

FCC TEST REPORT (15.407)

REPORT NO.: RF111214E06-1

MODEL NO.: MC919ZWR

FCC ID: UZ7MC919ZWR

RECEIVED: Dec. 14, 2011

TESTED: Dec. 23, 2011 to Jan. 03, 2012

ISSUED: Jan. 11, 2012

APPLICANT: Motorola Solution Inc.

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11742-1300 USA

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF111214E06-1	Original release	Jan. 11, 2012



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1. CERTIFICATION

PRODUCT: Hand Held RFID Reader
BRAND NAME: MOTOROLA
MODEL NO.: MC919ZWR
TEST SAMPLE: PROTOTYPE
APPLICANT: Motorola Solution Inc.
TESTED: Dec. 23, 2011 to Jan. 03, 2012
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: MC919ZWR) 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 : Midoli Peng, **DATE:** Jan. 11, 2012
(Midoli Peng, Specialist)

APPROVED BY : May Chen, **DATE:** Jan. 11, 2012
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 5GHz, 5150~5350MHz & 5470~5600 & 5650~5725MHz

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 -10.97dB at 0.212MHz.
15.407(b/1/2/3)(b)(5)	Radiated spurious emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.8dB at 5470.00MHz.
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is Hirose not a standard connector.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.6GHz & 5.65~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report.
2. The DFS report was recorded in another test report<Report No.: RF111214E06-2>.

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)	3.81 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.56 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Hand Held RFID Reader
MODEL NO.	MC919ZWR
FCC ID	UZ7MC919ZWR
POWER SUPPLY	DC 7.4V from battery, DC 12V from cradle or car charger
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 802.11b/g: 2.412 ~ 2.472GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 : 16 for 802.11a
	For 15.247(2.4GHz) : 13 for 802.11b, 802.11g
	For 15.247(5GHz) : 5 for 802.11a
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 32.4mW
	For 15.247(2.4GHz) 802.11b: 52.5mW
	802.11g: 166.0mW
	For 15.247(5GHz) 802.11a: 109.6mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer User's manual
ASSOCIATED DEVICES	Battery x 1 (Part No.: 21-65587-03)

NOTE:

1. There are Bluetooth, WLAN and RFID technology used for the EUT.

Remark	Report No.
15.247	RF111214E06
15.407	RF111214E06-1
DFS	RF111214E06-2
Bluetooth	RF111214E06-3
RFID	RF111214E06-4

2. Spurious Emission of the simultaneous operation (Bluetooth, WLAN and RFID) have been evaluated and no non-compliance found.

3. The EUT configuration list:

Keypad	53keys
Scan	SE1524
WLAN (a/b/g)	V
BT	V
RFID	V

4. The antennas provided to the EUT, please refer to the following table:

WLAN Antenna Spec.								
No.	Brand	Model No.	Antenna Type	Gain (dBi) < included cable loss>	Connector Type	Frequency range (MHz)	Cable Loss (dB)	Cable Length (mm)
1	Auden	750353-00 (Main, Tx & Rx)	Loop	4.5 (2.4G) 5.5 (5G)	Hirose	2400~2500 5150~5850	0.082 (2.4G) 0.138 (5G)	33
2	Auden	750330-00 (Aux ,Tx & Rx)	PIFA	4.5 (2.4G) 5.5 (5G)	Hirose	2400~2500 5150~5850	0.235 (2.4G) 0.394 (5G)	94
Bluetooth								
No.	Brand	Model	Antenna Type	Gain (dBi) < included cable loss>	Connector Type	Frequency range (MHz)		
1	TY	AH104F2650S1-T	Chip	-3.73	SMT	2400~2500		
RFID Antenna Spec.								
No.	Brand	Model No.	Antenna Type	Gain (dBi) < included cable loss>	Connector Type	Frequency range (MHz)	Cable Loss (dB)	Cable Length (mm)
1_USS	Auden	41-68888-05	YAGI	5	Hirose	902~928	0.304	185
2_USL	Auden	41-68888-07	YAGI	5	Hirose	902~928	0.304	185

5. The EUT could be supplied with a Cradle, Car Charger and battery as below table:

Cradle (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 (unshielded, 1.8m with one core) USB cable (Part No.: 25-64396-01R) RJ-45 to RS232 cable (shielded, 1.85m with one core) RJ-45 to RS232 cable(Part No.: 25-63852-01R) Adapter (Part No.: 50-14000-148R)
Direct charging (Car Charger) (not for sale together)	
Brand:	SYMBOL
Part No.:	ADP9000-110R and ADP9000-100R
I/O Ports:	RS232 Port x 1
Associated Devices:	USB cable (shielded, 1.85m with one core) USB cable (Part No.: 25-62166-01R)
Adapter (for Cradle & Car Charger only, and 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)
Battery	
Brand:	SYMBOL
Part No.:	21-65587-03
Rating:	7.4V, 2200mAh, 16.3Wh

6. For the Radiated Emissions: The EUT was pre-tested in chamber under following test modes :

Pre-test Mode	Description
Mode A	Direct charging(Part No.: ADP9000-110R) mode : EUT (X-Y plane)
Mode B	Direct charging(Part No.: ADP9000-100R) mode : EUT (X-Y plane)
Mode C	Direct charging(Part No.: ADP9000-100R) mode : EUT (X-Z plane)
Mode D	Direct charging(Part No.: ADP9000-100R) mode : EUT (Y-Z plane)
Mode E	Battery mode : EUT (X-Y plane)
Mode F	Cradle mode : EUT

For 5GHz (below 1GHz): The Main / Aux. antenna worse case was found in **Mode C**.

For 5GHz (above 1GHz): The Main antenna worse case was found in **Mode C &** the
Aux. antenna worse case was found in **Mode B**.

7. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

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 ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Eight channels are provided for 802.11a :

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	OB	
1	√	-	-	-	-	Cradle mode
2	√	√	√	√	√	Direct charging (Part No.: ADP9000-100R) mode

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

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
For 5 GHz	36 to 140	116	OFDM	BPSK	6

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)
For 5 GHz	36 to 140	116	OFDM	BPSK	6

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)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6

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)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6

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)
802.11a	36 to 140	36, 64, 100, 140	OFDM	BPSK	6

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	25deg. C, 58%RH,	120Vac, 60Hz	Kyle Huang
RE<1G	26deg. C, 71%RH	120Vac, 60Hz	Nick Chang
RE ³ 1G	17deg. C, 62%RH	120Vac, 60Hz	Nick Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang
OB	25deg. C, 60%RH	120Vac, 60Hz	Rex 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 (Section 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 is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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

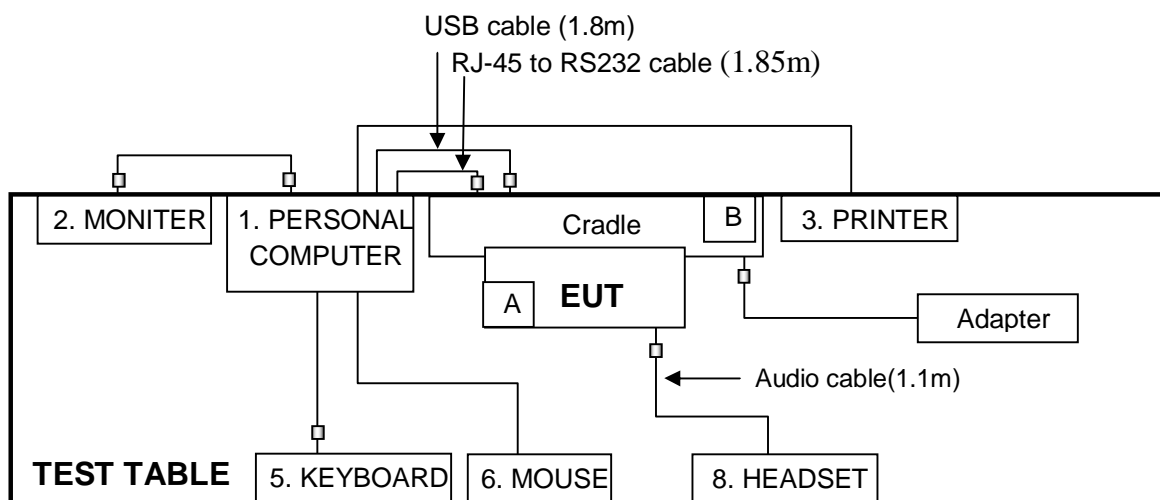
For conducted emission test					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PERSONAL COMPUTER	DELL	DCSCMF	9KKB32S	FCC DoC
2	MONITOR	DELL	E2210Hc	CN-OG337R-6418 0-97S-OQMS	FCC DoC
3	PRINTER	EPSON	LQ-300+II	G88Y074085	FCC DoC
4	MODEM	ACEEX	1414	0206026778	IFAXDM1414
5	KEYBOARD	DELL	SK-8115	MY-0DJ325-71619- 99B-0475	FCC DoC
6	MOUSE	DELL	MOC5UO	I1401LVG	FCC DoC
7	HEADSET	VX1	NA	NA	NA
For other test items					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	iPod shuffle	Apple	MC749TA/A	CC4DMFJUDFDM	NA
3	HEADSET	VX1	NA	NA	NA

