

FCC TEST REPORT(WLAN-15.407)

REPORT NO.: RF120522E09-1

MODEL NO.: MC92N0

FCC ID: UZ7MC92N0

RECEIVED: May 22, 2012

TESTED: June 01 to 12, 2012

ISSUED: Aug. 07, 2012

APPLICANT: Motorola Solutions, 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

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R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120522E09-1	Original release	Aug. 07, 2012

1. CERTIFICATION

PRODUCT: Mobile Computer
BRAND NAME: MOTOROLA
MODEL NO.: MC92N0
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Motorola Solutions, Inc.
TESTED: June 01 to 11, 2012
STANDARDS: **FCC PART 15, SUBPART E (SECTION 15.407)**
ANSI C63.10-2009

The above equipment (Model: MC92N0) 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:** Aug. 07, 2012
(Midoli Peng, Specialist)

APPROVED BY : May Chen, **DATE:** Aug. 07, 2012
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 5GHz, 5180~5240MHz, 5260~5320MHz, 5500~5580MHz & 5660~5700MHz

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.22dB at 0.47422MHz
15.407(b/1/2/3)(b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -2.5dB at 5725.00MHz
15.407(a/1/2)	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)	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	No antenna connector is used.

NOTE: 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, 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.

2.1 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	2.98 dB
Radiated emissions (30MHz-1GHz)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.84 dB
Radiated emissions (6GHz -18GHz)	4.09 dB
Radiated emissions (18GHz -40GHz)	4.24 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Computer
MODEL NO.	MC92N0
POWER SUPPLY	DC 7.4V from battery DC 12V to direct charging adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11g / a: up to 54Mbps 802.11n (20MHz, 800ns GI): up to 65Mbps 802.11n (20MHz, 400ns GI): up to 72.2Mbps
OPERATING FREQUENCY	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 2.4GHz: 2.412 ~ 2.472GHz 5GHz: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (20MHz)
	For 15.247 (2.4GHz) 13 for 802.11b, 802.11g, 802.11n (20MHz)
	For 15.247 (5GHz) 5 for 802.11a, 802.11n (20MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 66.069mW 802.11n (20MHz): 58.884mW For 15.247(2.4GHz) 802.11b: 204.174mW 802.11g: 204.174mW 802.11n (20MHz): 208.930mW For 15.247(5GHz) 802.11a: 169.824mW 802.11n (20MHz): 165.959mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Battery x 1 (Part No.: 21-65587-03)

NOTE:

1. There are Bluetooth 2.1 + EDR technology and WLAN 802.11 a/b/g/n technology used for the EUT. and the report number corresponds with functions are listed as below:

Function	Report No.
WLAN	RF120522E09 (15.247) RF120522E09-1(15.407) RF120522E09-3(DFS)
Bluetooth	RF120522E09-2

2. The EUT configuration list:

Scanner	With CR	Without CR	Keypad			
			53 key	43 key	33 key	28 key
SE4500	V	-	V	V	V	V
SE4500	-	V	V	V	V	V
SE4600	V	-	V	V	V	V
SE4600	-	V	V	V	V	V
SE965	V	-	V	V	V	V
SE965	-	V	V	V	V	V
SE1524	V	-	V	V	V	V
SE1524		V	V	V	V	V

CR : Condensation Resistant

3. The Version of EUT information are as below:

Mobile Computer	OS Version	07.00.2806
	OEM Name	MOTOROLA MC92N0G
	OEM Version	00.20.0005
Wireless(Fusion)	Part Number	31-FUSION-X2.00
	Version	X_2.00.0.0.040E
XW2DMT	Version	X_2.00.0.0.28
	Fusion	X_2.00.0.0.040E
BTRRegTest Ver4.1	Version	4.1

4. The associated devices(optional) of EUT information are as below:

Product	Brand	Model	S/N
28keypad	NA	KYPD-MC9XMR000-01R	40A11W40H
33keypad	NA	KYPD-MC9XMX000-01R	40B52K50A
43keypad	NA	KYPD-MC9XMT000-01R	40A11R93G
53keypad	NA	KYPD-MC9XMS000-01R	40B63U43F
Product	Brand	Model	P/N
Headset	MOTOROLA	RCH50	RCH50
Headset	VXI	VR10	50-11300-050R
Power adapter (for Direct charging)	HIPRO	HP-A0502R3D	PWRS-14000-148R
Direct charging adapter	SYMBOL	ADP9000-110R	NA
AC Line cord	NA	NA	23844-00-00R
USB cable	NA	NA	25-62166-01R

5. The EUT could be supplied with a direct charging and battery as below table:

Direct charging adapter (not for sale together)	
Brand:	SYMBOL
Part No.:	ADP9000-110R
I/O Ports:	RS232 Port * 1 RJ45 Port *2
Associated Devices:	USB cable (unshielded, 1.8m without core) USB cable (Part No.: 25-62166-01r)
Power Adapter (for Direct charging, and 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
	AC Line cord (unshielded, 2.2m without core) (Part No.: 23844-00-00R)
Battery	
Brand:	SYMBOL
Part No.:	21-65587-03
Rating:	7.4V, 2200mAh, 16.3Wh

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

WLAN Antenna Spec.			
Antenna	Type	Connector	Gain (dBi)
Lant (Aux)	PIFA	NA	4.07 (2.4GHz) 4.96 (5GHz)
Rant (Main)	PIFA	NA	6.03 (2.4GHz) 4.51 (5GHz)
Bluetooth Antenna Spec			
Type	Connector		Gain (dBi)
Chip	NA		-3.31

Note: This report chose the max. Antenna gain to do final test.

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

Mode	Axis	Scanner	Headset	Keypad	CR	Power
Mode A	X-Y	SE4500	RCH50	53 Key	Without CR	Battery
Mode B	X-Y	SE1524	RCH50	53 Key	Without CR	Battery
Mode C	X-Y	SE965	RCH50	53 Key	Without CR	Battery
Mode D	X-Y	SE4600	RCH50	53 Key	Without CR	Battery
Mode E	X-Z	SE4500	RCH50	53 Key	Without CR	Battery
Mode F	Y-Z	SE4500	RCH50	53 Key	Without CR	Battery
Mode G	X-Y	SE4500	RCH50	53 Key	Without CR	Direct charging
Mode H	X-Y	SE4500	VR10	53 Key	Without CR	Direct charging
Mode I	X-Y	SE4500	VR10	28 Key	Without CR	Direct charging
Mode J	X-Y	SE4500	VR10	43 Key	Without CR	Direct charging
Mode K	X-Y	SE4500	VR10	33 Key	Without CR	Direct charging
Mode L	X-Y	SE4500	VR10	43 Key	With CR	Direct charging
Mode M	X-Z	SE4500	VR10	43 Key	Without CR	Direct charging
Mode N	Y-Z	SE4500	VR10	43 Key	Without CR	Direct charging

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

8. The EUT incorporates a SISO function. Both, main and diversity (aux.) antennas path can transmit but only one can transmit at given time while the other is RX only.

MODULATION MODE	Tx/Rx FUNCTION
802.11b	1Tx/1Rx(Diversity)
802.11g	1Tx/1Rx(Diversity)
802.11a	1Tx/1Rx(Diversity)
802.11n (20MHz)	1Tx/1Rx(Diversity)

9. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.
10. 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 5180 ~ 5320MHz band:

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

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

Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 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	
A	√	-	-	-	EUT(Y-Z) + Scanner (SE1524) + Headset(RCH50) + Keypad(53) + Direct charging & Without CR
B	-	√	-	-	EUT(X-Y) + Scanner (SE4500) + Headset(VR10) + Keypad(43) + Direct charging & Without CR
C	-	-	√	√	EUT(X-Z) + Scanner (SE4500) + Headset(VR10) + Keypad(43) + Direct charging & Without CR

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	52	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, XYZ axis 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	52	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, XYZ axis 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
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5

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
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	25deg. C, 60%RH	120Vac, 60Hz	Timmy Hu
RE<1G	24deg. C, 71%RH	120Vac, 60Hz	Robert Cheng
RE ³ 1G	21deg. C, 67%RH	120Vac, 60Hz	Rex Huang
APCM	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 (15.407)

