FCC Test Report

Report No.: RF160809E04

FCC ID: U8G-P1AC4

Test Model: MAX BR1 MK2

Received Date: Aug. 09, 2016

Test Date: Oct. 02, 2016 to May 09, 2017

Issued Date: July 27, 2017

Applicant: Pismo Labs Technology Limited

Address: FLAT/RM A5, 5/F, HK SPINNERS IND BLDG PHASE 6, 481 CASTLE PEAK ROAD, CHEUNG SHA WAN, HONG KONG.

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

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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

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Release Control Record

Issue No.	Description	Date Issued
RF160809E04	Original release.	July 27, 2017

1 Certificate of Conformity

Product: Pepwave / Peplink / Pismo Wireless Product

Brand: Pepwave / Peplink / Pismo

Test Model: MAX BR1 MK2

Sample Status: ENGINEERING SAMPLE

Applicant: Pismo Labs Technology Limited

Test Date: Oct. 02, 2016 to May 09, 2017

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013

The above equipment 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 : Cindy Hsin , **Date:** July 27, 2017

Cindy Hsin / Specialist

Approved by : , **Date:** July 27, 2017

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.37dB at 0.39609MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz & 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 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 R-SMA 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:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.30 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.16 dB
	6GHz ~ 18GHz	4.91 dB
	18GHz ~ 40GHz	5.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Pepwave / Peplink / Pismo Wireless Product
Brand	Pepwave / Peplink / Pismo
Test Model	MAX BR1 MK2
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter or 10-30Vdc from DC power supply
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.4GHz:** 789.828mW **5GHz:** **5.18 ~ 5.24GHz:** 195.769mW **5.745 ~ 5.825GHz:** 181.276mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. There are WLAN (2.4GHz/5GHz), WWAN (3G), LTE (4G) and GPS technology used for the EUT.
2. EUT contains a certified module which FCC ID : N7NMC7455 or N7NMC7355.
3. Simultaneously transmission condition.

Condition	Technology		
1	WLAN (2.4GHz)	WLAN (5GHz)	WWAN / LTE module (FCC ID : N7NMC7455)
2	WLAN (2.4GHz)	WLAN (5GHz)	WWAN / LTE module (FCC ID : N7NMC7355)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.			

4. The EUT could be supplied with a power adapter as following table:

Brand Name	Model No.	Spec.
Ten Pao	S024AMM1200200	Input: 100-240V, 600mA, 50/60Hz Output: 12V, 2000mA DC output cable: unshielded, 1.5m with 1 core

5. The EUT was pre-tested in chamber under the following modes:

Pre-test Mode	Description
Mode A	Power from DC power supply: 30Vdc (Terminal Block)
Mode B	Power from Adapter

The worse radiated emission was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

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

For WLAN						
Antenna No.	Brand	Model	Ant. Gain (dBi)	Frequency range	Antenna Type	Connecter Type
1	NA	NA	3	2400 MHz - 2500 MHz	Dipole	R-SMA
			4~5.5	5150 MHz - 5350 MHz		
			5.5~6	5350 MHz - 5875 MHz		
2	NA	NA	3	2400 MHz - 2500 MHz	Dipole	R-SMA
			4~5.5	5150 MHz - 5350 MHz		
			5.5~6	5350 MHz - 5875 MHz		

For GPS						
Antenna No.	Brand	Model	Ant. Gain (dBi)	Frequency range	Antenna Type	Connecter Type
1	MASTER WAVE TECHNOLOGY CO., LTD.	98335KSAF000	4.5 ±0.5	1575.42MHz	Magnetic	SMA

For LTE						
Antenna No.	Brand	Model	Ant. Gain (dBi)	Frequency range	Antenna Type	Connecter Type
1	MASTER WAVE TECHNOLOGY CO., LTD.	98619ZSAX025	1.99	699~960 MHz	Dipole	SMA
			4	1575~2170 MHz		
			1	2300~2320MHz		
			2.8	2325~2690 MHz		
2	MASTER WAVE TECHNOLOGY CO., LTD.	98619ZSAX025	1.99	699~960 MHz	Dipole	SMA
			4	1575~2170 MHz		
			1	2300~2320MHz		
			2.8	2325~2690 MHz		

7. The EUT incorporates a MIMO function.

For 2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
For 5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX

8. The above EUT information is 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 and 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
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	Power from DC power supply: 30Vdc
2	-	-	√	-	Power from Adapter

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement
RE<1G: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission
APCM: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.
NOTE: "-"means no effect.

Radiated Emission Test (Above 1GHz):

☒ 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

Radiated Emission Test (Below 1GHz):

☒ 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	6	DSSS	DBPSK	1

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)
802.11b	1 to 11	6	DSSS	DBPSK	1

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

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

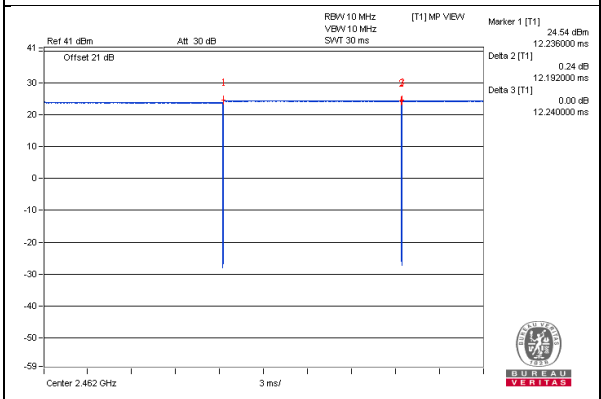
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	23deg. C, 62%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	24deg. C, 66%RH	120Vac, 60Hz	Weiwei Lo
PLC	25deg. C, 67%RH	120Vac, 60Hz	Bear Lee
APCM	23deg. C, 62%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

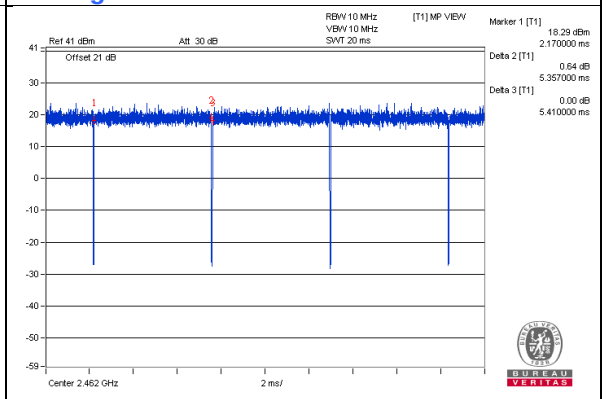
If duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle = 12.192/12.24 = 0.996
802.11g: Duty cycle = 5.357/5.41 = 0.99
802.11n (HT20): Duty cycle = 4.962/5.035 = 0.986
802.11n (HT40): Duty cycle = 2.406/2.453 = 0.981

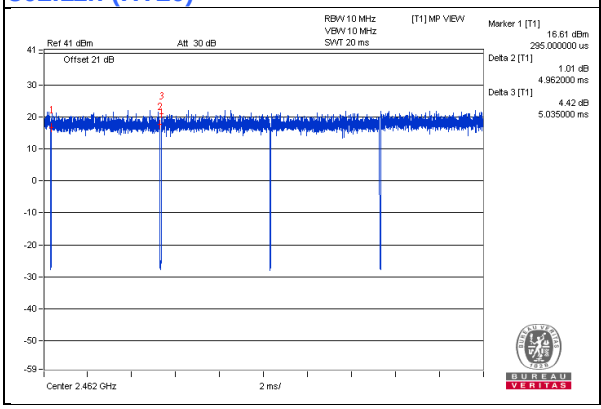
802.11b



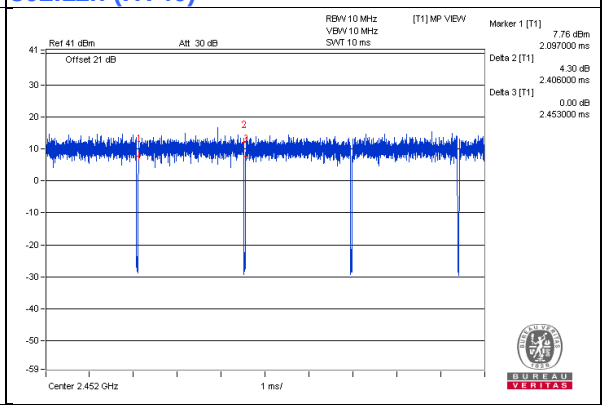
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E6440	F9LYQ32	FCC DoC	Provided by Lab
C.	Cellular SIM A	R&S	CRT-Z3	NA	NA	Provided by Lab
D.	Cellular SIM B	R&S	CRT-Z3	NA	NA	Provided by Lab
E.	DC Power Supply	Topward	6603D	795558	NA	Provided by Lab

Note:

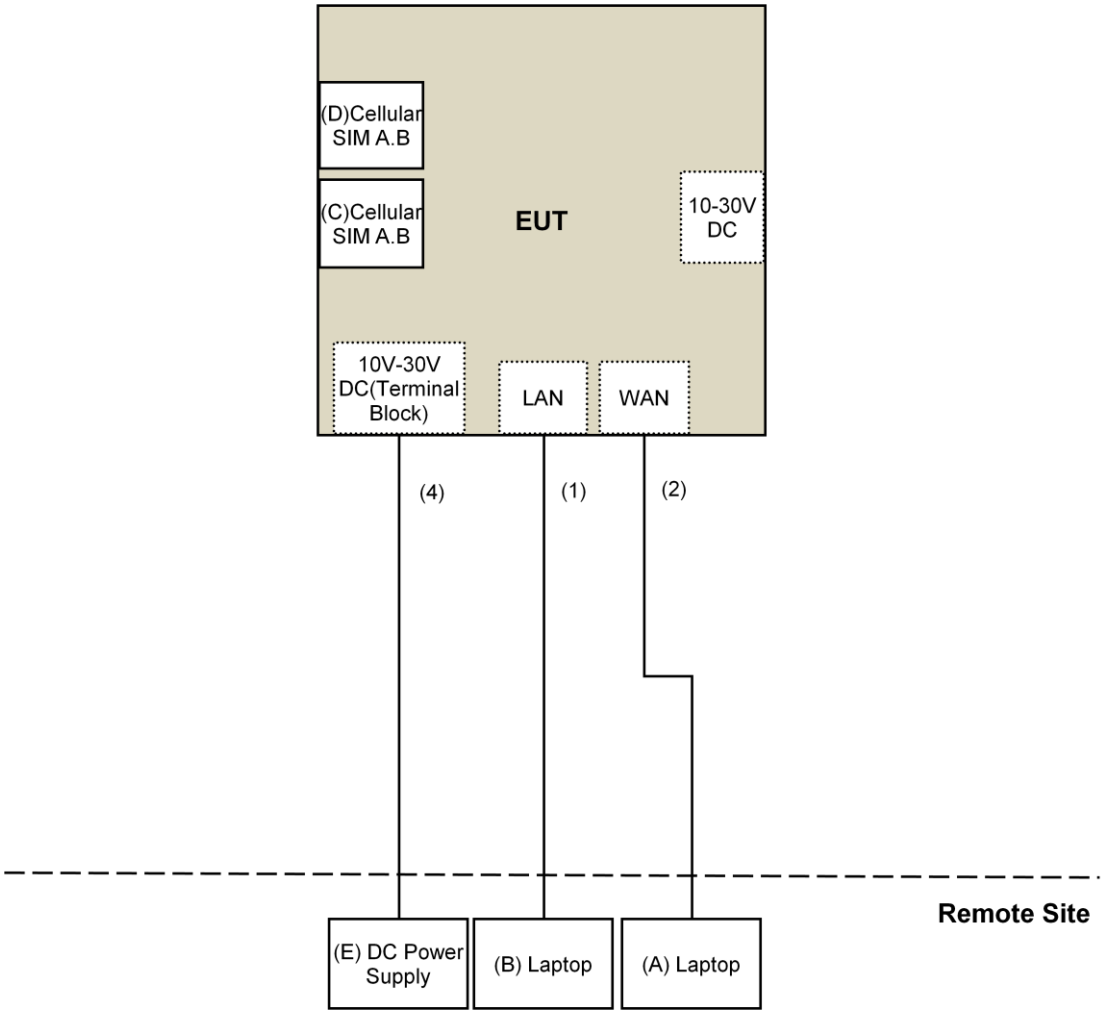
1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45	1	10	N0	0	Provided by Lab
2.	RJ-45	1	10	N0	0	Provided by Lab
3.	DC Cable	1	1.5	No	1	Supplied by client
4.	DC Cable	1	3	No	0	Provided by Lab

