



FCC ID: O9C-AP3750
Issued on May 27, 2005

Report No.: FR540715

FCC TEST REPORT

CATEGORY : Mobile

PRODUCT NAME : AP3750 Managed Access Point

FCC ID. : O9C-AP3750

FILING TYPE : Certification

BRAND NAME : 3COM

MODEL NAME : AP3750

APPLICANT : **3Com Corporation**

350 Campus Drive, Marlborough, Mass. 01752

MANUFACTURER : **Same as Applicant**

ISSUED BY : **SPORTON INTERNATIONAL INC.**

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien,
Taiwan, R.O.C.

Statements:

Only the test result of 802.11a part (5150 ~ 5350MHz) is shown in this test report.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA, NVLAP or any agency of U.S. government.

The test equipment used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.


Wayne Hsu

NVLAP[®]

Lab Code: 200079-0

SPORTON International Inc.

TEL : 886-2-2696-2468

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History of this test report

Original Report Issue Date: May 27, 2005

Report No.: FR540715

☒ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description



CERTIFICATE OF COMPLIANCE

with

47 CFR FCC Part 15 Subpart E (Section 15.407)

PRODUCT NAME : AP3750 Managed Access Point

BRAND NAME : 3COM

MODEL NAME : AP3750

APPLICANT : **3Com Corporation**

350 Campus Drive, Marlborough, Mass. 01752

MANUFACTURER : **Same as Applicant**

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and all test are performed according to 47 CFR FCC Part 15. Testing was carried out on May 24, 2005 at SPORTON International Inc. LAB.

A handwritten signature in blue ink, appearing to read 'Wayne Hsu', is written over a horizontal line. Below the line, the name 'Wayne Hsu' is printed in a small, black, sans-serif font.

Wayne Hsu



1. General Description of Equipment under Test

1.1. Applicant

3Com Corporation
350 Campus Drive, Marlborough, Mass. 01752

1.2. Manufacturer

Same as Applicant

1.3. Basic Description of Equipment under Test

This product is a Wireless Access Point with 802.11a/b/g wireless solution. The technical data has been listed on section "Features of Equipment under Test". 4 types of antenna were filed in this report.

1.4. Features of Equipment under Test

Items	Description
Type of Modulation	: OFDM (16QAM / 64QAM / DQPSK / DBPSK)
Number of Channels	: 11
Frequency Band	: 5150MHz ~ 5250MHz, 5250MHz ~ 5350MHz
Carrier Frequency	: See section 1.6 for details
Data Rate	: 108, 54, 48,36, 24,18,12, 6Mbps
Max. Conducted Output Power	: See section 1.7 for details
Antenna Type	: See section 1.5 for details
Communication Type	: Half-Duplex
Testing Duty Cycle	: 100.00%
Power Rating (DC/AC, Voltage)	: 48 VDC from POE
Test Power Source	: 110.00V AC
Temperature Range (Operating)	: -30 ~ 55 °C

1.5. Antenna Description

4 types of antenna were filed in this project.

No.	Antenna Type	Gain (dBi)
1	Internal Antenna	4.00dBi @5.0GHz
2	High Gain Omni-Directional Antenna (3CWE591)	8.00dBi @5.0GHz
3	Hallway Bi-Directional Antenna (3CWE597)	8.00dBi @5.0GHz
4	Medium Gain Panel (3CWE598)	10.00dBi @5.0GHz

1.6. Table for Carrier Frequencies

Normal Mode

Frequency Bands			
5150MHz ~ 5250MHz			
Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

Turbo Mode

Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz
50	5250 MHz		



1.7. Table for Maximum Conducted Output Power

Antenna 1

Normal Mode

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
16.83	23.60

Turbo Mode

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
16.91	19.90

Antenna 2 ~ 3

Normal Mode

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
14.35	21.87

Turbo Mode

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
14.91	20.13

Antenna 4

Normal Mode

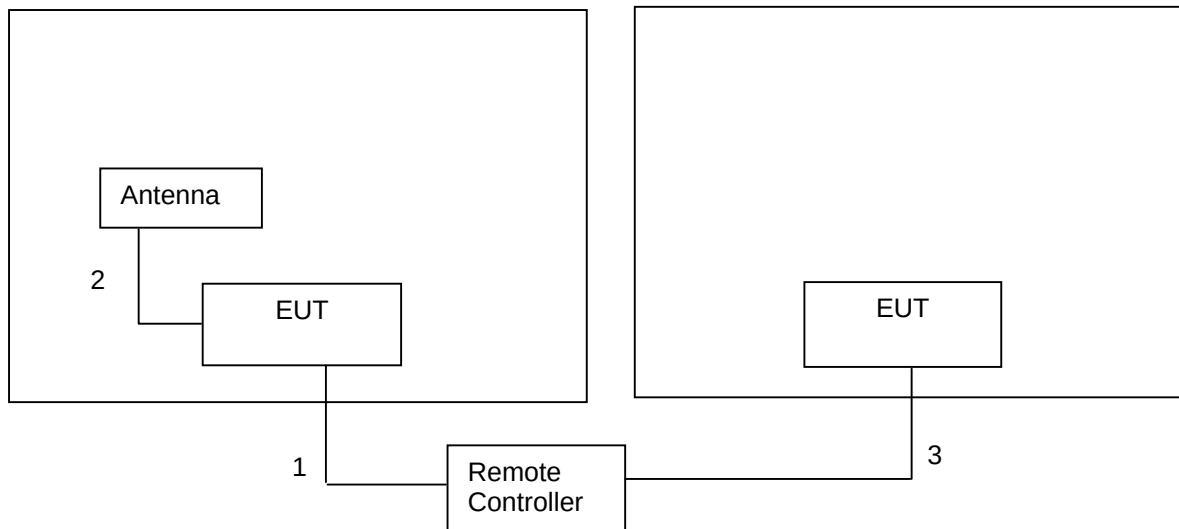
Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
16.83	23.60

Turbo Mode

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
16.91	19.90

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



1. RJ45, 5m, non-shielding
2. Antenna Cable, 2m, non-shielding
3. RJ45, 5m, non-shielding

2.2. The Test Mode Description

1. For OFDM modulation, BPSK is the worst case on all test items.
2. Only channel 36 with antenna 4 was tested for spurious emission below 1GHz since it is the worst case.
3. AC conduction emission is independent of channel selection, so only channel 36 was tested.
4. There are 4 types of antennas during the testing.
 - Mode 1 : Ant. 1 Internal Antenna
 - Mode 2 : Ant. 2 High Gain Omni-Directional Antenna (3CWE591)
 - Mode 3 : Ant. 3 Hallway Bi-Directional Antenna (3CWE597)
 - Mode 4 : Ant. 4 Medium Gain Panel (3CWE598)

2.3. Description of Test Supporting Units

Support Unit 1. – Notebook (COMPAQ) – for remote workstation

FCC ID : N/A

Model No. : PRESARIO 1500

Serial No. : SP0004

Remark : This support device was tested to comply with FCC standards and authorized under Declaration of Conformity.

3. General Information of Test

3.1. Test Facility

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.
: TEL 886-3-327-3456
: FAX 886-3-318-0055

Test Site No : 03CH03-HY / TH01-HY / CO04-HY

3.2. Test Conditions

Normal Voltage : 110.00VAC (adapter of POE)
Extreme Voltages : 126.50VAC and 93.5VAC (adapter of POE)
Normal Temperature : 20°C
Extreme Temperature : -30 °C and 55 °C

3.3. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.

ANSI C63.4-2003

47 CFR Part 15 Subpart E (Section 15.407)

3.4. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

3.5. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic.

3.6. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M.
The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 3 M.

3.7. Test Software

Mode 1

Normal Mode

Test Software: ART			
Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	Power Setup
5180 MHz	10.5	5260 MHz	15.5
		5320 MHz	15

Turbo Mode

Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	
5210 MHz	10	5290 MHz	14.5
5250 MHz	10		

Mode 2 ~ 3

Normal Mode

Test Software: ART			
Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	Power Setup
5180 MHz	9.5	5260 MHz	15
		5320 MHz	15

Turbo Mode

Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	
5210 MHz	9	5290 MHz	14
5250 MHz	9		



Mode 4

Normal Mode

Test Software: ART			
Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	Power Setup
5180 MHz	7.5	5260 MHz	13
		5320 MHz	13

Turbo Mode

Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Frequency	Power Setup	Frequency	Power Setup
5210 MHz	7	5290 MHz	12.5
5250 MHz	7		



4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR Part 15 and Part 2			
Paragraph	FCC Rule	Description of Test	Result
5.1	15.407	26dB Spectrum Bandwidth	Pass
5.2	15.407	Maximum Conducted Output Power	Pass
5.3	15.407	Peak Power Spectral Density	Pass
5.4	15.407	Ratio of the Peak Excursion	Pass
5.5	15.407	Band Edges Emission	Pass
5.6	15.407	Test of Frequency Stability	Pass
5.7	15.407	AC Power Line Conducted Emission	Pass
5.8	15.209/15.407	Spurious Radiated Emission	Pass
5.9	15.203/15.407	Antenna Requirement	Pass
5.10	2.1091	Maximum Permissible Exposure	Pass

5. Test Result

5.1. Test of 26dB Spectrum Bandwidth

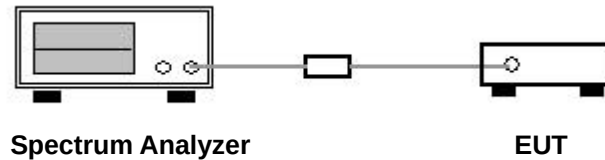
5.1.1. Measuring Instruments

Item 18 of the table on section 6.

5.1.2. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 300KHz and VBW to 1000KHz.
3. The 26dB bandwidth is the spectrum width with level higher than 26dB below the peak level.

5.1.3. Test Setup Layout



5.1.4. Test Result: See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Mode 1 ~ 4

Normal Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Calculated Power Limit (dBm)	Applied Power Limit (dBm)
36	5180 MHz	28.32	18.52	17
52	5260 MHz	28.96	25.62	24
64	5320 MHz	27.68	25.42	24

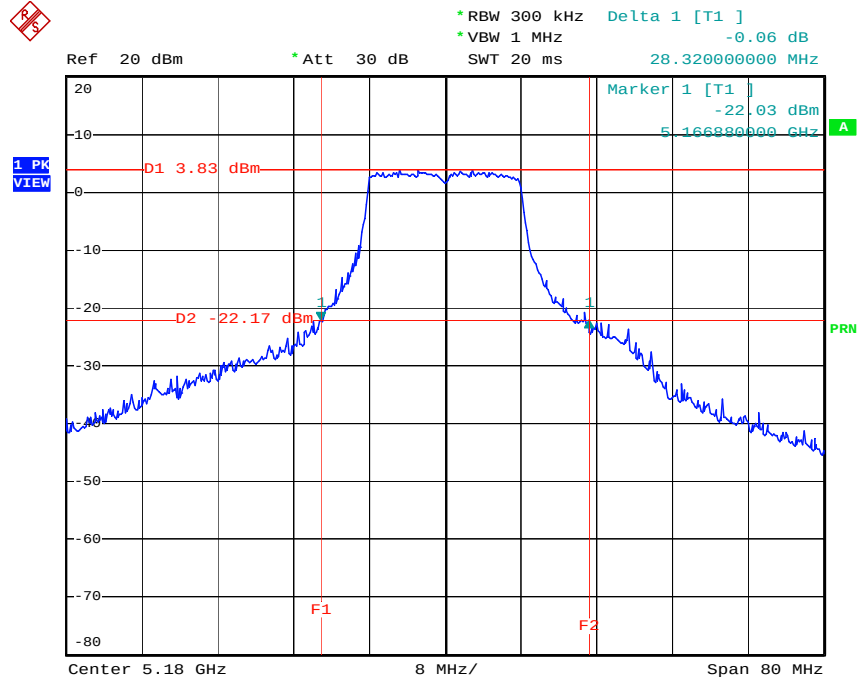
Turbo Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Calculated Power Limit (dBm)	Applied Power Limit (dBm)
42	5210 MHz	55.20	21.42	17
50	5250 MHz	56.60	21.53	17
58	5290 MHz	49.00	27.90	24



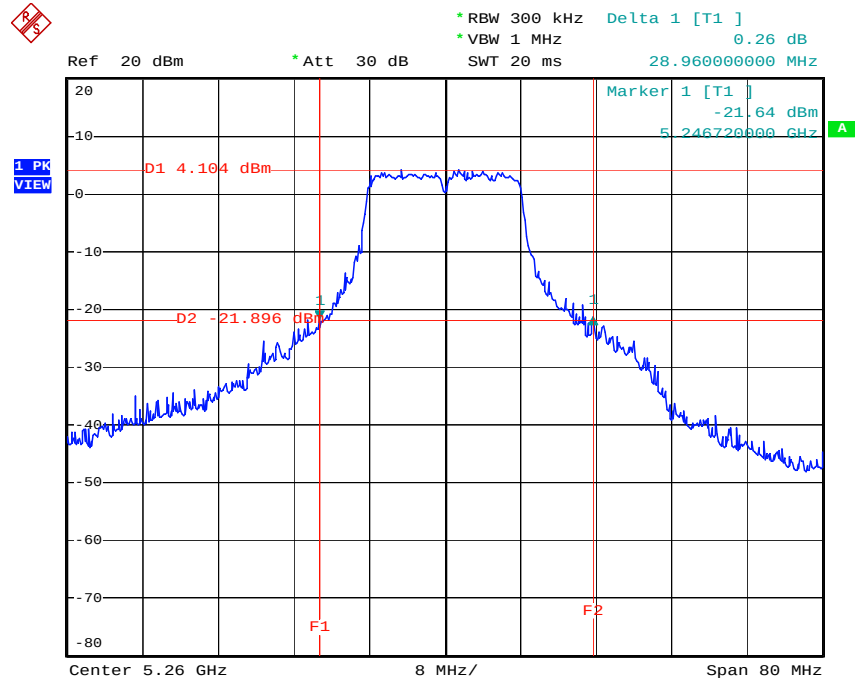
Normal Mode

Channel: 36 / 5180 MHz



Date: 14.APR.2005 16:14:15

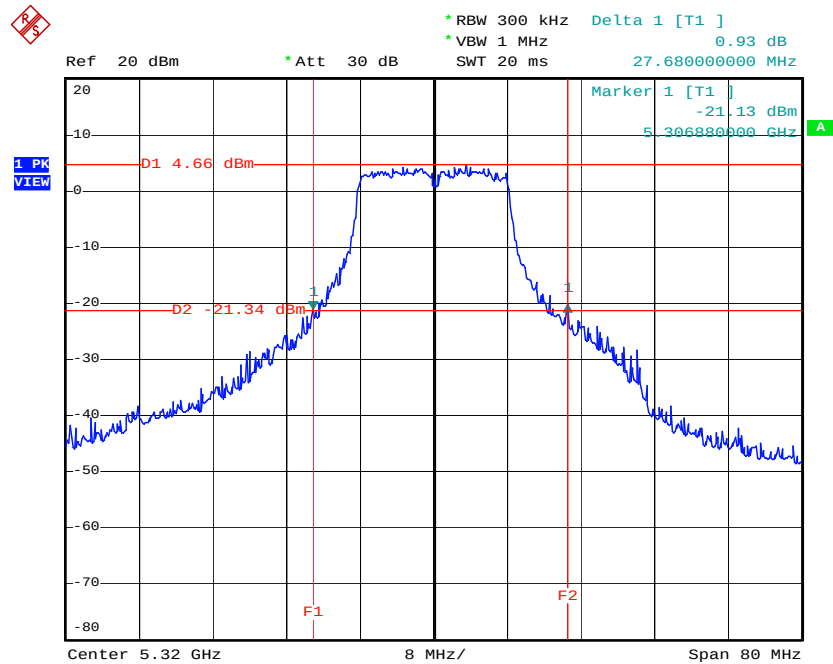
Channel: 52 / 5260 MHz



Date: 16.APR.2005 13:35:26



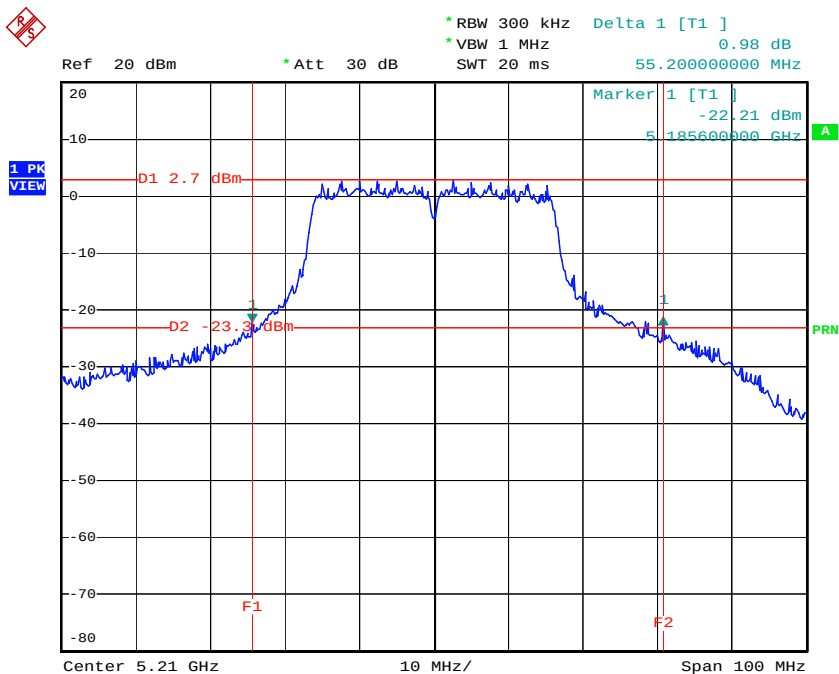
Channel: 64 / 5320 MHz



Date: 16.APR.2005 13:37:26

Turbo Mode

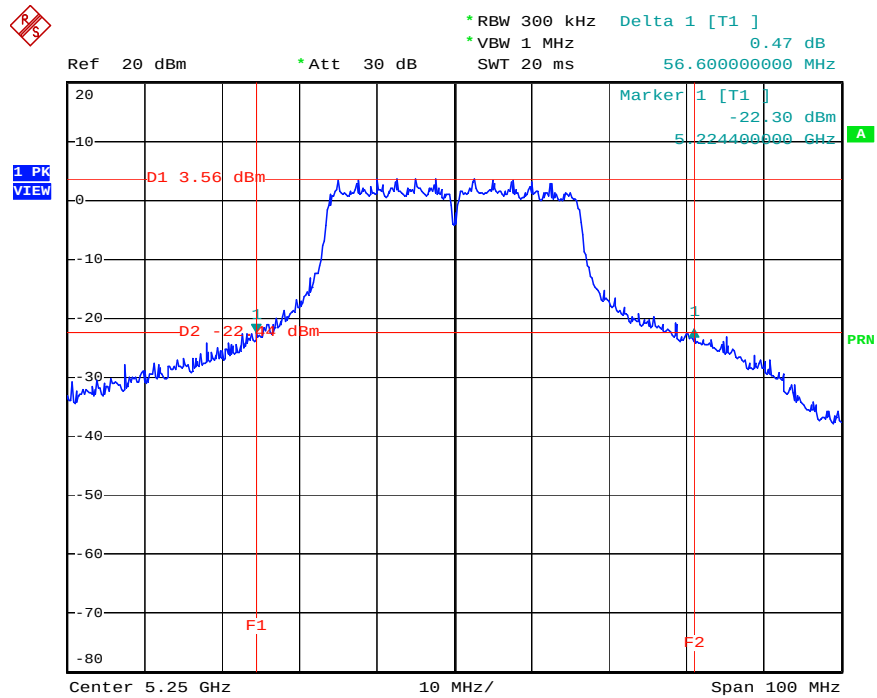
Channel: 42 / 5210 MHz



Date: 14.APR.2005 16:28:46

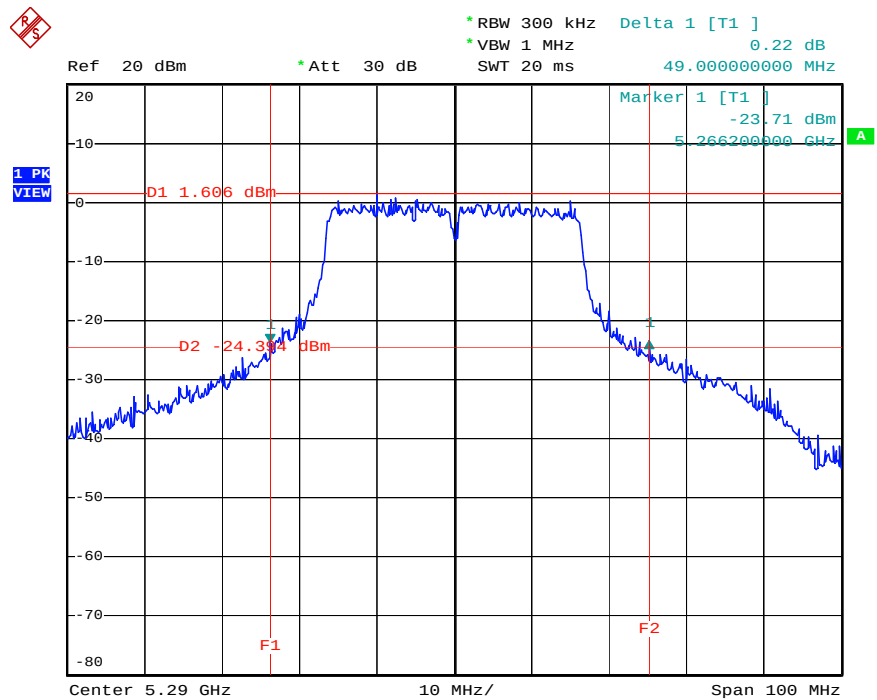


Channel: 50 / 5250 MHz



Date: 14.APR.2005 16:26:48

Channel: 58 / 5290 MHz



Date: 16.APR.2005 13:51:29

5.2. Test of Maximum Conducted Output Power

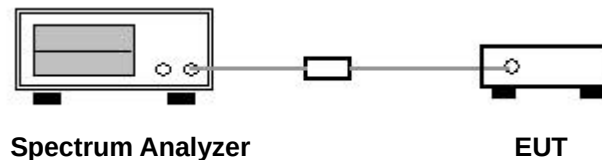
5.2.1. Measuring Instruments

Item 18 of the table on section 6.

5.2.2. Test Procedures

1. According to FCC DA 02-2138 test procedure, EUT connected to spectrum analyzer, then used the channel power function of spectrum analyzer and calculated total average power with spectrum range more than 26dB bandwidth.
2. Repeated point 1 for the middle and highest channel of the EUT.

