

FCC TEST REPORT (WLAN)

REPORT NO.: RF131128E01

MODEL NO.: F7C031

FCC ID: K7SF7C031

RECEIVED: Nov. 28, 2013

TESTED: Dec. 09, 2013 to Apr. 03, 2014

ISSUED: June 12, 2014

APPLICANT: Belkin, International Inc.,

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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
RF131128E01	Original release	June 12, 2014

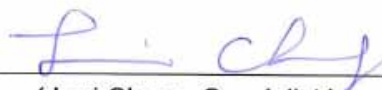


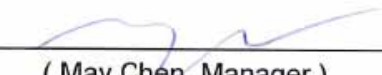
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1. CERTIFICATION

PRODUCT: WeMo Link
BRAND NAME: Belkin
MODEL NO.: F7C031
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Belkin, International Inc.,
TESTED: Dec. 09, 2013 to Apr. 03, 2014
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: F7C031) 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:** June 12, 2014
(Lori Chung, Specialist)

APPROVED BY : , **DATE:** June 12, 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 -10.01dB at 0.96891MHz
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.0dB at 2390.00MHz & 4874.00MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2483.50MHz
15.247(d)	Antenna Port Emission	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	Antenna connector is i-pex(MHF) not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.37 dB
Radiated emissions (1GHz -6GHz)-chamber H	3.72 dB
Radiated emissions (1GHz -6GHz)-chamber G	3.65 dB
Radiated emissions (6GHz -18GHz)-chamber H	4.00 dB
Radiated emissions (6GHz -18GHz)-chamber G	3.88 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT (WLAN)

PRODUCT	WeMo Link
MODEL NO.	F7C031
POWER SUPPLY	Please see NOTE
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: 205.589mW 802.11g: 399.025mW 802.11n (HT20): 358.922mW 802.11n (HT40): 312.608mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

1. According to the applicant's requirement two test samples were tested for radiated spurious emission only.
2. There are WLAN technology and Zigbee technology used for the EUT.
3. The antennas provided to the EUT, please refer to the following table:

Zigbee Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
WNC	PIFA	i-pex(MHF)	2.17	2400 – 2483.5
WLAN Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
WNC	PIFA	i-pex(MHF)	1.40	2400 – 2483.5

4. 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

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

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

6. Spurious emission of the simultaneous operation (WLAN & Zigbee) has been evaluated and no non-compliance was found.
7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.
8. 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	
MODE 1	√	√	√	√	√	Sample 1
MODE 2	-	√	√	-	-	Sample 2

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's antenna had been pre-tested on the positioned of each 2 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	MODULATIO N 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
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	24deg. C, 61%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	22deg. C, 63%RH 22deg. C, 65%RH	120Vac, 60Hz	Robert Cheng
RE≥1G	22deg. C, 64%RH 24deg. C, 67%RH	120Vac, 60Hz	Jason Huang Gary Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng
OB	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

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 v03r01

ANSI C63.10-2009

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

3.4 DUTY CYCLE OF TEST SIGNAL

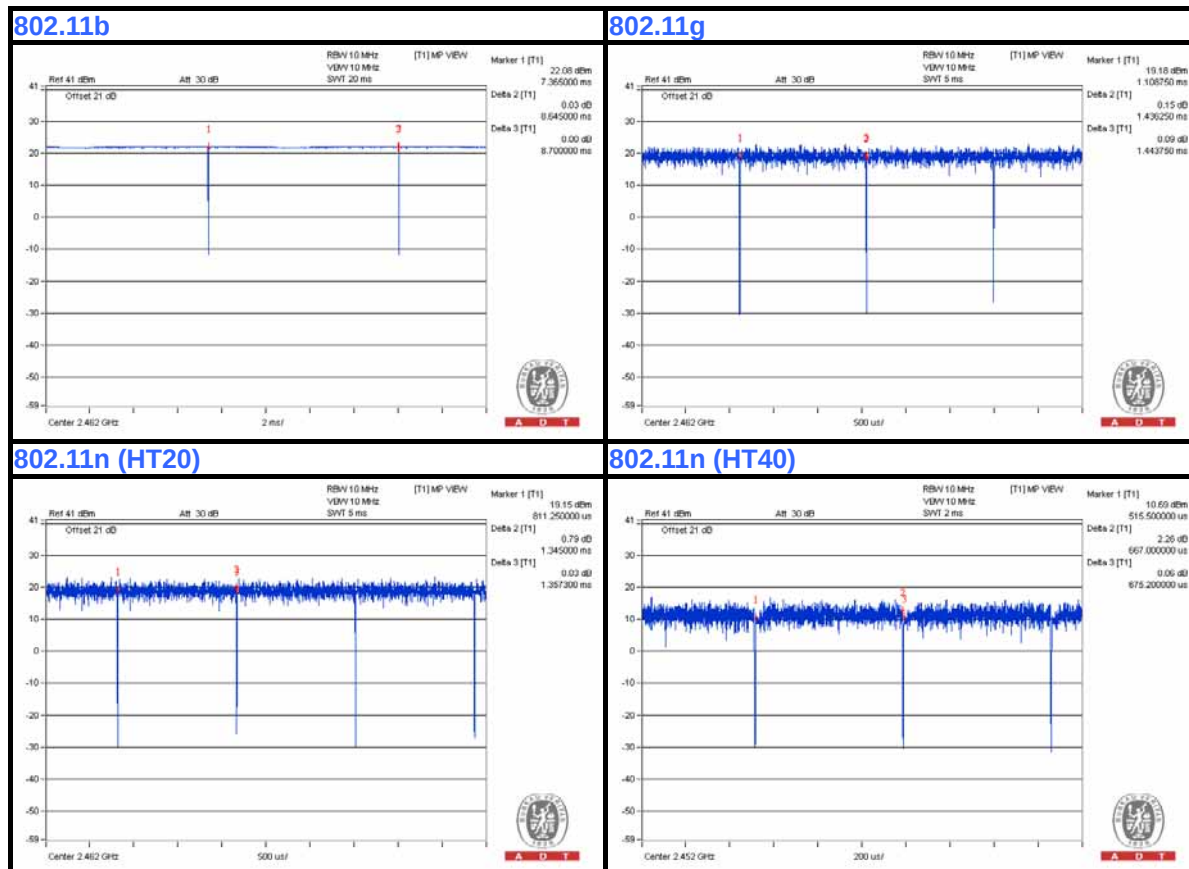
If duty cycle of test signal is > 98 %, duty factor is not required.

802.11b: Duty cycle = 8.645 ms/8.7 ms = 0.994

802.11g: Duty cycle = 1.436 ms/1.444 ms = 0.994

802.11n (HT20): Duty cycle = 1.345 ms/1.357 ms = 0.991

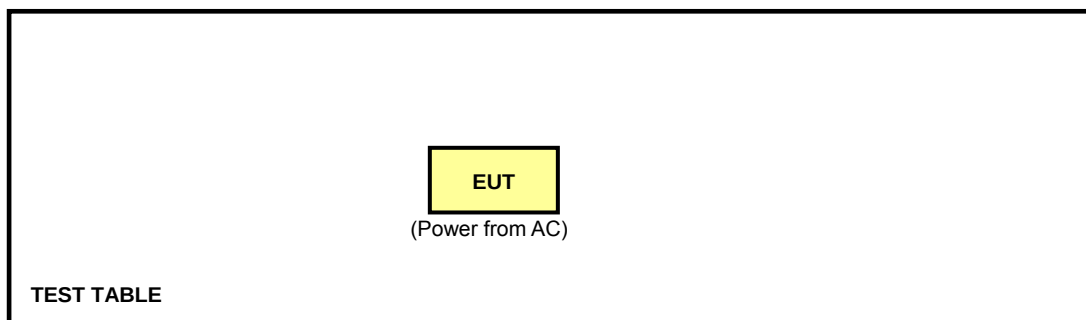
802.11n (HT40): Duty cycle = 0.667 ms/0.675 ms = 0.988



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100287	Feb. 28, 2013	Feb. 27, 2014
Line-Impedance Stabilization Network (for EUT) ROHDE & SCHWARZ	NSLK-8127	5127-523	Oct. 02, 2013	Oct. 01, 2014
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 13, 2013	Nov. 12, 2014
RF Cable (JYBAO)	5DFB	COACAB-001	May 27, 2013	May 26, 2014
50 ohms Terminator	50	3	Oct. 17, 2013	Oct. 16, 2014
50 ohms Terminator	N/A	EMC-04	Oct. 17, 2013	Oct. 16, 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. A.
3. The VCCI Con A Registration No. is C-817.
4. Tested Date: Dec. 09, 2013

4.1.3 TEST PROCEDURES

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

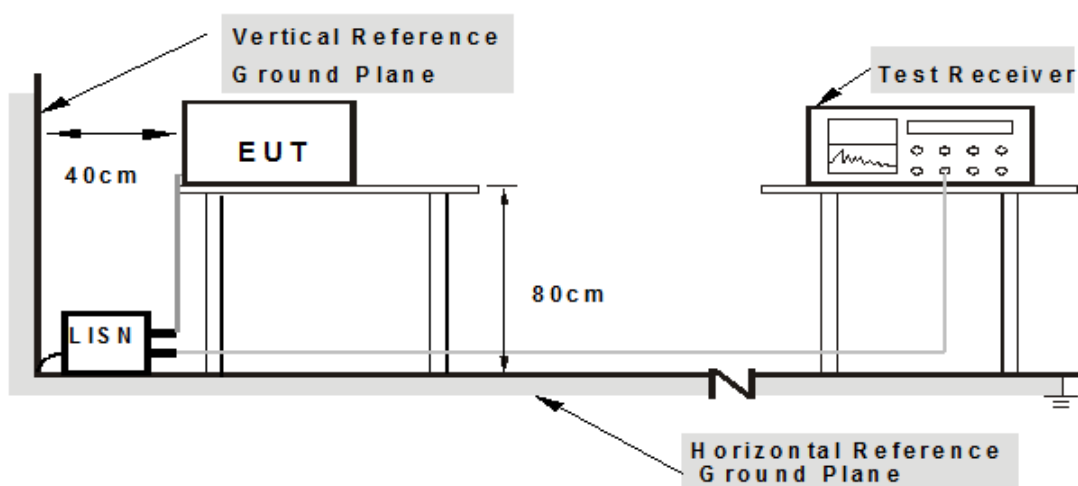
NOTE:

- 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 (RT5350QA.exe & HyperTerminal paste Zigbee command) has been activated to set the EUT on specific status.

