

5 TEST TYPES AND RESULTS (FOR PART 802.11a)

5.1. CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
6. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
7. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
Cable 1	RG-214/U	CBL-001	02/19/05	02/19/06
Analyzer	HP85462A	3325A00120	03/05/05	03/05/06
Preselector	HP85460A	3330A00117	03/05/05	03/05/06
QPeak Adapter	HP85462 Internal	Internal	03/05/05	03/05/06
Pre-Amplifier	None			
LISN	3825/2 LISN	9406-2232	12/03/04	12/03/05
Switch 1	N/A	N/A	N/A	N/A
Attenuator 1	33-10-34	BA9146	02/19/05	02/19/06
Temperature and Humidity Recorder	Dickson TH8-24C	5097755	09/16/03	09/16/05

5.1.3 TEST PROCEDURES

The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



**Conducted Emission Test
(Front View)**



**Conducted Emission Test
(Rear View)**

5.1.6 EUT OPERATING CONDITIONS

The EUT is under transmission/receiving condition continuously at specific channel frequency for both 801.11 A/B/G.

This program was repeated continuously for the duration of the testing. The above mentioned set-up allowed the article to perform sufficiently for the test purposes and required time, i.e. produce conducted emissions.

5.1.7 TEST RESULTS

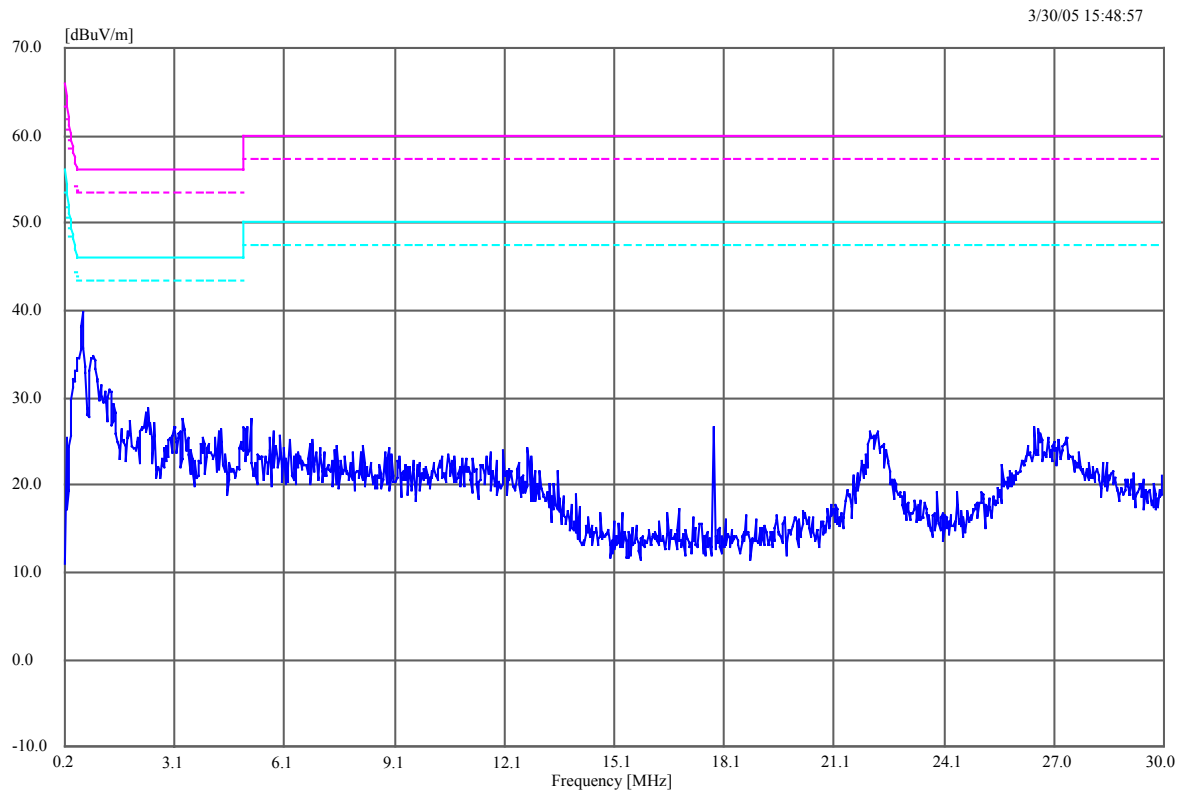
EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	TESTED BY: Sandra Sohn	

No	Freq.	Emission Level	Emission Level	Limit	Limit	Margin	Margin
		[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	(dB)	(dB)
		QP	AV	QP	AV	QP	AV
1	0.6200	38.76	23.82	56	46	-17.24	-22.18
2	1.1155	25.42	13.06	56	46	-30.58	-32.94
3	17.775	23.98	18.37	60	50	-36.02	-31.63
4	22.089	21.45	13.96	60	50	-38.55	-36.04
5	26.530	20.53	12.99	60	50	-39.47	-37.01

REMARKS:

1. QP and AV. are abbreviations of Quasi-Peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value

Peak traces were recorded



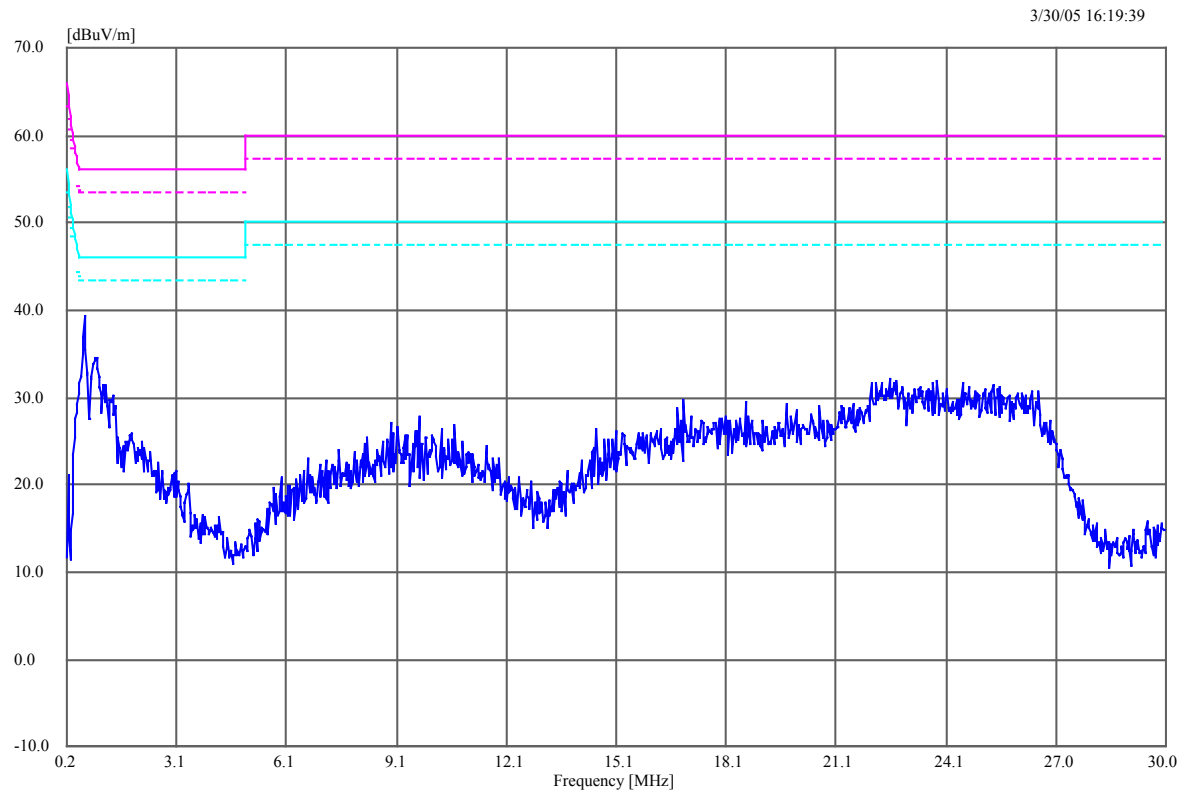
EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	TESTED BY: Sandra Sohn	

No	Freq.	Emission Level	Emission Level	Limit	Limit	Margin	Margin
		[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	(dB)	(dB)
	[MHz]	QP	AV	QP	AV	QP	AV
1	0.6188	37.63	23.04	56.00	46	-18.37	-22.96
2	0.9160	27.00	13.14	56.00	46	-29.00	-32.86
3	9.7247	20.32	11.69	60.00	50	-39.68	-38.31
4	16.903	21.42	13.82	60.00	50	-38.58	-36.18
5	22.711	25.61	17.27	60.00	50	-34.39	-32.73

REMARKS:

1. QP and AV. are abbreviations of Quasi-Peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value

Peak traces were recorded



5.2. RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5250-5350	-27	68.3
5725-5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.

5.2.3 TEST INSTRUMENTS

Device	Model No.	Serial No.	Last Cal.	Next Cal
Cable 1	8214	CBL-006	02/19/05	02/19/06
Analyzer	HP85462A	3325A00120	03/05/05	03/05/06
Cable 2	8268	CBL-002	02/19/05	02/19/06
Preselector	HP85460A	3330A00117	03/05/05	03/05/06
Qpeak Adapter	HP85462 Internal	Internal	03/05/05	03/05/06
Cable 10	K316MM	CBL-010	9/14/04	9/14/05
Cable 11	K086MM	CBL-011	9/14/04	9/14/05
ROHDE & SCHWARZ EMI Test Receiver	ESIB 40	100201	01/23/05	01/23/06
Pre-Amplifier	HP83051	1065194A	10/11/04	10/11/05
Tower 1	EMCO 1050	9310-1786	N/A	N/A
Turntable 1	EMCO 1060	9409-1753	N/A	N/A
Bilog Antenna	CBL6112B	2604	09/03/04	09/03/05
Horn Antenna	SAS-200	175	03/04/05	03/04/06
Double Ridged Guide Antenna	ETS3116	0026390	05/23/04	05/24/05
Shielded Semi-Anechoic Chamber	RANTEC	N/A	02/11/05	02/11/06
Temperature and Humidity Recorder	Dickson TH8-24C	5097755	09/16/03	09/16/05

NOTE:

1. The horn antenna and HP preamplifier (model: 83051) are used only for the measurement of emission frequency above 1GHz.

5.2.4 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 broadband 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 table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. 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 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

5.2.5 DEVIATION FROM TEST STANDARD

No deviation

5.2.6 TEST SETUP



**Radiated Emission Test with all Antenna
(Front View)**



**Radiated Emission Test with All Antenna
(Rear View)**

5.2.7 EUT OPERATING CONDITIONS

The EUT is under transmission/receiving condition continuously at specific channel frequency for both 801.11 A/B/G by all antenna.

Antenna 1: 23dBi, 5GHz
Antenna 2: 12dBi, 2.4GHz
Antenna 3: 29dBi, 5GHz
Antenna 4: 16.4dBi, 2.4GHz
Antenna 5: 12dBi, 5GHz
Antenna 6: 12dBi, 2.4GHz

This program was repeated continuously for the duration of the testing. The above mentioned set-up allowed the article to perform sufficiently for the test purposes and required time, i.e. produce radiated emissions.

5.2.8 TEST RESULTS

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Channel 52,60,64 only, w/ all antenna	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 49%RH	TESTED BY: Sandra Sohn	

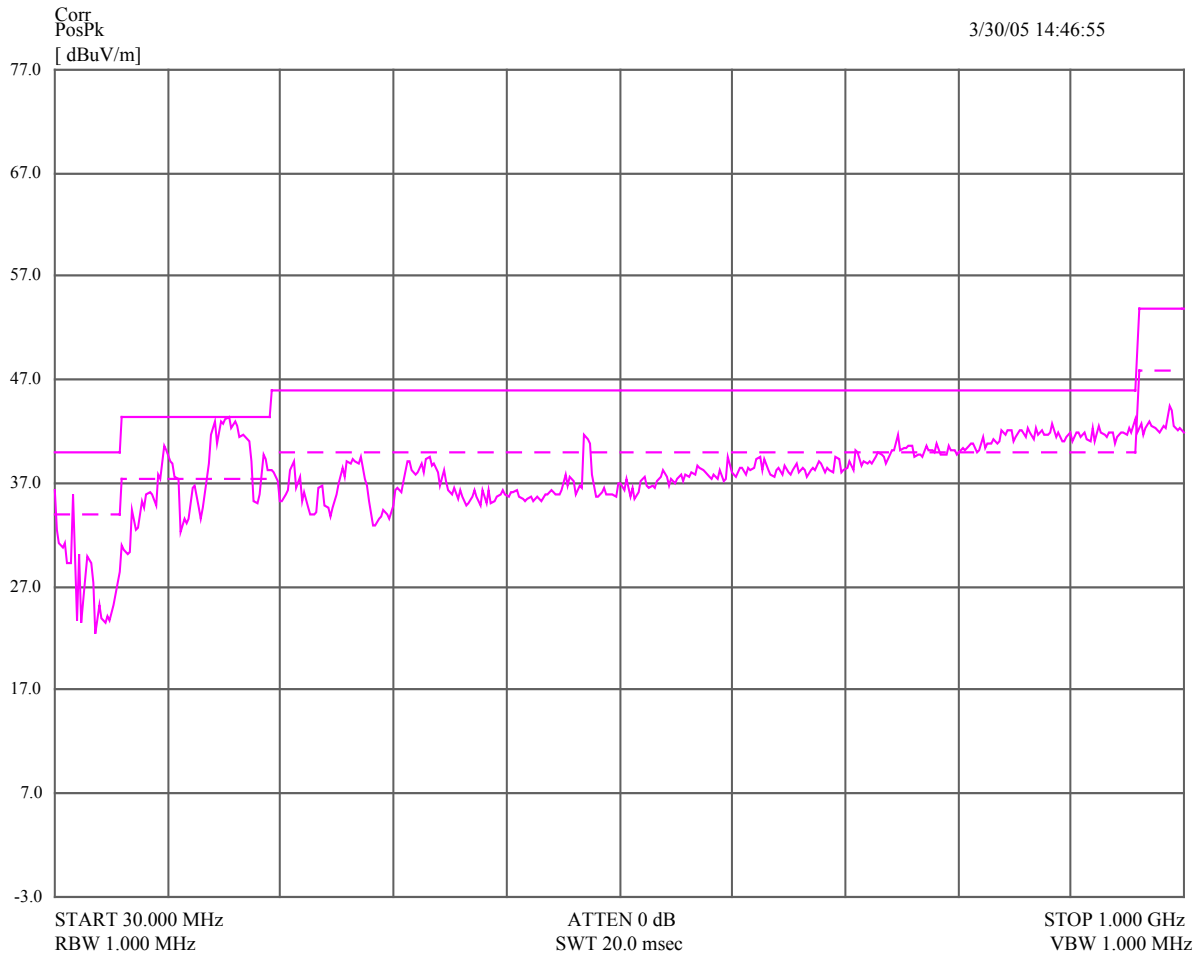
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)
1	109.17975	28.80	43.50	-14.70	1.53	46
2	200.01475	34.73	43.50	-8.77	1.94	88
3	225.01900	33.88	46.00	-12.12	2.34	165
4	250.01574	36.00	46.00	-10.00	1.54	58
5	259.60374	30.32	46.00	-15.68	.95	35
6	279.99875	32.20	46.00	-13.80	1.48	11
7	320.00950	33.13	46.00	-12.87	1.58	137
8	363.66598	31.83	46.00	-14.17	1.06	337
9	400.00099	33.05	46.00	-12.95	1.78	150
10	500.01798	37.73	46.00	-8.27	.98	81
11	501.16000	36.84	46.00	-9.16	2.45	343

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)
1	30.579500	29.36	40.00	-10.64	1.08	77
2	41.210752	34.15	40.00	-5.85	.95	8
3	43.950500	35.28	40.00	-4.72	.96	64
4	49.073500	34.51	40.00	-5.49	.94	17
5	107.38849	28.94	43.50	-14.56	.96	93
6	168.52649	29.56	43.50	-13.94	.95	190
7	197.40350	28.92	43.50	-14.58	.99	341
8	280.00976	35.99	46.00	-10.01	.95	89
9	369.32099	27.77	46.00	-18.23	1.63	78
10	500.03024	37.23	46.00	-8.77	.95	84
11	501.17401	37.80	46.00	-8.20	2.06	311

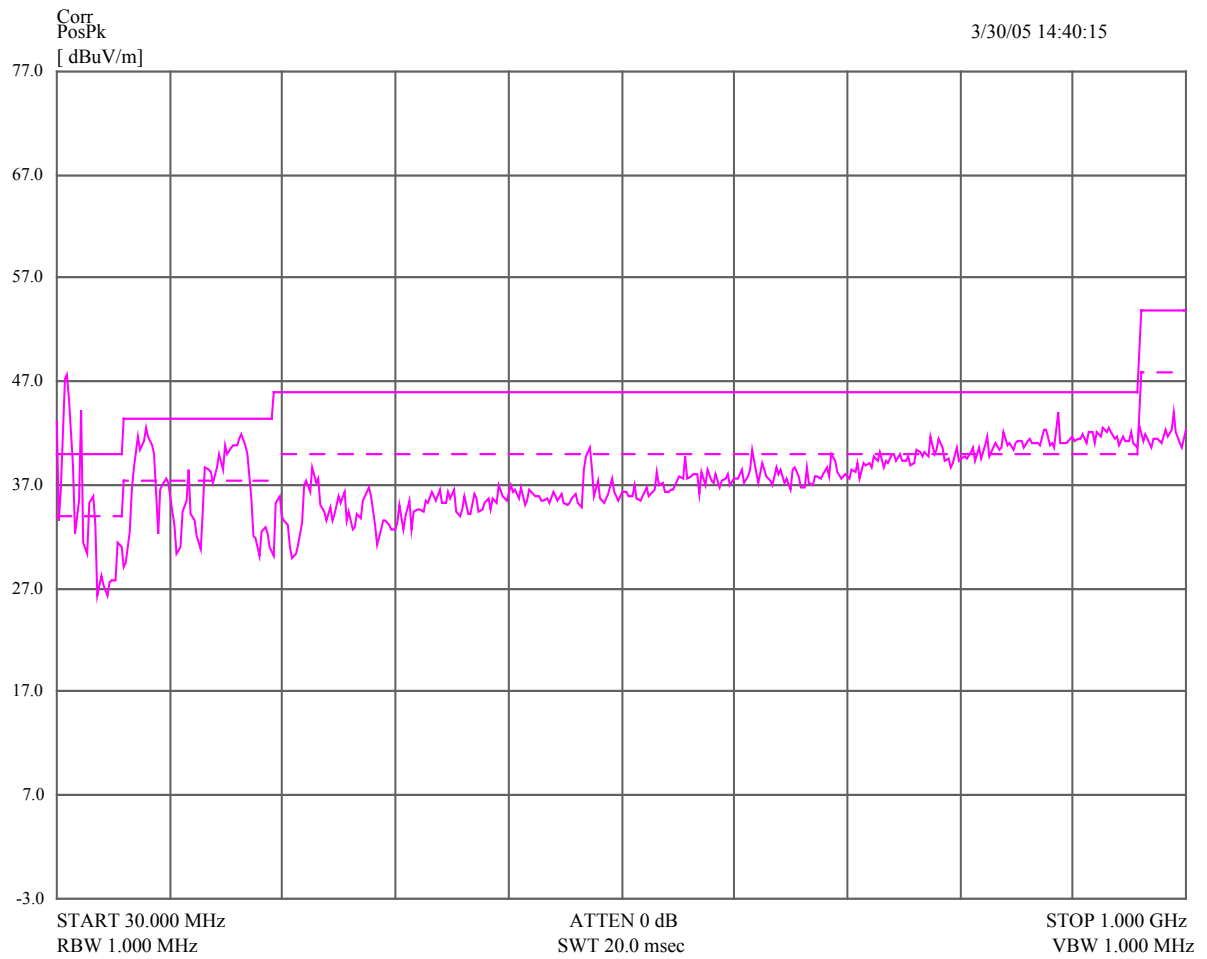
REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

