FCC Test Report

Report No.:	RF171005D11
FCC ID:	PY317300391
Test Model:	R6350
Received Date:	Oct. 5, 2017
Test Date:	Oct. 31 ~ Dec. 11, 2017
Issued Date:	Dec. 14, 2017
Applicant:	NETGEAR INC.
Address:	350 East Plumeria Drive, San Jose, CA 95134, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
FCC Registration / Designation Number:	198487 / TW2021

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF171005D11	Original release.	Dec. 14, 2017

1 Certificate of Conformity

Product:	AC1750 Smart WiFi Router
Brand:	NETGEAR
Test Model:	R6350
Sample Status:	Engineering sample
Applicant:	NETGEAR INC.
Test Date:	Oct. 31 ~ Dec. 11, 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 : Annie Chang , **Date:** Dec. 14, 2017

Annie Chang / Senior Specialist

Approved by : Rex. Lai , **Date:** Dec. 14, 2017

Rex Lai / Associate Technical 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 -11.75dB at 0.40781MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.23dB at 2390.00 MHz.
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 I-PEX 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	2.77 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1000MHz	5.54 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.77 dB
	6GHz ~ 18GHz	5.48 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC1750 Smart WiFi Router
Brand	NETGEAR
Test Model	R6350
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter (refer to note as below)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
Output Power	592.681mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

2. The EUT uses following adapter.

Adapter	1	2
Brand	LEI	CWT
Model	ML18-F120150-A1	2ABB018F 1 NJ
P/N	332-10858-01	332-10927-01
AC Input Power	100-120V~ 50/60Hz 0.5A	100-120V~ 50/60Hz 0.6A
DC Output Power	12V, 1.5A	12V, 1.5A
Plug Type	US Plug	US Plug
Cable	Non-shielded DC cable (1.8m)	Non-shielded DC cable (1.8m)

After pre-tested, the **adapter 1** was the worst case for final test.

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

Chain No.	Antenna Type	Antenna Gain (dBi)	Connectot Type
Chain 0	Dipole	2.61	I-PEX
Chain 1	Dipole	3.15	I-PEX

4. The directional gain table:

Frequency (MHz)	Max. Gain (dBi)
2412 ~ 2462	5.89

Note:

(i) If transmit signals are *correlated*, then

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi [Note the "20"s i the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

5. 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 (20MHz):

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 (40MHz):

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	
-	√	√	√	√	-

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**.

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1
-	802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
-	802.11n (20MHz)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
-	802.11n (40MHz)	3 to 9	3, 4, 6, 8, 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.

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

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.

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

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.

EUT CONFIGURE 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
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Output Power						
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1
-	802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
-	802.11n (20MHz)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
-	802.11n (40MHz)	3 to 9	3, 4, 6, 8, 9	OFDM	BPSK	13.5

Test Condition:

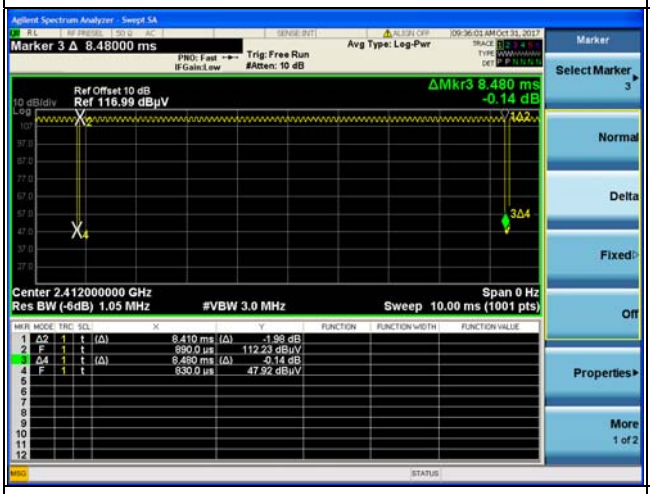
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	28deg. C, 69%RH	120Vac, 60Hz	James Wei & Ian Chang
RE<1G	27deg. C, 68%RH	120Vac, 60Hz	Ian Chang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Ian Chang
APCM	25deg. C, 76%RH	120Vac, 60Hz	Saxon Lee

3.3 Duty Cycle of Test Signal

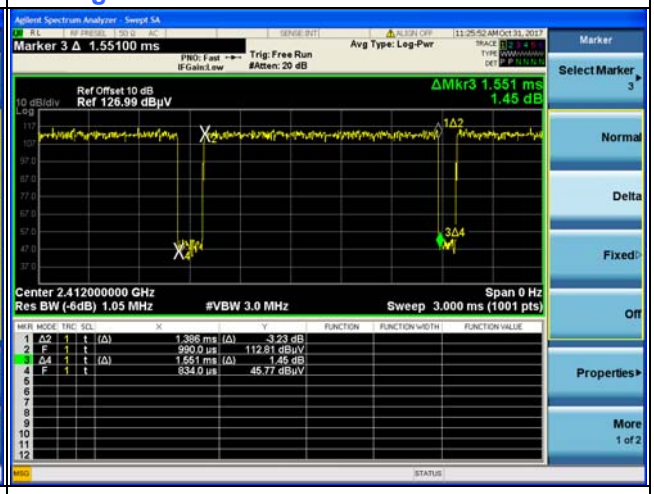
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = Duty cycle of test signal is >98 %.
802.11g: Duty cycle = 1.386/1.551 = 0.894, Duty factor = 10 * log(1/0.894) = 0.49
802.11n (20MHz): Duty cycle = 1.299/1.476 = 0.880, Duty factor = 10 * log(1/0.880) = 0.56
802.11n (40MHz): Duty cycle = 0.618/0.804 = 0.769, Duty factor = 10 * log(1/0.769) = 1.14

