

FOR FREQUENCY 5.15~5.35GHZ

5.3 PEAK TRANSMIT POWER MEASUREMENT

5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

Note:

1. Where B is the 26dB emission bandwidth in MHz.
2. Limit follows whichever is lower.
3. 5.15-5.25GHz: In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
4. 5.25-5.35GHz: In addition, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

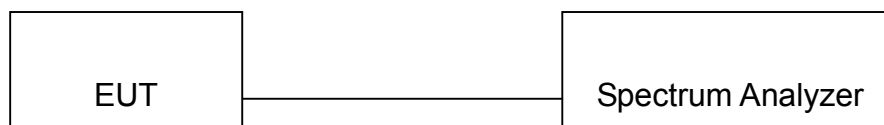
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

5.3.4 TEST SETUP



5.3.5 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

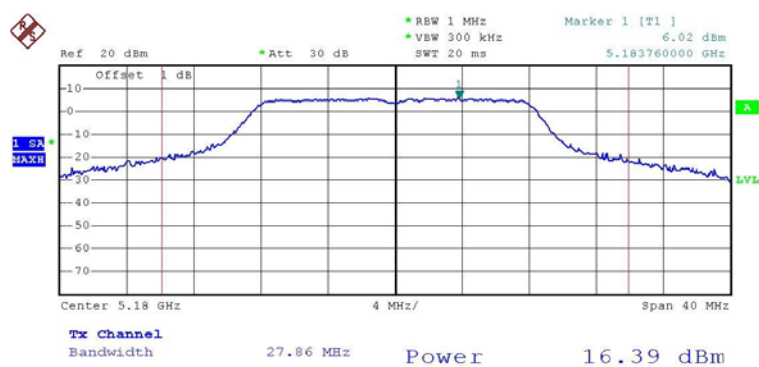
5.3.6 TEST RESULTS (WITH ANTENNA 1)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

Antenna gain: 6.5dBi with Cable lose: 1.1dB

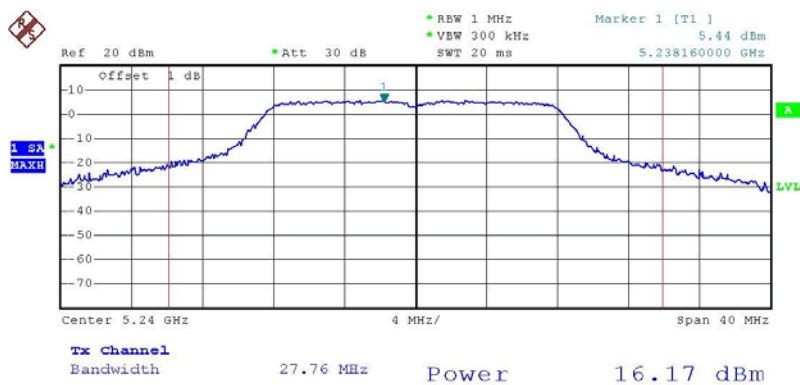
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	16.39	17.00	27.86	PASS
4	5240	16.17	17.00	27.76	PASS
5	5260	22.45	24.00	33.12	PASS
8	5320	16.40	24.00	28.56	PASS