789033 D01 General UNII Test Procedures v01r01

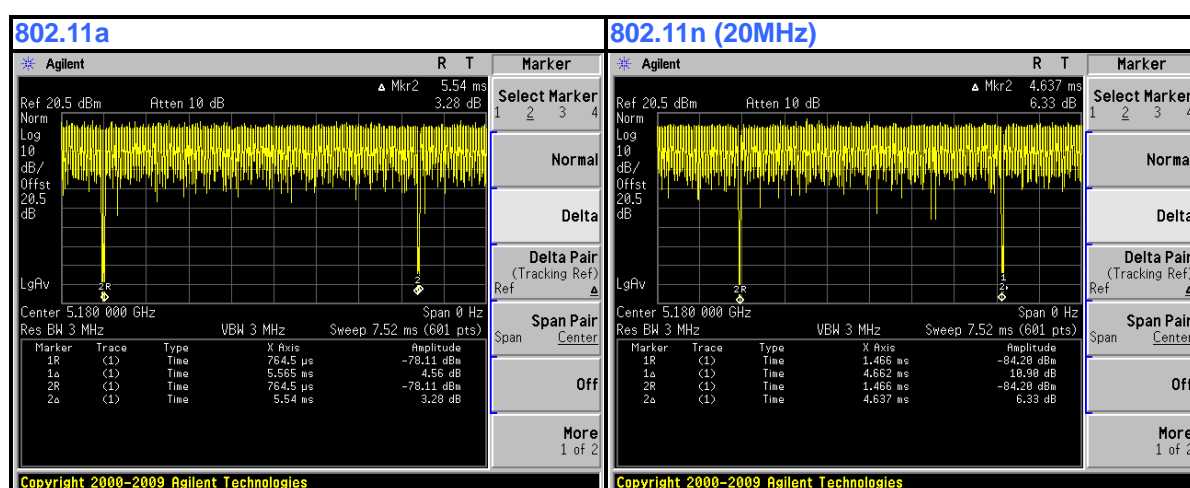
ANSI C63.10-2009

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 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is > 98 %, duty factor is not required.



3.5 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.

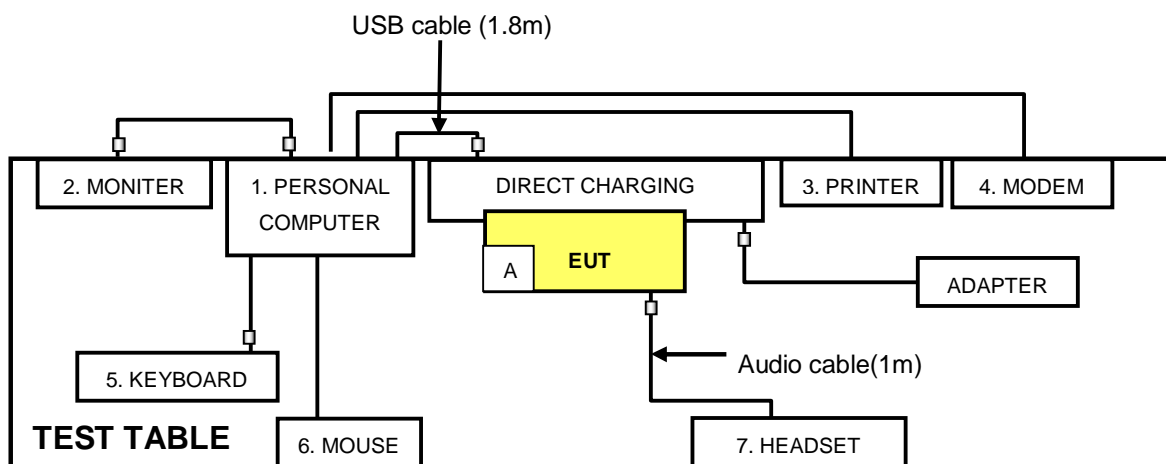
For conducted emission test					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PERSONAL COMPUTER	DELL	DCSCMF	9KKB32S	FCC DoC
2	MONITOR	DELL	E2210Hc	CN-OG337R-6418 0-97S-OQDS	FCC DoC
3	PRINTER	EPSON	LQ-300+II	G88Y074083	FCC DoC
4	MODEM	ACEEX	1414	0206026778	IFAXDM1414
5	KEYBOARD	DELL	SK-8115	MY-0DJ325-71619- 99B-0476	FCC DoC
6	MOUSE	DELL	M056UOA	FOROBF9	FCC DoC
7	HEADSET	Motorola	RCH50	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	VXI	VR10	NA	NA

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

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

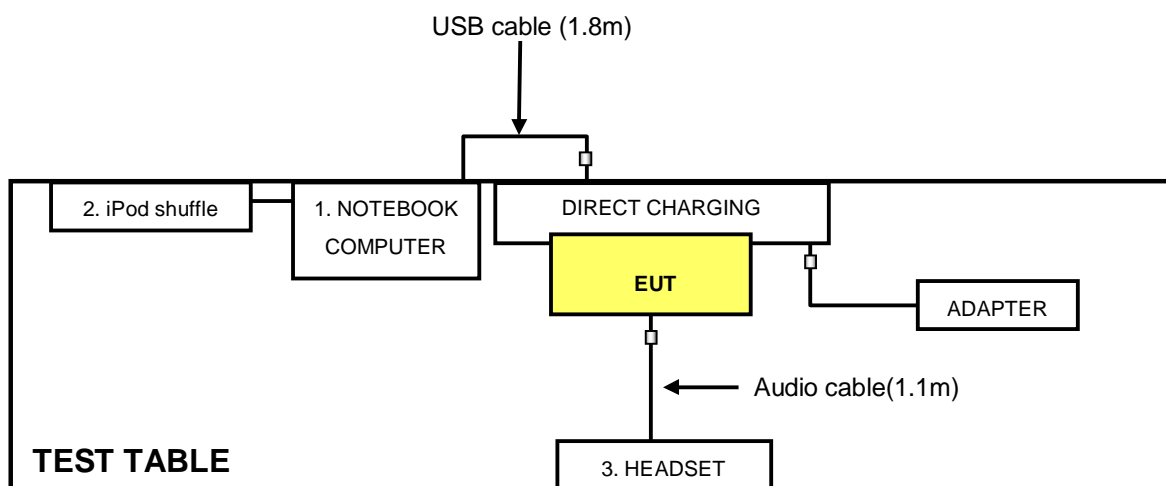
3.6 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted emission test:



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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100287	Mar. 01, 2012	Feb. 28, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK 8127	8127-523	Sep. 20, 2011	Sep. 19, 2012
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ESH3-Z5	848773/004	Nov. 01, 2011	Oct. 31, 2012
RF Cable (JYEBAO)	5DFB	COACAB-002	Aug. 06, 2011	Aug. 05, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software ADT	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. Tested Date: June 12, 2012



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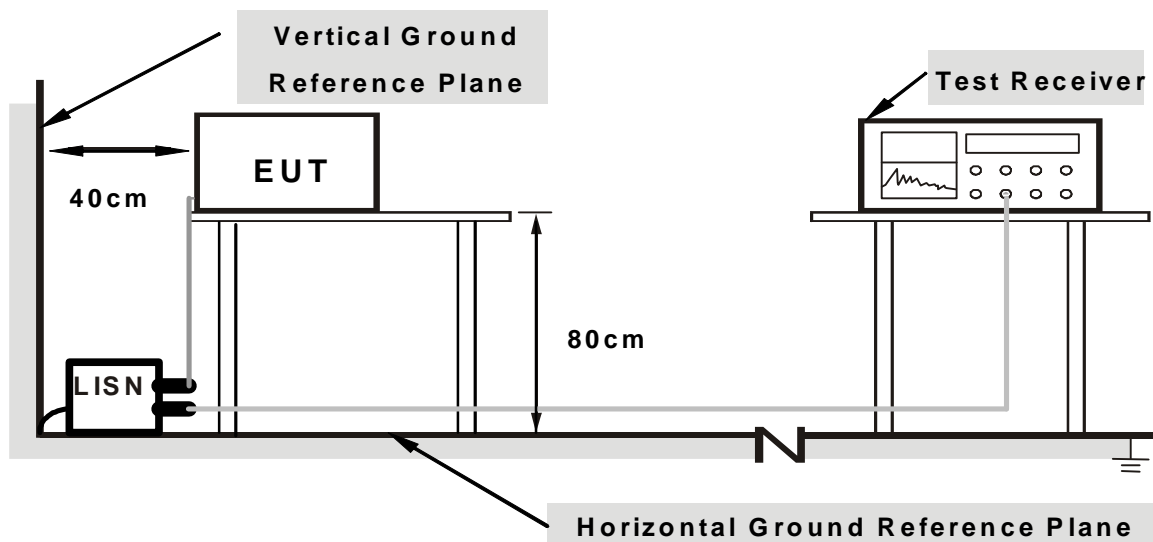
4.1.3 TEST PROCEDURES

- 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. Turn on the power of EUT.
2. The communication partner run test program “XW2DMT.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