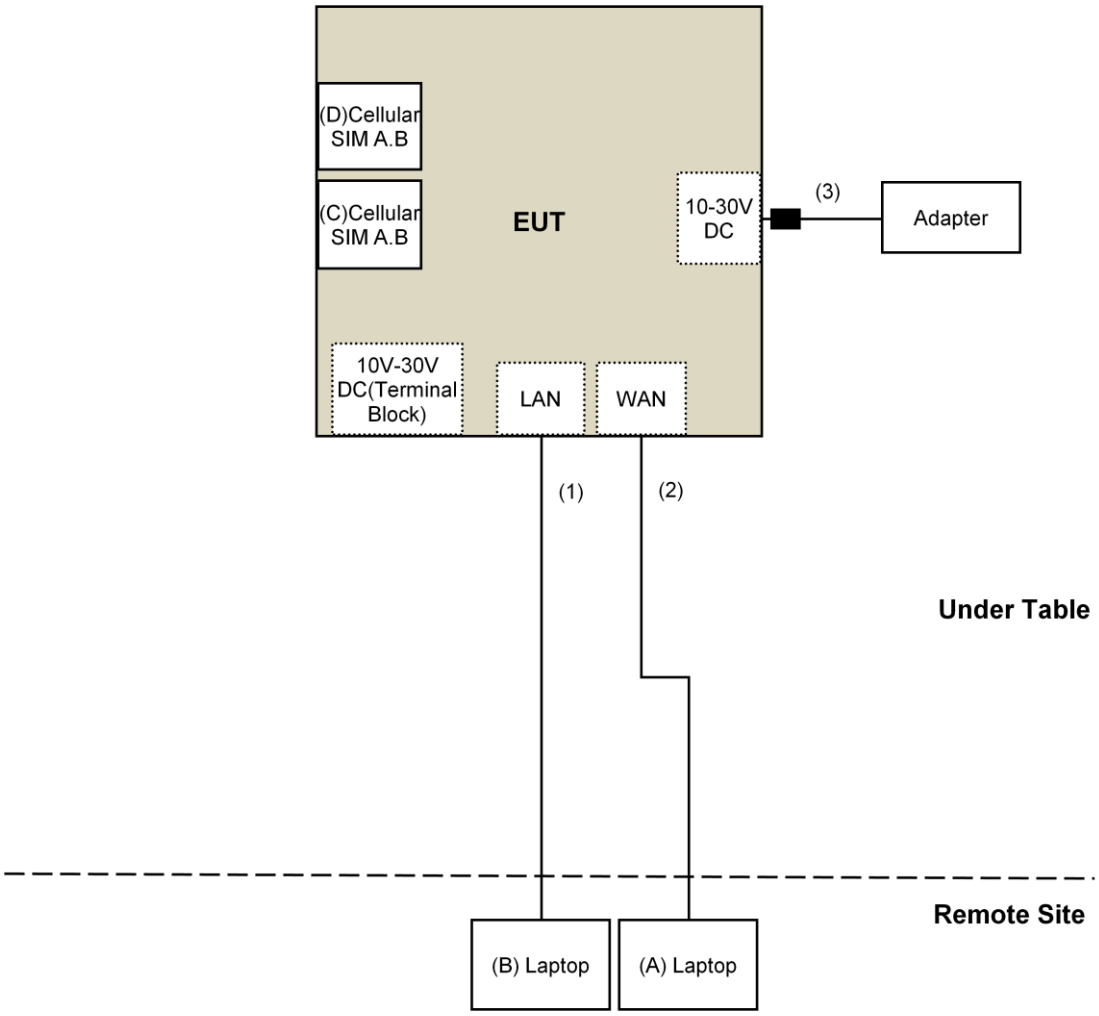
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

For Mode 1:



For Mode 2 :


(D)Cellular SIM A.B
(C)Cellular SIM A.B
EUT
10-30V DC
(3)
Adapter
10V-30V DC(Terminal Block)
LAN
WAN
(1)
(2)
Under Table
Remote Site
(B) Laptop
(A) Laptop

3.5 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)
KDB 558074 D01 DTS Meas Guidance v04
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 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 30dB 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.

4.1.2 Test Instruments

For above 1GHz :

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 18, 2016	Sep. 17, 2017
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSv40	100964	June 28, 2016	June 27, 2017
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017

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 966 Chamber No. 4.
3. The FCC Site Registration No. is 292998
4. The CANADA Site Registration No. is 20331-2
5. Tested Date:Dec. 30, 2016

For below 1GHz :

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 10, 2016	Nov. 09, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Dec. 13, 2016	Dec. 12, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 05, 2016	Oct. 04, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6 Loop antenna was used for all emissions below 30 MHz.
7. Tested Date:May 09, 2017

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Both X and Y axes of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case 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.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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:

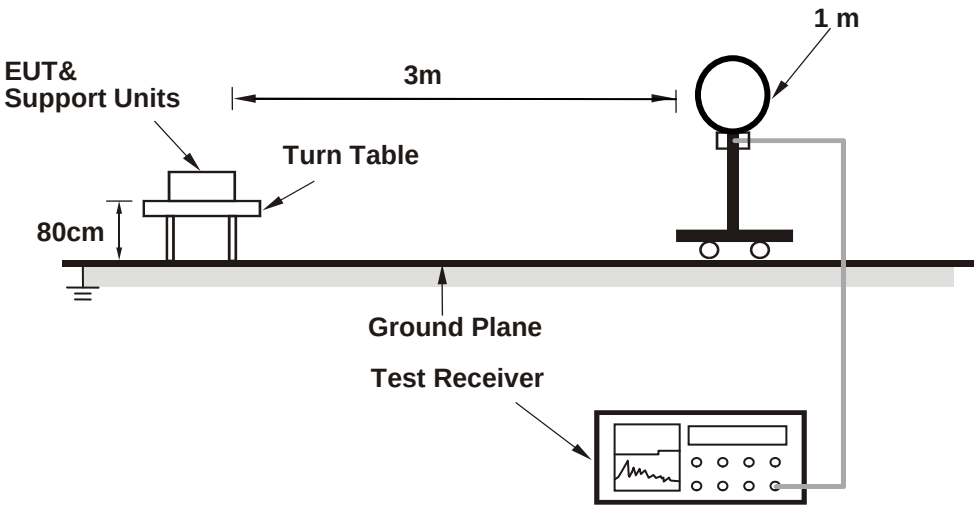
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Average detection (AV) at frequency above 1GHz. If duty cycle of test signal is < 98%, the duty factor need added to measured value.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

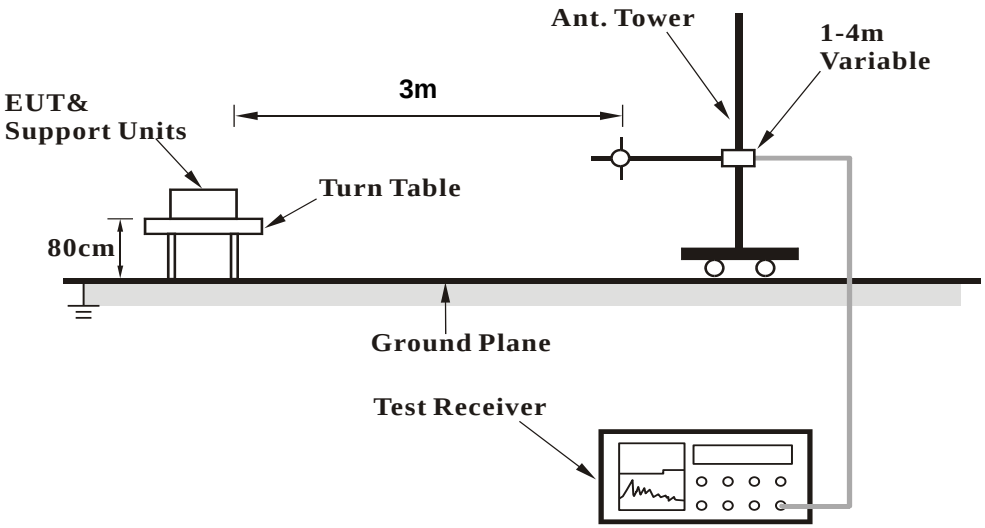
No deviation.

4.1.5 Test Setup

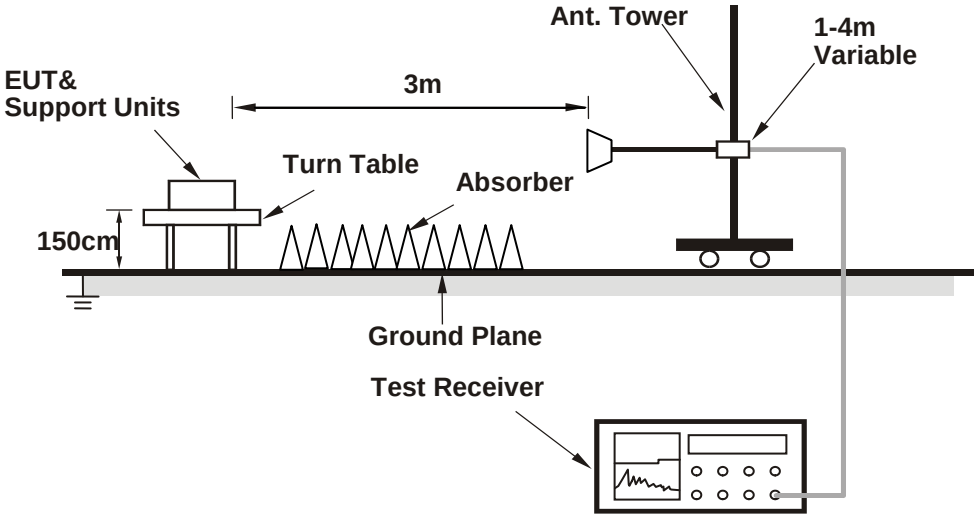
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

a. Connected the EUT with the Laptop which is placed on remote site.
b. Contorlling software (Atheros Radio Test 2(ART2-GUI)) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	60.2 PK	74.0	-13.8	1.51 H	267	63.9	-3.7
2	2390.00	41.8 AV	54.0	-12.2	1.51 H	267	45.5	-3.7
3	*2412.00	106.3 PK			1.51 H	267	110.0	-3.7
4	*2412.00	102.7 AV			1.51 H	267	106.4	-3.7
5	4824.00	54.3 PK	74.0	-19.7	1.14 H	330	52.1	2.2
6	4824.00	51.7 AV	54.0	-2.3	1.14 H	330	49.5	2.2
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	63.8 PK	74.0	-10.2	2.61 V	155	67.5	-3.7
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.61 V**	**155**	**57.6**	**-3.7**
3	*2412.00	118.1 PK			2.39 V	157	121.8	-3.7
4	*2412.00	114.6 AV			2.39 V	157	118.3	-3.7
5	4824.00	52.5 PK	74.0	-21.5	1.43 V	333	50.3	2.2
6	4824.00	49.4 AV	54.0	-4.6	1.43 V	333	47.2	2.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.4 PK	74.0	-17.6	1.57 H	268	60.1	-3.7
2	2390.00	37.8 AV	54.0	-16.2	1.57 H	268	41.5	-3.7
3	*2437.00	110.6 PK			1.57 H	268	114.2	-3.6
4	*2437.00	107.1 AV			1.57 H	268	110.7	-3.6
5	2483.50	51.2 PK	74.0	-22.8	1.57 H	268	54.8	-3.6
6	2483.50	37.5 AV	54.0	-16.5	1.57 H	268	41.1	-3.6
7	4874.00	54.8 PK	74.0	-19.2	1.00 H	321	52.4	2.4
8	4874.00	52.1 AV	54.0	-1.9	1.00 H	321	49.7	2.4
9	7311.00	57.1 PK	74.0	-16.9	1.00 H	254	48.4	8.7
10	7311.00	51.0 AV	54.0	-3.0	1.00 H	254	42.3	8.7
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	66.5 PK	74.0	-7.5	2.29 V	90	70.2	-3.7
2	2390.00	49.2 AV	54.0	-4.8	2.29 V	90	52.9	-3.7
3	*2437.00	122.2 PK			2.29 V	90	125.8	-3.6
4	*2437.00	119.0 AV			2.29 V	90	122.6	-3.6
5	2483.50	62.2 PK	74.0	-11.8	2.29 V	90	65.8	-3.6
6	2483.50	49.7 AV	54.0	-4.3	2.29 V	90	53.3	-3.6
7	4874.00	55.3 PK	74.0	-18.7	1.21 V	330	52.9	2.4
8	4874.00	52.1 AV	54.0	-1.9	1.21 V	330	49.7	2.4
9	7311.00	58.8 PK	74.0	-15.2	3.73 V	184	50.1	8.7
10	7311.00	53.5 AV	54.0	-0.5	3.73 V	184	44.8	8.7

