



FCC TEST REPORT (WLAN - 15.407)

REPORT NO.: RF981015H02-1

MODEL NO.: MC3090Z

RECEIVED: Oct. 15, 2009

TESTED: Oct. 22 to 28, 2009

ISSUED: Nov. 23, 2009

APPLICANT: Motorola Inc.

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11742-1300 USA

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
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1. CERTIFICATION

PRODUCT: Mobile Computing Terminal
BRAND NAME: MOTOROLA
MODEL NO.: MC3090Z
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Oct. 22 to 28, 2009
APPLICANT: Motorola Inc.
STANDARDS: FCC Part 15, Subpart E (Section 15.407),
ANSI C63.4-2003

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

PREPARED BY : Carol Liao , **DATE:** Nov. 23, 2009
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Nov. 23, 2009
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Nov. 23, 2009
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For [802.11a](#)

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.10dB at 0.205MHz
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 - 6.61dB at 5725.0MHz
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.

NOTE:

1. There are Bluetooth technology, RFID technology and WLAN technology used for the EUT.
2. For Bluetooth technology, the test data please refer "RF981015H02-2".
3. For RFID technology, the test data please refer "RF981015H02-3".
4. For WLAN technology, the EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report "RF981015H02".

2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.98 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Computing Terminal
MODEL NO.	MC3090Z
FCC ID	UZ7MC3090Z
POWER SUPPLY	DC 12V to cradle, DC 5.4V from power adapter or DC 3.7V from battery
MODULATION TYPE	For WLAN : CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	For Bluetooth : GFSK
	For RFID : PR-ASK(DRM) , DSB-ASK(MRM), PR-ASK(XRM)
MODULATION TECHNOLOGY	For WLAN : DSSS, OFDM
	For Bluetooth : FHSS
	For RFID : FHSS
TRANSFER RATE	For WLAN : 802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps
	For Bluetooth : DH 1, DH 3, DH 5
FREQUENCY RANGE	For WLAN : For 15.407 802.11a: 5.18 ~ 5.32GHz, 5.50 ~ 5.70GHz For 15.247(2.4GHz) 802.11b & 802.11g: 2412 ~ 2462MHz For 15.247(5GHz) 802.11a: 5.745 ~ 5.825GHz
	For Bluetooth :2402MHz ~ 2480MHz
	For RFID : 902.75MHz ~ 927.25MHz



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NUMBER OF CHANNEL	For WLAN : For 15.407 19 for 802.11a For 15.247(2.4GHz) 11 for 802.11b, 802.11g
	For 15.247(5GHz) 5 for 802.11a
	For Bluetooth : 79
	For RFID : 50
MAXIMUM OUTPUT POWER	For WLAN : For 15.407 802.11a: 40.7mW For 15.247(2.4GHz) 802.11b: 83.2mW 802.11g: 93.3mW For 15.247(5GHz) 802.11a: 77.6mW
	For Bluetooth : 1.3 mW
	For RFID : PR-ASK(DRM): 660.7mW DSB-ASK(MRM): 977.2mW PR-ASK(XRM): 977.2mW
ANTENNA TYPE	Please see note 3
DATA CABLE	USB Cable x 1 (Part No.: 25-67868-03R) (only for test, not for sale together)
I/O PORTS	USB port x 1, Audio port x 1
ASSOCIATED DEVICES	Battery x 1

NOTE:

1. There are Bluetooth technology, RFID technology and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF981015H02-2, the RFID test data please refer "RF981015H02-3>
2. The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	X-Y plane
Mode B	Z-X plane
Mode C	Z-Y plane

From the above modes, the worst emission level was found in **Mode A**. Therefore only the test data of the mode was recorded in this report individually.

3. There are four antennas provided to this EUT, please refer to the following table:

For WLAN (RX has diversity function)					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	OZONE WLAN 1	PCB(TX,RX)	2.96 (2.4G) 4.16 (5G)	N/A	2400~2850 4920~5850
2	OZONE WLAN 2	PIFA(RX only)	3.45 (2.4G) 3.32 (5G)	N/A	2400~2850 4920~5850
For Bluetooth					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	Mica 2.4GHz	SMD	-0.45	N/A	2400~2500
For RFID					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	OZONE RFID	Hor- dipole, outside antenna, Ver- slot, inside antenna	1.7483(Max)	N/A	902~928

4. The EUT could be supplied with the a charger, power adapter and Li-ion battery as below table:

Cradle (only for test, not for sale together)	
Brand:	SYMBOL
Part No.:	CRD3000-1001RR
Input power :	+12V-----3.3A
I/O Ports:	USB Port x 1 RJ-45(console) Port x 1
Associated devices:	USB cable x 1 (Part No.: 25-68596-01R) (1.6m, Unshielded without core) RJ-45(console) cable x 1 (Part No.: 25-63852-01R) (1.8m, Unshielded without core) Adapter x 1 (Part No.: 50-14000-148R)
Adapter (only for Cradle use, not for sale together)	
Brand:	HIPRO
Model No.:	HP-O2040D43
Part No.:	50-14000-148R
Input power :	100-240V, 50-60Hz, 1.5A
Output power :	+12V-----3.33A DC output cable (1.8m, Unshielded)



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Adapter (only for test, not for sale together)	
Brand:	MOTOROLA
Model No.:	EADP-16BB A
Part No.:	50-14000-249R
Input power :	100-240V, 50-60Hz, 0.4A
Output power :	+5.4V-----3.0A DC output cable (1.8m, Unshielded)
Li-ion Battery 1	
Brand:	MOTOROLA/ Palladium Energy Inc
Model No.:	82-127909-01
RATING:	3.7V, 4800mAh
Li-ion Battery 2	
Brand:	Symbol/ Sole Energy Tech Corp.
Model No.:	55-060112-05
RATING:	3.7V, 4400mAh

5. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a, 802.11b, 802.11g, RFID technology and Bluetooth technology.
6. RFID and scanner have no function while the EUT is under charger condition.
7. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



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3.2 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

Eight channels are provided for 802.11a:

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

Operated in 5470MHz ~ 5725MHz bands:

Eleven channels are provided for 802.11a:

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



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3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

The device has different accessory, therefore the worst case base on investigation by different combination for each test item and its data was recorded in this report.

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
A			√	√	Scanner Stand-alone
B	√	√			Scanner + Cradle + adapter

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)	EUT CONFIGURE MODE
802.11a	36 to 140	64	OFDM	BPSK	6	B

RADIATED EMISSION TEST (BELOW 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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)	EUT CONFIGURE MODE
802.11a	36 to 140	64	OFDM	BPSK	6	B



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RADIATED EMISSION TEST (ABOVE 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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)	EUT CONFIGURE MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6	A

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)	EUT CONFIGURE MODE
802.11a	36 to 140	36, 64, 100, 140	OFDM	BPSK	6	A

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)	EUT CONFIGURE MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6	A

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Mobile Computing Terminal. 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.



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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.

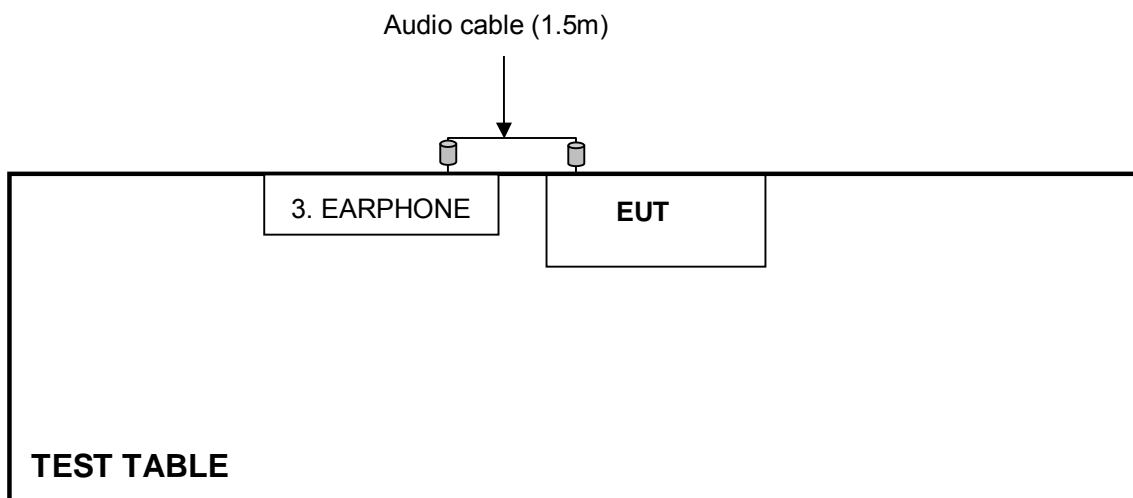
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	12252644560	FCC DoC
2	MONITOR	DELL	E228WFPc	CN-OX765G-6418 0-88P-09ZM	FCC DoC
3	PRINTER	HP	hp deskjet 3535	TH45P164GT	NA
4	EARPHONE	VXI	A380800253	50-11300-050R	NA
5	MOUSE	DELL	M056UOA	FOROBSN	FCC DoC
6	WIRELESS ACCESS POINT	Air Station	WLA-G54	N/A	NA
7	BETTERY	MOTOROLA	82-127909-01	N/A	NA
8	CRADLE	SYMBOL	CRD3000-1001R R	N/A	NA

No.	Signal cable description
1	USB Cable, 1.8m, Shielded and RS232 Cable, 1.8m
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, with two cores.
3	1.8 m braid shielded wire, terminated with DB25 and centronics connector via metallic frame, w/o core
4	Audio Cable, 1.5m with two cores.
5	1.8m foil shielded wire, USB Connector, w/o core.
6	NA
7	NA
8	NA

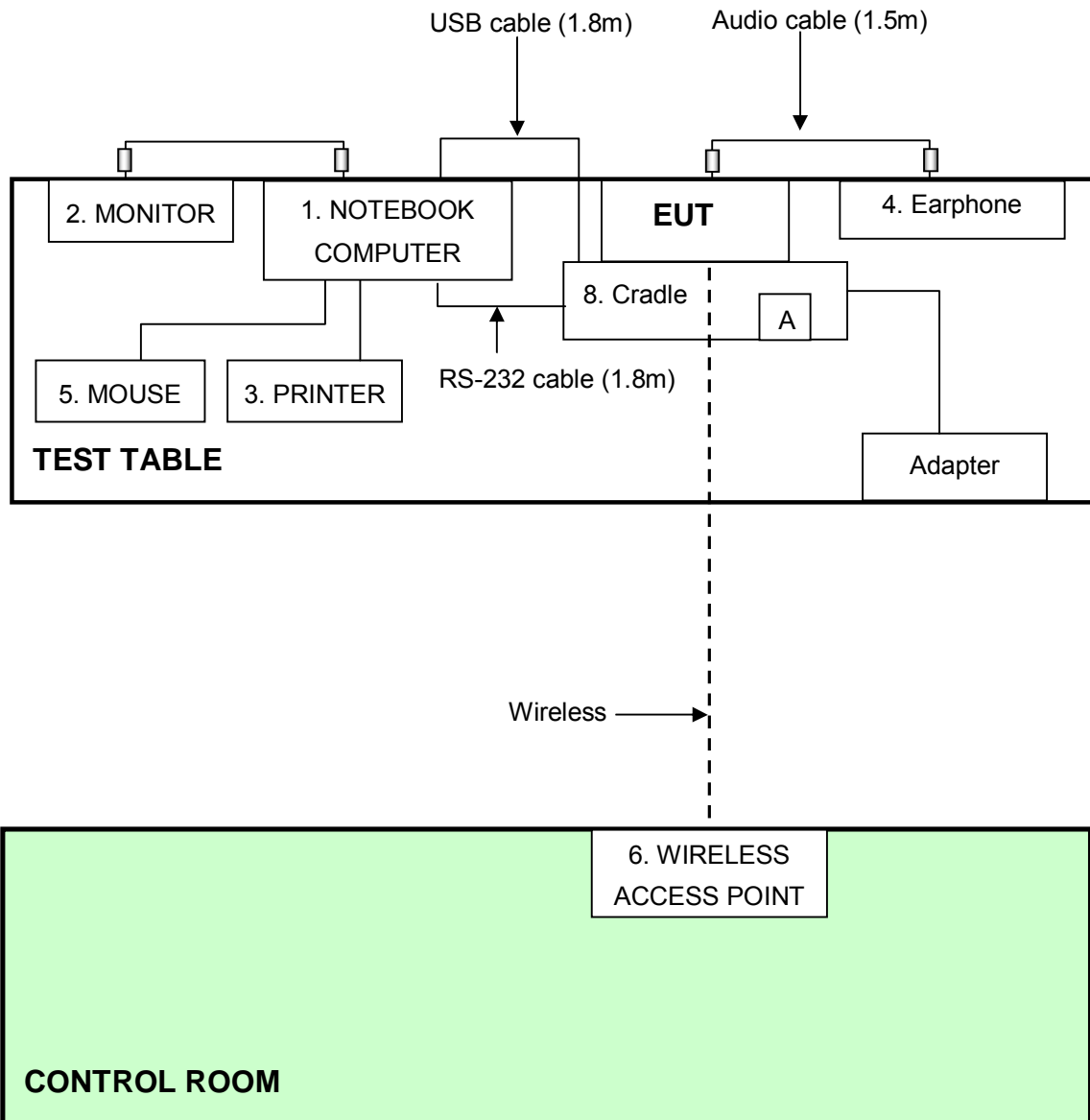
Note: 1. All power cords of the above support units are unshielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Scanner Stand-alone Mode:



For Scanner + Cradle + adapter Mode:



NOTE: 1. Item A is the Battery (Support unit 7).



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4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for EUT)	KNW-407	8-1395-12	May 04, 2009	May 03, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2008	Dec 14, 2009
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_ Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

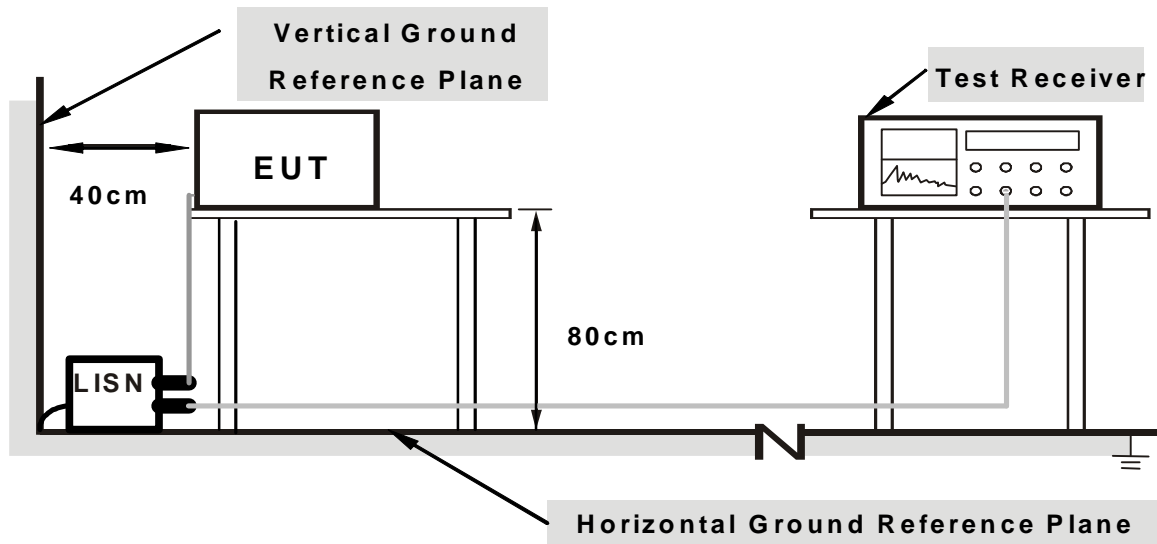
4.1.3 TEST PROCEDURES

- 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
- b. provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level 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

1. Set the EUT under charger condition via cradle.
2. EUT runs the test program "EMI.exe" to transmission/receiving condition continuously with Support unit 1 (Notebook Computer) via one USB cable
3. EUT plays music and sends "H" messages to printer, and the printer prints them on paper.
4. EUT runs the test program "ICMP Ping.exe" to communicate with Support unit 6 (Access Point) via wireless transmission.
5. The support unit 7 (battery) is charging from cradle continuously.



