FCC TEST REPORT (15.407)

REPORT NO.: RF960118L01-1

MODEL NO.: DAP-1555

RECEIVED: Jan. 18, 2007

TESTED: Feb. 26 ~ May 07, 2007

ISSUED: May 15, 2007

APPLICANT: D-Link Corporation

ADDRESS: 17595 Mt. Herrmann, Fountain Valley, CA 92708, U.S.A.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No.47, 14th Ling, Chia Pau Tsuen, Linko Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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1. CERTIFICATION

PRODUCT: D-Link Xtreme N Duo MediaBridge
MODEL: DAP-1555
BRAND: D-Link
APPLICANT: D-Link Corporation
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Feb. 26 ~ May 07, 2007
STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.4-2003

The above equipment (Model: DAP-1555) has been tested by **Advance Data Technology Corporation,** 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 : Rennie Wang , **DATE:** May 15, 2007
Rennie Wang

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** May 15, 2007
Responsible for RF
Long Chen

APPROVED BY : Gary Chang , **DATE:** May 15, 2007
Gary Chang / Supervisor

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.80dB at 0.588MHz
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -2.18dB at 105.73MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.59dB
	200MHz ~1000MHz	3.61dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	D-Link Xtreme N Duo MediaBridge
MODEL NO.	DAP-1555
FCC ID	KA2AP1555A1
POWER SUPPLY	5Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n (20MHz): 144.444/ 130.000/ 115.556/ 86.667/ 57.778/ 43.333/ 28.889/ 14.444/ 72.2/ 65.0/ 57.8/ 43.3/ 28.9/ 21.7/ 14.4/ 7.2Mbps Draft 802.11n (40MHz): 300/ 270/ 240/ 180/ 120/ 90/ 60/ 30/ 150/ 135/ 120/ 90/ 60/ 45/ 30/ 15Mbps
FREQUENCY RANGE	2.4GHz: 2400 ~ 2483.5MHz 5.0GHz: 5150 ~ 5250MHz, 5725 ~ 5850MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) 5.0GHz: 9 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz)
OUTPUT POWER	179.058mW for 2400.0 ~ 2483.5MHz 42.298mW for 5150.0 ~ 5250.0MHz 121.096mW for 5725.0 ~ 5850.0MHz
ANTENNA TYPE	2.4GHz: Dipole antenna with 2.0dBi gain 5.0GHz: Dipole antenna with 2.0dBi gain
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	Adapter

NOTE:

1. The EUT was powered by the following adapter:

BRAND:	D-Link
MODEL:	AF-1805-A
INPUT:	100-120Vac, 50/60Hz, 0.4A
OUTPUT:	5Vdc, 3A
POWER LINE:	1.8m non-shielded cable without core

2. This report only covered frequency range: 5150 ~ 5250MHz. Frequency range: 2400 ~ 2483.5MHz and 5725 ~ 5850MHz showed in another report, which report no. is RF960118L01.
3. The EUT incorporates a MIMO function. Physically, the card provides three completed transmitters and three receivers.
4. The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function.
5. When the EUT operating in 802.11b, 802.11g, 802.11a, the software operation, which is defined by manufacturer, only set single Tx.
6. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, only set 0 ~ 15 of “MCS” (MCS: Modulation and Coding Schemes) for triple Tx.
7. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g, 802.11a products.
8. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 300Mbps.
9. 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

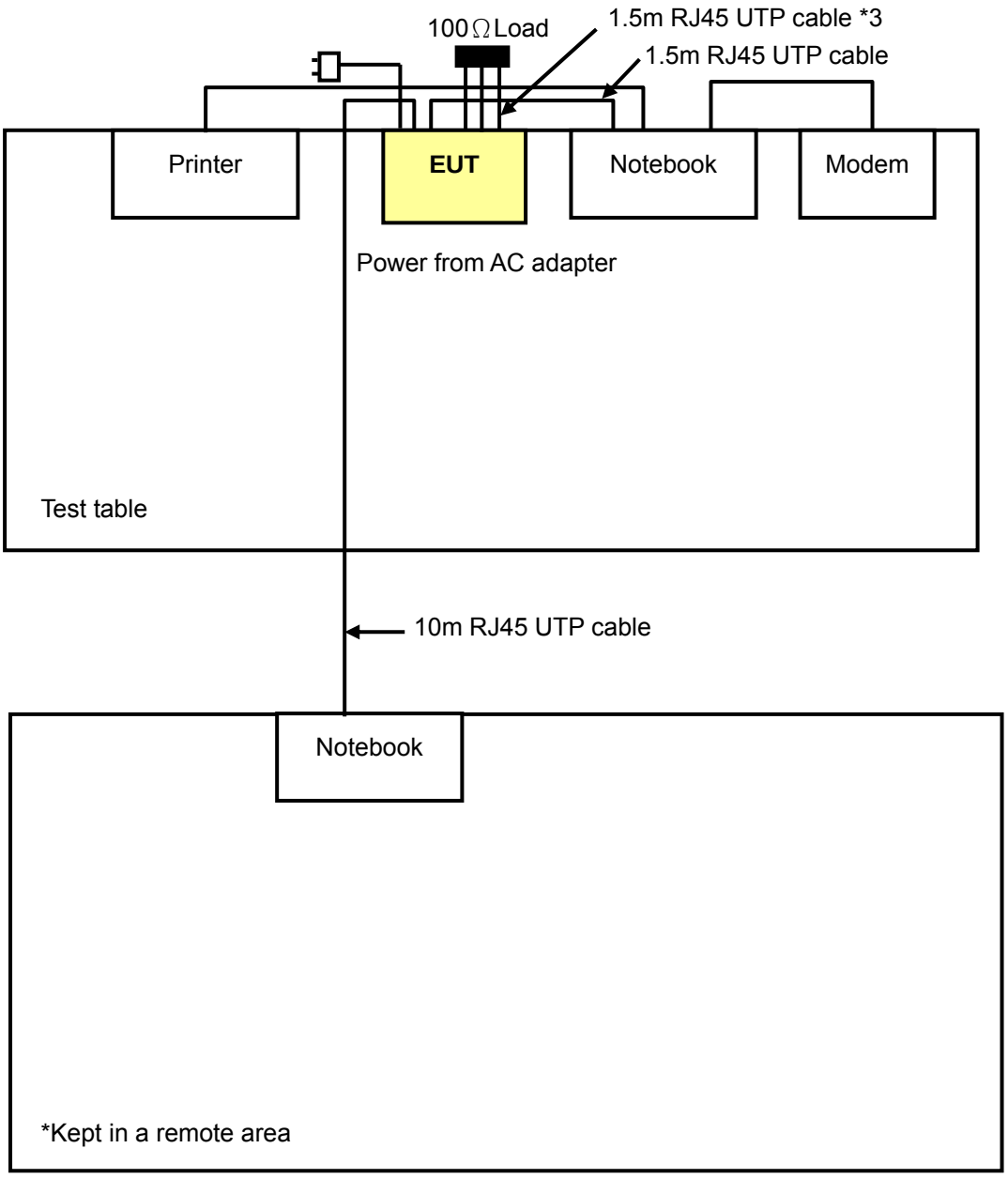
4 channels are provided for 802.11a, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5180MHz	3	5220MHz
2	5200MHz	4	5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5190MHz	2	5230MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC:** Power Line Conducted Emission **RE<1G:** Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX CONDITION
802.11a	1 to 4	1	OFDM	BPSK	6.0	Single
Draft 802.11n (20MHz)	1 to 4	1	OFDM	BPSK	7.2	Triple
Draft 802.11n (40MHz)	1 to 2	1	OFDM	BPSK	15.0	Triple

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX CONDITION
802.11a	1 to 4	1	OFDM	BPSK	6.0	Single
Draft 802.11n (20MHz)	1 to 4	1	OFDM	BPSK	7.2	Triple
Draft 802.11n (40MHz)	1 to 2	1	OFDM	BPSK	15.0	Triple

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX CONDITION
802.11a	1 to 4	1, 2, 4	OFDM	BPSK	6.0	Single
Draft 802.11n (20MHz)	1 to 4	1, 2, 4	OFDM	BPSK	7.2	Triple
Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	15.0	Triple

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX CONDITION
802.11a	1 to 4	1, 4	OFDM	BPSK	6.0	Single
Draft 802.11n (20MHz)	1 to 4	1, 4	OFDM	BPSK	7.2	Triple
Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	15.0	Triple

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX CONDITION
802.11a	1 to 4	1, 2, 4	OFDM	BPSK	6.0	Single
Draft 802.11n (20MHz)	1 to 4	1, 2, 4	OFDM	BPSK	7.2	Triple
Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	15.0	Triple

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
3	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
4	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.5m shielded cable without core
2	10m shielded cable without core
3	1.8m shielded cable without core
4	1.6 m shielded cable without core

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

4. TEST TYPES AND RESULTS

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 UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 25, 2007
RF signal cable Woken	5D-FB	Cable-HYCO3-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 08, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 16, 2008
Software ADT	ADT_Cond_V3	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4.1.3 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.

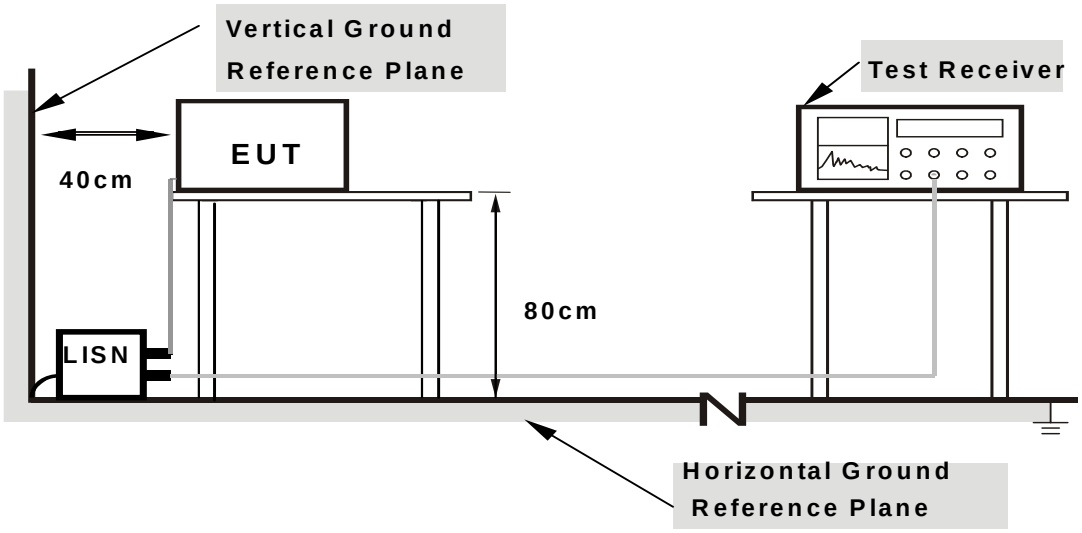
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

a. The EUT connected with notebook system via a RJ45 cable.

b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.

c. The necessary accessories enable the system in full functions.

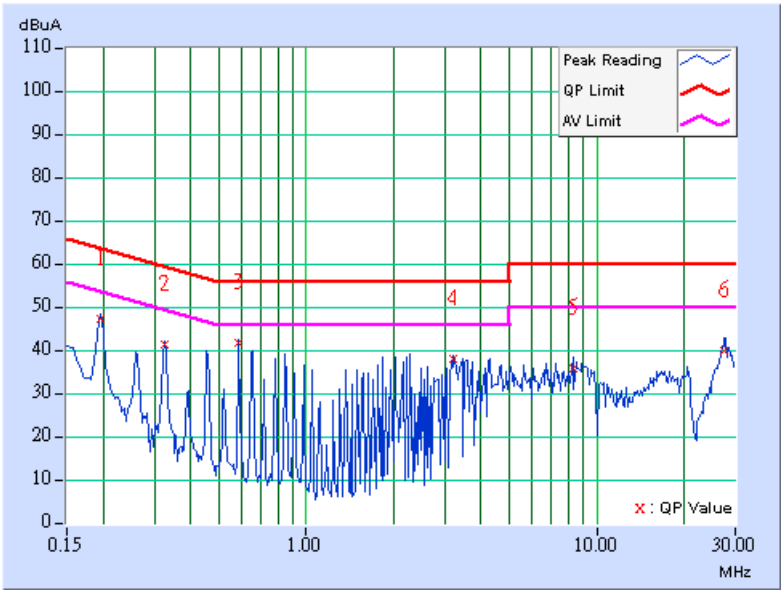
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11a OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**PHASE**	Line 1
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	**6dB BANDWIDTH**	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	**TESTED BY**	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.10	46.43	-	46.53	-	63.74	53.74	-17.21	-
2	0.326	0.10	40.56	-	40.66	-	59.56	49.56	-18.90	-
3	0.588	0.10	40.98	-	41.08	-	56.00	46.00	-14.92	-
4	3.195	0.26	37.15	-	37.41	-	56.00	46.00	-18.59	-
5	8.285	0.32	34.97	-	35.29	-	60.00	50.00	-24.71	-
6	27.527	1.03	38.93	-	39.96	-	60.00	50.00	-20.04	-

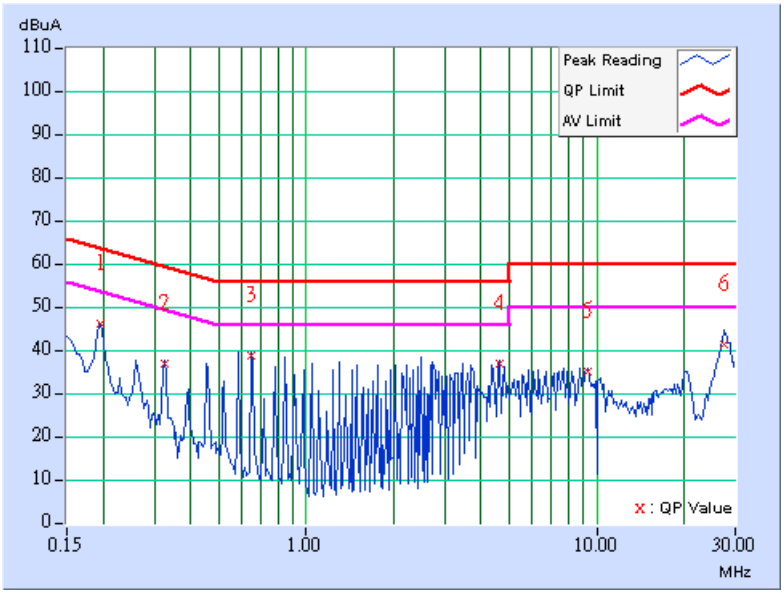
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.196	0.10	45.28	-	45.38	-	63.79	53.79	-18.41	-
2	0.326	0.10	36.19	-	36.29	-	59.56	49.56	-23.27	-
3	0.650	0.15	38.15	-	38.30	-	56.00	46.00	-17.70	-
4	4.621	0.30	36.35	-	36.65	-	56.00	46.00	-19.35	-
5	9.378	0.41	34.42	-	34.83	-	60.00	50.00	-25.17	-
6	27.546	0.83	40.65	-	41.48	-	60.00	50.00	-18.52	-

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.

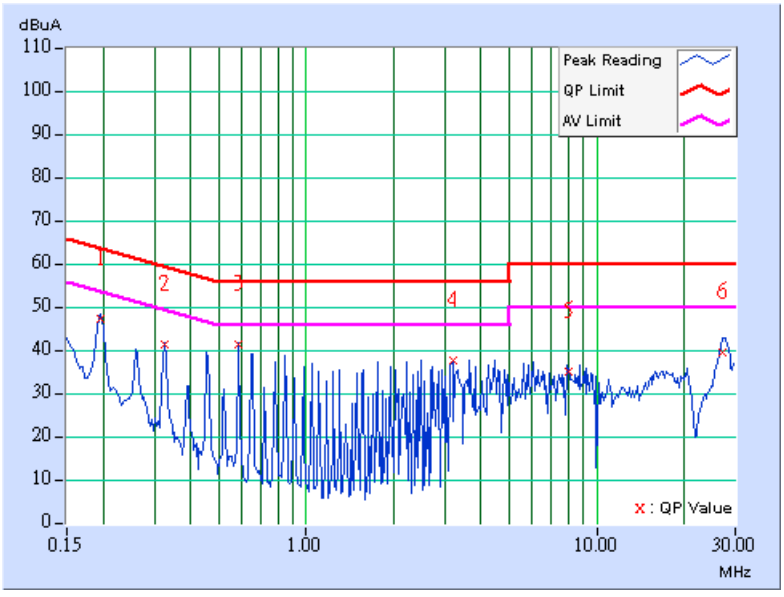


DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.10	46.24	-	46.34	-	63.74	53.74	-17.40	-
2	0.326	0.10	40.40	-	40.50	-	59.56	49.56	-19.06	-
3	0.588	0.10	40.58	-	40.68	-	56.00	46.00	-15.32	-
4	3.195	0.26	36.93	-	37.19	-	56.00	46.00	-18.81	-
5	7.956	0.31	34.35	-	34.66	-	60.00	50.00	-25.34	-
6	27.190	1.00	38.63	-	39.63	-	60.00	50.00	-20.37	-

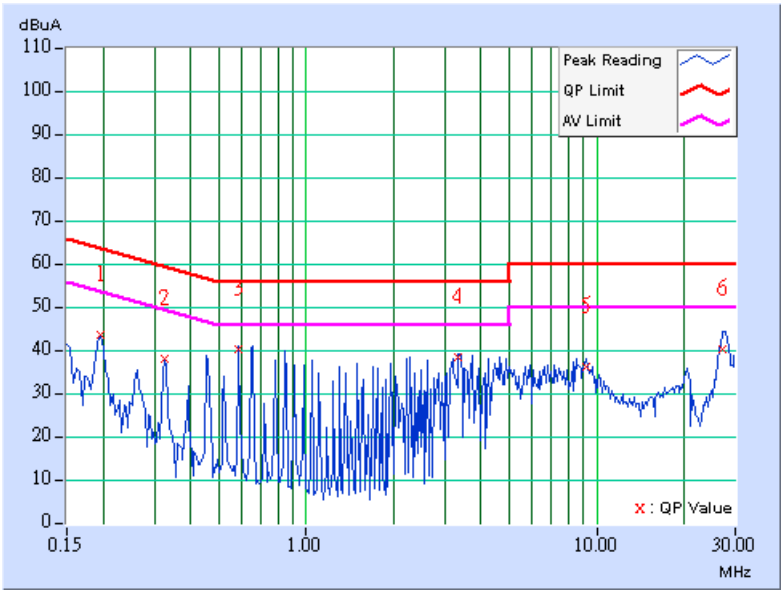
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.10	42.79	-	42.89	-	63.74	53.74	-20.85	-
2	0.326	0.10	37.26	-	37.36	-	59.56	49.56	-22.20	-
3	0.588	0.13	39.58	-	39.71	-	56.00	46.00	-16.29	-
4	3.328	0.26	37.70	-	37.96	-	56.00	46.00	-18.04	-
5	9.199	0.41	35.65	-	36.06	-	60.00	50.00	-23.94	-
6	27.209	0.82	39.51	-	40.33	-	60.00	50.00	-19.67	-

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.

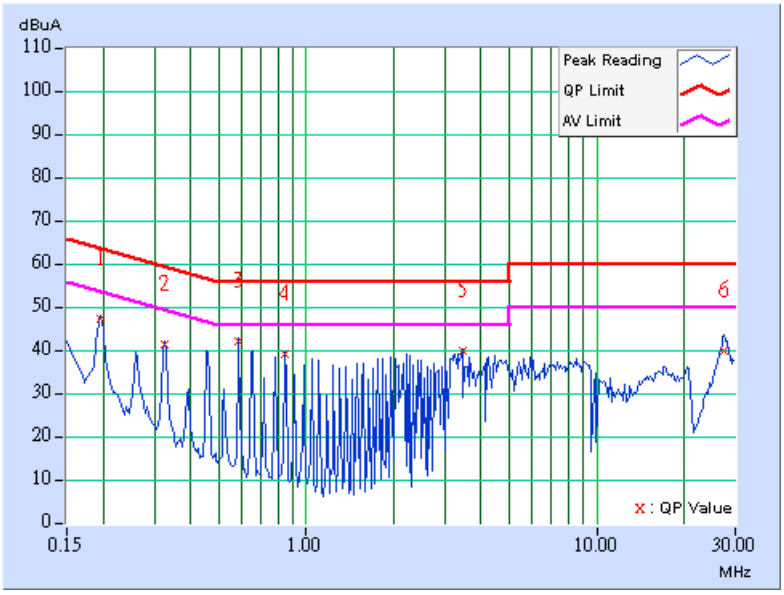


DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	15.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.10	46.51	-	46.61	-	63.74	53.74	-17.13	-
2	0.326	0.10	40.54	-	40.64	-	59.56	49.56	-18.92	-
3	**0.588**	**0.10**	**41.10**	**-**	**41.20**	**-**	**56.00**	**46.00**	**-14.80**	**-**
4	0.849	0.11	38.16	-	38.27	-	56.00	46.00	-17.73	-
5	3.457	0.26	38.92	-	39.18	-	56.00	46.00	-16.82	-
6	27.465	1.03	39.05	-	40.08	-	60.00	50.00	-19.92	-

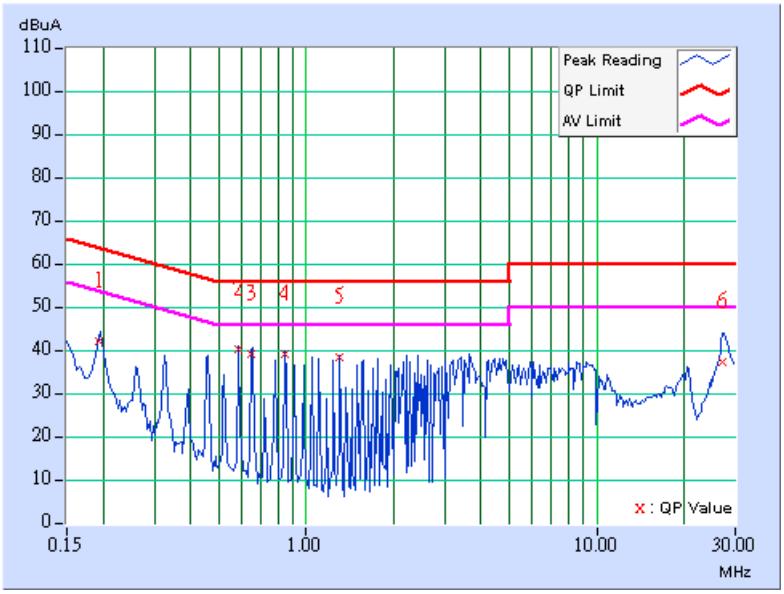
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	15.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.10	41.53	-	41.63	-	63.91	53.91	-22.28	-
2	0.588	0.13	39.72	-	39.85	-	56.00	46.00	-16.15	-
3	0.650	0.15	38.49	-	38.64	-	56.00	46.00	-17.36	-
4	0.849	0.18	38.42	-	38.60	-	56.00	46.00	-17.40	-
5	1.305	0.21	37.86	-	38.07	-	56.00	46.00	-17.93	-
6	27.191	0.82	36.55	-	37.37	-	60.00	50.00	-22.63	-

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.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m) *NOTE 3
5150 ~ 5250	-27	68.3
5250 ~ 5350	-27	68.3
5725 ~ 5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 07, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 26, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01911	Sep. 13, 2007
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 16, 2007
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA

NOTE:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC3789B-9.

4.2.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

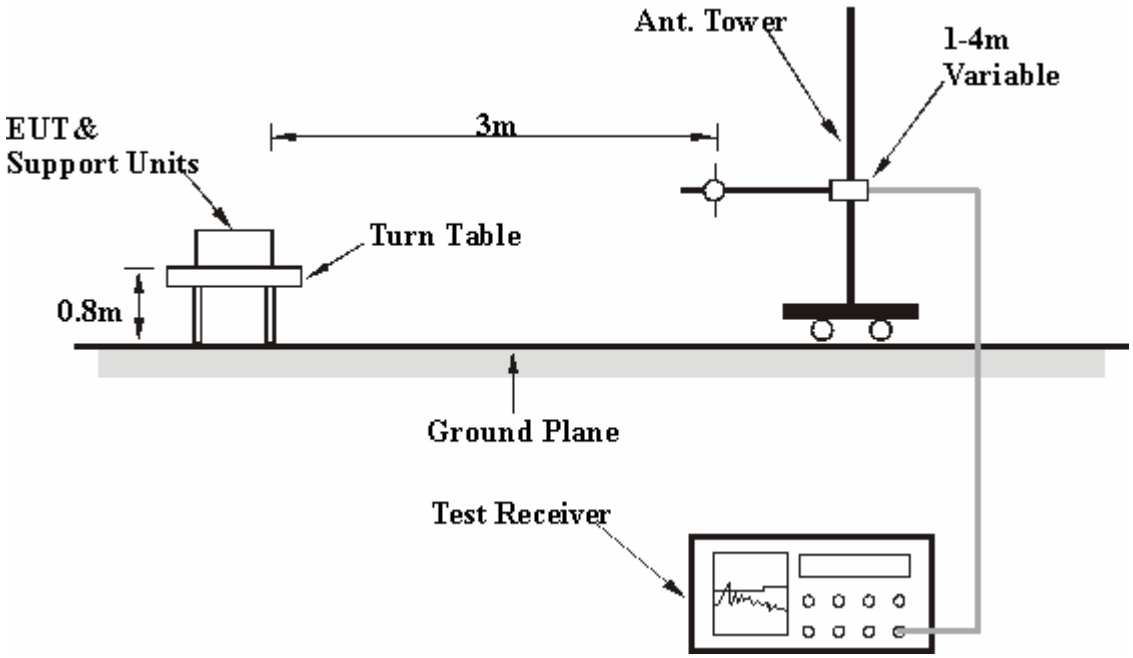
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA: 802.11a OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
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	29.90	27.61 QP	40.00	-12.39	1.50 H	10	15.52	12.09
2	105.73	30.97 QP	43.50	-12.53	1.50 H	259	21.13	9.84
3	199.05	32.50 QP	43.50	-11.00	1.50 H	157	22.10	10.40
4	249.60	33.54 QP	46.00	-12.46	1.00 H	85	21.00	12.54
5	500.42	33.40 QP	46.00	-12.60	2.00 H	10	14.64	18.76
6	574.30	34.98 QP	46.00	-11.02	1.50 H	217	14.48	20.50
7	700.68	33.80 QP	46.00	-12.20	1.00 H	211	11.79	22.01
8	799.84	36.40 QP	46.00	-9.60	1.00 H	349	12.04	24.36
9	900.94	33.08 QP	46.00	-12.92	1.50 H	265	7.75	25.32

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
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	55.18	35.85 QP	40.00	-4.15	1.00 V	43	22.38	13.47
2	94.06	37.07 QP	43.50	-6.43	1.00 V	274	28.00	9.07
3	**105.73**	**41.32 QP**	**43.50**	**-2.18**	**1.50 V**	**313**	**31.48**	**9.84**
4	166.00	30.64 QP	43.50	-12.86	1.00 V	139	17.61	13.03
5	199.05	36.25 QP	43.50	-7.25	1.00 V	172	25.85	10.40
6	249.60	36.88 QP	46.00	-9.12	1.00 V	142	24.34	12.54
7	500.42	35.75 QP	46.00	-10.25	1.00 V	67	16.98	18.76
8	566.52	33.55 QP	46.00	-12.45	1.00 V	220	13.23	20.31
9	599.58	33.00 QP	46.00	-13.00	1.00 V	208	11.91	21.09
10	799.84	34.92 QP	46.00	-11.08	1.00 V	229	10.56	24.36

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

DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
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	29.90	27.67 QP	40.00	-12.33	2.00 H	10	15.58	12.09
2	199.05	33.78 QP	43.50	-9.72	1.50 H	73	23.38	10.40
3	249.60	36.22 QP	46.00	-9.78	1.00 H	73	23.68	12.54
4	500.42	36.65 QP	46.00	-9.35	2.00 H	46	17.88	18.76
5	566.52	35.44 QP	46.00	-10.56	1.50 H	61	15.12	20.31
6	700.68	33.85 QP	46.00	-12.15	1.00 H	205	11.84	22.01
7	799.84	36.31 QP	46.00	-9.69	1.50 H	10	11.95	24.36

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
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	55.18	36.99 QP	40.00	-3.01	1.00 V	43	23.52	13.47
2	92.12	32.41 QP	43.50	-11.09	1.00 V	196	23.36	9.05
3	105.73	34.40 QP	43.50	-9.10	1.00 V	316	24.56	9.84
4	199.05	33.31 QP	43.50	-10.19	1.50 V	10	22.91	10.40
5	249.60	34.82 QP	46.00	-11.18	1.00 V	295	22.28	12.54
6	500.42	36.37 QP	46.00	-9.63	1.00 V	205	17.61	18.76

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.

DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
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	199.05	34.51 QP	43.50	-8.99	2.00 H	82	24.11	10.40
2	249.60	36.20 QP	46.00	-9.80	1.50 H	76	23.66	12.54
3	500.42	37.00 QP	46.00	-9.00	1.50 H	193	18.24	18.76
4	566.52	35.73 QP	46.00	-10.27	1.50 H	49	15.42	20.31
5	700.68	33.58 QP	46.00	-12.42	1.00 H	199	11.58	22.01
6	799.84	36.40 QP	46.00	-9.60	2.00 H	43	12.04	24.36

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
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	53.23	37.38 QP	40.00	-2.62	1.00 V	58	23.83	13.55
2	94.06	32.81 QP	43.50	-10.69	1.00 V	283	23.73	9.07
3	105.73	35.22 QP	43.50	-8.28	1.00 V	238	25.38	9.84
4	249.60	35.32 QP	46.00	-10.68	1.00 V	310	22.79	12.54
5	500.42	35.44 QP	46.00	-10.56	1.00 V	10	16.67	18.76
6	902.89	38.57 QP	46.00	-7.43	2.00 V	202	13.23	25.34

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.

ABOVE 1GHz DATA: 802.11a OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	43.96 PK	74.00	-30.04	1.20 H	28	6.95	37.01
2	#5150.00	33.28 AV	54.00	-20.72	1.20 H	28	-3.73	37.01
3	*5180.00	98.19 PK			1.19 H	28	61.14	37.04
4	*5180.00	87.51 AV			1.19 H	28	50.47	37.04
5	10360.00	55.78 PK	68.30	-12.52	1.00 H	315	9.26	46.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	56.58 PK	74.00	-17.42	1.15 V	209	19.57	37.01
2	#5150.00	45.59 AV	54.00	-8.41	1.15 V	209	8.58	37.01
3	*5180.00	110.81 PK			1.15 V	209	73.77	37.04
4	*5180.00	99.82 AV			1.15 V	209	62.78	37.04
5	6906.00	54.94 PK	68.30	-13.36	1.34 V	158	13.65	41.30
7	10360.00	56.66 PK	68.30	-11.64	1.06 V	294	10.14	46.52

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	98.05 PK			1.22 H	231	60.98	37.07
2	*5200.00	89.34 AV			1.22 H	231	52.27	37.07
3	10400.00	56.84 PK	68.30	-11.46	1.10 H	311	10.25	46.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	110.41 PK			1.45 V	343	73.34	37.07
2	*5200.00	99.27 AV			1.45 V	343	62.20	37.07
3	6933.00	56.29 PK	68.30	-12.01	1.49 V	290	14.85	41.43
5	10400.00	57.62 PK	68.30	-10.68	1.04 V	268	11.03	46.59

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

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency falling in the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	97.67 PK			1.02 H	306	60.57	37.10
2	*5240.00	88.58 AV			1.02 H	306	51.48	37.10
3	#5350.00	39.45 PK	74.00	-34.55	1.61 H	314	2.26	37.19
4	#5350.00	30.36 AV	54.00	-23.64	1.61 H	314	-6.83	37.19
5	10480.00	56.41 PK	68.30	-11.89	1.00 H	166	9.64	46.77

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.11 PK			1.45 V	101	72.01	37.10
2	*5240.00	98.42 AV			1.45 V	101	61.32	37.10
3	#5350.00	50.89 PK	74.00	-23.11	1.45 V	101	13.70	37.19
4	#5350.00	40.20 AV	54.00	-13.80	1.45 V	101	3.01	37.19
5	6986.00	55.95 PK	68.30	-12.35	1.61 V	314	14.25	41.70
7	10480.00	57.81 PK	68.30	-10.49	1.12 V	271	11.04	46.77

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

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency falling in the restricted band.

DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	41.85 PK	74.00	-32.15	1.36 H	315	4.84	37.01
2	#5150.00	31.22 AV	54.00	-22.78	1.36 H	315	-5.79	37.01
3	*5180.00	96.58 PK			1.38 H	315	59.54	37.04
4	*5180.00	86.36 AV			1.38 H	315	49.32	37.04
5	6906.00	51.11 PK	68.30	-17.19	1.36 H	56	9.81	41.30
7	10360.00	54.65 PK	68.30	-13.65	1.05 H	342	8.13	46.52

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	55.46 PK	74.00	-18.54	1.05 V	85	18.45	37.01
2	#5150.00	45.46 AV	54.00	-8.54	1.05 V	85	8.45	37.01
3	*5180.00	110.26 PK			1.03 V	95	73.22	37.04
4	*5180.00	99.31 AV			1.03 V	95	62.27	37.04
5	6906.00	58.65 PK	68.30	-9.65	1.43 V	25	17.35	41.30
7	10360.00	56.42 PK	68.30	-11.88	1.66 V	19	9.90	46.52

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	96.69 PK			1.41 H	303	59.62	37.07
2	*5200.00	86.42 AV			1.41 H	303	49.35	37.07
3	6933.00	50.98 PK	68.30	-17.32	1.28 H	49	9.55	41.43
5	10400.00	54.78 PK	68.30	-13.52	1.15 H	322	8.19	46.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	109.15 PK			1.25 V	266	72.08	37.07
2	*5200.00	98.98 AV			1.25 V	266	61.91	37.07
3	6933.00	58.89 PK	68.30	-9.41	1.32 V	25	17.46	41.43
5	10400.00	56.12 PK	68.30	-12.18	1.29 V	3	9.53	46.59

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

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency falling in the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	96.43 PK			1.25 H	306	59.33	37.10
2	*5240.00	86.19 AV			1.25 H	306	49.09	37.10
3	#5350.00	40.56 PK	74.00	-33.44	1.52 H	322	3.37	37.19
4	#5350.00	30.26 AV	54.00	-23.74	1.52 H	322	-6.93	37.19
5	6986.00	51.05 PK	68.30	-17.25	1.25 H	36	9.35	41.70
7	10480.00	54.53 PK	68.30	-13.77	1.08 H	316	7.76	46.77

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.01 PK			1.32 V	283	71.91	37.10
2	*5240.00	98.89 AV			1.32 V	283	61.79	37.10
3	#5350.00	53.12 PK	74.00	-20.88	1.35 V	31	15.93	37.19
4	#5350.00	42.98 AV	54.00	-11.02	1.35 V	31	5.79	37.19
5	6986.00	58.56 PK	68.30	-9.74	1.38 V	16	16.86	41.70
7	10480.00	55.98 PK	68.30	-12.32	1.38 V	15	9.21	46.77

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

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency falling in the restricted band.

DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	51.38 PK	74.00	-22.62	1.04 H	348	14.37	37.01
2	#5150.00	41.28 AV	54.00	-12.72	1.04 H	348	4.27	37.01
3	*5190.00	97.02 PK			1.04 H	348	59.96	37.06
4	*5190.00	86.92 AV			1.04 H	348	49.86	37.06
5	10380.00	55.76 PK	68.30	-12.54	1.05 H	164	9.21	46.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5150.00	62.55 PK	74.00	-11.45	1.03 V	95	25.54	37.01
2	#5150.00	51.74 AV	54.00	-2.26	1.03 V	95	14.73	37.01
3	*5190.00	108.19 PK			1.03 V	94	71.13	37.06
4	*5190.00	97.38 AV			1.03 V	94	60.32	37.06
5	6920.00	56.19 PK	68.30	-12.11	1.31 V	151	14.83	41.37
7	10380.00	56.70 PK	68.30	-11.60	1.01 V	24	10.15	46.55

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40GHz
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH, 991hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	97.32 PK			1.07 H	321	60.23	37.09
2	*5230.00	87.01 AV			1.07 H	321	49.92	37.09
3	#5350.00	39.66 PK	74.00	-34.34	1.07 H	320	2.47	37.19
4	#5350.00	29.35 AV	54.00	-24.65	1.07 H	320	-7.84	37.19
5	#10640.00	55.87 PK	74.00	-18.13	1.00 H	211	8.82	47.05
6	#10640.00	42.62 AV	54.00	-11.38	1.00 H	211	-4.43	47.05

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	108.50 PK			1.02 V	94	71.41	37.09
2	*5230.00	98.22 AV			1.02 V	94	61.13	37.09
3	#5350.00	50.84 PK	74.00	-23.16	1.00 V	94	13.65	37.19
4	#5350.00	40.56 AV	54.00	-13.44	1.00 V	94	3.37	37.19
5	6973.00	56.64 PK	68.30	-11.66	1.41 V	289	15.01	41.63
7	#10640.00	56.69 PK	74.00	-17.31	1.00 V	322	9.64	47.05
8	#10640.00	43.25 AV	54.00	-10.75	1.00 V	322	-3.80	47.05

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

4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 ~ 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 ~ 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

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

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 07, 2007

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

a. The transmitter output was connected to the spectrum analyzer.

b. Set span to encompass the entire emission bandwidth of the signal.

c. Set RBW to 1MHz, VBW to 300kHz.

d. Using the spectrum analyzer's channel power measurement function to measure the output power.