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.0 PK			1.58 H	279	112.5	-3.5
2	*2462.00	105.3 AV			1.58 H	279	108.8	-3.5
3	2483.50	61.1 PK	74.0	-12.9	1.58 H	279	64.7	-3.6
4	2483.50	42.0 AV	54.0	-12.0	1.58 H	279	45.6	-3.6
5	4924.00	53.6 PK	74.0	-20.4	1.02 H	323	51.1	2.5
6	4924.00	50.5 AV	54.0	-3.5	1.02 H	323	48.0	2.5
7	7386.00	54.8 PK	74.0	-19.2	1.03 H	258	45.7	9.1
8	7386.00	49.3 AV	54.0	-4.7	1.03 H	258	40.2	9.1
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	120.6 PK			2.55 V	341	124.1	-3.5
2	*2462.00	117.2 AV			2.55 V	341	120.7	-3.5
3	2483.50	64.4 PK	74.0	-9.6	2.55 V	341	68.0	-3.6
4	2483.50	53.8 AV	54.0	-0.2	2.55 V	341	57.4	-3.6
5	4924.00	53.2 PK	74.0	-20.8	1.27 V	338	50.7	2.5
6	4924.00	50.1 AV	54.0	-3.9	1.27 V	338	47.6	2.5
7	7386.00	56.5 PK	74.0	-17.5	3.78 V	199	47.4	9.1
8	7386.00	51.2 AV	54.0	-2.8	3.78 V	199	42.1	9.1

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	1.57 H	263	63.8	-3.7
2	2390.00	42.8 AV	54.0	-11.2	1.57 H	263	46.5	-3.7
3	*2412.00	103.1 PK			1.57 H	263	106.8	-3.7
4	*2412.00	91.5 AV			1.57 H	263	95.2	-3.7
5	4824.00	47.4 PK	74.0	-26.6	1.07 H	318	45.2	2.2
6	4824.00	33.7 AV	54.0	-20.3	1.07 H	318	31.5	2.2
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	71.4 PK	74.0	-2.6	2.54 V	157	75.1	-3.7
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.54 V**	**157**	**57.6**	**-3.7**
3	*2412.00	114.7 PK			2.54 V	157	118.4	-3.7
4	*2412.00	103.0 AV			2.54 V	157	106.7	-3.7
5	4824.00	45.6 PK	74.0	-28.4	1.48 V	345	43.4	2.2
6	4824.00	32.5 AV	54.0	-21.5	1.48 V	345	30.3	2.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.5 PK	74.0	-12.5	1.56 H	257	65.2	-3.7
2	2390.00	42.3 AV	54.0	-11.7	1.56 H	257	46.0	-3.7
3	*2437.00	111.1 PK			1.56 H	257	114.7	-3.6
4	*2437.00	100.3 AV			1.56 H	257	103.9	-3.6
5	2483.50	56.2 PK	74.0	-17.8	1.56 H	257	59.8	-3.6
6	2483.50	39.8 AV	54.0	-14.2	1.56 H	257	43.4	-3.6
7	4874.00	56.0 PK	74.0	-18.0	1.08 H	332	53.6	2.4
8	4874.00	42.4 AV	54.0	-11.6	1.08 H	332	40.0	2.4
9	7311.00	52.7 PK	74.0	-21.3	1.49 H	184	44.0	8.7
10	7311.00	40.0 AV	54.0	-14.0	1.49 H	184	31.3	8.7
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	2.57 V	340	77.1	-3.7
2	2390.00	53.5 AV	54.0	-0.5	2.57 V	340	57.2	-3.7
3	*2437.00	122.7 PK			2.57 V	340	126.3	-3.6
4	*2437.00	111.8 AV			2.57 V	340	115.4	-3.6
5	2483.50	68.3 PK	74.0	-5.7	2.57 V	340	71.9	-3.6
6	2483.50	50.4 AV	54.0	-3.6	2.57 V	340	54.0	-3.6
7	4874.00	54.9 PK	74.0	-19.1	1.43 V	346	52.5	2.4
8	4874.00	41.2 AV	54.0	-12.8	1.43 V	346	38.8	2.4
9	7311.00	54.5 PK	74.0	-19.5	3.73 V	184	45.8	8.7
10	7311.00	41.8 AV	54.0	-12.2	3.73 V	184	33.1	8.7

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.3 PK			1.58 H	267	108.8	-3.5
2	*2462.00	93.7 AV			1.58 H	267	97.2	-3.5
3	2483.50	61.7 PK	74.0	-12.3	1.58 H	267	65.3	-3.6
4	2483.50	42.8 AV	54.0	-11.2	1.58 H	267	46.4	-3.6
5	4924.00	49.2 PK	74.0	-24.8	1.03 H	318	46.7	2.5
6	4924.00	35.1 AV	54.0	-18.9	1.03 H	318	32.6	2.5
7	7386.00	50.2 PK	74.0	-23.8	1.06 H	257	41.1	9.1
8	7386.00	38.4 AV	54.0	-15.6	1.06 H	257	29.3	9.1
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	116.7 PK			2.68 V	341	120.2	-3.5
2	*2462.00	105.1 AV			2.68 V	341	108.6	-3.5
3	2483.50	72.8 PK	74.0	-1.2	2.68 V	341	76.4	-3.6
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.68 V**	**341**	**57.5**	**-3.6**
5	4924.00	46.9 PK	74.0	-27.1	1.43 V	351	44.4	2.5
6	4924.00	33.8 AV	54.0	-20.2	1.43 V	351	31.3	2.5
7	7386.00	50.3 PK	74.0	-23.7	3.76 V	179	41.2	9.1
8	7386.00	38.5 AV	54.0	-15.5	3.76 V	179	29.4	9.1

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.8 PK	74.0	-12.2	1.63 H	282	65.5	-3.7
2	2390.00	42.9 AV	54.0	-11.1	1.63 H	282	46.6	-3.7
3	*2412.00	103.4 PK			1.63 H	282	107.1	-3.7
4	*2412.00	91.4 AV			1.63 H	282	95.1	-3.7
5	4824.00	55.8 PK	74.0	-18.2	1.11 H	324	53.6	2.2
6	4824.00	42.0 AV	54.0	-12.0	1.11 H	324	39.8	2.2
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	70.4 PK	74.0	-3.6	2.58 V	157	74.1	-3.7
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.58 V**	**157**	**57.6**	**-3.7**
3	*2412.00	114.8 PK			2.58 V	157	118.5	-3.7
4	*2412.00	102.8 AV			2.58 V	157	106.5	-3.7
5	4824.00	45.6 PK	74.0	-28.4	1.43 V	332	43.4	2.2
6	4824.00	32.6 AV	54.0	-21.4	1.43 V	332	30.4	2.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.63 H	282	66.0	-3.7
2	2390.00	43.2 AV	54.0	-10.8	1.63 H	282	46.9	-3.7
3	*2437.00	111.3 PK			1.63 H	282	114.9	-3.6
4	*2437.00	100.5 AV			1.63 H	282	104.1	-3.6
5	2483.50	60.6 PK	74.0	-13.4	1.63 H	282	64.2	-3.6
6	2483.50	41.5 AV	54.0	-12.5	1.63 H	282	45.1	-3.6
7	4874.00	55.7 PK	74.0	-18.3	1.08 H	342	53.3	2.4
8	4874.00	42.1 AV	54.0	-11.9	1.08 H	342	39.7	2.4
9	7311.00	52.7 PK	74.0	-21.3	1.53 H	188	44.0	8.7
10	7311.00	39.8 AV	54.0	-14.2	1.53 H	188	31.1	8.7
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	72.2 PK	74.0	-1.8	2.18 V	90	75.9	-3.7
2	2390.00	53.7 AV	54.0	-0.3	2.18 V	90	57.4	-3.7
3	*2437.00	122.5 PK			2.18 V	90	126.1	-3.6
4	*2437.00	111.7 AV			2.18 V	90	115.3	-3.6
5	2483.50	69.7 PK	74.0	-4.3	2.18 V	90	73.3	-3.6
6	2483.50	51.7 AV	54.0	-2.3	2.18 V	90	55.3	-3.6
7	4874.00	55.4 PK	74.0	-18.6	1.44 V	341	53.0	2.4
8	4874.00	41.5 AV	54.0	-12.5	1.44 V	341	39.1	2.4
9	7311.00	54.8 PK	74.0	-19.2	3.77 V	182	46.1	8.7
10	7311.00	42.2 AV	54.0	-11.8	3.77 V	182	33.5	8.7

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.7 PK			1.61 H	266	109.2	-3.5
2	*2462.00	94.0 AV			1.61 H	266	97.5	-3.5
3	2483.50	59.4 PK	74.0	-14.6	1.61 H	266	63.0	-3.6
4	2483.50	43.5 AV	54.0	-10.5	1.61 H	266	47.1	-3.6
5	4924.00	49.2 PK	74.0	-24.8	1.02 H	325	46.7	2.5
6	4924.00	35.3 AV	54.0	-18.7	1.02 H	325	32.8	2.5
7	7386.00	49.9 PK	74.0	-24.1	1.09 H	244	40.8	9.1
8	7386.00	38.4 AV	54.0	-15.6	1.09 H	244	29.3	9.1
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	117.0 PK			2.51 V	341	120.5	-3.5
2	*2462.00	105.3 AV			2.51 V	341	108.8	-3.5
3	2483.50	68.5 PK	74.0	-5.5	2.51 V	341	72.1	-3.6
4	2483.50	53.8 AV	54.0	-0.2	2.51 V	341	57.4	-3.6
5	4924.00	46.8 PK	74.0	-27.2	1.48 V	344	44.3	2.5
6	4924.00	33.9 AV	54.0	-20.1	1.48 V	344	31.4	2.5
7	7386.00	50.5 PK	74.0	-23.5	3.71 V	163	41.4	9.1
8	7386.00	38.8 AV	54.0	-15.2	3.71 V	163	29.7	9.1

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.2 PK	74.0	-11.8	1.61 H	268	65.9	-3.7
2	2390.00	43.2 AV	54.0	-10.8	1.61 H	268	46.9	-3.7
3	*2422.00	96.1 PK			1.61 H	268	99.7	-3.6
4	*2422.00	85.8 AV			1.61 H	268	89.4	-3.6
5	4844.00	44.6 PK	74.0	-29.4	1.07 H	308	42.3	2.3
6	4844.00	32.3 AV	54.0	-21.7	1.07 H	308	30.0	2.3
7	7266.00	49.5 PK	74.0	-24.5	1.00 H	273	40.7	8.8
8	7266.00	37.5 AV	54.0	-16.5	1.00 H	273	28.7	8.8
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	70.2 PK	74.0	-3.8	2.56 V	155	73.9	-3.7
2	2390.00	53.5 AV	54.0	-0.5	2.56 V	155	57.2	-3.7
3	*2422.00	107.2 PK			2.56 V	155	110.8	-3.6
4	*2422.00	97.0 AV			2.56 V	155	100.6	-3.6
5	4844.00	45.1 PK	74.0	-28.9	1.49 V	334	42.8	2.3
6	4844.00	32.8 AV	54.0	-21.2	1.49 V	334	30.5	2.3
7	7266.00	49.6 PK	74.0	-24.4	3.67 V	163	40.8	8.8
8	7266.00	38.1 AV	54.0	-15.9	3.67 V	163	29.3	8.8

