



FCC TEST REPORT (WLAN 15.247)

REPORT NO.: RF140923E06

MODEL NO.: J20H085

FCC ID: MCLJ20H085

RECEIVED: Sep. 23, 2014

TESTED: Sep. 30 to Oct. 15, 2014

ISSUED: Nov. 11, 2014

APPLICANT: Hon Hai PRECISION IND.CO.,LTD

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140923E06	Original release	Nov. 11, 2014

1. CERTIFICATION

PRODUCT: 802.11abgn/BT3.0 Wireless Module
BRAND NAME: FOXCONN
MODEL NO.: J20H085
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Hon Hai PRECISION IND.CO.,LTD
TESTED: Sep. 30 to Oct. 15, 2014
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10-2009

The above equipment (Model: J20H085) 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:** Nov. 11, 2014
(Lori Chung, Specialist)

Approved By : , **Date:** Nov. 11, 2014
(May Chen, Manager)



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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 -16.00dB at 0.16172MHz
15.247(d) 15.209	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 4874.00MHz
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	Antenna connector is I-PEX and I-PEX MHF not a standard connector.

NOTE: For WLAN: The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz. For the 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz RF parameters was recorded in another test report.



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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)	5.43 dB
Radiated emissions (1GHz -6GHz)	3.72 dB
Radiated emissions (6GHz -18GHz)	4.00 dB
Radiated emissions (18GHz -40GHz)	4.11 dB



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT (WLAN)

PRODUCT	802.11abgn/BT3.0 Wireless Module
MODEL NO.	J20H085
POWER SUPPLY	5Vdc (from host equipment)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 150Mbps
OPERATING FREQUENCY	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz, 5.745 ~ 5.825GHz For 15.247 2.412 ~ 2.462GHz
NUMBER OF CHANNEL	For 15.407 24 for 802.11a, 802.11n (HT20) 11 for 802.11n (HT40) For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 151.705mW 802.11n (HT20): 139.637mW 802.11n (HT40): 110.408mW For 15.247 802.11b: 151.356mW 802.11g: 317.687mW 802.11n (HT20): 320.627mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA



NOTE:

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

Set 1								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	NA	NA	-0.4	NA	PCB	NA	NA	2400~2483.5
			1.12					5150~5850
Chain (1)	NA	NA	0.28	NA	PCB	NA	NA	2400~2483.5
			0.9					5150~5850
Set 2								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	WIESON	Z-Y121JT008A-013-S	2.26	0.5	Dipole	IPEX	100	2400~2483.5
			3.22	1				5150~5850
Chain (1)	WIESON	Z-Y121JT008A-013-S	2.26	0.5	Dipole	IPEX	100	2400~2483.5
			3.22	1				5150~5850
Set 3								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	FOXCONN	FX01K03-SN-EF	1.2	0.87	Dipole	IPEX MHF	217	2400~2483.5
			1.2	NA				5150~5850
Chain (1)	FOXCONN	FX01K03-SN-EF	1.2	0.87	Dipole	IPEX MHF	217	2400~2483.5
			1.2	NA				5150~5850
Set 4								
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)	Frequency range (MHz to MHz)
Chain (0)	WIESON	Y121JT008A-016-S	1.78	1	Dipole	IPEX	200	2400~2483.5
			2.78	1.5				5150~5850
Chain (1)	WIESON	Y121JT008A-016-S	1.78	1	Dipole	IPEX	200	2400~2483.5
			2.78	1.5				5150~5850
For above antenna set, antenna set 1 & 2 were selected as representative antenna for the test and its data was recorded in this report.								

3. 5GHz & BT technology can transmit at same time.



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4. The EUT incorporates a SISO function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	1TX diversity	1RX diversity
802.11b	1 ~ 11Mbps	1TX diversity	1RX diversity
802.11g	6 ~ 54Mbps	1TX diversity	1RX diversity
802.11n (HT20)	MCS 0~7	1TX diversity	1RX diversity
802.11n (HT40) (5GHz)	MCS 0~7	1TX diversity	1RX diversity

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



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3.2 DESCRIPTION OF TEST MODES

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		



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	OB	
1	√	√	√	√	√	With Dipole antenna
2	-	√	√	-	-	With PCB antenna

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: The EUT's antenna (PCB) 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)
802.11g	1 to 11	6	OFDM	BPSK	6

RADIATED EMISSION TEST (BELOW 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	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



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

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	30deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
RE<1G	19deg. C, 60%RH	120Vac, 60Hz	Andy Ho
RE≥1G	23deg. C, 68%RH 26deg. C, 72%RH	120Vac, 60Hz	Nelson Teng Tim Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	James Chan
OB	25deg. C, 60%RH	120Vac, 60Hz	James Chan

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.

3.4 DUTY CYCLE OF TEST SIGNAL

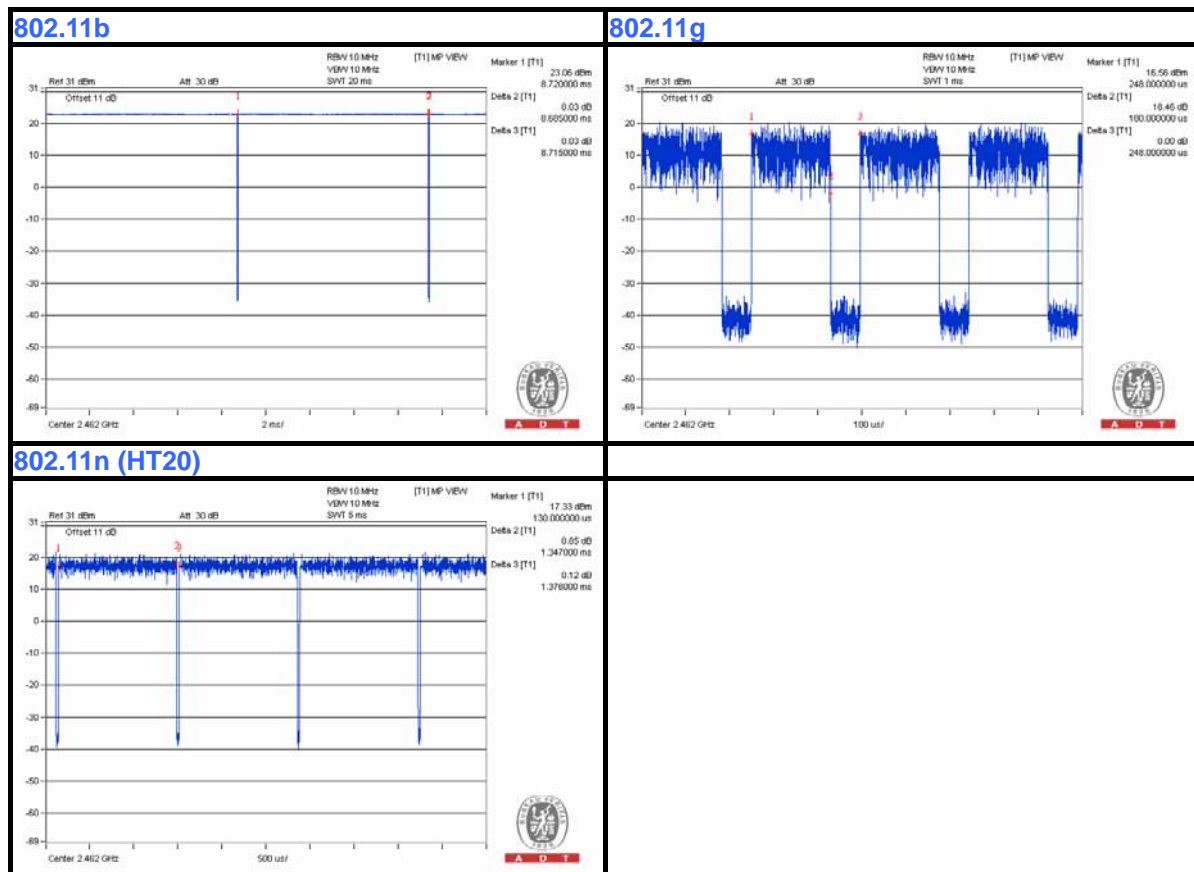
If duty cycle of test signal is $\geq 98\%$, duty factor is not required.

If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11b: Duty cycle = 8.685 ms/8.715 ms = 0.997

802.11g: Duty cycle = 0.18 ms/0.248 ms = 0.726, Duty factor = $10 * \log(1/0.726) = 1.4$

802.11n (HT20): Duty cycle = 1.347 ms/1.376 ms = 0.979, Duty factor = $10 * \log(1/0.979) = 0.1$





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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.

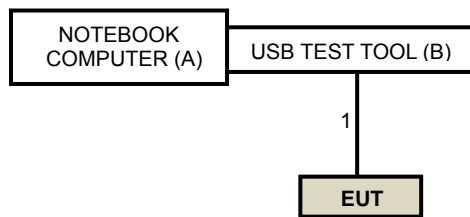
No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	PP32LA	HSLB32S	FCC DoC	Provided by Lab
B	USB TEST TOOL	FOXCONN	NA	NA	NA	Supplied by client

NOTE:

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

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	Data	1	0.1	No	0	Supplied by client

3.6 CONFIGURATION OF SYSTEM UNDER TEST





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4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (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	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 13, 2013	Nov. 12, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 10, 2014	Mar. 09, 2015
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
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: Oct. 15, 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.