5.2.3. Test Setup Layout



5.2.4. Test Result of Conducted Power

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Mode 1

Normal Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
36	5180 MHz	16.83	17
52	5260 MHz	23.60	24
64	5320 MHz	22.54	24

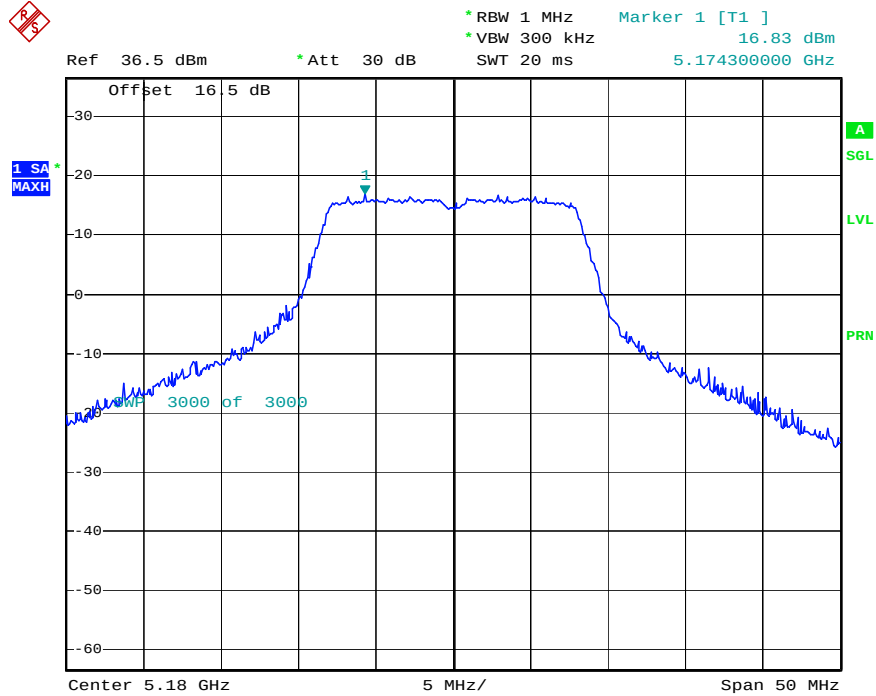
Turbo Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
42	5210 MHz	16.33	17
50	5250 MHz	16.91	17
58	5290 MHz	19.90	24



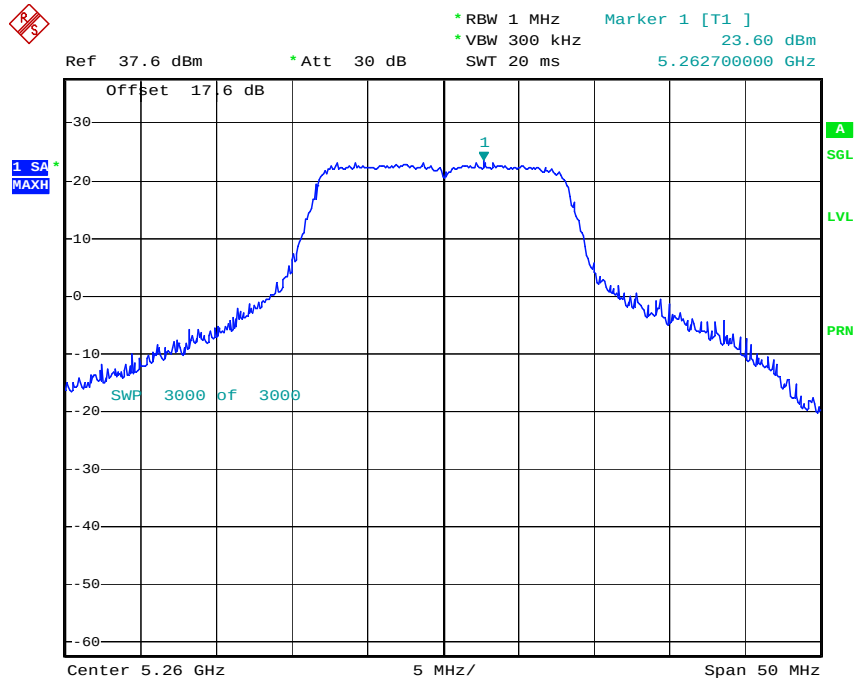
Normal Mode

Channel: 36 / 5180 MHz



Date: 15.APR.2005 00:23:16

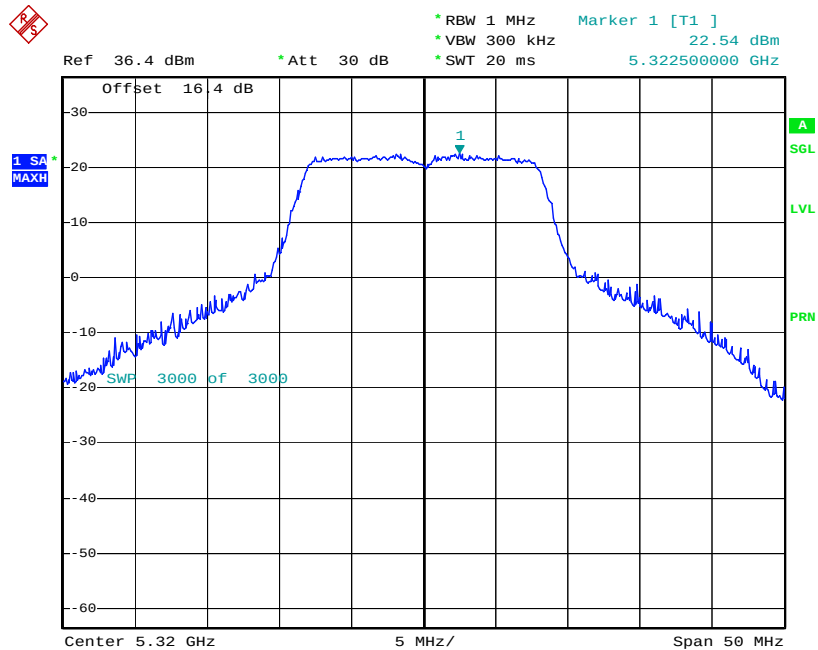
Channel: 52 / 5260 MHz



Date: 15.APR.2005 00:33:33



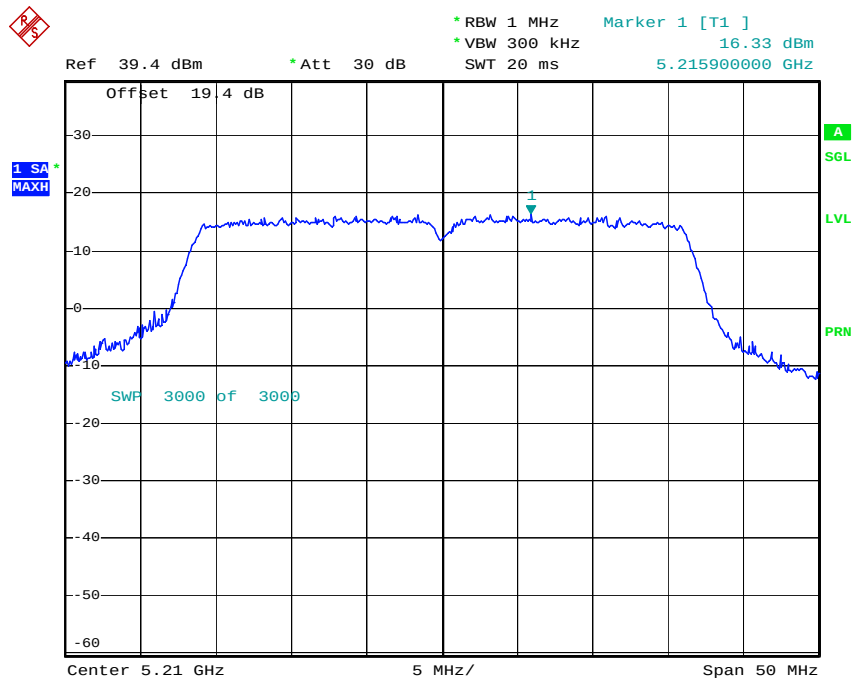
Channel: 64 / 5320 MHz



Date: 16.APR.2005 19:19:41

Turbo Mode

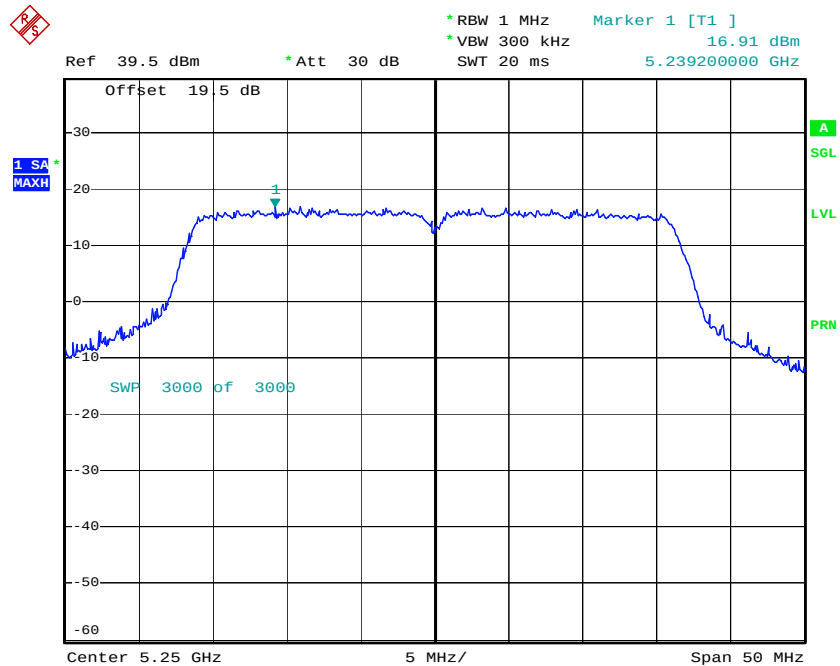
Channel: 42 / 5210 MHz



Date: 15.APR.2005 01:03:02

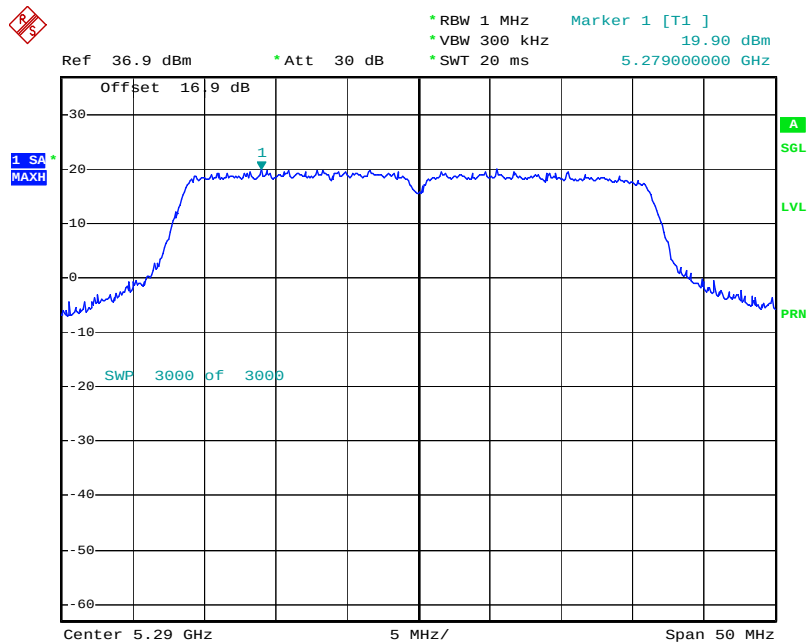


Channel: 50 / 5250 MHz



Date: 15.APR.2005 01:07:20

Channel: 58 / 5290 MHz



Date: 16.APR.2005 19:25:08



Mode 2 ~ 3

Normal Mode

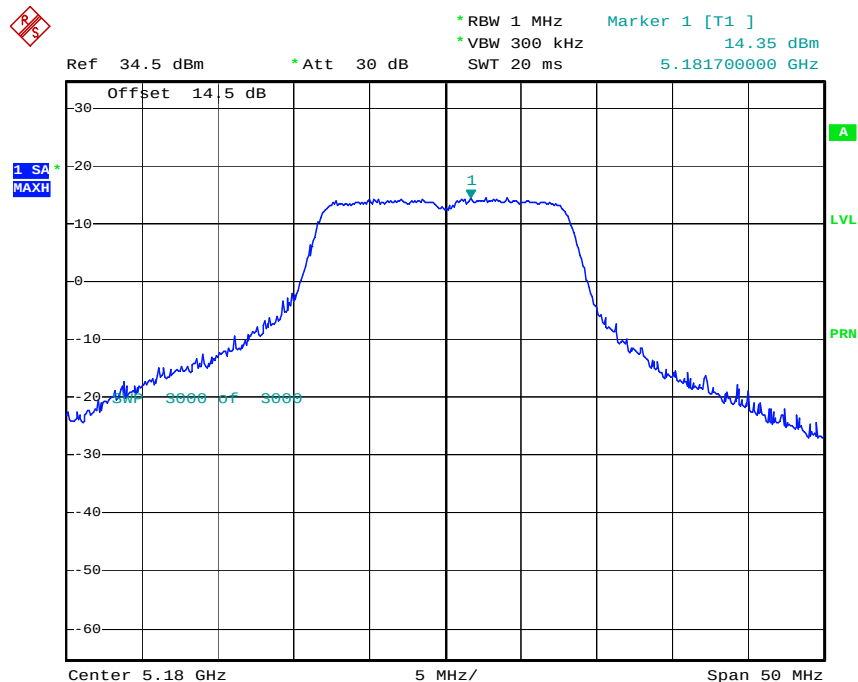
Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
36	5180 MHz	14.35	15
52	5260 MHz	21.87	22
64	5320 MHz	20.39	22

Turbo Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
42	5210 MHz	14.79	15
50	5250 MHz	14.91	15
58	5290 MHz	20.13	22

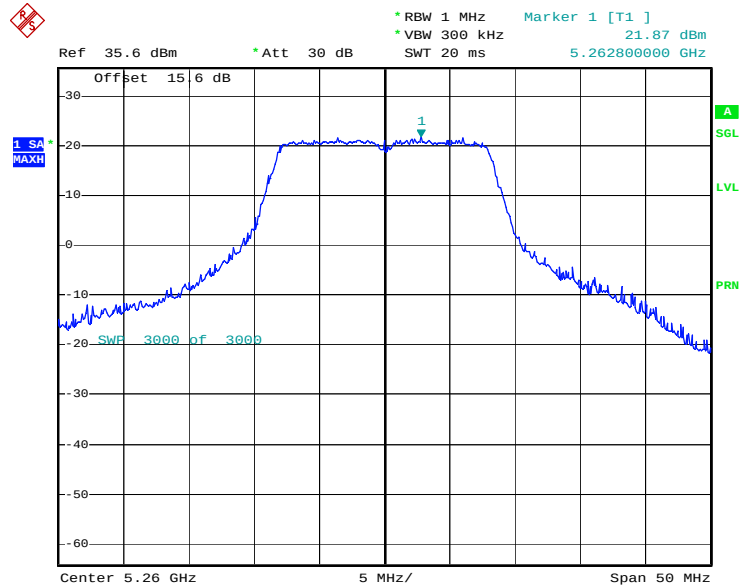
Normal Mode

Channel: 36 / 5180 MHz



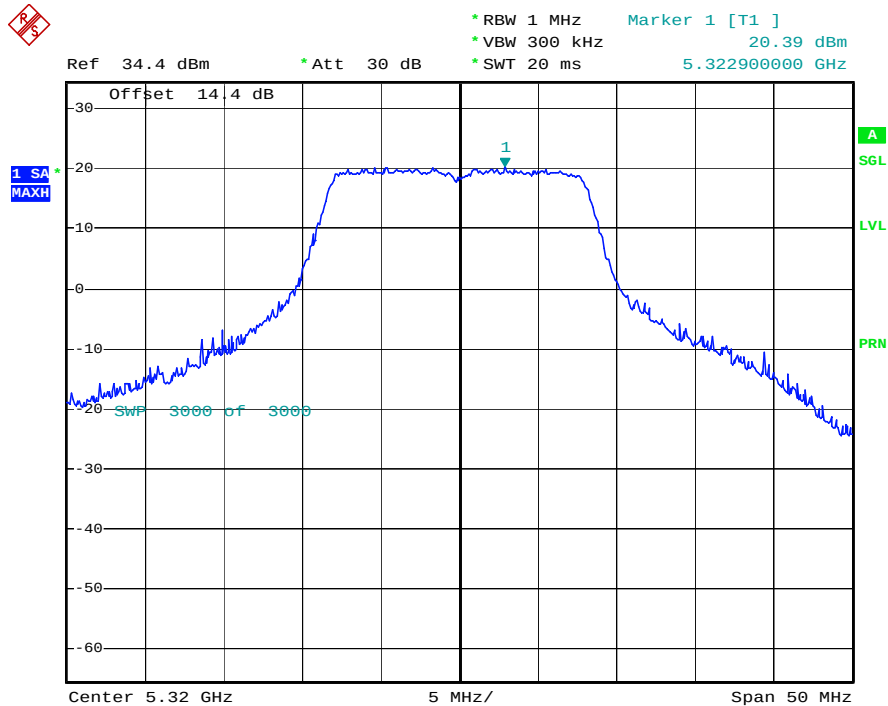
Date: 14.APR.2005 20:22:06

Channel: 52 / 5260 MHz



Date: 14.APR.2005 20:44:12

Channel: 64 / 5320 MHz

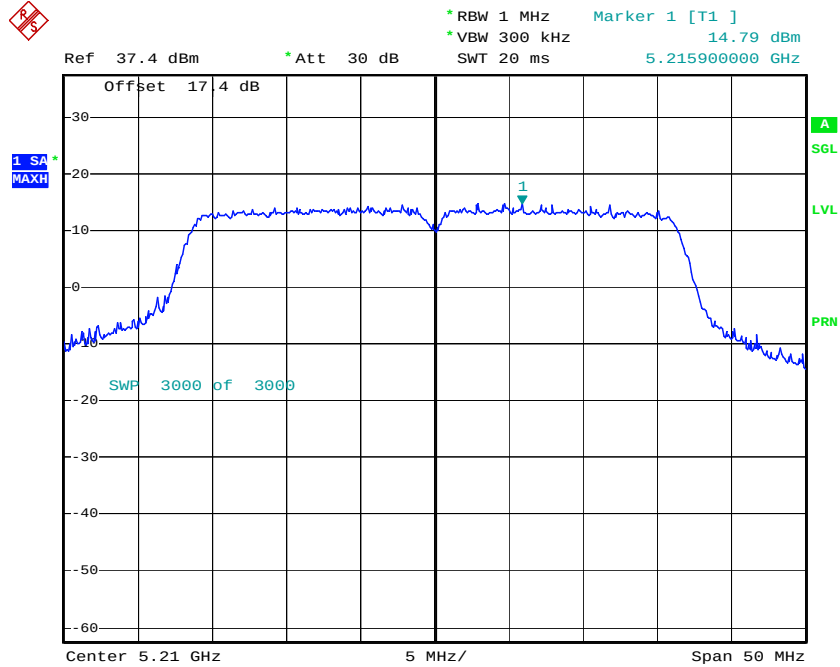


Date: 16.APR.2005 18:28:26



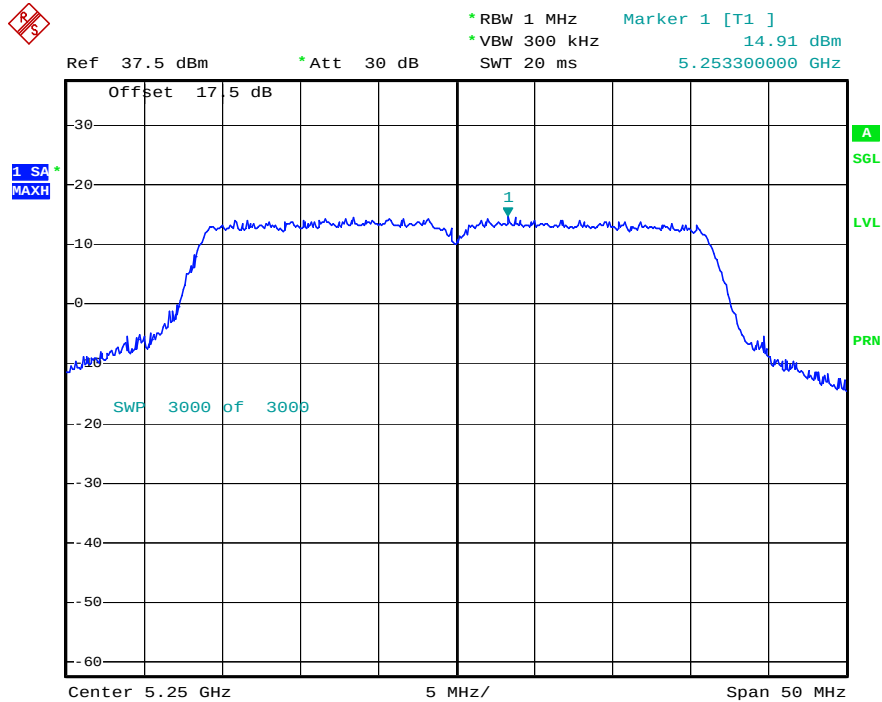
Turbo Mode

Channel: 42 / 5210 MHz



Date: 14.APR.2005 22:59:22

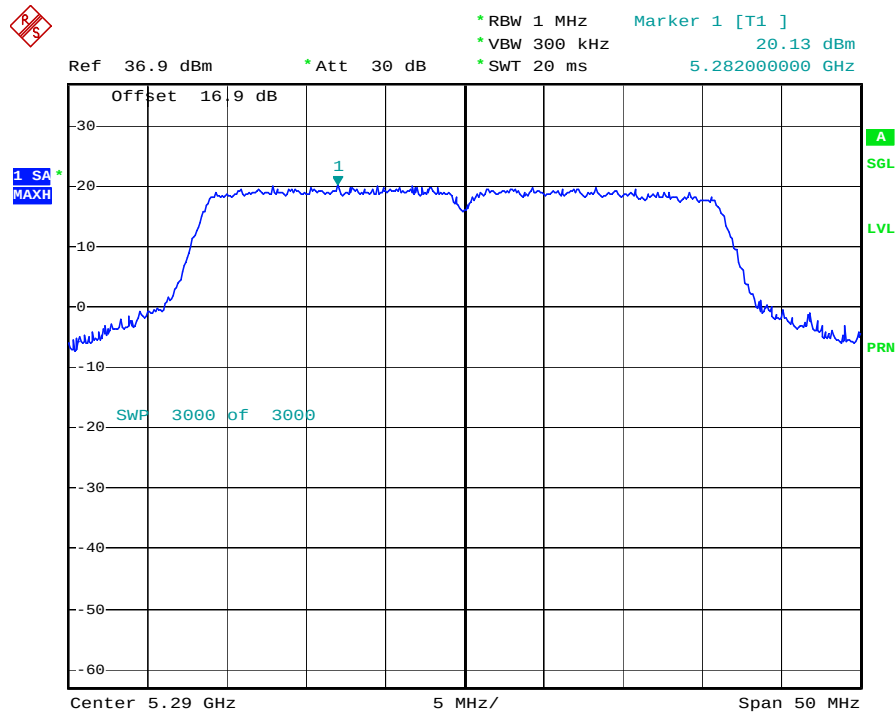
Channel: 50 / 5250 MHz



Date: 14.APR.2005 23:11:10



Channel: 58 / 5290 MHz



Date: 16.APR.2005 18:47:05

Mode 4

Normal Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
36	5180 MHz	12.60	13
52	5260 MHz	19.99	20
64	5320 MHz	19.04	20

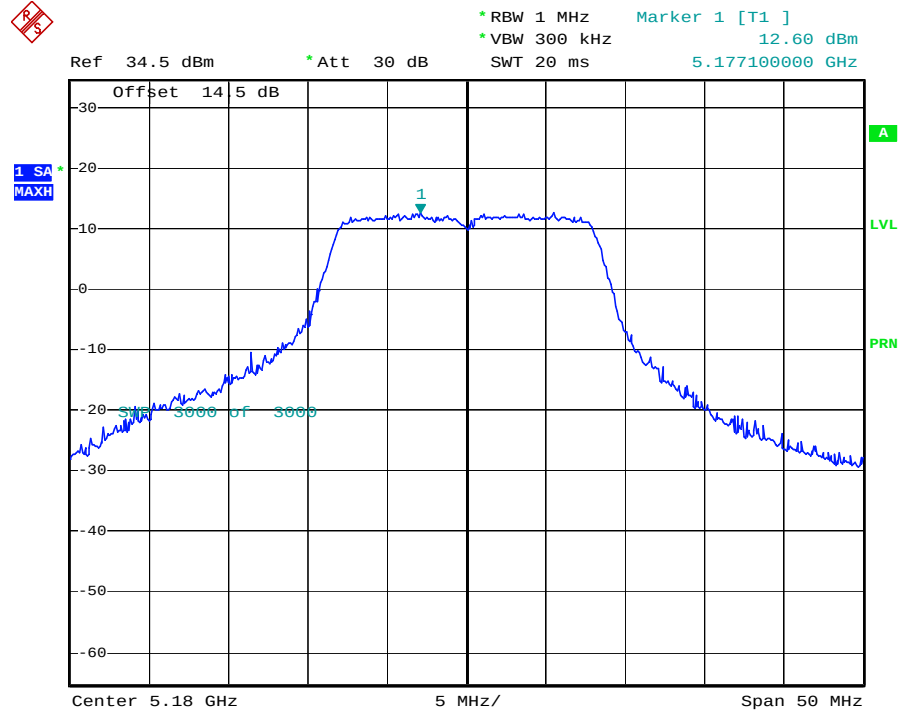
Turbo Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
42	5210 MHz	12.88	15
50	5250 MHz	12.71	15
58	5290 MHz	19.32	22