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.8 PK	74.0	-11.2	1.56 H	279	66.5	-3.7
2	2390.00	43.4 AV	54.0	-10.6	1.56 H	279	47.1	-3.7
3	*2437.00	100.4 PK			1.56 H	279	104.0	-3.6
4	*2437.00	90.5 AV			1.56 H	279	94.1	-3.6
5	2483.50	60.1 PK	74.0	-13.9	1.56 H	279	63.7	-3.6
6	2483.50	41.1 AV	54.0	-12.9	1.56 H	279	44.7	-3.6
7	4874.00	44.9 PK	74.0	-29.1	1.05 H	338	42.5	2.4
8	4874.00	32.6 AV	54.0	-21.4	1.05 H	338	30.2	2.4
9	7311.00	49.3 PK	74.0	-24.7	1.08 H	270	40.6	8.7
10	7311.00	37.5 AV	54.0	-16.5	1.08 H	270	28.8	8.7
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	70.8 PK	74.0	-3.2	2.18 V	90	74.5	-3.7
2	2390.00	53.8 AV	54.0	-0.2	2.18 V	90	57.5	-3.7
3	*2437.00	111.3 PK			2.18 V	90	114.9	-3.6
4	*2437.00	101.5 AV			2.18 V	90	105.1	-3.6
5	2483.50	65.9 PK	74.0	-8.1	2.18 V	90	69.5	-3.6
6	2483.50	51.5 AV	54.0	-2.5	2.18 V	90	55.1	-3.6
7	4874.00	45.2 PK	74.0	-28.8	1.45 V	345	42.8	2.4
8	4874.00	33.1 AV	54.0	-20.9	1.45 V	345	30.7	2.4
9	7311.00	49.6 PK	74.0	-24.4	3.73 V	155	40.9	8.7
10	7311.00	38.3 AV	54.0	-15.7	3.73 V	155	29.6	8.7

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	99.6 PK			1.58 H	264	103.2	-3.6
2	*2452.00	87.4 AV			1.58 H	264	91.0	-3.6
3	2483.50	59.8 PK	74.0	-14.2	1.58 H	264	63.4	-3.6
4	2483.50	43.7 AV	54.0	-10.3	1.58 H	264	47.3	-3.6
5	4904.00	45.2 PK	74.0	-28.8	1.00 H	311	42.7	2.5
6	4904.00	32.9 AV	54.0	-21.1	1.00 H	311	30.4	2.5
7	7356.00	50.0 PK	74.0	-24.0	1.01 H	265	41.1	8.9
8	7356.00	38.2 AV	54.0	-15.8	1.01 H	265	29.3	8.9
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	110.6 PK			2.53 V	340	114.2	-3.6
2	*2452.00	98.3 AV			2.53 V	340	101.9	-3.6
3	2483.50	71.0 PK	74.0	-3.0	2.53 V	340	74.6	-3.6
4	2483.50	53.5 AV	54.0	-0.5	2.53 V	340	57.1	-3.6
5	4904.00	44.8 PK	74.0	-29.2	1.50 V	325	42.3	2.5
6	4904.00	32.6 AV	54.0	-21.4	1.50 V	325	30.1	2.5
7	7356.00	49.7 PK	74.0	-24.3	3.63 V	147	40.8	8.9
8	7356.00	37.9 AV	54.0	-16.1	3.63 V	147	29.0	8.9

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.

Below 1GHz Data:

802.11b

CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	41.54	34.8 QP	40.0	-5.2	2.50 H	310	43.2	-8.4
2	135.79	32.3 QP	43.5	-11.2	2.00 H	316	41.0	-8.7
3	500.01	38.3 QP	46.0	-7.7	1.00 H	306	41.1	-2.8
4	625.02	40.9 QP	46.0	-5.1	1.50 H	38	41.0	-0.1
5	791.98	36.8 QP	46.0	-9.2	1.00 H	310	34.5	2.3
6	875.02	37.3 QP	46.0	-8.7	1.00 H	321	33.7	3.6
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	199.77	33.1 QP	43.5	-10.4	1.00 V	8	44.5	-11.4
2	301.99	40.8 QP	46.0	-5.2	1.00 V	225	48.4	-7.6
3	331.50	42.7 QP	46.0	-3.3	1.50 V	153	49.4	-6.7
4	374.98	39.0 QP	46.0	-7.0	2.00 V	117	44.8	-5.8
5	500.01	40.5 QP	46.0	-5.5	1.00 V	58	43.3	-2.8
6	625.02	40.5 QP	46.0	-5.5	1.00 V	289	40.6	-0.1

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 09, 2016	May 08, 2017
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Aug. 31, 2016	Aug. 30, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
RF Cable	5D-FB	COACAB-002	Mar. 04, 2016	Mar. 03, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-003	Sep. 13, 2016	Sep. 12, 2017
50 ohms Terminator	N/A	04	Nov. 18, 2015	Nov. 17, 2016
50 ohms Terminator	50	3	Oct. 21, 2015	Oct. 20, 2016
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 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. 02, 2016

4.2.3 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. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

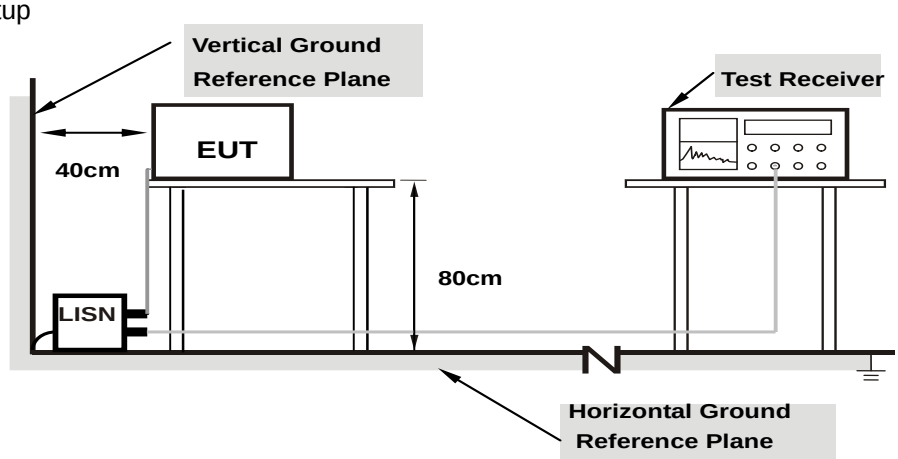
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

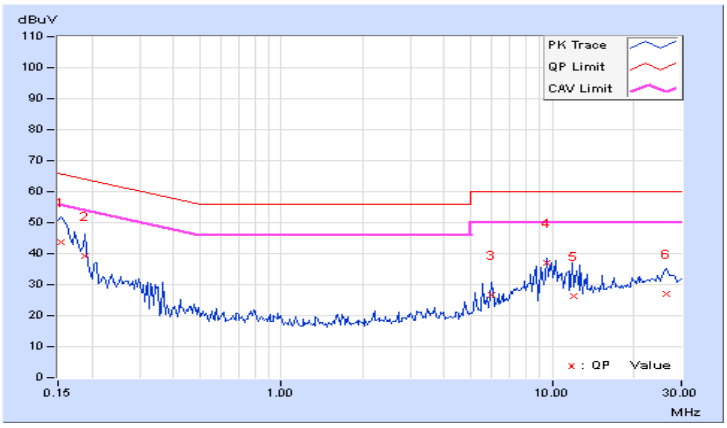
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.14	33.38	7.41	43.52	17.55	65.79	55.79	-22.27	-38.24
2	0.18906	10.12	28.99	3.69	39.11	13.81	64.08	54.08	-24.97	-40.27
3	5.97744	10.35	16.42	15.98	26.77	26.33	60.00	50.00	-33.23	-23.67
4	9.55125	10.42	26.69	25.17	37.11	35.59	60.00	50.00	-22.89	-14.41
5	11.95156	10.51	15.77	13.71	26.28	24.22	60.00	50.00	-33.72	-25.78
6	26.48047	11.05	16.17	11.31	27.22	22.36	60.00	50.00	-32.78	-27.64

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.

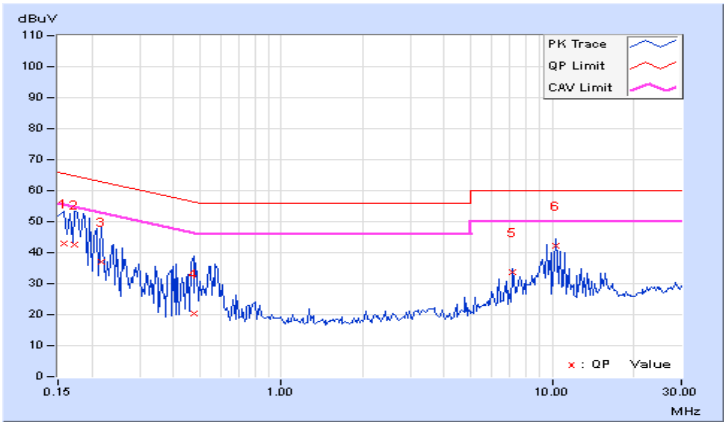


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.17	32.71	4.29	42.88	14.46	65.58	55.58	-22.70	-41.12
2	0.17344	10.13	32.37	7.24	42.50	17.37	64.79	54.79	-22.29	-37.42
3	0.21641	10.07	26.80	0.10	36.87	10.17	62.96	52.96	-26.09	-42.79
4	0.47422	10.10	10.43	-6.98	20.53	3.12	56.44	46.44	-35.91	-43.32
5	7.17578	10.40	23.13	21.02	33.53	31.42	60.00	50.00	-26.47	-18.58
6	10.36328	10.49	31.86	22.16	42.35	32.65	60.00	50.00	-17.65	-17.35

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.



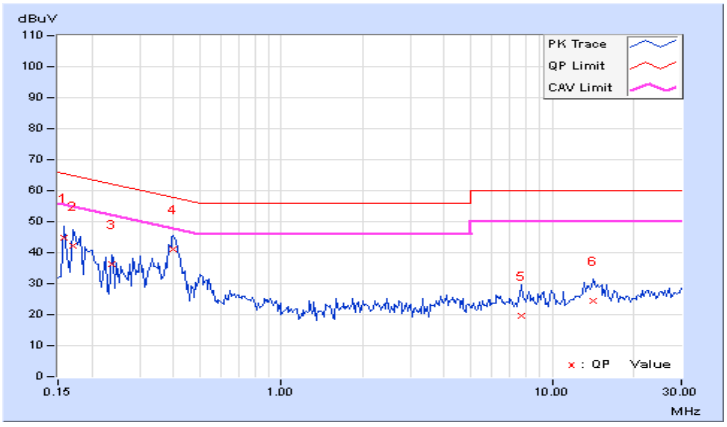
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.14	34.80	16.29	44.94	26.43	65.58	55.58	-20.64	-29.15
2	0.16953	10.13	31.96	12.23	42.09	22.36	64.98	54.98	-22.89	-32.62
3	0.23594	10.12	26.17	10.64	36.29	20.76	62.24	52.24	-25.95	-31.48
4	0.40000	10.11	31.11	20.94	41.22	31.05	57.85	47.85	-16.63	-16.80
5	7.68750	10.38	9.20	1.80	19.58	12.18	60.00	50.00	-40.42	-37.82
6	14.15234	10.60	13.89	7.90	24.49	18.50	60.00	50.00	-35.51	-31.50

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.

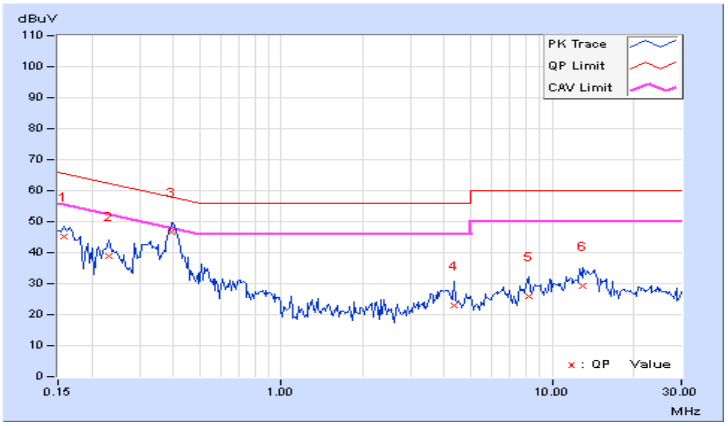


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.17	34.88	25.35	45.05	35.52	65.58	55.58	-20.53	-20.06
2	0.23203	10.07	28.98	18.49	39.05	28.56	62.38	52.38	-23.33	-23.82
3	**0.39609**	**10.09**	**36.42**	**28.47**	**46.51**	**38.56**	**57.93**	**47.93**	**-11.42**	**-9.37**
4	4.35547	10.33	12.62	6.59	22.95	16.92	56.00	46.00	-33.05	-29.08
5	8.17578	10.43	15.54	8.08	25.97	18.51	60.00	50.00	-34.03	-31.49
6	13.03516	10.60	18.60	11.33	29.20	21.93	60.00	50.00	-30.80	-28.07

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.