For conducted emission test	
No.	Signal cable description
1	RJ-45 to RS232 cable (shielded, 1.85m with one core) USB cable (shielded, 1.8m with one core) USB cable (shielded, 1.85m with one core)
2	VGA cable. (1.8m with two cores)
3	USB cable.(1m)
4	RS232 cable.(1m)
5	USB cable.(2m with one core)
6	USB cable.(2m)
7	Audio cable (shielded, 1.1m with one core)
For other test items	
No.	Signal cable description
1	USB cable (shielded, 1.85m with one core)
2	USB cable (shielded, 0.1m)
3	Audio cable (shielded, 1.1m with one core)

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

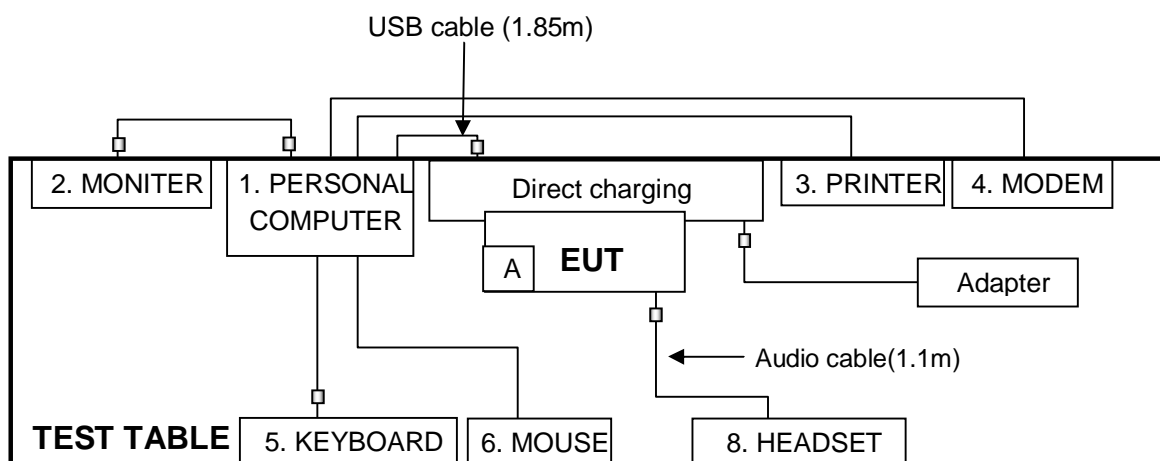
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For conducted emission test mode 1:



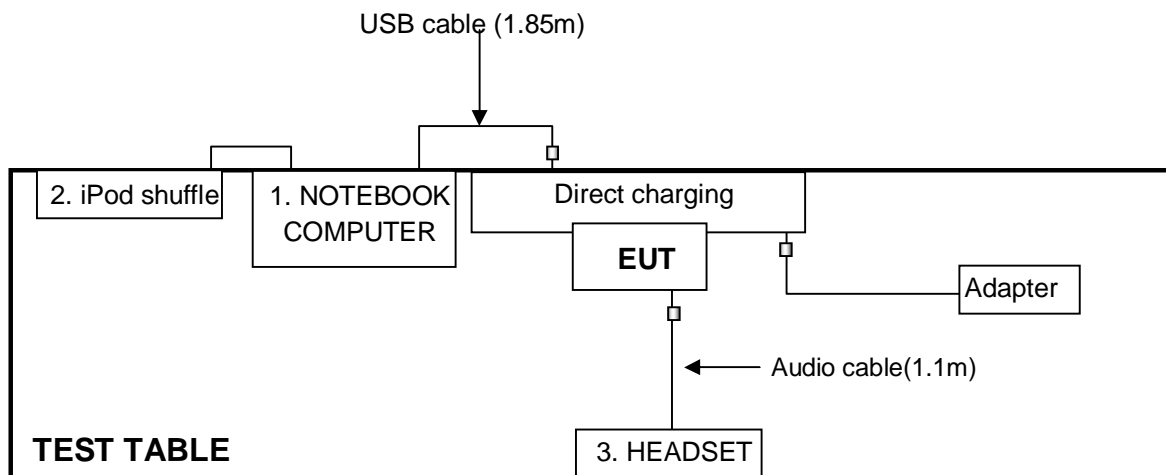
NOTE: 1. Item A is the SD Card.
2. Item B is the Battery.

For conducted emission test mode 2:



NOTE: 1. Item A is the SD Card.

For other test items



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.

4.1.2 TEST INSTRUMENTS

Test date: Jan. 03, 2012

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 20, 2011	Sep. 19, 2012
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 10, 2011	June 09, 2012
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 05, 2011	Aug. 04, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

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

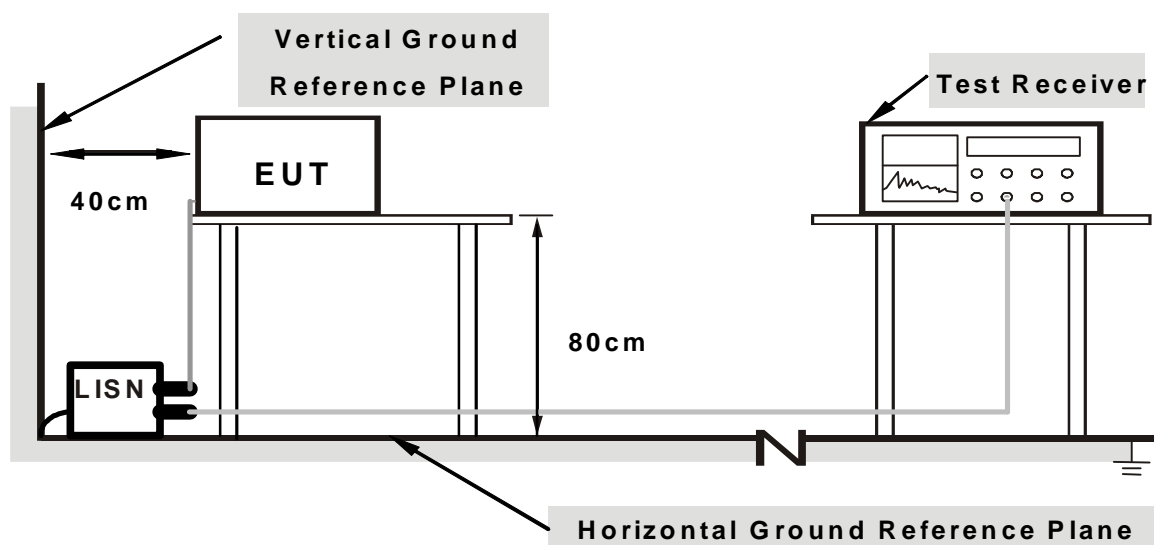
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