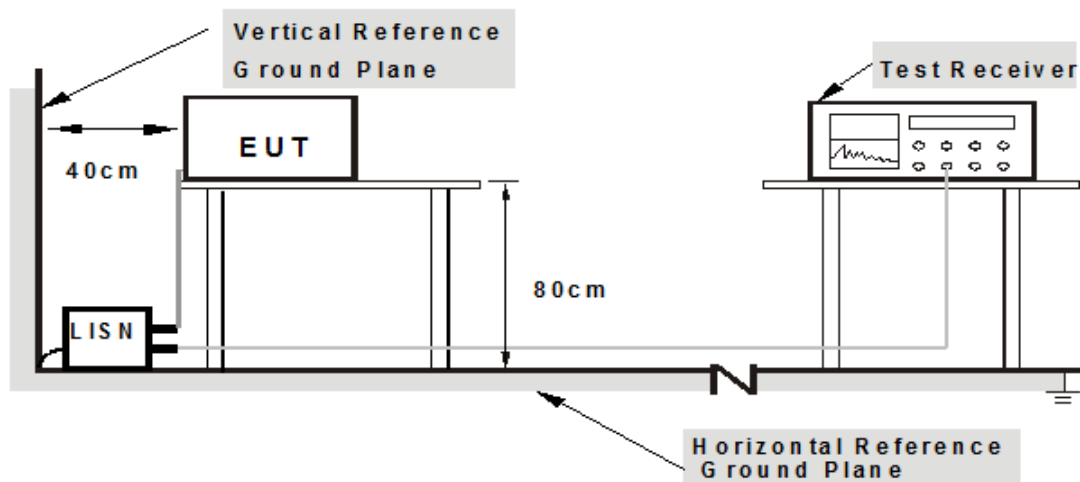
NOTE:

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.



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4.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit A (Notebook Computer) via support unit B (USB TEST TOOL) which is placed on a testing table.
2. Controlling software (MT76xxU.exe) has been activated to set the EUT on specific status.

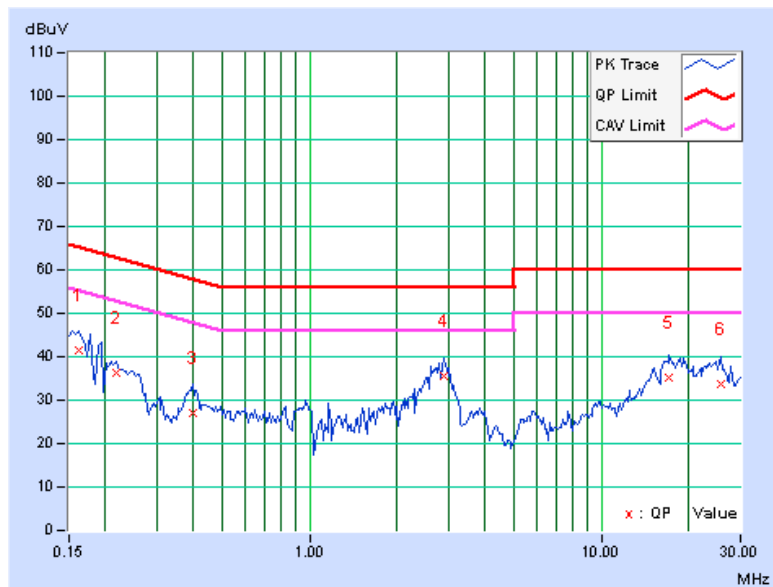
4.1.7 TEST RESULTS

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

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.07	41.29	39.31	41.36	39.38	65.38	55.38	-24.02	-16.00
2	0.21641	0.07	36.24	24.10	36.31	24.17	62.96	52.96	-26.64	-28.78
3	0.39609	0.09	26.94	12.33	27.03	12.42	57.93	47.93	-30.91	-35.52
4	2.87891	0.21	35.36	28.68	35.57	28.89	56.00	46.00	-20.43	-17.11
5	17.04297	0.63	34.47	29.49	35.10	30.12	60.00	50.00	-24.90	-19.88
6	25.54688	0.81	32.82	26.41	33.63	27.22	60.00	50.00	-26.37	-22.78

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





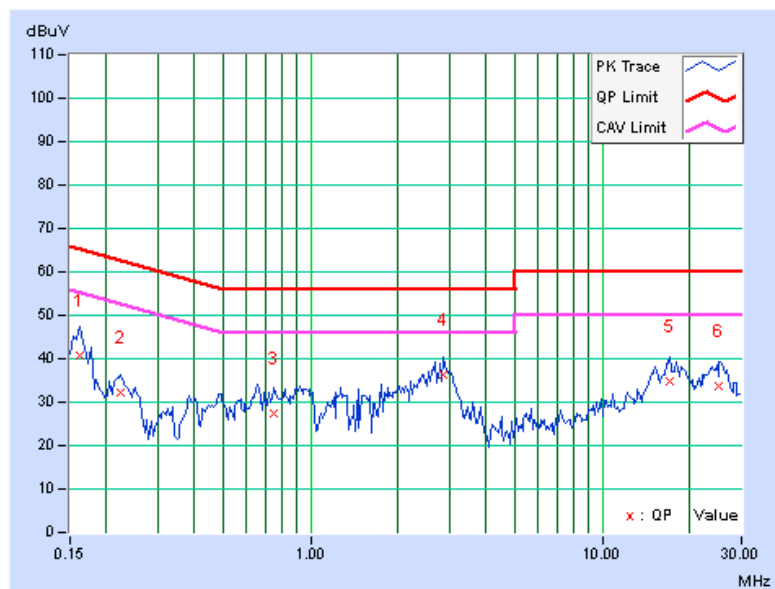
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PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
--------------	-------------	--------------------------	--------------------------------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.06	40.77	38.32	40.83	38.38	65.38	55.38	-24.54	-16.99
2	0.22422	0.06	32.33	20.65	32.39	20.71	62.66	52.66	-30.27	-31.95
3	0.75156	0.11	27.47	18.25	27.58	18.36	56.00	46.00	-28.42	-27.64
4	2.86719	0.21	35.91	28.64	36.12	28.85	56.00	46.00	-19.88	-17.15
5	16.96875	0.66	33.98	28.91	34.64	29.57	60.00	50.00	-25.36	-20.43
6	25.15625	0.85	32.97	25.56	33.82	26.41	60.00	50.00	-26.18	-23.59

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





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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 under any condition of modulation.



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4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 27, 2014	Feb. 26, 2015
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISl	AIH.8018	0000220091110	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	131206 131215 SNMY23685/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 13, 2013	Nov. 12, 2014
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 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. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Oct. 08 to 09, 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:

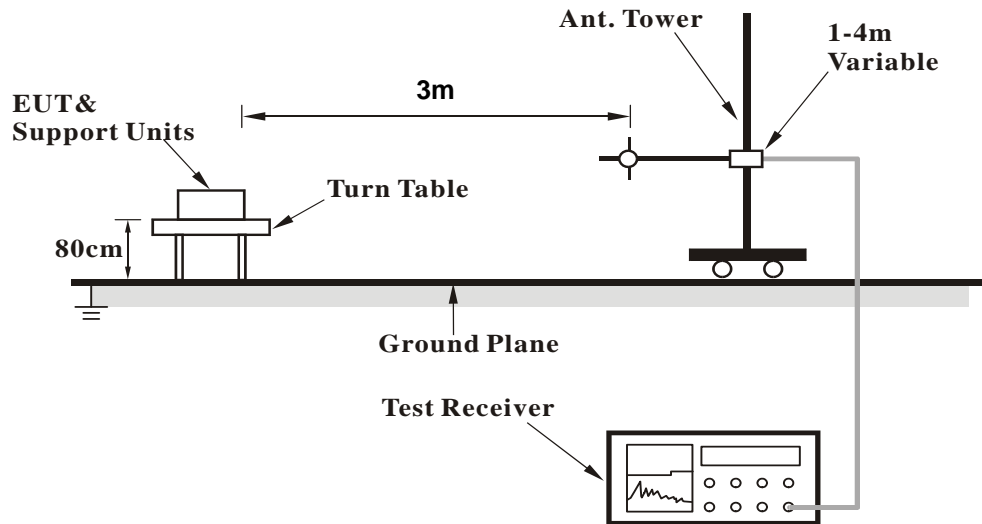
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) 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

