FCC Test Report

Report No.:	RF160906E06A
FCC ID:	PY316200351
Test Model:	R7000P
Series Model:	R6900P
Received Date:	Sep. 07, 2016
Test Date:	Oct. 20 to 25, 2016
Issued Date:	Nov. 01, 2016
Applicant:	NETGEAR, Inc.
Address:	350 East Plumeria Drive San Jose, CA 95134
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.

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF160906E06A	Original release.	Nov. 01, 2016

1 Certificate of Conformity

Product:	AC2300 Smart WiFi Router
Brand:	NETGEAR
Test Model:	R7000P
Series Model:	R6900P
Sample Status:	ENGINEERING SAMPLE
Applicant:	NETGEAR, Inc.
Test Date:	Oct. 20 to 25, 2016
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 : _____ , **Date:** Nov. 01, 2016

Wendy Wu / Specialist

Approved by : _____ , **Date:** Nov. 01, 2016

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 -15.45dB at 0.15000MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2483.50MHz, 2390.00MHz.
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 Re-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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.34 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.41 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	3.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC2300 Smart WiFi Router
Brand	NETGEAR
Test Model	R7000P
Series Model	R6900P
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20/40 in 2.4GHz band
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
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), VHT20: 11 802.11n (HT40), VHT40: 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:** **CDD Mode** 780.197mW **Beamforming Mode** 776.8mW **5GHz:** **5.18GHz ~ 5.24GHz:** **CDD Mode** 852.705mW **Beamforming Mode** 859.026mW **5.745GHz ~ 5.825GHz:** **CDD Mode** 863.244mW **Beamforming Mode** 857.957mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable x 1 (shielded, 1.5m)

Note:

1. The EUT has below model names, which are identical to each other in all aspects except for the following:

Brand	Model No.	Different
NETGEAR	R7000P	-
	R6900P	Remove one USB 2.0 port.

From the above models, model: **R7000P** was selected as representative model for the test and its data was recorded in this report.

2. Simultaneously transmission condition.

Condition	**Technology**	
1	WLAN (2.4GHz)	WLAN (5GHz)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT must be supplied with a power adapter and following different models could be chosen as following table:

No	Brand Name	Model No.	P/N	Spec.	Plug
1	NETGEAR	MU42-3120350-A1	332-10762-01	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12Vdc, 3.5A DC output cable: 1.8m, unshielded	FCC/IC
2	NETGEAR	2ABN042F NA	332-10761-01	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12Vdc, 3.5A DC output cable: 1.8m, unshielded	FCC/IC
Note: From the above adapters, the radiated emission worse case was found in Adapter 1. Therefore only the test data of the mode was recorded in this report.					

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

Antenna No.	Brand	Model	Ant. Gain(dBi)	Frequency range (GHz to GHz)	Antenna Type	Connecter Type
1	NA	NA	0.5	2.4~2.4835	Dipole	Re-SMA
			1.8	5.15~5.85	Dipole	Re-SMA
2	NA	NA	0.5	2.4~2.4835	Dipole	Re-SMA
			1.8	5.15~5.85	Dipole	Re-SMA
3	NA	NA	0.5	2.4~2.4835	Dipole	Re-SMA
			1.8	5.15~5.85	Dipole	Re-SMA

5. The EUT incorporates a MIMO function.

For 2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
VHT20	MCS0~8 Nss=1	3TX	3RX
	MCS0~8 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
VHT40	MCS0~9 Nss=1	3TX	3RX
	MCS0~9 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
For 5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS 0~8, Nss=1	3TX	3RX
	MCS 0~8, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT40)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT80)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

6. The above EUT information is declared by 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), VHT20:

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), VHT40:

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	√	√	√	√	With adapter 1
2	-	-	√	-	With adapter 2

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: 1. The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.
2. "-"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.

CDD Mode					
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
Beamforming Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	OFDM	BPSK	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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	OFDM	BPSK	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.

CDD Mode					
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
Beamforming Mode					
MODE	**AVAILABLE CHANNEL**	**TESTED CHANNEL**	**MODULATION TECHNOLOGY**	**MODULATION TYPE**	**DATA RATE (Mbps)**
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:

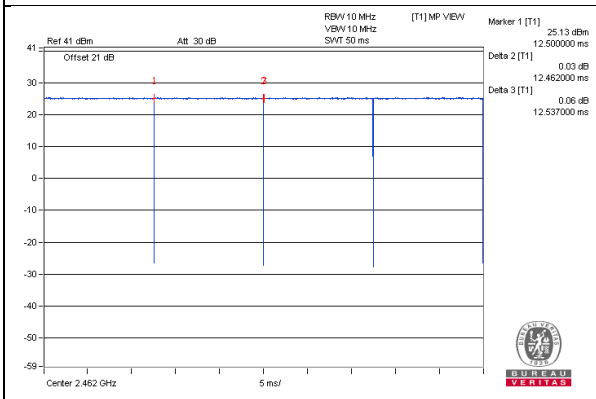
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 62%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	23deg. C, 62%RH	120Vac, 60Hz	Jyunchun Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Bary Lee
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

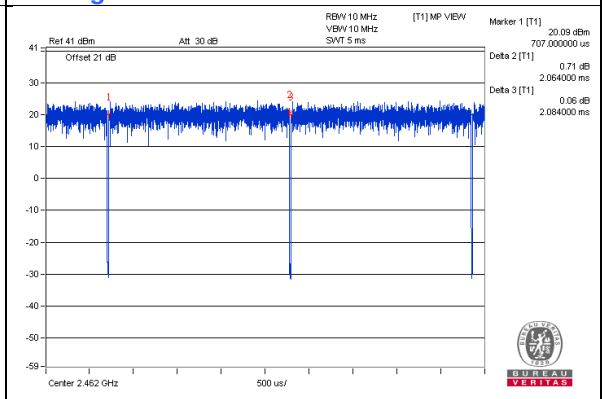
If duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle = 12.462/12.537 = 0.994
802.11g: Duty cycle = 2.064/2.084 = 0.99
802.11n (HT20): Duty cycle = 1.919/1.938 = 0.99
802.11n (HT40): Duty cycle = 0.946/0.965 = 0.98

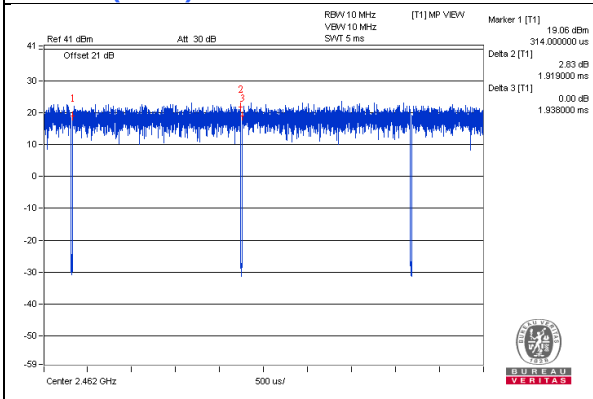
802.11b



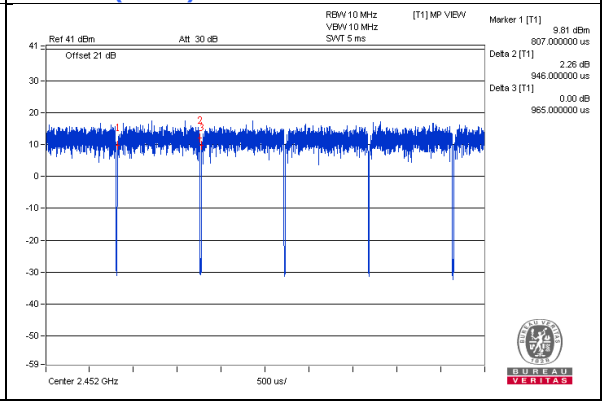
802.11g



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.

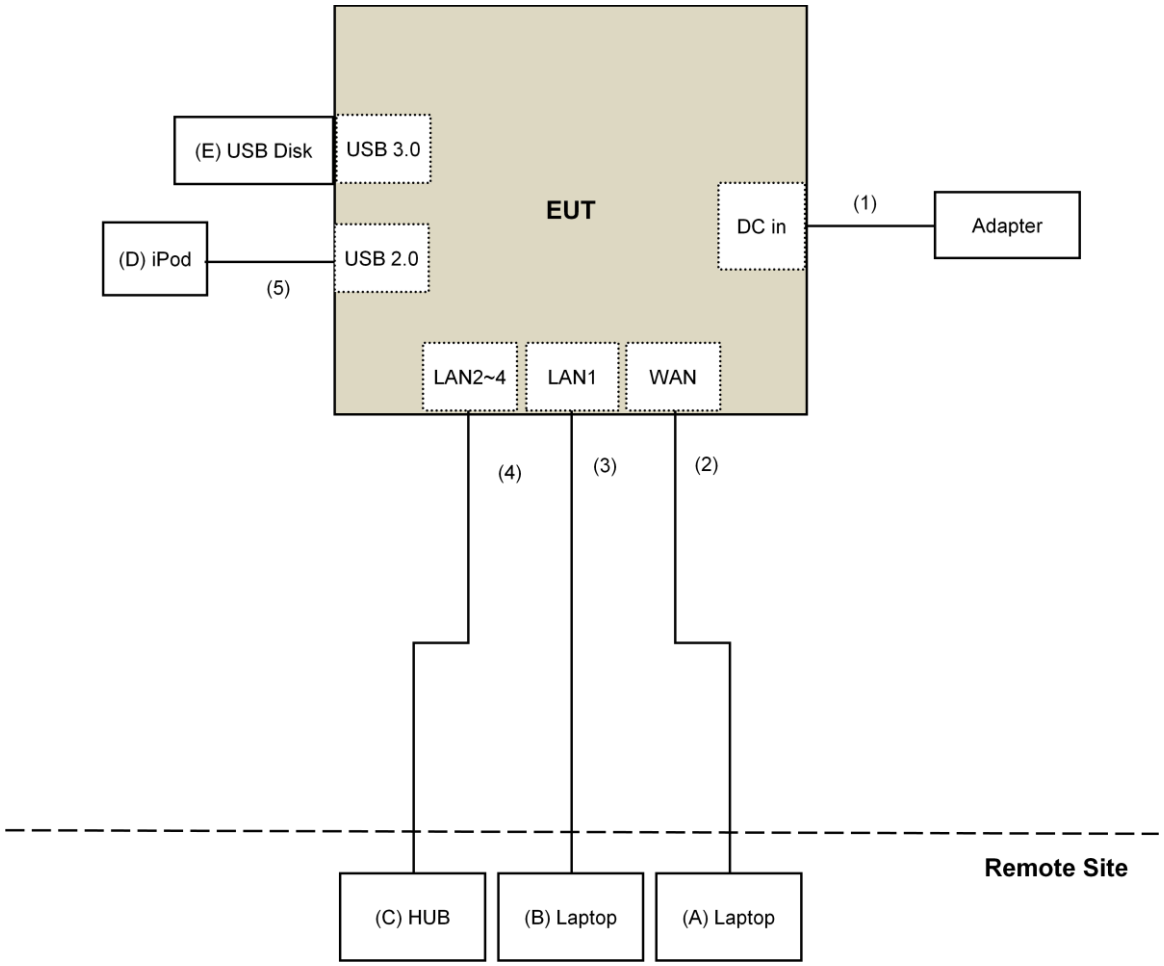
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
C.	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
D.	iPod	Apple	MC749TA/A	CC4DN25WDFDM	NA	Provided by Lab
E.	USB Disk	Teanscend	16GB	NA	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.	DC Cable	1	1.8	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	1	10	No	0	Provided by Lab
4.	RJ-45 Cable	3	10	No	0	Provided by Lab
5.	USB Cable	1	0.1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



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 v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

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

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

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, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 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	FSP40	100060	May 11, 2016	May 10, 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 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:Oct. 20 to 22, 2016

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:

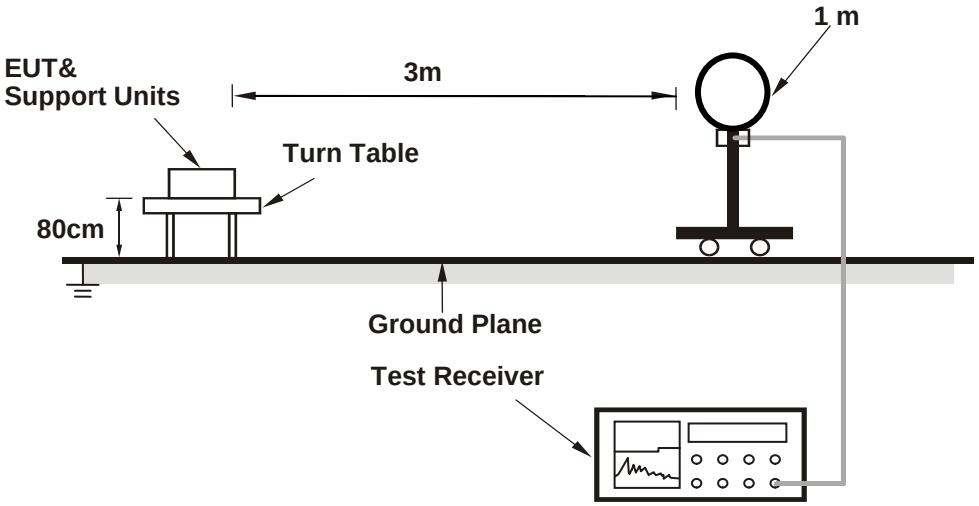
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

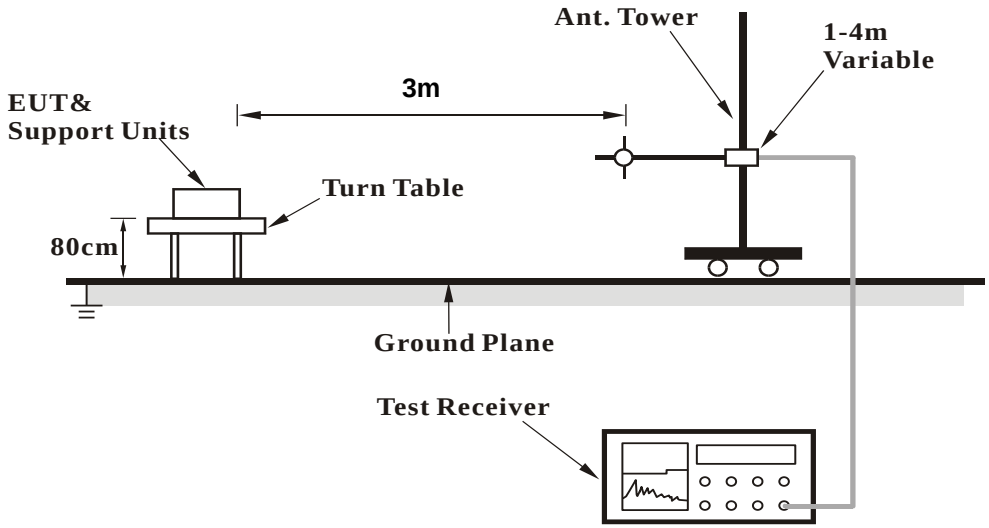
No deviation.