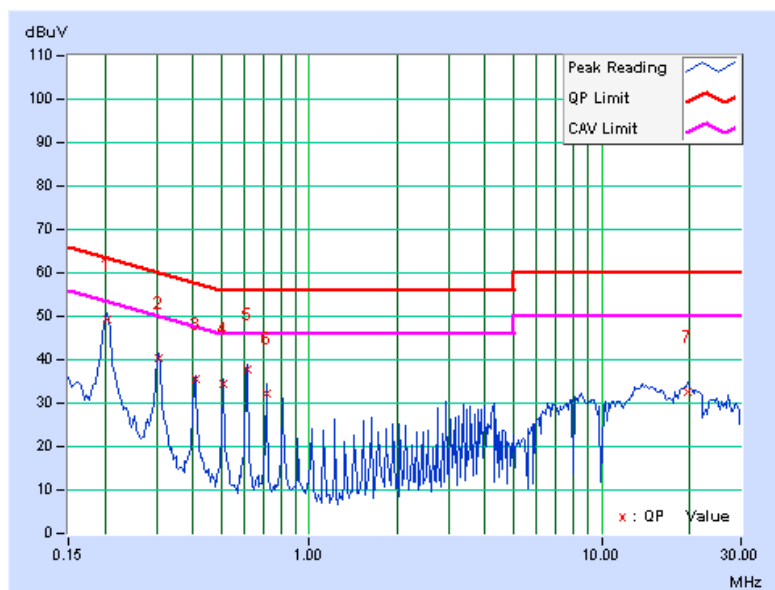
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4.1.7 TEST RESULTS
 802.11a OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25eg. C, 66RH, 965hPa	TESTED BY	Andy Ho

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.17	49.15	-	49.32	-	63.42
2	0.306	0.12	40.29	-	40.41	-	60.07	50.07	-19.66	-
3	0.408	0.08	35.32	-	35.40	-	57.70	47.70	-22.30	-
4	0.509	0.08	34.48	-	34.56	-	56.00	46.00	-21.44	-
5	0.612	0.07	37.84	-	37.91	-	56.00	46.00	-18.09	-
6	0.713	0.07	32.00	-	32.07	-	56.00	46.00	-23.93	-
7	19.844	0.49	32.09	-	32.58	-	60.00	50.00	-27.42	-

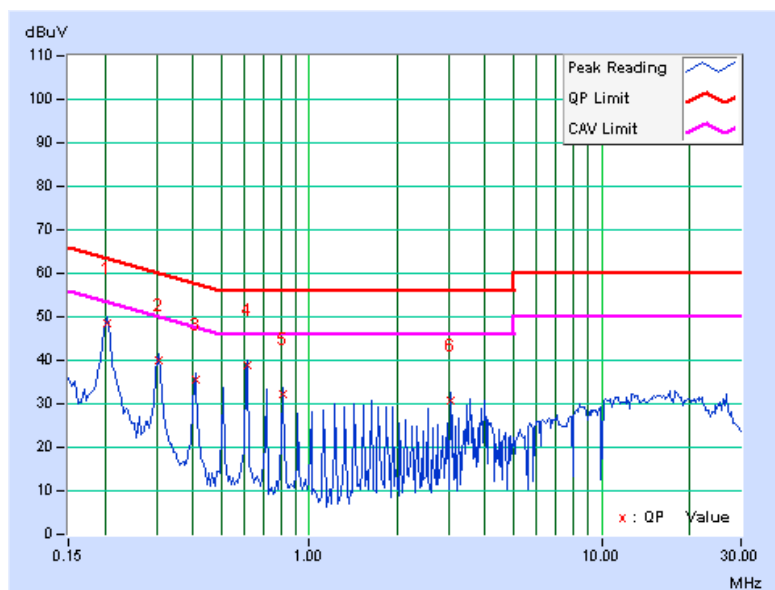
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 64	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25eg. C, 66RH, 965hPa	TESTED BY	Andy Ho

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.205	0.18	48.28	-	48.46	-	63.42
2	0.306	0.13	40.01	-	40.14	-	60.07	50.07	-19.93	-
3	0.408	0.09	35.52	-	35.61	-	57.69	47.69	-22.08	-
4	0.611	0.09	38.93	-	39.02	-	56.00	46.00	-16.98	-
5	0.814	0.08	32.24	-	32.32	-	56.00	46.00	-23.68	-
6	3.051	0.13	30.55	-	30.68	-	56.00	46.00	-25.32	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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

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

4.2.3 TEST INSTRUMENTS

For radiated emission test (Below 1 GHz):

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	U3751	170100022	Nov. 17, 2008	Nov. 16, 2009
ADVANTEST Spectrum Analyzer	U3772	160100280	July 26, 2009	July 25, 2010
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2009	Sep. 24, 2010
ROHDE & SCHWARZ Test Receiver	ESCS 30	100027	May 05, 2009	May 04, 2010
SCHWARZBECK Broadband Antenna	VULB-9168	263	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D123	Sep. 21, 2009	Sep. 20, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 23, 2009	Jan. 22, 2010
RF Switches	EM-H-01-1	1009	Aug. 10, 2009	Aug. 09, 2010
RF Cable	8DFB	STACAB-30M-1GHz-091	Feb. 19, 2009	Feb. 18, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	TT100	ADT01	NA	NA
CORCOM AC Filter	MRI2030	107/108	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: U3772) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. A.
4. The VCCI Site Registration No. is R-782.
5. The FCC Site Registration No. is 91097.
6. The CANADA Site Registration No. is IC 7450G-1.



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For radiated emission test (Above 1 GHz):

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

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

2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

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 10 meter open area test site. 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.

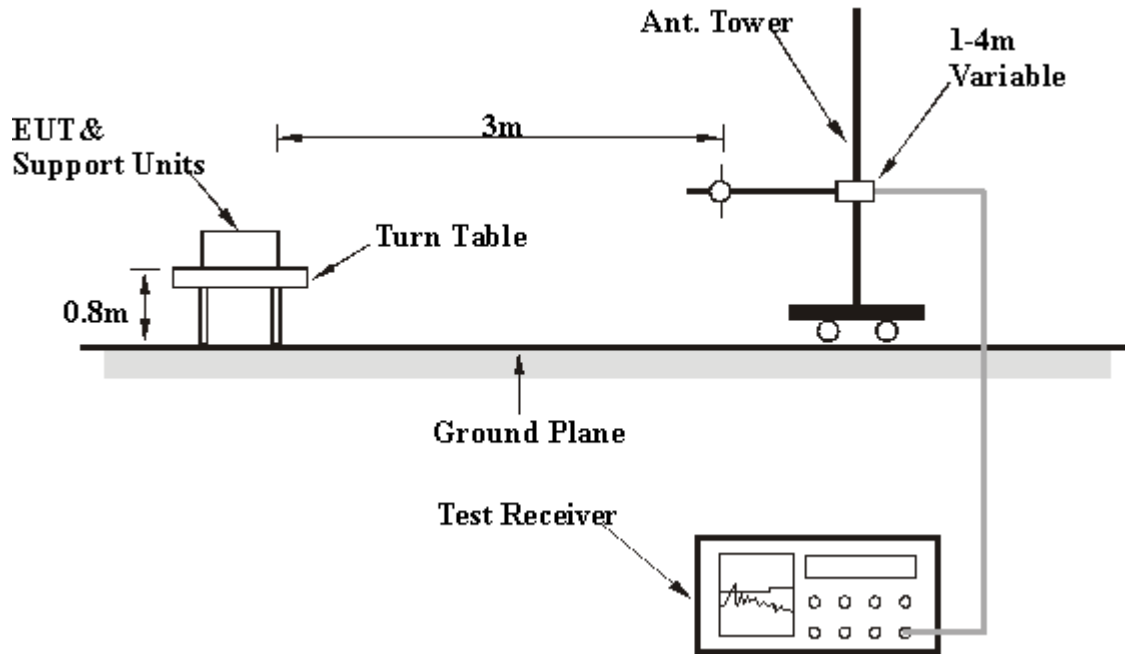
NOTE:

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 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz 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 related item – Photographs of the Test Configuration.

4.2.7 EUT OPERATING CONDITION

For Scanner Stand-alone Mode:

1. EUT runs the test program " SymbolCECTxRx" to transmission/receiving condition continuously.

For Scanner + Cradle + adapter Mode:

1. Set the EUT under charger condition via cradle.
2. EUT runs the test program "EMI.exe" to transmission/receiving condition continuously with Support unit 1 (Notebook Computer) via one USB cable
3. EUT plays music and sends "H" messages to printer, and the printer prints them on paper.
4. EUT runs the test program "ICMP Ping.exe" to communicate with Support unit 6 (Access Point) via wireless transmission.
5. The support unit 7 (battery) is charging from cradle continuously.



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Below 1GHz Test Data

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH 965 hPa	TESTED BY	Max Tseng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	115.00	31.45 QP	43.50	-12.05	2.41 H	65	19.77	11.67
2	149.46	34.00 QP	43.50	-9.50	2.36 H	152	18.60	15.40
3	196.60	32.11 QP	43.50	-11.39	2.10 H	256	20.24	11.87
4	212.68	32.03 QP	43.50	-11.47	2.37 H	352	19.94	12.09
5	400.00	34.78 QP	46.00	-11.22	1.92 H	220	16.52	18.26
6	500.00	37.77 QP	46.00	-8.23	1.61 H	145	16.71	21.06
7	998.50	39.50 QP	54.00	-14.50	1.00 H	33	10.67	28.83
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	71.45	31.94 QP	40.00	-8.06	1.00 V	88	19.87	12.07
2	112.00	32.20 QP	43.50	-11.30	1.00 V	194	20.84	11.36
3	152.55	33.01 QP	43.50	-10.49	1.00 V	263	17.76	15.25
4	196.60	30.62 QP	43.50	-12.88	1.00 V	271	18.75	11.87
5	500.00	36.03 QP	46.00	-9.97	1.00 V	31	14.97	21.06
6	998.29	40.86 QP	54.00	-13.14	1.58 V	144	12.03	28.83

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.



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Above 1GHz Test Data

4.2.9 TEST RESULTS

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5143.50	54.29 PK	74.00	-19.71	1.15 H	102	17.03	37.26
2	5143.50	43.18 AV	54.00	-10.82	1.15 H	102	5.92	37.26
3	*5180.00	101.63 PK			1.01 H	104	64.37	37.26
4	*5180.00	92.97 AV			1.01 H	104	55.71	37.26
5	#10360.00	52.27 PK	68.30	-16.03	1.60 H	82	5.63	46.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5143.50	56.99 PK	74.00	-17.01	1.12 V	274	19.73	37.26
2	5143.50	45.75 AV	54.00	-8.25	1.12 V	274	8.49	37.26
3	*5180.00	104.78 PK			1.11 V	281	67.52	37.26
4	*5180.00	95.92 AV			1.11 V	281	58.66	37.26
5	#10360.00	52.50 PK	68.30	-15.80	1.30 V	28	5.86	46.64

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.50 PK			1.03 H	110	64.24	37.26
2	*5200.00	92.86 AV			1.03 H	110	55.60	37.26
3	#10400.00	52.51 PK	68.30	-15.79	1.46 H	191	5.84	46.67
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	104.93 PK			1.08 V	272	67.67	37.26
2	*5200.00	96.03 AV			1.08 V	272	58.77	37.26
3	#10400.00	51.89 PK	68.30	-16.41	1.47 V	78	5.22	46.67

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	101.42 PK			1.00 H	104	64.16	37.26
2	*5240.00	92.11 AV			1.00 H	104	54.85	37.26
3	#10480.00	53.16 PK	68.30	-15.14	1.17 H	99	6.43	46.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.32 PK			1.00 V	280	66.06	37.26
2	*5240.00	94.48 AV			1.00 V	280	57.22	37.26
3	#10480.00	52.47 PK	68.30	-15.83	1.26 V	86	5.74	46.73

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	102.39 PK			1.00 H	103	65.13	37.26
2	*5260.00	93.03 AV			1.00 H	103	55.77	37.26
3	#10520.00	52.90 PK	68.30	-15.40	1.12 H	121	6.13	46.77
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	105.15 PK			1.01 V	132	67.89	37.26
2	*5260.00	96.27 AV			1.01 V	132	59.01	37.26
3	#10520.00	52.92 PK	68.30	-15.38	1.43 V	78	6.15	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 is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	102.53 PK			1.10 H	103	65.27	37.26
2	*5300.00	93.35 AV			1.10 H	103	56.09	37.26
3	10600.00	53.22 PK	74.00	-20.78	1.21 H	74	6.39	46.83
4	10600.00	41.26 AV	54.00	-12.74	1.21 H	74	-5.57	46.83

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	105.20 PK			1.00 V	170	67.94	37.26
2	*5300.00	95.99 AV			1.00 V	170	58.73	37.26
3	10600.00	53.45 PK	74.00	-20.55	1.06 V	82	6.62	46.83
4	10600.00	41.41 AV	54.00	-12.59	1.06 V	82	-5.42	46.83

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.23 PK			1.08 H	101	64.97	37.26
2	*5320.00	92.83 AV			1.08 H	101	55.57	37.26
3	5356.42	54.77 PK	74.00	-19.23	1.10 H	101	17.51	37.26
4	5356.42	43.57 AV	54.00	-10.43	1.10 H	101	6.31	37.26
5	10640.00	53.52 PK	74.00	-20.48	1.40 H	68	6.66	46.86
6	10640.00	40.98 AV	54.00	-13.02	1.40 H	68	-5.88	46.86
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	105.87 PK			1.07 V	171	68.61	37.26
2	*5320.00	96.64 AV			1.07 V	171	59.38	37.26
3	5356.20	55.37 PK	74.00	-18.63	1.10 V	270	18.11	37.26
4	5356.20	45.80 AV	54.00	-8.20	1.10 V	270	8.54	37.26
5	10640.00	53.51 PK	74.00	-20.49	1.27 V	21	6.65	46.86
6	10640.00	41.11 AV	54.00	-12.89	1.27 V	21	-5.75	46.86

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	52.44 PK	74.00	-21.56	1.05 H	251	15.18	37.26
2	5460.00	42.12 AV	54.00	-11.88	1.05 H	251	4.86	37.26
3	#5470.00	55.09 PK	68.30	-13.21	1.05 H	251	17.83	37.26
4	*5500.00	102.24 PK			1.04 H	249	64.98	37.26
5	*5500.00	92.72 AV			1.04 H	249	55.46	37.26
6	11000.00	53.41 PK	74.00	-20.59	1.10 H	70	6.26	47.15
7	11000.00	40.87 AV	54.00	-13.13	1.10 H	70	-6.28	47.15

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.48 PK	74.00	-18.52	1.04 V	270	18.22	37.26
2	5460.00	44.85 AV	54.00	-9.15	1.04 V	270	7.59	37.26
3	#5470.00	60.09 PK	68.30	-8.21	1.04 V	269	22.83	37.26
4	*5500.00	109.47 PK			1.04 V	272	72.21	37.26
5	*5500.00	100.03 AV			1.04 V	272	62.77	37.26
6	11000.00	53.22 PK	74.00	-20.78	1.08 V	261	6.07	47.15
7	11000.00	42.08 AV	54.00	-11.92	1.08 V	261	-5.07	47.15

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	109.02 PK			1.06 H	268	71.48	37.54
2	*5600.00	99.42 AV			1.06 H	268	61.88	37.54
3	11200.00	53.45 PK	74.00	-20.55	1.14 H	86	6.27	47.18
4	11200.00	41.51 AV	54.00	-12.49	1.14 H	86	-5.67	47.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	113.30 PK			1.02 V	273	75.76	37.54
2	*5600.00	103.73 AV			1.02 V	273	66.19	37.54
3	11200.00	54.25 PK	74.00	-19.75	1.07 V	272	7.07	47.18
4	11200.00	41.42 AV	54.00	-12.58	1.07 V	272	-5.76	47.18

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH 965 hPa	TESTED BY	Eric Lee

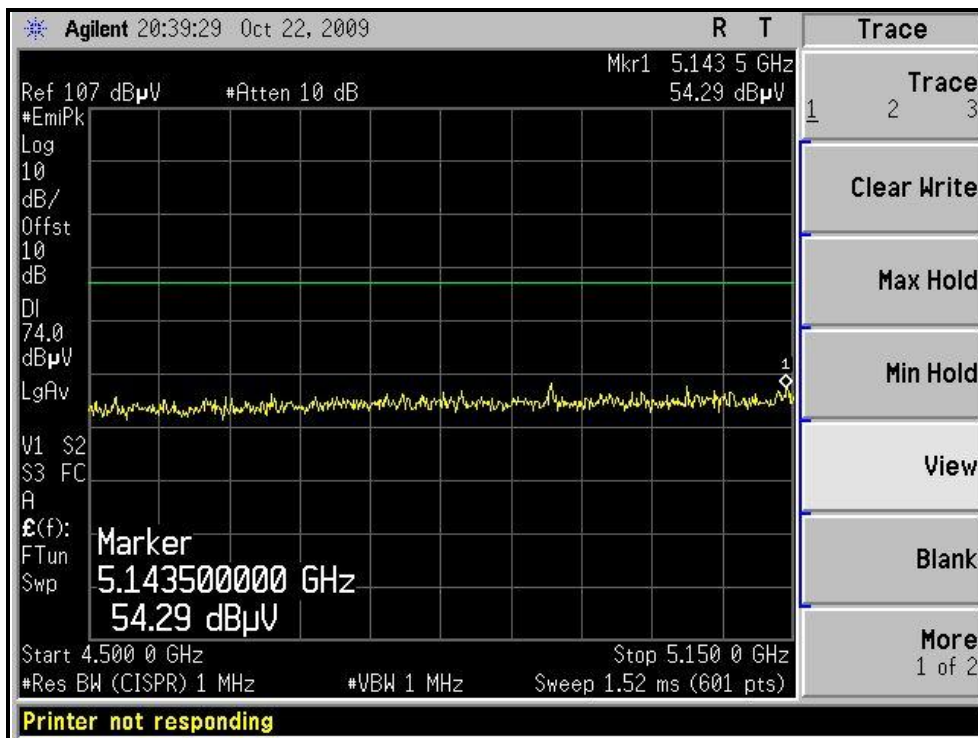
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	106.40 PK			1.05 H	265	68.57	37.83
2	*5700.00	96.85 AV			1.05 H	265	59.02	37.83
3	#5725.00	60.83 PK	68.30	-7.47	1.05 H	265	22.93	37.90
4	11400.00	53.33 PK	74.00	-20.67	1.00 H	96	6.12	47.21
5	11400.00	41.84 AV	54.00	-12.16	1.00 H	96	-5.37	47.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	107.25 PK			1.00 V	273	69.42	37.83
2	*5700.00	97.94 AV			1.00 V	273	60.11	37.83
3	#5725.00	61.69 PK	68.30	-6.61	1.00 V	267	23.79	37.90
4	11400.00	55.03 PK	74.00	-18.97	1.04 V	278	7.82	47.21
5	11400.00	41.89 AV	54.00	-12.11	1.04 V	278	-5.32	47.21