CHANNEL 1



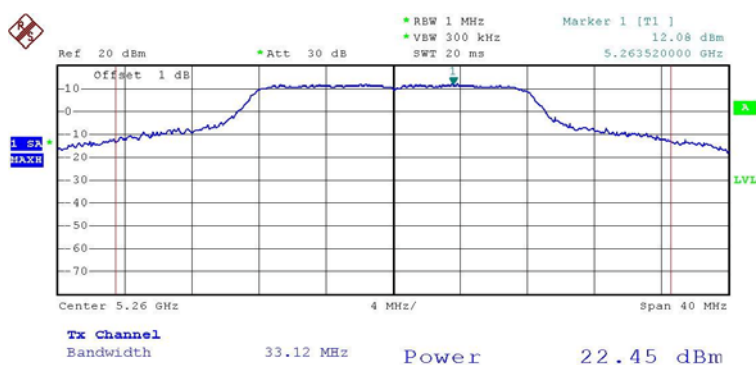
Date: 19.MAY.2005 01:43:36

CHANNEL 4



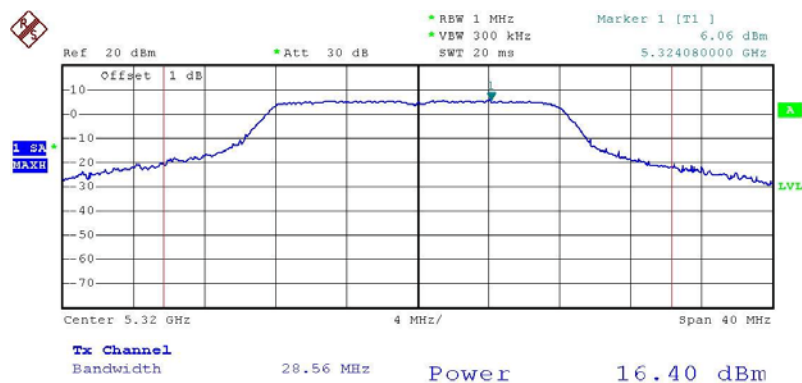
Date: 19.MAY.2005 02:22:06

CHANNEL 5



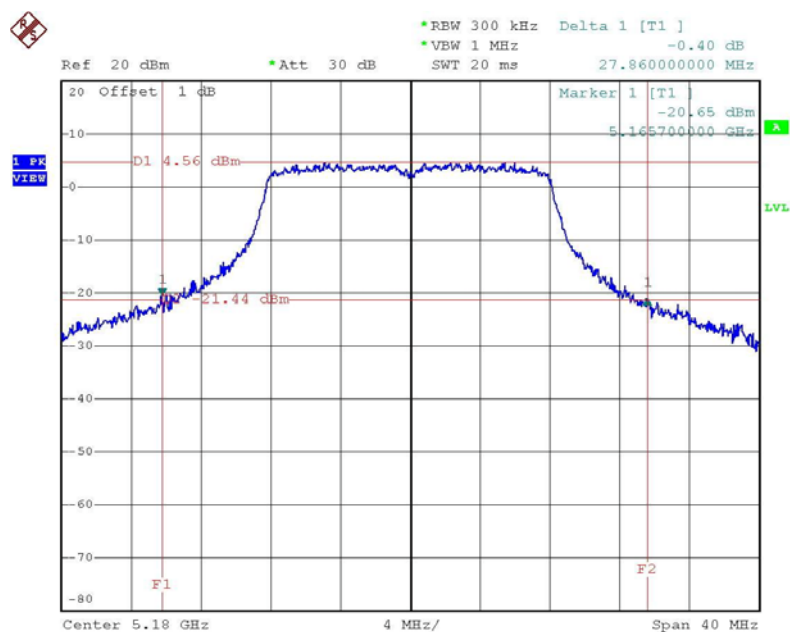
Date: 19.MAY.2005 02:27:49

CHANNEL 8



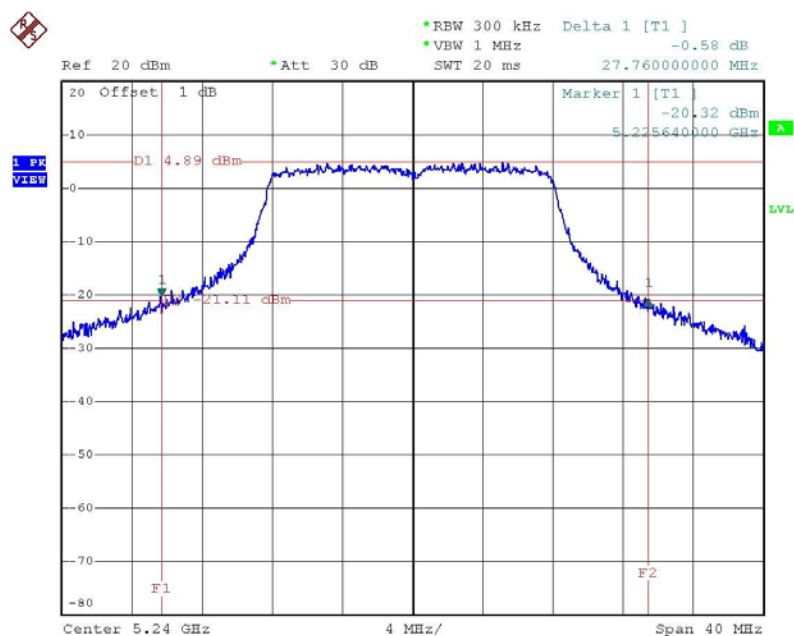
Date: 19.MAY.2005 02:14:36

CHANNEL 1



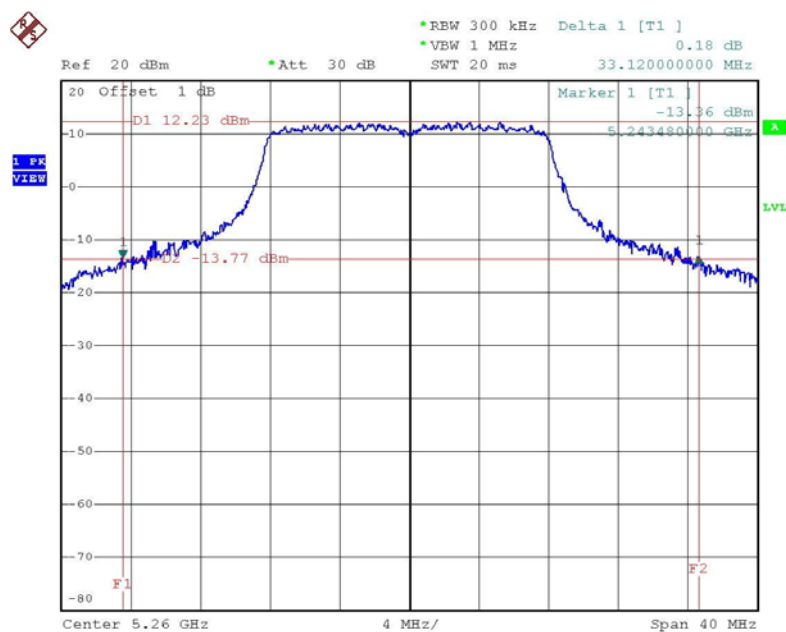
Date: 9.MAY.2005 23:26:34

CHANNEL 4



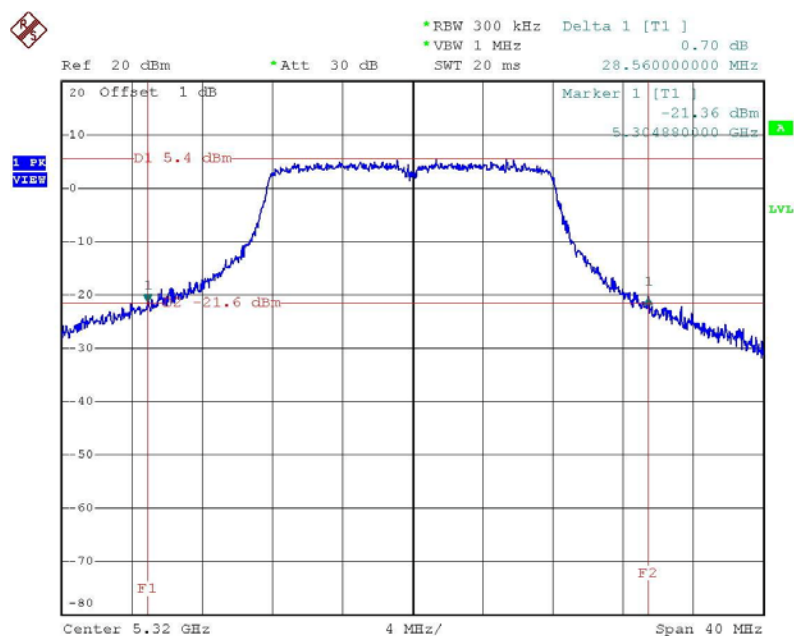
Date: 9.MAY.2005 23:16:35

CHANNEL 5



Date: 9.MAY.2005 23:07:58

CHANNEL 8



Date: 9.MAY.2005 23:58:45

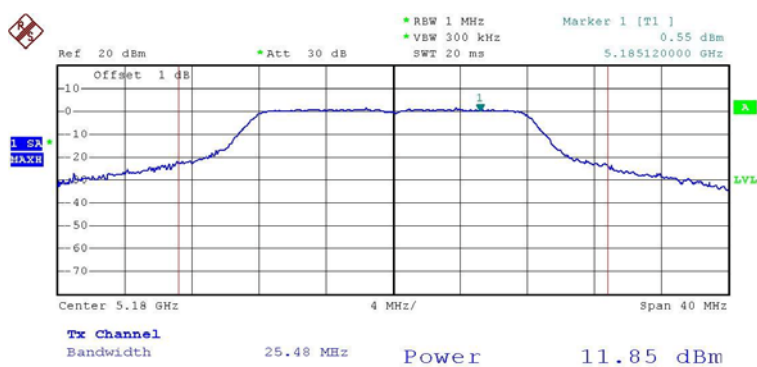
5.3.7 TEST RESULTS (WITH ANTENNA 2)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

Antenna gain: 12dBi with Cable lose: 1dB

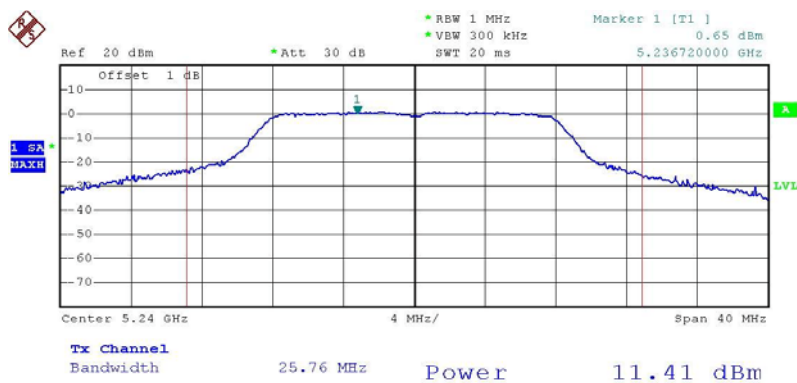
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	11.85	12.00	25.48	PASS
4	5240	11.41	12.00	25.76	PASS
5	5260	18.78	19.00	25.36	PASS
8	5320	14.25	19.00	27.00	PASS

