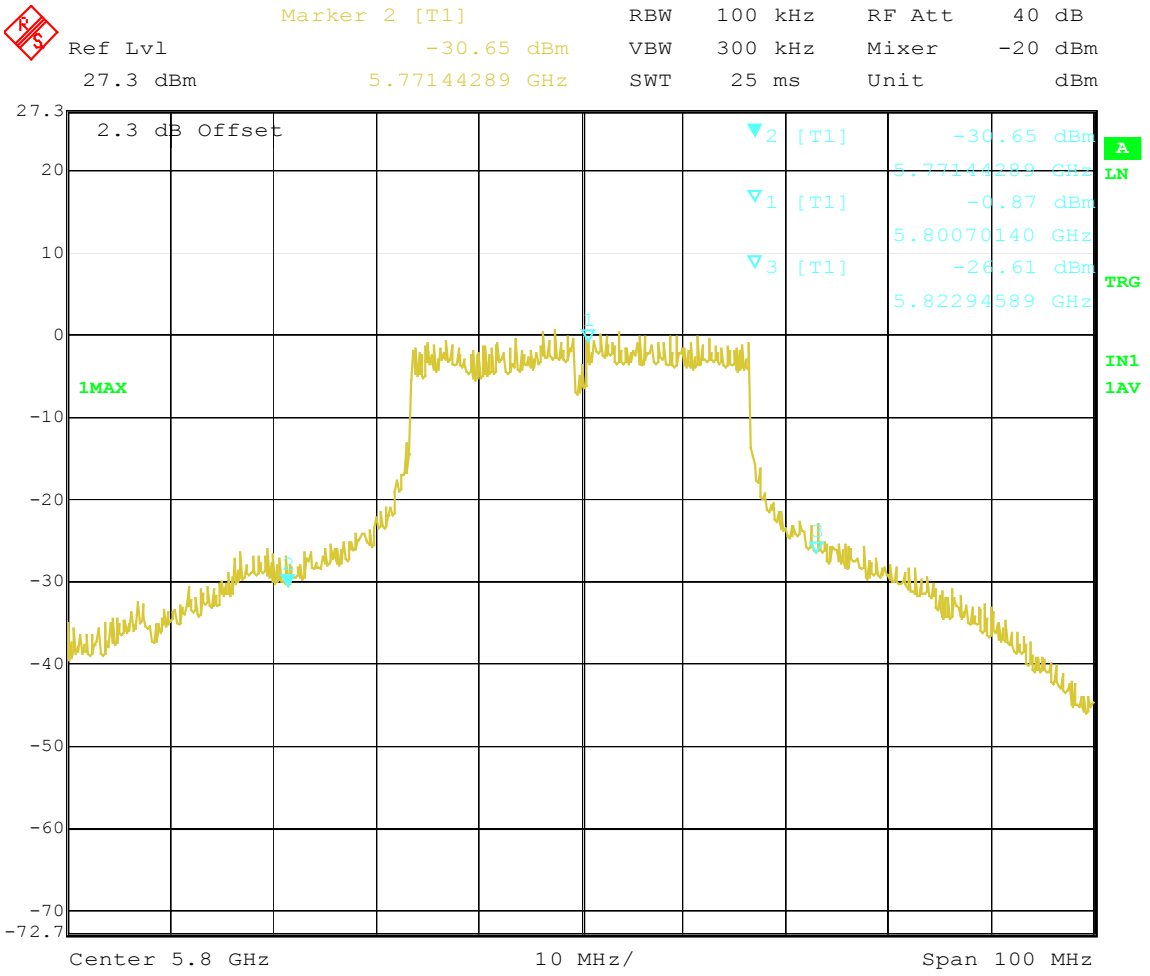
Upper band edge
Channel 165
Data rate: 6Mbps



Title: 165-6-band edge
Date: 31.MAR.2005 15:59:07

NOTE 3:
The Lower and Upper band edge emission plot on the following first 1 page for Turbo Channel(160) show at least 20dB delta between carrier maximum power and local maximum emission outside the frequency band (5.725-5.850GHz), based on a RF conducted measurement.

Turbo Channel 160



Title: 160turbo-6-band edge
Date: 21.MAR.2005 15:15:57

APPENDIX A: AVERAGE OUTPUT POWER MEASUREMENTS

- **LIMITS OF AVERAGE OUTPUT POWER MEASUREMENT**

N/A

This test carry out for reference only per customer request.

- **INSTRUMENTS**

Device	Model No.	Serial No.	Last Cal.	Next Cal
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06

- **TEST PROCEDURES**

The transmitter output was connected to the spectrum analyzer through an attenuator. Span about 70MHz, RBW 1MHz, VBW 3MHz, average power detector, sweep trigger on RF power, max hold, set Channel Power measurement tool for BW 35MHz and run 100 sweeps minimum

- **TEST SETUP**

- **EUT OPERATING CONDITIONS**

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually. The lowest channel is seen as highest and repeat with the different data rates.