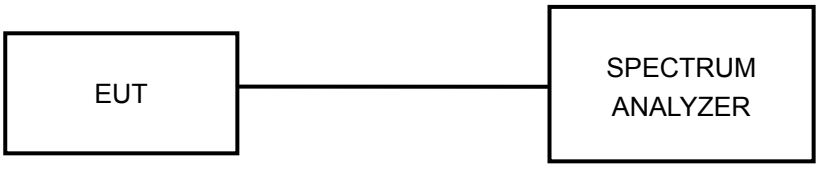
NOTE: The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

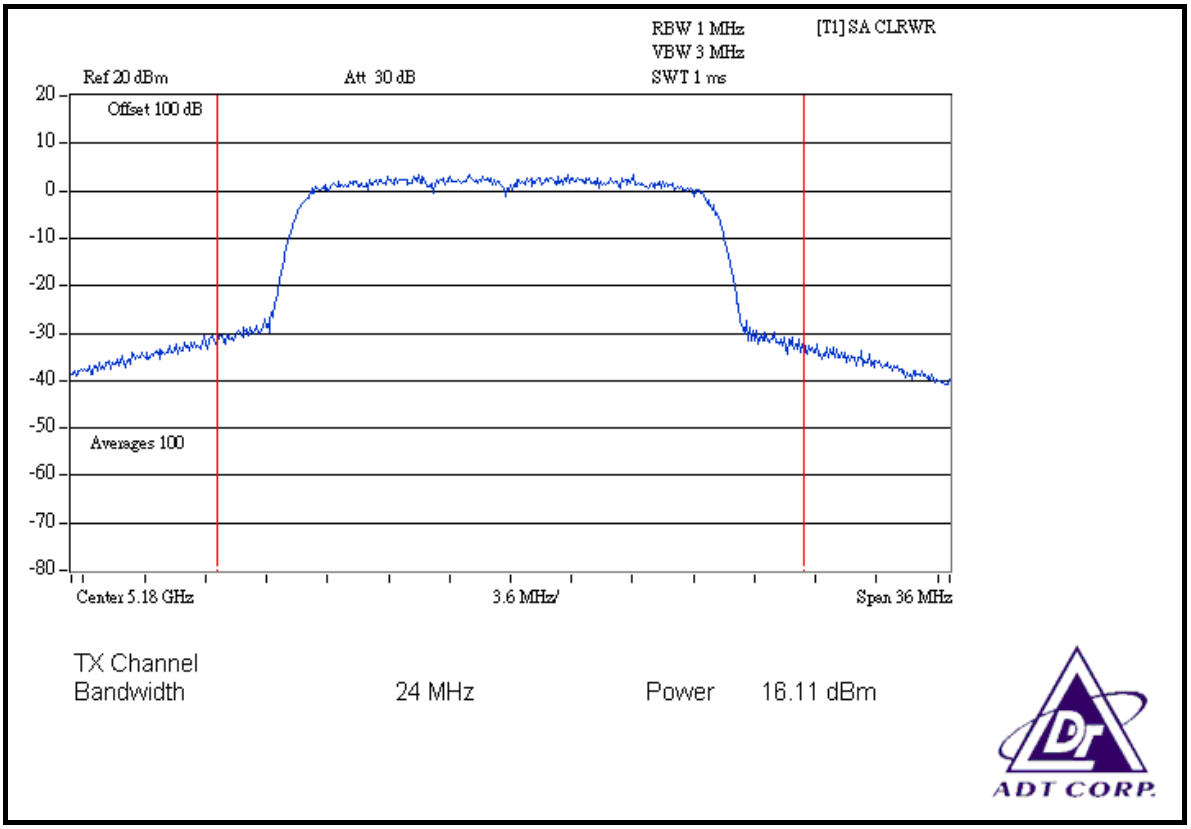
4.3.7 TEST RESULTS

PEAK POWER OUTPUT: 802.11a OFDM MODULATION:

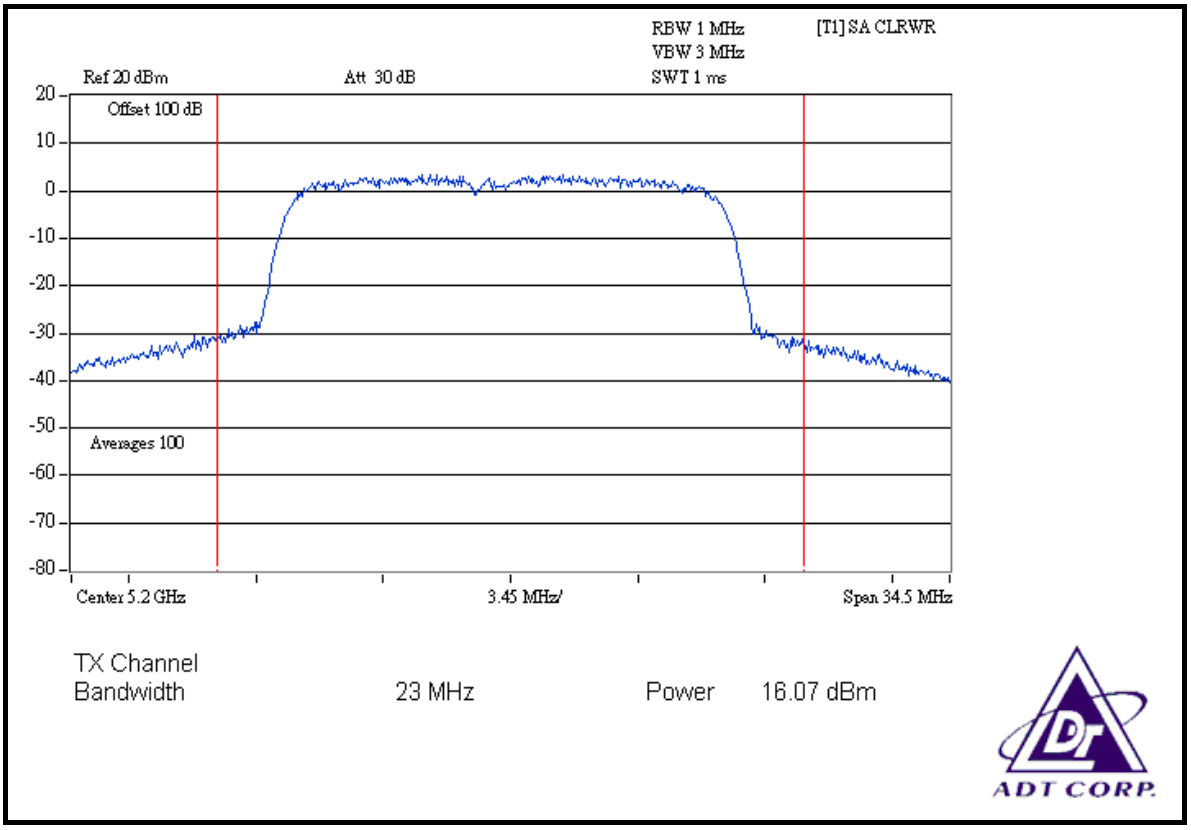
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	5180	40.832	16.11	17.00	PASS
2	5200	40.458	16.07	17.00	PASS
4	5240	36.224	15.59	17.00	PASS

CH 1

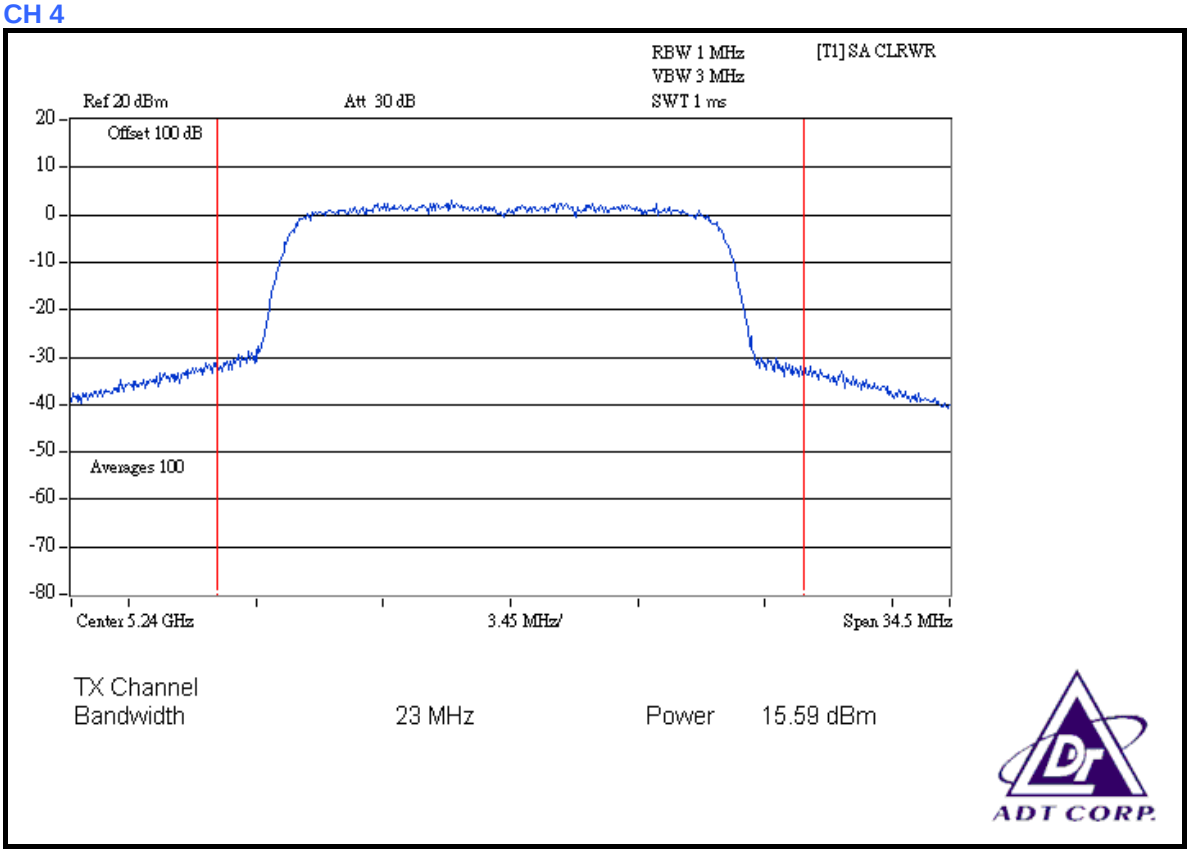


CH 2



TX Channel Bandwidth 23 MHz Power 16.07 dBm

CH 4



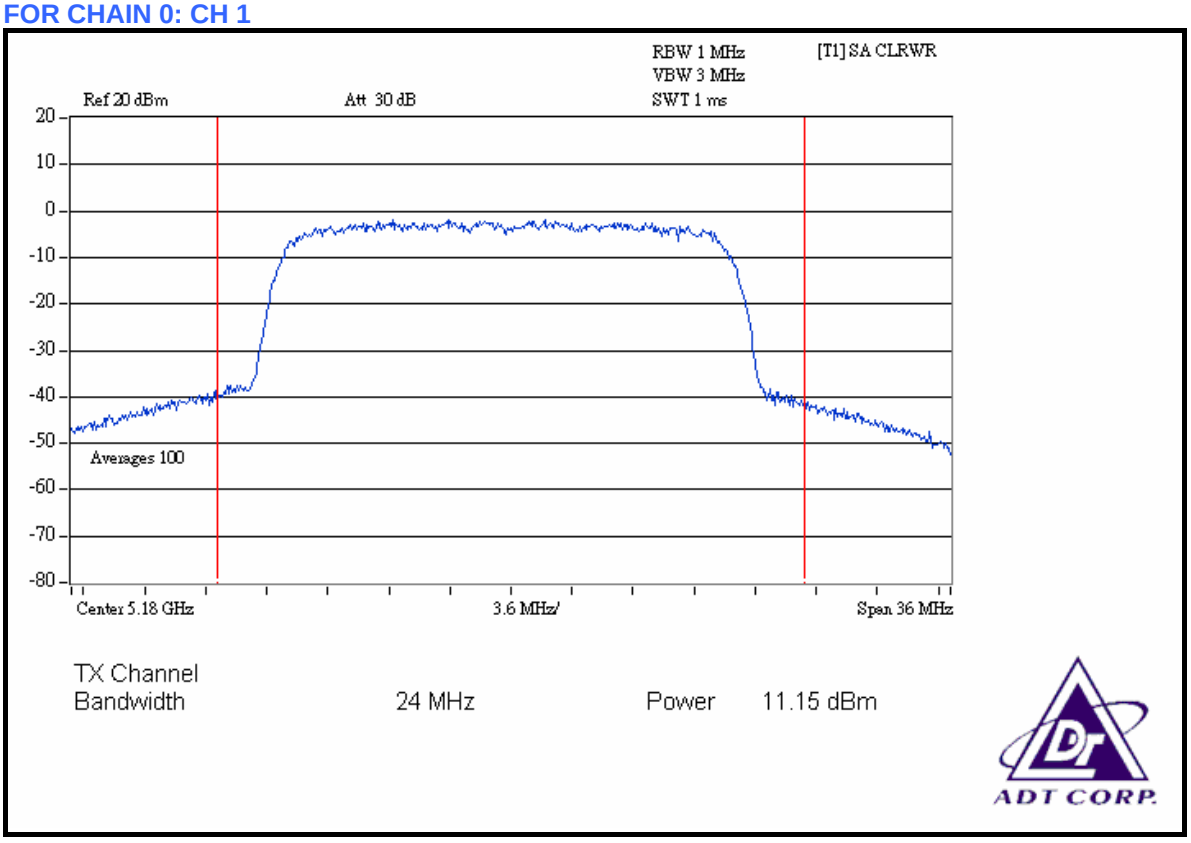
TX Channel Bandwidth 23 MHz Power 15.59 dBm

DRAFT 802.11n (20MHz) OFDM MODULATION:

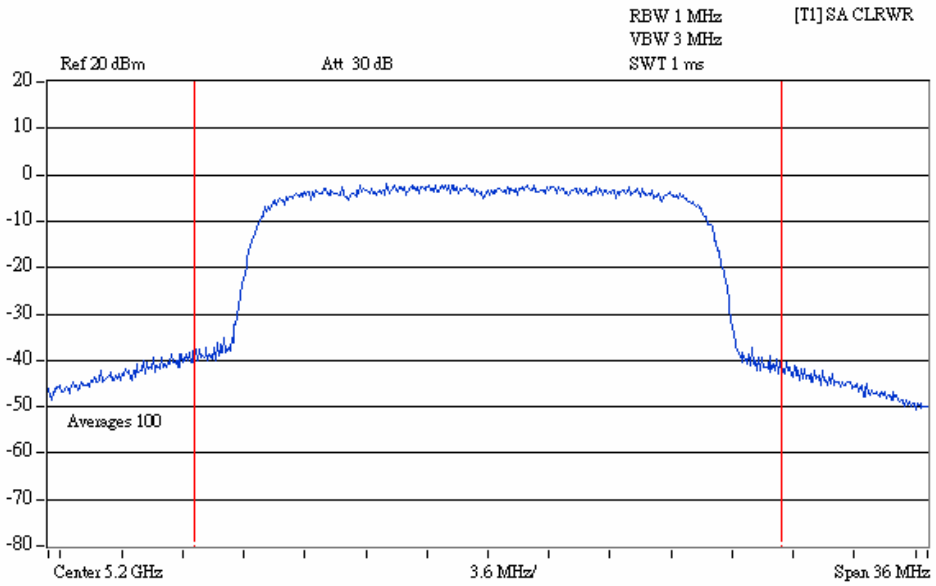
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)			PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	5180	13.032	13.122	16.144	11.15	11.18	12.08	42.298	16.26	30	PASS
2	5200	12.972	12.794	16.106	11.13	11.07	12.07	41.872	16.22	30	PASS
4	5240	12.942	12.589	16.106	11.12	11.00	12.07	41.637	16.19	30	PASS

FOR CHAIN 0: CH 1

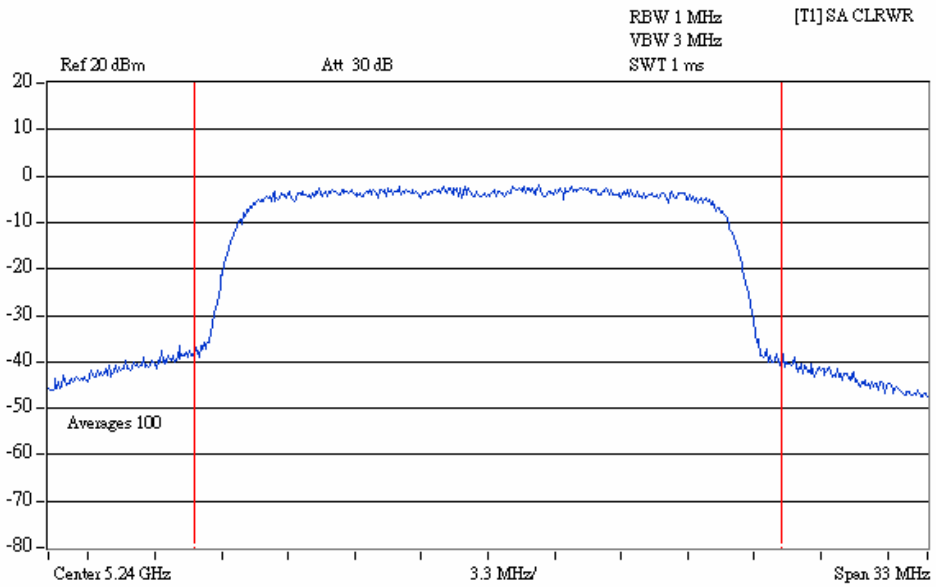


CH 2



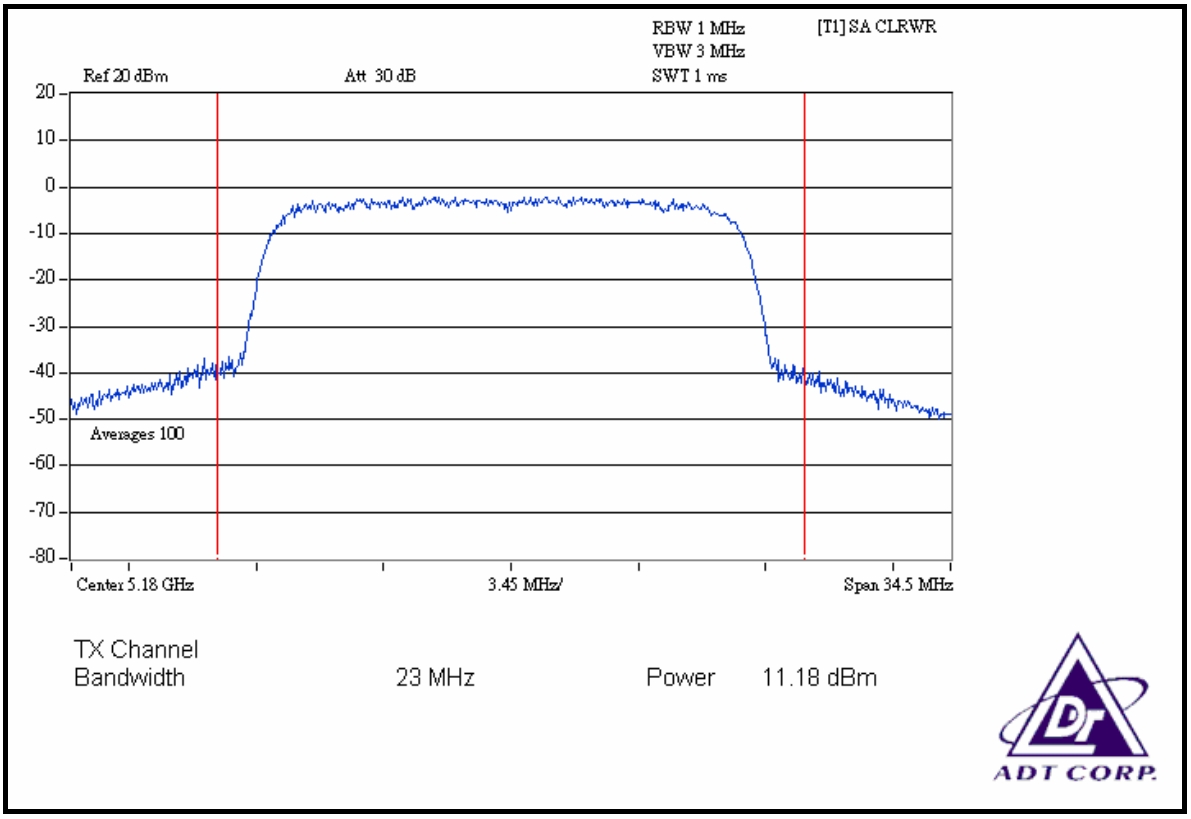
TX Channel Bandwidth 24 MHz Power 11.13 dBm

CH 4



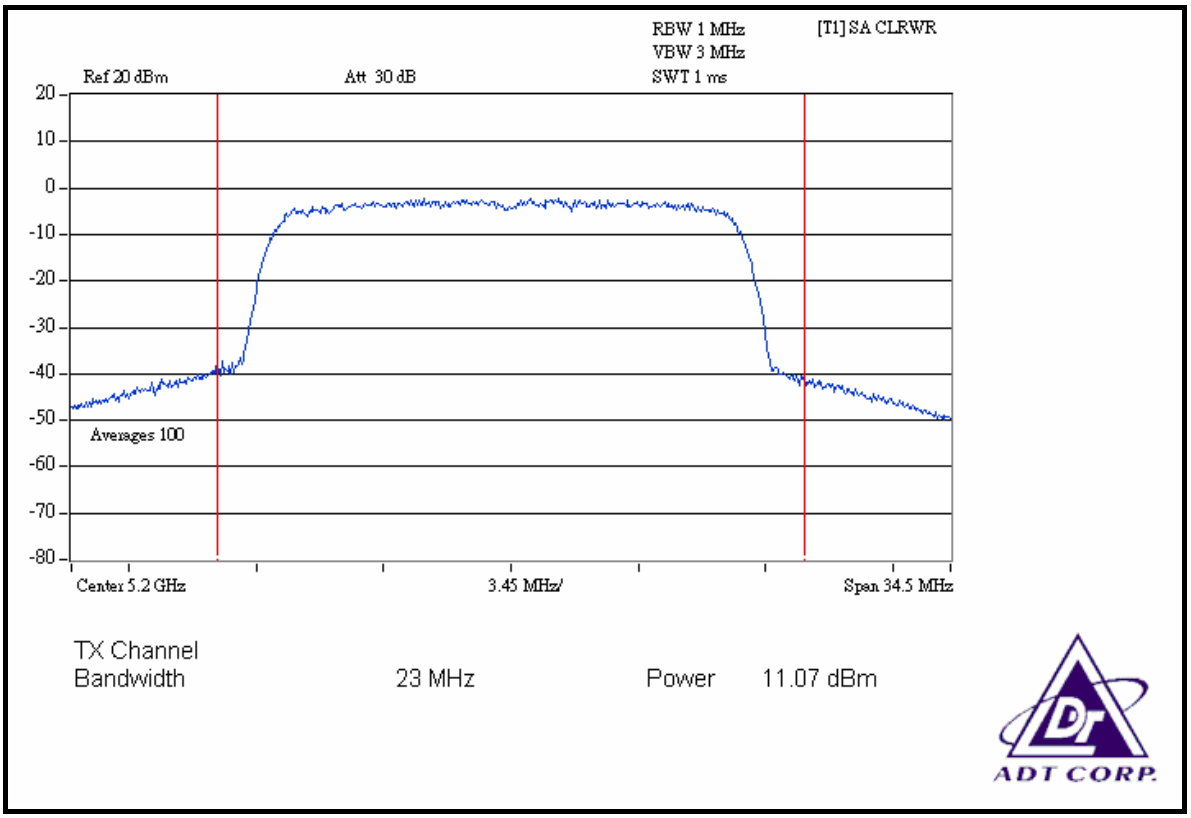
TX Channel Bandwidth 22 MHz Power 11.12 dBm

FOR CHAIN 1: CH 1



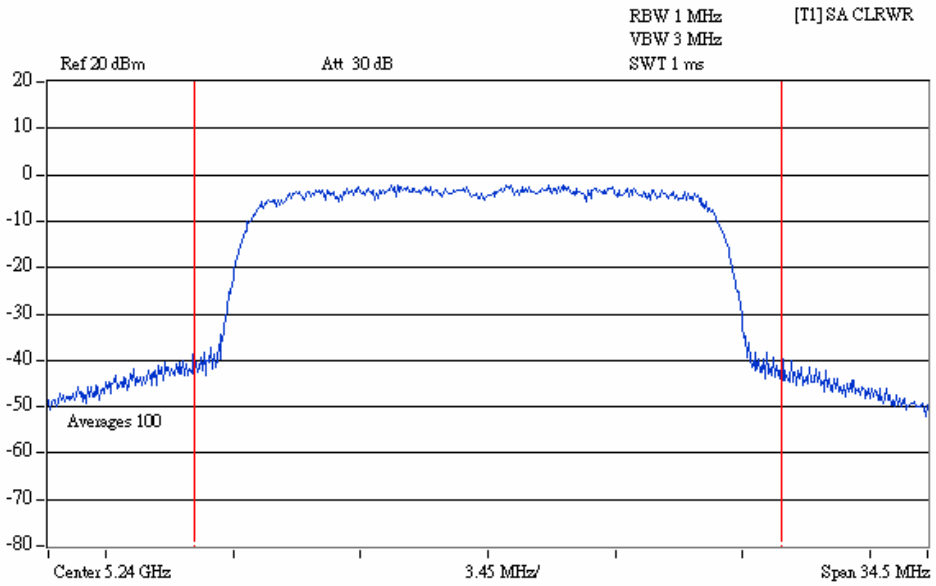
TX Channel Bandwidth 23 MHz Power 11.18 dBm

CH 2



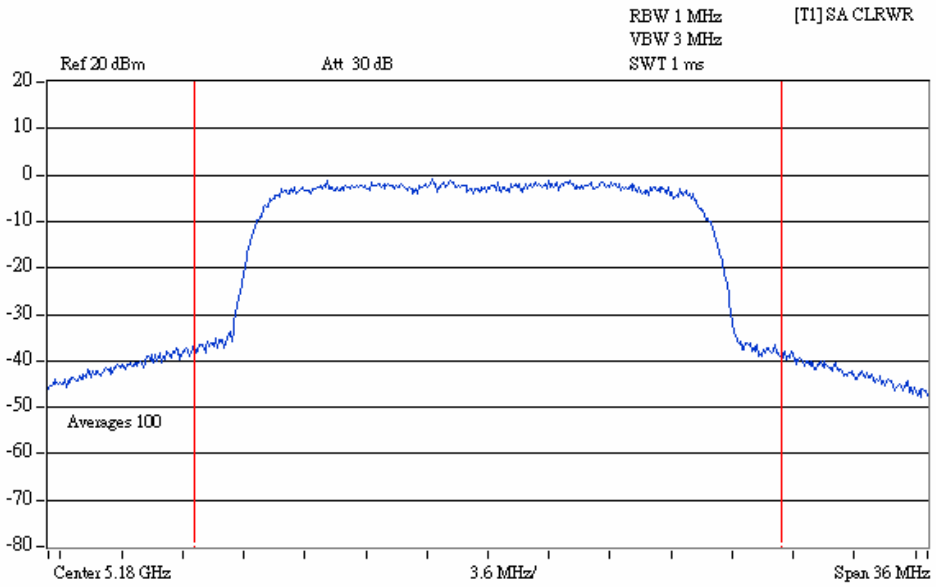
TX Channel Bandwidth 23 MHz Power 11.07 dBm

CH 4



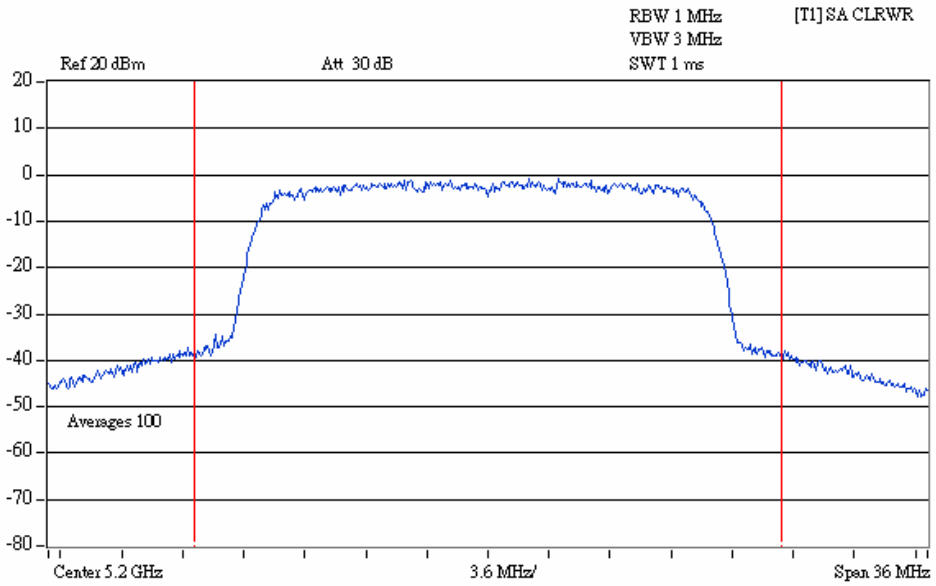
TX Channel Bandwidth 23 MHz Power 11 dBm

FOR CHAIN 2: CH 1



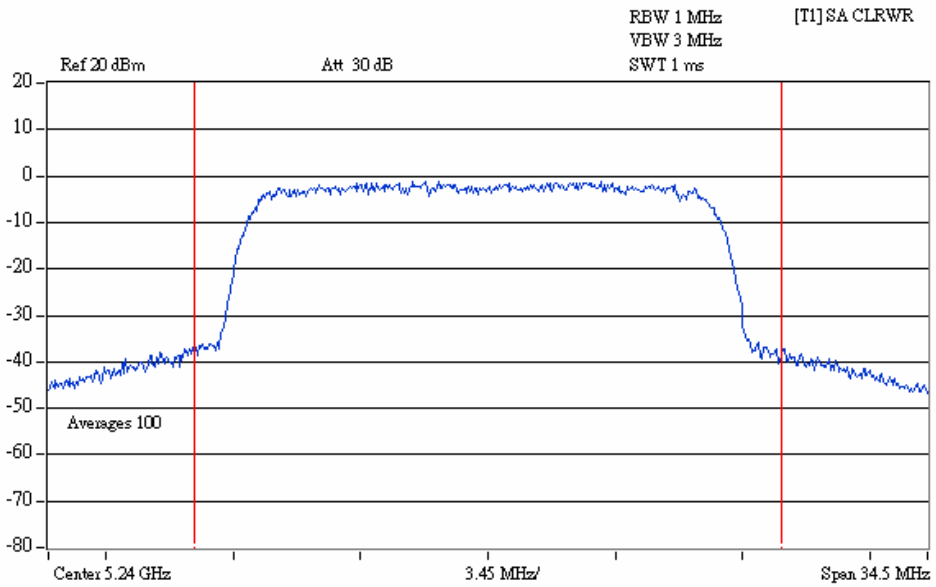
TX Channel Bandwidth 24 MHz Power 12.08 dBm

CH 2



TX Channel Bandwidth 24 MHz Power 12.07 dBm

CH 4



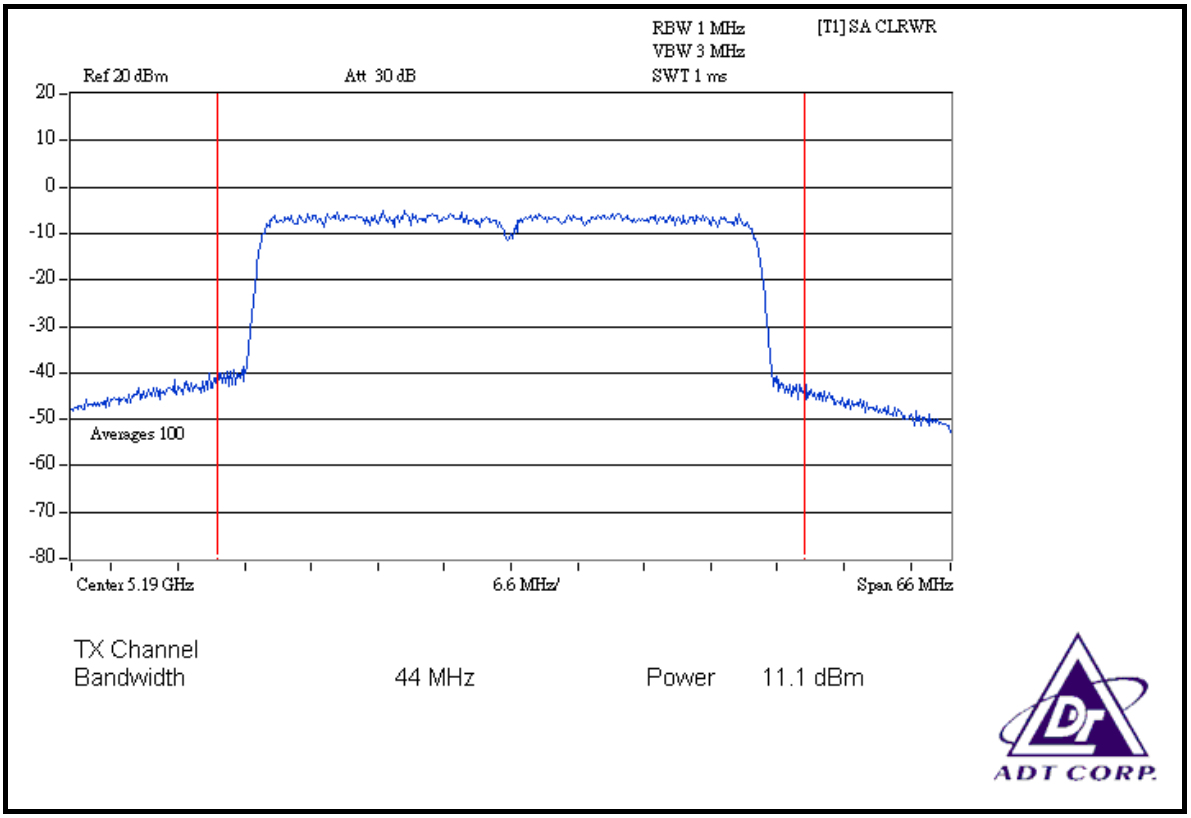
TX Channel Bandwidth 23 MHz Power 12.07 dBm

DRAFT 802.11n (40MHz) OFDM MODULATION:

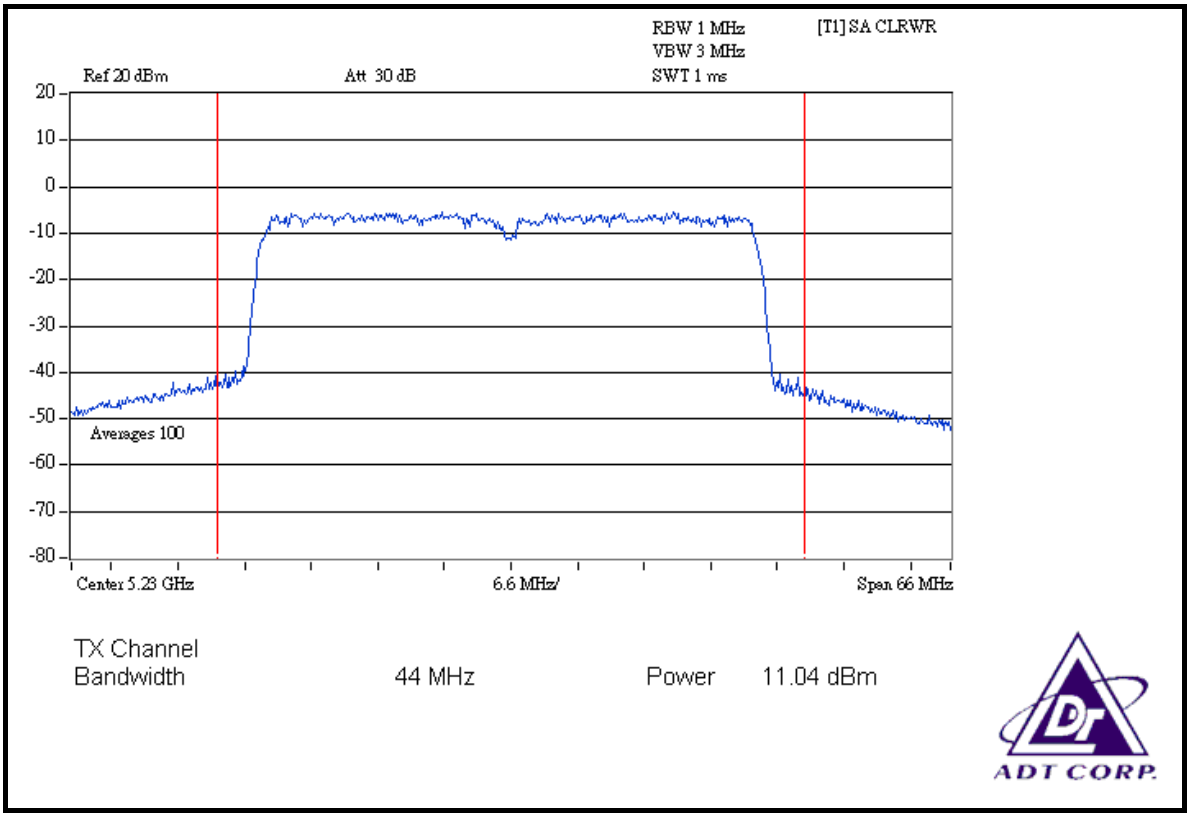
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)			PEAK POWER OUTPUT (dBm)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	5190	12.882	13.002	16.293	11.10	11.14	12.12	42.177	16.25	30	PASS
2	5230	12.706	13.032	16.255	11.04	11.15	12.11	41.993	16.23	30	PASS

FOR CHAIN 0: CH 1

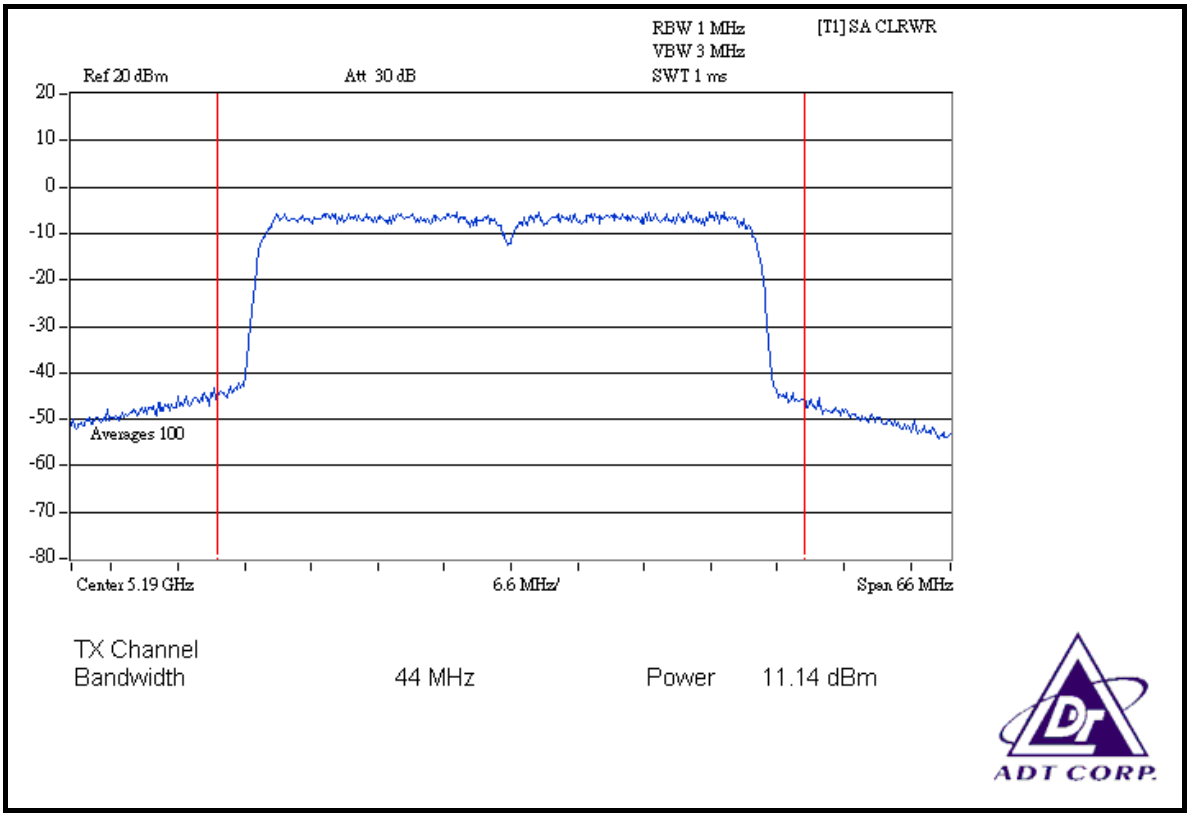


CH 2



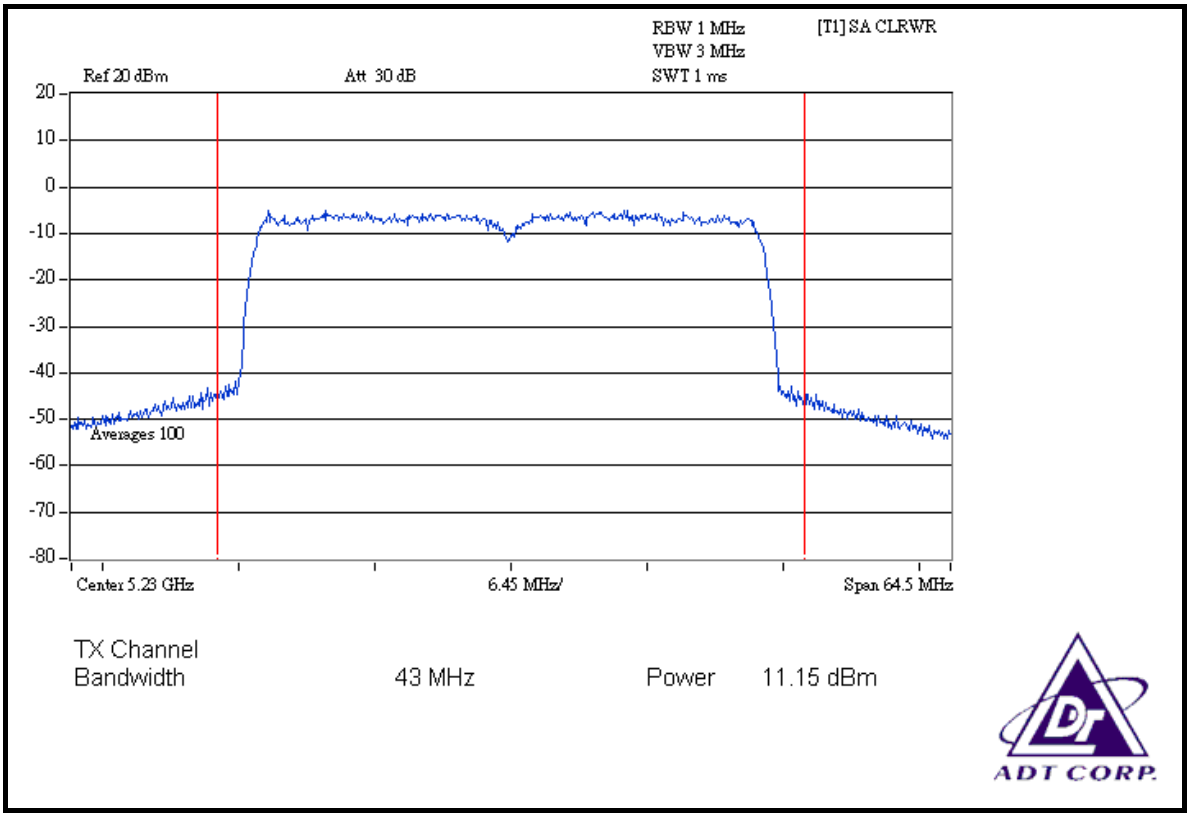
TX Channel Bandwidth 44 MHz Power 11.04 dBm

FOR CHAIN 1: CH 1



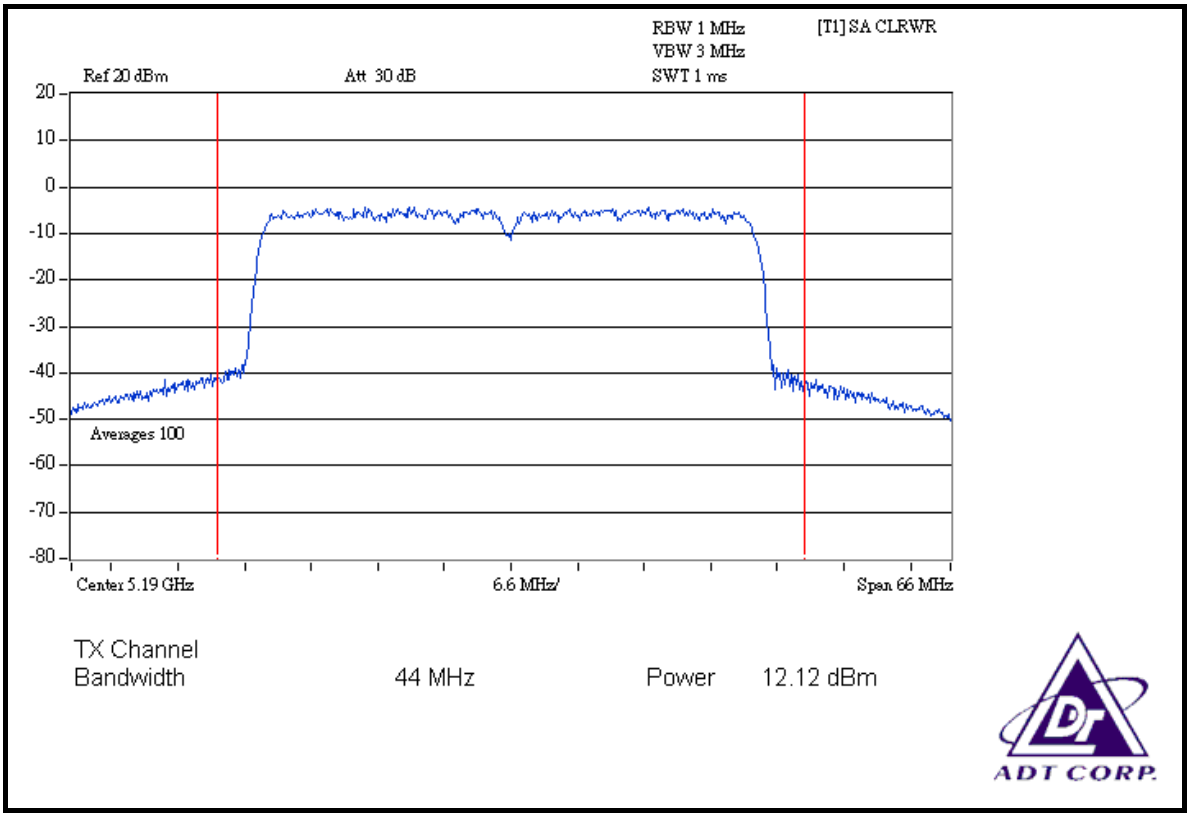
TX Channel Bandwidth 44 MHz Power 11.14 dBm

