FCC TEST REPORT (WLAN)

REPORT NO.: RF140515E07A

MODEL NO.: Lightify Gateway

FCC ID: DZOLIGHTIFYGW

RECEIVED: May 15, 2014

TESTED: May 20 to 23, 2014

ISSUED: Oct. 27, 2014

APPLICANT: OSRAM SYLVANIA Inc.

ADDRESS: 100 Endicott Street Danvers, Massachusetts 01923 United States

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

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

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

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

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Table of Contents

RELEASE CONTROL RECORD 4
1. CERTIFICATION 5
2. SUMMARY OF TEST RESULTS 6
2.1 MEASUREMENT UNCERTAINTY 7
3. GENERAL INFORMATION 8
3.1 GENERAL DESCRIPTION OF EUT(WLAN) 8
3.2 DESCRIPTION OF TEST MODES 10
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL 11
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 13
3.4 DUTY CYCLE OF TEST SIGNAL 14
3.5 DESCRIPTION OF SUPPORT UNITS 15
3.6 CONFIGURATION OF SYSTEM UNDER TEST 15
4. TEST TYPES AND RESULTS 16
4.1 CONDUCTED EMISSION MEASUREMENT 16
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 16
4.1.2 TEST INSTRUMENTS 16
4.1.3 TEST PROCEDURES 17
4.1.4 DEVIATION FROM TEST STANDARD 17
4.1.5 TEST SETUP 17
4.1.6 EUT OPERATING CONDITIONS 18
4.1.7 TEST RESULTS 19
4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT 21
4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT 21
4.2.2 TEST INSTRUMENTS 22
4.2.3 TEST PROCEDURES 23
4.2.4 DEVIATION FROM TEST STANDARD 23
4.2.5 TEST SETUP 24
4.2.6 EUT OPERATING CONDITIONS 24
4.2.7 TEST RESULTS 25
4.3 6dB BANDWIDTH MEASUREMENT 38
4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT 38
4.3.2 TEST INSTRUMENTS 38
4.3.3 TEST PROCEDURE 38
4.3.4 DEVIATION FROM TEST STANDARD 38
4.3.5 TEST SETUP 38
4.3.6 EUT OPERATING CONDITIONS 38
4.3.7 TEST RESULTS 39

4.4 CONDUCTED OUTPUT POWER 41
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT 41
4.4.2 INSTRUMENTS 41
4.4.3 TEST PROCEDURES 41
4.4.4 DEVIATION FROM TEST STANDARD 41
4.4.5 TEST SETUP 41
4.4.6 EUT OPERATING CONDITIONS 41
4.4.7 TEST RESULTS 42
4.5 POWER SPECTRAL DENSITY MEASUREMENT 44
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT 44
4.5.2 TEST INSTRUMENTS 44
4.5.3 TEST PROCEDURE 44
4.5.4 DEVIATION FROM TEST STANDARD 44
4.5.5 TEST SETUP 44
4.5.6 EUT OPERATING CONDITION 44
4.5.7 TEST RESULTS 45
4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT 47
4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT 47
4.6.2 TEST INSTRUMENTS 47
4.6.3 TEST PROCEDURE 47
4.6.4 DEVIATION FROM TEST STANDARD 48
4.6.5 TEST SETUP 48
4.6.6 EUT OPERATING CONDITION 48
4.6.7 TEST RESULTS 48
5. PHOTOGRAPHS OF THE TEST CONFIGURATION 53
6. INFORMATION ON THE TESTING LABORATORIES 54
7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB 55

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140515E07A	Original release	Oct. 27, 2014

1. CERTIFICATION

PRODUCT:	Lightify Gateway
BRAND NAME:	Osram
MODEL NO.:	Lightify Gateway
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	OSRAM SYLVANIA Inc.
TESTED:	May 20 to 23, 2014
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009

The above equipment (Model: Lightify Gateway) 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 : _____ , **Date:** Oct. 27, 2014
(Midoli Peng, Specialist)

Approved by : _____ , **Date:** Oct. 27, 2014
(May Chen, Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.95dB at 0.54844MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.8dB at 2386.00MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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	2.86 dB
Radiated emissions (30MHz-1GHz)	5.37 dB
Radiated emissions (1GHz -6GHz)	3.65 dB
Radiated emissions (6GHz -18GHz)	3.88 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT(WLAN)

PRODUCT	Lightify Gateway
MODEL NO.	Lightify Gateway
POWER SUPPLY	DC 3.3V from internal power supply
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: up to 54Mbps 802.11n: up to 150Mbps
OPERATING FREQUENCY	2.412 ~ 2.462GHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
MAXIMUM OUTPUT POWER	802.11b: 110.917mW 802.11g: 243.22mW 802.11n (HT20): 271.644mW 802.11n (HT40): 117.49mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

1. There are WLAN technology and Zigbee technology used for the EUT.
2. The antennas provided to the EUT, please refer to the following table:

Zigbee Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
WNC	PIFA	NA	3.24	2.4~2.4835
WLAN Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
WNC	PIFA	NA	2.85	2.4~2.4835

3. The EUT incorporates a SISO function.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX
802.11n (HT40)	1TX/1RX

4. The EUT must be supplied with an internal power supply as below table:

Brand	Model No.	Spec.
KTEC	KSP20A0330100	AC Input: 100~240V, 0.18A, 50/60Hz DC Output: 3.3V, 1.2A

5. Spurious emission of the simultaneous operation (WLAN & Zigbee) has been evaluated and no non-compliance was found.

6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.

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

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

NOTE: 1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.

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)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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	MODULATIO N TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 71%RH	120Vac, 60Hz	Ping Liu
RE<1G	22deg. C, 68%RH	120Vac, 60Hz	Tim Ho
RE≥1G	22deg. C, 67%RH	120Vac, 60Hz	Tim Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee
OB	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee

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 C (15.247)

558074 D01 DTS Meas Guidance v03r02

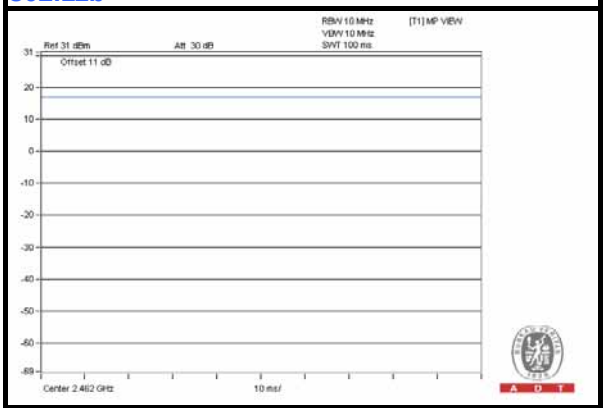
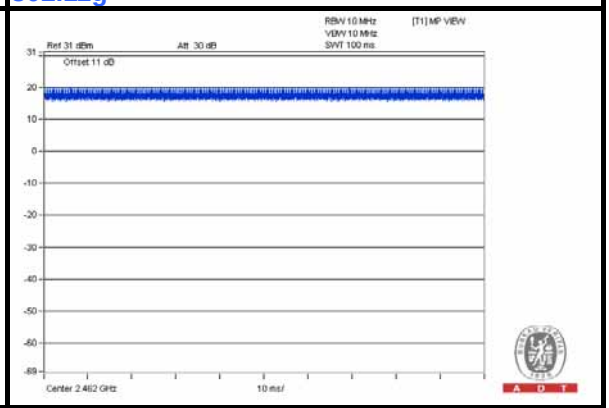
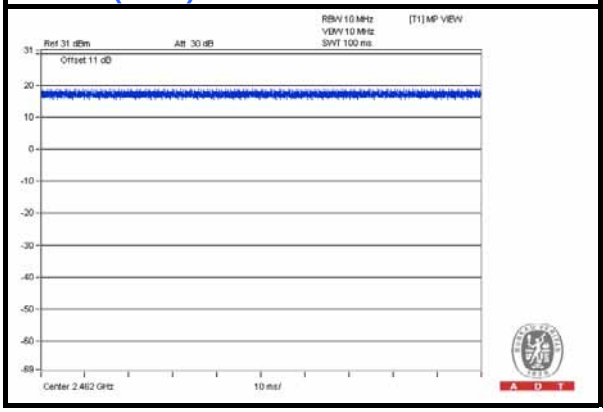
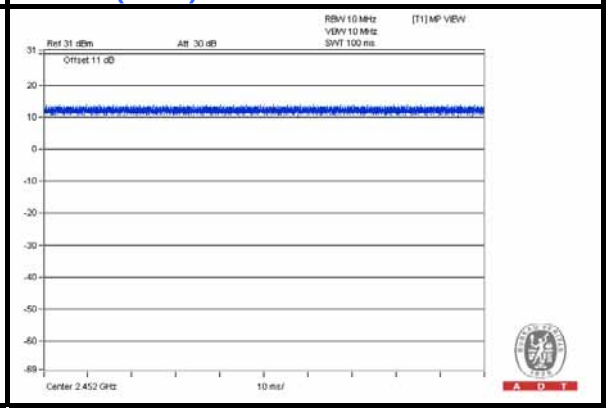
ANSI C63.10-2009

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

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

3.4 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is 100 %, duty factor is not required.

