

FCC TEST REPORT (15.407)

REPORT NO.: RF980611L15-1

MODEL NO.: MP-8150-CPE

RECEIVED: Jun. 11, 2009

TESTED: Jul. 01 ~ Jul. 09, 2009

ISSUED: Jul. 15, 2009

APPLICANT: Proxim Wireless Corporation

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1. CERTIFICATION

PRODUCT: Tsunami MP-8150-CPE

MODEL NO.: MP-8150-CPE

BRAND: Proxim

APPLICANT: Proxim Wireless Corporation

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Jul. 01 ~ Jul. 09, 2009

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.4-2003

The above equipment (Model: MP-8150-CPE) 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** : Jul. 15, 2009
Peggy Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE** : Jul. 15, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE** : Jul. 15, 2009
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 -11.49dB at 4.822MHz.
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 -1.05dB at 5350MHz.
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	150kHz~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	Tsunami MP-8150-CPE
MODEL NO.	MP-8150-CPE
FCC ID	HZB-MP8150CPE
POWER SUPPLY	48Vdc from POE
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 270.0Mbps
OPERATING FREQUENCY	5180 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5320MHz: 8 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz) 5500 ~ 5700MHz: 11 for 802.11a, draft 802.11n (20MHz) 5 for draft 802.11n (40MHz)
OUTPUT POWER	4.543mW for 5180 ~ 5240MHz 22.700mW for 5260 ~ 5320MHz 24.074mW for 5500 ~ 5700MHz
ANTENNA TYPE	Dual polarization directional antenna with 16dBi gain
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

- Product Description: Wireless Outdoor Tsunami Subscriber Unit with Integrated Antenna operating in 5 GHz Band.
- The EUT is a Tsunami MP-8150-CPE. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11a, draft 802.11n (5745~5825 MHz)	FCC Part 15, Subpart C (Section 15.247)	RF980611L15
WLAN 802.11a, draft 802.11n (5180~5320MHz & 5500 ~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF980611L15-1
WLAN 802.11a, draft 802.11n (5260~5320MHz & 5500~5700MHz) (For DFS report)		RF980611L15-2

- The EUT was powered by the following POE: (Not for sale)

BRAND	SL POWER ELECTRONICS
MODEL	PENB1032E4800F02
INPUT POWER	100-250Vac, 50-60Hz, 0.5A
OUTPUT POWER	48Vdc, 0.35A
POWER CABLE	1.8m non-shielded power cable

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

MODULATION MODE	TX FUNCTION
802.11a	2TX
Draft 802.11n (20MHz)	2TX
Draft 802.11n (40MHz)	2TX

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

Frequency Band (MHz)	5180~5320	5500~5700	5745~5825
802.11a	√	√	√
Draft 802.11n (20MHz)	√	√	√
Draft 802.11n (40MHz)	√	√	√

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

3.2 DESCRIPTION OF TEST MODES

Operated in 5180 ~ 5320MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

Operated in 5500 ~ 5700MHz

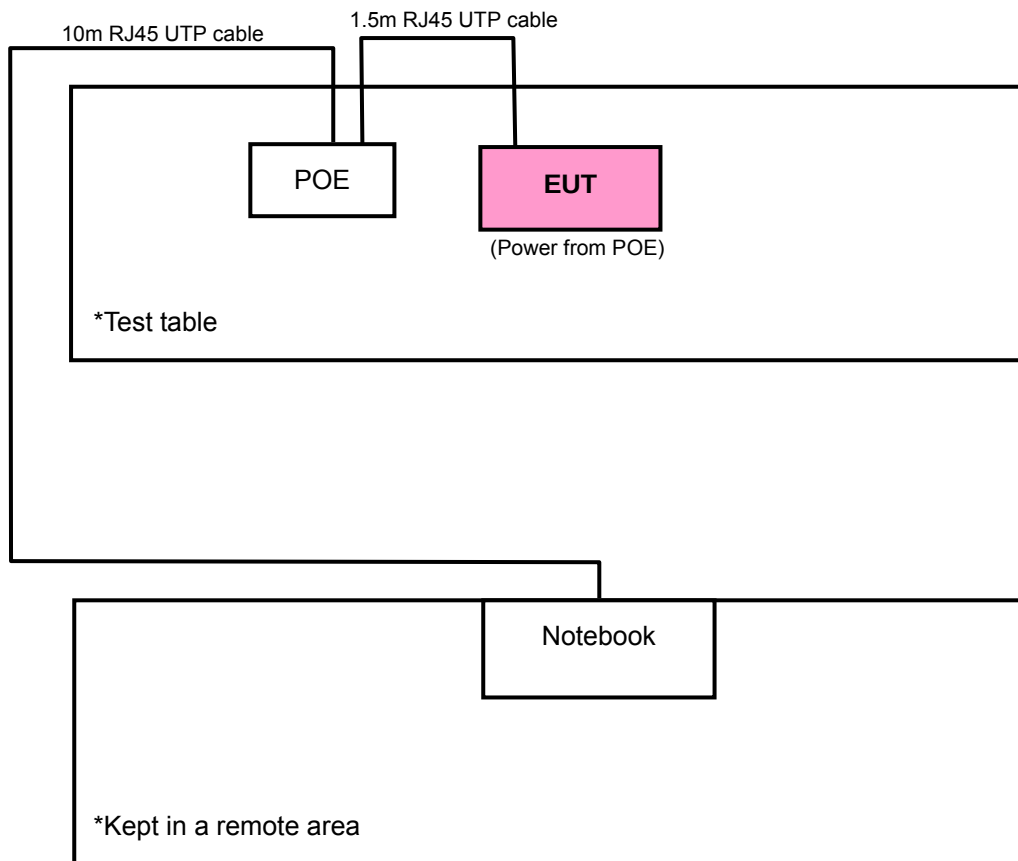
11 channels are provided for 802.11a, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5690 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 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)
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	100, 120, 140	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		100 to 140	100, 120, 140	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		102 to 134	102, 118, 134	OFDM	BPSK	13.5

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 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)
Draft 802.11n (40MHz)	5180-5320	38 to 62	54	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	140	OFDM	BPSK	6.0

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 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)
Draft 802.11n (40MHz)	5180-5320	38 to 62	54	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	140	OFDM	BPSK	6.0

BANDEDGE MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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)
802.11a	5180-5320	36 to 64	36, 48, 52, 64	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		36 to 64	36, 48, 52, 64	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		100 to 140	100, 140	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		102 to 134	102, 134	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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)
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	100, 120, 140	OFDM	BPSK	6.0
Draft 802.11n (20MHz)		100 to 140	100, 120, 140	OFDM	BPSK	6.5
Draft 802.11n (40MHz)		102 to 134	102, 118, 134	OFDM	BPSK	13.5

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.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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 COMPUTER	DELL	PP05L	33898721680	E2K24CLNS

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.

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 3
	PK	PK
5150 ~ 5350	-27	68.3
5470 ~ 5725	-27	68.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

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 25, 2009	May 24, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2009	Apr. 29, 2010
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 06, 2008	Aug. 05, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10638	Dec. 26, 2008	Dec. 25, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 13, 2009	May 12, 2010
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.

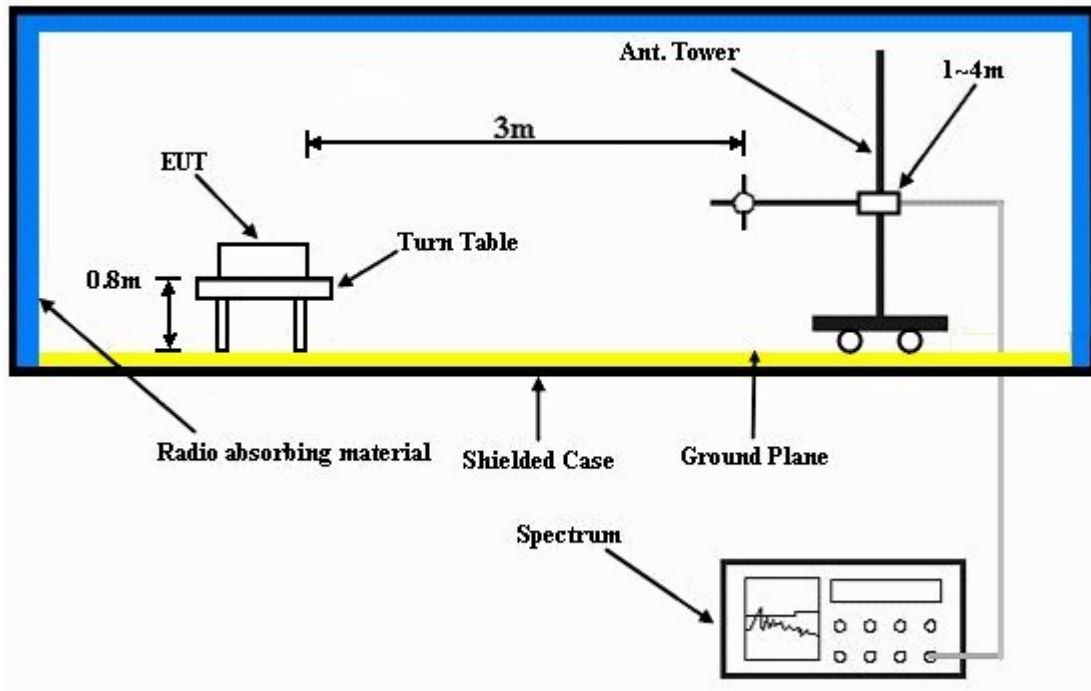
NOTE:

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

- Placed the EUT on the testing table.
- Prepared notebook system outside of testing area to act as a communication partners.
- The communication partner connected with EUT via a RJ45 UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.8 TEST RESULTS

802.11a OFDM MODULATION

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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	51.87 PK	74.00	-22.12	1.00 H	172	14.84	37.04
2	5150.00	39.18 AV	54.00	-14.82	1.00 H	172	2.14	37.04
3	*5180.00	112.47 PK			1.00 H	172	75.40	37.07
4	*5180.00	99.04 AV			1.00 H	172	61.97	37.07
5	#10360.00	58.83 PK	68.30	-9.47	1.06 H	280	11.57	47.26
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	51.29 PK	74.00	-22.71	1.02 V	173	14.25	37.04
2	5150.00	38.94 AV	54.00	-15.06	1.02 V	173	1.90	37.04
3	*5180.00	112.90 PK			1.02 V	173	75.83	37.07
4	*5180.00	99.38 AV			1.02 V	173	62.31	37.07
5	#10360.00	56.69 PK	68.30	-11.61	1.17 V	311	9.43	47.26

- 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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	112.25 PK			1.00 H	176	75.16	37.09
2	*5200.00	99.54 AV			1.00 H	176	62.45	37.09
3	#10400.00	58.99 PK	68.30	-9.31	1.07 H	286	11.52	47.47
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	112.89 PK			1.01 V	175	75.80	37.09
2	*5200.00	99.81 AV			1.01 V	175	62.72	37.09
3	#10400.00	56.75 PK	68.30	-11.55	1.15 V	304	9.28	47.47

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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	111.86 PK			1.06 H	176	74.66	37.20
2	*5240.00	99.29 AV			1.06 H	176	62.09	37.20
3	#10480.00	59.03 PK	68.30	-9.27	1.04 H	293	11.37	47.66
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	112.02 PK			1.00 V	178	74.82	37.20
2	*5240.00	99.50 AV			1.00 V	178	62.30	37.20
3	#10480.00	56.84 PK	68.30	-11.46	1.12 V	302	9.18	47.66

- 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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5260.00	118.58 PK			1.03 H	175	81.32	37.26
2	*5260.00	105.48 AV			1.03 H	175	68.22	37.26
3	#10520.00	60.58 PK	68.30	-7.72	1.01 H	347	12.81	47.77
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	*5260.00	118.87 PK			1.01 V	174	81.61	37.26
2	*5260.00	105.80 AV			1.01 V	174	68.54	37.26
3	#10520.00	59.48 PK	68.30	-8.82	1.08 V	317	11.71	47.77

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5300.00	118.51 PK			1.05 H	175	81.14	37.37
2	*5300.00	105.34 AV			1.05 H	175	67.97	37.37
3	10600.00	59.26 PK	74.00	-14.74	1.02 H	340	11.27	47.99
4	10600.00	47.13 AV	54.00	-6.87	1.02 H	340	-0.86	47.99
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	*5300.00	118.85 PK			1.00 V	175	81.48	37.37
2	*5300.00	105.67 AV			1.00 V	175	68.30	37.37
3	10600.00	60.20 PK	74.00	-13.80	1.14 V	296	12.21	47.99
4	10600.00	45.94 AV	54.00	-8.06	1.14 V	296	-2.05	47.99

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5320.00	118.17 PK			1.05 H	175	80.79	37.38
2	*5320.00	105.86 AV			1.05 H	175	68.48	37.38
3	5350.00	57.30 PK	74.00	-16.70	1.05 H	176	19.90	37.40
4	5350.00	43.60 AV	54.00	-10.40	1.05 H	176	6.20	37.40
5	10640.00	58.62 PK	74.00	-15.38	1.01 H	274	10.58	48.03
6	10640.00	45.97 AV	54.00	-8.03	1.01 H	274	-2.07	48.03
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	*5320.00	118.98 PK			1.00 V	176	81.60	37.38
2	*5320.00	106.56 AV			1.00 V	176	69.18	37.38
3	5350.00	58.72 PK	74.00	-15.28	1.00 V	176	21.32	37.40
4	5350.00	45.38 AV	54.00	-8.62	1.00 V	176	7.98	37.40
5	10640.00	59.45 PK	74.00	-14.55	1.10 V	324	11.41	48.03
6	10640.00	46.32 AV	54.00	-7.68	1.10 V	324	-1.72	48.03

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	5460.00	61.25 PK	74.00	-12.75	1.00 H	176	23.75	37.50
2	5460.00	47.86 AV	54.00	-6.14	1.00 H	176	10.36	37.50
3	#5470.00	66.25 PK	68.30	-2.05	1.00 H	176	28.74	37.51
4	*5500.00	122.54 PK			1.00 H	176	84.99	37.55
5	*5500.00	112.43 AV			1.00 H	176	74.88	37.55
6	11000.00	60.06 PK	74.00	-13.94	1.04 H	219	11.56	48.50
7	11000.00	47.01 AV	54.00	-6.99	1.04 H	219	-1.49	48.50
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	5460.00	62.42 PK	74.00	-11.58	1.04 V	178	24.92	37.50
2	5460.00	48.56 AV	54.00	-5.44	1.04 V	178	11.06	37.50
3	#5470.00	67.17 PK	68.30	-1.13	1.04 V	178	29.66	37.51
4	*5500.00	123.29 PK			1.04 V	178	85.74	37.55
5	*5500.00	112.85 AV			1.04 V	178	75.30	37.55
6	11000.00	59.48 PK	74.00	-14.52	1.01 V	231	10.98	48.50
7	11000.00	47.36 AV	54.00	-6.64	1.01 V	231	-1.14	48.50

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 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	*5600.00	121.91 PK			1.01 H	176	84.16	37.75
2	*5600.00	111.51 AV			1.01 H	176	73.76	37.75
3	11200.00	59.13 PK	74.00	-14.87	1.04 H	236	10.78	48.35
4	11200.00	46.25 AV	54.00	-7.75	1.04 H	236	-2.10	48.35
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	*5600.00	122.42 PK			1.03 V	177	84.67	37.75
2	*5600.00	112.03 AV			1.03 V	177	74.28	37.75
3	11200.00	59.43 PK	74.00	-14.57	1.03 V	146	11.08	48.35
4	11200.00	46.38 AV	54.00	-7.62	1.03 V	146	-1.97	48.35

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	*5700.00	121.42 PK			1.02 H	174	83.36	38.06
2	*5700.00	111.03 AV			1.02 H	174	72.97	38.06
3	#5725.00	66.53 PK	68.30	-1.77	1.02 H	174	28.43	38.10
4	11400.00	59.26 PK	74.00	-14.74	1.02 H	244	10.93	48.33
5	11400.00	46.38 AV	54.00	-7.62	1.02 H	244	-1.95	48.33
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	*5700.00	121.83 PK			1.00 V	177	83.77	38.06
2	*5700.00	111.61 AV			1.00 V	177	73.55	38.06
3	#5725.00	67.08 PK	68.30	-1.22	1.00 V	177	28.98	38.10
4	11400.00	58.43 PK	74.00	-15.57	1.00 V	2	10.10	48.33
5	11400.00	46.36 AV	54.00	-7.64	1.00 V	2	-1.97	48.33

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.

DRAFT 802.11n (20MHz) OFDM MODULATION

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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	51.81 PK	74.00	-22.19	1.02 H	173	14.77	37.04
2	5150.00	39.24 AV	54.00	-14.76	1.02 H	173	2.20	37.04
3	*5180.00	111.75 PK			1.02 H	173	74.68	37.07
4	*5180.00	98.42 AV			1.02 H	173	61.35	37.07
5	#10360.00	58.79 PK	68.30	-9.51	1.09 H	284	11.53	47.26
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	52.77 PK	74.00	-21.23	1.00 V	173	15.74	37.04
2	5150.00	40.15 AV	54.00	-13.85	1.00 V	173	3.11	37.04
3	*5180.00	112.60 PK			1.00 V	172	75.53	37.07
4	*5180.00	99.16 AV			1.00 V	172	62.09	37.07
5	#10360.00	56.73 PK	68.30	-11.57	1.15 V	313	9.47	47.26

- 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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	111.36 PK			1.03 H	172	74.27	37.09
2	*5200.00	98.72 AV			1.03 H	172	61.63	37.09
3	#10400.00	58.86 PK	68.30	-9.44	1.08 H	294	11.39	47.47
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	112.09 PK			1.00 V	174	75.00	37.09
2	*5200.00	99.12 AV			1.00 V	174	62.03	37.09
3	#10400.00	56.72 PK	68.30	-11.58	1.17 V	320	9.25	47.47

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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	110.76 PK			1.03 H	175	73.56	37.20
2	*5240.00	98.25 AV			1.03 H	175	61.05	37.20
3	#10480.00	58.86 PK	68.30	-9.44	1.00 H	290	11.20	47.66
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	111.18 PK			1.00 V	175	73.98	37.20
2	*5240.00	98.57 AV			1.00 V	175	61.37	37.20
3	#10480.00	56.88 PK	68.30	-11.42	1.14 V	311	9.22	47.66

- 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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5260.00	117.32 PK			1.03 H	175	80.06	37.26
2	*5260.00	105.29 AV			1.03 H	175	68.03	37.26
3	#10520.00	60.42 PK	68.30	-7.88	1.02 H	284	12.65	47.77
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	*5260.00	118.80 PK			1.00 V	173	81.54	37.26
2	*5260.00	105.74 AV			1.00 V	173	68.48	37.26
3	#10520.00	59.53 PK	68.30	-8.77	1.13 V	316	11.76	47.77

- 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 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5300.00	118.01 PK			1.04 H	175	80.64	37.37
2	*5300.00	104.95 AV			1.04 H	175	67.58	37.37
3	10600.00	59.15 PK	74.00	-14.85	1.02 H	297	11.16	47.99
4	10600.00	47.24 AV	54.00	-6.76	1.02 H	297	-0.75	47.99
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	*5300.00	118.82 PK			1.00 V	174	81.45	37.37
2	*5300.00	105.71 AV			1.00 V	174	68.34	37.37
3	10600.00	60.18 PK	74.00	-13.82	1.15 V	331	12.19	47.99
4	10600.00	45.91 AV	54.00	-8.09	1.15 V	331	-2.08	47.99

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5320.00	118.12 PK			1.04 H	174	80.74	37.38
2	*5320.00	105.54 AV			1.04 H	174	68.16	37.38
3	5350.00	57.28 PK	74.00	-16.72	1.04 H	174	19.88	37.40
4	5350.00	43.53 AV	54.00	-10.47	1.04 H	174	6.13	37.40
5	10640.00	58.67 PK	74.00	-15.33	1.02 H	281	10.64	48.03
6	10640.00	46.38 AV	54.00	-7.62	1.02 H	281	-1.65	48.03
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	*5320.00	118.92 PK			1.00 V	173	81.54	37.38
2	*5320.00	106.48 AV			1.00 V	173	69.10	37.38
3	5350.00	58.77 PK	74.00	-15.23	1.00 V	173	21.37	37.40
4	5350.00	45.50 AV	54.00	-8.50	1.00 V	173	8.10	37.40
5	10640.00	59.51 PK	74.00	-14.49	1.12 V	329	11.48	48.03
6	10640.00	46.42 AV	54.00	-7.58	1.12 V	329	-1.61	48.03

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	5460.00	61.01 PK	74.00	-12.99	1.01 H	178	23.51	37.50
2	5460.00	47.62 AV	54.00	-6.38	1.01 H	178	10.12	37.50
3	#5470.00	66.03 PK	68.30	-2.27	1.01 H	178	28.52	37.51
4	*5500.00	122.31 PK			1.01 H	178	84.76	37.55
5	*5500.00	112.04 AV			1.01 H	178	74.49	37.55
6	11000.00	60.15 PK	74.00	-13.85	1.05 H	223	11.65	48.50
7	11000.00	47.13 AV	54.00	-6.87	1.05 H	223	-1.37	48.50
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	5460.00	60.04 PK	74.00	-13.96	1.06 V	177	22.54	37.50
2	5460.00	48.13 AV	54.00	-5.87	1.06 V	177	10.63	37.50
3	#5470.00	66.92 PK	68.30	-1.38	1.06 V	177	29.41	37.51
4	*5500.00	122.97 PK			1.06 V	177	85.42	37.55
5	*5500.00	112.66 AV			1.06 V	177	75.11	37.55
6	11000.00	59.52 PK	74.00	-14.48	1.02 V	234	11.02	48.50
7	11000.00	46.26 AV	54.00	-7.74	1.02 V	234	-2.24	48.50

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 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	*5600.00	121.43 PK			1.04 H	172	83.68	37.75
2	*5600.00	111.06 AV			1.04 H	172	73.31	37.75
3	11200.00	59.24 PK	74.00	-14.76	1.06 H	239	10.89	48.35
4	11200.00	46.38 AV	54.00	-7.62	1.06 H	239	-1.97	48.35
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	*5600.00	121.96 PK			1.04 V	179	84.21	37.75
2	*5600.00	111.59 AV			1.04 V	179	73.84	37.75
3	11200.00	59.65 PK	74.00	-14.35	1.02 V	229	11.30	48.35
4	11200.00	46.44 AV	54.00	-7.56	1.02 V	229	-1.91	48.35

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Brad Wu

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	*5700.00	121.21 PK			1.03 H	175	83.15	38.06
2	*5700.00	110.81 AV			1.03 H	175	72.75	38.06
3	#5725.00	66.14 PK	68.30	-2.16	1.03 H	175	28.04	38.10
4	11400.00	59.19 PK	74.00	-14.81	1.04 H	221	10.86	48.33
5	11400.00	46.32 AV	54.00	-7.68	1.04 H	221	-2.01	48.33
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	*5700.00	121.62 PK			1.01 V	178	83.56	38.06
2	*5700.00	111.43 AV			1.01 V	178	73.37	38.06
3	#5725.00	66.92 PK	68.30	-1.38	1.01 V	178	28.82	38.10
4	11400.00	58.66 PK	74.00	-15.34	1.01 V	14	10.33	48.33
5	11400.00	46.59 AV	54.00	-7.41	1.01 V	14	-1.74	48.33

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.

DRAFT 802.11n (40MHz) OFDM MODULATION

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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	63.77 PK	74.00	-10.23	1.07 H	185	26.73	37.04
2	5150.00	42.62 AV	54.00	-11.37	1.07 H	185	5.59	37.04
3	*5190.00	109.73 PK			1.07 H	175	72.65	37.08
4	*5190.00	96.00 AV			1.07 H	175	58.92	37.08
5	#10380.00	59.47 PK	68.30	-8.83	1.00 H	275	12.11	47.36
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	64.66 PK	74.00	-9.34	1.00 V	169	27.63	37.04
2	5150.00	44.26 AV	54.00	-9.74	1.00 V	169	7.22	37.04
3	*5190.00	109.84 PK			1.00 V	170	72.76	37.08
4	*5190.00	96.42 AV			1.00 V	170	59.34	37.08
5	#10380.00	60.33 PK	68.30	-7.97	1.14 V	300	12.97	47.36

- 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	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	110.17 PK			1.08 H	172	73.00	37.17
2	*5230.00	96.26 AV			1.08 H	172	59.09	37.17
3	#10460.00	59.53 PK	68.30	-8.77	1.02 H	279	11.92	47.61
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	110.70 PK			1.00 V	171	73.53	37.17
2	*5230.00	96.91 AV			1.00 V	171	59.74	37.17
3	#10460.00	60.40 PK	68.30	-7.90	1.13 V	319	12.79	47.61

- 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 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5270.00	116.83 PK			1.04 H	173	79.54	37.29
2	*5270.00	102.21 AV			1.04 H	173	64.92	37.29
3	#10540.00	60.18 PK	68.30	-8.12	1.03 H	278	12.36	47.82
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	*5270.00	117.60 PK			1.00 V	173	80.31	37.29
2	*5270.00	103.96 AV			1.00 V	173	66.67	37.29
3	#10540.00	60.80 PK	68.30	-7.50	1.14 V	323	12.97	47.82

- 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 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5310.00	115.07 PK			1.03 H	171	77.69	37.38
2	*5310.00	101.06 AV			1.03 H	171	63.68	37.38
3	5350.00	70.07 PK	74.00	-3.93	1.03 H	171	32.67	37.40
4	5350.00	52.83 AV	54.00	-1.17	1.03 H	171	15.43	37.40
5	10620.00	58.55 PK	74.00	-15.45	1.02 H	259	10.54	48.01
6	10620.00	46.39 AV	54.00	-7.61	1.02 H	259	-1.62	48.01
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	*5310.00	115.27 PK			1.00 V	173	77.89	37.38
2	*5310.00	101.31 AV			1.00 V	173	63.93	37.38
3	5350.00	72.76 PK	74.00	-1.24	1.00 V	173	35.36	37.40
4	5350.00	52.95 AV	54.00	-1.05	1.00 V	173	15.55	37.40
5	10620.00	60.45 PK	74.00	-13.55	1.15 V	334	12.44	48.01
6	10620.00	46.81 AV	54.00	-7.19	1.15 V	334	-1.20	48.01

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	5460.00	56.77 PK	74.00	-17.23	1.05 H	172	19.27	37.50
2	5460.00	43.93 AV	54.00	-10.07	1.05 H	172	6.43	37.50
3	#5470.00	66.72 PK	68.30	-1.58	1.05 H	172	29.20	37.51
4	*5510.00	111.53 PK			1.08 H	173	73.96	37.57
5	*5510.00	97.44 AV			1.08 H	173	59.87	37.57
6	11020.00	59.85 PK	74.00	-14.15	1.03 H	287	11.36	48.49
7	11020.00	47.83 AV	54.00	-6.17	1.03 H	287	-0.66	48.49
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	5460.00	57.71 PK	74.00	-16.29	1.00 V	173	20.21	37.50
2	5460.00	45.31 AV	54.00	-8.69	1.00 V	173	7.81	37.50
3	#5470.00	66.86 PK	68.30	-1.44	1.00 V	173	29.35	37.51
4	*5510.00	111.93 PK			1.00 V	173	74.36	37.57
5	*5510.00	97.57 AV			1.00 V	173	60.00	37.57
6	11020.00	59.52 PK	74.00	-14.48	1.16 V	307	11.03	48.49
7	11020.00	47.38 AV	54.00	-6.62	1.16 V	307	-1.11	48.49

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 118	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5590.00	119.54 PK			1.08 H	172	81.81	37.73
2	*5590.00	105.30 AV			1.08 H	172	67.57	37.73
3	11180.00	59.30 PK	74.00	-14.70	1.08 H	248	10.93	48.37
4	11180.00	46.33 AV	54.00	-7.67	1.08 H	248	-2.04	48.37
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	*5590.00	120.37 PK			1.04 V	173	82.64	37.73
2	*5590.00	106.26 AV			1.04 V	173	68.53	37.73
3	11180.00	59.63 PK	74.00	-14.37	1.07 V	148	11.26	48.37
4	11180.00	46.57 AV	54.00	-7.43	1.07 V	148	-1.80	48.37

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1002 hPa	TESTED BY	Kevin Liang

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	*5670.00	119.01 PK			1.07 H	170	81.04	37.97
2	*5670.00	104.25 AV			1.07 H	170	66.28	37.97
3	#5725.00	65.75 PK	68.30	-2.55	1.07 H	170	27.66	38.10
4	11340.00	59.34 PK	74.00	-14.66	1.04 H	255	10.92	48.42
5	11340.00	46.41 AV	54.00	-7.59	1.04 H	255	-2.01	48.42
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	*5670.00	119.43 PK			1.02 V	174	81.46	37.97
2	*5670.00	105.38 AV			1.02 V	174	67.41	37.97
3	#5725.00	67.13 PK	68.30	-1.17	1.02 V	174	29.03	38.10
4	11340.00	58.57 PK	74.00	-15.43	1.10 V	349	10.15	48.42
5	11340.00	46.61 AV	54.00	-7.39	1.10 V	349	-1.81	48.42

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 (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1000 hPa	TESTED BY	Lori Chiu

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	30.00	31.26 QP	40.00	-8.74	1.25 H	166	18.98	12.28
2	66.84	33.18 QP	40.00	-6.82	1.50 H	151	21.05	12.13
3	125.17	34.98 QP	43.50	-8.52	1.50 H	85	23.03	11.95
4	187.39	33.25 QP	43.50	-10.25	1.50 H	94	21.65	11.61
5	624.85	36.18 QP	46.00	-9.82	1.25 H	151	14.07	22.11
6	799.84	40.76 QP	46.00	-5.24	1.00 H	178	15.45	25.32
7	875.67	39.79 QP	46.00	-6.21	1.50 H	154	13.91	25.88
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	30.00	37.76 QP	40.00	-2.24	1.50 V	202	25.48	12.28
2	86.28	38.49 QP	40.00	-1.51	1.25 V	247	29.70	8.79
3	105.73	33.64 QP	43.50	-9.86	1.50 V	187	23.61	10.02
4	799.84	37.72 QP	46.00	-8.28	1.25 V	196	12.41	25.32
5	836.78	38.33 QP	46.00	-7.67	1.50 V	298	12.78	25.55
6	875.67	38.03 QP	46.00	-7.97	1.25 V	181	12.16	25.88

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.

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1000 hPa	TESTED BY	Lori Chiu

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	30.00	32.24 QP	40.00	-7.76	1.50 H	199	19.96	12.28
2	66.84	32.02 QP	40.00	-7.98	1.25 H	172	19.89	12.13
3	125.17	35.19 QP	43.50	-8.31	1.50 H	64	23.24	11.95
4	185.44	33.64 QP	43.50	-9.86	1.50 H	97	21.88	11.76
5	249.60	34.72 QP	46.00	-11.28	1.25 H	163	21.90	12.81
6	624.85	34.99 QP	46.00	-11.01	1.25 H	235	12.88	22.11
7	799.84	40.21 QP	46.00	-5.79	1.00 H	178	14.90	25.32
8	840.67	35.32 QP	46.00	-10.68	1.00 H	178	9.75	25.57
9	875.67	40.10 QP	46.00	-5.90	1.50 H	244	14.22	25.88
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	30.00	37.01 QP	40.00	-2.99	1.25 V	58	24.73	12.28
2	88.23	37.20 QP	43.50	-6.30	1.25 V	268	28.19	9.02
3	125.17	33.72 QP	43.50	-9.78	1.00 V	148	21.77	11.95
4	799.84	38.12 QP	46.00	-7.88	1.25 V	169	12.80	25.32
5	836.78	34.73 QP	46.00	-11.27	1.25 V	307	9.18	25.55
6	875.67	37.82 QP	46.00	-8.18	1.25 V	175	11.94	25.88

- 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.

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	Dec. 31, 2008	Dec. 30, 2009
LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 03, 2009	Jun. 02, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Dec. 04, 2008	Dec. 03, 2009
Software ADT	ADT_Conf_V7.3.7	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.

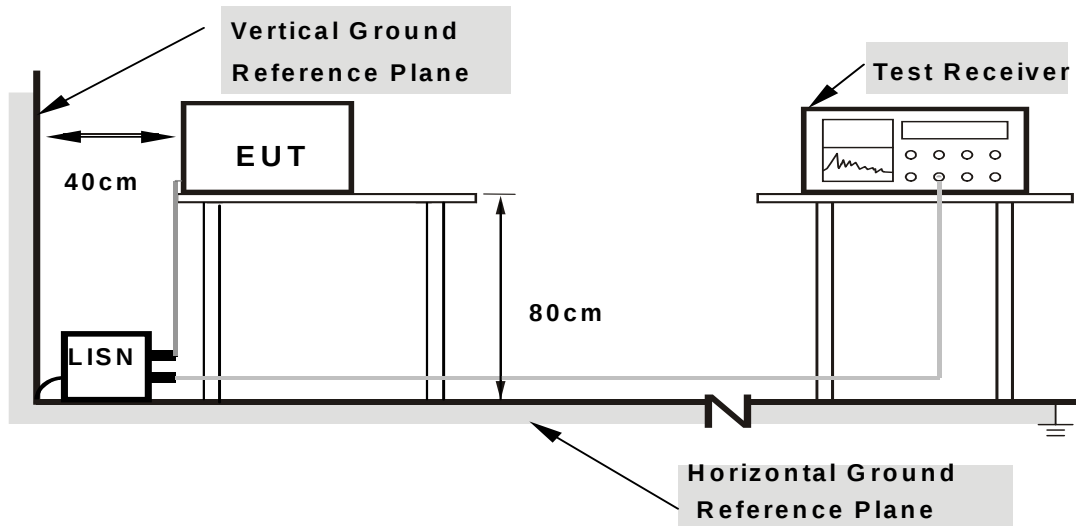
4.2.3 TEST PROCEDURES

- 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.

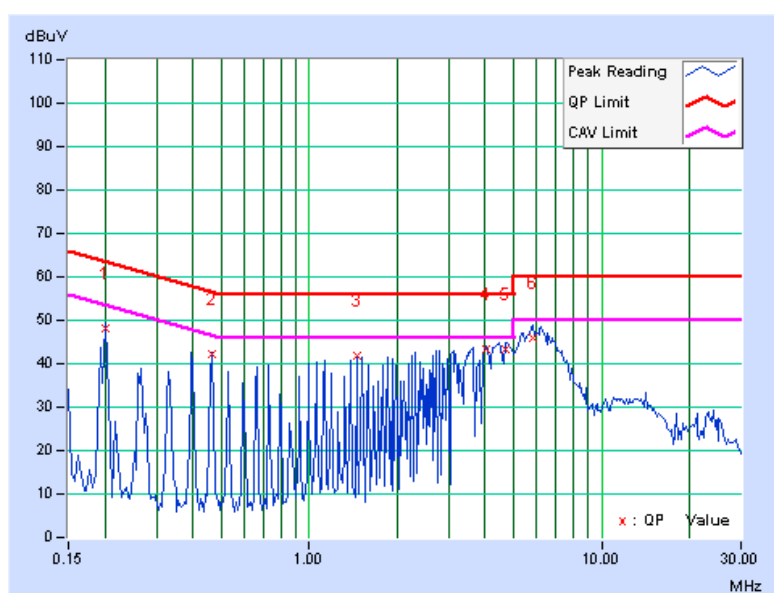
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 64%RH, 1021hPa	TESTED BY	Kevin Liang

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	0.201	0.13	47.89	-	48.02	-	63.58	53.58	-15.56	-
2	0.464	0.14	42.24	-	42.38	-	56.62	46.62	-14.24	-
3	1.457	0.20	41.78	-	41.98	-	56.00	46.00	-14.02	-
4	4.039	0.37	42.84	-	43.21	-	56.00	46.00	-12.79	-
5	4.701	0.40	42.90	-	43.30	-	56.00	46.00	-12.70	-
6	5.827	0.46	45.37	-	45.83	-	60.00	50.00	-14.17	-

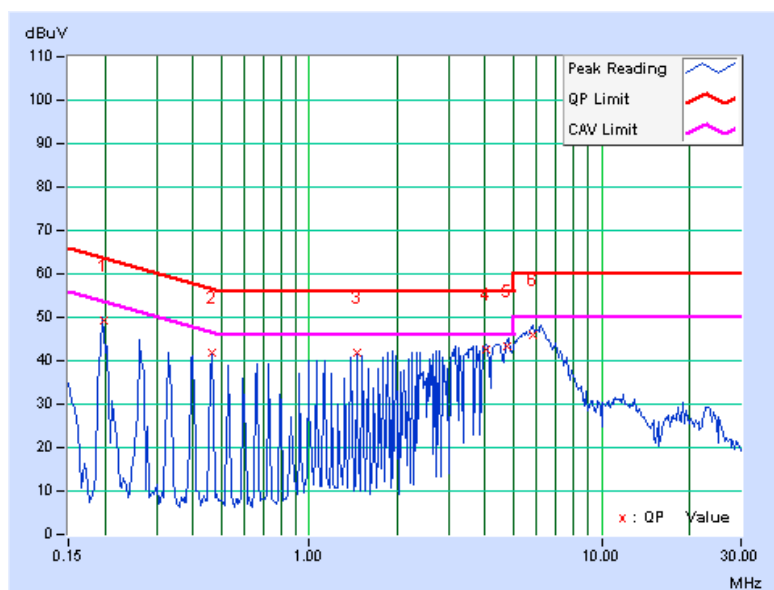
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 54	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 64%RH, 1021hPa	TESTED BY	Kevin Liang

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	0.198	0.15	49.19	-	49.34	-	63.69	53.69	-14.35	-
2	0.463	0.16	41.54	-	41.70	-	56.65	46.65	-14.94	-
3	1.457	0.22	41.64	-	41.86	-	56.00	46.00	-14.14	-
4	4.039	0.39	42.16	-	42.55	-	56.00	46.00	-13.45	-
5	4.770	0.42	42.87	-	43.29	-	56.00	46.00	-12.71	-
6	5.828	0.47	45.59	-	46.06	-	60.00	50.00	-13.94	-

- 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.

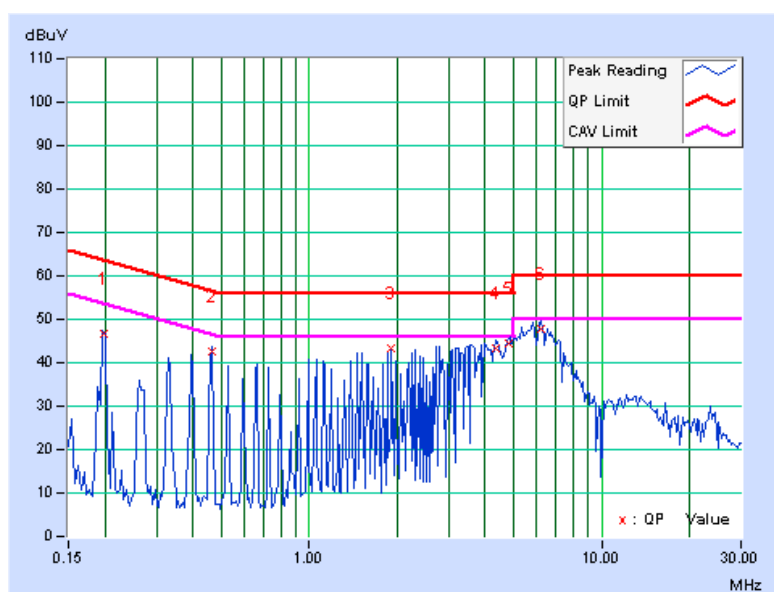


802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 64%RH, 1021hPa	TESTED BY	Kevin Liang

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	0.199	0.13	46.56	-	46.69	-	63.63	53.63	-16.94	-
2	0.463	0.14	42.35	-	42.49	-	56.65	46.65	-14.15	-
3	1.915	0.23	42.98	-	43.21	-	56.00	46.00	-12.79	-
4	4.359	0.39	42.86	-	43.25	-	56.00	46.00	-12.75	-
5	4.822	0.41	44.10	-	44.51	-	56.00	46.00	-11.49	-
6	6.208	0.48	47.46	-	47.94	-	60.00	50.00	-12.06	-

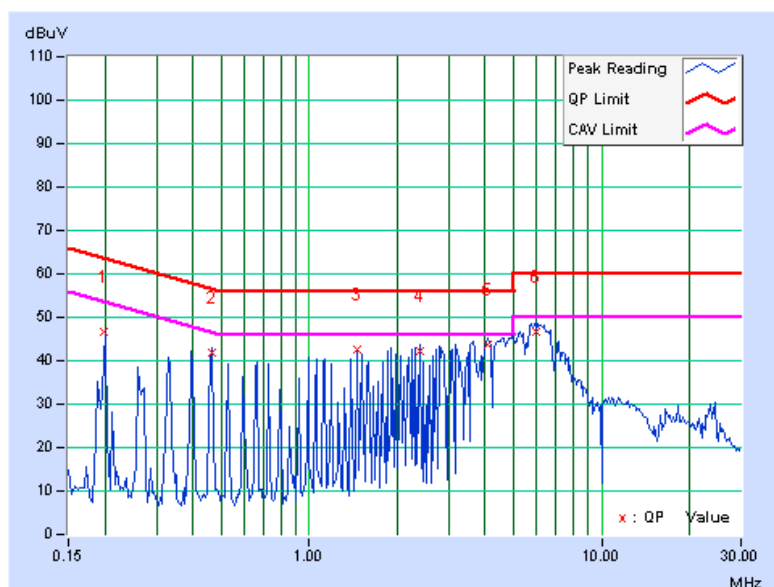
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 140	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 64%RH, 1021hPa	TESTED BY	Kevin Liang

No	Freq.	Corr. Factor	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	0.200	0.15	46.40	-	46.55	-	63.63	53.63	-17.08	-
2	0.463	0.16	41.86	-	42.02	-	56.65	46.65	-14.62	-
3	1.453	0.22	42.34	-	42.56	-	56.00	46.00	-13.44	-
4	2.379	0.28	41.82	-	42.10	-	56.00	46.00	-13.90	-
5	4.094	0.39	43.20	-	43.59	-	56.00	46.00	-12.41	-
6	5.943	0.48	46.11	-	46.59	-	60.00	50.00	-13.41	-

- 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 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

4.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT 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

FOR POWER OUTPUT MEASUREMENT

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	MA2411B	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.

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

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

4.3.3 TEST PROCEDURE

FOR POWER OUTPUT MEASUREMENT

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.

FOR 26dB OCCUPIED BANDWIDTH

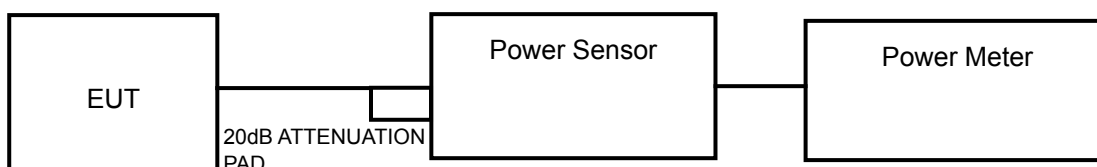
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

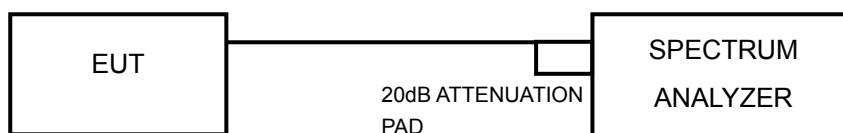
No deviation.

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



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

POWER OUTPUT: 802.11a OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHAN.	CHAN. FREQ. (MHz)	OUTPUT POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	3.03	4.02	4.533	6.56	7	PASS
40	5200	3.54	3.53	4.514	6.55	7	PASS
48	5240	3.52	3.06	4.272	6.31	7	PASS
52	5260	10.51	10.54	22.570	13.54	14	PASS
60	5300	10.55	10.07	21.513	13.33	14	PASS
64	5320	10.56	10.05	21.492	13.32	14	PASS
100	5500	10.03	11.02	22.717	13.56	14	PASS
120	5600	10.05	10.54	21.440	13.31	14	PASS
140	5700	10.76	10.85	24.074	13.82	14	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of output power shall be reduced by 10 dB.

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHAN.	CHAN. FREQ. (MHz)	OUTPUT POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	3.04	4.01	4.532	6.56	7	PASS
40	5200	3.02	3.53	4.259	6.29	7	PASS
48	5240	3.01	3.05	4.018	6.04	7	PASS
52	5260	10.55	10.02	21.396	13.30	14	PASS
60	5300	10.56	10.04	21.469	13.32	14	PASS
64	5320	10.53	10.07	21.460	13.32	14	PASS
100	5500	10.05	10.52	21.388	13.30	14	PASS
120	5600	10.03	10.51	21.315	13.29	14	PASS
140	5700	10.74	10.86	24.048	13.81	14	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of output power shall be reduced by 10 dB.

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHAN.	CHAN. FREQ. (MHz)	OUTPUT POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	3.04	4.03	4.543	6.57	7	PASS
46	5230	3.53	3.54	4.514	6.55	7	PASS
54	5270	10.55	10.55	22.700	13.56	14	PASS
62	5310	7.52	7.52	11.299	10.53	14	PASS
102	5510	3.03	3.52	4.258	6.29	14	PASS
118	5590	10.05	10.54	21.440	13.31	14	PASS
134	5670	10.54	11.01	23.942	13.79	14	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of output power shall be reduced by 10 dB.

26dB OCCUPIED BANDWIDTH: 802.11a OFDM MODULATION

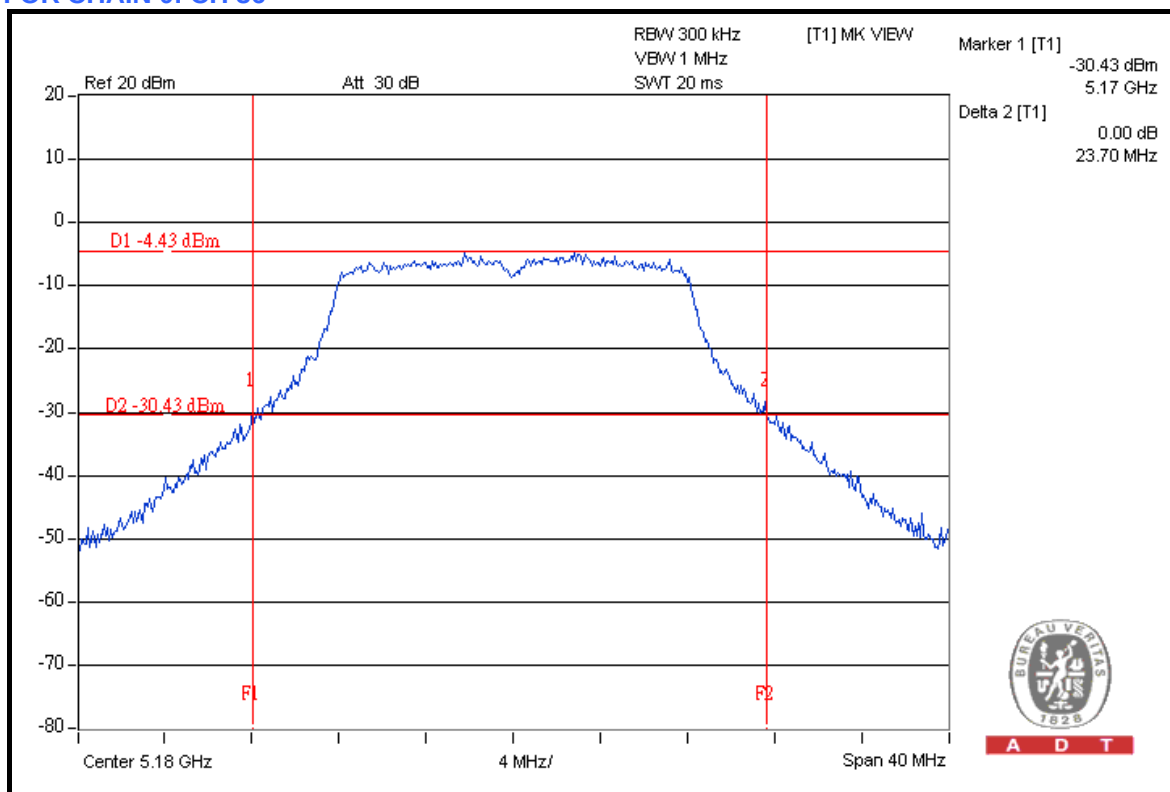
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	23.70	23.71	PASS
40	5200	23.88	23.54	PASS
48	5240	23.71	23.30	PASS
52	5260	23.90	24.04	PASS
60	5300	24.03	23.11	PASS
64	5320	23.92	24.34	PASS
100	5500	24.41	23.93	PASS
120	5600	24.39	23.19	PASS
140	5700	23.96	23.51	PASS



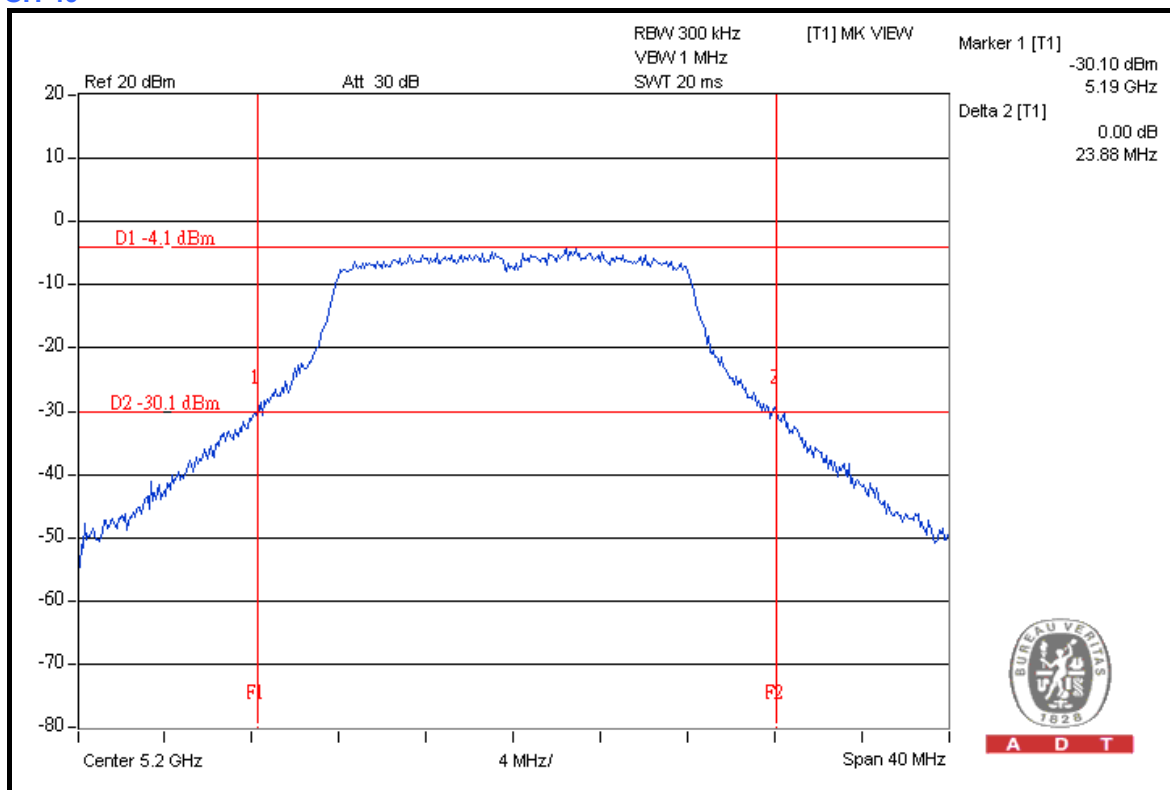
A D T

FOR CHAIN 0: CH 36



A D T

CH 40

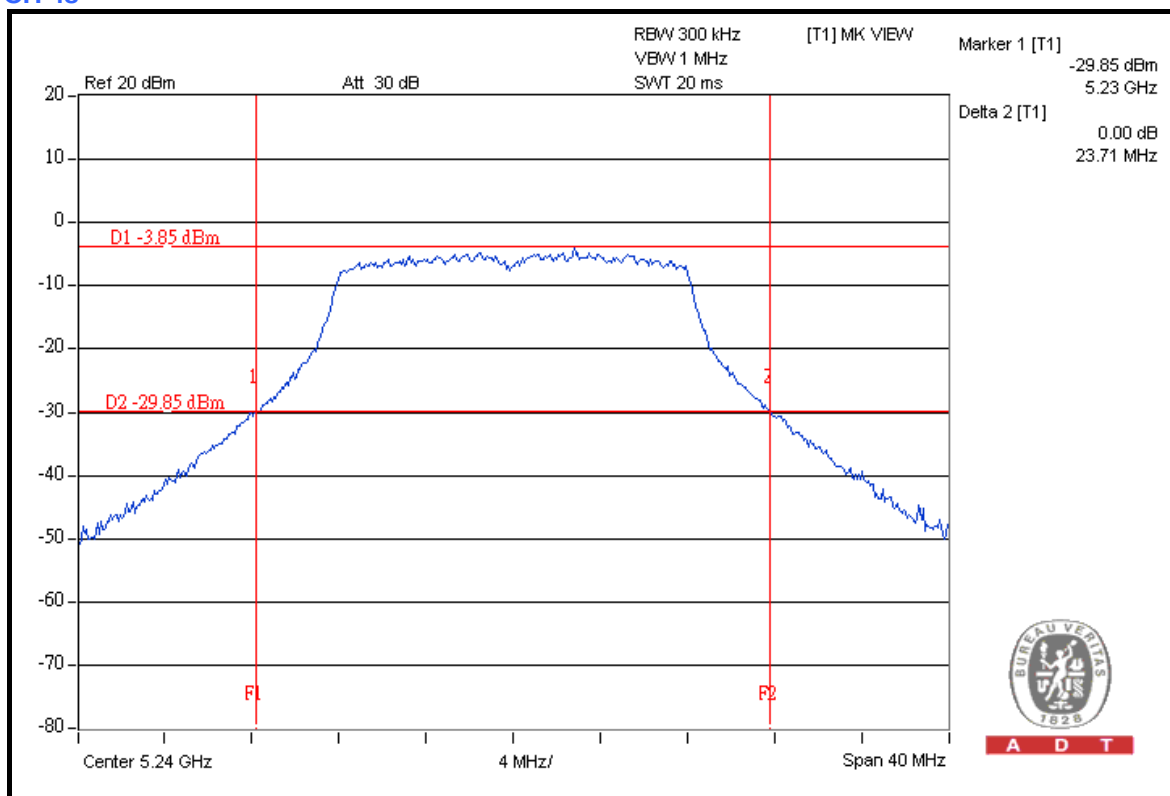


A D T



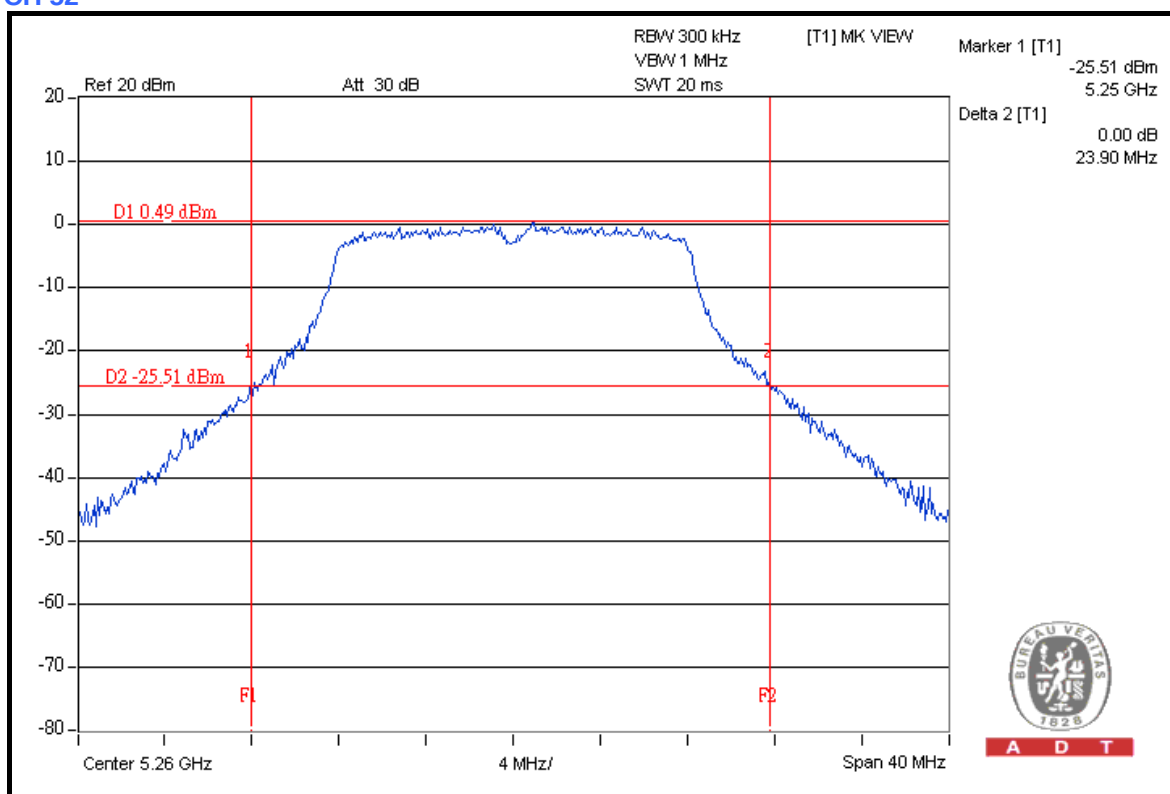
A D T

CH 48



A D T

CH 52

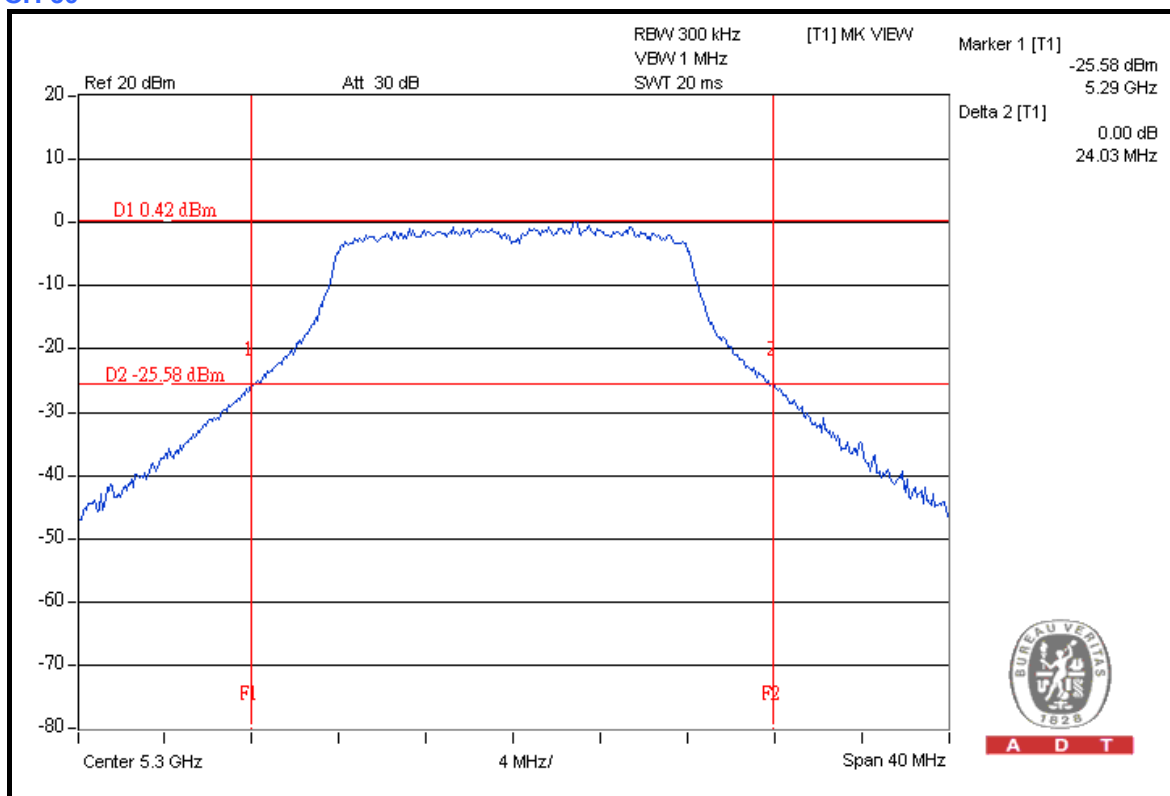


A D T

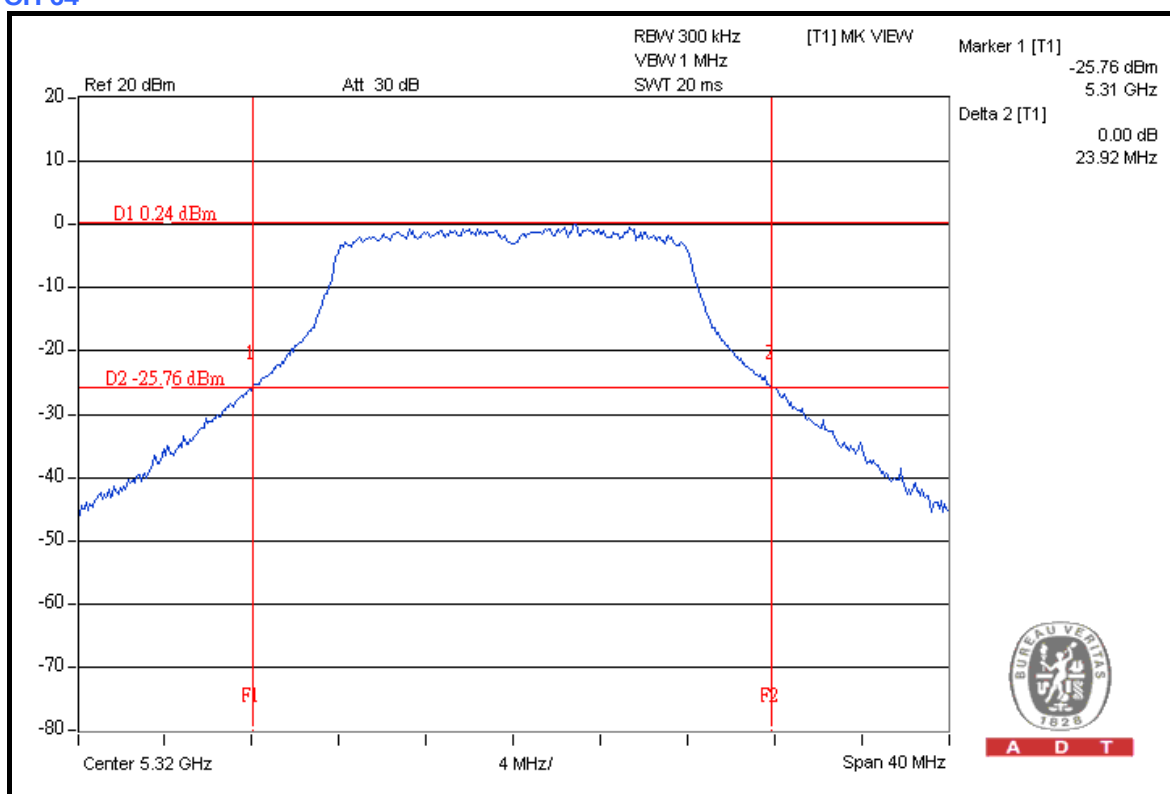


A D T

CH 60



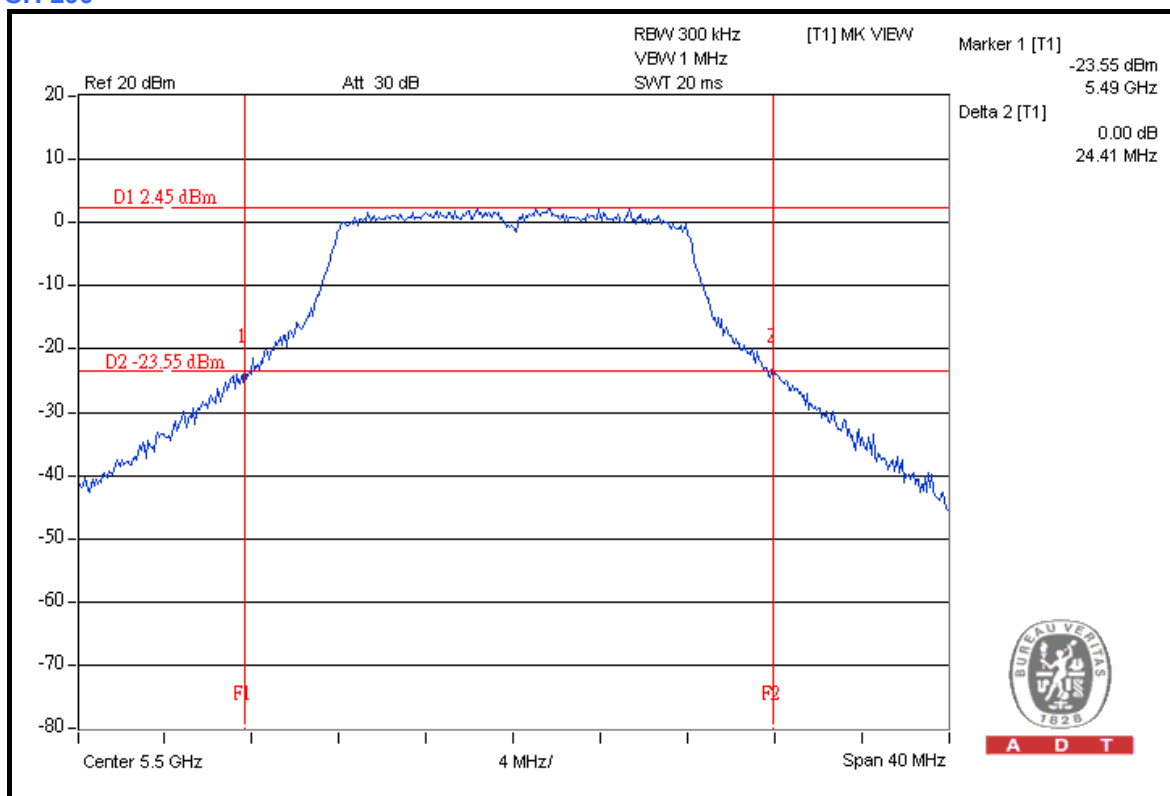
CH 64



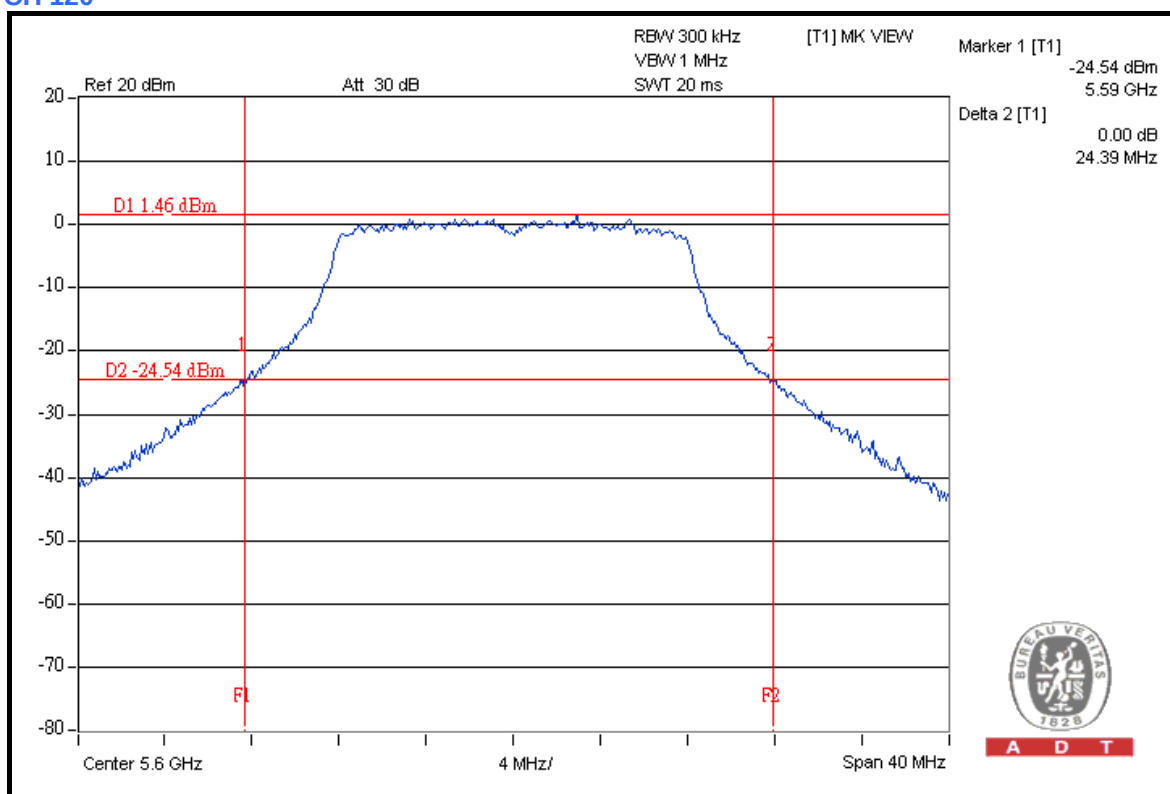


A D T

CH 100



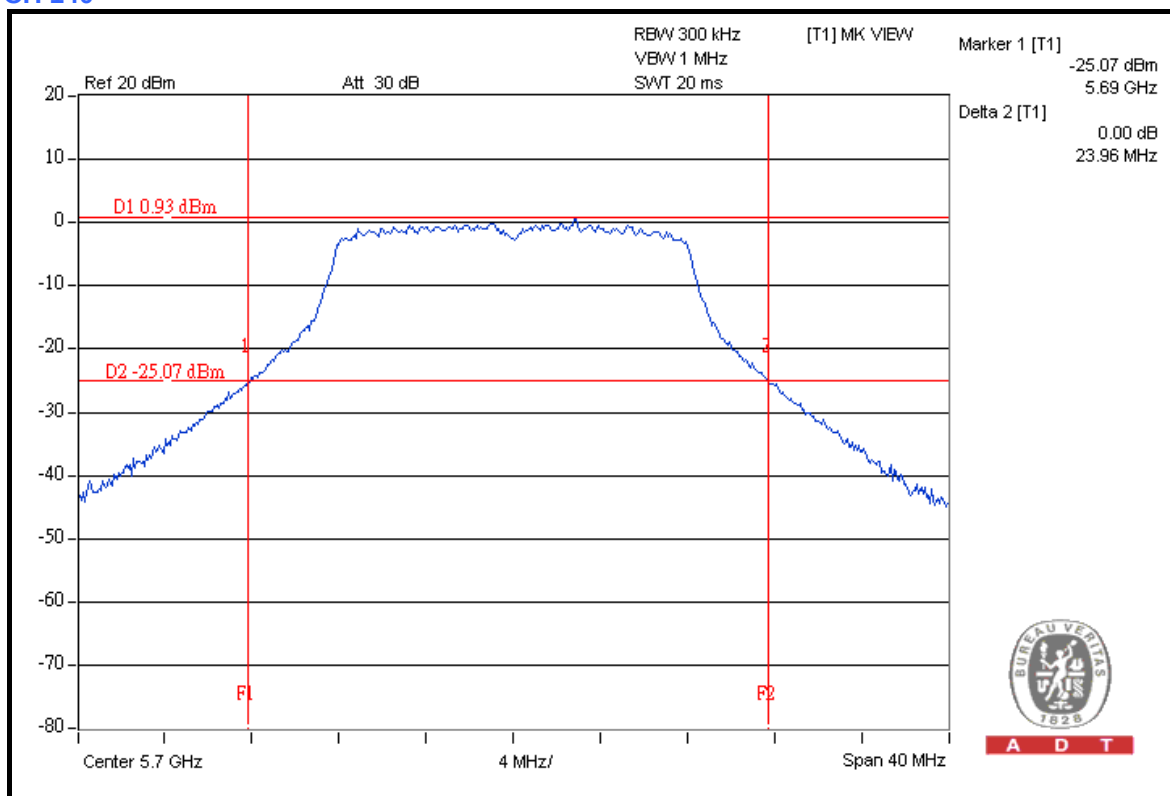
CH 120





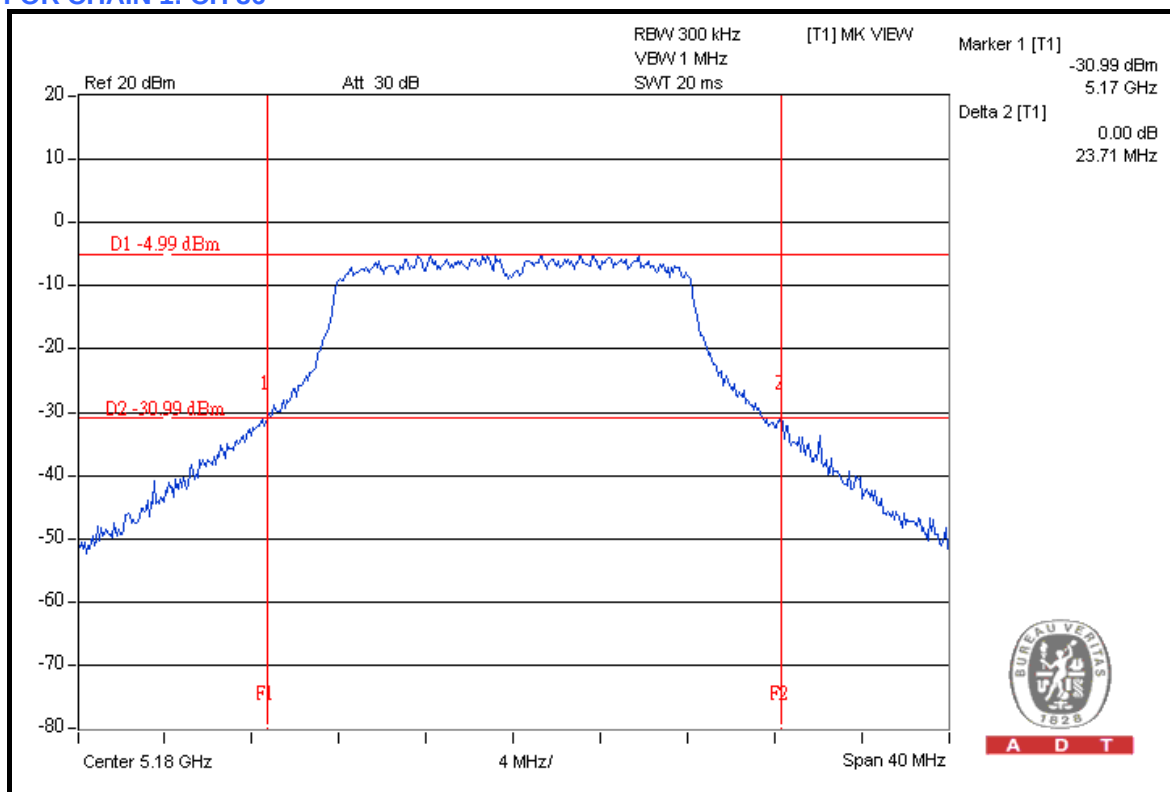
A D T

CH 140



A D T

FOR CHAIN 1: CH 36

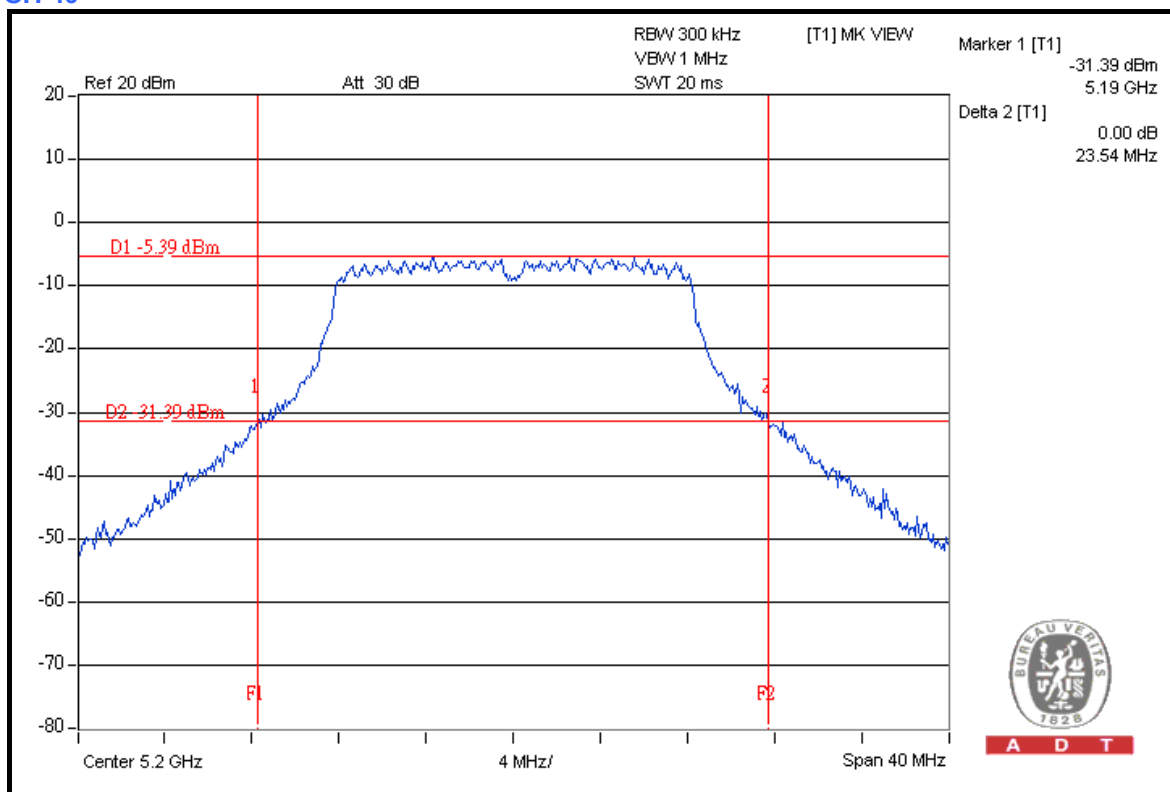


A D T

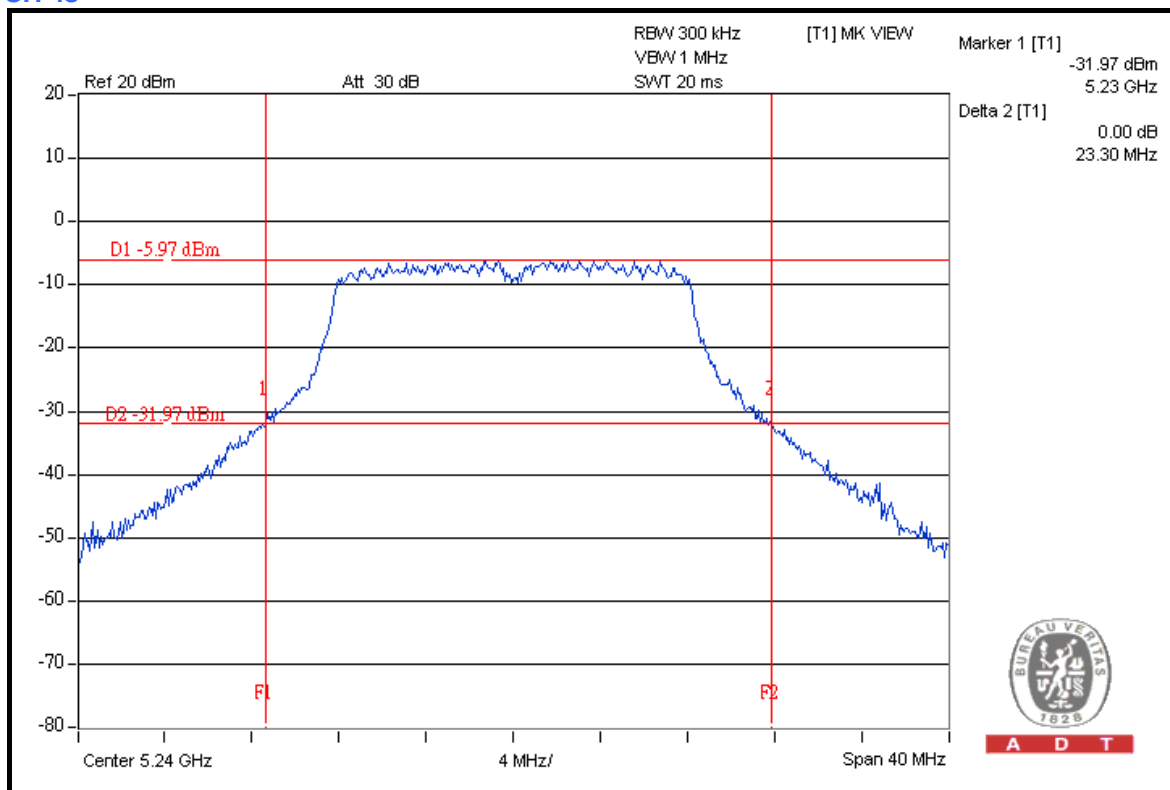


A D T

CH 40



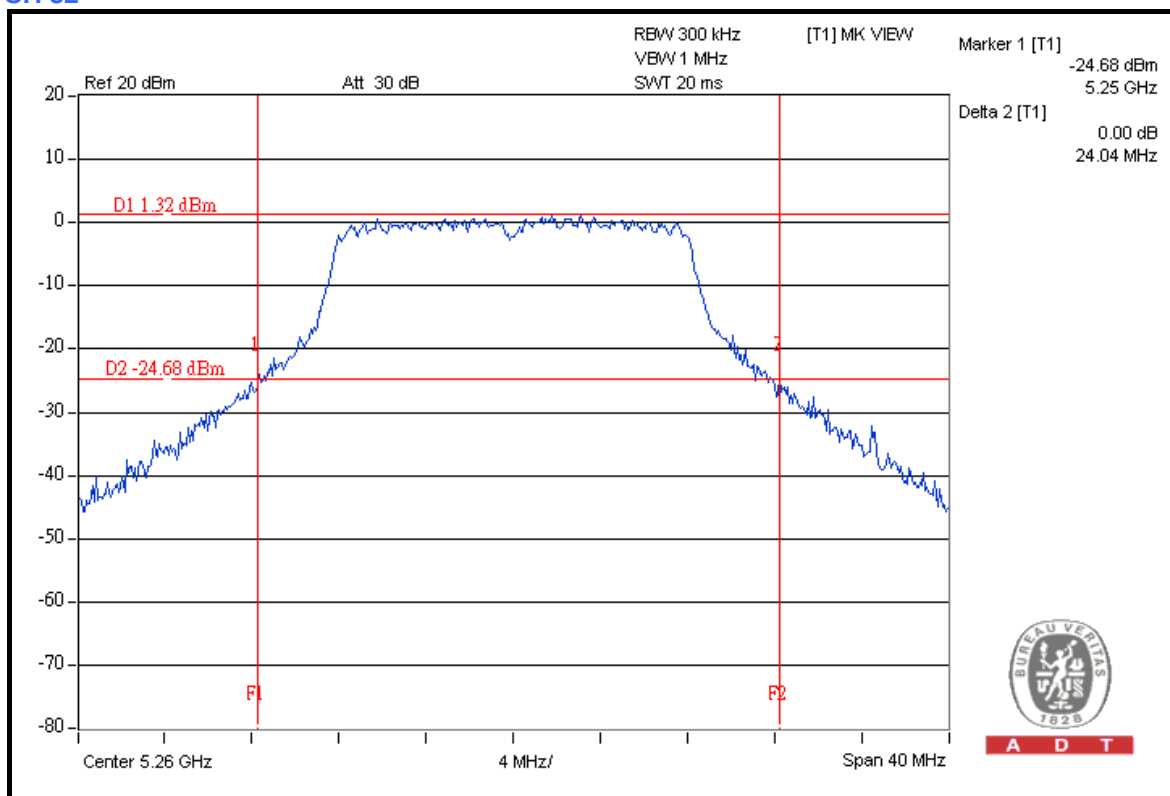
CH 48



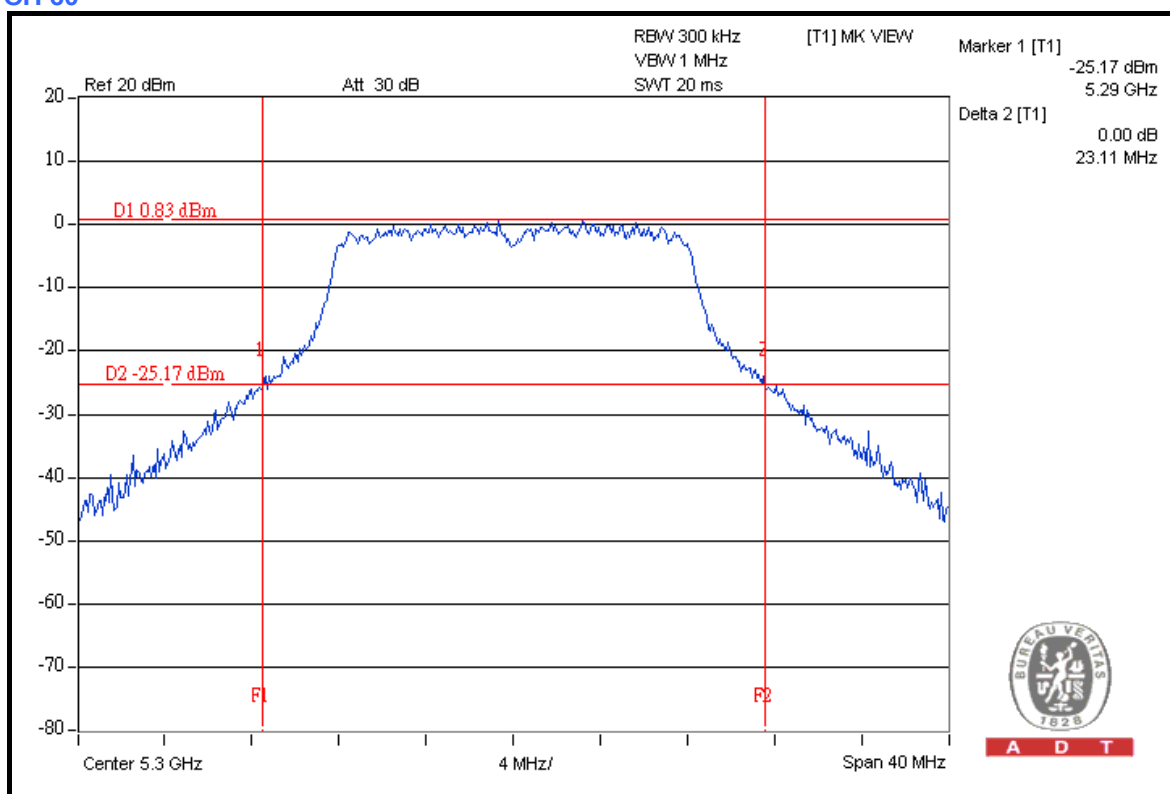


A D T

CH 52



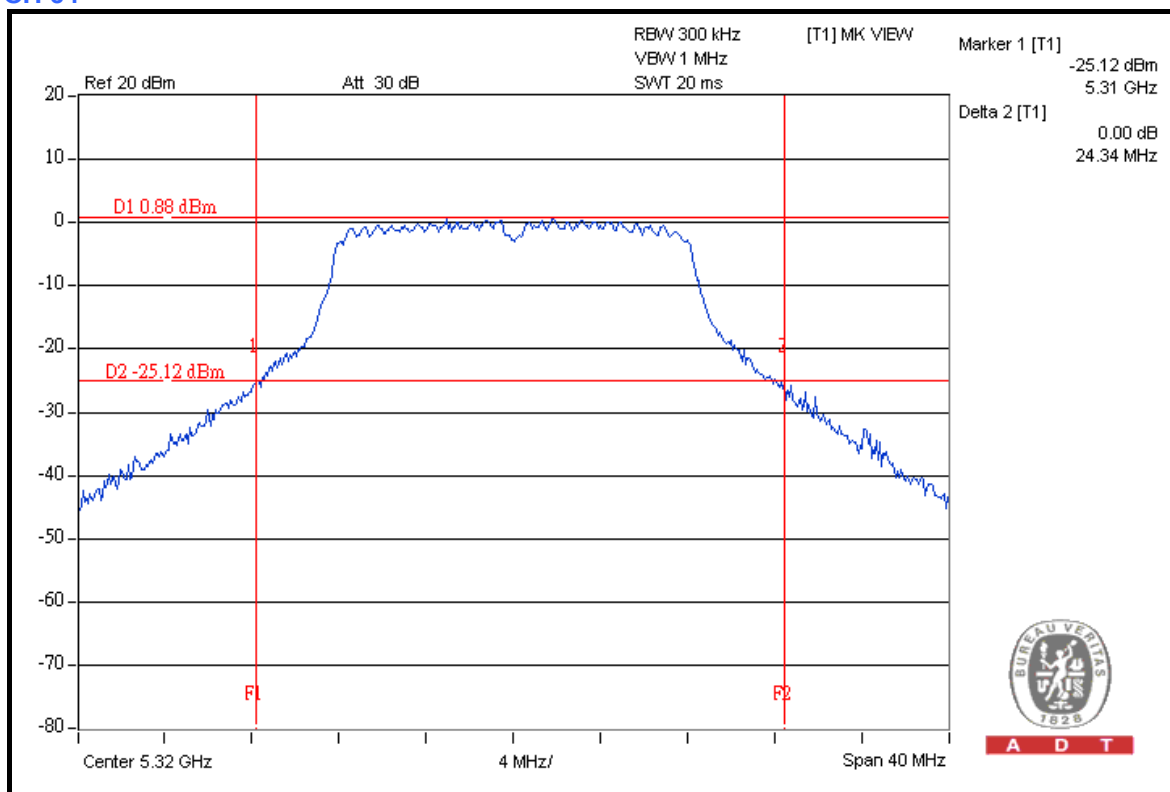
CH 60





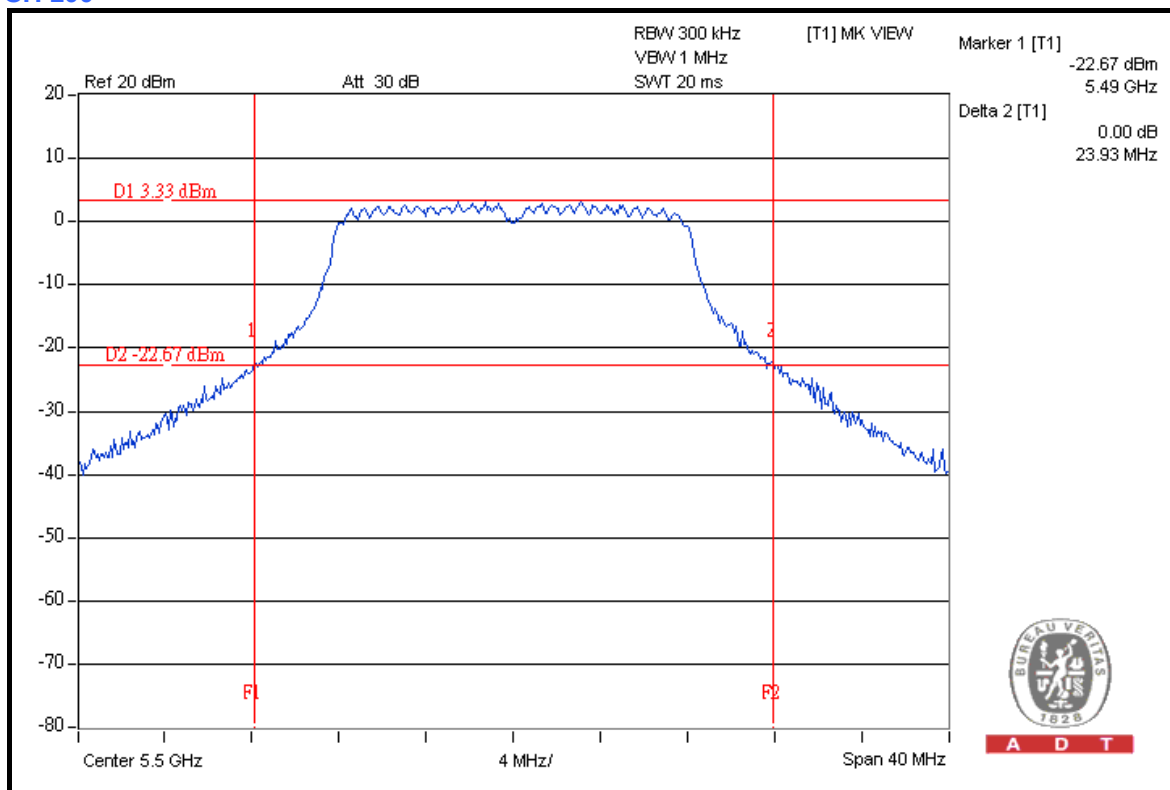
A D T

CH 64



A D T

CH 100

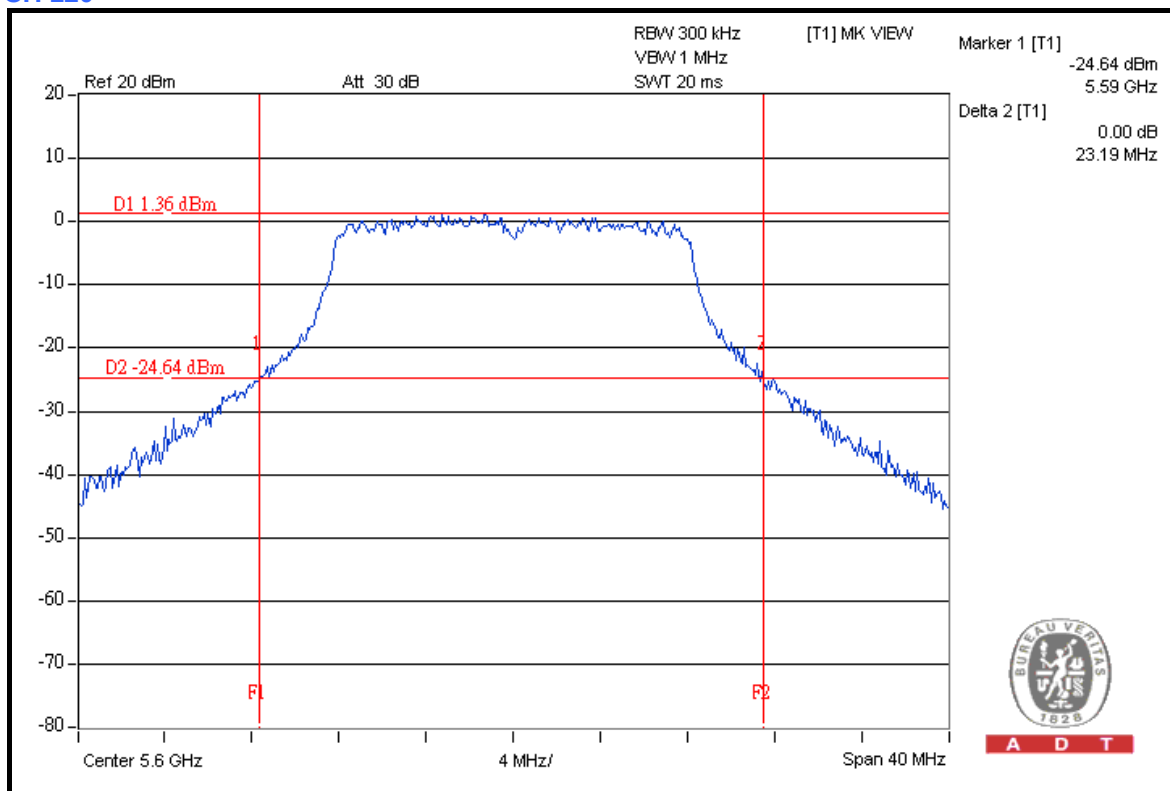


A D T

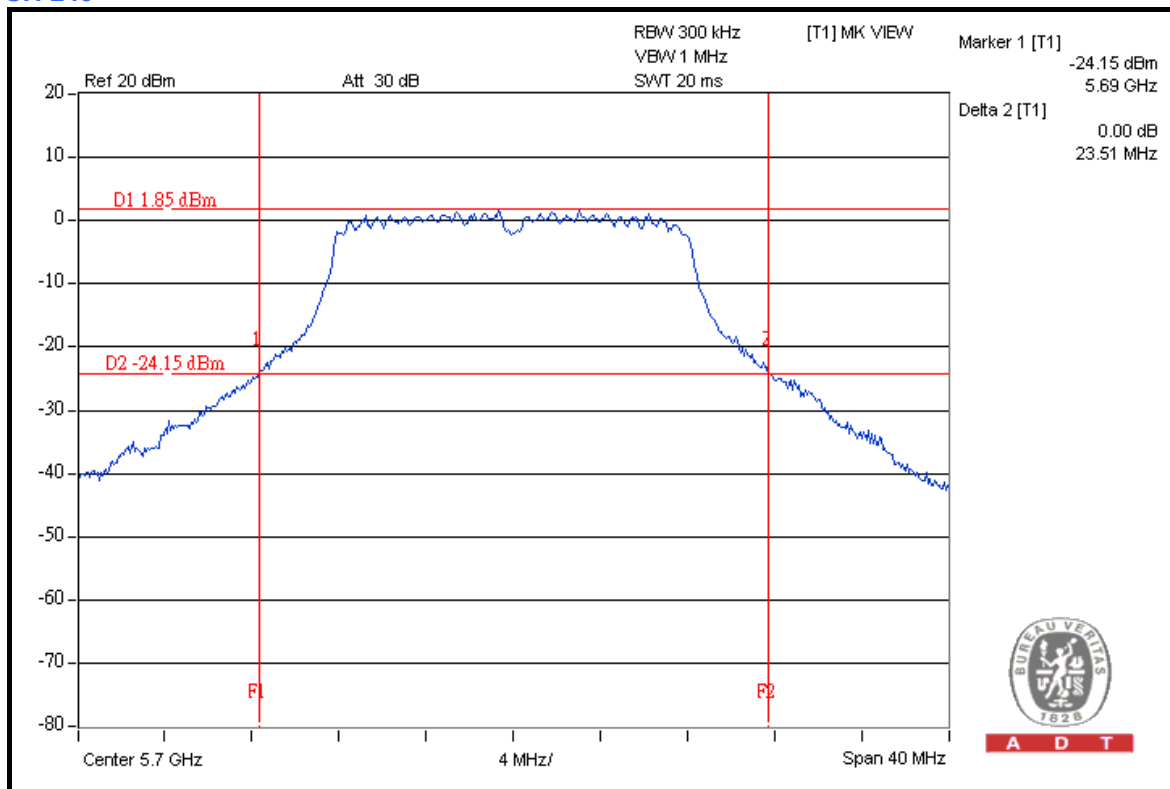


A D T

CH 120



CH 140



DRAFT 802.11n (20MHz) OFDM MODULATION

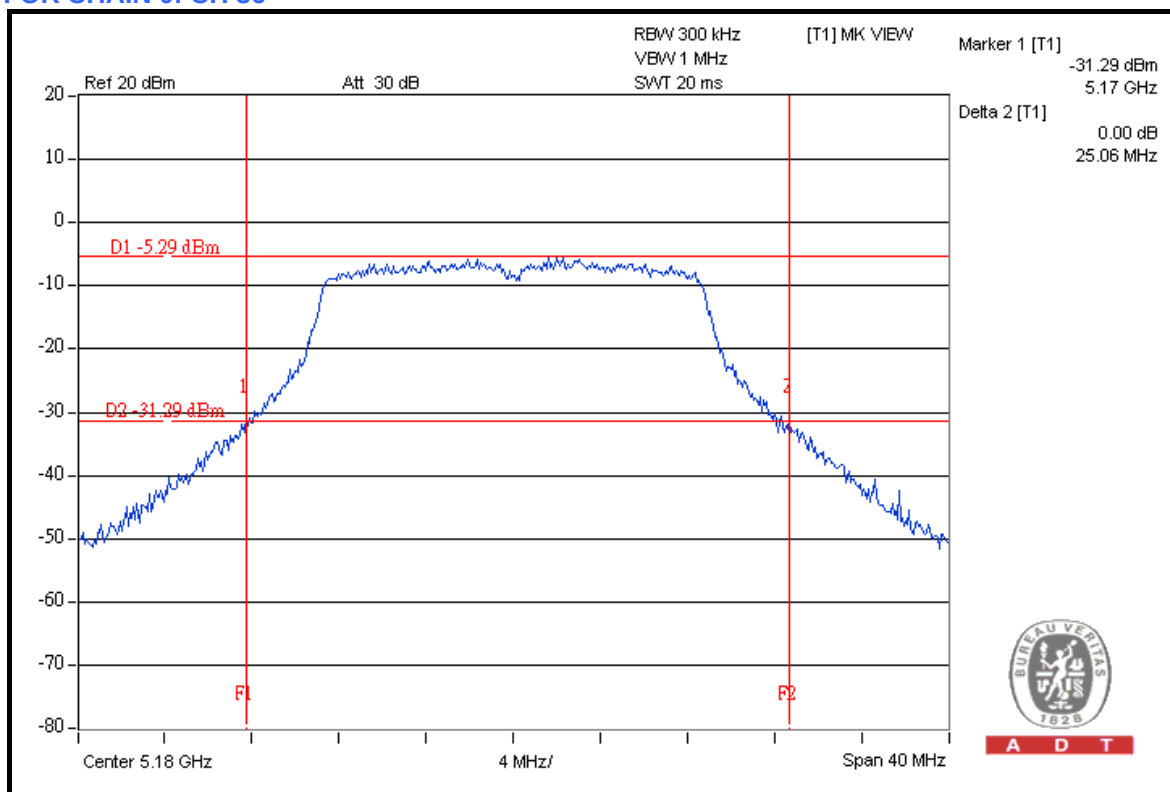
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	25.06	24.98	PASS
40	5200	24.71	25.19	PASS
48	5240	24.31	25.11	PASS
52	5260	25.38	25.10	PASS
60	5300	25.40	24.61	PASS
64	5320	25.34	25.20	PASS
100	5500	24.70	24.82	PASS
120	5600	24.45	25.42	PASS
140	5700	25.03	24.34	PASS