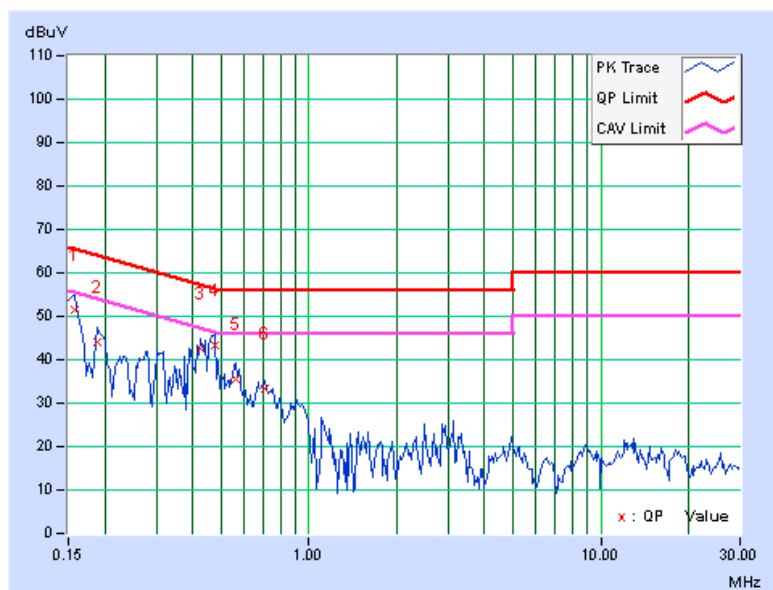
4.1.7 TEST RESULTS

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	0.15781	0.06	51.48	40.58	51.54	40.64	65.58	55.58	-14.04	-14.94
2	0.18906	0.06	44.18	29.31	44.24	29.37	64.08	54.08	-19.84	-24.71
3	0.42344	0.07	42.53	33.46	42.60	33.53	57.38	47.38	-14.78	-13.85
4	0.47813	0.08	43.11	34.47	43.19	34.55	56.37	46.37	-13.18	-11.82
5	0.56406	0.08	35.65	26.05	35.73	26.13	56.00	46.00	-20.27	-19.87
6	0.70859	0.10	33.18	26.64	33.28	26.74	56.00	46.00	-22.72	-19.26

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.

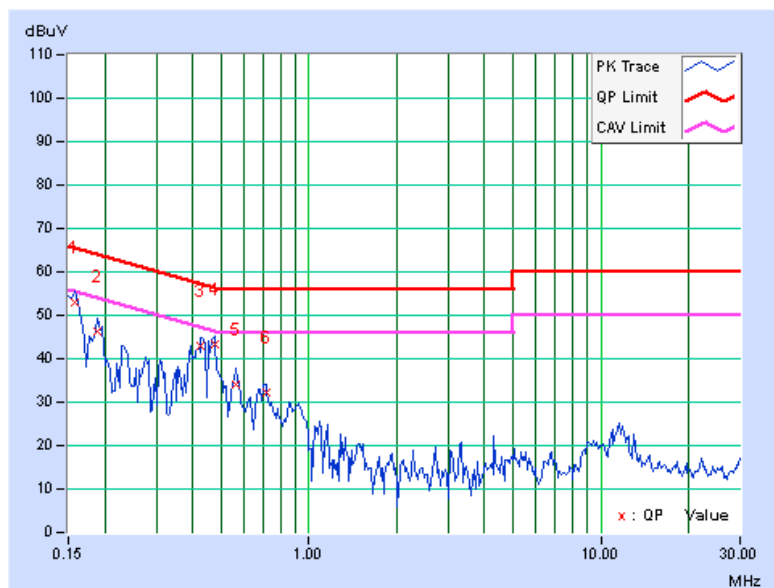


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.07	52.94	42.04	53.01	42.11	65.58	55.58	-12.57	-13.47
2	0.18906	0.07	46.15	31.11	46.22	31.18	64.08	54.08	-17.86	-22.90
3	0.42734	0.08	42.79	35.88	42.87	35.96	57.30	47.30	-14.43	-11.34
4	0.47422	0.08	43.13	37.13	43.21	37.21	56.44	46.44	-13.22	-9.22
5	0.56016	0.09	33.83	23.40	33.92	23.49	56.00	46.00	-22.08	-22.51
6	0.71250	0.10	32.26	26.24	32.36	26.34	56.00	46.00	-23.64	-19.66

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.



4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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

NOTE:

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

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

4.2.3 TEST INSTRUMENTS

For below 1GHz:

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. 09, 2012	Apr. 08, 2013
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
*R&S Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in 966 Chamber No. G.
5. The FCC Site Registration No. is 966073.
6. The VCCI Site Registration No. is G-137.
7. The CANADA Site Registration No. is IC 7450H-2.
8. Tested Date: June 01, 2012

**A D T****For above 1GHz:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 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. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: June 01, 2012

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 meters chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to 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.

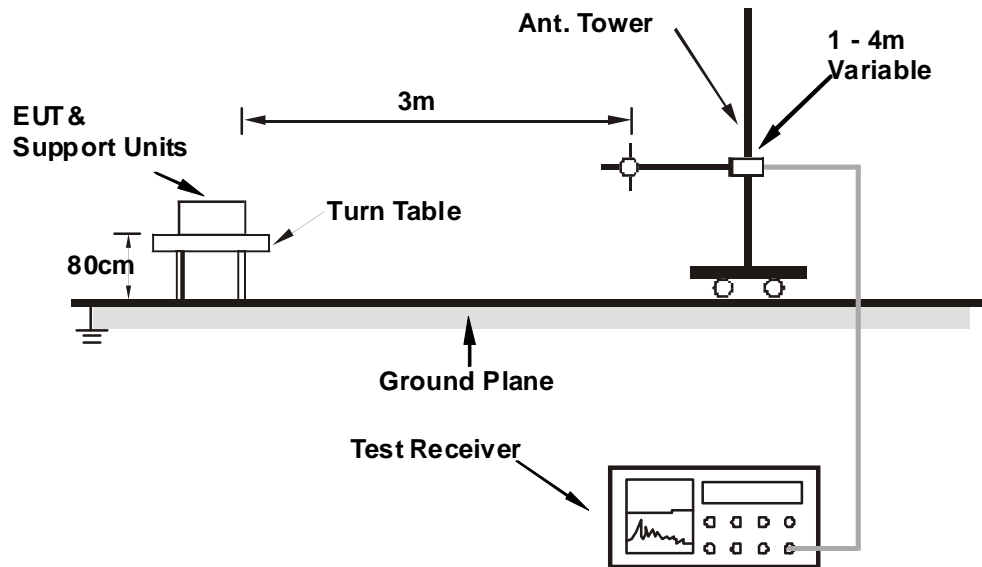
NOTE:

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

Same as 4.1.6

4.2.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

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	37.22	33.6 QP	40.0	-6.4	1.50 H	360	20.19	13.41
2	133.86	33.8 QP	43.5	-9.7	1.50 H	228	20.25	13.51
3	231.79	38.2 QP	46.0	-7.8	1.00 H	302	25.65	12.55
4	304.50	37.6 QP	46.0	-8.4	1.00 H	270	22.21	15.41
5	604.94	34.1 QP	46.0	-11.9	1.50 H	248	11.39	22.72
6	748.59	35.9 QP	46.0	-10.1	1.00 H	333	11.02	24.88
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	48.00	31.3 QP	40.0	-8.7	1.00 V	323	17.20	14.13
2	214.86	36.5 QP	43.5	-7.0	1.00 V	168	24.72	11.81
3	242.33	39.0 QP	46.0	-7.0	2.00 V	209	25.96	13.01
4	323.10	38.0 QP	46.0	-8.0	1.50 V	186	22.15	15.89
5	478.59	37.6 QP	46.0	-8.4	1.00 V	246	17.75	19.85
6	604.82	39.6 QP	46.0	-6.4	1.50 V	235	16.87	22.72

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

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	61.2 PK	74.0	-12.8	1.06 H	302	21.26	39.94
2	5150.00	46.9 AV	54.0	-7.1	1.06 H	302	6.96	39.94
3	*5180.00	107.9 PK			1.06 H	302	67.88	40.02
4	*5180.00	98.4 AV			1.06 H	302	58.38	40.02
5	#10360.00	55.5 PK	68.3	-12.8	1.04 H	118	8.97	46.53
6	15540.00	59.3 PK	74.0	-14.7	1.00 H	154	7.93	51.37
7	15540.00	48.6 AV	54.0	-5.4	1.00 H	154	-2.77	51.37
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	58.6 PK	74.0	-15.4	1.00 V	280	18.66	39.94
2	5150.00	47.0 AV	54.0	-7.0	1.00 V	280	7.06	39.94
3	*5180.00	104.6 PK			1.00 V	280	64.58	40.02
4	*5180.00	95.3 AV			1.00 V	280	55.28	40.02
5	#10360.00	54.7 PK	68.3	-13.6	1.00 V	34	8.17	46.53
6	15540.00	57.4 PK	74.0	-16.6	1.00 V	174	6.03	51.37
7	15540.00	47.6 AV	54.0	-6.4	1.00 V	174	-3.77	51.37