802.11b	802.11g
	
802.11n (HT20)	**802.11n (HT40)**
	

3.5 DESCRIPTION OF SUPPORT UNITS

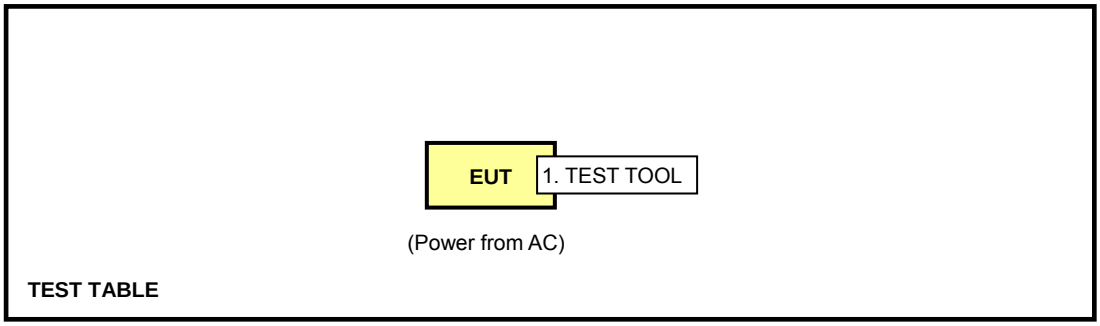
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	TEST TOOL	WNC	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

3.6 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100375	Apr. 29, 2014	Apr. 28, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 05, 2013	Sep. 04, 2014
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 06, 2013	June 05, 2014
RF Cable (JYEBAO)	5DFB	CONCAB-003	Mar. 07, 2014	Mar. 06, 2015
50 ohms Terminator	50	EMC-03	Sep. 24, 2013	Sep. 23, 2014
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: May 20, 2014

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 levels under (Limit - 20dB) were not recorded.

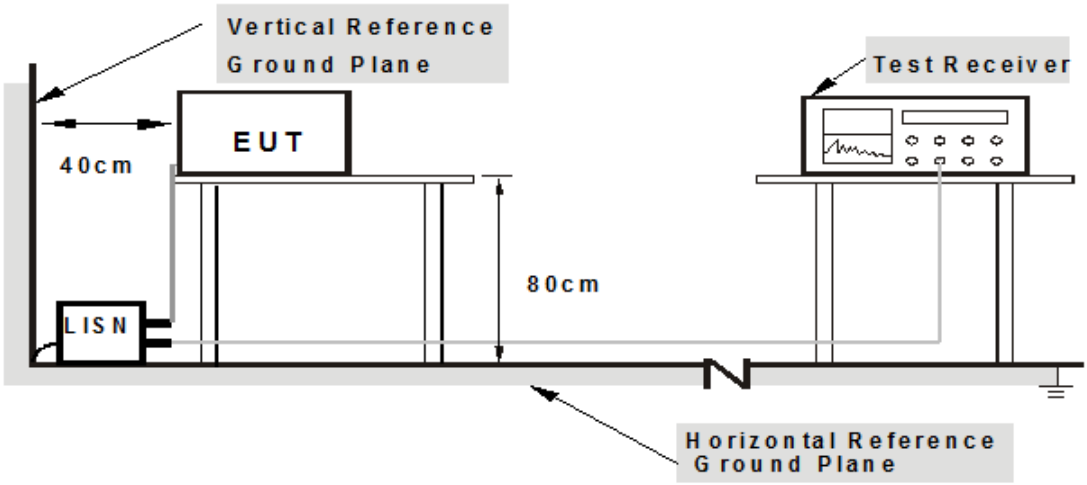
NOTE:

1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

1. Controlling software (DutApiBridgeUART8782.exe) has been activated to set the EUT on specific status.

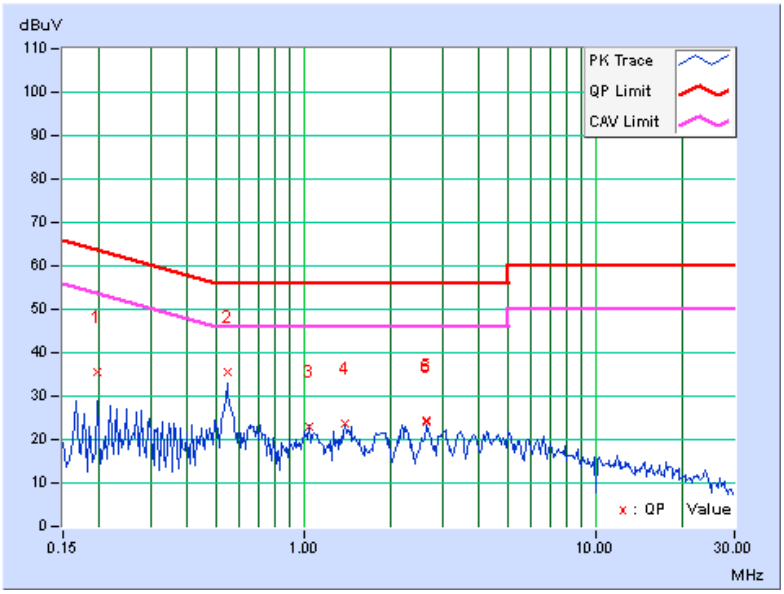
4.1.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	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	0.19687	0.06	35.58	20.78	35.64	20.84	63.74	53.74	-28.10	-32.90
2	**0.54844**	**0.07**	**35.45**	**30.98**	**35.52**	**31.05**	**56.00**	**46.00**	**-20.48**	**-14.95**
3	1.04688	0.09	22.91	18.56	23.00	18.65	56.00	46.00	-33.00	-27.35
4	1.38281	0.11	23.63	18.90	23.74	19.01	56.00	46.00	-32.26	-26.99
5	2.62891	0.15	24.15	18.79	24.30	18.94	56.00	46.00	-31.70	-27.06
6	2.62891	0.15	24.03	18.57	24.18	18.72	56.00	46.00	-31.82	-27.28

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

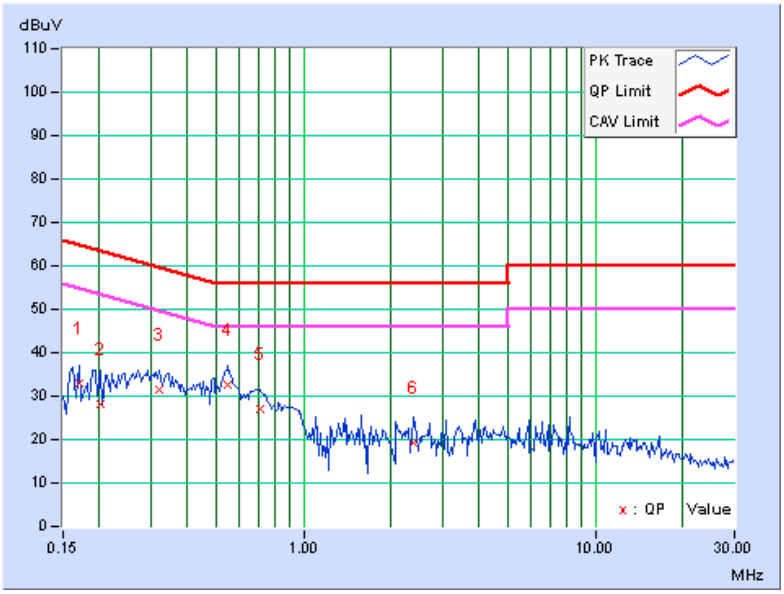


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	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	0.16953	0.07	33.00	18.81	33.07	18.88	64.98	54.98	-31.92	-36.11
2	0.20078	0.06	28.16	14.28	28.22	14.34	63.58	53.58	-35.36	-39.24
3	0.32188	0.07	31.59	18.11	31.66	18.18	59.66	49.66	-28.00	-31.48
4	0.55234	0.08	32.50	25.53	32.58	25.61	56.00	46.00	-23.42	-20.39
5	0.71250	0.08	26.92	17.80	27.00	17.88	56.00	46.00	-29.00	-28.12
6	2.39453	0.15	19.13	10.49	19.28	10.64	56.00	46.00	-36.72	-35.36

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. Other emissions shall be at least 20dB below the highest level of the desired power:

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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	Jan. 21, 2014	Jan. 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 26, 2014	Feb. 25, 2015
RF Cable	NA	CHGCAB_001	Oct. 05, 2013	Oct. 04, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 18, 2013	Nov. 17, 2014
Pre-Amplifier Agilent	8449B	3008A02578	June 25, 2013	June 24, 2014
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 12, 2013	Dec. 11, 2014
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 13, 2013	Nov. 12, 2014
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	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.
7 Tested Date: May 20 to 21, 2014

4.2.3 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 for test. 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:

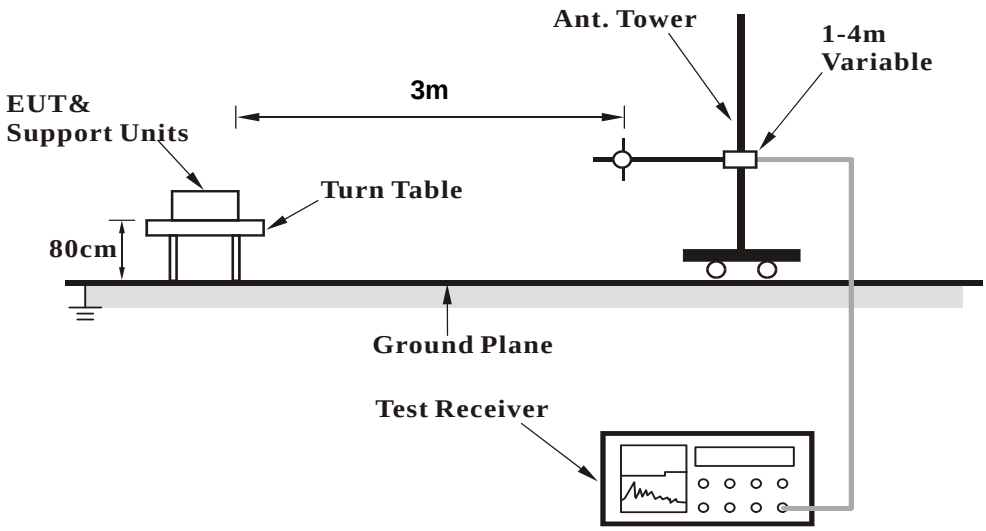
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

