



FCC TEST REPORT (WLAN - 15.407)

REPORT NO.: RF990809E03-2 R2

MODEL NO.: MC9190

FCC ID: UZ7MC9190

RECEIVED: Aug. 09, 2010

TESTED: Aug. 11 to 26, 2010 & Sep. 30 to Nov. 17, 2010

ISSUED: Dec. 13, 2010

APPLICANT: Motorola Inc.

ADDRESS: One Motorola Plaza Holtsville NY 11742-1300 USA

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

LAB ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LOCATION (1): No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LOCATION (2): No.49, Ln. 206, Wende Rd., Shangshan Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

This test report consists of 109 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by any government agencies. The test results in the report only apply to the tested sample.



A D T

Table of Contents

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY.....	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF TEST MODES	15
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:	16
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	19
3.4 DESCRIPTION OF SUPPORT UNITS.....	20
3.5 CONFIGURATION OF SYSTEM UNDER TEST	23
4. TEST TYPES AND RESULTS	26
4.1 CONDUCTED EMISSION MEASUREMENT	26
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	26
4.1.2 TEST INSTRUMENTS.....	26
4.1.3 TEST PROCEDURES	28
4.1.4 DEVIATION FROM TEST STANDARD	28
4.1.5 TEST SETUP	29
4.1.6 EUT OPERATING CONDITIONS	29
4.1.7 TEST RESULTS (MODE A)	30
4.1.8 TEST RESULTS (MODE B).....	32
4.1.9 TEST RESULTS (MODE C).....	34
4.1.10 TEST RESULTS (MODE D).....	36
4.1.11 TEST RESULTS (MODE E).....	38
4.1.12 TEST RESULTS (MODE F)	40
4.1.13 TEST RESULTS (MODE G).....	42
4.1.14 TEST RESULTS (MODE H).....	44
4.1.15 TEST RESULTS (MODE I)	46
4.1.16 TEST RESULTS (MODE J).....	48
4.2 RADIATED EMISSION MEASUREMENT	50
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	50
4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS.....	51
4.2.3 TEST INSTRUMENTS.....	52
4.2.4 TEST PROCEDURES	54
4.2.5 DEVIATION FROM TEST STANDARD	54
4.2.6 TEST SETUP	55
4.2.7 EUT OPERATING CONDITION.....	55
4.2.8 TEST RESULTS	56
4.3 OUTPUT TRANSMIT POWER MEASUREMENT	72
4.3.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT	72



A D T

4.3.2	TEST INSTRUMENTS.....	72
4.3.3	TEST PROCEDURE.....	72
4.3.4	DEVIATION FROM TEST STANDARD.....	73
4.3.5	TEST SETUP	73
4.3.6	EUT OPERATING CONDITIONS	73
4.3.7	TEST RESULTS	74
4.4	PEAK POWER EXCURSION MEASUREMENT	85
4.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT	85
4.4.2	TEST INSTRUMENTS.....	85
4.4.3	TEST PROCEDURE.....	85
4.4.4	DEVIATION FROM TEST STANDARD.....	85
4.4.5	TEST SETUP	85
4.4.6	EUT OPERATING CONDITIONS	85
4.4.7	TEST RESULTS	86
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	92
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	92
4.5.2	TEST INSTRUMENTS.....	92
4.5.3	TEST PROCEDURES	92
4.5.4	DEVIATION FROM TEST STANDARD.....	92
4.5.5	TEST SETUP	92
4.5.6	EUT OPERATING CONDITIONS	92
4.5.7	TEST RESULTS	93
4.6	FREQUENCY STABILITY.....	99
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	99
4.6.2	TEST INSTRUMENTS.....	99
4.6.3	TEST PROCEDURE.....	99
4.6.4	DEVIATION FROM TEST STANDARD.....	100
4.6.5	TEST SETUP	100
4.6.6	EUT OPERATING CONDITION.....	100
4.6.7	TEST RESULTS	101
4.7	CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	102
4.7.1	TEST INSTRUMENTS.....	102
4.7.2	TEST PROCEDURE.....	102
4.7.3	EUT OPERATING CONDITION.....	102
4.7.4	TEST RESULTS	102
5.	INFORMATION ON THE TESTING LABORATORIES	108
6.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	109



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Nov. 29, 2010
RF990809E03-2 R1	1. Add addition note at item 4.3.3, 4.4.3 & 4.5.3 2. For Antenna Port Conducted Measurement: Add plots of all tested channels.	Dec. 08, 2010
RF990809E03-2 R2	1. Add standard : ANSI C63.10-2009 2. Modified note of item 4.3.3, 4.4.3 & 4.5.3. 3. Modified the test sample of item 1: From ENGINEERING SAMPLE to MASS PRODUCTION	Dec. 13, 2010



1. CERTIFICATION

PRODUCT: Mobile Computer
BRAND NAME: MOTOROLA
MODEL NO.: MC9190
TEST SAMPLE: MASS PRODUCTION
TESTED: Aug. 11 to 26, 2010 & Sep. 30 to Nov. 17, 2010
APPLICANT: Motorola Inc.
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: MC9190) 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 : Sunny Wen , **DATE:** Dec 13, 2010
(Sunny Wen, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Dec 13, 2010
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Dec 13, 2010
(May Chen, Deputy Manager)



A D T

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 -13.88dB at 0.201MHz
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 -3.15dB at 74.60MHz
15.407(a/1/2/3)	Output 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.
15.203	Antenna Requirement	PASS	Antenna connector is IPX connector.

NOTE:

1. 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.



A D T

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)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



A D T

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Computer
MODEL NO.	MC9190
FCC ID	UZ7MC9190
POWER SUPPLY	DC 7.4V from battery, DC 12V to cradle or DC 12V to connection adapter
MODULATION TYPE	for WLAN : CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	for Bluetooth : GFSK, $\pi/4$ -DQPSK, 8DPSK
MODULATION TECHNOLOGY	for WLAN :DSSS, OFDM
	for Bluetooth : FHSS
TRANSFER RATE	for WLAN : 802.11b: 11 / 5.5 / 2 / 1Mbps 802.11a/g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps
	for Bluetooth : DH 1, DH 3, DH 5 +EDR
FREQUENCY RANGE	for WLAN 15.407: 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.7GHz
	for WLAN 15.247: 802.11b & 802.11g: 2.412 ~ 2.472GHz 802.11a: 5.745 ~ 5.825GHz
	for Bluetooth : 2.402GHz ~ 2.48GHz
NUMBER OF CHANNEL	for WLAN 15.407: 19 for 802.11a,
	for WLAN 15.247(2.4GHz) 13 for 802.11b, 802.11g, for WLAN 15.247(5GHz) 5 for 802.11a
	for Bluetooth : 79



A D T

CHANNEL SPACING	for WLAN : 802.11b/g: 5MHz 802.11a: 20MHz
	for Bluetooth : 1 MHz
MAXIMUM OUTPUT POWER	for WLAN 15.407 802.11a: 27.5mW
	for WLAN 15.247(2.4GHz) 802.11b: 41.7mW 802.11g: 147.9mW for WLAN 15.247(5GHz) 802.11a: 131.8mW
	for Bluetooth : GFSK: 3.7 mW $\pi/4$ – DQPSK: 2.2 mW 8DPSK: 2.5 mW
ANTENNA TYPE	Please see note 2
ANTENNA CONNECTOR	Please see note 2
DATA CABLE	RS232 cable x 1 (Part No.: 25-62164-01R)
	USB cable x 1 (Part No.: 25-62166-01R)
I/O PORTS	Audio port x 1, SD slot port x 1
ASSOCIATED DEVICES	Battery x 1 (Part No.: 21-65587-03)
	Cable adapters (Part No.: ADP9000-100R, ADP9000-110R)
	Holster (Part No.: SG-MC9121112-01R)
	Heated boot (Part No.: SG-MC9024242-01R)
	Snap on Mag Stripe Reader (Part No.: MSR9001-100R)
	Modem Module - Dongle (Part No.: MDM9000-100R)
Headsets (Part No.:50-11300-050R, RCH50)	

NOTE:

1. There are Bluetooth technology (BT2.1+EDR) and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF990809E03-3">



A D T

2. There are three antennas provided to this EUT, please refer to the following table:

WLAN								
No.	Brand	Model No.	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)	Cable Loss (dB)	Cable Length
1	WhaYu	Main (Tx & Rx)	PIFA	4.34 (2.4G) 5.54 (5G)	IPX	2400~2500 4900~5850	0.1	35mm
2	WhaYu	Aux (Rx only)	PIFA	3.83 (2.4G) 5.51 (5G)	IPX	2400~2500 4900~5850	0.24	85mm

Bluetooth						
No.	Brand	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
1	TY	AH104F2650S1-T	Chip	-3.73	SMT	2400~2500

3. The EUT configuration list:

	EUT_1	EUT_2	EUT_3	EUT_4	EUT_5	EUT_6
OS	WM6.5	WM6.5	WM6.5	WM6.5	WM6.5	WM6.5
CPU	806MHz	806MHz	806MHz	806MHz	806MHz	806MHz
RAM	256MB	256MB	256MB	256MB	256MB	256MB
Flash	1G	1G	1G	1G	1G	1G
Keypad	28/43/53keys	28/43/53keys	28/43/53keys	28/43/53keys	28/43/53keys	28/43/53keys
Battery	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL
Scan	SE960	-	SE1524	-	-	-
Imager	-	SE4500-STD	-	SE4600-LR	SE4500-DL	SE4500-DPM
WLAN (a/b/g)	V	V	V	V	V	V
BT	V	V	V	V	V	V

The above configurations are available also with CR (Condensation Resistant).

The worst case is determined to be as **EUT_3** (53keys), base on the investigation by measuring radiation emission and its data was recorded in this report.



A D T

4. The EUT could be supplied with a Cradle, power adapter and battery as below table:

Cradle 1 (1-slot, not for sale together)	
Brand:	SYMBOL
Model No.:	CRD9000-1000
Part No.:	CRD9000-1001SR
Input power :	+12V ----- 9A
I/O Ports:	USB Port x 1 RS232 Port x 1
Associated Devices	USB cable (Part No.:25-64396-01R) RS232 cable (Part No.:25-63852-01R) Adapter x 2 (Adapter 1: Part No.: 50-14000-148R) (Adapter 2: Part No.: PWRS-14000-148R)
Cradle 2 (4-slot, not for sale together)	
Brand:	SYMBOL
Model No.	CHS9000-4000C
Part No.:	CHS9000-4001CR
Input power :	+12V ----- 4A
Associated Devices	US AC line cord (Part No.: 23844-00-00R) DC Line Cord for Four Slot Cradles (Part No.: 50-16002-029) Adapter x 2 (Adapter 3: Part No.: 50-14000-241R) (Adapter 4: Part No.: PWRS-14000-241R)
Cradle 3 (4-slot, not for sale together)	
Brand:	SYMBOL
Model No.:	CRD9000-4000E
Part No.:	CRD9000-4001ER
Input power :	+12V ----- 4A
I/O Ports:	Ethernet Port x 1
Associated Devices	US AC line cord (Part No.: 23844-00-00R) DC Line Cord for Four Slot Cradles (Part No.: 50-16002-029) Adapter x 2 (Adapter 3: Part No.: 50-14000-241R) (Adapter 4: Part No.: PWRS-14000-241R)



A D T

Adapter 1 (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 (unshielded, 1.8m with one core)
Adapter 2 (not for sale together)	
Brand:	HIPRO
Model No.:	HP-A0502R3D
Part No.:	PWRS-14000-148R
Input power :	100-240V, 50-60Hz, 2.4A
Output power :	+12V ----- 4.16A DC output cable (unshielded, 1.8m with one core)
Adapter 3 (only for Cradle 2, 3 use, not for sale together)	
Brand:	Motorola
Model No.:	50-14000-241R ver1 (level IV)
Input power :	100-240V, 50-60Hz, 3A
Output power :	+12V ----- 9A DC output cable (Part No.: 25-72614-01R)
Adapter 4 (only for Cradle 2, 3 use, not for sale together)	
Brand:	MOTOROLA
Model No.:	50-14000-241R ver2 (level V, p/n PWRS-14000-241R)
Input power :	100-240V, 50-60Hz, 3A
Output power :	+12V ----- 9A DC output cable (Part No.: 25-72614-01R)
Battery	
Brand:	SYMBOL
Part No.:	21-65587-03
Rating:	7.4V, 2200mAh, 16.3Wh



A D T

5. The EUT was pre-tested in chamber under following test modes :

Pre-test Mode	Description
Mode A	X-Y plane: EUT_4 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode B	X-Y plane: EUT_4 + Battery (21-65587-03) + Keypad: 43keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode C	X-Y plane: EUT_4 + Battery (21-65587-03) + Keypad: 24keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode D	X-Y plane: EUT_2 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode E	X-Y plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode F	X-Y plane: EUT_1 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode G	X-Y plane: EUT_5 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode H	X-Y plane: EUT_6 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode I	X-Y plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MSR9001-100R snap on Mag strip reader + 50-14000-148R PSU with its DC cord
Mode J	X-Y plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MDM9001-C010R + 50-14000-148R PSU with its DC cord
Mode K	X-Y plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys
Mode L	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-1001SR cradle + 50-14000-148R PSU with its DC cord
Mode M	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CHS9000-4001CR + 50-14000-241R DC Line cord



A D T

Pre-test Mode	Description
Mode N	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + PWRS-14000-148R PSU with its DC cord
Mode O	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-1001SR cradle + PWRS-14000-148R PSU with its DC cord
Mode P	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-4001ER + PWRS-14000-241R DC Line cord
Mode Q	EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MDM9000-100R + PWRS-14000-148R PSU with its DC cord
Mode R	X-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
Mode S	Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord

The worse spurious emission (Below 1GHz) was found in **Mode P**. And the spurious emission (Above 1GHz) was found in **Mode S**. Therefore only the test data of the modes were recorded in this report.

6. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a, 802.11b, 802.11g and Bluetooth technology.
7. The above EUT information was declared by the manufacturer and for more detailed feature descriptions, please refer to the manufacturer's specifications or User's Manual.



A D T

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



A D T

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE [≥] 1G	APCM	
A	√		√	√	Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + 50-14000-148R PSU with its DC cord
B	√				Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MSR9001-100R snap on Mag strip reader + 50-14000-148R PSU with its DC cord
C	√				Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MDM9001-C010R + 50-14000-148R PSU with its DC cord
D	√				EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-1001SR cradle + 50-14000-148R PSU with its DC cord
E	√				EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CHS9000-4001CR + 50-14000-241R PSU with its DC cord
F	√				Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + ADP9000-100R connection adapter + PWRS-14000-148R PSU with its DC cord
G	√				Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MSR9001-100R snap on Mag strip reader + PWRS-14000-148R PSU with its DC cord
H	√				Y-Z plane: EUT_3 + Battery (21-65587-03) + Keypad: 53keys + MDM9001-C010R + PWRS-14000-148R PSU with its DC cord
I	√				EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-1001SR cradle + PWRS-14000-148R PSU with its DC cord
J	√	√			EUT_3 + Battery (21-65587-03) + Keypad: 53keys + CRD9000-4001ER + PWRS-14000-241R PSU with its DC cord

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE [≥] 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement



A D T

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)	CONFIGURE MODE
WORST CHANNEL	-	-	-	-	-	A~J

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)	CONFIGURE MODE
802.11a	36 to 140	60	OFDM	BPSK	6	J

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



A D T

CONDUCTED OUT-BAND EMISSION 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)	CONFIGURE MODE
802.11a	36 to 140	36, 64, 100, 140	OFDM	BPSK	6	A

ANTENNA PORT CONDUCTED MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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)	CONFIGURE MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6	A

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	25deg. C, 66%RH, 1013 hPa	120Vac, 60Hz	Phoenix Huang
RE<1G	22deg. C, 63%RH, 1013 hPa	120Vac, 60Hz	Wen Yu
PLC	26deg. C, 68%RH, 1013 hPa	120Vac, 60Hz	Moris Lin / Timmy Hu
APCM	25deg. C, 60%RH, 1012 hPa	120Vac, 60Hz	Phoenix Huang

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

ANSI C63.10-2009

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

Conducted test mode A~B, F~G / Radiated emission (above 1GHz) / Other test items					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	HEADSET	MOTOROLA	RCH50	NA	NA
2	CONNECTION 1	SYMBOL	P/N:ADP9000-100R	NA	NA
3	NOTEBOOK COMPUTER (for conducted test)	DELL	PP27L	7YLB32S	FCC DOC
	NOTEBOOK COMPUTER (for other test items)	DELL	D531	CN-0XM006-486 43-86L-4472	QDS-BRCM1019
4	CONNECTION 3	SYMBOL	P/N:MSR9001-100R	NA	NA
5	iPod	APPLE	A1199	YM712NHUVQ5	FCC DoC

No.	Signal cable description
1	0.9 m wrapped unshielded wire, terminated via drain wire, with 3.5 mm phone plug, w/o core.
2	NA
3	1.8 m foil shielded wire, RS232 to USB connector, w/o core.
4	NA
5	1.0 m shielded cable, terminated with USB connector, w/o core.

Conducted test mode C & H					
No.	Product	Brand	Model No.	Serial No.	FCC ID
6	HEADSET	MOTOROLA	RCH50	NA	NA
7	TELEPHONE	WONDER	WD-303	6C17FA00681	NA
8	CONNECTION 2	SYMBOL	P/N:MDM9001-C010R	NA	NA

No.	Signal cable description
6	0.9 m wrapped unshielded wire, terminated via drain wire, with 3.5 mm phone plug, w/o core.
7	1.6 m unshielded cable, RJ11 connector, w/o core.
8	NA



A D T

Conducted test mode D					
No.	Product	Brand	Model No.	Serial No.	FCC ID
9	PERSONAL COMPUTER	DELL	DCSM	G84QL1S	FCC DoC
10	MONITOR	DELL	E2210Hc	CN-OG337R-6418 0-97S-OQDS	FCC DoC
11	PRINTER	EPSON	LQ-300+	DCGY017097	FCC DoC
12	MODEM	ACEEX	1414	0206026775	IFAXDM1414
13	KEYBOARD	DELL	SK-8115	CN-0J4635-71616- 53A-0CH2	FCC DoC
14	MOUSE	DELL	MO71KC	345011086	FCC DoC
15	HEADSET	MOTOROLA	RCH50	NA	NA

Conducted test mode I					
No.	Product	Brand	Model No.	Serial No.	FCC ID
9	PERSONAL COMPUTER	DELL	DCSCMF	9KKB32S	FCC DoC
10	MONITOR	DELL	E2210Hc	CN-OG337R-6418 0-97S-OQDS	FCC DoC
11	PRINTER	EPSON	LQ-300+II	G88Y074083	FCC DoC
12	MODEM	ACEEX	1414	0206026778	IFAXDM1414
13	KEYBOARD	DELL	SK-8115	MY-0DJ325-71619- 99B-0476	FCC DoC
14	MOUSE	DELL	MOC5UO	I1401LVG	FCC DoC
15	HEADSET	MOTOROLA	RCH50	NA	NA

No.	Signal cable description
9	NA
10	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, with two cores
11	1.8 m braid shielded wire, terminated with DB25 and USB connector via metallic frame, w/o core
12	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
13	1.9 m foil shielded wire, USB connector, w/o core.
14	1.8 m foil shielded wire, USB connector, w/o core.
15	0.9 m wrapped unshielded wire, terminated via drain wire, with 3.5 mm phone plug, w/o core.



A D T

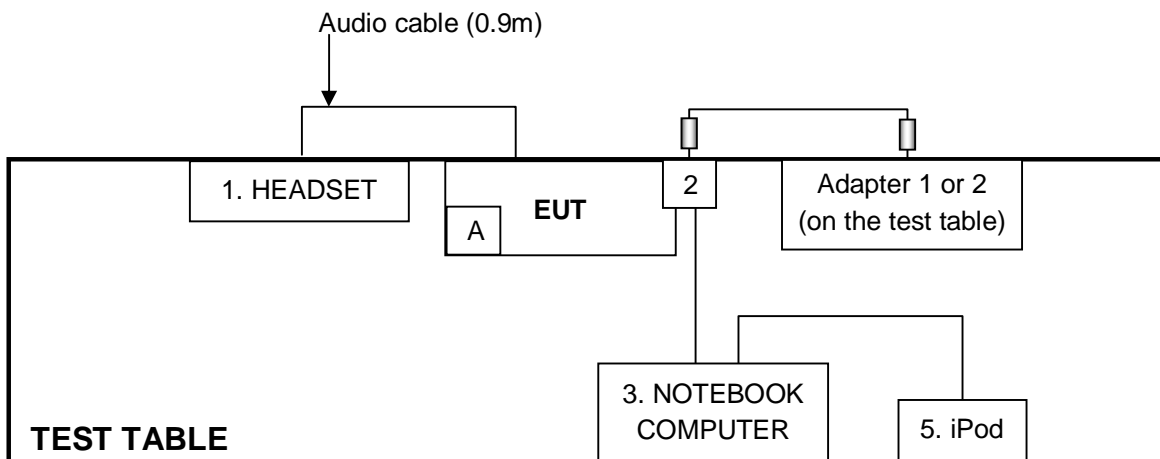
Conducted test mode J / radiated emission (below 1GHz)					
No.	Product	Brand	Model No.	Serial No.	FCC ID
16	DSL Wireless Router	ABOCOM	WR224GR	060500749P	FCC
17	NOTEBOOK COMPUTER	DELL	PP21L	CN-0GD366-70166-5 B3-09ZX	QDS-BRCM1016

No.	Signal cable description
16	10 m UTP cable.
17	3.0 m UTP cable.

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

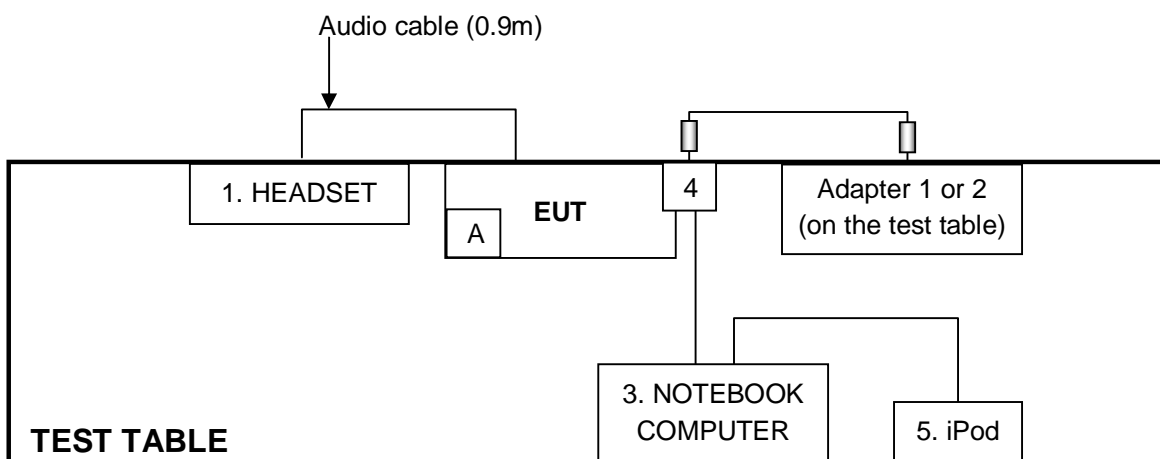
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For conducted test mode A & F / radiated emission (above 1GHz) / other test items:



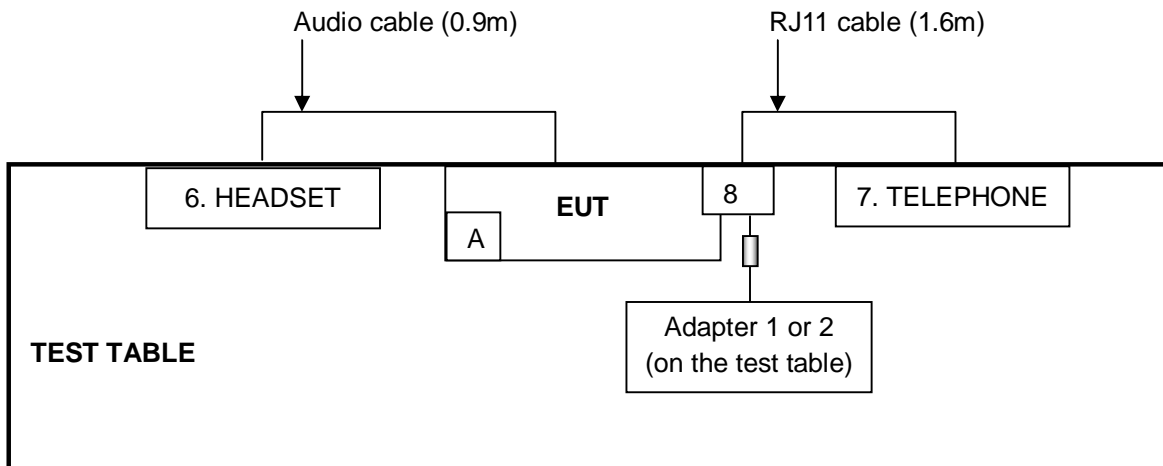
NOTE: 1. Item A is the SD Card.
2. Item 2 is the Connection 1.

For conducted test mode B & G:



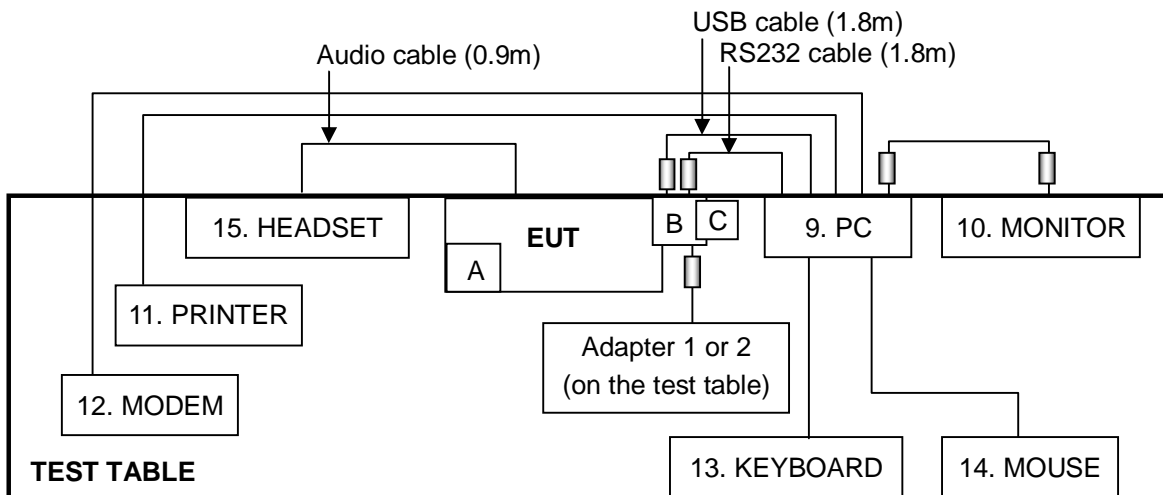
NOTE: 1. Item A is the SD Card.
2. Item 4 is the Connection 3.