CHANNEL 1



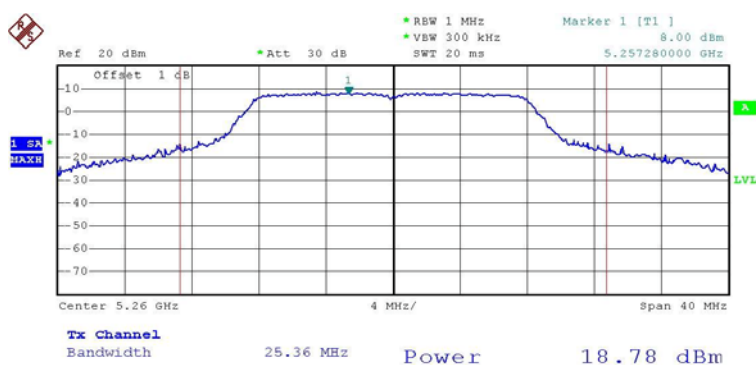
Date: 19.MAY.2005 00:30:38

CHANNEL 4



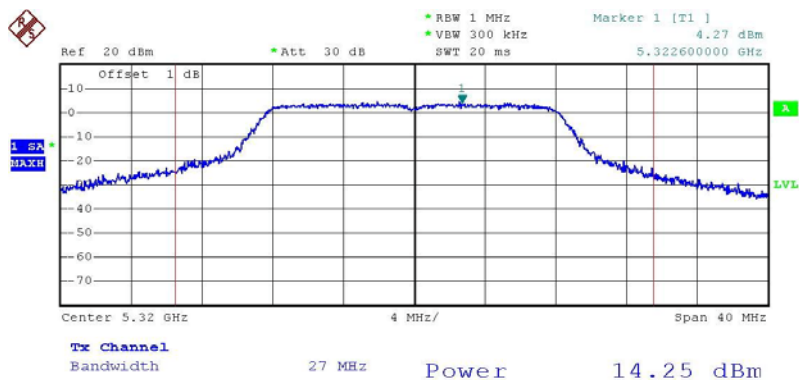
Date: 19.MAY.2005 00:35:55

CHANNEL 5



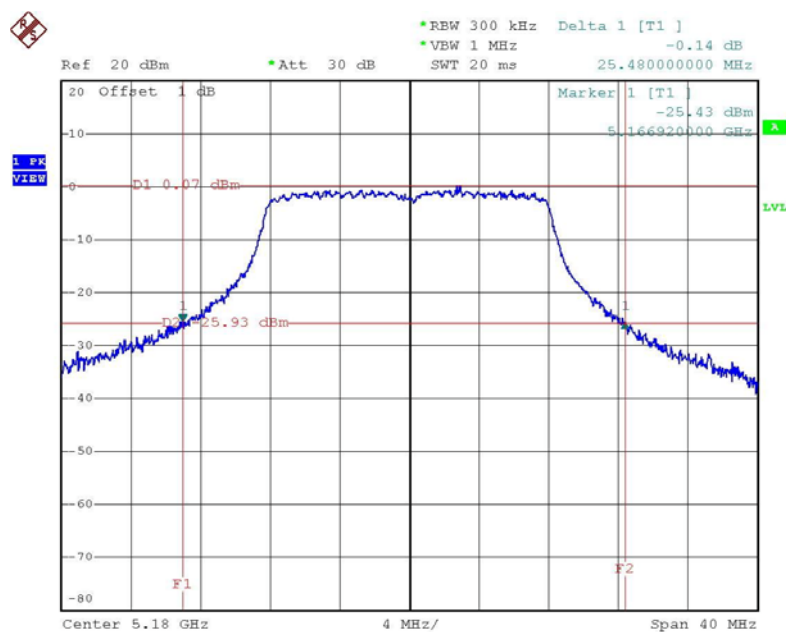
Date: 19.MAY.2005 00:47:36

CHANNEL 8



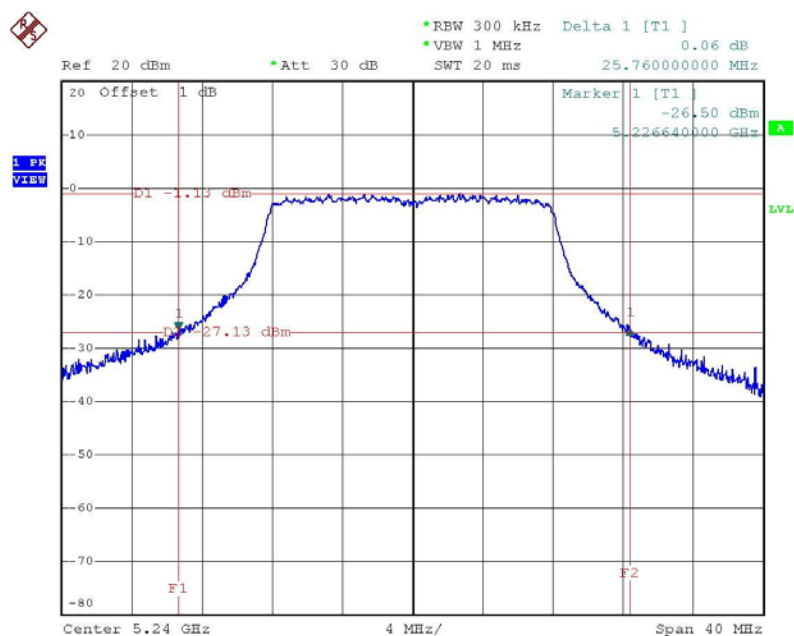
Date: 10.MAY.2005 01:32:27

CHANNEL 1



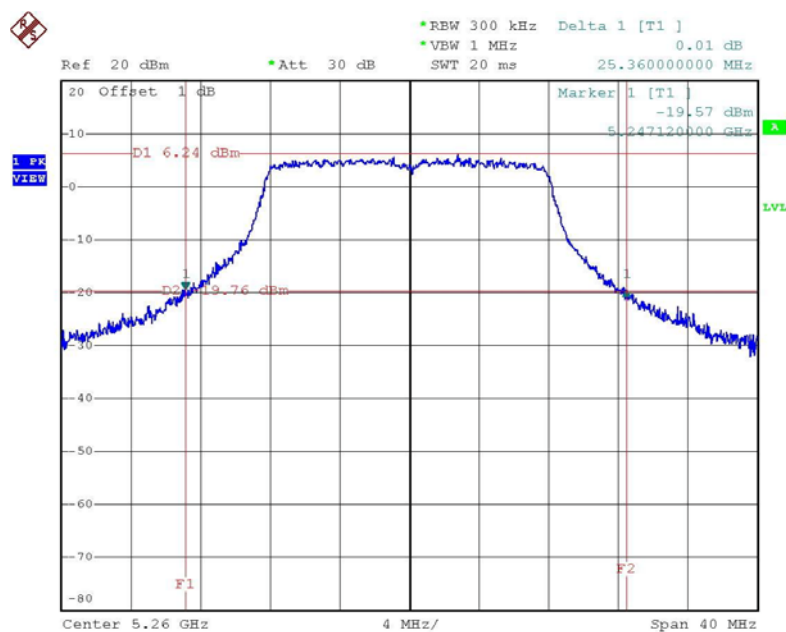
Date: 10.MAY.2005 01:03:39

CHANNEL 4



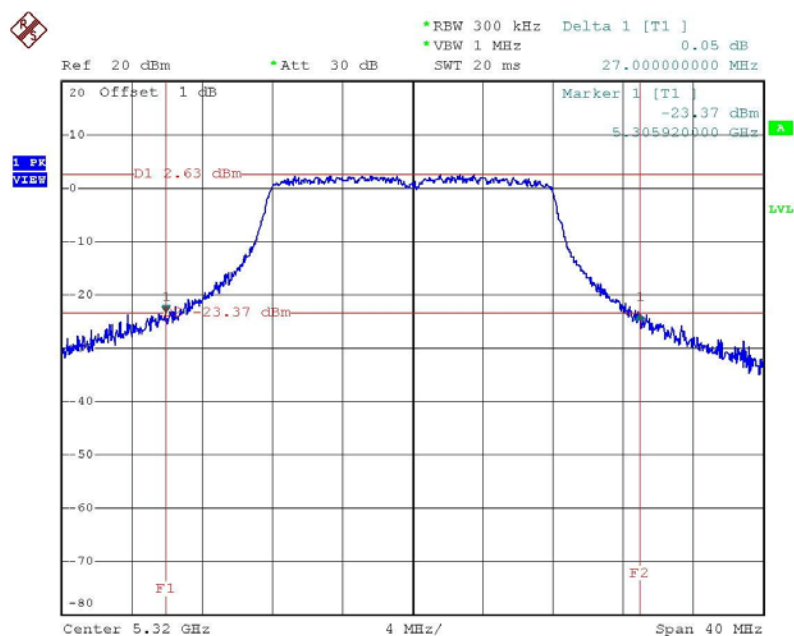
Date: 10.MAY.2005 01:09:00

CHANNEL 5



Date: 10.MAY.2005 01:13:41

CHANNEL 8



Date: 10.MAY.2005 01:30:01

5.4 PEAK POWER EXCURSION MEASUREMENT

5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.725 – 5.825 GHz	13dB