Horizontal
Peak traces were recorded



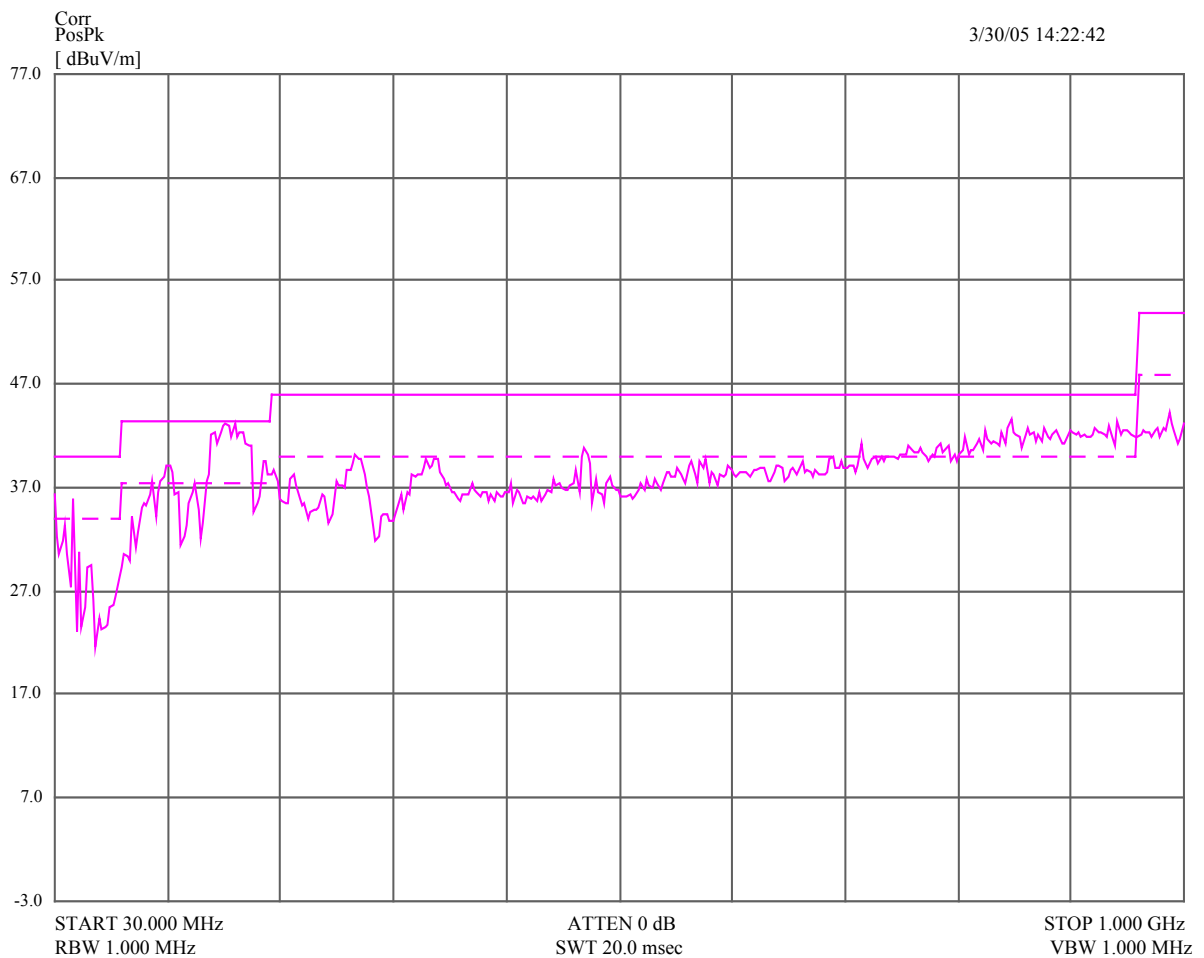
Vertical
Peak traces were recorded



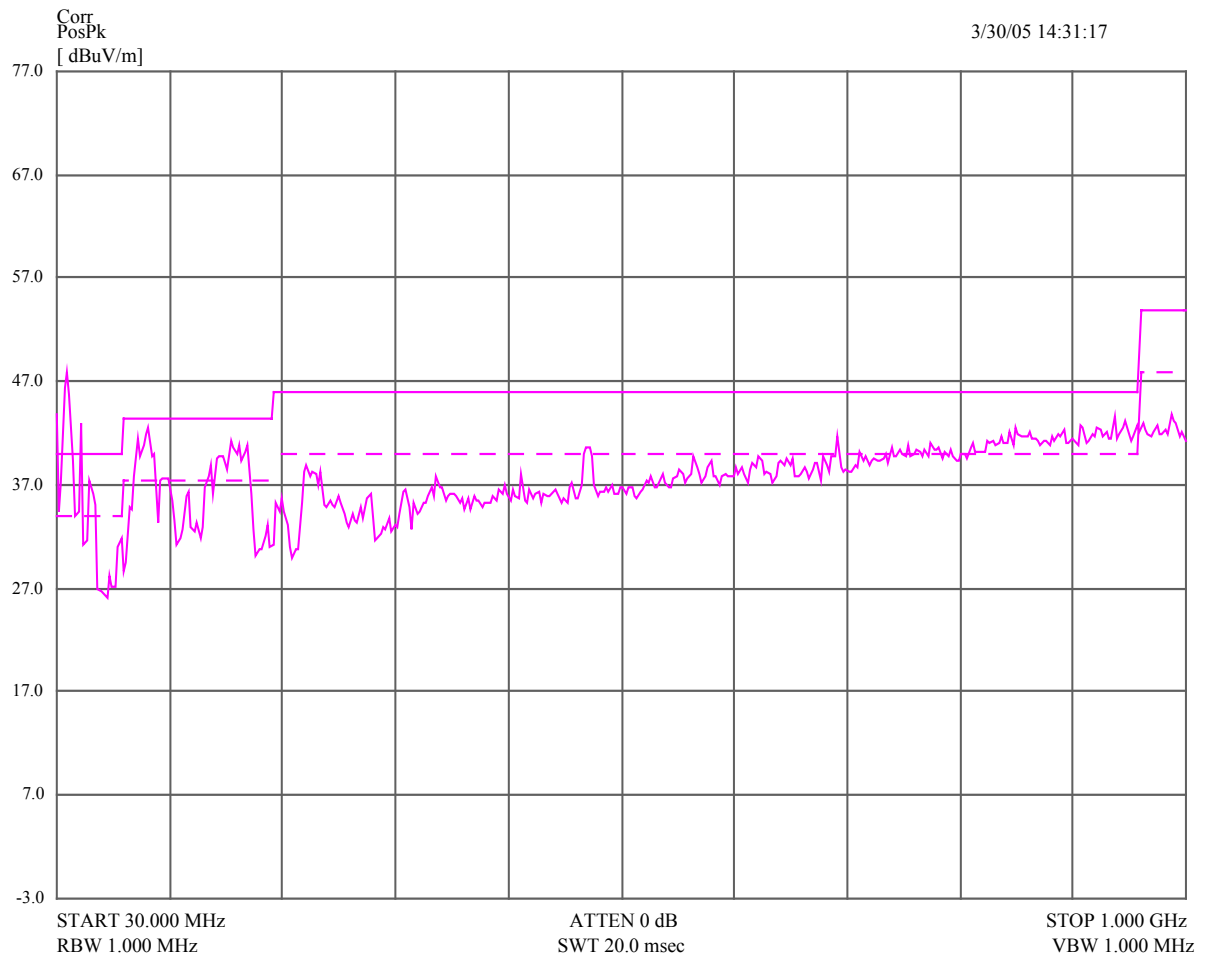
EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Channel 1,6,11,149,157,165, w/ all antenna	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 49%RH	TESTED BY: Sandra Sohn	

Both Horizontal, Vertical Peak traces were recorded for verification.

Horizontal



Vertical



Harmonics & Spurious emissions 1-18GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal Mode w/ All Antenna	CHANNEL	Channel 52, 56, 64 (Data rate: 6Mbps)
FREQUENCY RANGE	1000 ~ 18000MHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 48%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
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)
1	1749 (P)	57.5 (P)	68.3 (P)	-10.8	1	14	63.7 (P)	-6.2
1	1749 (AV)	28.7 (AV)	48.3 (AV)	-19.6	1	14	34.9 (AV)	-6.2
2	3486 (P)	63.9 (P)	68.3 (P)	-4.4	1	9	64.7 (P)	-0.8
2	3486 (AV)	32.8 (AV)	48.3 (AV)	-15.5	1	9	33.6 (AV)	-0.8
3 _R	4883 (P)	63.9 (P)	74 (P)	-10.1	1	12	61.5 (P)	2.4
3 _R	4883 (AV)	33.8 (AV)	54 (AV)	-20.2	1	12	31.2 (AV)	2.6
4	5565 (P)	62.6 (P)	68.3 (P)	-5.7	1	8	60 (P)	2.6
4	5565 (AV)	34.7 (AV)	48.3 (AV)	-13.6	1	8	32.1 (AV)	2.6
5*	6995 (P)	60.8 (P)	68.3 (P)	-7.5	1	5	53.9 (P)	6.9
5*	6995 (AV)	42.1 (AV)	48.3 (AV)	-6.2	1	5	35.2 (AV)	6.9
6*	8767 (P)	53.3 (P)	68.3 (P)	-15	1	11	45 (P)	8.3
6*	8767 (AV)	37.6 (AV)	48.3 (AV)	-10.7	1	11	29.3 (AV)	8.3
7*	10539 (P)	62.45 (P)	68.3 (P)	-5.85	1	9	51.7 (P)	10.75
7*	10539 (AV)	42.85 (AV)	48.3 (AV)	-5.45	1	9	32.1 (AV)	10.75

8* _R	15921 (P)	65.6 (P)	74 (P)	-8.4	1	2	54 (P)	11.6
8* _R	15921 (AV)	44.2 (AV)	54 (AV)	-9.8	1	2	32.6 (AV)	11.6

NOTE:

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 (dB) + *Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407 and per 15.205.
6. * filter is used
7. _R is for restricted band.

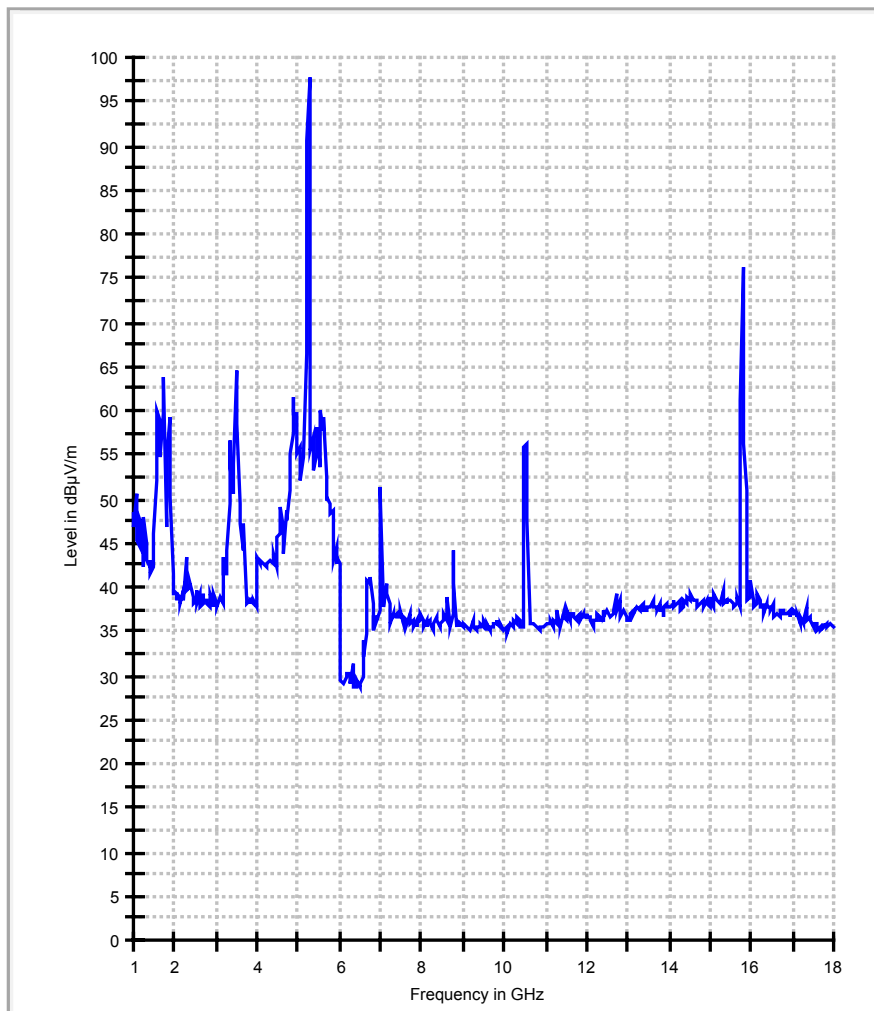
Vertical MaxPeak before correction (without filter)

Ch:52, 56, 64

Data rate: 6Mbps

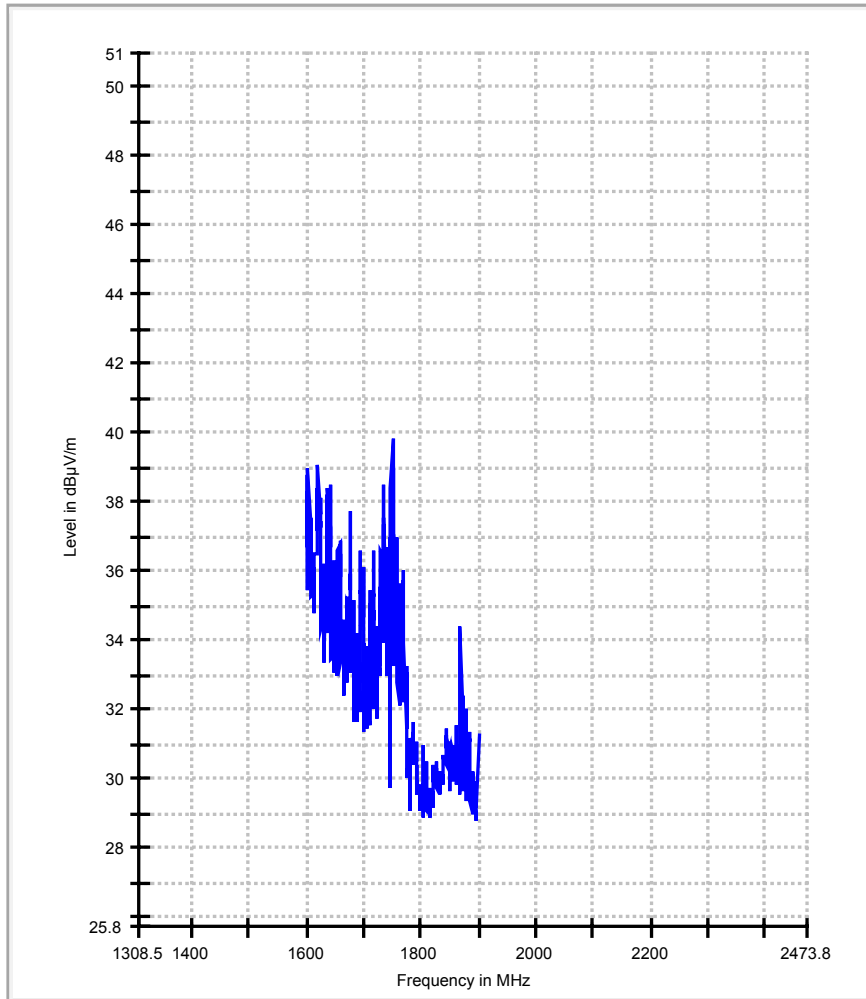
Resolution Bandwidth: 1MHz

Video Bandwidth: 1 MHz



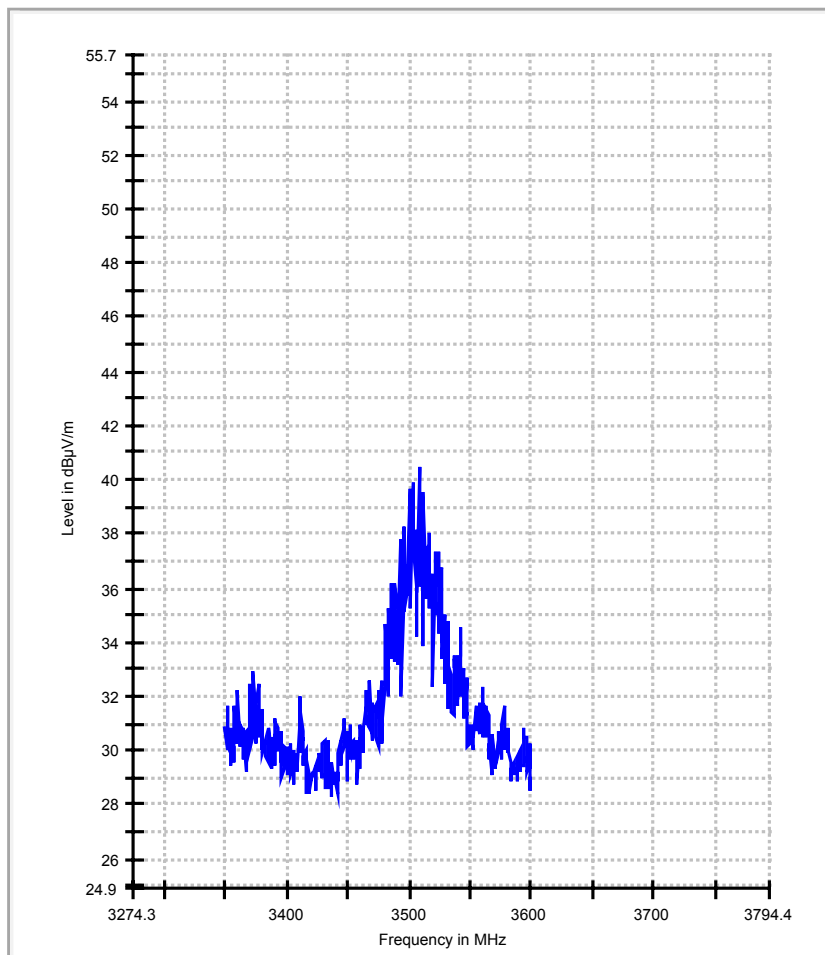
Vertical Average before correction No.1 (without filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



