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FCC TEST REPORT (15.247)

REPORT NO.: RF991004D02

MODEL NO.: M3260

FCC ID: Q87-M3260

RECEIVED: Oct. 4, 2010

TESTED: Dec. 7 ~ 24, 2010

ISSUED: Jan. 25, 2011

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive , Irvine California 92617 United States

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB LOCATION: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien, 244 Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Jan. 25, 2011



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1. CERTIFICATION

PRODUCT: Digital Video Recorder
BRAND NAME: CISCO
MODEL NO.: M3260
APPLICANT: Cisco-Linksys LLC
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Dec. 7 ~ 24, 2010
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment 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 : Annie Chang , **DATE:** Jan. 25, 2011
(Annie Chang / Senior Specialist)

APPROVED BY : Ken Liu , **DATE:** Jan. 25, 2011
(Ken Liu / Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.22dB at 0.150MHz.
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 -1.2dB at 2390.00 MHz
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.
15.203	Antenna Requirement	PASS	Antenna connector is U.FL not a standard connector.

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:

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.41 dB
Radiated emissions	30MHz ~ 1GHz	3.67 dB
	Above 1GHz	2.89 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Digital Video Recorder
MODEL NO.	M3260
FCC ID	Q87-M3260
NOMINAL VOLTAGE	3.7Vdc from battery 5Vdc from AC adapter or host equipment (Charging only)
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 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 22Mbps
OPERATING FREQUENCY	2.4GHz: 2412.0 ~ 2462.0MHz 5.0GHz: 5745.0 ~ 5805.0MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	175.8mW for 2412.0 ~ 2462.0MHz 136.5mW for 5745.0 ~ 5805.0MHz
ANTENNA TYPE	Refer to note below
ANTENNA CONNECTER	Refer to note below
DATA CABLE	Shielded USB cable (1.2 m) Shielded HDMI cable (1.2 m) with two ferrite cores
I/O PORTS	Refer to User's manual
ACCESSORY DEVICES	Refer to note below

NOTE:

1. The EUT is a Digital Video Recorder. The functions of EUT listed as below:

Function	Test Standard	Reference Report
WLAN 802.11an (5180~5240MHz)	FCC Part 15, Subpart E (Section 15.407)	RF991004D02-1
WLAN 802.11bgn	FCC Part 15, Subpart C (Section 15.247)	RF991004D02
WLAN 802.11an (5745~5805 MHz)		

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

Frequency Band (MHz)	2412~2462	5180~5240	5745~5805
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

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

4. The following antennas were applied to the EUT:

Type	Connector	Gain (dBi)		
		2.4G	5.0G (Band 4)	5.0G (Band 1)
PIFA	U.FL	1.0	3.5	4.8

5. The EUT consumes power from the following AC adapter:

BRAND	MODEL NO.	SPEC.
Pure Digital Technologies, Inc	APA1B	AC I/P: 100-240V, 50-60Hz, 0.15A DC O/P: 5V, 1A AC 2-pin, Non-shielded DC (1.2m) with one ferrite core

6. The EUT's battery can be charged via USB connector. A computer or adapter can be used as charging device. The USB function on this product is for battery charging only, no data transmitting and/or receiving function involved.

7. 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

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 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		

7 channels are provided for 802.11n (40MHz):

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

FOR 5.0GHz (5745 ~ 5805MHz):

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

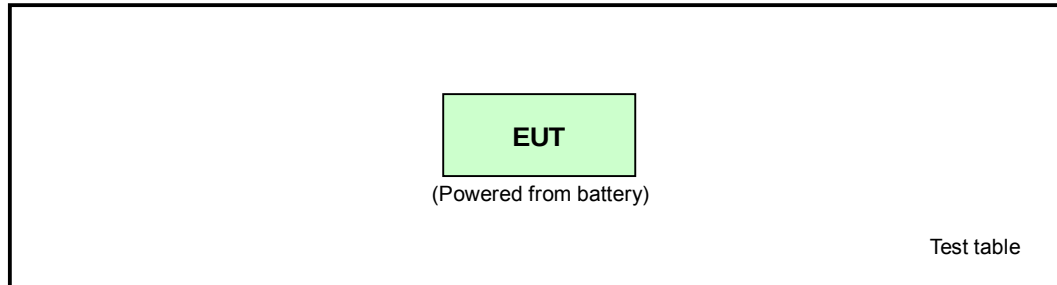
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz		
157	5785MHz		

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

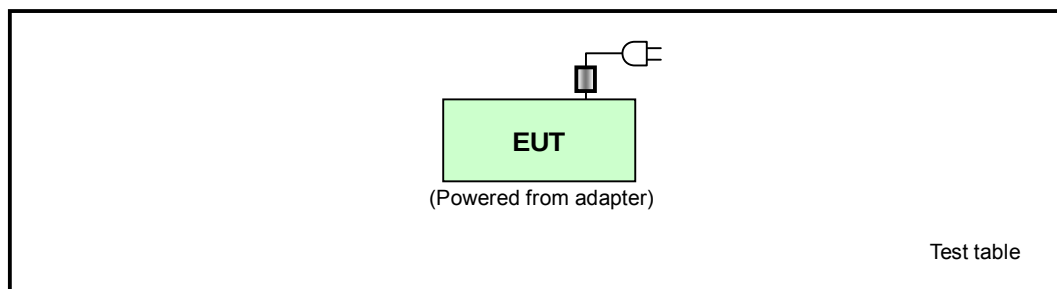
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

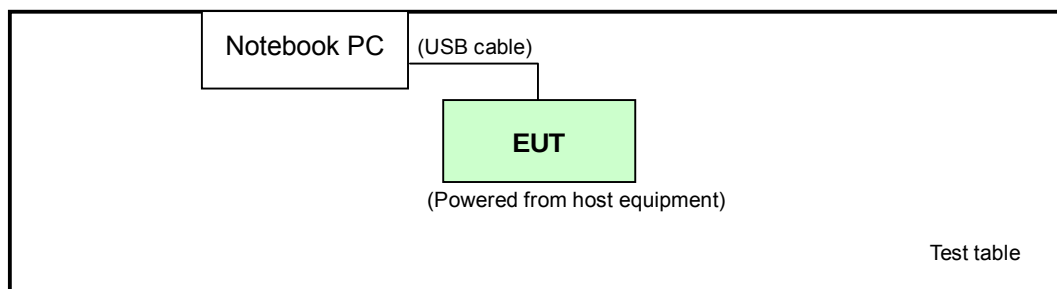
Test Mode A:



Test Mode B:



Test Mode C:



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.400 ~ 2.4835GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE ³ 1G	RE<1G	PLC	APCM	
A	√	√	Note	√	Operating Mode (Powered from battery)
B	-	√	√	-	Charging Mode (Powered from adapter)
C	-	√	√	-	Charging Mode (Powered from host equipment)

Where **RE³1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	X
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	22.0	X
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	22.0	X

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	11	DSSS	DBPSK	1.0	X
B & C	-	-	-	-	-	-	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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B & C	-	-	-	-	-	-

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	22.0
A	802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	22.0

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rate, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	X
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	22.0	X
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	22.0	X

**A D T****TEST CONDITION:**

APPLICABLE TO	EUT CONFIGURE MODE	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	A	21deg. C, 75% RH, 1022hPa	3.7Vdc	Nick Chen
RE <1G	A	21deg. C, 75% RH, 1022hPa	3.7Vdc	Nick Chen
	B	15deg. C, 58%RH, 1017hPa	120Vac, 60Hz	Nick Chen
	C	15deg. C, 58%RH, 1017hPa	120Vac, 60Hz (SYSTEM)	Nick Chen
PLC	B	15deg. C, 71%RH, 1015hPa	120Vac, 60Hz	Chad Lee
	C	15deg. C, 71%RH, 1015hPa	120Vac, 60Hz (SYSTEM)	Chad Lee
APCM	A	19deg. C, 80% RH, 1015hPa	3.7Vdc	Chad Lee



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FOR 5.745 ~ 5.805GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE ³ 1G	RE<1G	PLC	APCM	
A	√	√	Note	√	Operating Mode (Powered from battery)

Where **RE³1G**: Radiated Emission above 1GHz**RE<1G**: Radiated Emission below 1GHz**PLC**: Power Line Conducted Emission**APCM**: Antenna Port Conducted Measurement**Note**: No need to concern of Conducted Emission due to the EUT is powered by battery.**RADIATED EMISSION TEST (ABOVE 1GHz):**

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	149 to 161	149, 157, 161	OFDM	BPSK	6.0	X
A	802.11n (20MHz)	149 to 161	149, 157, 161	OFDM	BPSK	22.0	X
A	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	22.0	X

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	149 to 161	149	OFDM	BPSK	6.0	X

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 161	149, 161	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 161	149, 161	OFDM	BPSK	22.0
A	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	22.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	149 to 161	149, 157, 161	OFDM	BPSK	6.0	X
A	802.11n (20MHz)	149 to 161	149, 157, 161	OFDM	BPSK	22.0	X
A	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	22.0	X

TEST CONDITION:

APPLICABLE TO	EUT CONFIGURE MODE	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	A	16deg. C, 60% RH, 1016hPa	3.7Vdc	Nick Chen
RE <1G	A	15deg. C, 58% RH, 1017hPa	3.7Vdc	Nick Chen
APCM	A	19deg. C, 80% RH, 1015hPa	3.7Vdc	Chad Lee



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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

ANSI C63.10-2009

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	20375526736	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

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

4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100276	Dec. 15, 2010	Dec. 14, 2011
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100219	Nov. 24, 2010	Nov. 23, 2011
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 24, 2010	Nov. 23, 2011
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 24, 2010	Nov. 23, 2011
Software	ADT_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	Feb. 23, 2010	Feb. 22, 2011
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 23, 2010	Feb. 22, 2011

- 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 Shielded Room No. 10.
3. The VCCI Site Registration No. C-1852.

4.1.3 TEST PROCEDURES

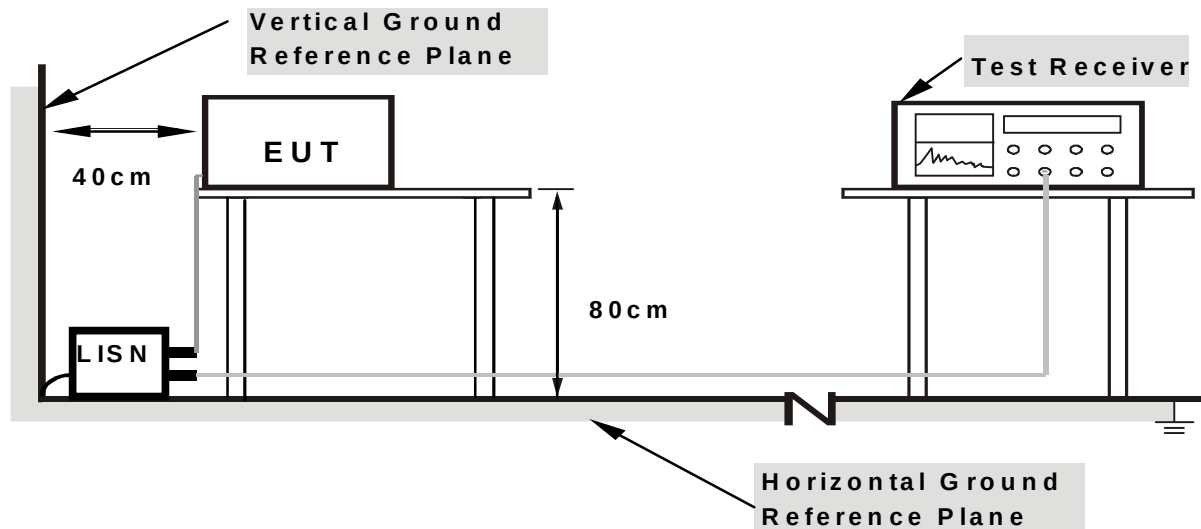
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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.

NOTE: 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



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 support units.

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

4.1.6 EUT OPERATING CONDITIONS

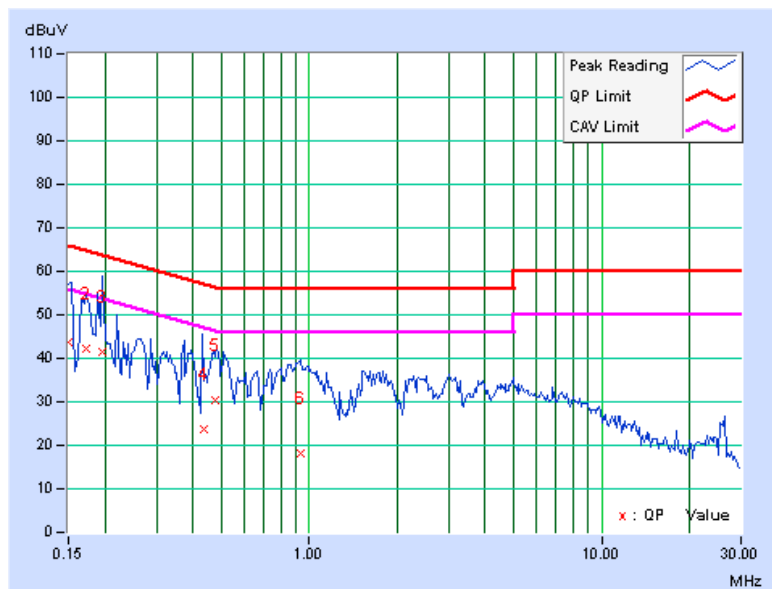
- Connected the EUT to an adapter or notebook placed on a testing table.
- Set the EUT under charging condition.

4.1.7 TEST RESULTS

TEST MODE	B		
6dB BANDWIDTH	9kHz	PHASE	Line 1

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.14	43.38	-	43.52	-	66.00	56.00	-22.48	-
2	0.173	0.14	42.06	-	42.20	-	64.80	54.80	-22.60	-
3	0.197	0.14	41.47	-	41.61	-	63.74	53.74	-22.13	-
4	0.436	0.24	23.57	-	23.81	-	57.15	47.15	-33.33	-
5	0.477	0.24	30.15	-	30.39	-	56.39	46.39	-26.00	-
6	0.931	0.26	17.89	-	18.15	-	56.00	46.00	-37.85	-

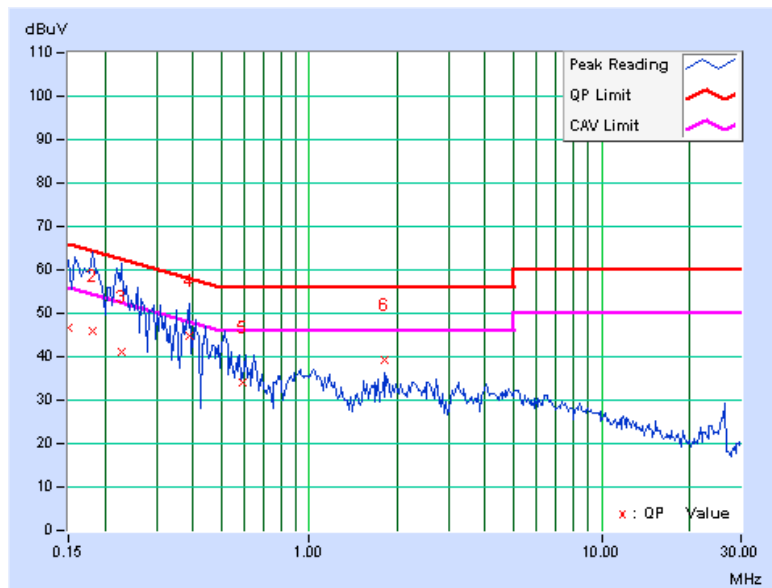
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	B		
6dB BANDWIDTH	9kHz	PHASE	Line 2

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.15	46.50	-	46.65	-	66.00	56.00	-19.35	-
2	0.181	0.15	45.76	-	45.91	-	64.43	54.43	-18.52	-
3	0.228	0.16	40.81	-	40.97	-	62.52	52.52	-21.54	-
4	0.390	0.24	44.54	-	44.78	-	58.07	48.07	-13.29	-
5	0.590	0.26	33.75	-	34.01	-	56.00	46.00	-21.99	-
6	1.801	0.29	39.01	-	39.30	-	56.00	46.00	-16.70	-

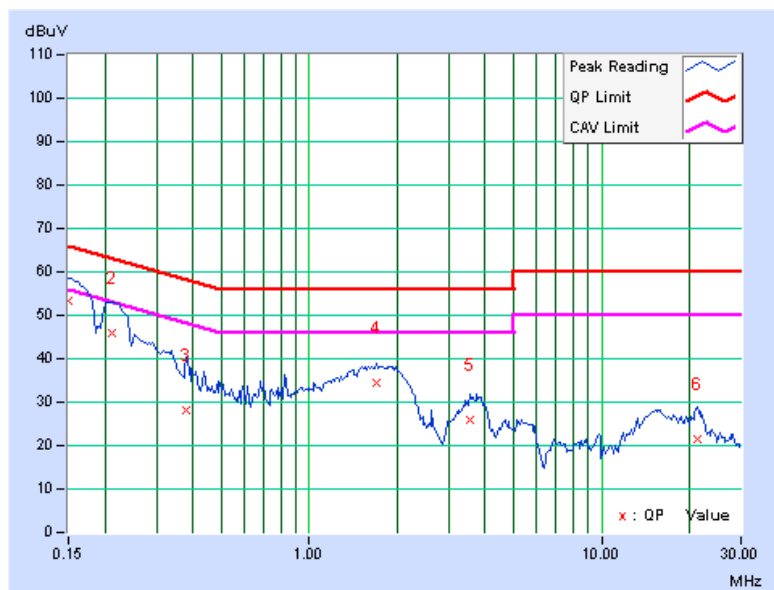
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



TEST MODE	C		
6dB BANDWIDTH	9kHz	PHASE	Line 1

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.14	53.09	-	53.23	-	66.00	56.00	-12.77	-
2	0.213	0.15	45.60	-	45.75	-	63.11	53.11	-17.36	-
3	0.380	0.23	27.92	-	28.15	-	58.27	48.27	-30.12	-
4	1.697	0.28	34.31	-	34.59	-	56.00	46.00	-21.41	-
5	3.547	0.42	25.44	-	25.86	-	56.00	46.00	-30.14	-
6	21.360	1.36	20.07	-	21.43	-	60.00	50.00	-38.57	-

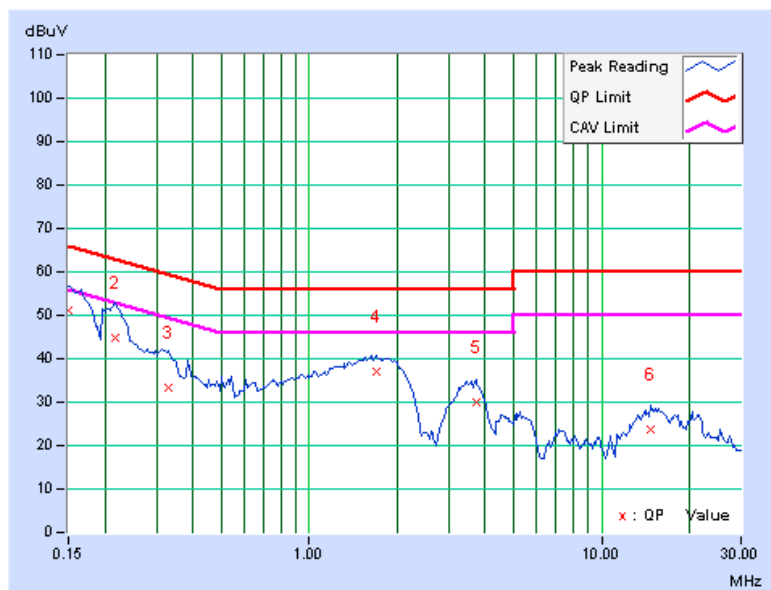
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	C		
6dB BANDWIDTH	9kHz	PHASE	Line 2

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.15	51.03	-	51.18	-	66.00	56.00	-14.82	-
2	0.216	0.16	44.64	-	44.80	-	62.96	52.96	-18.16	-
3	0.328	0.21	33.03	-	33.24	-	59.49	49.49	-26.25	-
4	1.707	0.28	36.58	-	36.86	-	56.00	46.00	-19.14	-
5	3.737	0.42	29.47	-	29.89	-	56.00	46.00	-26.11	-
6	14.686	0.83	22.85	-	23.68	-	60.00	50.00	-36.32	-

- 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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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.

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4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 06, 2010	May 05, 2011
HP Preamplifier	8449B	3008A01924	Jul. 14, 2010	Jul. 13, 2011
HP Preamplifier	8449B	3008A01292	Jul. 14, 2010	Jul. 13, 2011
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

4.2.3 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 height of antenna 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.

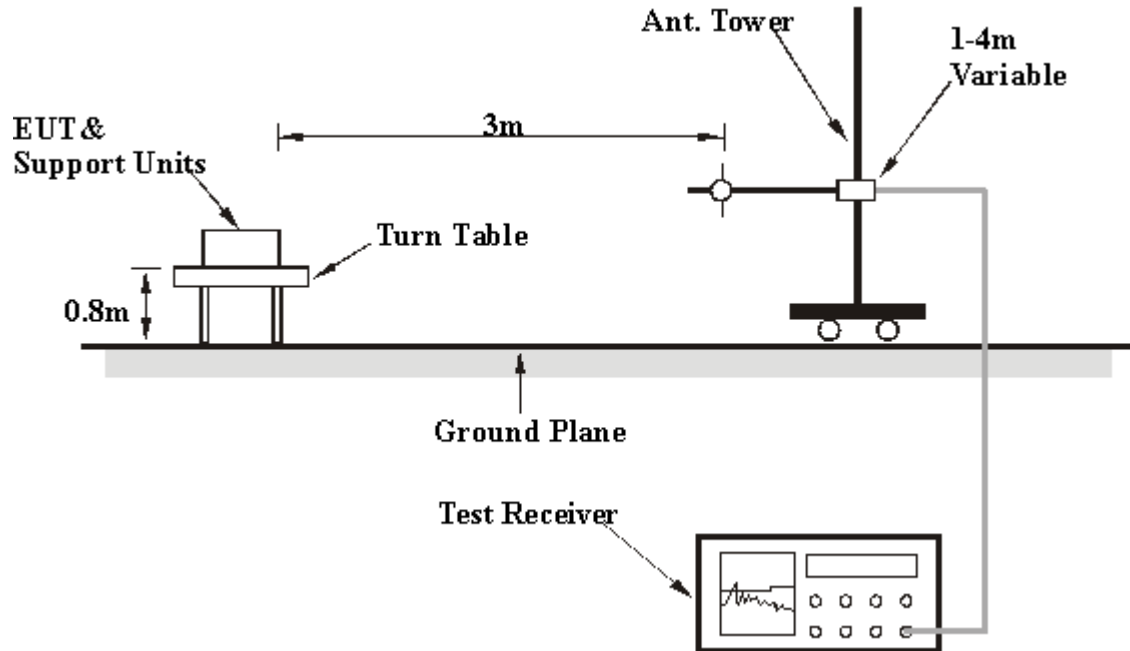
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

- Turn on the power of all equipment.
- EUT ran a test program (provided by manufacture) to enable it under transmitting condition at specific channel continuously.



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4.2.7 TEST RESULTS

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	59.1 PK	74.0	-14.9	1.00 H	201	26.67	32.47
2	2390.00	47.4 AV	54.0	-6.6	1.00 H	201	14.93	32.47
3	*2412.00	109.7 PK			1.00 H	201	77.18	32.55
4	*2412.00	104.9 AV			1.00 H	201	72.33	32.55
5	4824.00	53.7 PK	74.0	-20.3	1.13 H	46	13.82	39.92
6	4824.00	43.2 AV	54.0	-10.8	1.13 H	46	3.30	39.92
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	60.2 PK	74.0	-13.8	1.00 V	328	27.76	32.47
2	2390.00	47.9 AV	54.0	-6.1	1.00 V	328	15.41	32.47
3	*2412.00	111.1 PK			1.00 V	328	78.51	32.55
4	*2412.00	105.8 AV			1.00 V	328	73.21	32.55
5	4824.00	57.2 PK	74.0	-16.9	1.04 V	78	17.23	39.92
6	4824.00	47.0 AV	54.0	-7.0	1.04 V	78	7.09	39.92

- 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	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	109.4 PK			1.00 H	204	76.76	32.64
2	*2437.00	104.4 AV			1.00 H	204	71.73	32.64
3	4874.00	52.8 PK	74.0	-21.2	1.00 H	46	12.72	40.08
4	4874.00	41.6 AV	54.0	-12.4	1.00 H	46	1.55	40.08
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	113.0 PK			1.00 V	330	80.36	32.64
2	*2437.00	107.9 AV			1.00 V	330	75.21	32.64
3	4874.00	55.6 PK	74.0	-18.4	1.02 V	353	15.55	40.08
4	4874.00	44.2 AV	54.0	-9.8	1.02 V	353	4.14	40.08

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	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	109.5 PK			1.00 H	202	76.80	32.73
2	*2462.00	104.6 AV			1.00 H	202	71.90	32.73
3	2483.50	59.0 PK	74.0	-15.0	1.00 H	202	26.22	32.81
4	2483.50	48.4 AV	54.0	-5.6	1.00 H	202	15.61	32.81
5	4924.00	53.3 PK	74.0	-20.8	1.00 H	48	13.01	40.24
6	4924.00	42.6 AV	54.0	-11.4	1.00 H	48	2.34	40.24
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	112.2 PK			1.00 V	330	79.46	32.73
2	*2462.00	107.7 AV			1.00 V	330	74.99	32.73
3	2483.50	63.4 PK	74.0	-10.6	1.00 V	330	30.63	32.81
4	2483.50	48.6 AV	54.0	-5.4	1.00 V	330	15.80	32.81
5	4924.00	55.4 PK	74.0	-18.6	1.01 V	347	15.12	40.24
6	4924.00	44.4 AV	54.0	-9.6	1.01 V	347	4.13	40.24

- 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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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	59.8 PK	74.0	-14.2	1.00 H	203	27.30	32.47
2	2390.00	48.0 AV	54.0	-6.1	1.00 H	203	15.48	32.47
3	*2412.00	108.6 PK			1.00 H	203	76.07	32.55
4	*2412.00	98.2 AV			1.00 H	203	65.67	32.55
5	4824.00	50.0 PK	74.0	-24.0	1.12 H	45	10.07	39.92
6	4824.00	37.4 AV	54.0	-16.7	1.12 H	45	-2.57	39.92
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	63.8 PK	74.0	-10.2	1.00 V	329	31.35	32.47
2	2390.00	48.7 AV	54.0	-5.3	1.00 V	329	16.23	32.47
3	*2412.00	112.4 PK			1.00 V	329	79.87	32.55
4	*2412.00	101.9 AV			1.00 V	329	69.39	32.55
5	4824.00	50.4 PK	74.0	-23.6	1.12 V	283	10.51	39.92
6	4824.00	37.5 AV	54.0	-16.5	1.12 V	283	-2.45	39.92

- 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	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	108.4 PK			1.00 H	199	75.73	32.64
2	*2437.00	97.7 AV			1.00 H	199	65.02	32.64
3	4874.00	49.4 PK	74.0	-24.6	1.10 H	43	9.33	40.08
4	4874.00	37.0 AV	54.0	-17.0	1.10 H	43	-3.06	40.08
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	113.3 PK			1.00 V	329	80.69	32.64
2	*2437.00	102.3 AV			1.00 V	329	69.63	32.64
3	4874.00	50.5 PK	74.0	-23.5	1.00 V	258	10.42	40.08
4	4874.00	37.6 AV	54.0	-16.4	1.00 V	258	-2.51	40.08

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	108.7 PK			1.00 H	231	75.96	32.73
2	*2462.00	98.8 AV			1.00 H	231	66.07	32.73
3	2483.50	62.2 PK	74.0	-11.8	1.00 H	231	29.42	32.81
4	2483.50	49.5 AV	54.0	-4.5	1.00 H	231	16.68	32.81
5	4924.00	49.8 PK	74.0	-24.2	1.00 H	79	9.52	40.24
6	4924.00	37.5 AV	54.0	-16.5	1.00 H	79	-2.70	40.24
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	113.1 PK			1.00 V	330	80.33	32.73
2	*2462.00	103.0 AV			1.00 V	330	70.31	32.73
3	2483.50	68.0 PK	74.0	-6.1	1.00 V	330	35.14	32.81
4	2483.50	50.3 AV	54.0	-3.7	1.00 V	330	17.45	32.81
5	4924.00	52.5 PK	74.0	-21.5	1.04 V	64	12.30	40.24
6	4924.00	39.7 AV	54.0	-14.3	1.04 V	64	-0.52	40.24