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



A D T

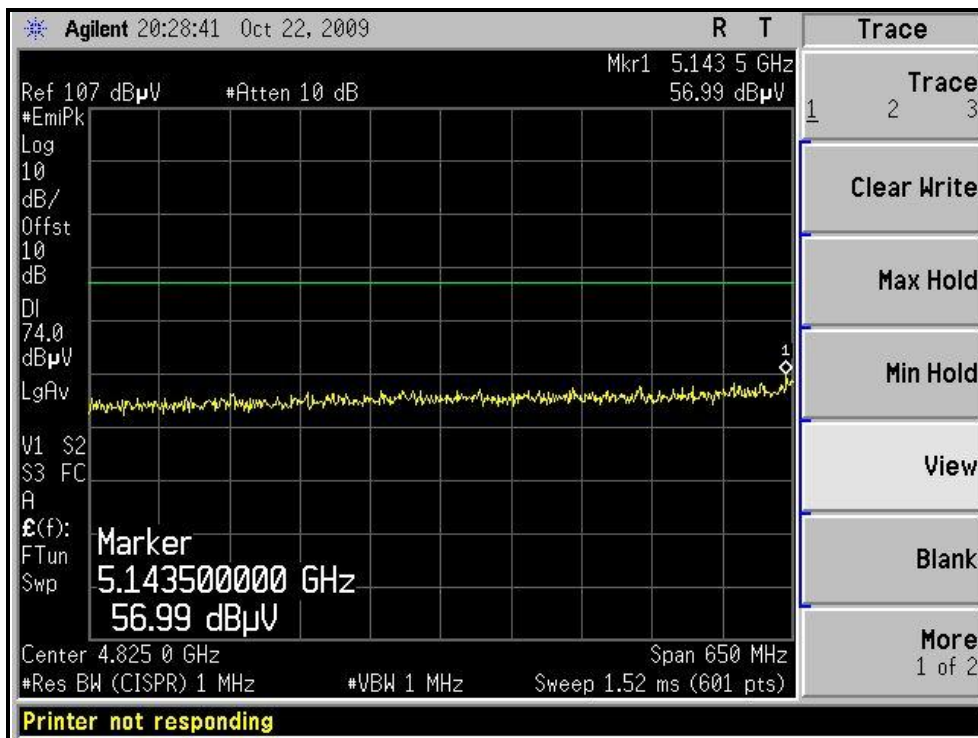
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





A D T

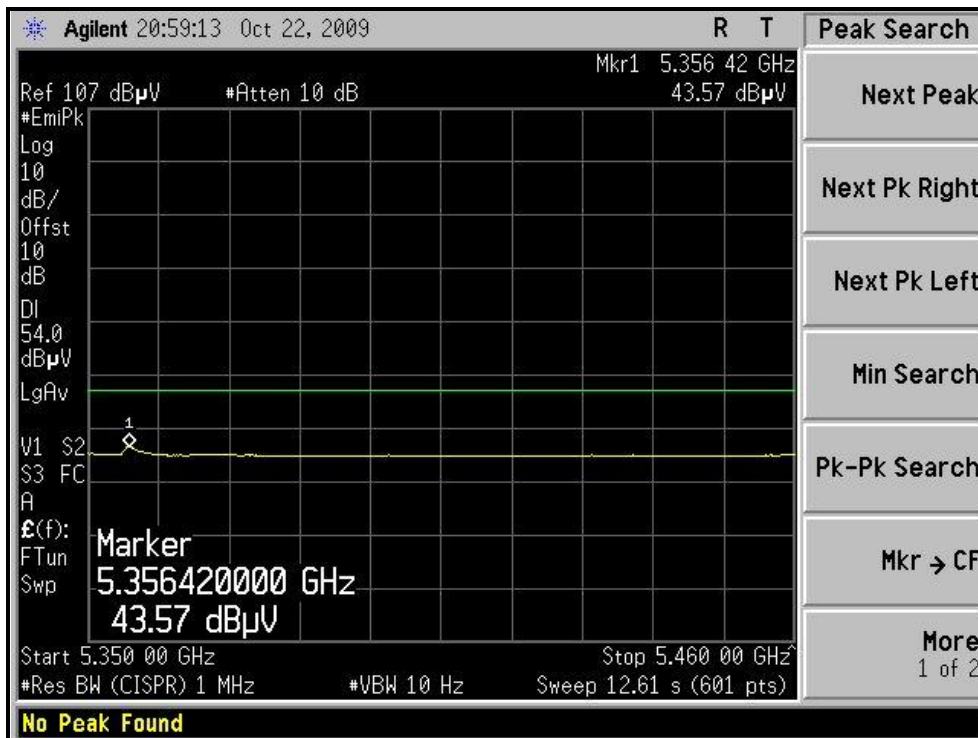
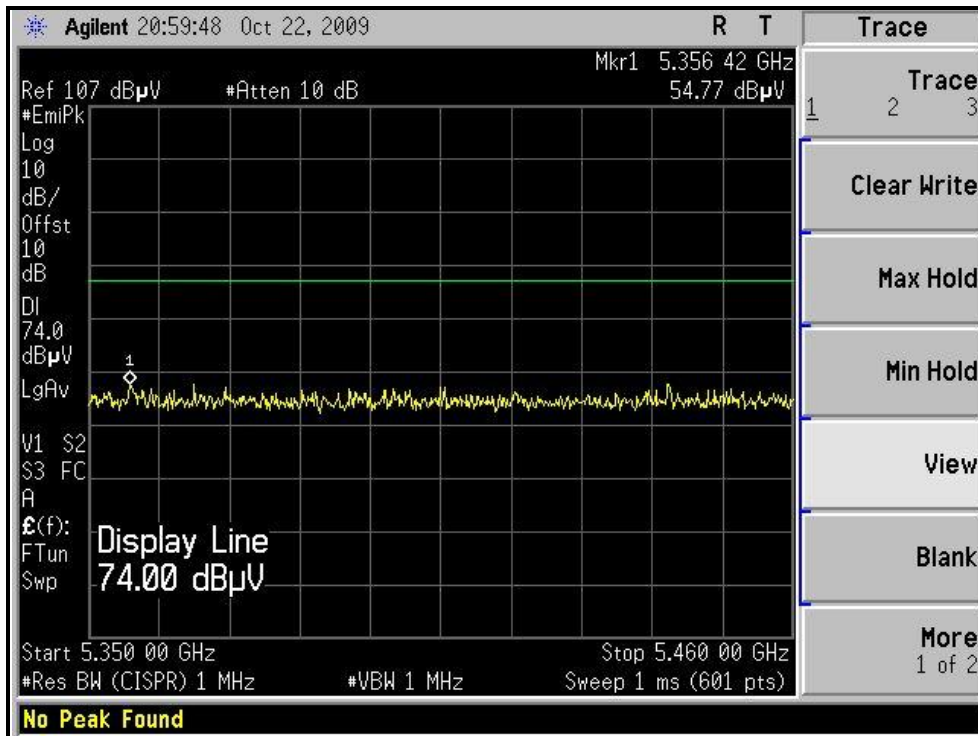
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





A D T

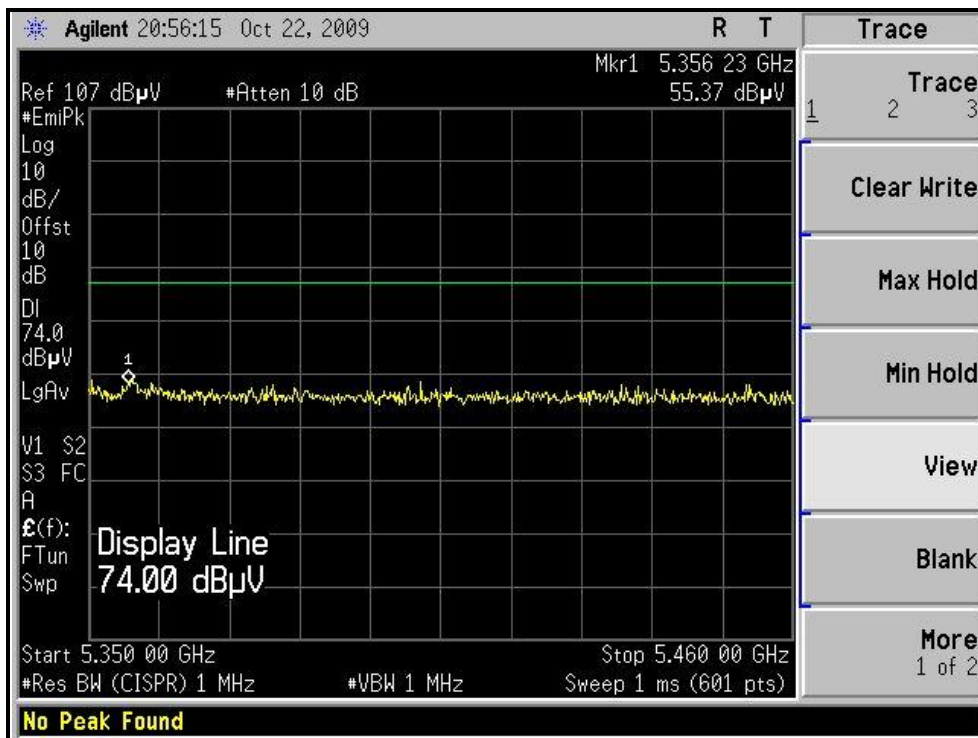
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)





A D T

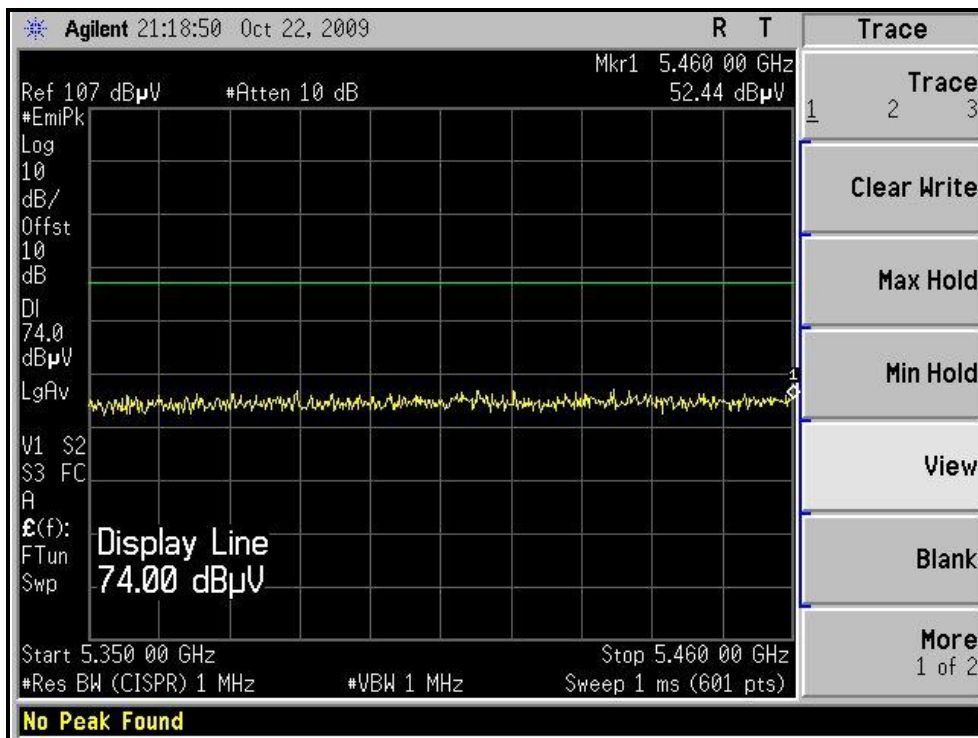
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)





A D T

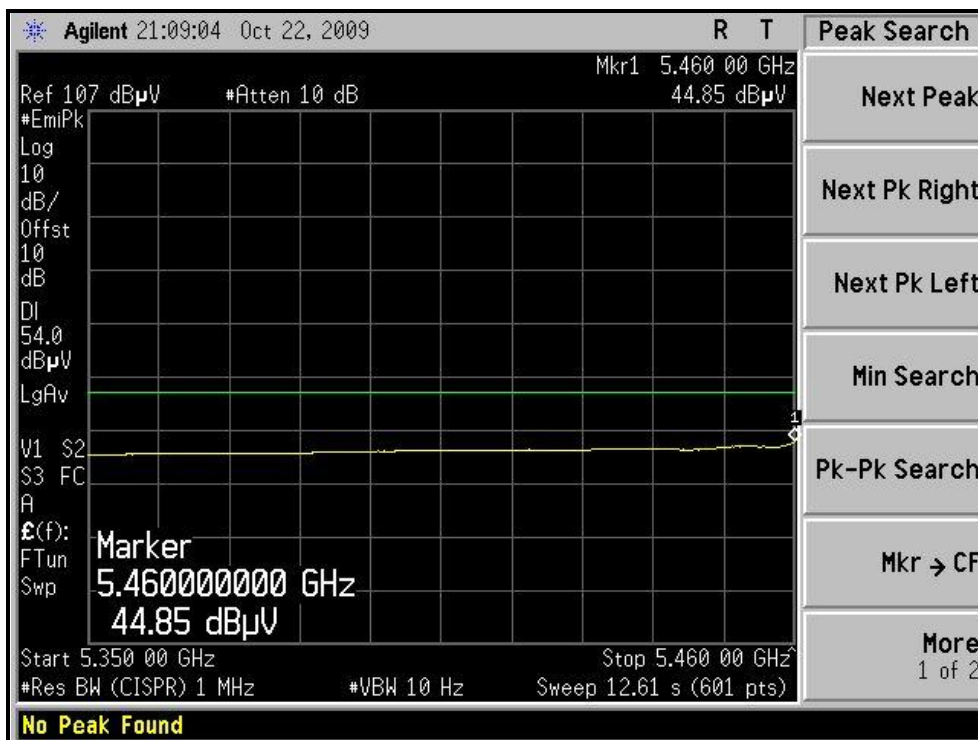
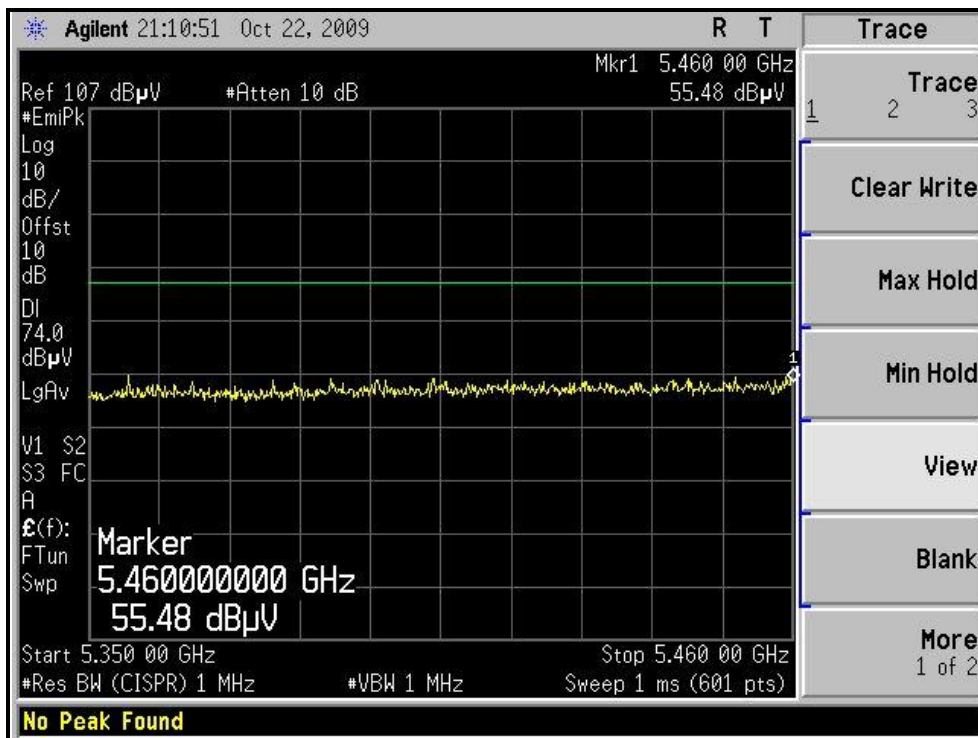
RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)



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
5.47 – 5.725GHz	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 DATE	CALIBRATED UNTIL
ADVANTEST SPECTRUM ANALYZER	U3772	160100280	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. 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

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 3MHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

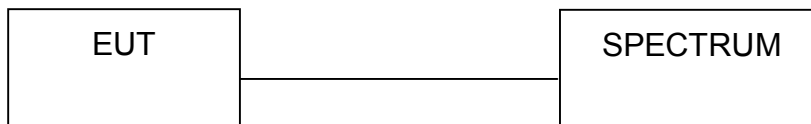
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

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.