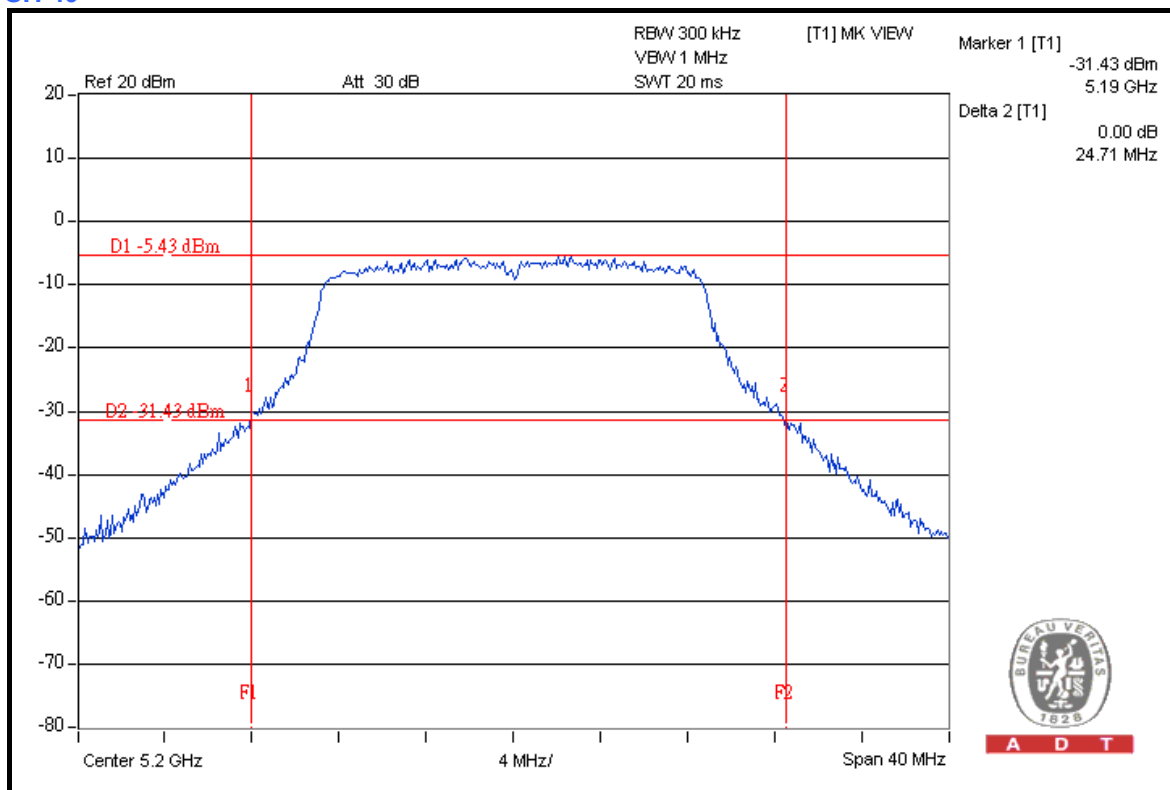


A D T

FOR CHAIN 0: CH 36



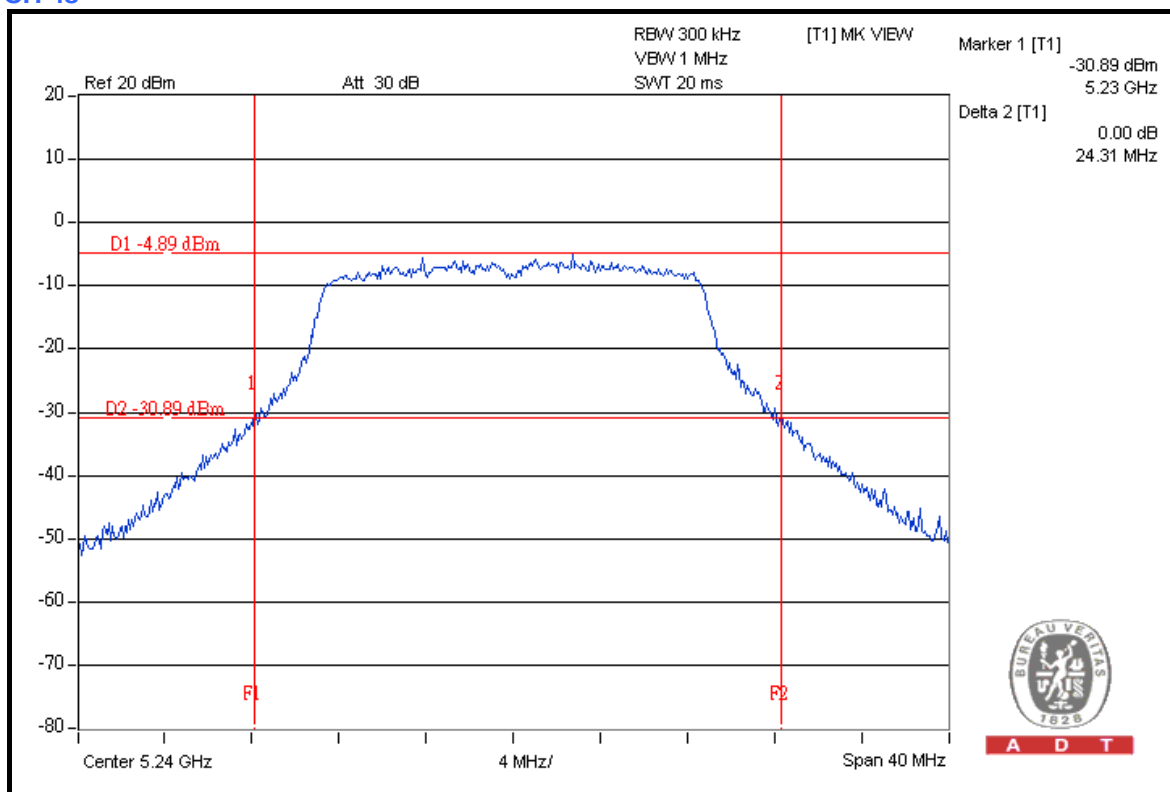
CH 40



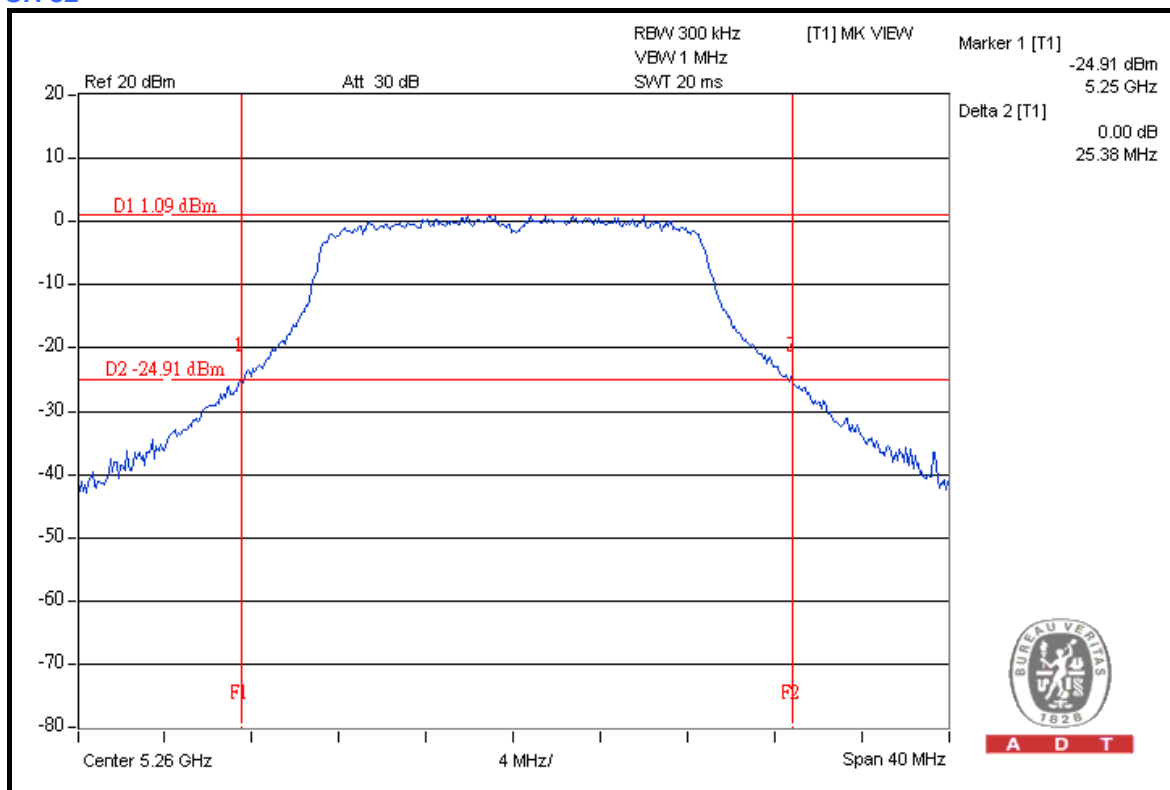


A D T

CH 48



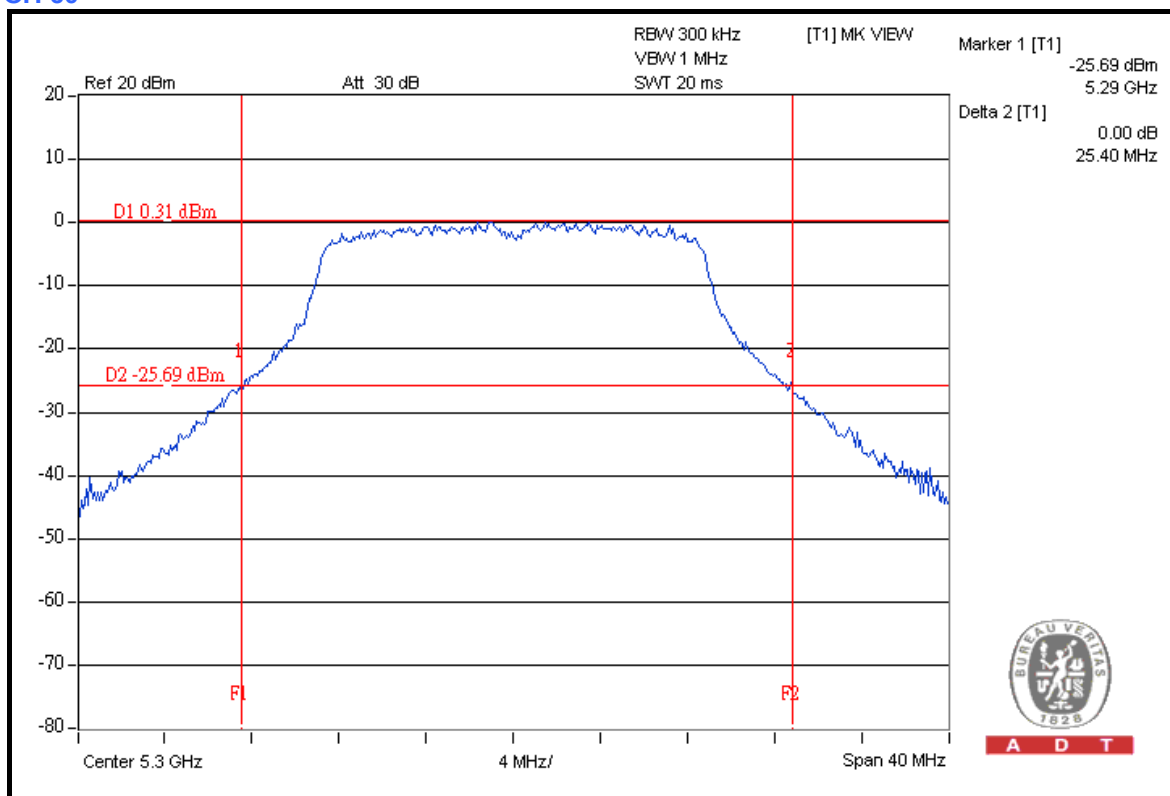
CH 52





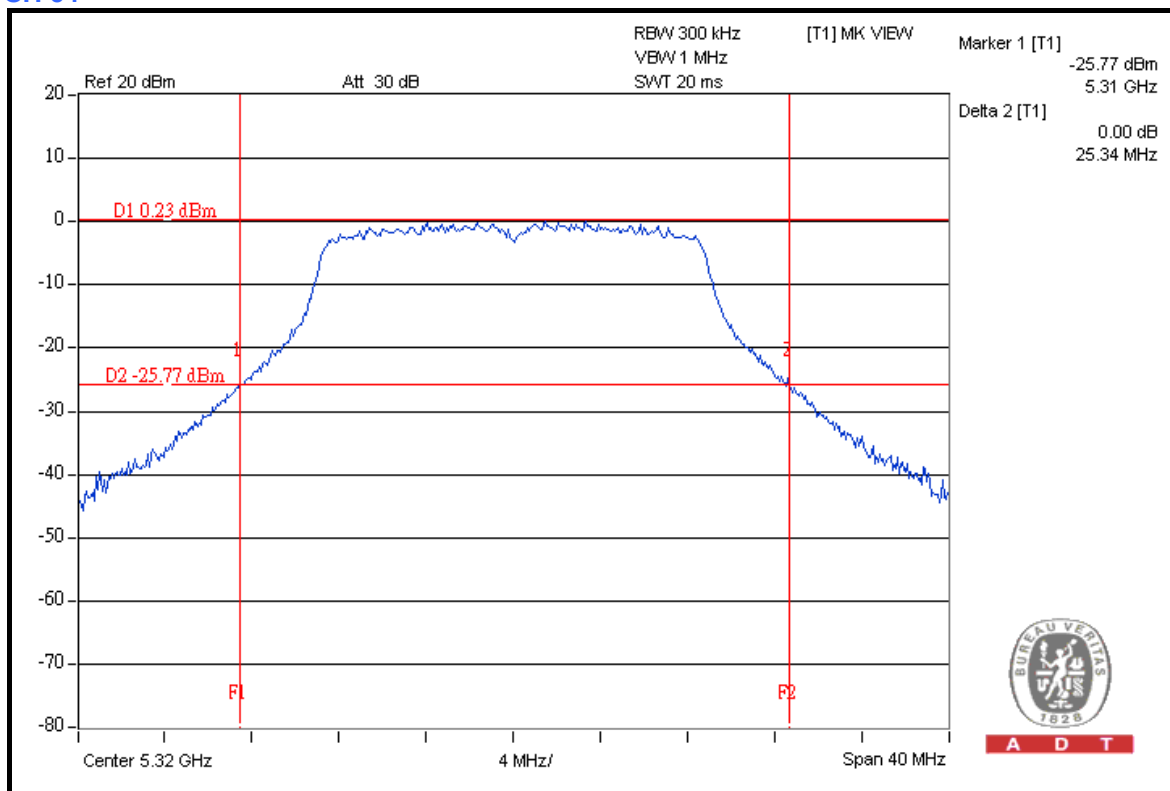
A D T

CH 60



A D T

CH 64

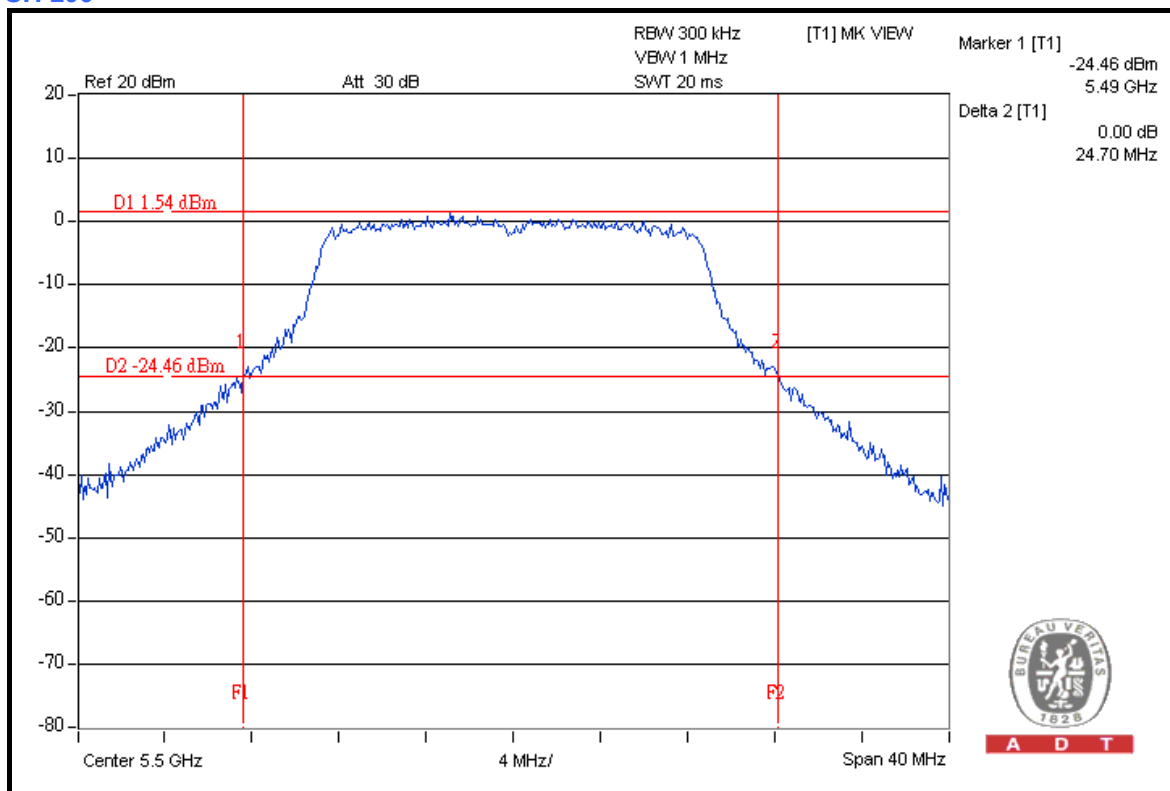


A D T

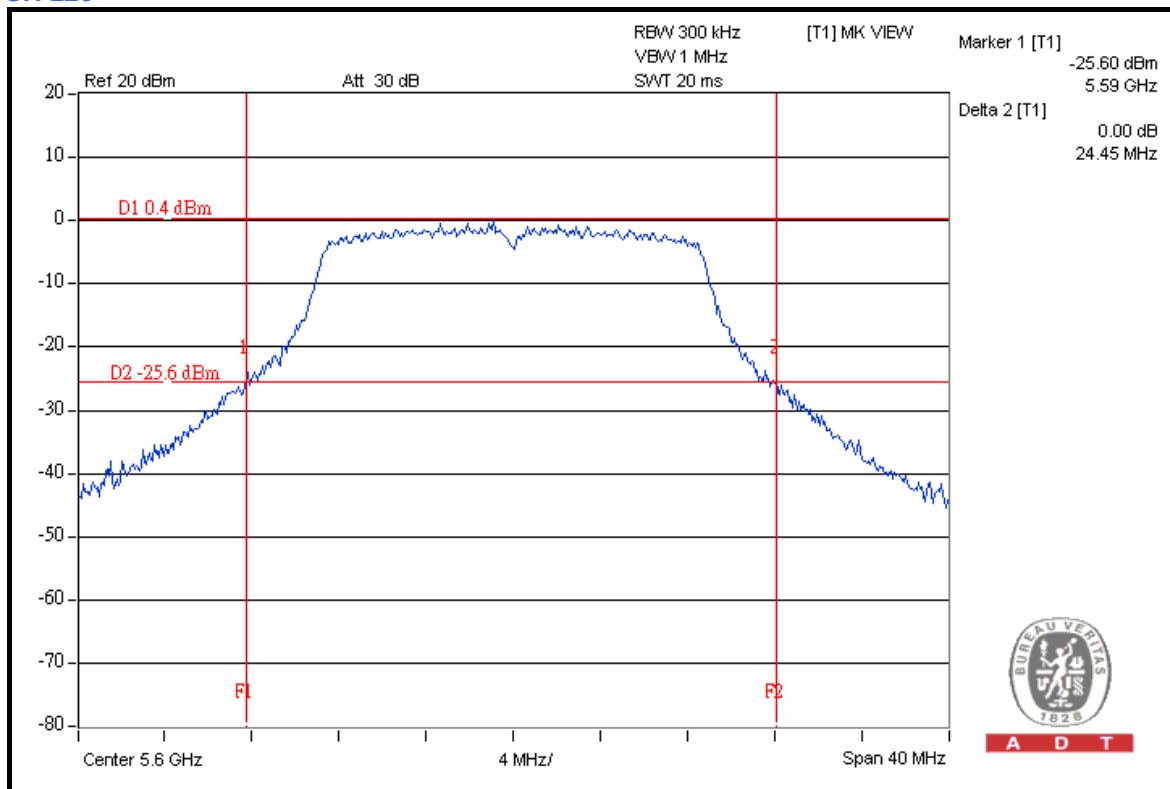


A D T

CH 100



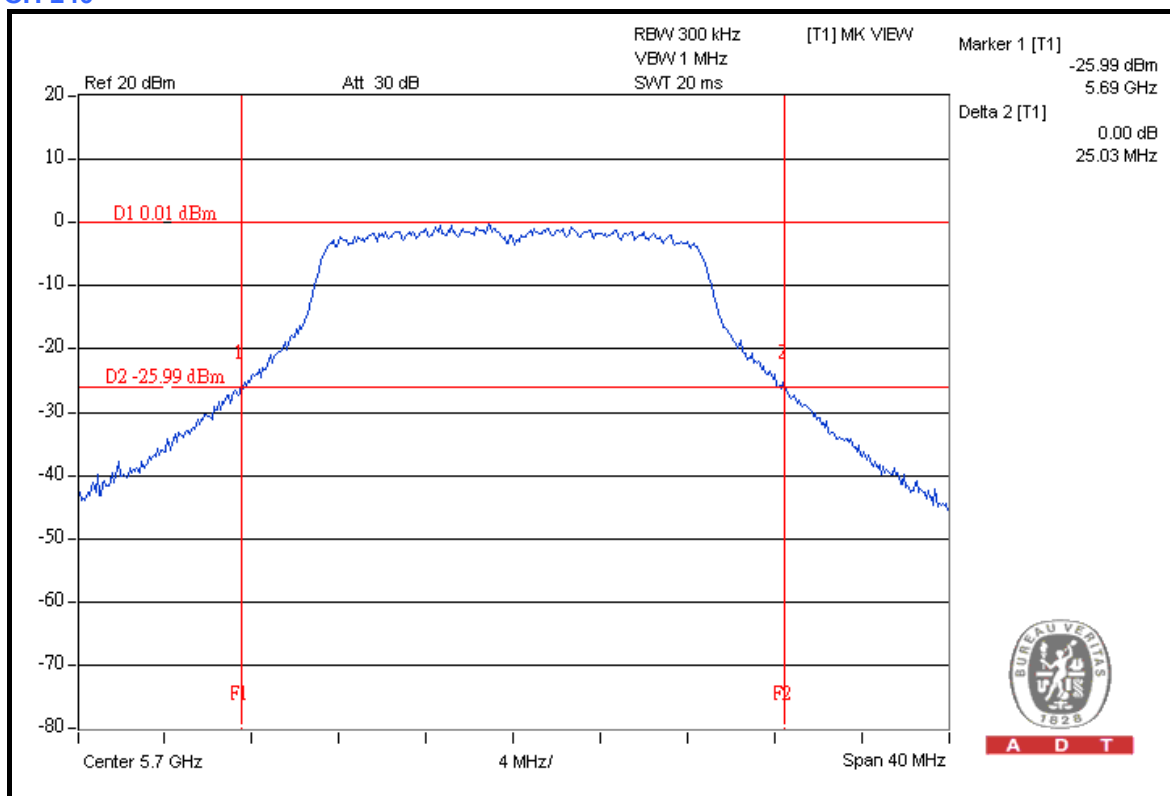
CH 120





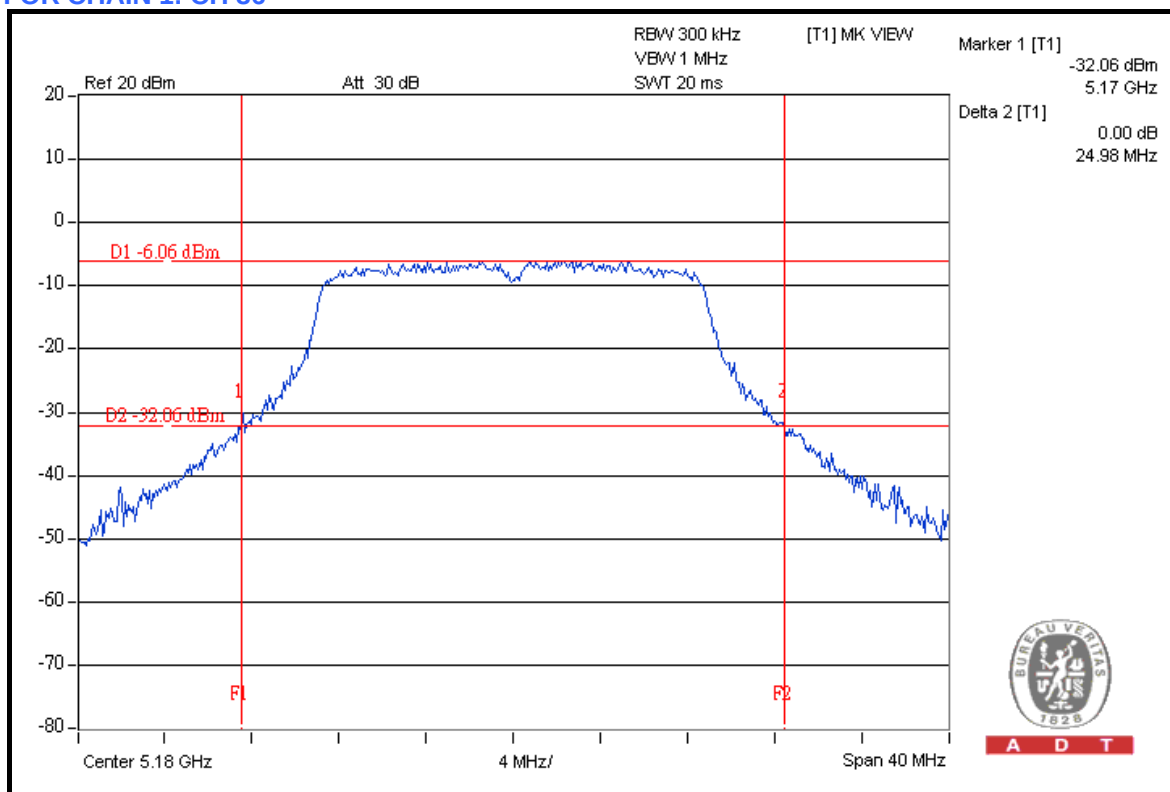
A D T

CH 140



A D T

FOR CHAIN 1: CH 36

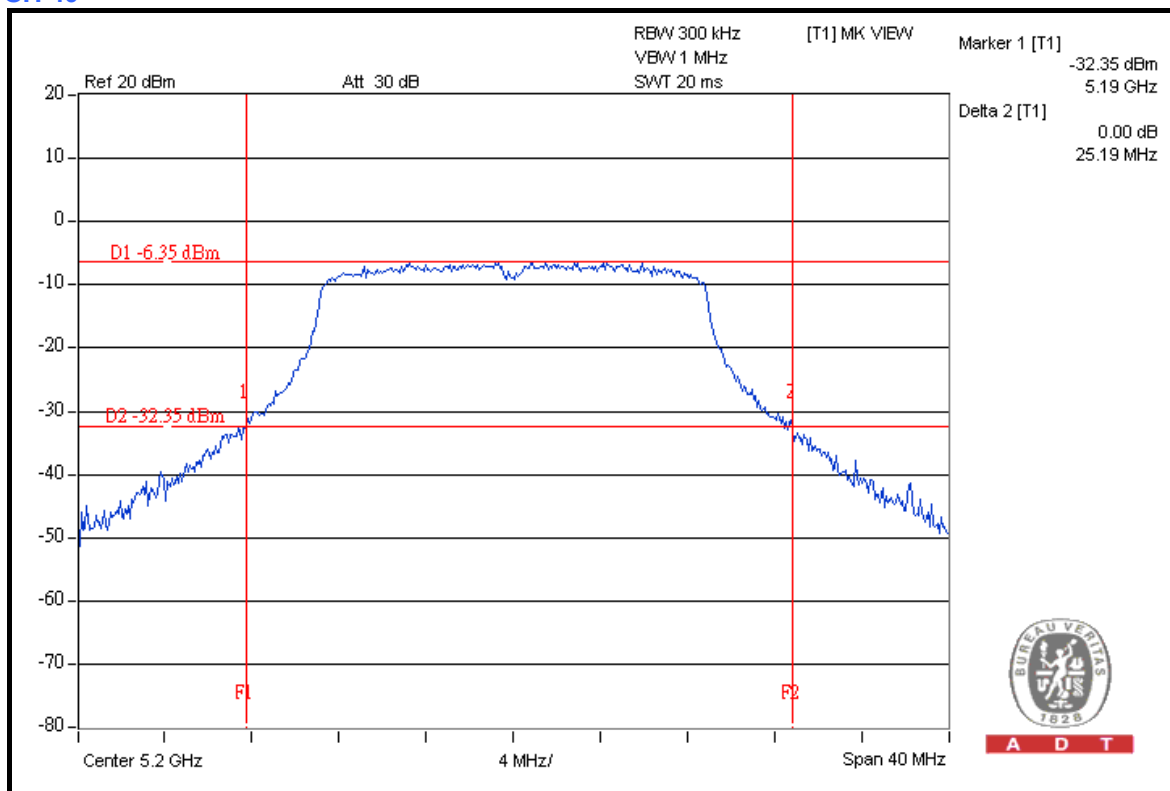


A D T

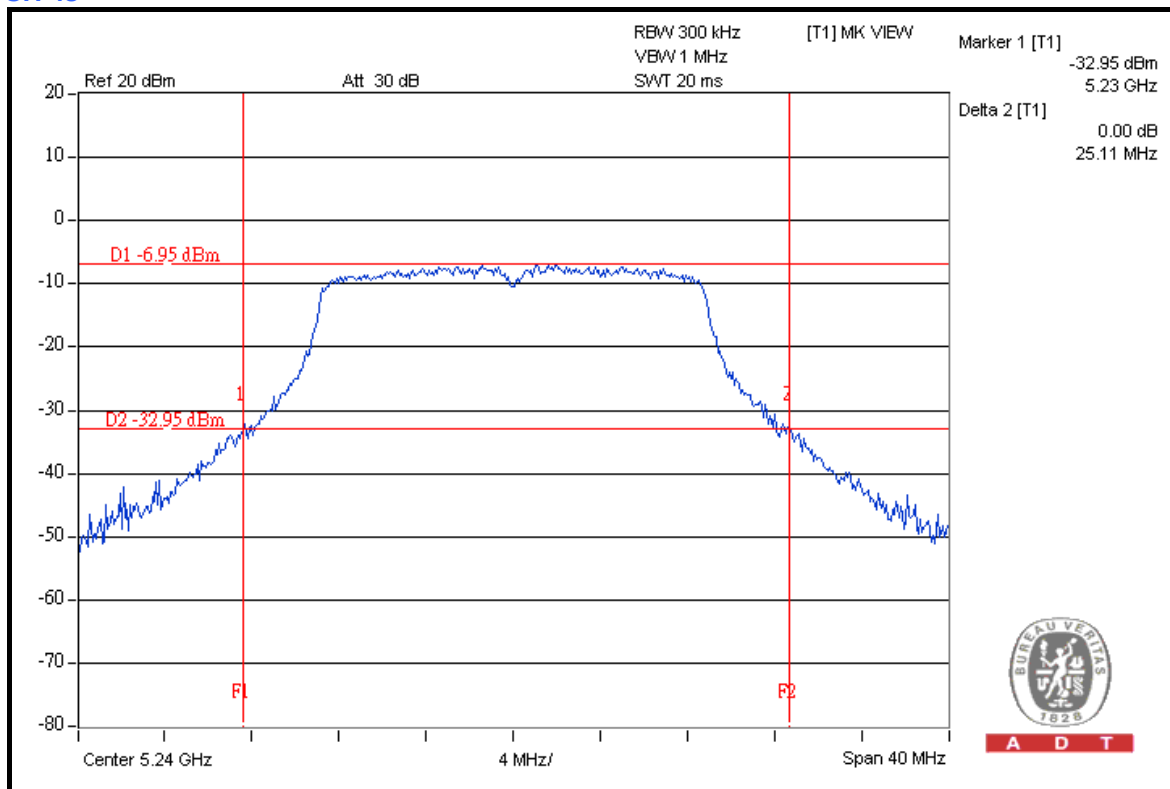


A D T

CH 40



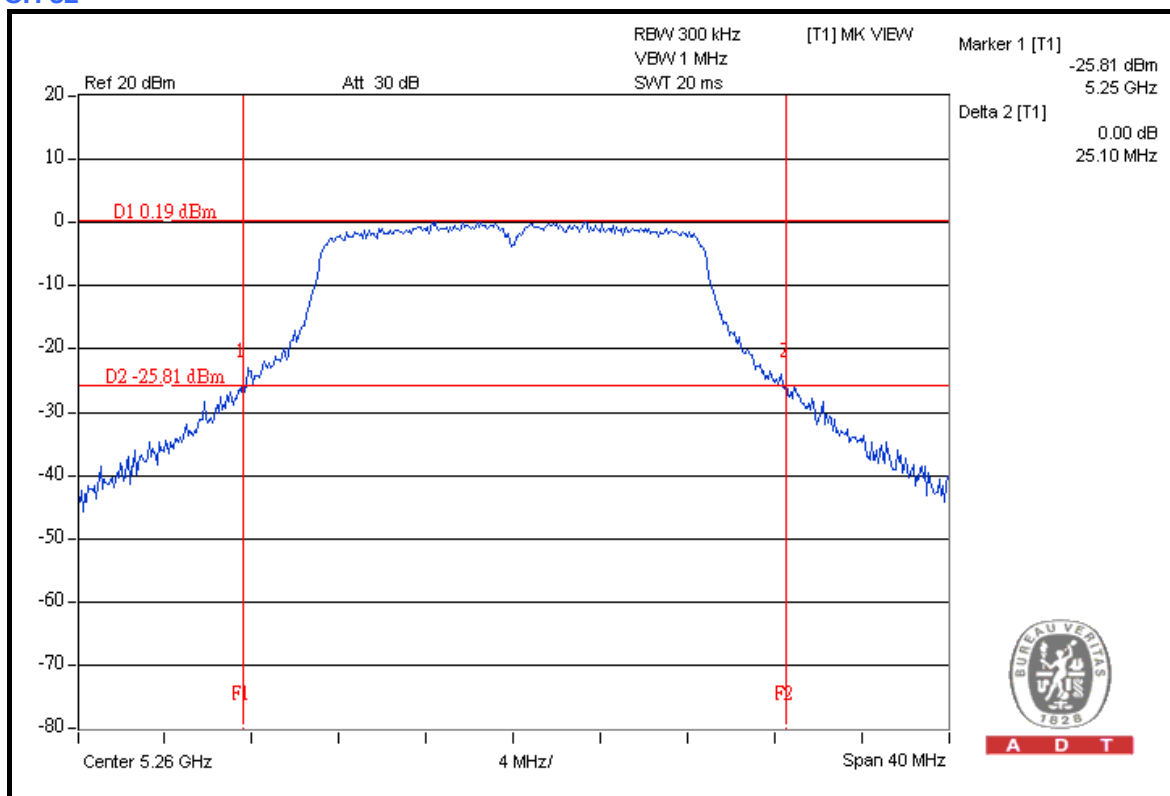
CH 48





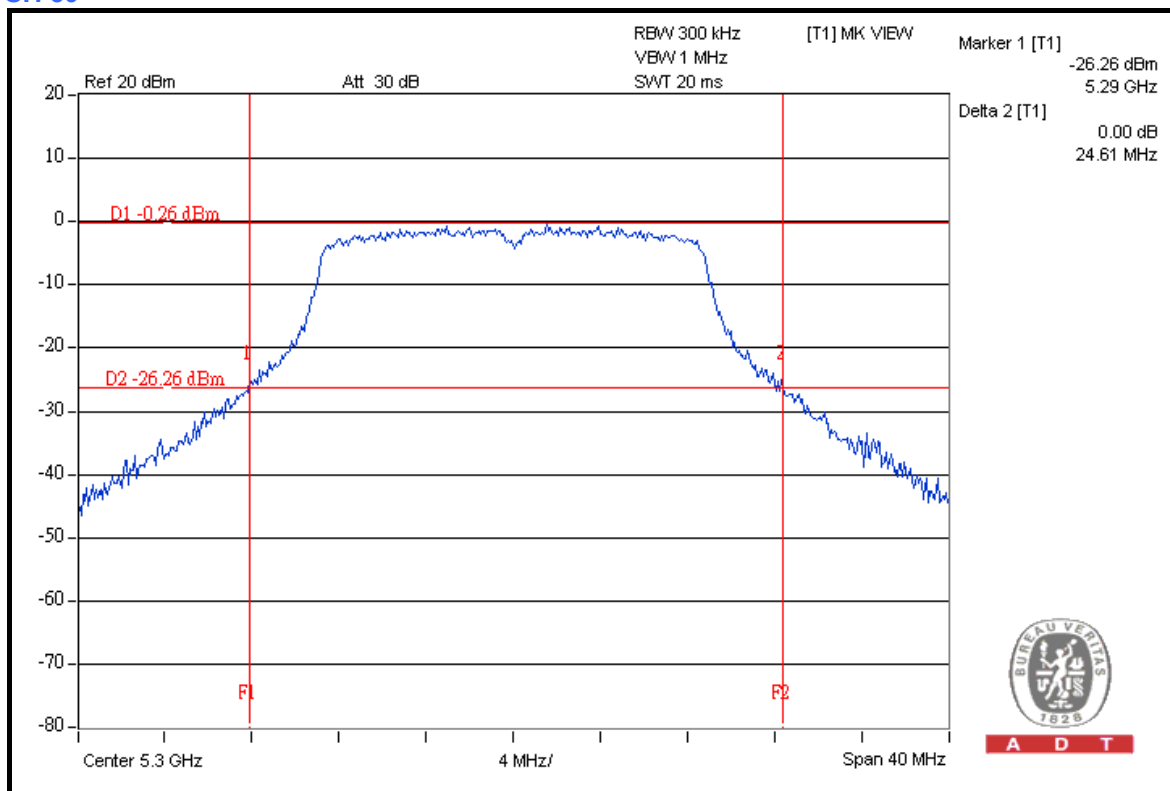
A D T

CH 52



A D T

CH 60

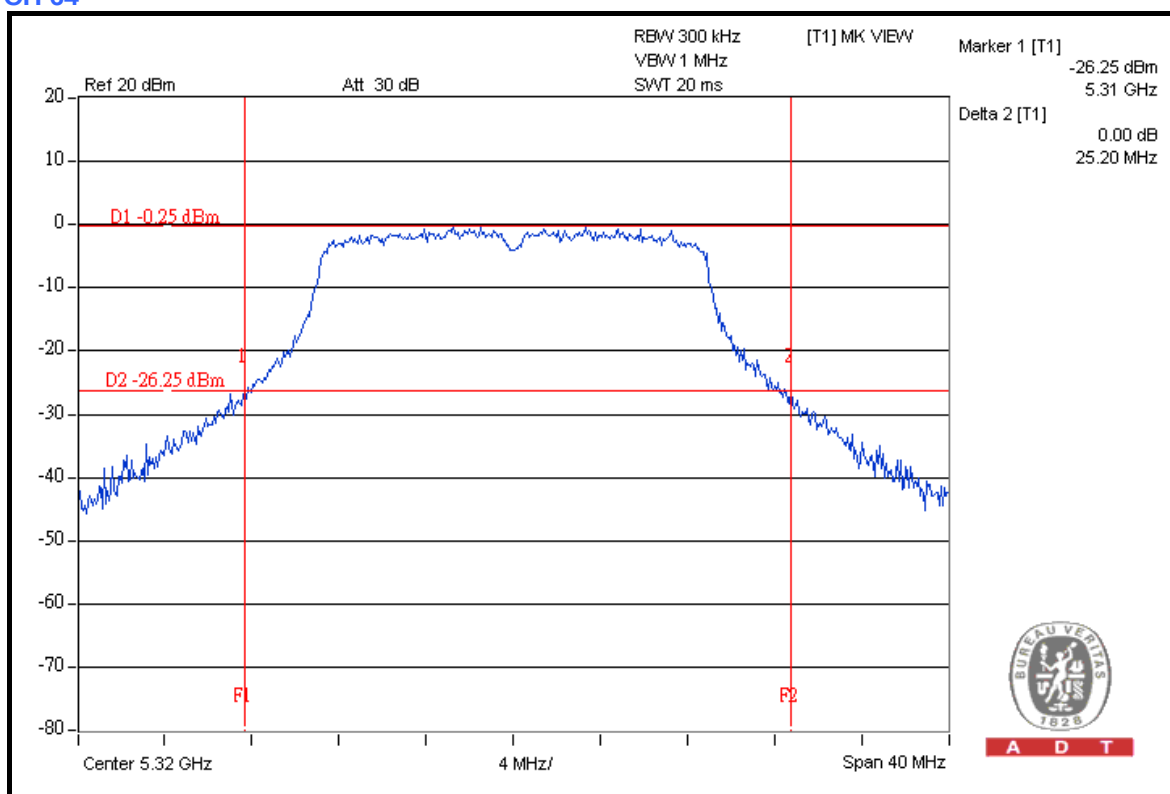


A D T

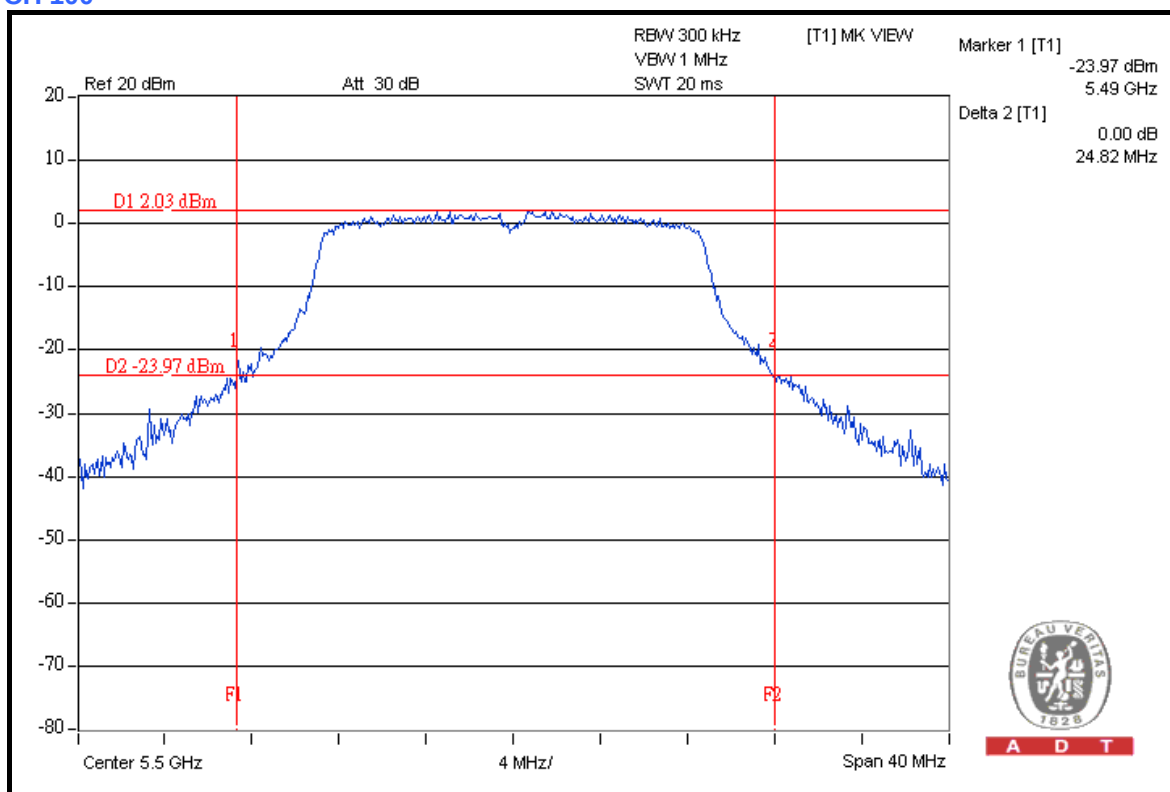


A D T

CH 64



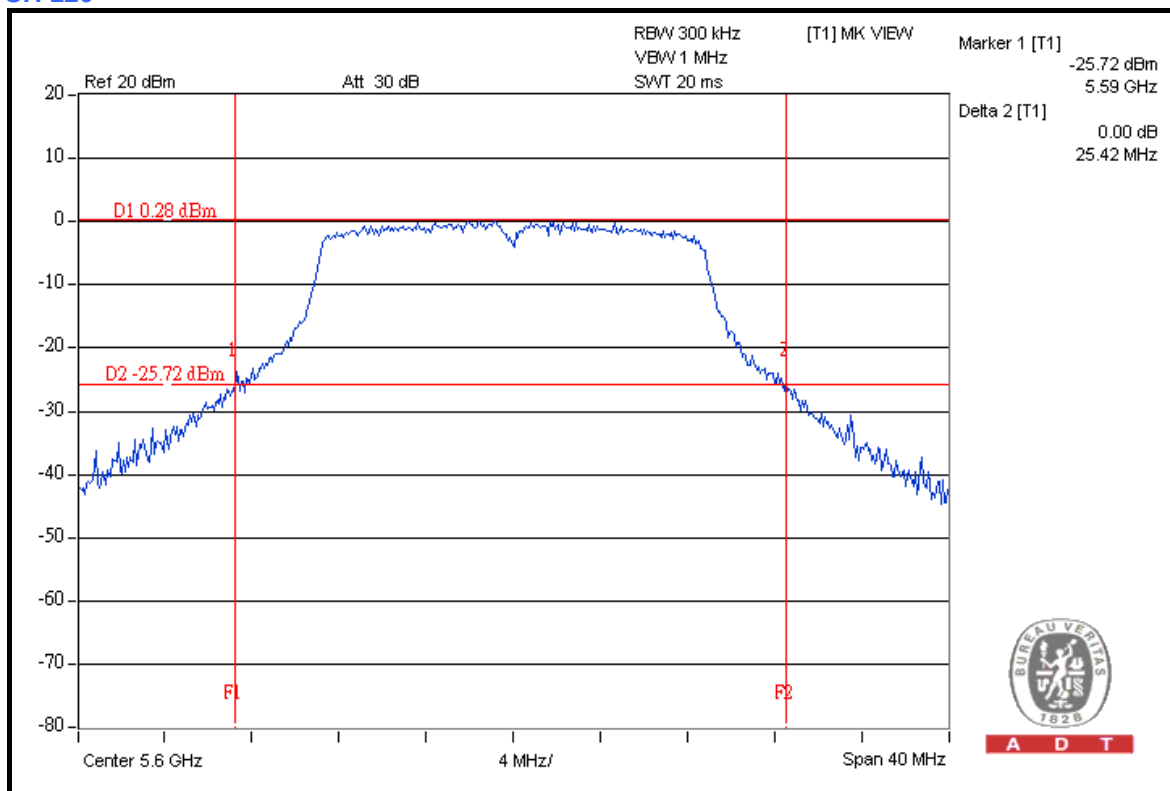
CH 100



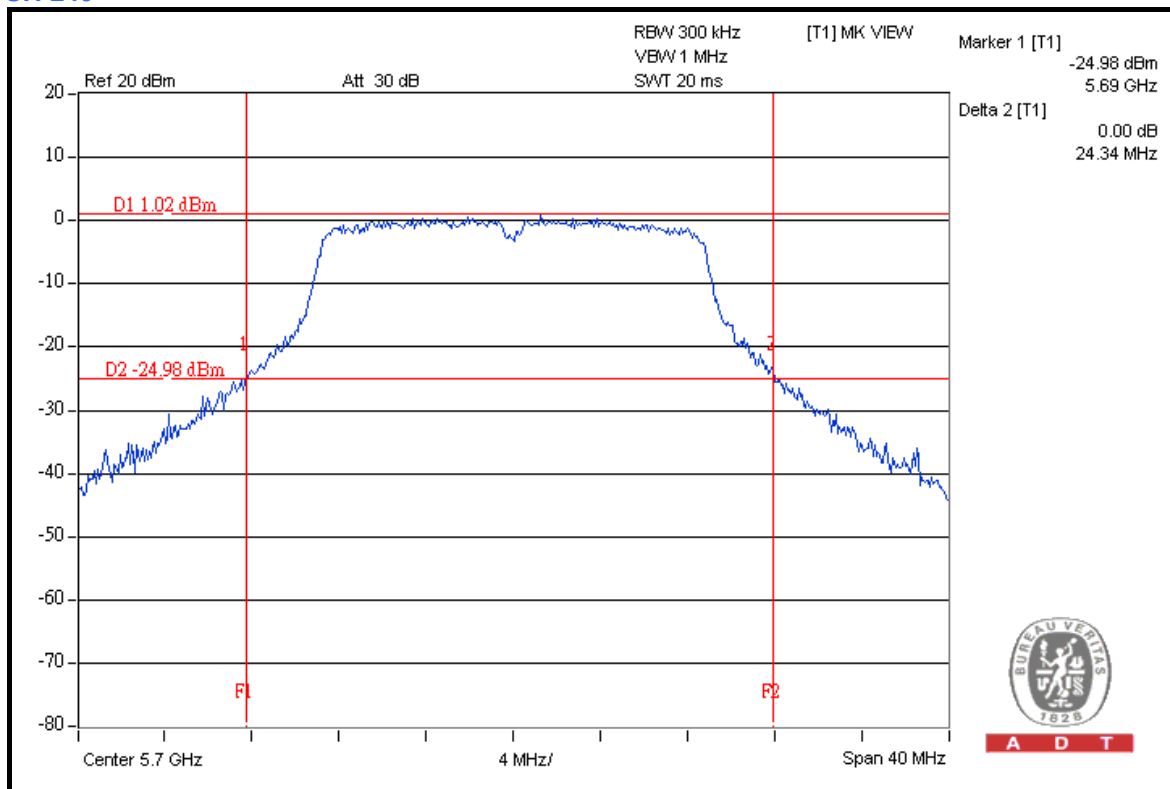


A D T

CH 120



CH 140



DRAFT 802.11n (40MHz) OFDM MODULATION

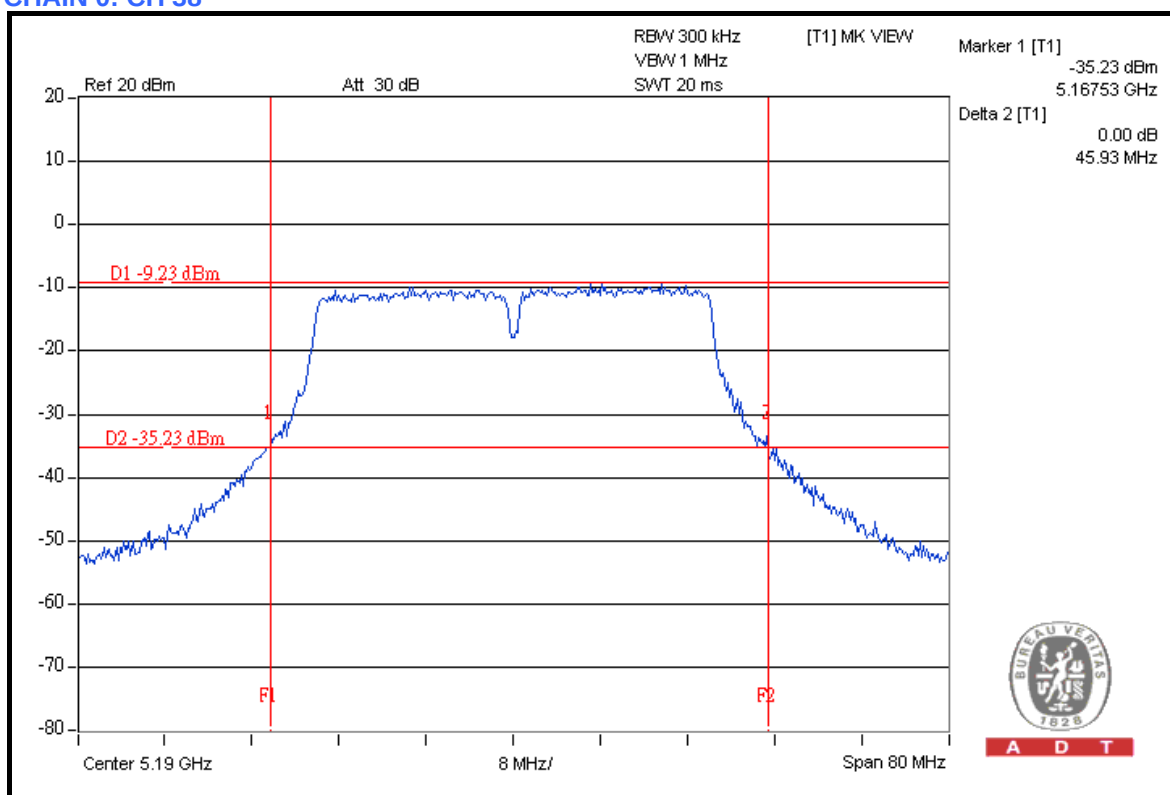
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	45.93	45.85	PASS
46	5230	46.29	45.13	PASS
54	5270	45.90	45.19	PASS
62	5310	47.28	45.73	PASS
102	5510	46.34	46.21	PASS
118	5590	45.62	46.60	PASS
134	5670	47.24	45.02	PASS

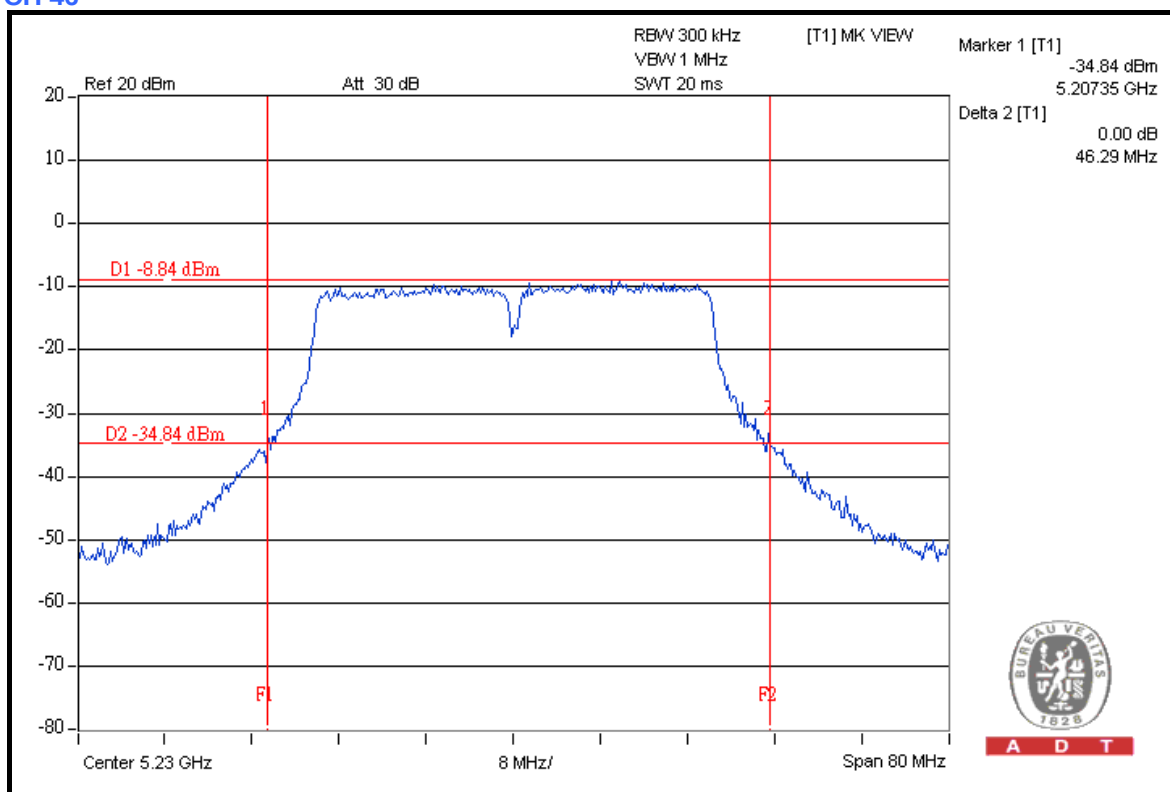


A D T

CHAIN 0: CH 38



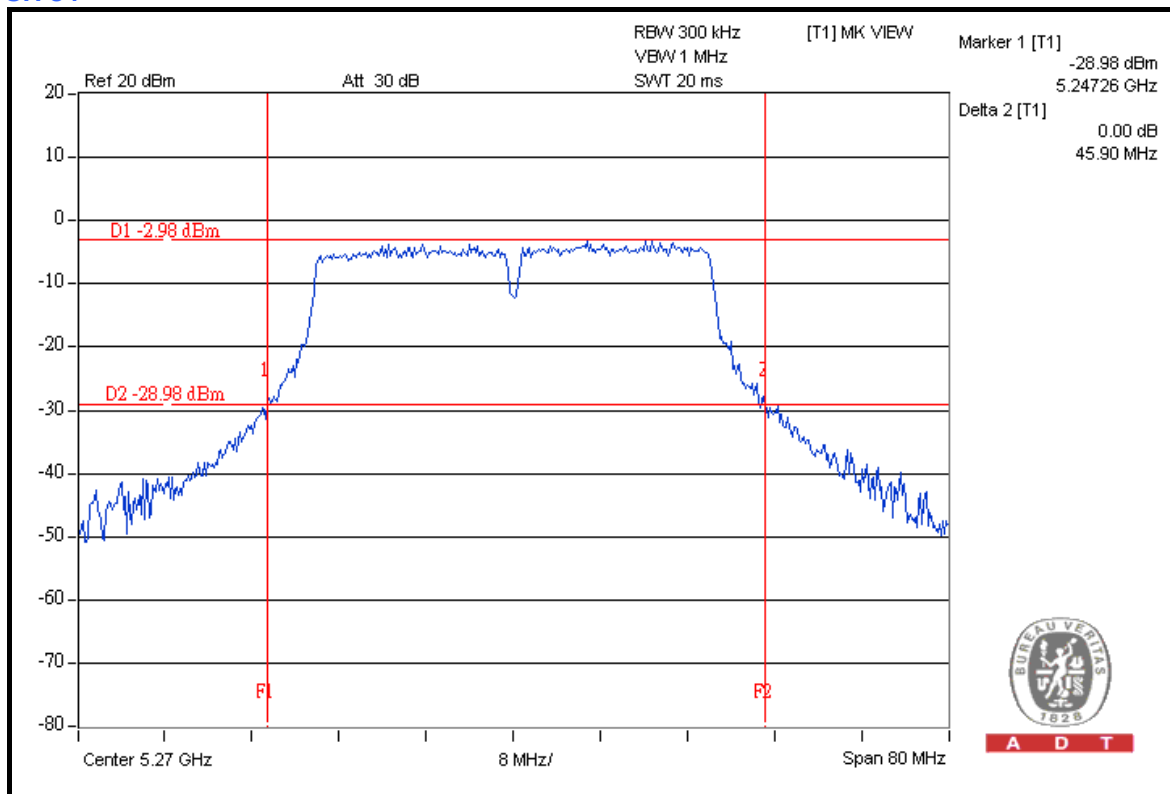
CH 46



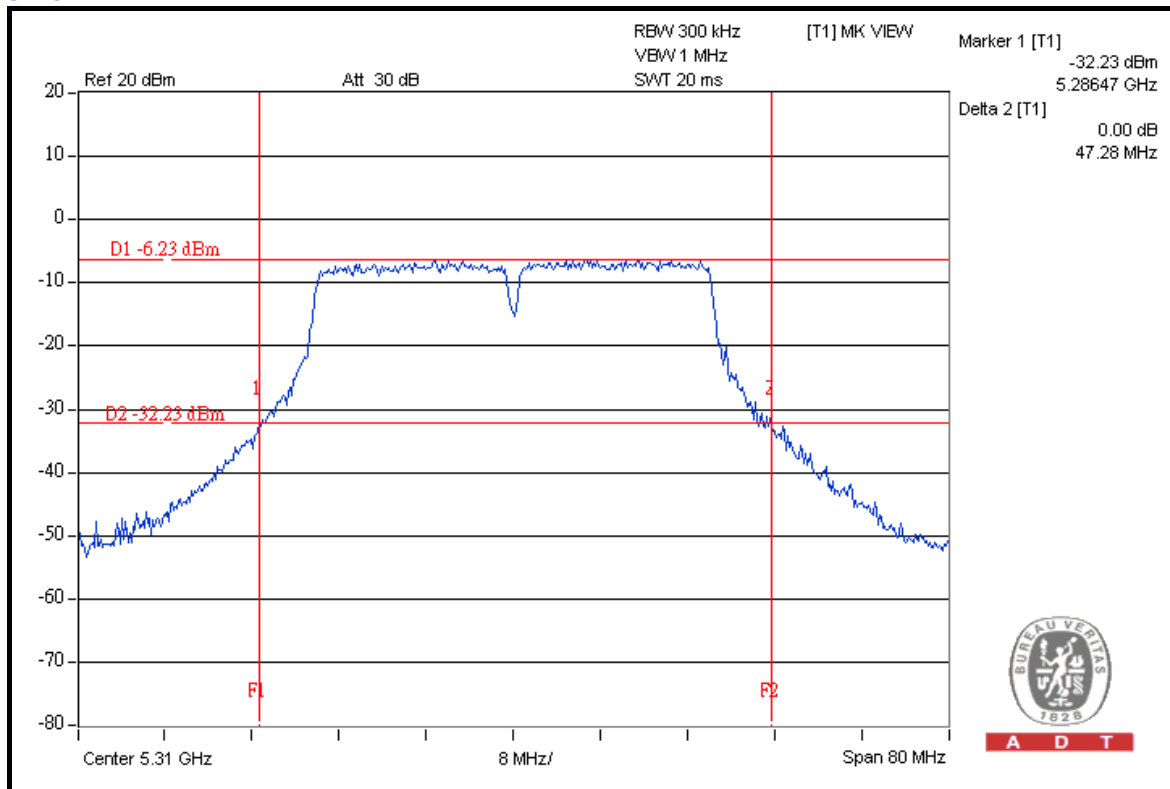


A D T

CH 54



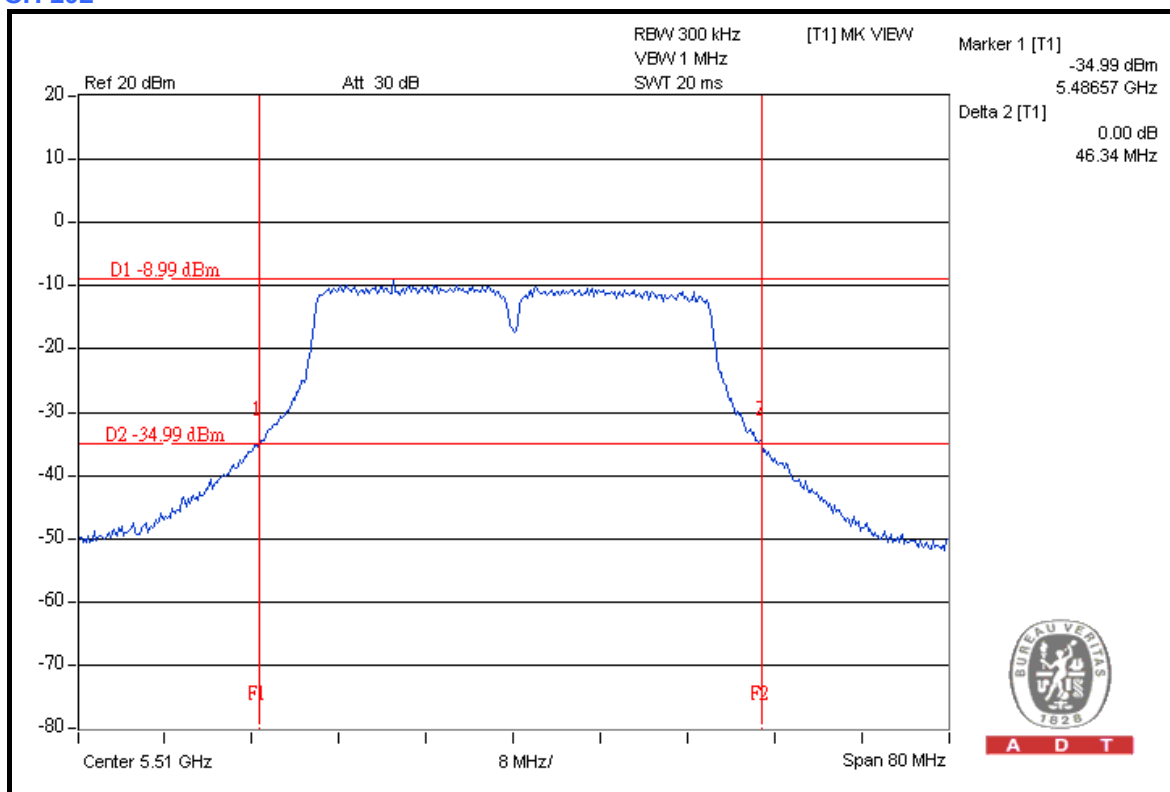
CH 62



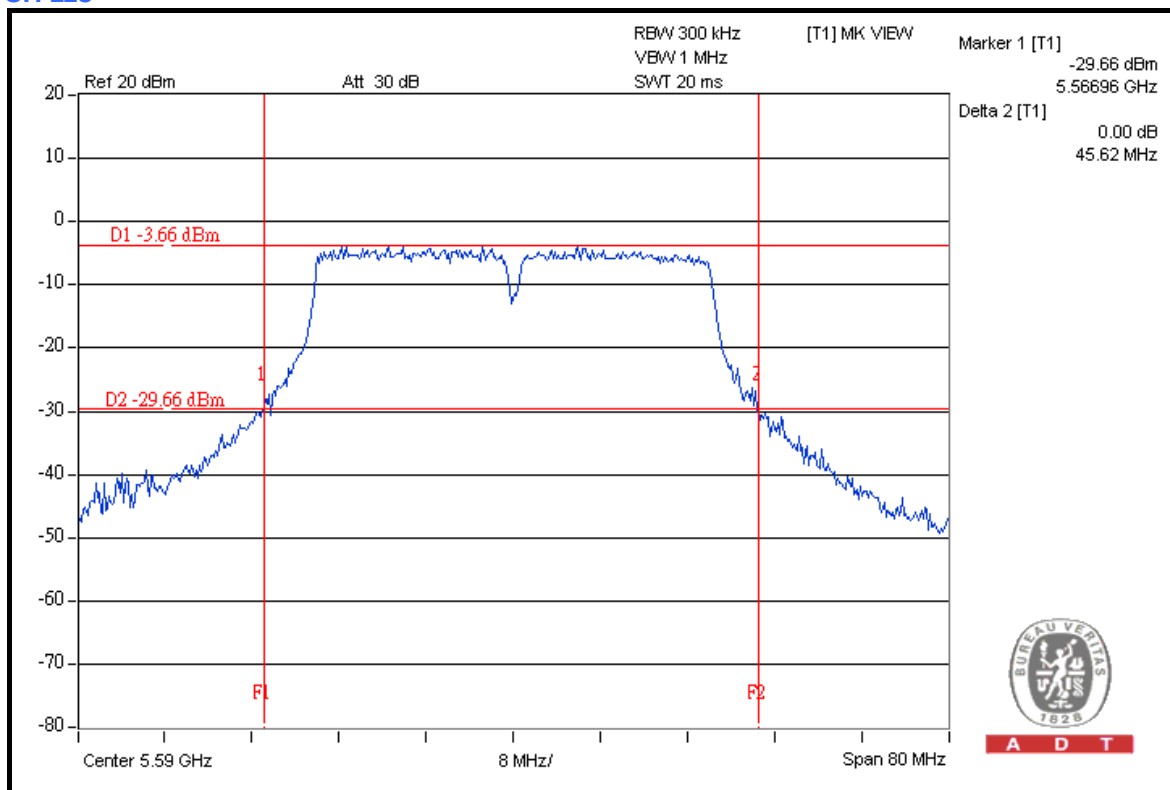


A D T

CH 102



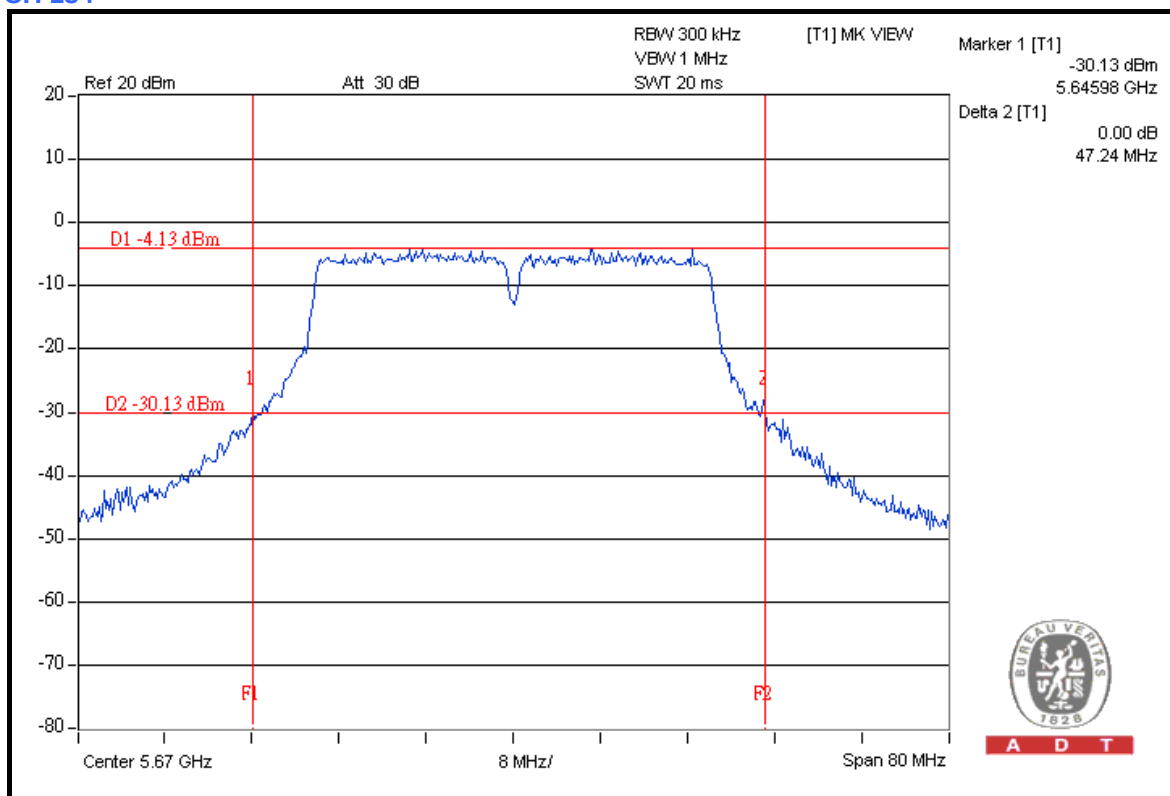
CH 118



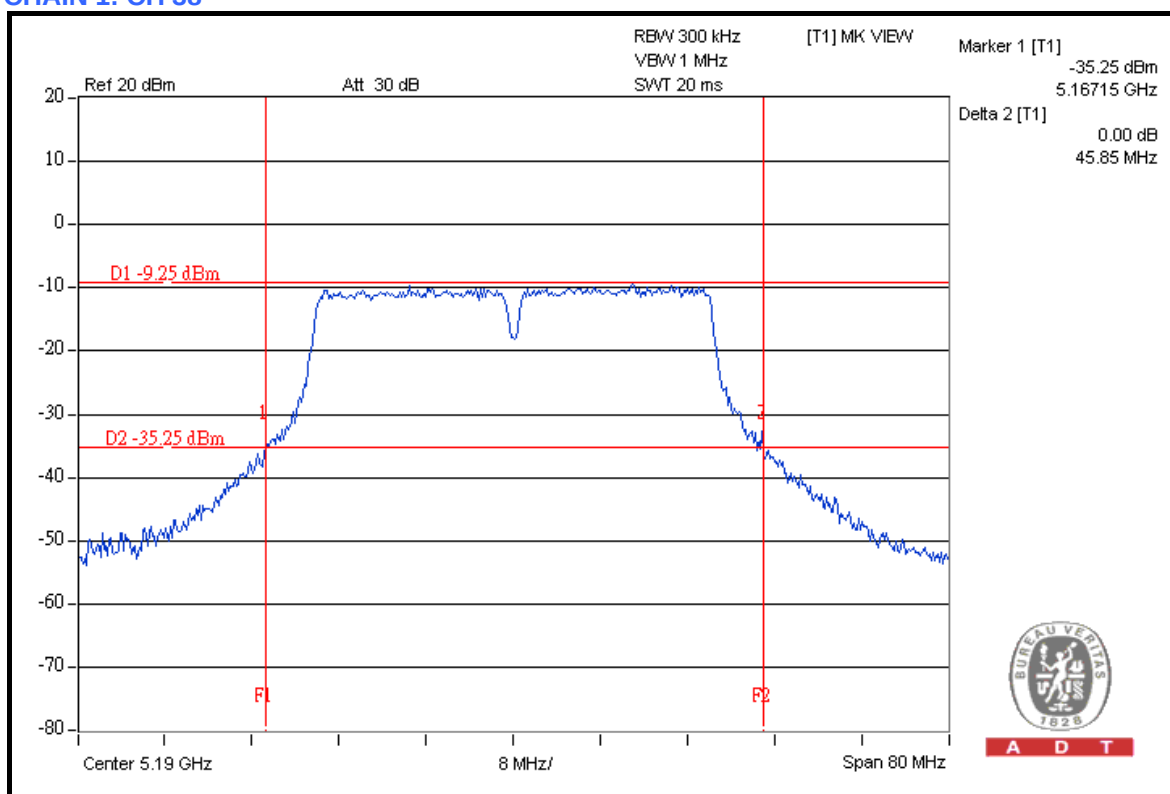


A D T

CH 134



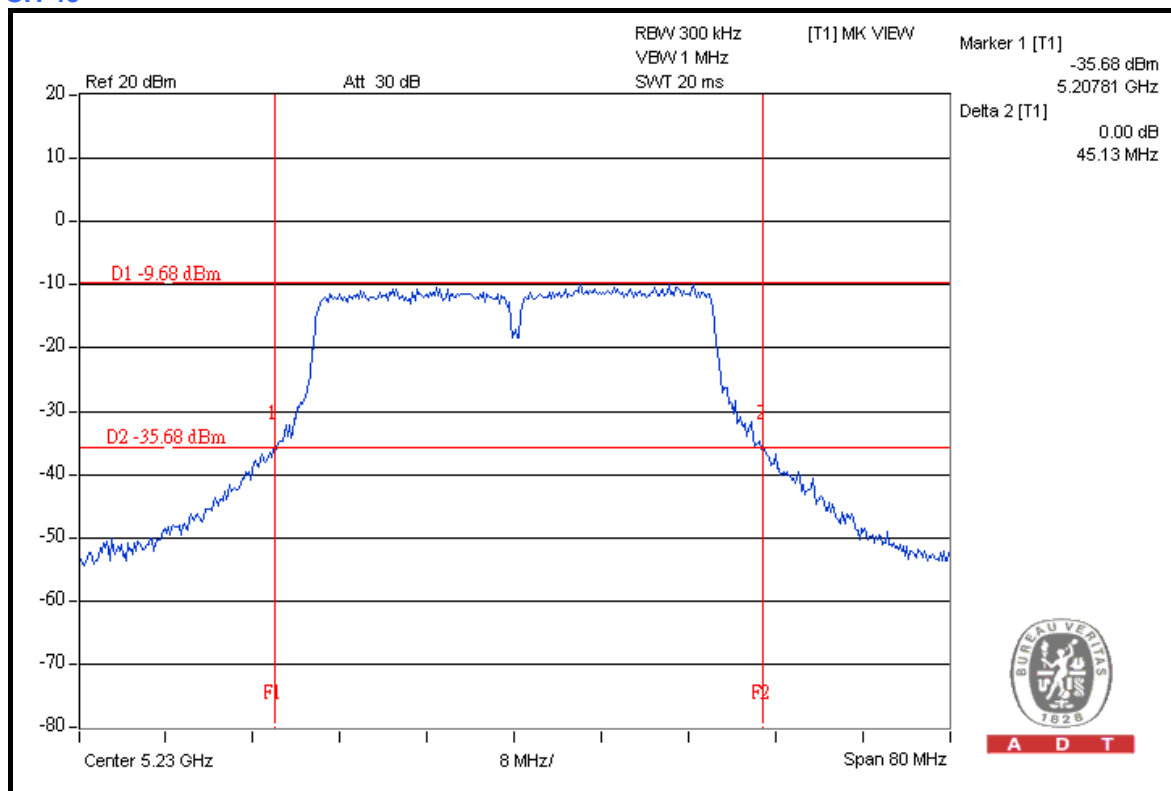
CHAIN 1: CH 38



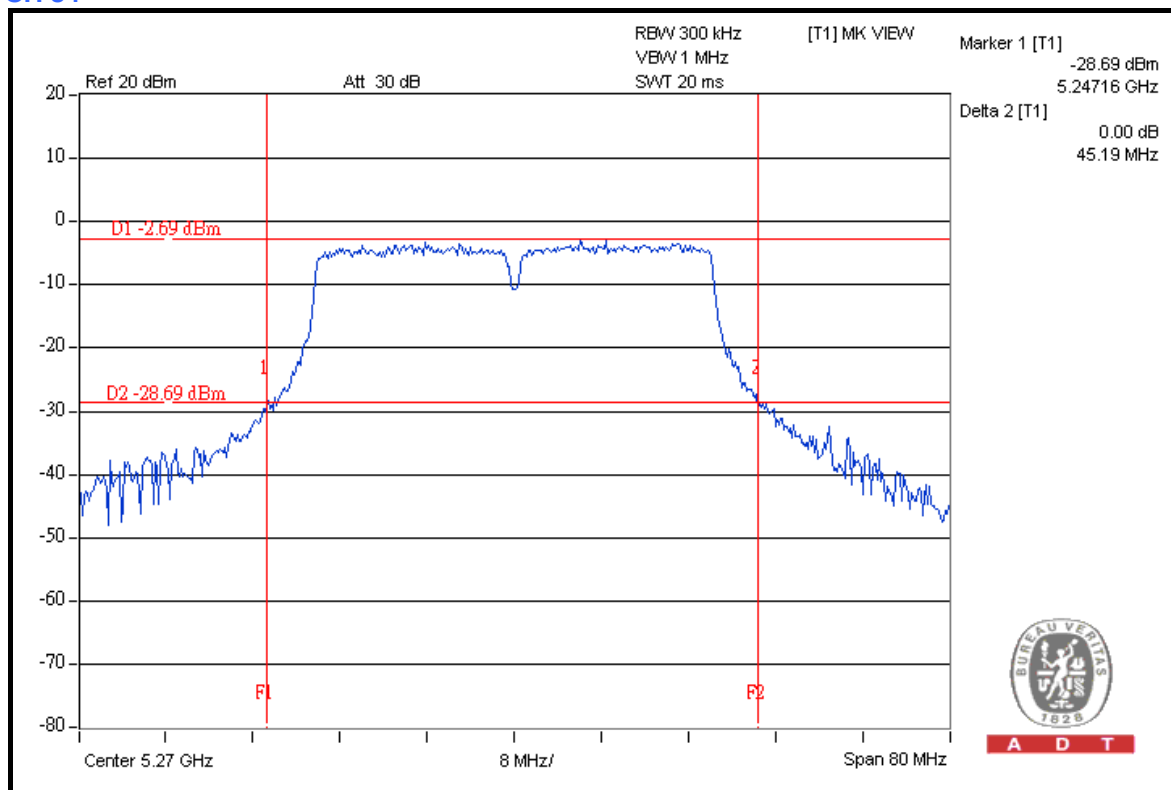


A D T

CH 46



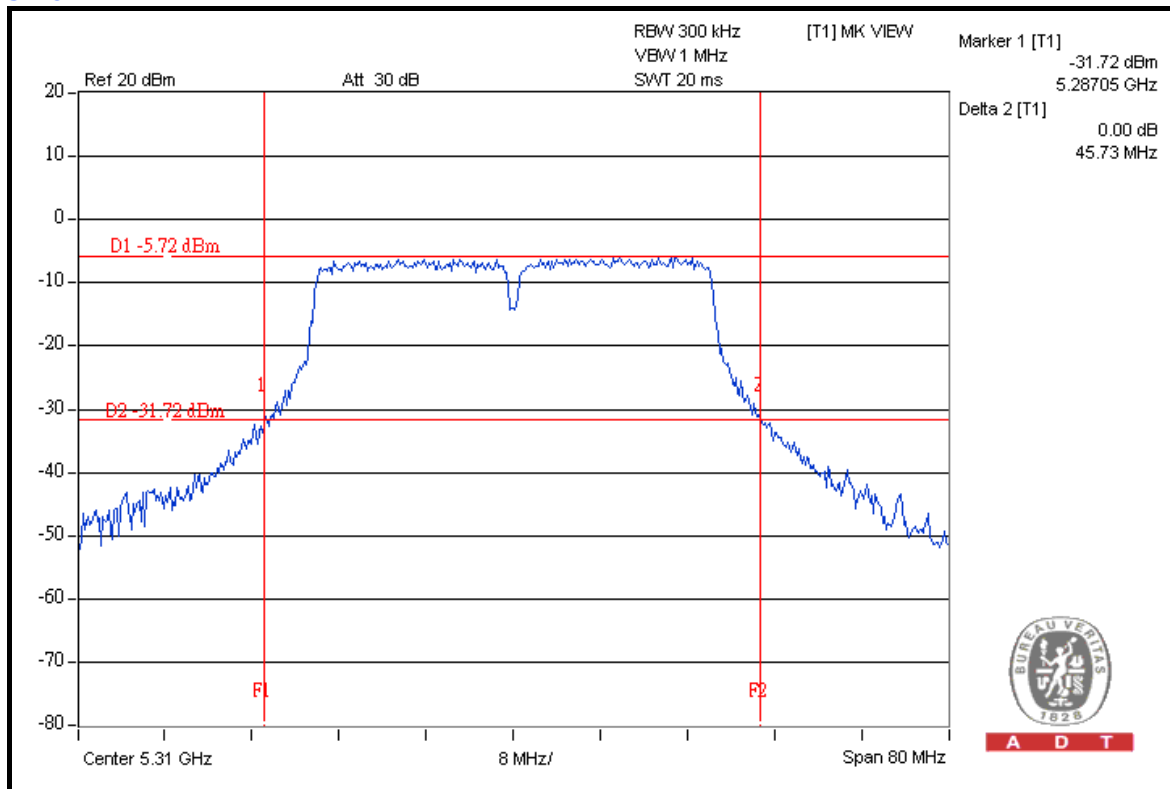
CH 54





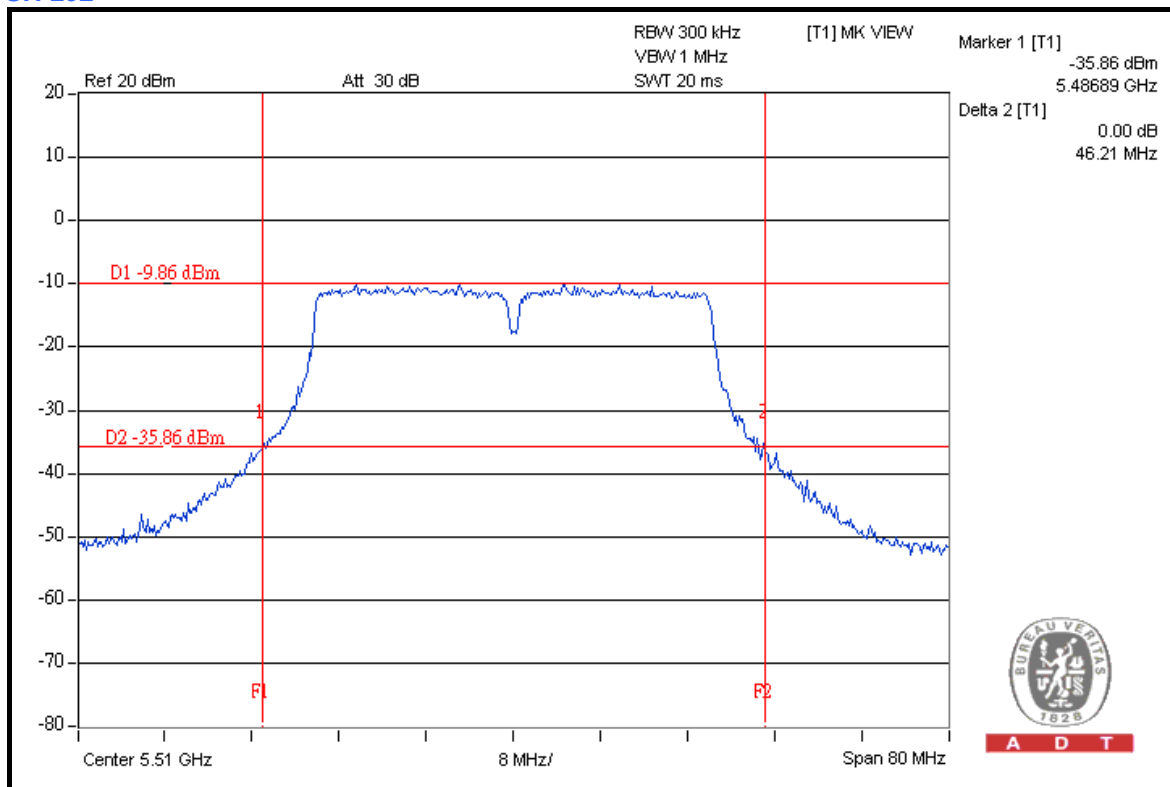
A D T

CH 62



A D T

CH 102

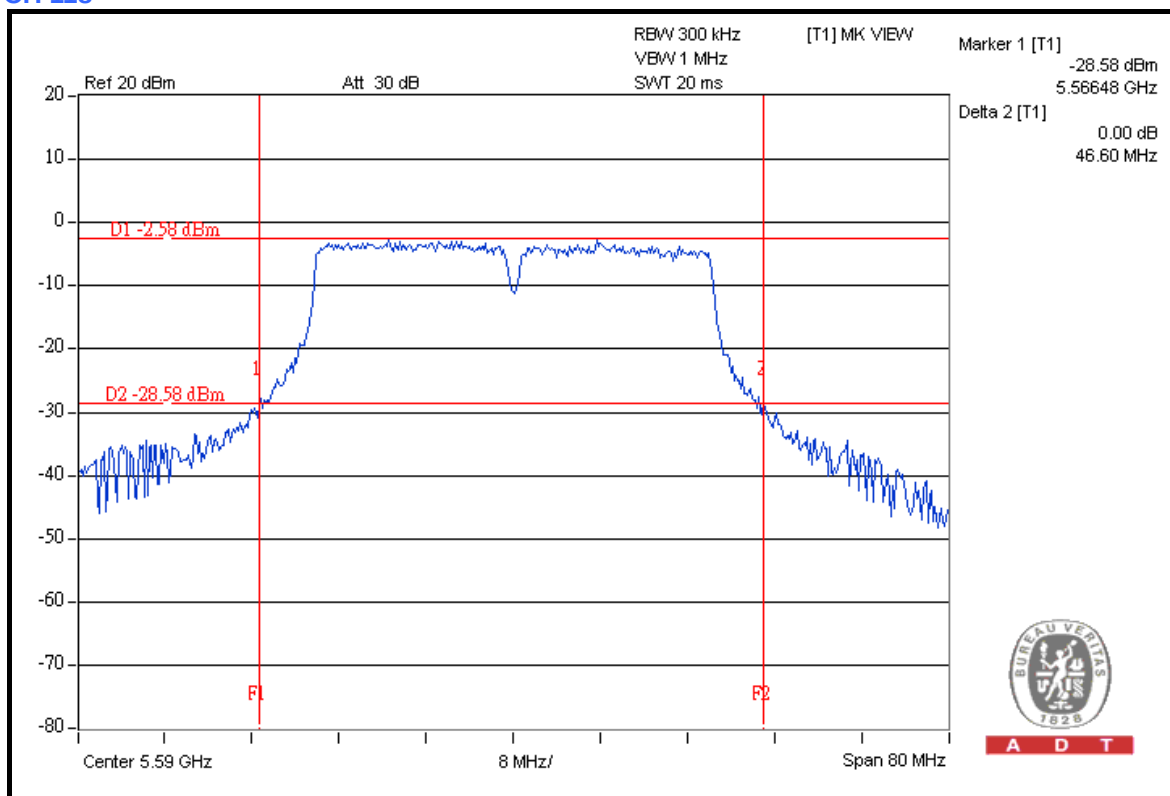


A D T

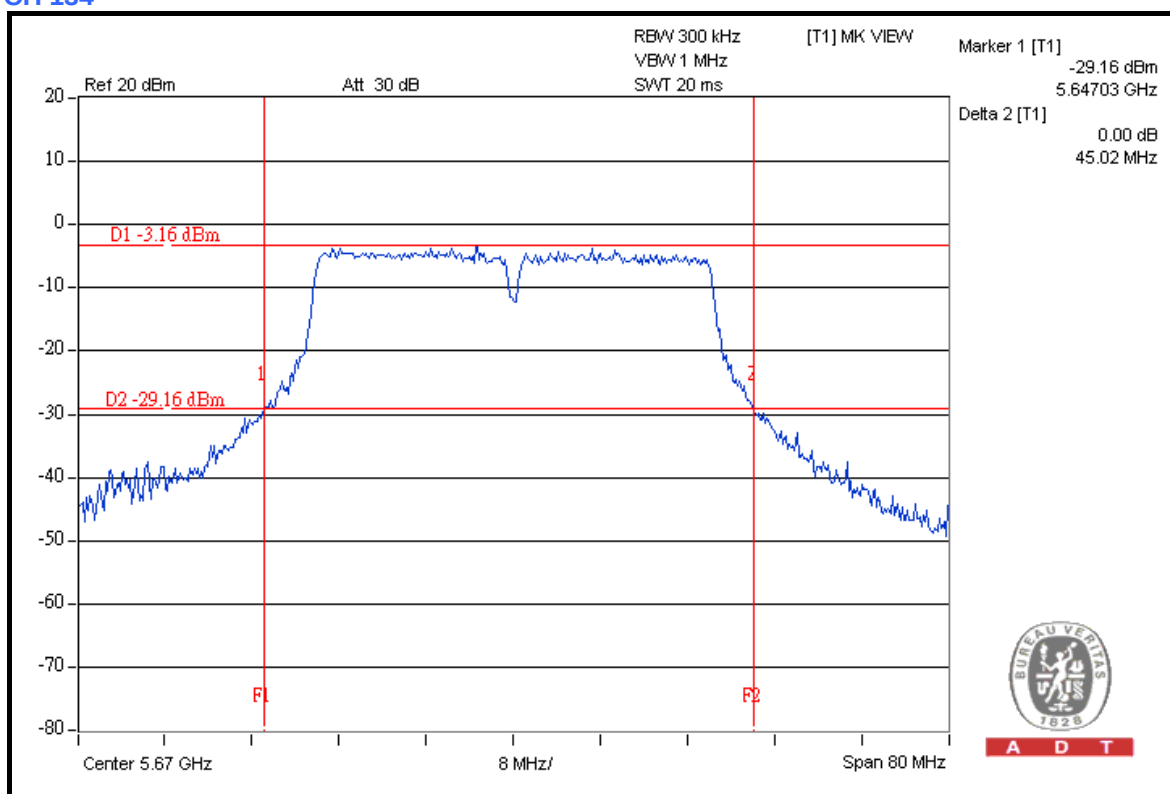


A D T

CH 118



CH 134



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	May 13, 2009	May 12, 2010

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

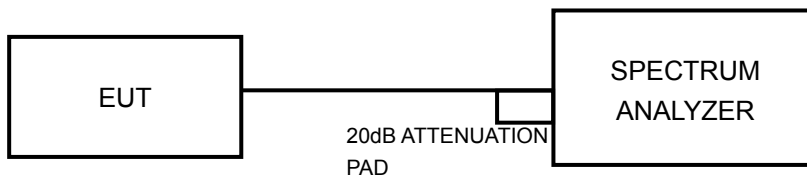
4.4.3 TEST PROCEDURE

- 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 = 300kHz).
- 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.