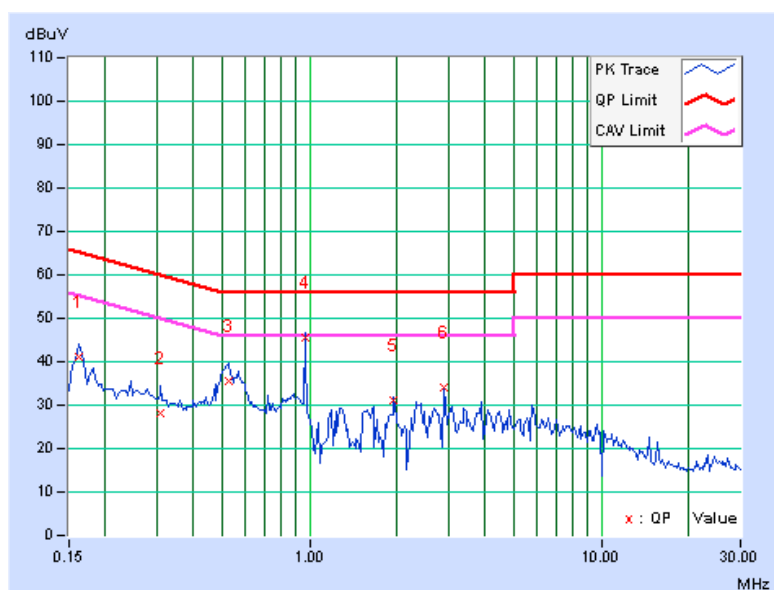
4.1.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16272	0.07	41.00	39.73	41.07	39.80	65.32	55.32	-24.25	-15.52
2	0.31016	0.11	28.06	14.72	28.17	14.83	59.97	49.97	-31.79	-35.13
3	0.52891	0.15	35.54	24.72	35.69	24.87	56.00	46.00	-20.31	-21.13
4	0.97031	0.18	45.50	34.33	45.68	34.51	56.00	46.00	-10.32	-11.49
5	1.93750	0.24	31.03	22.09	31.27	22.33	56.00	46.00	-24.73	-23.67
6	2.90625	0.34	33.90	23.08	34.24	23.42	56.00	46.00	-21.76	-22.58

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

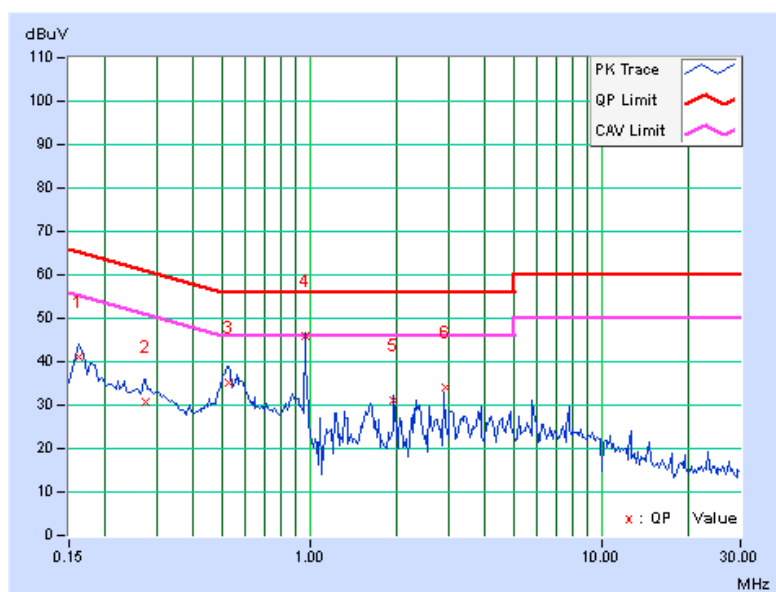


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.07	41.14	39.39	41.21	39.46	65.38	55.38	-24.17	-15.92
2	0.27500	0.10	30.65	17.38	30.75	17.48	60.97	50.97	-30.22	-33.49
3	0.52891	0.15	34.98	25.19	35.13	25.34	56.00	46.00	-20.87	-20.66
4	0.96891	0.18	45.81	34.65	45.99	34.83	56.00	46.00	-10.01	-11.17
5	1.93750	0.23	31.01	22.37	31.24	22.60	56.00	46.00	-24.76	-23.40
6	2.90825	0.28	33.90	23.32	34.18	23.60	56.00	46.00	-21.82	-22.40

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.



A D T

4.2.2 TEST INSTRUMENTS

For MODE 1 below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	Jan. 29, 2013	Jan. 28, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Mar. 19, 2013	Mar. 18, 2014
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: Jan. 15, 2014



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For MODE 1 802.11b-CH1 above 1GHz / MODE 2 above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 15, 2014	Jan. 14, 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. 06, 2013	Oct. 05, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Dec. 06, 2013	Dec. 05, 2014
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	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. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: Apr. 01 to 03, 2014



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**For MODE 1 802.11g-CH1, 802.11n (HT20)-CH1 and 802.11n (HT40)-CH3, CH9 above 1GHz /
MODE 2 below 1GHz test:**

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: Mar. 19 and Apr. 03, 2014



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For MODE 1 above 1GHz (except for 802.11b-CH1, 802.11g-CH1, 802.11n (HT20)-CH1 and 802.11n (HT40)-CH3, CH9) test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 15, 2014	Jan. 14, 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	Mar. 25, 2013	Mar. 24, 2014
RF Cable	NA	CHHCAB_001	Oct. 06, 2013	Oct. 05, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Dec. 06, 2013	Dec. 05, 2014
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	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. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: Jan. 16, 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:

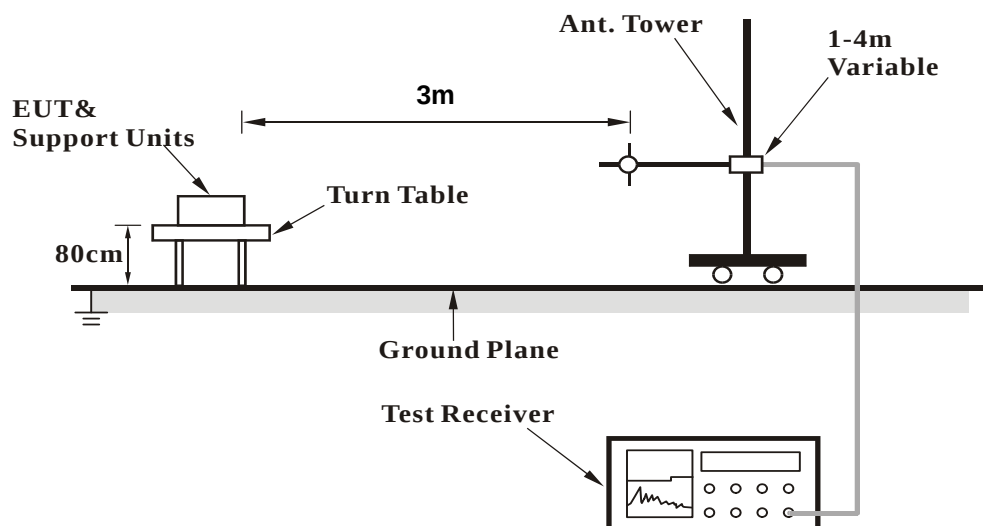
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

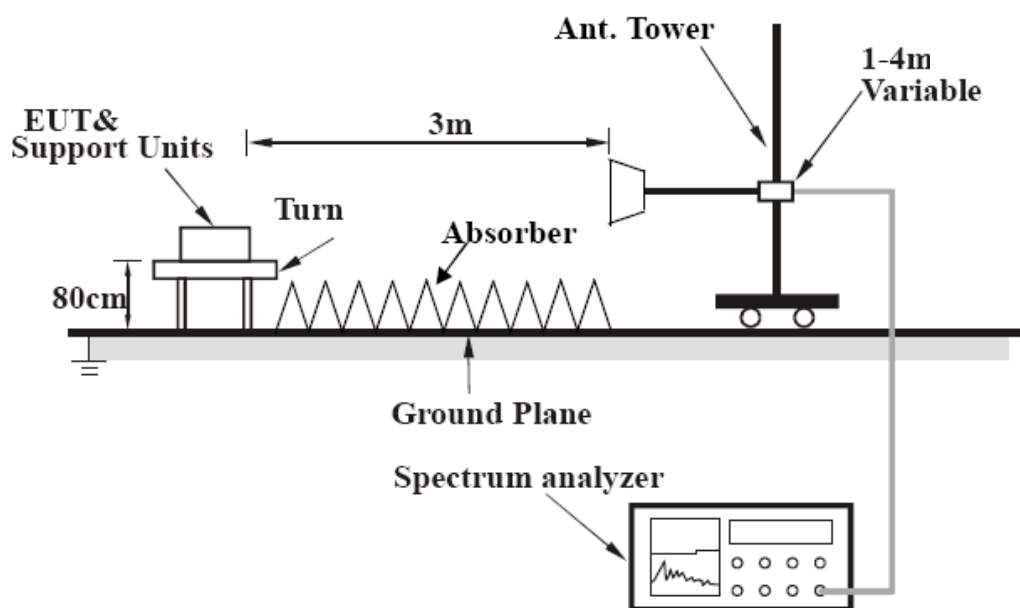
No deviation

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

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	141.36	27.8 QP	43.5	-15.7	1.50 H	61	41.40	-13.60
2	229.92	21.2 QP	46.0	-24.8	1.00 H	301	37.10	-15.90
3	600.02	36.5 QP	46.0	-9.5	1.00 H	360	41.50	-5.00
4	782.57	34.6 QP	46.0	-11.4	1.00 H	39	36.20	-1.60
5	840.00	42.0 QP	46.0	-4.0	1.50 H	80	43.00	-1.00
6	921.53	34.6 QP	46.0	-11.4	1.00 H	305	33.90	0.70
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	103.77	33.9 QP	43.5	-9.6	1.50 V	71	51.20	-17.30
2	114.68	37.3 QP	43.5	-6.2	1.50 V	69	53.20	-15.90
3	133.06	36.8 QP	43.5	-6.7	1.50 V	67	50.90	-14.10
4	208.82	29.7 QP	43.5	-13.8	1.50 V	71	46.20	-16.50
5	600.02	37.3 QP	46.0	-8.7	1.00 V	301	42.30	-5.00
6	840.00	42.6 QP	46.0	-3.4	1.50 V	12	43.60	-1.00

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	58.7 PK	74.0	-15.3	1.07 H	209	62.15	-3.45
2	2390.00	46.8 AV	54.0	-7.2	1.07 H	209	50.25	-3.45
3	*2412.00	109.1 PK			1.07 H	211	112.49	-3.39
4	*2412.00	105.0 AV			1.07 H	211	108.39	-3.39
5	4824.00	55.5 PK	74.0	-18.5	1.05 H	360	49.01	6.49
6	4824.00	49.5 AV	54.0	-4.5	1.05 H	360	43.01	6.49

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	55.9 PK	74.0	-18.1	1.07 V	94	59.35	-3.45
2	2390.00	44.4 AV	54.0	-9.6	1.07 V	94	47.85	-3.45
3	*2412.00	107.2 PK			1.07 V	94	110.59	-3.39
4	*2412.00	102.9 AV			1.07 V	94	106.29	-3.39
5	4824.00	55.2 PK	74.0	-18.8	1.07 V	94	48.71	6.49
6	4824.00	50.9 AV	54.0	-3.1	1.07 V	94	44.41	6.49

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 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	110.0 PK			1.08 H	207	76.33	33.67
2	*2437.00	105.7 AV			1.08 H	207	72.03	33.67
3	4874.00	55.9 PK	74.0	-18.1	1.06 H	93	12.66	43.24
4	4874.00	51.0 AV	54.0	-3.0	1.06 H	93	7.76	43.24
5	7311.00	59.0 PK	74.0	-15.0	1.00 H	0	10.93	48.07
6	7311.00	45.9 AV	54.0	-8.1	1.00 H	0	-2.17	48.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.6 PK			1.04 V	79	73.93	33.67
2	*2437.00	103.1 AV			1.04 V	79	69.43	33.67
3	4874.00	54.8 PK	74.0	-19.2	1.03 V	27	11.56	43.24
4	4874.00	48.1 AV	54.0	-5.9	1.03 V	27	4.86	43.24
5	7311.00	61.2 PK	74.0	-12.8	1.00 V	0	13.13	48.07
6	7311.00	48.9 AV	54.0	-5.1	1.00 V	0	0.83	48.07