4.1.5 Test Setup

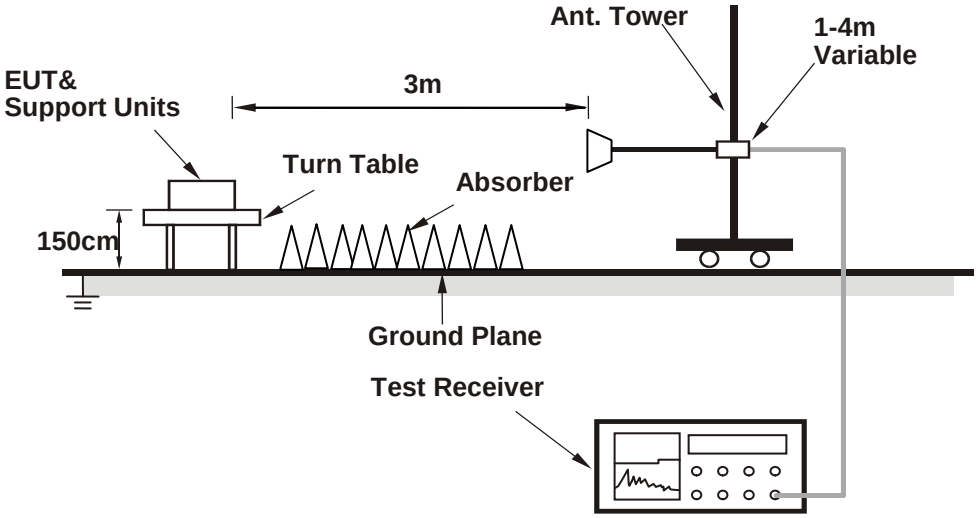
For Radiated emission below 30MHz



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 (Mtool.exe V2.0.1.1) 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	54.9 PK	74.0	-19.1	1.18 H	18	60.6	-5.7
2	2390.00	47.0 AV	54.0	-7.0	1.18 H	18	52.7	-5.7
3	*2412.00	108.8 PK			1.18 H	18	114.4	-5.6
4	*2412.00	106.4 AV			1.18 H	18	112.0	-5.6
5	4824.00	46.1 PK	74.0	-27.9	1.94 H	23	45.3	0.8
6	4824.00	39.4 AV	54.0	-14.6	1.94 H	23	38.6	0.8
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	61.2 PK	74.0	-12.8	1.80 V	162	66.9	-5.7
2	2390.00	53.2 AV	54.0	-0.8	1.80 V	162	58.9	-5.7
3	*2412.00	118.4 PK			1.80 V	162	124.0	-5.6
4	*2412.00	116.0 AV			1.80 V	162	121.6	-5.6
5	4824.00	48.4 PK	74.0	-25.6	2.33 V	304	47.6	0.8
6	4824.00	44.3 AV	54.0	-9.7	2.33 V	304	43.5	0.8

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.2 PK	74.0	-22.8	1.13 H	26	56.9	-5.7
2	2390.00	37.0 AV	54.0	-17.0	1.13 H	26	42.7	-5.7
3	*2437.00	109.5 PK			1.13 H	26	115.0	-5.5
4	*2437.00	107.0 AV			1.13 H	26	112.5	-5.5
5	2483.50	52.0 PK	74.0	-22.0	1.13 H	26	57.5	-5.5
6	2483.50	39.1 AV	54.0	-14.9	1.13 H	26	44.6	-5.5
7	4874.00	46.3 PK	74.0	-27.7	1.94 H	17	45.4	0.9
8	4874.00	39.8 AV	54.0	-14.2	1.94 H	17	38.9	0.9
9	7311.00	48.6 PK	74.0	-25.4	1.50 H	45	41.2	7.4
10	7311.00	36.3 AV	54.0	-17.7	1.50 H	45	28.9	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	1.83 V	171	65.5	-5.7
2	2390.00	40.0 AV	54.0	-14.0	1.83 V	171	45.7	-5.7
3	*2437.00	119.1 PK			1.83 V	171	124.6	-5.5
4	*2437.00	116.5 AV			1.83 V	171	122.0	-5.5
5	2483.50	57.2 PK	74.0	-16.8	1.83 V	171	62.7	-5.5
6	2483.50	43.0 AV	54.0	-11.0	1.83 V	171	48.5	-5.5
7	4874.00	48.3 PK	74.0	-25.7	2.33 V	313	47.4	0.9
8	4874.00	44.4 AV	54.0	-9.6	2.33 V	313	43.5	0.9
9	7311.00	48.9 PK	74.0	-25.1	2.08 V	183	41.5	7.4
10	7311.00	41.3 AV	54.0	-12.7	2.08 V	183	33.9	7.4

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	108.4 PK			1.08 H	36	113.8	-5.4
2	*2462.00	106.2 AV			1.08 H	36	111.6	-5.4
3	2483.50	55.6 PK	74.0	-18.4	1.08 H	36	61.1	-5.5
4	2483.50	48.0 AV	54.0	-6.0	1.08 H	36	53.5	-5.5
5	4924.00	46.1 PK	74.0	-27.9	1.95 H	21	45.0	1.1
6	4924.00	39.4 AV	54.0	-14.6	1.95 H	21	38.3	1.1
7	7386.00	48.5 PK	74.0	-25.5	1.46 H	49	40.9	7.6
8	7386.00	36.2 AV	54.0	-17.8	1.46 H	49	28.6	7.6
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	*2462.00	118.0 PK			1.61 V	172	123.4	-5.4
2	*2462.00	115.7 AV			1.61 V	172	121.1	-5.4
3	2483.50	62.2 PK	74.0	-11.8	1.61 V	172	67.7	-5.5
4	2483.50	53.7 AV	54.0	-0.3	1.61 V	172	59.2	-5.5
5	4924.00	48.0 PK	74.0	-26.0	2.32 V	324	46.9	1.1
6	4924.00	44.0 AV	54.0	-10.0	2.32 V	324	42.9	1.1
7	7386.00	49.2 PK	74.0	-24.8	2.06 V	187	41.6	7.6
8	7386.00	41.4 AV	54.0	-12.6	2.06 V	187	33.8	7.6

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	73.6 PK	74.0	-0.4	1.22 H	25	79.3	-5.7
2	2390.00	49.9 AV	54.0	-4.1	1.22 H	25	55.6	-5.7
3	*2412.00	108.1 PK			1.22 H	25	113.7	-5.6
4	*2412.00	97.5 AV			1.22 H	25	103.1	-5.6
5	4824.00	42.9 PK	74.0	-31.1	1.90 H	26	42.1	0.8
6	4824.00	30.1 AV	54.0	-23.9	1.90 H	26	29.3	0.8
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	73.7 PK	74.0	-0.3	1.72 V	157	79.4	-5.7
2	2390.00	51.0 AV	54.0	-3.0	1.72 V	157	56.7	-5.7
3	*2412.00	116.4 PK			1.72 V	157	122.0	-5.6
4	*2412.00	106.2 AV			1.72 V	157	111.8	-5.6
5	4824.00	44.3 PK	74.0	-29.7	2.38 V	153	43.5	0.8
6	4824.00	31.3 AV	54.0	-22.7	2.38 V	153	30.5	0.8

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)
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	66.5 PK	74.0	-7.5	1.09 H	26	72.2	-5.7
2	2390.00	48.5 AV	54.0	-5.5	1.09 H	26	54.2	-5.7
3	*2437.00	112.5 PK			1.09 H	26	118.0	-5.5
4	*2437.00	102.0 AV			1.09 H	26	107.5	-5.5
5	2483.50	66.2 PK	74.0	-7.8	1.09 H	26	71.7	-5.5
6	2483.50	48.8 AV	54.0	-5.2	1.09 H	26	54.3	-5.5
7	4874.00	42.8 PK	74.0	-31.2	1.89 H	23	41.9	0.9
8	4874.00	30.3 AV	54.0	-23.7	1.89 H	23	29.4	0.9
9	7311.00	48.4 PK	74.0	-25.6	1.49 H	62	41.0	7.4
10	7311.00	36.3 AV	54.0	-17.7	1.49 H	62	28.9	7.4
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	68.0 PK	74.0	-6.0	1.73 V	175	73.7	-5.7
2	2390.00	49.7 AV	54.0	-4.3	1.73 V	175	55.4	-5.7
3	*2437.00	121.6 PK			1.73 V	175	127.1	-5.5
4	*2437.00	111.6 AV			1.73 V	175	117.1	-5.5
5	2483.50	67.6 PK	74.0	-6.4	1.73 V	175	73.1	-5.5
6	2483.50	49.7 AV	54.0	-4.3	1.73 V	175	55.2	-5.5
7	4874.00	46.9 PK	74.0	-27.1	2.40 V	147	46.0	0.9
8	4874.00	33.9 AV	54.0	-20.1	2.40 V	147	33.0	0.9
9	7311.00	48.6 PK	74.0	-25.4	1.50 V	159	41.2	7.4
10	7311.00	35.3 AV	54.0	-18.7	1.50 V	159	27.9	7.4

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	107.6 PK			1.03 H	18	113.0	-5.4
2	*2462.00	97.1 AV			1.03 H	18	102.5	-5.4
3	2483.50	73.0 PK	74.0	-1.0	1.03 H	18	78.5	-5.5
4	2483.50	52.2 AV	54.0	-1.8	1.03 H	18	57.7	-5.5
5	4924.00	42.9 PK	74.0	-31.1	1.89 H	7	41.8	1.1
6	4924.00	30.7 AV	54.0	-23.3	1.89 H	7	29.6	1.1
7	7386.00	47.8 PK	74.0	-26.2	1.49 H	55	40.2	7.6
8	7386.00	35.8 AV	54.0	-18.2	1.49 H	55	28.2	7.6
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	*2462.00	117.8 PK			1.66 V	174	123.2	-5.4
2	*2462.00	106.9 AV			1.66 V	174	112.3	-5.4
3	2483.50	73.4 PK	74.0	-0.6	1.66 V	174	78.9	-5.5
4	2483.50	53.2 AV	54.0	-0.8	1.66 V	174	58.7	-5.5
5	4924.00	44.2 PK	74.0	-29.8	2.45 V	160	43.1	1.1
6	4924.00	31.4 AV	54.0	-22.6	2.45 V	160	30.3	1.1
7	7386.00	48.6 PK	74.0	-25.4	1.45 V	154	41.0	7.6
8	7386.00	36.1 AV	54.0	-17.9	1.45 V	154	28.5	7.6

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	73.0 PK	74.0	-1.0	1.26 H	9	78.7	-5.7
2	2390.00	49.1 AV	54.0	-4.9	1.26 H	9	54.8	-5.7
3	*2412.00	106.3 PK			1.26 H	9	111.9	-5.6
4	*2412.00	95.5 AV			1.26 H	9	101.1	-5.6
5	4824.00	42.8 PK	74.0	-31.2	1.94 H	11	42.0	0.8
6	4824.00	30.7 AV	54.0	-23.3	1.94 H	11	29.9	0.8
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	73.4 PK	74.0	-0.6	1.79 V	172	79.1	-5.7
2	2390.00	50.3 AV	54.0	-3.7	1.79 V	172	56.0	-5.7
3	*2412.00	115.5 PK			1.79 V	172	121.1	-5.6
4	*2412.00	105.3 AV			1.79 V	172	110.9	-5.6
5	4824.00	44.0 PK	74.0	-30.0	2.33 V	146	43.2	0.8
6	4824.00	31.2 AV	54.0	-22.8	2.33 V	146	30.4	0.8

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)
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	68.4 PK	74.0	-5.6	1.21 H	40	74.1	-5.7
2	2390.00	49.1 AV	54.0	-4.9	1.21 H	40	54.8	-5.7
3	*2437.00	112.2 PK			1.21 H	40	117.7	-5.5
4	*2437.00	101.4 AV			1.21 H	40	106.9	-5.5
5	2483.50	69.0 PK	74.0	-5.0	1.21 H	40	74.5	-5.5
6	2483.50	49.5 AV	54.0	-4.5	1.21 H	40	55.0	-5.5
7	4874.00	43.4 PK	74.0	-30.6	1.95 H	22	42.5	0.9
8	4874.00	31.1 AV	54.0	-22.9	1.95 H	22	30.2	0.9
9	7311.00	47.5 PK	74.0	-26.5	1.43 H	70	40.1	7.4
10	7311.00	35.4 AV	54.0	-18.6	1.43 H	70	28.0	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.2 PK	74.0	-4.8	1.53 V	170	74.9	-5.7
2	2390.00	50.2 AV	54.0	-3.8	1.53 V	170	55.9	-5.7
3	*2437.00	121.6 PK			1.53 V	170	127.1	-5.5
4	*2437.00	111.2 AV			1.53 V	170	116.7	-5.5
5	2483.50	70.0 PK	74.0	-4.0	1.53 V	170	75.5	-5.5
6	2483.50	49.4 AV	54.0	-4.6	1.53 V	170	54.9	-5.5
7	4874.00	46.1 PK	74.0	-27.9	2.36 V	161	45.2	0.9
8	4874.00	33.4 AV	54.0	-20.6	2.36 V	161	32.5	0.9
9	7311.00	48.9 PK	74.0	-25.1	1.47 V	159	41.5	7.4
10	7311.00	35.7 AV	54.0	-18.3	1.47 V	159	28.3	7.4