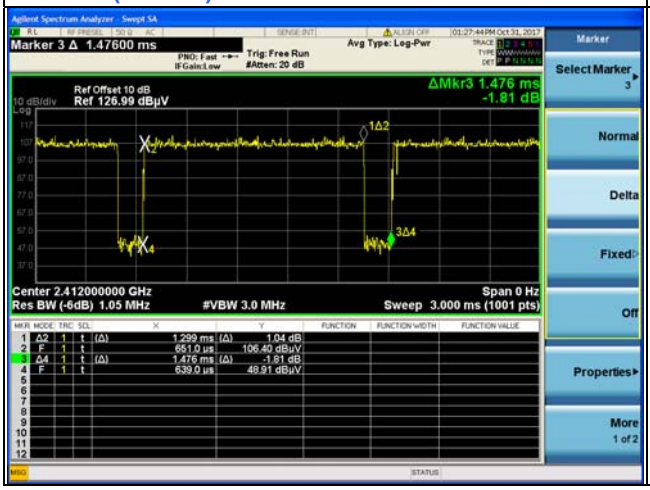
802.11b



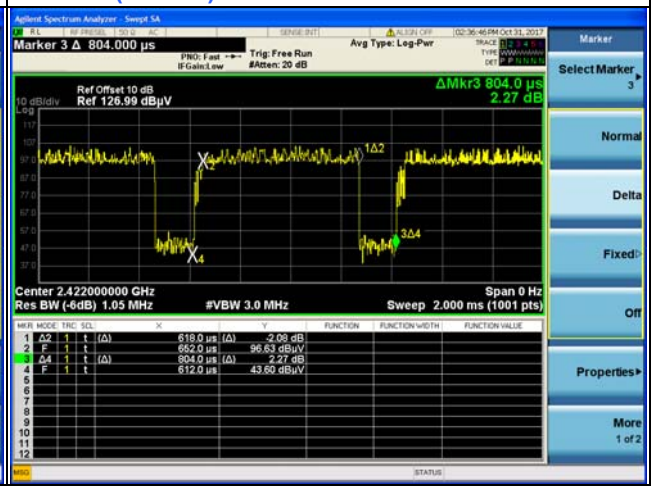
802.11g



802.11n (20MHz)



802.11n (40MHz)



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.	NOTEBOOK COMPUTER	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab

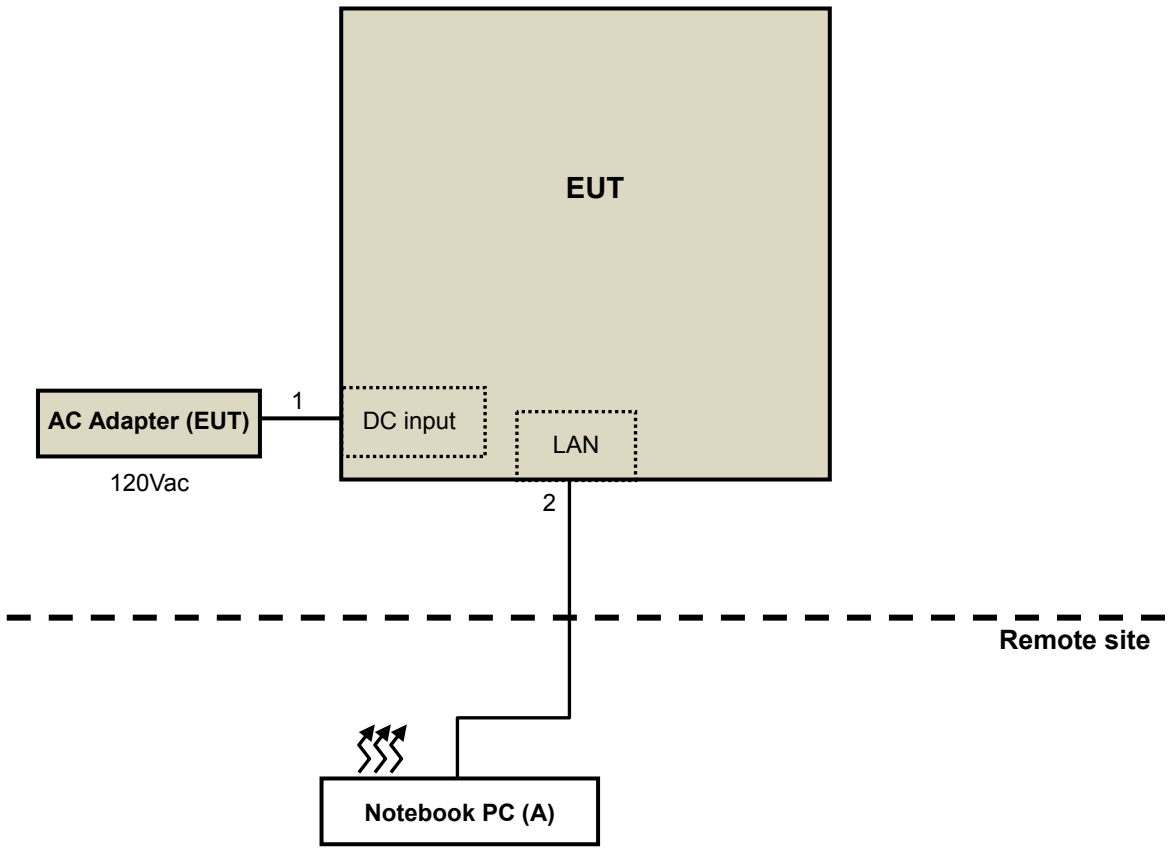
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.8	N	0	Supplied by client
2.	LAN cable	1	10	N	0	Provided by Lab