- **TEST RESULTS**

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	**MODEL**	ACCESS / ONE NETWORK: OWS 3600
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	24deg. C, 49%RH
TESTED BY: Sandra Sohn			

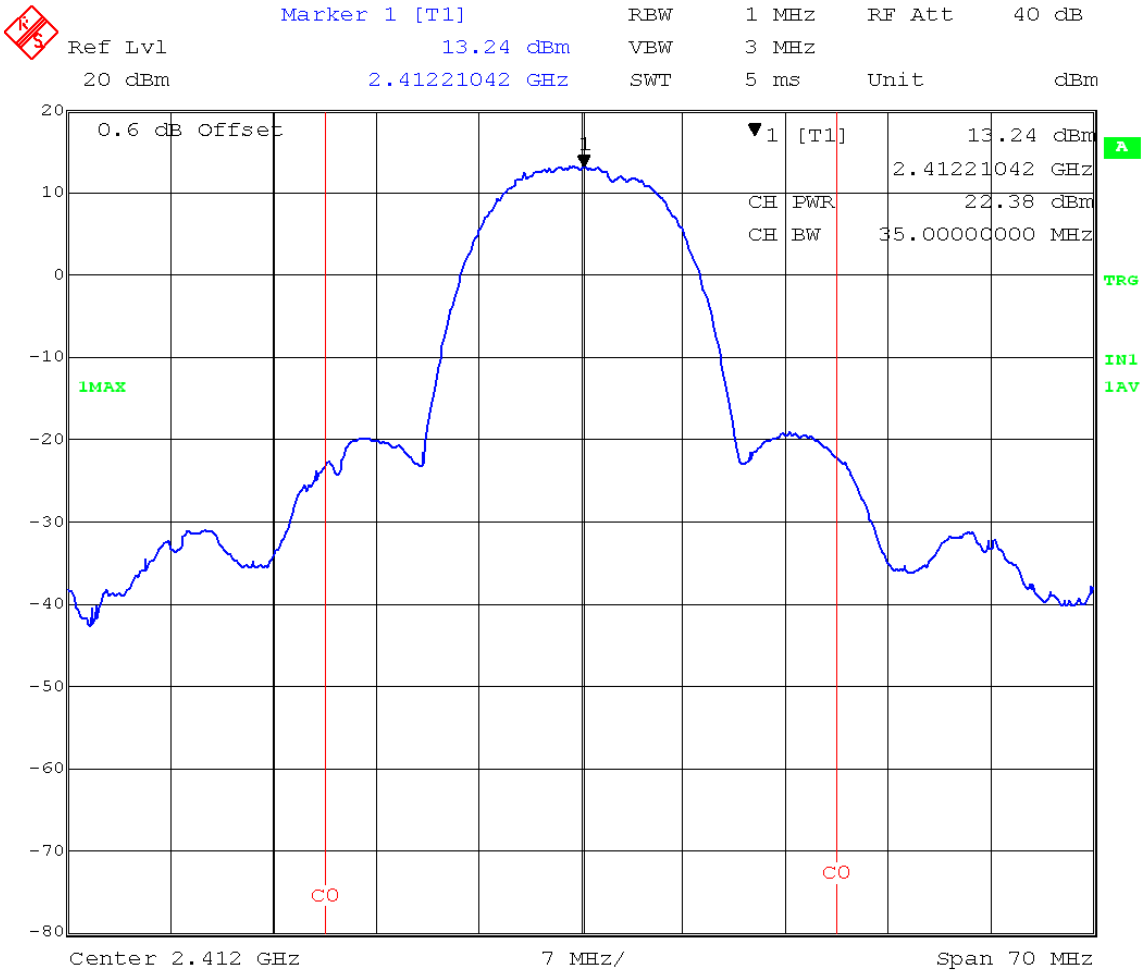
Data rates = 11Mbps

CHANNEL	CHANNEL FREQUENCY (MHz)	Max Av. POWER OUTPUT (dBm)	Max Av. POWER LIMIT (dBm)	PASS/FAIL
1	2412	22.38	N/A	N/A
6	2437	22.86	N/A	N/A
11	2462	22.81	N/A	N/A