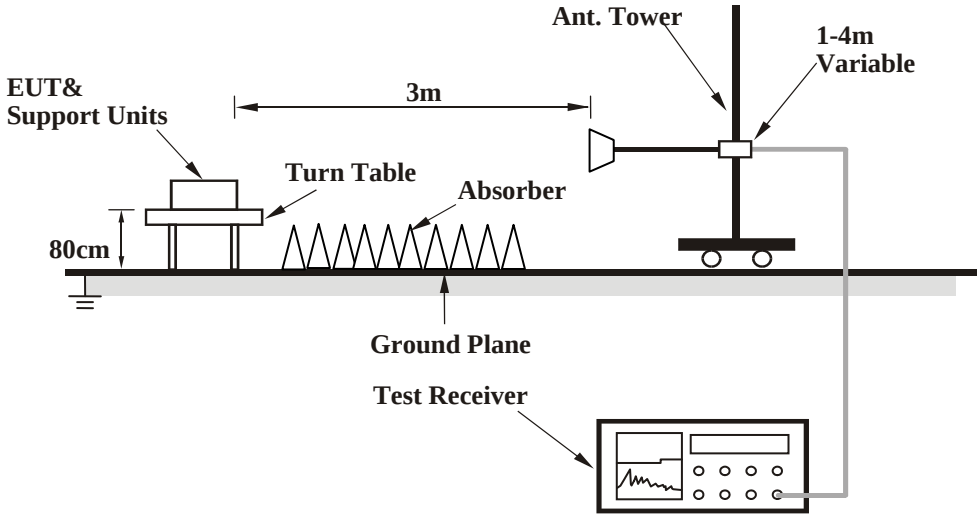
No deviation

4.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (HT20)

CHANNEL	TX Channel 6	**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	59.97	15.3 QP	40.0	-24.7	1.00 H	268	29.44	-14.12
2	123.12	33.1 QP	43.5	-10.4	1.50 H	86	48.06	-14.99
3	172.20	24.7 QP	43.5	-18.8	2.00 H	96	38.72	-14.00
4	286.37	17.4 QP	46.0	-28.6	1.50 H	360	30.18	-12.78
5	500.26	21.5 QP	46.0	-24.5	1.50 H	119	28.82	-7.35
6	746.98	24.2 QP	46.0	-21.8	1.50 H	170	26.31	-2.10
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	30.58	20.6 QP	40.0	-19.4	1.50 V	0	35.10	-14.54
2	59.00	21.4 QP	40.0	-18.6	1.00 V	324	35.37	-13.97
3	121.33	23.6 QP	43.5	-19.9	1.00 V	87	38.72	-15.12
4	163.23	26.7 QP	43.5	-16.8	1.00 V	235	40.00	-13.34
5	286.37	16.9 QP	46.0	-29.1	2.00 V	348	29.69	-12.78
6	923.95	27.8 QP	46.0	-18.2	1.50 V	360	27.16	0.65

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

ABOVE 1GHz DATA

802.11b

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	2386.00	58.8 PK	74.0	-15.2	1.00 H	127	60.52	-1.72
2	**2386.00**	**53.2 AV**	**54.0**	**-0.8**	**1.00 H**	**127**	**54.92**	**-1.72**
3	*2412.00	108.1 PK			1.00 H	127	109.70	-1.60
4	*2412.00	105.7 AV			1.00 H	127	107.30	-1.60
5	4824.00	47.5 PK	74.0	-26.5	1.53 H	199	40.30	7.20
6	4824.00	34.3 AV	54.0	-19.7	1.53 H	199	27.10	7.20
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	2386.00	53.5 PK	74.0	-20.5	1.35 V	355	55.22	-1.72
2	2386.00	47.9 AV	54.0	-6.1	1.35 V	355	49.62	-1.72
3	*2412.00	103.2 PK			1.35 V	355	104.80	-1.60
4	*2412.00	100.9 AV			1.35 V	355	102.50	-1.60
5	4824.00	47.5 PK	74.0	-26.5	1.05 V	78	40.30	7.20
6	4824.00	34.9 AV	54.0	-19.1	1.05 V	78	27.70	7.20

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) – Pre-Amplifier 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	56.7 PK	74.0	-17.3	1.03 H	140	58.40	-1.70
2	2390.00	36.3 AV	54.0	-17.7	1.03 H	140	38.00	-1.70
3	*2437.00	110.0 PK			1.03 H	140	111.49	-1.49
4	*2437.00	107.4 AV			1.03 H	140	108.89	-1.49
5	2483.50	60.9 PK	74.0	-13.1	1.03 H	140	62.18	-1.28
6	2483.50	37.1 AV	54.0	-16.9	1.03 H	140	38.38	-1.28
7	4874.00	48.0 PK	74.0	-26.0	1.57 H	190	40.67	7.33
8	4874.00	34.8 AV	54.0	-19.2	1.57 H	190	27.47	7.33
9	7311.00	53.5 PK	74.0	-20.5	1.00 H	272	38.54	14.96
10	7311.00	40.5 AV	54.0	-13.5	1.00 H	272	25.54	14.96
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	2390.00	56.8 PK	74.0	-17.2	1.33 V	353	58.50	-1.70
2	2390.00	36.2 AV	54.0	-17.8	1.33 V	353	37.90	-1.70
3	*2437.00	105.3 PK			1.33 V	353	106.79	-1.49
4	*2437.00	102.4 AV			1.33 V	353	103.89	-1.49
5	2483.50	61.1 PK	74.0	-12.9	1.33 V	353	62.38	-1.28
6	2483.50	37.1 AV	54.0	-16.9	1.33 V	353	38.38	-1.28
7	4874.00	47.4 PK	74.0	-26.6	1.00 V	63	40.07	7.33
8	4874.00	35.0 AV	54.0	-19.0	1.00 V	63	27.67	7.33
9	7311.00	53.9 PK	74.0	-20.1	1.00 V	63	38.94	14.96
10	7311.00	40.7 AV	54.0	-13.3	1.00 V	63	25.74	14.96

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) – Pre-Amplifier 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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	107.4 PK			1.02 H	141	108.78	-1.38
2	*2462.00	104.7 AV			1.02 H	141	106.08	-1.38
3	2483.50	55.5 PK	74.0	-18.5	1.02 H	141	56.78	-1.28
4	2483.50	53.0 AV	54.0	-1.0	1.02 H	141	54.28	-1.28
5	4924.00	47.4 PK	74.0	-26.6	1.57 H	186	39.93	7.47
6	4924.00	34.4 AV	54.0	-19.6	1.57 H	186	26.93	7.47
7	7386.00	53.8 PK	74.0	-20.2	1.00 H	282	38.91	14.89
8	7386.00	40.9 AV	54.0	-13.1	1.00 H	282	26.01	14.89
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	*2462.00	101.9 PK			1.24 V	360	103.28	-1.38
2	*2462.00	99.3 AV			1.24 V	360	100.68	-1.38
3	2483.50	50.9 PK	74.0	-23.1	1.24 V	360	52.18	-1.28
4	2483.50	48.4 AV	54.0	-5.6	1.24 V	360	49.68	-1.28
5	4924.00	47.4 PK	74.0	-26.6	1.00 V	78	39.93	7.47
6	4924.00	35.2 AV	54.0	-18.8	1.00 V	78	27.73	7.47
7	7386.00	54.2 PK	74.0	-19.8	1.05 V	54	39.31	14.89
8	7386.00	40.7 AV	54.0	-13.3	1.05 V	54	25.81	14.89

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	68.8 PK	74.0	-5.2	1.04 H	141	70.50	-1.70
2	2390.00	53.1 AV	54.0	-0.9	1.04 H	141	54.80	-1.70
3	*2412.00	106.0 PK			1.04 H	141	107.60	-1.60
4	*2412.00	96.2 AV			1.04 H	141	97.80	-1.60
5	4824.00	47.8 PK	74.0	-26.2	1.56 H	177	40.60	7.20
6	4824.00	34.5 AV	54.0	-19.5	1.56 H	177	27.30	7.20
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	2390.00	63.7 PK	74.0	-10.3	1.33 V	360	65.40	-1.70
2	2390.00	48.1 AV	54.0	-5.9	1.33 V	360	49.80	-1.70
3	*2412.00	100.9 PK			1.33 V	360	102.50	-1.60
4	*2412.00	91.2 AV			1.33 V	360	92.80	-1.60
5	4824.00	47.1 PK	74.0	-26.9	1.00 V	76	39.90	7.20
6	4824.00	34.8 AV	54.0	-19.2	1.00 V	76	27.60	7.20

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) – Pre-Amplifier 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2364.00	54.0 PK	74.0	-20.0	1.02 H	140	55.82	-1.82
2	2364.00	44.1 AV	54.0	-9.9	1.02 H	140	45.92	-1.82
3	*2437.00	109.6 PK			1.02 H	140	111.09	-1.49
4	*2437.00	100.2 AV			1.02 H	140	101.69	-1.49
5	2483.50	55.8 PK	74.0	-18.2	1.02 H	140	57.08	-1.28
6	2483.50	41.6 AV	54.0	-12.4	1.02 H	140	42.88	-1.28
7	4874.00	47.4 PK	74.0	-26.6	1.54 H	180	40.07	7.33
8	4874.00	34.4 AV	54.0	-19.6	1.54 H	180	27.07	7.33
9	7311.00	53.7 PK	74.0	-20.3	1.00 H	260	38.74	14.96
10	7311.00	40.8 AV	54.0	-13.2	1.00 H	260	25.84	14.96
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	2364.00	54.3 PK	74.0	-19.7	1.24 V	356	56.12	-1.82
2	2364.00	44.5 AV	54.0	-9.5	1.24 V	356	46.32	-1.82
3	*2437.00	104.1 PK			1.24 V	356	105.59	-1.49
4	*2437.00	94.7 AV			1.24 V	356	96.19	-1.49
5	2483.50	56.1 PK	74.0	-17.9	1.24 V	356	57.38	-1.28
6	2483.50	41.7 AV	54.0	-12.3	1.24 V	356	42.98	-1.28
7	4874.00	47.1 PK	74.0	-26.9	1.04 V	75	39.77	7.33
8	4874.00	34.8 AV	54.0	-19.2	1.04 V	75	27.47	7.33
9	7311.00	53.8 PK	74.0	-20.2	1.00 V	58	38.84	14.96
10	7311.00	40.6 AV	54.0	-13.4	1.00 V	58	25.64	14.96