CH 2



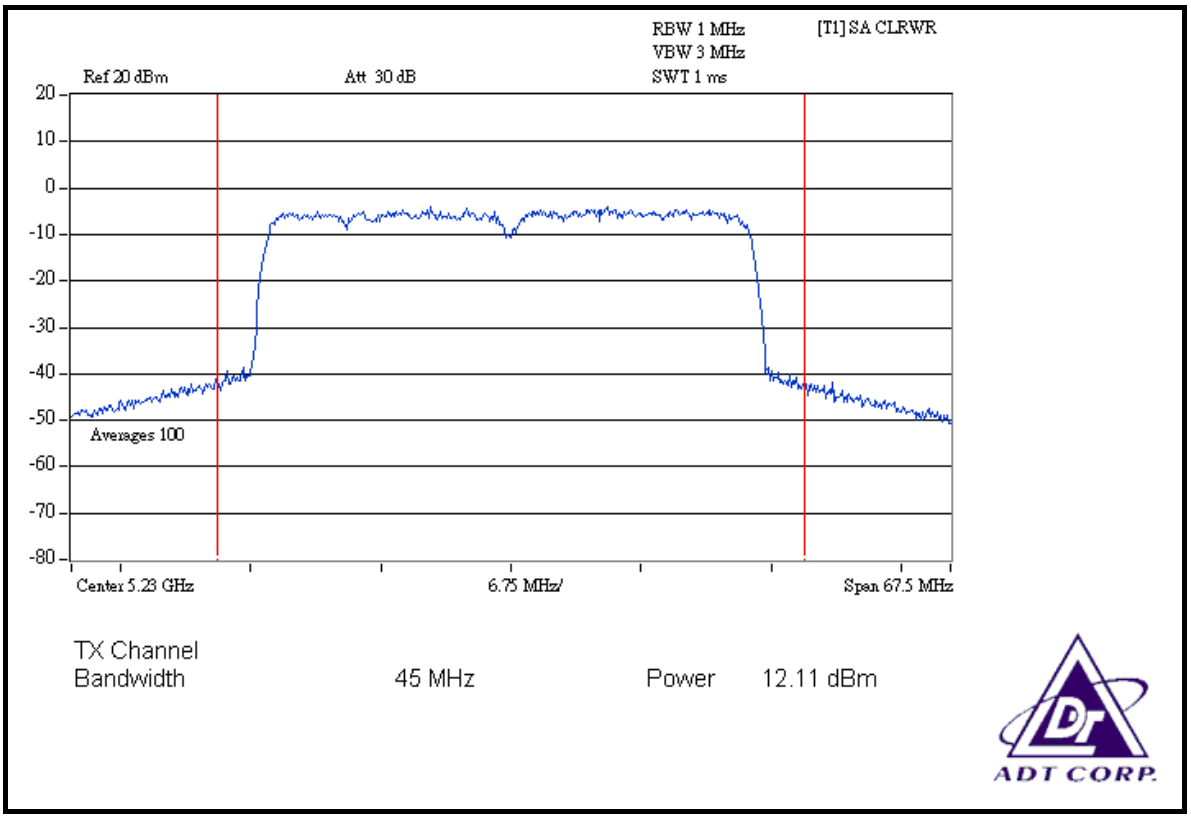
TX Channel Bandwidth 43 MHz Power 11.15 dBm

FOR CHAIN 2: CH 1



TX Channel Bandwidth 44 MHz Power 12.12 dBm

CH 2

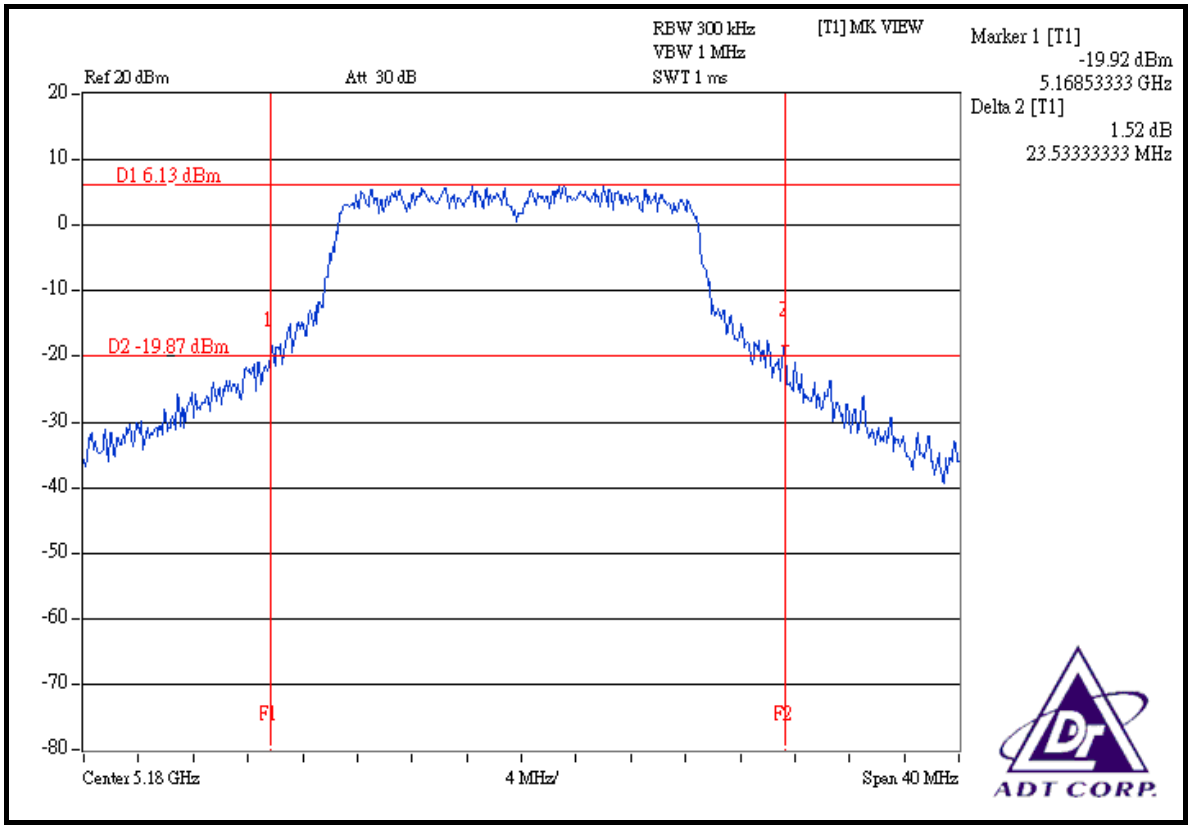

RBW 1 MHz
VBW 3 MHz
SWT 1 ms
[T1] SA CLRWR
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Averages 100
Center 5.23 GHz
6.75 MHz/
Span 67.5 MHz
TX Channel
Bandwidth
45 MHz
Power
12.11 dBm

26dB OCCUPIED BANDWIDTH: 802.11a OFDM MODULATION:

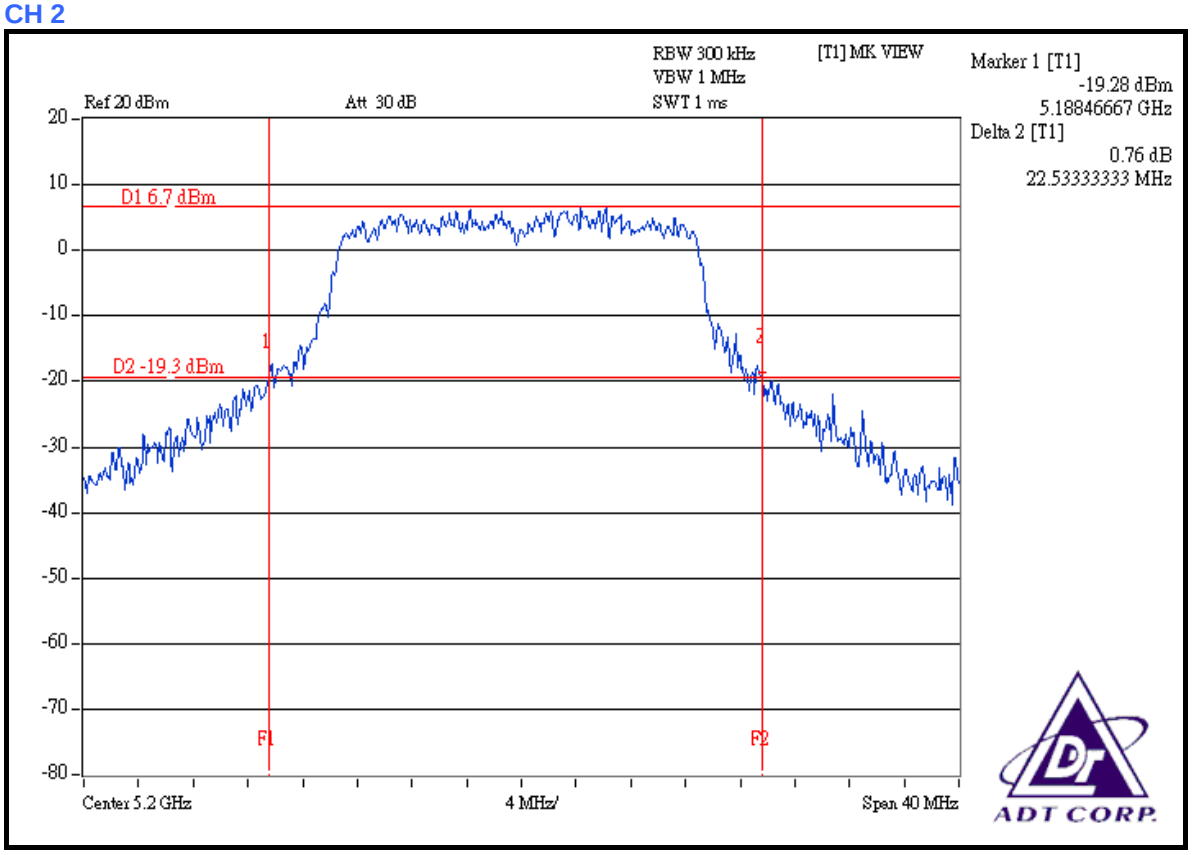
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
1	5180	23.53	PASS
2	5200	22.53	PASS
4	5240	22.53	PASS

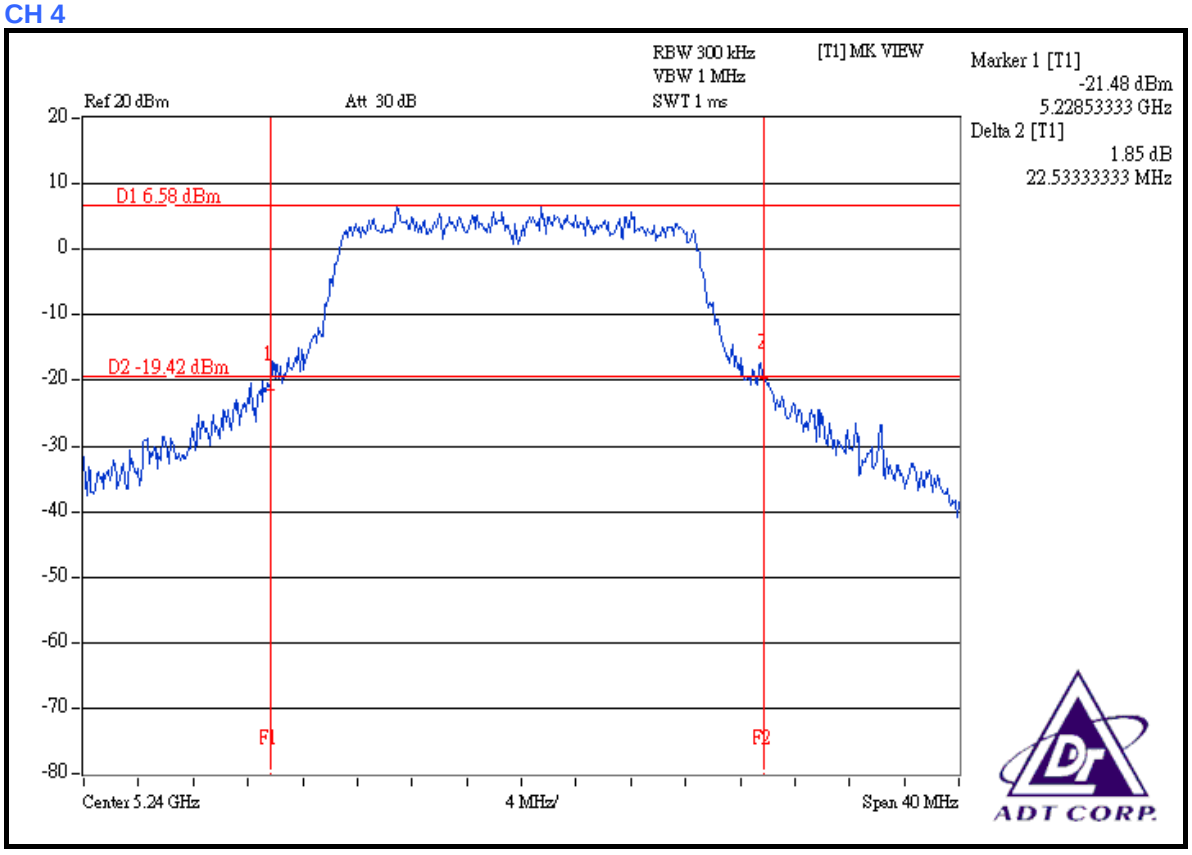
CH 1



CH 2


RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-19.28 dBm
5.18846667 GHz
Delta 2 [T1]
0.76 dB
22.53333333 MHz
Ref 20 dBm
Att 30 dB
D1 6.7 dBm
D2 -19.3 dBm
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

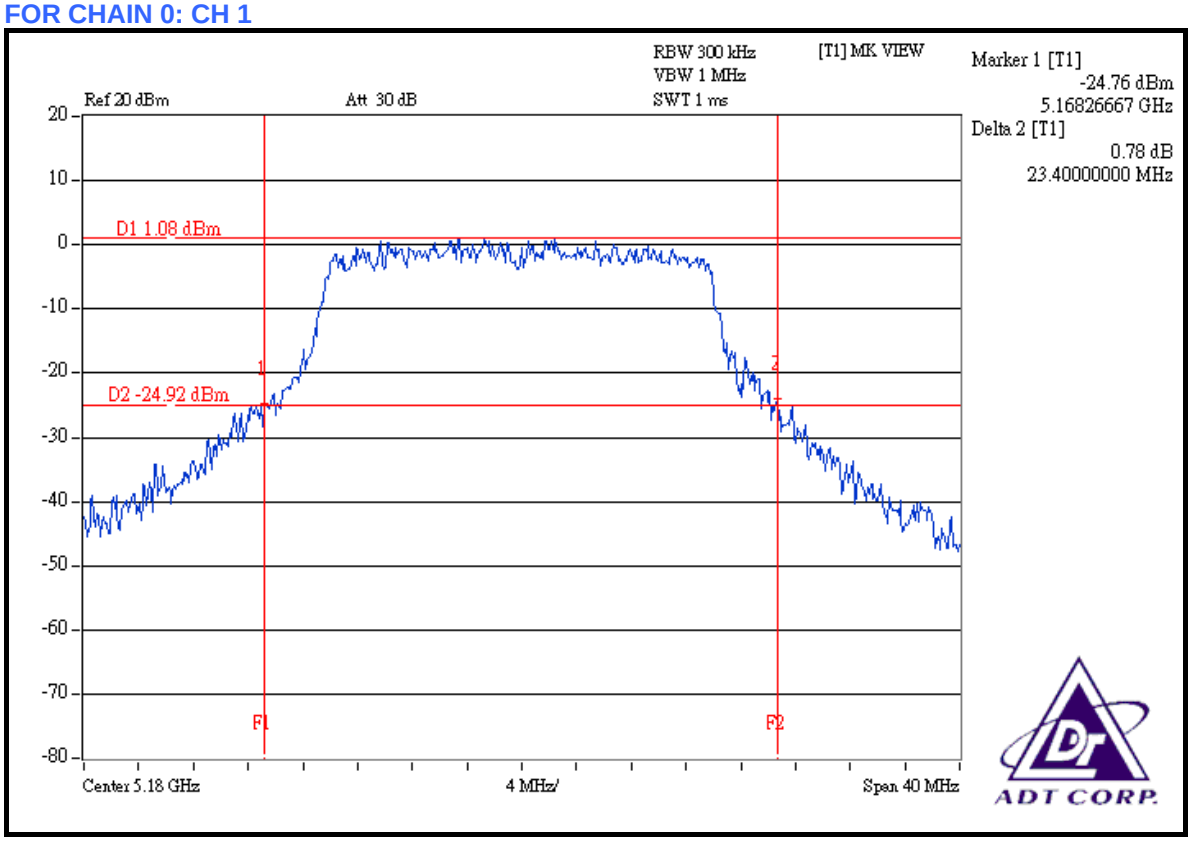

RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-21.48 dBm
5.22853333 GHz
Delta 2 [T1]
1.85 dB
22.53333333 MHz
Ref 20 dBm
Att 30 dB
D1 6.58 dBm
D2 -19.42 dBm
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

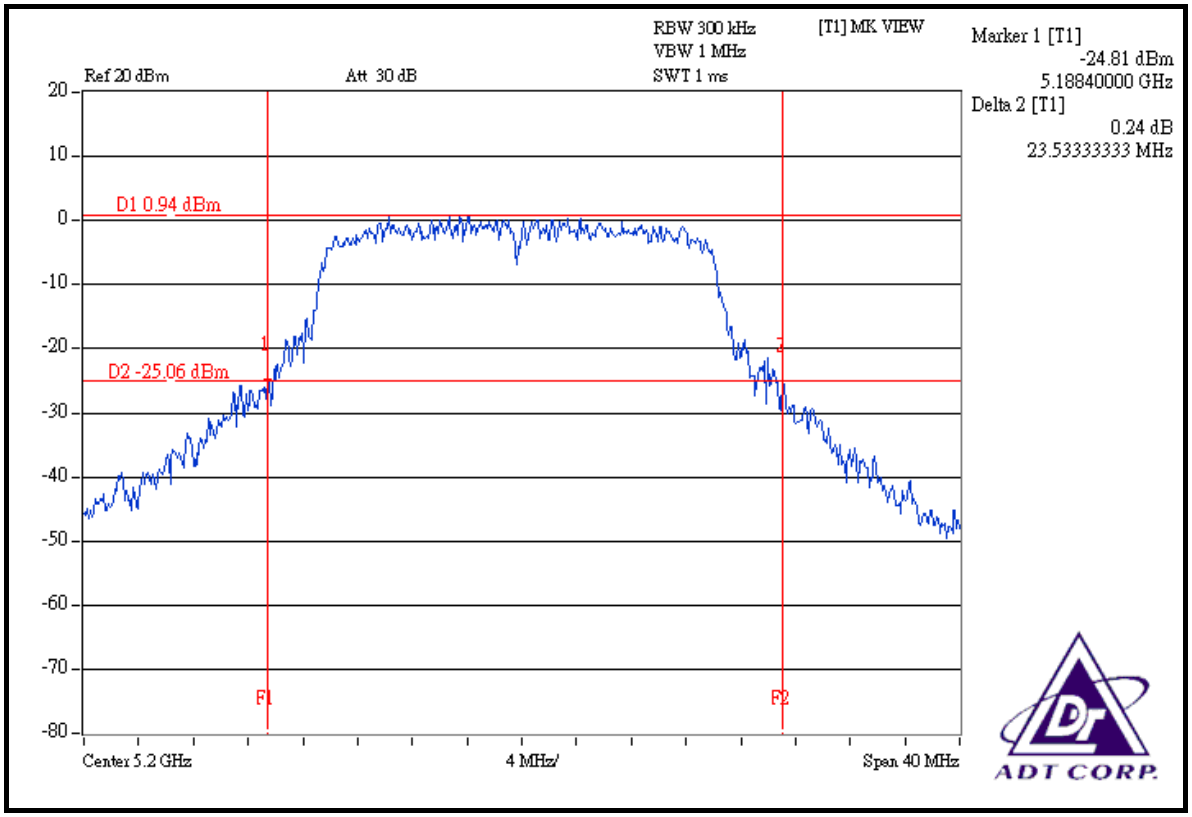
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)			PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	
1	5180	23.40	22.40	23.40	PASS
2	5200	23.53	22.87	23.00	PASS
4	5240	21.93	22.93	22.73	PASS

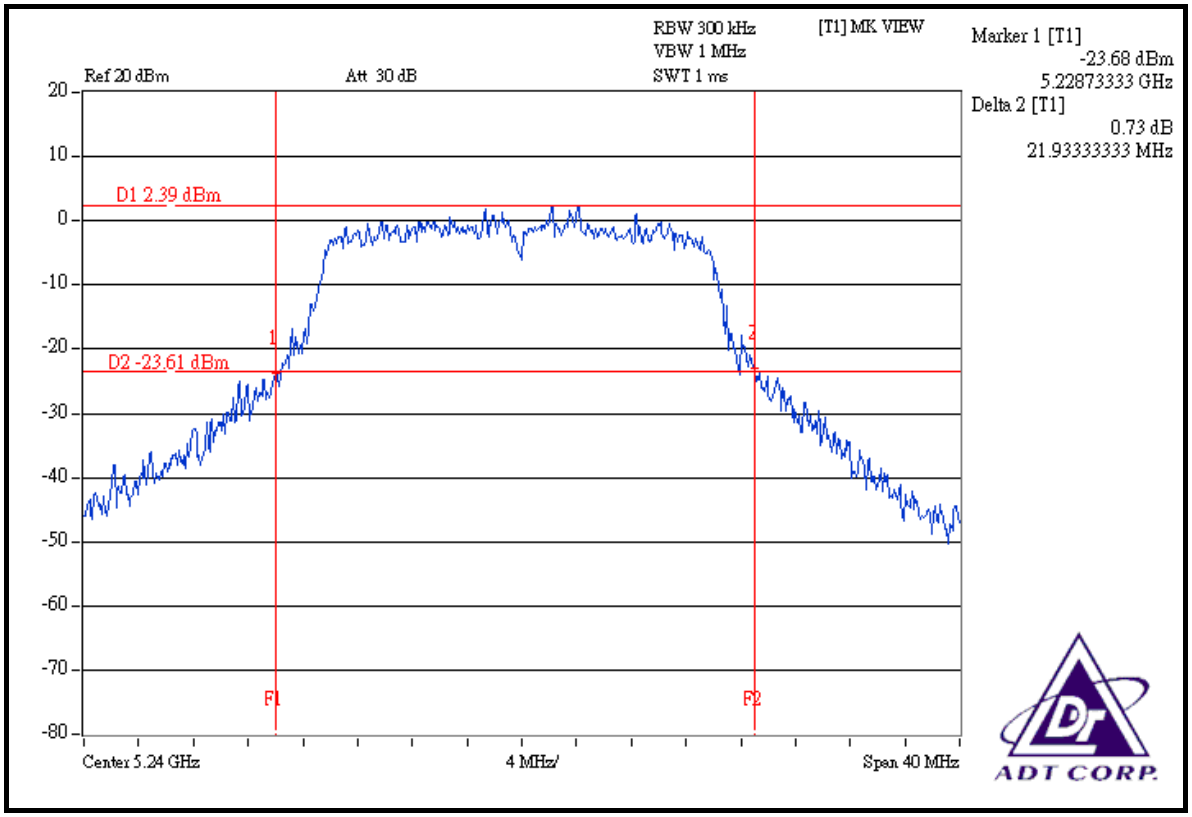
FOR CHAIN 0: CH 1



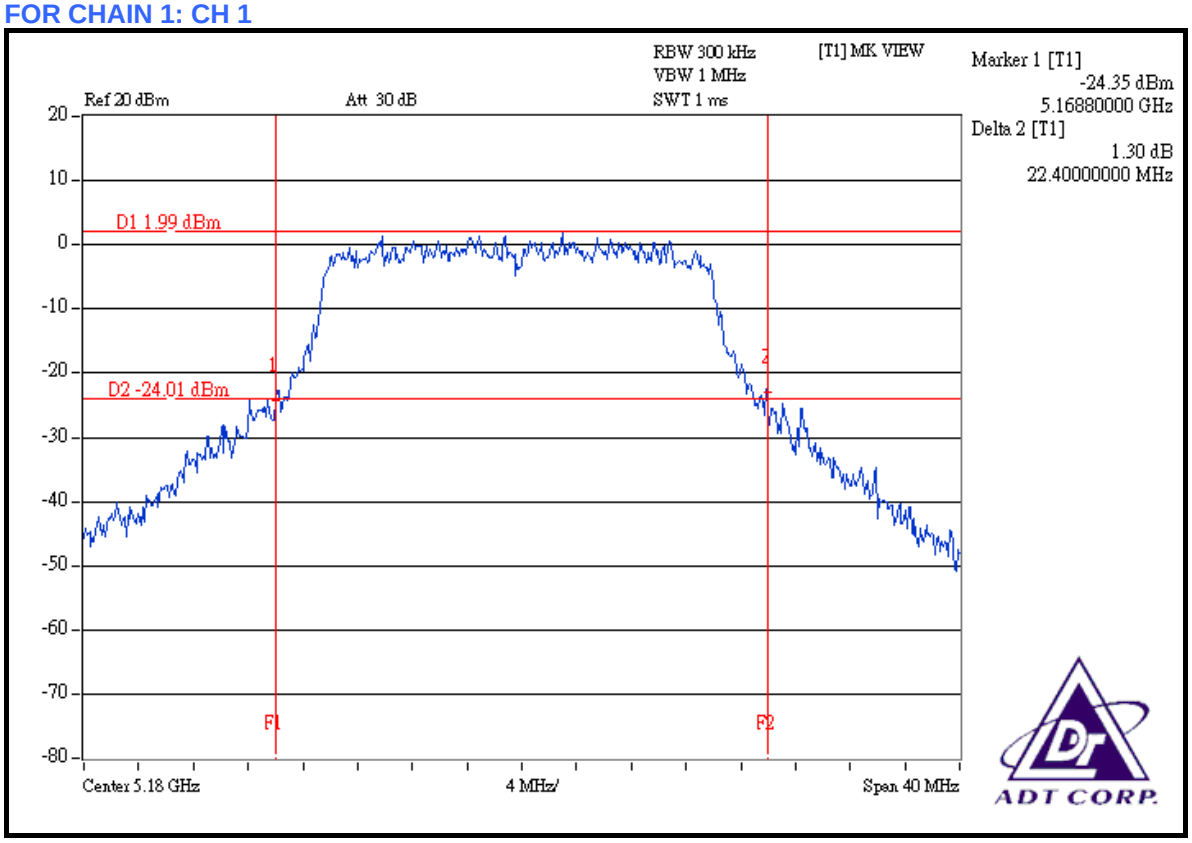
CH 2


RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-24.81 dBm
5.18840000 GHz
Delta 2 [T1]
0.24 dB
23.53333333 MHz
Ref 20 dBm
Att 30 dB
D1 0.94 dBm
D2 -25.06 dBm
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

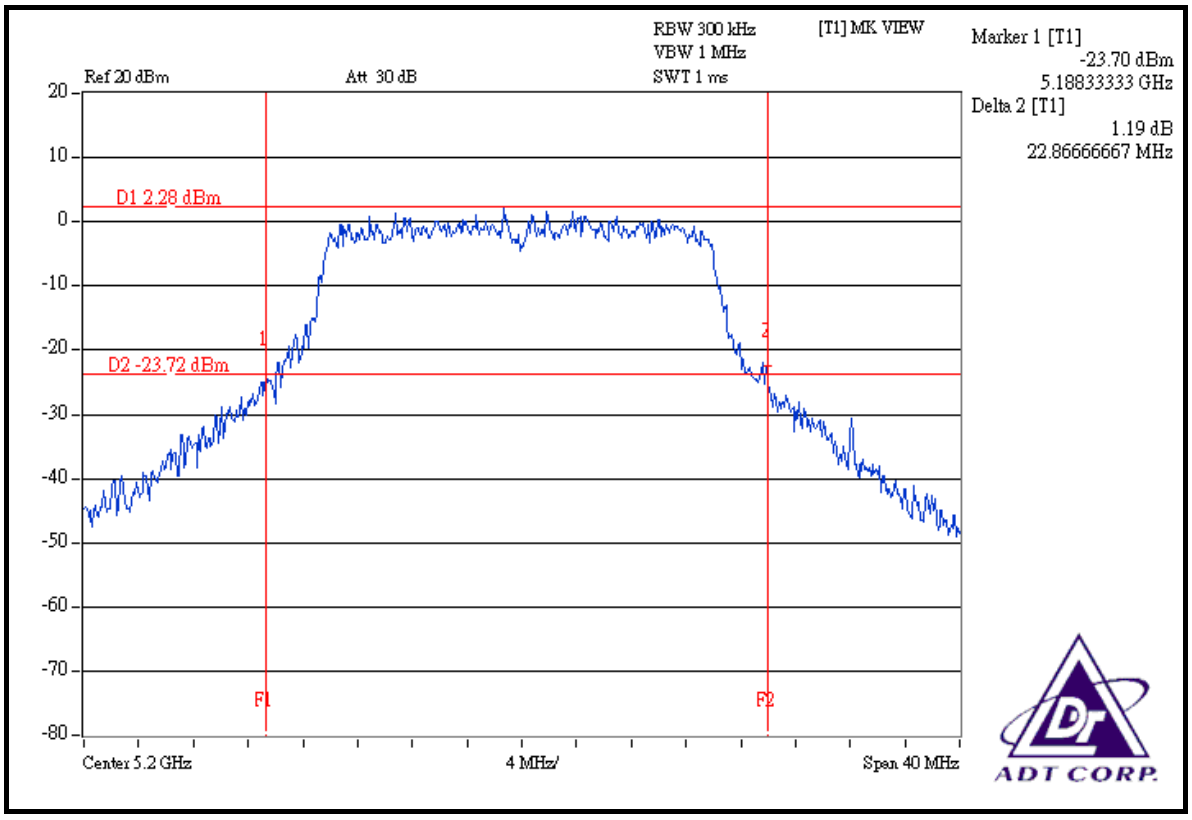
CH 4


RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-23.68 dBm
5.22873333 GHz
Delta 2 [T1]
0.73 dB
21.93333333 MHz
Ref 20 dBm
Att 30 dB
D1 2.39 dBm
D2 -23.61 dBm
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

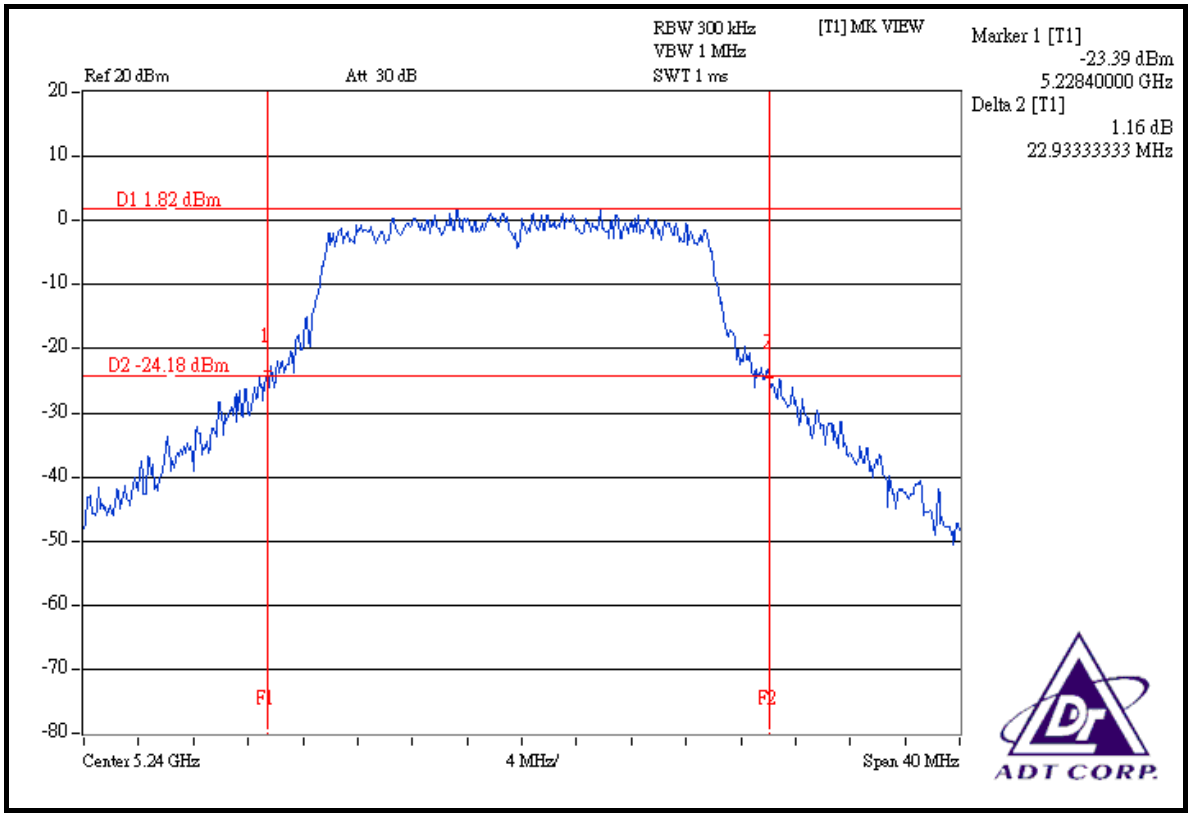
FOR CHAIN 1: CH 1



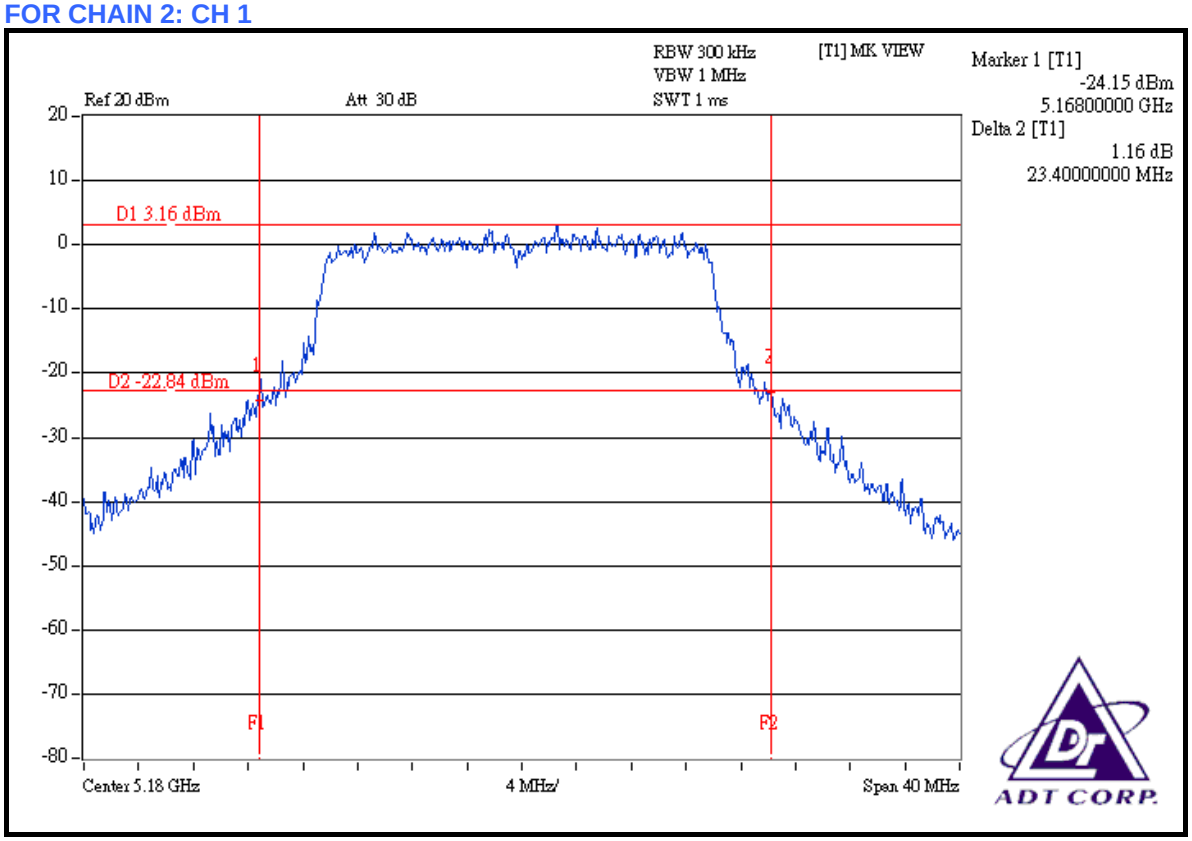
CH 2



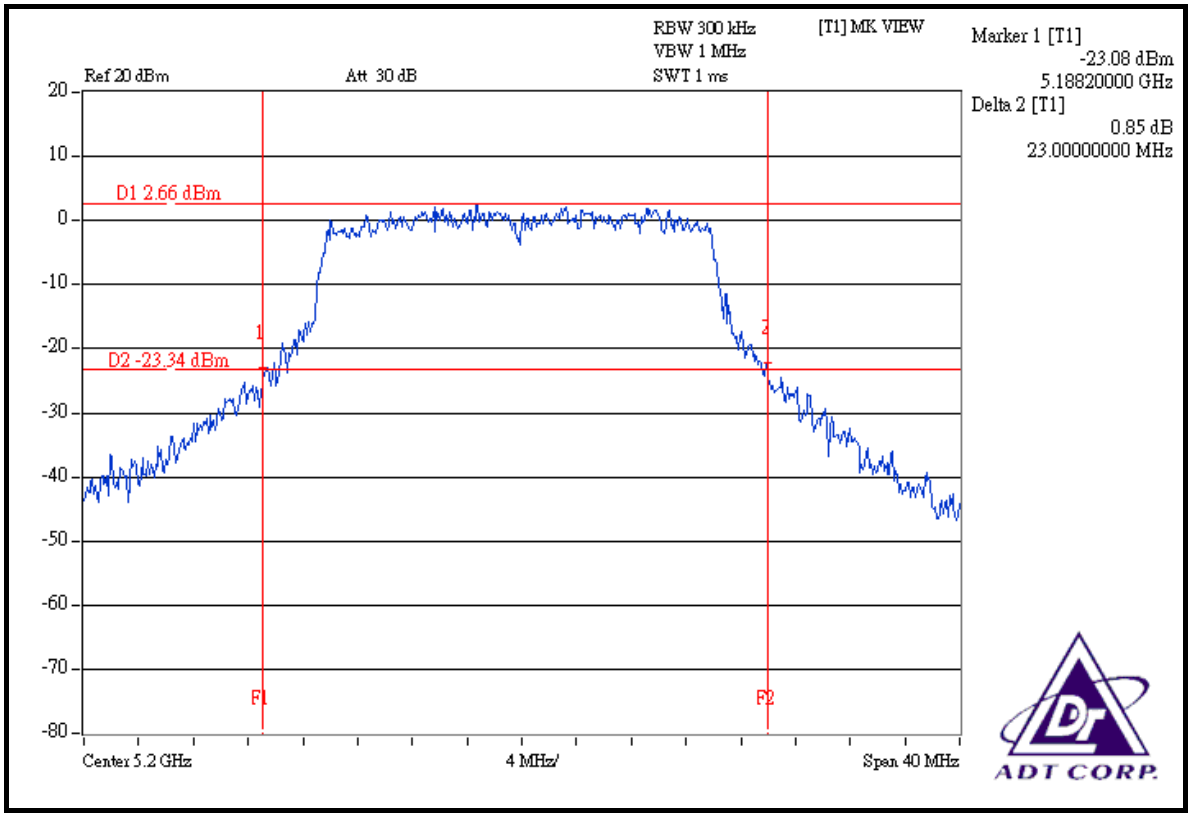
CH 4



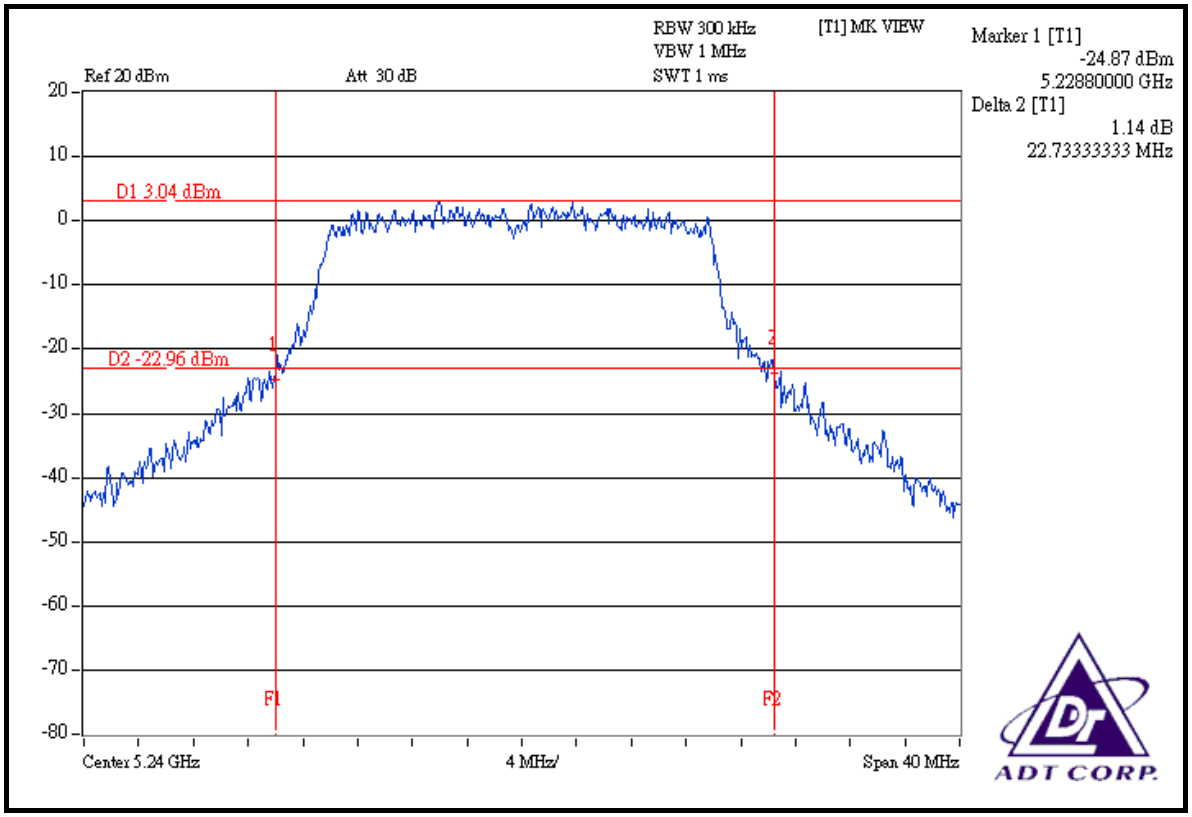
FOR CHAIN 2: CH 1



CH 2


RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-23.08 dBm
5.18820000 GHz
Delta 2 [T1]
0.85 dB
23.00000000 MHz
Ref 20 dBm
Att 30 dB
D1 2.66 dBm
D2 -23.34 dBm
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