A D T

4.3.7 TEST RESULTS

802.11a OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

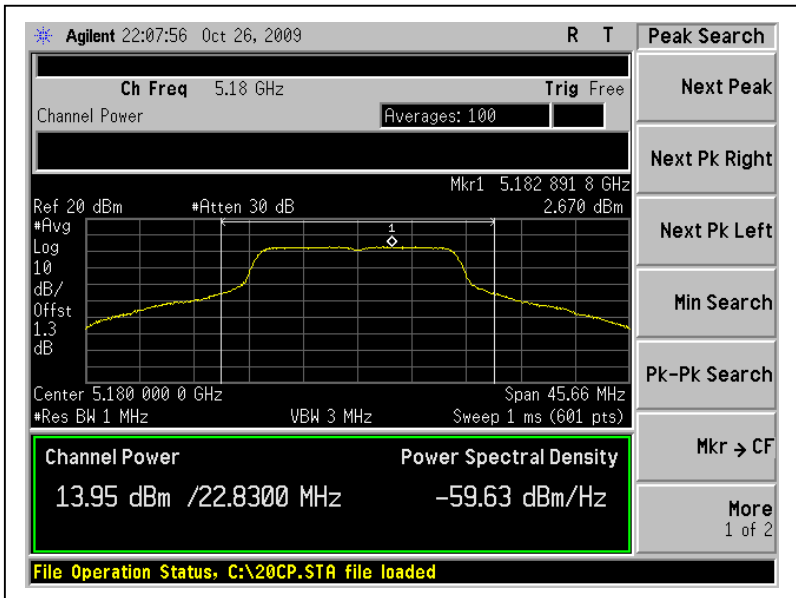
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
36	5180	14.0	25.1	17	22.83	PASS
40	5200	14.0	25.1	17	22.58	PASS
48	5240	14.5	28.2	17	22.67	PASS
52	5260	15.9	38.9	24	28.42	PASS
60	5300	16.0	39.4	24	28.33	PASS
64	5320	16.1	40.7	24	25.17	PASS
100	5500	15.3	33.9	24	22.08	PASS
120	5600	15.4	34.7	24	28.58	PASS
140	5700	14.1	25.7	24	28.42	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