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	107.0 PK			1.23 H	41	112.4	-5.4
2	*2462.00	95.6 AV			1.23 H	41	101.0	-5.4
3	2483.50	72.4 PK	74.0	-1.6	1.23 H	41	77.9	-5.5
4	2483.50	51.8 AV	54.0	-2.2	1.23 H	41	57.3	-5.5
5	4924.00	43.2 PK	74.0	-30.8	1.91 H	22	42.1	1.1
6	4924.00	30.8 AV	54.0	-23.2	1.91 H	22	29.7	1.1
7	7386.00	47.9 PK	74.0	-26.1	1.49 H	63	40.3	7.6
8	7386.00	35.9 AV	54.0	-18.1	1.49 H	63	28.3	7.6
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	*2462.00	116.6 PK			1.75 V	176	122.0	-5.4
2	*2462.00	105.4 AV			1.75 V	176	110.8	-5.4
3	**2483.50**	**73.8 PK**	**74.0**	**-0.2**	**1.75 V**	**176**	**79.3**	**-5.5**
4	2483.50	52.8 AV	54.0	-1.2	1.75 V	176	58.3	-5.5
5	4924.00	43.7 PK	74.0	-30.3	2.44 V	161	42.6	1.1
6	4924.00	31.1 AV	54.0	-22.9	2.44 V	161	30.0	1.1
7	7386.00	49.0 PK	74.0	-25.0	1.45 V	146	41.4	7.6
8	7386.00	36.4 AV	54.0	-17.6	1.45 V	146	28.8	7.6

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	70.1 PK	74.0	-3.9	1.18 H	50	75.8	-5.7
2	2390.00	52.5 AV	54.0	-1.5	1.18 H	50	58.2	-5.7
3	*2422.00	102.0 PK			1.18 H	50	107.5	-5.5
4	*2422.00	89.8 AV			1.18 H	50	95.3	-5.5
5	4844.00	43.1 PK	74.0	-30.9	1.93 H	25	42.3	0.8
6	4844.00	30.7 AV	54.0	-23.3	1.93 H	25	29.9	0.8
7	7266.00	48.5 PK	74.0	-25.5	1.48 H	64	41.0	7.5
8	7266.00	36.3 AV	54.0	-17.7	1.48 H	64	28.8	7.5
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	71.2 PK	74.0	-2.8	1.60 V	175	76.9	-5.7
2	**2390.00**	**53.8 AV**	**54.0**	**-0.2**	**1.60 V**	**175**	**59.5**	**-5.7**
3	*2422.00	111.6 PK			1.60 V	175	117.1	-5.5
4	*2422.00	99.6 AV			1.60 V	175	105.1	-5.5
5	4844.00	43.9 PK	74.0	-30.1	2.42 V	153	43.1	0.8
6	4844.00	31.5 AV	54.0	-22.5	2.42 V	153	30.7	0.8
7	7266.00	48.9 PK	74.0	-25.1	1.41 V	142	41.4	7.5
8	7266.00	36.5 AV	54.0	-17.5	1.41 V	142	29.0	7.5

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.2 PK	74.0	-4.8	1.21 H	35	74.9	-5.7
2	2390.00	48.5 AV	54.0	-5.5	1.21 H	35	54.2	-5.7
3	*2437.00	104.6 PK			1.21 H	35	110.1	-5.5
4	*2437.00	93.2 AV			1.21 H	35	98.7	-5.5
5	2486.00	72.1 PK	74.0	-1.9	1.21 H	35	77.6	-5.5
6	2486.00	51.3 AV	54.0	-2.7	1.21 H	35	56.8	-5.5
7	4874.00	43.5 PK	74.0	-30.5	1.95 H	34	42.6	0.9
8	4874.00	31.1 AV	54.0	-22.9	1.95 H	34	30.2	0.9
9	7311.00	48.1 PK	74.0	-25.9	1.47 H	75	40.7	7.4
10	7311.00	36.2 AV	54.0	-17.8	1.47 H	75	28.8	7.4
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	1.73 V	178	76.1	-5.7
2	2390.00	49.8 AV	54.0	-4.2	1.73 V	178	55.5	-5.7
3	*2437.00	114.2 PK			1.73 V	178	119.7	-5.5
4	*2437.00	103.0 AV			1.73 V	178	108.5	-5.5
5	2486.00	73.5 PK	74.0	-0.5	1.73 V	178	79.0	-5.5
6	2486.00	52.5 AV	54.0	-1.5	1.73 V	178	58.0	-5.5
7	4874.00	43.8 PK	74.0	-30.2	2.48 V	175	42.9	0.9
8	4874.00	31.3 AV	54.0	-22.7	2.48 V	175	30.4	0.9
9	7311.00	49.1 PK	74.0	-24.9	1.43 V	142	41.7	7.4
10	7311.00	36.8 AV	54.0	-17.2	1.43 V	142	29.4	7.4

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	100.1 PK			1.22 H	39	105.6	-5.5
2	*2452.00	88.4 AV			1.22 H	39	93.9	-5.5
3	2486.00	69.1 PK	74.0	-4.9	1.22 H	39	74.6	-5.5
4	2486.00	52.3 AV	54.0	-1.7	1.22 H	39	57.8	-5.5
5	4904.00	43.4 PK	74.0	-30.6	1.91 H	23	42.4	1.0
6	4904.00	31.3 AV	54.0	-22.7	1.91 H	23	30.3	1.0
7	7356.00	47.8 PK	74.0	-26.2	1.47 H	71	40.2	7.6
8	7356.00	35.5 AV	54.0	-18.5	1.47 H	71	27.9	7.6
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	*2452.00	109.7 PK			1.55 V	180	115.2	-5.5
2	*2452.00	98.2 AV			1.55 V	180	103.7	-5.5
3	2486.00	70.1 PK	74.0	-3.9	1.55 V	180	75.6	-5.5
4	2486.00	53.4 AV	54.0	-0.6	1.55 V	180	58.9	-5.5
5	4904.00	43.8 PK	74.0	-30.2	2.44 V	172	42.8	1.0
6	4904.00	31.4 AV	54.0	-22.6	2.44 V	172	30.4	1.0
7	7356.00	48.8 PK	74.0	-25.2	1.50 V	144	41.2	7.6
8	7356.00	36.4 AV	54.0	-17.6	1.50 V	144	28.8	7.6

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	32.38	30.0 QP	40.0	-10.0	2.50 H	190	39.8	-9.8
2	52.16	30.4 QP	40.0	-9.6	2.50 H	277	39.2	-8.8
3	79.95	29.1 QP	40.0	-10.9	2.50 H	285	42.5	-13.4
4	160.32	32.8 QP	43.5	-10.7	2.50 H	69	41.4	-8.6
5	361.11	35.6 QP	46.0	-10.4	1.00 H	214	42.1	-6.5
6	419.45	33.7 QP	46.0	-12.3	1.00 H	177	38.5	-4.8
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	81.56	35.8 QP	40.0	-4.2	1.00 V	254	49.6	-13.8
2	161.17	34.4 QP	43.5	-9.1	1.00 V	6	43.0	-8.6
3	384.32	32.7 QP	46.0	-13.3	1.50 V	91	38.5	-5.8
4	500.01	28.8 QP	46.0	-17.2	1.50 V	360	31.5	-2.7
5	600.00	27.3 QP	46.0	-18.7	1.50 V	6	27.7	-0.4
6	932.61	30.3 QP	46.0	-15.7	1.00 V	352	25.9	4.4

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	EMC-03	Sep. 29, 2016	Sep. 28, 2017
50 ohms Terminator	N/A	EMC-02	Sep. 29, 2016	Sep. 28, 2017
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. 25, 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.

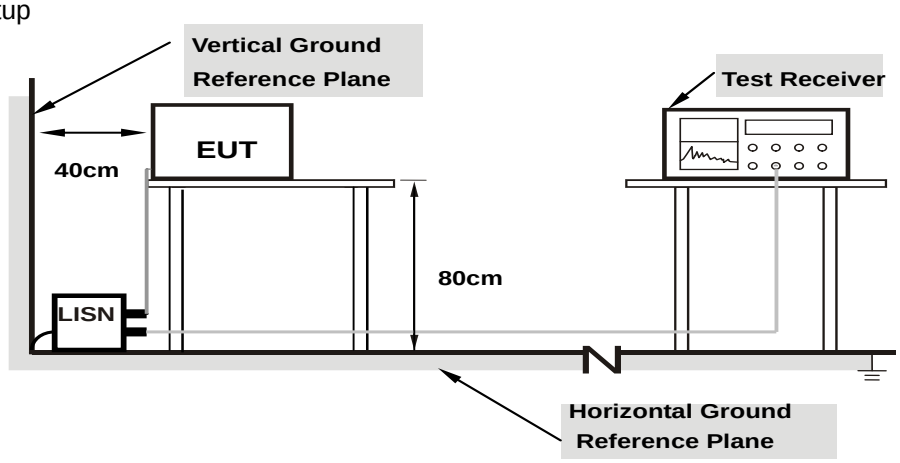
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

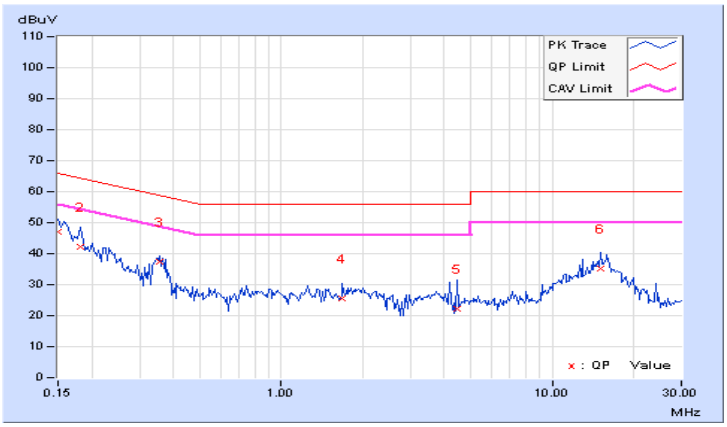
4.2.7 Test Results (Mode 1)

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	0.15000	10.24	36.76	22.35	47.00	32.59	66.00	56.00	-19.00	-23.41
2	0.18125	10.25	32.14	18.91	42.39	29.16	64.43	54.43	-22.04	-25.27
3	0.35703	10.24	27.16	22.54	37.40	32.78	58.80	48.80	-21.40	-16.02
4	1.67969	10.39	15.34	9.78	25.73	20.17	56.00	46.00	-30.27	-25.83
5	4.46094	10.53	11.84	-0.35	22.37	10.18	56.00	46.00	-33.63	-35.82
6	15.19531	11.11	24.06	19.02	35.17	30.13	60.00	50.00	-24.83	-19.87

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.

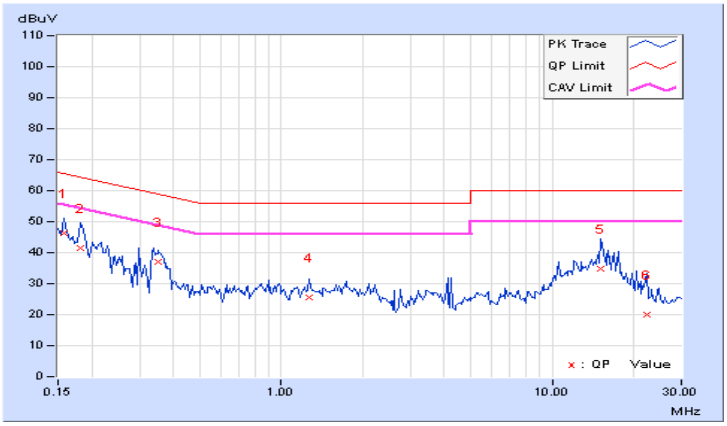


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	10.27	35.85	21.62	46.12	31.89	65.58	55.58	-19.46	-23.69
2	0.18125	10.24	31.42	18.79	41.66	29.03	64.43	54.43	-22.77	-25.40
3	0.35313	10.28	26.88	20.92	37.16	31.20	58.89	48.89	-21.73	-17.69
4	1.26953	10.42	15.12	11.05	25.54	21.47	56.00	46.00	-30.46	-24.53
5	15.11719	11.14	23.59	18.96	34.73	30.10	60.00	50.00	-25.27	-19.90
6	22.30859	11.47	8.36	-0.44	19.83	11.03	60.00	50.00	-40.17	-38.97

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.