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	107.5 PK			1.08 H	302	67.43	40.07
2	*5200.00	97.8 AV			1.08 H	302	57.73	40.07
3	#10400.00	55.4 PK	68.3	-12.9	1.04 H	120	8.83	46.57
4	15600.00	60.2 PK	74.0	-13.8	1.00 H	129	8.73	51.47
5	15600.00	49.7 AV	54.0	-4.3	1.00 H	129	-1.77	51.47
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	*5200.00	104.5 PK			1.00 V	298	64.43	40.07
2	*5200.00	94.7 AV			1.00 V	298	54.63	40.07
3	#10400.00	54.8 PK	68.3	-13.5	1.00 V	33	8.23	46.57
4	15600.00	58.1 PK	74.0	-15.9	1.00 V	196	6.63	51.47
5	15600.00	47.7 AV	54.0	-6.3	1.00 V	196	-3.77	51.47

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 of the restricted band.



A D T

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	107.0 PK			1.06 H	301	66.83	40.17
2	*5240.00	97.5 AV			1.06 H	301	57.33	40.17
3	#10480.00	55.4 PK	68.3	-12.9	1.03 H	128	8.73	46.67
4	15720.00	60.3 PK	74.0	-13.7	1.00 H	138	8.79	51.51
5	15720.00	49.5 AV	54.0	-4.5	1.00 H	138	-2.01	51.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.7 PK			1.00 V	301	63.53	40.17
2	*5240.00	94.4 AV			1.00 V	301	54.23	40.17
3	#10480.00	54.7 PK	68.3	-13.6	1.00 V	12	8.03	46.67
4	15720.00	58.2 PK	74.0	-15.8	1.00 V	223	6.69	51.51
5	15720.00	47.9 AV	54.0	-6.1	1.00 V	223	-3.61	51.51

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 of the restricted band.



A D T

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	111.7 PK			1.08 H	251	71.47	40.23
2	*5260.00	102.3 AV			1.08 H	251	62.07	40.23
3	5350.00	58.6 PK	74.0	-15.4	1.04 H	302	18.13	40.47
4	5350.00	46.8 AV	54.0	-7.2	1.04 H	302	6.33	40.47
5	#10520.00	55.3 PK	68.3	-13.0	1.03 H	132	8.58	46.72
6	15780.00	60.1 PK	74.0	-13.9	1.00 H	161	8.52	51.58
7	15780.00	49.5 AV	54.0	-4.5	1.00 H	161	-2.08	51.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	105.9 PK			1.00 V	302	65.67	40.23
2	*5260.00	96.7 AV			1.00 V	302	56.47	40.23
3	5350.00	58.1 PK	74.0	-15.9	1.00 V	302	17.63	40.47
4	5350.00	45.9 AV	54.0	-8.1	1.00 V	302	5.43	40.47
5	#10520.00	54.8 PK	68.3	-13.5	1.00 V	11	8.08	46.72
6	15780.00	58.3 PK	74.0	-15.7	1.00 V	234	6.72	51.58
7	15780.00	47.9 AV	54.0	-6.1	1.00 V	234	-3.68	51.58

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 of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.2 PK			1.07 H	251	72.87	40.33
2	*5300.00	103.6 AV			1.07 H	251	63.27	40.33
3	5350.00	59.9 PK	74.0	-14.1	1.07 H	251	19.43	40.47
4	5350.00	48.8 AV	54.0	-5.2	1.07 H	251	8.33	40.47
5	10600.00	55.4 PK	74.0	-18.6	1.04 H	135	8.58	46.82
6	10600.00	42.6 AV	54.0	-11.4	1.04 H	135	-4.22	46.82
7	15900.00	60.3 PK	74.0	-13.7	1.00 H	159	8.64	51.66
8	15900.00	49.6 AV	54.0	-4.4	1.00 H	159	-2.06	51.66
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	110.1 PK			1.00 V	87	69.77	40.33
2	*5300.00	100.4 AV			1.00 V	87	60.07	40.33
3	5350.00	58.6 PK	74.0	-15.4	1.00 V	87	18.13	40.47
4	5350.00	46.4 AV	54.0	-7.6	1.00 V	87	5.93	40.47
5	10600.00	55.7 PK	74.0	-18.3	1.00 V	12	8.88	46.82
6	10600.00	44.0 AV	54.0	-10.0	1.00 V	12	-2.82	46.82
7	15900.00	59.9 PK	74.0	-14.1	1.00 V	245	8.24	51.66
8	15900.00	49.3 AV	54.0	-4.7	1.00 V	245	-2.36	51.66

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.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	109.3 PK			1.04 H	302	68.91	40.39
2	*5320.00	100.2 AV			1.04 H	302	59.81	40.39
3	5350.00	61.1 PK	74.0	-12.9	1.04 H	302	20.63	40.47
4	5350.00	49.7 AV	54.0	-4.3	1.04 H	302	9.23	40.47
5	10640.00	55.1 PK	74.0	-18.9	1.00 H	132	8.23	46.87
6	10640.00	42.8 AV	54.0	-11.2	1.00 H	132	-4.07	46.87
7	15960.00	60.7 PK	74.0	-13.3	1.00 H	154	8.97	51.73
8	15960.00	49.9 AV	54.0	-4.1	1.00 H	154	-1.83	51.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	106.1 PK			1.00 V	88	65.71	40.39
2	*5320.00	97.0 AV			1.00 V	88	56.61	40.39
3	5350.00	58.8 PK	74.0	-15.2	1.00 V	88	18.33	40.47
4	5350.00	46.6 AV	54.0	-7.4	1.00 V	88	6.13	40.47
5	10640.00	55.5 PK	74.0	-18.5	1.00 V	18	8.63	46.87
6	10640.00	44.0 AV	54.0	-10.0	1.00 V	18	-2.87	46.87
7	15960.00	60.5 PK	74.0	-13.5	1.00 V	244	8.77	51.73
8	15960.00	49.7 AV	54.0	-4.3	1.00 V	244	-2.03	51.73

REMARKS:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	59.2 PK	74.0	-14.8	1.27 H	289	18.44	40.76
2	5460.00	47.3 AV	54.0	-6.7	1.27 H	289	6.54	40.76
3	#5470.00	63.7 PK	68.3	-4.6	1.27 H	289	22.92	40.78
4	*5500.00	108.9 PK			1.27 H	289	68.04	40.86
5	*5500.00	98.9 AV			1.27 H	289	58.04	40.86
6	11000.00	57.6 PK	74.0	-16.4	1.00 H	129	10.32	47.28
7	11000.00	44.6 AV	54.0	-9.4	1.00 H	129	-2.68	47.28
8	#16500.00	63.1 PK	68.3	-5.2	1.00 H	154	10.07	53.03
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	59.0 PK	74.0	-15.0	1.00 V	89	18.24	40.76
2	5460.00	46.7 AV	54.0	-7.3	1.00 V	89	5.94	40.76
3	#5470.00	60.9 PK	68.3	-7.4	1.00 V	89	20.12	40.78
4	*5500.00	105.3 PK			1.00 V	89	64.44	40.86
5	*5500.00	95.7 AV			1.00 V	89	54.84	40.86
6	11000.00	55.3 PK	74.0	-18.7	1.00 V	30	8.02	47.28
7	11000.00	43.9 AV	54.0	-10.1	1.00 V	30	-3.38	47.28
8	#16500.00	63.4 PK	68.3	-4.9	1.00 V	245	10.37	53.03

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 of the restricted band.



A D T

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.1 PK			1.08 H	263	72.01	41.09
2	*5580.00	102.5 AV			1.08 H	263	61.41	41.09
3	11160.00	57.6 PK	74.0	-16.4	1.00 H	126	10.21	47.39
4	11160.00	43.9 AV	54.0	-10.1	1.00 H	126	-3.49	47.39
5	#16740.00	64.3 PK	68.3	-4.0	1.00 H	158	10.81	53.49
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	110.2 PK			1.00 V	90	69.11	41.09
2	*5580.00	99.6 AV			1.00 V	90	58.51	41.09
3	11160.00	54.8 PK	74.0	-19.2	1.06 V	11	7.41	47.39
4	11160.00	44.1 AV	54.0	-9.9	1.06 V	11	-3.29	47.39
5	#16740.00	64.4 PK	68.3	-3.9	1.00 V	70	10.91	53.49

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 of the restricted band.