For conducted test mode C & H:



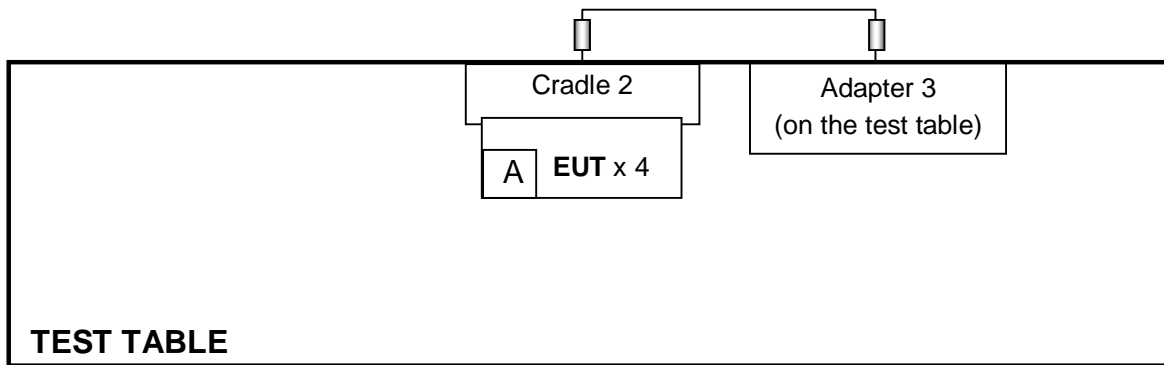
- NOTE:** 1. Item A is the SD Card.
2. Item 8 is the Connection 2.

For conducted test mode D & I:



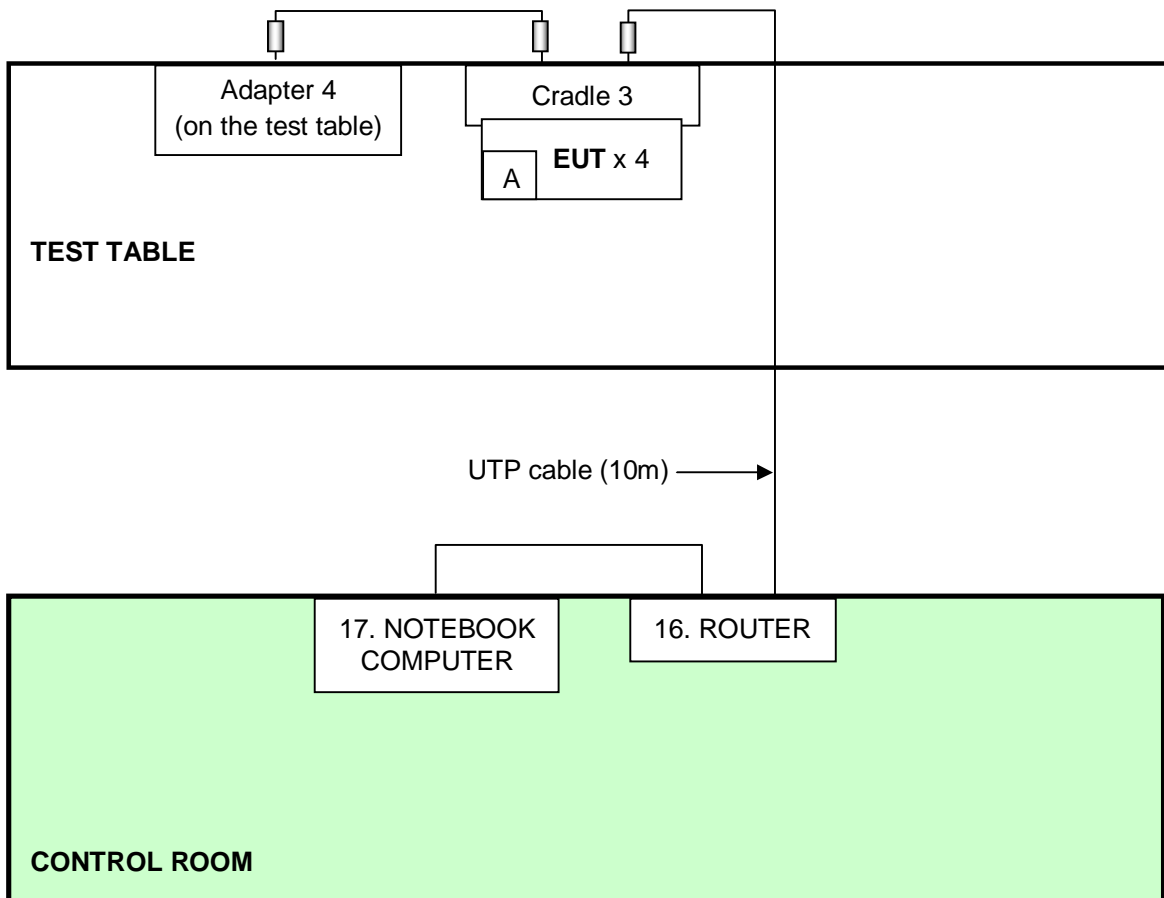
- NOTE:** 1. Item A is the SD Card.
2. Item B is the Cradle 1.
3. Item C is the battery.

For conducted test mode E:



NOTE: 1. Item A is the SD Card.

For conducted test mode J / radiated emission (below 1GHz) test:



NOTE: 1. Item A is the SD Card.



A D T

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

For test mode A~E, tested date: Aug. 12~26

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2009	Oct. 25, 2010
RF Cable (JYEBAO)	5DFB	COBCAB-001	Nov. 24, 2009	Nov. 23, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
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. C.
3. The VCCI Con C Registration No. is C-3611.



A D T

For test mode F~H, tested date: Sep. 30

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2009	Oct. 25, 2010
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
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. C.
3. The VCCI Con C Registration No. is C-3611.

For test mode I~J, tested date: Sep. 30

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 17, 2010	Sep. 16, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
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.



A D T

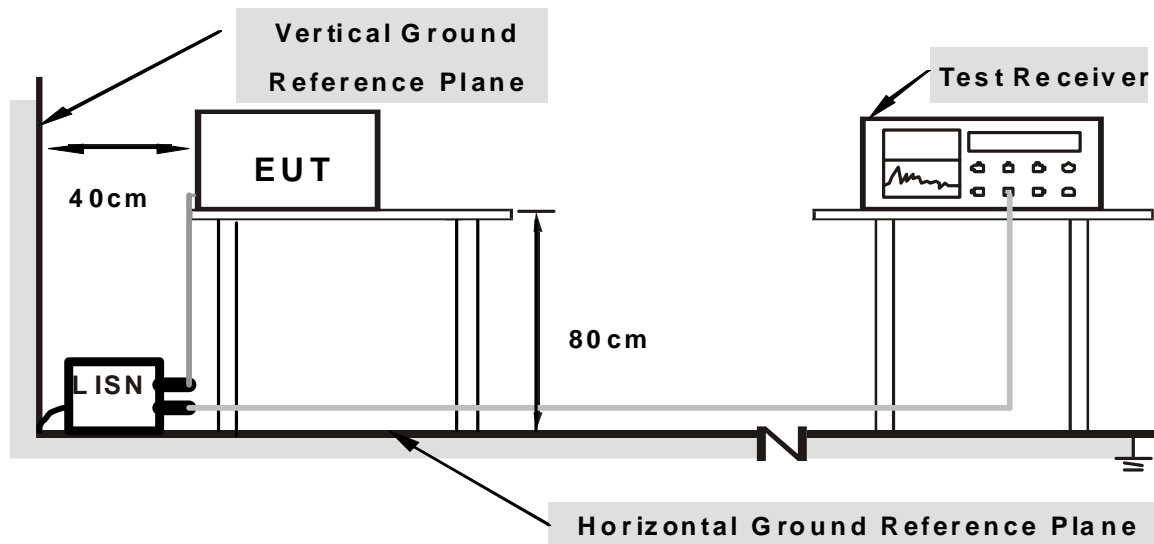
4.1.3 TEST PROCEDURES

- 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 cm 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

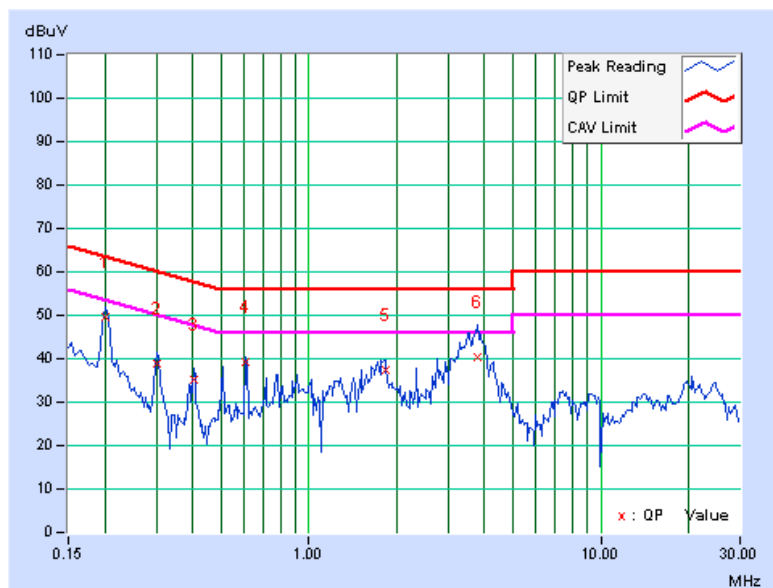
- a. Turn on the power of EUT.
- b. The EUT run test program “CEcTxRx.exe” to enable EUT under transmission / receiver condition continuously at specific channel frequency.

4.1.7 TEST RESULTS (MODE A)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.201	0.05	49.51	-	49.56	-	63.58
2	0.302	0.06	38.97	-	39.03	-	60.18	50.18	-21.15	-
3	0.404	0.06	35.18	-	35.24	-	57.77	47.77	-22.53	-
4	0.607	0.07	39.24	-	39.31	-	56.00	46.00	-16.69	-
5	1.824	0.12	37.14	-	37.26	-	56.00	46.00	-18.74	-
6	3.770	0.18	40.03	-	40.21	-	56.00	46.00	-15.79	-

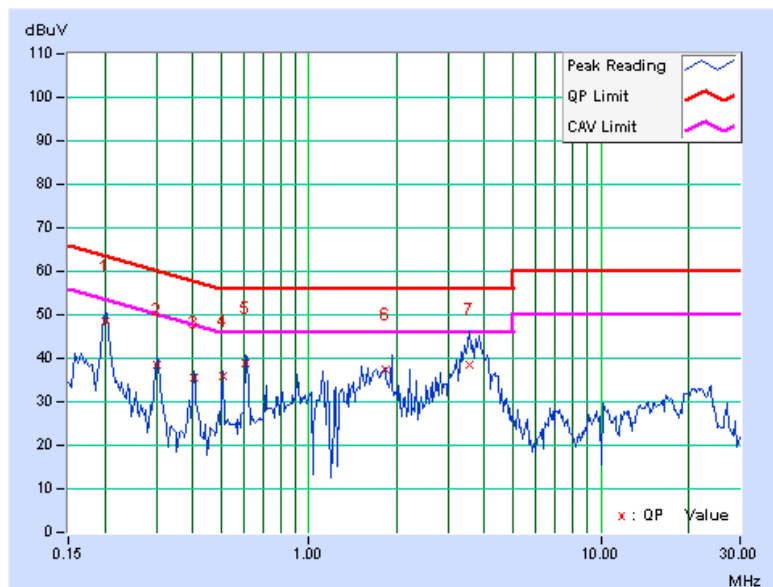
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

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	0.201	0.06	48.58	-	48.64	-	63.58
2	0.302	0.07	38.47	-	38.54	-	60.18	50.18	-21.64	-
3	0.404	0.07	35.50	-	35.57	-	57.77	47.77	-22.20	-
4	0.505	0.08	35.67	-	35.75	-	56.00	46.00	-20.25	-
5	0.607	0.08	39.80	-	39.98	-	56.00	46.00	-17.02	-
6	1.824	0.13	37.28	-	37.41	-	56.00	46.00	-18.59	-
7	3.540	0.19	38.44	-	38.63	-	56.00	46.00	-17.37	-

- 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.

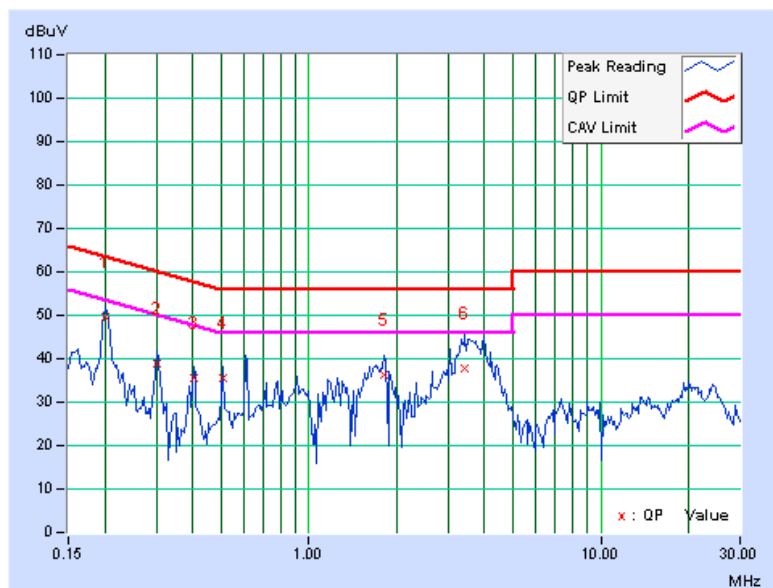


4.1.8 TEST RESULTS (MODE B)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.201	0.05	49.65	-	49.70	-	63.58
2	0.302	0.06	38.99	-	39.05	-	60.18	50.18	-21.13	-
3	0.404	0.06	35.36	-	35.42	-	57.77	47.77	-22.35	-
4	0.505	0.07	35.61	-	35.68	-	56.00	46.00	-20.32	-
5	1.820	0.12	36.15	-	36.27	-	56.00	46.00	-19.73	-
6	3.438	0.17	37.78	-	37.95	-	56.00	46.00	-18.05	-

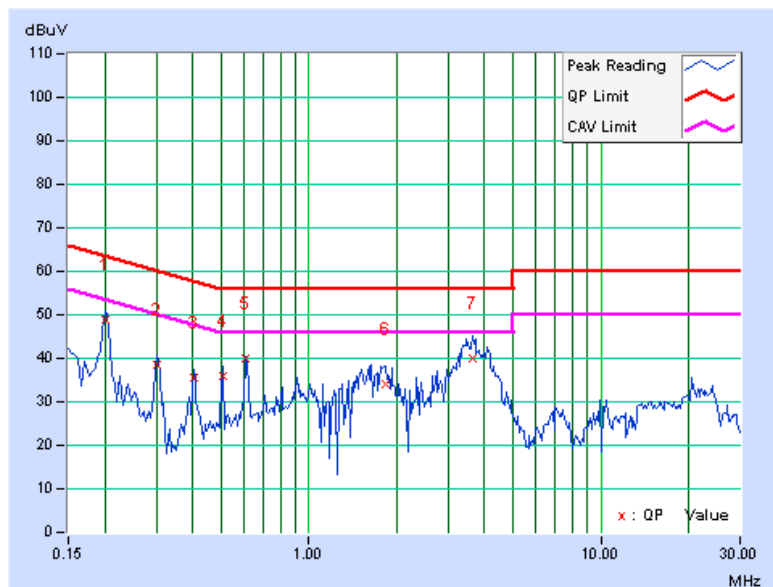
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

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	0.201	0.06	48.66	-	48.72	-	63.58
2	0.302	0.07	38.53	-	38.60	-	60.18	50.18	-21.58	-
3	0.404	0.07	35.44	-	35.51	-	57.77	47.77	-22.26	-
4	0.505	0.08	35.87	-	35.95	-	56.00	46.00	-20.05	-
5	0.607	0.08	39.92	-	40.00	-	56.00	46.00	-16.00	-
6	1.832	0.13	33.77	-	33.90	-	56.00	46.00	-22.10	-
7	3.645	0.19	39.93	-	40.12	-	56.00	46.00	-15.88	-

- 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.

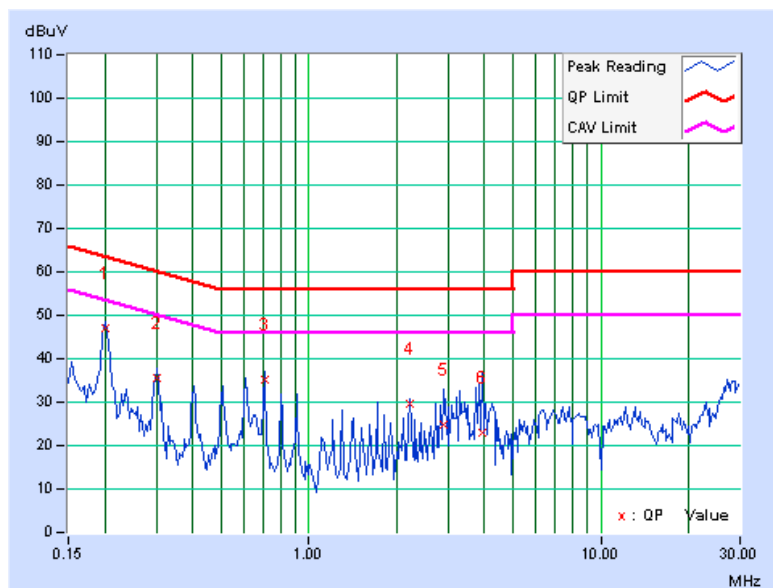


4.1.9 TEST RESULTS (MODE C)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
-------	----------	---------------	-------

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	0.201	0.05	47.10	-	47.15	-	63.58
2	0.302	0.06	35.39	-	35.45	-	60.18	50.18	-24.73	-
3	0.705	0.08	35.19	-	35.27	-	56.00	46.00	-20.73	-
4	2.215	0.14	29.33	-	29.47	-	56.00	46.00	-26.53	-
5	2.910	0.16	24.51	-	24.67	-	56.00	46.00	-31.33	-
6	3.930	0.19	22.63	-	22.82	-	56.00	46.00	-33.18	-

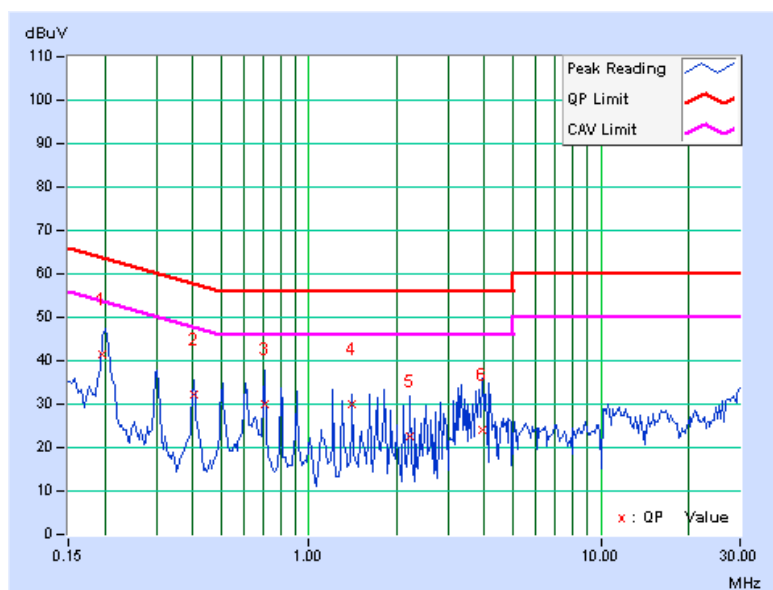
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

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	0.197	0.06	41.24	-	41.30	-	63.74
2	0.404	0.07	32.23	-	32.30	-	57.77	47.77	-25.47	-
3	0.709	0.09	29.79	-	29.88	-	56.00	46.00	-26.12	-
4	1.410	0.12	29.94	-	30.06	-	56.00	46.00	-25.94	-
5	2.215	0.15	22.47	-	22.62	-	56.00	46.00	-33.38	-
6	3.922	0.20	23.87	-	24.07	-	56.00	46.00	-31.93	-

- 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.

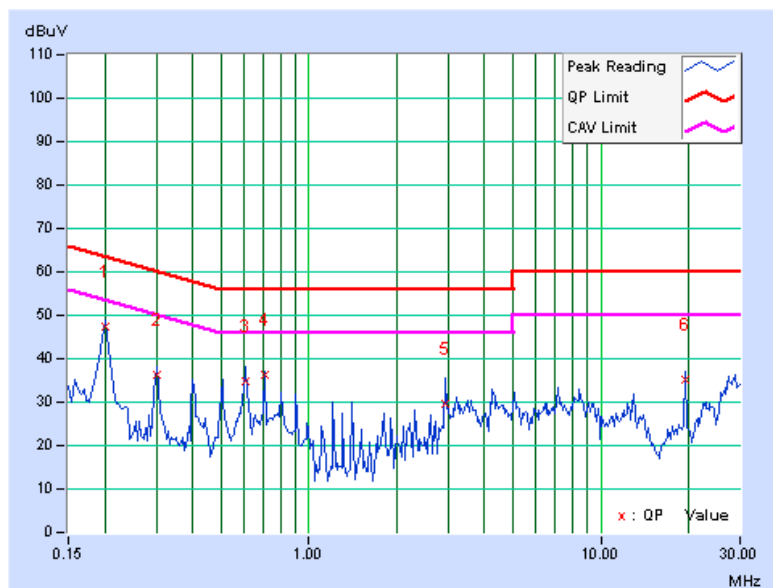


4.1.10 TEST RESULTS (MODE D)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.201	0.05	47.24	-	47.29	-	63.58
2	0.302	0.06	36.21	-	36.27	-	60.18	50.18	-23.91	-
3	0.603	0.07	34.67	-	34.74	-	56.00	46.00	-21.26	-
4	0.705	0.08	36.14	-	36.22	-	56.00	46.00	-19.78	-
5	2.922	0.16	29.62	-	29.78	-	56.00	46.00	-26.22	-
6	19.500	0.50	34.81	-	35.31	-	60.00	50.00	-24.69	-

- 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.



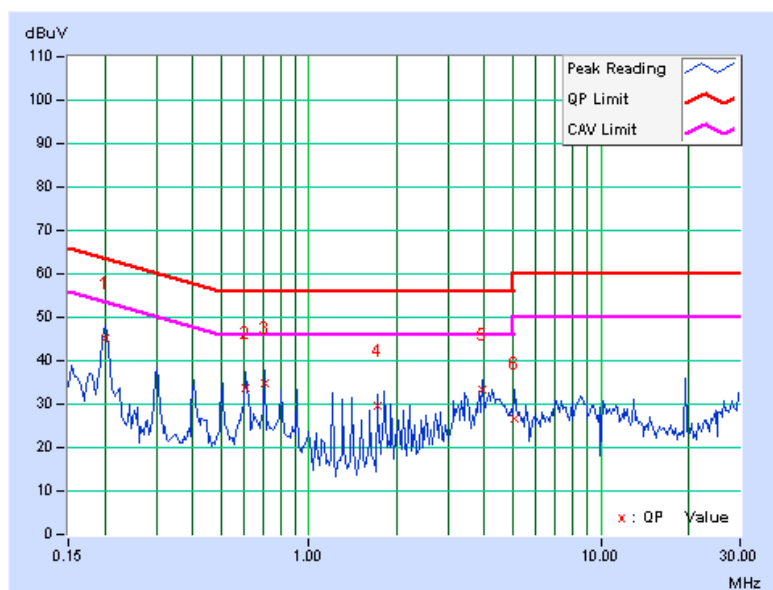


A D T

PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.201	0.06	45.19	-	45.25	-	63.58	53.58	-18.33	-
2	0.607	0.08	33.44	-	33.52	-	56.00	46.00	-22.48	-
3	0.705	0.09	34.77	-	34.86	-	56.00	46.00	-21.14	-
4	1.711	0.13	29.38	-	29.51	-	56.00	46.00	-26.49	-
5	3.926	0.20	33.00	-	33.20	-	56.00	46.00	-22.80	-
6	5.063	0.23	26.27	-	26.50	-	60.00	50.00	-33.50	-

- 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.

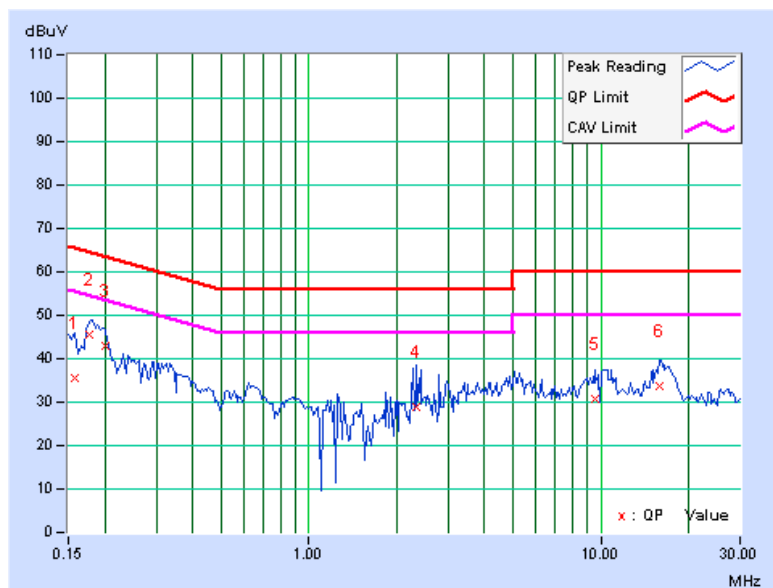


4.1.11 TEST RESULTS (MODE E)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.158	0.05	35.61	-	35.66	-	65.58
2	0.177	0.05	45.33	-	45.38	-	64.61	54.61	-19.23	-
3	0.201	0.05	42.92	-	42.97	-	63.58	53.58	-20.61	-
4	2.336	0.14	28.64	-	28.78	-	56.00	46.00	-27.22	-
5	9.508	0.34	30.44	-	30.78	-	60.00	50.00	-29.22	-
6	15.840	0.44	33.09	-	33.53	-	60.00	50.00	-26.47	-

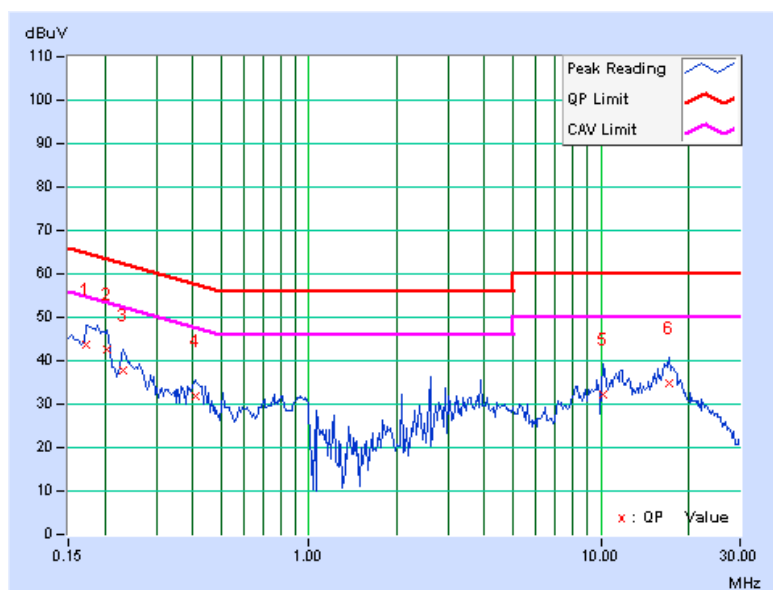
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.06	43.61	-	43.67	-	64.79	54.79	-21.12	-
2	0.205	0.06	42.53	-	42.59	-	63.42	53.42	-20.83	-
3	0.232	0.06	37.73	-	37.79	-	62.38	52.38	-24.59	-
4	0.408	0.07	31.69	-	31.76	-	57.69	47.69	-25.93	-
5	10.207	0.36	31.70	-	32.06	-	60.00	50.00	-27.94	-
6	17.137	0.47	34.39	-	34.86	-	60.00	50.00	-25.14	-

- 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.