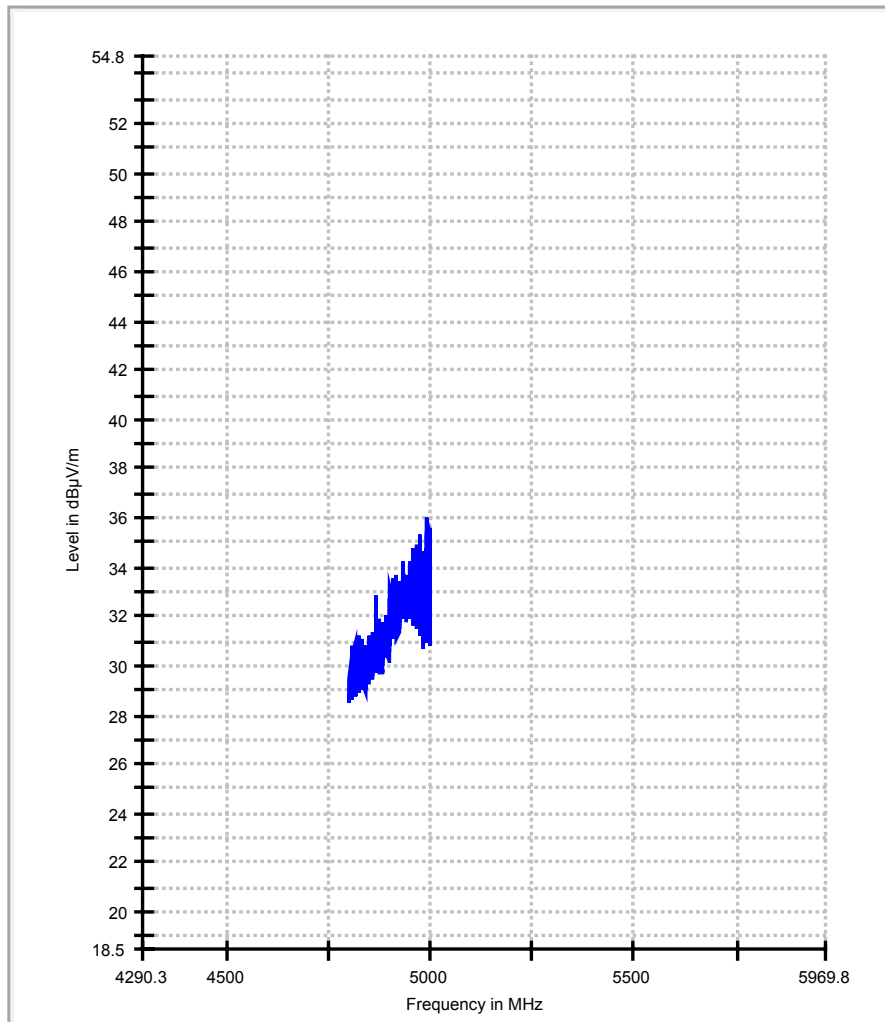
Vertical Average before correction No.2 (without filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



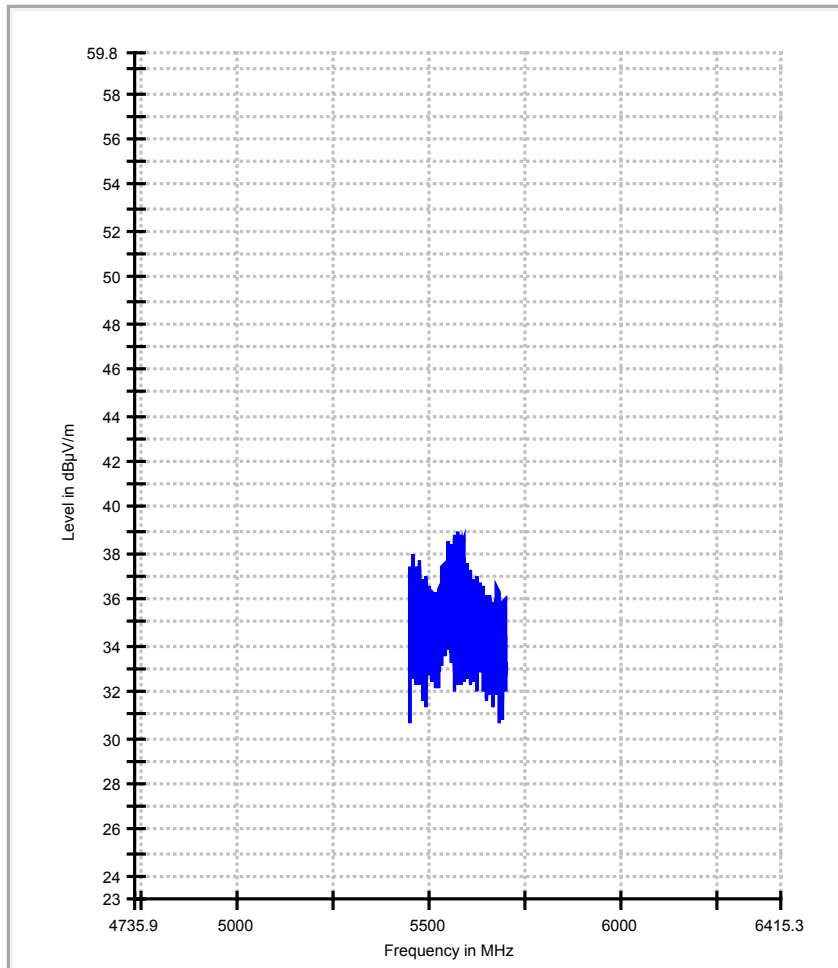
Vertical Average before correction No.3 (without filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



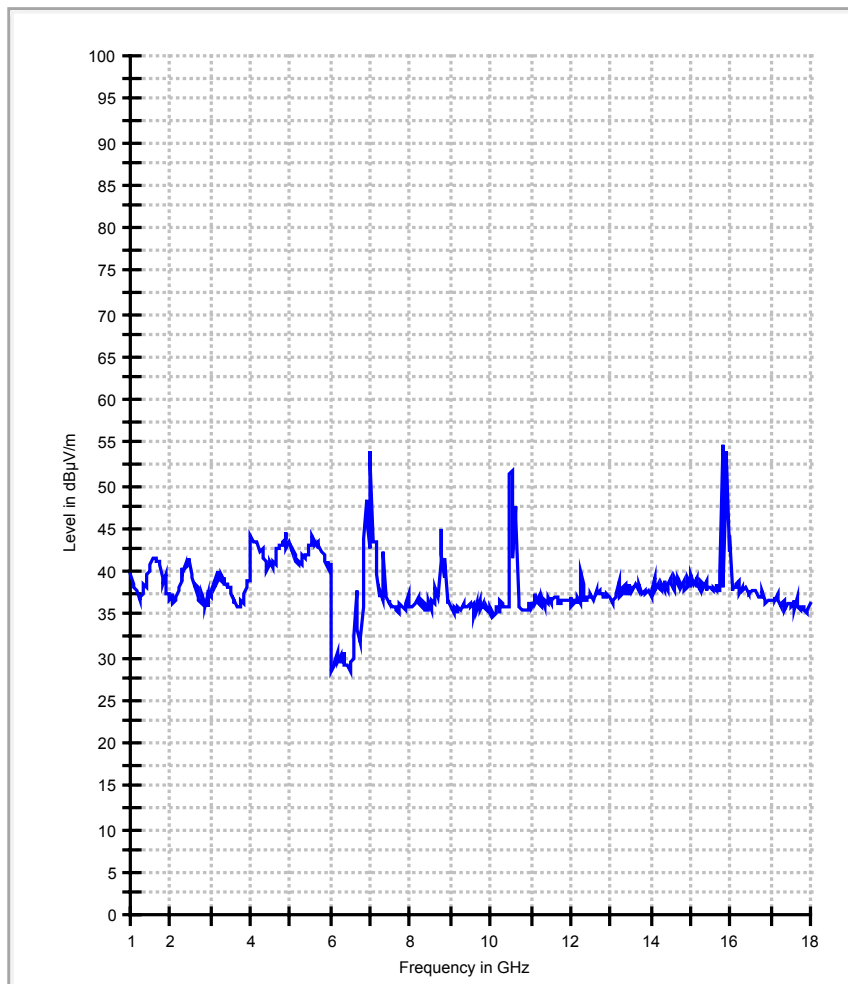
Vertical Average before correction No.4 (without filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



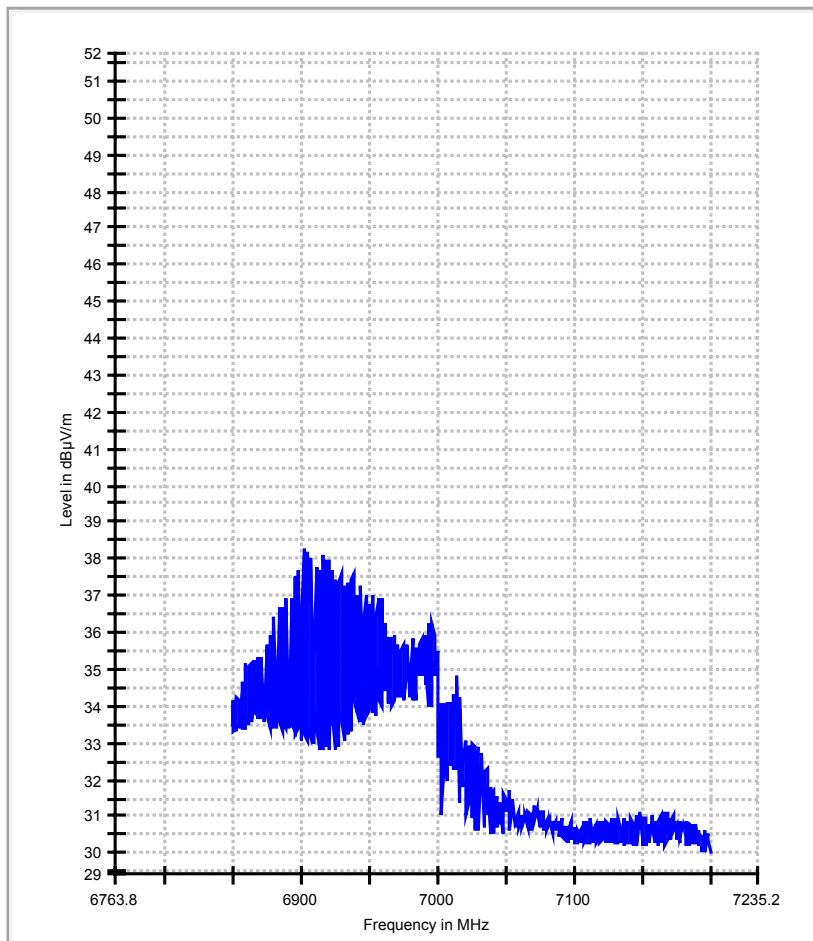
Vertical MaxPeak before correction* (with filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



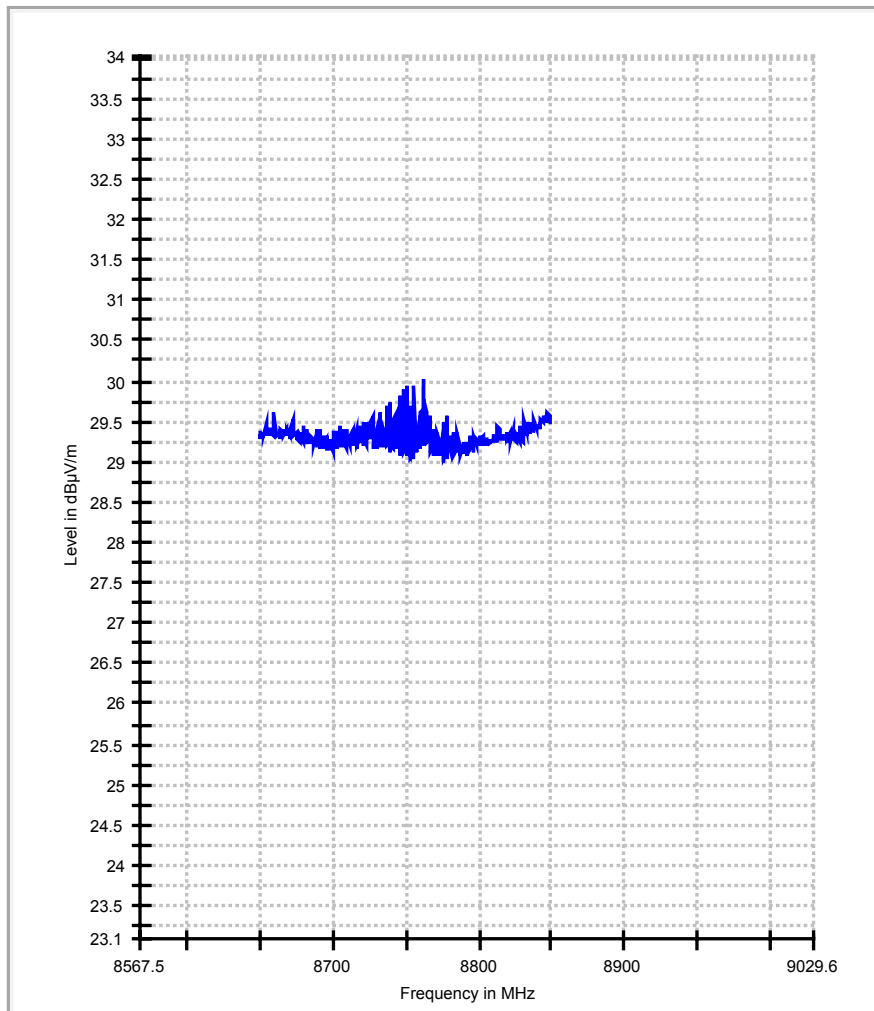
Vertical Average before correction No.5* (with filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Vertical Average before correction No.6* (with filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz

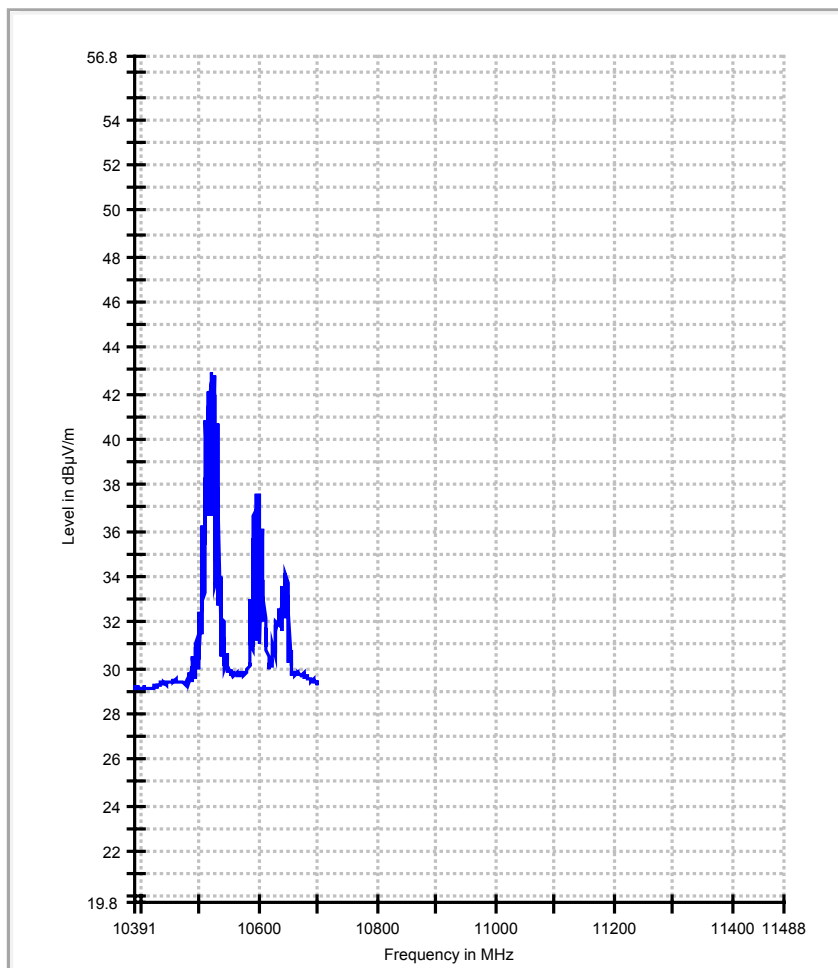


Vertical Average before correction No.7* (with filter)

Ch:52, 56, 64

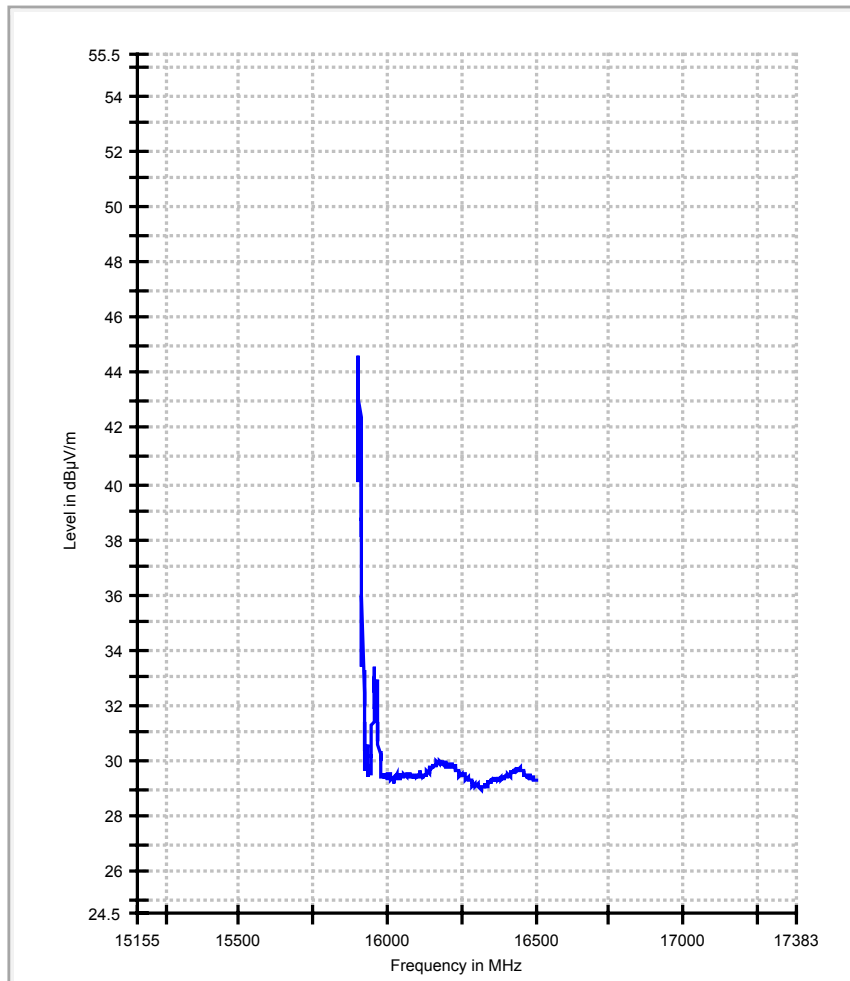
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Vertical Average before correction No.8* (with filter)
Ch:52, 56, 64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Harmonics & Spurious emissions 1-18GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal Mode w/ All Antenna	CHANNEL	Channel 149,153,161 (Data rate: 6 Mbps)
FREQUENCY RANGE	1000 ~ 18000 MHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 47%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY:	Sandra Sohn		

Vertical is worse case.