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CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.5 PK			1.00 H	249	72.19	41.31
2	*5660.00	103.9 AV			1.00 H	249	62.59	41.31
3	11320.00	57.5 PK	74.0	-16.5	1.00 H	123	9.95	47.55
4	11320.00	44.6 AV	54.0	-9.4	1.00 H	123	-2.95	47.55
5	#16980.00	64.9 PK	68.3	-3.4	1.00 H	152	10.88	54.02
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	110.5 PK			1.00 V	89	69.19	41.31
2	*5660.00	100.6 AV			1.00 V	89	59.29	41.31
3	11320.00	56.5 PK	74.0	-17.5	1.00 V	198	8.95	47.55
4	11320.00	44.4 AV	54.0	-9.6	1.00 V	198	-3.15	47.55
5	#16980.00	65.1 PK	68.3	-3.2	1.00 V	39	11.08	54.02

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 of the restricted band.



A D T

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	111.3 PK			1.04 H	288	69.88	41.42
2	*5700.00	100.3 AV			1.04 H	288	58.88	41.42
3	#5725.00	65.3 PK	68.3	-3.0	1.04 H	288	23.81	41.49
4	11400.00	57.7 PK	74.0	-16.3	1.00 H	125	10.08	47.62
5	11400.00	44.3 AV	54.0	-9.7	1.00 H	125	-3.32	47.62
6	#17100.00	63.7 PK	68.3	-4.6	1.00 H	153	9.50	54.20

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	108.2 PK			1.00 V	88	66.78	41.42
2	*5700.00	97.2 AV			1.00 V	88	55.78	41.42
3	#5725.00	64.7 PK	68.3	-3.6	1.00 V	88	23.21	41.49
4	11400.00	56.8 PK	74.0	-17.2	1.00 V	180	9.18	47.62
5	11400.00	44.6 AV	54.0	-9.4	1.00 V	180	-3.02	47.62
6	#17100.00	64.9 PK	68.3	-3.4	1.00 V	40	10.70	54.20

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 of the restricted band.

802.11n (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	61.3 PK	74.0	-12.7	1.05 H	287	21.36	39.94
2	5150.00	46.6 AV	54.0	-7.4	1.05 H	287	6.66	39.94
3	*5180.00	107.3 PK			1.05 H	289	67.28	40.02
4	*5180.00	97.4 AV			1.05 H	289	57.38	40.02
5	#10360.00	56.1 PK	68.3	-12.2	1.00 H	122	9.57	46.53
6	15540.00	60.5 PK	74.0	-13.5	1.00 H	151	9.13	51.37
7	15540.00	49.5 AV	54.0	-4.5	1.00 H	151	-1.87	51.37
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	58.8 PK	74.0	-15.2	1.00 V	251	18.86	39.94
2	5150.00	47.2 AV	54.0	-6.8	1.00 V	251	7.26	39.94
3	*5180.00	104.1 PK			1.00 V	251	64.08	40.02
4	*5180.00	94.2 AV			1.00 V	251	54.18	40.02
5	#10360.00	54.4 PK	68.3	-13.9	1.00 V	28	7.87	46.53
6	15540.00	56.4 PK	74.0	-17.6	1.00 V	160	5.03	51.37
7	15540.00	46.7 AV	54.0	-7.3	1.00 V	160	-4.67	51.37

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	106.9 PK			1.05 H	286	66.83	40.07
2	*5200.00	97.1 AV			1.05 H	286	57.03	40.07
3	#10400.00	56.0 PK	68.3	-12.3	1.00 H	124	9.43	46.57
4	15600.00	59.3 PK	74.0	-14.7	1.00 H	151	7.83	51.47
5	15600.00	48.2 AV	54.0	-5.8	1.00 H	151	-3.27	51.47
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	*5200.00	103.7 PK			1.00 V	250	63.63	40.07
2	*5200.00	94.2 AV			1.00 V	250	54.13	40.07
3	#10400.00	54.5 PK	68.3	-13.8	1.00 V	29	7.93	46.57
4	15600.00	58.4 PK	74.0	-15.6	1.00 V	244	6.93	51.47
5	15600.00	46.9 AV	54.0	-7.1	1.00 V	244	-4.57	51.47

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 of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	107.2 PK			1.05 H	288	67.03	40.17
2	*5240.00	97.3 AV			1.05 H	288	57.13	40.17
3	#10480.00	56.4 PK	68.3	-11.9	1.00 H	130	9.73	46.67
4	15720.00	60.6 PK	74.0	-13.4	1.00 H	151	9.09	51.51
5	15720.00	49.6 AV	54.0	-4.4	1.00 H	151	-1.91	51.51
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	104.0 PK			1.00 V	255	63.83	40.17
2	*5240.00	94.2 AV			1.00 V	255	54.03	40.17
3	#10480.00	54.9 PK	68.3	-13.4	1.00 V	35	8.23	46.67
4	15720.00	59.1 PK	74.0	-14.9	1.00 V	234	7.59	51.51
5	15720.00	47.5 AV	54.0	-6.5	1.00 V	234	-4.01	51.51

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 of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.6 PK			1.05 H	270	73.37	40.23
2	*5260.00	102.3 AV			1.05 H	270	62.07	40.23
3	#10520.00	55.2 PK	68.3	-13.1	1.00 H	130	8.48	46.72
4	15780.00	60.8 PK	74.0	-13.2	1.00 H	159	9.22	51.58
5	15780.00	49.5 AV	54.0	-4.5	1.00 H	159	-2.08	51.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	110.4 PK			1.00 V	251	70.17	40.23
2	*5260.00	99.2 AV			1.00 V	251	58.97	40.23
3	#10520.00	55.0 PK	68.3	-13.3	1.00 V	37	8.28	46.72
4	15780.00	59.0 PK	74.0	-15.0	1.00 V	225	7.42	51.58
5	15780.00	47.2 AV	54.0	-6.8	1.00 V	225	-4.38	51.58

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 of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.8 PK			1.09 H	250	73.47	40.33
2	*5300.00	102.5 AV			1.09 H	250	62.17	40.33
3	10600.00	54.9 PK	74.0	-19.1	1.00 H	126	8.08	46.82
4	10600.00	43.2 AV	54.0	-10.8	1.00 H	126	-3.62	46.82
5	15900.00	60.9 PK	74.0	-13.1	1.00 H	155	9.24	51.66
6	15900.00	49.3 AV	54.0	-4.7	1.00 H	155	-2.36	51.66
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	110.5 PK			1.00 V	87	70.17	40.33
2	*5300.00	99.4 AV			1.00 V	87	59.07	40.33
3	10600.00	53.8 PK	74.0	-20.2	1.00 V	55	6.98	46.82
4	10600.00	43.0 AV	54.0	-11.0	1.00 V	55	-3.82	46.82
5	15900.00	59.0 PK	74.0	-15.0	1.00 V	216	7.34	51.66
6	15900.00	47.1 AV	54.0	-6.9	1.00 V	216	-4.56	51.66

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.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	109.2 PK			1.08 H	283	68.81	40.39
2	*5320.00	98.9 AV			1.08 H	283	58.51	40.39
3	5350.00	61.9 PK	74.0	-12.1	1.08 H	283	21.43	40.47
4	5350.00	48.6 AV	54.0	-5.4	1.08 H	283	8.13	40.47
5	10640.00	55.5 PK	74.0	-18.5	1.00 H	123	8.63	46.87
6	10640.00	43.5 AV	54.0	-10.5	1.00 H	123	-3.37	46.87
7	15960.00	60.2 PK	74.0	-13.8	1.00 H	156	8.47	51.73
8	15960.00	49.6 AV	54.0	-4.4	1.00 H	156	-2.13	51.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	106.1 PK			1.00 V	88	65.71	40.39
2	*5320.00	95.7 AV			1.00 V	88	55.31	40.39
3	5350.00	59.0 PK	74.0	-15.0	1.00 V	252	18.53	40.47
4	5350.00	47.4 AV	54.0	-6.6	1.00 V	252	6.93	40.47
5	10640.00	53.4 PK	74.0	-20.6	1.00 V	47	6.53	46.87
6	10640.00	42.8 AV	54.0	-11.2	1.00 V	47	-4.07	46.87
7	15960.00	58.9 PK	74.0	-15.1	1.00 V	224	7.17	51.73
8	15960.00	46.9 AV	54.0	-7.1	1.00 V	224	-4.83	51.73