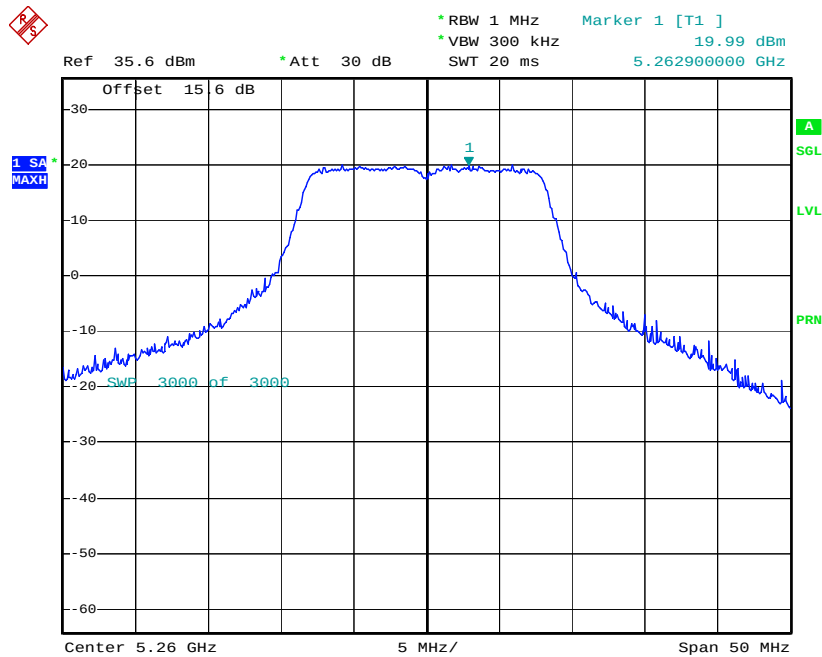
Normal Mode

Channel: 36 / 5180 MHz



Date: 14.APR.2005 20:27:20

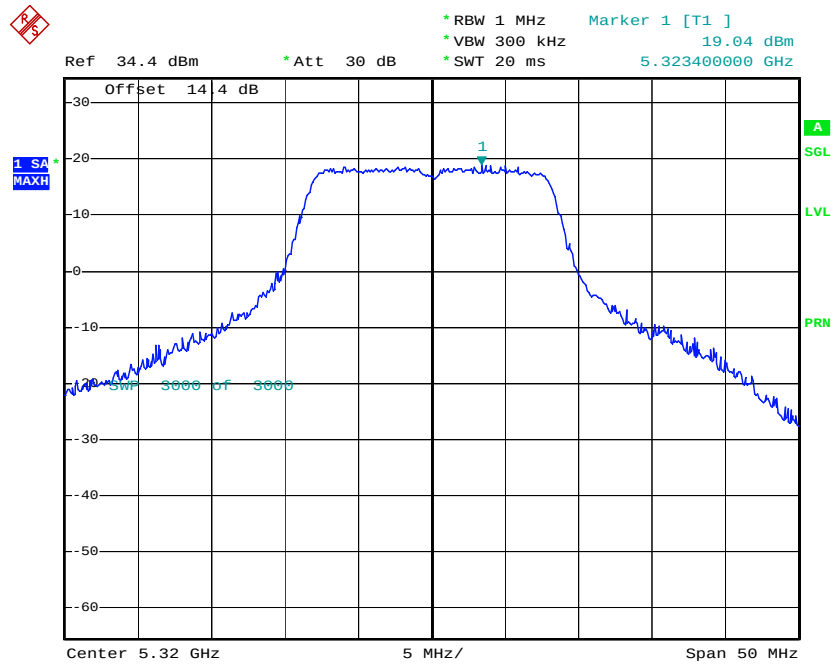
Channel: 52 / 5260 MHz



Date: 14.APR.2005 20:50:03



Channel: 64 / 5320 MHz

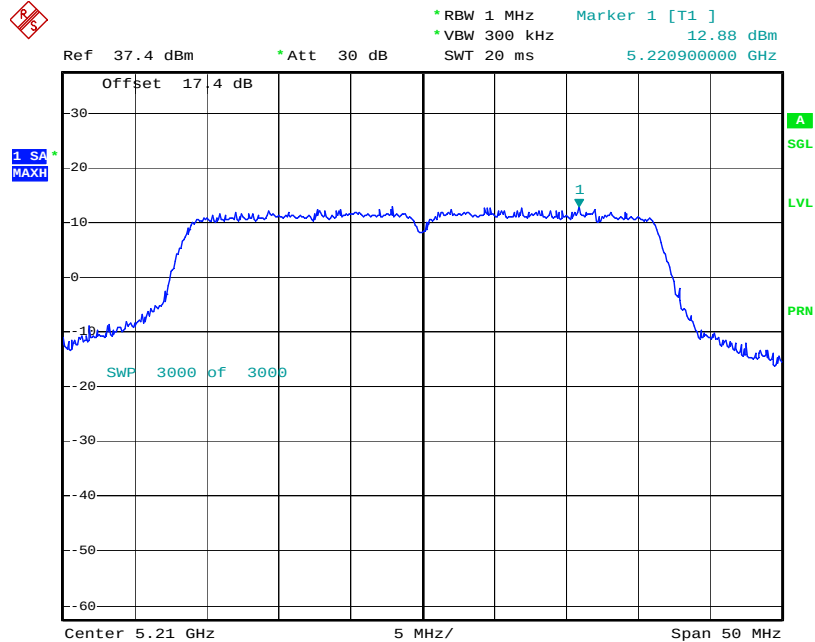


Date: 16.APR.2005 18:31:18



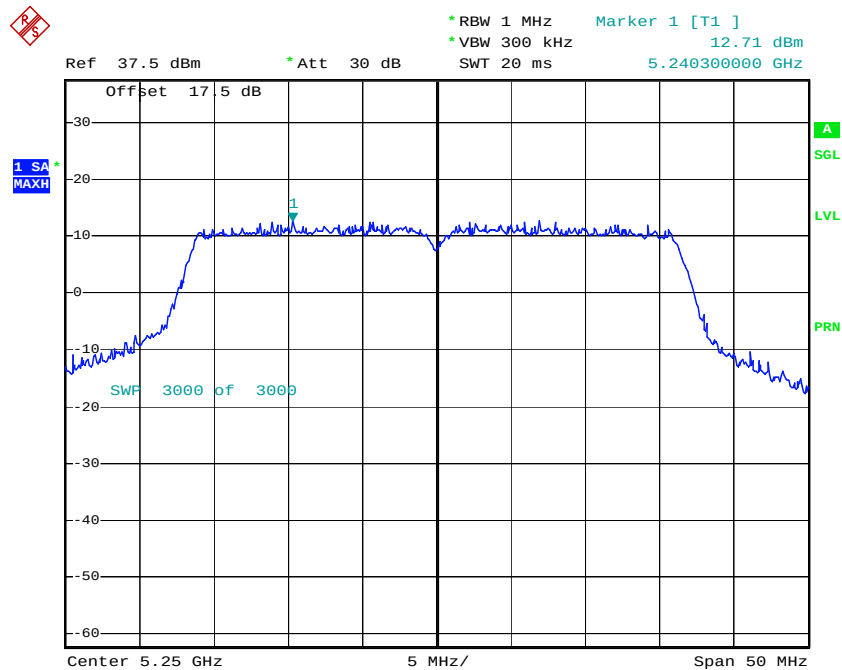
Turbo Mode

Channel: 42 / 5210 MHz



Date: 14.APR.2005 23:02:53

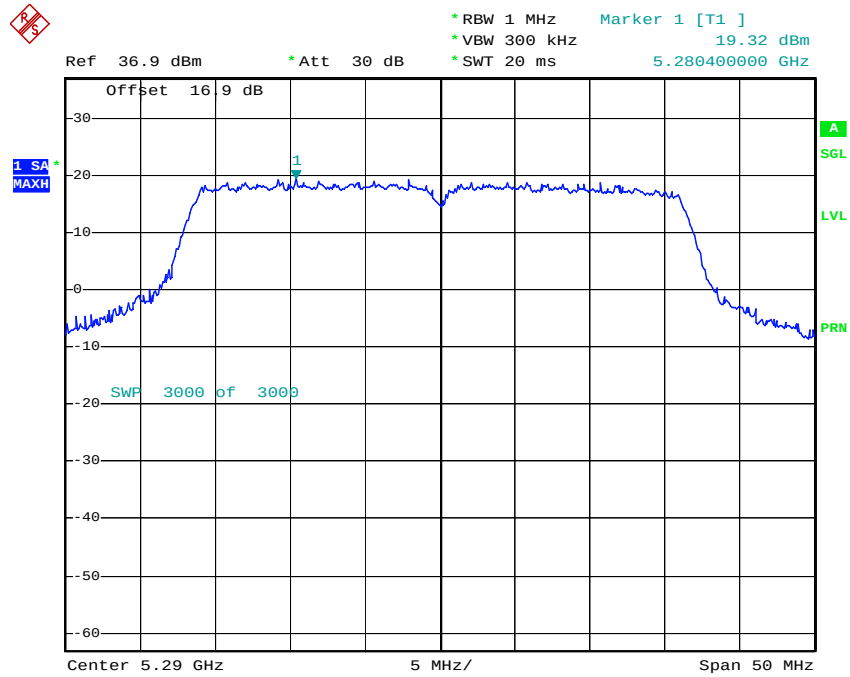
Channel: 50 / 5250 MHz



Date: 14.APR.2005 23:17:03



Channel: 58 / 5290 MHz



Date: 16.APR.2005 18:50:34

5.3. Test of Peak Power Spectral Density

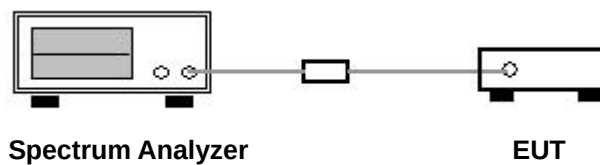
5.3.1. Measuring Instruments

Item 18 of the table on section 6.

5.3.2. Test Procedures

1. According to FCC DA 02-2138 test procedure, EUT connected to spectrum analyzer, then used the same setup as power measurement of spectrum analyzer.
2. Repeated the 1 for the middle and highest channel of the EUT.

5.3.3. Test Setup Layout



5.3.4. Test Result of conducted peak power spectral density:

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Mode 1

Normal Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
36	5180 MHz	-3.68	4
52	5260 MHz	2.06	11
64	5320 MHz	1.98	11

Turbo Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
42	5210 MHz	-6.34	4
50	5250 MHz	-6.03	4
58	5290 MHz	-1.44	11



Mode 2 ~ 3

Normal Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
36	5180 MHz	-6.05	2
52	5260 MHz	0.17	9
64	5320 MHz	-0.06	9

Turbo Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
42	5210 MHz	-8.98	2
50	5250 MHz	-8.06	2
58	5290 MHz	-3.22	9

Mode 4

Normal Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
36	5180 MHz	-7.84	0
52	5260 MHz	-1.66	7
64	5320 MHz	-1.80	7

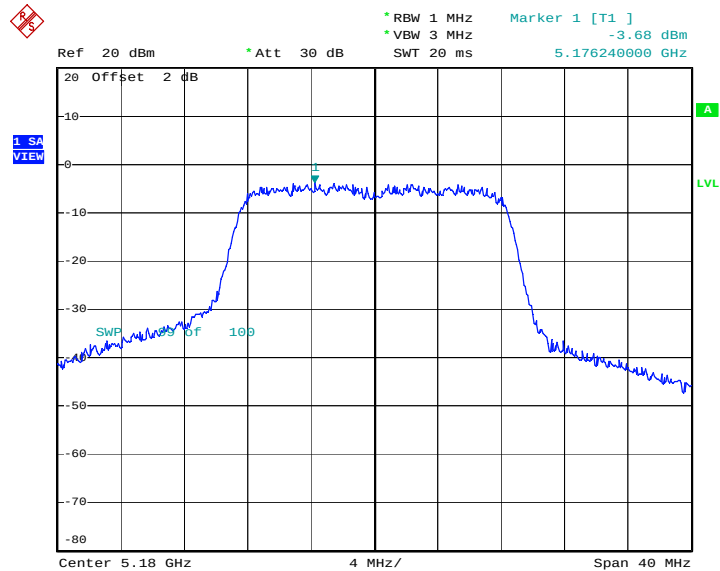
Turbo Mode

Channel	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
42	5210 MHz	-10.06	0
50	5250 MHz	-10.09	7
58	5290 MHz	-5.87	7