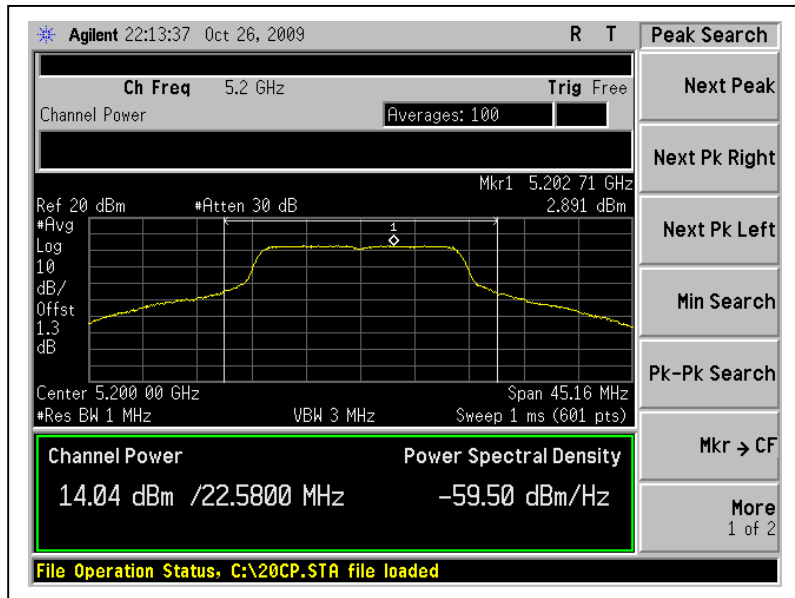


A D T

Peak Power Output: CH36



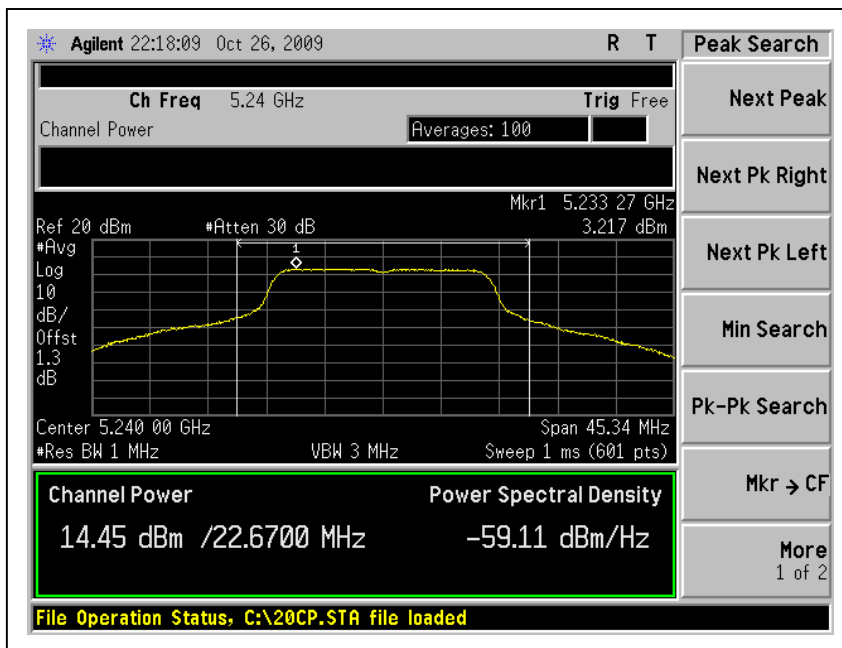
CH40



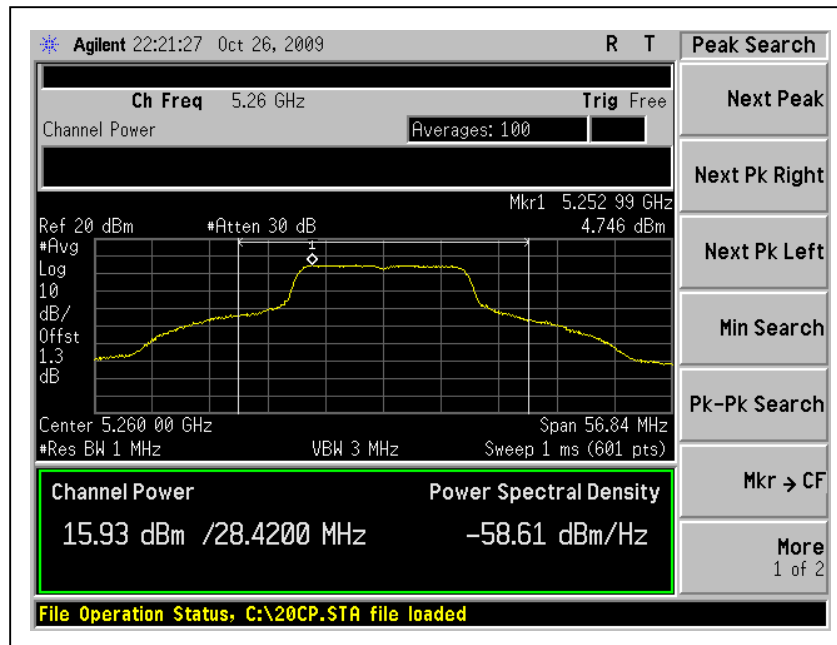


A D T

CH48



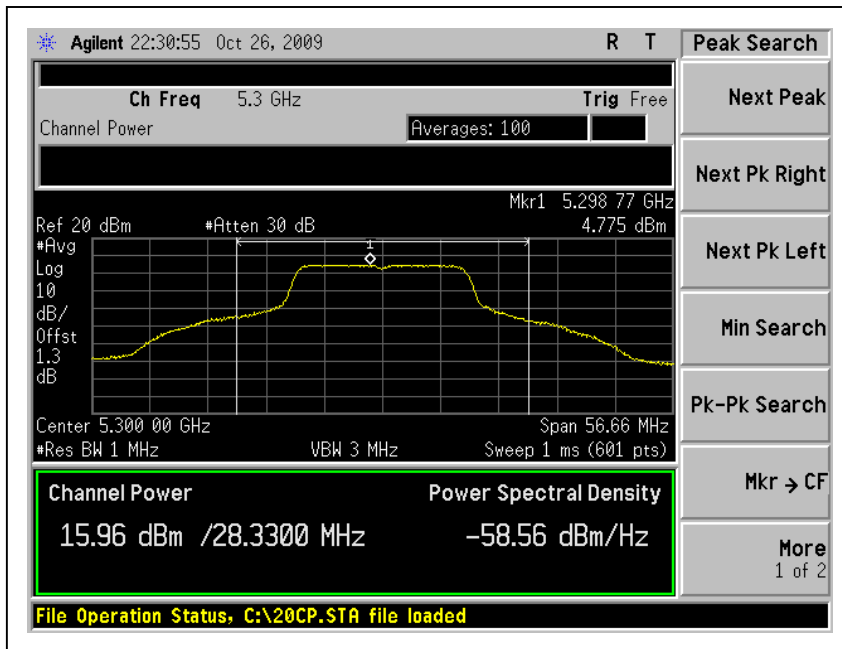
CH52



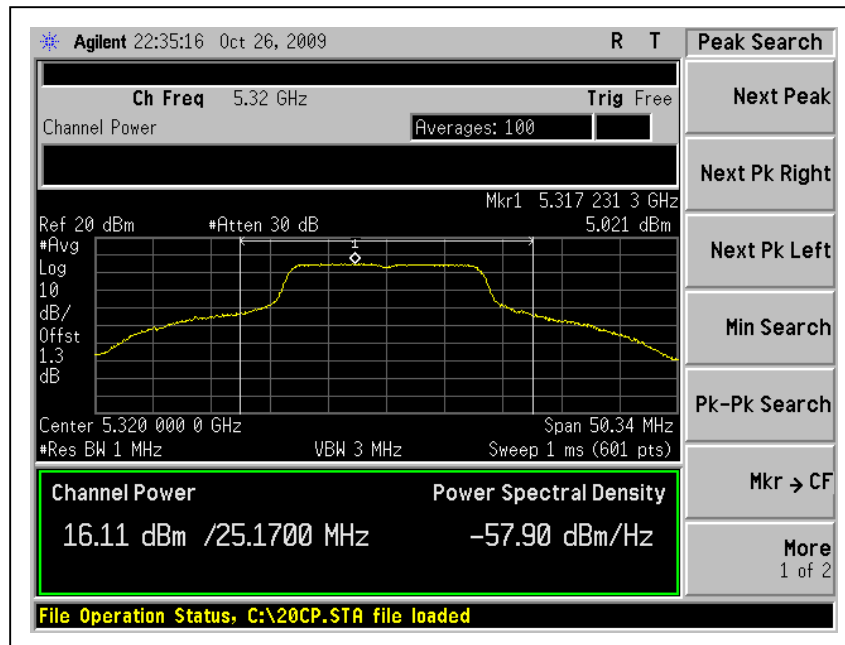


A D T

CH60



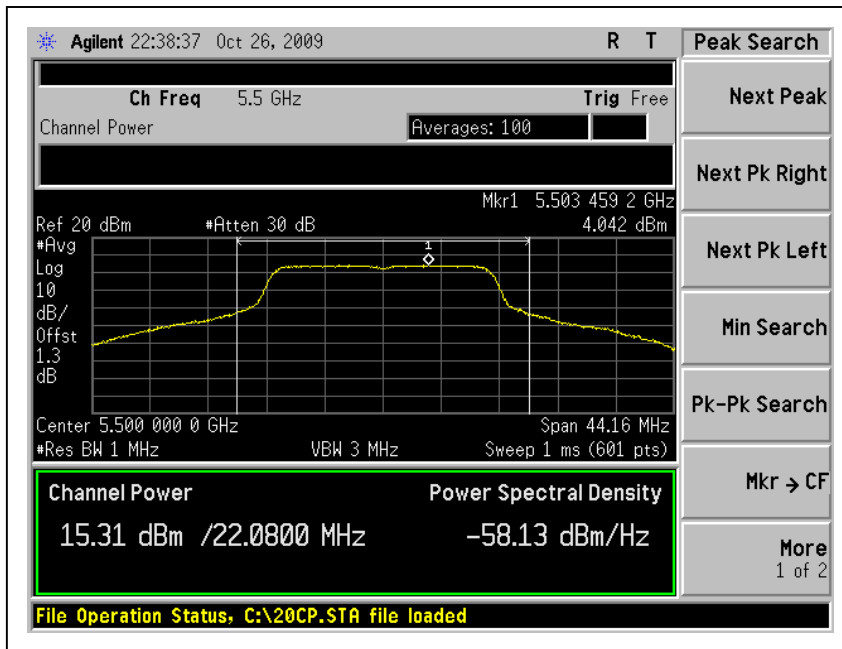
CH64



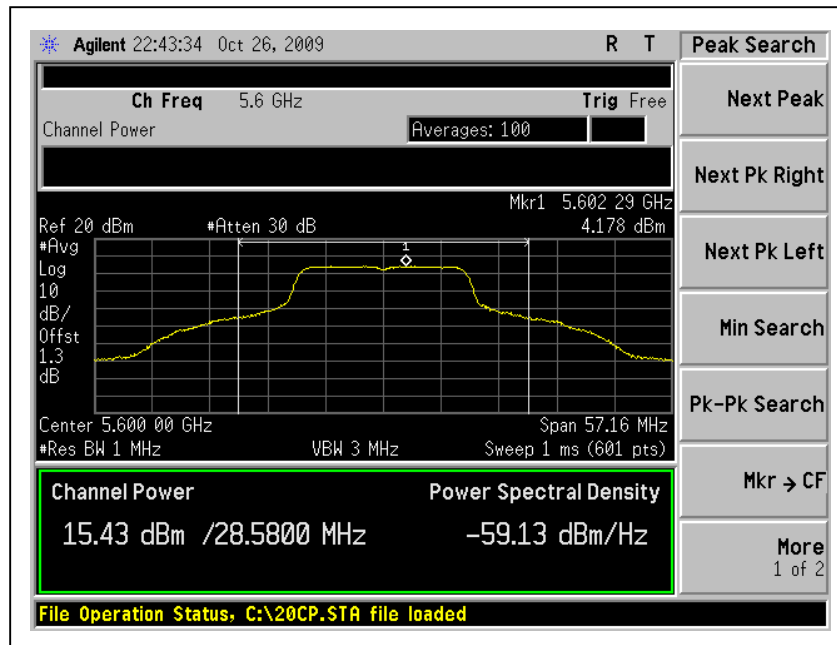


A D T

CH100



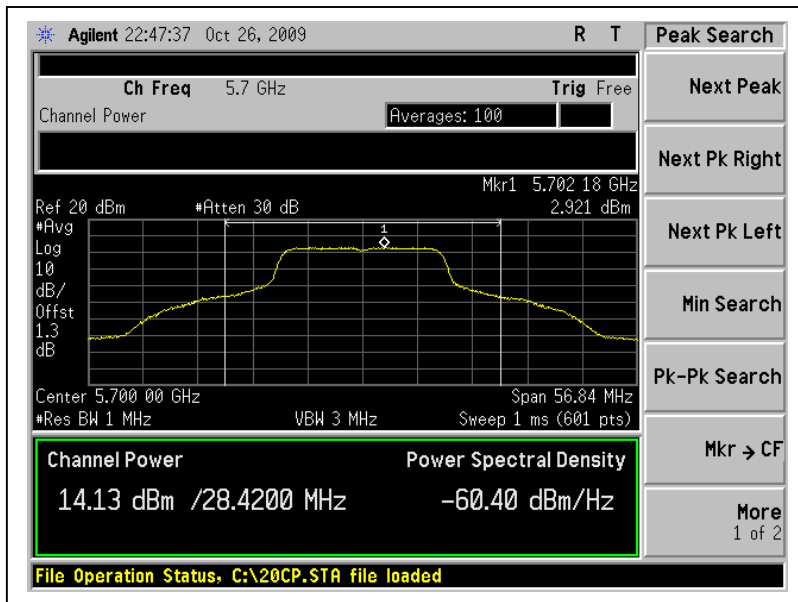
CH120





A D T

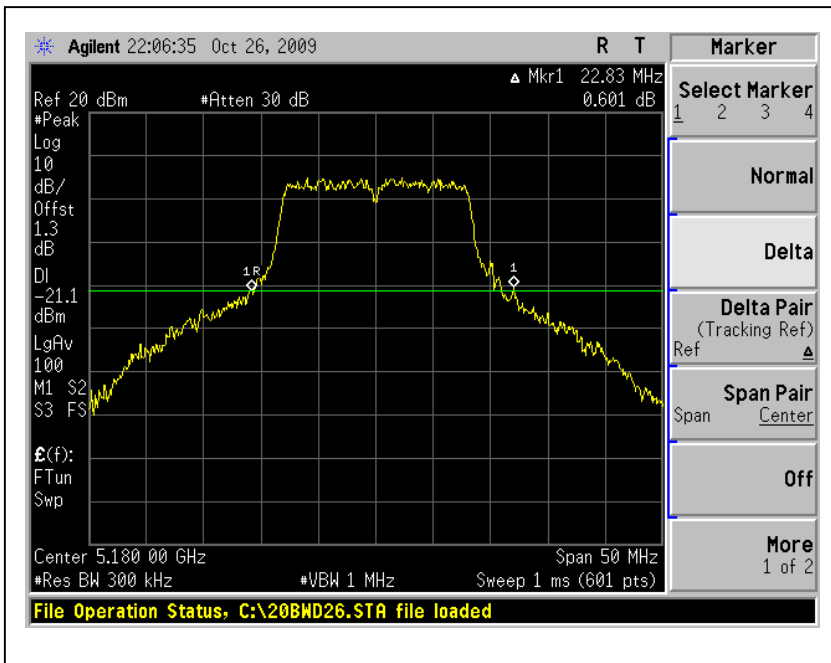
CH140



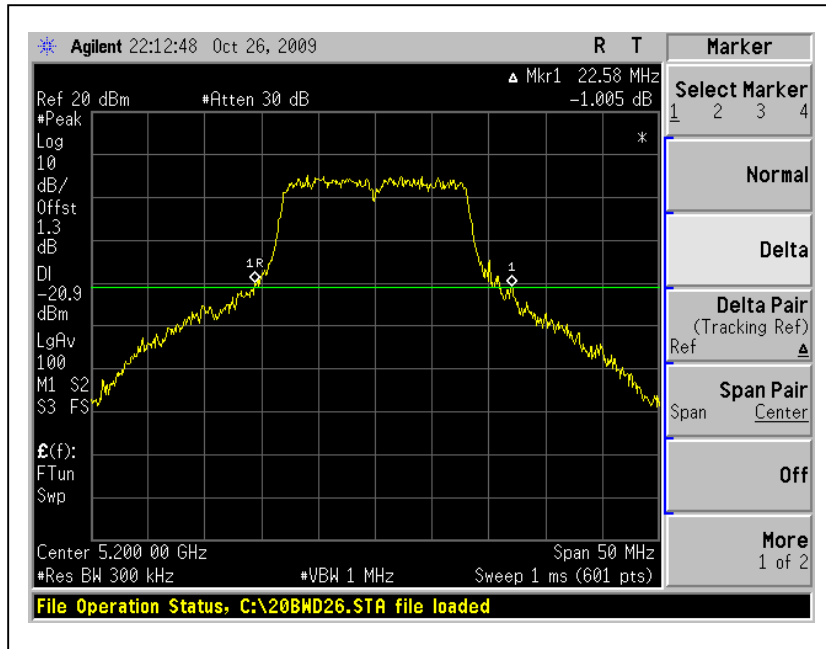


A D T

26dB Occupied Bandwidth: CH36



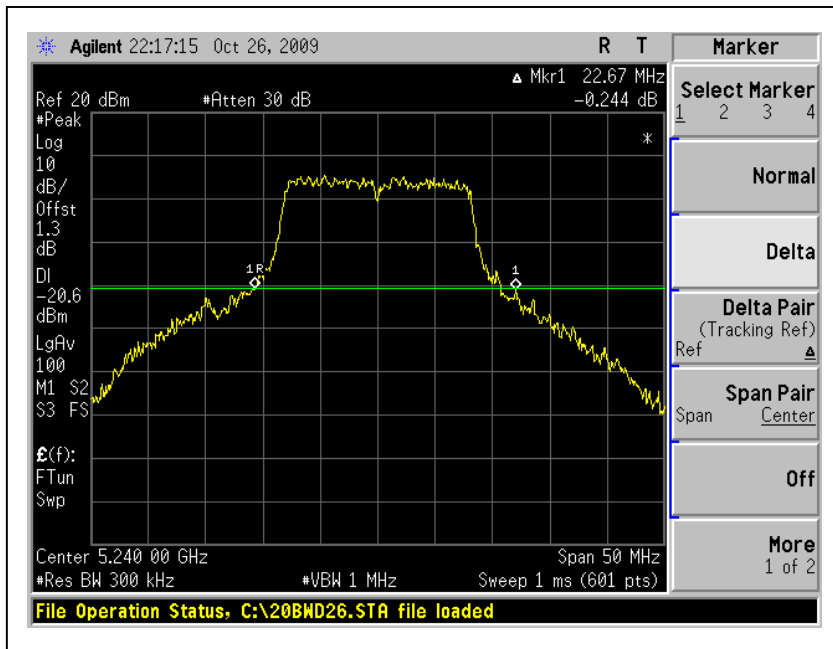
CH40



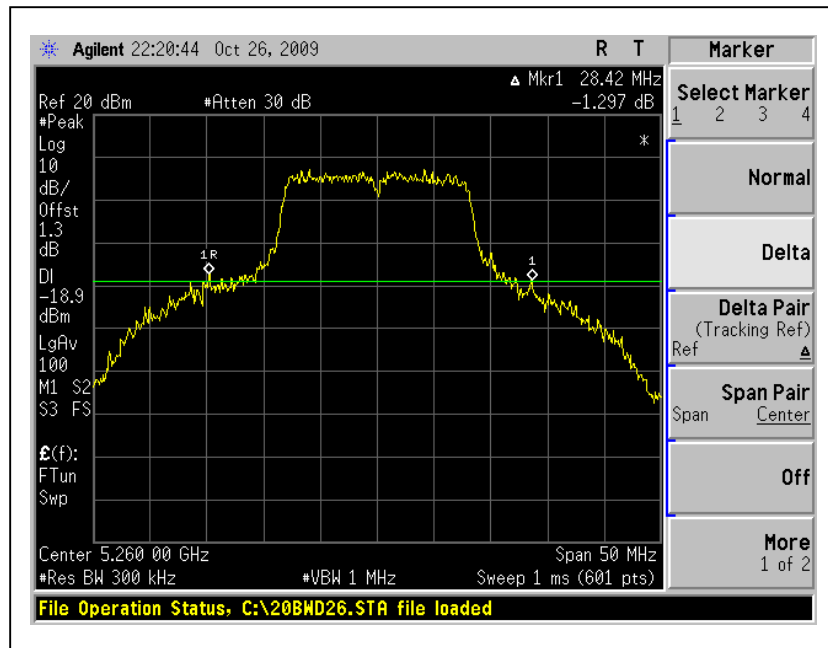


A D T

CH48



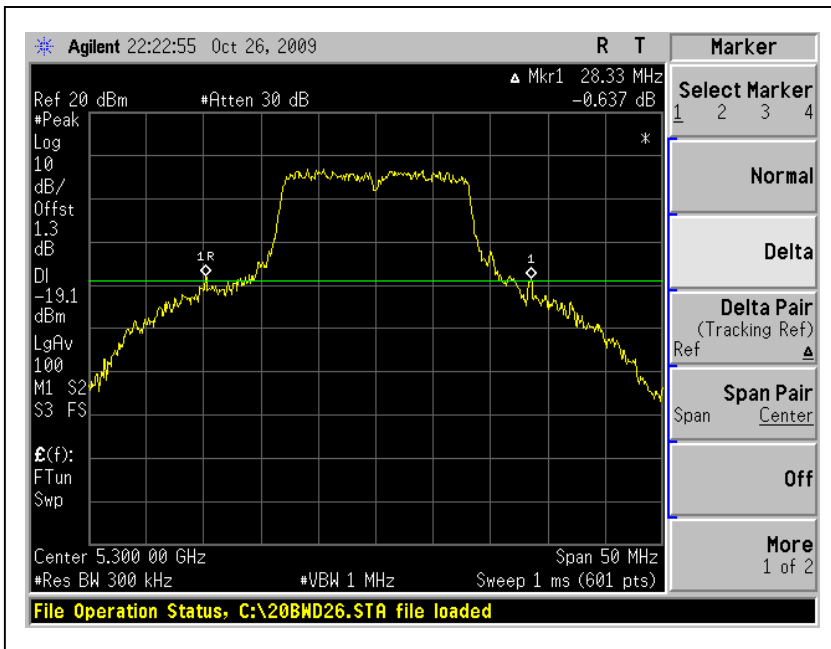
CH52



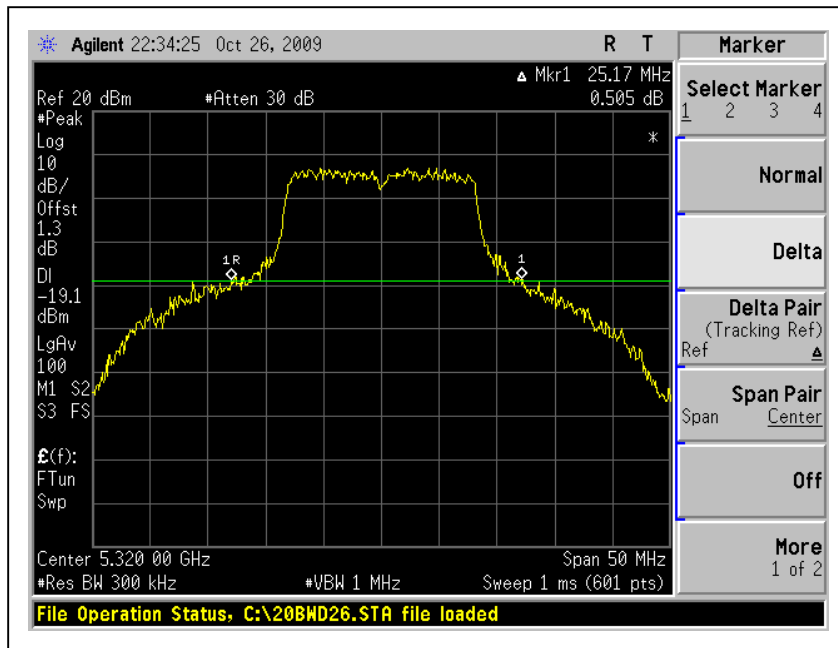


A D T

CH60



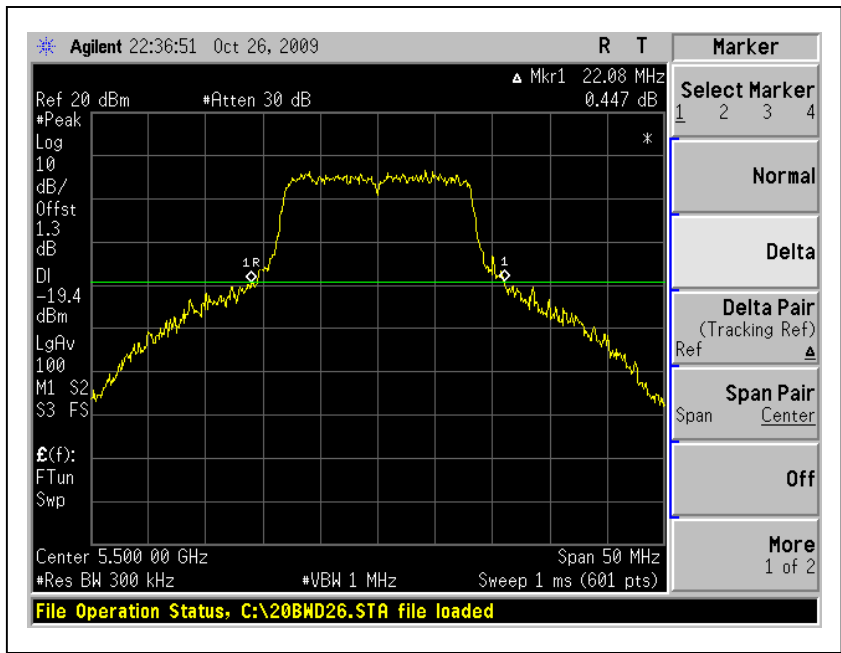
CH64



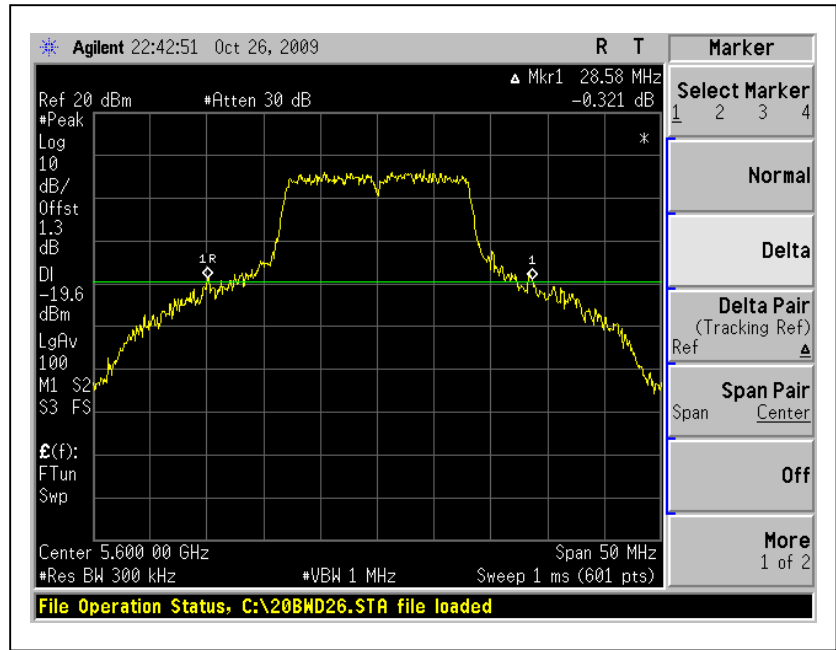


A D T

CH100



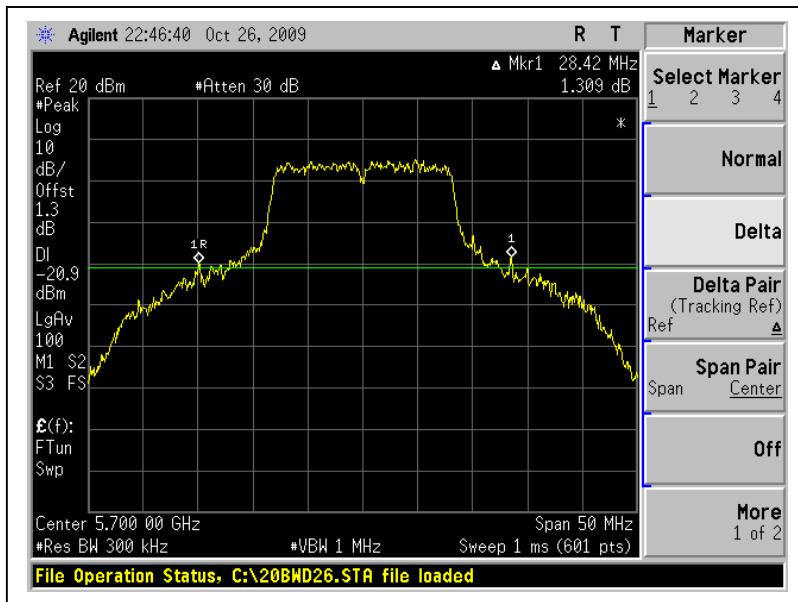
CH120





A D T

CH140





A D T

4.4 AVERAGE OUTPUT POWER

4.4.1 FOR REFERENCE.

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST SPECTRUM ANALYZER	U3772	160100280	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

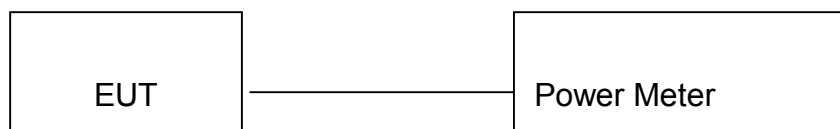


A D T

4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator, the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the average power level.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.6



A D T

4.4.6 TEST RESULTS

802.11a OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)
36	5180	14.0
40	5200	14.0
48	5240	14.2
52	5260	15.7
60	5300	15.6
64	5320	15.6
100	5500	15.4
120	5600	15.4
140	5700	14.3



A D T

4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.47 – 5.725GHz	13dB
5.725 – 5.825 GHz	13dB

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

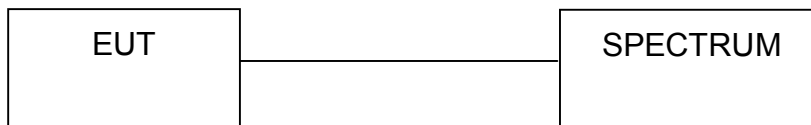
4.5.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