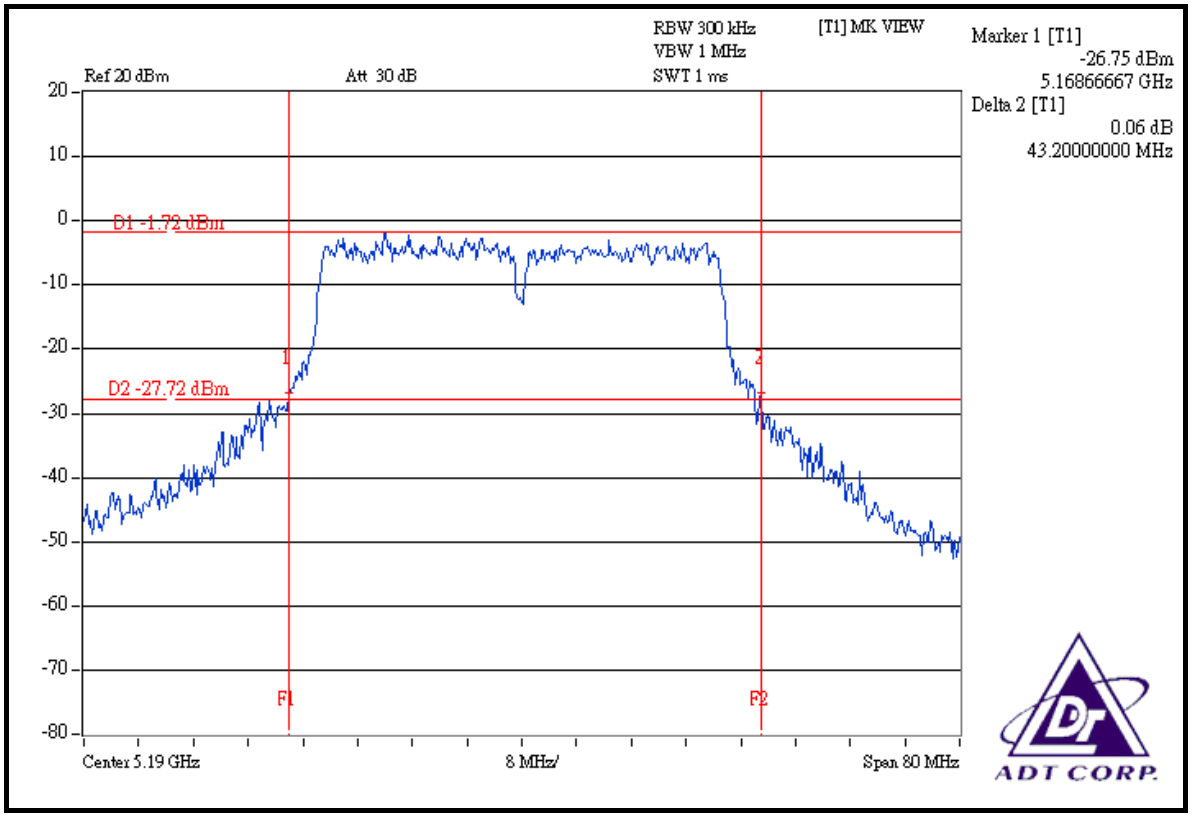

RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-24.87 dBm
5.22880000 GHz
Delta 2 [T1]
1.14 dB
22.73333333 MHz
Ref 20 dBm
Att 30 dB
D1 3.04 dBm
D2 -22.96 dBm
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

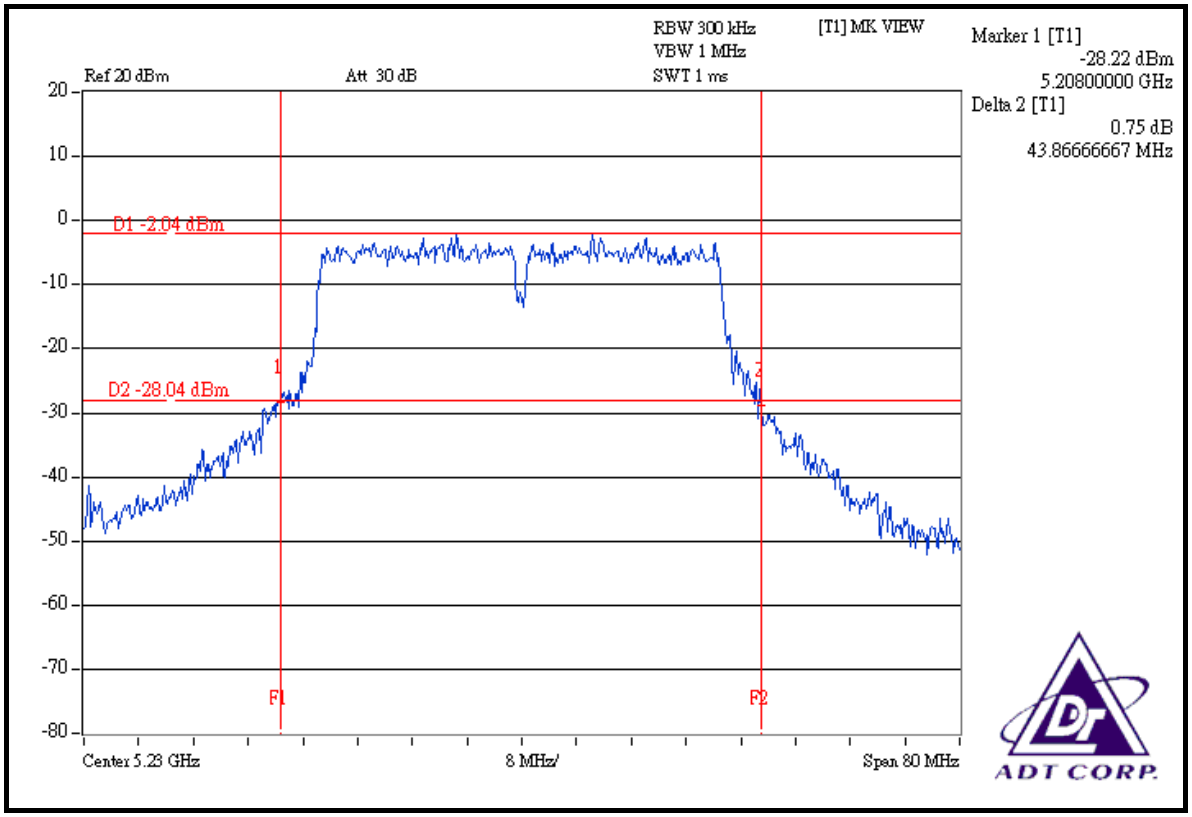
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)			PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	
1	5190	43.20	43.20	43.33	PASS
2	5230	43.86	42.80	44.67	PASS

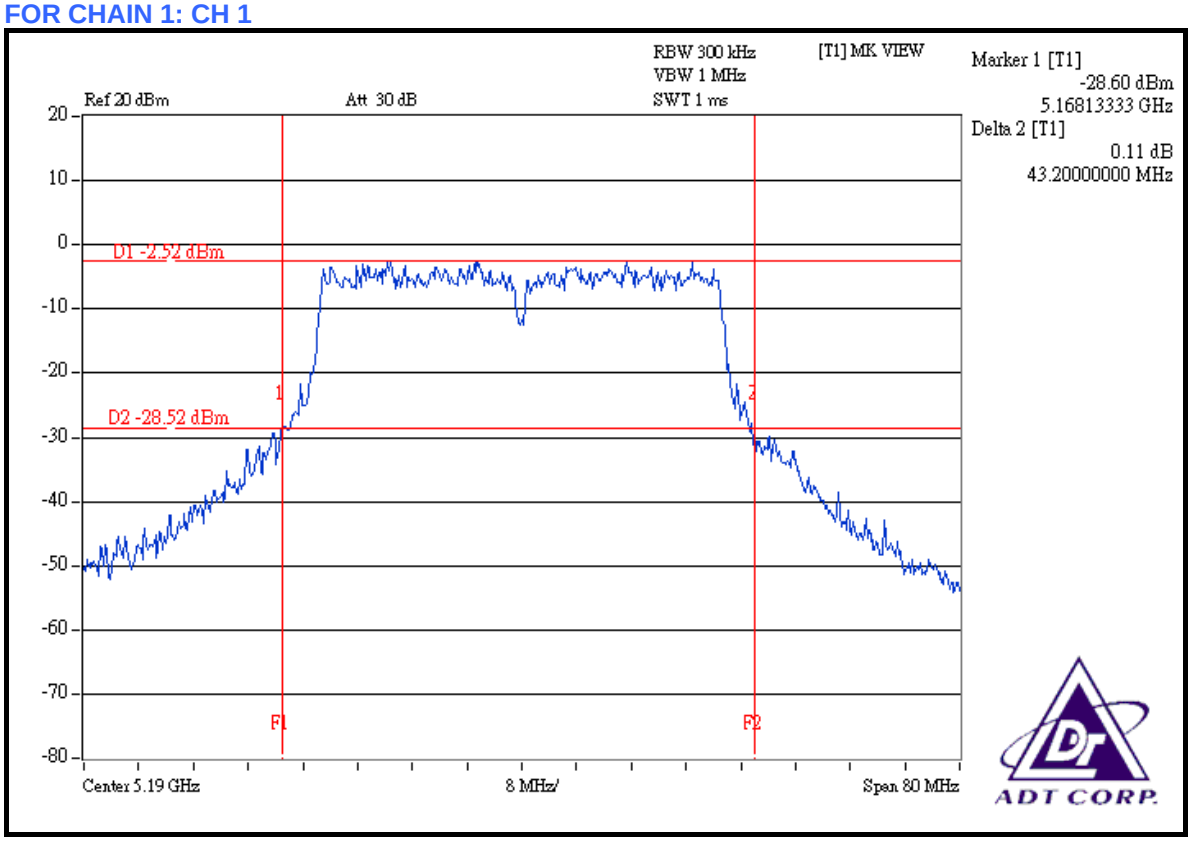
FOR CHAIN 0: CH 1



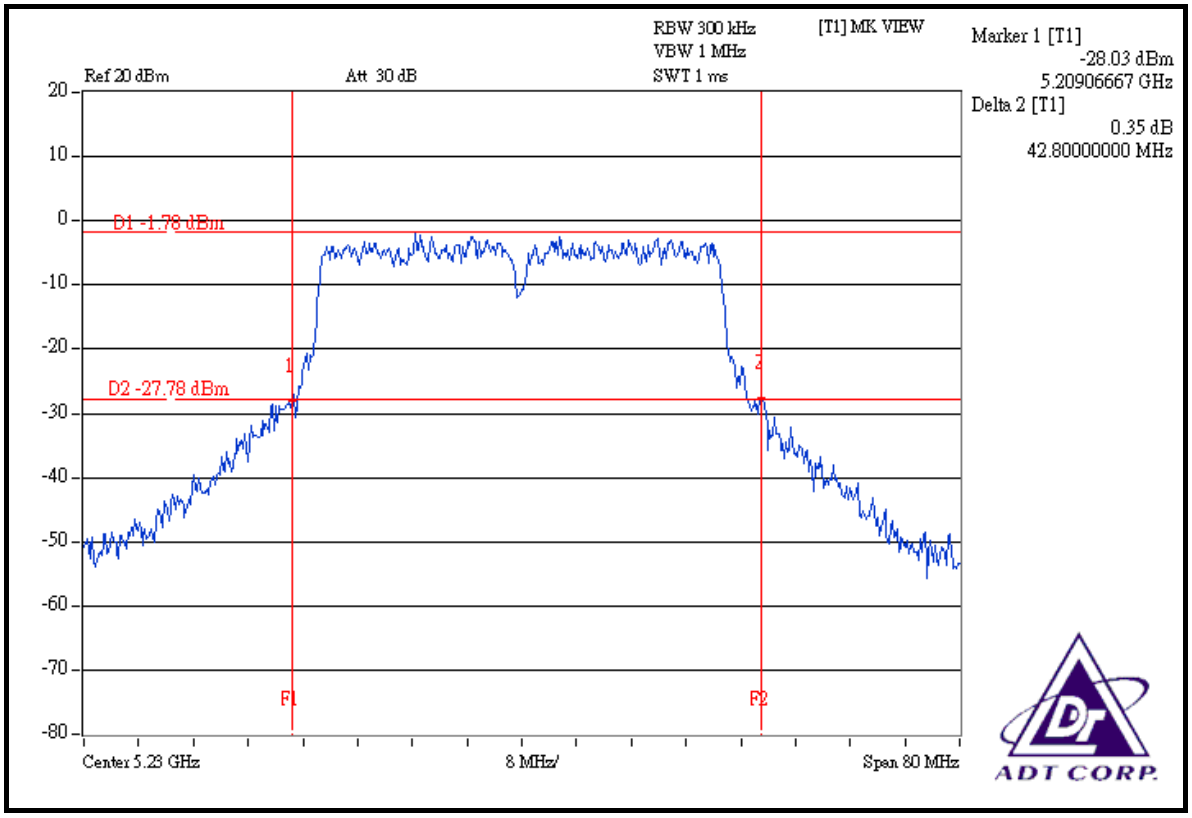
CH 2



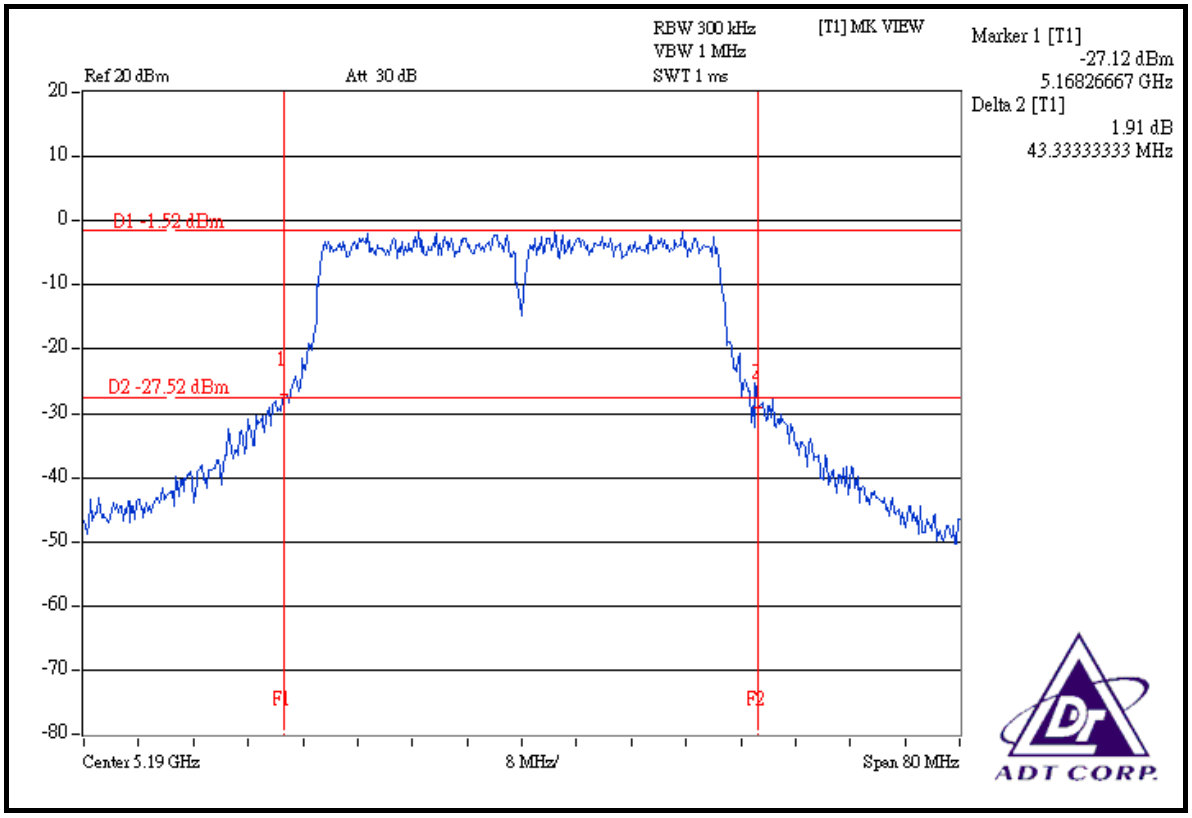
FOR CHAIN 1: CH 1



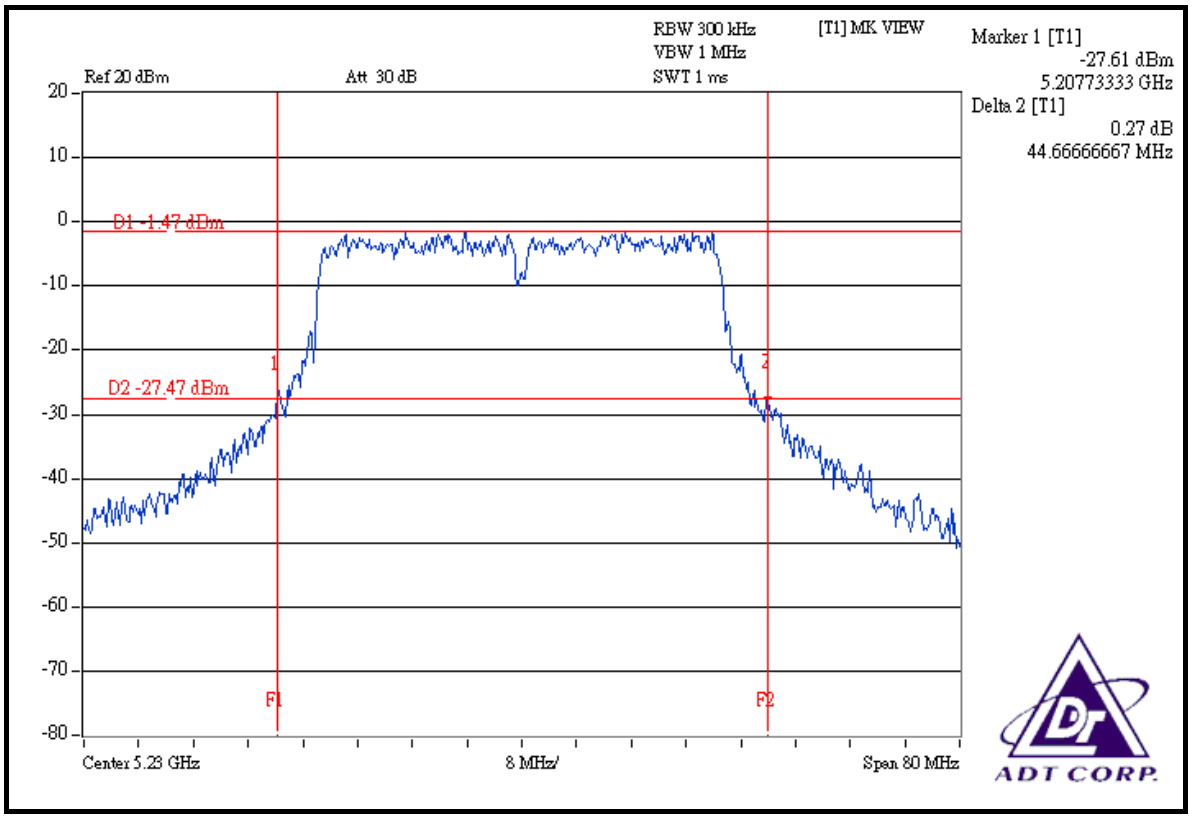
CH 2



FOR CHAIN 2: CH 1



CH 2


RBW 300 kHz
VBW 1 MHz
SWT 1 ms
[T1] MK VIEW
Marker 1 [T1]
-27.61 dBm
5.20773333 GHz
Delta 2 [T1]
0.27 dB
44.66666667 MHz
Ref 20 dBm
Att 30 dB
D1 -1.47 dBm
D2 -27.47 dBm
F1
F2
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	13dB
5.25 ~ 5.35GHz	13dB
5.725 ~ 5.825GHz	13dB

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 07, 2007

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

4.4.3 TEST PROCEDURE

a. The transmitter output was connected to the spectrum analyzer.

b. Set the spectrum bandwidth span to view the entire spectrum.

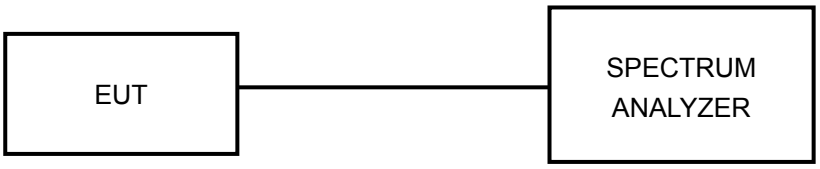
c. Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300kHz).

d. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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

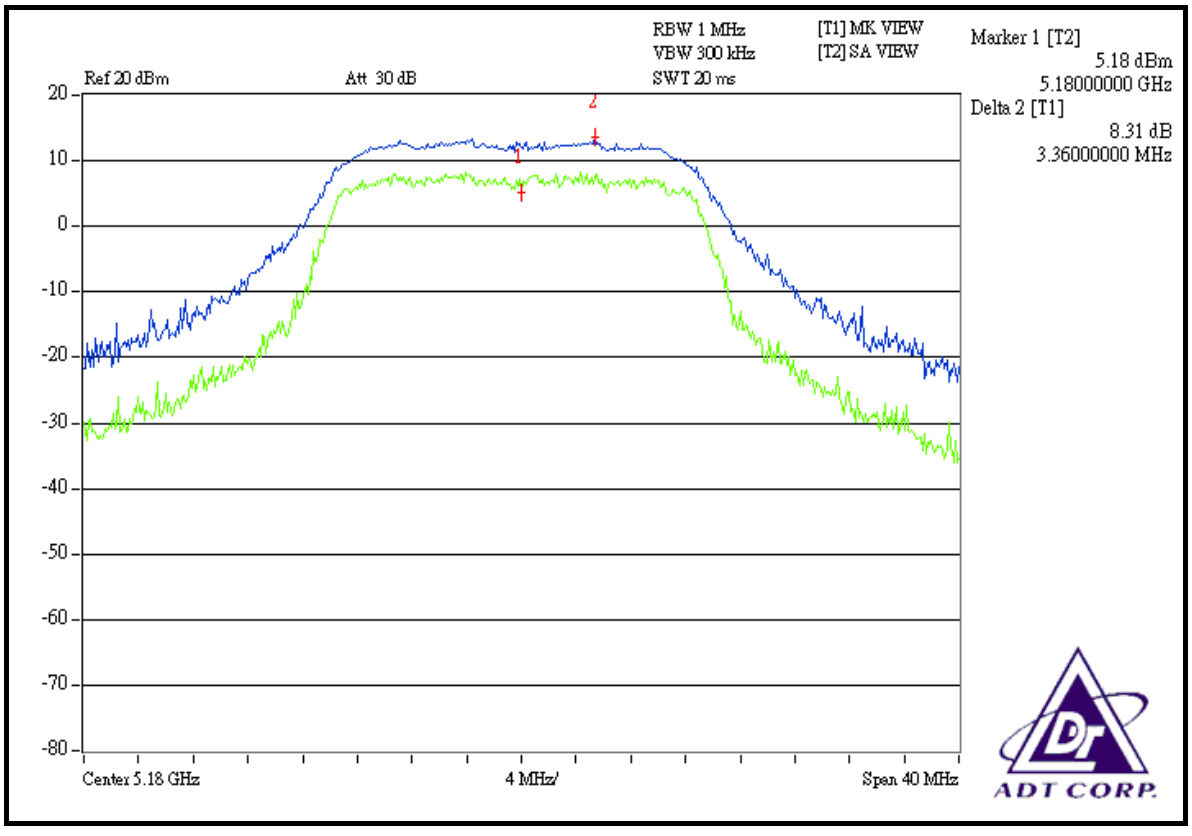
4.4.7 TEST RESULTS

802.11a OFDM MODULATION:

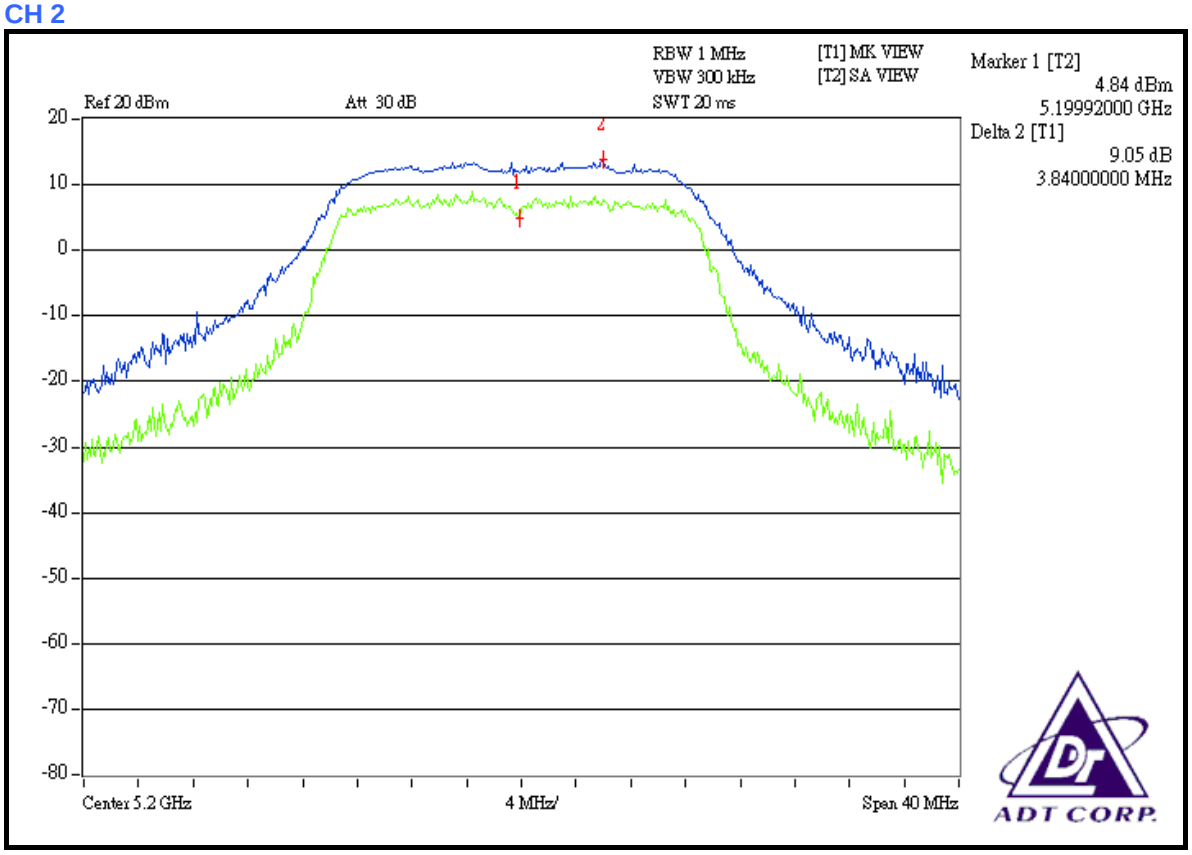
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS / FAIL
1	5180	8.31	13	PASS
2	5200	9.05	13	PASS
4	5240	8.49	13	PASS

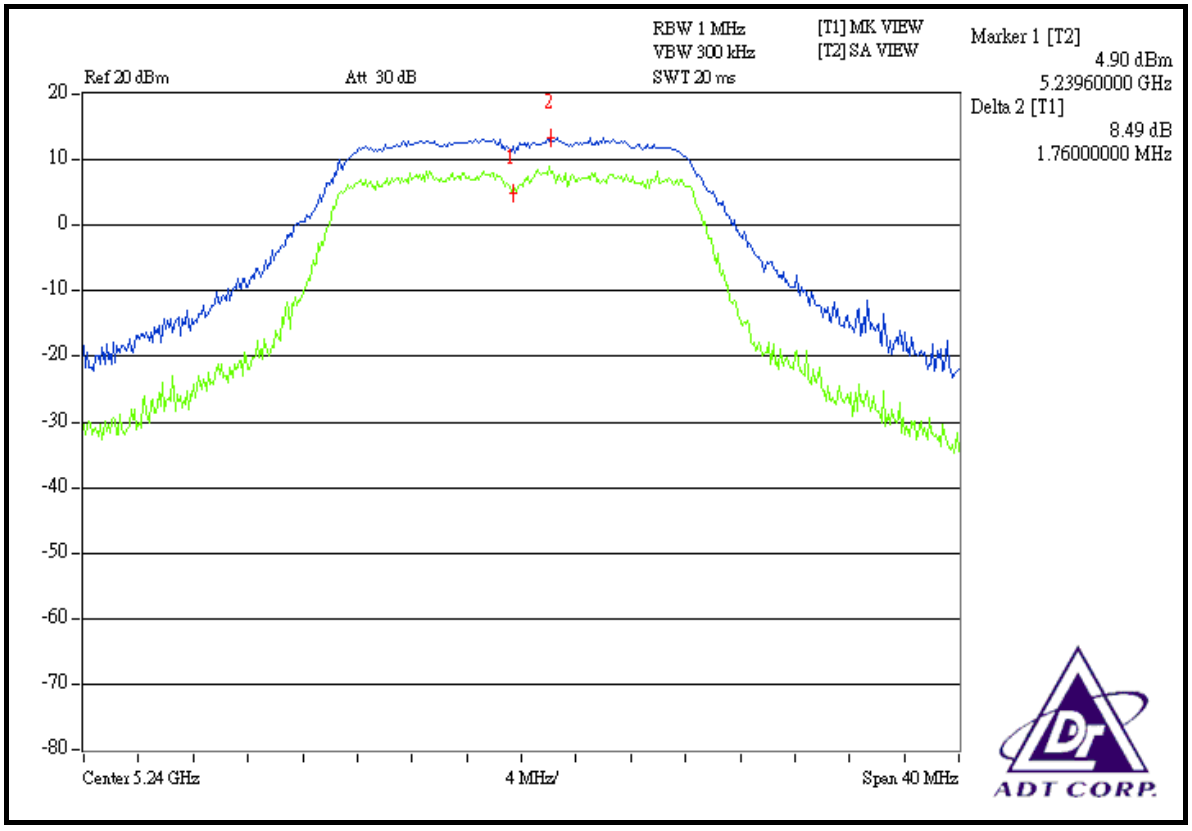
CH 1



CH 2


RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
4.84 dBm
5.19992000 GHz
Delta 2 [T1]
9.05 dB
3.84000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

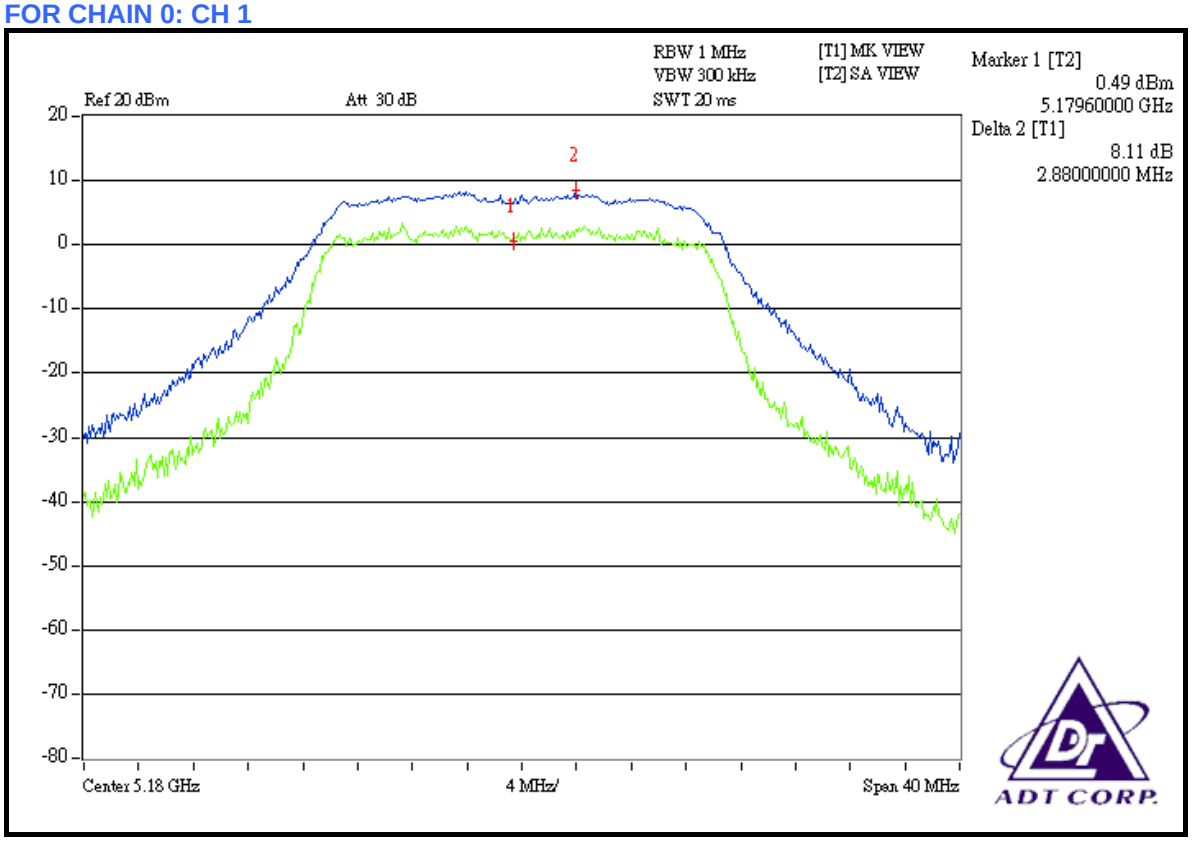

RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
4.90 dBm
5.23960000 GHz
Delta 2 [T1]
8.49 dB
1.76000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

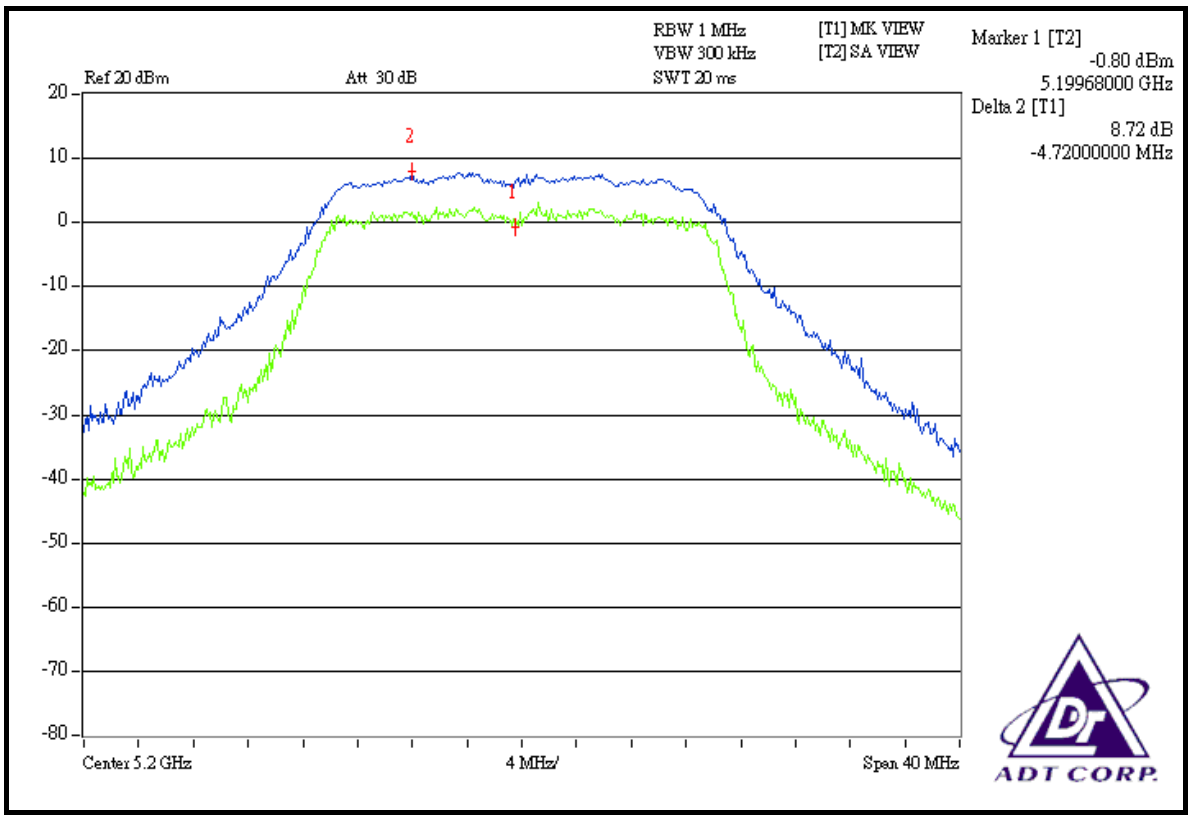
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)			PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	5180	8.11	8.82	8.67	13	PASS
2	5200	8.72	9.52	9.04	13	PASS
4	5240	8.95	9.62	9.36	13	PASS