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (GHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB)
1 _R	1511 (P)	44.1 (P)	74 (P)	-29.9	1	11	52.2 (P)	-7.8
1 _R	1511 (AV)	21.1 (AV)	54 (AV)	-32.9	1	11	28.9 (AV)	-7.8
2	5292 (P)	66.1 (P)	68.3 (P)	-2.2	1	8	63.1 (P)	3
2	5292 (AV)	41.5 (AV)	48.3 (AV)	-6.8	1	8	38.5 (AV)	3
3* _R	7336 (P)	49.95 (P)	74 (P)	-24.05	1	5	42.7 (P)	7.25
3* _R	7336 (AV)	37.75 (AV)	54 (AV)	-16.25	1	5	30.5 (AV)	7.25
4* _R	11492 (P)	66.8 (P)	74 (P)	-7.2	1	13	55.2 (P)	11.6
4* _R	11492 (AV)	51.8 (AV)	54 (AV)	-2.2	1	13	40.2 (AV)	11.6
5*	17318 (P)	67.65 (P)	68.3 (P)	-0.65	1	9	52.2 (P)	15.45
5*	17318 (AV)	46.85 (AV)	48.3 (AV)	-1.45	1	9	31.4 (AV)	15.45

NOTE:

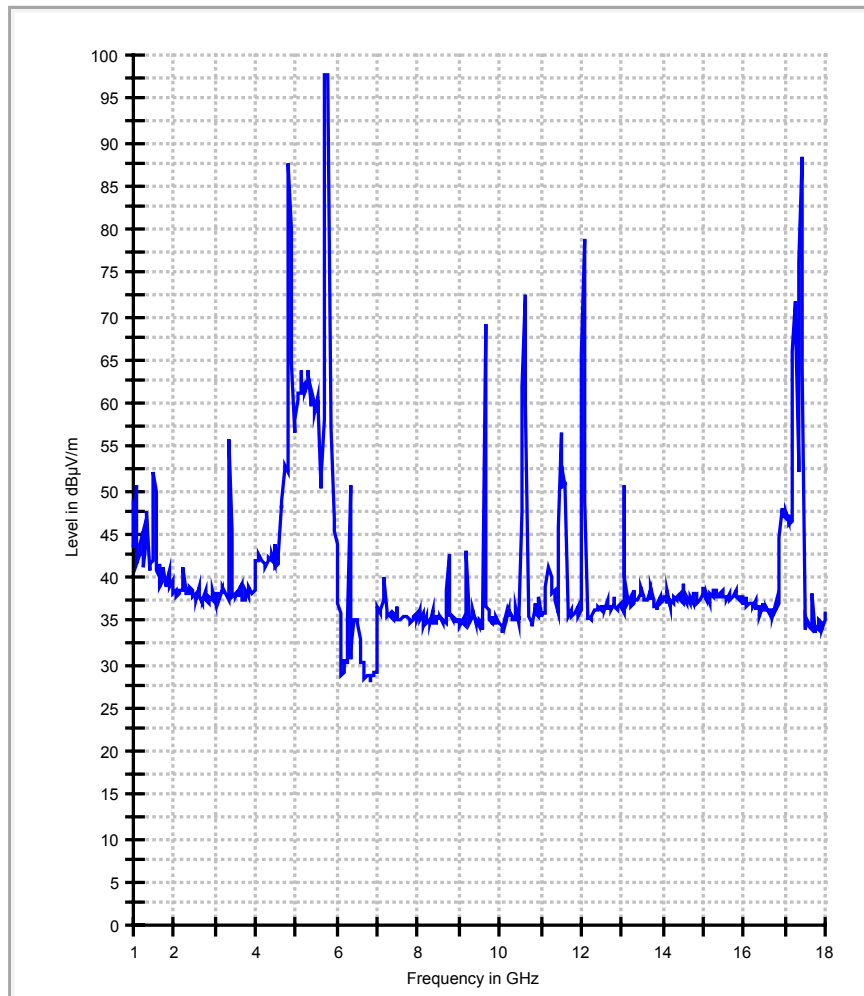
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm) + *Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407 and per 15.205.
6. * filter is used.
7. _R is for restricted band.

Vertical MaxPeak before correction (without filter)

Ch:149,153,161

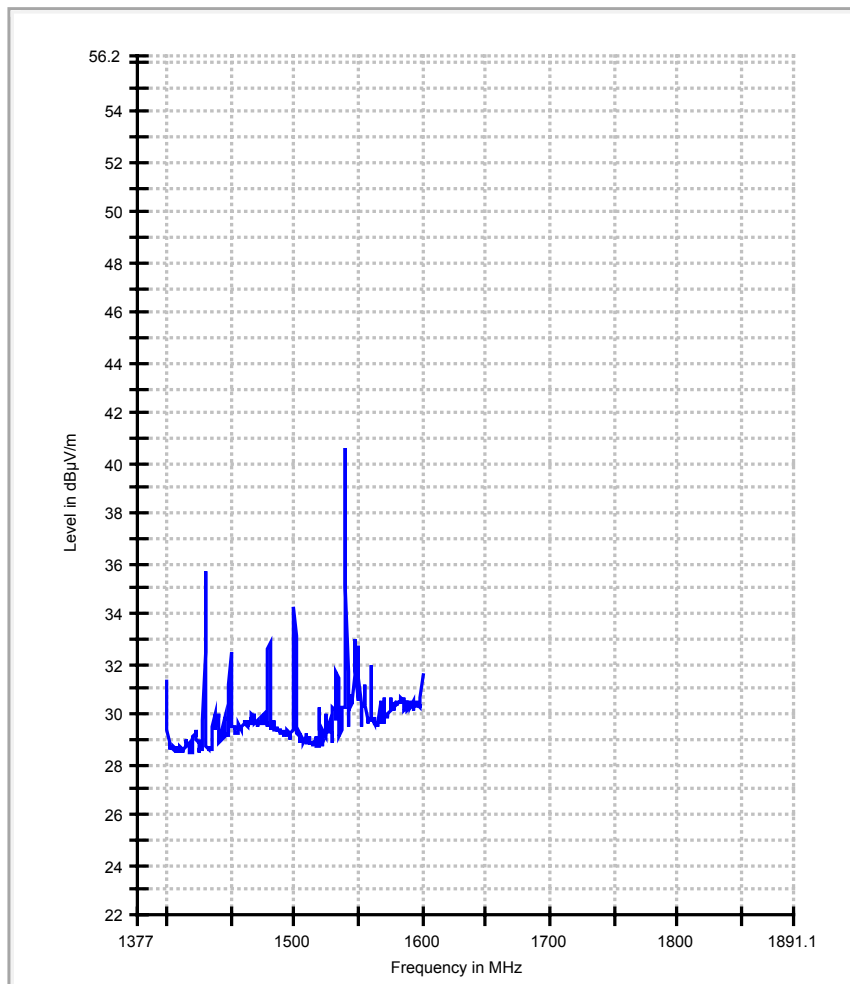
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



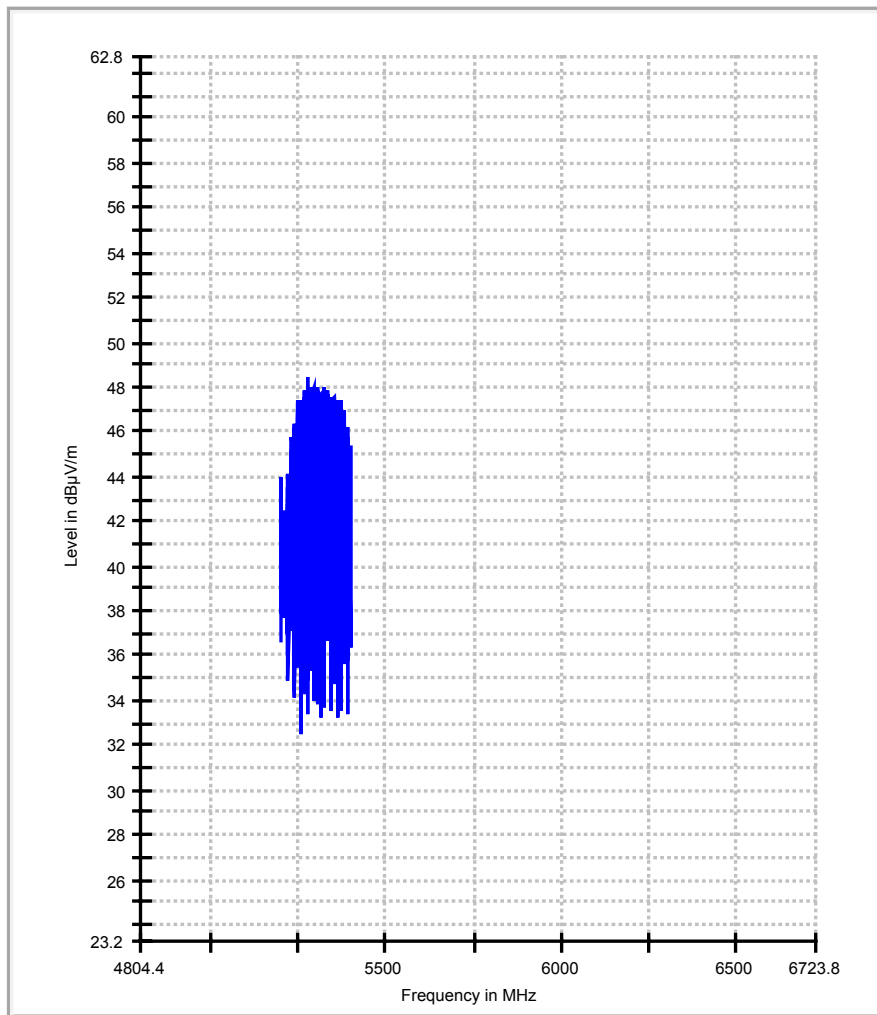
Vertical Average before correction No.1 (without filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



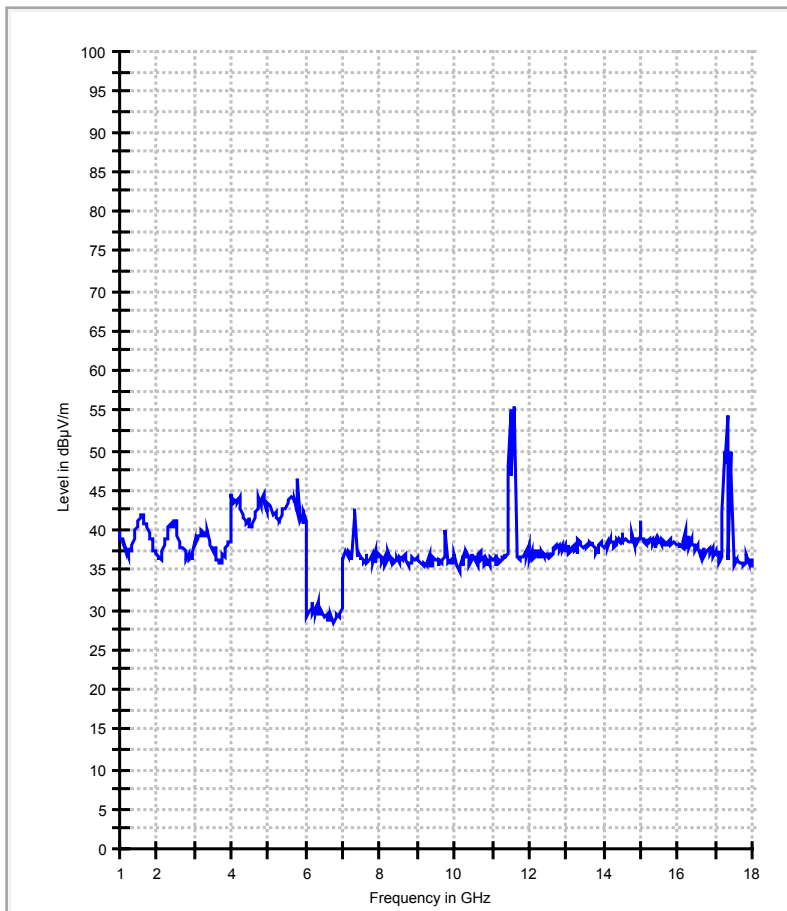
Vertical Average before correction No.2 (without filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



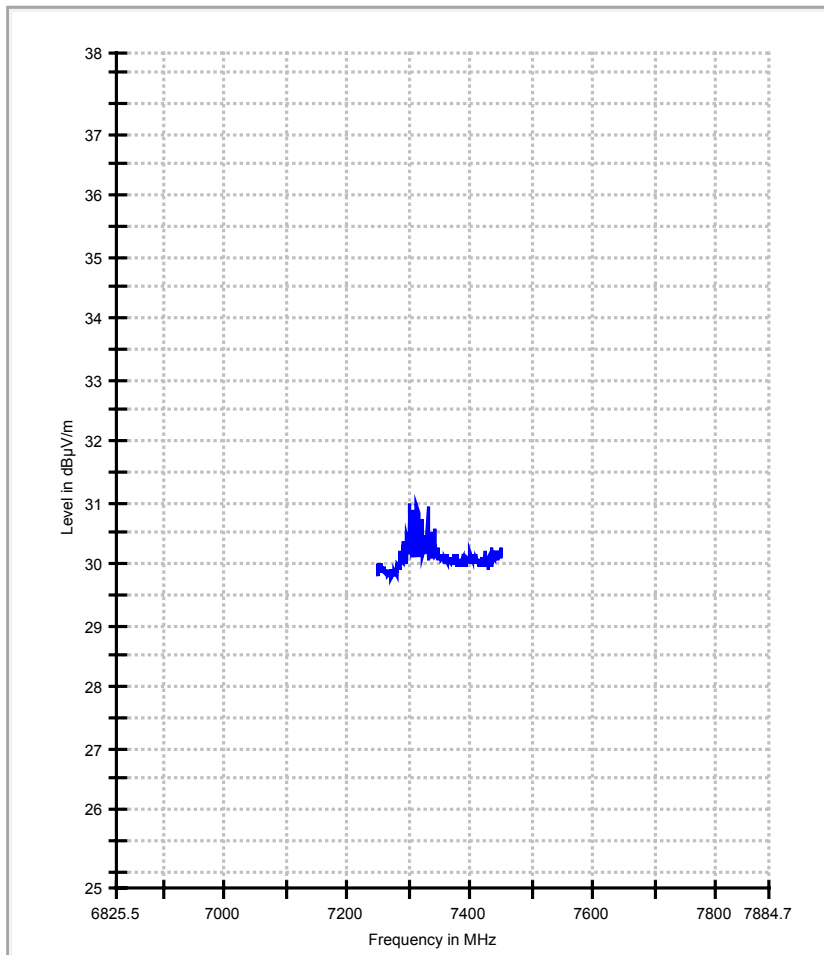
Vertical MaxPeak before correction* (with filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