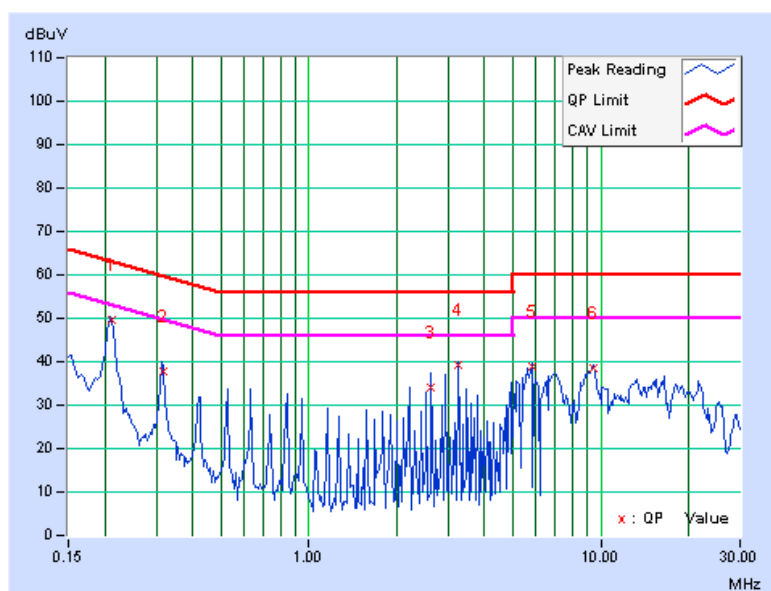
1. Connect the EUT with the support unit 1 (Personal Computer) which is placed on a testing table.
2. The communication partner run test program “CEcTxRx.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS (MODE 1)

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

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.212	0.06	49.52	42.10	49.58	42.16	63.13	53.13	-13.55	-10.97
2	0.317	0.07	37.69	29.25	37.76	29.32	59.77	49.77	-22.02	-20.46
3	2.632	0.19	33.98	25.94	34.17	26.13	56.00	46.00	-21.83	-19.87
4	3.262	0.21	39.00	30.36	39.21	30.57	56.00	46.00	-16.79	-15.43
5	5.789	0.28	38.54	36.67	38.82	36.95	60.00	50.00	-21.18	-13.05
6	9.473	0.38	38.13	35.68	38.51	36.06	60.00	50.00	-21.49	-13.94

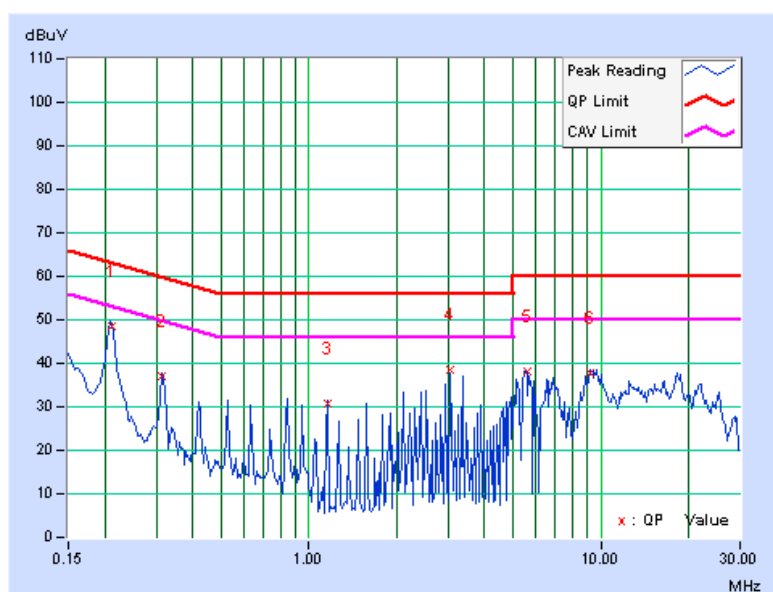
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.212	0.07	48.38	41.49	48.45	41.56	63.13	53.13	-14.68	-11.57
2	0.315	0.08	36.88	29.66	36.96	29.74	59.84	49.84	-22.88	-20.10
3	1.156	0.10	30.77	28.16	30.87	28.26	56.00	46.00	-25.13	-17.74
4	3.052	0.19	38.43	28.78	38.62	28.97	56.00	46.00	-17.38	-17.03
5	5.578	0.26	37.92	36.34	38.18	36.60	60.00	50.00	-21.82	-13.40
6	9.156	0.35	37.33	35.99	37.68	36.34	60.00	50.00	-22.32	-13.66

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

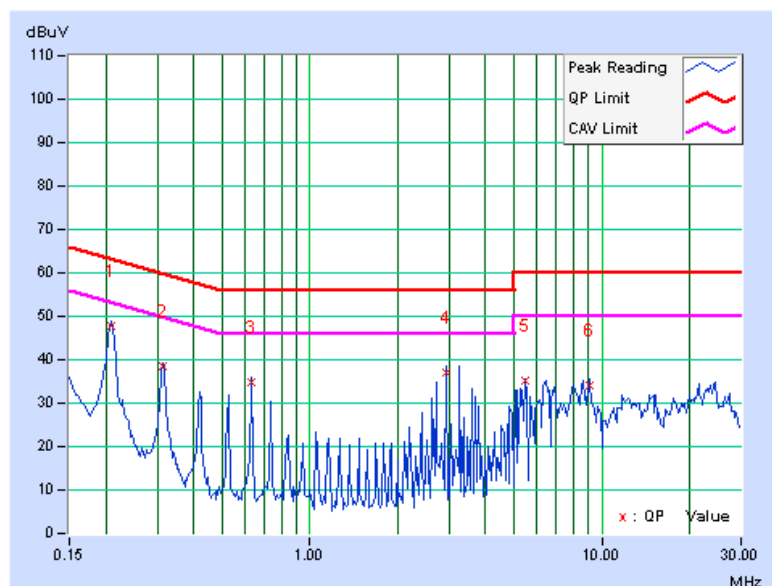


4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.06	47.55	39.02	47.61	39.08	63.26	53.26	-15.65	-14.18
2	0.314	0.07	38.35	33.35	38.42	33.42	59.86	49.86	-21.45	-16.45
3	0.630	0.08	34.80	33.76	34.88	33.84	56.00	46.00	-21.12	-12.16
4	2.941	0.20	36.98	26.93	37.18	27.13	56.00	46.00	-18.82	-18.87
5	5.464	0.28	34.74	33.38	35.02	33.66	60.00	50.00	-24.98	-16.34
6	9.037	0.37	33.85	30.94	34.22	31.31	60.00	50.00	-25.78	-18.69

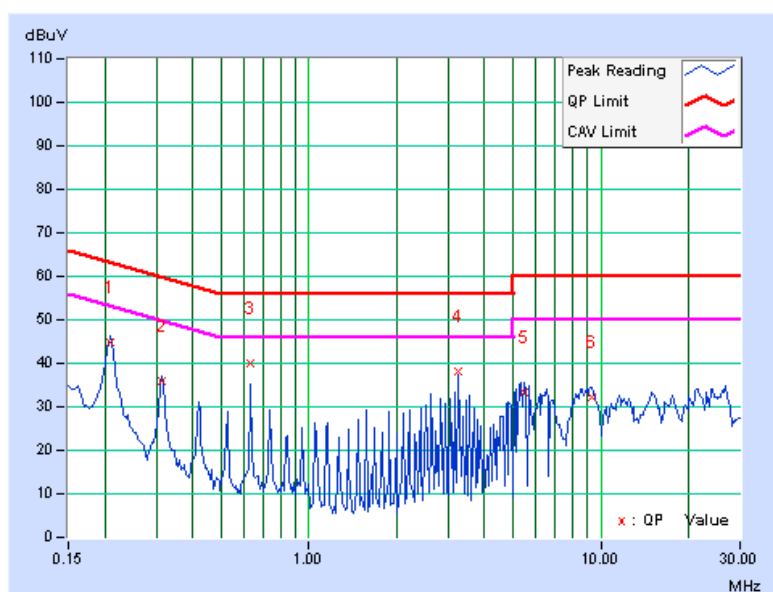
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.07	44.81	38.06	44.88	38.13	63.26	53.26	-18.38	-15.13
2	0.314	0.08	35.98	32.02	36.06	32.10	59.86	49.86	-23.81	-17.77
3	0.630	0.08	39.95	33.28	40.03	33.36	56.00	46.00	-15.97	-12.64
4	3.258	0.20	37.90	28.21	38.10	28.41	56.00	46.00	-17.90	-17.59
5	5.465	0.26	33.04	32.11	33.30	32.37	60.00	50.00	-26.70	-17.63
6	9.352	0.35	32.05	30.53	32.40	30.88	60.00	50.00	-27.60	-19.12

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified in Section 15.209(a).