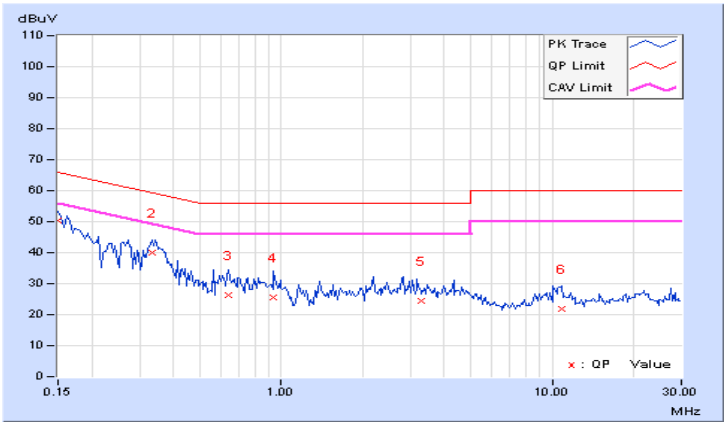
4.2.8 Test Results (Mode 2)

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	**0.15000**	**10.24**	**40.31**	**24.62**	**50.55**	**34.86**	**66.00**	**56.00**	**-15.45**	**-21.14**
2	0.33359	10.24	29.63	21.64	39.87	31.88	59.36	49.36	-19.49	-17.48
3	0.64219	10.26	16.22	10.58	26.48	20.84	56.00	46.00	-29.52	-25.16
4	0.93906	10.28	15.27	5.28	25.55	15.56	56.00	46.00	-30.45	-30.44
5	3.28125	10.48	14.10	8.55	24.58	19.03	56.00	46.00	-31.42	-26.97
6	10.88281	10.85	11.15	6.32	22.00	17.17	60.00	50.00	-38.00	-32.83

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.

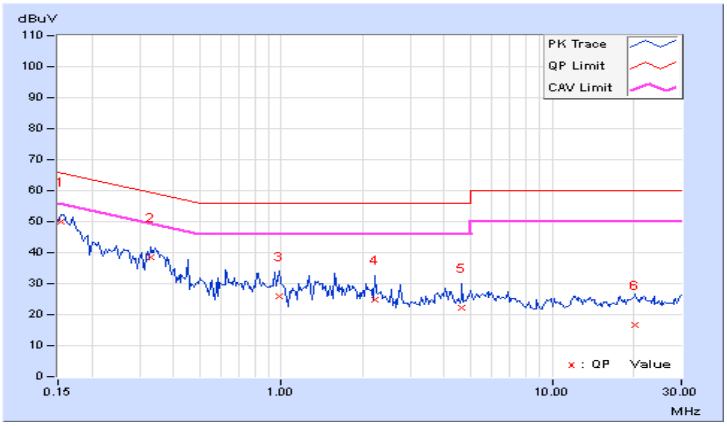


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15391	10.28	39.62	25.11	49.90	35.39	65.79	55.79	-15.89	-20.40
2	0.32969	10.27	28.19	19.14	38.46	29.41	59.46	49.46	-21.00	-20.05
3	0.98203	10.43	15.62	7.69	26.05	18.12	56.00	46.00	-29.95	-27.88
4	2.22266	10.42	14.26	7.07	24.68	17.49	56.00	46.00	-31.32	-28.51
5	4.65234	10.63	11.50	3.71	22.13	14.34	56.00	46.00	-33.87	-31.66
6	20.34766	11.38	5.31	0.26	16.69	11.64	60.00	50.00	-43.31	-38.36

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

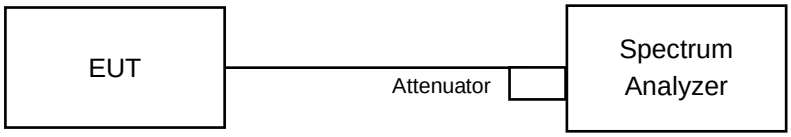


4.3 6dB Bandwidth Measurement

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 fromTest 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

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	8.62	9.07	9.08	0.5	PASS
6	2437	9.08	9.10	9.08	0.5	PASS
11	2462	8.61	9.08	9.08	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.41	16.44	16.44	0.5	PASS
6	2437	16.42	16.36	16.40	0.5	PASS
11	2462	16.39	16.43	16.42	0.5	PASS

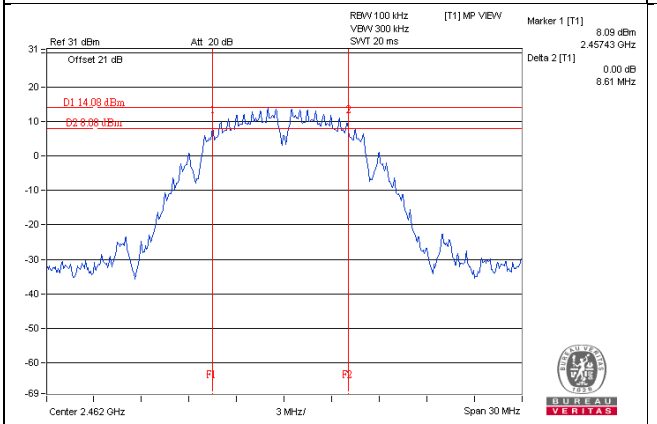
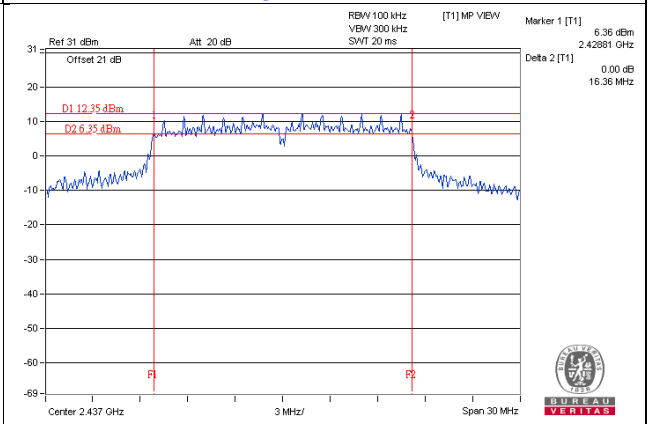
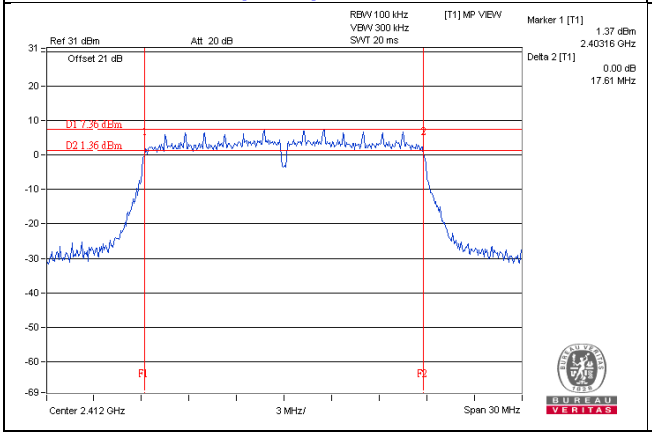
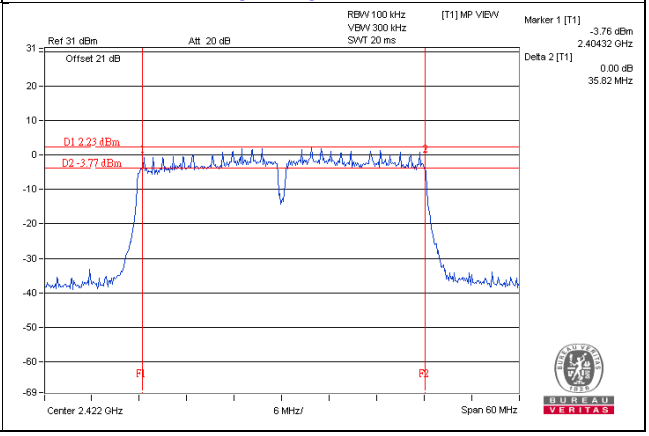
Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	17.61	17.65	17.64	0.5	Pass
6	2437	17.62	17.62	17.62	0.5	Pass
11	2462	17.61	17.67	17.64	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	35.82	35.98	36.46	0.5	Pass
6	2437	36.43	35.89	36.46	0.5	Pass
9	2452	36.39	36.16	36.38	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH11	**802.11g / Chain 1 : CH6**
	
802.11n (HT20) / Chain 0 : CH1	**802.11n (HT40) / Chain 0 : CH3**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

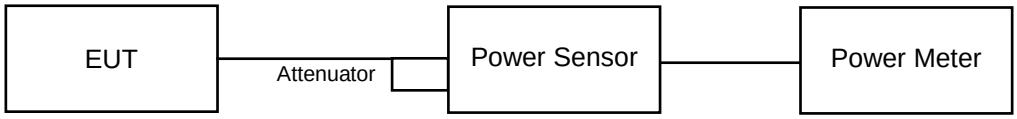
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	23.53	21.99	21.86	537.011	27.30	30	Pass
6	2437	24.75	23.68	23.95	780.197	28.92	30	Pass
11	2462	22.38	20.53	20.78	405.636	26.08	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.20	17.82	17.93	205.797	23.13	30	Pass
6	2437	24.33	23.45	24.22	756.569	28.79	30	Pass
11	2462	18.45	16.84	16.97	168.064	22.25	30	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.37	17.18	16.87	169.588	22.29	30	Pass
6	2437	24.42	23.60	24.33	776.8	28.90	30	Pass
11	2462	17.16	15.90	15.95	130.26	21.15	30	Pass

NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power limit shall not be reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	15.75	15.23	15.17	103.812	20.16	30	Pass
6	2437	17.06	17.07	17.08	152.799	21.84	30	Pass
9	2452	14.32	13.54	13.85	73.9	18.69	30	Pass

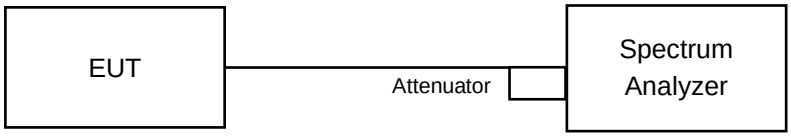
NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power limit shall not be reduced.

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=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-6.89	4.77	-2.12	8.00	Pass
	6	2437	-6.22	4.77	-1.45	8.00	Pass
	11	2462	-6.91	4.77	-2.14	8.00	Pass
1	1	2412	-4.72	4.77	0.05	8.00	Pass
	6	2437	-7.49	4.77	-2.72	8.00	Pass
	11	2462	-8.29	4.77	-3.52	8.00	Pass
2	1	2412	-7.90	4.77	-3.13	8.00	Pass
	6	2437	-5.71	4.77	-0.94	8.00	Pass
	11	2462	-8.11	4.77	-3.34	8.00	Pass

NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power density limit shall not be reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.09	4.77	-7.32	8.00	Pass
	6	2437	-7.57	4.77	-2.80	8.00	Pass
	11	2462	-12.46	4.77	-7.69	8.00	Pass
1	1	2412	-9.49	4.77	-4.72	8.00	Pass
	6	2437	-7.92	4.77	-3.15	8.00	Pass
	11	2462	-13.63	4.77	-8.86	8.00	Pass
2	1	2412	-14.09	4.77	-9.32	8.00	Pass
	6	2437	-8.44	4.77	-3.67	8.00	Pass
	11	2462	-14.75	4.77	-9.98	8.00	Pass

NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT20)

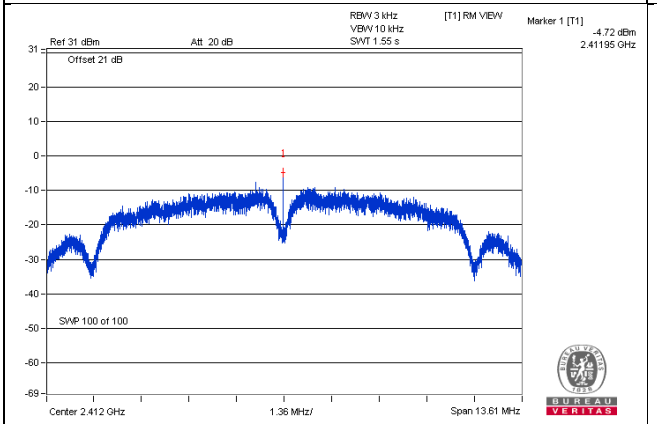
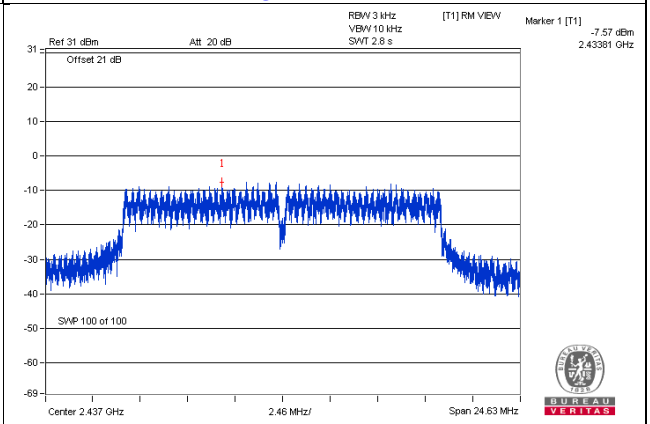
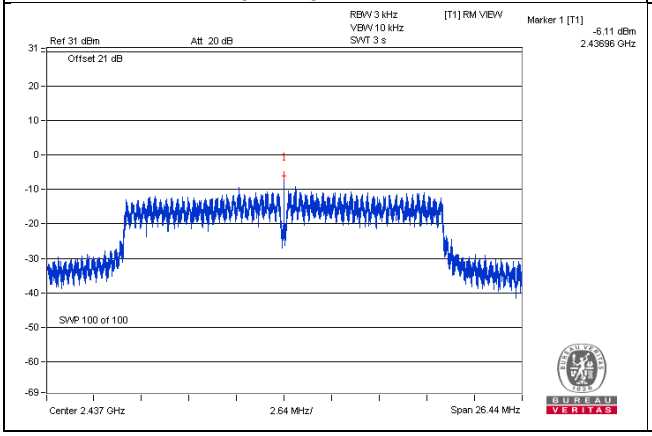
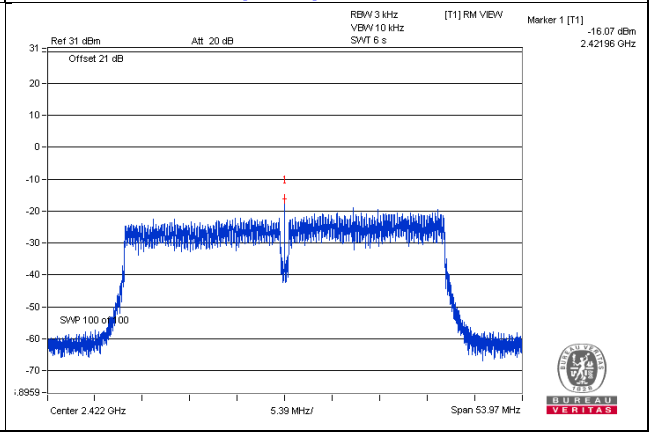
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.61	4.77	-8.84	8.00	Pass
	6	2437	-8.92	4.77	-4.15	8.00	Pass
	11	2462	-15.62	4.77	-10.85	8.00	Pass
1	1	2412	-9.82	4.77	-5.05	8.00	Pass
	6	2437	-6.11	4.77	-1.34	8.00	Pass
	11	2462	-14.72	4.77	-9.95	8.00	Pass
2	1	2412	-16.07	4.77	-11.30	8.00	Pass
	6	2437	-9.90	4.77	-5.13	8.00	Pass
	11	2462	-17.09	4.77	-12.32	8.00	Pass

NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-19.90	4.77	-15.13	8.00	Pass
	6	2437	-18.50	4.77	-13.73	8.00	Pass
	9	2452	-21.05	4.77	-16.28	8.00	Pass
1	3	2422	-16.07	4.77	-11.30	8.00	Pass
	6	2437	-16.95	4.77	-12.18	8.00	Pass
	9	2452	-19.54	4.77	-14.77	8.00	Pass
2	3	2422	-19.94	4.77	-15.17	8.00	Pass
	6	2437	-18.06	4.77	-13.29	8.00	Pass
	9	2452	-22.80	4.77	-18.03	8.00	Pass

NOTE: Directional gain = 0.5dBi + 10log(3) = 5.27dBi < 6dBi , so the power density limit shall not be reduced.

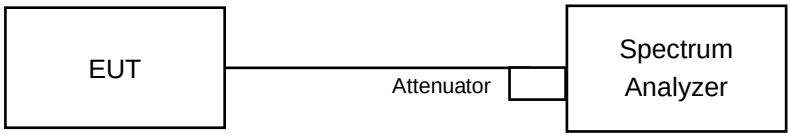
Spectrum Plot of Worst Value	
802.11b / Chain 1 : CH1	**802.11g / Chain 0 : CH6**
	
802.11n (HT20) / Chain 1 : CH6	**802.11n (HT40) / Chain 1 : CH3**
	

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

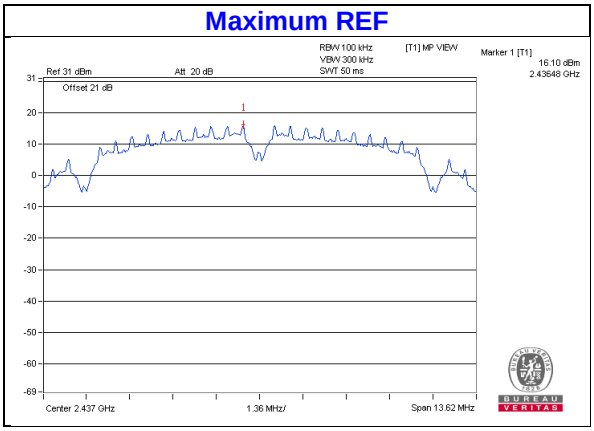
Same as Item 4.3.6

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.