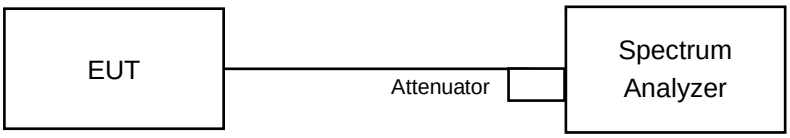


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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

4.3.5 Deviation from Test Standard

No deviation.

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 Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	7.09	7.10	0.5	PASS
6	2437	7.12	7.12	0.5	PASS
11	2462	7.11	7.08	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.41	16.45	0.5	PASS
6	2437	16.36	16.40	0.5	PASS
11	2462	16.39	16.41	0.5	PASS

802.11n (HT20)

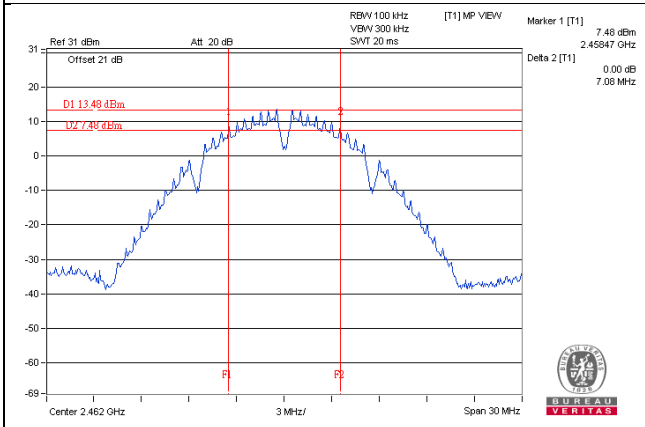
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.60	17.57	0.5	Pass
6	2437	17.59	17.16	0.5	Pass
11	2462	17.65	17.68	0.5	Pass

802.11n (HT40)

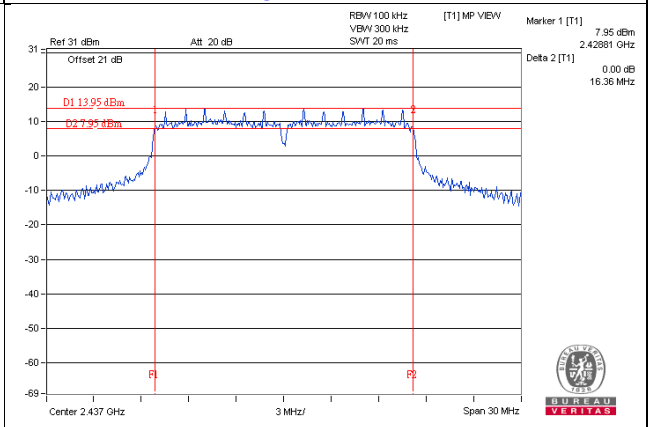
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.39	36.44	0.5	Pass
6	2437	36.44	36.43	0.5	Pass
9	2452	36.45	36.51	0.5	Pass

Spectrum Plot of Worst Value

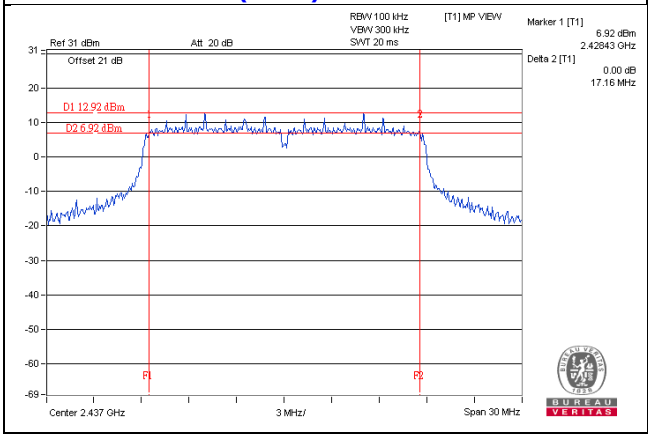
802.11b / Chain 1 : CH11



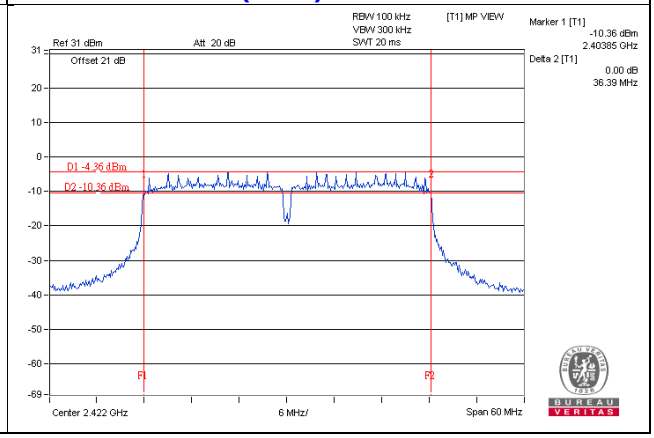
802.11g / Chain 0 : CH6



802.11n (HT20) / Chain 1 : CH6



802.11n (HT40) / Chain 0 : CH3



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

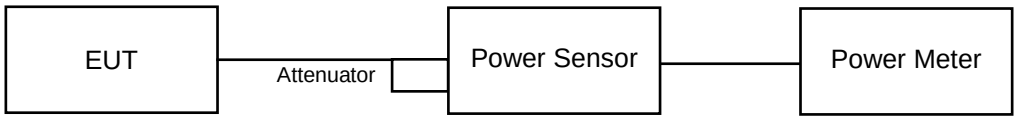
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

802.11b

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.67	20.25	222.606	23.48	30	Pass
6	2437	25.98	25.95	789.828	28.98	30	Pass
11	2462	22.65	22.94	380.866	25.81	30	Pass

802.11g

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.48	14.82	65.657	18.17	30	Pass
6	2437	25.47	25.16	680.466	28.33	30	Pass
11	2462	17.18	17.06	103.056	20.13	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.62	15.39	71.069	18.52	30	Pass
6	2437	25.14	25.14	653.176	28.15	30	Pass
11	2462	17.18	17.11	103.644	20.16	30	Pass

802.11n (HT40)

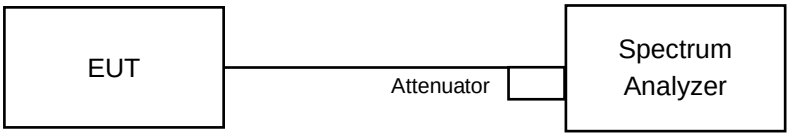
Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	11.34	10.83	25.72	14.10	30	Pass
6	2437	15.11	14.75	62.288	17.94	30	Pass
9	2452	13.61	13.84	47.171	16.74	30	Pass

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 Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.11	3.01	-7.10	7.99	Pass
	6	2437	-5.02	3.01	-2.01	7.99	Pass
	11	2462	-8.43	3.01	-5.42	7.99	Pass
1	1	2412	-10.30	3.01	-7.29	7.99	Pass
	6	2437	-4.89	3.01	-1.88	7.99	Pass
	11	2462	-8.43	3.01	-5.42	7.99	Pass

Note: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 8-(6.01-6) = 7.99dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-17.22	3.01	-14.21	7.99	Pass
	6	2437	-7.18	3.01	-4.17	7.99	Pass
	11	2462	-10.71	3.01	-7.70	7.99	Pass
1	1	2412	-19.06	3.01	-16.05	7.99	Pass
	6	2437	-9.21	3.01	-6.20	7.99	Pass
	11	2462	-8.06	3.01	-5.05	7.99	Pass

Note: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 8-(6.01-6) = 7.99dBm.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.45	3.01	-9.44	7.99	Pass
	6	2437	-9.00	3.01	-5.99	7.99	Pass
	11	2462	-13.65	3.01	-10.64	7.99	Pass
1	1	2412	-18.92	3.01	-15.91	7.99	Pass
	6	2437	-9.72	3.01	-6.71	7.99	Pass
	11	2462	-17.40	3.01	-14.39	7.99	Pass

Note: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 8-(6.01-6) = 7.99dBm.

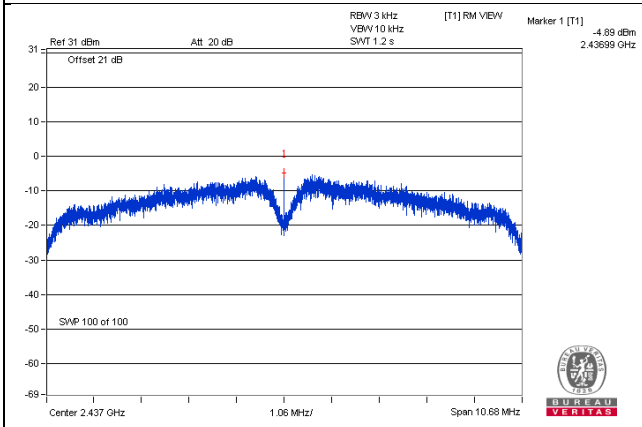
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-25.56	3.01	-22.55	7.99	Pass
	6	2437	-21.61	3.01	-18.60	7.99	Pass
	9	2452	-22.51	3.01	-19.50	7.99	Pass
1	3	2422	-26.34	3.01	-23.33	7.99	Pass
	6	2437	-21.56	3.01	-18.55	7.99	Pass
	9	2452	-23.13	3.01	-20.12	7.99	Pass

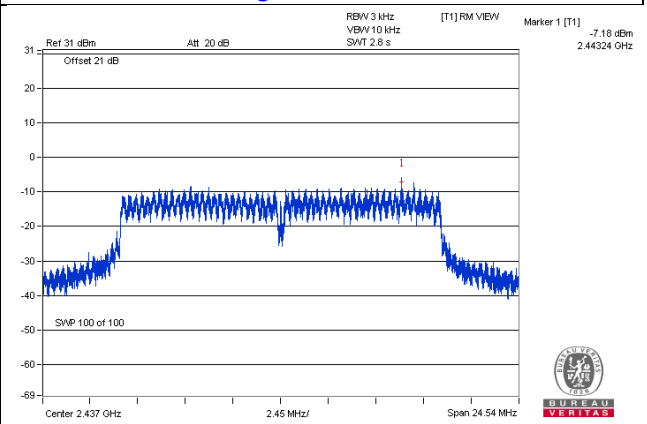
Note: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 8-(6.01-6) = 7.99dBm.

Spectrum Plot of Worst Value

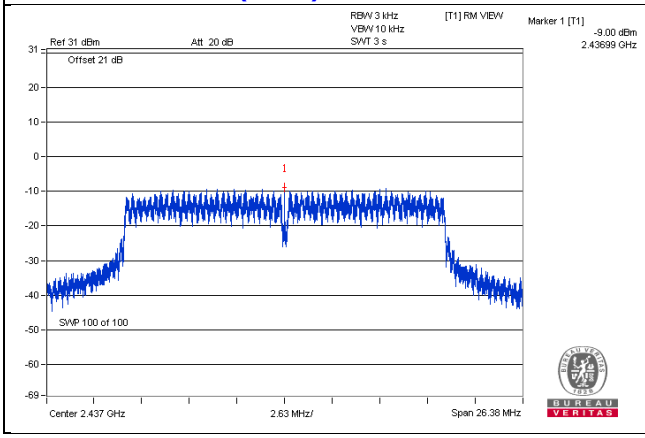
802.11b / Chain 1 : CH6



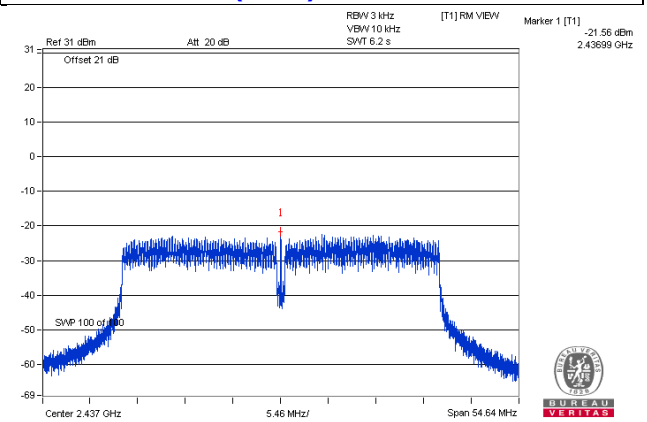
802.11g / Chain 0 : CH6



802.11n (HT20) / Chain 0 : CH6



802.11n (HT40) / Chain 1 : CH6

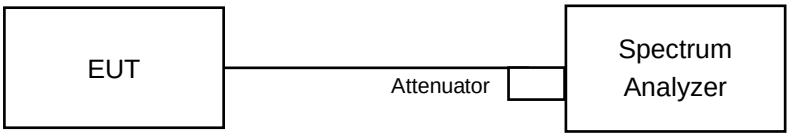


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

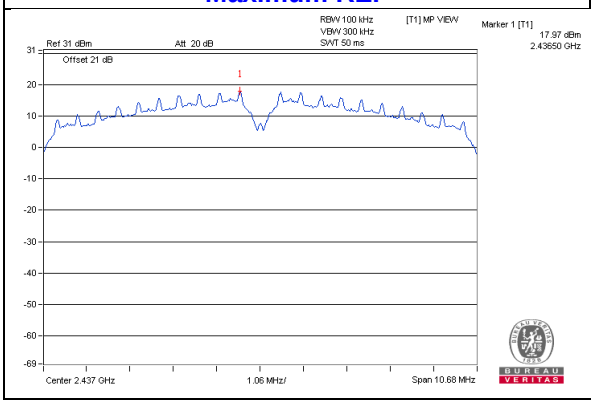
Same as Item 4.3.6

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 30dB offset below D1. It shows compliance with the requirement.