REMARKS:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.7 PK	74.0	-15.3	1.08 H	281	17.94	40.76
2	5460.00	47.3 AV	54.0	-6.7	1.08 H	281	6.54	40.76
3	#5470.00	64.8 PK	68.3	-3.5	1.08 H	281	24.02	40.78
4	*5500.00	108.9 PK			1.08 H	281	68.04	40.86
5	*5500.00	98.6 AV			1.08 H	281	57.74	40.86
6	11000.00	55.8 PK	74.0	-18.2	1.00 H	125	8.52	47.28
7	11000.00	43.9 AV	54.0	-10.1	1.00 H	125	-3.38	47.28
8	#16500.00	62.9 PK	68.3	-5.4	1.00 H	154	9.87	53.03
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	57.2 PK	74.0	-16.8	1.00 V	250	16.44	40.76
2	5460.00	46.9 AV	54.0	-7.1	1.00 V	250	6.14	40.76
3	#5470.00	63.8 PK	68.3	-4.5	1.00 V	223	23.02	40.78
4	*5500.00	105.8 PK			1.00 V	95	64.94	40.86
5	*5500.00	95.1 AV			1.00 V	95	54.24	40.86
6	11000.00	52.7 PK	74.0	-21.3	1.00 V	40	5.42	47.28
7	11000.00	42.4 AV	54.0	-11.6	1.00 V	40	-4.88	47.28
8	#16500.00	60.1 PK	68.3	-8.2	1.00 V	223	7.07	53.03

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 of the restricted band.



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CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	112.8 PK			1.00 H	278	71.71	41.09
2	*5580.00	102.0 AV			1.00 H	278	60.91	41.09
3	11160.00	58.2 PK	74.0	-15.8	1.00 H	127	10.81	47.39
4	11160.00	45.5 AV	54.0	-8.5	1.00 H	127	-1.89	47.39
5	#16740.00	63.7 PK	68.3	-4.6	1.00 H	161	10.21	53.49
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	109.7 PK			1.00 V	101	68.61	41.09
2	*5580.00	99.2 AV			1.00 V	101	58.11	41.09
3	11160.00	52.1 PK	74.0	-21.9	1.00 V	33	4.71	47.39
4	11160.00	41.8 AV	54.0	-12.2	1.00 V	33	-5.59	47.39
5	#16740.00	60.2 PK	68.3	-8.1	1.00 V	71	6.71	53.49

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 of the restricted band.



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CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	113.0 PK			1.00 H	279	71.69	41.31
2	*5660.00	102.2 AV			1.00 H	279	60.89	41.31
3	11320.00	58.3 PK	74.0	-15.7	1.00 H	125	10.75	47.55
4	11320.00	45.9 AV	54.0	-8.1	1.00 H	125	-1.65	47.55
5	#16980.00	64.2 PK	68.3	-4.1	1.00 H	154	10.18	54.02
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	110.0 PK			1.00 V	102	68.69	41.31
2	*5660.00	99.1 AV			1.00 V	102	57.79	41.31
3	11320.00	51.3 PK	74.0	-22.7	1.00 V	33	3.75	47.55
4	11320.00	41.0 AV	54.0	-13.0	1.00 V	33	-6.55	47.55
5	#16980.00	62.1 PK	68.3	-6.2	1.00 V	64	8.08	54.02

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 of the restricted band.



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CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	110.1 PK			1.04 H	288	68.68	41.42
2	*5700.00	99.6 AV			1.04 H	288	58.18	41.42
3	#5725.00	65.8 PK	68.3	-2.5	1.04 H	288	24.31	41.49
4	11400.00	58.4 PK	74.0	-15.6	1.00 H	125	10.78	47.62
5	11400.00	45.7 AV	54.0	-8.3	1.00 H	125	-1.92	47.62
6	#17100.00	64.9 PK	68.3	-3.4	1.00 H	159	10.70	54.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	107.0 PK			1.00 V	87	65.58	41.42
2	*5700.00	96.4 AV			1.00 V	87	54.98	41.42
3	#5725.00	64.9 PK	68.3	-3.4	1.00 V	87	23.41	41.49
4	11400.00	51.5 PK	74.0	-22.5	1.00 V	54	3.88	47.62
5	11400.00	41.3 AV	54.0	-12.7	1.00 V	54	-6.32	47.62
6	#17100.00	63.0 PK	68.3	-5.3	1.00 V	71	8.80	54.20

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 of the restricted band.

4.3 TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF 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

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Average Power Sensor	MA2411B	0738172	May 10, 2012	May 09, 2013

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. Tested date : June 05, 2012

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

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. Tested date : June 05, 2012

4.3.3 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

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

FOR 26dB OCCUPIED BANDWIDTH

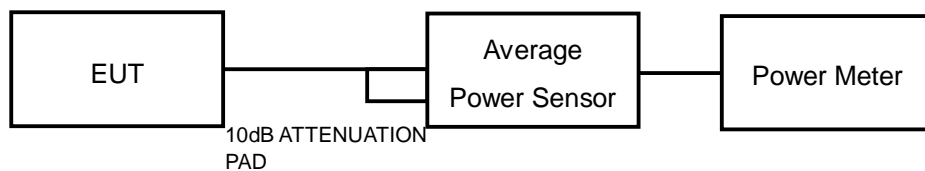
- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat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

4.3.4 DEVIATION FROM TEST STANDARD

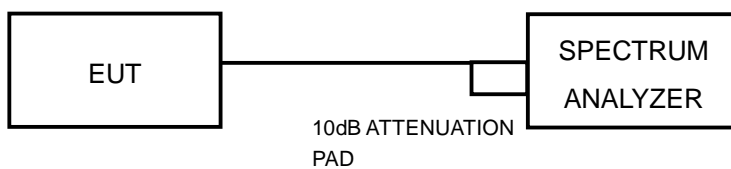
No deviation

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)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	23.442	13.70	17	PASS
40	5200	23.988	13.80	17	PASS
48	5240	24.547	13.90	17	PASS
52	5260	66.069	18.20	24	PASS
60	5300	64.565	18.10	24	PASS
64	5320	39.811	16.00	24	PASS
100	5500	32.359	15.10	24	PASS
116	5580	64.565	18.10	24	PASS
132	5660	41.687	16.20	24	PASS
140	5700	33.884	15.30	24	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	21.380	13.30	17	PASS
40	5200	20.893	13.20	17	PASS
48	5240	22.387	13.50	17	PASS
52	5260	58.884	17.70	24	PASS
60	5300	54.954	17.40	24	PASS
64	5320	36.308	15.60	24	PASS
100	5500	29.512	14.70	24	PASS
116	5580	58.884	17.70	24	PASS
132	5660	38.019	15.80	24	PASS
140	5700	29.512	14.70	24	PASS

26dB BANDWIDTH:

802.11a

CHANNEL	FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	22.28
40	5200	21.74
48	5240	21.82
52	5260	32.37
60	5300	30.92
64	5320	22.40
100	5500	24.00
116	5580	32.63
132	5660	24.67
140	5700	23.33

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	22.88
40	5200	21.91
48	5240	22.76
52	5260	30.99
60	5300	29.14
64	5320	23.63
100	5500	23.86
116	5580	31.94
132	5660	26.08
140	5700	24.68



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4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 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

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

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. Tested date : June 05, 2012

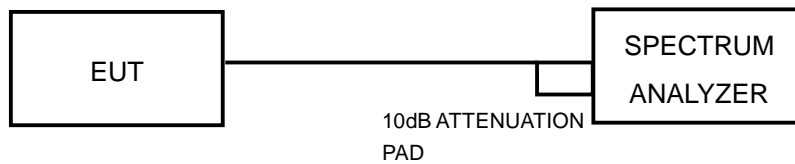
4.4.3 TEST PROCEDURES

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- 3) Sweep time = auto, trigger set to "free run".
- 4) Trace average at least 100 traces in power averaging mode.
- 5) Record the max value

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6

4.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.47	4	PASS
40	5200	3.52	4	PASS
48	5240	3.84	4	PASS
52	5260	7.70	11	PASS
60	5300	7.74	11	PASS
64	5320	5.47	11	PASS
100	5500	4.41	11	PASS
116	5580	7.39	11	PASS
132	5660	5.62	11	PASS
140	5700	4.36	11	PASS

NOTE: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.79	4	PASS
40	5200	2.76	4	PASS
48	5240	2.81	4	PASS
52	5260	7.09	11	PASS
60	5300	7.12	11	PASS
64	5320	4.68	11	PASS
100	5500	4.10	11	PASS
116	5580	6.86	11	PASS
132	5660	5.23	11	PASS
140	5700	4.57	11	PASS

NOTE: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

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. Tested date : June 05, 2012

