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FCC TEST REPORT

REPORT NO.: RF971215L14

MODEL NO.: WZR-HP-G300NH

RECEIVED: Dec. 15, 2008

TESTED: Dec. 30, 2008 ~ Jan. 13, 2009

ISSUED: Feb. 02, 2009

APPLICANT: BUFFALO INC.

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1. CERTIFICATION

PRODUCT: AirStation Wireless-N NFINITI HighPower Wireless Router & Access Point

MODEL: WZR-HP-G300NH

BRAND: Buffalo

APPLICANT: BUFFALO INC.

TESTED: Dec. 30, 2008 ~ Jan. 13, 2009

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003

The above equipment (model: WZR-HP-G300NH) 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 : Andrea Hsia , **DATE:** Feb. 02, 2009
Andrea Hsia / Specialist

TECHNICAL
ACCEPTANCE : Long Chen , **DATE:** Feb. 02, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Feb. 02, 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 C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -16.01dB at 0.173MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.13dB at 2390.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 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

PRODUCT	AirStation Wireless-N NFINITI HighPower Wireless Router & Access Point
MODEL NO.	WZR-HP-G300NH
FCC ID	FDI-09101560-0
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 300.0Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, Draft 802.11n (20MHz) 7 for Draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	847.614mW
ANTENNA TYPE	Dipole antenna with 2.26dBi gain (Antenna 1) Printed antenna with 2.85dBi gain (Antenna 2) Dipole antenna with 2.50dBi gain (Antenna 3)
DATA CABLE	NA
I/O PORTS	RJ45, USB
ACCESSORY DEVICES	AC Adapter

NOTE:

- The EUT was powered by the following adapter:

BRAND	Buffalo
MODEL	WA-24C12U
INPUT POWER	100-240Vac, 50-60Hz, 0.55A
OUTPUT POWER	12Vdc, 2A
POWER LINE	1.5m non-shielded cable without core

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

MODULATION MODE	TX FUNCTION
802.11b	3TX
802.11g	3TX
Draft 802.11n (20MHz)	3TX
Draft 802.11n (40MHz)	3TX

- 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

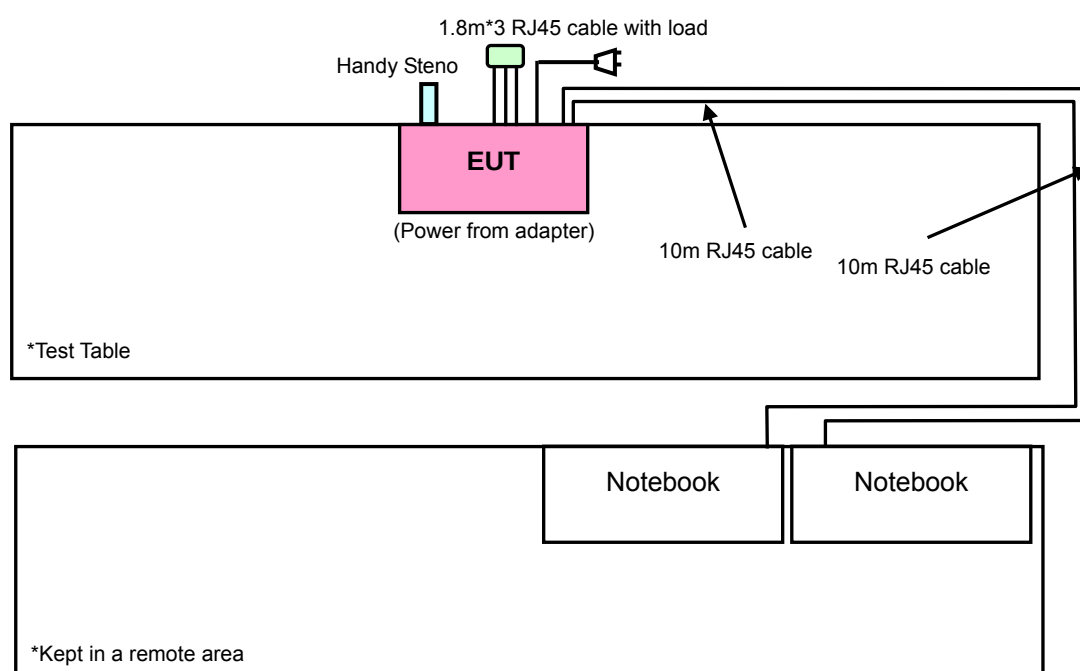
Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

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 **PLC**: Power Line Conducted Emission **RE<1G**: Radiated Emission below 1GHz
RE $\geq$ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	ANT. AXIS
802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1	X
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6	X
Draft 802.11n (20MHz)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5	X
Draft 802.11n (40MHz)	1 to 7	1, 2, 4, 6, 7	OFDM	BPSK	13.5	X

RADIATED EMISSION TEST (BELOW 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	ANT. AXIS
Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	X

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 2, 10, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 10, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 2, 10, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 2, 6, 7	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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 2, 4, 6, 7	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 C. (15.247)

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	HANDY STENO	Apacer	AH123	NA	NA
2	NOTEBOOK	DELL	PP05L	16484462992	E2K24CLNS
3	NOTEBOOK	DELL	PP05L	12130898320	E2K24CLNS

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	10m RJ45 cable
3	10m RJ45 cable

NOTE 1: All power cords of the above support units are non-shielded (1.8m).

NOTE 2: Item 2-3 acted as a communication partner to transfer data.

NOTE 3: Item 1 was supplied from client.

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 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 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 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- 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.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

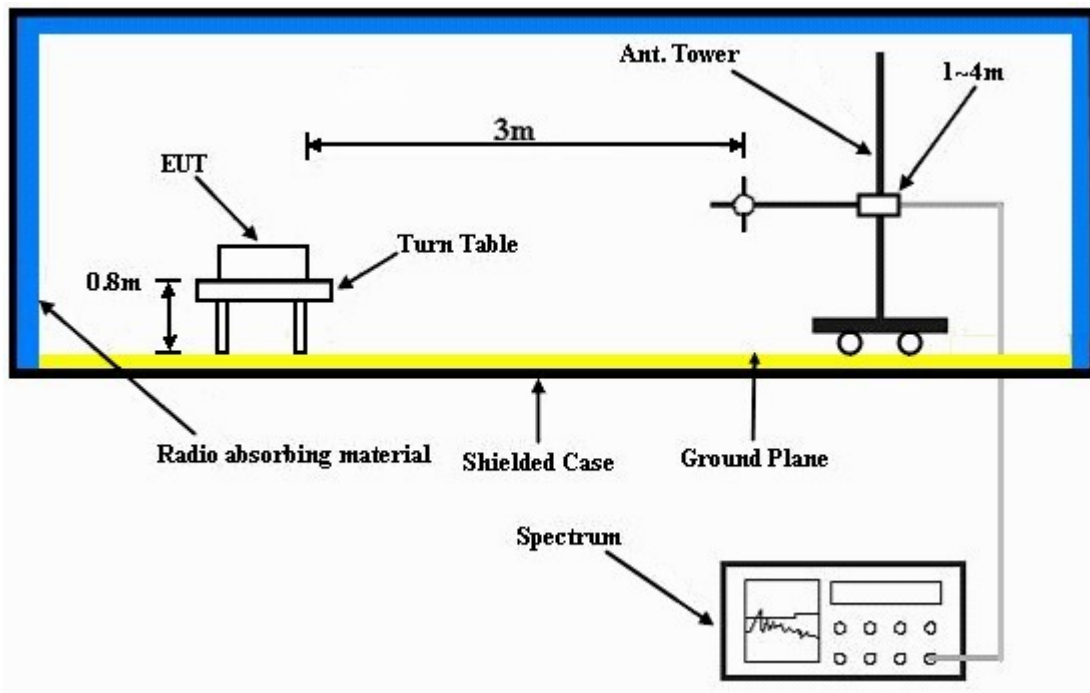
NOTE:

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 1 MHz 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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- Prepared notebook systems to act as a communication partner and placed them outside of testing area.
- The communication partners connected with EUT via a UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

4.1.7 TEST RESULTS

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2387.00	62.37 PK	74.00	-11.63	1.38 H	292	29.31	33.06
2	2387.00	52.65 AV	54.00	-1.35	1.38 H	292	19.59	33.06
3	*2412.00	114.69 PK			1.34 H	290	81.51	33.18
4	*2412.00	110.89 AV			1.34 H	290	77.71	33.18
5	4824.00	51.43 PK	74.00	-22.57	1.16 H	301	12.28	39.15
6	4824.00	43.66 AV	54.00	-10.34	1.16 H	301	4.51	39.15
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	2387.00	59.35 PK	74.00	-14.65	1.00 V	257	26.29	33.06
2	2387.00	48.87 AV	54.00	-5.13	1.00 V	257	15.81	33.06
3	*2412.00	110.50 PK			1.00 V	257	77.32	33.18
4	*2412.00	106.29 AV			1.00 V	257	73.11	33.18
5	4824.00	55.09 PK	74.00	-18.91	1.19 V	101	15.94	39.15
6	4824.00	51.13 AV	54.00	-2.87	1.19 V	101	11.98	39.15
7	#9648.00	63.08 PK	90.50	-27.42	1.25 V	107	13.79	49.29
8	#9648.00	58.95 AV	86.29	-27.34	1.25 V	107	9.66	49.29

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	62.48 PK	74.00	-11.52	1.39 H	298	29.40	33.08
2	2390.00	52.31 AV	54.00	-1.69	1.39 H	298	19.23	33.08
3	*2417.00	117.27 PK			1.10 H	289	84.07	33.20
4	*2417.00	113.01 AV			1.10 H	289	79.81	33.20
5	4834.00	51.41 PK	74.00	-22.59	1.32 H	302	12.27	39.15
6	4834.00	45.05 AV	54.00	-8.95	1.32 H	302	5.91	39.15
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	2390.00	58.73 PK	74.00	-15.27	1.01 V	97	25.65	33.08
2	2390.00	49.20 AV	54.00	-4.80	1.01 V	97	16.12	33.08
3	*2417.00	111.75 PK			1.02 V	107	78.55	33.20
4	*2417.00	107.69 AV			1.02 V	107	74.49	33.20
5	4834.00	55.33 PK	74.00	-18.67	1.04 V	82	16.19	39.15
6	4834.00	49.96 AV	54.00	-4.04	1.04 V	82	10.82	39.15
7	#9668.00	65.96 PK	91.75	-25.79	1.11 V	122	16.62	49.34
8	#9668.00	63.77 AV	87.69	-23.92	1.11 V	122	14.43	49.34
9	12085.00	61.90 PK	74.00	-12.10	1.36 V	139	10.62	51.27
10	12085.00	50.67 AV	54.00	-3.33	1.36 V	139	-0.60	51.27

- 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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	57.54 PK	74.00	-16.46	1.37 H	94	24.46	33.08
2	2390.00	47.88 AV	54.00	-6.12	1.37 H	94	14.80	33.08
3	*2437.00	117.74 PK			1.37 H	94	84.46	33.28
4	*2437.00	113.48 AV			1.37 H	94	80.20	33.28
5	2483.50	61.18 PK	74.00	-12.82	1.36 H	94	27.72	33.46
6	2483.50	48.96 AV	54.00	-5.04	1.36 H	94	15.50	33.46
7	4874.00	52.41 PK	74.00	-21.59	1.02 H	168	13.26	39.14
8	4874.00	47.15 AV	54.00	-6.85	1.02 H	168	8.00	39.14
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	*2437.00	113.94 PK			1.00 V	289	80.66	33.28
2	*2437.00	110.46 AV			1.00 V	289	77.18	33.28
3	4874.00	55.69 PK	74.00	-18.31	1.20 V	128	16.54	39.14
4	4874.00	52.59 AV	54.00	-1.41	1.20 V	128	13.44	39.14
5	7311.00	54.65 PK	74.00	-19.35	1.17 V	118	9.12	45.53
6	7311.00	44.35 AV	54.00	-9.65	1.17 V	118	-1.18	45.53
7	#9748.00	69.89 PK	93.94	-24.05	1.09 V	120	20.43	49.46
8	#9748.00	68.10 AV	90.46	-22.36	1.09 V	120	18.64	49.46
9	12185.00	62.55 PK	74.00	-11.45	1.25 V	136	11.17	51.39
10	12185.00	52.79 AV	54.00	-1.21	1.25 V	136	1.41	51.39

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 10	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2457.00	114.97 PK			1.30 H	276	81.61	33.36
2	*2457.00	111.57 AV			1.30 H	276	78.21	33.36
3	2483.50	61.77 PK	74.00	-12.23	1.28 H	265	28.31	33.46
4	2483.50	52.47 AV	54.00	-1.53	1.28 H	265	19.01	33.46
5	4914.00	48.64 PK	74.00	-25.36	1.06 H	286	9.37	39.26
6	4914.00	41.55 AV	54.00	-12.45	1.06 H	286	2.28	39.26
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	*2457.00	110.02 PK			1.44 V	301	76.66	33.36
2	*2457.00	106.18 AV			1.44 V	301	72.82	33.36
3	2483.50	58.30 PK	74.00	-15.70	1.44 V	301	24.84	33.46
4	2483.50	49.18 AV	54.00	-4.82	1.44 V	301	15.72	33.46
5	4914.00	51.72 PK	74.00	-22.28	1.18 V	125	12.45	39.26
6	4914.00	48.06 AV	54.00	-5.94	1.18 V	125	8.79	39.26
7	#9828.00	66.77 PK	90.02	-23.25	1.35 V	116	17.17	49.60
8	#9828.00	64.35 AV	86.18	-21.83	1.35 V	116	14.75	49.60
9	12285.00	60.21 PK	74.00	-13.79	1.39 V	153	9.12	51.10
10	12285.00	47.57 AV	54.00	-6.43	1.39 V	153	-3.52	51.10

- 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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2462.00	113.78 PK			1.07 H	265	80.40	33.38
2	*2462.00	109.94 AV			1.07 H	265	76.56	33.38
3	2487.00	61.29 PK	74.00	-12.71	1.32 H	265	27.81	33.48
4	2487.00	52.13 AV	54.00	-1.87	1.32 H	265	18.65	33.48
5	4924.00	49.40 PK	74.00	-24.60	1.33 H	95	10.04	39.35
6	4924.00	41.55 AV	54.00	-12.45	1.33 H	95	2.19	39.35
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	*2462.00	109.54 PK			1.00 V	288	76.16	33.38
2	*2462.00	106.11 AV			1.00 V	288	72.73	33.38
3	2483.50	57.93 PK	74.00	-16.07	1.00 V	288	24.47	33.46
4	2483.50	47.65 AV	54.00	-6.35	1.00 V	288	14.19	33.46
5	4924.00	51.80 PK	74.00	-22.20	1.02 V	92	12.44	39.35
6	4924.00	45.68 AV	54.00	-8.32	1.02 V	92	6.32	39.35
7	#9848.00	63.64 PK	89.54	-25.90	1.07 V	124	13.98	49.66
8	#9848.00	59.86 AV	86.11	-26.25	1.07 V	124	10.20	49.66

- 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.



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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	68.80 PK	74.00	-5.20	1.40 H	273	35.72	33.08
2	2390.00	51.99 AV	54.00	-2.01	1.40 H	273	18.91	33.08
3	*2412.00	114.56 PK			1.42 H	235	81.38	33.18
4	*2412.00	103.59 AV			1.42 H	235	70.41	33.18
5	4824.00	48.16 PK	74.00	-25.84	1.02 H	26	9.01	39.15
6	4824.00	34.72 AV	54.00	-19.28	1.02 H	26	-4.43	39.15
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	2390.00	63.25 PK	74.00	-10.75	1.00 V	88	30.17	33.08
2	2390.00	48.37 AV	54.00	-5.63	1.00 V	88	15.29	33.08
3	*2412.00	112.01 PK			1.00 V	89	78.83	33.18
4	*2412.00	102.01 AV			1.00 V	89	68.83	33.18
5	4824.00	50.61 PK	74.00	-23.39	1.17 V	90	11.46	39.15
6	4824.00	37.30 AV	54.00	-16.70	1.17 V	90	-1.85	39.15

- 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 2	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	62.21 PK	74.00	-11.79	1.38 H	233	29.13	33.08
2	2390.00	49.96 AV	54.00	-4.04	1.38 H	233	16.88	33.08
3	*2417.00	115.43 PK			1.40 H	232	82.23	33.20
4	*2417.00	104.33 AV			1.40 H	232	71.13	33.20
5	4834.00	50.22 PK	74.00	-23.78	1.05 H	29	11.07	39.15
6	4834.00	34.61 AV	54.00	-19.39	1.05 H	29	-4.54	39.15
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	2390.00	61.47 PK	74.00	-12.53	1.01 V	268	28.39	33.08
2	2390.00	50.16 AV	54.00	-3.84	1.01 V	268	17.08	33.08
3	*2417.00	113.19 PK			1.00 V	270	79.99	33.20
4	*2417.00	102.86 AV			1.00 V	270	69.66	33.20
5	4834.00	53.41 PK	74.00	-20.59	1.06 V	138	14.26	39.15
6	4834.00	38.39 AV	54.00	-15.61	1.06 V	138	-0.76	39.15

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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2437.00	115.81 PK			1.14 H	255	82.53	33.28
2	*2437.00	104.89 AV			1.14 H	255	71.61	33.28
3	4874.00	51.32 PK	74.00	-22.68	1.18 H	24	12.18	39.14
4	4874.00	36.64 AV	54.00	-17.36	1.18 H	24	-2.50	39.14
5	#9748.00	62.31 PK	95.81	-33.50	1.18 H	151	12.85	49.46
6	#9748.00	45.81 AV	84.89	-39.08	1.18 H	151	-3.65	49.46
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	*2437.00	113.24 PK			1.00 V	276	79.96	33.28
2	*2437.00	103.64 AV			1.00 V	276	70.36	33.28
3	4874.00	53.52 PK	74.00	-20.48	1.05 V	110	14.38	39.14
4	4874.00	38.72 AV	54.00	-15.28	1.05 V	110	-0.42	39.14
5	#9748.00	63.75 PK	93.24	-29.49	1.05 V	149	14.29	49.46
6	#9748.00	49.11 AV	83.64	-34.53	1.05 V	149	-0.35	49.46

- 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 10	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2457.00	115.34 PK			1.16 H	227	81.98	33.36
2	*2457.00	104.42 AV			1.16 H	227	71.06	33.36
3	2483.50	61.26 PK	74.00	-12.74	1.16 H	226	27.80	33.46
4	2483.50	50.76 AV	54.00	-3.24	1.16 H	226	17.30	33.46
5	4914.00	51.22 PK	74.00	-22.78	1.01 H	55	11.96	39.26
6	4914.00	36.59 AV	54.00	-17.41	1.01 H	55	-2.67	39.26
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	*2457.00	113.74 PK			1.00 V	308	80.38	33.36
2	*2457.00	102.89 AV			1.00 V	308	69.53	33.36
3	2483.50	59.94 PK	74.00	-14.06	1.01 V	306	26.48	33.46
4	2483.50	49.58 AV	54.00	-4.42	1.01 V	306	16.12	33.46
5	4914.00	51.68 PK	74.00	-22.32	1.05 V	85	12.42	39.26
6	4914.00	36.74 AV	54.00	-17.26	1.05 V	85	-2.52	39.26

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2462.00	114.01 PK			1.19 H	229	80.63	33.38
2	*2462.00	103.97 AV			1.19 H	229	70.59	33.38
3	2483.50	69.76 PK	74.00	-4.24	1.15 H	231	36.30	33.46
4	2483.50	52.59 AV	54.00	-1.41	1.15 H	231	19.13	33.46
5	4924.00	49.28 PK	74.00	-24.72	1.03 H	43	9.93	39.35
6	4924.00	35.74 AV	54.00	-18.26	1.03 H	43	-3.61	39.35
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	*2462.00	112.54 PK			1.00 V	301	79.16	33.38
2	*2462.00	101.24 AV			1.00 V	301	67.86	33.38
3	2483.50	64.36 PK	74.00	-9.64	1.00 V	270	30.90	33.46
4	2483.50	50.87 AV	54.00	-3.13	1.00 V	270	17.41	33.46
5	4924.00	50.84 PK	74.00	-23.16	1.15 V	87	11.49	39.35
6	4924.00	36.89 AV	54.00	-17.11	1.15 V	87	-2.46	39.35

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.



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DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	68.35 PK	74.00	-5.65	1.17 H	246	35.27	33.08
2	2390.00	52.87 AV	54.00	-1.13	1.17 H	246	19.79	33.08
3	*2412.00	114.10 PK			1.15 H	248	80.92	33.18
4	*2412.00	103.82 AV			1.15 H	248	70.64	33.18
5	4824.00	47.92 PK	74.00	-26.08	1.02 H	29	8.77	39.15
6	4824.00	34.20 AV	54.00	-19.80	1.02 H	29	-4.95	39.15
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	2390.00	67.52 PK	74.00	-6.48	1.01 V	89	34.44	33.08
2	2390.00	50.86 AV	54.00	-3.14	1.01 V	89	17.78	33.08
3	*2412.00	111.84 PK			1.00 V	86	78.66	33.18
4	*2412.00	100.31 AV			1.00 V	86	67.13	33.18
5	4824.00	47.59 PK	74.00	-26.41	1.20 V	85	8.44	39.15
6	4824.00	33.61 AV	54.00	-20.39	1.20 V	85	-5.54	39.15

- 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 2	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	61.76 PK	74.00	-12.24	1.13 H	273	28.68	33.08
2	2390.00	50.34 AV	54.00	-3.66	1.13 H	273	17.26	33.08
3	*2417.00	115.67 PK			1.16 H	283	82.47	33.20
4	*2417.00	105.66 AV			1.16 H	283	72.46	33.20
5	4834.00	47.99 PK	74.00	-26.01	1.05 H	56	8.84	39.15
6	4834.00	35.11 AV	54.00	-18.89	1.05 H	56	-4.04	39.15
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	2390.00	58.24 PK	74.00	-15.76	1.02 V	266	25.16	33.08
2	2390.00	49.31 AV	54.00	-4.69	1.02 V	266	16.23	33.08
3	*2417.00	113.75 PK			1.00 V	265	80.55	33.20
4	*2417.00	102.23 AV			1.00 V	265	69.03	33.20
5	4834.00	48.86 PK	74.00	-25.14	1.12 V	36	9.71	39.15
6	4834.00	35.04 AV	54.00	-18.96	1.12 V	36	-4.11	39.15

- 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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2437.00	116.54 PK			1.35 H	91	83.26	33.28
2	*2437.00	105.41 AV			1.35 H	91	72.13	33.28
3	4874.00	50.41 PK	74.00	-23.59	1.02 H	62	11.27	39.14
4	4874.00	37.71 AV	54.00	-16.29	1.02 H	62	-1.43	39.14
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	*2437.00	113.27 PK			1.00 V	268	79.99	33.28
2	*2437.00	102.54 AV			1.00 V	268	69.26	33.28
3	4874.00	49.91 PK	74.00	-24.09	1.11 V	87	10.77	39.14
4	4874.00	35.74 AV	54.00	-18.26	1.11 V	87	-3.40	39.14

- 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 10	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2457.00	116.31 PK			1.35 H	273	82.95	33.36
2	*2457.00	105.81 AV			1.35 H	273	72.45	33.36
3	2483.50	63.01 PK	74.00	-10.99	1.35 H	273	29.55	33.46
4	2483.50	52.24 AV	54.00	-1.76	1.35 H	273	18.78	33.46
5	4914.00	51.08 PK	74.00	-22.92	1.10 H	104	11.82	39.26
6	4914.00	39.56 AV	54.00	-14.44	1.10 H	104	0.30	39.26
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	*2457.00	113.73 PK			1.00 V	266	80.37	33.36
2	*2457.00	102.75 AV			1.00 V	266	69.39	33.36
3	2483.50	60.45 PK	74.00	-13.55	1.00 V	279	26.99	33.46
4	2483.50	49.56 AV	54.00	-4.44	1.00 V	279	16.10	33.46
5	4914.00	51.21 PK	74.00	-22.79	1.02 V	120	11.95	39.26
6	4914.00	38.63 AV	54.00	-15.37	1.02 V	120	-0.63	39.26

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2462.00	114.14 PK			1.34 H	278	80.76	33.38
2	*2462.00	103.78 AV			1.34 H	278	70.40	33.38
3	2483.50	66.33 PK	74.00	-7.67	1.00 H	289	32.87	33.46
4	2483.50	52.64 AV	54.00	-1.36	1.00 H	289	19.18	33.46
5	4924.00	46.35 PK	74.00	-27.65	1.02 H	301	6.99	39.35
6	4924.00	33.57 AV	54.00	-20.43	1.02 H	301	-5.79	39.35
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	*2462.00	111.07 PK			1.00 V	87	77.69	33.38
2	*2462.00	100.06 AV			1.00 V	87	66.68	33.38
3	2483.50	65.87 PK	74.00	-8.13	1.00 V	95	32.41	33.46
4	2483.50	51.33 AV	54.00	-2.67	1.00 V	95	17.87	33.46
5	4924.00	47.06 PK	74.00	-26.94	1.06 V	236	7.70	39.35
6	4924.00	33.87 AV	54.00	-20.13	1.06 V	236	-5.49	39.35

- 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.

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	69.98 PK	74.00	-4.02	1.38 H	289	36.90	33.08
2	2390.00	52.37 AV	54.00	-1.63	1.38 H	289	19.29	33.08
3	*2422.00	110.05 PK			1.35 H	289	76.83	33.22
4	*2422.00	99.67 AV			1.35 H	289	66.45	33.22
5	4844.00	46.85 PK	74.00	-27.15	1.39 H	0	7.71	39.15
6	4844.00	34.05 AV	54.00	-19.95	1.39 H	0	-5.09	39.15
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	2390.00	64.84 PK	74.00	-9.16	1.01 V	102	31.76	33.08
2	2390.00	51.09 AV	54.00	-2.91	1.01 V	102	18.01	33.08
3	*2422.00	105.31 PK			1.01 V	102	72.09	33.22
4	*2422.00	95.13 AV			1.01 V	102	61.91	33.22
5	4844.00	46.69 PK	74.00	-27.31	1.00 V	180	7.55	39.15
6	4844.00	33.64 AV	54.00	-20.36	1.00 V	180	-5.50	39.15

- 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 2	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	65.68 PK	74.00	-8.32	1.37 H	272	32.60	33.08
2	2390.00	51.87 AV	54.00	-2.13	1.37 H	272	18.79	33.08
3	*2427.00	110.55 PK			1.33 H	289	77.31	33.24
4	*2427.00	100.18 AV			1.33 H	289	66.94	33.24
5	4854.00	47.40 PK	74.00	-26.60	1.00 H	360	8.25	39.14
6	4854.00	33.76 AV	54.00	-20.24	1.00 H	360	-5.39	39.14
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	2390.00	60.77 PK	74.00	-13.23	1.01 V	86	27.69	33.08
2	2390.00	48.77 AV	54.00	-5.23	1.01 V	86	15.69	33.08
3	*2427.00	105.82 PK			1.01 V	86	72.58	33.24
4	*2427.00	95.58 AV			1.01 V	86	62.34	33.24
5	4854.00	46.52 PK	74.00	-27.48	1.00 V	0	7.37	39.14
6	4854.00	34.37 AV	54.00	-19.63	1.00 V	0	-4.78	39.14

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	2390.00	60.53 PK	74.00	-13.47	1.14 H	269	27.45	33.08
2	2390.00	49.75 AV	54.00	-4.25	1.14 H	269	16.67	33.08
3	*2437.00	111.14 PK			1.32 H	288	77.86	33.28
4	*2437.00	100.71 AV			1.32 H	288	67.43	33.28
5	2483.50	66.07 PK	74.00	-7.93	1.31 H	276	32.61	33.46
6	2483.50	51.98 AV	54.00	-2.02	1.31 H	276	18.52	33.46
7	4874.00	46.86 PK	74.00	-27.14	1.32 H	0	7.71	39.14
8	4874.00	33.85 AV	54.00	-20.15	1.32 H	0	-5.30	39.14
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	2390.00	58.97 PK	74.00	-15.03	1.01 V	126	25.89	33.08
2	2390.00	47.72 AV	54.00	-6.28	1.01 V	126	14.64	33.08
3	*2437.00	106.31 PK			1.01 V	126	73.03	33.28
4	*2437.00	96.08 AV			1.01 V	126	62.80	33.28
5	2483.50	59.07 PK	74.00	-14.93	1.01 V	126	25.61	33.46
6	2483.50	48.73 AV	54.00	-5.27	1.01 V	126	15.27	33.46
7	4874.00	46.18 PK	74.00	-27.82	1.00 V	0	7.03	39.14
8	4874.00	33.36 AV	54.00	-20.64	1.00 V	0	-5.79	39.14

- 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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2447.00	109.55 PK			1.32 H	288	76.23	33.32
2	*2447.00	99.21 AV			1.32 H	288	65.89	33.32
3	2483.50	67.60 PK	74.00	-6.40	1.31 H	274	34.14	33.46
4	2483.50	52.67 AV	54.00	-1.33	1.31 H	274	19.21	33.46
5	4894.00	47.14 PK	74.00	-26.86	1.24 H	150	8.00	39.14
6	4894.00	33.20 AV	54.00	-20.80	1.24 H	150	-5.94	39.14
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	*2447.00	104.67 PK			1.00 V	104	71.35	33.32
2	*2447.00	94.61 AV			1.00 V	104	61.29	33.32
3	2483.50	59.59 PK	74.00	-14.41	1.00 V	104	26.13	33.46
4	2483.50	49.33 AV	54.00	-4.67	1.00 V	104	15.87	33.46
5	4894.00	47.10 PK	74.00	-26.90	1.10 V	360	7.96	39.14
6	4894.00	33.58 AV	54.00	-20.42	1.10 V	360	-5.56	39.14

- 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 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TESTED BY	Match Tsui

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	*2452.00	108.80 PK			1.34 H	255	75.46	33.34
2	*2452.00	98.37 AV			1.34 H	255	65.03	33.34
3	2483.50	66.66 PK	74.00	-7.34	1.34 H	112	33.20	33.46
4	2483.50	52.60 AV	54.00	-1.40	1.34 H	112	19.14	33.46
5	4904.00	46.56 PK	74.00	-27.44	1.00 H	0	7.38	39.18
6	4904.00	33.51 AV	54.00	-20.49	1.00 H	0	-5.67	39.18
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	*2452.00	104.38 PK			1.00 V	78	71.04	33.34
2	*2452.00	94.22 AV			1.00 V	78	60.88	33.34
3	2483.50	66.61 PK	74.00	-7.39	1.00 V	71	33.15	33.46
4	2483.50	49.97 AV	54.00	-4.03	1.00 V	71	16.51	33.46
5	4904.00	46.19 PK	74.00	-27.81	1.00 V	360	7.01	39.18
6	4904.00	33.31 AV	54.00	-20.69	1.00 V	360	-5.87	39.18

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.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 999hPa	TESTED BY	Match Tsui

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	249.60	36.55 QP	46.00	-9.45	1.25 H	289	23.74	12.81
2	401.26	34.35 QP	46.00	-11.65	2.00 H	229	18.25	16.10
3	500.42	40.23 QP	46.00	-5.77	1.50 H	178	20.98	19.25
4	626.80	39.78 QP	46.00	-6.22	1.25 H	223	17.65	22.13
5	751.23	35.19 QP	46.00	-10.81	1.25 H	136	11.21	23.98
6	877.61	40.47 QP	46.00	-5.53	1.00 H	10	14.57	25.90
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	36.10 QP	40.00	-3.90	1.00 V	10	23.82	12.28
2	88.23	35.84 QP	43.50	-7.66	1.00 V	109	26.82	9.02
3	101.84	38.57 QP	43.50	-4.93	1.25 V	241	29.02	9.55
4	500.42	38.82 QP	46.00	-7.18	1.00 V	64	19.57	19.25
5	626.80	40.41 QP	46.00	-5.59	1.00 V	265	18.29	22.13
6	751.23	37.20 QP	46.00	-8.80	1.25 V	193	13.22	23.98
7	877.61	39.90 QP	46.00	-6.10	1.25 V	274	14.01	25.90

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 0.50 MHz.
 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	100288	Sep. 22, 2008	Sep. 21, 2009
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2008	Dec. 30, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Dec. 29, 2008	Dec. 28, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 30, 2008	Jul. 29, 2009
Software ADT	ADT_Cond_ V7.3.6	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.

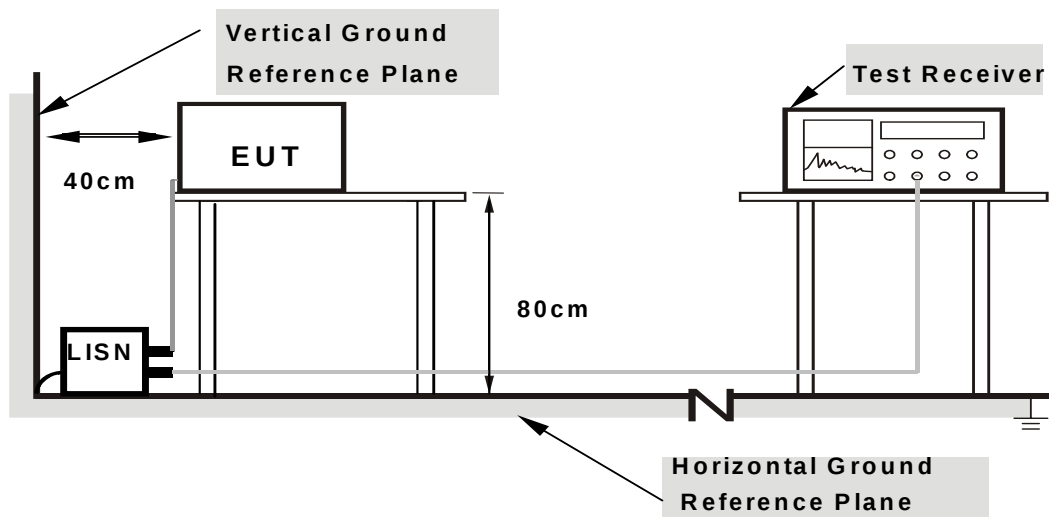
4.2.3 TEST PROCEDURES

- 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 cm from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

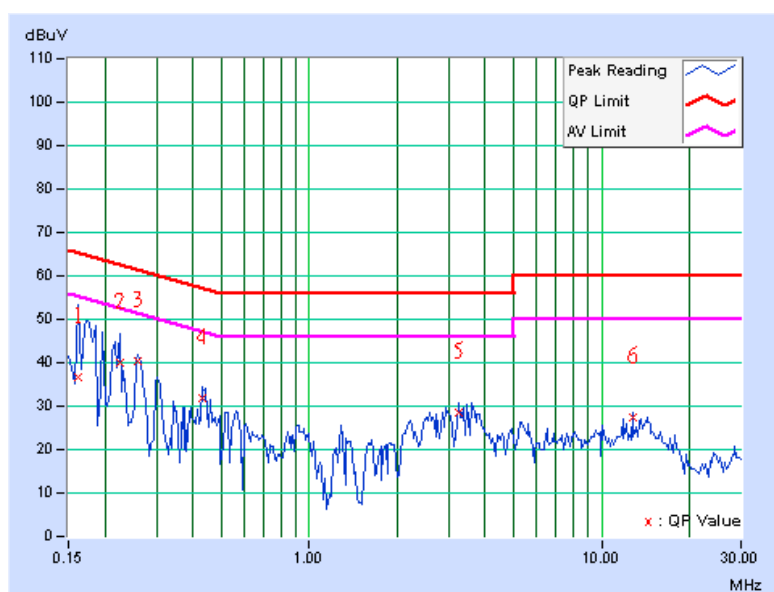
4.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.5Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.13	36.16	-	36.29	-	65.38	55.38	-29.09	-
2	0.224	0.13	39.35	-	39.48	-	62.66	52.66	-23.18	-
3	0.259	0.13	39.90	-	40.03	-	61.45	51.45	-21.42	-
4	0.431	0.14	31.29	-	31.43	-	57.23	47.23	-25.80	-
5	3.254	0.25	27.92	-	28.17	-	56.00	46.00	-27.83	-
6	12.750	0.50	26.75	-	27.25	-	60.00	50.00	-32.75	-

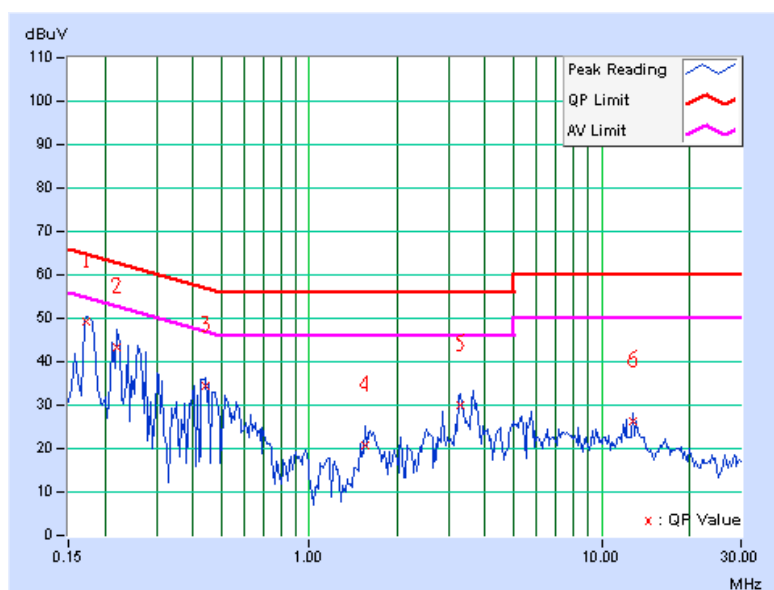
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.5Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.13	48.65	-	48.78	-	64.79	54.79	-16.01	-
2	0.220	0.13	42.86	-	42.99	-	62.81	52.81	-19.82	-
3	0.439	0.15	33.72	-	33.87	-	57.08	47.08	-23.21	-
4	1.551	0.19	20.19	-	20.38	-	56.00	46.00	-35.62	-
5	3.289	0.26	29.55	-	29.81	-	56.00	46.00	-26.19	-
6	12.758	0.59	25.84	-	26.43	-	60.00	50.00	-33.57	-

- 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 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

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

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

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



A D T

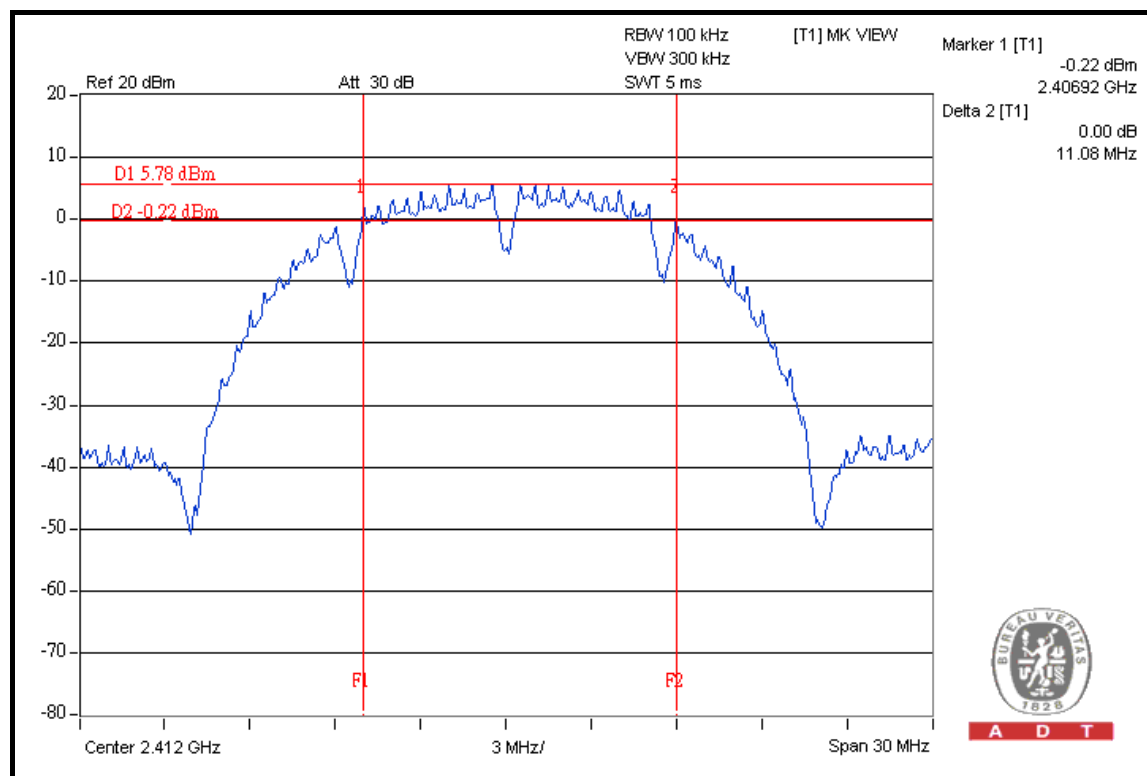
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	11.08	11.09	10.14	0.5	PASS
2	2417	11.08	11.13	10.18	0.5	PASS
6	2437	11.10	10.13	12.08	0.5	PASS
10	2457	10.14	10.13	11.07	0.5	PASS
11	2462	12.09	10.09	10.16	0.5	PASS

FOR CHAIN 0: CH 1



Ref 20 dBm Att 30 dB RBW 100 kHz [T1] MK VIEW
 VBW 300 kHz Marker 1 [T1] 1.33 dBm
 SWT 5 ms Delta 2 [T1] 0.00 dB
 11.08 MHz