5.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.4.3 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 spectrum analyzer to following condition:

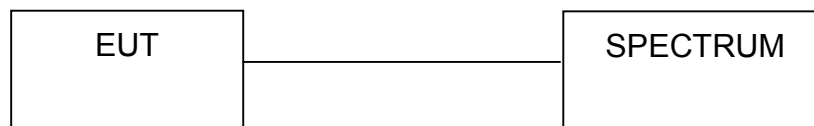
	RBW	VBW	Detector
Trace 1	1MHz	3MHz	Peak Mode
Trace 2	1MHz	300KHz	Sample Mode

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

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

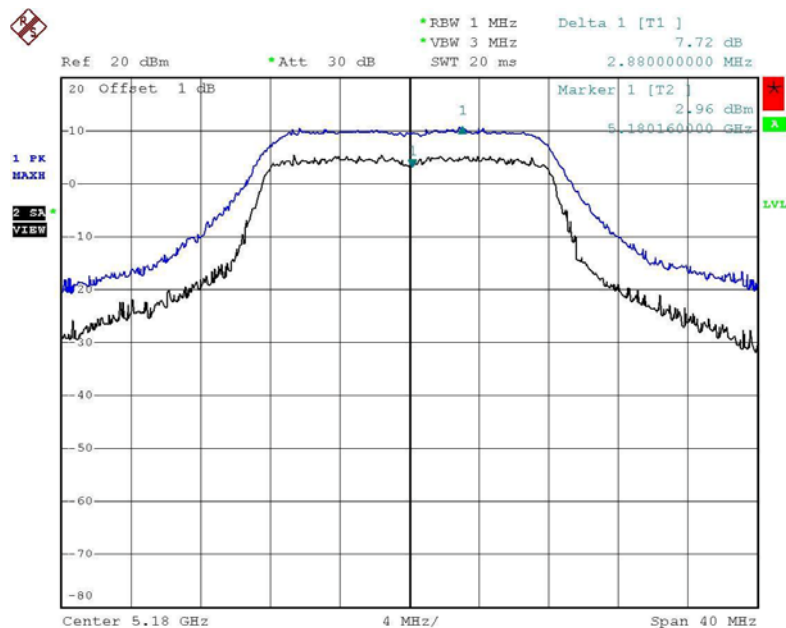
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

5.4.7 TEST RESULTS (WITH ANTENNA 1)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

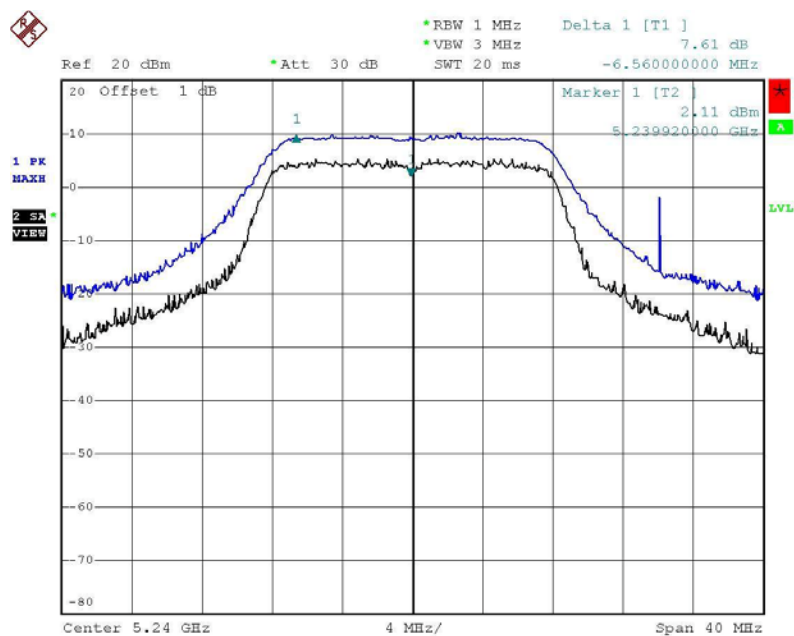
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	7.72	13	PASS
4	5240	7.61	13	PASS
5	5260	7.82	13	PASS
8	5320	7.67	13	PASS