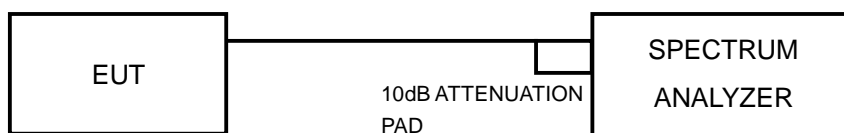
4.5.3 TEST PROCEDURE

- 1) Set RBW = 1 MHz, VBW \geq 3 MHz, Detector = peak.
- 2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
- 3) Use the peak search function to find the peak of the spectrum.
- 4) Measure the PPSD.
- 5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

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



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4.5.7 TEST RESULTS

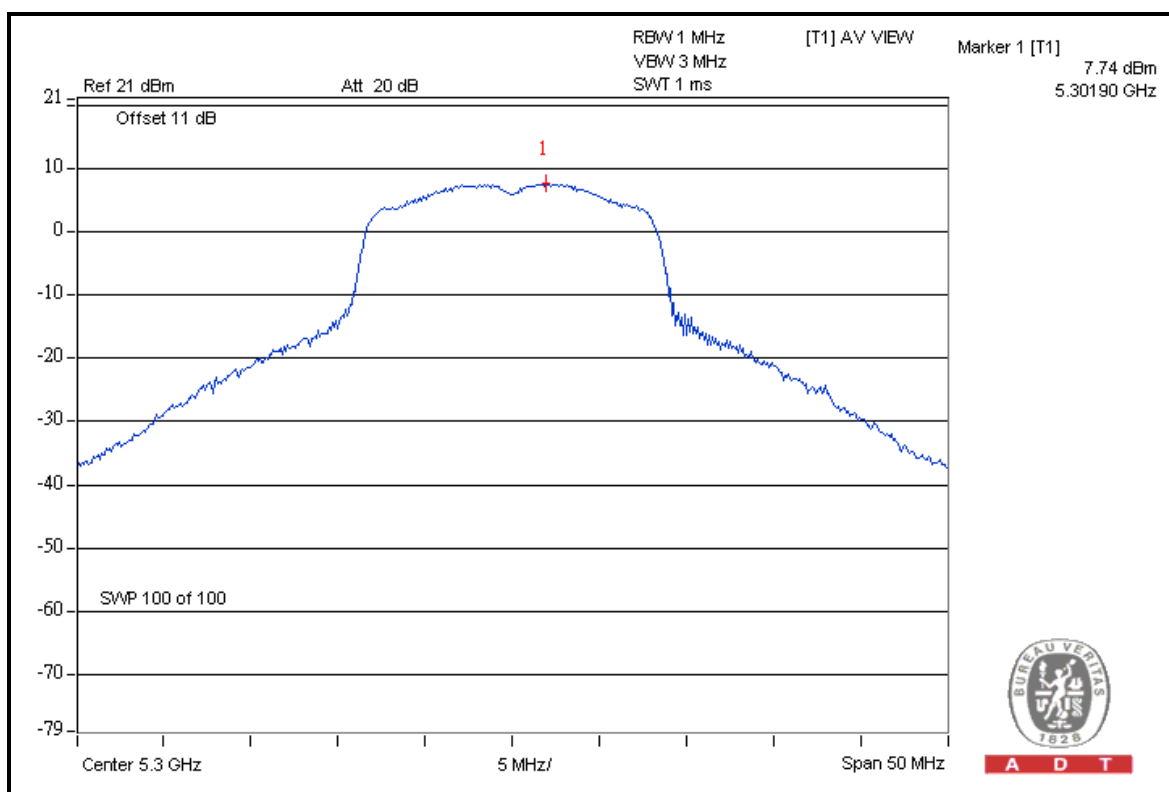
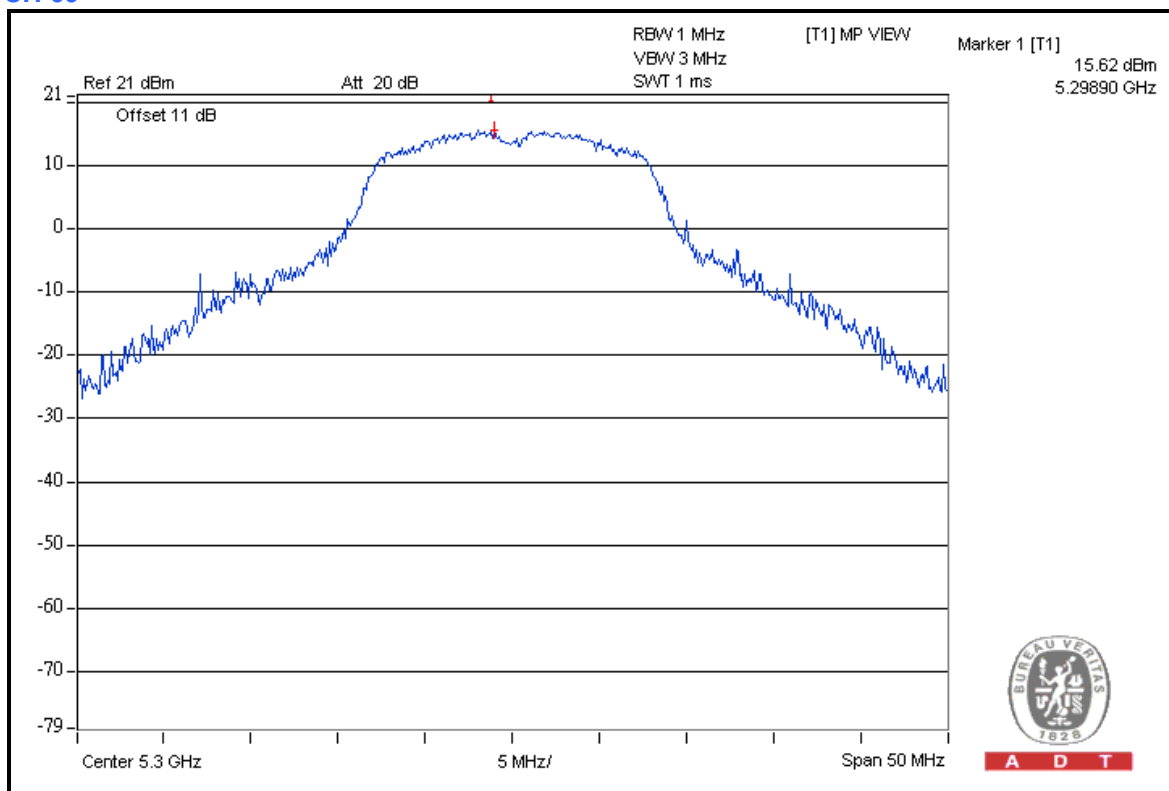
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK Excursion (dB)	LIMIT (dB)	PASS/FAIL
36	5180	11.38	3.47	7.91	13	PASS
40	5200	11.13	3.52	7.61	13	PASS
48	5240	11.37	3.84	7.53	13	PASS
52	5260	15.47	7.70	7.77	13	PASS
60	5300	15.62	7.74	7.88	13	PASS
64	5320	13.13	5.47	7.66	13	PASS
100	5500	11.84	4.41	7.43	13	PASS
116	5580	15.10	7.39	7.71	13	PASS
132	5660	13.30	5.62	7.68	13	PASS
140	5700	12.10	4.36	7.74	13	PASS