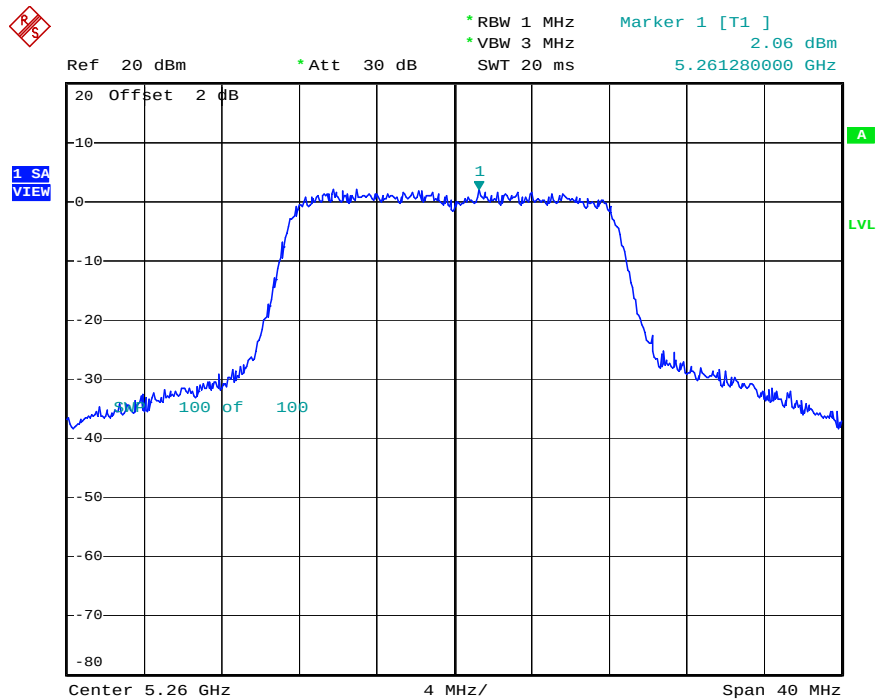
Mode 1
Normal Mode

Channel: 36 / 5180 MHz



Date: 16.APR.2005 13:34:15

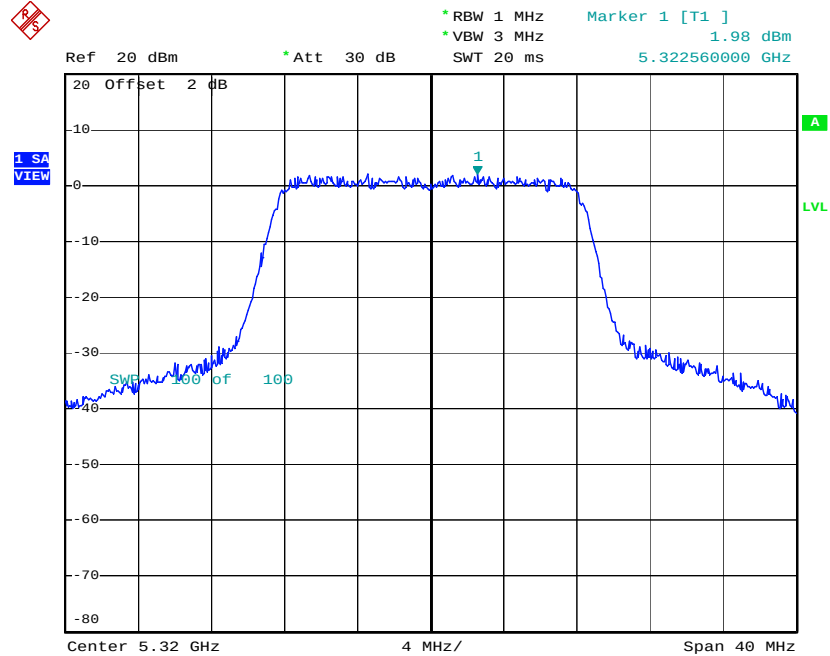
Channel: 52 / 5260 MHz



Date: 16.APR.2005 13:35:33



Channel: 64 / 5320 MHz

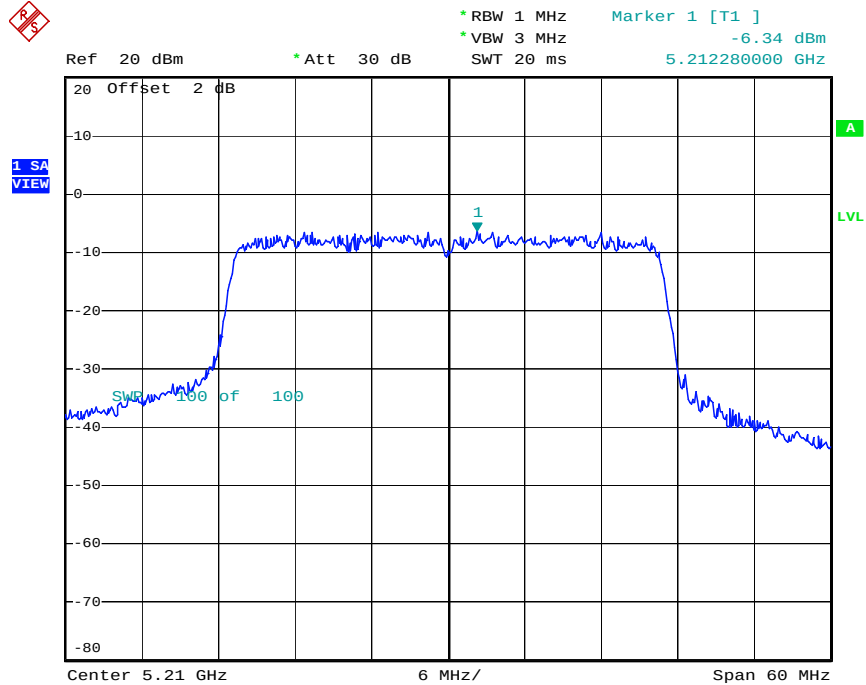


Date: 16.APR.2005 13:37:33



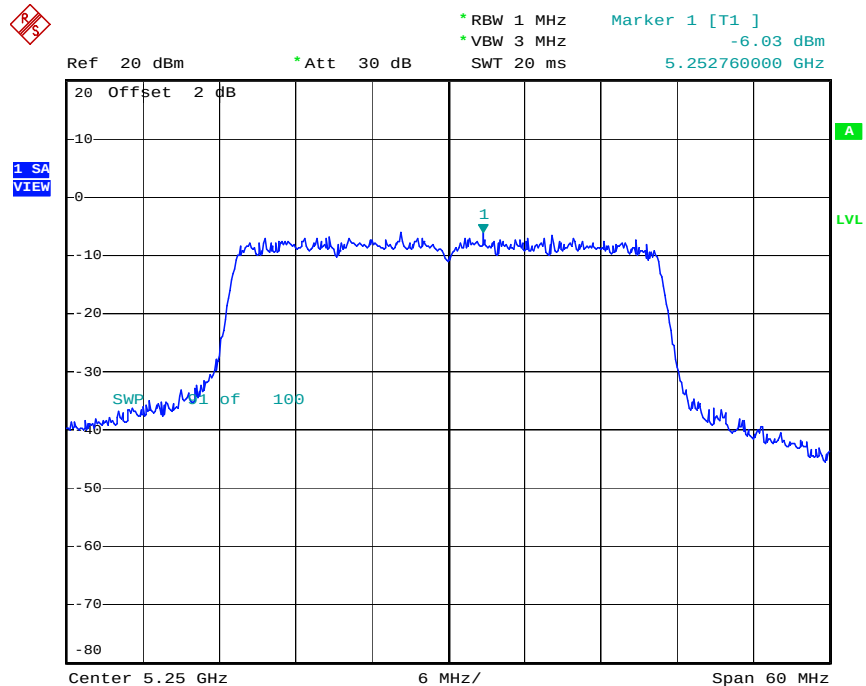
Turbo Mode

Channel: 42 / 5210 MHz



Date: 16.APR.2005 13:42:12

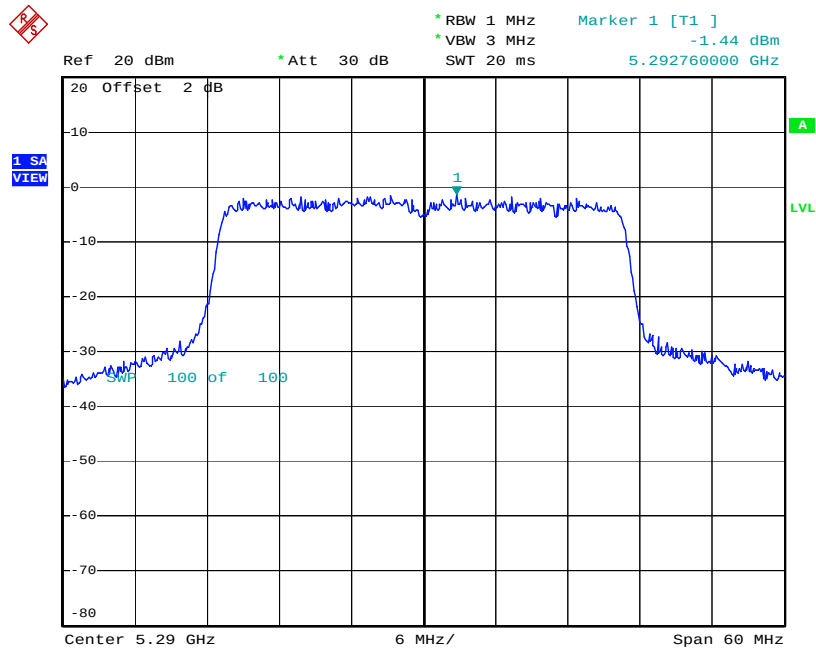
Channel: 50 / 5250 MHz



Date: 16.APR.2005 13:43:37



Channel: 58 / 5290 MHz

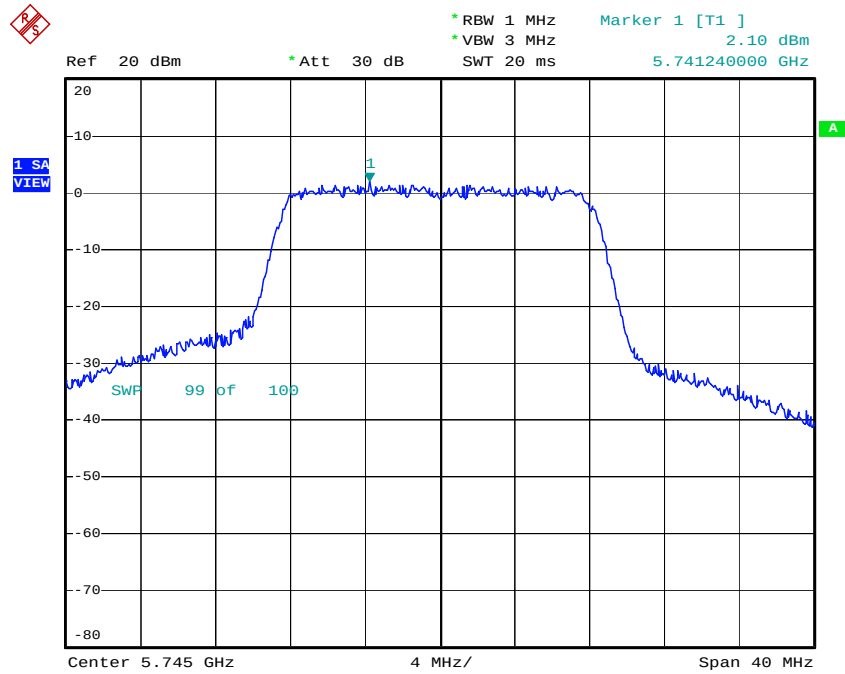


Date: 16.APR.2005 13:51:36



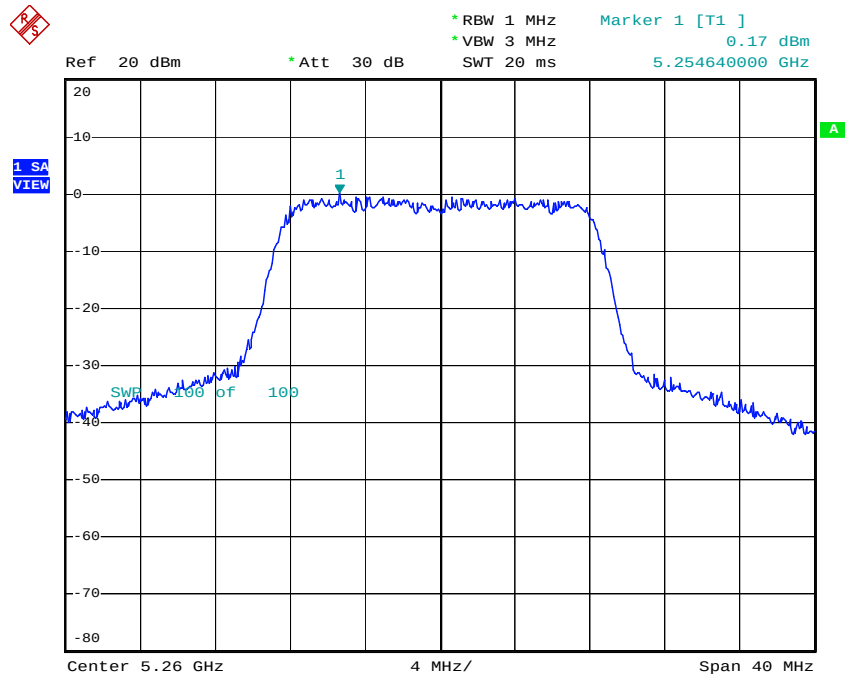
Mode 2 ~ 3
Normal Mode

Channel: 36 / 5180 MHz



Date: 16.APR.2005 16:09:49

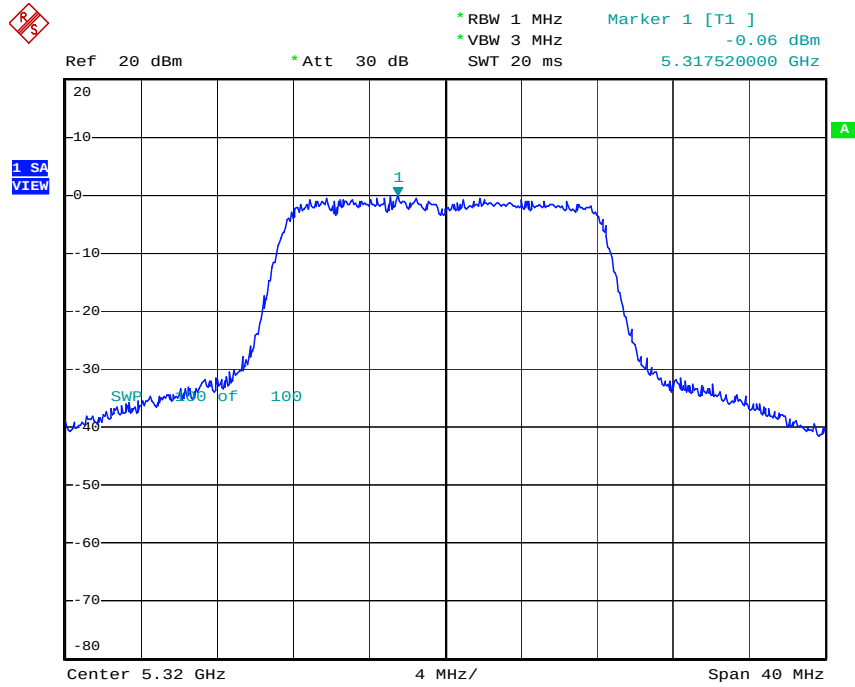
Channel: 52 / 5260 MHz



Date: 16.APR.2005 15:07:23



Channel: 64 / 5320 MHz

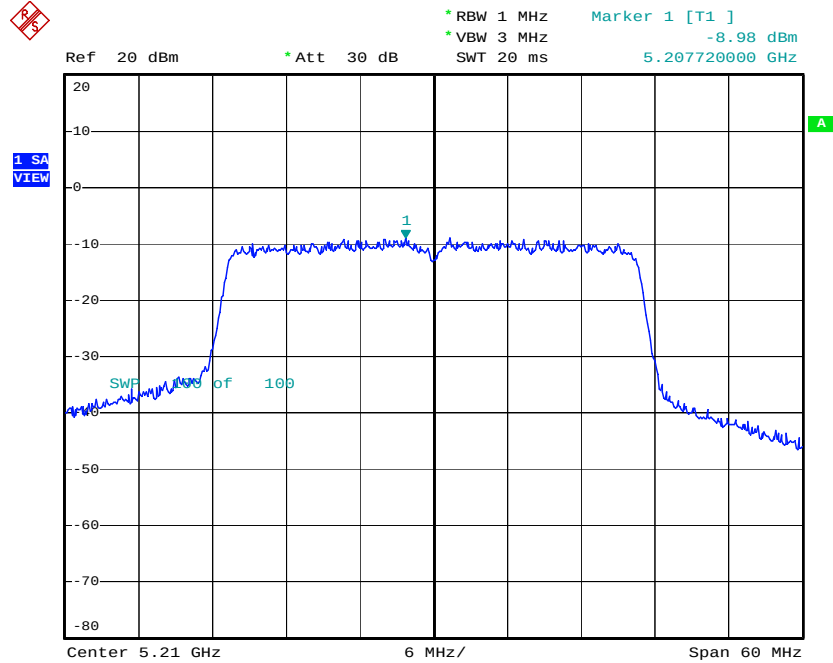


Date: 16.APR.2005 15:08:39



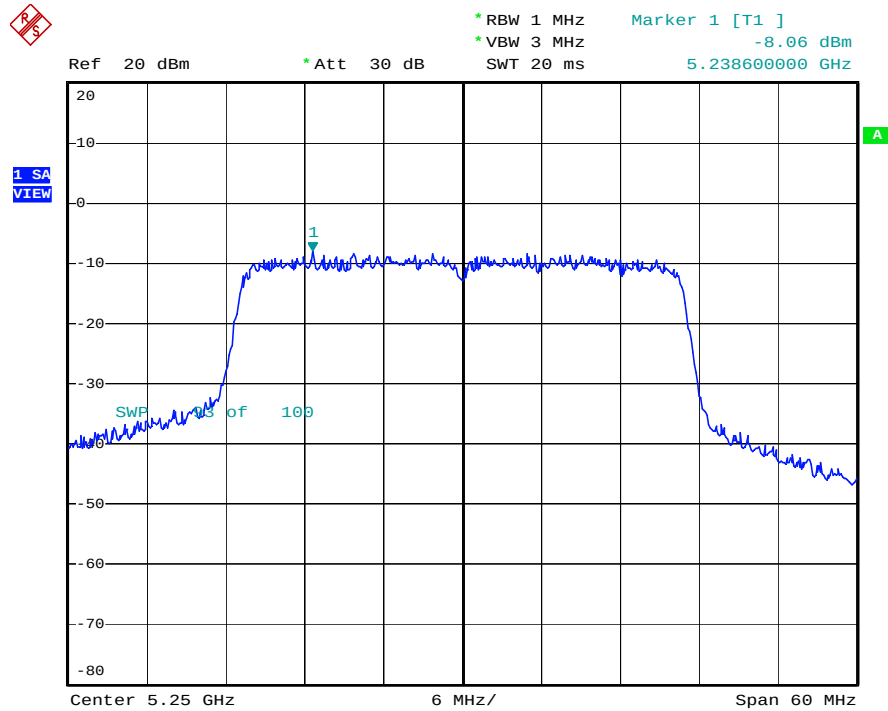
Turbo Mode

Channel: 42 / 5210 MHz



Date: 16.APR.2005 15:14:35

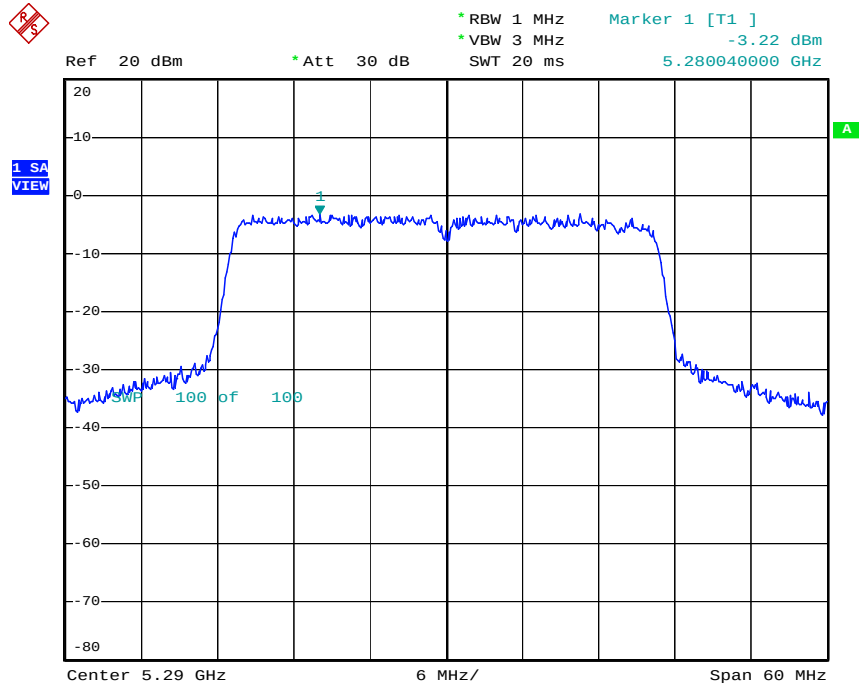
Channel: 50 / 5250 MHz



Date: 16.APR.2005 15:15:56



Channel: 58 / 5290 MHz

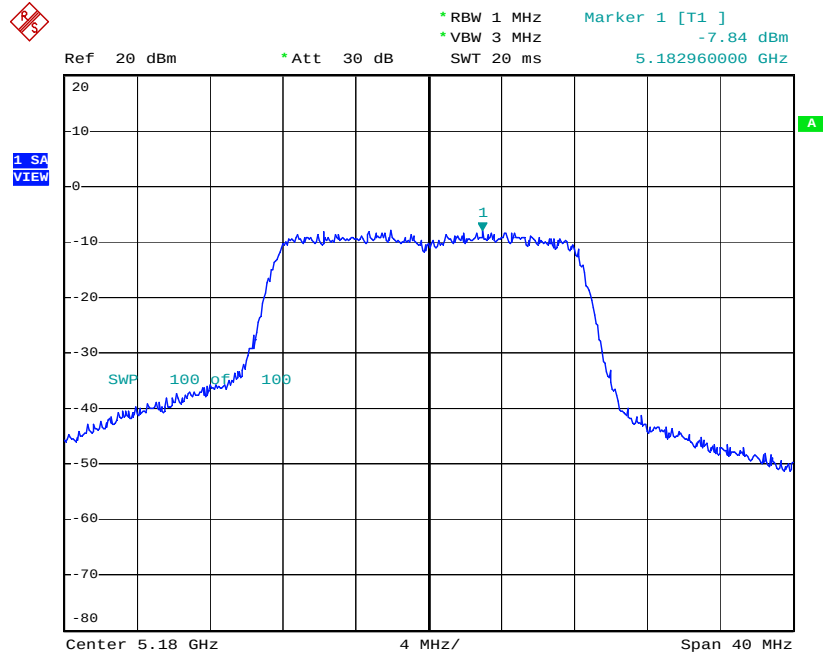


Date: 16.APR.2005 15:17:20



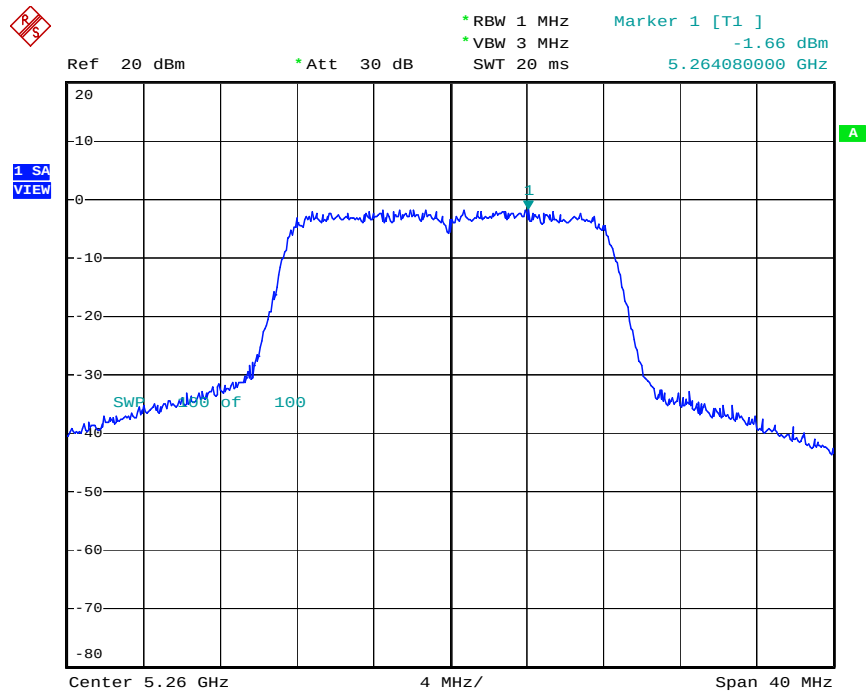
Mode 4
Normal Mode

Channel: 36 / 5180 MHz



Date: 16.APR.2005 16:53:52

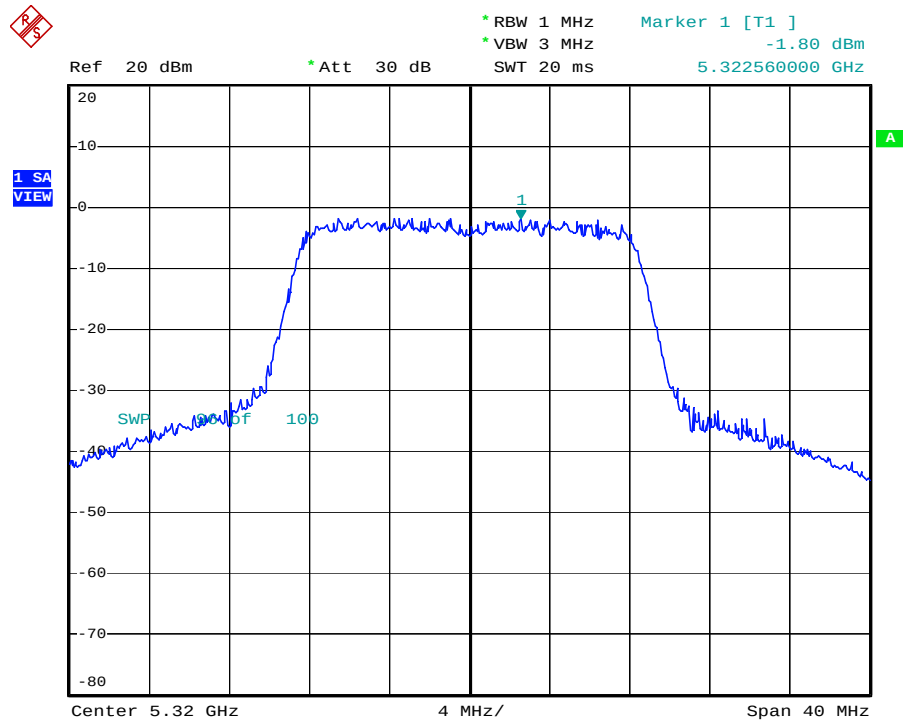
Channel: 52 / 5260 MHz



Date: 16.APR.2005 16:54:59



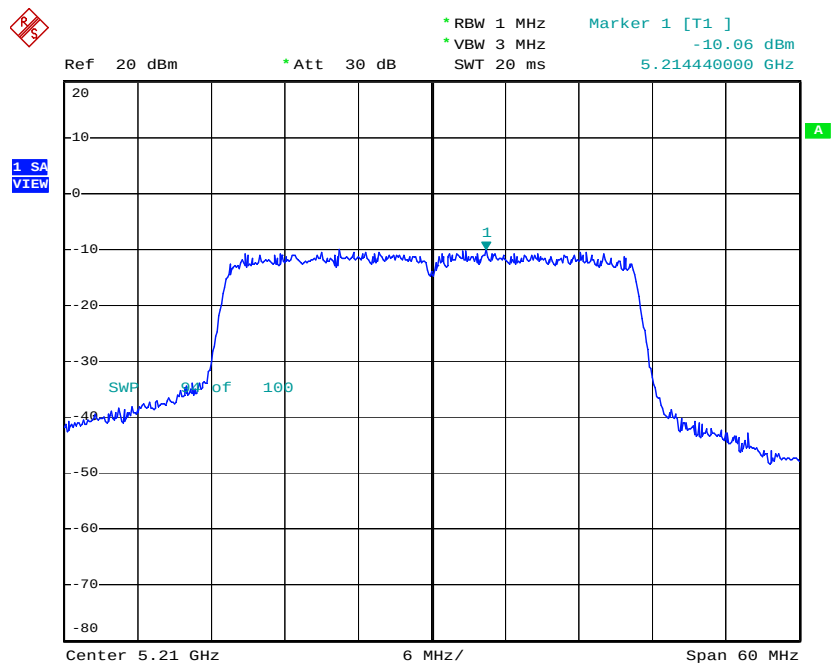
Channel: 64 / 5320 MHz



Date: 16.APR.2005 16:57:45

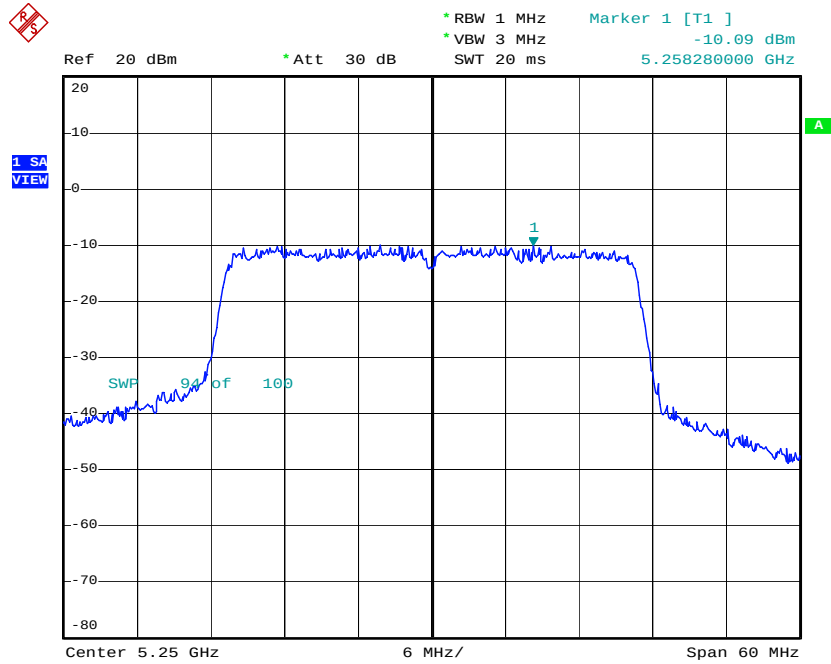
Turbo Mode

Channel: 42 / 5210 MHz



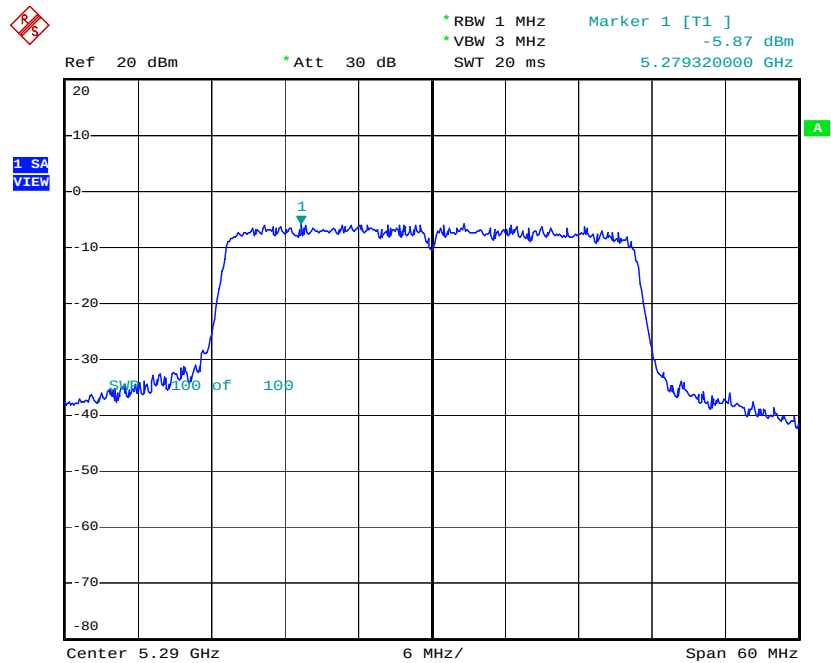
Date: 16.APR.2005 17:04:35

Channel: 50 / 5250 MHz



Date: 16.APR.2005 17:05:45

Channel: 58 / 5290 MHz



Date: 16.APR.2005 17:06:53

5.4. Ratio of the Peak Excursion

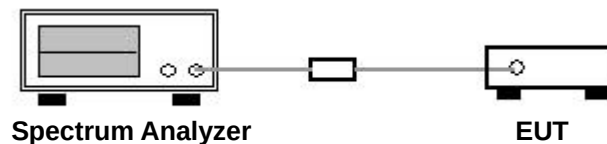
5.4.1. Measuring Instruments

Item 18 of the table on section 6.

5.4.2. Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Trace 1: Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz.
3. Use peak detector mode, Max-hold and search the peak of trace 1.
4. Trace 1: Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz.
5. Use sample detector mode, trace max-hold and search the peak of trace 2
6. The delta limits is 13dB between trace 1 and trace 2 of the peak value.

5.4.3. Test Setup Layout



5.4.4. Test Result of conducted peak power spectral density

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Mode 1

Normal Mode

Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
36	5180 MHz	5.32	13
52	5260 MHz	4.50	13
64	5320 MHz	5.31	13

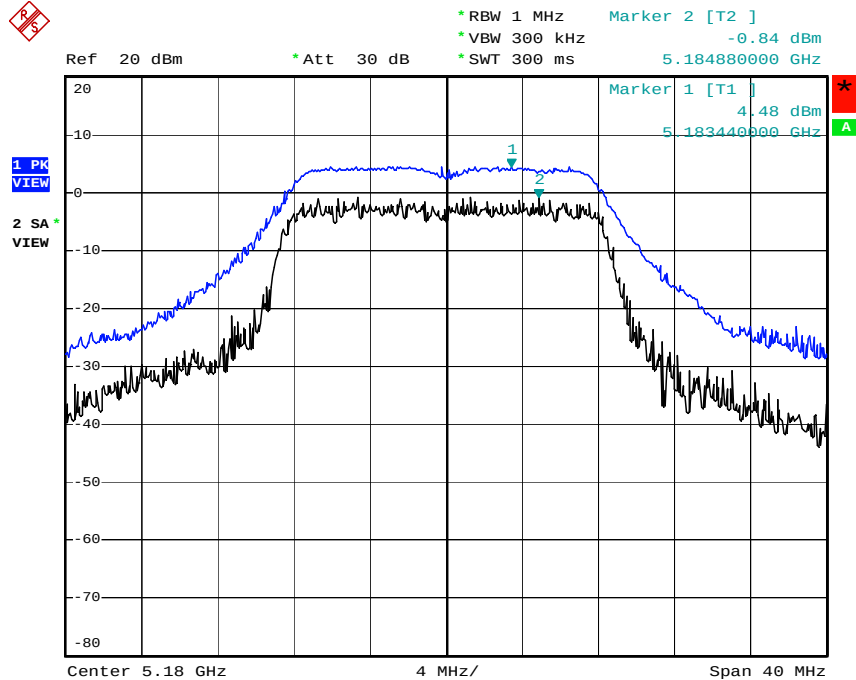
Turbo Mode

Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
42	5210 MHz	4.74	13
50	5250 MHz	4.78	13
58	5290 MHz	3.78	13