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) – Pre-Amplifier 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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	105.0 PK			1.06 H	138	106.38	-1.38
2	*2462.00	95.4 AV			1.06 H	138	96.78	-1.38
3	2483.50	68.6 PK	74.0	-5.4	1.06 H	138	69.88	-1.28
4	2483.50	52.4 AV	54.0	-1.6	1.06 H	138	53.68	-1.28
5	4924.00	48.0 PK	74.0	-26.0	1.54 H	189	40.53	7.47
6	4924.00	34.9 AV	54.0	-19.1	1.54 H	189	27.43	7.47
7	7386.00	53.7 PK	74.0	-20.3	1.06 H	261	38.81	14.89
8	7386.00	40.8 AV	54.0	-13.2	1.06 H	261	25.91	14.89
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	*2462.00	99.8 PK			1.26 V	360	101.18	-1.38
2	*2462.00	90.1 AV			1.26 V	360	91.48	-1.38
3	2483.50	63.9 PK	74.0	-10.1	1.26 V	360	65.18	-1.28
4	2483.50	47.9 AV	54.0	-6.1	1.26 V	360	49.18	-1.28
5	4924.00	47.0 PK	74.0	-27.0	1.00 V	76	39.53	7.47
6	4924.00	34.9 AV	54.0	-19.1	1.00 V	76	27.43	7.47
7	7386.00	54.0 PK	74.0	-20.0	1.00 V	52	39.11	14.89
8	7386.00	41.0 AV	54.0	-13.0	1.00 V	52	26.11	14.89

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	70.1 PK	74.0	-3.9	1.03 H	141	71.80	-1.70
2	2390.00	52.3 AV	54.0	-1.7	1.03 H	141	54.00	-1.70
3	*2412.00	105.6 PK			1.03 H	141	107.20	-1.60
4	*2412.00	95.8 AV			1.03 H	141	97.40	-1.60
5	4824.00	48.6 PK	74.0	-25.4	1.52 H	203	41.40	7.20
6	4824.00	35.2 AV	54.0	-18.8	1.52 H	203	28.00	7.20
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	2390.00	65.2 PK	74.0	-8.8	1.34 V	360	66.90	-1.70
2	2390.00	47.1 AV	54.0	-6.9	1.34 V	360	48.80	-1.70
3	*2412.00	100.3 PK			1.34 V	360	101.90	-1.60
4	*2412.00	90.5 AV			1.34 V	360	92.10	-1.60
5	4824.00	48.0 PK	74.0	-26.0	1.00 V	55	40.80	7.20
6	4824.00	35.4 AV	54.0	-18.6	1.00 V	55	28.20	7.20

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) – Pre-Amplifier 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2365.00	53.9 PK	74.0	-20.1	1.01 H	138	55.71	-1.81
2	2365.00	43.8 AV	54.0	-10.2	1.01 H	138	45.61	-1.81
3	*2437.00	110.0 PK			1.01 H	138	111.49	-1.49
4	*2437.00	100.6 AV			1.01 H	138	102.09	-1.49
5	2483.50	56.2 PK	74.0	-17.8	1.01 H	138	57.48	-1.28
6	2483.50	42.1 AV	54.0	-11.9	1.01 H	138	43.38	-1.28
7	4874.00	48.2 PK	74.0	-25.8	1.51 H	193	40.87	7.33
8	4874.00	35.1 AV	54.0	-18.9	1.51 H	193	27.77	7.33
9	7311.00	53.4 PK	74.0	-20.6	1.00 H	275	38.44	14.96
10	7311.00	40.4 AV	54.0	-13.6	1.00 H	275	25.44	14.96

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	2365.00	53.8 PK	74.0	-20.2	1.24 V	360	55.61	-1.81
2	2365.00	43.9 AV	54.0	-10.1	1.24 V	360	45.71	-1.81
3	*2437.00	105.0 PK			1.24 V	360	106.49	-1.49
4	*2437.00	95.7 AV			1.24 V	360	97.19	-1.49
5	2483.50	56.0 PK	74.0	-18.0	1.24 V	360	57.28	-1.28
6	2483.50	42.2 AV	54.0	-11.8	1.24 V	360	43.48	-1.28
7	4874.00	47.5 PK	74.0	-26.5	1.05 V	62	40.17	7.33
8	4874.00	35.0 AV	54.0	-19.0	1.05 V	62	27.67	7.33
9	7311.00	53.9 PK	74.0	-20.1	1.05 V	61	38.94	14.96
10	7311.00	40.5 AV	54.0	-13.5	1.05 V	61	25.54	14.96

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) – Pre-Amplifier 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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	104.9 PK			1.00 H	140	106.28	-1.38
2	*2462.00	95.4 AV			1.00 H	140	96.78	-1.38
3	2483.50	69.7 PK	74.0	-4.3	1.00 H	140	70.98	-1.28
4	2483.50	52.8 AV	54.0	-1.2	1.00 H	140	54.08	-1.28
5	4924.00	48.0 PK	74.0	-26.0	1.54 H	181	40.53	7.47
6	4924.00	35.1 AV	54.0	-18.9	1.54 H	181	27.63	7.47
7	7386.00	53.7 PK	74.0	-20.3	1.03 H	268	38.81	14.89
8	7386.00	40.7 AV	54.0	-13.3	1.03 H	268	25.81	14.89
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	*2462.00	99.8 PK			1.33 V	360	101.18	-1.38
2	*2462.00	90.3 AV			1.33 V	360	91.68	-1.38
3	2483.50	64.3 PK	74.0	-9.7	1.33 V	360	65.58	-1.28
4	2483.50	47.7 AV	54.0	-6.3	1.33 V	360	48.98	-1.28
5	4924.00	47.9 PK	74.0	-26.1	1.05 V	64	40.43	7.47
6	4924.00	35.4 AV	54.0	-18.6	1.05 V	64	27.93	7.47
7	7386.00	54.2 PK	74.0	-19.8	1.02 V	51	39.31	14.89
8	7386.00	40.9 AV	54.0	-13.1	1.02 V	51	26.01	14.89

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	63.4 PK	74.0	-10.6	1.02 H	139	65.10	-1.70
2	2390.00	52.0 AV	54.0	-2.0	1.02 H	139	53.70	-1.70
3	*2422.00	98.3 PK			1.02 H	139	99.85	-1.55
4	*2422.00	88.4 AV			1.02 H	139	89.95	-1.55
5	4844.00	47.8 PK	74.0	-26.2	1.51 H	185	40.56	7.24
6	4844.00	34.7 AV	54.0	-19.3	1.51 H	185	27.46	7.24
7	7266.00	53.2 PK	74.0	-20.8	1.03 H	258	38.18	15.02
8	7266.00	40.3 AV	54.0	-13.7	1.03 H	258	25.28	15.02
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	2390.00	58.8 PK	74.0	-15.2	1.27 V	360	60.50	-1.70
2	2390.00	47.2 AV	54.0	-6.8	1.27 V	360	48.90	-1.70
3	*2422.00	93.7 PK			1.27 V	360	95.25	-1.55
4	*2422.00	83.6 AV			1.27 V	360	85.15	-1.55
5	4844.00	47.0 PK	74.0	-27.0	1.06 V	50	39.76	7.24
6	4844.00	34.9 AV	54.0	-19.1	1.06 V	50	27.66	7.24
7	7266.00	54.3 PK	74.0	-19.7	1.00 V	67	39.28	15.02
8	7266.00	41.0 AV	54.0	-13.0	1.00 V	67	25.98	15.02

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) – Pre-Amplifier 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	67.2 PK	74.0	-6.8	1.02 H	138	68.90	-1.70
2	2390.00	51.9 AV	54.0	-2.1	1.02 H	138	53.60	-1.70
3	*2437.00	103.7 PK			1.02 H	138	105.19	-1.49
4	*2437.00	93.6 AV			1.02 H	138	95.09	-1.49
5	2483.50	66.2 PK	74.0	-7.8	1.02 H	138	67.48	-1.28
6	2483.50	52.0 AV	54.0	-2.0	1.02 H	138	53.28	-1.28
7	4874.00	47.5 PK	74.0	-26.5	1.61 H	203	40.17	7.33
8	4874.00	34.4 AV	54.0	-19.6	1.61 H	203	27.07	7.33
9	7311.00	53.8 PK	74.0	-20.2	1.00 H	283	38.84	14.96
10	7311.00	40.8 AV	54.0	-13.2	1.00 H	283	25.84	14.96

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	2390.00	62.9 PK	74.0	-11.1	1.29 V	360	64.60	-1.70
2	2390.00	47.4 AV	54.0	-6.6	1.29 V	360	49.10	-1.70
3	*2437.00	98.4 PK			1.29 V	360	99.89	-1.49
4	*2437.00	88.3 AV			1.29 V	360	89.79	-1.49
5	2483.50	61.3 PK	74.0	-12.7	1.29 V	360	62.58	-1.28
6	2483.50	47.1 AV	54.0	-6.9	1.29 V	360	48.38	-1.28
7	4874.00	47.3 PK	74.0	-26.7	1.02 V	64	39.97	7.33
8	4874.00	34.8 AV	54.0	-19.2	1.02 V	64	27.47	7.33
9	7311.00	54.3 PK	74.0	-19.7	1.00 V	74	39.34	14.96
10	7311.00	41.1 AV	54.0	-12.9	1.00 V	74	26.14	14.96