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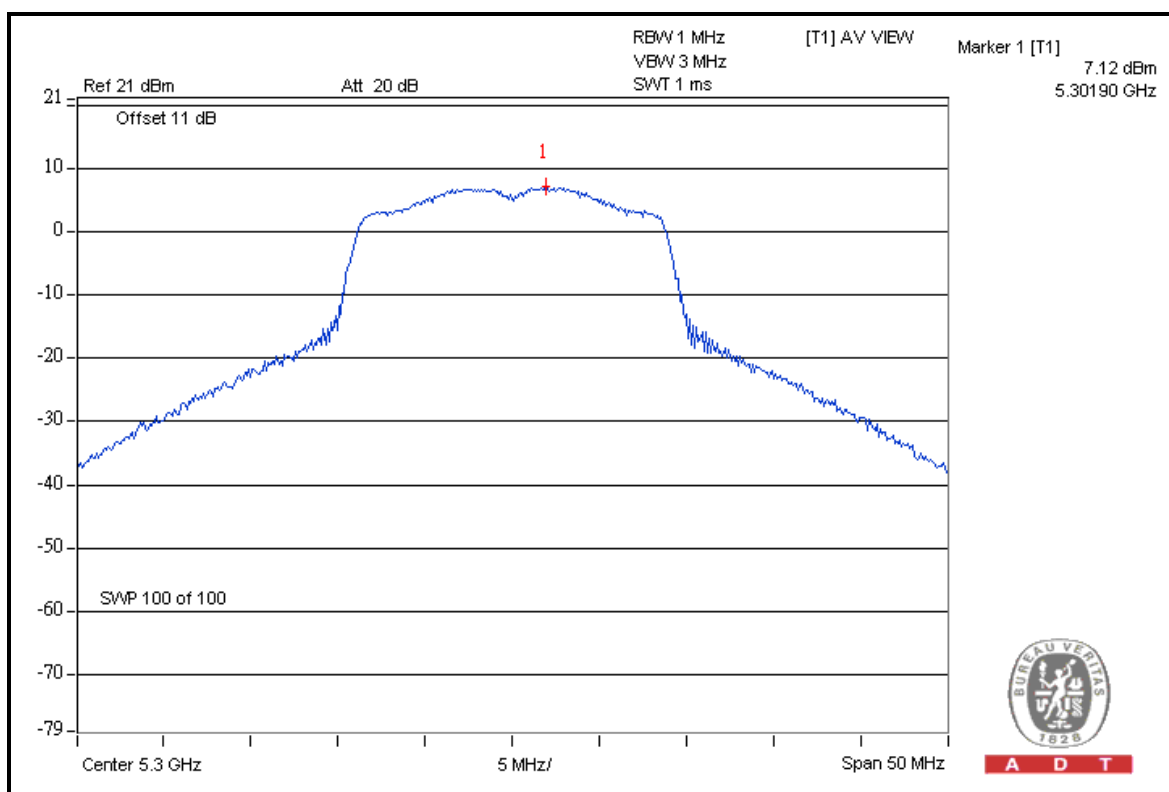
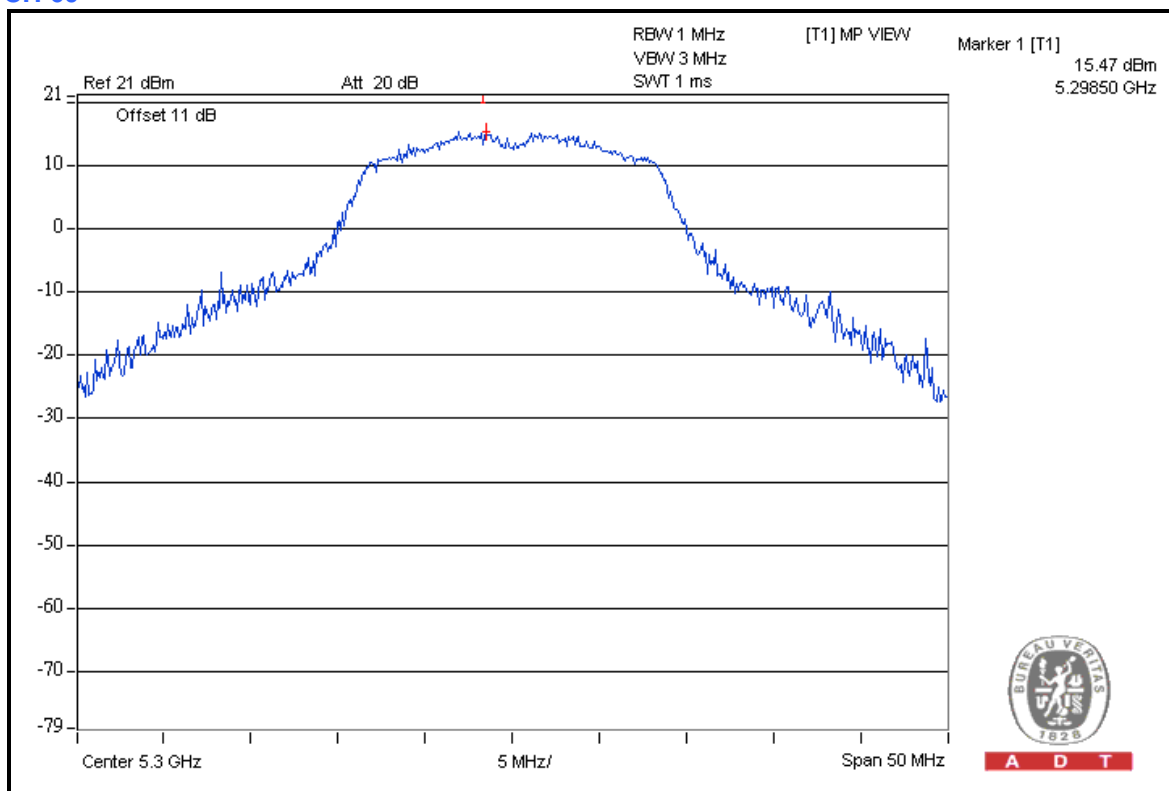
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK Excursion (dB)	LIMIT (dB)	PASS/FAIL
36	5180	11.13	2.79	8.34	13	PASS
40	5200	11.19	2.76	8.43	13	PASS
48	5240	11.02	2.81	8.21	13	PASS
52	5260	15.30	7.09	8.21	13	PASS
60	5300	15.47	7.12	8.35	13	PASS
64	5320	12.73	4.68	8.05	13	PASS
100	5500	12.16	4.10	8.06	13	PASS
116	5580	14.68	6.86	7.82	13	PASS
132	5660	13.08	5.23	7.85	13	PASS
140	5700	12.59	4.57	8.02	13	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

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. Tested date : June 05, 2012

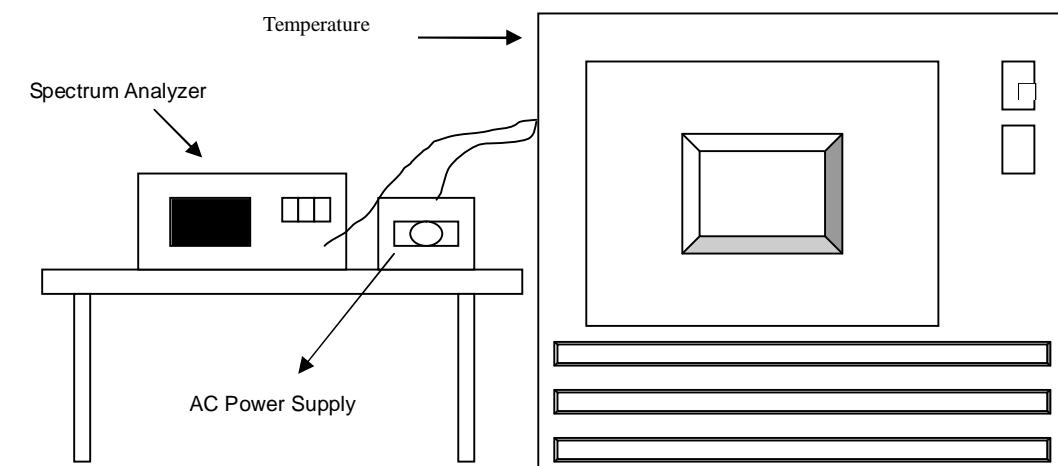
4.6.3 TEST PROCEDURE

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.



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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	5319.9953	-0.8835	5319.9976	-0.4511	5319.9986	-0.2632	5319.9973	-0.5075
40	120	5319.9767	-4.3797	5319.9729	-5.0940	5319.9769	-4.3421	5319.977	-4.3233
30	120	5319.9971	-0.5451	5320.0011	0.2068	5319.9996	-0.0752	5319.995	-0.9398
20	120	5319.9981	-0.3571	5319.9999	-0.0188	5319.9969	-0.5827	5319.9953	-0.8835
10	120	5319.9922	-1.4662	5319.9907	-1.7481	5319.9919	-1.5226	5319.9886	-2.1429
0	120	5320.0041	0.7707	5320.0075	1.4098	5320.0083	1.5602	5320.0123	2.3120
-10	120	5319.9931	-1.2970	5319.992	-1.5038	5319.9876	-2.3308	5319.984	-3.0075
-20	120	5320.0117	2.1992	5320.0123	2.3120	5320.0145	2.7256	5320.0167	3.1391
-30	120	5319.9836	-3.0827	5319.9864	-2.5564	5319.9822	-3.3459	5319.985	-2.8195

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	5319.9981	-0.3571	5320	0.0000	5319.9967	-0.6203	5319.996	-0.7519
	120	5319.9981	-0.3571	5319.9999	-0.0188	5319.9969	-0.5827	5319.9953	-0.8835
	102	5319.9987	-0.2444	5320.0007	0.1316	5319.997	-0.5639	5319.9957	-0.8083

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6. 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.

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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7. 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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