D1 7.33 dBm
 D2 1.33 dBm

F1 F2

Center 2.417 GHz 3 MHz/ Span 30 MHz

BUREAU VERITAS
 1828
 A D T

Ref 20 dBm Att 30 dB RBW 100 kHz [T1] MK VIEW
 VBW 300 kHz
 SWT 5 ms

Marker 1 [T1] 3.28 dBm 2.43193 GHz
 Delta 2 [T1] 0.00 dB 11.10 MHz

D1 9.28 dBm
 D2 3.28 dBm

F1 F2

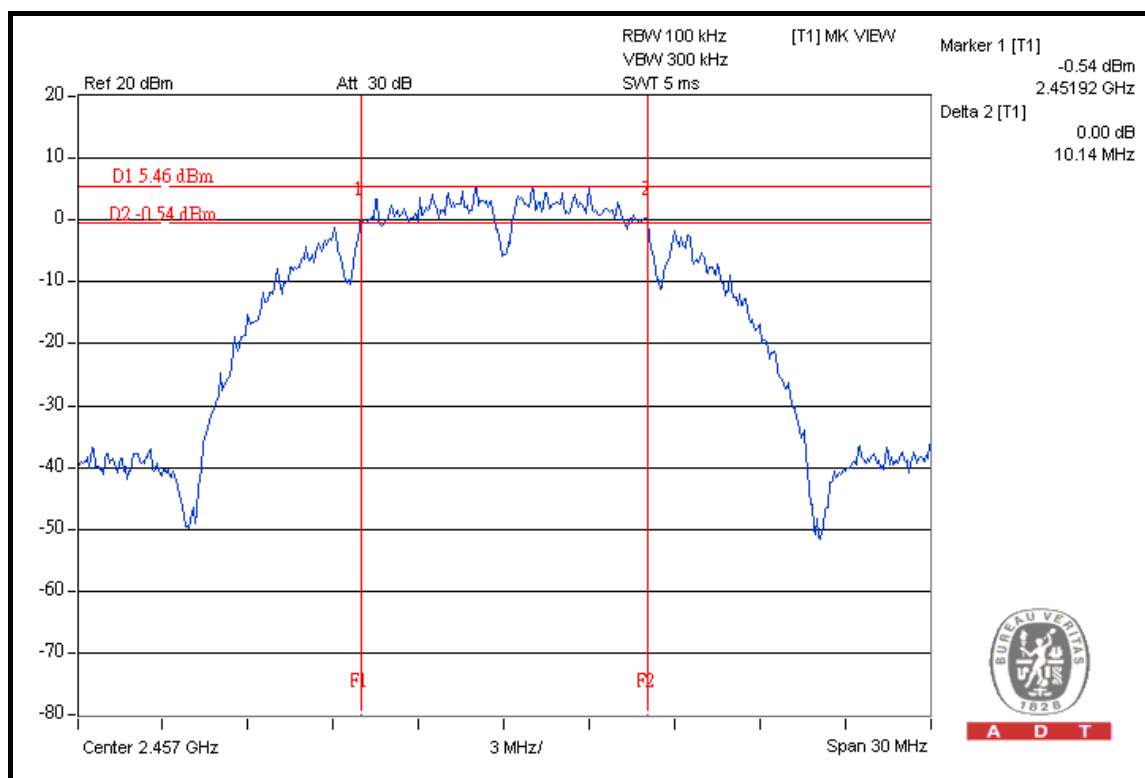
Center 2.437 GHz 3 MHz/ Span 30 MHz

BUREAU VERITAS
 1828
 A D T

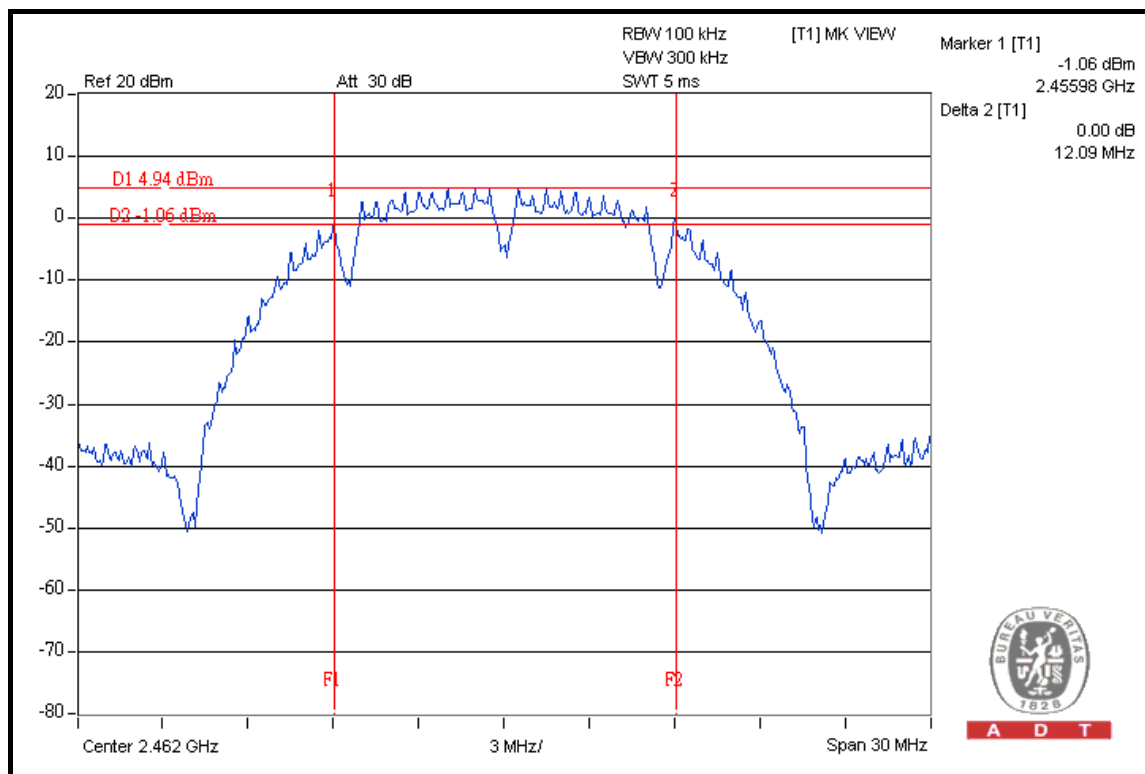


A D T

CH 10



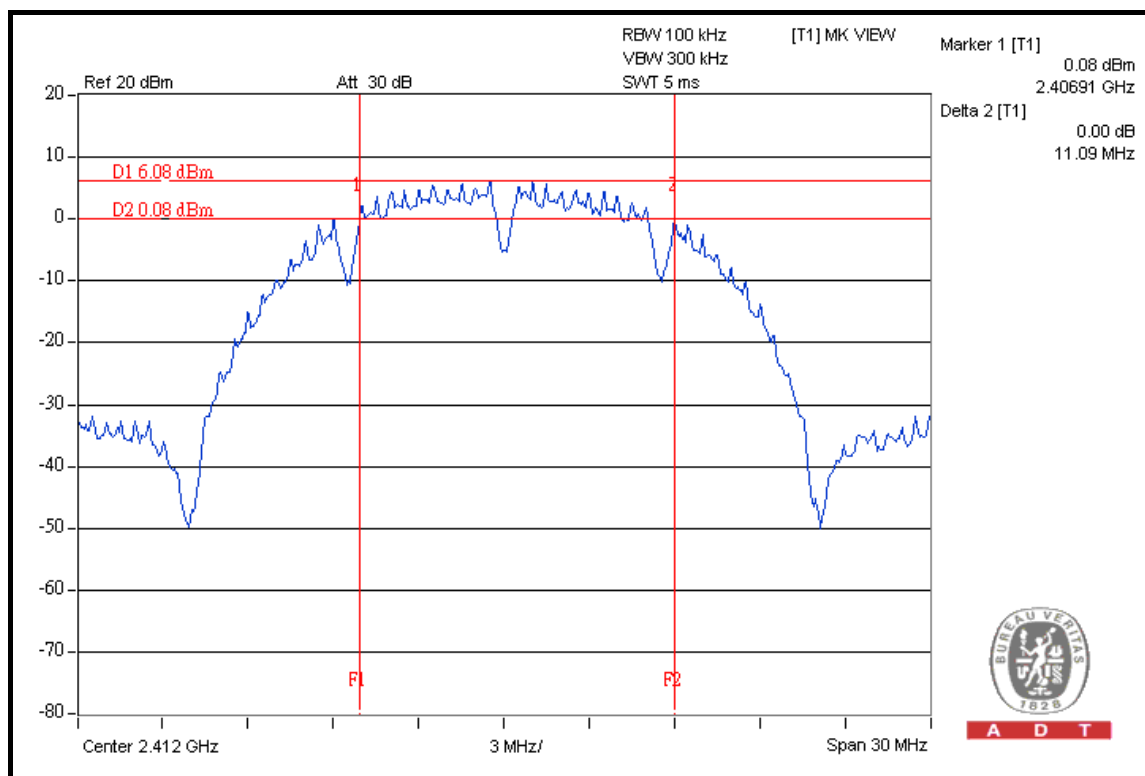
CH 11



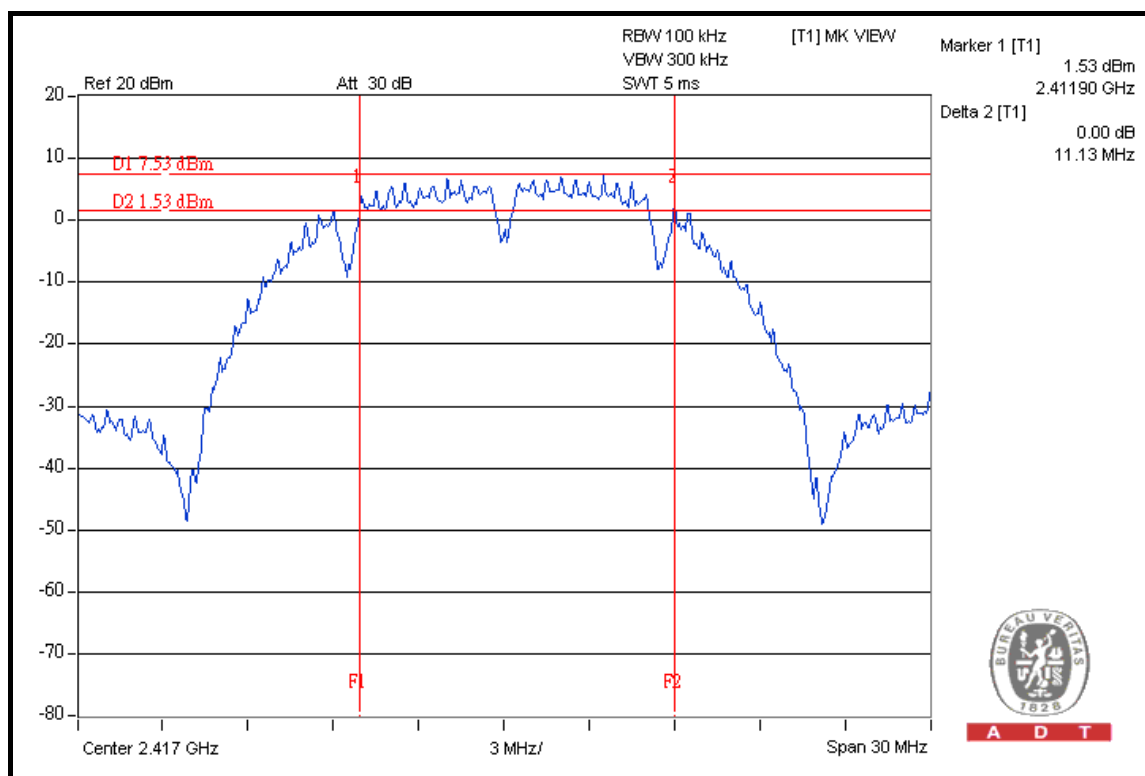


A D T

FOR CHAIN 1: CH 1



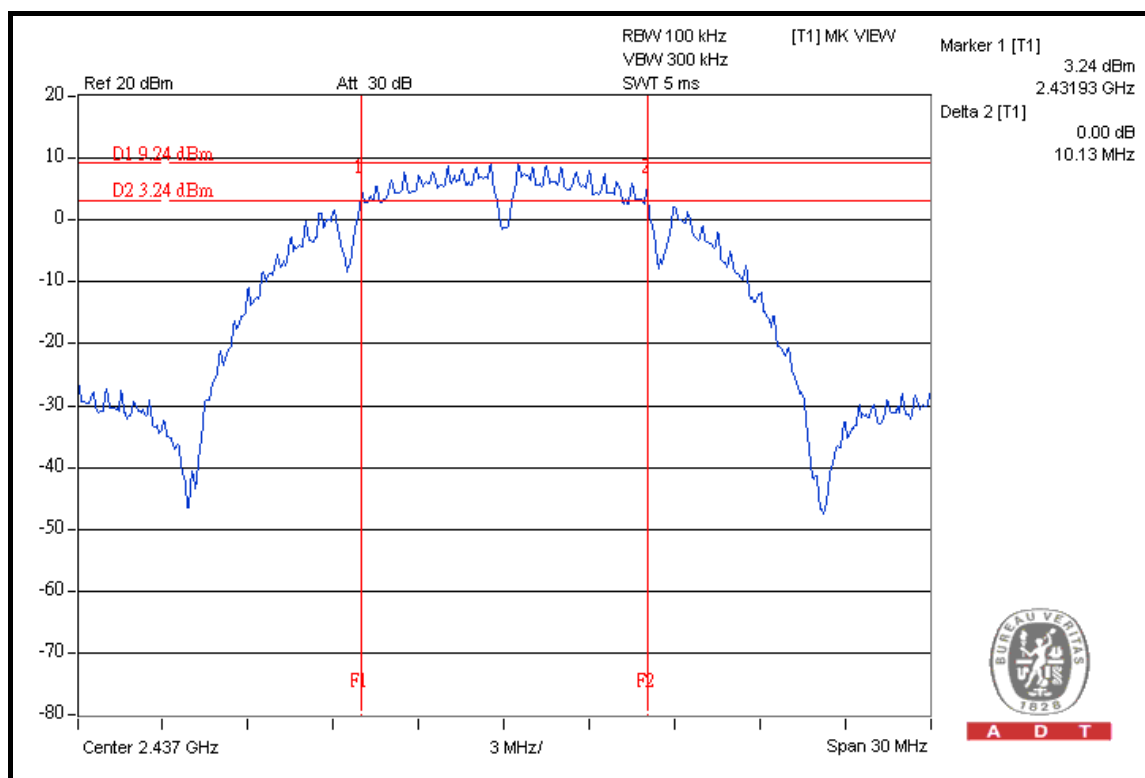
CH 2



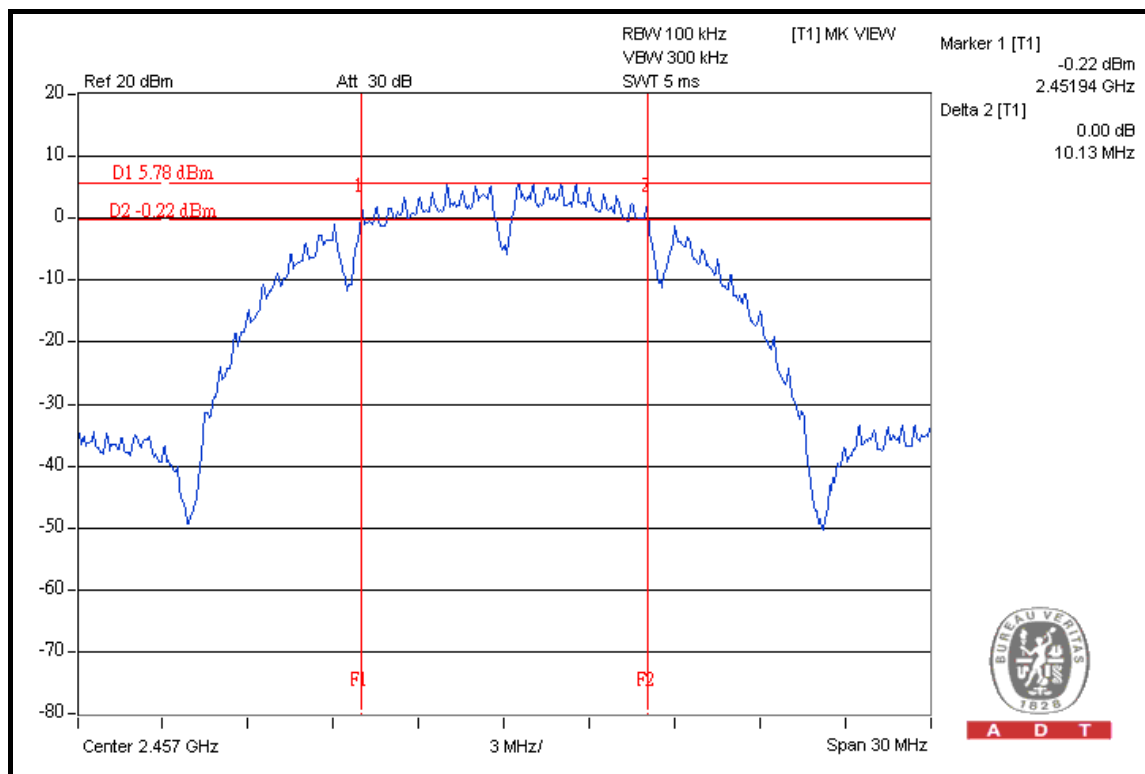


A D T

CH 6



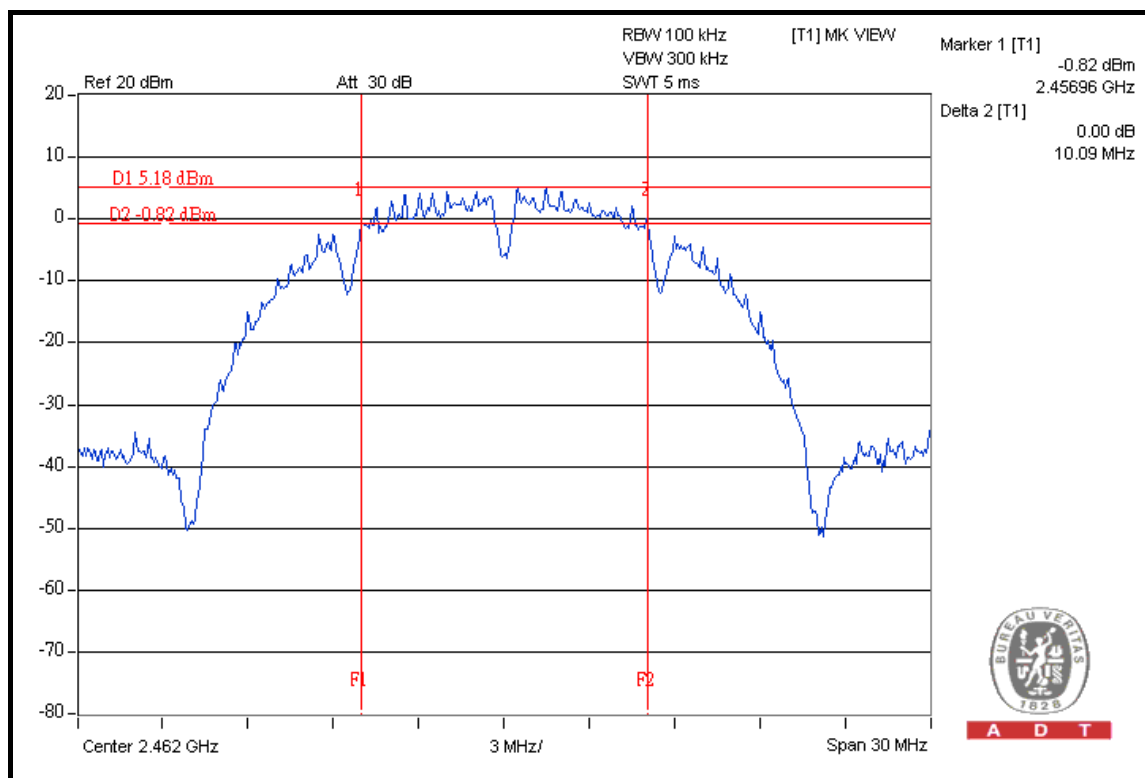
CH 10



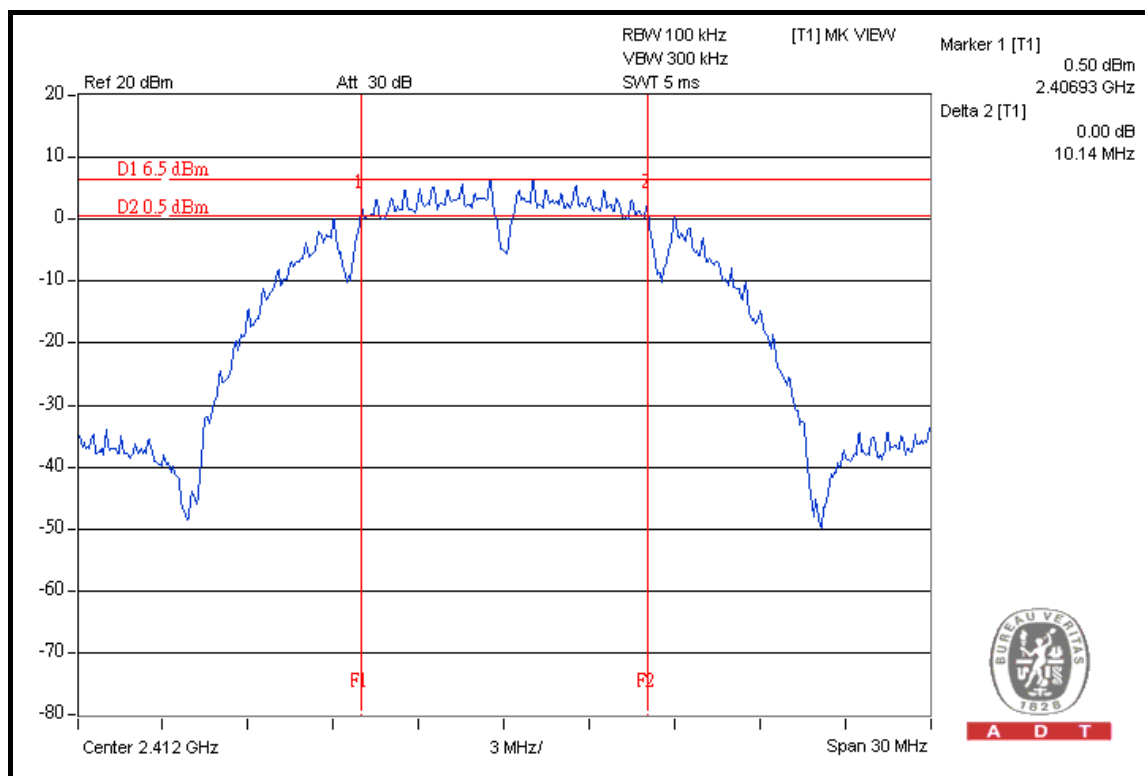


A D T

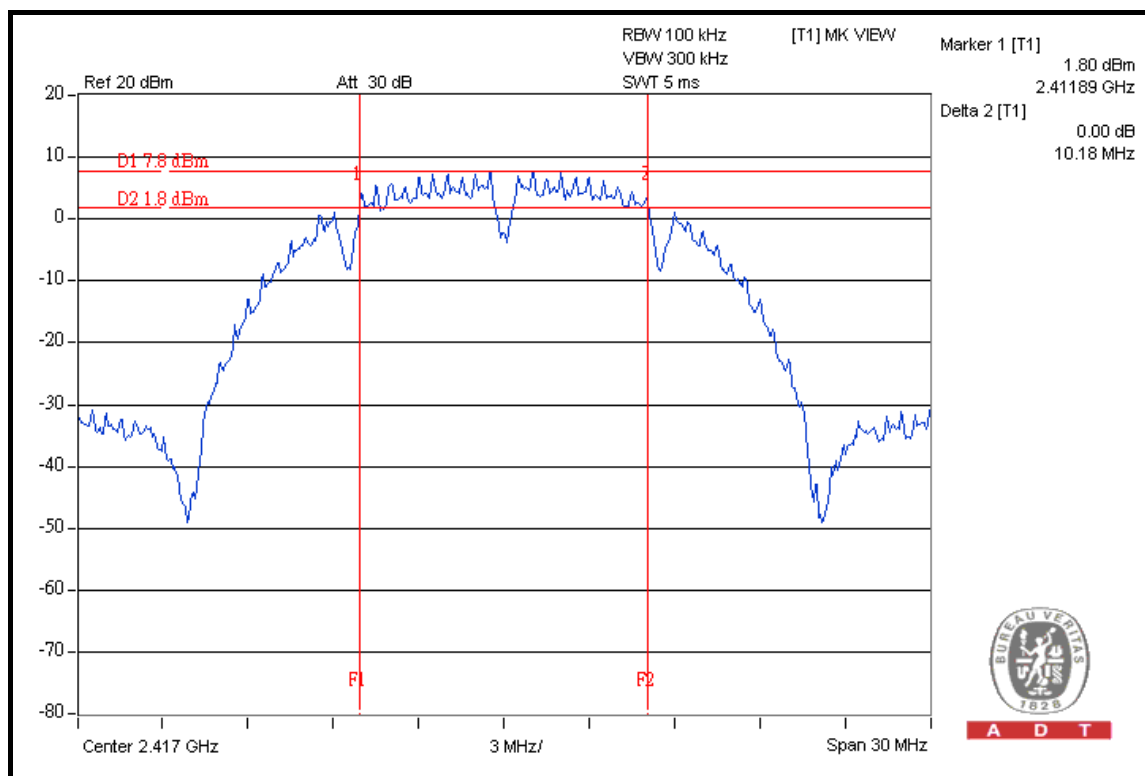
CH 11



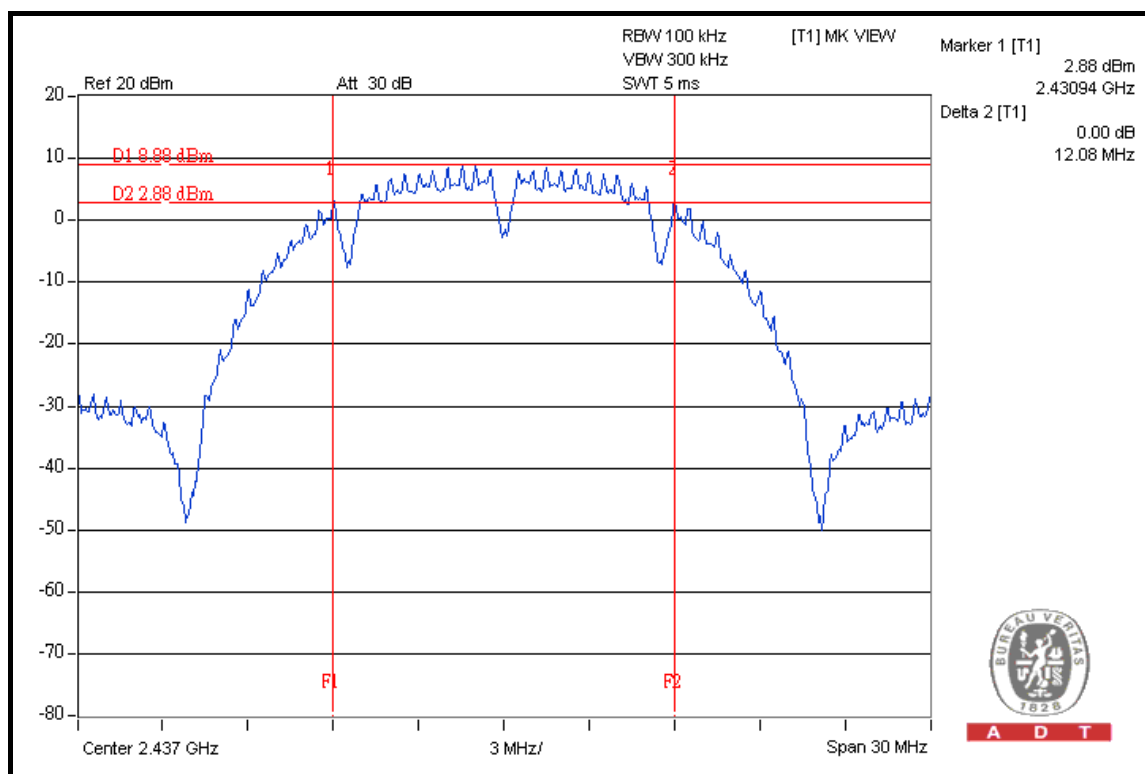
FOR CHAIN 2: CH 1



CH 2



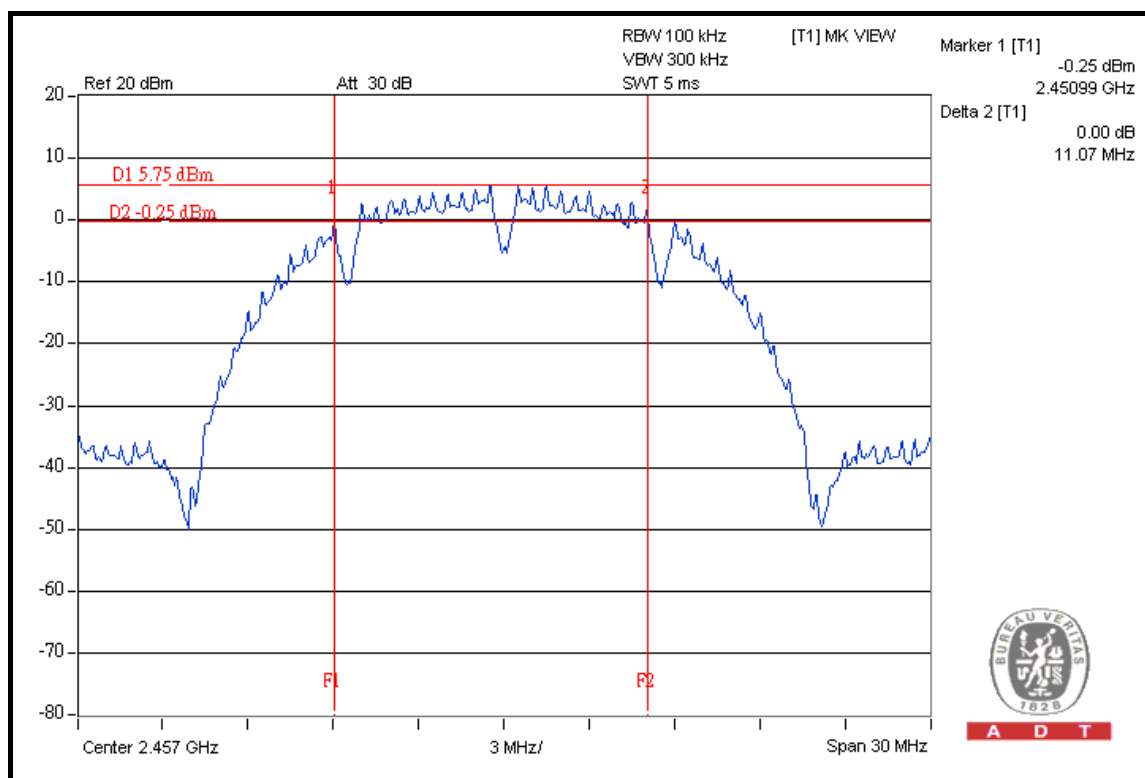
CH 6



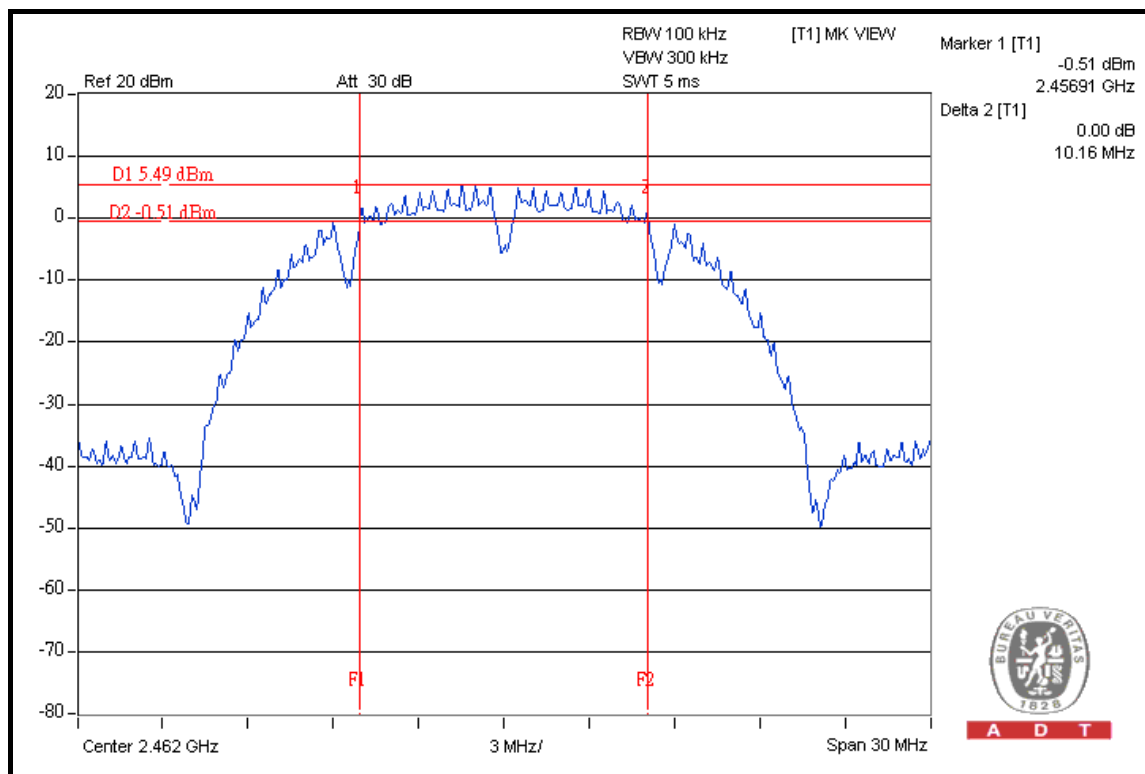


A D T

CH 10



CH 11

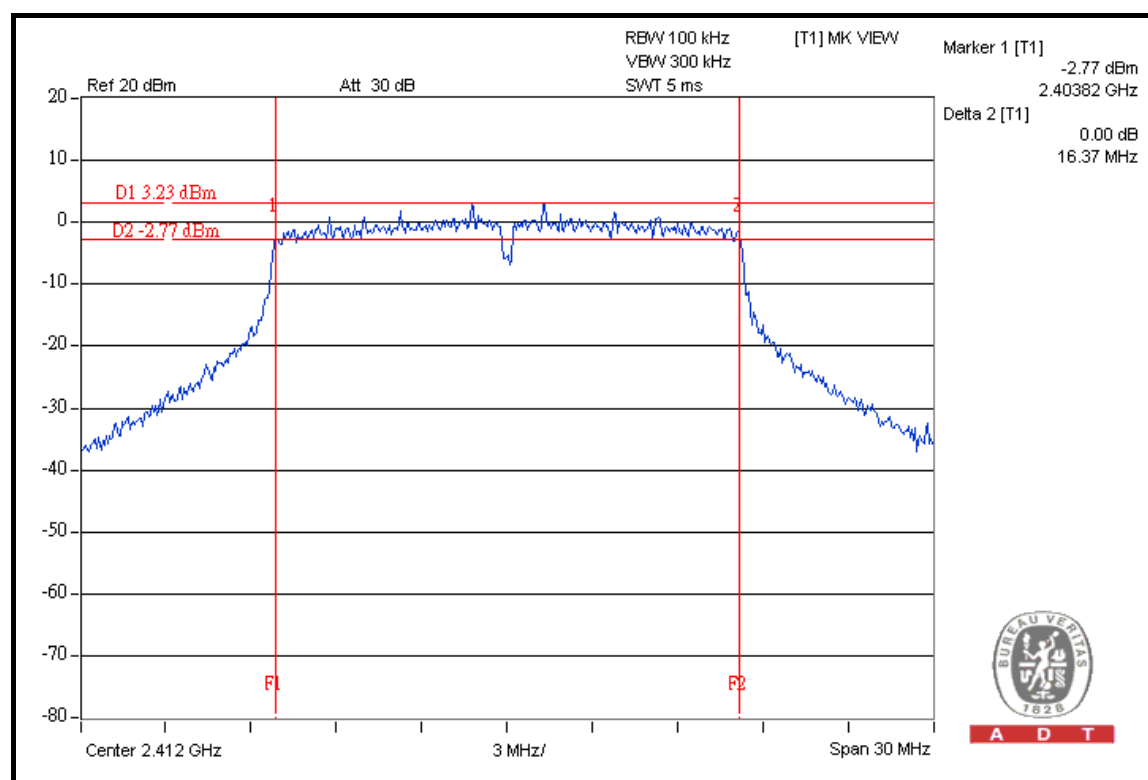


802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	16.37	16.40	16.40	0.5	PASS
2	2417	16.42	16.38	16.40	0.5	PASS
6	2437	16.40	16.36	16.40	0.5	PASS
10	2457	16.38	16.39	16.40	0.5	PASS
11	2462	16.38	16.39	16.40	0.5	PASS

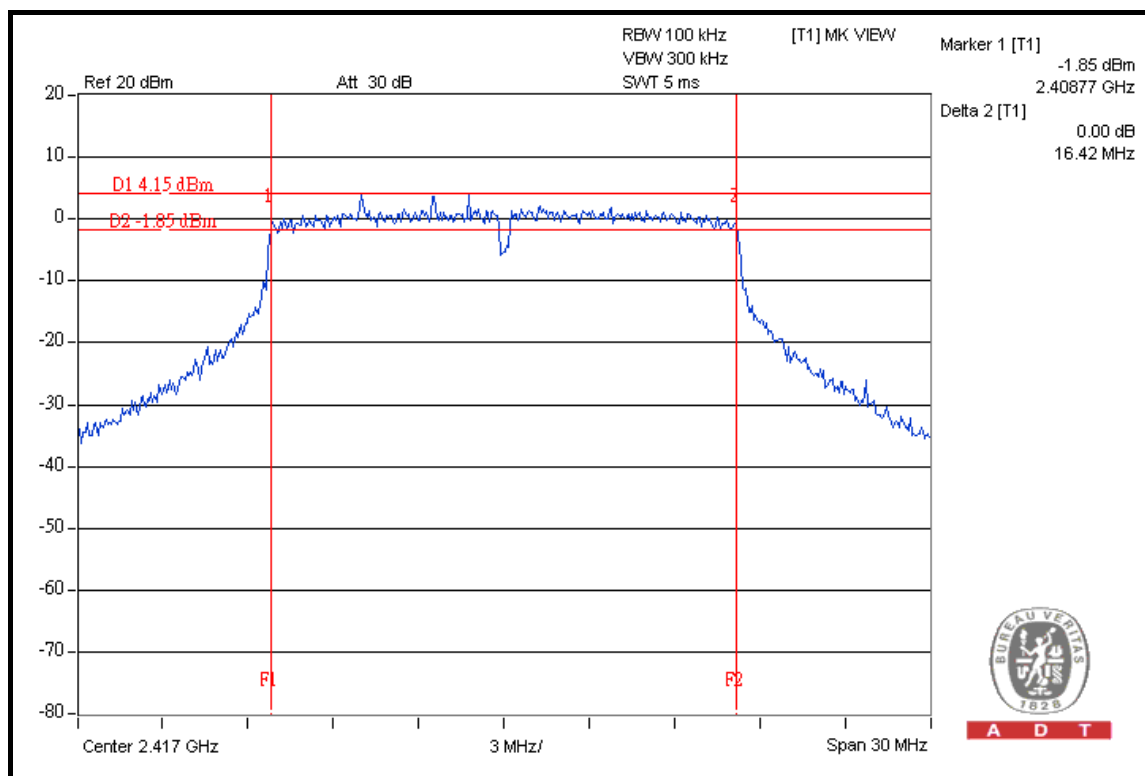
FOR CHAIN 0: CH 1



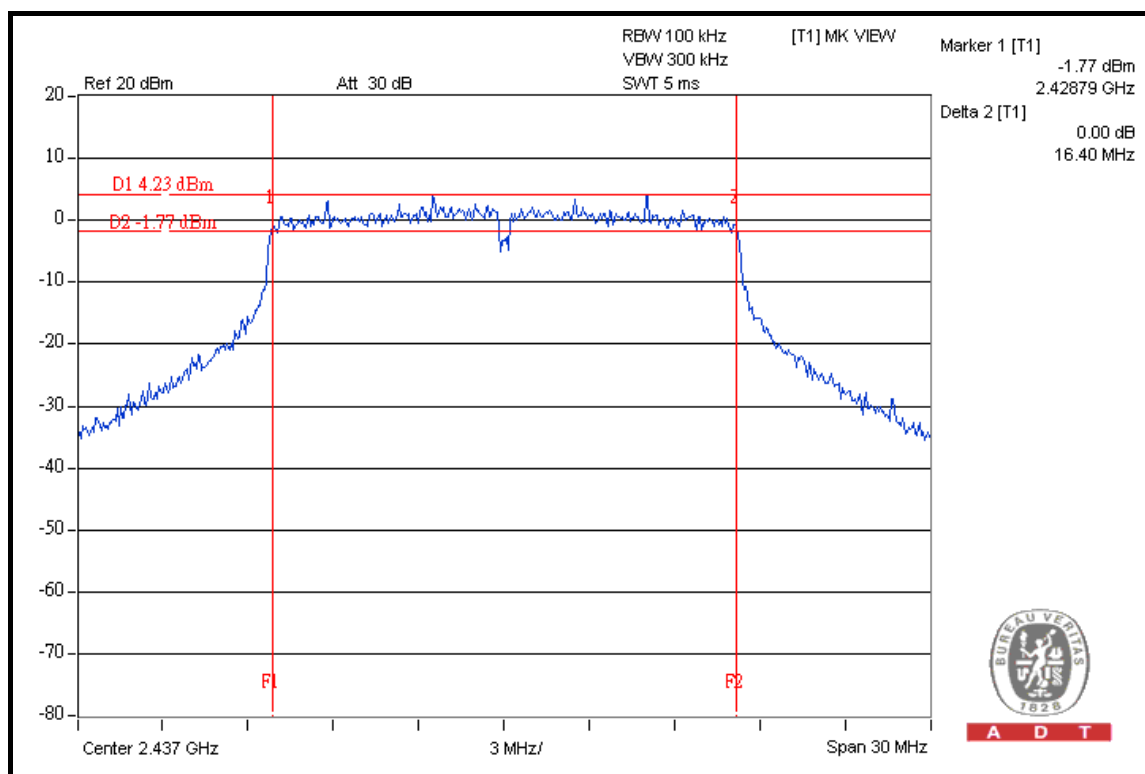


A D T

CH 2



CH 6





Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms [T1] MK VIEW

Marker 1 [T1] -1.78 dBm 2.44860 GHz

Delta 2 [T1] 0.00 dB 16.38 MHz

D1 4.22 dBm D2 -1.78 dBm

F1 F2

Center 2.457 GHz 3 MHz/ Span 30 MHz

BUREAU VERITAS 1828

A D T

Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms [T1] MK VIEW

Marker 1 [T1] -2.70 dBm 2.45381 GHz

Delta 2 [T1] 0.00 dB 16.38 MHz

D1 3.3 dBm D2 -2.7 dBm

F1 F2

Center 2.462 GHz 3 MHz/ Span 30 MHz

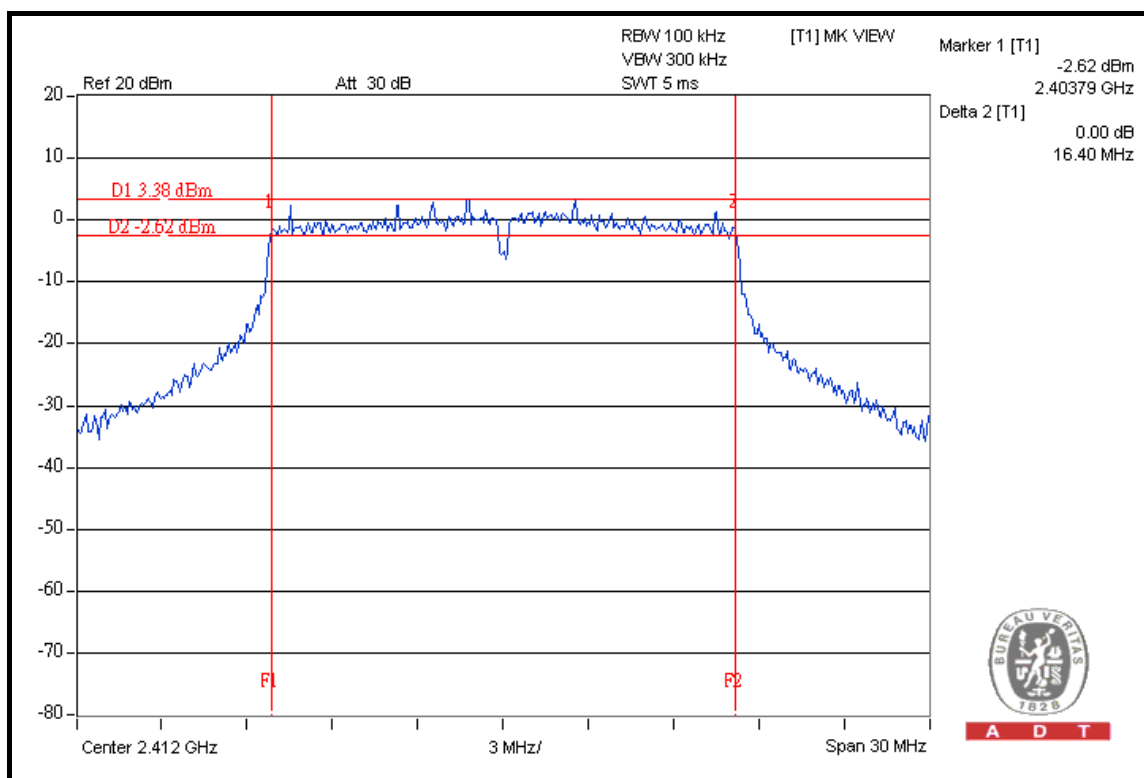
BUREAU VERITAS 1828

A D T

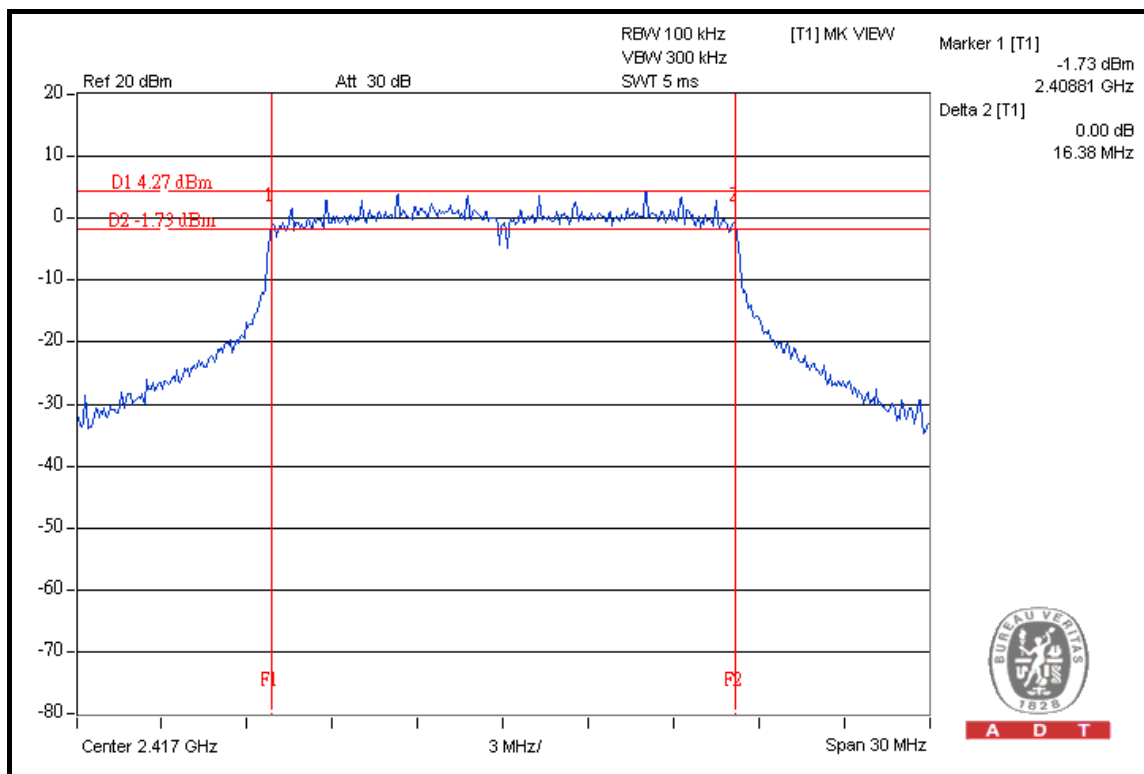


A D T

FOR CHAIN 1: CH 1



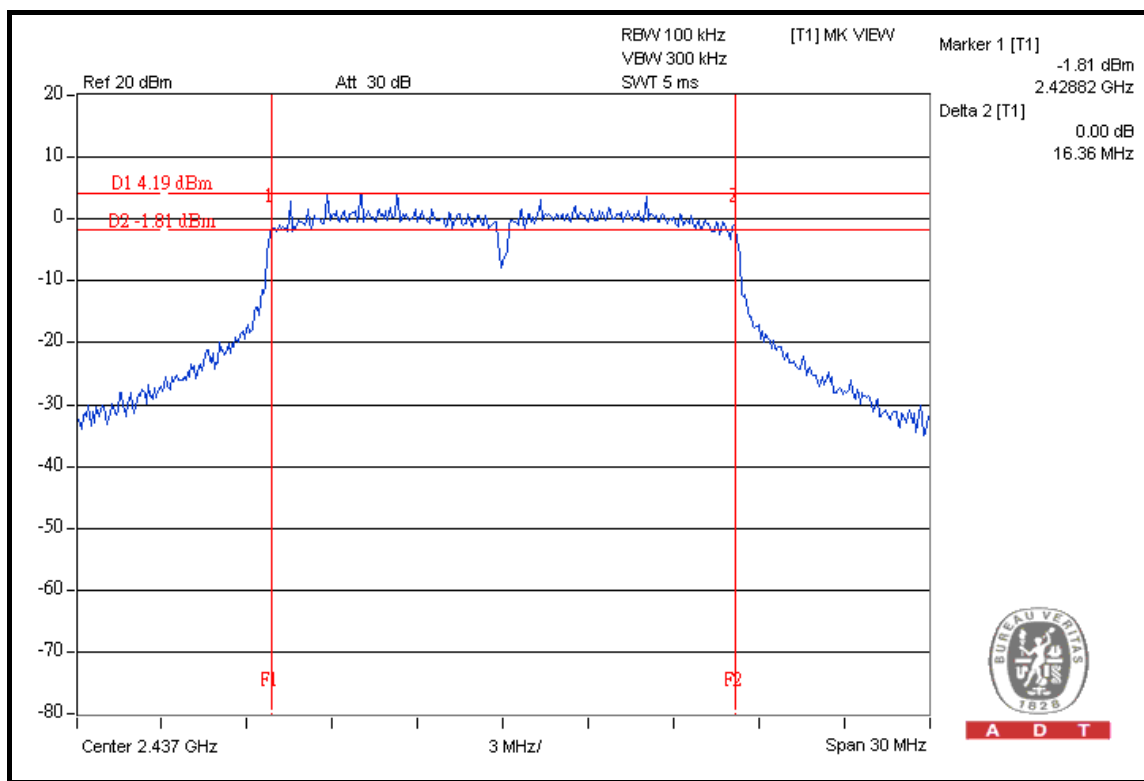
CH 2





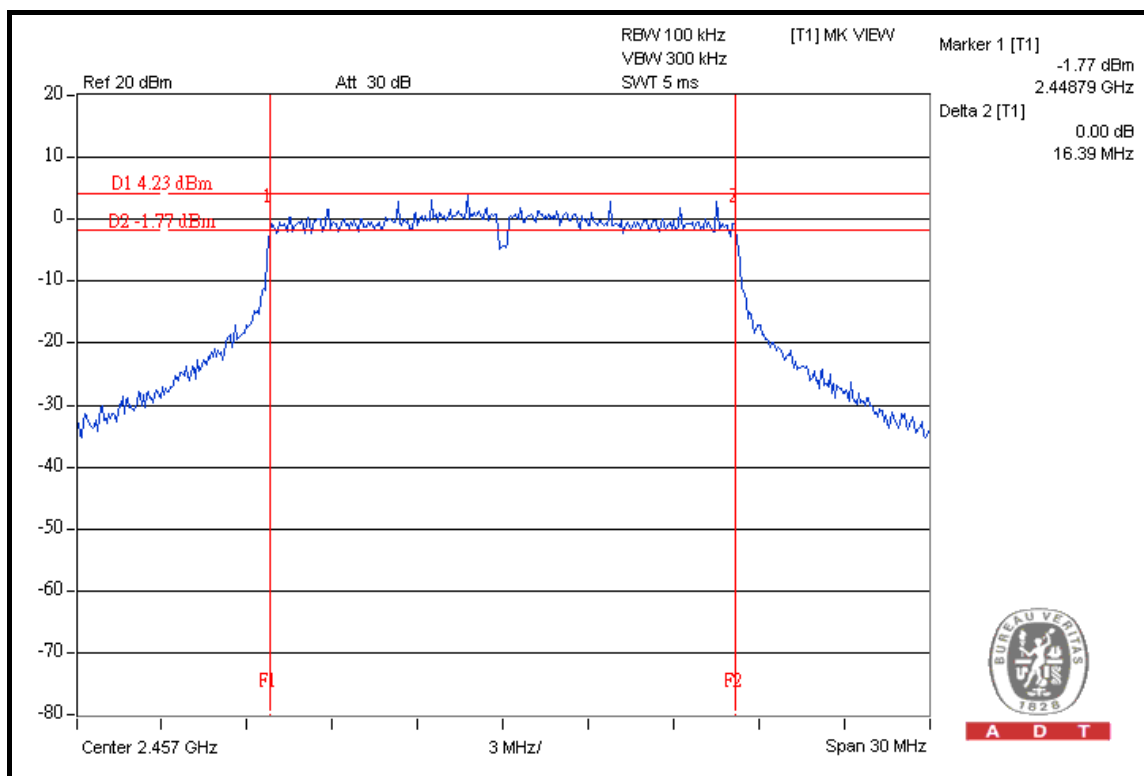
A D T

CH 6



A D T

CH 10

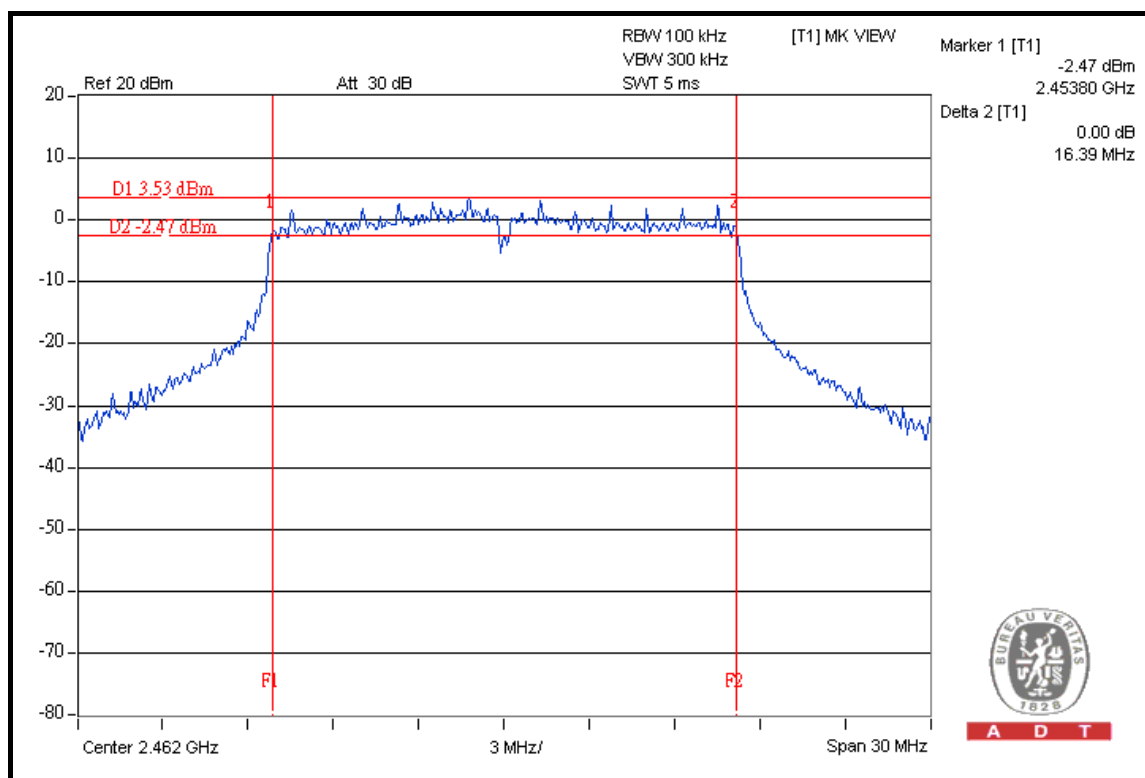


A D T

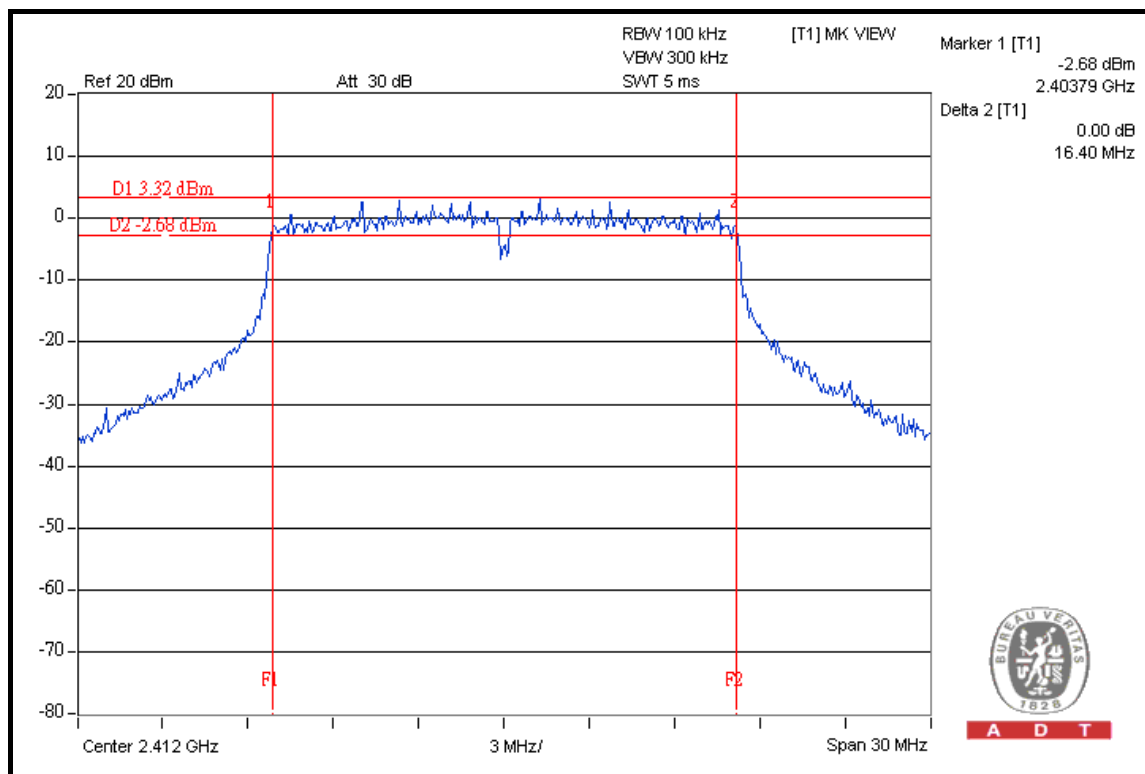


A D T

CH 11



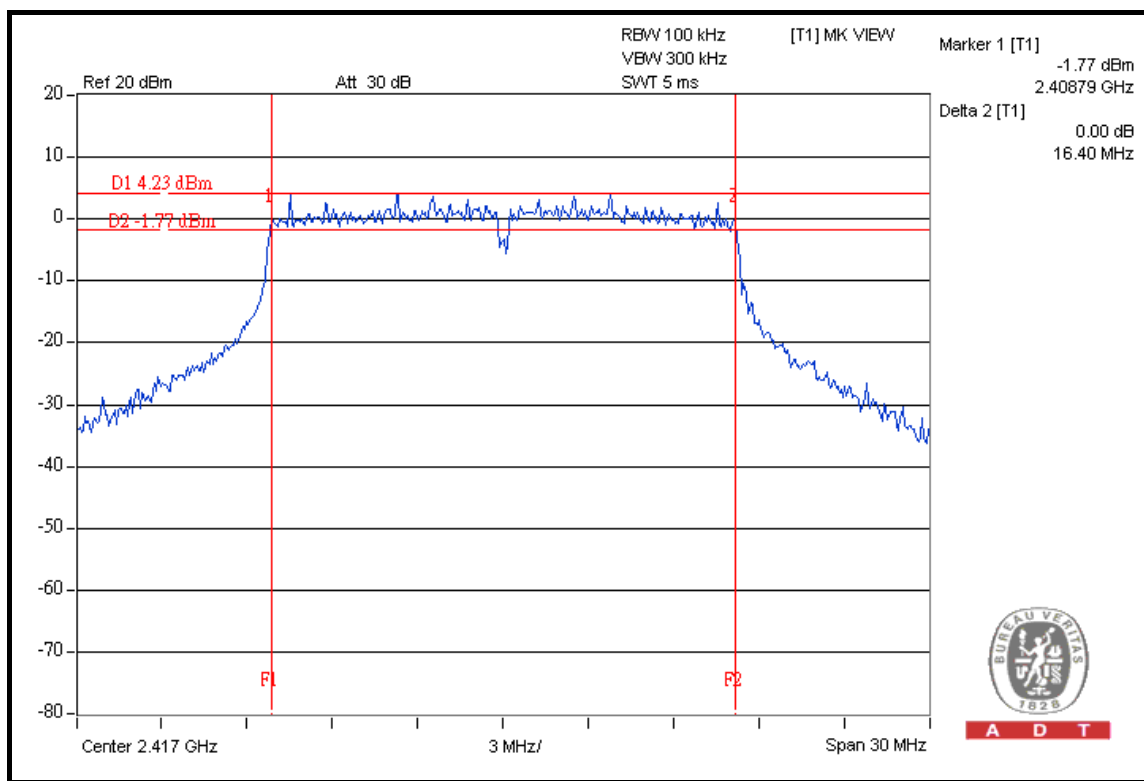
FOR CHAIN 2: CH 1





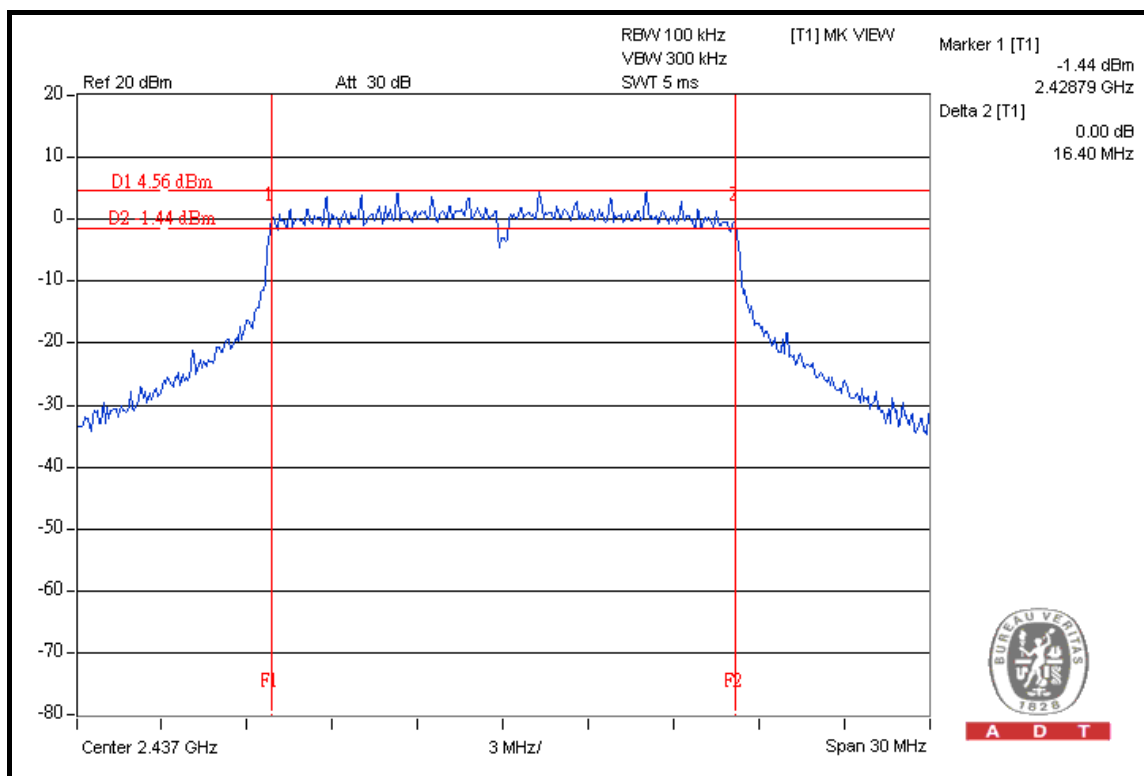
A D T

CH 2



A D T

CH 6

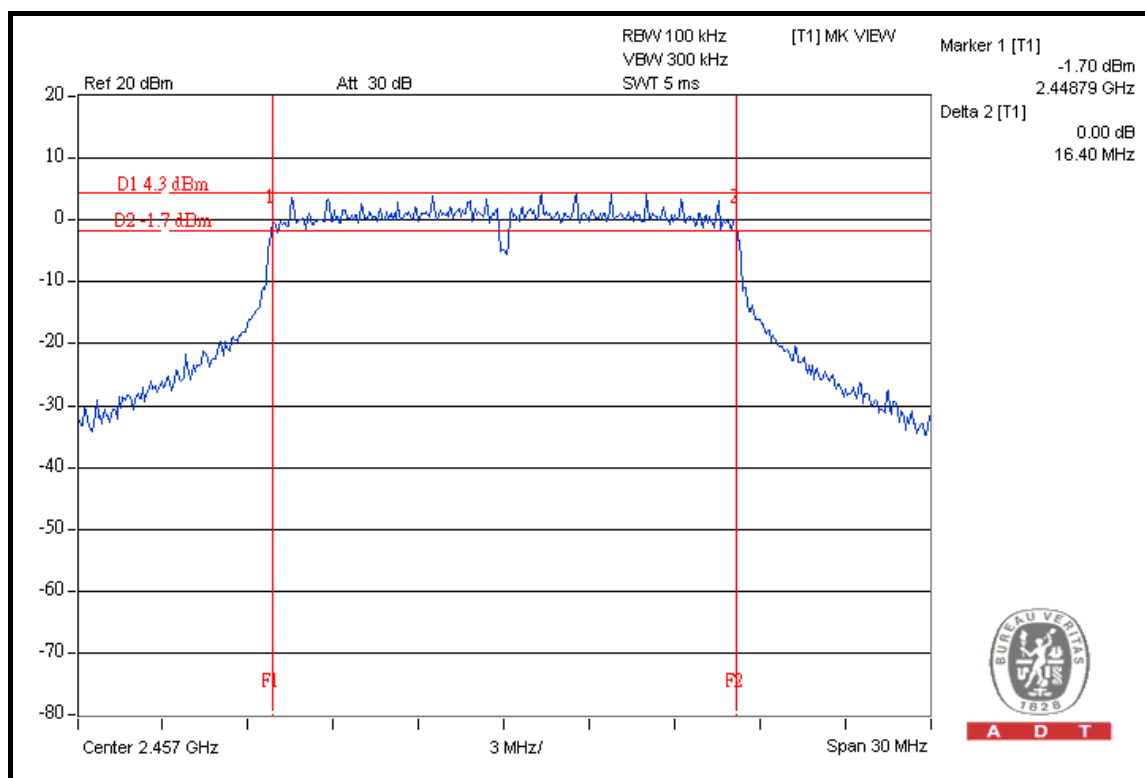


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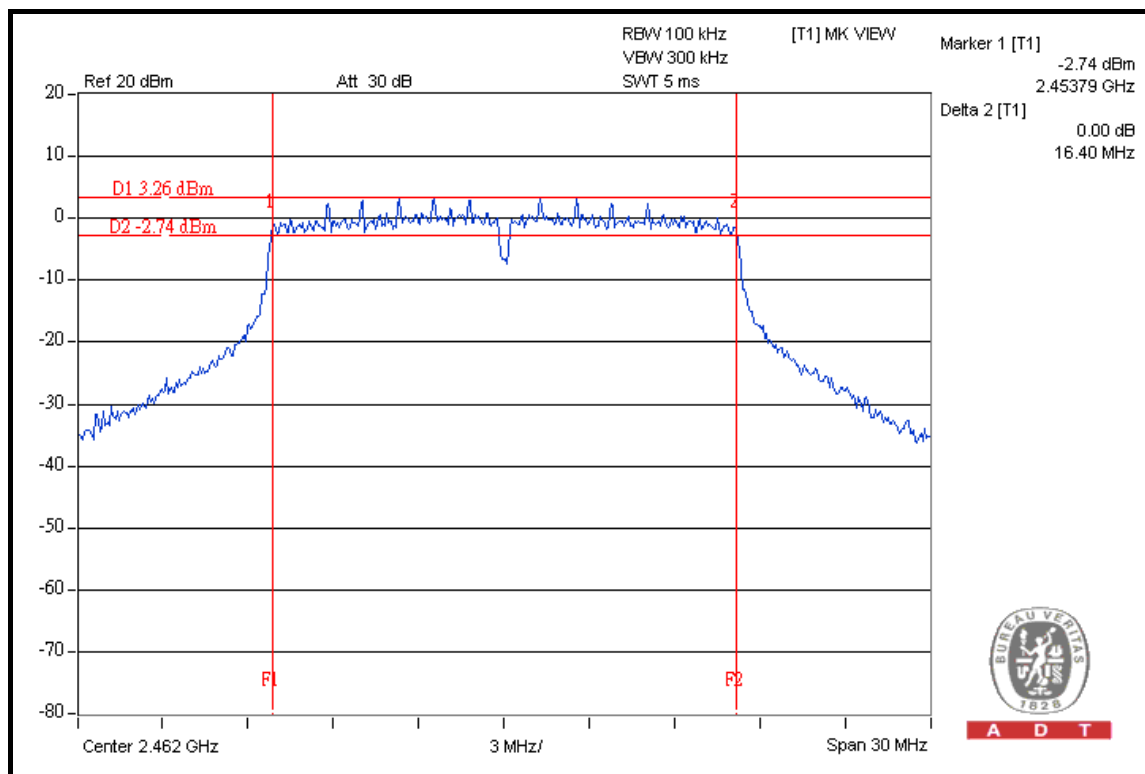


A D T

CH 10



CH 11





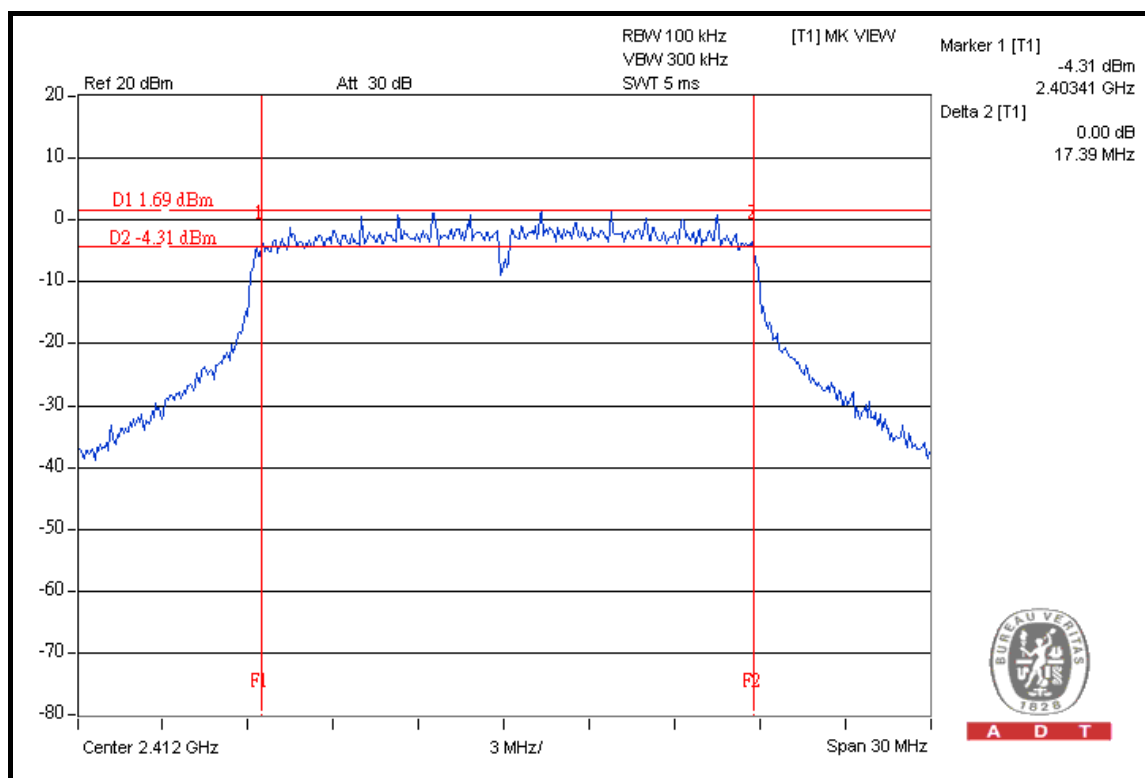
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	17.39	17.64	17.66	0.5	PASS
2	2417	17.62	17.59	17.65	0.5	PASS
6	2437	17.63	17.54	17.64	0.5	PASS
10	2457	17.61	17.63	17.65	0.5	PASS
11	2462	17.38	17.63	17.56	0.5	PASS