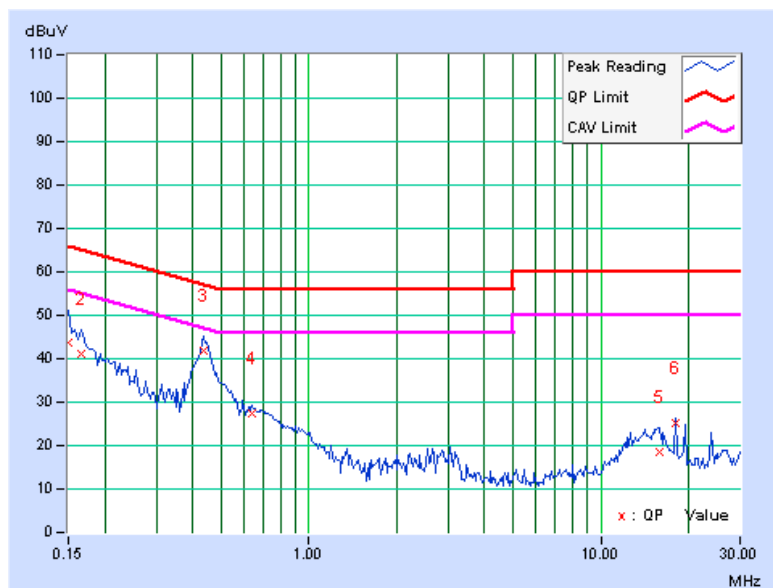


4.1.12 TEST RESULTS (MODE F)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.150	0.04	43.71	-	43.75	-	66.00
2	0.166	0.04	41.25	-	41.29	-	65.17	55.17	-23.88	-
3	0.435	0.05	41.96	-	42.01	-	57.15	47.15	-15.14	-
4	0.642	0.07	27.35	-	27.42	-	56.00	46.00	-28.58	-
5	15.828	0.53	17.94	-	18.47	-	60.00	50.00	-41.53	-
6	18.027	0.54	24.49	-	25.03	-	60.00	50.00	-34.97	-

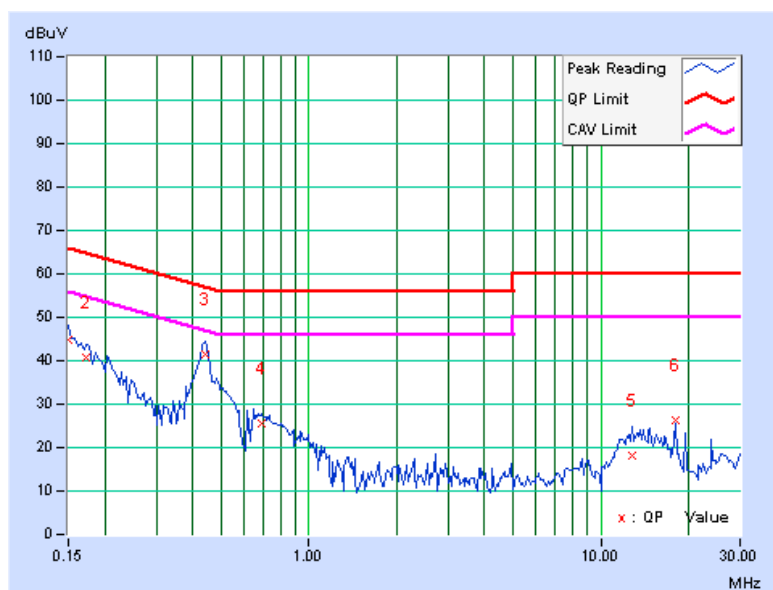
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.05	44.76	-	44.81	-	66.00	56.00	-21.19	-
2	0.173	0.05	40.79	-	40.84	-	64.79	54.79	-23.95	-
3	0.443	0.06	41.26	-	41.32	-	57.01	47.01	-15.68	-
4	0.689	0.08	25.61	-	25.69	-	56.00	46.00	-30.31	-
5	12.797	0.42	17.86	-	18.28	-	60.00	50.00	-41.72	-
6	18.031	0.55	25.82	-	26.37	-	60.00	50.00	-33.63	-

- 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.

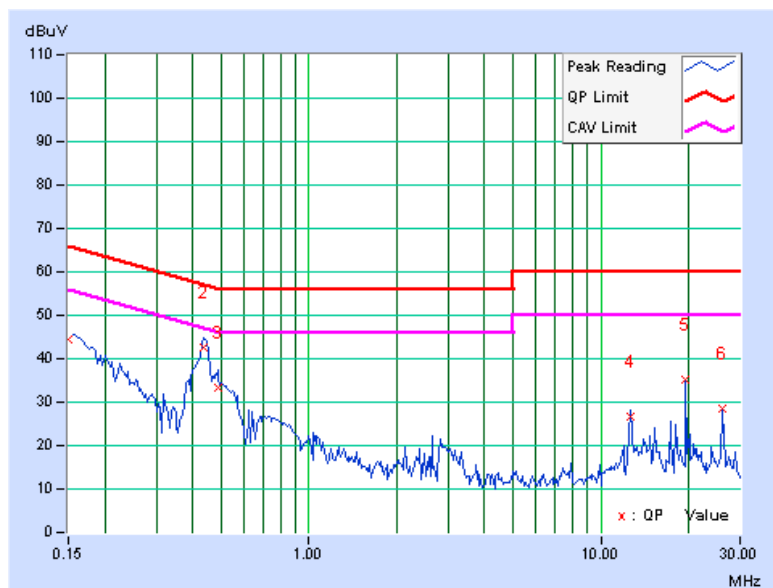


4.1.13 TEST RESULTS (MODE G)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.150	0.04	44.52	-	44.56	-	66.00	56.00	-21.44	-
2	0.435	0.05	42.68	-	42.73	-	57.15	47.15	-14.42	-
3	0.486	0.06	33.10	-	33.16	-	56.24	46.24	-23.08	-
4	12.629	0.40	29.86	-	30.26	-	60.00	50.00	-29.74	-
5	19.500	0.54	34.72	-	35.26	-	60.00	50.00	-24.74	-
6	26.000	0.80	27.84	-	28.64	-	60.00	50.00	-31.36	-

- 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.



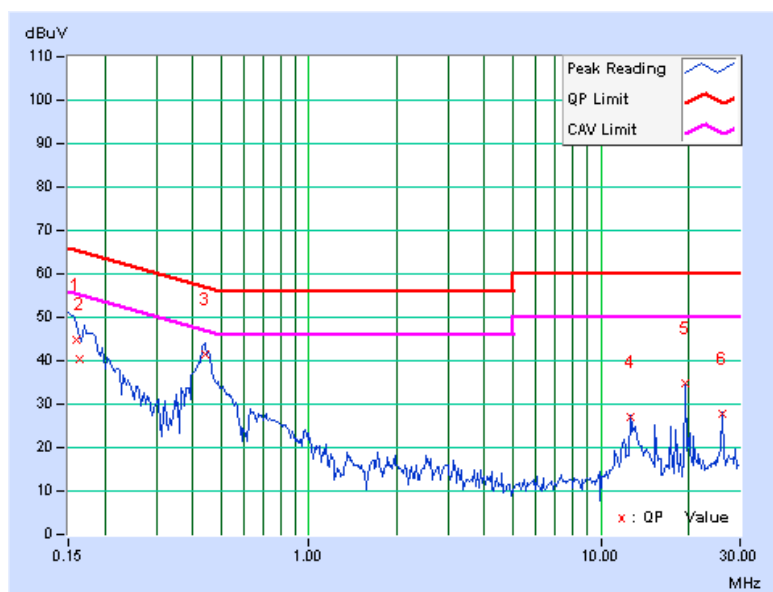


A D T

PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.160	0.05	44.86	-	44.91	-	65.46	55.46	-20.55	-
2	0.165	0.05	40.35	-	40.40	-	65.22	55.22	-24.82	-
3	0.442	0.06	41.35	-	41.41	-	57.02	47.02	-15.60	-
4	12.615	0.41	26.55	-	26.96	-	60.00	50.00	-33.04	-
5	19.500	0.55	34.28	-	34.83	-	60.00	50.00	-25.17	-
6	26.000	0.81	27.15	-	27.96	-	60.00	50.00	-32.04	-

- 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.

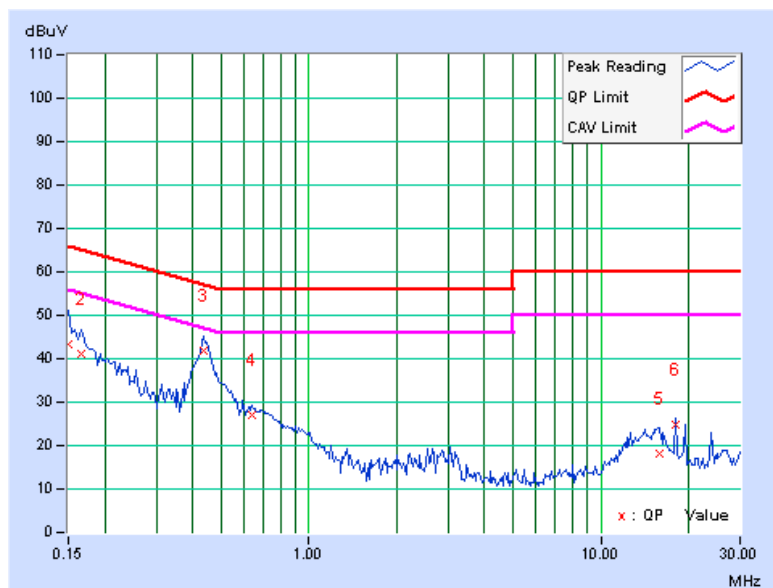


4.1.14 TEST RESULTS (MODE H)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.150	0.04	43.25	-	43.29	-	66.00
2	0.166	0.04	41.12	-	41.16	-	65.18	55.18	-24.02	-
3	0.435	0.05	41.75	-	41.80	-	57.15	47.15	-15.35	-
4	0.642	0.07	27.05	-	27.12	-	56.00	46.00	-28.88	-
5	15.828	0.53	17.54	-	18.07	-	60.00	50.00	-41.93	-
6	18.027	0.54	24.22	-	24.76	-	60.00	50.00	-35.24	-

- 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.



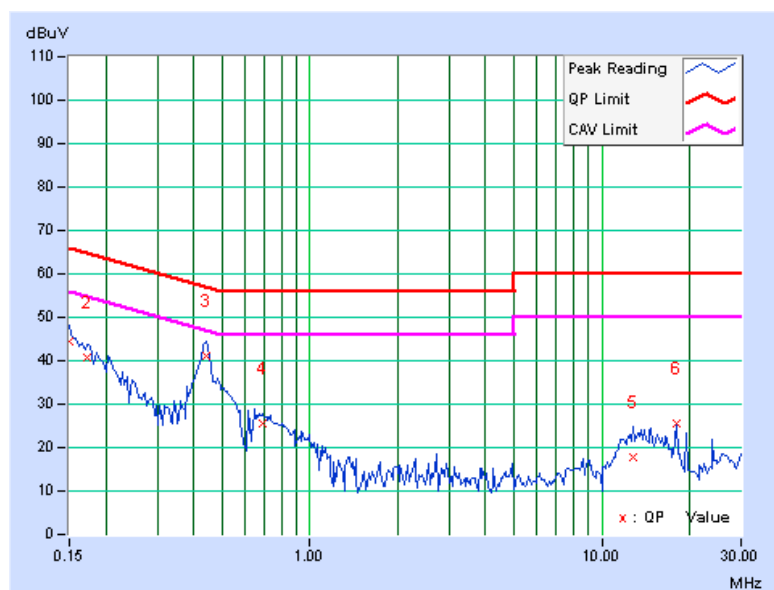


A D T

PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.05	44.32	-	44.37	-	66.00	56.00	-21.63	-
2	0.173	0.05	40.52	-	40.57	-	64.79	54.79	-24.22	-
3	0.443	0.06	41.15	-	41.21	-	57.01	47.01	-15.79	-
4	0.689	0.08	25.32	-	25.40	-	56.00	46.00	-30.60	-
5	12.797	0.42	17.25	-	17.67	-	60.00	50.00	-42.33	-
6	18.031	0.55	25.15	-	25.70	-	60.00	50.00	-34.30	-

- 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.

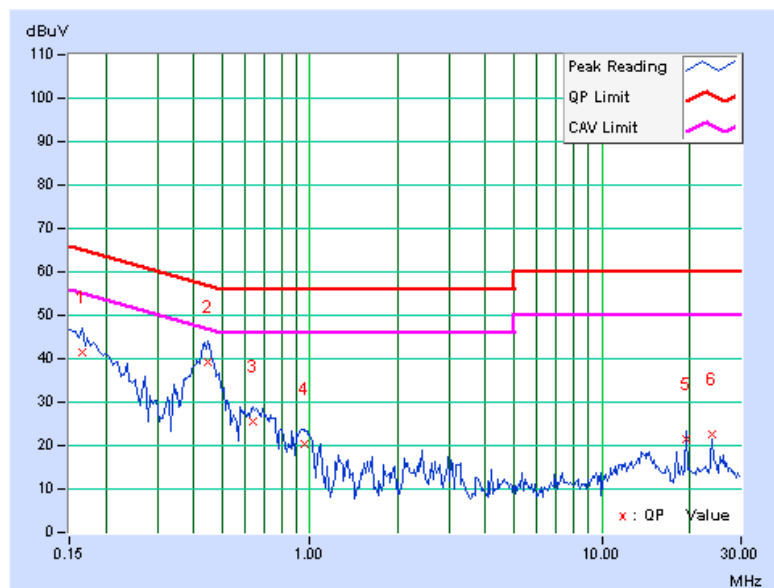


4.1.15 TEST RESULTS (MODE I)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.166	0.04	41.55	-	41.59	-	65.18
2	0.447	0.05	39.24	-	39.29	-	56.93	46.93	-17.64	-
3	0.642	0.07	25.57	-	25.64	-	56.00	46.00	-30.36	-
4	0.955	0.10	20.31	-	20.41	-	56.00	46.00	-35.59	-
5	19.500	0.54	21.12	-	21.66	-	60.00	50.00	-38.34	-
6	24.016	0.70	22.03	-	22.73	-	60.00	50.00	-37.27	-

- 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.



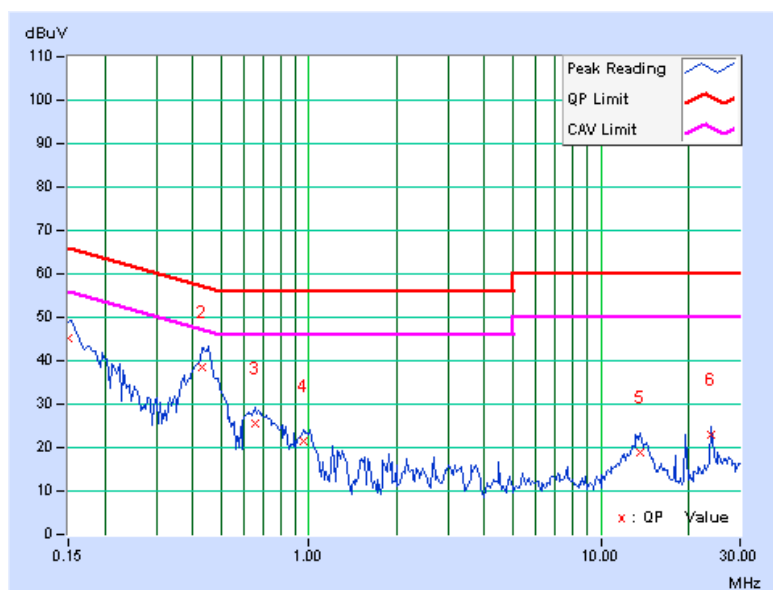


A D T

PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.05	45.21	-	45.26	-	66.00	56.00	-20.74	-
2	0.431	0.06	38.42	-	38.48	-	57.23	47.23	-18.75	-
3	0.658	0.08	25.63	-	25.71	-	56.00	46.00	-30.29	-
4	0.955	0.11	21.55	-	21.66	-	56.00	46.00	-34.34	-
5	13.586	0.46	18.25	-	18.71	-	60.00	50.00	-41.29	-
6	24.016	0.71	22.35	-	23.06	-	60.00	50.00	-36.94	-

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

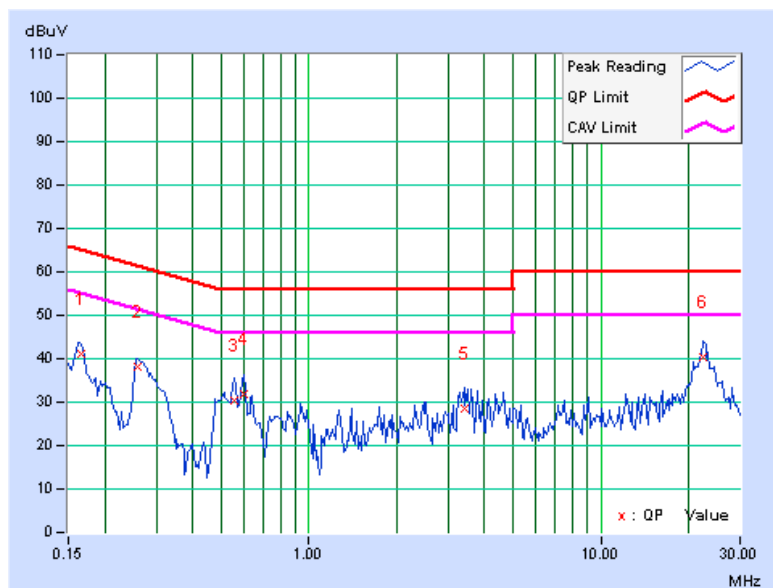


4.1.16 TEST RESULTS (MODE J)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

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	0.166	0.04	41.25	-	41.29	-	65.18
2	0.259	0.04	38.12	-	38.16	-	61.45	51.45	-23.29	-
3	0.556	0.06	30.35	-	30.41	-	56.00	46.00	-25.59	-
4	0.599	0.07	31.67	-	31.74	-	56.00	46.00	-24.26	-
5	3.398	0.13	28.22	-	28.35	-	56.00	46.00	-27.65	-
6	22.508	0.64	39.65	-	40.29	-	60.00	50.00	-19.71	-

- 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.



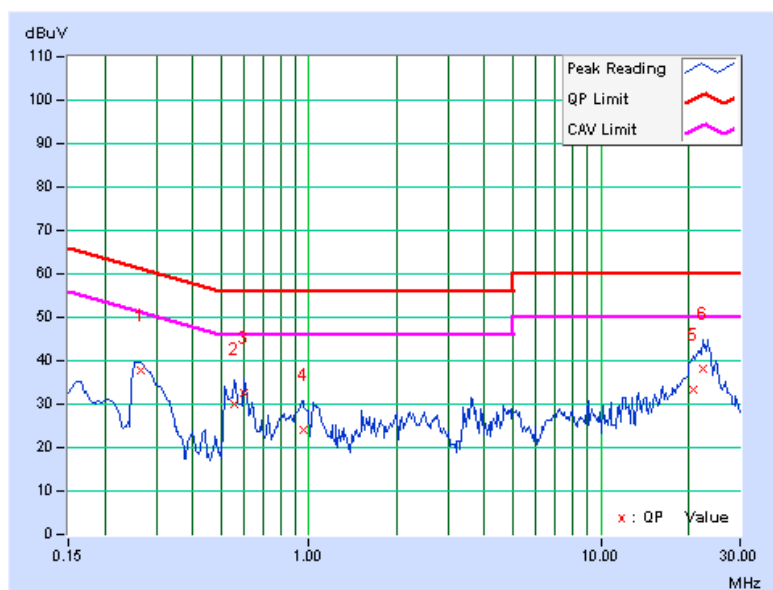


A D T

PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

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	0.267	0.05	37.68	-	37.73	-	61.20
2	0.556	0.07	30.11	-	30.18	-	56.00	46.00	-25.82	-
3	0.599	0.08	32.62	-	32.70	-	56.00	46.00	-23.30	-
4	0.955	0.11	24.08	-	24.19	-	56.00	46.00	-31.81	-
5	20.859	0.58	32.65	-	33.23	-	60.00	50.00	-26.77	-
6	22.266	0.64	37.54	-	38.18	-	60.00	50.00	-21.82	-

- 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. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.



A D T

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

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



A D T

4.2.3 TEST INSTRUMENTS

For below 1GHz test, tested date: Nov. 17

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M- 1GHz	NA	NA
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, 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.



A D T

Above 1GHz test, tested date: Aug. 24

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2010	Aug. 13, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
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, 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.



A D T

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.

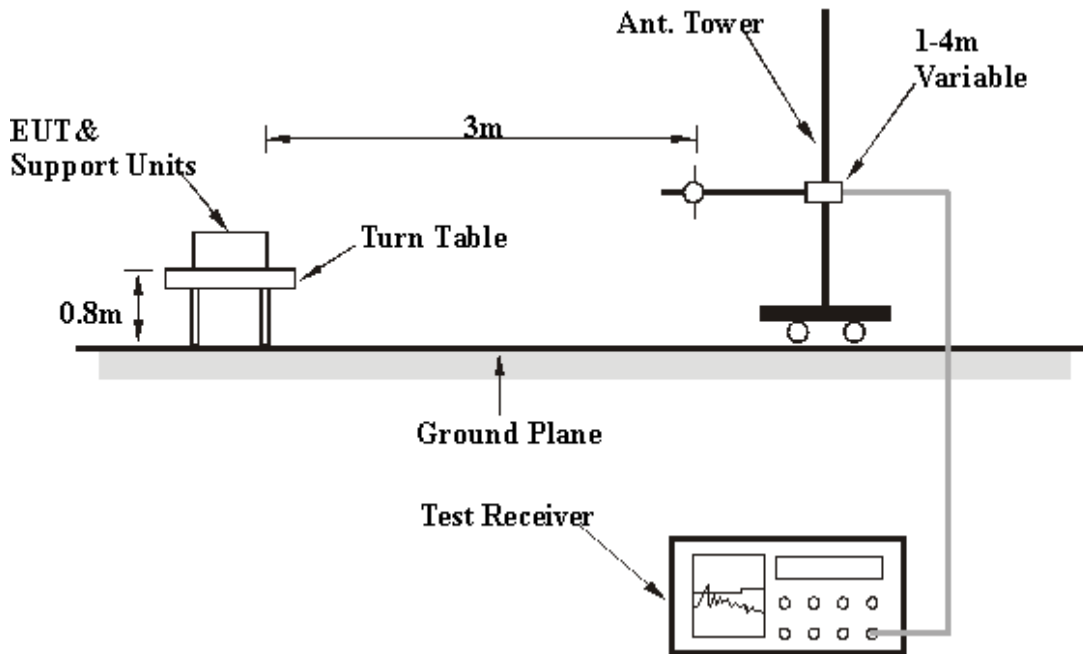
NOTE:

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

Same as 4.1.6



A D T

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 63%RH 1013 hPa	TESTED BY	Wen Yu

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	125.03	36.76 QP	43.50	-6.74	1.52 H	215	23.89	12.87
2	144.00	37.78 QP	43.50	-5.72	1.45 H	120	23.24	14.54
3	223.35	36.55 QP	46.00	-9.45	1.30 H	253	24.38	12.17
4	250.00	41.78 QP	46.00	-4.22	1.12 H	322	28.21	13.57
5	375.00	40.55 QP	46.00	-5.45	1.14 H	151	23.00	17.55
6	500.00	40.79 QP	46.00	-5.21	1.00 H	54	20.03	20.76
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	74.60	36.85 QP	40.00	-3.15	1.00 V	54	25.93	10.92
2	113.11	34.77 QP	43.50	-8.73	1.00 V	267	23.63	11.14
3	143.24	36.33 QP	43.50	-7.17	1.00 V	266	21.73	14.60
4	250.00	40.32 QP	46.00	-5.68	1.00 V	168	26.75	13.57
5	600.00	42.74 QP	46.00	-3.26	1.33 V	14	19.47	23.27
6	1000.00	42.41 QP	54.00	-11.59	1.50 V	31	13.80	28.61

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



A D T

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.3 PK	74.0	-18.7	1.43 H	261	19.30	36.00
2	5150.00	42.5 AV	54.0	-11.5	1.43 H	261	6.50	36.00
3	*5180.00	100.2 PK			1.00 H	70	64.15	36.05
4	*5180.00	91.4 AV			1.00 H	70	55.35	36.05
5	#10360.00	56.7 PK	68.3	-11.6	1.48 H	107	10.55	46.15
6	15540.00	57.0 PK	74.0	-17.0	1.01 H	240	8.89	48.11
7	15540.00	43.9 AV	54.0	-10.1	1.01 H	240	-4.21	48.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.2 PK	74.0	-14.8	1.30 V	288	23.20	36.00
2	5150.00	47.1 AV	54.0	-6.9	1.30 V	288	11.10	36.00
3	*5180.00	106.2 PK			1.00 V	291	70.16	36.05
4	*5180.00	96.5 AV			1.00 V	291	60.45	36.05
5	#10360.00	56.2 PK	68.3	-12.1	1.57 V	142	10.05	46.15
6	15540.00	56.9 PK	74.0	-17.1	1.15 V	25	8.79	48.11
7	15540.00	43.7 AV	54.0	-10.3	1.15 V	25	-4.41	48.11