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) – Pre-Amplifier 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 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2452.00	101.6 PK			1.03 H	140	103.02	-1.42
2	*2452.00	91.4 AV			1.03 H	140	92.82	-1.42
3	2483.50	68.2 PK	74.0	-5.8	1.03 H	140	69.48	-1.28
4	2483.50	52.3 AV	54.0	-1.7	1.03 H	140	53.58	-1.28
5	4904.00	48.2 PK	74.0	-25.8	1.56 H	183	40.79	7.41
6	4904.00	35.1 AV	54.0	-18.9	1.56 H	183	27.69	7.41
7	7356.00	53.3 PK	74.0	-20.7	1.00 H	283	38.39	14.91
8	7356.00	40.2 AV	54.0	-13.8	1.00 H	283	25.29	14.91
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	*2452.00	97.3 PK			1.29 V	360	98.72	-1.42
2	*2452.00	87.7 AV			1.29 V	360	89.12	-1.42
3	2483.50	64.4 PK	74.0	-9.6	1.29 V	360	65.68	-1.28
4	2483.50	48.4 AV	54.0	-5.6	1.29 V	360	49.68	-1.28
5	4904.00	47.3 PK	74.0	-26.7	1.03 V	59	39.89	7.41
6	4904.00	35.1 AV	54.0	-18.9	1.03 V	59	27.69	7.41
7	7356.00	53.5 PK	74.0	-20.5	1.00 V	55	38.59	14.91
8	7356.00	40.4 AV	54.0	-13.6	1.00 V	55	25.49	14.91

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

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 : May 23, 2014

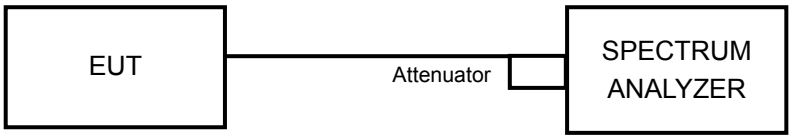
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.09	0.5	PASS
6	2437	10.11	0.5	PASS
11	2462	10.09	0.5	PASS

802.11g

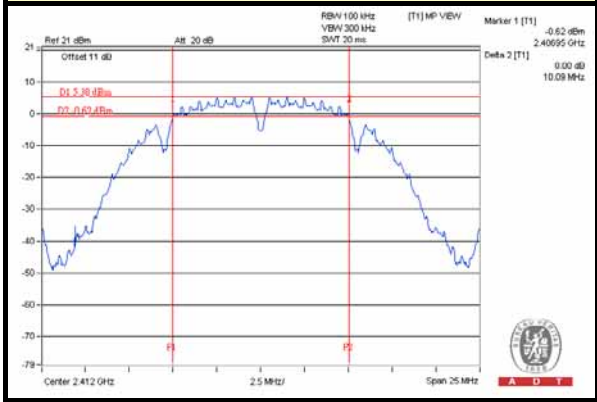
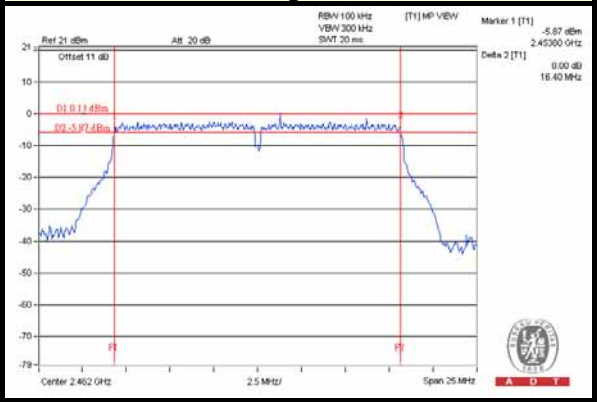
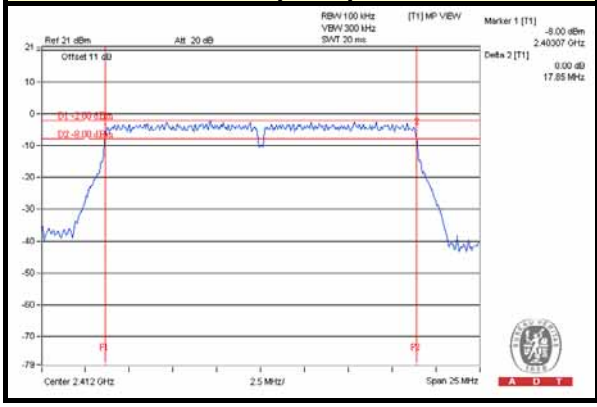
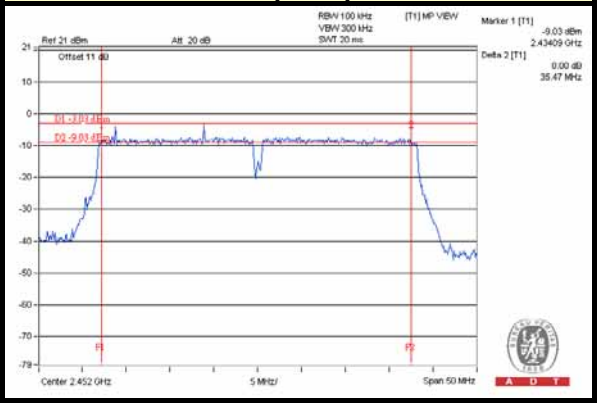
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.42	0.5	PASS
6	2437	16.59	0.5	PASS
11	2462	16.40	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.85	0.5	PASS
6	2437	17.86	0.5	PASS
11	2462	17.87	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.47	0.5	PASS
6	2437	36.64	0.5	PASS
9	2452	35.47	0.5	PASS

SPECTRUM PLOT OF WORST VALUE	
802.11b / CH1	**802.11g / CH11**
	
802.11n (HT20) / CH1	**802.11n (HT40) / CH9**
	

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 30, 2014	Apr. 29, 2015
Power Sensor Anritsu	MA2411B	0917122	Apr. 30, 2014	Apr. 29, 2015

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 : May 23, 2014

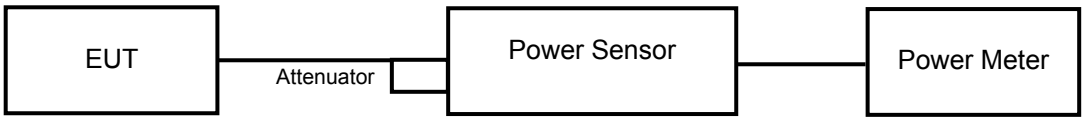
4.4.3 TEST PROCEDURES

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	84.723	19.28	30	PASS
6	2437	110.917	20.45	30	PASS
11	2462	60.674	17.83	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	118.577	20.74	30	PASS
6	2437	243.22	23.86	30	PASS
11	2462	112.98	20.53	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	108.893	20.37	30	PASS
6	2437	271.644	24.34	30	PASS
11	2462	115.08	20.61	30	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	47.753	16.79	30	PASS
6	2437	117.49	20.70	30	PASS
9	2452	66.527	18.23	30	PASS

FOR AVERAGE POWER

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	46.238	16.65
6	2437	65.163	18.14
11	2462	35.810	15.54

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	18.408	12.65
6	2437	54.325	17.35
11	2462	17.061	12.32

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	17.947	12.54
6	2437	53.580	17.29
11	2462	17.100	12.33

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
3	2422	7.656	8.84
6	2437	20.606	13.14
9	2452	12.078	10.82

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

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 : May 23, 2014

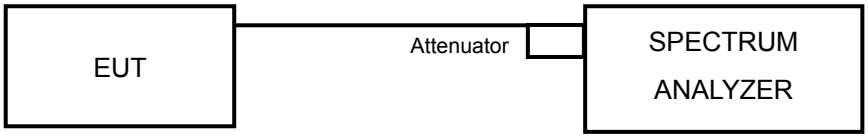
4.5.3 TEST PROCEDURE

1. Set the RBW = 3 kHz, VBW =10 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum amplitude level.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-9.84	8	PASS
6	2437	-9.03	8	PASS
11	2462	-10.80	8	PASS