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

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 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 21, 2017	Feb. 20, 2018
HP Preamplifier	8449B	3008A01201	Feb. 22, 2017	Feb. 21, 2018
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2017	Feb. 20, 2018
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 8, 2017	Feb. 7, 2018
Schwarzbeck Antenna	VULB 9168	139	Dec. 13, 2016	Dec. 12, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 19, 2017	May 18, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 27, 2016	Dec. 26, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 14, 2017	Aug. 13, 2018
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 14, 2017	Aug. 13, 2018
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 31,2017	May 30,2018
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2017	Jul. 25, 2018
Loop Antenna EMCI	LPA600	270	Aug. 11, 2017	Aug. 10, 2019
EMCO Horn Antenna	3115	00028257	Dec. 15, 2016	Dec. 14, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 29, 2017	Sep. 28, 2018
Anritsu Power Sensor	MA2411B	0738404	Apr. 24, 2017	Apr. 23, 2018
Anritsu Power Meter	ML2495A	0842014	Apr. 24, 2017	Apr. 23, 2018

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.

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:

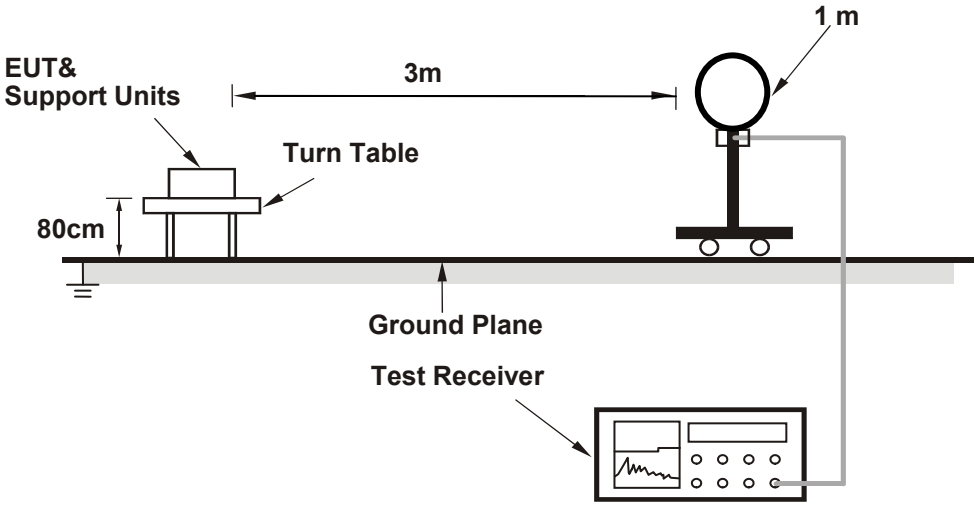
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

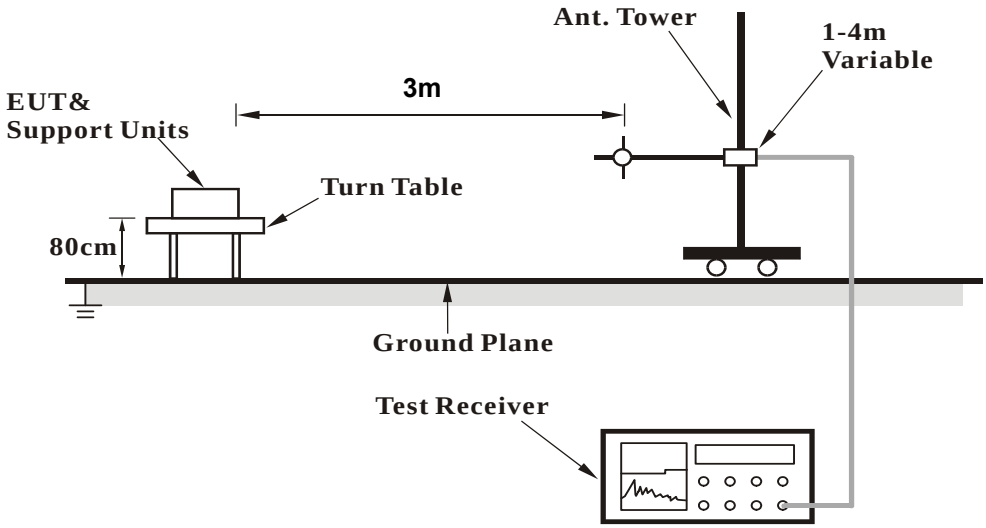
No deviation.