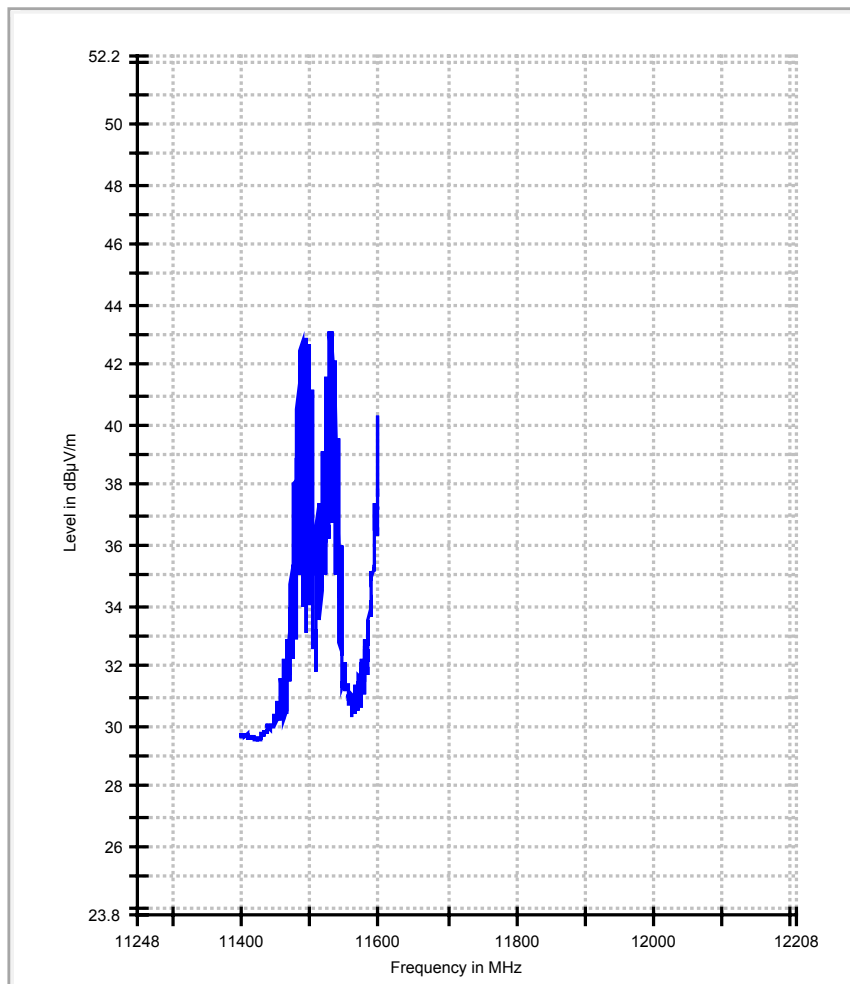
Vertical Average before correction No.3 *(with filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



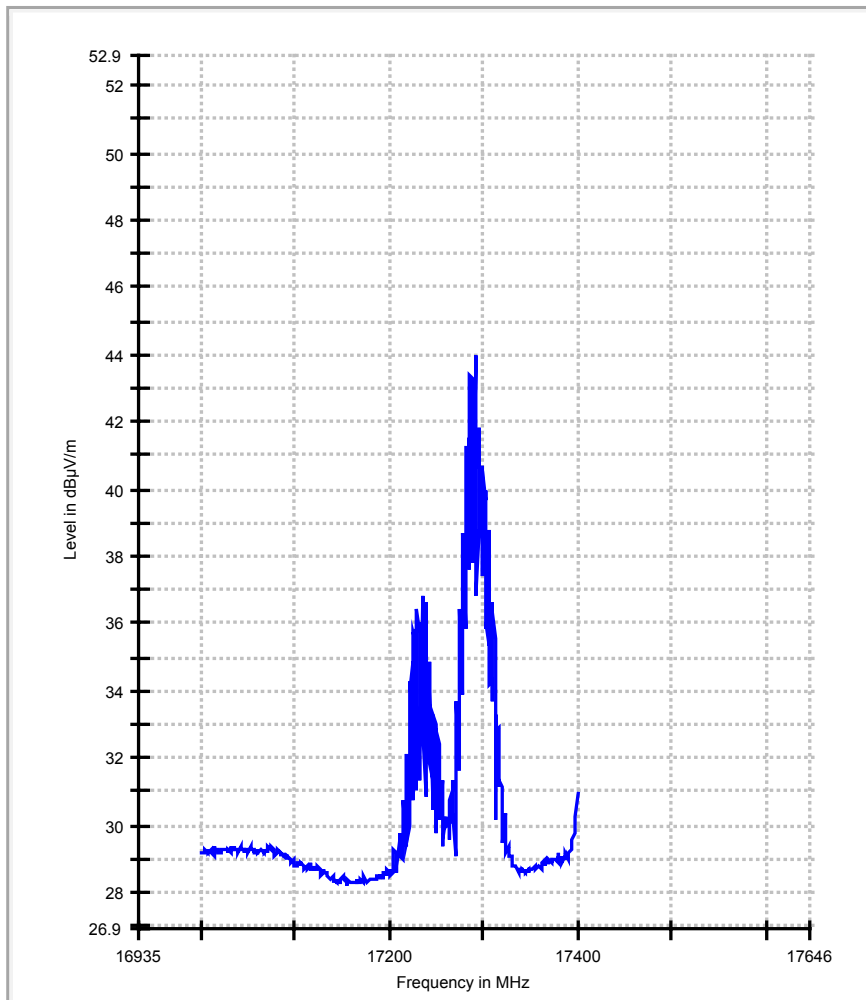
Vertical Average before correction No.4 *(with filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Vertical Average before correction No.5 (with filter)
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Harmonics & Spurious emissions: 1-18GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Turbo Mode w/ all antenna	CHANNEL	Channel 58,152,160 (Turbo mode)
FREQUENCY RANGE	1000 ~ 18000 MHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 49%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY:	Sandra Sohn		

Vertical is worse case.

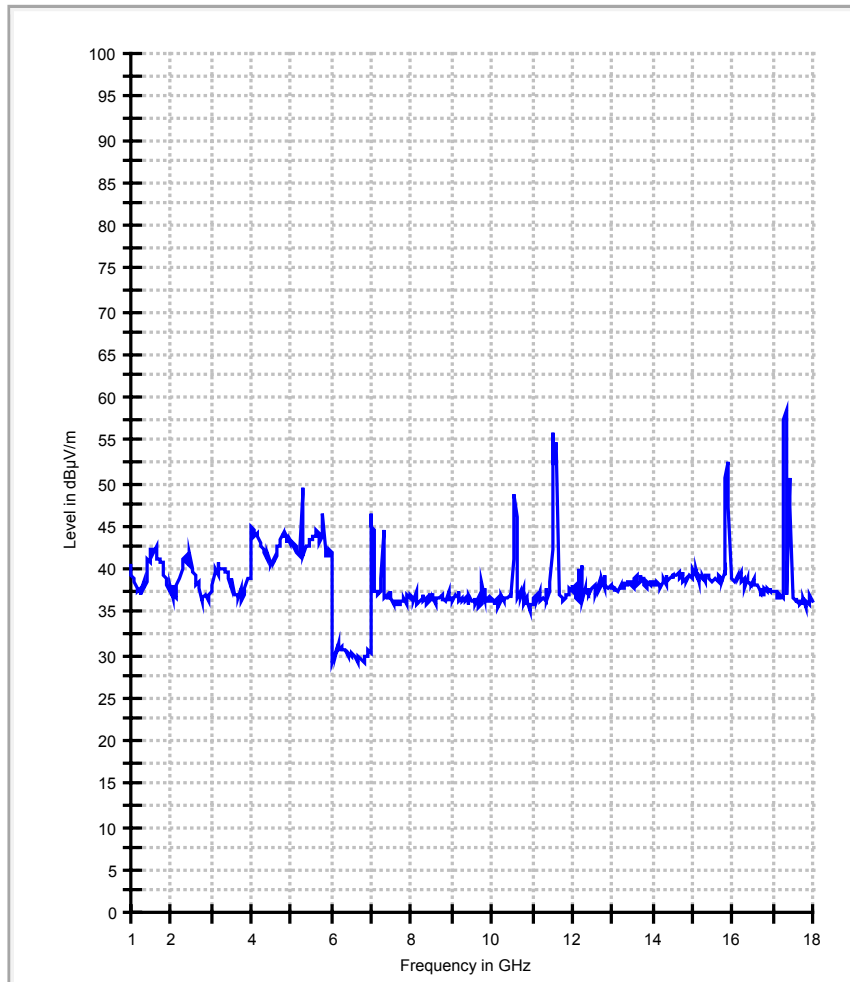
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (GHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1* _R	5292 (P)	53.6 (P)	74 (P)	-20.4	1	10	49.4 (P)	4.2
1* _R	5292 (AV)	39.1 (AV)	54 (AV)	-14.9	1	10	34.9 (AV)	4.2
2*	10573 (P)	59.4 (P)	68.3 (P)	-8.9	1	4	48.7 (P)	10.7
2*	10573 (AV)	42.7 (AV)	48.3 (AV)	-5.6	1	4	32 (AV)	10.7
3* _R	11524 (P)	67.7 (P)	74 (P)	-6.3	1	12	56.0 (P)	11.7
3* _R	11524 (AV)	37.4 (AV)	54 (AV)	-16.6	1	12	25.7 (AV)	11.7
4* _R	15887 (P)	63.5 (P)	74 (P)	-10.5	1	6	52.4 (P)	11.1
4* _R	15887 (AV)	48.7 (AV)	54 (AV)	-5.3	1	6	37.6 (AV)	11.1

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm) + Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407 and per 15.205.
6. * Filter is used
7. _R is for restricted band.

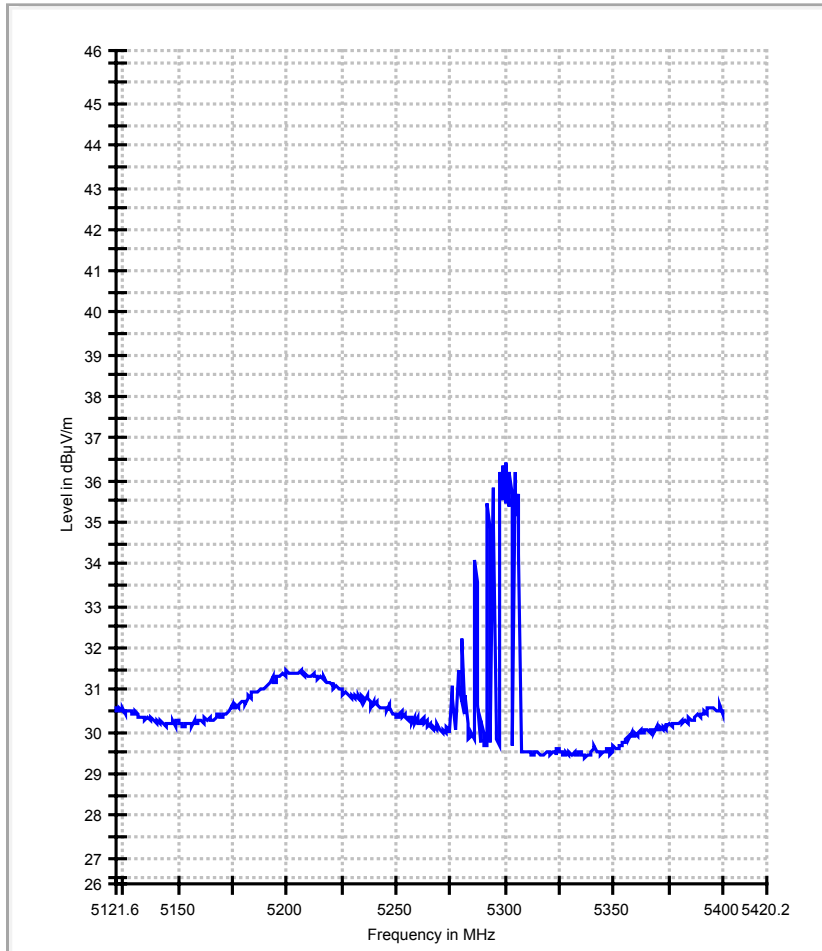
Vertical MaxPeak before correction (with filter)
Ch:58,152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



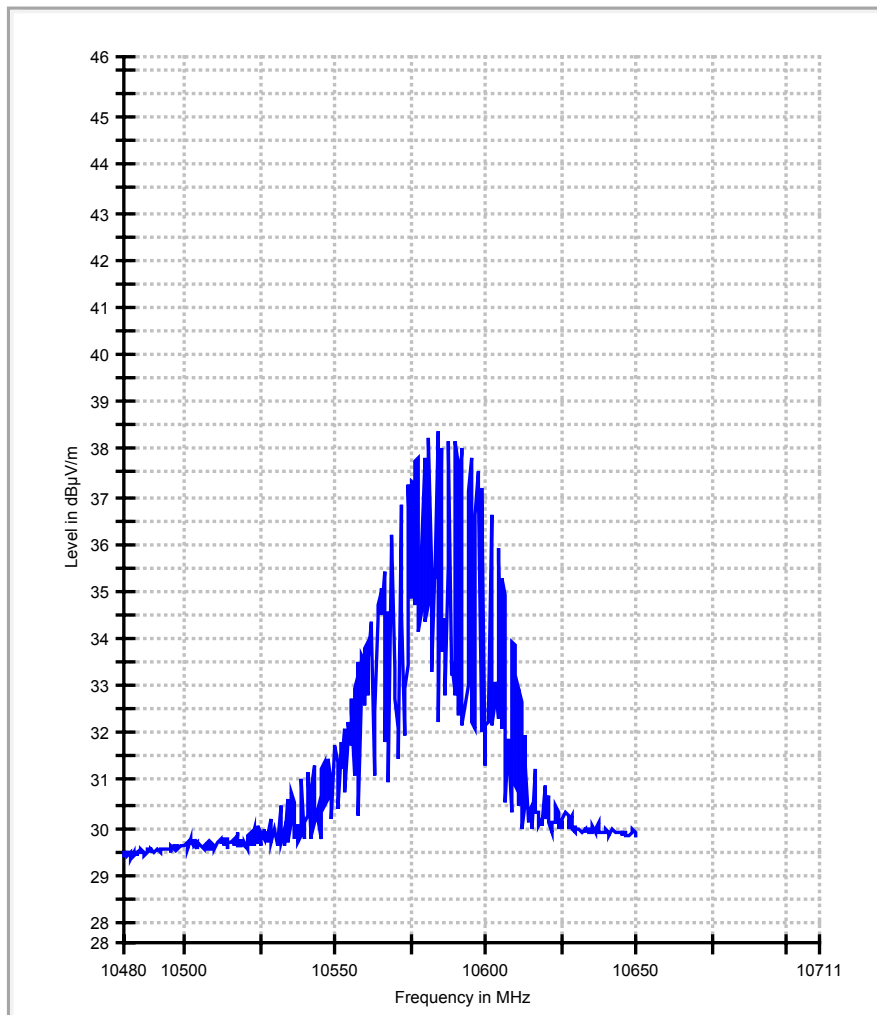
Vertical Average before correction No.1 (with filter)
Ch:58,152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



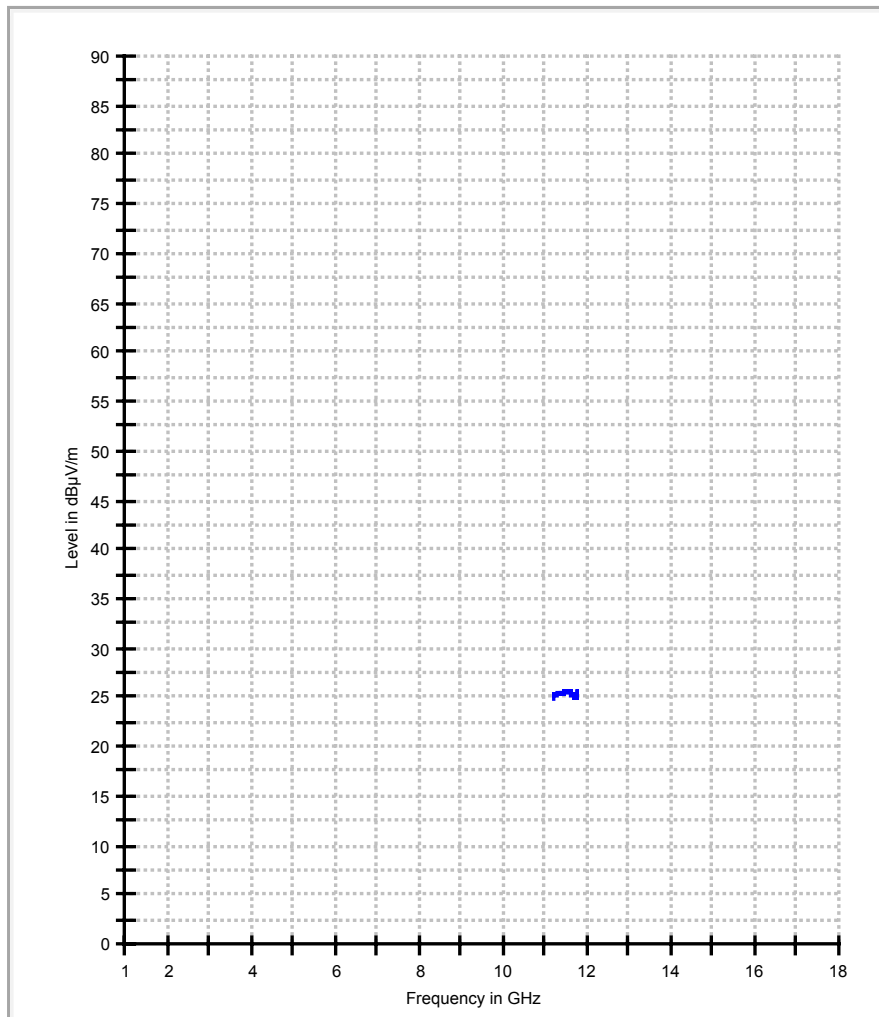
Vertical Average before correction No.2 (with filter)
Ch:58,152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



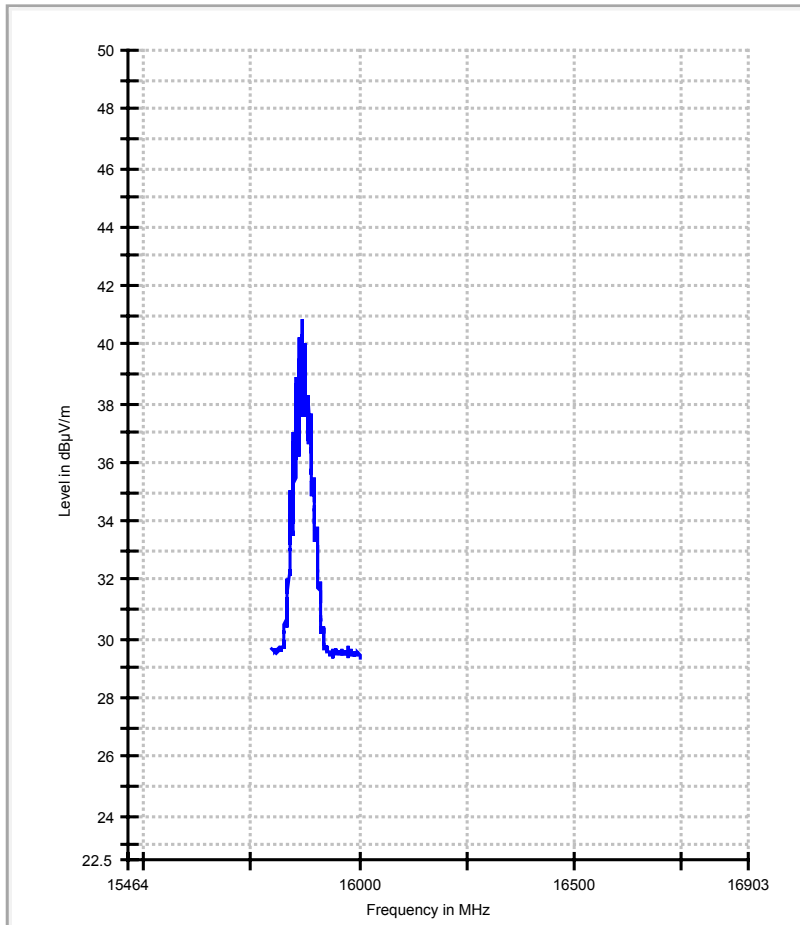
Vertical Average before correction No.3 (with filter)
Ch:58,152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Vertical Average before correction No.4 (with filter)
Ch:58,152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 300 Hz



Harmonics & Spurious emissions: 18-40GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal Mode w/ all antenna	CHANNEL	Channel 52,60,64 (Data rate: 6Mbps)
FREQUENCY RANGE	18 ~ 40 GHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 40%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY:	Sandra Sohn		

Vertical is worse case.