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



A D T

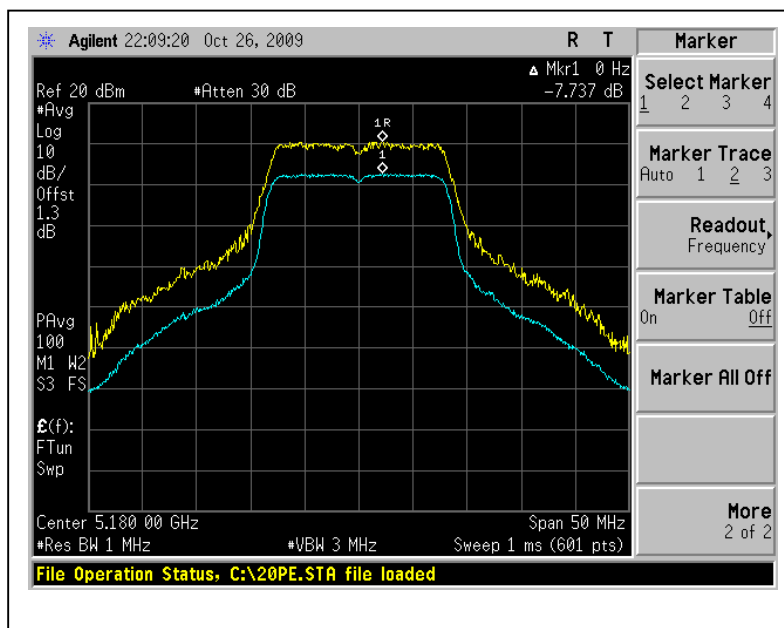
4.5.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	7.74	13	PASS
40	5200	7.81	13	PASS
48	5240	8.37	13	PASS
52	5260	8.33	13	PASS
60	5300	8.37	13	PASS
64	5320	8.34	13	PASS
100	5500	7.99	13	PASS
120	5600	8.67	13	PASS
140	5700	8.12	13	PASS

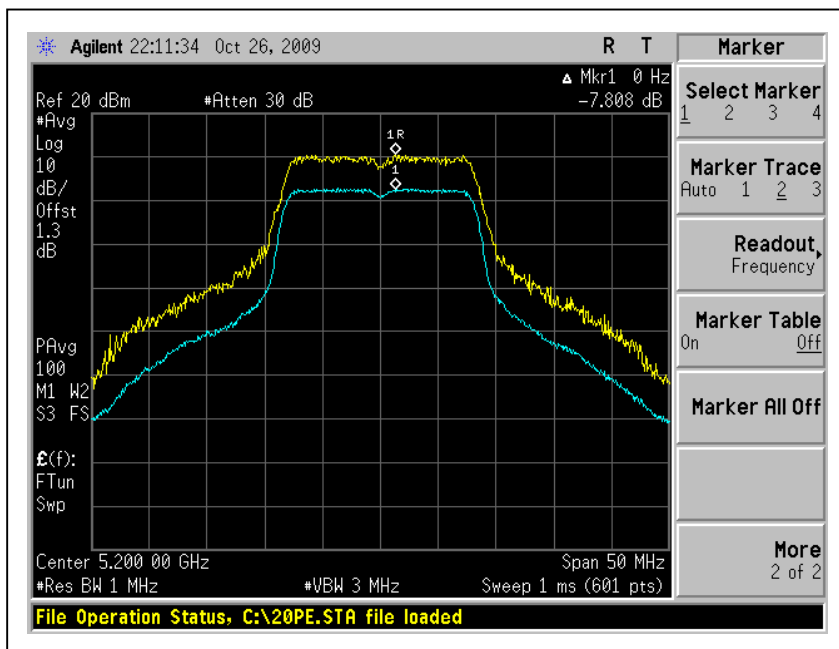
CH36



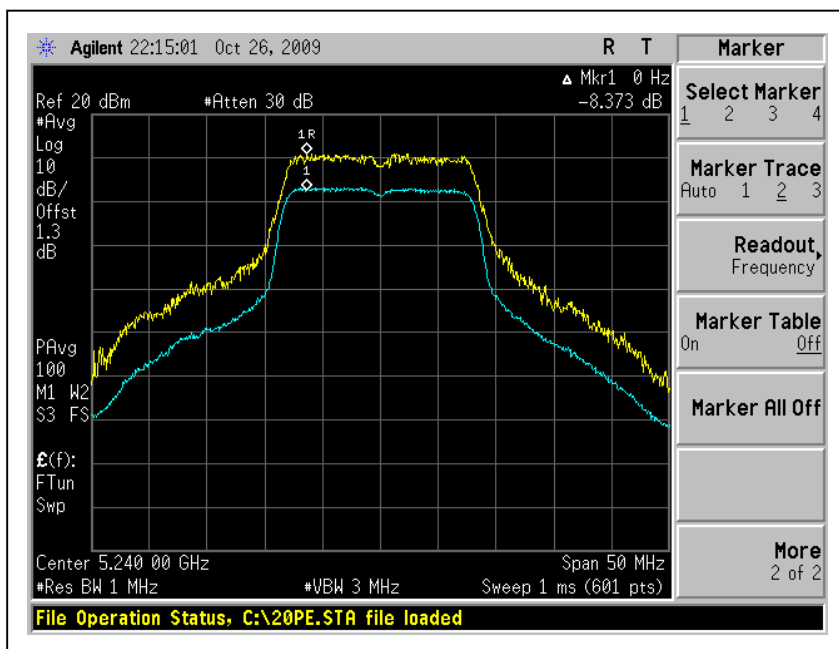


A D T

CH40



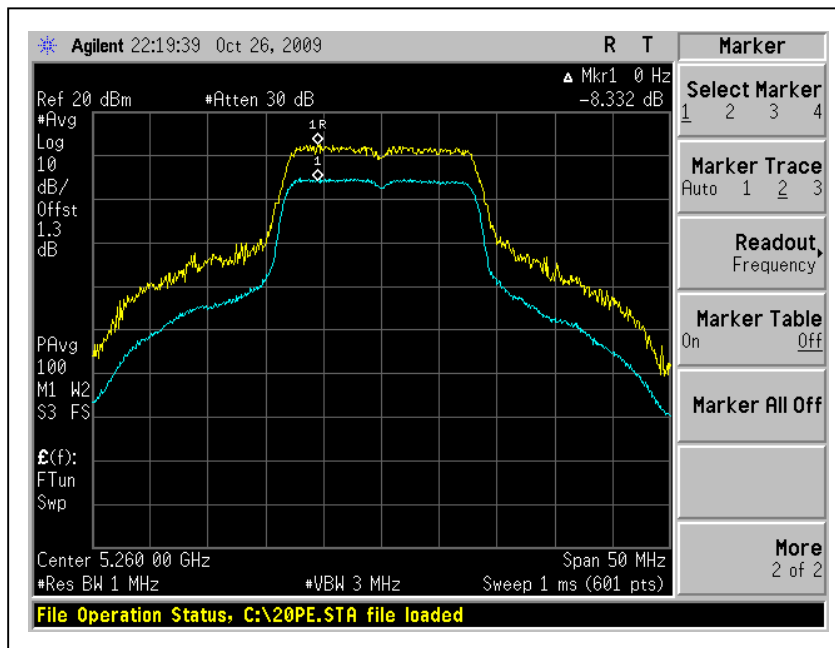
CH48



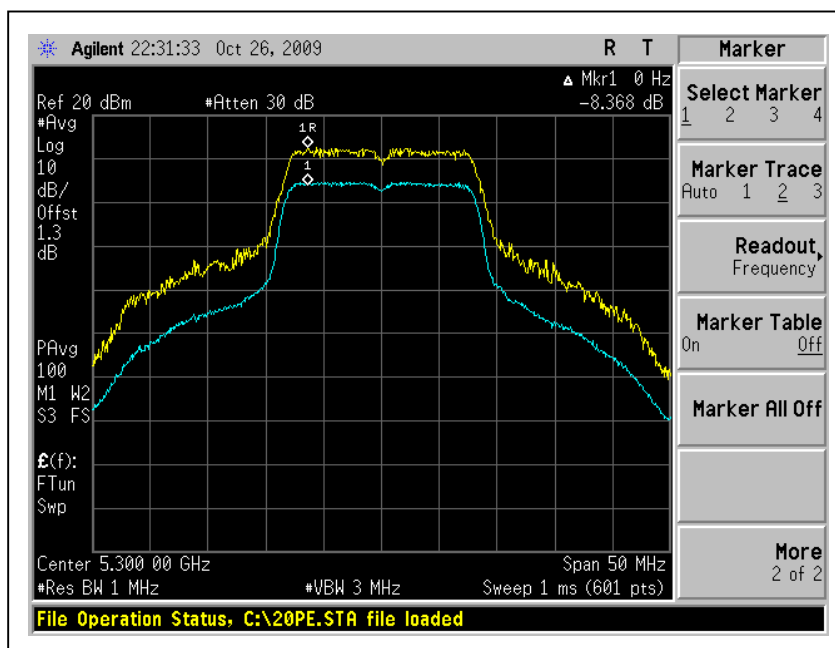


A D T

CH52



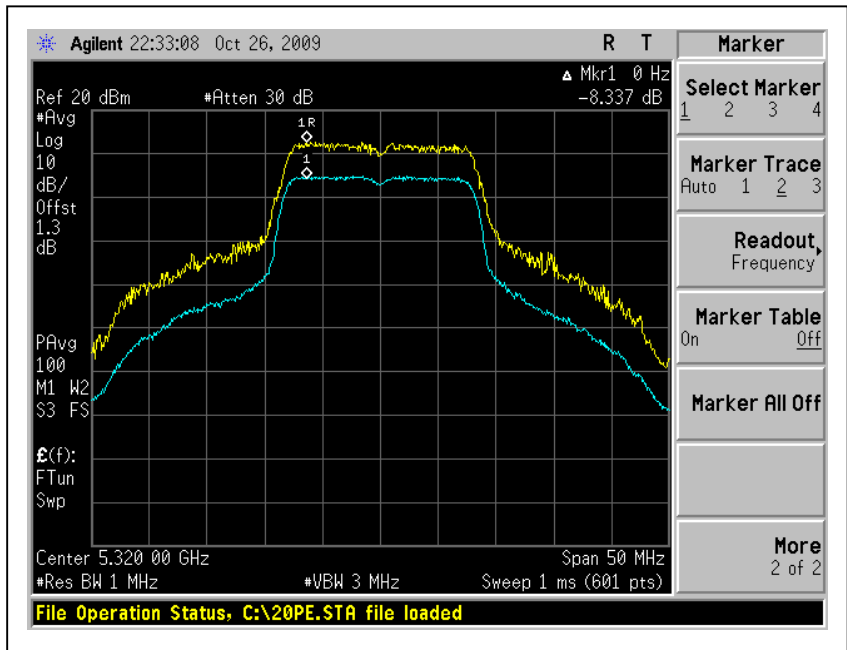
CH60



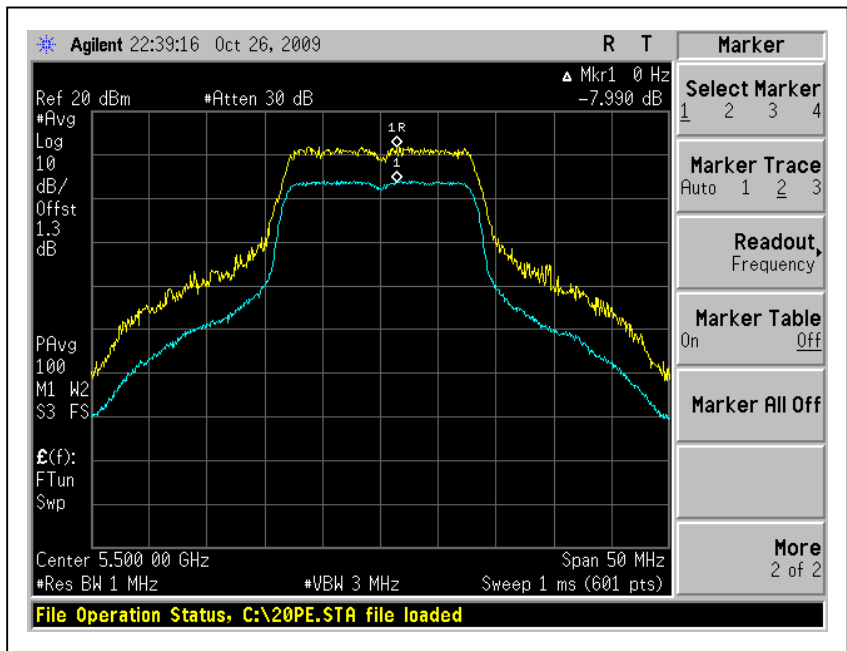


A D T

CH64



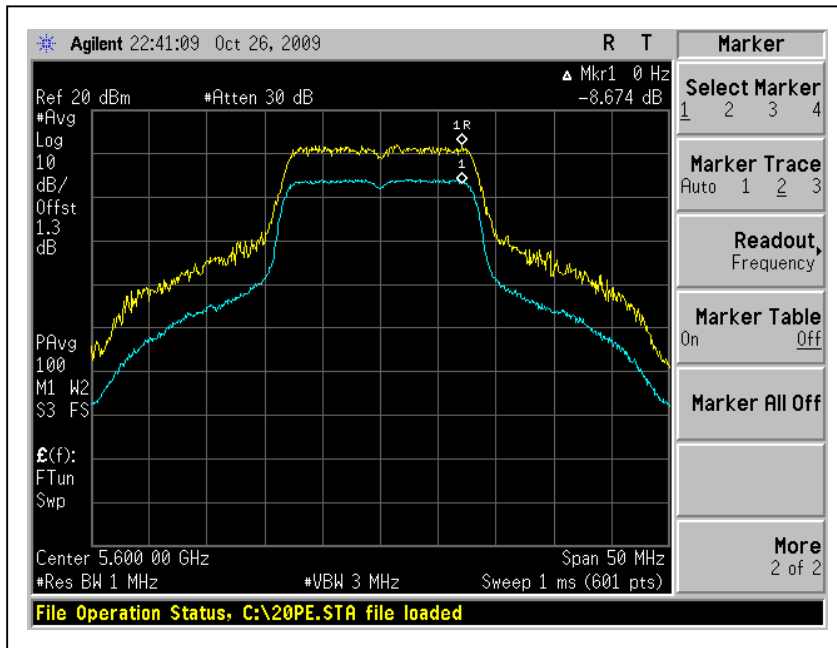
CH100



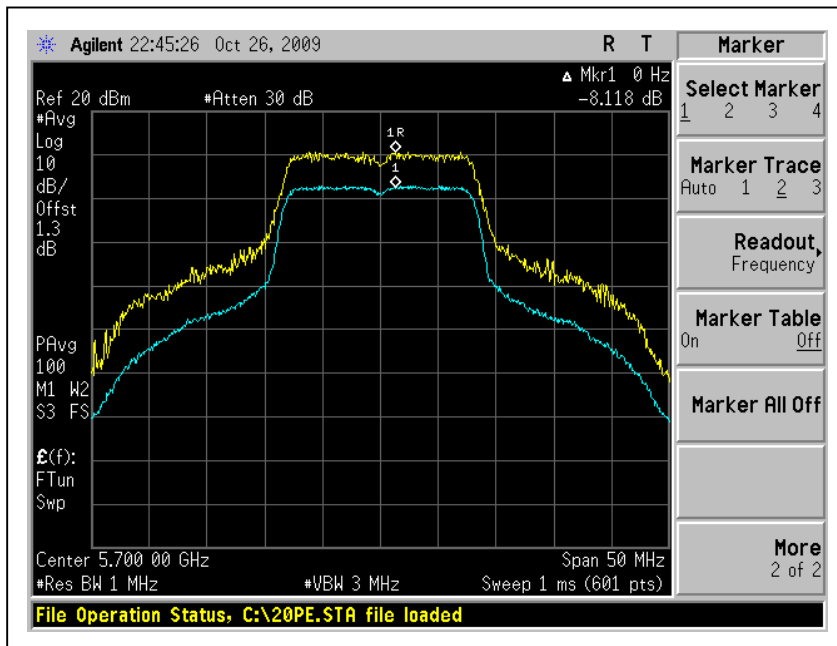


A D T

CH120



CH140





A D T

4.6 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.6.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 – 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

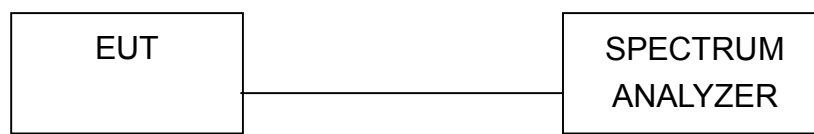
4.6.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITIONS

Same as 4.3.6



A D T

4.6.7 TEST RESULTS

802.11a OFDM modulation

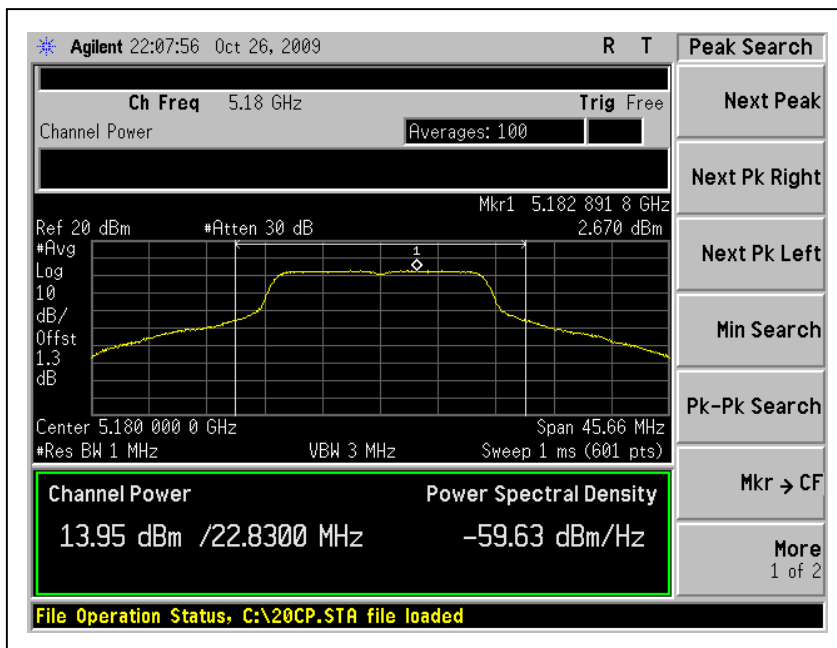
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.7	4	PASS
40	5200	2.9	4	PASS
48	5240	3.2	4	PASS
52	5260	4.7	11	PASS
60	5300	4.8	11	PASS
64	5320	5.0	11	PASS
100	5500	4.0	11	PASS
120	5600	4.2	11	PASS
140	5700	2.9	11	PASS

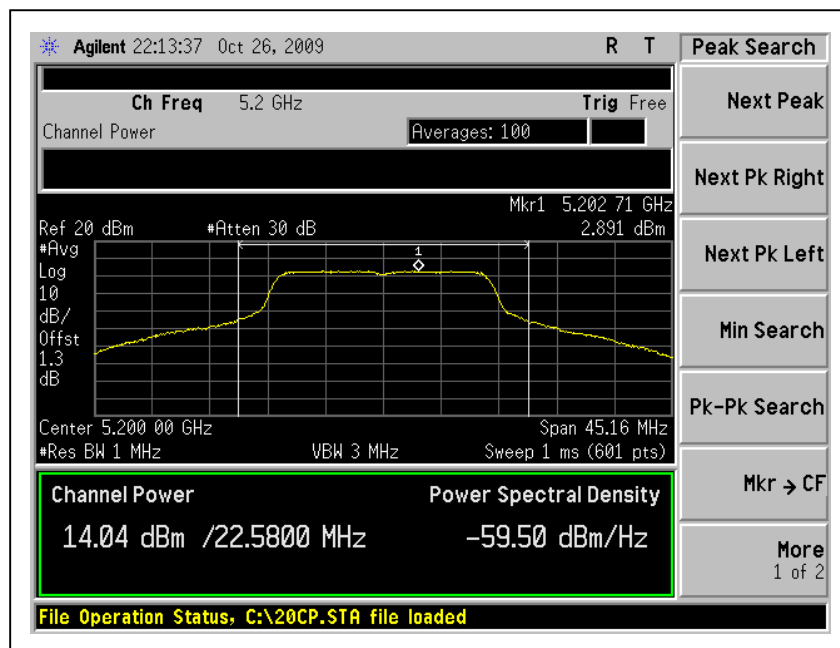


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CH36



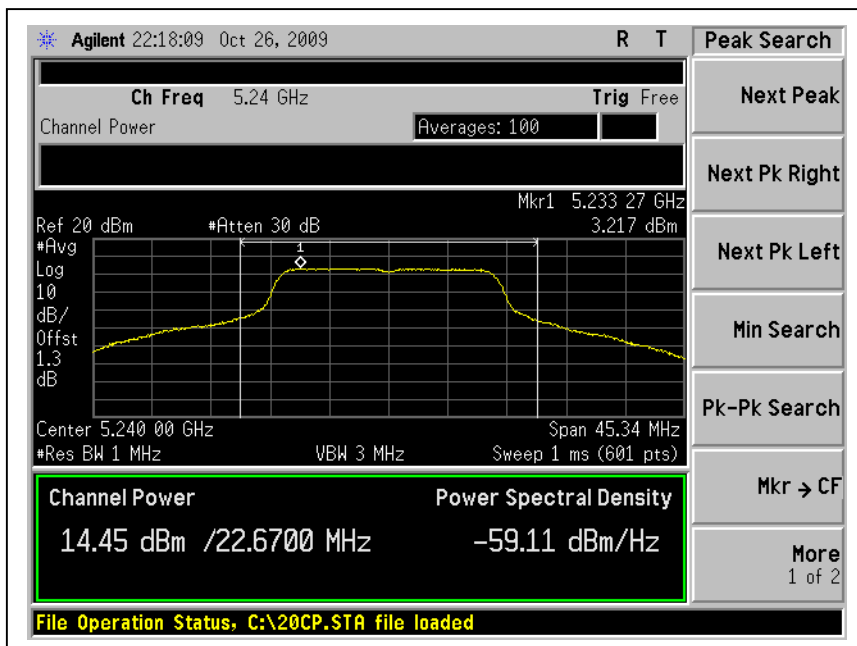
CH40



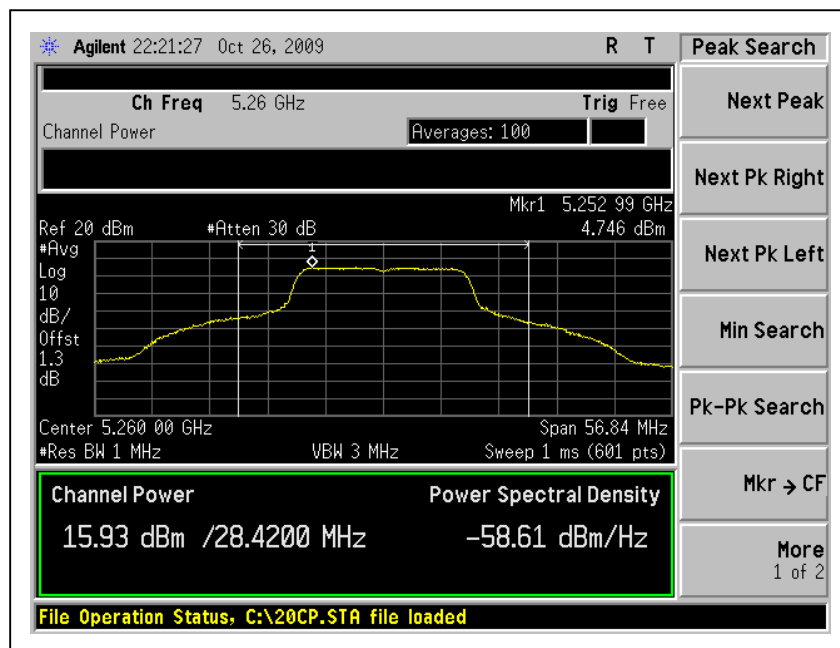


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CH48



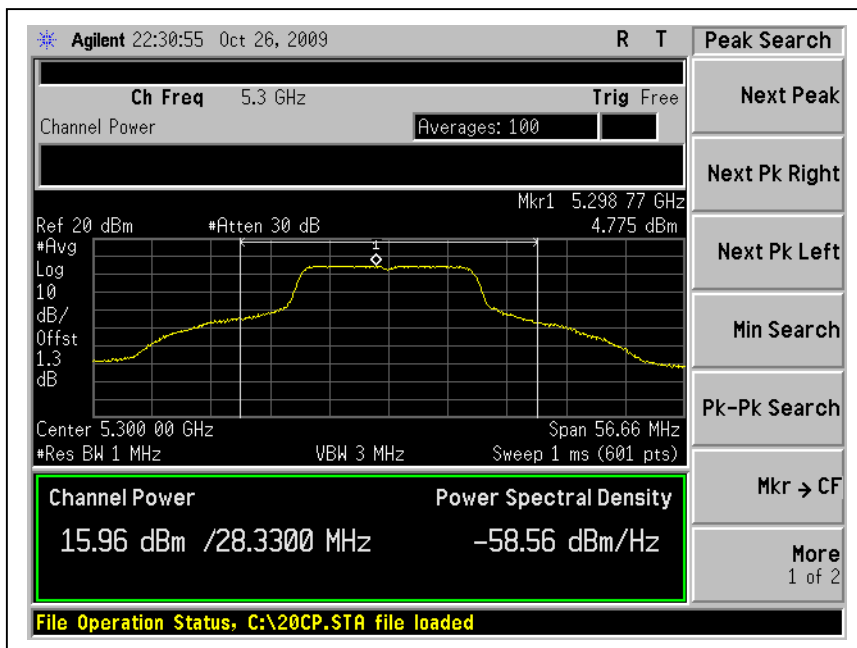
CH52



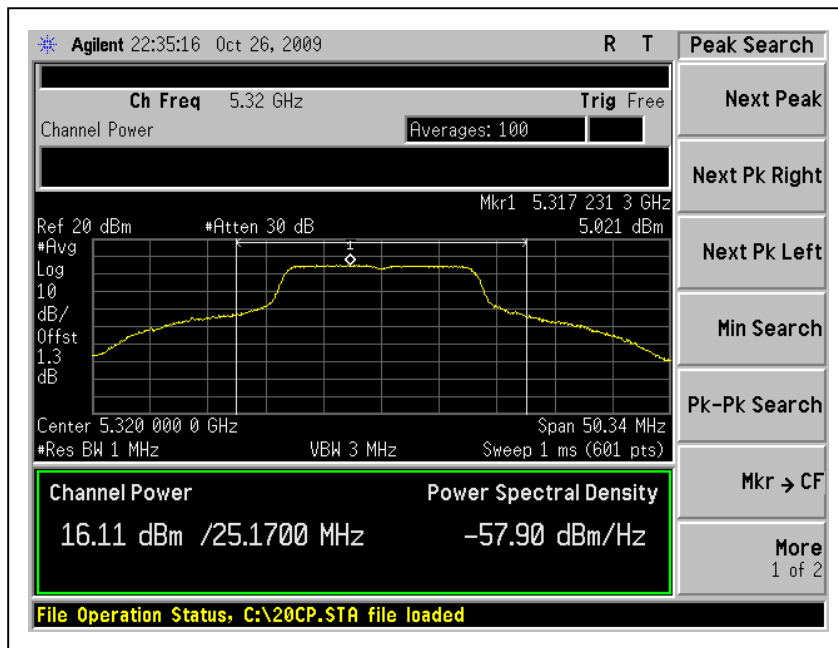


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CH60



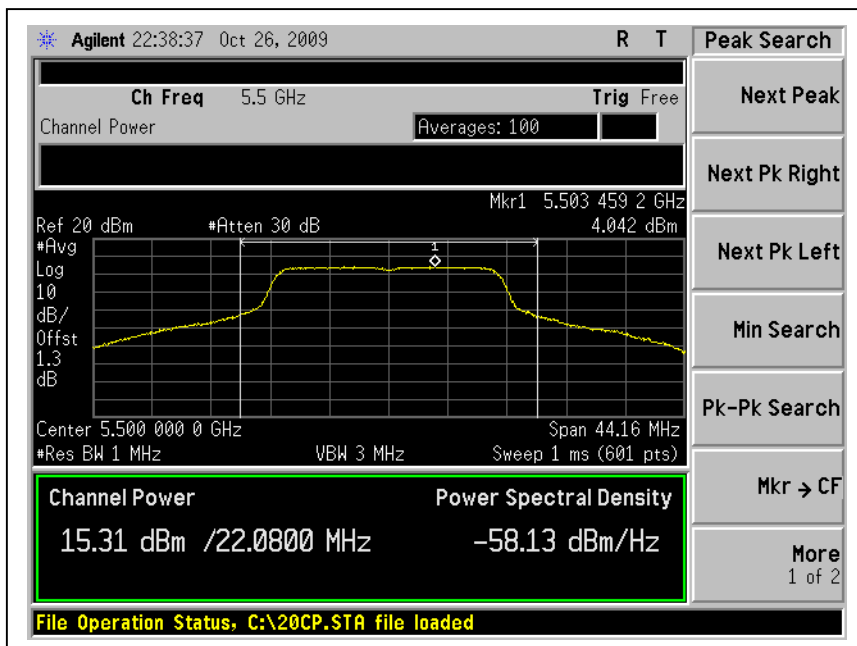
CH64



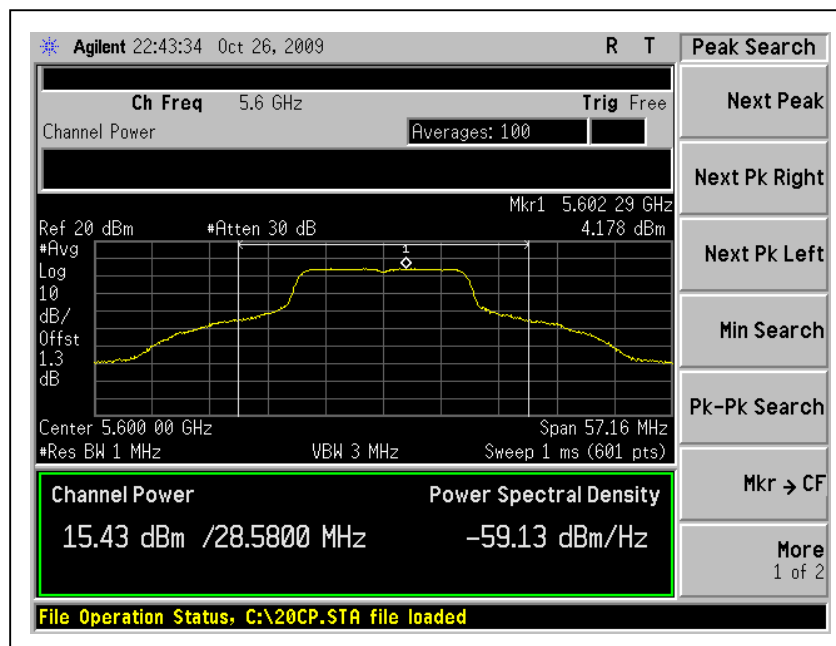


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CH100



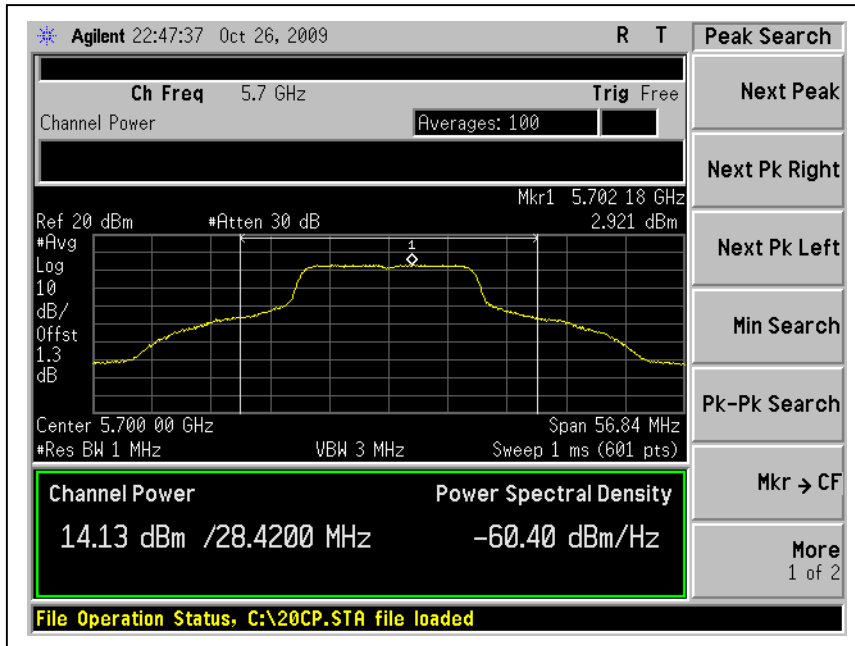
CH120





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CH140



4.7 FREQUENCY STABILITY

4.7.1 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.