4.4.7 TEST RESULTS

802.11a OFDM MODULATION

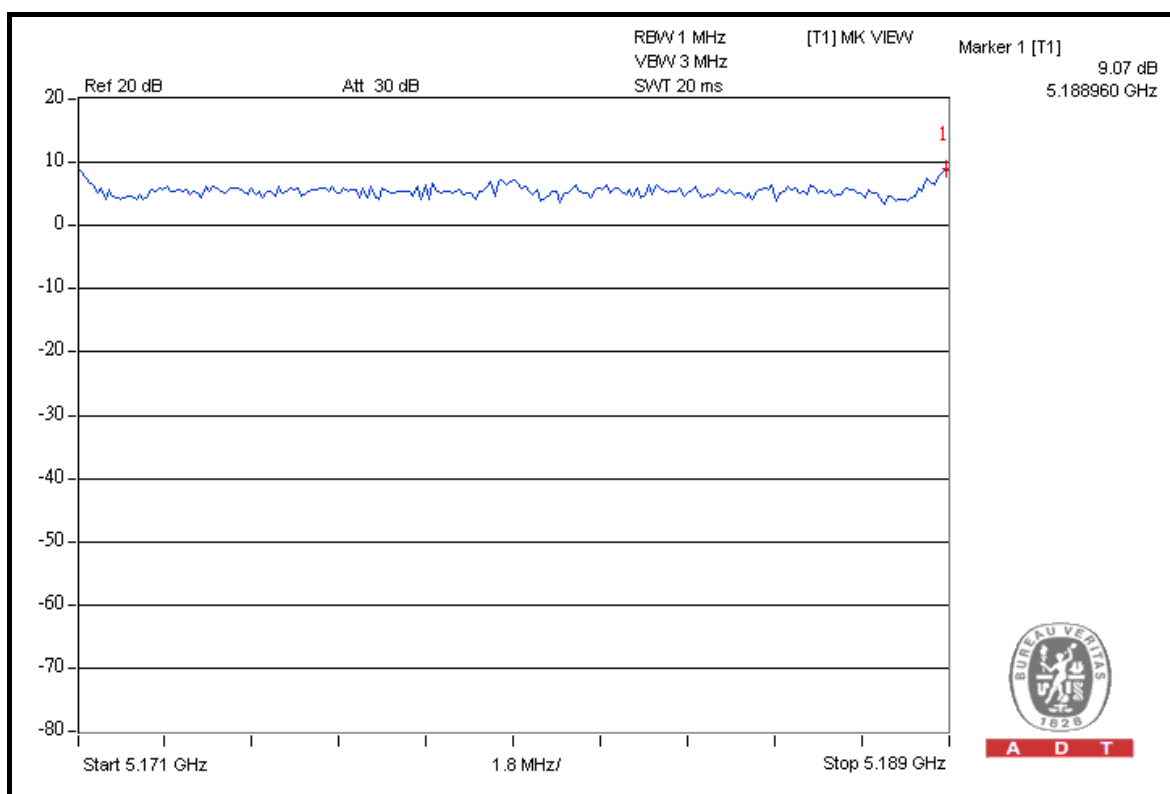
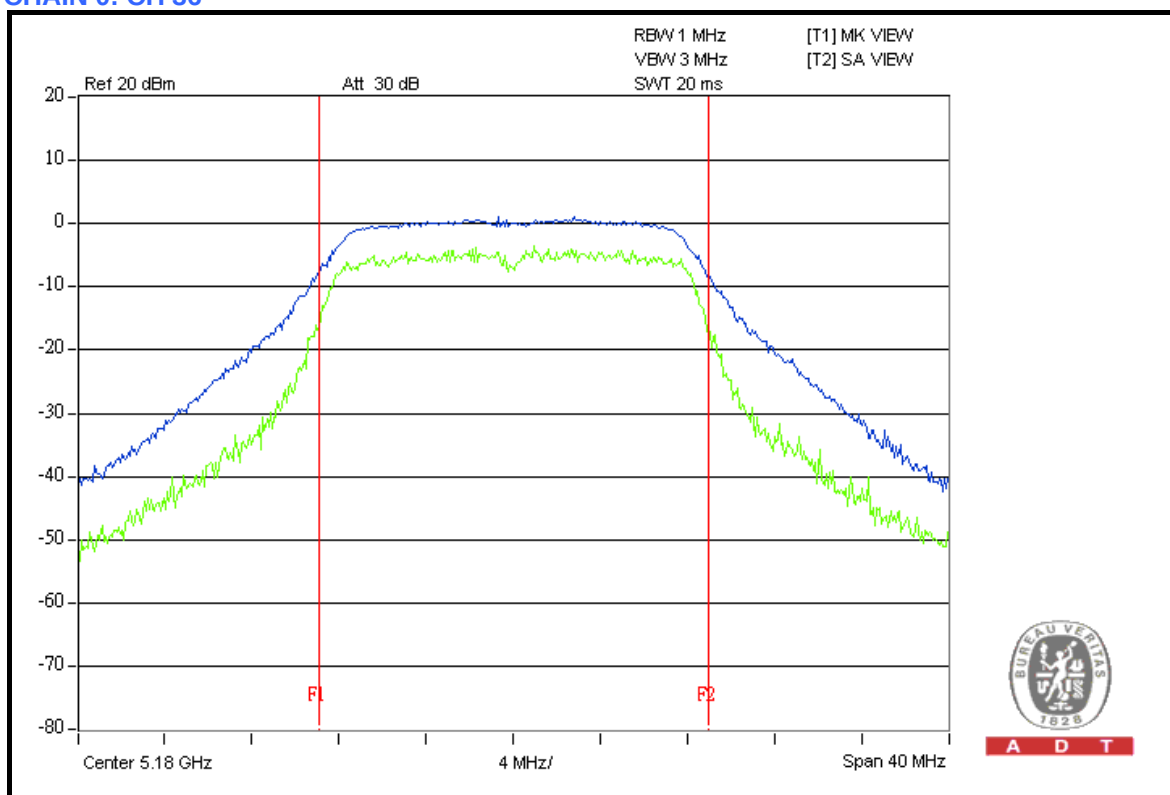
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	9.07	6.83	13	PASS
40	5200	8.91	7.94	13	PASS
48	5240	8.35	8.11	13	PASS
52	5260	8.63	7.76	13	PASS
60	5300	8.79	8.54	13	PASS
64	5320	8.95	7.79	13	PASS
100	5500	9.13	8.08	13	PASS
120	5600	9.94	8.13	13	PASS
140	5700	9.41	8.35	13	PASS



A D T

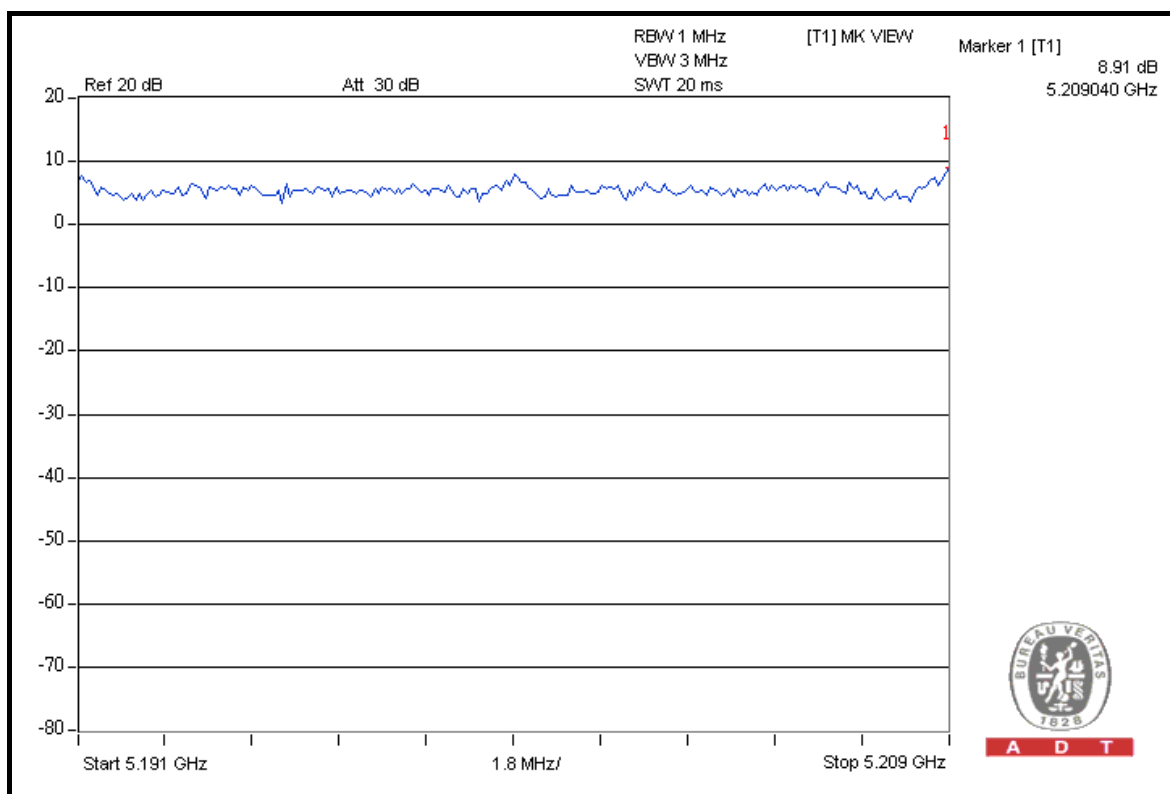
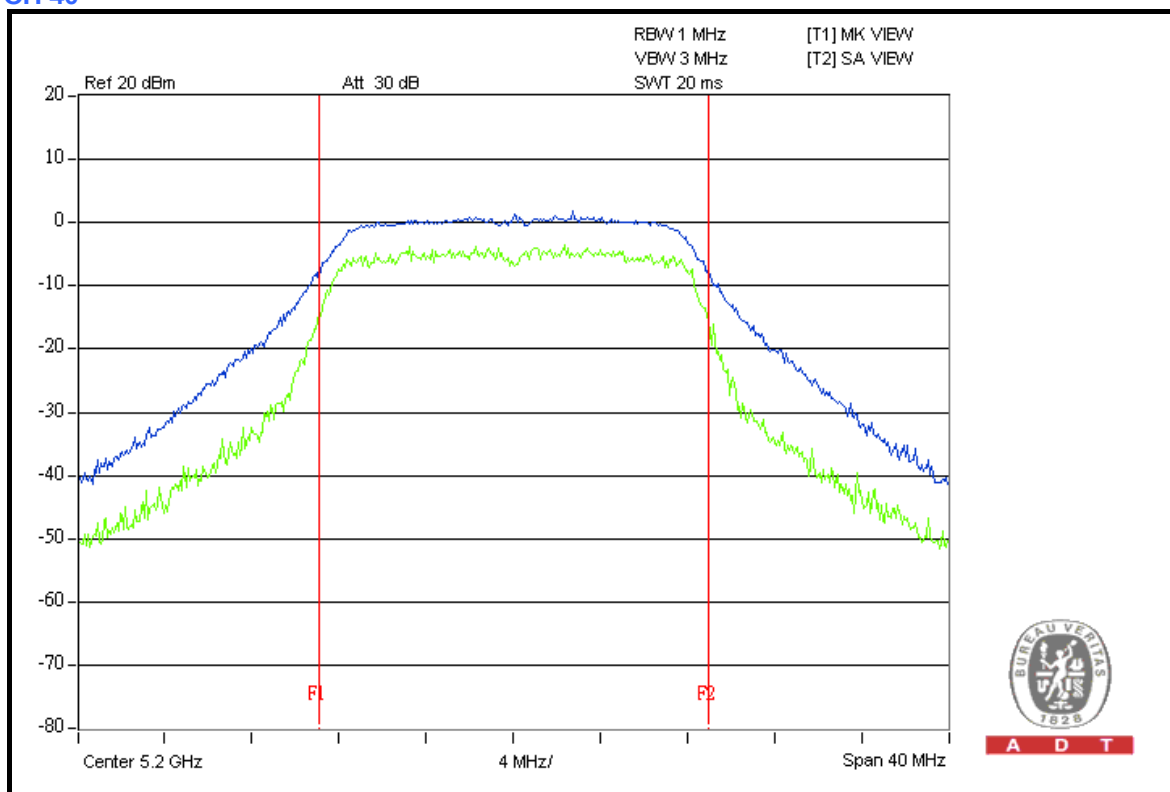
CHAIN 0: CH 36





A D T

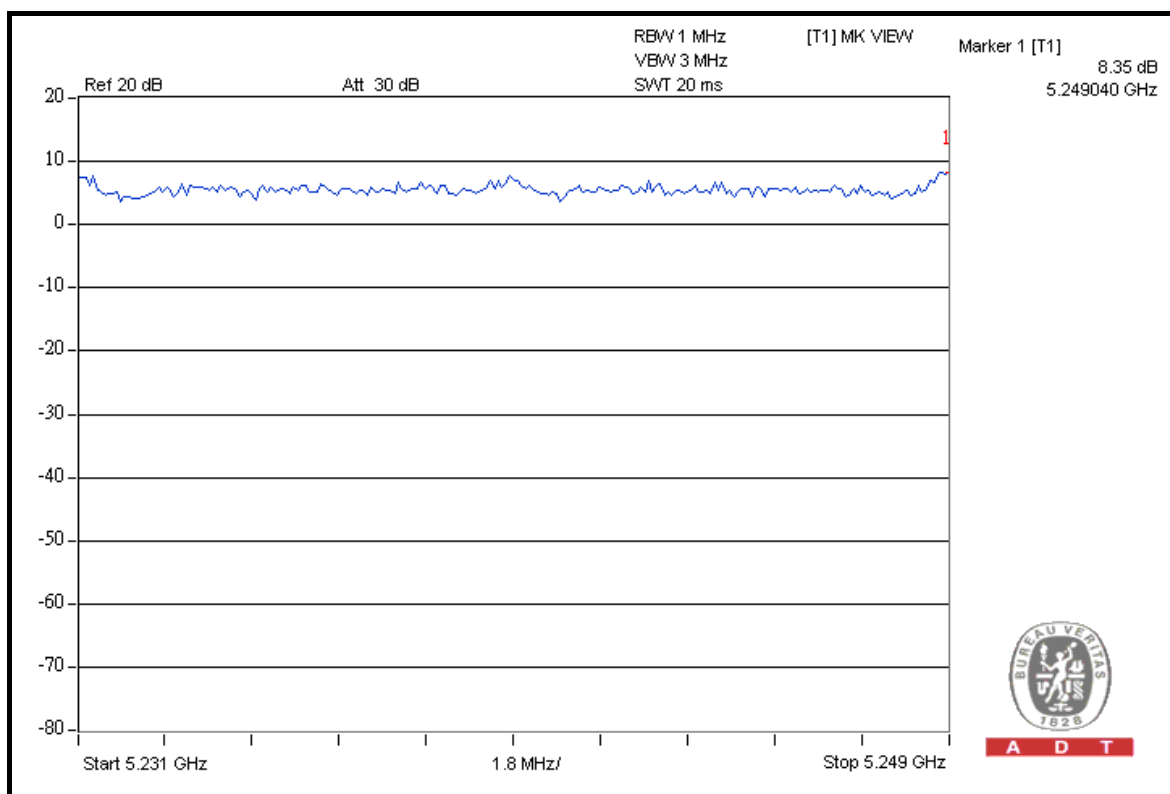
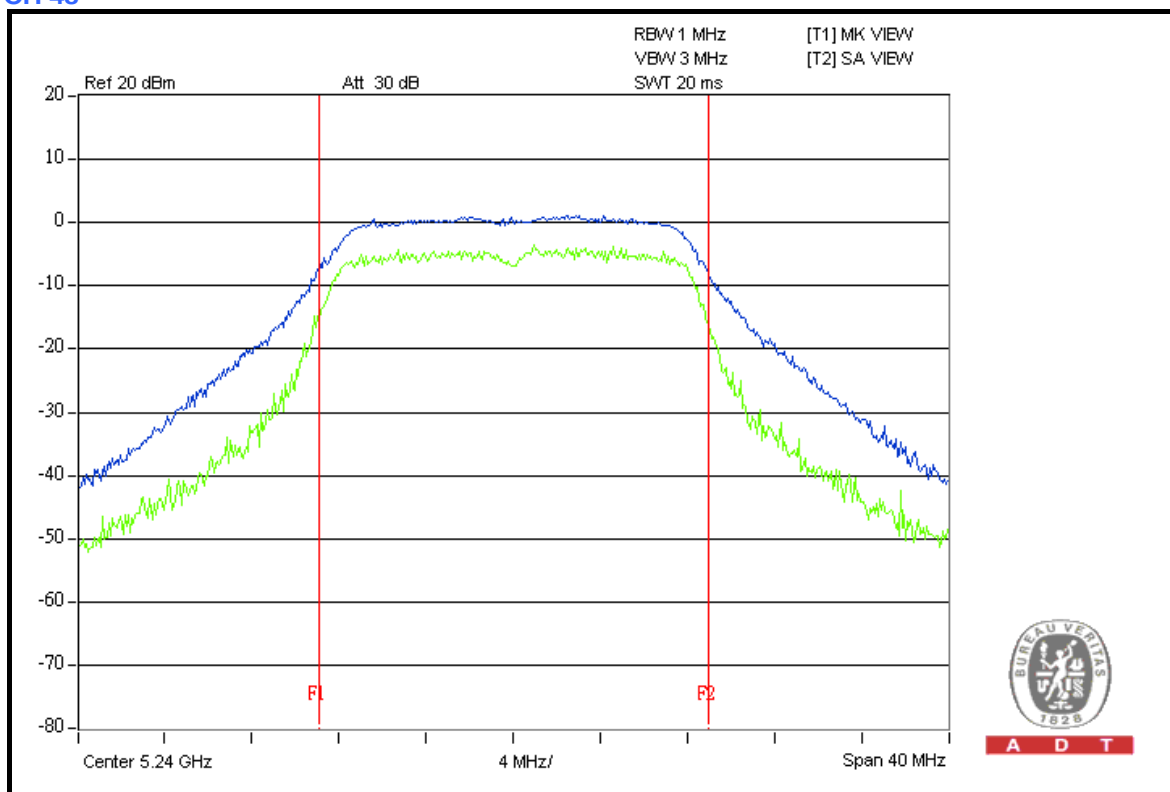
CH 40





A D T

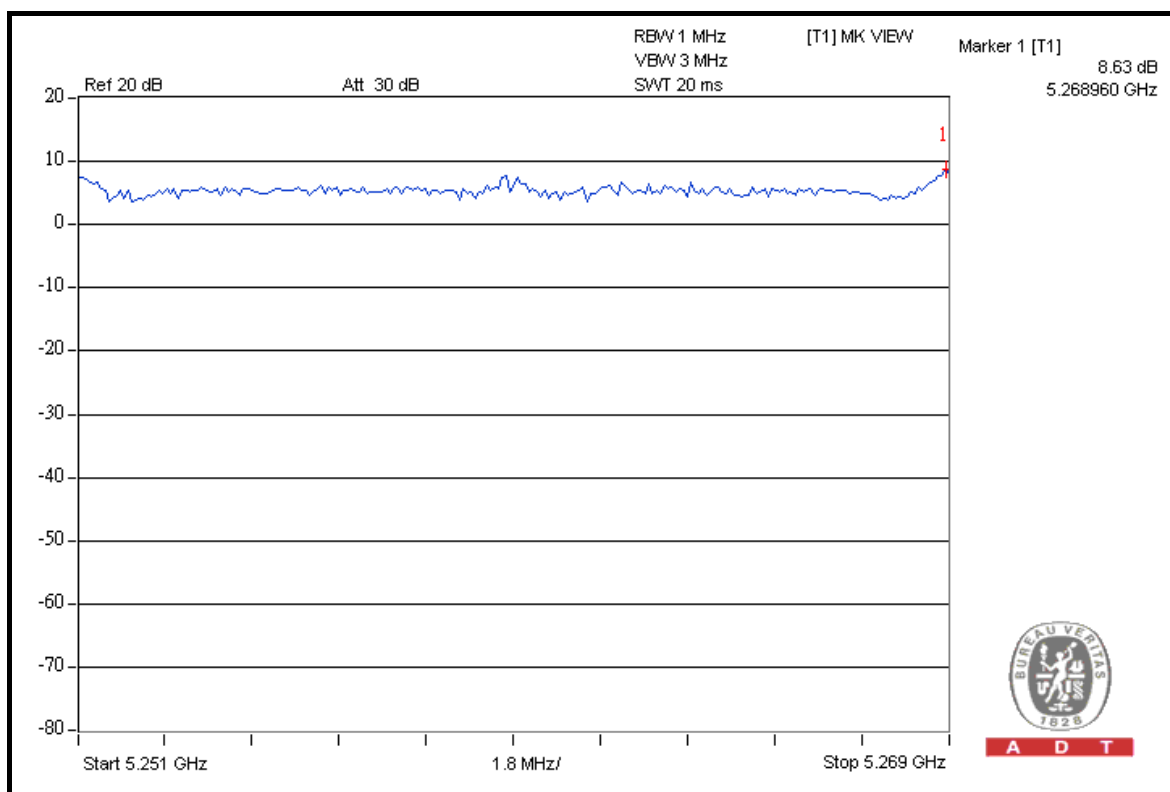
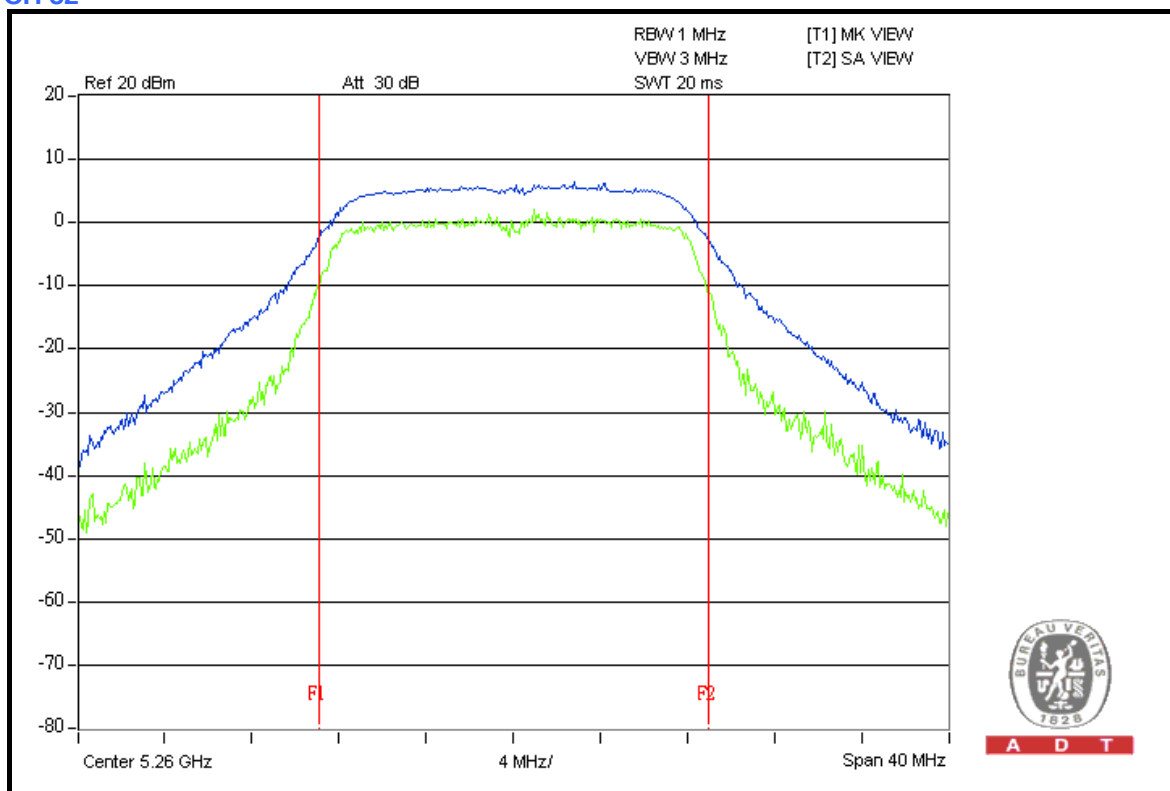
CH 48





A D T

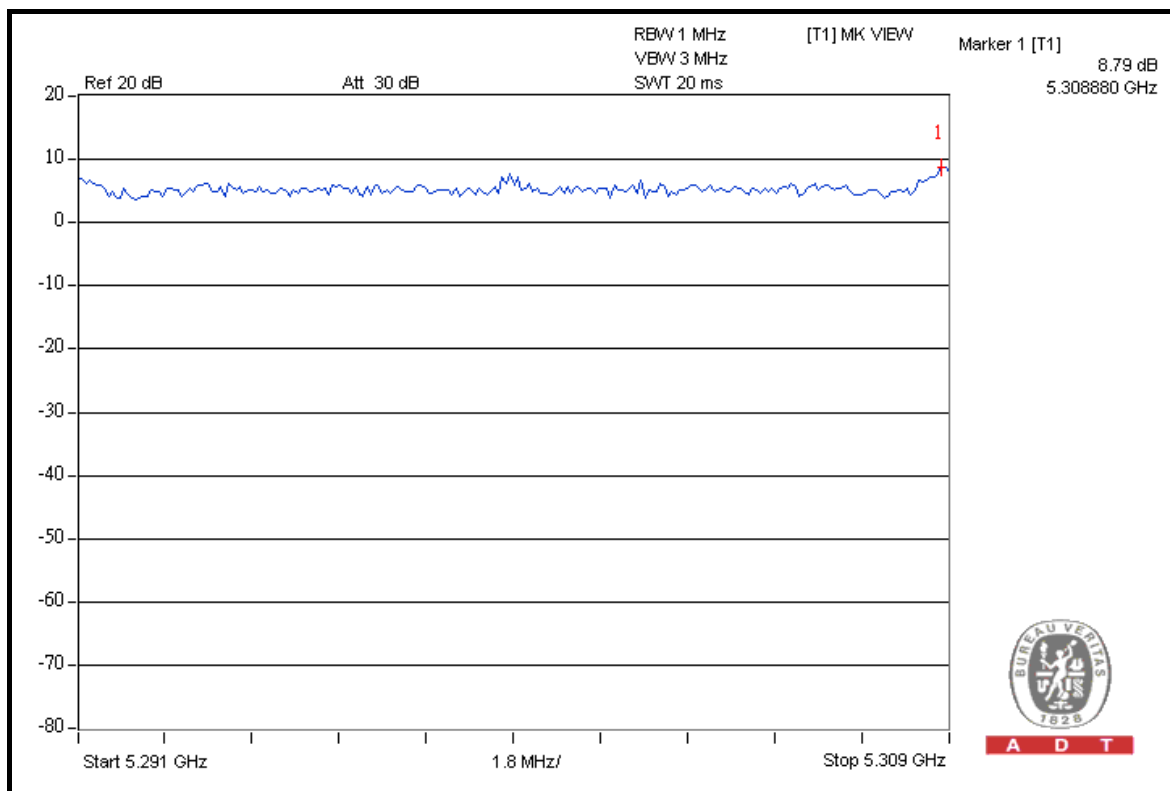
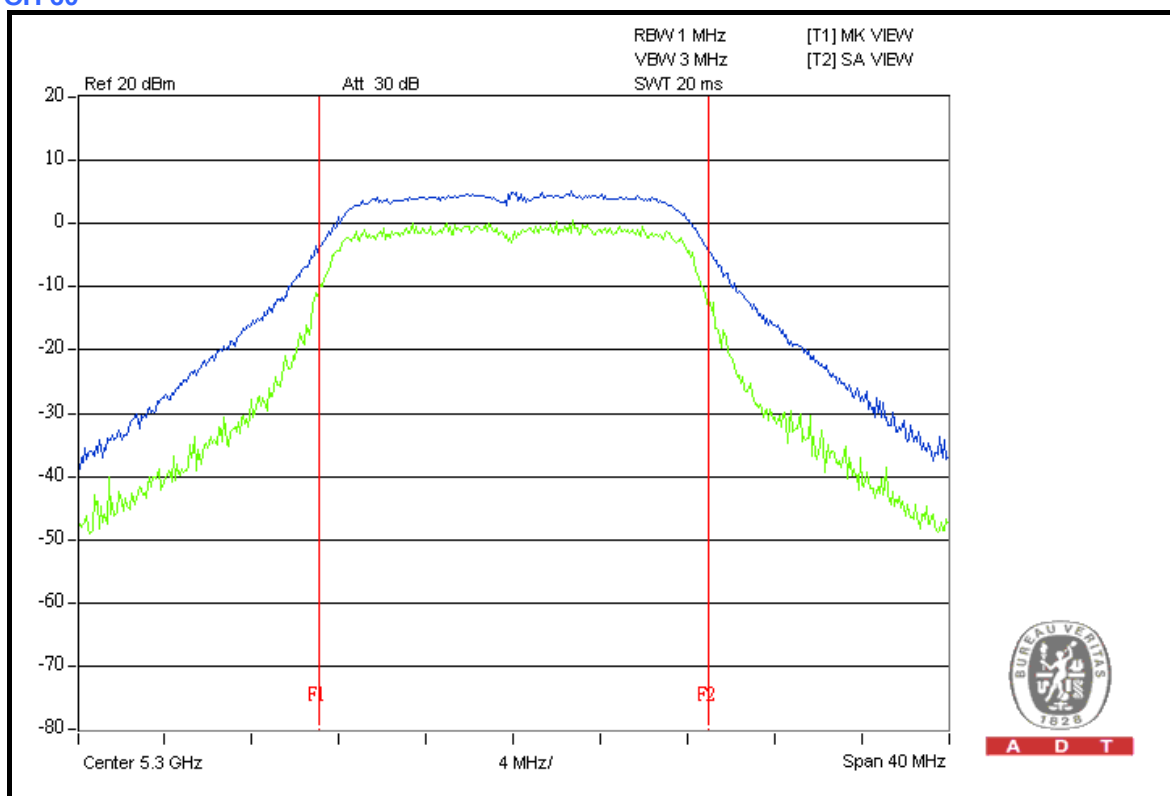
CH 52





A D T

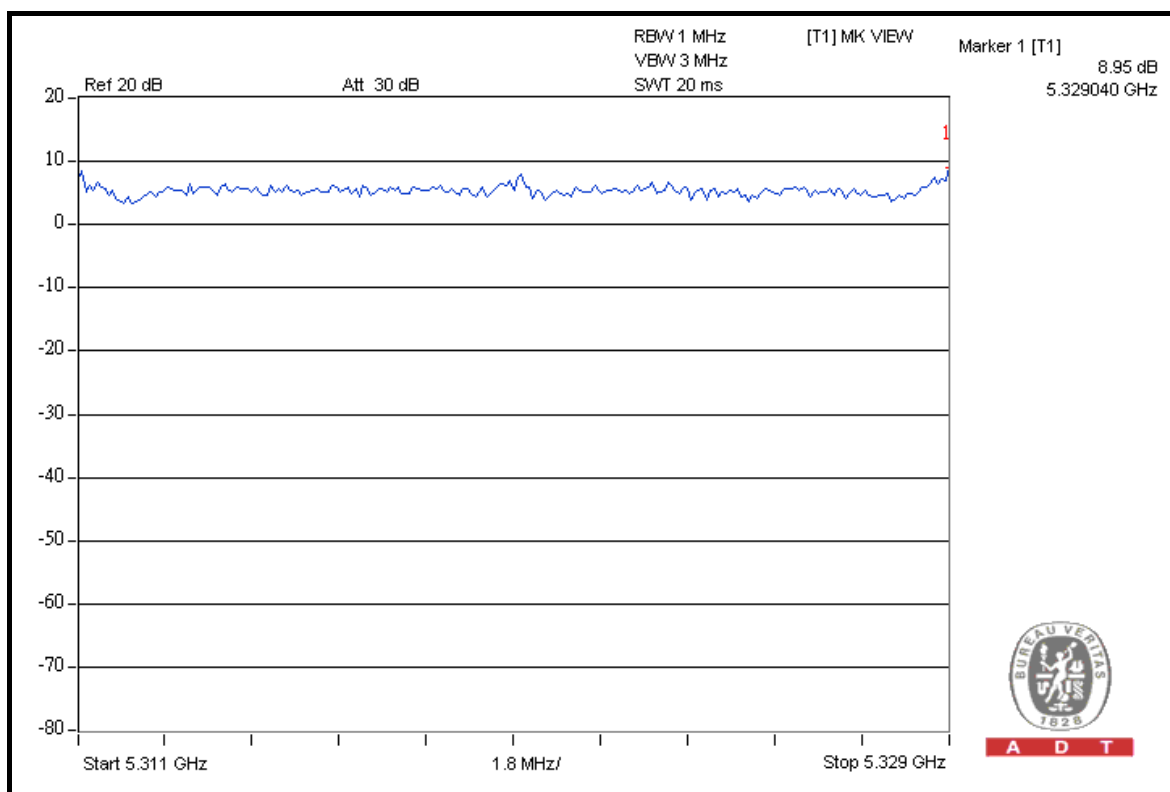
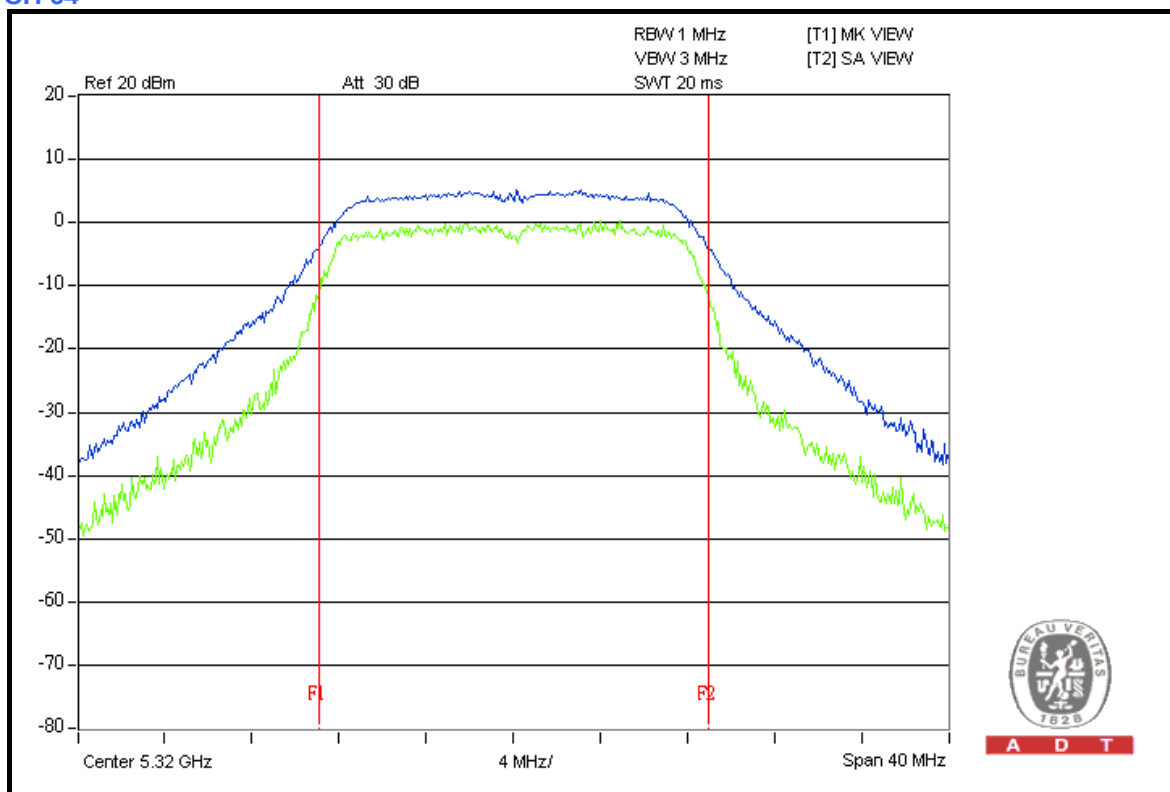
CH 60





A D T

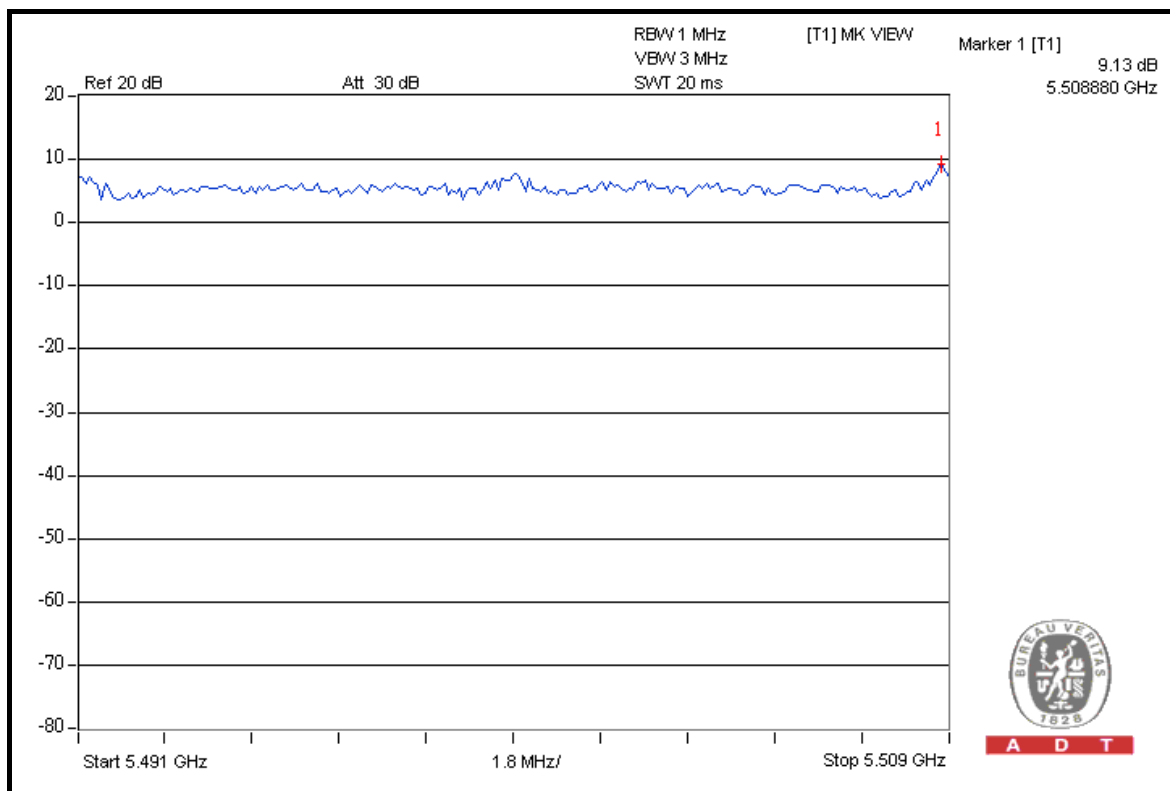
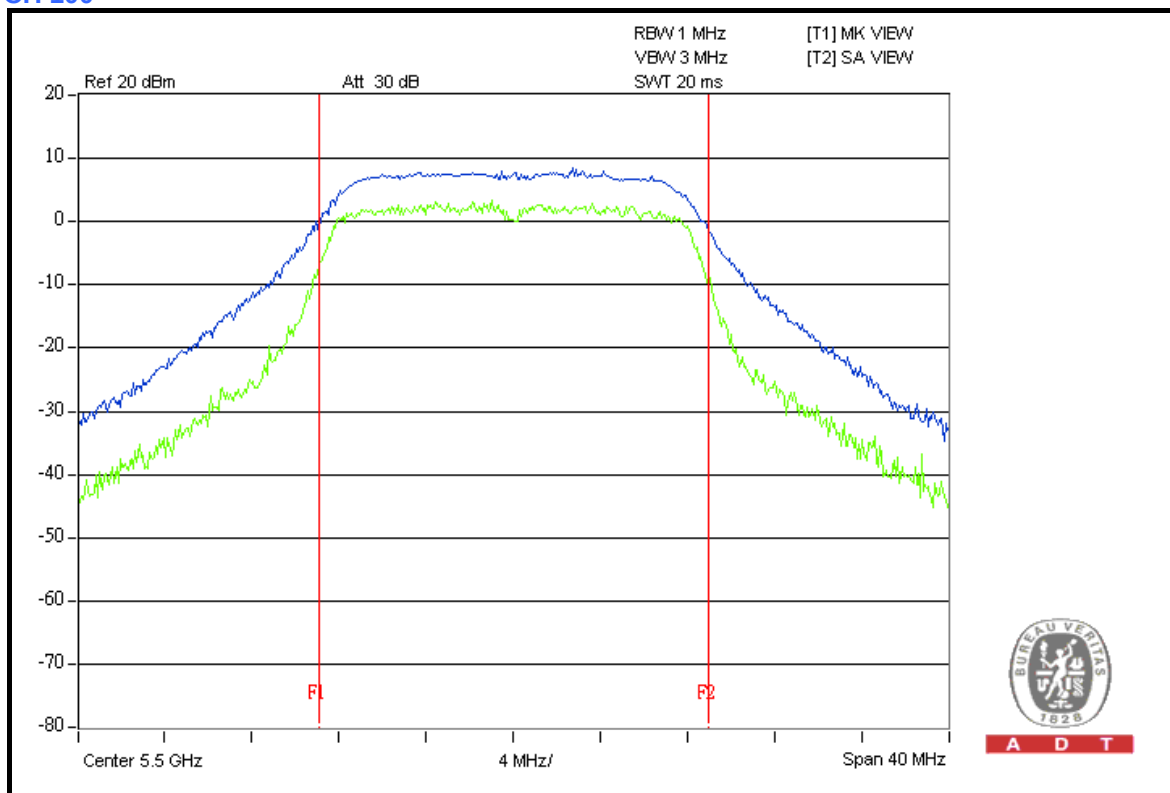
CH 64





A D T

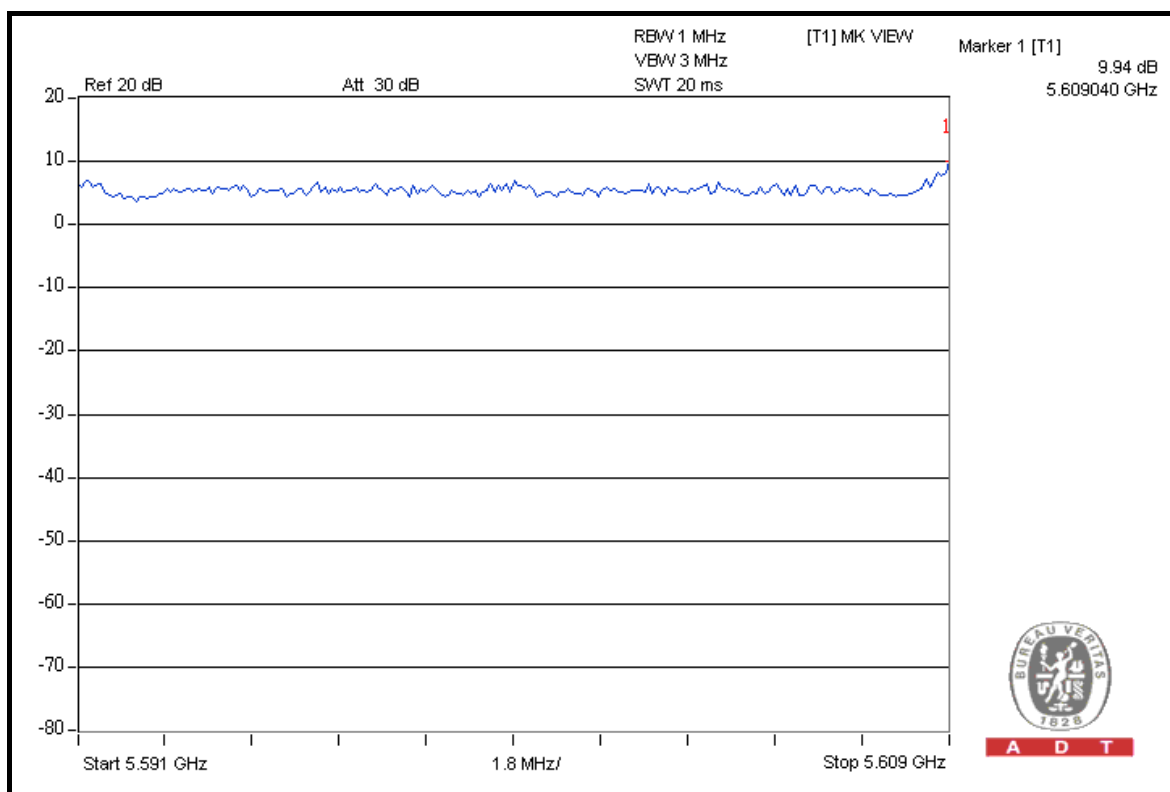
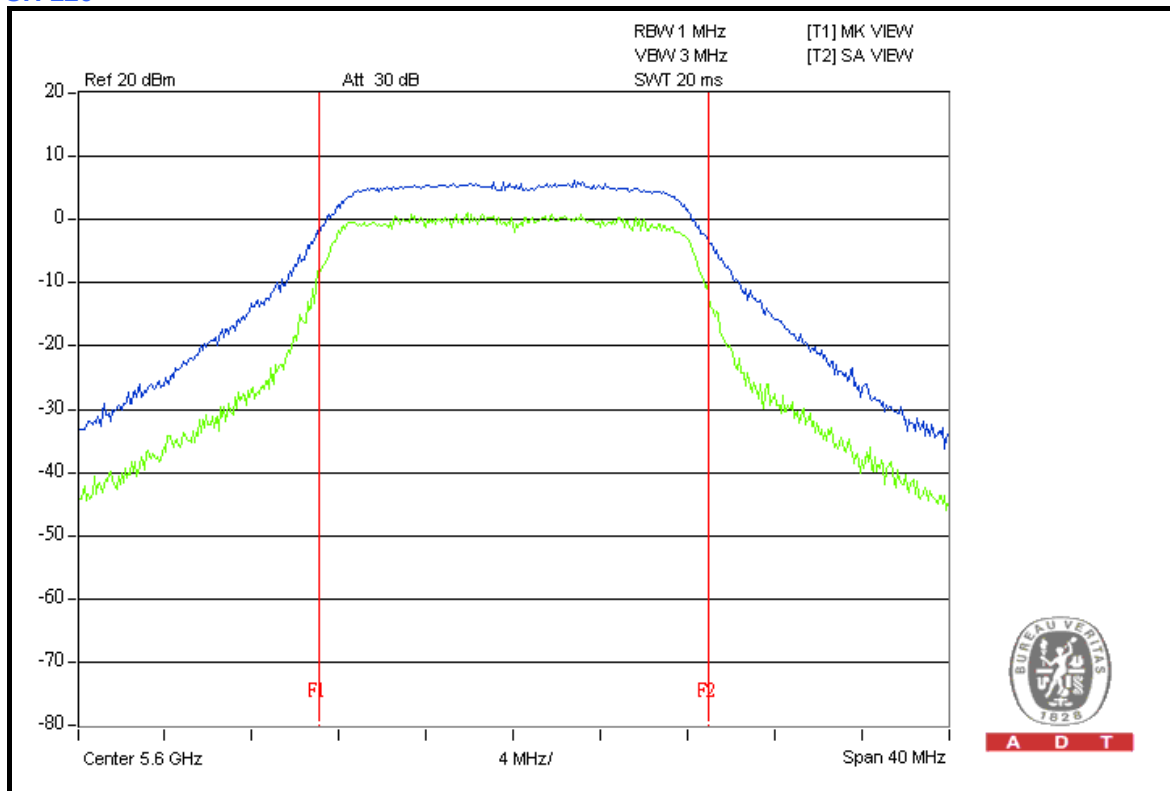
CH 100





A D T

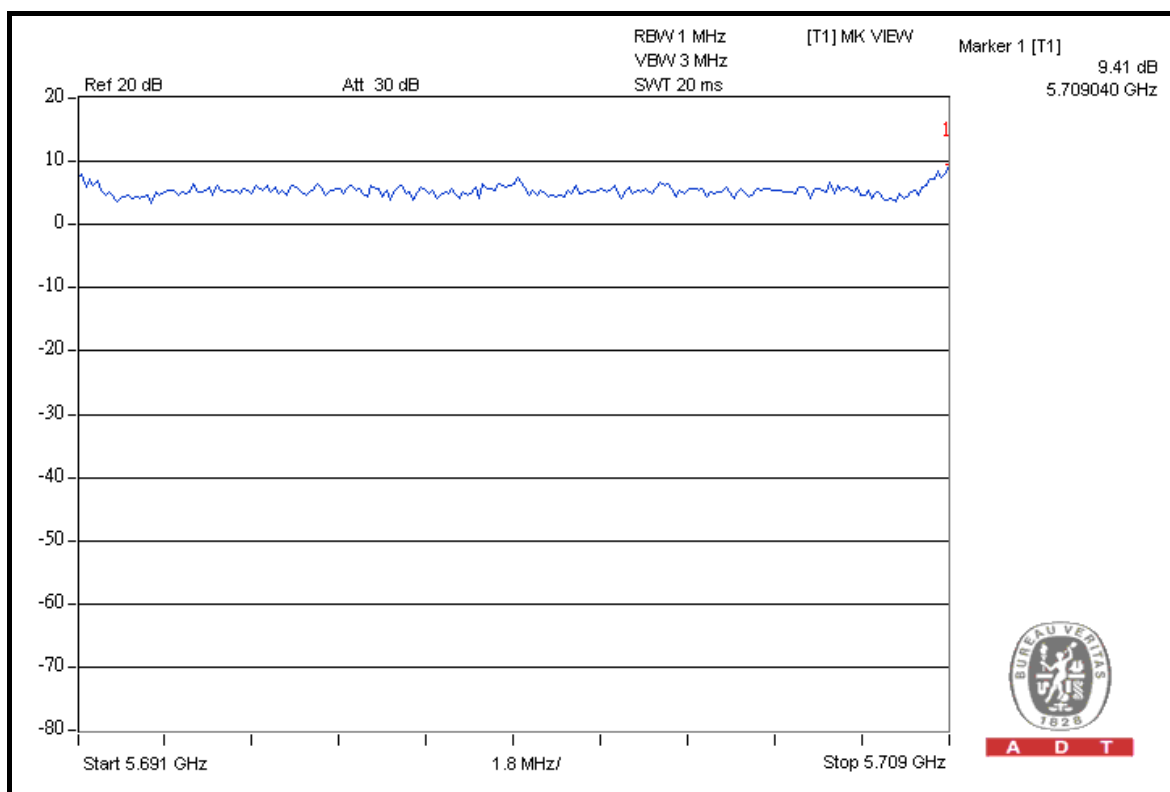
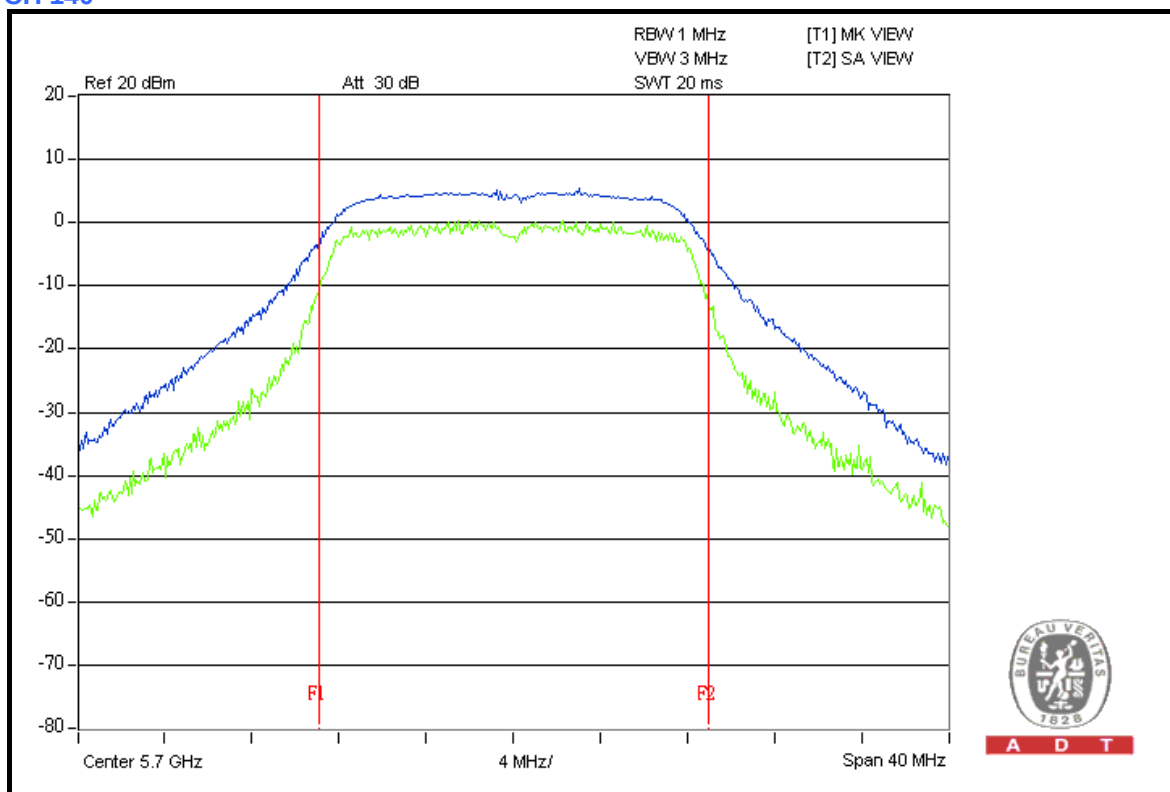
CH 120





A D T

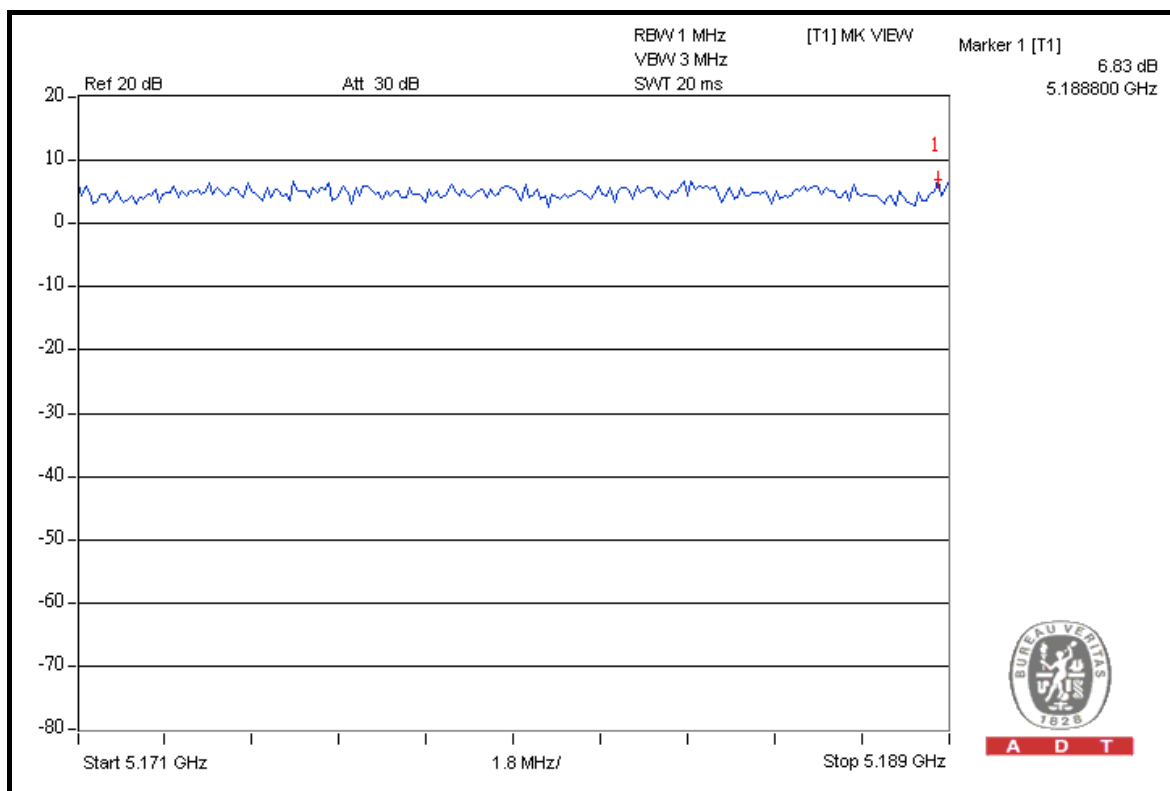
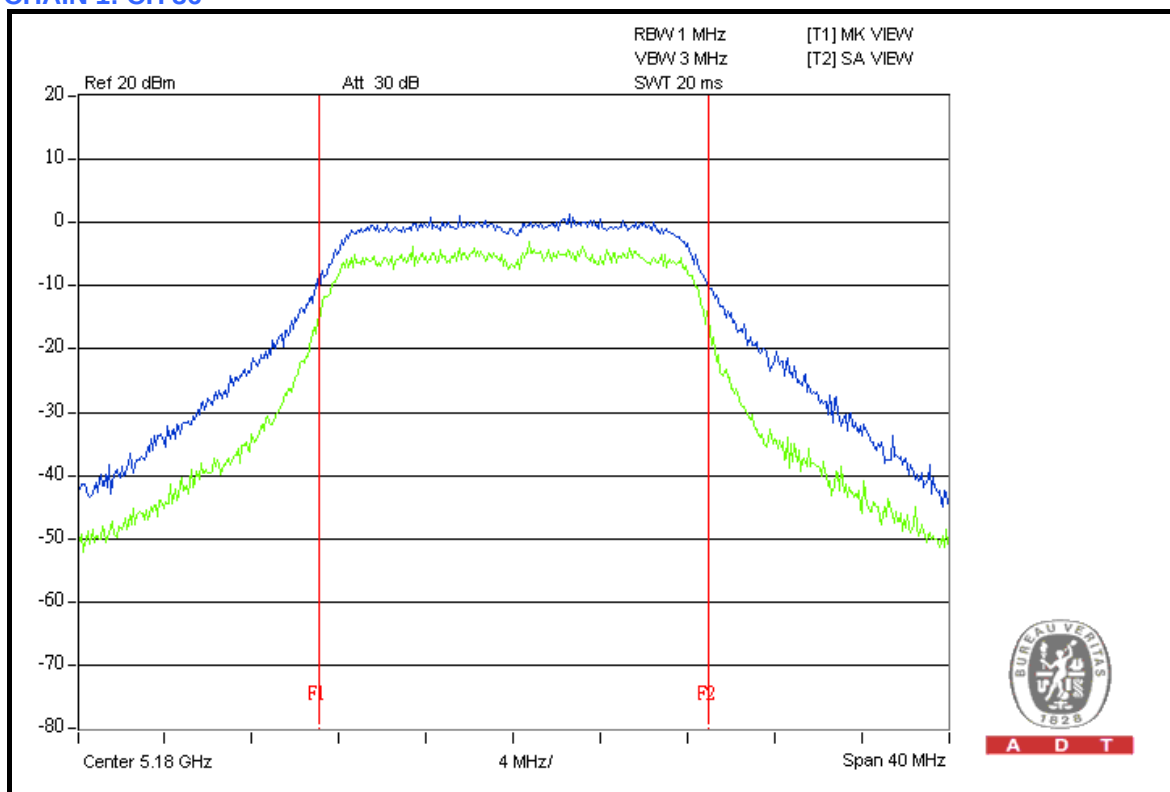
CH 140





A D T

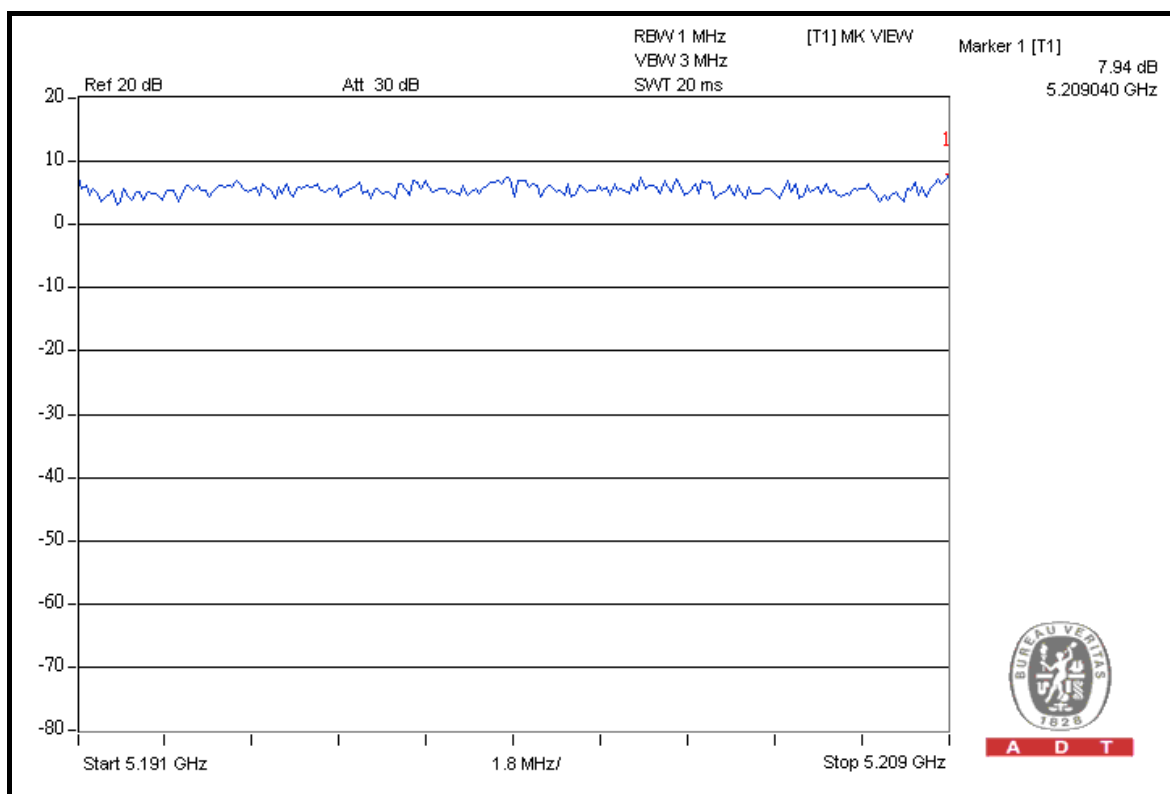
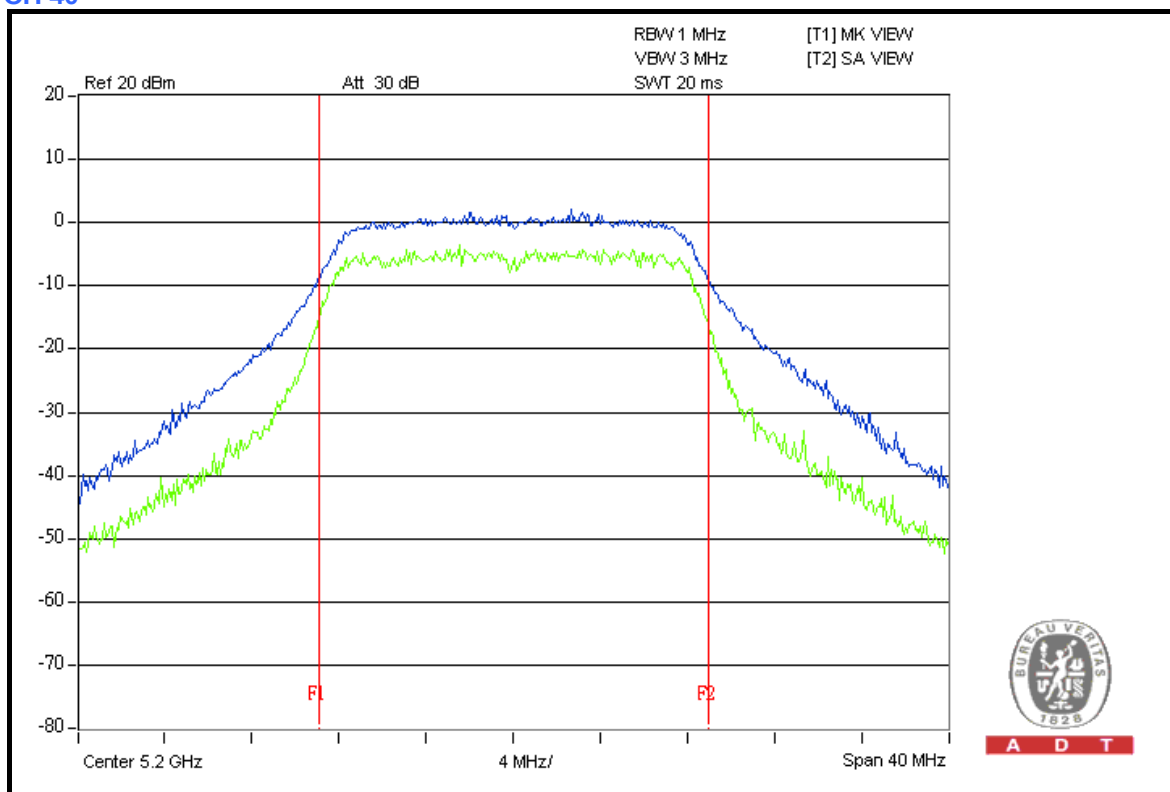
CHAIN 1: CH 36





A D T

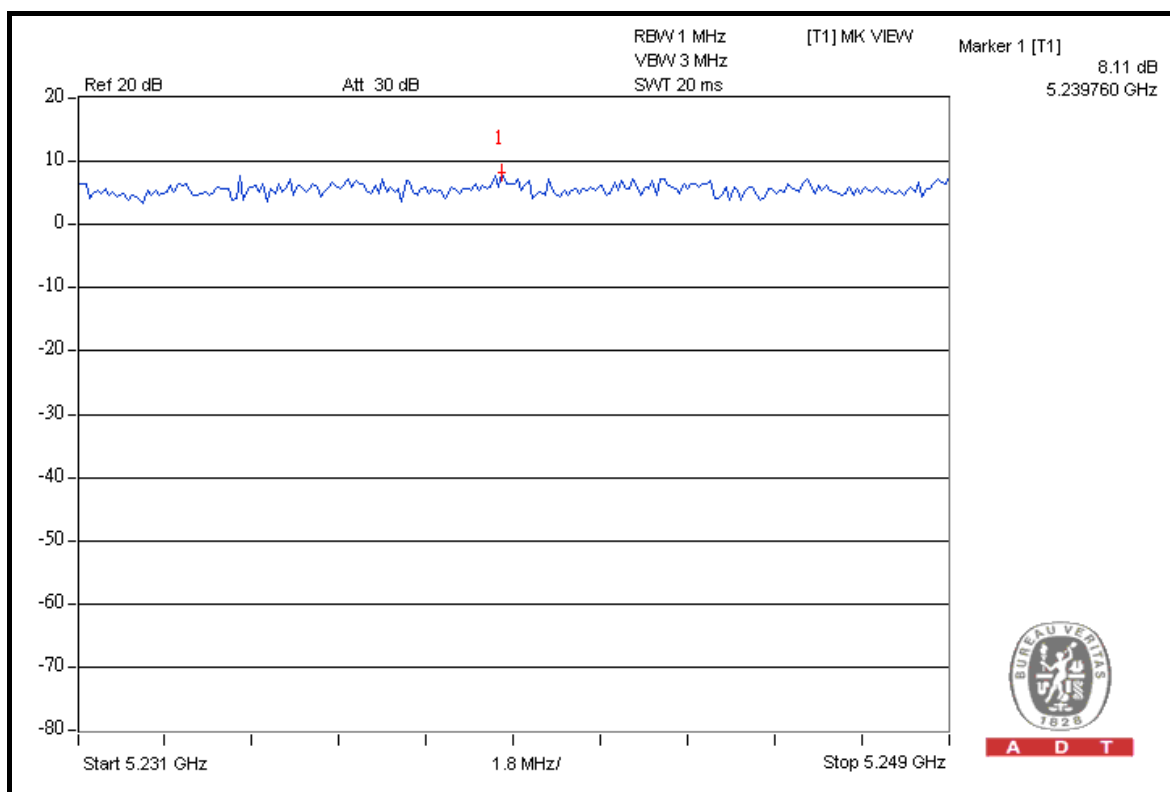
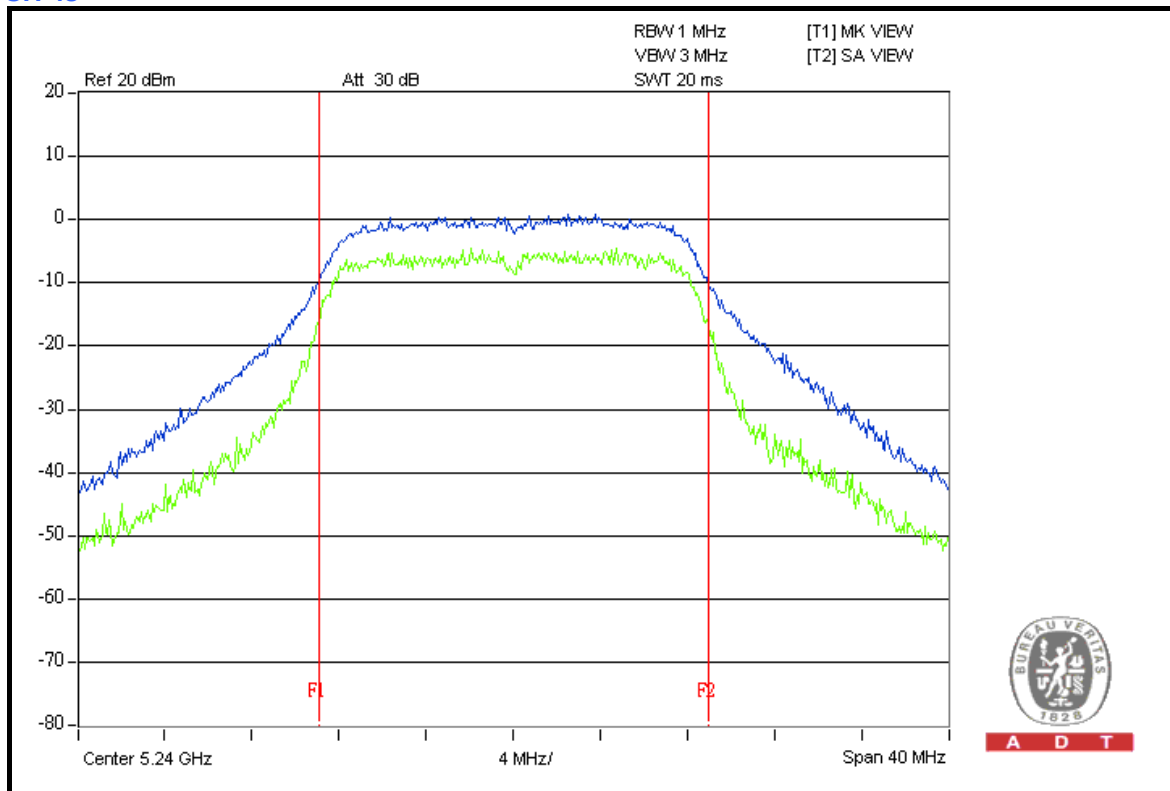
CH 40





A D T

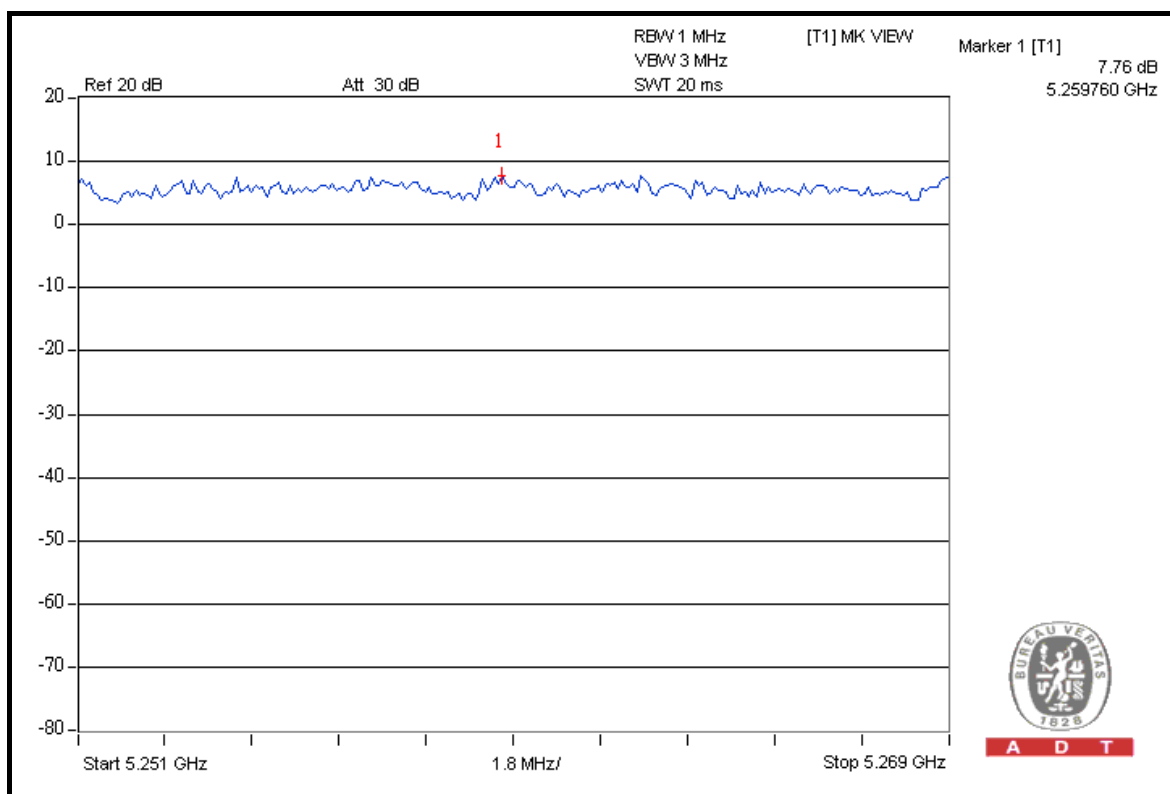
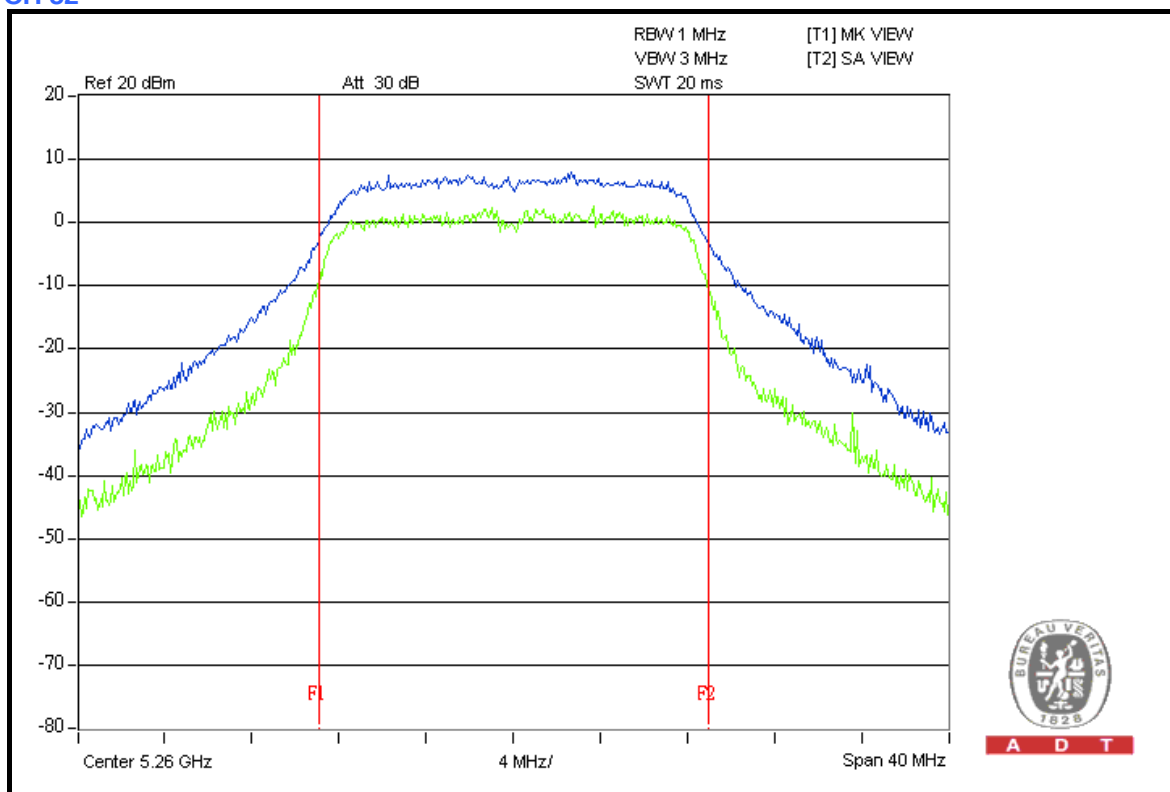
CH 48





A D T

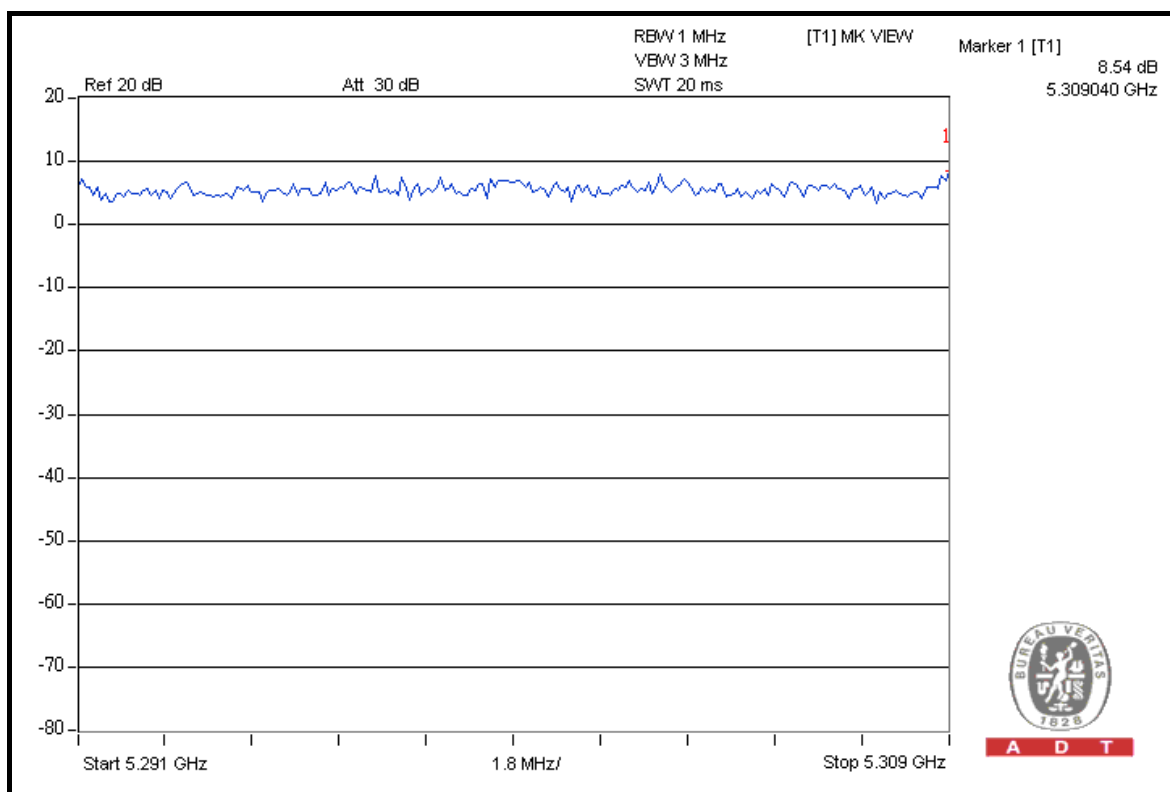
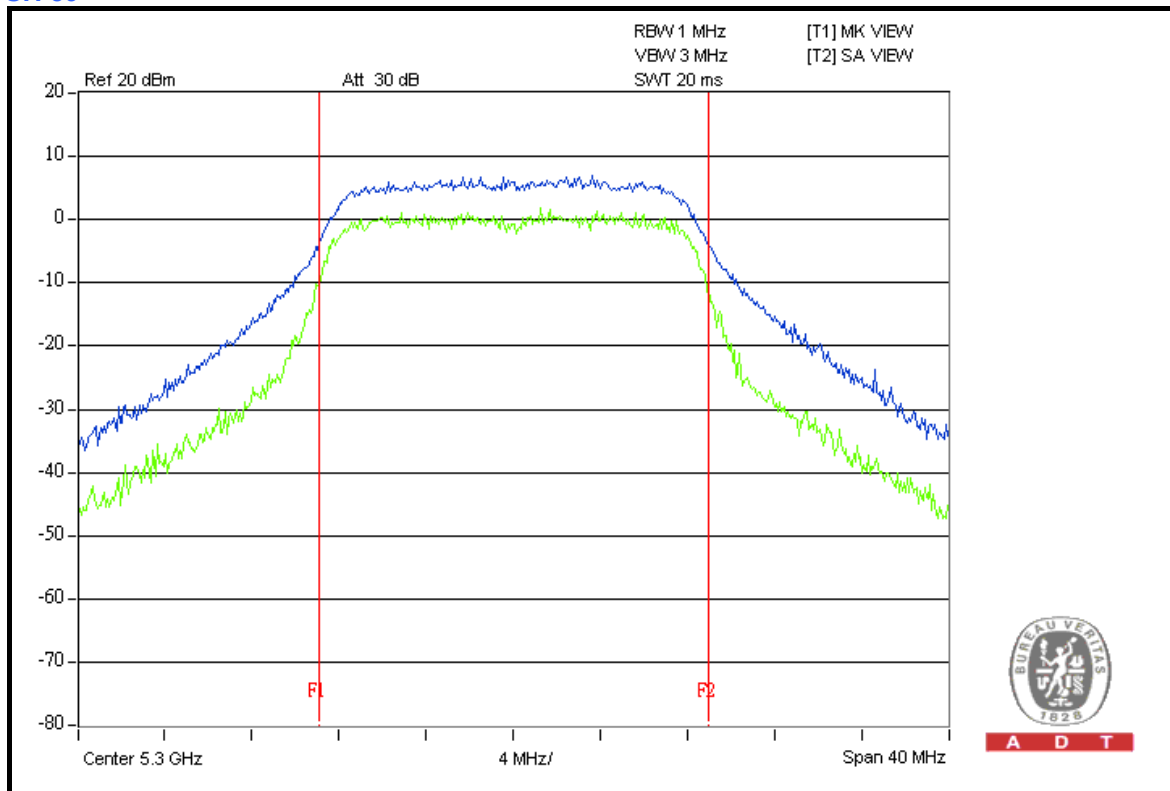
CH 52





A D T

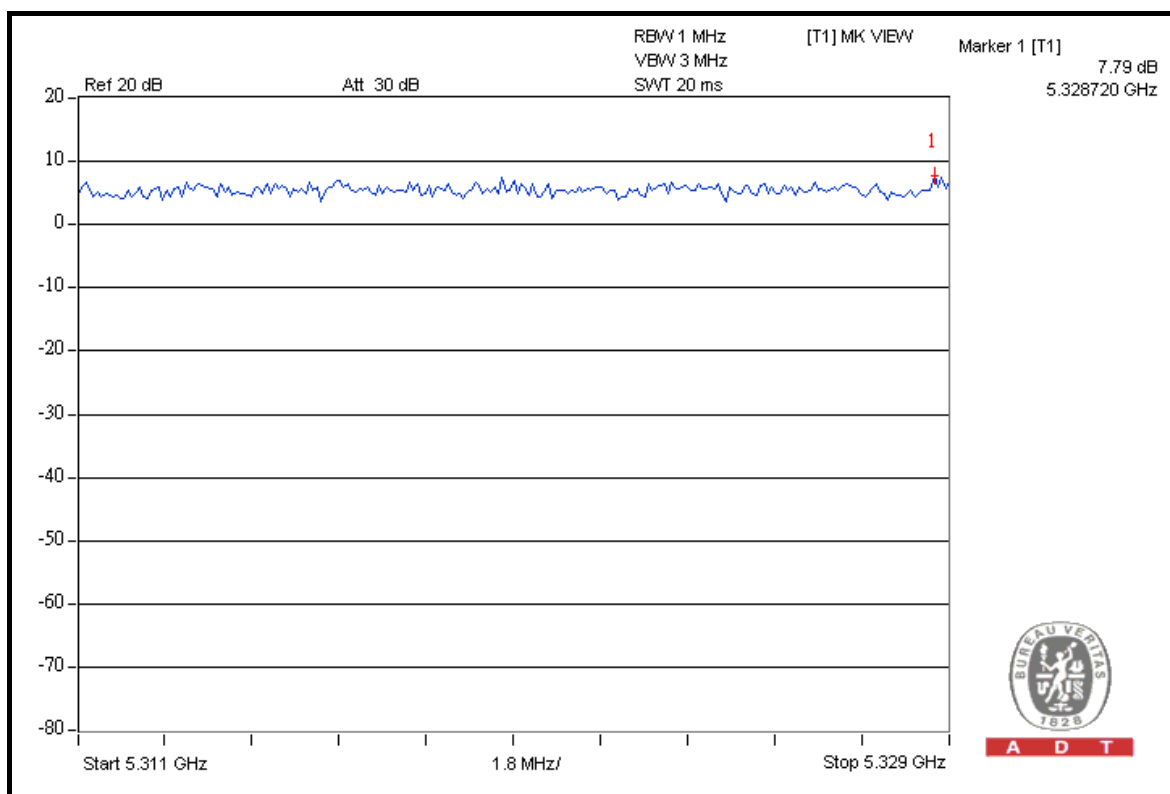
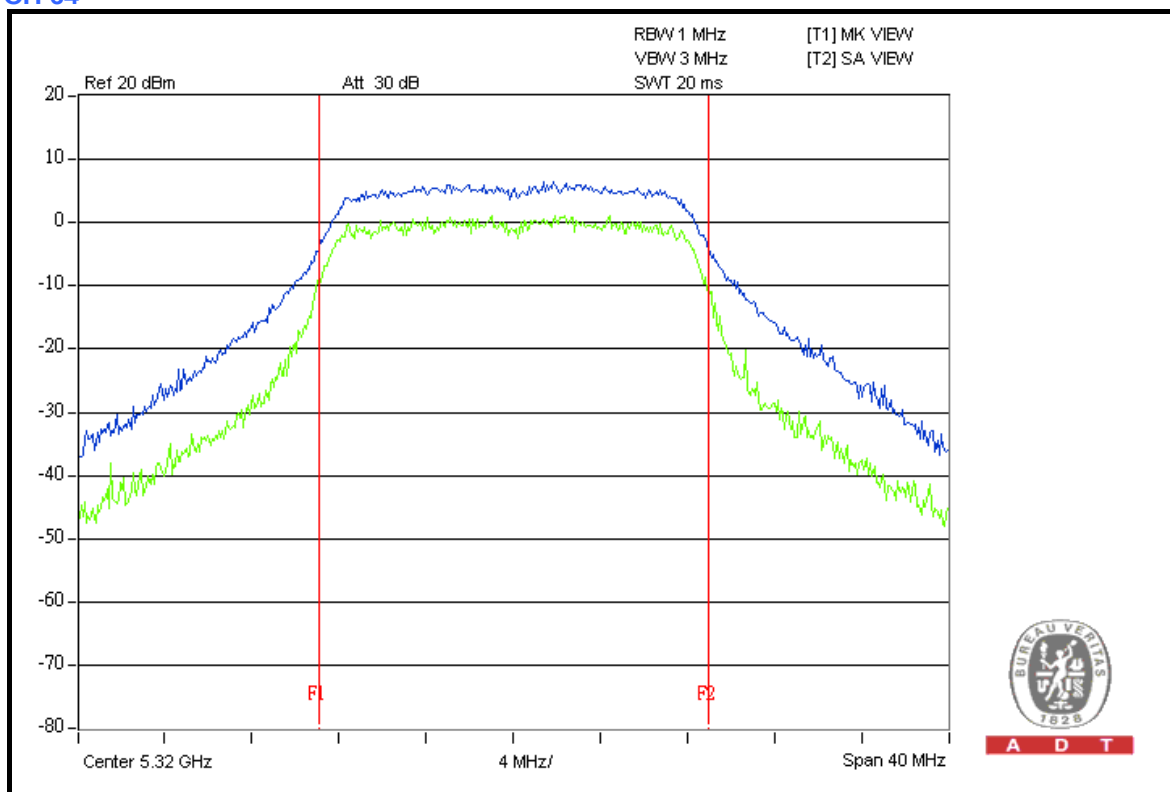
CH 60