- 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 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	100.4 PK			1.00 H	72	64.32	36.08
2	*5200.00	90.8 AV			1.00 H	72	54.72	36.08
3	#10400.00	55.9 PK	68.3	-12.4	1.41 H	135	9.69	46.21
4	15600.00	54.2 PK	74.0	-19.8	1.00 H	236	6.26	47.94
5	15600.00	42.1 AV	54.0	-11.9	1.00 H	236	-5.84	47.94

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	107.3 PK			1.00 V	335	71.22	36.08
2	*5200.00	97.6 AV			1.00 V	335	61.52	36.08
3	#10400.00	56.0 PK	68.3	-12.3	1.35 V	141	9.79	46.21
4	15600.00	54.5 PK	74.0	-19.5	1.13 V	209	6.56	47.94
5	15600.00	42.2 AV	54.0	-11.8	1.13 V	209	-5.74	47.94

- 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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	99.2 PK			1.39 H	260	63.06	36.14
2	*5240.00	89.8 AV			1.39 H	260	53.66	36.14
3	#10480.00	55.0 PK	68.3	-13.3	1.46 H	259	8.68	46.32
4	15720.00	56.7 PK	74.0	-17.3	1.00 H	230	9.11	47.59
5	15720.00	43.7 AV	54.0	-10.3	1.00 H	230	-3.89	47.59
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	106.0 PK			1.22 V	335	69.86	36.14
2	*5240.00	96.2 AV			1.22 V	335	60.06	36.14
3	#10480.00	55.2 PK	68.3	-13.1	1.50 V	141	8.88	46.32
4	15720.00	56.7 PK	74.0	-17.3	1.10 V	32	9.11	47.59
5	15720.00	43.6 AV	54.0	-10.4	1.10 V	32	-3.99	47.59

- 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 is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	100.1 PK			1.31 H	224	63.92	36.18
2	*5260.00	91.0 AV			1.31 H	224	54.82	36.18
3	#10520.00	55.6 PK	68.3	-12.7	1.48 H	237	9.21	46.39
4	15780.00	55.1 PK	74.0	-18.9	1.00 H	260	7.68	47.42
5	15780.00	42.5 AV	54.0	-11.5	1.00 H	260	-4.92	47.42

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	107.6 PK			1.20 V	331	71.42	36.18
2	*5260.00	98.5 AV			1.20 V	331	62.32	36.18
3	#10520.00	55.5 PK	68.3	-12.8	1.44 V	141	9.11	46.39
4	15780.00	55.1 PK	74.0	-18.9	1.09 V	23	7.68	47.42
5	15780.00	42.8 AV	54.0	-11.2	1.09 V	23	-4.62	47.42

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	101.5 PK			1.21 H	56	65.26	36.24
2	*5300.00	91.6 AV			1.21 H	56	55.36	36.24
3	10600.00	55.8 PK	74.0	-18.2	1.46 H	239	9.25	46.55
4	10600.00	43.6 AV	54.0	-10.4	1.46 H	239	-2.95	46.55
5	15900.00	55.2 PK	74.0	-18.8	1.01 H	265	8.13	47.07
6	15900.00	42.6 AV	54.0	-11.4	1.01 H	265	-4.47	47.07
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	107.0 PK			1.19 V	335	70.76	36.24
2	*5300.00	97.9 AV			1.19 V	335	61.66	36.24
3	10600.00	56.1 PK	74.0	-17.9	1.49 V	138	9.55	46.55
4	10600.00	43.4 AV	54.0	-10.6	1.49 V	138	-3.15	46.55
5	15900.00	56.0 PK	74.0	-18.0	1.10 V	20	8.93	47.07
6	15900.00	43.3 AV	54.0	-10.7	1.10 V	20	-3.77	47.07

- 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 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	99.0 PK			1.27 H	90	62.73	36.27
2	*5320.00	89.2 AV			1.27 H	90	52.93	36.27
3	5350.00	55.5 PK	74.0	-18.5	1.25 H	89	19.18	36.32
4	5350.00	42.4 AV	54.0	-11.6	1.25 H	89	6.08	36.32
5	10640.00	56.0 PK	74.0	-18.0	1.44 H	238	9.37	46.63
6	10640.00	43.4 AV	54.0	-10.6	1.44 H	238	-3.23	46.63
7	15960.00	55.8 PK	74.0	-18.2	1.00 H	264	8.90	46.90
8	15960.00	43.3 AV	54.0	-10.7	1.00 H	264	-3.60	46.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	104.2 PK			1.15 V	336	67.93	36.27
2	*5320.00	94.8 AV			1.15 V	336	58.53	36.27
3	5350.00	59.0 PK	74.0	-15.0	1.24 V	337	22.68	36.32
4	5350.00	44.8 AV	54.0	-9.2	1.24 V	337	8.48	36.32
5	10640.00	55.4 PK	74.0	-18.6	1.47 V	138	8.77	46.63
6	10640.00	43.0 AV	54.0	-11.0	1.47 V	138	-3.63	46.63
7	15960.00	56.3 PK	74.0	-17.7	1.11 V	22	9.40	46.90
8	15960.00	43.8 AV	54.0	-10.2	1.11 V	22	-3.10	46.90

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	54.4 PK	74.0	-19.6	1.27 H	93	17.90	36.50
2	5460.00	41.7 AV	54.0	-12.3	1.27 H	93	5.20	36.50
3	#5470.00	54.2 PK	68.3	-14.1	1.27 H	270	17.69	36.51
4	*5500.00	100.0 PK			1.27 H	270	63.44	36.56
5	*5500.00	90.8 AV			1.27 H	270	54.24	36.56
6	11000.00	60.3 PK	74.0	-13.7	1.52 H	16	12.95	47.35
7	11000.00	48.0 AV	54.0	-6.0	1.52 H	16	0.65	47.35
8	#16500.00	60.0 PK	68.3	-8.3	1.04 H	116	12.53	47.47

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5457.62	54.8 PK	74.0	-19.2	1.23 V	332	18.31	36.49
2	5457.62	42.8 AV	54.0	-11.2	1.23 V	332	6.31	36.49
3	#5470.00	57.0 PK	68.3	-11.3	1.22 V	261	20.49	36.51
4	*5500.00	103.2 PK			1.22 V	261	66.64	36.56
5	*5500.00	93.7 AV			1.22 V	261	57.14	36.56
6	11000.00	59.7 PK	74.0	-14.3	1.51 V	10	12.35	47.35
7	11000.00	47.6 AV	54.0	-6.4	1.51 V	10	0.25	47.35
8	#16500.00	60.6 PK	68.3	-7.7	1.09 V	12	13.13	47.47

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

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	105.6 PK			1.37 H	269	68.78	36.82
2	*5600.00	95.8 AV			1.37 H	269	58.98	36.82
3	11200.00	59.2 PK	74.0	-14.8	1.61 H	27	11.94	47.26
4	11200.00	47.2 AV	54.0	-6.8	1.61 H	27	-0.06	47.26
5	#16800.00	60.1 PK	68.3	-8.2	1.03 H	120	11.77	48.33

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	103.3 PK			1.32 V	254	66.48	36.82
2	*5600.00	94.0 AV			1.32 V	254	57.18	36.82
3	11200.00	57.0 PK	74.0	-17.0	1.40 V	10	9.74	47.26
4	11200.00	45.0 AV	54.0	-9.0	1.40 V	10	-2.26	47.26
5	#16800.00	59.1 PK	68.3	-9.2	1.12 V	11	10.77	48.33

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 1013 hPa	TESTED BY	Phoenix Huang

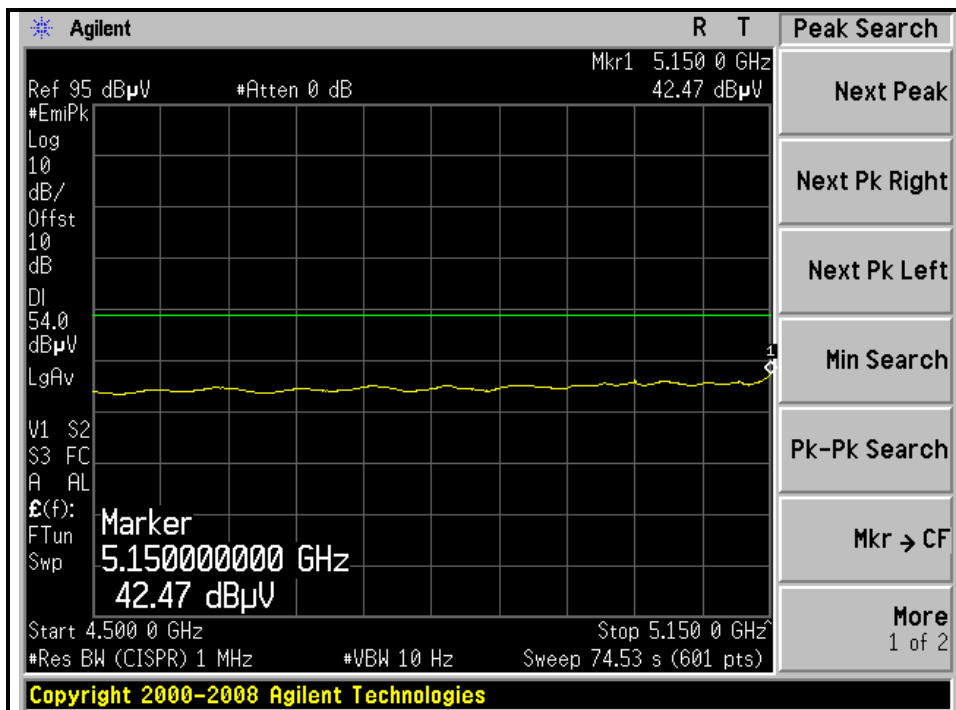
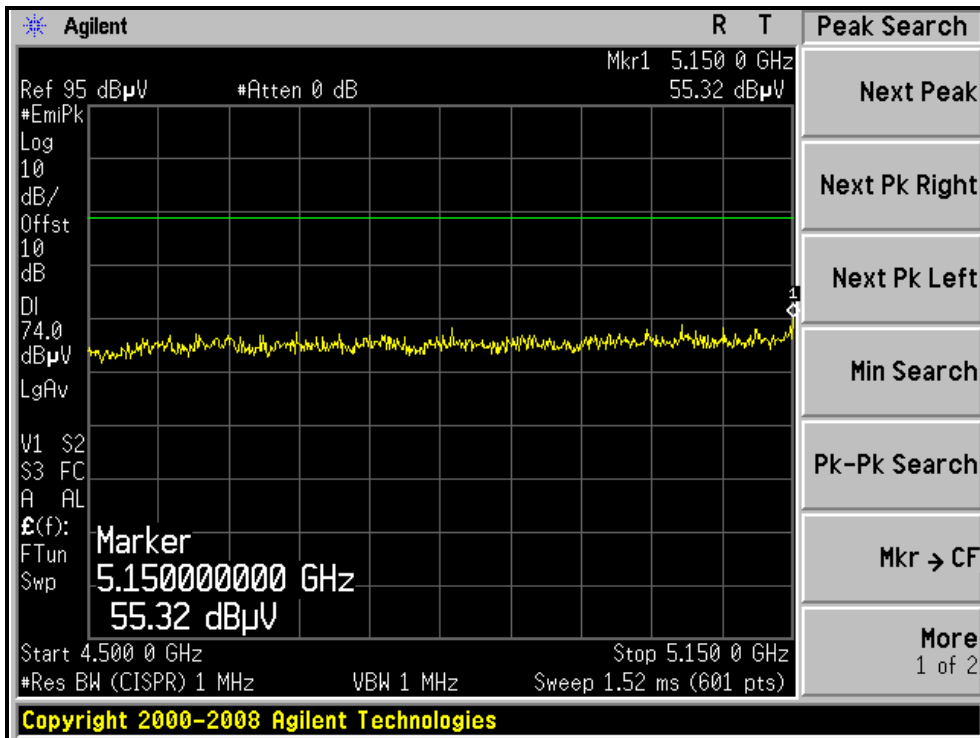
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	95.2 PK			1.30 H	274	58.11	37.09
2	*5700.00	86.3 AV			1.30 H	274	49.21	37.09
3	#5725.00	55.7 PK	68.3	-12.6	1.30 H	274	18.55	37.15
4	11400.00	54.9 PK	74.0	-19.1	1.58 H	64	7.73	47.17
5	11400.00	42.6 AV	54.0	-11.4	1.58 H	64	-4.57	47.17
6	#17100.00	60.4 PK	68.3	-7.9	1.01 H	118	11.02	49.38
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	95.8 PK			1.28 V	262	58.71	37.09
2	*5700.00	86.7 AV			1.28 V	262	49.61	37.09
3	#5725.00	56.7 PK	68.3	-11.6	1.28 V	262	19.55	37.15
4	11400.00	54.5 PK	74.0	-19.5	1.45 V	20	7.33	47.17
5	11400.00	42.3 AV	54.0	-11.7	1.45 V	20	-4.87	47.17
6	#17100.00	60.3 PK	68.3	-8.0	1.10 V	13	10.92	49.38

- 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

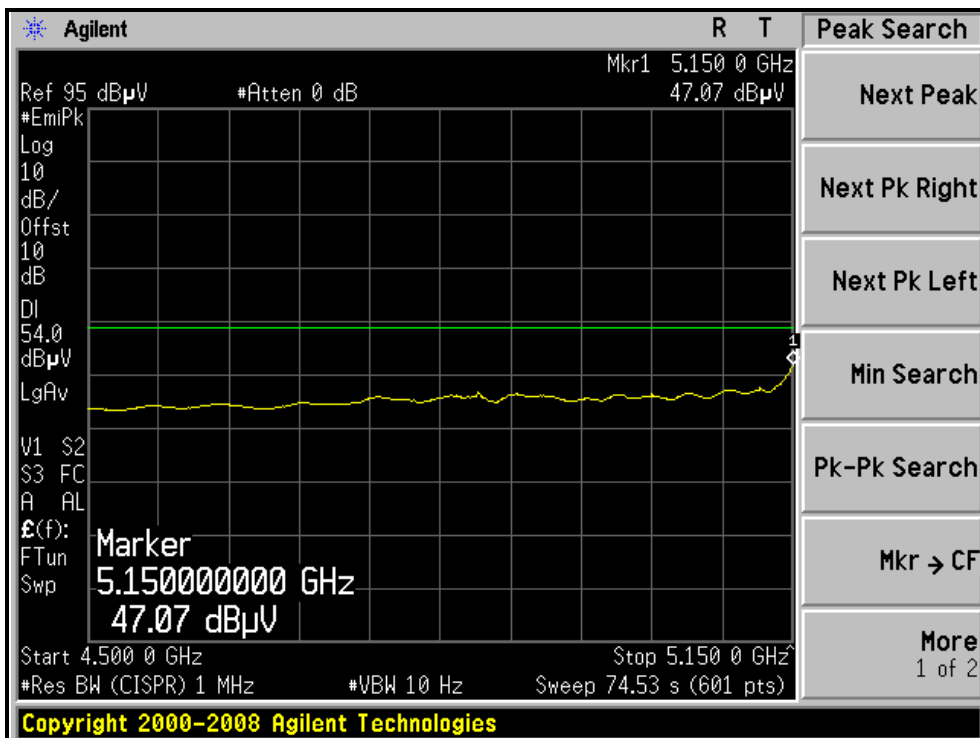
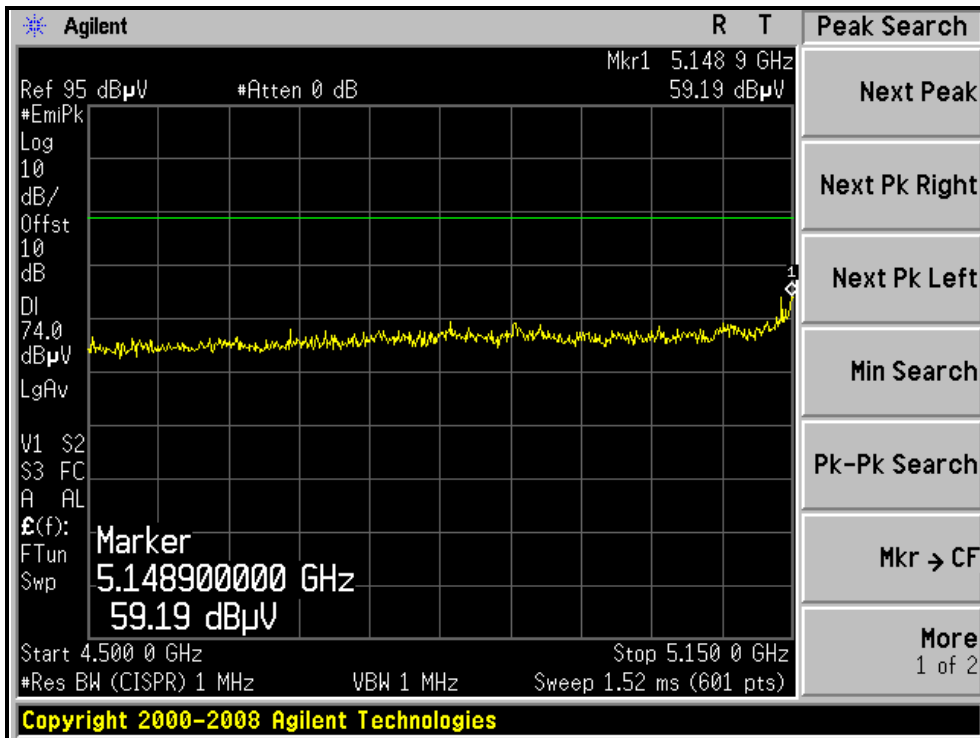
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





A D T

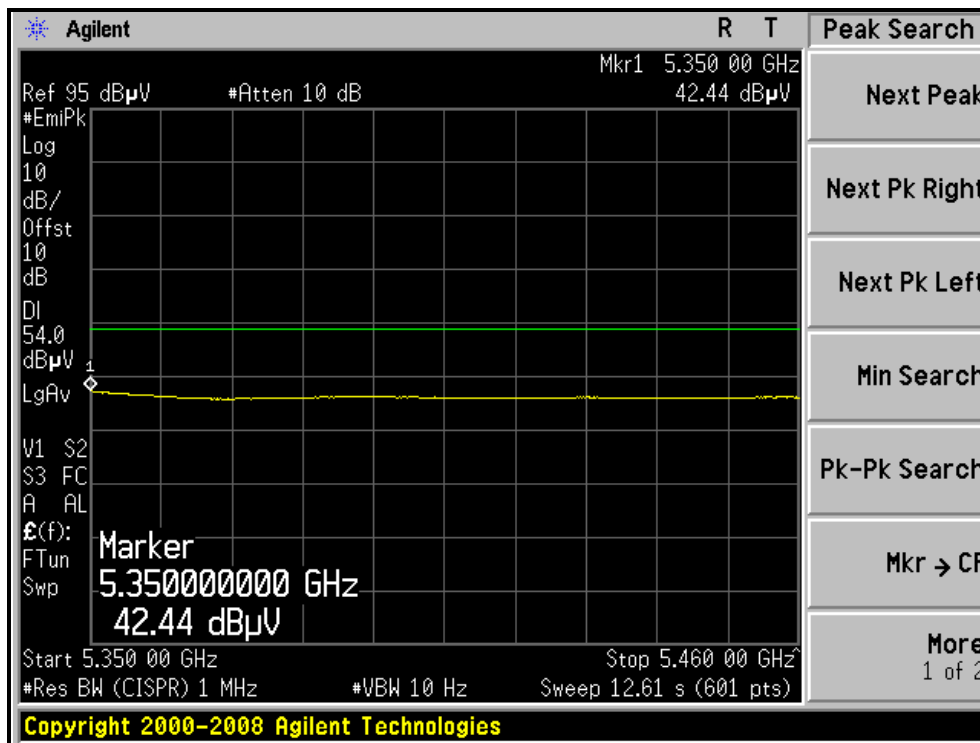
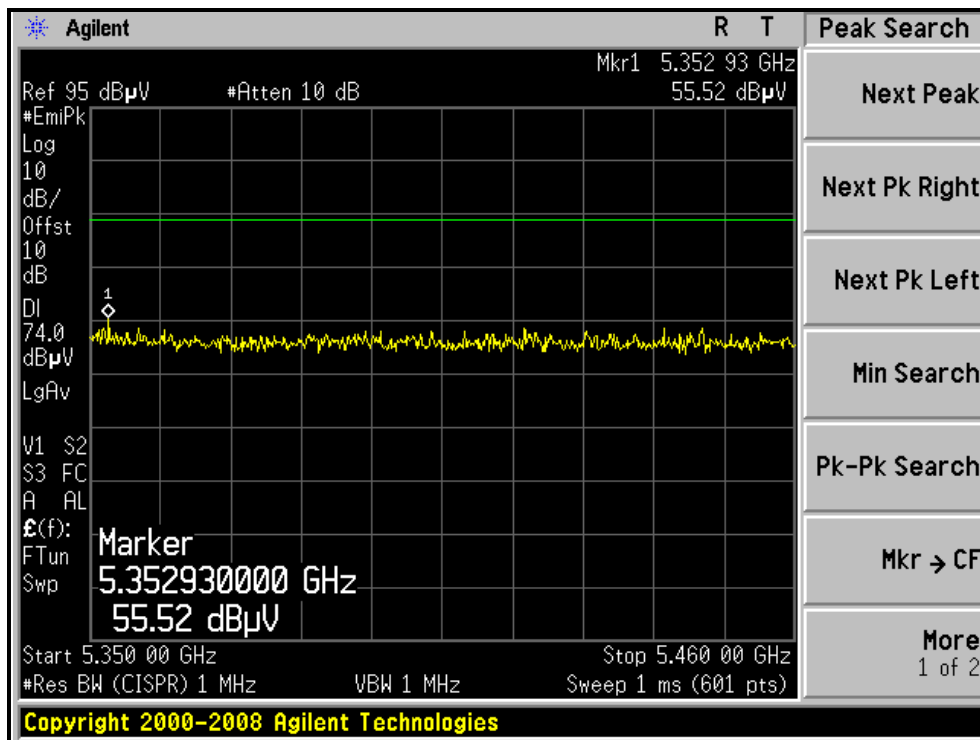
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





A D T

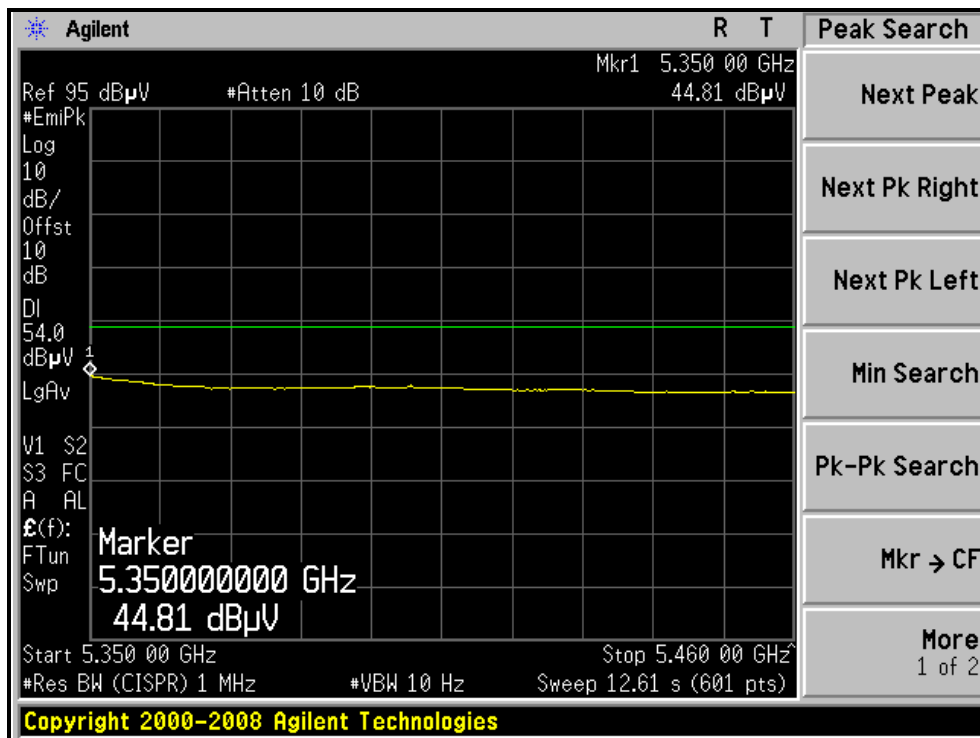
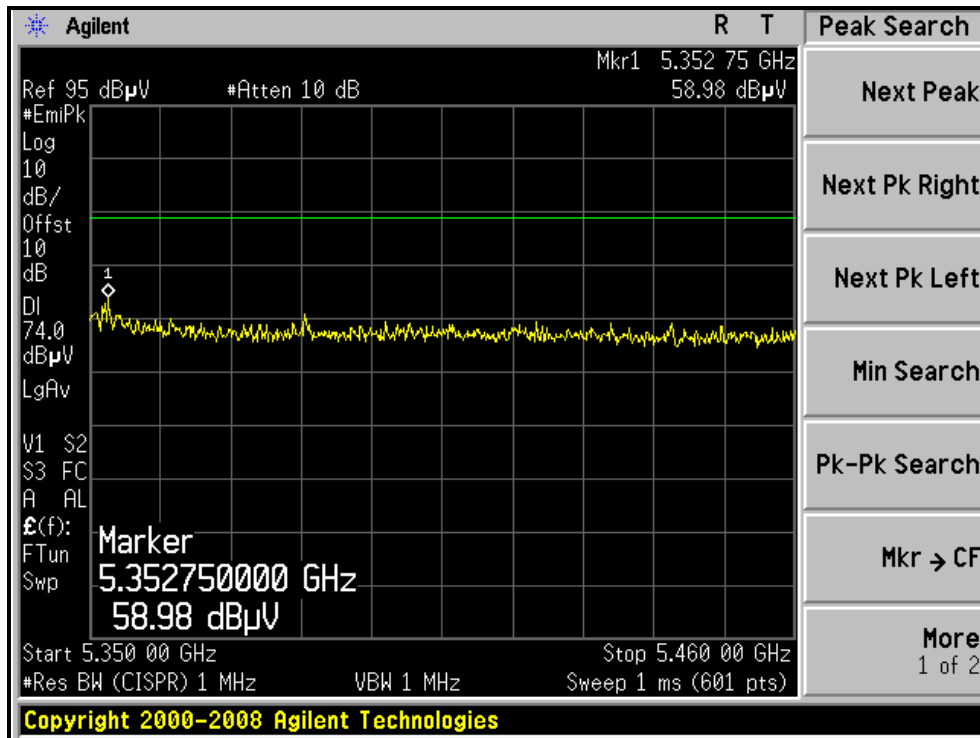
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)