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.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

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



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4.2.3 TEST INSTRUMENTS

Test date: Dec. 23 to 24, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated_V8.7.05	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) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in 966 Chamber No. G.

4. The FCC Site Registration No. is 966073.

5. The VCCI Site Registration No. is G-137.

6. The CANADA Site Registration No. is IC 7450H-2.

4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

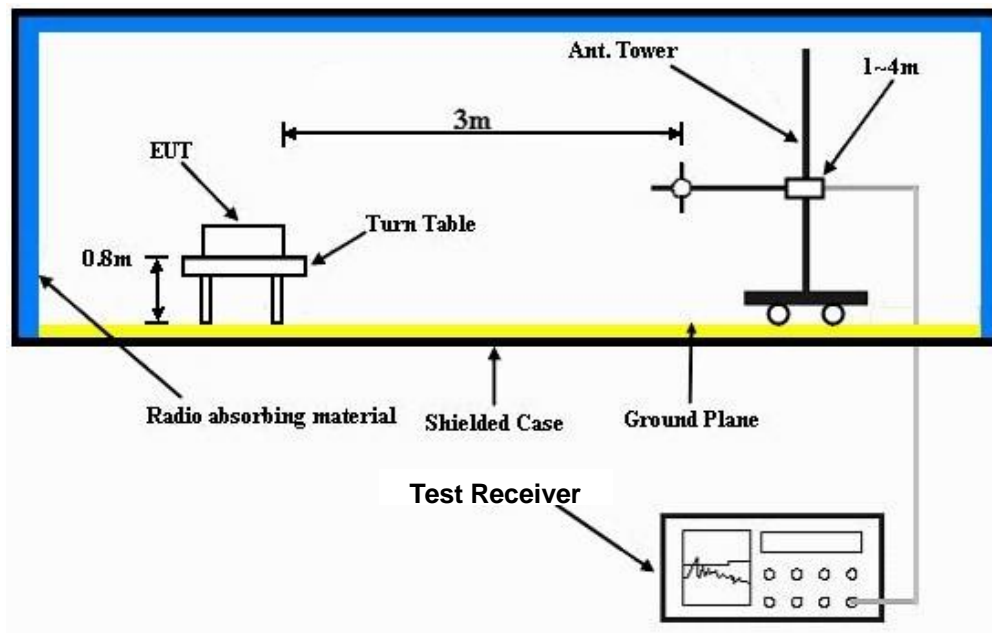
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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. All modes of operation were investigated and the worst-case emissions are reported.

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

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “CEcTxRx.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.2.8 TEST RESULTS (MAIN ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 71%RH	TESTED BY	Nick Chang

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	71.54	30.2 QP	40.0	-9.8	1.00 H	334	18.11	12.12
2	119.89	35.1 QP	43.5	-8.4	1.50 H	146	22.58	12.56
3	289.14	36.7 QP	46.0	-9.3	1.50 H	220	21.83	14.89
4	649.99	33.5 QP	46.0	-12.5	1.00 H	147	10.72	22.79
5	849.98	32.5 QP	46.0	-13.5	1.50 H	167	5.87	26.65
6	949.37	36.2 QP	46.0	-9.8	1.00 H	98	8.45	27.76
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	63.54	30.3 QP	40.0	-9.7	1.00 V	69	17.07	13.27
2	319.87	33.8 QP	46.0	-12.2	1.00 V	221	17.92	15.84
3	500.23	29.8 QP	46.0	-16.2	1.50 V	328	9.52	20.32
4	599.19	35.4 QP	46.0	-10.6	1.00 V	149	12.88	22.56
5	749.92	32.4 QP	46.0	-13.7	1.50 V	74	7.93	24.42
6	947.14	28.8 QP	46.0	-17.2	1.00 V	298	1.01	27.75

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

ABOVE 1GHz 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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	59.3 PK	74.0	-14.7	1.33 H	285	19.03	40.27
2	5150.00	46.9 AV	54.0	-7.1	1.33 H	285	6.63	40.27
3	*5180.00	101.7 PK			1.34 H	285	61.37	40.33
4	*5180.00	92.4 AV			1.34 H	285	52.07	40.33
5	#10360.00	59.3 PK	68.3	-9.0	1.15 H	310	12.47	46.83
6	15540.00	64.2 PK	74.0	-9.8	1.17 H	134	11.99	52.21
7	15540.00	50.5 AV	54.0	-3.5	1.17 H	134	-1.71	52.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.4 PK	74.0	-12.6	1.00 V	302	21.13	40.27
2	5150.00	48.7 AV	54.0	-5.3	1.00 V	302	8.43	40.27
3	*5180.00	106.3 PK			1.10 V	302	65.97	40.33
4	*5180.00	96.4 AV			1.10 V	302	56.07	40.33
5	#10360.00	60.4 PK	68.3	-7.9	1.06 V	248	13.57	46.83
6	15540.00	63.8 PK	74.0	-10.2	1.27 V	48	11.59	52.21
7	15540.00	50.1 AV	54.0	-3.9	1.27 V	48	-2.11	52.21

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	102.9 PK			1.36 H	286	62.54	40.36
2	*5200.00	93.5 AV			1.36 H	286	53.14	40.36
3	#10400.00	60.0 PK	68.3	-8.3	1.21 H	318	13.10	46.90
4	15600.00	64.6 PK	74.0	-9.4	1.15 H	146	12.68	51.92
5	15600.00	50.7 AV	54.0	-3.3	1.15 H	146	-1.22	51.92
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	108.8 PK			1.09 V	295	68.44	40.36
2	*5200.00	98.6 AV			1.09 V	295	58.24	40.36
3	#10400.00	60.8 PK	68.3	-7.5	1.04 V	244	13.90	46.90
4	15600.00	63.4 PK	74.0	-10.6	1.31 V	54	11.48	51.92
5	15600.00	49.9 AV	54.0	-4.1	1.31 V	54	-2.02	51.92

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	101.2 PK			1.34 H	269	60.69	40.51
2	*5240.00	91.9 AV			1.34 H	269	51.39	40.51
3	#10480.00	59.8 PK	68.3	-8.5	1.18 H	323	12.89	46.91
4	15720.00	64.9 PK	74.0	-9.1	1.10 H	132	12.99	51.91
5	15720.00	50.7 AV	54.0	-3.3	1.10 H	132	-1.21	51.91
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	105.7 PK			1.09 V	299	65.19	40.51
2	*5240.00	95.8 AV			1.09 V	299	55.29	40.51
3	#10480.00	60.3 PK	68.3	-8.0	1.01 V	253	13.39	46.91
4	15720.00	63.0 PK	74.0	-11.0	1.26 V	63	11.09	51.91
5	15720.00	49.5 AV	54.0	-4.5	1.26 V	63	-2.41	51.91

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	103.5 PK			1.42 H	286	62.92	40.58
2	*5260.00	94.7 AV			1.42 H	286	54.12	40.58
3	#10520.00	60.4 PK	68.3	-7.9	1.22 H	320	13.38	47.02
4	15780.00	64.4 PK	74.0	-9.6	1.05 H	129	12.22	52.18
5	15780.00	50.3 AV	54.0	-3.7	1.05 H	129	-1.88	52.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	109.3 PK			1.06 V	298	68.72	40.58
2	*5260.00	99.1 AV			1.06 V	298	58.52	40.58
3	#10520.00	61.1 PK	68.3	-7.2	1.05 V	248	14.08	47.02
4	15780.00	63.3 PK	74.0	-10.7	1.31 V	78	11.12	52.18
5	15780.00	49.6 AV	54.0	-4.4	1.31 V	78	-2.58	52.18