A D T

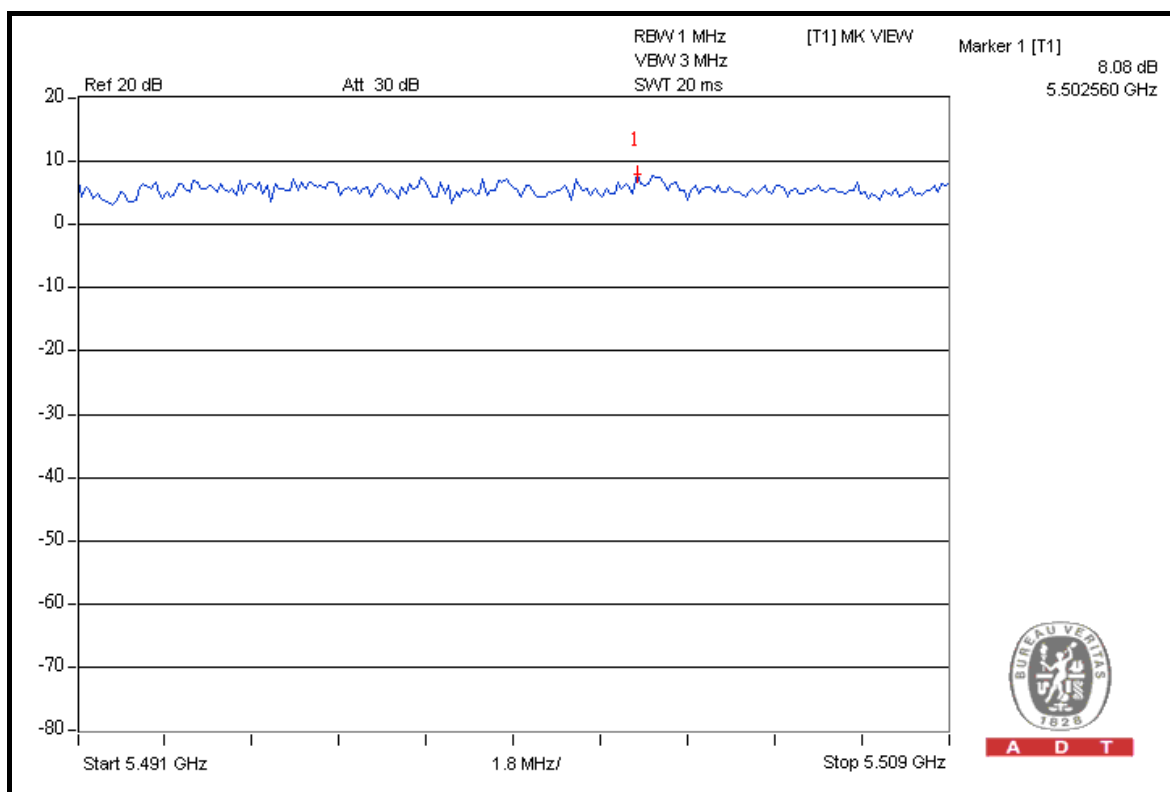
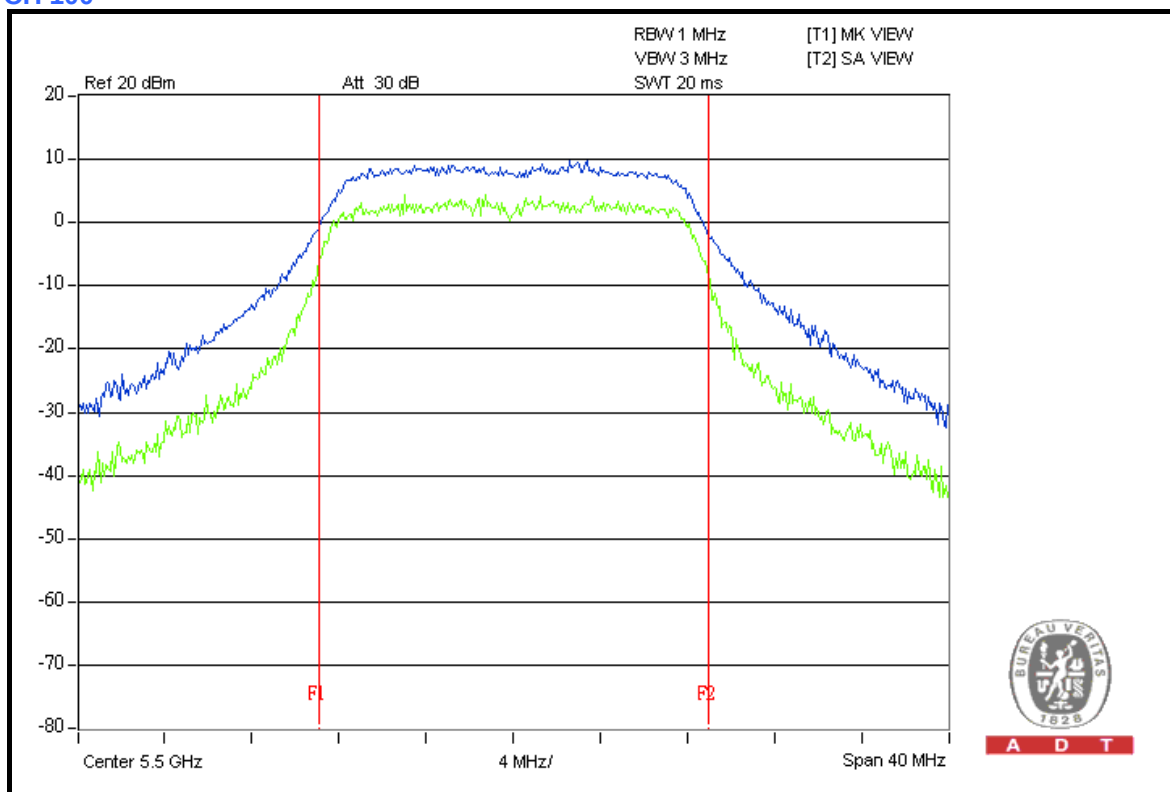
CH 64





A D T

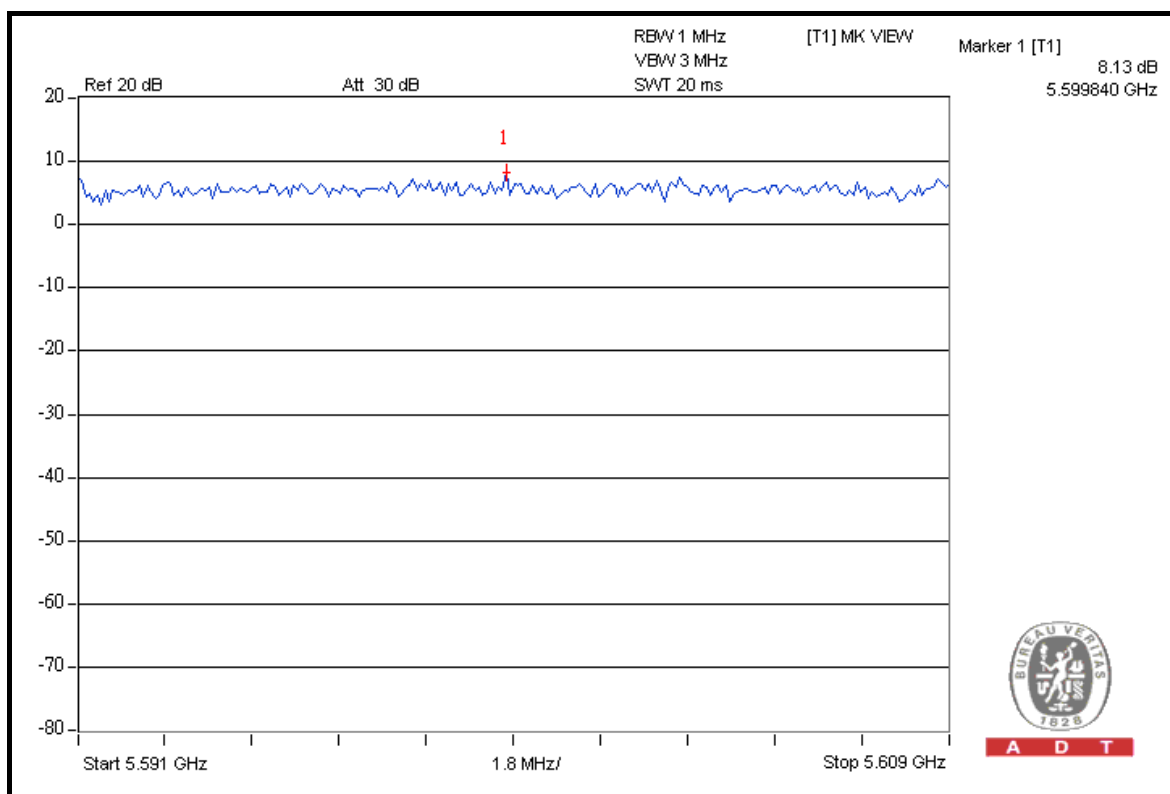
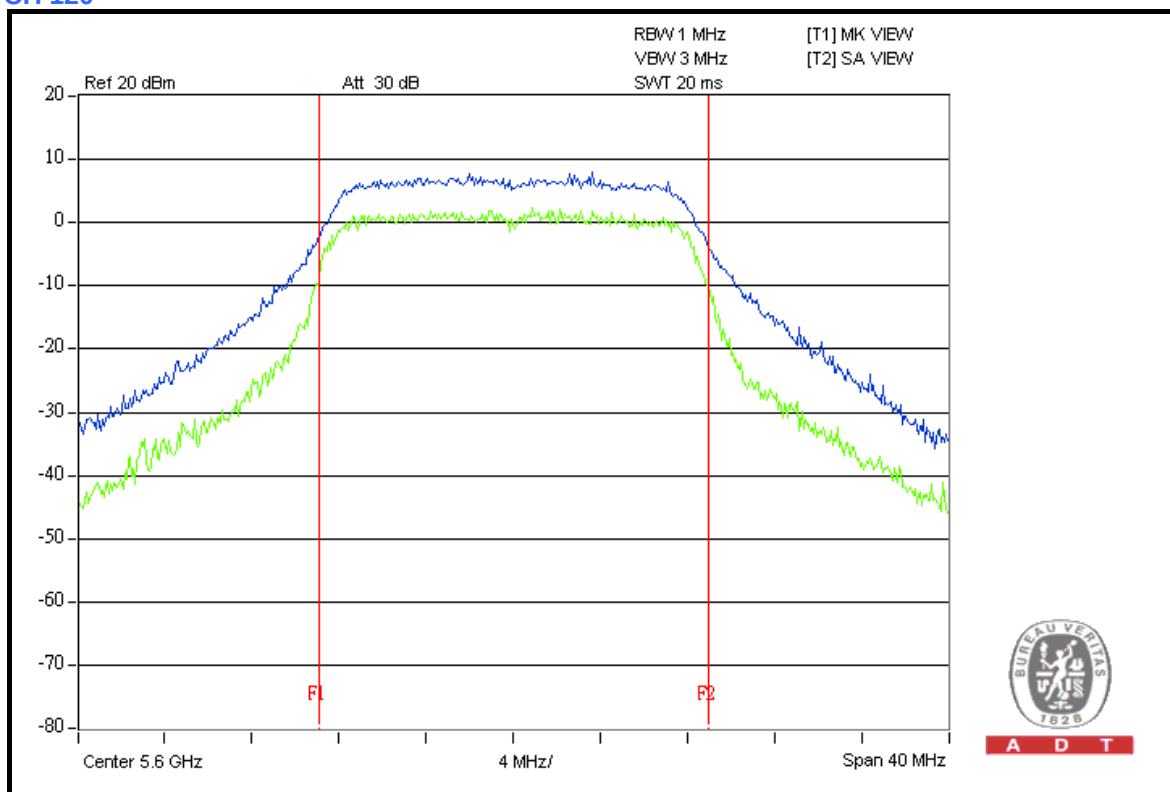
CH 100





A D T

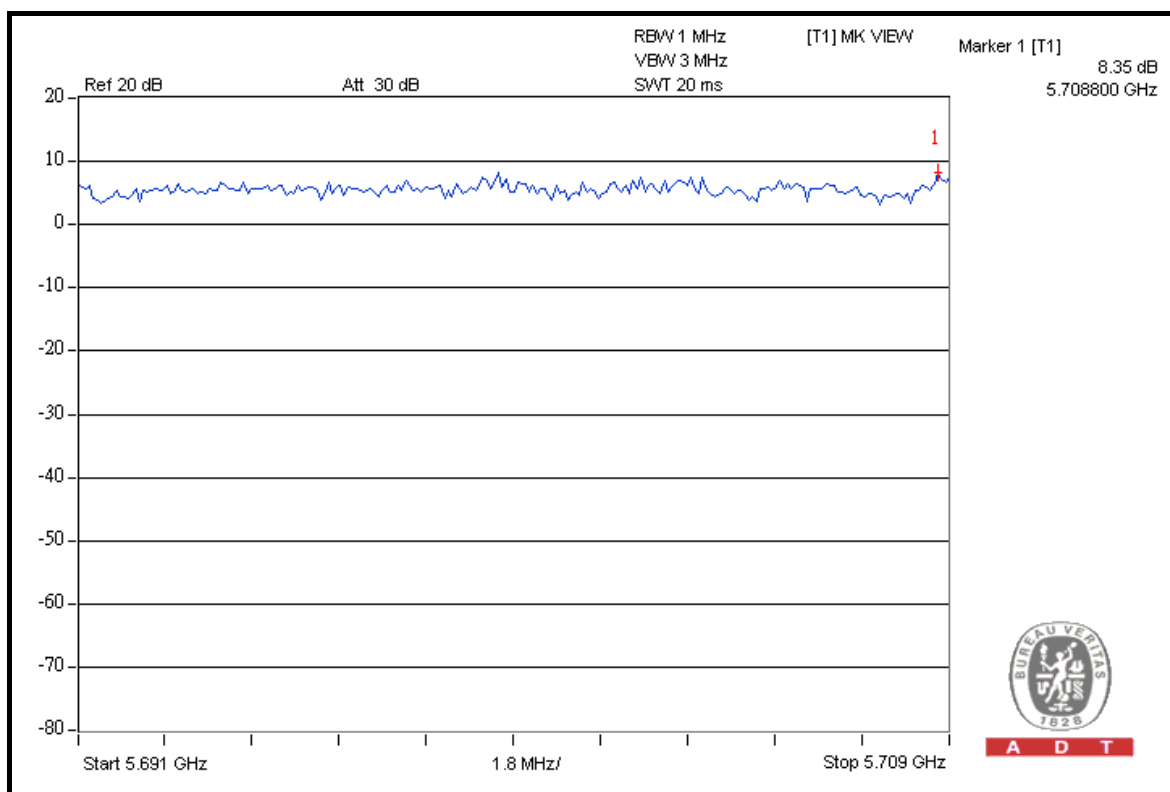
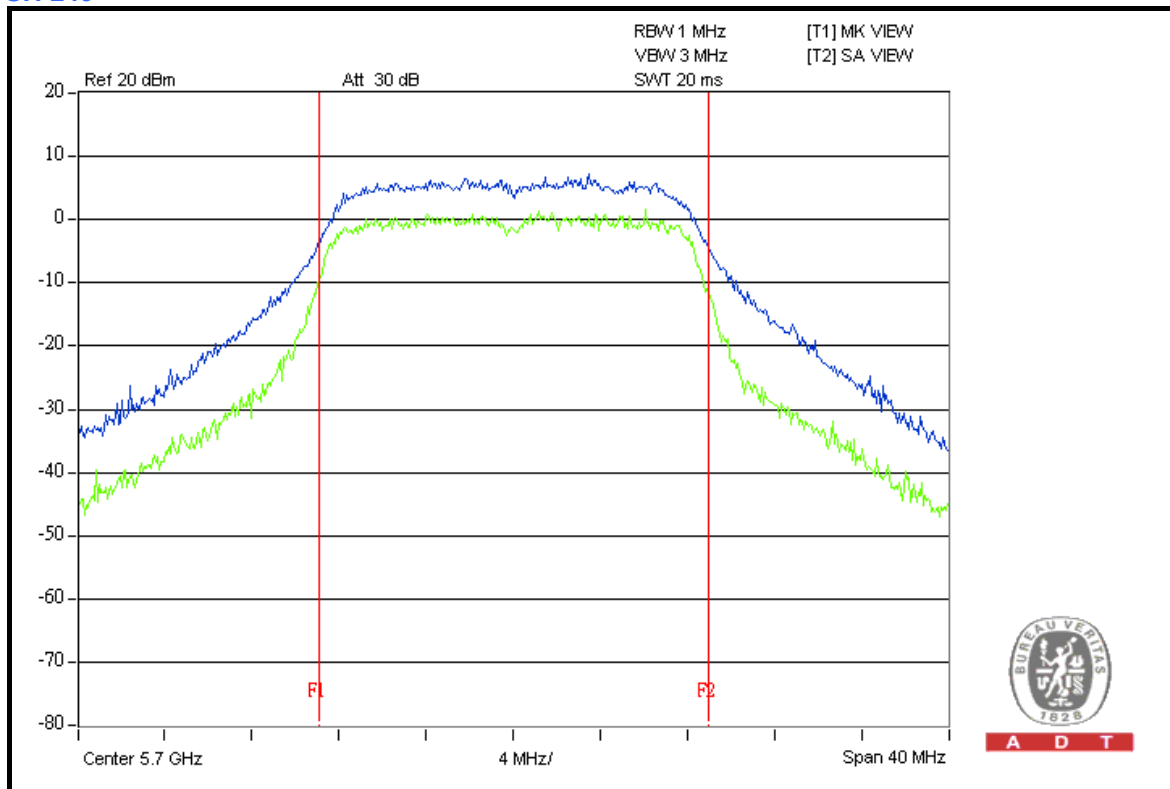
CH 120





A D T

CH 140





A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

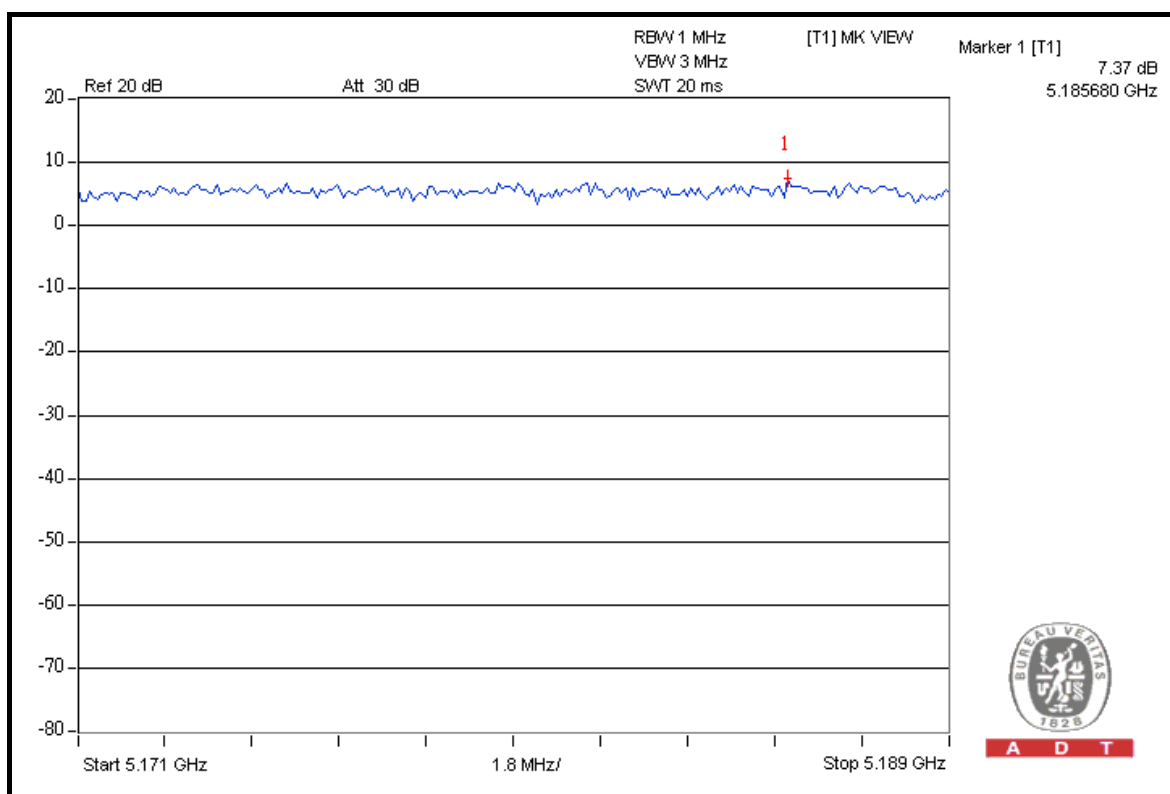
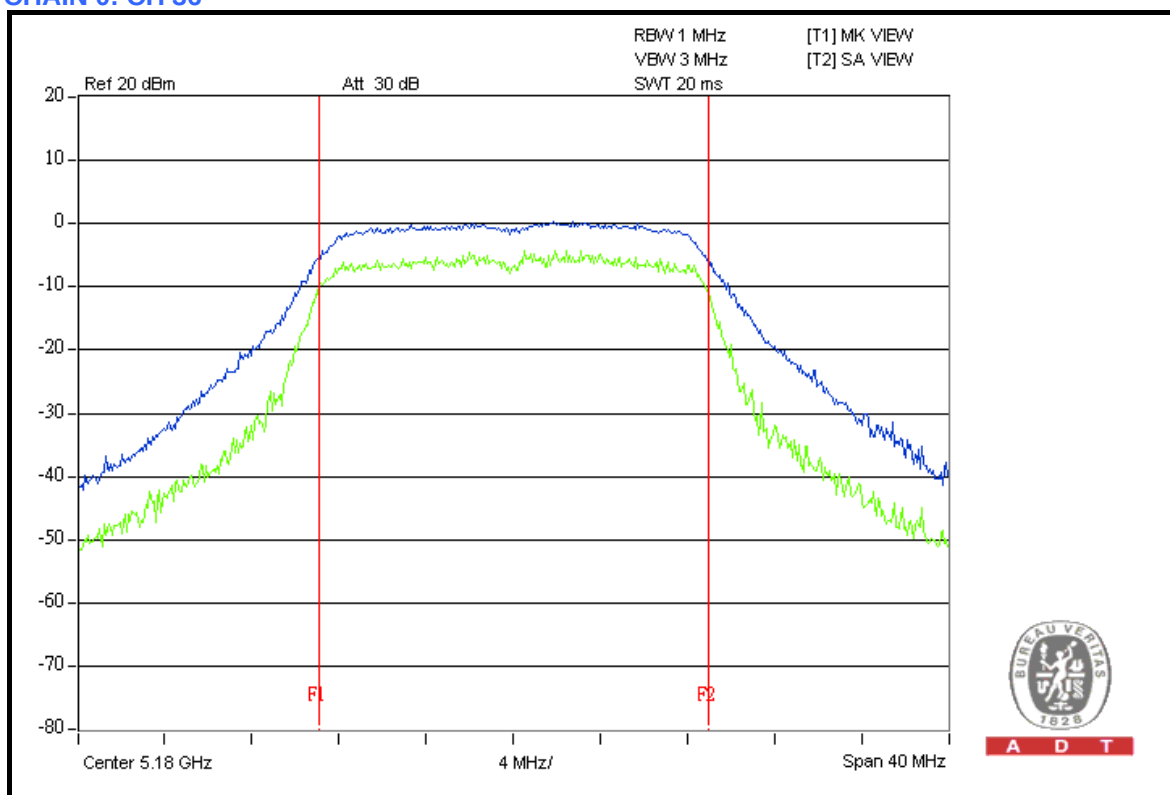
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	7.37	7.80	13	PASS
40	5200	8.24	7.01	13	PASS
48	5240	7.41	7.30	13	PASS
52	5260	8.41	7.01	13	PASS
60	5300	8.13	6.91	13	PASS
64	5320	7.70	7.25	13	PASS
100	5500	7.97	6.77	13	PASS
120	5600	7.89	7.10	13	PASS
140	5700	6.78	6.90	13	PASS



A D T

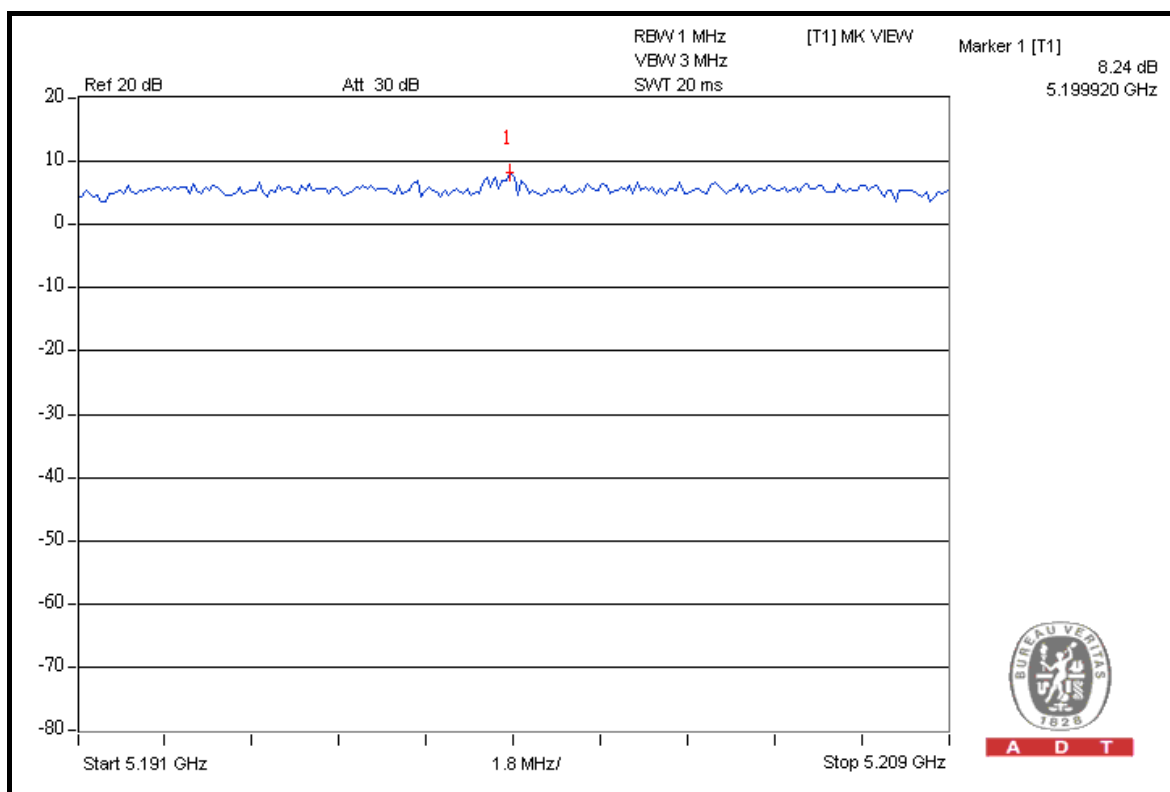
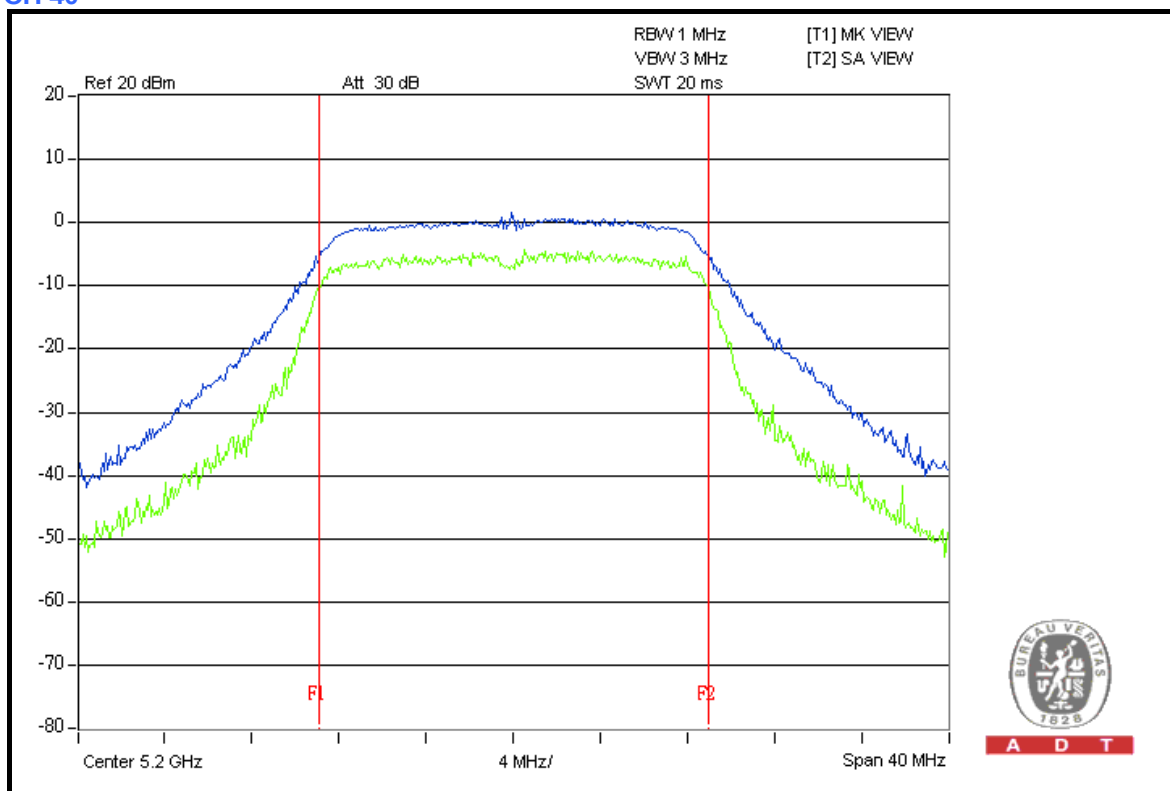
CHAIN 0: CH 36





A D T

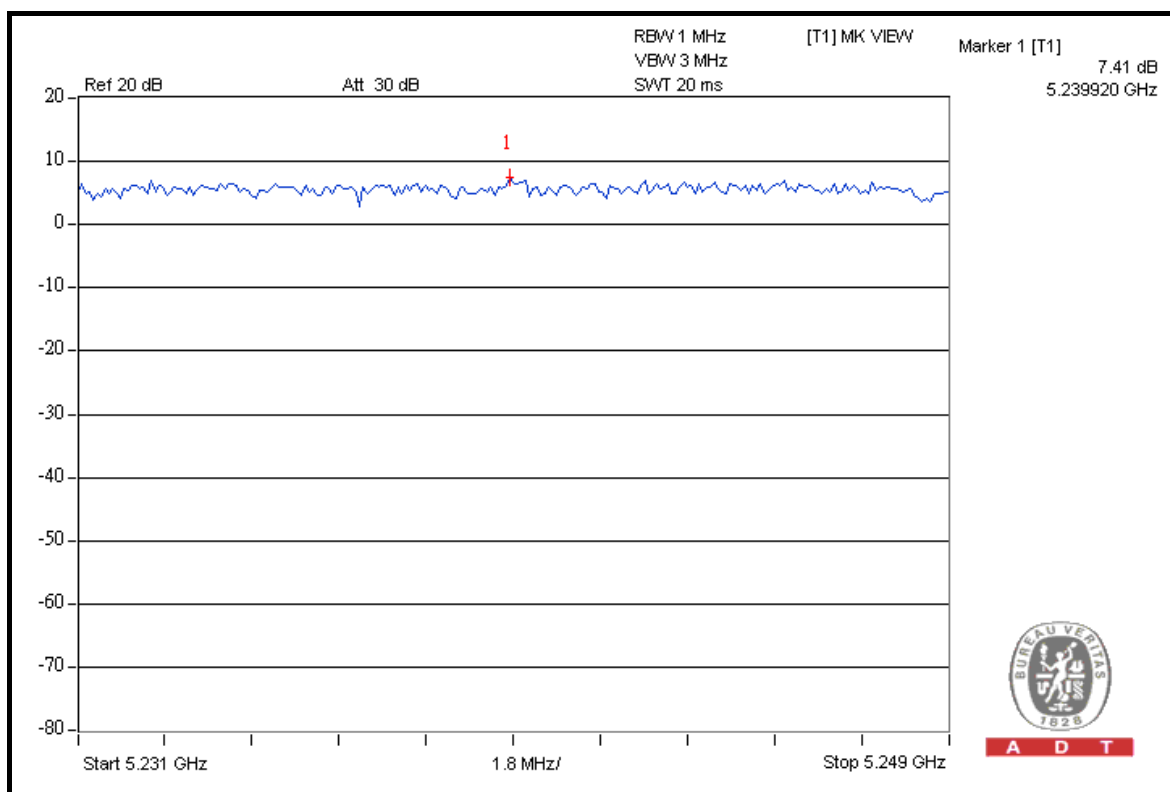
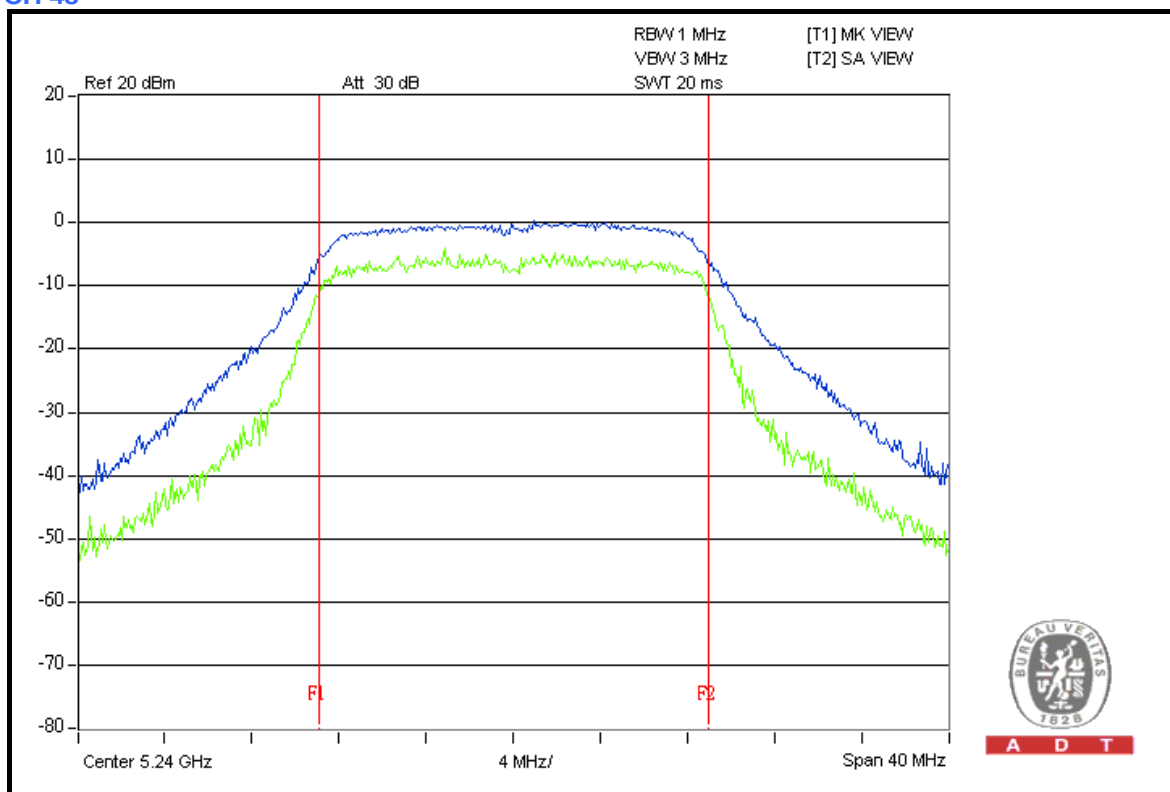
CH 40





A D T

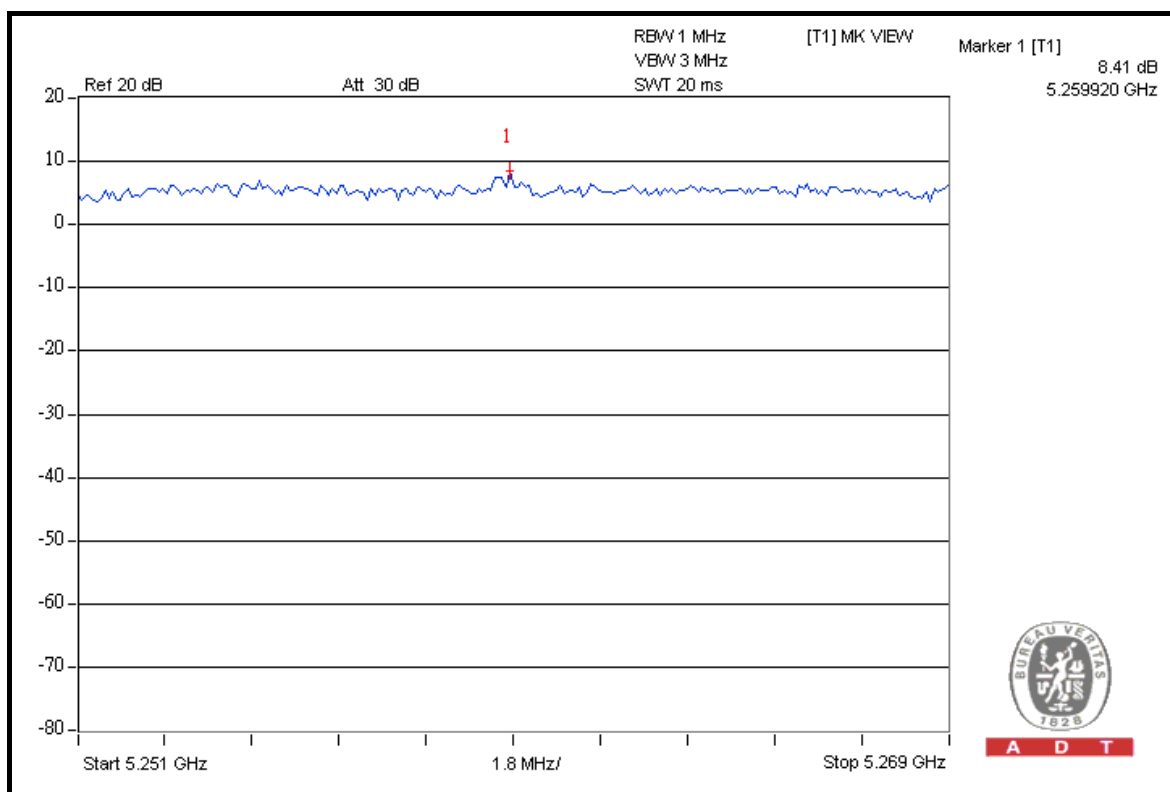
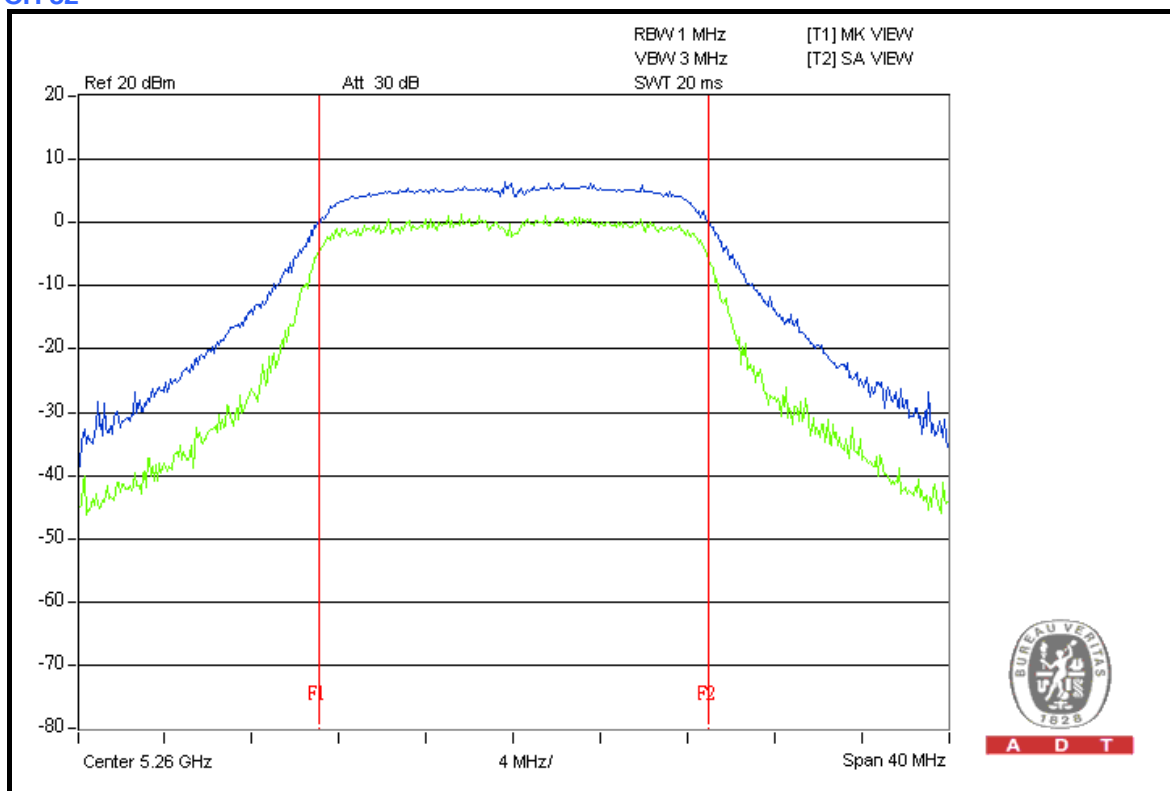
CH 48





A D T

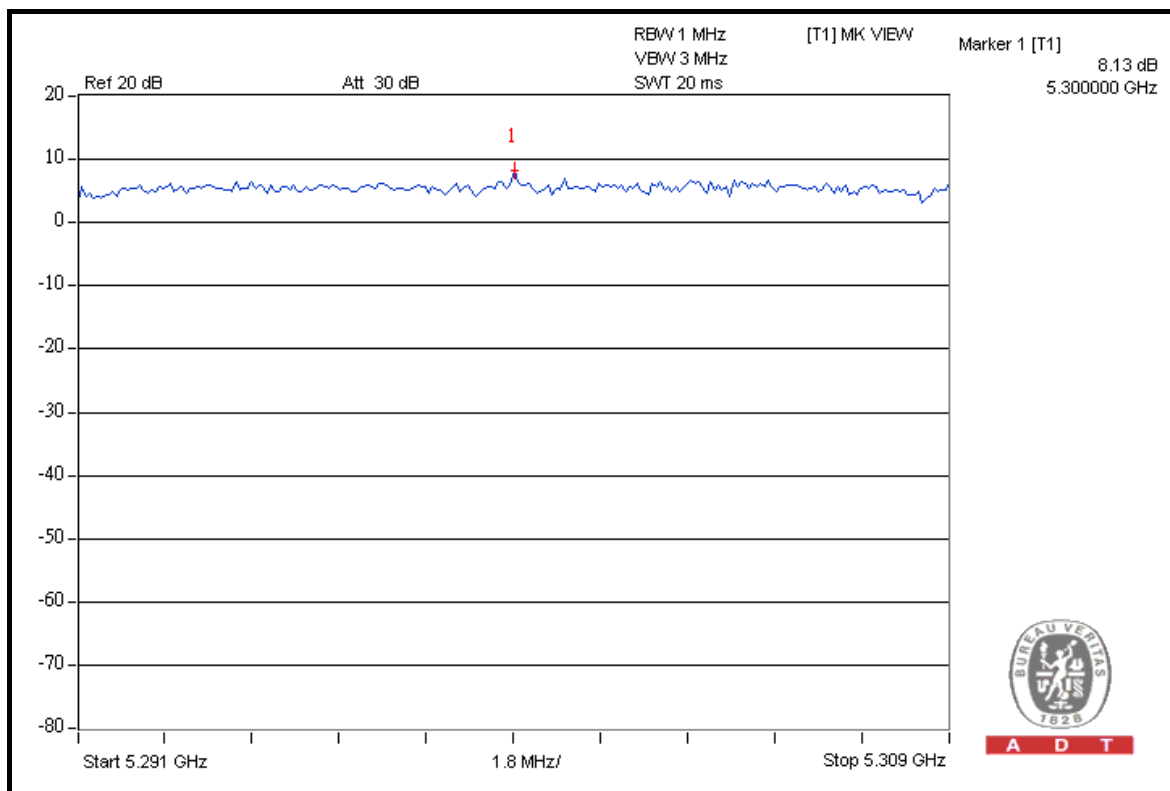
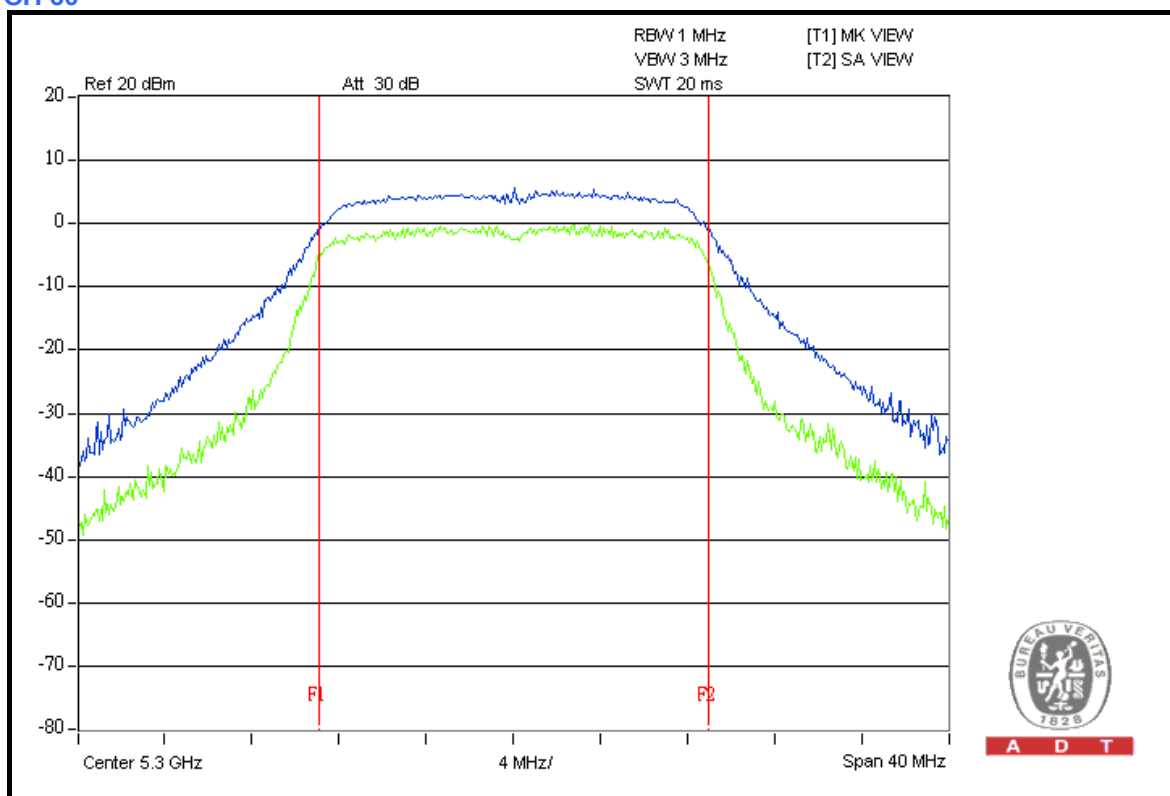
CH 52





A D T

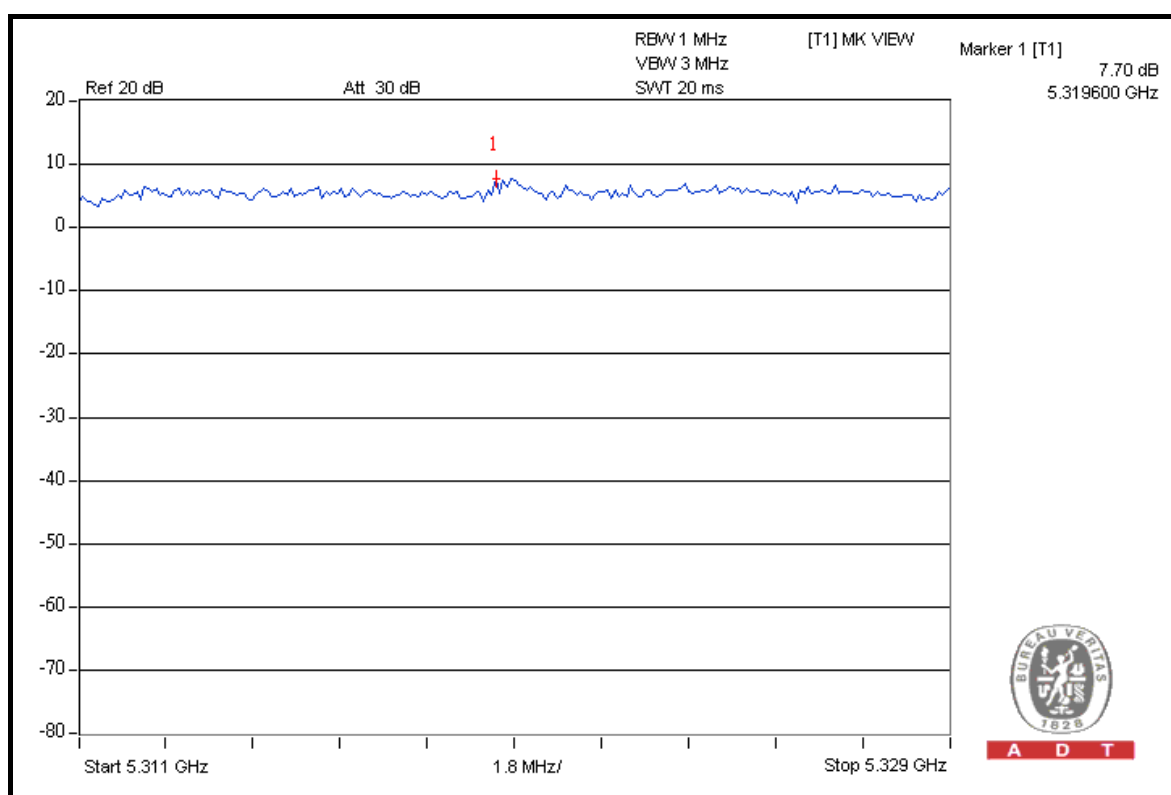
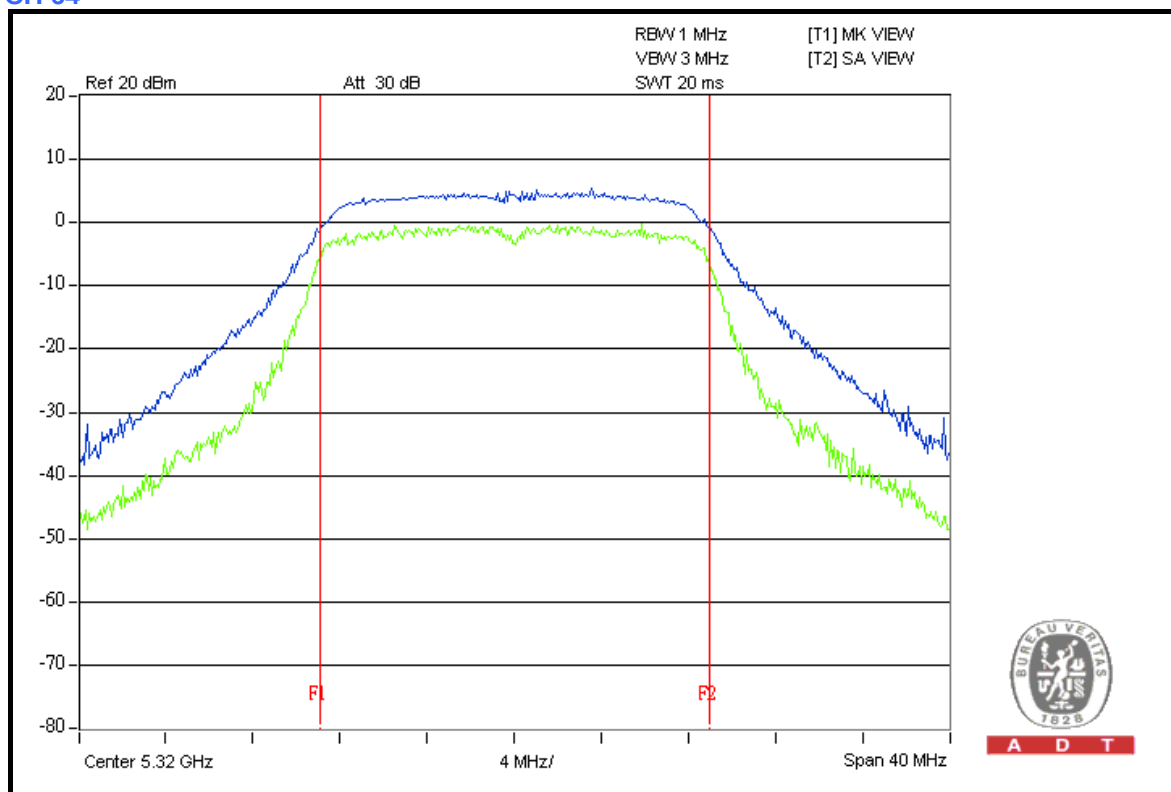
CH 60





A D T

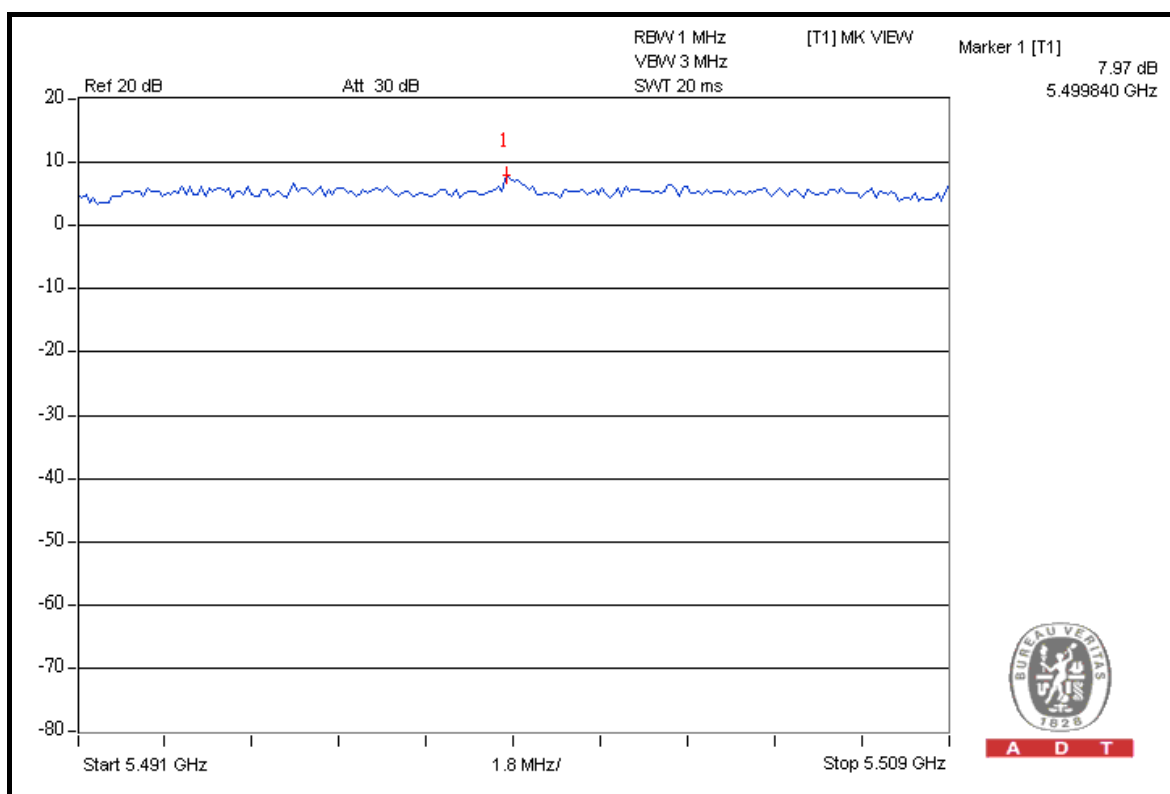
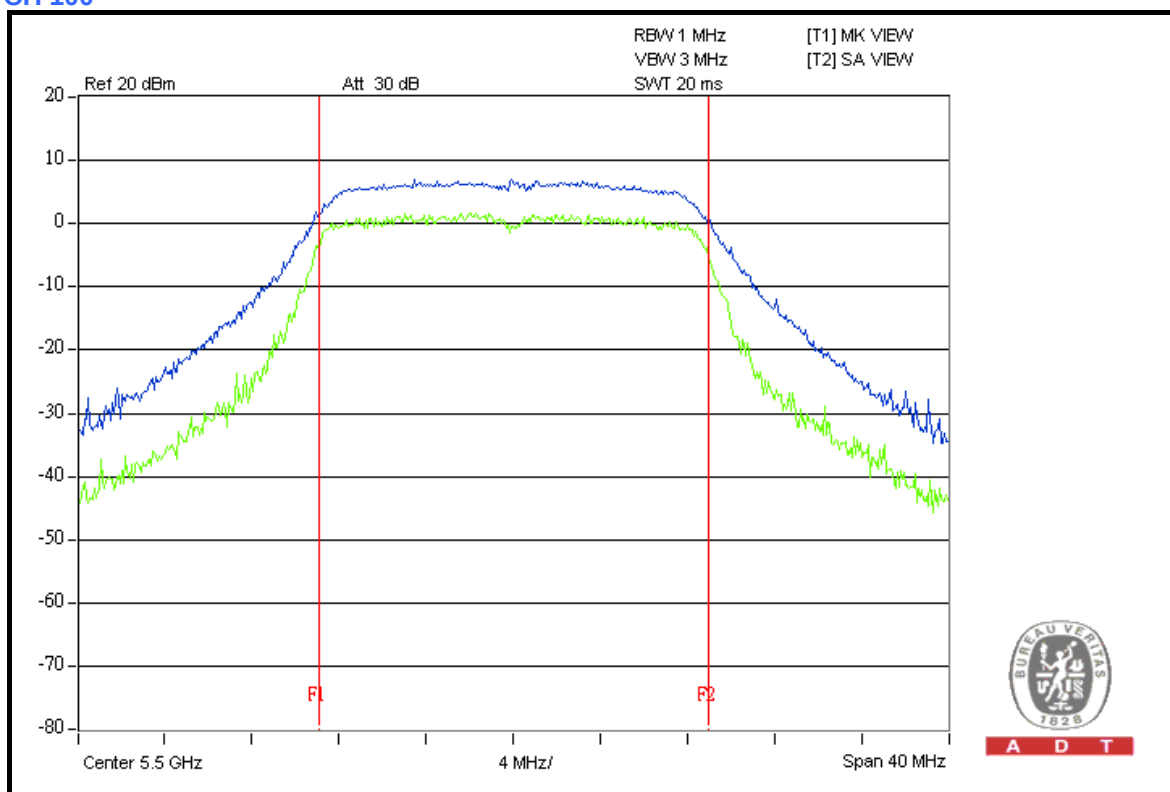
CH 64





A D T

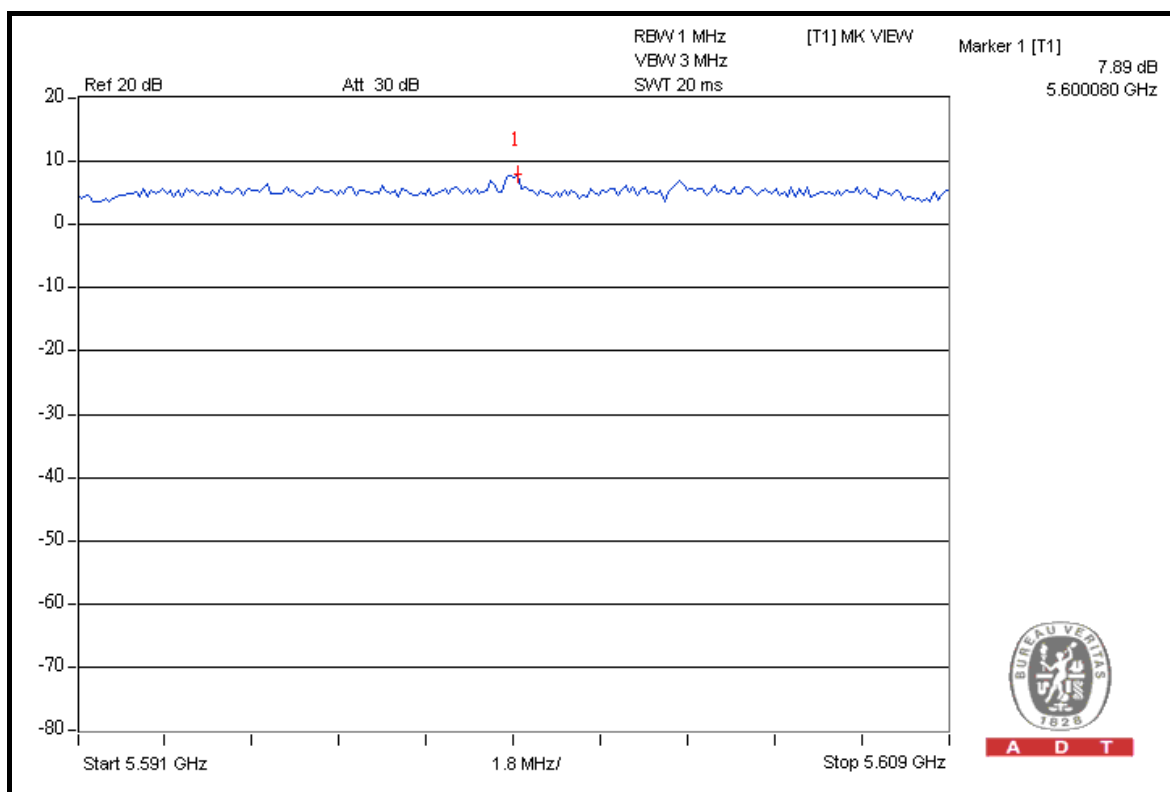
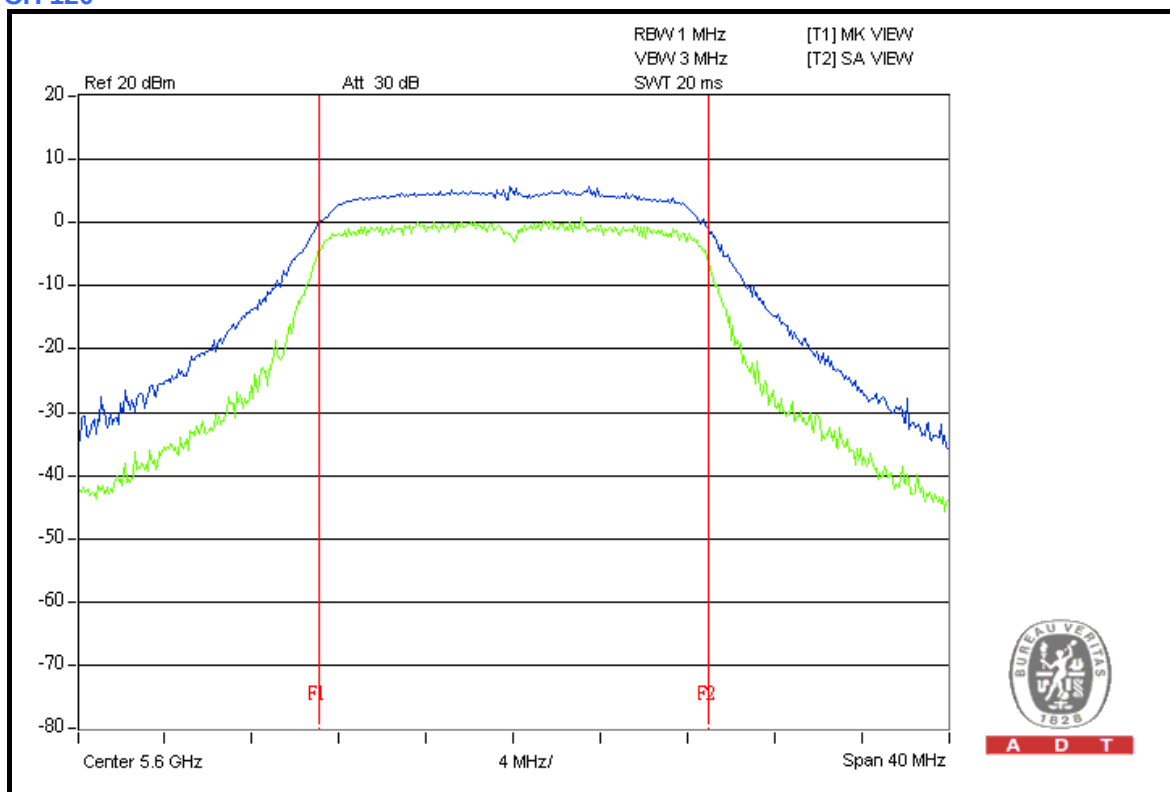
CH 100





A D T

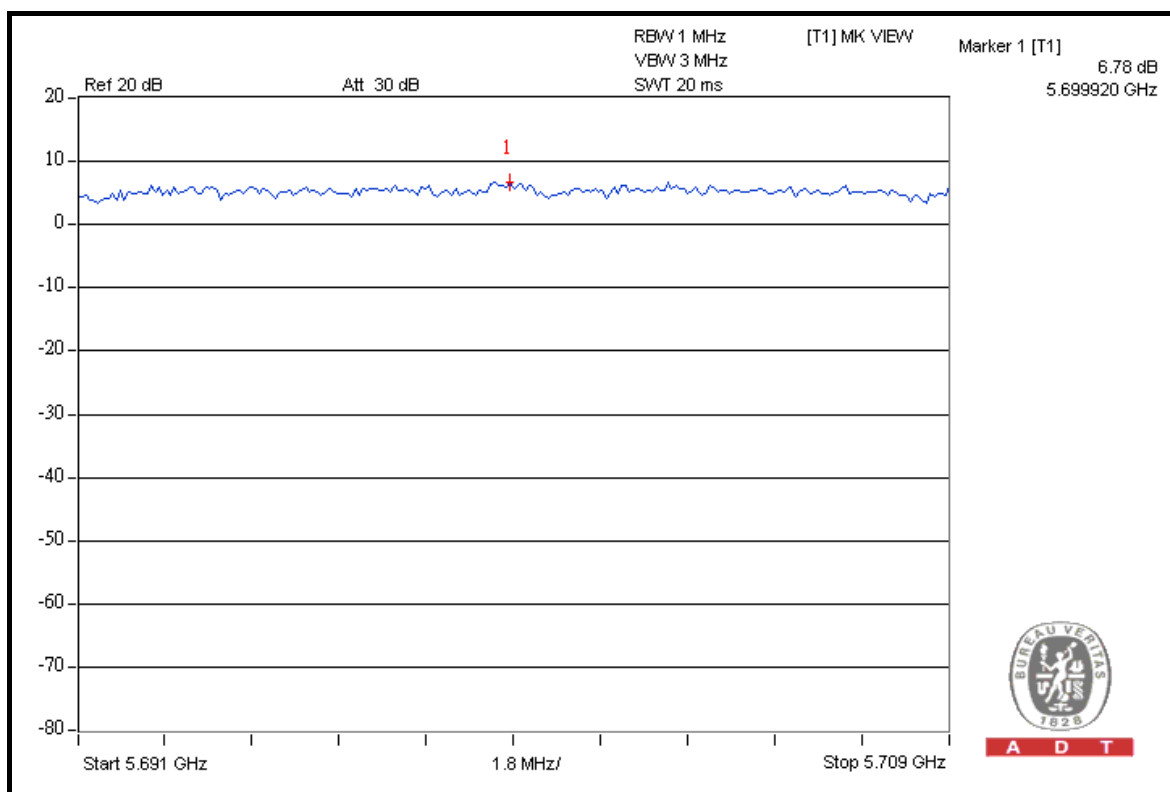
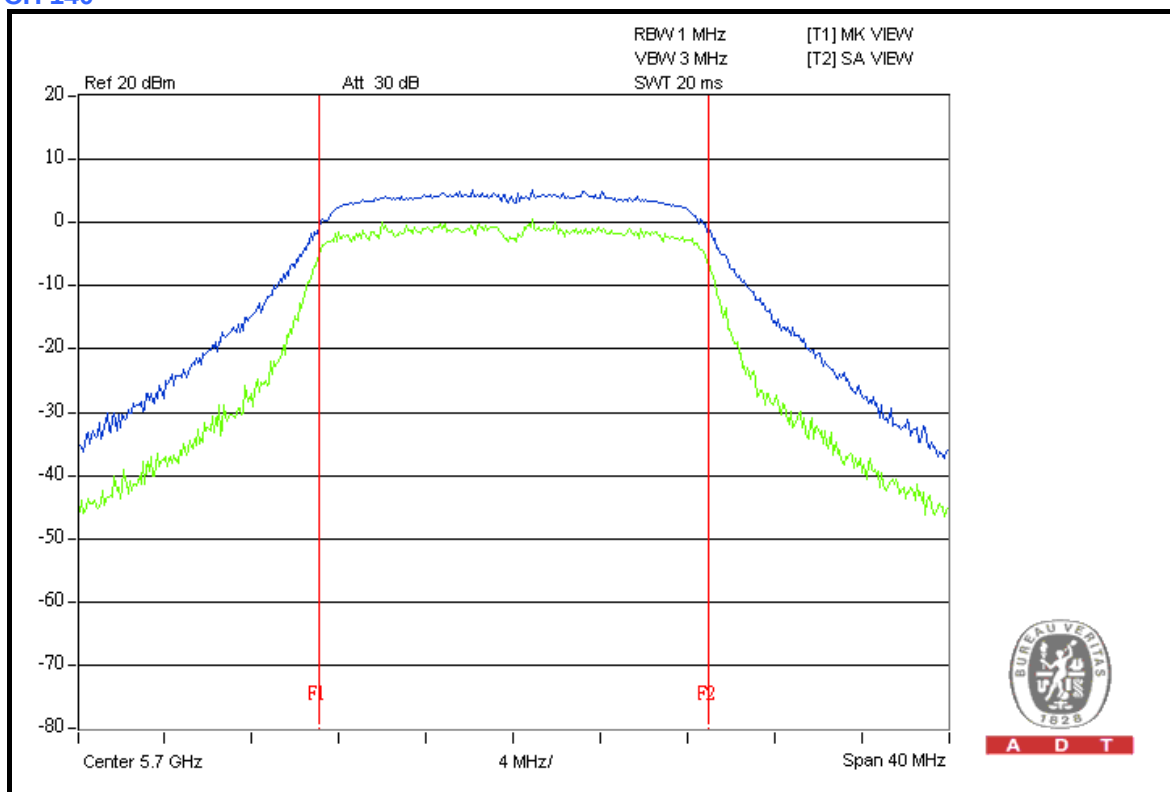
CH 120





A D T

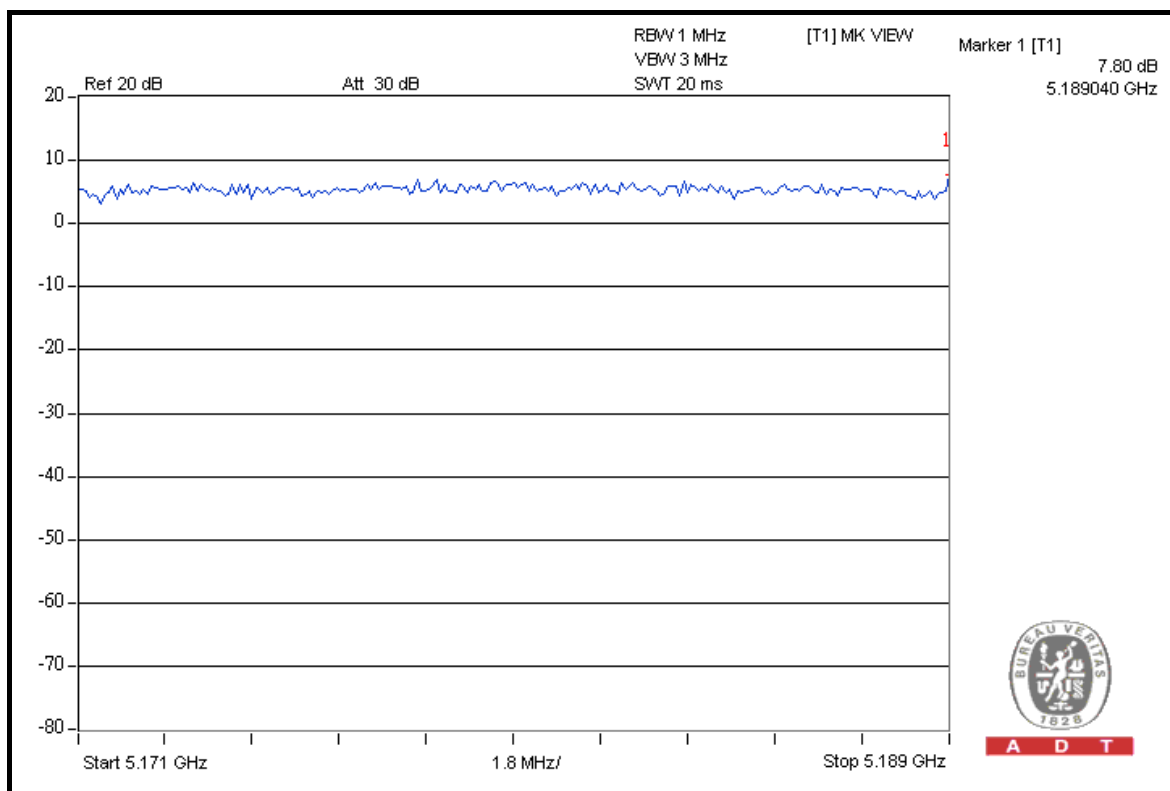
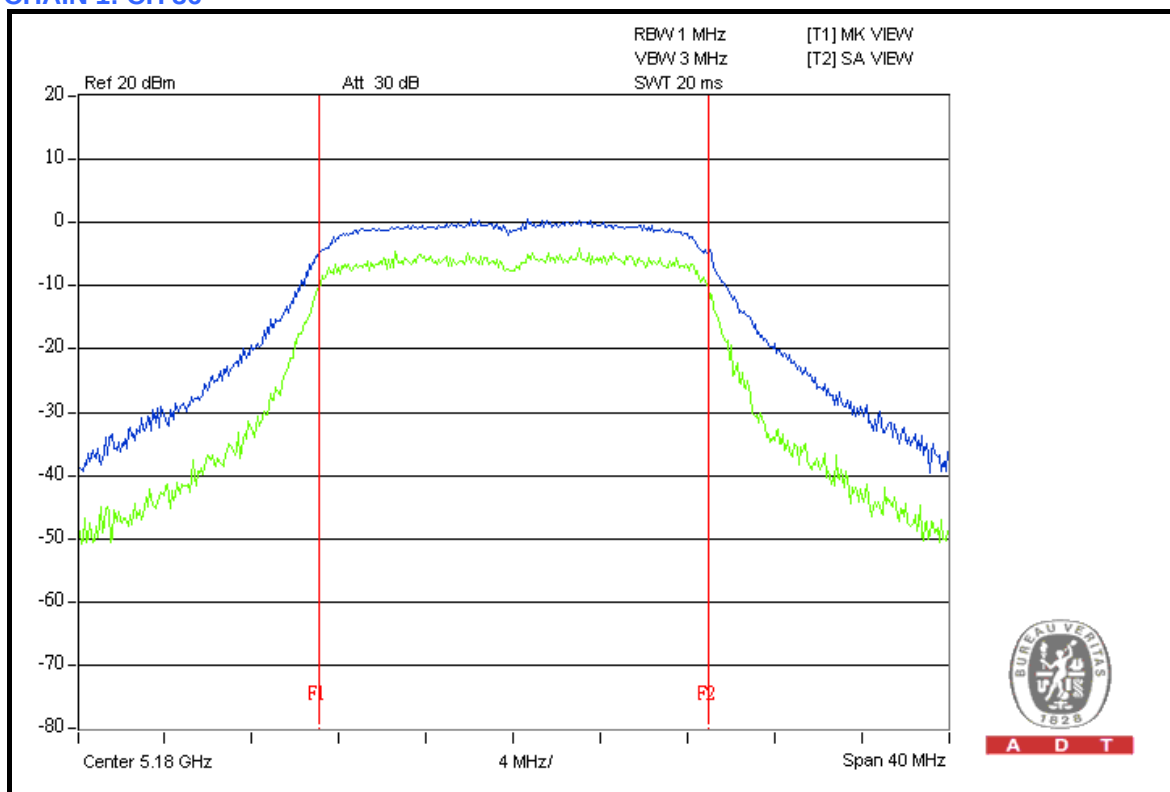
CH 140





A D T

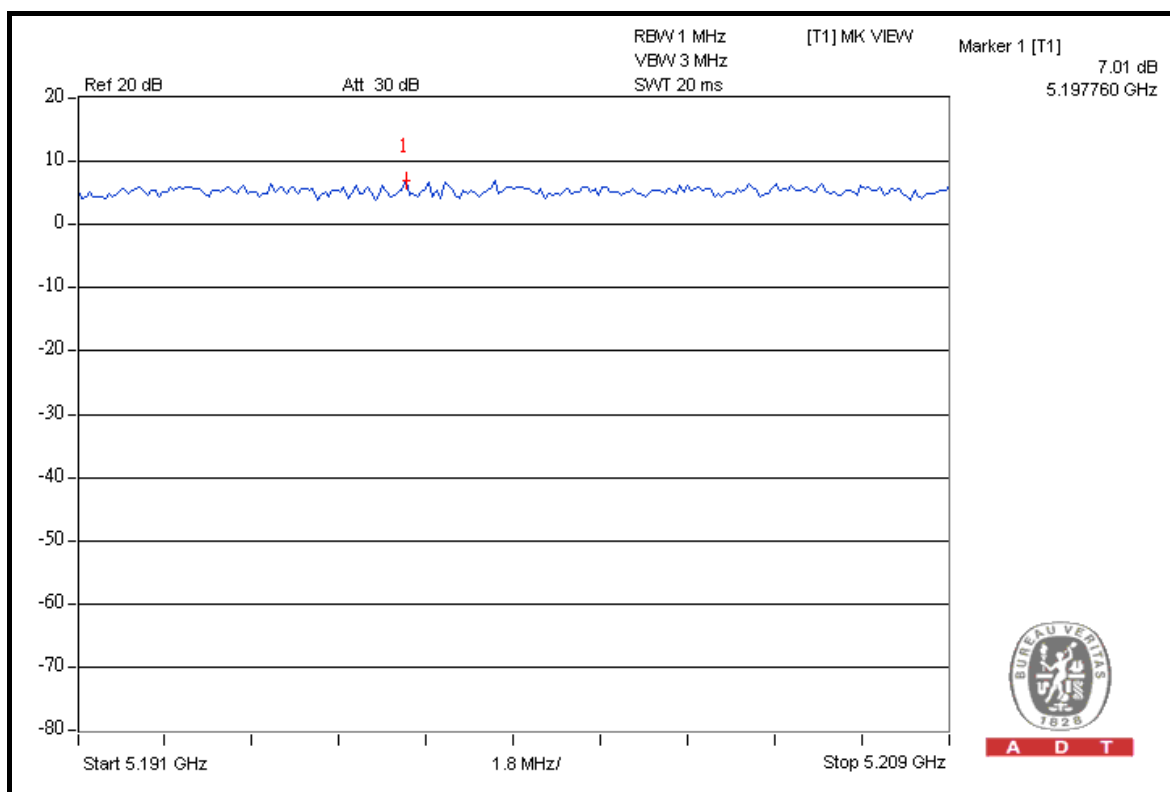
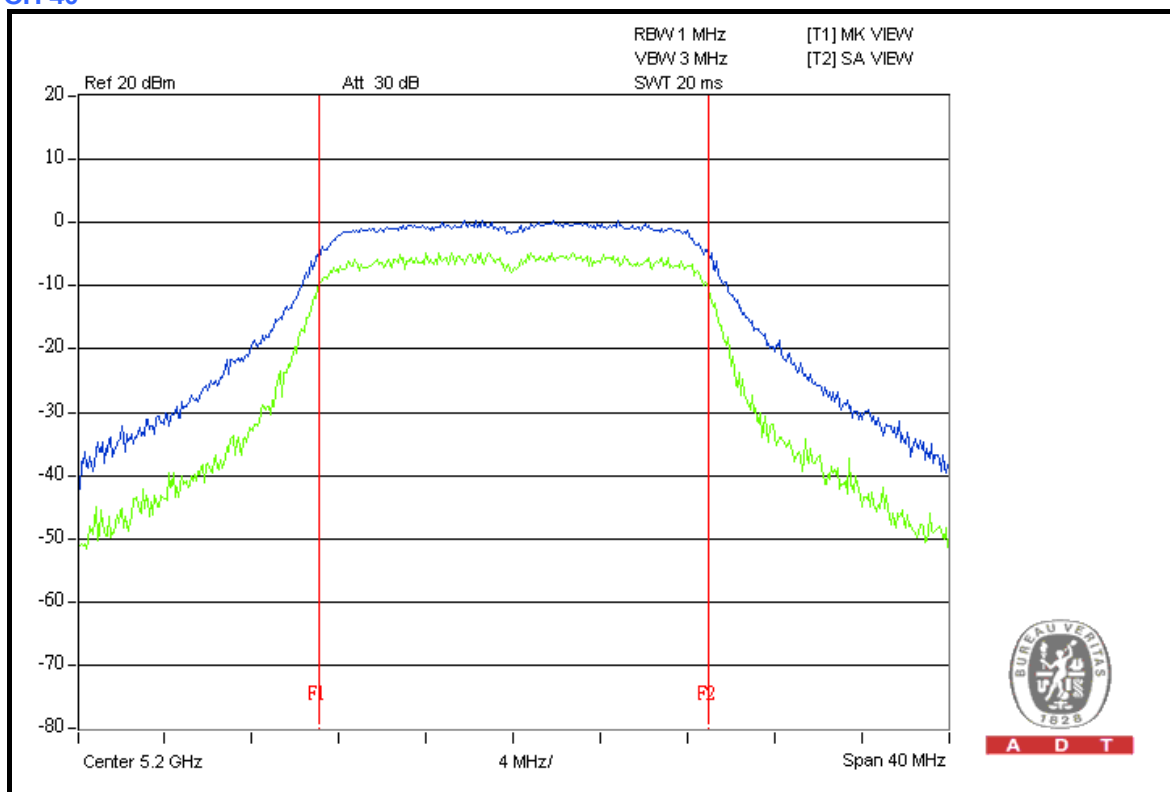
CHAIN 1: CH 36





A D T

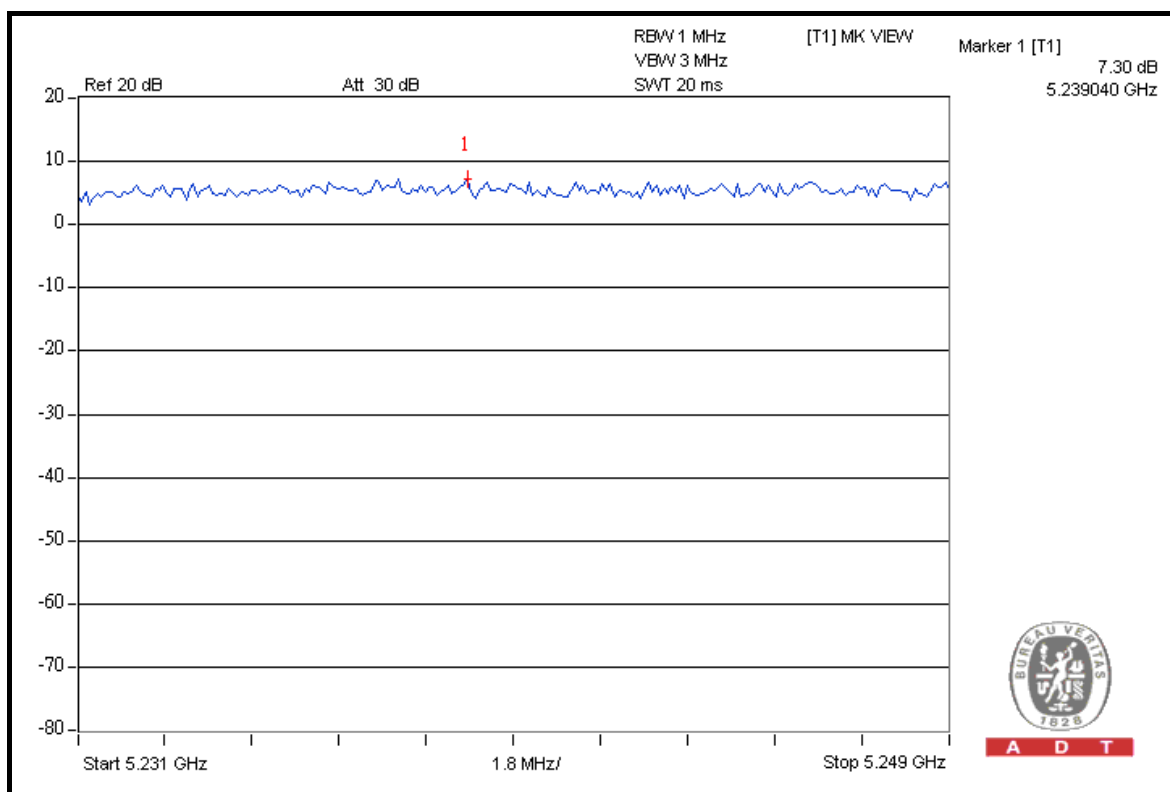
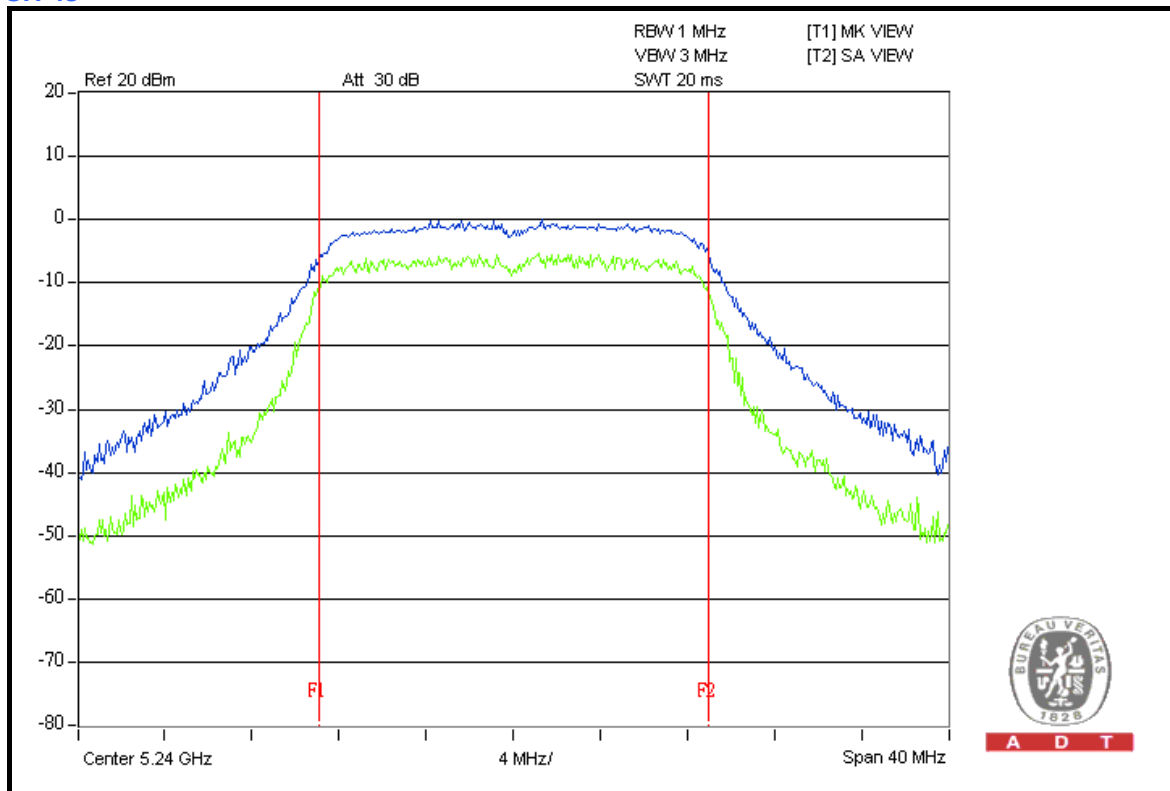
CH 40





A D T

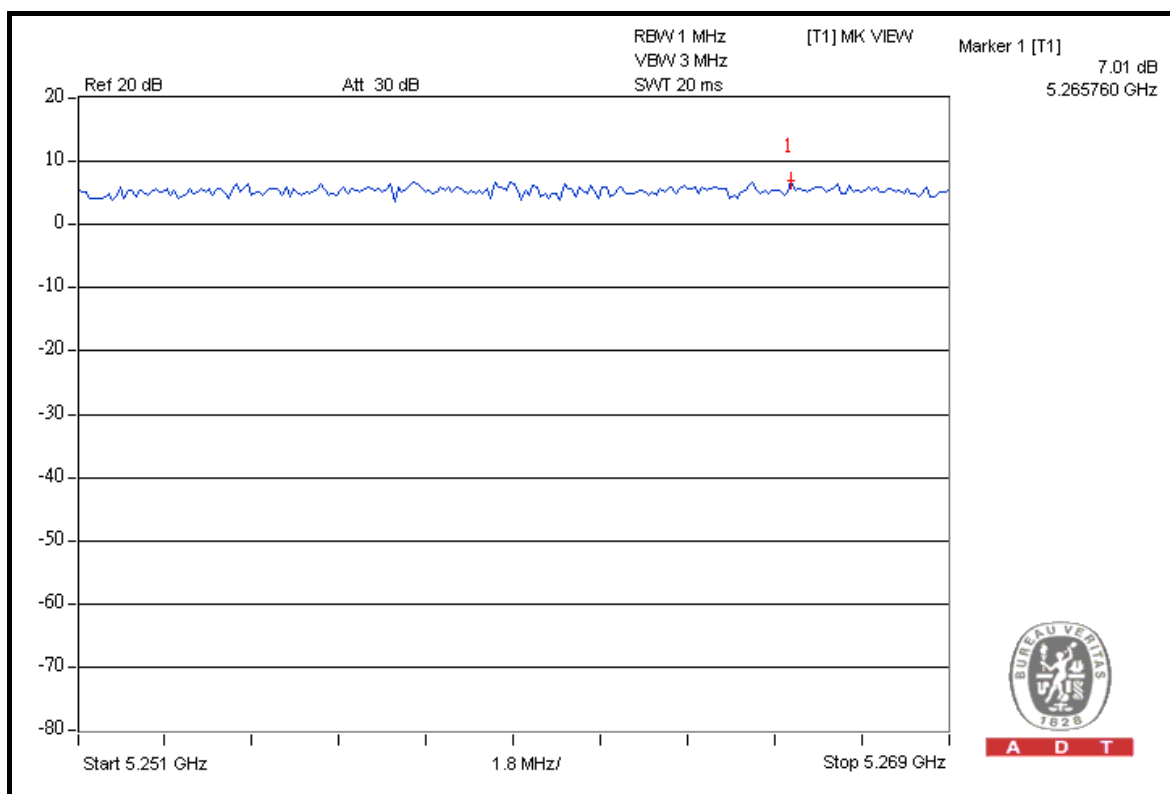
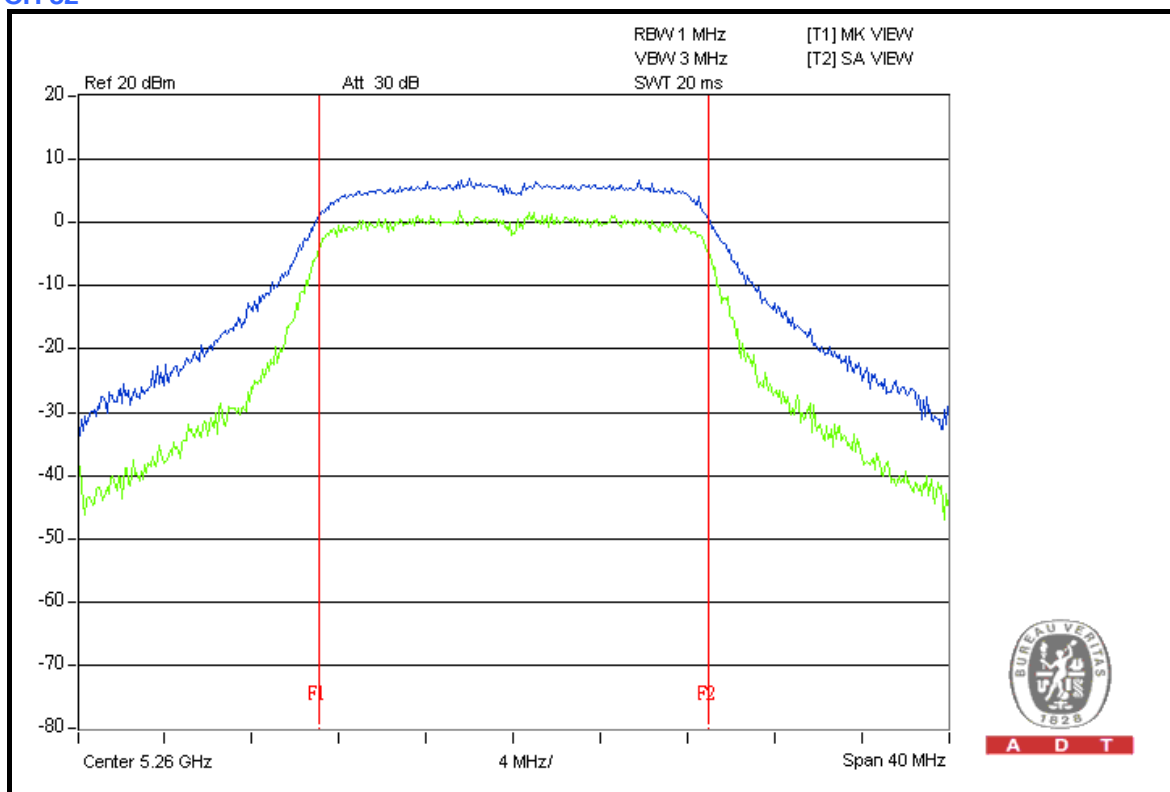
CH 48