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.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	64.7 PK	74.0	-9.3	1.00 H	203	32.20	32.47
2	2390.00	48.1 AV	54.0	-5.9	1.00 H	203	15.67	32.47
3	*2412.00	108.4 PK			1.00 H	203	75.86	32.55
4	*2412.00	97.8 AV			1.00 H	203	65.29	32.55
5	4824.00	49.8 PK	74.0	-24.2	1.08 H	78	9.92	39.92
6	4824.00	37.0 AV	54.0	-17.0	1.08 H	78	-2.93	39.92
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	67.3 PK	74.0	-6.7	1.00 V	330	34.80	32.47
2	2390.00	48.8 AV	54.0	-5.2	1.00 V	330	16.37	32.47
3	*2412.00	112.1 PK			1.00 V	330	79.54	32.55
4	*2412.00	101.6 AV			1.00 V	330	69.07	32.55
5	4824.00	50.0 PK	74.0	-24.0	1.00 V	298	10.06	39.92
6	4824.00	37.3 AV	54.0	-16.7	1.00 V	298	-2.64	39.92

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	107.8 PK			1.00 H	203	75.14	32.64
2	*2437.00	97.2 AV			1.00 H	203	64.59	32.64
3	4874.00	50.0 PK	74.0	-24.0	1.07 H	315	9.90	40.08
4	4874.00	36.7 AV	54.0	-17.4	1.07 H	315	-3.43	40.08
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	110.0 PK			1.00 V	265	77.38	32.64
2	*2437.00	100.1 AV			1.00 V	265	67.48	32.64
3	4874.00	54.8 PK	74.0	-19.2	1.04 V	86	14.69	40.08
4	4874.00	39.3 AV	54.0	-14.7	1.04 V	86	-0.76	40.08

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	107.5 PK			1.00 H	221	74.77	32.73
2	*2462.00	97.2 AV			1.00 H	221	64.42	32.73
3	2483.50	61.7 PK	74.0	-12.3	1.00 H	221	28.93	32.81
4	2483.50	49.2 AV	54.0	-4.8	1.00 H	221	16.41	32.81
5	4924.00	48.7 PK	74.0	-25.3	1.00 H	196	8.43	40.24
6	4924.00	36.3 AV	54.0	-17.8	1.00 H	196	-3.99	40.24
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	112.6 PK			1.00 V	335	79.91	32.73
2	*2462.00	101.9 AV			1.00 V	335	69.12	32.73
3	2483.50	68.9 PK	74.0	-5.1	1.00 V	335	36.08	32.81
4	2483.50	50.6 AV	54.0	-3.4	1.00 V	335	17.78	32.81
5	4924.00	50.7 PK	74.0	-23.3	1.00 V	273	10.42	40.24
6	4924.00	38.1 AV	54.0	-15.9	1.00 V	273	-2.14	40.24

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.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	72.3 PK	74.0	-1.7	1.00 H	204	39.79	32.47
2	2390.00	47.3 AV	54.0	-6.7	1.00 H	204	14.82	32.47
3	*2422.00	105.0 PK			1.00 H	204	72.45	32.59
4	*2422.00	97.1 AV			1.00 H	204	64.54	32.59
5	4844.00	49.3 PK	74.0	-24.7	1.00 H	231	9.30	39.99
6	4844.00	36.6 AV	54.0	-17.4	1.00 H	231	-3.39	39.99
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.8 PK	74.0	-1.2	1.00 V	329	40.36	32.47
2	2390.00	49.5 AV	54.0	-4.5	1.00 V	329	17.07	32.47
3	*2422.00	110.2 PK			1.00 V	329	77.60	32.59
4	*2422.00	100.6 AV			1.00 V	329	68.04	32.59
5	4844.00	50.3 PK	74.0	-23.7	1.02 V	87	10.31	39.99
6	4844.00	37.4 AV	54.0	-16.6	1.02 V	87	-2.59	39.99

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	105.8 PK			1.02 H	232	73.12	32.64
2	*2437.00	95.8 AV			1.02 H	232	63.18	32.64
3	4874.00	49.1 PK	74.0	-24.9	1.00 H	81	9.02	40.08
4	4874.00	37.7 AV	54.0	-16.3	1.00 H	81	-2.42	40.08
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	109.3 PK			1.00 V	328	76.66	32.64
2	*2437.00	100.0 AV			1.00 V	328	67.35	32.64
3	4874.00	50.5 PK	74.0	-23.5	1.02 V	327	10.46	40.08
4	4874.00	38.8 AV	54.0	-15.2	1.02 V	327	-1.25	40.08

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	105.0 PK			1.00 H	230	72.31	32.70
2	*2452.00	96.7 AV			1.00 H	230	63.95	32.70
3	2483.50	66.8 PK	74.0	-7.2	1.00 H	230	33.97	32.81
4	2483.50	48.6 AV	54.0	-5.4	1.00 H	230	15.80	32.81
5	4904.00	49.1 PK	74.0	-24.9	1.00 H	193	8.96	40.18
6	4904.00	37.5 AV	54.0	-16.5	1.00 H	193	-2.65	40.18
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	107.4 PK			1.00 V	329	74.67	32.70
2	*2452.00	98.3 AV			1.00 V	329	65.68	32.70
3	2483.50	71.4 PK	74.0	-2.6	1.00 V	329	38.61	32.81
4	2483.50	48.8 AV	54.0	-5.2	1.00 V	329	15.99	32.81
5	4904.00	49.6 PK	74.0	-24.4	1.10 V	112	9.46	40.18
6	4904.00	38.7 AV	54.0	-15.3	1.10 V	112	-1.47	40.18

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.



A D T

BELOW 1GHz WORST-CASE DATA : 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 75% RH 1022hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	59.54	33.0 QP	40.0	-7.0	1.05 H	61	19.45	13.55
2	118.61	39.6 QP	43.5	-3.9	1.11 H	43	27.55	12.05
3	129.49	40.4 QP	43.5	-3.1	1.07 H	61	27.07	13.32
4	165.24	36.7 QP	43.5	-6.8	1.03 H	76	22.40	14.26
5	214.98	36.9 QP	43.5	-6.6	1.07 H	352	25.15	11.77
6	288.04	42.5 QP	46.0	-3.5	1.11 H	94	27.21	15.28
7	923.83	39.5 QP	46.0	-6.5	1.00 H	76	11.31	28.23
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	64.20	36.9 QP	40.0	-3.1	1.08 V	133	23.92	13.01
2	288.04	38.2 QP	46.0	-7.8	1.11 V	190	22.95	15.28
3	479.25	34.6 QP	46.0	-11.4	1.23 V	115	14.40	20.19
4	600.50	34.8 QP	46.0	-11.3	1.05 V	112	11.44	23.31
5	864.76	35.2 QP	46.0	-10.8	1.26 V	157	7.81	27.37
6	900.51	34.9 QP	46.0	-11.1	1.04 V	94	7.00	27.92

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
INPUT POWER	120Vac, 60Hz	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	15deg. C, 58% RH 1017hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	B	TESTED BY	Nick Chen

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	36.22	28.8 QP	40.0	-11.2	1.09 H	337	15.76	13.03
2	656.46	24.3 QP	46.0	-21.7	1.11 H	10	0.10	24.18
3	785.48	25.6 QP	46.0	-20.5	1.07 H	106	-0.48	26.03
4	833.67	25.5 QP	46.0	-20.5	1.33 H	10	-1.34	26.85
5	864.76	26.3 QP	46.0	-19.8	1.08 H	100	-1.12	27.37
6	903.62	26.8 QP	46.0	-19.2	1.24 H	187	-1.13	27.96
7	950.26	27.5 QP	46.0	-18.5	1.11 H	145	-1.10	28.58
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	64.20	34.5 QP	40.0	-5.5	1.05 V	7	21.47	13.01
2	104.62	27.8 QP	43.5	-15.7	1.09 V	337	17.99	9.85
3	183.89	24.6 QP	43.5	-18.9	1.07 V	322	12.87	11.77
4	207.21	26.5 QP	43.5	-17.0	1.03 V	175	15.13	11.34
5	530.54	27.3 QP	46.0	-18.7	1.08 V	82	5.70	21.64
6	897.40	27.1 QP	46.0	-18.9	1.11 V	28	-0.78	27.87
7	958.03	28.3 QP	46.0	-17.7	1.23 V	10	-0.33	28.67

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
INPUT POWER (SYSTEM)	120Vac, 60Hz	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	18deg. C, 58% RH 1017hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	C	TESTED BY	Nick Chen

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	135.71	37.3 QP	43.5	-6.2	1.06 H	229	23.30	14.01
2	298.93	39.3 QP	46.0	-6.7	1.11 H	175	23.58	15.74
3	485.46	40.4 QP	46.0	-5.7	1.07 H	121	19.96	20.39
4	703.09	38.2 QP	46.0	-7.8	1.26 H	121	13.29	24.88
5	732.63	40.6 QP	46.0	-5.4	1.28 H	280	15.27	25.29
6	755.95	40.6 QP	46.0	-5.4	1.36 H	139	15.02	25.61
7	863.21	40.6 QP	46.0	-5.4	1.00 H	10	13.23	27.35
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	193.22	37.8 QP	43.5	-5.7	1.07 V	232	26.50	11.29
2	485.46	39.3 QP	46.0	-6.7	1.03 V	199	18.89	20.39
3	539.87	39.6 QP	46.0	-6.4	1.08 V	187	17.70	21.87
4	567.85	38.6 QP	46.0	-7.4	1.11 V	196	16.05	22.55
5	648.69	40.6 QP	46.0	-5.4	1.28 V	79	16.51	24.06
6	755.95	38.1 QP	46.0	-7.9	1.32 V	202	12.48	25.61
7	825.90	37.8 QP	46.0	-8.2	1.02 V	226	11.07	26.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

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	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

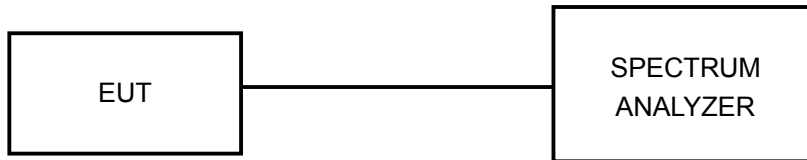
4.3.3 TEST PROCEDURE

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 300kHz 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.

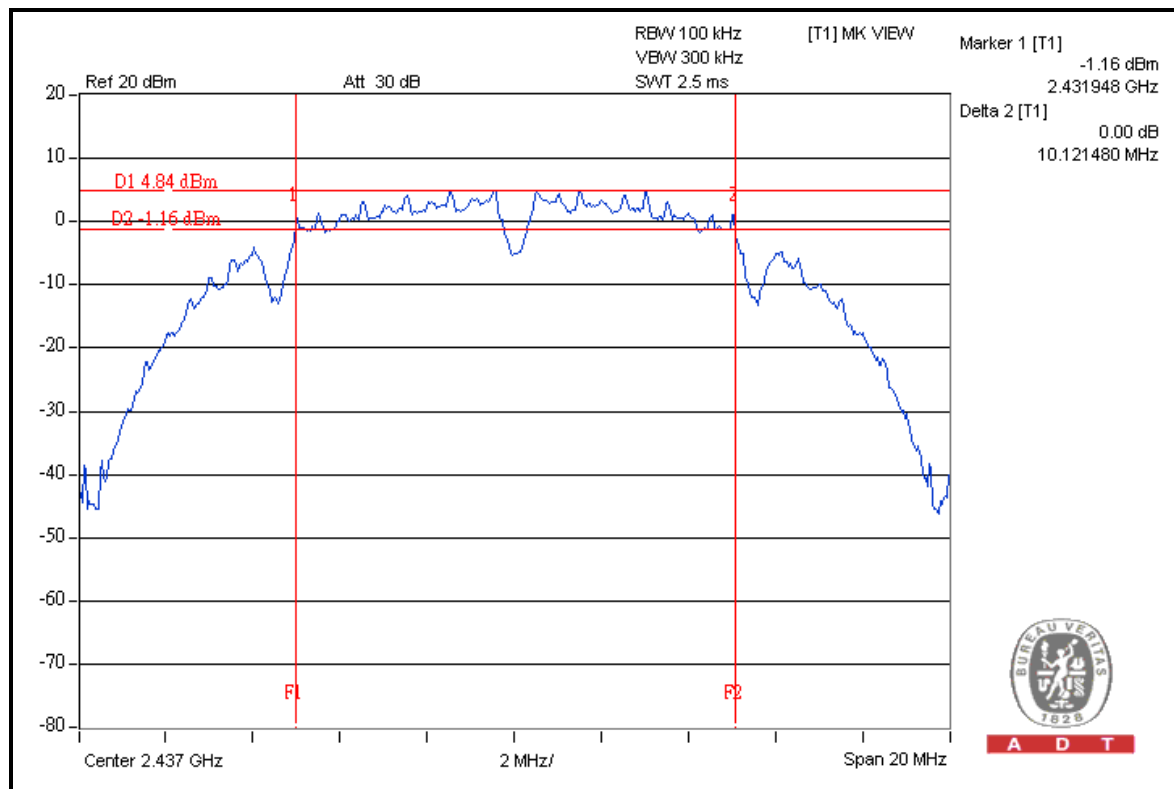
4.3.7 TEST RESULTS

TEST MODE A:

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.93	0.5	PASS
6	2437	10.12	0.5	PASS
11	2462	9.99	0.5	PASS

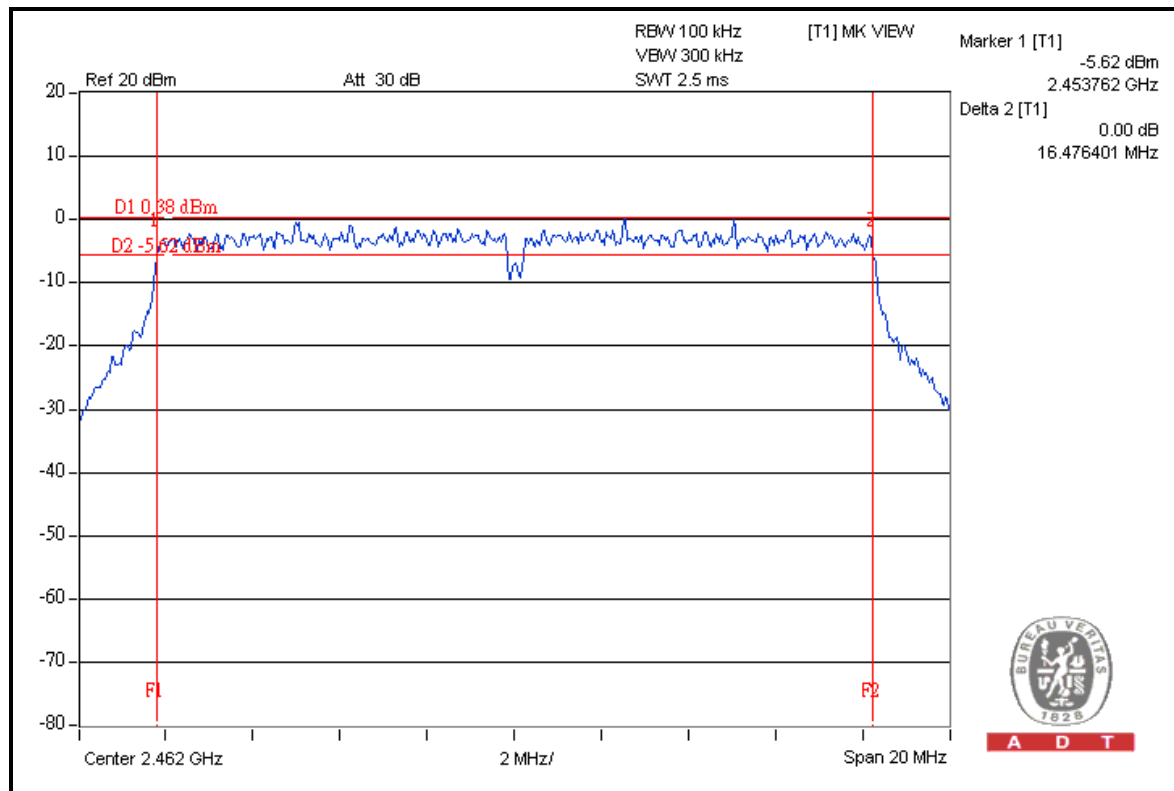
CH 6



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.41	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.48	0.5	PASS

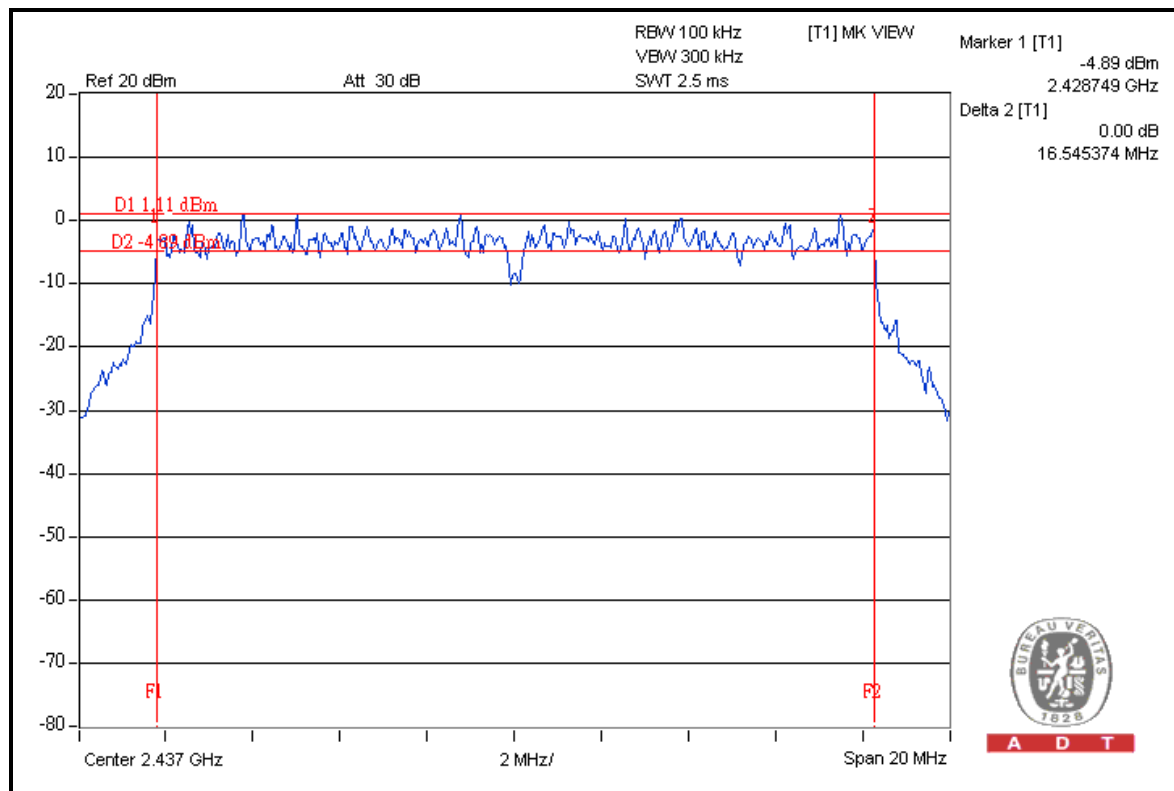
CH 11



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.54	0.5	PASS
6	2437	16.55	0.5	PASS
11	2462	16.53	0.5	PASS

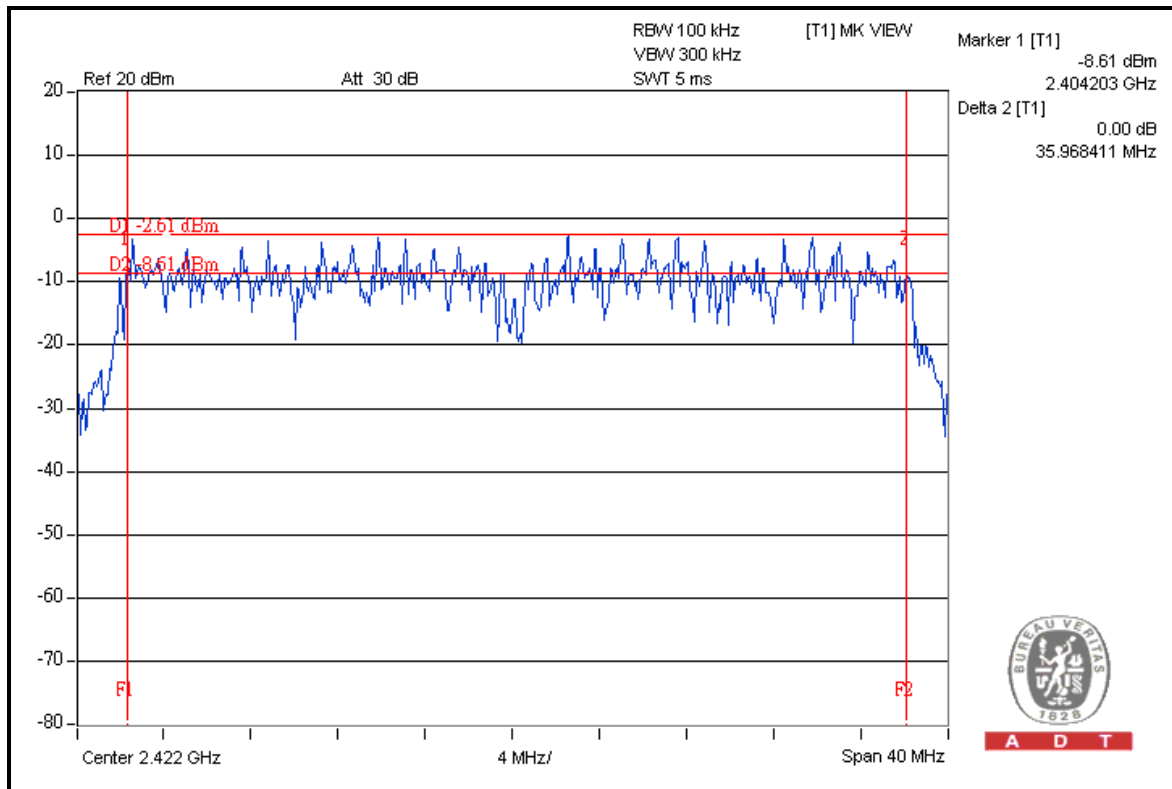
CH 6



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	35.97	0.5	PASS
4	2437	35.43	0.5	PASS
7	2452	35.48	0.5	PASS

CH 1





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4.4 MAXIMUM OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Anritsu Power Sensor	MA2411B	0738404	Apr. 21, 2010	Apr. 20, 2011
Anritsu Power Meter	ML2495A	0842014	Apr. 21, 2010	Apr. 20, 2011

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.

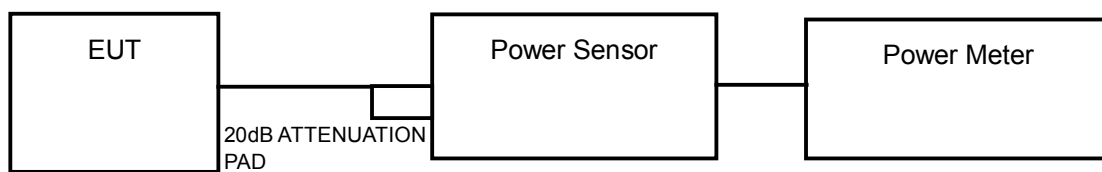
4.4.3 TEST PROCEDURES

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

TEST MODE A:

802.11b

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
1	2412	16.7	46.7	30	PASS
6	2437	17.0	50.5	30	PASS
11	2462	17.0	50.6	30	PASS

802.11g

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
1	2412	21.4	136.5	30	PASS
6	2437	21.8	150.0	30	PASS
11	2462	21.5	141.6	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
1	2412	21.0	124.7	30	PASS
6	2437	21.3	134.0	30	PASS
11	2462	21.5	140.3	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
1	2422	22.0	156.7	30	PASS
4	2437	22.2	166.0	30	PASS
7	2452	22.5	175.8	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	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

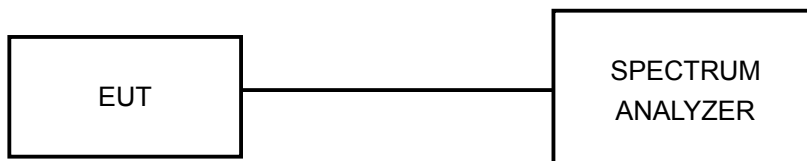
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

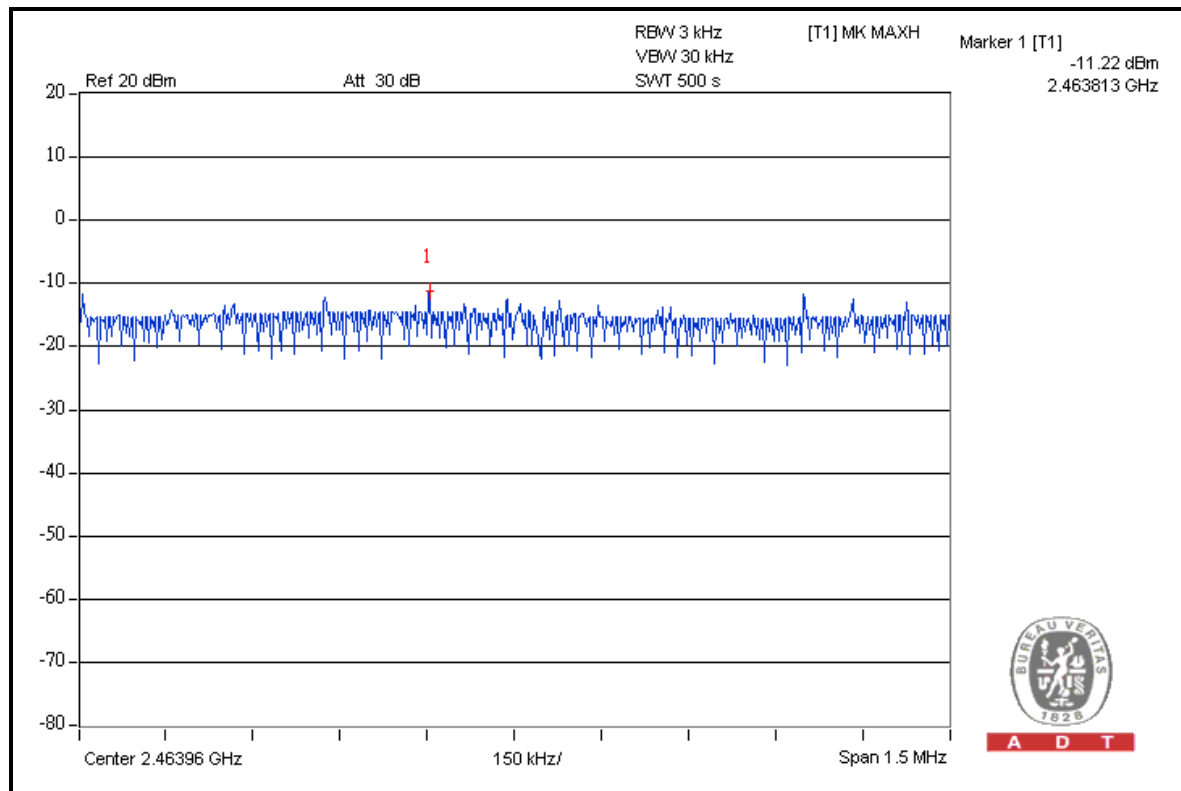
4.5.7 TEST RESULTS

TEST MODE A:

802.11b

CHANNEL	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-12.7	8	PASS
6	2437	-11.4	8	PASS
11	2462	-11.2	8	PASS