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	103.0 PK			1.41 H	290	62.27	40.73
2	*5300.00	93.7 AV			1.41 H	290	52.97	40.73
3	10600.00	60.1 PK	74.0	-13.9	1.20 H	310	12.62	47.48
4	10600.00	46.4 AV	54.0	-7.6	1.20 H	310	-1.08	47.48
5	15900.00	64.3 PK	74.0	-9.7	1.02 H	121	12.02	52.28
6	15900.00	50.4 AV	54.0	-3.6	1.02 H	121	-1.88	52.28
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	108.9 PK			1.07 V	302	68.17	40.73
2	*5300.00	98.7 AV			1.07 V	302	57.97	40.73
3	10600.00	60.7 PK	74.0	-13.3	1.05 V	243	13.22	47.48
4	10600.00	46.5 AV	54.0	-7.5	1.05 V	243	-0.98	47.48
5	15900.00	63.6 PK	74.0	-10.4	1.33 V	63	11.32	52.28
6	15900.00	49.8 AV	54.0	-4.2	1.33 V	63	-2.48	52.28

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	101.9 PK			1.45 H	262	61.12	40.78
2	*5320.00	92.3 AV			1.45 H	262	51.52	40.78
3	5350.00	60.4 PK	74.0	-13.6	1.45 H	262	19.54	40.86
4	5350.00	47.3 AV	54.0	-6.7	1.45 H	262	6.44	40.86
5	10640.00	59.7 PK	74.0	-14.3	1.20 H	313	12.27	47.43
6	10640.00	46.3 AV	54.0	-7.7	1.20 H	313	-1.13	47.43
7	15960.00	64.7 PK	74.0	-9.3	1.00 H	116	12.56	52.14
8	15960.00	50.7 AV	54.0	-3.3	1.00 H	116	-1.44	52.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	105.8 PK			1.07 V	298	65.02	40.78
2	*5320.00	95.8 AV			1.07 V	298	55.02	40.78
3	5350.00	62.8 PK	74.0	-11.2	1.07 V	298	21.94	40.86
4	5350.00	47.9 AV	54.0	-6.1	1.07 V	298	7.04	40.86
5	10640.00	60.5 PK	74.0	-13.5	1.08 V	246	13.07	47.43
6	10640.00	46.4 AV	54.0	-7.6	1.08 V	246	-1.03	47.43
7	15960.00	63.4 PK	74.0	-10.6	1.28 V	70	11.26	52.14
8	15960.00	49.8 AV	54.0	-4.2	1.28 V	70	-2.34	52.14

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



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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	60.2 PK	74.0	-13.8	1.40 H	267	19.08	41.12
2	5460.00	47.6 AV	54.0	-6.4	1.40 H	267	6.48	41.12
3	#5470.00	64.5 PK	68.3	-3.8	1.40 H	267	23.36	41.14
4	*5500.00	104.2 PK			1.40 H	267	62.99	41.21
5	*5500.00	95.5 AV			1.40 H	267	54.29	41.21
6	11000.00	59.6 PK	74.0	-14.4	1.26 H	317	11.65	47.95
7	11000.00	46.3 AV	54.0	-7.7	1.26 H	317	-1.65	47.95
8	#16500.00	64.5 PK	68.3	-3.8	1.02 H	118	10.86	53.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.9 PK	74.0	-14.1	1.00 V	304	18.78	41.12
2	5460.00	47.1 AV	54.0	-6.9	1.00 V	304	5.98	41.12
3	#5470.00	65.1 PK	68.3	-3.2	1.00 V	304	23.96	41.14
4	*5500.00	106.0 PK			1.05 V	300	64.79	41.21
5	*5500.00	96.5 AV			1.05 V	300	55.29	41.21
6	11000.00	60.3 PK	74.0	-13.7	1.13 V	259	12.35	47.95
7	11000.00	46.1 AV	54.0	-7.9	1.13 V	259	-1.85	47.95
8	#16500.00	63.2 PK	68.3	-5.1	1.27 V	58	9.56	53.64

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	*5580.00	106.7 PK			1.42 H	277	65.27	41.43
2	*5580.00	97.0 AV			1.42 H	277	55.57	41.43
3	11160.00	59.7 PK	74.0	-14.3	1.24 H	329	11.82	47.88
4	11160.00	46.5 AV	54.0	-7.5	1.24 H	329	-1.38	47.88
5	#16740.00	64.3 PK	68.3	-4.0	1.07 H	103	10.73	53.57
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	*5580.00	105.6 PK			1.00 V	301	64.17	41.43
2	*5580.00	96.8 AV			1.00 V	301	55.37	41.43
3	11160.00	61.2 PK	74.0	-12.8	1.08 V	244	13.32	47.88
4	11160.00	46.7 AV	54.0	-7.3	1.08 V	244	-1.18	47.88
5	#16740.00	63.1 PK	68.3	-5.2	1.32 V	46	9.53	53.57

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 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	*5660.00	106.7 PK			1.40 H	274	64.98	41.72
2	*5660.00	97.2 AV			1.40 H	274	55.48	41.72
3	11320.00	60.3 PK	74.0	-13.7	1.23 H	324	12.33	47.97
4	11320.00	46.9 AV	54.0	-7.1	1.23 H	324	-1.07	47.97
5	#16980.00	64.0 PK	68.3	-4.3	1.00 H	112	10.22	53.78
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	*5660.00	105.6 PK			1.00 V	304	63.88	41.72
2	*5660.00	96.3 AV			1.00 V	304	54.58	41.72
3	11320.00	60.8 PK	74.0	-13.2	1.05 V	231	12.83	47.97
4	11320.00	46.5 AV	54.0	-7.5	1.05 V	231	-1.47	47.97
5	#16980.00	63.4 PK	68.3	-4.9	1.35 V	57	9.62	53.78

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	101.6 PK			1.39 H	270	59.73	41.87
2	*5700.00	92.7 AV			1.39 H	270	50.83	41.87
3	#5725.00	63.5 PK	68.3	-14.8	1.40 H	267	21.54	41.96
4	11400.00	59.8 PK	74.0	-14.2	1.21 H	312	11.58	48.22
5	11400.00	45.8 AV	54.0	-8.2	1.21 H	312	-2.42	48.22
6	#17100.00	64.1 PK	68.3	-4.2	1.05 H	108	10.26	53.84
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	101.0 PK			1.00 V	308	59.13	41.87
2	*5700.00	91.7 AV			1.00 V	308	49.83	41.87
3	#5725.00	61.5 PK	68.3	-16.8	1.00 V	308	19.54	41.96
4	11400.00	60.2 PK	74.0	-13.8	1.01 V	221	11.98	48.22
5	11400.00	46.0 AV	54.0	-8.0	1.01 V	221	-2.22	48.22
6	#17100.00	63.0 PK	68.3	-5.3	1.03 V	55	9.16	53.84

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.

4.2.9 TEST RESULTS (AUX. ANTENNA)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 71%RH	TESTED BY	Nick Chang

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	69.83	32.2 QP	40.0	-7.8	2.00 H	44	19.63	12.54
2	299.97	35.5 QP	46.0	-10.5	1.50 H	236	20.17	15.32
3	453.53	34.7 QP	46.0	-11.3	1.50 H	72	15.52	19.22
4	649.98	31.3 QP	46.0	-14.7	1.50 H	113	8.49	22.79
5	748.76	33.2 QP	46.0	-12.8	1.00 H	337	8.81	24.39
6	949.13	35.1 QP	46.0	-10.9	1.00 H	289	7.38	27.76
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	61.98	33.1 QP	40.0	-6.9	1.00 V	297	19.66	13.45
2	199.97	30.3 QP	43.5	-13.2	1.00 V	74	18.89	11.39
3	299.27	33.5 QP	46.0	-12.5	1.50 V	164	18.24	15.29
4	599.89	29.5 QP	46.0	-16.5	1.50 V	302	6.96	22.58
5	748.34	34.9 QP	46.0	-11.1	1.50 V	78	10.52	24.37
6	901.30	34.9 QP	46.0	-11.1	1.00 V	166	7.54	27.37