802.11g

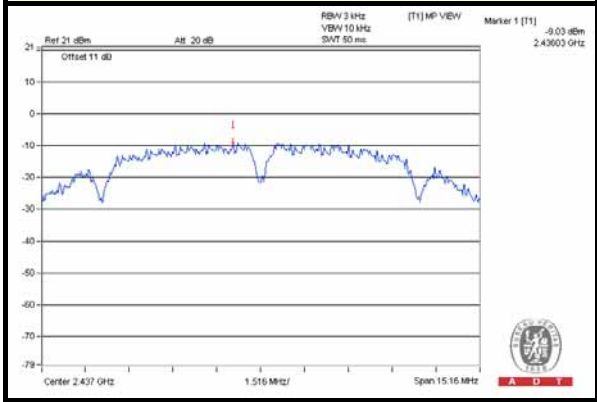
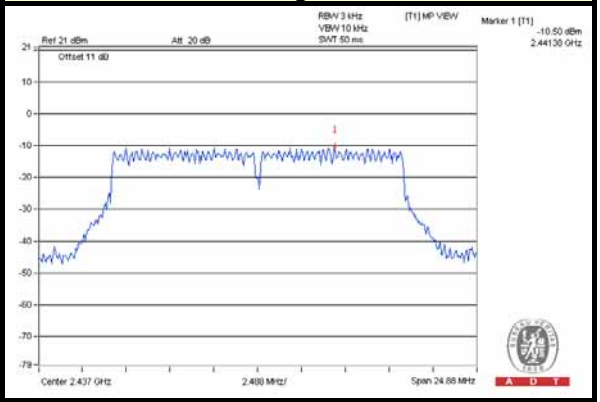
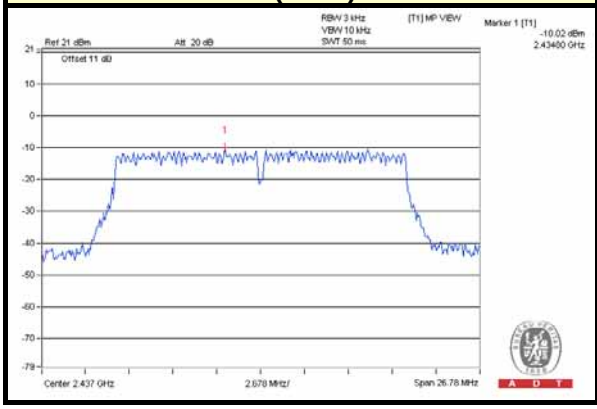
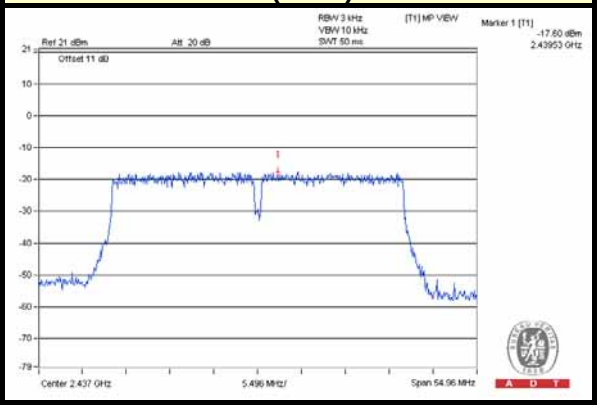
Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-14.87	8	PASS
6	2437	-10.50	8	PASS
11	2462	-14.74	8	PASS

802.11n (HT20)

Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-15.63	8	PASS
6	2437	-10.02	8	PASS
11	2462	-14.34	8	PASS

802.11n (HT40)

Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
3	2422	-22.25	8	PASS
6	2437	-17.60	8	PASS
9	2452	-19.89	8	PASS

SPECTRUM PLOT OF WORST VALUE	
802.11b / CH6	**802.11g / CH6**
	
802.11n (HT20) / CH6	**802.11n (HT40) / CH6**
	

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

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 : May 23, 2014

4.6.3 TEST PROCEDURE

Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

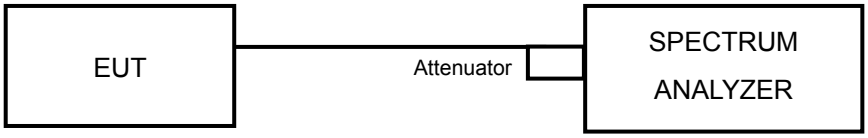
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

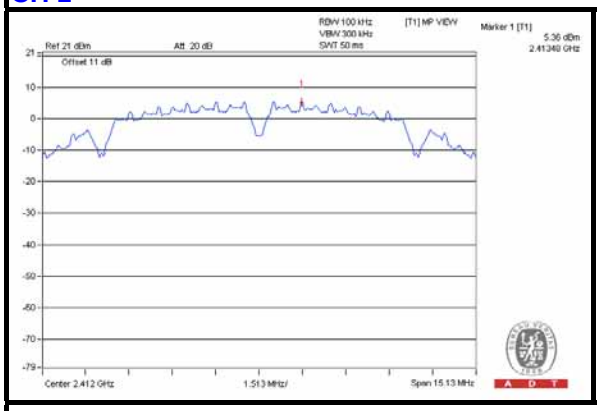
Same as Item 4.3.6

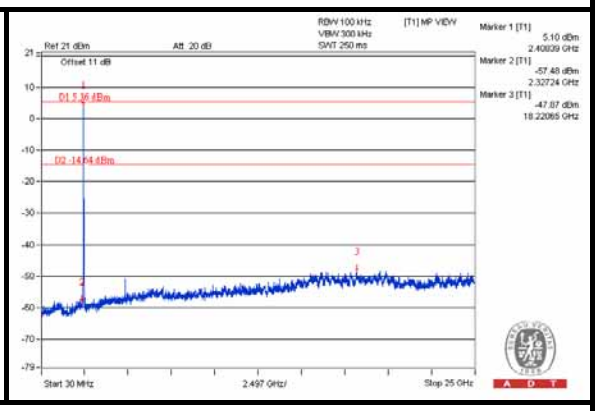
4.6.7 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

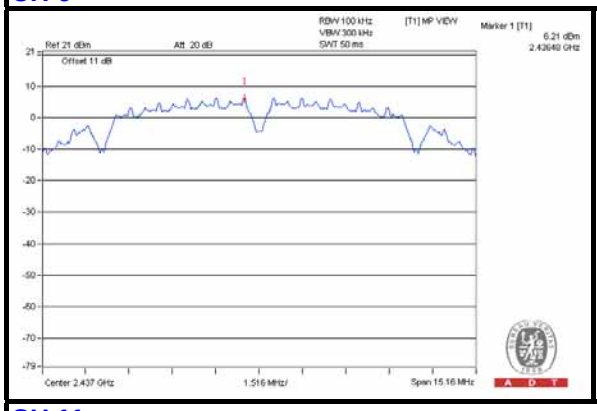
802.11b:

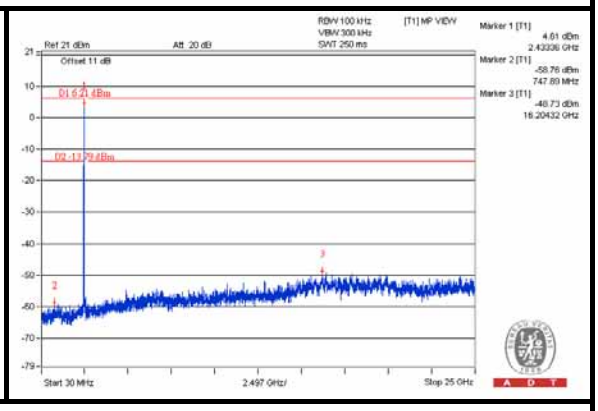
CH 1



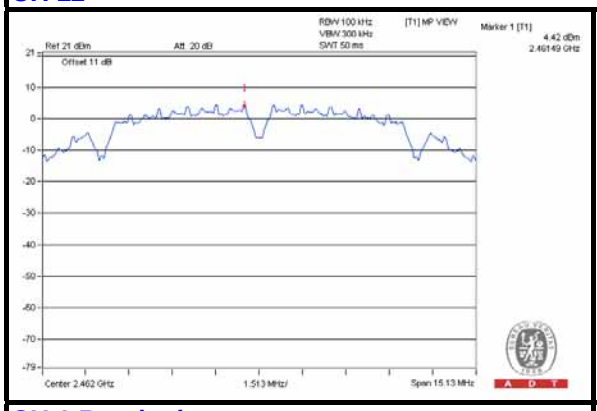


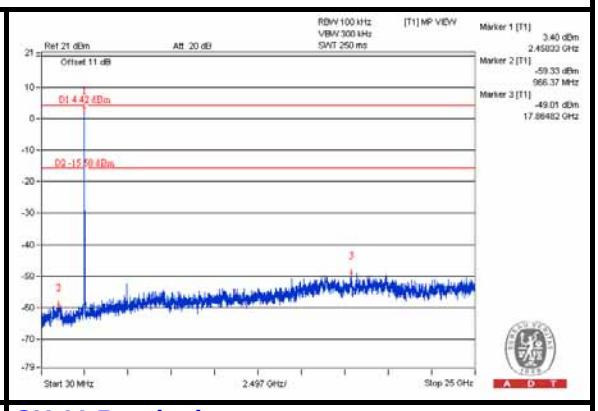
CH 6



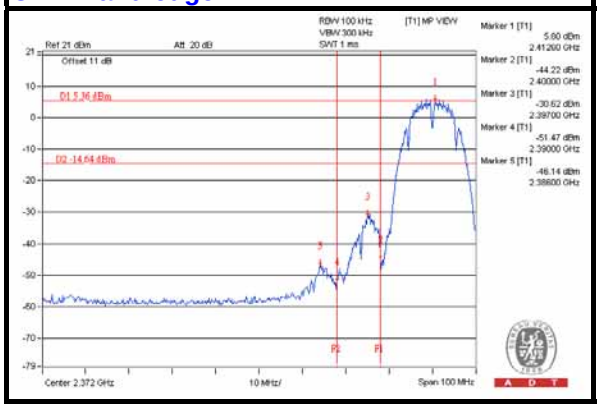


CH 11

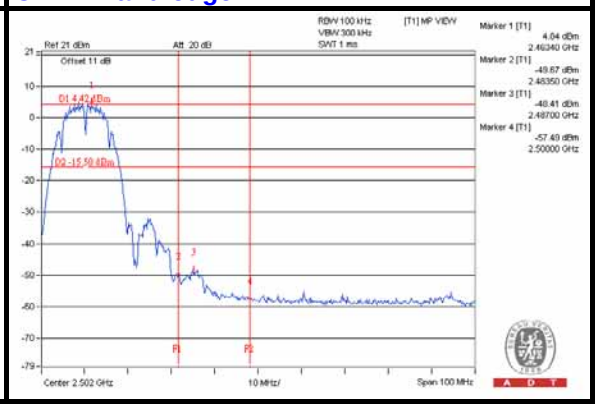




CH 1 Band edge

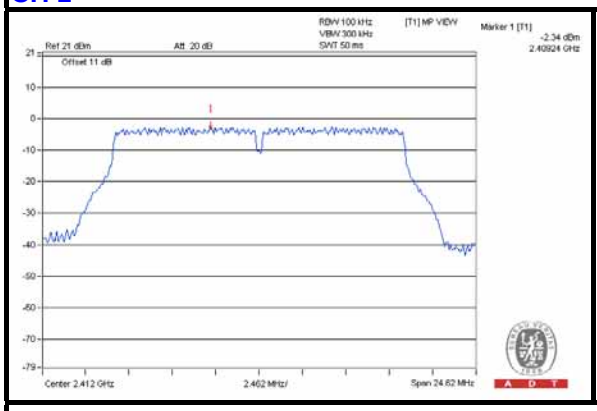


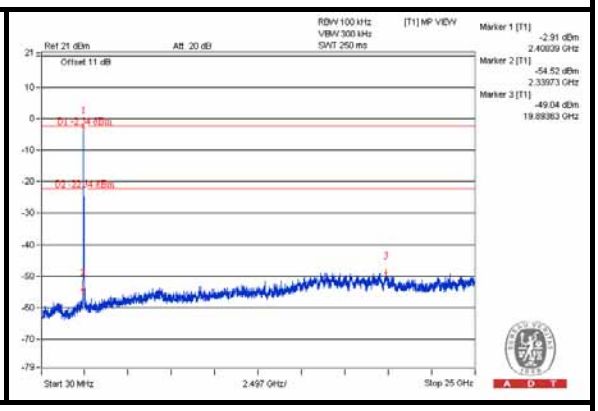
CH 11 Band edge



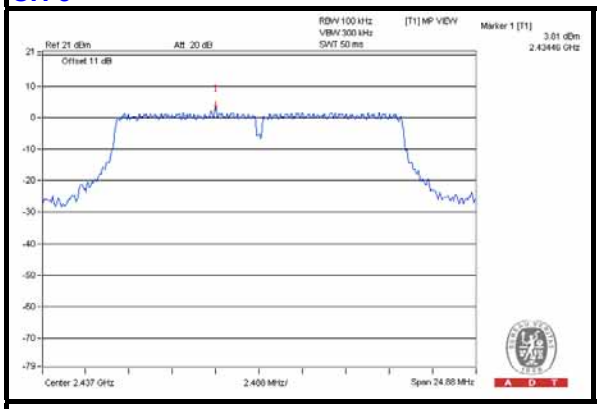
802.11g:

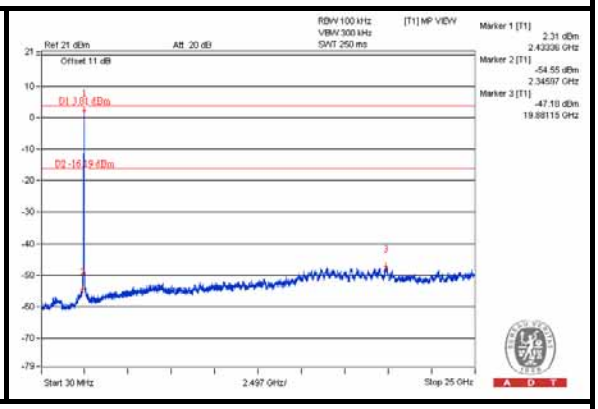
CH 1



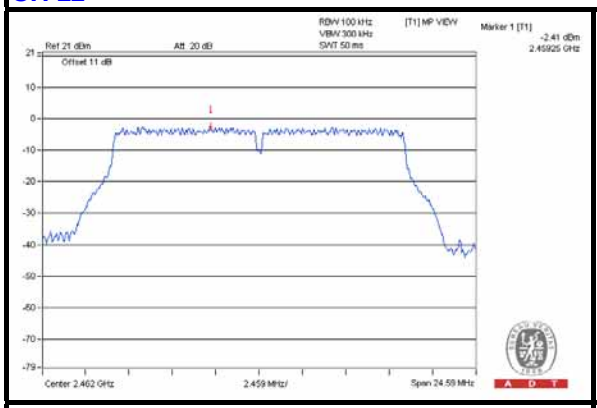


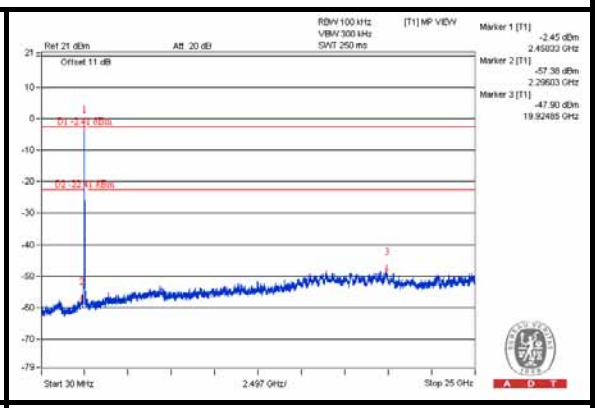
CH 6



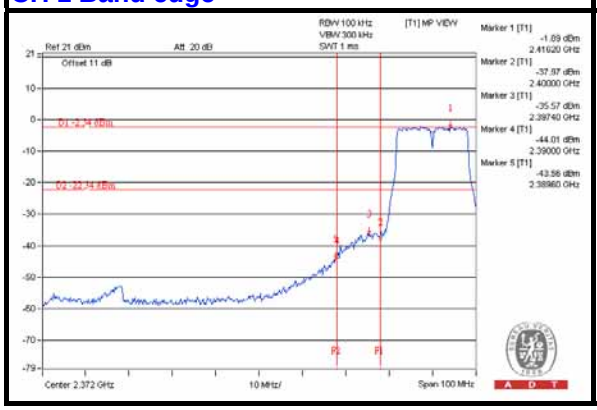


CH 11

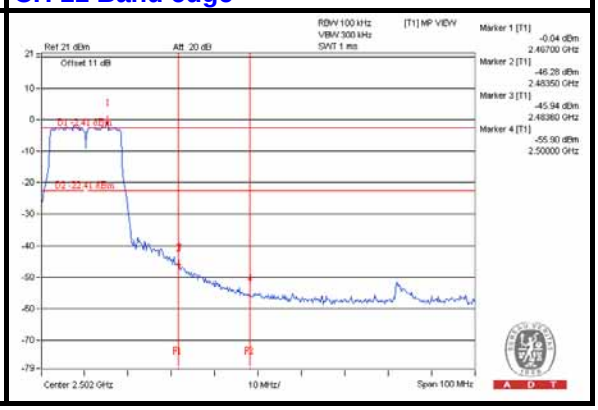




CH 1 Band edge

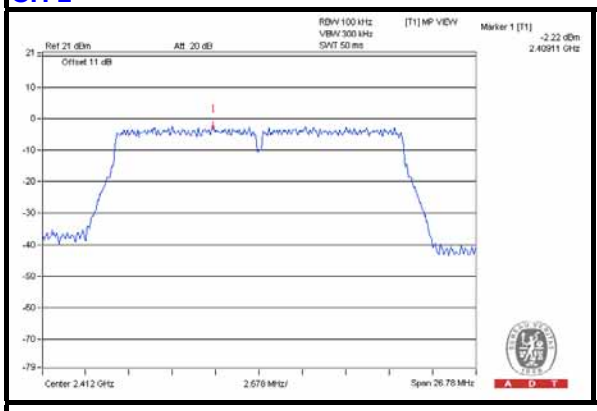


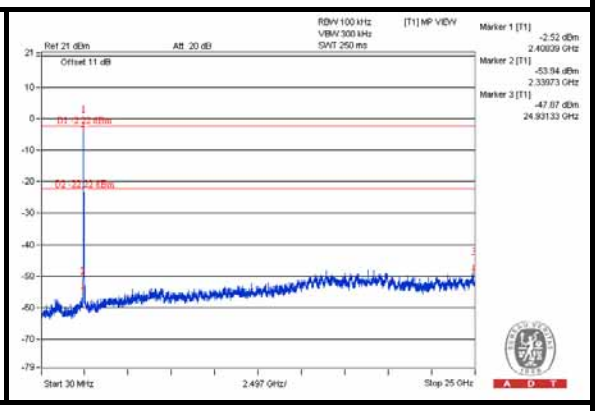
CH 11 Band edge



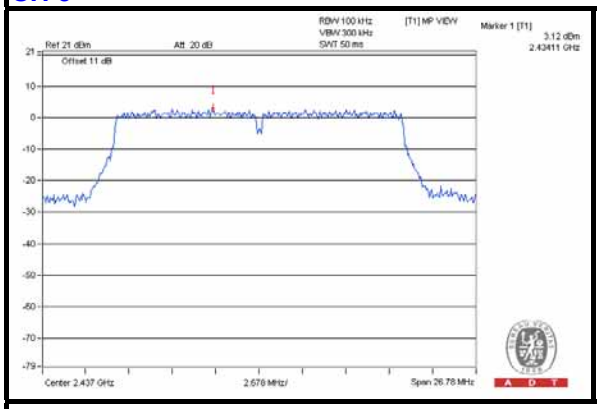
802.11n (HT20):