FOR CHAIN 0: CH 1

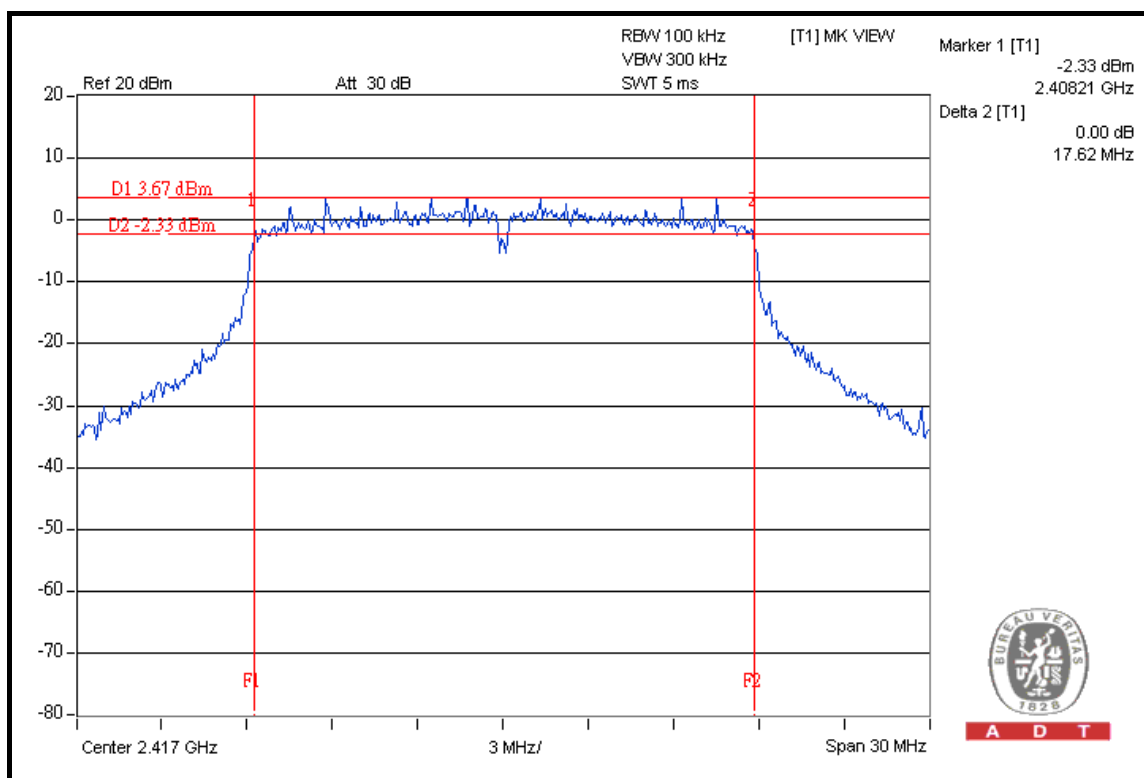


A D T

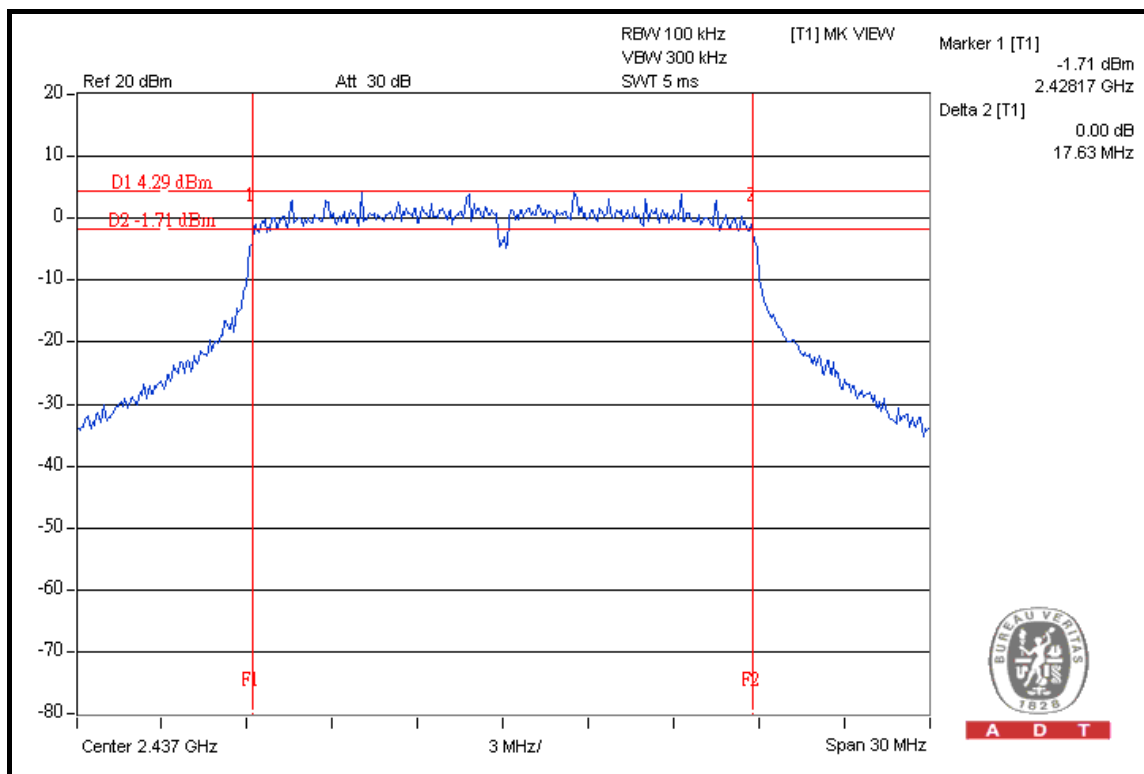


A D T

CH 2



CH 6





Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms [T1] MK VIEW

Marker 1 [T1] -1.68 dBm 2.44817 GHz

Delta 2 [T1] 0.00 dB 17.61 MHz

D1 4.32 dBm D2 -1.60 dBm

F1 F2

Center 2.457 GHz 3 MHz/div Span 30 MHz

BUREAU VERITAS 1828

A D T

Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms [T1] MK VIEW

Marker 1 [T1] -3.68 dBm 2.45317 GHz

Delta 2 [T1] 0.00 dB 17.38 MHz

D1 2.32 dBm

D2 -3.68 dBm

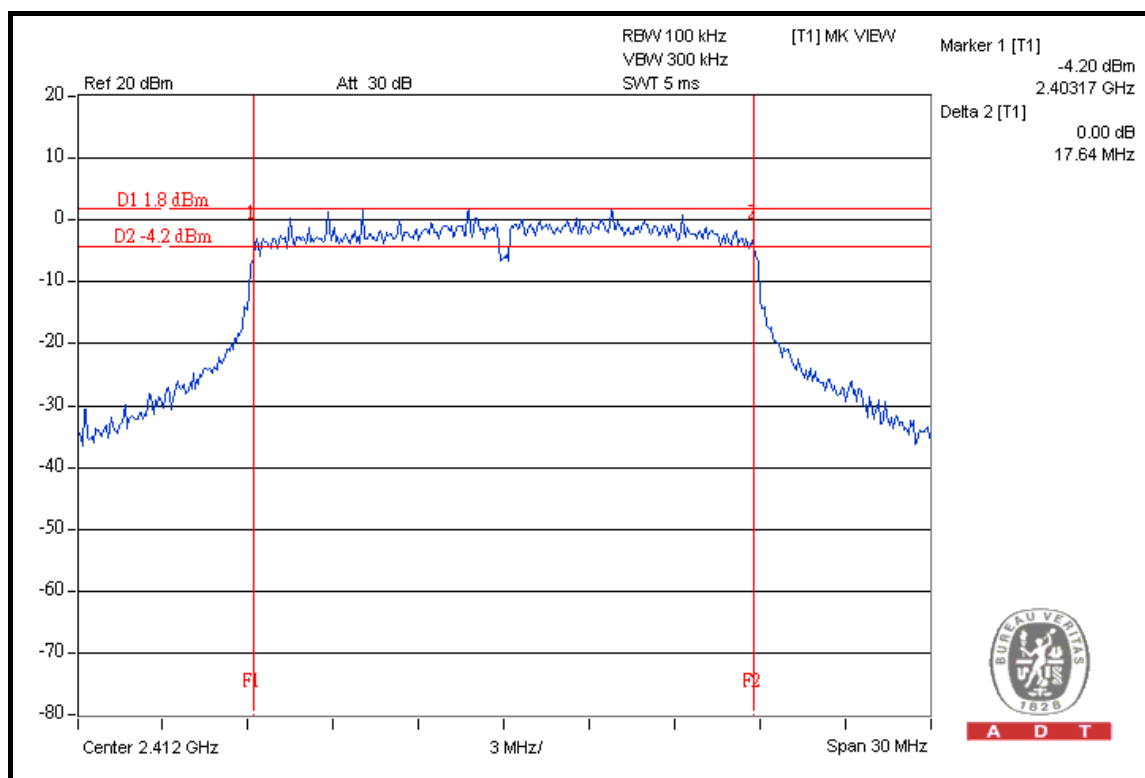
F1 F2

Center 2.462 GHz 3 MHz/ Span 30 MHz

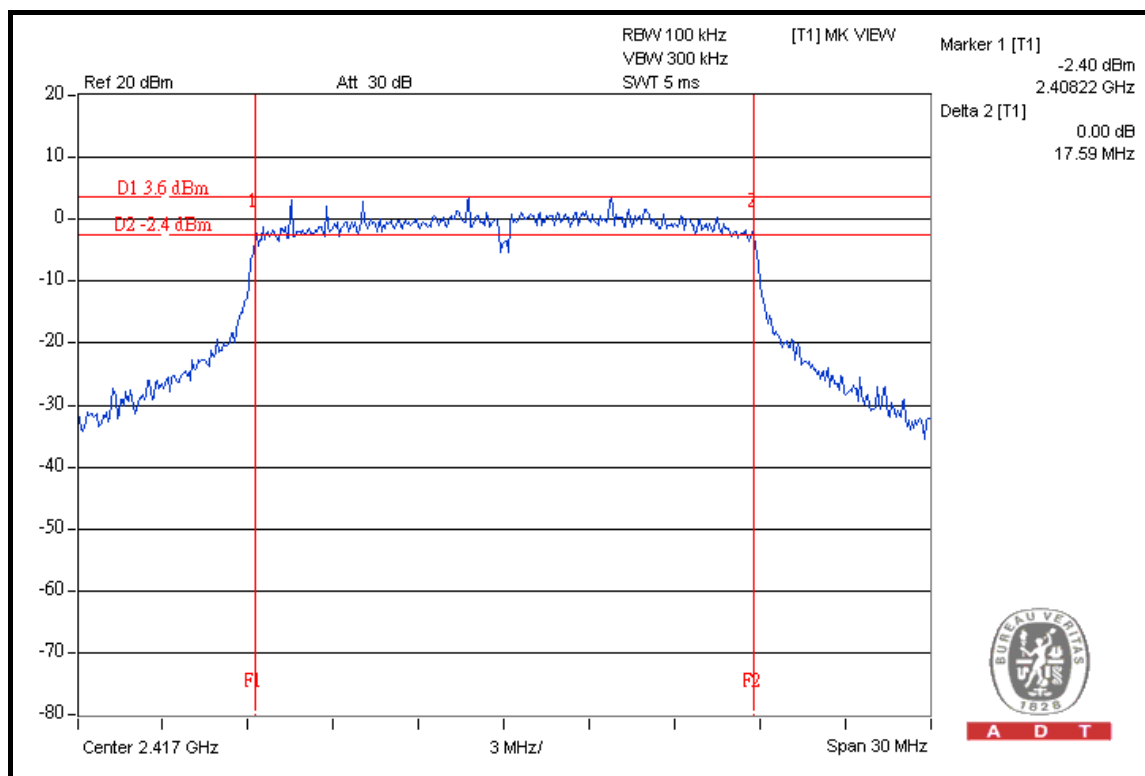
BUREAU VERITAS 1828

A D T

FOR CHAIN 1: CH 1



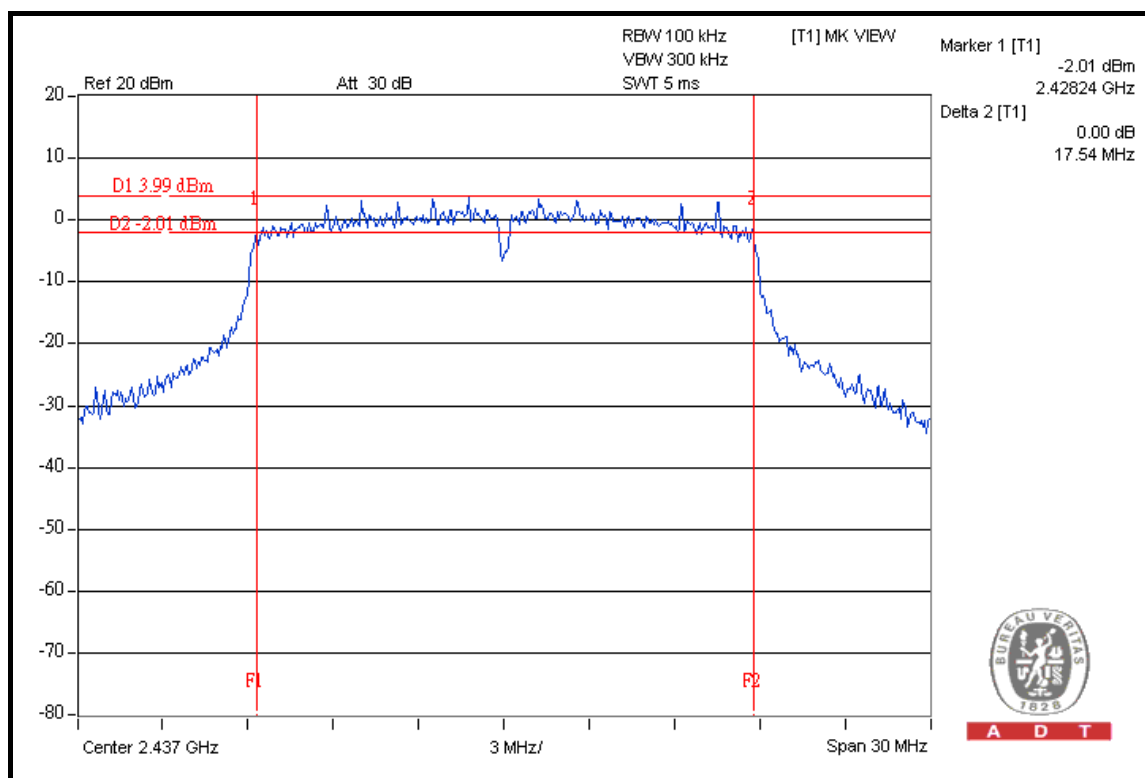
CH 2





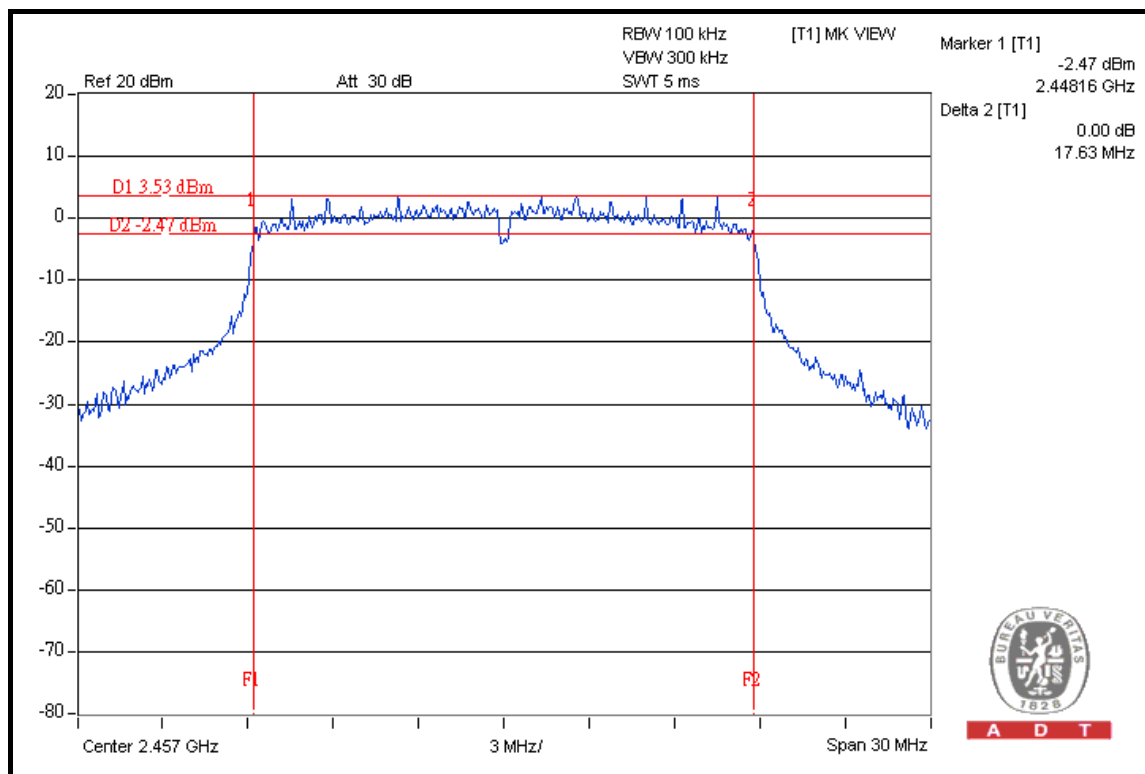
A D T

CH 6



A D T

CH 10

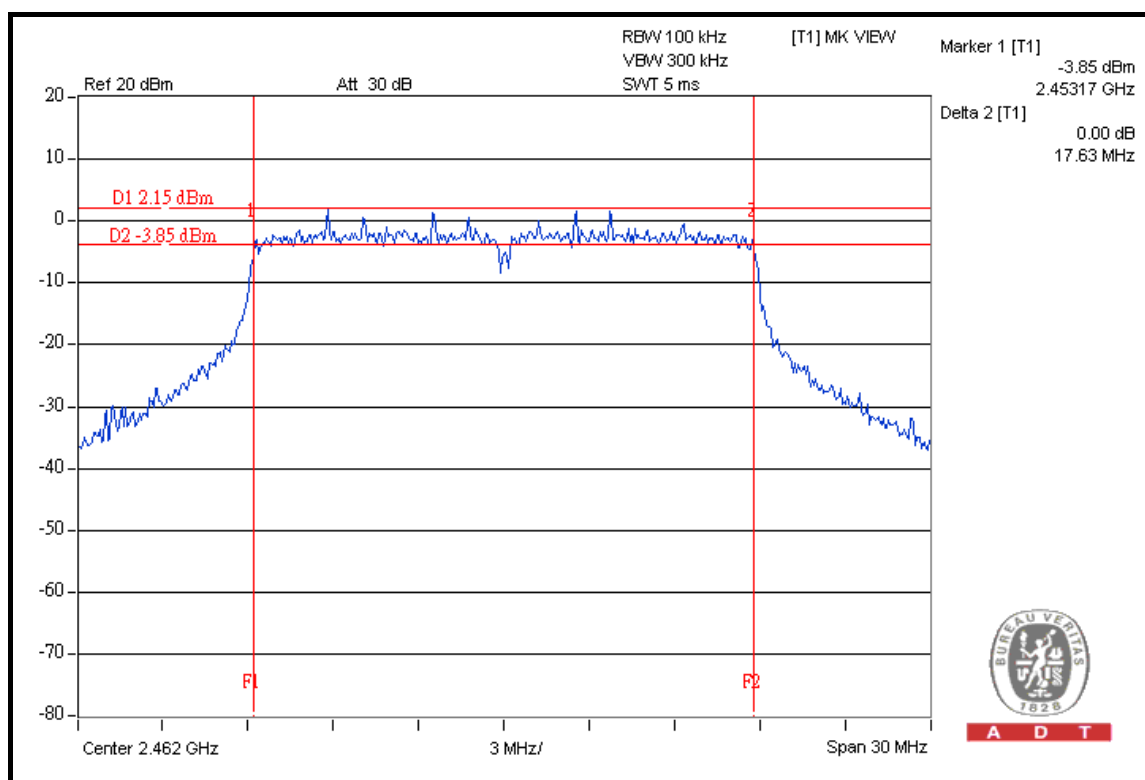


A D T

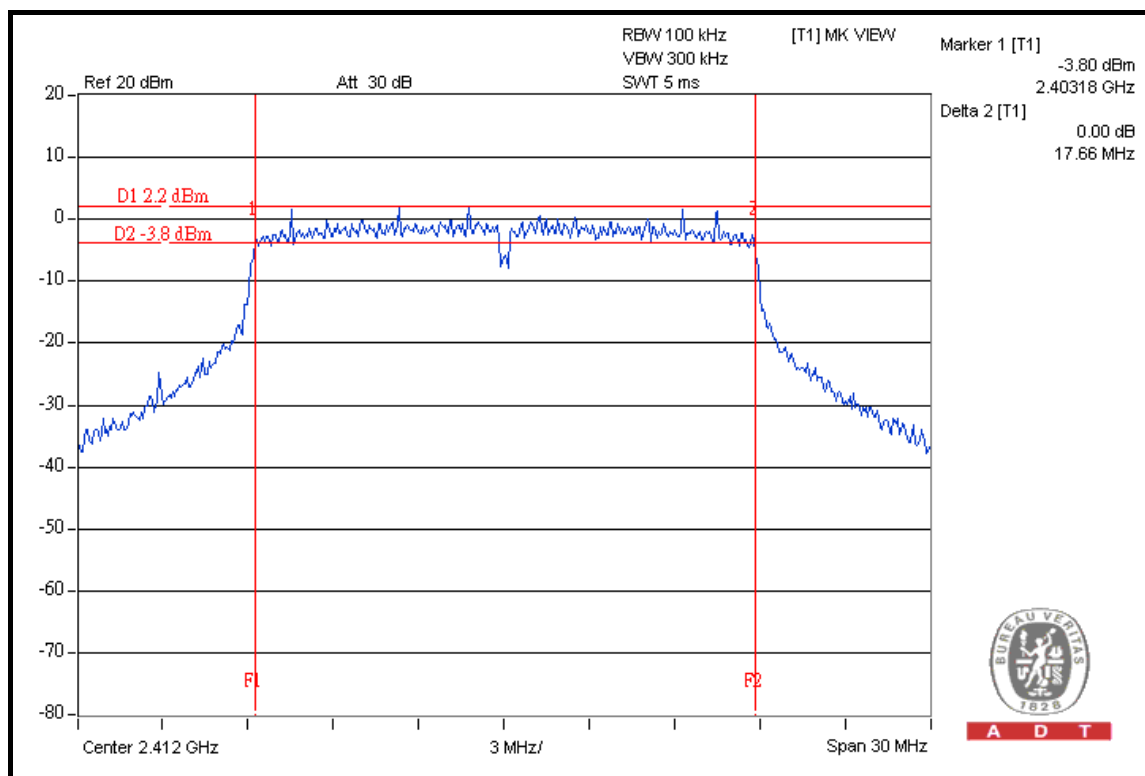


A D T

CH 11



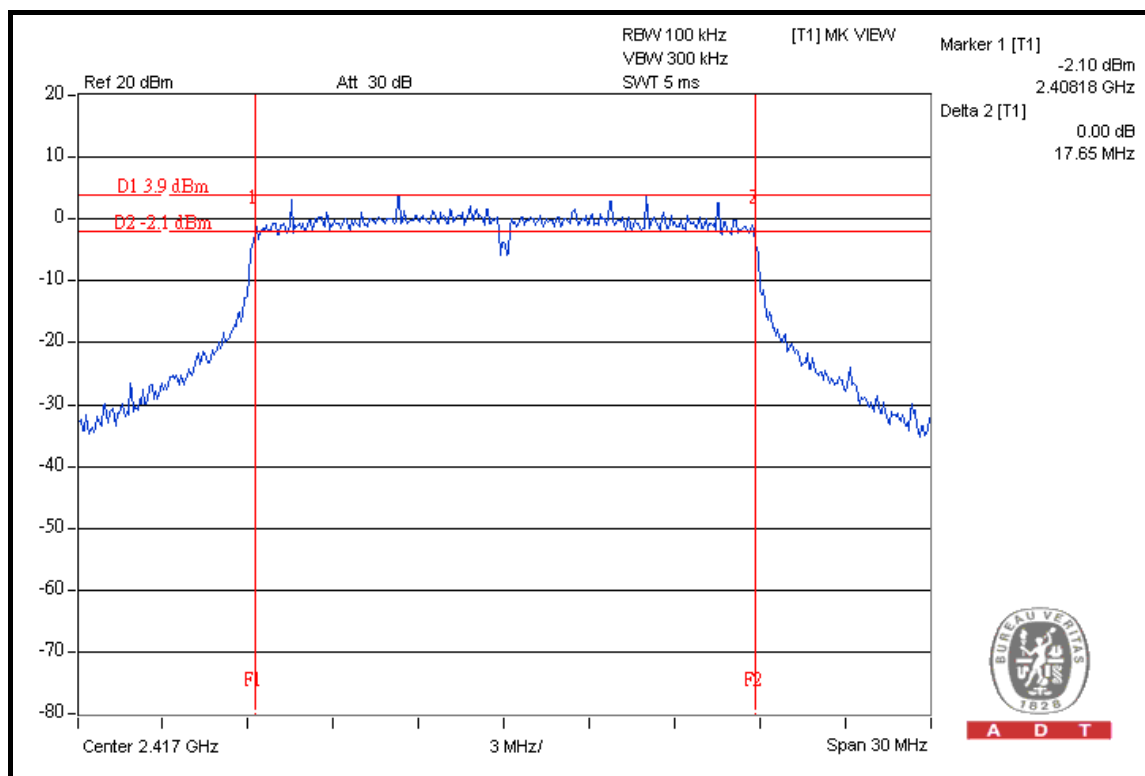
FOR CHAIN 2: CH 1



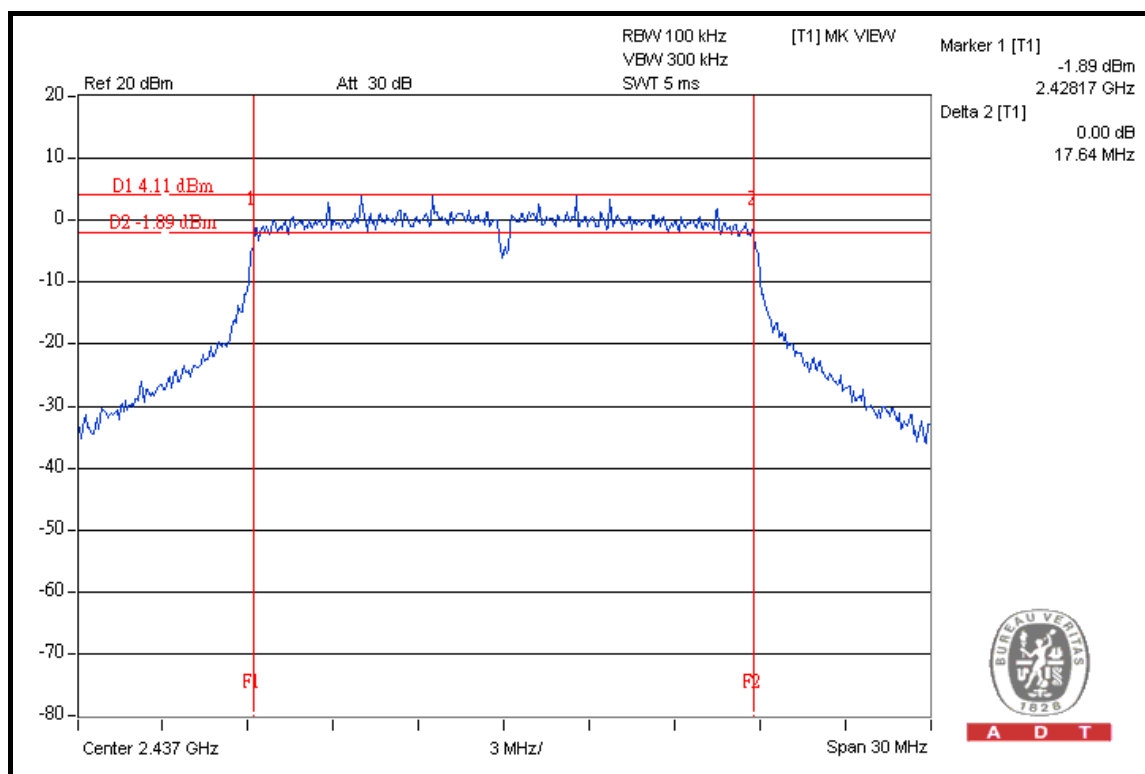


A D T

CH 2



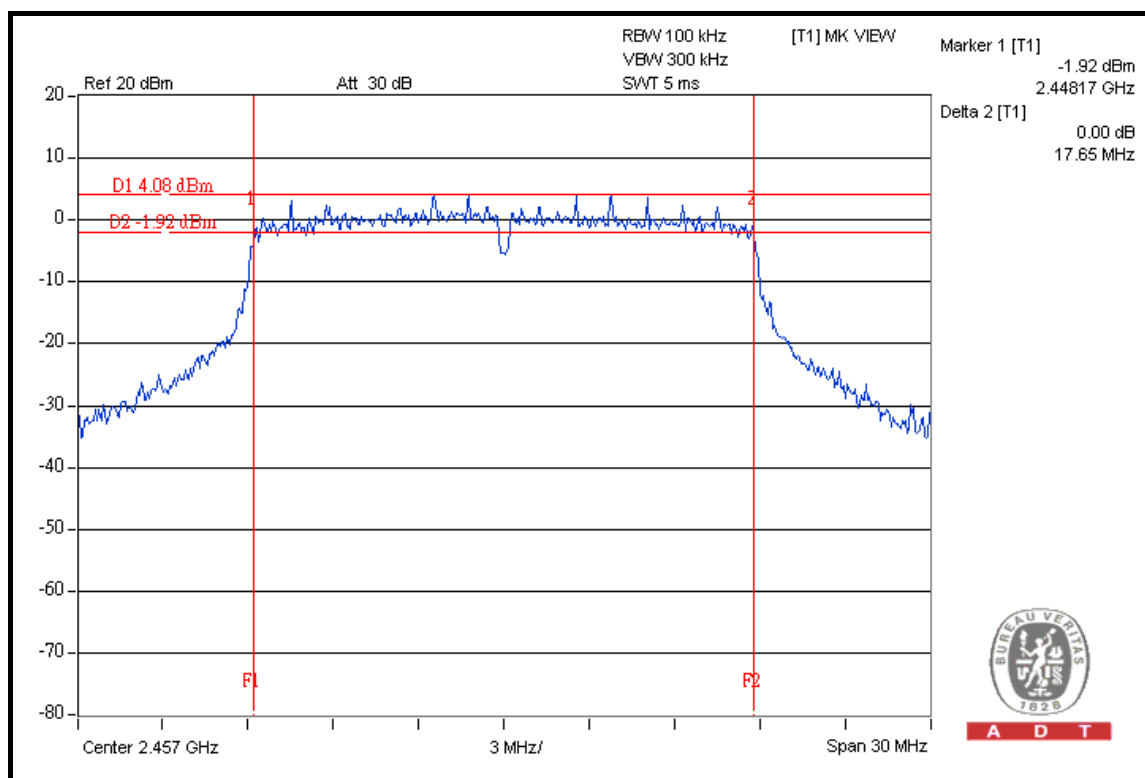
CH 6



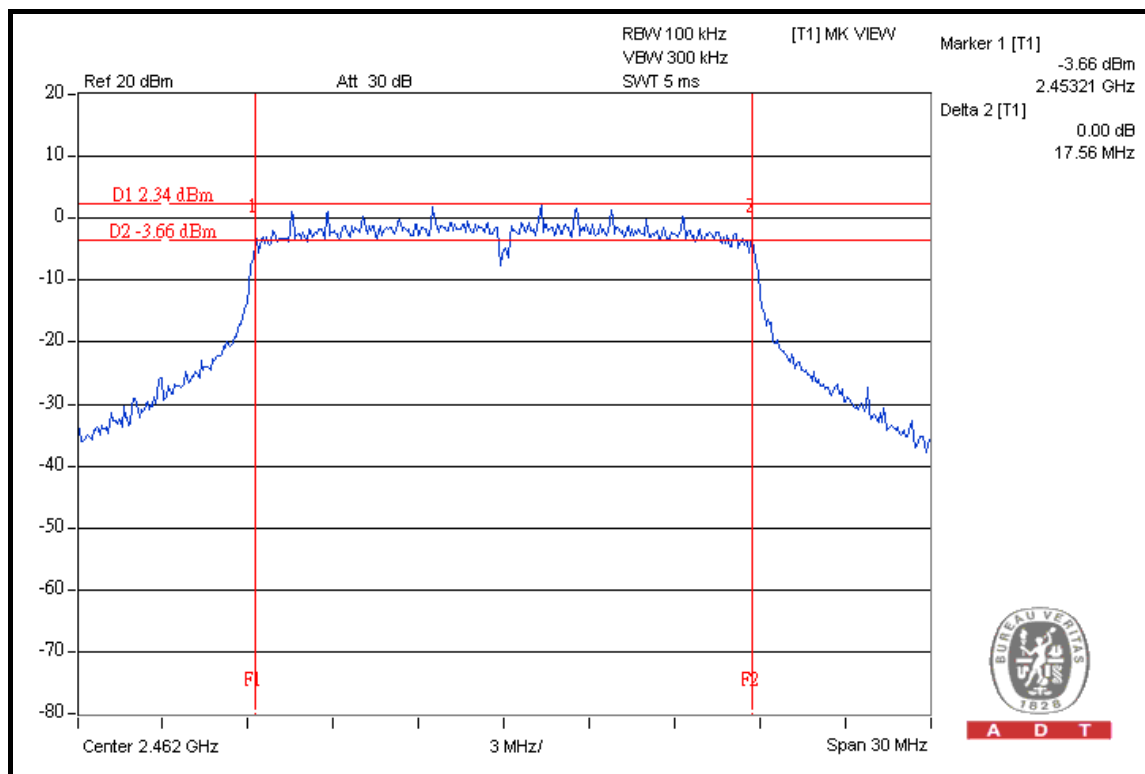


A D T

CH 10



CH 11





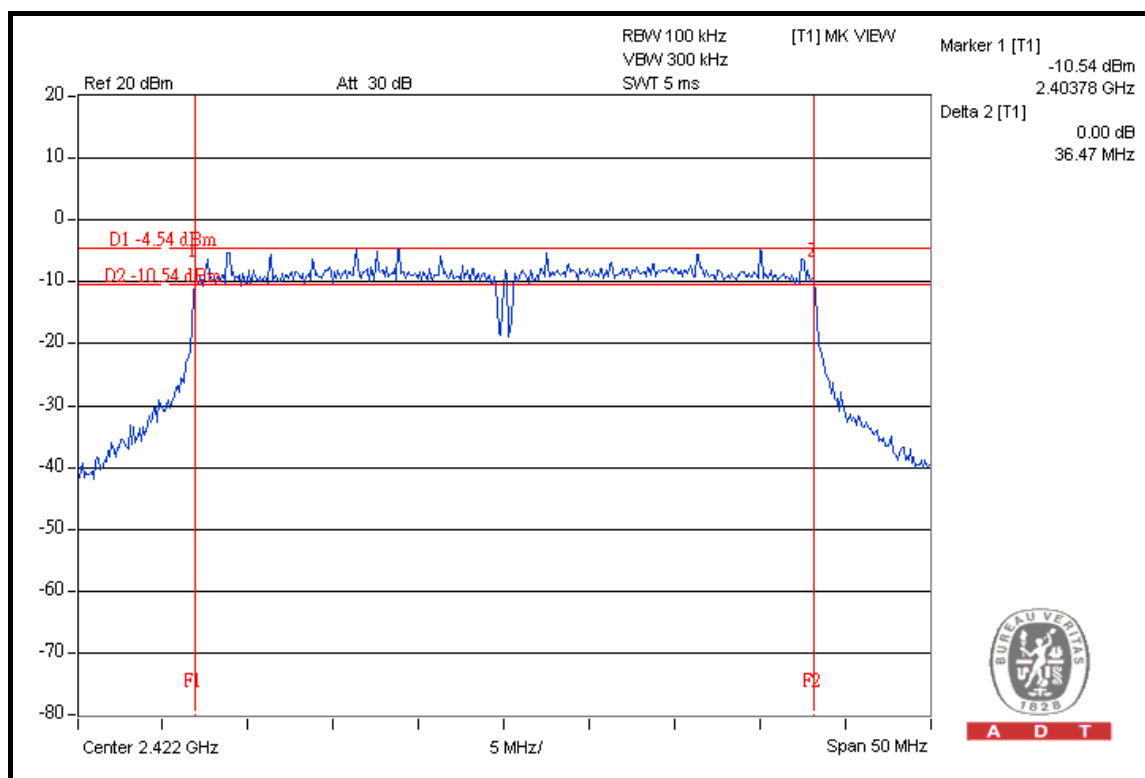
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2422	36.47	36.44	36.47	0.5	PASS
2	2427	36.48	36.49	36.51	0.5	PASS
4	2437	36.54	36.53	36.49	0.5	PASS
6	2447	36.45	36.53	36.50	0.5	PASS
7	2452	36.47	36.54	36.49	0.5	PASS

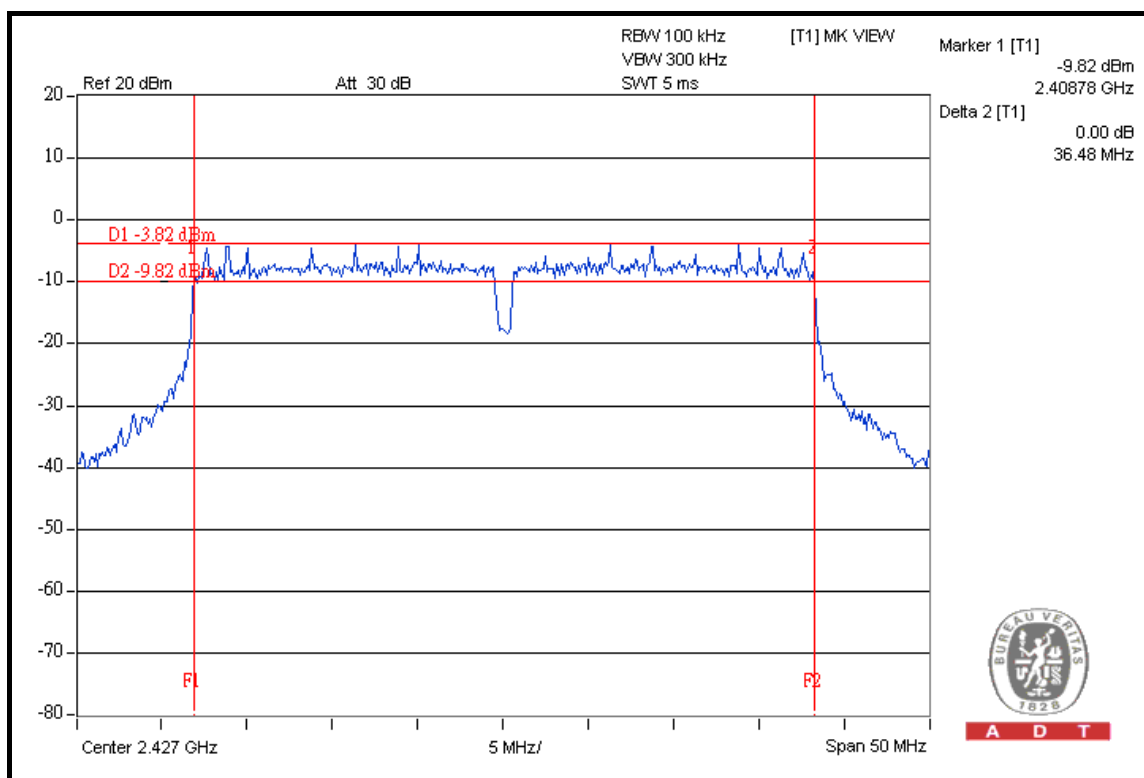
FOR CHAIN 0: CH 1



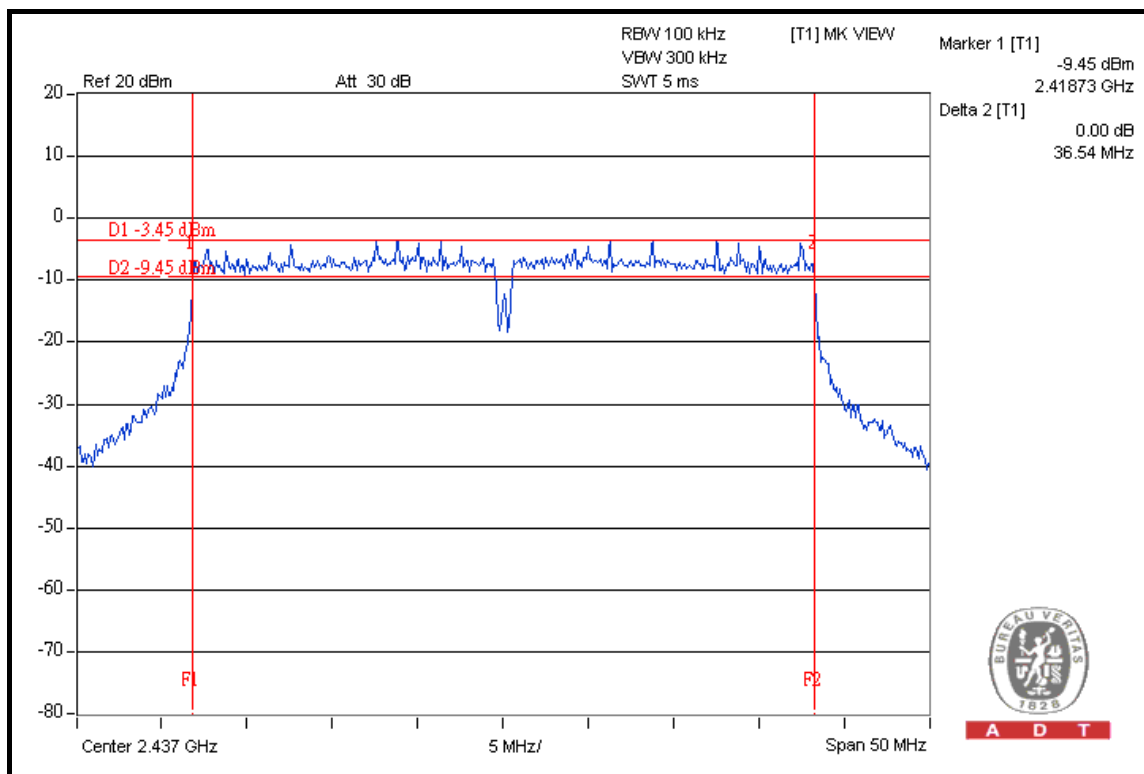


A D T

CH 2



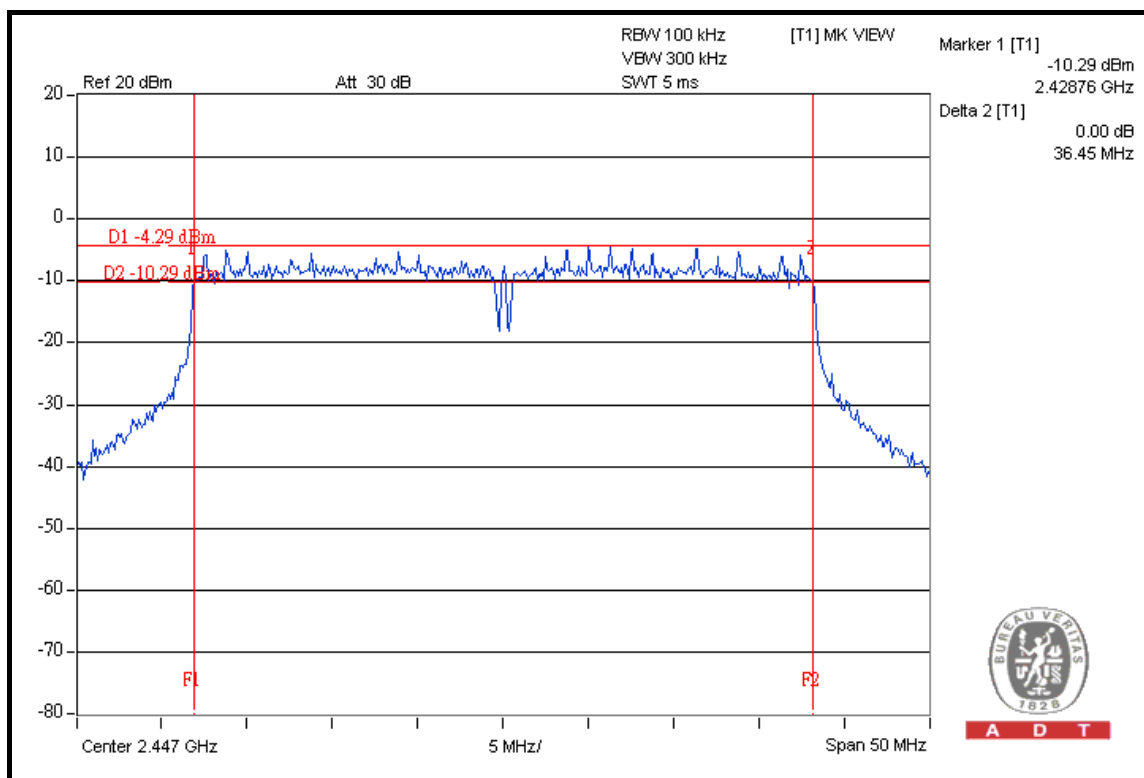
CH 4



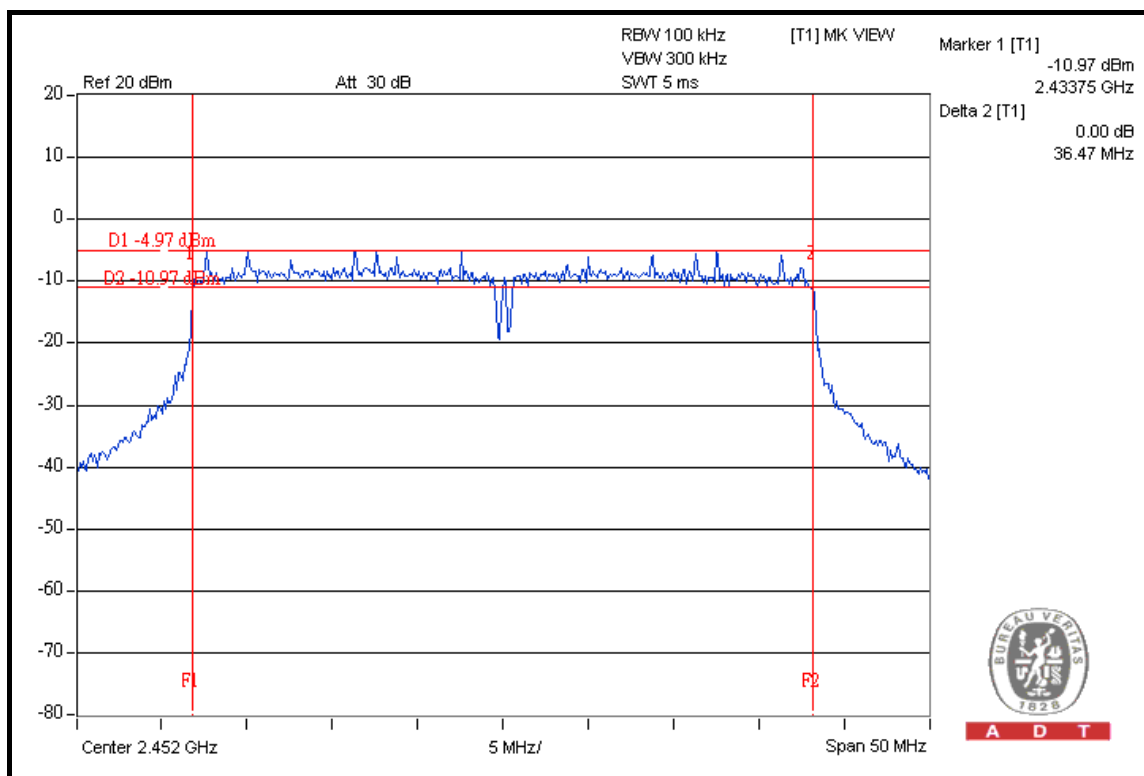


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CH 6



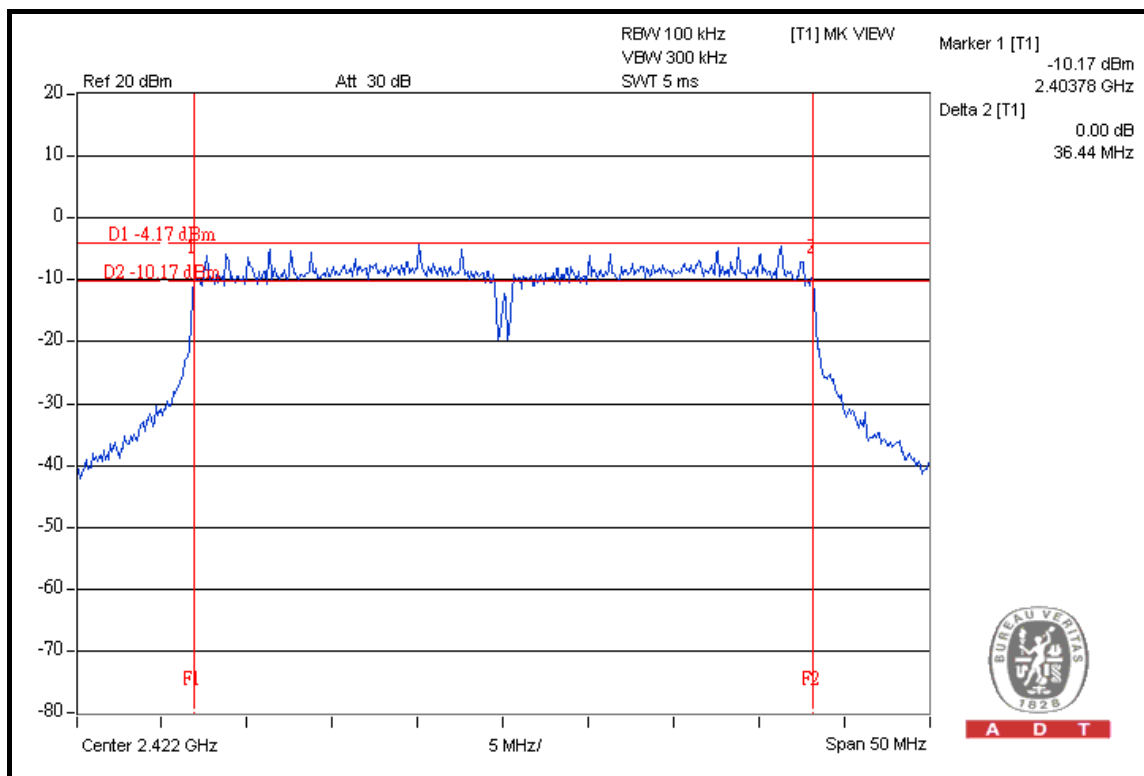
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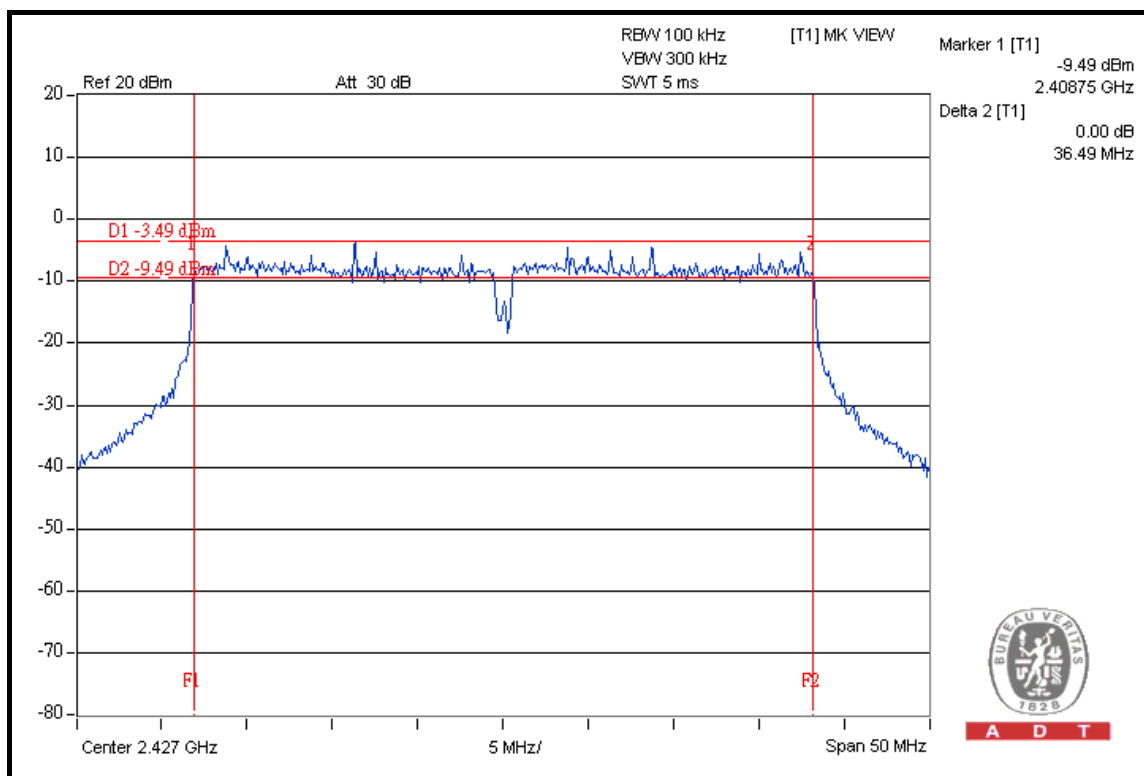


A D T

FOR CHAIN 1: CH 1



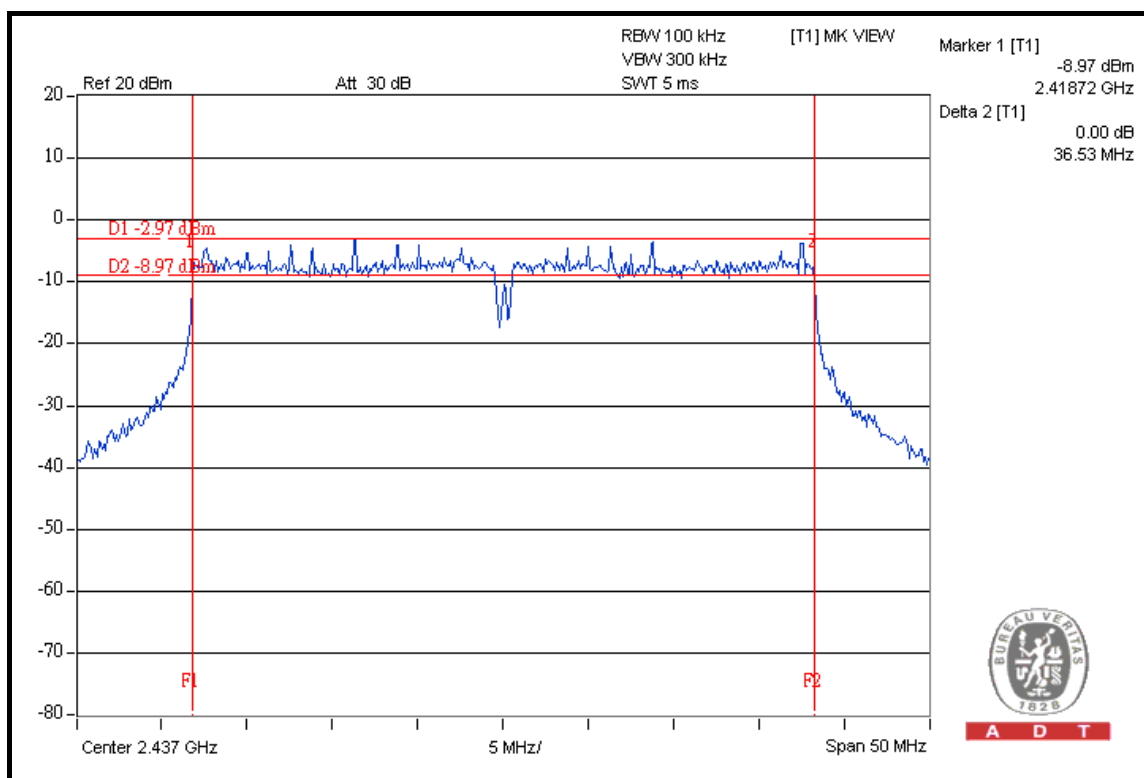
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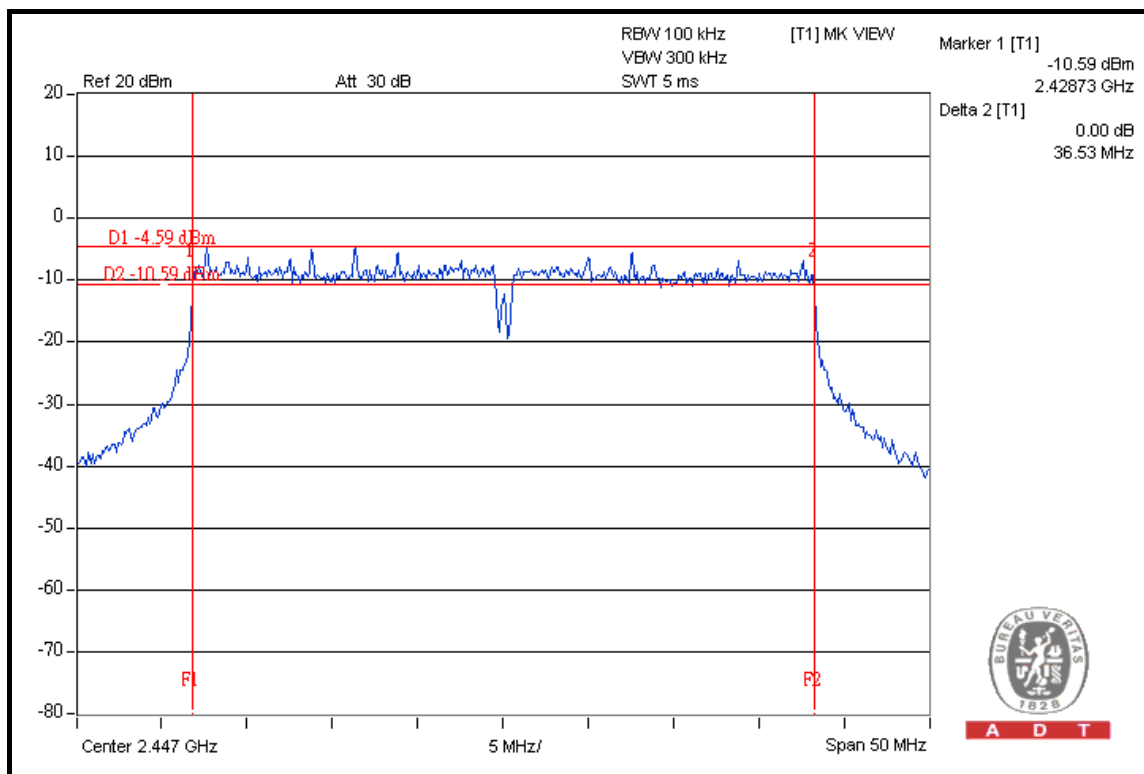


A D T

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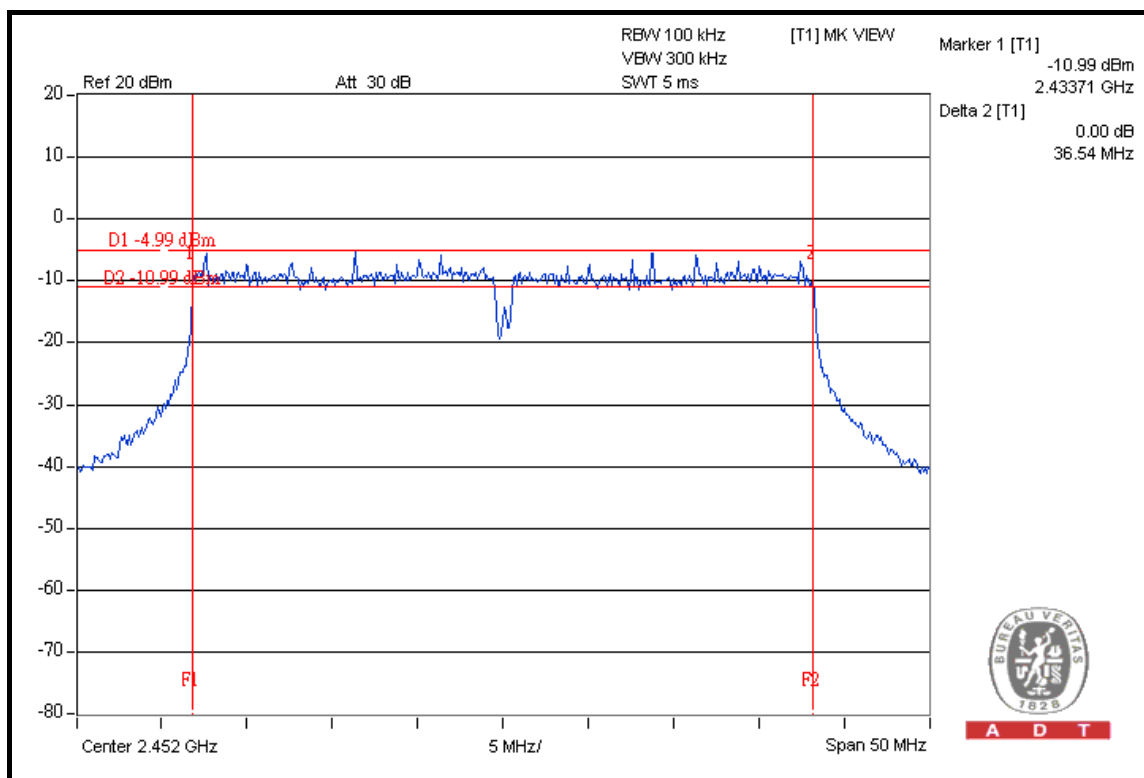
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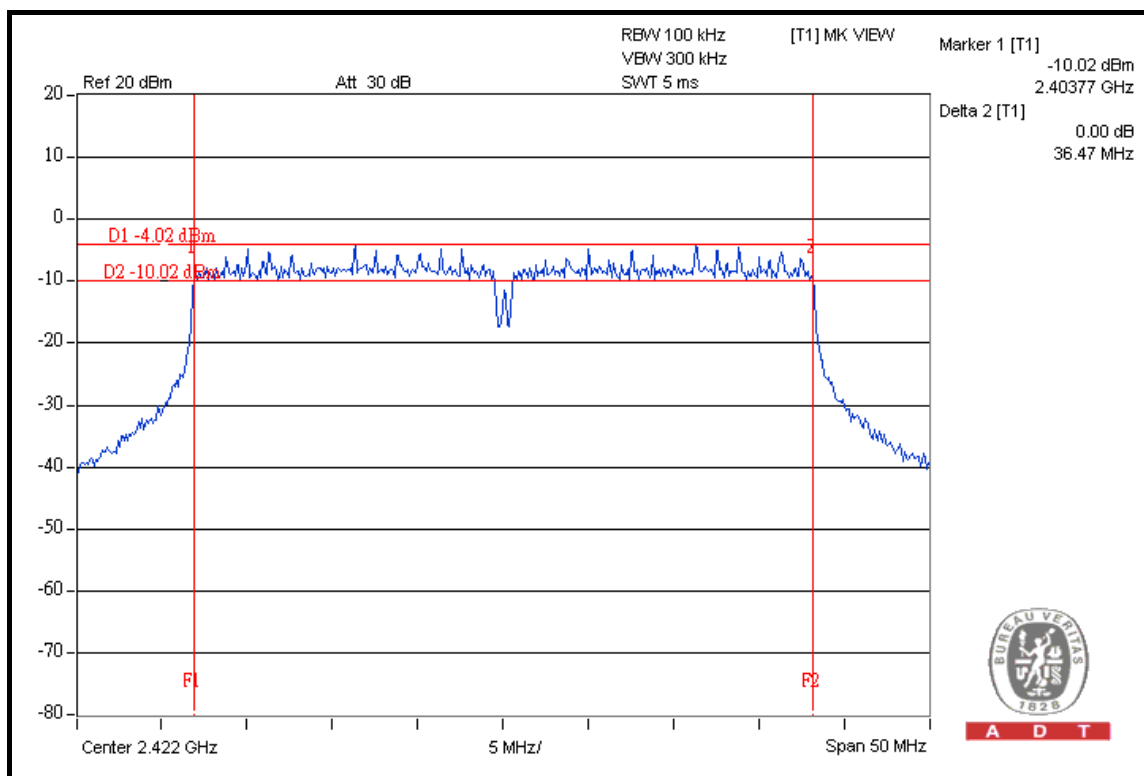
A D T

CH 7



A D T

FOR CHAIN 2: CH 1

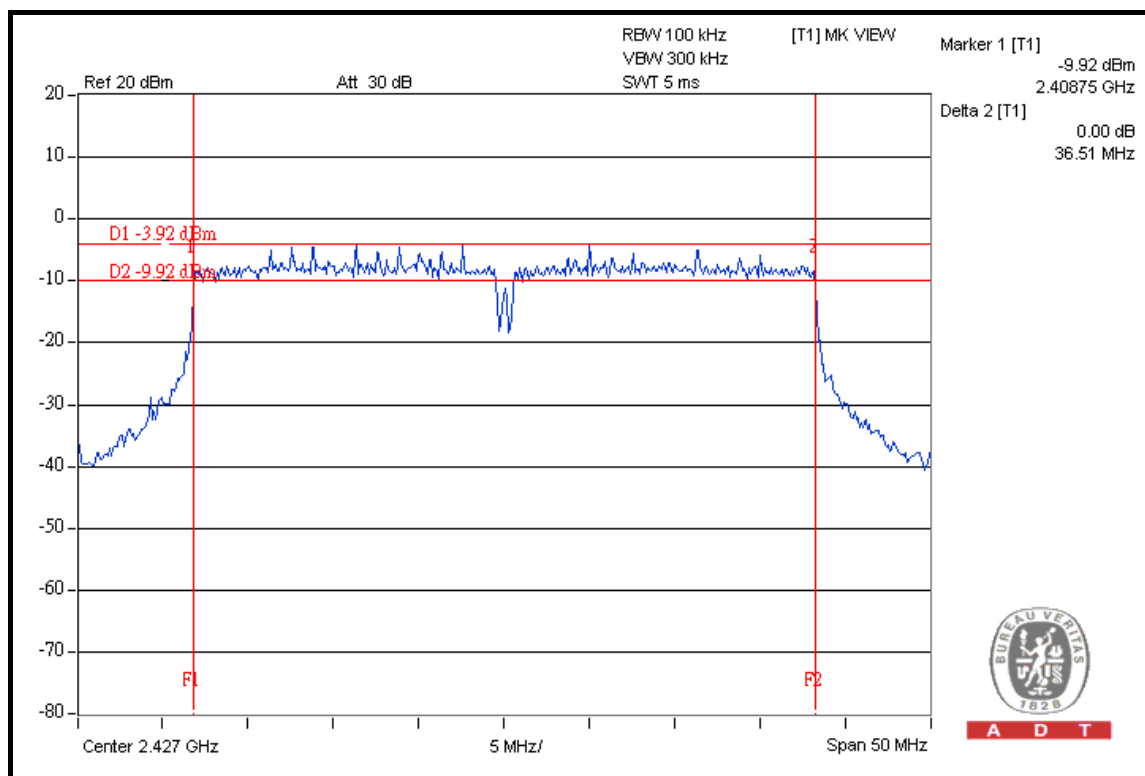


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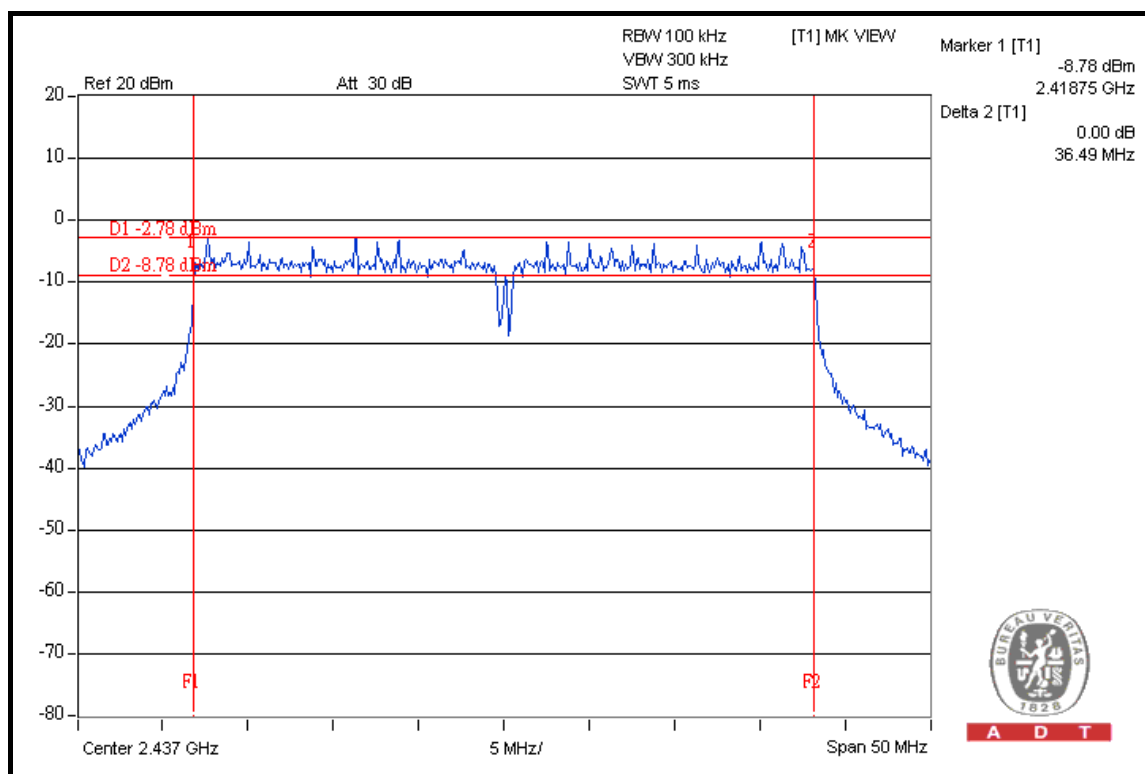