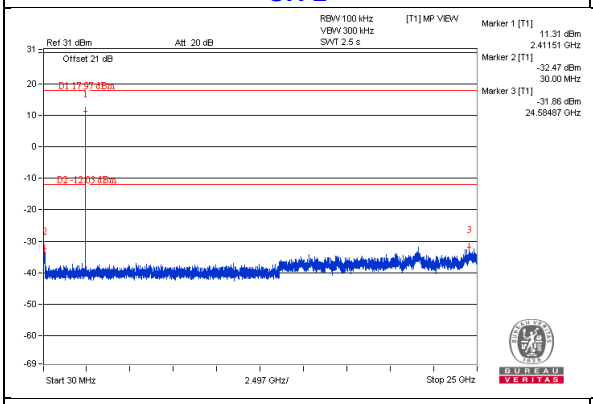
802.11b

Maximum REF

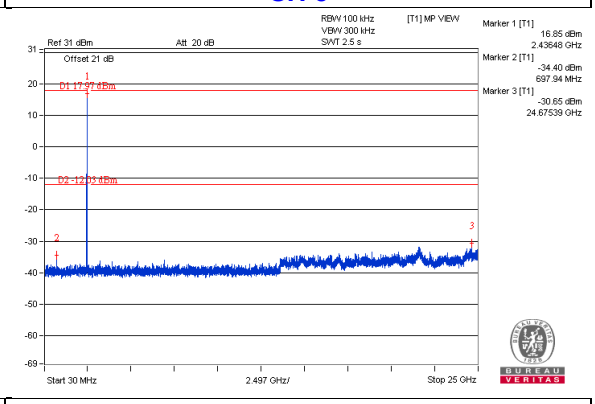


CHAIN 0

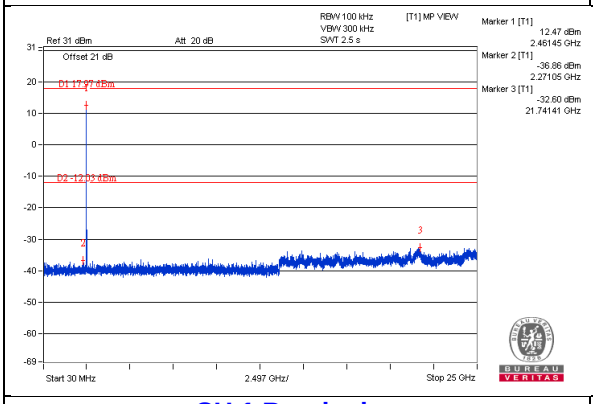
CH 1



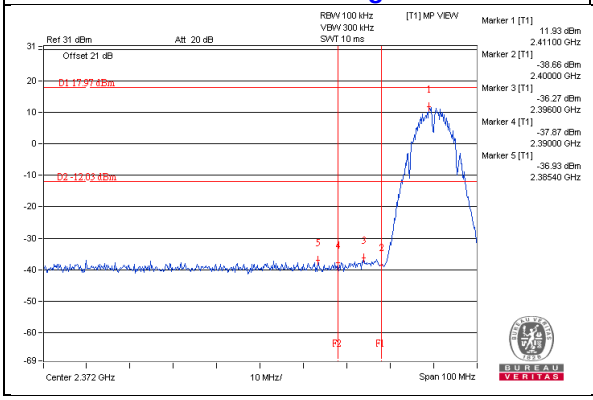
CH 6



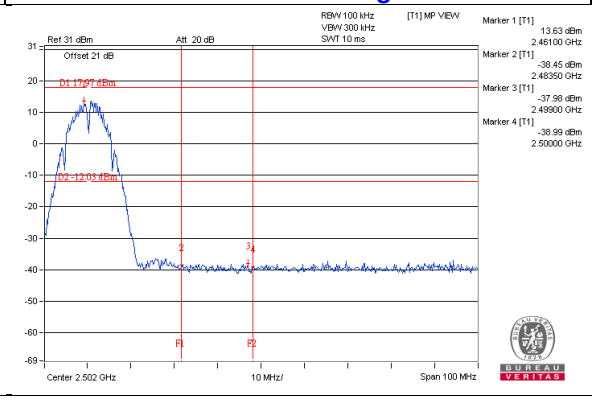
CH 11



CH 1 Band edge

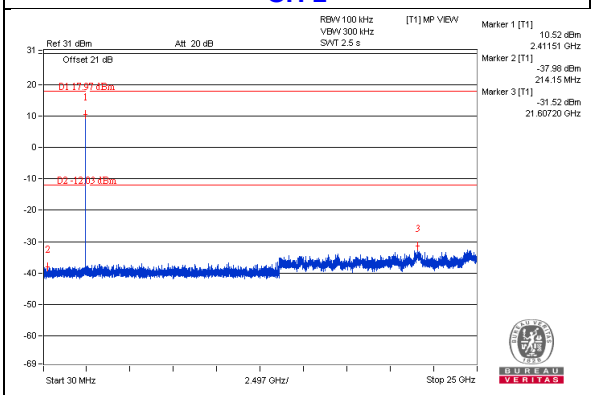


CH 11 Band edge

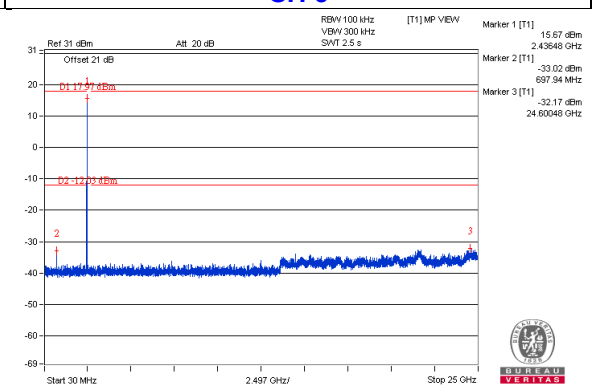


CHAIN 1

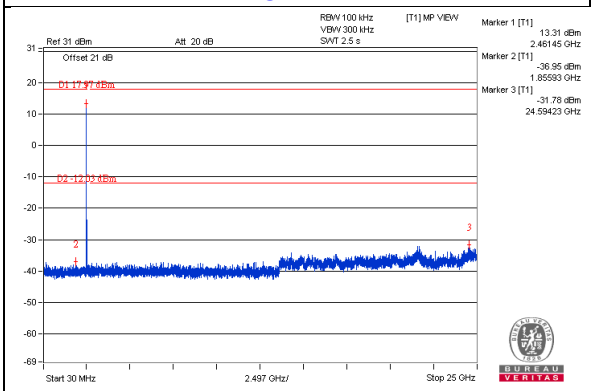
CH 1



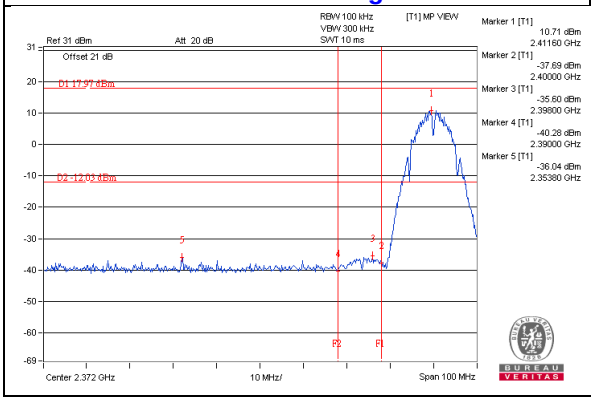
CH 6



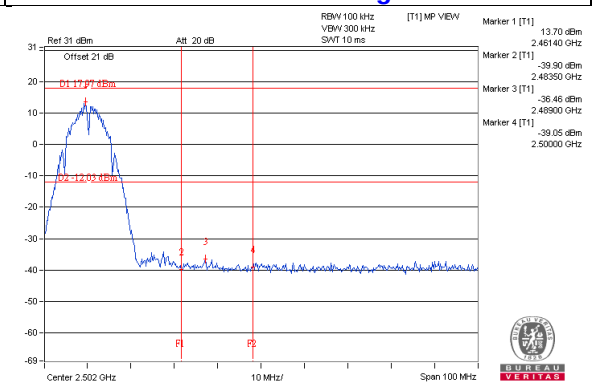
CH 11



CH 1 Band edge

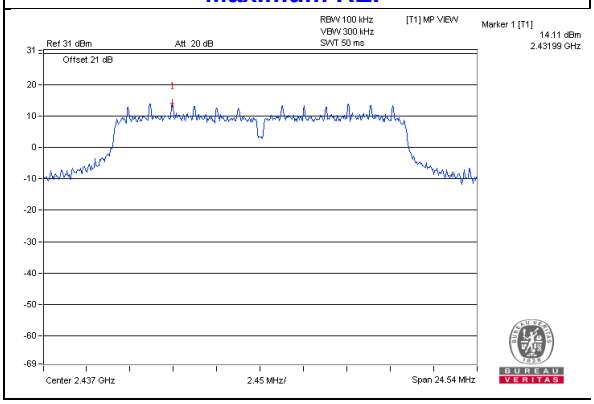


CH 11 Band edge



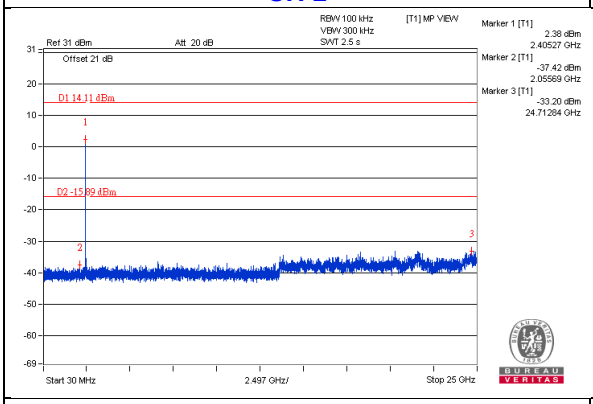
802.11g

Maximum REF

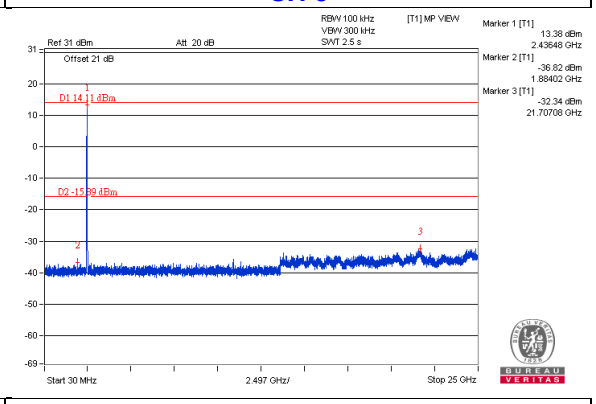


CHAIN 0

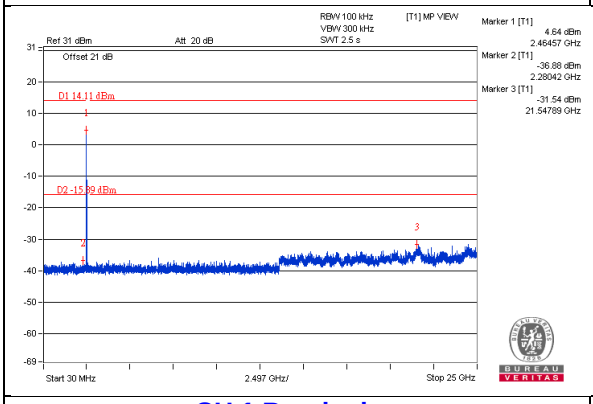
CH 1



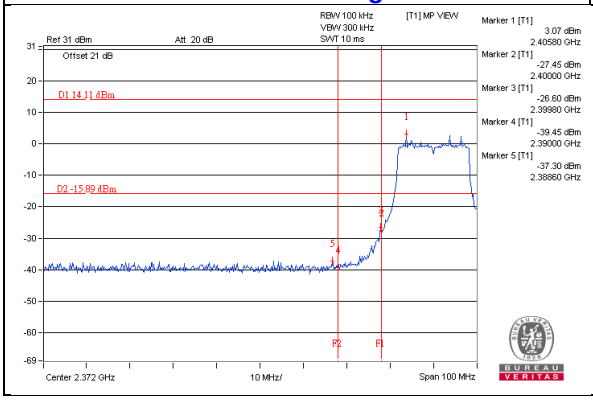
CH 6



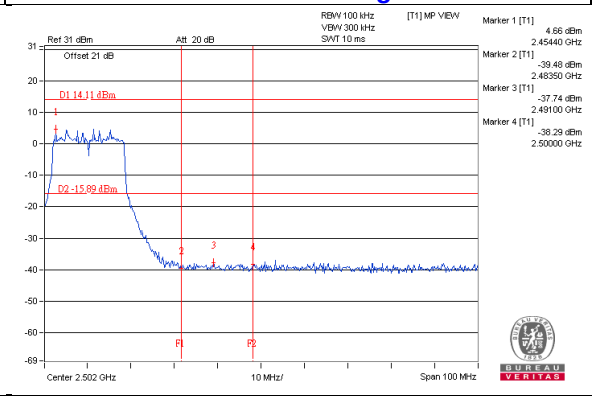
CH 11



CH 1 Band edge