A D T

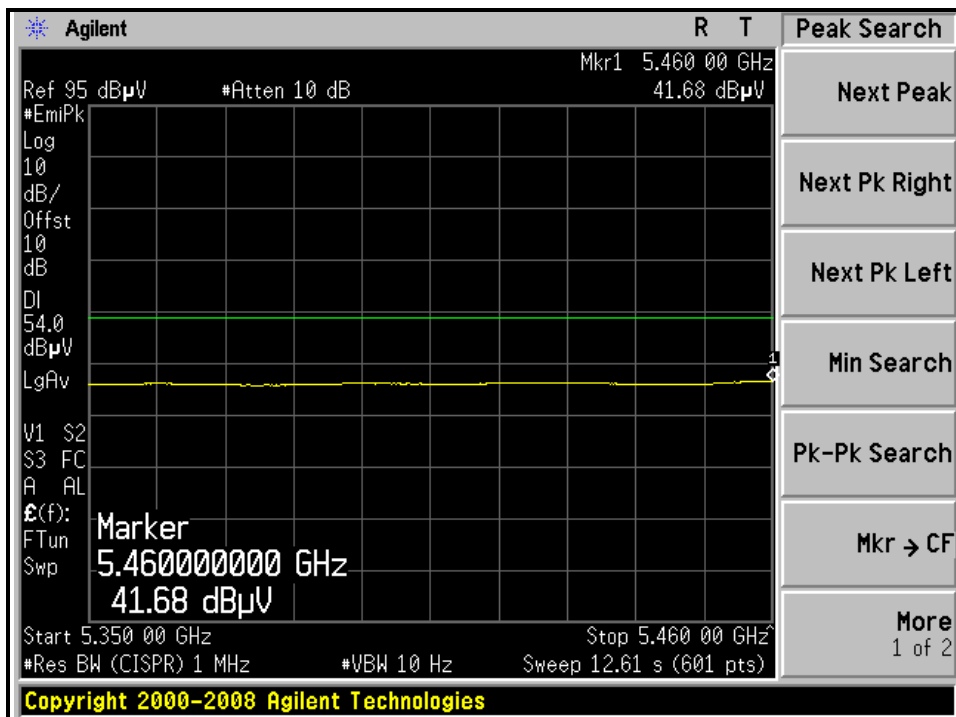
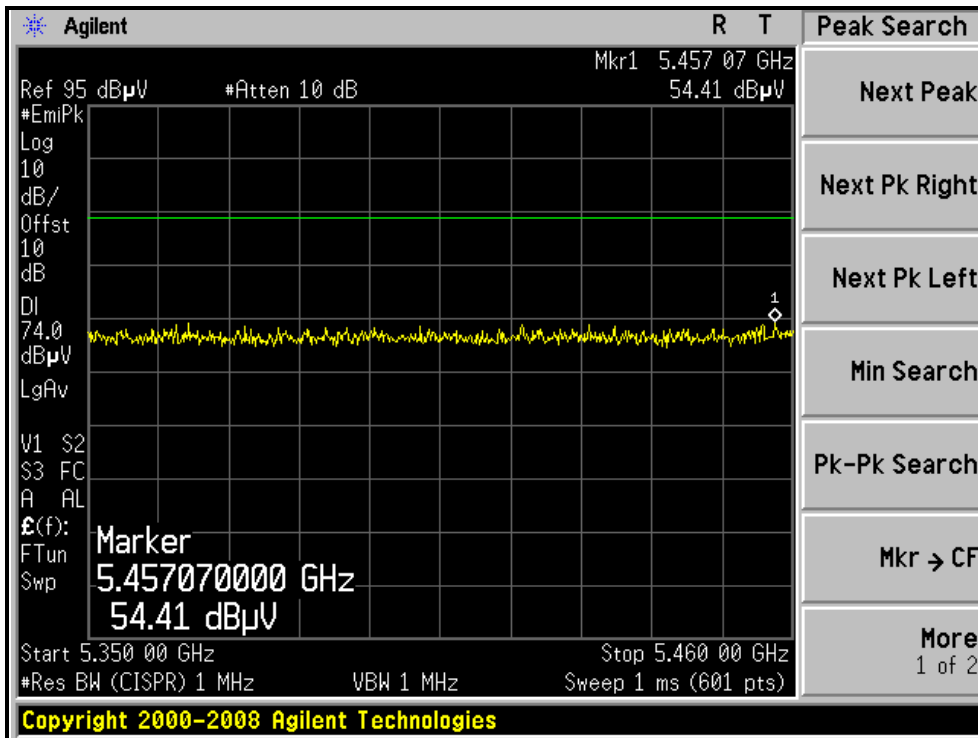
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)





A D T

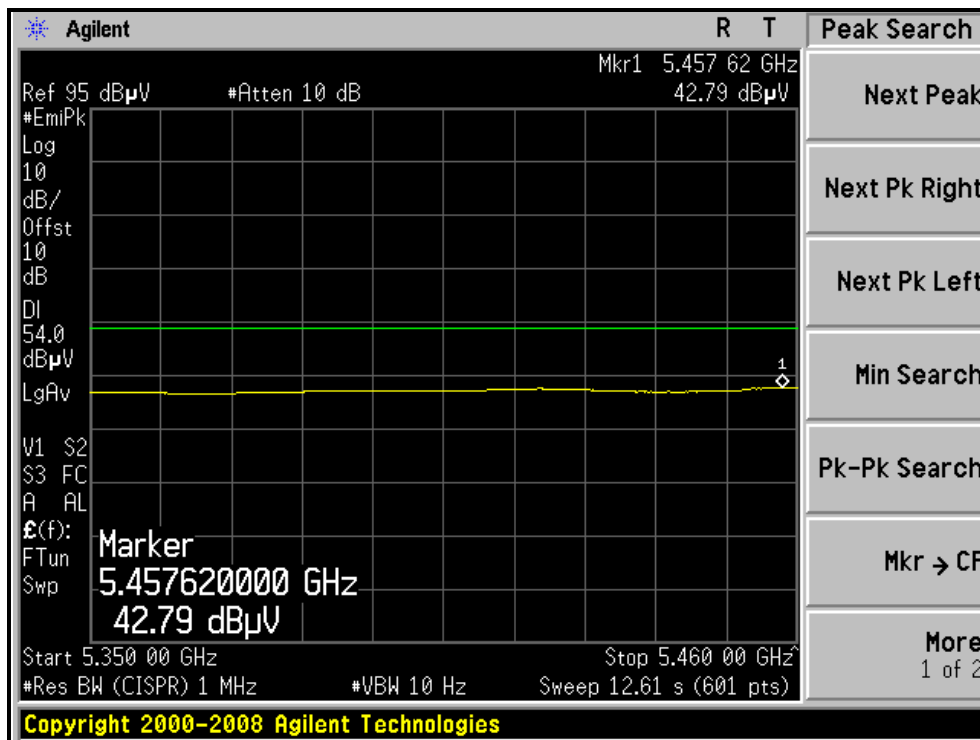
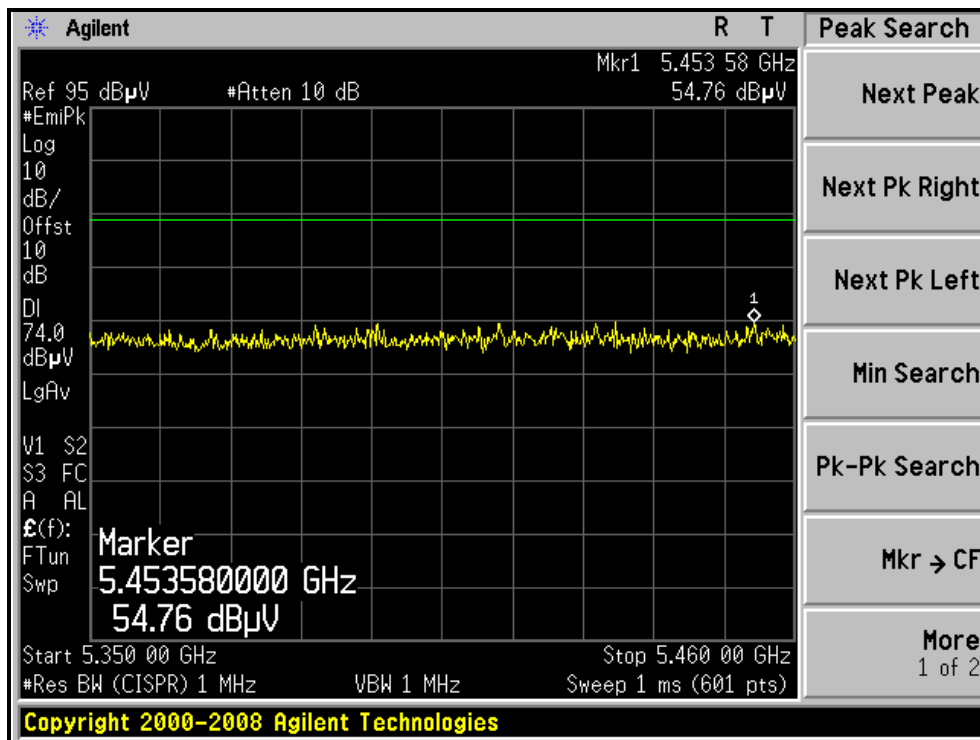
RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)



4.3 OUTPUT TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF OUTPUT 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
PSA Sevius Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 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 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

The EUT was setup to ANSI C63.4, tested to UNII test procedure of KDB289238 (DA-02-2138A1) for compliance to FCC 47CFR 15.407 requirements.

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:

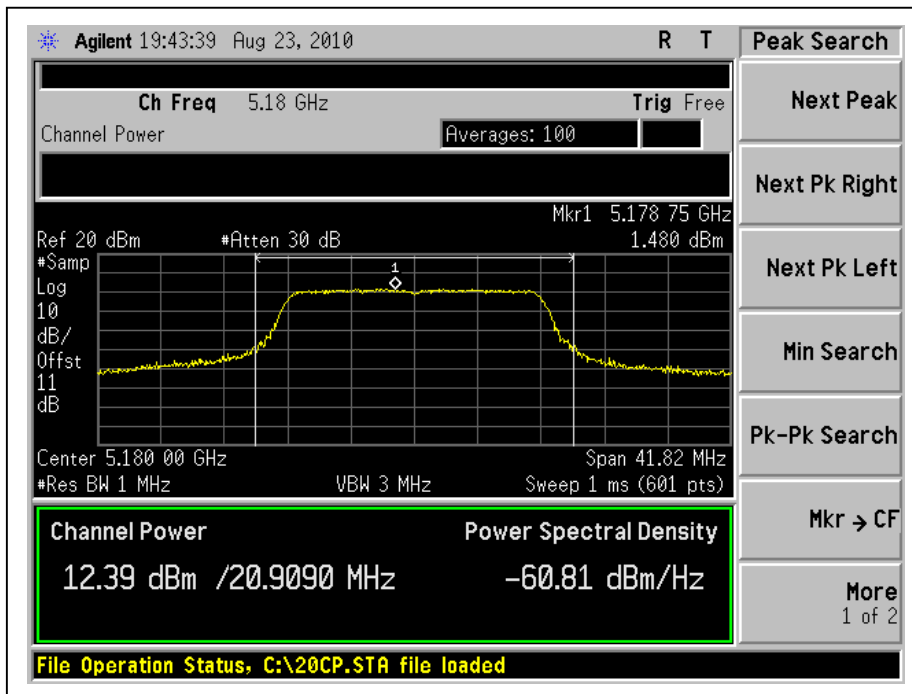
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
36	5180	17.4	12.4	17.0	20.91	PASS
40	5200	25.7	14.1	17.0	23.37	PASS
48	5240	19.5	12.9	17.0	20.82	PASS
52	5260	26.3	14.2	24.0	23.31	PASS
60	5300	27.5	14.4	24.0	23.45	PASS
64	5320	14.5	11.6	24.0	20.81	PASS
100	5500	15.1	11.8	24.0	21.28	PASS
120	5600	20.4	13.1	24.0	23.28	PASS
140	5700	5.1	7.1	24.0	20.62	PASS