CH 11



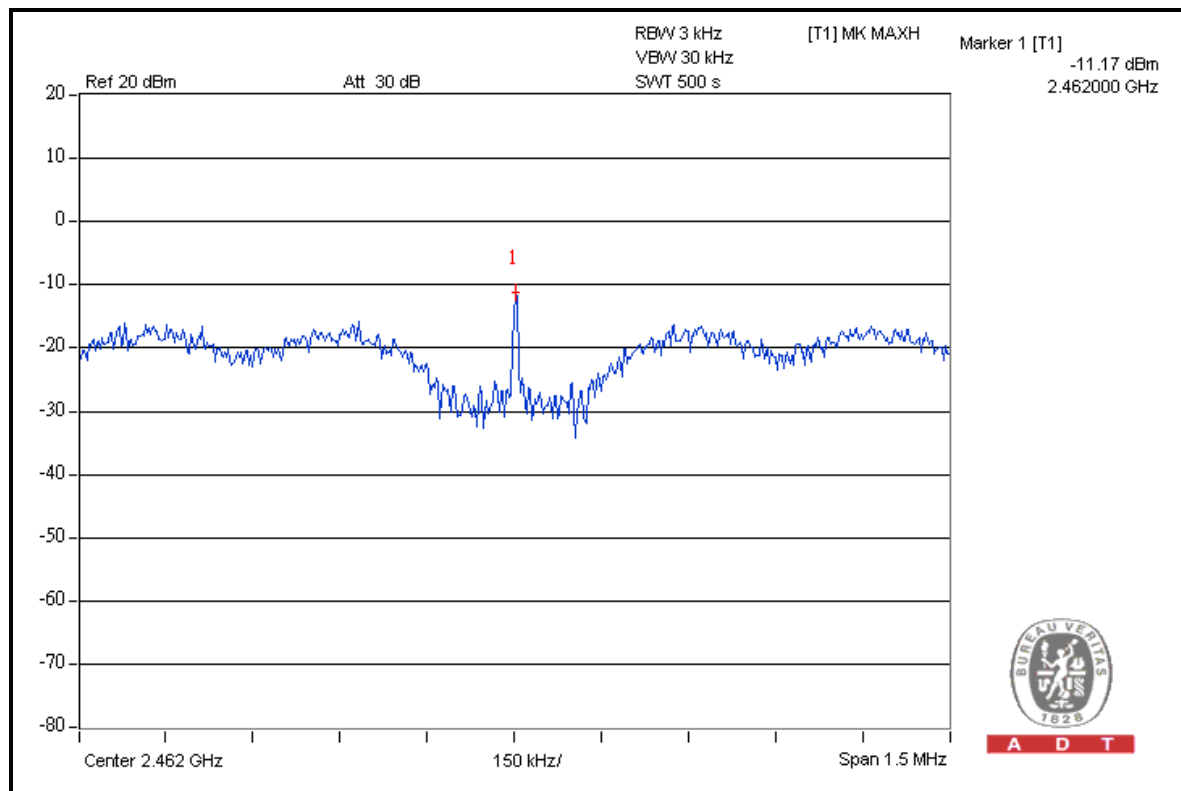


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802.11g

CHANNEL	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-17.1	8	PASS
6	2437	-13.0	8	PASS
11	2462	-11.2	8	PASS

CH 11



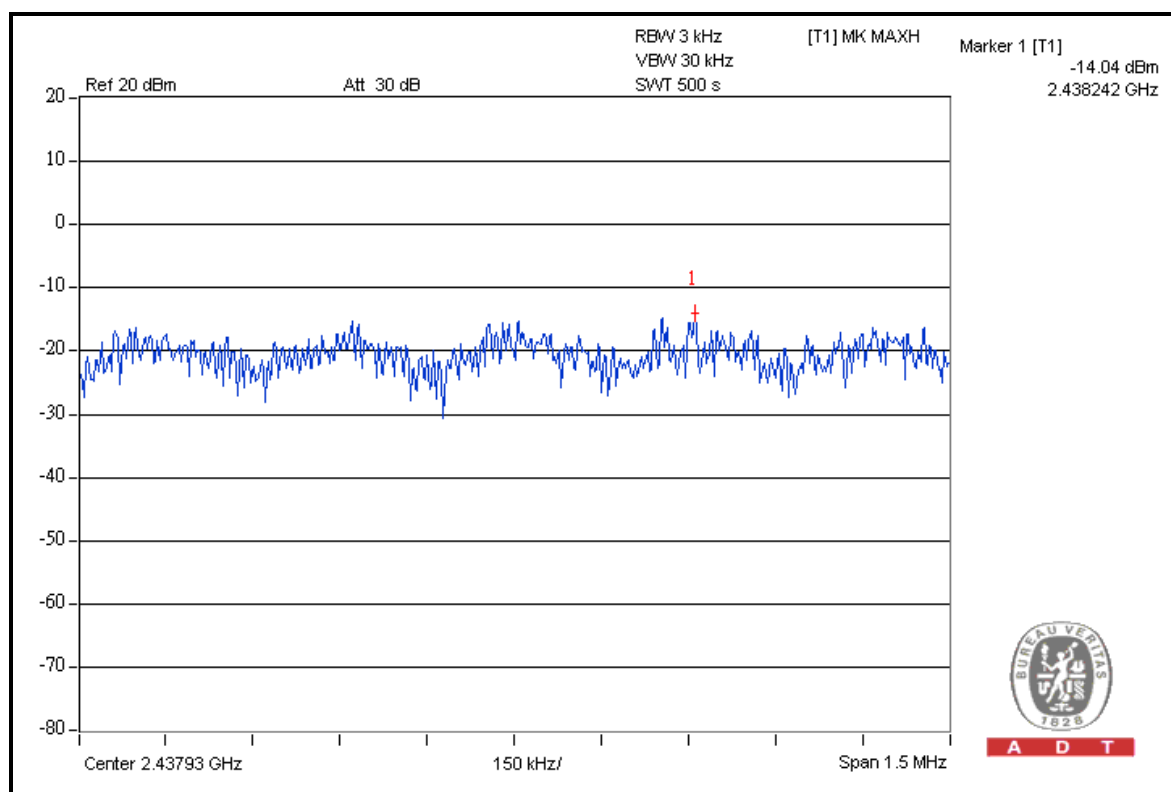


A D T

802.11n (20MHz)

CHANNEL	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-15.7	8	PASS
6	2437	-14.0	8	PASS
11	2462	-15.0	8	PASS

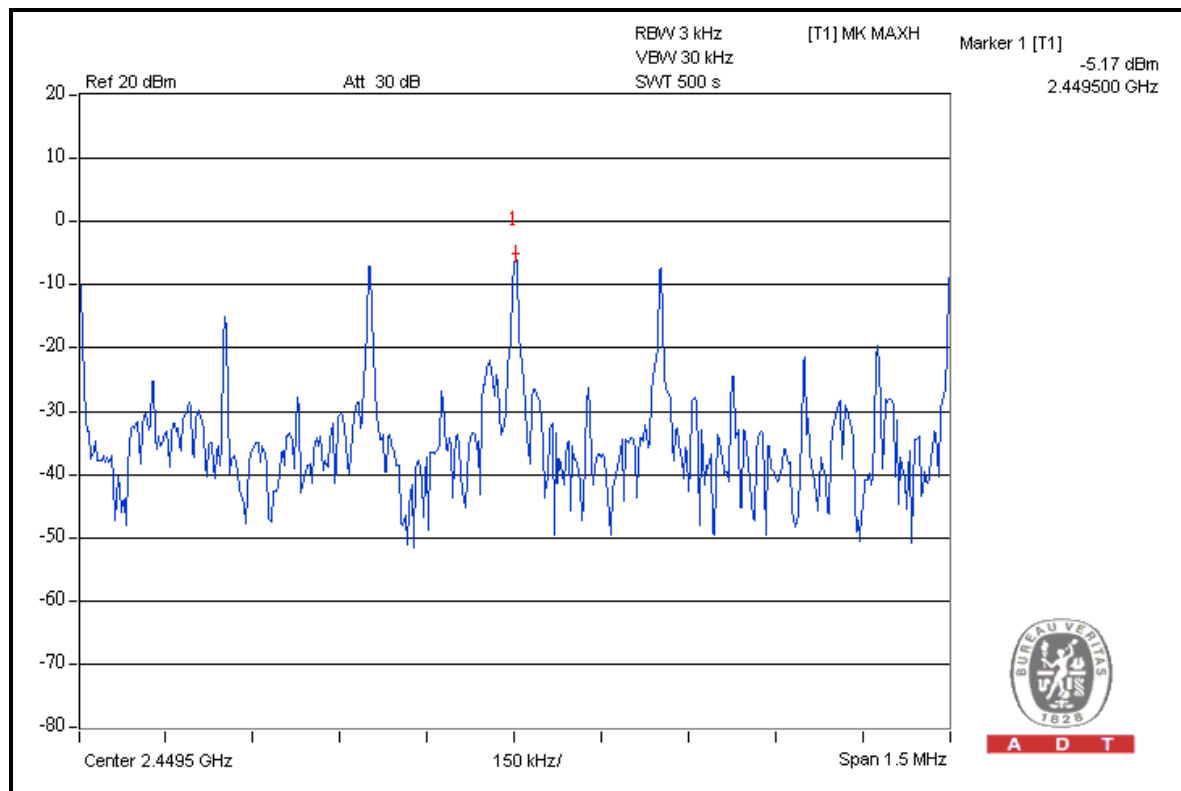
CH 6



802.11n (40MHz)

CHANNEL	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2422	-7.0	8	PASS
4	2437	-6.3	8	PASS
7	2452	-5.2	8	PASS

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	CALIBRATED UNTIL
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP 40	100036	Apr. 27, 2010	Apr. 26, 2011
FOR RADIATED MEASUREMENT:				
HP Preamplifier	8447D	2432A03504	May 06, 2010	May 05, 2011
HP Preamplifier	8449B	3008A01924	Jul. 14, 2010	Jul. 13, 2011
HP Preamplifier	8449B	3008A01292	Jul. 14, 2010	Jul. 13, 2011
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

4.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW =100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

FOR RADIATED MEASUREMENT:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW =100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

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

4.6.4 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 pages. 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).

TEST MODE A:

802.11b

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	111.1	51.6	59.5	74.00
2412.00 (AV)	105.8	60.6	45.2	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

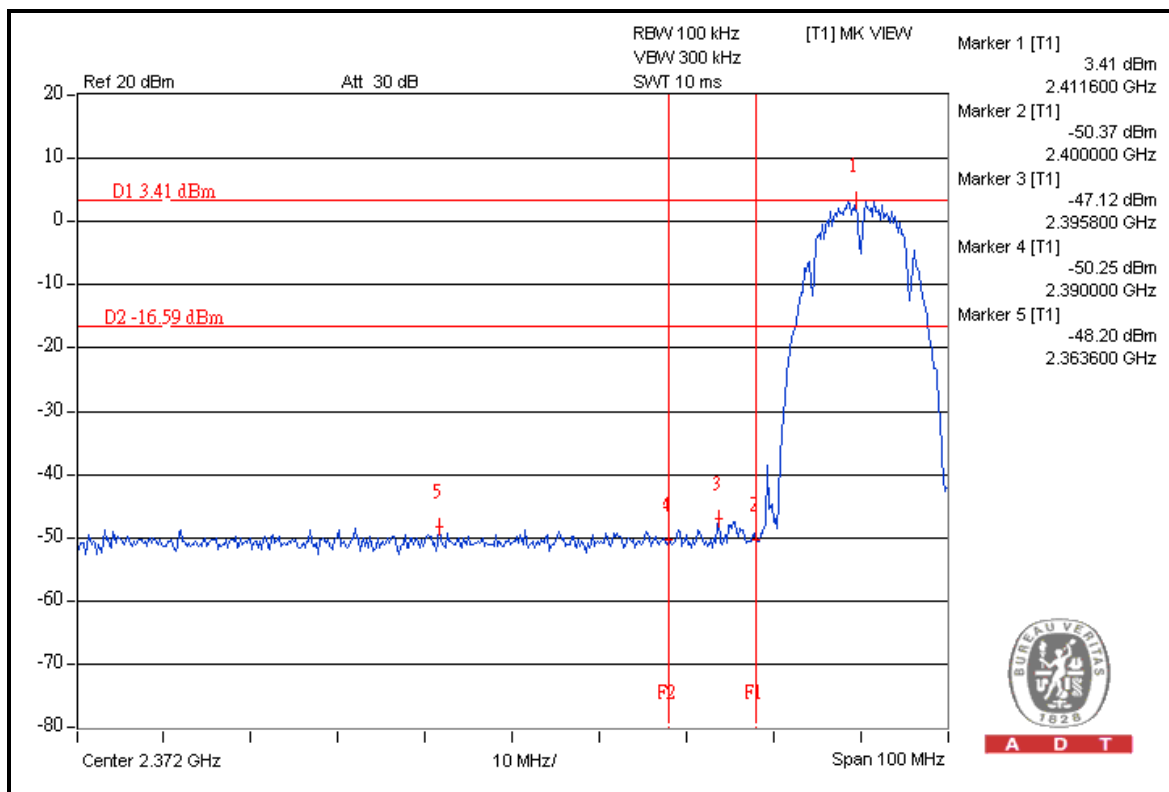
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	112.2	53.3	58.9	74.00
2462.00 (AV)	107.7	60.1	47.6	54.00

NOTE:

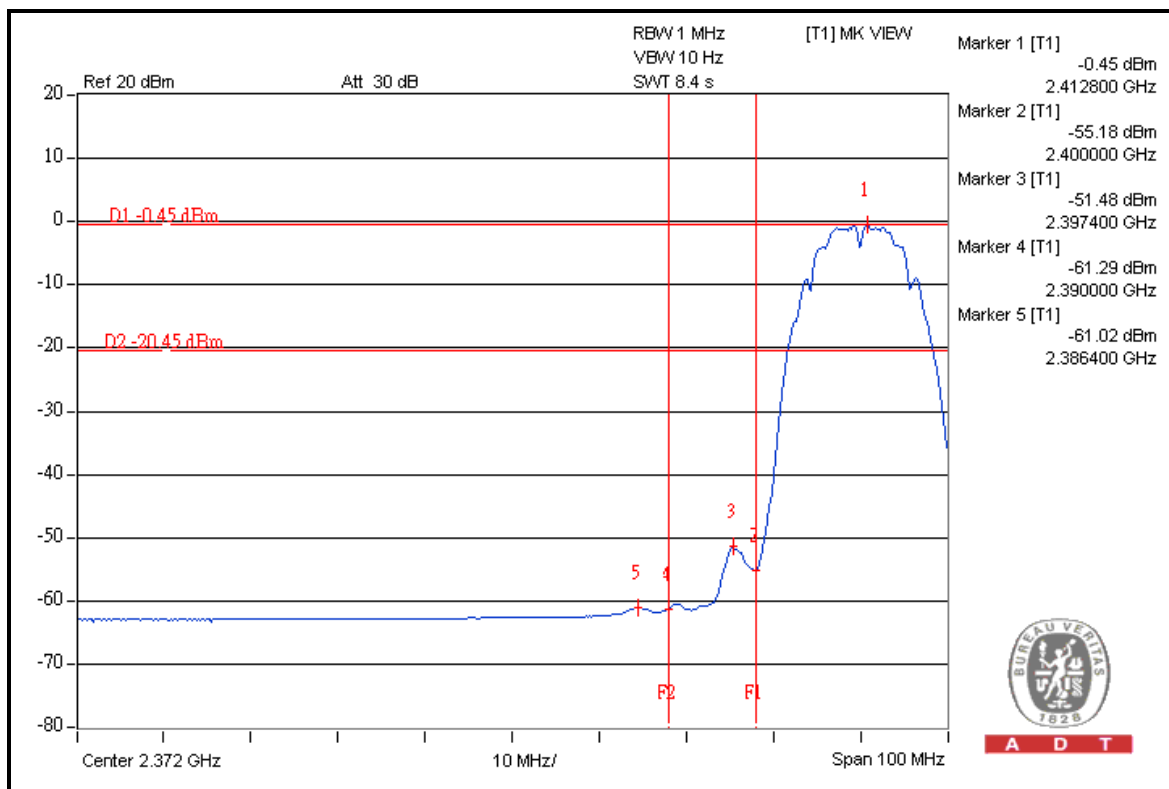
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



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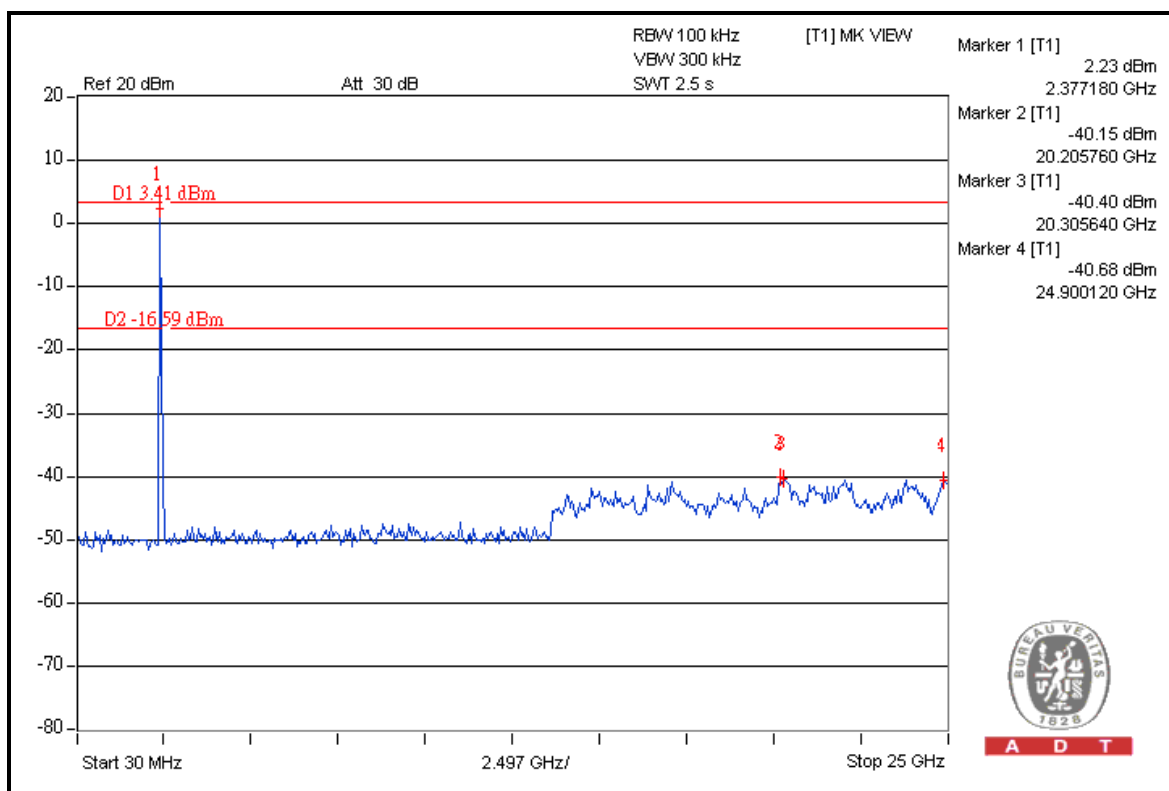
A D T



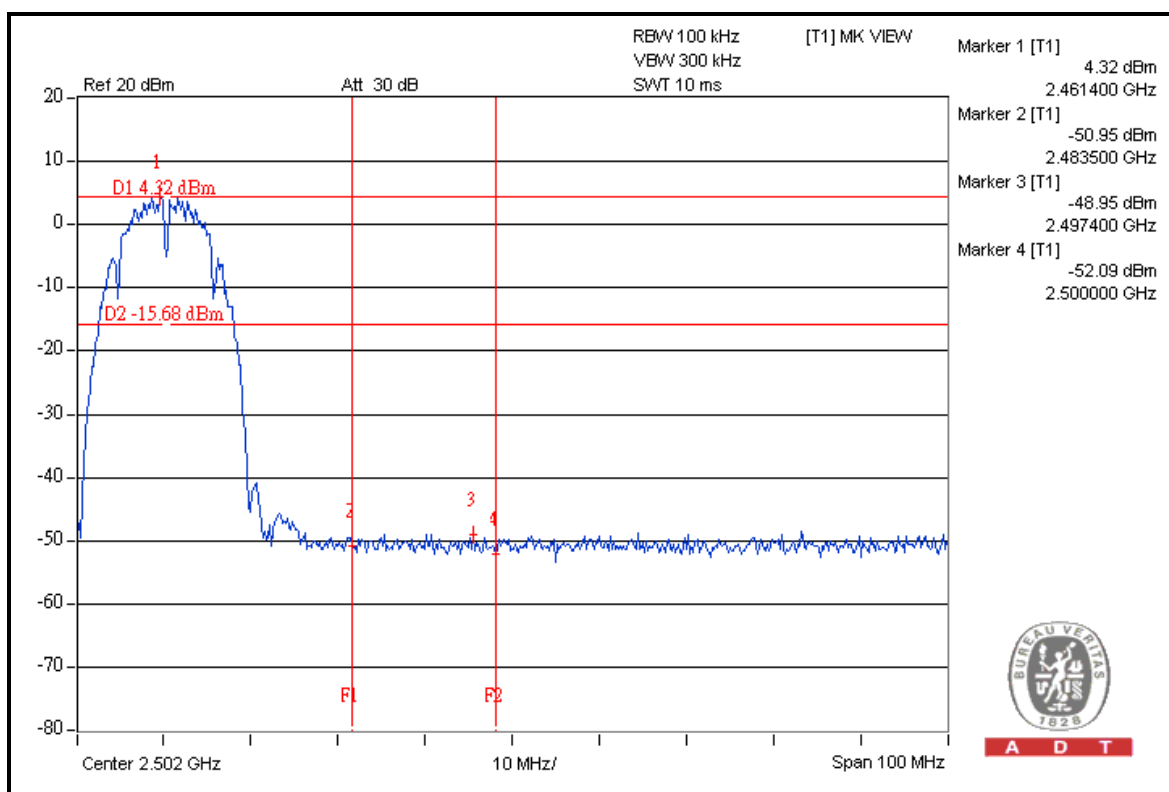
A D T



A D T



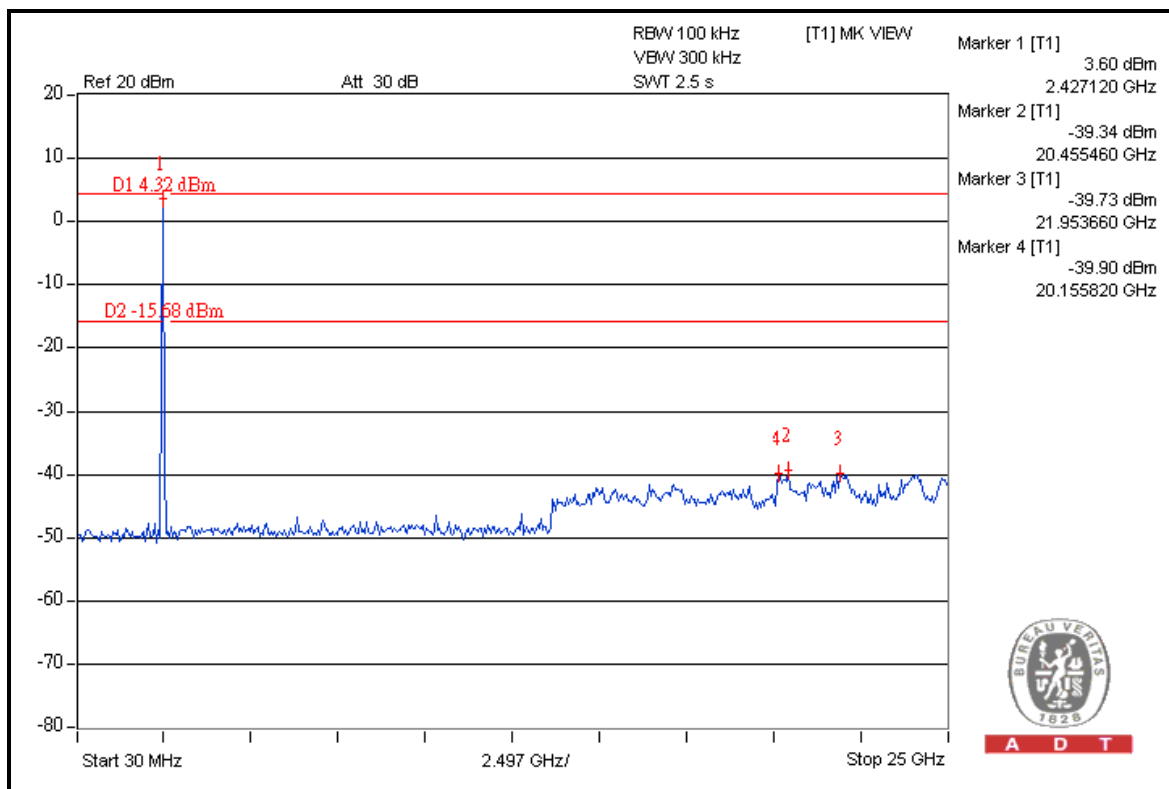
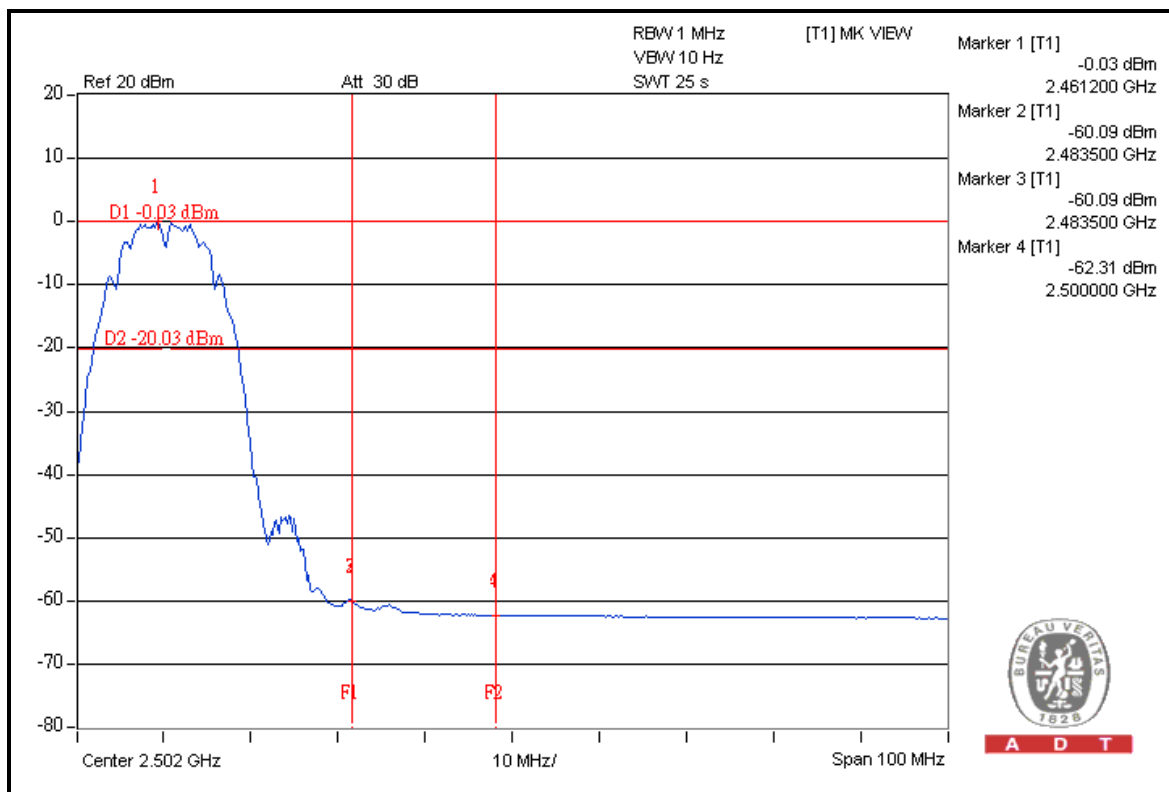
A D T



A D T



A D T



**A D T****802.11g****RESTRICT BAND (2310 ~ 2390 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	112.4	47.5	64.9	74.00
2412.00 (AV)	101.9	54.6	47.3	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