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	108.1 PK			1.37 H	223	74.36	33.74
2	*2462.00	105.6 AV			1.37 H	223	71.86	33.74
3	2483.50	60.1 PK	74.0	-13.9	1.37 H	223	26.29	33.81
4	2483.50	48.3 AV	54.0	-5.7	1.37 H	223	14.49	33.81
5	4924.00	53.4 PK	74.0	-20.6	1.10 H	23	10.13	43.27
6	4924.00	48.3 AV	54.0	-5.7	1.10 H	23	5.03	43.27
7	7386.00	59.3 PK	74.0	-14.7	1.00 H	21	10.90	48.40
8	7386.00	46.2 AV	54.0	-7.8	1.00 H	21	-2.20	48.40

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			1.23 V	325	73.56	33.74
2	*2462.00	103.9 AV			1.23 V	325	70.16	33.74
3	2483.50	54.3 PK	74.0	-19.7	1.23 V	325	20.49	33.81
4	2483.50	48.1 AV	54.0	-5.9	1.23 V	325	14.29	33.81
5	4924.00	54.9 PK	74.0	-19.1	1.00 V	23	11.63	43.27
6	4924.00	48.4 AV	54.0	-5.6	1.00 V	23	5.13	43.27
7	7386.00	61.3 PK	74.0	-12.7	1.00 V	13	12.90	48.40
8	7386.00	48.7 AV	54.0	-5.3	1.00 V	13	0.30	48.40

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	69.1 PK	74.0	-4.9	1.34 H	116	36.40	32.70
2	2390.00	50.9 AV	54.0	-3.1	1.34 H	116	18.20	32.70
3	*2412.00	108.2 PK			1.34 H	116	75.40	32.80
4	*2412.00	99.1 AV			1.34 H	116	66.30	32.80
5	4824.00	51.3 PK	74.0	-22.7	1.05 H	44	10.50	40.80
6	4824.00	40.3 AV	54.0	-13.7	1.05 H	44	-0.50	40.80
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	58.3 PK	74.0	-15.7	1.30 V	334	25.60	32.70
2	2390.00	46.8 AV	54.0	-7.2	1.30 V	334	14.10	32.70
3	*2412.00	101.5 PK			1.30 V	334	68.70	32.80
4	*2412.00	93.3 AV			1.30 V	334	60.50	32.80
5	4824.00	50.3 PK	74.0	-23.7	1.25 V	85	9.50	40.80
6	4824.00	40.1 AV	54.0	-13.9	1.25 V	85	-0.70	40.80

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	2384.60	58.2 PK	74.0	-15.8	1.38 H	229	24.69	33.51
2	2384.60	48.2 AV	54.0	-5.8	1.38 H	229	14.69	33.51
3	*2437.00	109.9 PK			1.38 H	229	76.23	33.67
4	*2437.00	100.3 AV			1.38 H	229	66.63	33.67
5	2489.40	57.8 PK	74.0	-16.2	1.38 H	229	23.97	33.83
6	2489.40	48.3 AV	54.0	-5.7	1.38 H	229	14.47	33.83
7	4874.00	50.2 PK	74.0	-23.8	1.10 H	136	6.96	43.24
8	4874.00	38.3 AV	54.0	-15.7	1.10 H	136	-4.94	43.24
9	7311.00	58.8 PK	74.0	-15.2	1.00 H	32	10.73	48.07
10	7311.00	45.9 AV	54.0	-8.1	1.00 H	32	-2.17	48.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.60	53.3 PK	74.0	-20.7	1.30 V	334	19.79	33.51
2	2384.60	43.1 AV	54.0	-10.9	1.30 V	334	9.59	33.51
3	*2437.00	101.7 PK			1.30 V	334	68.03	33.67
4	*2437.00	93.4 AV			1.30 V	334	59.73	33.67
5	2489.40	54.1 PK	74.0	-19.9	1.30 V	334	20.27	33.83
6	2489.40	43.6 AV	54.0	-10.4	1.30 V	334	9.77	33.83
7	4874.00	50.0 PK	74.0	-24.0	1.25 V	71	6.76	43.24
8	4874.00	39.8 AV	54.0	-14.2	1.25 V	71	-3.44	43.24
9	7311.00	57.1 PK	74.0	-16.9	1.00 V	21	9.03	48.07
10	7311.00	46.7 AV	54.0	-7.3	1.00 V	21	-1.37	48.07

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	109.7 PK			1.36 H	229	75.96	33.74
2	*2462.00	100.5 AV			1.36 H	229	66.76	33.74
3	2483.50	66.9 PK	74.0	-7.1	1.36 H	229	33.09	33.81
4	2483.50	52.8 AV	54.0	-1.2	1.36 H	229	18.99	33.81
5	4924.00	50.3 PK	74.0	-23.7	1.02 H	48	7.03	43.27
6	4924.00	38.7 AV	54.0	-15.3	1.02 H	48	-4.57	43.27
7	7386.00	59.5 PK	74.0	-14.5	1.05 H	17	11.10	48.40
8	7386.00	46.3 AV	54.0	-7.7	1.05 H	17	-2.10	48.40

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	102.1 PK			1.30 V	322	68.36	33.74
2	*2462.00	94.1 AV			1.30 V	322	60.36	33.74
3	2483.50	58.5 PK	74.0	-15.5	1.24 V	345	24.69	33.81
4	2483.50	47.1 AV	54.0	-6.9	1.24 V	345	13.29	33.81
5	4924.00	50.4 PK	74.0	-23.6	1.27 V	70	7.13	43.27
6	4924.00	40.3 AV	54.0	-13.7	1.27 V	70	-2.97	43.27
7	7386.00	57.0 PK	74.0	-17.0	1.00 V	16	8.60	48.40
8	7386.00	46.8 AV	54.0	-7.2	1.00 V	16	-1.60	48.40

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	69.7 PK	74.0	-4.3	1.35 H	121	37.00	32.70
2	2390.00	51.0 AV	54.0	-3.0	1.35 H	121	18.30	32.70
3	*2412.00	105.0 PK			1.35 H	121	72.20	32.80
4	*2412.00	95.8 AV			1.35 H	121	63.00	32.80
5	4824.00	51.3 PK	74.0	-22.7	1.16 H	214	10.50	40.80
6	4824.00	40.2 AV	54.0	-13.8	1.16 H	214	-0.60	40.80
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	62.5 PK	74.0	-11.5	1.02 V	324	29.80	32.70
2	2390.00	45.7 AV	54.0	-8.3	1.02 V	324	13.00	32.70
3	*2412.00	100.3 PK			1.02 V	324	67.50	32.80
4	*2412.00	92.0 AV			1.02 V	324	59.20	32.80
5	4824.00	50.6 PK	74.0	-23.4	1.25 V	71	9.80	40.80
6	4824.00	40.2 AV	54.0	-13.8	1.25 V	71	-0.60	40.80

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	2385.20	56.8 PK	74.0	-17.2	1.37 H	231	23.29	33.51
2	2385.20	47.5 AV	54.0	-6.5	1.37 H	231	13.99	33.51
3	*2437.00	108.2 PK			1.37 H	231	74.53	33.67
4	*2437.00	98.5 AV			1.37 H	231	64.83	33.67
5	2488.00	56.3 PK	74.0	-17.7	1.37 H	231	22.47	33.83
6	2488.00	47.7 AV	54.0	-6.3	1.37 H	231	13.87	33.83
7	4874.00	52.4 PK	74.0	-21.6	1.20 H	201	9.16	43.24
8	4874.00	41.4 AV	54.0	-12.6	1.20 H	201	-1.84	43.24
9	7311.00	59.5 PK	74.0	-14.5	1.00 H	16	11.43	48.07
10	7311.00	46.6 AV	54.0	-7.4	1.00 H	16	-1.47	48.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.20	53.3 PK	74.0	-20.7	1.24 V	333	19.79	33.51
2	2385.20	43.2 AV	54.0	-10.8	1.24 V	333	9.69	33.51
3	*2437.00	101.5 PK			1.03 V	324	67.83	33.67
4	*2437.00	93.4 AV			1.03 V	324	59.73	33.67
5	2488.00	54.4 PK	74.0	-19.6	1.31 V	327	20.57	33.83
6	2488.00	44.0 AV	54.0	-10.0	1.31 V	327	10.17	33.83
7	4874.00	50.6 PK	74.0	-23.4	1.21 V	67	7.36	43.24
8	4874.00	40.2 AV	54.0	-13.8	1.21 V	67	-3.04	43.24
9	7311.00	58.1 PK	74.0	-15.9	1.09 V	41	10.03	48.07
10	7311.00	46.3 AV	54.0	-7.7	1.09 V	41	-1.77	48.07

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	107.5 PK			1.38 H	228	73.76	33.74
2	*2462.00	99.2 AV			1.38 H	228	65.46	33.74
3	2483.50	69.9 PK	74.0	-4.1	1.38 H	228	36.09	33.81
4	2483.50	52.5 AV	54.0	-1.5	1.38 H	228	18.69	33.81
5	4924.00	51.9 PK	74.0	-22.2	1.24 H	212	8.58	43.27
6	4924.00	41.7 AV	54.0	-12.3	1.24 H	212	-1.57	43.27
7	7386.00	58.7 PK	74.0	-15.3	1.03 H	33	10.30	48.40
8	7386.00	45.7 AV	54.0	-8.3	1.03 H	33	-2.70	48.40

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			1.00 V	332	67.86	33.74
2	*2462.00	93.0 AV			1.00 V	332	59.26	33.74
3	2483.50	63.2 PK	74.0	-10.8	1.06 V	326	29.39	33.81
4	2483.50	46.3 AV	54.0	-7.7	1.06 V	326	12.49	33.81
5	4924.00	50.9 PK	74.0	-23.1	1.30 V	81	7.63	43.27
6	4924.00	40.5 AV	54.0	-13.5	1.30 V	81	-2.77	43.27
7	7386.00	57.9 PK	74.0	-16.1	1.09 V	50	9.50	48.40
8	7386.00	46.0 AV	54.0	-8.0	1.09 V	50	-2.40	48.40

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 (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	68.0 PK	74.0	-6.0	1.19 H	125	35.30	32.70
2	2390.00	50.9 AV	54.0	-3.1	1.19 H	125	18.20	32.70
3	*2422.00	99.1 PK			1.19 H	125	66.30	32.80
4	*2422.00	90.1 AV			1.19 H	125	57.30	32.80
5	4844.00	52.3 PK	74.0	-21.7	1.10 H	36	11.40	40.90
6	4844.00	41.2 AV	54.0	-12.8	1.10 H	36	0.30	40.90
7	7266.00	59.7 PK	74.0	-14.3	1.00 H	35	11.00	48.70
8	7266.00	46.6 AV	54.0	-7.4	1.00 H	35	-2.10	48.70
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	64.5 PK	74.0	-9.5	1.03 V	326	31.80	32.70
2	2390.00	48.5 AV	54.0	-5.5	1.03 V	326	15.80	32.70
3	*2422.00	94.8 PK			1.03 V	326	62.00	32.80
4	*2422.00	85.5 AV			1.03 V	326	52.70	32.80
5	4844.00	48.1 PK	74.0	-25.9	1.22 V	68	7.20	40.90
6	4844.00	37.4 AV	54.0	-16.6	1.22 V	68	-3.50	40.90
7	7266.00	58.1 PK	74.0	-15.9	1.00 V	24	9.40	48.70
8	7266.00	46.5 AV	54.0	-7.5	1.00 V	24	-2.20	48.70