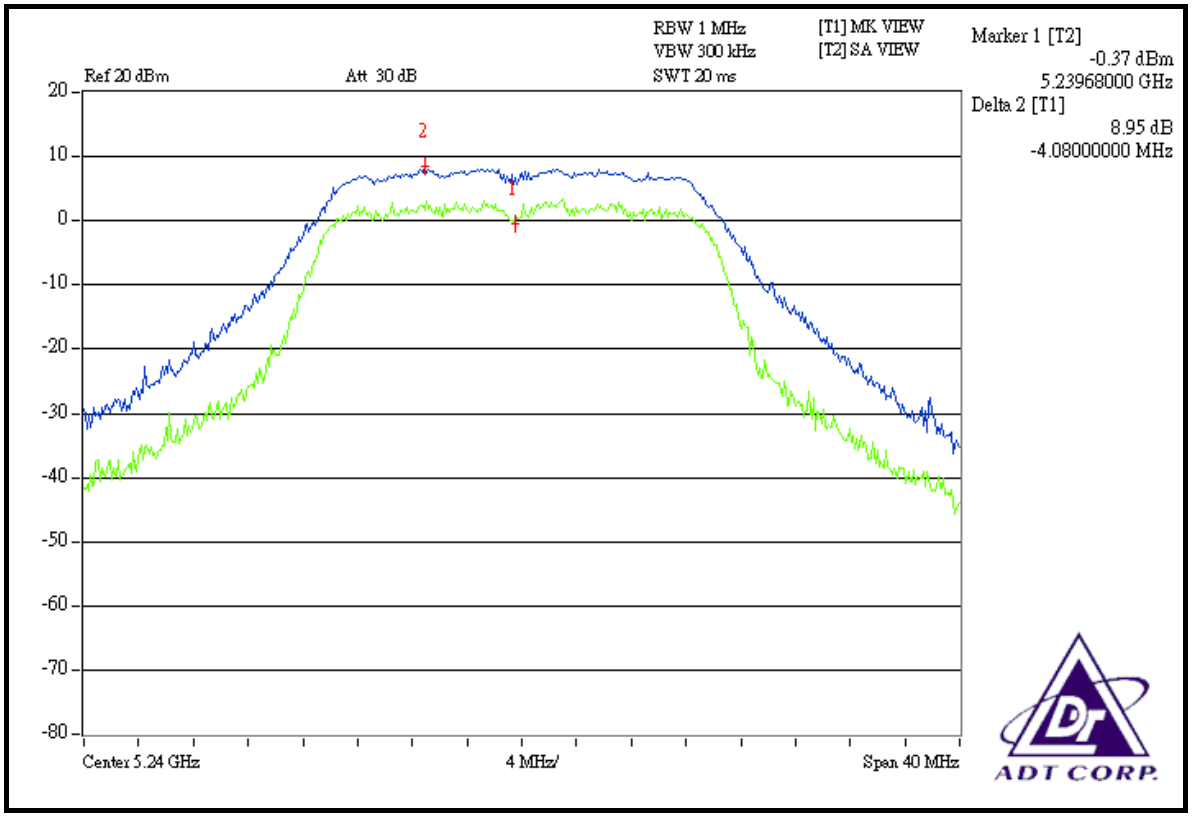
FOR CHAIN 0: CH 1



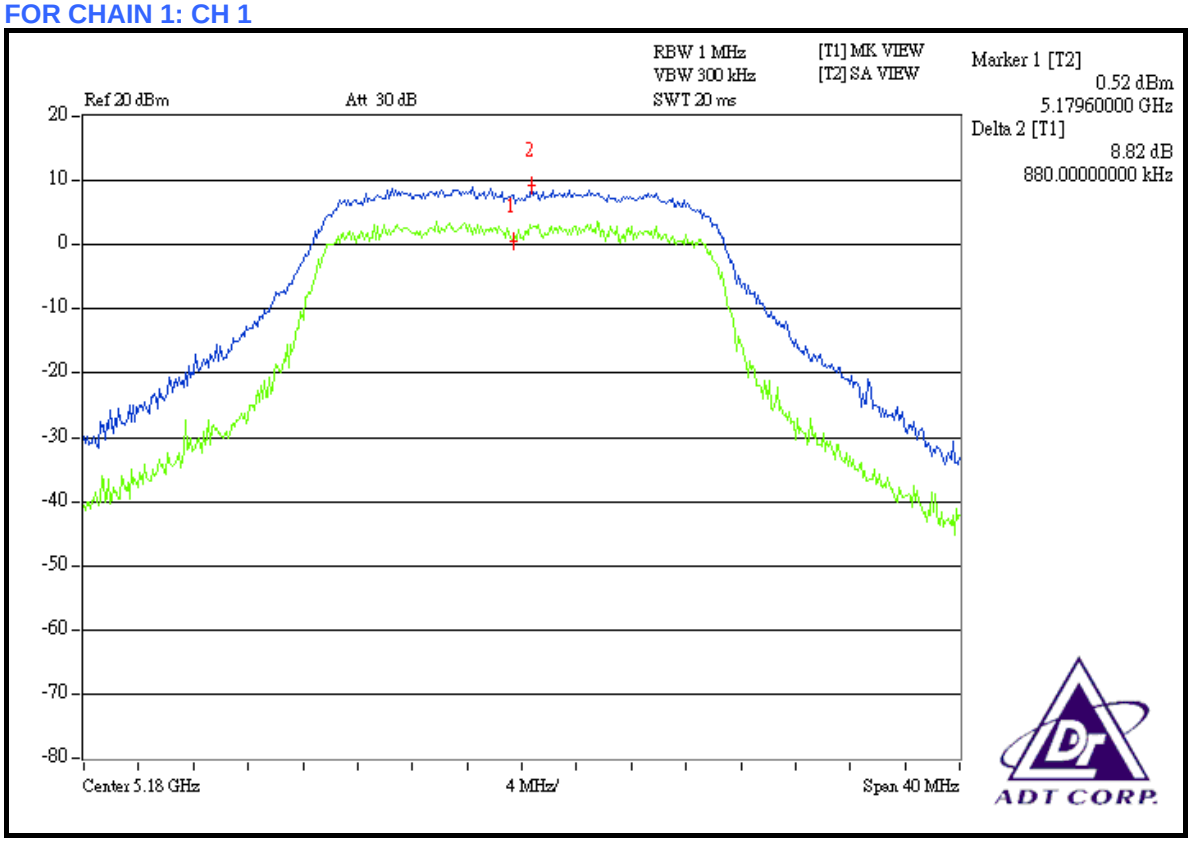
CH 2


RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
-0.80 dBm
5.19968000 GHz
Delta 2 [T1]
8.72 dB
-4.72000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

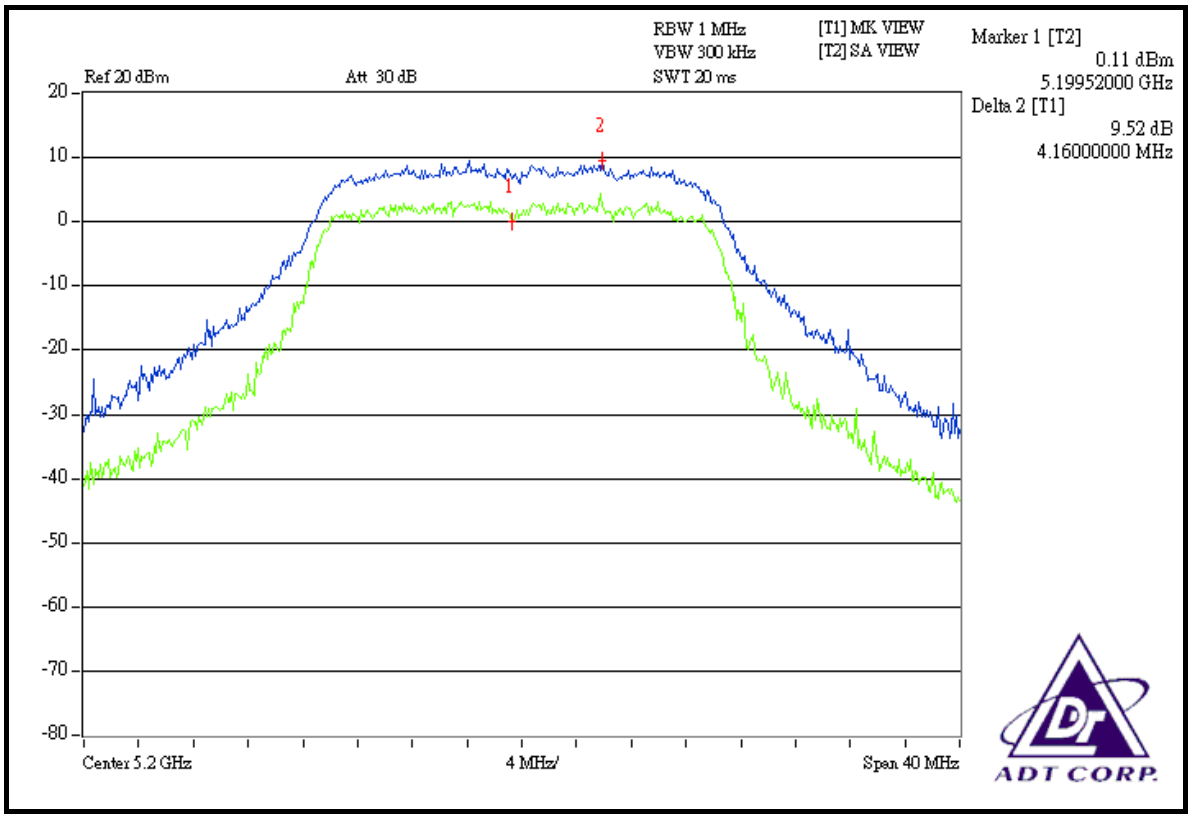
CH 4


RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
-0.37 dBm
5.23968000 GHz
Delta 2 [T1]
8.95 dB
-4.08000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

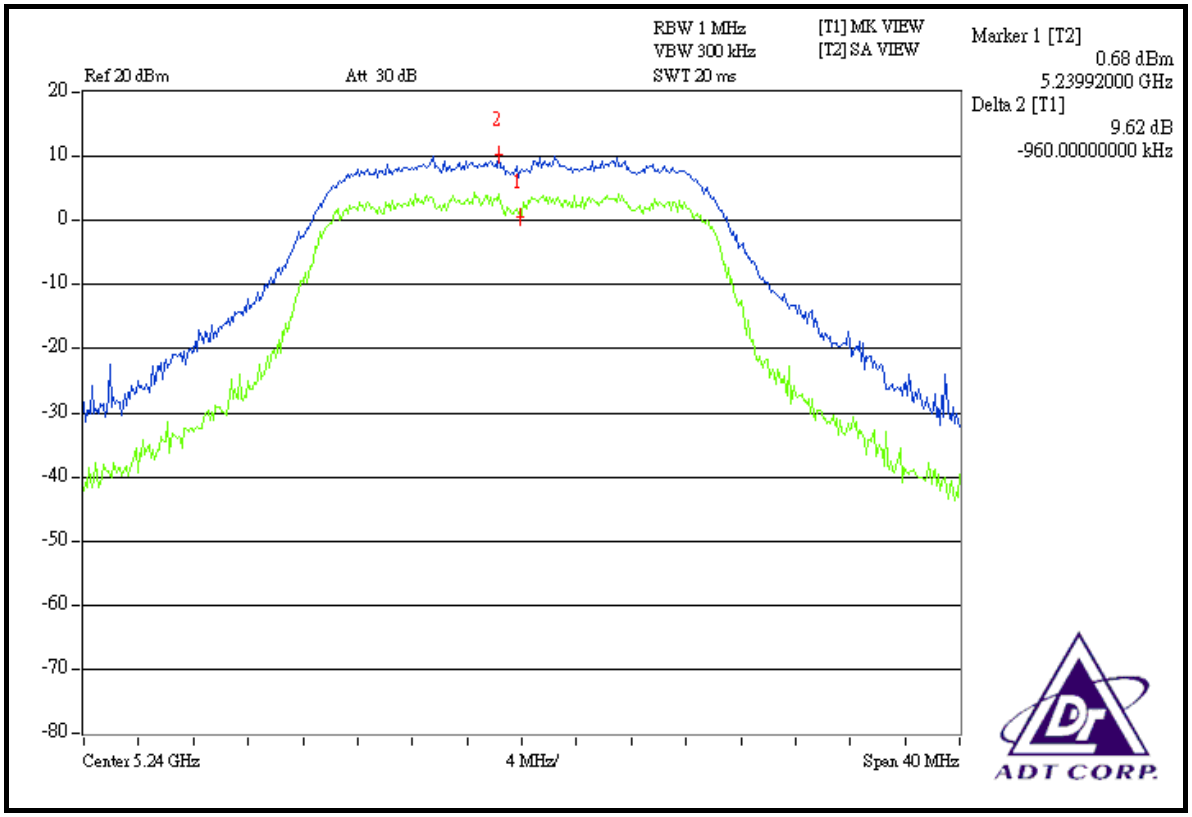
FOR CHAIN 1: CH 1



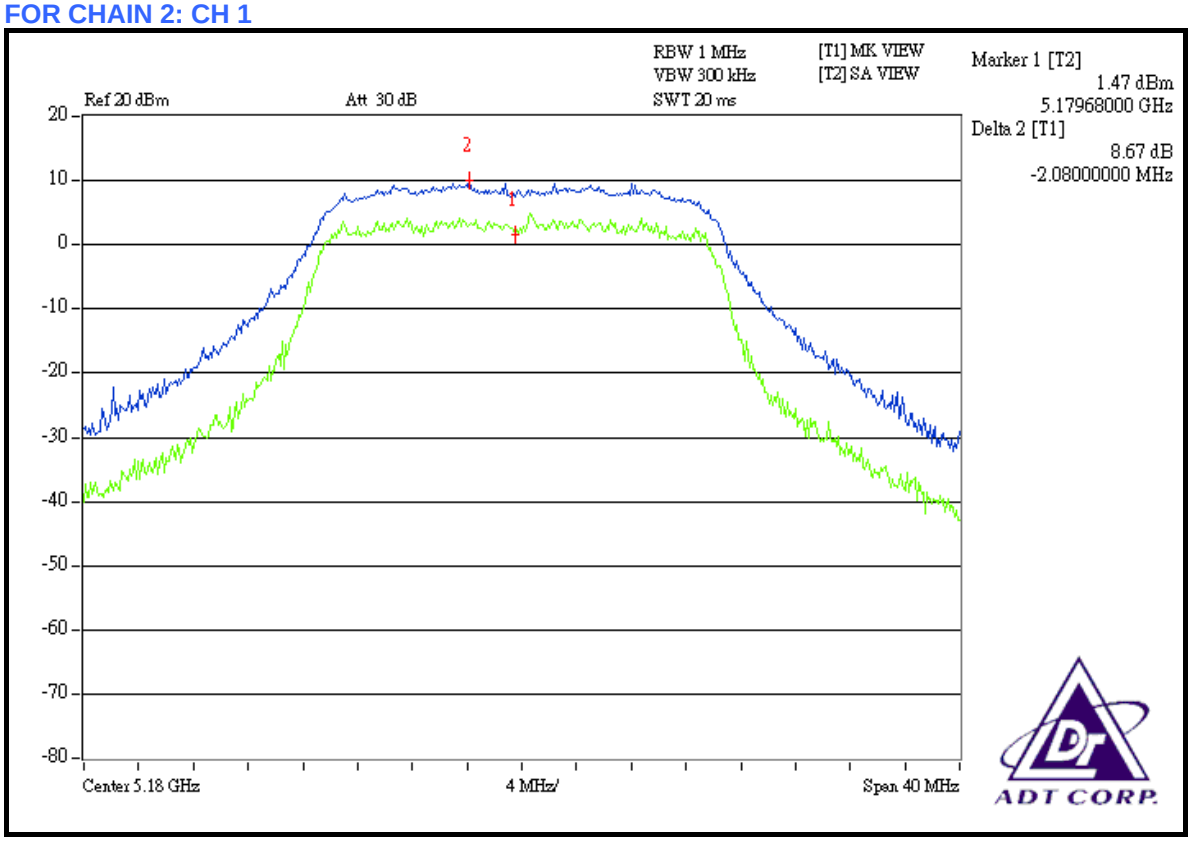
CH 2



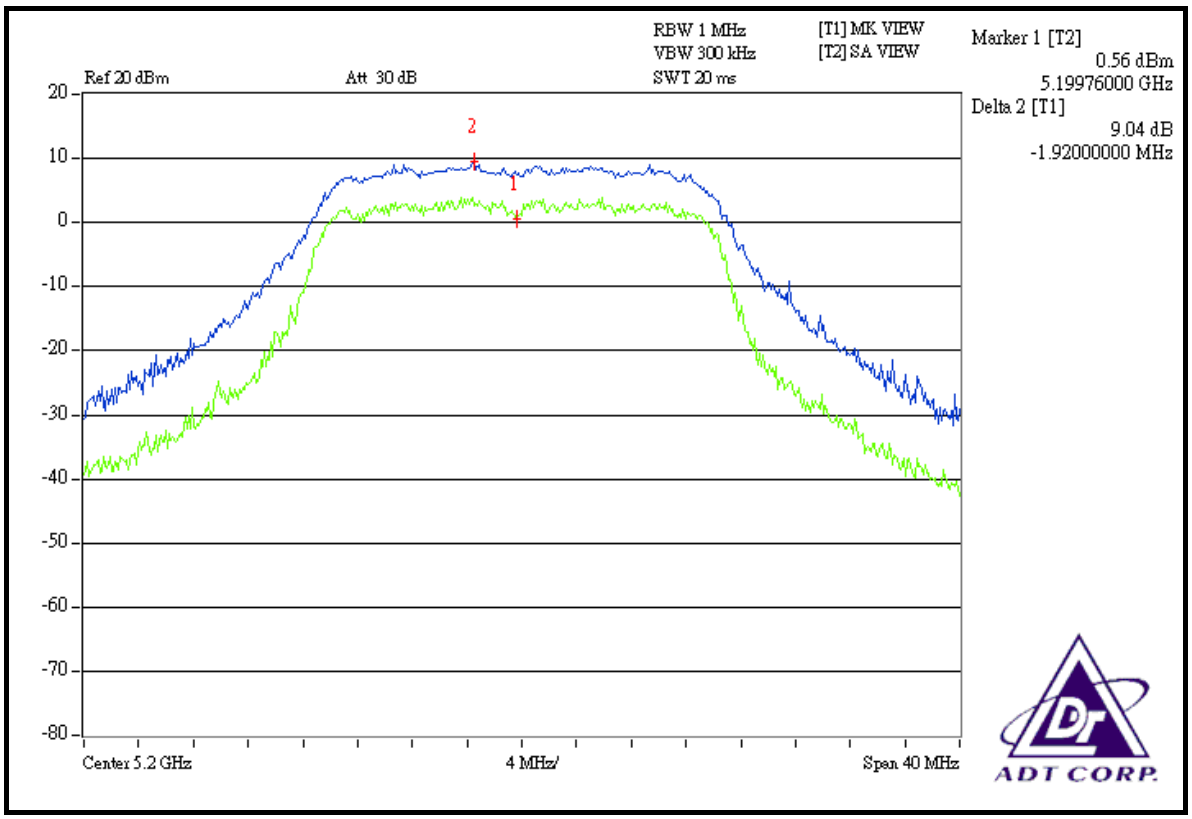
CH 4



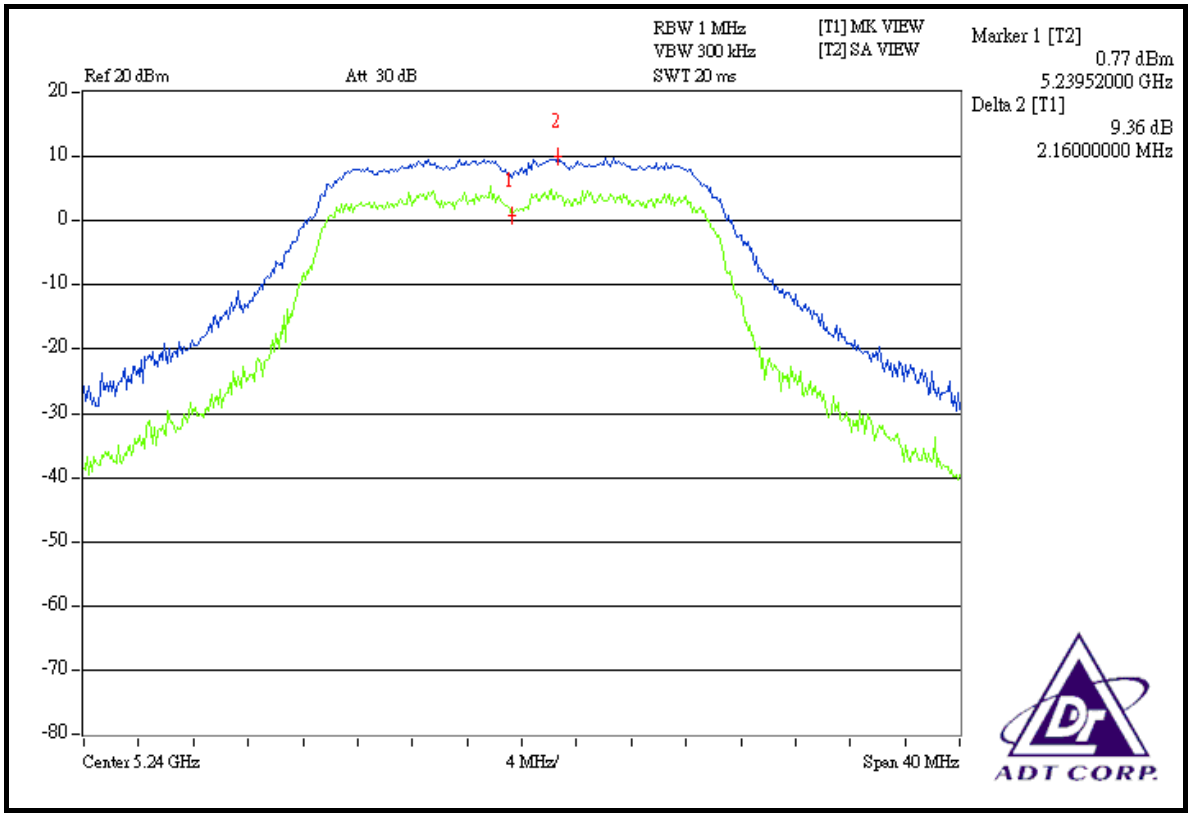
FOR CHAIN 2: CH 1



CH 2


RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
0.56 dBm
5.19976000 GHz
Delta 2 [T1]
9.04 dB
-1.92000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

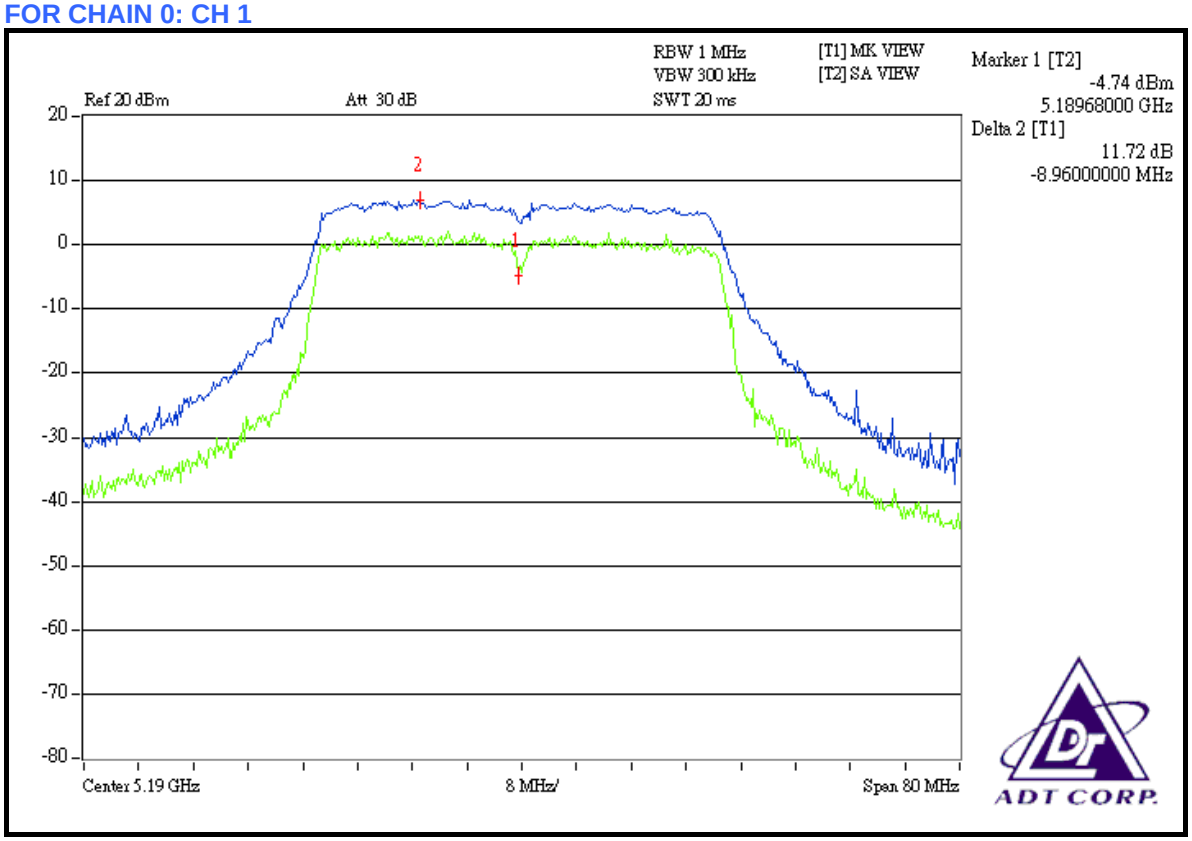

RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
0.77 dBm
5.23952000 GHz
Delta 2 [T1]
9.36 dB
2.16000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

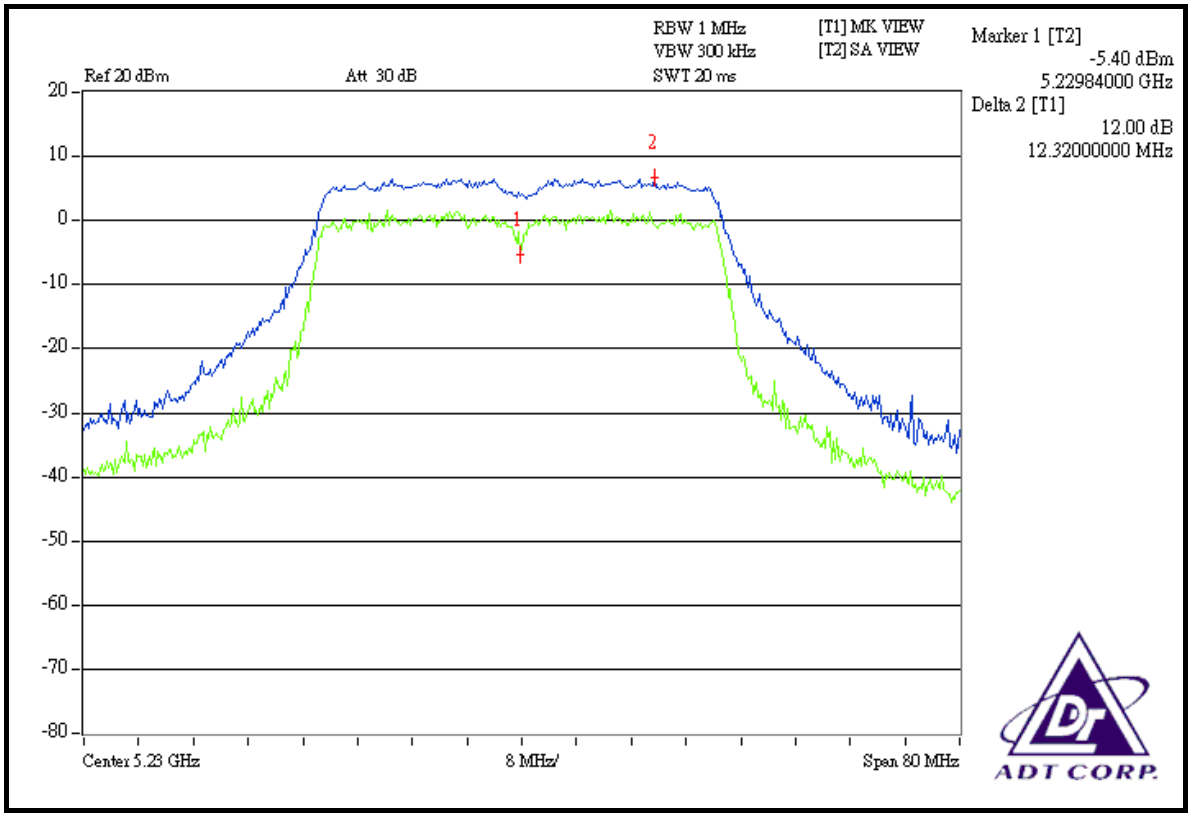
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)			PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	5190	11.72	11.84	11.94	13	PASS
2	5230	12.00	11.38	11.72	13	PASS

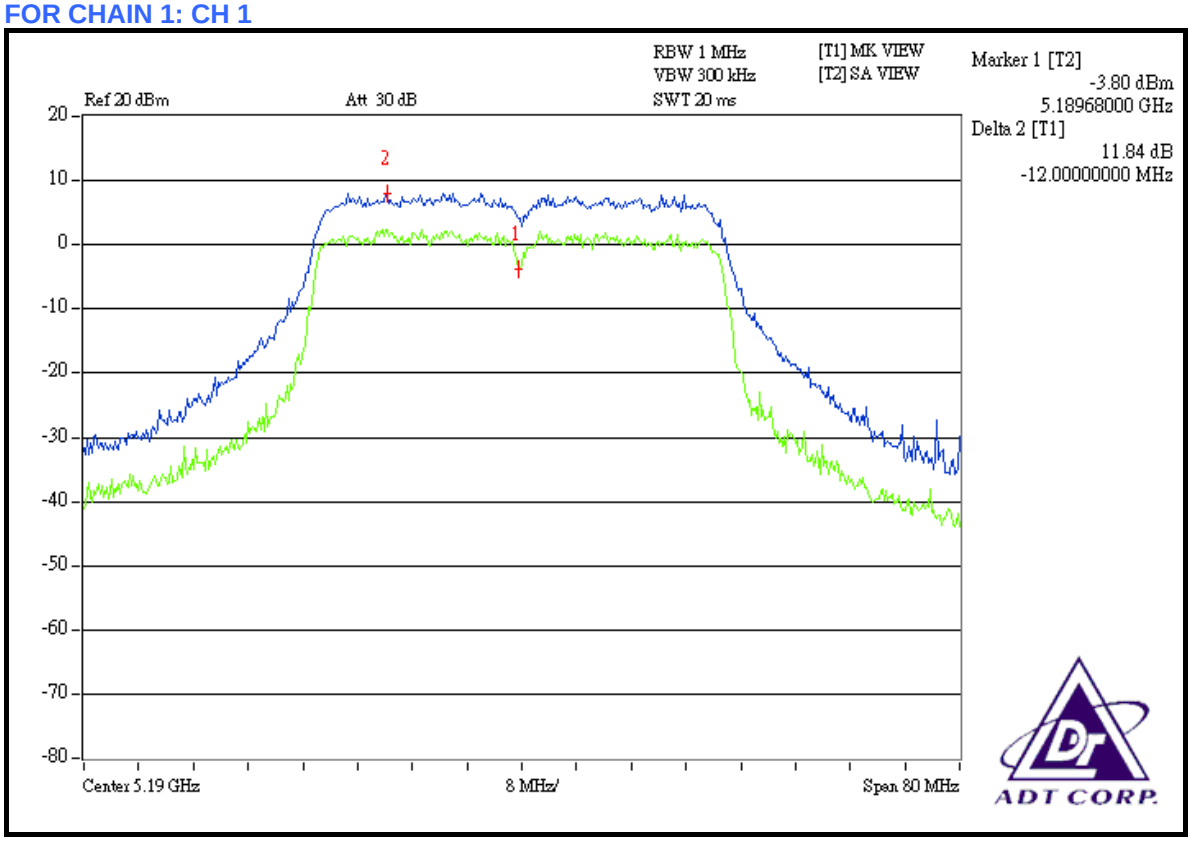
FOR CHAIN 0: CH 1



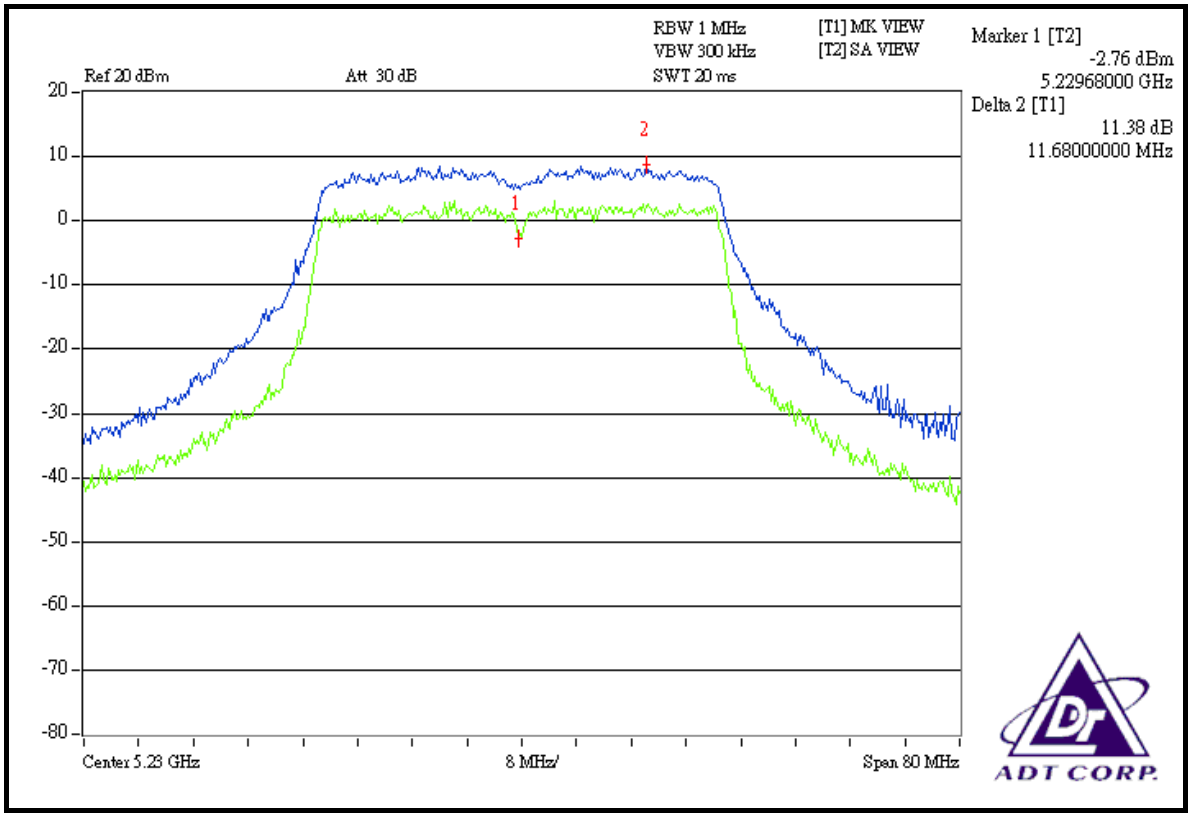
CH 2



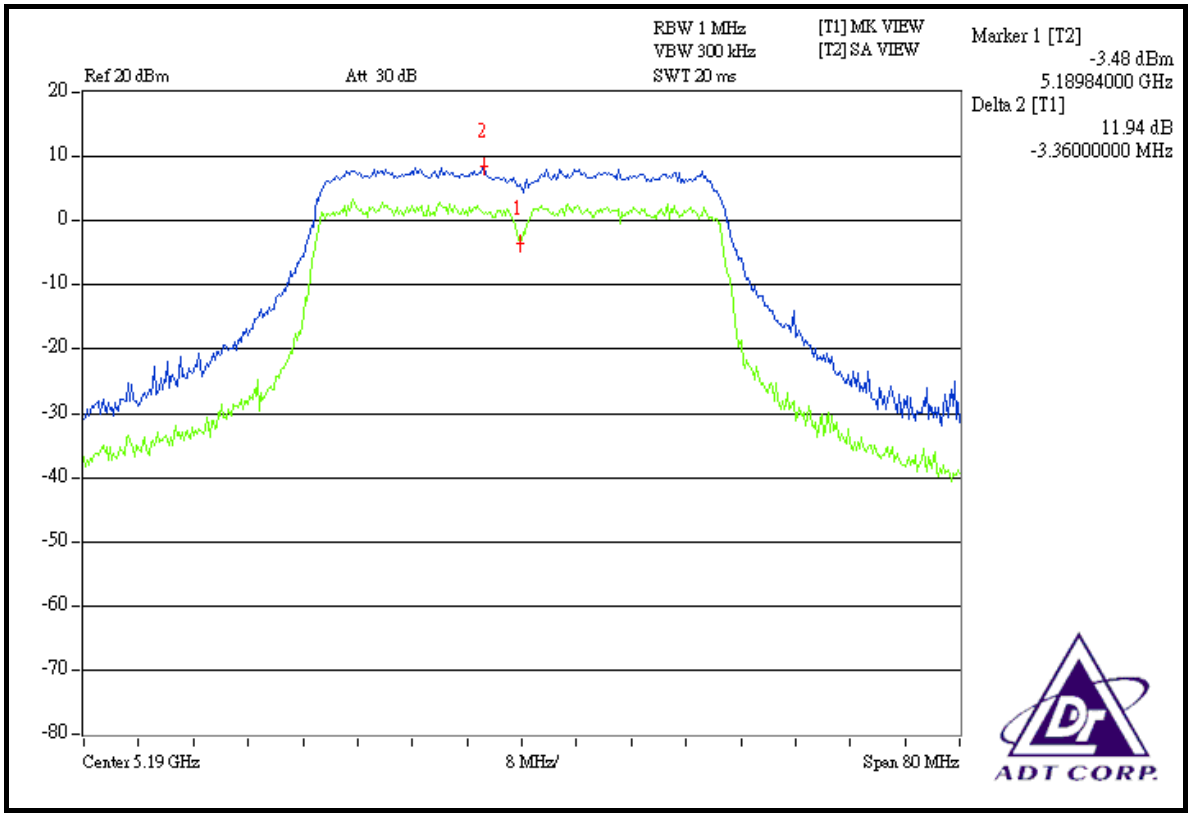
FOR CHAIN 1: CH 1



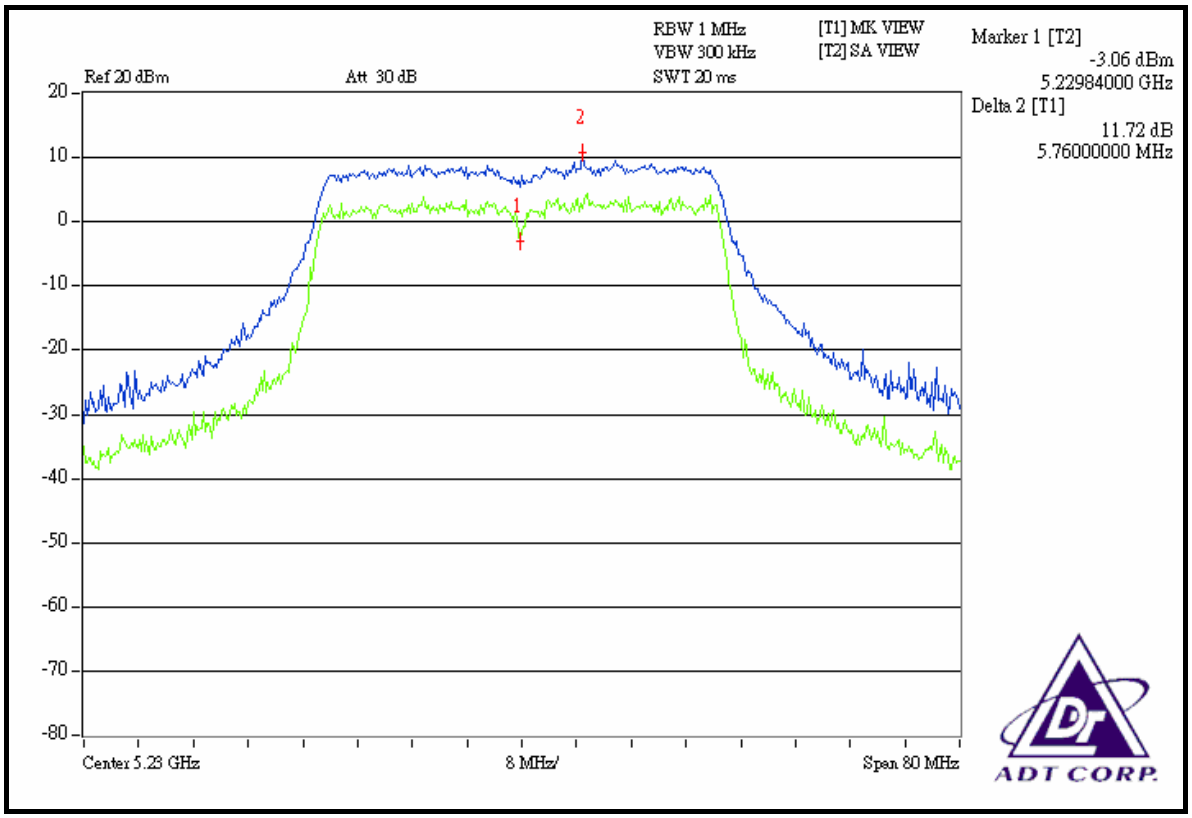
CH 2



FOR CHAIN 2: CH 1



CH 2


RBW 1 MHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Marker 1 [T2]
-3.06 dBm
5.22984000 GHz
Delta 2 [T1]
11.72 dB
5.76000000 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 07, 2007

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

4.5.3 TEST PROCEDURES

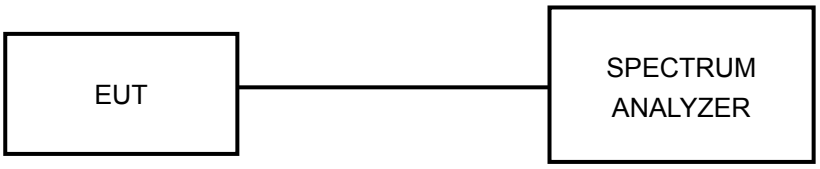
a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6

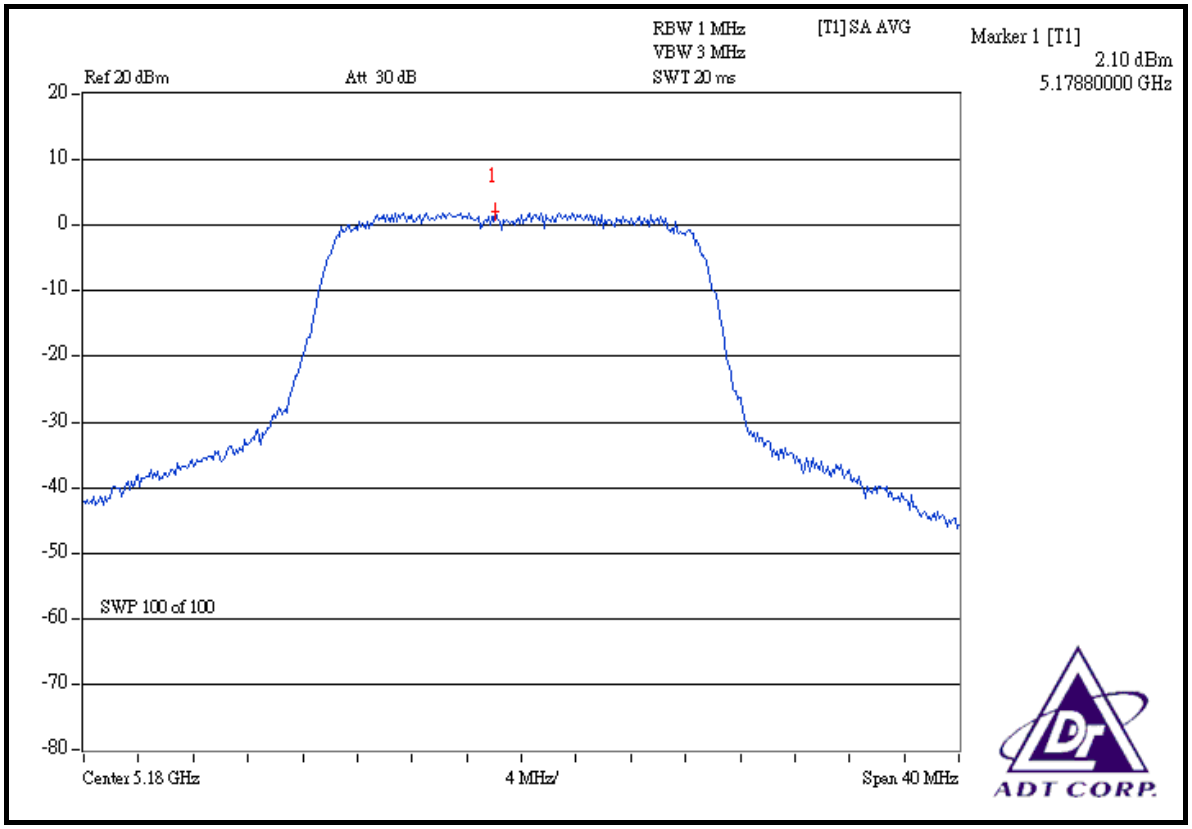
4.5.7 TEST RESULTS

802.11a OFDM MODULATION:

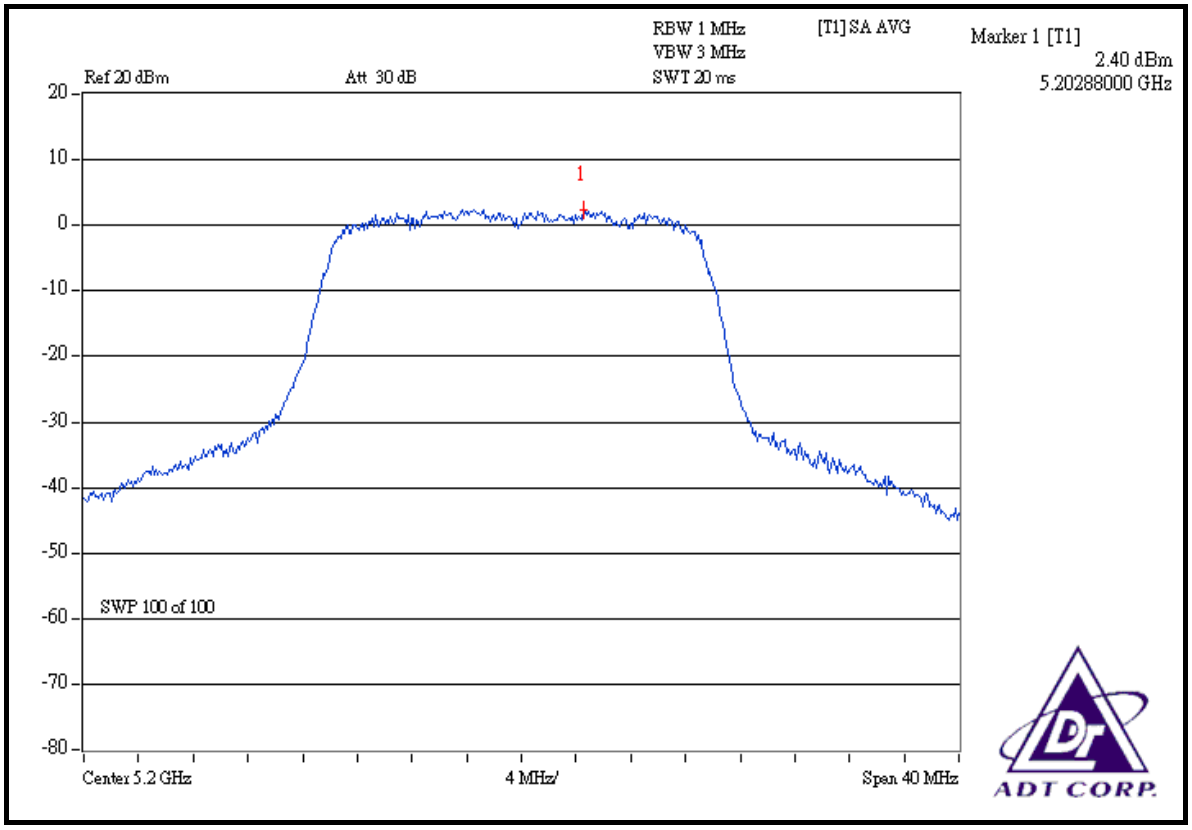
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	5180	2.10	4	PASS
2	5200	2.40	4	PASS
4	5240	2.24	4	PASS

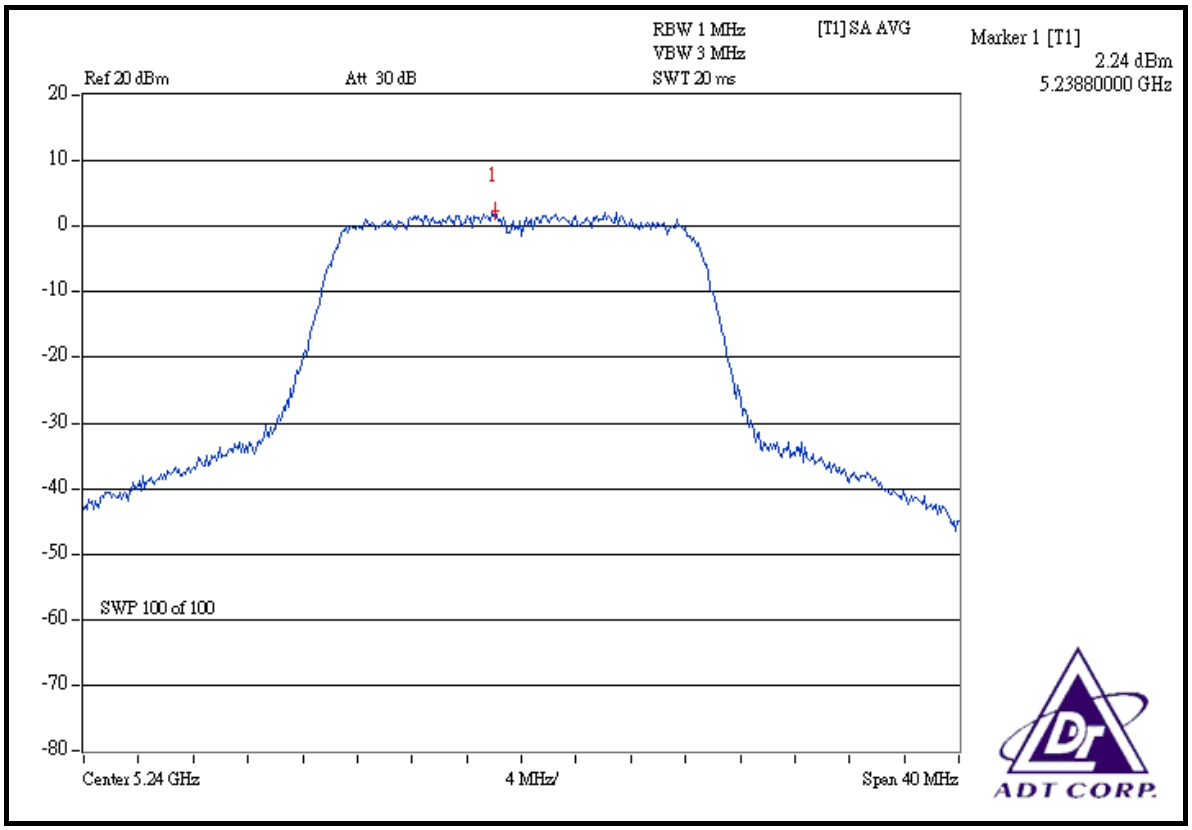
CH 1



CH 2


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
2.40 dBm
5.20288000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

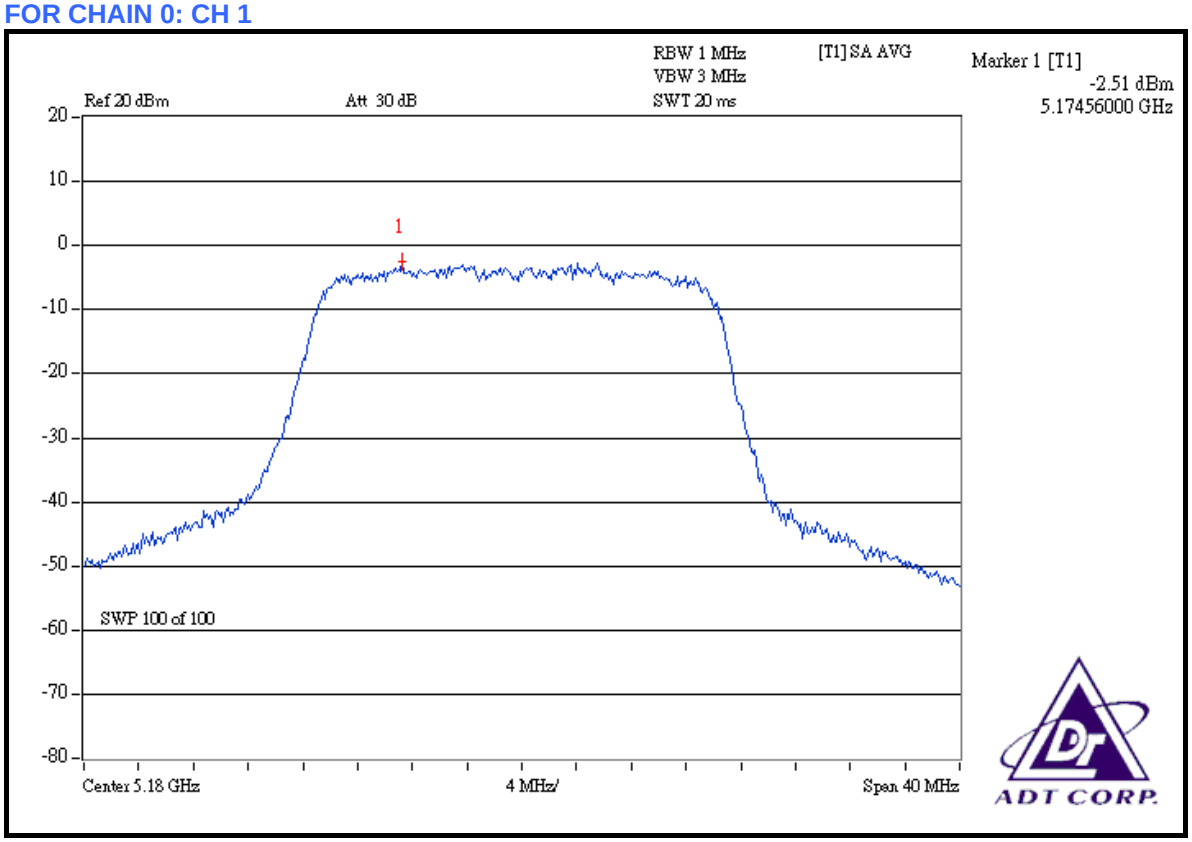

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
2.24 dBm
5.23880000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

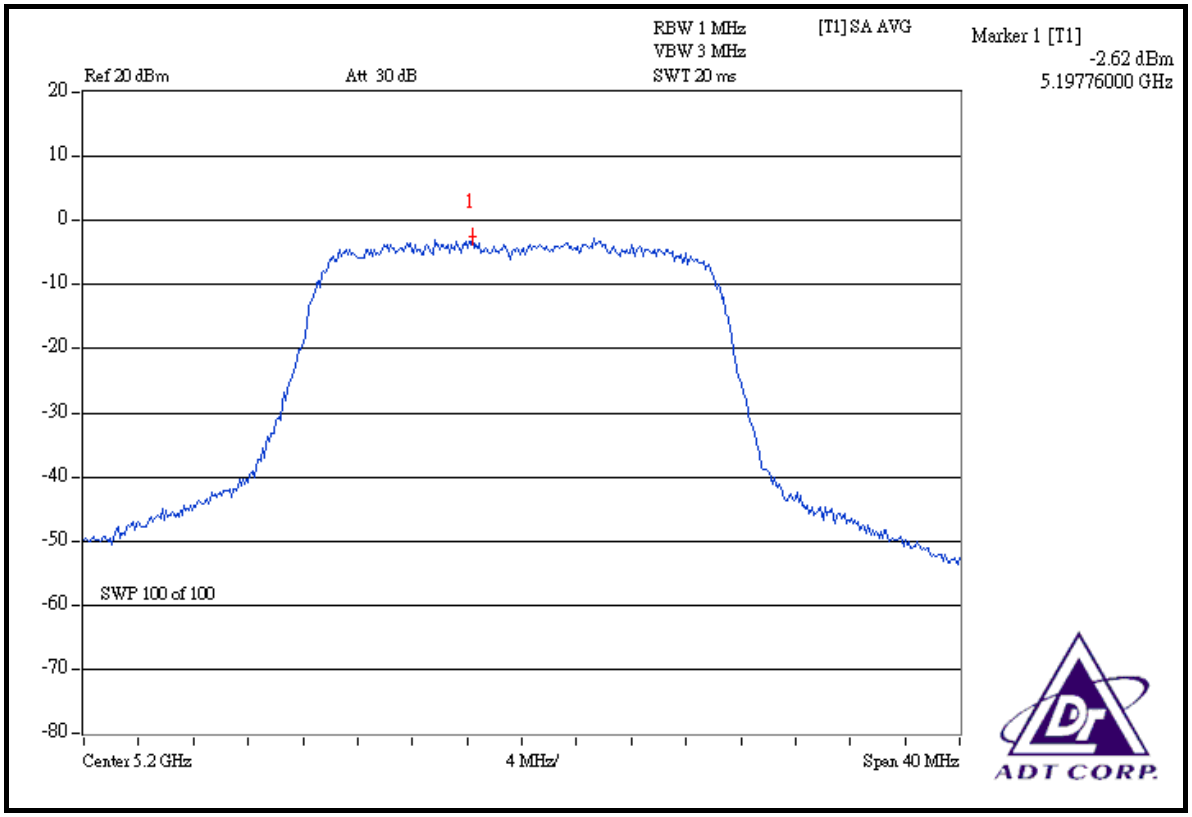
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	5180	0.561	0.566	0.676	-2.51	-2.47	-1.70	1.803	2.56	4	PASS
2	5200	0.547	0.538	0.753	-2.62	-2.69	-1.23	1.838	2.64	4	PASS
4	5240	0.547	0.600	0.731	-2.62	-2.22	-1.36	1.878	2.74	4	PASS

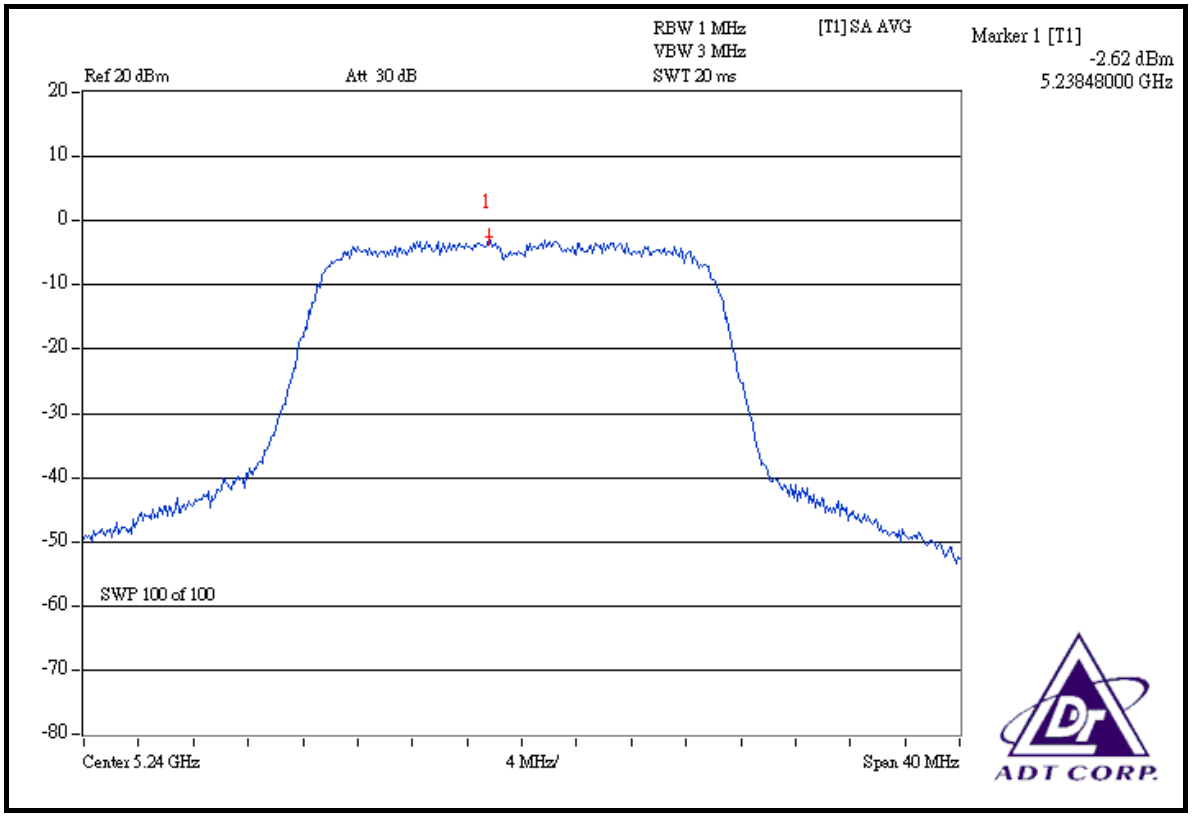
FOR CHAIN 0: CH 1



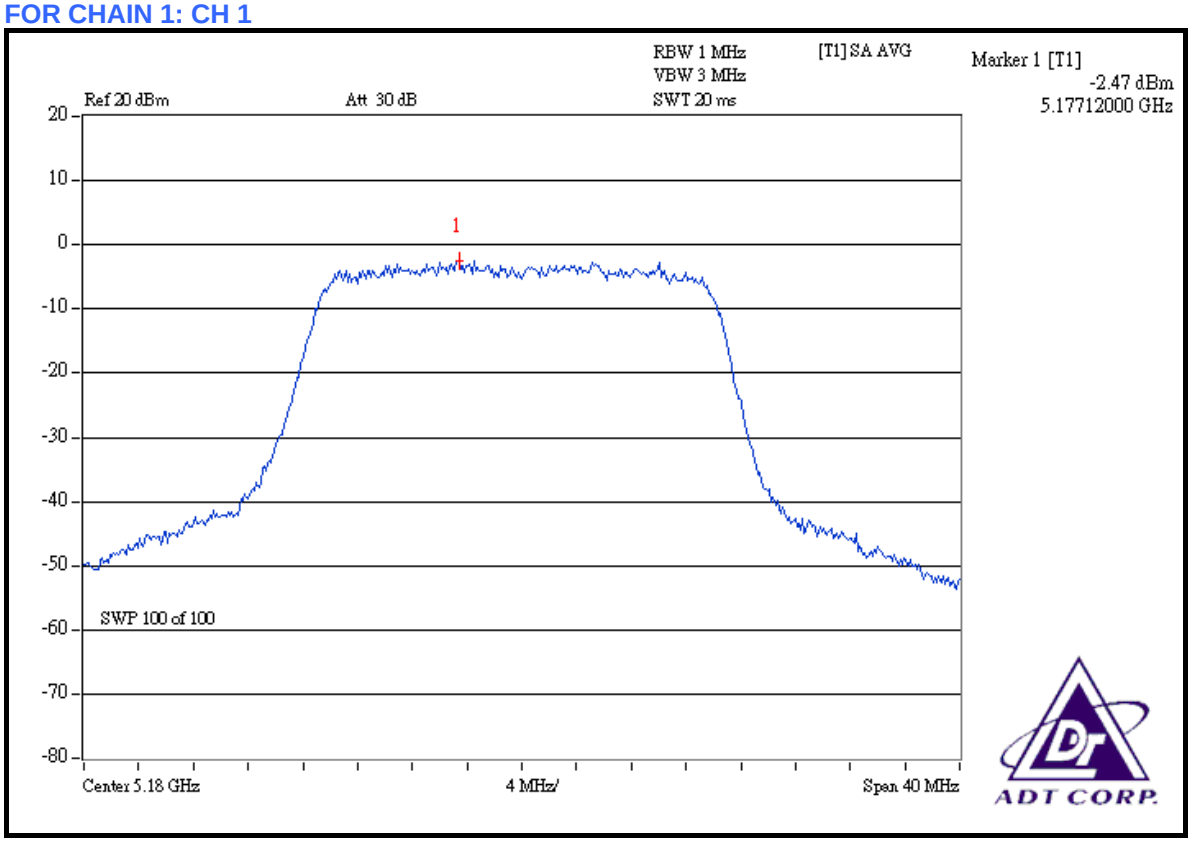
CH 2


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-2.62 dBm
5.19776000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

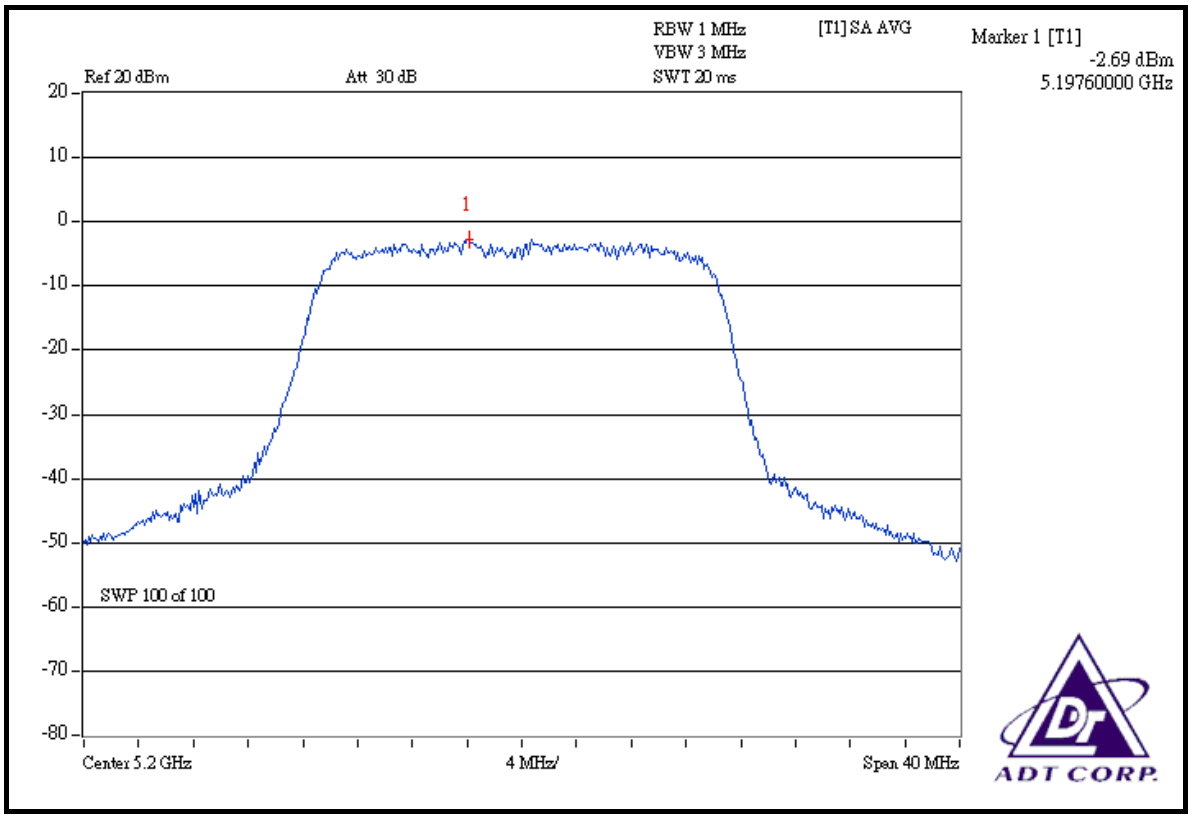
CH 4


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-2.62 dBm
5.23848000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

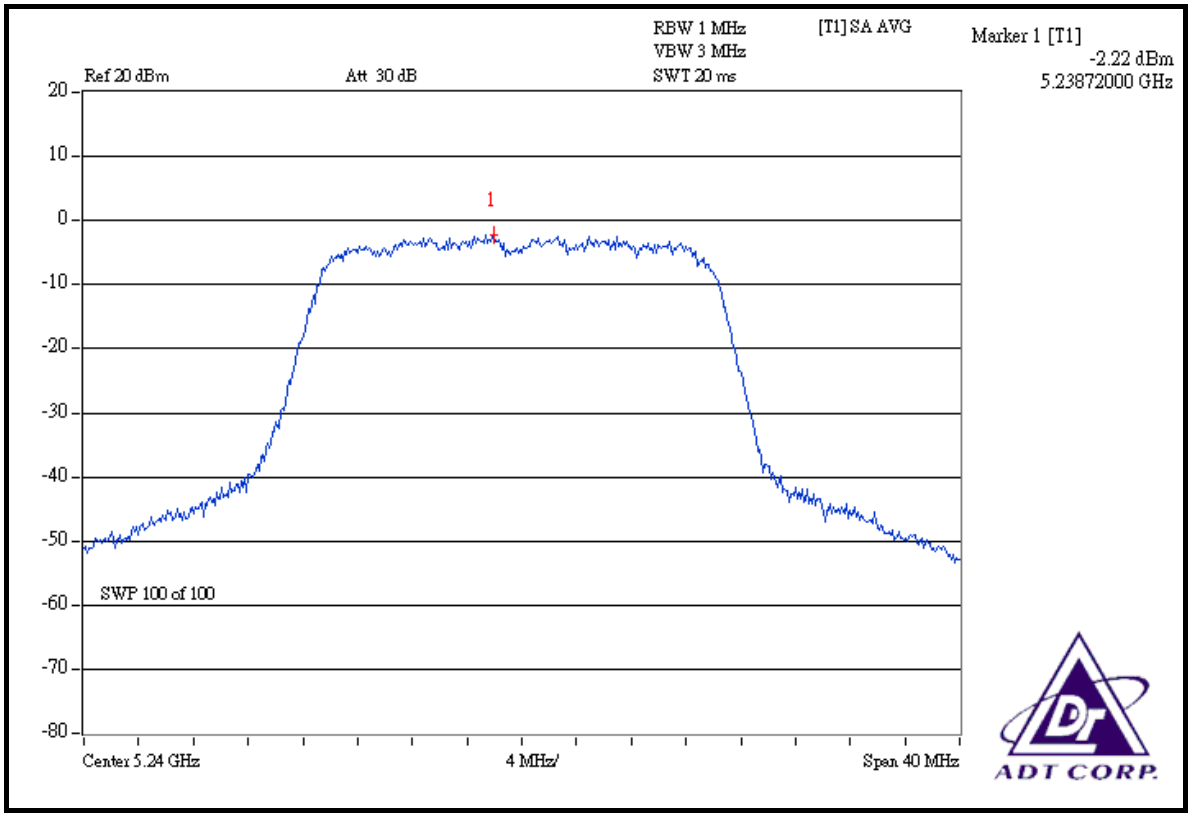
FOR CHAIN 1: CH 1



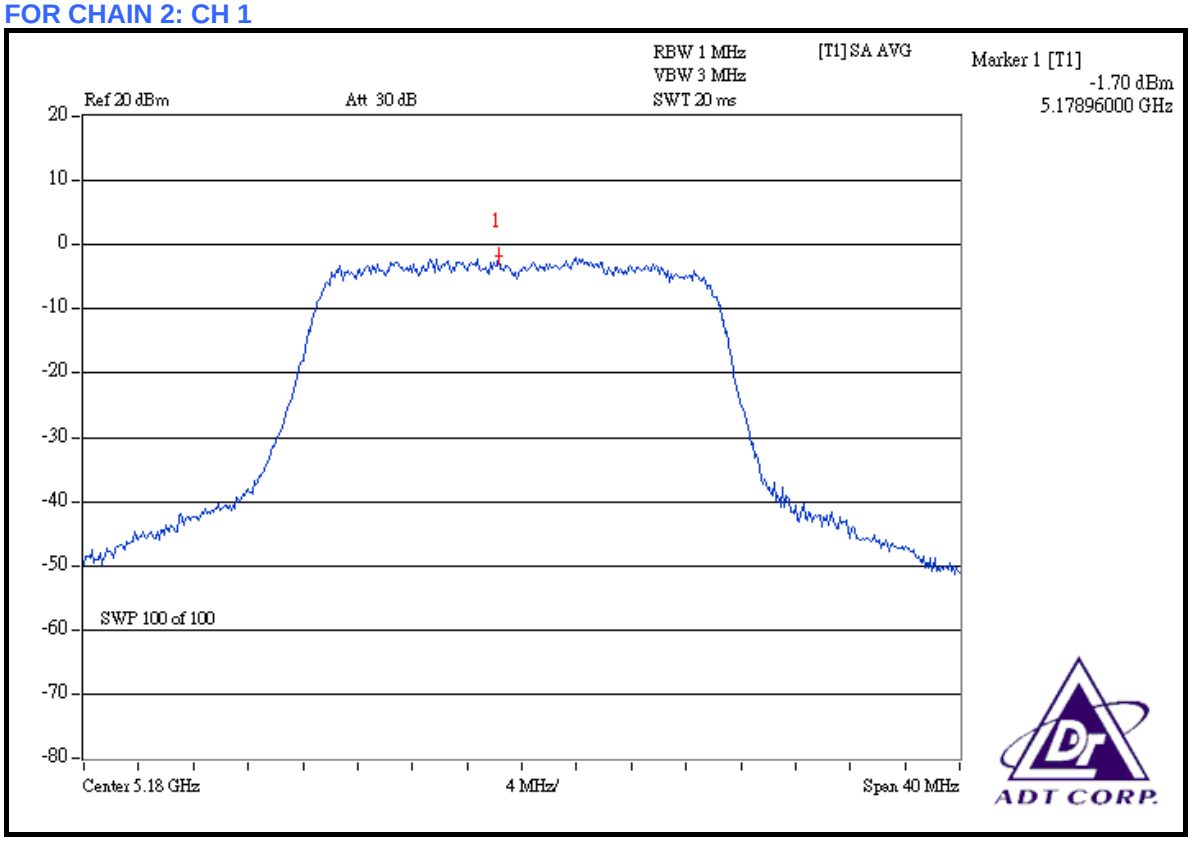
CH 2



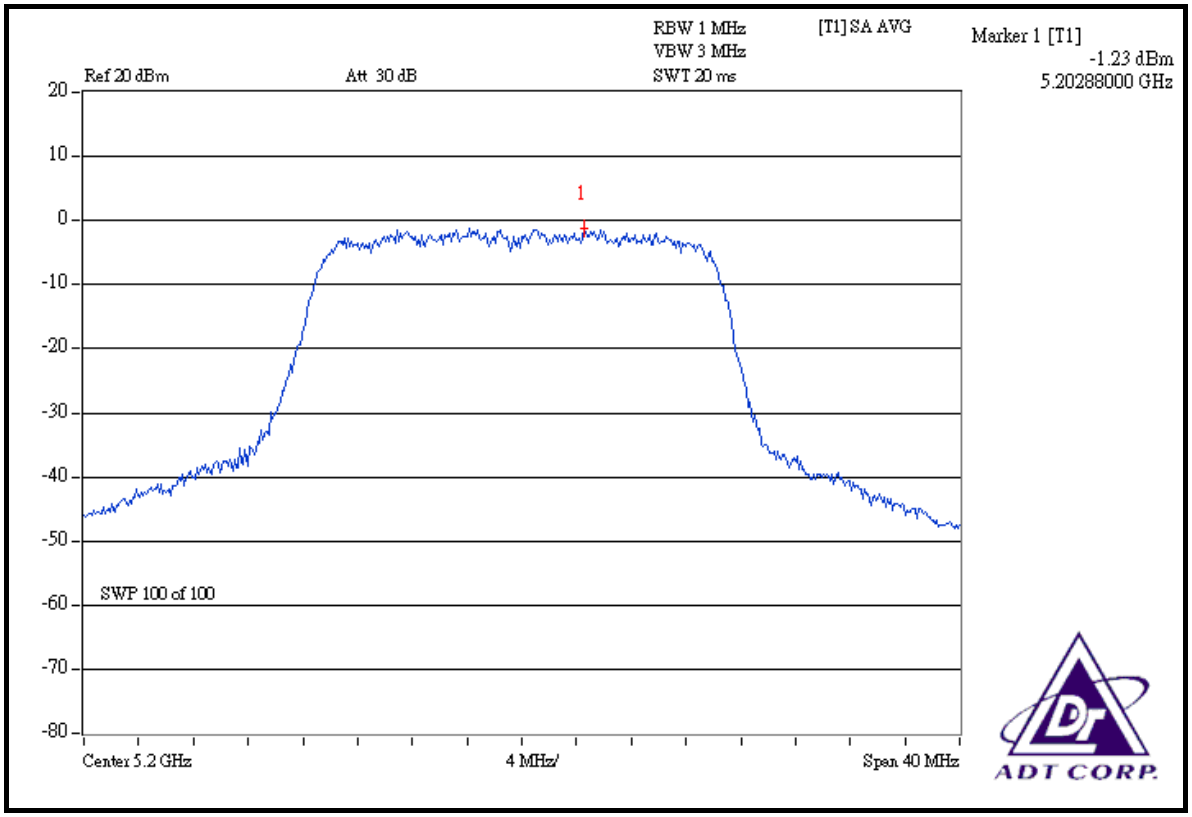
CH 4



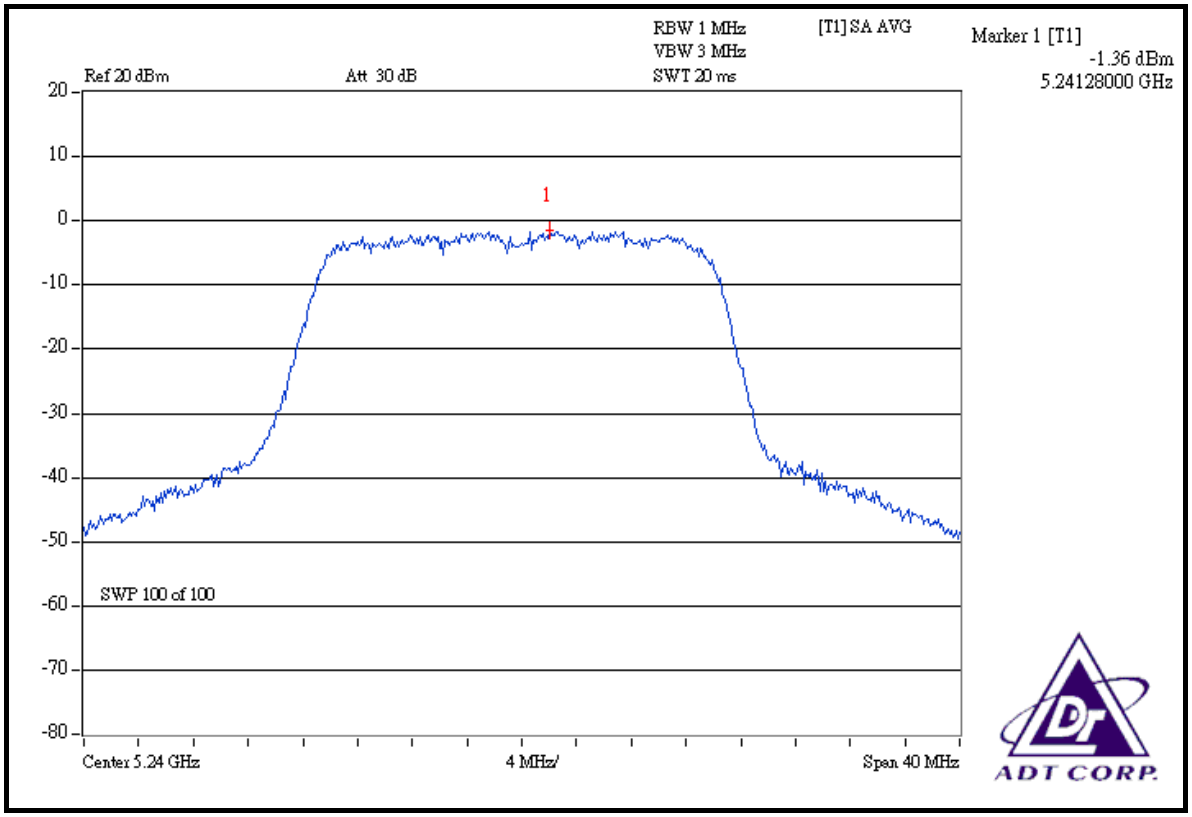
FOR CHAIN 2: CH 1



CH 2


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-1.23 dBm
5.20288000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 4

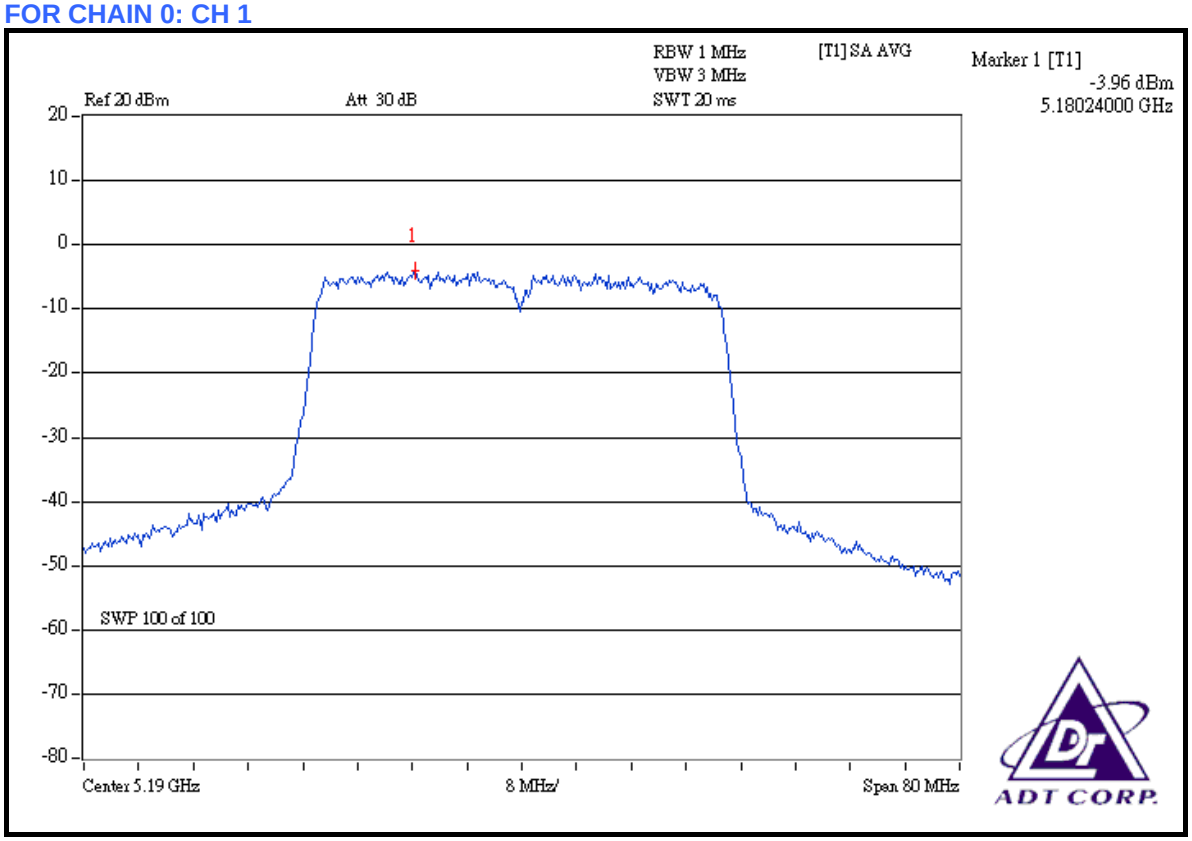

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-1.36 dBm
5.24128000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

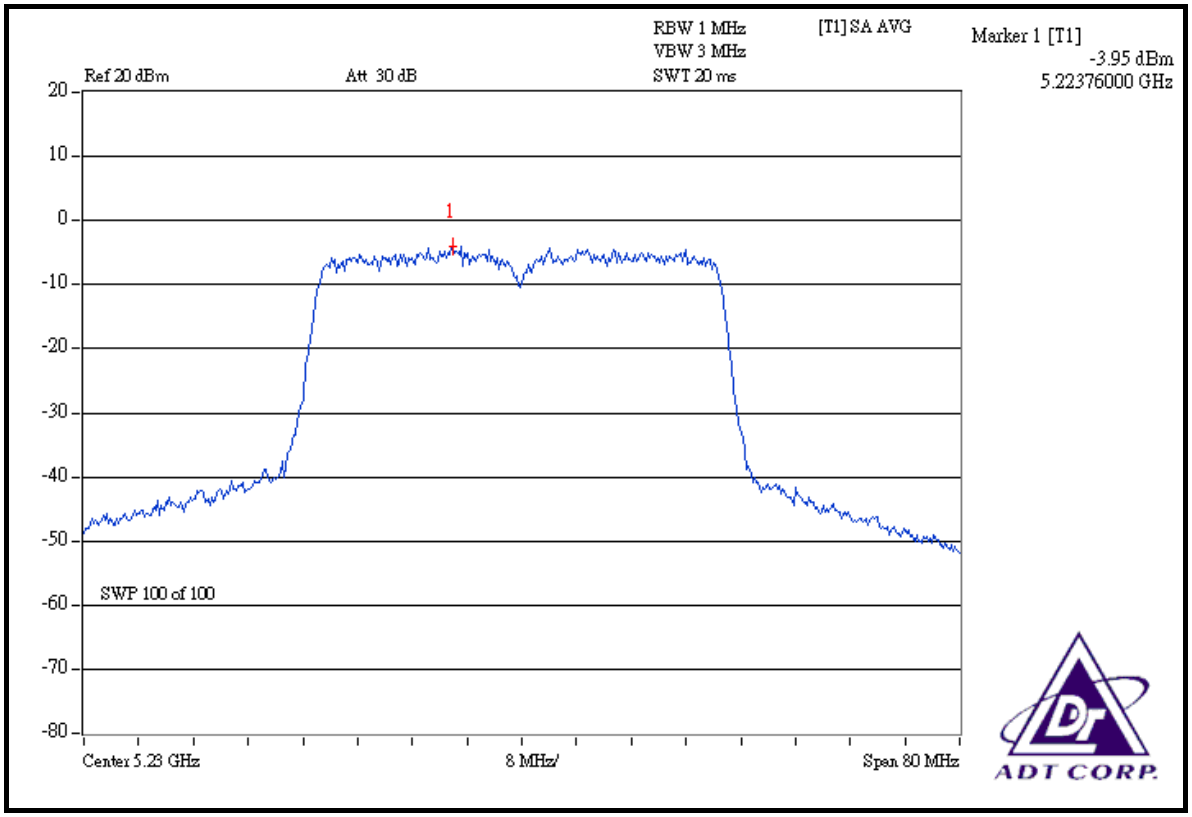
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Long Chen		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	5190	0.402	0.443	0.473	-3.96	-3.54	-3.25	1.318	1.20	4	PASS
2	5230	0.403	0.451	0.451	-3.95	-3.46	-3.46	1.305	1.15	4	PASS