Channel 6

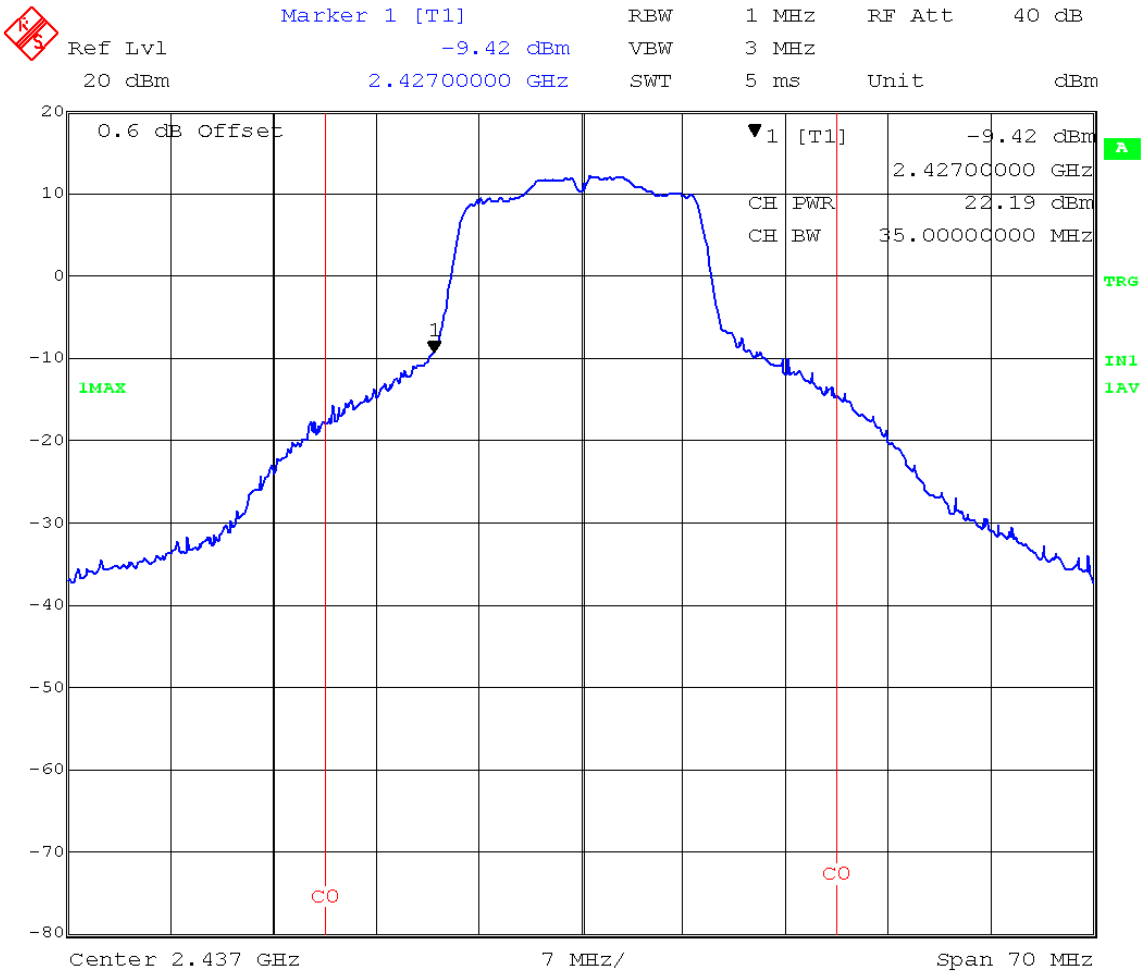
Data Rate (Mbps)	CHANNEL FREQUENCY (MHz)	Max Av. POWER OUTPUT (dBm)	Max Av. POWER LIMIT (dBm)	PASS/FAIL
6	2437	22.19	N/A	N/A
11	2437	22.86	N/A	N/A
24	2437	22.10	N/A	N/A
54	2437	17.65	N/A	N/A
108	2437	20.75	N/A	N/A

Av.P
Channel 1
Data rate: 11Mbps



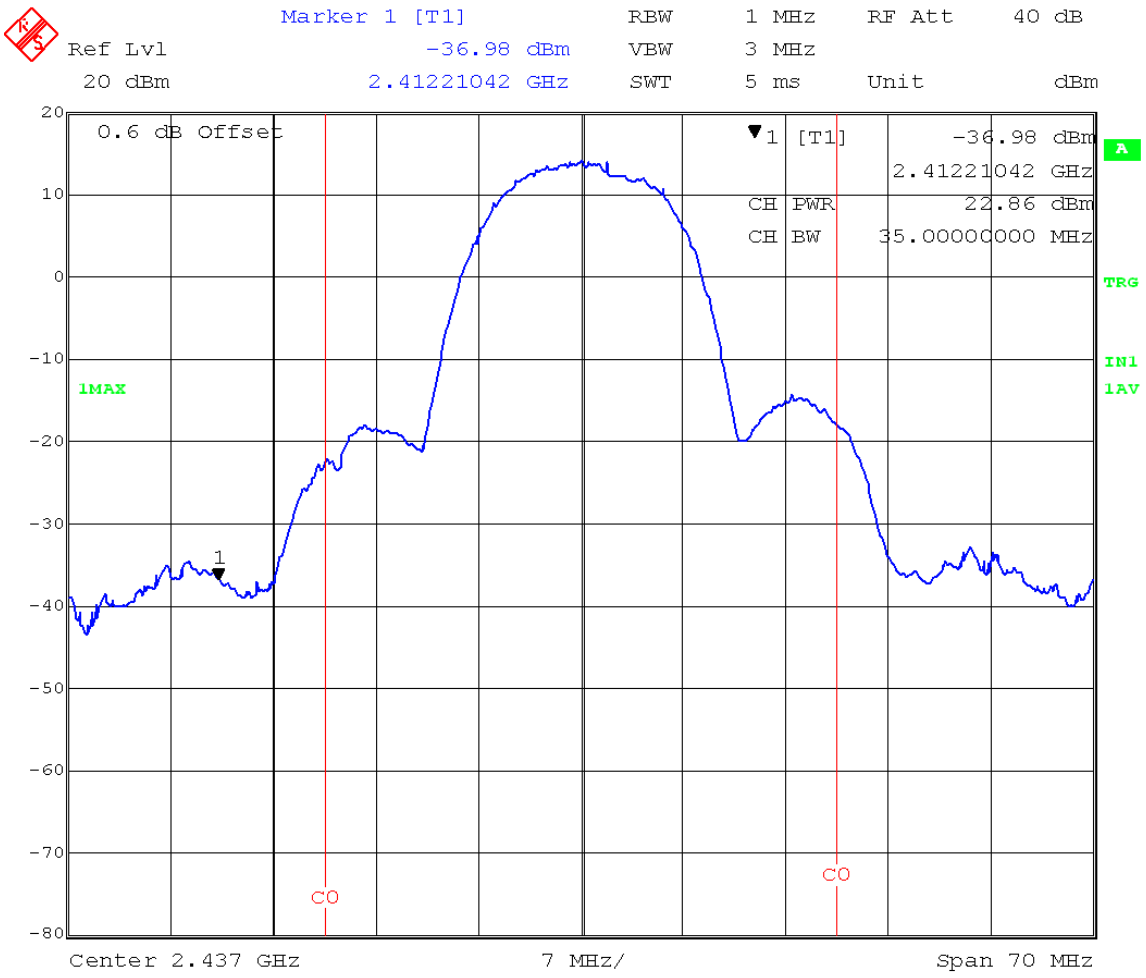
Title: ch 1- rate 11cck average power
Date: 12.APR.2005 11:27:31

