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FCC TEST REPORT (15.407)

REPORT NO.: RF971031L01-1

MODEL NO.: 74-4876-04

RECEIVED: Nov. 21, 2008

TESTED: Nov. 23 ~ Nov. 27, 2008

ISSUED: Dec. 12, 2008

APPLICANT: HON HAI Precision IND., CO., LTD.

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ISSUED BY: Bureau Veritas Consumer Products Services
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1. CERTIFICATION

PRODUCT: 802.11 a/b/g/n MiniPCI module

MODEL: 74-4876-04

BRAND: Cisco

APPLICANT: HON HAI Precision IND., CO., LTD.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Nov. 23 ~ Nov. 27, 2008

STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003

The above equipment (Model: 74-4876-04) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Peggy Chen , **DATE:** Dec. 12, 2008
Peggy Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Dec. 12, 2008
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Dec. 12, 2008
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -25.56dB at 10.348MHz.
15.407(b)(1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -2.09dB at 5150.00MHz.
15.407(a)(1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	802.11 a/b/g/n MiniPCI module
MODEL NO.	74-4876-04
FCC ID	MCL74487604
POWER SUPPLY	5Vdc from host equipment
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 300.0Mbps
FREQUENCY RANGE	5180.0 ~ 5240.0MHz
NUMBER OF CHANNEL	4 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)
OUTPUT POWER	40.507mW
ANTENNA TYPE	Dipole antenna with 5.0dBi gain
DATA CABLE	NA
I/O PORTS	NA
ACCESSORY DEVICES	NA

NOTE:

1. The EUT is an 802.11 a/b/g/n MiniPCI module. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF971031L01
WLAN 802.11a, draft 802.11n (5745~5825 MHz)		
WLAN 802.11a, draft 802.11n (5180~ 5240MHz)	FCC Part 15, Subpart E (Section 15.407)	RF971031L01-1

2. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√	-	-
802.11g	√	-	-
802.11a	-	√	√
Draft 802.11n (20MHz)	√	√	√
Draft 802.11n (40MHz)	√	√	√

3. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and three receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
Draft 802.11n (20MHz)	1TX / 2TX
Draft 802.11n (40MHz)	1TX / 2TX

4. The above EUT information was declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 5150 ~ 5250MHz

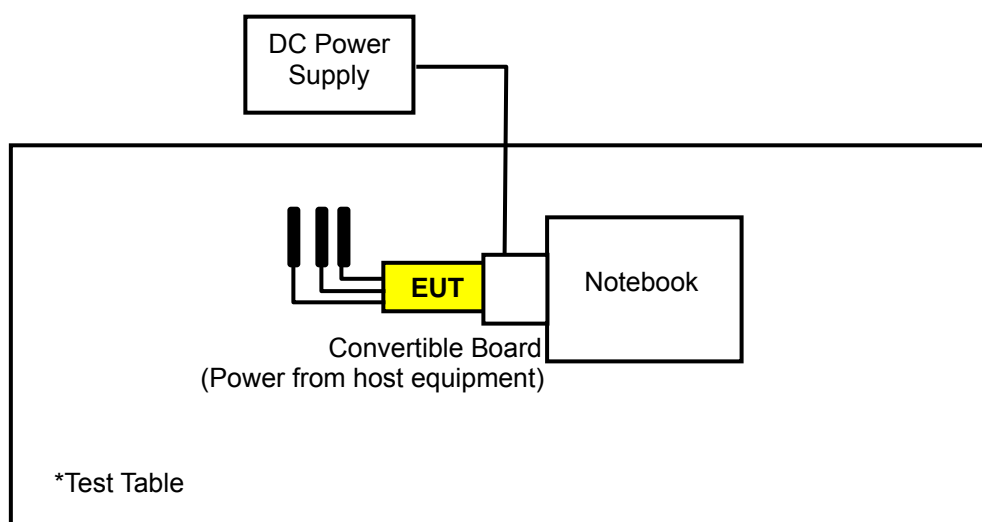
4 channels are provided for 802.11a, draft 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz

2 channels are provided for draft 802.11n (40MHz):

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE \geq 1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	30.0	2TX

RADIATED EMISSION TEST (BELOW 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	5150-5250	36 to 48	48	OFDM	BPSK	15.0	2TX

POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	5150-5250	36 to 48	48	OFDM	BPSK	15.0	2TX

BANDEDGE MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	5150-5250	36 to 48	36, 48	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	30.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	30.0	2TX

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	HP	PC39062AA000	NA	FCC DoC Approved
2	POWER SUPPLY	TOP WARD	6306A	713585	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 was placed under testing table.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 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)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
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.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 2
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength $E = \frac{1000000\sqrt{30P}}{3}$ μV/m, where P is the eirp (Watts)



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4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC 7450F-4.

4.1.4 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. 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 rotatable 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.

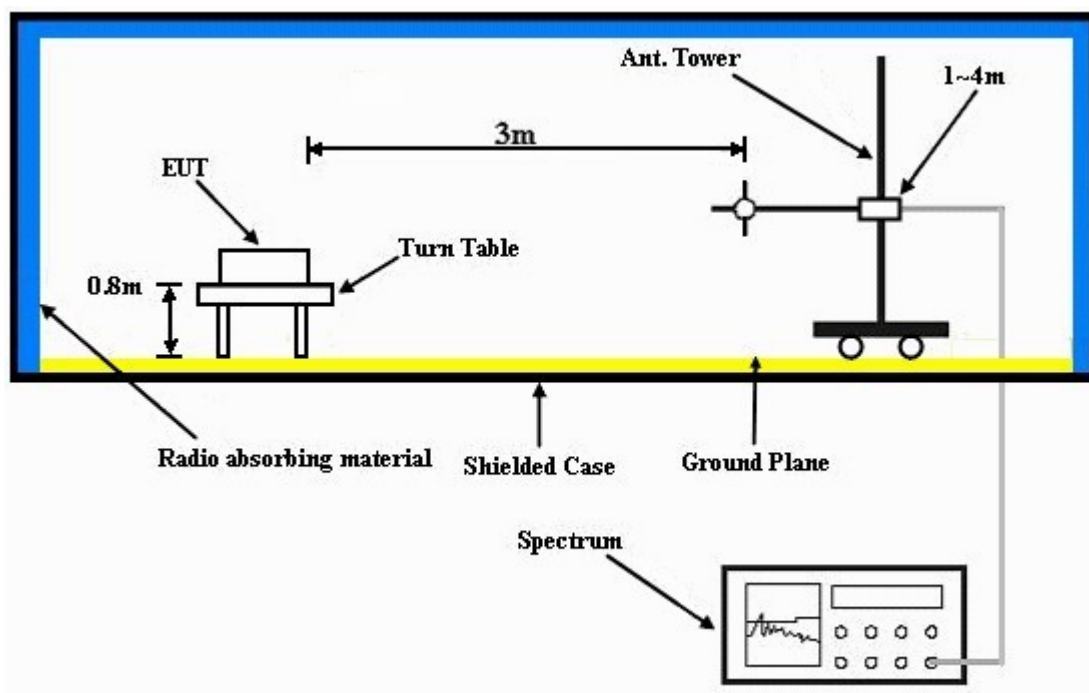
NOTE:

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 of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation

4.1.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.7 EUT OPERATING CONDITION

- Plugged the EUT into the notebook system and placed on a testing table.
- The notebook ran a test program (provided by manufacturer) to enable all functions under transmission condition continuously at specific channel frequency.

4.1.8 TEST RESULTS

802.11a OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.10 PK	74.00	-18.90	1.00 H	41	15.35	39.75
2	5150.00	40.94 AV	54.00	-13.06	1.00 H	41	1.19	39.75
3	*5180.00	100.84 PK			1.22 H	36	61.09	39.75
4	*5180.00	90.39 AV			1.22 H	36	50.64	39.75
5	#6216.00	50.56 PK	68.30	-17.74	1.12 H	330	8.62	41.94
6	#10360.00	58.24 PK	68.30	-10.06	1.02 H	36	7.59	50.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.43 PK	74.00	-8.57	1.00 V	156	25.68	39.75
2	5150.00	50.82 AV	54.00	-3.18	1.00 V	156	11.07	39.75
3	*5180.00	110.55 PK			1.00 V	195	70.80	39.75
4	*5180.00	100.95 AV			1.00 V	195	61.20	39.75
5	#6216.00	60.40 PK	68.30	-7.90	1.09 V	183	18.46	41.94
6	#10360.00	58.82 PK	68.30	-9.48	1.06 V	261	8.17	50.65

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. " * ": Fundamental frequency.
 6. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	99.61 PK			1.00 H	51	59.86	39.75
2	*5200.00	88.82 AV			1.00 H	51	49.07	39.75
3	#6240.00	51.72 PK	68.30	-16.58	1.13 H	333	9.66	42.06
4	#10400.00	58.18 PK	68.30	-10.12	1.00 H	225	7.43	50.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	110.10 PK			1.00 V	181	70.35	39.75
2	*5200.00	99.78 AV			1.00 V	181	60.03	39.75
3	#6240.00	60.51 PK	68.30	-7.79	1.00 V	182	18.45	42.06
4	#10400.00	58.58 PK	68.30	-9.72	1.00 V	210	7.83	50.75

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.
5. “*”: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	100.64 PK			1.12 H	59	60.80	39.84
2	*5240.00	90.45 AV			1.12 H	59	50.61	39.84
3	#6288.00	51.82 PK	68.30	-16.48	1.00 H	201	9.52	42.30
4	#10480.00	58.89 PK	68.30	-9.41	1.00 H	22	8.01	50.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	110.46 PK			1.06 V	189	70.62	39.84
2	*5240.00	100.32 AV			1.06 V	189	60.48	39.84
3	#6288.00	59.40 PK	68.30	-8.90	1.13 V	209	17.10	42.30
4	#10480.00	59.37 PK	68.30	-8.93	1.02 V	203	8.49	50.88

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	51.44 PK	74.00	-22.56	1.00 H	249	11.69	39.75
2	5150.00	36.61 AV	54.00	-17.39	1.00 H	249	-3.14	39.75
3	*5180.00	95.29 PK			1.19 H	51	55.54	39.75
4	*5180.00	85.53 AV			1.19 H	51	45.78	39.75
5	#6216.00	49.35 PK	68.30	-18.95	1.08 H	311	7.41	41.94
6	#10360.00	58.95 PK	68.30	-9.35	1.00 H	69	8.30	50.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.22 PK	74.00	-16.78	1.02 V	229	17.47	39.75
2	5150.00	43.53 AV	54.00	-10.47	1.02 V	229	3.78	39.75
3	*5180.00	106.47 PK			1.00 V	36	66.72	39.75
4	*5180.00	96.59 AV			1.00 V	36	56.84	39.75
5	#6216.00	62.22 PK	68.30	-6.08	1.00 V	22	20.28	41.94
6	#10360.00	59.15 PK	68.30	-9.15	1.00 V	281	8.50	50.65

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	97.02 PK			1.00 H	115	57.27	39.75
2	*5200.00	86.52 AV			1.00 H	115	46.77	39.75
3	#6240.00	51.23 PK	68.30	-17.07	1.08 H	302	9.17	42.06
4	#10400.00	56.88 PK	68.30	-11.42	1.00 H	102	6.13	50.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	108.58 PK			1.00 V	109	68.83	39.75
2	*5200.00	98.66 AV			1.00 V	109	58.91	39.75
3	#6240.00	62.23 PK	68.30	-6.07	1.00 V	199	20.17	42.06
4	#10400.00	57.66 PK	68.30	-10.64	1.00 V	201	6.91	50.75

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.
5. “*”: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	97.12 PK			1.04 H	42	57.28	39.84
2	*5240.00	87.26 AV			1.04 H	42	47.42	39.84
3	#6288.00	50.88 PK	68.30	-17.42	1.00 H	229	8.58	42.30
4	#10480.00	60.02 PK	68.30	-8.28	1.00 H	41	9.14	50.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	108.39 PK			1.01 V	96	68.55	39.84
2	*5240.00	98.52 AV			1.01 V	96	58.68	39.84
3	#6288.00	60.16 PK	68.30	-8.14	1.00 V	26	17.86	42.30
4	#10480.00	59.26 PK	68.30	-9.04	1.00 V	230	8.38	50.88

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.11 PK	74.00	-19.89	1.00 H	236	14.36	39.75
2	5150.00	39.85 AV	54.00	-14.15	1.00 H	236	0.10	39.75
3	*5180.00	96.87 PK			1.20 H	49	57.12	39.75
4	*5180.00	86.94 AV			1.20 H	49	47.19	39.75
5	#6216.00	50.46 PK	68.30	-17.84	1.11 H	302	8.52	41.94
6	#10360.00	57.95 PK	68.30	-10.35	1.01 H	54	7.30	50.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.27 PK	74.00	-13.73	1.04 V	222	20.52	39.75
2	5150.00	46.16 AV	54.00	-7.84	1.04 V	222	6.41	39.75
3	*5180.00	107.96 PK			1.00 V	41	68.21	39.75
4	*5180.00	98.53 AV			1.00 V	41	58.78	39.75
5	#6216.00	61.20 PK	68.30	-7.10	1.06 V	19	19.26	41.94
6	#10360.00	57.95 PK	68.30	-10.35	1.00 V	263	7.30	50.65

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	98.75 PK			1.00 H	102	59.00	39.75
2	*5200.00	88.69 AV			1.00 H	102	48.94	39.75
3	#6240.00	50.16 PK	68.30	-18.14	1.10 H	236	8.10	42.06
4	#10400.00	56.71 PK	68.30	-11.59	1.00 H	223	5.96	50.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	109.84 PK			1.02 V	102	70.09	39.75
2	*5200.00	99.92 AV			1.02 V	102	60.17	39.75
3	#6240.00	61.63 PK	68.30	-6.67	1.00 V	183	19.57	42.06
4	#10400.00	57.07 PK	68.30	-11.23	1.00 V	206	6.32	50.75

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * ”: Fundamental frequency.
 6. “ # ”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	99.08 PK			1.06 H	39	59.24	39.84
2	*5240.00	89.35 AV			1.06 H	39	49.51	39.84
3	#6288.00	50.50 PK	68.30	-17.80	1.00 H	230	8.20	42.30
4	#10480.00	59.92 PK	68.30	-8.38	1.02 H	33	9.04	50.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	110.19 PK			1.02 V	88	70.35	39.84
2	*5240.00	99.74 AV			1.02 V	88	59.90	39.84
3	#6288.00	59.19 PK	68.30	-9.11	1.06 V	211	16.89	42.30
4	#10480.00	58.25 PK	68.30	-10.05	1.00 V	210	7.37	50.88

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * ”: Fundamental frequency.
 6. “ # ”: The radiated frequency is out the restricted band.



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	50.97 PK	74.00	-23.03	1.21 H	35	11.22	39.75
2	5150.00	38.07 AV	54.00	-15.93	1.21 H	35	-1.68	39.75
3	*5190.00	91.41 PK			1.21 H	35	51.66	39.75
4	*5190.00	80.11 AV			1.21 H	35	40.36	39.75
5	#6228.00	50.10 PK	68.30	-18.20	1.39 H	221	8.10	42.00
6	#10380.00	58.18 PK	68.30	-10.12	1.00 H	10	7.48	50.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.13 PK	74.00	-13.87	1.05 V	218	20.38	39.75
2	5150.00	49.02 AV	54.00	-4.98	1.05 V	218	9.27	39.75
3	*5190.00	103.31 PK			1.04 V	201	63.56	39.75
4	*5190.00	92.55 AV			1.04 V	201	52.80	39.75
5	#6228.00	59.23 PK	68.30	-9.07	1.08 V	175	17.23	42.00
6	#10380.00	58.16 PK	68.30	-10.14	1.00 V	355	7.46	50.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	93.12 PK			1.28 H	88	53.30	39.82
2	*5230.00	82.66 AV			1.28 H	88	42.84	39.82
3	#6276.00	49.74 PK	68.30	-18.56	1.27 H	199	7.50	42.24
4	#10380.00	57.62 PK	68.30	-10.68	1.14 H	10	6.92	50.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	105.56 PK			1.02 V	203	65.74	39.82
2	*5230.00	95.35 AV			1.02 V	203	55.53	39.82
3	#6276.00	57.96 PK	68.30	-10.34	1.31 V	199	15.72	42.24
4	#10460.00	58.39 PK	68.30	-9.91	1.19 V	180	7.54	50.85

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.
5. “ * ”: Fundamental frequency.
6. “ # ”: The radiated frequency is out the restricted band.



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DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.13 PK	74.00	-20.87	1.04 H	52	13.38	39.75
2	5150.00	40.21 AV	54.00	-13.79	1.04 H	52	0.46	39.75
3	*5190.00	92.78 PK			1.04 H	52	53.03	39.75
4	*5190.00	82.07 AV			1.04 H	52	42.32	39.75
5	#6228.00	52.65 PK	68.30	-15.65	1.10 H	99	10.65	42.00
6	#10380.00	58.18 PK	68.30	-10.12	1.00 H	180	7.48	50.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.54 PK	74.00	-8.46	1.04 V	220	25.79	39.75
2	5150.00	51.91 AV	54.00	-2.09	1.04 V	220	12.16	39.75
3	*5190.00	104.93 PK			1.04 V	214	65.18	39.75
4	*5190.00	94.12 AV			1.04 V	214	54.37	39.75
5	#6228.00	59.89 PK	68.30	-8.41	1.25 V	213	17.89	42.00
6	#10380.00	57.85 PK	68.30	-10.45	1.00 V	360	7.15	50.70

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	94.98 PK			1.12 H	32	55.16	39.82
2	*5230.00	84.06 AV			1.12 H	32	44.24	39.82
3	#6272.00	53.50 PK	68.30	-14.80	1.04 H	199	11.28	42.22
4	#10460.00	58.83 PK	68.30	-9.47	1.07 H	199	7.98	50.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	107.03 PK			1.11 V	53	67.21	39.82
2	*5230.00	96.25 AV			1.11 V	53	56.43	39.82
3	#6276.00	58.82 PK	68.30	-9.48	1.25 V	211	16.58	42.24
4	#10460.00	59.26 PK	68.30	-9.04	1.00 V	180	8.41	50.85

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 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.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.

BELOW 1GHz WORST-CASE DATA : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1023hPa	TESTED BY	Antony Lee

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)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	97.95	35.87 QP	43.50	-7.63	2.00 H	229	26.56	9.31
2	298.21	31.75 QP	46.00	-14.25	1.25 H	310	18.11	13.64
3	397.37	36.13 QP	46.00	-9.87	2.00 H	100	20.14	16.00
4	531.53	40.84 QP	46.00	-5.16	2.00 H	73	20.64	20.20
5	663.74	41.42 QP	46.00	-4.58	1.25 H	58	18.99	22.43
6	924.27	41.84 QP	46.00	-4.16	1.25 H	79	15.54	26.29
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	97.95	36.12 QP	43.50	-7.38	1.00 V	196	26.81	9.31
2	397.37	37.28 QP	46.00	-8.72	1.25 V	181	21.29	16.00
3	531.53	41.15 QP	46.00	-4.85	2.00 V	127	20.95	20.20
4	661.79	37.24 QP	46.00	-8.76	1.50 V	79	14.82	22.41
5	836.78	36.46 QP	46.00	-9.54	1.00 V	106	10.91	25.55
6	924.27	41.38 QP	46.00	-4.62	1.50 V	106	15.09	26.29

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
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.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 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.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. 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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 19, 2008	Nov. 18, 2009
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Dec. 04, 2008	Dec. 03, 2009
Software ADT	ADT_Conc_ V7.3.6	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

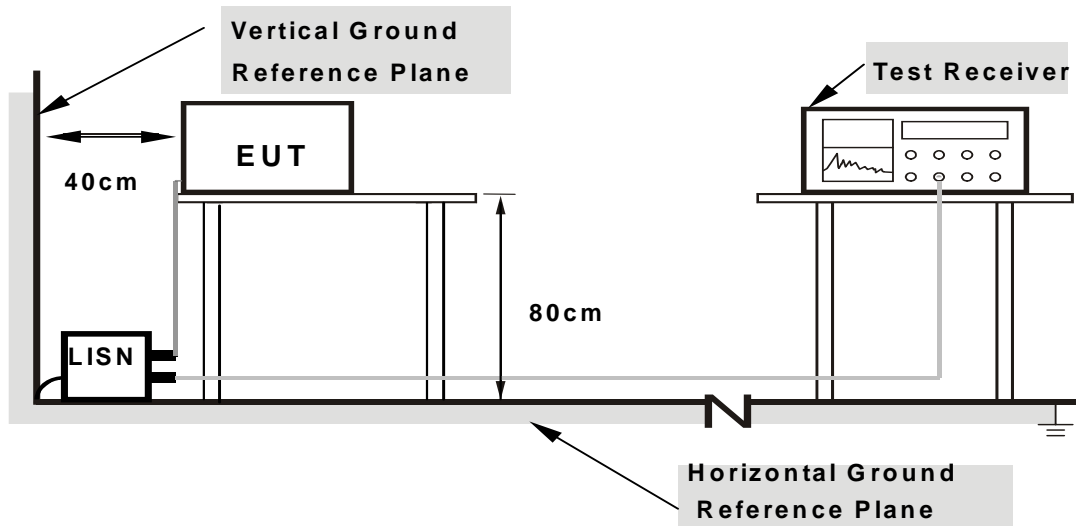
4.2.3 TEST PROCEDURES

- a. 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). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. 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 under (Limit - 20dB) was not recorded.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

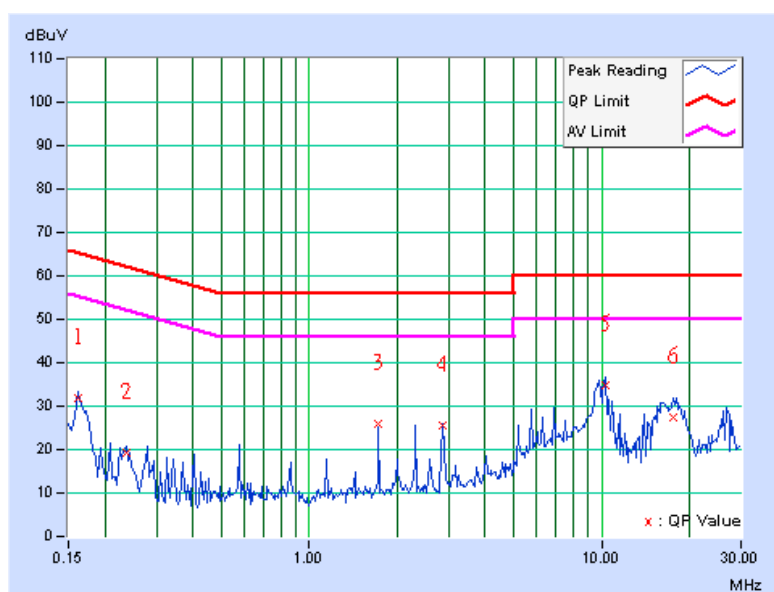
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 982hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.20	30.82	-	31.02	-	65.38	55.38	-34.36	-
2	0.236	0.20	18.53	-	18.73	-	62.24	52.24	-43.51	-
3	1.723	0.20	24.88	-	25.08	-	56.00	46.00	-30.92	-
4	2.875	0.29	24.67	-	24.96	-	56.00	46.00	-31.04	-
5	10.348	0.55	33.89	-	34.44	-	60.00	50.00	-25.56	-
6	17.527	0.91	26.45	-	27.36	-	60.00	50.00	-32.64	-

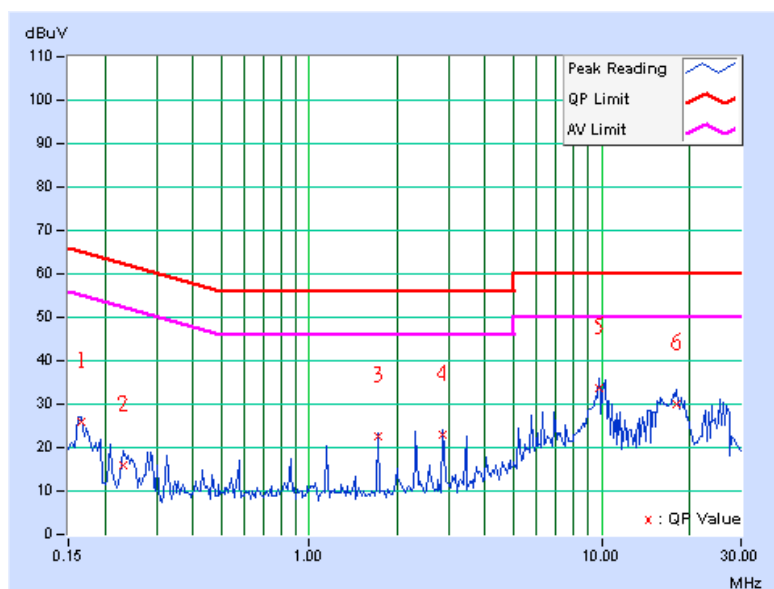
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 982hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.20	25.40	-	25.60	-	65.18	55.18	-39.58	-
2	0.232	0.20	15.52	-	15.72	-	62.38	52.38	-46.66	-
3	1.723	0.20	22.22	-	22.42	-	56.00	46.00	-33.58	-
4	2.875	0.29	22.55	-	22.84	-	56.00	46.00	-33.16	-
5	9.770	0.53	33.28	-	33.81	-	60.00	50.00	-26.19	-
6	18.105	0.51	29.51	-	30.02	-	60.00	50.00	-29.98	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

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

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Measurement Bandwidth of ML2495A is 65MHz greater than 26dB bandwidth of emission.

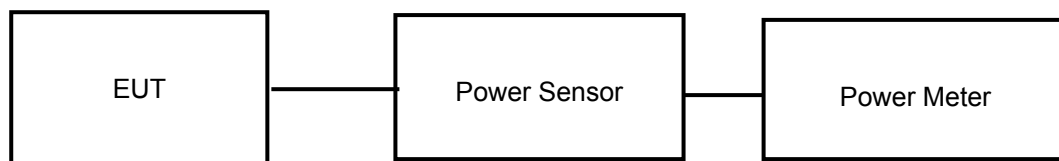
4.3.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

PEAK POWER OUTPUT: 802.11a OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
36	5180	31.769	15.02	17	PASS
40	5200	32.063	15.06	17	PASS
48	5240	31.915	15.04	17	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
36	5180	12.677	11.03	17	PASS
40	5200	20.184	13.05	17	PASS
48	5240	20.230	13.06	17	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	11.05	11.08	25.558	14.08	17	PASS
40	5200	13.04	13.06	40.367	16.06	17	PASS
48	5240	13.08	13.04	40.461	16.07	17	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
38	5190	12.647	11.02	17	PASS
46	5230	20.230	13.06	17	PASS

**A D T****DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX**

MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	11.08	11.04	25.529	14.07	17	PASS
46	5230	13.05	13.08	40.507	16.08	17	PASS



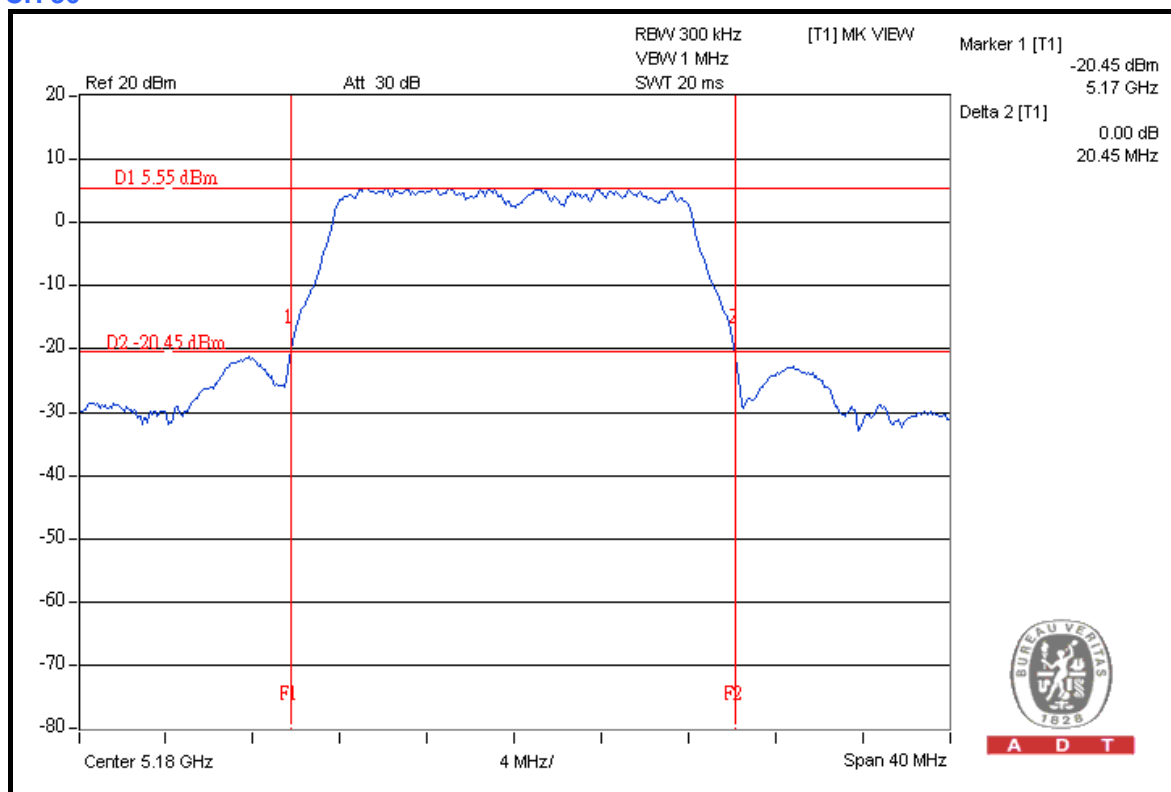
A D T

26dB OCCUPIED BANDWIDTH: 802.11a OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	20.45	PASS
40	5200	20.60	PASS
48	5240	20.52	PASS

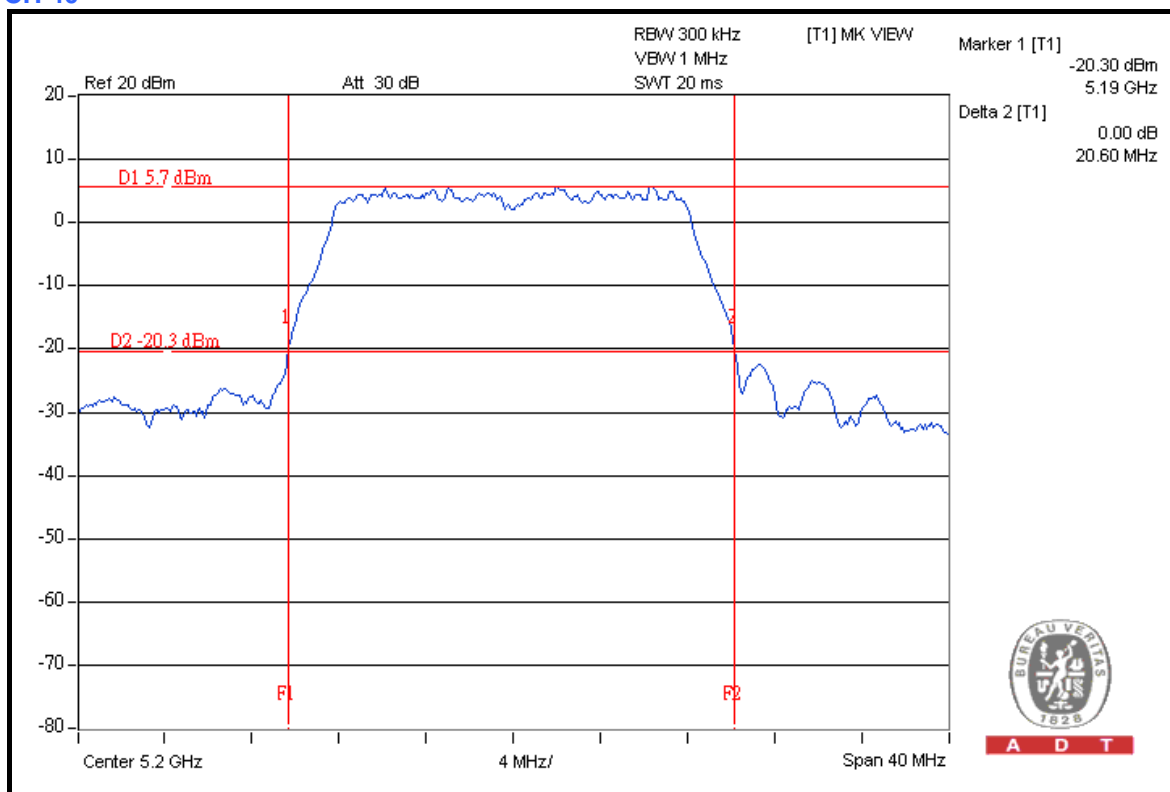
CH 36



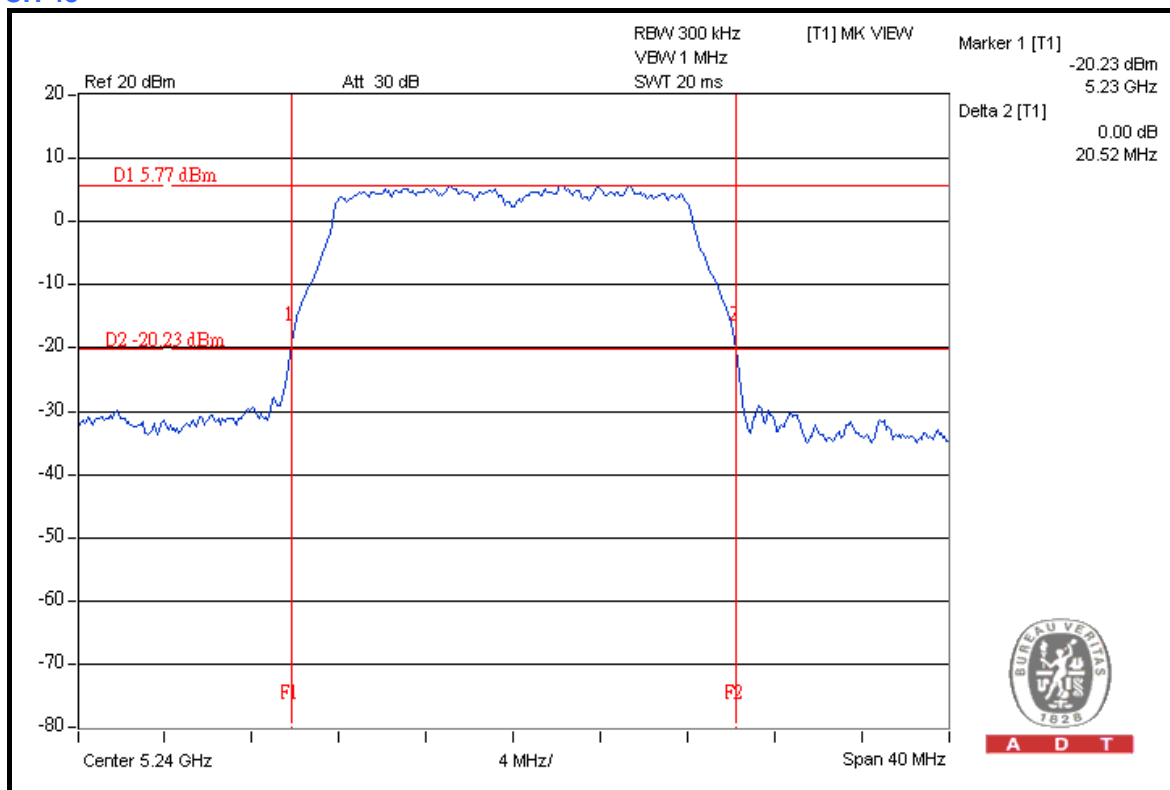


A D T

CH 40



CH 48



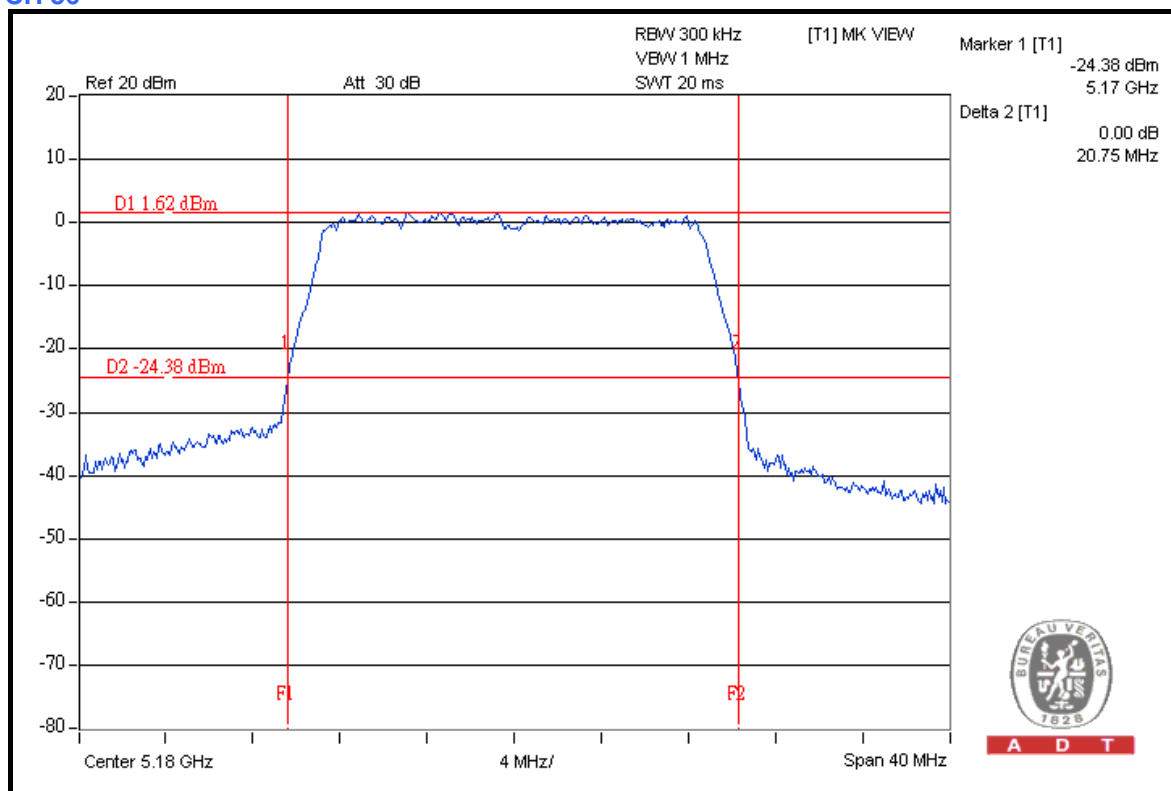


A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	20.75	PASS
40	5200	20.80	PASS
48	5240	20.74	PASS

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Ref 20 dBm Att 30 dB RBW 300 kHz VBW 1 MHz SWT 20 ms [T1] MK VIEW