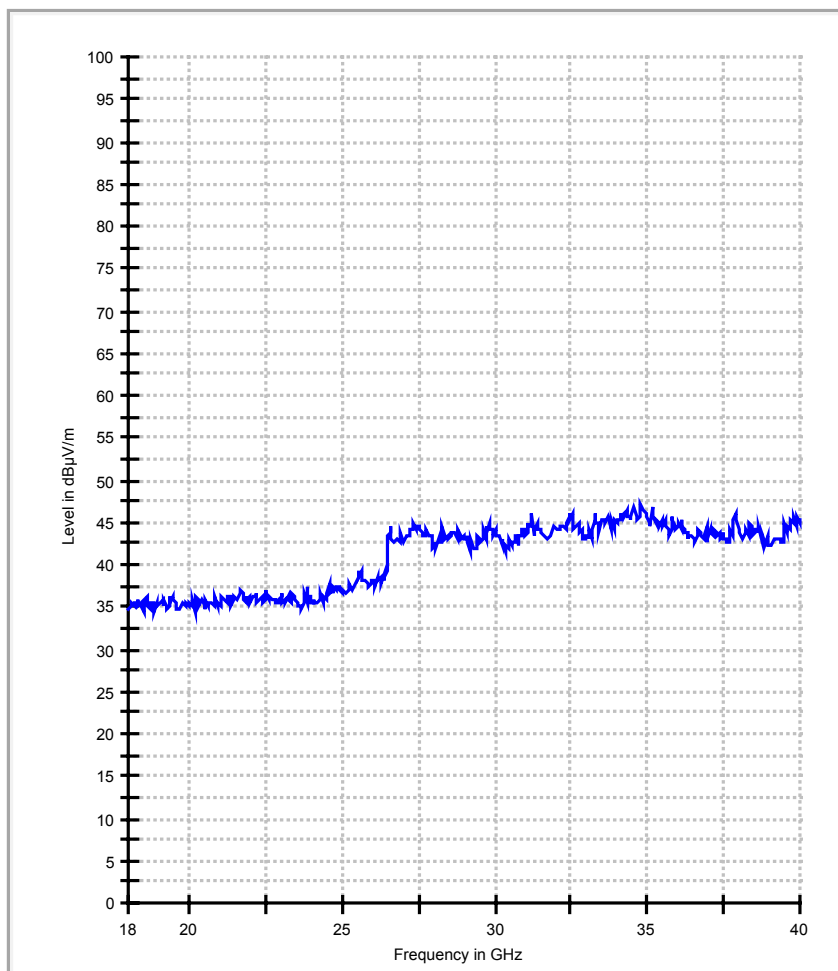
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB)
1*	34797 (P)	67.4 (P)	68.3 (P)	-0.9	1	11	47.2 (P)	20.2

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm) + *Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407
6. * Filter is used.

Vertical MaxPeak before correction (with filter)
Ch:52,60,64
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



Harmonics & Spurious emissions: 18-40GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Normal Mode w/ all antenna	CHANNEL	Channel 149, 153, 161 (Data rate: 6Mbps)
FREQUENCY RANGE	18 ~ 40 GHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 48%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY:	Sandra Sohn		

Vertical is worse case.

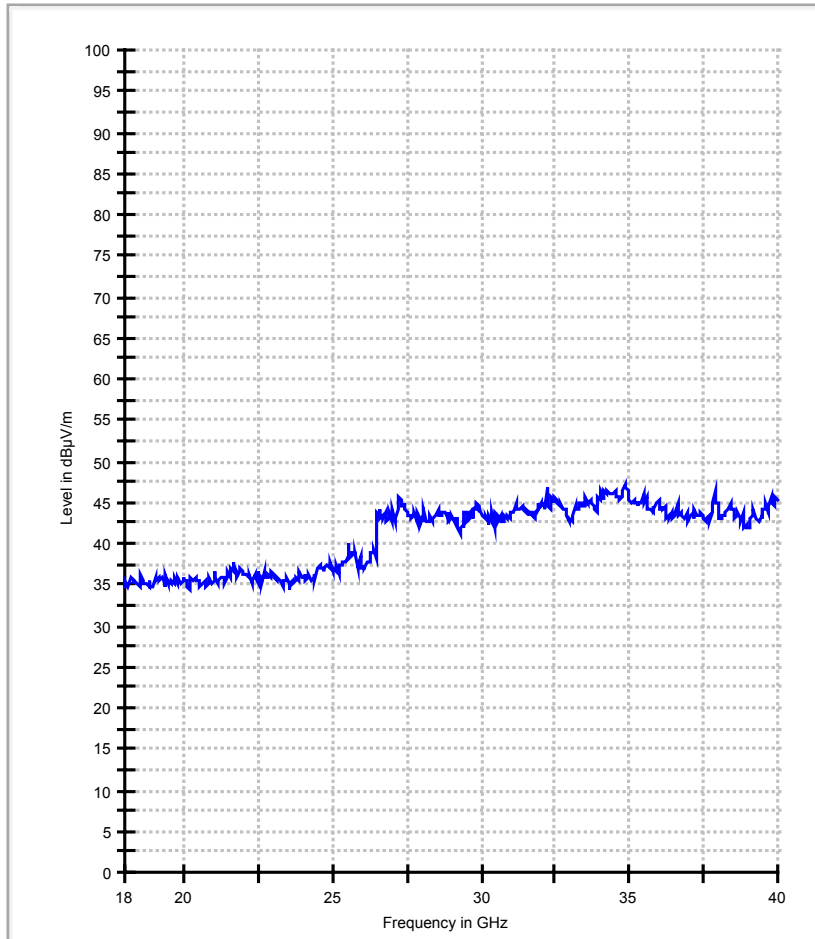
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB)
1*	34841 (P)	67.5 (P)	68.3 (P)	-0.8	1	13	47.3 (P)	20.2

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier (dBm) + *Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407.
6. * Filter is used.

Vertical MaxPeak before correction
Ch:149,153,161
Data rate: 6Mbps

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



Harmonics & Spurious emissions: 18-40GHz

EUT	IEEE 802.11 A/B/G WIRELESS ACCESS POINT	MODEL	ACCESS / ONE NETWORK: OWS 3600
MODE	Turbo Mode w/ all antenna	CHANNEL	Channel 58,152,160 (Turbo mode)
FREQUENCY RANGE	18 ~ 40 GHz	DETECTOR FUNCTION	Peak (P) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 48%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY:	Sandra Sohn		

Vertical is worse case.

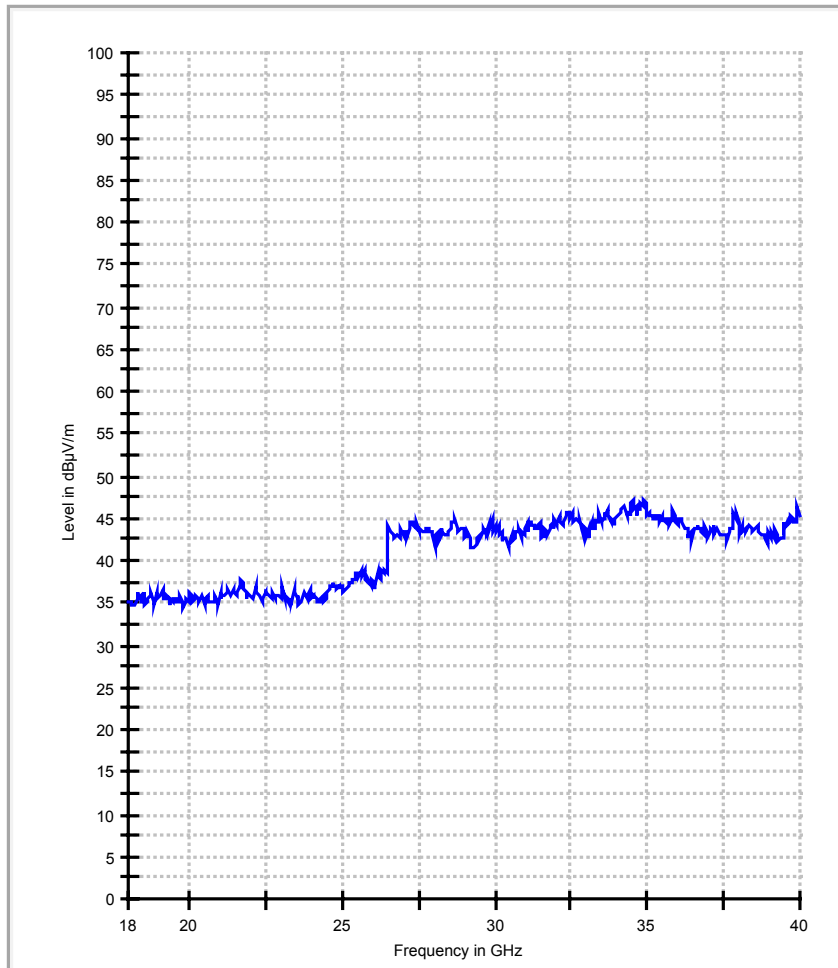
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB)
1*	34885 (P)	67.4 (P)	68.3 (P)	-0.9	1	12	47.2 (P)	20.2

NOTE:

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) + *Filter Loss (dB)
3. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.
5. The limit value is defined as per 15.407
6. * Filter is used.

Vertical MaxPeak before correction
Ch58, 152,160
Turbo mode

Resolution Bandwidth: 1MHz
Video Bandwidth: 1 MHz



FOR FREQUENCY 5.25~5.35GHz**5.3. PEAK TRANSMIT POWER MEASUREMENT****5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT**

Frequency	Band Limit
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

5.3.2 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

5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

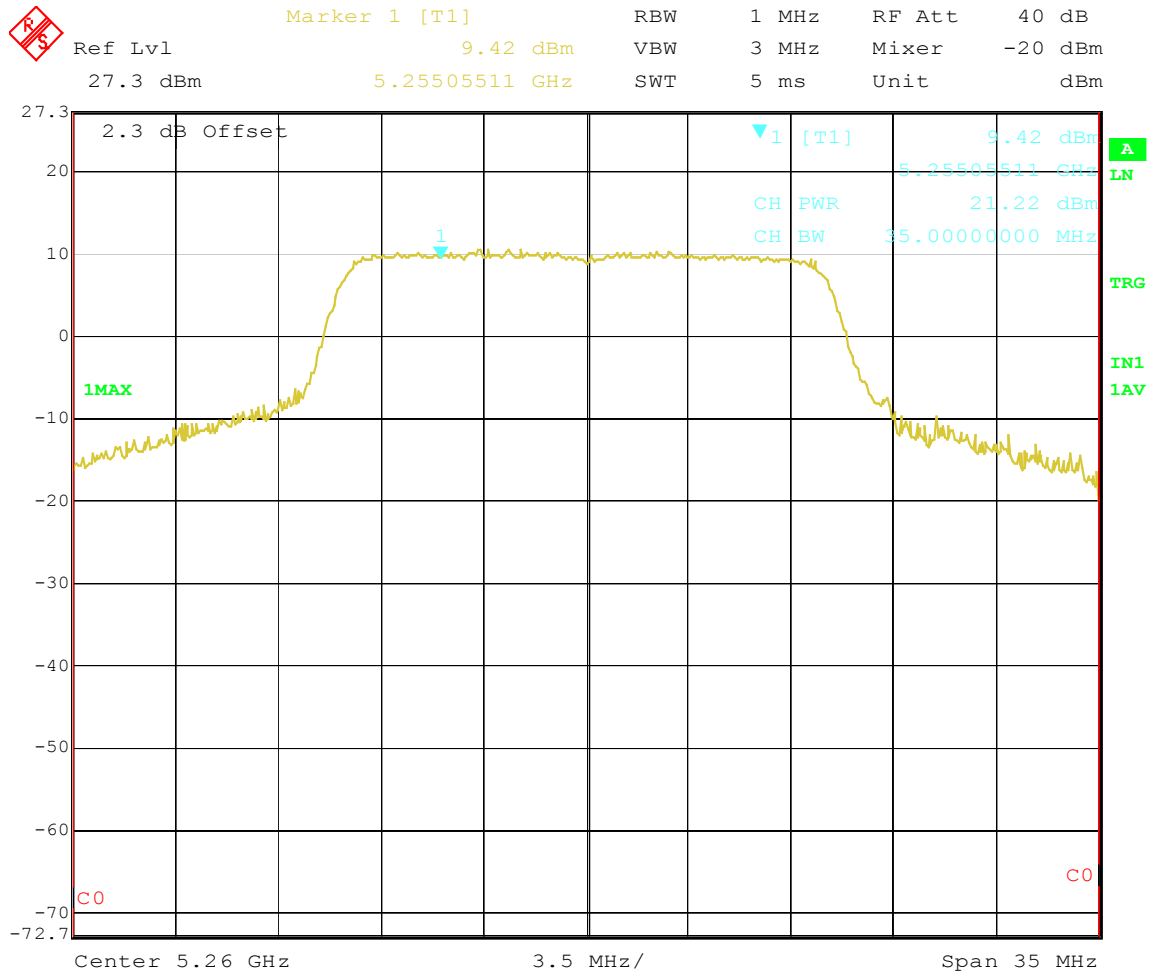
The software provided by client to enable the EUT under transmission condition continuously at low, middle and high channel frequencies in middle band and upper band individually. Repeat for the turbo mode at low, high channel.

5.3.7 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

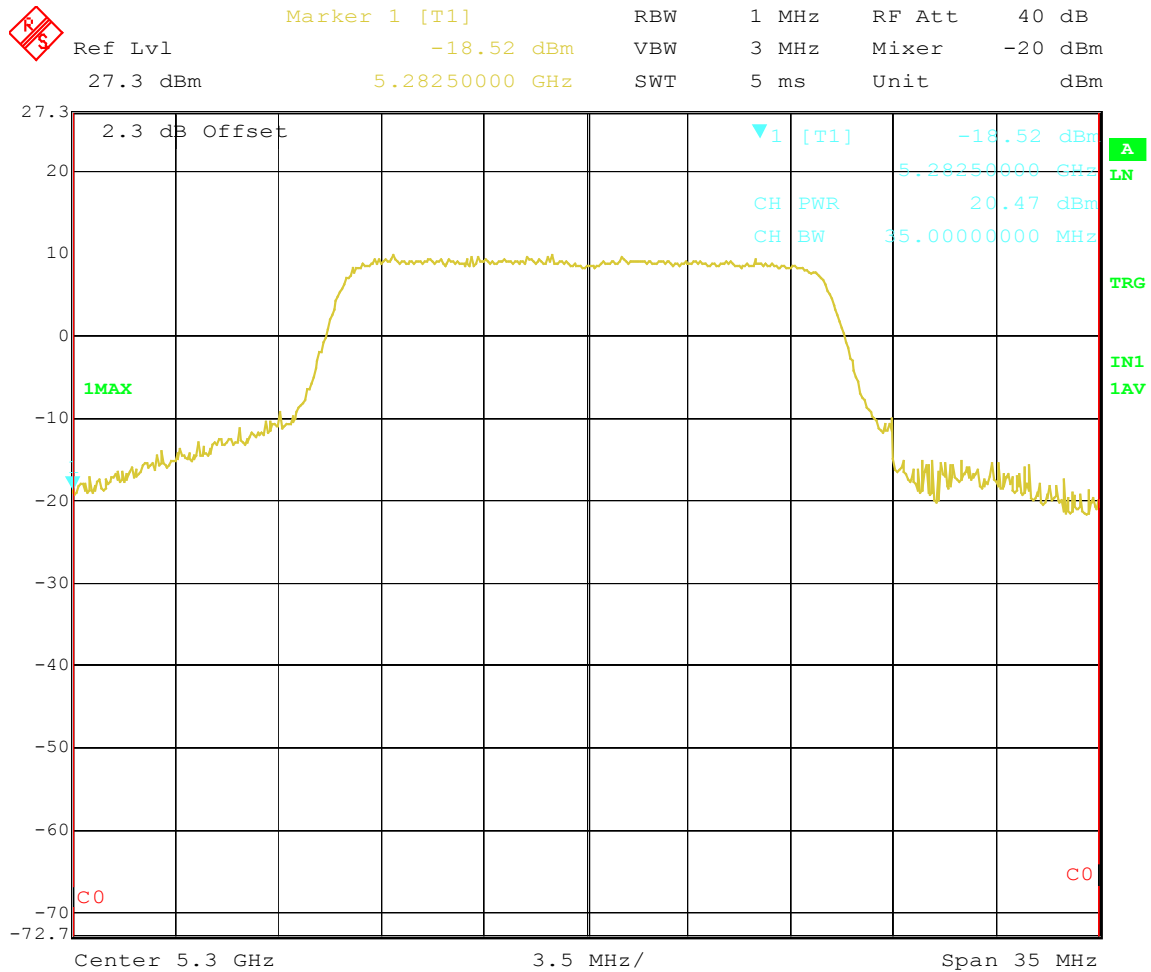
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
52	5260	21.22	24	PASS
60	5300	20.47	24	PASS
64	5320	20.40	24	PASS