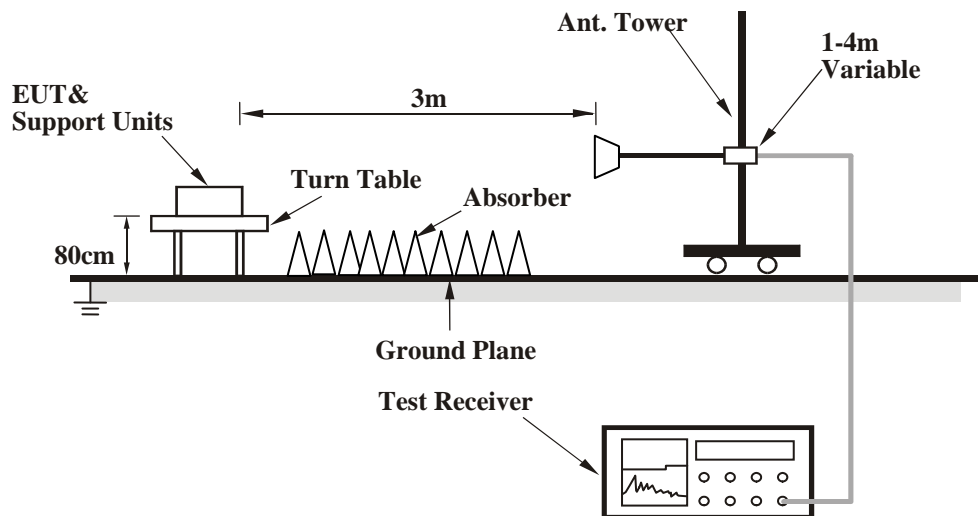
No deviation

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



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4.2.7 TEST RESULTS (MODE 1)

BELOW 1GHz WORST-CASE DATA

802.11g

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	173.51	39.7 QP	43.5	-3.8	1.50 H	0	53.09	-13.43
2	432.02	35.6 QP	46.0	-10.4	2.00 H	234	43.70	-8.09
3	625.77	38.9 QP	46.0	-7.1	1.00 H	232	42.96	-4.07
4	641.92	41.3 QP	46.0	-4.7	1.00 H	224	45.15	-3.81
5	740.96	39.6 QP	46.0	-6.5	1.00 H	238	41.51	-1.96
6	873.46	39.3 QP	46.0	-6.7	1.50 H	307	39.34	-0.01
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	166.24	38.3 QP	43.5	-5.2	1.00 V	298	51.20	-12.90
2	432.02	32.7 QP	46.0	-13.3	2.00 V	280	40.77	-8.09
3	676.26	40.2 QP	46.0	-5.8	1.00 V	152	43.70	-3.54
4	874.68	41.6 QP	46.0	-4.4	1.00 V	288	41.63	0.00
5	918.38	42.0 QP	46.0	-4.1	1.00 V	257	40.87	1.08
6	976.62	42.4 QP	54.0	-11.6	1.00 V	268	40.61	1.83

REMARKS:

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



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ABOVE 1GHz DATA

802.11b

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	51.1 PK	74.0	-22.9	1.00 H	121	56.70	-5.60
2	2390.00	42.6 AV	54.0	-11.4	1.00 H	121	48.20	-5.60
3	*2412.00	98.6 PK			1.00 H	121	104.13	-5.53
4	*2412.00	96.0 AV			1.00 H	121	101.53	-5.53
5	4824.00	51.0 PK	74.0	-23.0	1.54 H	242	47.14	3.86
6	4824.00	42.8 AV	54.0	-11.2	1.54 H	242	38.94	3.86

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.8 PK	74.0	-19.2	1.00 V	360	60.40	-5.60
2	2390.00	46.5 AV	54.0	-7.5	1.00 V	360	52.10	-5.60
3	*2412.00	107.2 PK			1.00 V	360	112.73	-5.53
4	*2412.00	104.9 AV			1.00 V	360	110.43	-5.53
5	4824.00	53.9 PK	74.0	-20.1	1.15 V	302	50.04	3.86
6	4824.00	50.1 AV	54.0	-3.9	1.15 V	302	46.24	3.86

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	51.5 PK	74.0	-22.5	1.00 H	129	57.10	-5.60
2	2390.00	43.0 AV	54.0	-11.0	1.00 H	129	48.60	-5.60
3	*2437.00	98.0 PK			1.00 H	129	103.42	-5.42
4	*2437.00	95.6 AV			1.00 H	129	101.02	-5.42
5	2483.50	49.9 PK	74.0	-24.1	1.00 H	129	55.10	-5.20
6	2483.50	41.8 AV	54.0	-12.2	1.00 H	129	47.00	-5.20
7	4874.00	50.8 PK	74.0	-23.2	1.59 H	250	46.99	3.81
8	4874.00	42.9 AV	54.0	-11.1	1.59 H	250	39.09	3.81
9	7311.00	53.6 PK	74.0	-20.4	1.00 H	100	45.37	8.23
10	7311.00	41.9 AV	54.0	-12.1	1.00 H	100	33.67	8.23

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	52.2 PK	74.0	-21.8	1.01 V	360	57.80	-5.60
2	2390.00	43.8 AV	54.0	-10.2	1.01 V	360	49.40	-5.60
3	*2437.00	107.2 PK			1.01 V	360	112.62	-5.42
4	*2437.00	104.9 AV			1.01 V	360	110.32	-5.42
5	2483.50	50.8 PK	74.0	-23.2	1.01 V	360	56.00	-5.20
6	2483.50	42.5 AV	54.0	-11.5	1.01 V	360	47.70	-5.20
7	4874.00	54.3 PK	74.0	-19.7	1.10 V	315	50.49	3.81
8	4874.00	53.2 AV	54.0	-0.8	1.10 V	315	49.39	3.81
9	7311.00	54.7 PK	74.0	-19.3	1.00 V	149	46.47	8.23
10	7311.00	41.3 AV	54.0	-12.7	1.00 V	149	33.07	8.23

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.



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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	98.9 PK			1.04 H	125	104.21	-5.31
2	*2462.00	96.4 AV			1.04 H	125	101.71	-5.31
3	2483.50	51.8 PK	74.0	-22.2	1.04 H	125	57.00	-5.20
4	2483.50	43.0 AV	54.0	-11.0	1.04 H	125	48.20	-5.20
5	4924.00	51.0 PK	74.0	-23.0	1.60 H	236	47.20	3.80
6	4924.00	43.2 AV	54.0	-10.8	1.60 H	236	39.40	3.80
7	7386.00	53.2 PK	74.0	-20.8	1.05 H	113	44.65	8.55
8	7386.00	41.5 AV	54.0	-12.5	1.05 H	113	32.95	8.55

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	107.3 PK			1.00 V	360	112.61	-5.31
2	*2462.00	104.9 AV			1.00 V	360	110.21	-5.31
3	2483.50	55.8 PK	74.0	-18.2	1.00 V	360	61.00	-5.20
4	2483.50	46.4 AV	54.0	-7.6	1.00 V	360	51.60	-5.20
5	4924.00	54.7 PK	74.0	-19.3	1.08 V	218	50.90	3.80
6	4924.00	53.6 AV	54.0	-0.4	1.08 V	218	49.80	3.80
7	7386.00	54.2 PK	74.0	-19.8	1.02 V	163	45.65	8.55
8	7386.00	40.8 AV	54.0	-13.2	1.02 V	163	32.25	8.55

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.



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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	51.2 PK	74.0	-22.8	1.28 H	150	56.80	-5.60
2	2390.00	42.9 AV	54.0	-11.1	1.28 H	150	48.50	-5.60
3	*2412.00	99.1 PK			1.28 H	150	104.63	-5.53
4	*2412.00	88.5 AV			1.28 H	150	94.03	-5.53
5	4824.00	50.5 PK	74.0	-23.5	1.56 H	256	46.64	3.86
6	4824.00	42.7 AV	54.0	-11.3	1.56 H	256	38.84	3.86

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.6 PK	74.0	-4.4	1.21 V	32	75.20	-5.60
2	2390.00	50.4 AV	54.0	-3.6	1.21 V	32	56.00	-5.60
3	*2412.00	109.6 PK			1.21 V	32	115.13	-5.53
4	*2412.00	98.1 AV			1.21 V	32	103.63	-5.53
5	4824.00	51.0 PK	74.0	-23.0	1.06 V	215	47.14	3.86
6	4824.00	43.2 AV	54.0	-10.8	1.06 V	215	39.34	3.86

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	55.4 PK	74.0	-18.6	1.33 H	158	61.00	-5.60
2	2390.00	40.5 AV	54.0	-13.5	1.33 H	158	46.10	-5.60
3	*2437.00	104.3 PK			1.33 H	158	109.72	-5.42
4	*2437.00	93.5 AV			1.33 H	158	98.92	-5.42
5	2483.50	58.0 PK	74.0	-16.0	1.33 H	158	63.20	-5.20
6	2483.50	40.3 AV	54.0	-13.7	1.33 H	158	45.50	-5.20
7	4874.00	50.7 PK	74.0	-23.3	1.65 H	238	46.89	3.81
8	4874.00	42.9 AV	54.0	-11.1	1.65 H	238	39.09	3.81
9	7311.00	53.1 PK	74.0	-20.9	1.09 H	110	44.87	8.23
10	7311.00	41.7 AV	54.0	-12.3	1.09 H	110	33.47	8.23

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	59.6 PK	74.0	-14.4	1.19 V	217	65.20	-5.60
2	2390.00	44.4 AV	54.0	-9.6	1.19 V	217	50.00	-5.60
3	*2437.00	113.5 PK			1.19 V	217	118.92	-5.42
4	*2437.00	102.9 AV			1.19 V	217	108.32	-5.42
5	2483.50	61.8 PK	74.0	-12.2	1.19 V	217	67.00	-5.20
6	2483.50	44.3 AV	54.0	-9.7	1.19 V	217	49.50	-5.20
7	4874.00	50.7 PK	74.0	-23.3	1.04 V	225	46.89	3.81
8	4874.00	42.7 AV	54.0	-11.3	1.04 V	225	38.89	3.81
9	7311.00	53.5 PK	74.0	-20.5	1.07 V	164	45.27	8.23
10	7311.00	41.9 AV	54.0	-12.1	1.07 V	164	33.67	8.23

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.