A D T

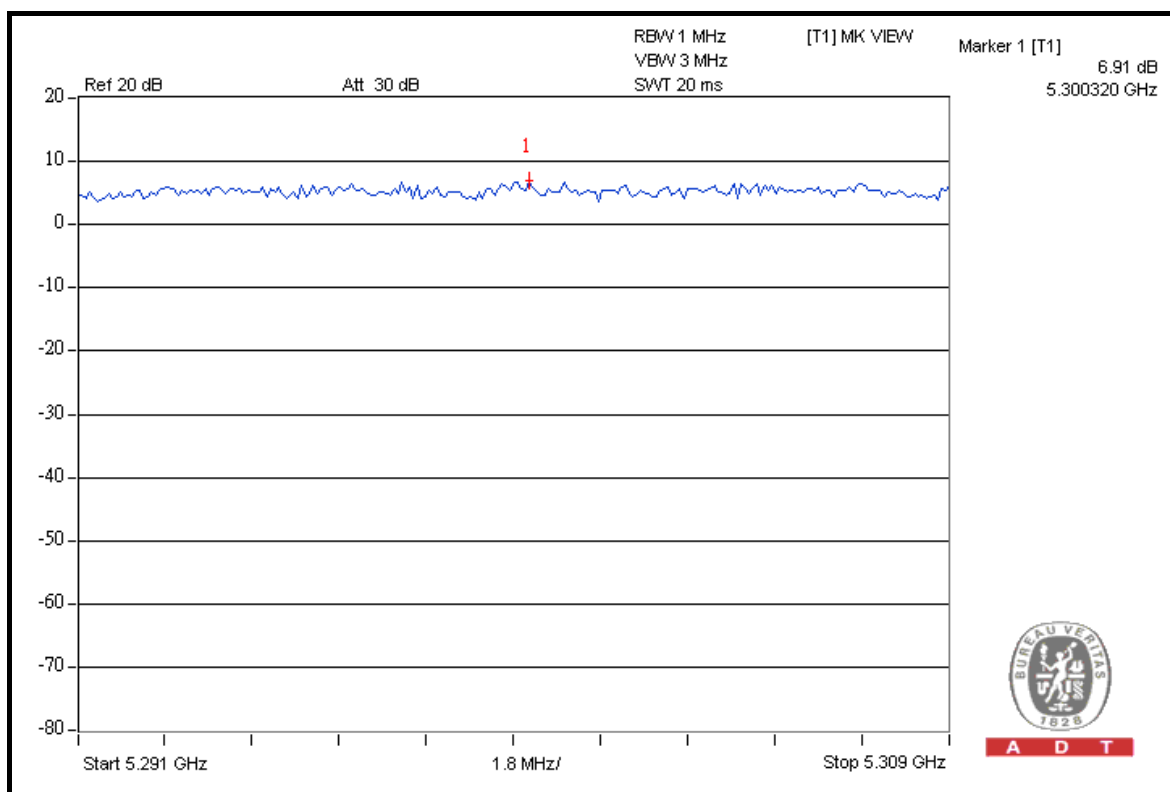
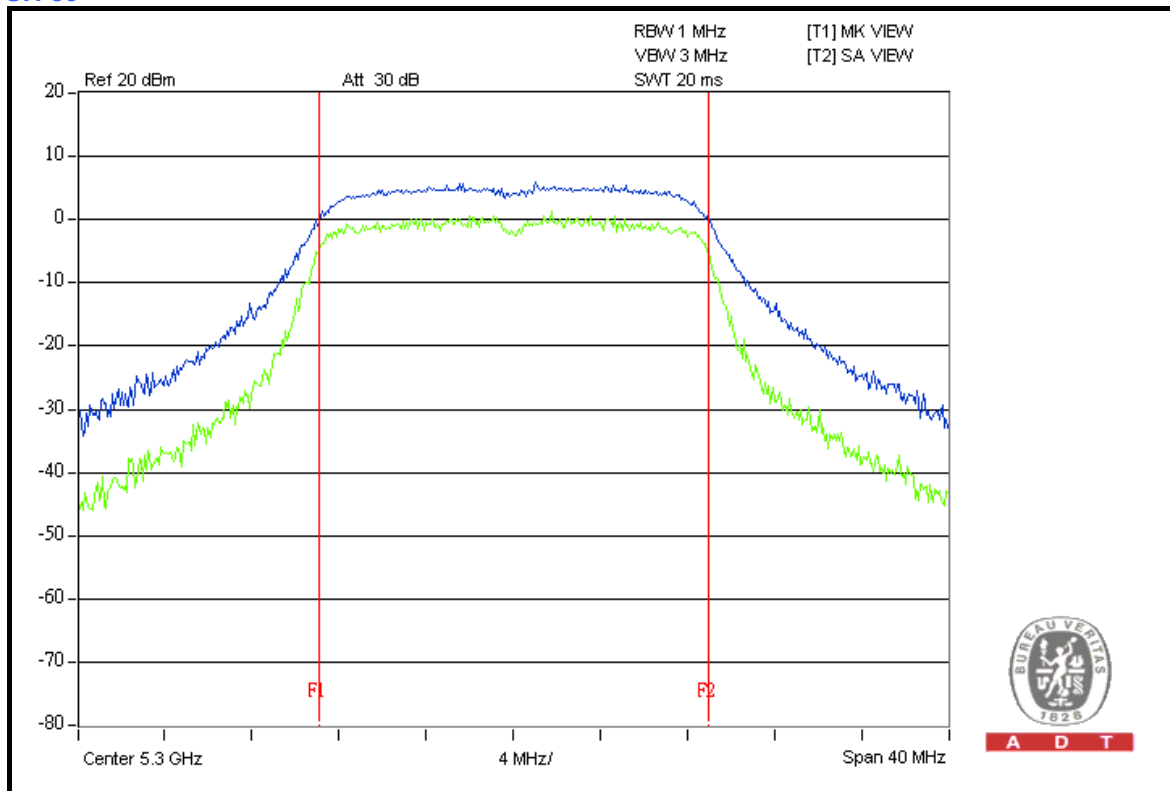
CH 52





A D T

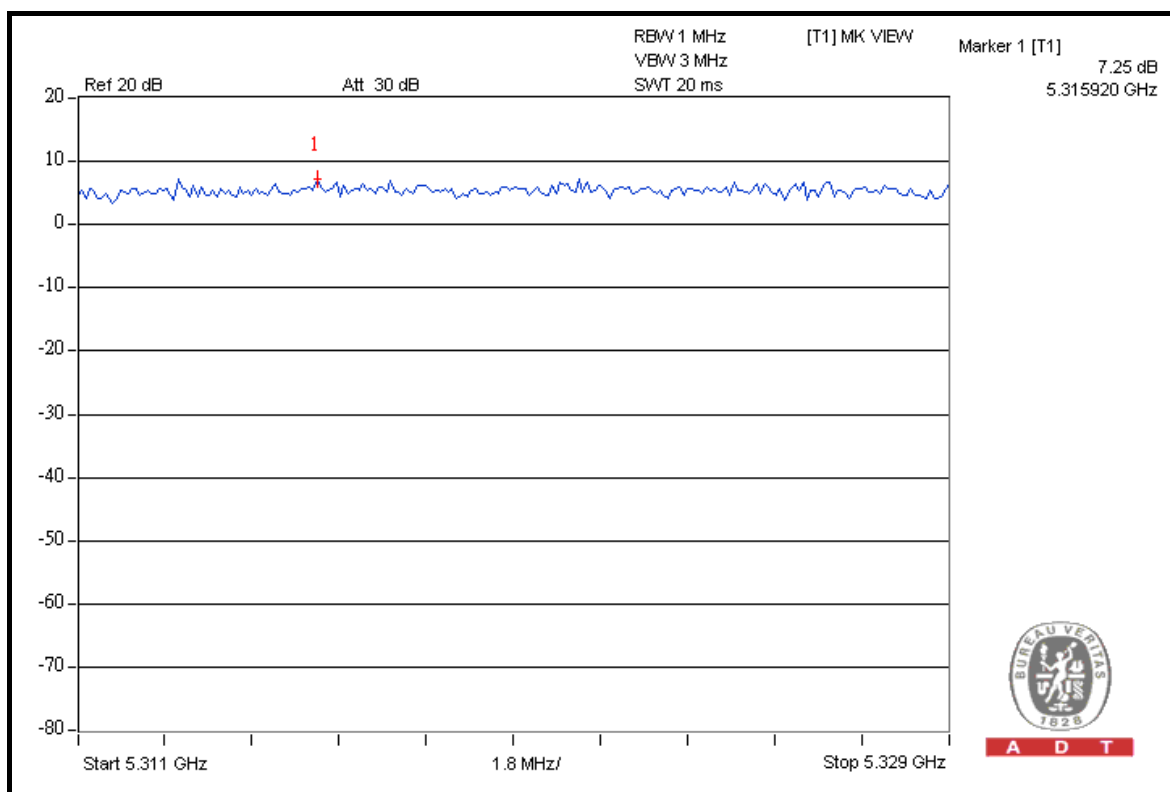
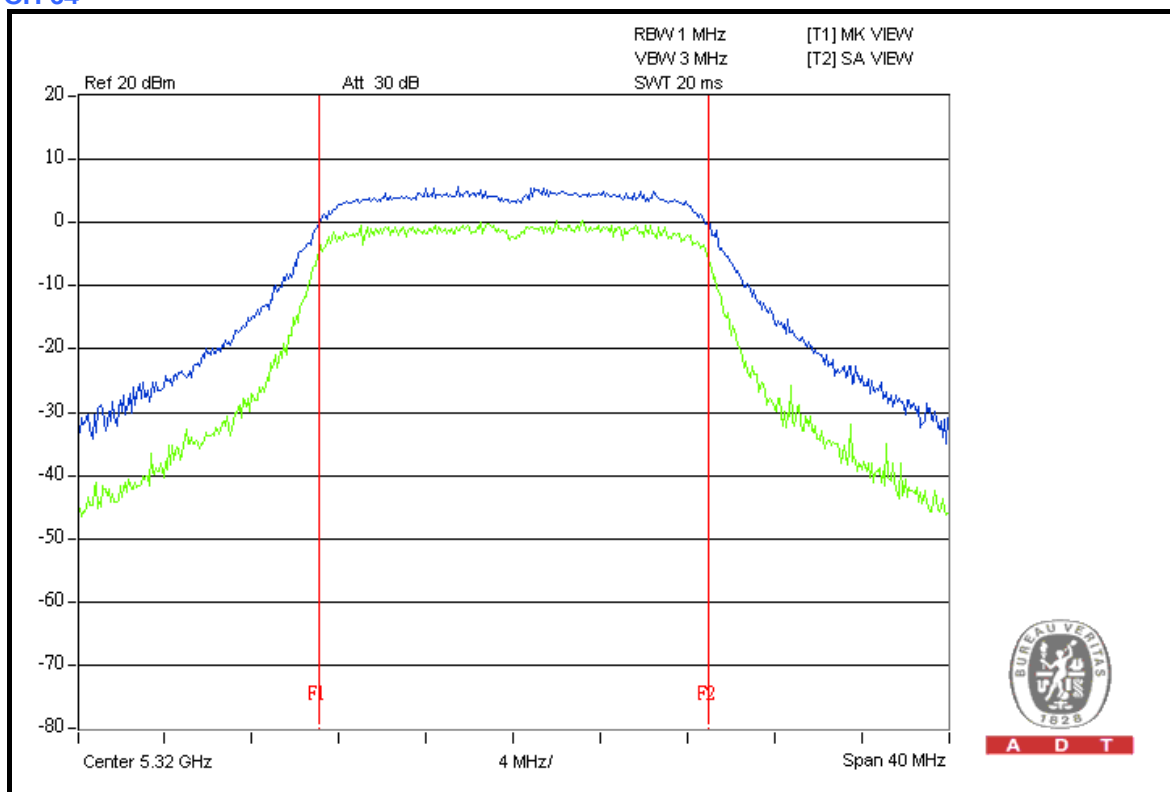
CH 60





A D T

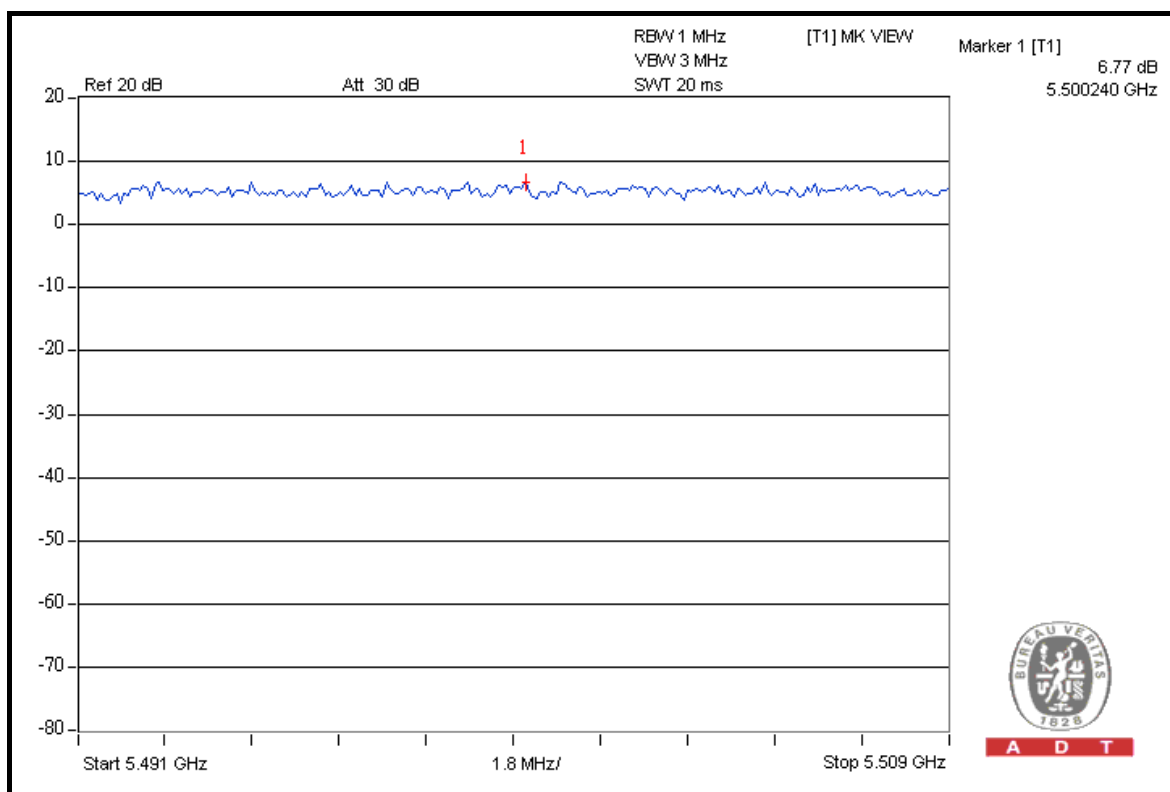
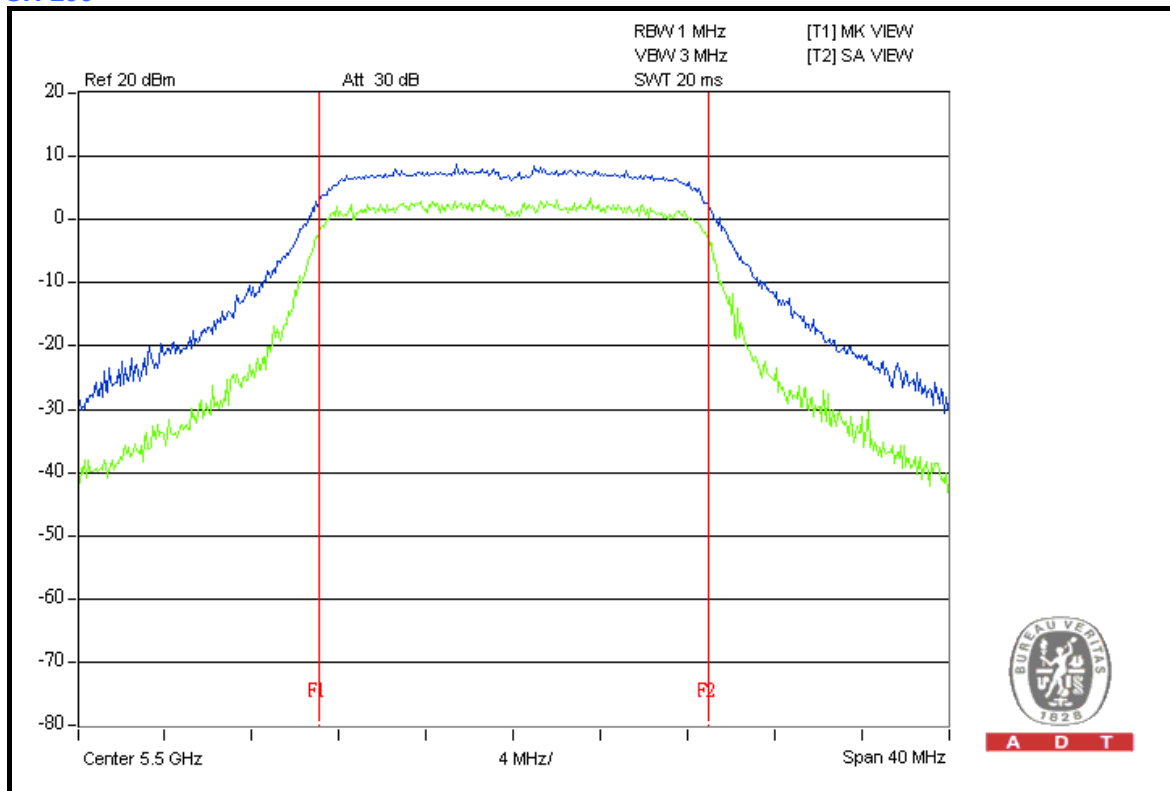
CH 64





A D T

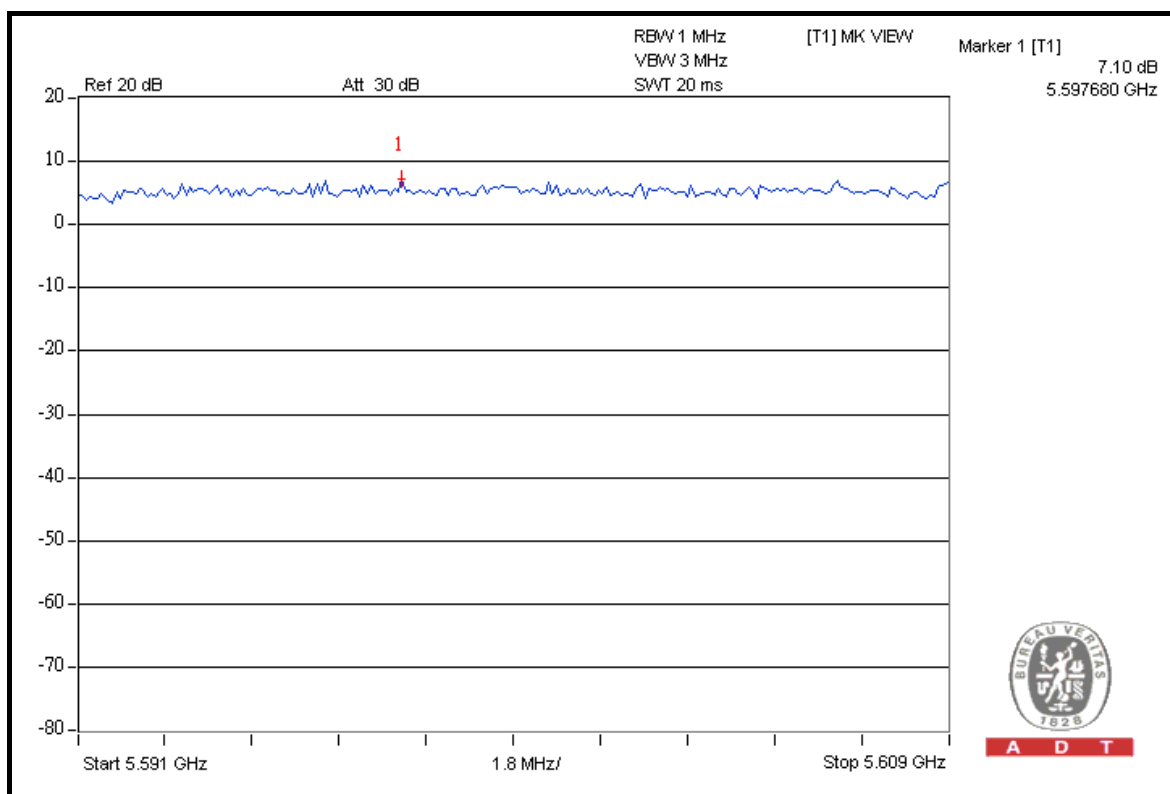
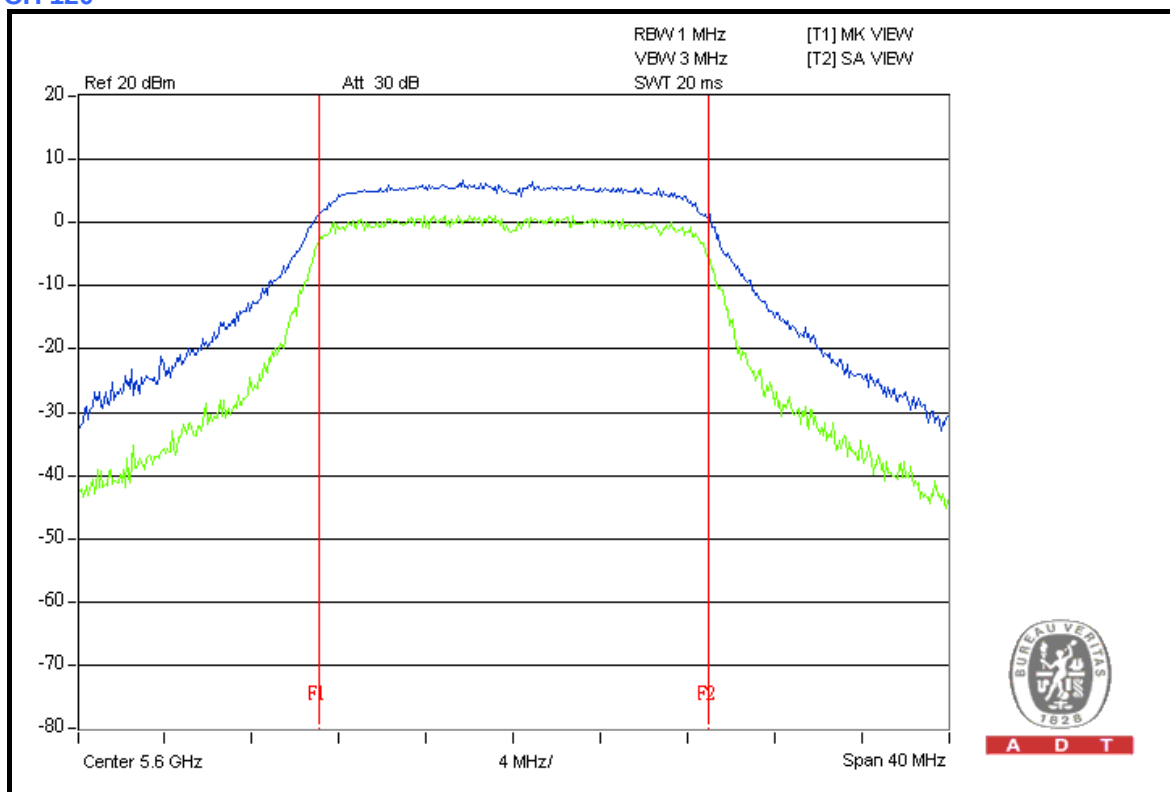
CH 100





A D T

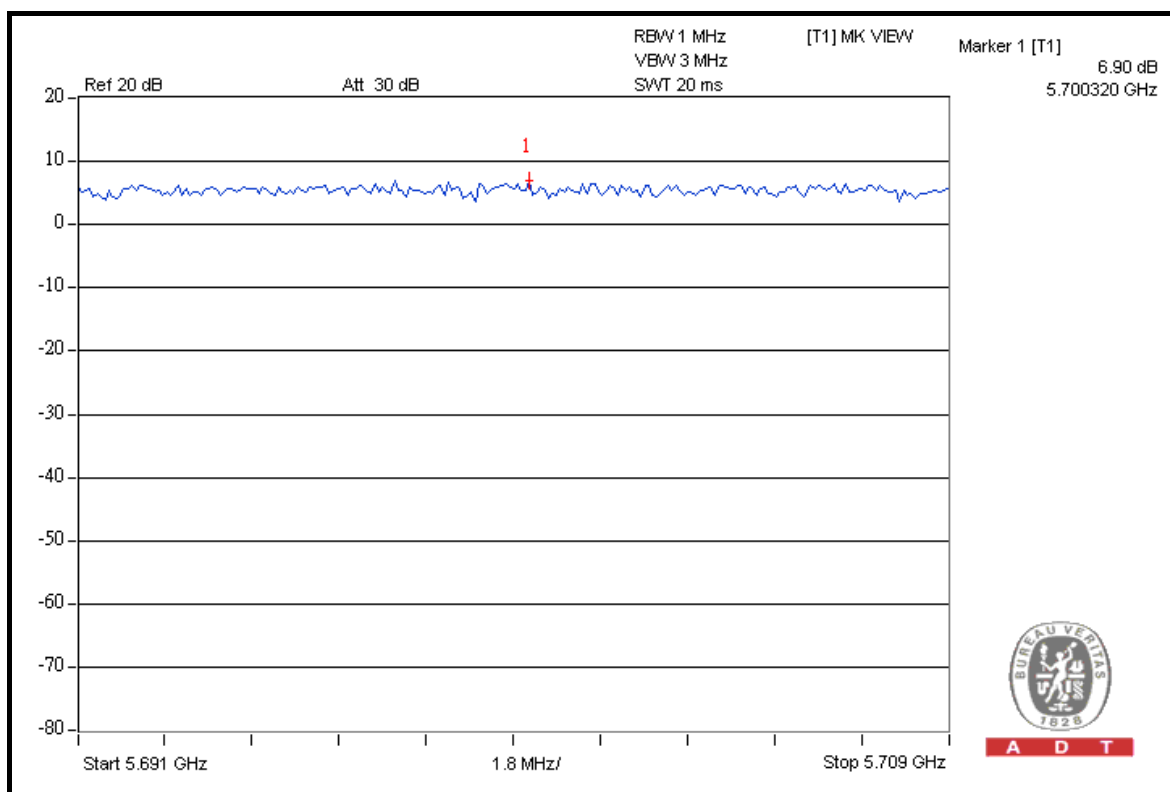
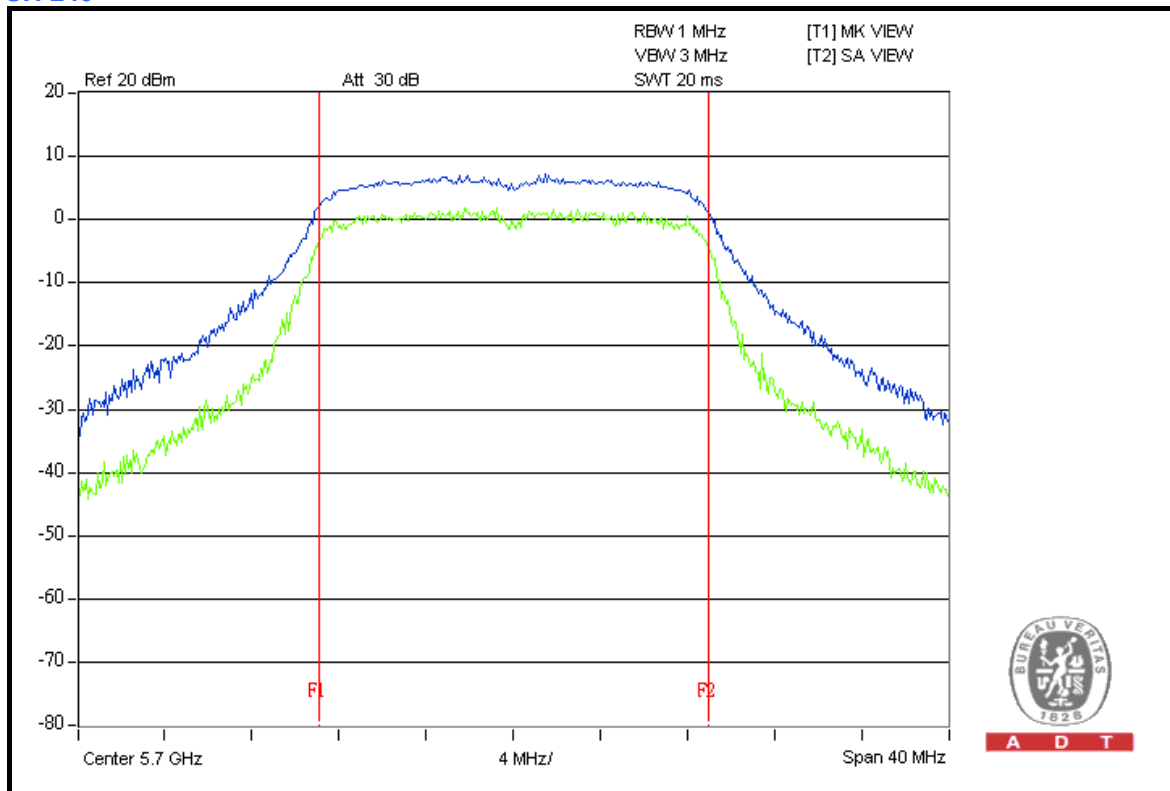
CH 120





A D T

CH 140



DRAFT 802.11n (40MHz) OFDM MODULATION

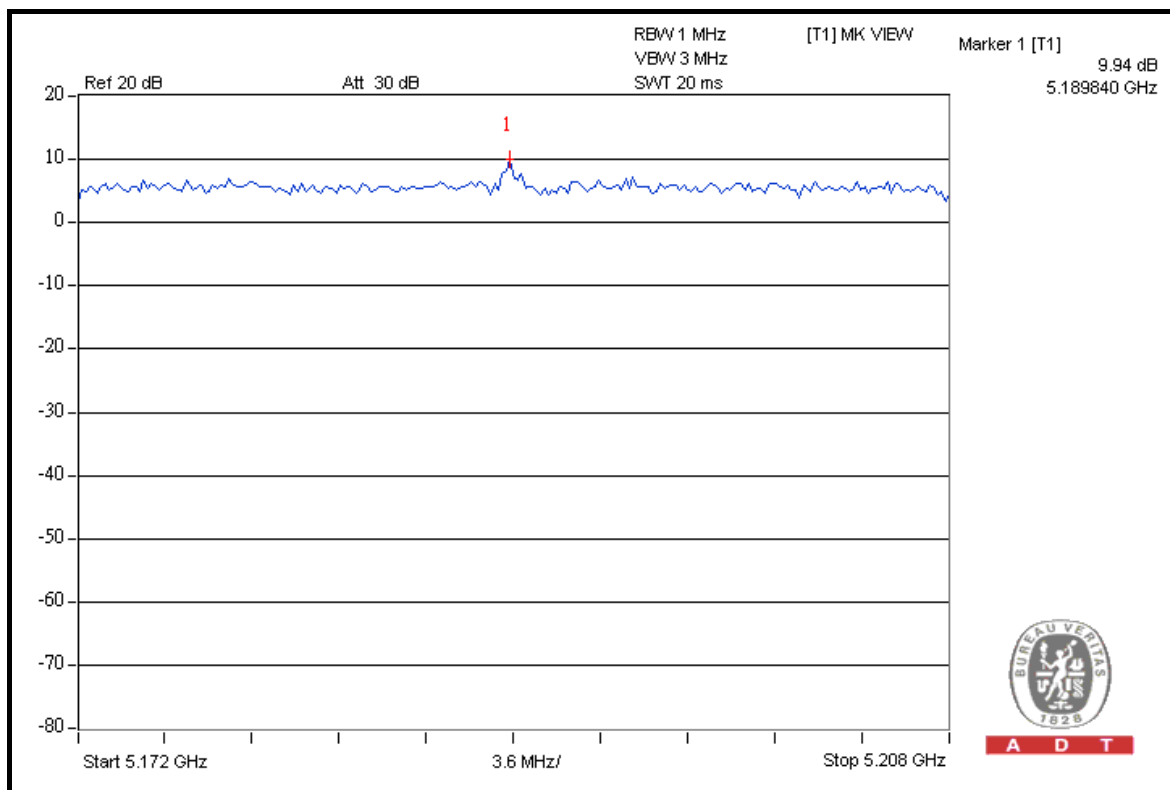
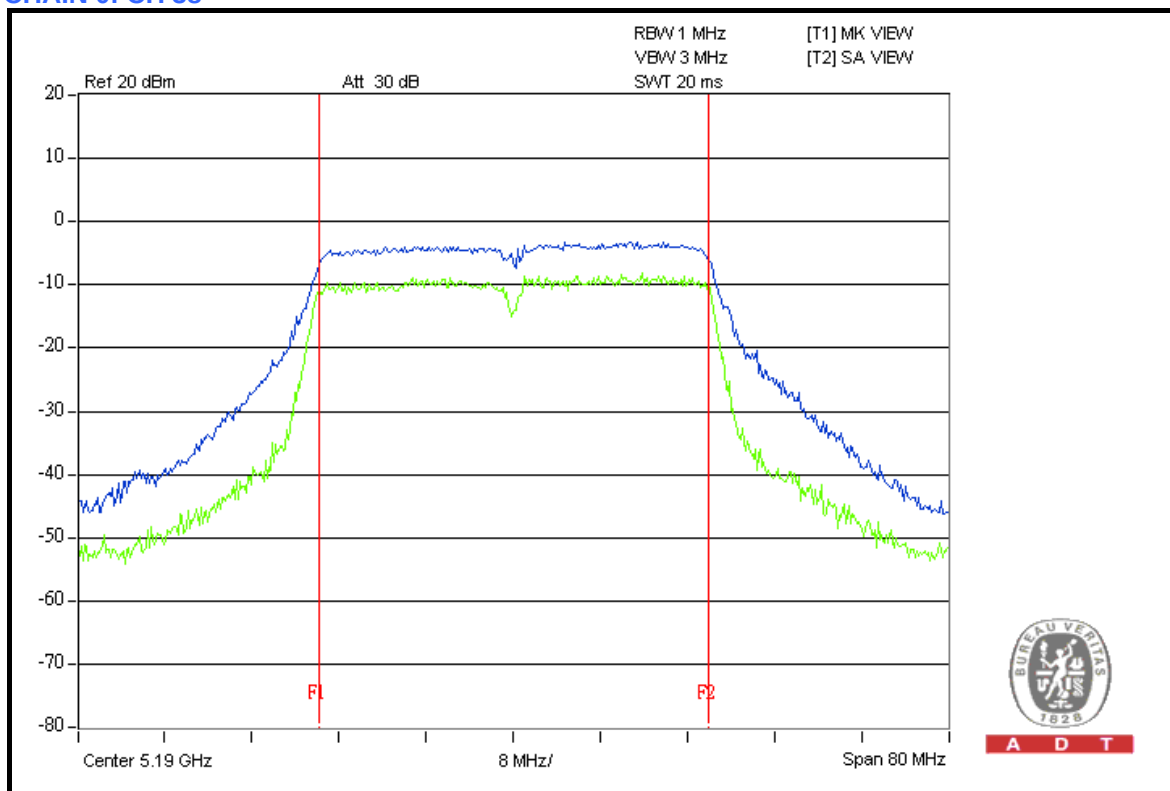
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	9.94	8.69	13	PASS
46	5230	8.78	10.05	13	PASS
54	5270	8.20	8.60	13	PASS
62	5310	9.46	9.78	13	PASS
102	5510	8.51	8.52	13	PASS
118	5590	8.27	9.81	13	PASS
134	5670	8.77	10.67	13	PASS



A D T

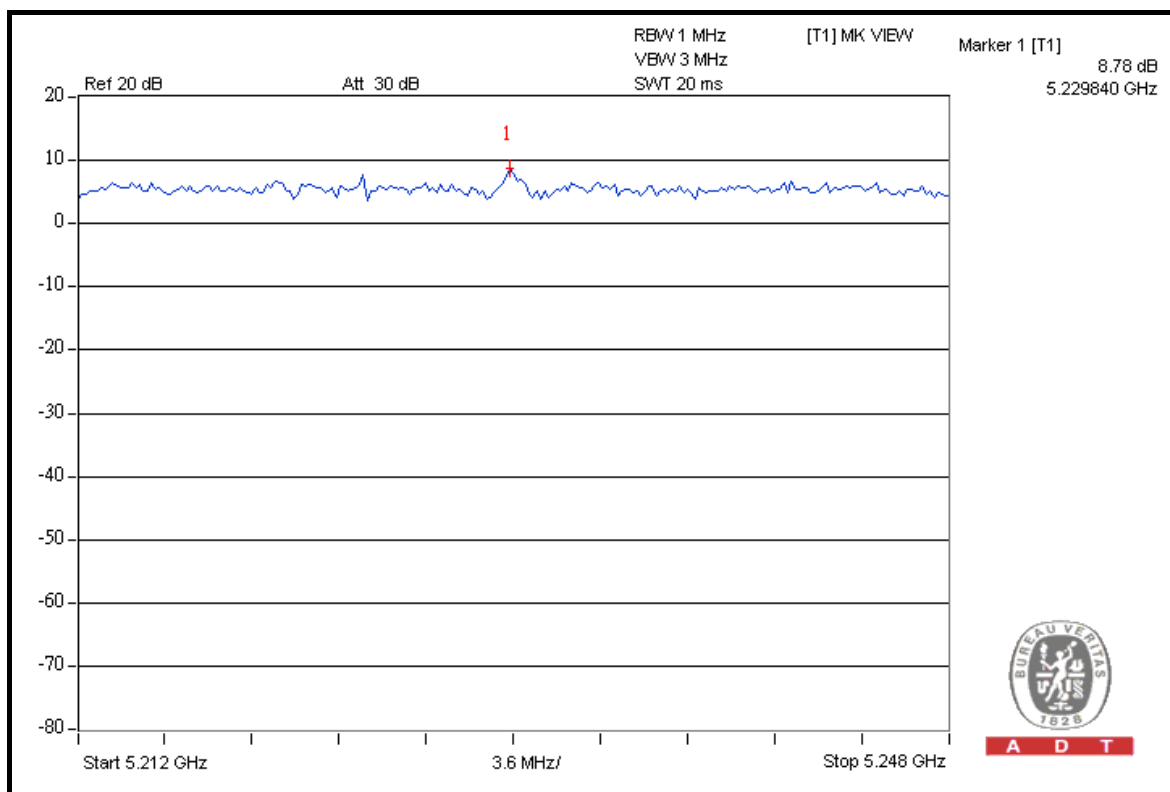
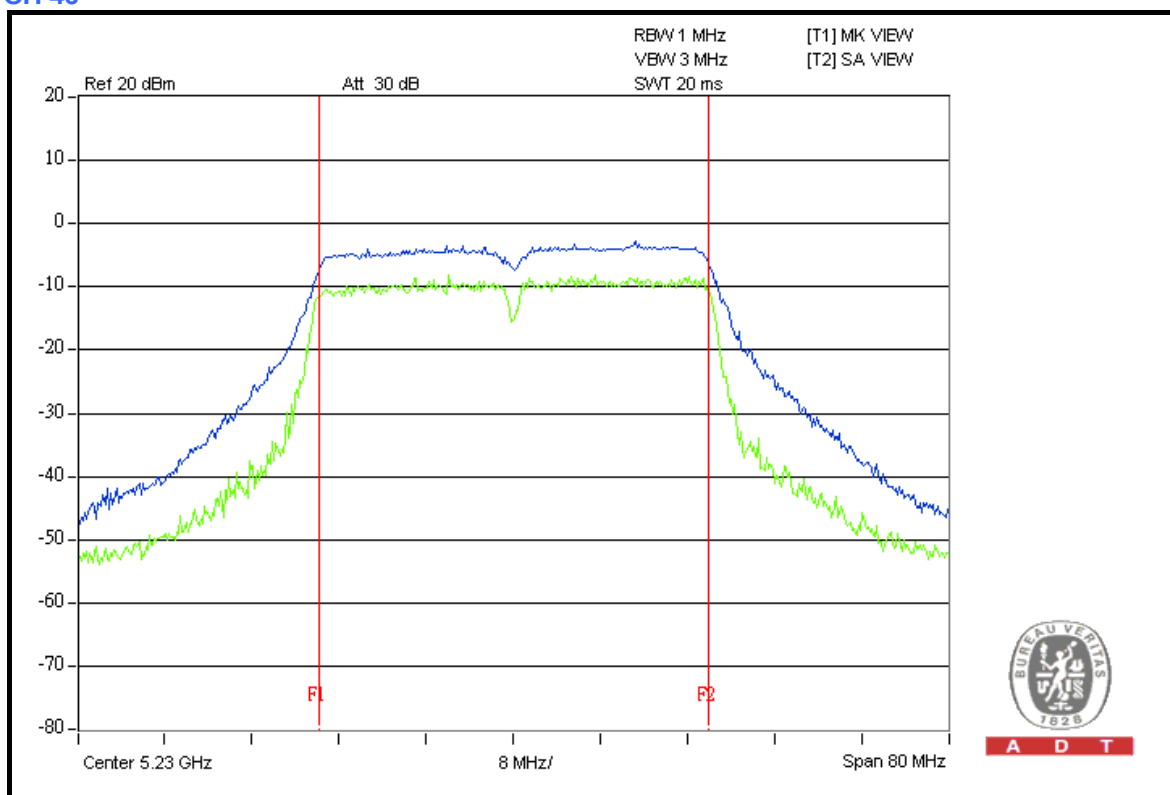
CHAIN 0: CH 38





A D T

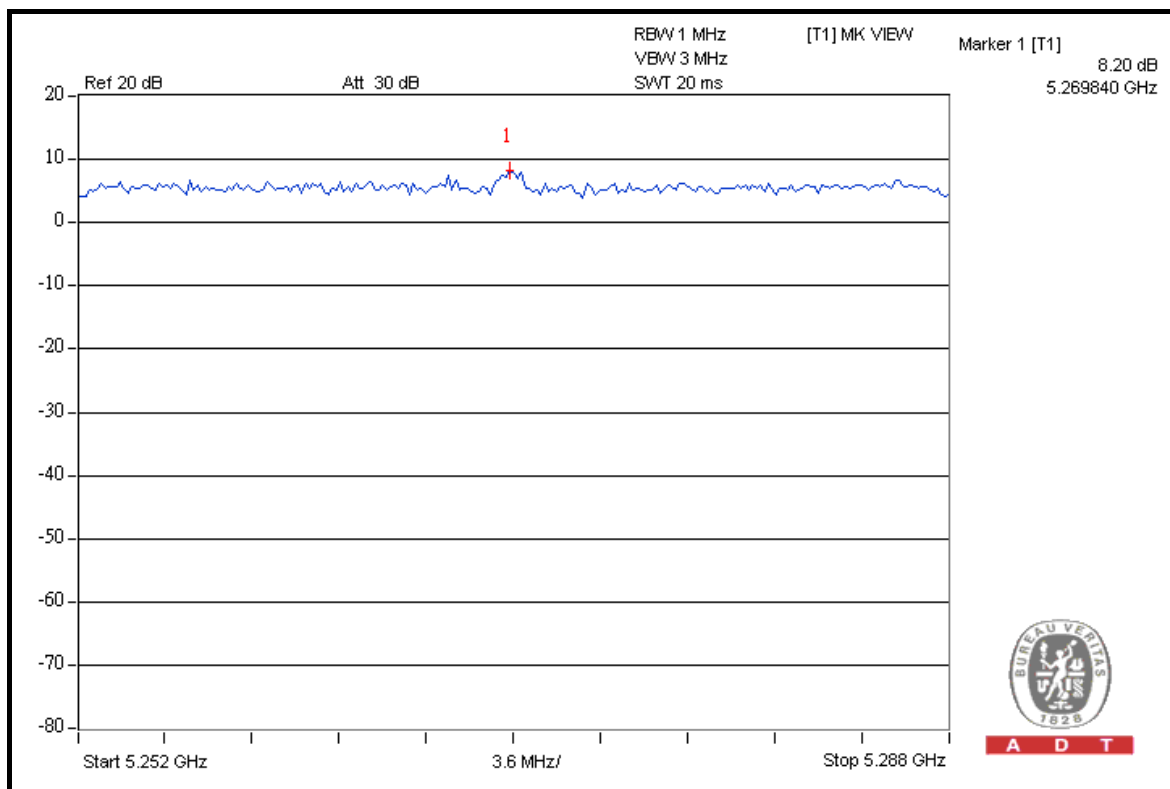
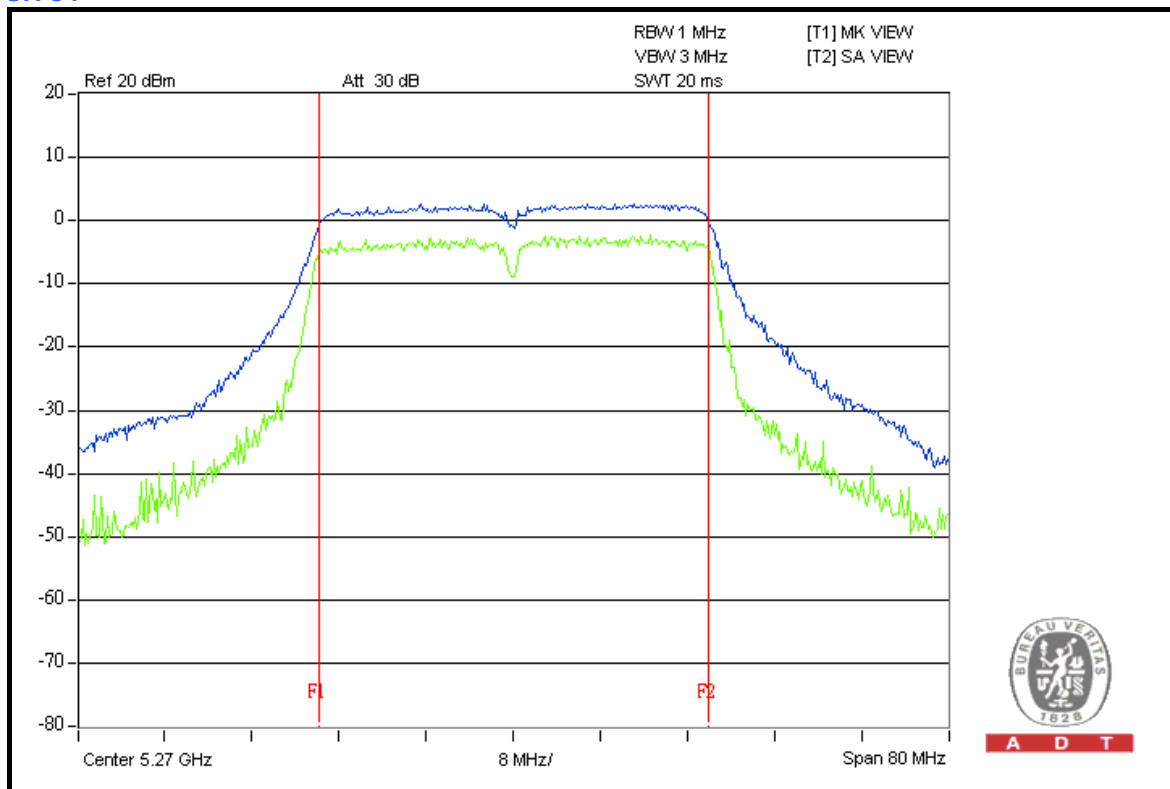
CH 46





A D T

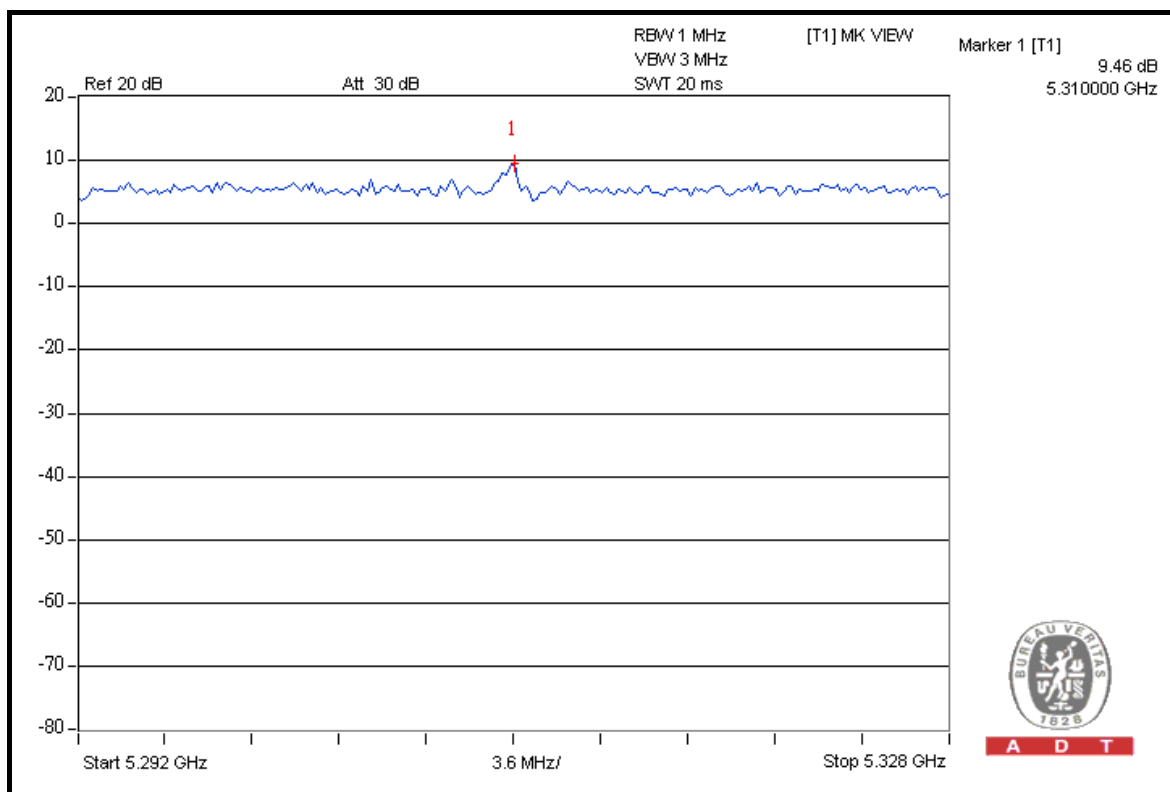
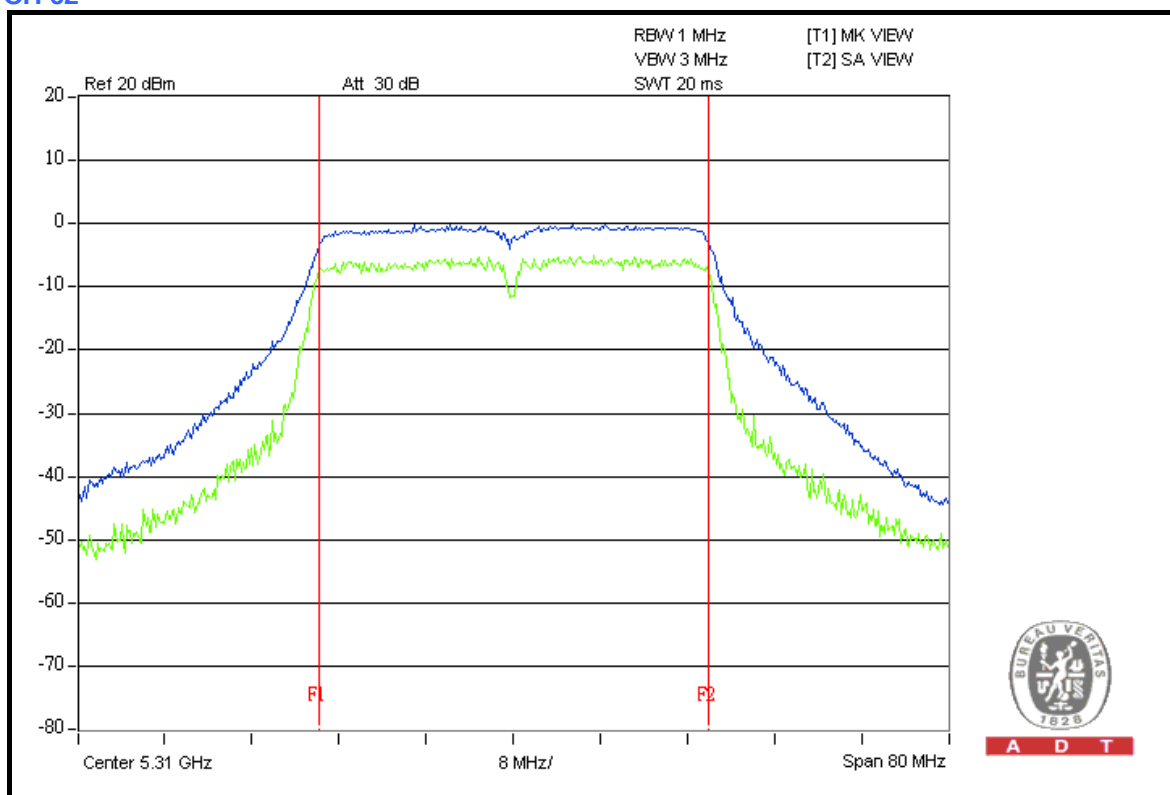
CH 54





A D T

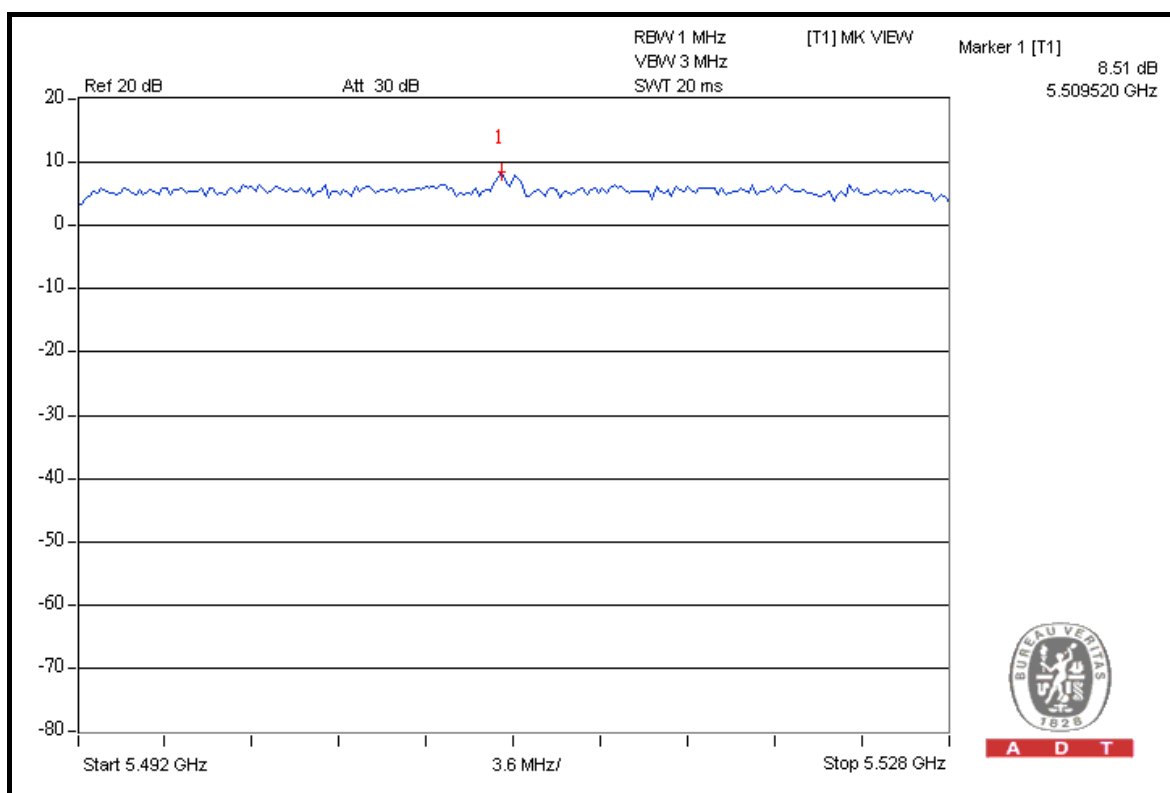
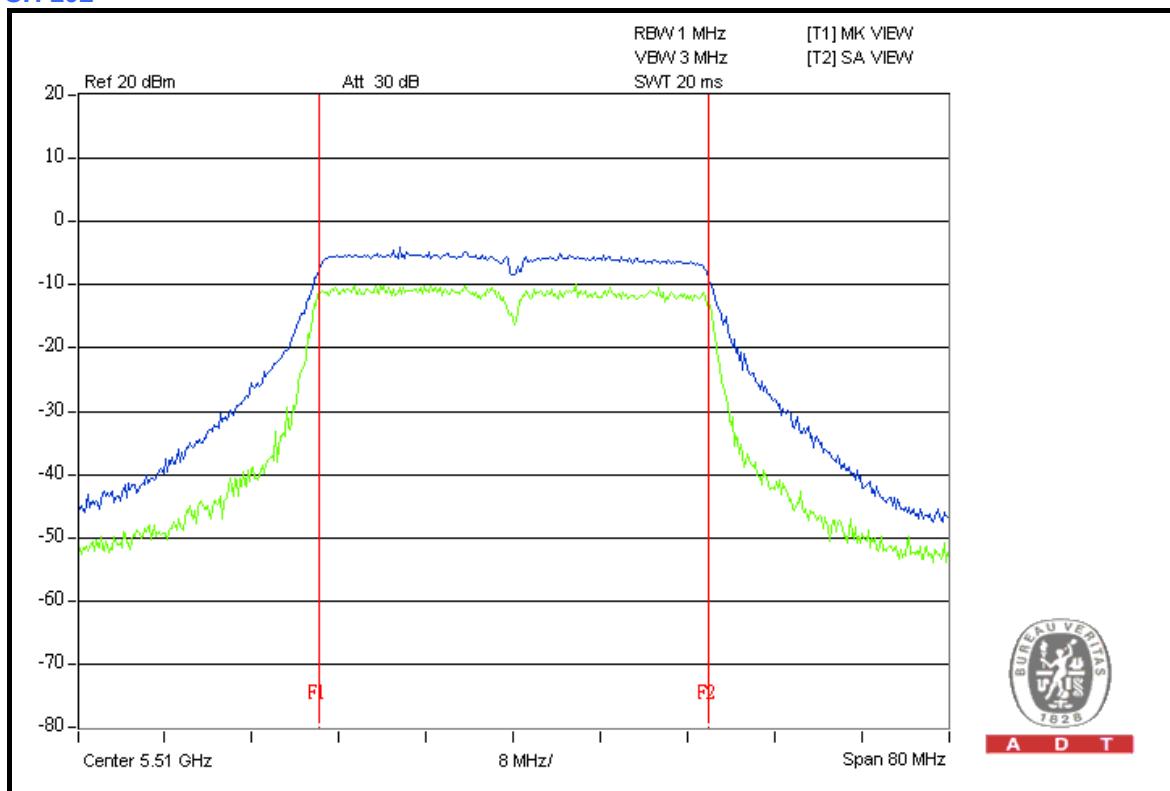
CH 62





A D T

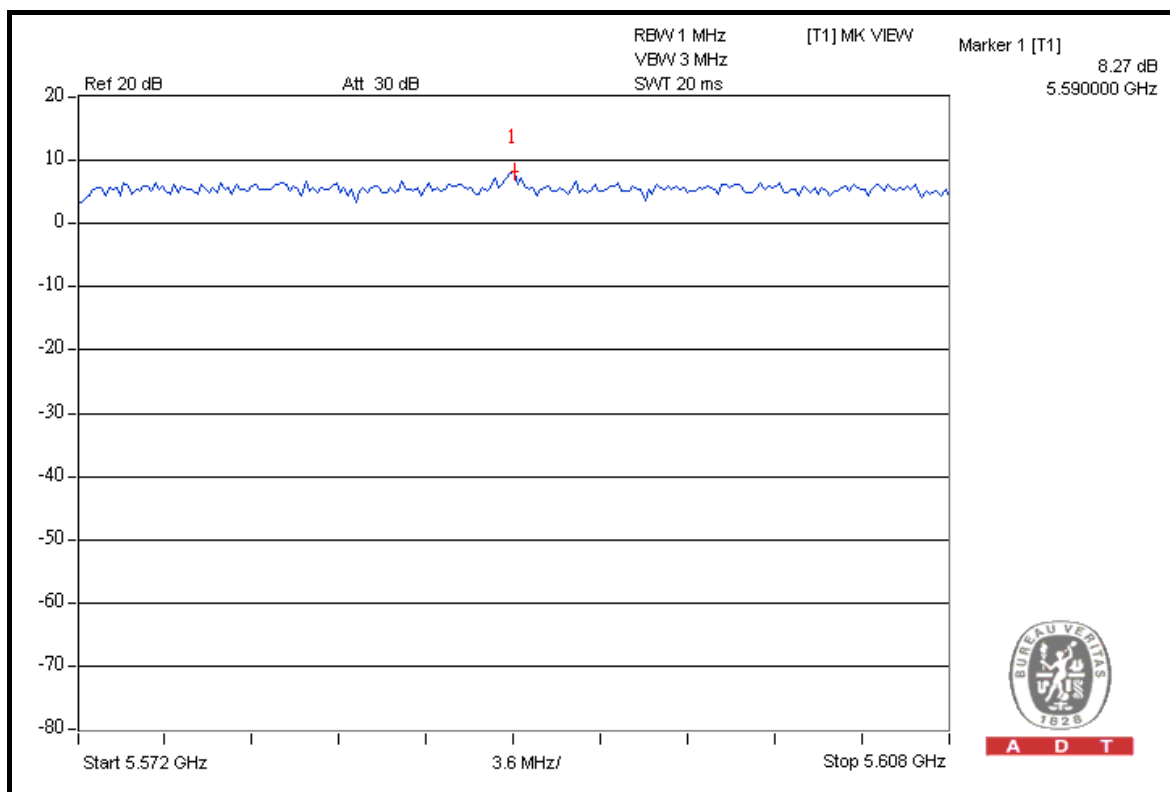
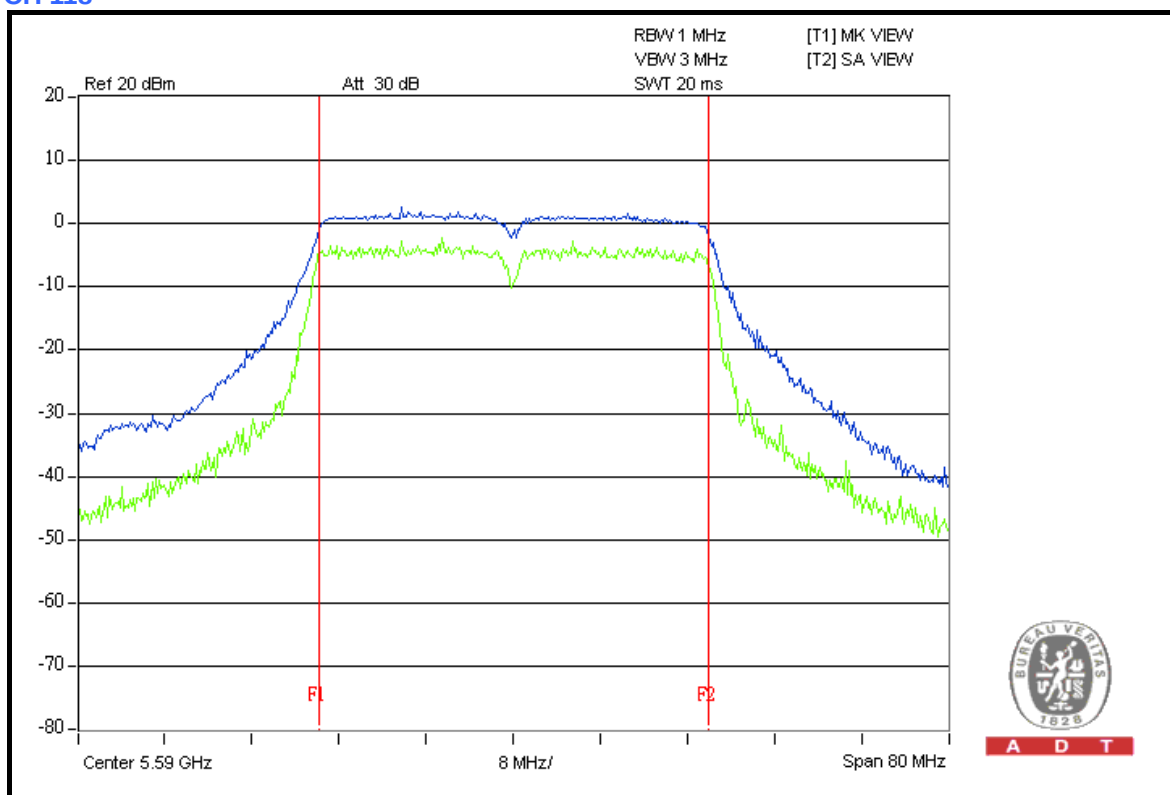
CH 102





A D T

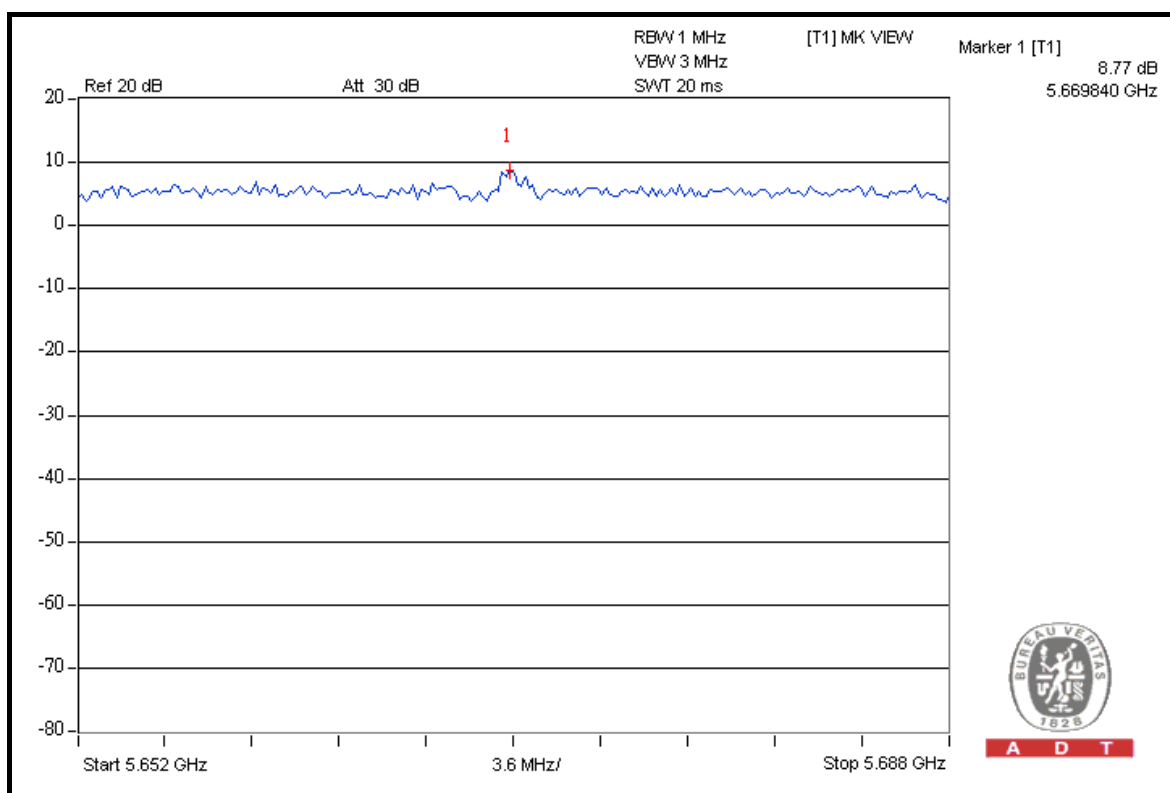
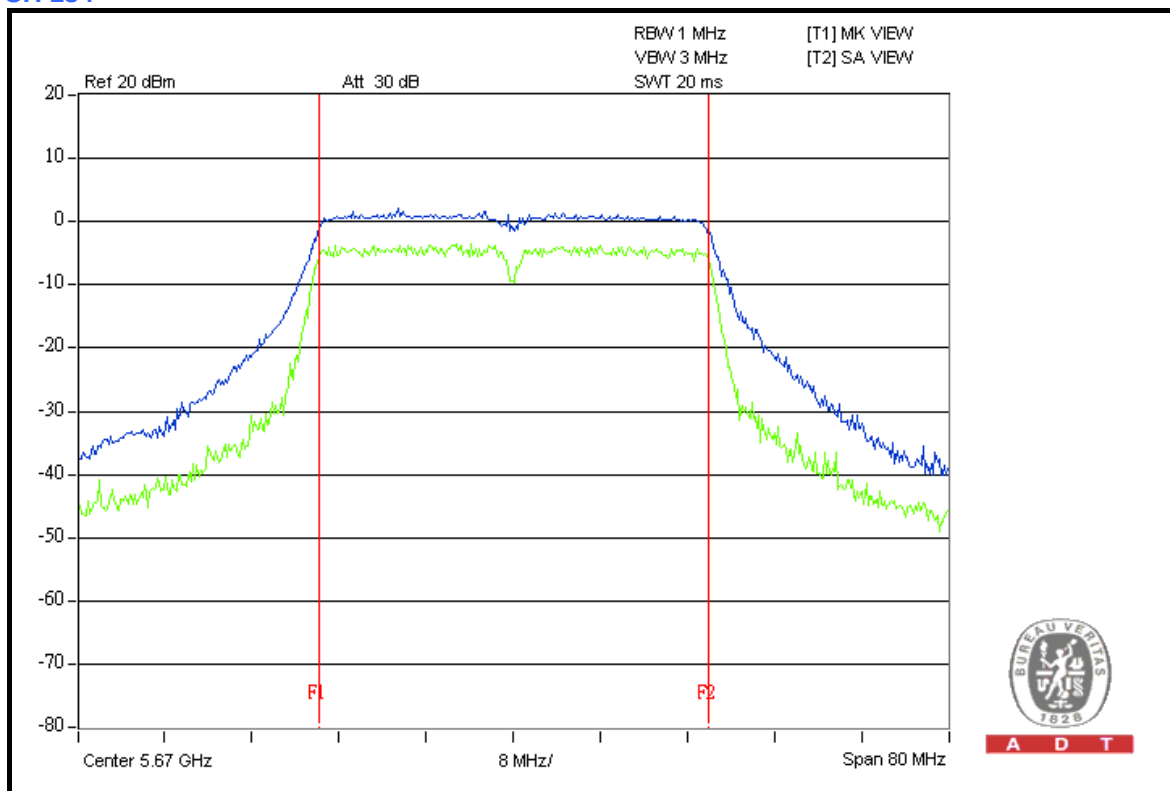
CH 118





A D T

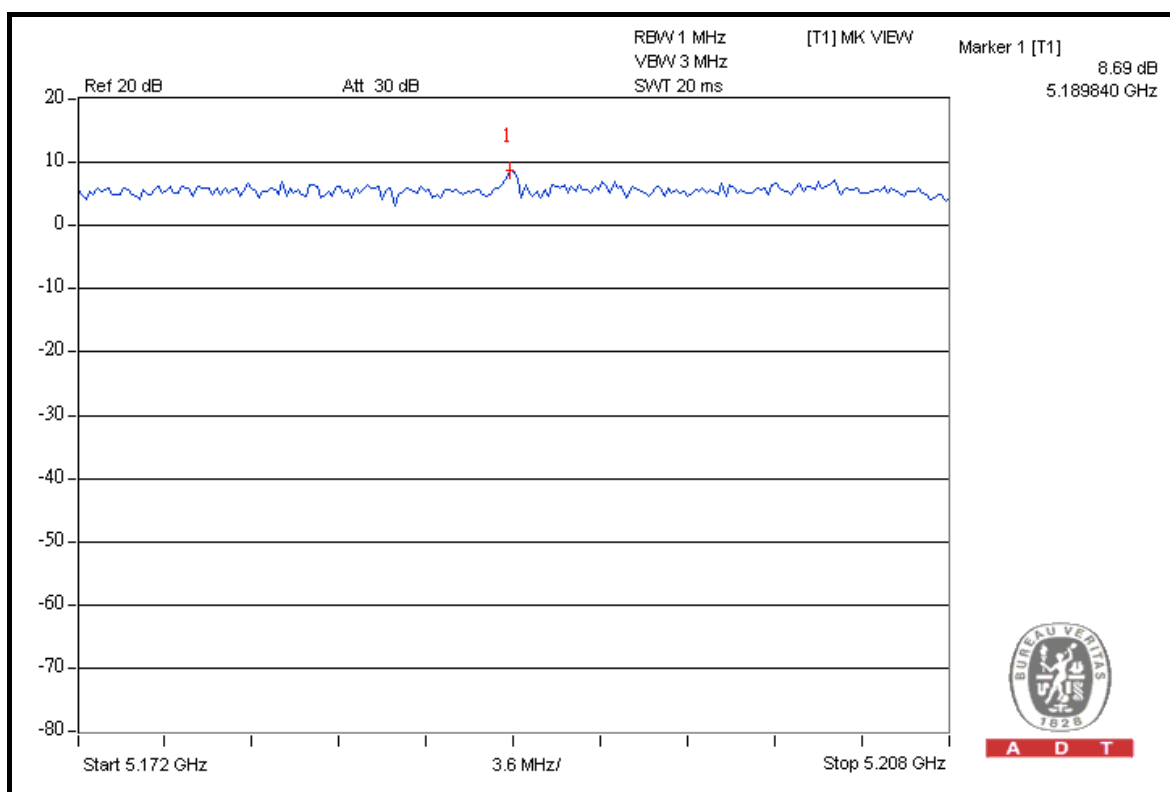
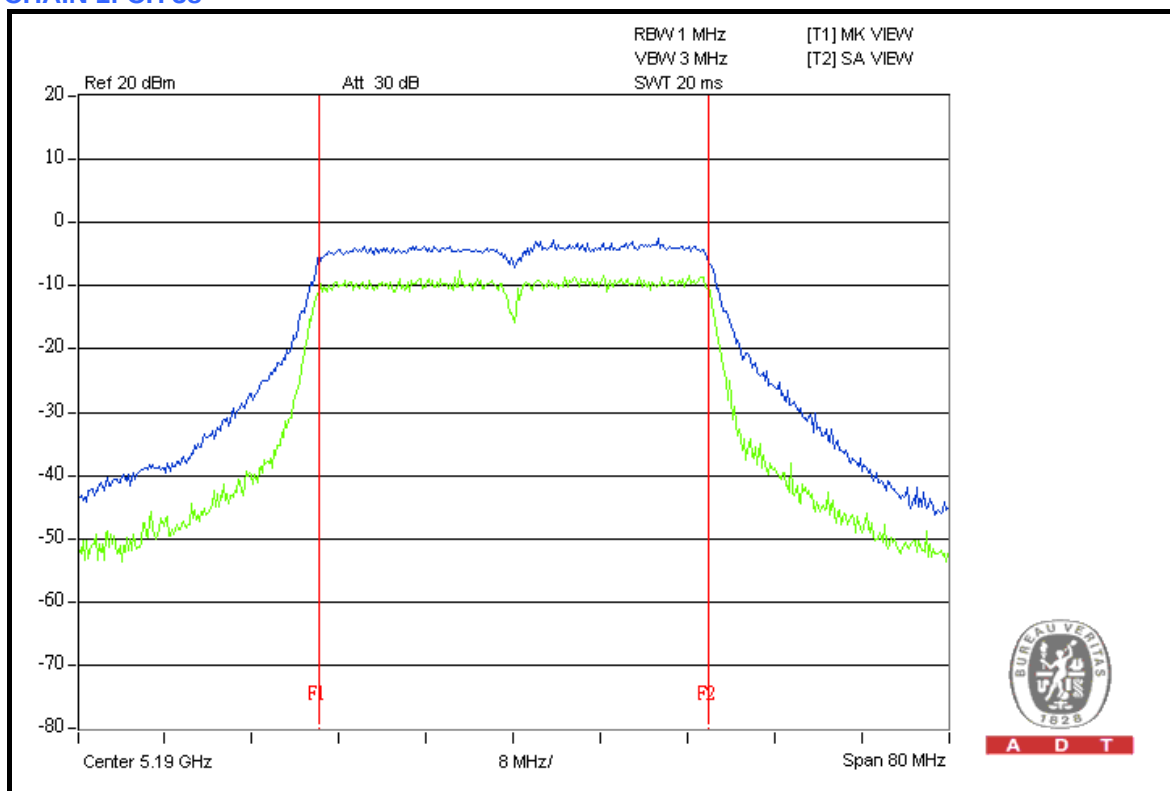
CH 134





A D T

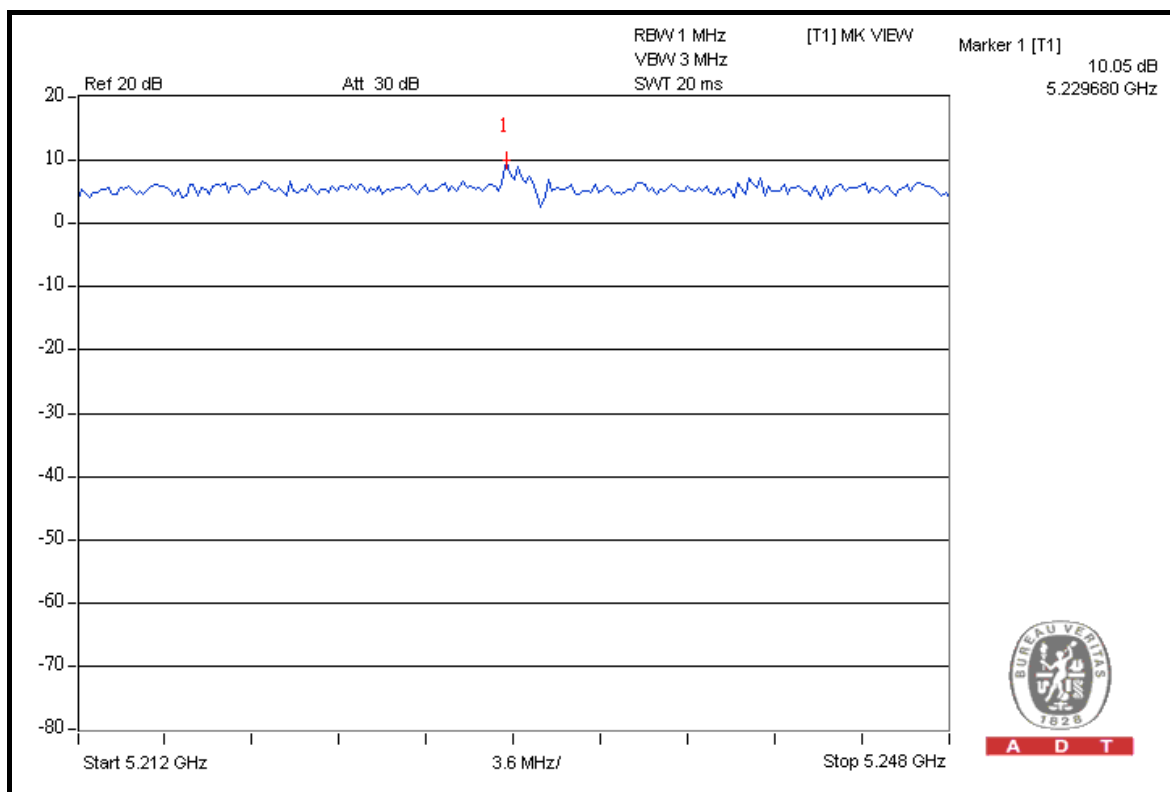
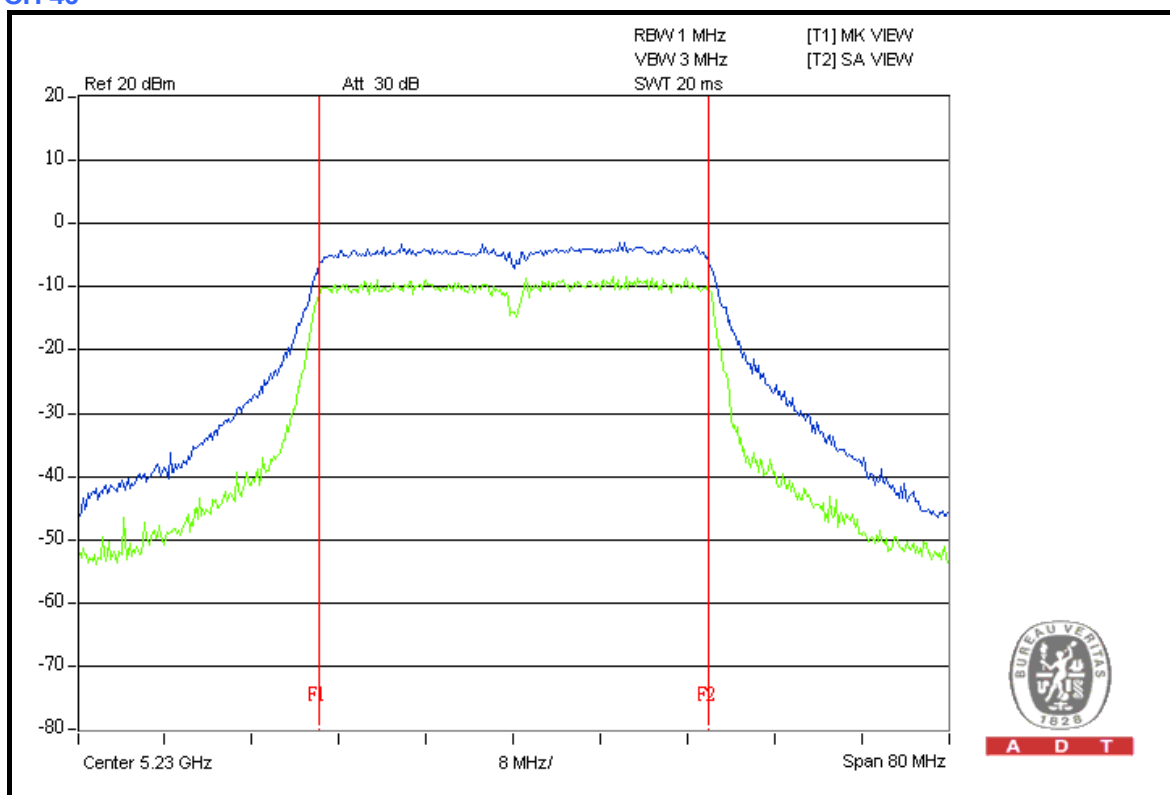
CHAIN 1: CH 38





A D T

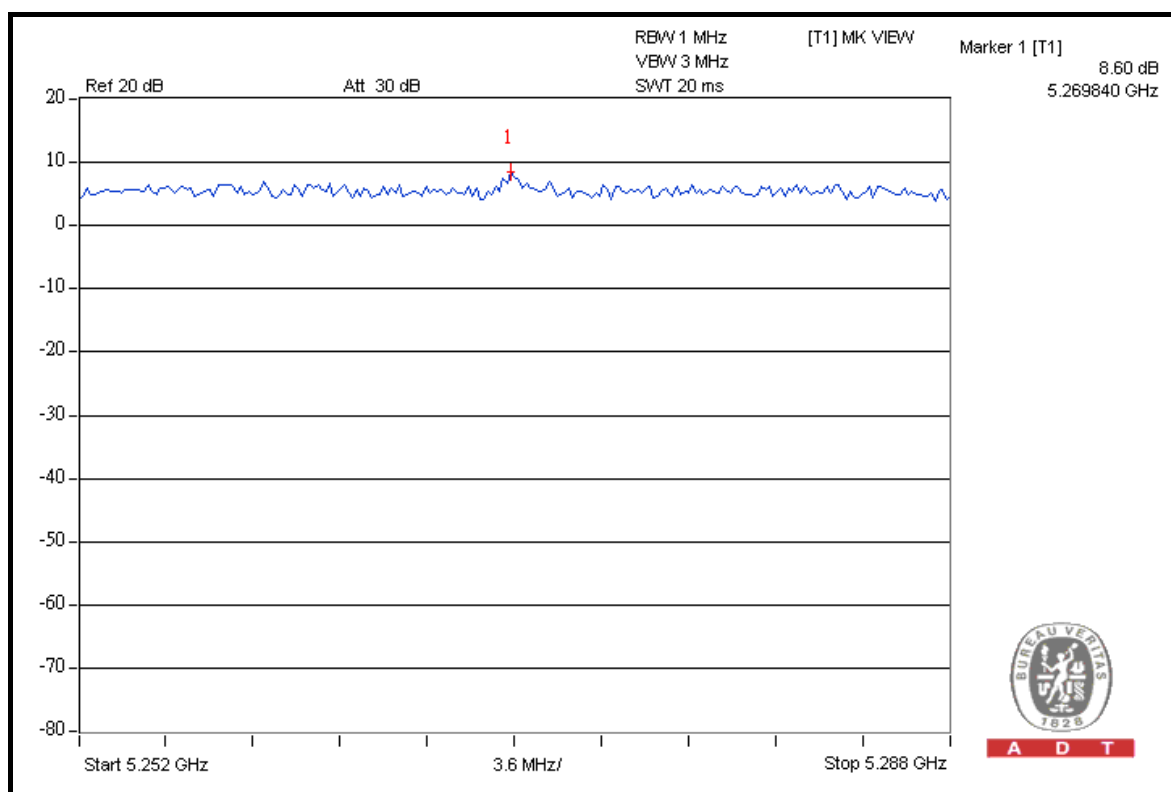
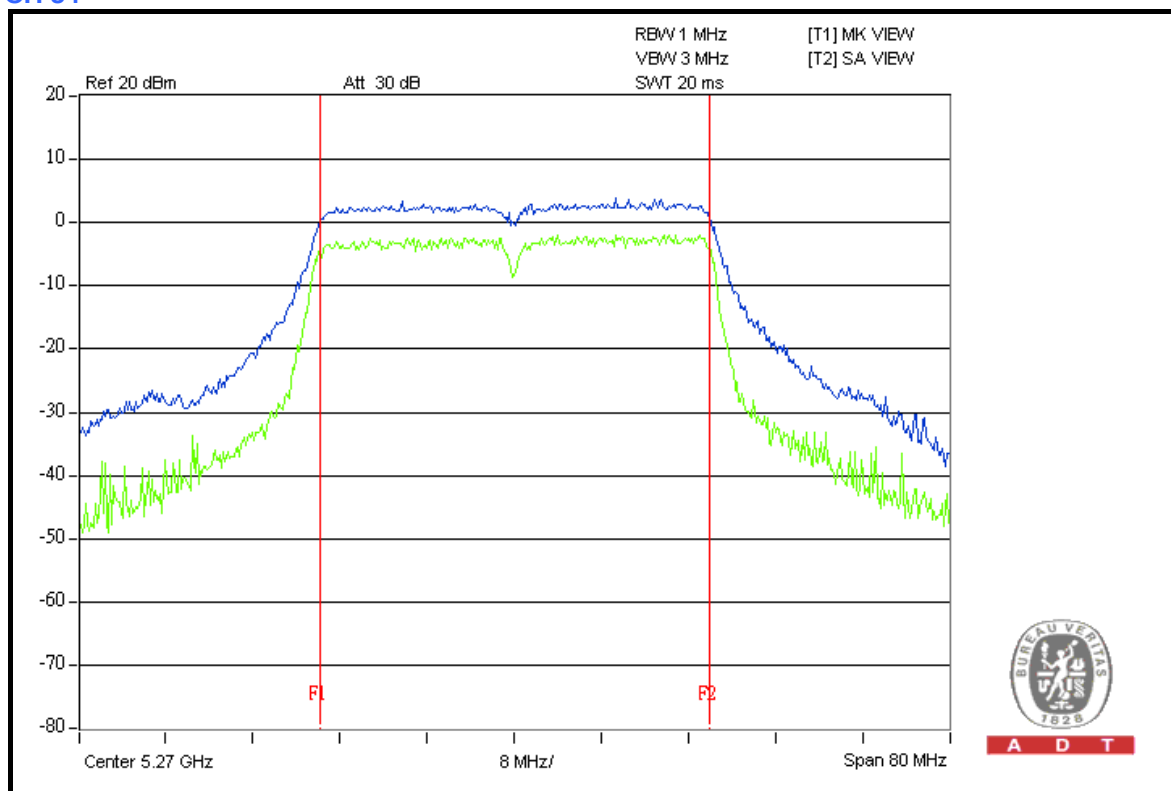
CH 46