Av.P
Channel 6
Data rate: 6Mbps



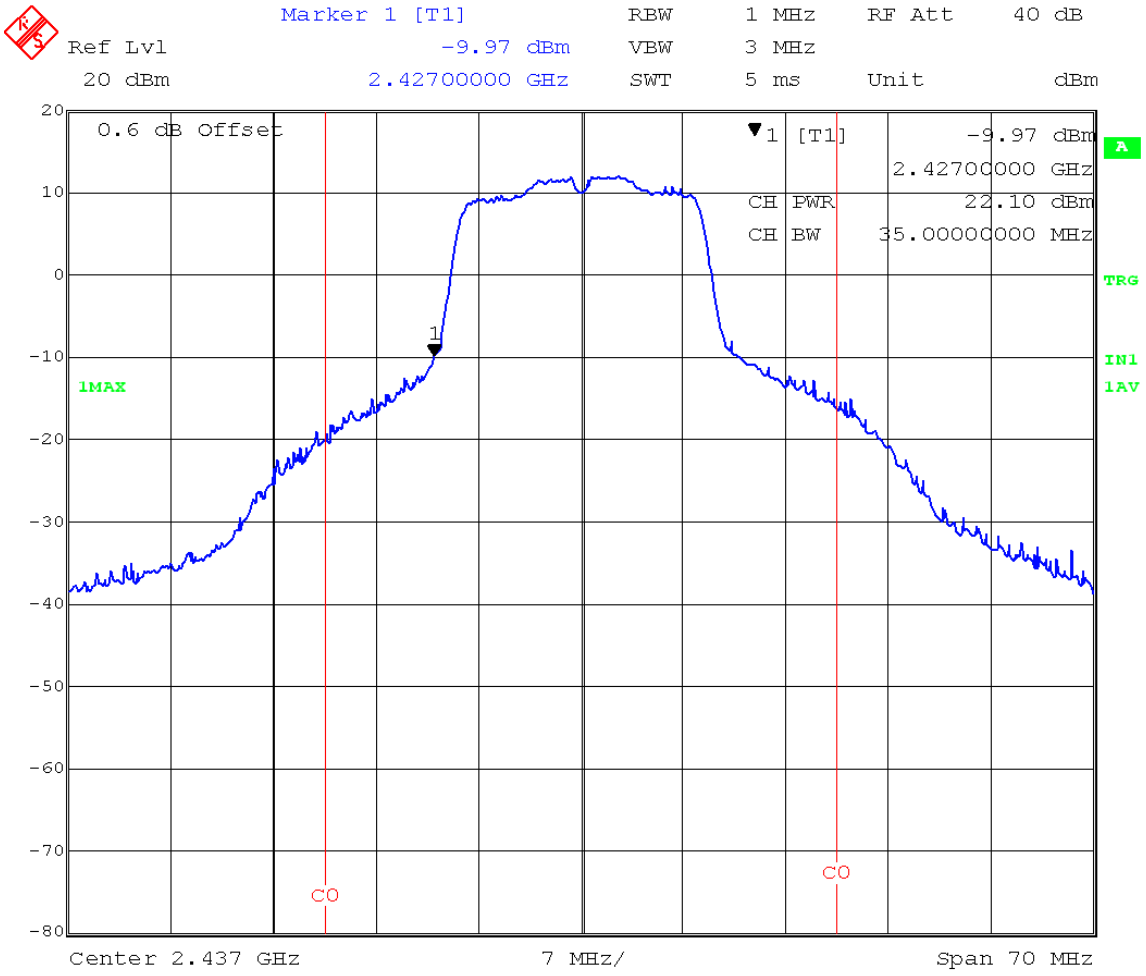
Title: ch6 - rate 6 ofdm average power
Date: 12.APR.2005 11:48:28