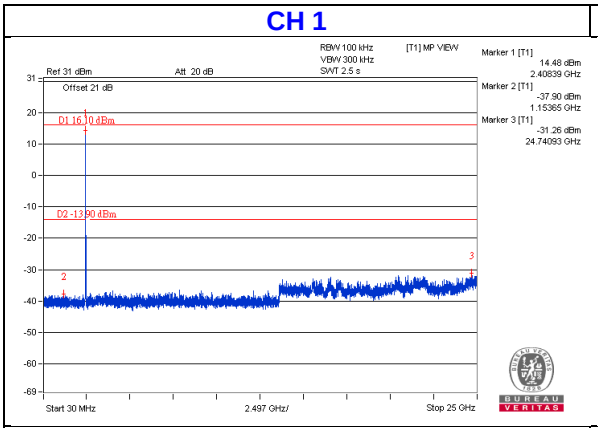
802.11b

Maximum REF

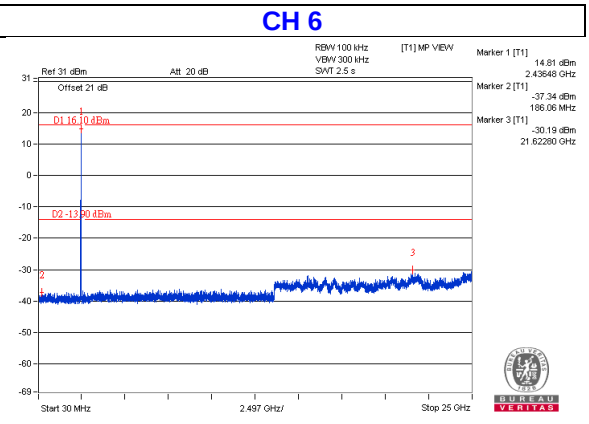


CHAIN 0

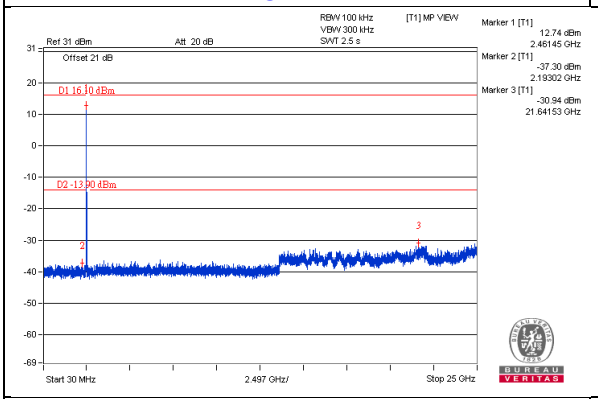
CH 1



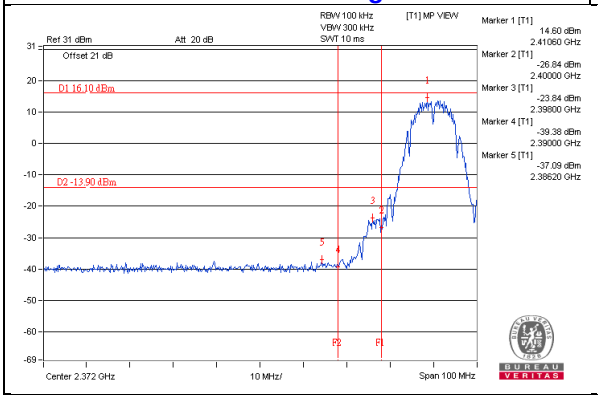
CH 6



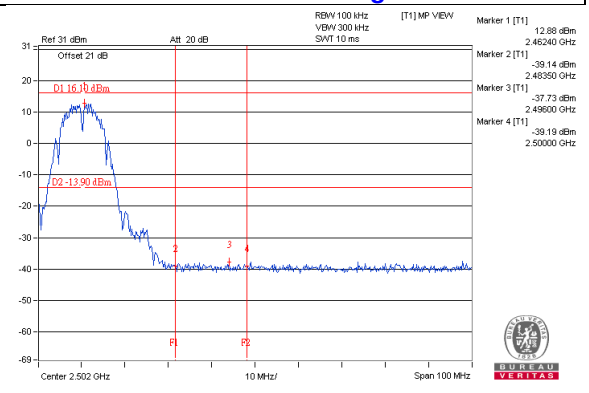
CH 11



CH 1 Band edge

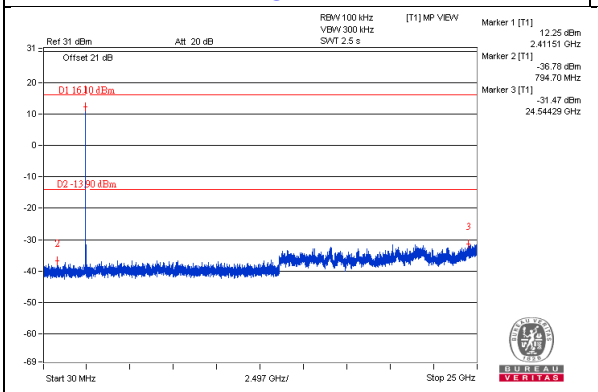


CH 11 Band edge

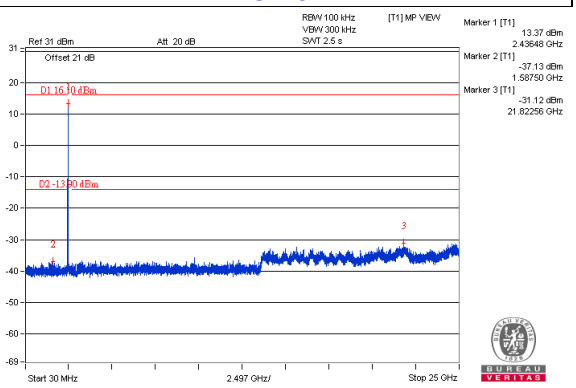


CHAIN 1

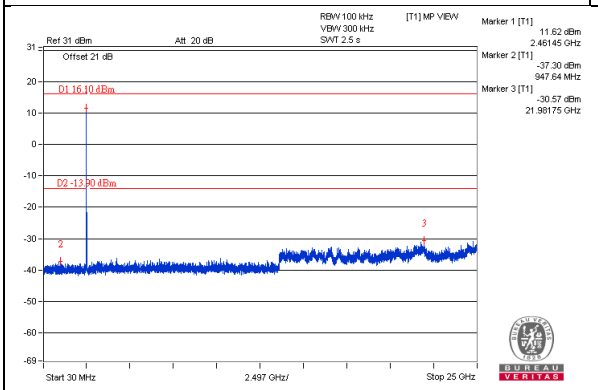
CH 1



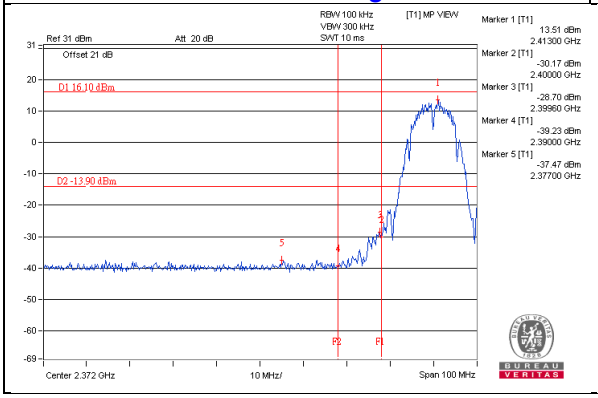
CH 6



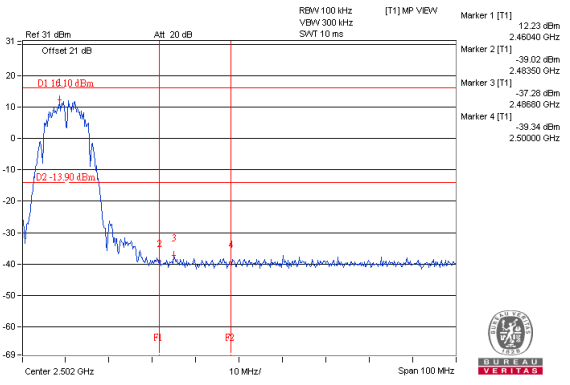
CH 11



CH 1 Band edge

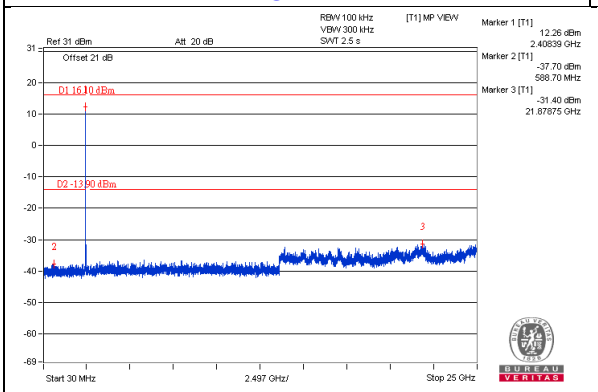


CH 11 Band edge

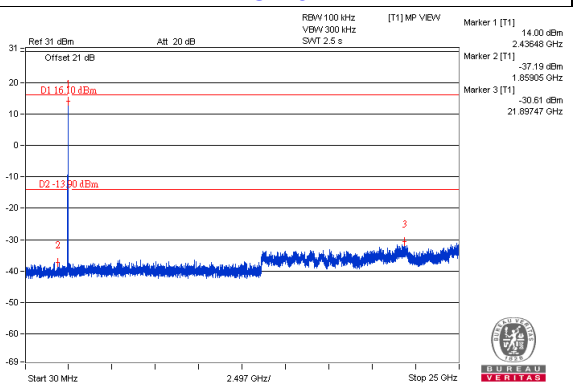


CHAIN 2

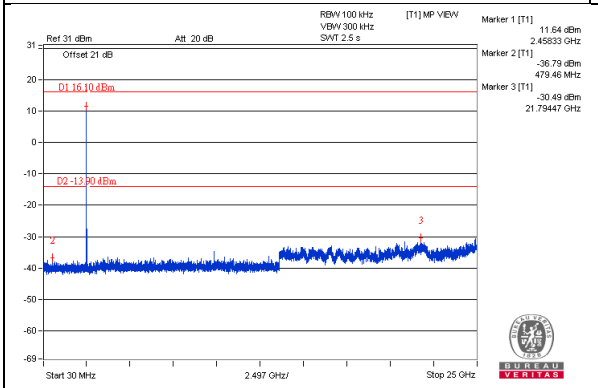
CH 1



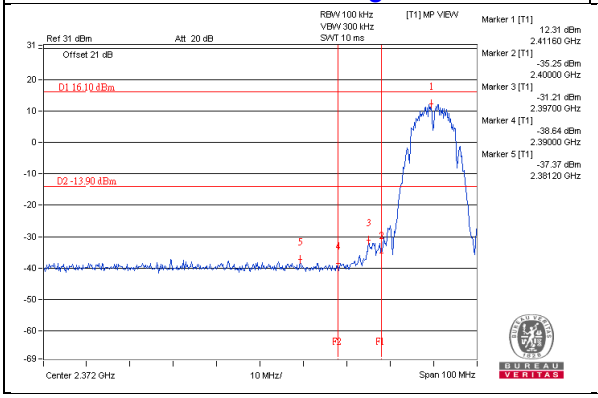
CH 6



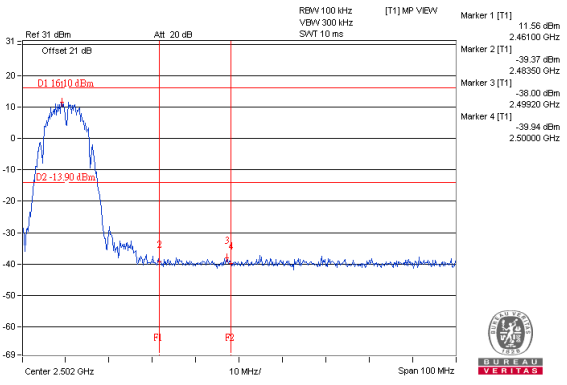
CH 11



CH 1 Band edge

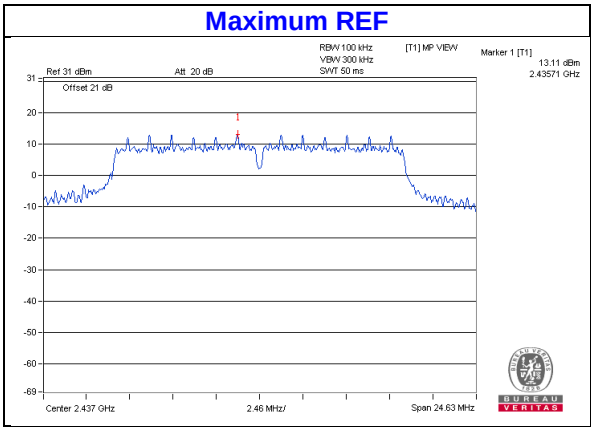


CH 11 Band edge



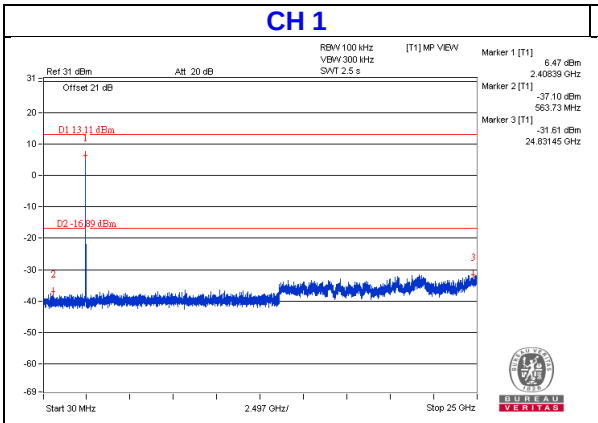