A D T

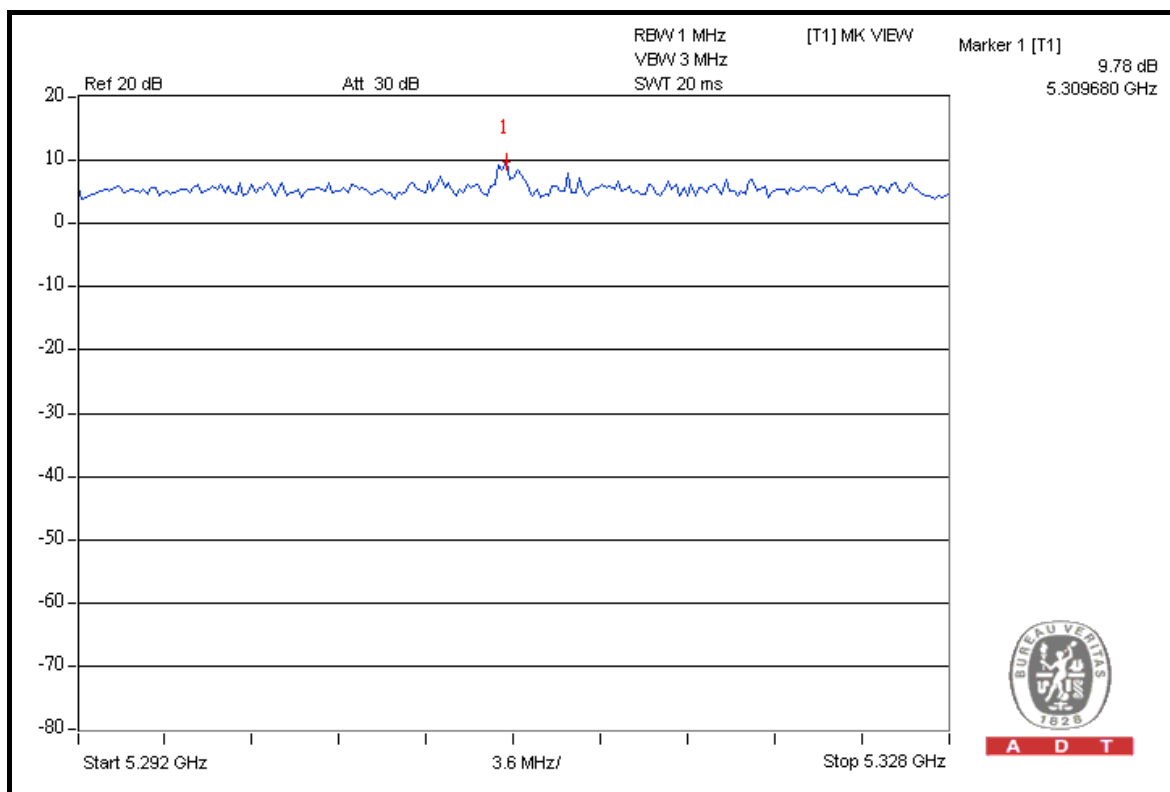
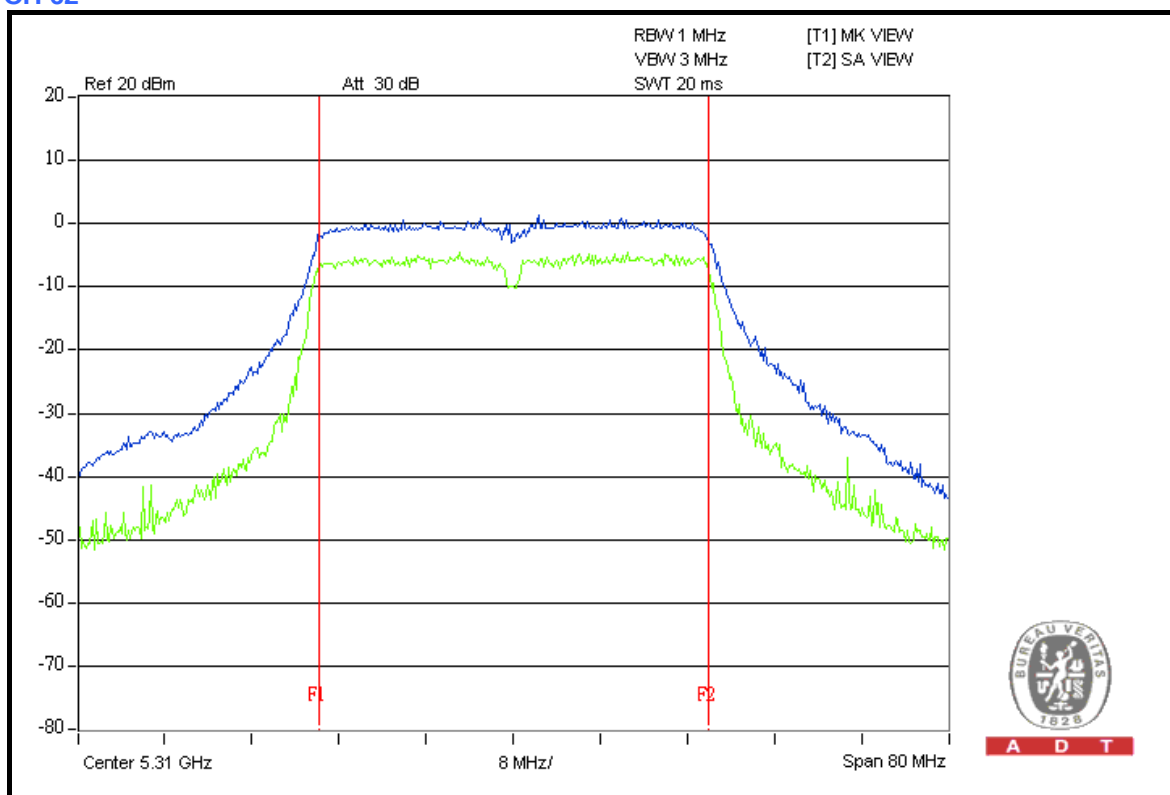
CH 54





A D T

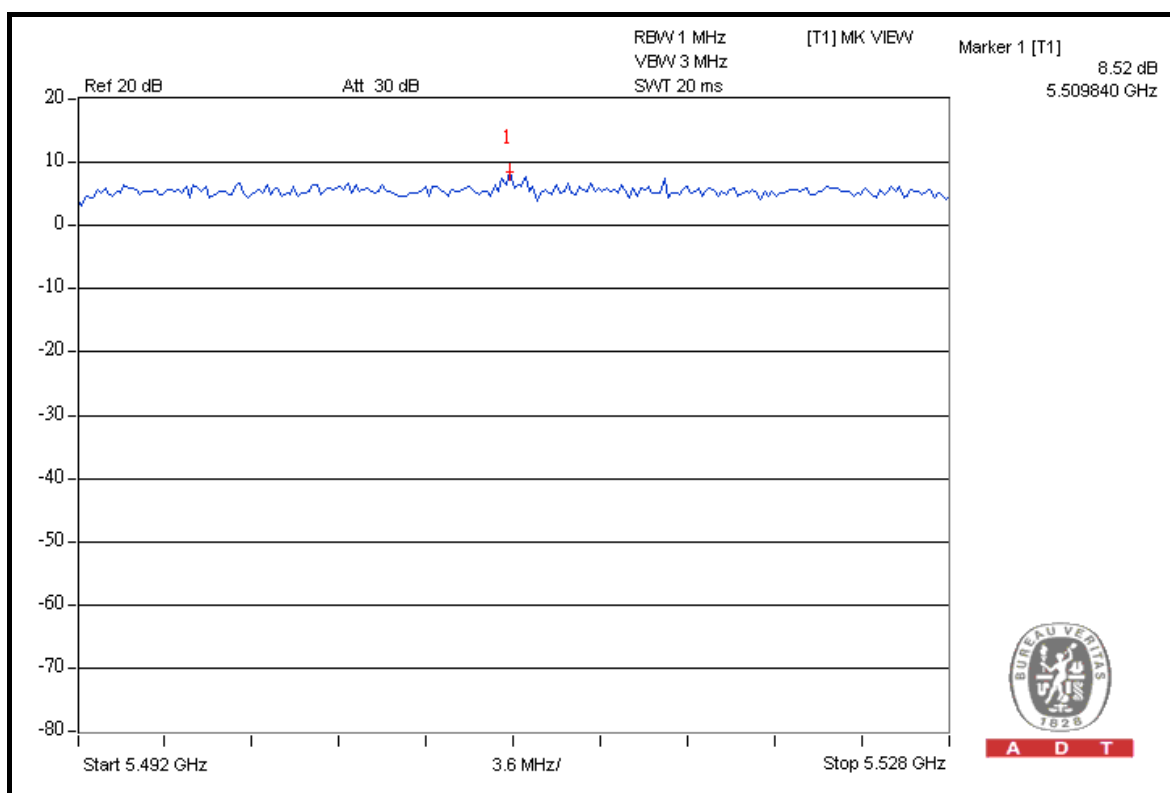
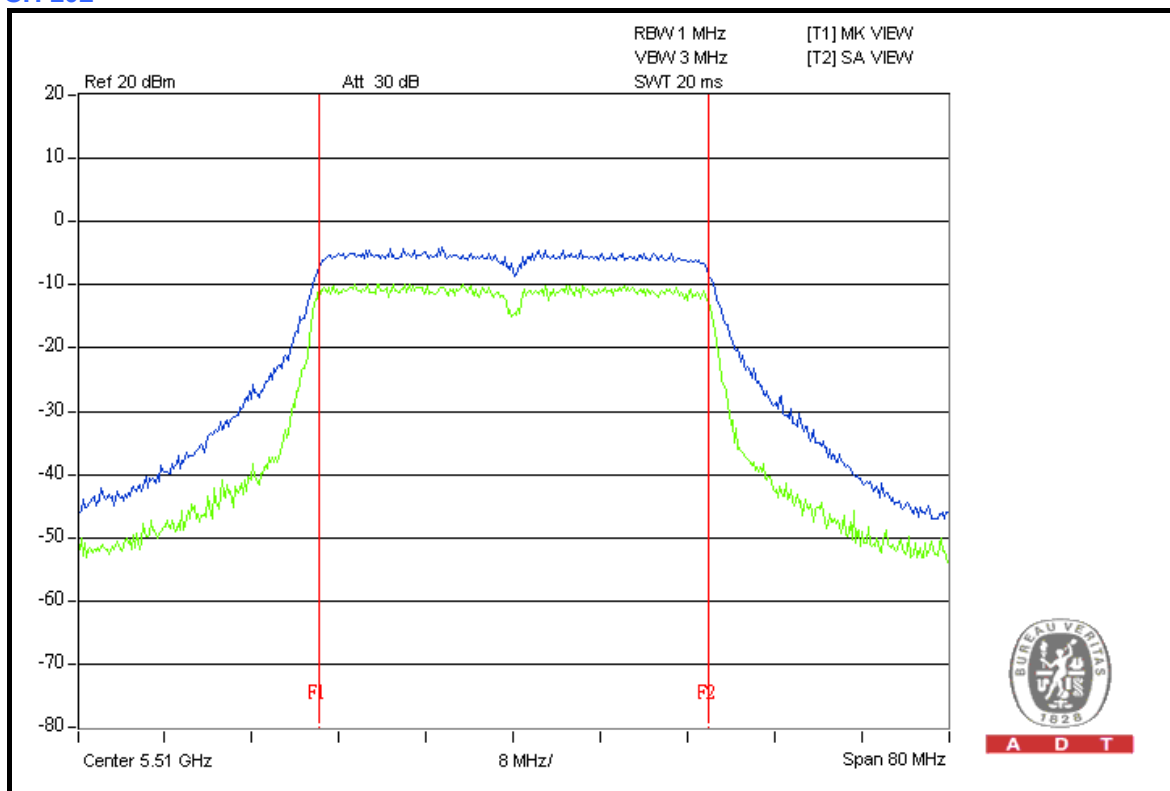
CH 62





A D T

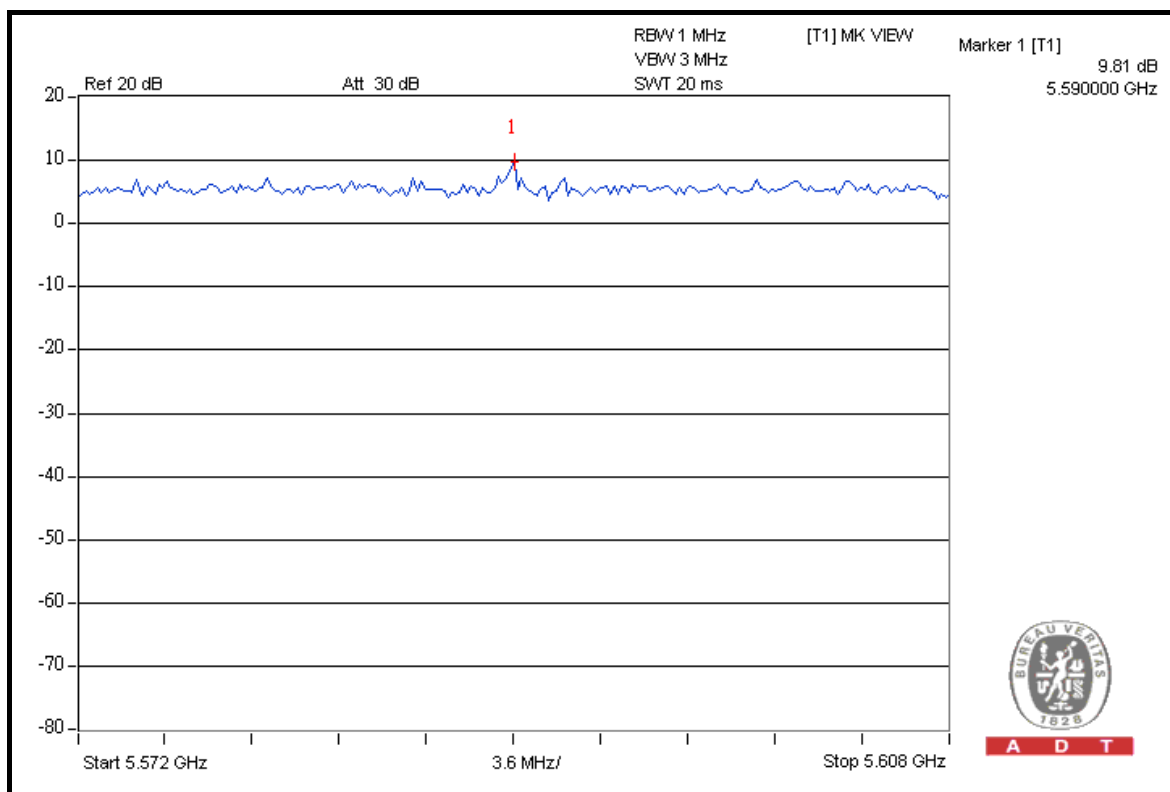
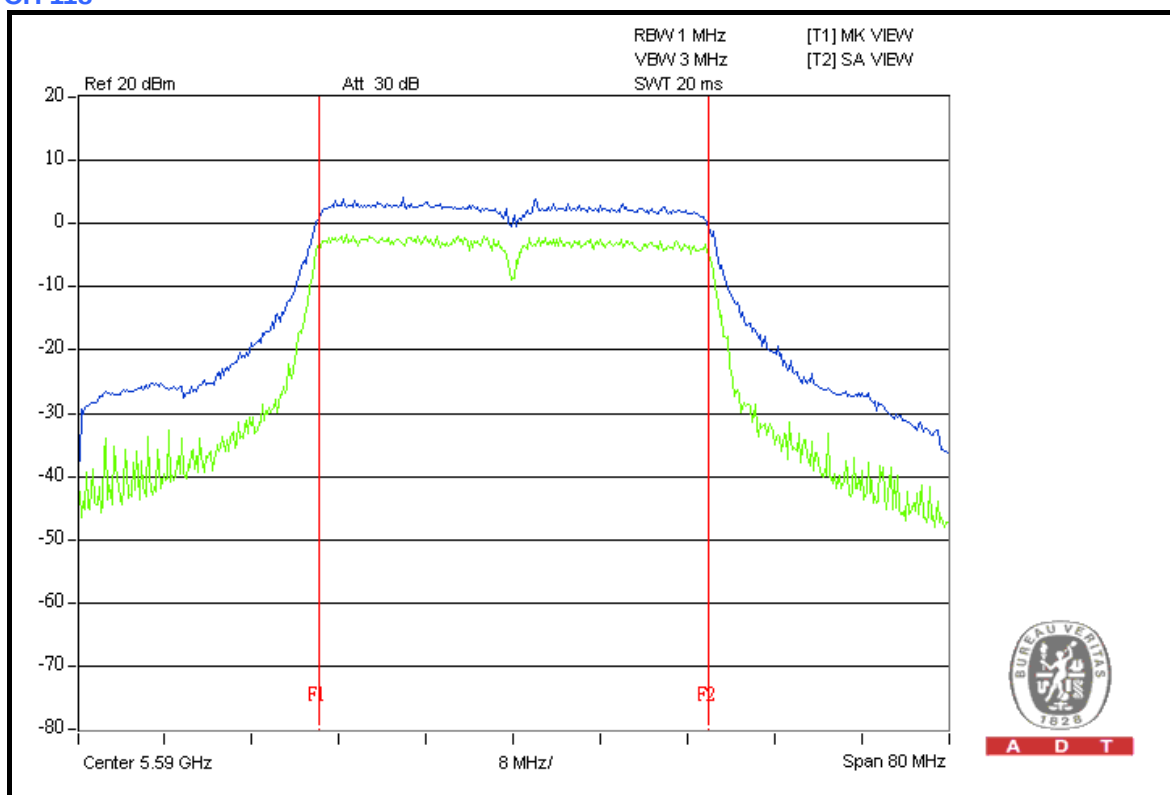
CH 102





A D T

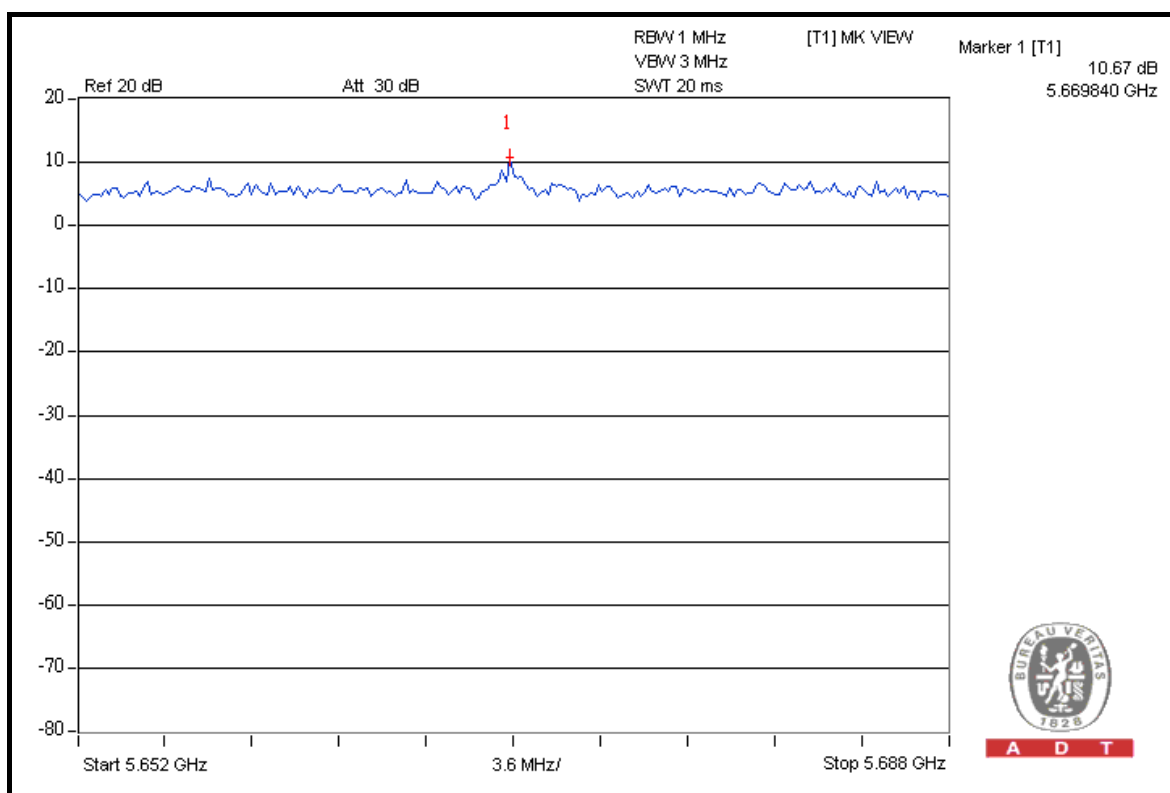
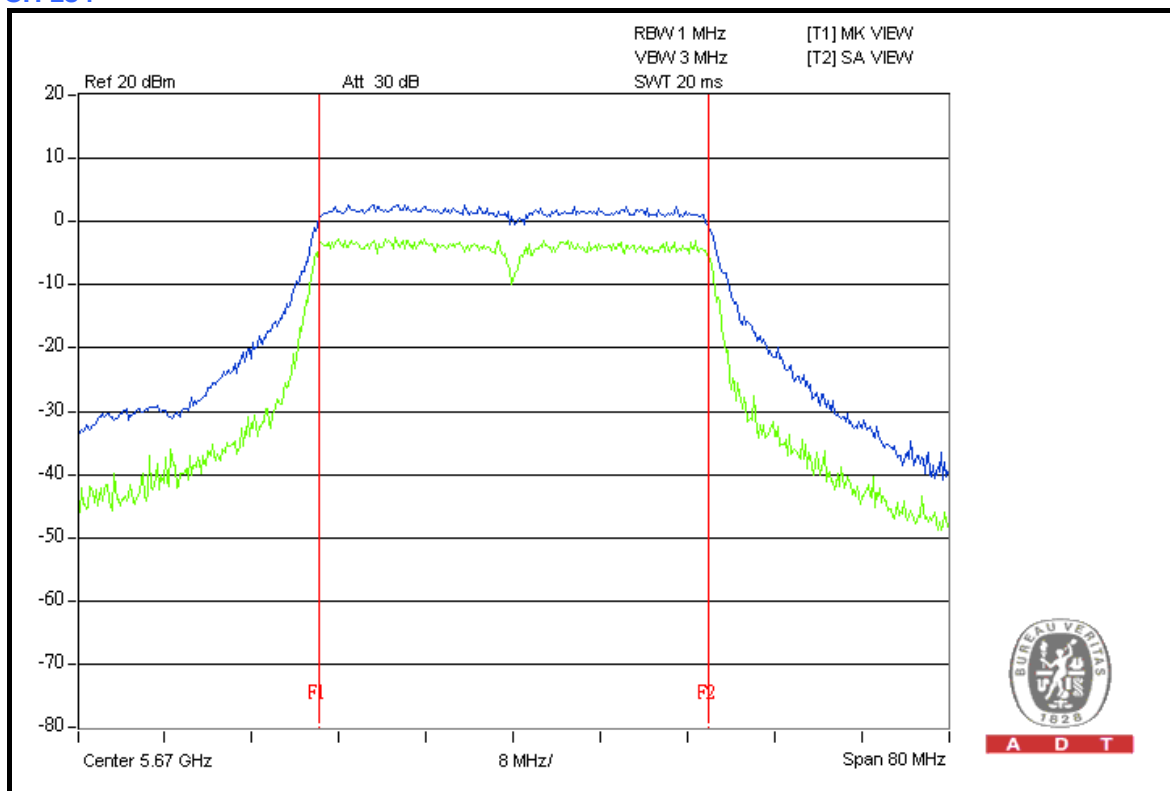
CH 118





A D T

CH 134



4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	-6dBm
5.250 ~ 5.350GHz	1dBm
5.470 ~ 5.725GHz	1dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

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

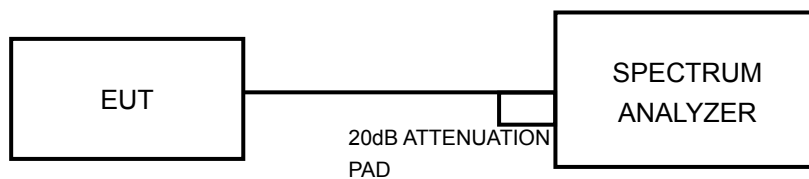
4.5.3 TEST PROCEDURES

- 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

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

4.5.7 TEST RESULTS

802.11a OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

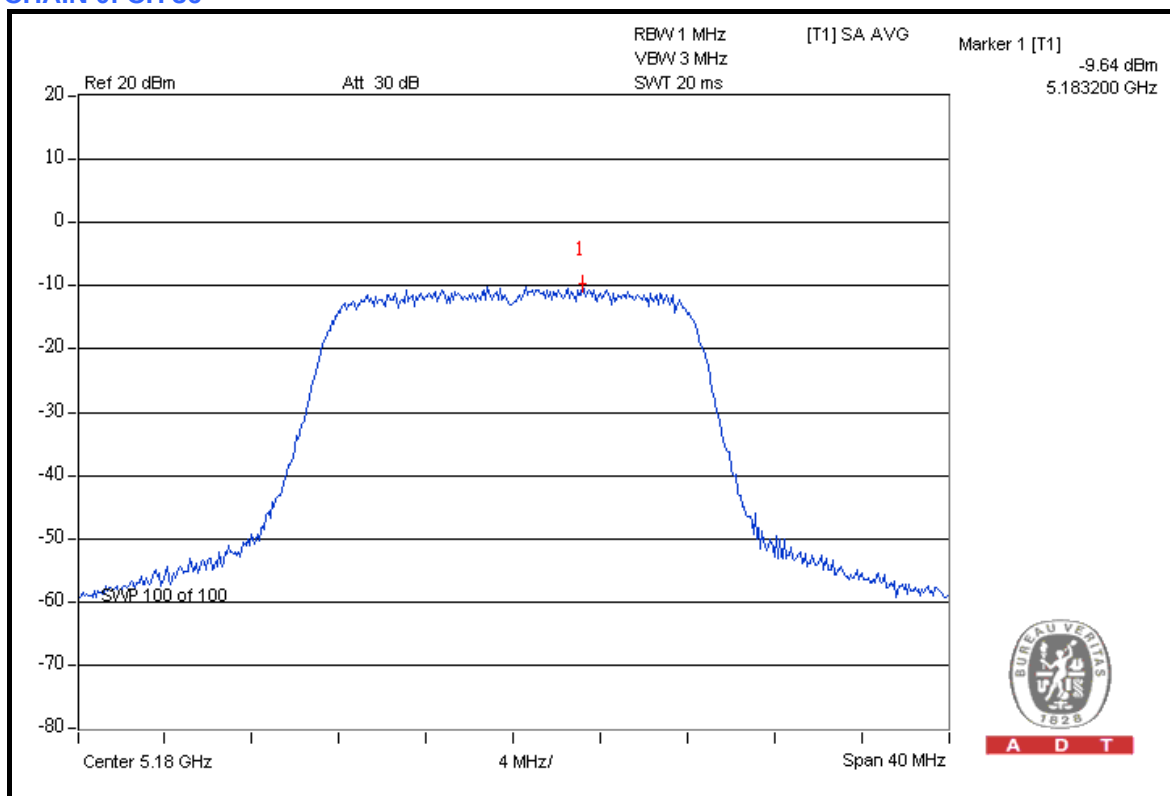
CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-9.64	-10.49	0.198	-7.03	-6	PASS
40	5200	-8.91	-10.88	0.210	-6.77	-6	PASS
48	5240	-9.37	-11.52	0.186	-7.30	-6	PASS
52	5260	-3.99	-4.19	0.780	-1.08	1	PASS
60	5300	-4.69	-4.50	0.694	-1.58	1	PASS
64	5320	-4.82	-4.48	0.686	-1.64	1	PASS
100	5500	-2.52	-2.49	1.123	0.51	1	PASS
120	5600	-4.02	-4.19	0.777	-1.09	1	PASS
140	5700	-4.94	-4.13	0.707	-1.51	1	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of peak power spectral density shall be reduced by 10 dB.



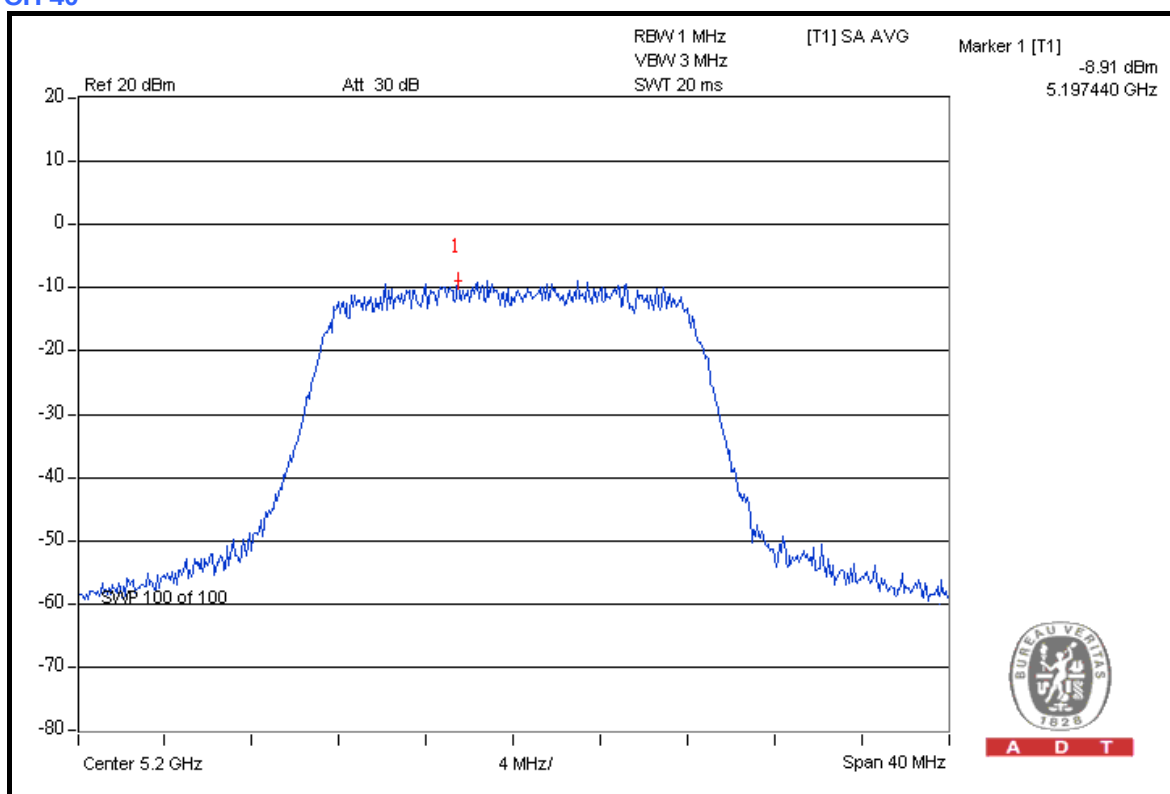
A D T

CHAIN 0: CH 36



A D T

CH 40

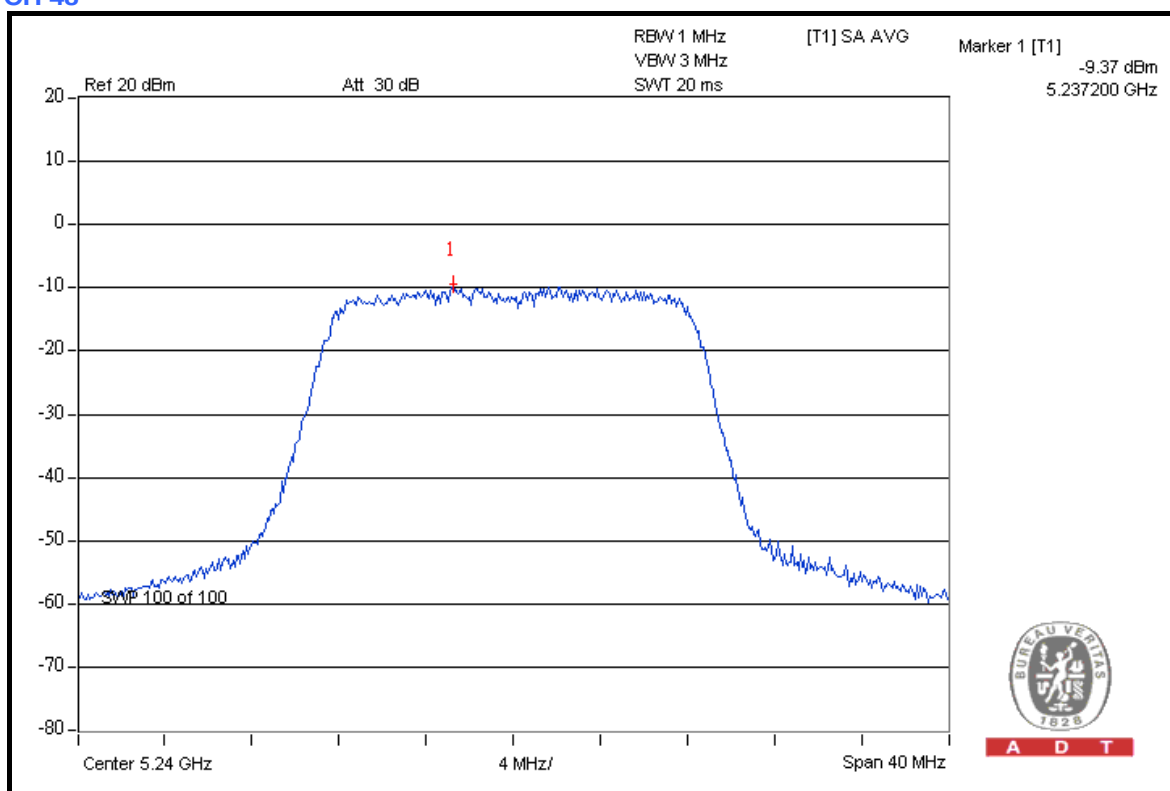


A D T

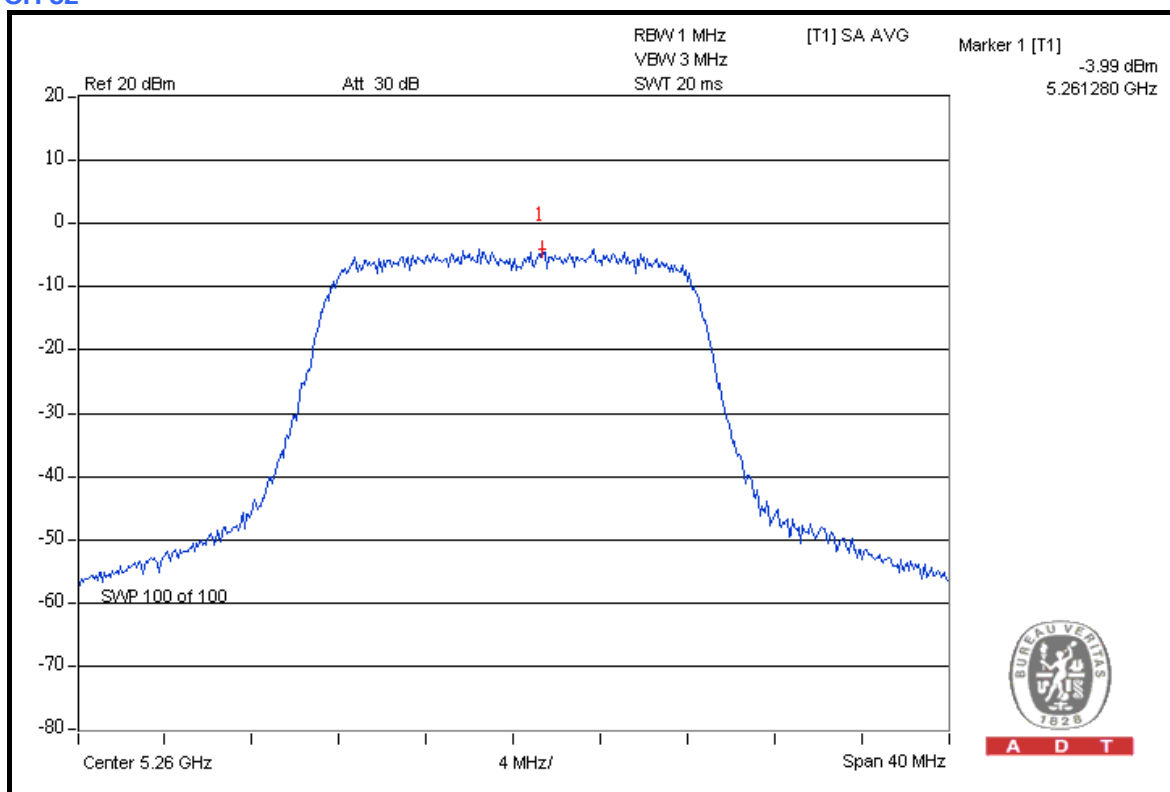


A D T

CH 48



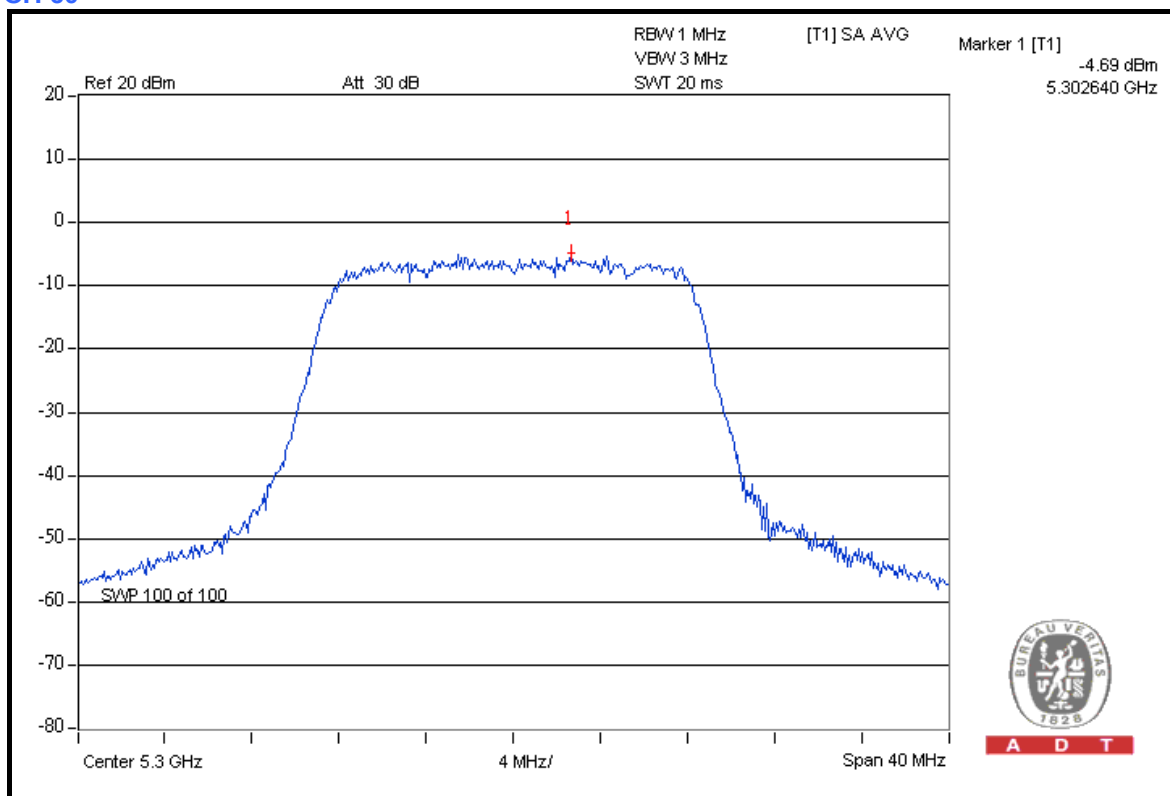
CH 52



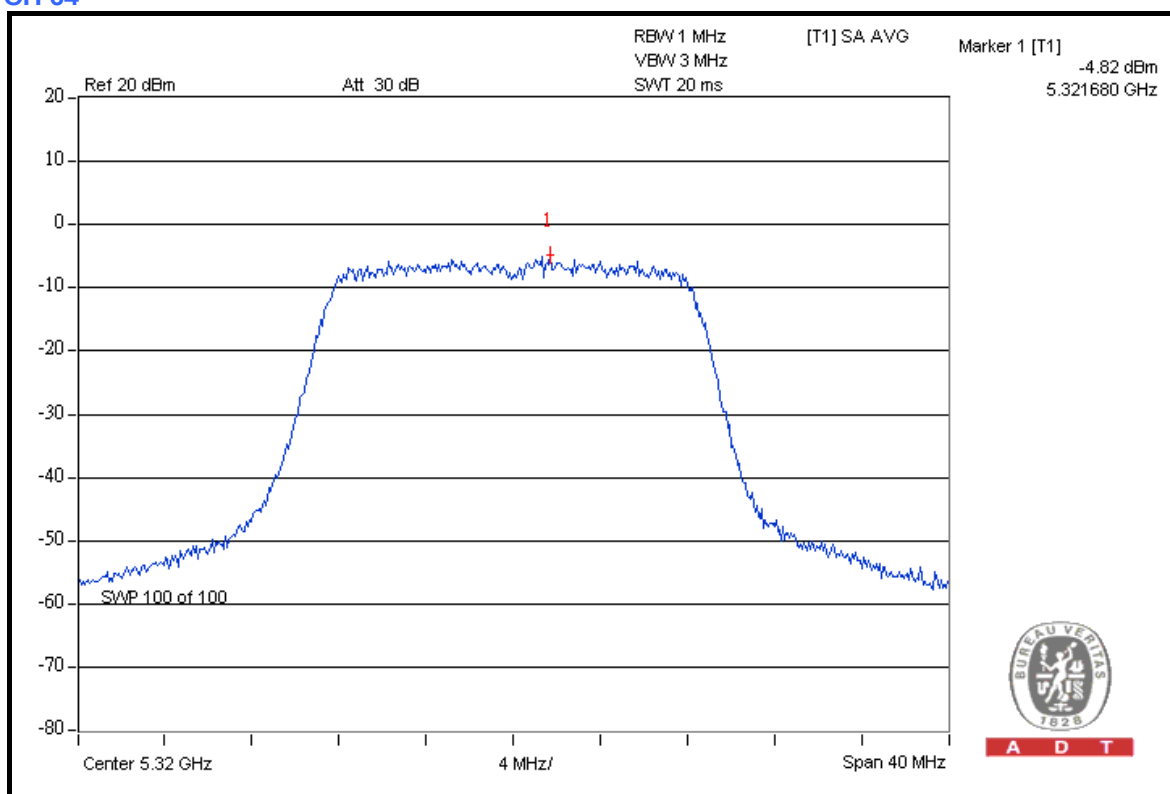


A D T

CH 60



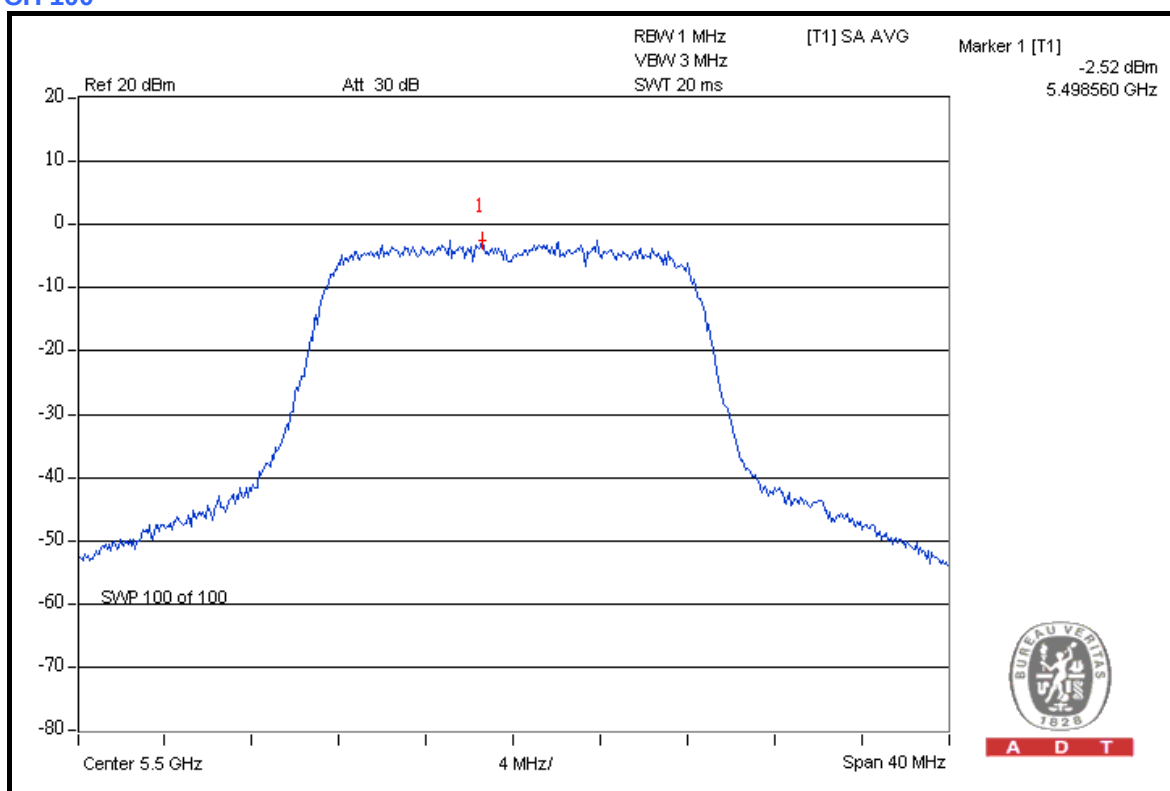
CH 64



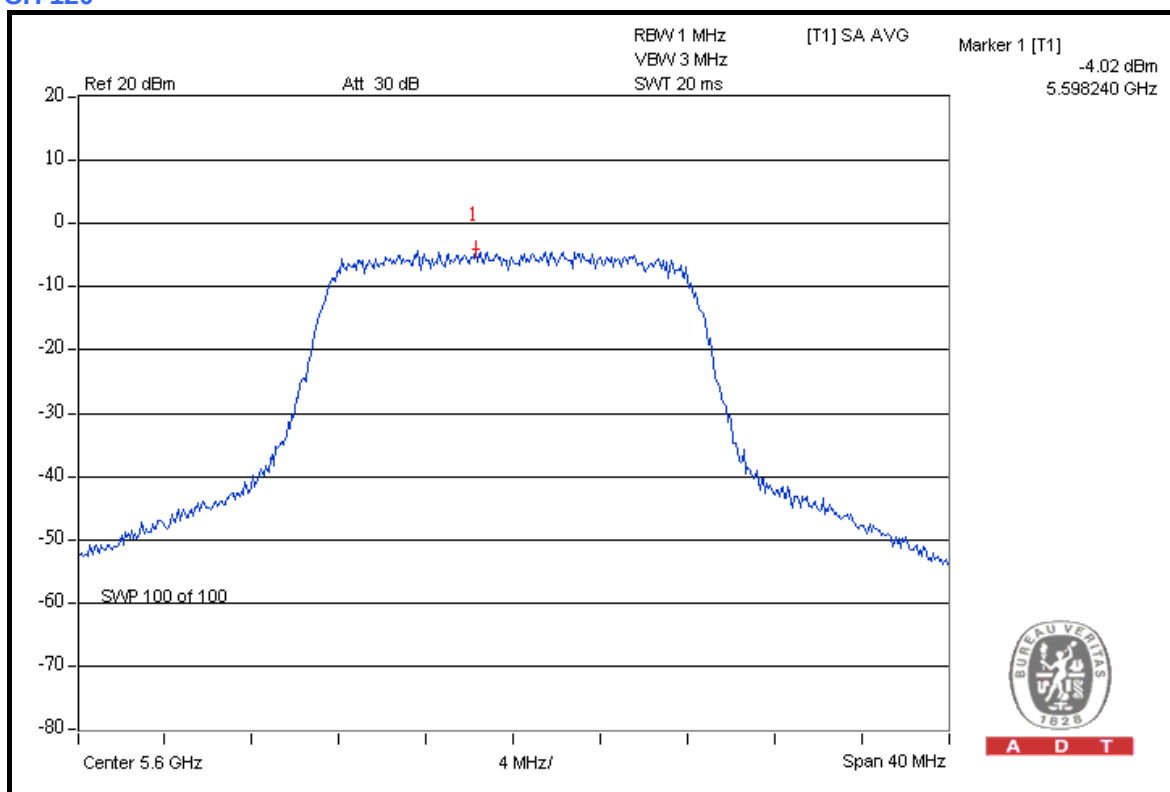


A D T

CH 100



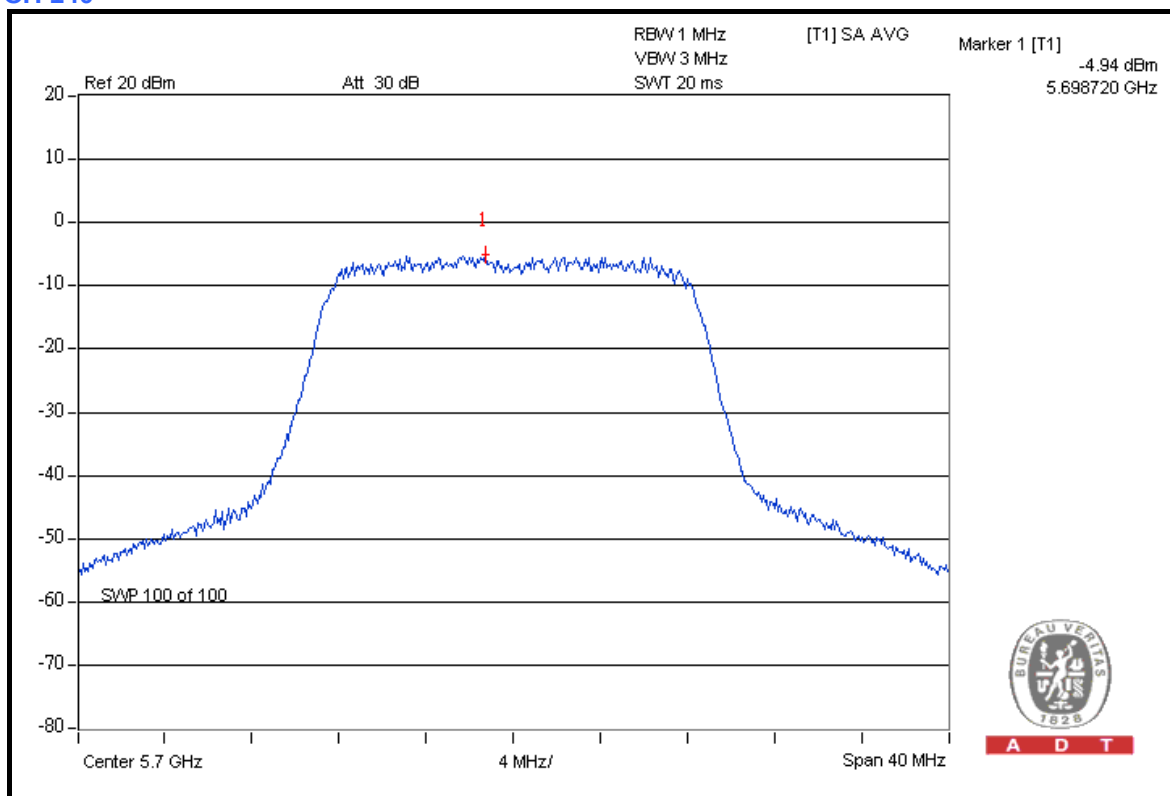
CH 120





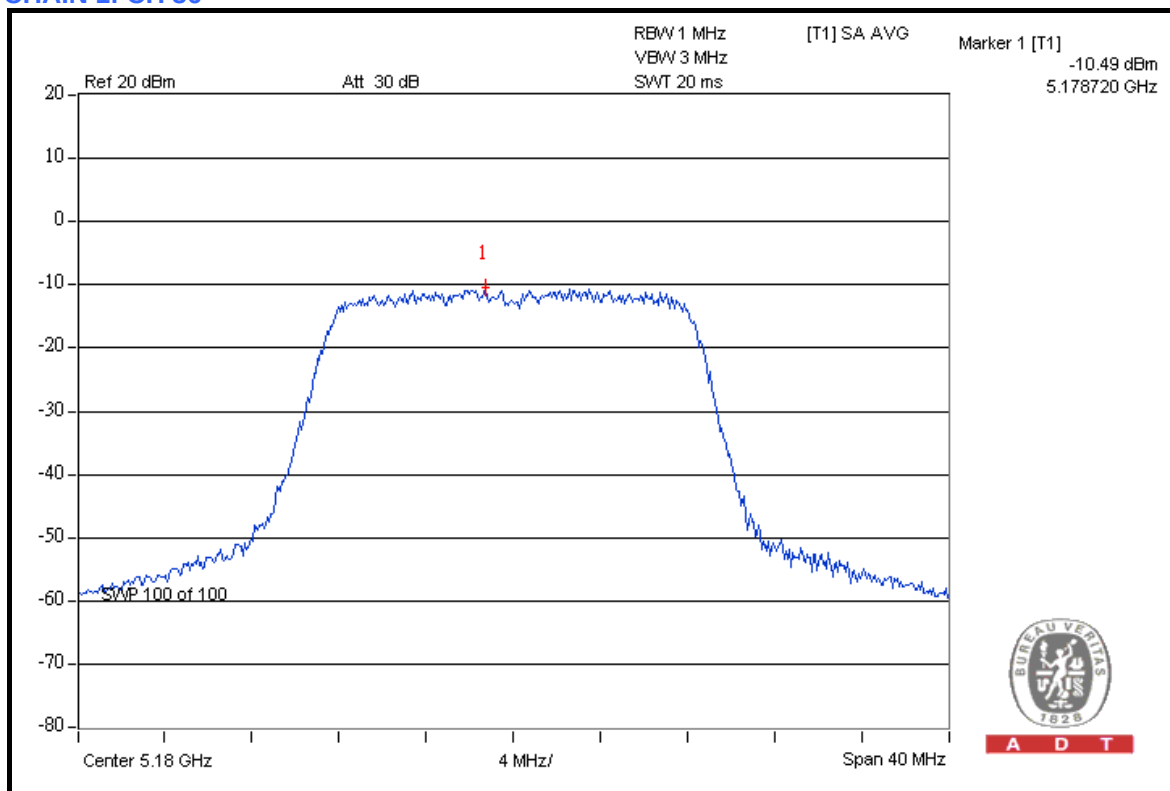
A D T

CH 140



A D T

CHAIN 1: CH 36

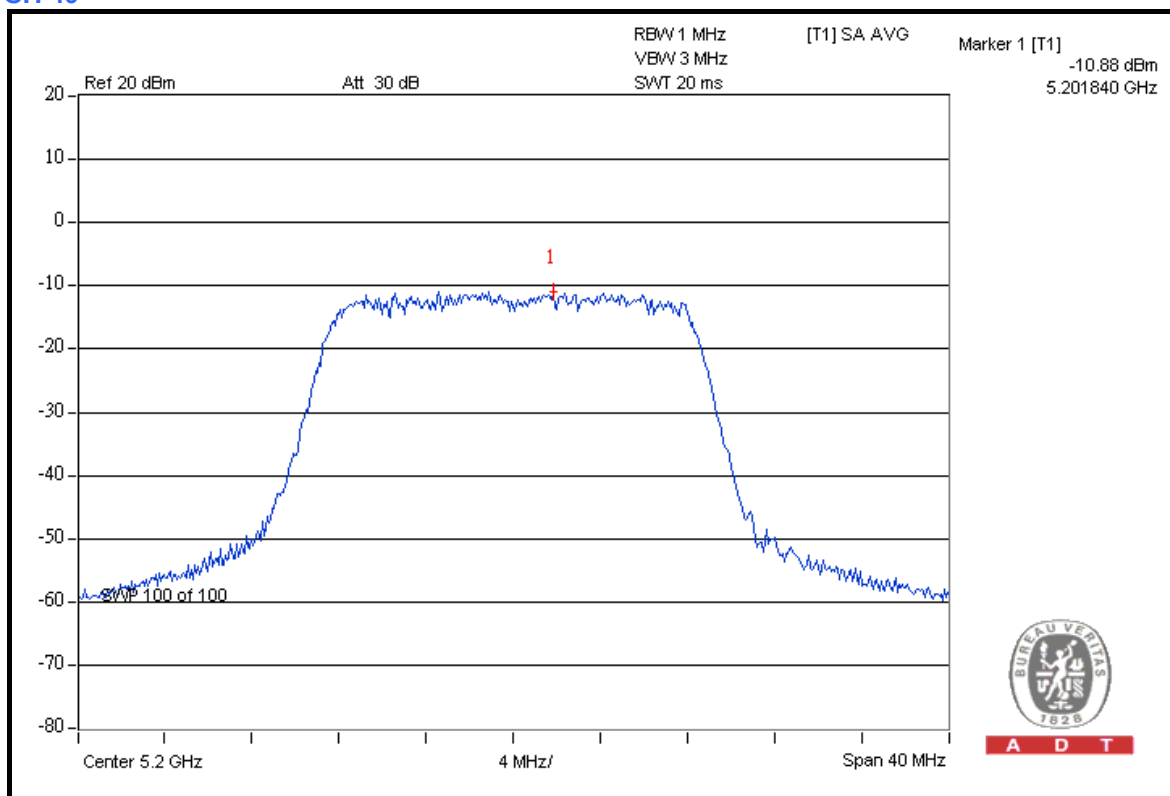


A D T

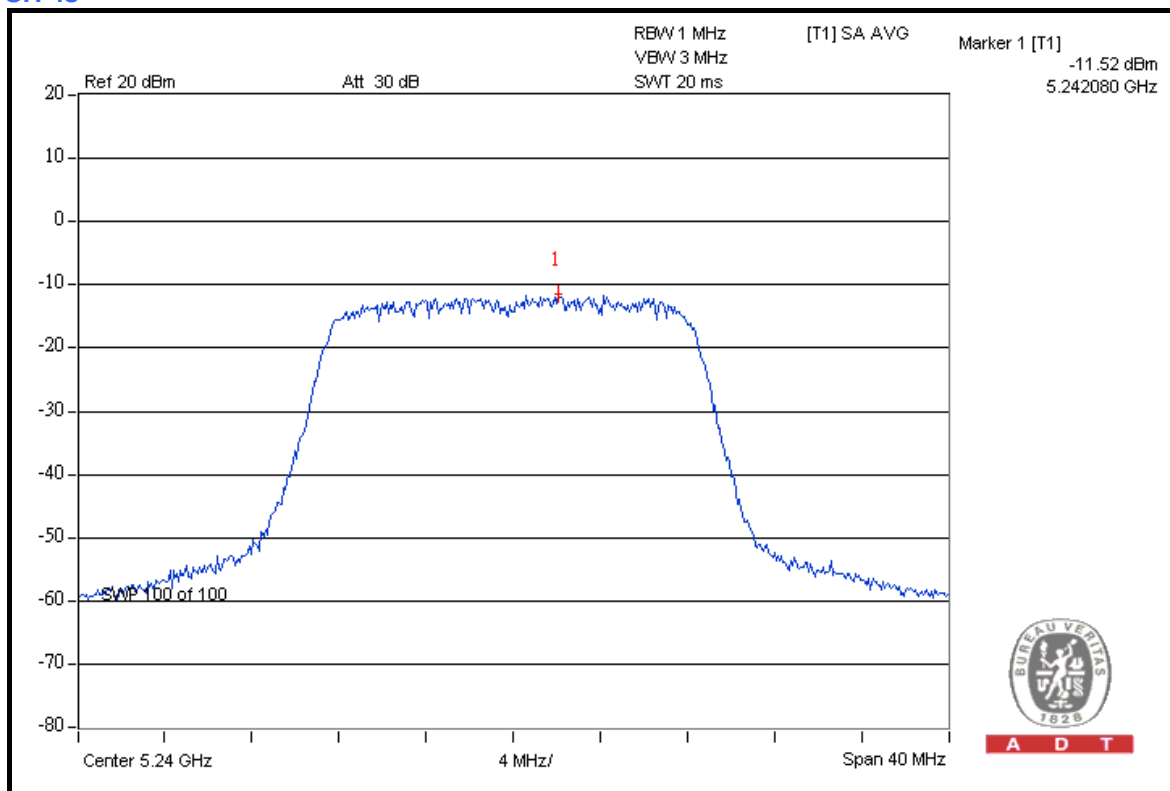


A D T

CH 40



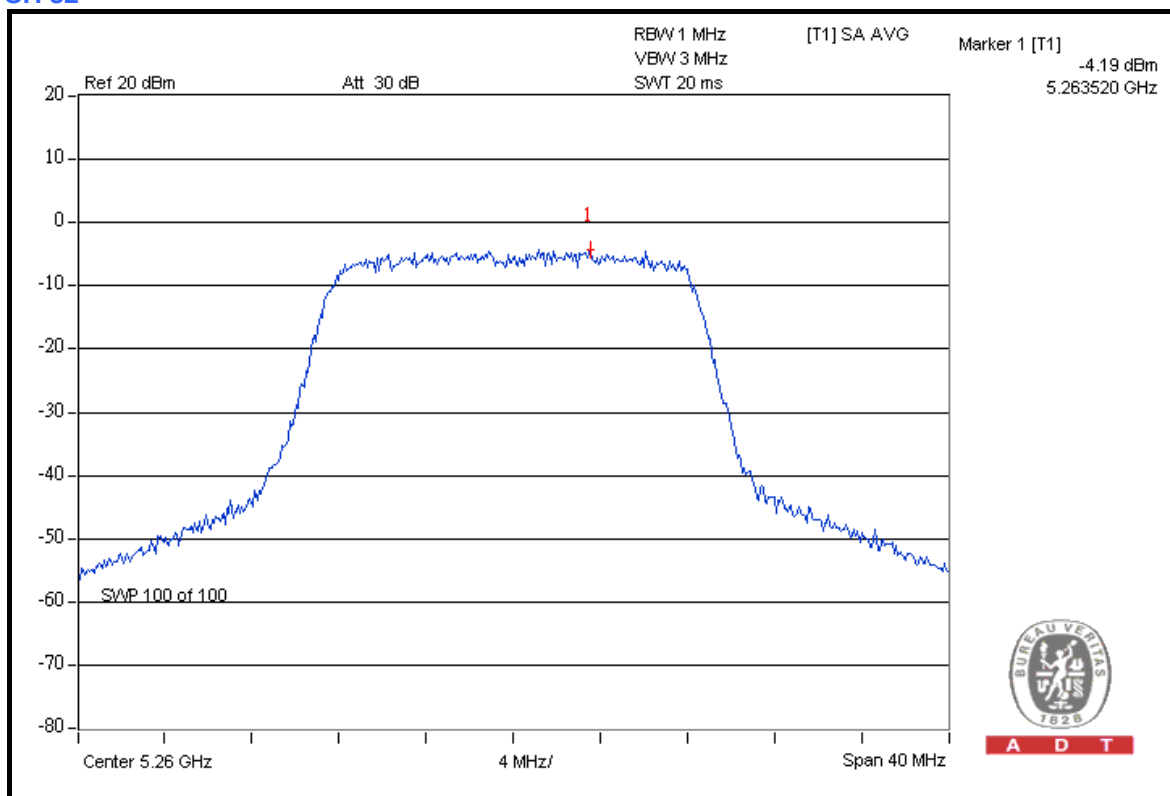
CH 48



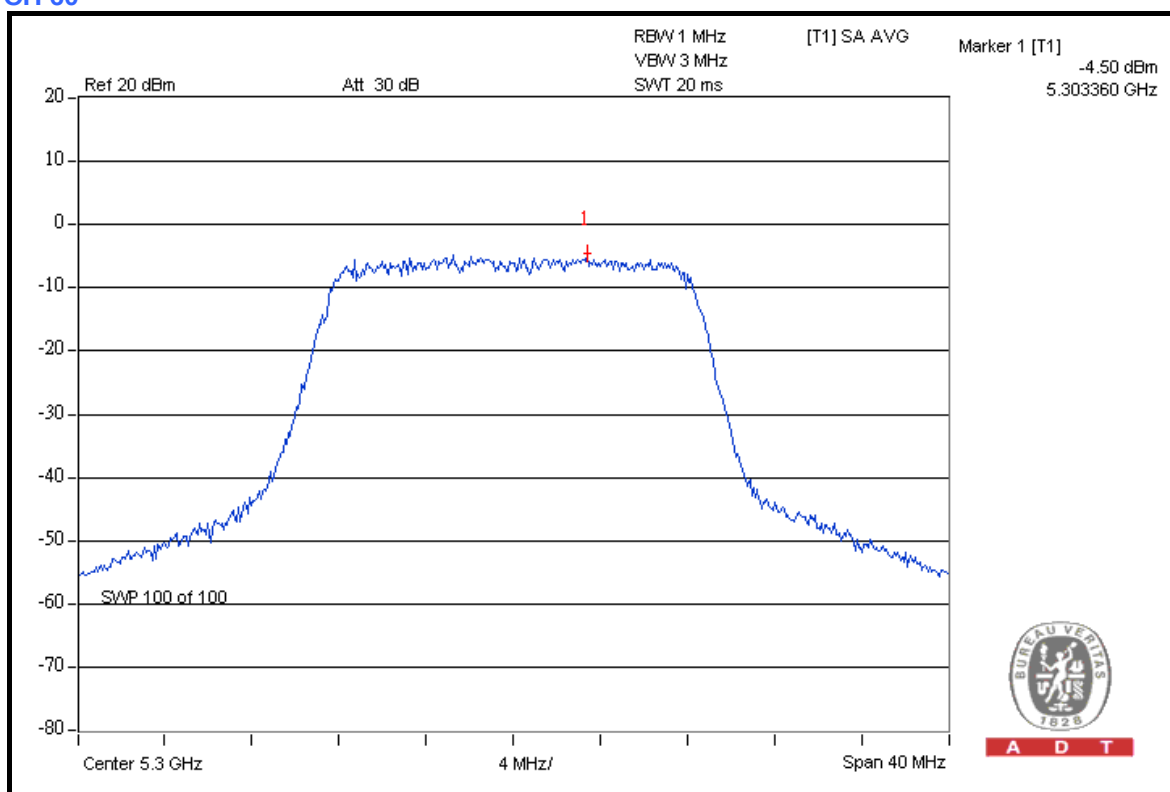


A D T

CH 52



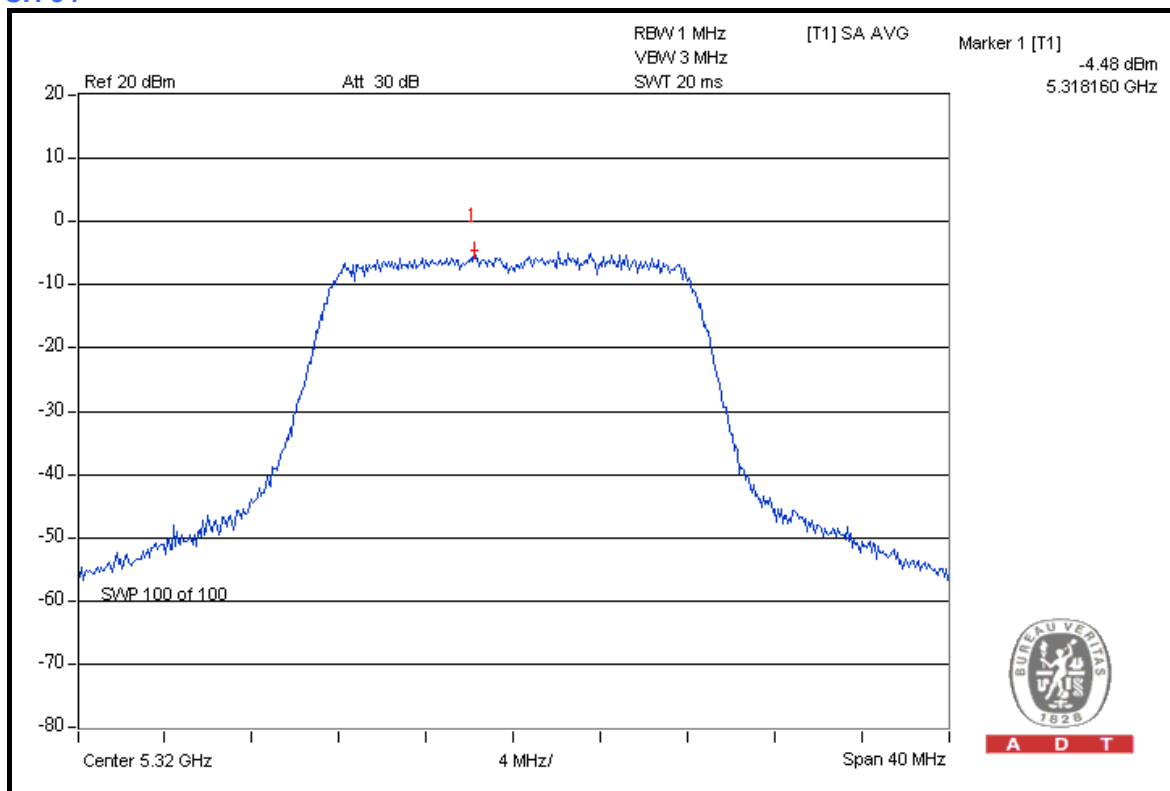
CH 60





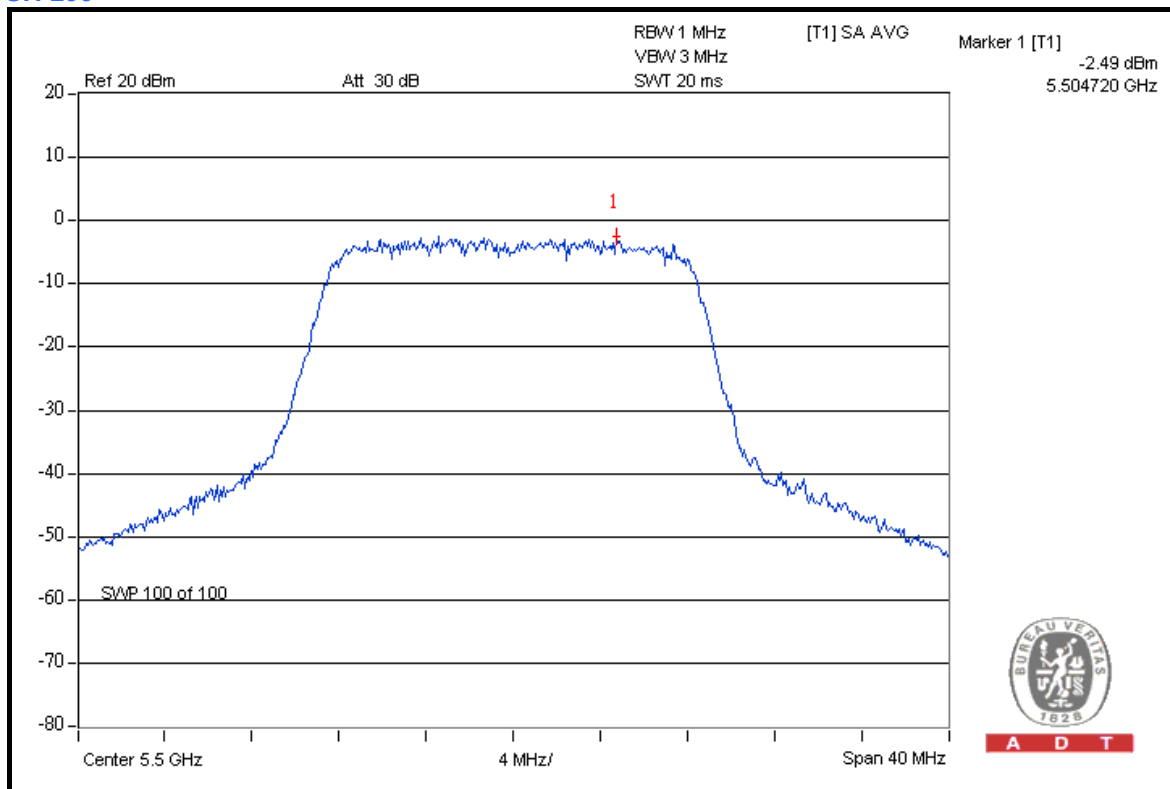
A D T

CH 64



A D T

CH 100

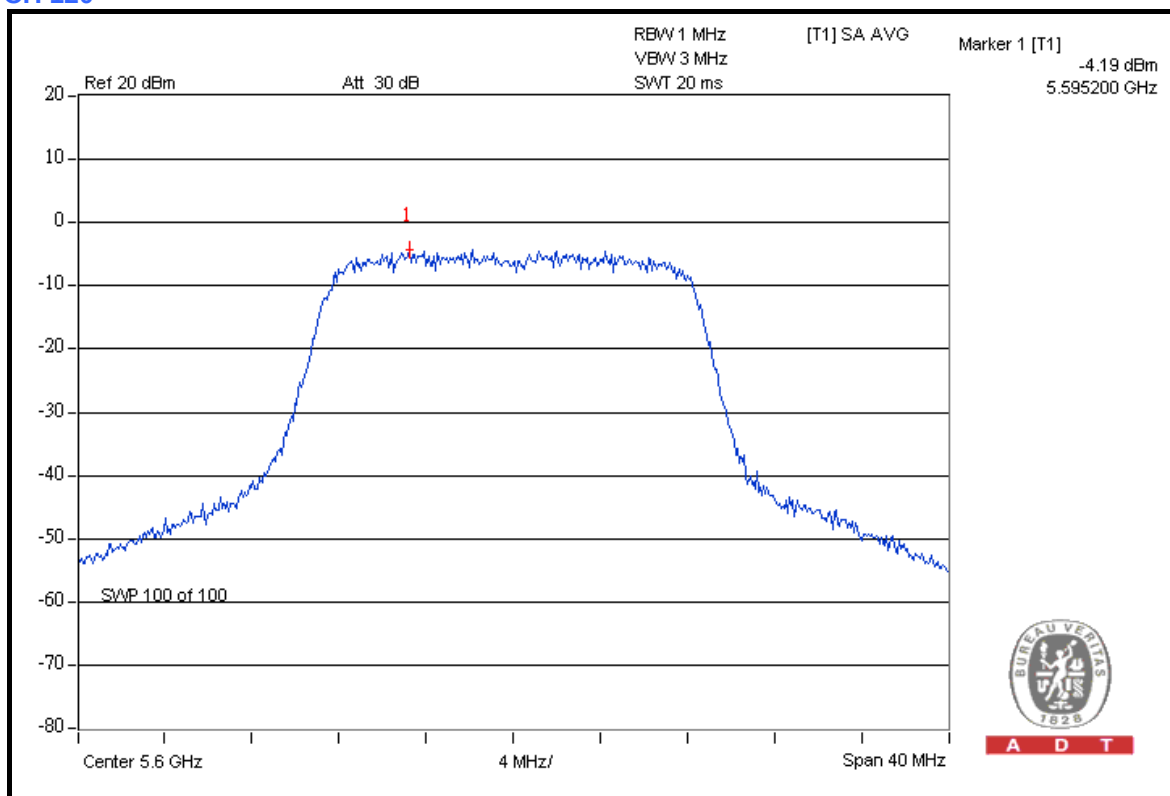


A D T



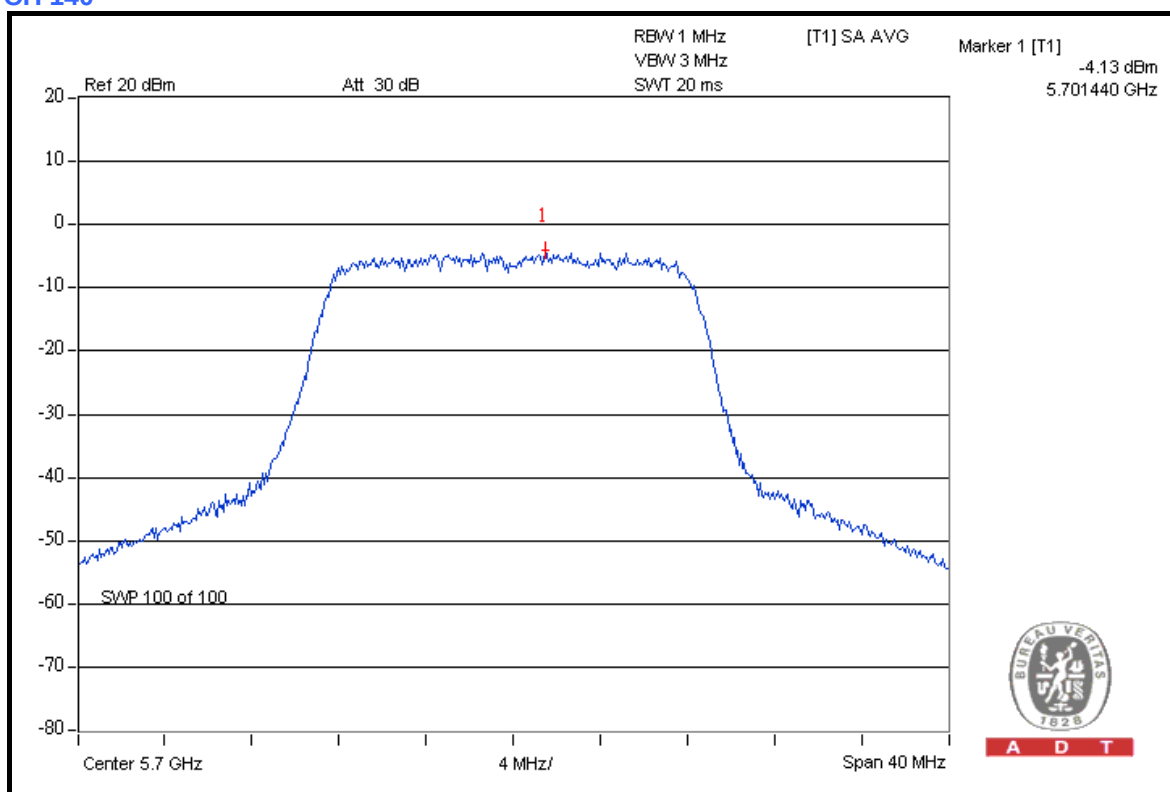
A D T

CH 120



A D T

CH 140



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 70%RH, 1021hPa
TESTED BY	Antony Lee		

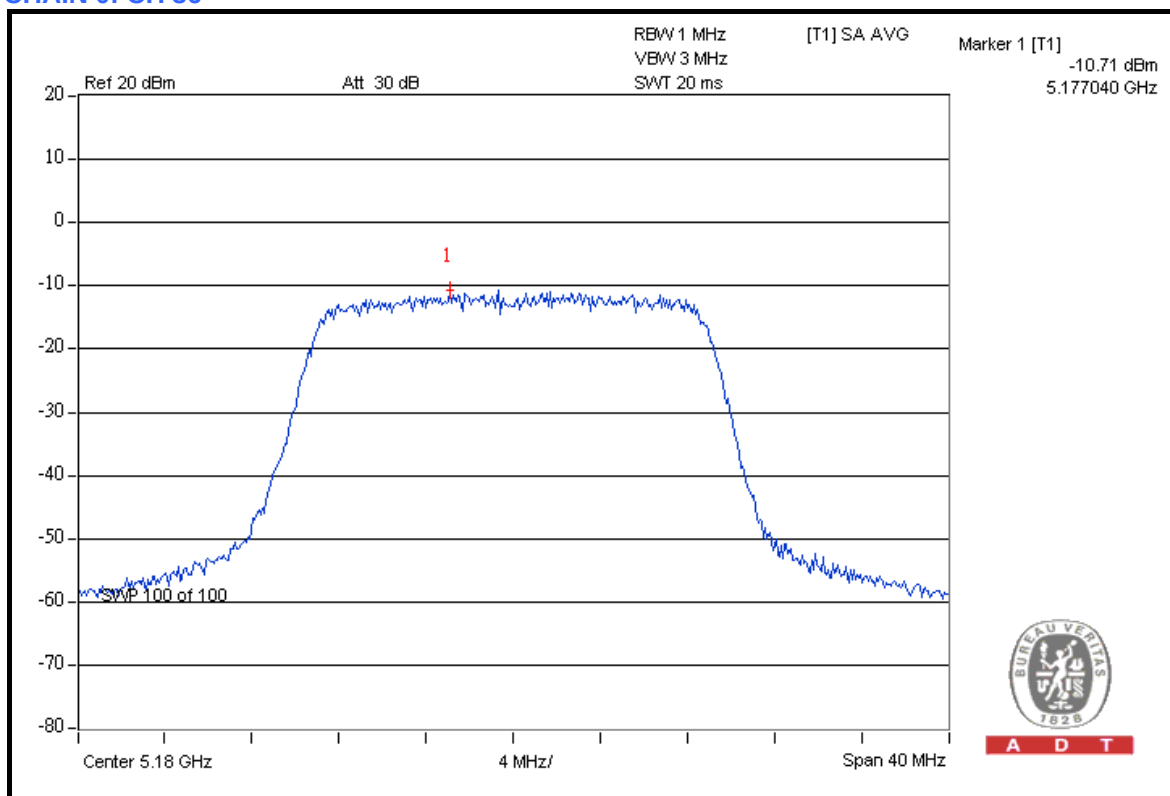
CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-10.71	-10.81	0.168	-7.75	-6	PASS
40	5200	-10.72	-11.19	0.161	-7.94	-6	PASS
48	5240	-10.14	-11.69	0.165	-7.84	-6	PASS
52	5260	-4.33	-4.76	0.703	-1.53	1	PASS
60	5300	-4.88	-4.93	0.646	-1.89	1	PASS
64	5320	-4.90	-4.83	0.652	-1.85	1	PASS
100	5500	-3.86	-2.51	0.972	-0.12	1	PASS
120	5600	-5.16	-4.47	0.662	-1.79	1	PASS
140	5700	-5.24	-3.63	0.733	-1.35	1	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of peak power spectral density shall be reduced by 10 dB.