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	61.5 PK	74.0	-12.5	1.37 H	254	27.97	33.53
2	2390.00	47.4 AV	54.0	-6.6	1.37 H	254	13.87	33.53
3	*2437.00	101.5 PK			1.37 H	254	67.83	33.67
4	*2437.00	92.1 AV			1.37 H	254	58.43	33.67
5	4874.00	51.2 PK	74.0	-22.8	1.24 H	82	7.96	43.24
6	4874.00	39.2 AV	54.0	-14.8	1.24 H	82	-4.04	43.24
7	7311.00	59.6 PK	74.0	-14.4	1.00 H	30	11.53	48.07
8	7311.00	46.3 AV	54.0	-7.7	1.00 H	30	-1.77	48.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	1.00 V	311	26.67	33.53
2	2390.00	46.1 AV	54.0	-7.9	1.00 V	311	12.57	33.53
3	*2437.00	95.3 PK			1.07 V	338	61.63	33.67
4	*2437.00	86.1 AV			1.07 V	338	52.43	33.67
5	4874.00	48.0 PK	74.0	-26.0	1.24 V	60	4.76	43.24
6	4874.00	37.4 AV	54.0	-16.6	1.24 V	60	-5.84	43.24
7	7311.00	57.9 PK	74.0	-16.1	1.00 V	11	9.83	48.07
8	7311.00	46.6 AV	54.0	-7.4	1.00 V	11	-1.47	48.07

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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 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	100.8 PK			1.38 H	225	67.90	32.90
2	*2452.00	92.5 AV			1.38 H	225	59.60	32.90
3	2483.50	68.3 PK	74.0	-5.7	1.38 H	225	35.30	33.00
4	2483.50	53.0 AV	54.0	-1.0	1.38 H	225	20.00	33.00
5	4904.00	50.2 PK	74.0	-23.8	1.08 H	312	9.20	41.00
6	4904.00	40.2 AV	54.0	-13.8	1.08 H	312	-0.80	41.00
7	7356.00	59.5 PK	74.0	-14.5	1.00 H	35	10.90	48.60
8	7356.00	46.4 AV	54.0	-7.6	1.00 H	35	-2.20	48.60

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	95.7 PK			1.02 V	325	62.80	32.90
2	*2452.00	86.3 AV			1.02 V	325	53.40	32.90
3	2483.50	65.1 PK	74.0	-8.9	1.00 V	317	32.10	33.00
4	2483.50	49.3 AV	54.0	-4.7	1.00 V	317	16.30	33.00
5	4904.00	47.8 PK	74.0	-26.2	1.22 V	79	6.80	41.00
6	4904.00	37.0 AV	54.0	-17.0	1.22 V	79	-4.00	41.00
7	7356.00	58.1 PK	74.0	-15.9	1.04 V	38	9.50	48.60
8	7356.00	46.3 AV	54.0	-7.7	1.04 V	38	-2.30	48.60

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	141.41	27.8 QP	43.5	-15.7	1.41 H	99	41.45	-13.63
2	230.14	21.3 QP	46.0	-24.7	1.00 H	301	37.23	-15.91
3	600.11	36.4 QP	46.0	-9.6	1.24 H	245	41.47	-5.10
4	782.78	34.7 QP	46.0	-11.3	1.34 H	214	36.26	-1.60
5	841.11	42.0 QP	46.0	-4.0	1.64 H	110	42.89	-0.91
6	921.62	34.7 QP	46.0	-11.3	1.43 H	211	34.11	0.61
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	104.11	34.2 QP	43.5	-9.3	1.44 V	110	51.45	-17.24
2	114.81	37.6 QP	43.5	-5.9	1.65 V	101	53.47	-15.85
3	133.11	36.9 QP	43.5	-6.6	1.74 V	102	51.13	-14.21
4	209.12	30.1 QP	43.5	-13.4	1.42 V	101	46.62	-16.51
5	600.11	37.6 QP	46.0	-8.4	1.23 V	65	42.74	-5.10
6	841.11	42.8 QP	46.0	-3.2	1.74 V	66	43.75	-0.91

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



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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	58.7 PK	74.0	-15.3	1.08 H	210	62.15	-3.45
2	2390.00	47.0 AV	54.0	-7.0	1.08 H	210	50.45	-3.45
3	*2412.00	109.6 PK			1.03 H	221	112.99	-3.39
4	*2412.00	105.3 AV			1.03 H	221	108.69	-3.39
5	4824.00	56.2 PK	74.0	-17.8	1.02 H	360	49.71	6.49
6	4824.00	50.0 AV	54.0	-4.0	1.02 H	360	43.51	6.49
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	56.2 PK	74.0	-17.8	1.13 V	108	59.65	-3.45
2	2390.00	44.8 AV	54.0	-9.2	1.13 V	108	48.25	-3.45
3	*2412.00	107.5 PK			1.09 V	82	110.89	-3.39
4	*2412.00	103.1 AV			1.09 V	82	106.49	-3.39
5	4824.00	55.3 PK	74.0	-18.7	1.11 V	104	48.81	6.49
6	4824.00	50.7 AV	54.0	-3.3	1.11 V	104	44.21	6.49

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 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	110.7 PK			1.04 H	196	114.01	-3.31
2	*2437.00	106.2 AV			1.04 H	196	109.51	-3.31
3	4874.00	55.9 PK	74.0	-18.1	1.03 H	77	49.37	6.53
4	4874.00	50.8 AV	54.0	-3.2	1.03 H	77	44.27	6.53
5	7311.00	58.8 PK	74.0	-15.2	1.01 H	0	47.71	11.09
6	7311.00	45.7 AV	54.0	-8.3	1.01 H	0	34.61	11.09

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	108.0 PK			1.03 V	95	111.31	-3.31
2	*2437.00	103.3 AV			1.03 V	95	106.61	-3.31
3	4874.00	54.5 PK	74.0	-19.5	1.00 V	31	47.97	6.53
4	4874.00	47.6 AV	54.0	-6.4	1.00 V	31	41.07	6.53
5	7311.00	61.4 PK	74.0	-12.6	1.05 V	5	50.31	11.09
6	7311.00	49.3 AV	54.0	-4.7	1.05 V	5	38.21	11.09

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	108.4 PK			1.39 H	239	111.63	-3.23
2	*2462.00	105.9 AV			1.39 H	239	109.13	-3.23
3	2483.50	59.9 PK	74.0	-14.1	1.37 H	219	63.06	-3.16
4	2483.50	48.3 AV	54.0	-5.7	1.37 H	219	51.46	-3.16
5	4924.00	53.4 PK	74.0	-20.6	1.16 H	29	46.86	6.54
6	4924.00	48.1 AV	54.0	-5.9	1.16 H	29	41.56	6.54
7	7386.00	59.2 PK	74.0	-14.8	1.00 H	17	47.79	11.41
8	7386.00	46.0 AV	54.0	-8.0	1.00 H	17	34.59	11.41

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	107.1 PK			1.25 V	314	110.33	-3.23
2	*2462.00	103.4 AV			1.25 V	314	106.63	-3.23
3	2483.50	54.9 PK	74.0	-19.1	1.20 V	310	58.06	-3.16
4	2483.50	48.4 AV	54.0	-5.6	1.20 V	310	51.56	-3.16
5	4924.00	54.5 PK	74.0	-19.5	1.04 V	15	47.96	6.54
6	4924.00	48.2 AV	54.0	-5.8	1.04 V	15	41.66	6.54
7	7386.00	61.5 PK	74.0	-12.5	1.00 V	26	50.09	11.41
8	7386.00	48.8 AV	54.0	-5.2	1.00 V	26	37.39	11.41

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	69.3 PK	74.0	-4.7	1.24 H	132	72.80	-3.50
2	2390.00	50.9 AV	54.0	-3.1	1.24 H	132	54.40	-3.50
3	*2412.00	108.3 PK			1.24 H	132	111.70	-3.40
4	*2412.00	100.1 AV			1.24 H	132	103.50	-3.40
5	4824.00	51.3 PK	74.0	-22.7	1.05 H	37	44.90	6.40
6	4824.00	40.4 AV	54.0	-13.6	1.05 H	37	34.00	6.40
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	58.2 PK	74.0	-15.8	1.26 V	348	61.65	-3.45
2	2390.00	46.4 AV	54.0	-7.6	1.26 V	348	49.85	-3.45
3	*2412.00	101.5 PK			1.31 V	323	104.89	-3.39
4	*2412.00	93.3 AV			1.31 V	323	96.69	-3.39
5	4824.00	49.9 PK	74.0	-24.1	1.20 V	81	43.41	6.49
6	4824.00	40.0 AV	54.0	-14.0	1.20 V	81	33.51	6.49

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 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	2384.60	58.2 PK	74.0	-15.8	1.39 H	242	61.68	-3.48
2	2384.60	48.2 AV	54.0	-5.8	1.39 H	242	51.68	-3.48
3	*2437.00	110.1 PK			1.44 H	239	113.41	-3.31
4	*2437.00	100.7 AV			1.44 H	239	104.01	-3.31
5	2489.40	58.3 PK	74.0	-15.7	1.34 H	223	61.44	-3.14
6	2489.40	48.6 AV	54.0	-5.4	1.34 H	223	51.74	-3.14
7	4874.00	50.3 PK	74.0	-23.7	1.10 H	151	43.77	6.53
8	4874.00	38.2 AV	54.0	-15.8	1.10 H	151	31.67	6.53
9	7311.00	58.2 PK	74.0	-15.8	1.00 H	42	47.11	11.09
10	7311.00	45.5 AV	54.0	-8.5	1.00 H	42	34.41	11.09

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	2384.60	52.5 PK	74.0	-21.5	1.27 V	349	55.98	-3.48
2	2384.60	42.6 AV	54.0	-11.4	1.27 V	349	46.08	-3.48
3	*2437.00	101.8 PK			1.27 V	322	105.11	-3.31
4	*2437.00	93.6 AV			1.27 V	322	96.91	-3.31
5	2489.40	54.4 PK	74.0	-19.6	1.27 V	342	57.54	-3.14
6	2489.40	43.8 AV	54.0	-10.2	1.27 V	342	46.94	-3.14
7	4874.00	50.5 PK	74.0	-23.5	1.22 V	71	43.97	6.53
8	4874.00	40.0 AV	54.0	-14.0	1.22 V	71	33.47	6.53
9	7311.00	57.0 PK	74.0	-17.0	1.05 V	37	45.91	11.09
10	7311.00	46.5 AV	54.0	-7.5	1.05 V	37	35.41	11.09