Av.P
Channel 6
Data rate: 11Mbps



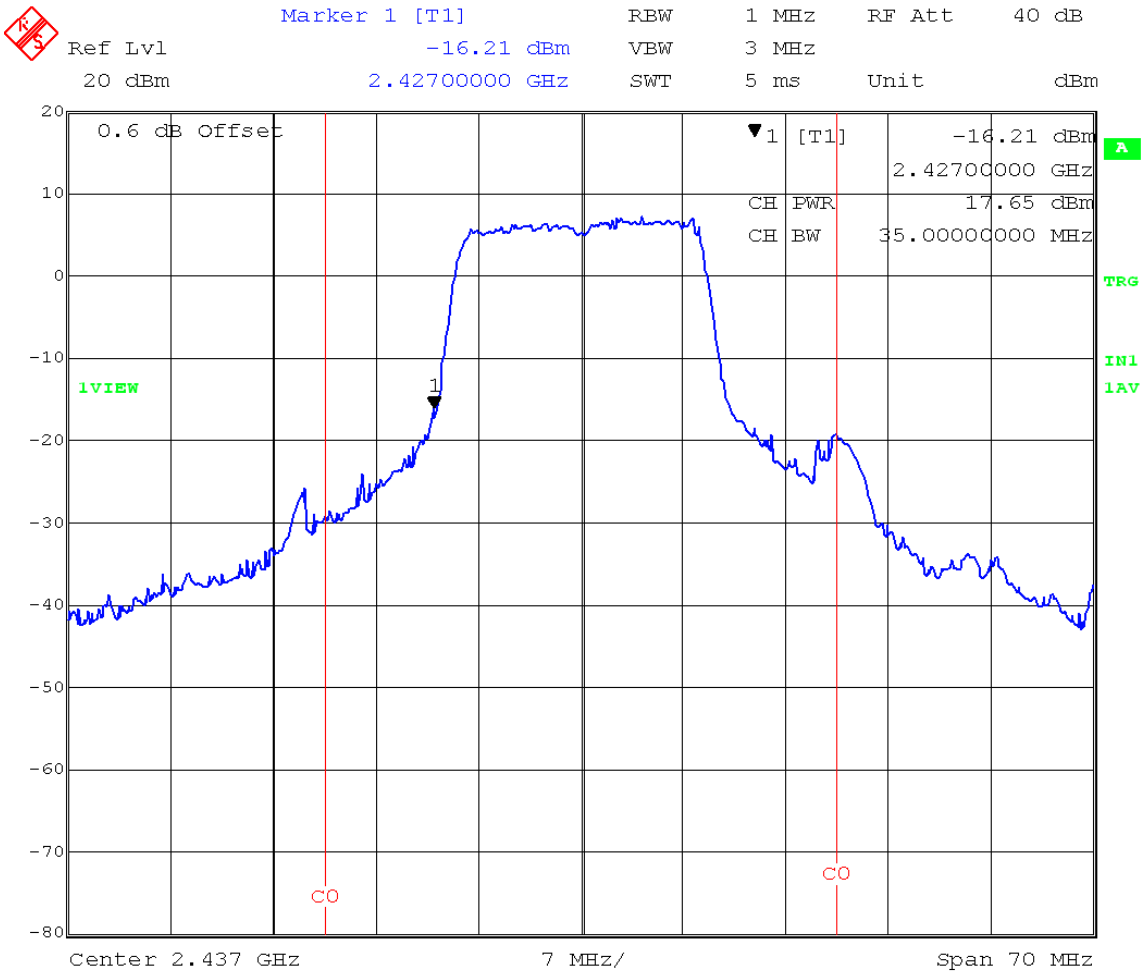
Title: ch 6- rate 11cck average power
Date: 12.APR.2005 11:30:51