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

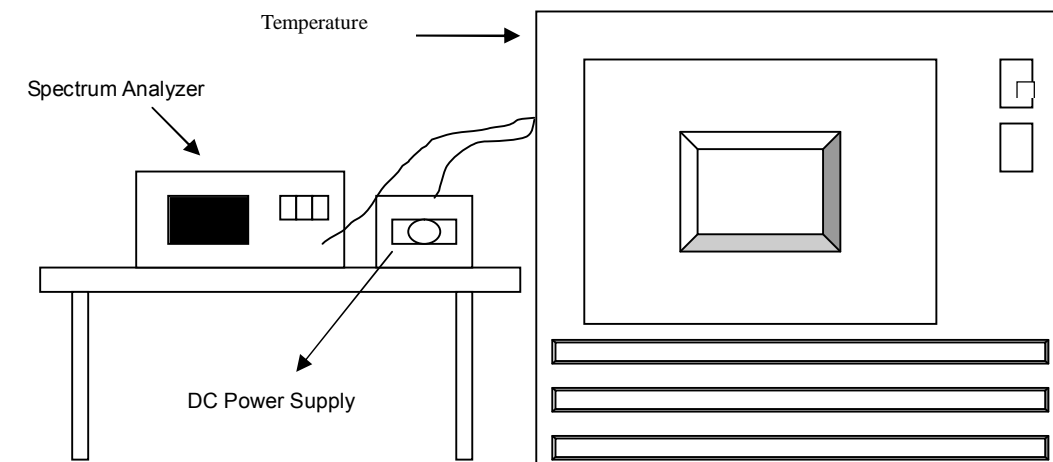
4.7.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. 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.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. 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.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 EUT OPERATING CONDITION

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



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4.7.7 TEST RESULTS

		Operating frequency: 5320MHz				Limit : ± 0.02%	
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5319.9937	0.000118	5319.9942	0.000109	5319.9956	0.000083
	110	5319.9939	0.000115	5319.9942	0.000109	5319.9956	0.000083
	93.5	5319.9936	0.000120	5319.9941	0.000111	5319.9956	0.000083
40	126.5	5319.9998	0.000004	5320.0000	0.000000	5320.0062	0.000117
	110	5320.0008	0.000015	5320.0030	0.000056	5320.0062	0.000117
	93.5	5319.9998	0.000004	5320.0000	0.000000	5320.0042	0.000079
30	126.5	5320.0088	0.000165	5320.0110	0.000207	5320.0138	0.000259
	110	5320.0108	0.000203	5320.0130	0.000244	5320.0136	0.000256
	93.5	5320.0088	0.000165	5320.0100	0.000188	5320.0136	0.000256
20	126.5	5319.9883	0.000220	5319.9888	0.000211	5319.9903	0.000182
	110	5319.9887	0.000212	5319.9892	0.000203	5319.9904	0.000180
	93.5	5319.9883	0.000220	5319.9888	0.000211	5319.9903	0.000182
10	126.5	5320.0028	0.000053	5320.0070	0.000132	5320.0132	0.000248
	110	5320.0058	0.000109	5320.0100	0.000188	5320.0132	0.000248
	93.5	5320.0038	0.000071	5320.0060	0.000113	5320.0132	0.000248
0	126.5	5320.0186	0.000350	5320.0187	0.000352	5320.0196	0.000368
	110	5320.0186	0.000350	5320.0186	0.000350	5320.0196	0.000368
	93.5	5320.0186	0.000350	5320.0184	0.000346	5320.0198	0.000372
-10	126.5	5319.9791	0.000393	5319.9796	0.000383	5319.9713	0.000539
	110	5319.9793	0.000389	5319.9796	0.000383	5319.9714	0.000538
	93.5	5319.979	0.000395	5319.9799	0.000378	5319.9813	0.000352
-20	126.5	5319.9926	0.000139	5319.9931	0.000130	5319.9948	0.000098
	110	5319.9929	0.000133	5319.9933	0.000126	5319.9948	0.000098
	93.5	5319.9926	0.000139	5319.9931	0.000130	5319.9948	0.000098
-30	126.5	5319.9735	0.000498	5319.9739	0.000491	5319.9754	0.000462
	110	5319.9736	0.000496	5319.9741	0.000487	5319.9754	0.000462
	93.5	5319.9734	0.000500	5319.9739	0.000491	5319.9754	0.000462

4.8 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.8.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

4.8.2 TEST PROCEDURE

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

4.8.3 EUT OPERATING CONDITION

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

4.8.4 TEST RESULTS

For 5.15 to 5.35GHz band:

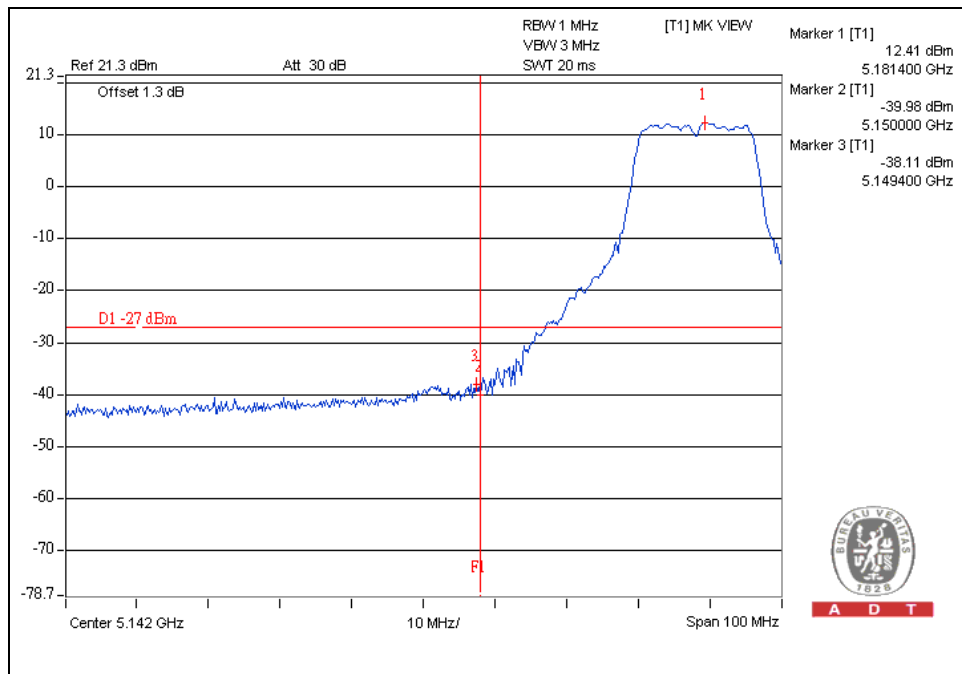
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



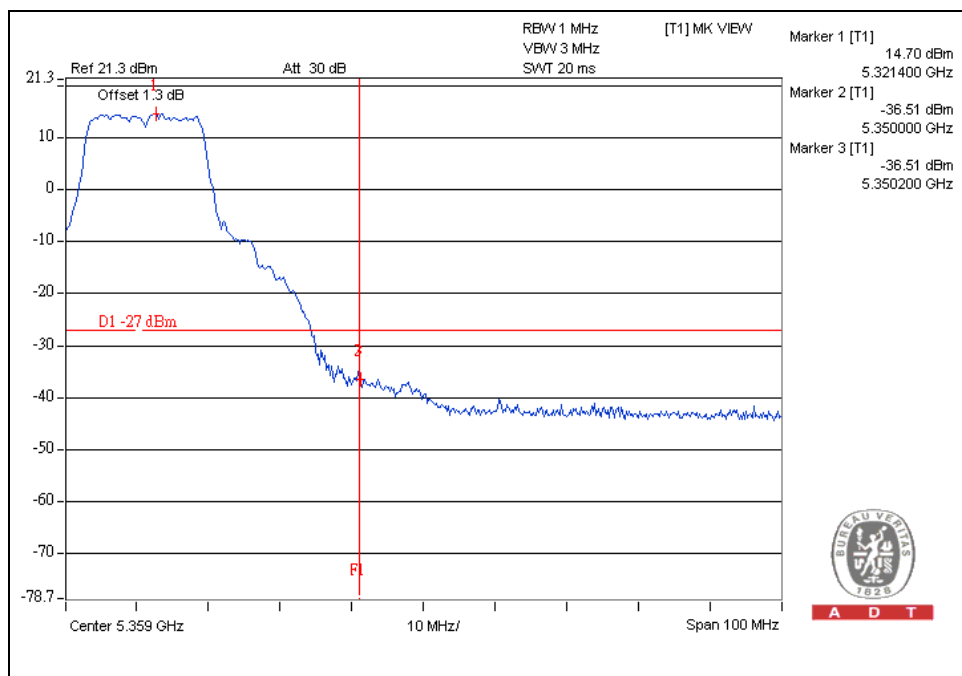
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802.11a OFDM modulation

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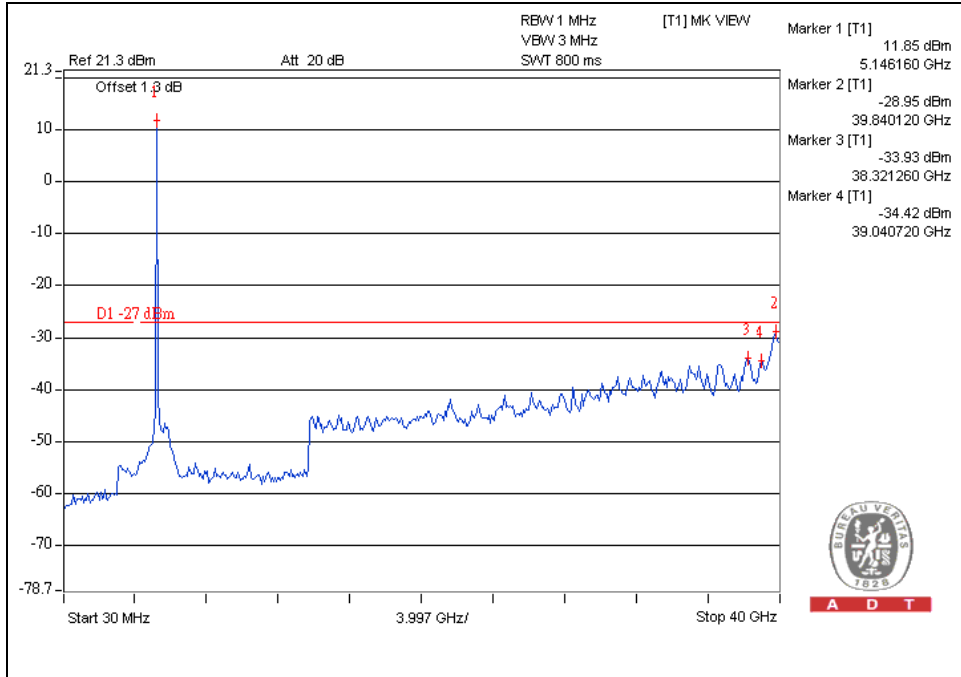
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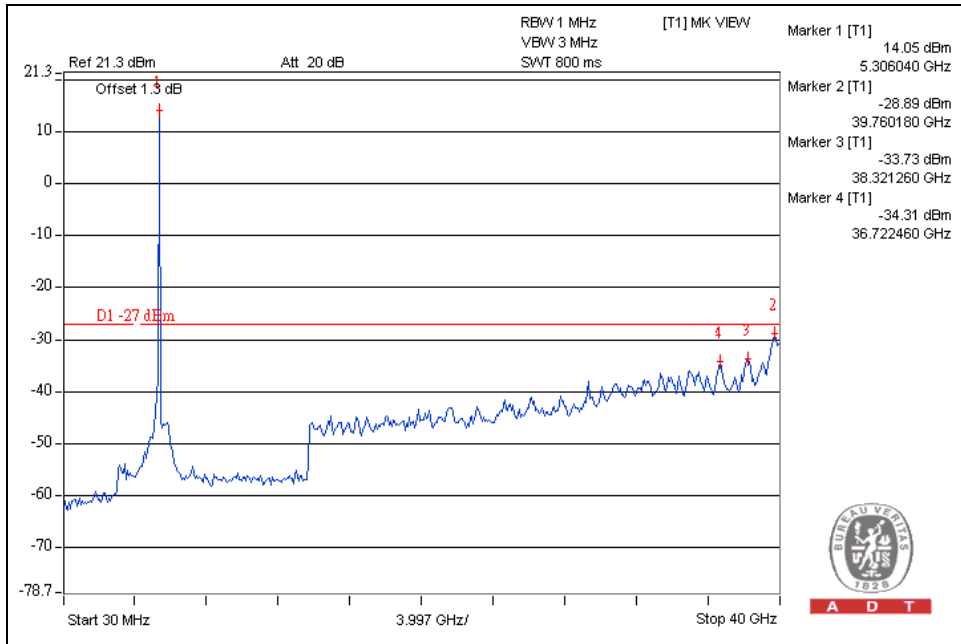


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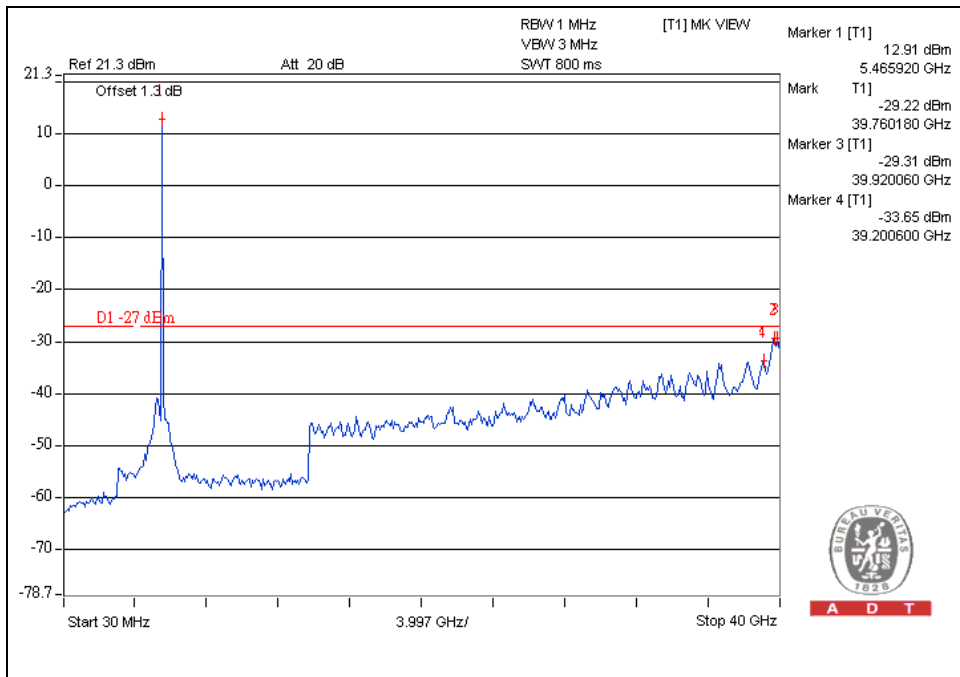
For 5.47 to 5.725GHz band:

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

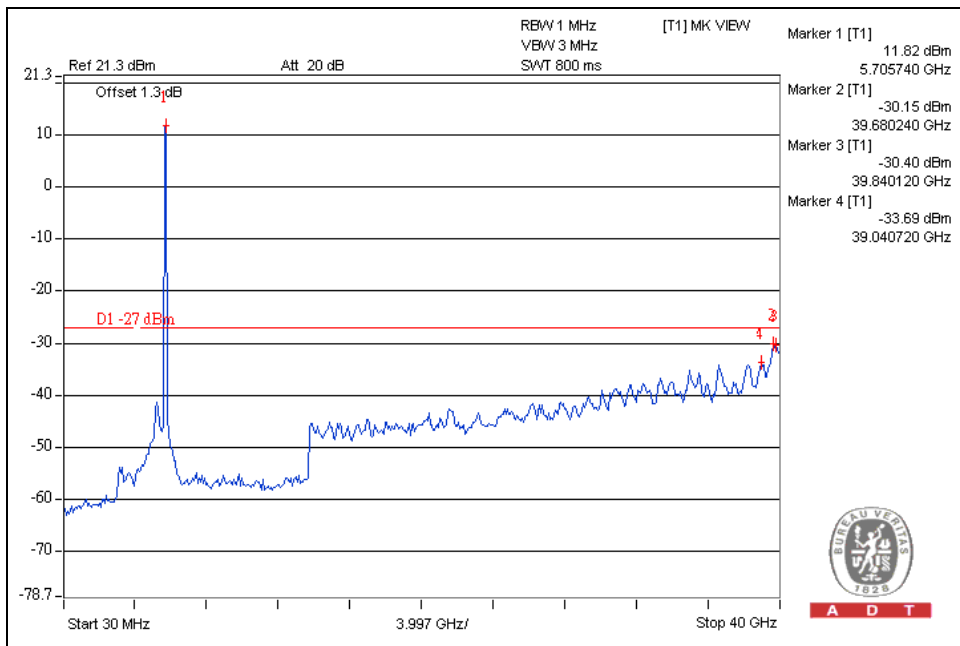


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4.9 ANTENNA REQUIREMENT

4.9.1 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.

4.9.2 ANTENNA CONNECTED CONSTRUCTION

There are four antennas provided to this EUT, please refer to the following table:

For WLAN (RX has diversity function)					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	OZONE WLAN 1	PCB(TX,RX)	2.96 (2.4G) 4.16 (5G)	N/A	2400~2850 4920~5850
2	OZONE WLAN 2	PIFA(RX only)	3.45 (2.4G) 3.32 (5G)	N/A	2400~2850 4920~5850
For Bluetooth					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	Mica 2.4GHz	SMD	-0.45	N/A	2400~2500
For RFID					
No.	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	OZONE RFID	Hor- dipole, outside antenna, Ver- slot, inside antenna	1.7483(Max)	N/A	902~928



5. INFORMATION ON THE TESTING LABORATORIES

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

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

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



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6.APPENDIX-A- Modifications recorders for engineering changes to the eut BY THE LAB

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

---END---