4.1.5 Test Setup

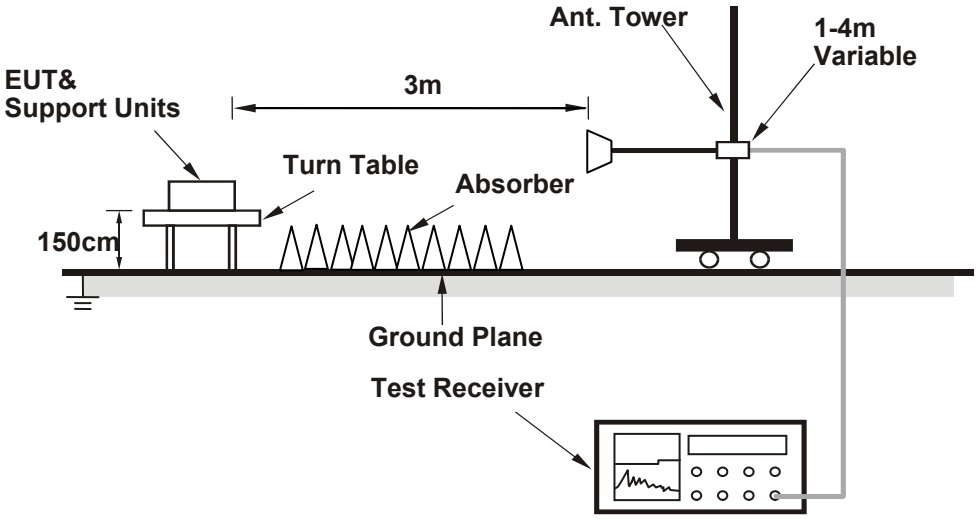
For Radiated emission below 30MHz



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 AC adapter placed on testing table.
b. Set the EUT under transmission condition continuously at specific channel frequency.

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	53.79 PK	74.00	-20.21	1.27 H	16	56.10	-2.31
2	2390.00	41.75 AV	54.00	-12.25	1.27 H	16	44.06	-2.31
3	*2412.00	101.18 PK			1.27 H	16	103.35	-2.17
4	*2412.00	98.18 AV			1.27 H	16	100.35	-2.17
5	4824.00	43.34 PK	74.00	-30.66	2.81 H	327	39.18	4.16
6	4824.00	30.19 AV	54.00	-23.81	2.81 H	327	26.03	4.16
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	61.45 PK	74.00	-12.55	2.01 V	199	63.76	-2.31
2	2390.00	53.72 AV	54.00	-0.28	2.01 V	199	56.03	-2.31
3	*2412.00	110.80 PK			2.01 V	199	112.97	-2.17
4	*2412.00	106.84 AV			2.01 V	199	109.01	-2.17
5	4824.00	44.14 PK	74.00	-29.86	1.24 V	117	39.98	4.16
6	4824.00	31.94 AV	54.00	-22.06	1.24 V	117	27.78	4.16

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 2	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	52.52 PK	74.00	-21.48	1.22 H	83	54.83	-2.31
2	2390.00	41.36 AV	54.00	-12.64	1.22 H	83	43.67	-2.31
3	*2417.00	102.13 PK			1.22 H	83	104.27	-2.14
4	*2417.00	99.05 AV			1.22 H	83	101.19	-2.14
5	4834.00	43.55 PK	74.00	-30.45	2.88 H	347	39.37	4.18
6	4834.00	30.39 AV	54.00	-23.61	2.88 H	347	26.21	4.18
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	59.83 PK	74.00	-14.17	1.20 V	347	62.14	-2.31
2	2390.00	53.33 AV	54.00	-0.67	1.20 V	347	55.64	-2.31
3	*2417.00	111.75 PK			1.20 V	347	113.89	-2.14
4	*2417.00	107.93 AV			1.20 V	347	110.07	-2.14
5	4834.00	44.46 PK	74.00	-29.54	2.11 V	105	40.28	4.18
6	4834.00	32.01 AV	54.00	-21.99	2.11 V	105	27.83	4.18