Av.P
Channel 6
Data rate: 24Mbps



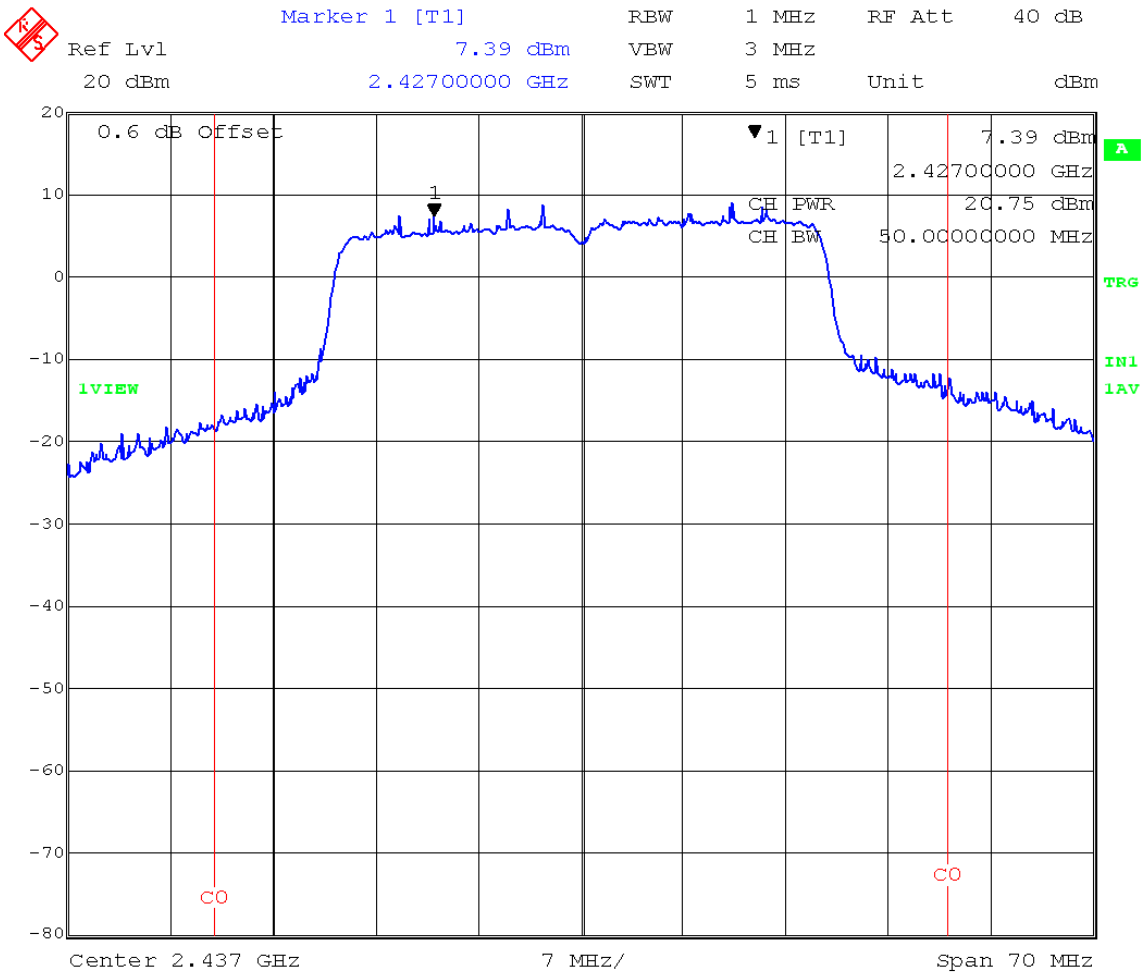
Title: ch6 - rate 24 ofdm average power
Date: 12.APR.2005 11:50:25