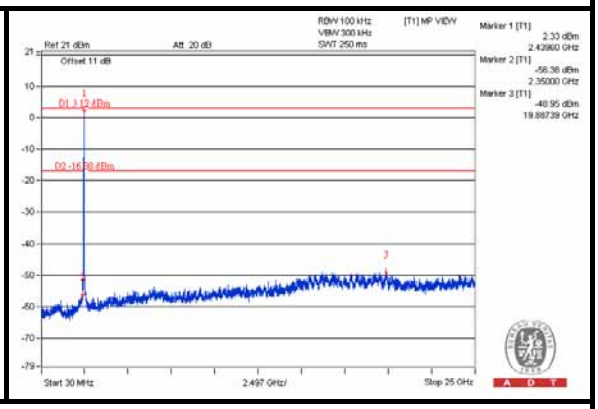
CH 1



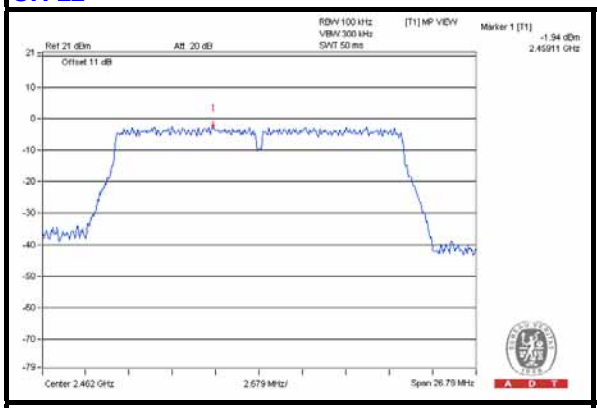


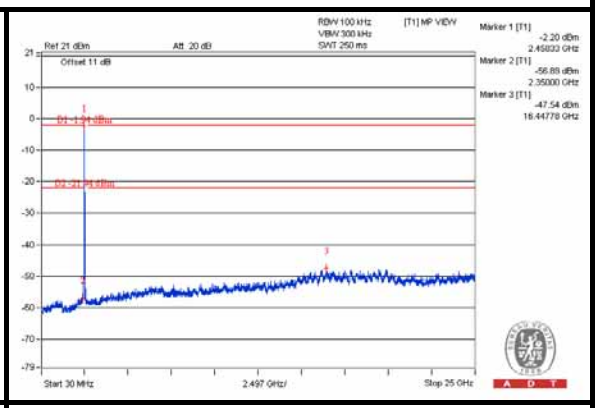
CH 6



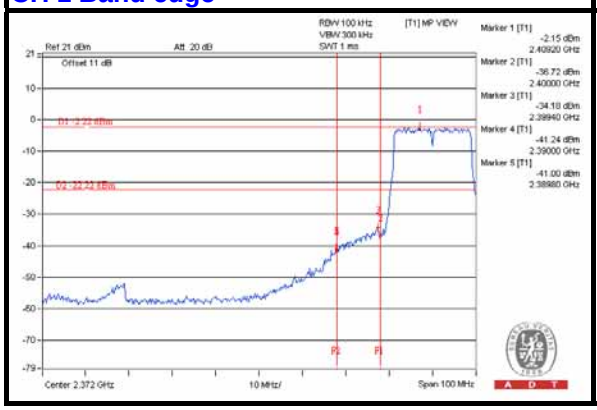


CH 11

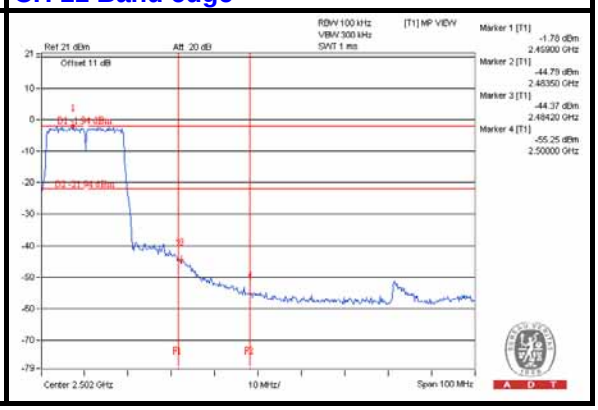




CH 1 Band edge

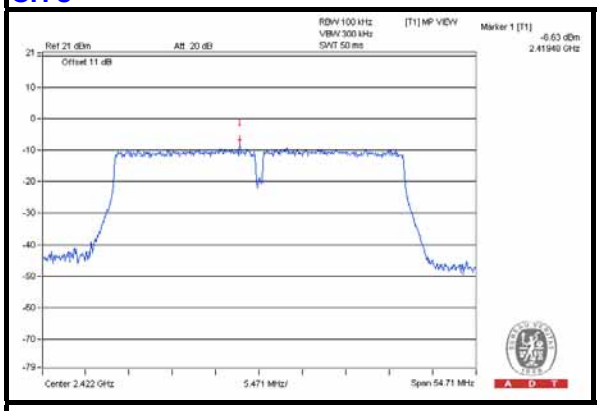


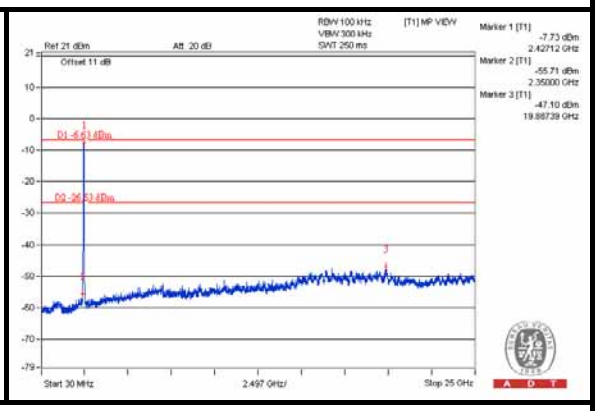
CH 11 Band edge



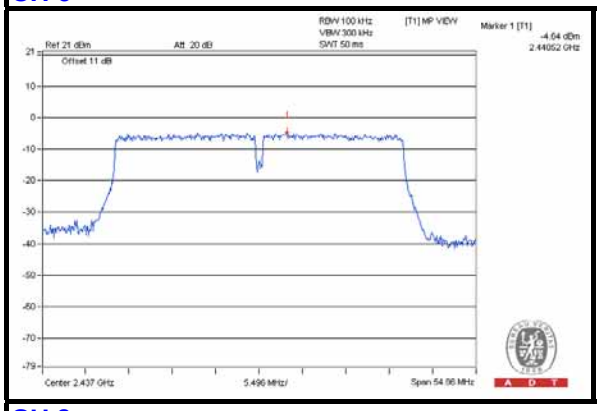
802.11n (HT40):

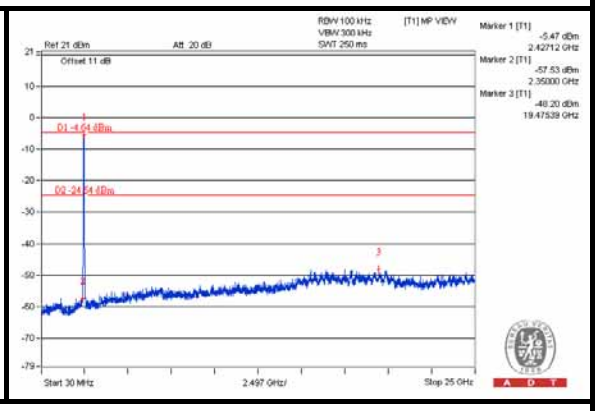
CH 3



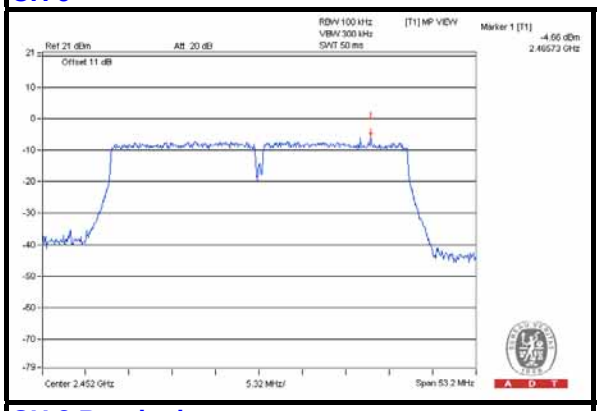


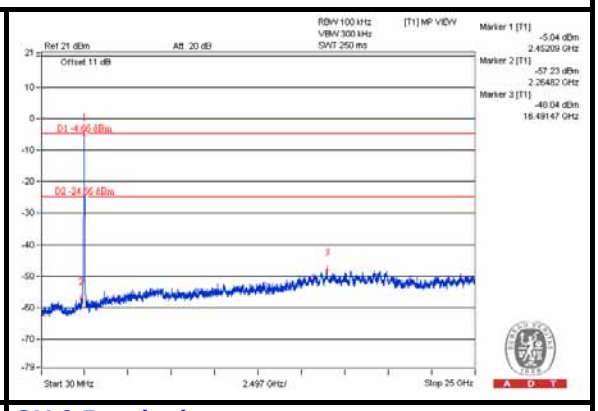
CH 6



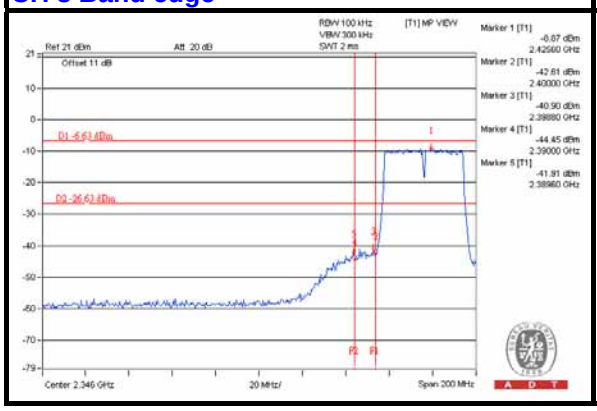


CH 9

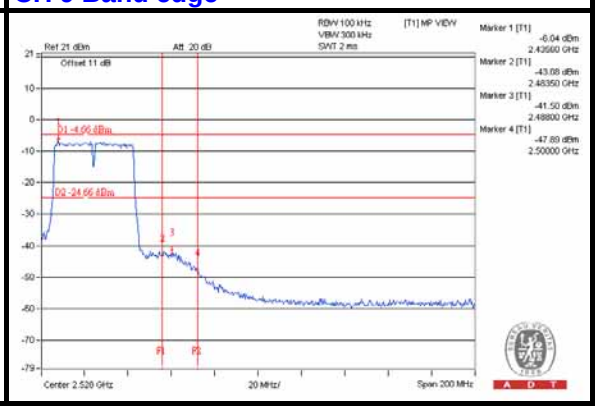




CH 3 Band edge



CH 9 Band edge



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

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

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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.

--- END ---