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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	100.8 PK			1.33 H	151	106.11	-5.31
2	*2462.00	90.3 AV			1.33 H	151	95.61	-5.31
3	2483.50	68.0 PK	74.0	-6.0	1.33 H	151	73.20	-5.20
4	2483.50	49.8 AV	54.0	-4.2	1.33 H	151	55.00	-5.20
5	4924.00	50.9 PK	74.0	-23.1	1.64 H	258	47.10	3.80
6	4924.00	43.1 AV	54.0	-10.9	1.64 H	258	39.30	3.80
7	7386.00	53.5 PK	74.0	-20.5	1.00 H	104	44.95	8.55
8	7386.00	42.0 AV	54.0	-12.0	1.00 H	104	33.45	8.55

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	109.6 PK			1.19 V	142	114.91	-5.31
2	*2462.00	99.0 AV			1.19 V	142	104.31	-5.31
3	2483.50	71.9 PK	74.0	-2.1	1.19 V	142	77.10	-5.20
4	2483.50	53.5 AV	54.0	-0.5	1.19 V	142	58.70	-5.20
5	4924.00	50.8 PK	74.0	-23.2	1.02 V	230	47.00	3.80
6	4924.00	42.8 AV	54.0	-11.2	1.02 V	230	39.00	3.80
7	7386.00	53.7 PK	74.0	-20.3	1.11 V	179	45.15	8.55
8	7386.00	42.1 AV	54.0	-11.9	1.11 V	179	33.55	8.55

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.



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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	69.2 PK	74.0	-4.8	1.29 H	140	74.80	-5.60
2	2390.00	48.6 AV	54.0	-5.4	1.29 H	140	54.20	-5.60
3	*2412.00	100.0 PK			1.29 H	140	105.53	-5.53
4	*2412.00	89.2 AV			1.29 H	140	94.73	-5.53
5	4824.00	51.3 PK	74.0	-22.7	1.60 H	249	47.44	3.86
6	4824.00	43.1 AV	54.0	-10.9	1.60 H	249	39.24	3.86

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.4 PK	74.0	-0.6	1.21 V	143	79.00	-5.60
2	2390.00	52.8 AV	54.0	-1.2	1.21 V	143	58.40	-5.60
3	*2412.00	109.3 PK			1.73 V	268	114.83	-5.53
4	*2412.00	98.4 AV			1.73 V	268	103.93	-5.53
5	4824.00	50.5 PK	74.0	-23.5	1.09 V	218	46.64	3.86
6	4824.00	42.3 AV	54.0	-11.7	1.09 V	218	38.44	3.86

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	59.3 PK	74.0	-14.7	1.33 H	155	64.90	-5.60
2	2390.00	42.0 AV	54.0	-12.0	1.33 H	155	47.60	-5.60
3	*2437.00	104.8 PK			1.33 H	155	110.22	-5.42
4	*2437.00	94.2 AV			1.33 H	155	99.62	-5.42
5	2483.50	61.3 PK	74.0	-12.7	1.33 H	155	66.50	-5.20
6	2483.50	40.6 AV	54.0	-13.4	1.33 H	155	45.80	-5.20
7	4874.00	50.5 PK	74.0	-23.5	1.61 H	239	46.69	3.81
8	4874.00	42.7 AV	54.0	-11.3	1.61 H	239	38.89	3.81
9	7311.00	53.7 PK	74.0	-20.3	1.04 H	97	45.47	8.23
10	7311.00	41.9 AV	54.0	-12.1	1.04 H	97	33.67	8.23

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	63.3 PK	74.0	-10.7	1.19 V	144	68.90	-5.60
2	2390.00	46.1 AV	54.0	-7.9	1.19 V	144	51.70	-5.60
3	*2437.00	113.2 PK			1.19 V	144	118.62	-5.42
4	*2437.00	102.8 AV			1.19 V	144	108.22	-5.42
5	2483.50	65.3 PK	74.0	-8.7	1.19 V	144	70.50	-5.20
6	2483.50	44.9 AV	54.0	-9.1	1.19 V	144	50.10	-5.20
7	4874.00	51.0 PK	74.0	-23.0	1.08 V	210	47.19	3.81
8	4874.00	42.9 AV	54.0	-11.1	1.08 V	210	39.09	3.81
9	7311.00	53.8 PK	74.0	-20.2	1.06 V	162	45.57	8.23
10	7311.00	42.1 AV	54.0	-11.9	1.06 V	162	33.87	8.23

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.



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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	100.7 PK			1.30 H	153	106.01	-5.31
2	*2462.00	90.0 AV			1.30 H	153	95.31	-5.31
3	2483.50	68.7 PK	74.0	-5.3	1.30 H	153	73.90	-5.20
4	2483.50	48.2 AV	54.0	-5.8	1.30 H	153	53.40	-5.20
5	4924.00	50.8 PK	74.0	-23.2	1.63 H	259	47.00	3.80
6	4924.00	43.1 AV	54.0	-10.9	1.63 H	259	39.30	3.80
7	7386.00	53.3 PK	74.0	-20.7	1.04 H	108	44.75	8.55
8	7386.00	41.9 AV	54.0	-12.1	1.04 H	108	33.35	8.55

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	109.6 PK			1.71 V	265	114.91	-5.31
2	*2462.00	98.8 AV			1.71 V	265	104.11	-5.31
3	2483.50	73.1 PK	74.0	-0.9	1.71 V	265	78.30	-5.20
4	2483.50	52.4 AV	54.0	-1.6	1.71 V	265	57.60	-5.20
5	4924.00	50.3 PK	74.0	-23.7	1.04 V	237	46.50	3.80
6	4924.00	42.5 AV	54.0	-11.5	1.04 V	237	38.70	3.80
7	7386.00	53.7 PK	74.0	-20.3	1.05 V	169	45.15	8.55
8	7386.00	42.3 AV	54.0	-11.7	1.05 V	169	33.75	8.55

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.

4.2.8 TEST RESULTS (MODE 2)

BELOW 1GHz WORST-CASE DATA

802.11g

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	166.29	33.4 QP	43.5	-10.1	2.00 H	335	46.27	-12.91
2	240.01	41.0 QP	46.0	-5.0	1.00 H	360	54.78	-13.80
3	643.14	40.5 QP	46.0	-5.5	1.00 H	216	44.26	-3.79
4	669.86	43.0 QP	46.0	-3.0	1.00 H	226	46.58	-3.61
5	869.73	41.5 QP	46.0	-4.5	1.50 H	317	41.61	-0.08
6	875.26	41.1 QP	46.0	-4.9	1.50 H	305	41.07	0.02
7	921.67	40.8 QP	46.0	-5.2	1.50 H	313	39.69	1.13
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	106.34	31.4 QP	43.5	-12.2	2.00 V	0	47.40	-16.05
2	165.99	37.7 QP	43.5	-5.8	1.00 V	269	50.58	-12.88
3	675.39	39.1 QP	46.0	-6.9	1.00 V	113	42.61	-3.55
4	874.00	40.6 QP	46.0	-5.5	1.00 V	298	40.54	0.01
5	924.29	42.0 QP	46.0	-4.0	1.00 V	287	40.87	1.14
6	995.78	48.7 QP	54.0	-5.3	1.00 V	279	46.71	1.96

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



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ABOVE 1GHz DATA

802.11b

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	58.5 PK	74.0	-15.5	1.10 H	33	59.69	-1.19
2	2390.00	53.1 AV	54.0	-0.9	1.10 H	33	54.29	-1.19
3	*2412.00	106.2 PK			1.10 H	33	107.29	-1.09
4	*2412.00	104.0 AV			1.10 H	33	105.09	-1.09
5	4824.00	57.1 PK	74.0	-16.9	1.02 H	94	49.51	7.59
6	4824.00	52.5 AV	54.0	-1.5	1.02 H	94	44.91	7.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.2 PK	74.0	-19.8	1.00 V	248	55.39	-1.19
2	2390.00	48.4 AV	54.0	-5.6	1.00 V	248	49.59	-1.19
3	*2412.00	101.6 PK			1.00 V	248	102.69	-1.09
4	*2412.00	99.1 AV			1.00 V	248	100.19	-1.09
5	4824.00	56.4 PK	74.0	-17.6	1.88 V	189	48.81	7.59
6	4824.00	52.2 AV	54.0	-1.8	1.88 V	189	44.61	7.59

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	*2437.00	108.9 PK			1.35 H	36	109.89	-0.99
2	*2437.00	104.9 AV			1.35 H	36	105.89	-0.99
3	4874.00	58.3 PK	74.0	-15.7	1.16 H	213	50.53	7.77
4	4874.00	53.9 AV	54.0	-0.1	1.16 H	213	46.13	7.77
5	7311.00	55.7 PK	74.0	-18.3	1.00 H	29	40.21	15.49
6	7311.00	43.9 AV	54.0	-10.1	1.00 H	29	28.41	15.49

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	*2437.00	104.5 PK			1.00 V	249	105.49	-0.99
2	*2437.00	100.4 AV			1.00 V	249	101.39	-0.99
3	4874.00	55.6 PK	74.0	-18.4	1.40 V	128	47.83	7.77
4	4874.00	50.2 AV	54.0	-3.8	1.40 V	128	42.43	7.77
5	7311.00	55.4 PK	74.0	-18.6	1.16 V	169	39.91	15.49
6	7311.00	43.7 AV	54.0	-10.3	1.16 V	169	28.21	15.49

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) – 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.