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	109.3 PK			1.39 H	226	112.53	-3.23
2	*2462.00	100.1 AV			1.39 H	226	103.33	-3.23
3	2483.50	66.7 PK	74.0	-7.3	1.38 H	216	69.86	-3.16
4	2483.50	52.5 AV	54.0	-1.5	1.38 H	216	55.66	-3.16
5	4924.00	50.5 PK	74.0	-23.5	1.00 H	58	43.96	6.54
6	4924.00	38.9 AV	54.0	-15.1	1.00 H	58	32.36	6.54
7	7386.00	60.0 PK	74.0	-14.0	1.08 H	6	48.59	11.41
8	7386.00	46.6 AV	54.0	-7.4	1.08 H	6	35.19	11.41

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	102.7 PK			1.32 V	310	105.93	-3.23
2	*2462.00	94.6 AV			1.32 V	310	97.83	-3.23
3	2483.50	58.1 PK	74.0	-15.9	1.20 V	355	61.26	-3.16
4	2483.50	47.0 AV	54.0	-7.0	1.20 V	355	50.16	-3.16
5	4924.00	51.0 PK	74.0	-23.0	1.28 V	72	44.46	6.54
6	4924.00	40.8 AV	54.0	-13.2	1.28 V	72	34.26	6.54
7	7386.00	57.1 PK	74.0	-16.9	1.00 V	12	45.69	11.41
8	7386.00	46.9 AV	54.0	-7.1	1.00 V	12	35.49	11.41

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	69.8 PK	74.0	-4.2	1.21 H	135	73.30	-3.50
2	2390.00	51.0 AV	54.0	-3.0	1.21 H	135	54.50	-3.50
3	*2412.00	105.1 PK			1.21 H	135	108.50	-3.40
4	*2412.00	95.9 AV			1.21 H	135	99.30	-3.40
5	4824.00	51.6 PK	74.0	-22.4	1.13 H	223	45.20	6.40
6	4824.00	40.6 AV	54.0	-13.4	1.13 H	223	34.20	6.40
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	1.07 V	314	66.35	-3.45
2	2390.00	45.9 AV	54.0	-8.1	1.07 V	314	49.35	-3.45
3	*2412.00	100.1 PK			1.00 V	337	103.49	-3.39
4	*2412.00	91.8 AV			1.00 V	337	95.19	-3.39
5	4824.00	51.0 PK	74.0	-23.0	1.23 V	74	44.51	6.49
6	4824.00	40.4 AV	54.0	-13.6	1.23 V	74	33.91	6.49

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 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	2385.20	57.0 PK	74.0	-17.0	1.39 H	225	60.48	-3.48
2	2385.20	47.4 AV	54.0	-6.6	1.39 H	225	50.88	-3.48
3	*2437.00	108.3 PK			1.39 H	216	111.61	-3.31
4	*2437.00	98.8 AV			1.39 H	216	102.11	-3.31
5	2488.00	56.6 PK	74.0	-17.4	1.34 H	234	59.74	-3.14
6	2488.00	48.1 AV	54.0	-5.9	1.34 H	234	51.24	-3.14
7	4874.00	52.4 PK	74.0	-21.6	1.20 H	191	45.87	6.53
8	4874.00	41.3 AV	54.0	-12.7	1.20 H	191	34.77	6.53
9	7311.00	59.2 PK	74.0	-14.8	1.00 H	1	48.11	11.09
10	7311.00	46.4 AV	54.0	-7.6	1.00 H	1	35.31	11.09

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	2385.20	52.7 PK	74.0	-21.3	1.27 V	332	56.18	-3.48
2	2385.20	42.9 AV	54.0	-11.1	1.27 V	332	46.38	-3.48
3	*2437.00	101.4 PK			1.07 V	325	104.71	-3.31
4	*2437.00	93.5 AV			1.07 V	325	96.81	-3.31
5	2488.00	53.6 PK	74.0	-20.4	1.27 V	333	56.74	-3.14
6	2488.00	43.5 AV	54.0	-10.5	1.27 V	333	46.64	-3.14
7	4874.00	51.0 PK	74.0	-23.0	1.24 V	70	44.47	6.53
8	4874.00	40.6 AV	54.0	-13.4	1.24 V	70	34.07	6.53
9	7311.00	58.3 PK	74.0	-15.7	1.05 V	52	47.21	11.09
10	7311.00	46.2 AV	54.0	-7.8	1.05 V	52	35.11	11.09

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	107.4 PK			1.34 H	234	110.63	-3.23
2	*2462.00	99.0 AV			1.34 H	234	102.23	-3.23
3	2483.50	69.9 PK	74.0	-4.1	1.40 H	213	73.06	-3.16
4	2483.50	52.6 AV	54.0	-1.4	1.40 H	213	55.76	-3.16
5	4924.00	51.9 PK	74.0	-22.1	1.23 H	207	45.36	6.54
6	4924.00	41.6 AV	54.0	-12.4	1.23 H	207	35.06	6.54
7	7386.00	58.6 PK	74.0	-15.4	1.07 H	44	47.19	11.41
8	7386.00	45.5 AV	54.0	-8.5	1.07 H	44	34.09	11.41

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	101.5 PK			1.04 V	329	104.73	-3.23
2	*2462.00	92.8 AV			1.04 V	329	96.03	-3.23
3	2483.50	63.3 PK	74.0	-10.7	1.11 V	317	66.46	-3.16
4	2483.50	46.1 AV	54.0	-7.9	1.11 V	317	49.26	-3.16
5	4924.00	51.0 PK	74.0	-23.0	1.25 V	74	44.46	6.54
6	4924.00	40.8 AV	54.0	-13.2	1.25 V	74	34.26	6.54
7	7386.00	57.6 PK	74.0	-16.4	1.04 V	54	46.19	11.41
8	7386.00	45.5 AV	54.0	-8.5	1.04 V	54	34.09	11.41

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 (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	68.1 PK	74.0	-5.9	1.26 H	131	71.60	-3.50
2	2390.00	51.0 AV	54.0	-3.0	1.26 H	131	54.50	-3.50
3	*2422.00	98.8 PK			1.26 H	131	102.20	-3.40
4	*2422.00	89.9 AV			1.26 H	131	93.30	-3.40
5	4844.00	52.0 PK	74.0	-22.0	1.11 H	21	45.50	6.50
6	4844.00	40.8 AV	54.0	-13.2	1.11 H	21	34.30	6.50
7	7266.00	59.3 PK	74.0	-14.7	1.00 H	36	48.30	11.00
8	7266.00	46.3 AV	54.0	-7.7	1.00 H	36	35.30	11.00

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	64.4 PK	74.0	-9.6	1.05 V	330	67.85	-3.45
2	2390.00	48.6 AV	54.0	-5.4	1.05 V	330	52.05	-3.45
3	*2422.00	94.8 PK			1.02 V	331	98.16	-3.36
4	*2422.00	85.7 AV			1.02 V	331	89.06	-3.36
5	4844.00	48.3 PK	74.0	-25.7	1.21 V	71	41.80	6.50
6	4844.00	37.6 AV	54.0	-16.4	1.21 V	71	31.10	6.50
7	7266.00	58.3 PK	74.0	-15.7	1.00 V	38	47.32	10.98
8	7266.00	47.0 AV	54.0	-7.0	1.00 V	38	36.02	10.98

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	61.2 PK	74.0	-12.8	1.37 H	241	64.65	-3.45
2	2390.00	47.1 AV	54.0	-6.9	1.37 H	241	50.55	-3.45
3	*2437.00	101.3 PK			1.38 H	264	104.61	-3.31
4	*2437.00	92.1 AV			1.38 H	264	95.41	-3.31
5	4874.00	50.9 PK	74.0	-23.1	1.29 H	91	44.37	6.53
6	4874.00	38.9 AV	54.0	-15.1	1.29 H	91	32.37	6.53
7	7311.00	60.0 PK	74.0	-14.0	1.00 H	21	48.91	11.09
8	7311.00	46.6 AV	54.0	-7.4	1.00 H	21	35.51	11.09

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	60.6 PK	74.0	-13.4	1.00 V	315	64.05	-3.45
2	2390.00	46.3 AV	54.0	-7.7	1.00 V	315	49.75	-3.45
3	*2437.00	95.2 PK			1.05 V	334	98.51	-3.31
4	*2437.00	85.9 AV			1.05 V	334	89.21	-3.31
5	4874.00	48.4 PK	74.0	-25.6	1.29 V	59	41.87	6.53
6	4874.00	37.7 AV	54.0	-16.3	1.29 V	59	31.17	6.53
7	7311.00	57.3 PK	74.0	-16.7	1.00 V	6	46.21	11.09
8	7311.00	46.1 AV	54.0	-7.9	1.00 V	6	35.01	11.09

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 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	101.0 PK			1.37 H	226	104.26	-3.26
2	*2452.00	92.6 AV			1.37 H	226	95.86	-3.26
3	2483.50	68.5 PK	74.0	-5.5	1.40 H	229	71.66	-3.16
4	2483.50	53.0 AV	54.0	-1.0	1.40 H	229	56.16	-3.16
5	4904.00	49.7 PK	74.0	-24.3	1.03 H	296	43.15	6.55
6	4904.00	39.8 AV	54.0	-14.2	1.03 H	296	33.25	6.55
7	7356.00	59.3 PK	74.0	-14.7	1.00 H	19	48.01	11.29
8	7356.00	46.0 AV	54.0	-8.0	1.00 H	19	34.71	11.29

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	95.5 PK			1.00 V	328	98.76	-3.26
2	*2452.00	85.9 AV			1.00 V	328	89.16	-3.26
3	2483.50	65.8 PK	74.0	-8.2	1.05 V	309	68.96	-3.16
4	2483.50	49.8 AV	54.0	-4.2	1.05 V	309	52.96	-3.16
5	4904.00	47.2 PK	74.0	-26.8	1.25 V	94	40.65	6.55
6	4904.00	36.6 AV	54.0	-17.4	1.25 V	94	30.05	6.55
7	7356.00	58.0 PK	74.0	-16.0	1.00 V	49	46.71	11.29
8	7356.00	46.3 AV	54.0	-7.7	1.00 V	49	35.01	11.29

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 : Jan. 16, 2014 and Mar. 19, 2014

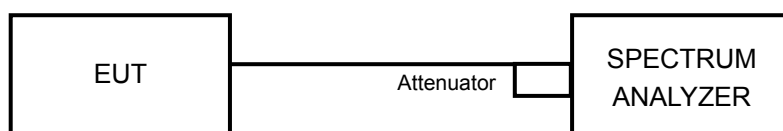
4.3.3 TEST PROCEDURE

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.