Marker 1 [T1] -22.56 dBm 5.23 GHz

Delta 2 [T1] 0.00 dB 20.74 MHz

D1 3.44 dBm

D2 -22.56 dBm

F1 F2

Center 5.24 GHz 4 MHz/ Span 40 MHz

BUREAU VERITAS 1828

A D T

**A D T****DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX**

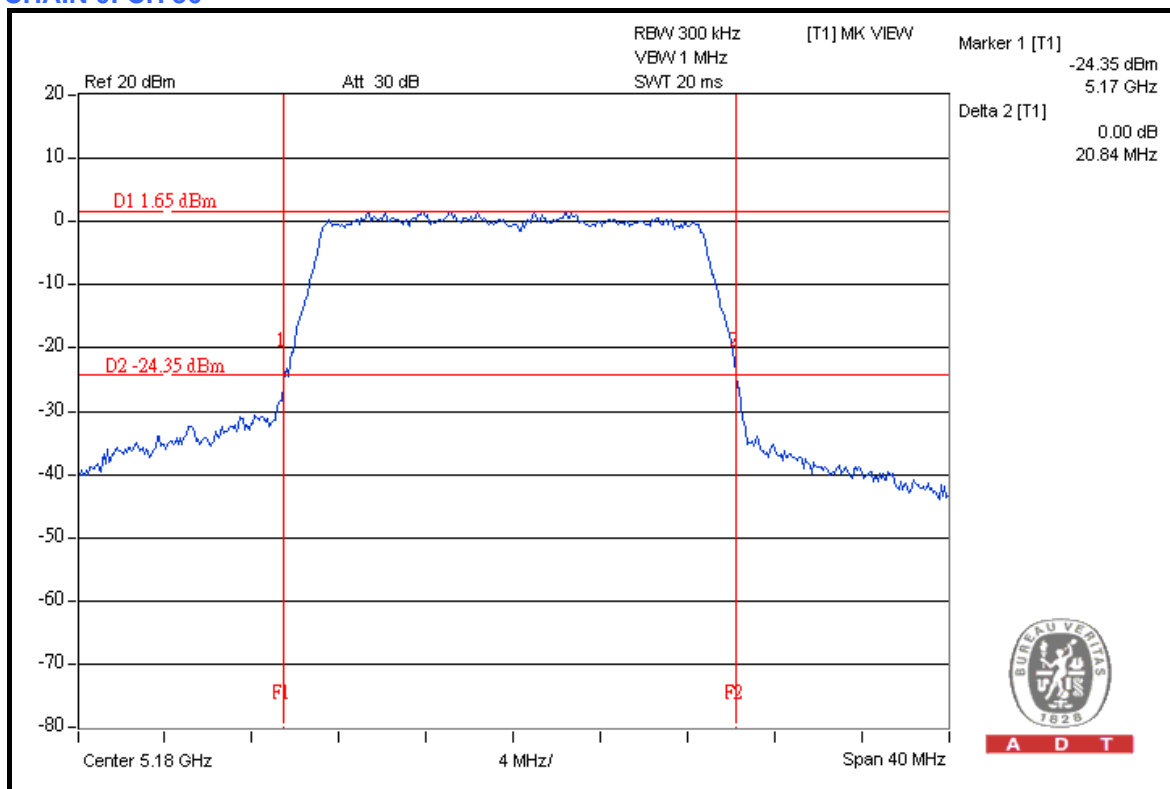
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	20.84	20.72	PASS
40	5200	20.76	20.73	PASS
48	5240	20.71	20.54	PASS

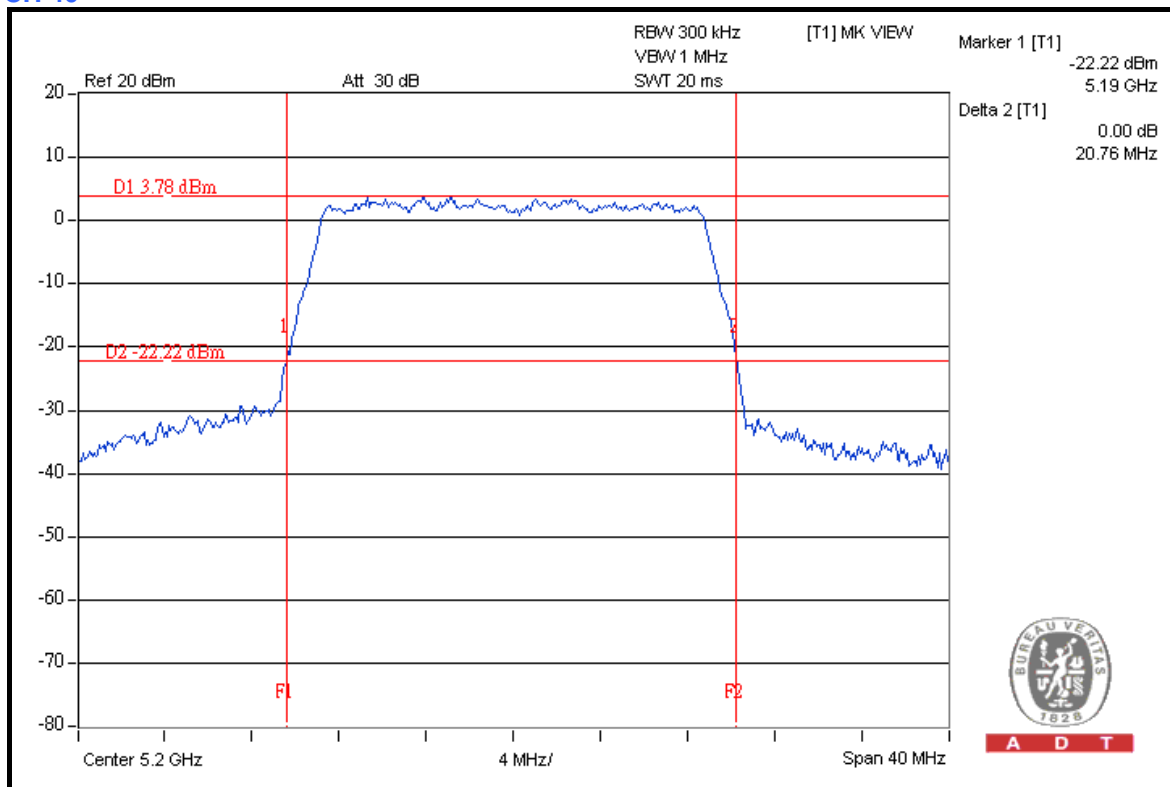


A D T

CHAIN 0: CH 36



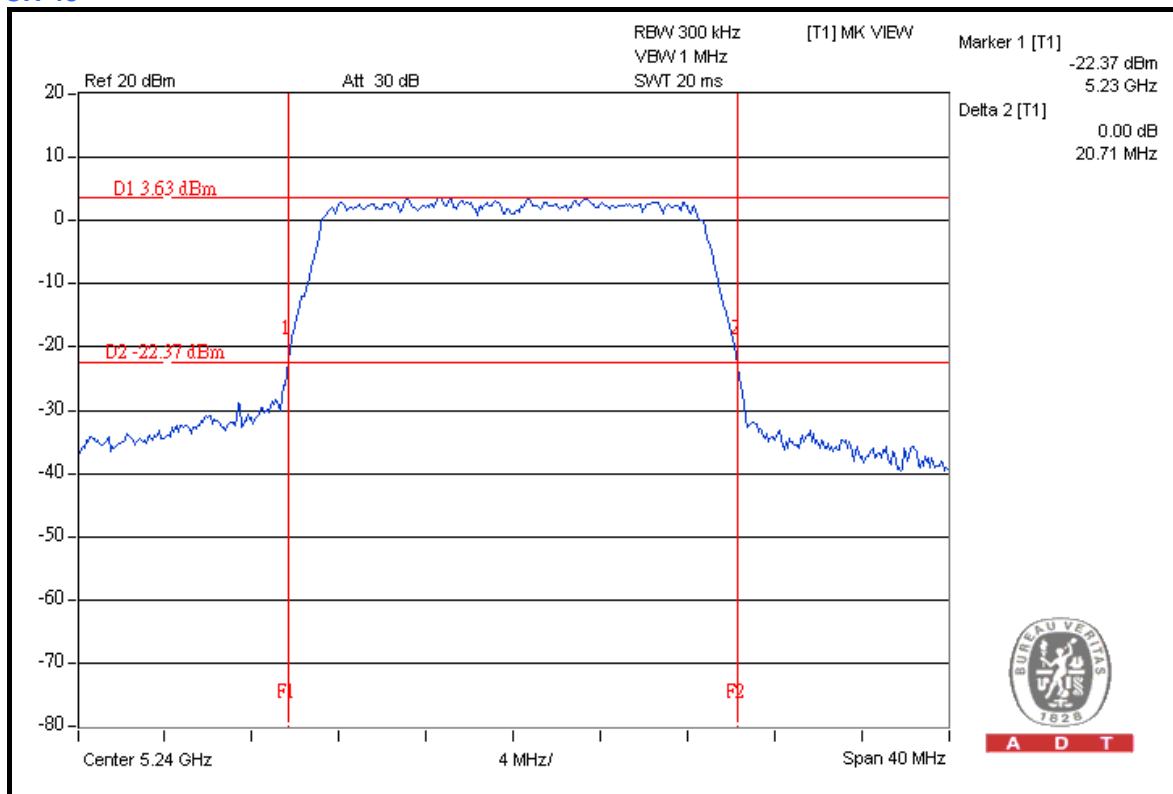
CH 40



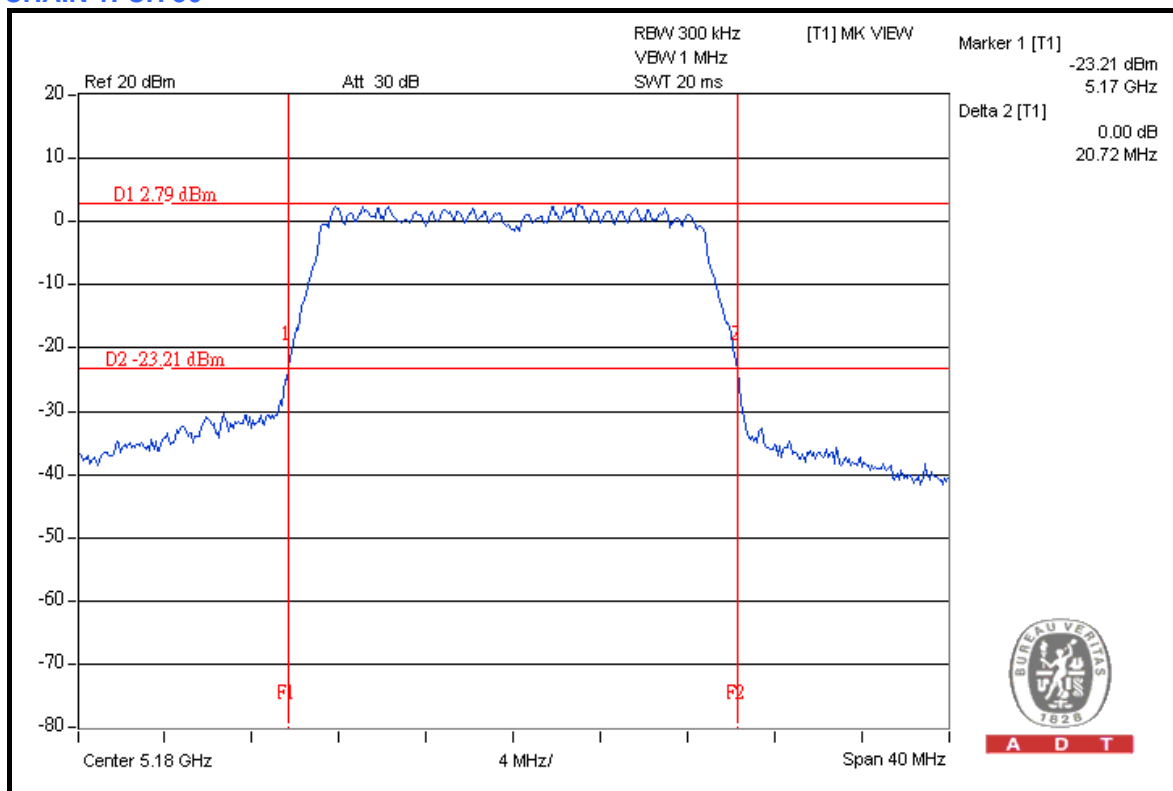


A D T

CH 48



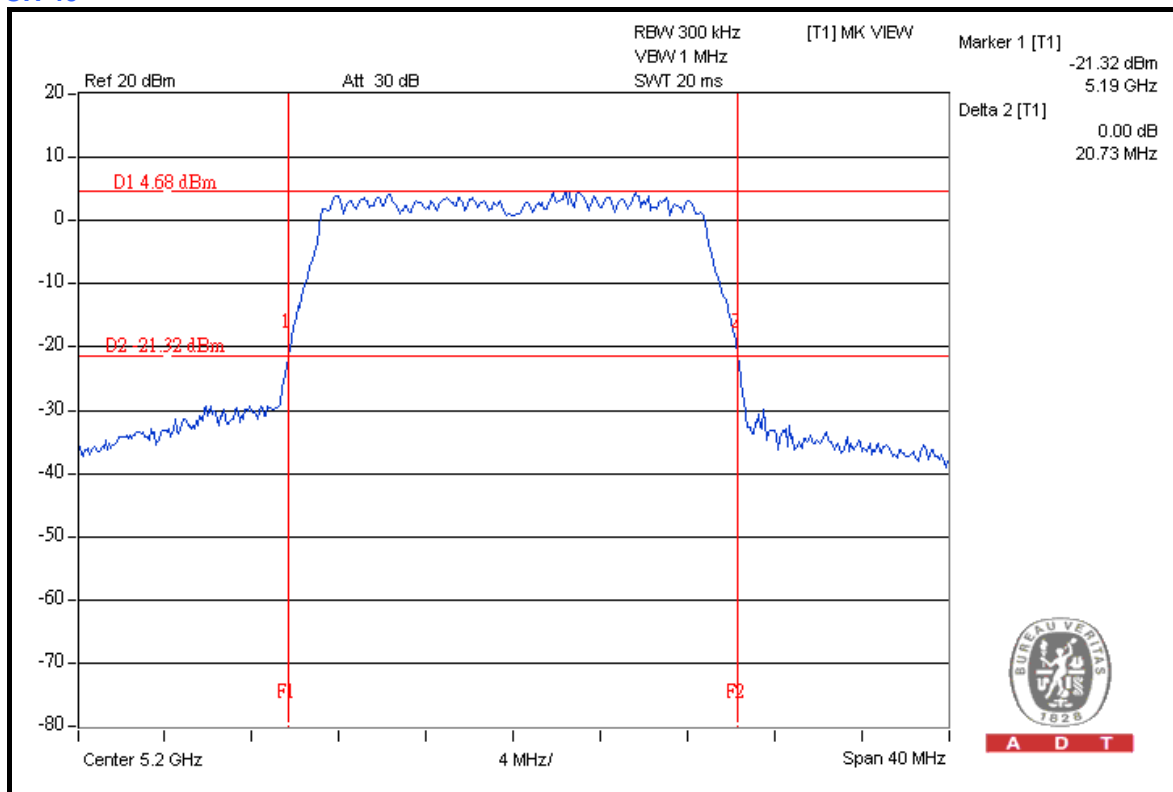
CHAIN 1: CH 36





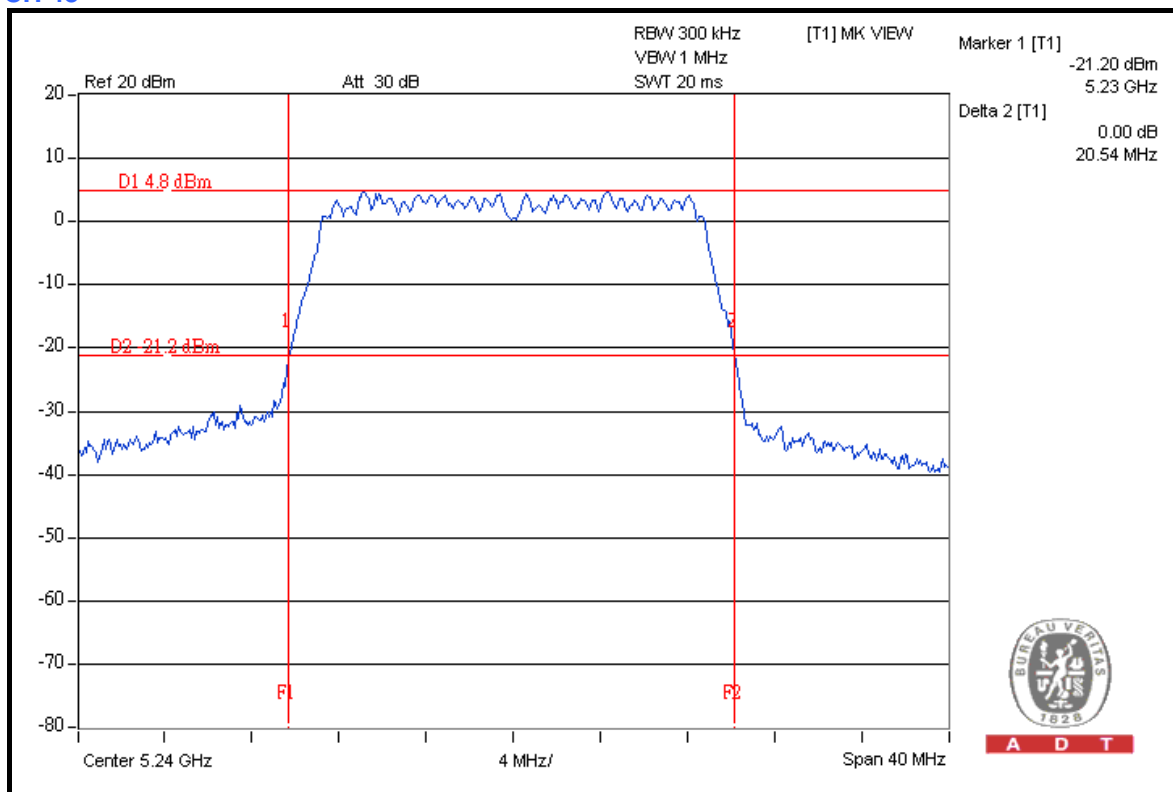
A D T

CH 40



A D T

CH 48



A D T

**A D T****DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX**

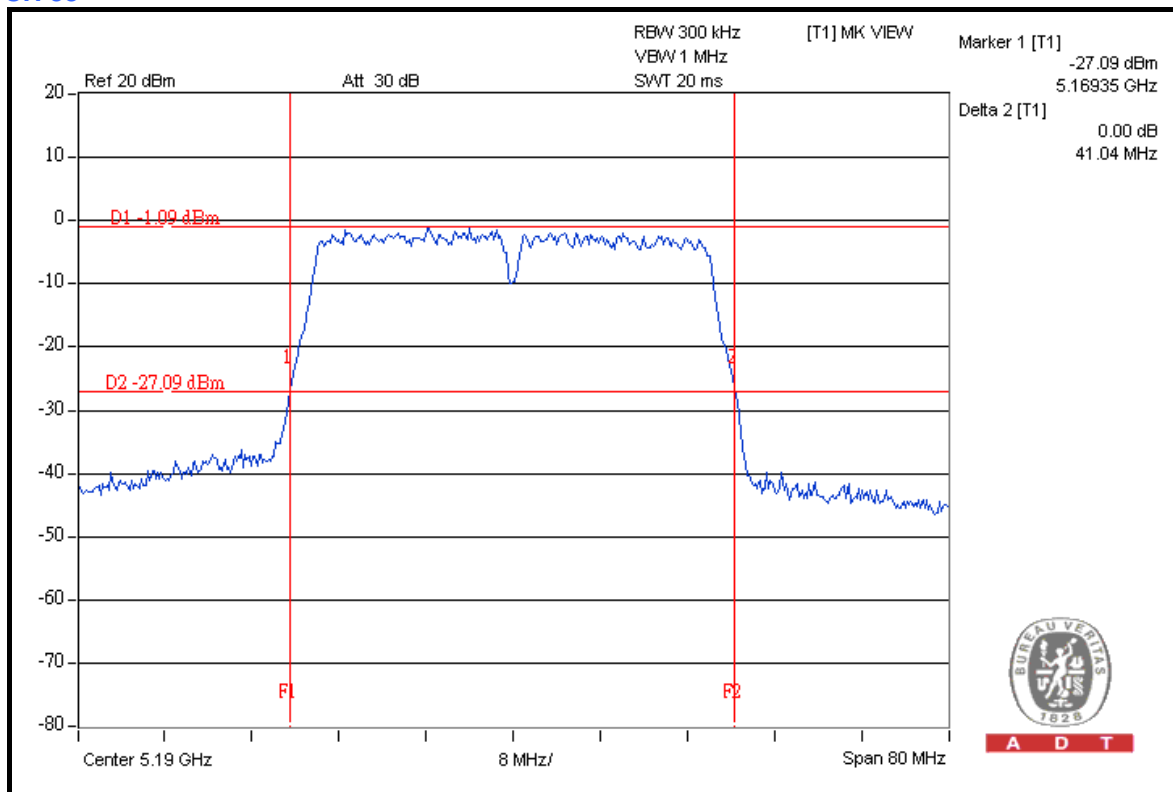
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
38	5190	41.04	PASS
46	5230	41.16	PASS

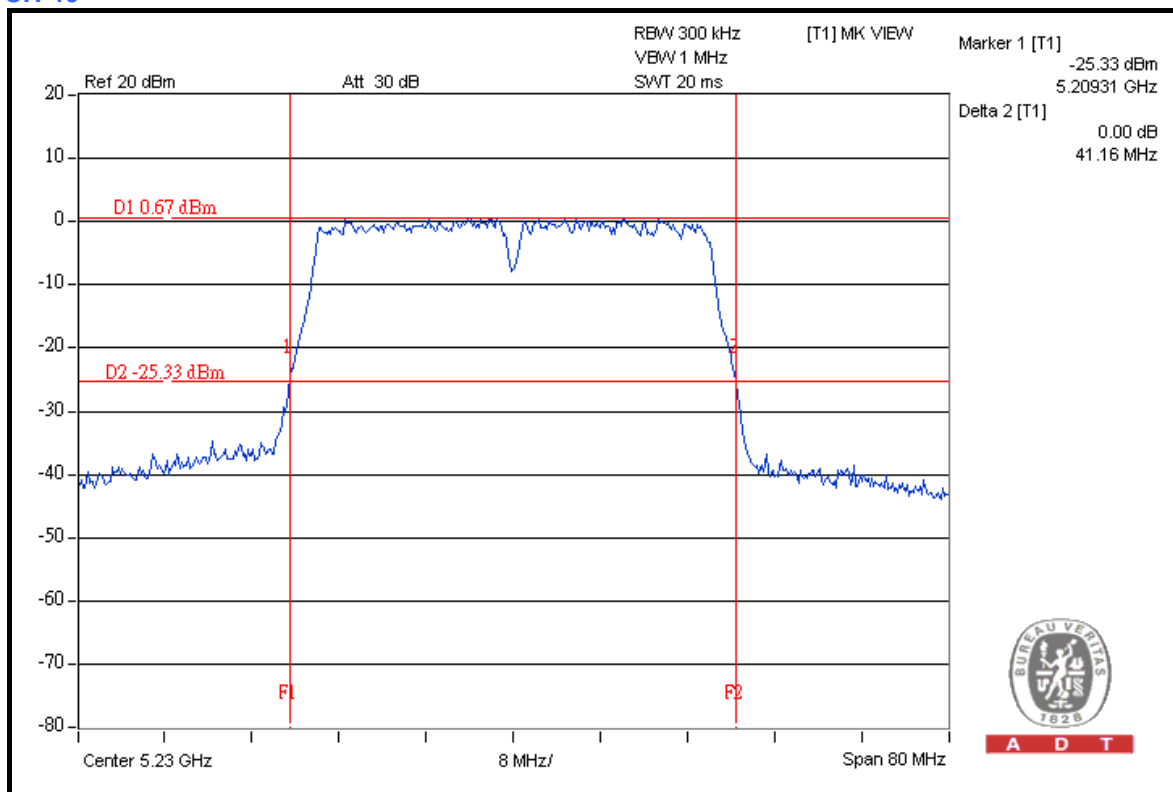


A D T

CH 38



CH 46





A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

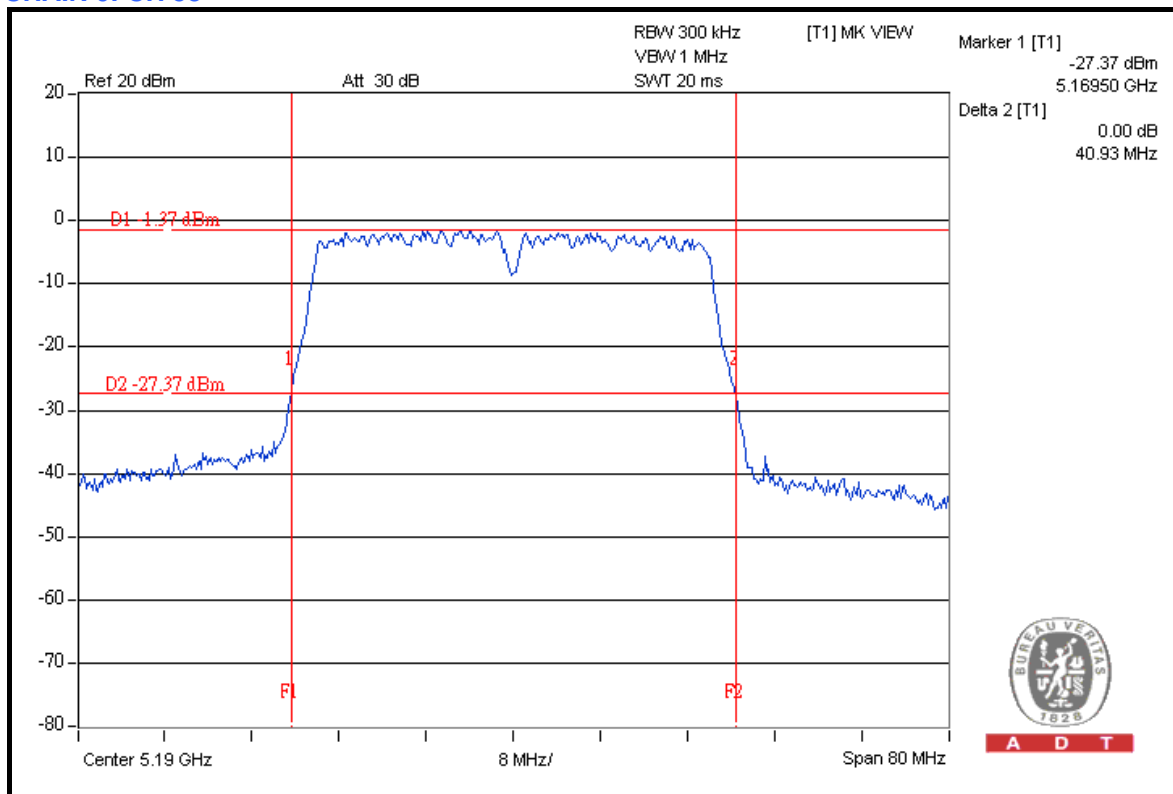
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	40.93	40.79	PASS
46	5230	40.91	40.82	PASS



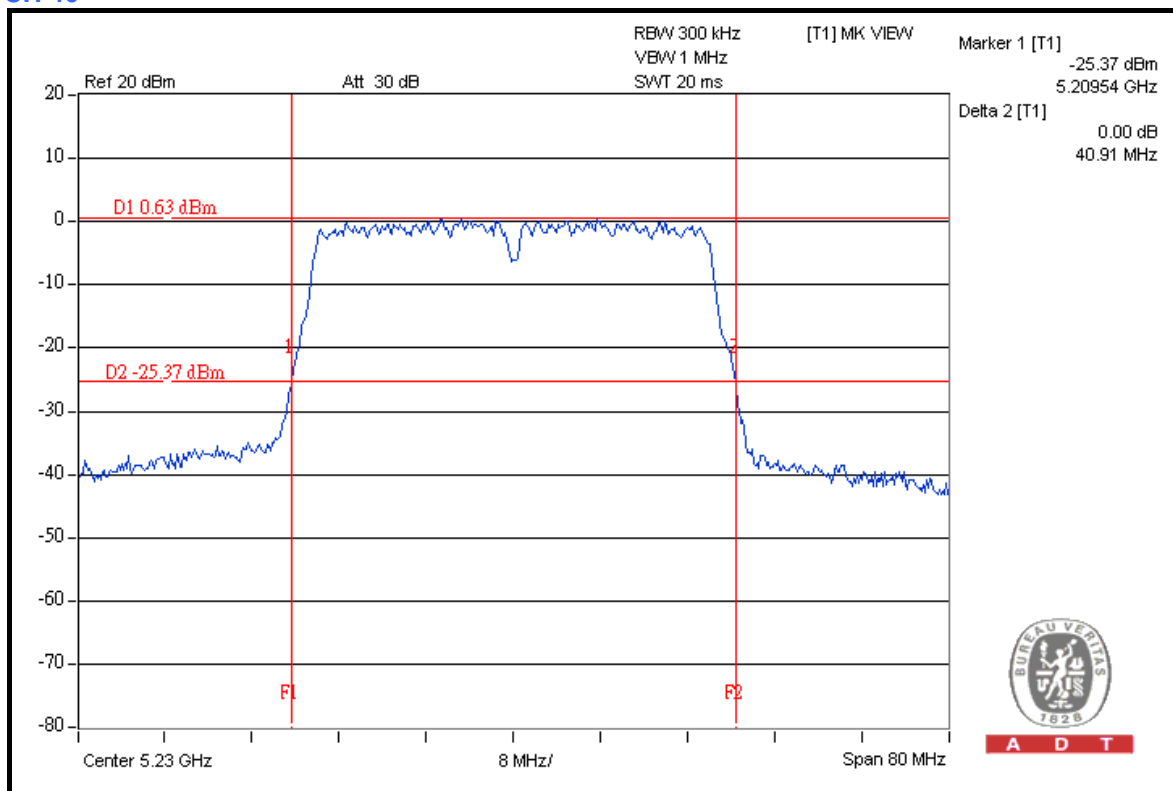
A D T

CHAIN 0: CH 38



A D T

CH 46

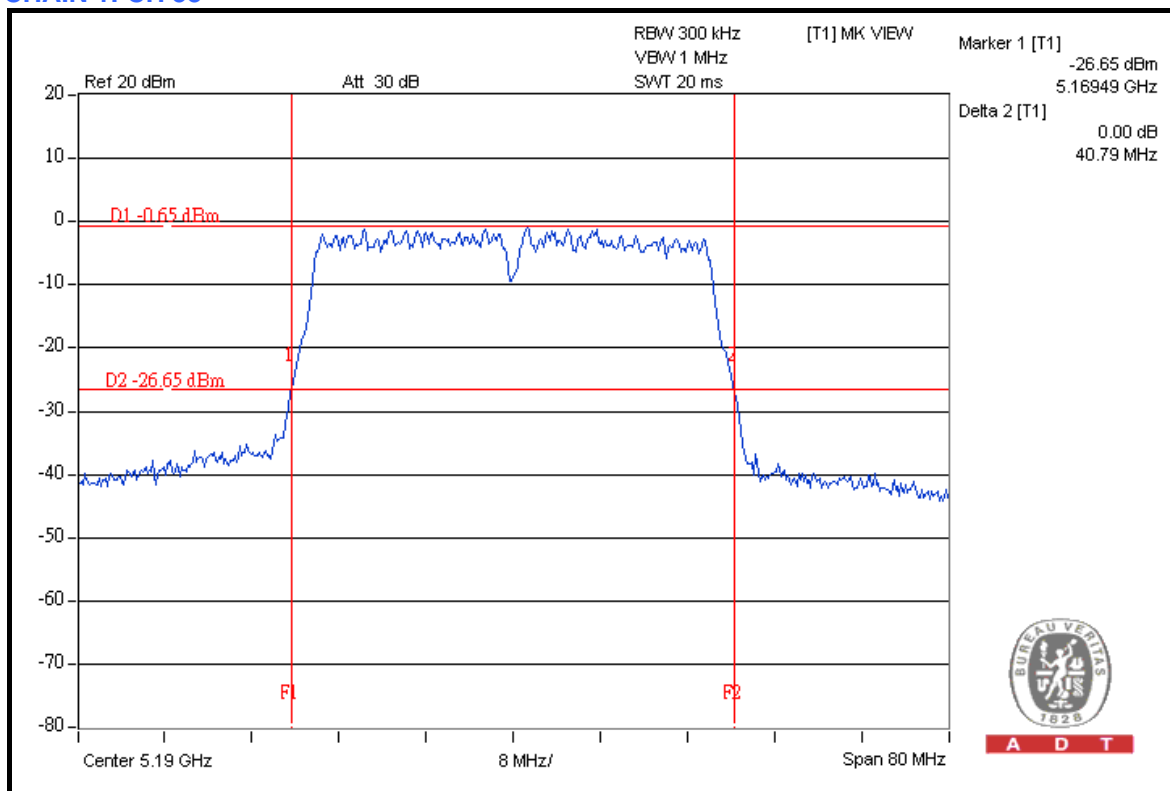


A D T

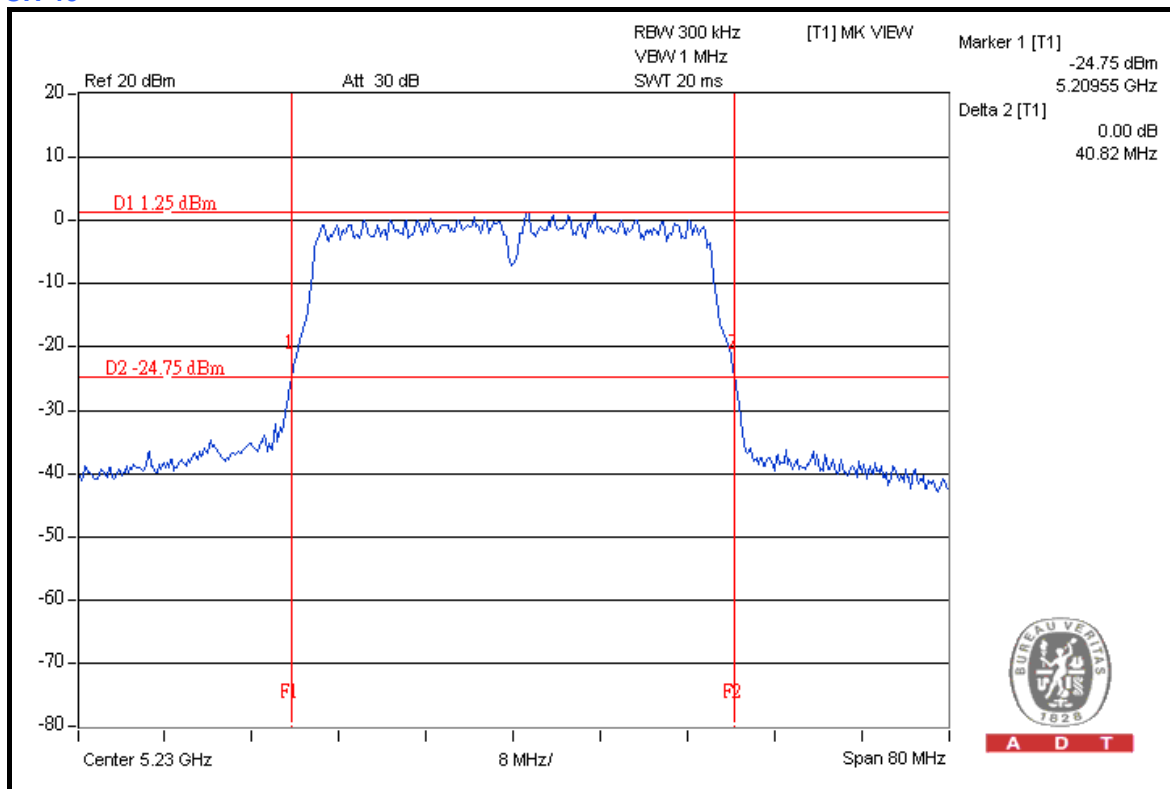


A D T

CHAIN 1: CH 38



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4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	13dB
5.250 ~ 5.350GHz	13dB
5.470 ~ 5.725GHz	13dB

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

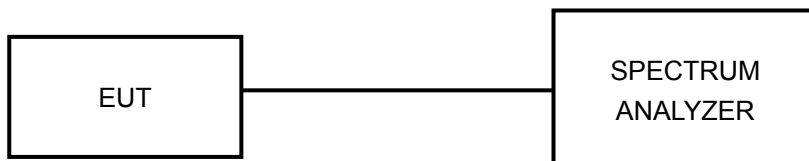
4.4.3 TEST PROCEDURE

- The transmitter output was connected to the spectrum analyzer.
- Set the spectrum bandwidth span to view the entire spectrum.
- Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300 kHz).
- The differences between Trace1 and Trace 2 in any 1MHz band at f1 to f2 range were recorded and showed to another trace.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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



A D T

4.4.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

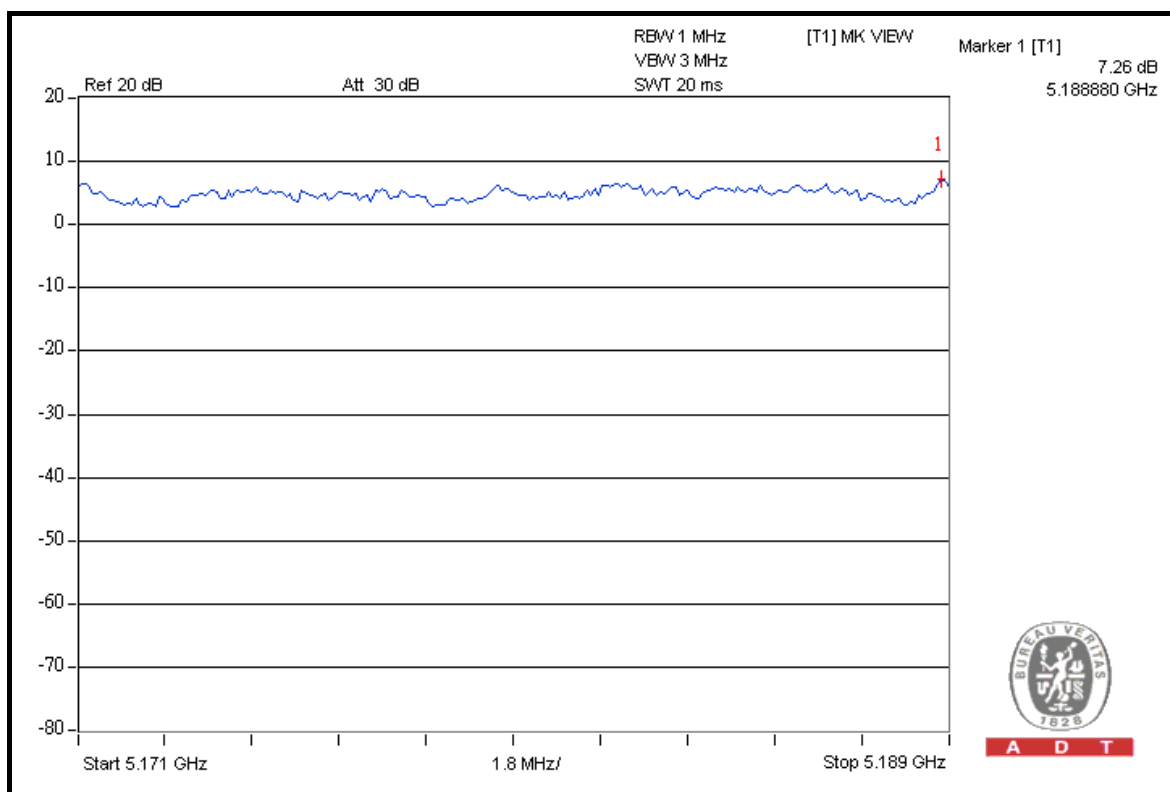
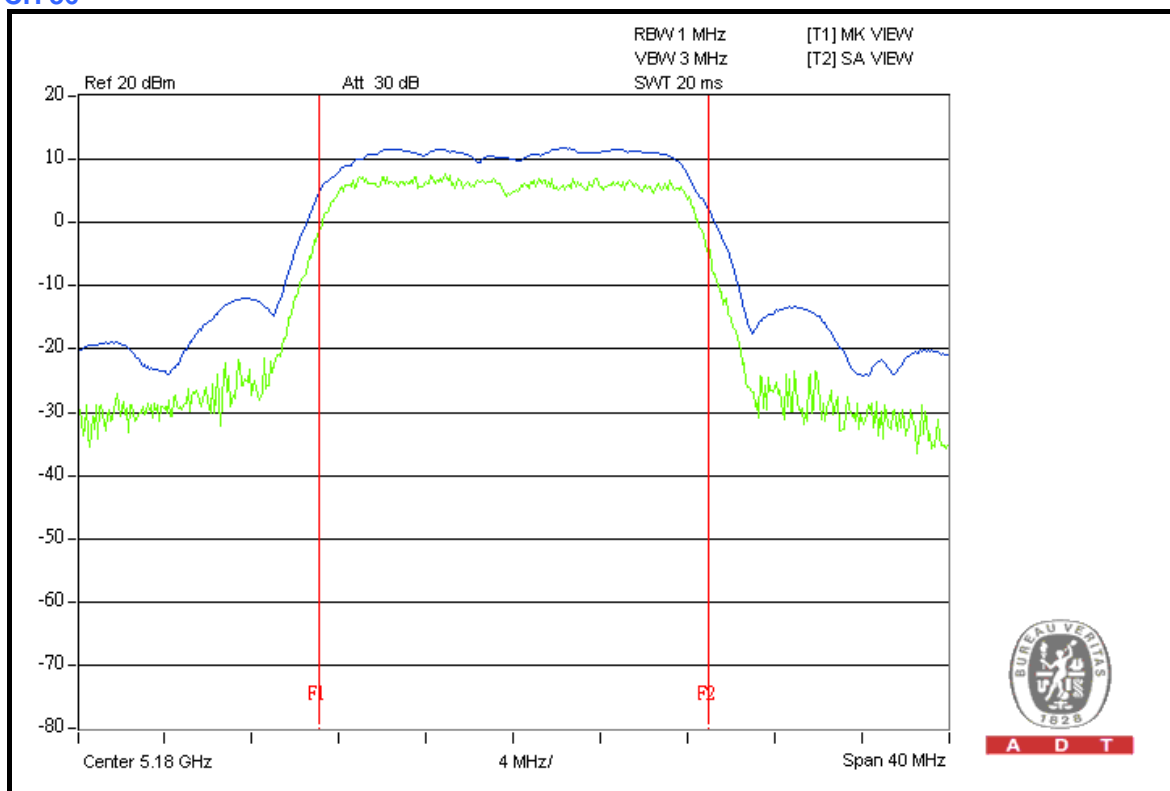
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	7.26	13	PASS
40	5200	7.17	13	PASS
48	5240	8.61	13	PASS