Av.P
Channel 6
Data rate: 54Mbps

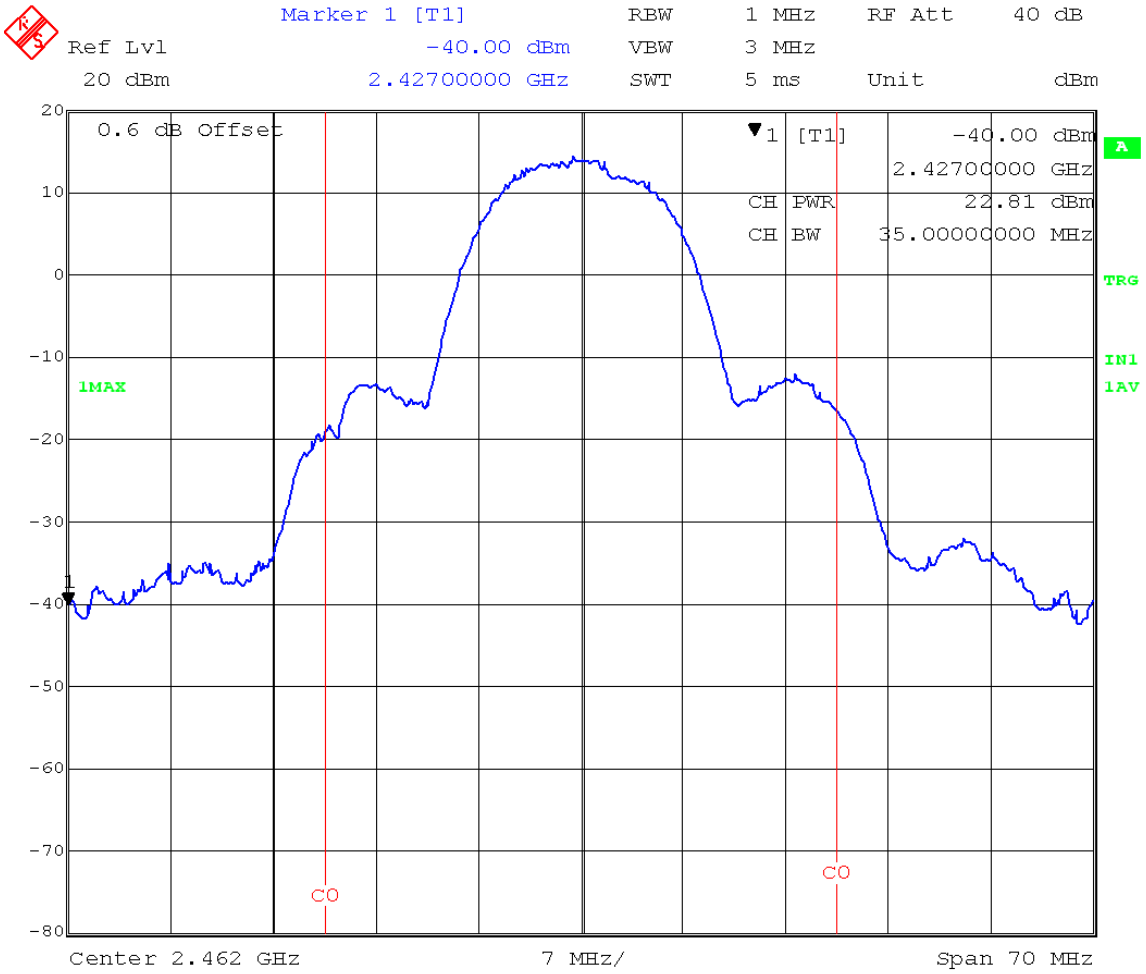


Title: ch6 - rate 54 ofdm average power
Date: 12.APR.2005 11:53:34

Av.P
Channel 6
Data rate: 108Mbps



Title: ch6 - turbo average power
Date: 12.APR.2005 11:57:10



Title: ch 11- rate 11cck average power
Date: 12.APR.2005 11:33:35

APPENDIX B: TEST LAB ACCREDITATIONS

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

JMR COMPLIANCE ENGINEERING
CHATSWORTH, CA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

March 31, 2006
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 200413-0

NVLAP-01C (06-01)

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200413-0

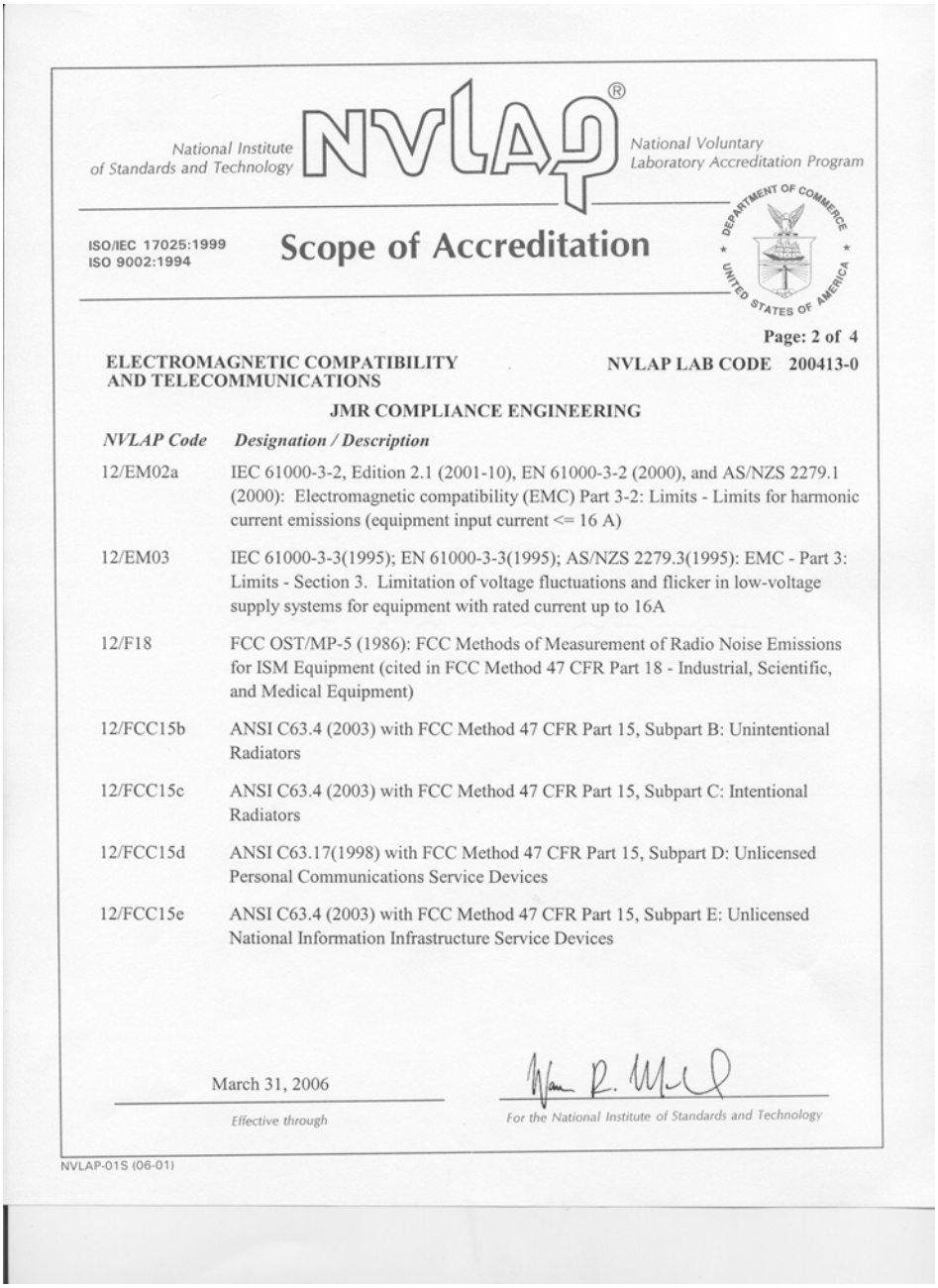
JMR COMPLIANCE ENGINEERING
20400 Plummer Street
Chatsworth, CA 91311
Mr. Leon Kogan
Phone: 818-739-1122 Fax: 818-993-9173
E-Mail: leonk@jmr.com
URL: http://www.jmr.com