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.21	0.5	PASS
6	2437	12.16	0.5	PASS
11	2462	12.18	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.33	0.5	PASS
6	2437	16.38	0.5	PASS
11	2462	16.34	0.5	PASS

802.11n (HT20)

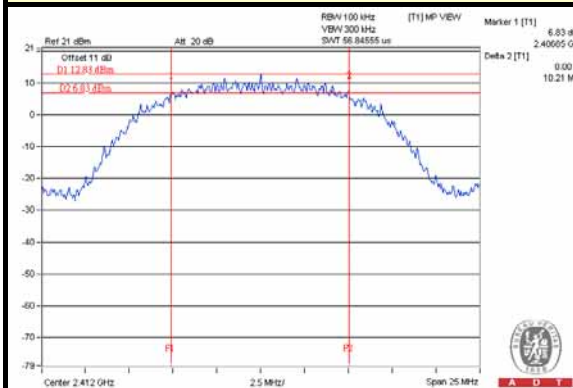
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.85	0.5	PASS
6	2437	17.02	0.5	PASS
11	2462	17.05	0.5	PASS

802.11n (HT40)

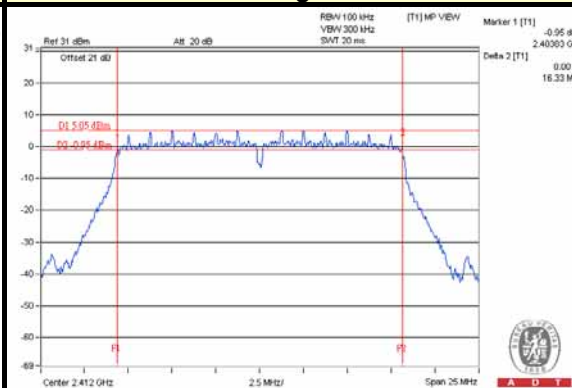
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.21	0.5	PASS
6	2437	35.32	0.5	PASS
9	2452	35.23	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

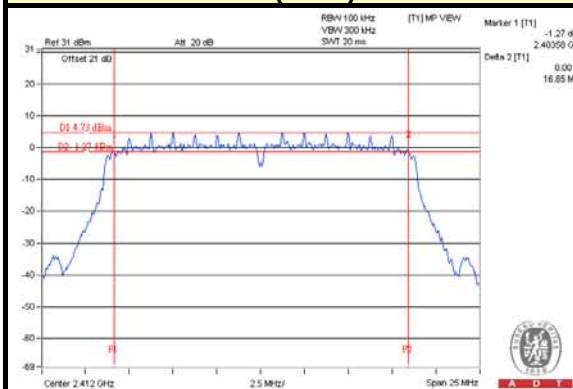
802.11b / CH1



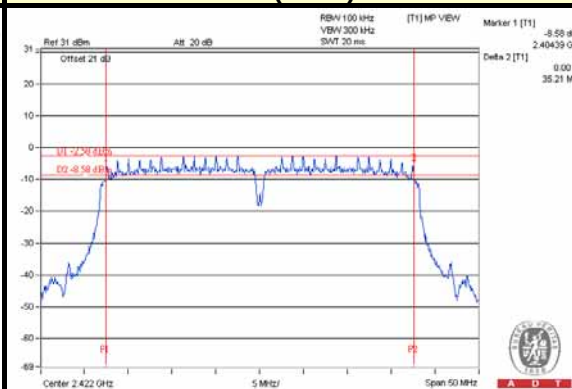
802.11g / CH1



802.11n (HT20) / CH1



802.11n (HT40) / CH3



4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF MAXIMUM PEAK 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	ML2495A	1014008	Apr. 23, 2013	Apr. 22, 2014
Power Sensor	MA2411B	0917122	Apr. 23, 2013	Apr. 22, 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 : Jan. 16, 2014, Mar. 19, 2014 and Apr. 01, 2014

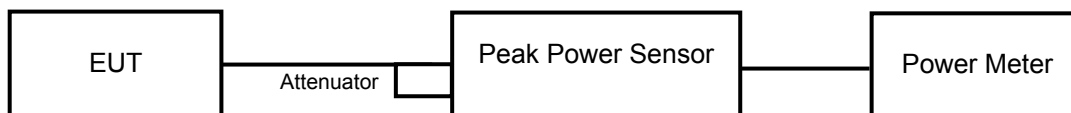
4.4.3 TEST PROCEDURES

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

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	166.341	22.21	30	PASS
6	2437	205.589	23.13	30	PASS
11	2462	197.242	22.95	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	339.625	25.31	30	PASS
6	2437	399.025	26.01	30	PASS
11	2462	397.192	25.99	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	257.632	24.11	30	PASS
6	2437	349.140	25.43	30	PASS
11	2462	358.922	25.55	30	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	118.304	20.73	30	PASS
6	2437	312.608	24.95	30	PASS
9	2452	209.411	23.21	30	PASS



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4.5 AVERAGE OUTPUT POWER

4.5.1 LIMITS OF AVERAGE OUTPUT POWER MEASUREMENT

Average output power is for reference only.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	1014008	Apr. 23, 2013	Apr. 22, 2014
Power Sensor	MA2411B	0917122	Apr. 23, 2013	Apr. 22, 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 : Jan. 16, 2014, Mar. 19, 2014 and Apr. 01, 2014

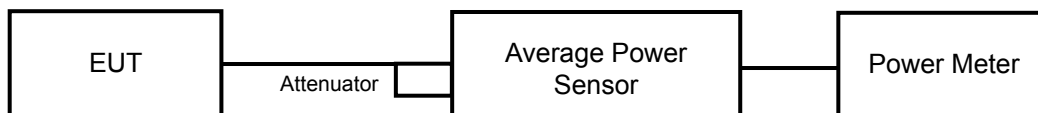
4.5.3 TEST PROCEDURES

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	103.753	20.16
6	2437	128.233	21.08
11	2462	121.899	20.86

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	52.966	17.24
6	2437	64.121	18.07
11	2462	60.395	17.81

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	39.902	16.01
6	2437	60.395	17.81
11	2462	58.749	17.69

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
3	2422	20.606	13.14
6	2437	60.534	17.82
9	2452	27.669	14.42

4.6 POWER SPECTRAL DENSITY MEASUREMENT

4.6.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

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 : Jan. 16, 2014 and Mar. 19, 2014

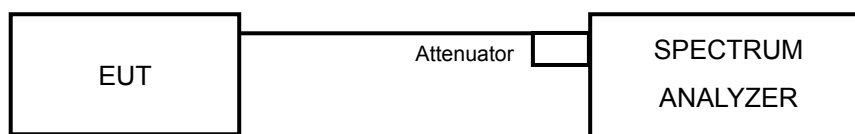
4.6.3 TEST PROCEDURE

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.

4.6.4 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

802.11b

Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-6.98	8	PASS
6	2437	-6.98	8	PASS
11	2462	-6.51	8	PASS

802.11g

Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-8.64	8	PASS
6	2437	-8.18	8	PASS
11	2462	-7.55	8	PASS

802.11n (HT20)

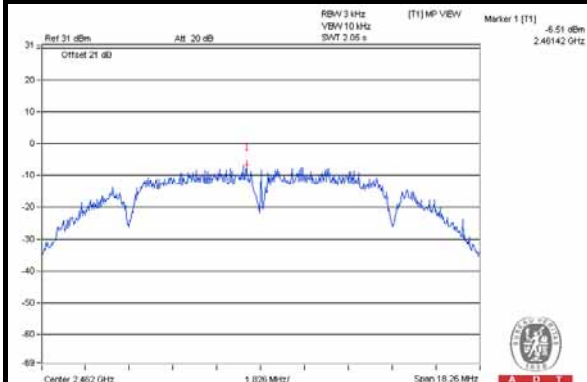
Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
1	2412	-7.66	8	PASS
6	2437	-7.69	8	PASS
11	2462	-7.98	8	PASS

802.11n (HT40)

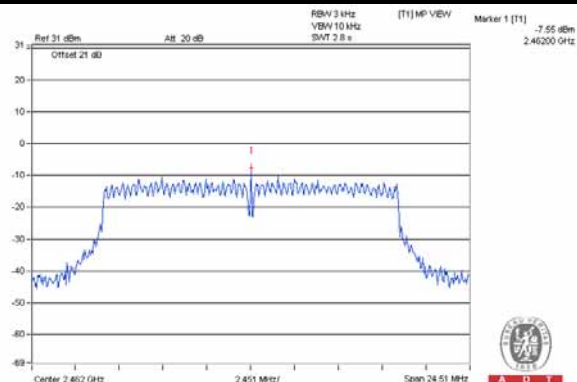
Channel	FREQUENCY (MHz)	PSD (dBm)	Limit (dBm)	PASS /FAIL
3	2422	-16.29	8	PASS
6	2437	-8.10	8	PASS
9	2452	-14.70	8	PASS

SPECTRUM PLOT OF WORST VALUE

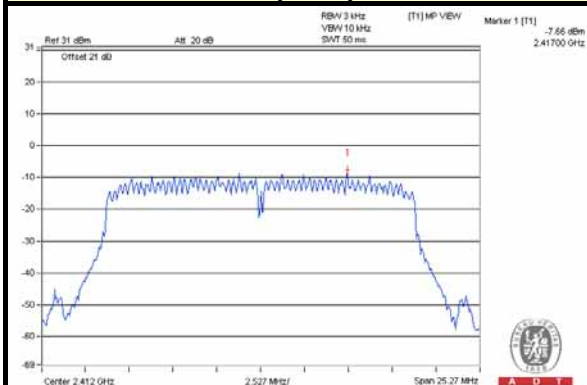
802.11b / CH11



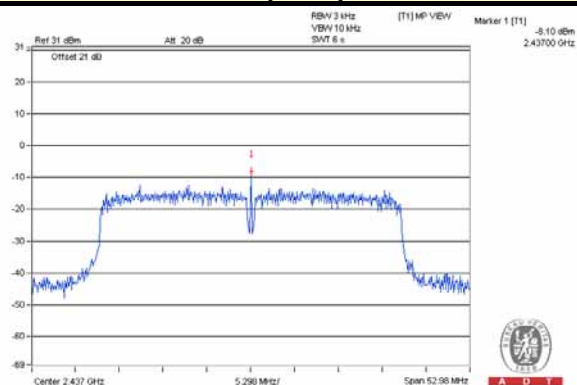
802.11g / CH11



802.11n (HT20) / CH1



802.11n (HT40) / CH6





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4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.7.2 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 : Jan. 16, 2014 and Mar. 19, 2014

4.7.3 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.

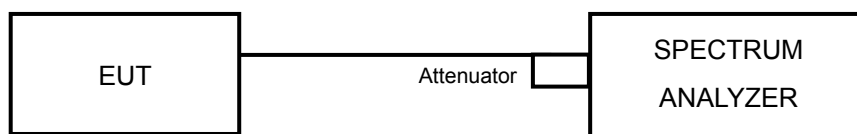
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.7.7 TEST RESULTS

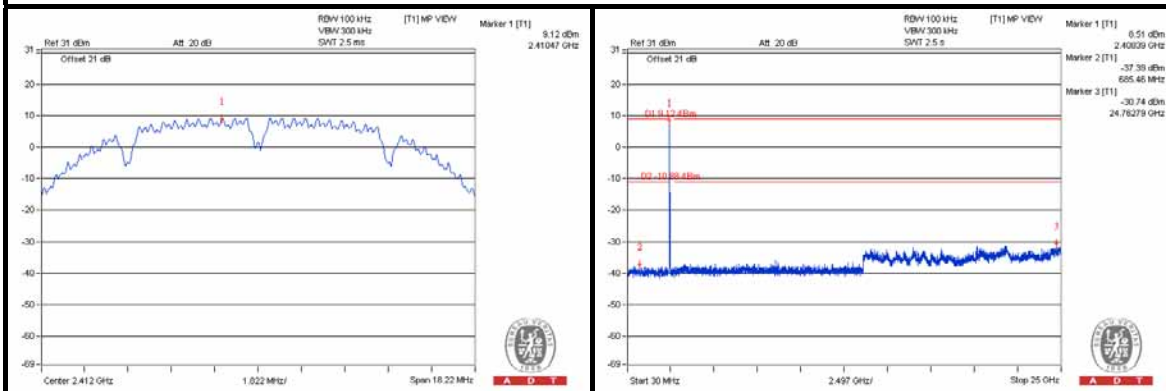
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