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	64.3 PK	74.0	-9.7	1.72 H	292	24.03	40.27
2	5150.00	48.2 AV	54.0	-5.8	1.72 H	292	7.93	40.27
3	*5180.00	106.0 PK			1.72 H	292	65.67	40.33
4	*5180.00	96.5 AV			1.72 H	292	56.17	40.33
5	#10360.00	59.2 PK	68.3	-9.1	1.17 H	156	12.37	46.83
6	15540.00	64.1 PK	74.0	-9.9	1.46 H	51	11.89	52.21
7	15540.00	50.7 AV	54.0	-3.3	1.46 H	51	-1.51	52.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.94 V	270	18.13	40.27
2	5150.00	46.1 AV	54.0	-7.9	1.94 V	270	5.83	40.27
3	*5180.00	100.3 PK			1.94 V	270	59.97	40.33
4	*5180.00	91.1 AV			1.94 V	270	50.77	40.33
5	#10360.00	60.2 PK	68.3	-8.1	1.26 V	313	13.37	46.83
6	15540.00	63.7 PK	74.0	-10.3	1.22 V	255	11.49	52.21
7	15540.00	49.8 AV	54.0	-4.2	1.22 V	255	-2.41	52.21

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	107.9 PK			1.74 H	310	67.54	40.36
2	*5200.00	98.0 AV			1.74 H	310	57.64	40.36
3	#10400.00	59.7 PK	68.3	-8.6	1.17 H	154	12.80	46.90
4	15600.00	65.2 PK	74.0	-8.8	1.54 H	53	13.28	51.92
5	15600.00	50.8 AV	54.0	-3.2	1.54 H	53	-1.12	51.92
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.2 PK			1.96 V	288	60.84	40.36
2	*5200.00	92.3 AV			1.96 V	288	51.94	40.36
3	#10400.00	60.6 PK	68.3	-7.7	1.22 V	329	13.70	46.90
4	15600.00	63.7 PK	74.0	-10.3	1.21 V	261	11.78	51.92
5	15600.00	49.9 AV	54.0	-4.1	1.21 V	261	-2.02	51.92

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	105.7 PK			1.71 H	300	65.19	40.51
2	*5240.00	96.4 AV			1.71 H	300	55.89	40.51
3	#10480.00	59.9 PK	68.3	-8.4	1.15 H	152	12.99	46.91
4	15720.00	64.9 PK	74.0	-9.1	1.43 H	60	12.99	51.91
5	15720.00	50.4 AV	54.0	-3.6	1.43 H	60	-1.51	51.91
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	100.1 PK			1.83 V	256	59.59	40.51
2	*5240.00	90.8 AV			1.83 V	256	50.29	40.51
3	#10480.00	60.3 PK	68.3	-8.0	1.18 V	325	13.39	46.91
4	15720.00	63.4 PK	74.0	-10.6	1.25 V	257	11.49	51.91
5	15720.00	49.6 AV	54.0	-4.4	1.25 V	257	-2.31	51.91

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	108.1 PK			1.69 H	297	67.52	40.58
2	*5260.00	98.3 AV			1.69 H	297	57.72	40.58
3	#10520.00	60.4 PK	68.3	-7.9	1.10 H	154	13.38	47.02
4	15780.00	64.4 PK	74.0	-9.6	1.42 H	57	12.22	52.18
5	15780.00	50.4 AV	54.0	-3.6	1.42 H	57	-1.78	52.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	100.9 PK			1.94 V	267	60.32	40.58
2	*5260.00	92.0 AV			1.94 V	267	51.42	40.58
3	#10520.00	61.3 PK	68.3	-7.0	1.16 V	334	14.28	47.02
4	15780.00	62.6 PK	74.0	-11.4	1.26 V	252	10.42	52.18
5	15780.00	49.2 AV	54.0	-4.8	1.26 V	252	-2.98	52.18

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	108.6 PK			1.66 H	297	67.87	40.73
2	*5300.00	98.7 AV			1.66 H	297	57.97	40.73
3	10600.00	59.6 PK	74.0	-14.4	1.06 H	168	12.12	47.48
4	10600.00	46.0 AV	54.0	-8.0	1.06 H	168	-1.48	47.48
5	15900.00	64.4 PK	74.0	-9.6	1.40 H	64	12.12	52.28
6	15900.00	50.7 AV	54.0	-3.3	1.40 H	64	-1.58	52.28
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	100.6 PK			1.88 V	262	59.87	40.73
2	*5300.00	91.8 AV			1.88 V	262	51.07	40.73
3	10600.00	60.7 PK	74.0	-13.3	1.10 V	344	13.22	47.48
4	10600.00	46.7 AV	54.0	-7.3	1.10 V	344	-0.78	47.48
5	15900.00	63.8 PK	74.0	-10.2	1.20 V	250	11.52	52.28
6	15900.00	50.2 AV	54.0	-3.8	1.20 V	250	-2.08	52.28

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	106.4 PK			1.72 H	300	65.62	40.78
2	*5320.00	96.7 AV			1.72 H	300	55.92	40.78
3	5350.00	62.7 PK	74.0	-11.3	1.72 H	300	21.84	40.86
4	5350.00	48.9 AV	54.0	-5.1	1.72 H	300	8.04	40.86
5	10640.00	59.9 PK	74.0	-14.1	1.08 H	169	12.47	47.43
6	10640.00	46.4 AV	54.0	-7.6	1.08 H	169	-1.03	47.43
7	15960.00	64.9 PK	74.0	-9.1	1.43 H	71	12.76	52.14
8	15960.00	50.8 AV	54.0	-3.2	1.43 H	71	-1.34	52.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	99.4 PK			1.87 V	269	58.62	40.78
2	*5320.00	90.3 AV			1.87 V	269	49.52	40.78
3	5350.00	58.4 PK	74.0	-15.6	1.87 V	269	17.54	40.86
4	5350.00	46.5 AV	54.0	-7.5	1.87 V	269	5.64	40.86
5	10640.00	60.9 PK	74.0	-13.1	1.13 V	329	13.47	47.43
6	10640.00	46.7 AV	54.0	-7.3	1.13 V	329	-0.73	47.43
7	15960.00	63.5 PK	74.0	-10.5	1.20 V	240	11.36	52.14
8	15960.00	49.8 AV	54.0	-4.2	1.20 V	240	-2.34	52.14

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

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	17deg. C, 62%RH	TESTED BY	Nick Chang

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	60.2 PK	74.0	-13.8	1.67 H	277	19.08	41.12
2	5460.00	48.6 AV	54.0	-5.4	1.67 H	277	7.48	41.12
3	#5470.00	65.5 PK	68.3	-2.8	1.67 H	277	24.36	41.14
4	*5500.00	107.7 PK			1.67 H	277	66.49	41.21
5	*5500.00	97.9 AV			1.67 H	277	56.69	41.21
6	11000.00	59.3 PK	74.0	-14.7	1.12 H	177	11.35	47.95
7	11000.00	46.2 AV	54.0	-7.8	1.12 H	177	-1.75	47.95
8	#16500.00	64.8 PK	68.3	-3.5	1.41 H	68	11.16	53.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.2 PK	74.0	-15.8	1.95 V	242	17.08	41.12
2	5460.00	46.4 AV	54.0	-7.6	1.95 V	242	5.28	41.12
3	#5470.00	60.0 PK	68.3	-8.3	1.94 V	242	18.86	41.14
4	*5500.00	99.7 PK			1.95 V	242	58.49	41.21
5	*5500.00	90.6 AV			1.95 V	242	49.39	41.21
6	11000.00	60.4 PK	74.0	-13.6	1.12 V	316	12.45	47.95
7	11000.00	46.2 AV	54.0	-7.8	1.12 V	316	-1.75	47.95
8	#16500.00	63.2 PK	68.3	-5.1	1.29 V	227	9.56	53.64