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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	105.5 PK			1.07 H	37	106.39	-0.89
2	*2462.00	103.2 AV			1.07 H	37	104.09	-0.89
3	2483.50	59.3 PK	74.0	-14.7	1.07 H	37	60.10	-0.80
4	2483.50	53.4 AV	54.0	-0.6	1.07 H	37	54.20	-0.80
5	4924.00	56.4 PK	74.0	-17.6	1.15 H	220	48.46	7.94
6	4924.00	51.5 AV	54.0	-2.5	1.15 H	220	43.56	7.94
7	7386.00	55.8 PK	74.0	-18.2	1.00 H	37	40.29	15.51
8	7386.00	44.0 AV	54.0	-10.0	1.00 H	37	28.49	15.51

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	*2462.00	101.6 PK			1.04 V	239	102.49	-0.89
2	*2462.00	99.4 AV			1.04 V	239	100.29	-0.89
3	2483.50	54.9 PK	74.0	-19.1	1.04 V	243	55.70	-0.80
4	2483.50	49.2 AV	54.0	-4.8	1.04 V	243	50.00	-0.80
5	4924.00	55.1 PK	74.0	-18.9	1.35 V	140	47.16	7.94
6	4924.00	49.7 AV	54.0	-4.3	1.35 V	140	41.76	7.94
7	7386.00	56.1 PK	74.0	-17.9	1.13 V	157	40.59	15.51
8	7386.00	44.1 AV	54.0	-9.9	1.13 V	157	28.59	15.51

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) – 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.



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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	70.4 PK	74.0	-3.6	1.10 H	35	71.59	-1.19
2	2390.00	53.4 AV	54.0	-0.6	1.10 H	35	54.59	-1.19
3	*2412.00	106.2 PK			1.10 H	35	107.29	-1.09
4	*2412.00	95.7 AV			1.10 H	35	96.79	-1.09
5	4824.00	48.3 PK	74.0	-25.7	1.15 H	220	40.71	7.59
6	4824.00	36.1 AV	54.0	-17.9	1.15 H	220	28.51	7.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.2 PK	74.0	-7.8	1.09 V	227	67.39	-1.19
2	2390.00	49.4 AV	54.0	-4.6	1.09 V	227	50.59	-1.19
3	*2412.00	101.6 PK			1.09 V	227	102.69	-1.09
4	*2412.00	91.3 AV			1.09 V	227	92.39	-1.09
5	4824.00	47.7 PK	74.0	-26.3	1.37 V	112	40.11	7.59
6	4824.00	35.7 AV	54.0	-18.3	1.37 V	112	28.11	7.59

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	59.4 PK	74.0	-14.6	1.08 H	35	60.59	-1.19
2	2390.00	47.1 AV	54.0	-6.9	1.08 H	35	48.29	-1.19
3	*2437.00	108.3 PK			1.08 H	35	109.29	-0.99
4	*2437.00	97.7 AV			1.08 H	35	98.69	-0.99
5	2483.50	61.4 PK	74.0	-12.6	1.08 H	35	62.20	-0.80
6	2483.50	47.7 AV	54.0	-6.3	1.08 H	35	48.50	-0.80
7	4874.00	50.1 PK	74.0	-23.9	1.12 H	220	42.33	7.77
8	4874.00	37.5 AV	54.0	-16.5	1.12 H	220	29.73	7.77
9	7311.00	55.5 PK	74.0	-18.5	1.03 H	31	40.01	15.49
10	7311.00	43.8 AV	54.0	-10.2	1.03 H	31	28.31	15.49

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	2390.00	55.3 PK	74.0	-18.7	1.10 V	235	56.49	-1.19
2	2390.00	43.2 AV	54.0	-10.8	1.10 V	235	44.39	-1.19
3	*2437.00	104.5 PK			1.10 V	235	105.49	-0.99
4	*2437.00	93.7 AV			1.10 V	235	94.69	-0.99
5	2483.50	57.4 PK	74.0	-16.6	1.10 V	235	58.20	-0.80
6	2483.50	43.7 AV	54.0	-10.3	1.10 V	235	44.50	-0.80
7	4874.00	46.9 PK	74.0	-27.1	1.38 V	96	39.13	7.77
8	4874.00	35.2 AV	54.0	-18.8	1.38 V	96	27.43	7.77
9	7311.00	55.7 PK	74.0	-18.3	1.22 V	159	40.21	15.49
10	7311.00	43.9 AV	54.0	-10.1	1.22 V	159	28.41	15.49

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) – 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.



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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	106.1 PK			1.07 H	37	106.99	-0.89
2	*2462.00	95.5 AV			1.07 H	37	96.39	-0.89
3	2483.50	73.0 PK	74.0	-1.0	1.07 H	37	73.80	-0.80
4	2483.50	53.1 AV	54.0	-0.9	1.07 H	37	53.90	-0.80
5	4924.00	48.4 PK	74.0	-25.6	1.19 H	234	40.46	7.94
6	4924.00	36.3 AV	54.0	-17.7	1.19 H	234	28.36	7.94
7	7386.00	56.1 PK	74.0	-17.9	1.05 H	40	40.59	15.51
8	7386.00	44.0 AV	54.0	-10.0	1.05 H	40	28.49	15.51

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	*2462.00	102.0 PK			1.14 V	237	102.89	-0.89
2	*2462.00	91.6 AV			1.14 V	237	92.49	-0.89
3	2483.50	68.6 PK	74.0	-5.4	1.14 V	237	69.40	-0.80
4	2483.50	48.9 AV	54.0	-5.1	1.14 V	237	49.70	-0.80
5	4924.00	47.9 PK	74.0	-26.1	1.38 V	96	39.96	7.94
6	4924.00	36.1 AV	54.0	-17.9	1.38 V	96	28.16	7.94
7	7386.00	55.8 PK	74.0	-18.2	1.22 V	159	40.29	15.51
8	7386.00	43.8 AV	54.0	-10.2	1.22 V	159	28.29	15.51

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) – 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.



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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	1.10 H	38	71.29	-1.19
2	2390.00	52.2 AV	54.0	-1.8	1.10 H	38	53.39	-1.19
3	*2412.00	104.6 PK			1.10 H	38	105.69	-1.09
4	*2412.00	94.2 AV			1.10 H	38	95.29	-1.09
5	4824.00	48.0 PK	74.0	-26.0	1.15 H	225	40.41	7.59
6	4824.00	35.9 AV	54.0	-18.1	1.15 H	225	28.31	7.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.17 V	236	67.59	-1.19
2	2390.00	48.4 AV	54.0	-5.6	1.17 V	236	49.59	-1.19
3	*2412.00	100.6 PK			1.17 V	236	101.69	-1.09
4	*2412.00	90.0 AV			1.17 V	236	91.09	-1.09
5	4824.00	47.6 PK	74.0	-26.4	1.44 V	86	40.01	7.59
6	4824.00	35.9 AV	54.0	-18.1	1.44 V	86	28.31	7.59

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.



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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	59.7 PK	74.0	-14.3	1.13 H	31	60.89	-1.19
2	2390.00	47.3 AV	54.0	-6.7	1.13 H	31	48.49	-1.19
3	*2437.00	108.4 PK			1.13 H	31	109.39	-0.99
4	*2437.00	98.0 AV			1.13 H	31	98.99	-0.99
5	2483.50	61.2 PK	74.0	-12.8	1.13 H	31	62.00	-0.80
6	2483.50	47.8 AV	54.0	-6.2	1.13 H	31	48.60	-0.80
7	4874.00	50.1 PK	74.0	-23.9	1.17 H	215	42.33	7.77
8	4874.00	37.2 AV	54.0	-16.8	1.17 H	215	29.43	7.77
9	7311.00	56.0 PK	74.0	-18.0	1.00 H	19	40.51	15.49
10	7311.00	44.1 AV	54.0	-9.9	1.00 H	19	28.61	15.49

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	2390.00	56.1 PK	74.0	-17.9	1.13 V	233	57.29	-1.19
2	2390.00	43.7 AV	54.0	-10.3	1.13 V	233	44.89	-1.19
3	*2437.00	104.7 PK			1.13 V	233	105.69	-0.99
4	*2437.00	94.3 AV			1.13 V	233	95.29	-0.99
5	2483.50	57.4 PK	74.0	-16.6	1.13 V	233	58.20	-0.80
6	2483.50	44.2 AV	54.0	-9.8	1.13 V	233	45.00	-0.80
7	4874.00	48.1 PK	74.0	-25.9	1.35 V	90	40.33	7.77
8	4874.00	36.4 AV	54.0	-17.6	1.35 V	90	28.63	7.77
9	7311.00	56.6 PK	74.0	-17.4	1.19 V	172	41.11	15.49
10	7311.00	44.5 AV	54.0	-9.5	1.19 V	172	29.01	15.49

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) – 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.