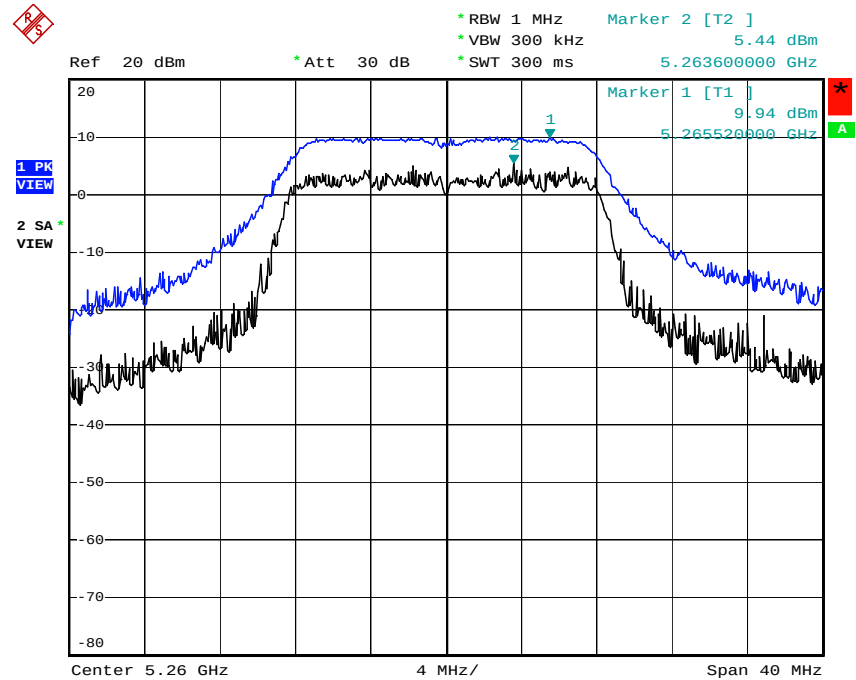
Normal Mode

Channel: 36 / 5180 MHz



Date: 16.APR.2005 13:34:46

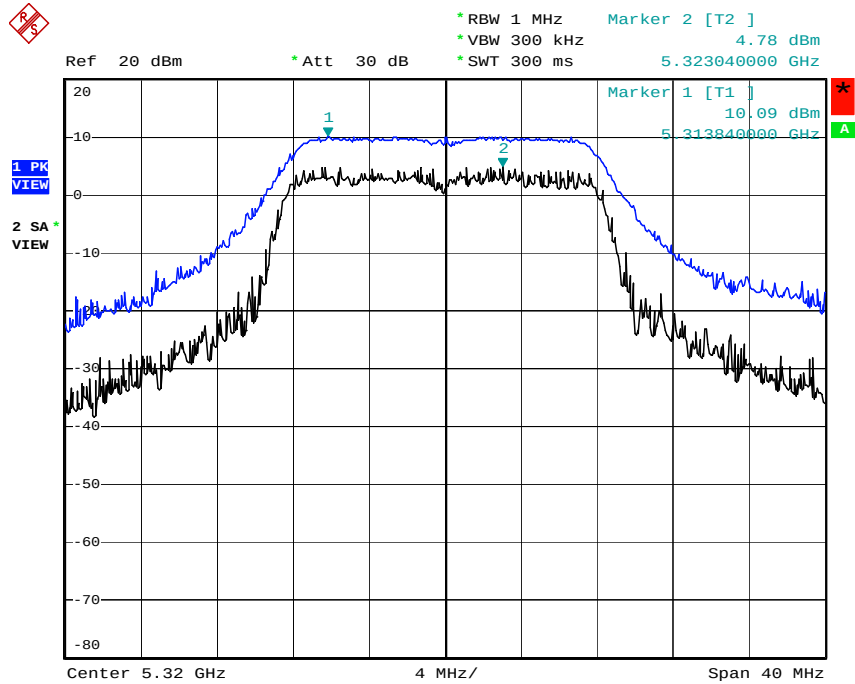
Channel: 52 / 5260 MHz



Date: 16.APR.2005 13:36:04



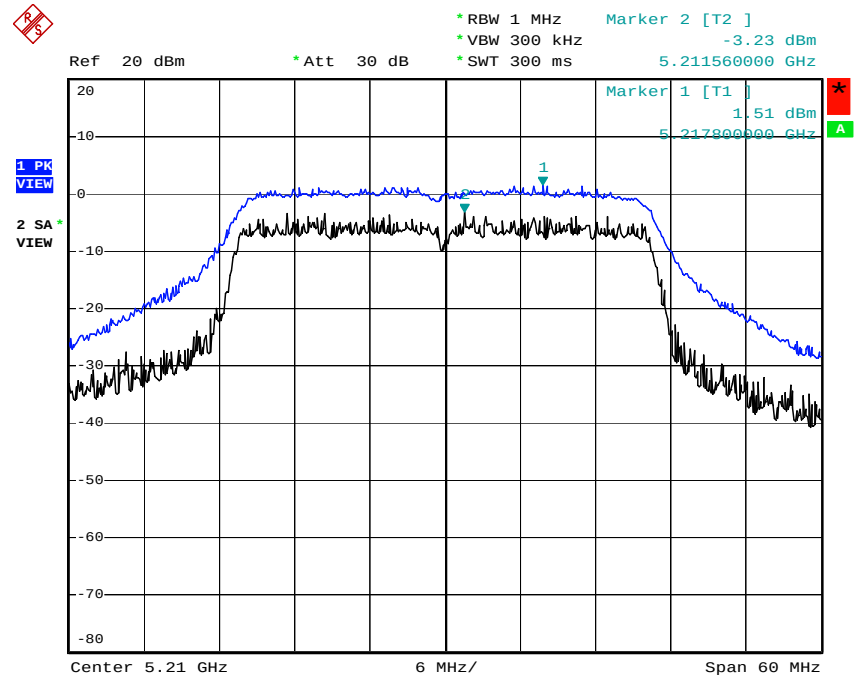
Channel: 64 / 5320 MHz



Date: 16.APR.2005 13:38:04

Turbo Mode

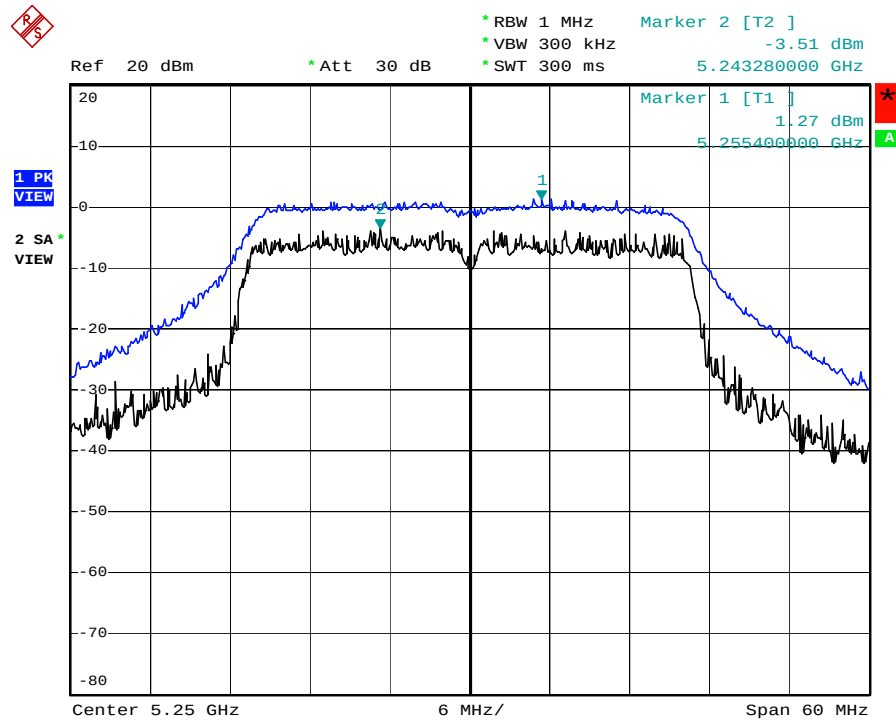
Channel: 42 / 5210 MHz



Date: 16.APR.2005 13:42:43

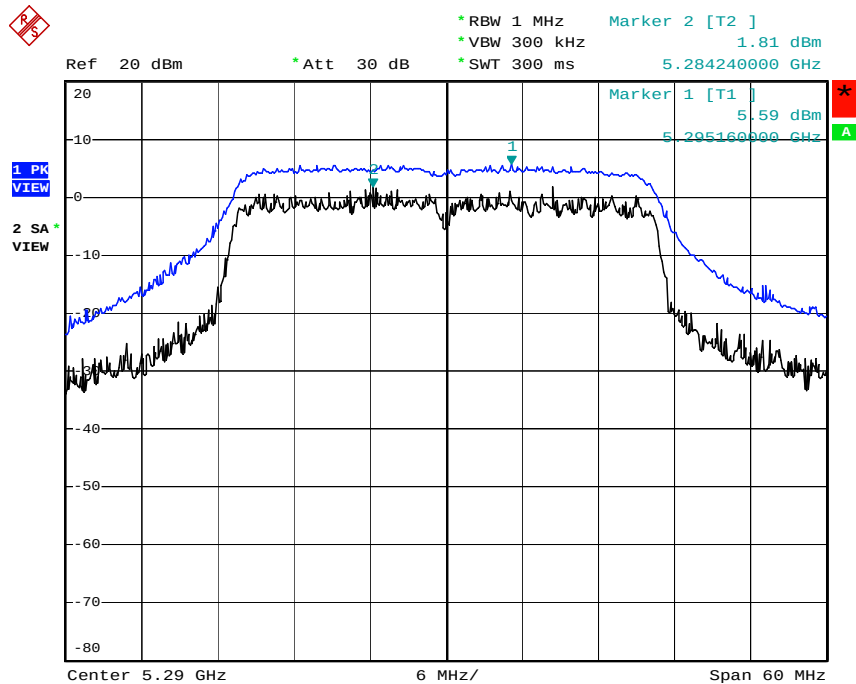


Channel: 50 / 5250 MHz



Date: 16.APR.2005 13:44:09

Channel: 58 / 5290 MHz



Date: 16.APR.2005 13:52:08



Mode 2 ~ 3

Normal Mode

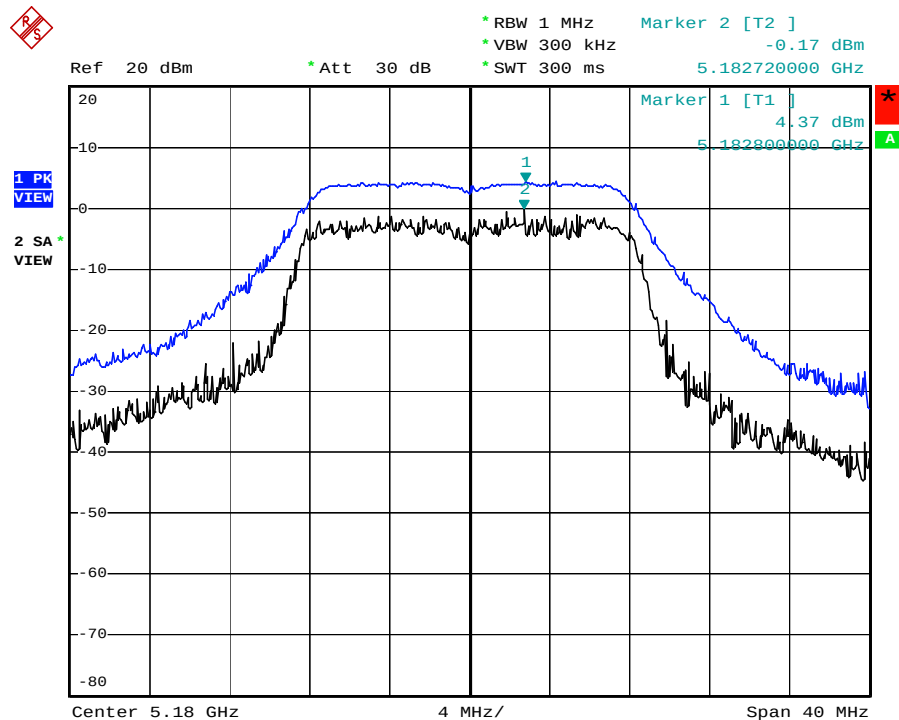
Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
36	5180 MHz	4.54	13
52	5260 MHz	5.09	13
64	5320 MHz	5.62	13

Turbo Mode

Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
42	5210 MHz	4.95	13
50	5250 MHz	4.70	13
58	5290 MHz	4.76	13

Normal Mode

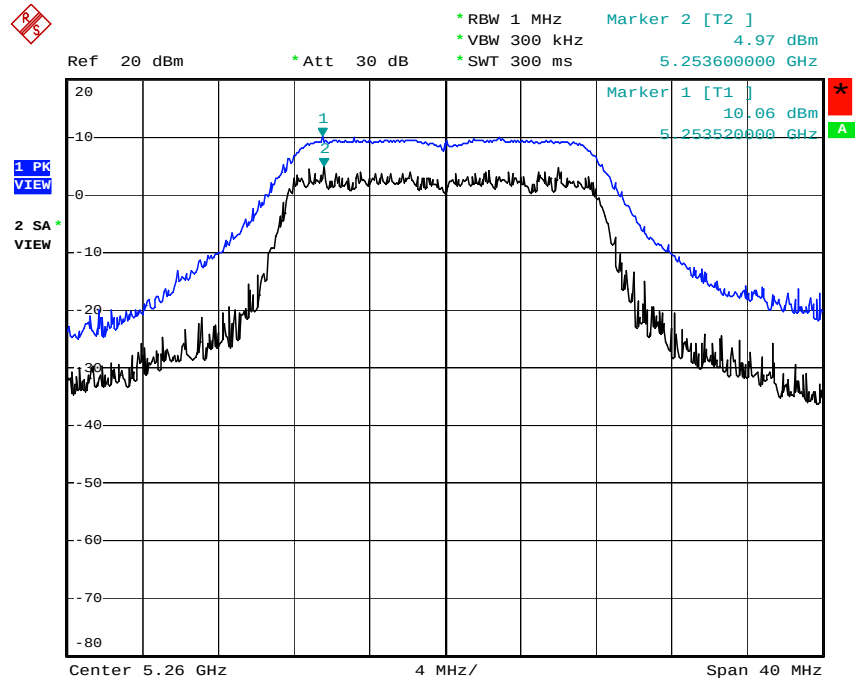
Channel: 36 / 5180 MHz



Date: 16.APR.2005 15:06:17

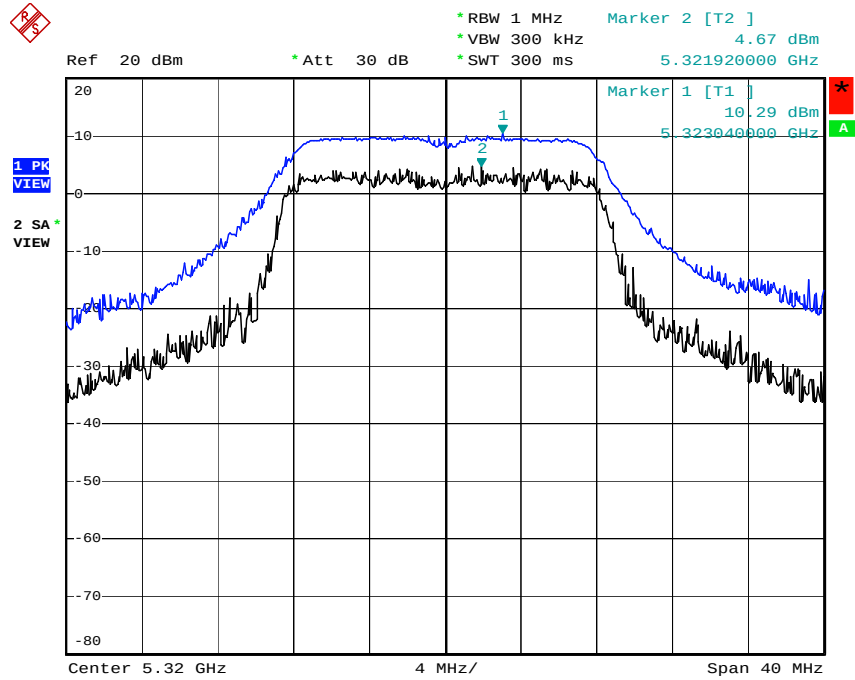


Channel: 52 / 5260 MHz



Date: 16.APR.2005 15:07:54

Channel: 64 / 5320 MHz

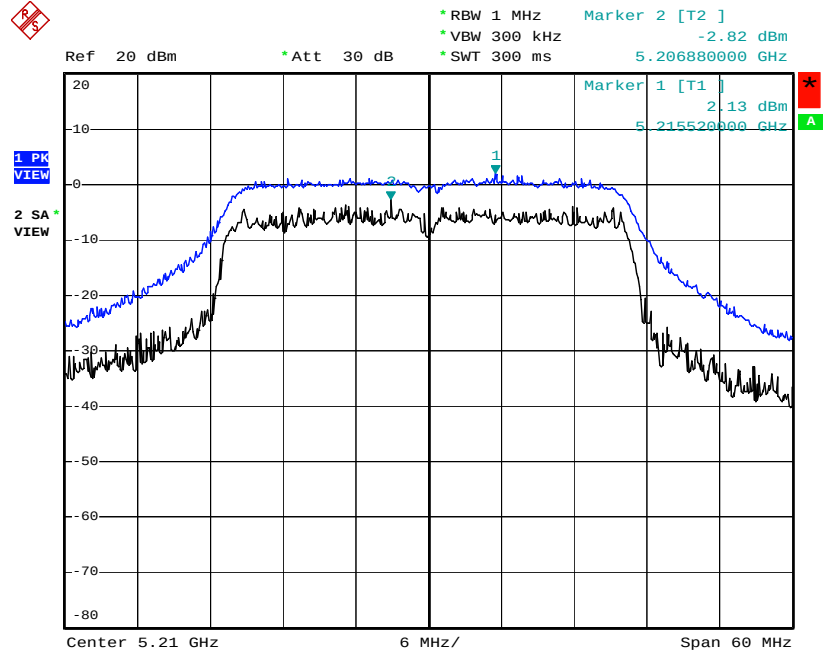


Date: 16.APR.2005 15:09:11



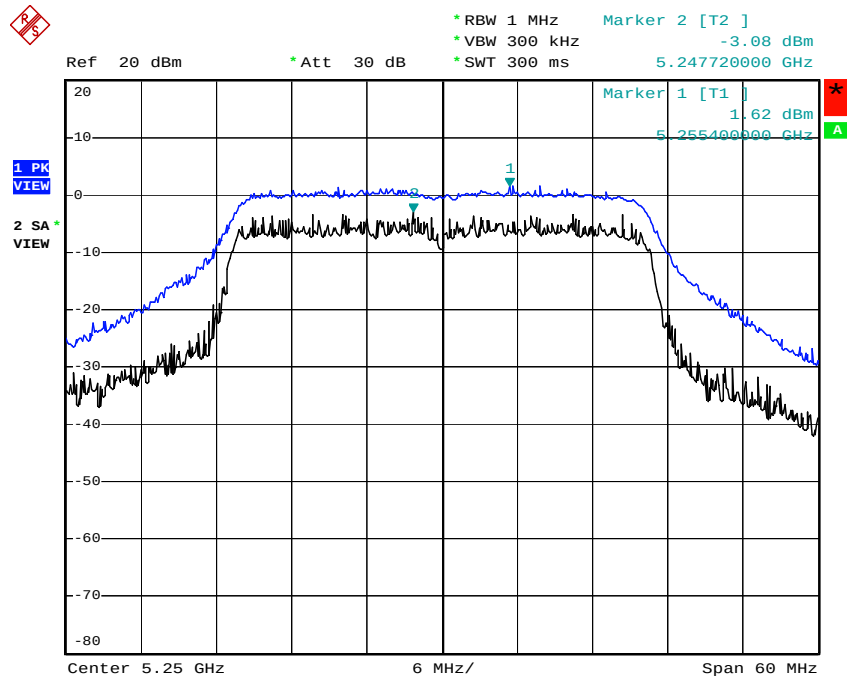
Turbo Mode

Channel: 42 / 5210 MHz



Date: 16.APR.2005 15:15:06

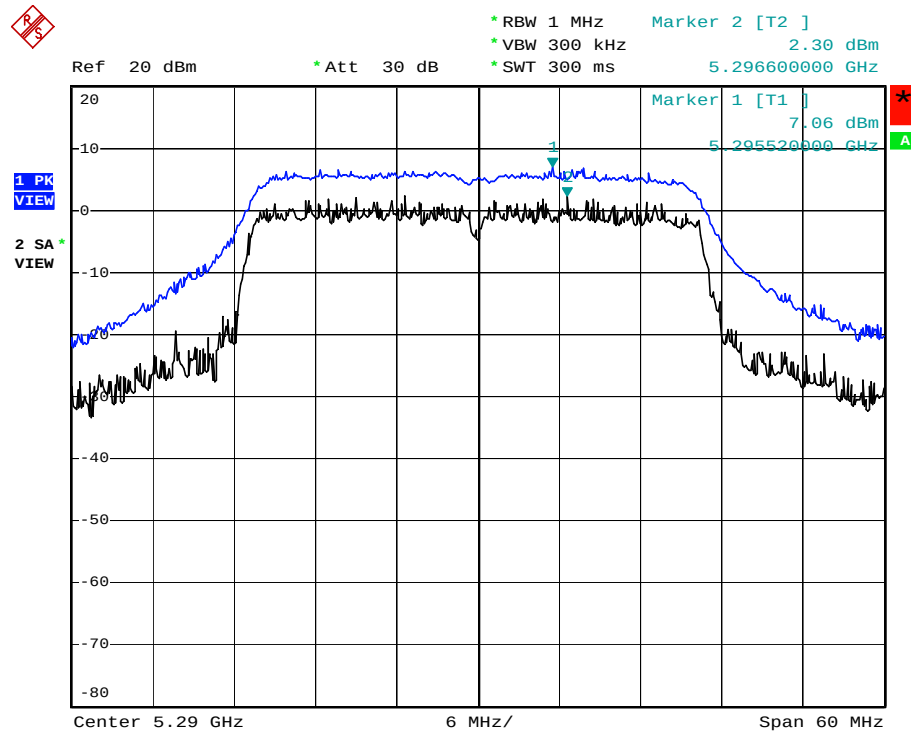
Channel: 50 / 5250 MHz



Date: 16.APR.2005 15:16:27



Channel: 58 / 5290 MHz



Date: 16.APR.2005 15:17:52



Mode 4

Normal Mode

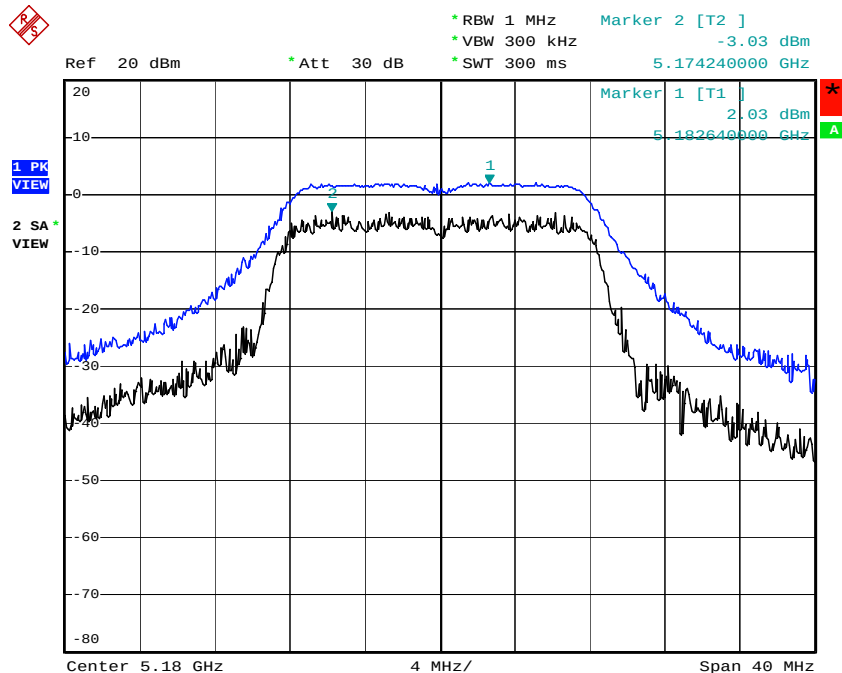
Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
36	5180 MHz	5.06	13
52	5260 MHz	4.80	13
64	5320 MHz	5.42	13

Turbo Mode

Channel	Frequency (MHz)	Peak Excursion (dB)	Max. Limits (dB)
42	5210 MHz	4.35	13
50	5250 MHz	4.81	13
58	5290 MHz	4.83	13