Peak Power
Channel 52
Data rate: 6Mbps



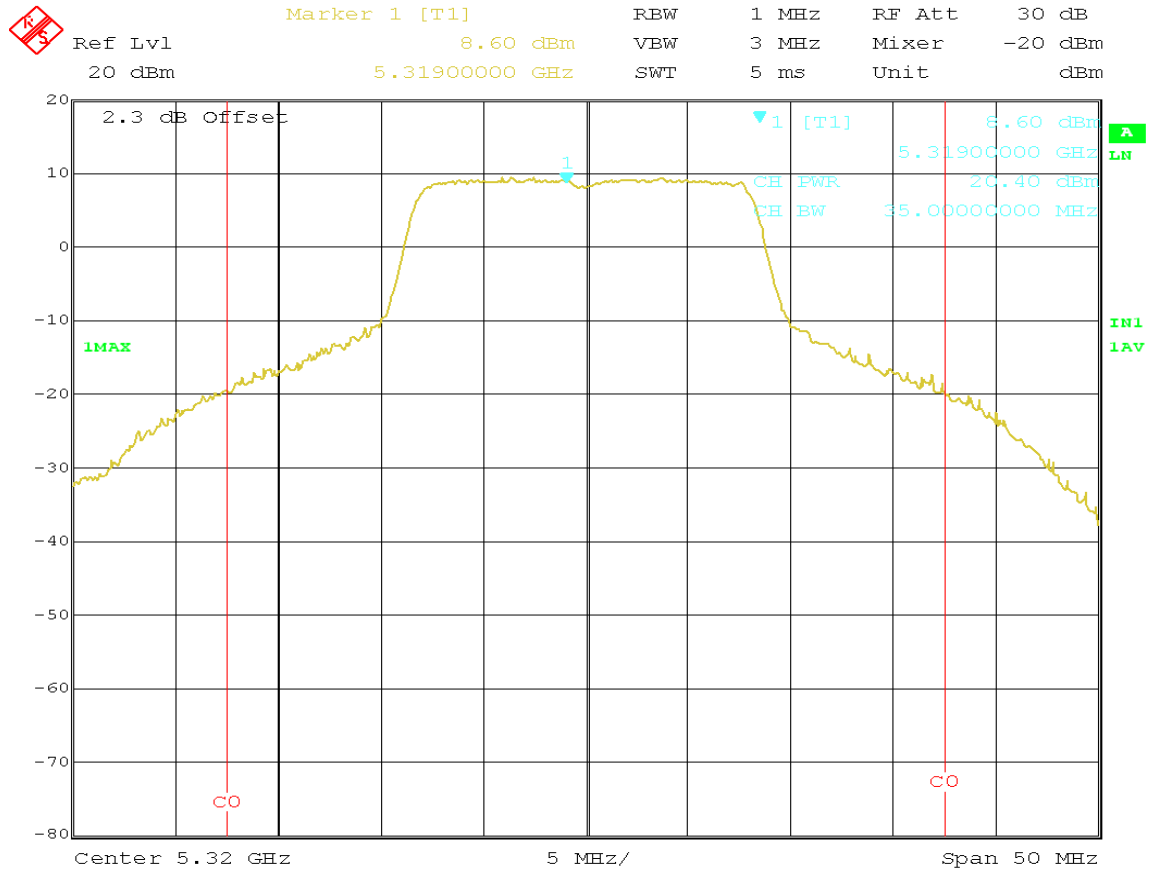
Title: 52-6-channel power
Date: 21.MAR.2005 13:36:19

Peak Power
Channel 60
Data rate: 6Mbps



Title: 60-6-channel power
Date: 21.MAR.2005 13:37:53

Peak Power
Channel 64
Data rate: 6Mbps

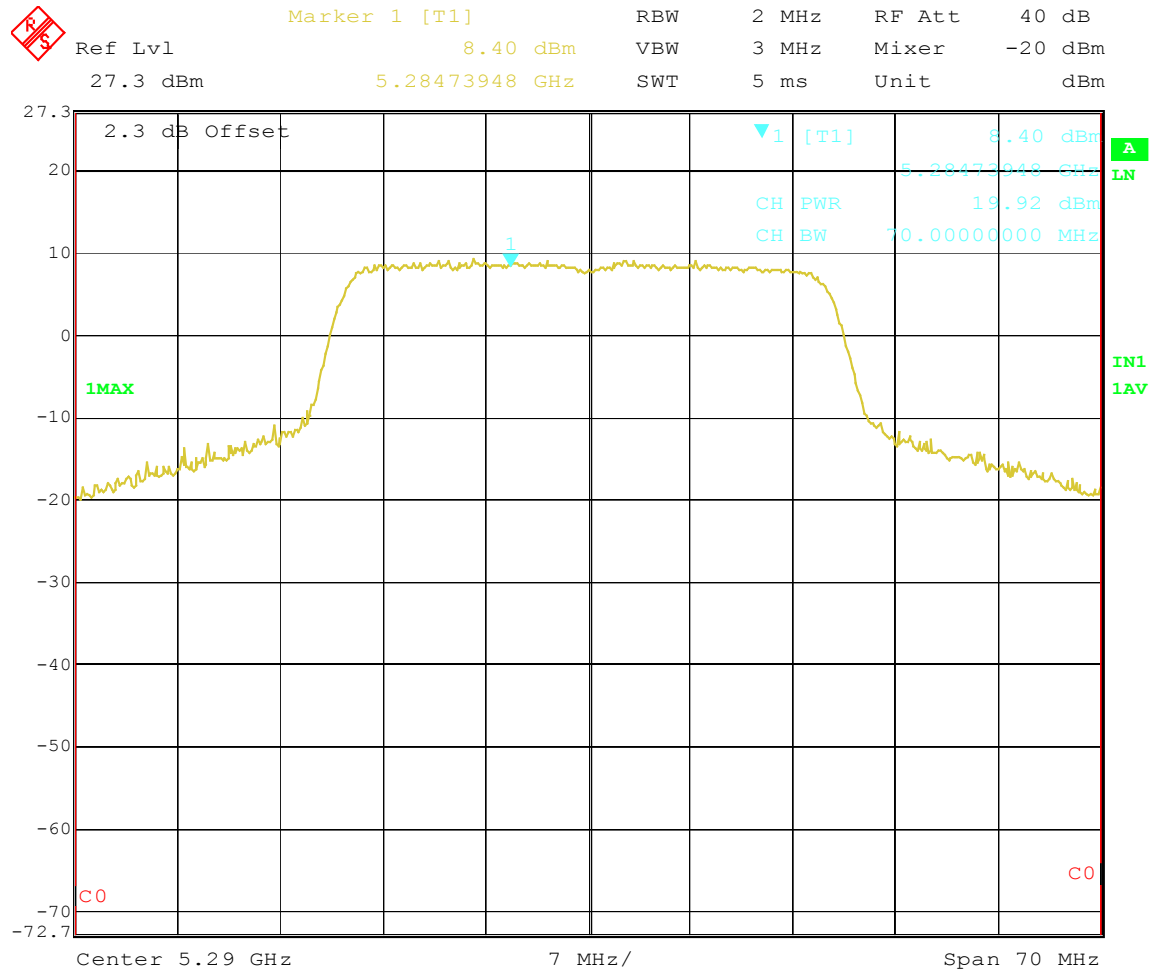


Title: peak power ch64 rate 6
Date: 7.APR.2005 16:13:32

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)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
58	5290	19.92	24	PASS

Peak Power Low Turbo channel 58



Title: 58turbo-6-channel power
Date: 21.MAR.2005 13:52:35

5.4. PEAK POWER EXCURSION MEASUREMENT

5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.25 – 5.35 GHz	13dB

5.4.2 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

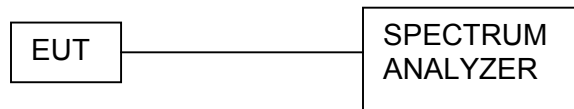
TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=1KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

5.4.3 DEVIATION FROM TEST STANDARD

No deviation

5.4.4 TEST SETUP



5.4.5 EUT OPERATING CONDITIONS

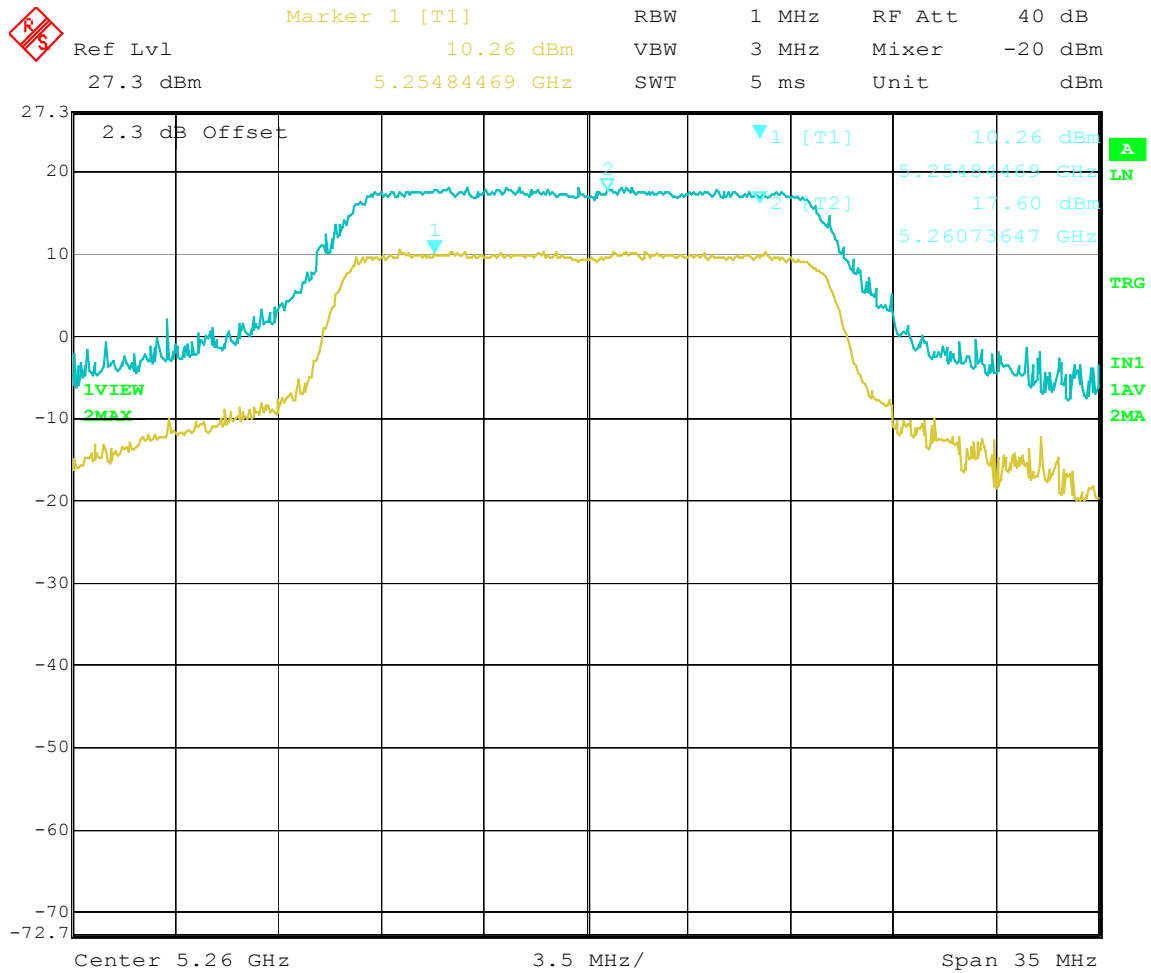
The software provided by client to enable the EUT under transmission condition continuously at low, middle, high channel frequency in middle band and upper band individually.

5.4.6 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

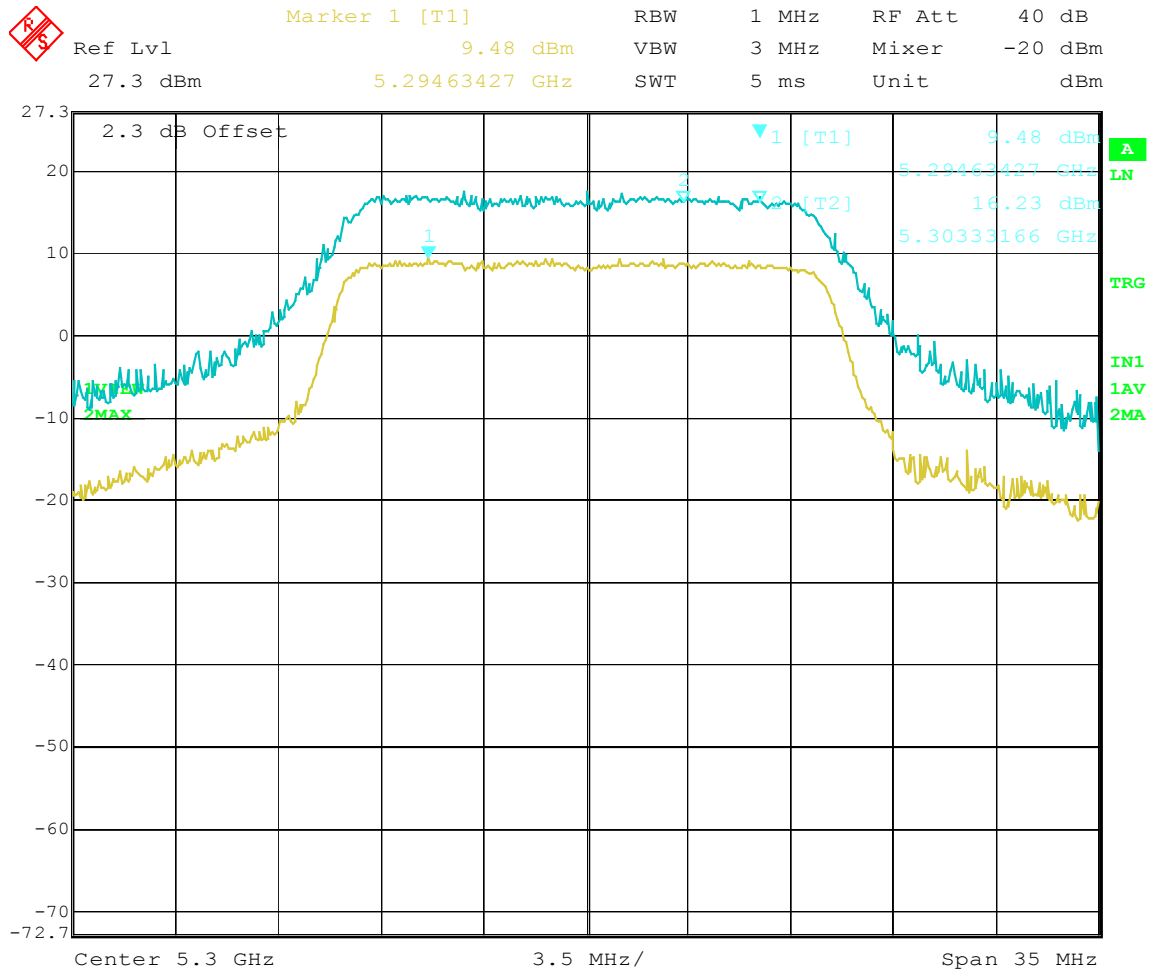
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
52	5260	7.34	13	PASS
60	5300	6.75	13	PASS
64	5324	8.06	13	PASS

PPE
Channel 52
6Mbps



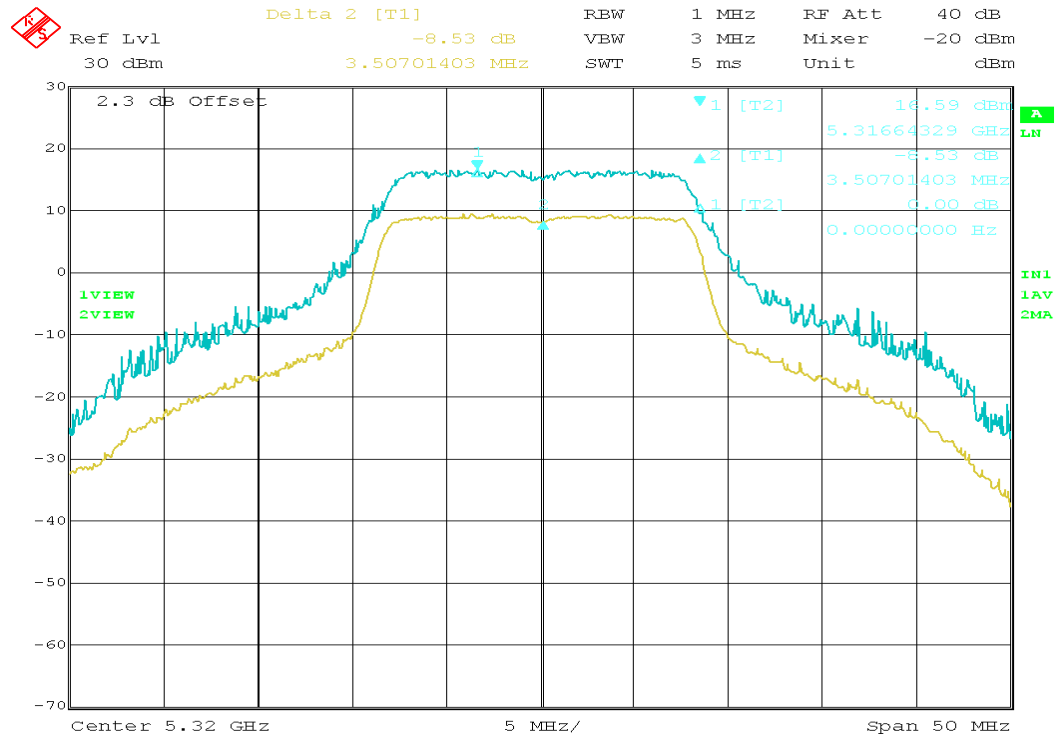
Title: 52-6-ppe
Date: 21.MAR.2005 14:48:28