A D T

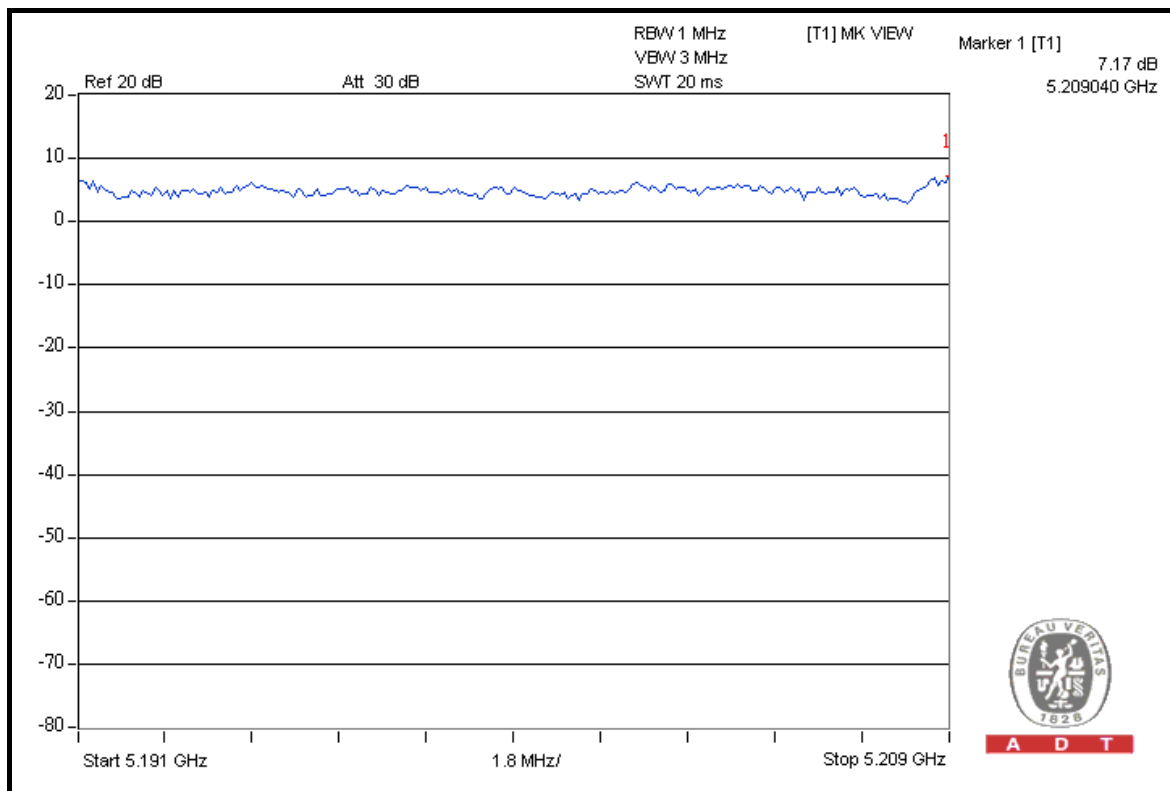
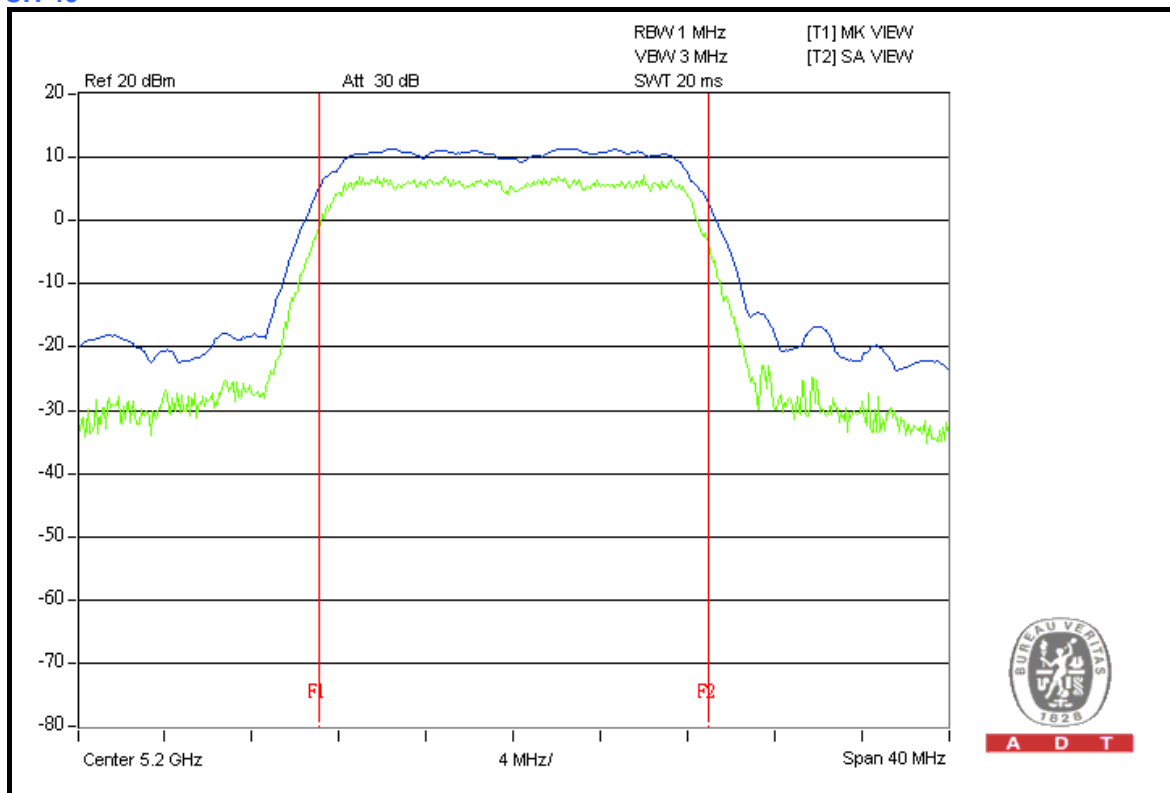
CH 36





A D T

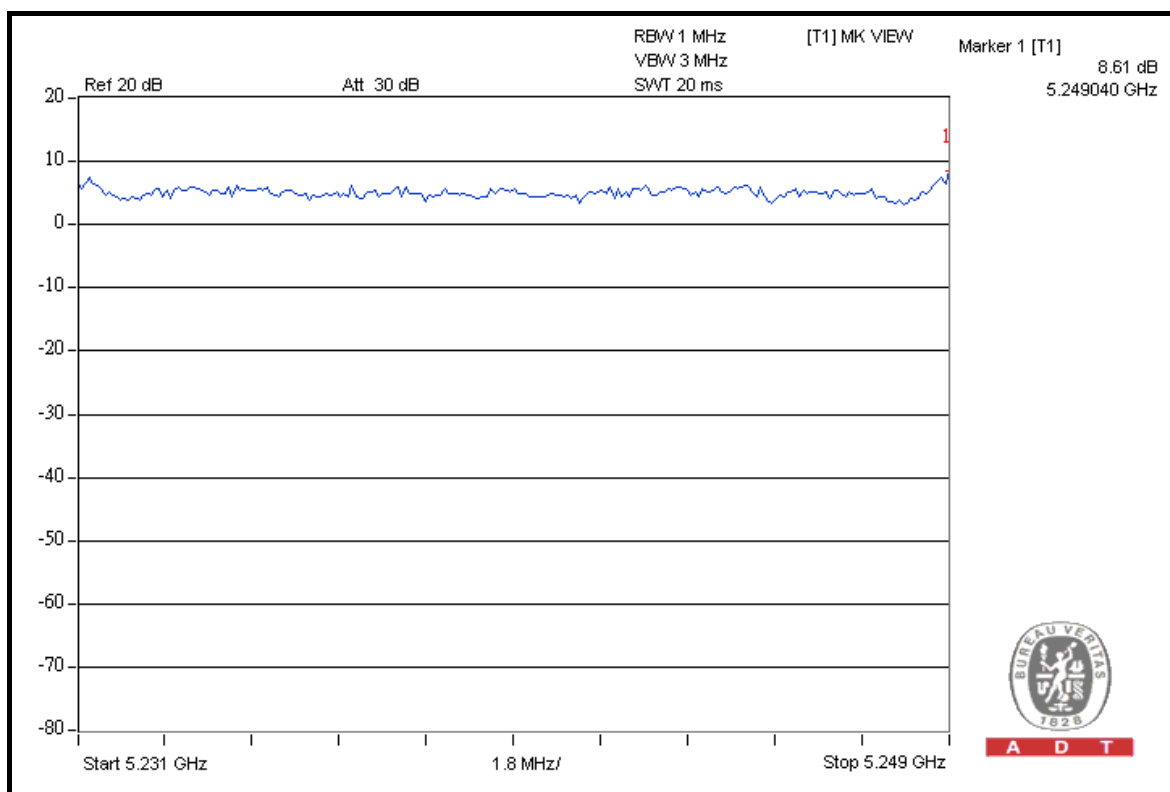
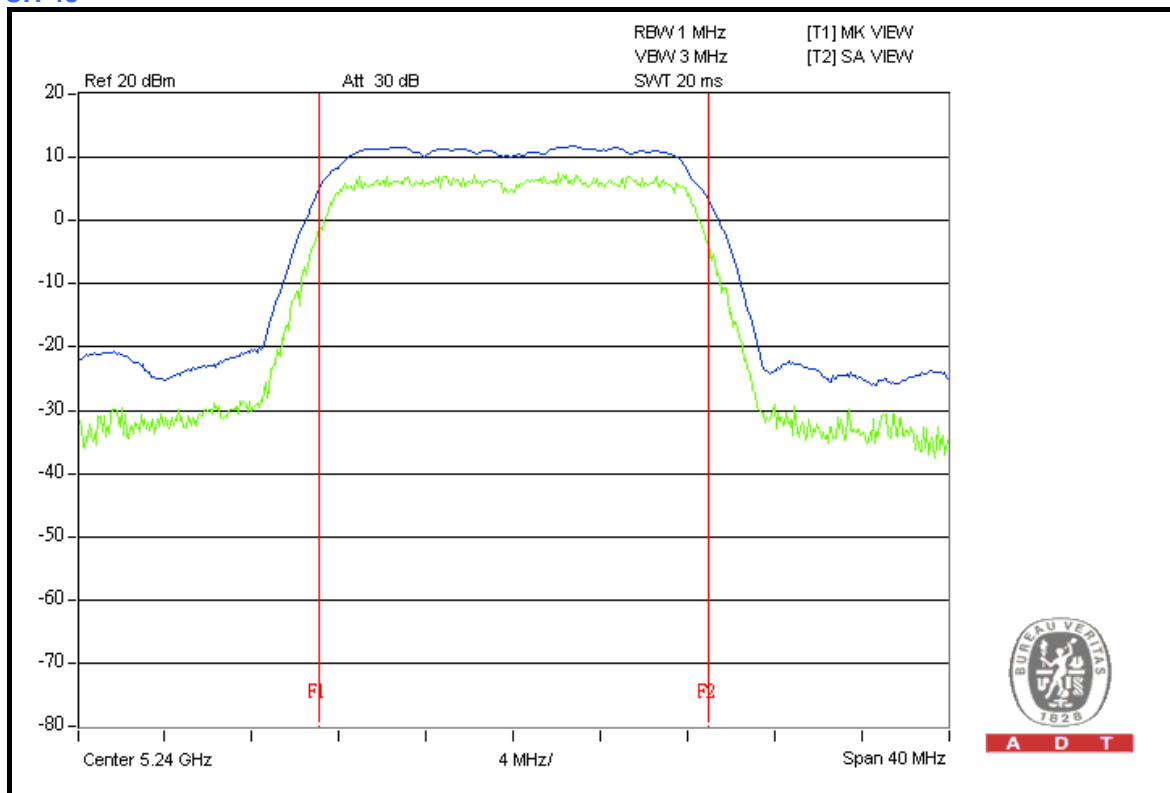
CH 40





A D T

CH 48





A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

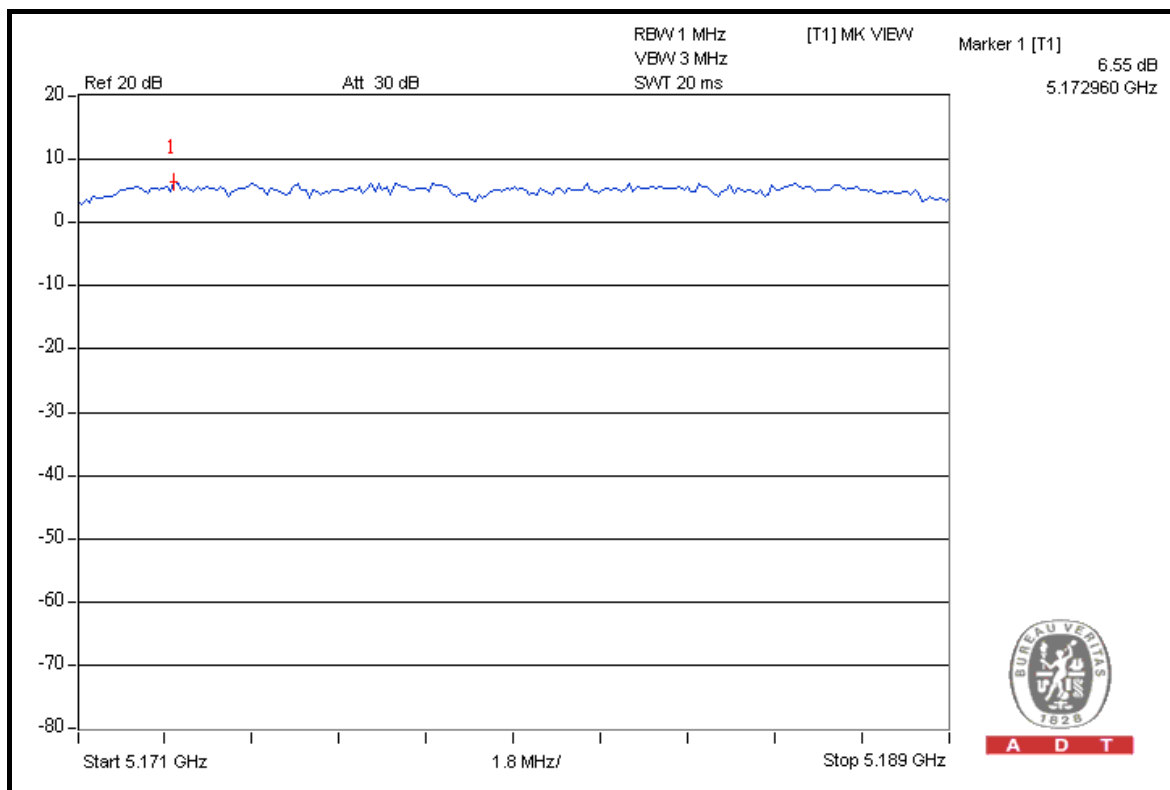
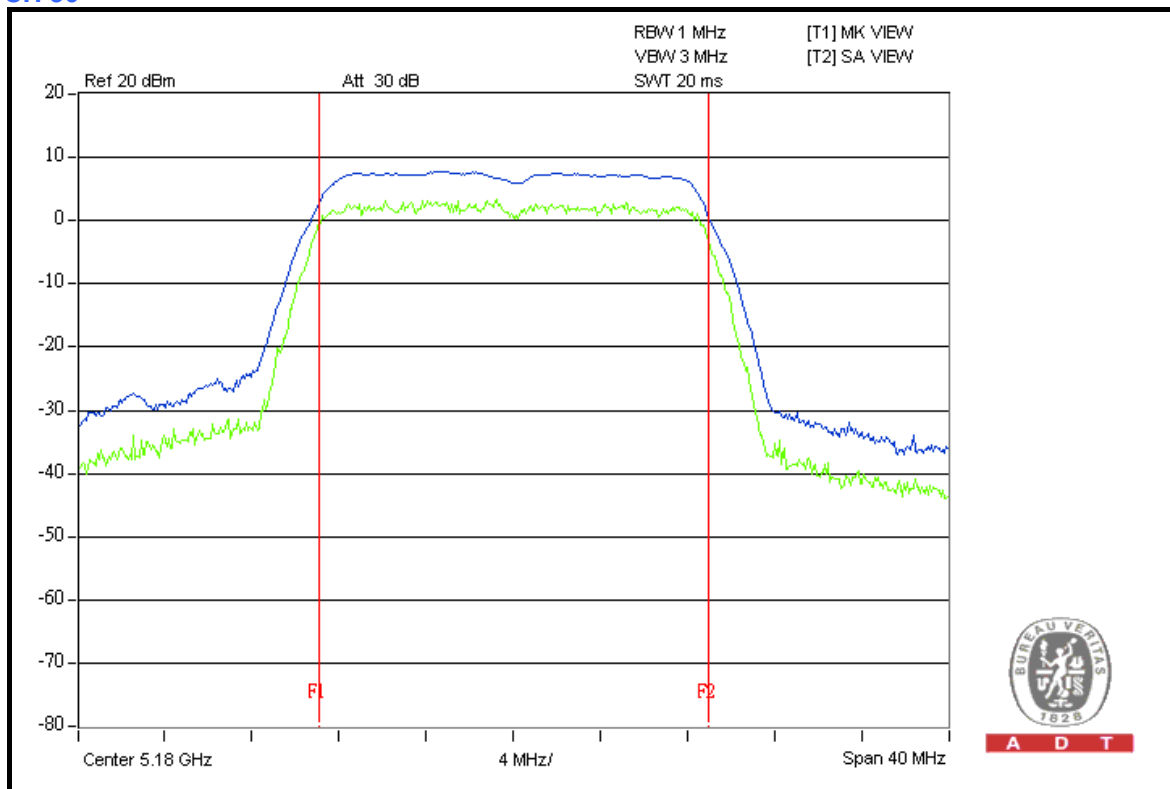
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	6.55	13	PASS
40	5200	6.49	13	PASS
48	5240	6.55	13	PASS



A D T

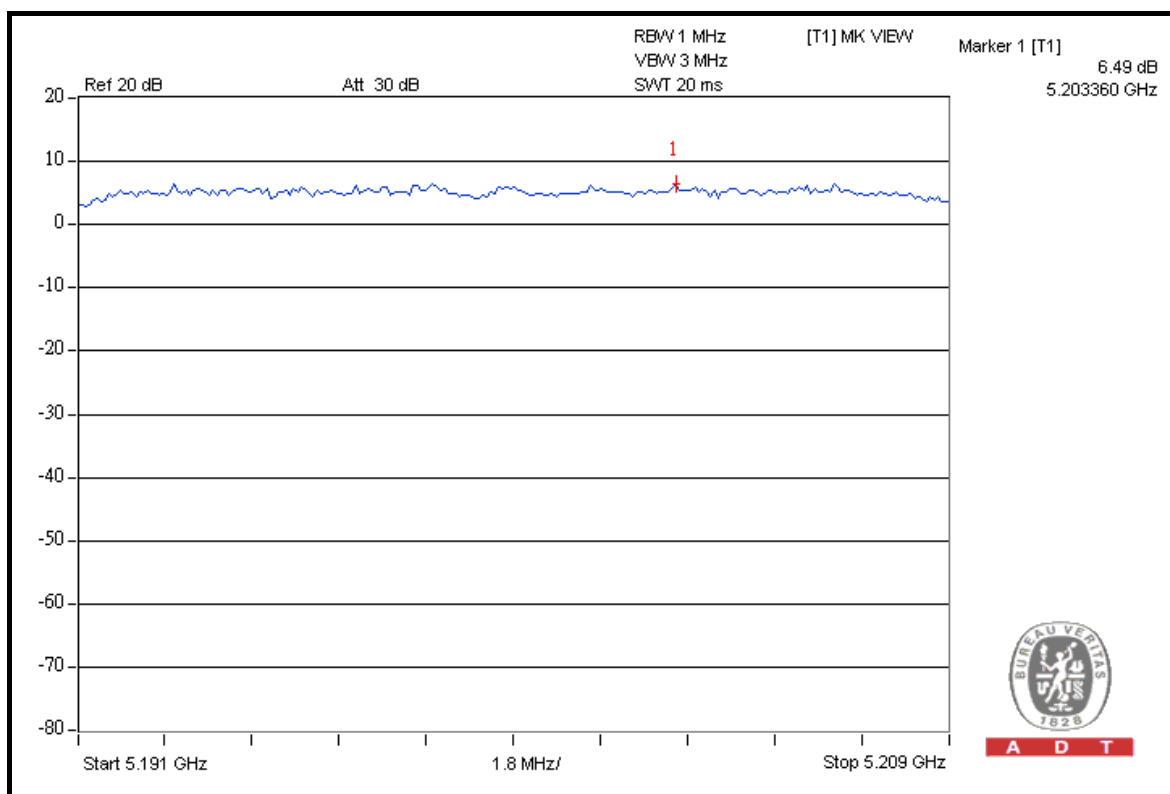
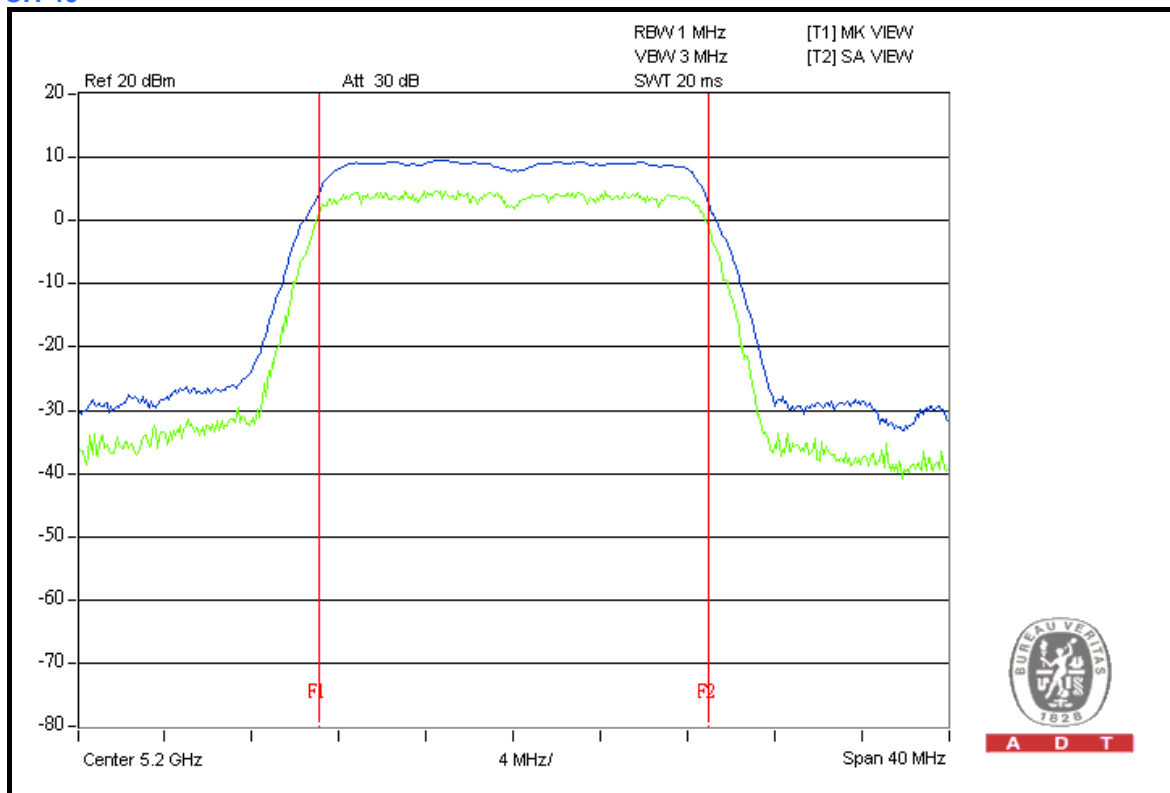
CH 36





A D T

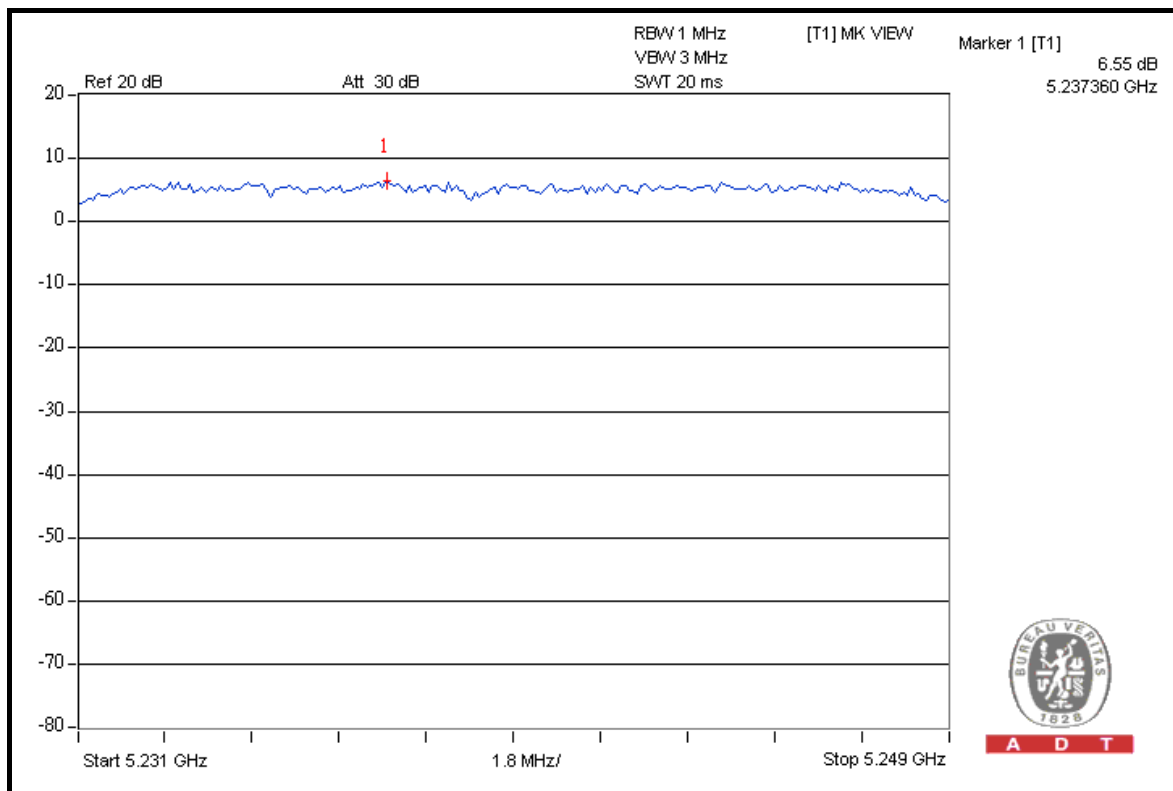
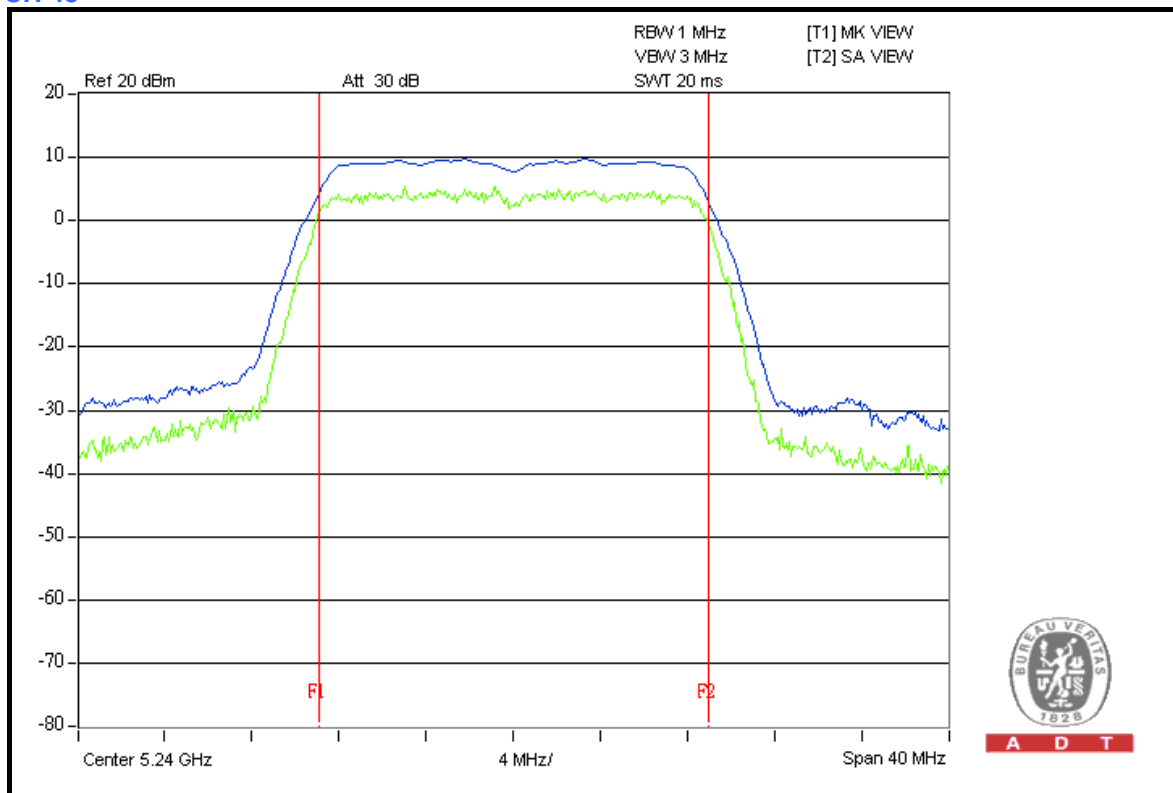
CH 40





A D T

CH 48





A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

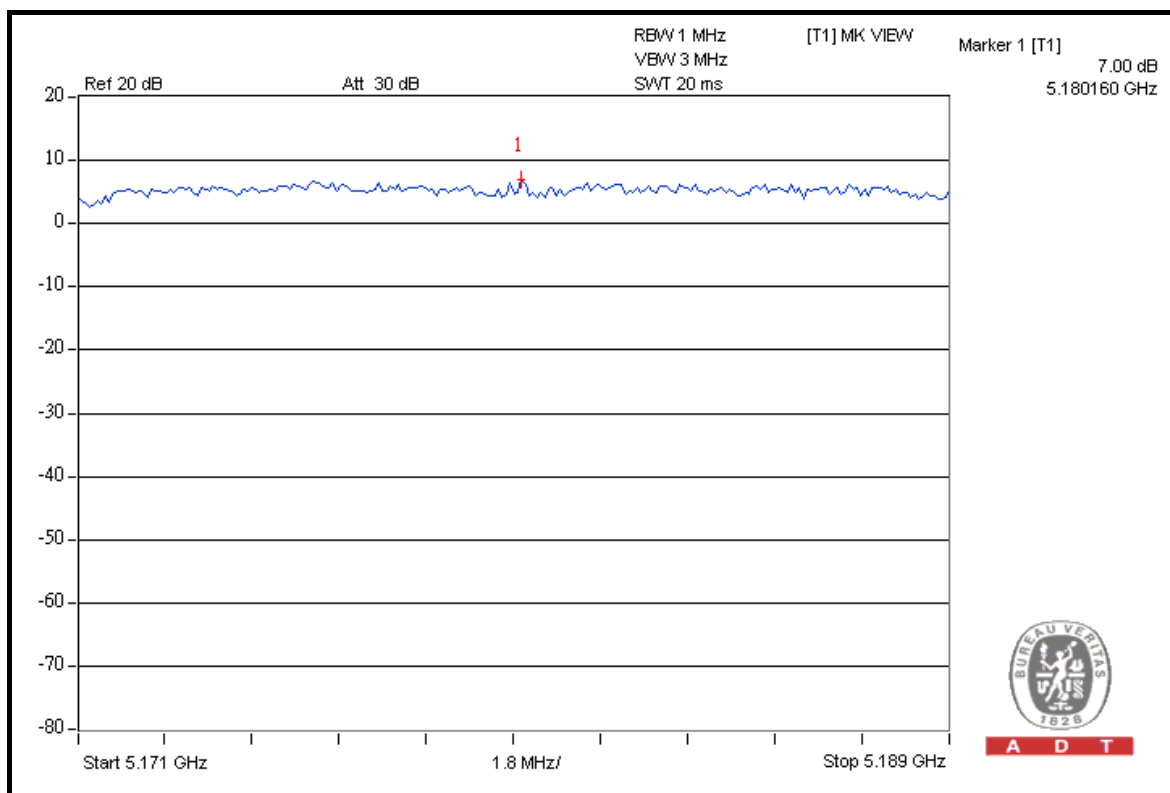
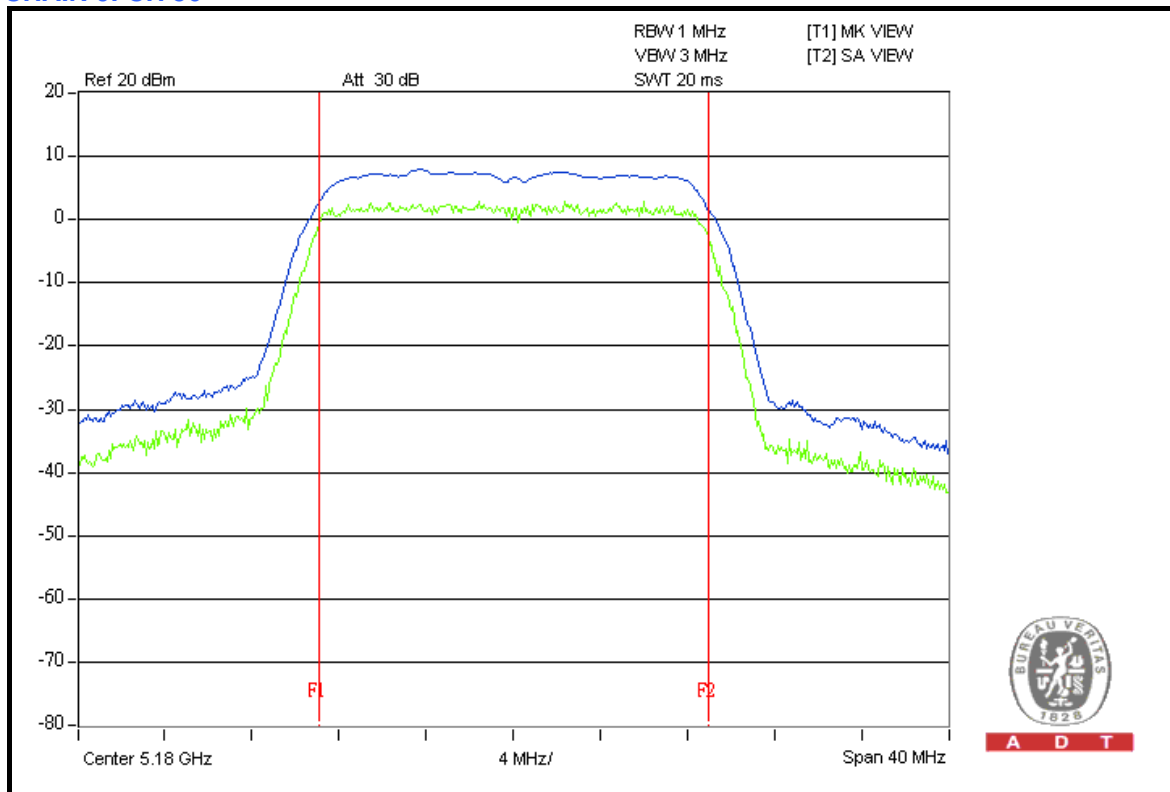
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	7.00	6.98	13	PASS
40	5200	6.65	6.63	13	PASS
48	5240	6.54	8.97	13	PASS



A D T

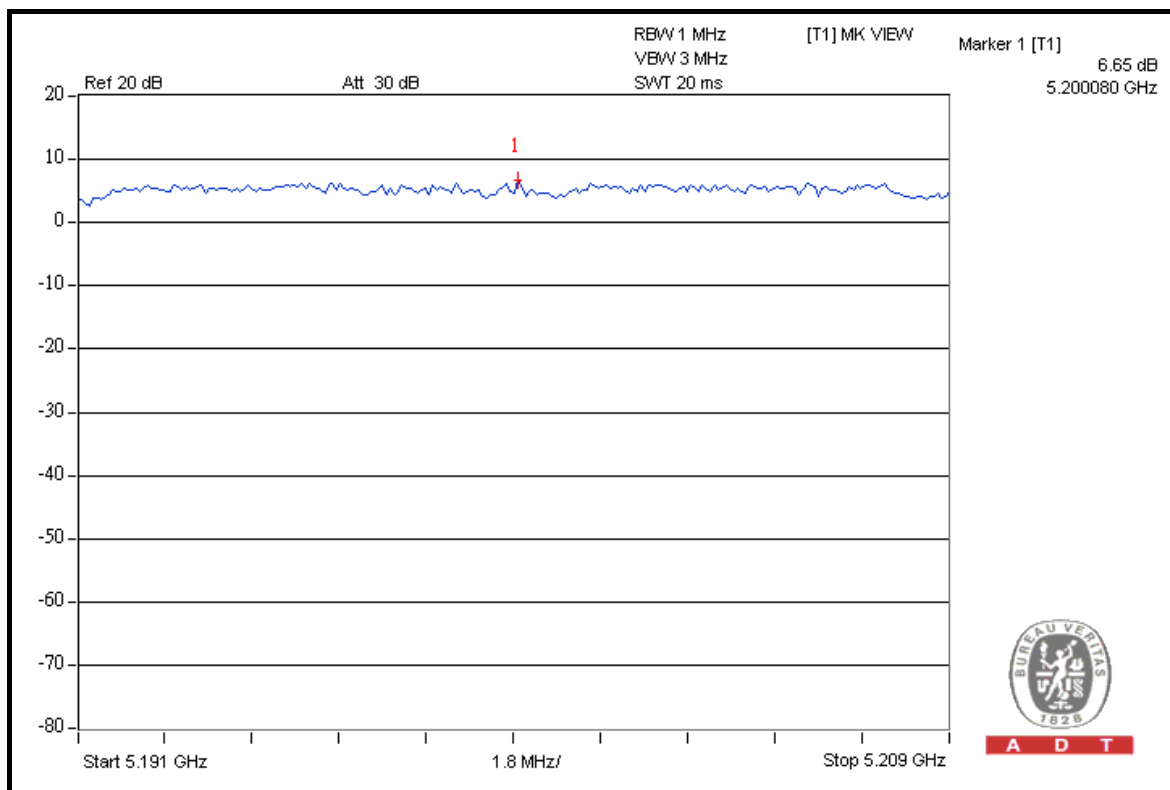
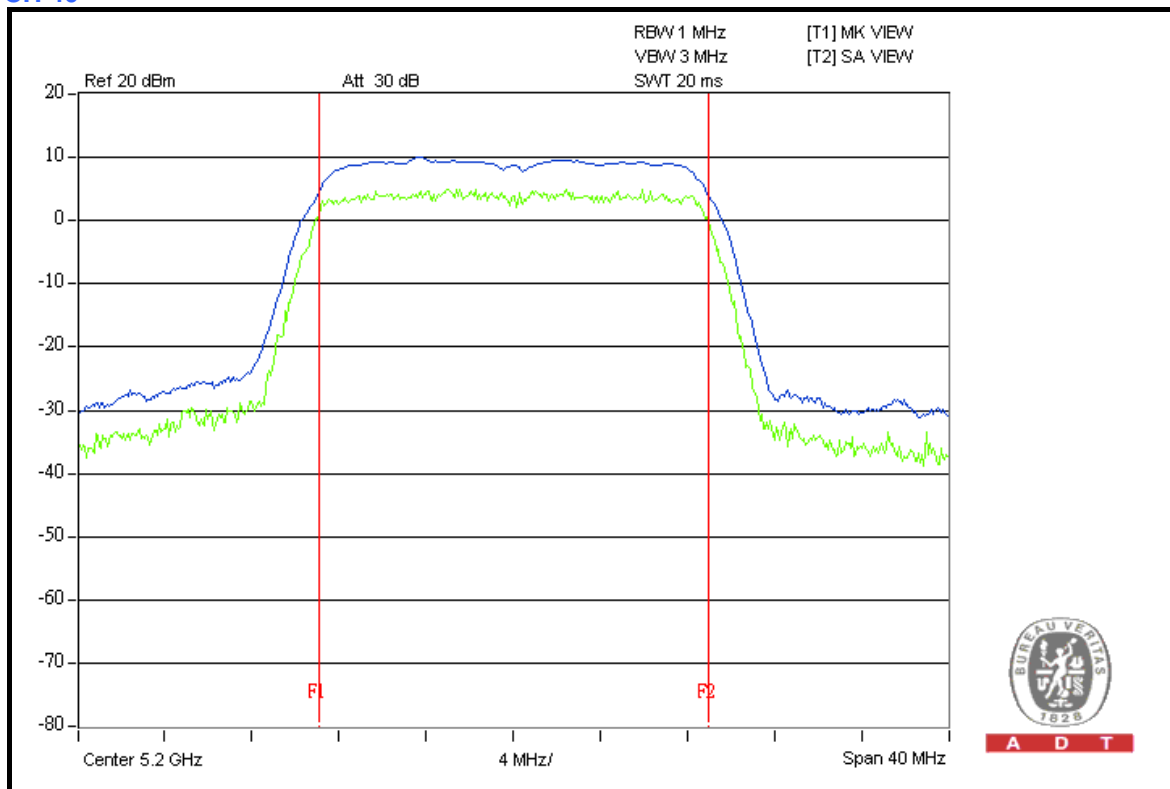
CHAIN 0: CH 36