802.11g

Maximum REF

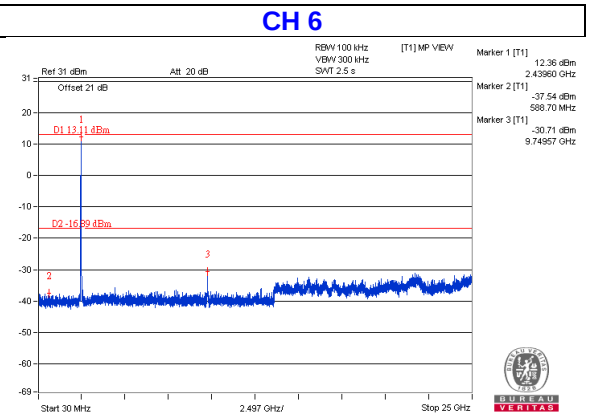


CHAIN 0

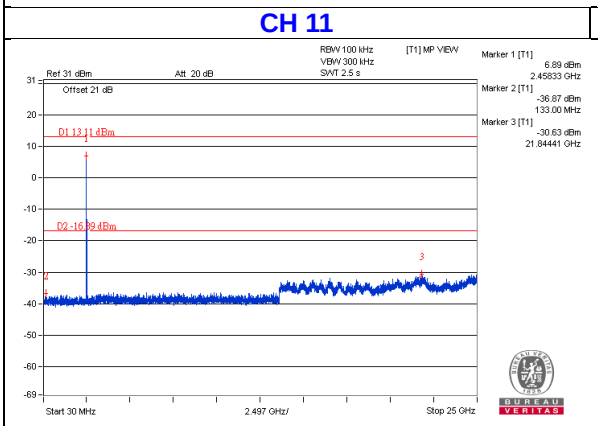
CH 1



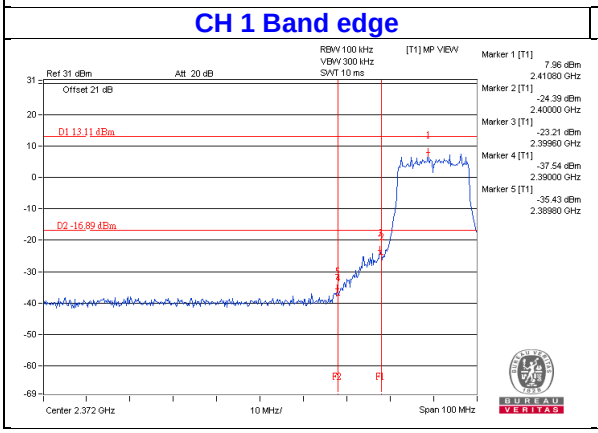
CH 6



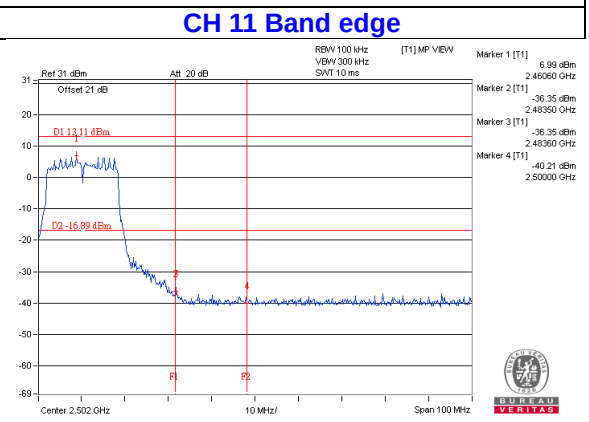
CH 11



CH 1 Band edge

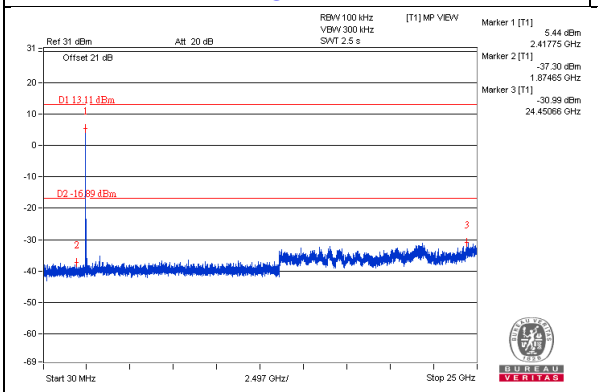


CH 11 Band edge

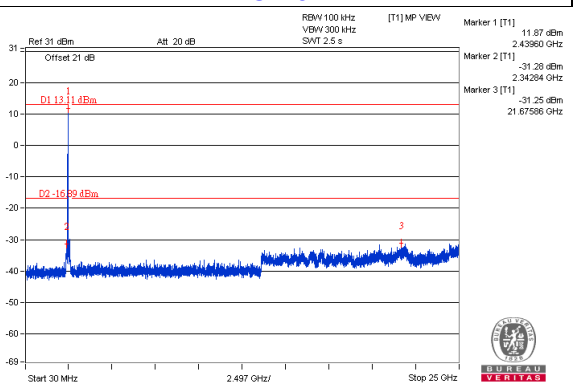


CHAIN 1

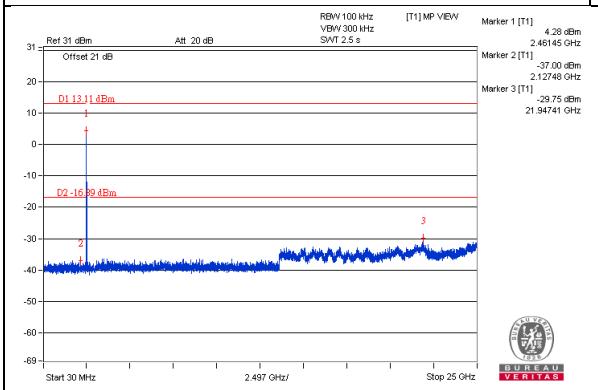
CH 1



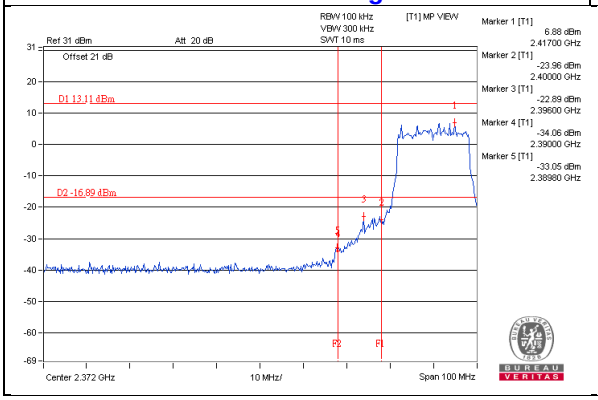
CH 6



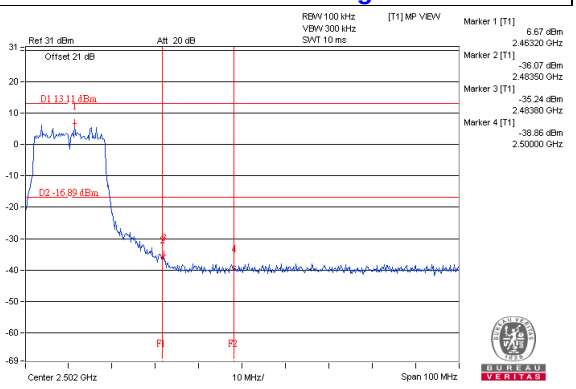
CH 11



CH 1 Band edge

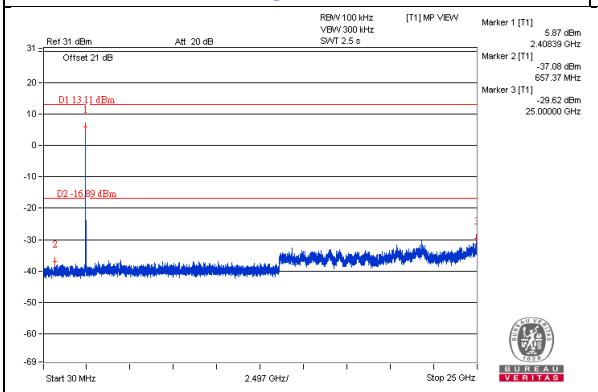


CH 11 Band edge

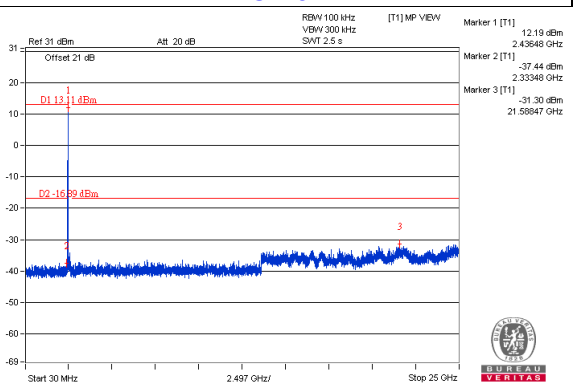


CHAIN 2

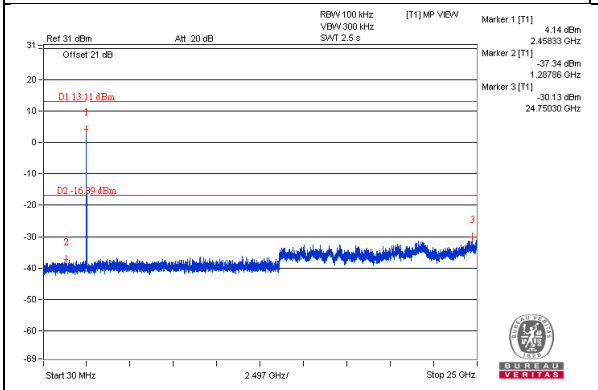
CH 1



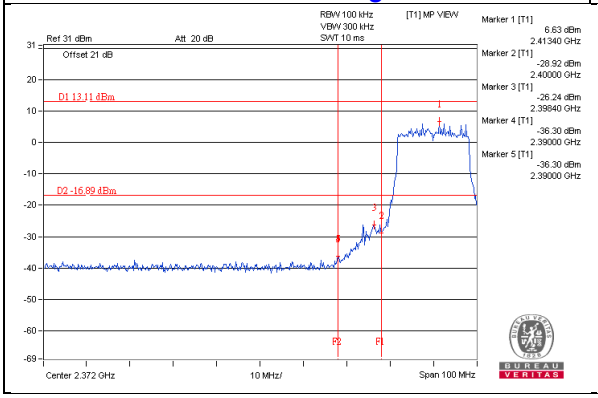
CH 6



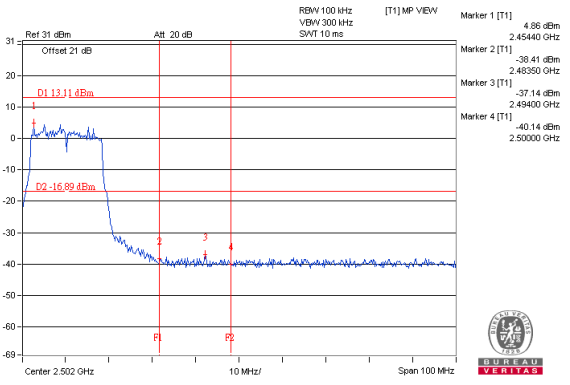
CH 11



CH 1 Band edge

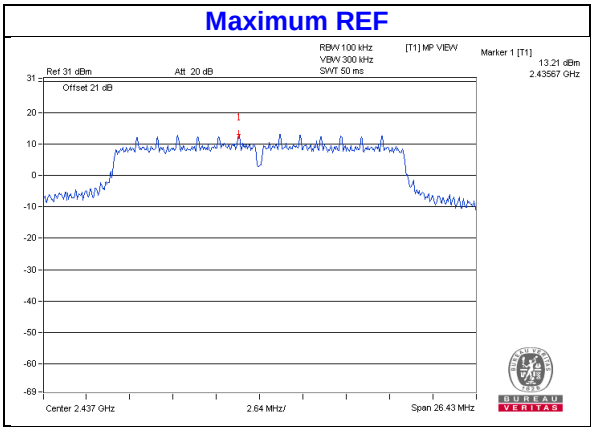


CH 11 Band edge



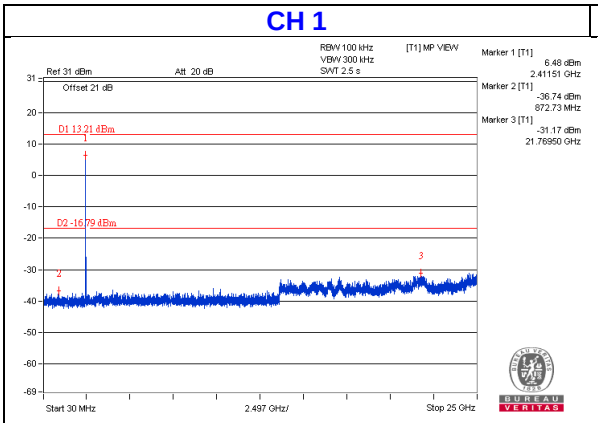
802.11n (HT20)