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	53.58 PK	74.00	-20.42	1.21 H	5	55.89	-2.31
2	2390.00	41.70 AV	54.00	-12.30	1.21 H	5	44.01	-2.31
3	*2437.00	102.82 PK			1.21 H	5	104.83	-2.01
4	*2437.00	99.21 AV			1.21 H	5	101.22	-2.01
5	4874.00	43.68 PK	74.00	-30.32	2.89 H	321	39.43	4.25
6	4874.00	30.54 AV	54.00	-23.46	2.89 H	321	26.29	4.25
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	59.93 PK	74.00	-14.07	1.18 V	354	62.24	-2.31
2	2390.00	53.70 AV	54.00	-0.30	1.18 V	354	56.01	-2.31
3	*2437.00	112.62 PK			1.18 V	354	114.63	-2.01
4	*2437.00	108.74 AV			1.18 V	354	110.75	-2.01
5	4874.00	45.08 PK	74.00	-28.92	1.22 V	128	40.83	4.25
6	4874.00	32.91 AV	54.00	-21.09	1.22 V	128	28.66	4.25

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 10	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	*2457.00	102.45 PK			1.35 H	67	104.32	-1.87
2	*2457.00	99.35 AV			1.35 H	67	101.22	-1.87
3	2483.50	53.46 PK	74.00	-20.54	1.35 H	67	55.17	-1.71
4	2483.50	41.38 AV	54.00	-12.62	1.35 H	67	43.09	-1.71
5	4914.00	43.71 PK	74.00	-30.29	2.81 H	305	39.42	4.29
6	4914.00	30.68 AV	54.00	-23.32	2.81 H	305	26.39	4.29
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	111.95 PK			1.31 V	348	113.82	-1.87
2	*2457.00	108.54 AV			1.31 V	348	110.41	-1.87
3	2483.50	60.17 PK	74.00	-13.83	1.31 V	348	61.88	-1.71
4	2483.50	53.57 AV	54.00	-0.43	1.31 V	348	55.28	-1.71
5	4914.00	44.56 PK	74.00	-29.44	2.29 V	175	40.27	4.29
6	4914.00	32.08 AV	54.00	-21.92	2.29 V	175	27.79	4.29

REMARKS:

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

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	102.04 PK			1.29 H	11	103.89	-1.85
2	*2462.00	99.13 AV			1.29 H	11	100.98	-1.85
3	2483.50	54.32 PK	74.00	-19.68	1.29 H	11	56.03	-1.71
4	2483.50	42.26 AV	54.00	-11.74	1.29 H	11	43.97	-1.71
5	4924.00	43.57 PK	74.00	-30.43	2.97 H	332	39.27	4.30
6	4924.00	30.39 AV	54.00	-23.61	2.97 H	332	26.09	4.30
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	111.91 PK			1.20 V	352	113.76	-1.85
2	*2462.00	108.53 AV			1.20 V	352	110.38	-1.85
3	2483.50	61.46 PK	74.00	-12.54	1.20 V	352	63.17	-1.71
4	2483.50	53.74 AV	54.00	-0.26	1.20 V	352	55.45	-1.71
5	4924.00	44.53 PK	74.00	-29.47	1.31 V	129	40.23	4.30
6	4924.00	32.73 AV	54.00	-21.27	1.31 V	129	28.43	4.30

REMARKS:

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

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CHANNEL	TX Channel 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	60.73 PK	74.00	-13.27	1.25 H	192	63.04	-2.31
2	2390.00	44.94 AV	54.00	-9.06	1.25 H	192	47.25	-2.31
3	*2412.00	103.68 PK			1.25 H	192	105.85	-2.17
4	*2412.00	96.09 AV			1.25 H	192	98.26	-2.17
5	4824.00	42.99 PK	74.00	-31.01	2.99 H	318	38.83	4.16
6	4824.00	30.28 AV	54.00	-23.72	2.99 H	318	26.12	4.16
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	68.58 PK	74.00	-5.42	1.36 V	341	70.89	-2.31
2	2390.00	53.72 AV	54.00	-0.28	1.36 V	341	56.03	-2.31
3	*2412.00	113.43 PK			1.36 V	341	115.60	-2.17
4	*2412.00	105.72 AV			1.36 V	341	107.89	-2.17
5	4824.00	43.39 PK	74.00	-30.61	1.51 V	224	39.23	4.16
6	4824.00	31.04 AV	54.00	-22.96	1.51 V	224	26.88	4.16

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 2	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	40.51 PK	74.00	-33.49	1.18 H	102	42.82	-2.31
2	2390.00	44.40 AV	54.00	-9.60	1.18 H	102	46.71	-2.31
3	*2417.00	105.15 PK			1.18 H	102	107.29	-2.14
4	*2417.00	97.95 AV			1.18 H	102	100.09	-2.14
5	4834.00	43.31 PK	74.00	-30.69	2.81 H	331	39.13	4.18
6	4834.00	30.56 AV	54.00	-23.44	2.81 H	331	26.38	4.18
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	68.15 PK	74.00	-5.85	1.56 V	338	70.46	-2.31
2	2390.00	53.25 AV	54.00	-0.75	1.56 V	338	55.56	-2.31
3	*2417.00	116.19 PK			1.56 V	338	118.33	-2.14
4	*2417.00	106.94 AV			1.56 V	338	109.08	-2.14
5	4834.00	44.26 PK	74.00	-29.74	2.57 V	301	40.08	4.18
6	4834.00	31.33 AV	54.00	-22.67	2.57 V	301	27.15	4.18