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CH 2



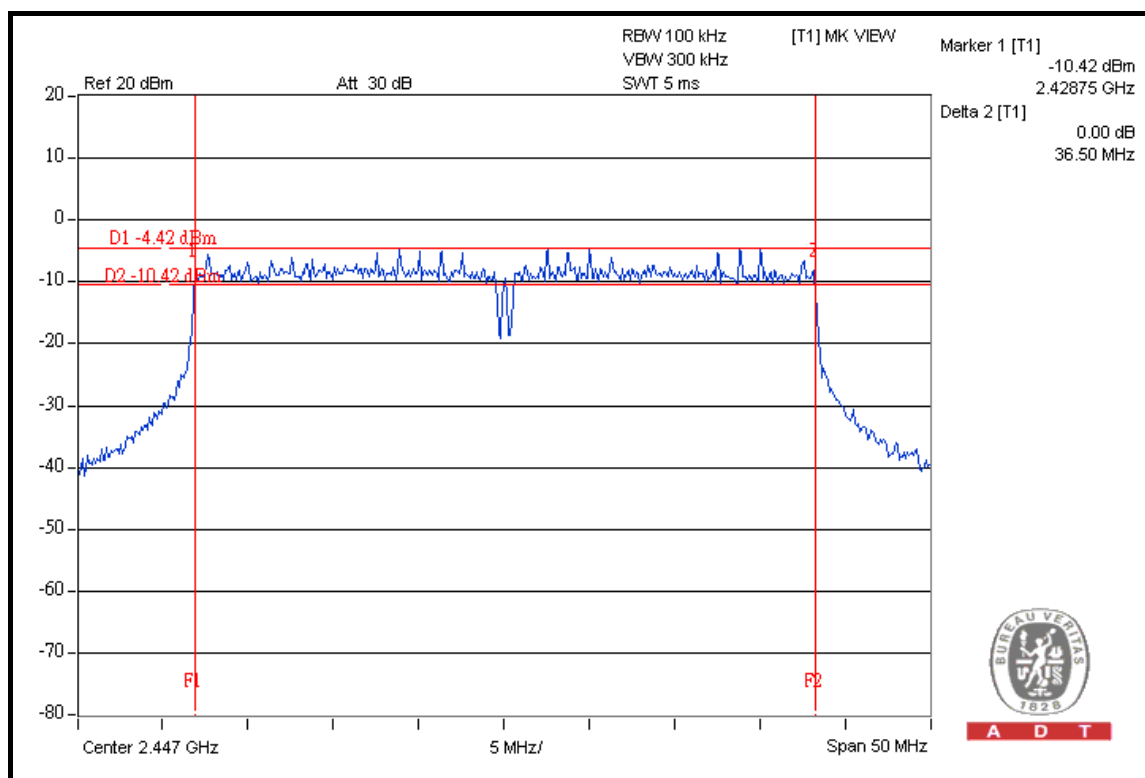
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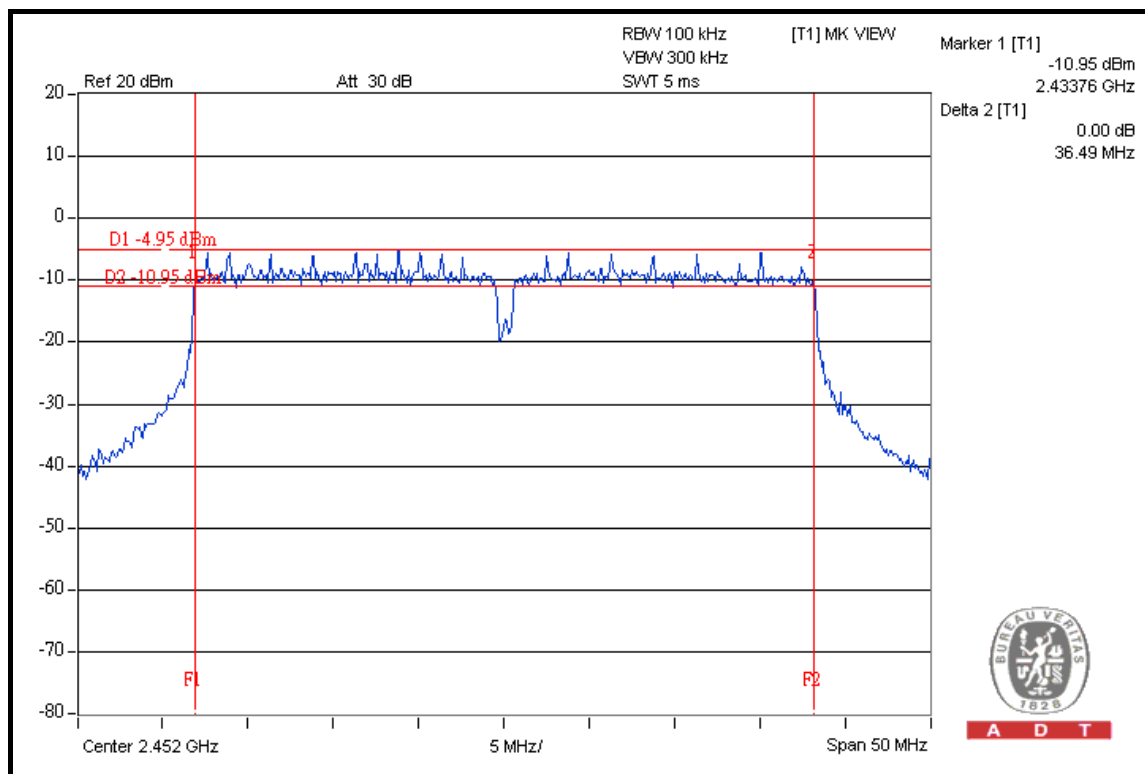


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CH 6



CH 7



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

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

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

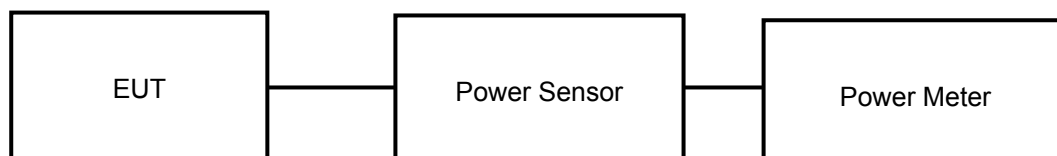
4.4.3 TEST PROCEDURES

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	18.51	18.52	18.53	213.364	23.29	30	PASS
2	2417	20.02	20.04	20.01	301.617	24.79	30	PASS
6	2437	21.86	21.73	21.03	429.163	26.33	30	PASS
10	2457	18.06	18.01	18.04	190.894	22.81	30	PASS
11	2462	17.54	17.50	17.51	169.352	22.29	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	23.53	23.60	23.24	665.374	28.23	30	PASS
2	2417	24.51	24.43	24.31	829.594	29.19	30	PASS
6	2437	24.52	24.33	24.32	824.554	29.16	30	PASS
10	2457	24.40	24.34	24.33	818.086	29.13	30	PASS
11	2462	23.73	23.32	23.34	666.605	28.24	30	PASS



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DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	22.21	22.43	22.62	524.136	27.19	30	PASS
2	2417	24.32	24.41	24.33	817.473	29.12	30	PASS
6	2437	24.61	24.51	24.41	847.614	29.28	30	PASS
10	2457	24.63	24.40	24.32	836.221	29.22	30	PASS
11	2462	22.70	22.62	22.63	552.250	27.42	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2422	21.04	21.01	21.01	379.423	25.79	30	PASS
2	2427	21.53	21.53	21.02	410.939	26.14	30	PASS
4	2437	22.02	22.01	22.01	476.930	26.78	30	PASS
6	2447	21.03	20.54	20.52	352.725	25.47	30	PASS
7	2452	20.52	20.04	20.03	314.338	24.97	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

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

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

4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



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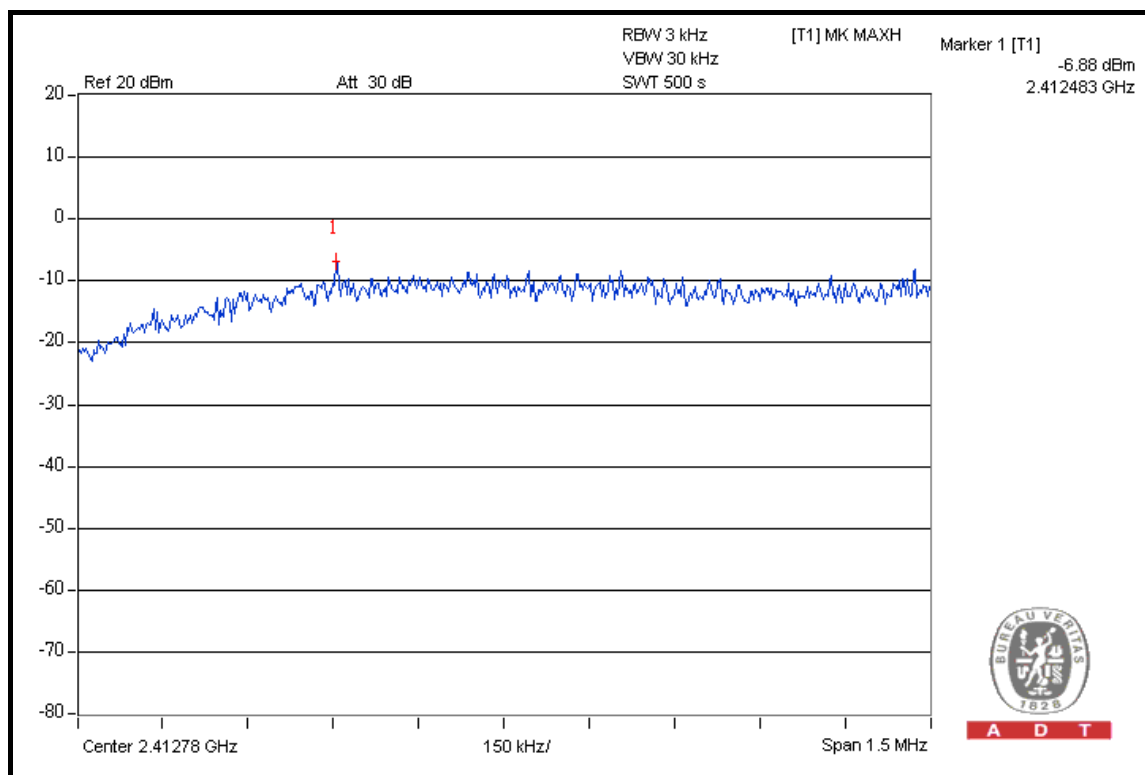
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	-6.88	-7.64	-8.75	0.511	-2.92	8	PASS
2	2417	-5.55	-6.17	-7.31	0.706	-1.51	8	PASS
6	2437	-3.70	-4.47	-6.08	1.030	0.13	8	PASS
10	2457	-7.61	-8.19	-9.22	0.445	-3.52	8	PASS
11	2462	-7.91	-8.42	-9.74	0.412	-3.85	8	PASS

FOR CHAIN 0: CH 1

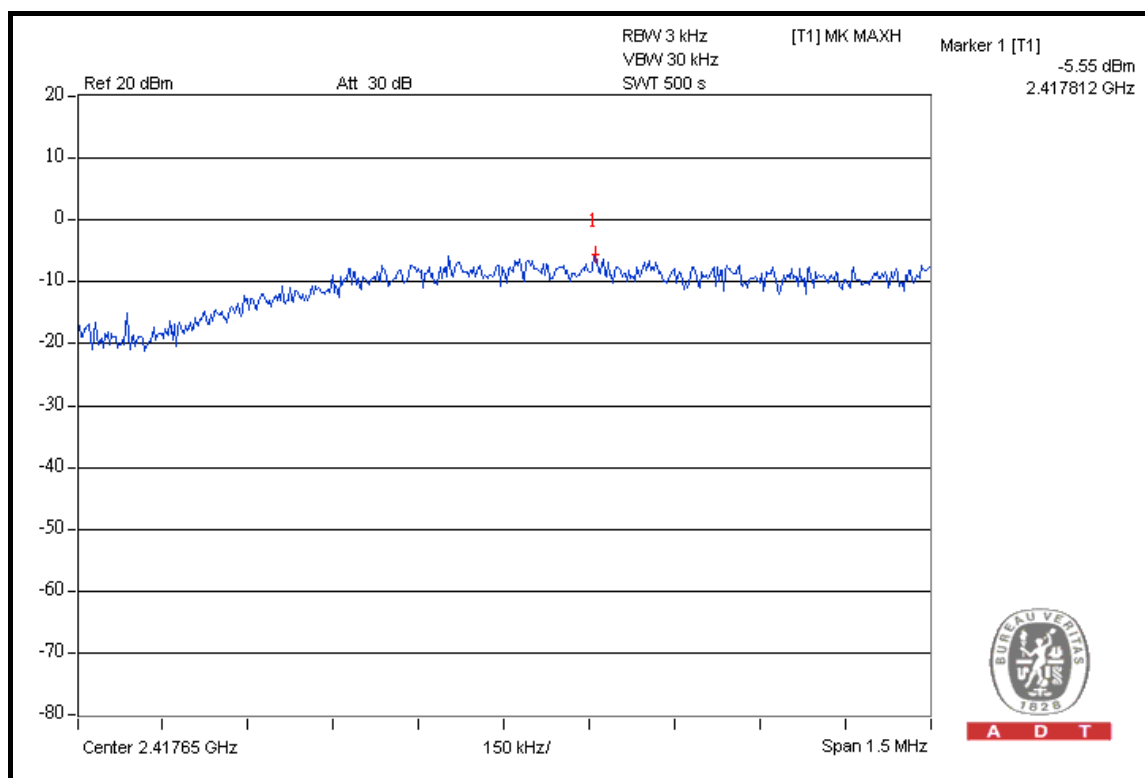


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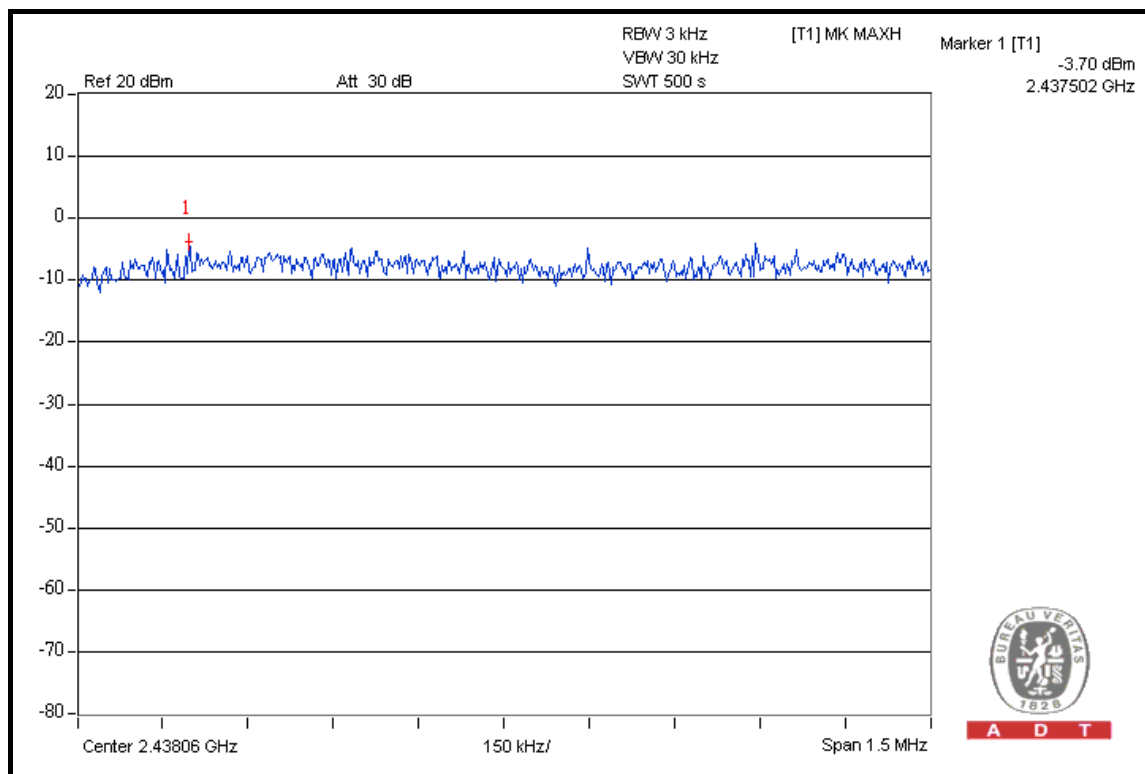


A D T

CH 2



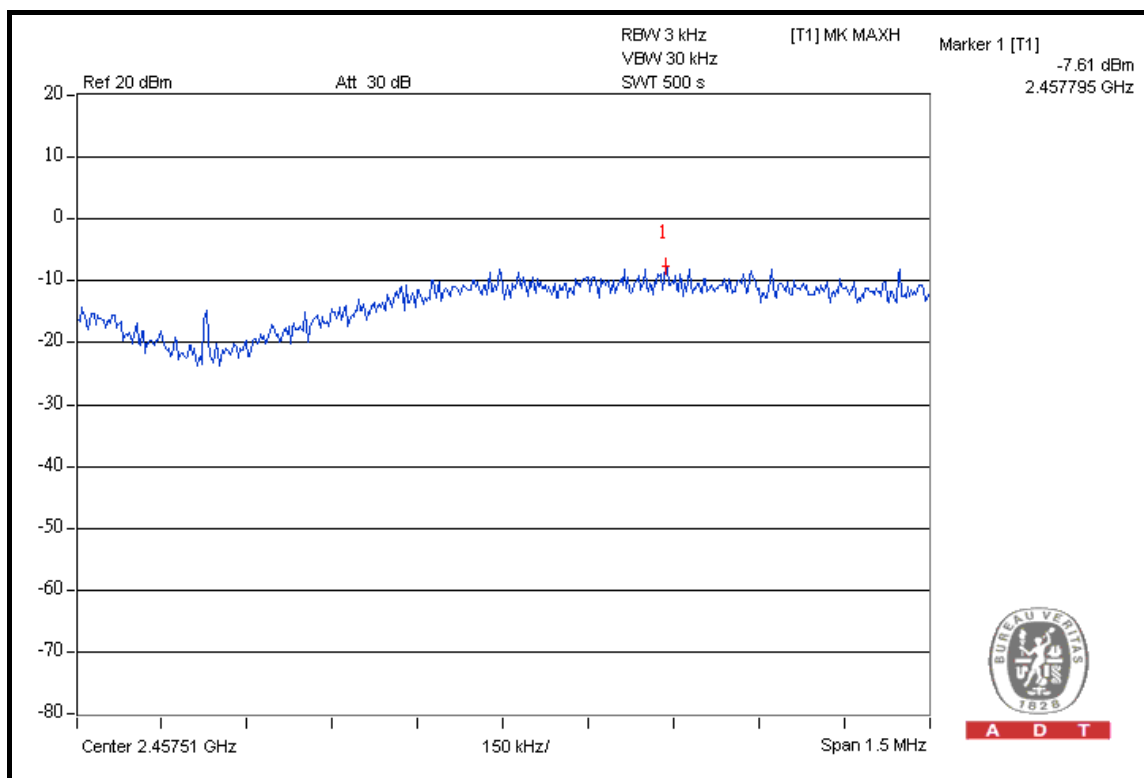
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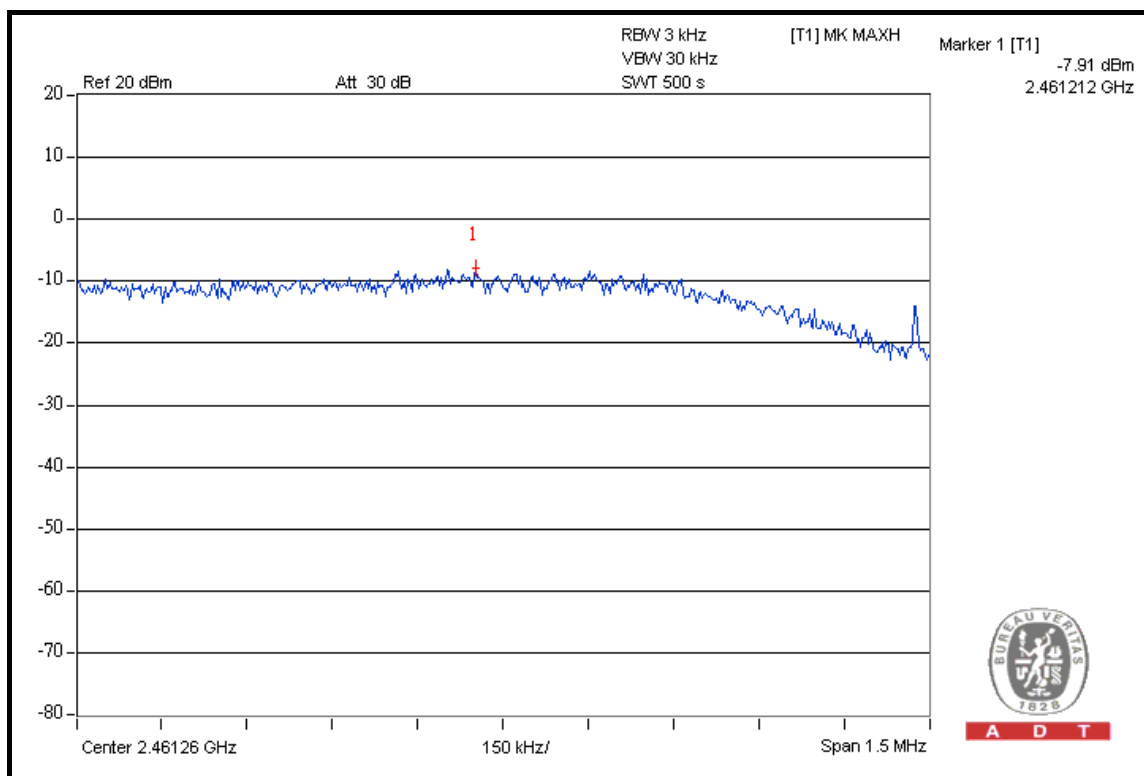


A D T

CH 10



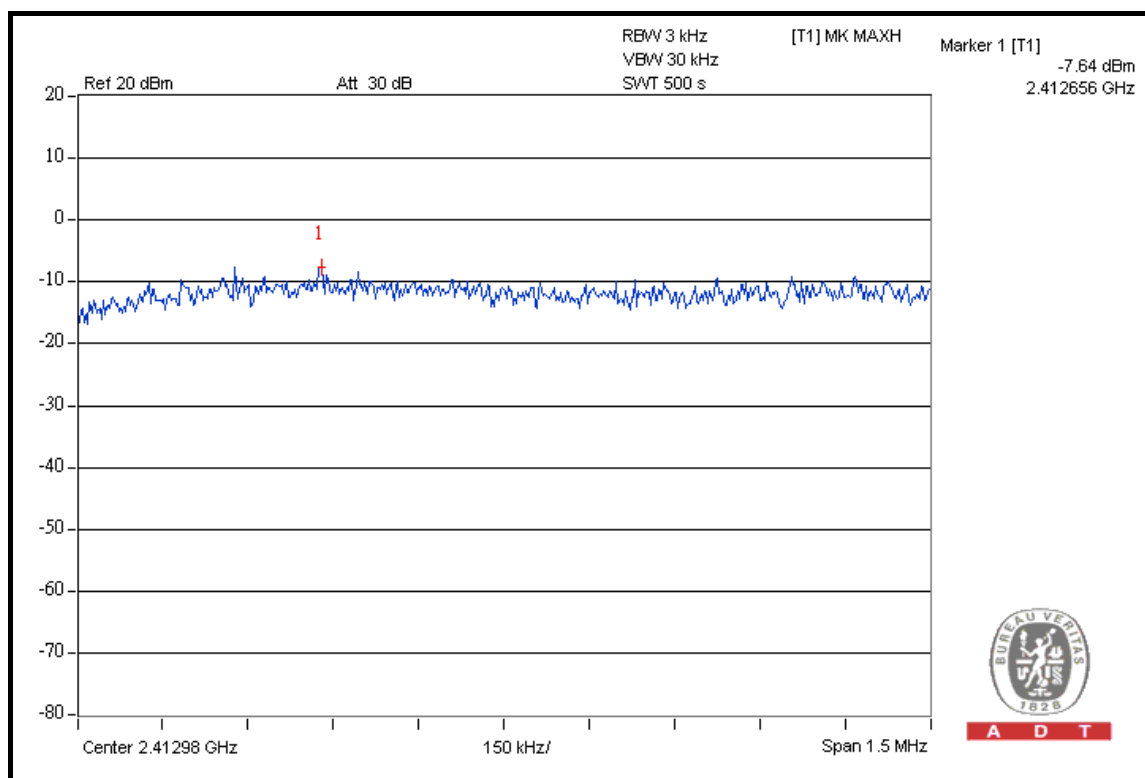
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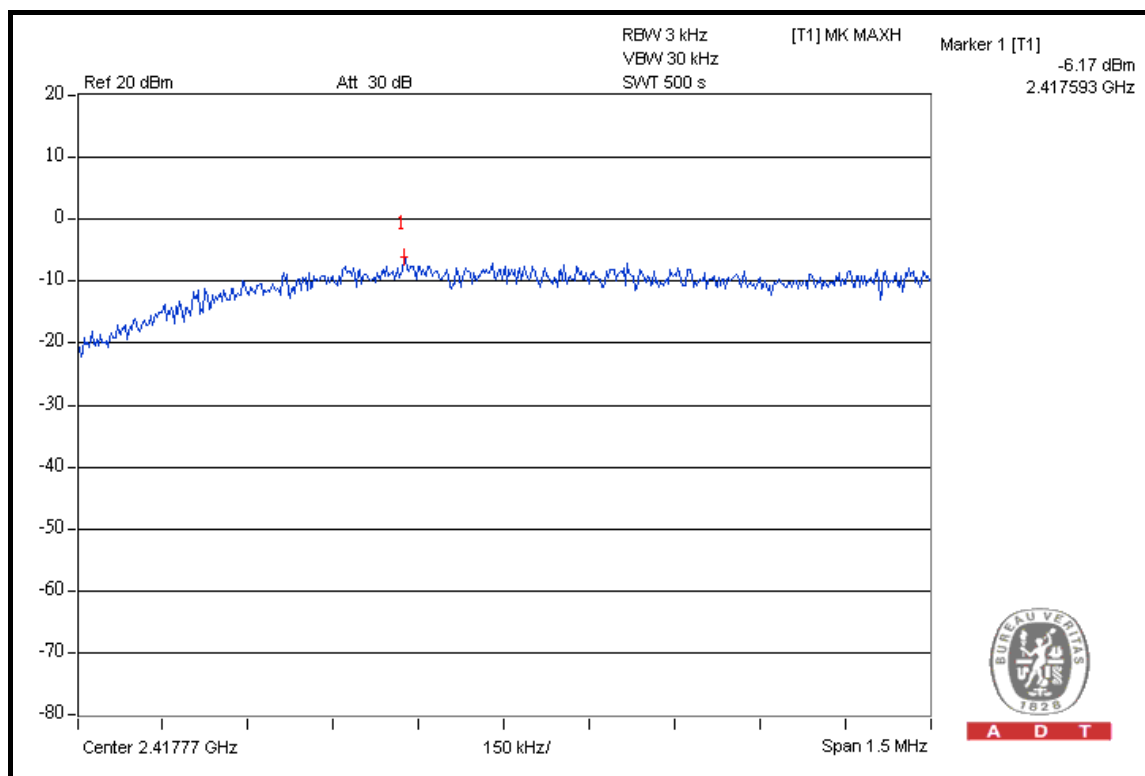


A D T

FOR CHAIN 1: CH 1



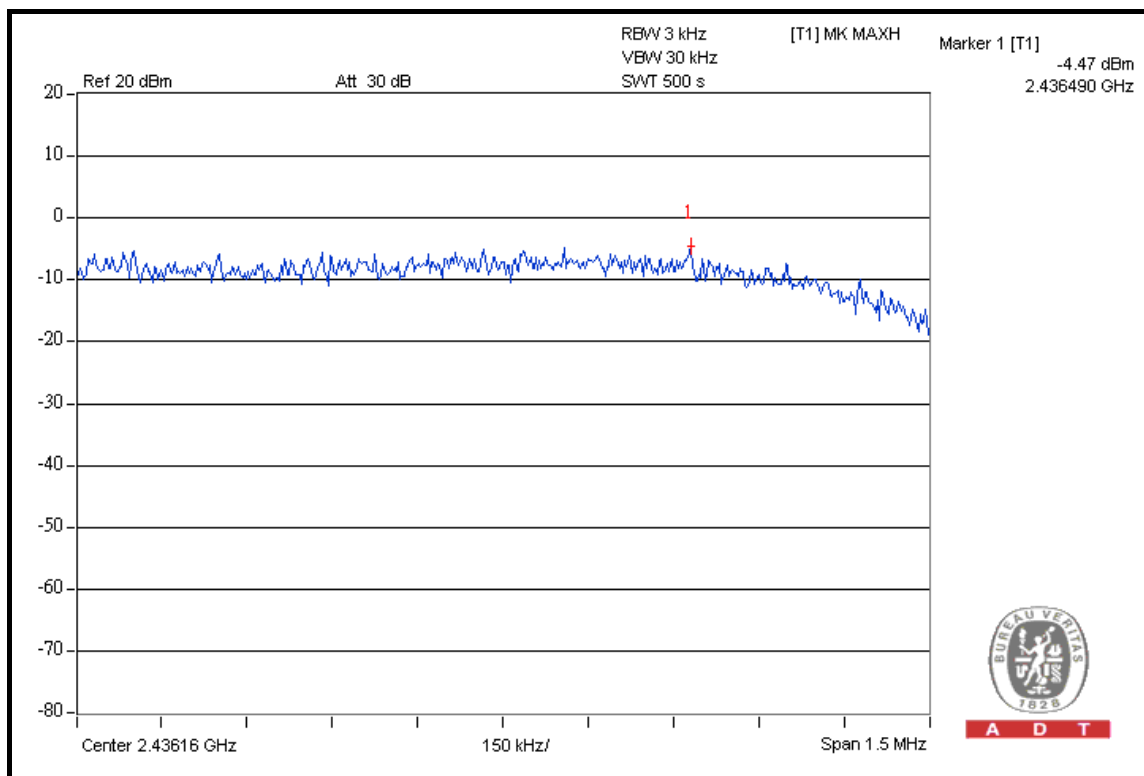
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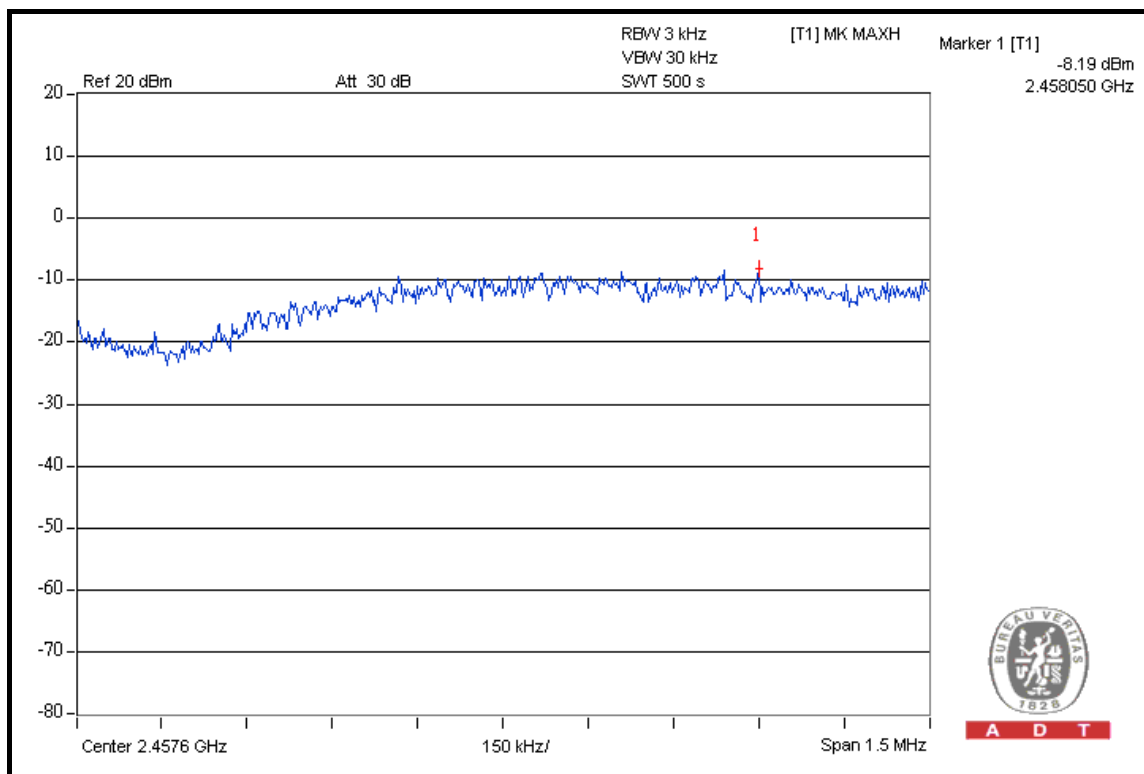


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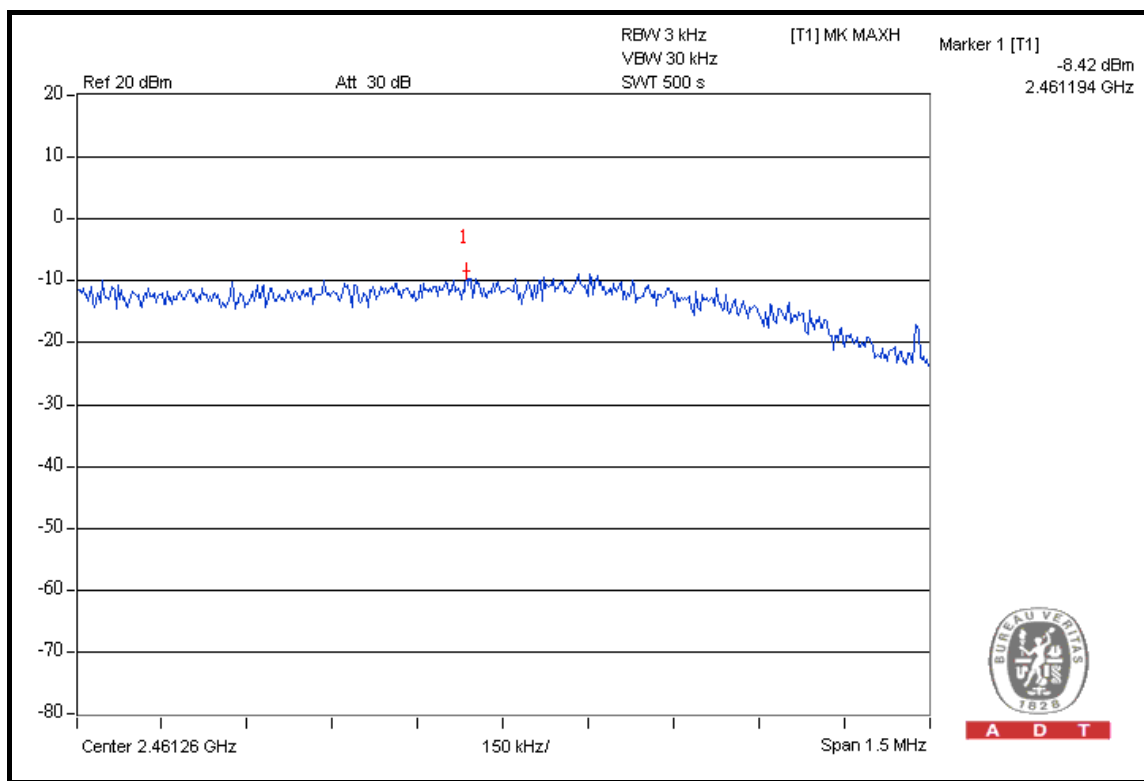
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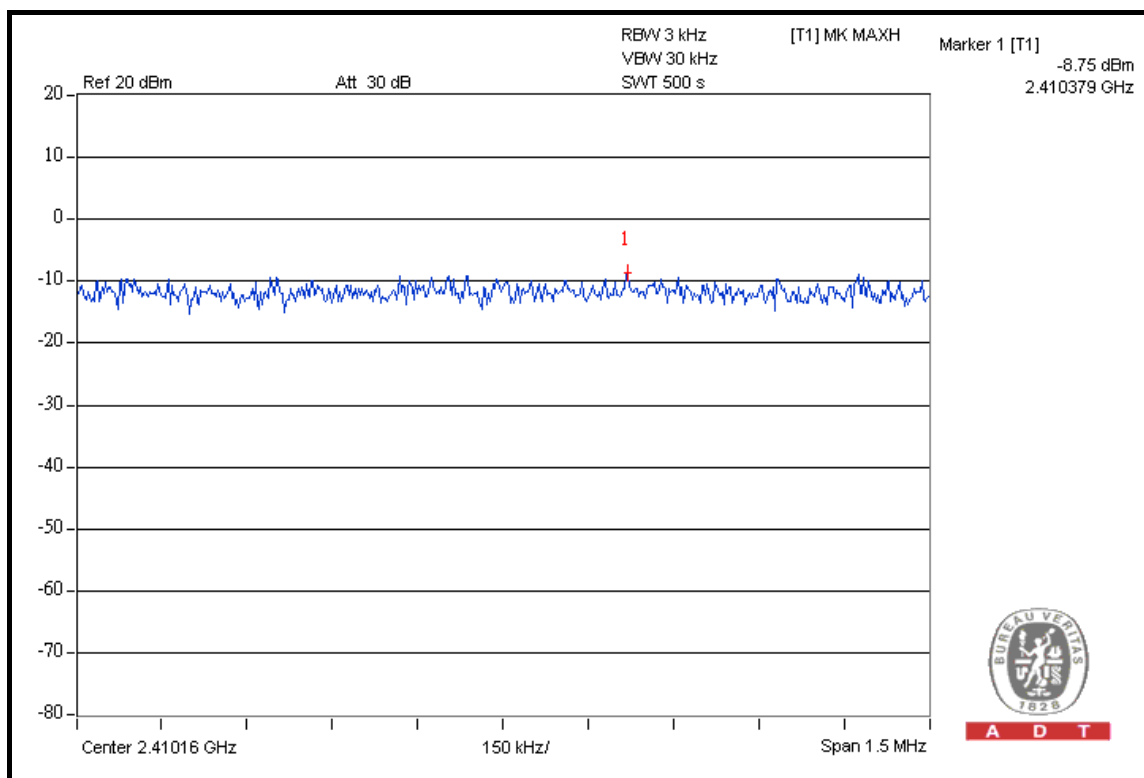
A D T

CH 11



A D T

FOR CHAIN 2: CH 1

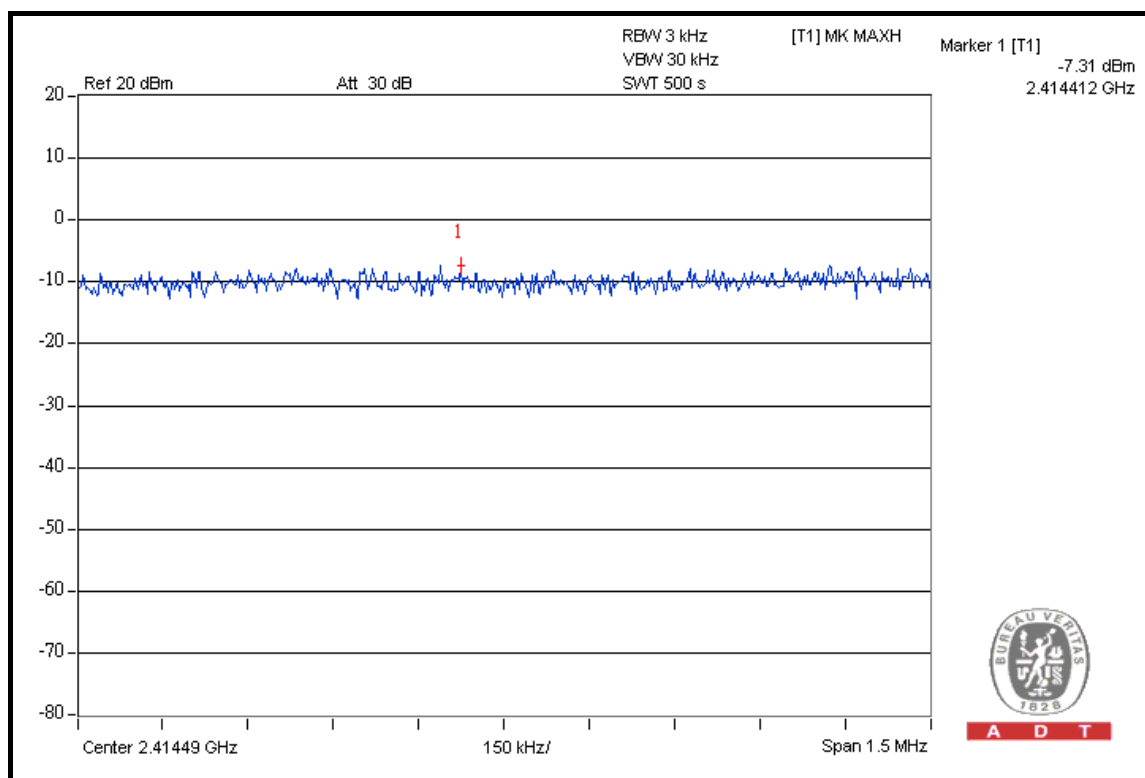


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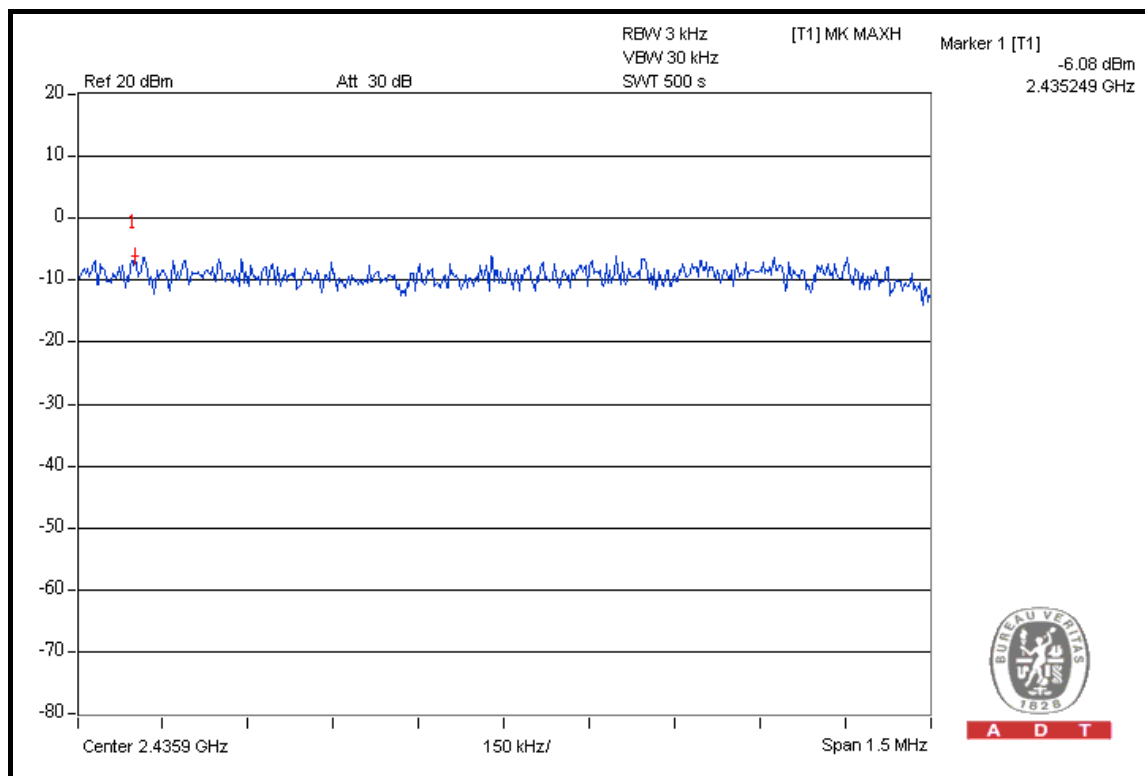


A D T

CH 2



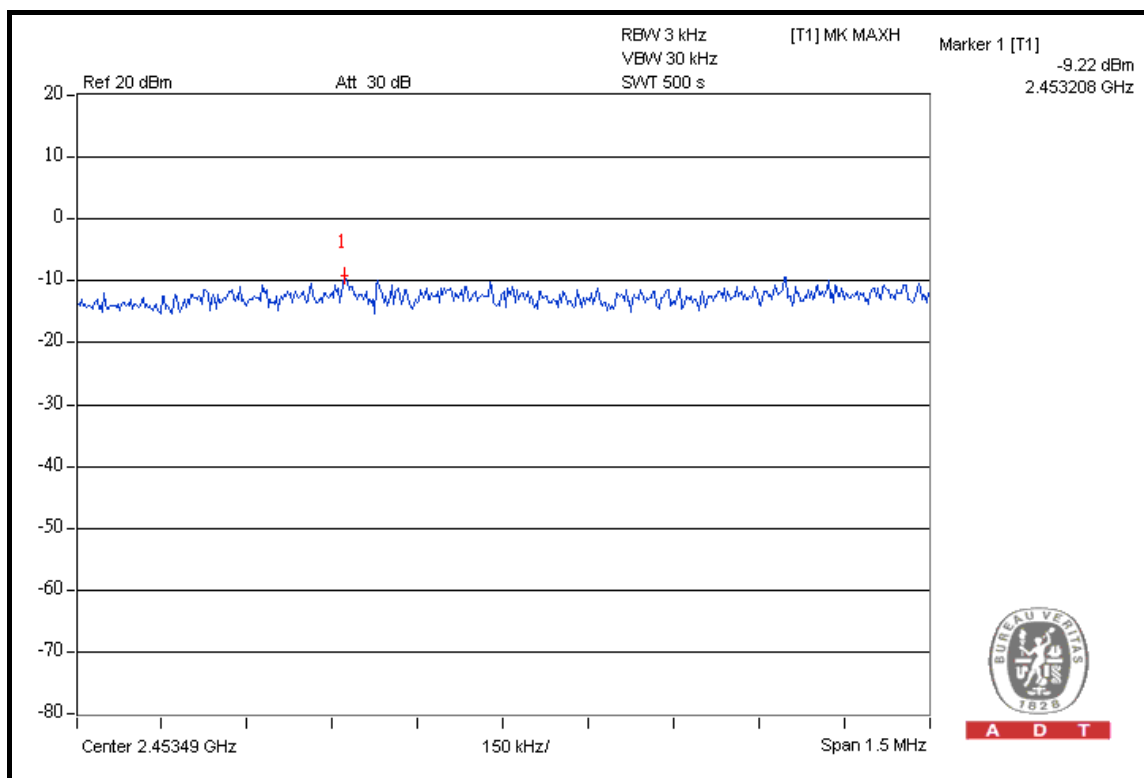
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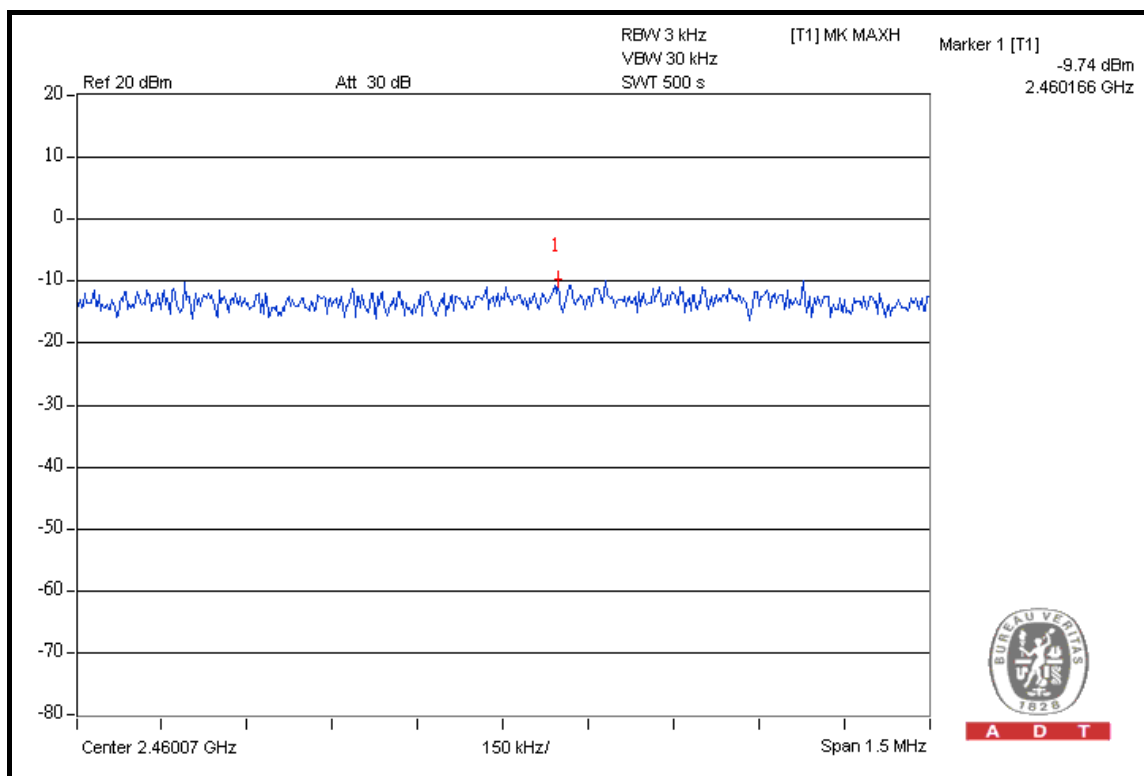


A D T

CH 10



CH 11





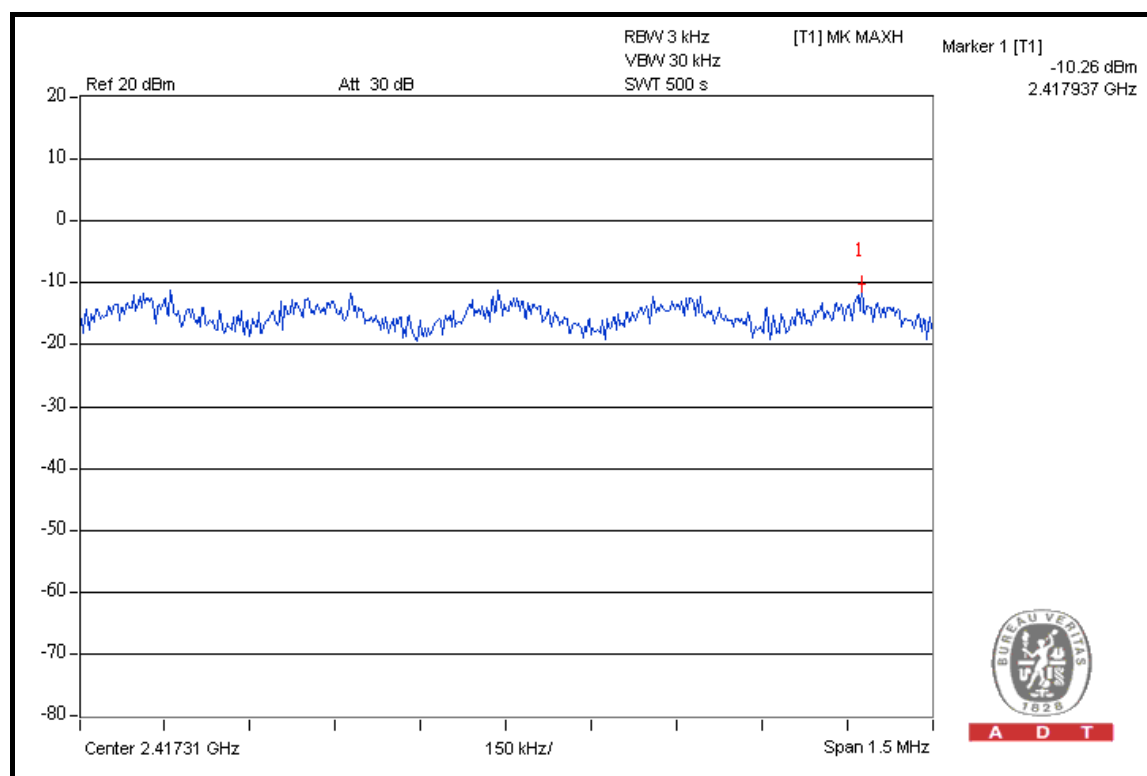
A D T

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	-10.26	-10.23	-10.58	0.277	-5.58	8	PASS
2	2417	-9.33	-9.25	-9.46	0.349	-4.57	8	PASS
6	2437	-9.14	-9.08	-9.65	0.354	-4.51	8	PASS
10	2457	-9.38	-9.10	-9.39	0.353	-4.52	8	PASS
11	2462	-10.06	-9.85	-10.44	0.293	-5.34	8	PASS

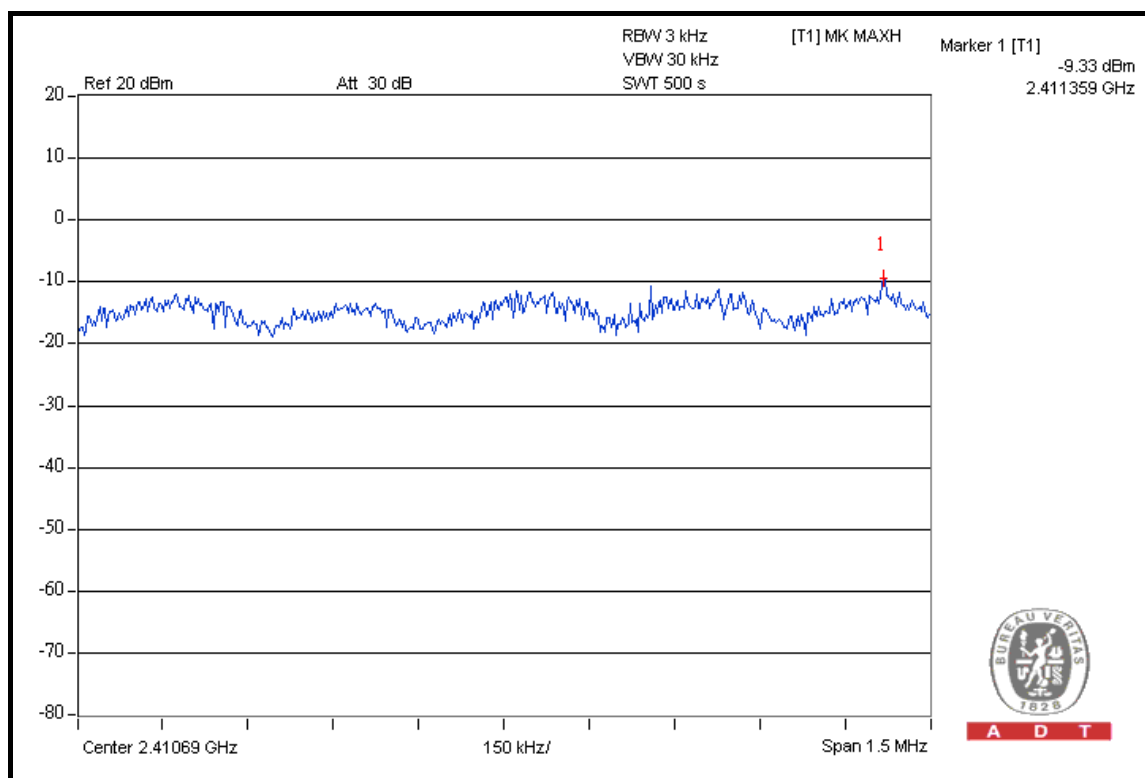
FOR CHAIN 0: CH 1



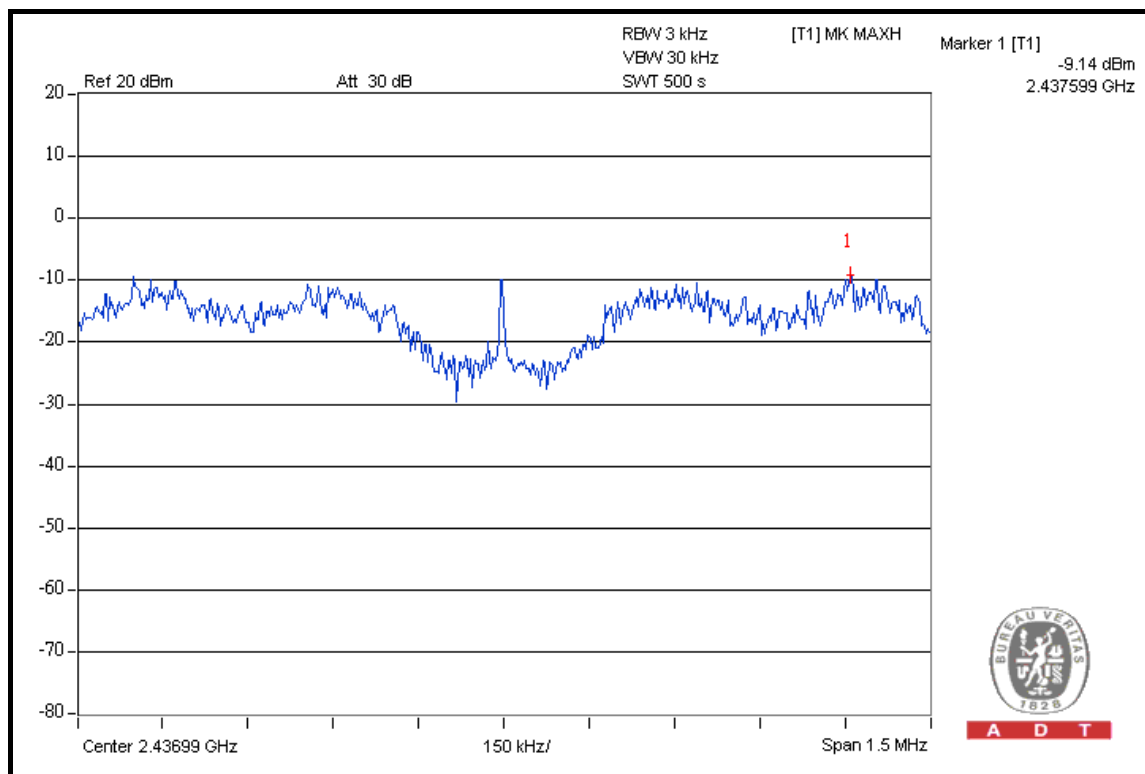


A D T

CH 2



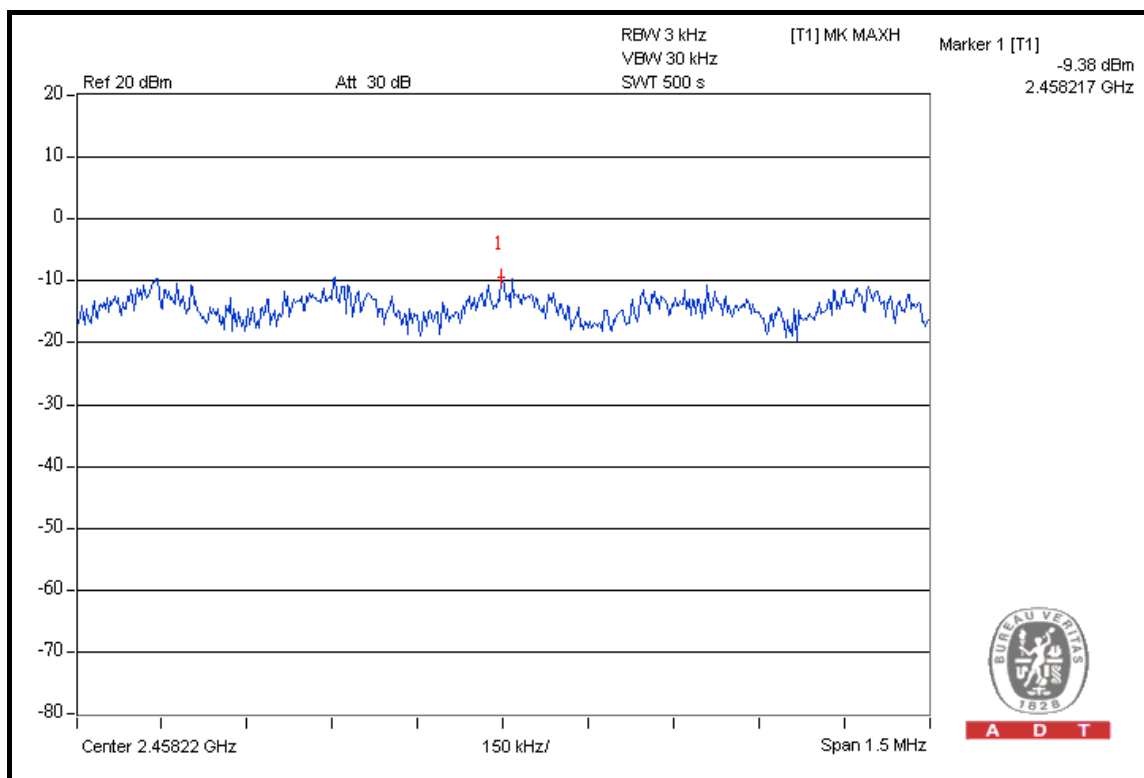
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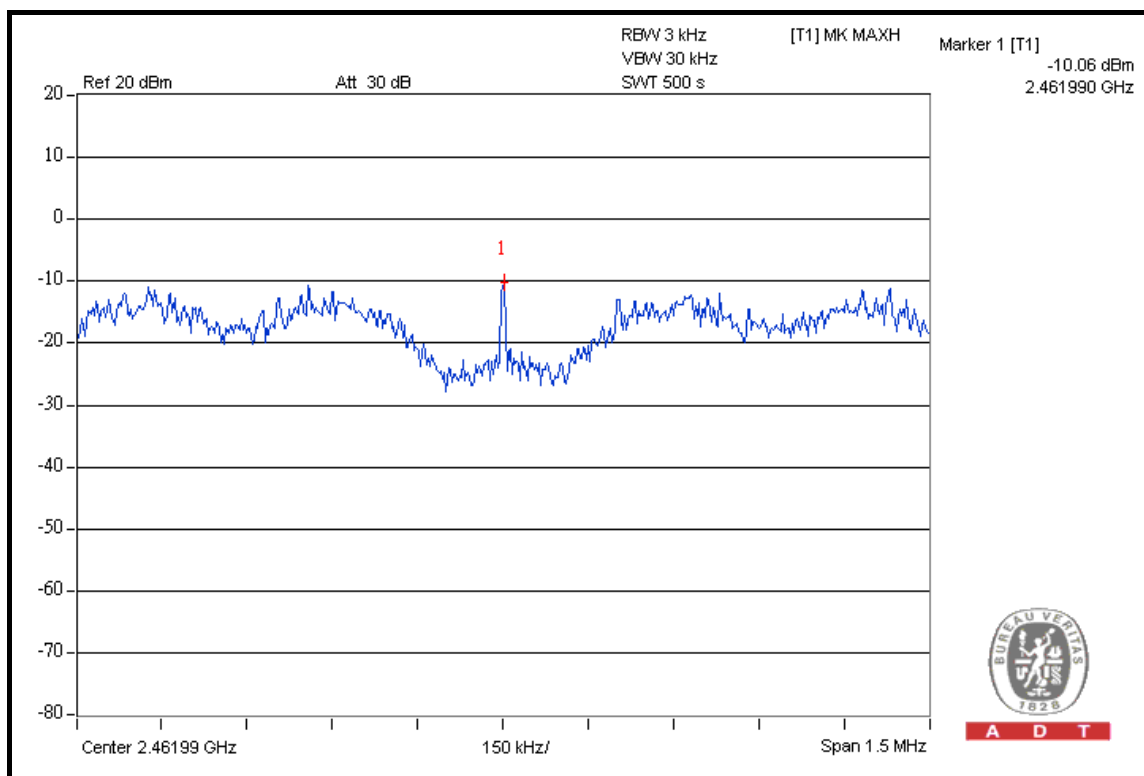
A D T