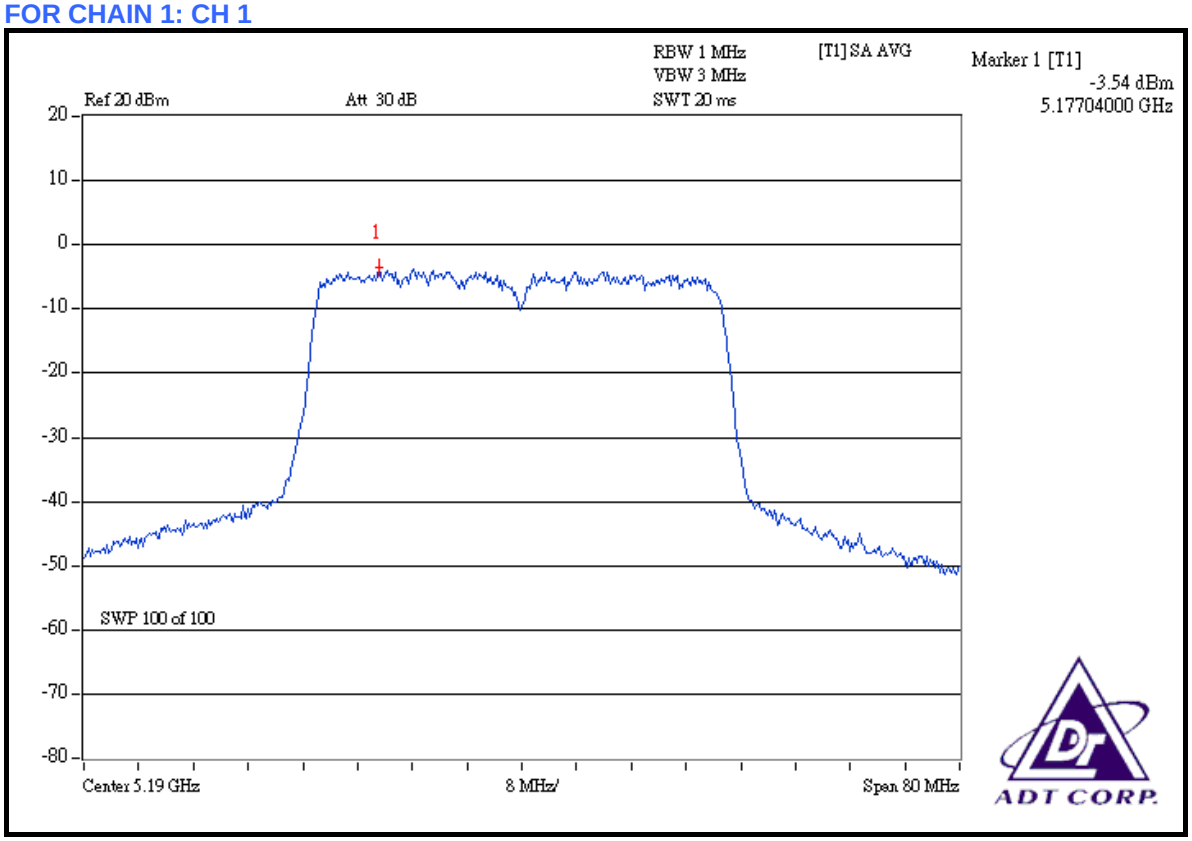
FOR CHAIN 0: CH 1



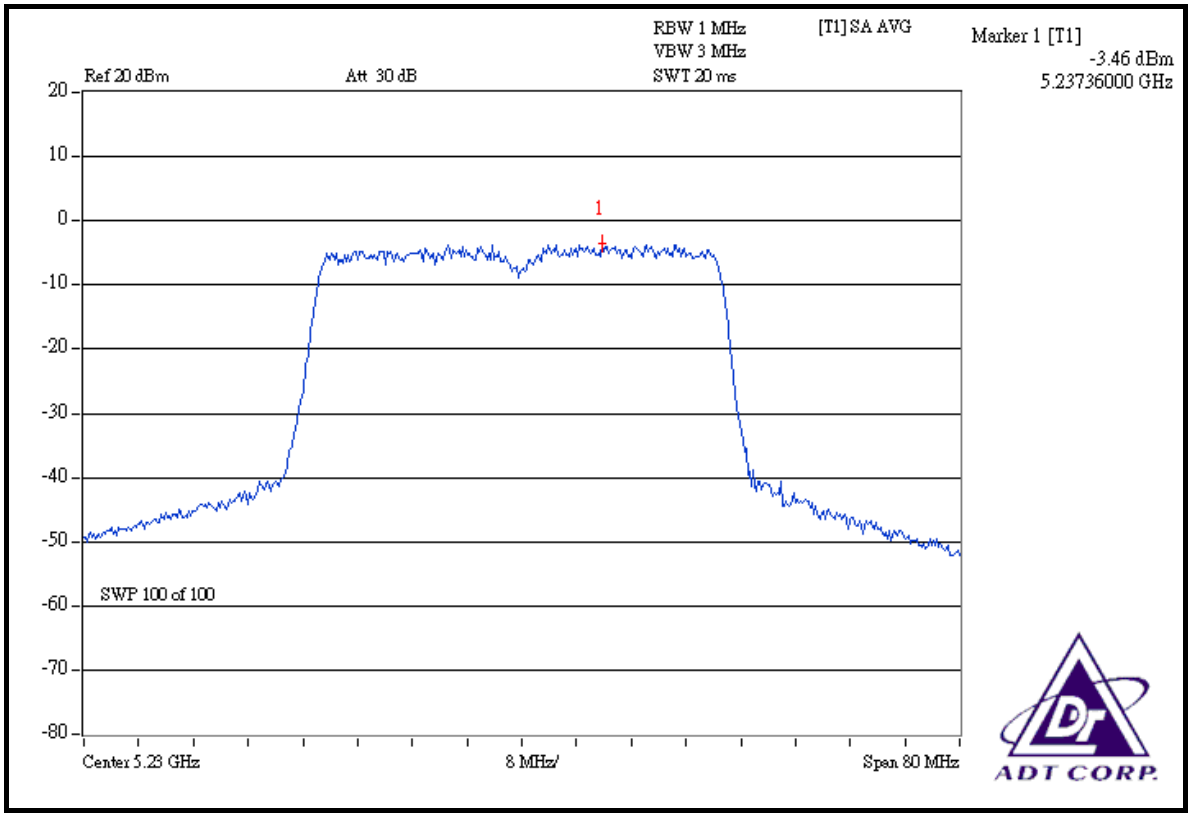
CH 2



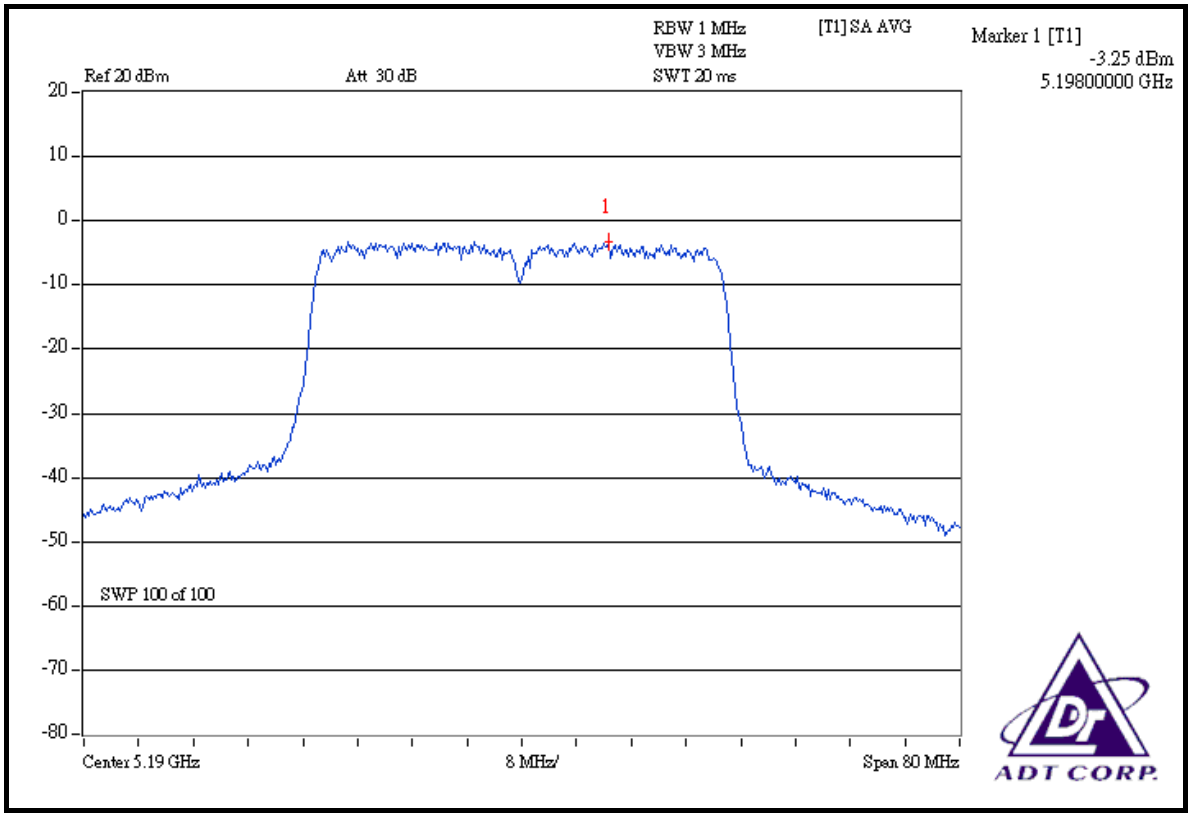
FOR CHAIN 1: CH 1



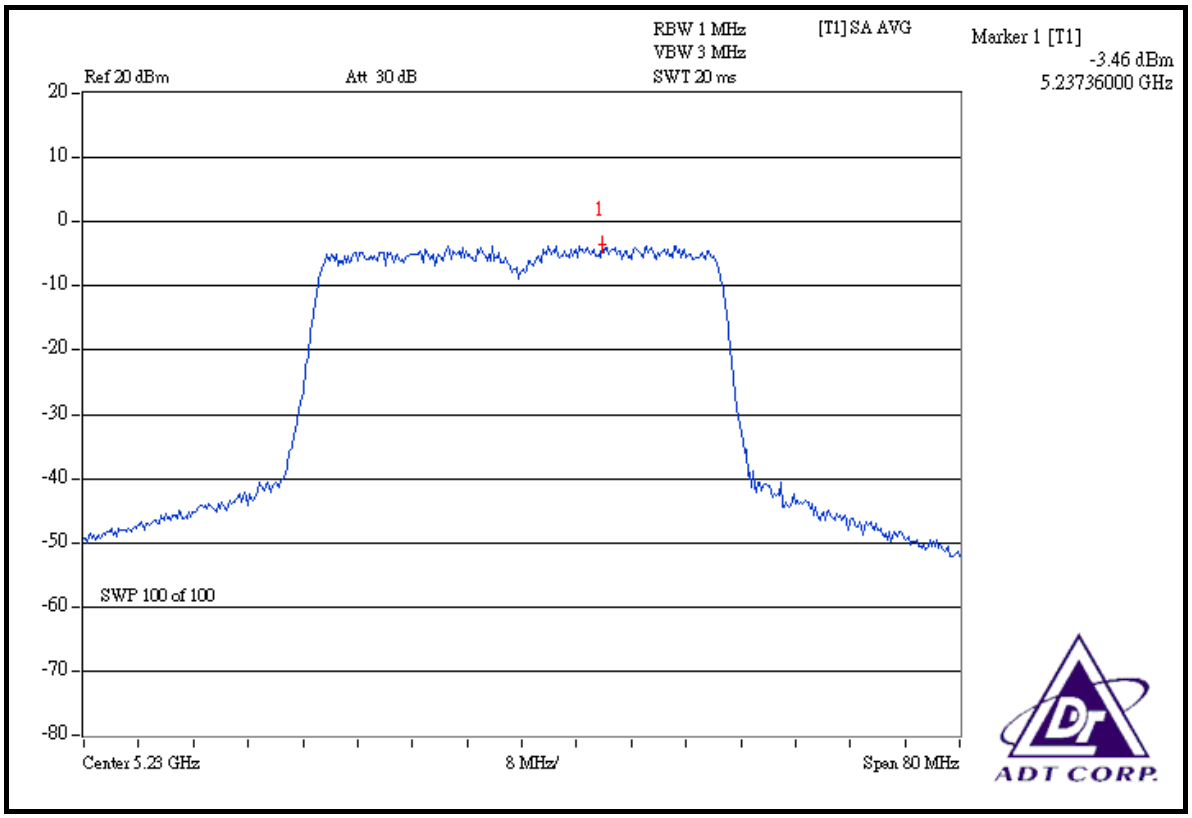
CH 2



FOR CHAIN 2: CH 1



CH 2


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-3.46 dBm
5.23736000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Mar. 07, 2008
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jul. 10, 2007

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

4.6.3 TEST PROCEDURE

a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

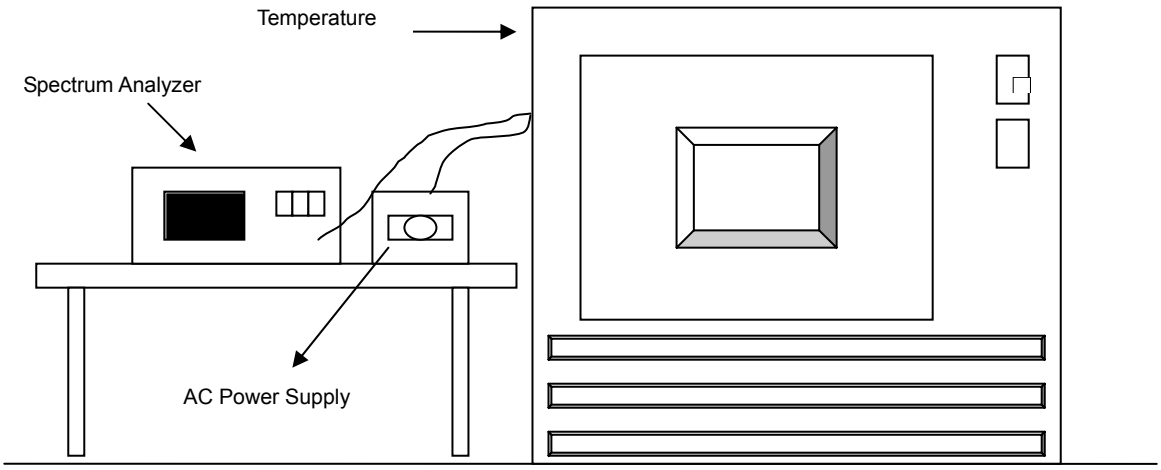
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6

4.6.7 TEST RESULTS

OPERATING FREQUENCY: 5200MHz						LIMIT: ± 0.01%			
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5199.9121	-0.0016904	5199.9234	-0.0014731	5199.9477	-0.0010058	5199.9485	-0.0009904
	110.0	5199.9283	-0.0013788	5199.9354	-0.0012423	5199.9511	-0.0009404	5199.9524	-0.0009154
	93.5	5199.9310	-0.0013269	5199.9358	-0.0012346	5199.9563	-0.0008404	5199.9596	-0.0007769
40	126.5	5199.9234	-0.0014731	5199.9324	-0.0013000	5199.9521	-0.0009212	5199.9534	-0.0008962
	110.0	5199.9296	-0.0013538	5199.9412	-0.0011308	5199.9569	-0.0008288	5199.9575	-0.0008173
	93.5	5199.9412	-0.0011308	5199.9491	-0.0009788	5199.9598	-0.0007731	5199.9641	-0.0006904
30	126.5	5199.9247	-0.0014481	5199.9385	-0.0011827	5199.9578	-0.0008115	5199.9596	-0.0007769
	110.0	5199.9305	-0.0013365	5199.9541	-0.0008827	5199.9654	-0.0006654	5199.9596	-0.0007769
	93.5	5199.9486	-0.0009885	5199.9625	-0.0007212	5199.9665	-0.0006442	5199.9698	-0.0005808
20	126.5	5199.9317	-0.0013135	5199.9424	-0.0011077	5199.9611	-0.0007481	5199.9647	-0.0006788
	110.0	5199.9320	-0.0013077	5199.9598	-0.0007731	5199.9689	-0.0005981	5199.9691	-0.0005942
	93.5	5199.9563	-0.0008404	5199.9710	-0.0005577	5199.9704	-0.0005692	5199.9725	-0.0005288
10	126.5	5199.9389	-0.0011750	5199.9532	-0.0009000	5199.9685	-0.0006058	5199.9711	-0.0005558
	110.0	5199.9475	-0.0010096	5199.9641	-0.0006904	5199.9708	-0.0005615	5199.9725	-0.0005288
	93.5	5199.9624	-0.0007231	5199.9758	-0.0004654	5199.9785	-0.0004135	5199.9825	-0.0003365
0	126.5	5199.9426	-0.0011038	5199.9602	-0.0007654	5199.9721	-0.0005365	5199.9765	-0.0004519
	110.0	5199.9541	-0.0008827	5199.9696	-0.0005846	5199.9789	-0.0004058	5199.9796	-0.0003923
	93.5	5199.9687	-0.0006019	5199.9789	-0.0004058	5199.9809	-0.0003673	5199.9852	-0.0002846
-10	126.5	5199.9547	-0.0008712	5199.9657	-0.0006596	5199.9789	-0.0004058	5199.9814	-0.0003577
	110.0	5199.9612	-0.0007462	5199.9757	-0.0004673	5199.9821	-0.0003442	5199.9863	-0.0002635
	93.5	5199.9758	-0.0004654	5199.9821	-0.0003442	5199.9858	-0.0002731	5199.9896	-0.0002000
-20	126.5	5199.9596	-0.0007769	5199.9721	-0.0005365	5199.9824	-0.0003385	5199.9865	-0.0002596
	110.0	5199.9650	-0.0006731	5199.9801	-0.0003827	5199.9886	-0.0002192	5199.9895	-0.0002019
	93.5	5199.9798	-0.0003885	5199.9895	-0.0002019	5199.9898	-0.0001962	5199.9905	-0.0001827
-30	126.5	5199.9649	-0.0006750	5199.9789	-0.0004058	5199.9887	-0.0002173	5199.9889	-0.0002135
	110.0	5199.9793	-0.0003981	5199.9852	-0.0002846	5199.9911	-0.0001712	5199.9935	-0.0001250
	93.5	5199.9824	-0.0003385	5199.9947	-0.0001019	5199.9952	-0.0000923	5199.9967	-0.0000635

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
802.11a:			
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 07, 2007
DRAFT 802.11n (20MHz), DRAFT 802.11n (40MHz):			
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 07, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 26, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01911	Sep. 13, 2007
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 16, 2007
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA

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

4.7.2 TEST PROCEDURE

802.11a:

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

DRAFT 802.11n (20MHz), DRAFT 802.11n (40MHz):

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. Set both RBW and VBW of spectrum analyzer to 1MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

4.7.3 EUT OPERATING CONDITION

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

4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.25GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

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

802.11a OFDM MODULATION:

Channel 1 (5180MHz)

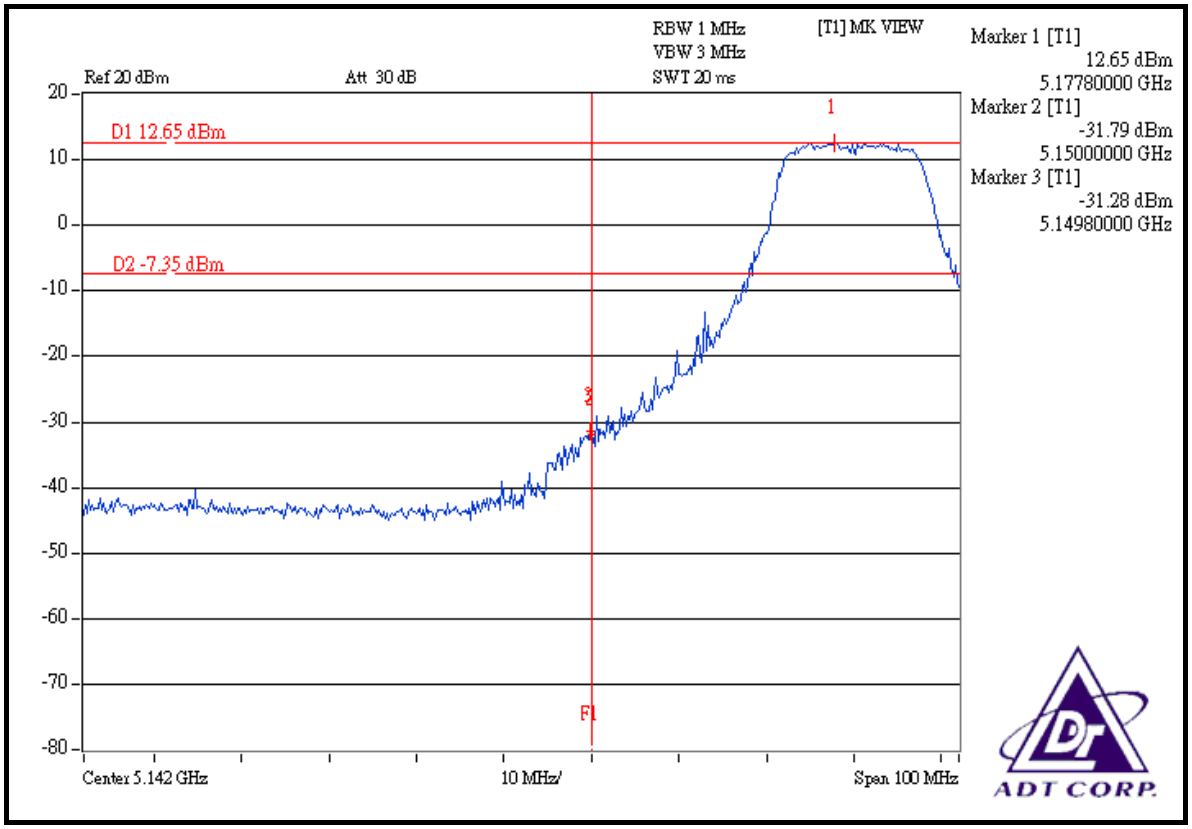
The band edge emission plot on the next page shows 43.93dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 110.81dBuV/m (Peak), so the maximum field strength in restrict band is 110.81 - 43.93 = 66.88dBuV/m which is under 74dBuV/m limit.

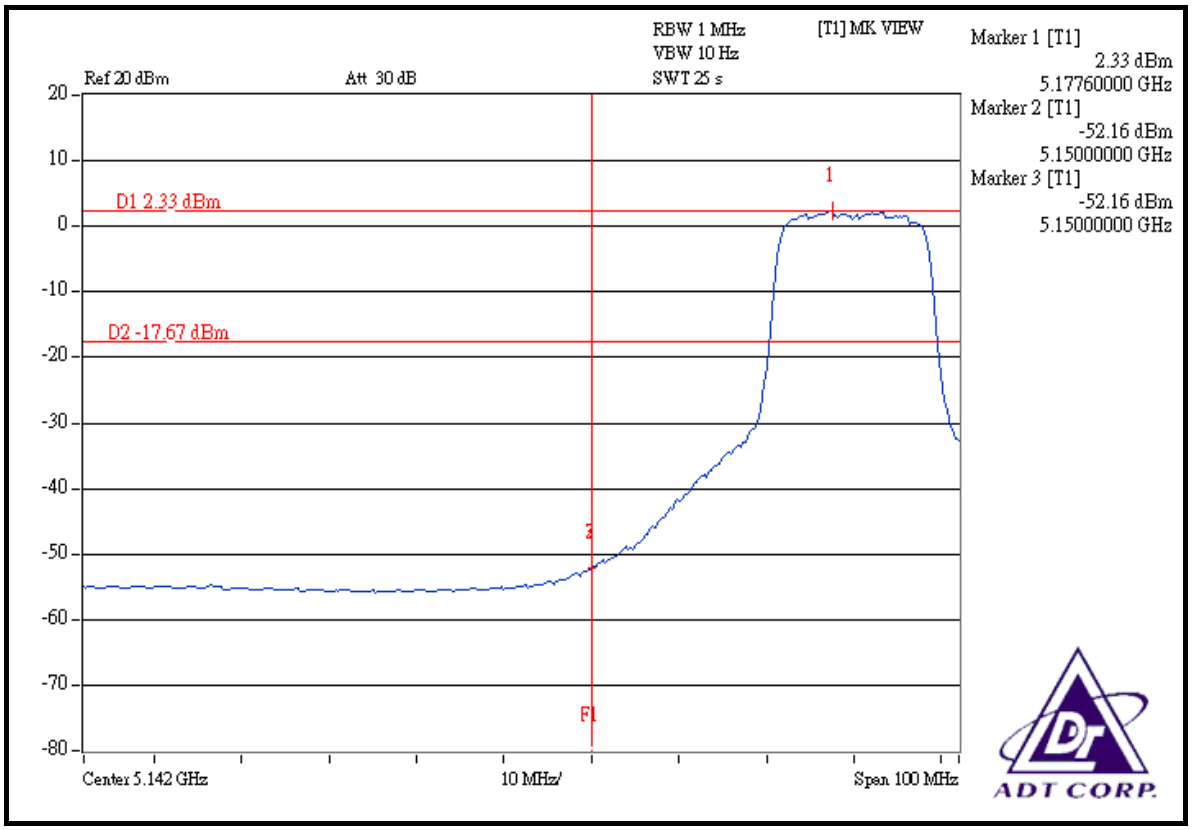
The band edge emission plot on the next page shows 54.49dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 99.82dBuV/m (Average), so the maximum field strength in restrict band is 99.82 - 54.49 = 45.33dBuV/m which is under 54dBuV/m limit.

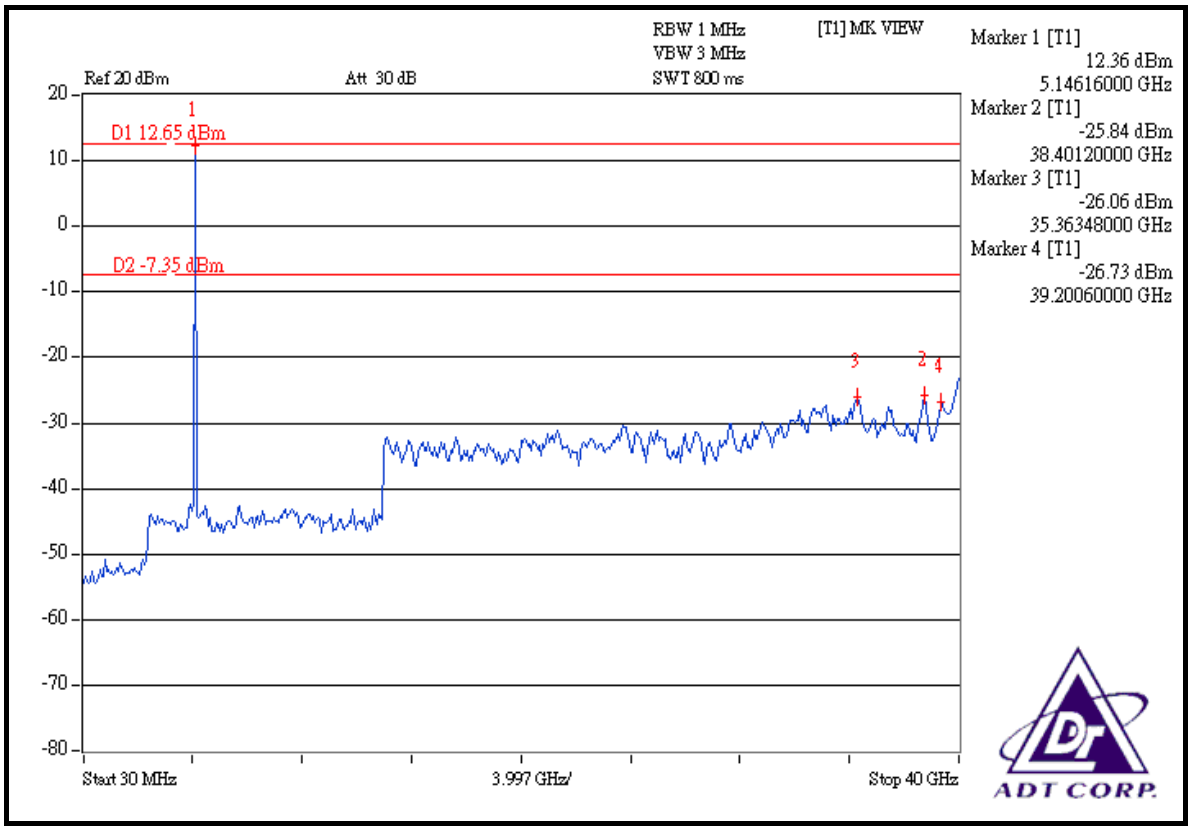
Channel 4 (5240MHz)

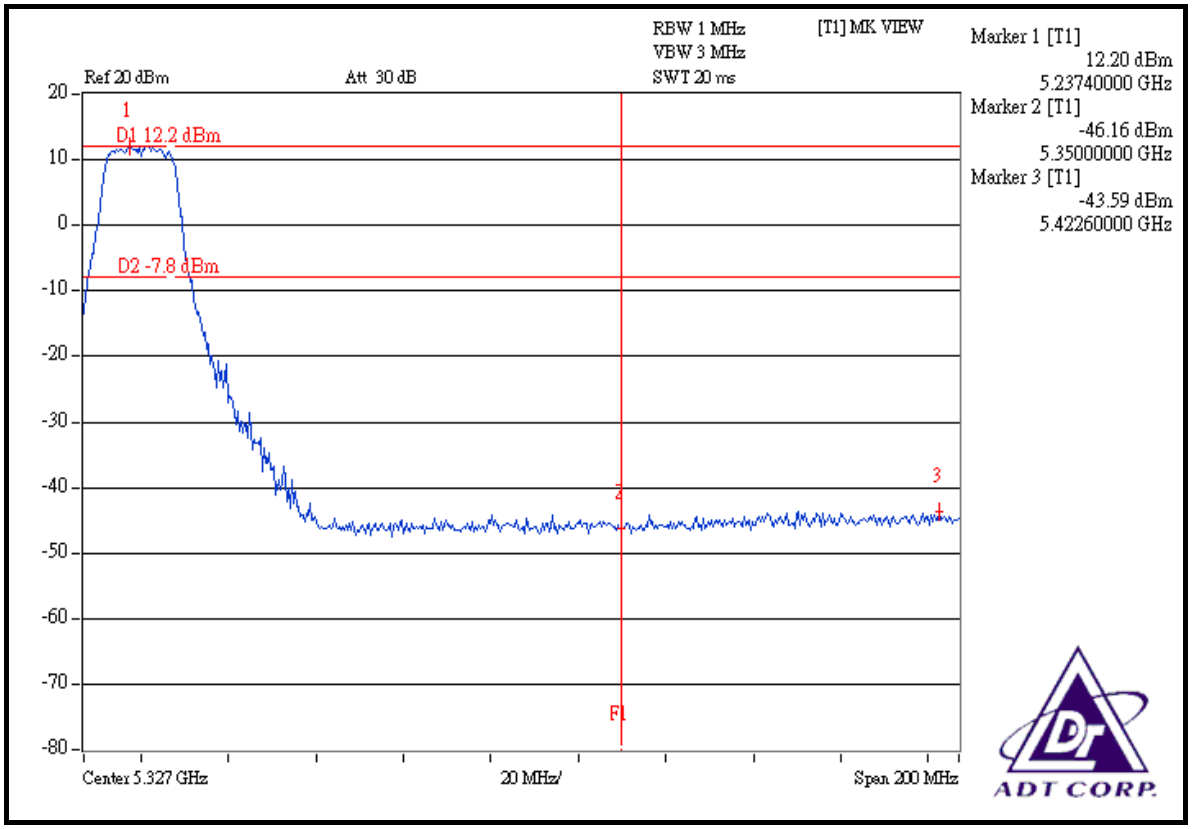
The band edge emission plot on the next page shows 55.79dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 109.11dBuV/m (Peak), so the maximum field strength in restrict band is 109.11 - 55.79 = 53.32dBuV/m which is under 74dBuV/m limit.

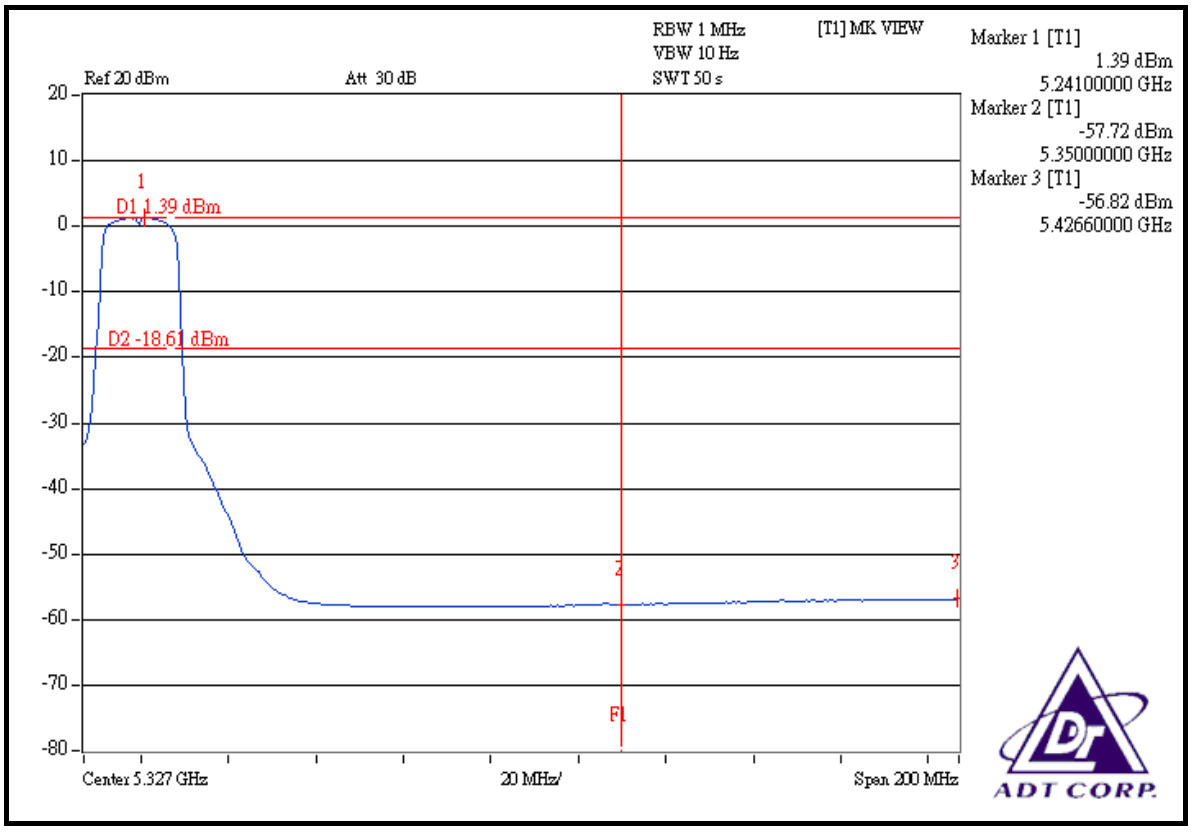
The band edge emission plot on the next page shows 58.21dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 98.42dBuV/m (Average), so the maximum field strength in restrict band is 98.42 - 58.21 = 40.21dBuV/m which is under 54dBuV/m limit.

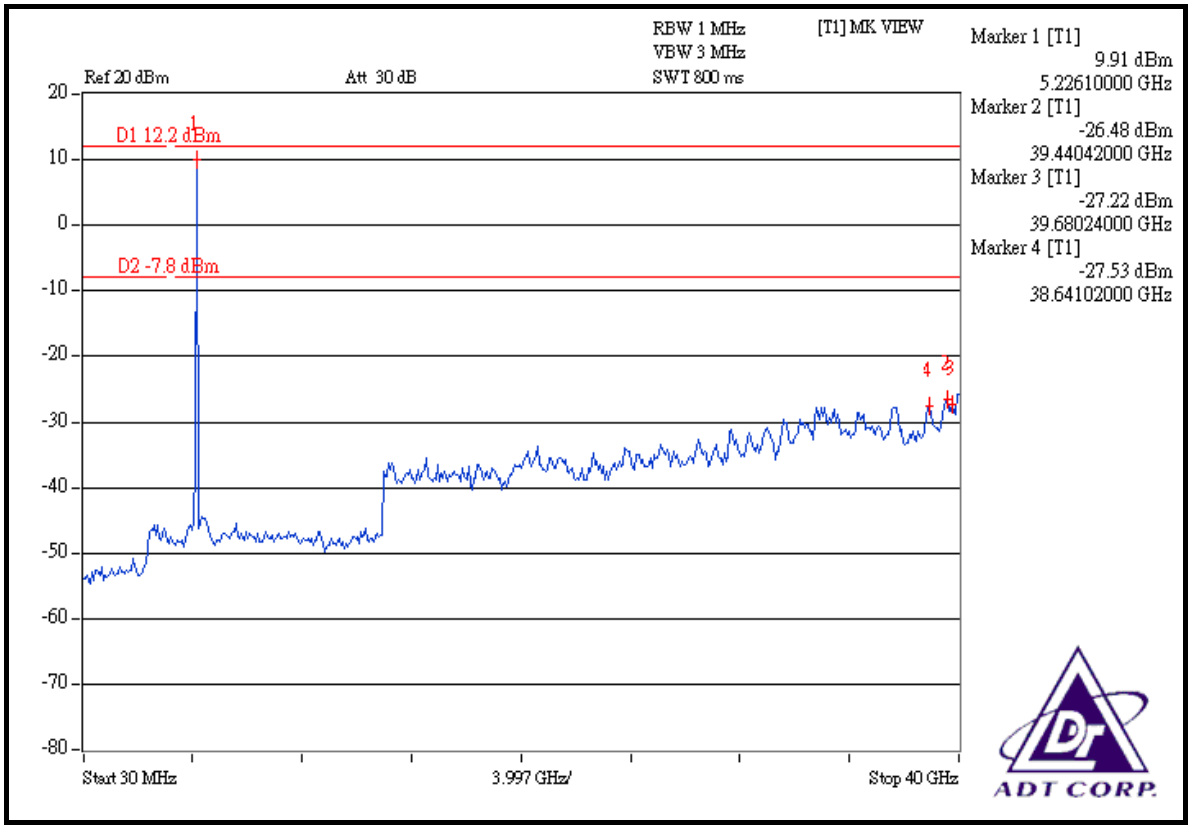

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 12.65 dBm
D2 -7.35 dBm
Marker 1 [T1]
12.65 dBm
5.17780000 GHz
Marker 2 [T1]
-31.79 dBm
5.15000000 GHz
Marker 3 [T1]
-31.28 dBm
5.14980000 GHz
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 2.33 dBm
D2 -17.67 dBm
Marker 1 [T1]
2.33 dBm
5.17760000 GHz
Marker 2 [T1]
-52.16 dBm
5.15000000 GHz
Marker 3 [T1]
-52.16 dBm
5.15000000 GHz
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 12.65 dBm
D2 -7.35 dBm
Marker 1 [T1]
12.36 dBm
5.14616000 GHz
Marker 2 [T1]
-25.84 dBm
38.40120000 GHz
Marker 3 [T1]
-26.06 dBm
35.36348000 GHz
Marker 4 [T1]
-26.73 dBm
39.20060000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 12.2 dBm
D2 -7.8 dBm
Marker 1 [T1]
12.20 dBm
5.23740000 GHz
Marker 2 [T1]
-46.16 dBm
5.35000000 GHz
Marker 3 [T1]
-43.59 dBm
5.42260000 GHz
Center 5.327 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
1.39 dBm
5.24100000 GHz
Marker 2 [T1]
-57.72 dBm
5.35000000 GHz
Marker 3 [T1]
-56.82 dBm
5.42660000 GHz
D1 1.39 dBm
D2 -18.61 dBm
Center 5.327 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
9.91 dBm
5.22610000 GHz
Marker 2 [T1]
-26.48 dBm
39.44042000 GHz
Marker 3 [T1]
-27.22 dBm
39.68024000 GHz
Marker 4 [T1]
-27.53 dBm
38.64102000 GHz
D1 12.2 dBm
D2 -7.8 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

Channel 1 (5180MHz)

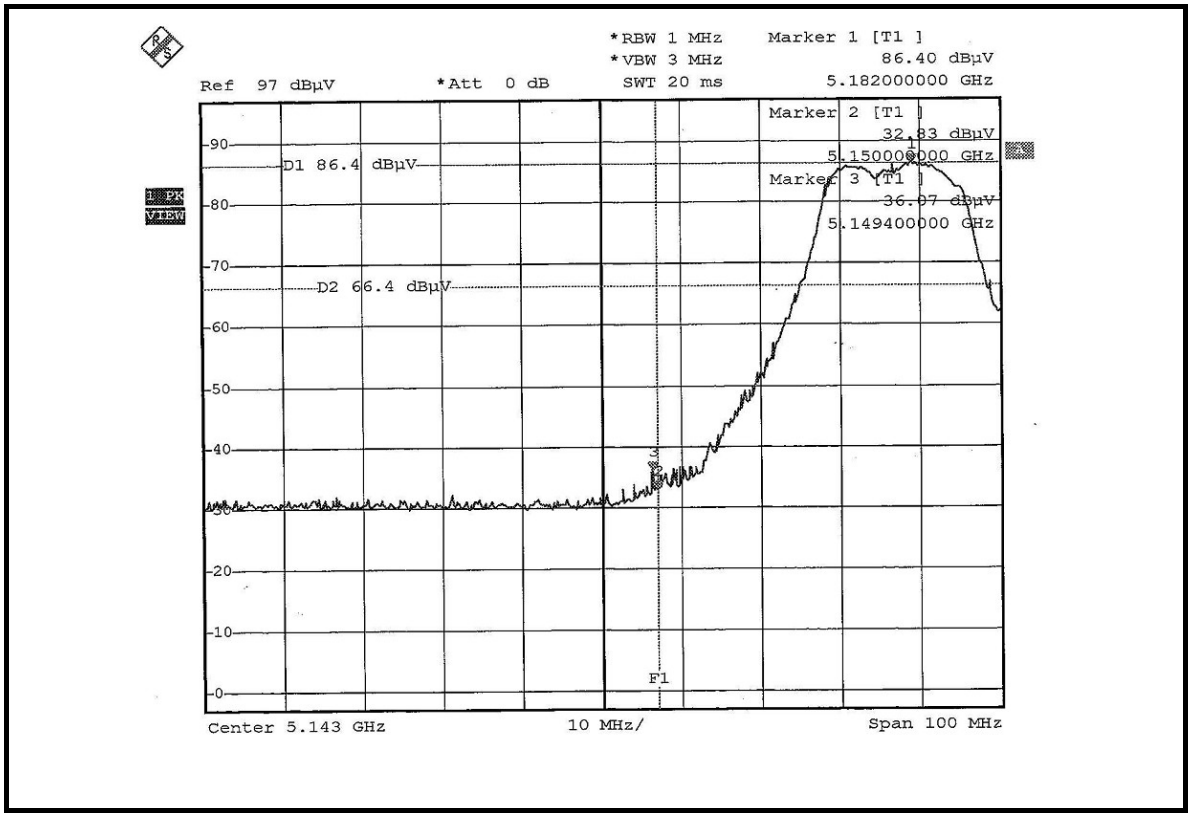
The band edge emission plot on the next page shows 50.33dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 110.26dBuV/m (Peak), so the maximum field strength in restrict band is 110.26 – 50.33 = 59.93dBuV/m which is under 74dBuV/m limit.