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	*2437.00	108.28 PK			1.53 H	203	110.29	-2.01
2	*2437.00	101.13 AV			1.53 H	203	103.14	-2.01
3	4874.00	43.51 PK	74.00	-30.49	3.05 H	304	39.26	4.25
4	4874.00	30.68 AV	54.00	-23.32	3.05 H	304	26.43	4.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.66 PK			1.29 V	204	120.67	-2.01
2	*2437.00	110.70 AV			1.29 V	204	112.71	-2.01
3	4874.00	44.36 PK	74.00	-29.64	1.59 V	229	40.11	4.25
4	4874.00	31.79 AV	54.00	-22.21	1.59 V	229	27.54	4.25

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 10	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	*2457.00	105.65 PK			1.21 H	115	107.52	-1.87
2	*2457.00	98.40 AV			1.21 H	115	100.27	-1.87
3	2483.50	63.46 PK	74.00	-10.54	1.21 H	115	65.17	-1.71
4	2483.50	45.91 AV	54.00	-8.09	1.21 H	115	47.62	-1.71
5	4914.00	43.40 PK	74.00	-30.60	2.88 H	300	39.11	4.29
6	4914.00	30.58 AV	54.00	-23.42	2.88 H	300	26.29	4.29
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	115.45 PK			1.55 V	20	117.32	-1.87
2	*2457.00	105.70 AV			1.55 V	20	107.57	-1.87
3	2483.50	73.09 PK	74.00	-0.91	1.55 V	20	74.80	-1.71
4	2483.50	53.07 AV	54.00	-0.93	1.55 V	20	54.78	-1.71
5	4914.00	44.26 PK	74.00	-29.74	2.59 V	324	39.97	4.29
6	4914.00	31.33 AV	54.00	-22.67	2.59 V	324	27.04	4.29

REMARKS:

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

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	105.03 PK			1.22 H	201	106.88	-1.85
2	*2462.00	97.63 AV			1.22 H	201	99.48	-1.85
3	2483.50	64.06 PK	74.00	-9.94	1.22 H	201	65.77	-1.71
4	2483.50	47.92 AV	54.00	-6.08	1.22 H	201	49.63	-1.71
5	4924.00	43.44 PK	74.00	-30.56	3.23 H	294	39.14	4.30
6	4924.00	30.49 AV	54.00	-23.51	3.23 H	294	26.19	4.30
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	114.16 PK			1.77 V	206	116.01	-1.85
2	*2462.00	106.70 AV			1.77 V	206	108.55	-1.85
3	2483.50	71.20 PK	74.00	-2.80	1.77 V	206	72.91	-1.71
4	2483.50	53.71 AV	54.00	-0.29	1.77 V	206	55.42	-1.71
5	4924.00	44.32 PK	74.00	-29.68	1.69 V	218	40.02	4.30
6	4924.00	31.63 AV	54.00	-22.37	1.69 V	218	27.33	4.30

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 (20MHz)

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	63.31 PK	74.00	-10.69	1.27 H	198	65.62	-2.31
2	2390.00	45.82 AV	54.00	-8.18	1.27 H	198	48.13	-2.31
3	*2412.00	103.02 PK			1.27 H	198	105.19	-2.17
4	*2412.00	94.80 AV			1.27 H	198	96.97	-2.17
5	4824.00	42.64 PK	74.00	-31.36	3.01 H	228	38.48	4.16
6	4824.00	30.35 AV	54.00	-23.65	3.01 H	228	26.19	4.16
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	71.35 PK	74.00	-2.65	1.63 V	164	73.66	-2.31
2	2390.00	53.71 AV	54.00	-0.29	1.63 V	164	56.02	-2.31
3	*2412.00	112.23 PK			1.63 V	164	114.40	-2.17
4	*2412.00	104.66 AV			1.63 V	164	106.83	-2.17
5	4824.00	44.29 PK	74.00	-29.71	2.86 V	117	40.13	4.16
6	4824.00	31.38 AV	54.00	-22.62	2.86 V	117	27.22	4.16

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 2	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	61.93 PK	74.00	-12.07	1.17 H	79	64.24	-2.31
2	2390.00	44.02 AV	54.00	-9.98	1.17 H	79	46.33	-2.31
3	*2417.00	105.24 PK			1.17 H	79	107.38	-2.14
4	*2417.00	95.02 AV			1.17 H	79	97.16	-2.14
5	4834.00	42.95 PK	74.00	-31.05	2.91 H	17	38.77	4.18
6	4834.00	30.75 AV	54.00	-23.25	2.91 H	17	26.57	4.18
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	69.80 PK	74.00	-4.20	1.47 V	325	72.11	-2.31
2	2390.00	53.52 AV	54.00	-0.48	1.47 V	325	55.83	-2.31
3	*2417.00	114.16 PK			1.47 V	325	116.30	-2.14
4	*2417.00	104.59 AV			1.47 V	325	106.73	-2.14
5	4834.00	44.57 PK	74.00	-29.43	1.99 V	98	40.39	4.18
6	4834.00	31.61 AV	54.00	-22.39	1.99 V	98	27.43	4.18