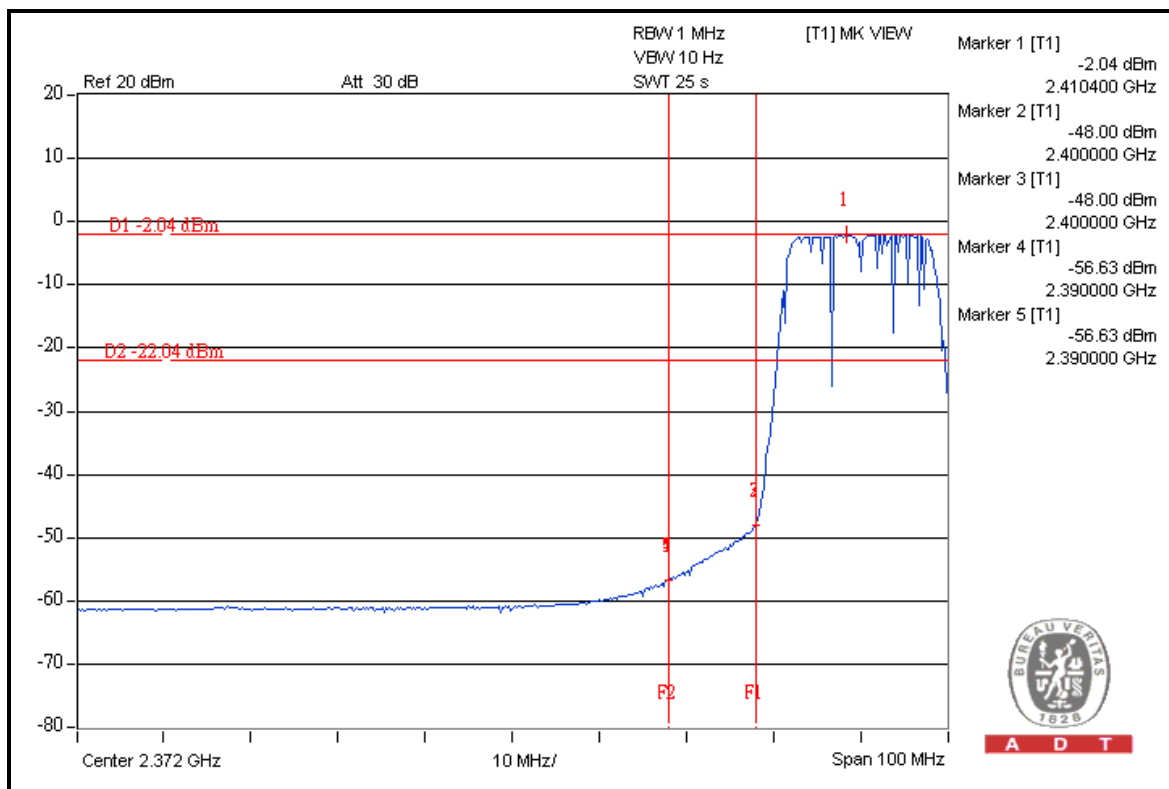
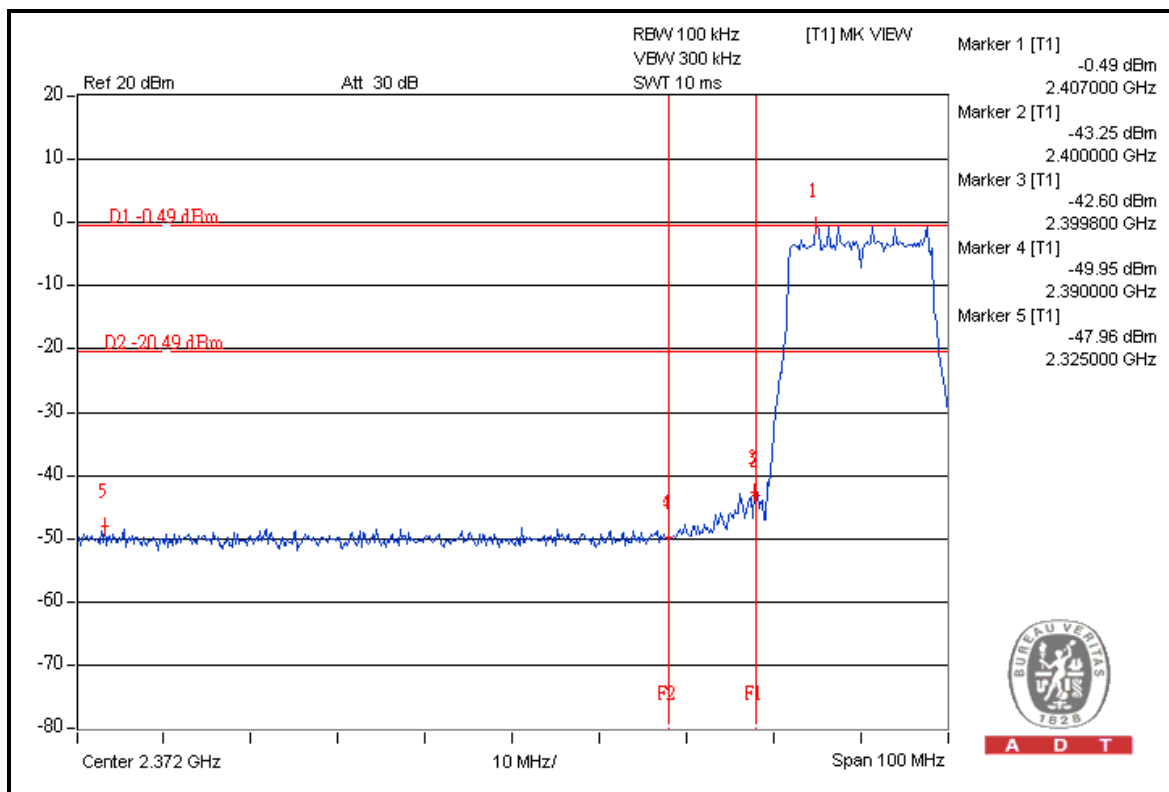
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	113.1	49.3	63.8	74.00
2462.00 (AV)	103.0	52.3	50.7	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

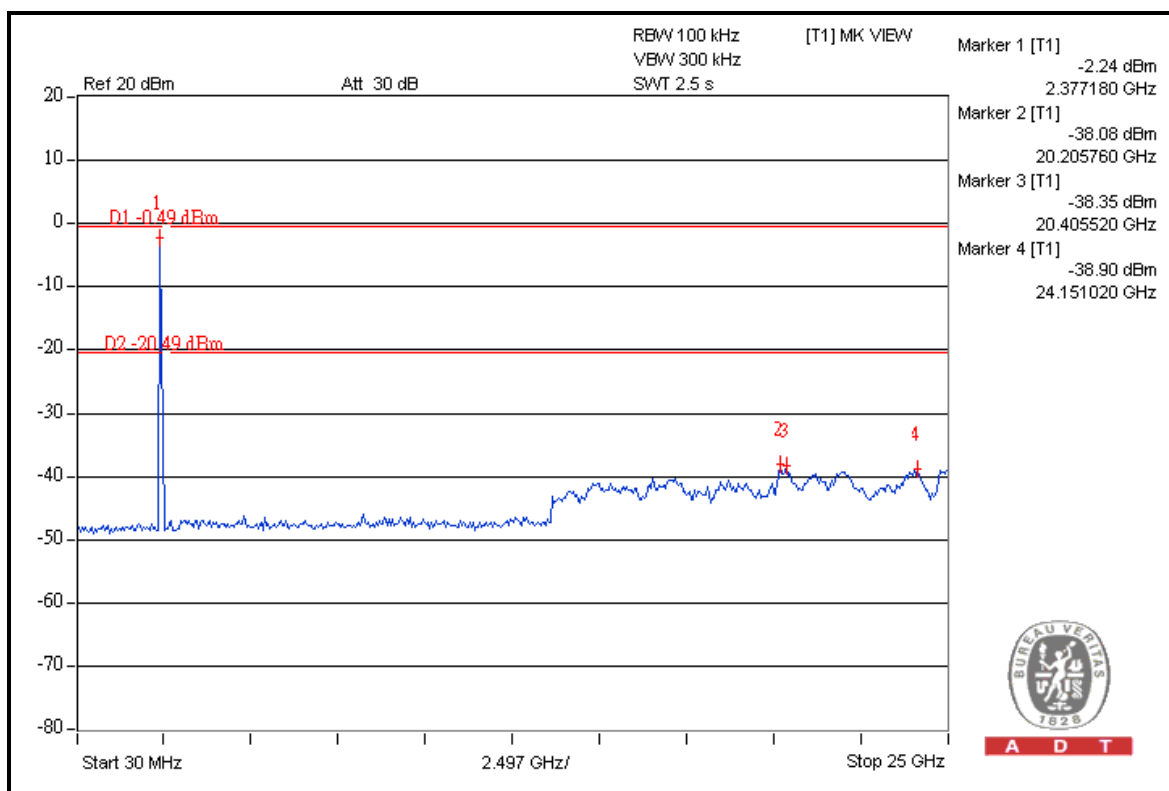


A D T

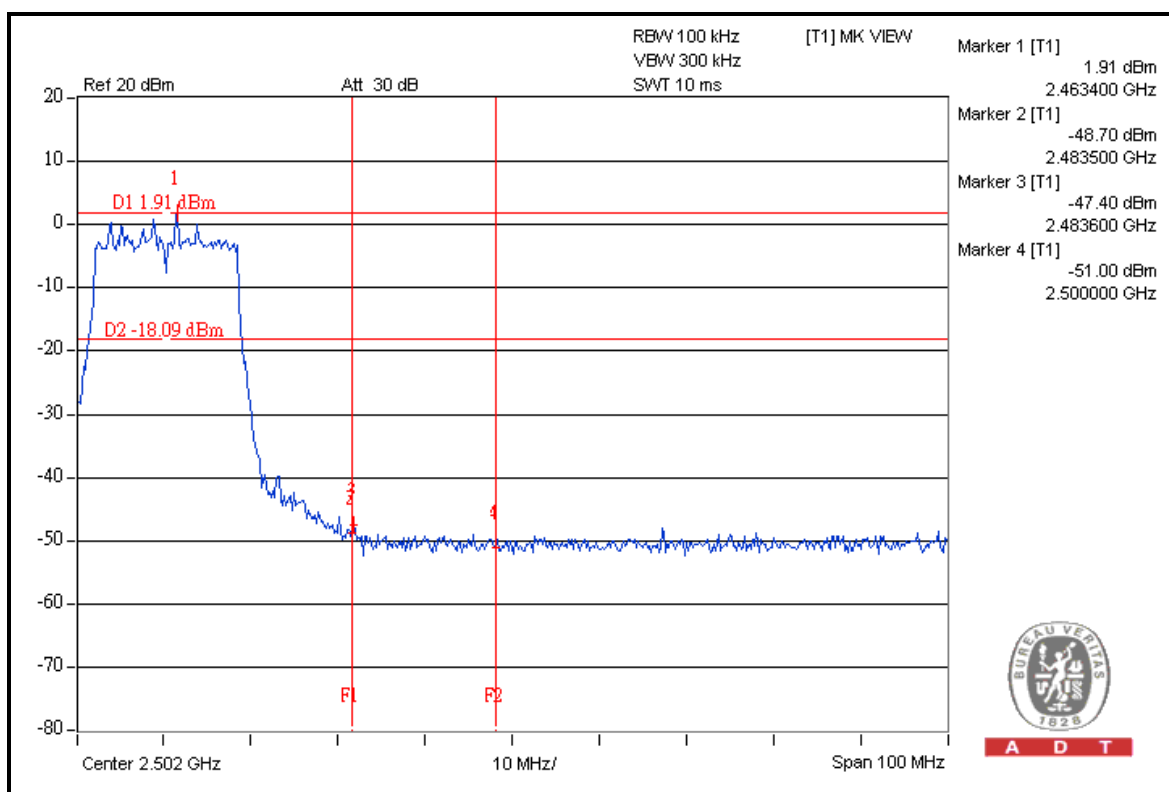




A D T



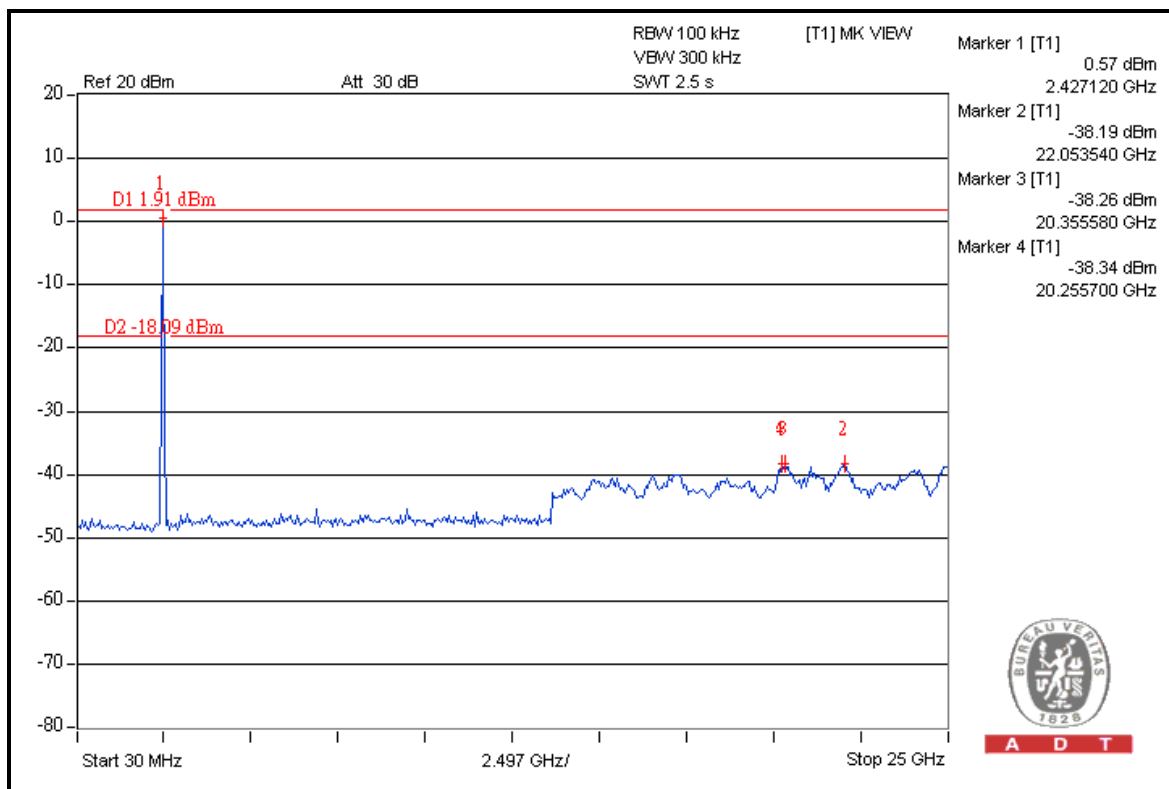
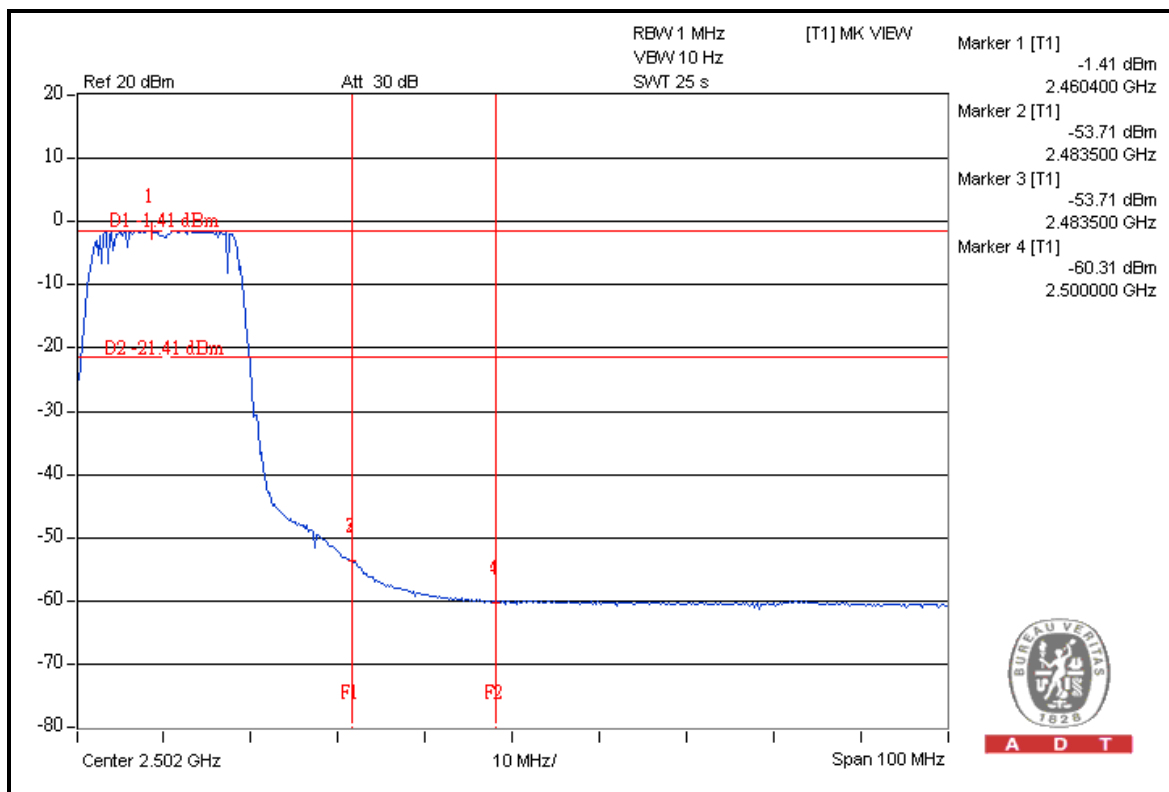
A D T



A D T



A D T



802.11n (20MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	112.1	49.0	63.1	74.00
2412.00 (AV)	101.6	54.8	46.8	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

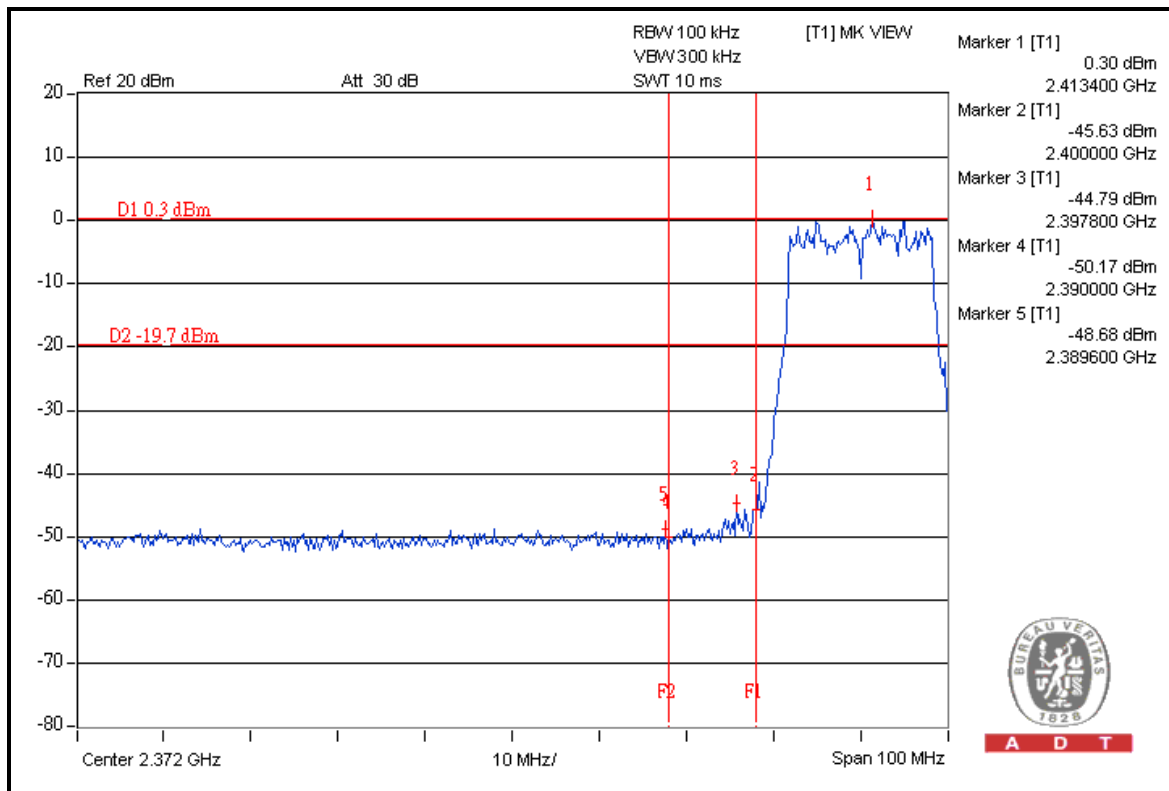
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	112.6	49.0	63.6	74.00
2462.00 (AV)	101.9	52.7	49.2	54.00

NOTE:

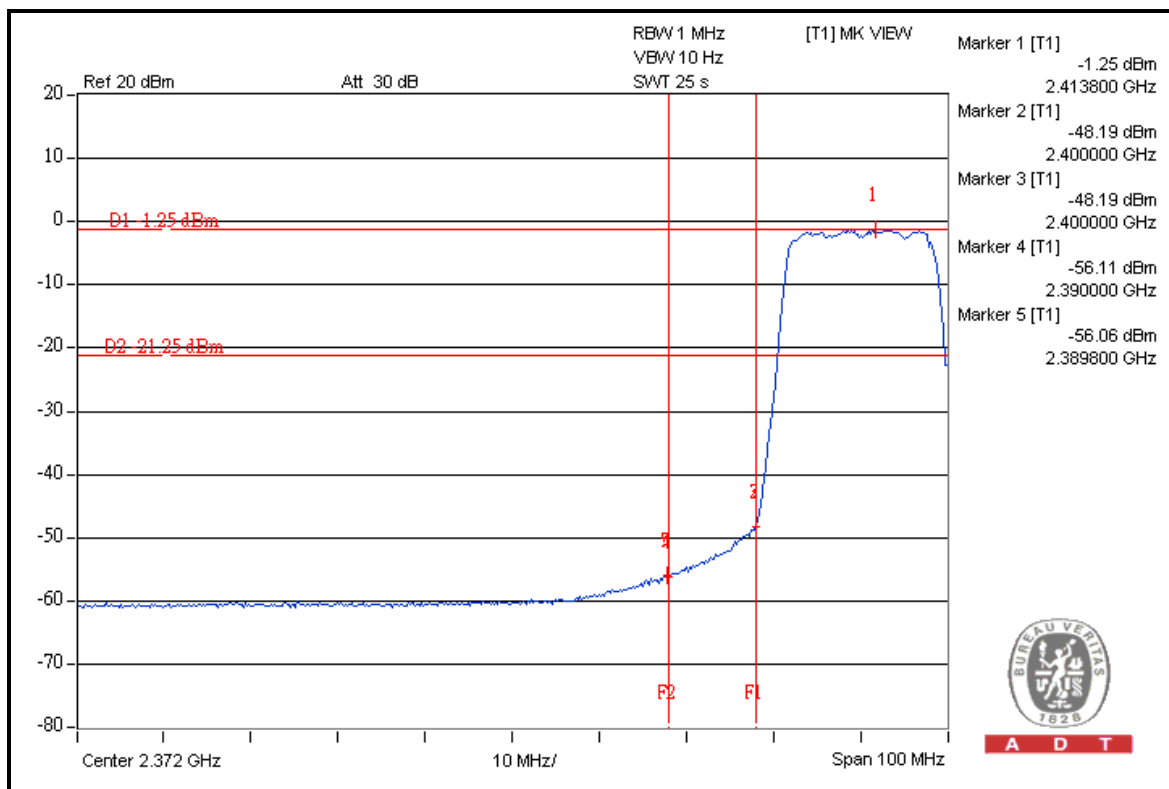
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



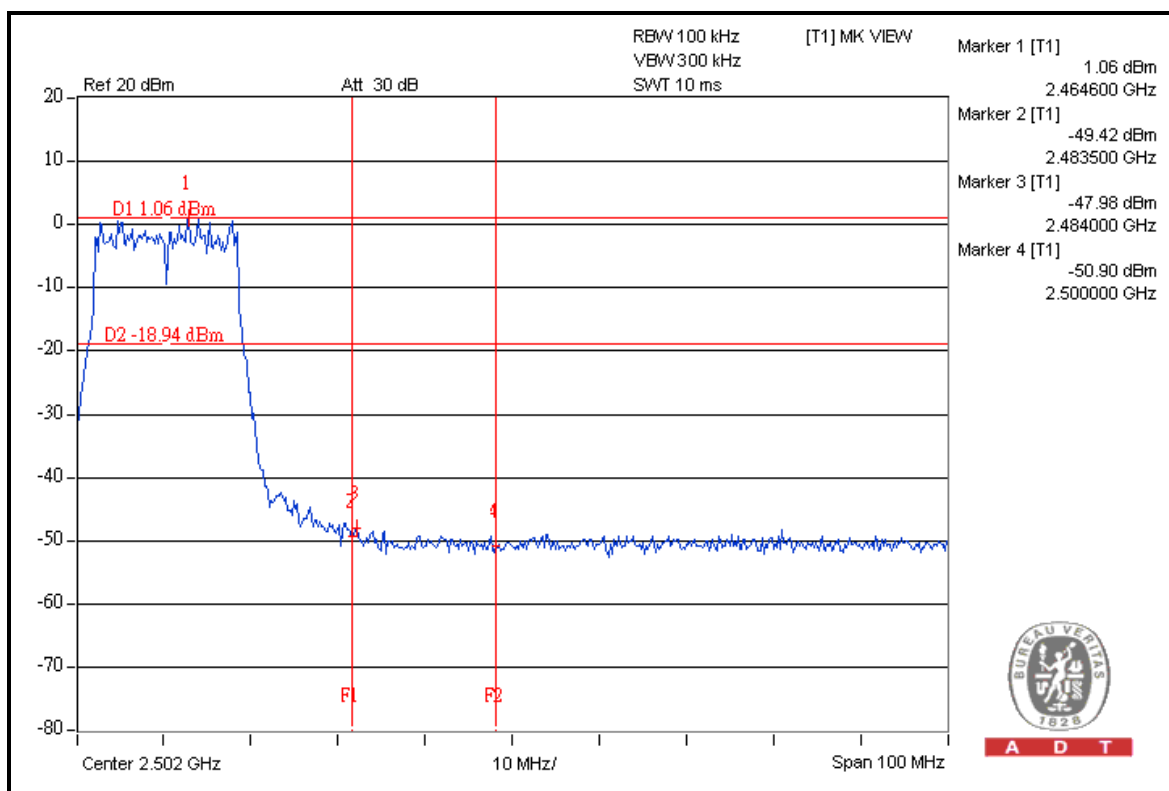
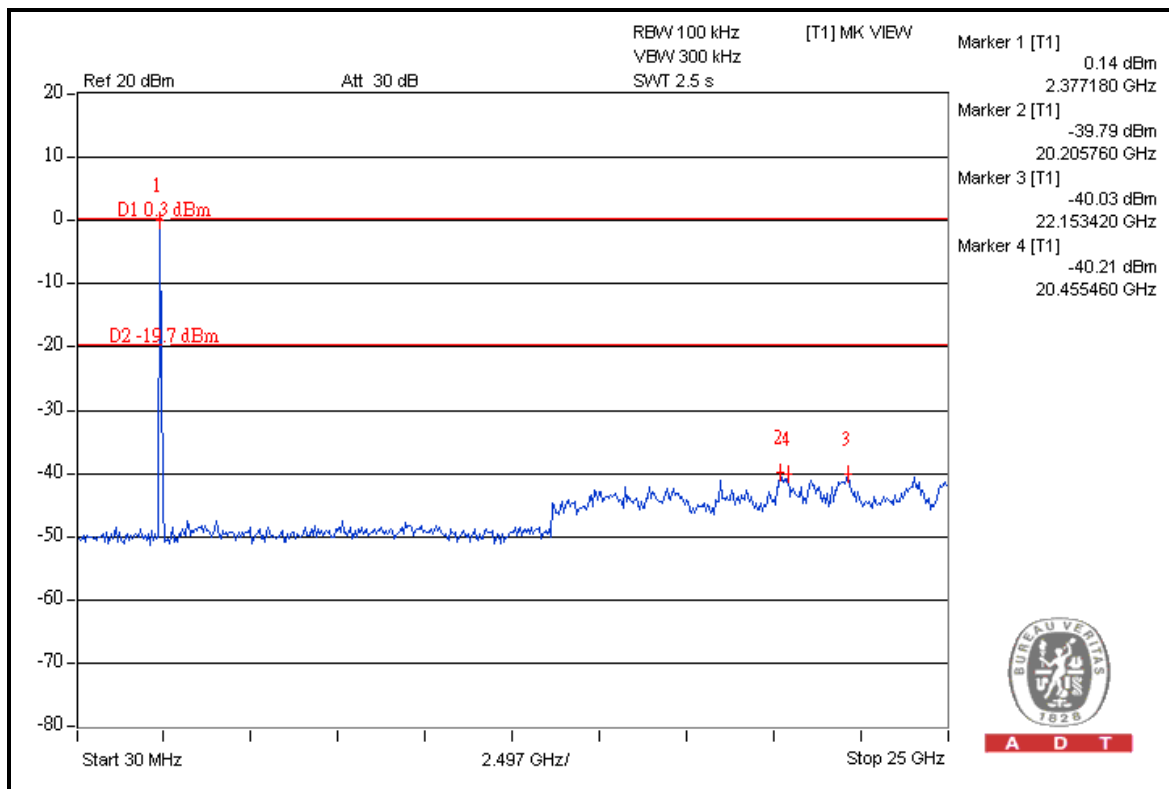
A D T