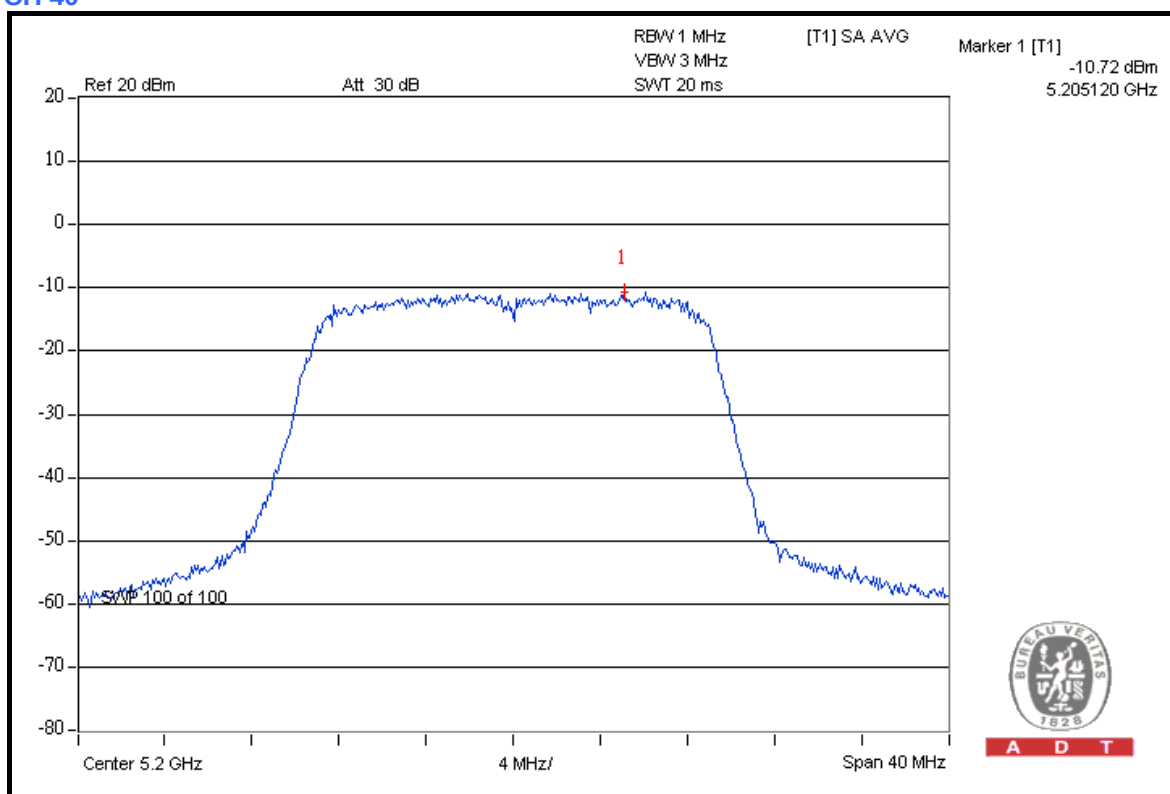


A D T

CHAIN 0: CH 36



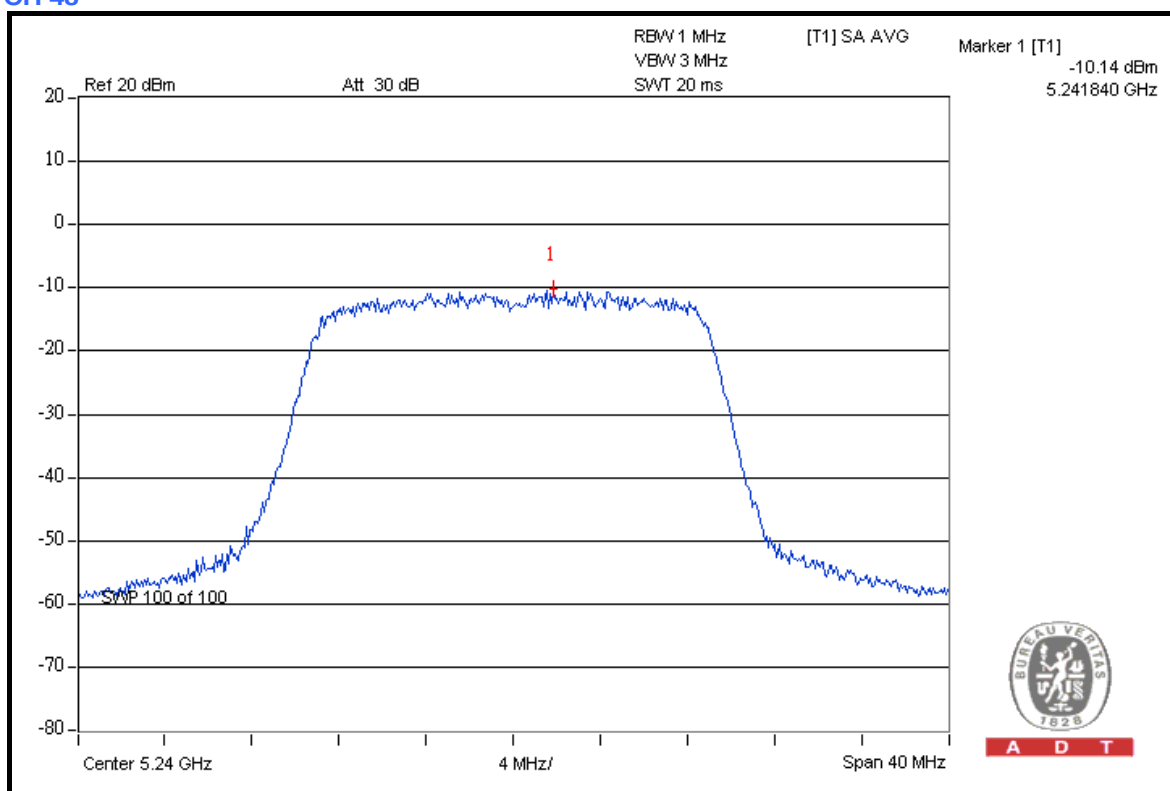
CH 40





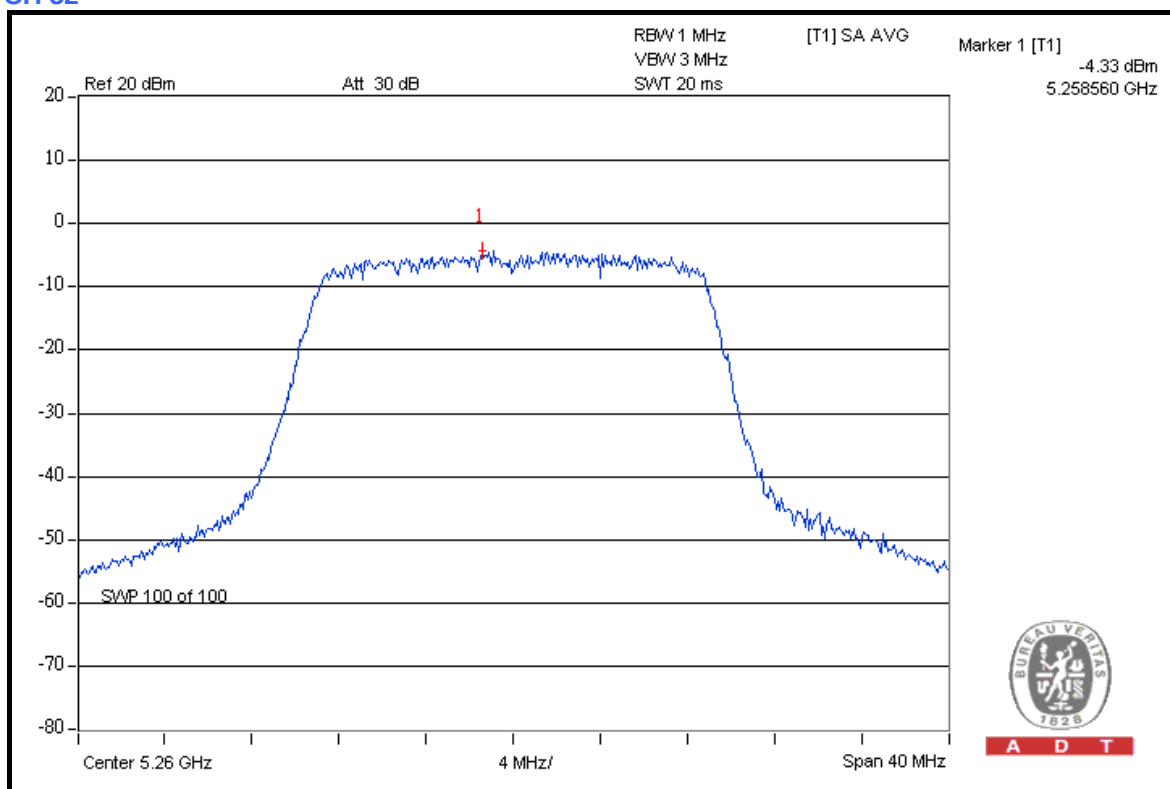
A D T

CH 48



A D T

CH 52

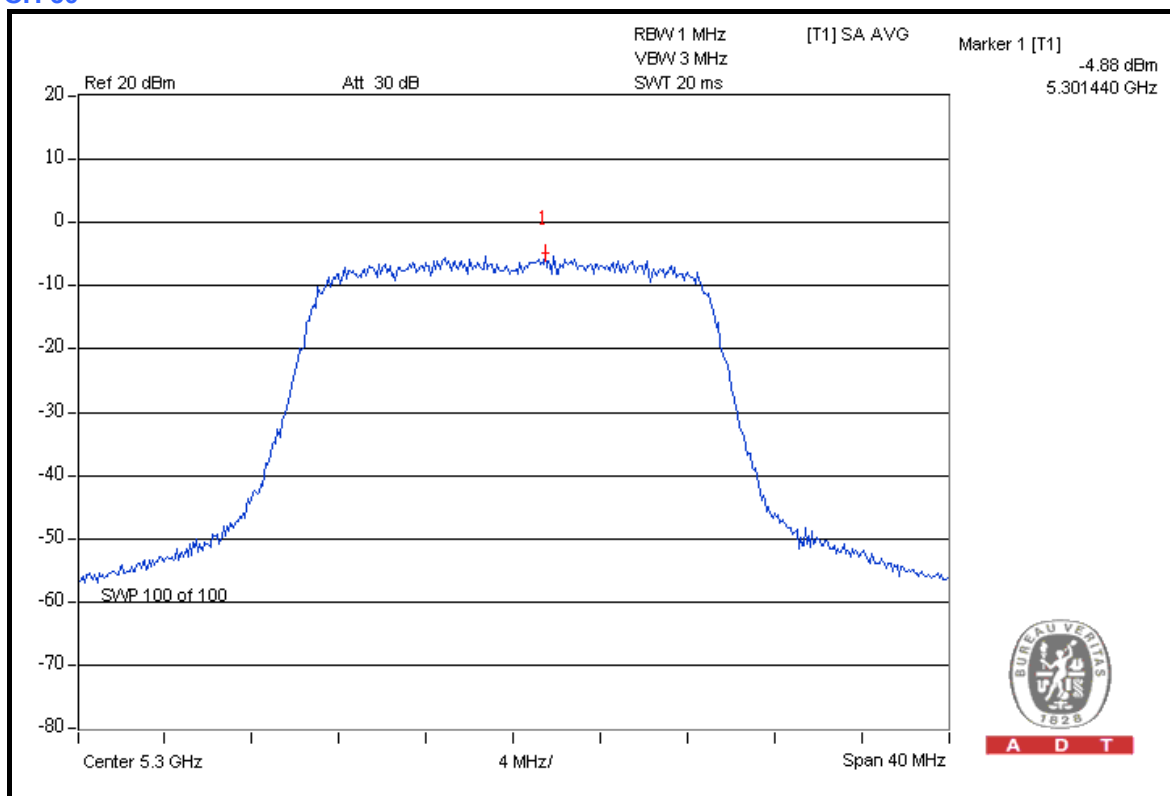


A D T



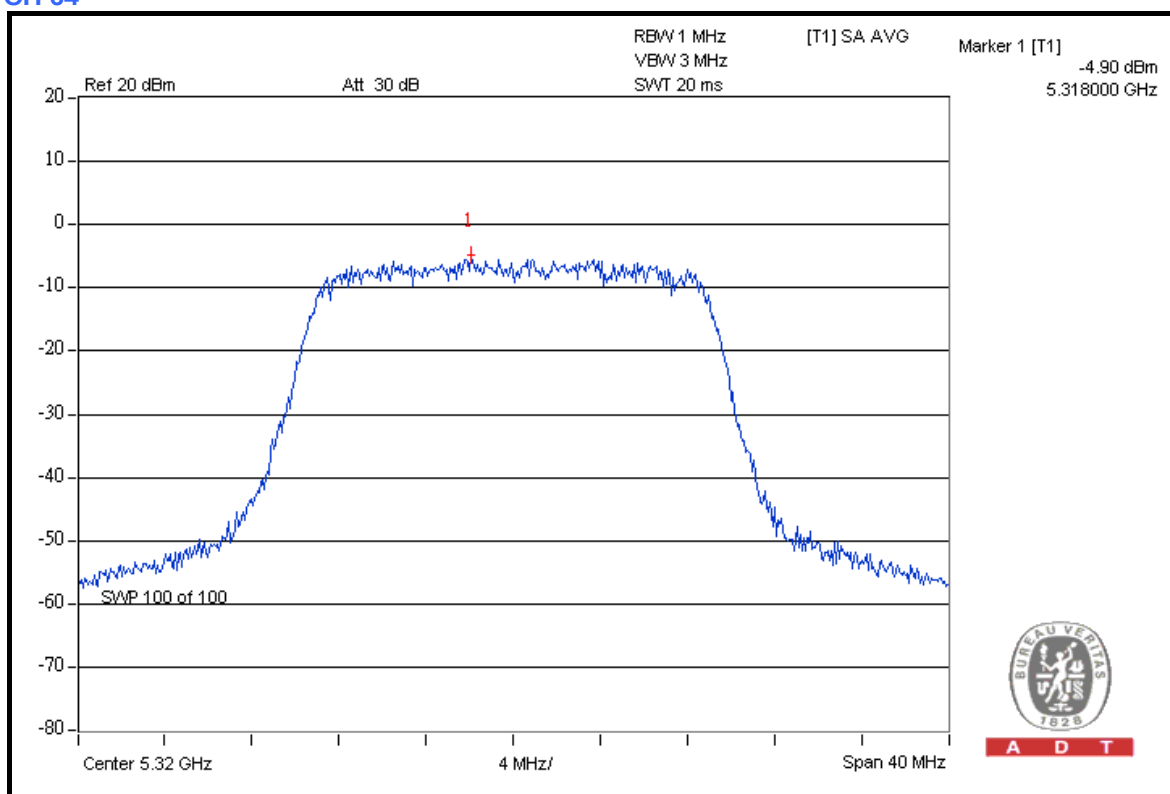
A D T

CH 60



A D T

CH 64

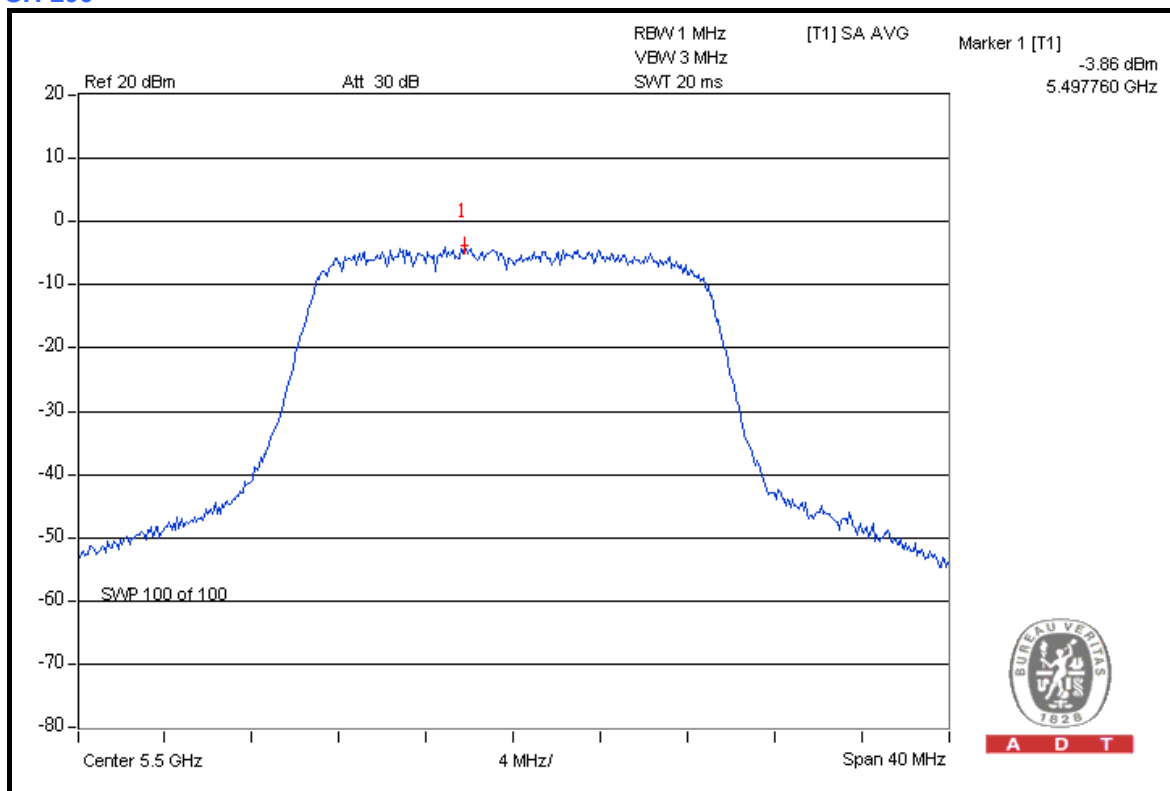


A D T



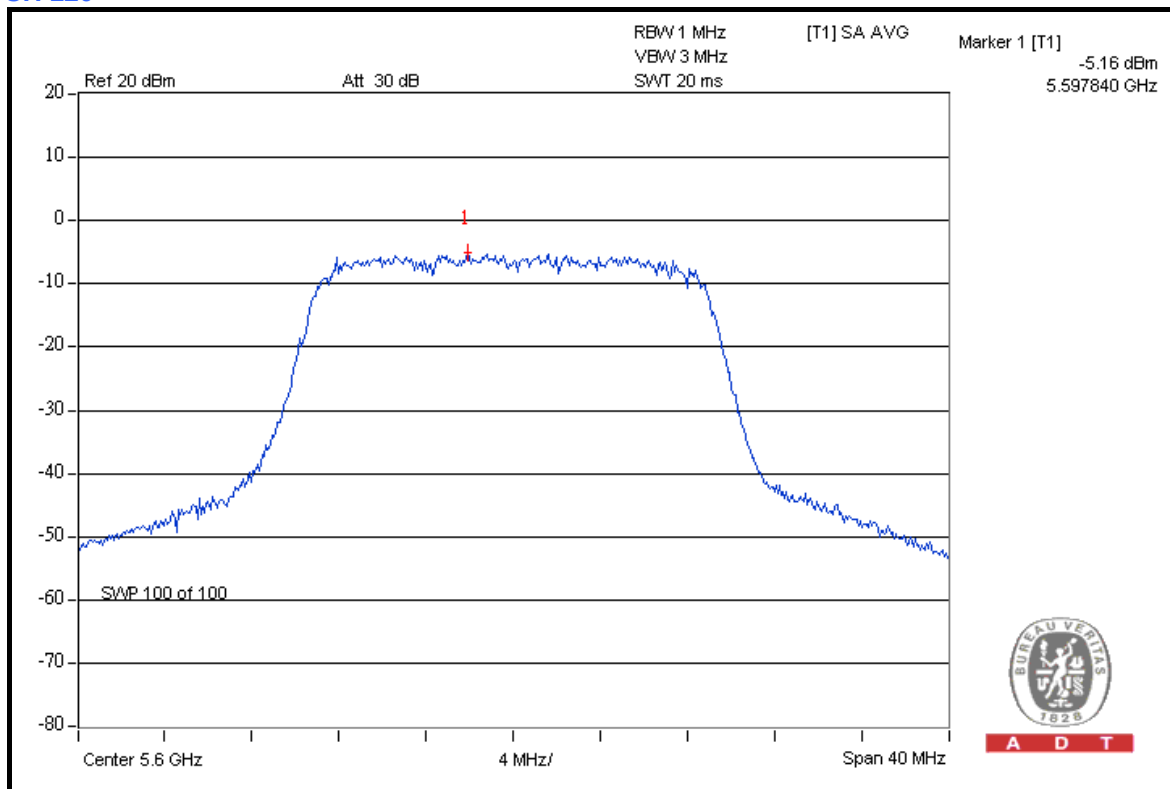
A D T

CH 100



A D T

CH 120

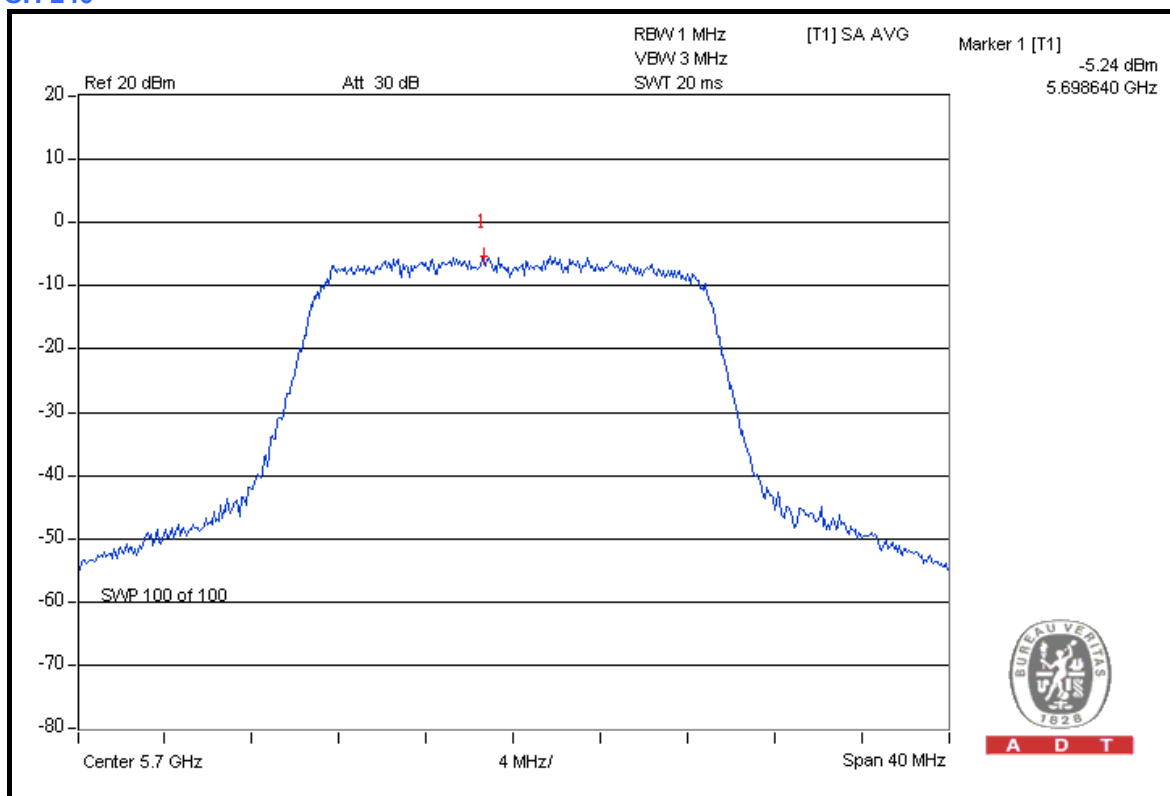


A D T



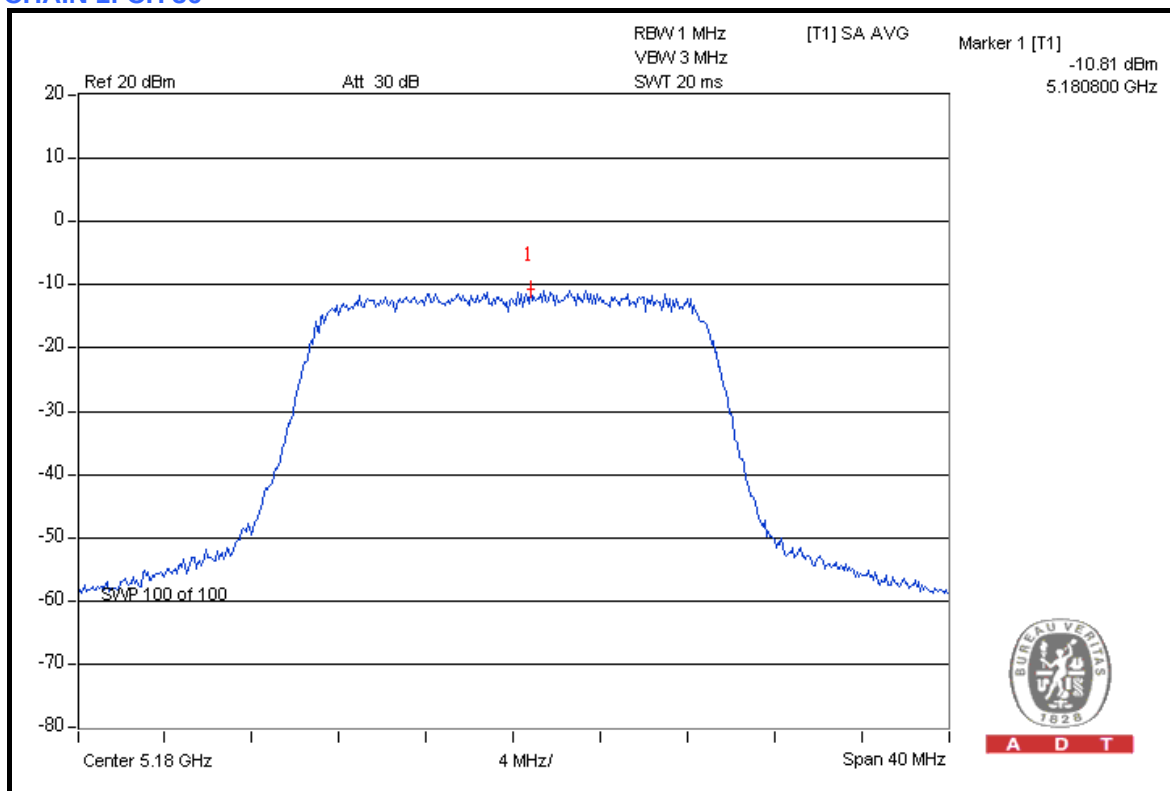
A D T

CH 140



A D T

CHAIN 1: CH 36

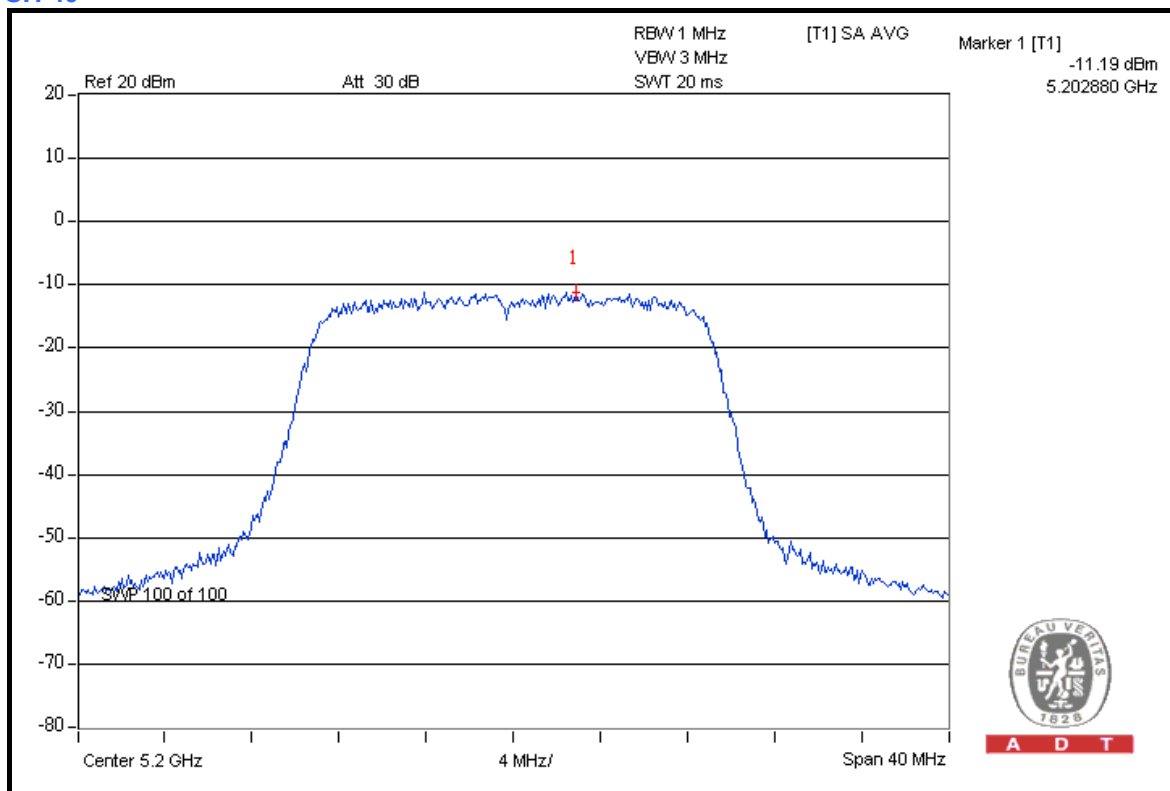


A D T

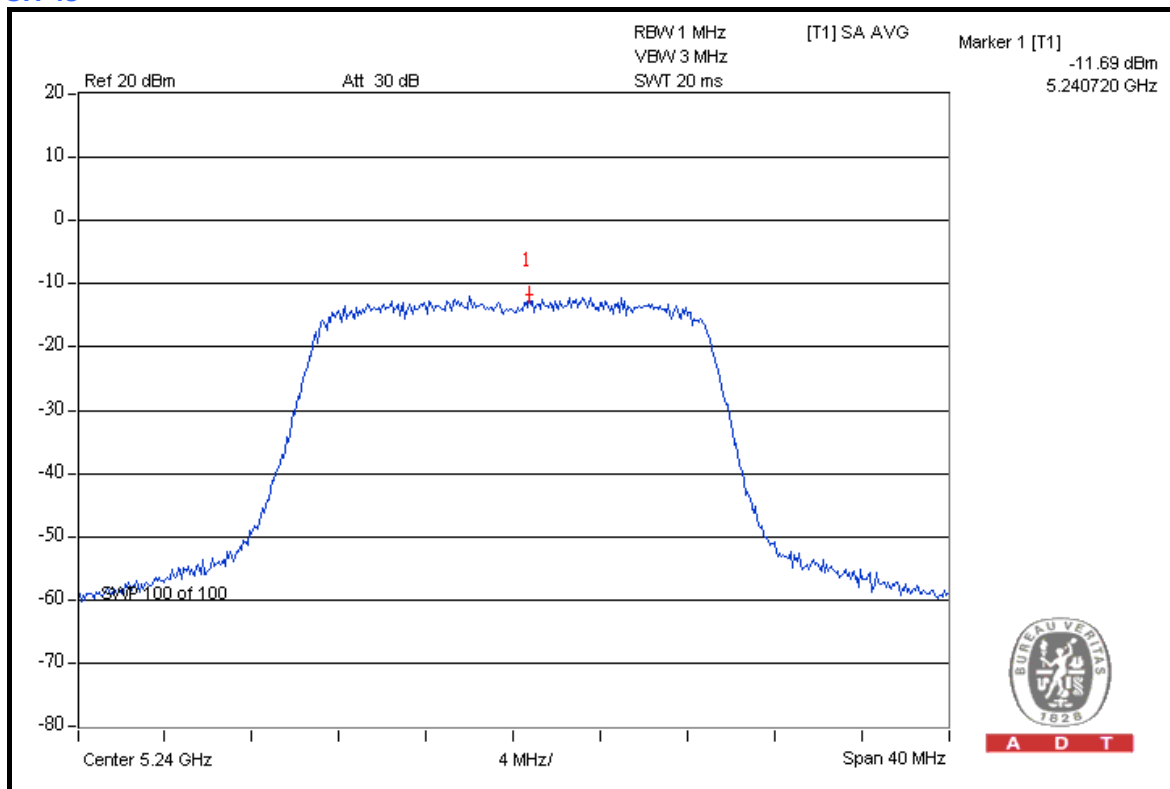


A D T

CH 40



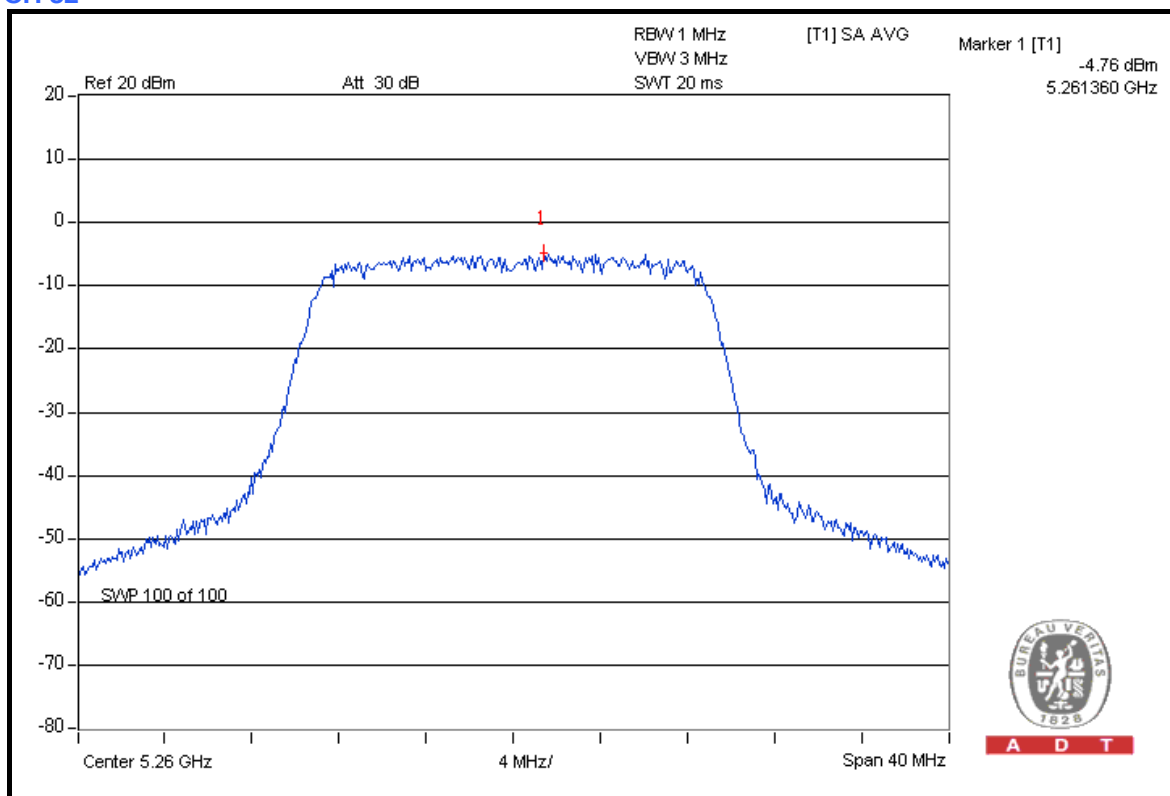
CH 48





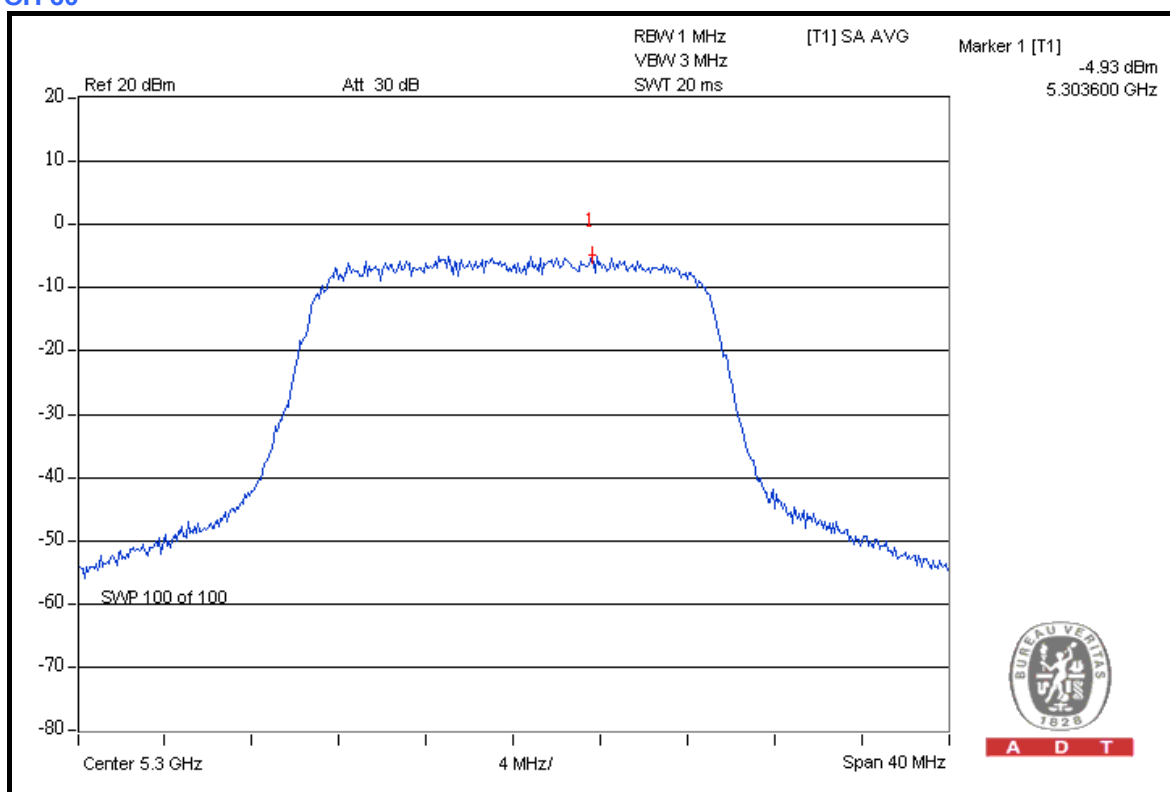
A D T

CH 52



A D T

CH 60

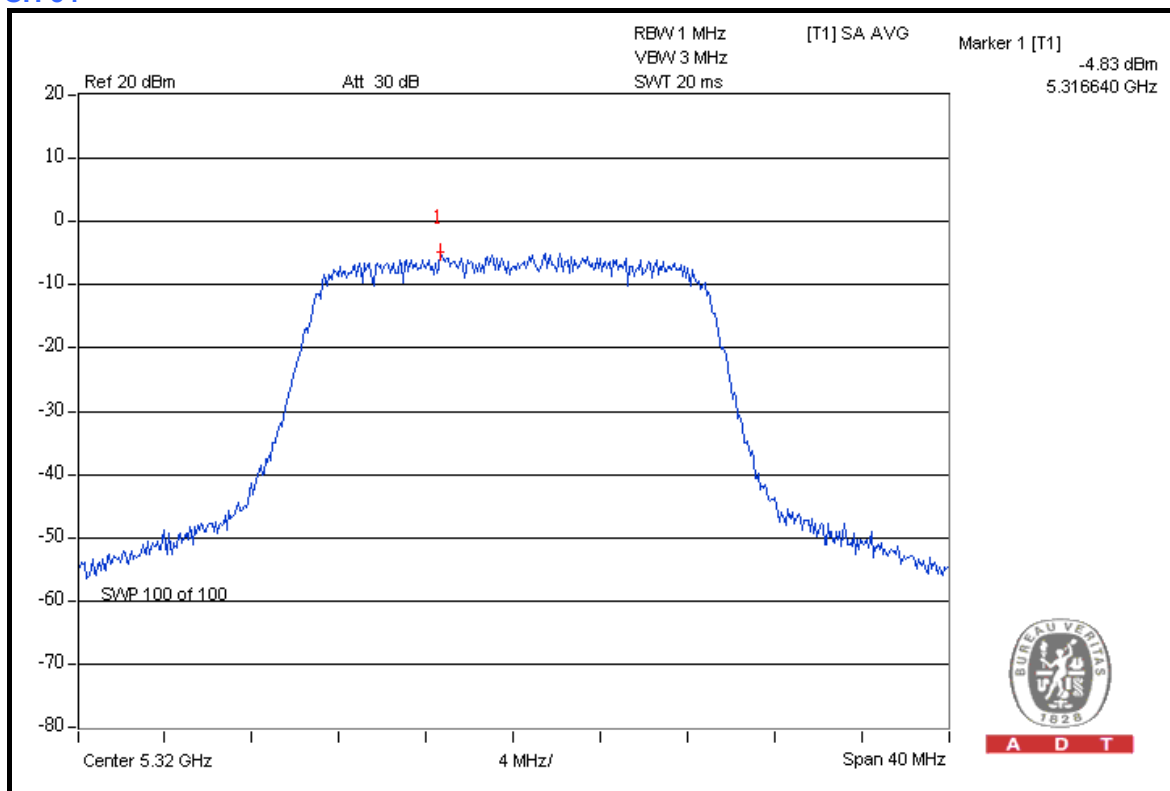


A D T

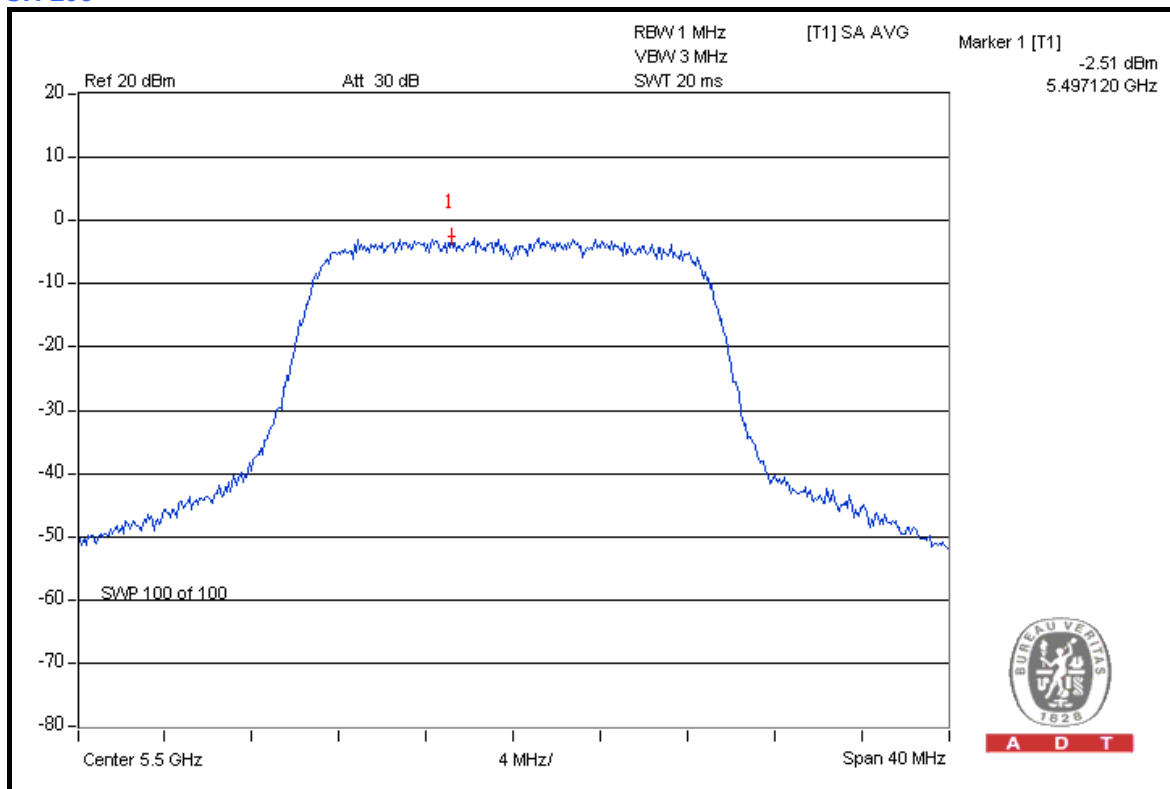


A D T

CH 64



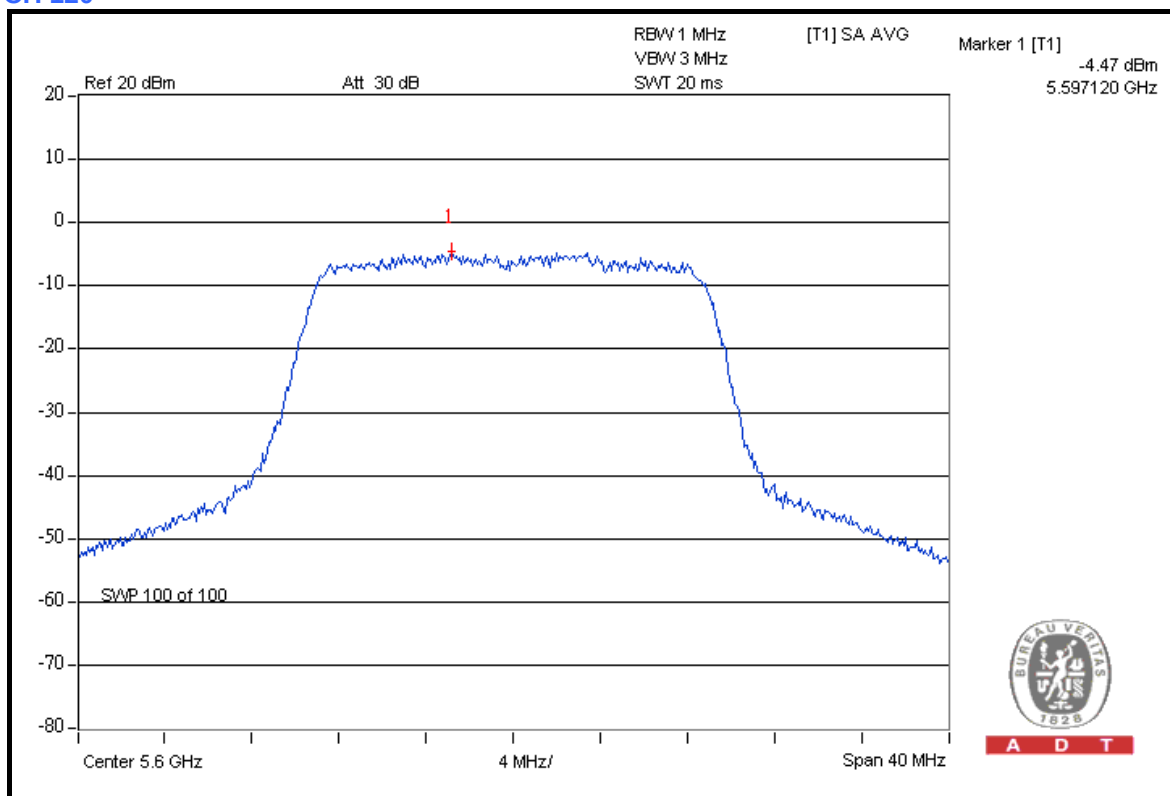
CH 100





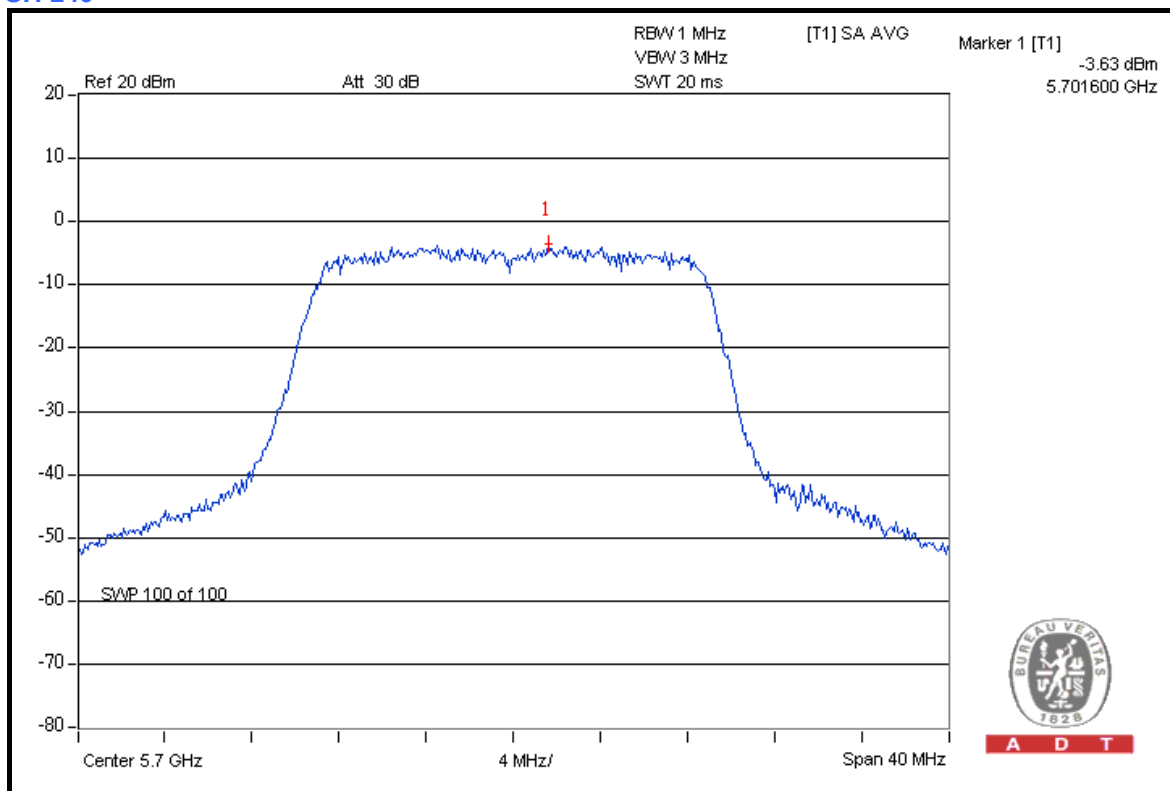
A D T

CH 120



A D T

CH 140



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 1021hPa
TESTED BY	Kevin Liang		

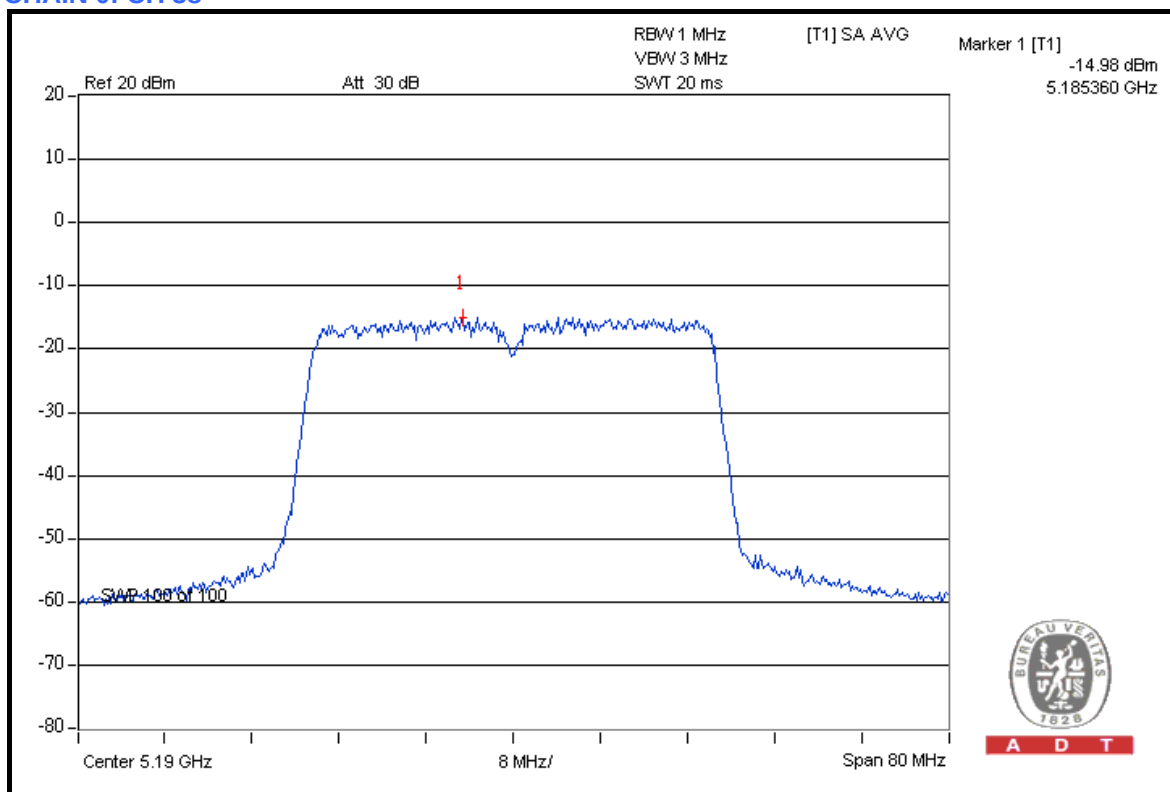
CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-14.98	-14.63	0.066	-11.79	-6	PASS
46	5230	-14.69	-14.98	0.066	-11.82	-6	PASS
54	5270	-8.51	-7.99	0.300	-5.23	1	PASS
62	5310	-11.28	-11.18	0.151	-8.22	1	PASS
102	5510	-14.92	-15.15	0.063	-12.02	1	PASS
118	5590	-8.53	-7.91	0.302	-5.20	1	PASS
134	5670	-9.24	-8.23	0.269	-5.70	1	PASS

NOTE: According to 15.407 (a) (1) (2), the maximum antenna gain 16dBi is higher than 6dBi, so the limit of peak power spectral density shall be reduced by 10 dB.



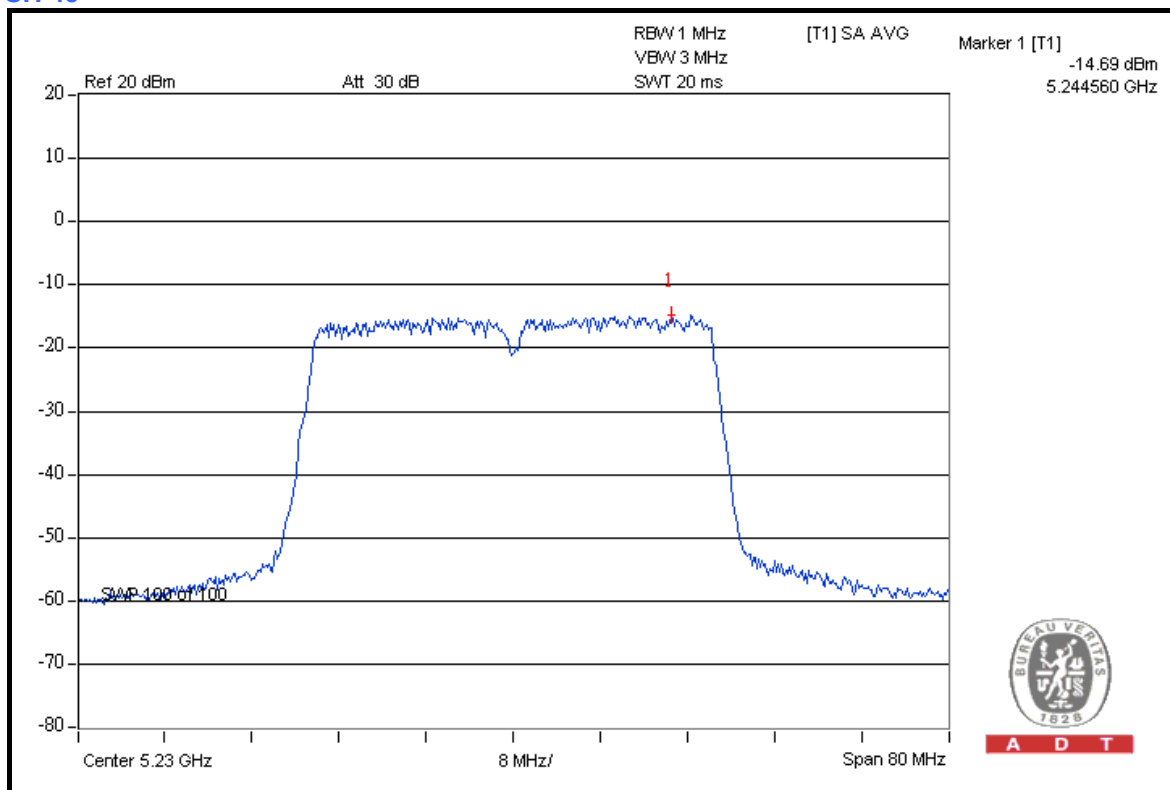
A D T

CHAIN 0: CH 38



A D T

CH 46

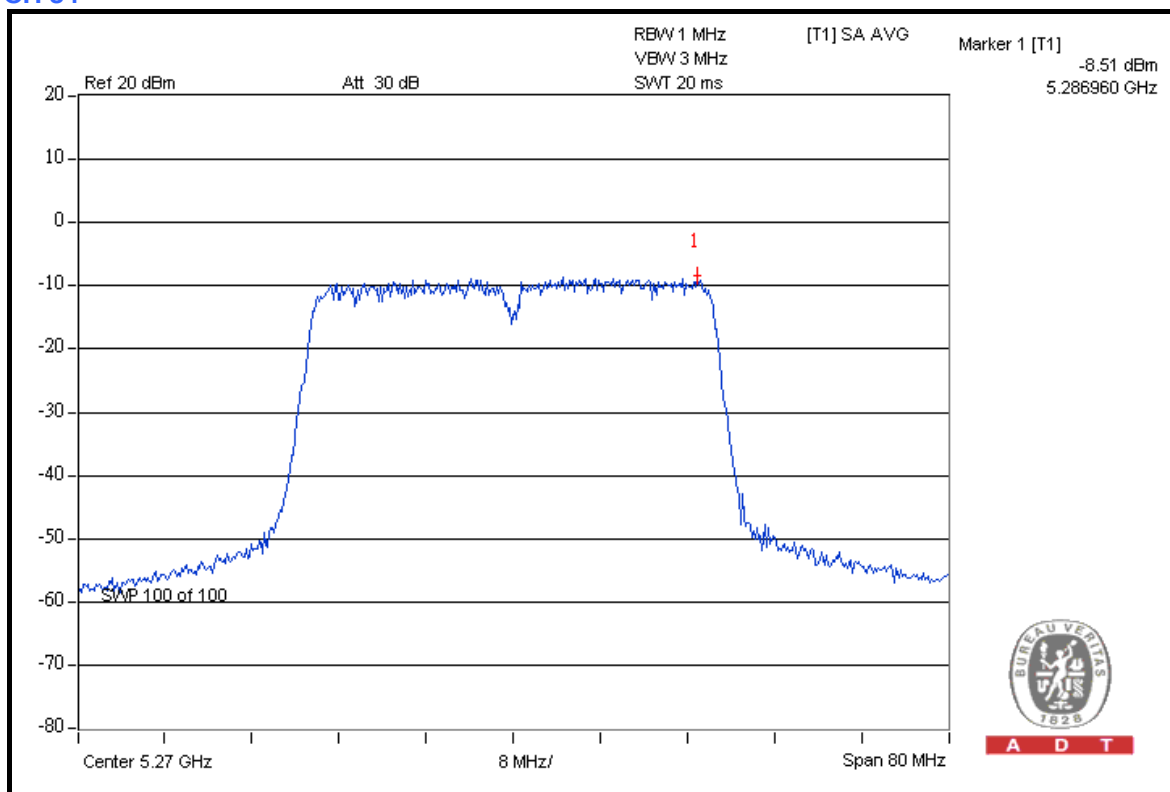


A D T



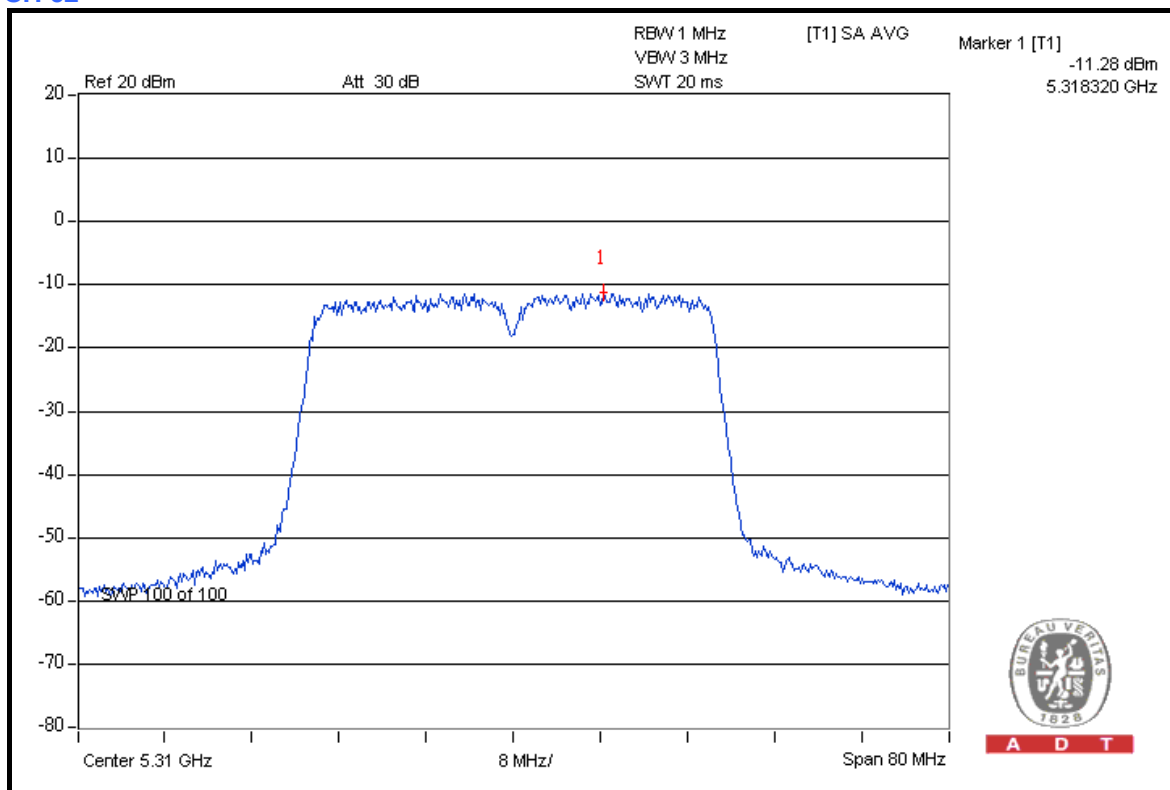
A D T

CH 54



A D T

CH 62

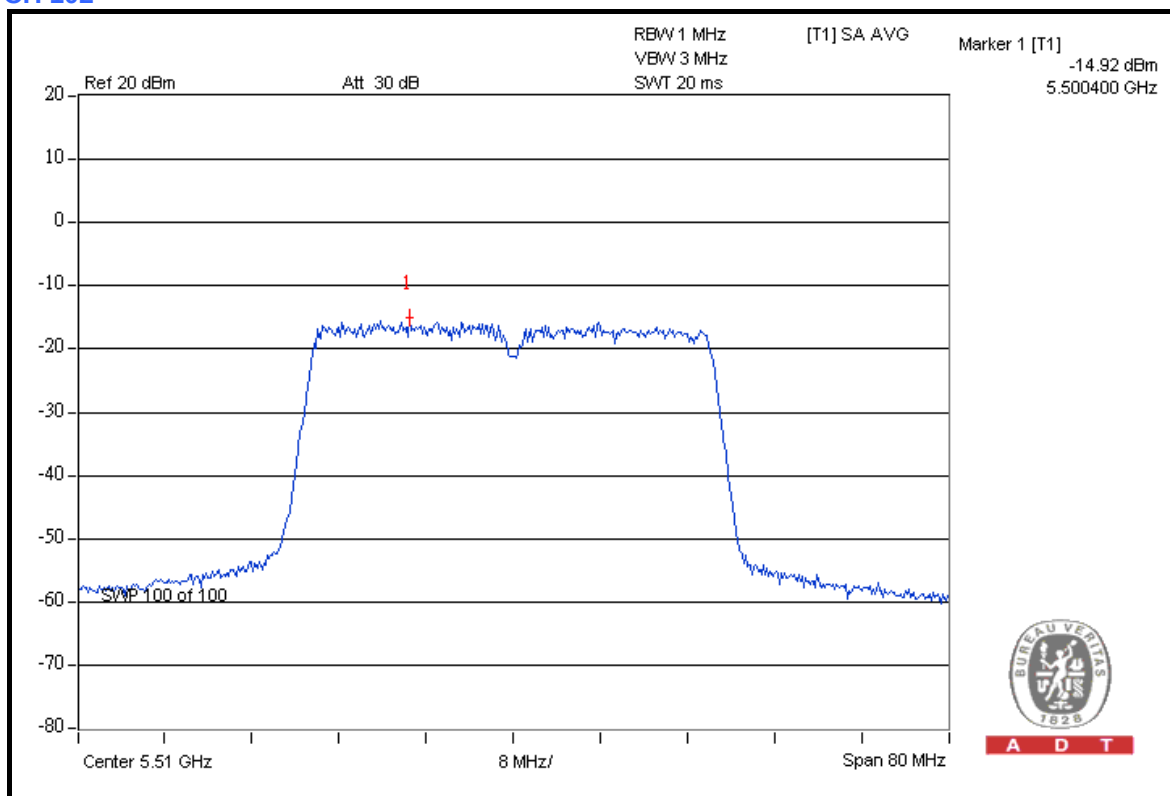


A D T

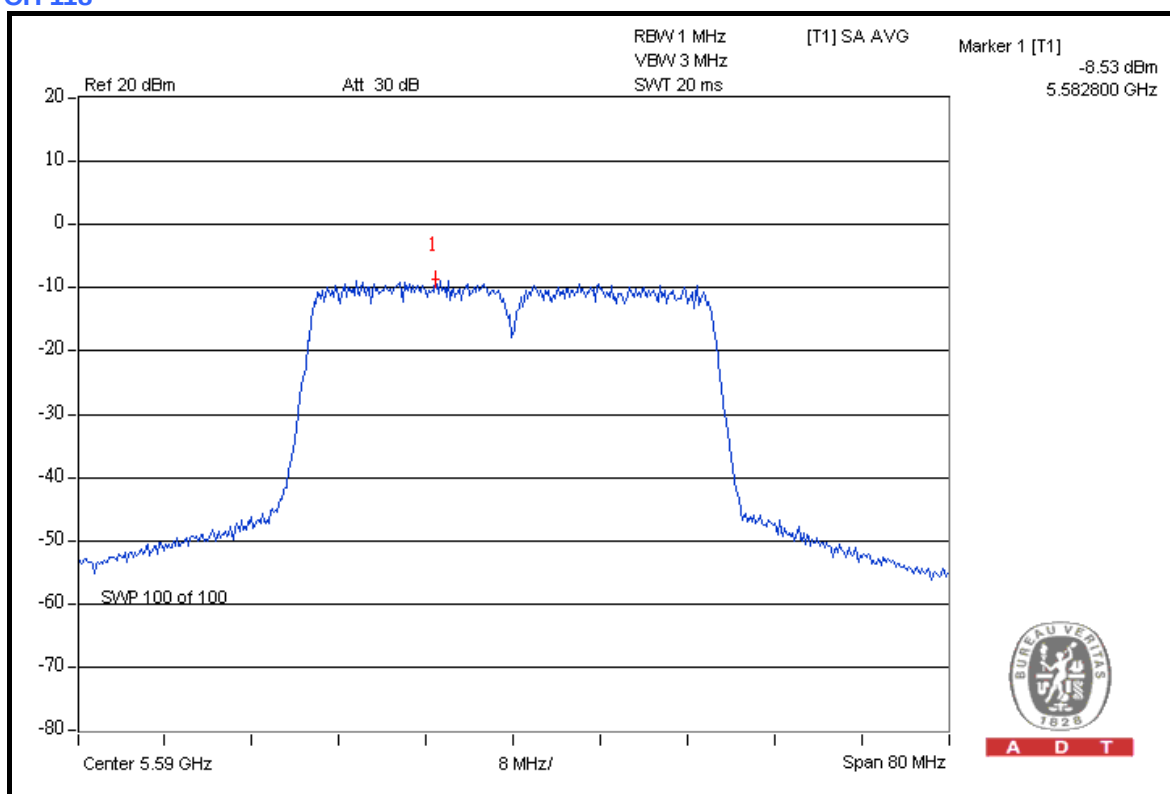


A D T

CH 102



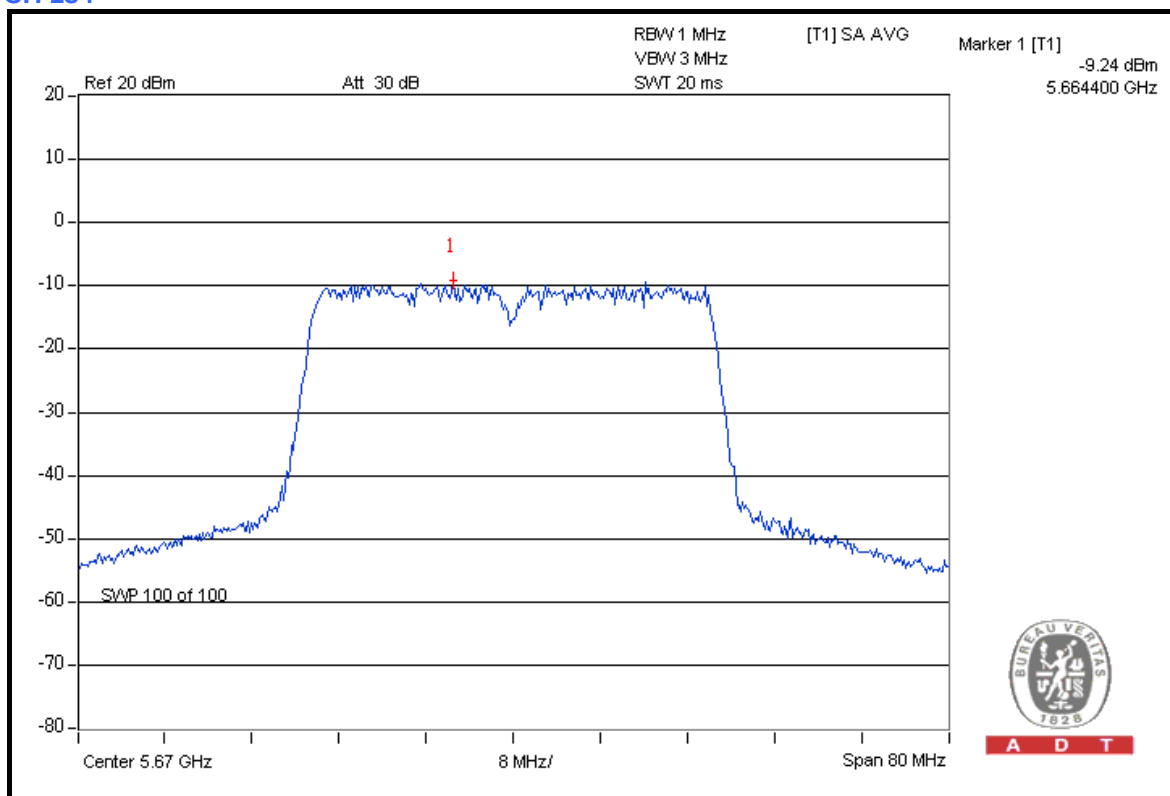
CH 118





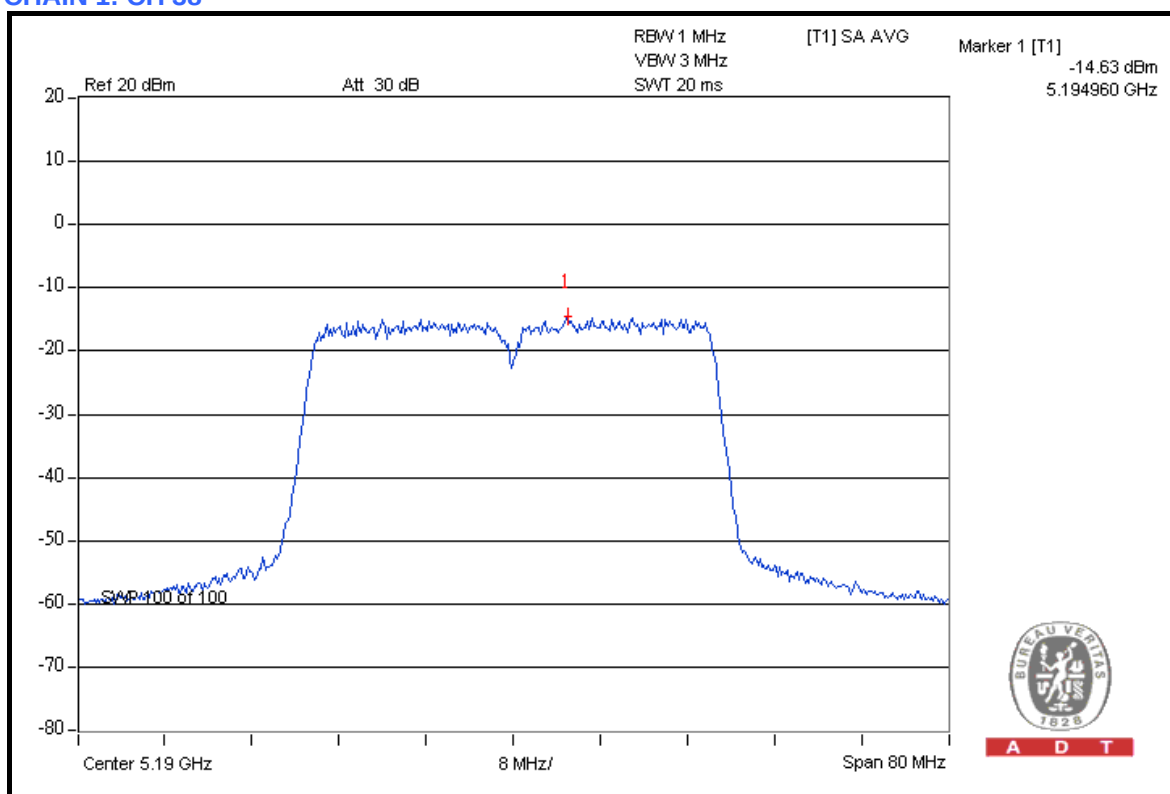
A D T

CH 134



A D T

CHAIN 1: CH 38

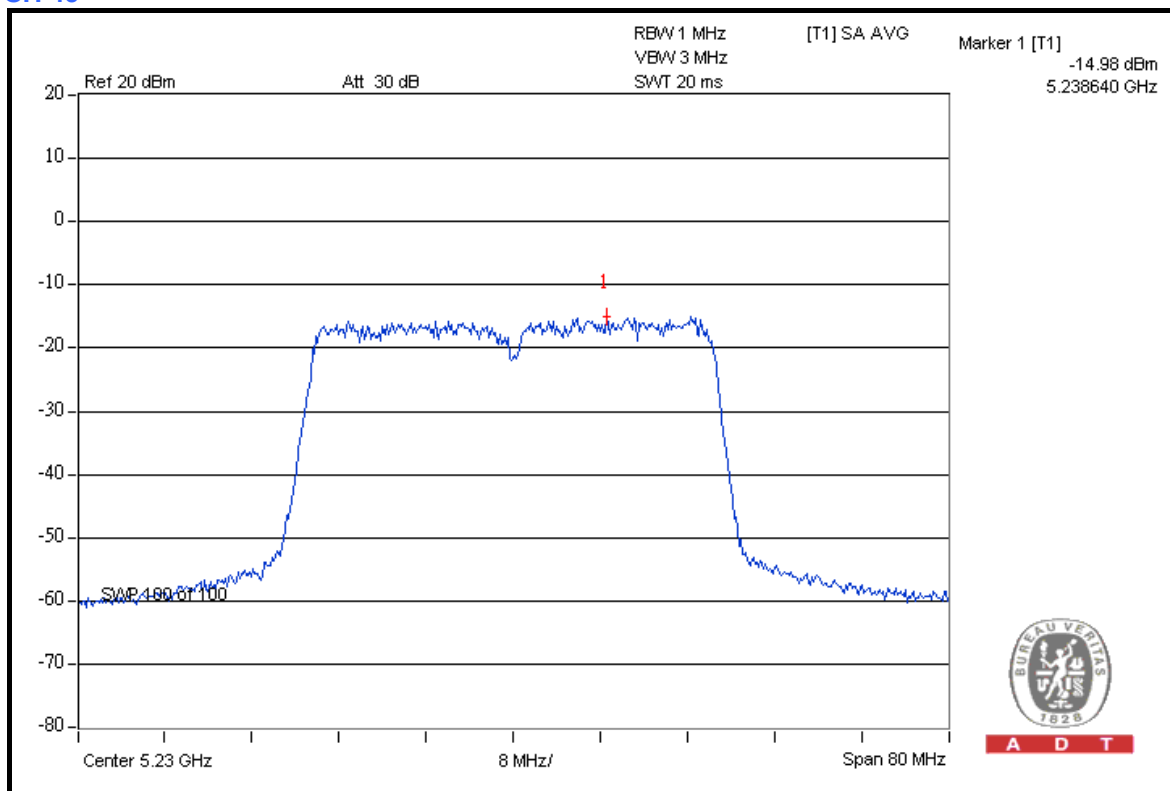


A D T



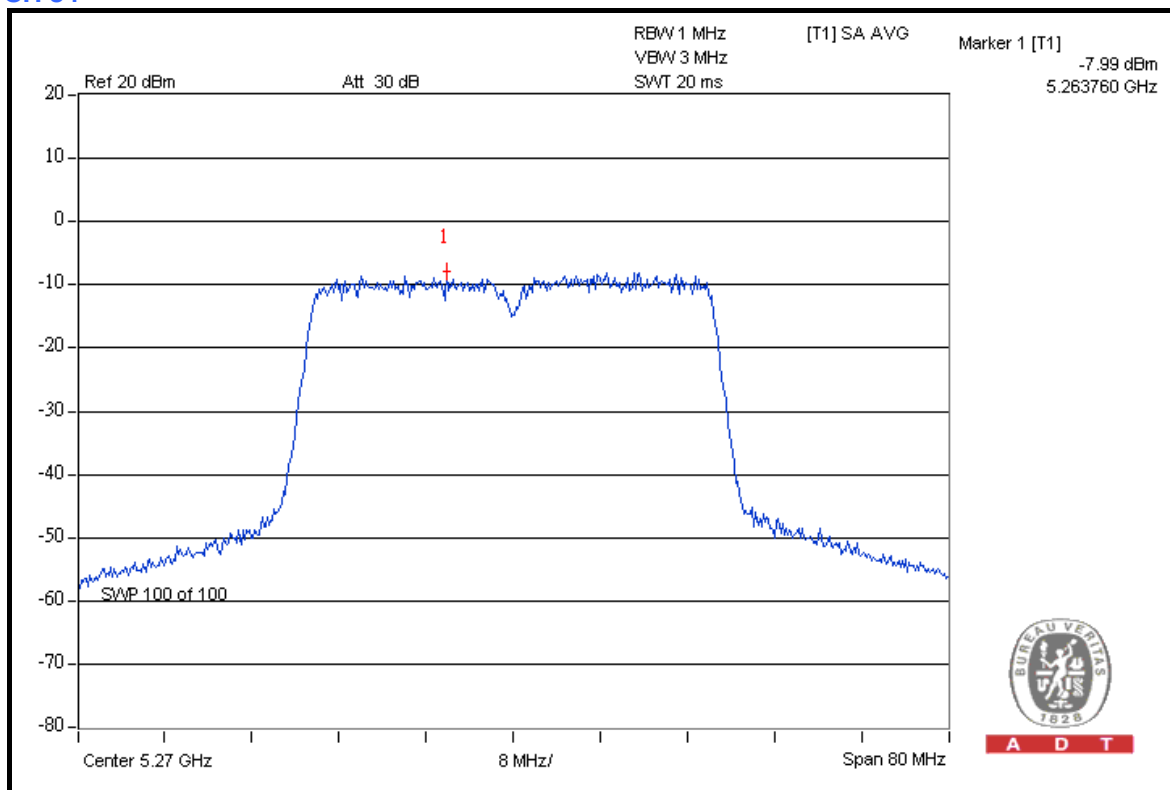
A D T

CH 46



A D T

CH 54

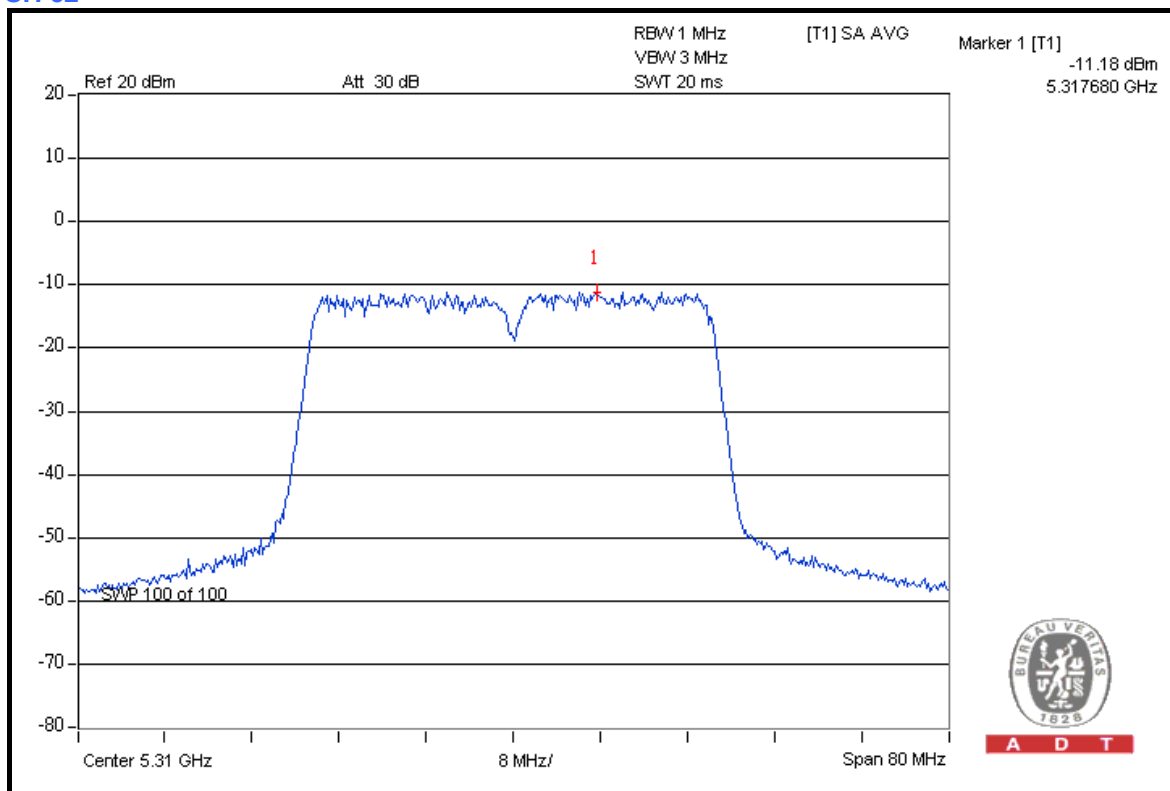


A D T

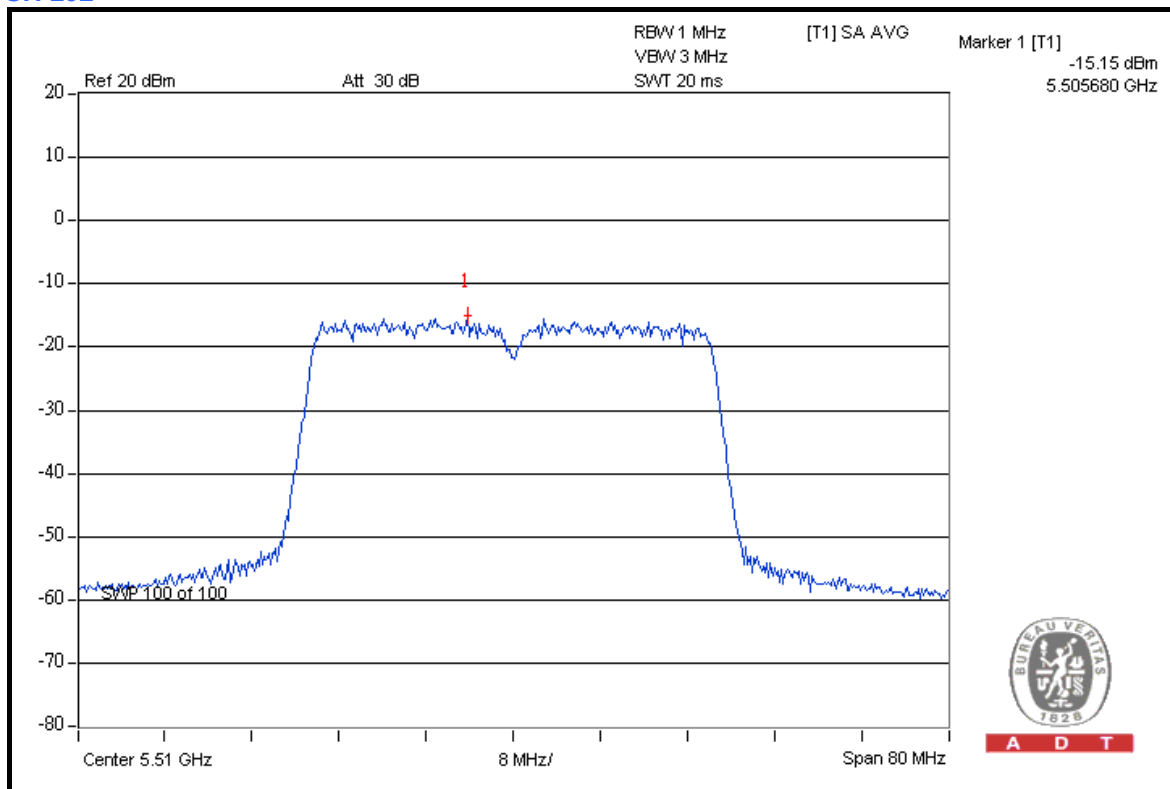


A D T

CH 62



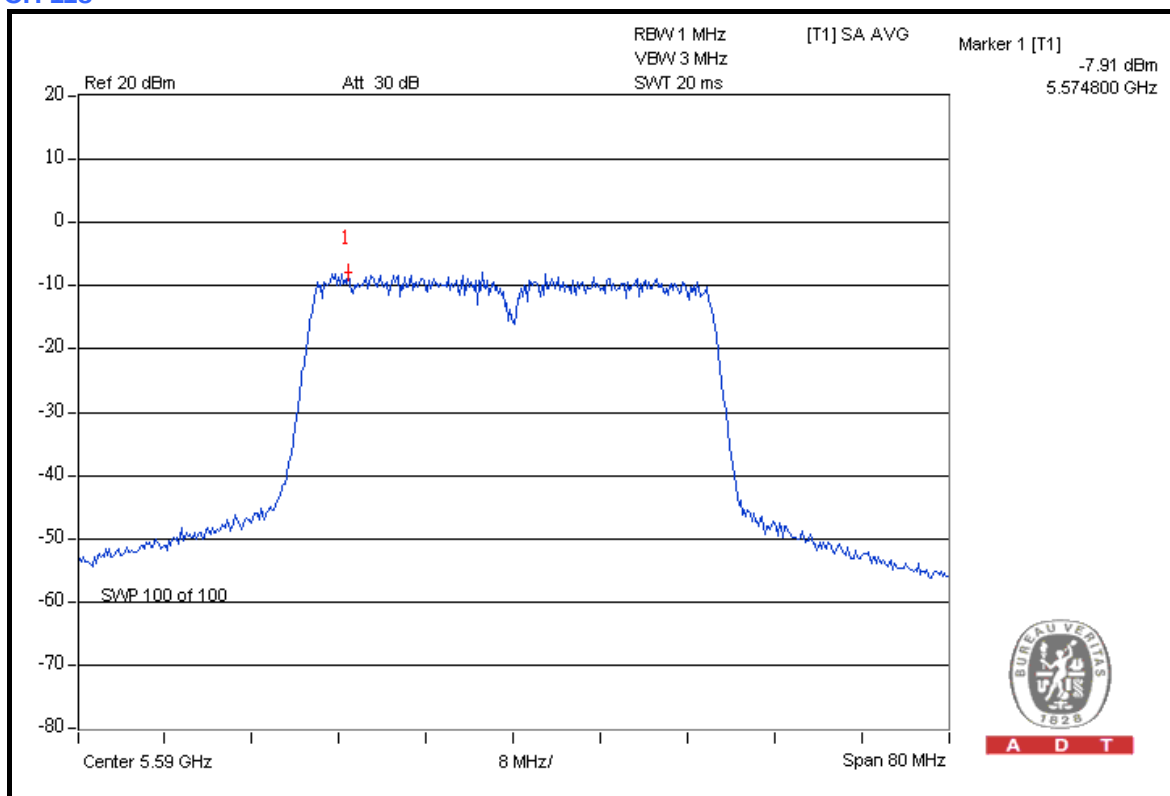
CH 102





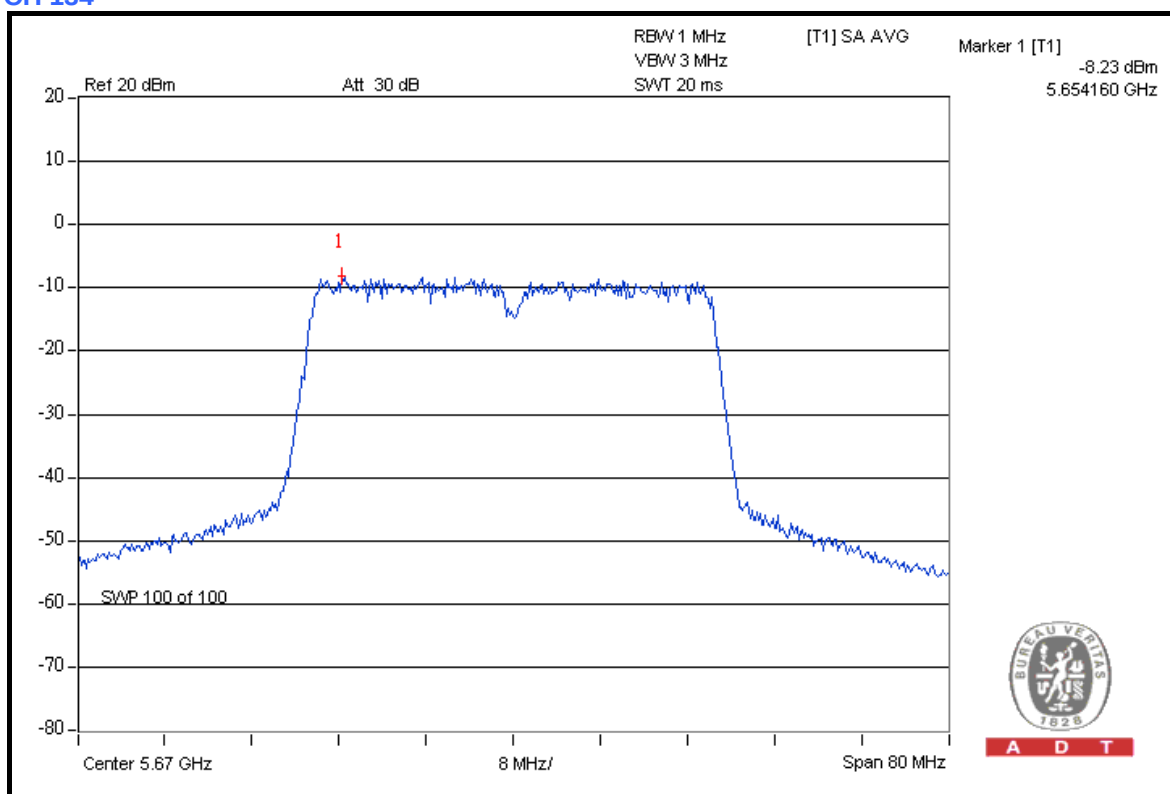
A D T

CH 118



A D T

CH 134



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 the band of operation 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	May 13, 2009	May 12, 2010
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 24, 2009	Jun. 23, 2010

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

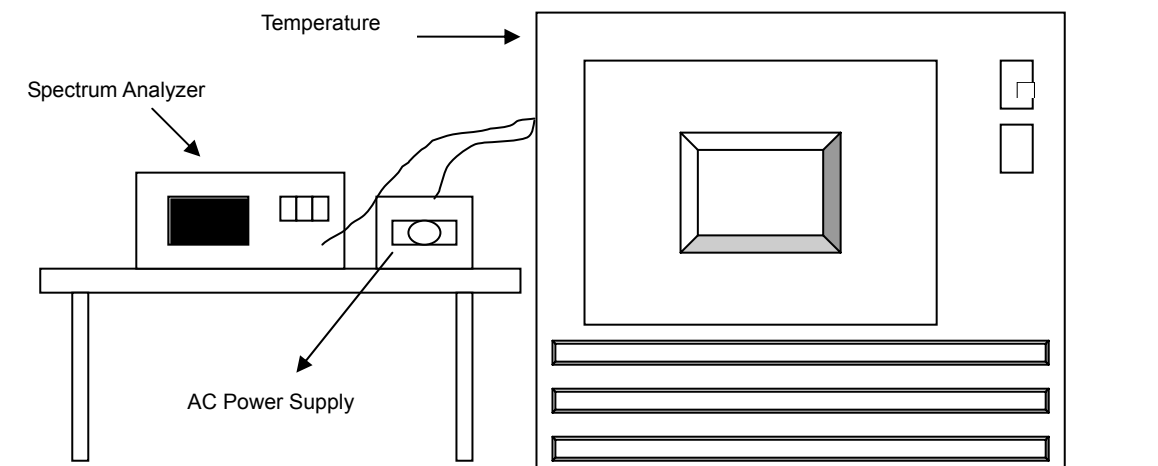
4.6.3 TEST PROCEDURE

- 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

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	110.0	5319.996499	-0.658	5319.996541	-0.650	5319.996801	-0.601	5319.996268	-0.702
40	110.0	5319.996923	-0.578	5319.996839	-0.594	5319.997024	-0.559	5319.997151	-0.536
30	110.0	5319.996332	-0.689	5319.996822	-0.597	5319.996372	-0.682	5319.996288	-0.698
20	110.0	5319.996368	-0.683	5319.996856	-0.591	5319.996653	-0.629	5319.996083	-0.736
10	110.0	5319.996596	-0.640	5319.996919	-0.579	5319.996782	-0.605	5319.996757	-0.610
0	110.0	5319.996598	-0.639	5319.997000	-0.564	5319.997052	-0.554	5319.996905	-0.582
-10	110.0	5319.996268	-0.702	5319.996240	-0.707	5319.996342	-0.688	5319.996550	-0.648
-20	110.0	5319.996818	-0.598	5319.997129	-0.540	5319.997142	-0.537	5319.996673	-0.625
-30	110.0	5319.996503	-0.657	5319.996696	-0.621	5319.996759	-0.609	5319.996483	-0.661

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	93.5	5319.996507	-0.657	5319.996266	-0.702	5319.996399	-0.677	5319.997027	-0.559
	110.0	5319.996598	-0.639	5319.997000	-0.564	5319.997052	-0.554	5319.996905	-0.582
	126.5	5319.996324	-0.691	5319.996719	-0.617	5319.997018	-0.561	5319.997066	-0.552

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 25, 2009	May 24, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2009	Apr. 29, 2010
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 06, 2008	Aug. 05, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10638	Dec. 26, 2008	Dec. 25, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 13, 2009	May 12, 2010
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: 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

- 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 and 5.47 to 5.725GHz 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 5180-5320MHz BAND: 802.11a OFDM MODULATION

Channel 36 (5180MHz)

The band edge emission plot on the next second page shows 50.50dBc 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 112.90dBuV/m (Peak), so the maximum field strength in restrict band is $112.90 - 50.50 = 62.40\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 53.99dBc 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 99.38dBuV/m (Average), so the maximum field strength in restrict band is $99.38 - 53.99 = 45.39\text{dBuV/m}$ which is under 54dBuV/m limit.

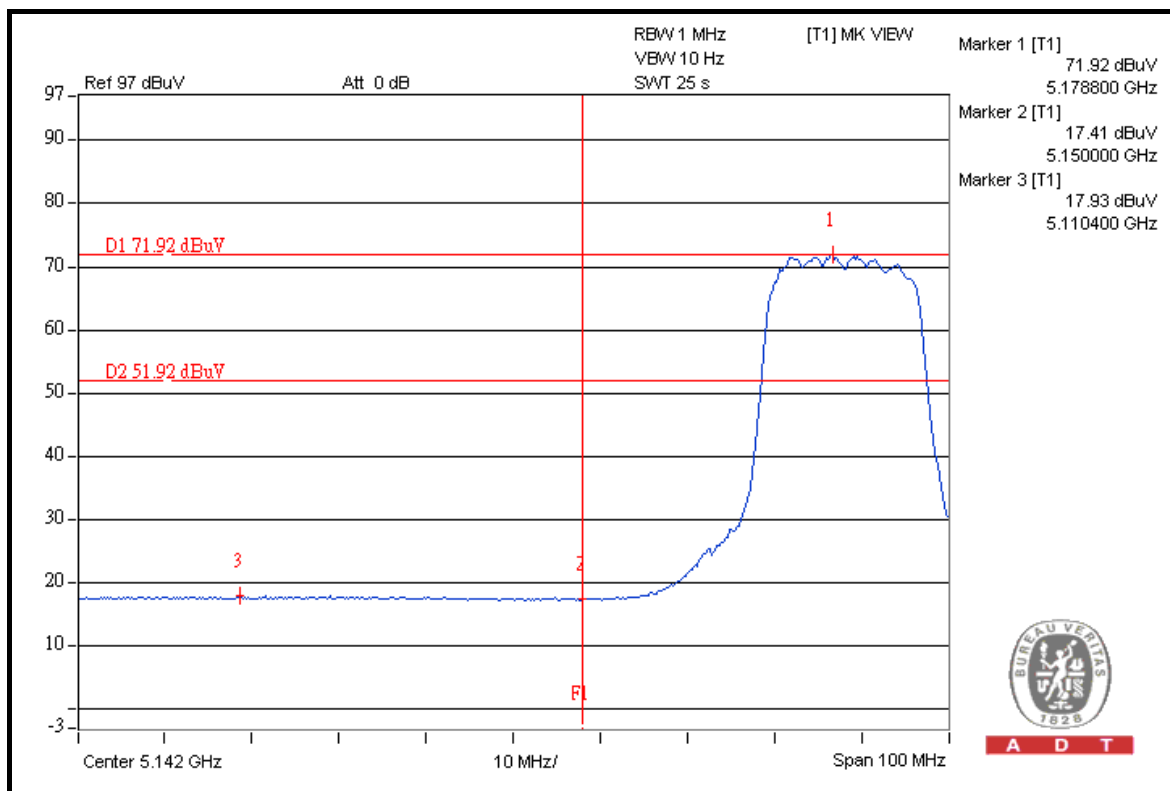
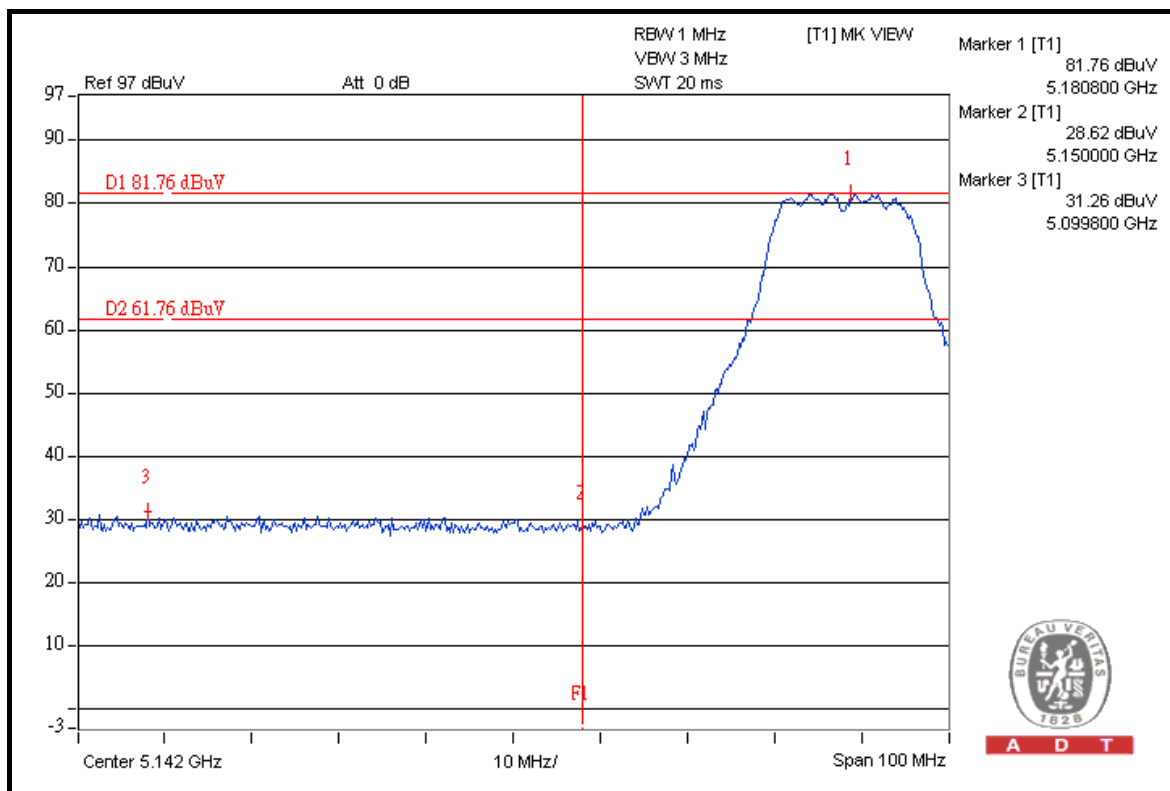
Channel 64 (5320MHz)

The band edge emission plot on the next third page shows 55.40dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 64 is 118.98dBuV/m (Peak), so the maximum field strength in restrict band is $118.98 - 55.40 = 63.58\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 58.69dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 64 is 106.56dBuV/m (Average), so the maximum field strength in restrict band is $106.56 - 58.69 = 47.87\text{dBuV/m}$ which is under 54dBuV/m limit.