A D T

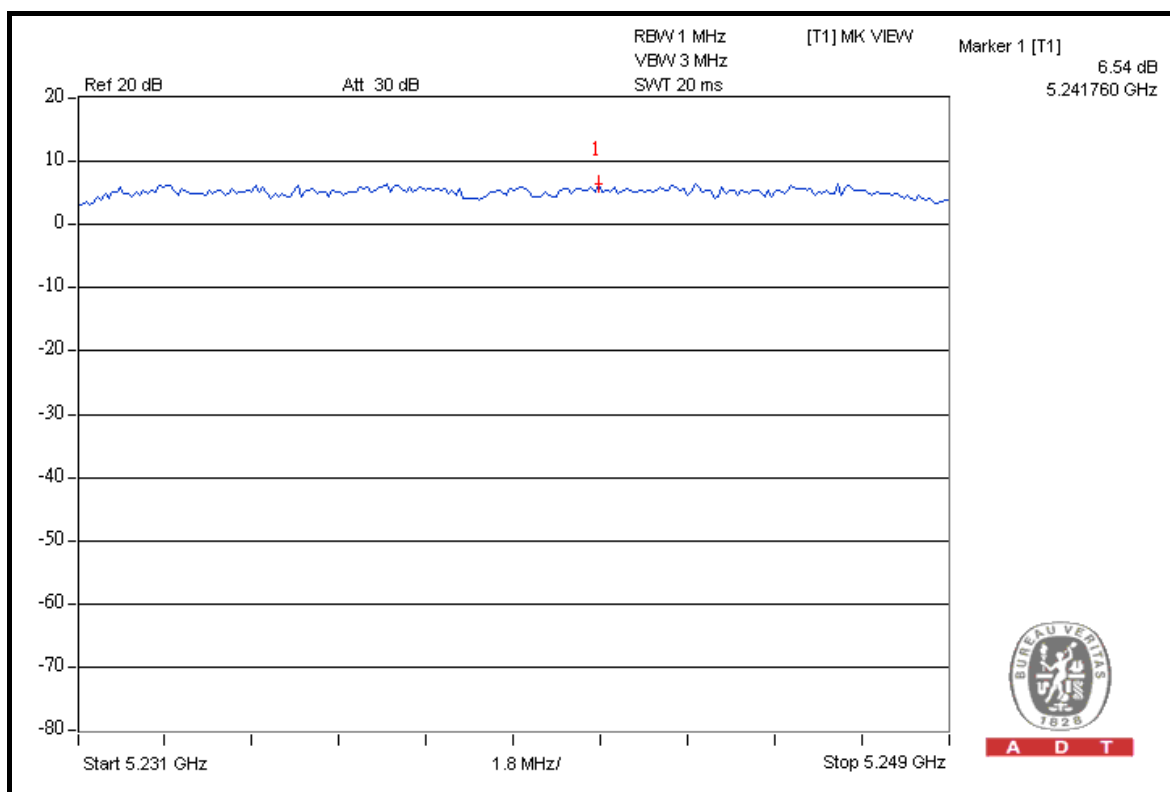
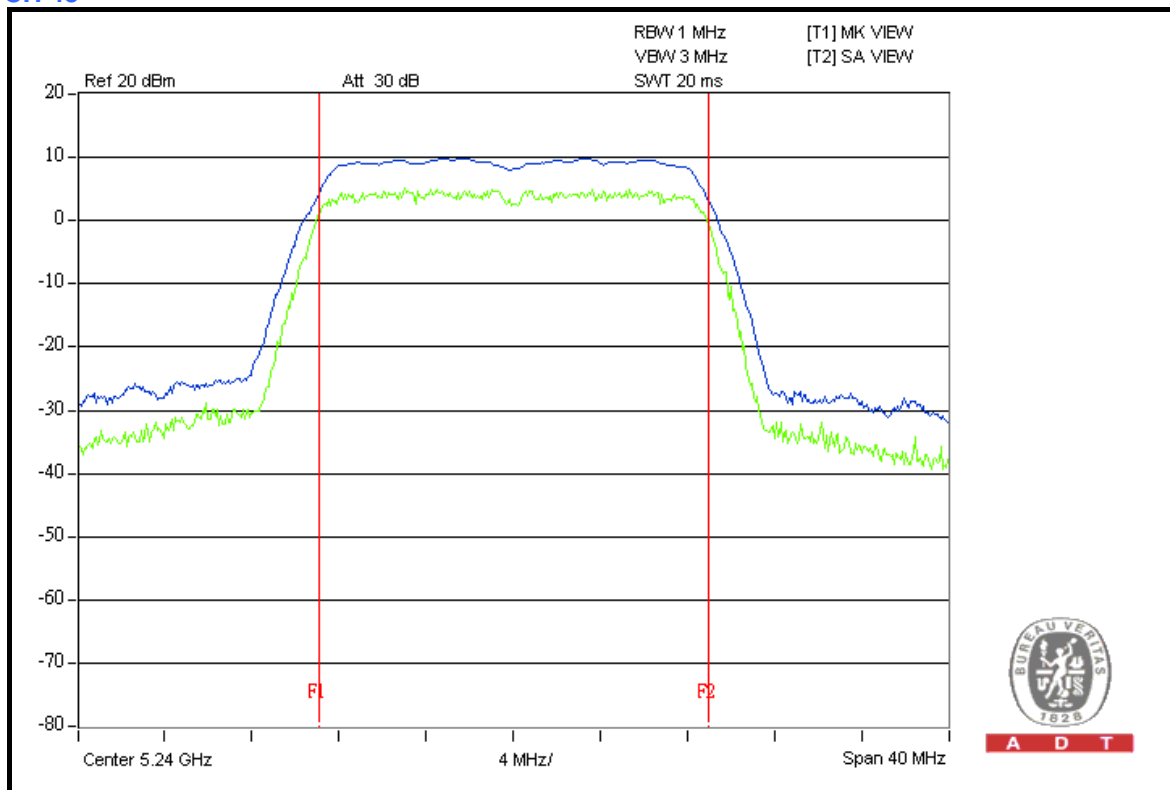
CH 40





A D T

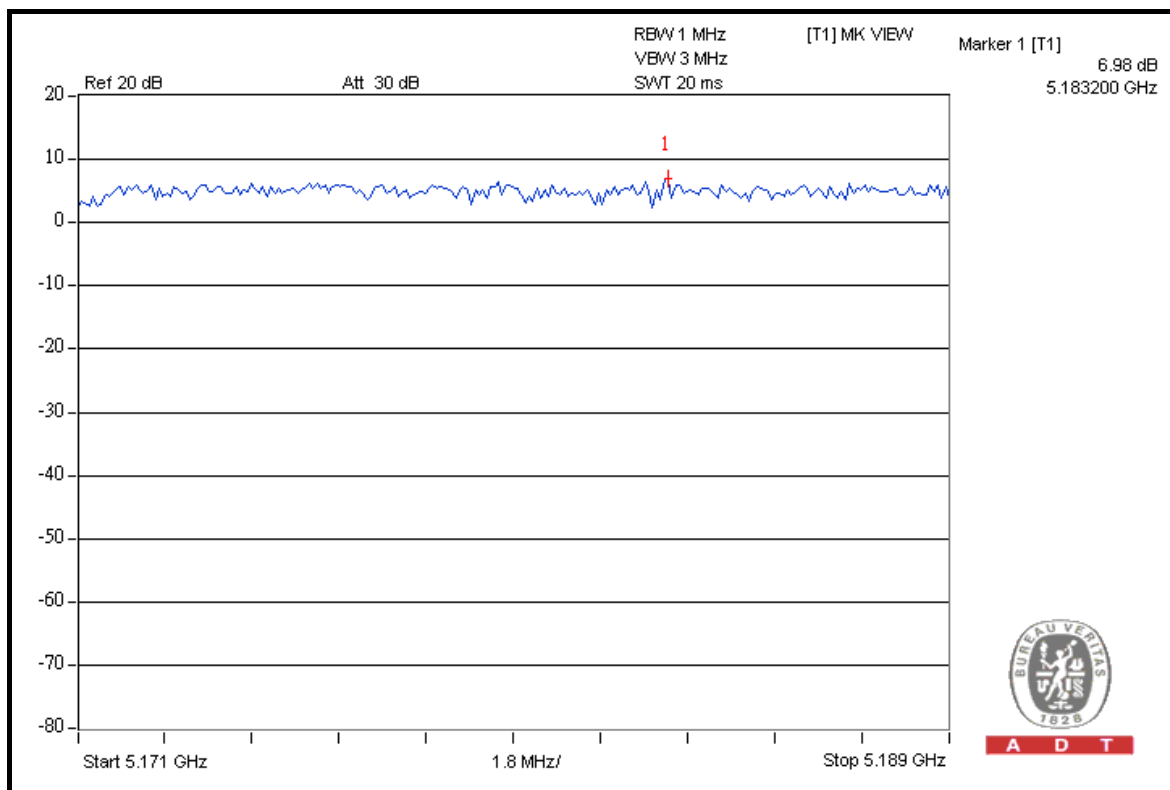
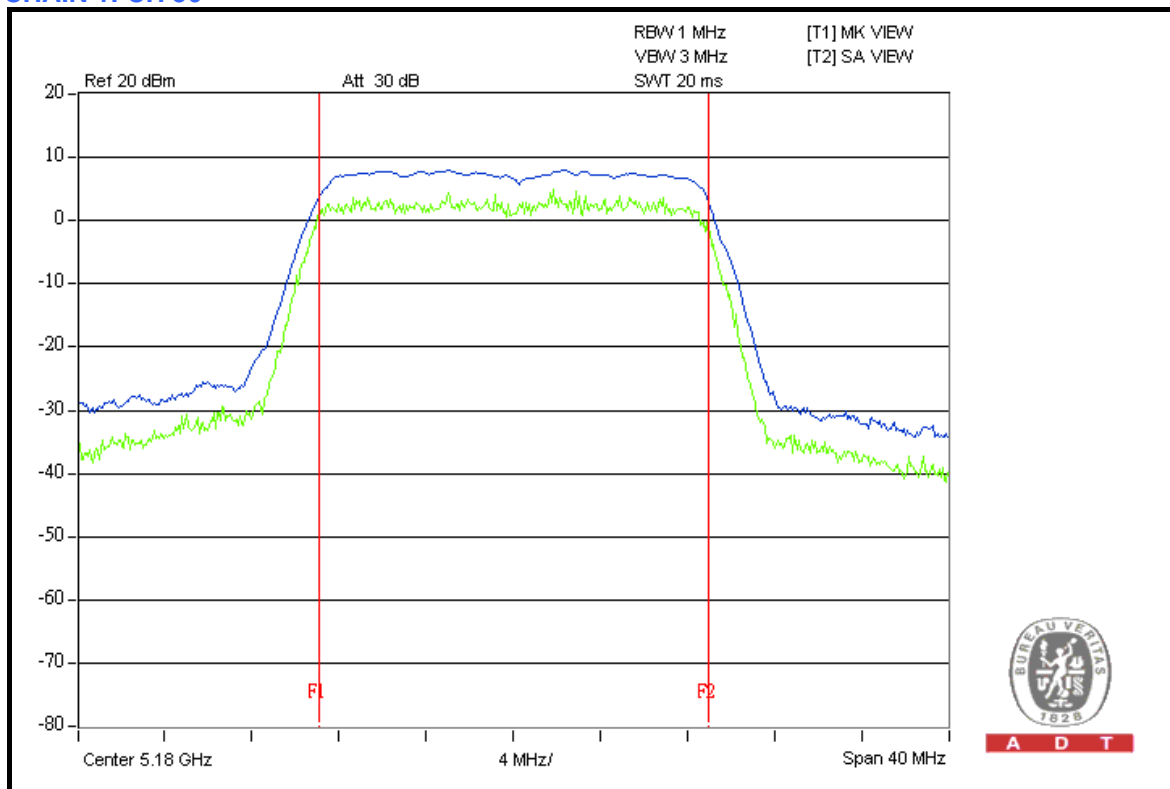
CH 48





A D T

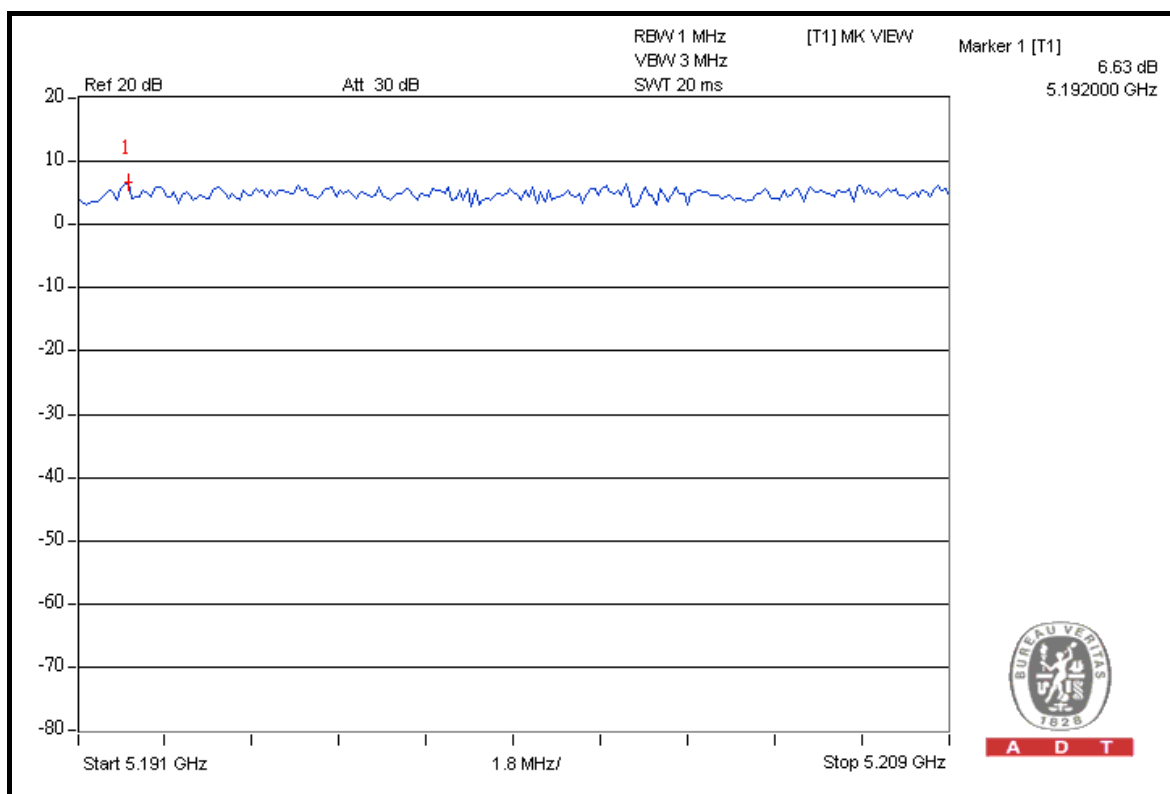
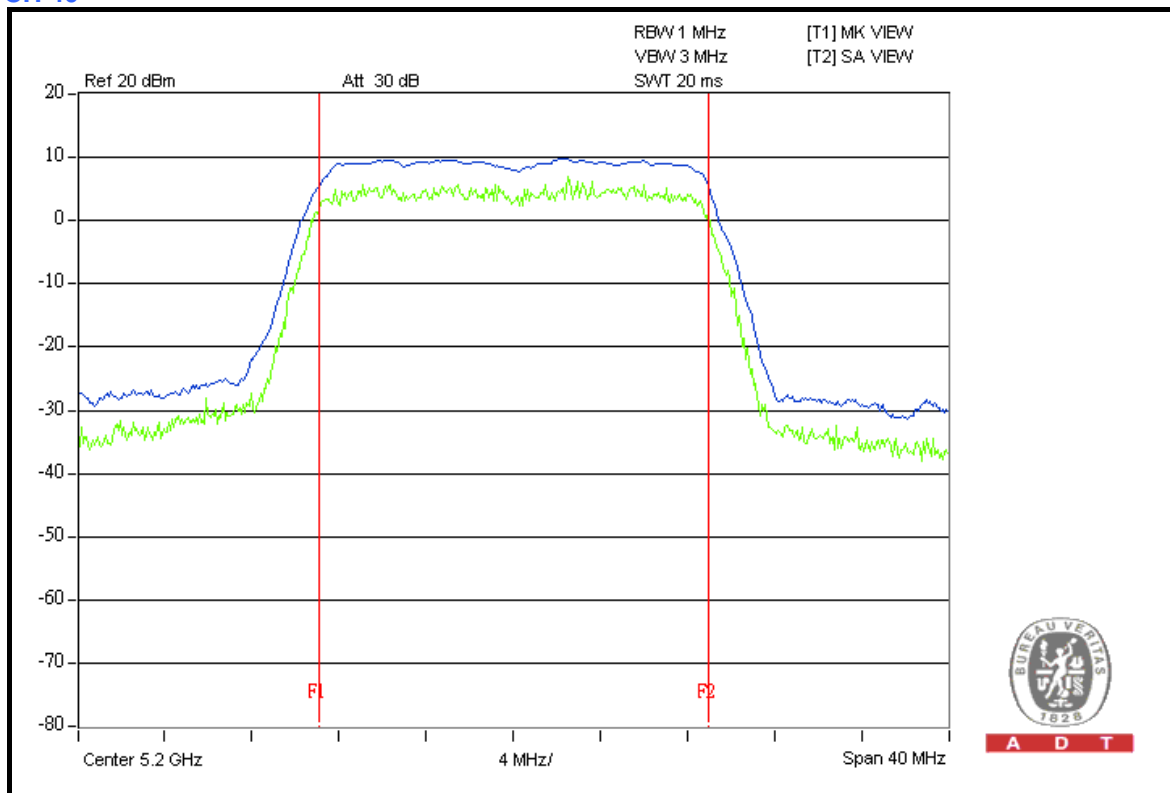
CHAIN 1: CH 36





A D T

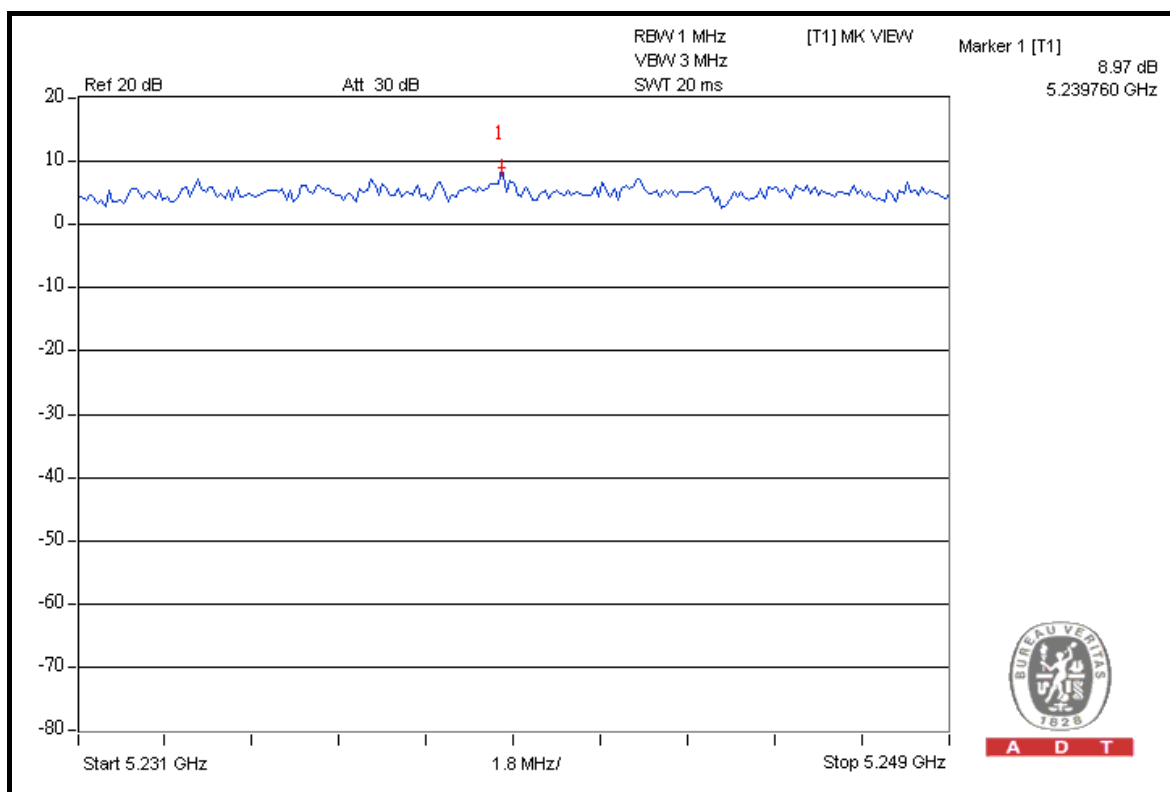
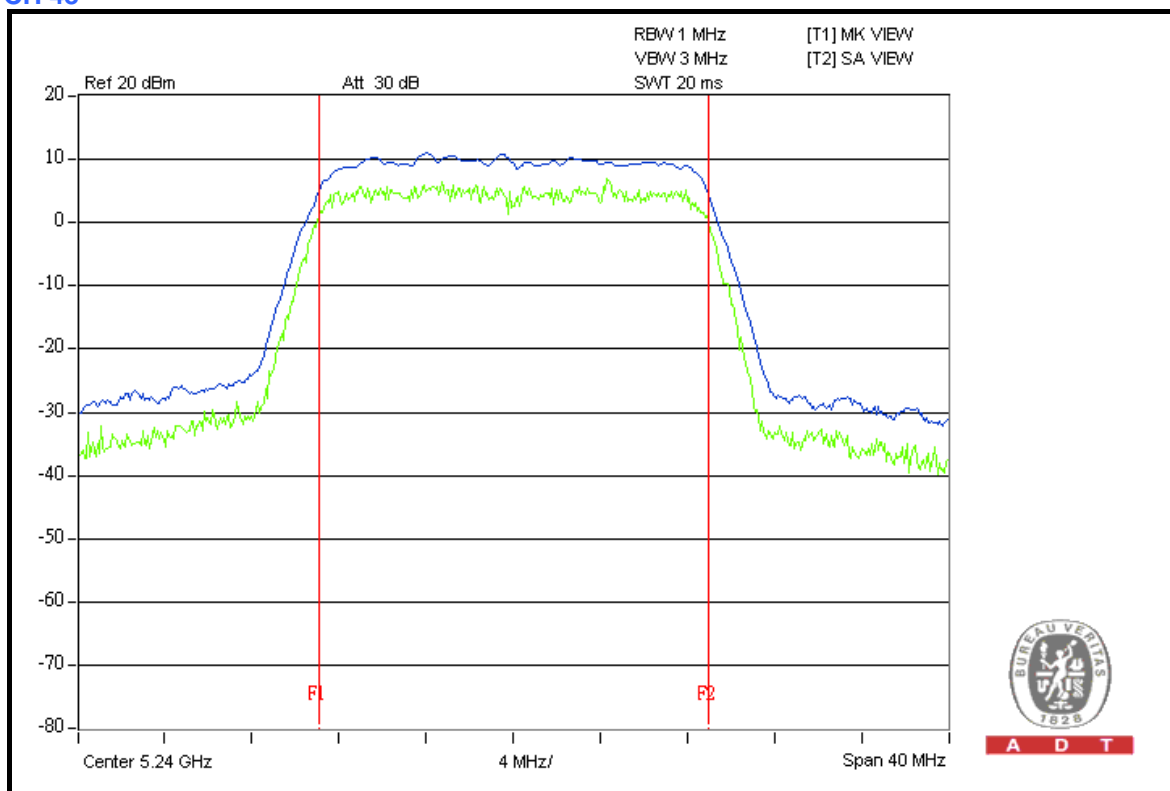
CH 40





A D T

CH 48



DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

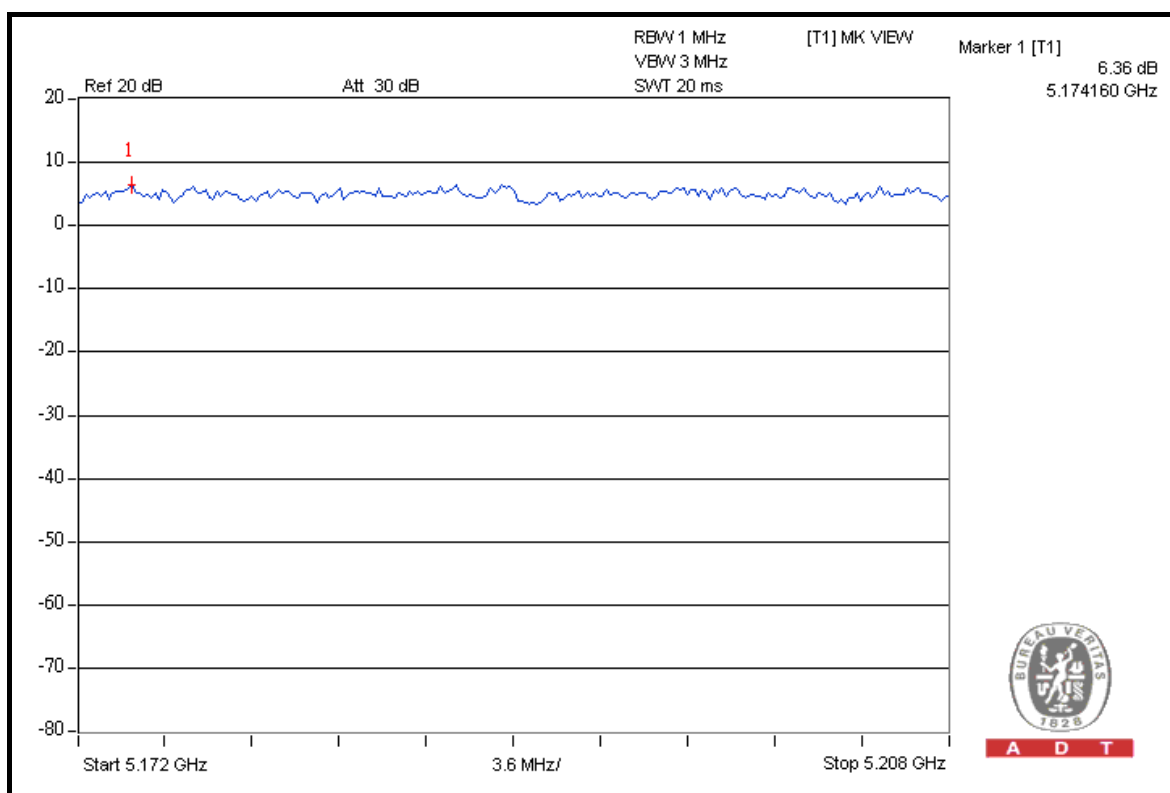
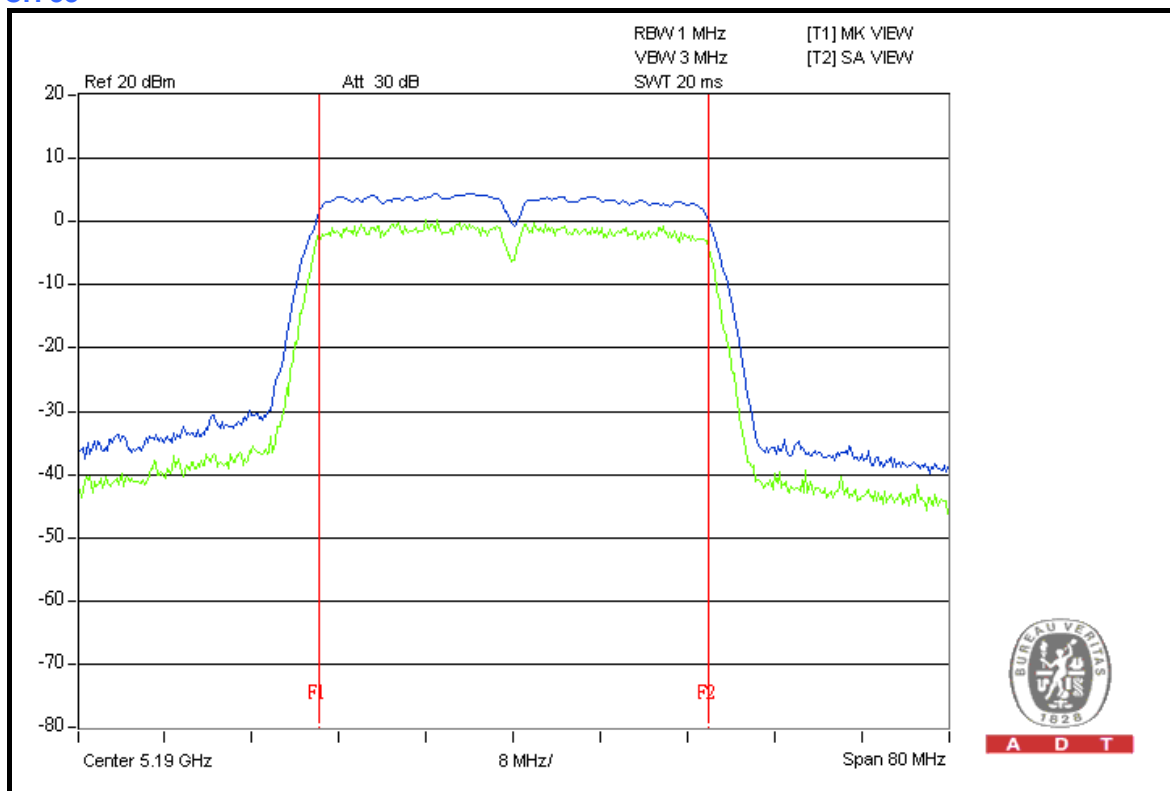
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
38	5190	6.36	13	PASS
46	5230	6.54	13	PASS



A D T

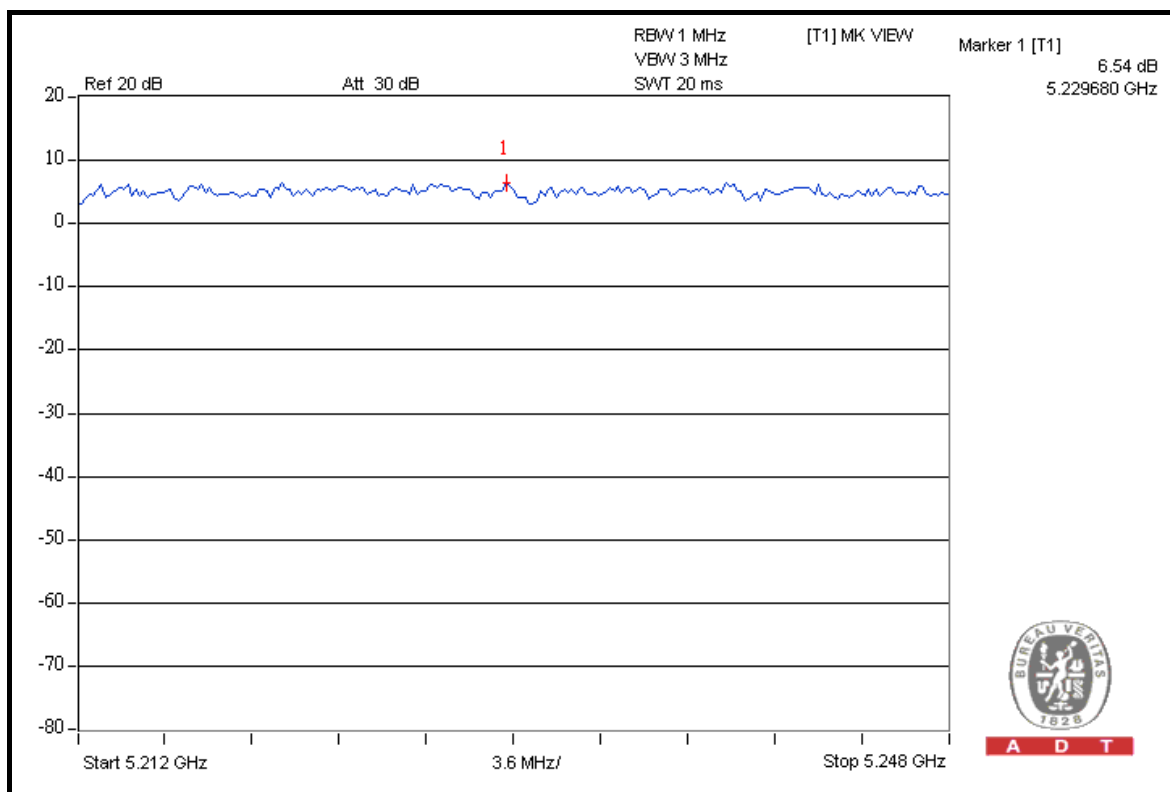
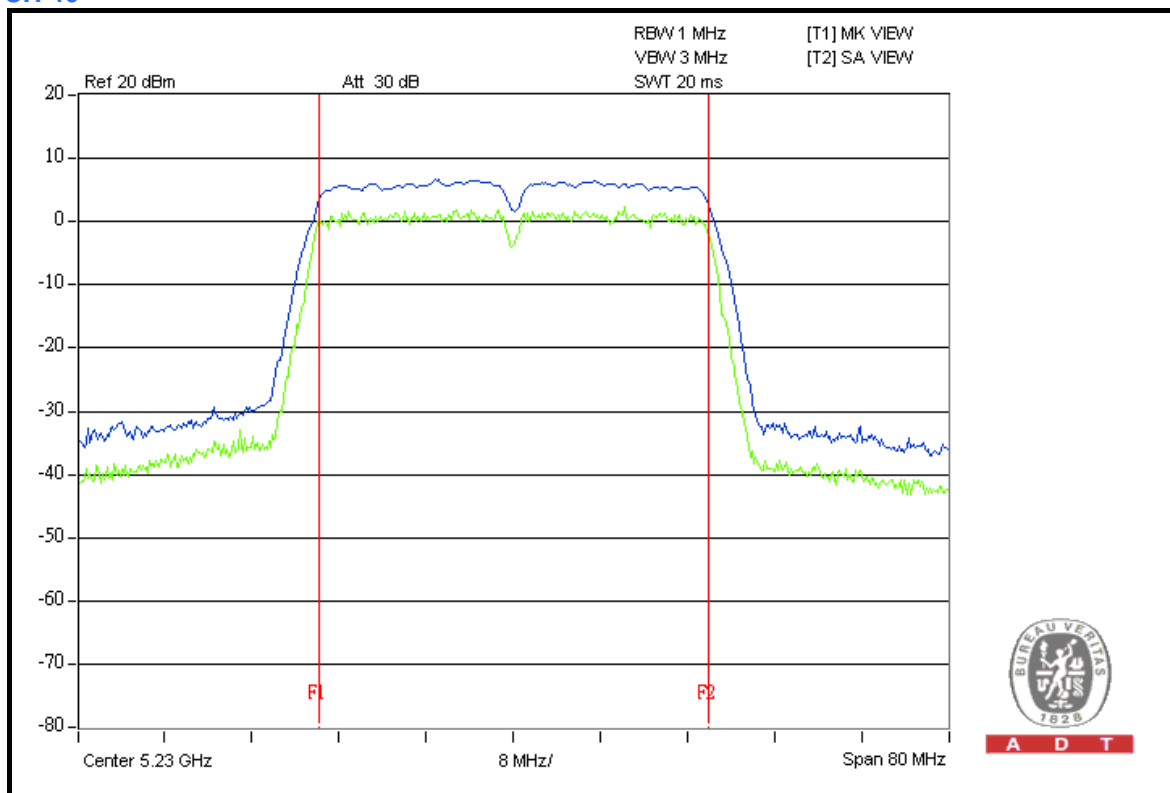
CH 38





A D T

CH 46





A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

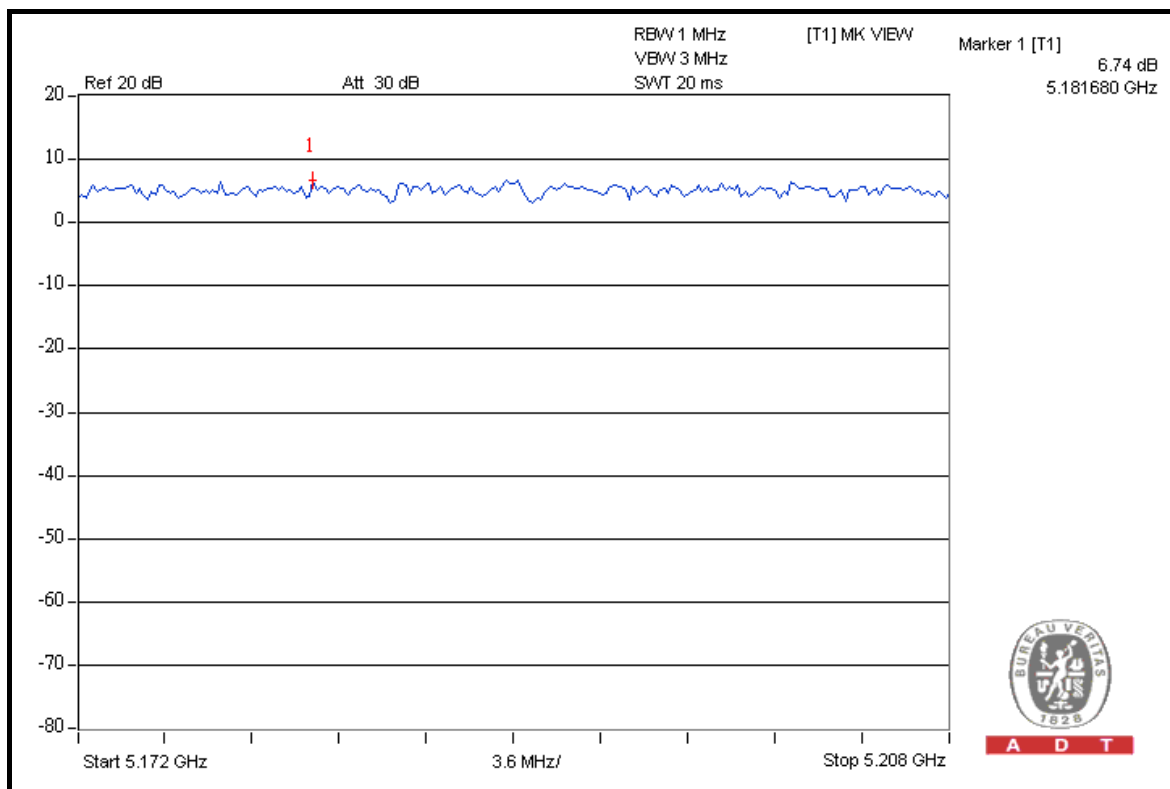
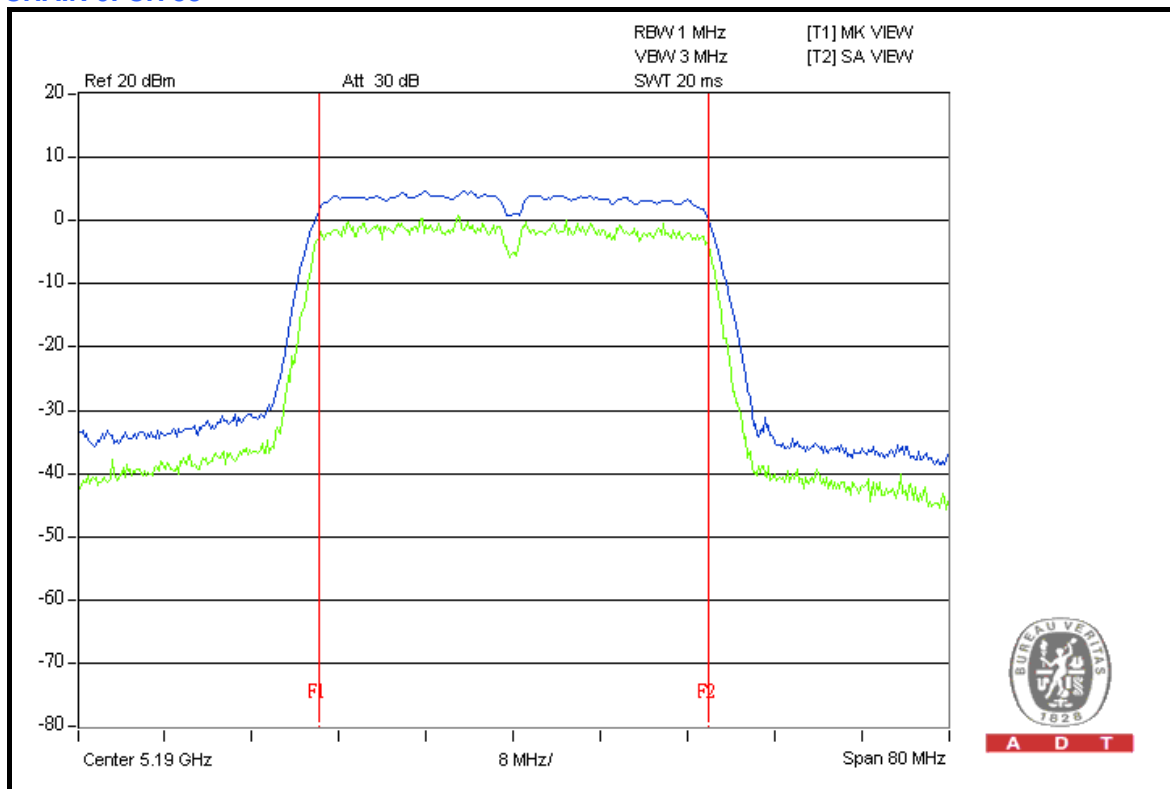
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	6.74	7.51	13	PASS
46	5230	7.19	7.15	13	PASS