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	*2437.00	107.83 PK			1.58 H	199	109.84	-2.01
2	*2437.00	98.58 AV			1.58 H	199	100.59	-2.01
3	4874.00	42.81 PK	74.00	-31.19	3.00 H	231	38.56	4.25
4	4874.00	30.53 AV	54.00	-23.47	3.00 H	231	26.28	4.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.88 PK			1.81 V	210	118.89	-2.01
2	*2437.00	108.91 AV			1.81 V	210	110.92	-2.01
3	4874.00	44.78 PK	74.00	-29.22	3.22 V	108	40.53	4.25
4	4874.00	31.80 AV	54.00	-22.20	3.22 V	108	27.55	4.25

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 10	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	*2457.00	105.29 PK			1.00 H	27	107.16	-1.87
2	*2457.00	97.51 AV			1.00 H	27	99.38	-1.87
3	2483.50	63.27 PK	74.00	-10.73	1.00 H	27	64.98	-1.71
4	2483.50	45.86 AV	54.00	-8.14	1.00 H	27	47.57	-1.71
5	4914.00	42.82 PK	74.00	-31.18	2.84 H	36	38.53	4.29
6	4914.00	30.78 AV	54.00	-23.22	2.84 H	36	26.49	4.29
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	114.26 PK			1.16 V	338	116.13	-1.87
2	*2457.00	104.43 AV			1.16 V	338	106.30	-1.87
3	2483.50	72.98 PK	74.00	-1.02	1.16 V	338	74.69	-1.71
4	2483.50	50.84 AV	54.00	-3.16	1.16 V	338	52.55	-1.71
5	4914.00	44.67 PK	74.00	-29.33	2.68 V	311	40.38	4.29
6	4914.00	31.63 AV	54.00	-22.37	2.68 V	311	27.34	4.29

REMARKS:

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

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	103.09 PK			1.42 H	188	104.94	-1.85
2	*2462.00	94.96 AV			1.42 H	188	96.81	-1.85
3	2483.50	63.63 PK	74.00	-10.37	1.42 H	188	65.34	-1.71
4	2483.50	46.30 AV	54.00	-7.70	1.42 H	188	48.01	-1.71
5	4924.00	42.53 PK	74.00	-31.47	2.98 H	211	38.23	4.30
6	4924.00	30.44 AV	54.00	-23.56	2.98 H	211	26.14	4.30
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	112.09 PK			1.94 V	206	113.94	-1.85
2	*2462.00	104.55 AV			1.94 V	206	106.40	-1.85
3	2483.50	70.36 PK	74.00	-3.64	1.94 V	206	72.07	-1.71
4	2483.50	53.72 AV	54.00	-0.28	1.94 V	206	55.43	-1.71
5	4924.00	44.41 PK	74.00	-29.59	2.88 V	132	40.11	4.30
6	4924.00	31.41 AV	54.00	-22.59	2.88 V	132	27.11	4.30

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 (40MHz)

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	60.18 PK	74.00	-13.82	1.13 H	190	62.49	-2.31
2	2390.00	44.77 AV	54.00	-9.23	1.13 H	190	47.08	-2.31
3	*2422.00	97.04 PK			1.13 H	190	99.15	-2.11
4	*2422.00	88.09 AV			1.13 H	190	90.20	-2.11
5	4844.00	42.43 PK	74.00	-31.57	2.59 H	193	38.23	4.20
6	4844.00	30.13 AV	54.00	-23.87	2.59 H	193	25.93	4.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.90 PK	74.00	-4.10	1.45 V	168	72.21	-2.31
2	2390.00	53.74 AV	54.00	-0.26	1.45 V	168	56.05	-2.31
3	*2422.00	106.28 PK			1.45 V	168	108.39	-2.11
4	*2422.00	98.48 AV			1.45 V	168	100.59	-2.11
5	4844.00	43.44 PK	74.00	-30.56	1.22 V	208	39.24	4.20
6	4844.00	30.93 AV	54.00	-23.07	1.22 V	208	26.73	4.20

REMARKS:

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

CHANNEL	TX Channel 4	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	53.27 PK	74.00	-20.73	3.21 H	297	55.58	-2.31
2	2390.00	40.38 AV	54.00	-13.62	3.21 H	297	42.69	-2.31
3	*2427.00	98.34 PK			3.21 H	297	100.42	-2.08
4	*2427.00	86.74 AV			3.21 H	297	88.82	-2.08
5	4854.00	43.22 PK	74.00	-30.78	3.72 H	273	39.01	4.21
6	4854.00	29.62 AV	54.00	-24.38	3.72 H	273	25.41	4.21
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	69.96 PK	74.00	-4.04	1.38 V	76	72.27	-2.31
2	2390.00	53.03 AV	54.00	-0.97	1.38 V	76	55.34	-2.31
3	*2427.00	106.27 PK			1.38 V	76	108.35	-2.08
4	*2427.00	94.47 AV			1.38 V	76	96.55	-2.08
5	4854.00	43.26 PK	74.00	-30.74	1.19 V	266	39.05	4.21
6	4854.00	29.65 AV	54.00	-24.35	1.19 V	266	25.44	4.21