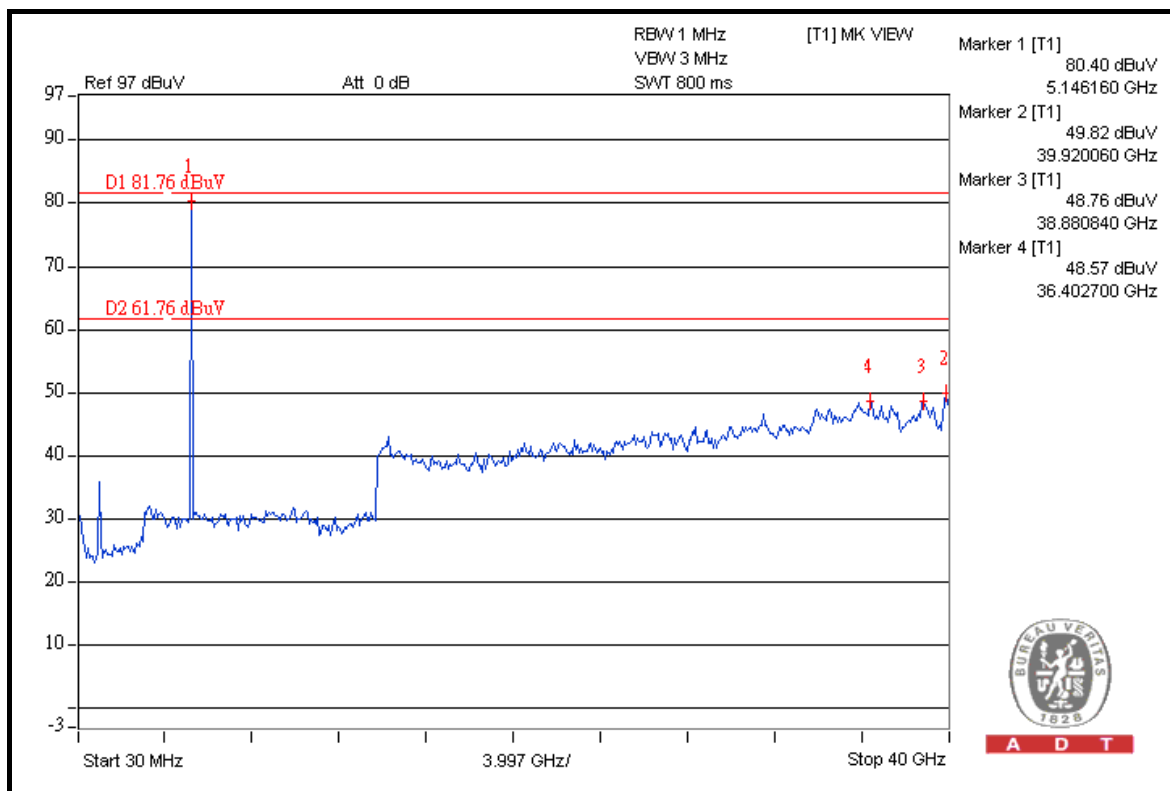


A D T

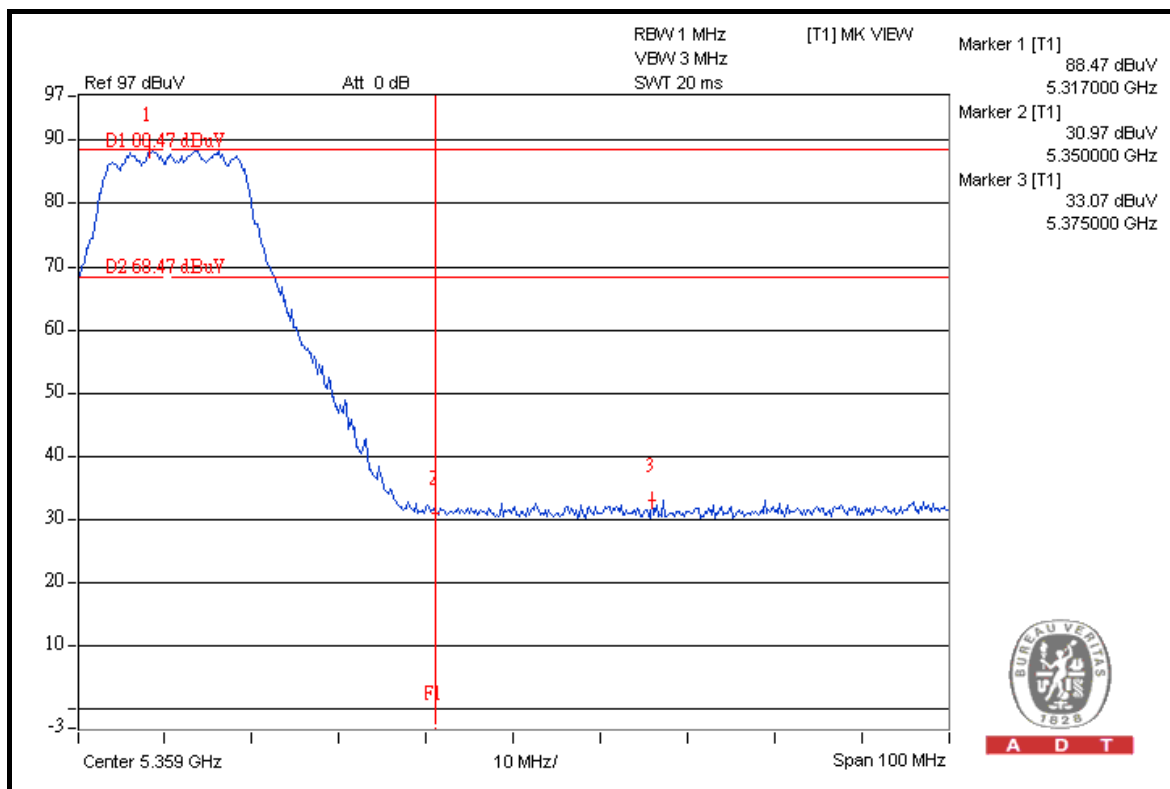




A D T



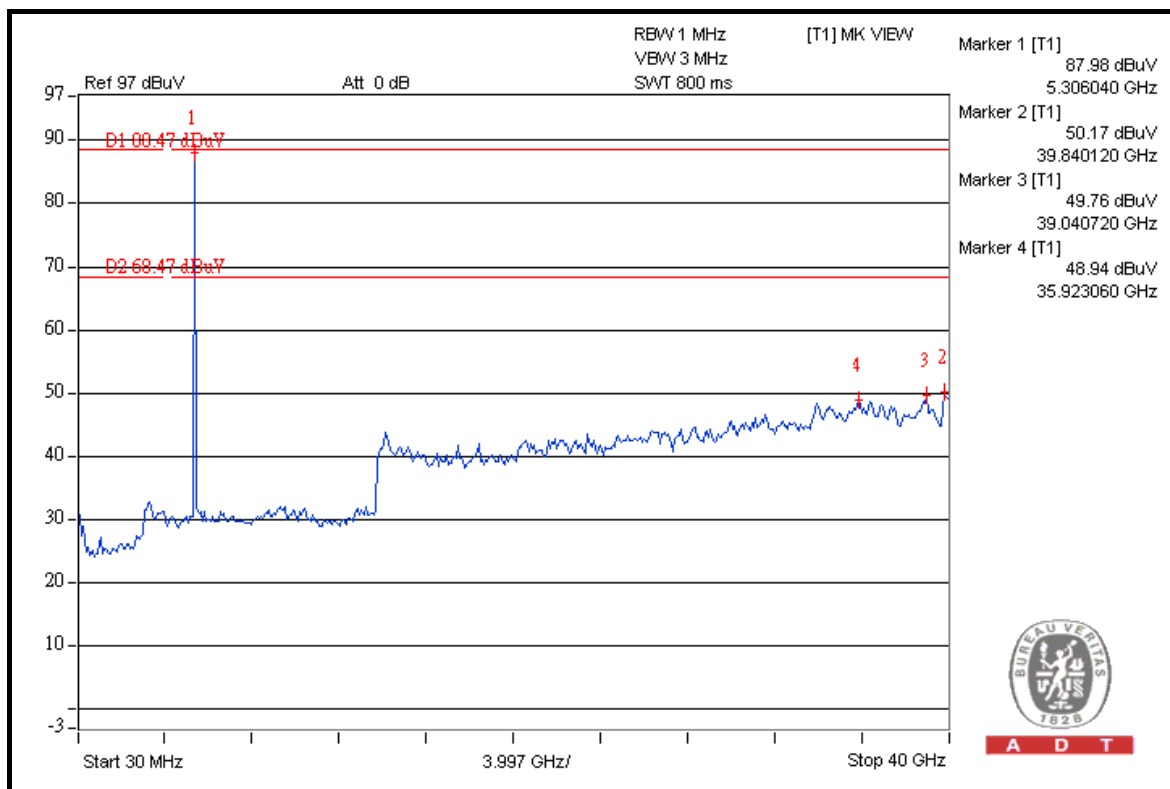
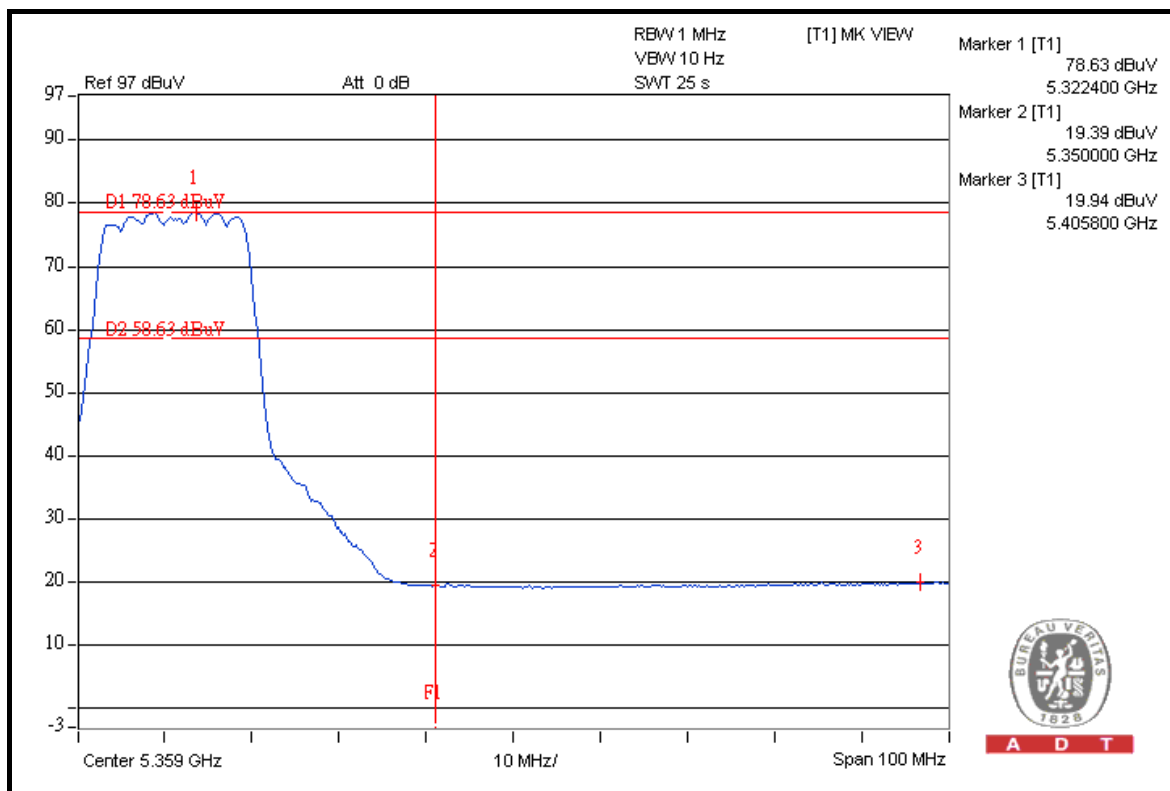
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FOR 5500-5700MHz BAND: 802.11a OFDM MODULATION

Channel 100 (5500MHz)

The band edge emission plot (5.460GHz) on the next second page shows 59.91dBc between carrier maximum power and local maximum emission out of band emission. The emission of carrier strength list in the test result of channel 100 is 123.29dBuV/m (Peak), so the maximum field strength out of band emission is $123.29 - 59.91 = 63.38\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot (5.460GHz) on the next second page shows 61.24dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 100 is 112.85dBuV/m (Average), so the maximum field strength in restrict band is $112.85 - 61.24 = 51.61\text{dBuV/m}$ which is under 54dBuV/m limit.

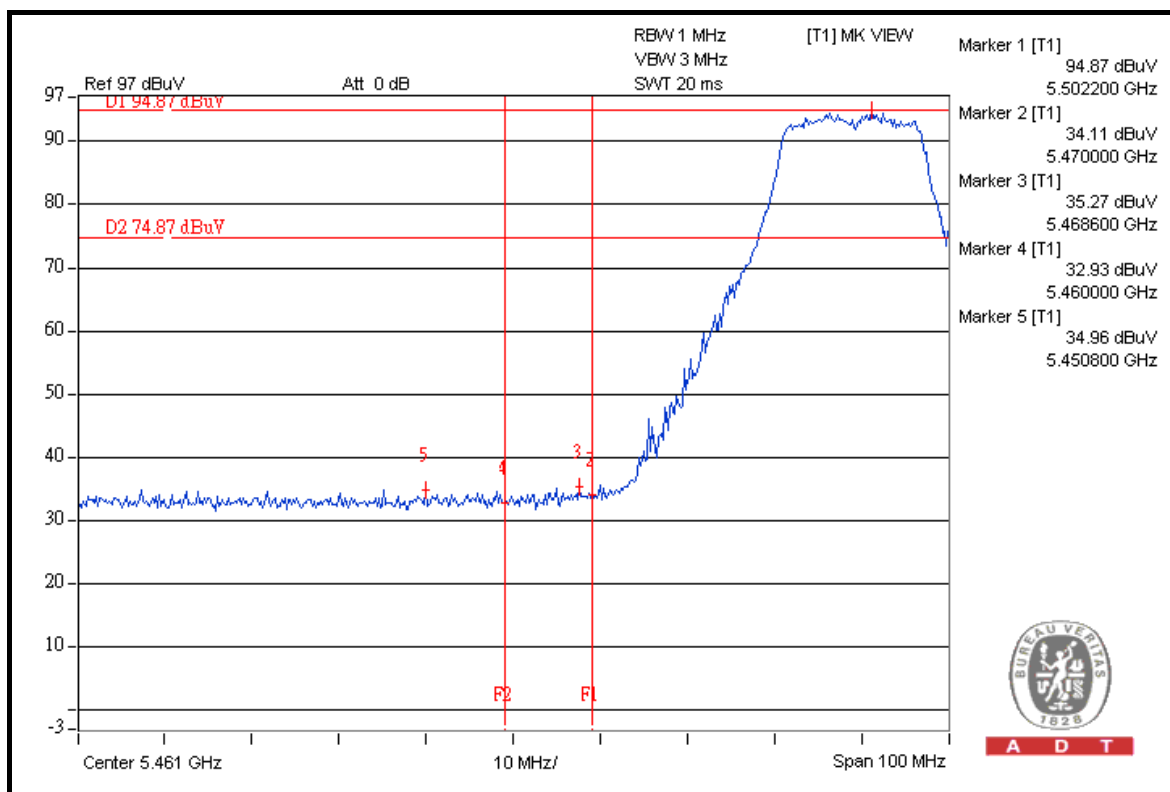
The band edge emission plot (5.470GHz) on the next second page shows 59.60dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 100 is 123.29dBuV/m (Peak), so the maximum field strength in restrict band is $123.29 - 59.60 = 63.69\text{dBuV/m}$ which is under 68.3dBuV/m limit.

Channel 140 (5700MHz)

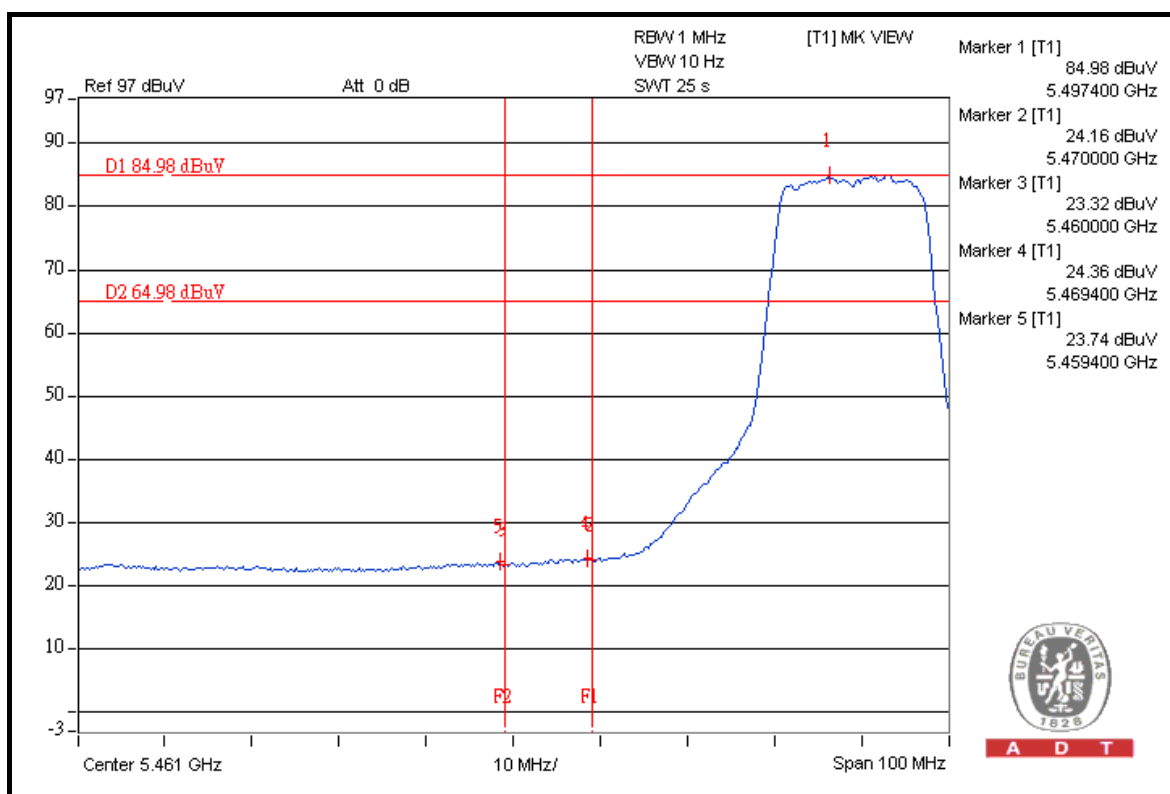
The band edge emission plot on the next third page shows 56.09dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 140 is 121.83dBuV/m (Peak), so the maximum field strength in restrict band is $121.83 - 56.09 = 65.74\text{dBuV/m}$ which is under 68.3dBuV/m limit.



A D T



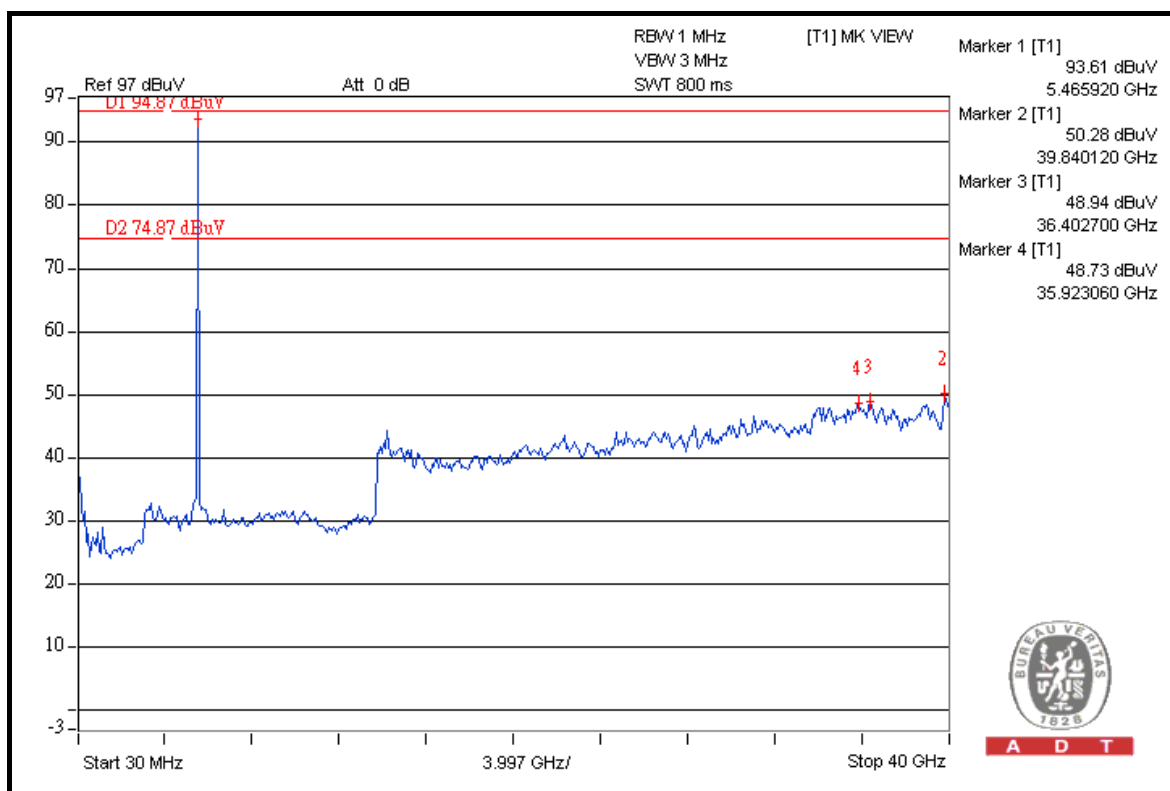
A D T



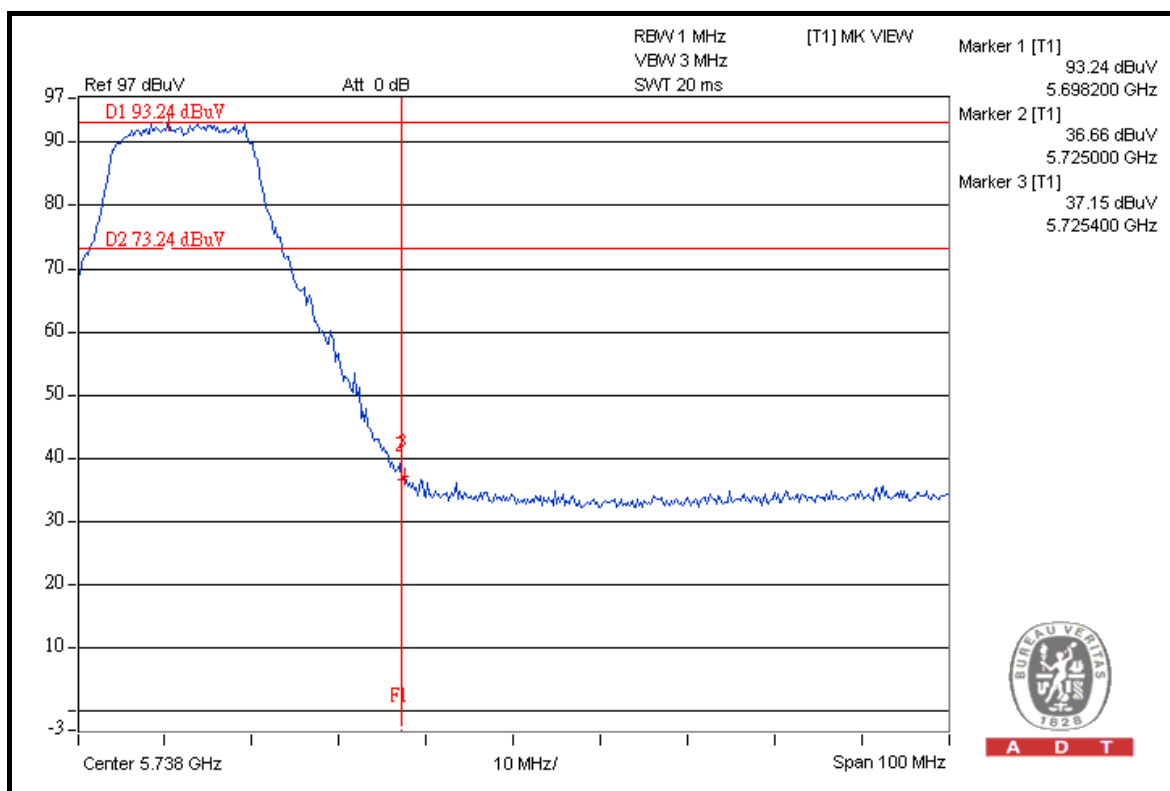
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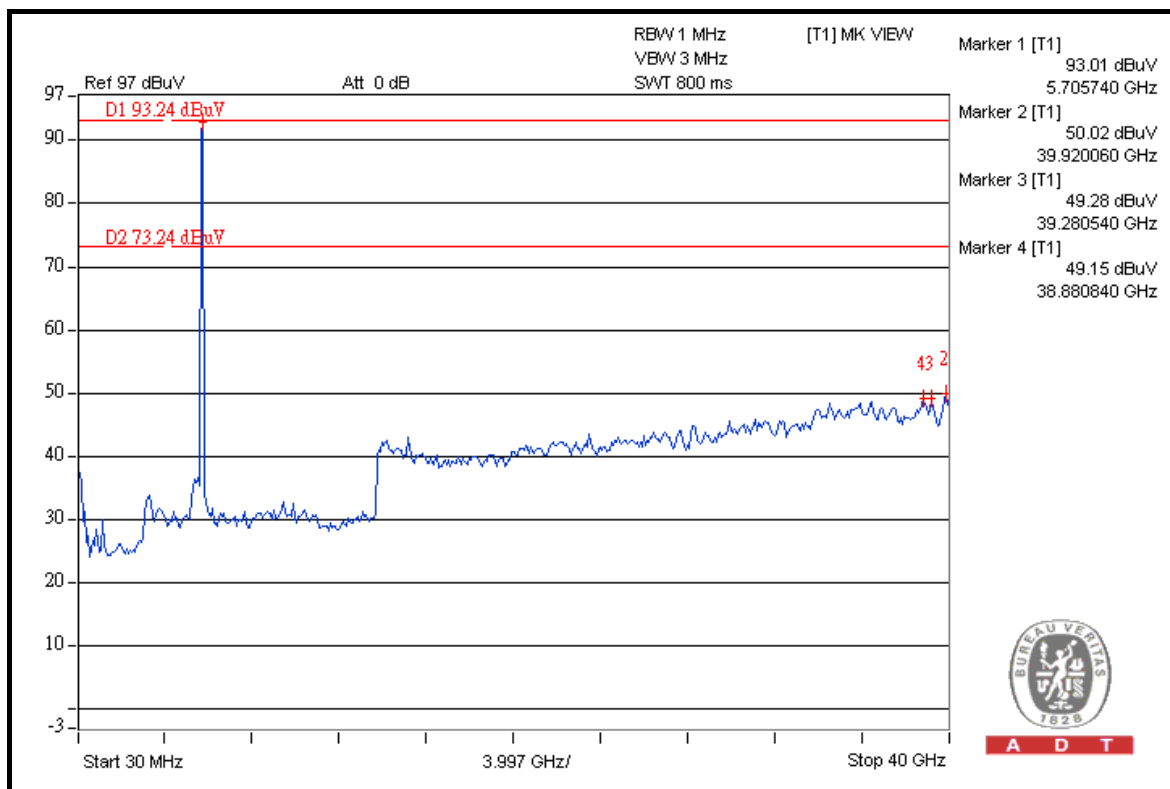
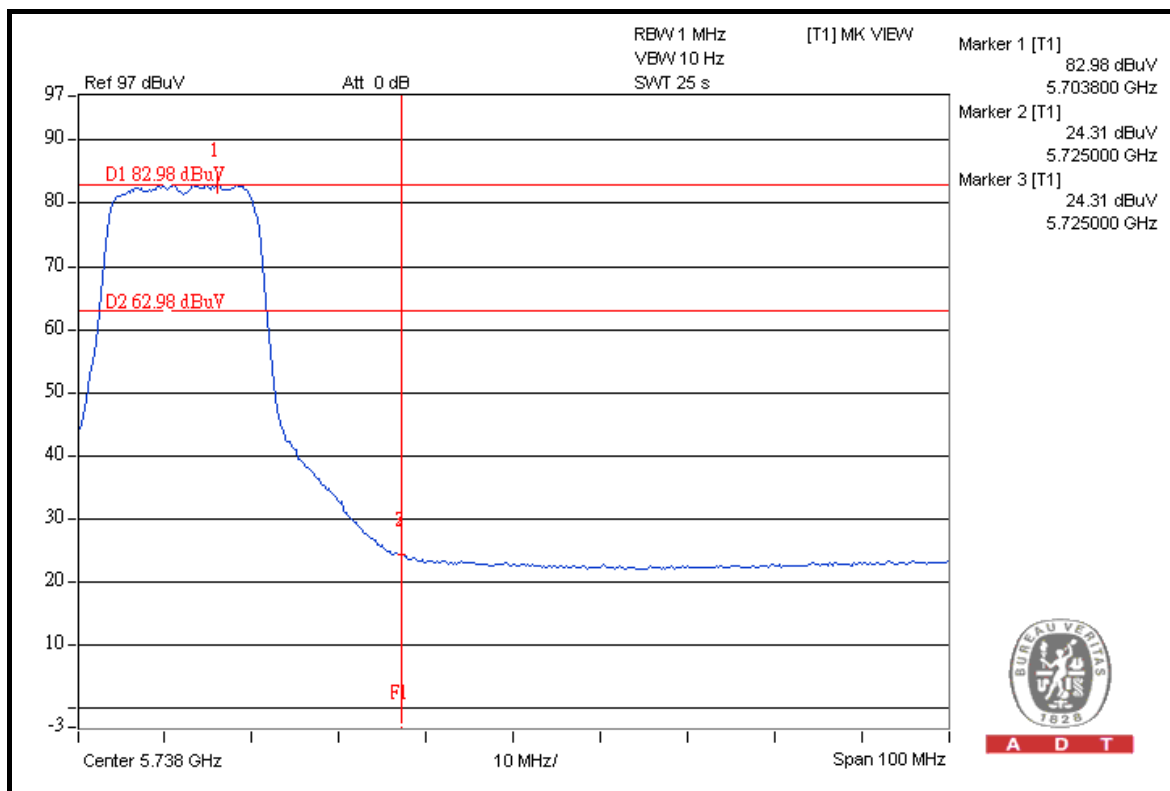
A D T



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FOR 5180-5320MHz BAND: DRAFT 802.11n (20MHz) OFDM MODULATION

Channel 36 (5180MHz)

The band edge emission plot on the next page shows 52.14dBc 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 112.60dBuV/m (Peak), so the maximum field strength in restrict band is $112.60 - 52.14 = 60.46\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 53.43dBc 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 99.16dBuV/m (Average), so the maximum field strength in restrict band is $99.16 - 53.43 = 45.73\text{dBuV/m}$ which is under 54dBuV/m limit.

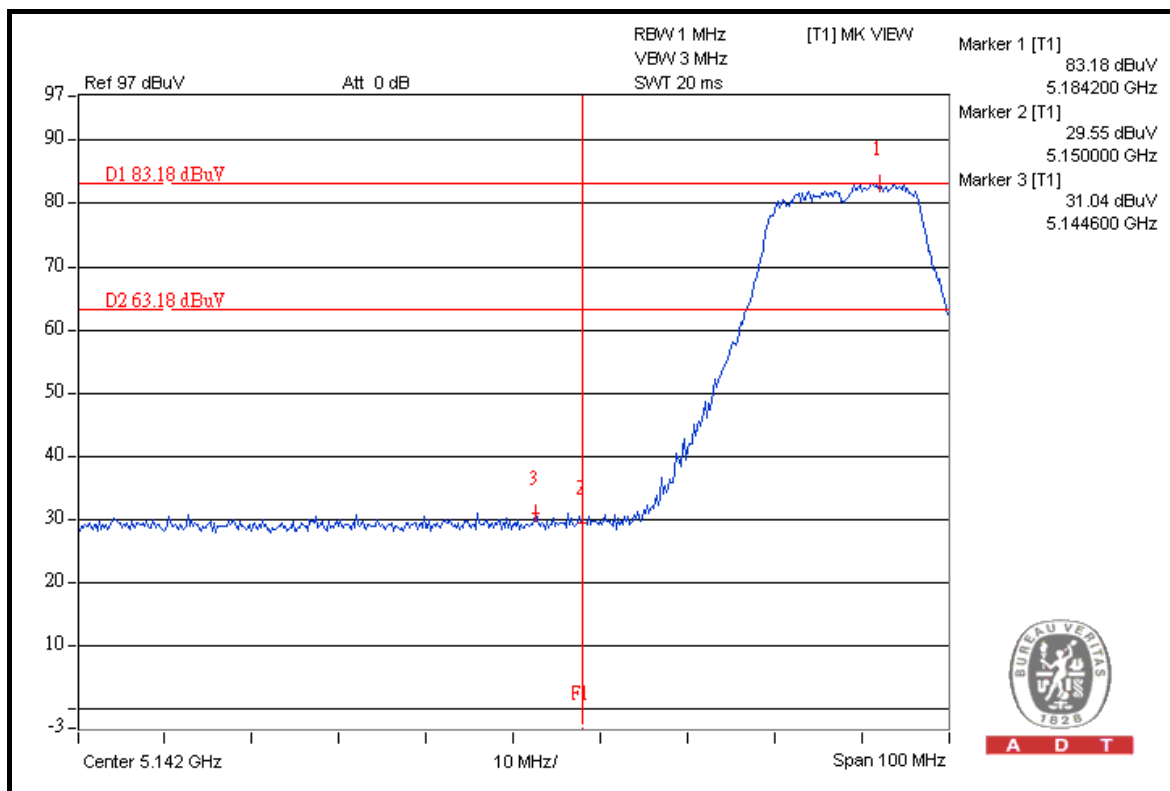
Channel 64 (5320MHz)

The band edge emission plot on the next second page shows 57.62dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 64 is 118.92dBuV/m (Peak), so the maximum field strength in restrict band is $118.92 - 57.62 = 61.30\text{dBuV/m}$ which is under 74dBuV/m limit.

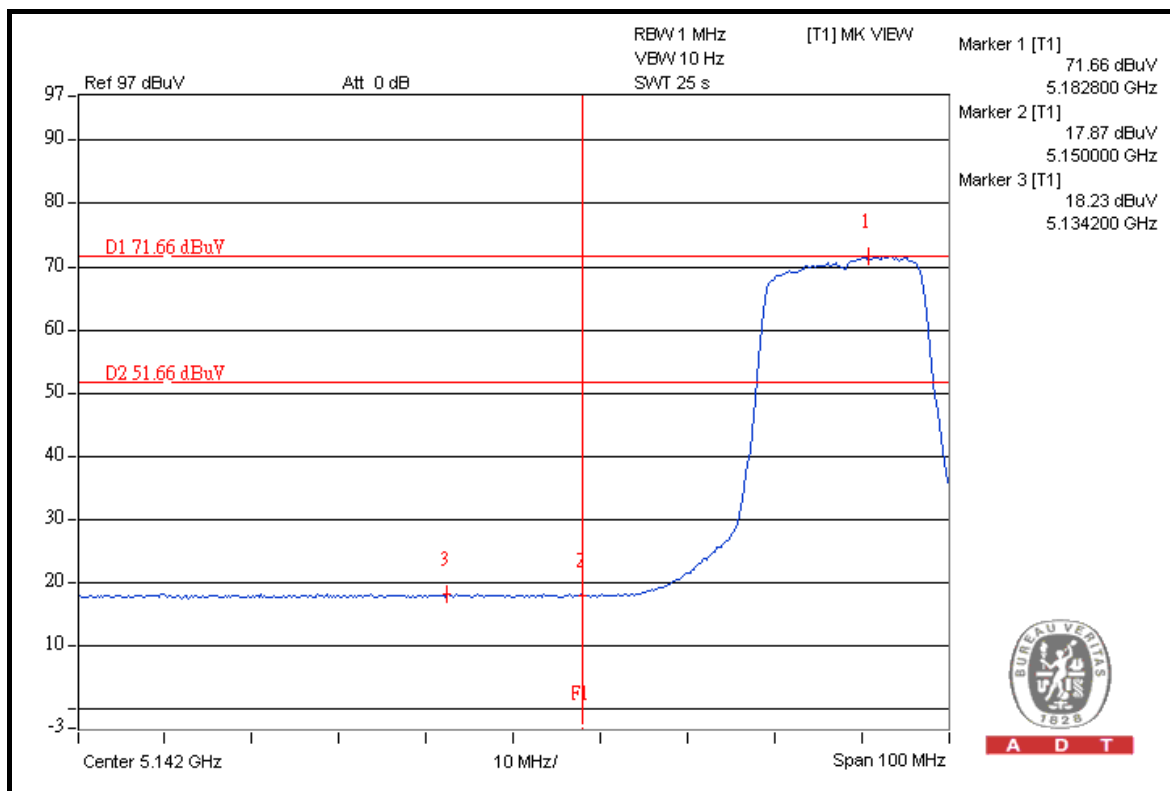
The band edge emission plot on the next third page shows 58.61dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 64 is 106.48dBuV/m (Average), so the maximum field strength in restrict band is $106.48 - 58.61 = 47.87\text{dBuV/m}$ which is under 54dBuV/m limit.



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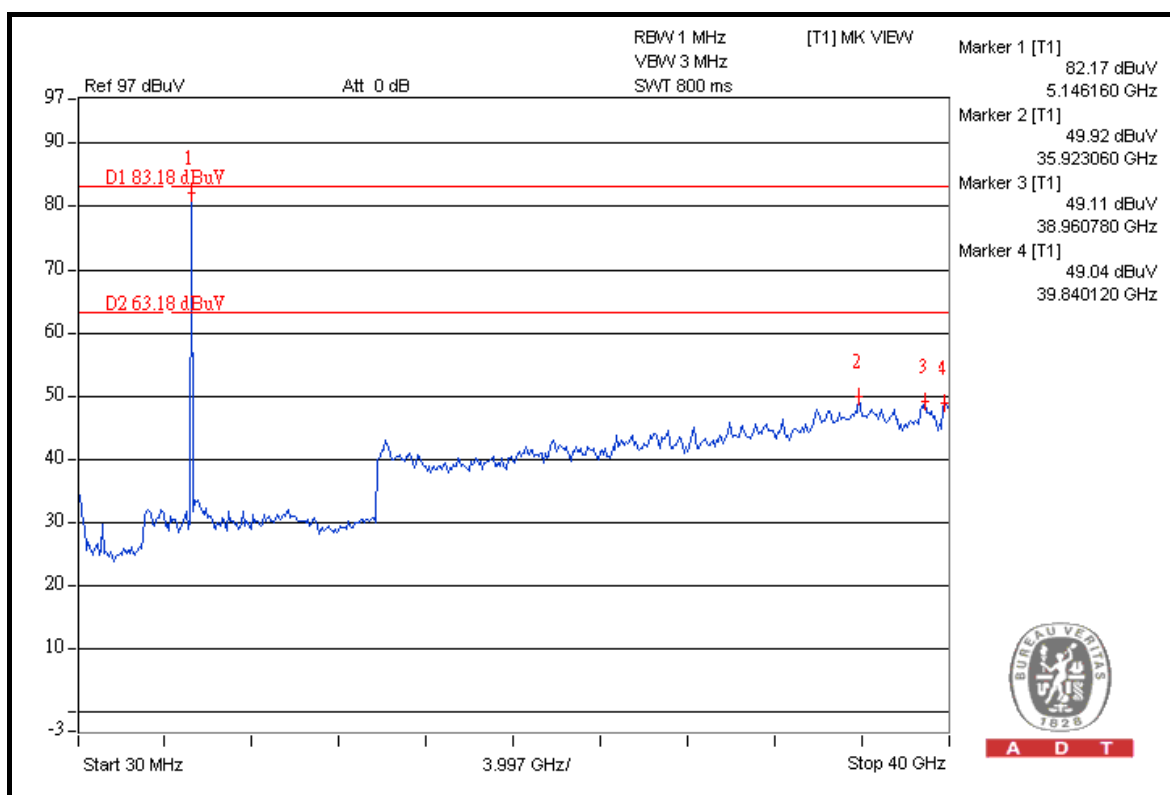
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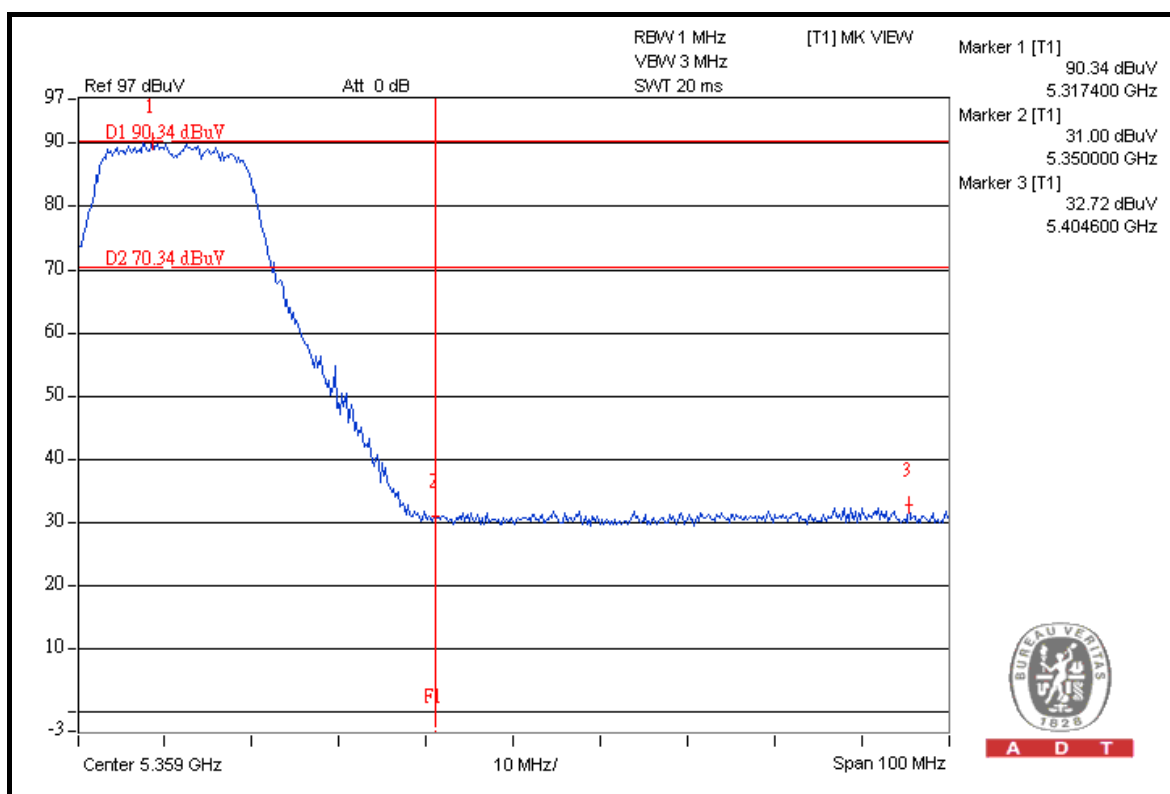
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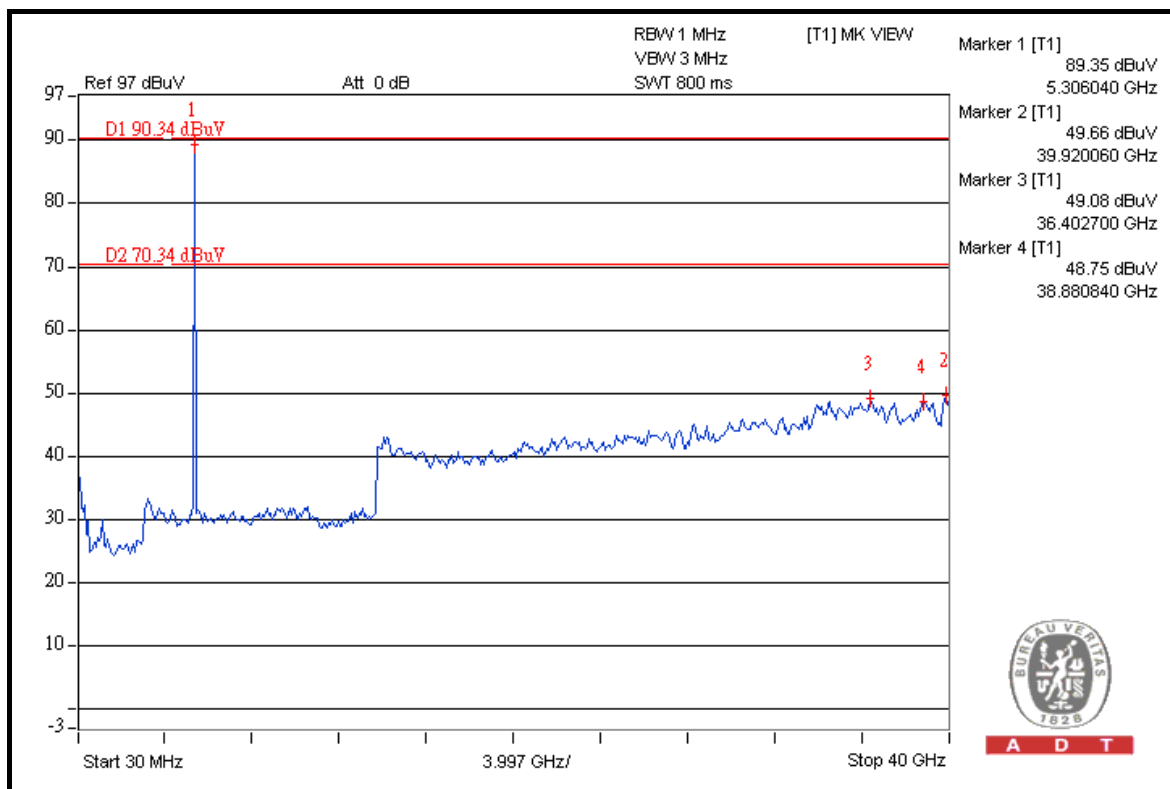
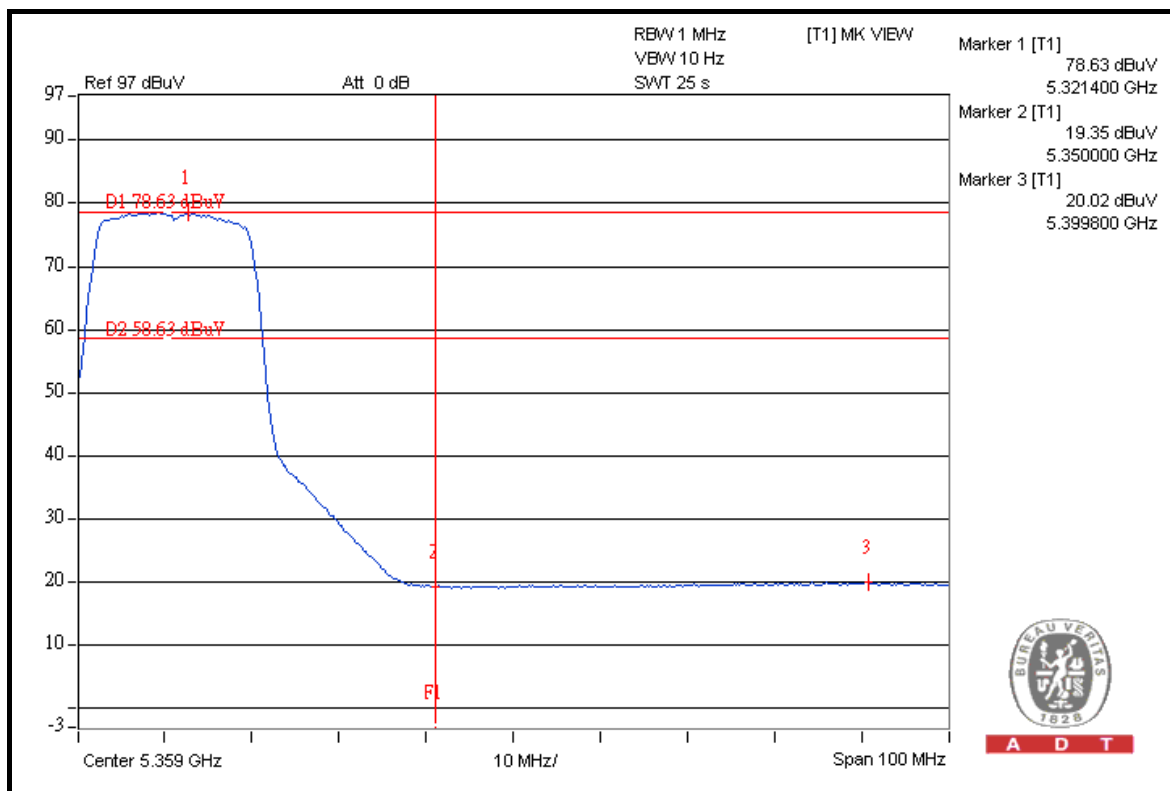
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FOR 5500-5700MHz BAND: DRAFT 802.11n (20MHz) OFDM MODULATION

Channel 100 (5500MHz)

The band edge emission plot (5.460GHz) on the next page shows 59.65dBc between carrier maximum power and local maximum emission out of band emission. The emission of carrier strength list in the test result of channel 100 is 122.97dBuV/m (Peak), so the maximum field strength out of band emission is $122.97 - 59.65 = 63.32\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot (5.460GHz) on the next page shows 61.35dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 100 is 112.66dBuV/m (Average), so the maximum field strength in restrict band is $112.66 - 61.35 = 51.31\text{dBuV/m}$ which is under 54dBuV/m limit.

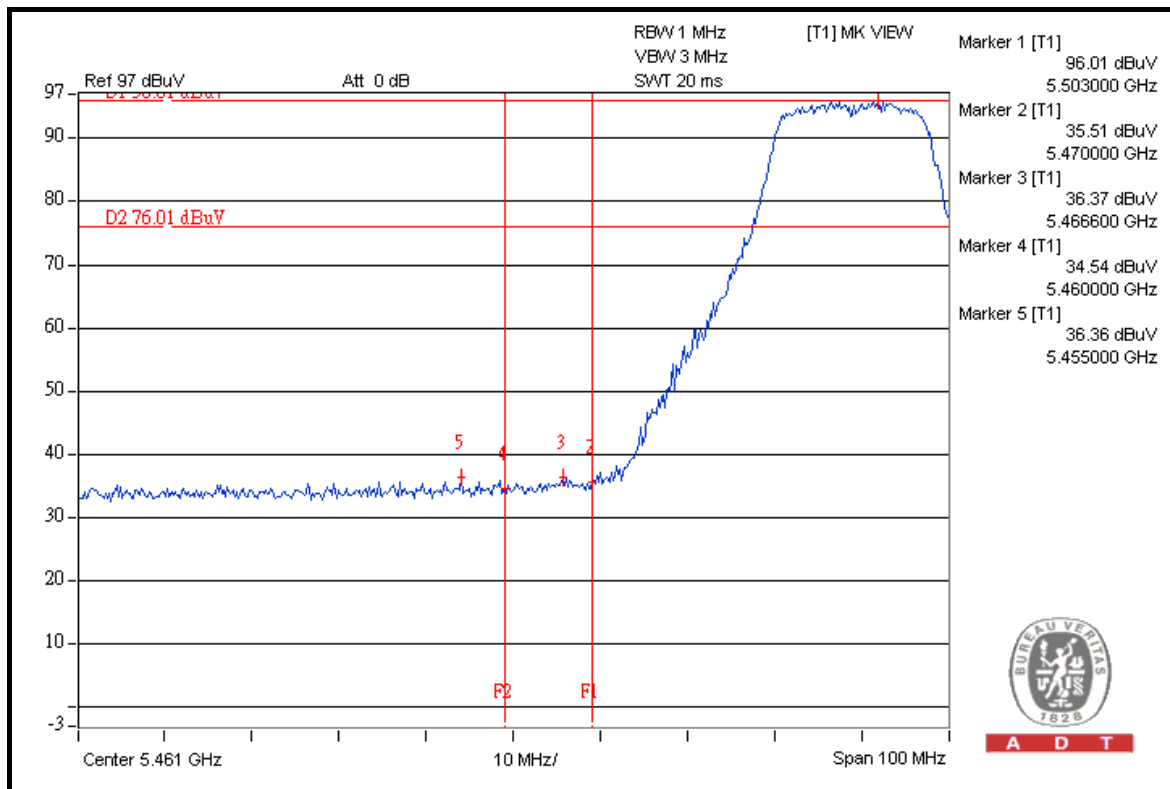
The band edge emission plot (5.470GHz) on the next page shows 59.64dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 100 is 122.97dBuV/m (Peak), so the maximum field strength in restrict band is $122.97 - 59.64 = 63.33\text{dBuV/m}$ which is under 68.3dBuV/m limit.

Channel 140 (5700MHz)

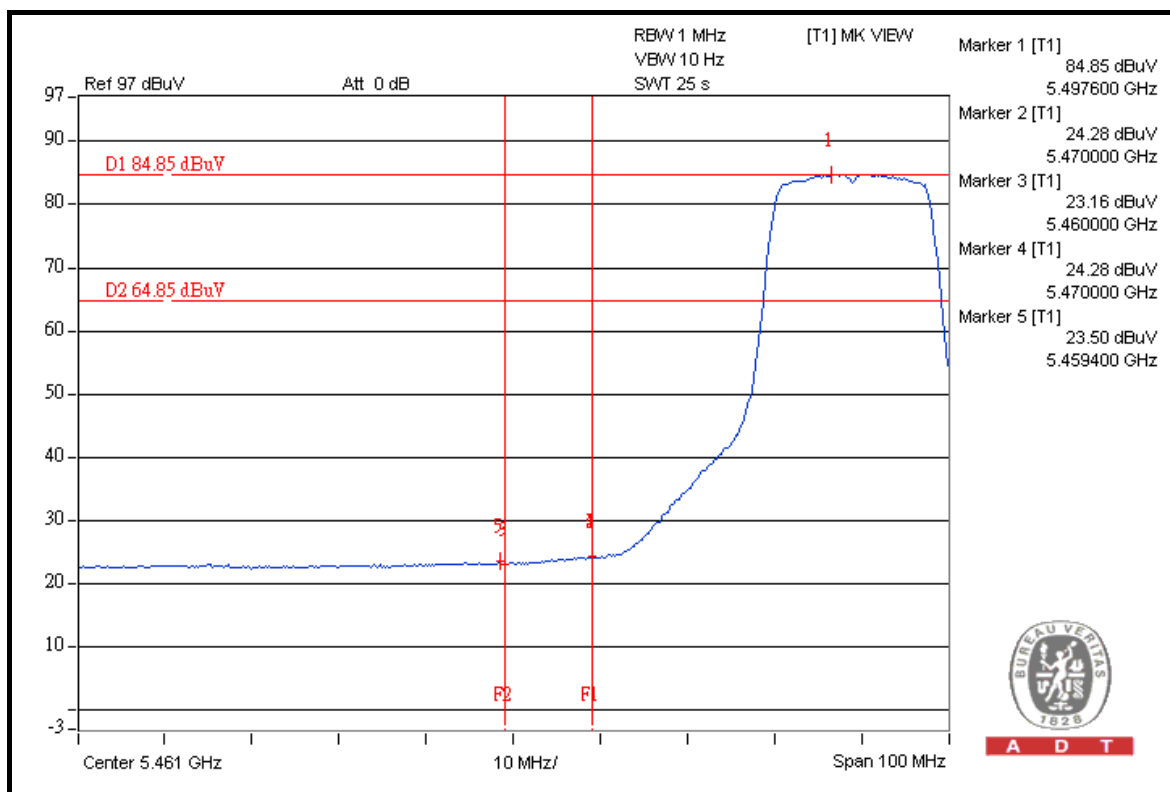
The band edge emission plot on the next second page shows 55.27dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 140 is 121.62dBuV/m (Peak), so the maximum field strength in restrict band is $121.62 - 55.27 = 66.35\text{dBuV/m}$ which is under 68.3dBuV/m limit.



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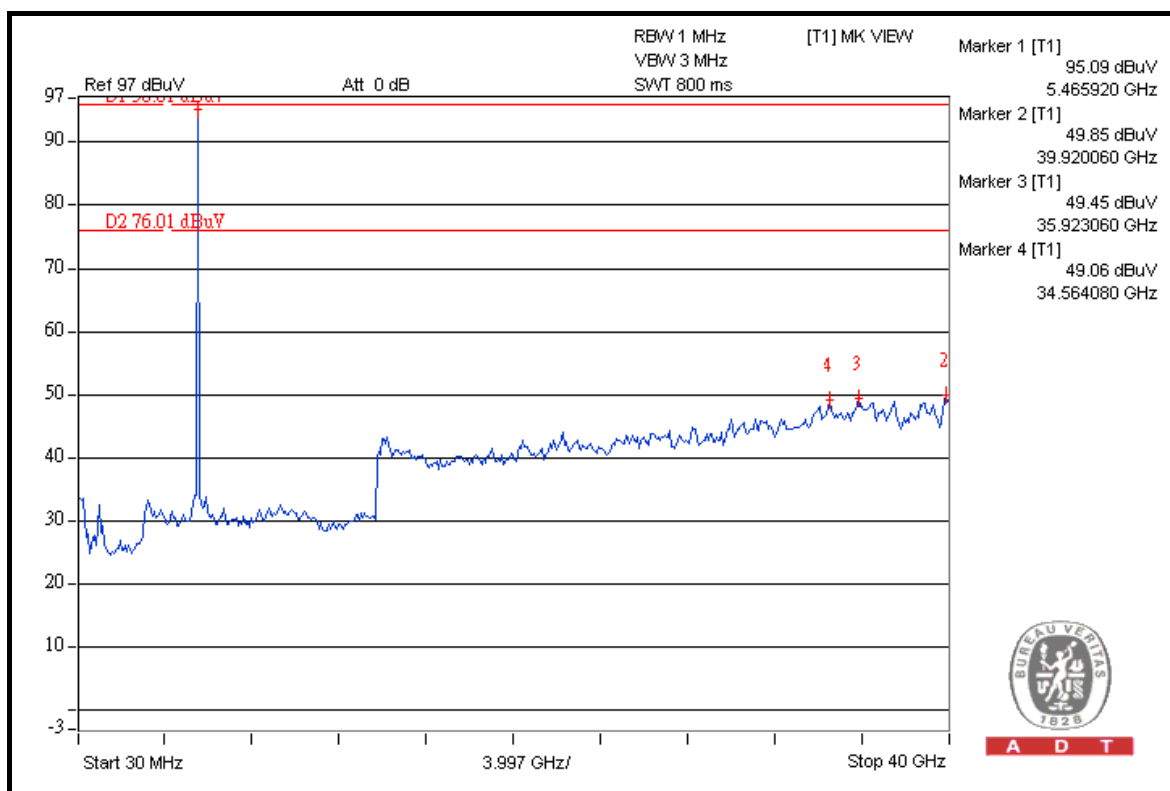
A D T



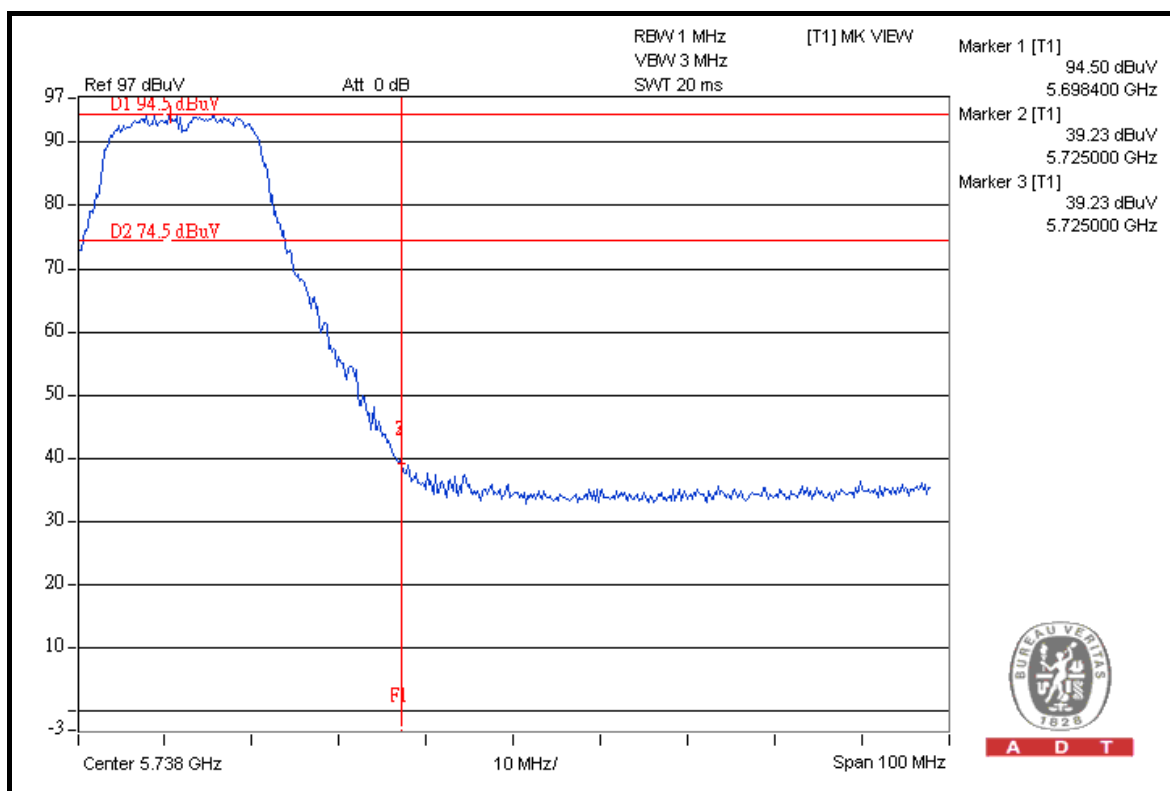
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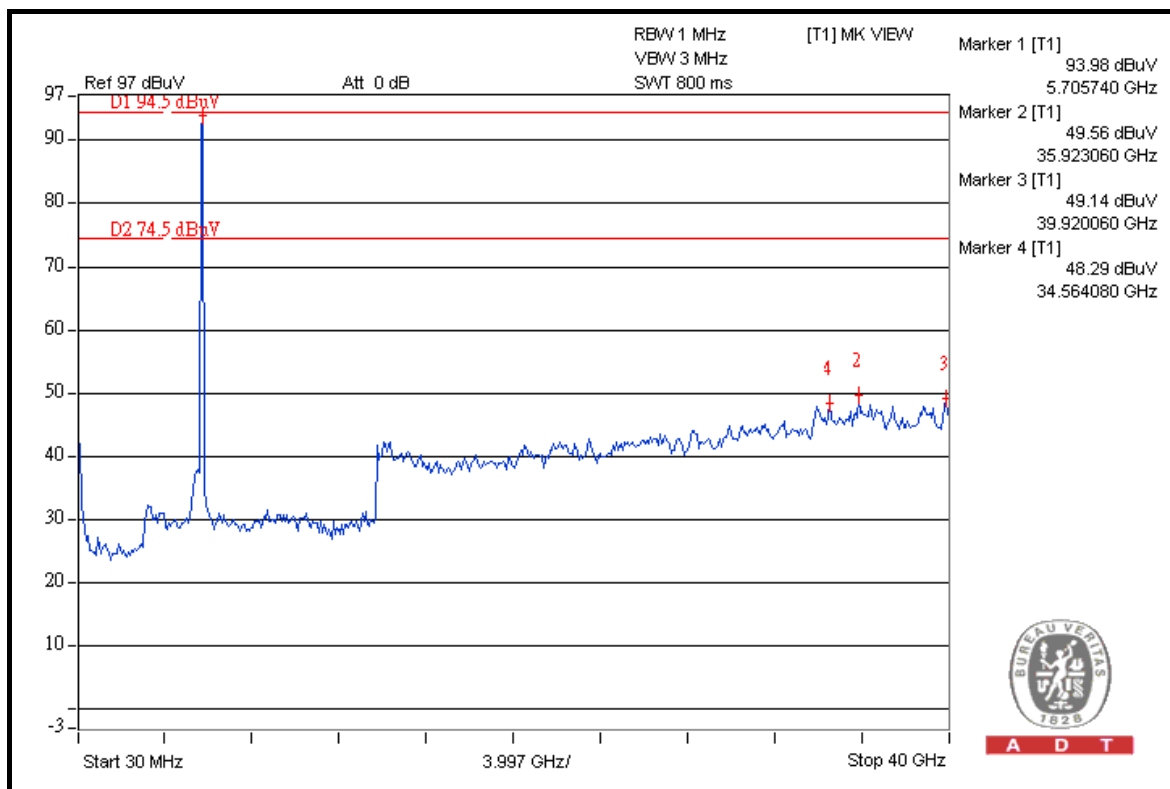
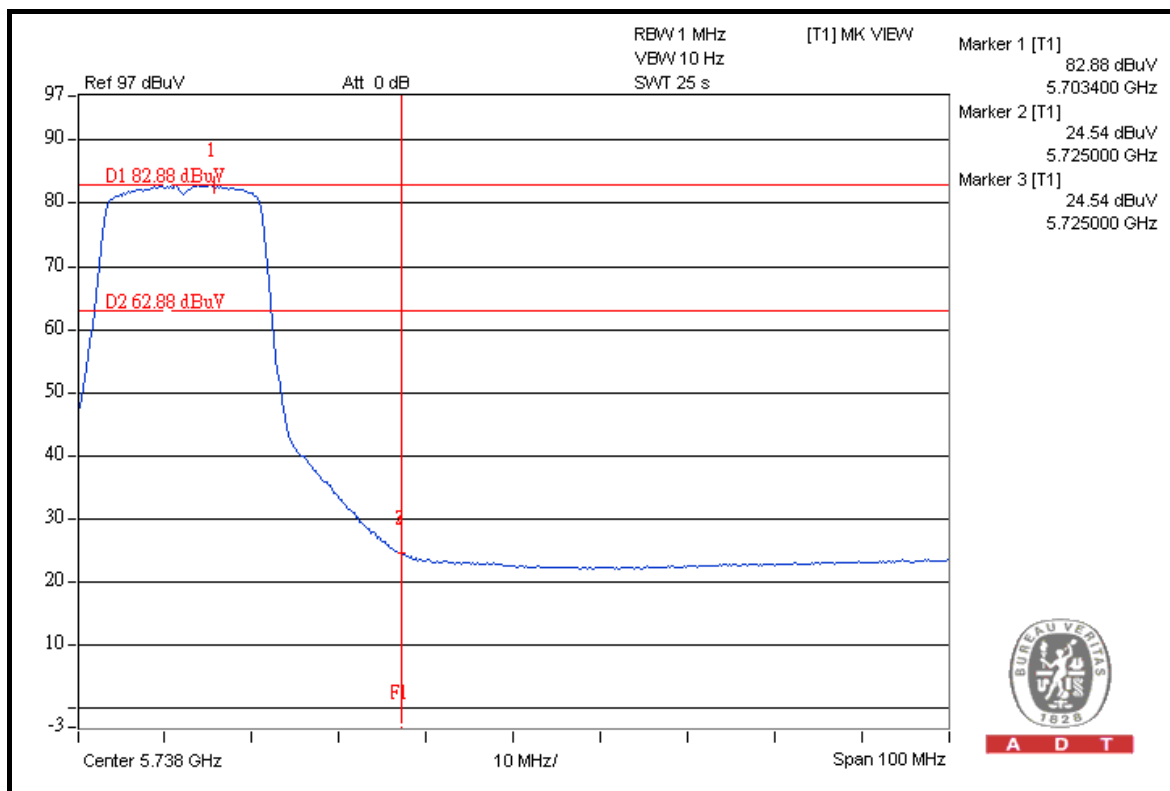
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FOR 5180-5320MHz BAND: DRAFT 802.11n (40MHz) OFDM MODULATION

Channel 38 (5190MHz)

The band edge emission plot on the next page shows 47.01dBc 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 109.84dBuV/m (Peak), so the maximum field strength in restrict band is $109.84 - 47.01 = 62.83\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next page shows 49.84dBc 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 96.42dBuV/m (Average), so the maximum field strength in restrict band is $96.42 - 49.84 = 46.58\text{dBuV/m}$ which is under 54dBuV/m limit.

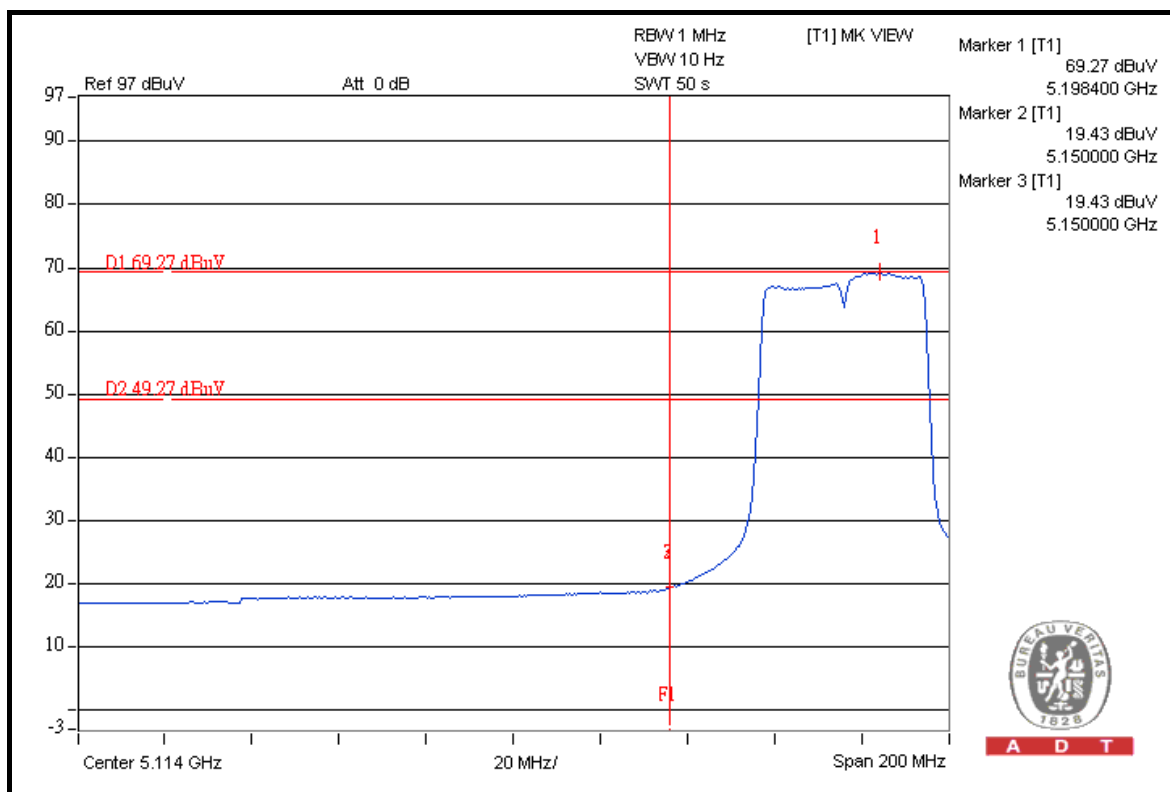
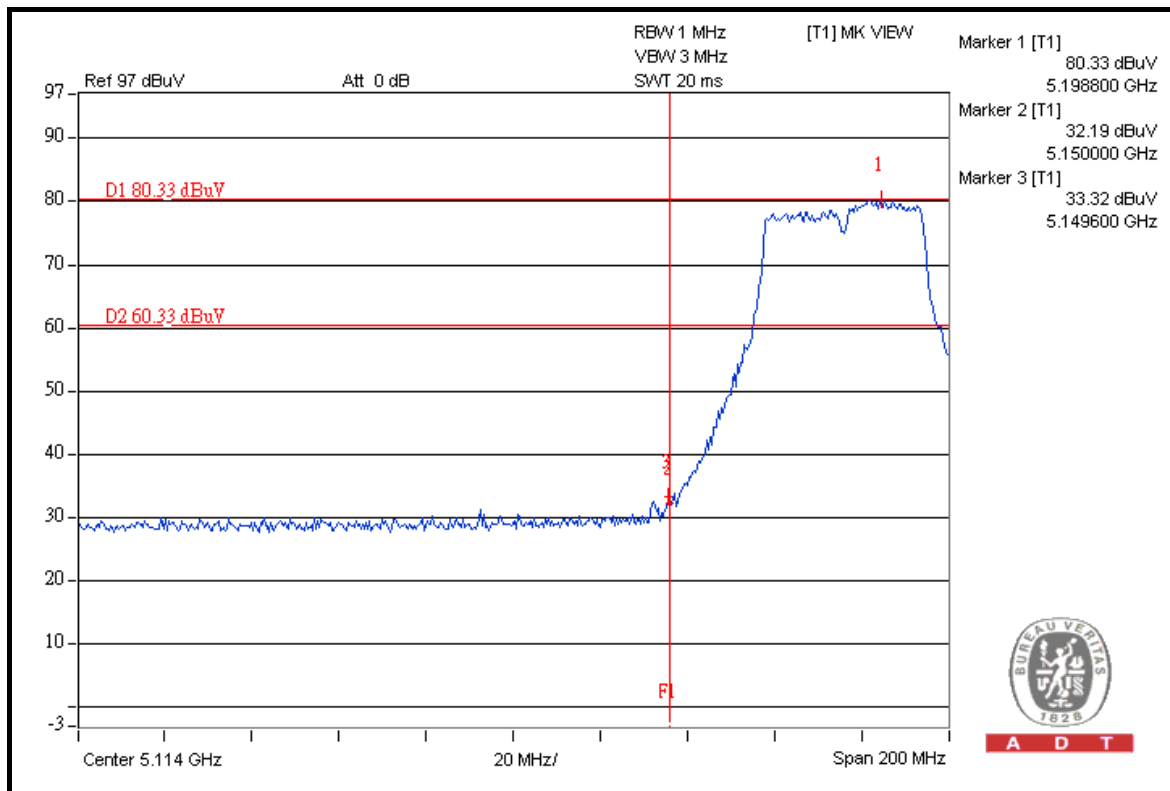
Channel 62 (5310MHz)

The band edge emission plot on the next second page shows 47.12dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 62 is 115.27dBuV/m (Peak), so the maximum field strength in restrict band is $115.27 - 47.12 = 68.15\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 51.00dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 62 is 101.31dBuV/m (Average), so the maximum field strength in restrict band is $101.31 - 51.00 = 50.31\text{dBuV/m}$ which is under 54dBuV/m limit.

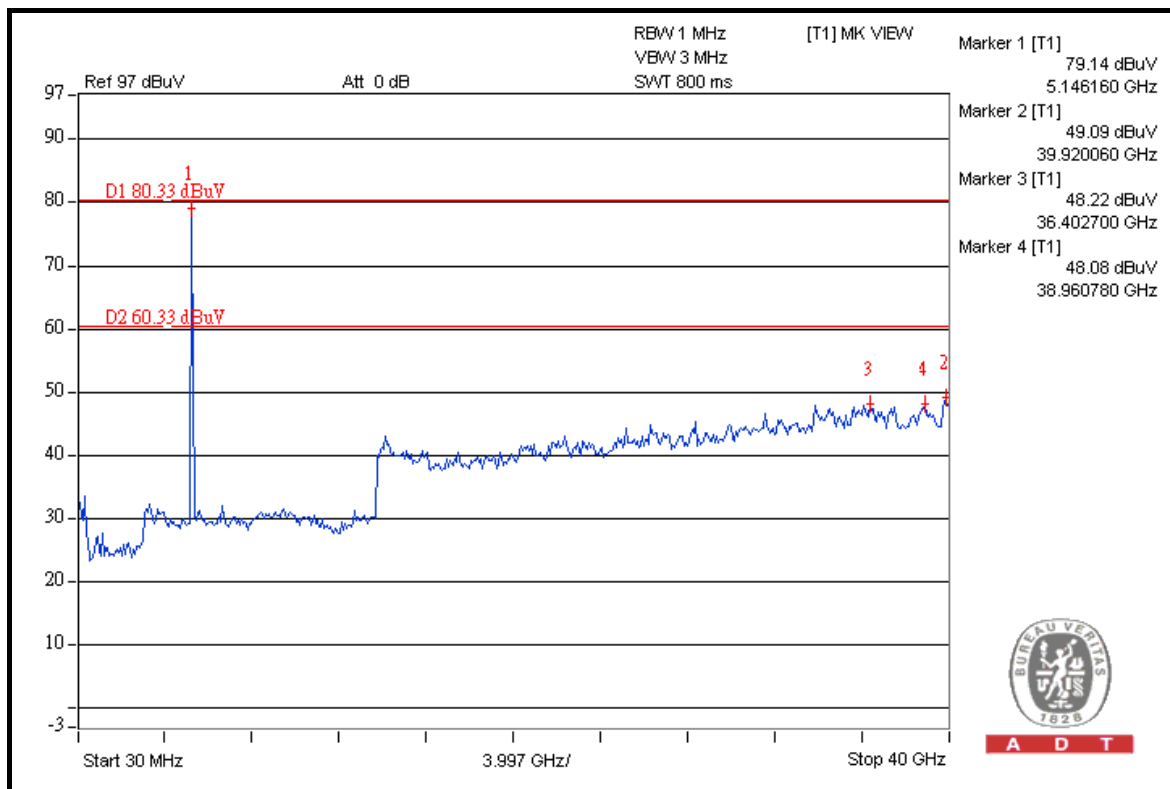


A D T

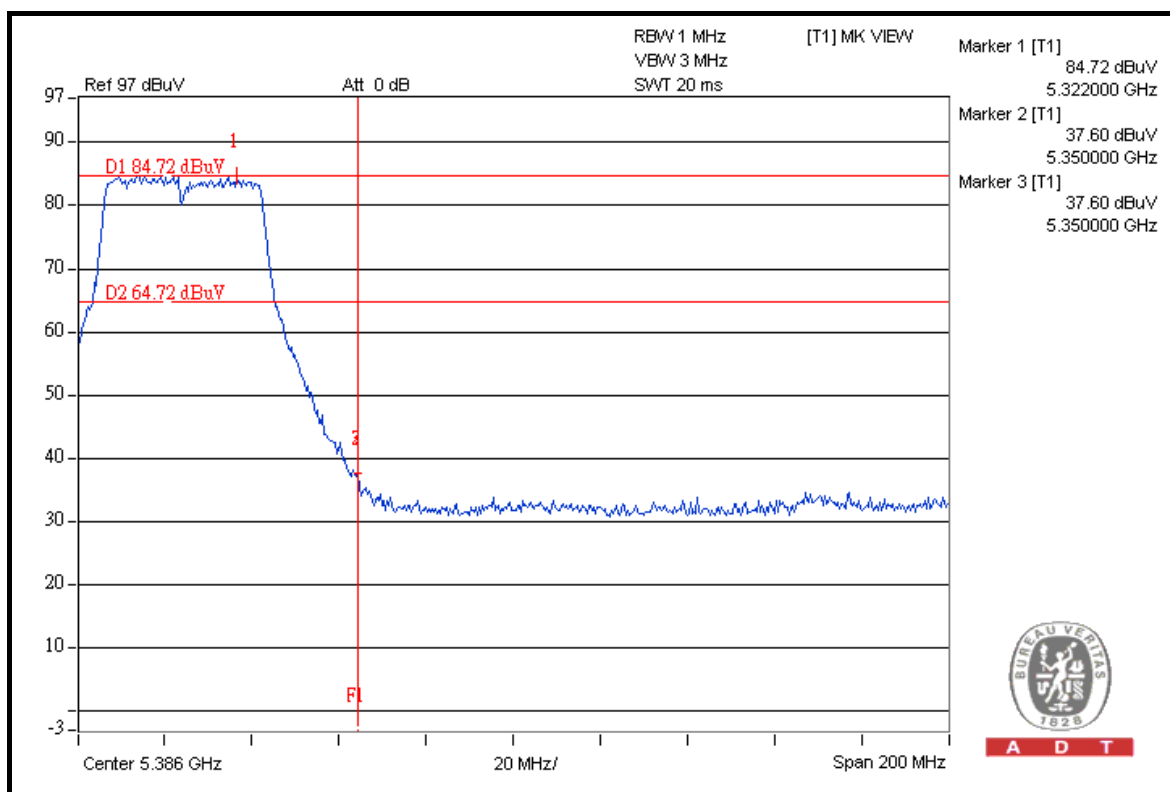




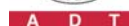
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FOR 5500-5700MHz BAND: DRAFT 802.11n (40MHz) OFDM MODULATION

Channel 102 (5510MHz)

The band edge emission plot (5.460GHz) on the next page shows 47.75dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 102 is 111.93dBuV/m (Peak), so the maximum field strength in restrict band is $111.93 - 47.75 = 64.18\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot (5.460GHz) on the next page shows 48.57dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 102 is 97.57dBuV/m (Average), so the maximum field strength in restrict band is $97.57 - 48.57 = 49.00\text{dBuV/m}$ which is under 54dBuV/m limit.

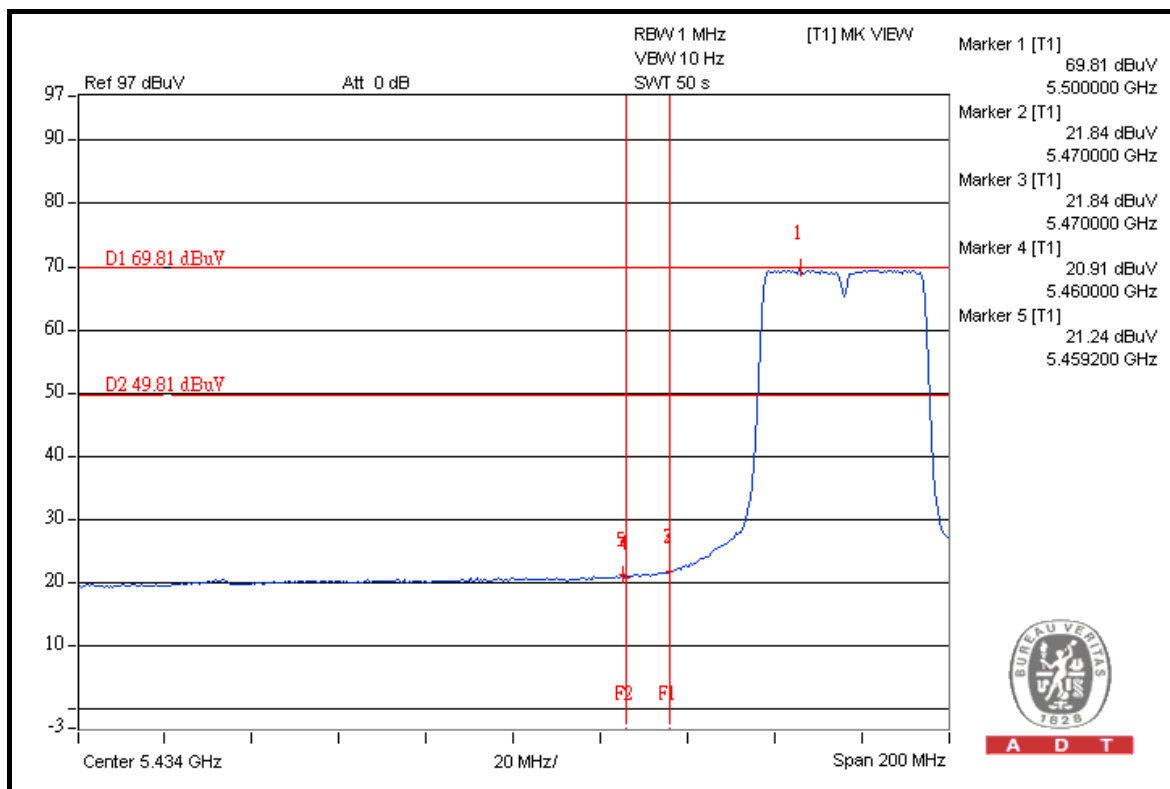
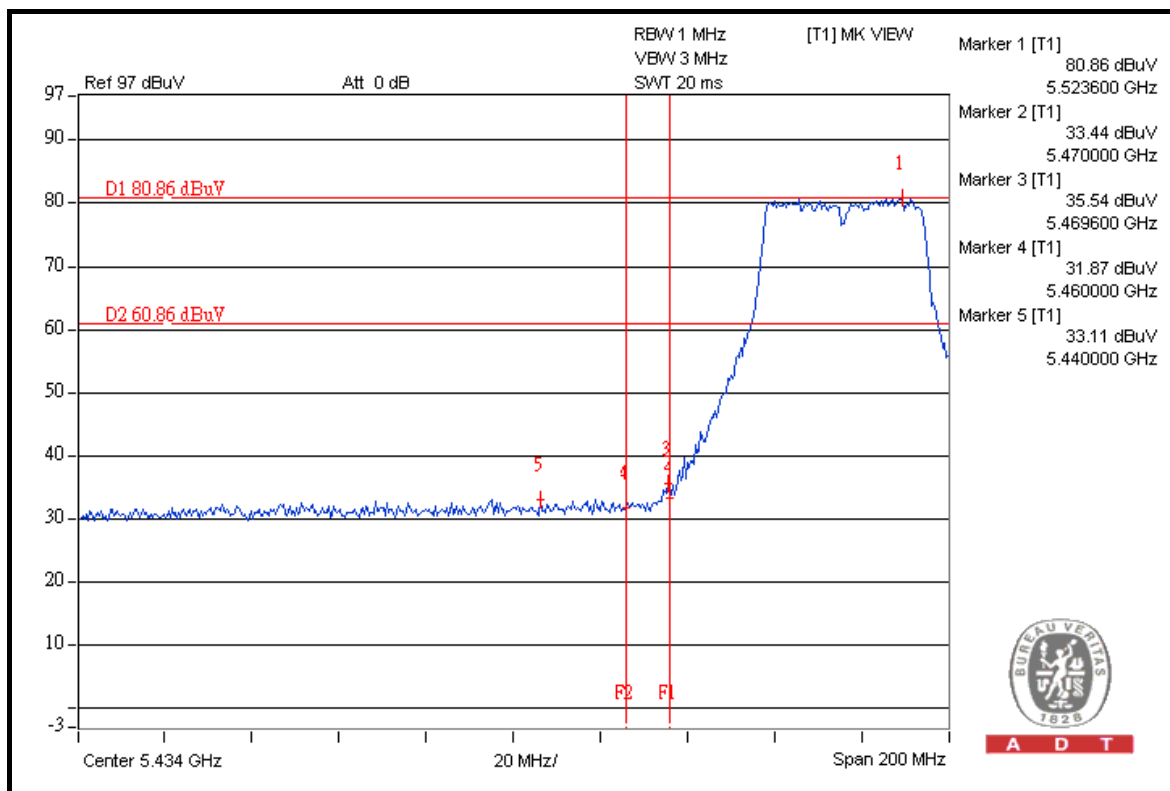
The band edge emission plot (5.470GHz) on the next page shows 45.32dBc between carrier maximum power and local maximum emission out of band emission. The emission of carrier strength list in the test result of channel 102 is 111.93dBuV/m (Peak), so the maximum field strength out of band emission is $111.93 - 45.32 = 66.61\text{dBuV/m}$ which is under 68.3dBuV/m limit.

Channel 134 (5670MHz)

The band edge emission plot on the next second page shows 54.90dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 134 is 119.43dBuV/m (Peak), so the maximum field strength in restrict band is $119.43 - 54.90 = 64.53\text{dBuV/m}$ which is under 68.3dBuV/m limit.

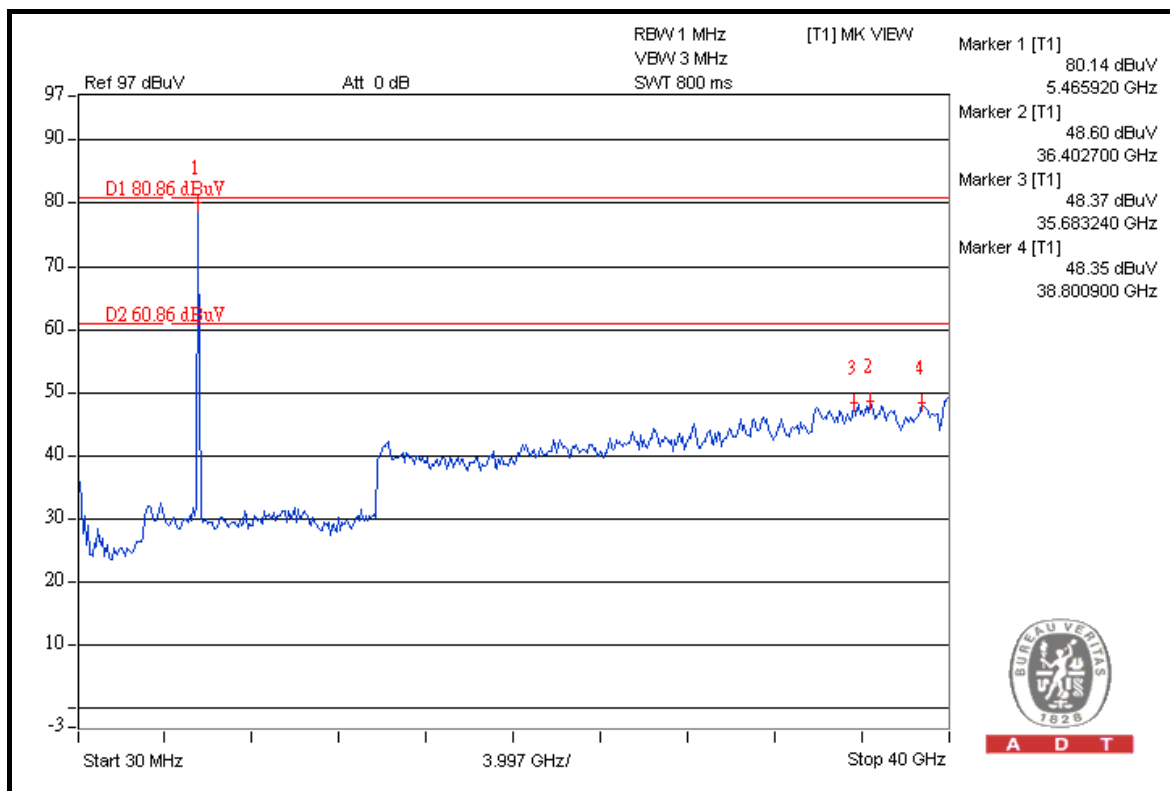


A D T

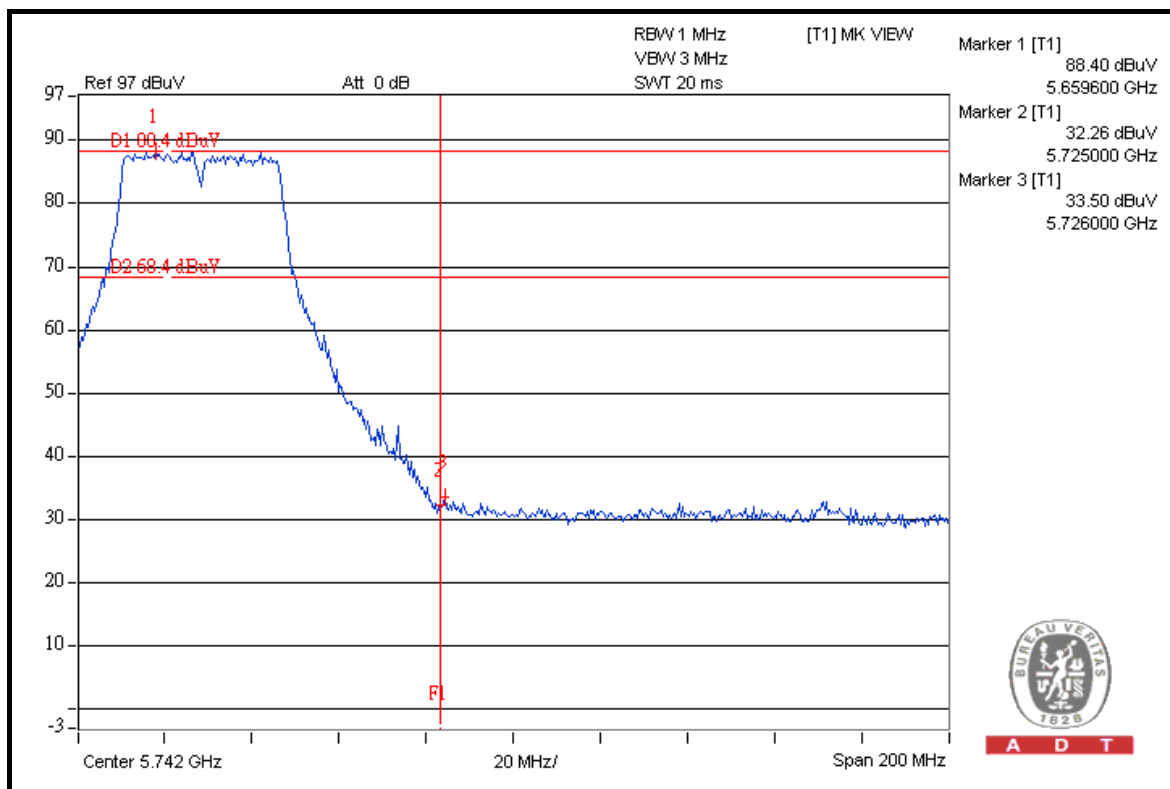




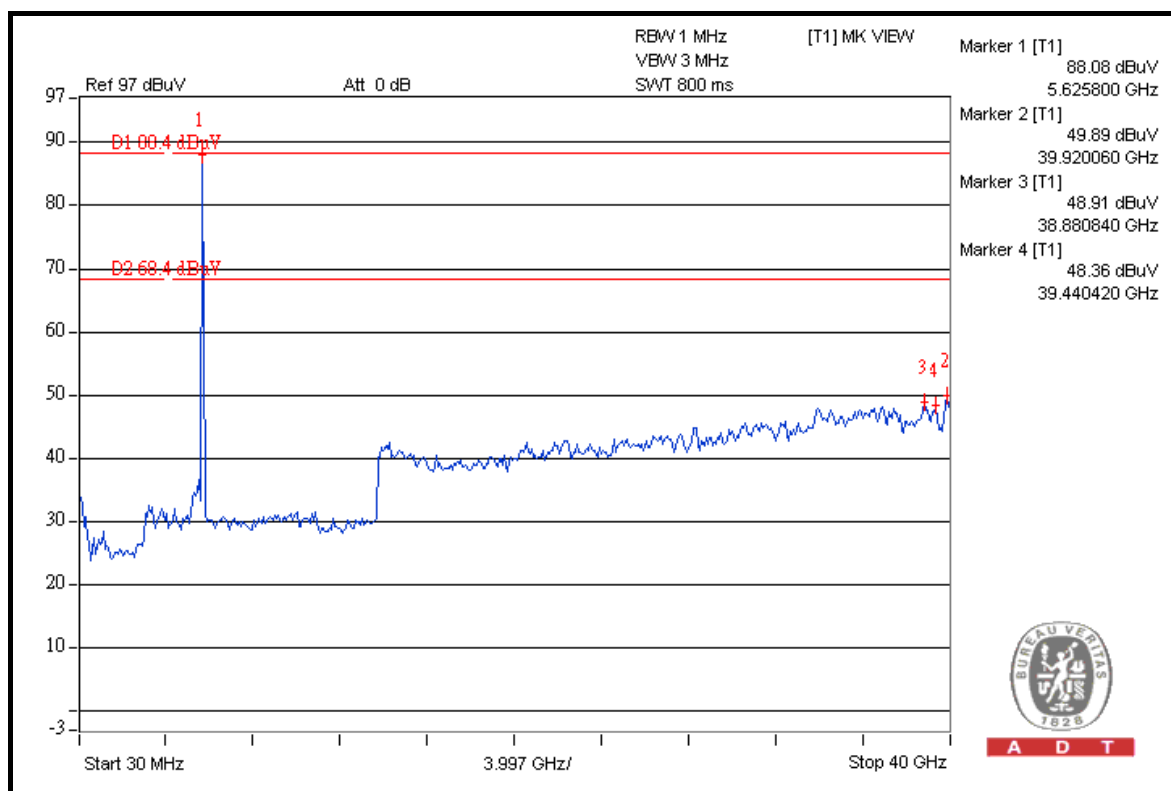
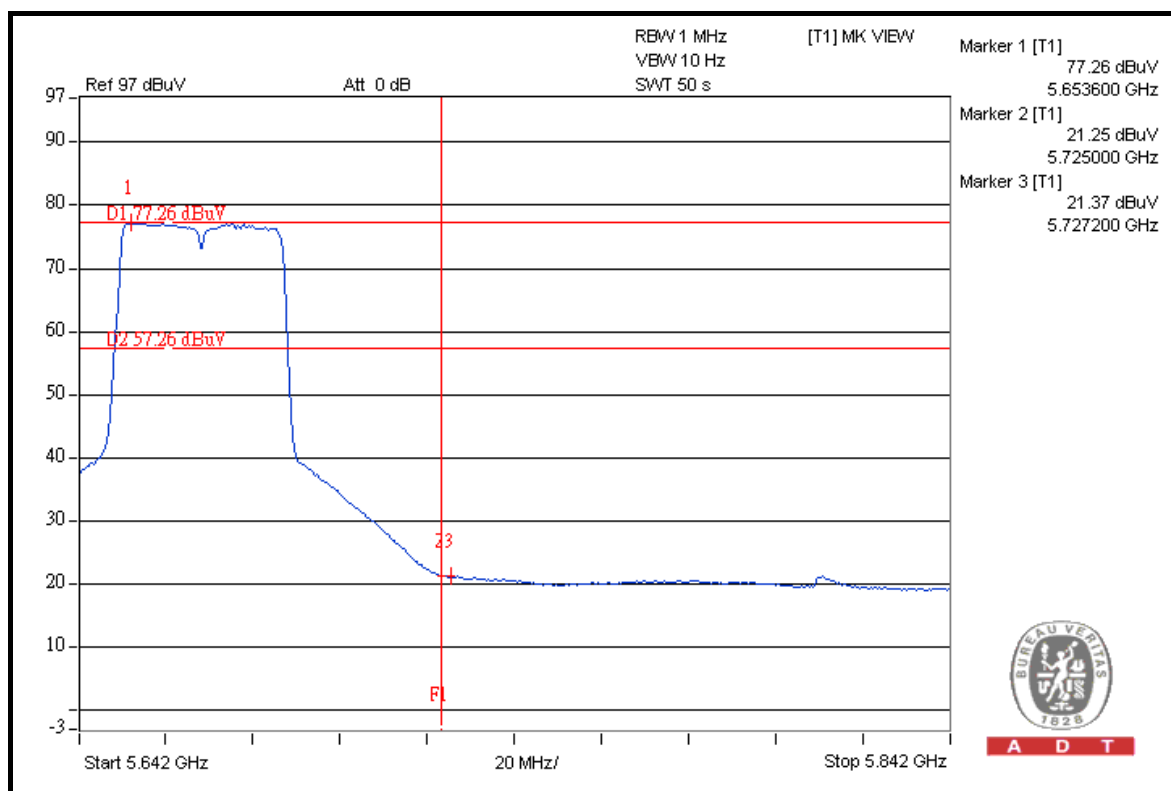
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4.8 ANTENNA REQUIREMENT

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 dual polarization directional antenna without connector. The maximum gain of the antenna is 16dBi.

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---