CHANNEL 1



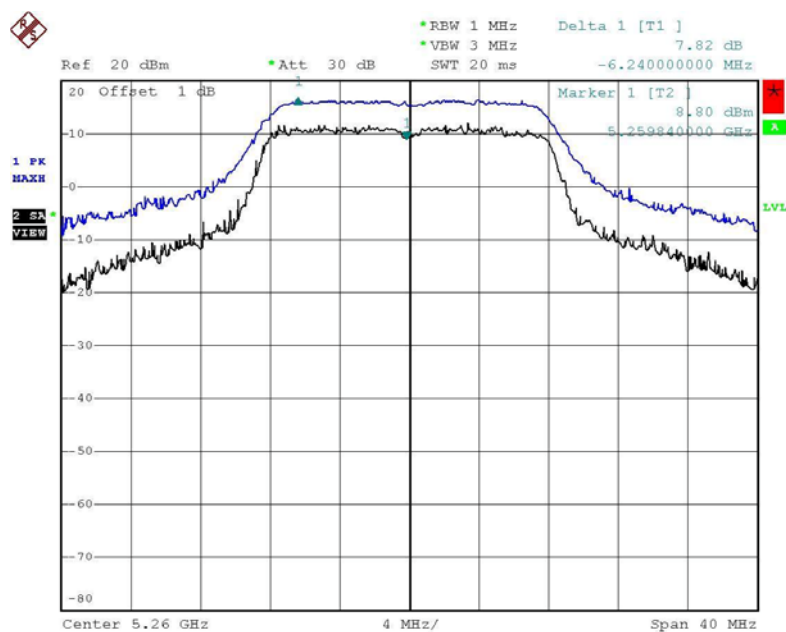
Date: 25.MAY.2005 17:33:54

CHANNEL 4



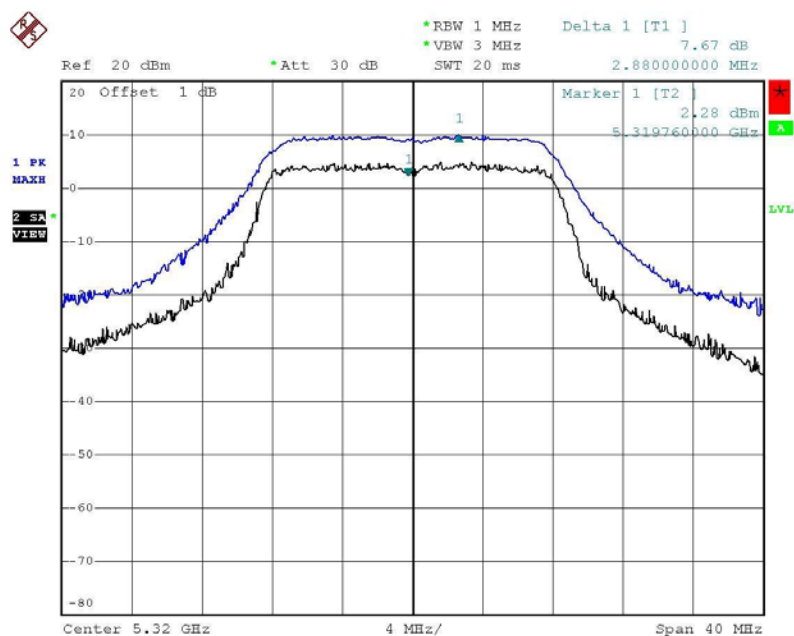
Date: 25.MAY.2005 17:30:51

CHANNEL 5



Date: 25.MAY.2005 17:29:50

CHANNEL 8



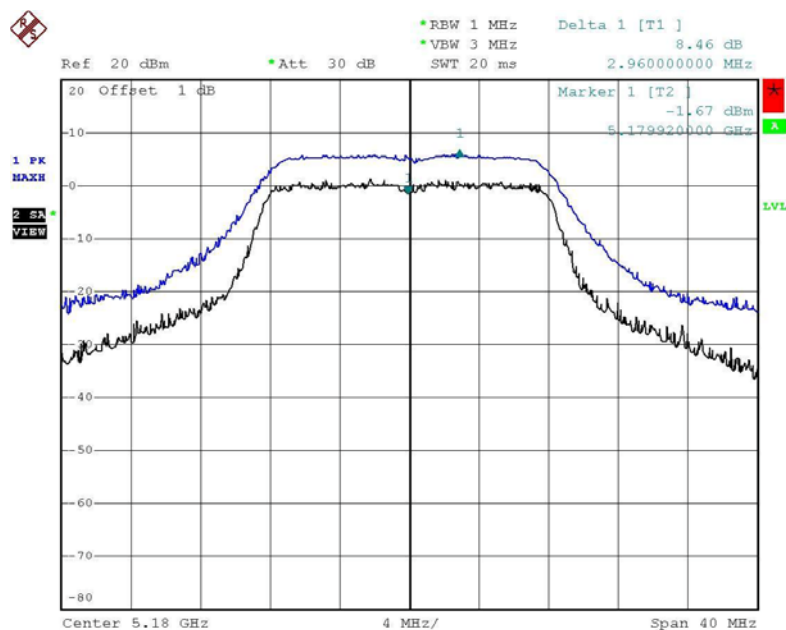
Date: 25.MAY.2005 17:21:27

5.4.8 TEST RESULTS (WITH ANTENNA 2)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

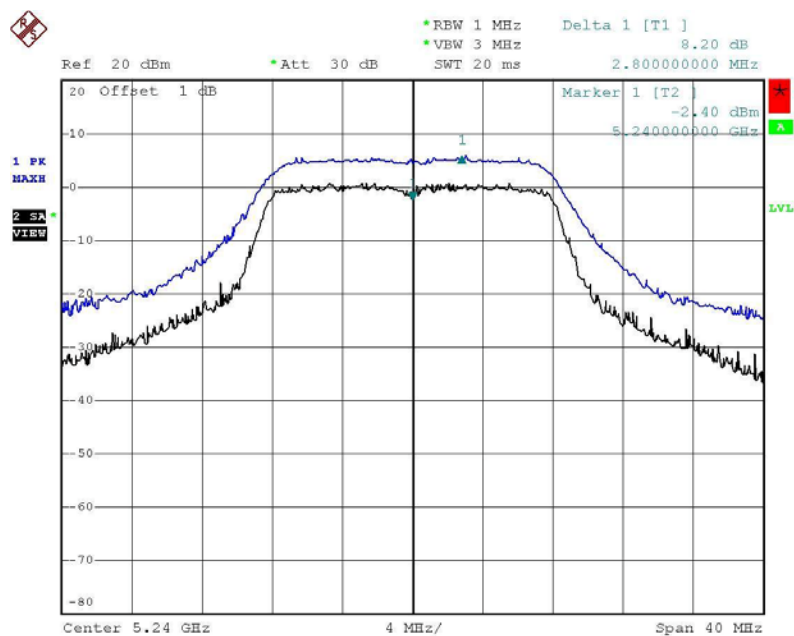
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	8.64	13	PASS
4	5240	8.20	13	PASS
5	5260	7.29	13	PASS
8	5320	7.24	13	PASS

CHANNEL 1



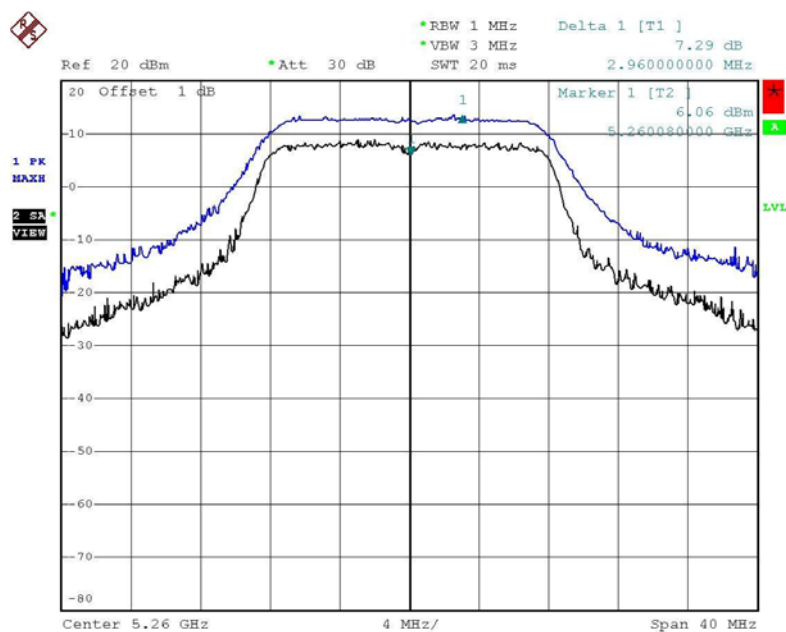
Date: 25.MAY.2005 17:32:54

CHANNEL 4



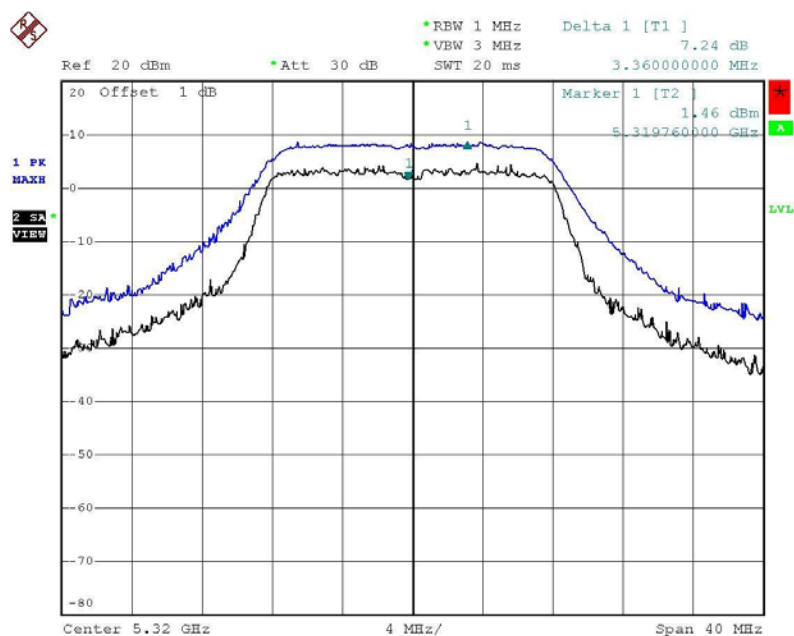
Date: 25.MAY.2005 17:31:51

CHANNEL 5



Date: 25.MAY.2005 17:28:55

CHANNEL 8



Date: 25.MAY.2005 17:22:23

5.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	4dBm
5.25 – 5.35 GHz	11dBm
5.725 – 5.825 GHz	17dBm