A D T

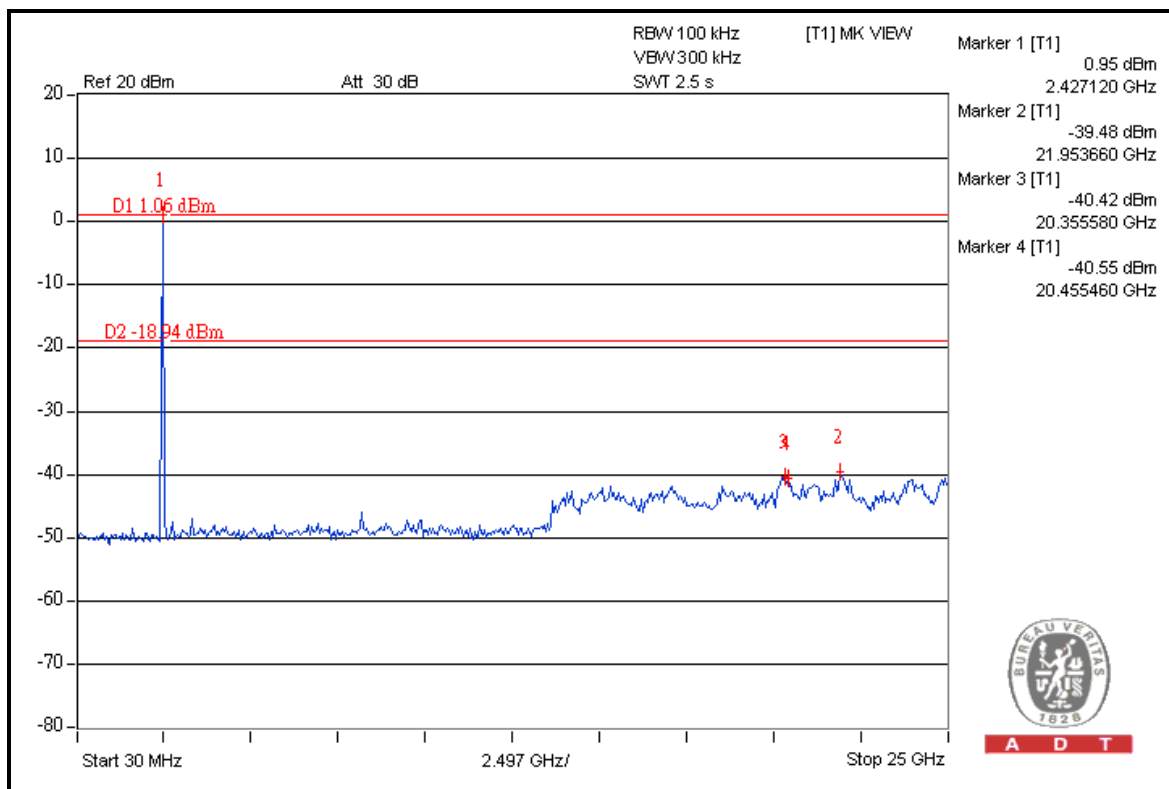
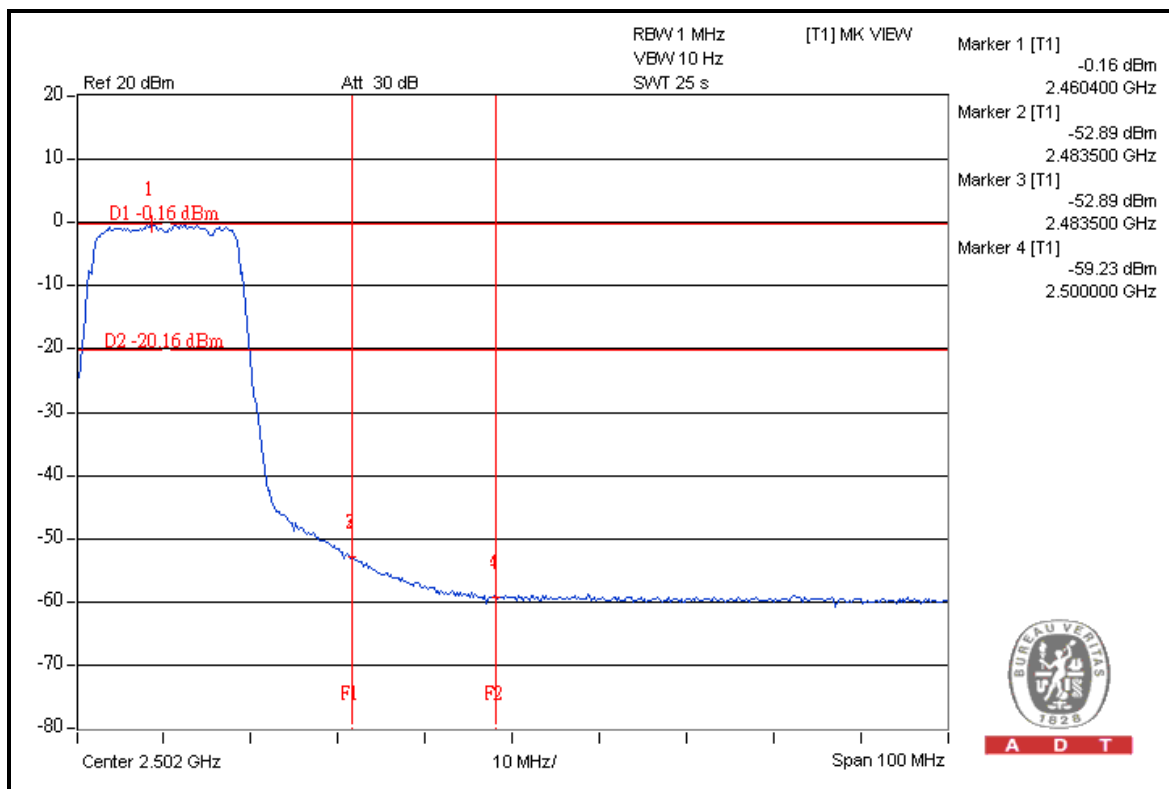


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A D T



**A D T****802.11n (40MHz)****RESTRICT BAND (2310 ~ 2390 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2422.00 (PK)	110.2	42.2	68.0	74.00
2422.00 (AV)	100.6	46.9	53.7	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

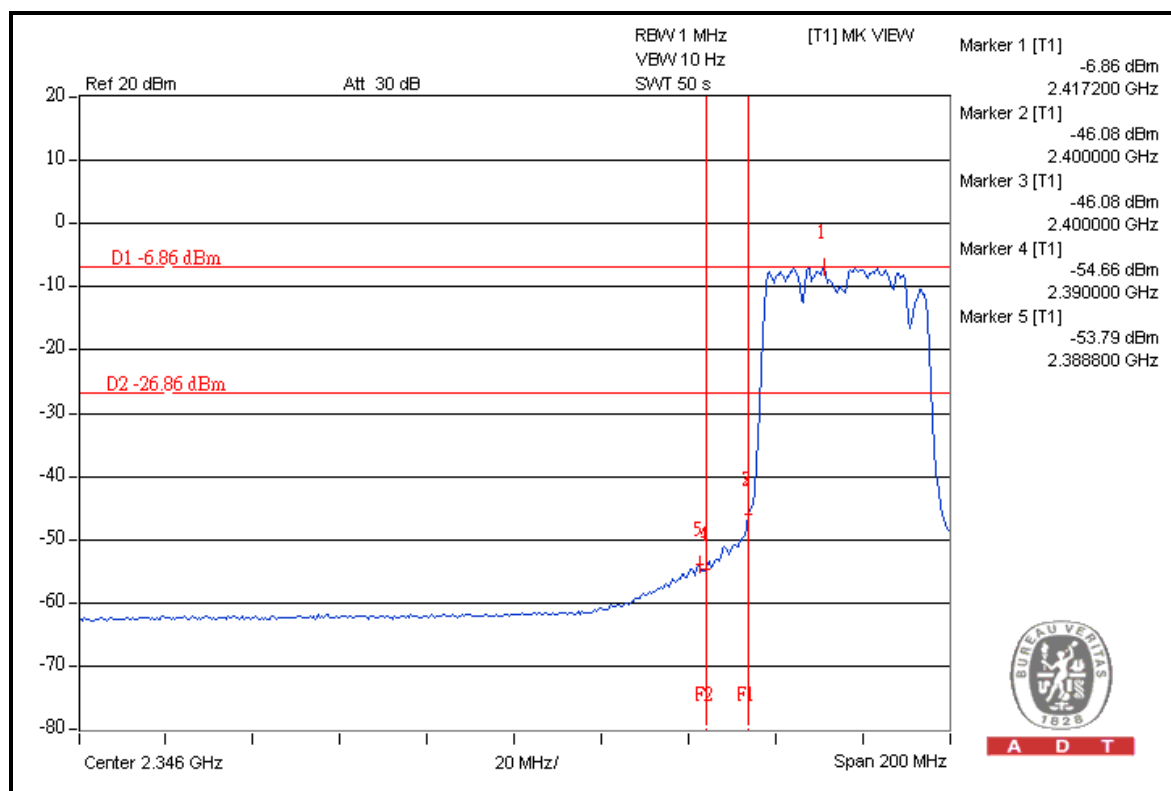
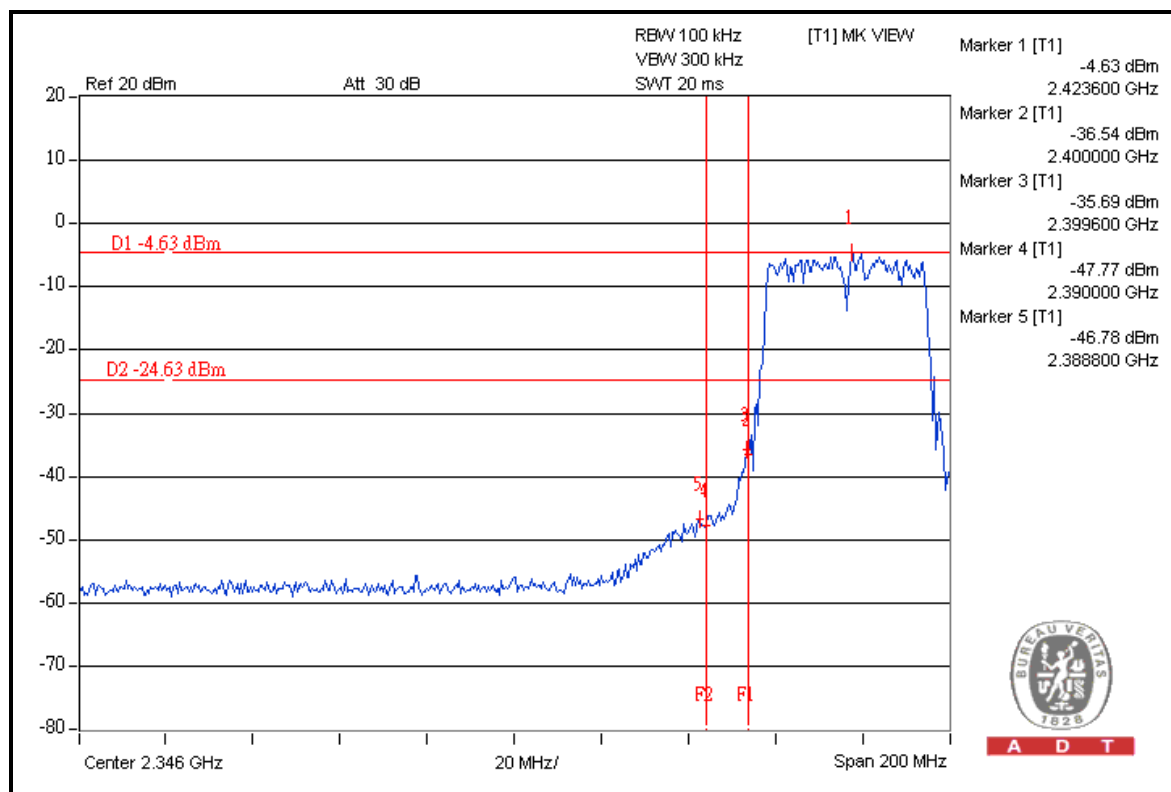
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2452.00 (PK)	107.4	38.5	68.9	74.00
2452.00 (AV)	98.3	44.4	53.9	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

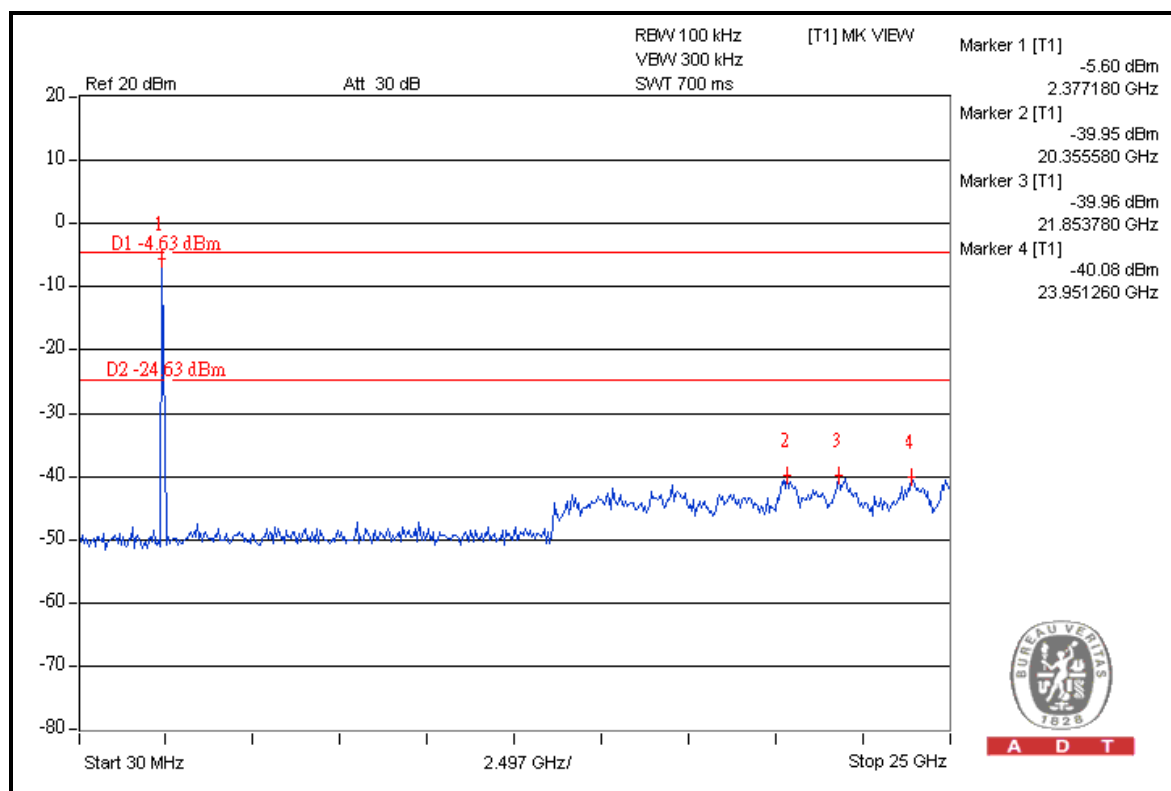


A D T

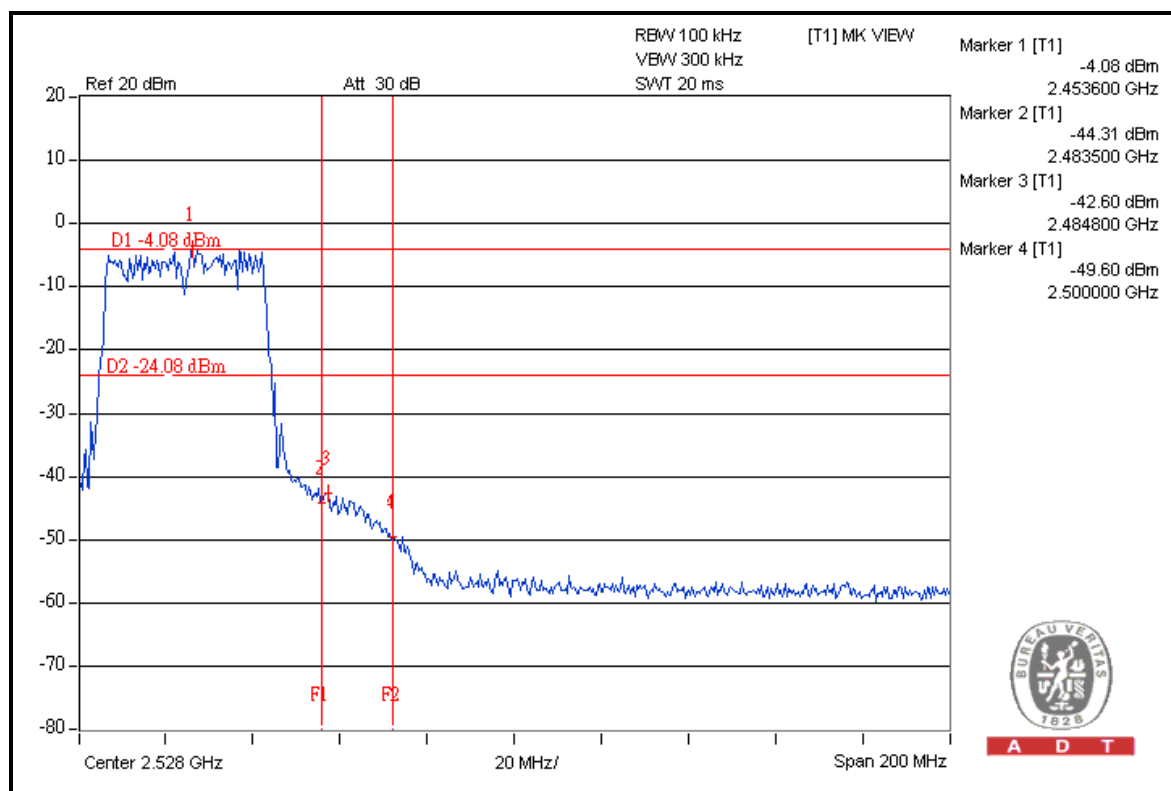




A D T



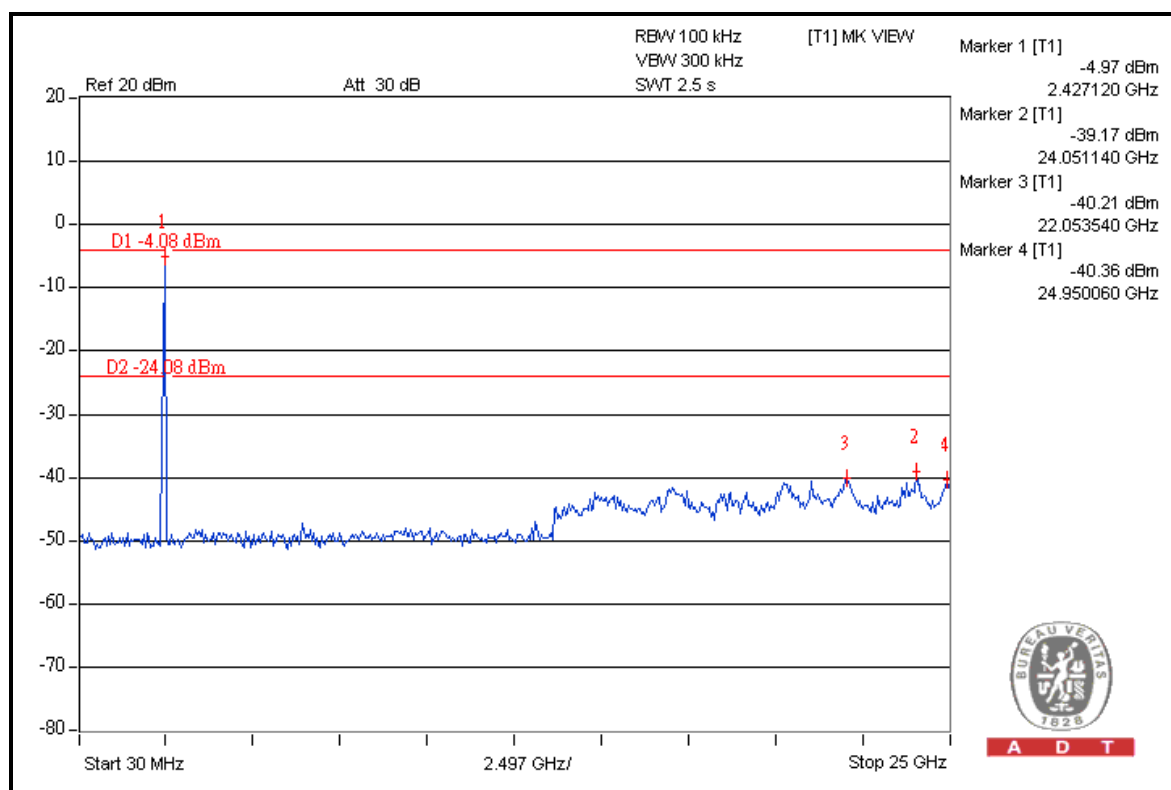
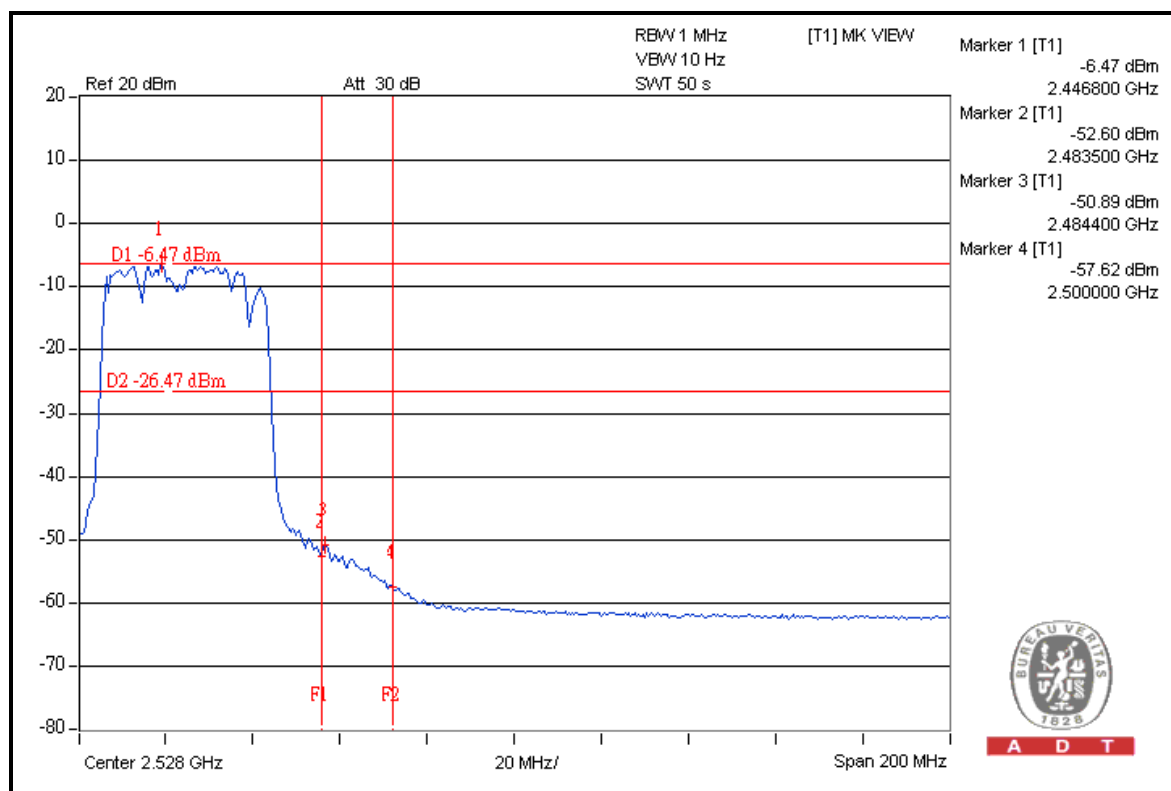
A D T



A D T



A D T



5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 CONDUCTED EMISSION MEASUREMENT

N/A

5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.

**A D T**

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 06, 2010	May 05, 2011
HP Preamplifier	8449B	3008A01924	Jul. 14, 2010	Jul. 13, 2011
HP Preamplifier	8449B	3008A01292	Jul. 14, 2010	Jul. 13, 2011
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

5.2.3 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.