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

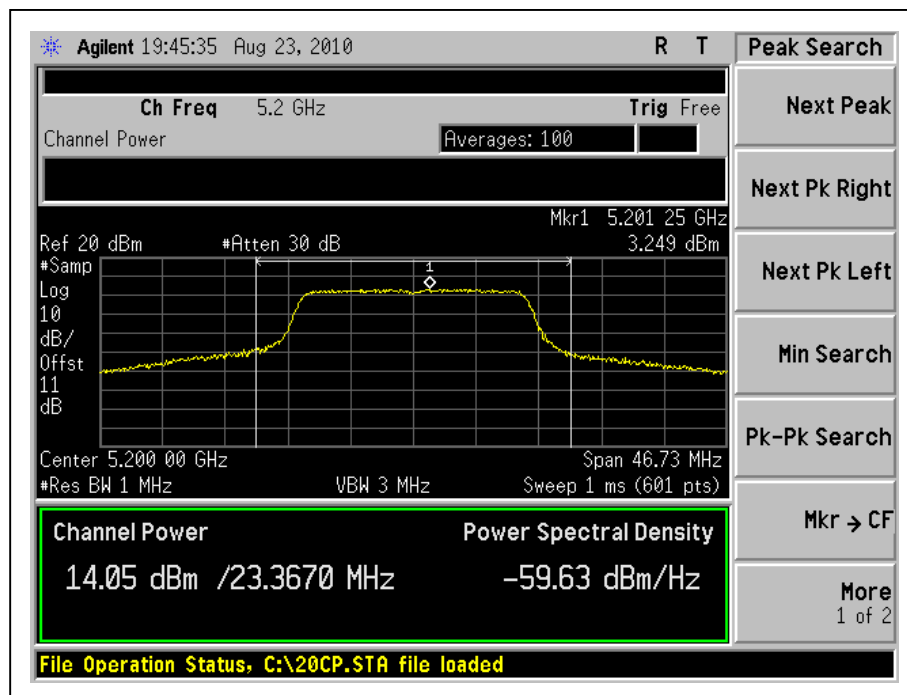


A D T

Peak Power Output: CH36



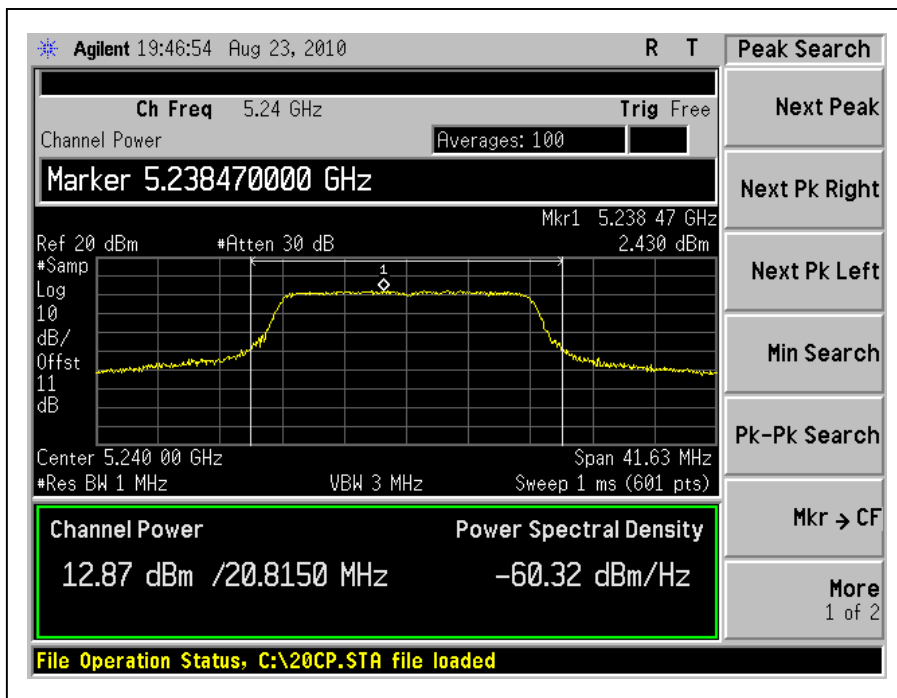
CH40



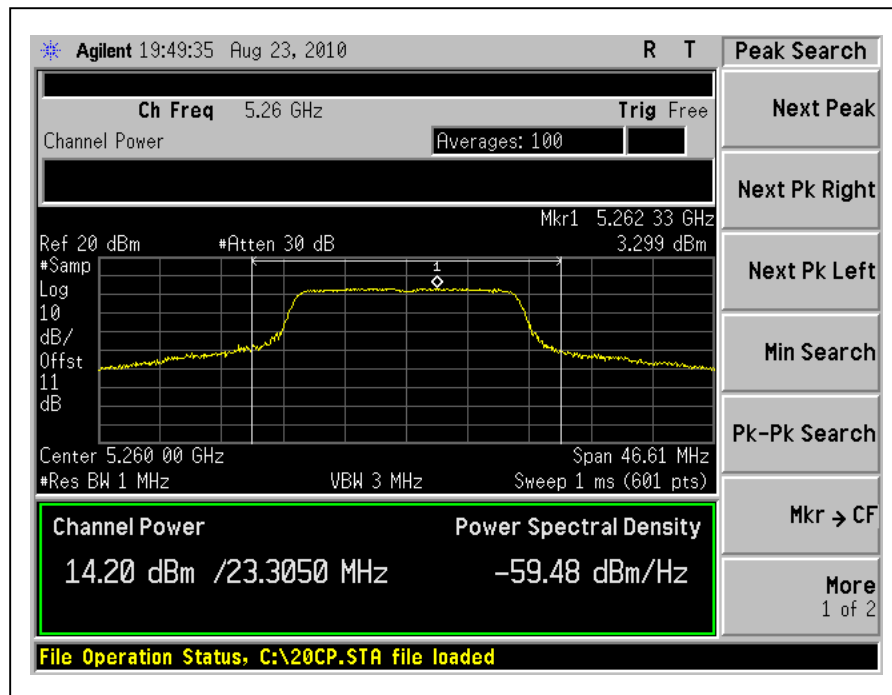


A D T

CH48



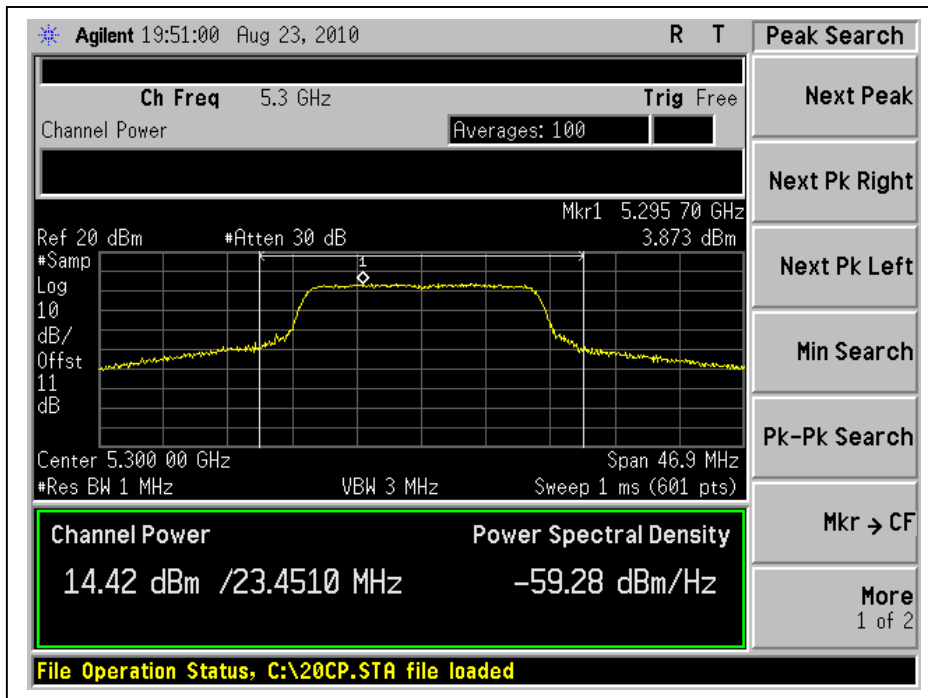
CH52



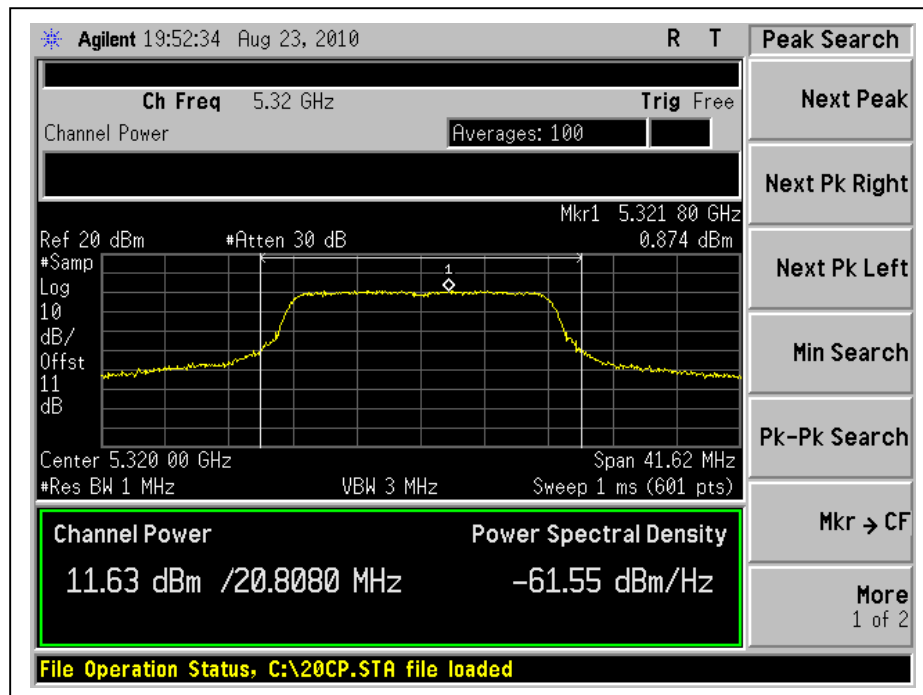


A D T

CH60



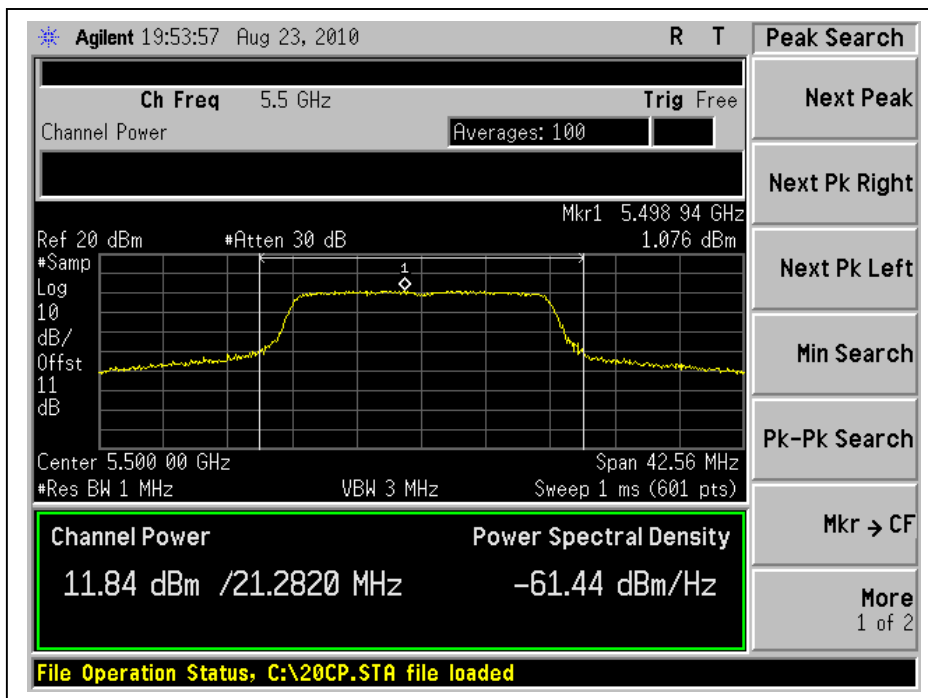
CH64



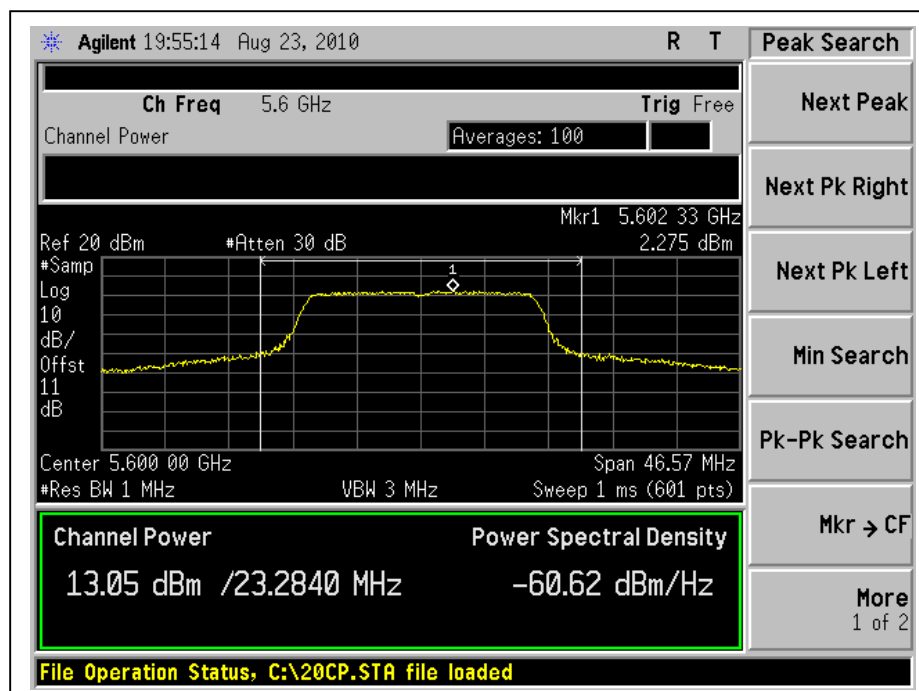


A D T

CH100



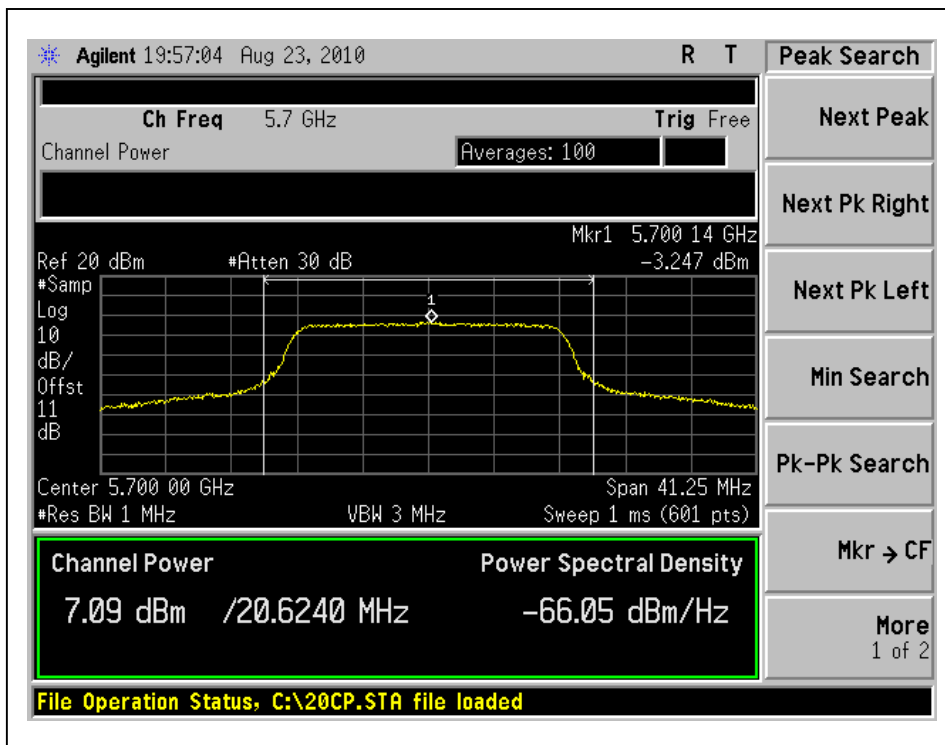
CH120





A D T

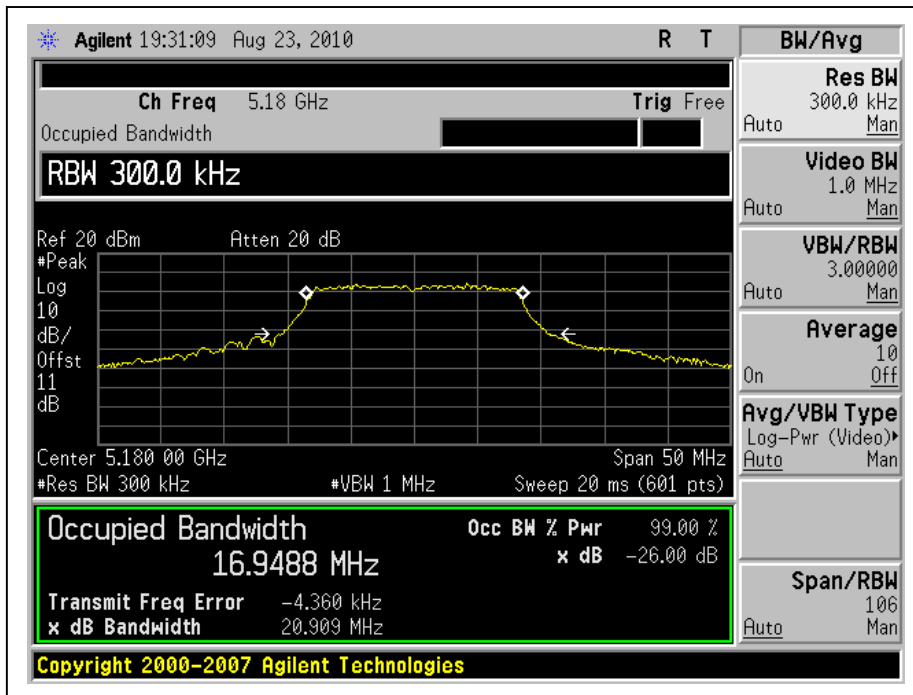
CH140



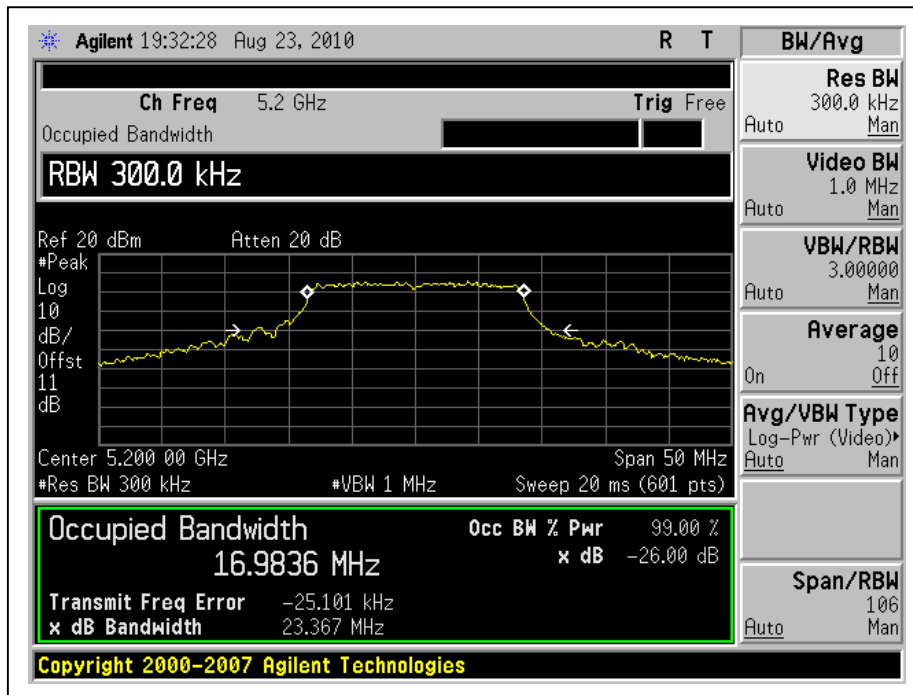


A D T

26dB Occupied Bandwidth: CH36



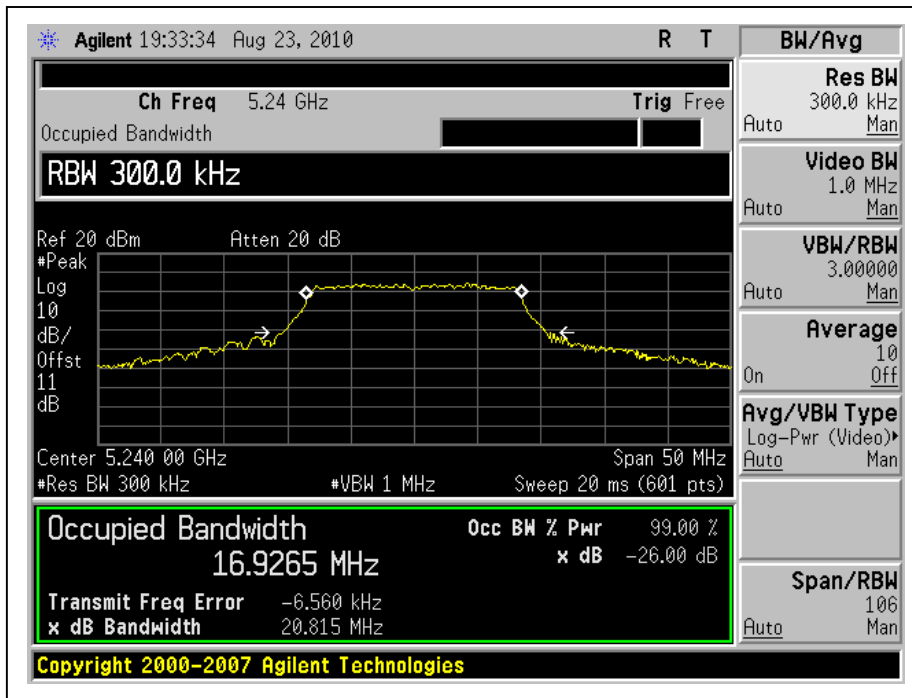
CH40



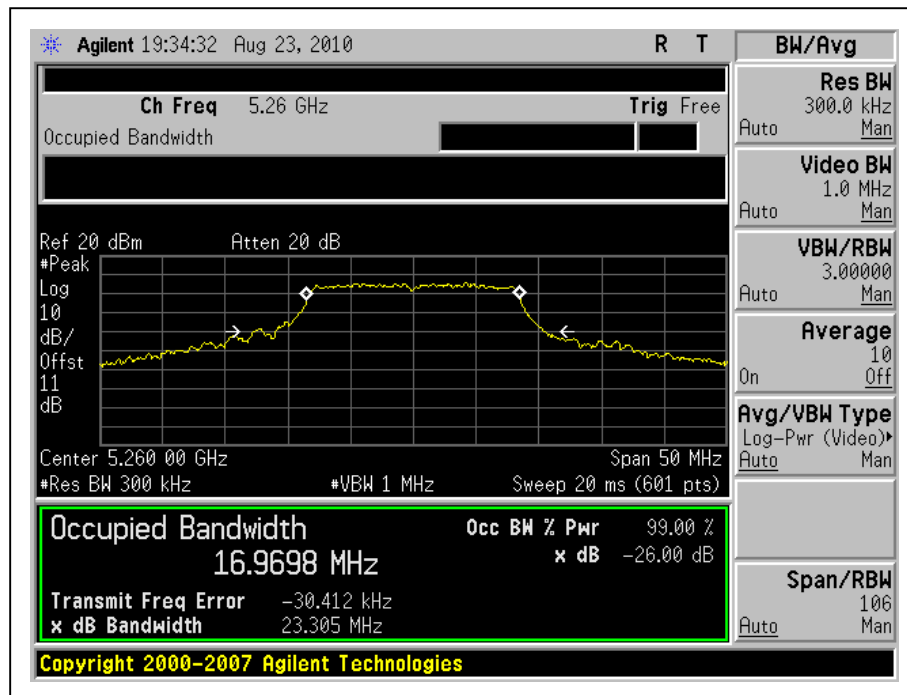


A D T

CH48



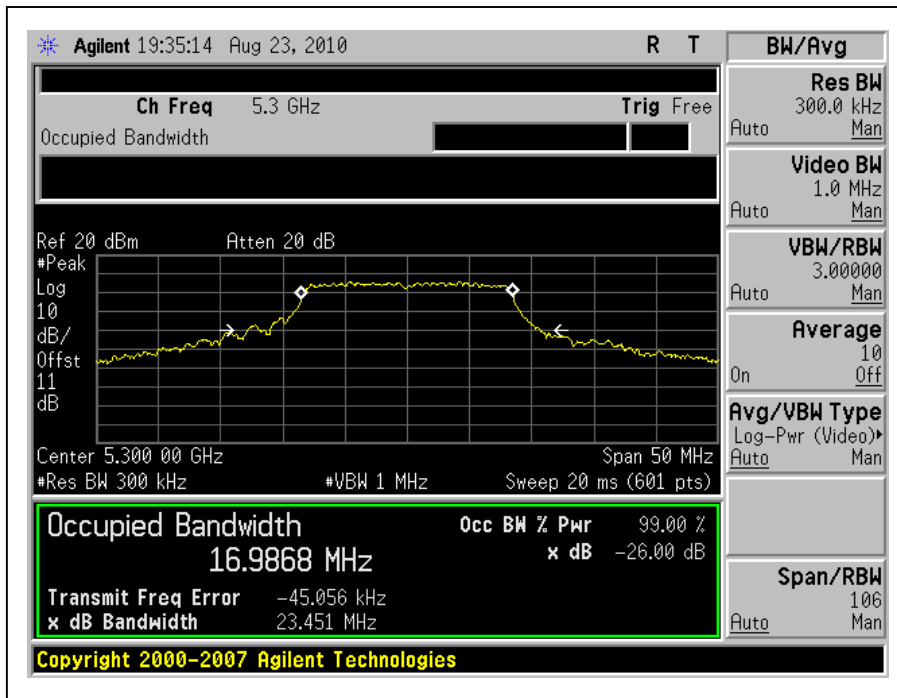
CH52



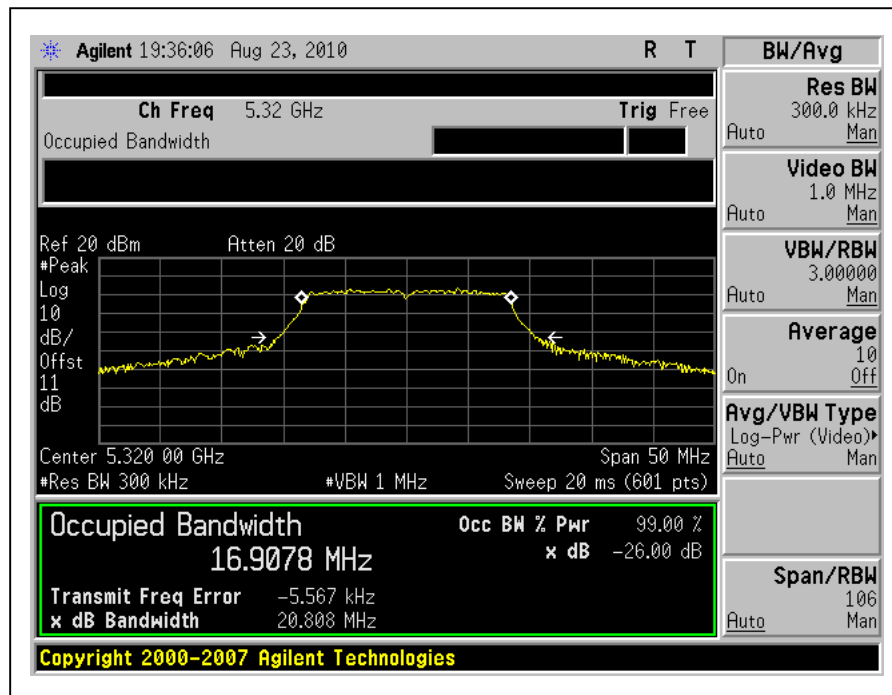


A D T

CH60



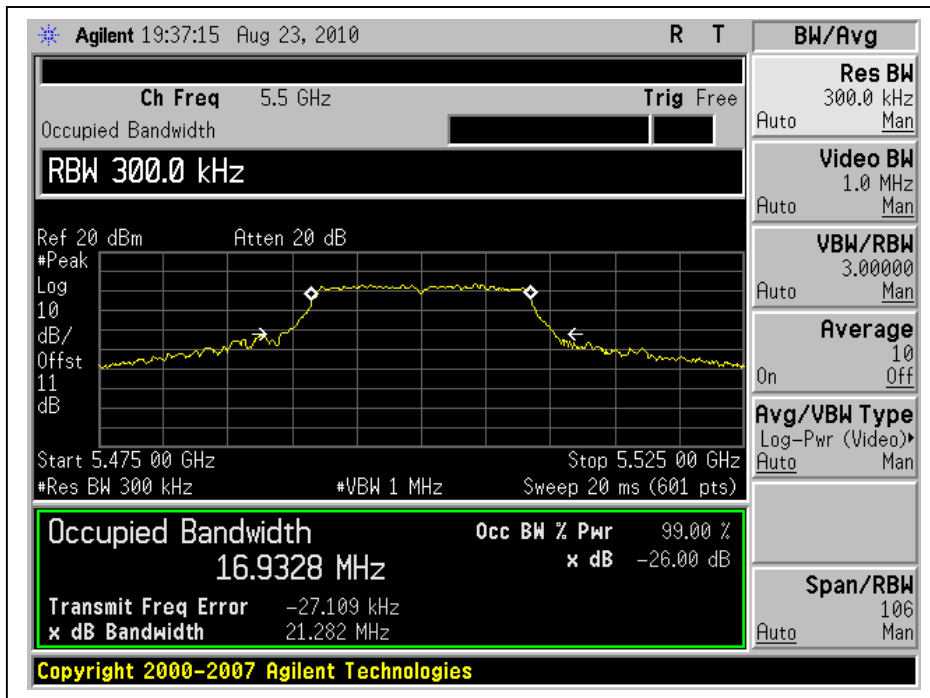
CH64



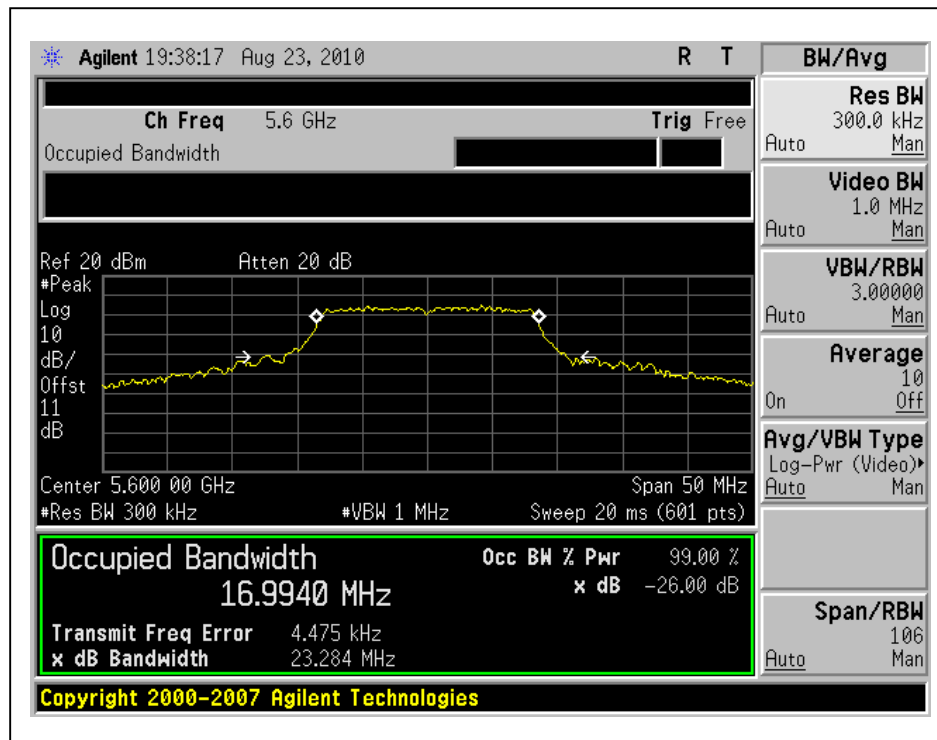


A D T

CH100



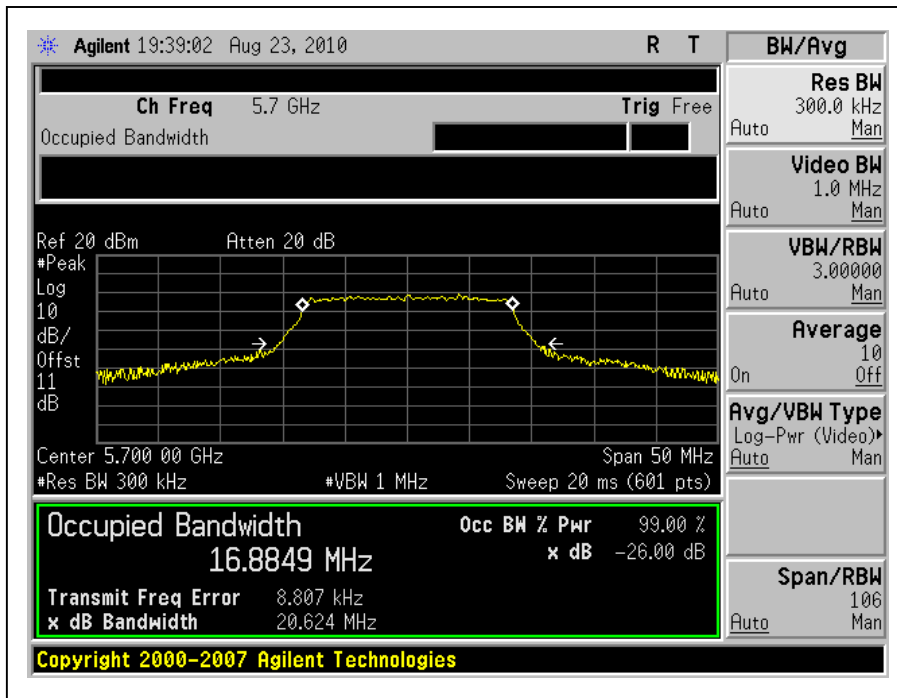
CH120





A D T

CH140



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 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

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
PSA Seviess Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 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.

4.4.3 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.

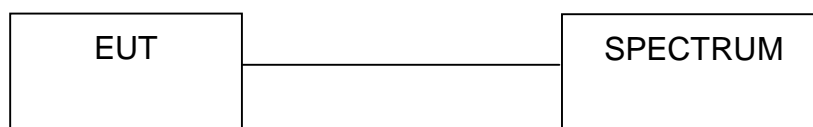
NOTE:

The EUT was setup to ANSI C63.4, tested to UNII test procedure of KDB289238 (DA-02-2138A1) for compliance to FCC 47CFR 15.407 requirements.

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.



A D T

4.4.7 TEST RESULTS

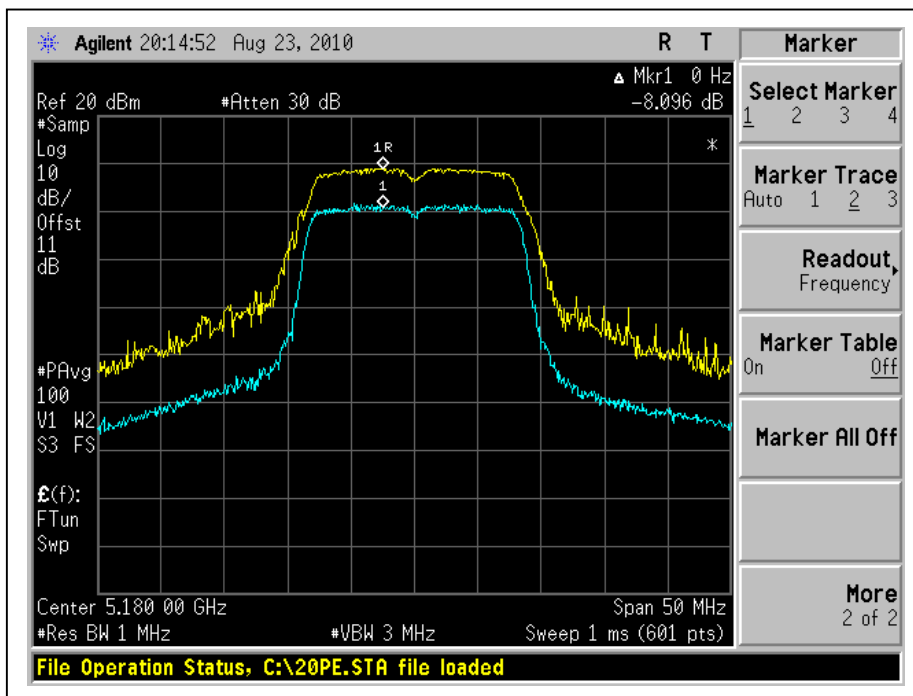
802.11a OFDM modulation

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	8.1	13	PASS
40	5200	8.2	13	PASS
48	5240	7.6	13	PASS
52	5260	8.6	13	PASS
60	5300	8.5	13	PASS
64	5320	8.2	13	PASS
100	5500	7.9	13	PASS
120	5600	7.8	13	PASS
140	5700	8.8	13	PASS