A D T

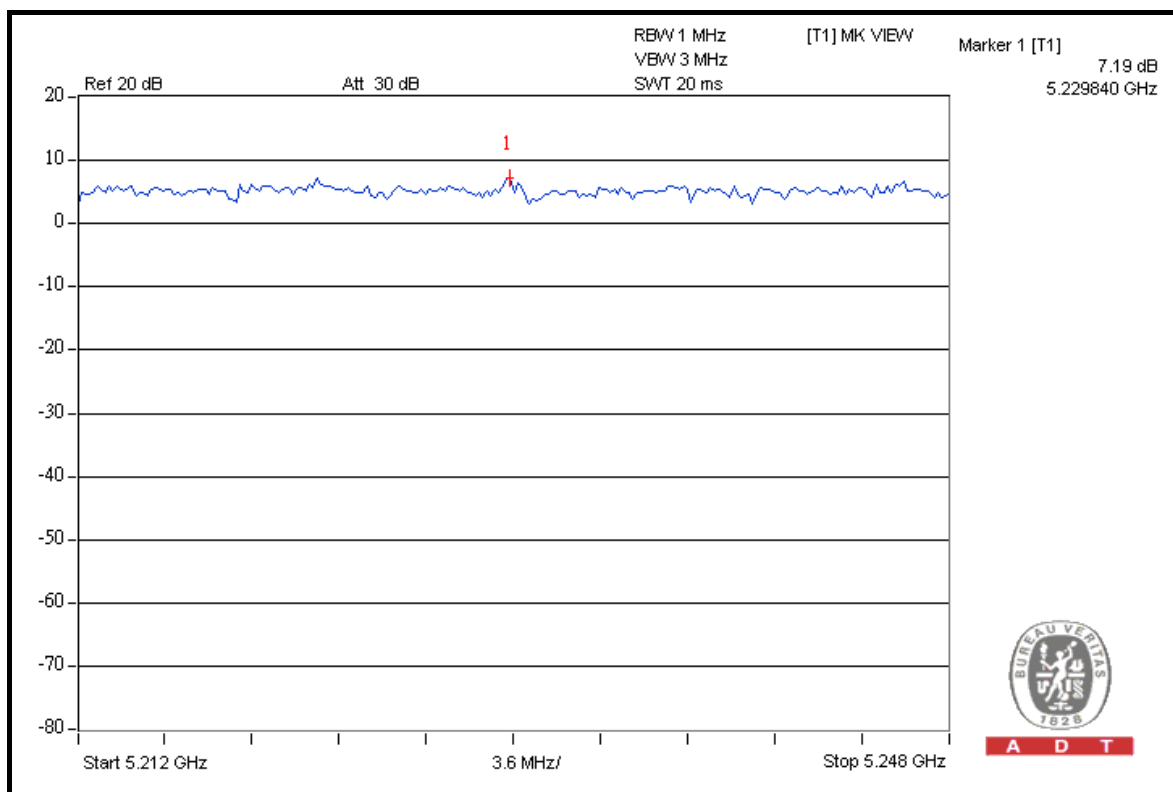
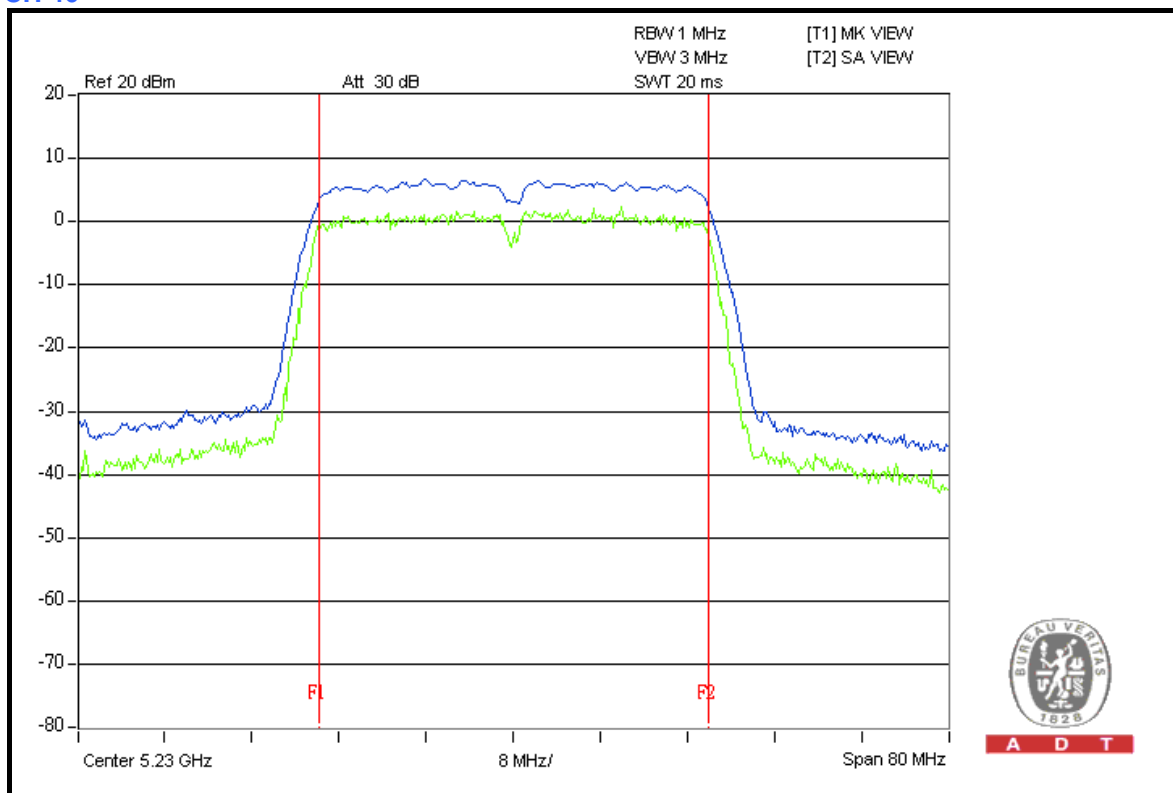
CHAIN 0: CH 38



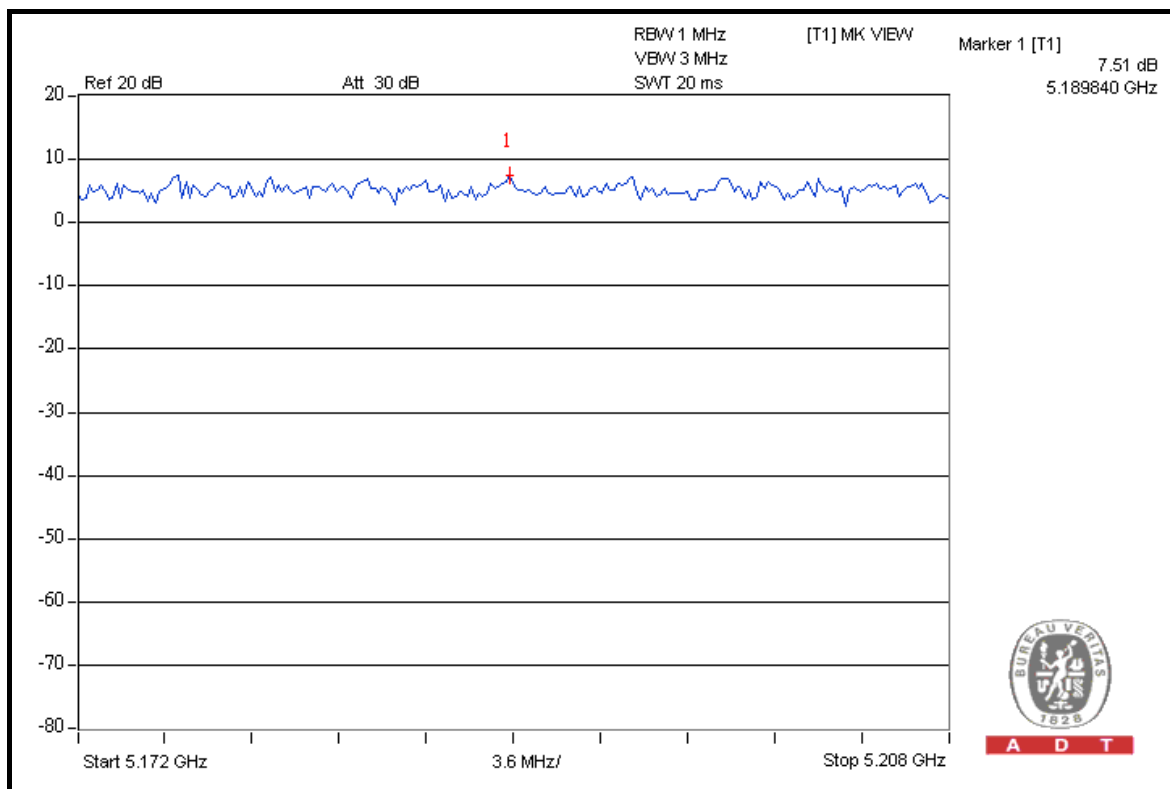
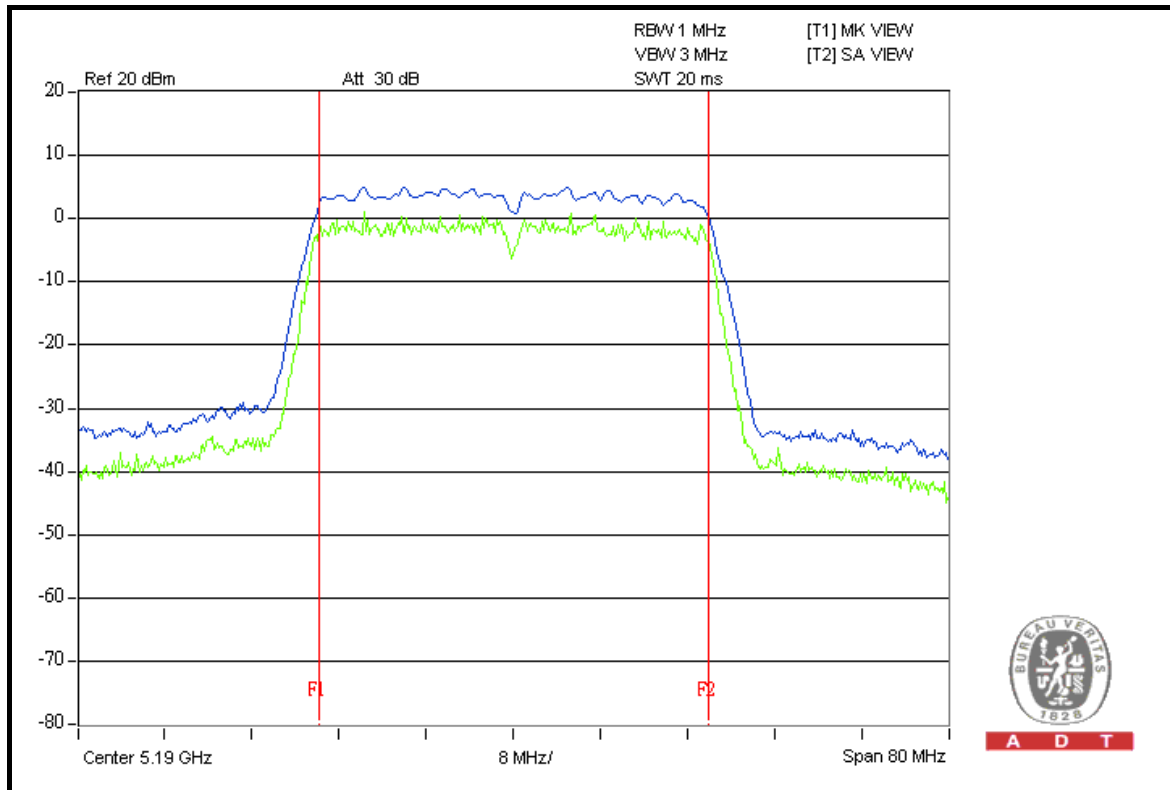


A D T

CH 46



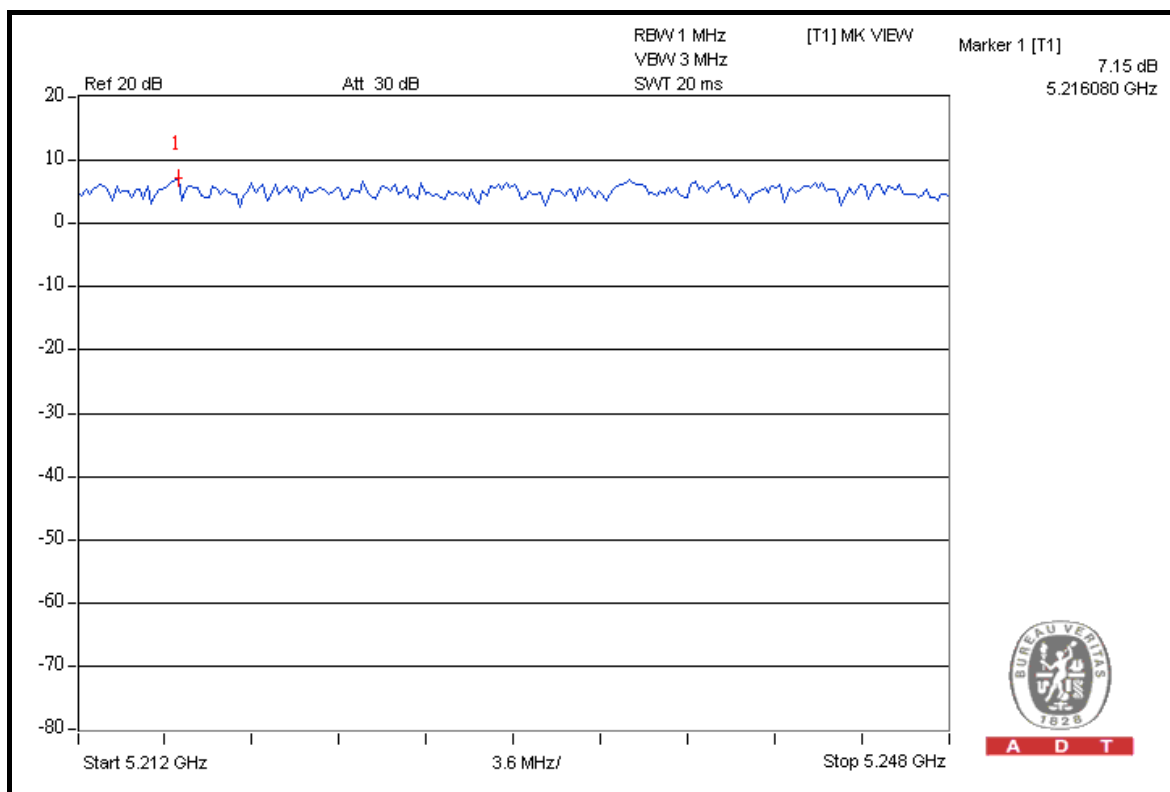
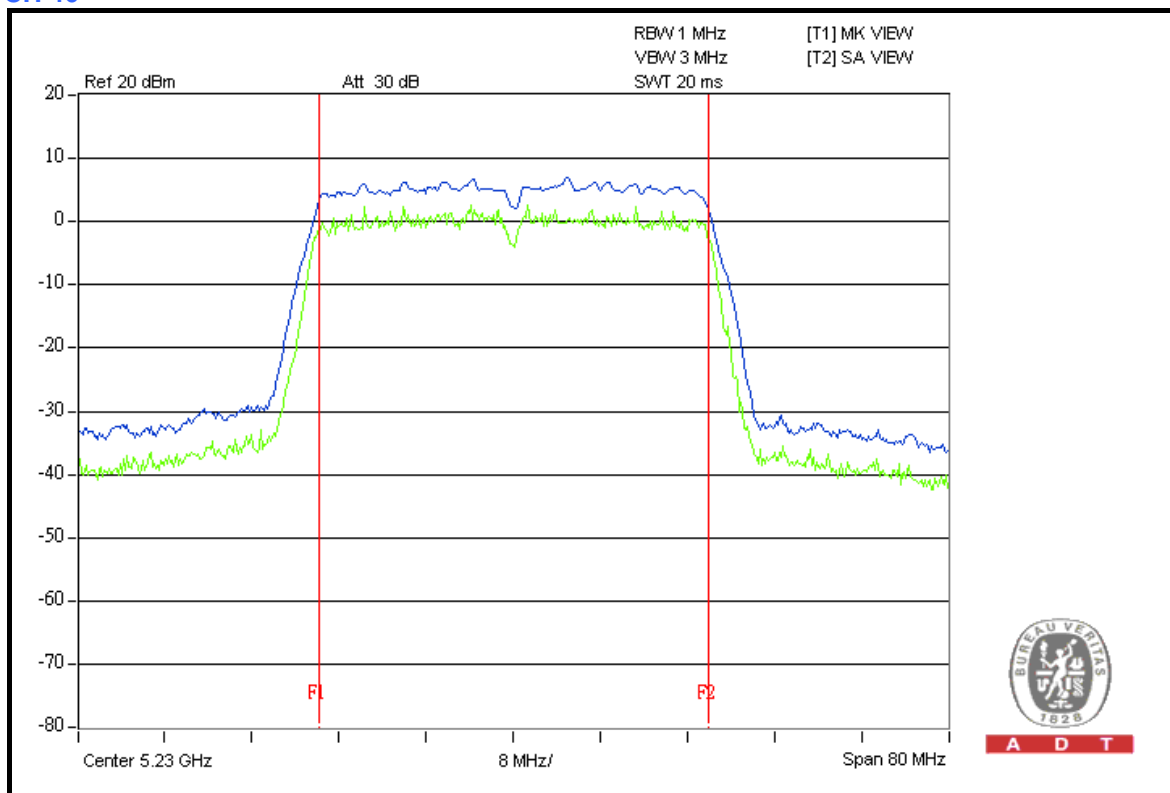
CHAIN 1: CH 38





A D T

CH 46



4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

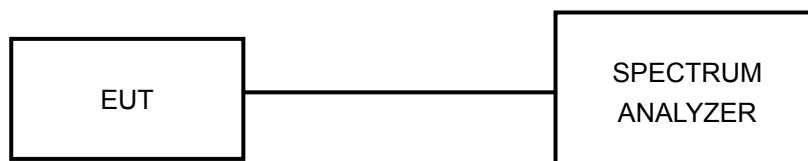
4.5.3 TEST PROCEDURES

- 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.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6

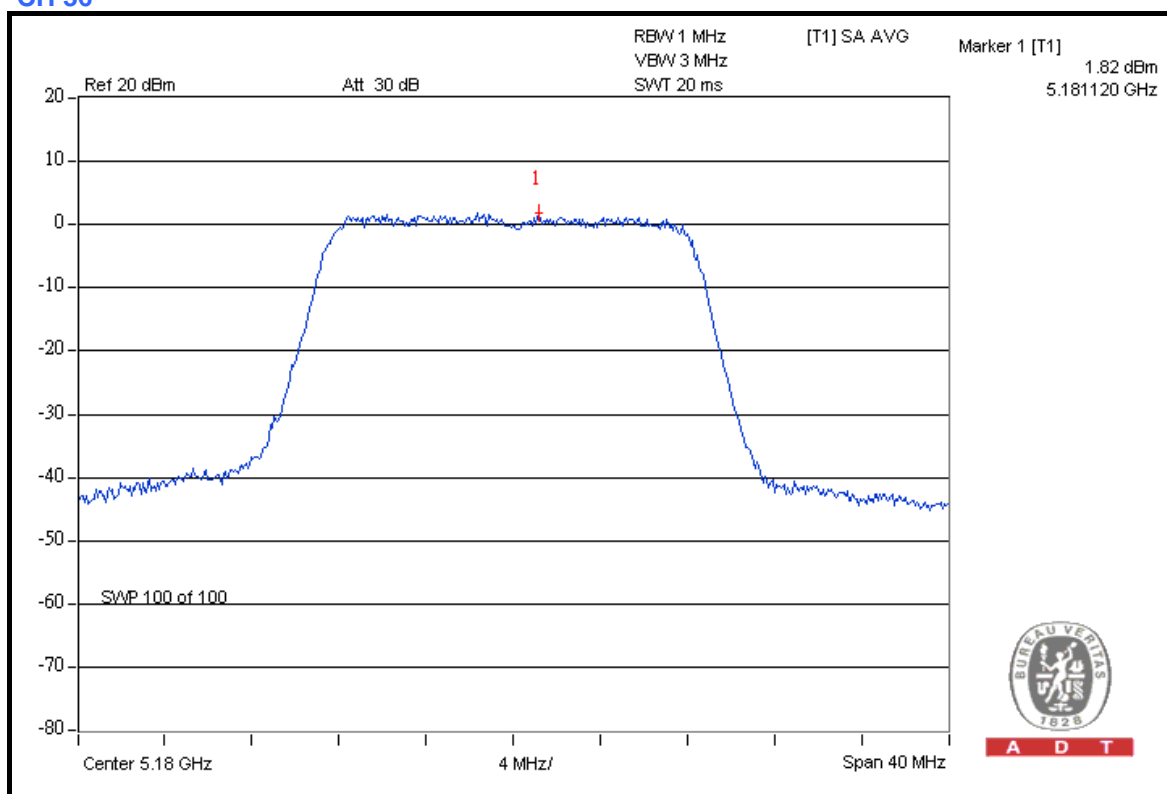
4.5.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	1.82	4	PASS
40	5200	1.85	4	PASS
48	5240	1.70	4	PASS

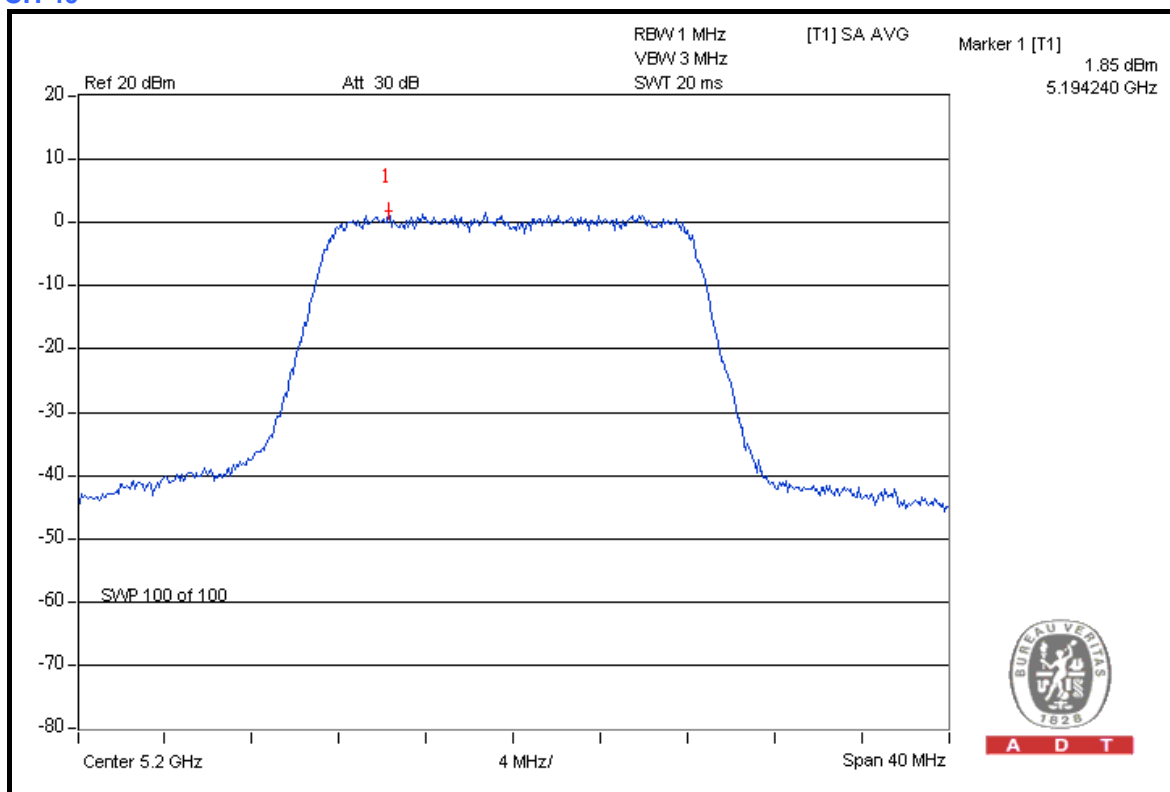
CH 36





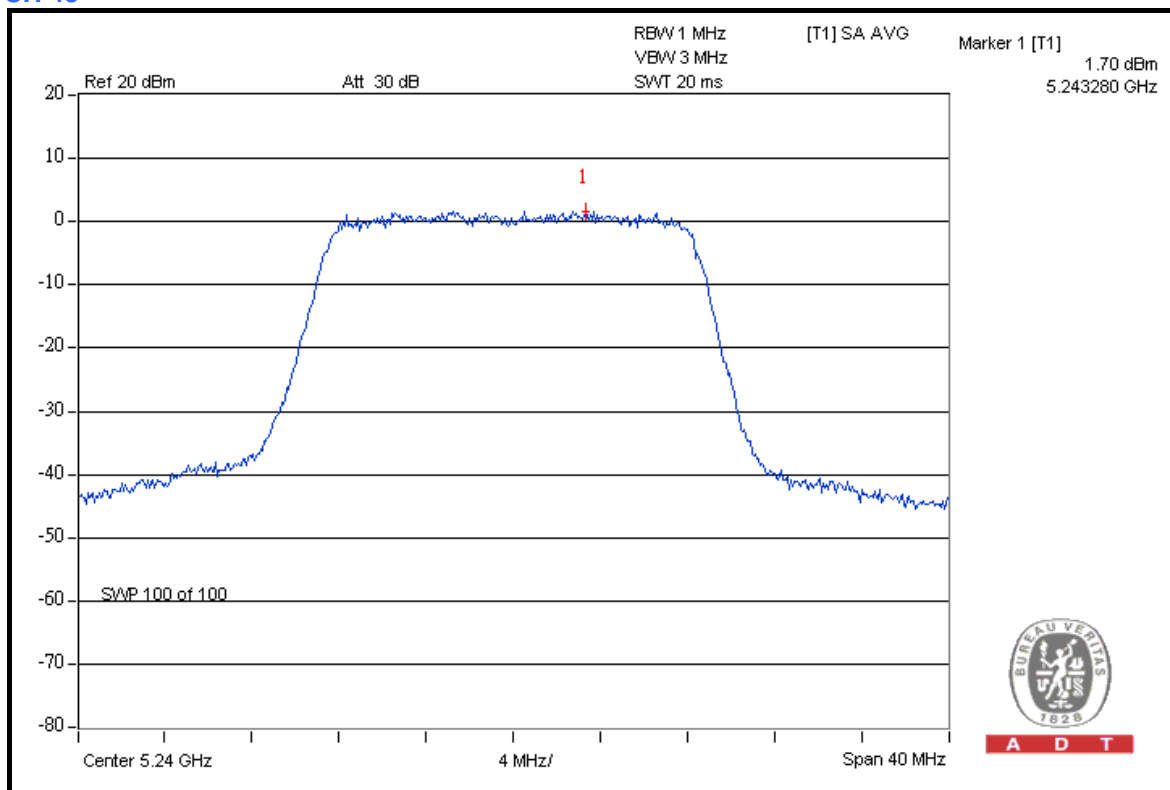
A D T

CH 40



A D T

CH 48



A D T



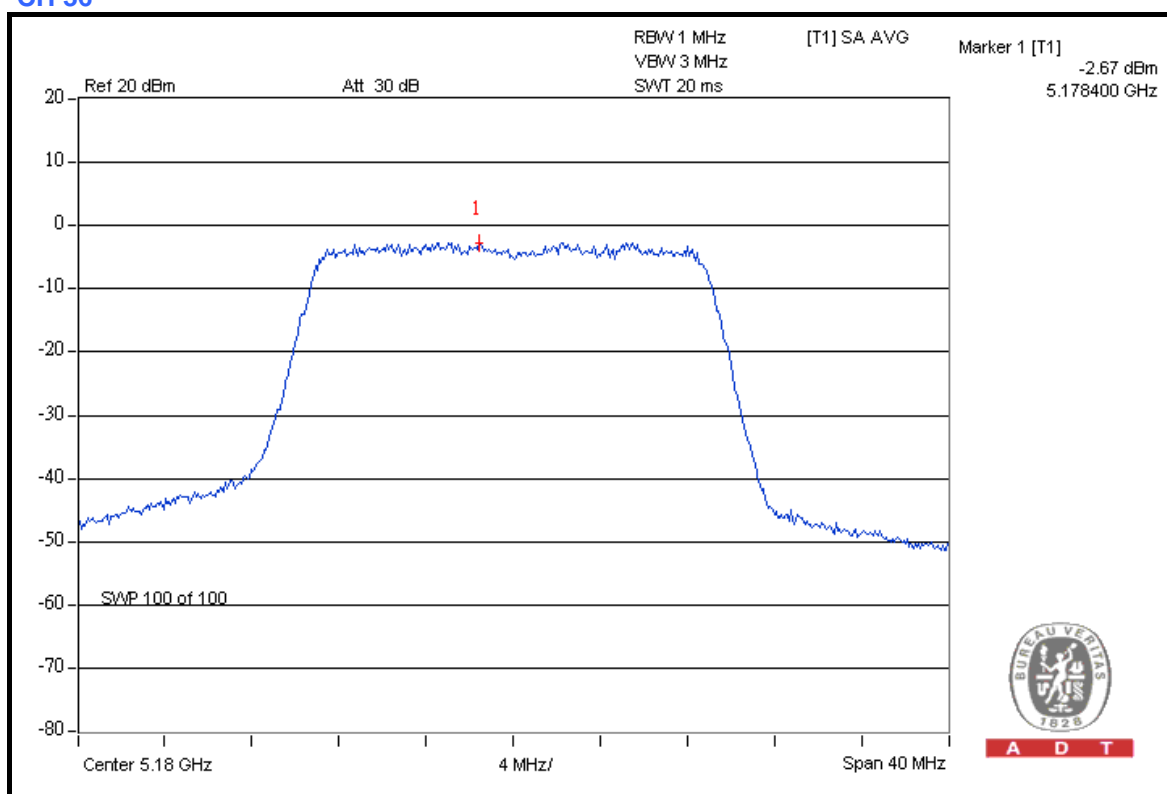
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	-2.67	4	PASS
40	5200	-0.76	4	PASS
48	5240	-0.52	4	PASS

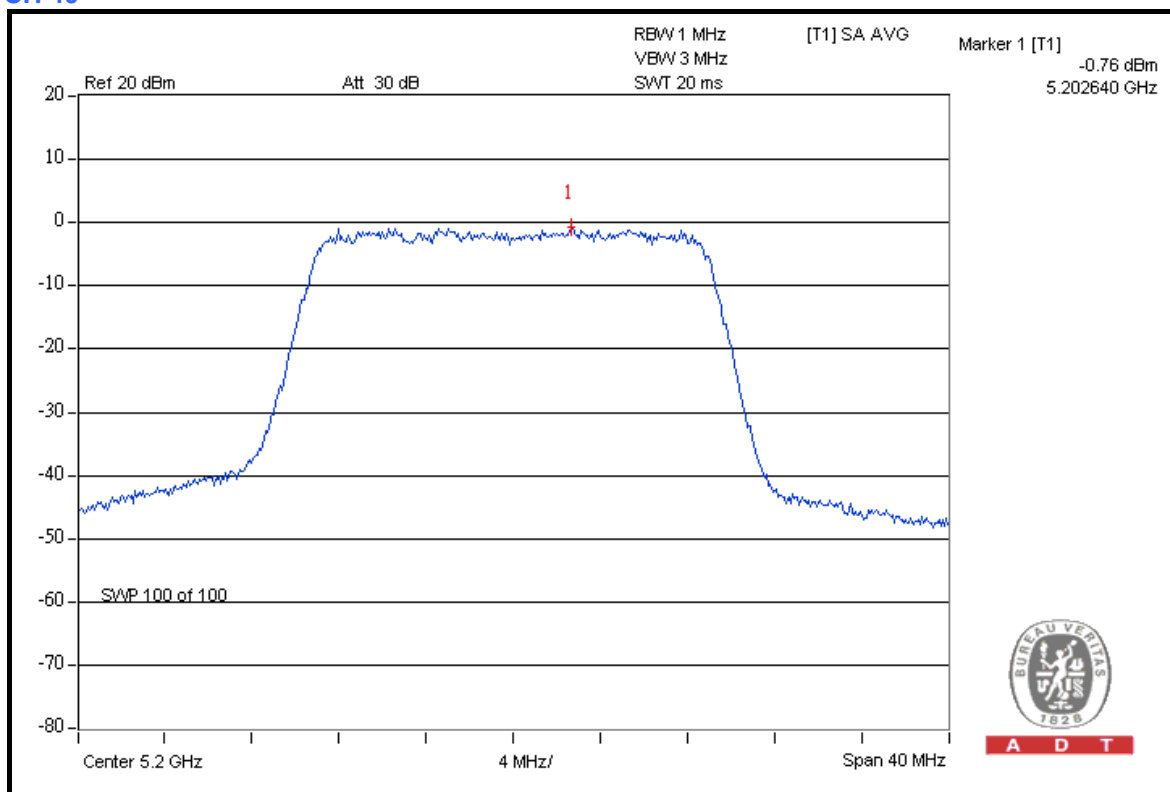
CH 36





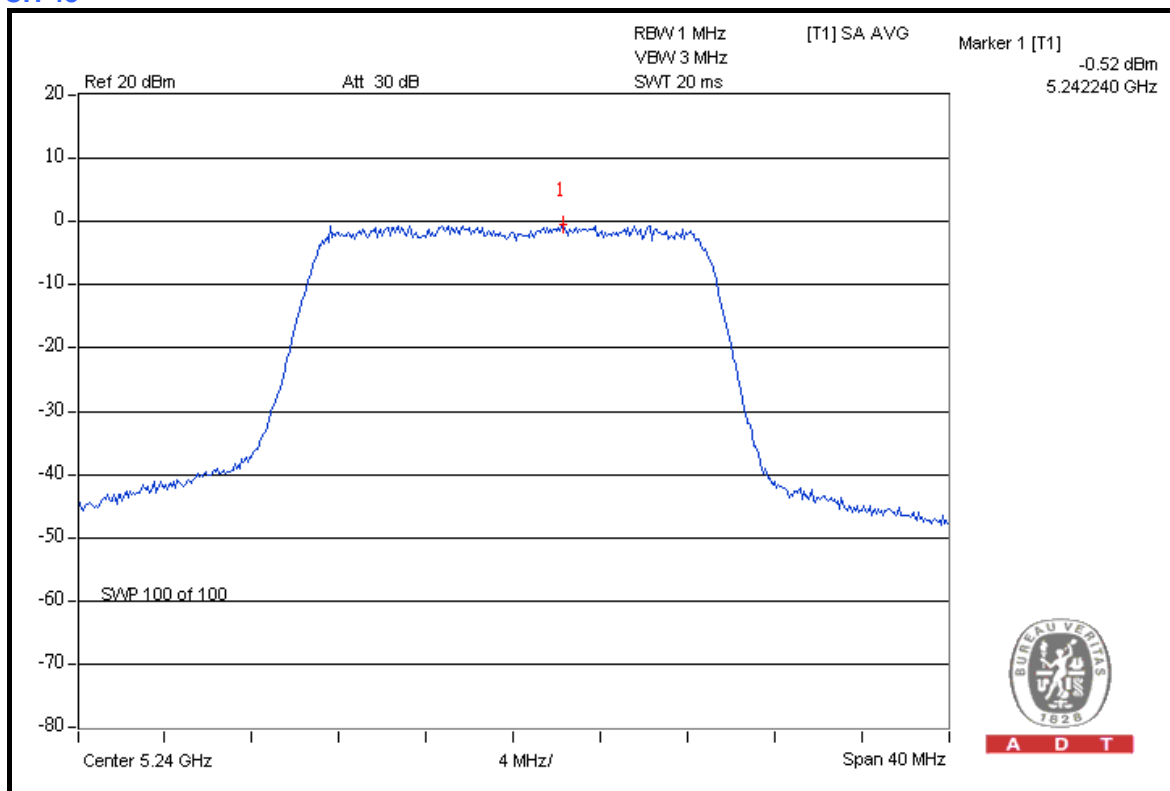
A D T

CH 40



A D T

CH 48



A D T



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

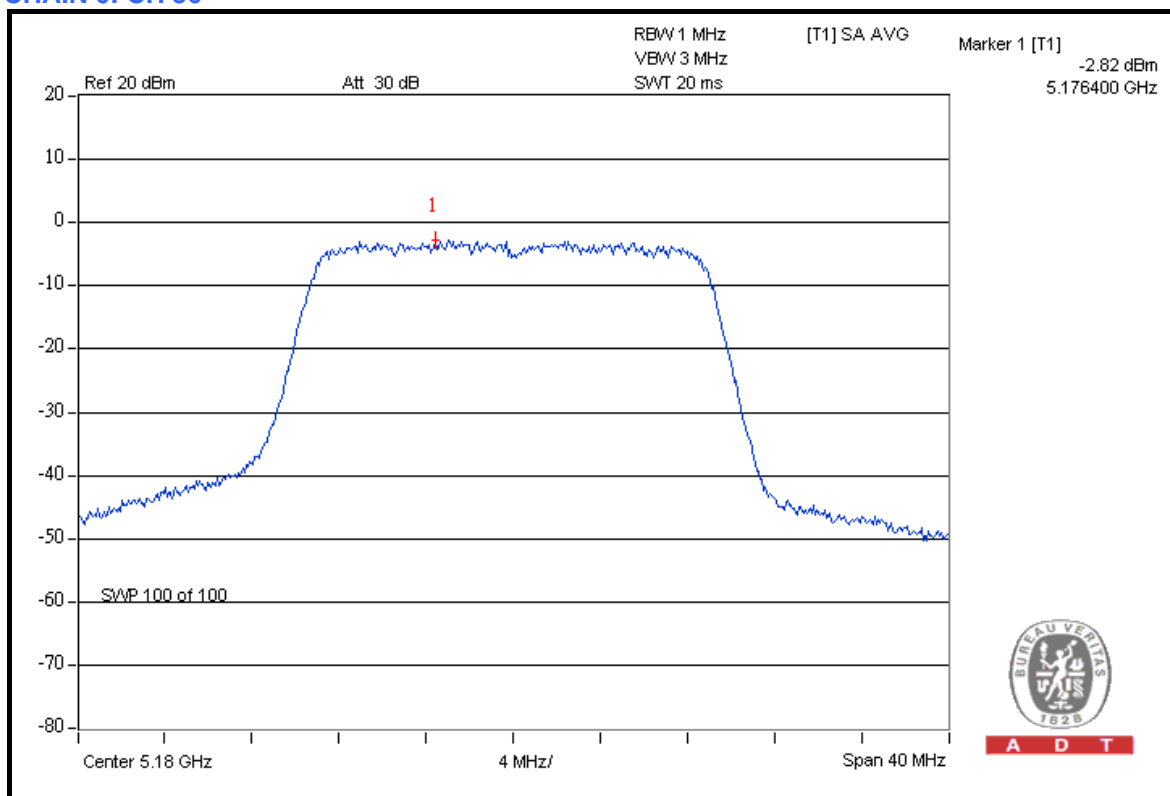
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-2.82	-2.76	1.052	0.22	4	PASS
40	5200	-0.63	-0.61	1.734	2.39	4	PASS
48	5240	-0.62	-0.53	1.752	2.44	4	PASS