CH 10



A D T

CH 11

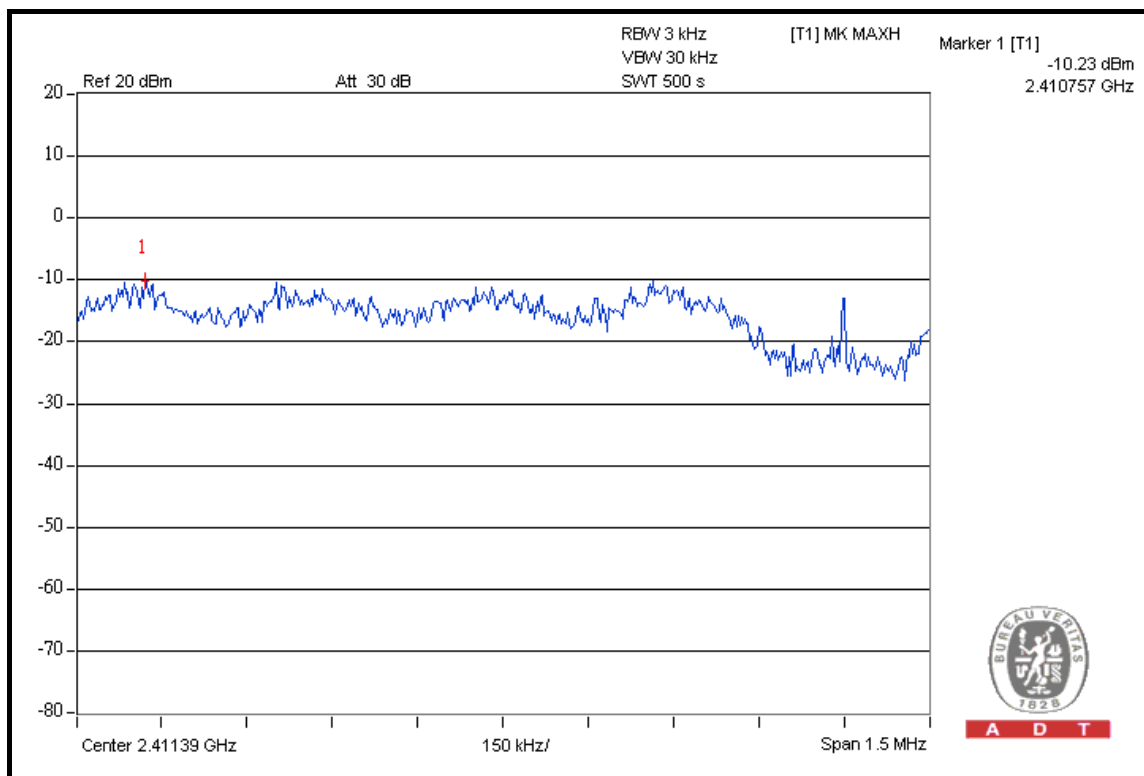


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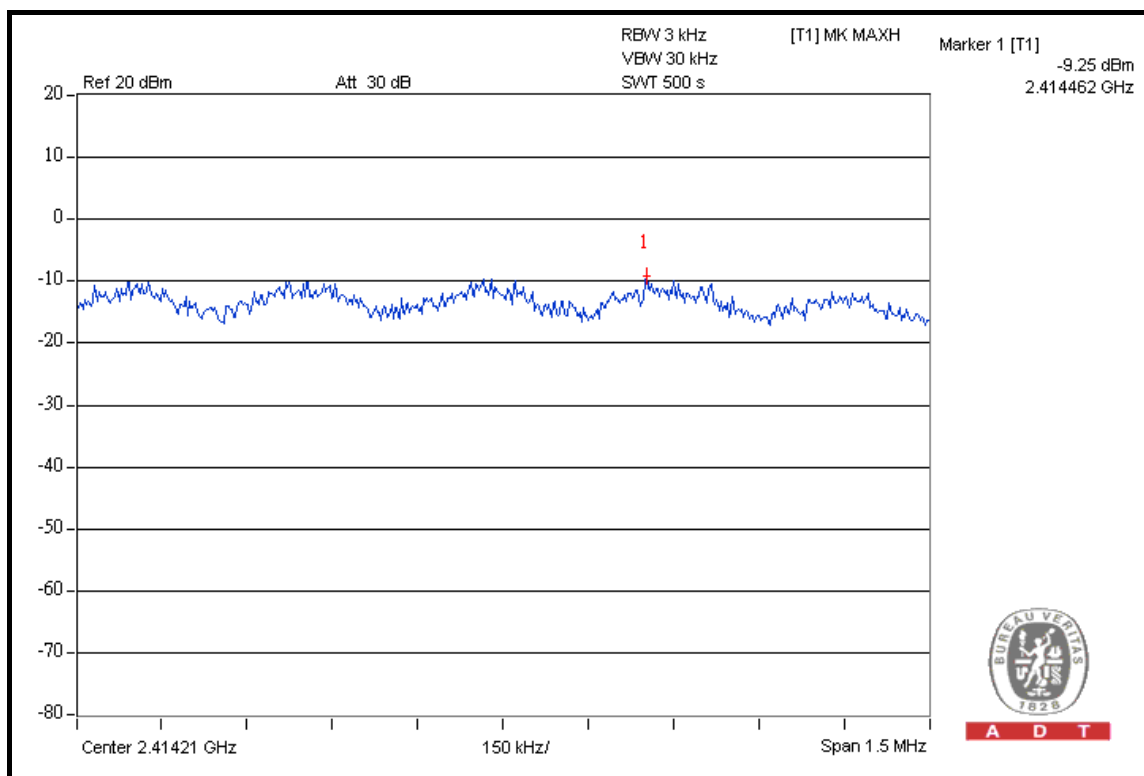


A D T

FOR CHAIN 1: CH 1



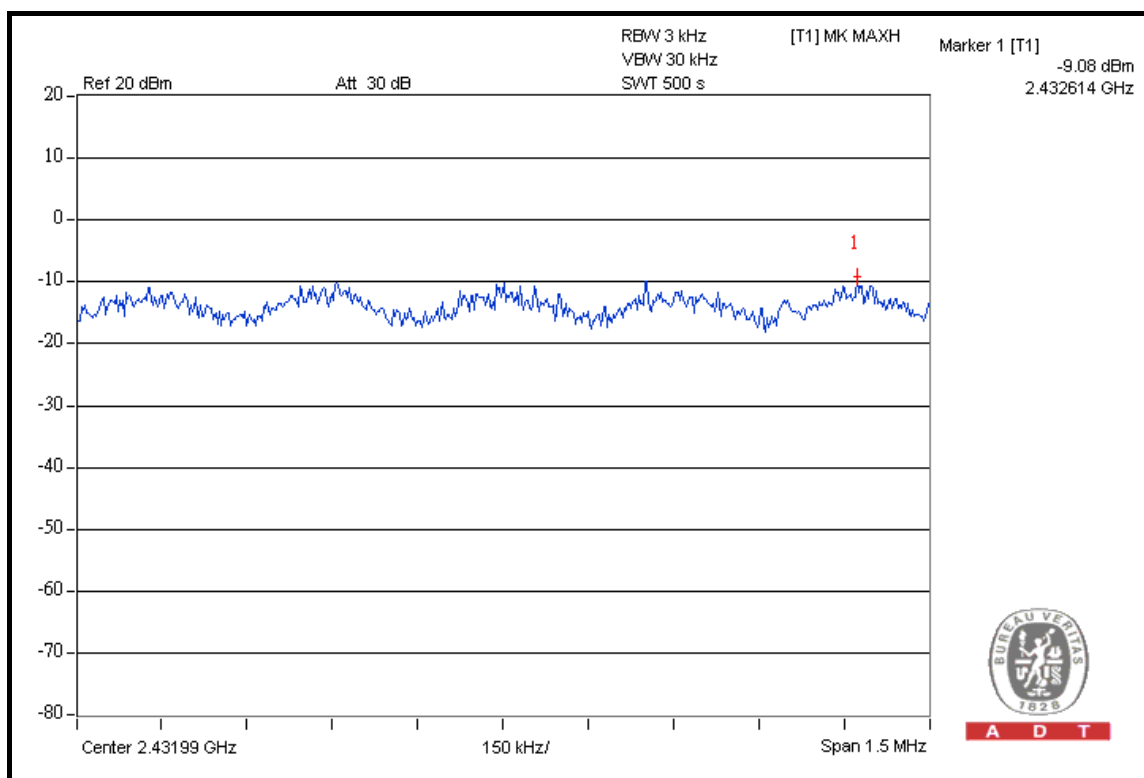
CH 2



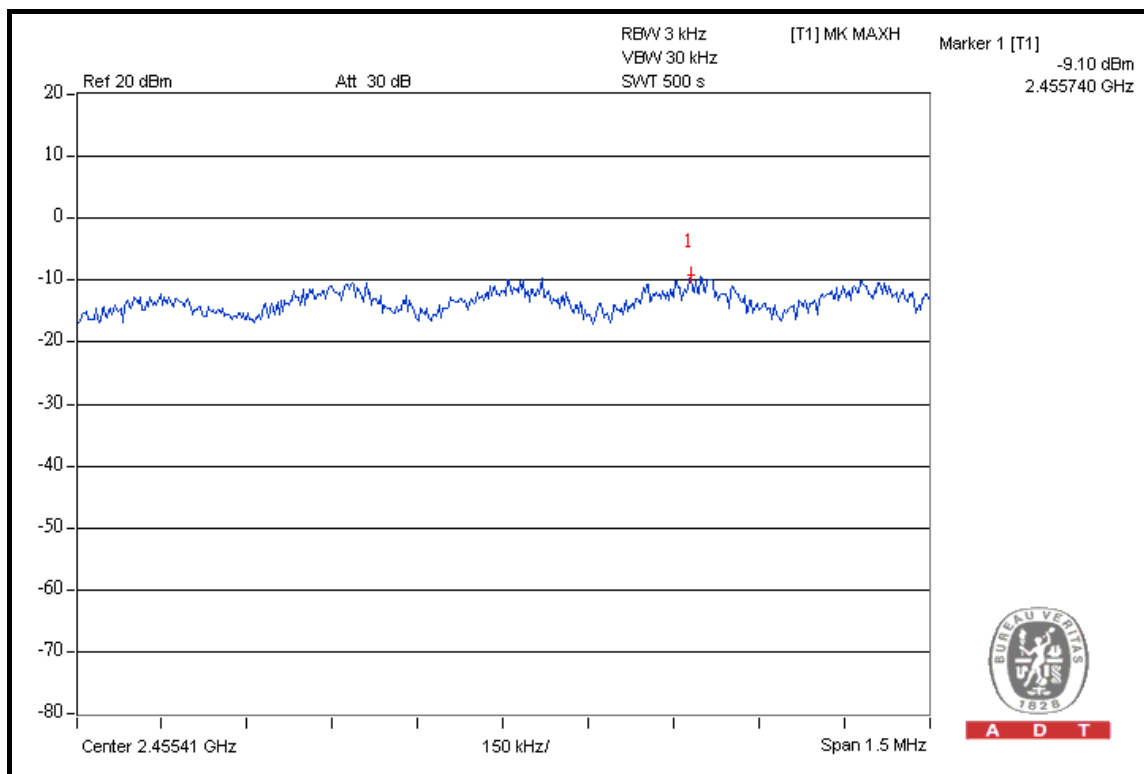


A D T

CH 6



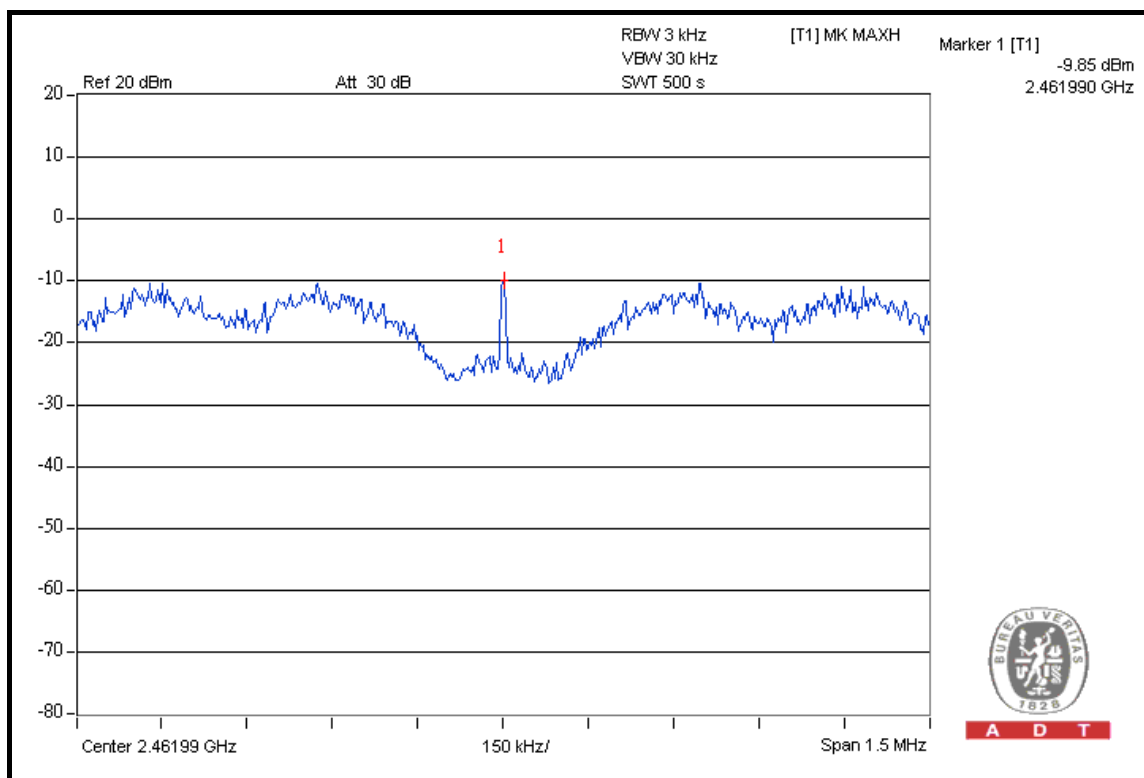
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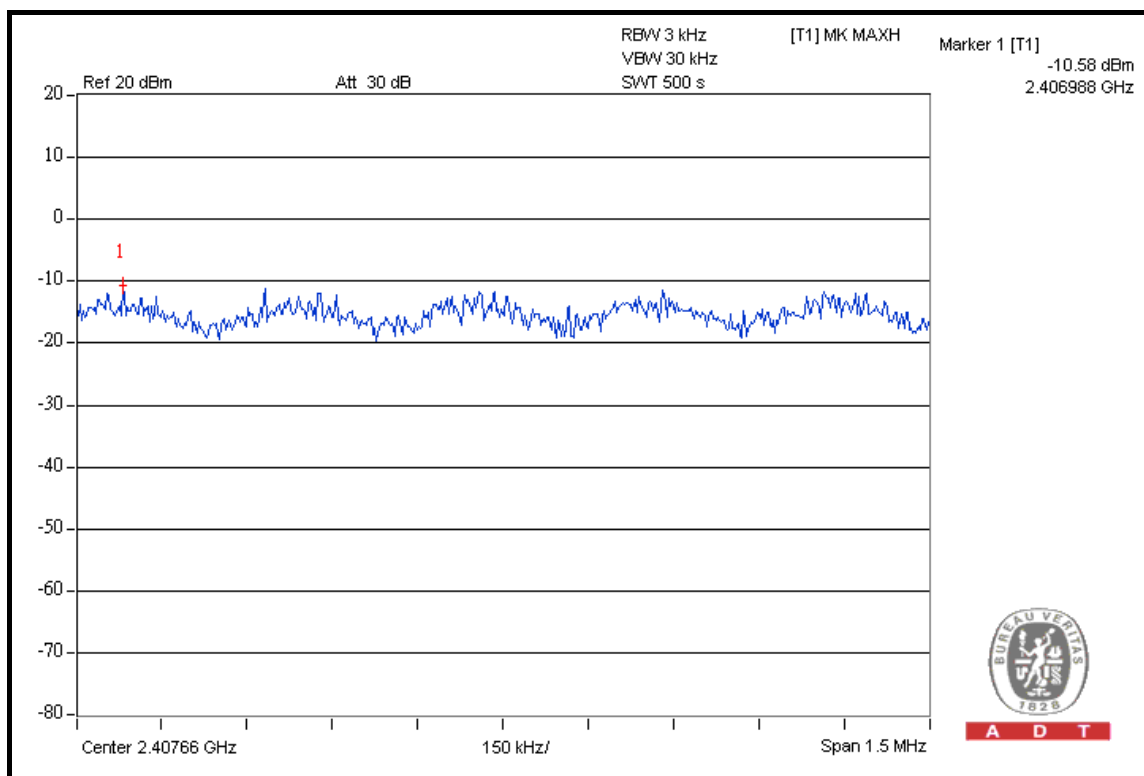
A D T

CH 11



A D T

FOR CHAIN 2: CH 1

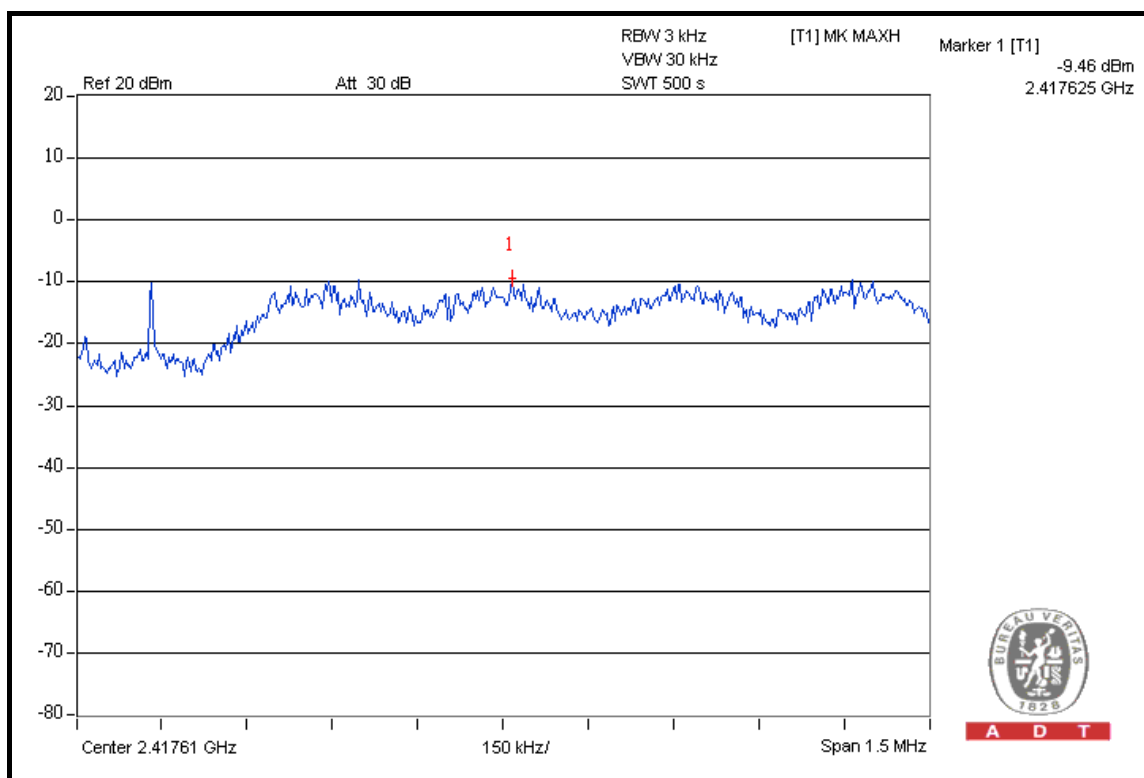


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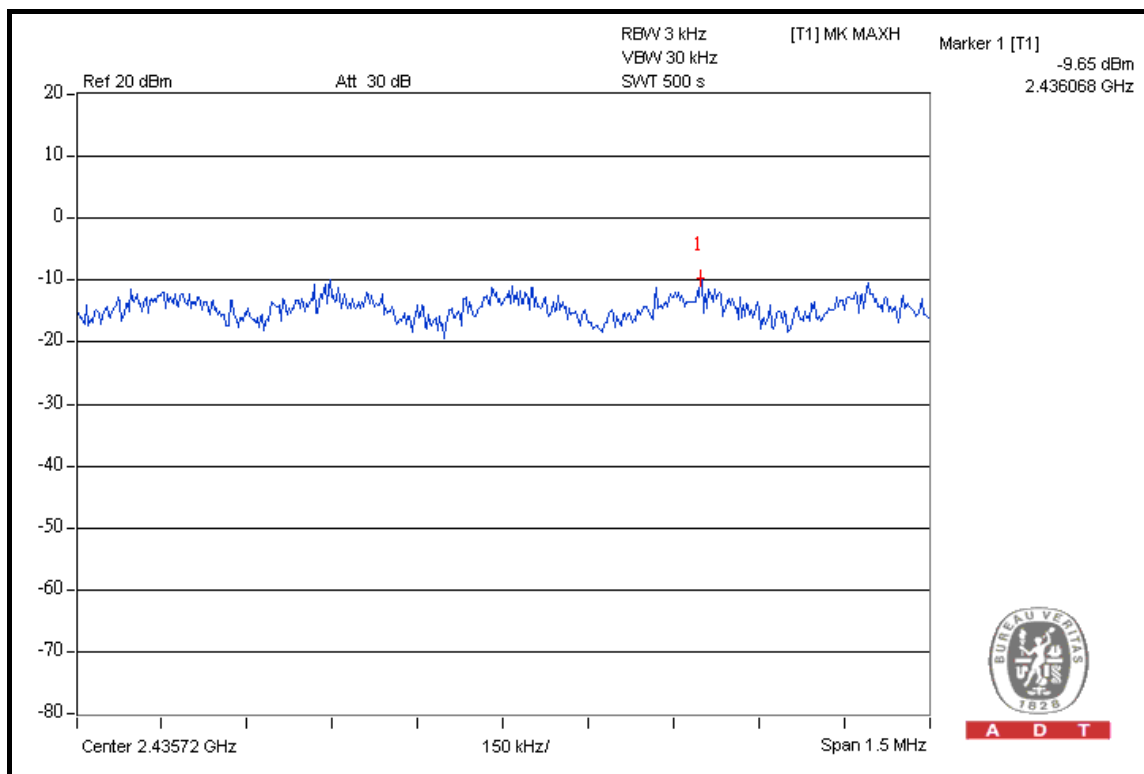


A D T

CH 2



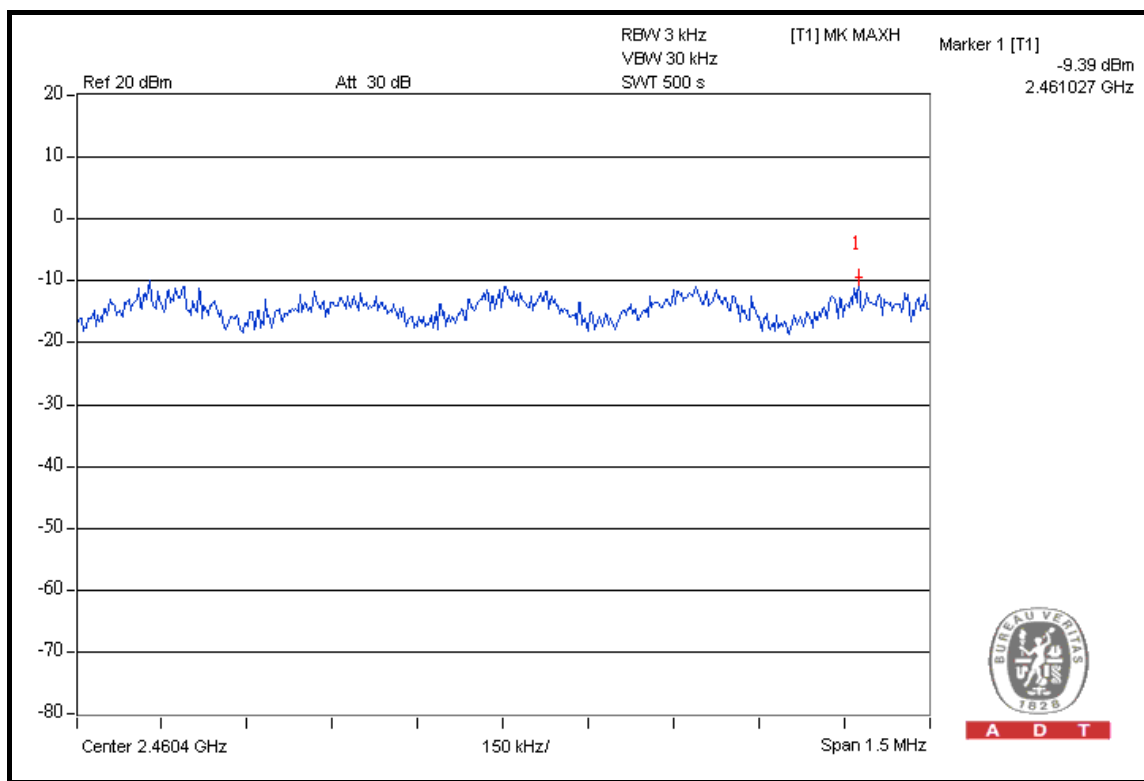
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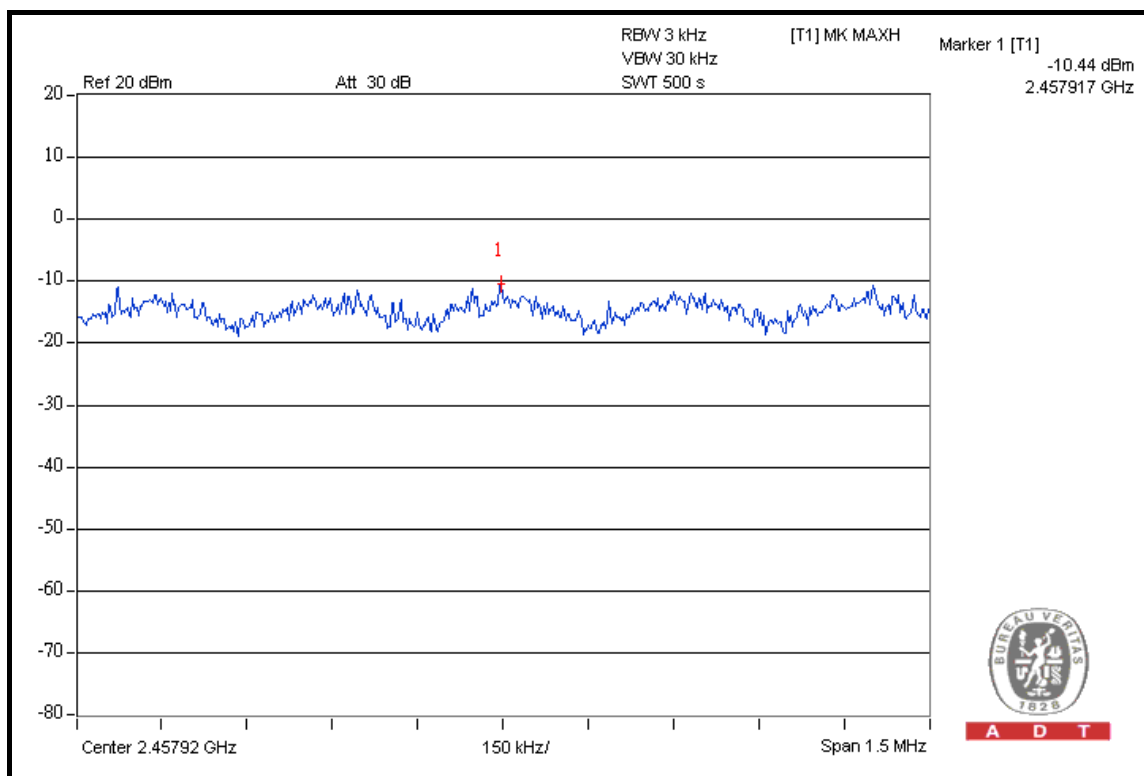


A D T

CH 10



CH 11





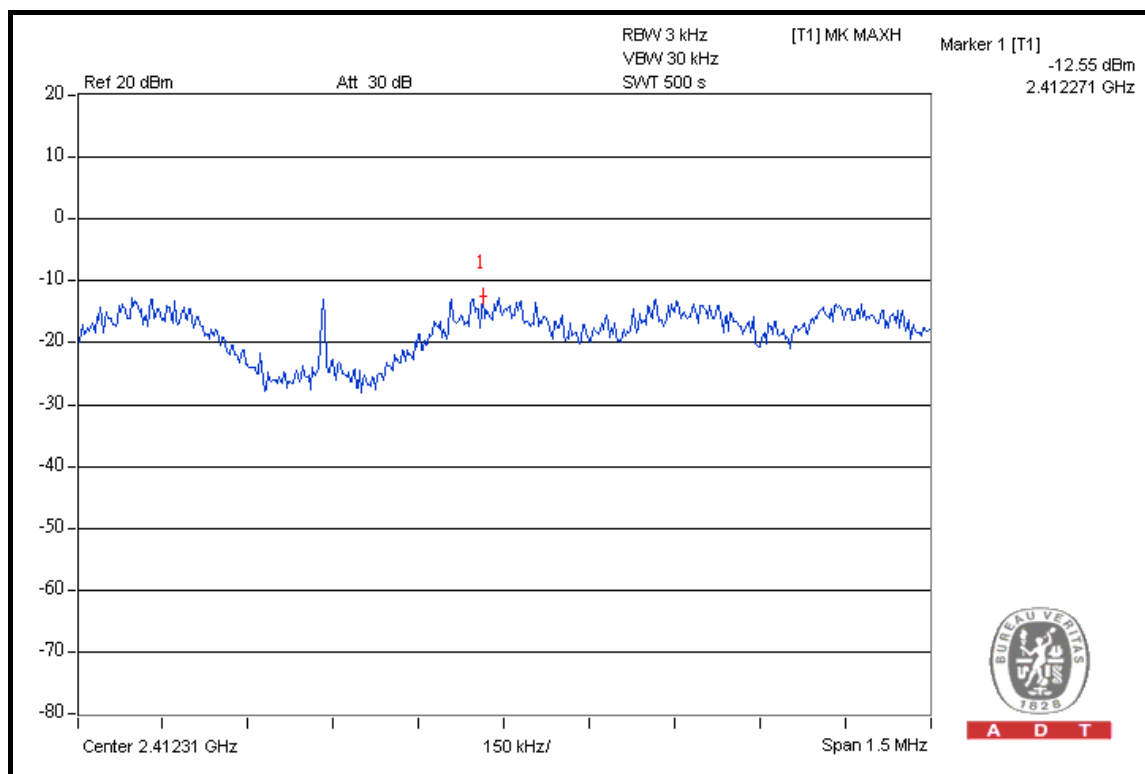
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	-12.55	-10.91	-11.16	0.213	-6.71	8	PASS
2	2417	-10.22	-8.74	-9.56	0.339	-4.69	8	PASS
6	2437	-10.12	-8.62	-9.48	0.347	-4.59	8	PASS
10	2457	-10.02	-8.76	-9.29	0.350	-4.56	8	PASS
11	2462	-11.98	-10.61	-11.01	0.230	-6.39	8	PASS