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.5.3 TEST PROCEDURES

The transmitter output was connected to the spectrum analyzer.
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

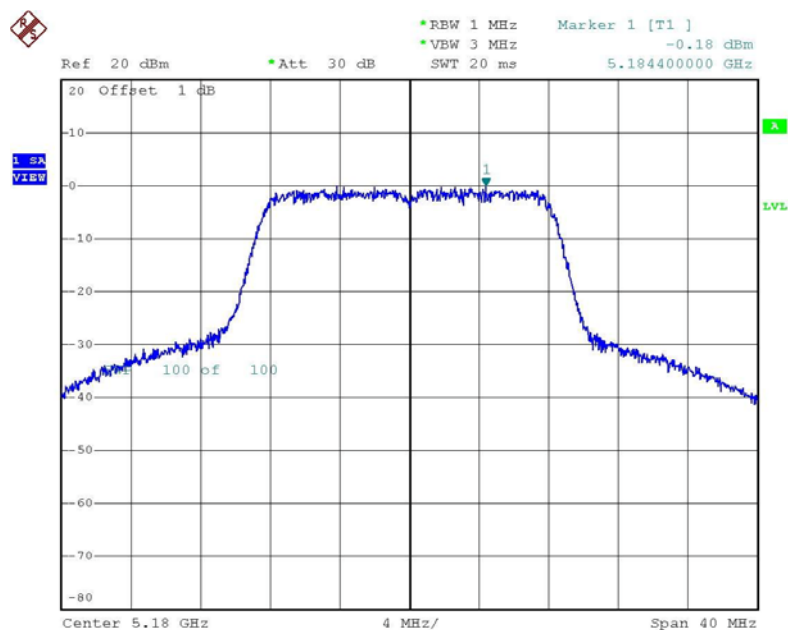
Same as 5.3.6

5.5.7 TEST RESULTS (WITH ANTENNA 1)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

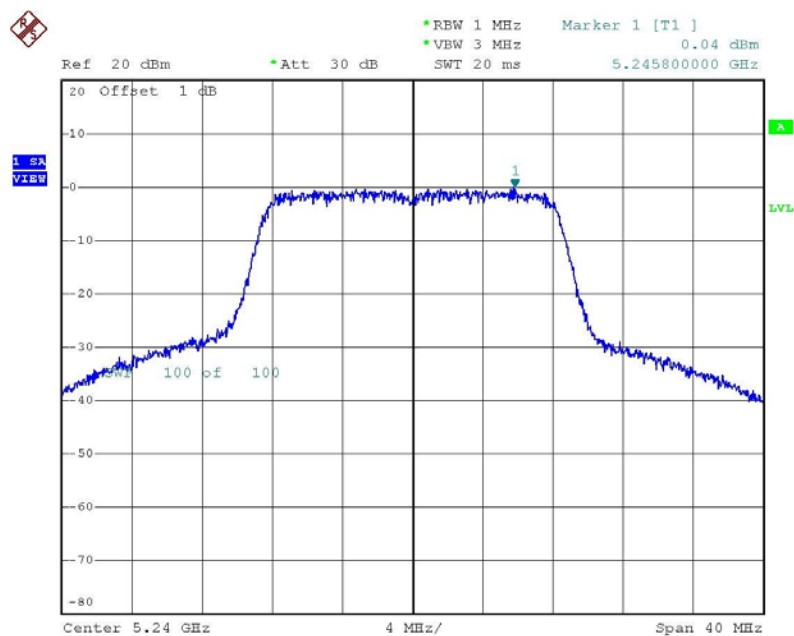
CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-0.18	4	PASS
4	5240	0.04	4	PASS
5	5260	6.82	11	PASS
8	5320	0.35	11	PASS