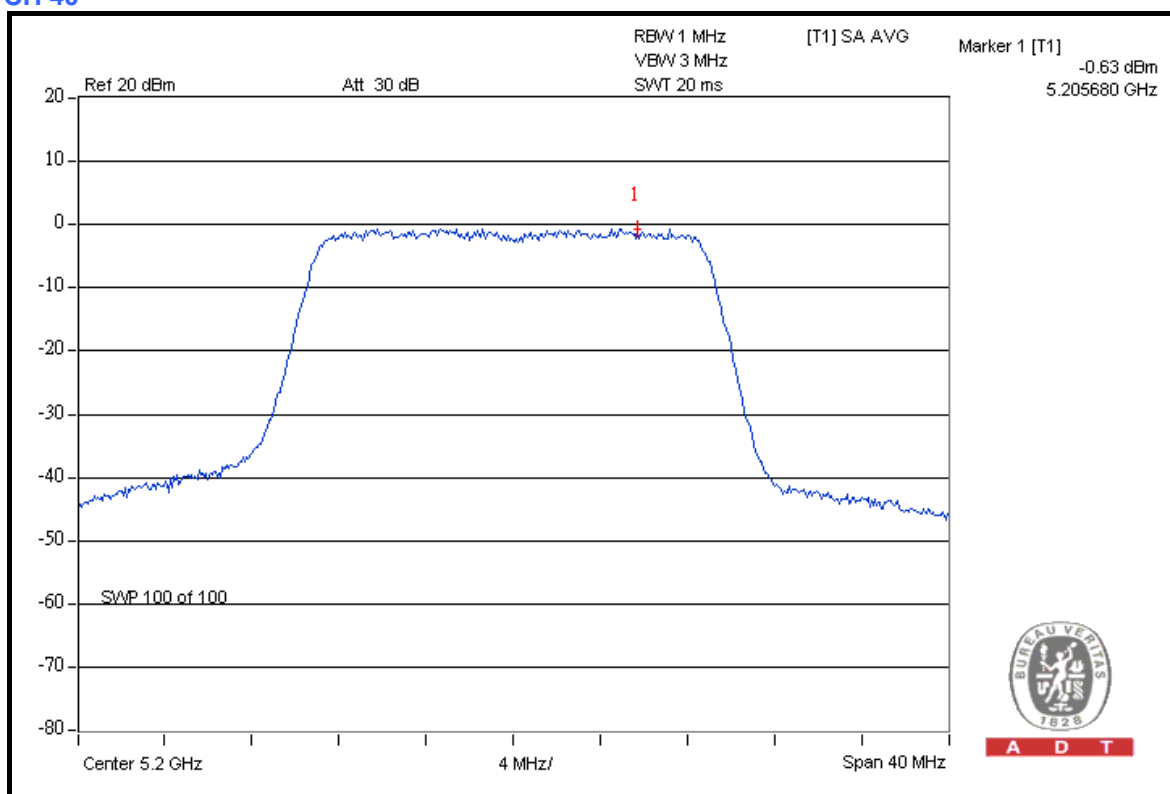
A D T

CHAIN 0: CH 36



A D T

CH 40

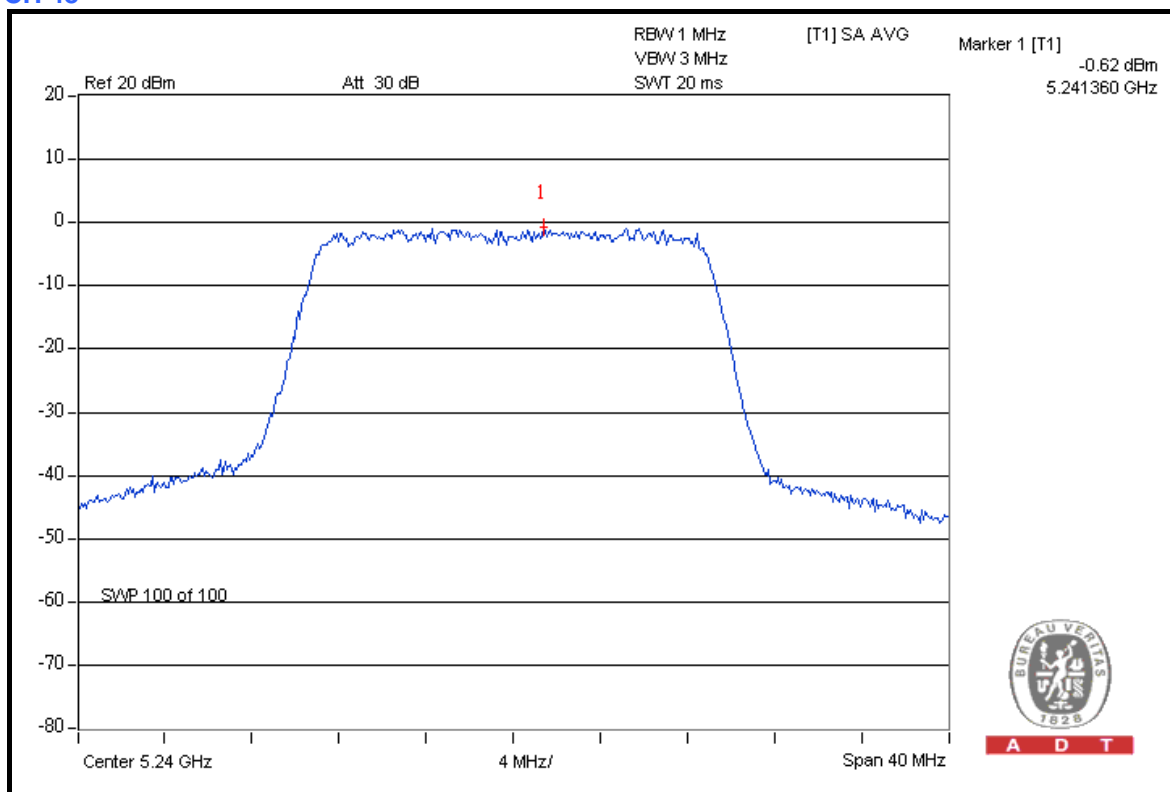


A D T



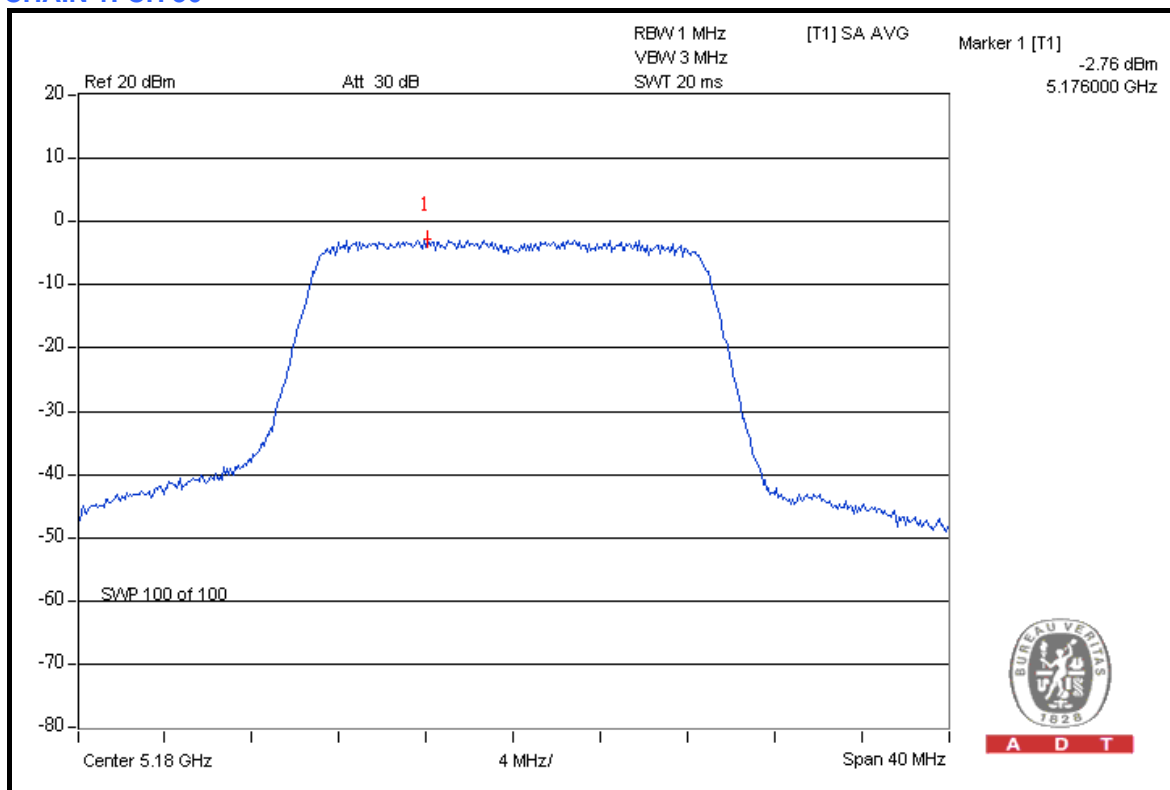
A D T

CH 48



A D T

CHAIN 1: CH 36

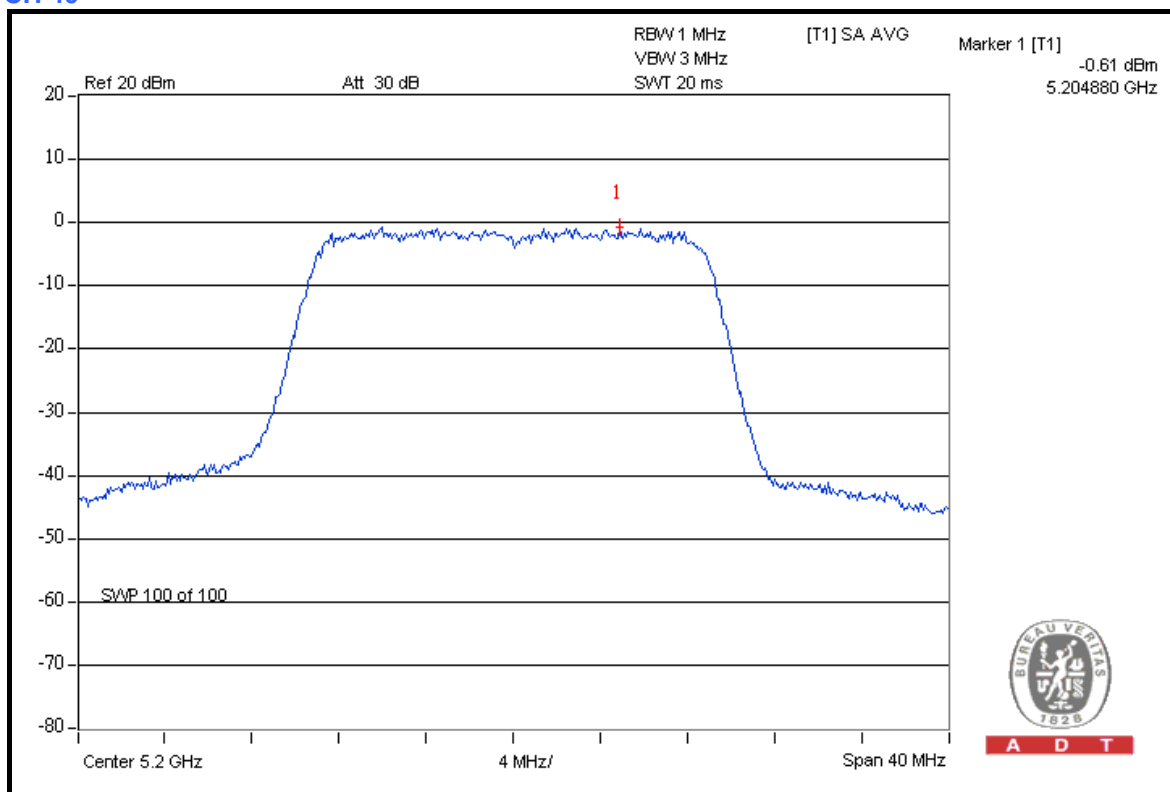


A D T



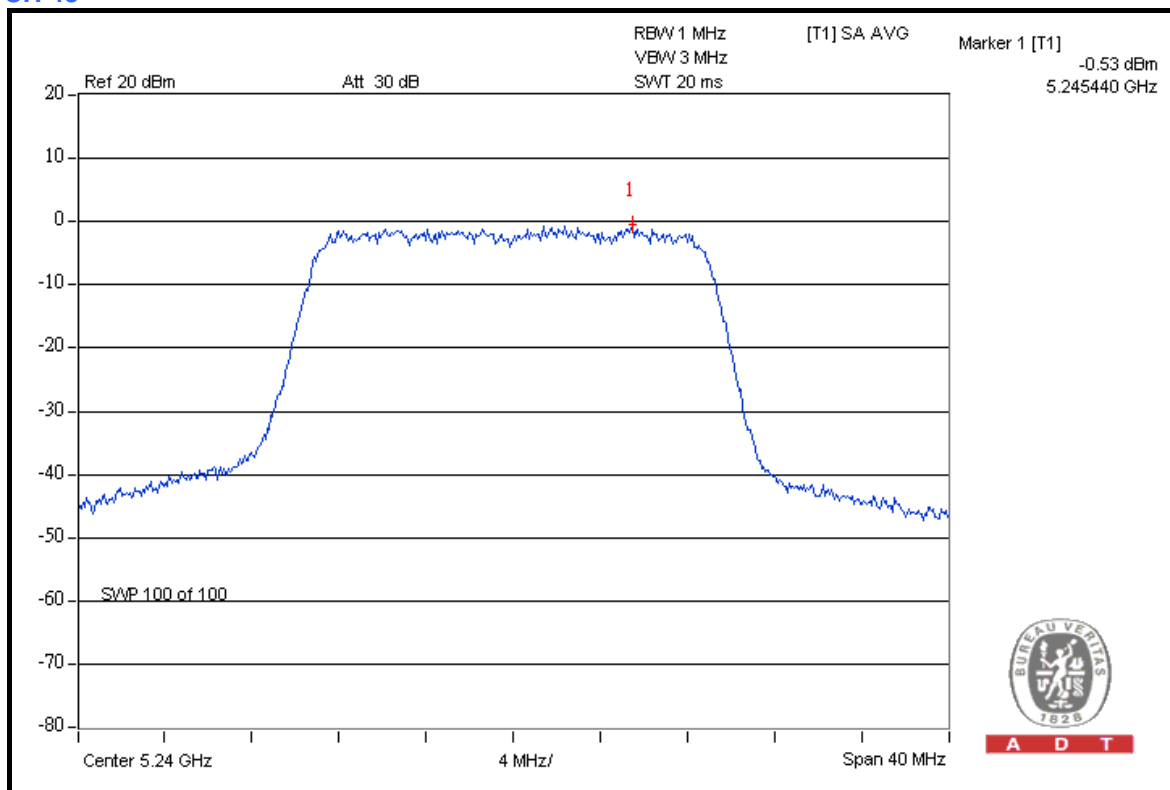
A D T

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A D T

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A D T



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

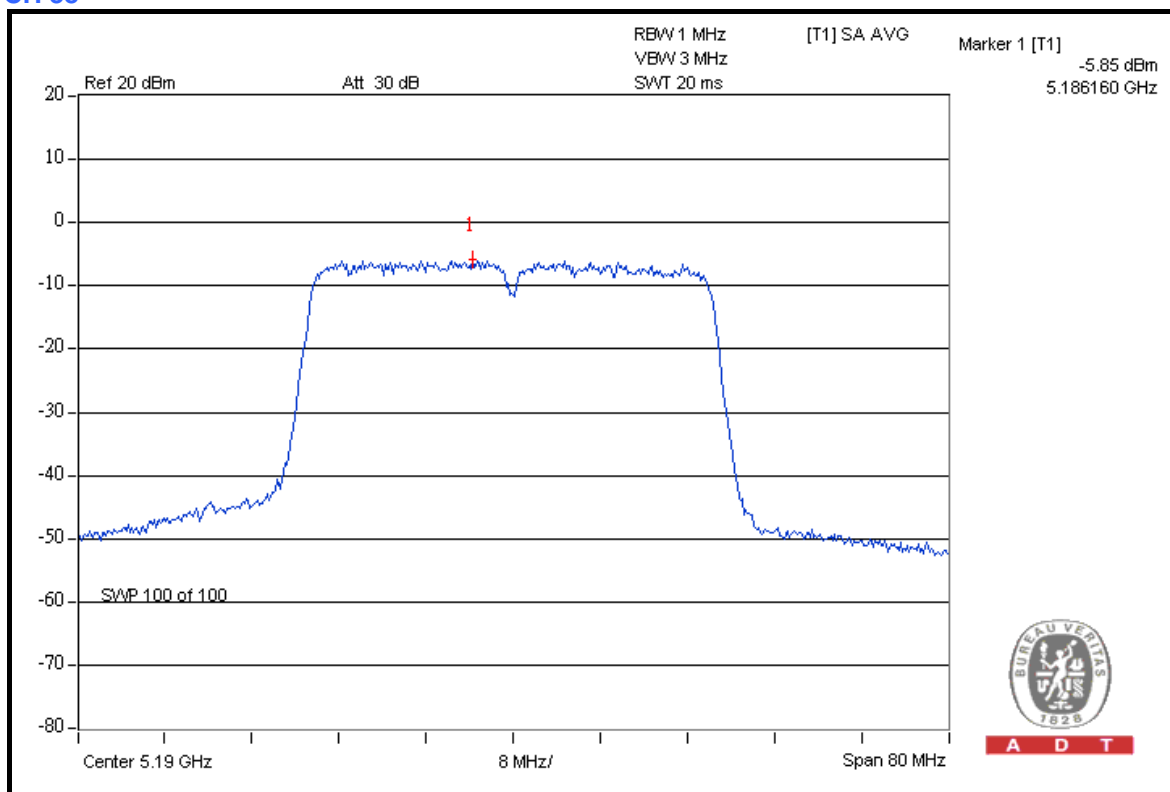
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
38	5190	-5.85	4	PASS
46	5230	-3.61	4	PASS



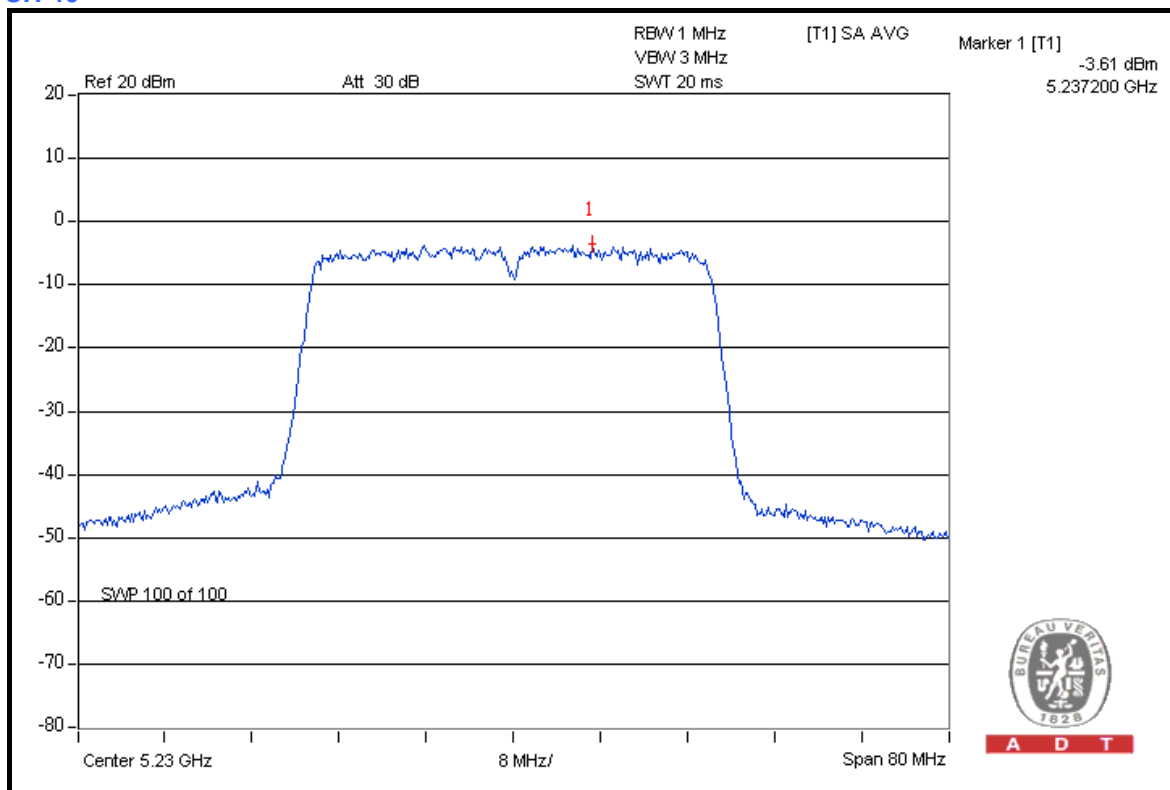
A D T

CH 38



A D T

CH 46



A D T



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

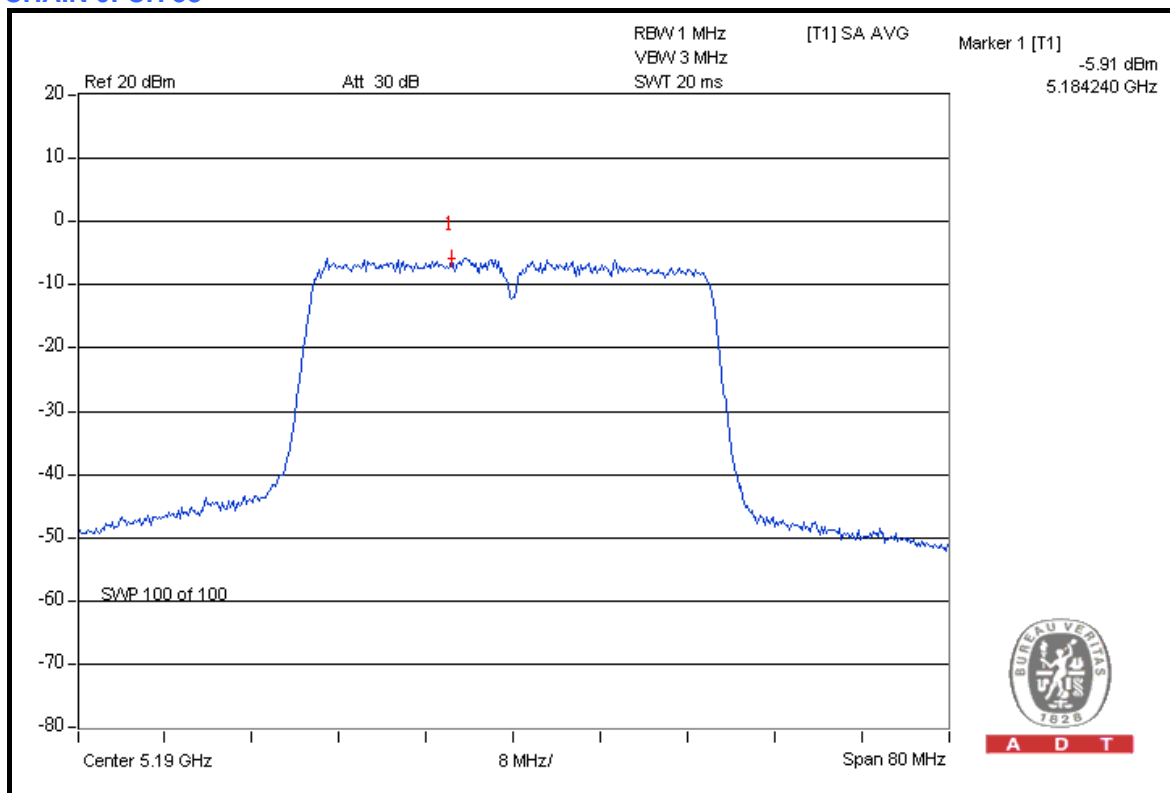
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-5.91	-5.73	0.524	-2.81	4	PASS
46	5230	-3.76	-3.56	0.861	-0.65	4	PASS

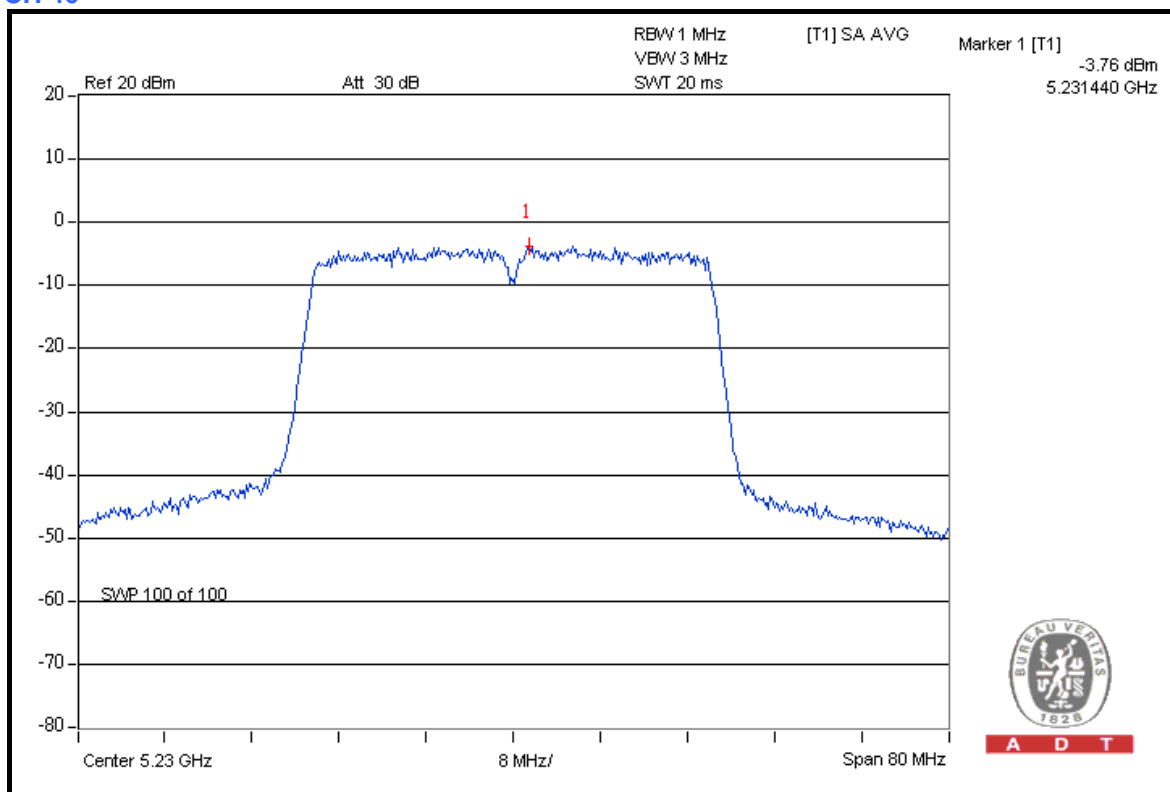


A D T

CHAIN 0: CH 38



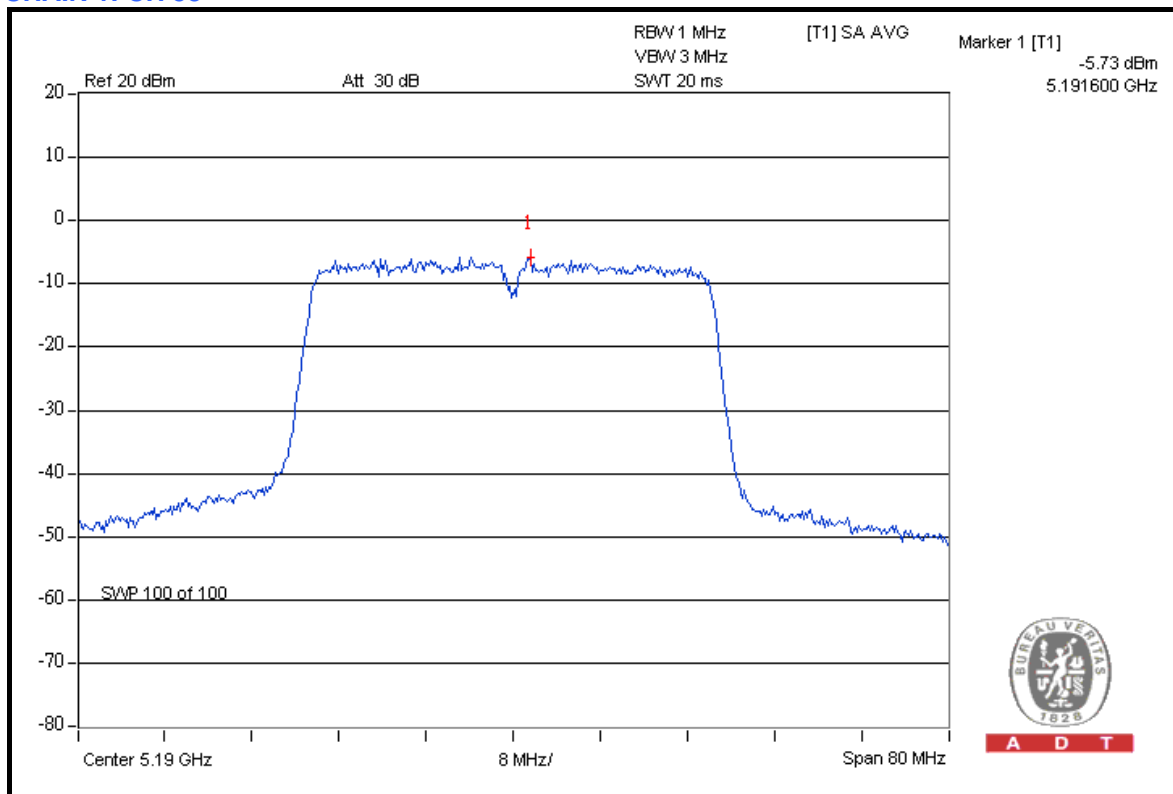
CH 46





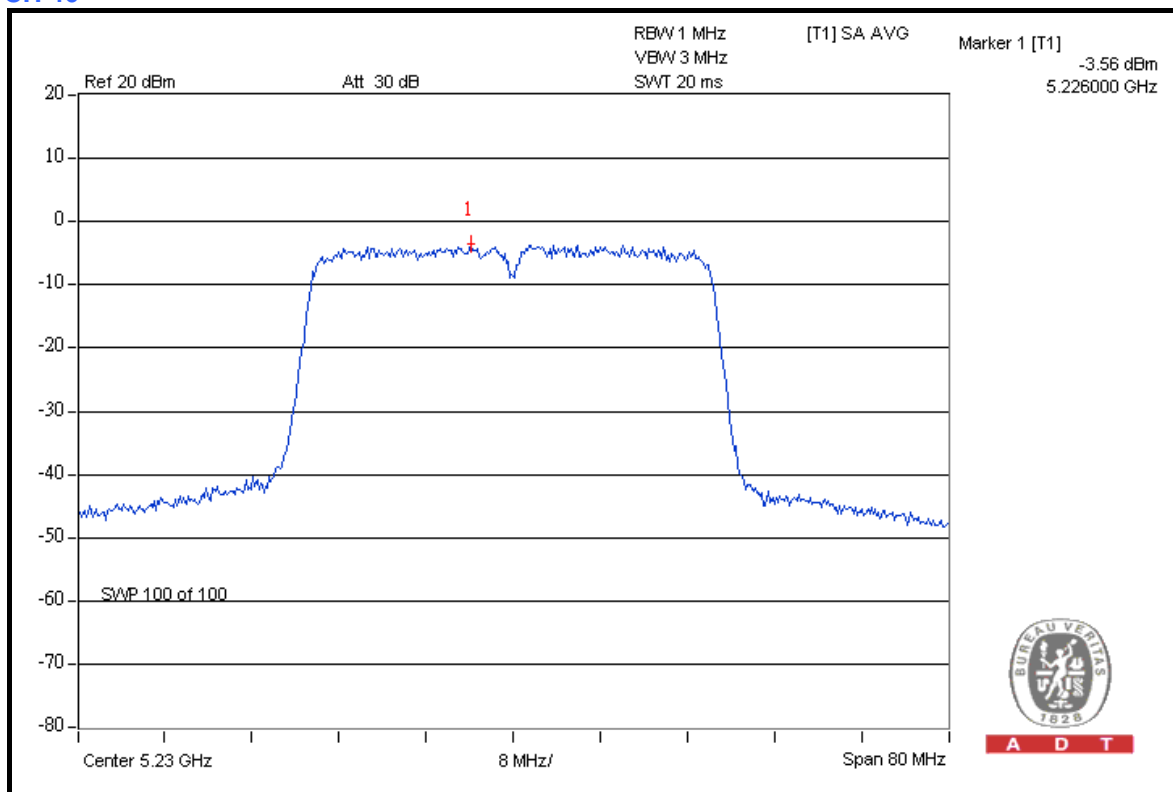
A D T

CHAIN 1: CH 38



A D T

CH 46



A D T

4.6 FREQUENCY STABILITY

4.6.1 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.

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 26, 2008	Jun. 25, 2009

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

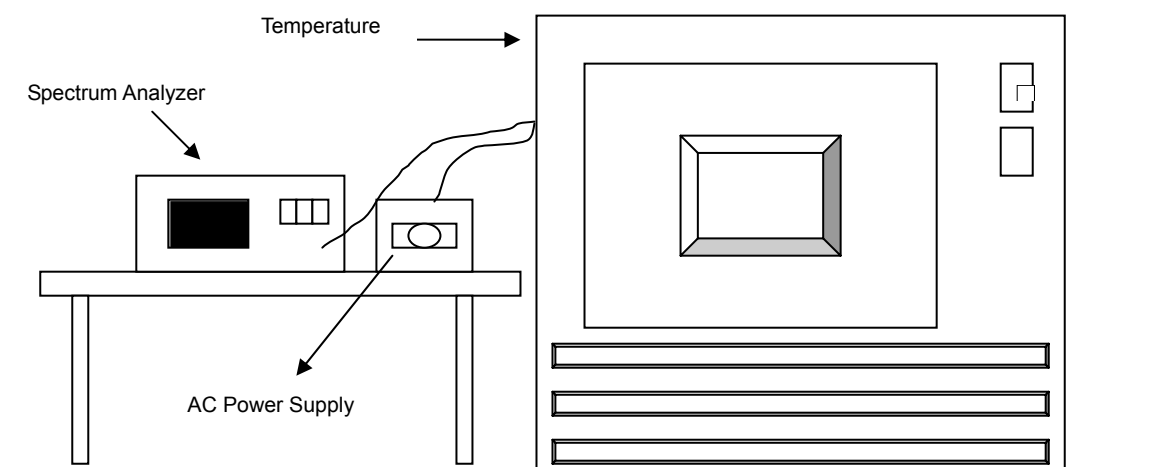
4.6.3 TEST PROCEDURE

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6

4.6.7 TEST RESULTS

OPERATING FREQUENCY: 5320MHz						LIMIT: $\pm 0.01\%$			
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	5.75	5180.0185	0.0003571	5180.0188	0.0003629	5180.0185	0.0003571	5180.0186	0.0003591
	5.00	5180.0187	0.0003610	5180.0186	0.0003591	5180.0189	0.0003649	5180.0188	0.0003629
	4.25	5180.0182	0.0003514	5180.0181	0.0003494	5180.0184	0.0003552	5180.0181	0.0003494
40	5.75	5180.0125	0.0002413	5180.0122	0.0002355	5180.0125	0.0002413	5180.0129	0.0002490
	5.00	5180.1290	0.0024903	5180.0126	0.0002432	5180.0126	0.0002432	5180.0130	0.0002510
	4.25	5180.0122	0.0002355	5180.0127	0.0002452	5180.0122	0.0002355	5180.0127	0.0002452
30	5.75	5180.0092	0.0001776	5180.0091	0.0001757	5180.0093	0.0001795	5180.0095	0.0001834
	5.00	5180.0091	0.0001757	5180.0092	0.0001776	5180.0095	0.0001834	5180.0096	0.0001853
	4.25	5180.0094	0.0001815	5180.0094	0.0001815	5180.0092	0.0001776	5180.0093	0.0001795
20	5.75	5179.9925	-0.0001448	5179.9928	-0.0001390	5179.9923	-0.0001486	5179.9926	-0.0001429
	5.00	5179.9926	-0.0001429	5179.9923	-0.0001486	5179.9925	-0.0001448	5179.9927	-0.0001409
	4.25	5179.9928	-0.0001390	5179.9927	-0.0001409	5179.9920	-0.0001544	5179.9922	-0.0001506
10	5.75	5179.9882	-0.0002278	5179.9882	-0.0002278	5179.9883	-0.0002259	5179.9884	-0.0002239
	5.00	5179.9981	-0.0000367	5179.9885	-0.0002220	5179.9881	-0.0002297	5179.9886	-0.0002201
	4.25	5179.9988	-0.0000232	5179.9886	-0.0002201	5179.9884	-0.0002239	5179.9882	-0.0002278
0	5.75	5179.9852	-0.0002857	5179.9855	-0.0002799	5179.9856	-0.0002780	5179.9855	-0.0002799
	5.00	5179.9851	-0.0002876	5179.9856	-0.0002780	5179.9857	-0.0002761	5179.9857	-0.0002761
	4.25	5179.9856	-0.0002780	5179.9853	-0.0002838	5179.9852	-0.0002857	5179.9853	-0.0002838
-10	5.75	5179.9792	-0.0004015	5179.9793	-0.0003996	5179.9793	-0.0003996	5179.9795	-0.0003958
	5.00	5179.9793	-0.0003996	5179.9795	-0.0003958	5179.9795	-0.0003958	5179.9793	-0.0003996
	4.25	5179.9797	-0.0003919	5179.9792	-0.0004015	5179.9792	-0.0004015	5179.9792	-0.0004015
-20	5.75	5179.9728	-0.0005251	5179.9726	-0.0005290	5179.9723	-0.0005347	5179.9725	-0.0005309
	5.00	5179.9725	-0.0005309	5179.9728	-0.0005251	5179.9726	-0.0005290	5179.9723	-0.0005347
	4.25	5179.9722	-0.0005367	5179.9721	-0.0005386	5179.9722	-0.0005367	5179.9721	-0.0005386
-30	5.75	5179.9655	-0.0006660	5179.9654	-0.0006680	5179.9652	-0.0006718	5179.9653	-0.0006699
	5.00	5179.9652	-0.0006718	5179.9655	-0.0006660	5179.9657	-0.0006622	5179.9654	-0.0006680
	4.25	5179.9651	-0.0006737	5179.9657	-0.0006622	5179.9654	-0.0006680	5179.9658	-0.0006602

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT:				
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.7.2 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 1MHz and 3MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

FOR RADIATED MEASUREMENT:

- 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. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

4.7.3 EUT OPERATING CONDITION

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

4.7.4 TEST RESULTS

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

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

FOR 5150-5250MHz BAND: 802.11a OFDM MODULATION: 1TX

Channel 36 (5180MHz)

The band edge emission plot on the next page shows 45.60dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 110.55dBuV/m (Peak), so the maximum field strength in restrict band is $110.55 - 45.60 = 64.95$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 51.08dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 100.95dBuV/m (Average), so the maximum field strength in restrict band is $100.95 - 51.08 = 49.87$ dBuV/m which is under 54dBuV/m limit.