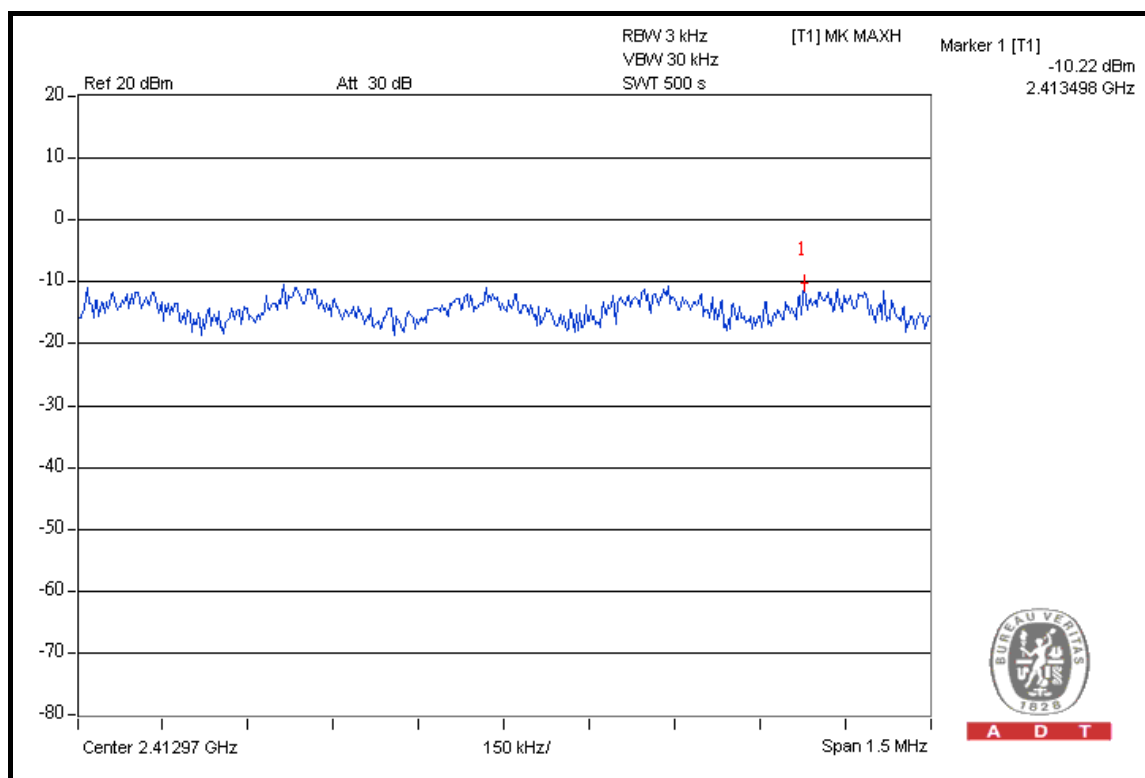
FOR CHAIN 0: CH 1



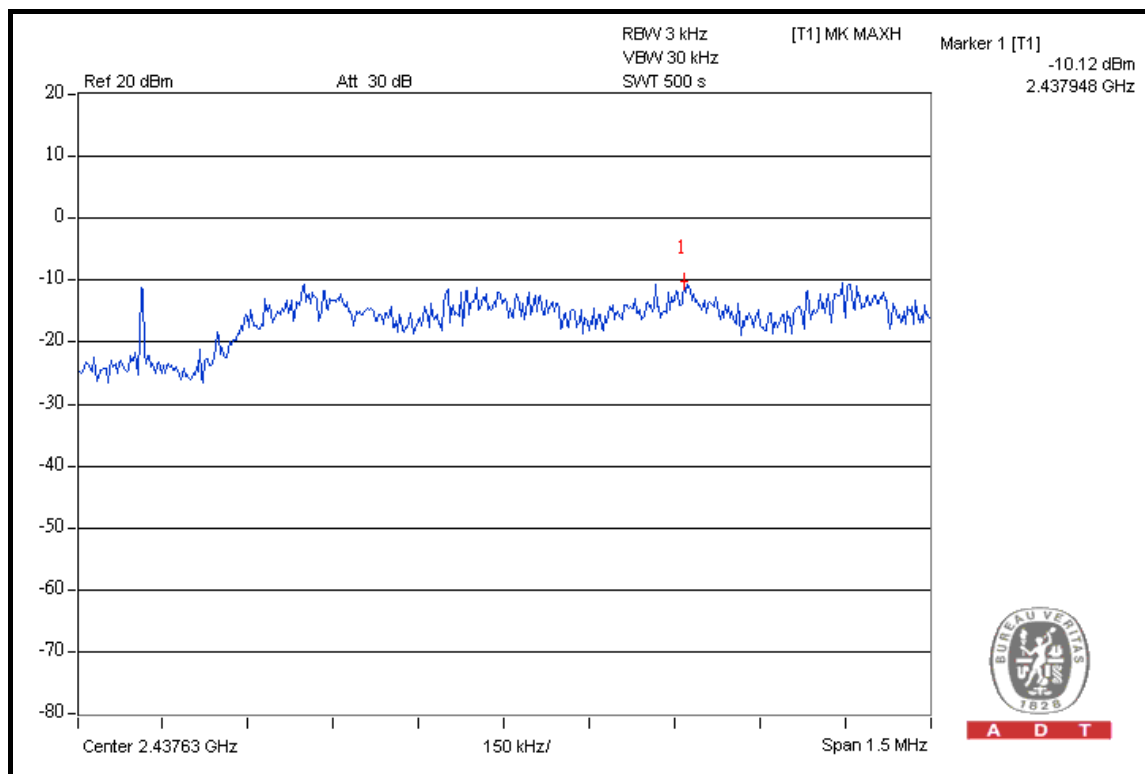


A D T

CH 2



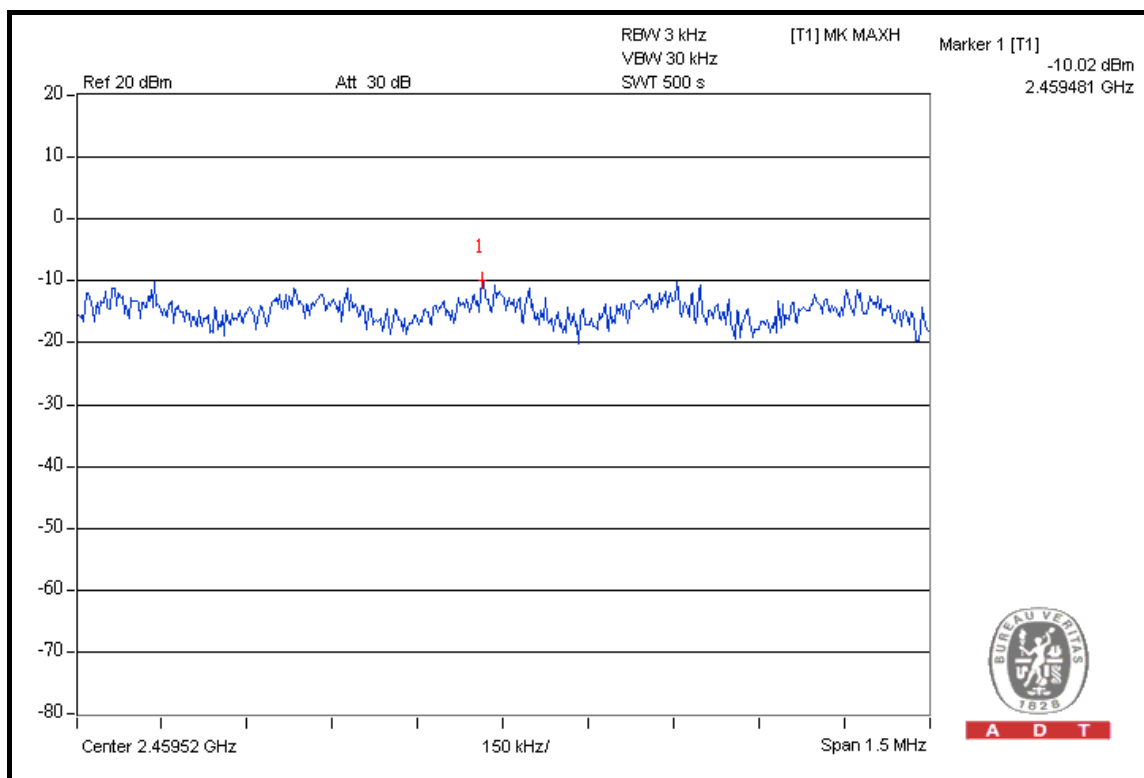
CH 6



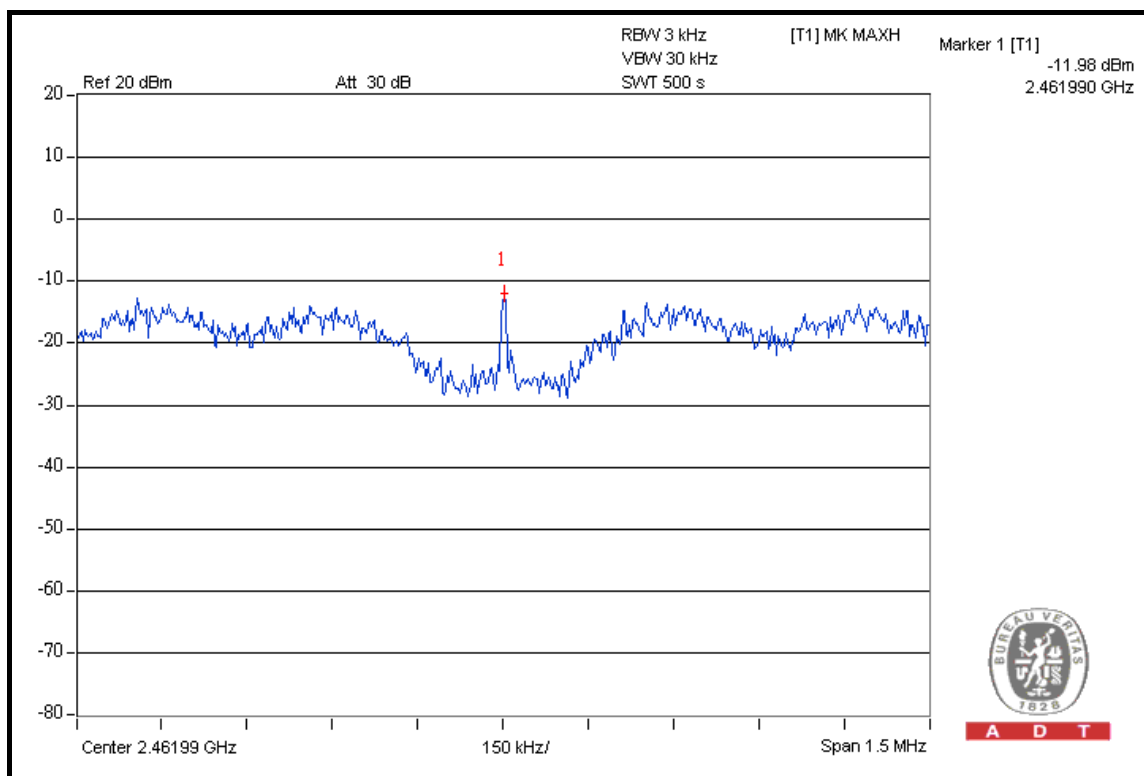


A D T

CH 10



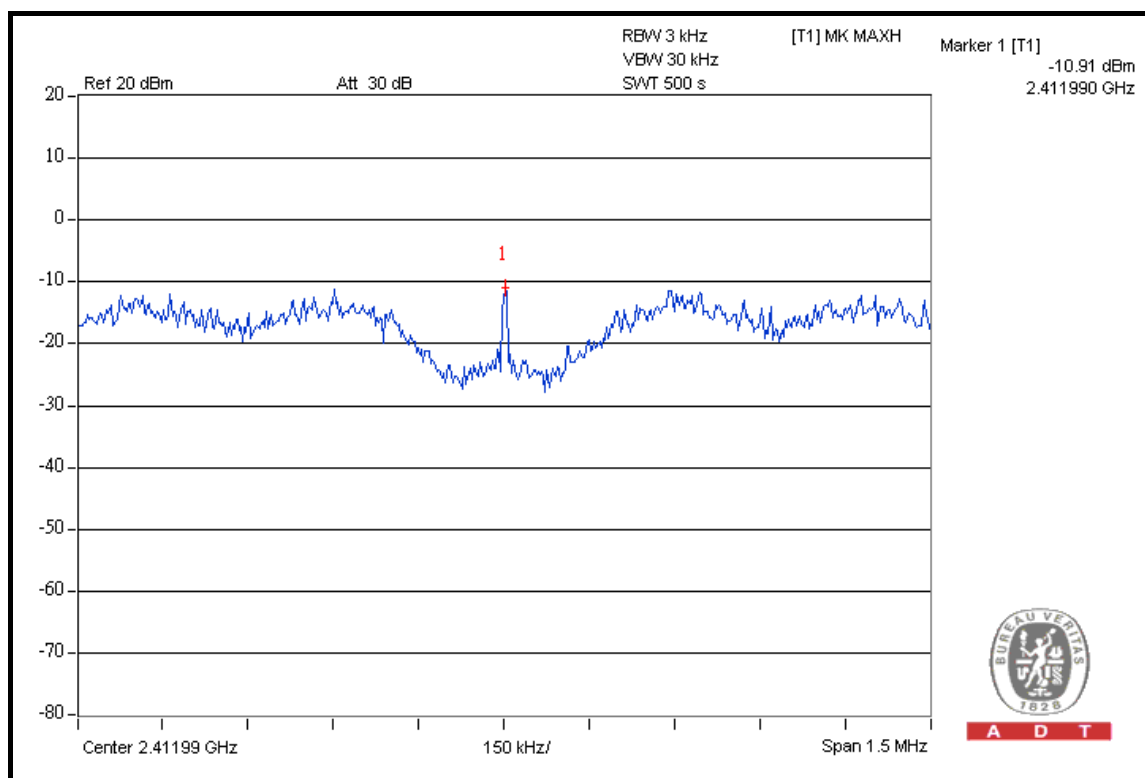
CH 11



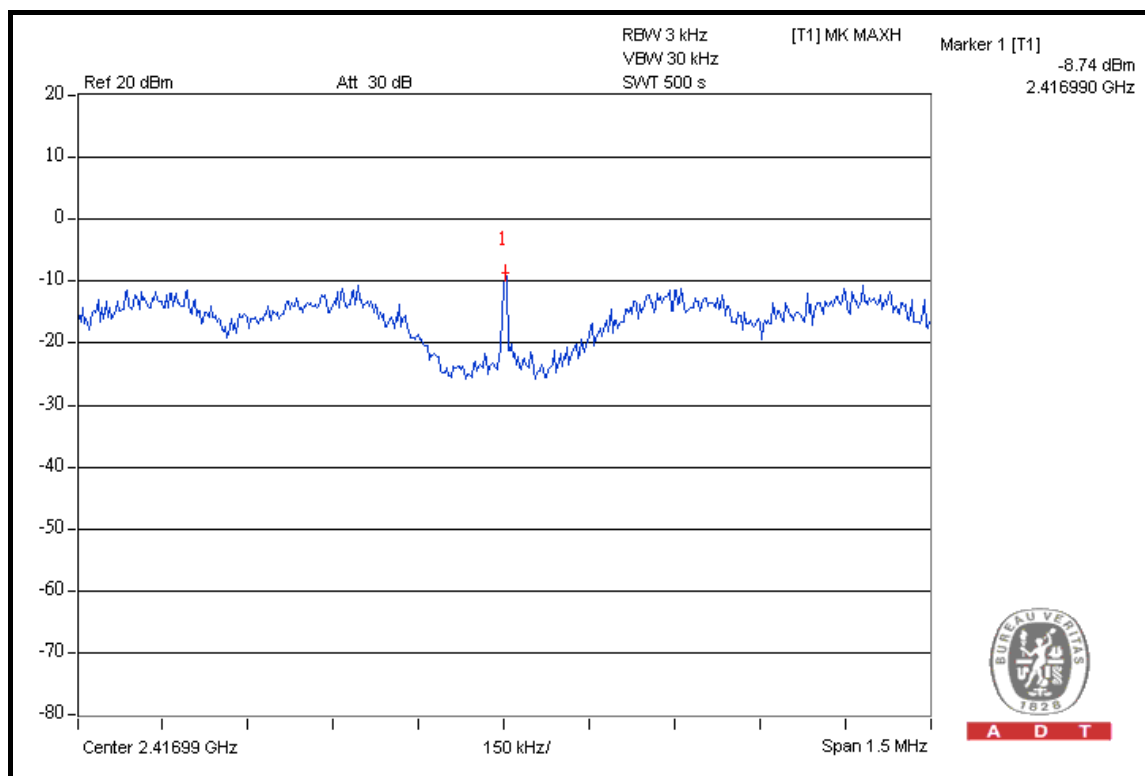


A D T

FOR CHAIN 1: CH 1



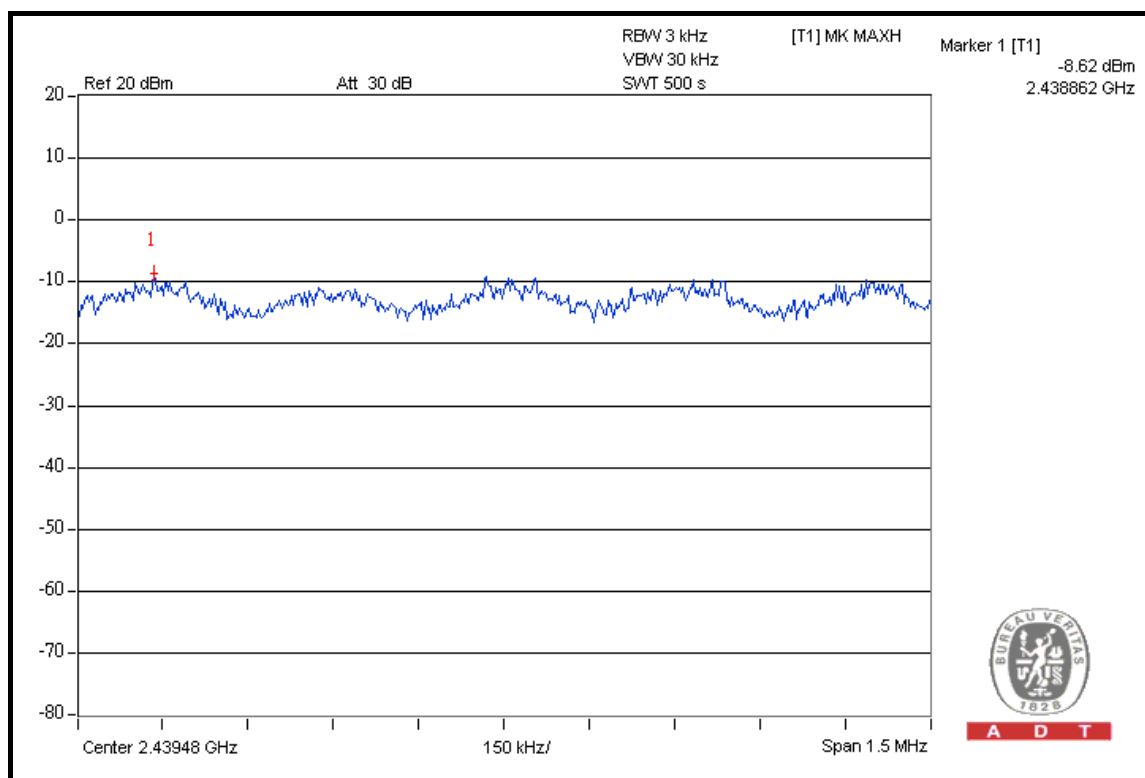
CH 2



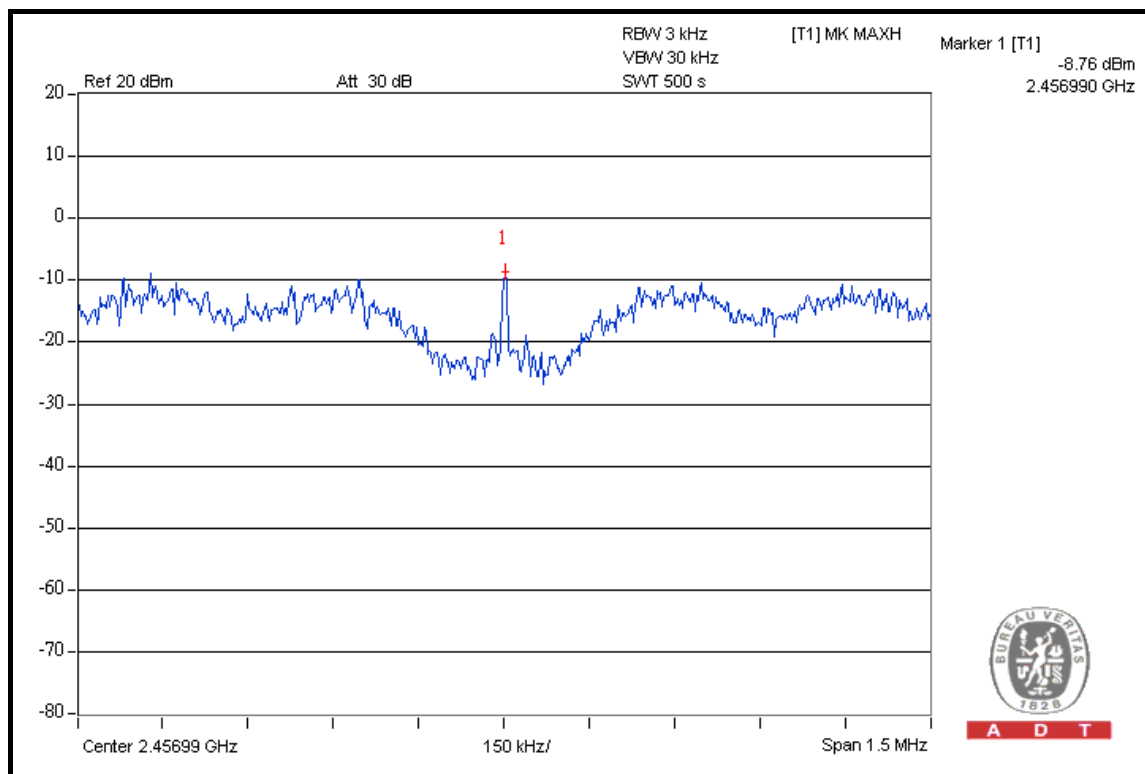


A D T

CH 6



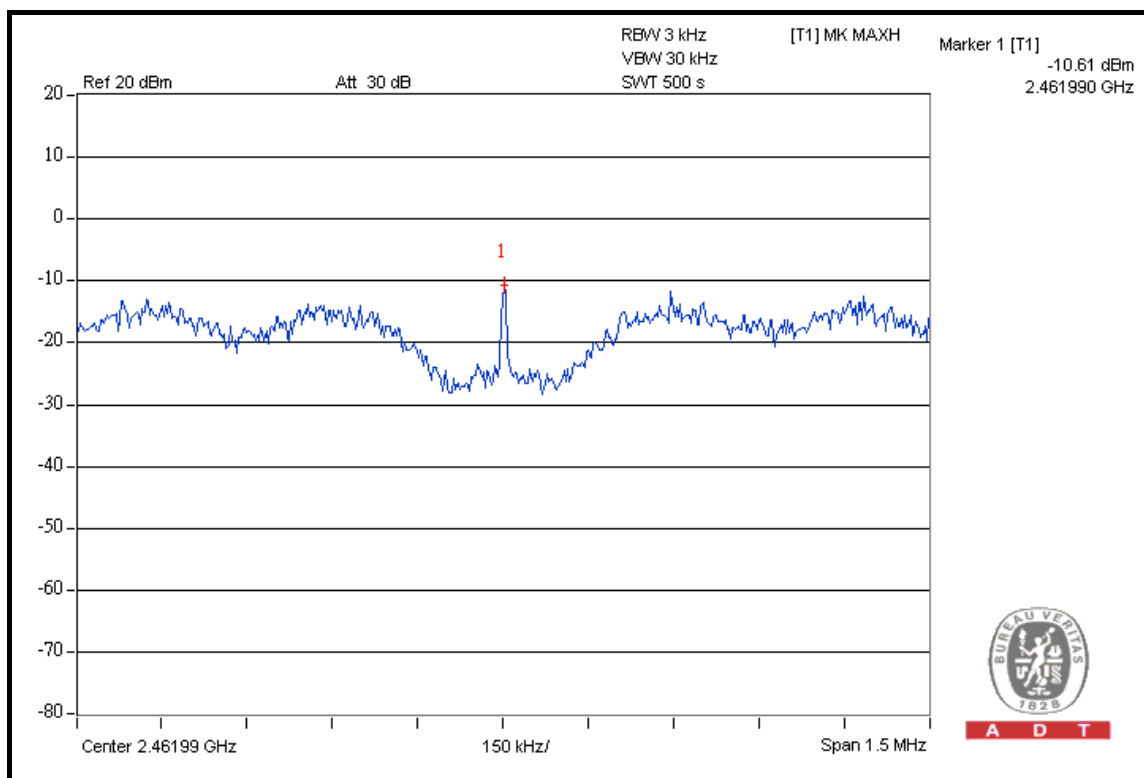
CH 10



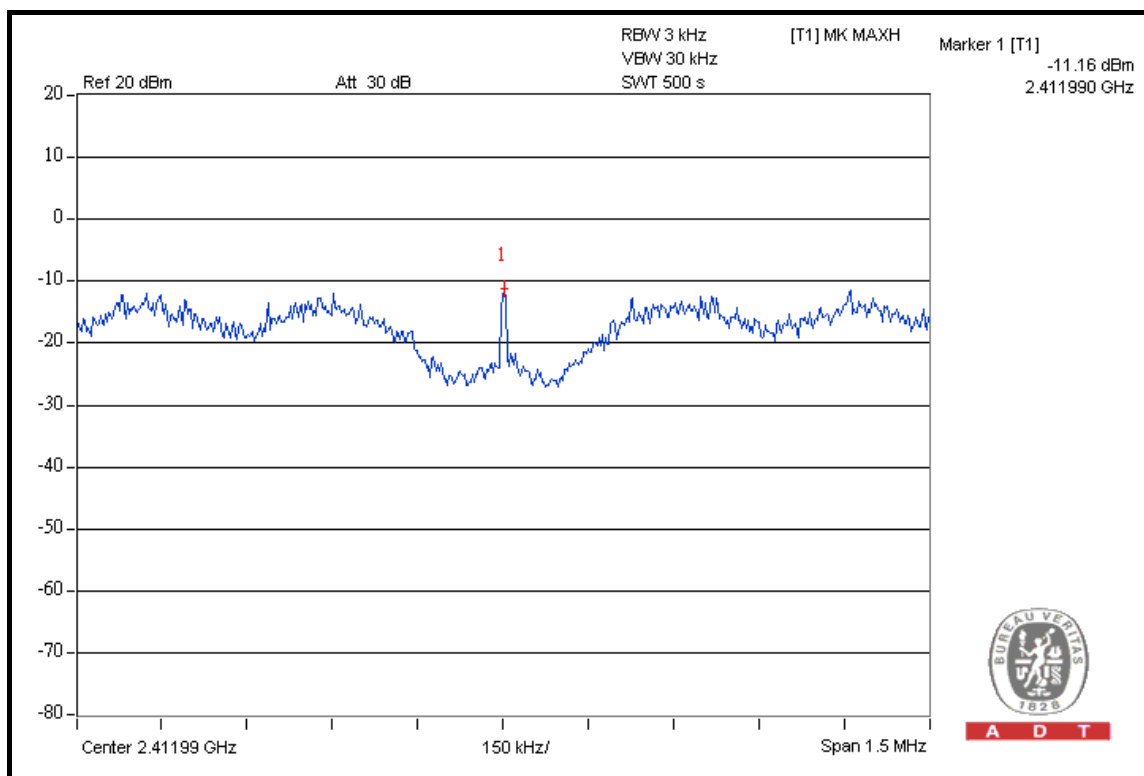


A D T

CH 11



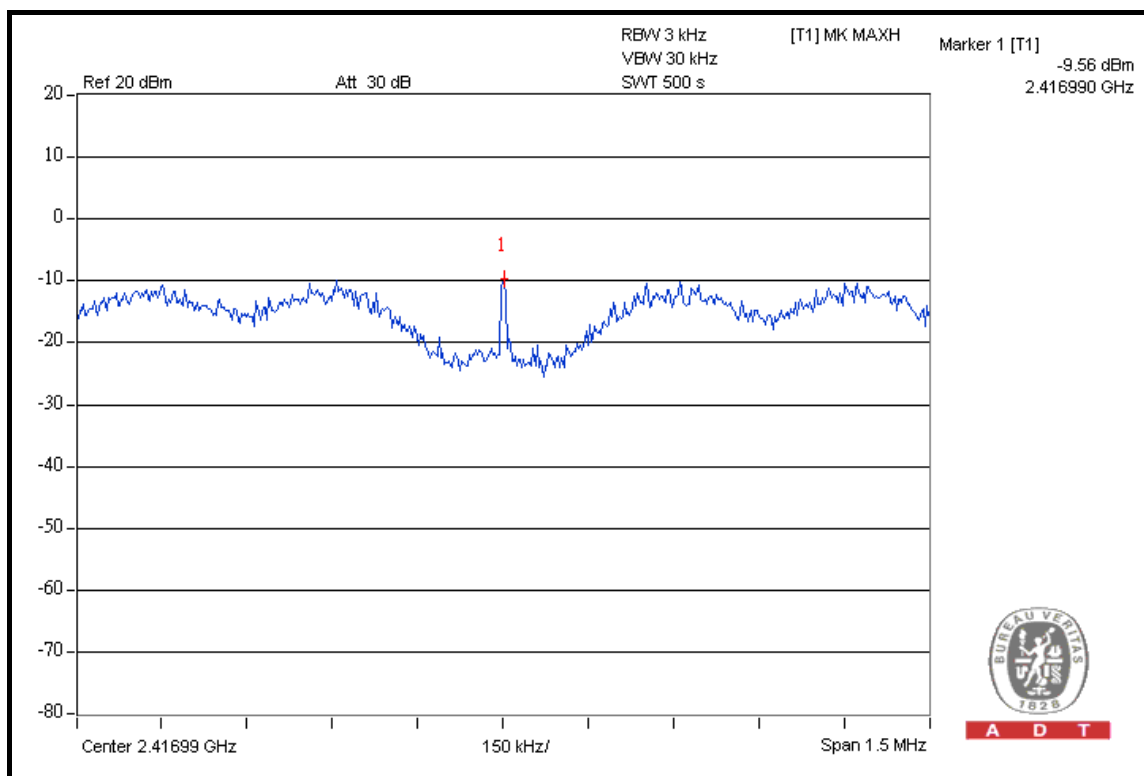
FOR CHAIN 2: CH 1





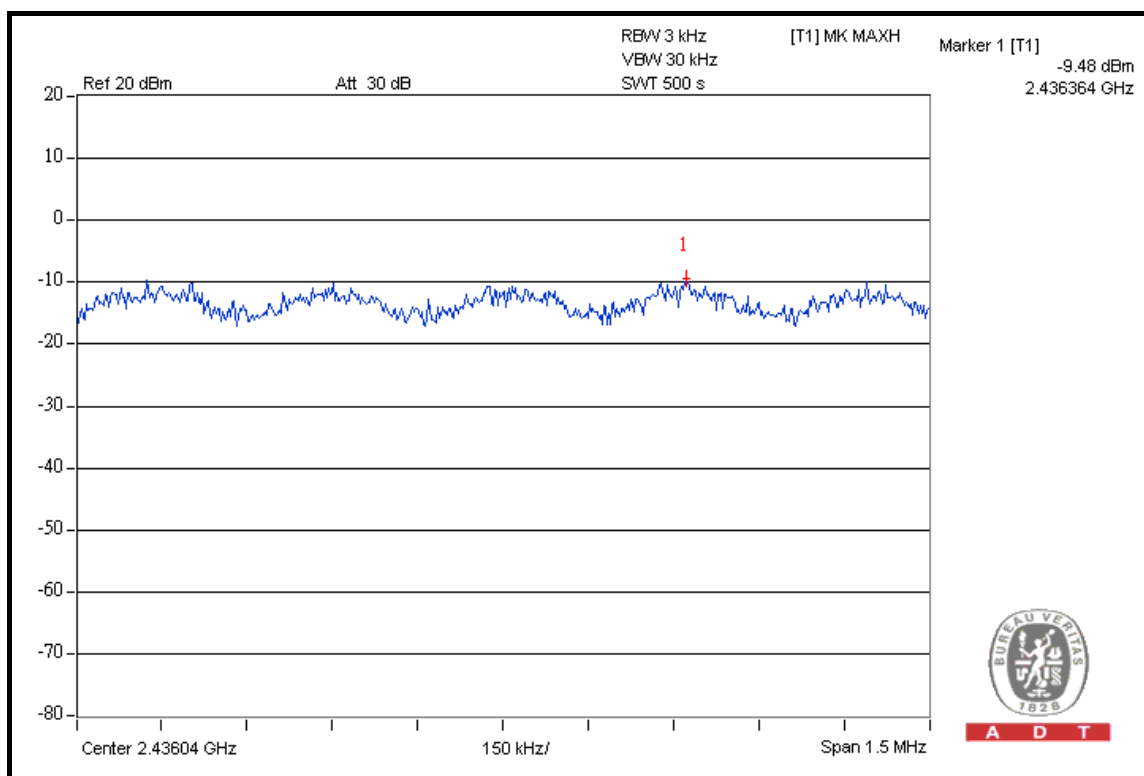
A D T

CH 2



A D T

CH 6

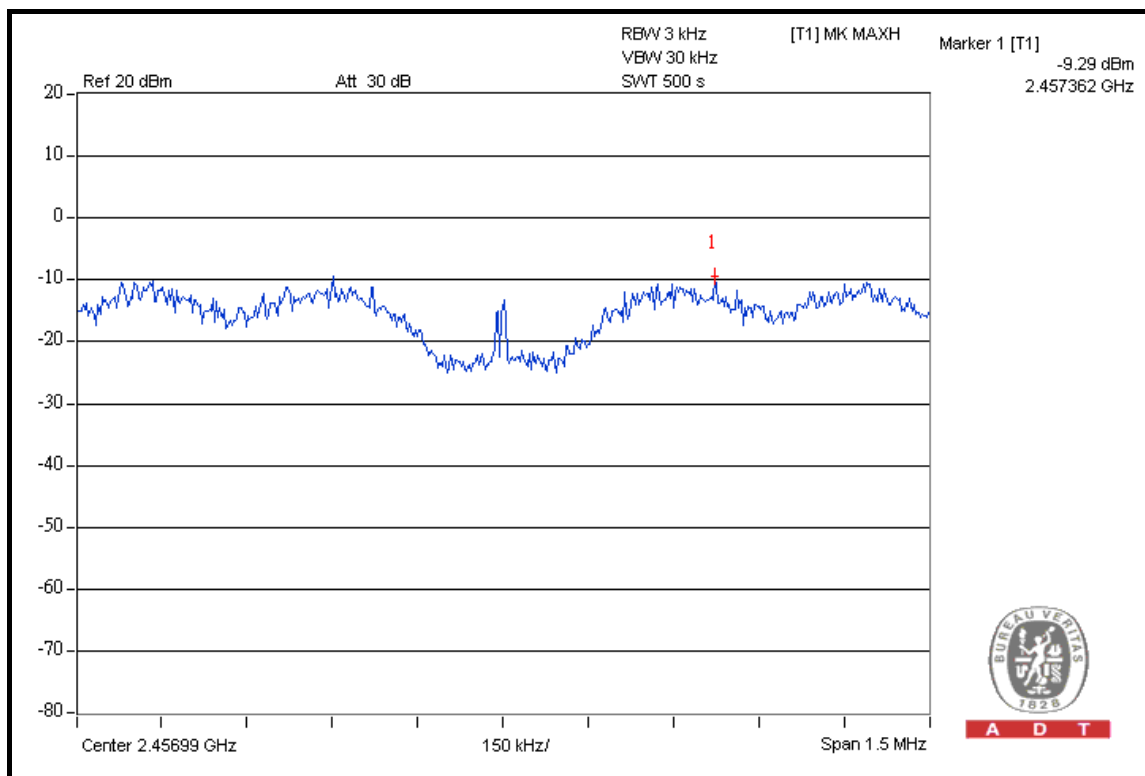


A D T

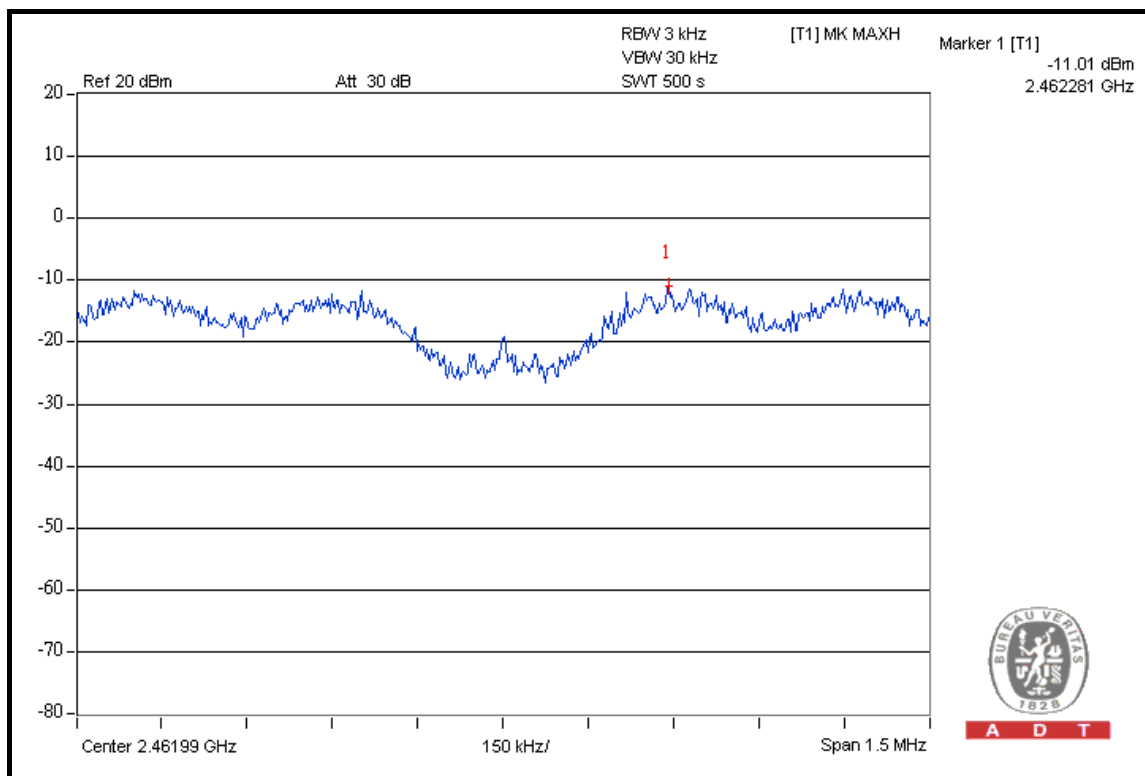


A D T

CH 10



CH 11





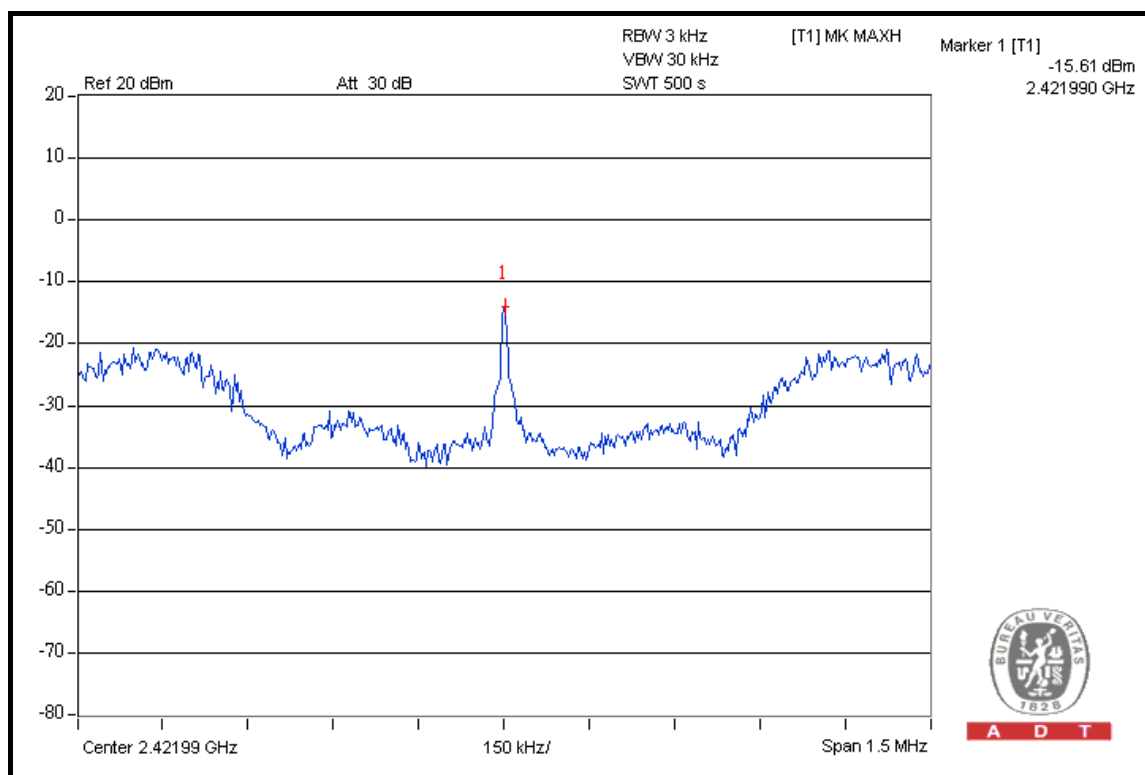
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2422	-15.61	-15.00	-14.03	0.099	-10.06	8	PASS
2	2427	-14.95	-14.28	-14.03	0.109	-9.63	8	PASS
4	2437	-14.43	-13.84	-12.86	0.129	-8.89	8	PASS
6	2447	-15.42	-15.44	-14.36	0.094	-10.27	8	PASS
7	2452	-15.91	-15.86	-14.88	0.084	-10.75	8	PASS

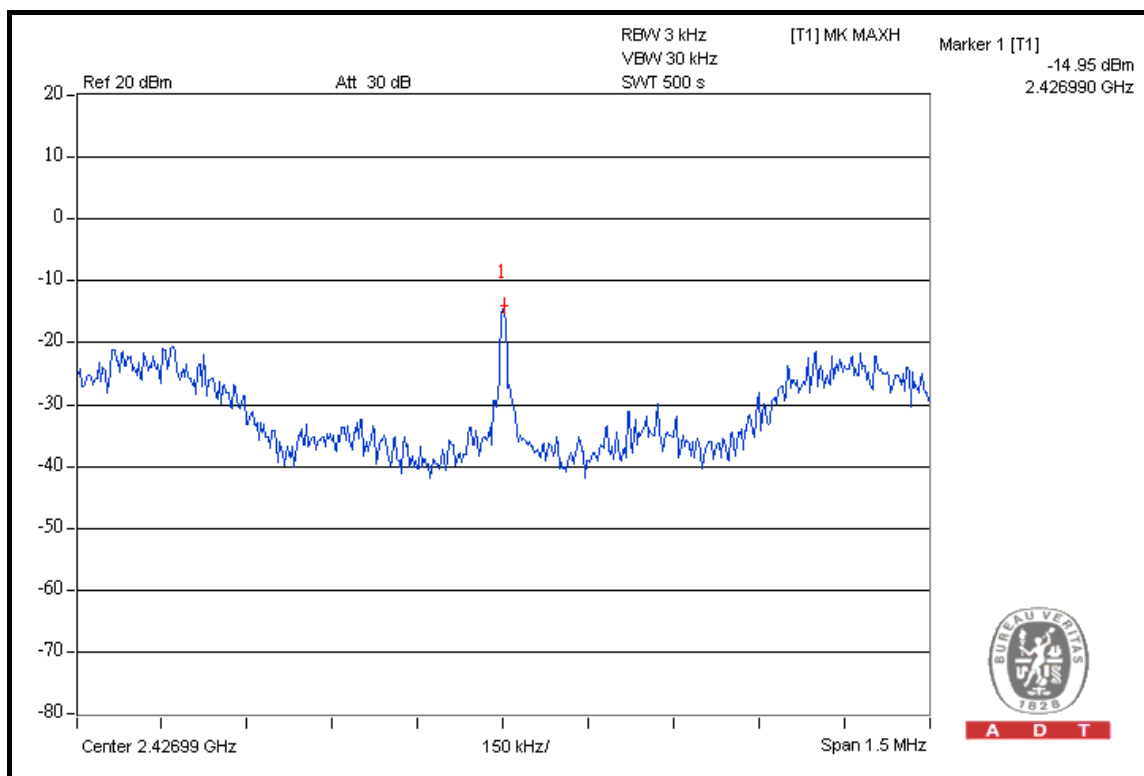
FOR CHAIN 0: CH 1



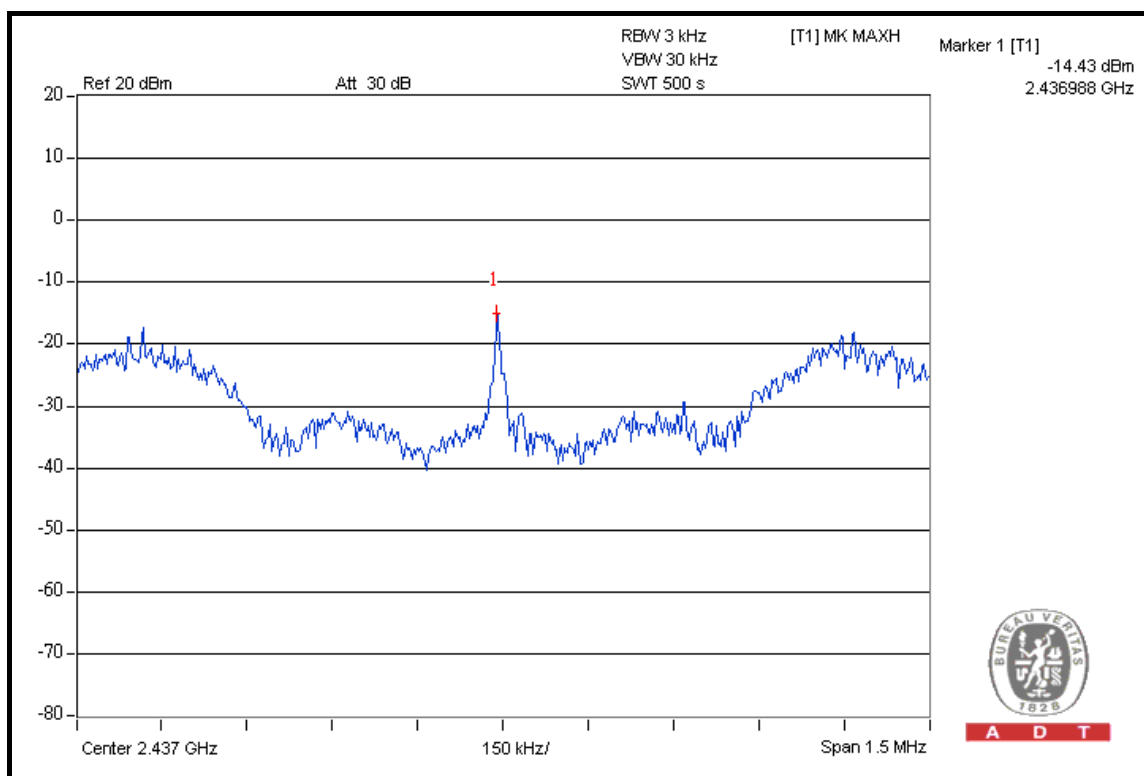


A D T

CH 2



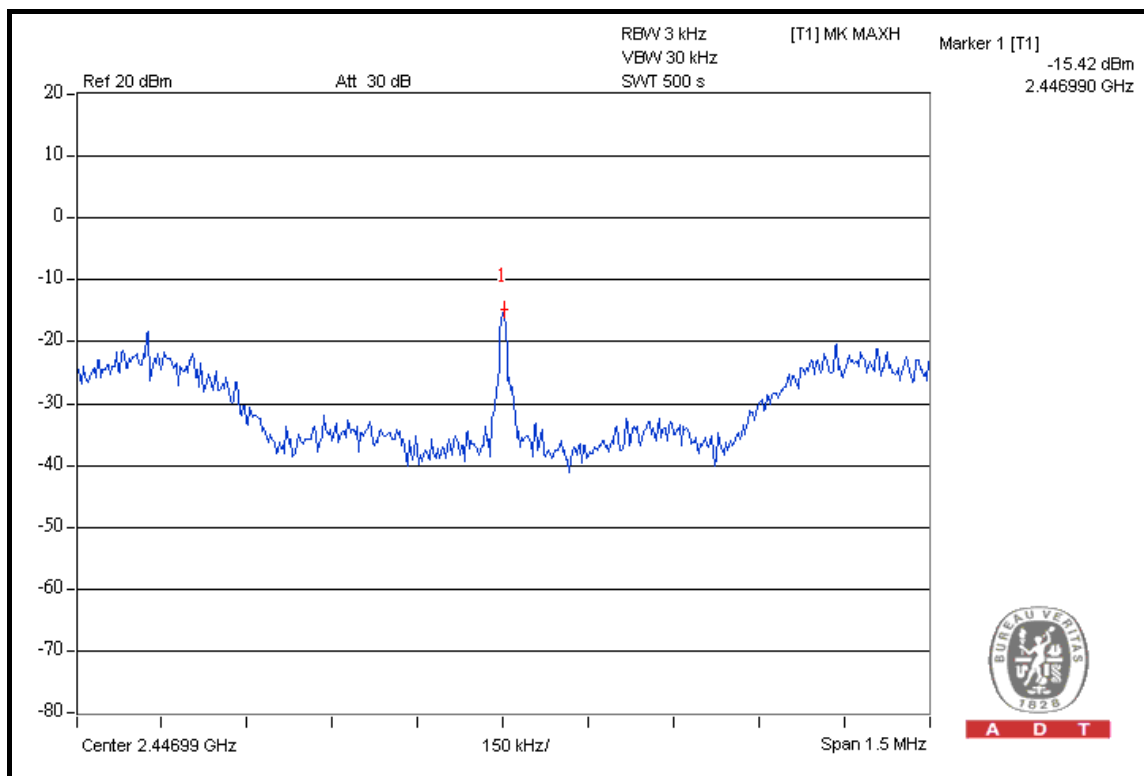
CH 4



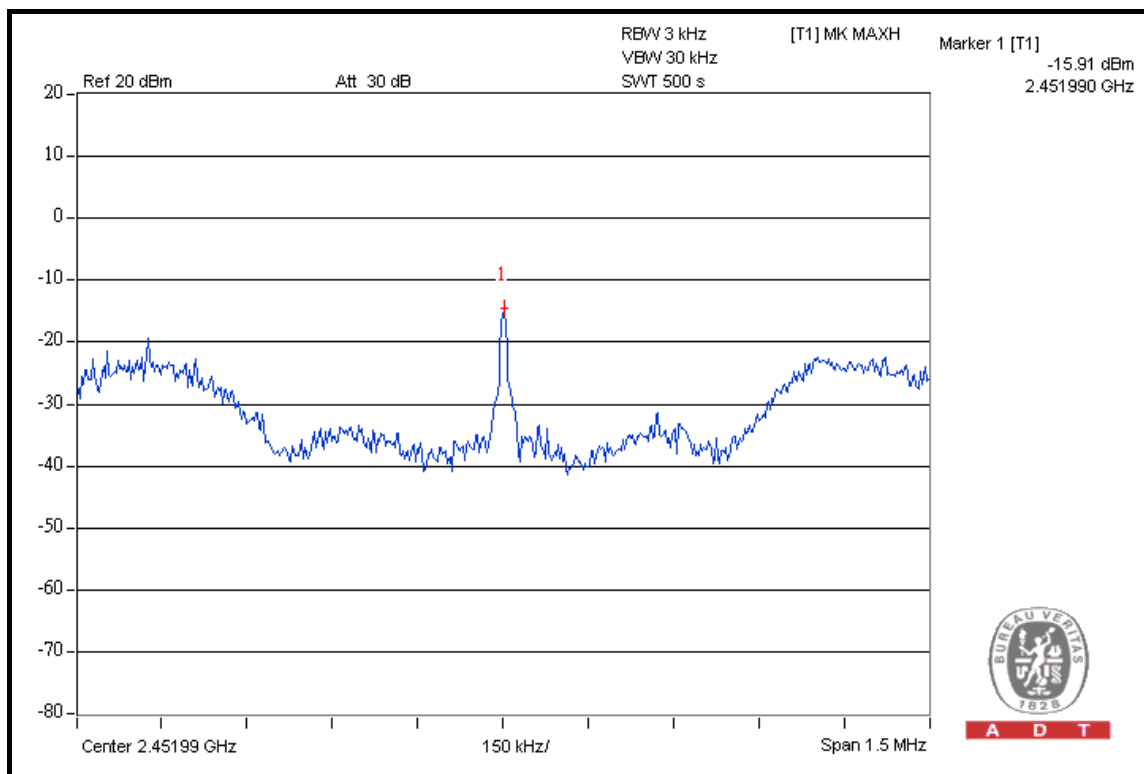


A D T

CH 6



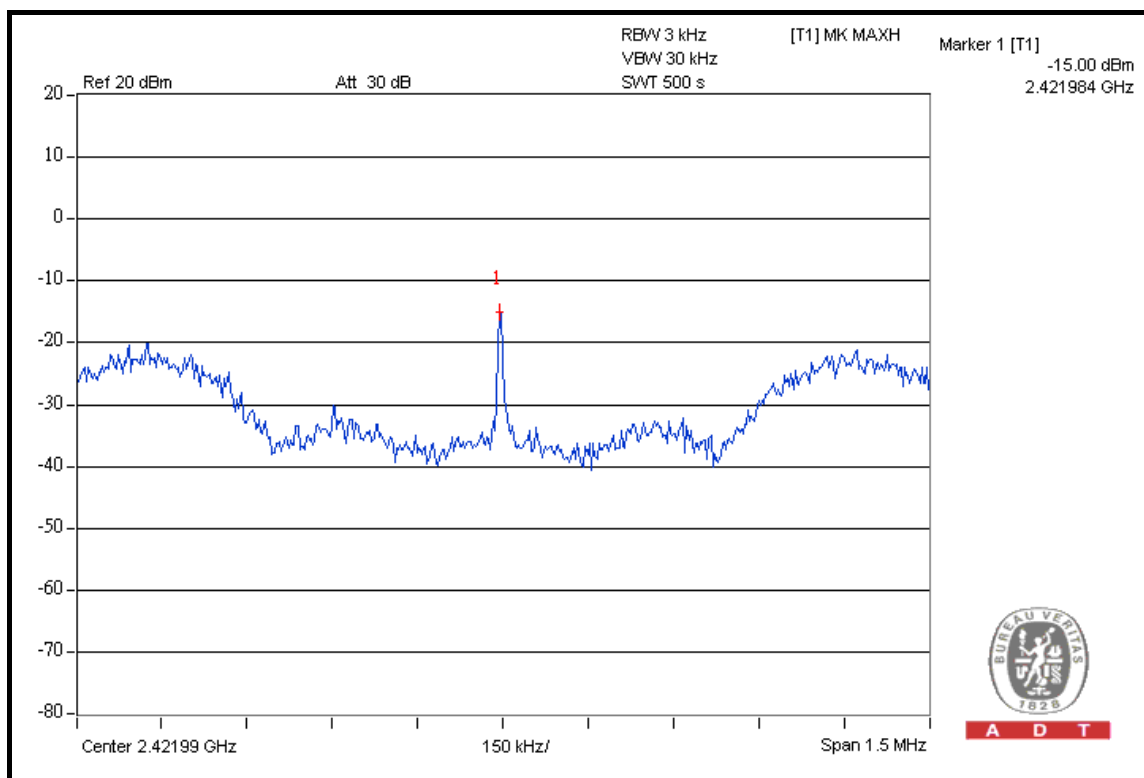
CH 7



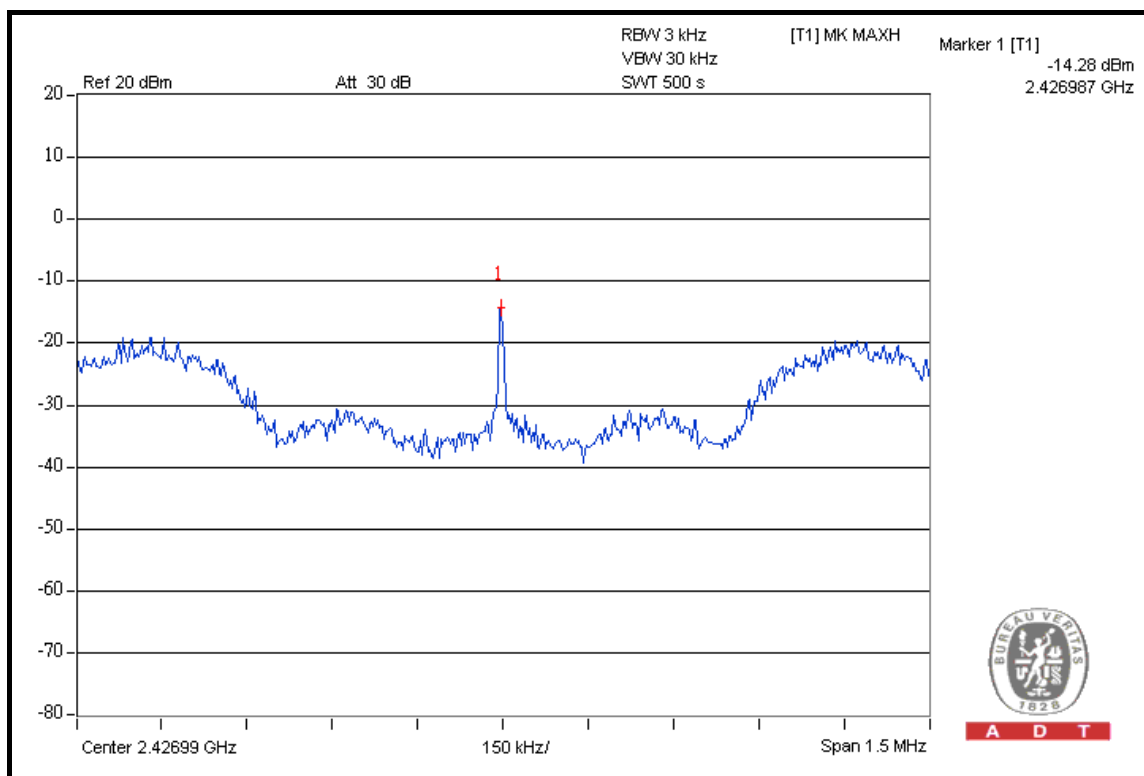


A D T

FOR CHAIN 1: CH 1



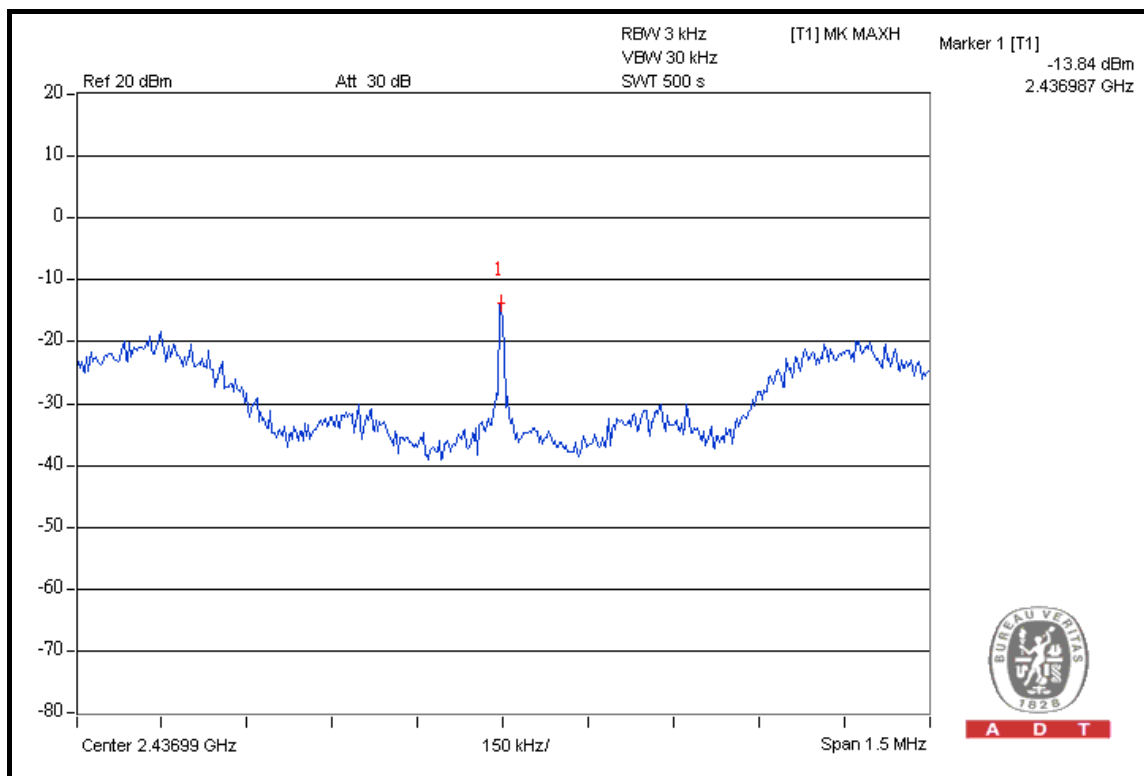
CH 2



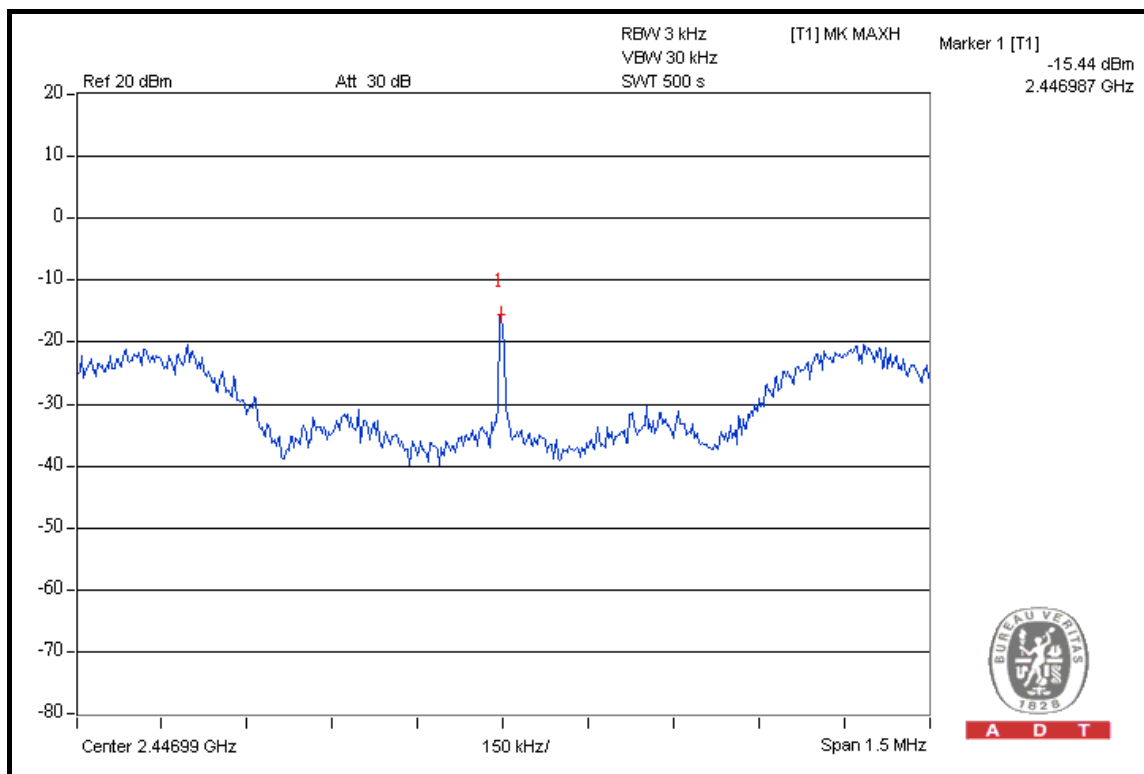


A D T

CH 4



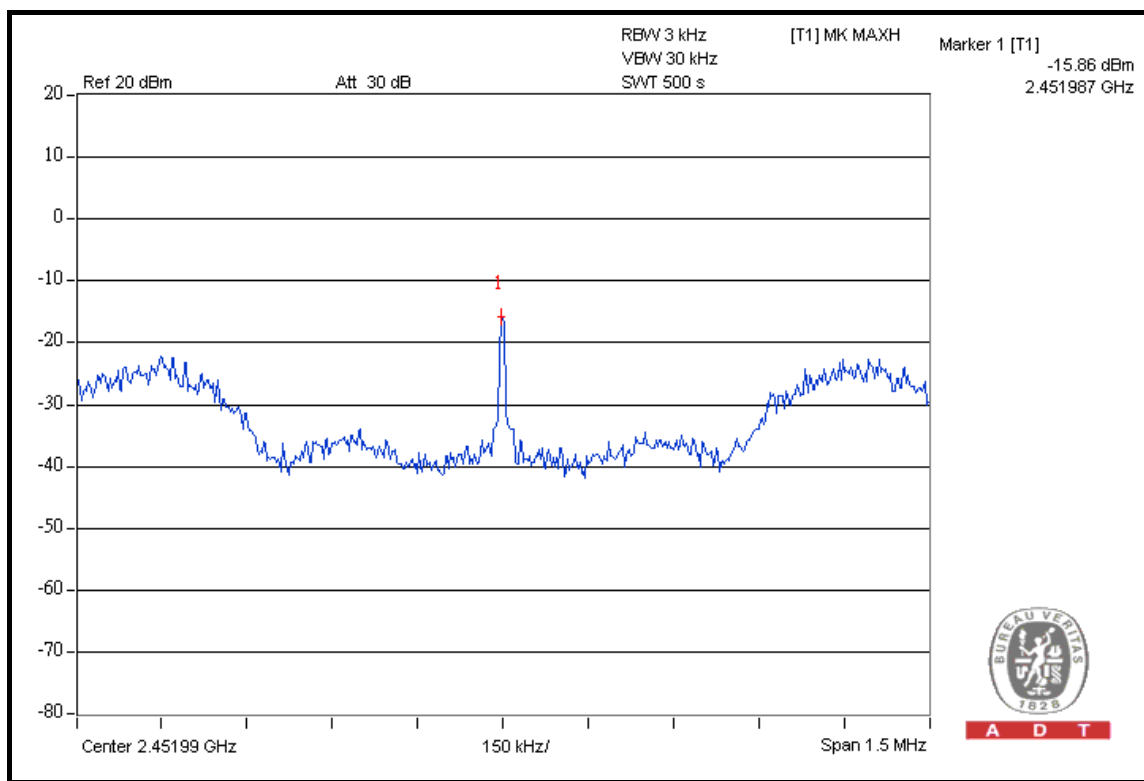
CH 6



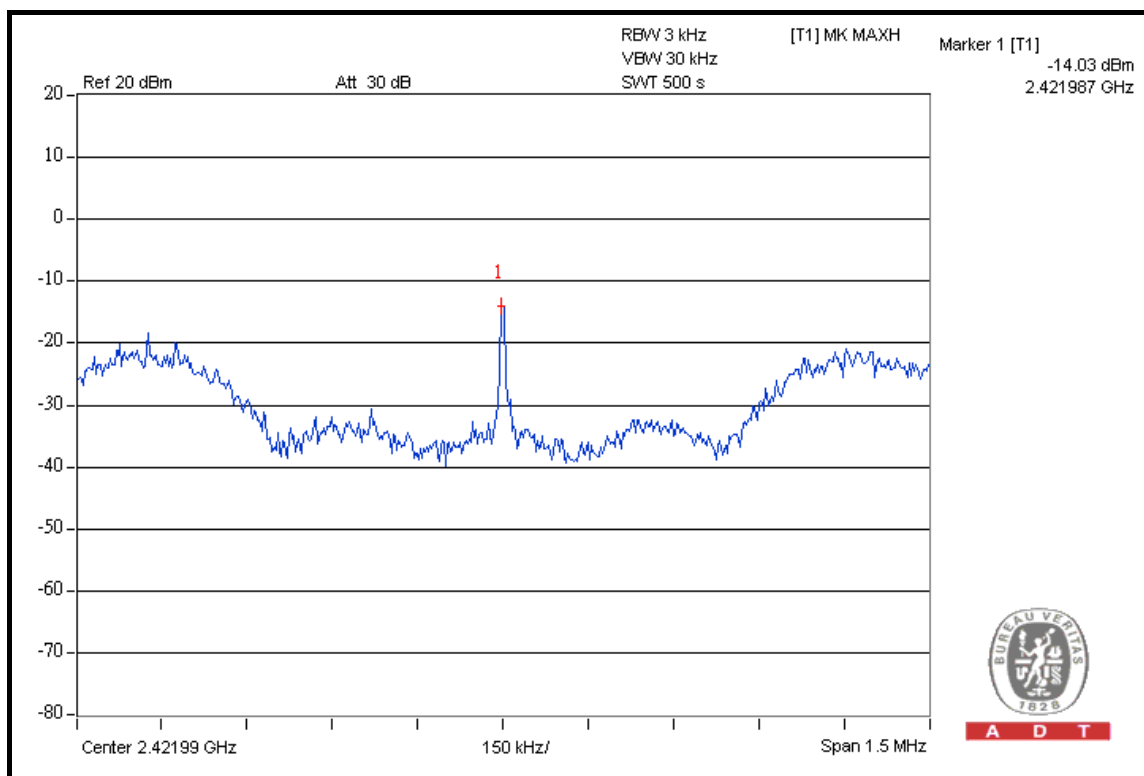


A D T

CH 7



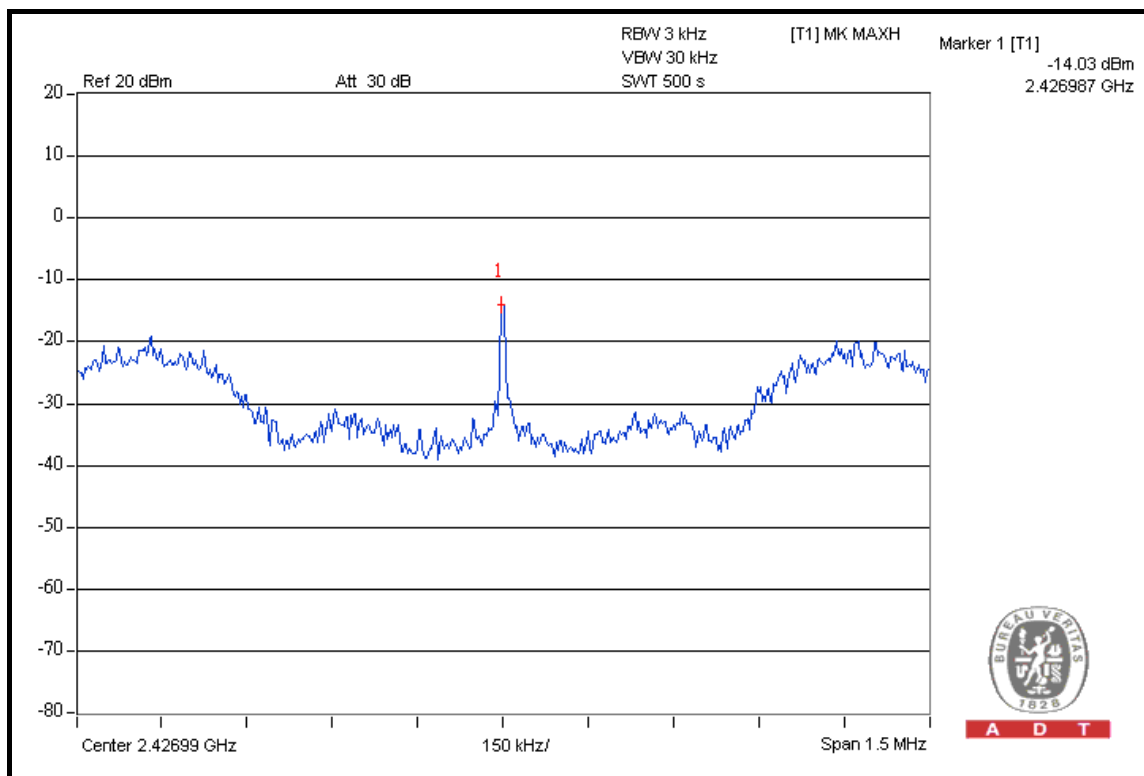
FOR CHAIN 2: CH 1



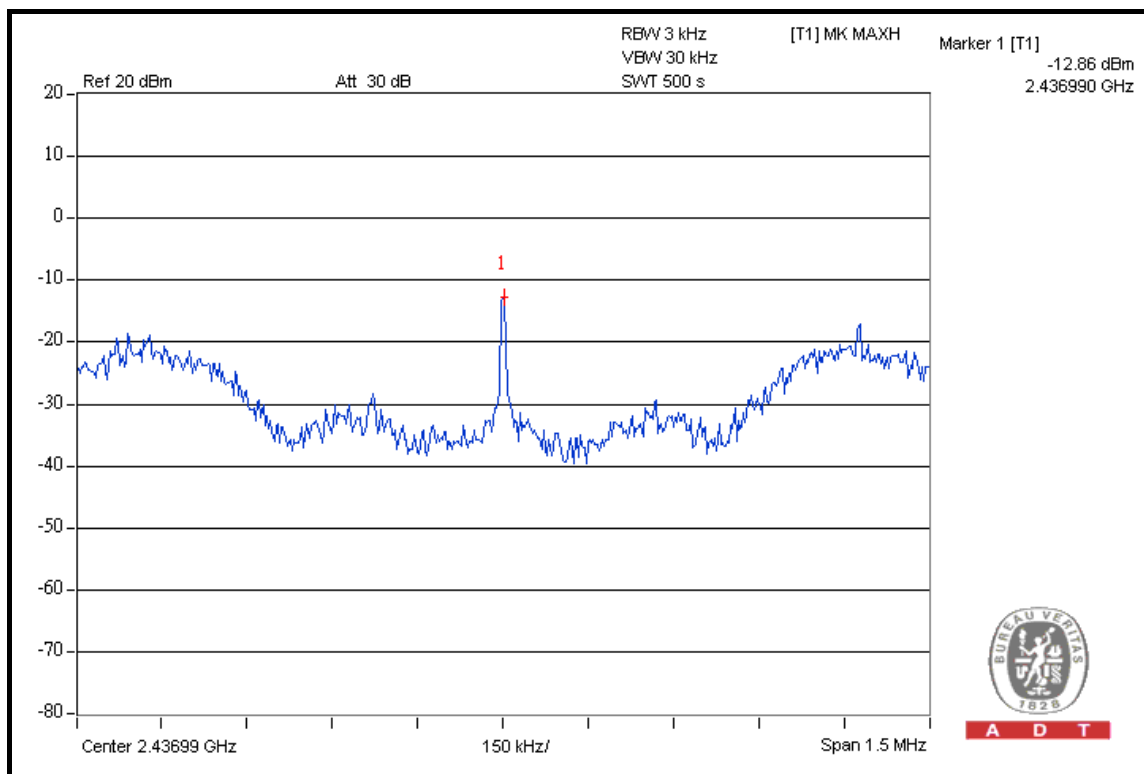


A D T

CH 2



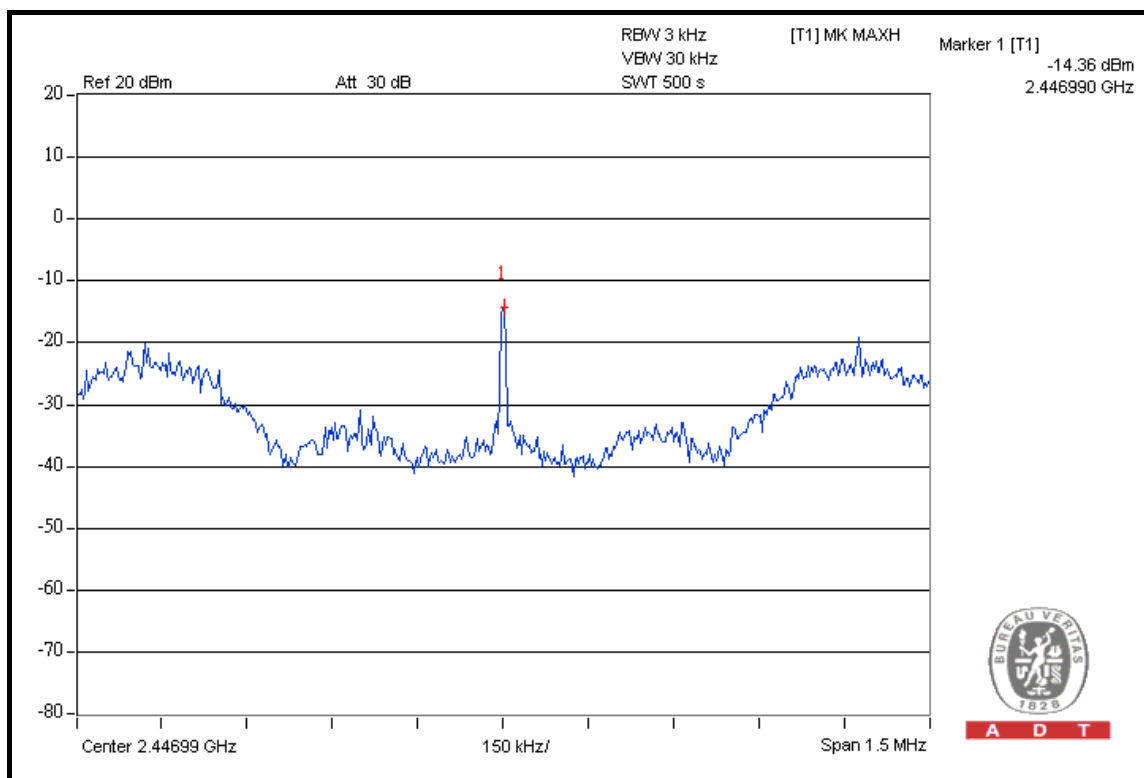
CH 4



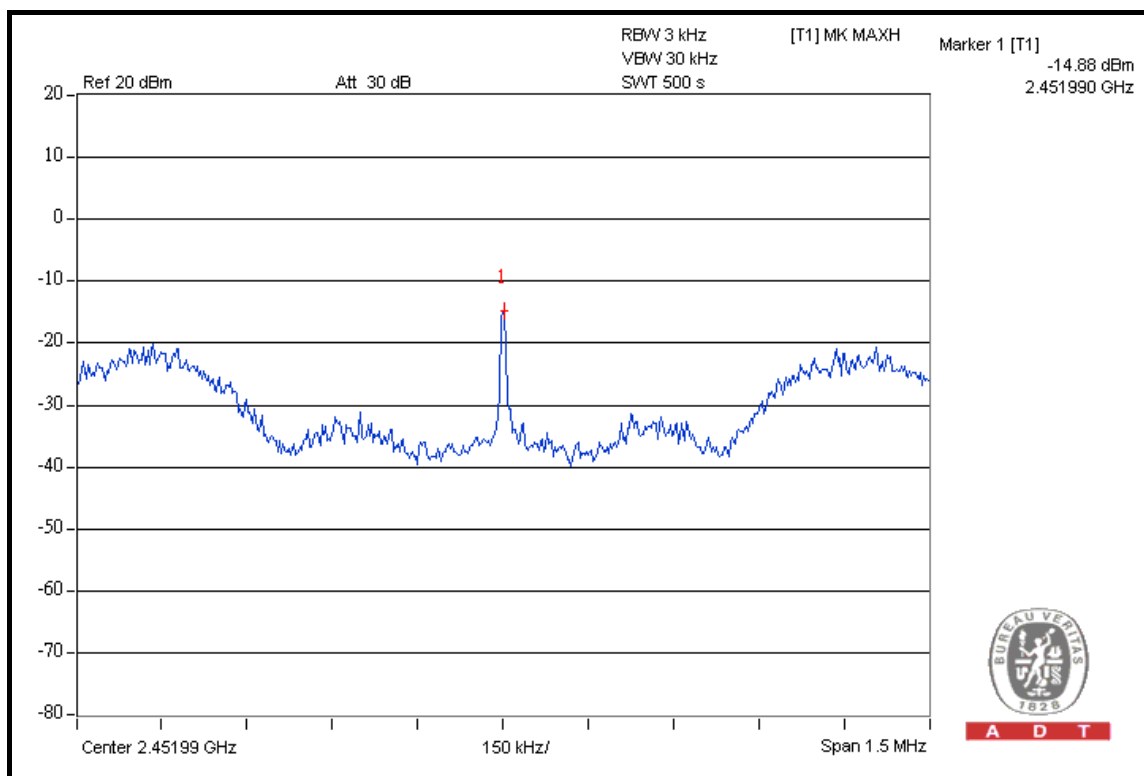


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CH 6



CH 7



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 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 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

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

- 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 with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz)

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

The spectrum plots are attached on the following 24 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION

NOTE 1: The band edge emission plot on the next second page shows 55.66dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 114.69dBuV/m (Peak), so the maximum field strength in restrict band is $114.69 - 55.66 = 59.03$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 61.20dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 110.89dBuV/m (Average), so the maximum field strength in restrict band is $110.89 - 61.20 = 49.69$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 56.04dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 117.27dBuV/m (Peak), so the maximum field strength in restrict band is $117.27 - 56.04 = 61.23$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 62.44dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 113.01dBuV/m (Average), so the maximum field strength in restrict band is $113.01 - 62.44 = 50.57$ dBuV/m which is under 54dBuV/m limit.

NOTE 3: The band edge emission plot on the next fourth page shows 56.92dBc between carrier maximum power and local maximum emission in restrict band (2.4936GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 114.97dBuV/m (Peak), so the maximum field strength in restrict band is $114.97 - 56.92 = 58.55\text{dBuV/m}$ which is under 74dBuV/m limit.

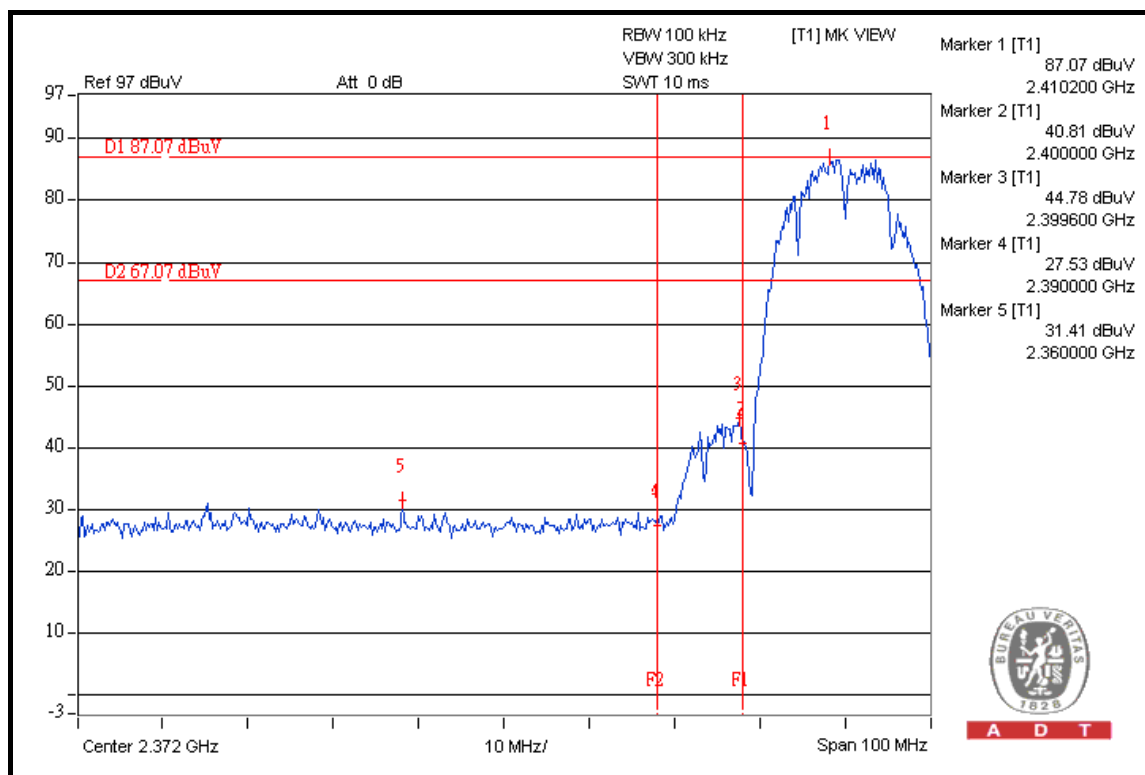
The band edge emission plot on the next fourth page shows 60.84dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 111.57dBuV/m (Average), so the maximum field strength in restrict band is $111.57 - 60.84 = 50.73\text{dBuV/m}$ which is under 54dBuV/m limit.

NOTE 4: The band edge emission plot on the next fifth page shows 56.43dBc between carrier maximum power and local maximum emission in restrict band (2.4948GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 113.78dBuV/m (Peak), so the maximum field strength in restrict band is $113.78 - 56.43 = 57.35\text{dBuV/m}$ which is under 74dBuV/m limit.

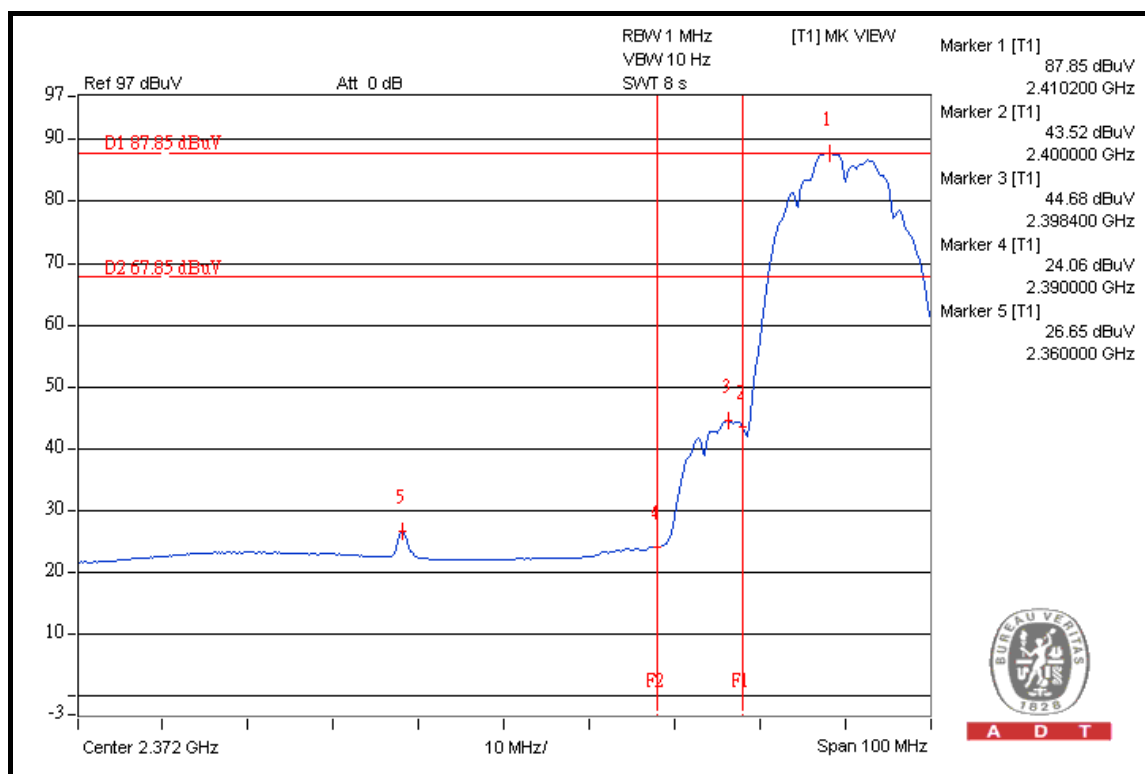
The band edge emission plot on the next sixth page shows 60.47dBc between carrier maximum power and local maximum emission in restrict band (2.4878GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 109.94dBuV/m (Average), so the maximum field strength in restrict band is $109.94 - 60.47 = 49.47\text{dBuV/m}$ which is under 54dBuV/m limit.