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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	105.6 PK			1.07 H	36	106.49	-0.89
2	*2462.00	94.6 AV			1.07 H	36	95.49	-0.89
3	2483.50	73.6 PK	74.0	-0.4	1.07 H	36	74.40	-0.80
4	2483.50	53.5 AV	54.0	-0.5	1.07 H	36	54.30	-0.80
5	4924.00	49.9 PK	74.0	-24.1	1.20 H	222	41.96	7.94
6	4924.00	37.1 AV	54.0	-16.9	1.20 H	222	29.16	7.94
7	7386.00	55.8 PK	74.0	-18.2	1.02 H	30	40.29	15.51
8	7386.00	44.0 AV	54.0	-10.0	1.02 H	30	28.49	15.51

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	*2462.00	101.1 PK			1.13 V	227	101.99	-0.89
2	*2462.00	90.2 AV			1.13 V	227	91.09	-0.89
3	2483.50	69.8 PK	74.0	-4.2	1.13 V	227	70.60	-0.80
4	2483.50	49.7 AV	54.0	-4.3	1.13 V	227	50.50	-0.80
5	4924.00	47.3 PK	74.0	-26.7	1.35 V	84	39.36	7.94
6	4924.00	35.9 AV	54.0	-18.1	1.35 V	84	27.96	7.94
7	7386.00	56.8 PK	74.0	-17.2	1.23 V	180	41.29	15.51
8	7386.00	44.9 AV	54.0	-9.1	1.23 V	180	29.39	15.51

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) – 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	FSP 40	100060	May 08, 2014	May 07, 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 : Sep. 30, 2014

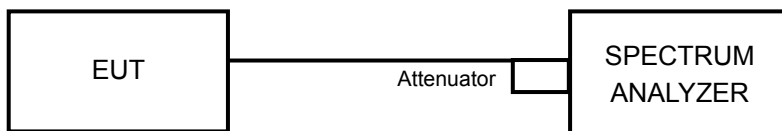
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ 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.



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4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.07	0.5	PASS
6	2437	10.08	0.5	PASS
11	2462	10.08	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.50	0.5	PASS
6	2437	16.48	0.5	PASS
11	2462	16.51	0.5	PASS

802.11n (HT20)

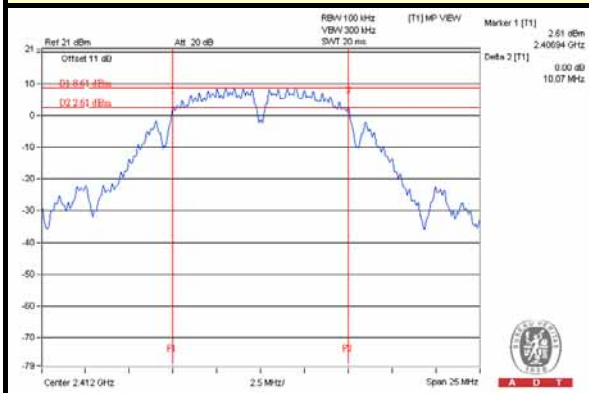
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.53	0.5	PASS
6	2437	16.15	0.5	PASS
11	2462	16.56	0.5	PASS



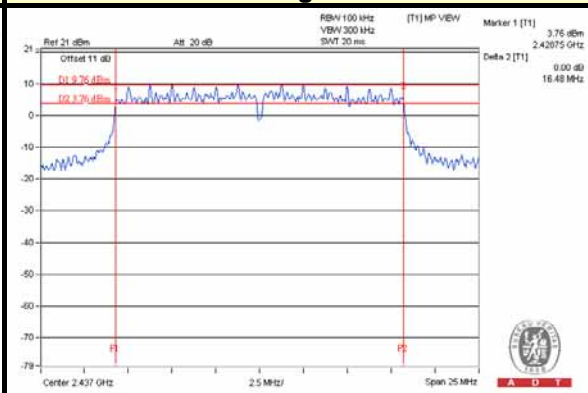
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SPECTRUM PLOT OF WORST VALUE

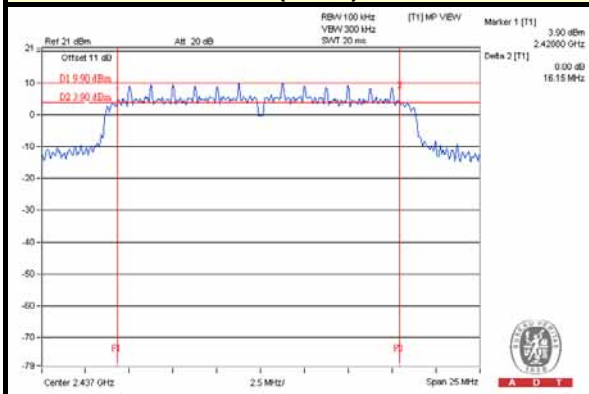
802.11b: CH1



802.11g: CH6



802.11n (HT20): CH6





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4.4 CONDUCTED OUTPUT POWER MEASUREMENT

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 TEST 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 : Sep. 30, 2014

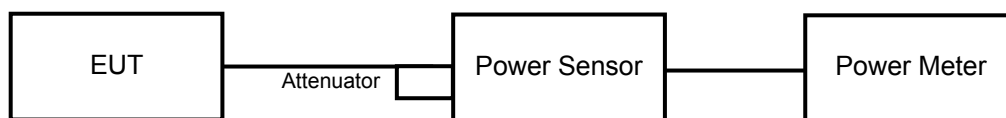
4.4.3 TEST PROCEDURES

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



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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	139.637	21.45	30	PASS
6	2437	151.356	21.80	30	PASS
11	2462	149.624	21.75	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	269.153	24.30	30	PASS
6	2437	317.687	25.02	30	PASS
11	2462	187.068	22.72	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	197.697	22.96	30	PASS
6	2437	320.627	25.06	30	PASS
11	2462	177.011	22.48	30	PASS



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FOR AVERAGE POWER

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	66.374	18.22
6	2437	71.614	18.55
11	2462	70.958	18.51

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	48.529	16.86
6	2437	100.693	20.03
11	2462	36.898	15.67

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	32.659	15.14
6	2437	96.828	19.86
11	2462	30.974	14.91

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	FSP 40	100060	May 08, 2014	May 07, 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 : Sep. 30, 2014

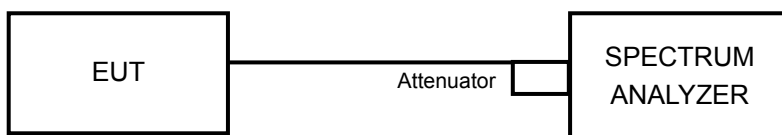
4.5.3 TEST PROCEDURE

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



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4.5.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-7.41	8	PASS
6	2437	-5.72	8	PASS
11	2462	-4.88	8	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-10.54	8	PASS
6	2437	-6.58	8	PASS
11	2462	-11.99	8	PASS

802.11n (HT20)

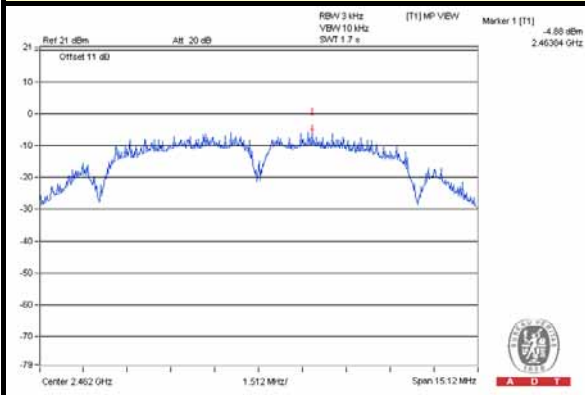
CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-12.70	8	PASS
6	2437	-7.92	8	PASS
11	2462	-11.60	8	PASS



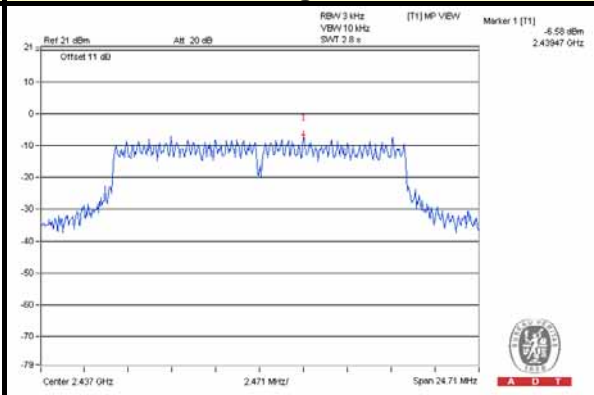
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SPECTRUM PLOT OF WORST VALUE

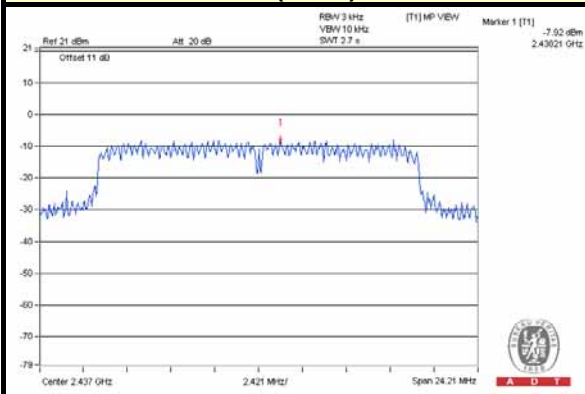
802.11b: CH11



802.11g: CH6



802.11n (HT20): CH6





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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	FSP 40	100060	May 08, 2014	May 07, 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 : Sep. 30, 2014

4.6.3 TEST PROCEDURE

Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 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.