CHANNEL 1



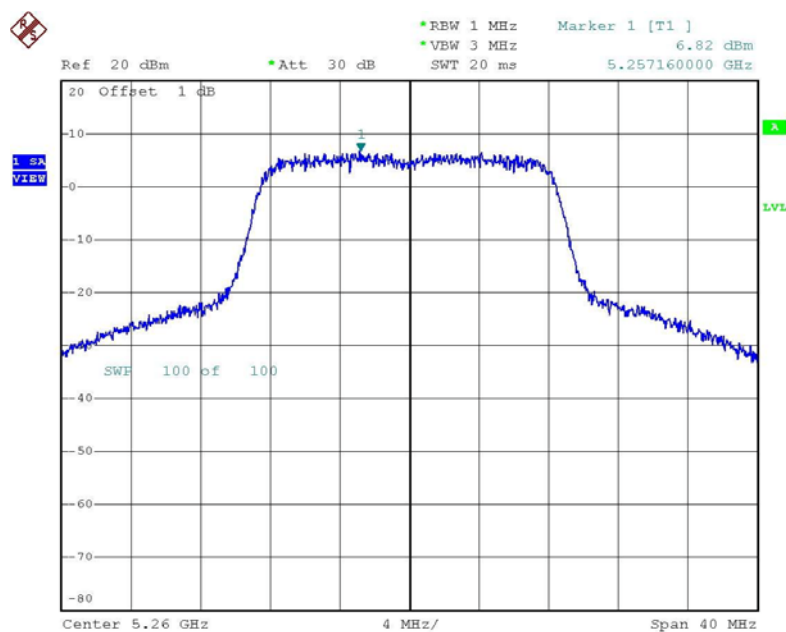
Date: 10.MAY.2005 00:08:36

CHANNEL 4



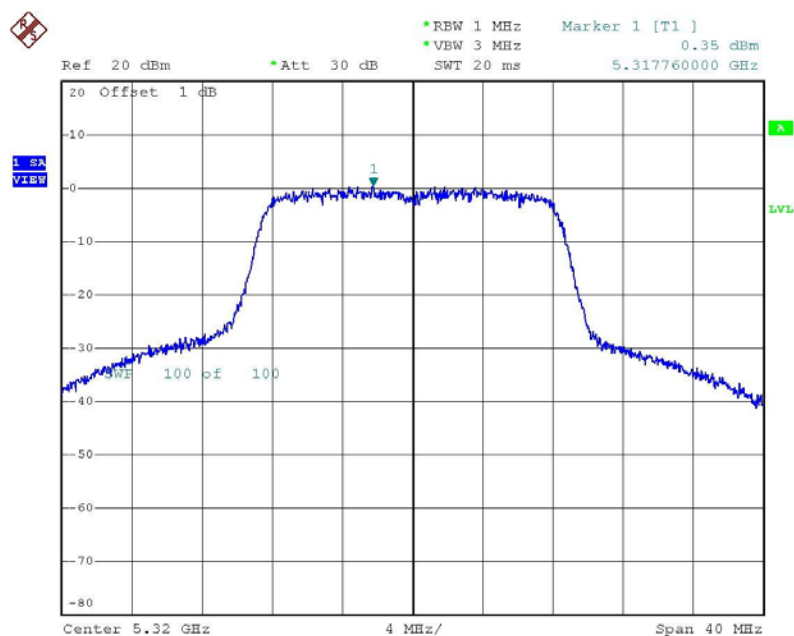
Date: 10.MAY.2005 00:08:10

CHANNEL 5



Date: 10.MAY.2005 00:07:03

CHANNEL 8



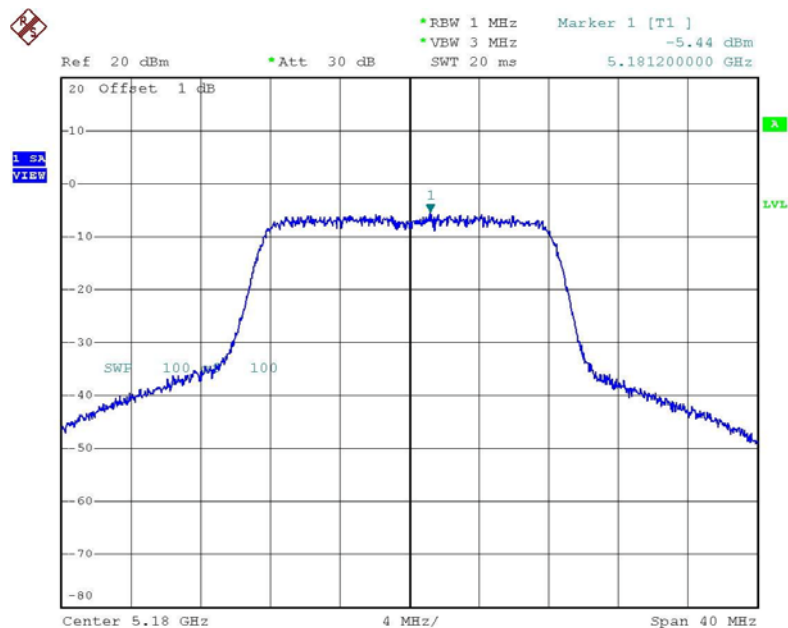
Date: 10.MAY.2005 00:04:53

5.5.8 TEST RESULTS (WITH ANTENNA 2)

EUT	Wireless Access Point AP7215	MODEL	NTE310AG
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68%RH, 965 hPa	TESTED BY	Rex Huang

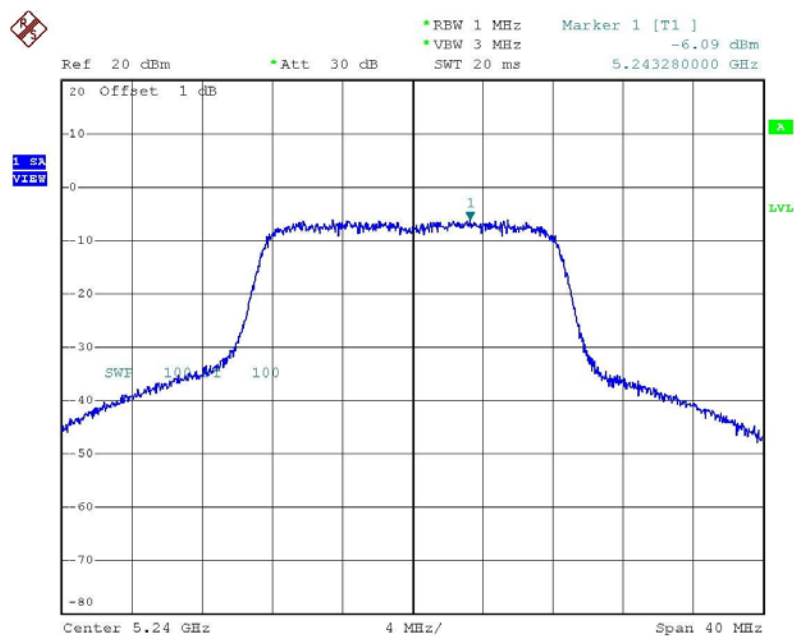
CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-5.44	-1	PASS
4	5240	-6.09	-1	PASS
5	5260	0.93	6	PASS
8	5320	-2.07	6	PASS

CHANNEL 1



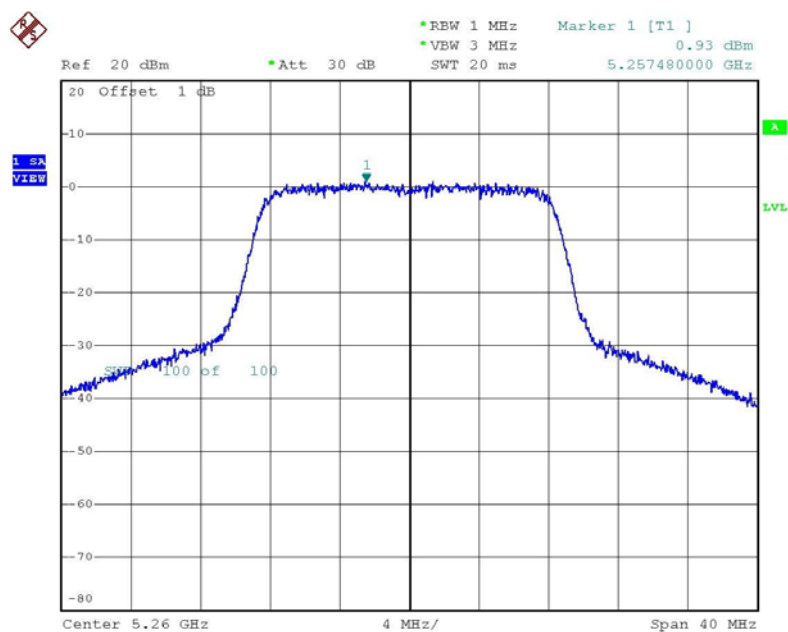
Date: 10.MAY.2005 02:00:16

CHANNEL 4



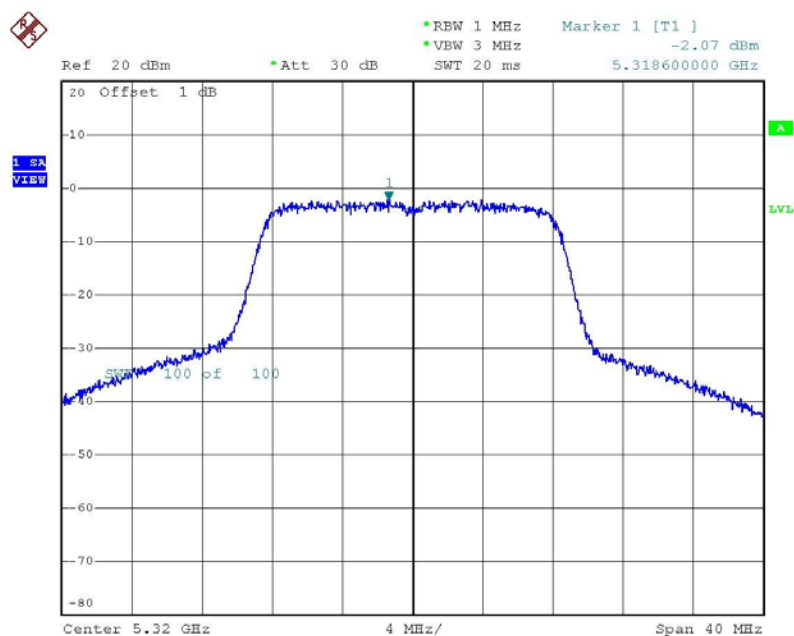
Date: 10.MAY.2005 02:03:10

CHANNEL 5



Date: 10.MAY.2005 02:04:06

CHANNEL 8



Date: 10.MAY.2005 02:02:28

5.6 FREQUENCY STABILITY

5.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.02\%$ of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