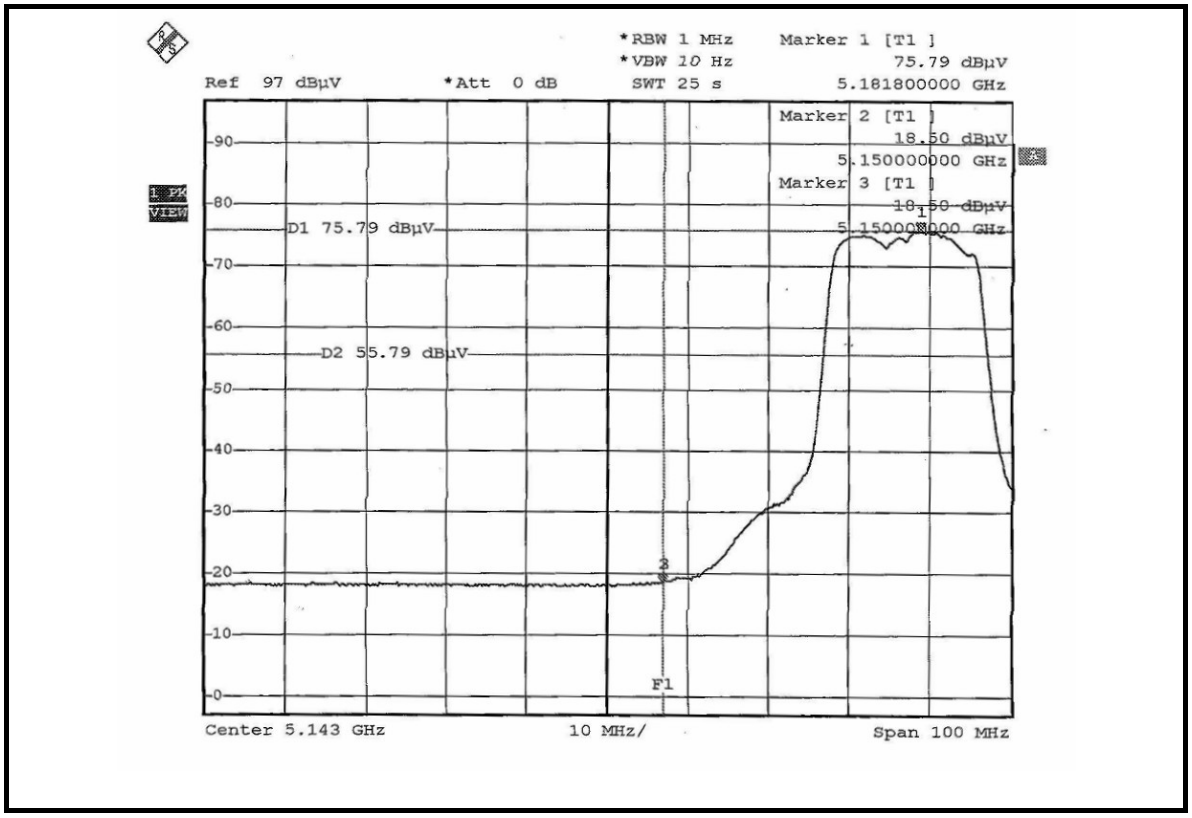
The band edge emission plot on the next page shows 57.29dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 99.31dBuV/m (Average), so the maximum field strength in restrict band is 99.31 – 57.29 = 42.02dBuV/m which is under 54dBuV/m limit.

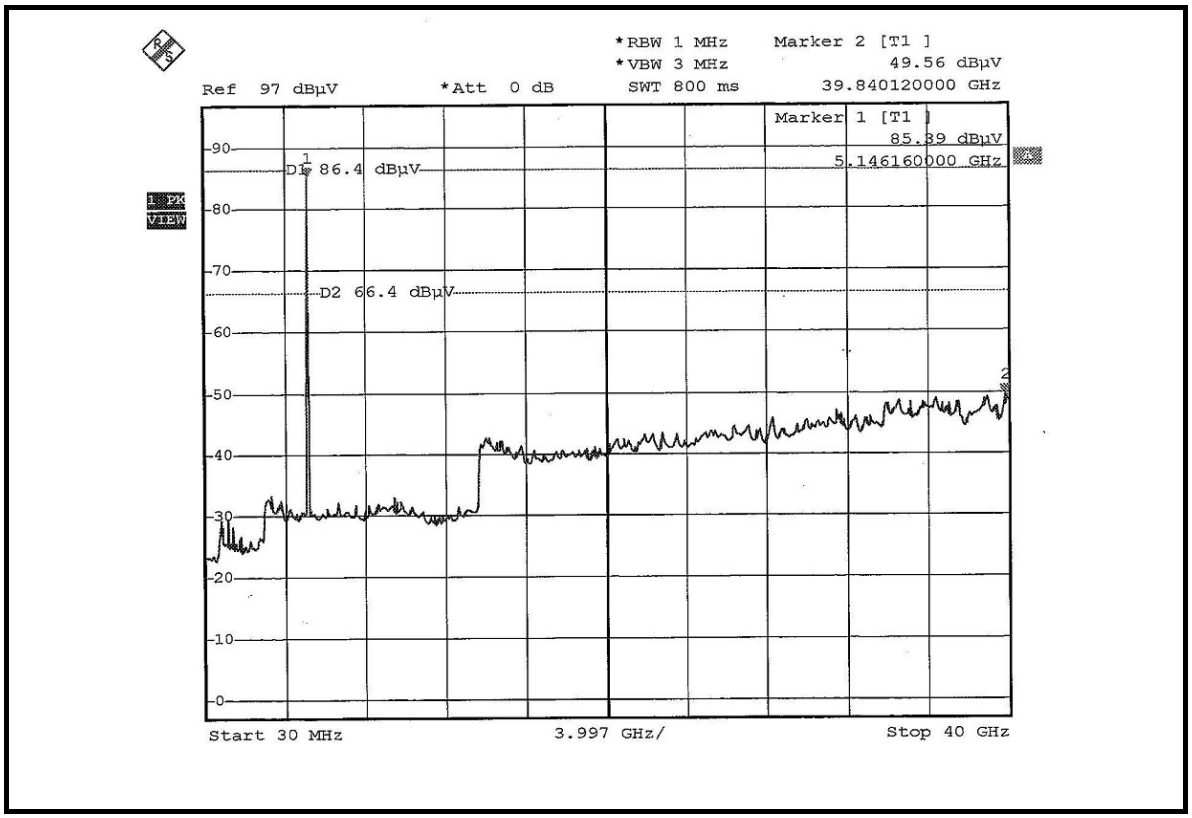
Channel 4 (5240MHz)

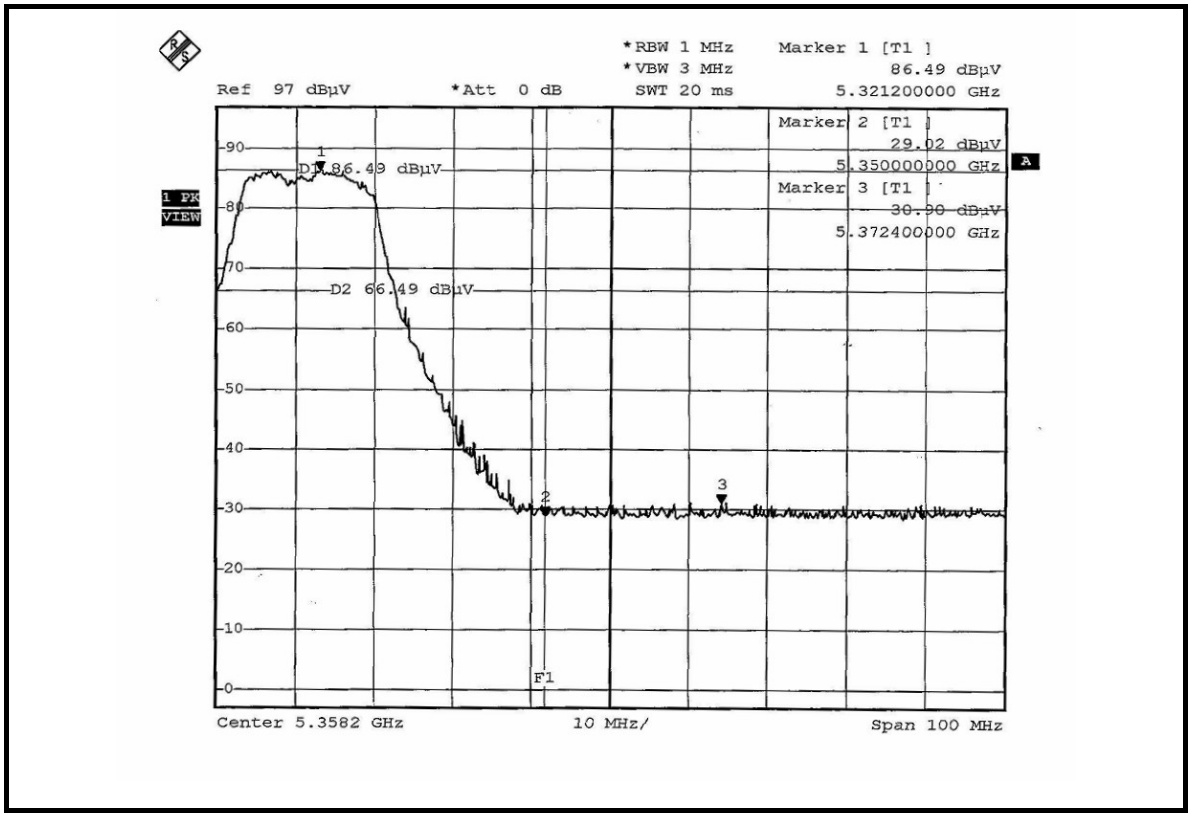
The band edge emission plot on the next page shows 55.59dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 109.01dBuV/m (Peak), so the maximum field strength in restrict band is 109.01 – 55.59 = 53.42dBuV/m which is under 74dBuV/m limit.

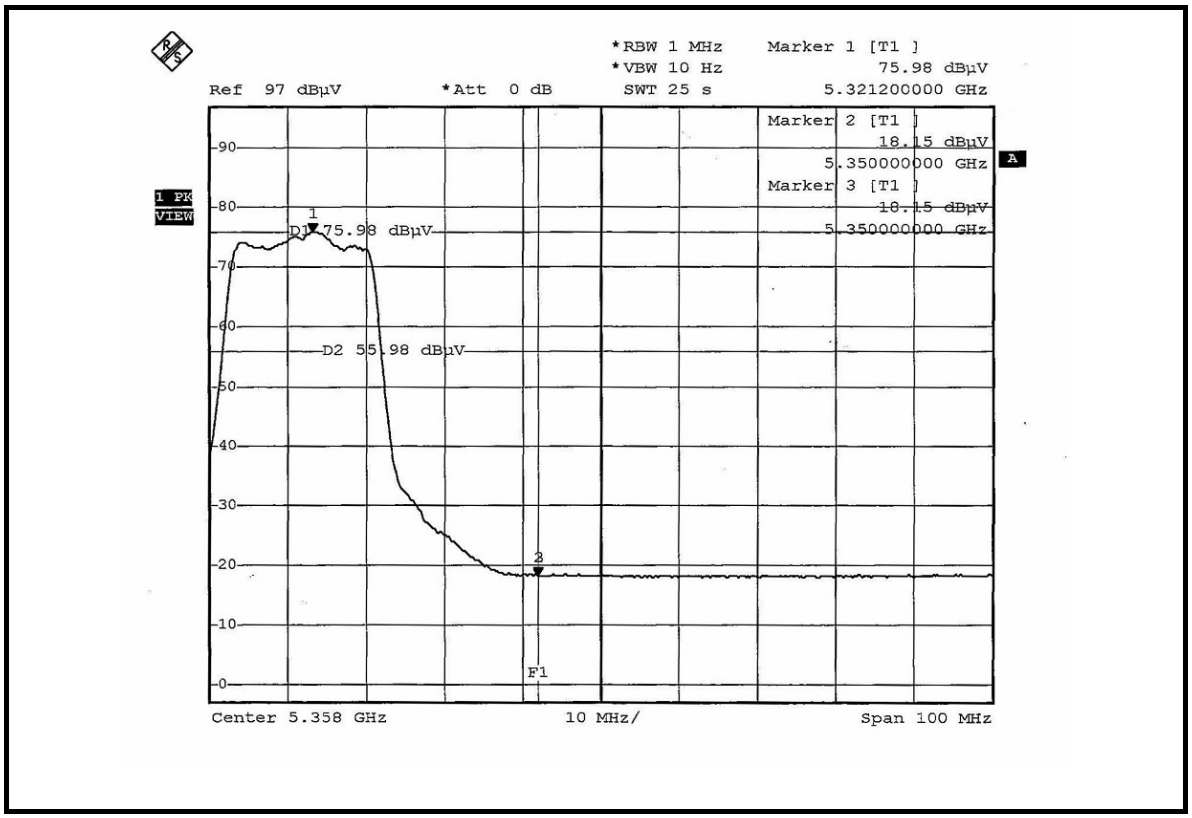
The band edge emission plot on the next page shows 57.83dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 4 is 98.89dBuV/m (Average), so the maximum field strength in restrict band is 98.89 – 57.83 = 41.06dBuV/m which is under 54dBuV/m limit.

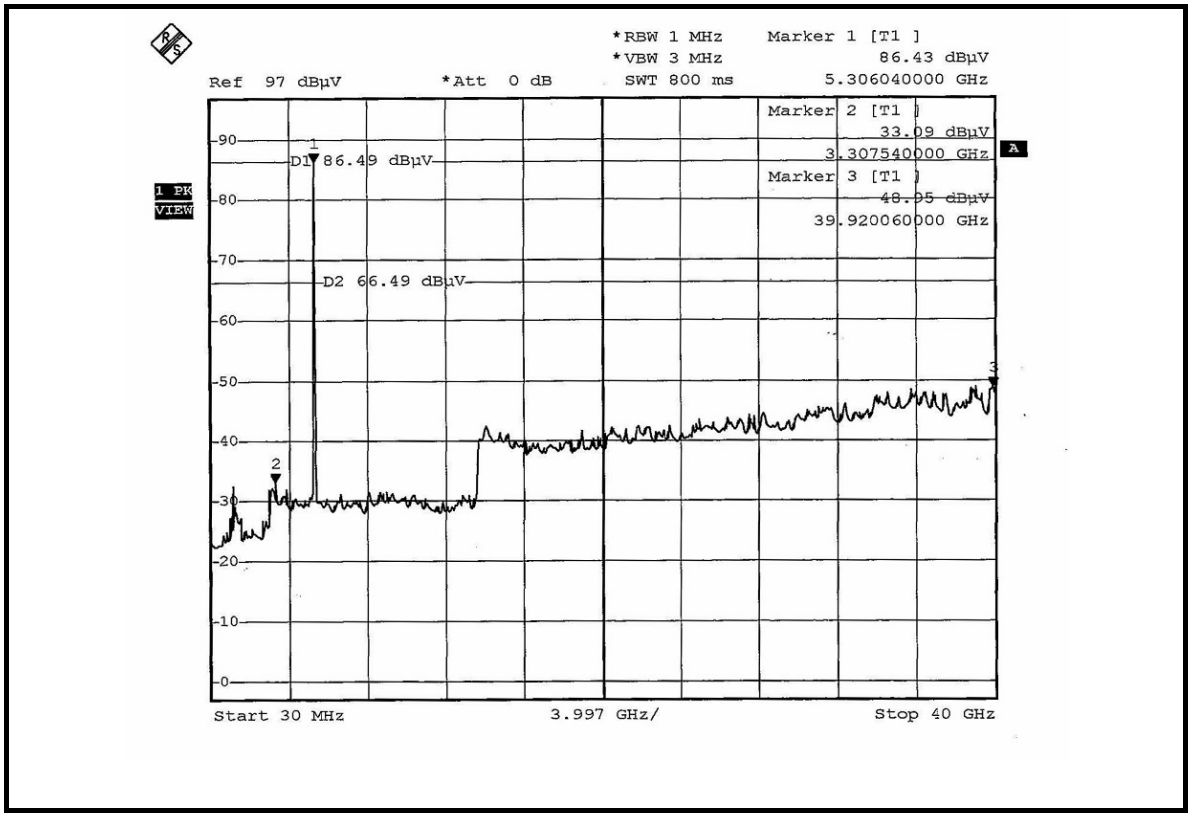

*RBW 1 MHz
*VBW 3 MHz
SWT 20 ms
Marker 1 [T1]
86.40 dBµV
5.182000000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
32.83 dBµV
5.150000000 GHz
Marker 3 [T1]
36.07 dBµV
5.149400000 GHz
D1 86.4 dBµV
D2 66.4 dBµV
1 PK
VIEW
Center 5.143 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
75.79 dBµV
5.181800000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
18.50 dBµV
5.150000000 GHz
Marker 3 [T1]
18.50 dBµV
5.150000000 GHz
D1 75.79 dBµV
D2 55.79 dBµV
1 PK
VIEW
Center 5.143 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 3 MHz
SWT 800 ms
Marker 2 [T1]
49.56 dBµV
39.840120000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 1 [T1]
85.39 dBµV
5.146160000 GHz
D1 86.4 dBµV
D2 66.4 dBµV
1 PK VIEW
Start 30 MHz
3.997 GHz/
Stop 40 GHz


*RBW 1 MHz
*VBW 3 MHz
SWT 20 ms
Marker 1 [T1]
86.49 dBµV
5.321200000 GHz
Marker 2 [T1]
29.02 dBµV
5.350000000 GHz
Marker 3 [T1]
30.90 dBµV
5.372400000 GHz
Ref 97 dBµV
*Att 0 dB
D1 86.49 dBµV
D2 66.49 dBµV
1 PK VIEW
F1
Center 5.3582 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
75.98 dBµV
5.321200000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
18.15 dBµV
5.350000000 GHz
Marker 3 [T1]
18.15 dBµV
5.350000000 GHz
1 PK
VIEW
D1 75.98 dBµV
D2 55.98 dBµV
F1
Center 5.358 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 3 MHz
SWT 800 ms
Marker 1 [T1]
86.43 dBµV
5.306040000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
33.09 dBµV
3.307540000 GHz
Marker 3 [T1]
48.95 dBµV
39.920060000 GHz
1 PK
VIEW
D1 86.49 dBµV
D2 66.49 dBµV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

Channel 1 (5190MHz)

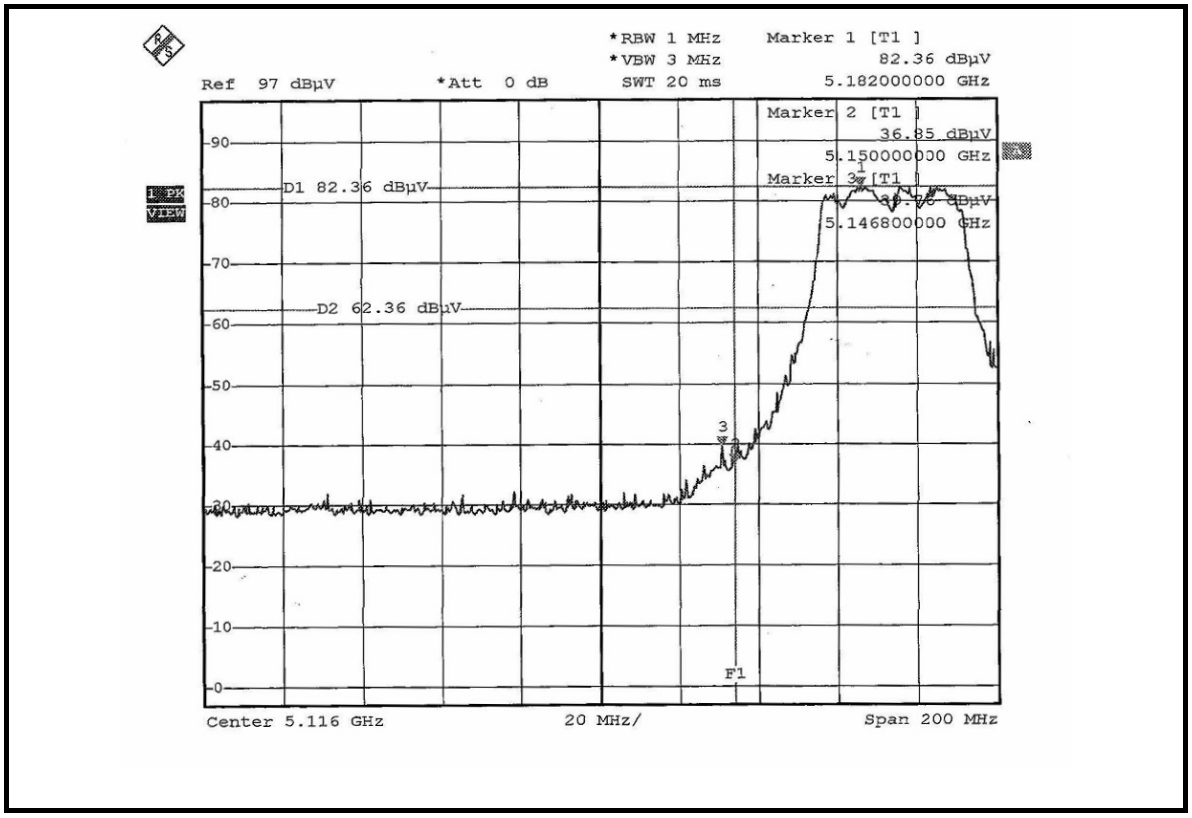
The band edge emission plot on the next page shows 42.60dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 108.19dBuV/m (Peak), so the maximum field strength in restrict band is 108.19 – 42.60 = 65.59dBuV/m which is under 74dBuV/m limit.

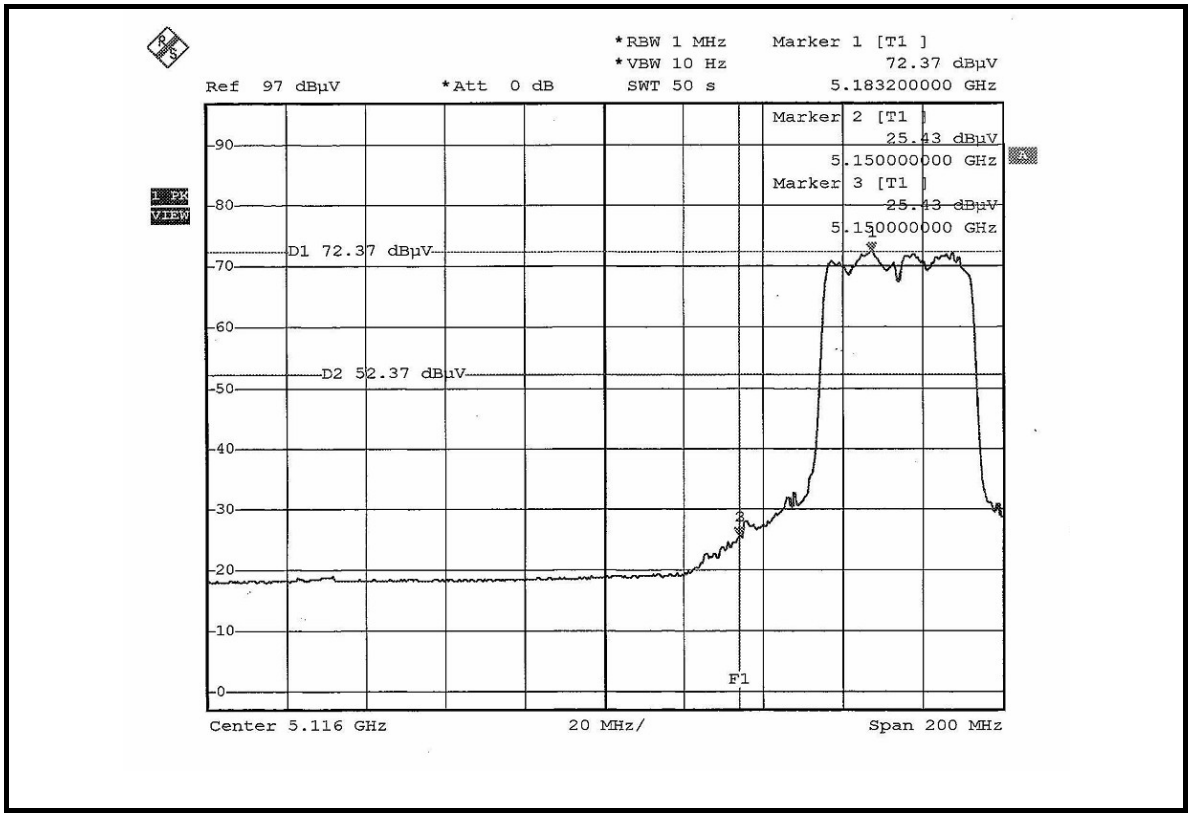
The band edge emission plot on the next page shows 46.94dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 97.38dBuV/m (Average), so the maximum field strength in restrict band is 97.38 – 46.94 = 50.44dBuV/m which is under 54dBuV/m limit.

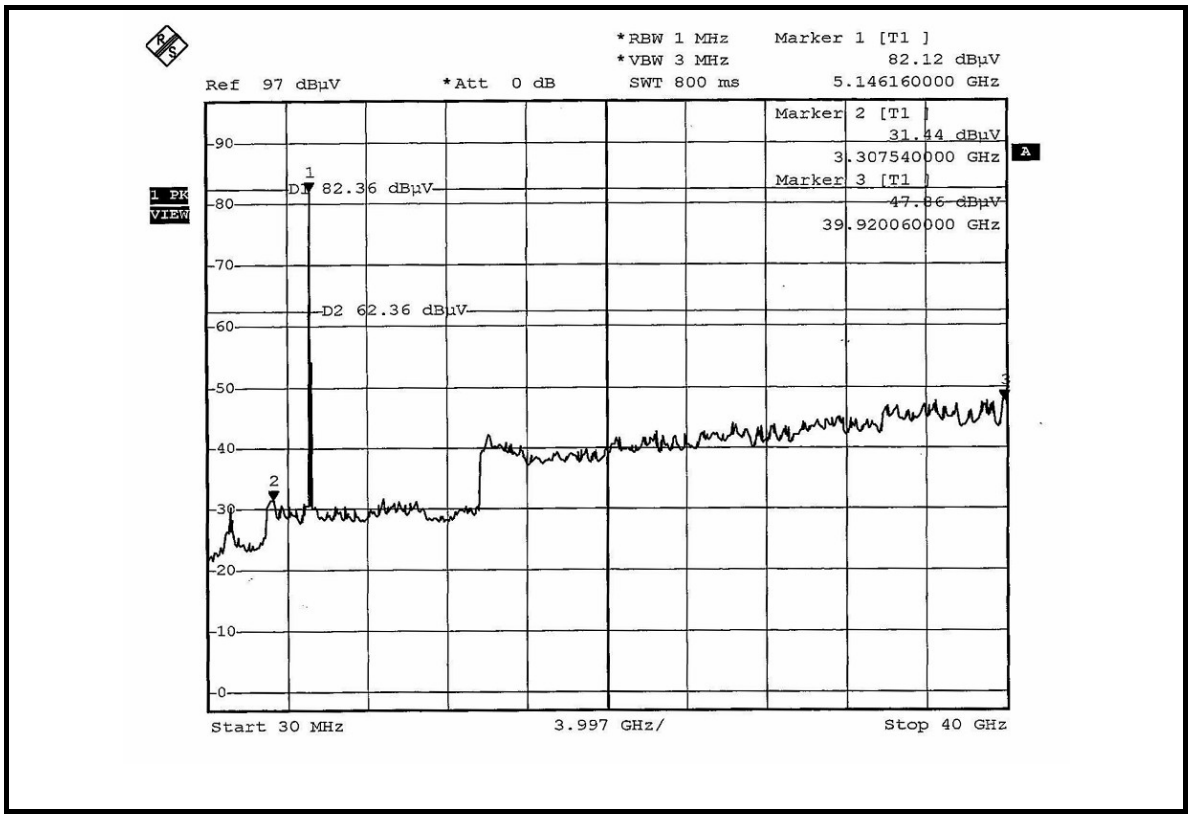
Channel 2 (5230MHz)

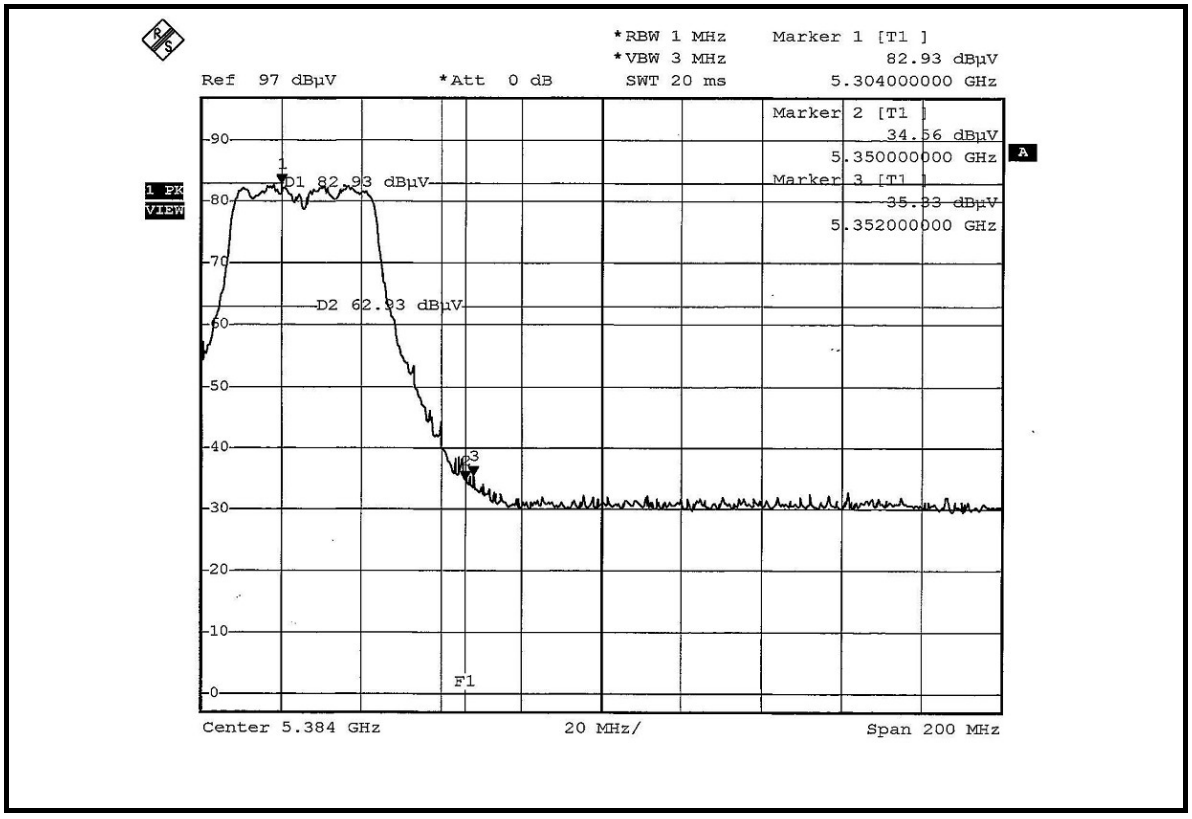
The band edge emission plot on the next page shows 47.60dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 2 is 108.50dBuV/m (Peak), so the maximum field strength in restrict band is 108.50 – 47.60 = 60.90dBuV/m which is under 74dBuV/m limit.

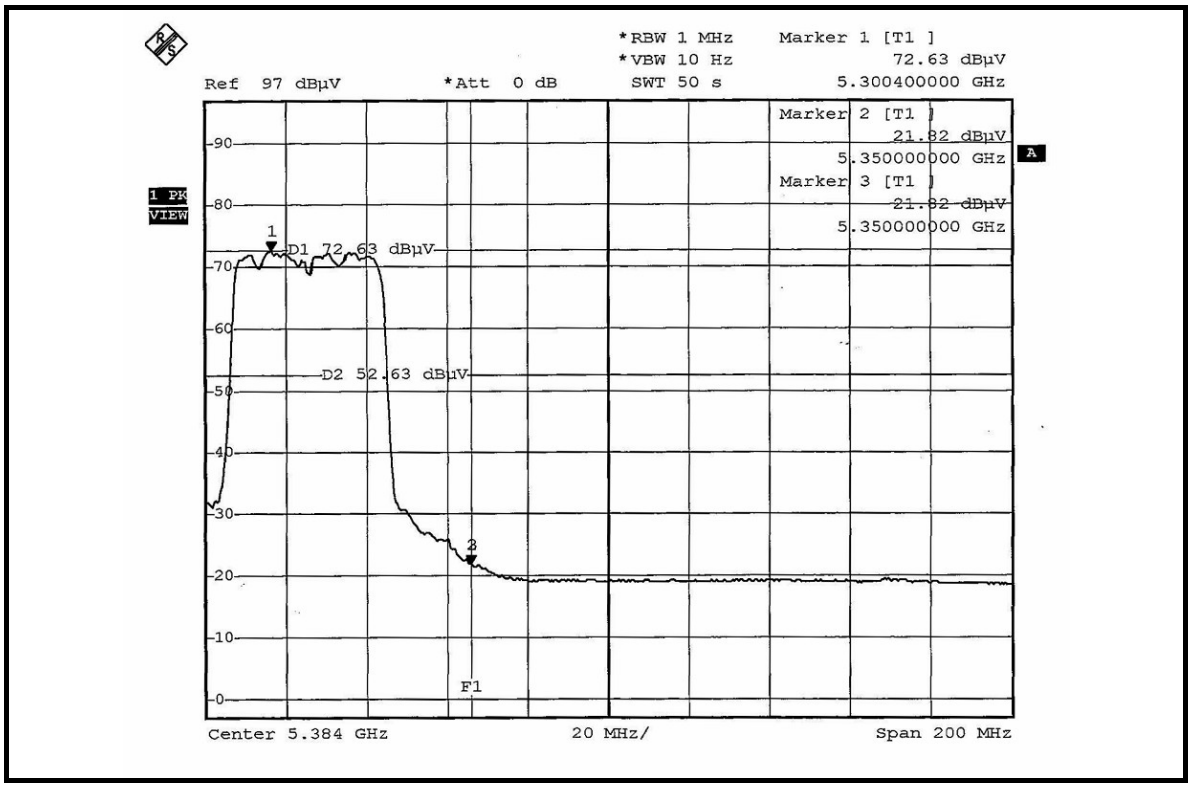
The band edge emission plot on the next page shows 50.81dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 2 is 98.22dBuV/m (Average), so the maximum field strength in restrict band is 98.22 – 50.81 = 47.41dBuV/m which is under 54dBuV/m limit.

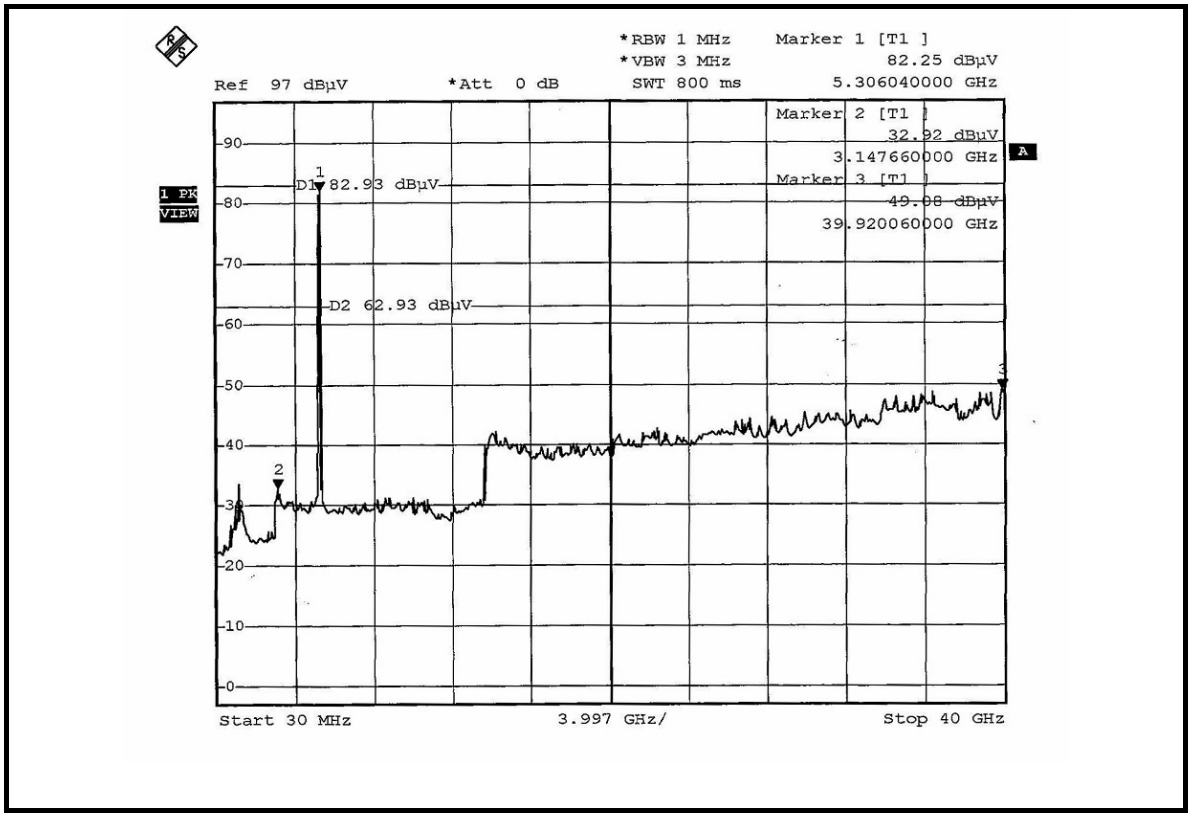

*RBW 1 MHz
*VBW 3 MHz
SWT 20 ms
Marker 1 [T1]
82.36 dBµV
5.182000000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
36.85 dBµV
5.150000000 GHz
Marker 3 [T1]
5.146800000 GHz
1 PK VIEW
D1 82.36 dBµV
D2 62.36 dBµV
F1
Center 5.116 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 50 s
Marker 1 [T1]
72.37 dBµV
5.183200000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
25.43 dBµV
5.150000000 GHz
Marker 3 [T1]
25.43 dBµV
5.150000000 GHz
1 PK VIEW
D1 72.37 dBµV
D2 52.37 dBµV
F1
Center 5.116 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 3 MHz
SWT 800 ms
Marker 1 [T1]
82.12 dBµV
5.146160000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
31.44 dBµV
3.307540000 GHz
Marker 3 [T1]
47.86 dBµV
39.920060000 GHz
1 PK
VIEW
D1 82.36 dBµV
D2 62.36 dBµV
Start 30 MHz
3.997 GHz/
Stop 40 GHz


*RBW 1 MHz
*VBW 3 MHz
SWT 20 ms
Marker 1 [T1]
82.93 dBµV
5.304000000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
34.56 dBµV
5.350000000 GHz
Marker 3 [T1]
35.33 dBµV
5.352000000 GHz
1 PK
VIEW
D1 82.93 dBµV
D2 62.93 dBµV
F1
Center 5.384 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 50 s
Marker 1 [T1]
72.63 dBµV
5.300400000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
21.82 dBµV
5.350000000 GHz
Marker 3 [T1]
21.82 dBµV
5.350000000 GHz
1 PK
VIEW
D1 72.63 dBµV
D2 52.63 dBµV
F1
Center 5.384 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 3 MHz
SWT 800 ms
Marker 1 [T1]
82.25 dBµV
5.306040000 GHz
Ref 97 dBµV
*Att 0 dB
Marker 2 [T1]
32.92 dBµV
3.147660000 GHz
Marker 3 [T1]
49.08 dBµV
39.920060000 GHz
1 PK
VIEW
D1 82.93 dBµV
D2 62.93 dBµV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

4.8 ANTENNA REQUIREMENT

4.8.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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

4.8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna with R-SMA connector. The maximum Gain of the antenna is 2dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, NCC
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

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

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

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

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

Web Site: www.adt.com.tw

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

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.