PPE
Channel 60
6Mbps



Title: 60-6-ppe
Date: 21.MAR.2005 14:46:15

PPE
Channel 64
6Mbps



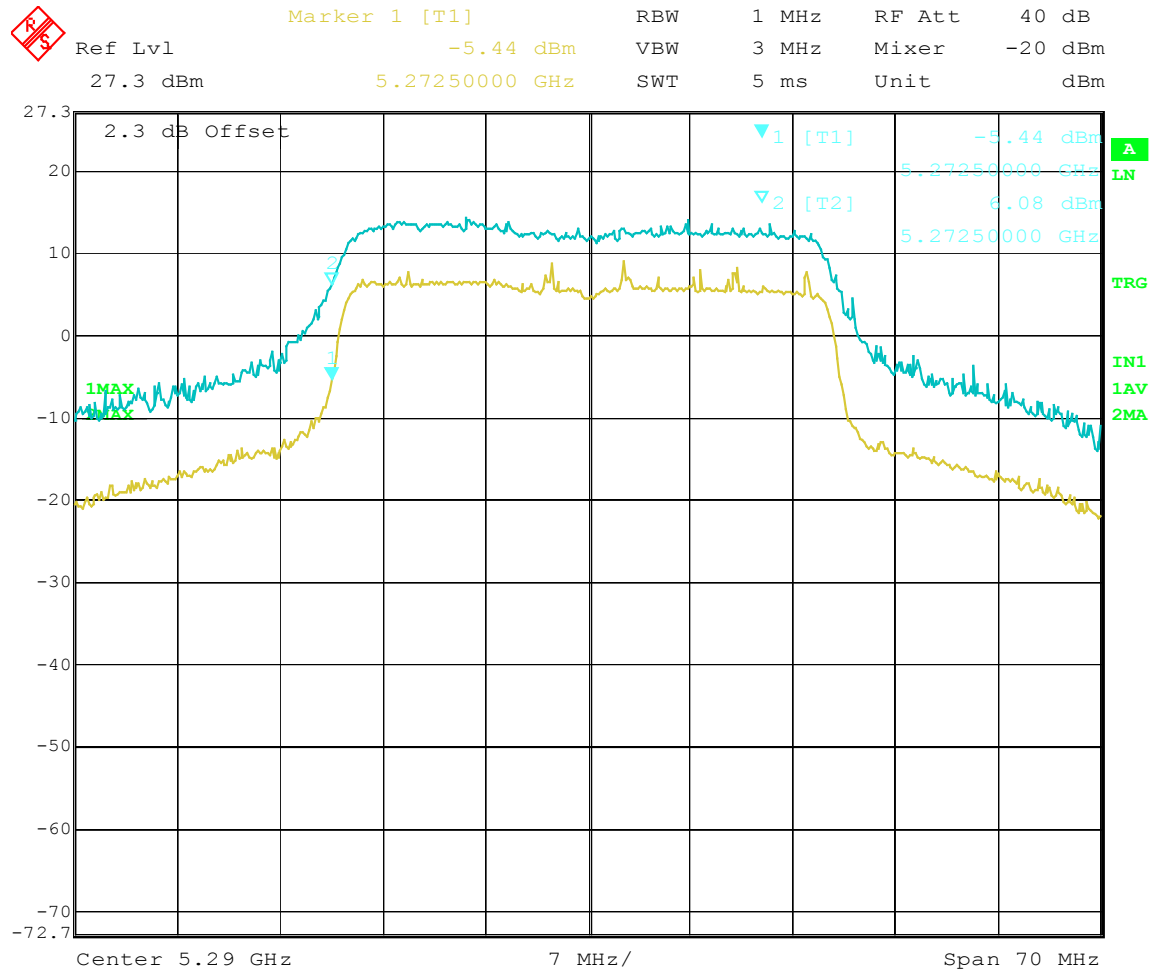
Title: peak power excursion ch 64
Date: 7.APR.2005 16:18:26



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)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
58	5290	11.52	13	PASS

PPE
Turbo Channel 58



Title: 58turbo-6-ppe
Date: 21.MAR.2005 14:57:30

5.5. PEAK POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.25 – 5.35 GHz	11dBm

5.5.2 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

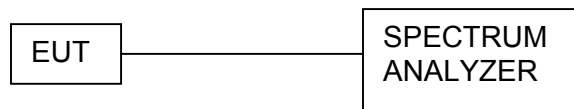
5.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITIONS

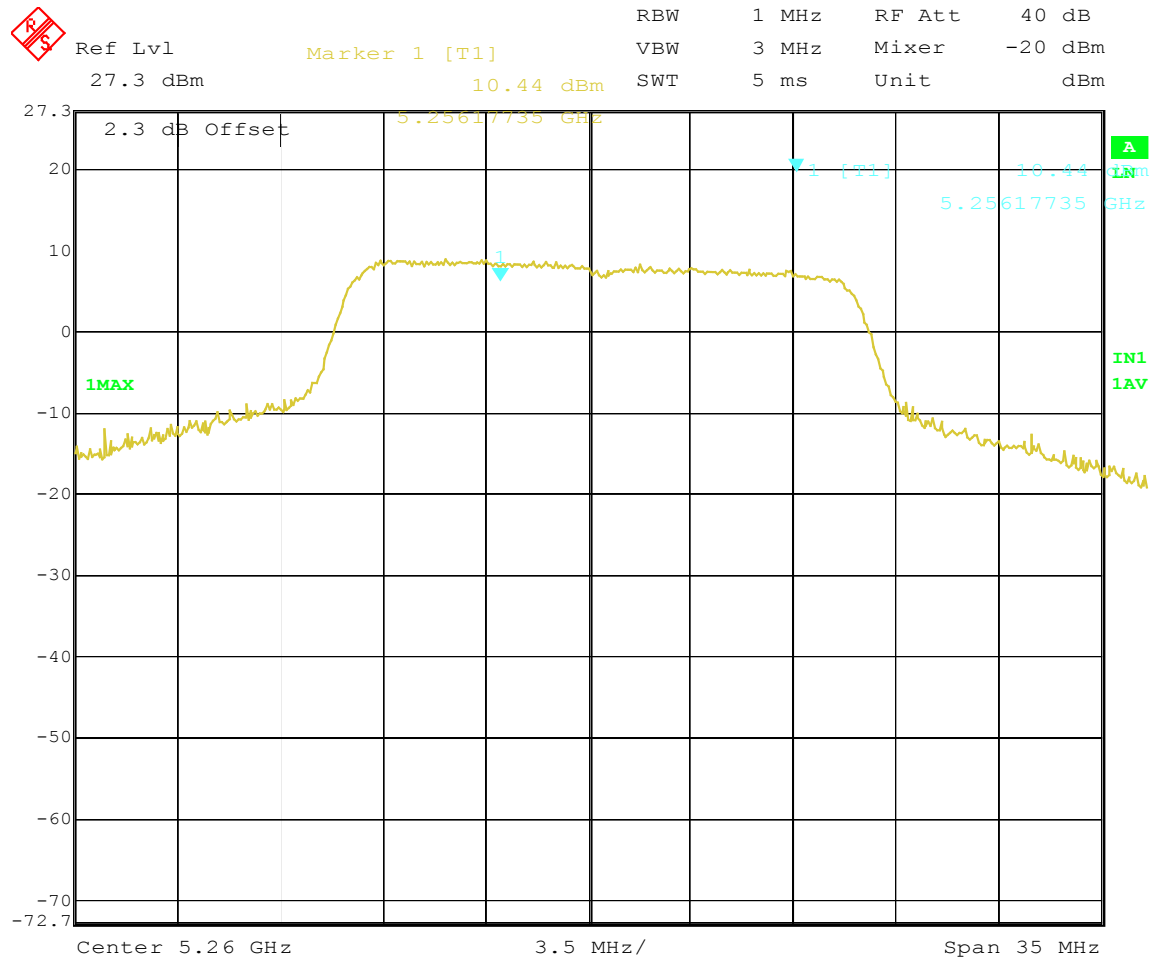
The software provided by client to enable the EUT under transmission condition continuously at Low, Middle, High channel frequency in middle band and upper band individually.

5.5.7 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	21deg. C, 49%RH	TESTED BY:	Sandra Sohn

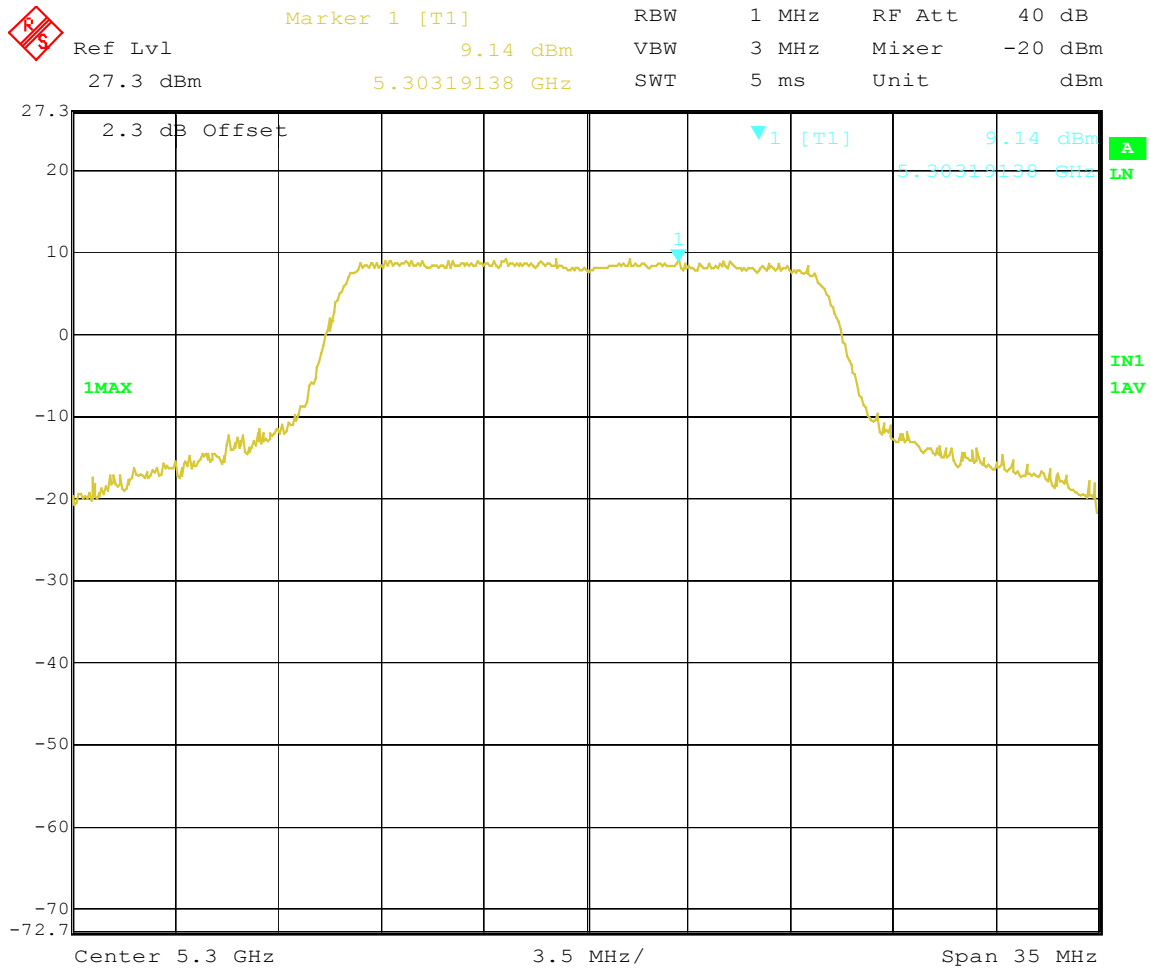
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
52	5256	10.44	11	PASS
60	5303	9.14	11	PASS
64	5316	9.35	11	PASS

PPSD
Middle Band Channel 52
6Mbps



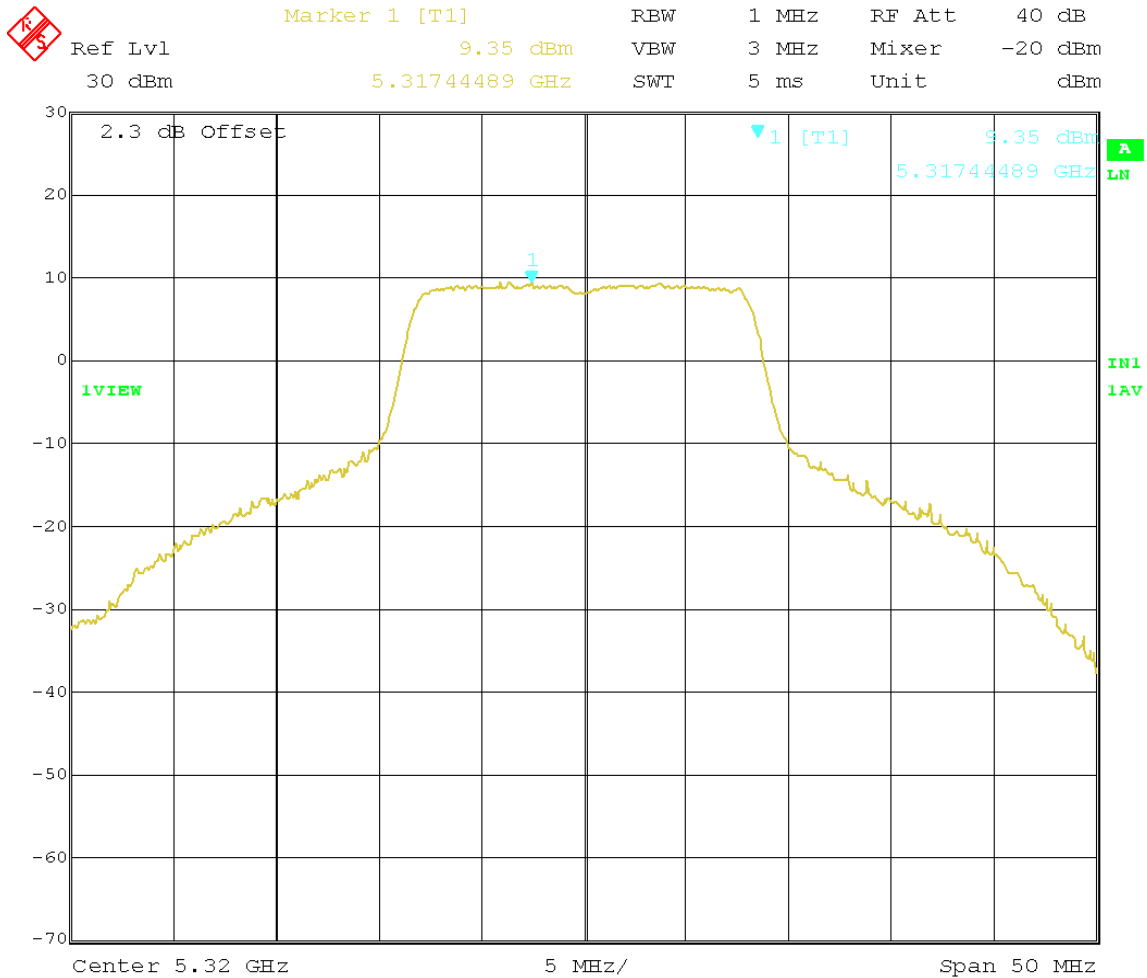
Title: 52-6-psd
Date: 21.MAR.2005 14:27:15

PPSD
Channel 60
6Mbps



Title: 60-6-psd
Date: 21.MAR.2005 14:28:16

PPSD
Middle Band Channel 64
6Mbps

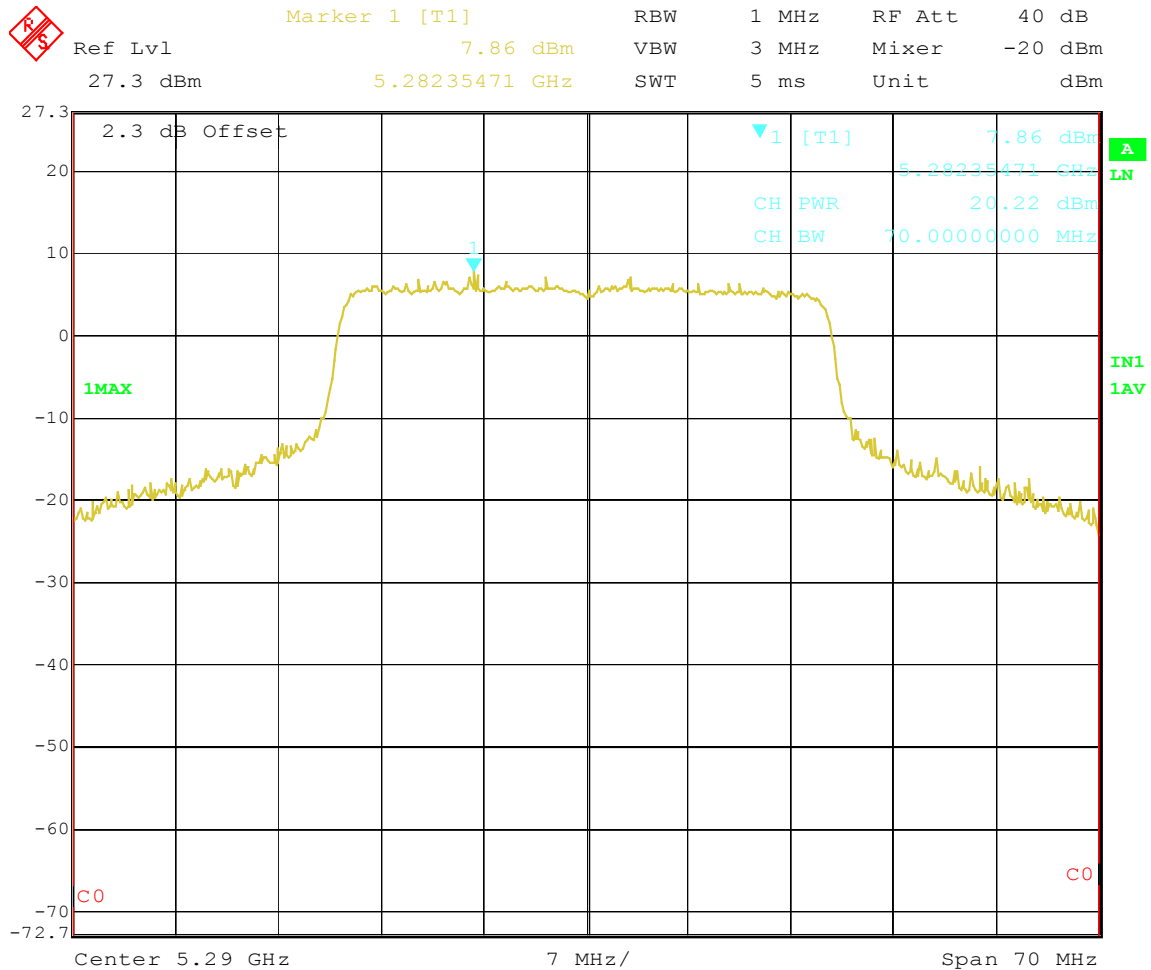


Title: peak power spectral density ch 64
Date: 7.APR.2005 16:20:41

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
58	5282	7.86	11	PASS

PPSD Low Turbo Band Channel 58



Title: 58turbo-6-psd
Date: 21.MAR.2005 14:00:31