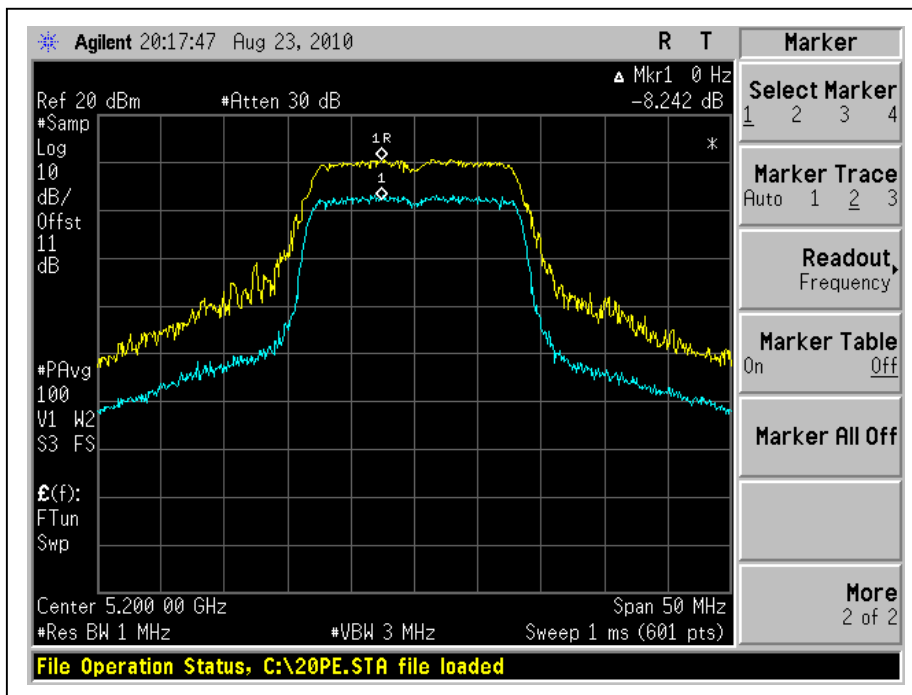


A D T

CH36



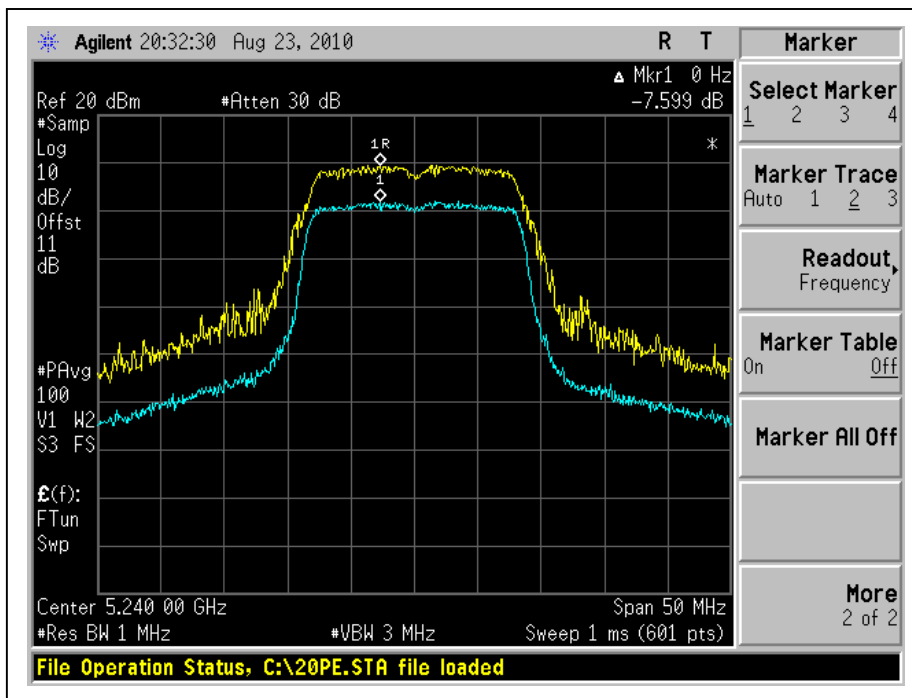
CH40



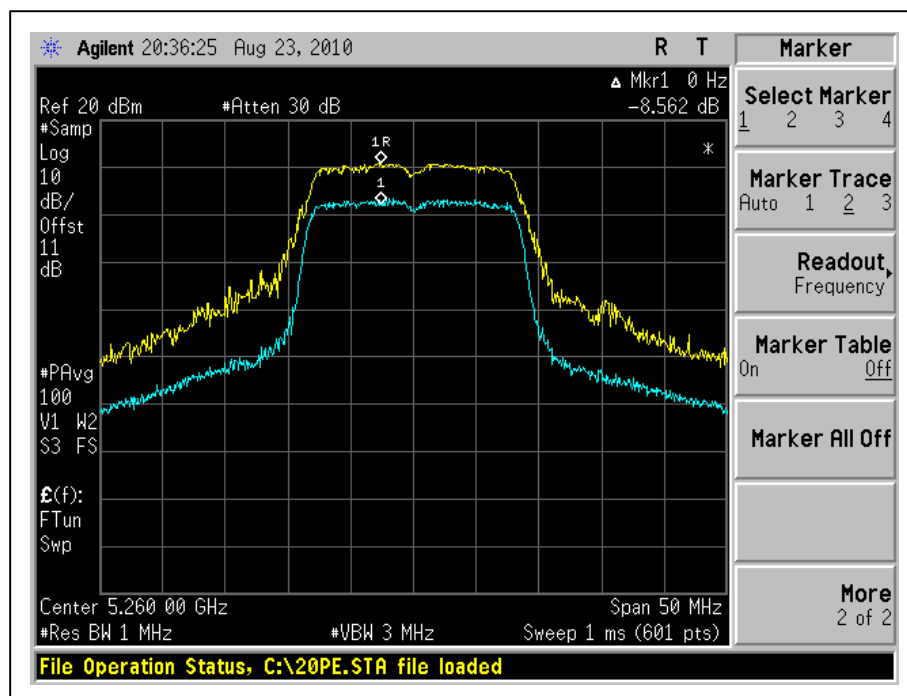


A D T

CH48



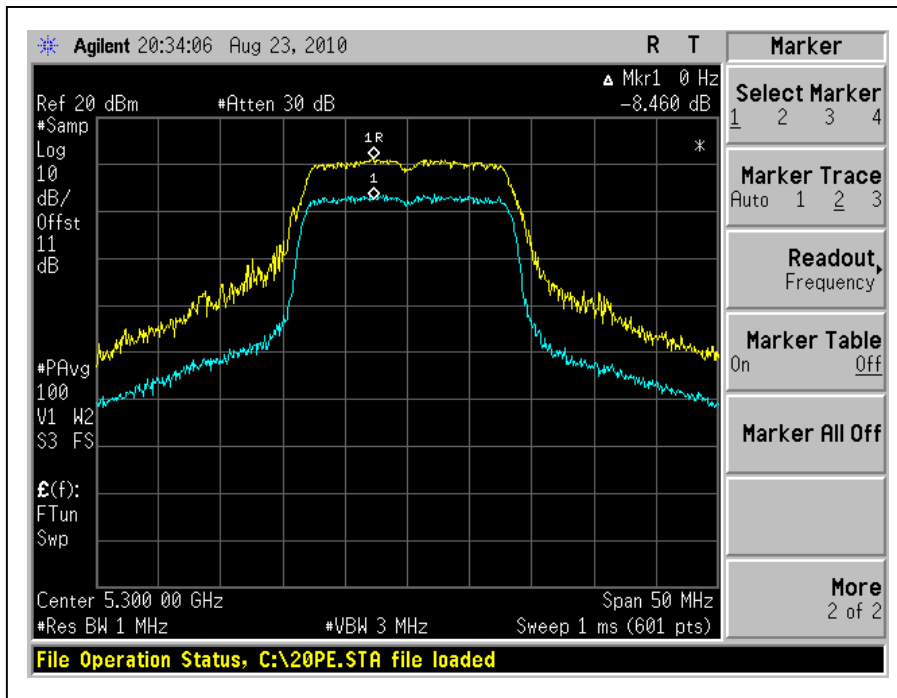
CH52



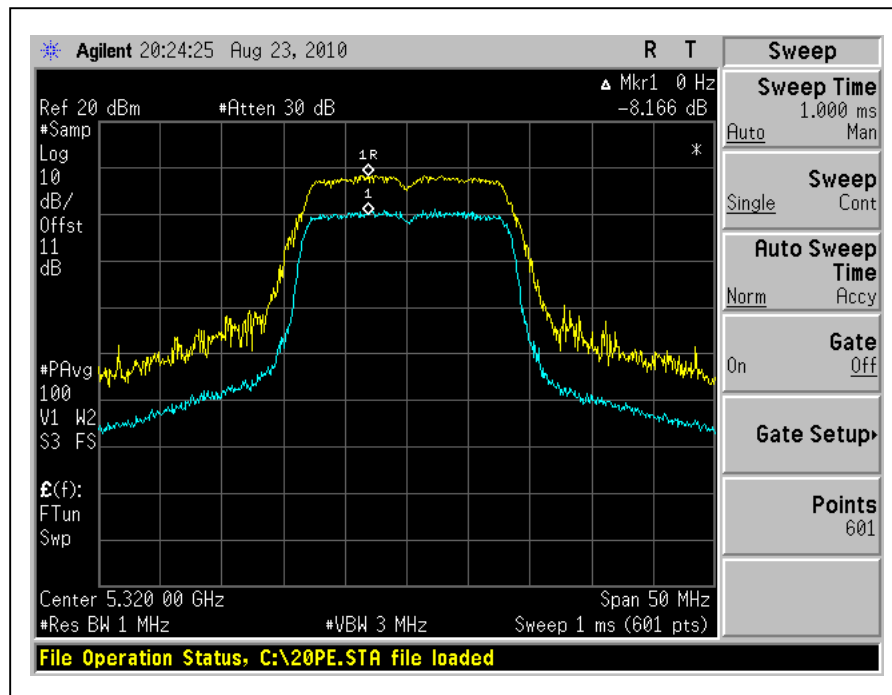


A D T

CH60



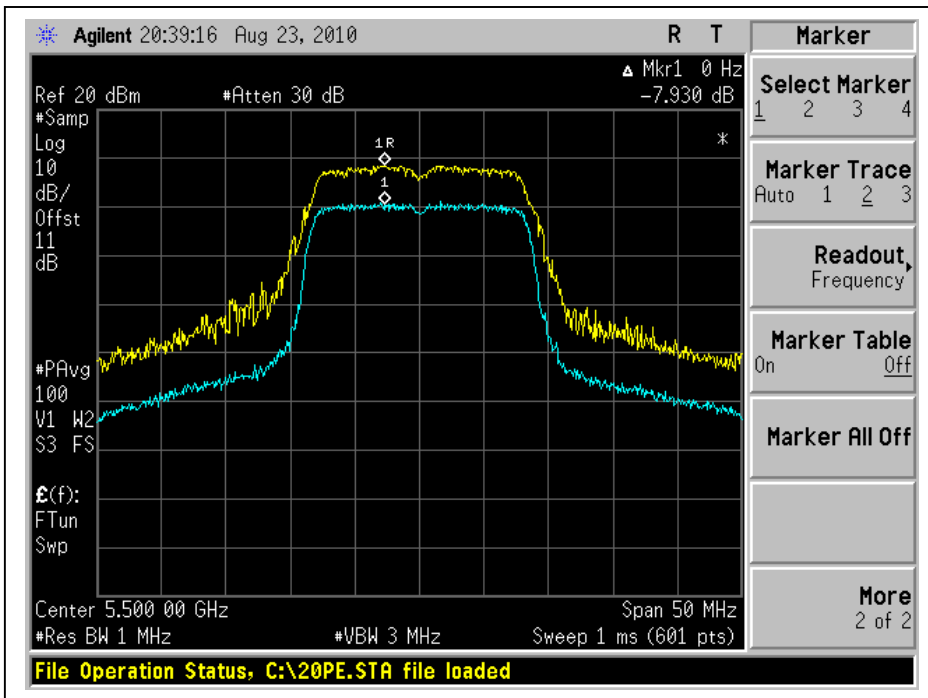
CH64



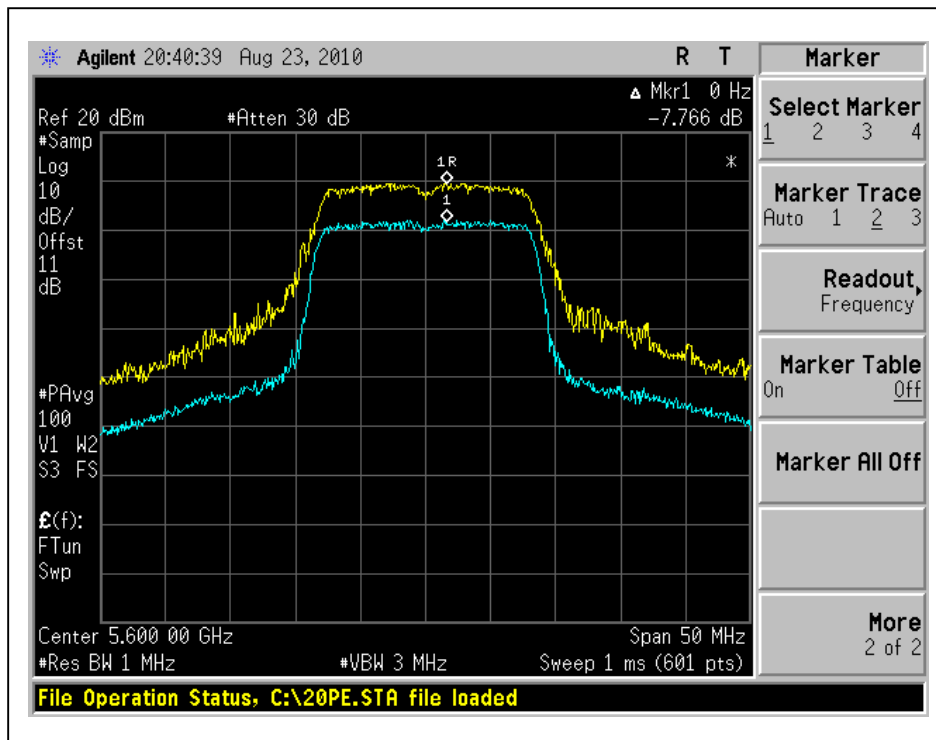


A D T

CH100



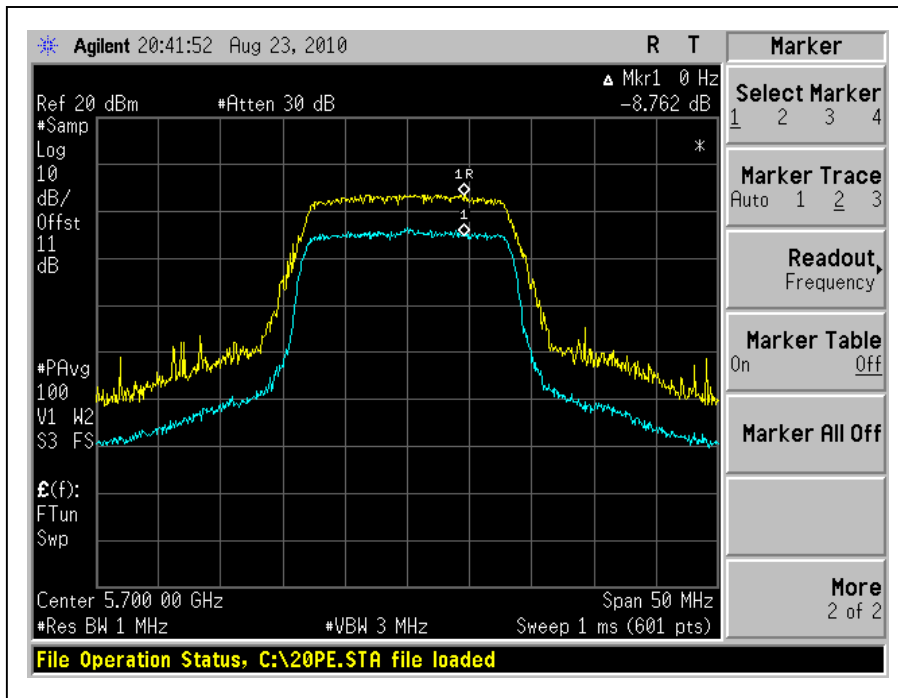
CH120





A D T

CH140





A D T

4.5 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
5.47 ~ 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
PSA Seviess Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 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 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.

NOTE:

The EUT was setup to ANSI C63.4, tested to UNII test procedure of KDB289238 (DA-02-2138A1) for compliance to FCC 47CFR 15.407 requirements.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



A D T

4.5.7 TEST RESULTS

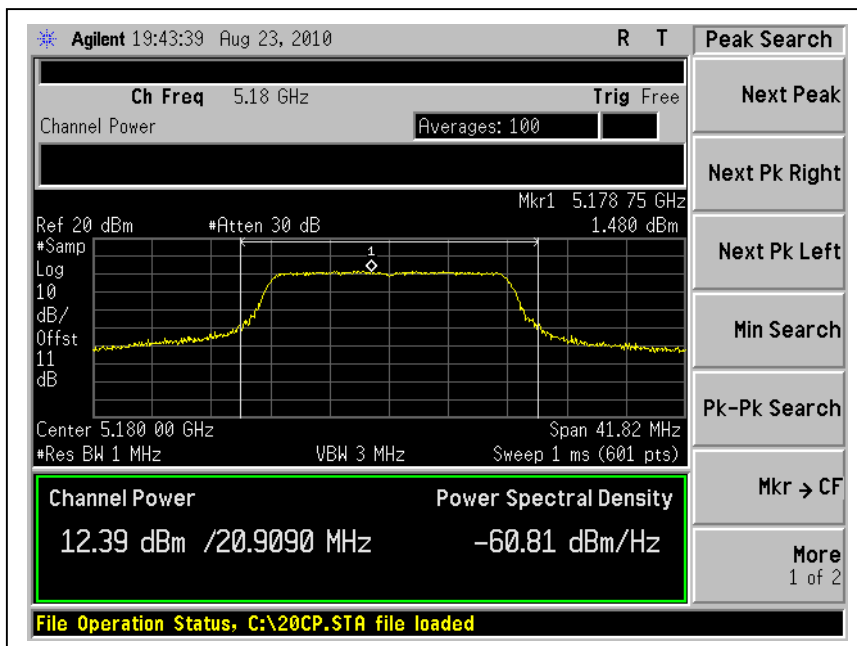
802.11a OFDM modulation

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	1.5	4	PASS
40	5200	3.2	4	PASS
48	5240	2.4	4	PASS
52	5260	3.3	11	PASS
60	5300	3.9	11	PASS
64	5320	0.9	11	PASS
100	5500	1.1	11	PASS
120	5600	2.3	11	PASS
140	5700	-3.2	11	PASS