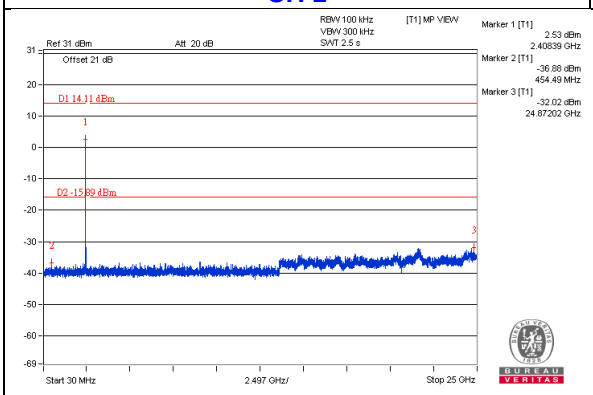


CH 11 Band edge

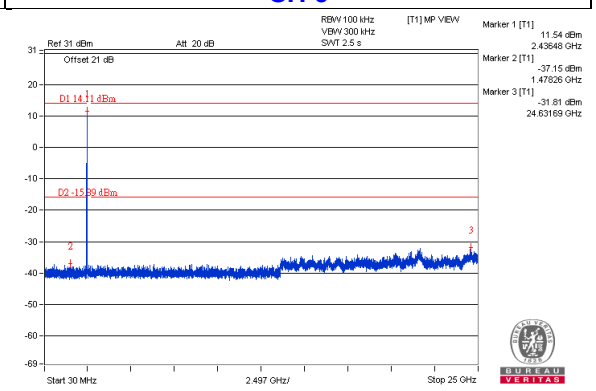


CHAIN 1

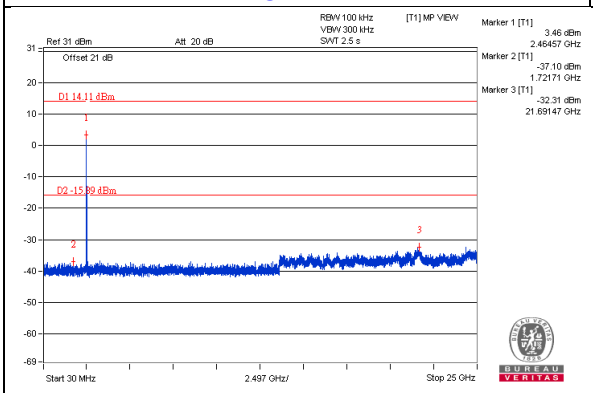
CH 1



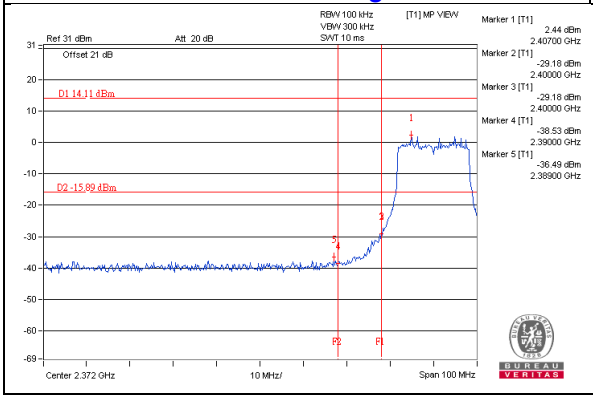
CH 6



CH 11



CH 1 Band edge



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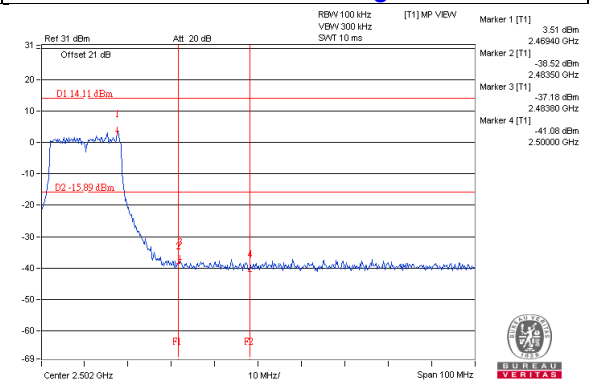
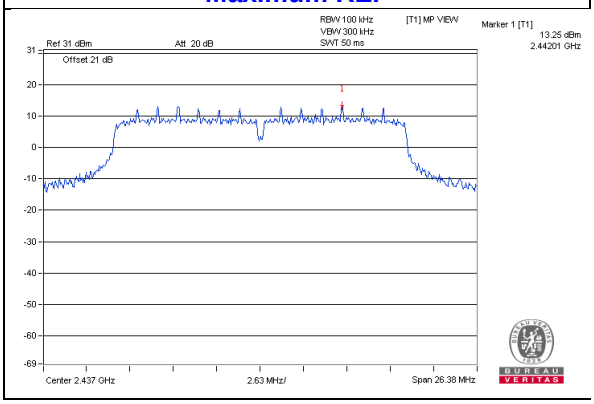


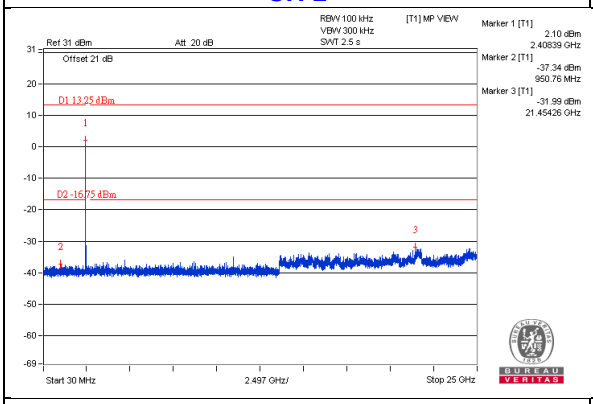
802.11n (HT20)

Maximum REF



CHAIN 0

CH 1



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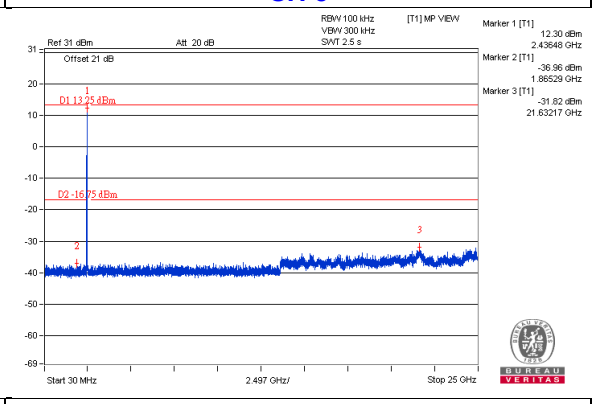

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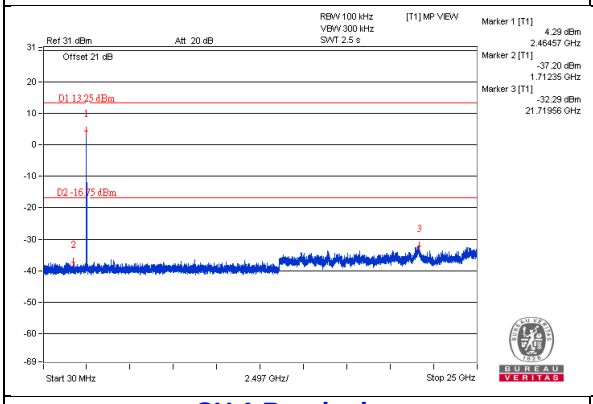

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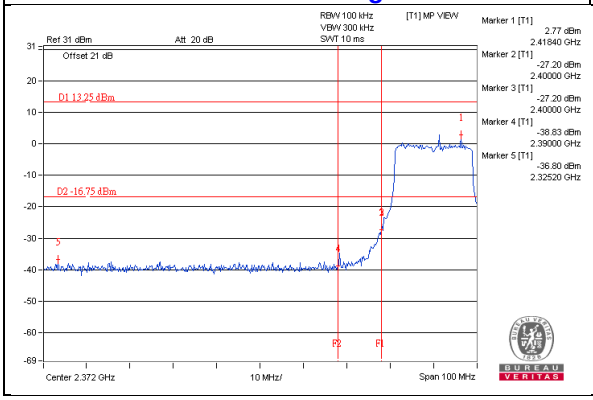

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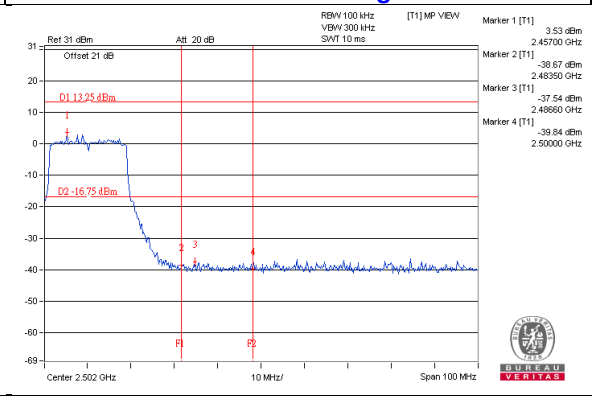
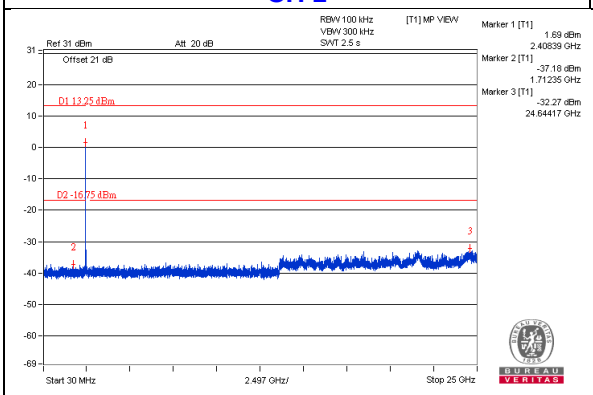