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	*5580.00	108.8 PK			1.58 H	283	67.37	41.43
2	*5580.00	99.7 AV			1.58 H	283	58.27	41.43
3	11160.00	59.5 PK	74.0	-14.5	1.09 H	177	11.62	47.88
4	11160.00	46.4 AV	54.0	-7.6	1.09 H	177	-1.48	47.88
5	#16740.00	64.5 PK	68.3	-3.8	1.41 H	73	10.93	53.57
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	*5580.00	102.8 PK			1.94 V	224	61.37	41.43
2	*5580.00	93.6 AV			1.94 V	224	52.17	41.43
3	11160.00	61.3 PK	74.0	-12.7	1.09 V	302	13.42	47.88
4	11160.00	46.8 AV	54.0	-7.2	1.09 V	302	-1.08	47.88
5	#16740.00	63.2 PK	68.3	-5.1	1.33 V	238	9.63	53.57

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	*5660.00	109.0 PK			1.61 H	277	67.28	41.72
2	*5660.00	99.8 AV			1.61 H	277	58.08	41.72
3	11320.00	60.5 PK	74.0	-13.5	1.07 H	167	12.53	47.97
4	11320.00	46.9 AV	54.0	-7.1	1.07 H	167	-1.07	47.97
5	#16980.00	64.1 PK	68.3	-4.2	1.37 H	67	10.32	53.78
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	*5660.00	102.9 PK			1.90 V	234	61.18	41.72
2	*5660.00	93.5 AV			1.90 V	234	51.78	41.72
3	11320.00	61.2 PK	74.0	-12.8	1.06 V	298	13.23	47.97
4	11320.00	46.7 AV	54.0	-7.3	1.06 V	298	-1.27	47.97
5	#16980.00	63.7 PK	68.3	-4.6	1.31 V	246	9.92	53.78

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 62%RH	TESTED BY	Nick Chang

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	104.9 PK			1.60 H	278	63.03	41.87
2	*5700.00	95.7 AV			1.60 H	278	53.83	41.87
3	#5725.00	63.5 PK	68.3	-4.8	1.60 H	278	21.54	41.96
4	11400.00	59.9 PK	74.0	-14.1	1.01 H	177	11.68	48.22
5	11400.00	45.6 AV	54.0	-8.4	1.01 H	177	-2.62	48.22
6	#17100.00	64.2 PK	68.3	-4.1	1.42 H	70	10.36	53.84
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	98.8 PK			1.85 V	225	56.93	41.87
2	*5700.00	89.9 AV			1.85 V	225	48.03	41.87
3	#5725.00	60.5 PK	68.3	-7.8	1.85 V	226	18.54	41.96
4	11400.00	60.1 PK	74.0	-13.9	1.09 V	299	11.88	48.22
5	11400.00	45.9 AV	54.0	-8.1	1.09 V	299	-2.32	48.22
6	#17100.00	62.8 PK	68.3	-5.5	1.30 V	235	8.96	53.84

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.

4.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

4.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT 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

FOR POWER OUTPUT MEASUREMENT

Test date: Dec. 23, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

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

FOR 26dB OCCUPIED BANDWIDTH

Test date: Dec. 23, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

4.3.3 TEST PROCEDURE

FOR POWER OUTPUT MEASUREMENT

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

FOR 26dB OCCUPIED BANDWIDTH

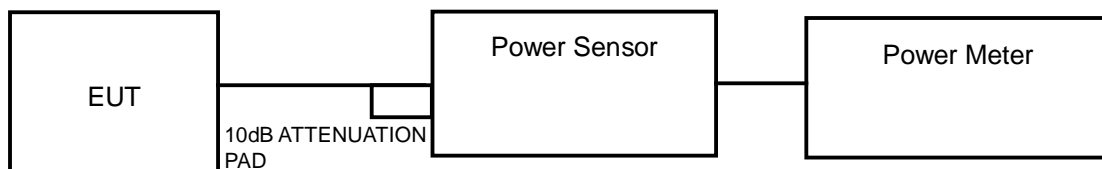
- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

POWER OUTPUT: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	PASS/FAIL
36	5180	17.0	12.3	17	PASS
40	5200	25.7	14.1	17	PASS
48	5240	21.4	13.3	17	PASS
52	5260	29.5	14.7	24	PASS
60	5300	30.2	14.8	24	PASS
64	5320	17.4	12.4	24	PASS
100	5500	21.4	13.3	24	PASS
116	5580	32.4	15.1	24	PASS
132	5660	26.9	14.3	24	PASS
140	5700	8.9	9.5	24	PASS

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	23.35
40	5200	27.54
48	5240	23.56
52	5260	27.35
60	5300	26.43
64	5320	20.86
100	5500	20.85
116	5580	23.93
132	5660	23.79
140	5700	20.72

4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB

4.4.2 TEST INSTRUMENTS

Test date: Dec. 23, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

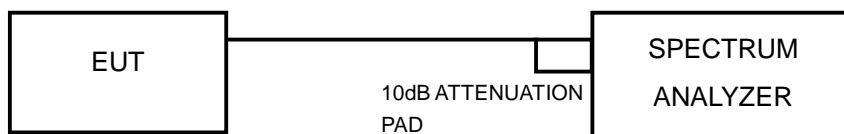
4.4.3 TEST PROCEDURE

1. Connect the cable from the spectrum analyzer to the EUT antenna port using an appropriate RF attenuator.
2. Verify the antenna port selected is the active one if the system has more than one antenna.
3. Verify the unlicensed wireless device is set to operate at 100 % duty cycle at the maximum allowed power for operation.
4. Testing shall be done on the center frequency of each U-NII band.
5. Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be 13 dB for all frequencies across the emission bandwidth.
 - a. First trace: set RBW = 1 MHz, VBW = 3 MHz with peak detector and max hold settings.
 - b. Second trace: set RBW = 1 MHz, VBW = 3 MHz with sample detector and trace average across 100 traces in power averaging mode.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

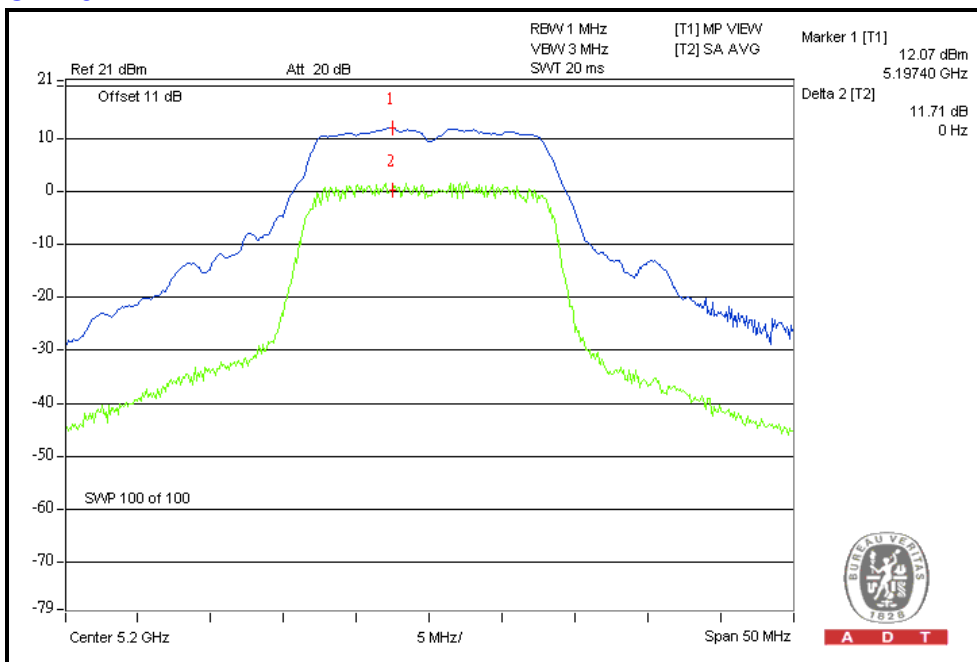
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK POWER EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	11.6	13	PASS
40	5200	11.7	13	PASS
48	5240	10.1	13	PASS
52	5260	12.0	13	PASS
60	5300	12.2	13	PASS
64	5320	12.9	13	PASS
100	5500	11.7	13	PASS
116	5580	11.6	13	PASS
132	5660	12.5	13	PASS
140	5700	11.6	13	PASS