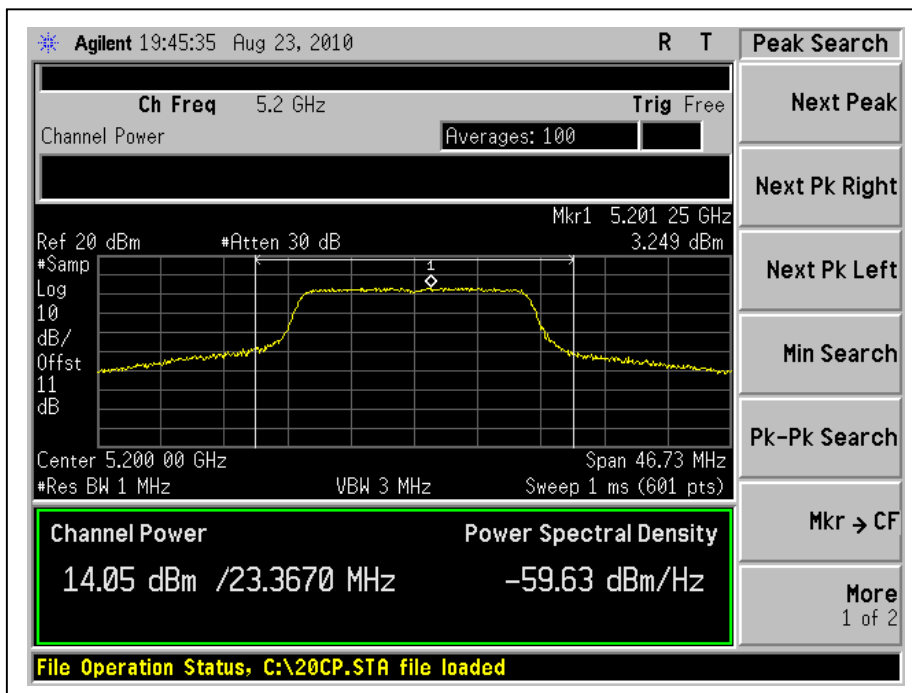


A D T

CH36



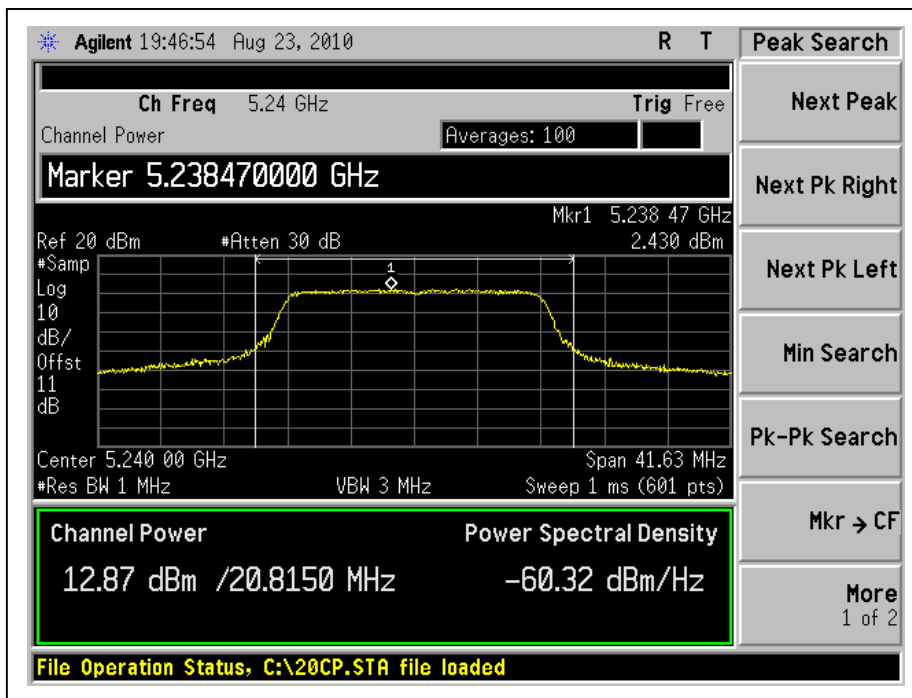
CH40



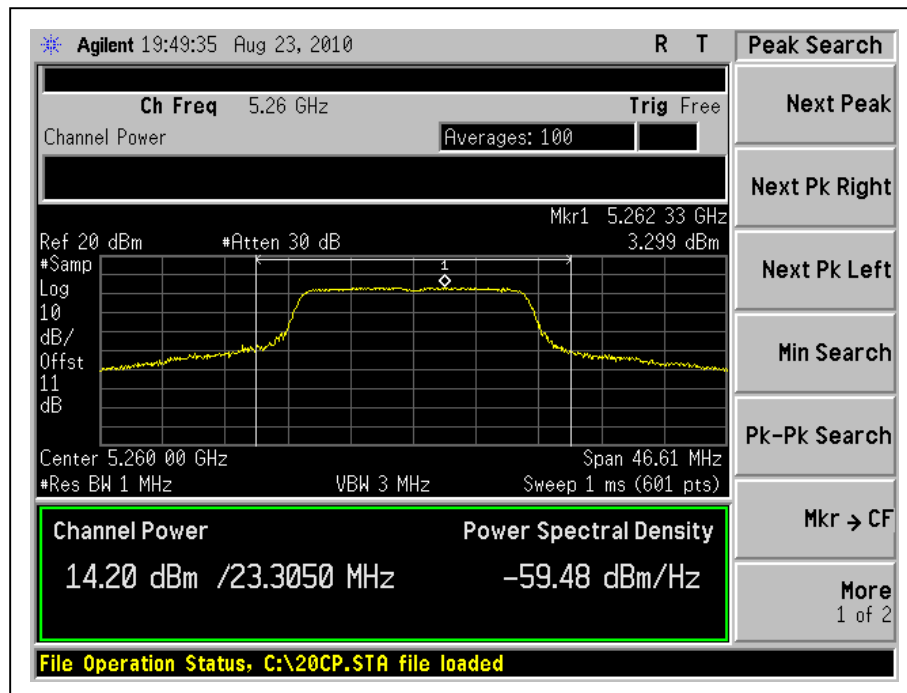


A D T

CH48



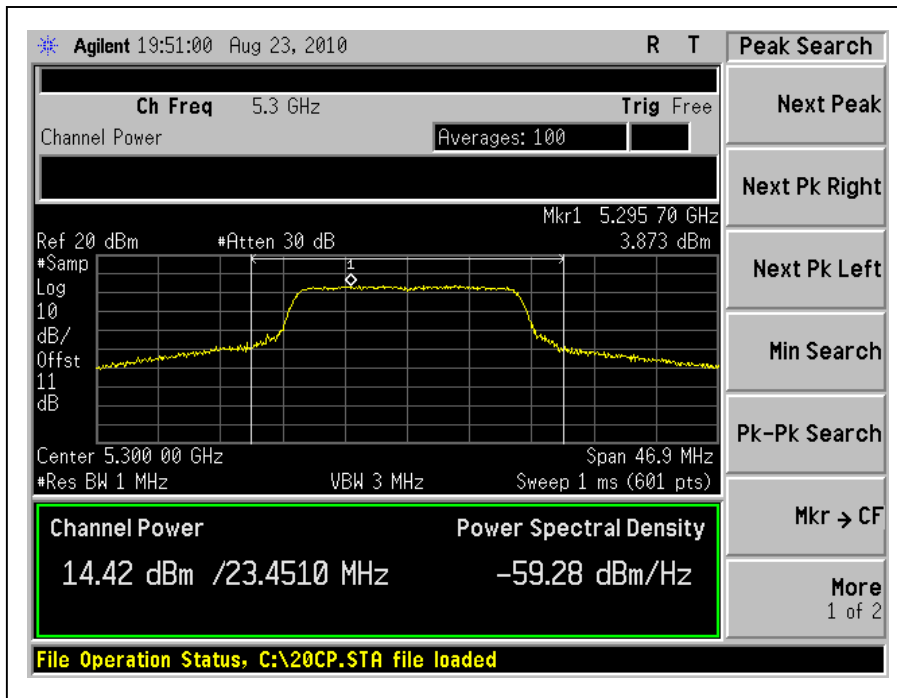
CH52



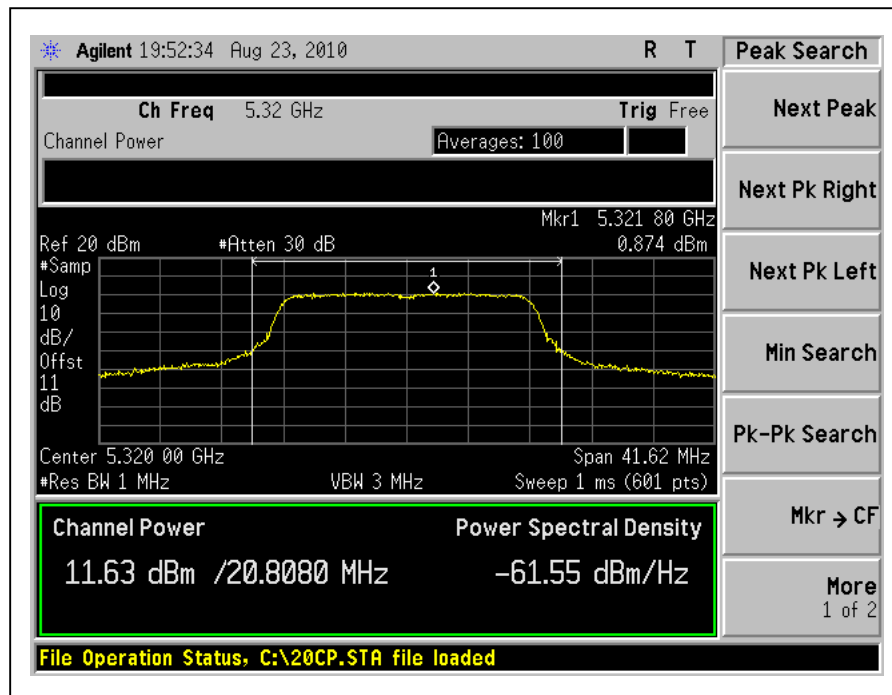


A D T

CH60



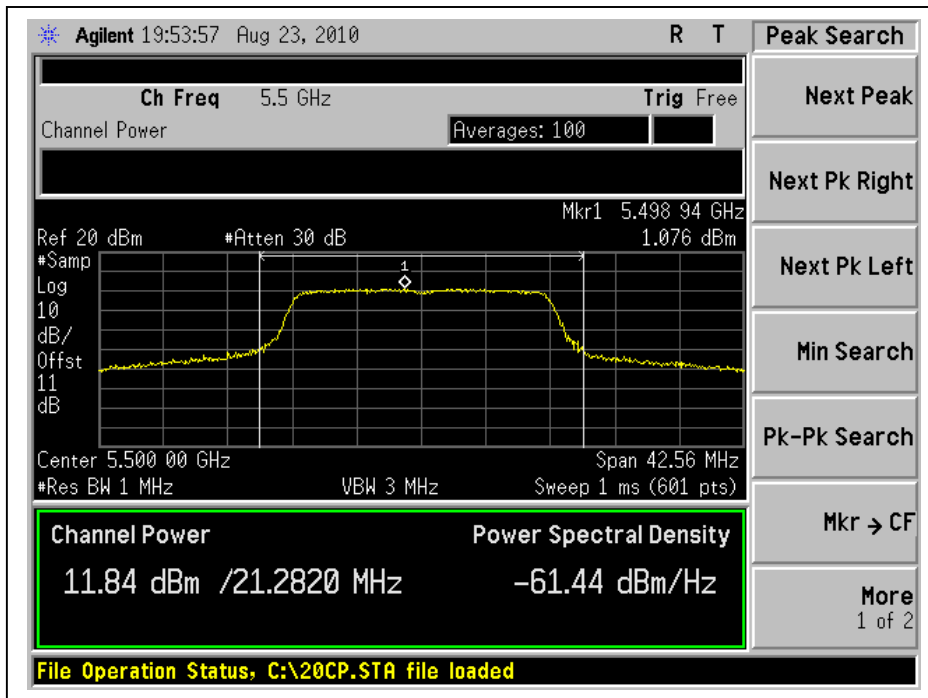
CH64



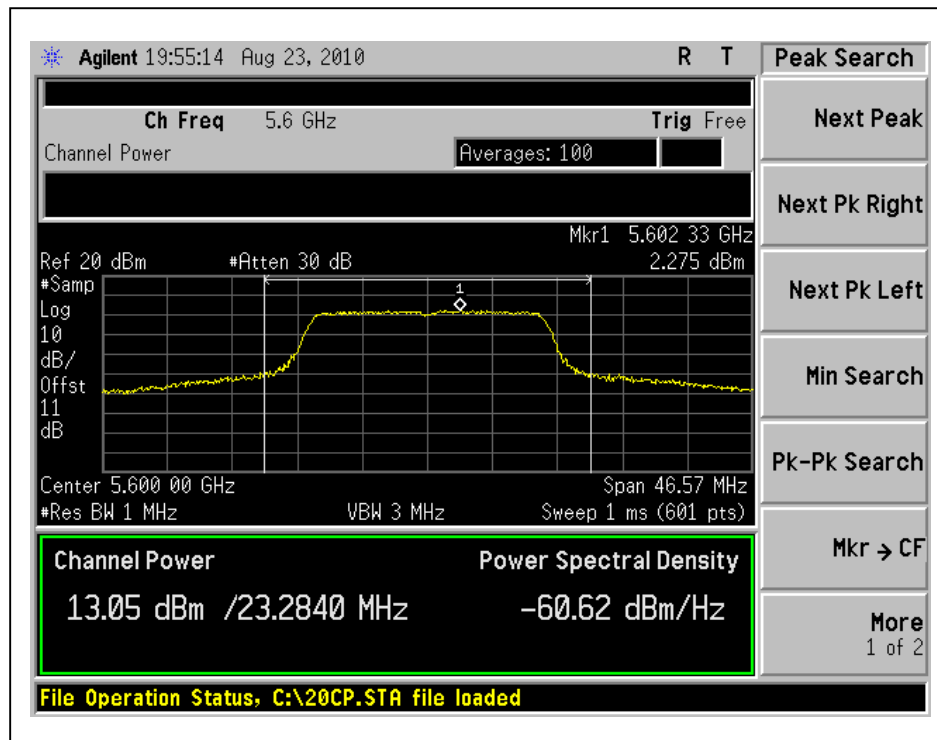


A D T

CH100



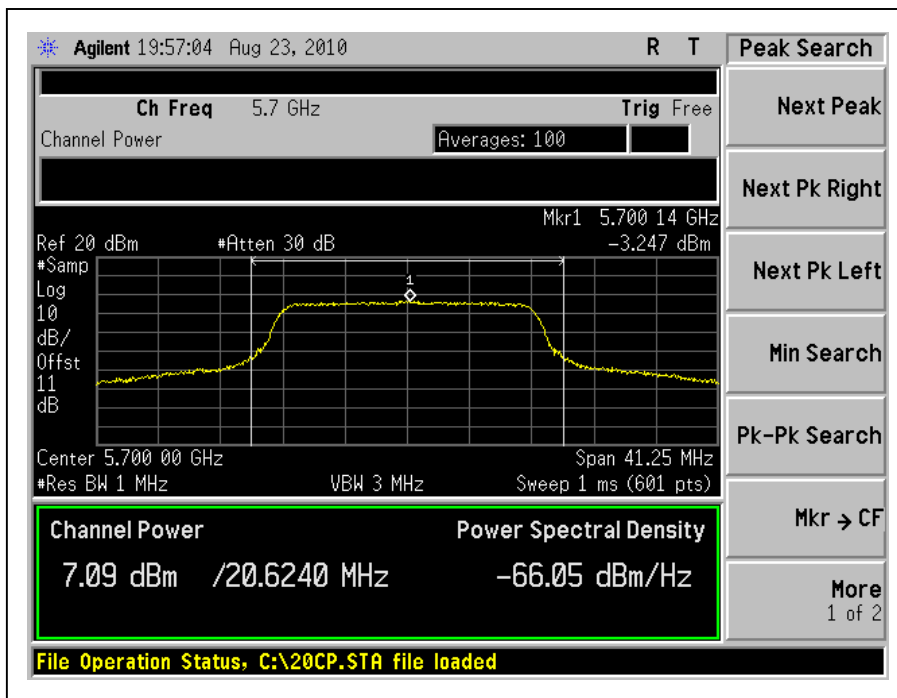
CH120





A D T

CH140



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 DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 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.

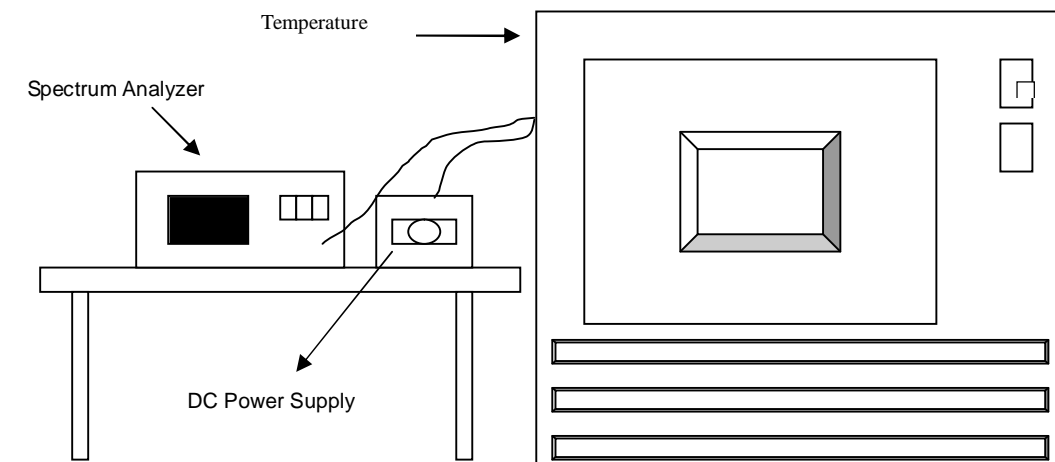
4.6.3 TEST PROCEDURE

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.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

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



A D T

4.6.7 TEST RESULTS

		Operating frequency: 5320MHz				Limit : ± 0.02%	
Temp. (°C)	Power supply (Vdc)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	8.51	5320.0048	0.000090	5320.0045	0.000085	5320.0052	0.000098
	7.4	5320.0055	0.000103	5320.0053	0.000100	5320.0054	0.000102
	6.29	5320.0057	0.000107	5320.0061	0.000115	5320.0062	0.000117
40	8.51	5320.0095	0.000179	5320.0096	0.000180	5320.0097	0.000182
	7.4	5320.0105	0.000197	5320.0098	0.000184	5320.0096	0.000180
	6.29	5320.0997	0.001874	5320.0097	0.000182	5320.0092	0.000173
30	8.51	5320.0112	0.000211	5320.0106	0.000199	5320.0099	0.000186
	7.4	5320.0107	0.000201	5320.0102	0.000192	5320.0096	0.000180
	6.29	5320.011	0.000207	5320.0114	0.000214	5320.0106	0.000199
20	8.51	5320.02488	0.000468	5320.0255	0.000479	5320.0262	0.000492
	7.4	5320.02485	0.000467	5320.0254	0.000477	5320.0267	0.000502
	6.29	5320.02483	0.000467	5320.0259	0.000487	5320.0261	0.000491
10	8.51	5320.0288	0.000541	5320.0290	0.000545	5320.0293	0.000551
	7.4	5320.0285	0.000536	5320.0284	0.000534	5320.0287	0.000539
	6.29	5320.0291	0.000547	5320.0291	0.000547	5320.0281	0.000528
0	8.51	5320.0301	0.000566	5320.0311	0.000585	5320.0304	0.000571
	7.4	5320.0305	0.000573	5320.0301	0.000566	5320.0308	0.000579
	6.29	5320.0312	0.000586	5320.0306	0.000575	5320.0312	0.000586
-10	8.51	5320.0412	0.000774	5320.0416	0.000782	5320.0423	0.000795
	7.4	5320.0422	0.000793	5320.0419	0.000788	5320.0416	0.000782
	6.29	5320.0418	0.000786	5320.0421	0.000791	5320.0418	0.000786
-20	8.51	5320.0475	0.000893	5320.0442	0.000831	5320.0451	0.000848
	7.4	5320.0496	0.000932	5320.0451	0.000848	5320.0474	0.000891
	6.29	5320.0501	0.000942	5320.0500	0.000940	5320.0465	0.000874
-30	8.51	5320.0511	0.000961	5320.0516	0.000970	5320.0524	0.000985
	7.4	5320.0516	0.000970	5320.0524	0.000985	5320.0516	0.000970
	6.29	5320.0527	0.000991	5320.0526	0.000989	5320.0527	0.000991

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 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.

4.7.2 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 was measured and recorded.

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 5.15 to 5.35GHz band:

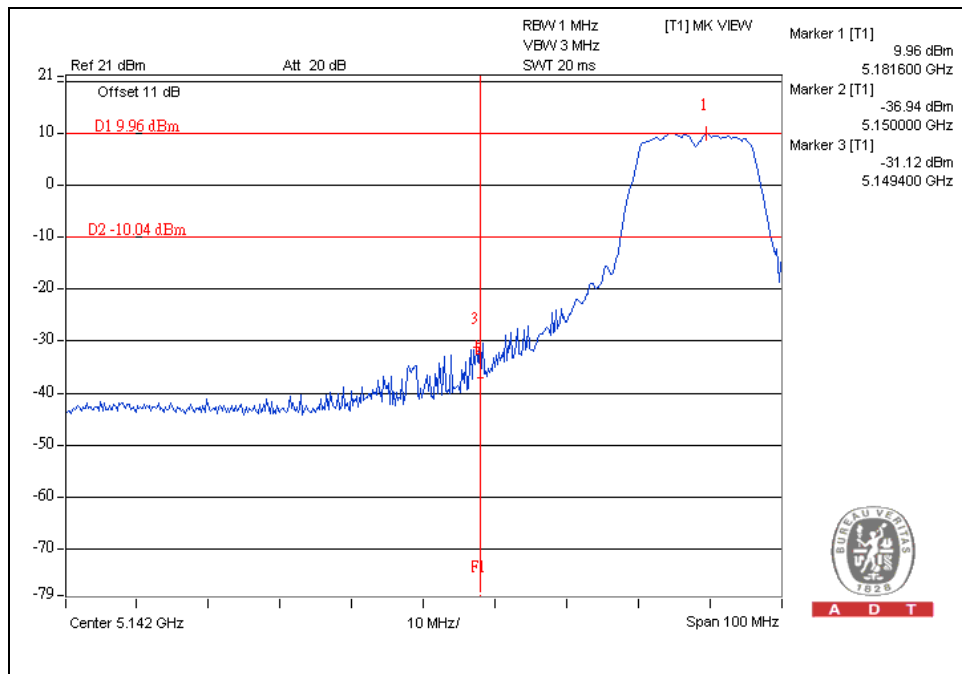
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



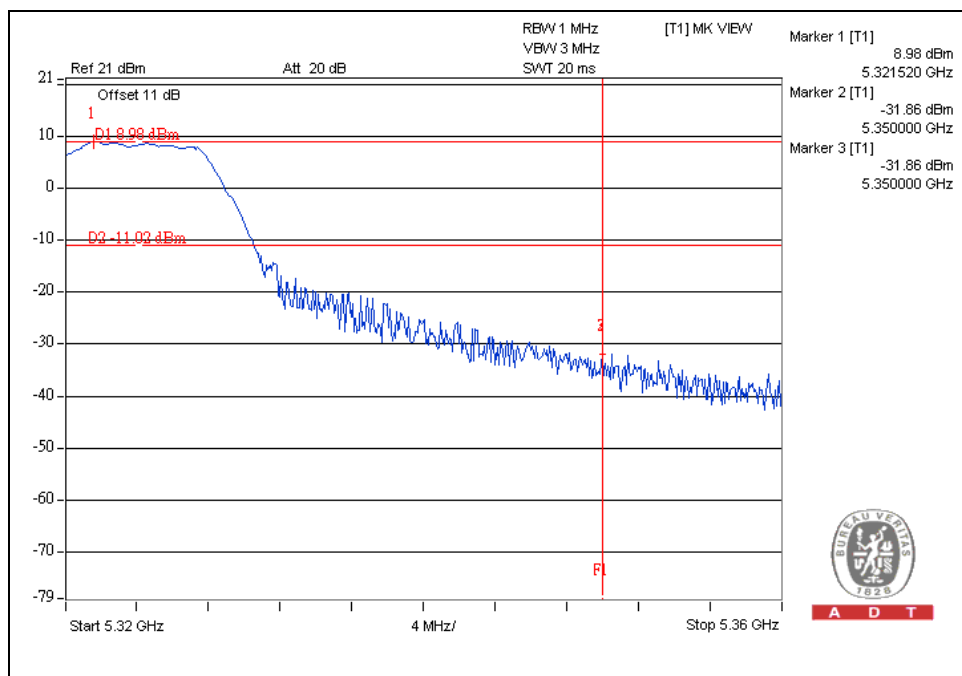
A D T

802.11a OFDM modulation

CH 36



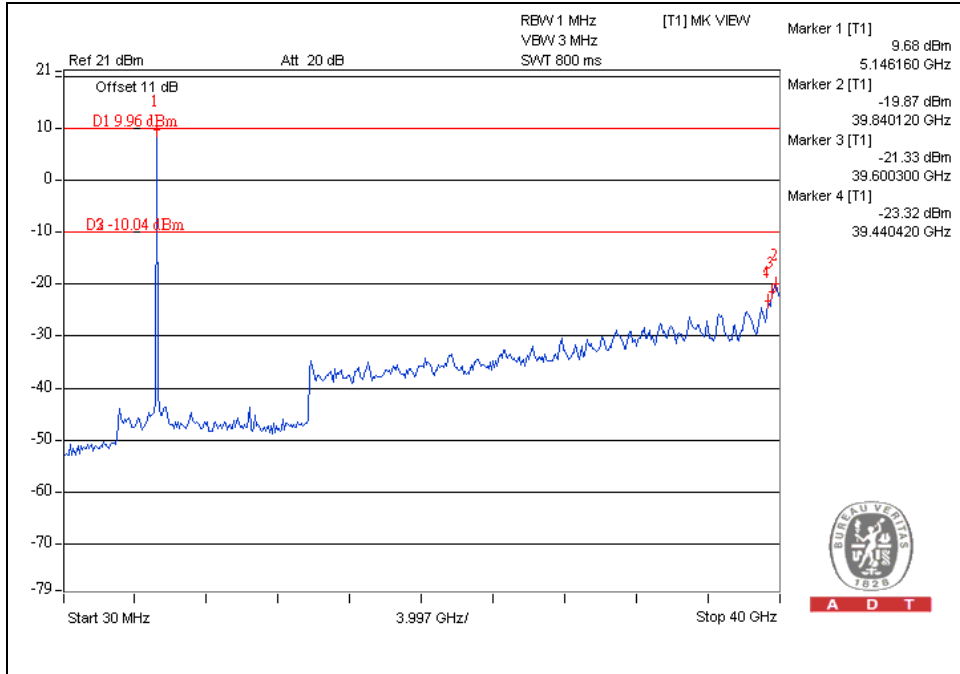
CH 64



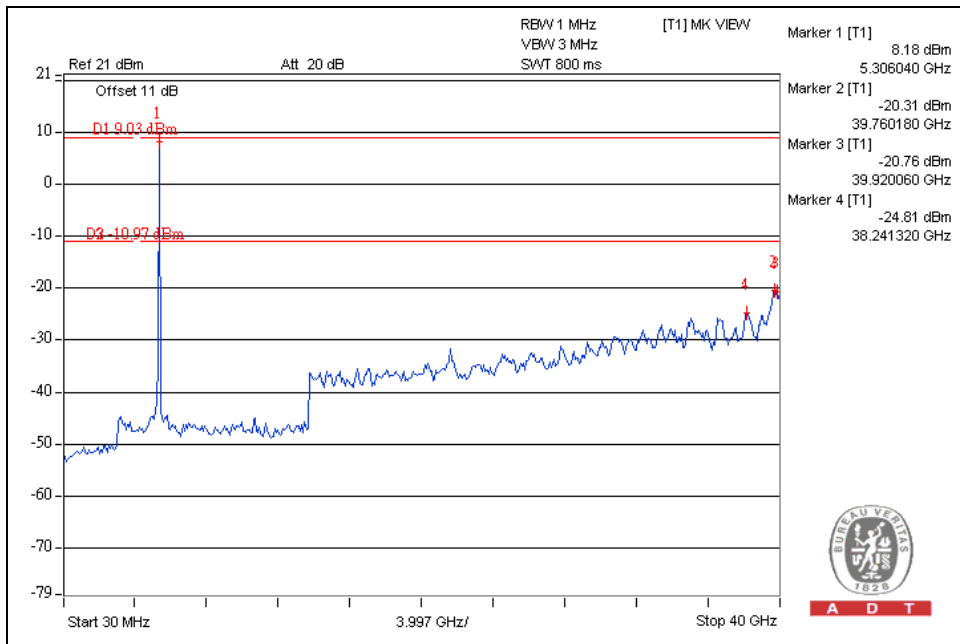


A D T

CH 36



CH 64



For 5.47 to 5.725GHz band:

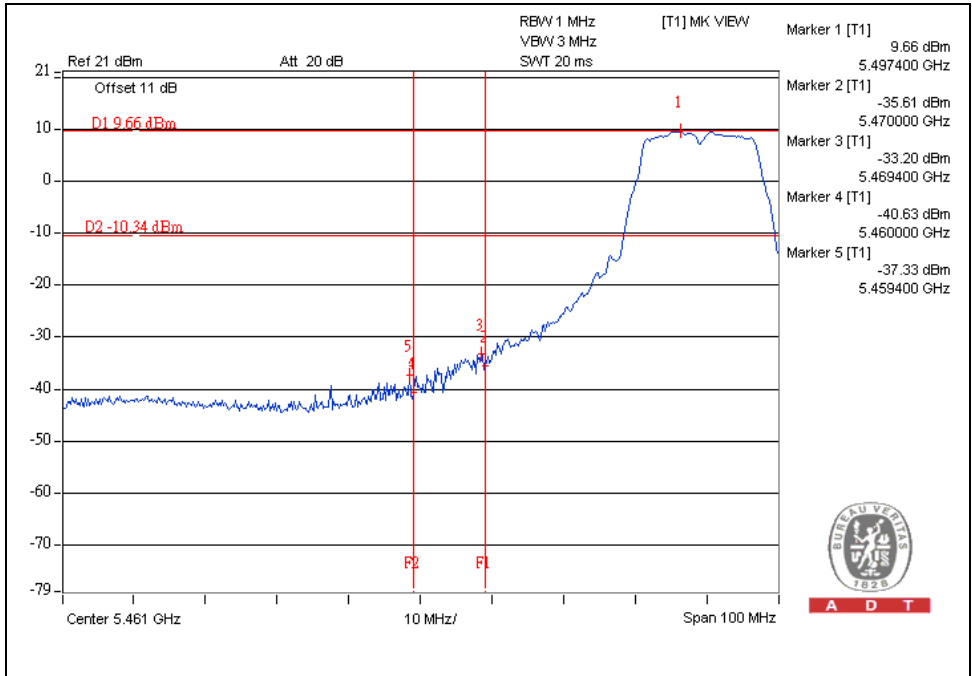
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



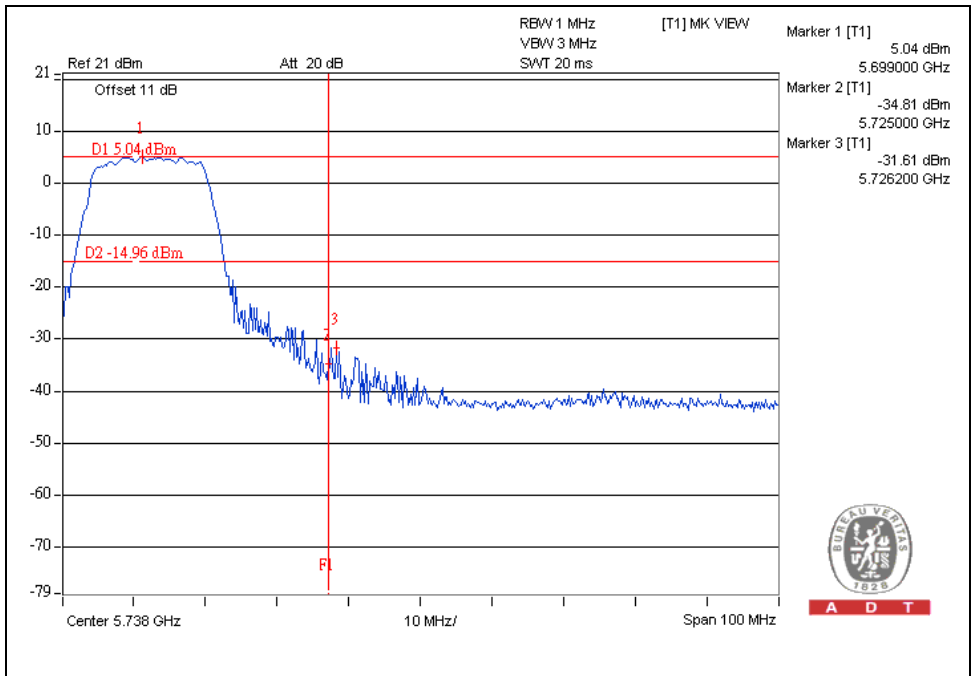
A D T

802.11a OFDM modulation

CH 100



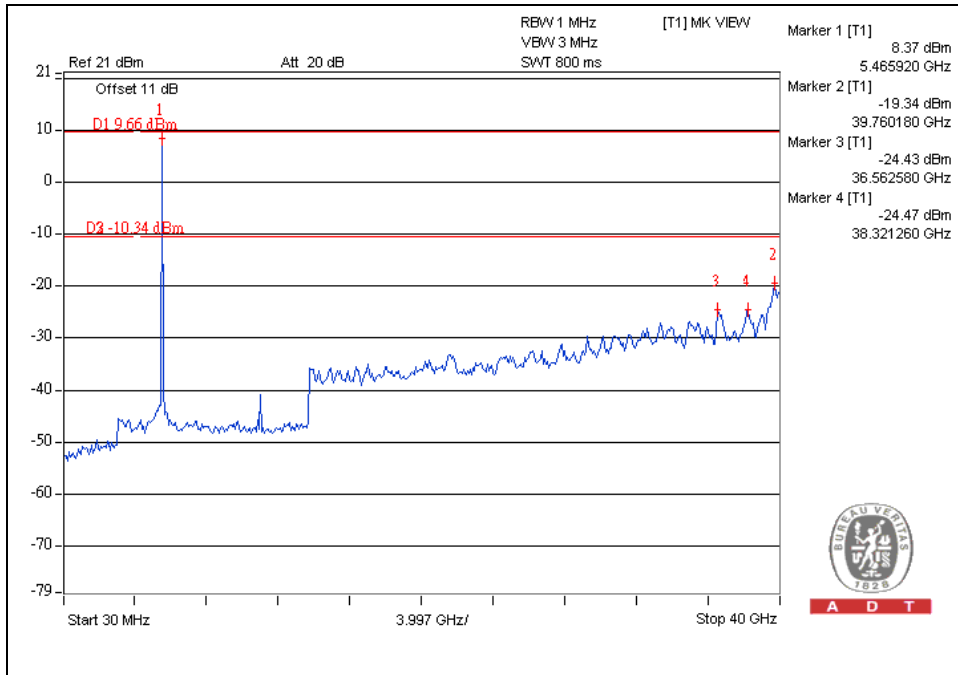
CH 140



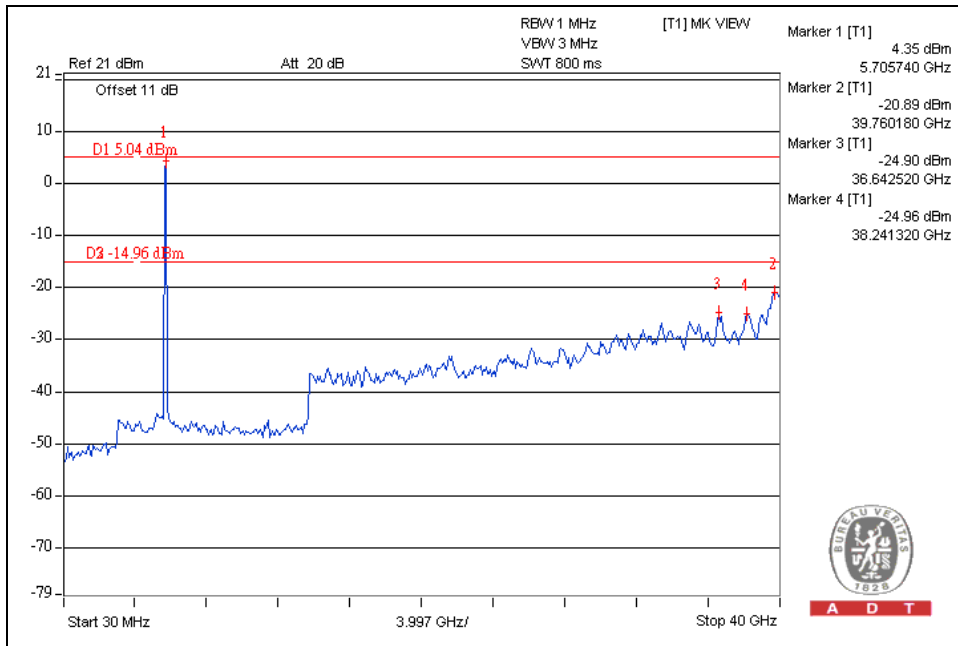


A D T

CH 100



CH 140





A D T

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 according to ISO/IEC 17025:

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

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

Email: service@adt.com.tw

Web Site: www.adt.com.tw

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



A D T

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.