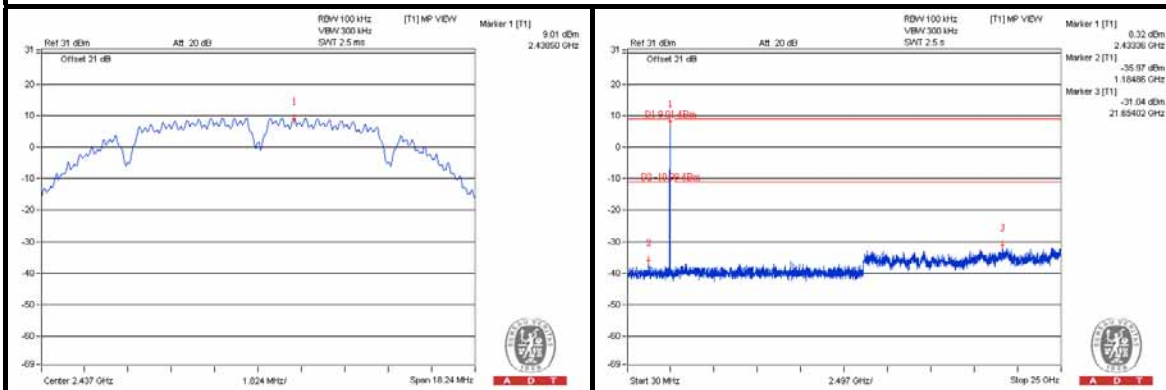
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802.11b:

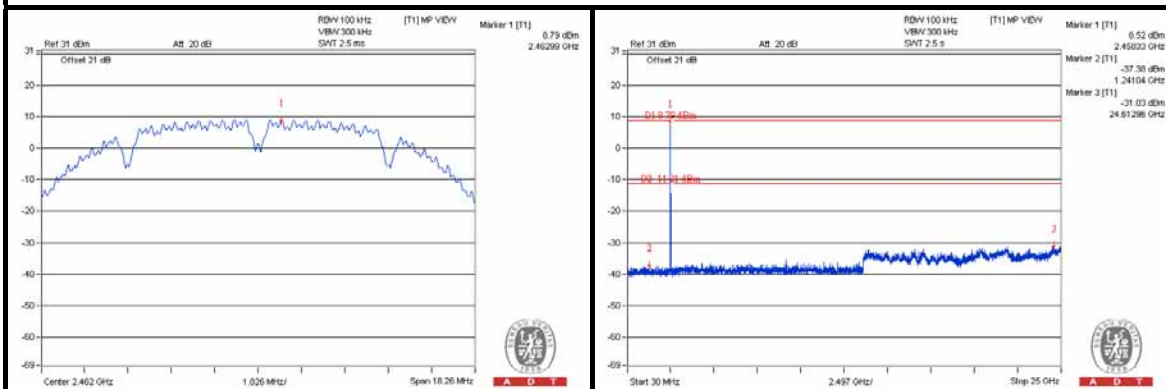
CH 1



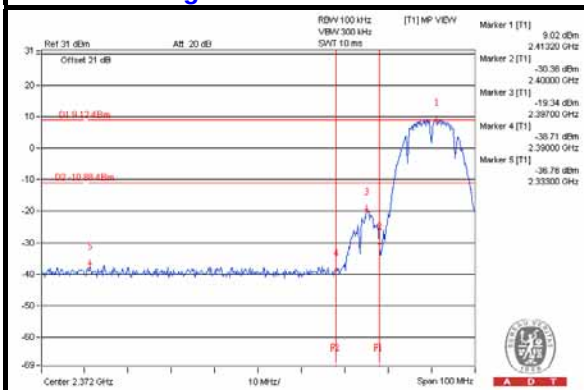
CH 6



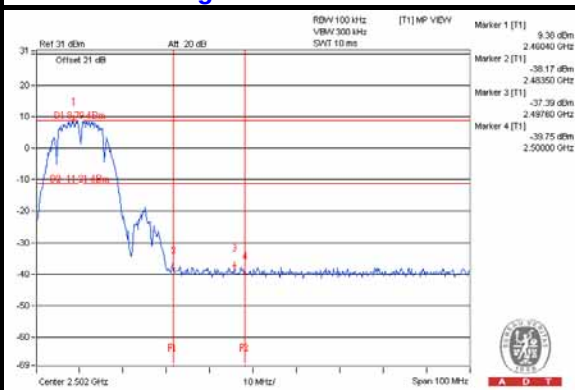
CH 11



CH 1 Band edge



CH 11 Band edge

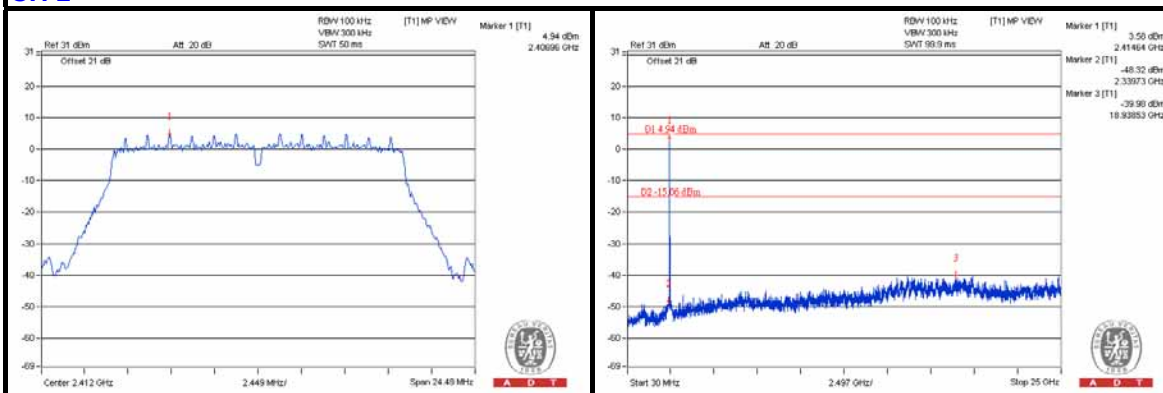




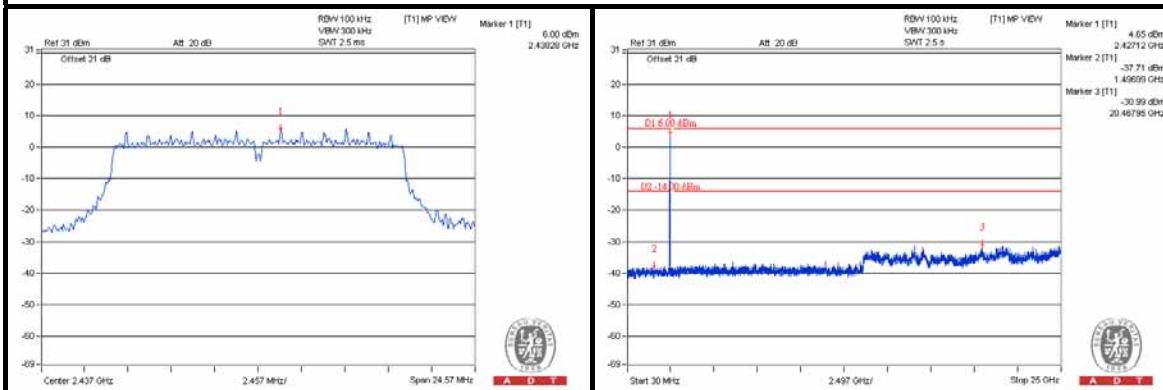
A D T

802.11g:

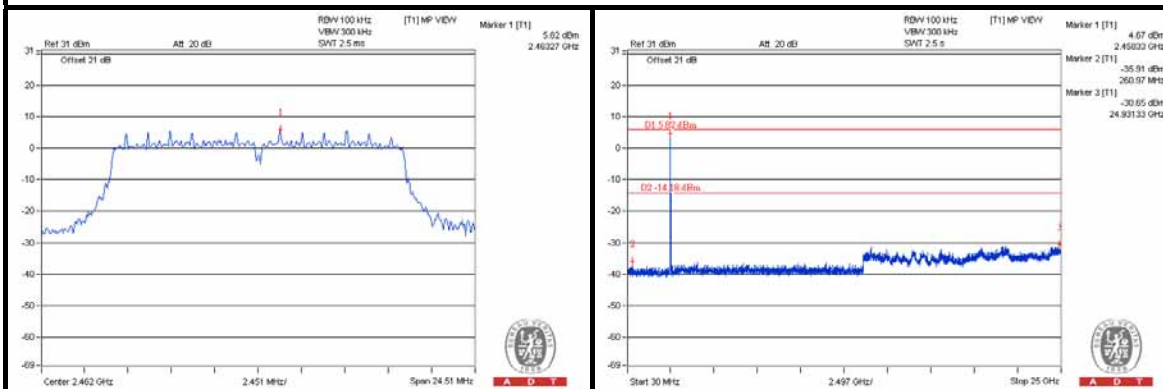
CH 1



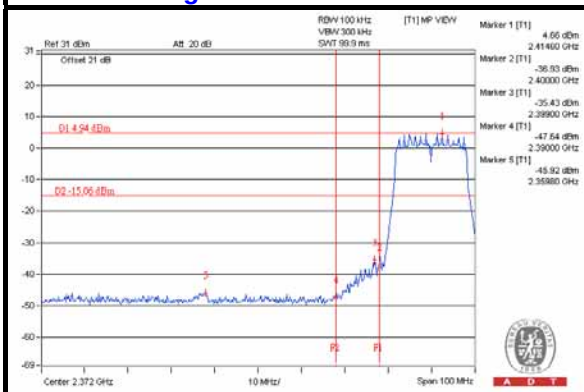
CH 6



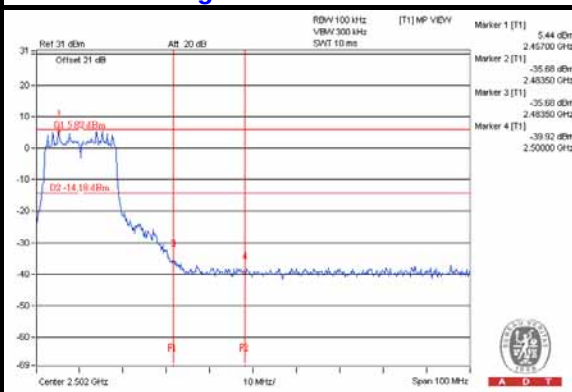
CH 11



CH 1 Band edge



CH 11 Band edge

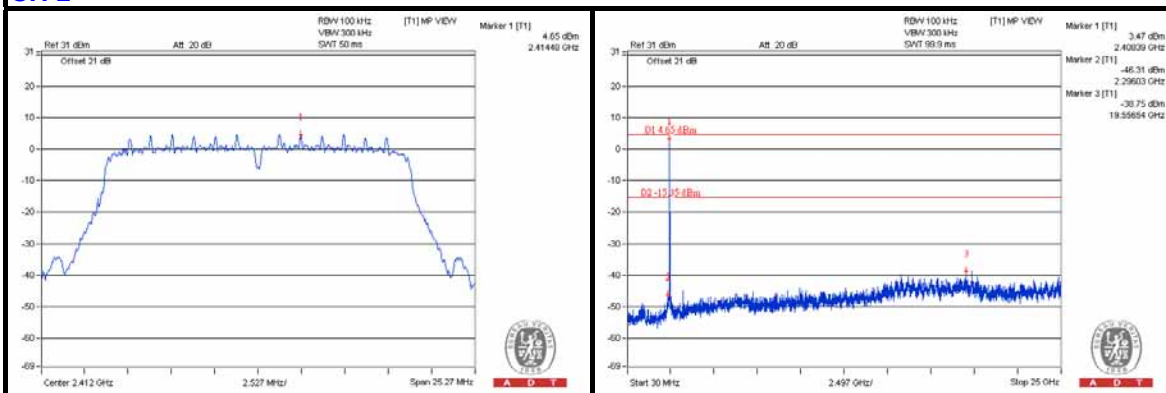




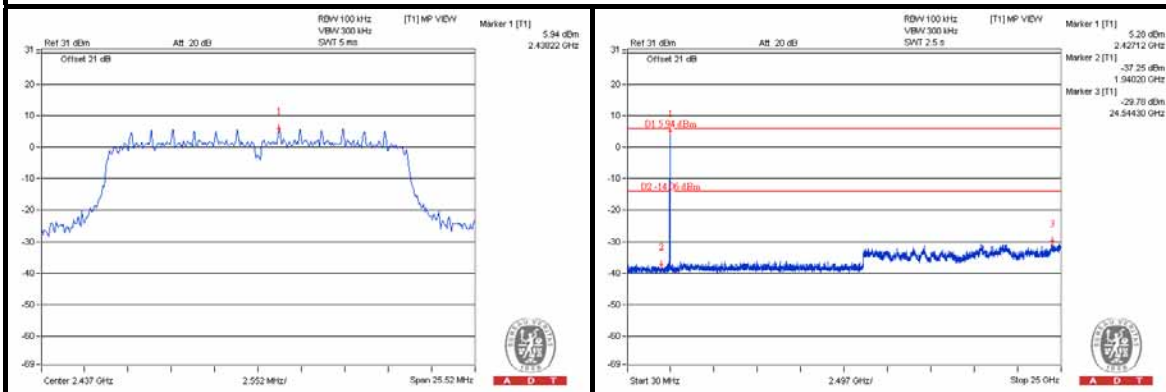
A D T

802.11n (HT20):

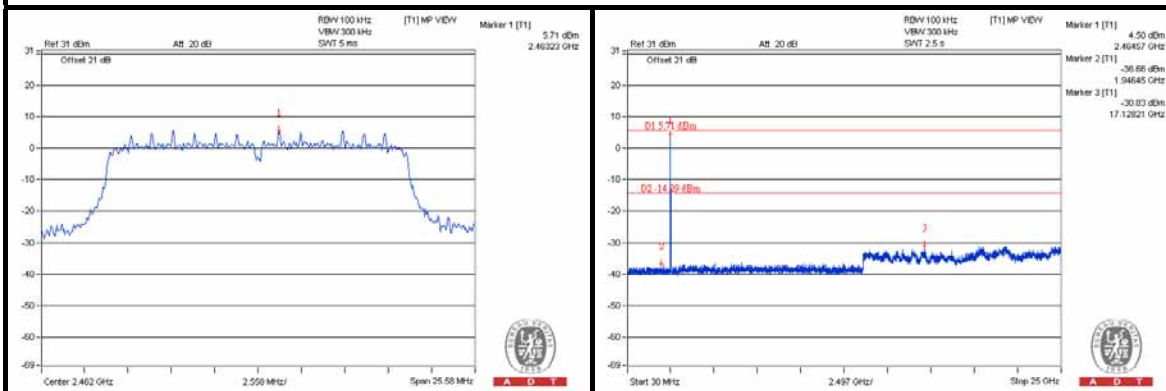
CH 1



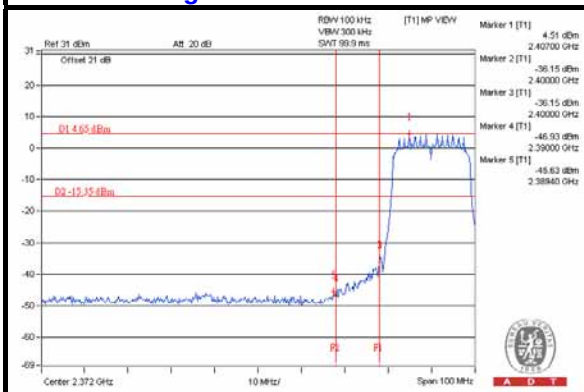
CH 6



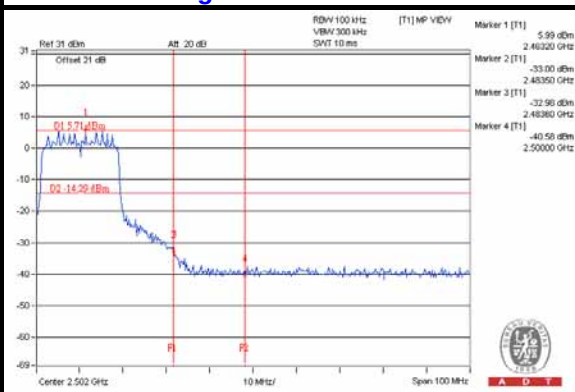
CH 11



CH 1 Band edge



CH 11 Band edge

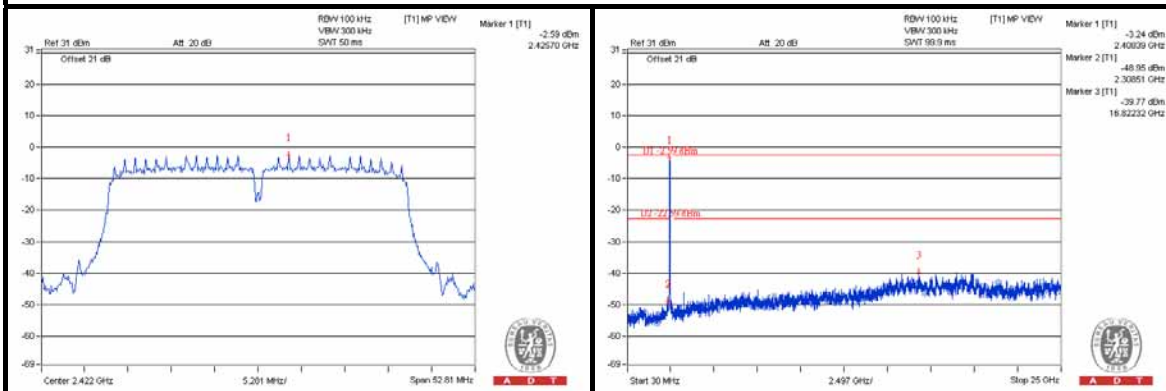




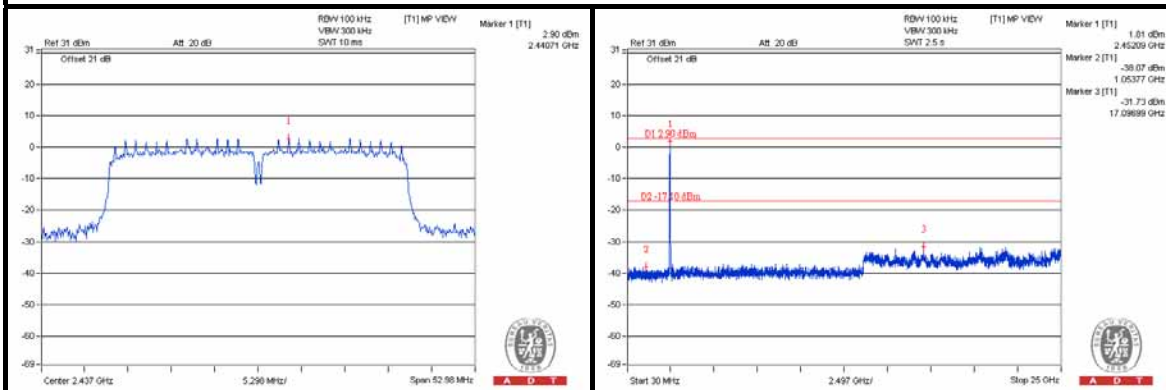
A D T

802.11n (HT40):

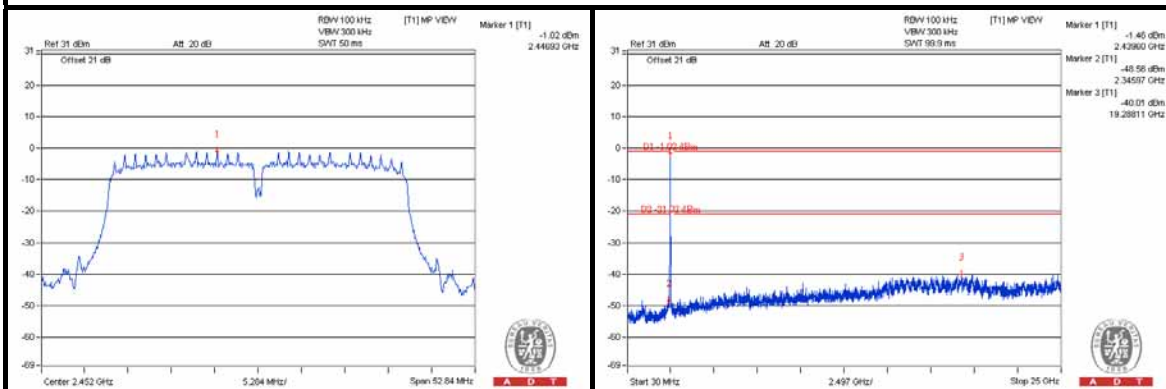
CH 3



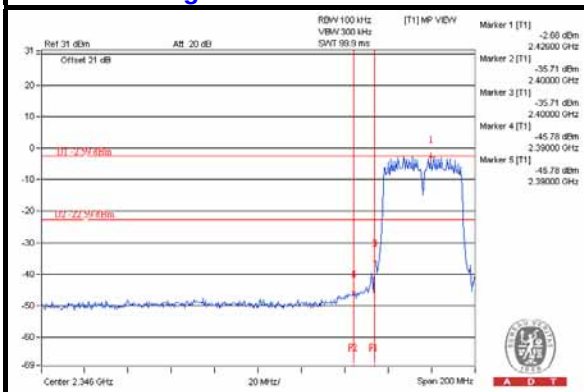
CH 6



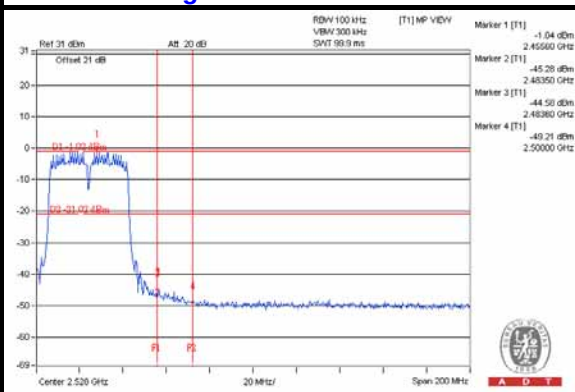
CH 9



CH 3 Band edge



CH 9 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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The address and road map of all our labs can be found in our web site also.



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

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

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