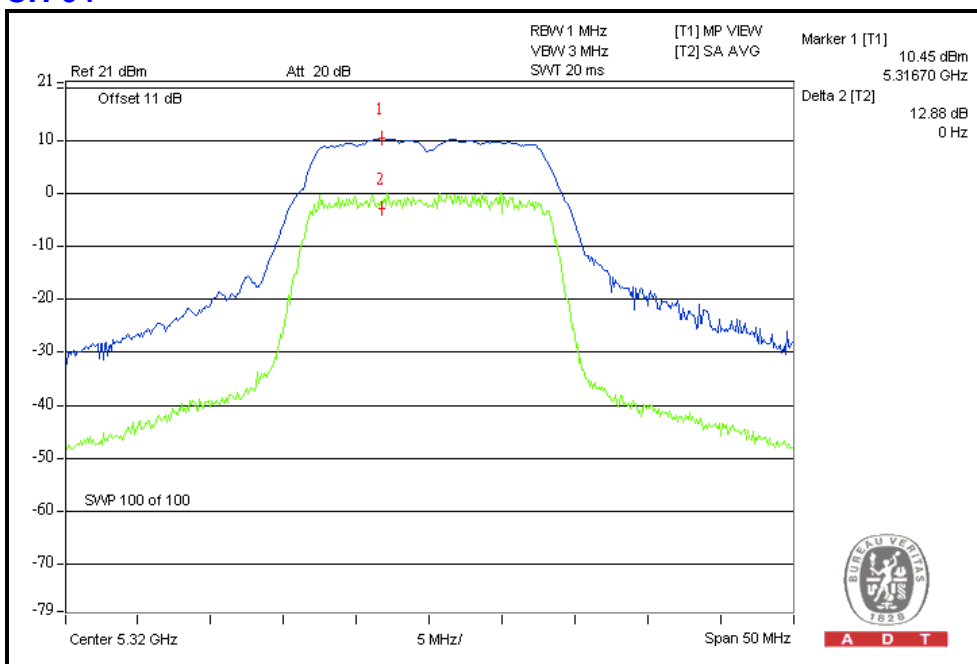


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CH 40



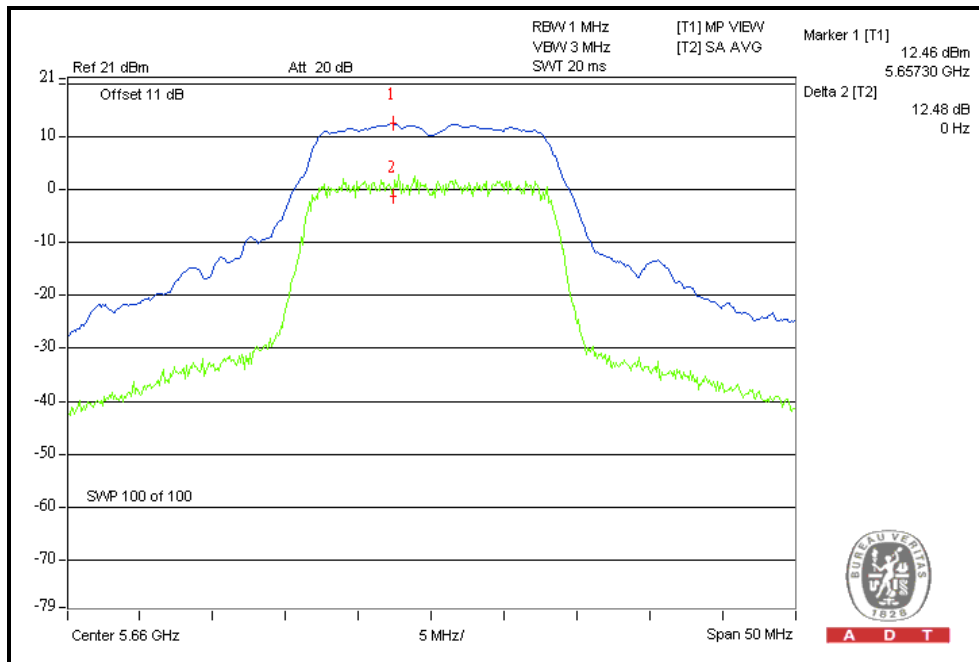
CH 64





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CH 132



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

Test date: Dec. 23, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

4.5.3 TEST PROCEDURES

1. Set RBW = 1 MHz, VBW = 3 MHz.
2. Set sweep time = 26 S.
3. Set detector = RMS.
4. Perform a single sweep.

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

4.5.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	0.0	4	PASS
40	5200	1.8	4	PASS
48	5240	1.2	4	PASS
52	5260	2.5	11	PASS
60	5300	2.7	11	PASS
64	5320	0.4	11	PASS
100	5500	1.2	11	PASS
116	5580	2.7	11	PASS
132	5660	1.7	11	PASS
140	5700	-1.8	11	PASS



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4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 TEST INSTRUMENTS

Test date: Dec. 23, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

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

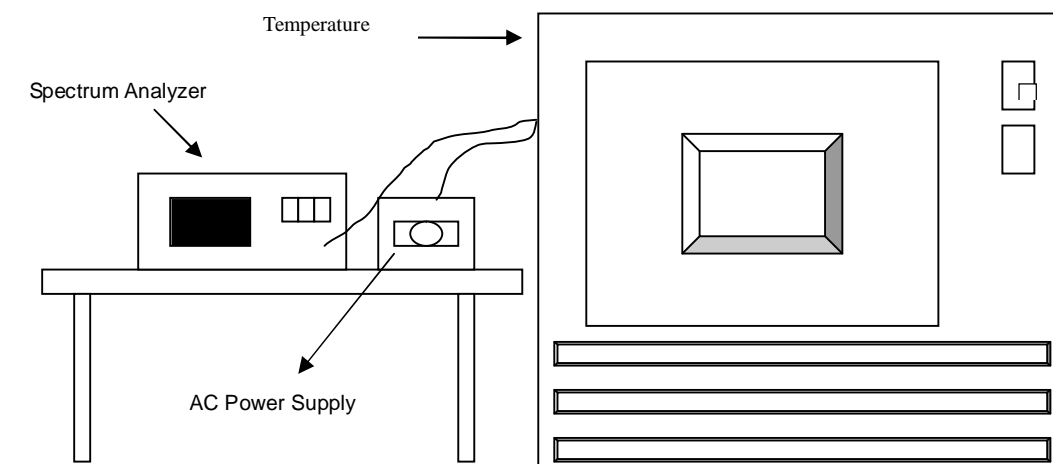
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC 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

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
50	120	5320.0127	2.3872	5320.0151	2.8383	5320.0191	3.5902	5320.0184	3.4586
40	120	5319.9998	-0.0376	5320.0003	0.0564	5320.0001	0.0188	5319.9969	-0.5827
30	120	5319.9915	-1.5977	5319.9922	-1.4662	5319.9949	-0.9586	5319.9941	-1.1090
20	120	5320.0063	1.1842	5320.0038	0.7143	5320.0025	0.4699	5320.0057	1.0714
10	120	5319.9889	-2.0865	5319.994	-1.1278	5319.9884	-2.1805	5319.9878	-2.2932
0	120	5320.0049	0.9211	5320.002	0.3759	5319.9981	-0.3571	5319.9983	-0.3195
-10	120	5319.9797	-3.8158	5319.9755	-4.6053	5319.976	-4.5113	5319.9732	-5.0376
-20	120	5320.0074	1.3910	5320.0077	1.4474	5320.0082	1.5414	5320.0057	1.0714
-30	120	5319.9833	-3.1391	5319.984	-3.0075	5319.9803	-3.7030	5319.984	-3.0075

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
20	138	5320.0066	1.2406	5320.004	0.7519	5320.0017	0.3195	5320.0068	1.2782
	120	5320.0063	1.1842	5320.0038	0.7143	5320.0025	0.4699	5320.0057	1.0714
	102	5320.0053	0.9962	5320.0044	0.8271	5320.002	0.3759	5320.0067	1.2594

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 and authorization 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:

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Web Site: www.adt.com.tw

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



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

No modifications were made to the EUT by the lab during the test.

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