CHAIN 1

CH 1



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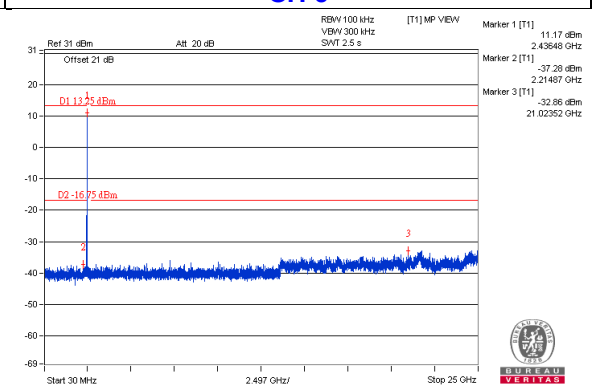

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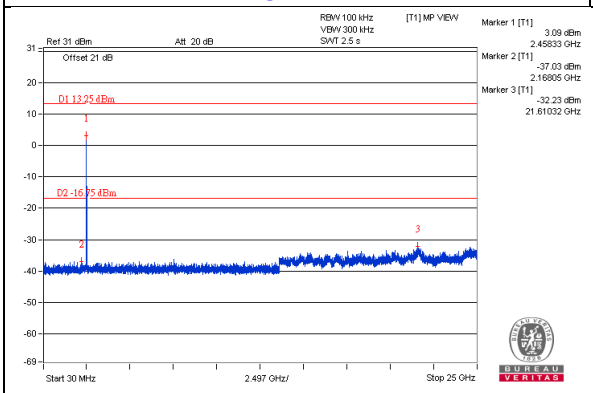

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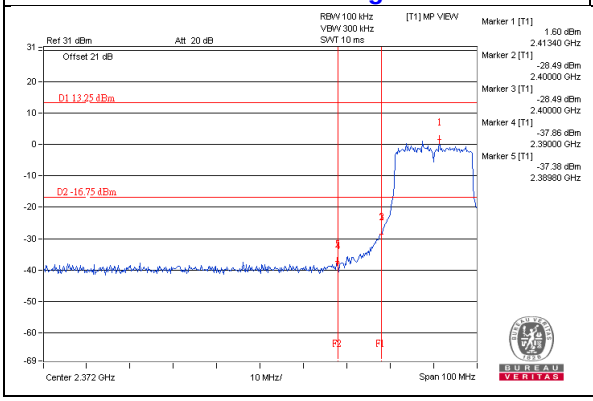
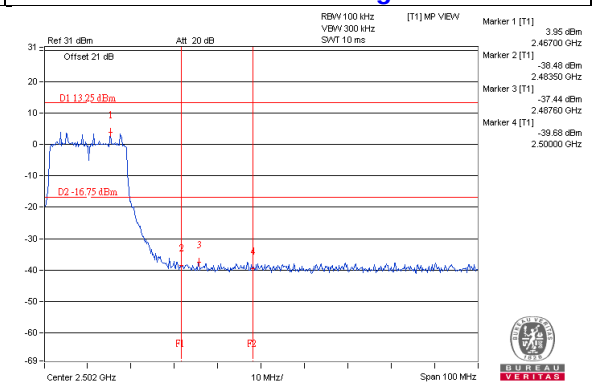
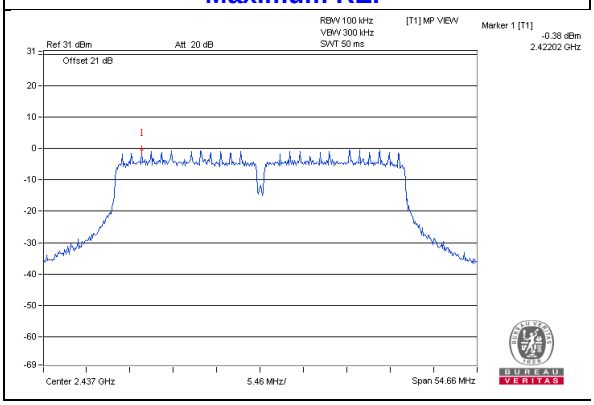


CH 11 Band edge



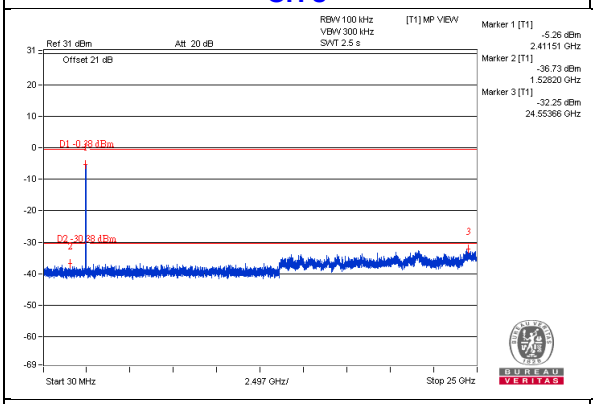
802.11n (HT40)

Maximum REF

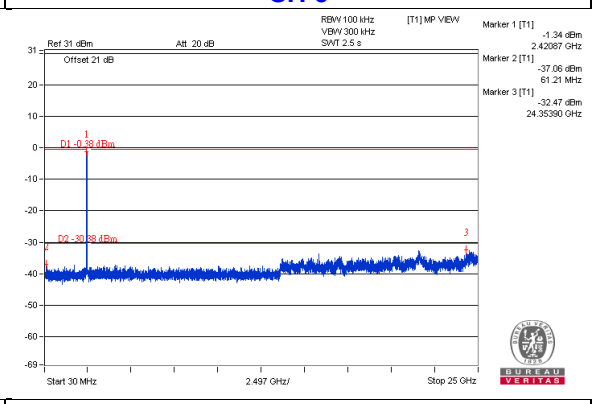


CHAIN 0

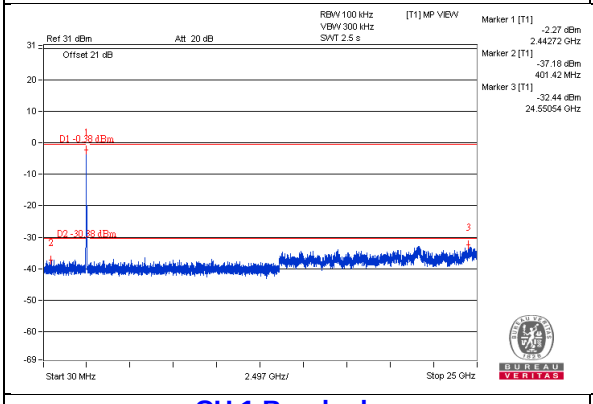
CH 3



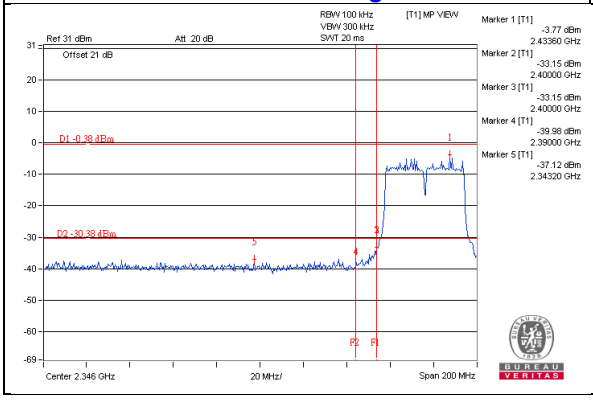
CH 6



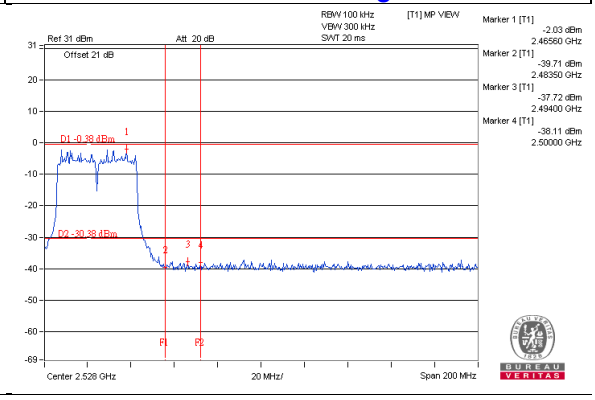
CH 9



CH 1 Band edge

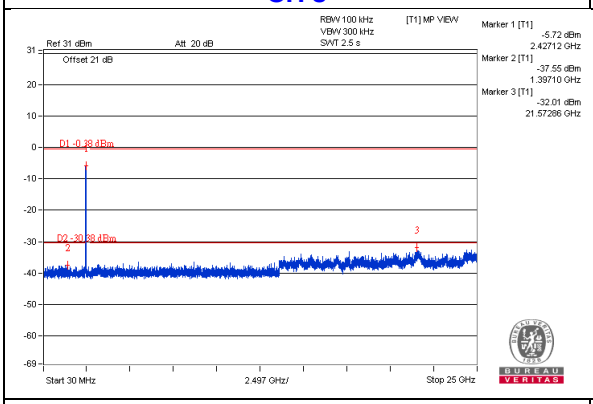


CH 11 Band edge



CHAIN 1

CH 3



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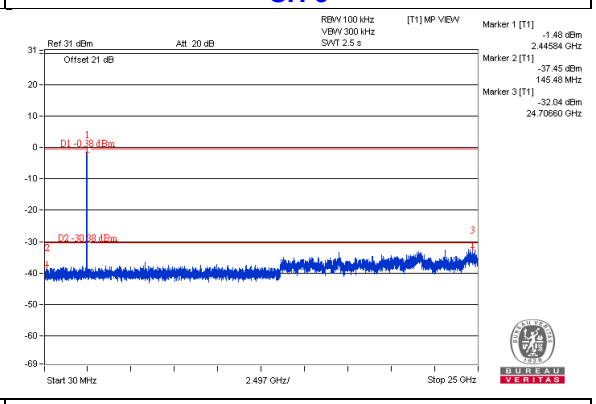

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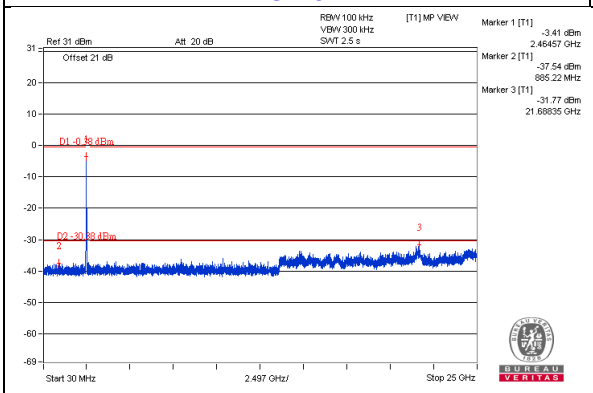

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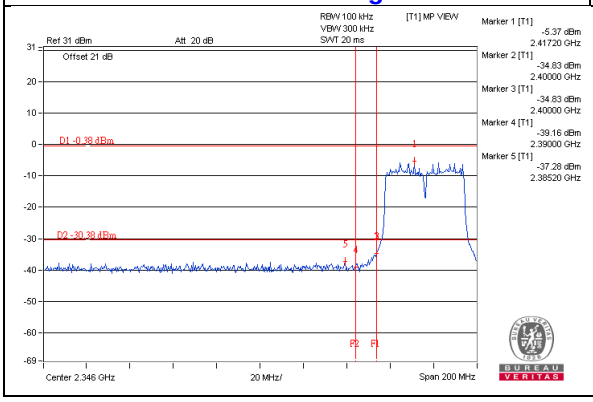
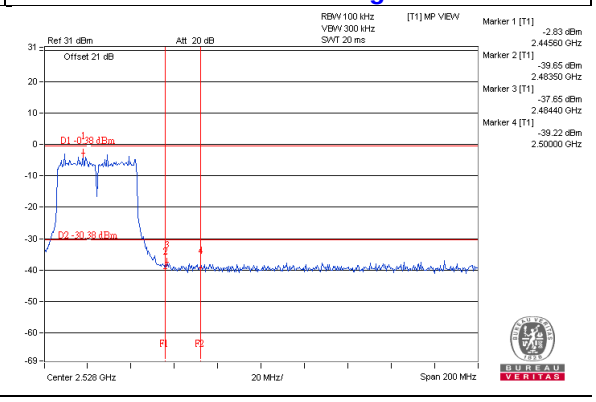


CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – 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: 886-2-26051924

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Tel: 886-3-6668565
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Hwa Ya EMC/RF/Safety Lab
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Fax: 886-3-3270892

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

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

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