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/610006c	EN 61000-6-3 (2001): Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
12/CIS11b	IEC/CISPR 11(2003) & EN 55011(1998), A1(1999), A2(2002): Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)

March 31, 2006
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)



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ISO 9002:1994

Scope of Accreditation

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NVLAP Code	*Designation / Description*
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)
12/EM03	IEC 61000-3-3(1995); EN 61000-3-3(1995); AS/NZS 2279.3(1995): EMC - Part 3: Limits - Section 3. Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to 16A
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC15b	ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators
12/FCC15c	ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15d	ANSI C63.17(1998) with FCC Method 47 CFR Part 15, Subpart D: Unlicensed Personal Communications Service Devices
12/FCC15e	ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart E: Unlicensed National Information Infrastructure Service Devices

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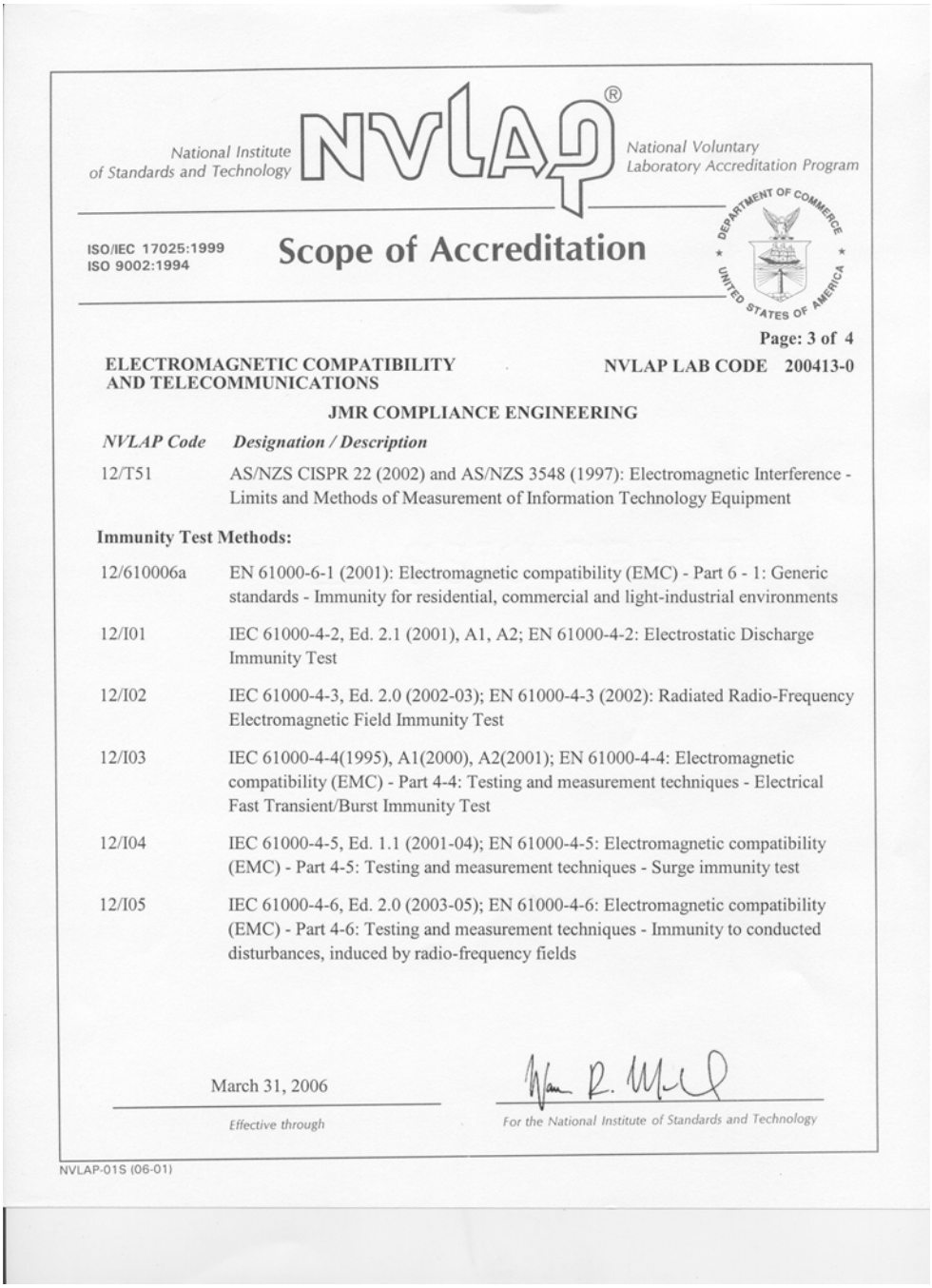

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NVLAP Code	*Designation / Description*
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment

Immunity Test Methods:

12/610006a	EN 61000-6-1 (2001): Electromagnetic compatibility (EMC) - Part 6 - 1: Generic standards - Immunity for residential, commercial and light-industrial environments
12/I01	IEC 61000-4-2, Ed. 2.1 (2001), A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields

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NVLAP Code	*Designation / Description*
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests

Telecommunications Test Methods:

12/FCC2b	TIA/EIA 603A (2001) with 47 CFR Part 2: General Mobile Radio Services in 47 CFR Parts 22 (non-cellular), 74, 90, 95, and 97

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