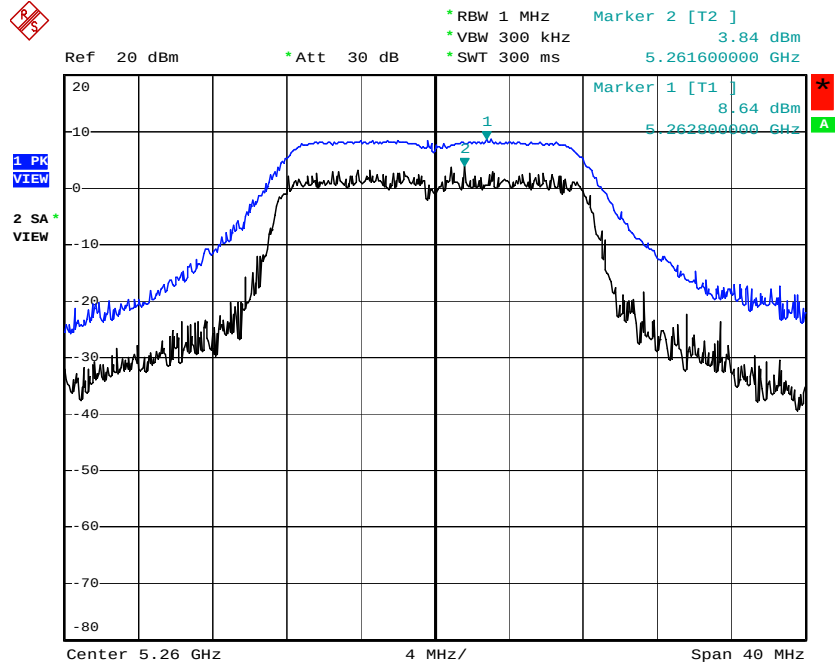
Normal Mode

Channel: 36 / 5180 MHz



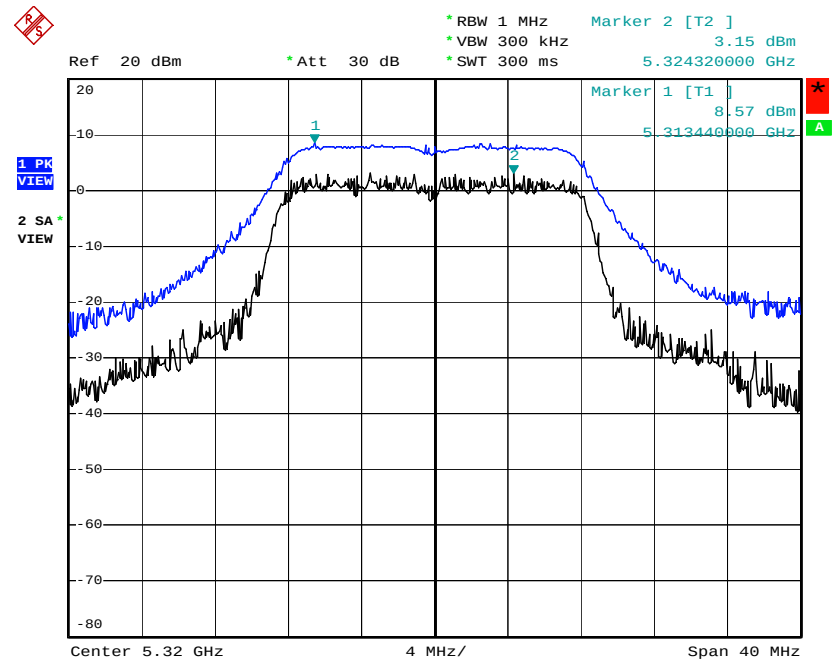
Date: 16.APR.2005 16:54:23

Channel: 52 / 5260 MHz



Date: 16.APR.2005 16:55:31

Channel: 64 / 5320 MHz

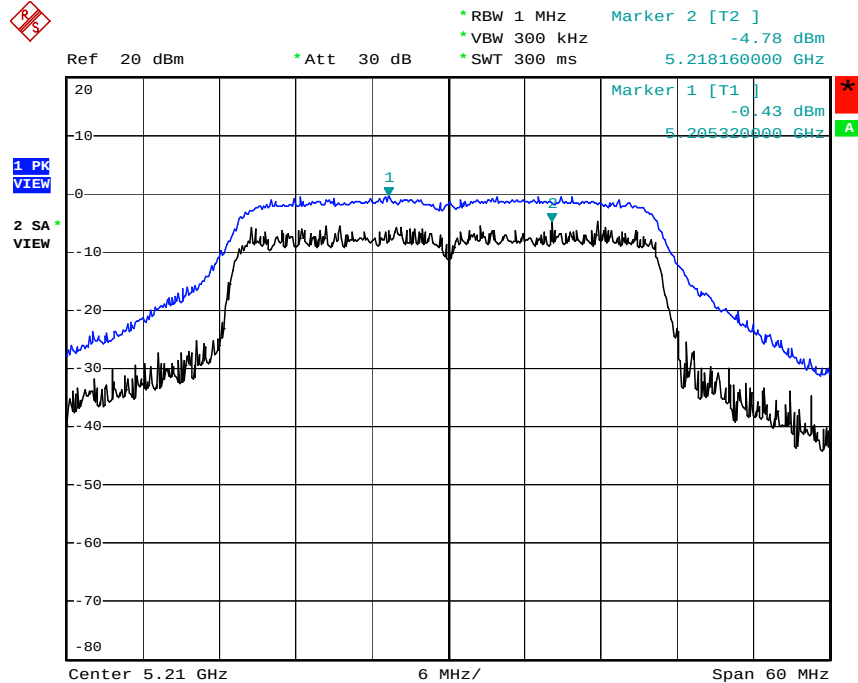


Date: 16.APR.2005 16:58:17



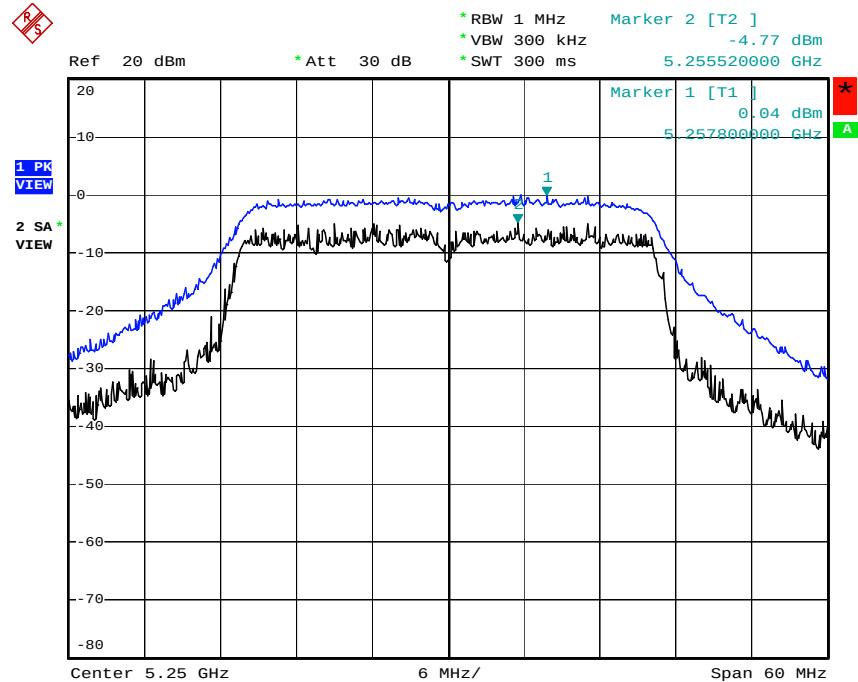
Turbo Mode

Channel: 42 / 5210 MHz



Date: 16.APR.2005 17:05:06

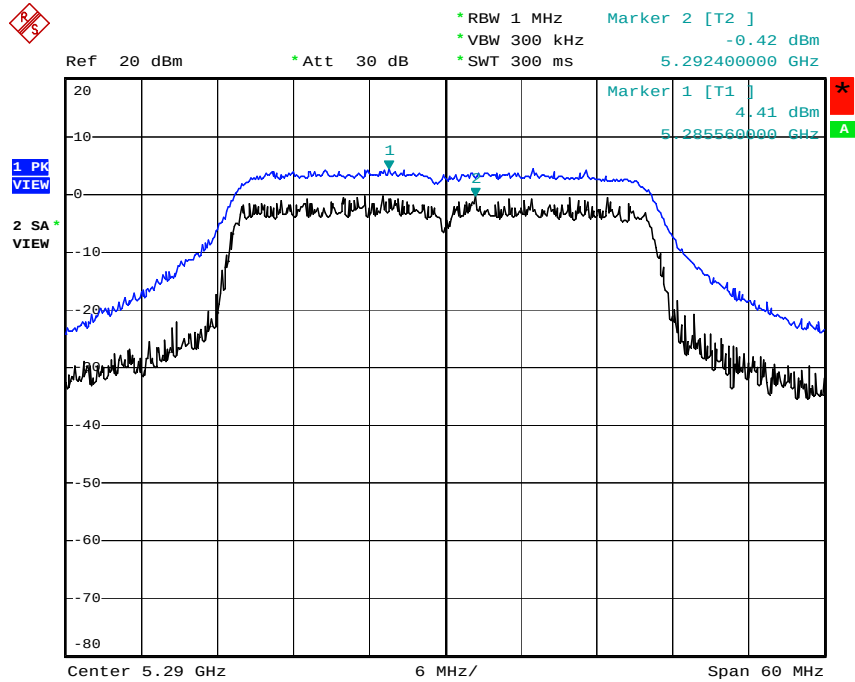
Channel: 50 / 5250 MHz



Date: 16.APR.2005 17:06:16



Channel: 58 / 5290 MHz



Date: 16.APR.2005 17:07:24

5.5. Test of Band Edges Emission

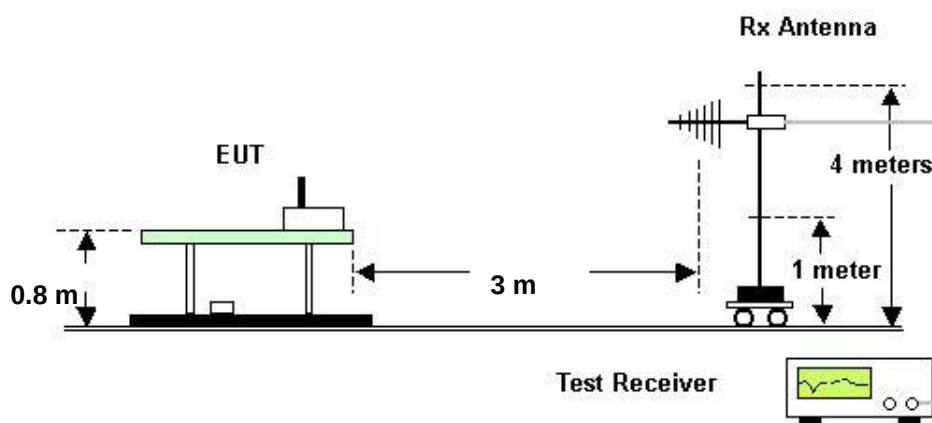
5.5.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.5.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. The transmitter is set to the lowest channel of each band.
5. The turntable was rotated 360 degrees to determine the position of the highest radiation.
6. Set both RBW and VBW of spectrum analyzer to 1MHz with convenient frequency span including 1MHz bandwidth from lower band edge.
7. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization. Record the maximum value of band-edge.
8. Remove the transmitter and replace it with a broadband substitution antenna.
9. With the substitution antennas at maximum polarized and with the signal generator tuned to a particular fundamental frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading (item 6). This should be done carefully repeating the adjustment of the test antenna and generator output.
10. $P_d(\text{dBm}) = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dBi)}$. P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.
11. The lowest and highest channels of band edges of each band emission was measured and recorded.

5.5.3. Test Setup Layout





5.5.4. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Normal Mode

Ant. No.	Gain (dBi)	Freq. Band (MHz)	Freq. (MHz)	Level* (dBm/MHz)	Margin (dB)	Limit (dBm/MHz)
1	4.00	5150~5250	5127.9458	-30.6	-3.60	-27
1	4.00	5250~5350	5363.3026	-29.47	-2.47	-27
2	8.00	5150~5250	5148.4368	-30.95	-3.60	-27
2	8.00	5250~5350	5352.4869	-29.91	-2.47	-27
3	8.00	5150~5250	5148.4368	-30.95	-3.60	-27
3	8.00	5250~5350	5352.4869	-29.91	-2.47	-27
4	10.00	5150~5250	5107.7555	-29.15	-3.60	-27
4	10.00	5250~5350	5361.4649	-29.98	-2.47	-27

Level*: The max EIRP emission in the band-edge.

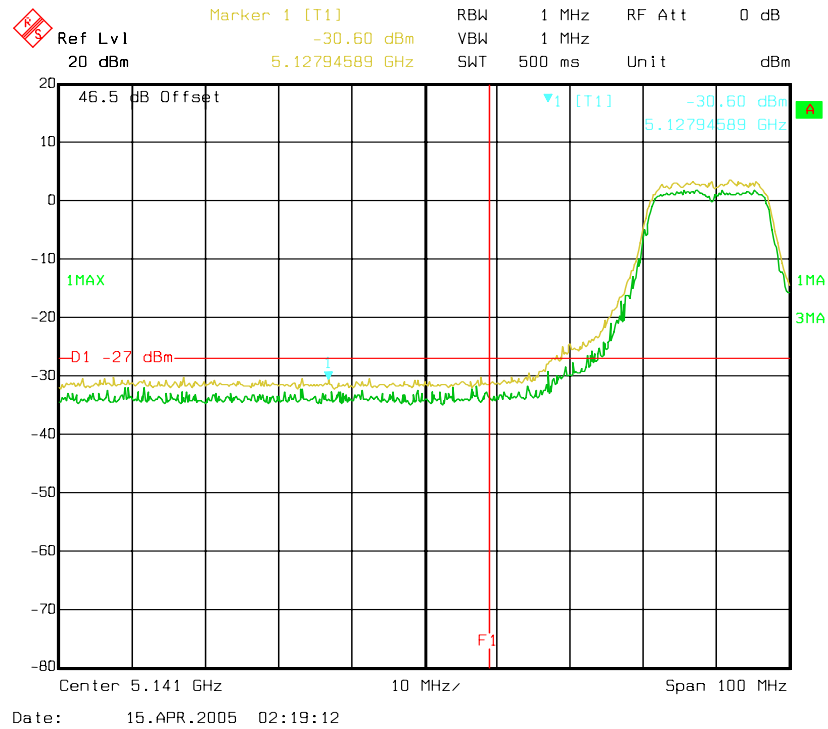


Turbo Mode

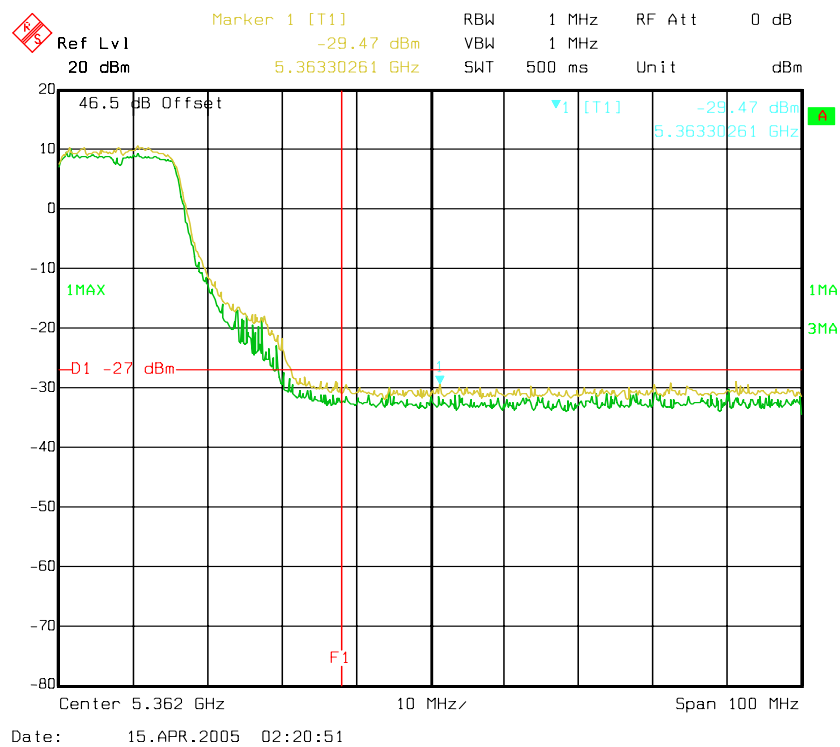
Ant. No.	Gain (dBi)	Freq. Band (MHz)	Freq. (MHz)	Level* (dBm/MHz)	Margin (dB)	Limit (dBm/MHz)
1	4.00	5150~5250	5140.6212	-30.49	-3.49	-27
1	4.00	5250~5350	5392.6412	-29.42	-2.42	-27
2	8.00	5150~5250	5132.0120	-31.24	-3.49	-27
2	8.00	5250~5350	5362.1583	-30.24	-2.42	-27
3	8.00	5150~5250	5132.0120	-31.24	-3.49	-27
3	8.00	5250~5350	5362.1583	-30.24	-2.42	-27
4	10.00	5150~5250	5122.2244	-30.99	-3.49	-27
4	10.00	5250~5350	5365.6513	-29.49	-2.42	-27

Normal Mode (Mode 1)

Channel: 36 / 5180 MHz

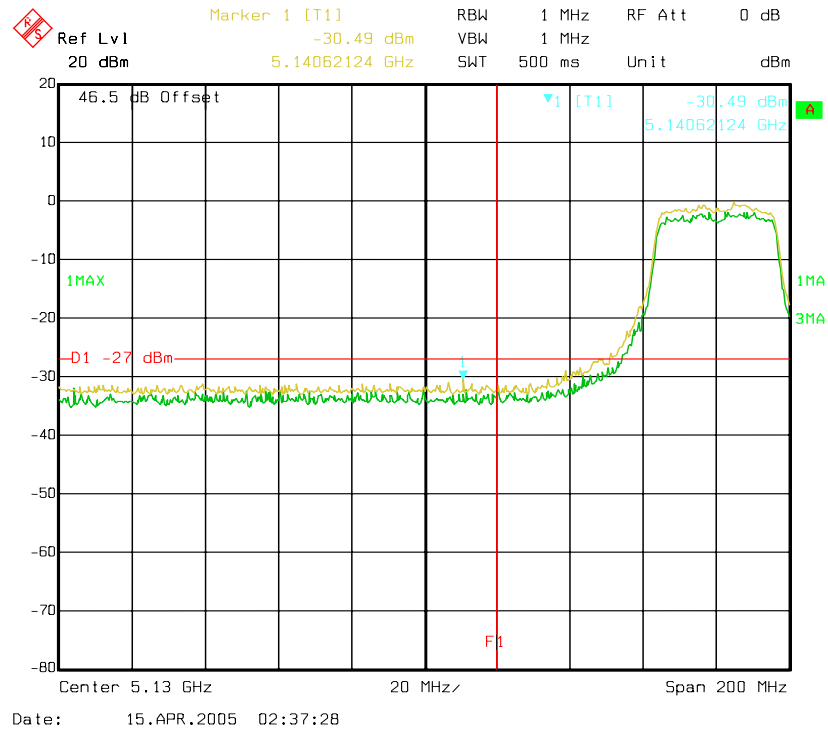


Channel: 64 / 5320 MHz

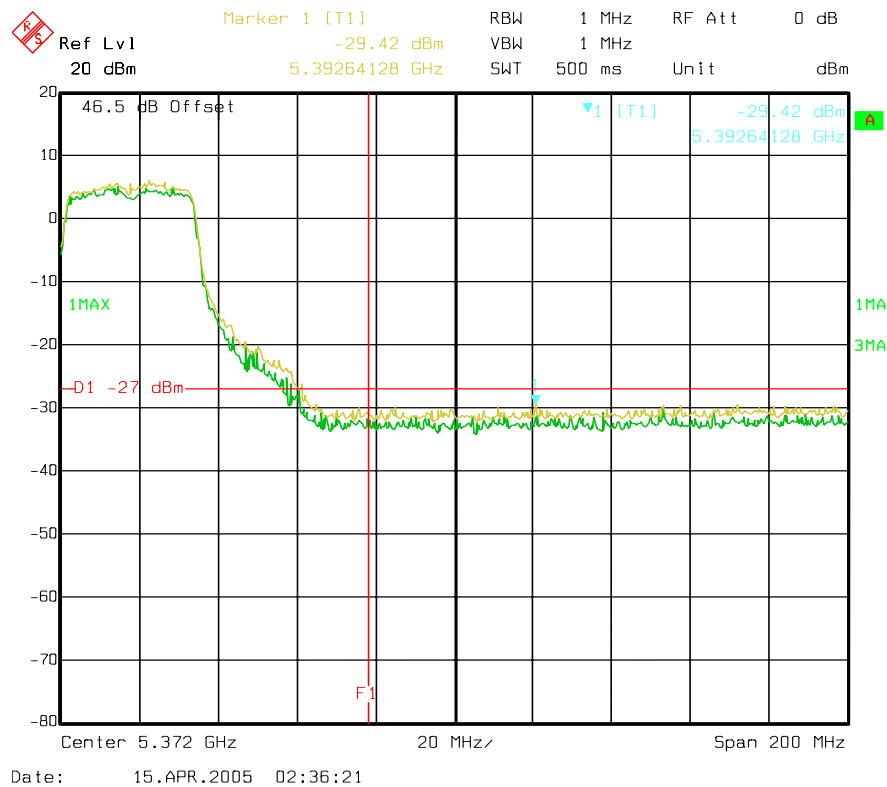


Turbo Mode (Mode 1)

Channel: 42 / 5210 MHz



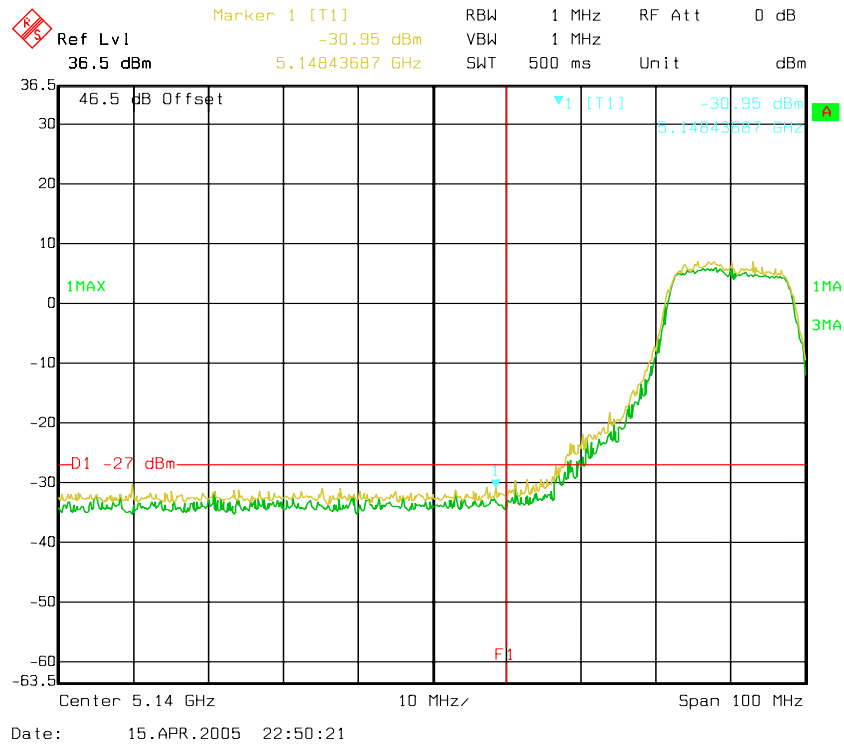
Channel: 58 / 5290 MHz



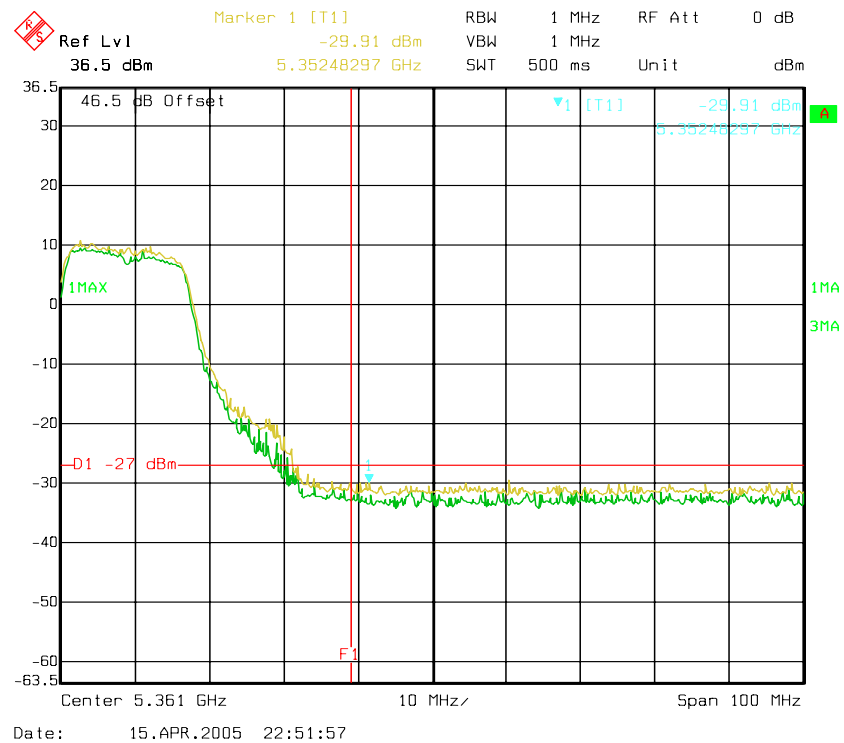


Normal Mode (Mode 2 ~ 3)

Channel: 36 / 5180 MHz

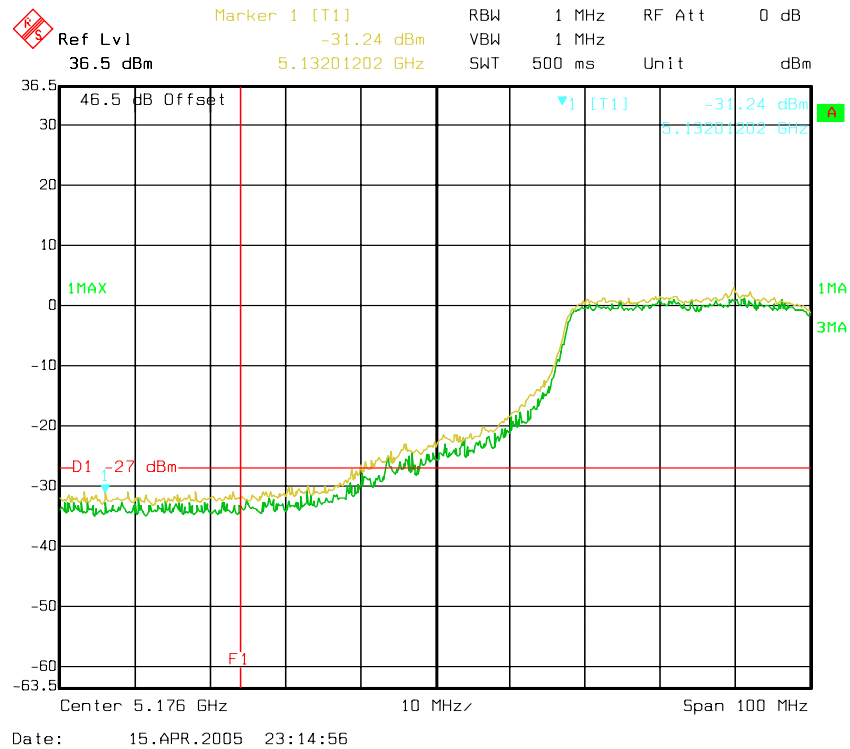


Channel: 64 / 5320 MHz

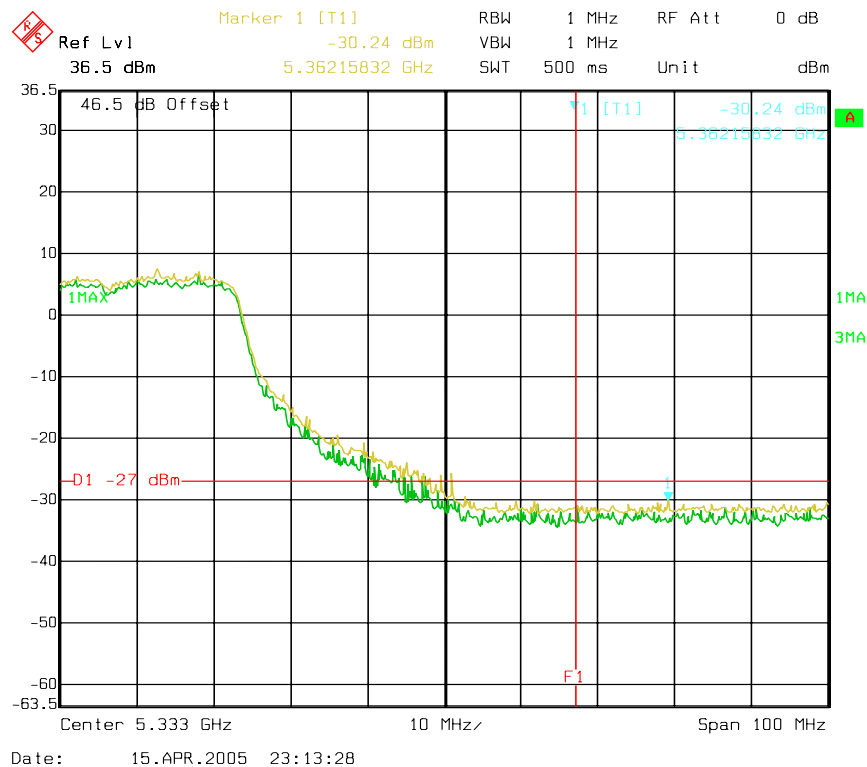


Turbo Mode (Mode 2 ~ 3)