Maximum REF

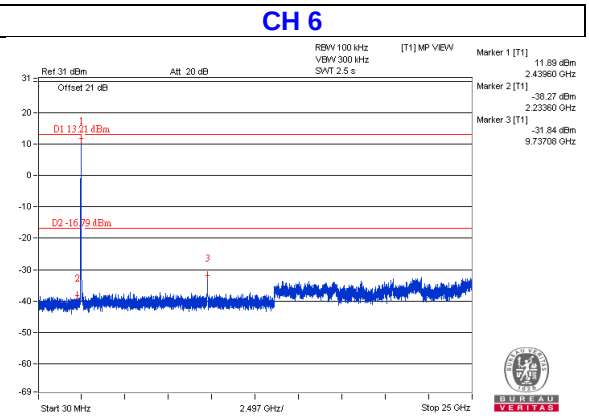


CHAIN 0

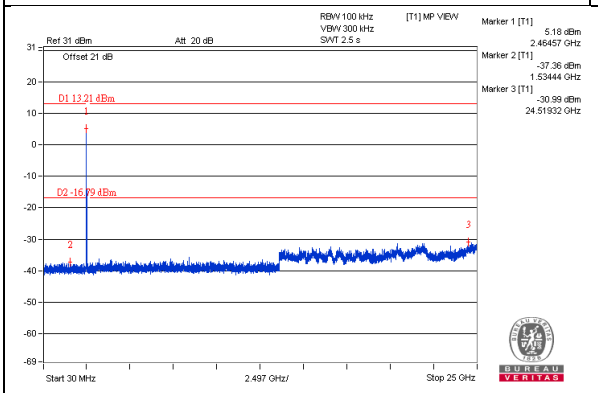
CH 1



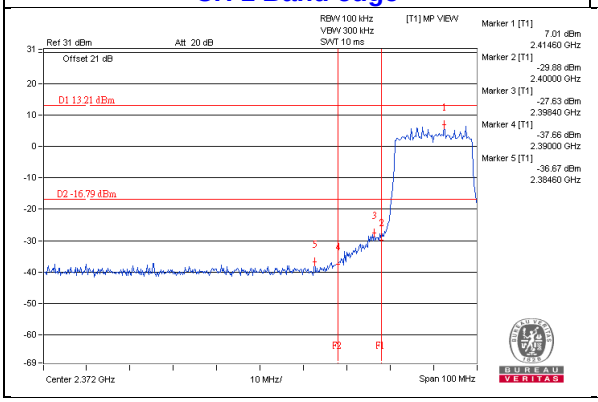
CH 6



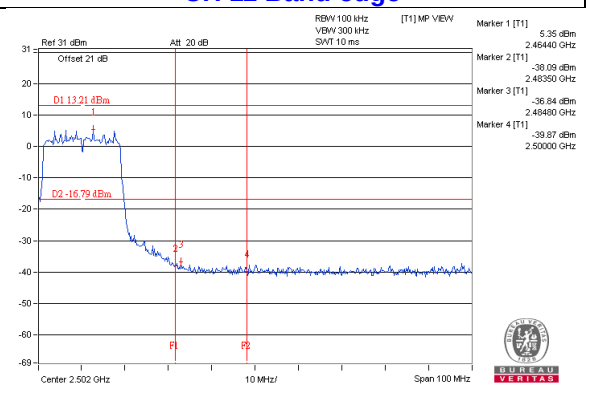
CH 11



CH 1 Band edge

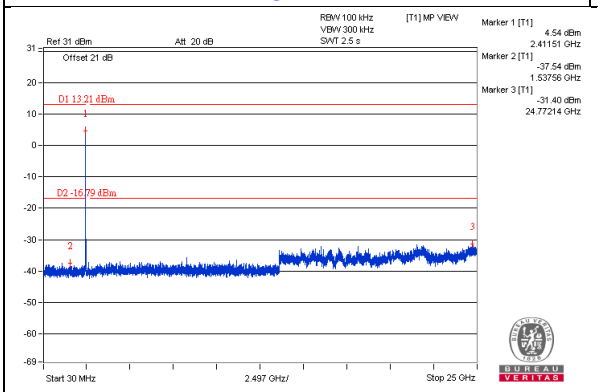


CH 11 Band edge

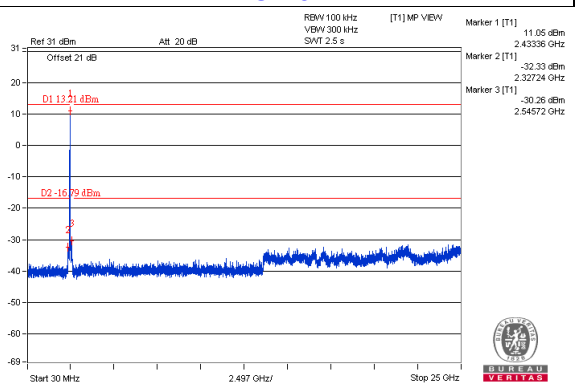


CHAIN 1

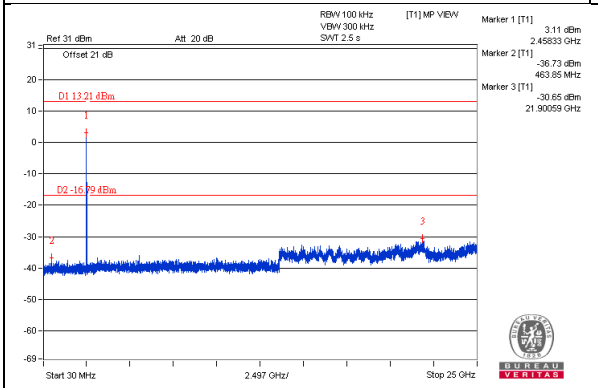
CH 1



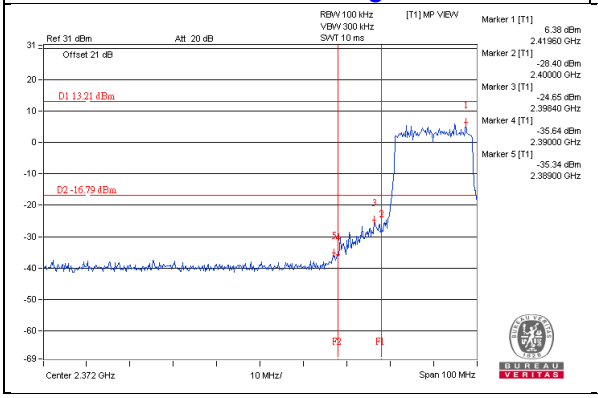
CH 6



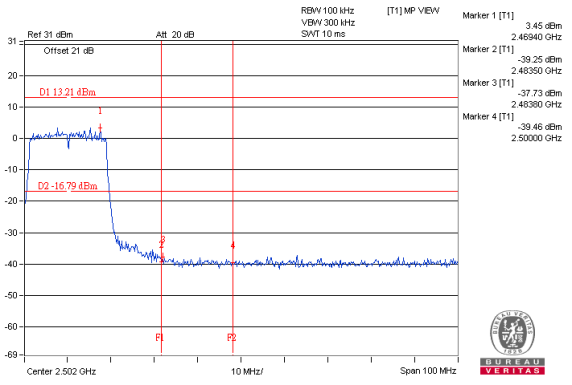
CH 11



CH 1 Band edge

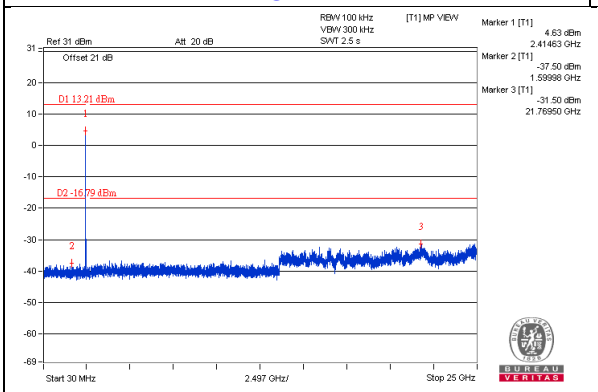


CH 11 Band edge

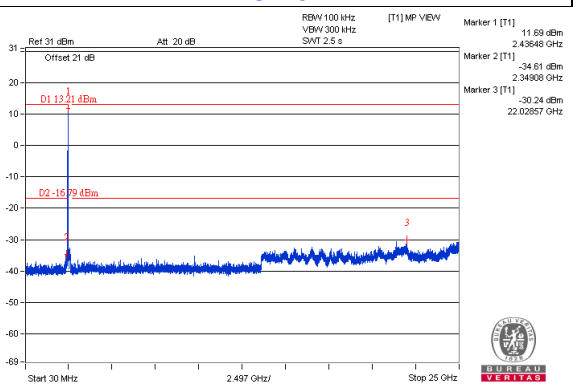


CHAIN 2

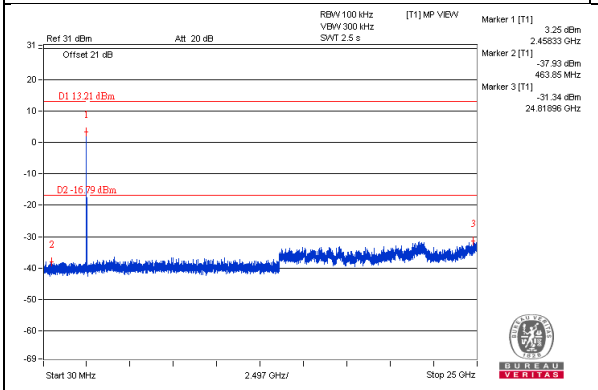
CH 1



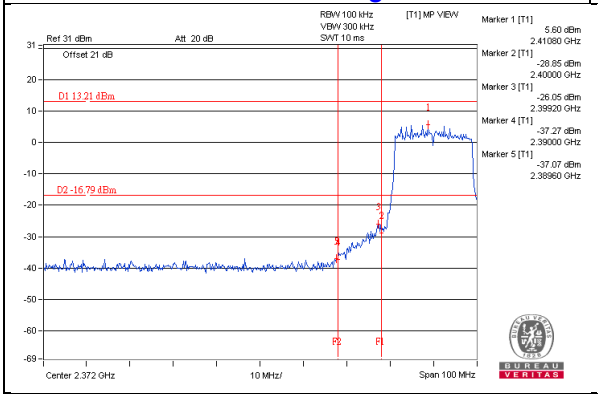
CH 6



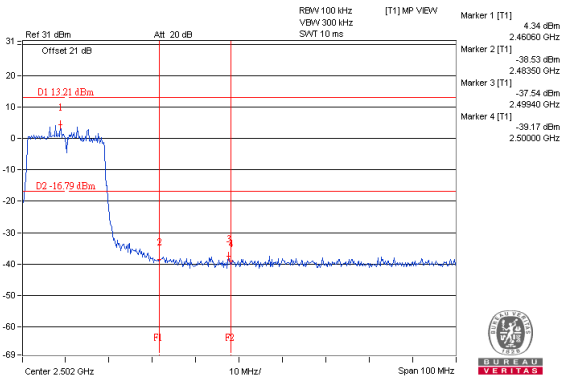
CH 11



CH 1 Band edge

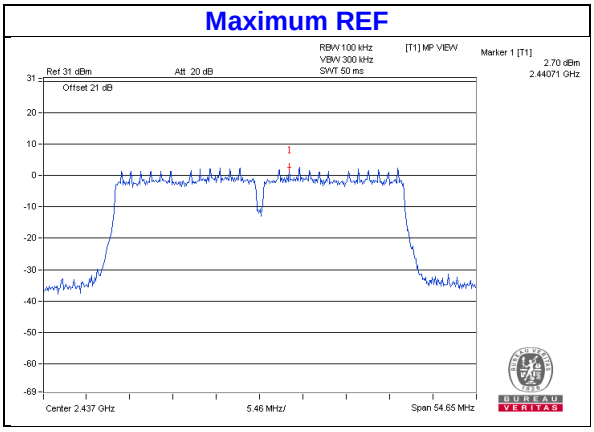


CH 11 Band edge



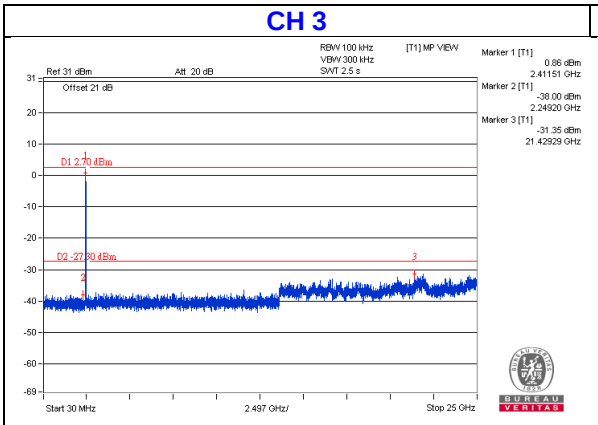
802.11n (HT40)

Maximum REF

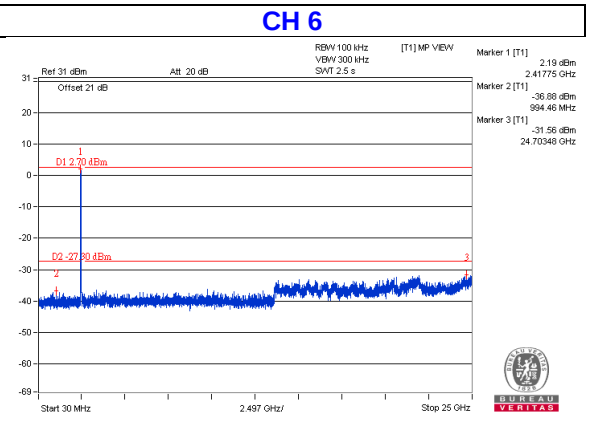


CHAIN 0

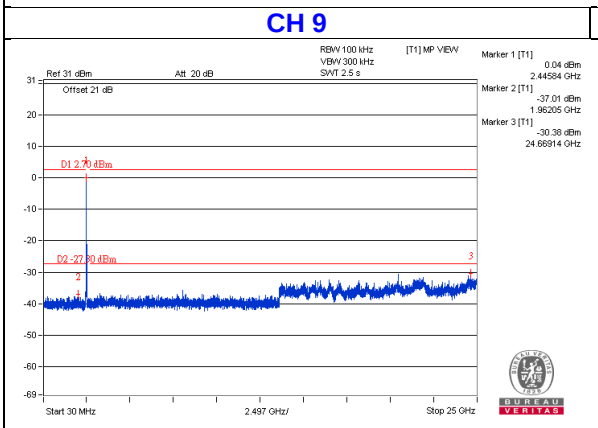
CH 3



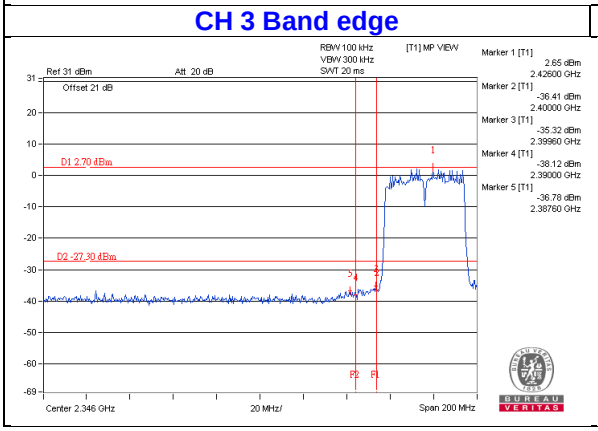
CH 6



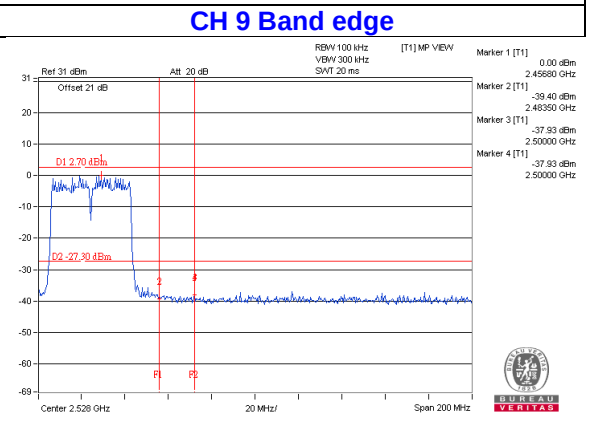
CH 9



CH 3 Band edge

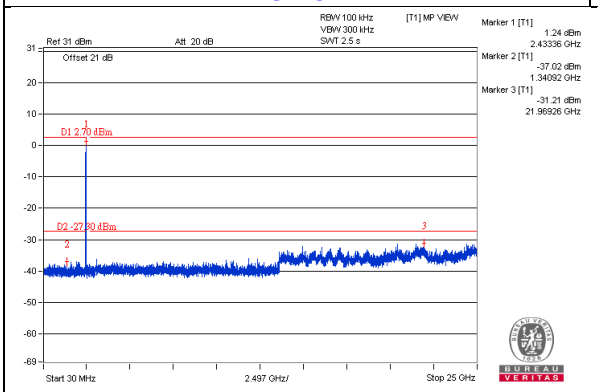


CH 9 Band edge

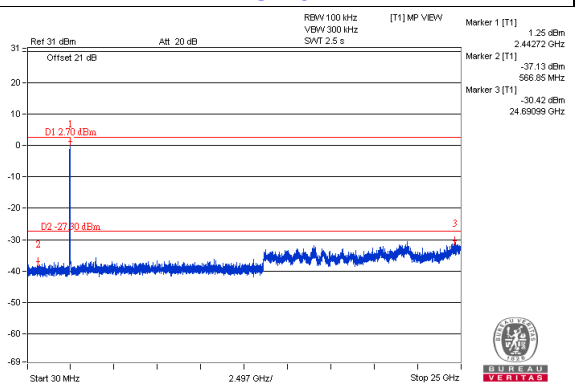


CHAIN 1

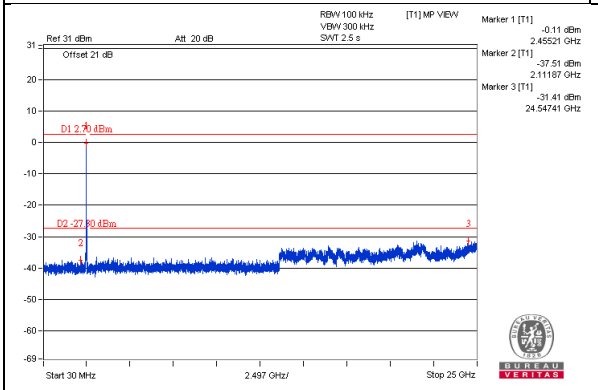
CH 3



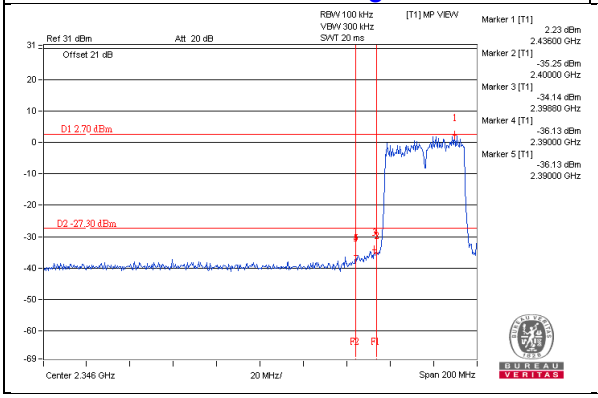
CH 6



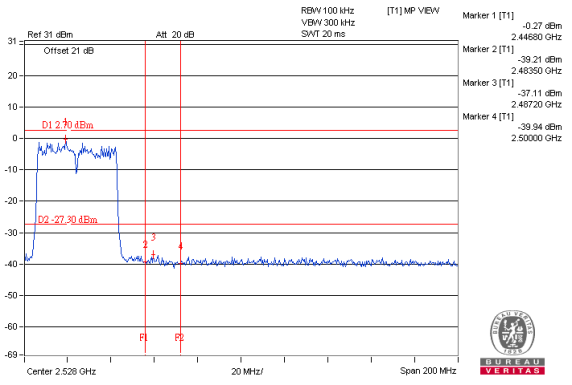
CH 9



CH 3 Band edge

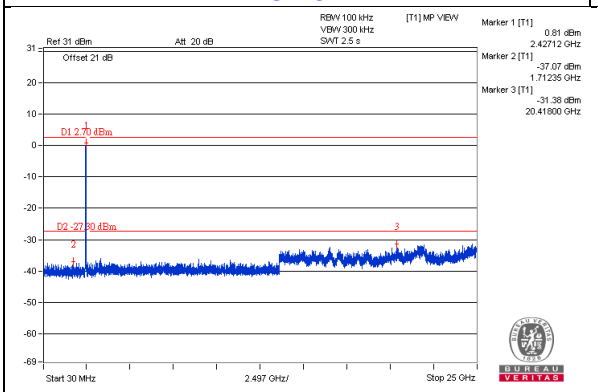


CH 9 Band edge

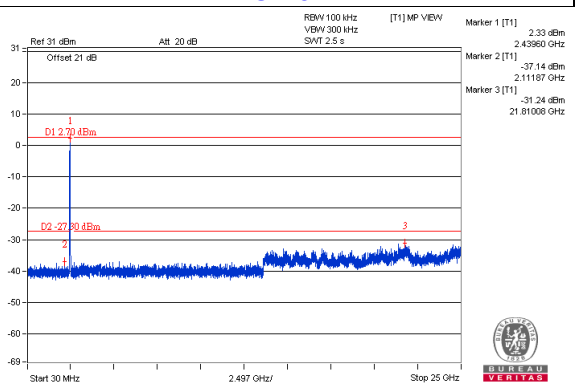


CHAIN 2

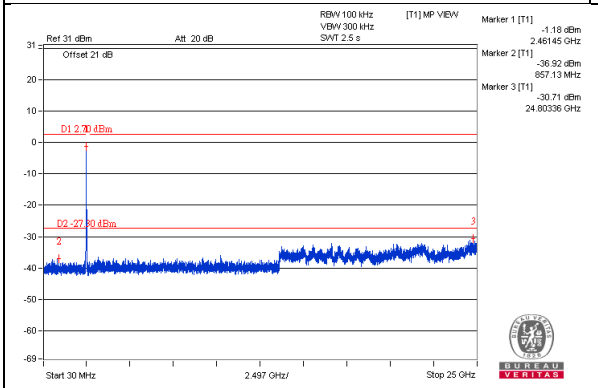
CH 3



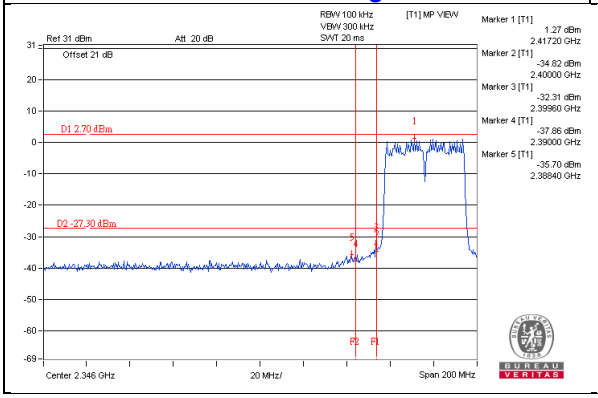
CH 6



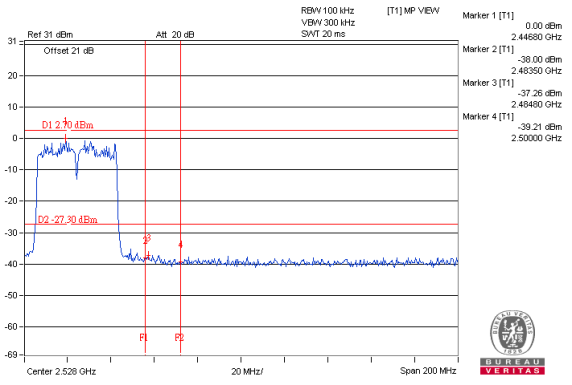
CH 9



CH 3 Band edge



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:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

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

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

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

--- END ---