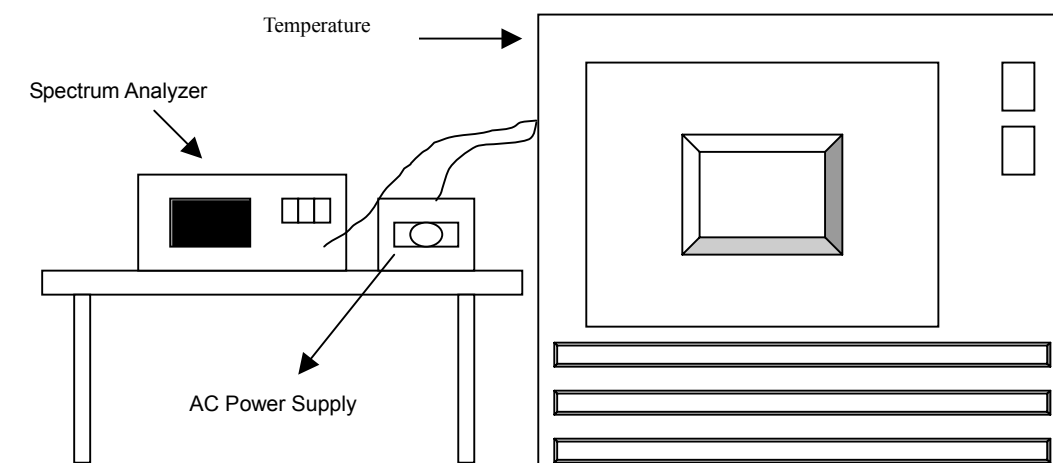
5.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at $+20$ degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 5.1.6

5.6.7 TEST RESULTS (WITH ANTENNA 1)

Operating frequency: 5320MHz				Limit : $\pm 0.02\%$			
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5319.9881	0.000224	5319.9976	0.000045	5319.9973	0.000051
	110	5319.9882	0.000222	5319.9976	0.000045	5319.9975	0.000047
	93.5	5319.9981	0.000036	5319.9979	0.000039	5319.9972	0.000053
40	126.5	5320.0364	0.000684	5320.0367	0.000690	5320.0368	0.000692
	110	5320.0364	0.000684	5320.0366	0.000688	5320.0368	0.000692
	93.5	5320.0366	0.000688	5320.0364	0.000684	5320.0368	0.000692
30	126.5	5319.9922	0.000147	5319.9919	0.000152	5319.9917	0.000156
	110	5319.9922	0.000147	5319.9921	0.000148	5319.9918	0.000154
	93.5	5319.9922	0.000147	5319.9919	0.000152	5319.9916	0.000158
20	126.5	5320.023	0.000432	5320.0180	0.000338	5320.0180	0.000338
	110	5320.023	0.000432	5320.0210	0.000395	5320.0190	0.000357
	93.5	5320.021	0.000395	5320.0180	0.000338	5320.0180	0.000338
10	126.5	5320.0071	0.000133	5320.0068	0.000128	5320.0065	0.000122
	110	5320.0072	0.000135	5320.0072	0.000135	5320.0069	0.000130
	93.5	5320.0071	0.000133	5320.0068	0.000128	5320.0065	0.000122
0	126.5	5320.0124	0.000233	5320.0122	0.000229	5320.0119	0.000224
	110	5320.0124	0.000233	5320.0122	0.000229	5320.0121	0.000227
	93.5	5320.0124	0.000233	5320.0121	0.000227	5320.0118	0.000222
-10	126.5	5320.0116	0.000218	5320.0111	0.000209	5320.0108	0.000203
	110	5320.0116	0.000218	5320.0113	0.000212	5320.0111	0.000209
	93.5	5320.0116	0.000218	5320.0111	0.000209	5320.0108	0.000203
-20	126.5	5320.0306	0.000575	5320.0290	0.000545	5320.0270	0.000508
	110	5320.0304	0.000571	5320.0310	0.000583	5320.0290	0.000545
	93.5	5320.0304	0.000571	5320.0280	0.000526	5320.0270	0.000508
-30	126.5	5320.0300	0.000564	5320.0250	0.000470	5320.0210	0.000395
	110	5320.0300	0.000564	5320.0280	0.000526	5320.0240	0.000451
	93.5	5320.0300	0.000564	5320.0240	0.000451	5320.0220	0.000414

5.6.8 TEST RESULTS (WITH ANTENNA 2)

Operating frequency: 5320MHz				Limit : $\pm 0.02\%$			
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5319.9881	0.000224	5319.9976	0.000045	5319.9973	0.000051
	110	5319.9882	0.000222	5319.9976	0.000045	5319.9975	0.000047
	93.5	5319.9981	0.000036	5319.9979	0.000039	5319.9972	0.000053
40	126.5	5320.0364	0.000684	5320.0367	0.000690	5320.0368	0.000692
	110	5320.0364	0.000684	5320.0366	0.000688	5320.0368	0.000692
	93.5	5320.0366	0.000688	5320.0364	0.000684	5320.0368	0.000692
30	126.5	5319.9922	0.000147	5319.9919	0.000152	5319.9917	0.000156
	110	5319.9922	0.000147	5319.9921	0.000148	5319.9918	0.000154
	93.5	5319.9922	0.000147	5319.9919	0.000152	5319.9916	0.000158
20	126.5	5320.023	0.000432	5320.0180	0.000338	5320.0180	0.000338
	110	5320.023	0.000432	5320.0210	0.000395	5320.0190	0.000357
	93.5	5320.021	0.000395	5320.0180	0.000338	5320.0180	0.000338
10	126.5	5320.0071	0.000133	5320.0068	0.000128	5320.0065	0.000122
	110	5320.0072	0.000135	5320.0072	0.000135	5320.0069	0.000130
	93.5	5320.0071	0.000133	5320.0068	0.000128	5320.0065	0.000122
0	126.5	5320.0124	0.000233	5320.0122	0.000229	5320.0119	0.000224
	110	5320.0124	0.000233	5320.0122	0.000229	5320.0121	0.000227
	93.5	5320.0124	0.000233	5320.0121	0.000227	5320.0118	0.000222
-10	126.5	5320.0116	0.000218	5320.0111	0.000209	5320.0108	0.000203
	110	5320.0116	0.000218	5320.0113	0.000212	5320.0111	0.000209
	93.5	5320.0116	0.000218	5320.0111	0.000209	5320.0108	0.000203
-20	126.5	5320.0306	0.000575	5320.0290	0.000545	5320.0270	0.000508
	110	5320.0304	0.000571	5320.0310	0.000583	5320.0290	0.000545
	93.5	5320.0304	0.000571	5320.0280	0.000526	5320.0270	0.000508
-30	126.5	5320.0300	0.000564	5320.0250	0.000470	5320.0210	0.000395
	110	5320.0300	0.000564	5320.0280	0.000526	5320.0240	0.000451
	93.5	5320.0300	0.000564	5320.0240	0.000451	5320.0220	0.000414