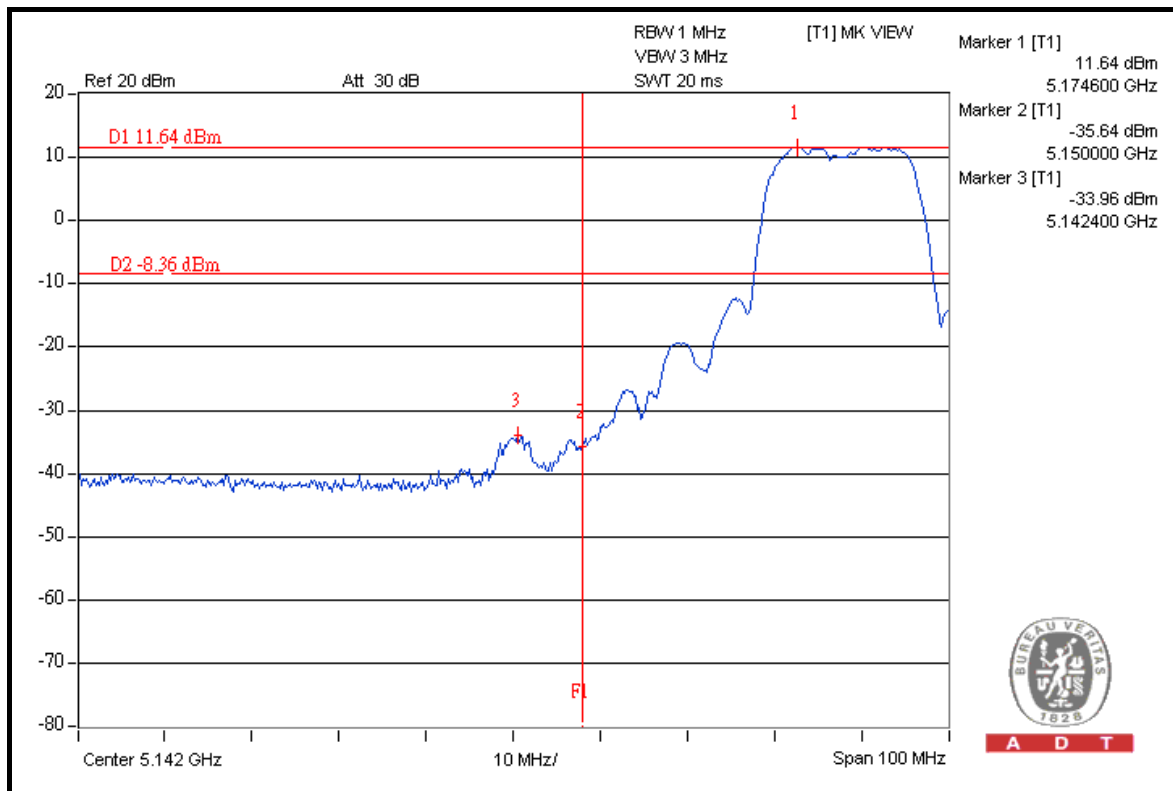
Channel 48 (5240MHz)

The band edge emission plot on the next second page shows 51.53dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 110.46dBuV/m (Peak), so the maximum field strength in restrict band is $110.46 - 51.53 = 58.93$ dBuV/m which is under 74dBuV/m limit.

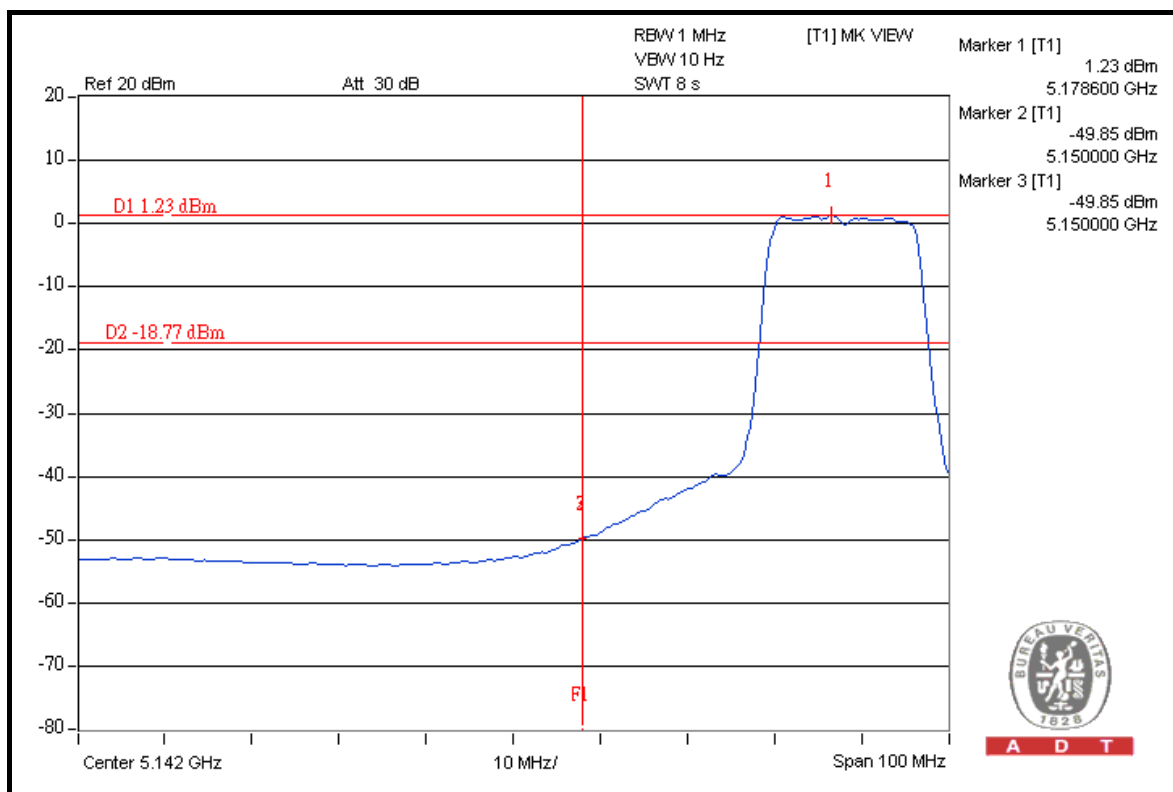
The band edge emission plot on the next third page shows 54.12dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 100.32dBuV/m (Average), so the maximum field strength in restrict band is $100.32 - 54.12 = 46.20$ dBuV/m which is under 54dBuV/m limit.



A D T



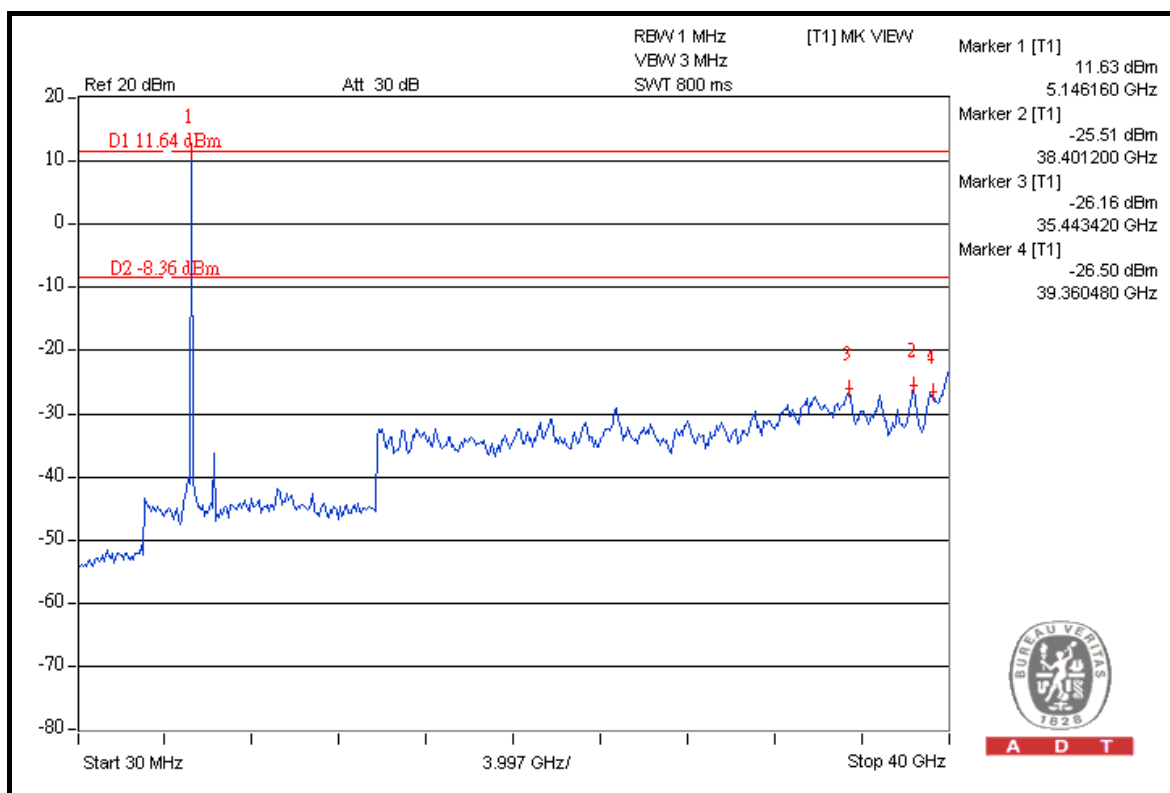
A D T



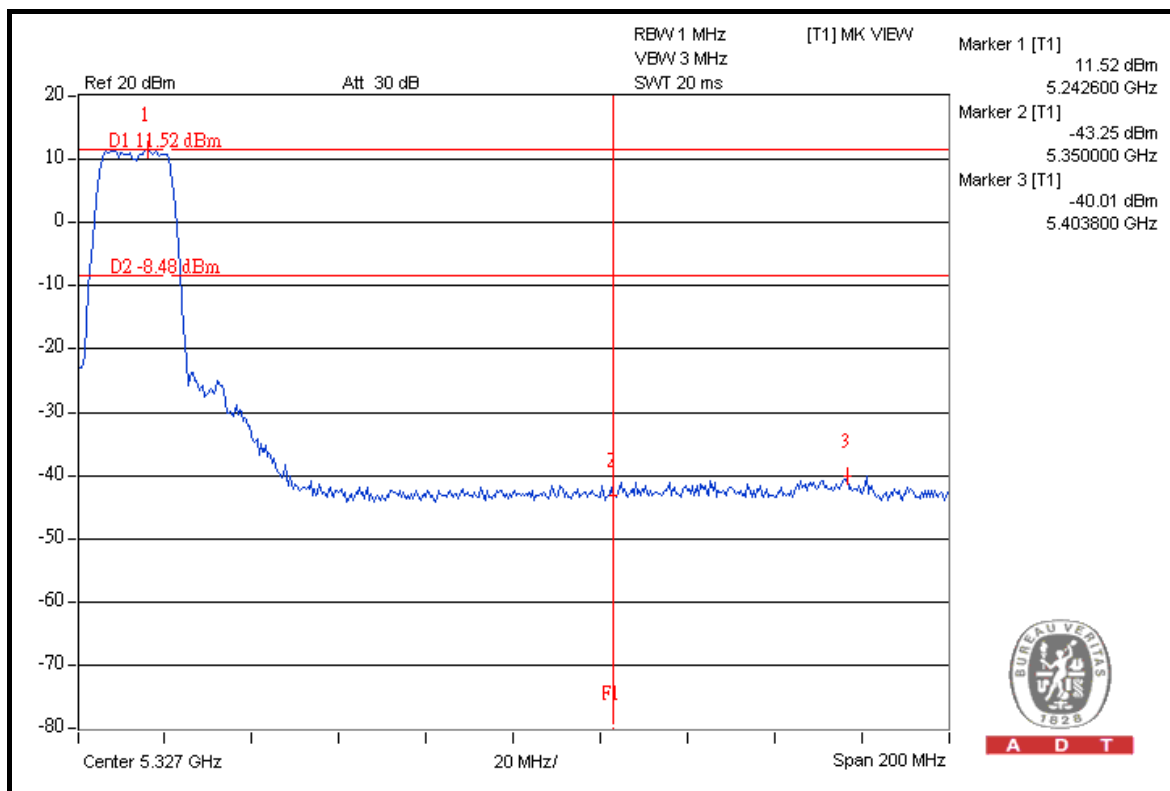
A D T



A D T



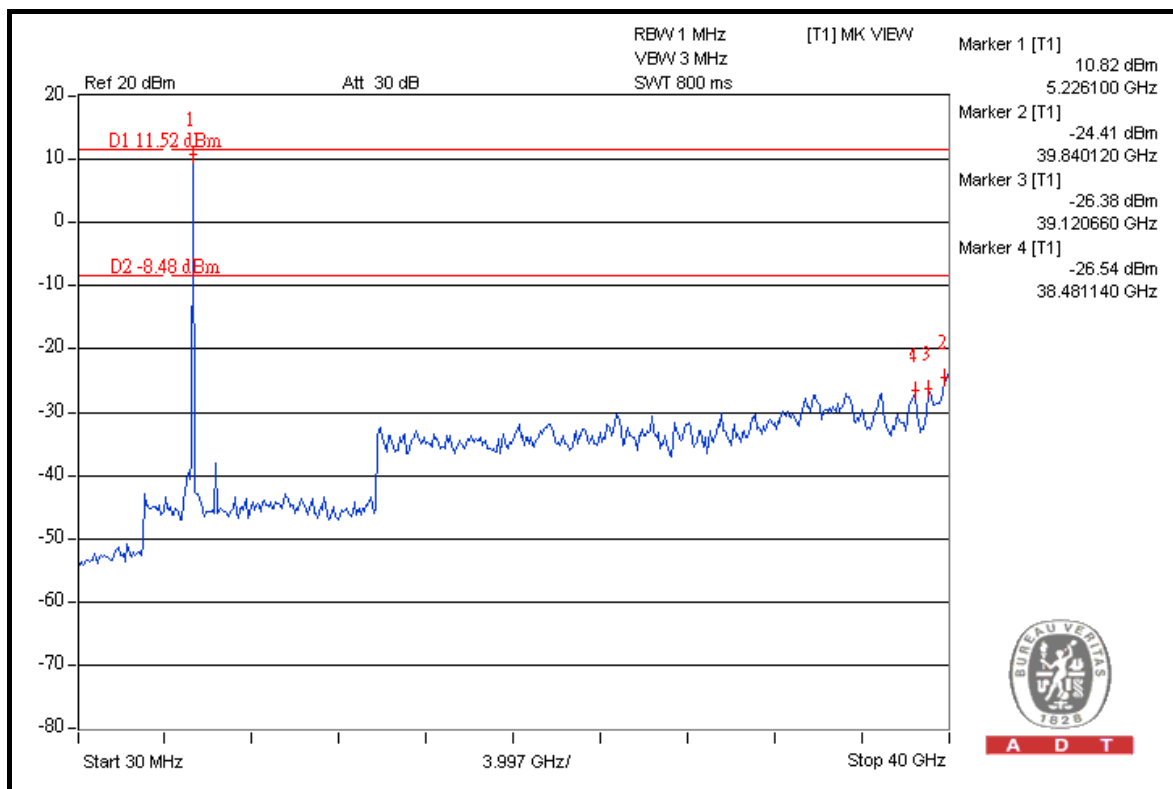
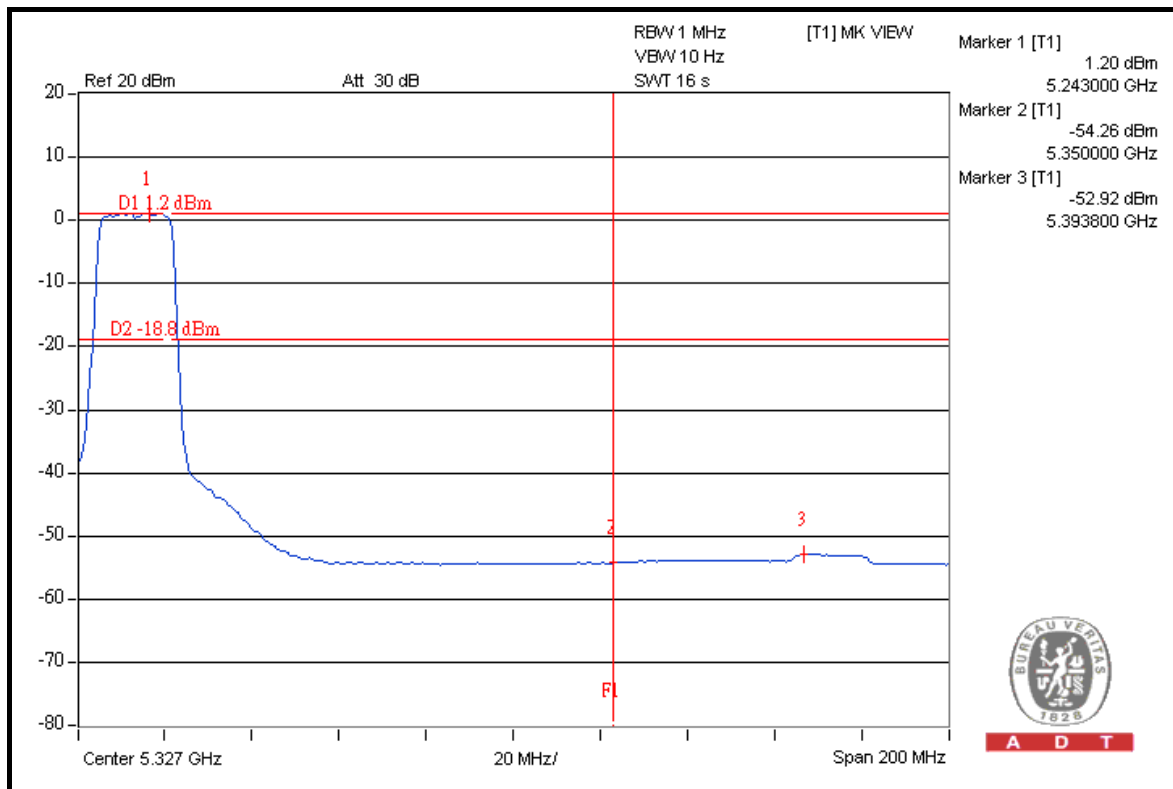
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FOR 5150-5250MHz BAND: DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

Channel 36 (5180MHz)

The band edge emission plot on the next page shows 46.66dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 106.47dBuV/m (Peak), so the maximum field strength in restrict band is $106.47 - 46.66 = 59.81\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 49.91dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 96.59dBuV/m (Average), so the maximum field strength in restrict band is $96.59 - 49.91 = 46.68\text{dBuV/m}$ which is under 54dBuV/m limit.

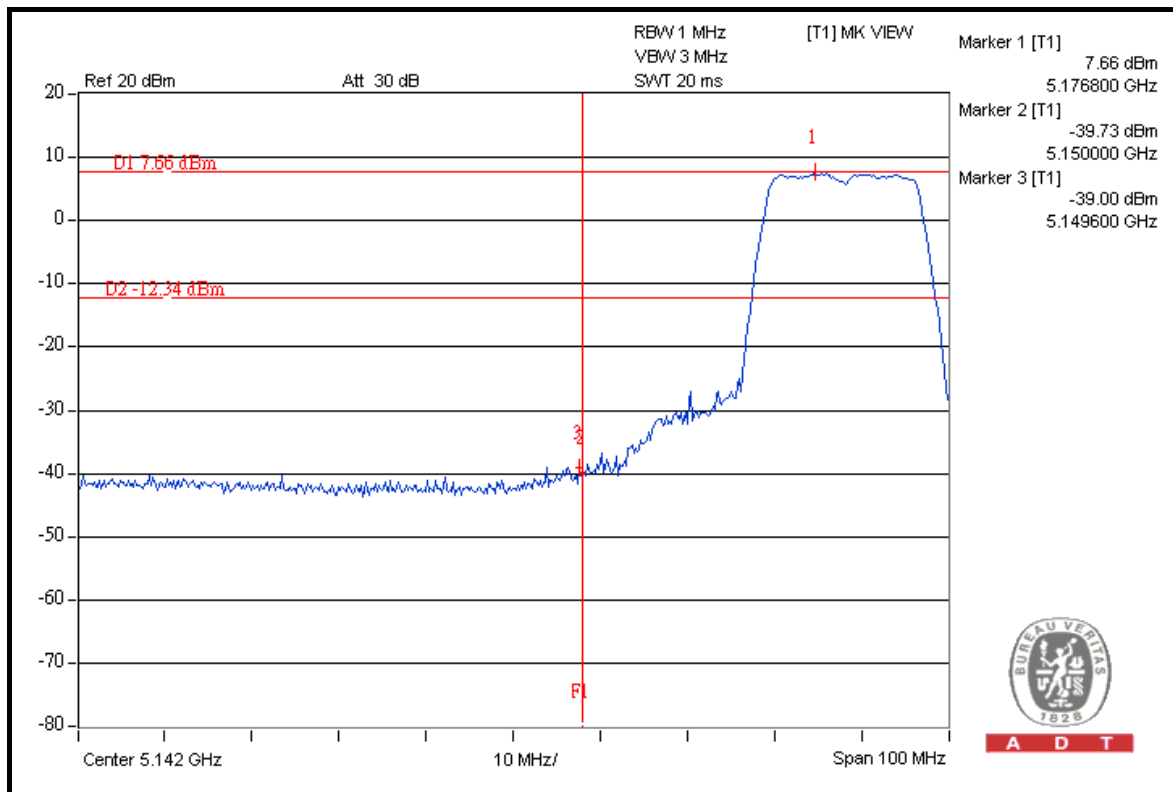
Channel 48 (5240MHz)

The band edge emission plot on the next second page shows 50.31dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 108.39dBuV/m (Peak), so the maximum field strength in restrict band is $108.39 - 50.31 = 58.08\text{dBuV/m}$ which is under 74dBuV/m limit.

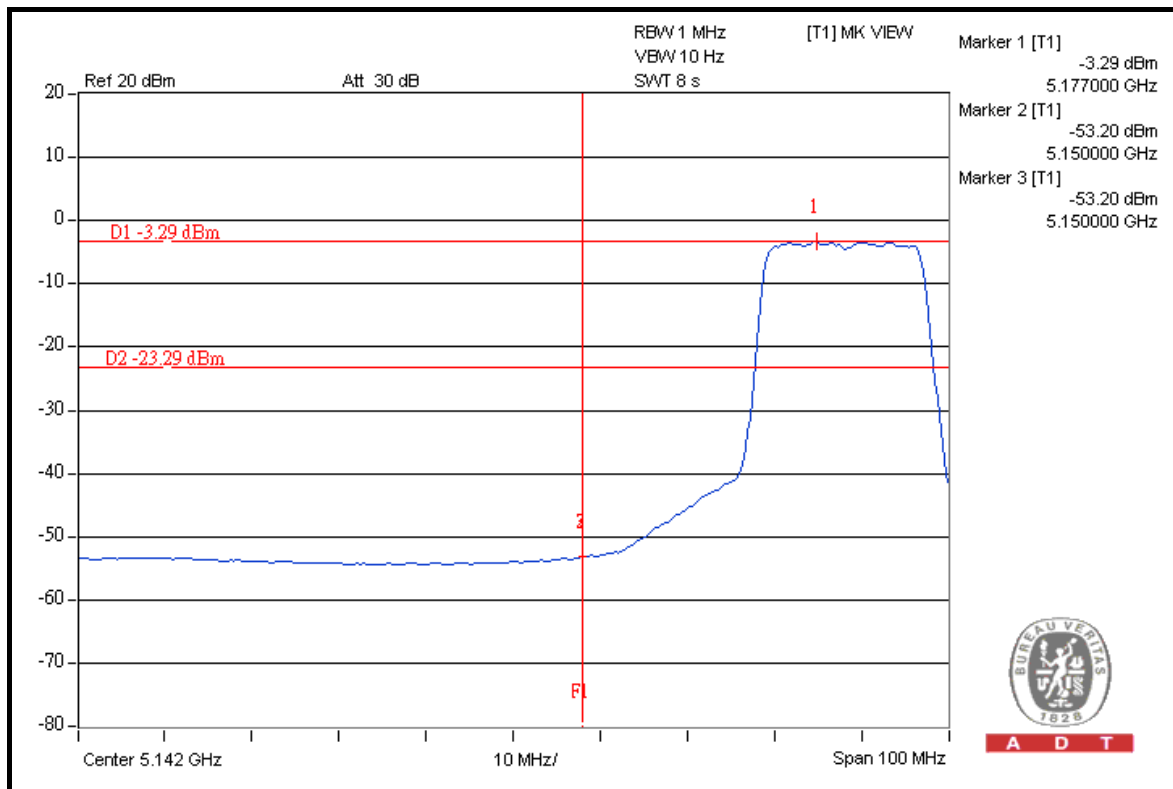
The band edge emission plot on the next third page shows 52.35dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 98.52dBuV/m (Average), so the maximum field strength in restrict band is $98.52 - 52.35 = 46.17\text{dBuV/m}$ which is under 54dBuV/m limit.



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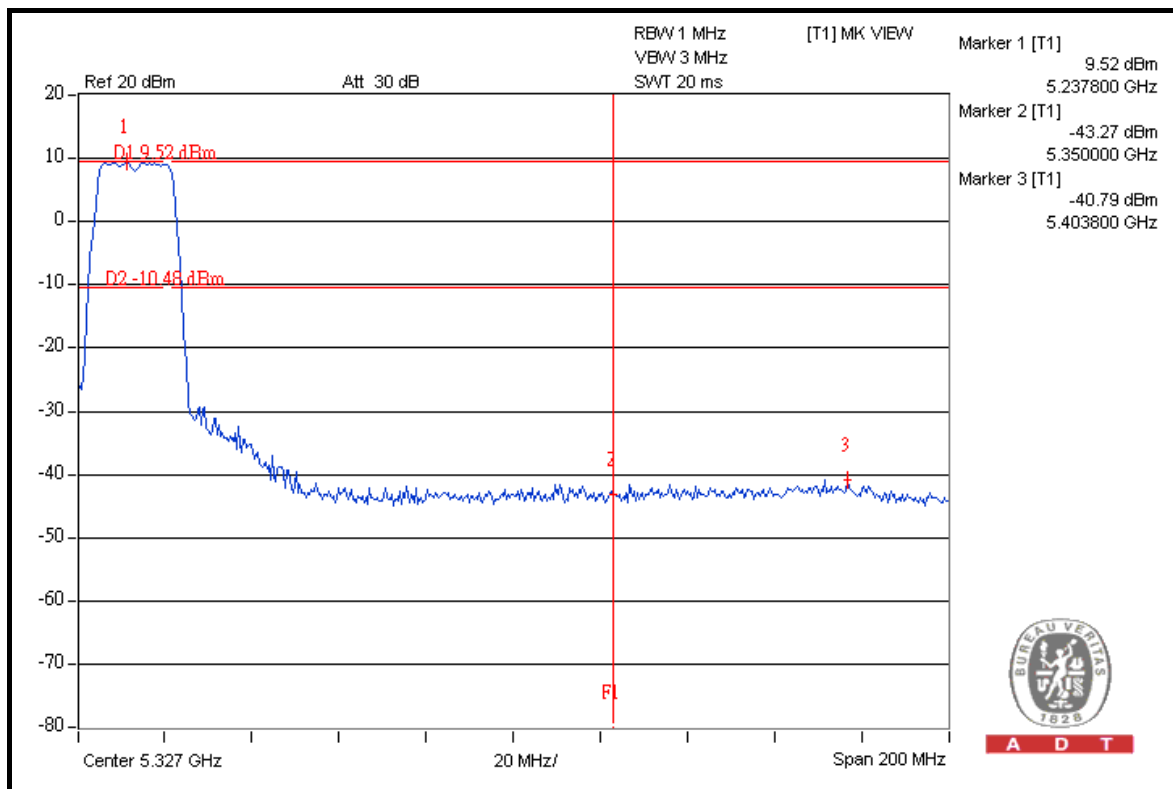
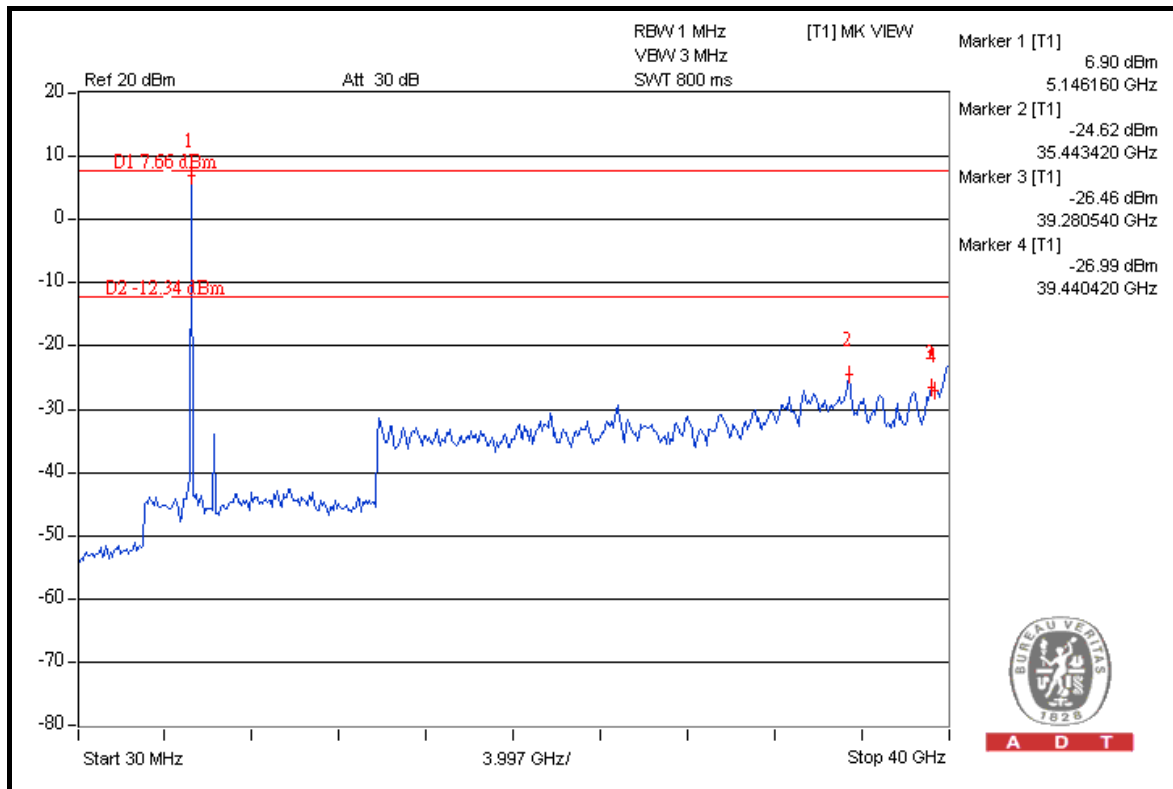
A D T



A D T

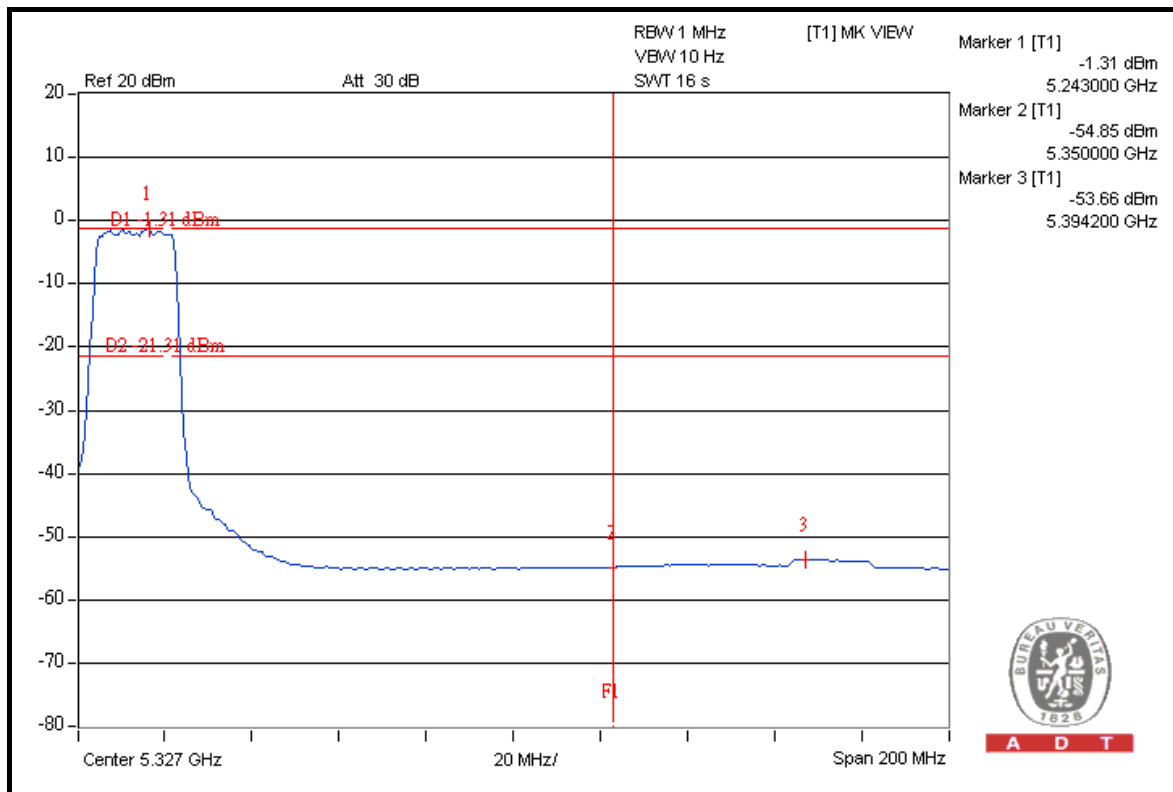


A D T

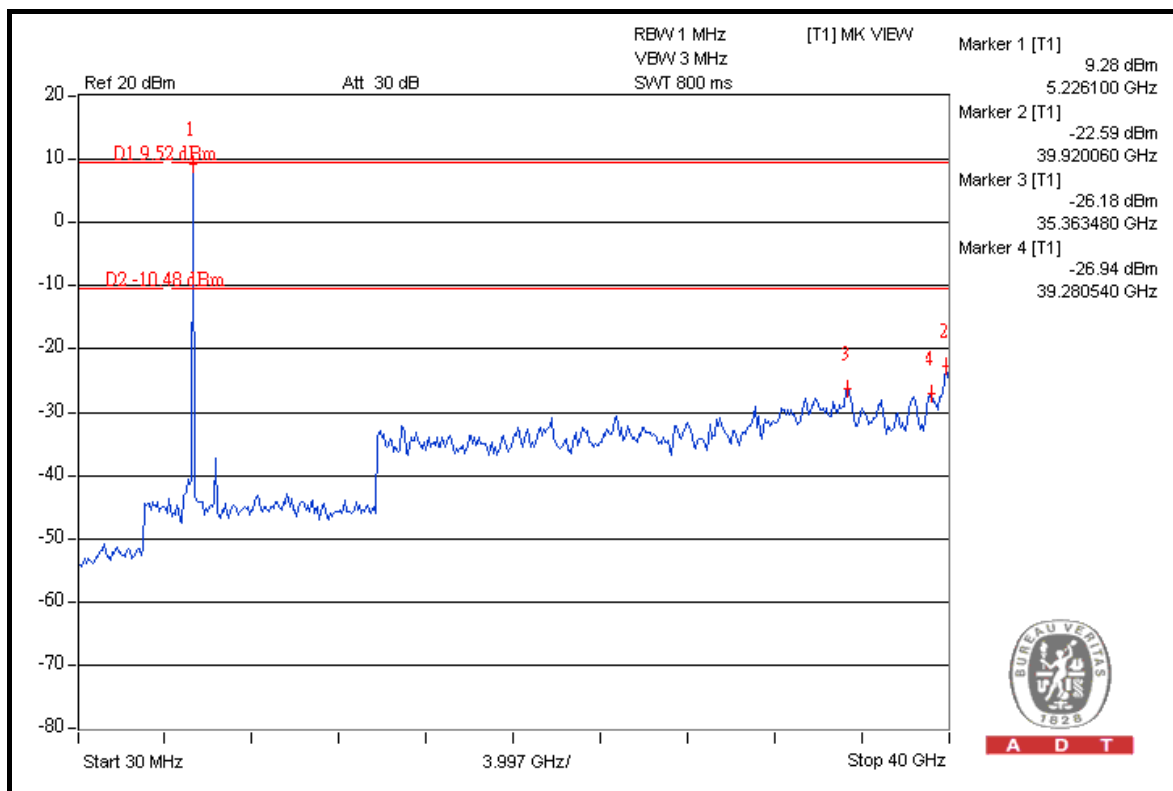




A D T



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FOR 5150-5250MHz BAND: DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

Channel 36 (5180MHz)

The band edge emission plot on the next page shows 43.85dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 107.96dBuV/m (Peak), so the maximum field strength in restrict band is $107.96 - 43.85 = 64.11\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 45.96dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 98.53dBuV/m (Average), so the maximum field strength in restrict band is $98.53 - 45.96 = 52.57\text{dBuV/m}$ which is under 54dBuV/m limit.