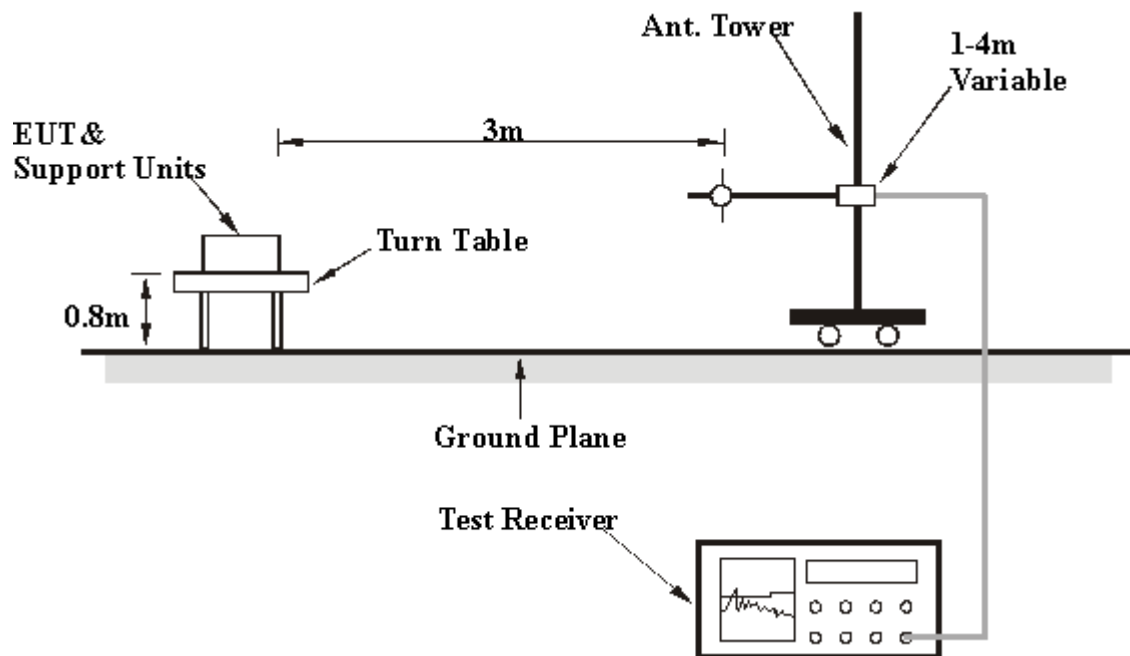
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz 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.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as 4.2.6



A D T

5.2.7 TEST RESULTS

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	#5725.00	60.9 PK	79.9	-19.0	1.00 H	34	19.96	40.93
2	#5725.00	47.6 AV	69.8	-22.2	1.00 H	34	6.65	40.93
3	*5745.00	99.9 PK			1.00 H	34	58.96	40.98
4	*5745.00	89.8 AV			1.00 H	34	48.78	40.98
5	7660.00	55.4 PK	74.0	-18.6	1.00 H	289	9.25	46.19
6	7660.00	45.8 AV	54.0	-8.2	1.00 H	289	-0.38	46.19
7	11490.00	61.2 PK	74.0	-12.8	1.00 H	297	10.95	50.24
8	11490.00	47.7 AV	54.0	-6.3	1.00 H	297	-2.51	50.24
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	#5725.00	74.7 PK	90.2	-15.5	1.00 V	90	33.81	40.93
2	#5725.00	57.3 AV	80.1	-22.8	1.00 V	90	16.38	40.93
3	*5745.00	110.2 PK			1.00 V	90	69.26	40.98
4	*5745.00	100.1 AV			1.00 V	90	59.11	40.98
5	7660.00	56.1 PK	74.0	-17.9	1.09 V	51	9.95	46.19
6	7660.00	47.3 AV	54.0	-6.7	1.09 V	51	1.13	46.19
7	11490.00	64.1 PK	74.0	-9.9	1.08 V	153	13.85	50.24
8	11490.00	50.4 AV	54.0	-3.6	1.08 V	153	0.15	50.24

- 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 limit value is defined as per 15.247.
 7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	*5785.00	99.2 PK			1.00 H	33	58.08	41.07
2	*5785.00	88.9 AV			1.00 H	33	47.83	41.07
3	7713.00	54.4 PK	74.0	-19.6	1.00 H	288	8.14	46.27
4	7713.00	45.5 AV	54.0	-8.5	1.00 H	288	-0.75	46.27
5	11570.00	60.8 PK	74.0	-13.3	1.00 H	176	10.51	50.24
6	11570.00	46.7 AV	54.0	-7.3	1.00 H	176	-3.51	50.24
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	*5785.00	111.7 PK			1.04 V	93	70.60	41.07
2	*5785.00	101.1 AV			1.04 V	93	60.03	41.07
3	7713.00	57.3 PK	74.0	-16.7	1.16 V	92	11.05	46.27
4	7713.00	48.8 AV	54.0	-5.3	1.16 V	92	2.48	46.27
5	11570.00	65.8 PK	74.0	-8.2	1.00 V	290	15.58	50.24
6	11570.00	51.9 AV	54.0	-2.1	1.00 V	290	1.69	50.24

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 limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	*5805.00	100.8 PK			1.00 H	33	59.71	41.12
2	*5805.00	90.7 AV			1.00 H	33	49.57	41.12
3	#5850.00	53.8 PK	80.8	-27.0	1.00 H	33	12.58	41.23
4	#5850.00	37.4 AV	70.7	-33.3	1.00 H	33	-3.88	41.23
5	7740.00	55.7 PK	74.0	-18.3	1.00 H	289	9.33	46.35
6	7740.00	44.7 AV	54.0	-9.4	1.00 H	289	-1.70	46.35
7	11610.00	61.2 PK	74.0	-12.8	1.00 H	295	10.97	50.24
8	11610.00	48.5 AV	54.0	-5.5	1.00 H	295	-1.73	50.24
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	*5805.00	111.8 PK			1.03 V	79	70.70	41.12
2	*5805.00	101.8 AV			1.03 V	79	60.66	41.12
3	#5850.00	63.3 PK	91.8	-28.6	1.03 V	79	22.03	41.23
4	#5850.00	43.6 AV	81.8	-38.2	1.03 V	79	2.40	41.23
5	7740.00	55.9 PK	74.0	-18.1	1.00 V	293	9.55	46.35
6	7740.00	47.7 AV	54.0	-6.3	1.00 V	293	1.33	46.35
7	11610.00	66.7 PK	74.0	-7.3	1.00 V	296	16.42	50.24
8	11610.00	52.2 AV	54.0	-1.8	1.00 V	296	1.96	50.24

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 limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	#5725.00	63.6 PK	80.5	-16.9	1.00 H	35	22.65	40.93
2	#5725.00	47.4 AV	70.1	-22.8	1.00 H	35	6.45	40.93
3	*5745.00	100.5 PK			1.00 H	35	59.49	40.98
4	*5745.00	90.1 AV			1.00 H	35	49.16	40.98
5	7660.00	55.5 PK	74.0	-18.5	1.00 H	289	9.27	46.19
6	7660.00	45.4 AV	54.0	-8.6	1.00 H	289	-0.76	46.19
7	11490.00	60.5 PK	74.0	-13.5	1.00 H	181	10.24	50.24
8	11490.00	46.9 AV	54.0	-7.2	1.00 H	181	-3.40	50.24
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	#5725.00	75.4 PK	92.0	-16.6	1.04 V	76	34.43	40.93
2	#5725.00	58.1 AV	81.5	-23.4	1.04 V	76	17.16	40.93
3	*5745.00	112.0 PK			1.04 V	76	71.02	40.98
4	*5745.00	101.5 AV			1.04 V	76	60.55	40.98
5	7660.00	56.5 PK	74.0	-17.5	1.00 V	94	10.30	46.19
6	7660.00	48.7 AV	54.0	-5.3	1.00 V	94	2.50	46.19
7	11490.00	64.4 PK	74.0	-9.7	1.00 V	290	14.10	50.24
8	11490.00	50.4 AV	54.0	-3.6	1.00 V	290	0.19	50.24

- 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 limit value is defined as per 15.247.
 7. “#”: The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	*5785.00	100.5 PK			1.00 H	38	59.42	41.07
2	*5785.00	89.5 AV			1.00 H	38	48.47	41.07
3	7713.00	54.9 PK	74.0	-19.1	1.00 H	298	8.65	46.27
4	7713.00	45.6 AV	54.0	-8.4	1.00 H	298	-0.65	46.27
5	11570.00	60.8 PK	74.0	-13.2	1.00 H	291	10.60	50.24
6	11570.00	47.8 AV	54.0	-6.3	1.00 H	291	-2.49	50.24
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	*5785.00	112.2 PK			1.02 V	75	71.14	41.07
2	*5785.00	102.2 AV			1.02 V	75	61.11	41.07
3	7713.00	56.1 PK	74.0	-17.9	1.00 V	50	9.83	46.27
4	7713.00	46.6 AV	54.0	-7.4	1.00 V	50	0.35	46.27
5	11570.00	65.6 PK	74.0	-8.4	1.05 V	292	15.39	50.24
6	11570.00	51.5 AV	54.0	-2.5	1.05 V	292	1.26	50.24

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 limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	*5805.00	101.4 PK			1.11 H	33	60.27	41.12
2	*5805.00	90.9 AV			1.11 H	33	49.74	41.12
3	#5850.00	58.3 PK	81.4	-23.1	1.11 H	33	17.06	41.23
4	#5850.00	38.2 AV	70.9	-32.7	1.11 H	33	-3.04	41.23
5	7740.00	55.7 PK	74.0	-18.3	1.00 H	282	9.31	46.35
6	7740.00	45.3 AV	54.0	-8.7	1.00 H	282	-1.07	46.35
7	11610.00	60.9 PK	74.0	-13.1	1.00 H	297	10.62	50.24
8	11610.00	47.1 AV	54.0	-6.9	1.00 H	297	-3.13	50.24
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	*5805.00	112.7 PK			1.02 V	76	71.59	41.12
2	*5805.00	102.6 AV			1.02 V	76	61.43	41.12
3	#5850.00	70.2 PK	92.7	-22.5	1.02 V	76	28.98	41.23
4	#5850.00	49.6 AV	82.6	-32.9	1.02 V	76	8.39	41.23
5	7740.00	56.4 PK	74.0	-17.6	1.00 V	289	10.02	46.35
6	7740.00	47.6 AV	54.0	-6.5	1.00 V	289	1.20	46.35
7	11610.00	65.6 PK	74.0	-8.4	1.00 V	297	15.39	50.24
8	11610.00	51.7 AV	54.0	-2.3	1.00 V	297	1.44	50.24

- 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 limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



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802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	#5725.00	73.0 PK	76.6	-3.6	1.00 H	34	32.11	40.93
2	#5725.00	58.3 AV	68.0	-9.7	1.00 H	34	17.35	40.93
3	*5755.00	96.6 PK			1.00 H	34	55.59	41.00
4	*5755.00	88.0 AV			1.00 H	34	46.96	41.00
5	7673.00	54.5 PK	74.0	-19.5	1.00 H	287	8.33	46.20
6	7673.00	44.7 AV	54.0	-9.3	1.00 H	287	-1.46	46.20
7	11510.00	60.0 PK	74.0	-14.0	1.02 H	193	9.75	50.24
8	11510.00	46.7 AV	54.0	-7.3	1.02 H	193	-3.56	50.24
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	#5725.00	82.7 PK	87.3	-4.6	1.04 V	90	41.72	40.93
2	#5725.00	67.5 AV	78.0	-10.5	1.04 V	90	26.58	40.93
3	*5755.00	107.3 PK			1.04 V	90	66.25	41.00
4	*5755.00	98.0 AV			1.04 V	90	57.03	41.00
5	7673.00	56.8 PK	74.0	-17.3	1.03 V	263	10.55	46.20
6	7673.00	49.3 AV	54.0	-4.8	1.03 V	263	3.05	46.20
7	11510.00	60.9 PK	74.0	-13.1	1.03 V	182	10.68	50.24
8	11510.00	49.0 AV	54.0	-5.1	1.03 V	182	-1.29	50.24

- 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 limit value is defined as per 15.247.
 7. “#”:The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	16deg. C, 60% RH 1016hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	*5795.00	95.6 PK			1.00 H	38	54.53	41.10
2	*5795.00	86.1 AV			1.00 H	38	44.96	41.10
3	#5850.00	61.5 PK	75.6	-14.1	1.00 H	38	20.30	41.23
4	#5850.00	41.3 AV	66.1	-24.8	1.00 H	38	0.03	41.23
5	7726.00	57.1 PK	74.0	-16.9	1.03 H	196	10.76	46.31
6	7726.00	44.8 AV	54.0	-9.2	1.03 H	196	-1.55	46.31
7	11590.00	59.7 PK	74.0	-14.3	1.02 H	299	9.46	50.24
8	11590.00	46.6 AV	54.0	-7.5	1.02 H	299	-3.69	50.24
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	*5795.00	106.7 PK			1.04 V	91	65.62	41.10
2	*5795.00	97.1 AV			1.04 V	91	55.98	41.10
3	#5850.00	72.6 PK	86.7	-14.1	1.04 V	91	31.40	41.23
4	#5850.00	53.0 AV	77.1	-24.1	1.04 V	91	11.73	41.23
5	7726.00	56.9 PK	74.0	-17.1	1.04 V	219	10.58	46.31
6	7726.00	48.7 AV	54.0	-5.3	1.04 V	219	2.40	46.31
7	11590.00	59.9 PK	74.0	-14.1	1.00 V	181	9.69	50.24
8	11590.00	48.5 AV	54.0	-5.5	1.00 V	181	-1.76	50.24

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 limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	15deg. C, 58% RH 1017hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	39.33	36.1 QP	40.0	-3.9	1.06 H	310	22.70	13.42
2	71.97	36.4 QP	40.0	-3.6	1.17 H	181	24.68	11.73
3	131.04	39.6 QP	43.5	-4.0	1.05 H	169	26.06	13.49
4	288.04	42.5 QP	46.0	-3.5	1.09 H	271	27.18	15.28
5	309.81	40.8 QP	46.0	-5.2	1.13 H	160	24.77	16.04
6	864.76	38.4 QP	46.0	-7.6	1.16 H	70	11.00	27.37
7	923.83	42.2 QP	46.0	-3.8	1.03 H	265	13.97	28.23
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	34.66	36.6 QP	40.0	-3.4	1.02 V	127	23.82	12.81
2	71.97	36.9 QP	40.0	-3.1	1.26 V	295	25.17	11.73
3	288.04	38.2 QP	46.0	-7.8	1.28 V	253	22.92	15.28
4	389.09	35.0 QP	46.0	-11.0	1.07 V	334	16.90	18.12
5	477.69	35.6 QP	46.0	-10.4	1.22 V	223	15.46	20.14
6	701.54	34.7 QP	46.0	-11.3	1.24 V	271	9.88	24.86
7	864.76	35.3 QP	46.0	-10.7	1.03 V	166	7.89	27.37

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



A D T

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

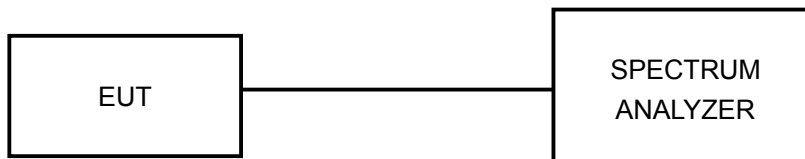
5.3.3 TEST PROCEDURE

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 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

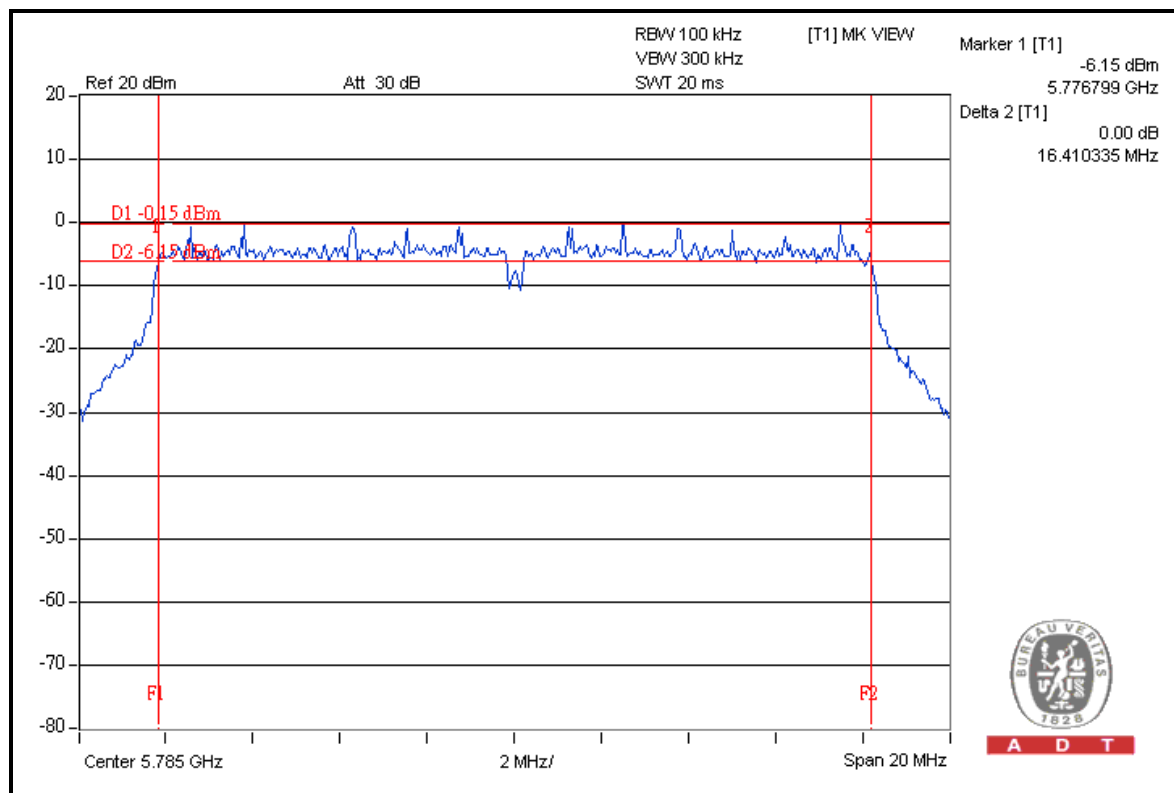
5.3.7 TEST RESULTS

TEST MODE A:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.38	0.5	PASS
157	5785	16.41	0.5	PASS
161	5805	16.38	0.5	PASS

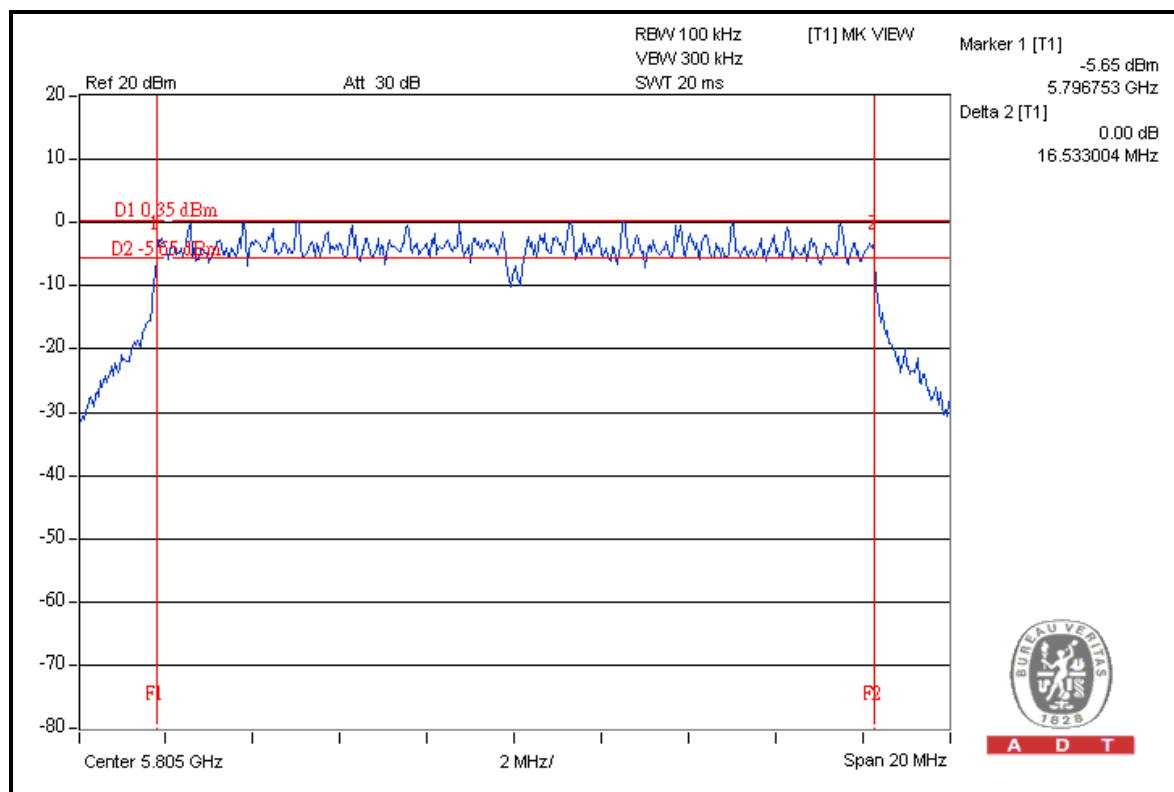
CH 157



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.49	0.5	PASS
157	5785	16.50	0.5	PASS
161	5805	16.53	0.5	PASS

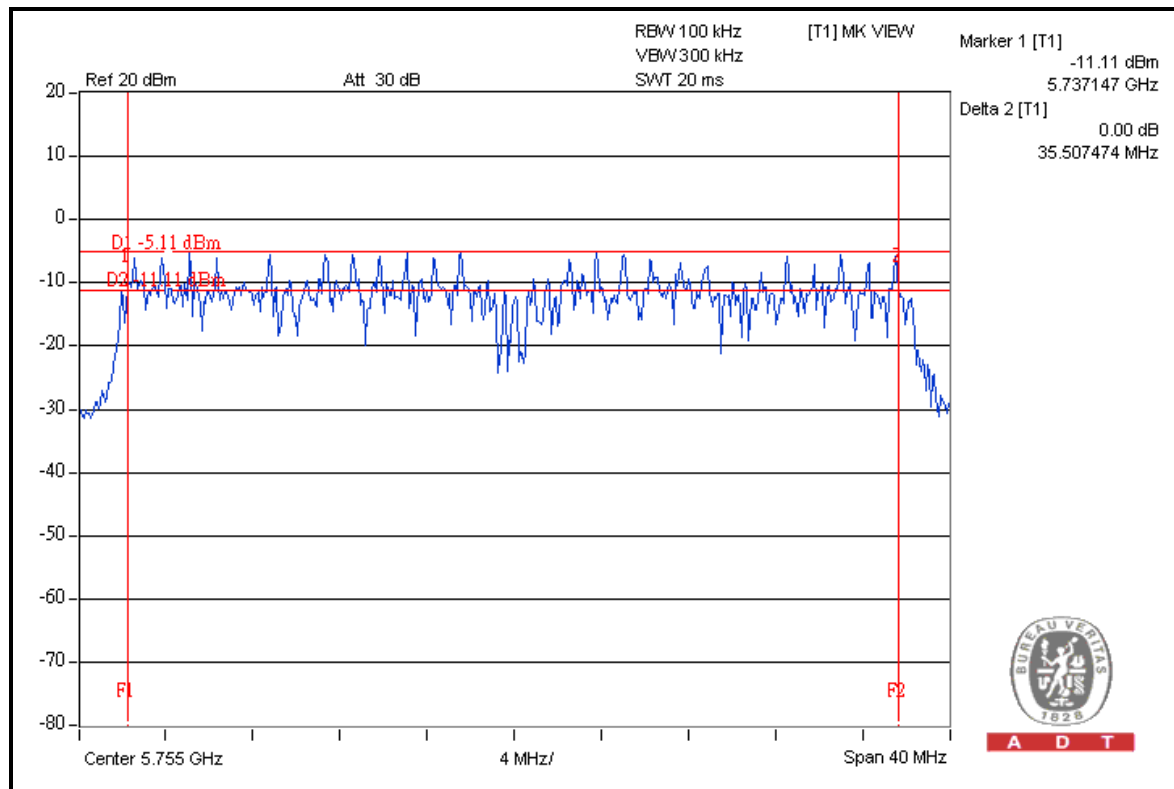
CH 161



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.51	0.5	PASS
159	5795	35.48	0.5	PASS

CH 151





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5.4 MAXIMUM OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824012	Aug. 10, 2010	Aug. 09, 2011
Power Sensor	MA2411B	0738138	Aug. 10, 2010	Aug. 09, 2011

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.

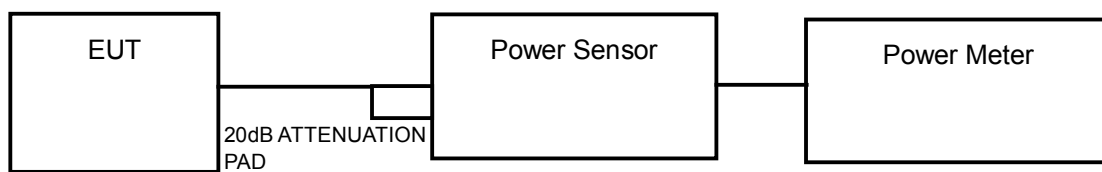
5.4.3 TEST PROCEDURES

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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

TEST MODE A:

802.11a

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
149	5745	21.4	136.5	30	PASS
157	5785	20.8	119.7	30	PASS
161	5805	20.3	108.1	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
149	5745	20.8	119.1	30	PASS
157	5785	20.7	118.3	30	PASS
161	5805	20.4	109.6	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS / FAIL
151	5755	21.2	131.5	30	PASS
159	5795	21.0	126.5	30	PASS



A D T

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

5.5.3 TEST PROCEDURE

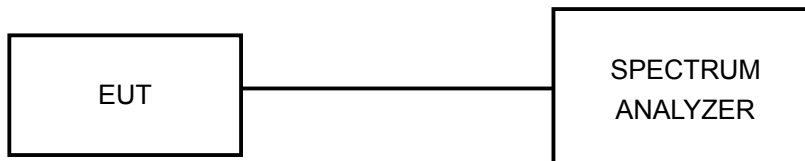
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6

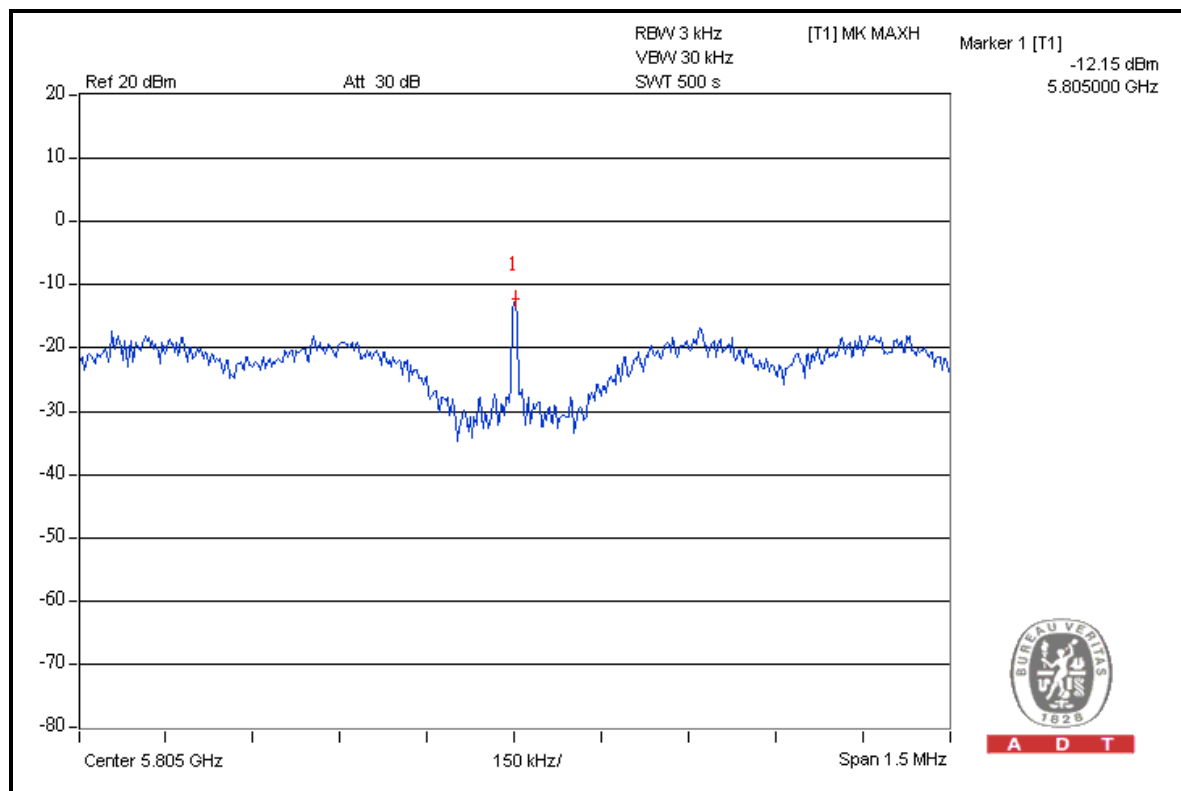
5.5.7 TEST RESULTS

TEST MODE A:

802.11a

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
149	5745	-15.8	8	PASS
157	5785	-12.3	8	PASS
161	5805	-12.2	8	PASS

CH 161



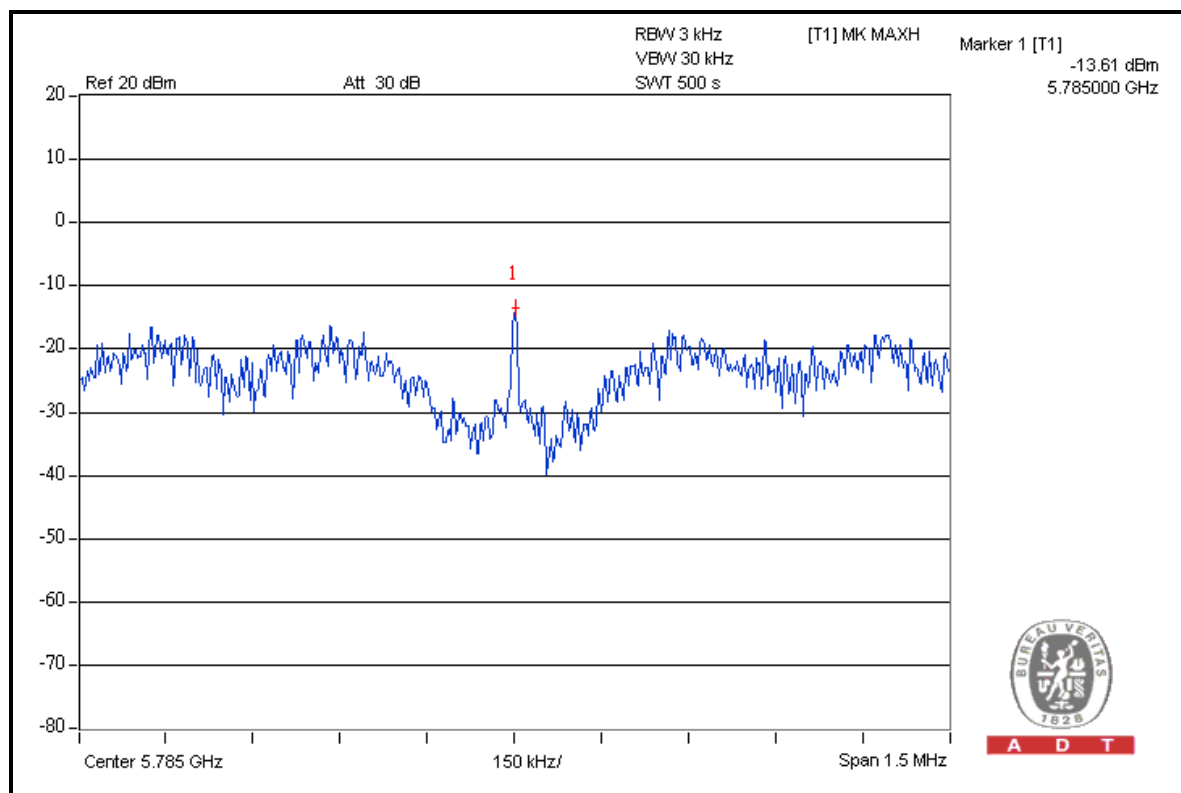


A D T

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
149	5745	-16.0	8	PASS
157	5785	-13.6	8	PASS
161	5805	-15.9	8	PASS