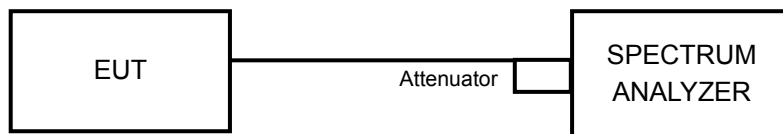
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW \geq 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

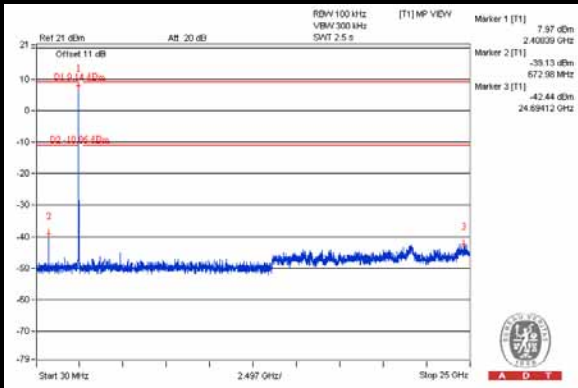
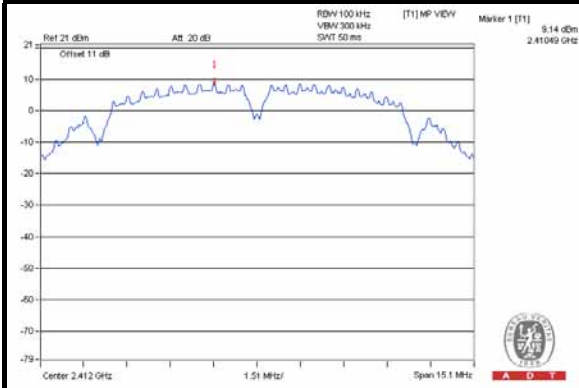
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



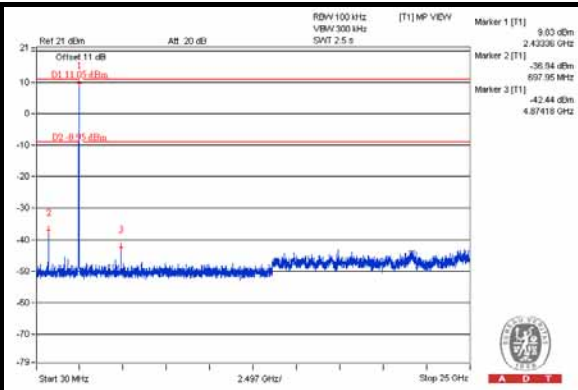
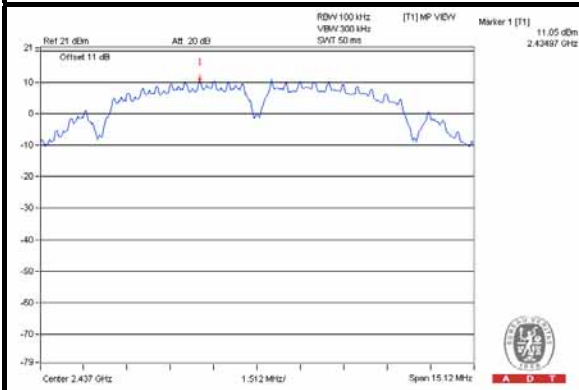
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802.11b

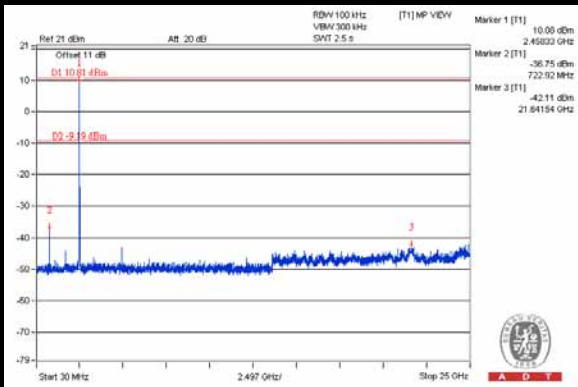
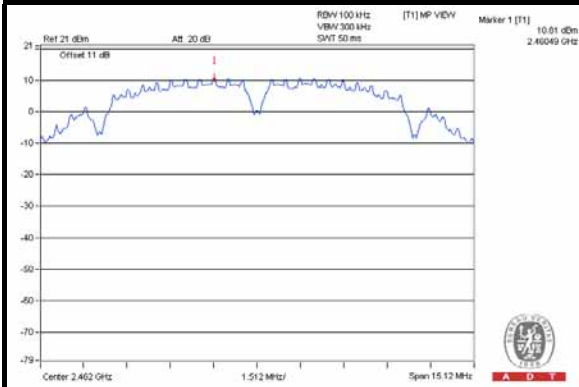
CH 1



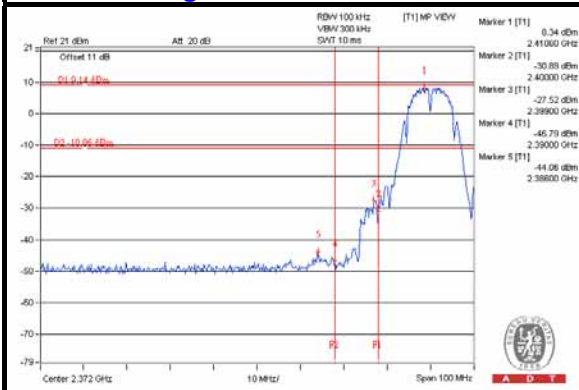
CH 6



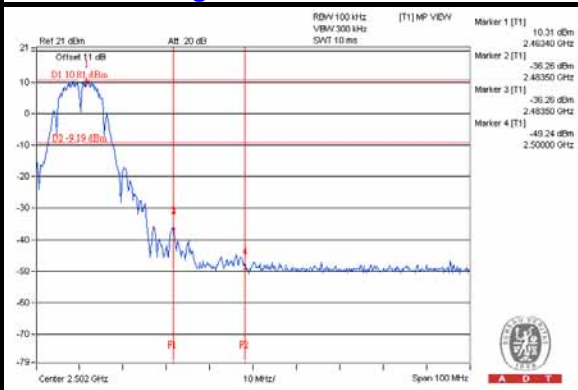
CH 11



CH 1 Band edge



CH 11 Band edge

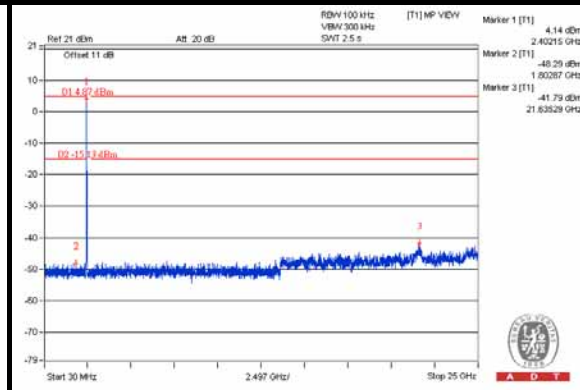
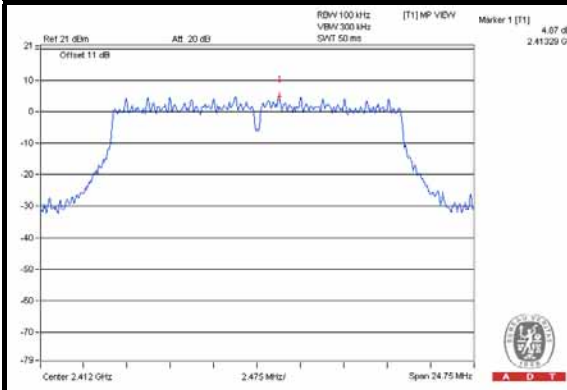