Channel: 42 / 5210 MHz

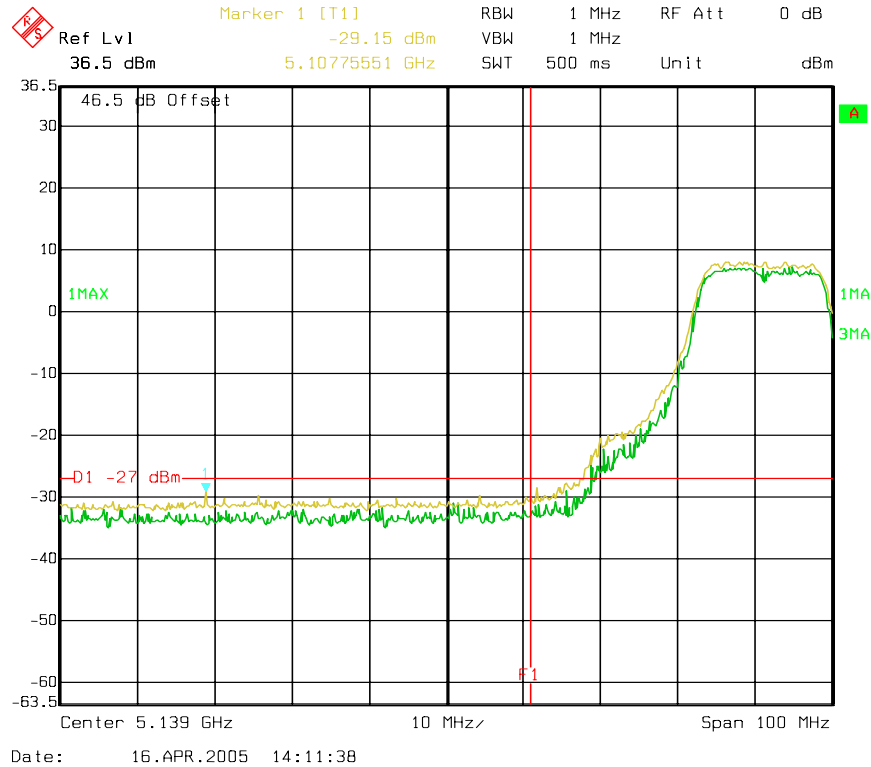


Channel: 58 / 5290 MHz

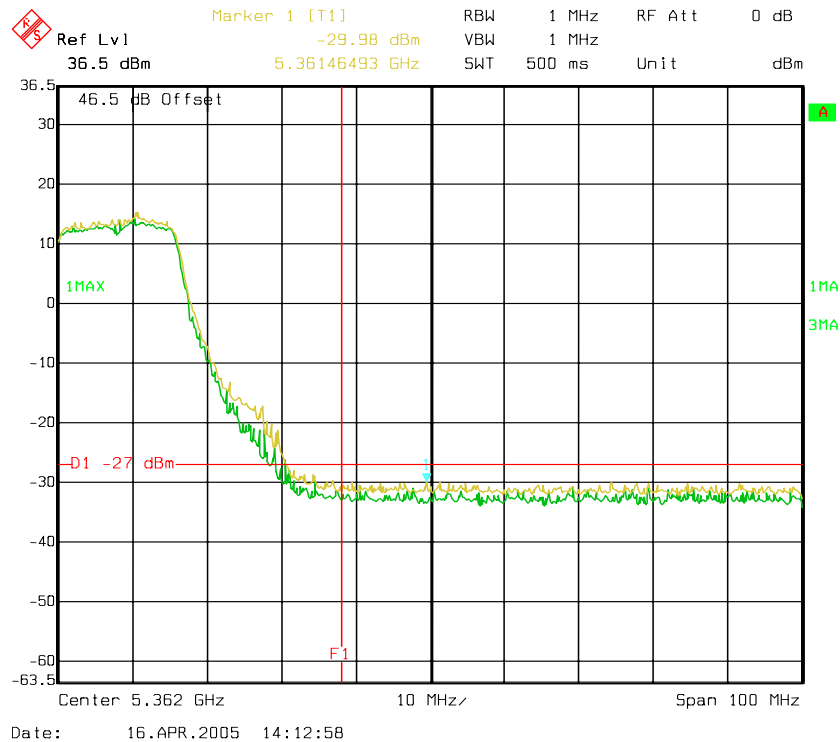


Normal Mode (Mode 4)

Channel: 36 / 5180 MHz



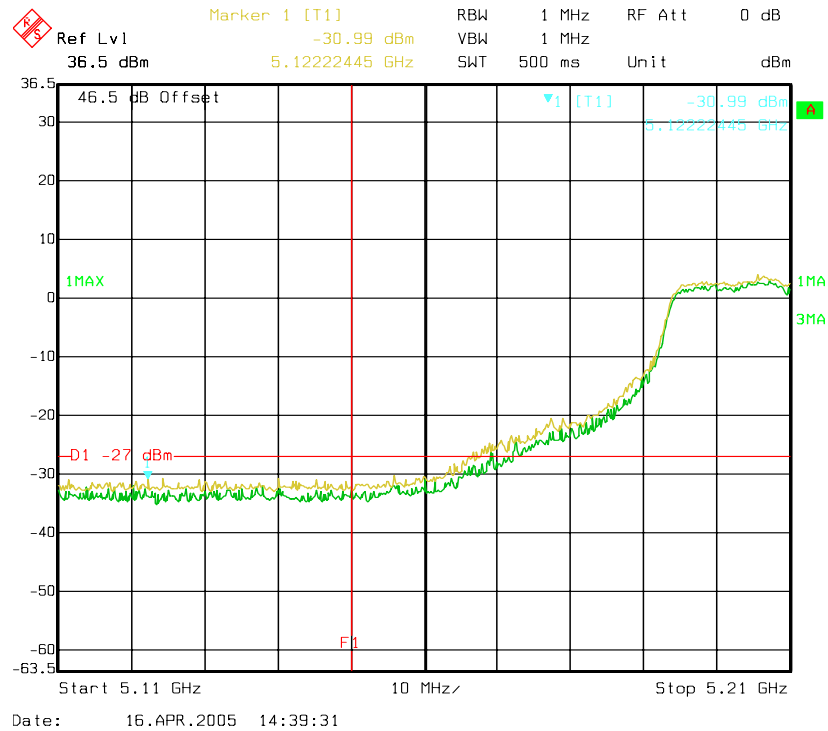
Channel: 64 / 5320 MHz



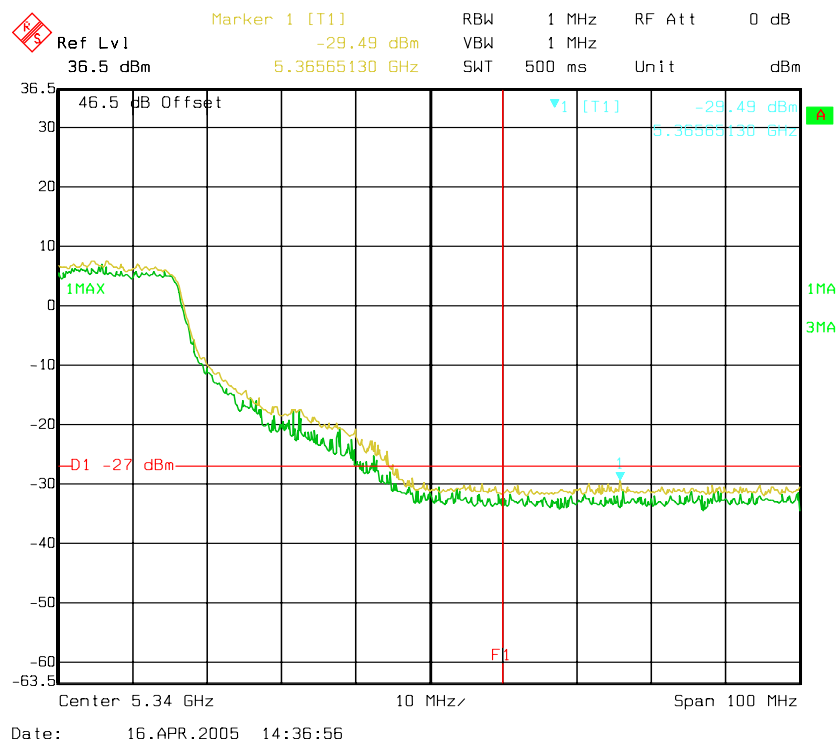


Turbo Mode (Mode 4)

Channel: 42 / 5210 MHz



Channel: 58 / 5290 MHz



5.6. Test of Frequency Stability

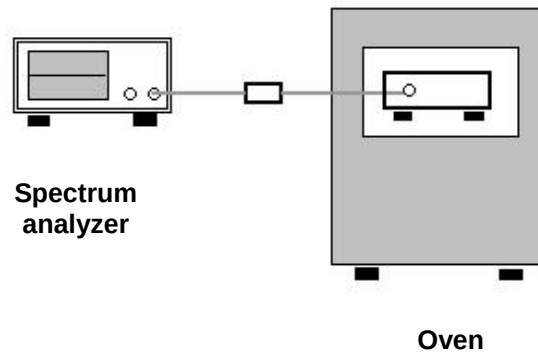
5.6.1. Measuring Instruments

Item 18 of the table on section 6.

5.6.2. Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 10kHz and VBW to 10kHz.
3. Use mark counter function to counter the peak un-modulated carrier frequency.
4. The test extreme voltage range, according to 2.1055(d)(1), is 85 to 115 percent of the nominal value.
5. Extreme temperature range is, according to 2.1055(a)(1), -30°C~50°C.

5.6.3. Test Setup Layout



5.6.4. Test Result

- Modulation Type: Un-Modulated Carrier
- Temperature: 25°C
- Relative Humidity: 62 %
- Duty cycle of the equipment during the test: 100%

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5260.0000
126.50	5260.0130
110.00	5260.0130
93.50	5260.0025
Max. Deviation (MHz)	0.0130
Max. Deviation (ppm)	2.47



Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	
	5260.0000
-30	5260.0130
-20	5260.0080
-10	5260.0301
0	5260.0288
10	5260.0193
20	5260.008
30	5259.9945
40	5259.9879
50	5259.9906
Max. Deviation (MHz)	0.0301
Max. Deviation (ppm)	5.72

30	5259.9945
40	5259.9879
50	5259.9906
Max. Deviation (MHz)	0.0301
Max. Deviation (ppm)	5.72

5.7. Test of AC Power Line Conducted Emission

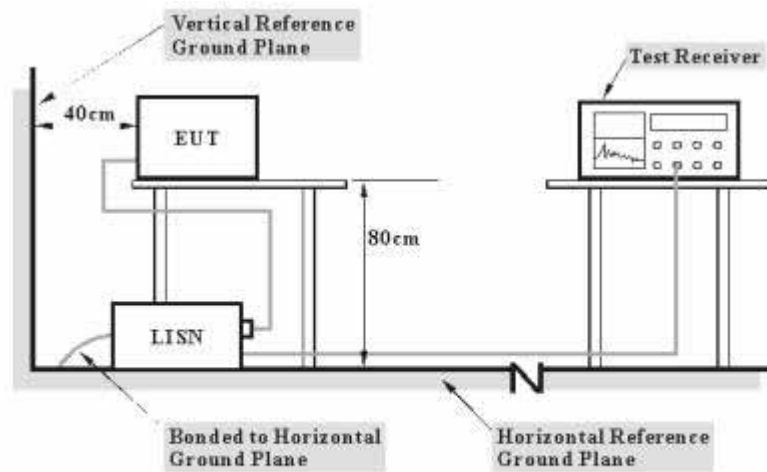
5.7.1. Measuring Instruments

Please reference item 1~5 in chapter 6 for the instruments used for testing.

5.7.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN)
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Use the Channel & Power Controlling software to make the EUT working on selected channel and expected output power, then use the "H" Patter Generator software to make the supporting equipments stay on working condition.
7. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. The measurement has to be done between each power line and ground at the power terminal for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

5.7.3. Test Setup Layout



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

5.7.4. Test Result of Conducted Emission

- Temperature: 26°C
- Relative Humidity: 64%
- Test Engineer: Sky Wu

Line to Ground

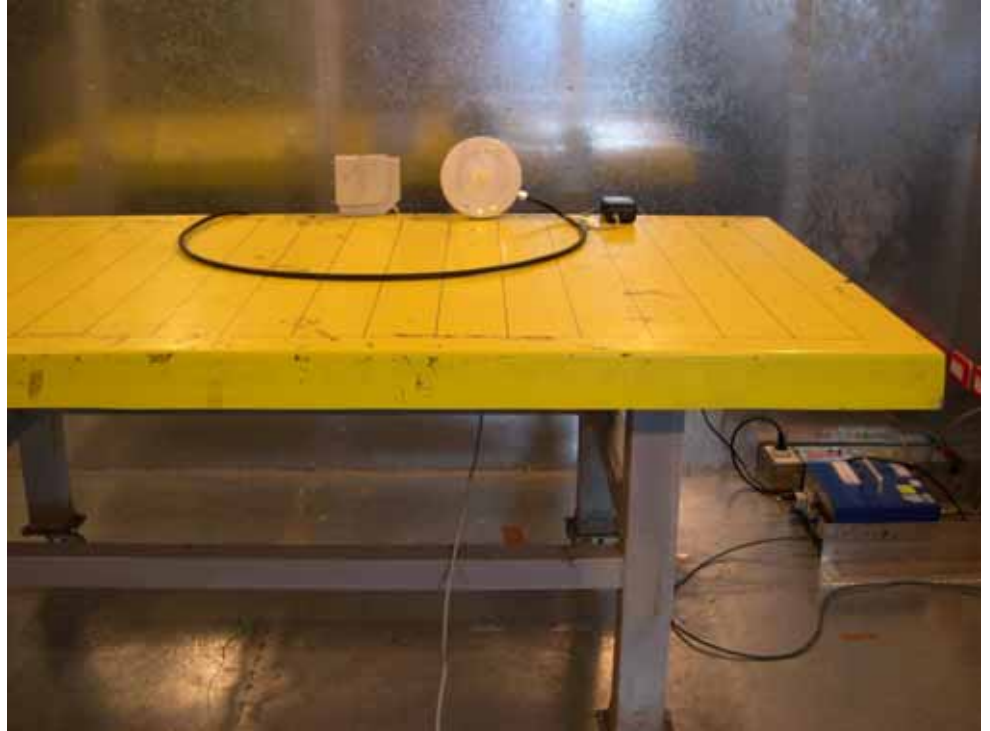
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.3997440	37.66	-10.20	47.86	37.32	0.06	0.28	Average
2	0.3997440	38.65	-19.21	57.86	38.31	0.06	0.28	QP
3	0.6647840	33.66	-22.34	56.00	32.90	0.11	0.65	QP
4	0.6647840	30.53	-15.47	46.00	29.77	0.11	0.65	Average
5	1.266	33.32	-22.68	56.00	32.71	0.11	0.50	QP
6	1.266	31.05	-14.95	46.00	30.44	0.11	0.50	Average
7	2.201	36.55	-19.45	56.00	36.20	0.12	0.23	QP
8	2.201	33.28	-12.72	46.00	32.93	0.12	0.23	Average
9	3.867	28.40	-17.60	46.00	27.89	0.21	0.30	Average
10	3.867	33.37	-22.63	56.00	32.86	0.21	0.30	QP
11	28.332	46.70	-13.30	60.00	45.75	0.45	0.50	QP
12	28.332	45.66	-4.34	50.00	44.71	0.45	0.50	Average

Neutral to Ground

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.3997440	39.33	-18.53	57.86	38.94	0.11	0.28	QP
2	0.3997440	38.52	-9.34	47.86	38.13	0.11	0.28	Average
3	1.001	32.10	-13.90	46.00	31.23	0.23	0.64	Average
4	1.001	33.64	-22.36	56.00	32.77	0.23	0.64	QP
5	2.201	32.21	-13.79	46.00	31.75	0.23	0.23	Average
6	2.201	35.82	-20.18	56.00	35.36	0.23	0.23	QP
7	6.272	26.82	-23.18	50.00	26.30	0.28	0.24	Average
8	6.272	31.19	-28.81	60.00	30.67	0.28	0.24	QP
9	19.708	31.28	-18.72	50.00	30.44	0.43	0.41	Average
10	19.708	36.57	-23.43	60.00	35.73	0.43	0.41	QP
11	28.440	46.76	-13.24	60.00	45.58	0.67	0.51	QP
12	28.440	45.57	-4.43	50.00	44.39	0.67	0.51	Average

5.7.5. Photographs of Conducted Emission Test Configuration

FRONT VIEW



REAR VIEW



5.8. Test of Spurious Radiated Emission

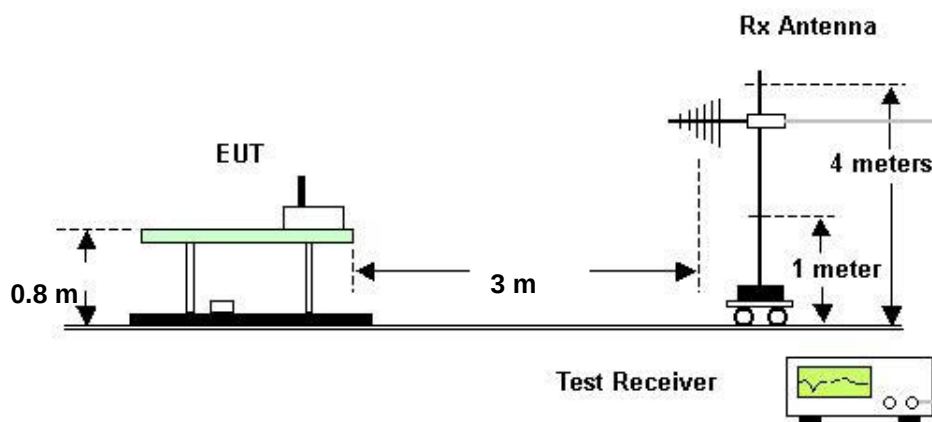
5.8.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.8.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
11. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.8.3. Test Setup Layout





5.8.4. Test Results for CH 36/ 5180 MHz (for emission below 1GHz)

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
98.340	33.35	-10.15	53.75	43.50	-20.40	0.94	30.26	Peak
109.900	39.36	-4.14	58.20	43.50	-18.84	1.03	30.29	Peak
138.460	35.17	-8.33	52.20	43.50	-17.03	1.17	30.76	Peak
329.600	27.24	-18.76	41.55	46.00	-14.31	1.76	30.76	Peak
550.400	26.69	-19.31	37.38	46.00	-10.69	2.24	31.17	Peak
768.800	31.16	-14.84	37.37	46.00	-6.21	2.79	30.53	Peak

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
33.060	36.78	-3.22	54.28	40.00	-17.50	0.56	30.39	QP
35.950	37.80	-2.20	55.69	40.00	-17.89	0.57	30.50	QP
71.140	35.66	-4.34	55.33	40.00	-19.67	0.83	30.27	Peak
249.600	26.17	-19.83	42.83	46.00	-16.66	1.53	30.49	Peak
329.600	26.56	-19.44	40.87	46.00	-14.31	1.76	30.76	Peak
768.800	29.60	-16.40	35.81	46.00	-6.21	2.79	30.53	Peak

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.8.5. Test Results for CH 36 / 5180 MHz (for emission above 1GHz)

- Normal Mode
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	61.52	-12.48	65.14	74.00	-3.62	PEAK
5150.000	45.78	-8.22	49.40	54.00	-3.62	Average
10368.000	51.97	-22.03	47.42	74.00	4.55	PEAK
15176.000	56.74	-17.26	50.09	74.00	6.65	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	67.06	-6.94	70.68	74.00	-3.62	PEAK
5150.000	53.71	-0.29	57.33	54.00	-3.62	Average
10356.000	54.67	-19.33	50.12	74.00	4.55	PEAK
15224.000	56.20	-17.80	49.81	74.00	6.38	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	56.10	-17.90	59.73	74.00	-3.62	PEAK
5150.000	39.24	-14.76	42.86	54.00	-3.62	Average
10360.000	52.91	-21.09	48.36	74.00	4.55	PEAK
10360.000	40.75	-13.25	36.20	54.00	4.55	Average
15540.000	56.80	-17.20	51.84	74.00	4.96	PEAK
15540.000	44.43	-9.57	39.47	54.00	4.96	Average

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	70.74	-3.26	74.36	74.00	-3.62	PEAK
5150.000	52.98	-1.02	56.60	54.00	-3.62	Average
10360.000	54.15	-19.85	49.60	74.00	4.55	PEAK
10360.000	43.00	-11.00	38.45	54.00	4.55	Average
15540.000	56.18	-17.82	51.21	74.00	4.96	PEAK
15540.000	44.31	-9.69	39.35	54.00	4.96	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	54.60	-19.40	58.23	74.00	-3.62	Peak
5150.000	42.55	-11.45	46.17	54.00	-3.62	Average
10360.000	56.29	-17.71	51.74	74.00	4.55	Peak
15336.000	55.06	-18.94	49.20	74.00	5.86	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	70.42	-3.58	74.04	74.00	-3.62	Peak
5150.000	52.73	-1.27	56.35	54.00	-3.62	Average
10364.000	53.92	-20.08	49.37	74.00	4.55	Peak
16044.000	52.73	-21.27	48.02	74.00	4.71	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	51.11	-22.89	54.73	74.00	-3.62	PEAK
5150.000	35.30	-18.70	38.92	54.00	-3.62	Average
9440.000	50.41	-23.59	47.18	74.00	3.23	PEAK
16568.000	61.23	-12.77	54.80	74.00	6.44	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	72.86	-1.14	76.48	74.00	-3.62	PEAK
5150.000	51.03	-2.97	54.65	54.00	-3.62	Average
10360.000	52.46	-21.54	47.91	74.00	4.55	PEAK
16684.000	62.52	-11.48	55.50	74.00	7.03	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.6. Test Results for CH 52 / 5260 MHz (for emission above 1GHz)

- Normal Mode
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	47.81	-26.19	51.43	74.00	-3.62	PEAK
10524.000	52.71	-21.29	48.03	74.00	4.68	PEAK
15788.000	43.58	-10.42	38.85	54.00	4.73	Average
15788.000	55.72	-18.28	50.99	74.00	4.73	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	38.14	-15.86	41.76	54.00	-3.62	Average
5145.700	52.89	-21.11	56.52	74.00	-3.62	PEAK
10512.000	53.32	-20.68	48.64	74.00	4.68	PEAK
15772.000	57.05	-16.95	52.29	74.00	4.75	PEAK
15772.000	44.64	-9.36	39.89	54.00	4.75	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5128.500	47.08	-26.92	50.75	74.00	-3.67	PEAK
10524.000	52.89	-21.11	48.21	74.00	4.68	PEAK
10524.000	40.70	-13.30	36.02	54.00	4.68	Average
16600.000	61.83	-12.17	55.23	74.00	6.60	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5119.900	44.52	-9.48	48.21	54.00	-3.69	Average
5119.900	54.24	-19.76	57.93	74.00	-3.69	PEAK
10520.000	55.88	-18.12	51.19	74.00	4.68	PEAK
10520.000	43.85	-10.15	39.17	54.00	4.68	Average
16632.000	62.11	-11.89	55.35	74.00	6.76	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	47.70	-26.30	51.32	74.00	-3.62	PEAK
10520.000	54.44	-19.56	49.76	74.00	4.68	PEAK
15776.000	43.61	-10.39	38.86	54.00	4.75	Average
15776.000	55.06	-18.94	50.30	74.00	4.75	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5081.200	55.13	-18.87	58.89	74.00	-3.76	PEAK
5081.200	42.49	-11.51	46.25	54.00	-3.76	Average
10528.000	57.25	-16.75	52.57	74.00	4.68	PEAK
15296.000	53.60	-20.40	47.56	74.00	6.04	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5136.200	49.09	-24.91	52.75	74.00	-3.67	PEAK
10520.000	52.47	-21.53	47.79	74.00	4.68	PEAK
15780.000	52.00	-22.00	47.25	74.00	4.75	PEAK
15780.000	38.31	-15.69	33.56	54.00	4.75	Average