CH 157



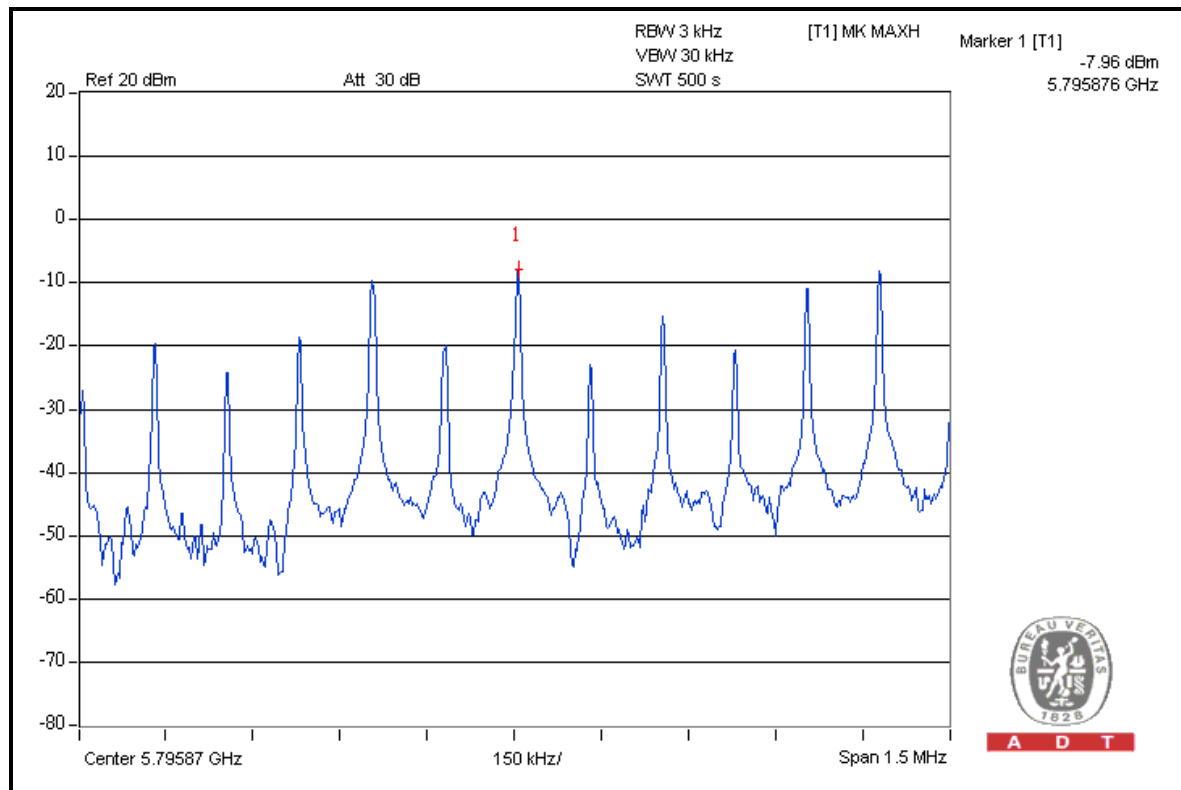


A D T

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
151	5755	-9.5	8	PASS
159	5795	-8.0	8	PASS

CH 159





A D T

5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

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



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5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

Same as Item 5.3.6

5.6.6 TEST RESULTS

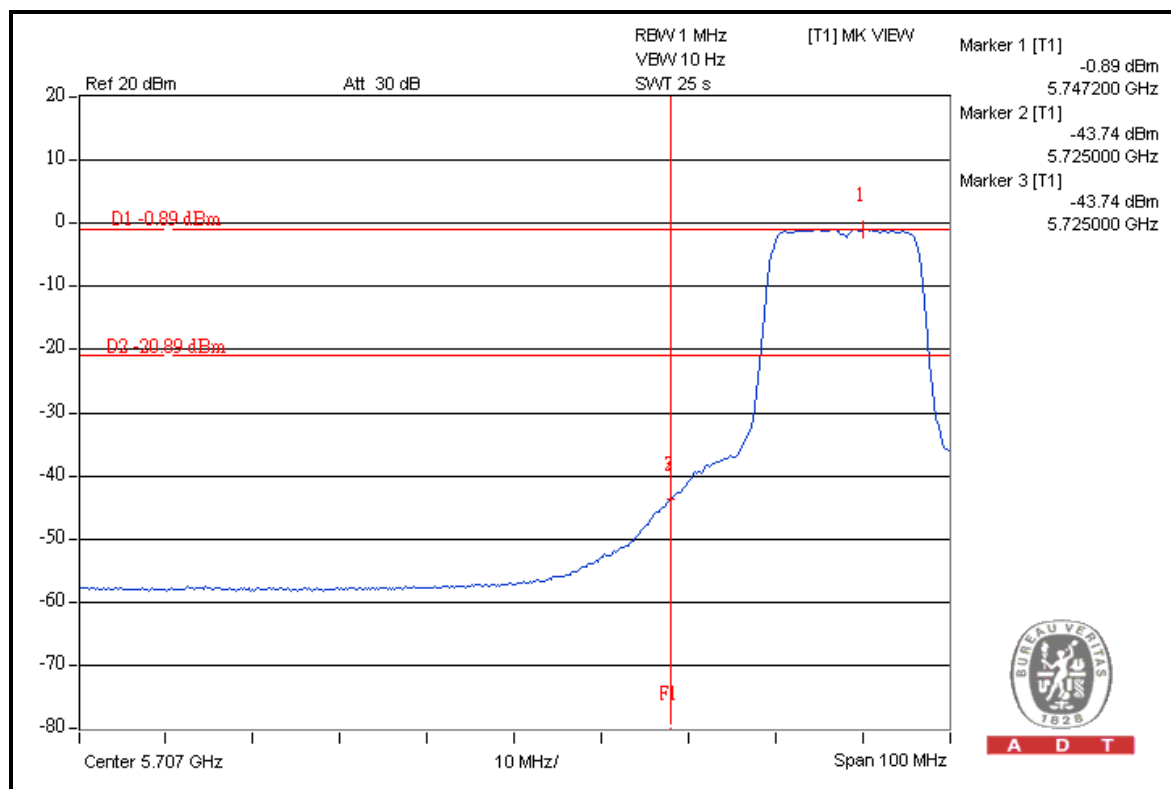
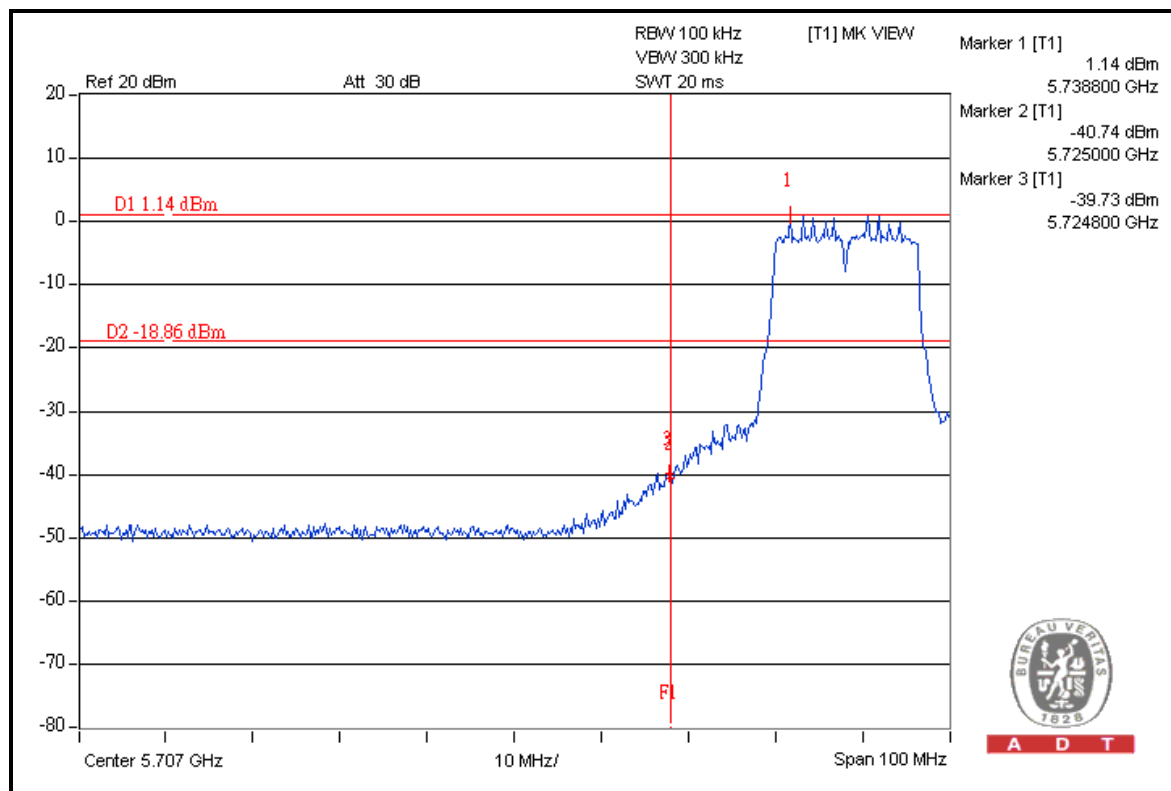
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).



A D T

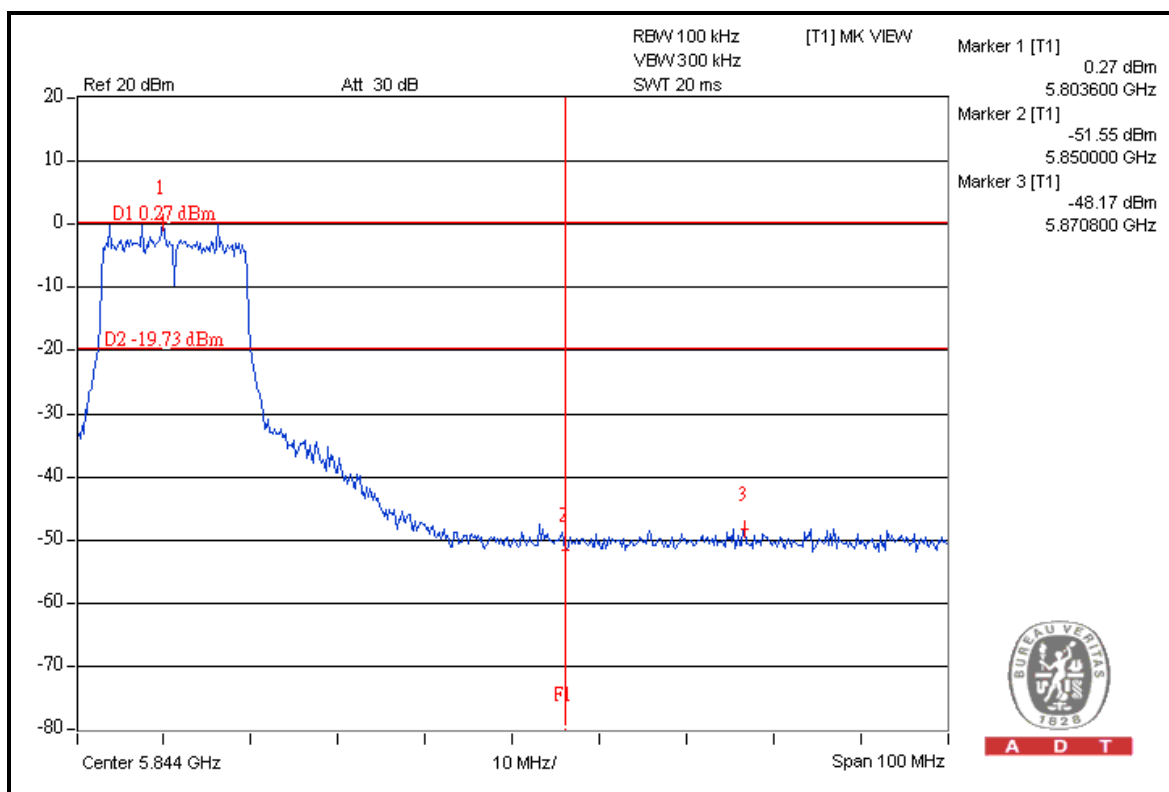
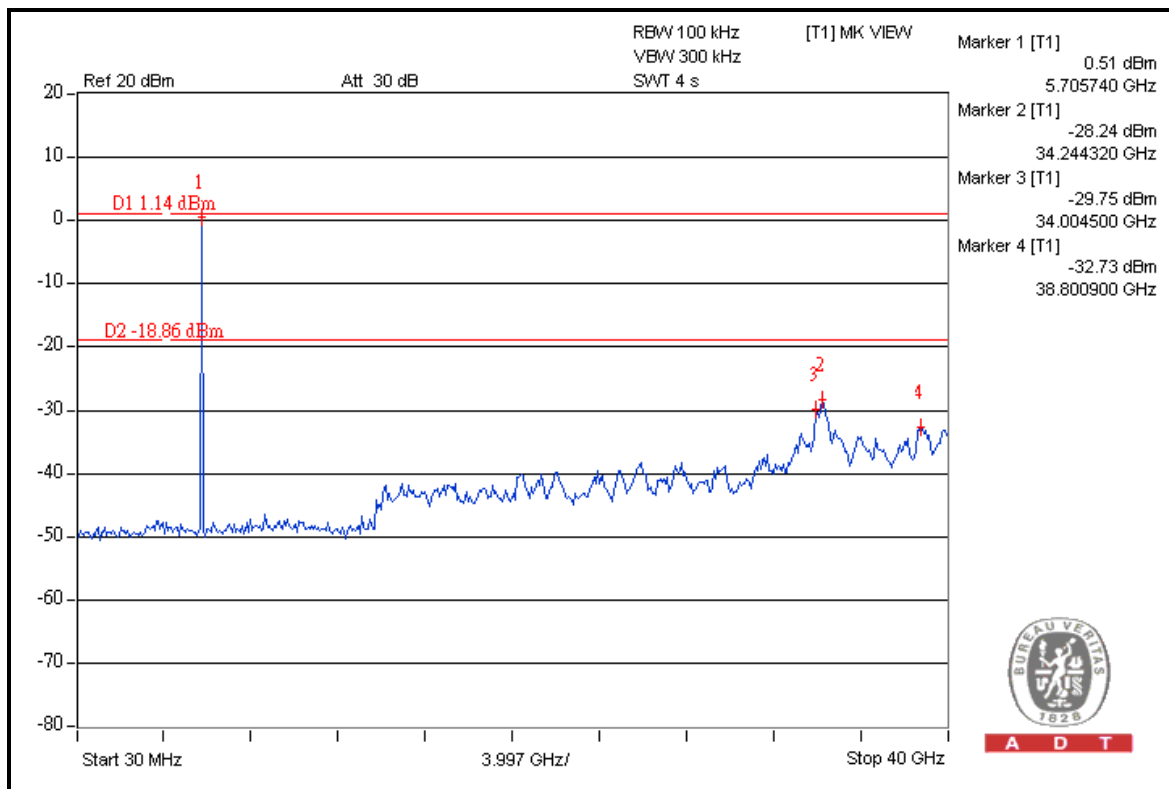
TEST MODE A:

802.11a



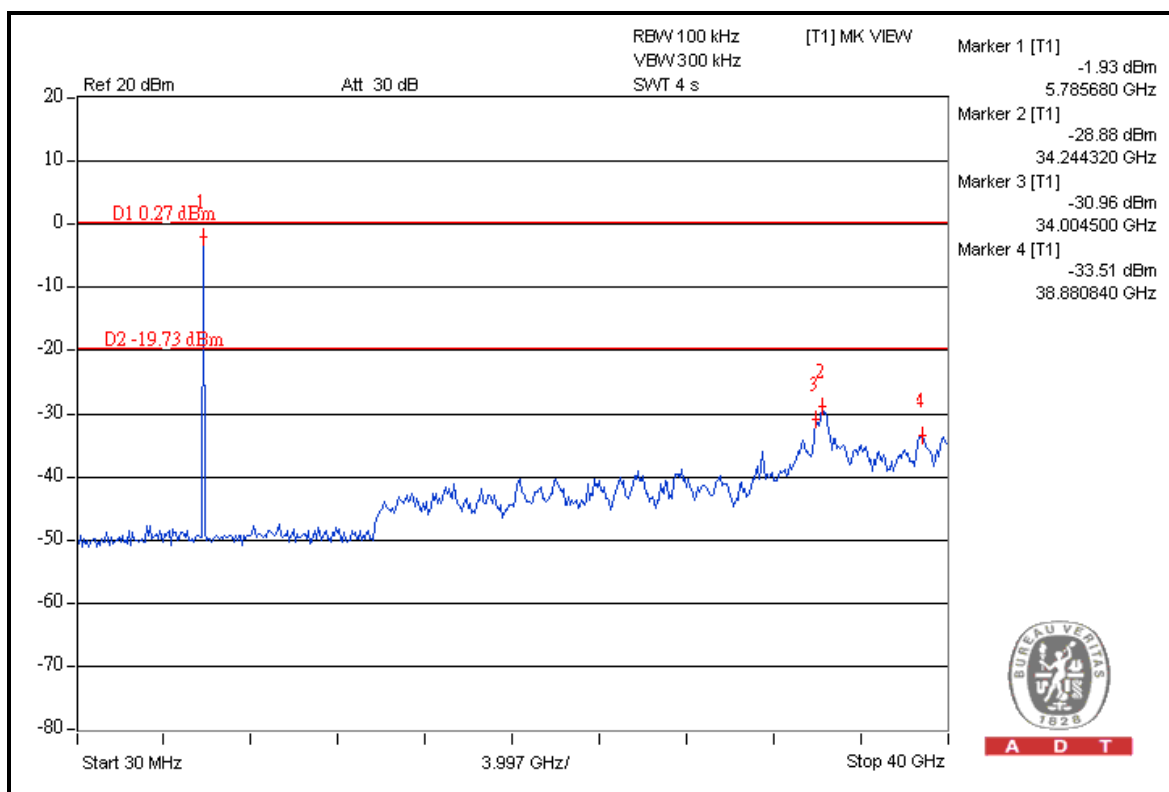
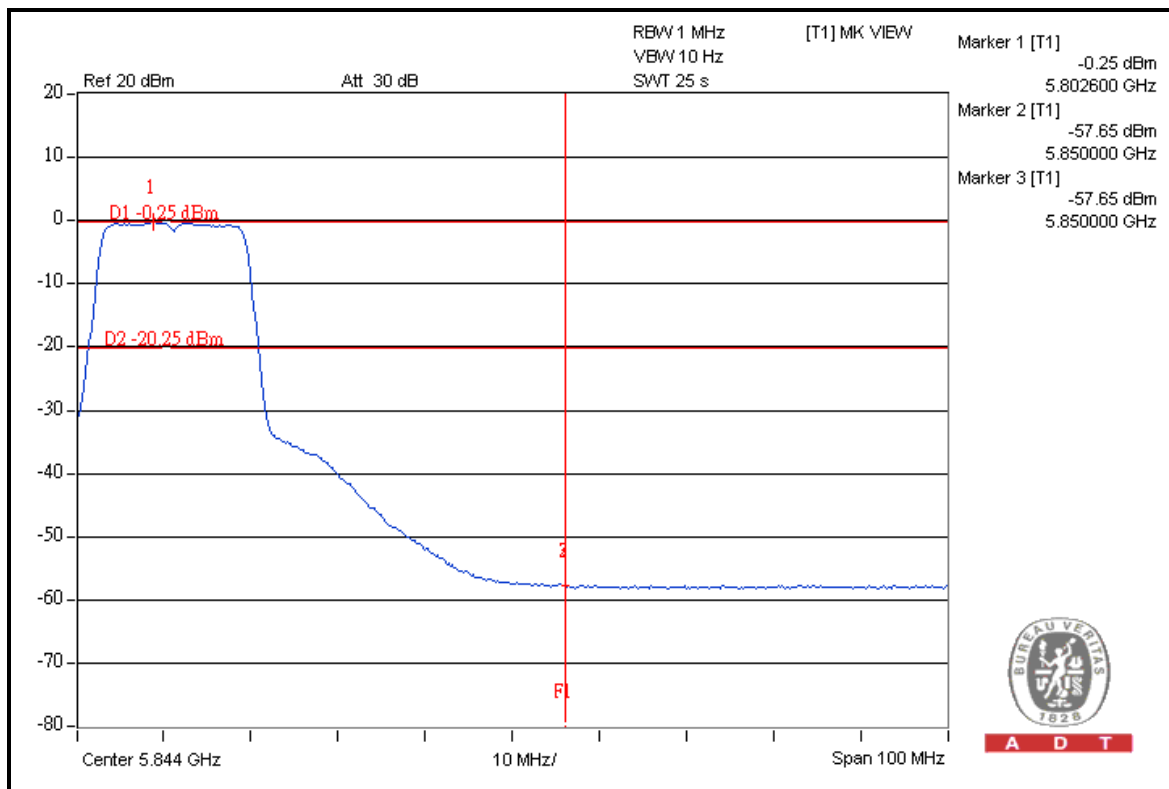


A D T





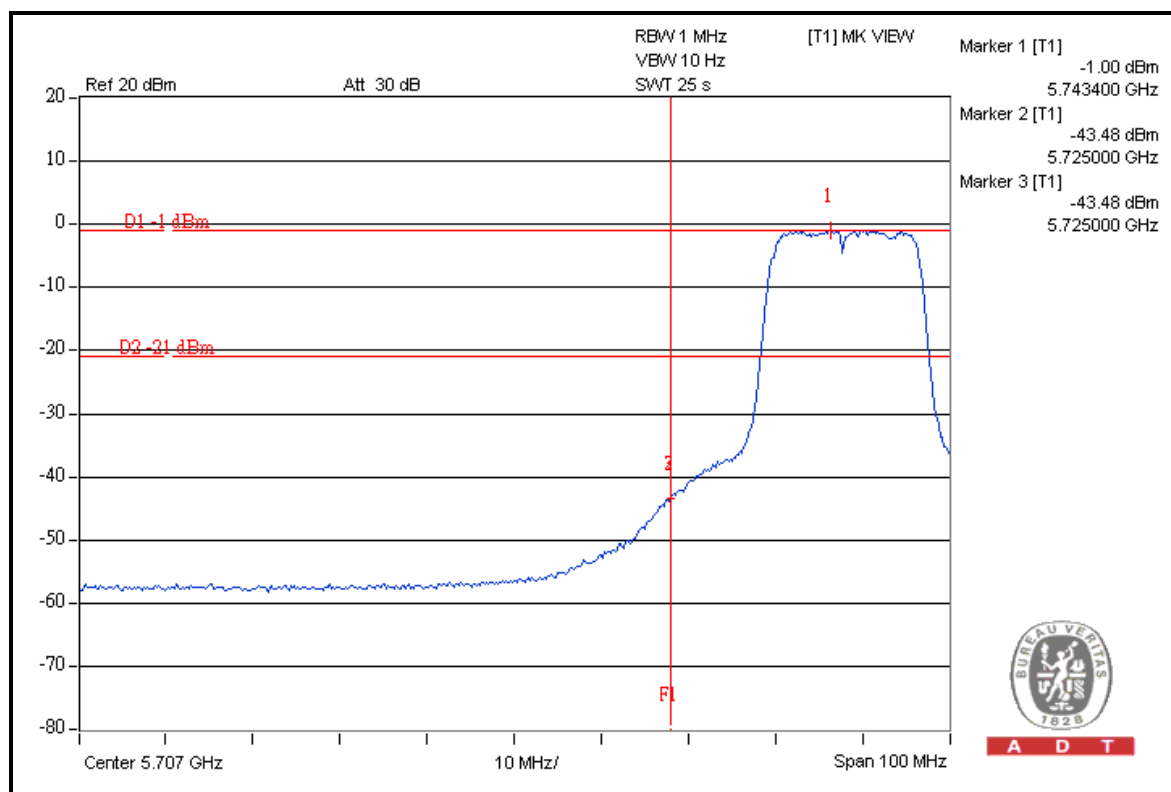
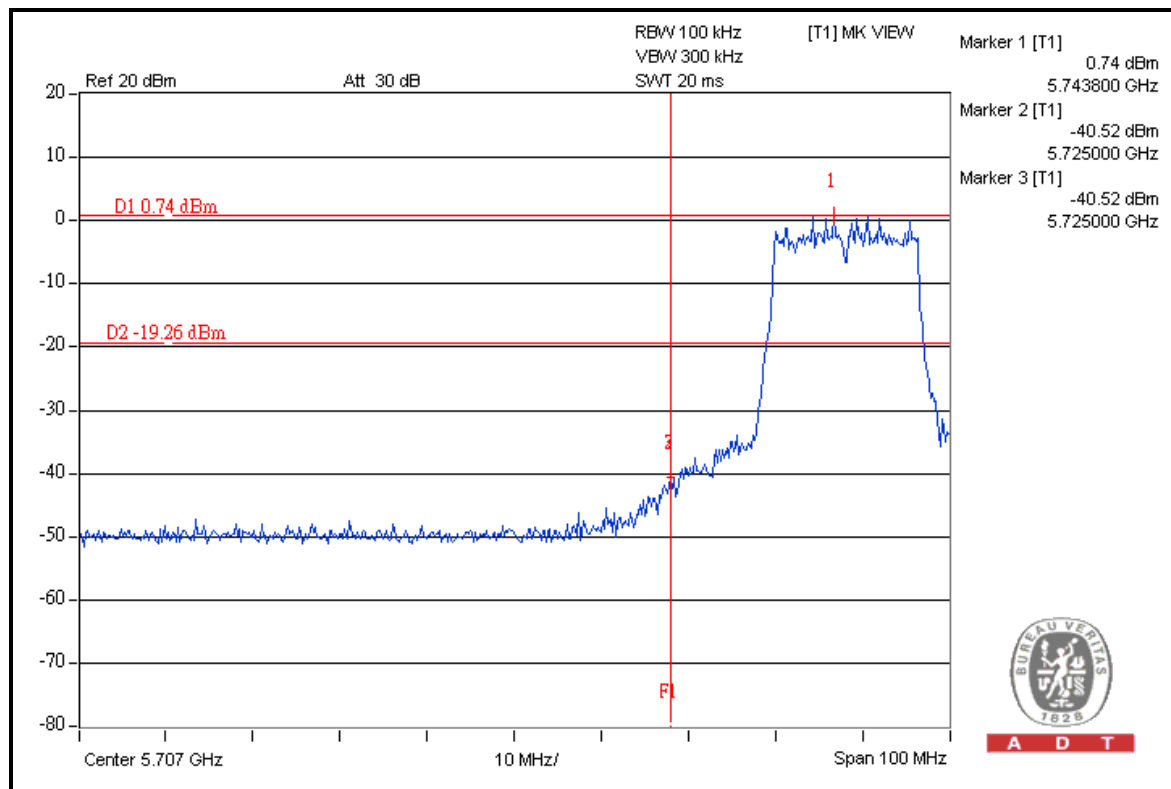
A D T