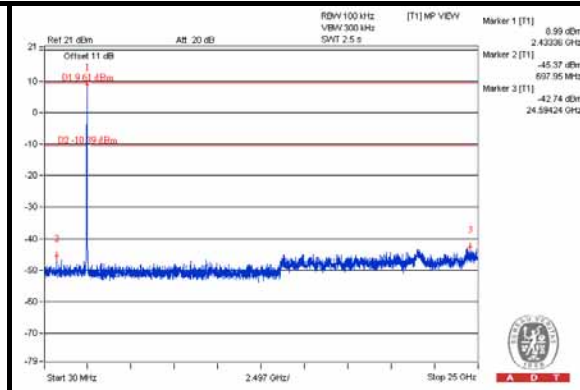
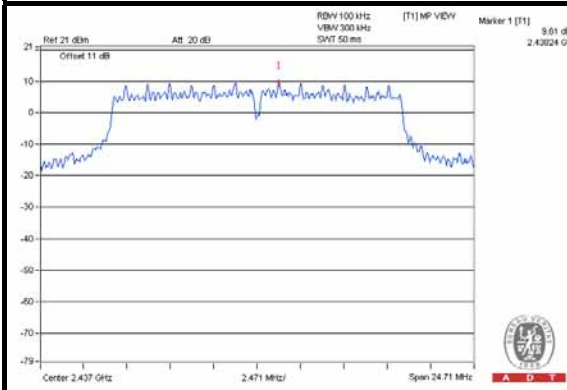
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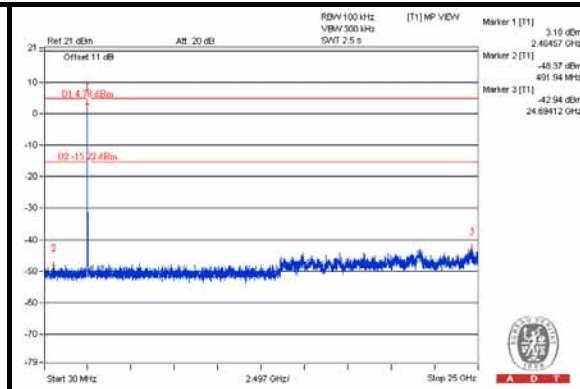
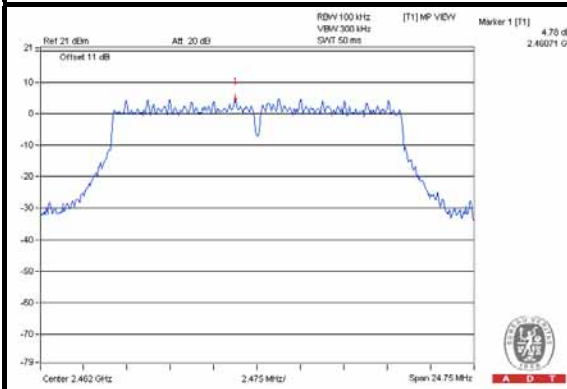
CH 1



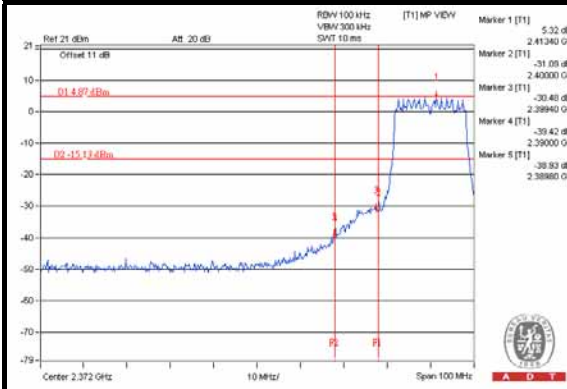
CH 6



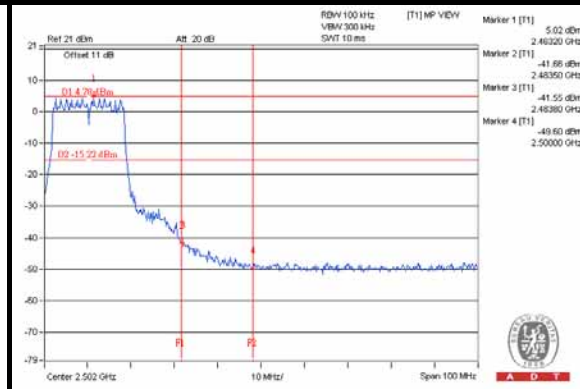
CH 11



CH 1 Band edge



CH 11 Band edge

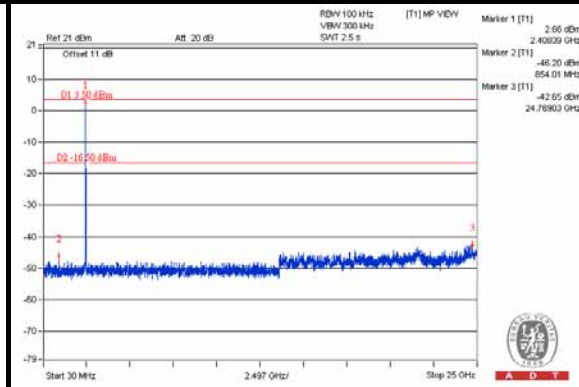
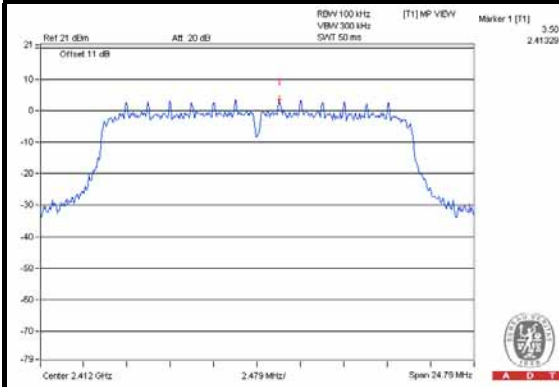




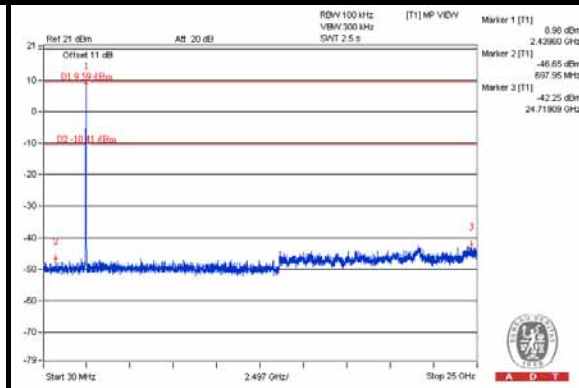
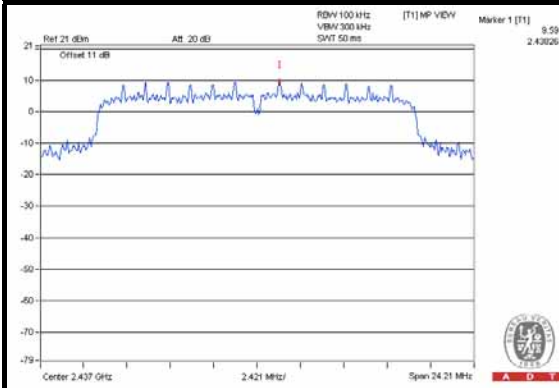
A D T

802.11n (HT20)

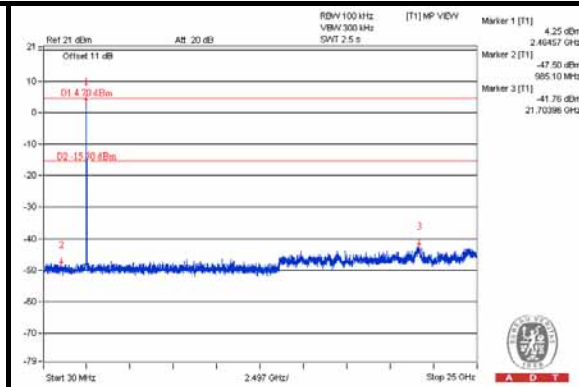
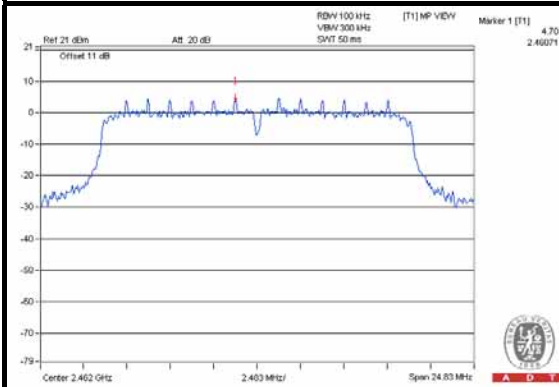
CH 1



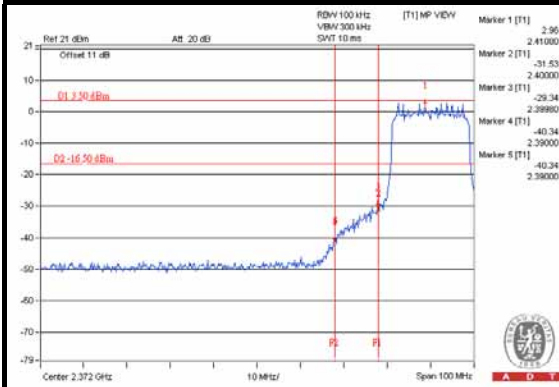
CH 6



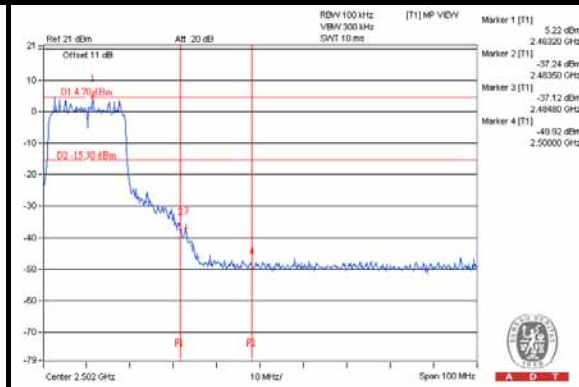
CH 11



CH 1 Band edge



CH 11 Band edge





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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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Fax: 886-2-26052943

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Web Site: www.bureauveritas-adt.com

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.

--- END ---