A D T



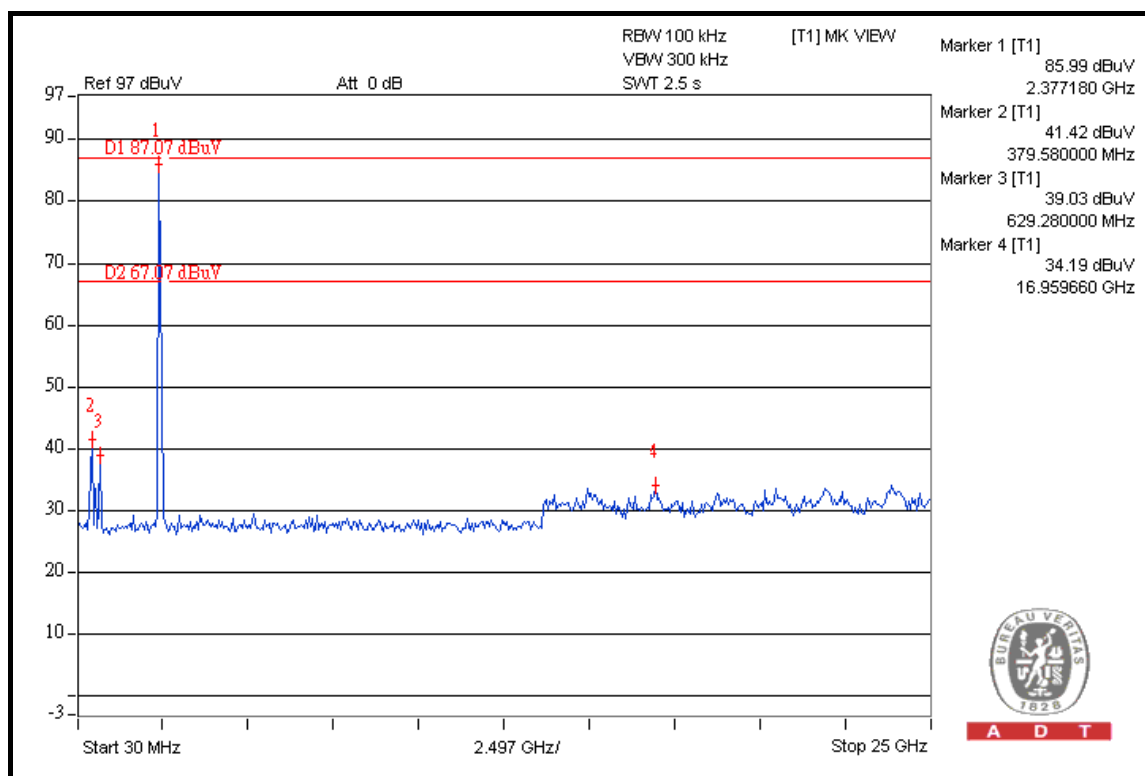
A D T



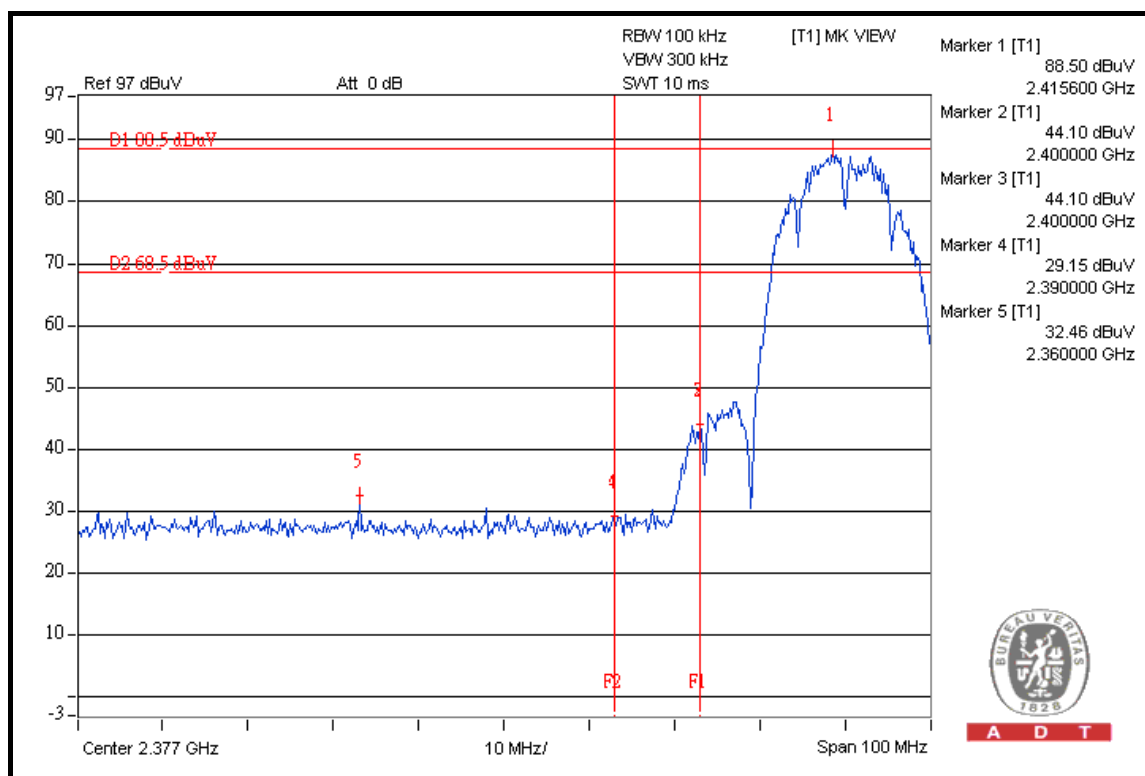
A D T



A D T



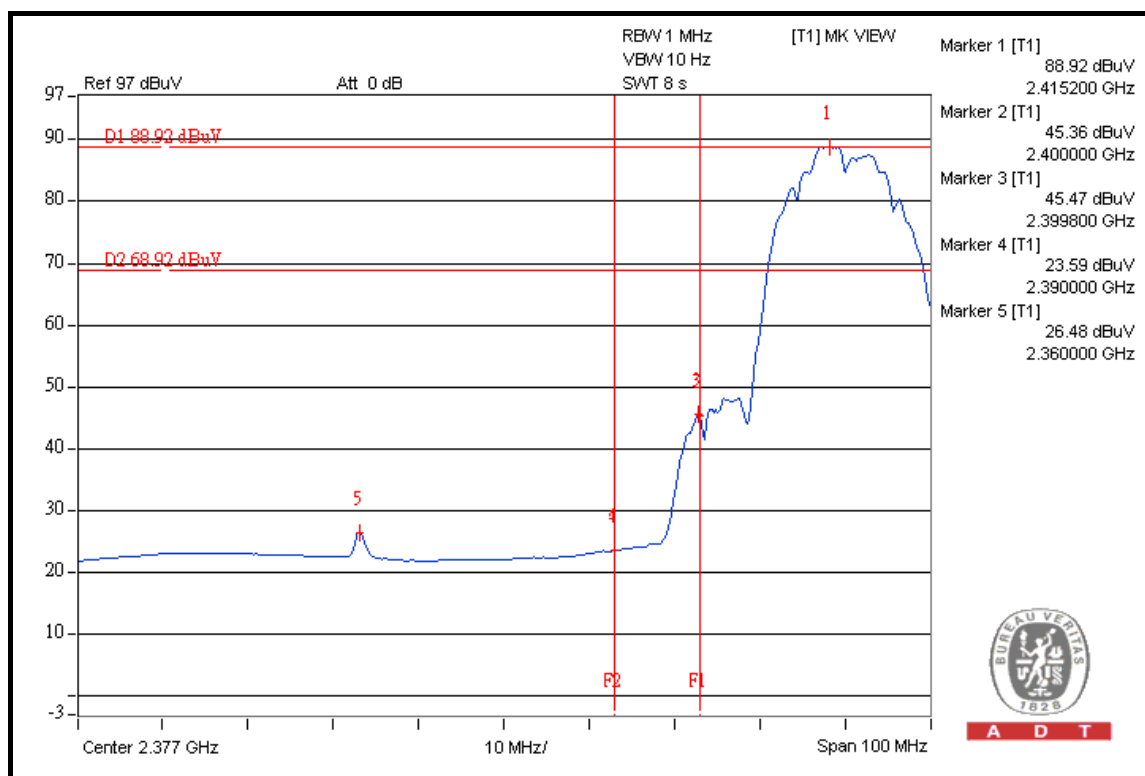
A D T



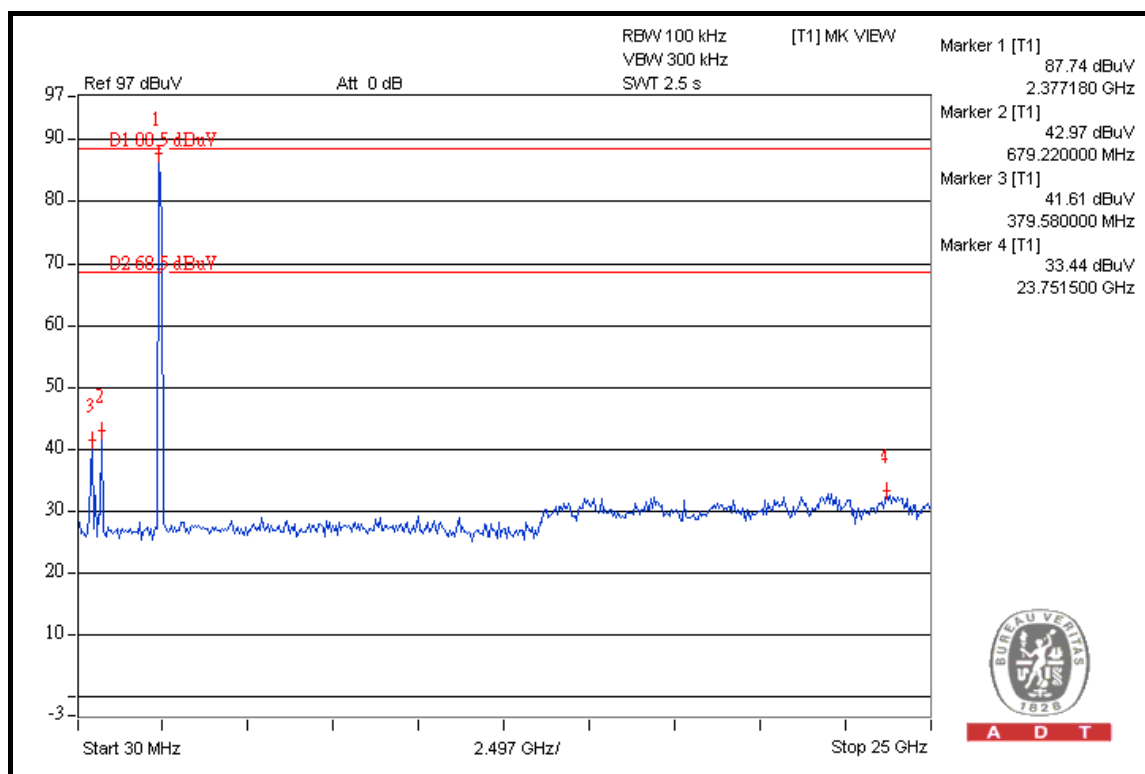
A D T



A D T



A D T

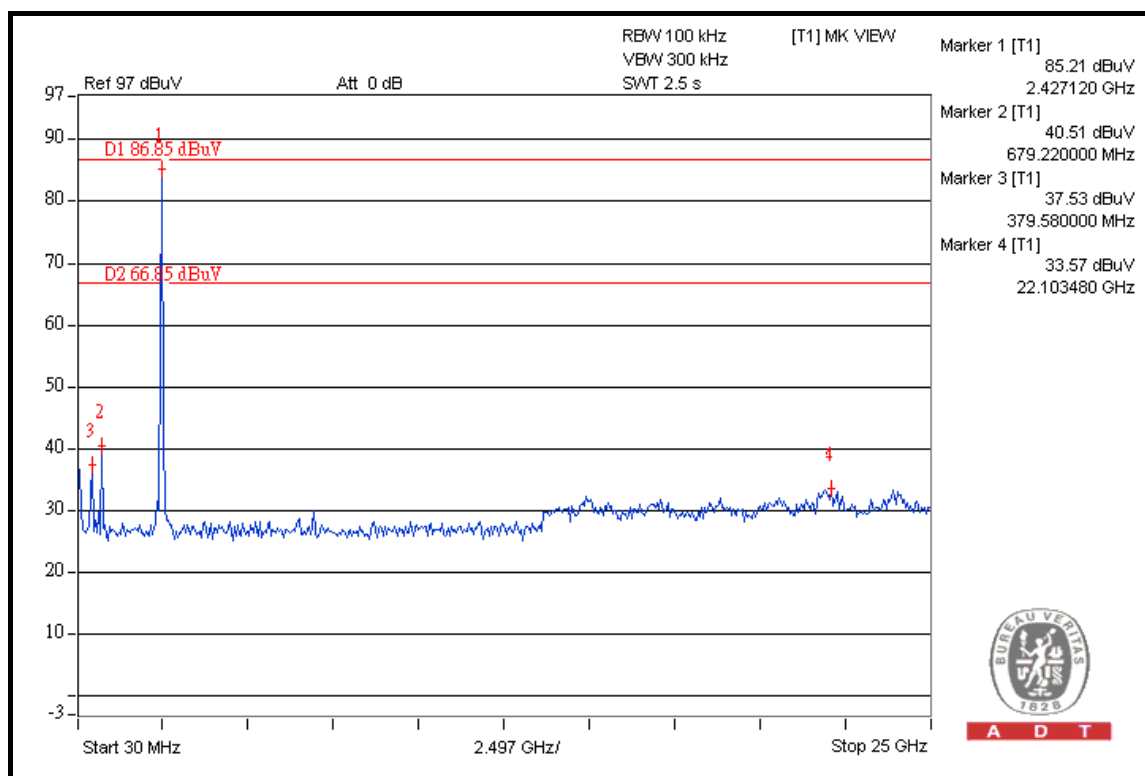


A D T

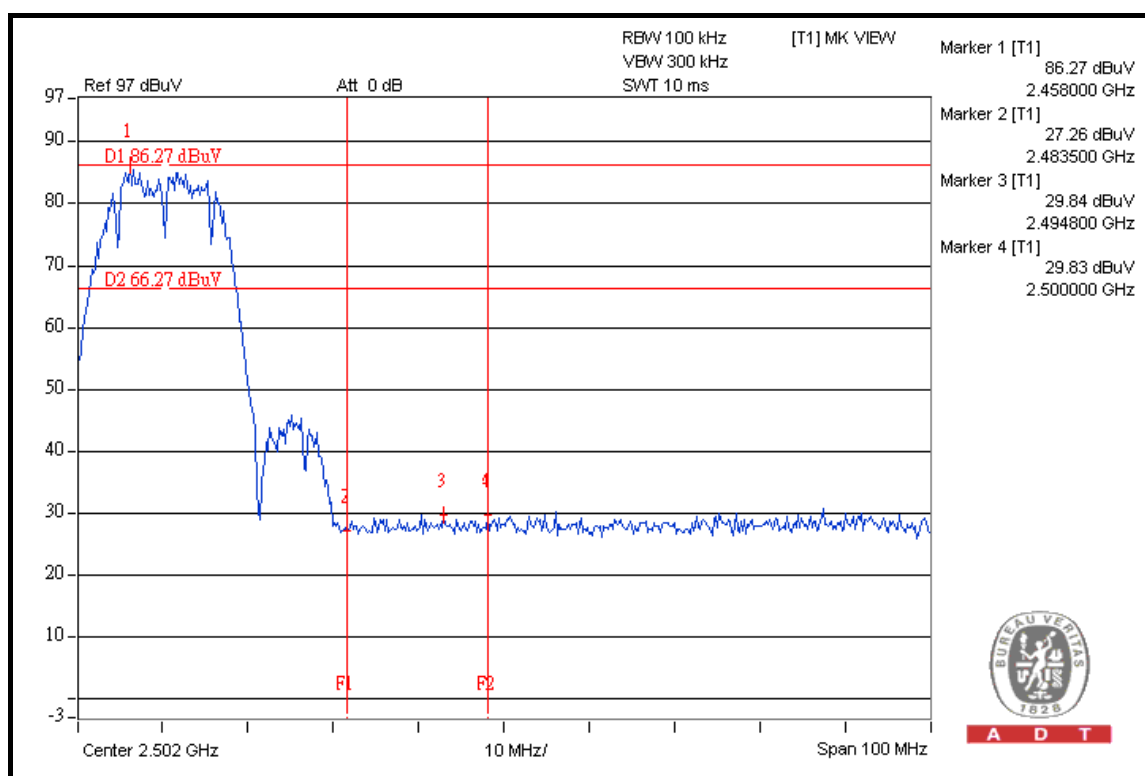




A D T



A D T



A D T



802.11g OFDM MODULATION

NOTE 1: The band edge emission plot on the next second page shows 47.86dBc between carrier maximum power and local maximum emission in restrict band (2.3268GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 114.56dBuV/m (Peak), so the maximum field strength in restrict band is $114.56 - 47.86 = 66.70$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 52.56dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 103.59dBuV/m (Average), so the maximum field strength in restrict band is $103.59 - 52.56 = 51.03$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 46.49dBc between carrier maximum power and local maximum emission in restrict band (2.3498GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 115.43dBuV/m (Peak), so the maximum field strength in restrict band is $115.43 - 46.49 = 68.94$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 53.76dBc between carrier maximum power and local maximum emission in restrict band (2.3400GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 104.33dBuV/m (Average), so the maximum field strength in restrict band is $104.33 - 53.76 = 50.57$ dBuV/m which is under 54dBuV/m limit.

NOTE 3: The band edge emission plot on the next fourth page shows 49.86dBc between carrier maximum power and local maximum emission in restrict band (2.4948GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 115.34dBuV/m (Peak), so the maximum field strength in restrict band is $115.34 - 49.86 = 65.48\text{dBuV/m}$ which is under 74dBuV/m limit.

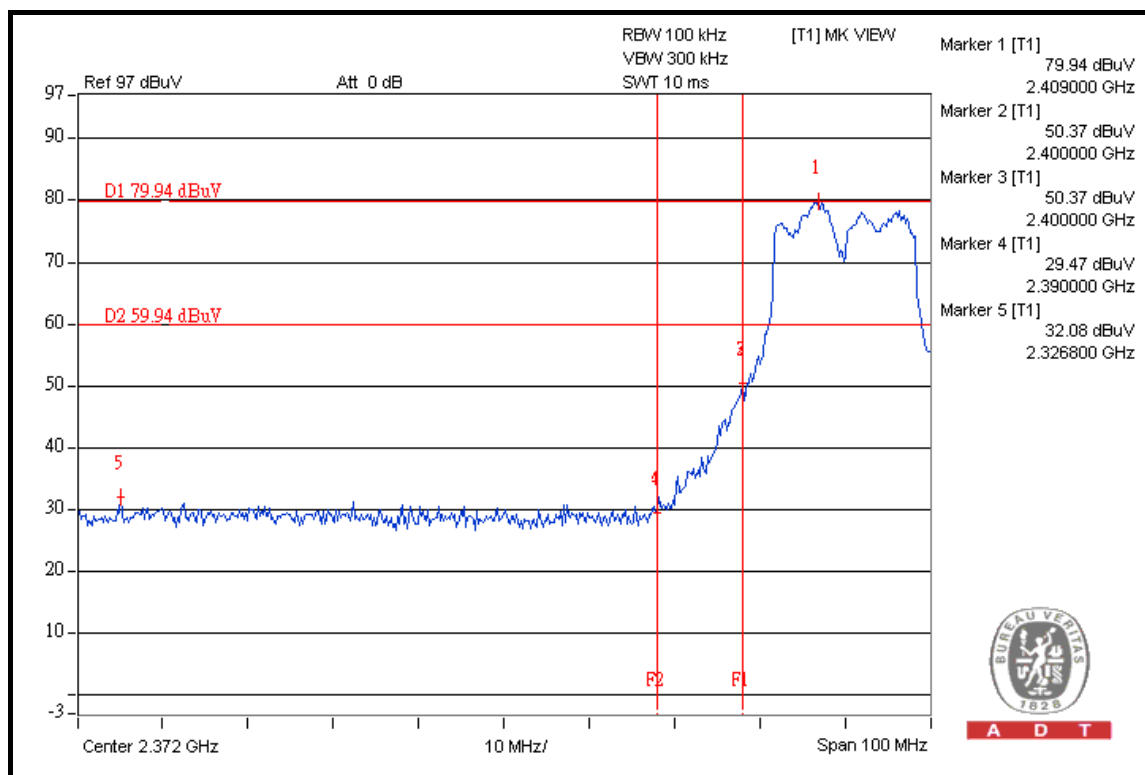
The band edge emission plot on the next fourth page shows 56.08dBc between carrier maximum power and local maximum emission in restrict band (2.4910GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 104.42dBuV/m (Average), so the maximum field strength in restrict band is $104.42 - 56.08 = 48.34\text{dBuV/m}$ which is under 54dBuV/m limit.

NOTE 4: The band edge emission plot on the next fifth page shows 47.50dBc between carrier maximum power and local maximum emission in restrict band (2.4842GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 114.01dBuV/m (Peak), so the maximum field strength in restrict band is $114.01 - 47.50 = 66.51\text{dBuV/m}$ which is under 74dBuV/m limit.

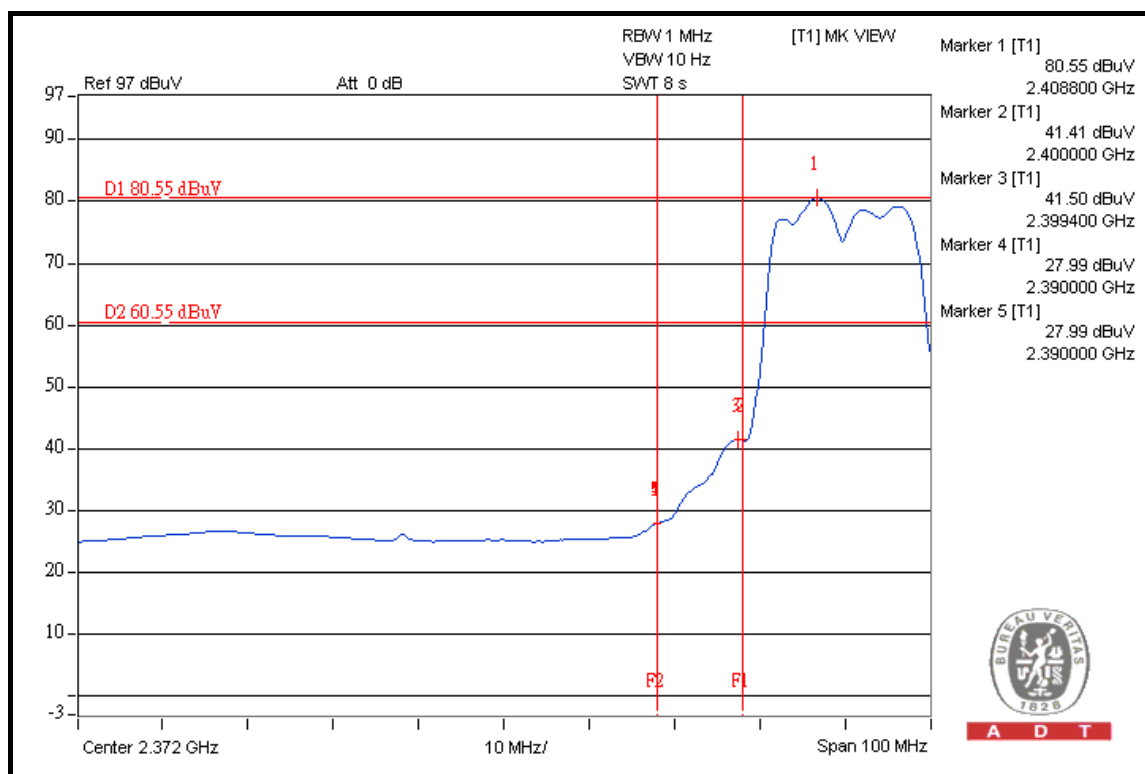
The band edge emission plot on the next sixth page shows 51.02dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 103.97dBuV/m (Average), so the maximum field strength in restrict band is $103.97 - 51.02 = 52.95\text{dBuV/m}$ which is under 54dBuV/m limit.



A D T



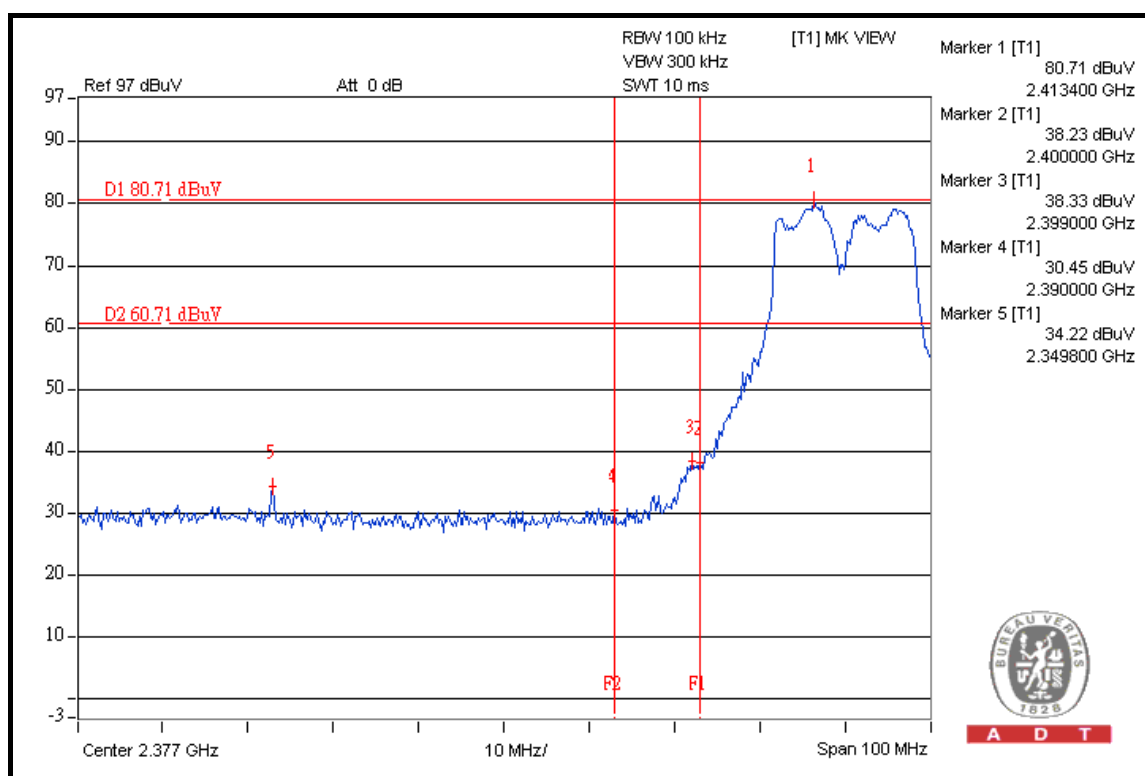
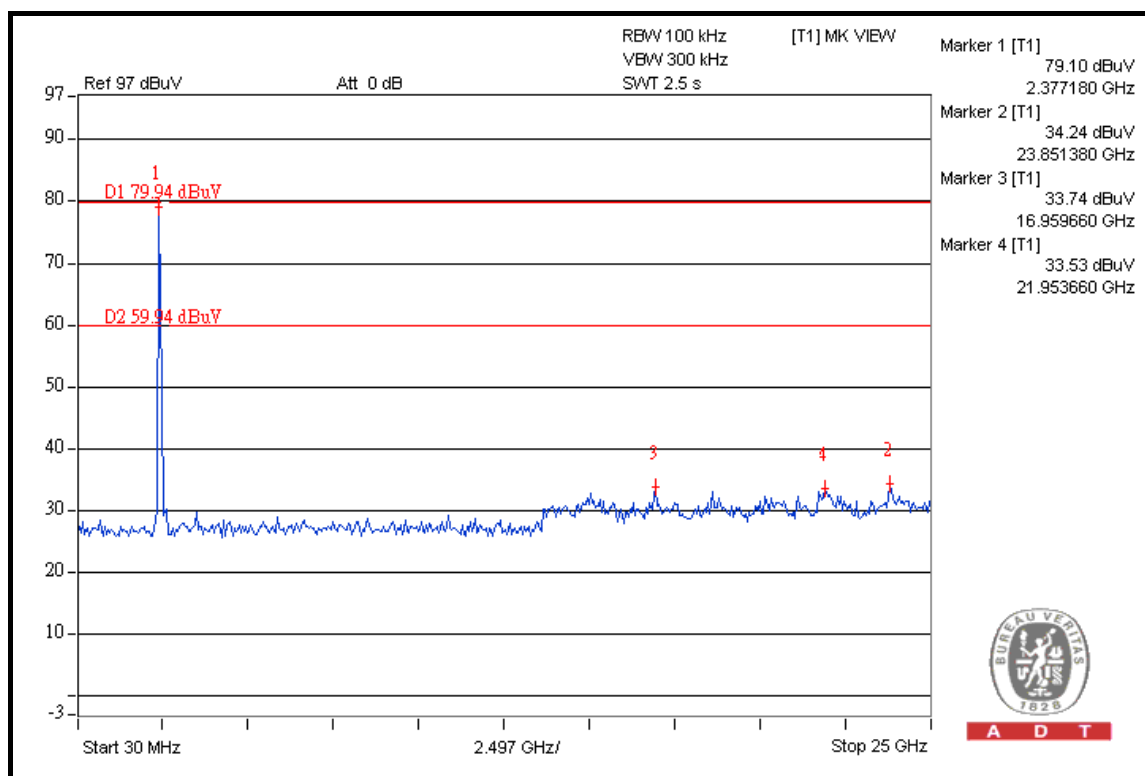
A D T



A D T

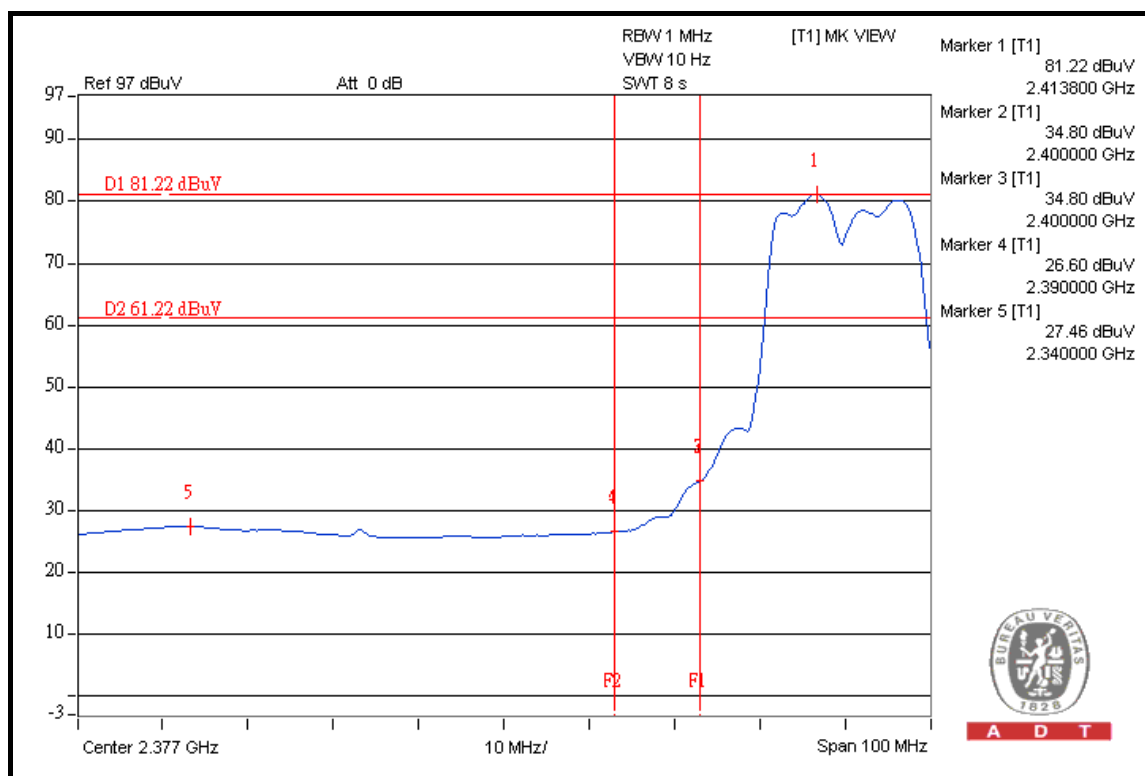


A D T

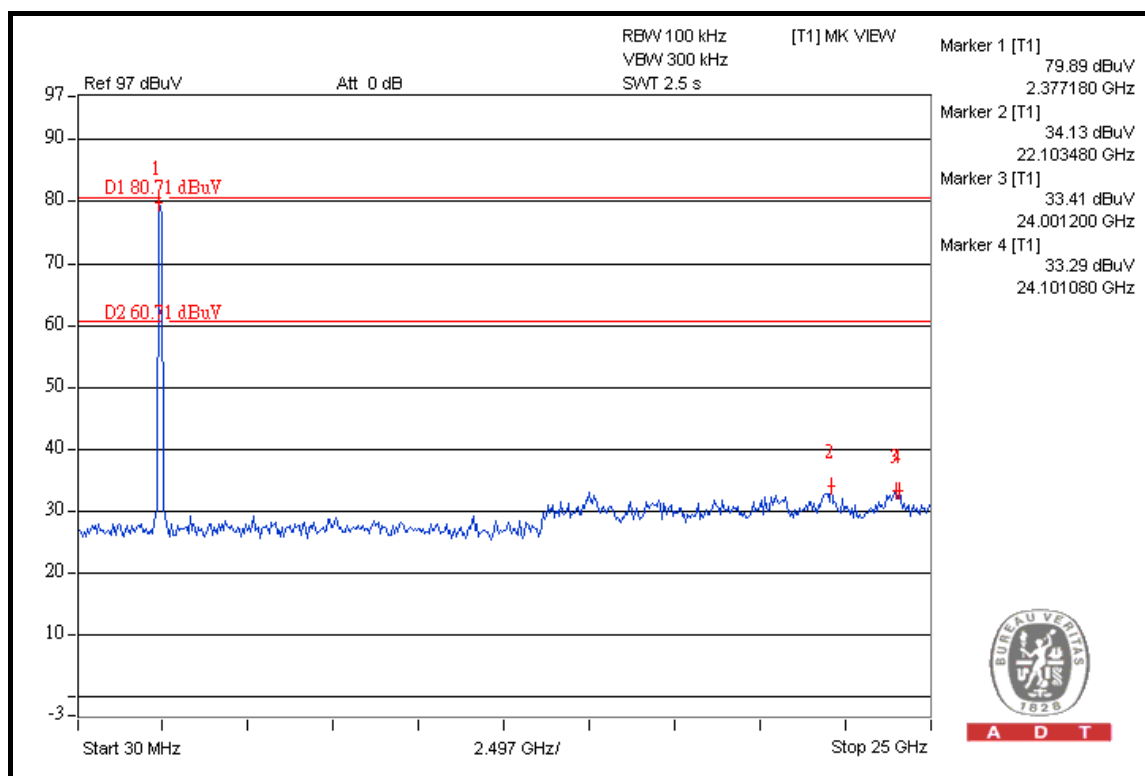




A D T



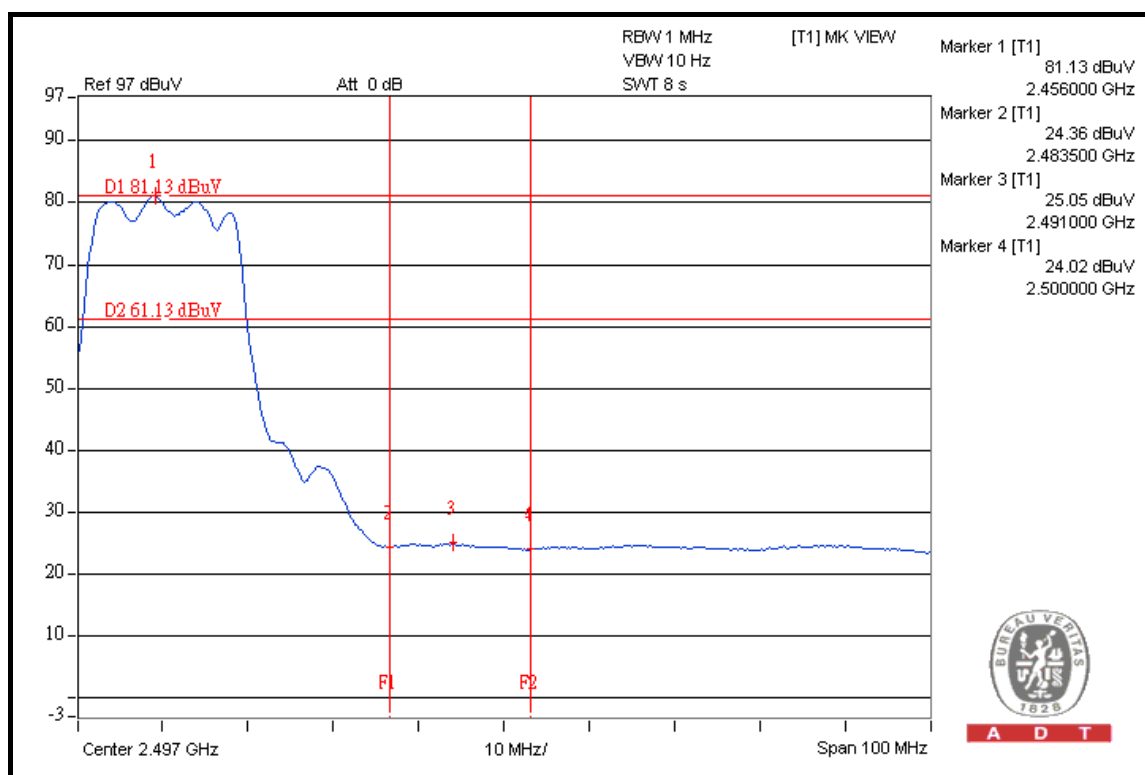
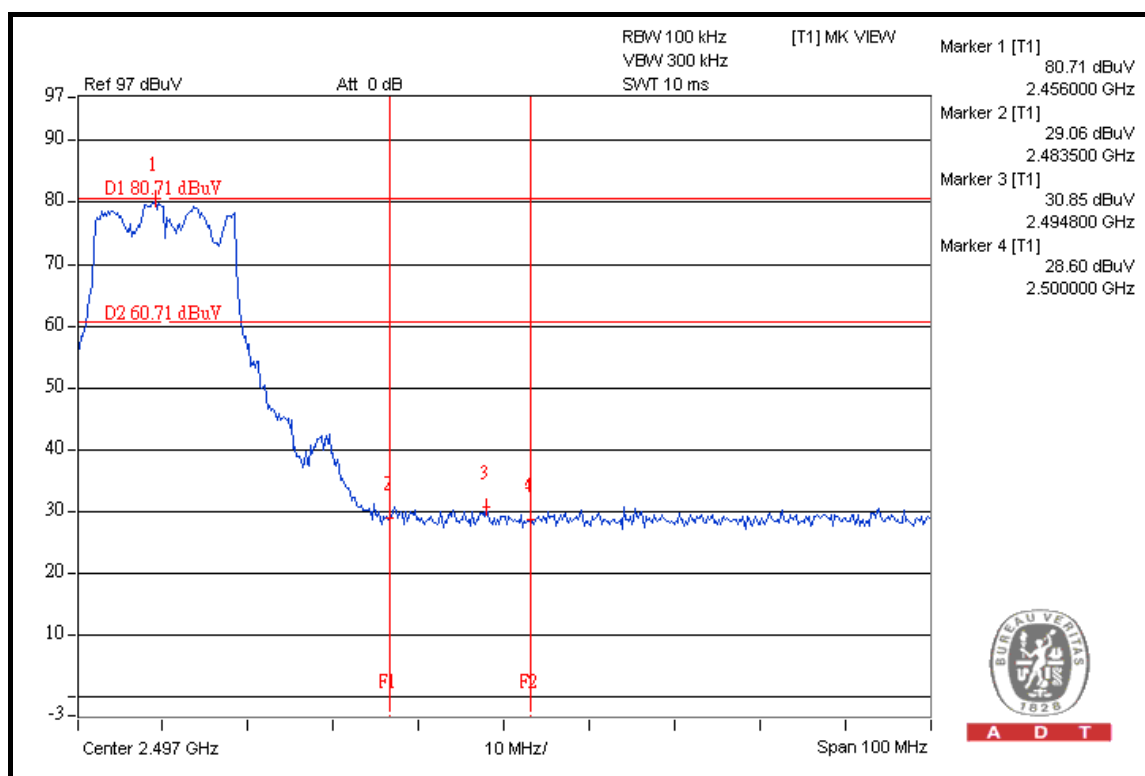
A D T



A D T

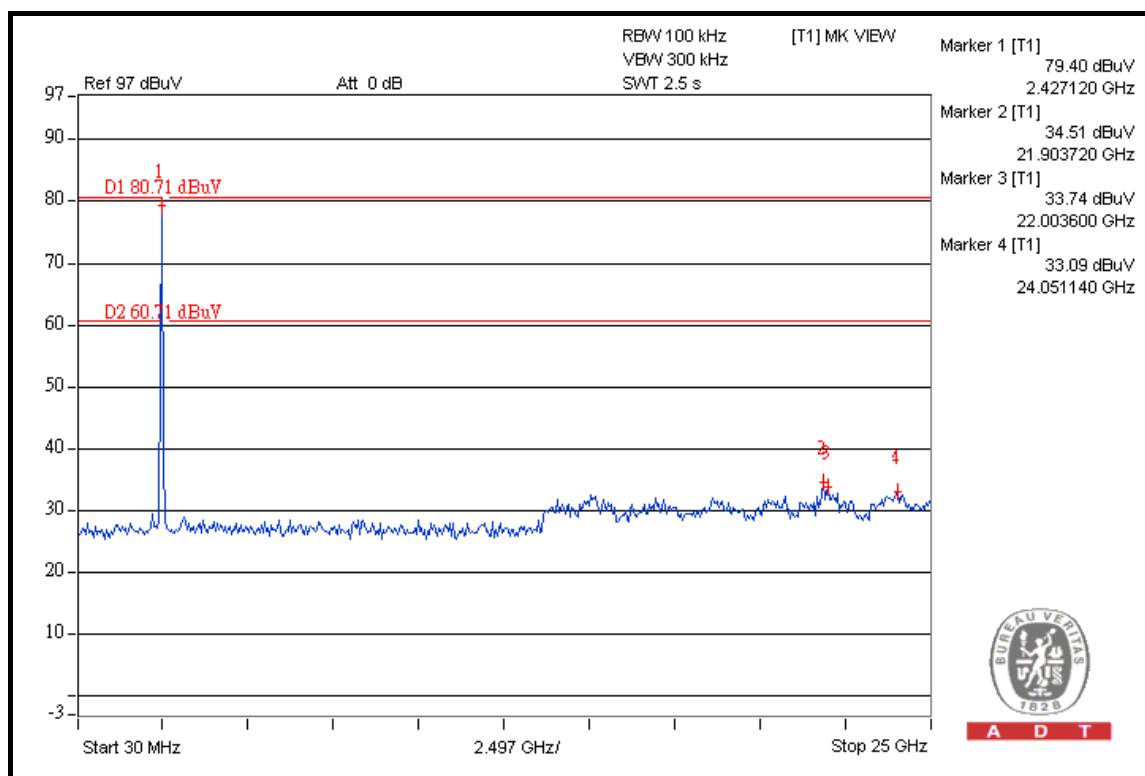


A D T

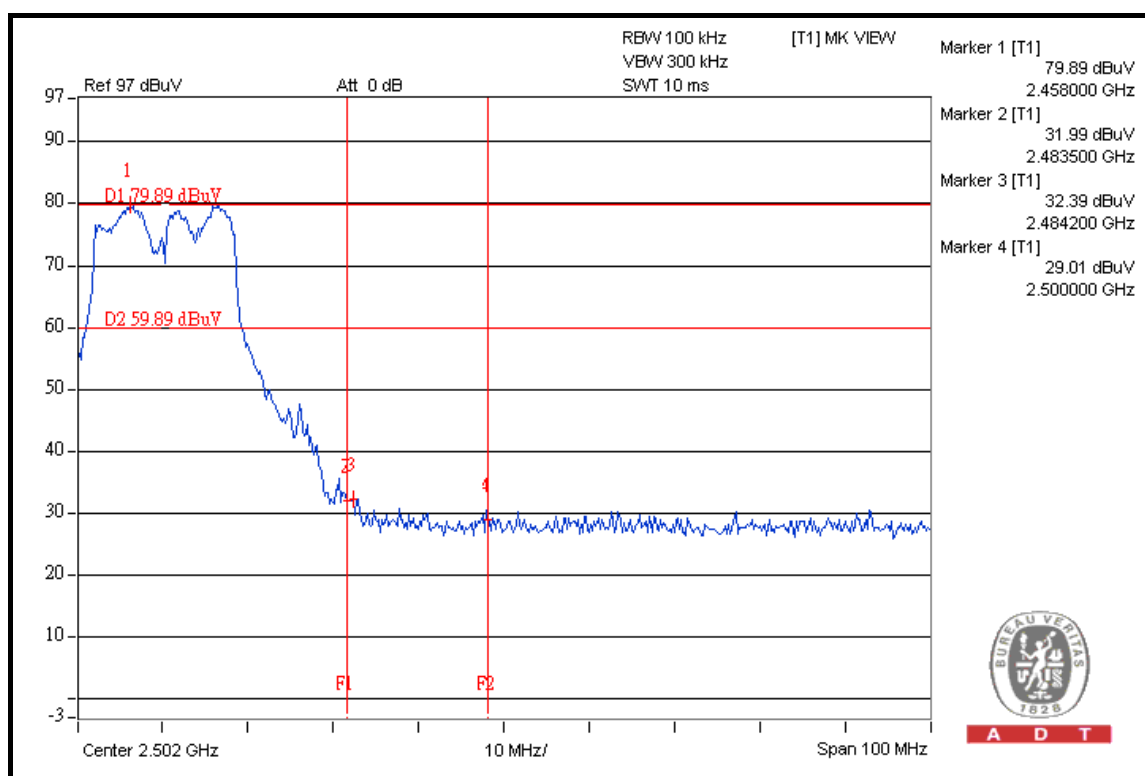




A D T



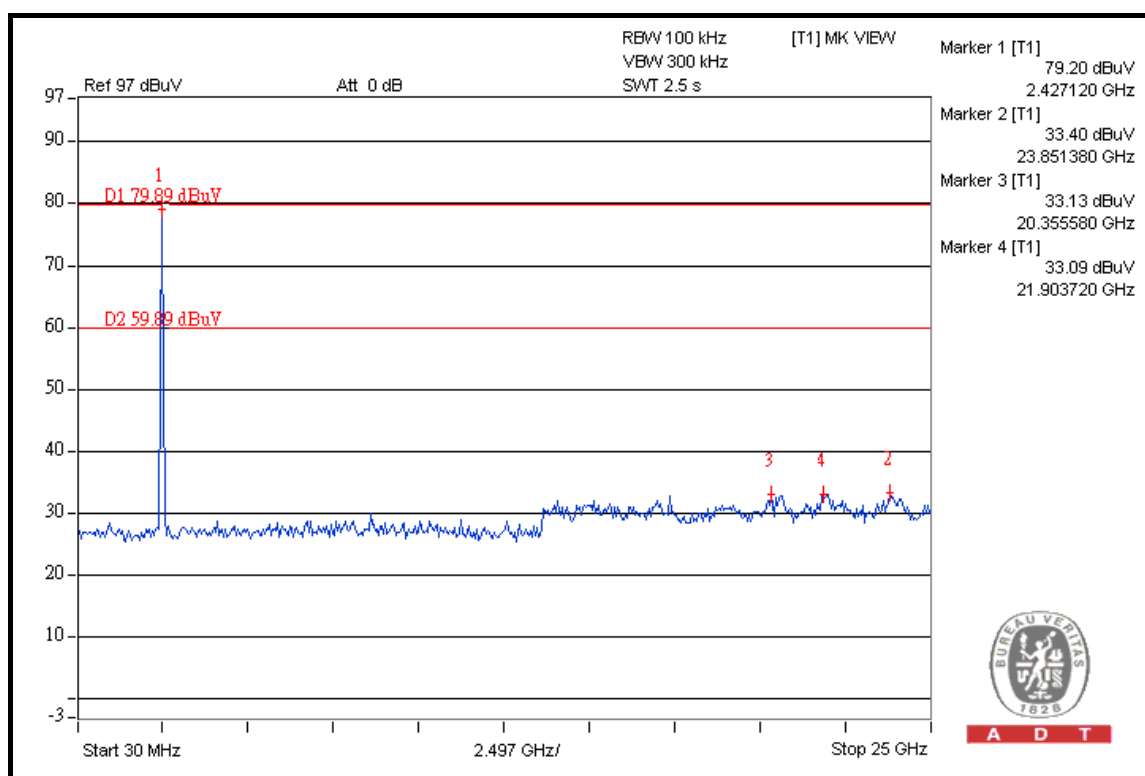
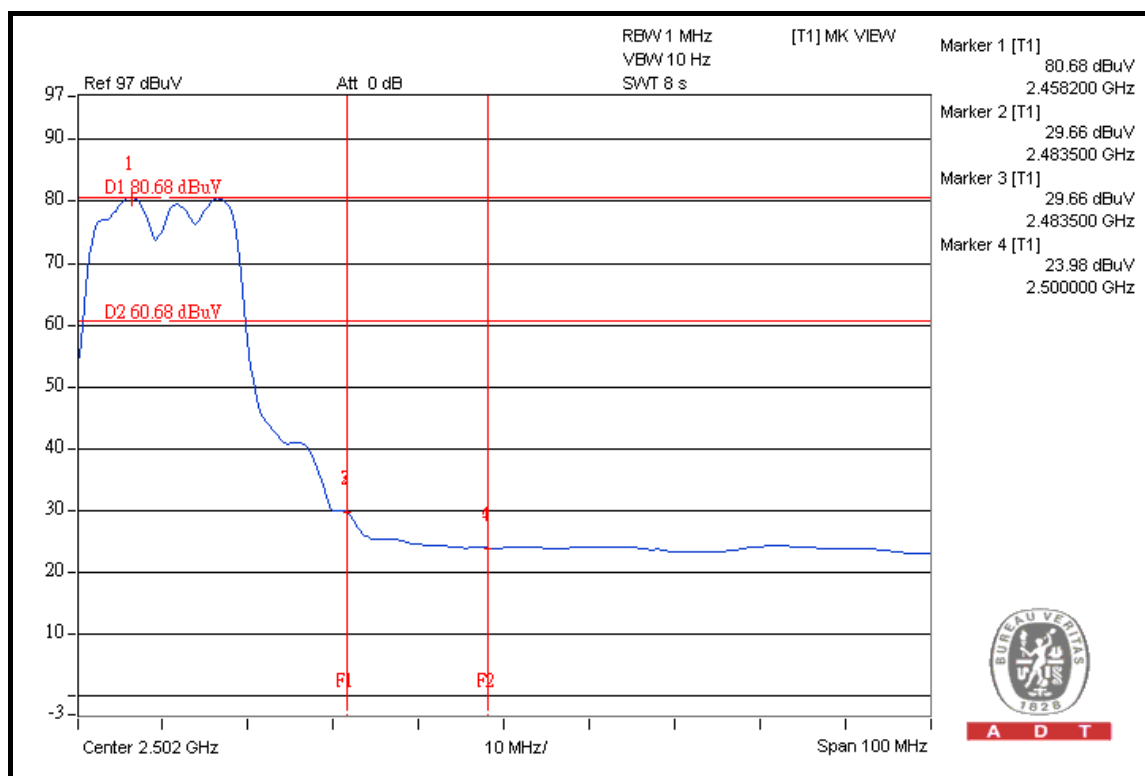
A D T



A D T



A D T



DRAFT 802.11n (20MHz) OFDM MODULATION

NOTE 1: The band edge emission plot on the next second page shows 49.07dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 114.10dBuV/m (Peak), so the maximum field strength in restrict band is $114.10 - 49.07 = 65.03$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 50.91dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 103.82dBuV/m (Average), so the maximum field strength in restrict band is $103.82 - 50.91 = 52.91$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 51.09dBc between carrier maximum power and local maximum emission in restrict band (2.3480GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 115.67dBuV/m (Peak), so the maximum field strength in restrict band is $115.67 - 51.09 = 64.58$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 53.33dBc between carrier maximum power and local maximum emission in restrict band (2.3398GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 105.66dBuV/m (Average), so the maximum field strength in restrict band is $105.66 - 53.33 = 52.33$ dBuV/m which is under 54dBuV/m limit.

NOTE 3: The band edge emission plot on the next fourth page shows 51.41dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 116.31dBuV/m (Peak), so the maximum field strength in restrict band is $116.31 - 51.41 = 64.90$ dBuV/m which is under 74dBuV/m limit.

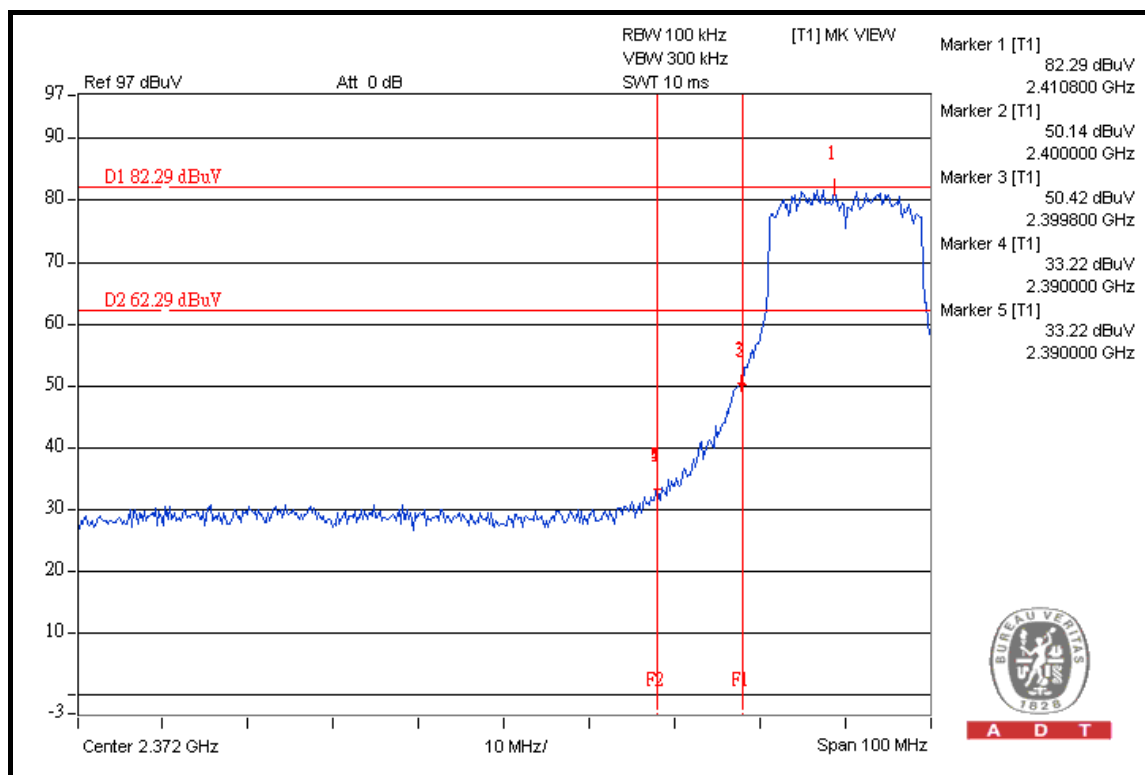
The band edge emission plot on the next fourth page shows 54.11dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 10 at the item 4.1.7 is 105.81dBuV/m (Average), so the maximum field strength in restrict band is $105.81 - 54.11 = 51.70$ dBuV/m which is under 54dBuV/m limit.

NOTE 4: The band edge emission plot on the next fifth page shows 47.75dBc between carrier maximum power and local maximum emission in restrict band (2.4842GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 114.14dBuV/m (Peak), so the maximum field strength in restrict band is $114.14 - 47.75 = 66.39$ dBuV/m which is under 74dBuV/m limit.

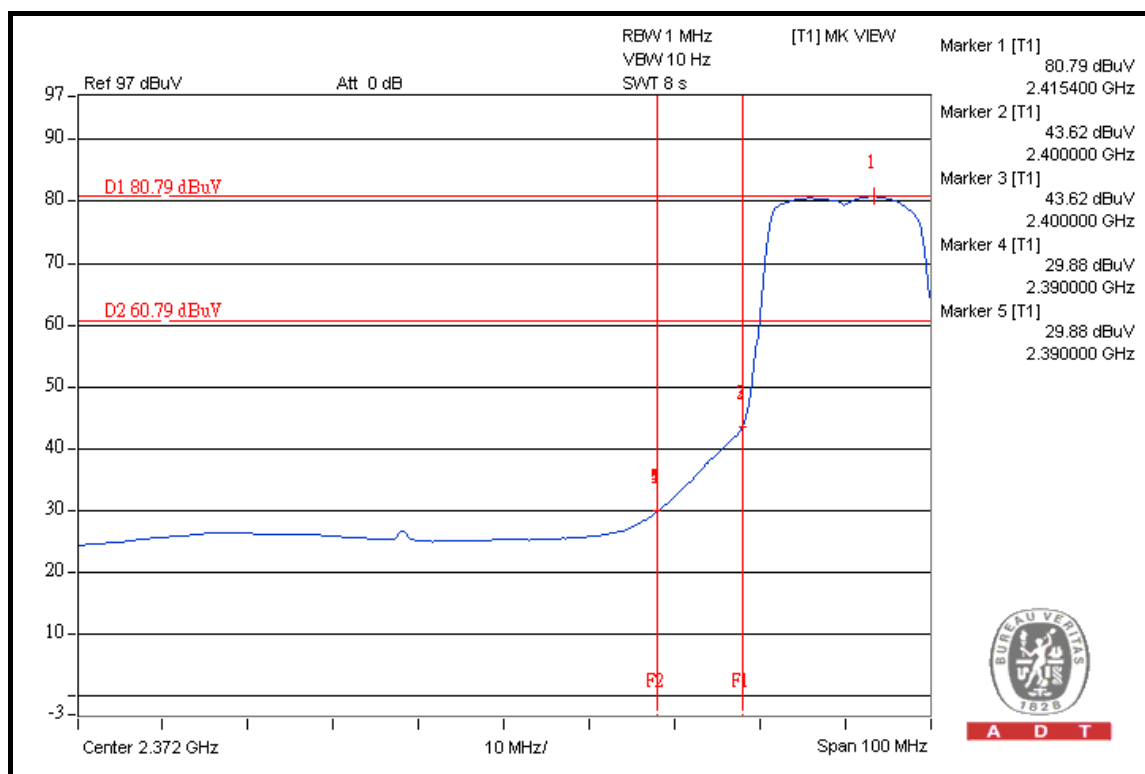
The band edge emission plot on the next sixth page shows 50.72dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 103.78dBuV/m (Average), so the maximum field strength in restrict band is $103.78 - 50.72 = 53.06$ dBuV/m which is under 54dBuV/m limit.