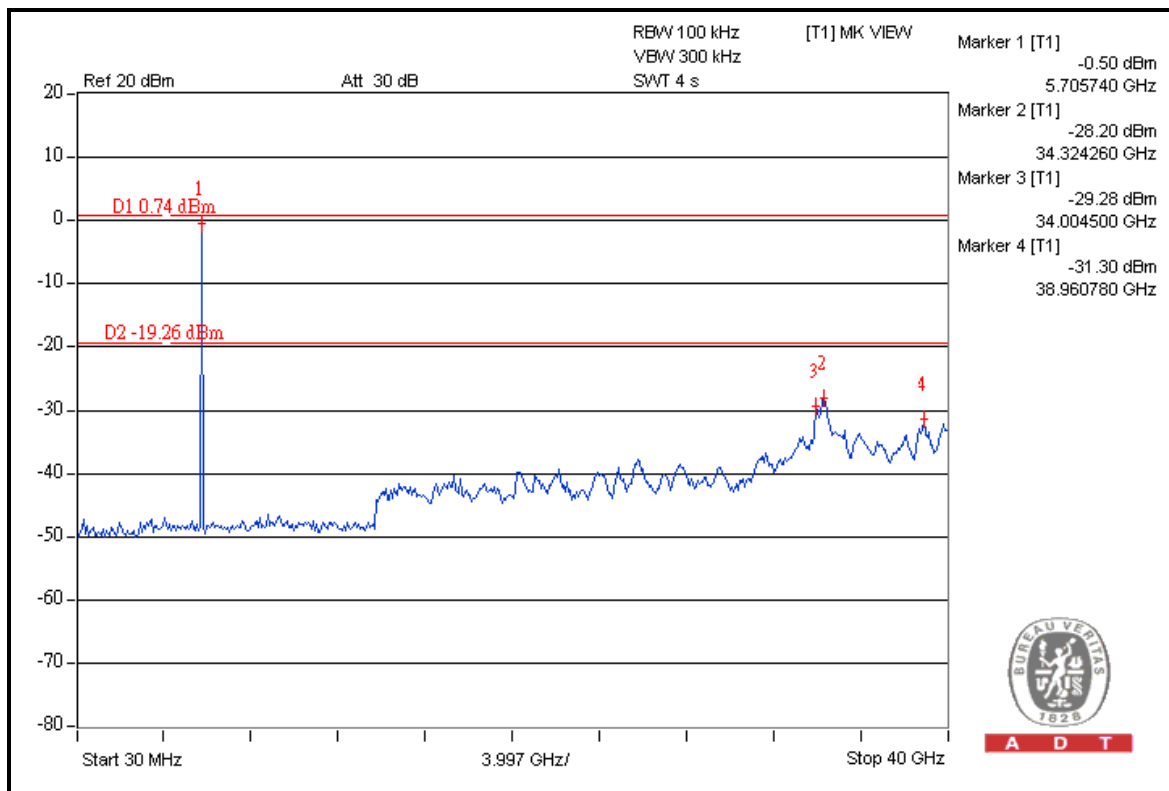
A D T

802.11n (20MHz)

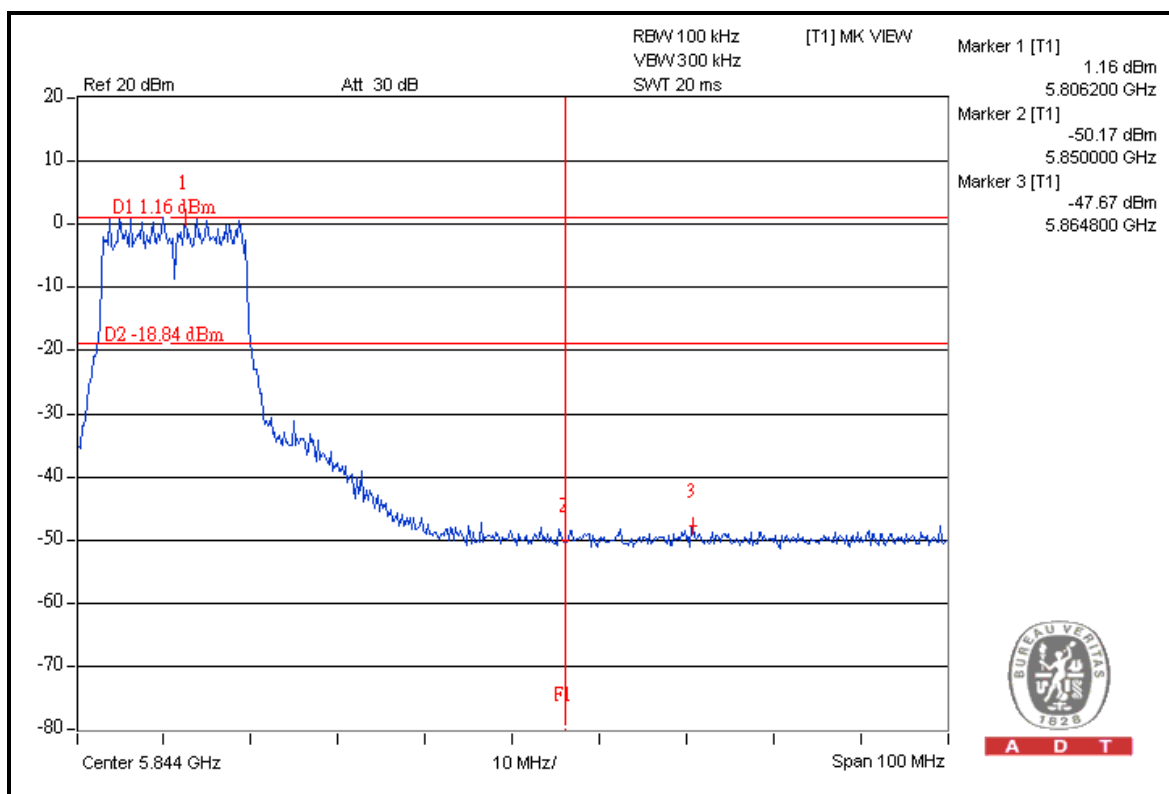




A D T



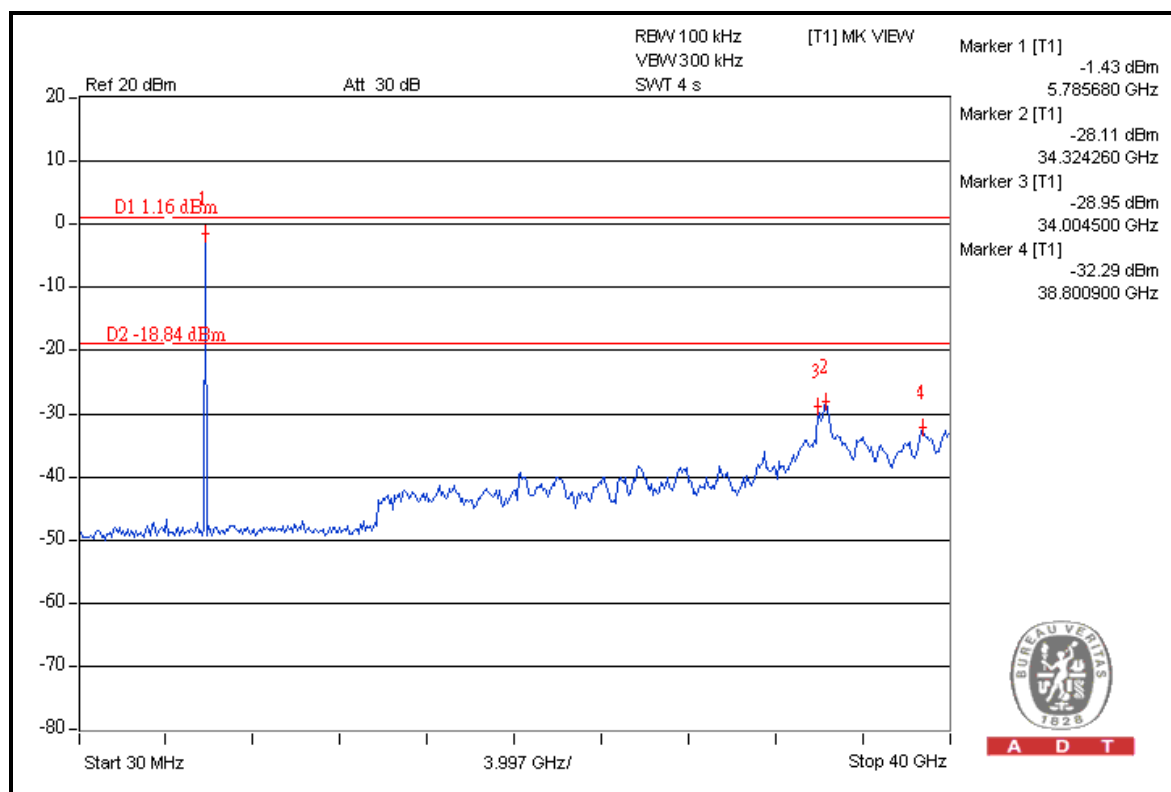
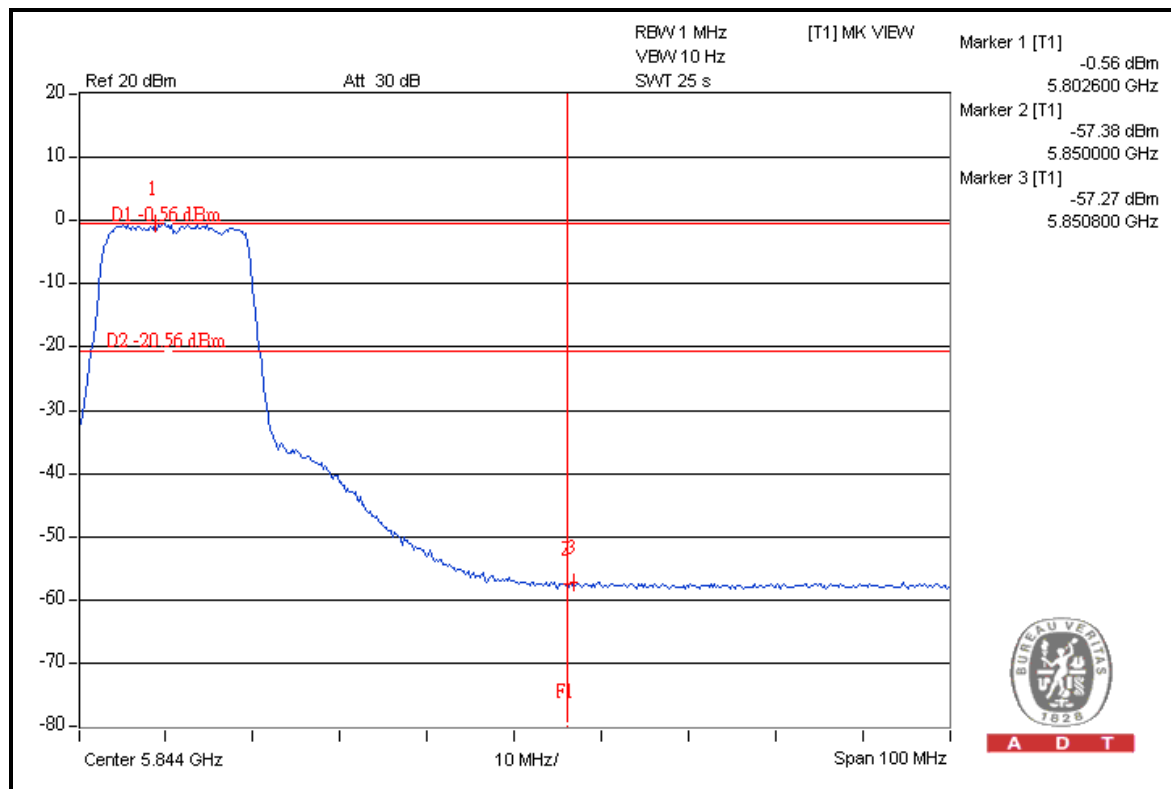
A D T



A D T



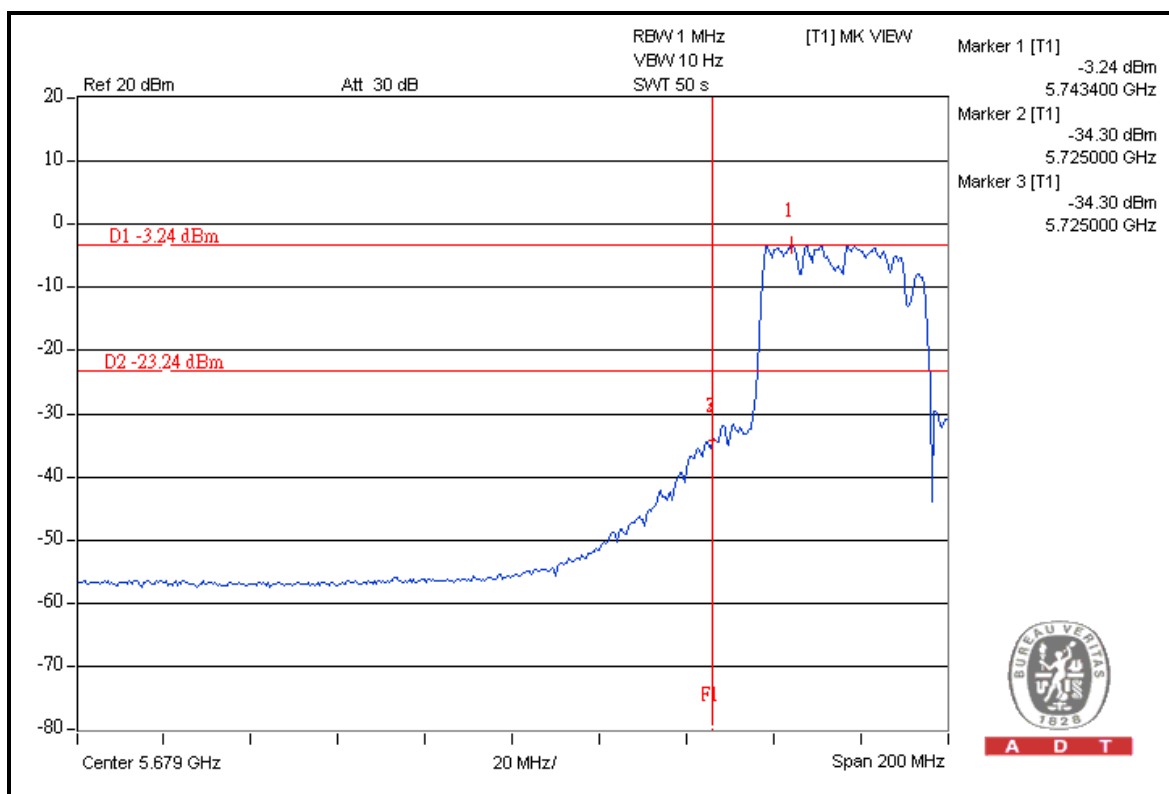
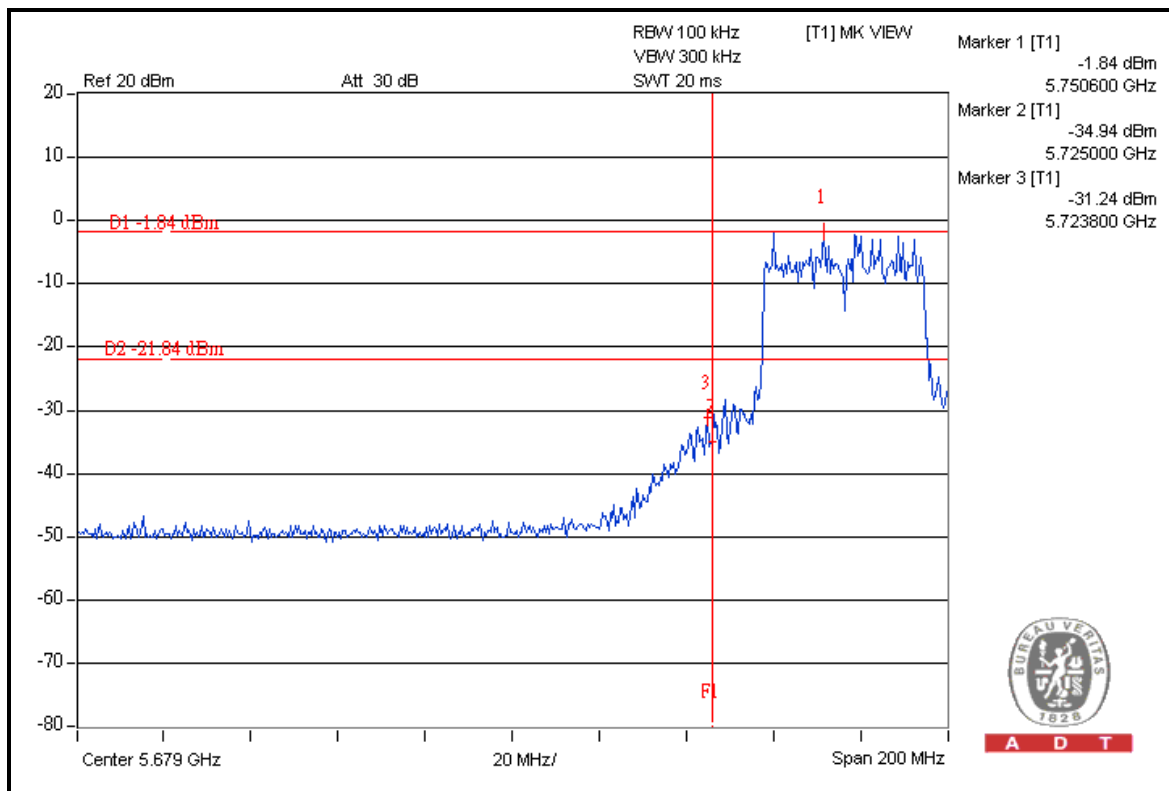
A D T





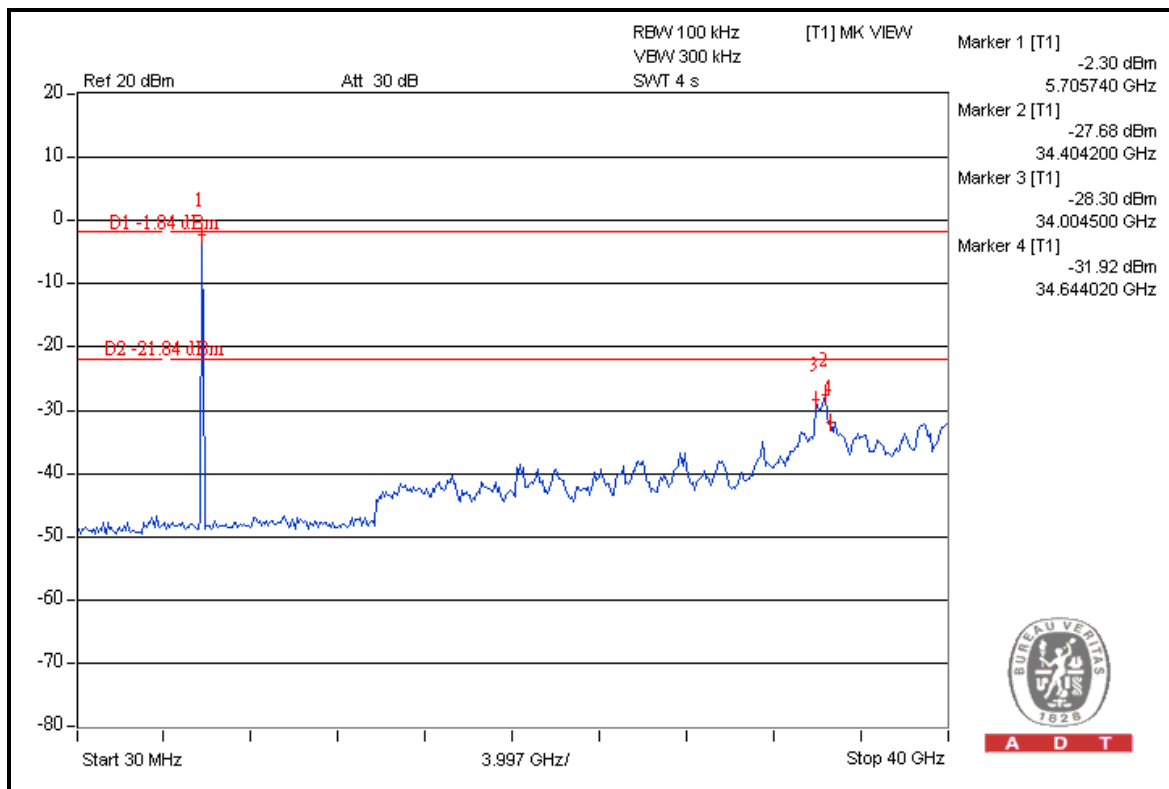
A D T

802.11n (40MHz)

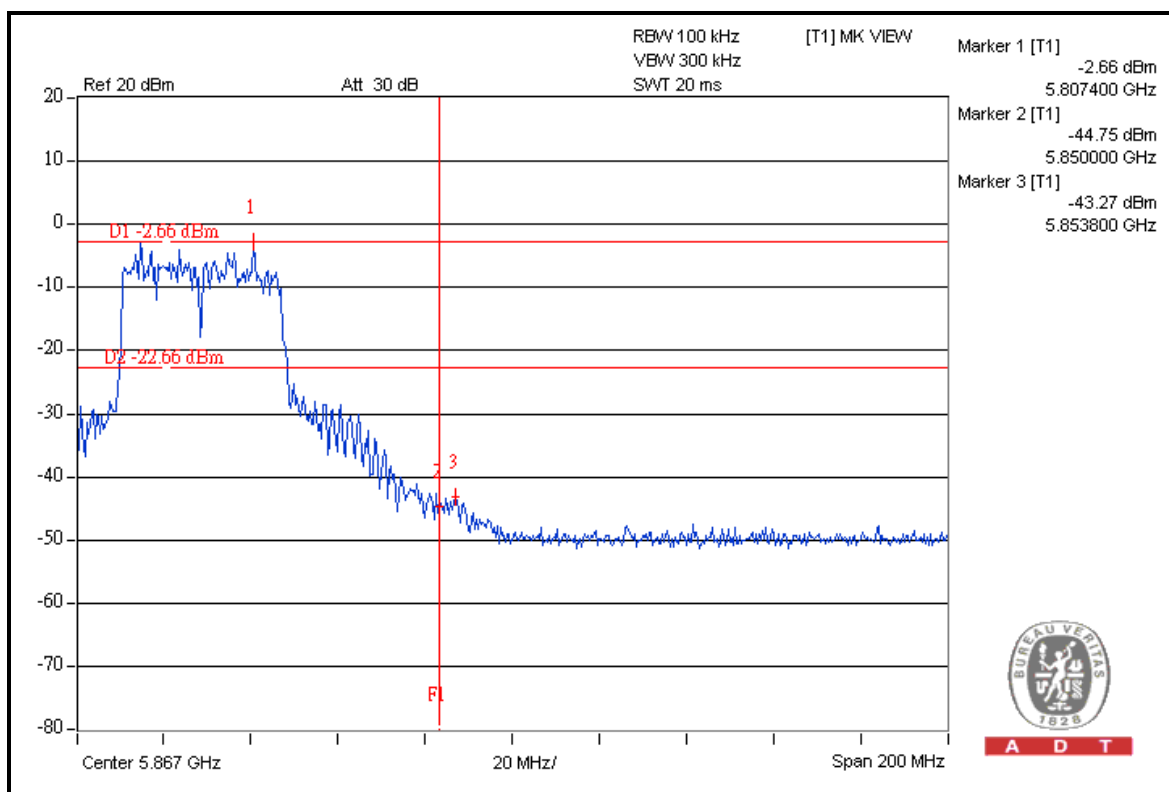




A D T



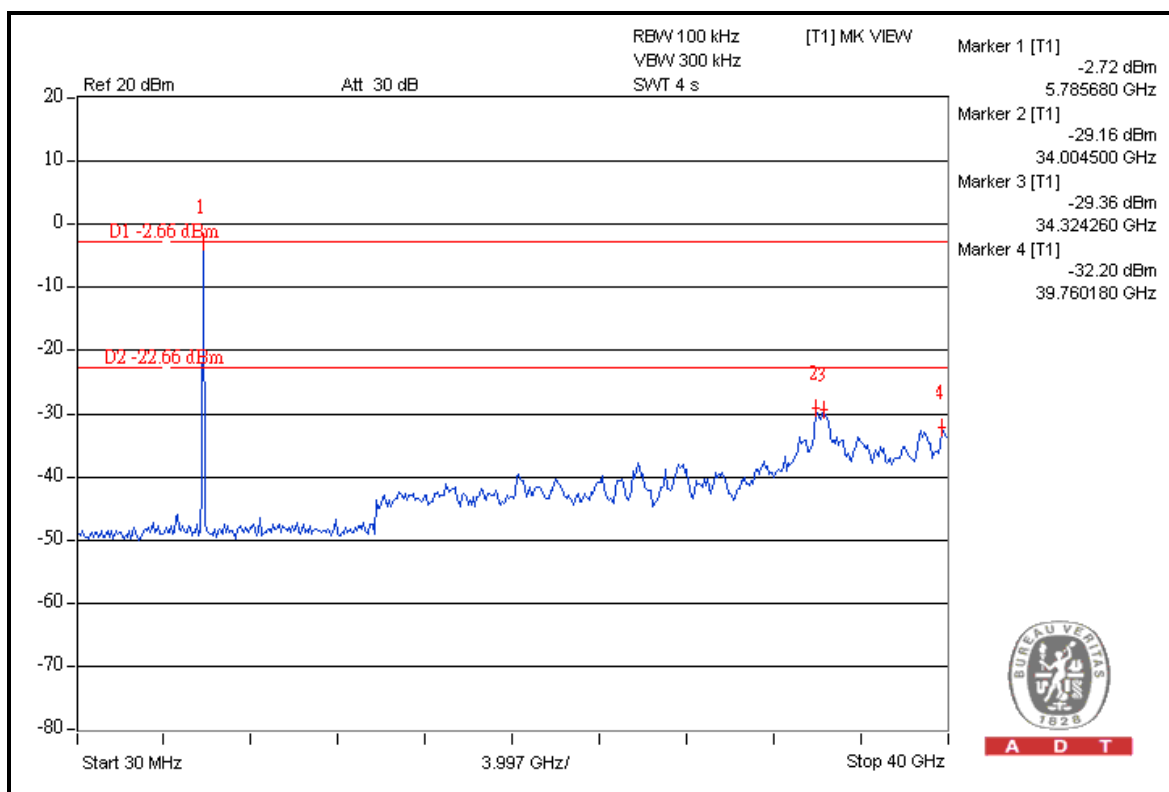
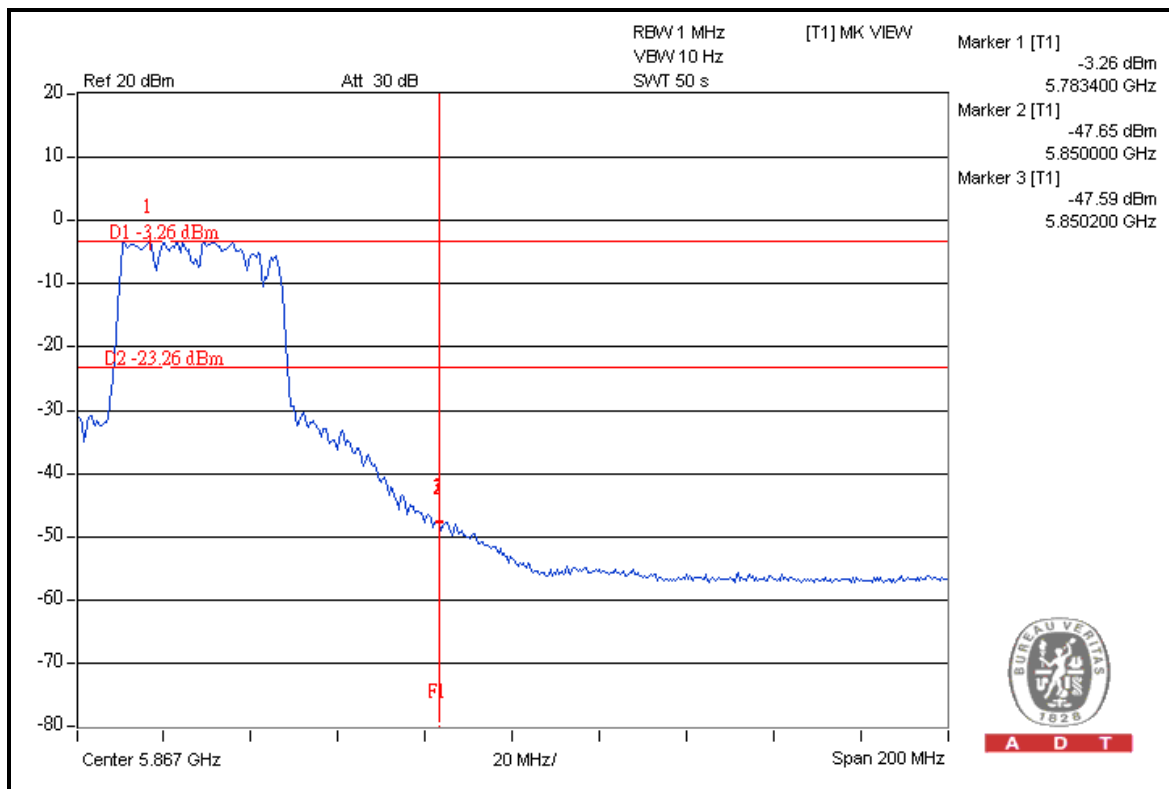
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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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7. 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 according to ISO/IEC 17025.

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.



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

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

---END---