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
1096.000	38.30	-35.70	51.88	74.00	-13.58	PEAK
5064.000	60.53	-13.47	64.32	74.00	-3.79	PEAK
5064.000	47.05	-6.95	50.84	54.00	-3.79	Average
10520.000	52.75	-21.25	48.06	74.00	4.68	PEAK
15276.000	52.96	-21.04	46.85	74.00	6.12	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.8.7. Test Results for CH 64 / 5320 MHz (for emission above 1GHz)

- Normal Mode
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	48.19	-25.81	51.81	74.00	-3.62	PEAK
10636.000	50.87	-23.13	46.15	74.00	4.72	PEAK
15968.000	49.47	-24.53	44.87	74.00	4.59	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	50.03	-23.97	53.65	74.00	-3.62	PEAK
10644.000	52.37	-21.63	47.65	74.00	4.72	PEAK
10644.000	41.03	-12.97	36.31	54.00	4.72	Average
15964.000	49.74	-24.26	45.15	74.00	4.59	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5115.600	46.72	-27.28	50.42	74.00	-3.70	PEAK
10028.000	52.37	-21.63	48.13	74.00	4.23	PEAK
16656.000	61.22	-12.78	54.38	74.00	6.84	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5081.200	56.46	-17.54	60.22	74.00	-3.76	PEAK
5081.200	42.88	-11.12	46.64	54.00	-3.76	Average
10640.000	40.47	-13.53	35.75	54.00	4.72	Average
10640.000	53.08	-20.92	48.36	74.00	4.72	PEAK
16640.000	61.54	-12.46	54.77	74.00	6.77	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5128.500	48.27	-25.73	51.93	74.00	-3.67	PEAK
10648.000	52.55	-21.45	47.81	74.00	4.74	PEAK
10648.000	40.76	-13.24	36.02	54.00	4.74	Average
15960.000	57.81	-16.19	53.24	74.00	4.58	PEAK
15960.000	45.74	-8.26	41.16	54.00	4.58	Average

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5119.900	55.51	-18.49	59.20	74.00	-3.69	Peak
5119.900	44.06	-9.94	47.75	54.00	-3.69	Average
10636.000	54.71	-19.29	49.99	74.00	4.72	PEAK
10636.000	42.88	-11.12	38.16	54.00	4.72	Average
15960.000	53.43	-20.57	48.85	74.00	4.58	PEAK
15960.000	42.06	-11.94	37.48	54.00	4.58	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5350.000	56.22	-17.78	59.44	74.00	-3.22	PEAK
5350.000	38.27	-15.73	41.49	54.00	-3.22	Average
9484.000	49.67	-24.33	46.44	74.00	3.23	PEAK
15960.000	49.08	-24.92	44.50	74.00	4.58	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5350.050	44.42	-9.58	47.64	54.00	-3.22	Average
5350.050	68.28	-5.72	71.50	74.00	-3.22	PEAK
10640.000	51.56	-22.44	46.84	74.00	4.72	PEAK
10640.000	39.55	-14.45	34.83	54.00	4.72	Average
15960.000	48.54	-25.46	43.97	74.00	4.58	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.8.8. Test Results for CH 42 / 5210 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	63.89	-10.11	67.51	74.00	-3.62	PEAK
5150.000	48.83	-5.17	52.45	54.00	-3.62	Average
9512.000	48.94	-25.06	45.67	74.00	3.27	PEAK
15520.000	37.22	-16.78	32.25	54.00	4.97	Average
15520.000	52.07	-21.93	47.10	74.00	4.97	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	70.72	-3.28	74.34	74.00	-3.62	PEAK
5150.000	52.44	-1.56	56.06	54.00	-3.62	Average
10412.000	49.57	-24.43	44.98	74.00	4.59	PEAK
15272.000	52.54	-21.46	46.42	74.00	6.12	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	53.39	-20.61	57.02	74.00	-3.62	PEAK
5150.000	38.85	-15.15	42.47	54.00	-3.62	Average
9416.000	49.24	-24.76	46.01	74.00	3.23	PEAK
15256.000	52.90	-21.10	46.70	74.00	6.20	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	69.26	-4.74	72.88	74.00	-3.62	PEAK
5145.700	52.60	-1.40	56.22	54.00	-3.62	Average
10424.000	51.83	-22.17	47.21	74.00	4.62	PEAK
15392.000	39.09	-14.91	33.58	54.00	5.51	Average
15392.000	52.29	-21.71	46.79	74.00	5.51	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	54.07	-19.93	57.69	74.00	-3.62	PEAK
5145.700	38.91	-15.09	42.53	54.00	-3.62	Average
10424.000	50.42	-23.58	45.80	74.00	4.62	PEAK
16704.000	55.75	-18.25	48.66	74.00	7.09	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	66.83	-7.17	70.45	74.00	-3.62	PEAK
5145.700	51.86	-2.14	55.48	54.00	-3.62	Average
10424.000	52.03	-21.97	47.41	74.00	4.62	PEAK
15252.000	54.33	-19.67	48.02	74.00	6.30	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	52.34	-21.66	55.96	74.00	-3.62	PEAK
5150.000	37.49	-16.51	41.11	54.00	-3.62	Average
9068.000	50.61	-23.39	47.39	74.00	3.22	PEAK
15432.000	54.03	-19.97	48.70	74.00	5.33	PEAK
15432.000	40.49	-13.51	35.16	54.00	5.33	Average

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	67.10	-6.90	70.72	74.00	-3.62	PEAK
5150.000	51.86	-2.14	55.48	54.00	-3.62	Average
9412.000	50.26	-23.74	47.03	74.00	3.23	PEAK
15332.000	54.64	-19.36	48.78	74.00	5.86	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.8.9. Test Results for CH 50 / 5250 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	53.79	-20.21	57.42	74.00	-3.62	PEAK
5150.000	36.91	-17.09	40.53	54.00	-3.62	Average
9384.000	49.34	-24.66	46.11	74.00	3.23	PEAK
15292.000	52.25	-21.75	46.22	74.00	6.04	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	59.20	-14.80	62.82	74.00	-3.62	PEAK
5141.400	41.56	-12.44	45.18	54.00	-3.62	Average
10512.000	51.17	-22.83	46.49	74.00	4.68	PEAK
15372.000	52.59	-21.41	46.90	74.00	5.69	PEAK
15372.000	38.50	-15.50	32.81	54.00	5.69	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	48.31	-25.69	51.93	74.00	-3.62	PEAK
8496.950	52.33	-21.67	49.35	74.00	2.98	PEAK
15192.000	56.35	-17.65	49.81	74.00	6.55	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	58.02	-15.98	61.64	74.00	-3.62	PEAK
5150.000	49.81	-4.19	53.43	54.00	-3.62	Average
10500.000	53.19	-20.81	48.49	74.00	4.69	PEAK
15232.000	56.33	-17.67	49.94	74.00	6.38	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	47.86	-26.14	51.48	74.00	-3.62	PEAK
9260.000	50.66	-23.34	47.44	74.00	3.23	PEAK
15316.000	54.45	-19.55	48.51	74.00	5.94	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	59.45	-14.55	63.07	74.00	-3.62	PEAK
5145.700	43.68	-10.32	47.30	54.00	-3.62	Average
10516.000	52.39	-21.61	47.71	74.00	4.68	PEAK
15748.000	53.29	-20.71	48.55	74.00	4.75	PEAK
15748.000	41.75	-12.25	37.00	54.00	4.75	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	48.75	-25.25	52.37	74.00	-3.62	PEAK
10624.000	52.38	-21.62	47.65	74.00	4.73	PEAK
10624.000	37.99	-16.01	33.26	54.00	4.73	Average
15284.000	54.73	-19.27	48.61	74.00	6.12	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	36.97	-17.03	40.59	54.00	-3.62	Average
5145.700	51.76	-22.24	55.38	74.00	-3.62	PEAK
10548.000	52.38	-21.62	47.69	74.00	4.70	PEAK
15684.000	54.06	-19.94	49.23	74.00	4.82	PEAK
15684.000	39.78	-14.22	34.96	54.00	4.82	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.8.10. Test Results for CH 58 / 5290 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5115.600	52.09	-21.91	55.79	74.00	-3.70	PEAK
5115.600	38.27	-15.73	41.97	54.00	-3.70	Average
10644.000	50.96	-23.04	46.25	74.00	4.72	PEAK
15384.000	38.74	-15.26	33.15	54.00	5.59	Average
15384.000	52.13	-21.87	46.54	74.00	5.59	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5150.000	54.02	-19.98	57.65	74.00	-3.62	PEAK
5150.000	39.12	-14.88	42.74	54.00	-3.62	Average
10592.000	51.69	-22.31	46.98	74.00	4.71	PEAK
15256.000	52.89	-21.11	46.69	74.00	6.20	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 2

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5081.200	46.27	-27.73	50.03	74.00	-3.76	PEAK
9120.000	49.33	-24.67	46.11	74.00	3.22	PEAK
15092.000	51.19	-22.81	44.12	74.00	7.08	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5076.900	56.12	-17.88	59.88	74.00	-3.76	PEAK
5076.900	43.63	-10.37	47.39	54.00	-3.76	Average
10572.000	51.87	-22.13	47.15	74.00	4.72	PEAK
15184.000	53.08	-20.92	46.43	74.00	6.65	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 3

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5115.600	46.43	-27.57	50.12	74.00	-3.70	PEAK
10580.000	51.40	-22.60	46.69	74.00	4.71	PEAK
15316.000	54.63	-19.37	48.69	74.00	5.94	PEAK

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5137.100	55.82	-18.18	59.49	74.00	-3.67	PEAK
5137.100	42.28	-11.72	45.95	54.00	-3.67	Average
10624.000	37.22	-16.78	32.49	54.00	4.73	Average
10624.000	51.56	-22.44	46.83	74.00	4.73	PEAK
15020.000	56.01	-17.99	48.59	74.00	7.42	PEAK

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



Mode 4

(A) Polarization: Horizontal

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5145.700	49.56	-24.44	53.18	74.00	-3.62	PEAK
10620.000	52.36	-21.64	47.63	74.00	4.73	PEAK
10620.000	38.45	-15.55	33.72	54.00	4.73	Average
15872.000	54.49	-19.51	49.83	74.00	4.66	PEAK
15872.000	43.19	-10.81	38.53	54.00	4.66	Average

(B) Polarization: Vertical

Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
5141.400	50.09	-23.91	53.71	74.00	-3.62	PEAK
10572.000	52.46	-21.54	47.74	74.00	4.72	PEAK
15876.000	54.19	-19.81	49.53	74.00	4.66	PEAK
15876.000	42.40	-11.60	37.74	54.00	4.66	Average

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

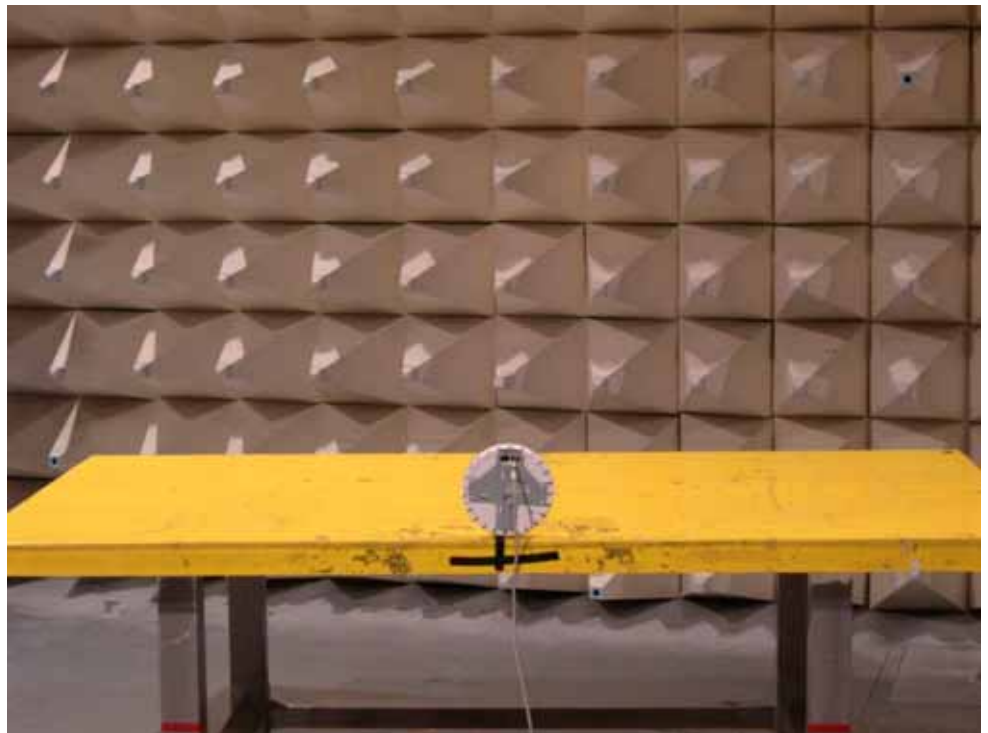
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Photographs of Radiated Emission Test Configuration
Mode 1

FRONT VIEW



REAR VIEW

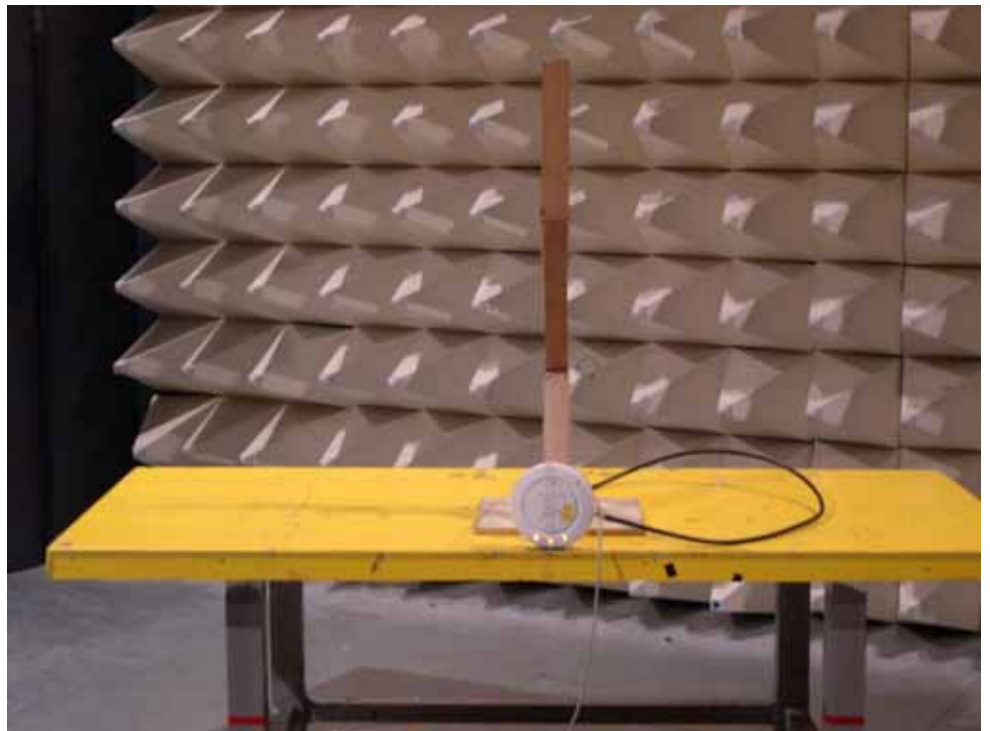


Mode 2

FRONT VIEW

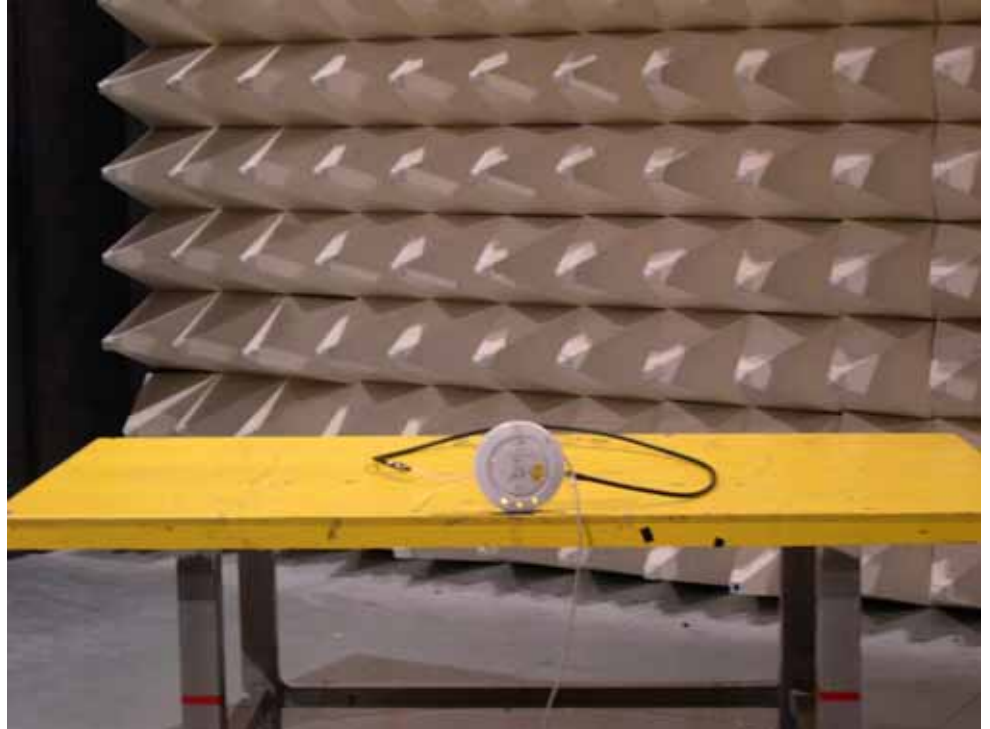


REAR VIEW

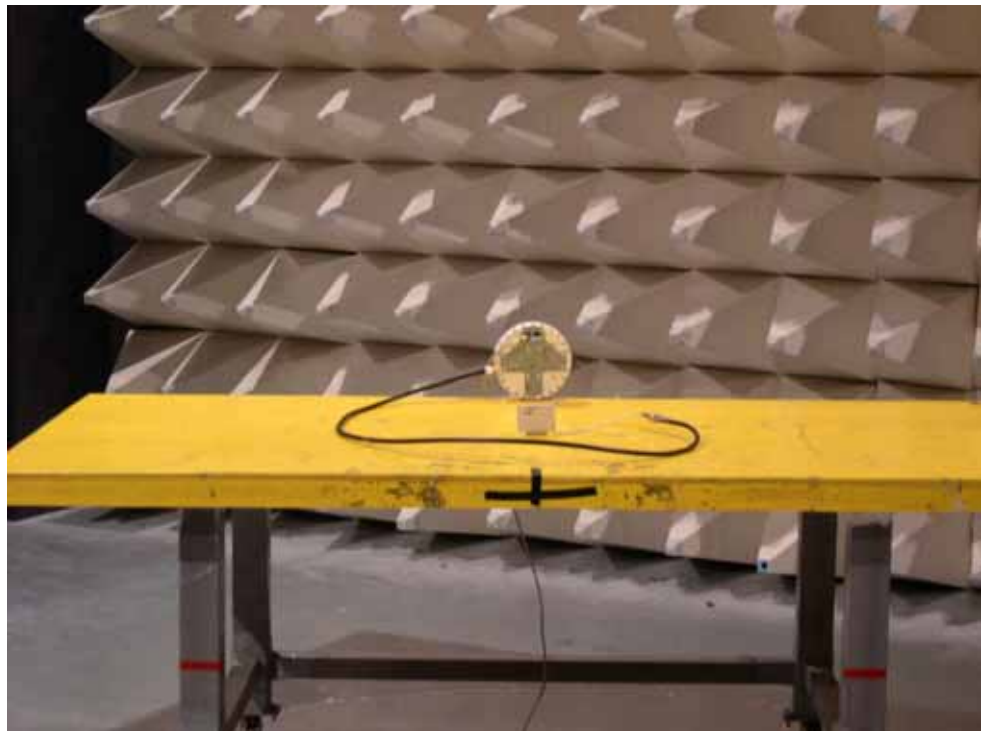


Mode 3

FRONT VIEW



REAR VIEW



Mode 4

FRONT VIEW



REAR VIEW





5.9. Antenna Requirements

5.9.1. Standard Applicable

47 CFR Part15 Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

47 CFR Part15 Section 15.407:

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.9.2. Antenna Connected Construction

4 types of antenna are filed in this report. The connector for these antennas is SMA.

5.10. RF Exposure

5.10.1. Limit For Maximum Permissible Exposure (MPE)

This product can be classified as mobile device, so the 20cm separation distance warning is required. In this section, the power density at 20cm location is calculated to examine if it is lower than the limit.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F = frequency in MHz

*Plane-wave equivalent power density

5.10.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (mW/cm}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=20cm, as well as the gain of the used antenna, the RF power density can be obtained.



5.10.3. Calculated Result and Limit

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5180 MHz	4.00	2.51	16.83	48.19	0.0241	1
5260 MHz	4.00	2.51	23.60	229.09	0.1145	1
5320 MHz	4.00	2.51	22.54	179.47	0.0897	1

Mode 2 ~ 3

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5180 MHz	8.00	6.31	14.35	27.23	0.0342	1
5260 MHz	8.00	6.31	21.87	153.82	0.1932	1
5320 MHz	8.00	6.31	20.69	117.22	0.1472	1

Mode 4

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5180 MHz	10.00	10.00	12.60	18.20	0.0362	1
5260 MHz	10.00	10.00	19.99	99.77	0.1986	1
5320 MHz	10.00	10.00	19.04	80.17	0.1596	1



- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Mode 1

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5210 MHz	4.00	2.51	16.33	42.95	0.0215	1
5250 MHz	4.00	2.51	16.91	49.09	0.0245	1
5290 MHz	4.00	2.51	19.90	97.72	0.0488	1

Mode 2 ~ 3

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5210 MHz	8.00	6.31	16.33	42.95	0.0539	1
5250 MHz	8.00	6.31	16.91	49.09	0.0617	1
5290 MHz	8.00	6.31	19.90	97.72	0.1227	1

Mode 4

Frequency	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
5210 MHz	10.00	10.00	16.33	42.95	0.0855	1
5250 MHz	10.00	10.00	16.91	49.09	0.0977	1
5290 MHz	10.00	10.00	19.90	97.72	0.1945	1



6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Feb. 16, 2005	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	PIC	NNB-2/16Z	2001/008	9kHz – 30MHz	May 06, 2005	Conduction (CO04-HY)
4	EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
5	RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2005	Conduction (CO04-HY)
6	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
7	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 31, 2004	Radiation (03CH03-HY)
8	Amplifier	SCHAFFNER	CPA9231A	18667	9KHz – 2GHz	Jan. 10, 2005	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Feb. 22, 2005	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 25, 2005	Radiation (03CH03-HY)
13	Horn Antenna	EMCO	3115	6741	1GHz – 18GHz	Apr. 22, 2005	Radiation (03CH03-HY)
14	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
15	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
16	Horn Antenna	Schwarzbeck	BBHA9170	154	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec.01, 2004	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.



Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
18	Spectrum Analyzer	R&S	FSP30	100023	9kHz – 30GHz	Aug. 02, 2004	Conducted (TH01-HY)
19	Power Meter	R&S	NRVS	100444	DC – 40GHz	Jun. 15, 2004	Conducted (TH01-HY)
20	Power Sensor	R&S	NRV-Z55	100049	DC – 40GHz	Jun. 15, 2004	Conducted (TH01-HY)
21	Power Sensor	R&S	NRV-Z32	100057	30MHz – 6GHz	Jun. 15, 2004	Conducted (TH01-HY)
22	AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 – 300V	Jun. 16, 2004	Conducted (TH01-HY)
23	DC Power Source	G.W.	GPC-6030D	C671845	DC 1V – 60V	Dec.. 28, 2004	Conducted (TH01-HY)
24	Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2004	Conducted (TH01-HY)
25	RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz – 7GHz	Jan. 01, 2005	Conducted (TH01-HY)
26	RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz – 1GHz	Jan. 01, 2005	Conducted (TH01-HY)
27	Data Generator	Tektronix	J310345	J310345	400Mbps	Dec. 21, 2004	Conducted (TH01-HY)
28	OscilloScope	Tektronix	TDS1012	C038520	100MHz-1Gs/s	Jan. 02, 2005	Conducted (TH01-HY)

※ Calibration Interval of instruments listed above is one year.