A D T



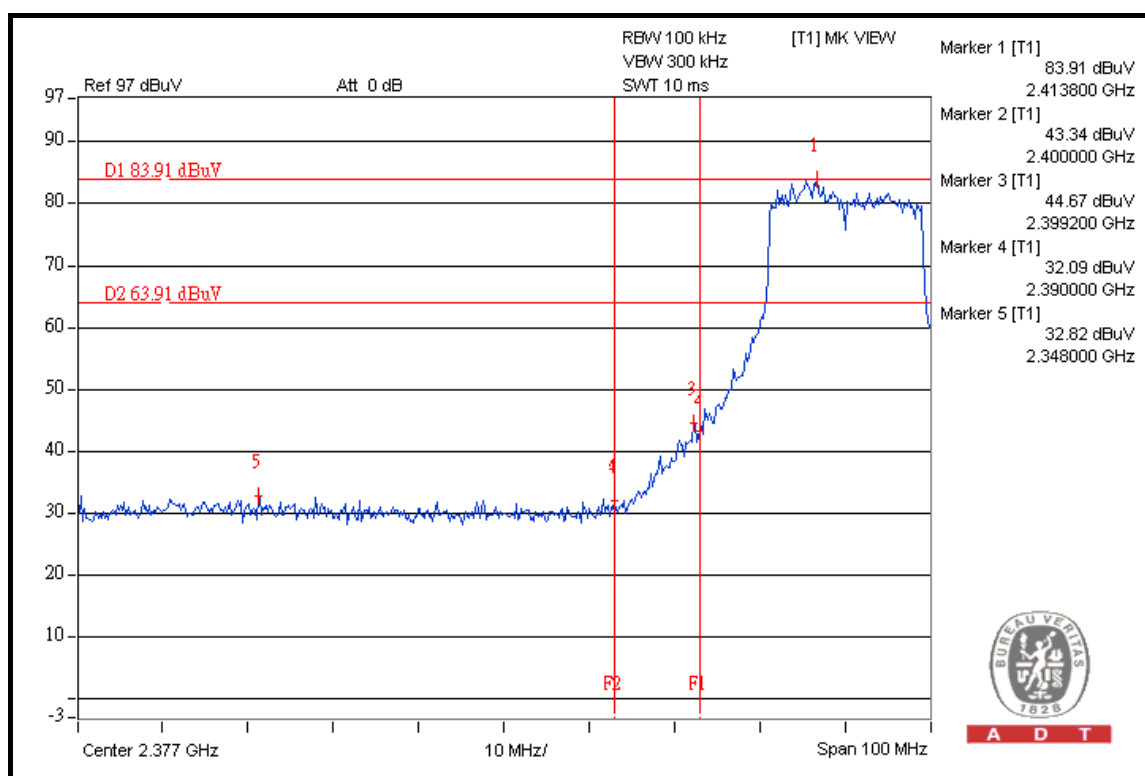
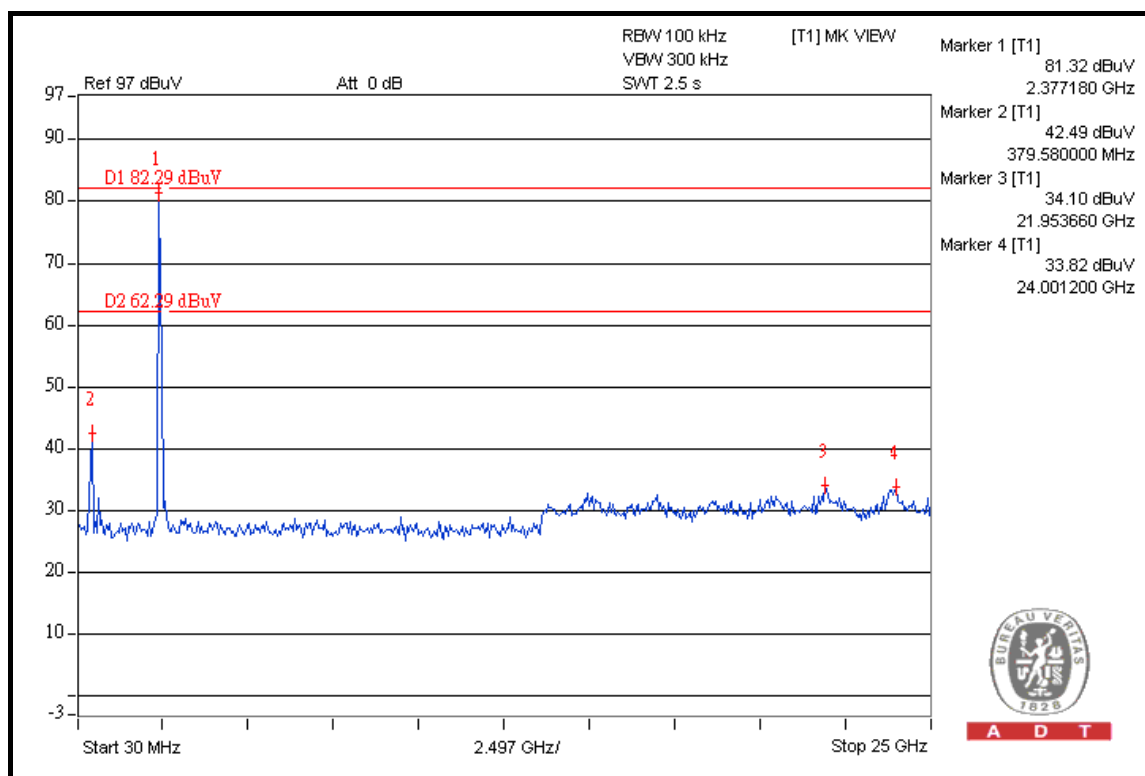
A D T



A D T

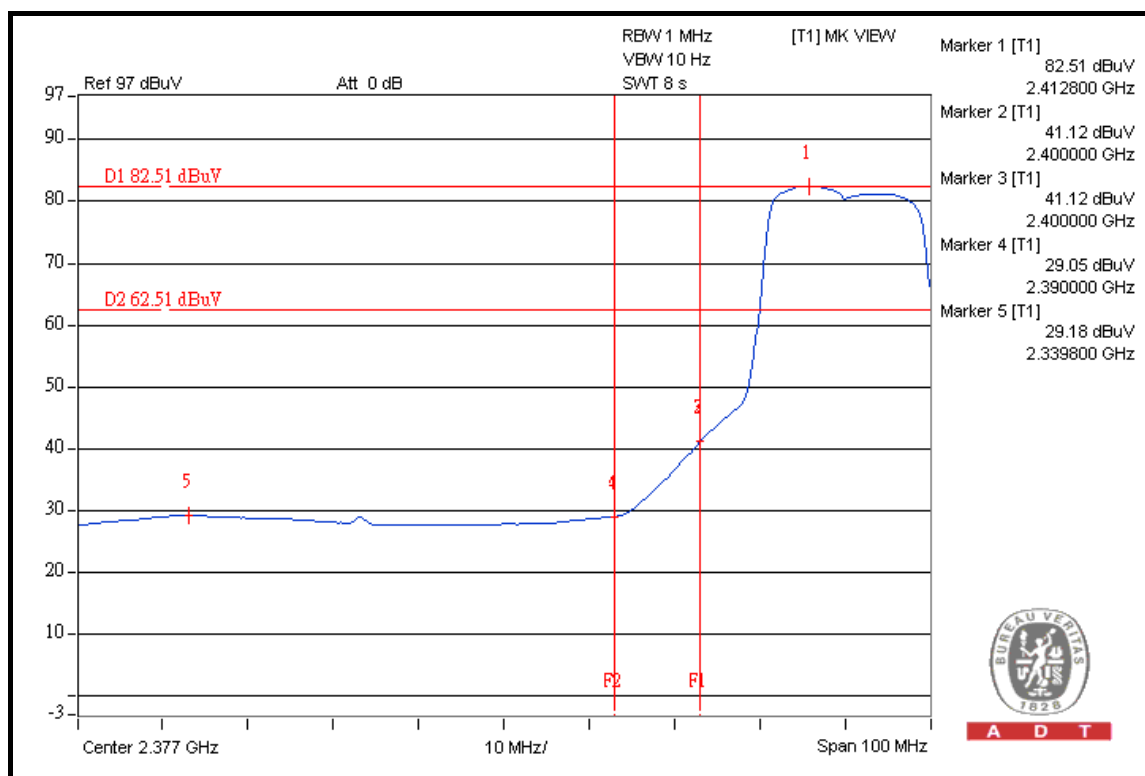


A D T

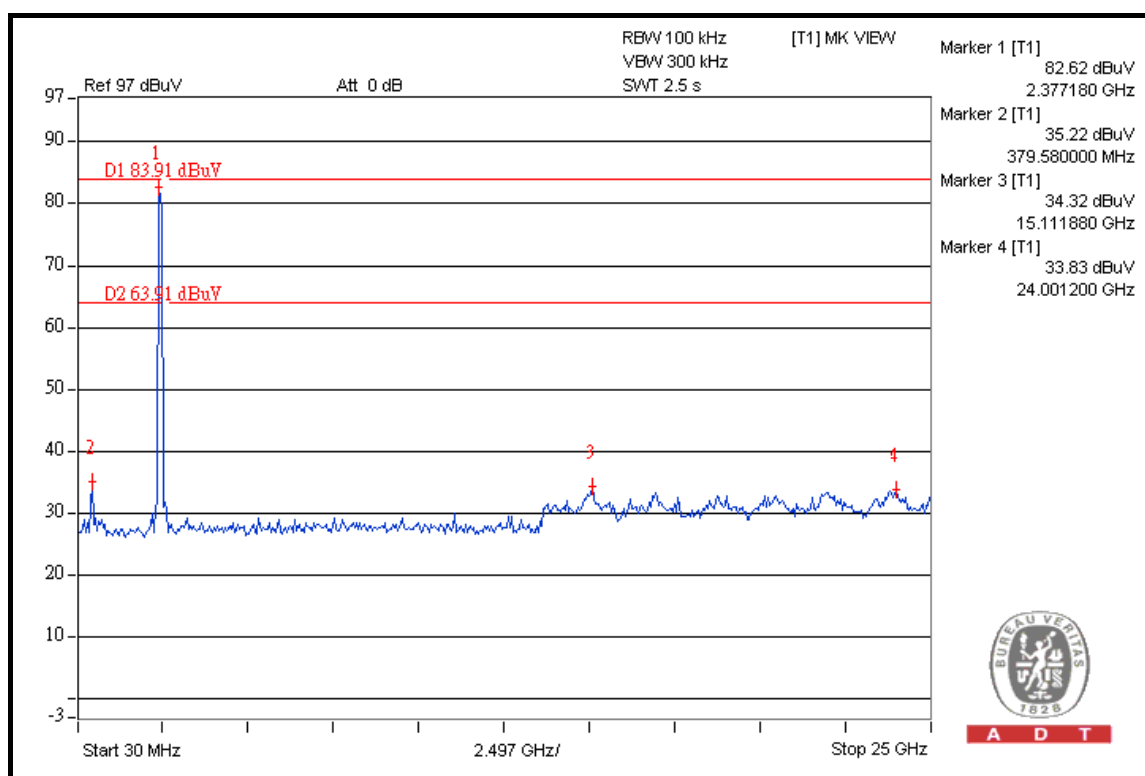




A D T



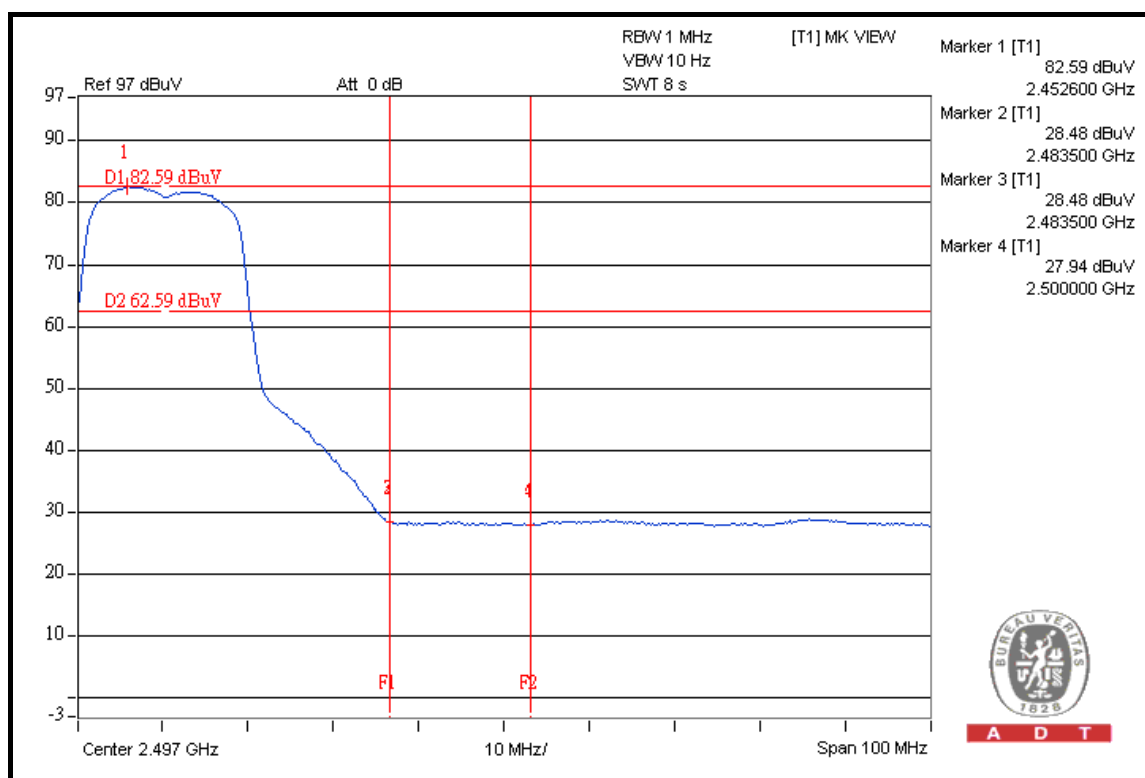
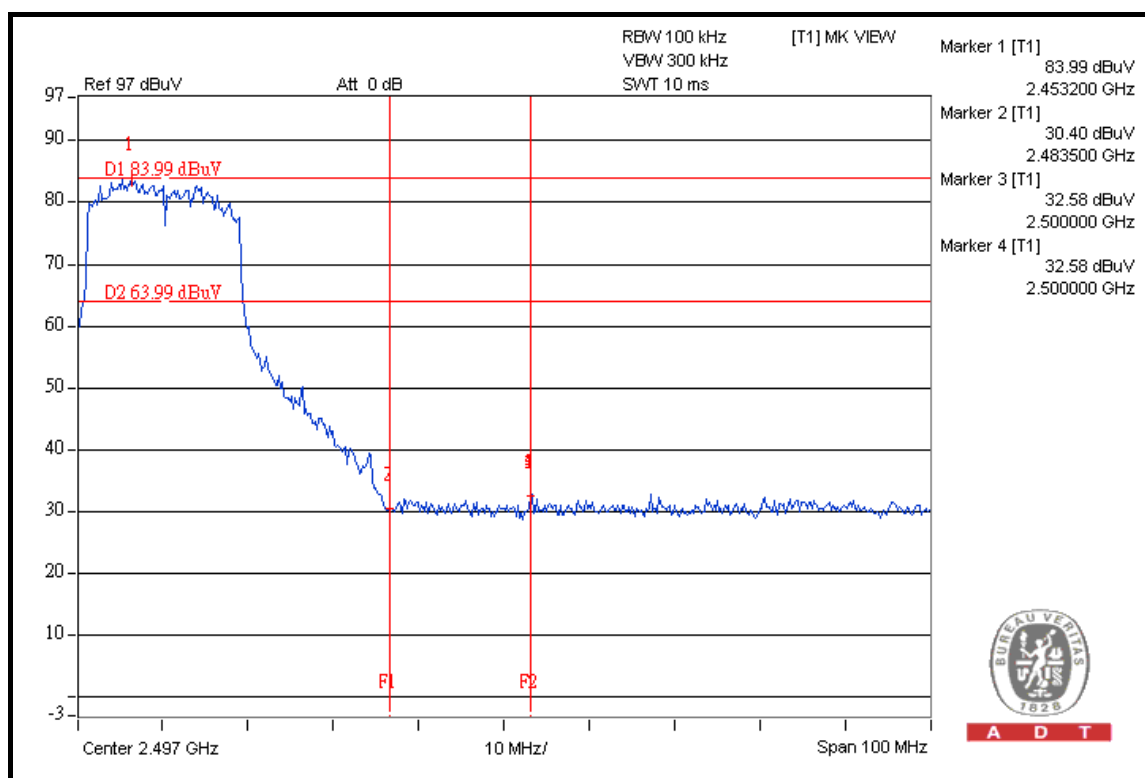
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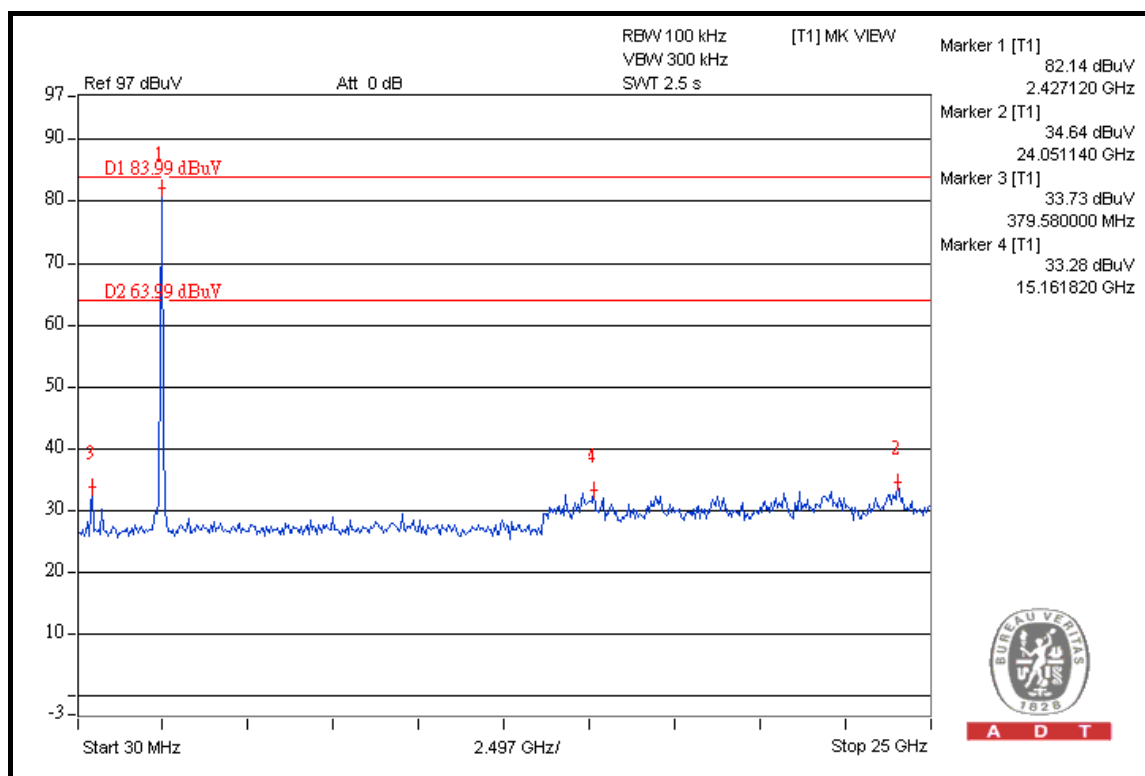


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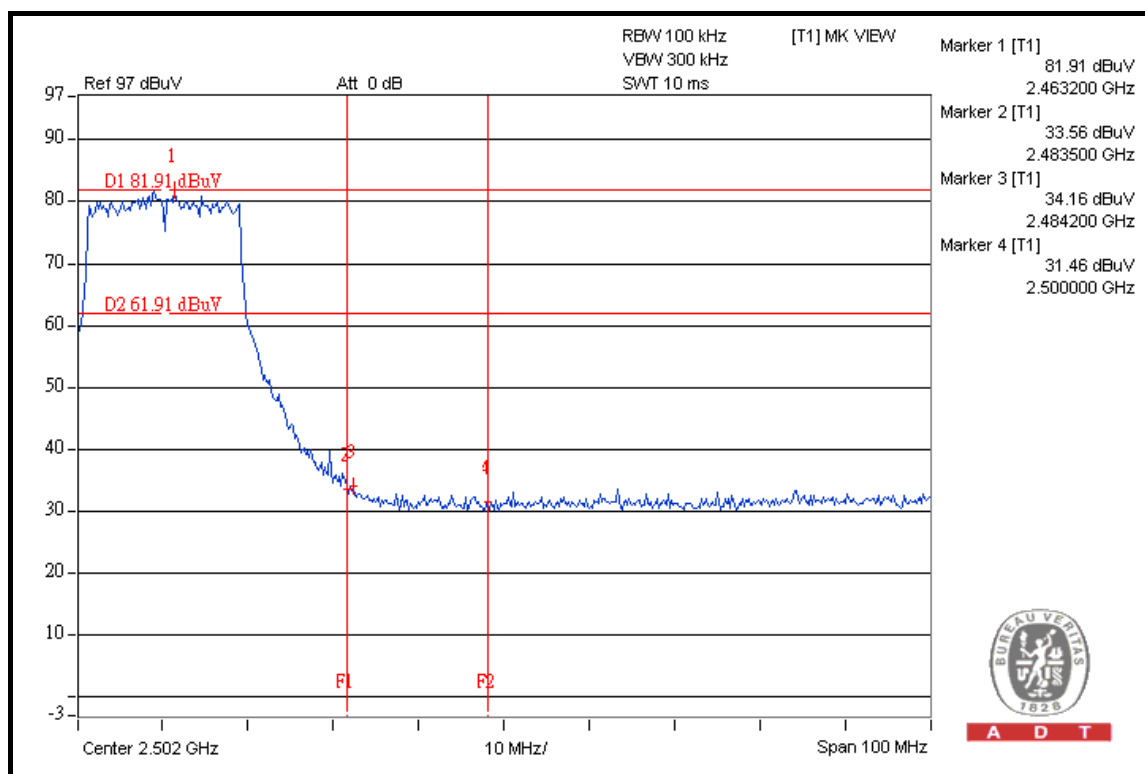




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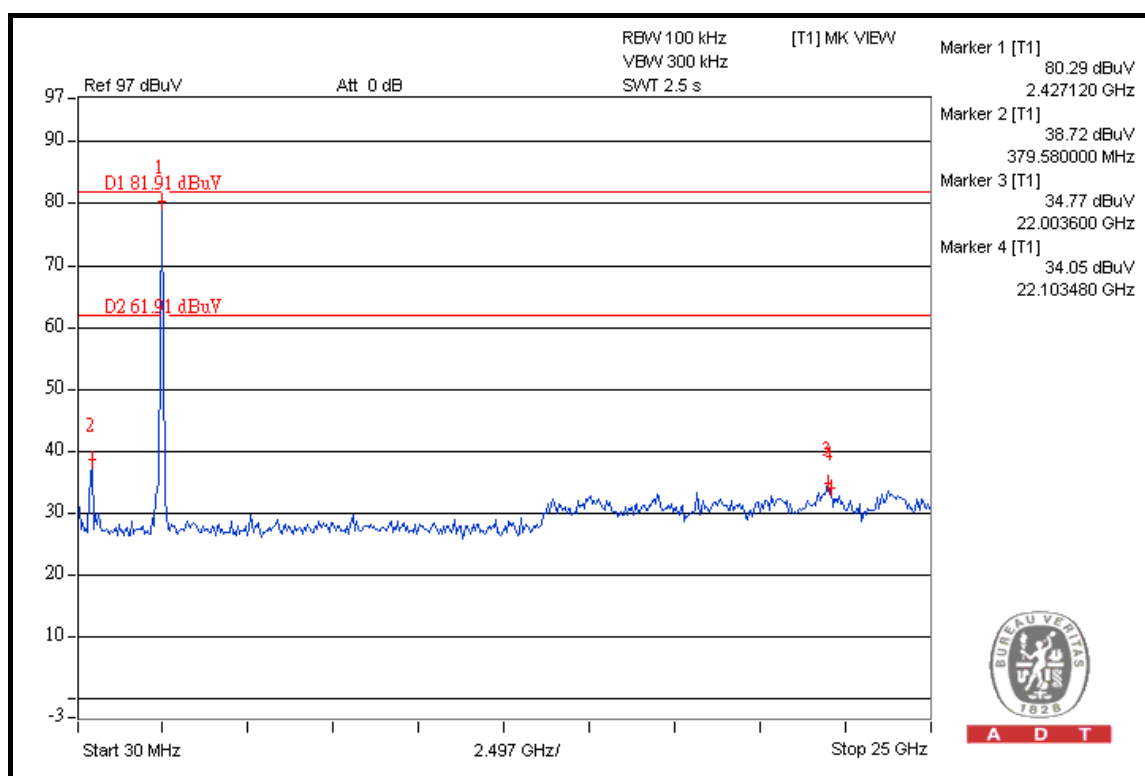
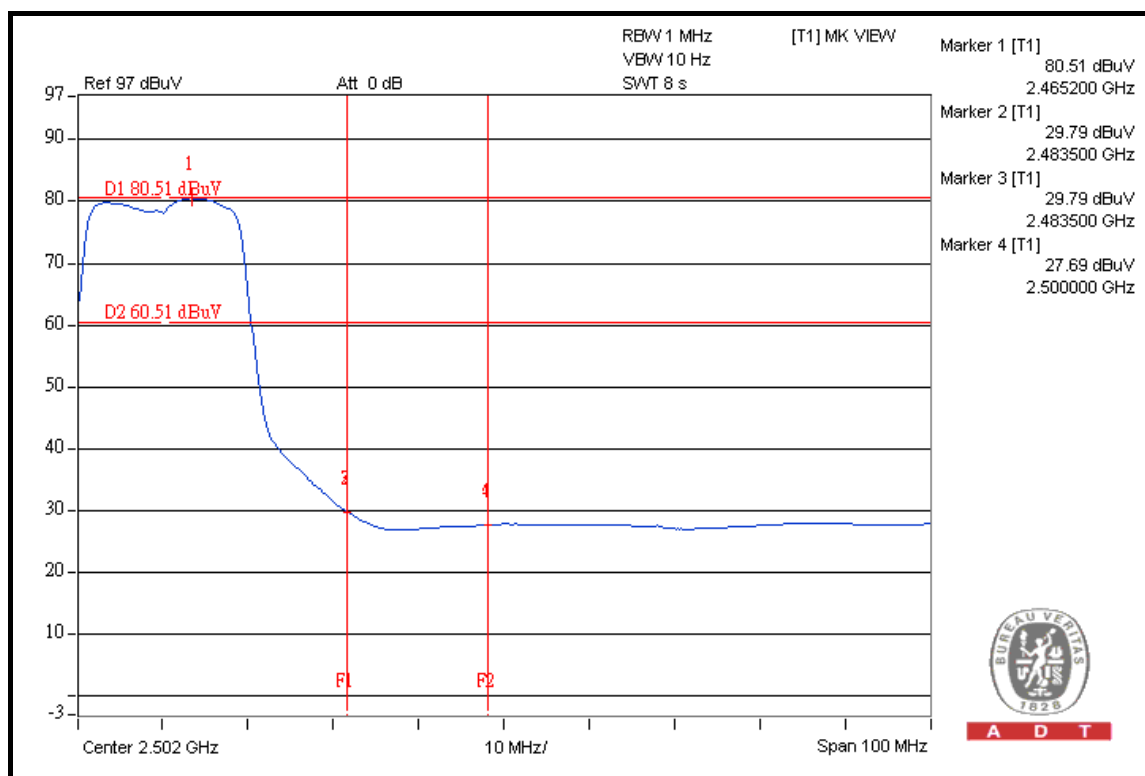
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DRAFT 802.11n (40MHz) OFDM MODULATION

NOTE 1: The band edge emission plot on the next second page shows 43.17dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 110.05dBuV/m (Peak), so the maximum field strength in restrict band is $110.05 - 43.17 = 66.88$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next second page shows 46.77dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 99.67dBuV/m (Average), so the maximum field strength in restrict band is $99.67 - 46.77 = 52.90$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 41.31dBc between carrier maximum power and local maximum emission in restrict band (2.3890GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 110.55dBuV/m (Peak), so the maximum field strength in restrict band is $110.55 - 41.31 = 69.24$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 47.21dBc between carrier maximum power and local maximum emission in restrict band (2.3870GHz). The emission of carrier strength list in the test result of channel 2 at the item 4.1.7 is 100.18dBuV/m (Average), so the maximum field strength in restrict band is $100.18 - 47.21 = 52.97$ dBuV/m which is under 54dBuV/m limit.

NOTE 3: The band edge emission plot on the next fourth page shows 41.79dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.1.7 is 109.55dBuV/m (Peak), so the maximum field strength in restrict band is $109.55 - 41.79 = 67.76$ dBuV/m which is under 74dBuV/m limit.

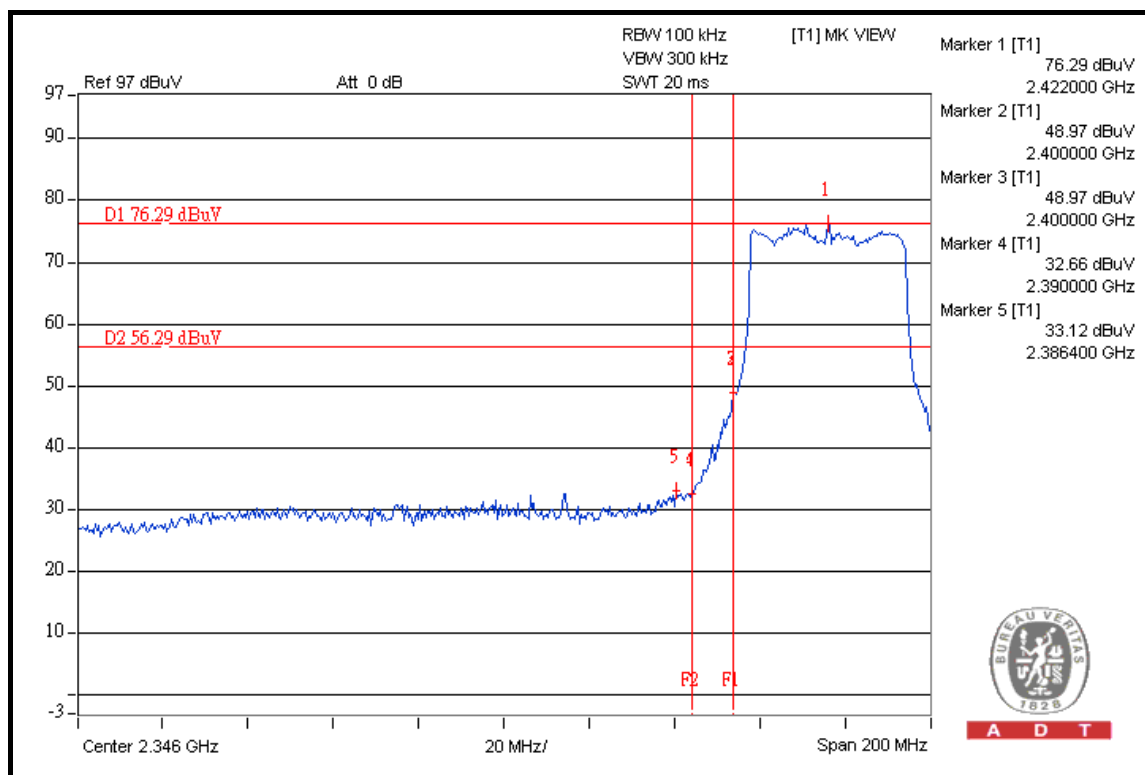
The band edge emission plot on the next fourth page shows 46.40dBc between carrier maximum power and local maximum emission in restrict band (2.4870GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.1.7 is 99.21dBuV/m (Average), so the maximum field strength in restrict band is $99.21 - 46.40 = 52.81$ dBuV/m which is under 54dBuV/m limit.

NOTE 4: The band edge emission plot on the next fifth page shows 40.71dBc between carrier maximum power and local maximum emission in restrict band (2.4920GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 108.80dBuV/m (Peak), so the maximum field strength in restrict band is $108.80 - 40.71 = 68.09$ dBuV/m which is under 74dBuV/m limit.

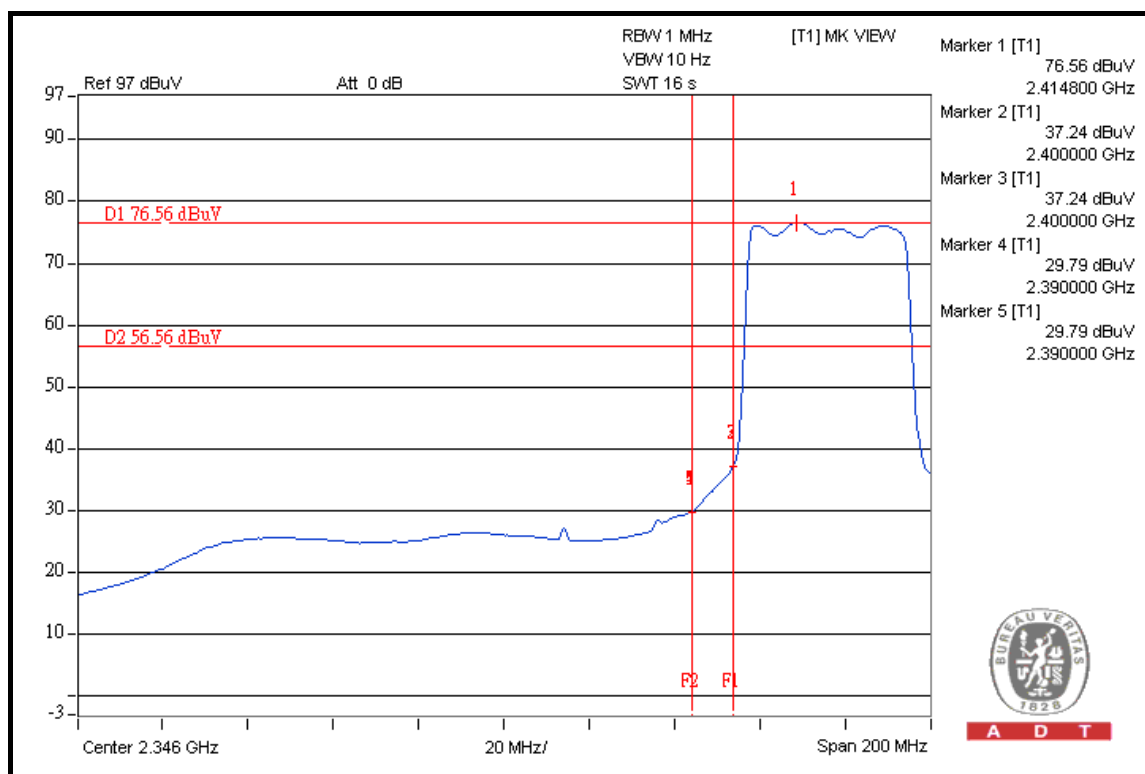
The band edge emission plot on the next sixth page shows 45.52dBc between carrier maximum power and local maximum emission in restrict band (2.4920GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 98.37dBuV/m (Average), so the maximum field strength in restrict band is $98.37 - 45.52 = 52.85$ dBuV/m which is under 54dBuV/m limit.



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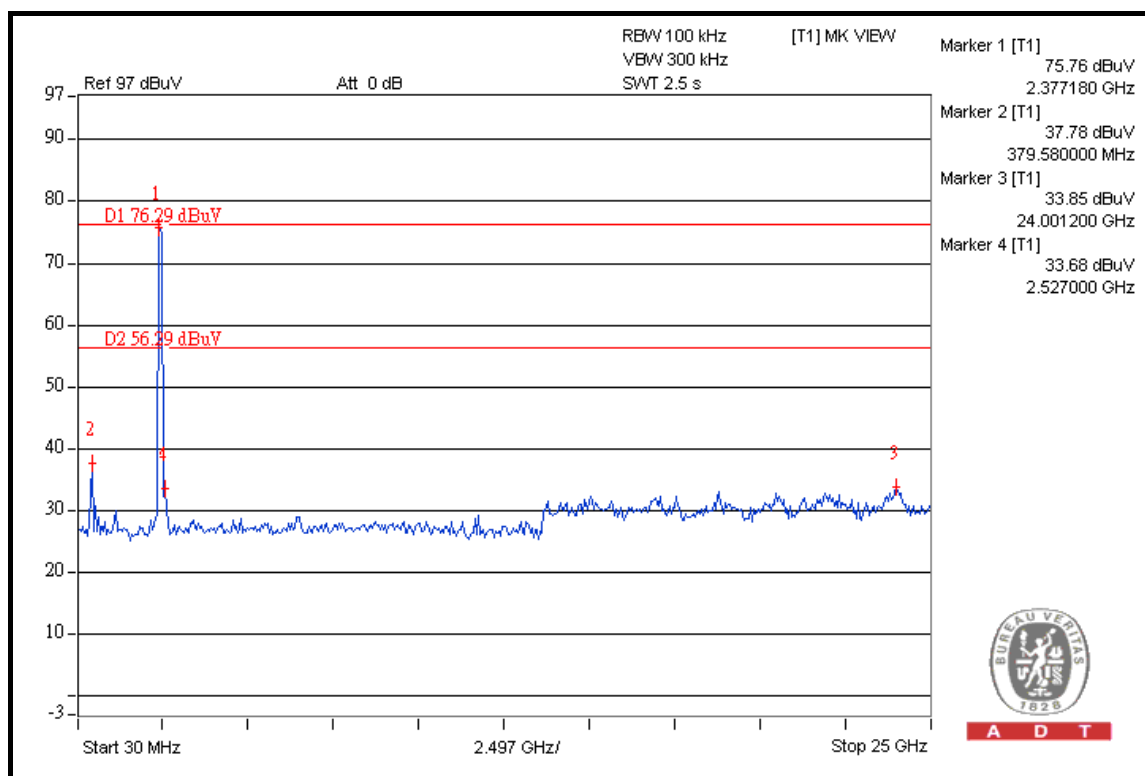
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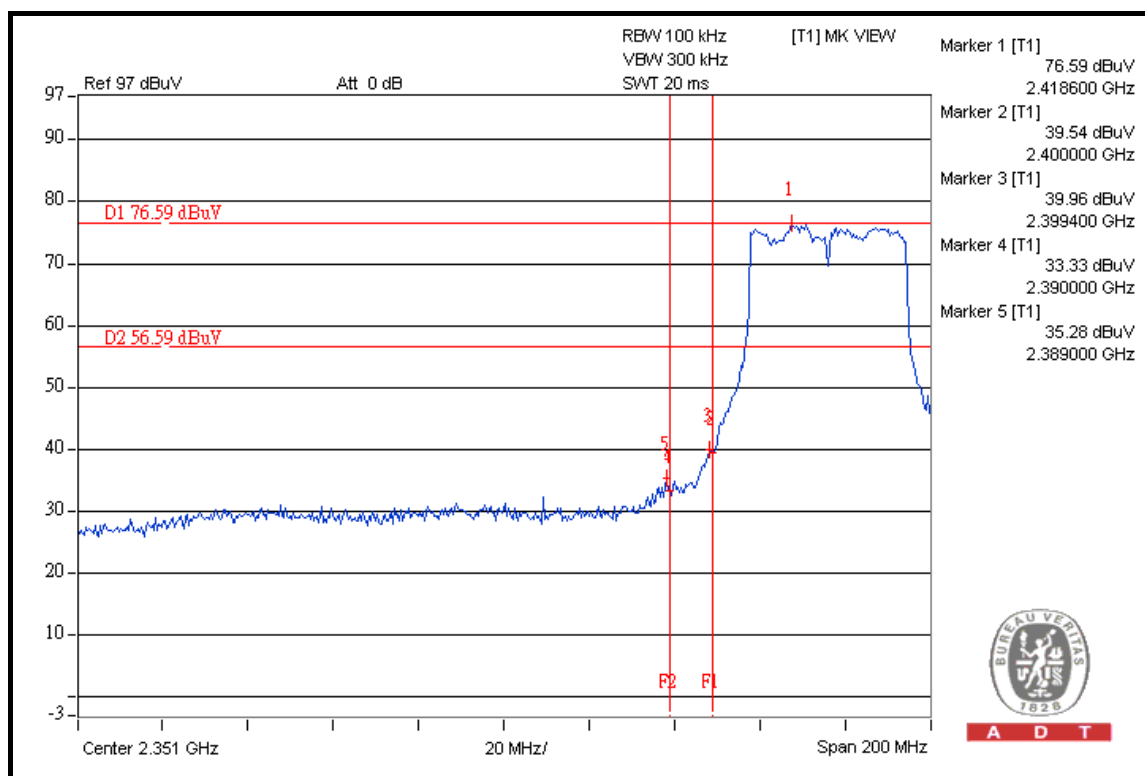
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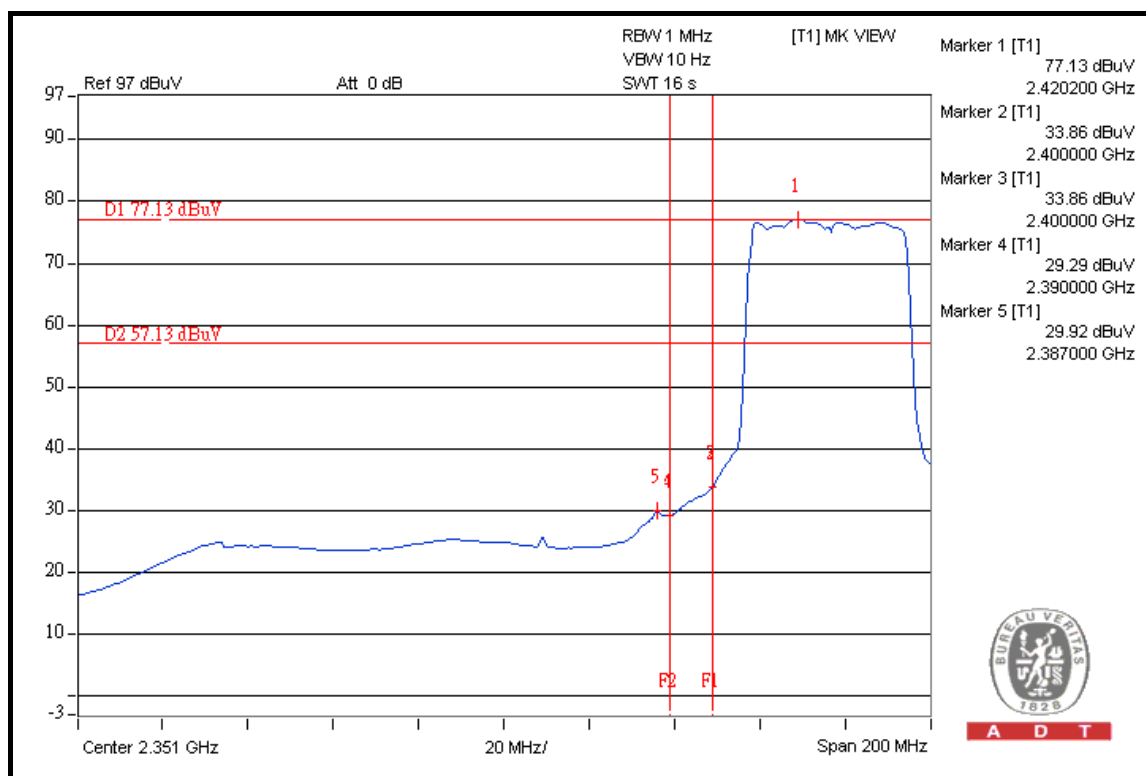
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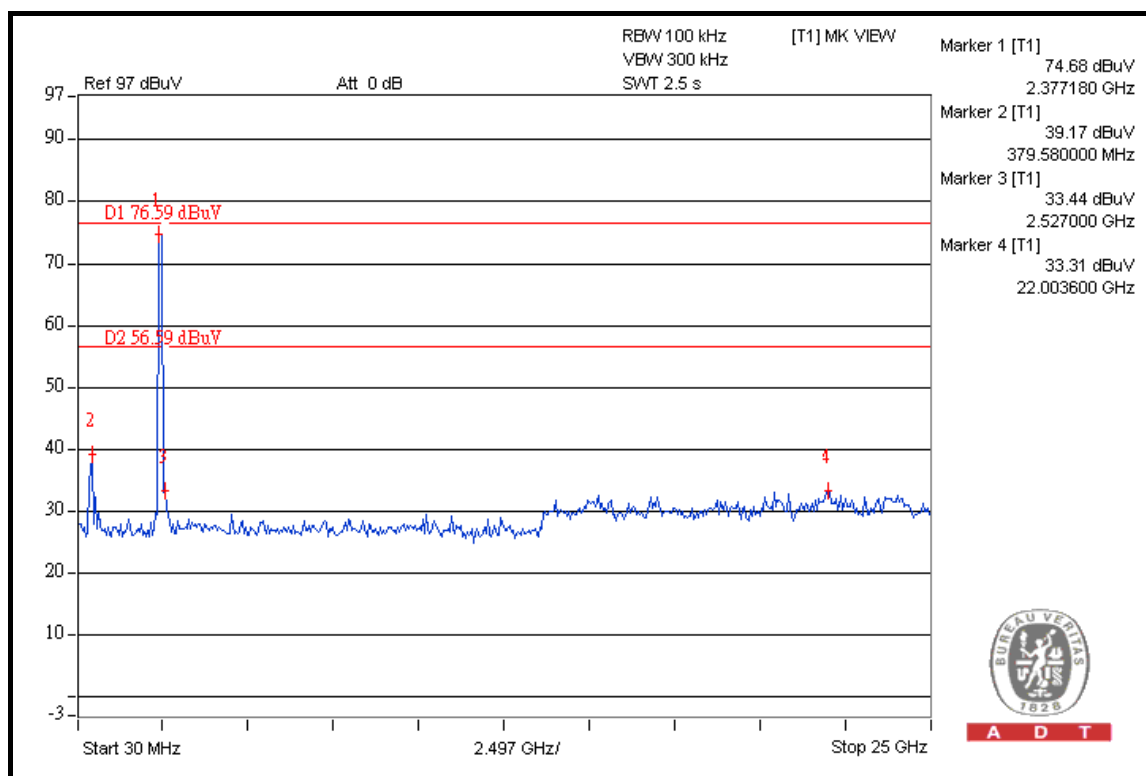
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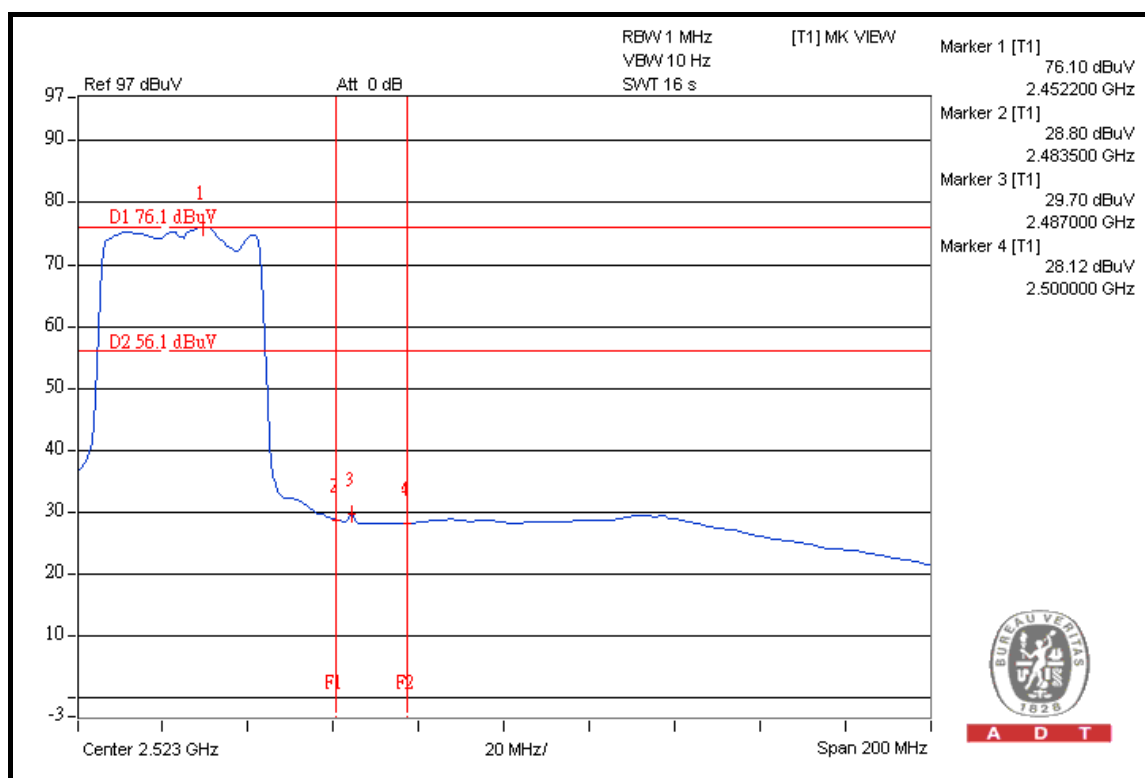
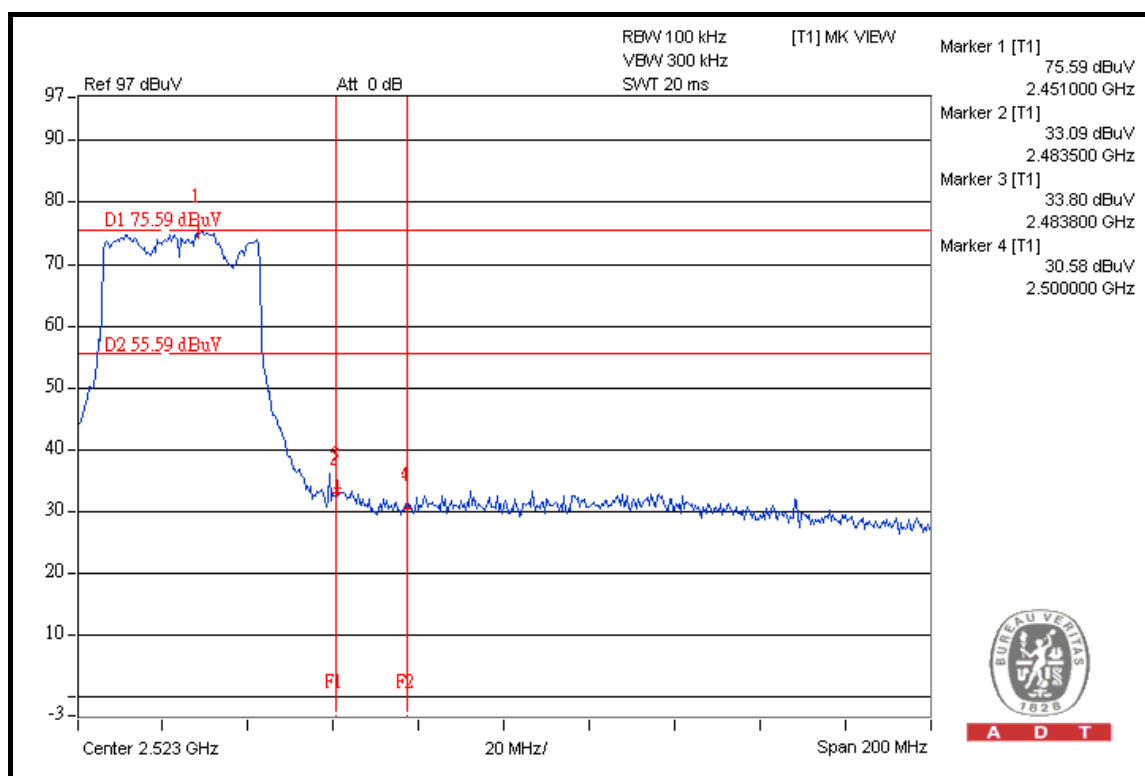
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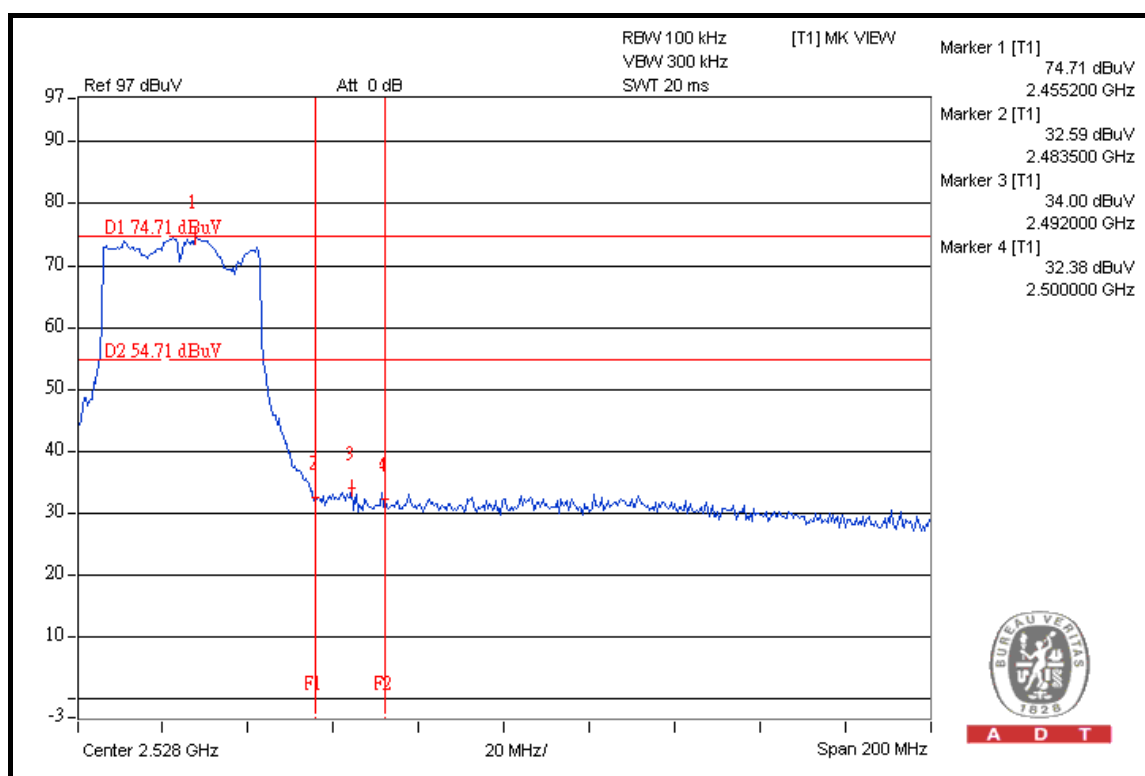
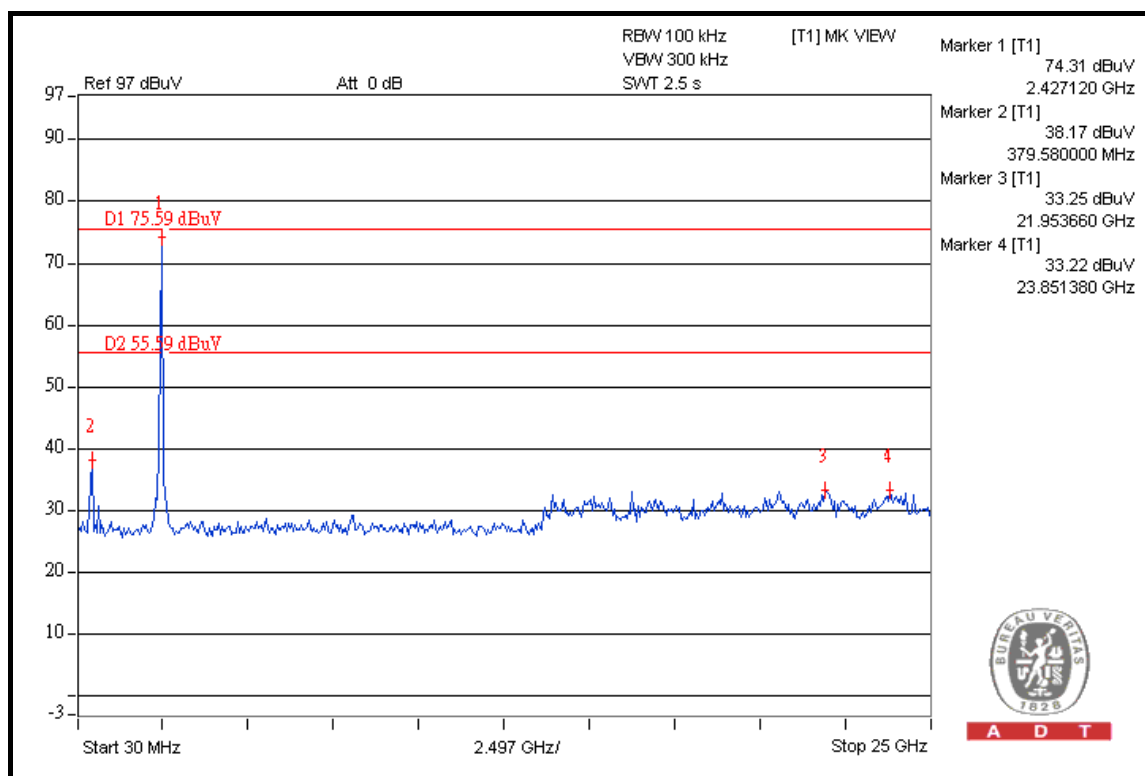


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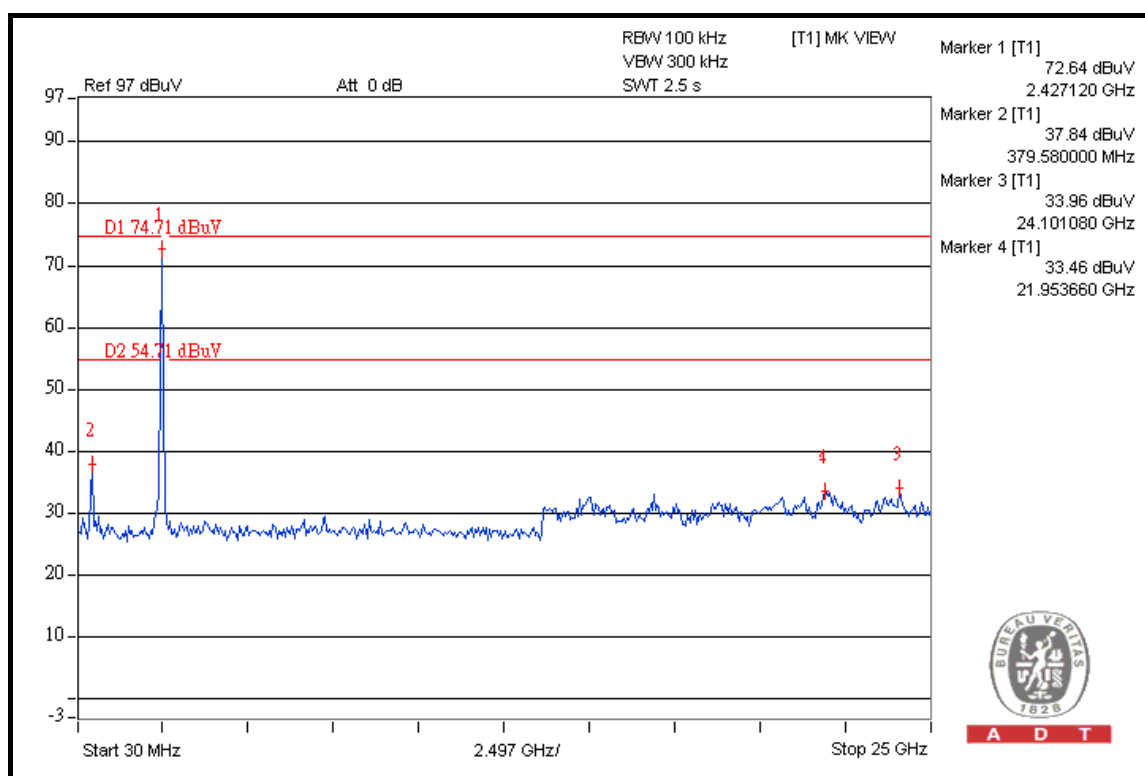
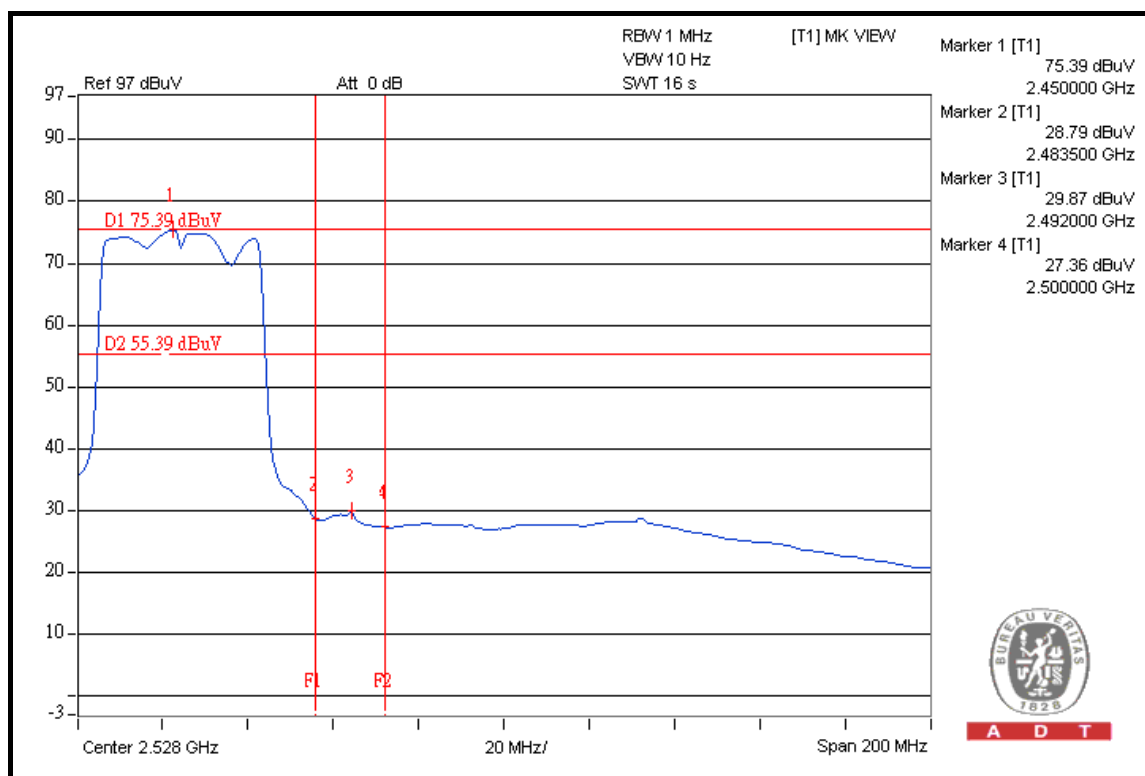


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4.7 ANTENNA REQUIREMENT

4.7.1 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 15.247 (b), 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.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are Dipole antenna with UFL antenna connector and Printed antenna without antenna connector. The maximum Gain of the antenna is 2.85dBi.

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.

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