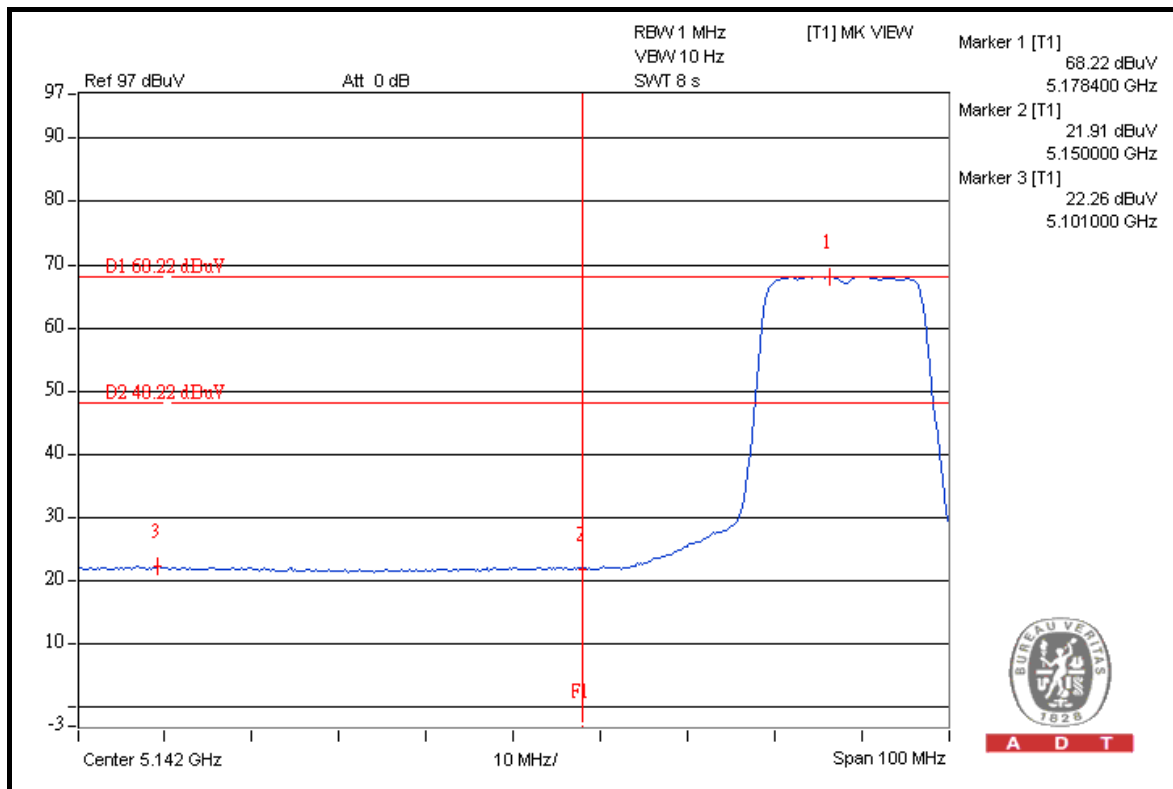
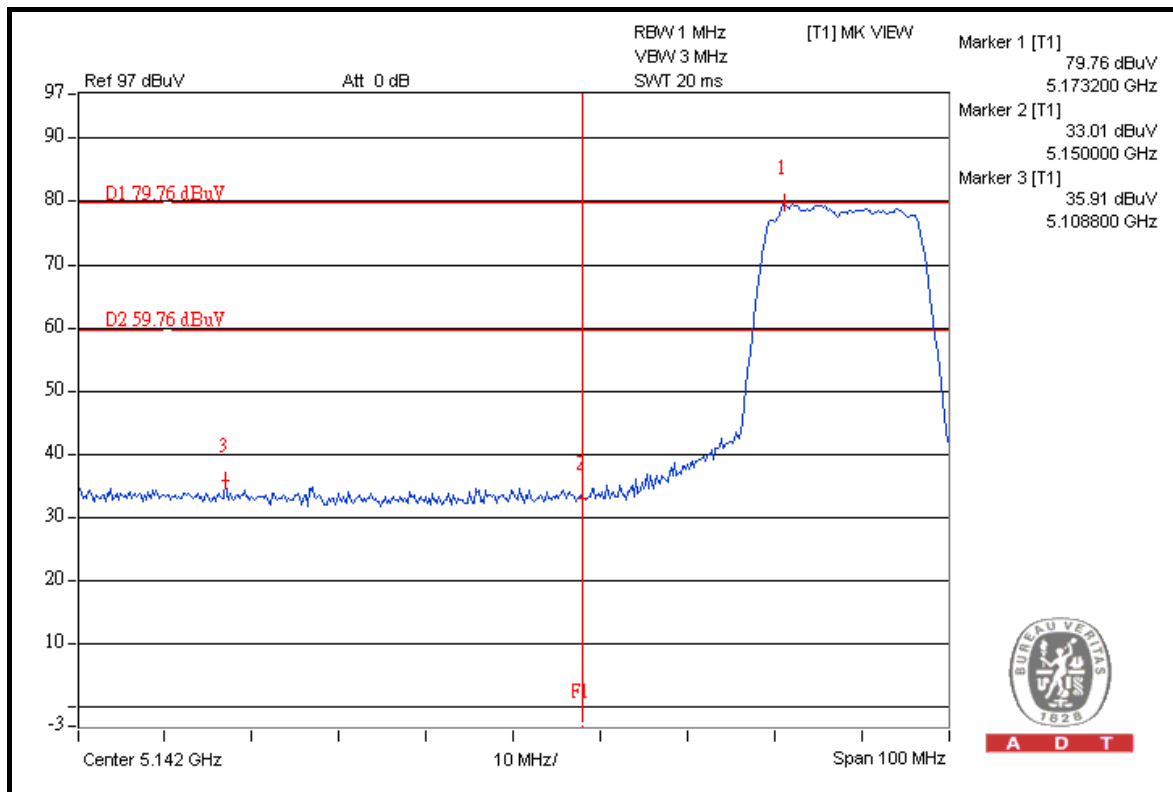
Channel 48 (5240MHz)

The band edge emission plot on the next second page shows 45.64dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 110.19dBuV/m (Peak), so the maximum field strength in restrict band is $110.19 - 45.64 = 64.55\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 47.97dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 99.74dBuV/m (Average), so the maximum field strength in restrict band is $99.74 - 47.97 = 51.77\text{dBuV/m}$ which is under 54dBuV/m limit.

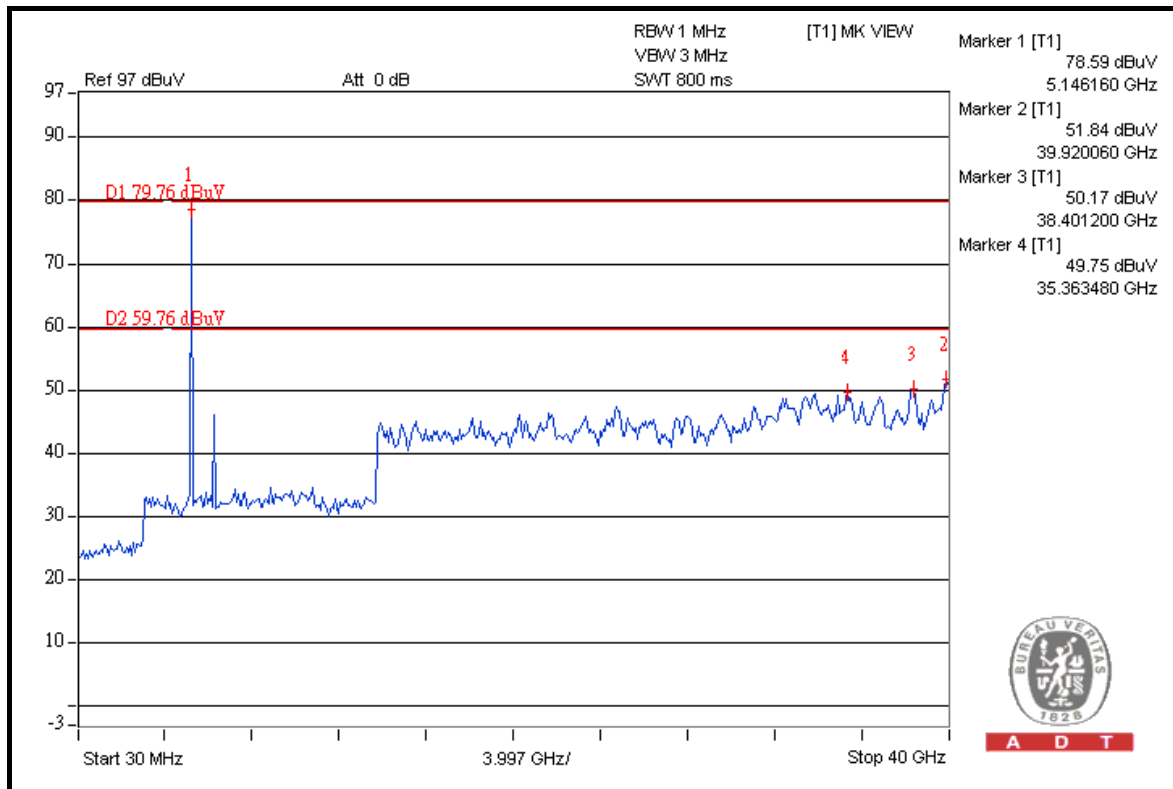


A D T

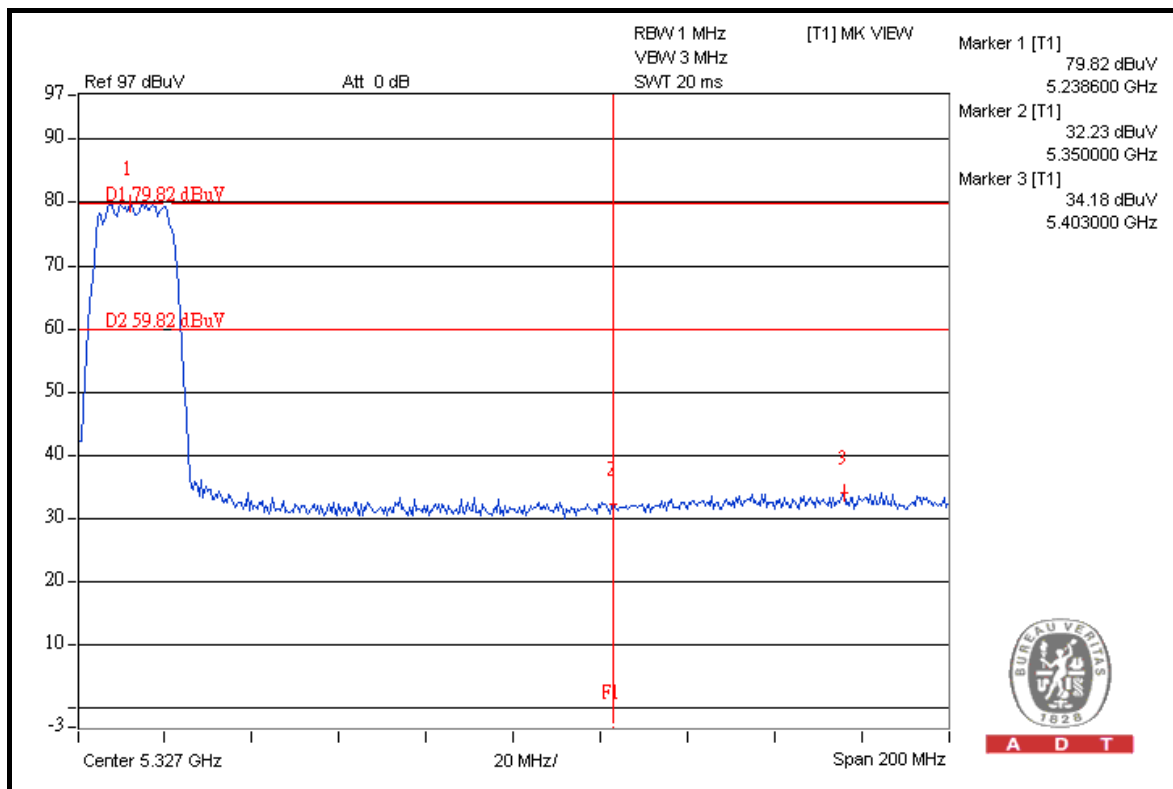




A D T



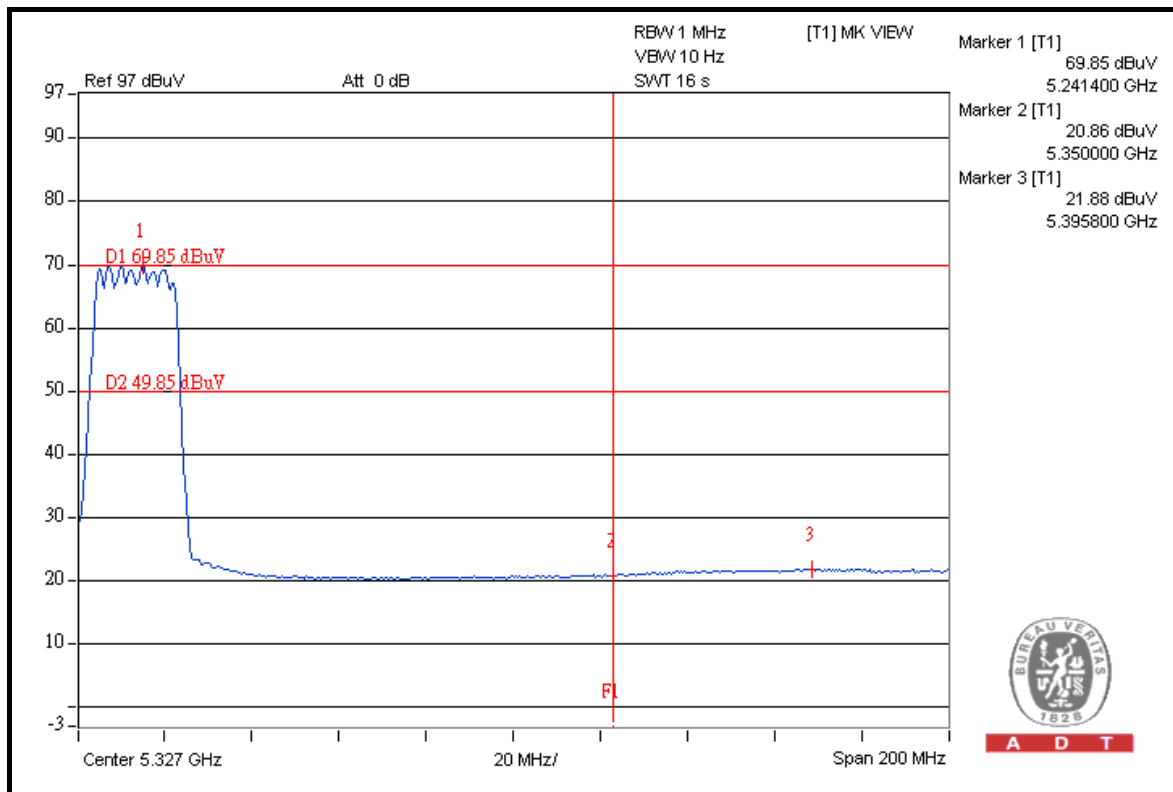
A D T



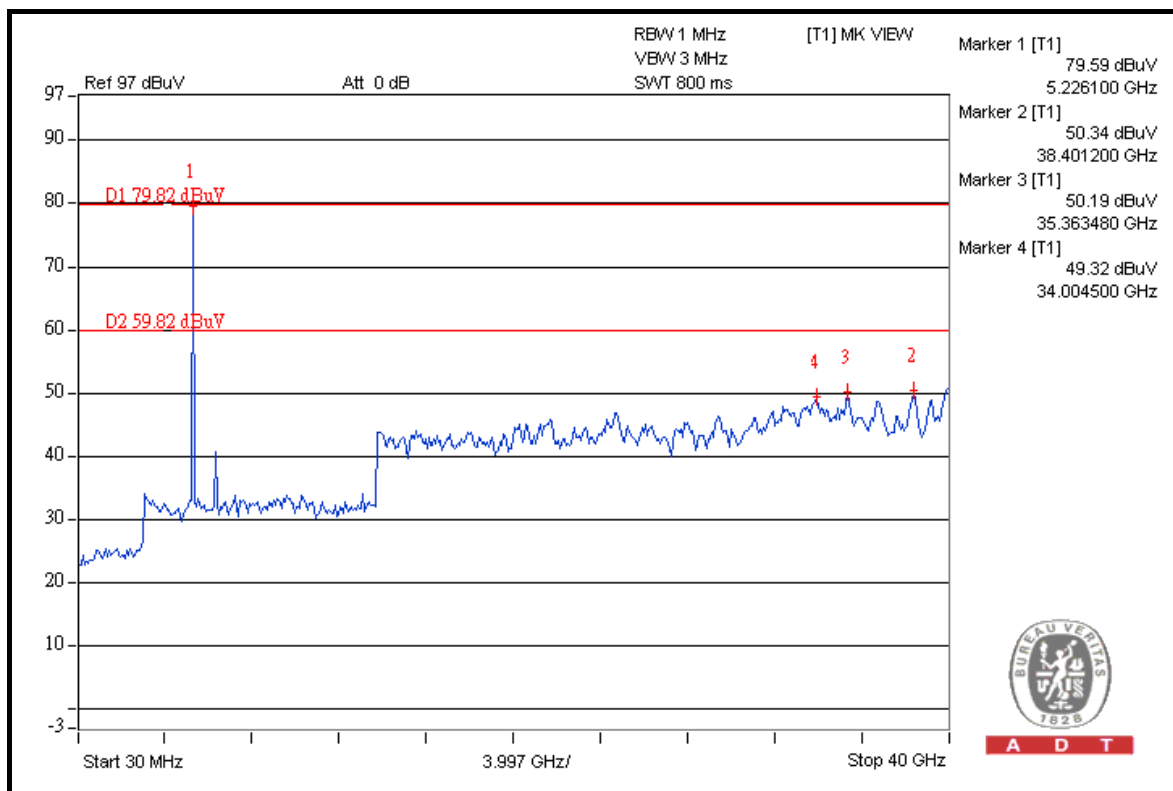
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FOR 5150-5250MHz BAND: DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

Channel 38 (5190MHz)

The band edge emission plot on the next page shows 41.34dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 103.31dBuV/m (Peak), so the maximum field strength in restrict band is $103.31 - 41.34 = 61.97\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 43.16dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 92.55dBuV/m (Average), so the maximum field strength in restrict band is $92.55 - 43.16 = 49.39\text{dBuV/m}$ which is under 54dBuV/m limit.

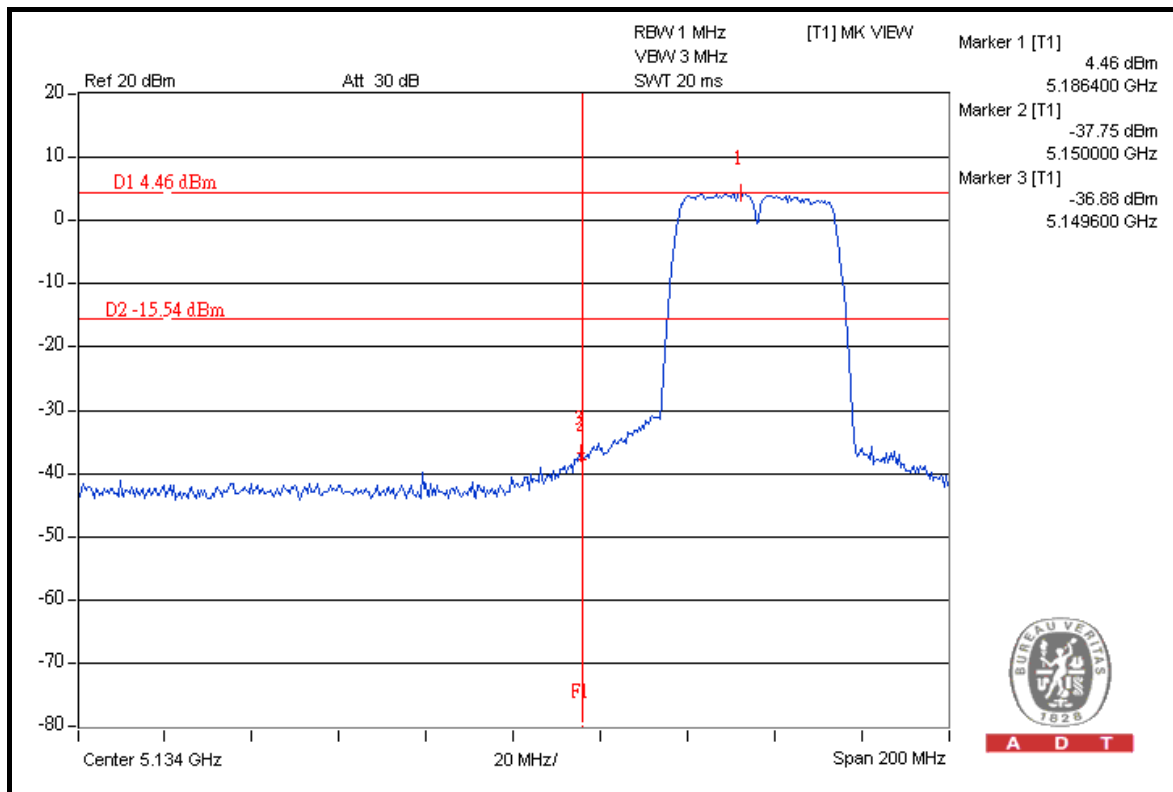
Channel 46 (5240MHz)

The band edge emission plot on the next second page shows 47.83dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 105.56dBuV/m (Peak), so the maximum field strength in restrict band is $105.56 - 47.83 = 57.73\text{dBuV/m}$ which is under 74dBuV/m limit.

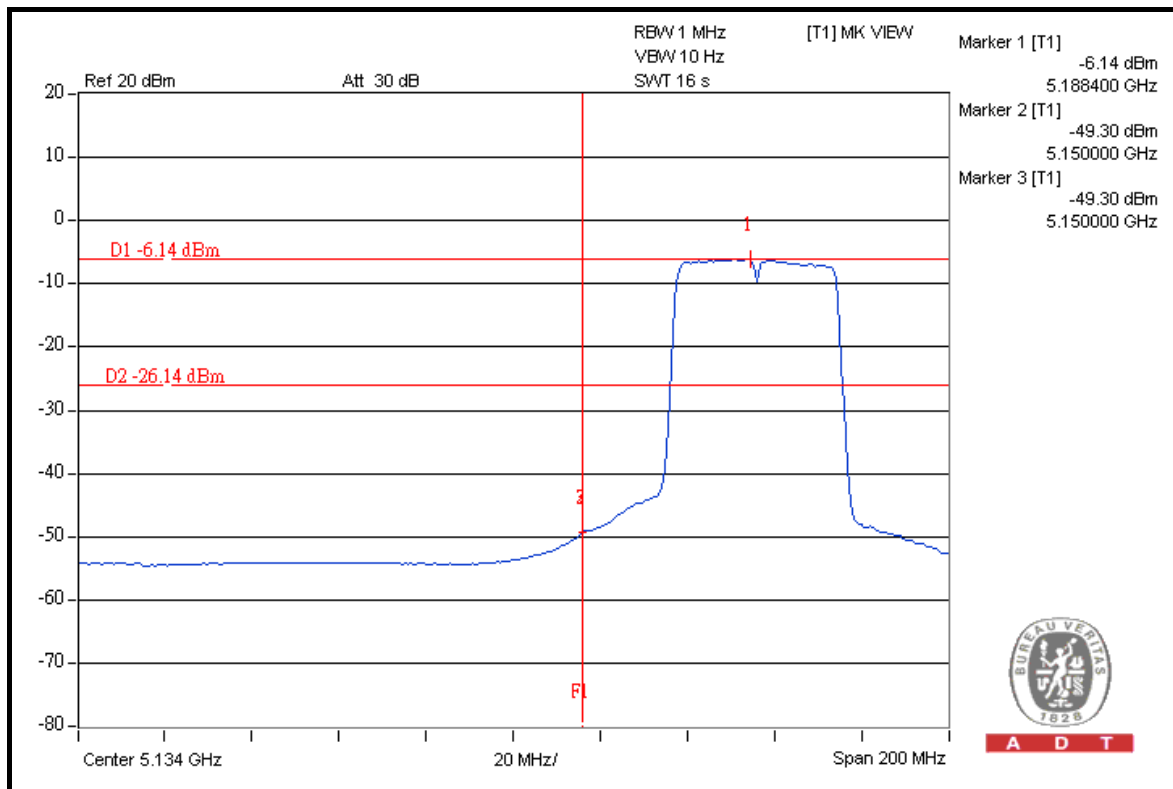
The band edge emission plot on the next third page shows 50.21dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 95.35dBuV/m (Average), so the maximum field strength in restrict band is $95.35 - 50.21 = 45.14\text{dBuV/m}$ which is under 54dBuV/m limit.



A D T



A D T



A D T





FOR 5150-5250MHz BAND: DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

Channel 38 (5190MHz)

The band edge emission plot on the next page shows 40.48dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 104.93dBuV/m (Peak), so the maximum field strength in restrict band is $104.93 - 40.48 = 64.45$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 41.75dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 94.12dBuV/m (Average), so the maximum field strength in restrict band is $94.12 - 41.75 = 52.37$ dBuV/m which is under 54dBuV/m limit.

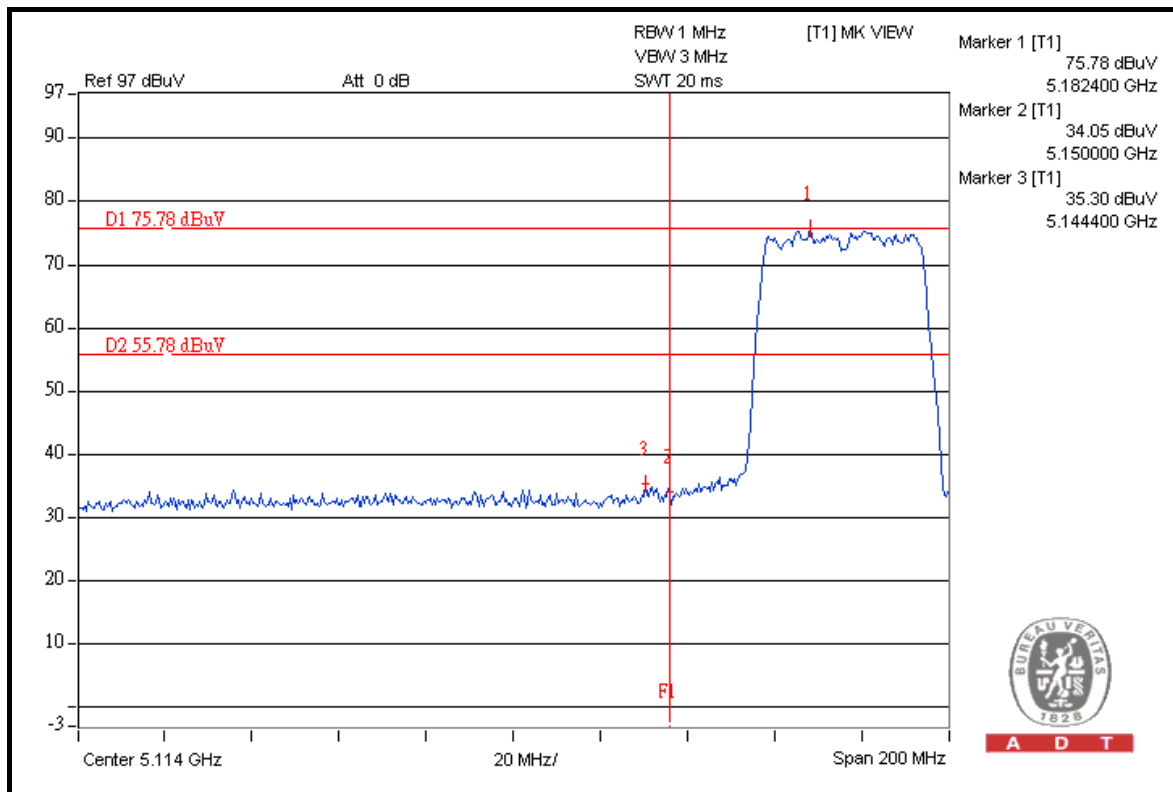
Channel 46 (5230MHz)

The band edge emission plot on the next second page shows 42.61dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 107.03dBuV/m (Peak), so the maximum field strength in restrict band is $107.03 - 42.61 = 64.42$ dBuV/m which is under 74dBuV/m limit.

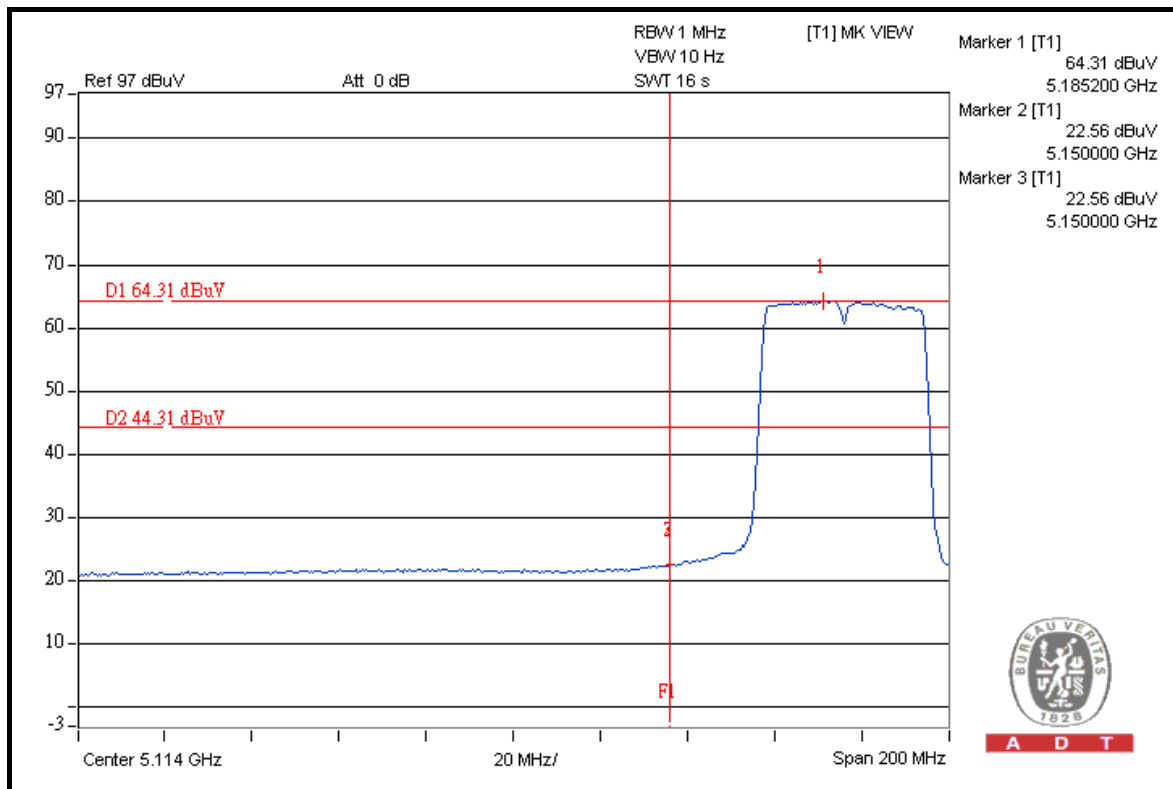
The band edge emission plot on the next third page shows 44.73dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 96.25dBuV/m (Average), so the maximum field strength in restrict band is $96.25 - 44.73 = 51.52$ dBuV/m which is under 54dBuV/m limit.



A D T



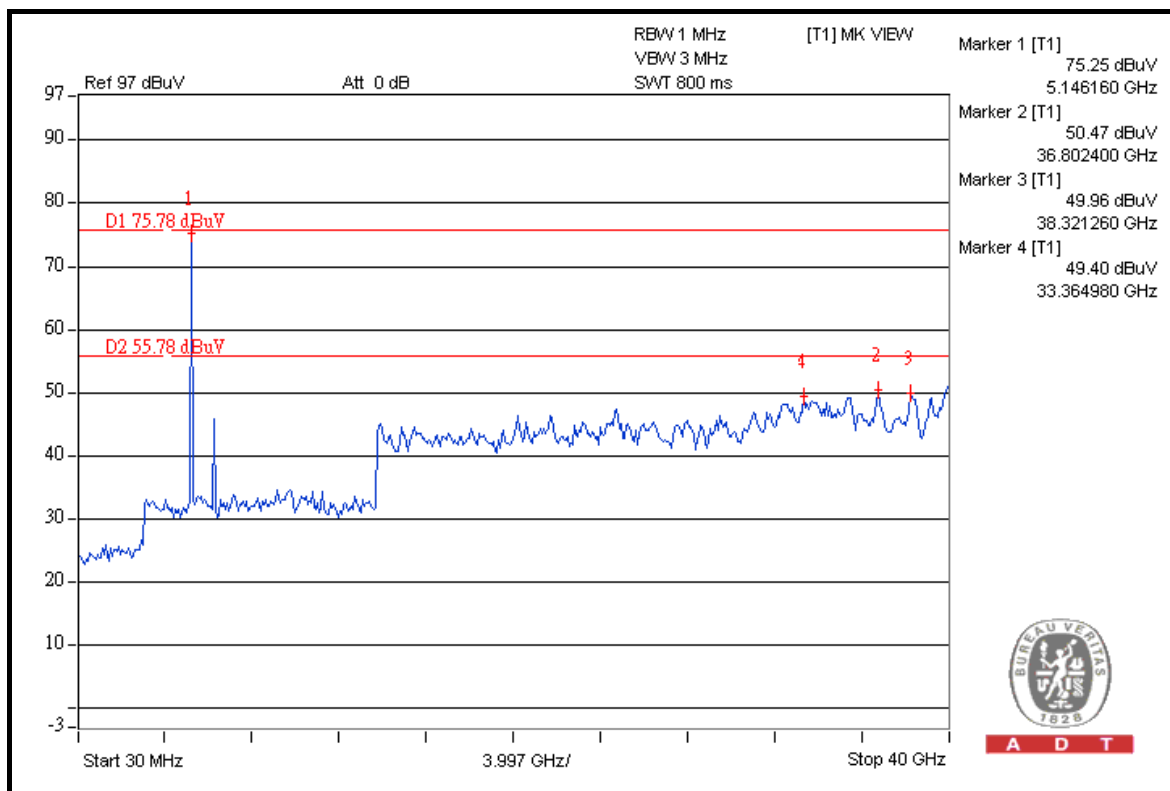
A D T



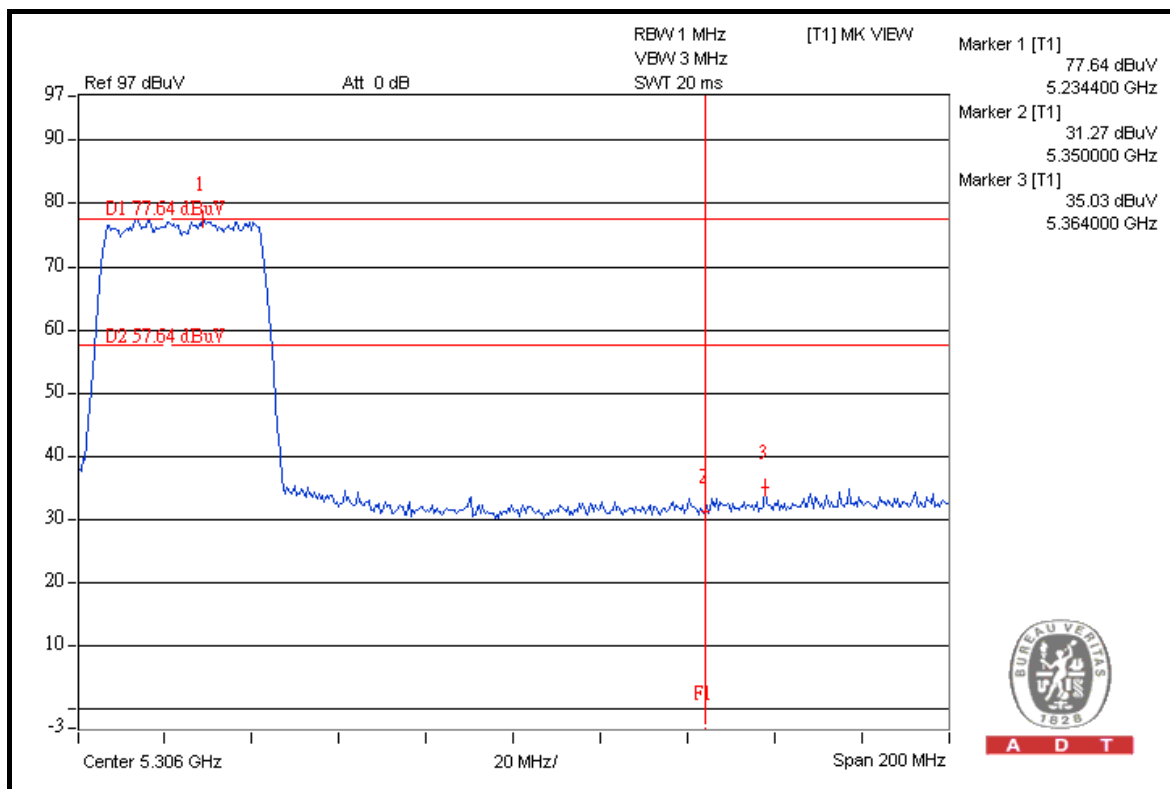
A D T



A D T



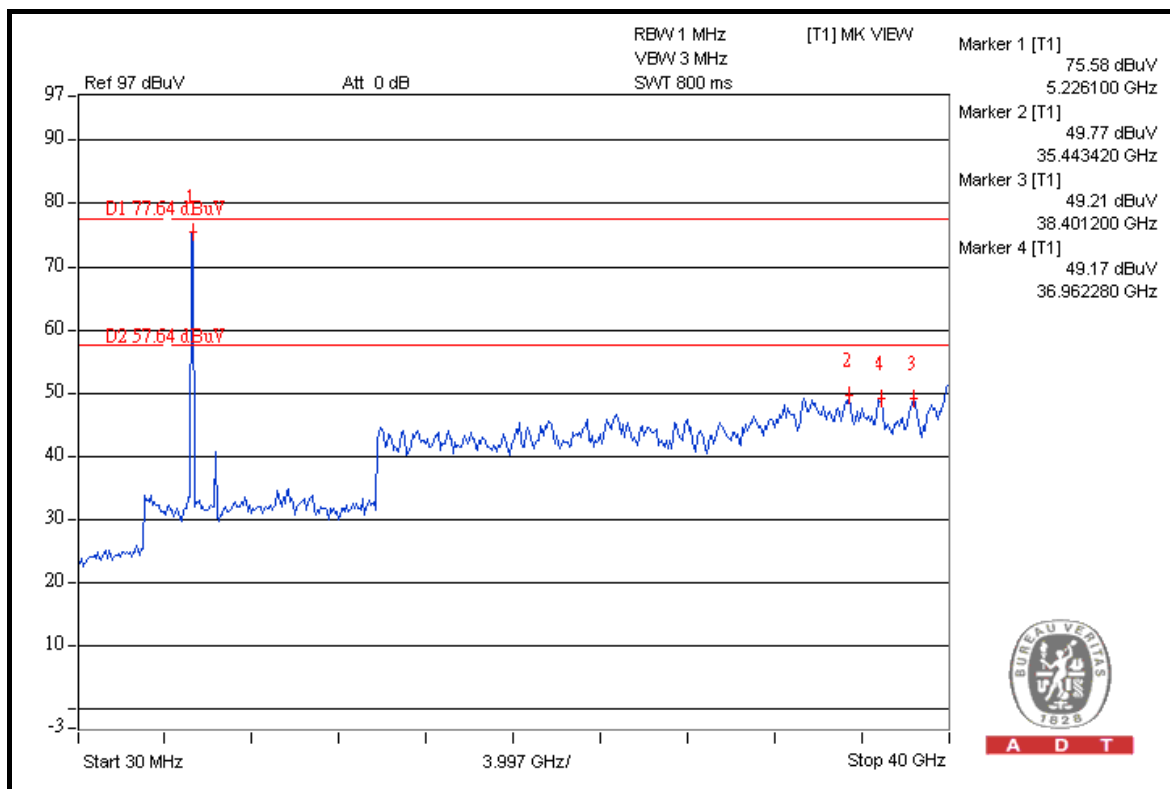
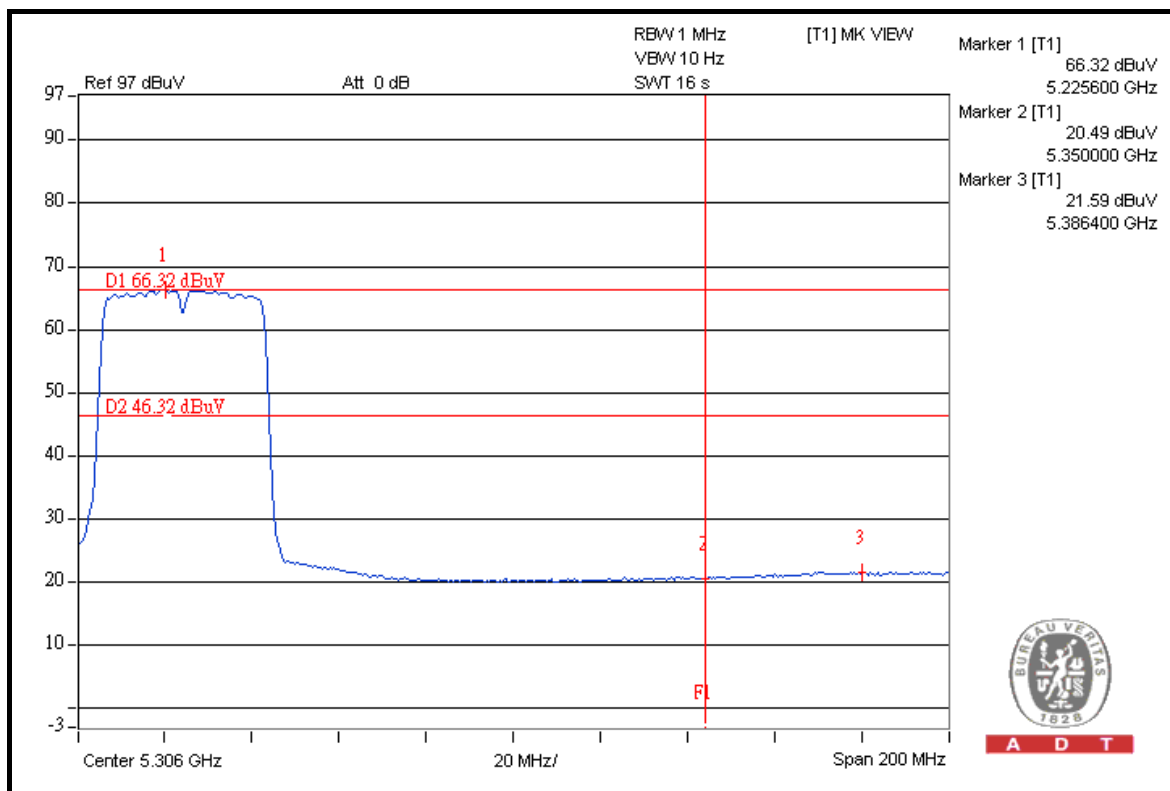
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4.8 ANTENNA REQUIREMENT

4.8.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR 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.

And according to FCC 47 CFR Section 15.407(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is dipole antenna with RP-TNC connector. The maximum Gain of the antenna is 5dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:
www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---