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	60.01 PK	74.00	-13.99	1.23 H	188	62.32	-2.31
2	2390.00	44.70 AV	54.00	-9.30	1.23 H	188	47.01	-2.31
3	*2437.00	102.41 PK			1.23 H	188	104.42	-2.01
4	*2437.00	93.27 AV			1.23 H	188	95.28	-2.01
5	4874.00	42.79 PK	74.00	-31.21	2.55 H	221	38.54	4.25
6	4874.00	30.29 AV	54.00	-23.71	2.55 H	221	26.04	4.25
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	67.19 PK	74.00	-6.81	1.00 V	170	69.50	-2.31
2	**2390.00**	**53.77 AV**	**54.00**	**-0.23**	**1.00 V**	**170**	**56.08**	**-2.31**
3	*2437.00	111.23 PK			1.00 V	170	113.24	-2.01
4	*2437.00	103.12 AV			1.00 V	170	105.13	-2.01
5	4874.00	44.08 PK	74.00	-29.92	1.28 V	195	39.83	4.25
6	4874.00	31.22 AV	54.00	-22.78	1.28 V	195	26.97	4.25

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 8	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	*2447.00	100.50 PK			1.56 H	306	102.45	-1.95
2	*2447.00	88.81 AV			1.56 H	306	90.76	-1.95
3	2483.50	63.03 PK	74.00	-10.97	1.56 H	306	64.74	-1.71
4	2483.50	45.92 AV	54.00	-8.08	1.56 H	306	47.63	-1.71
5	4894.00	43.13 PK	74.00	-30.87	1.84 H	330	38.86	4.27
6	4894.00	29.23 AV	54.00	-24.77	1.84 H	330	24.96	4.27
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	*2447.00	107.23 PK			1.86 V	339	109.18	-1.95
2	*2447.00	95.62 AV			1.86 V	339	97.57	-1.95
3	2483.50	69.47 PK	74.00	-4.53	1.86 V	339	71.18	-1.71
4	2483.50	53.16 AV	54.00	-0.84	1.86 V	339	54.87	-1.71
5	4894.00	43.28 PK	74.00	-30.72	1.82 V	360	39.01	4.27
6	4894.00	29.38 AV	54.00	-24.62	1.82 V	360	25.11	4.27

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	97.17 PK			1.38 H	211	99.08	-1.91
2	*2452.00	88.26 AV			1.38 H	211	90.17	-1.91
3	2483.50	60.47 PK	74.00	-13.53	1.38 H	211	62.18	-1.71
4	2483.50	45.18 AV	54.00	-8.82	1.38 H	211	46.89	-1.71
5	4904.00	42.38 PK	74.00	-31.62	2.54 H	209	38.08	4.30
6	4904.00	30.14 AV	54.00	-23.86	2.54 H	209	25.84	4.30
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	106.29 PK			1.44 V	174	108.20	-1.91
2	*2452.00	98.52 AV			1.44 V	174	100.43	-1.91
3	2483.50	69.57 PK	74.00	-4.43	1.44 V	174	71.28	-1.71
4	2483.50	53.73 AV	54.00	-0.27	1.44 V	174	55.44	-1.71
5	4904.00	43.43 PK	74.00	-30.57	1.38 V	184	39.13	4.30
6	4904.00	30.85 AV	54.00	-23.15	1.38 V	184	26.55	4.30

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 WORST-CASE DATA

802.11g

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	53.82	26.89 QP	40.00	-13.11	1.09 H	115	35.84	-8.95
2	198.56	26.37 QP	43.50	-17.13	1.19 H	201	37.88	-11.51
3	331.51	32.11 QP	46.00	-13.89	1.74 H	42	38.54	-6.43
4	511.95	33.37 QP	46.00	-12.63	1.19 H	83	35.96	-2.59
5	649.05	35.02 QP	46.00	-10.98	1.08 H	211	34.99	0.03
6	876.52	35.93 QP	46.00	-10.07	1.86 H	221	31.95	3.98
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	47.83	29.64 QP	40.00	-10.36	1.66 V	201	38.85	-9.21
2	161.00	27.31 QP	43.50	-16.19	1.82 V	85	36.14	-8.83
3	360.55	31.29 QP	46.00	-14.71	1.44 V	220	37.54	-6.25
4	545.89	29.32 QP	46.00	-16.68	2.08 V	213	31.59	-2.27
5	653.84	35.02 QP	46.00	-10.98	1.56 V	188	34.99	0.03
6	820.16	33.57 QP	46.00	-12.43	2.11 V	251	29.96	3.61

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.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 10, 2017	Apr. 9, 2018
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	May 22, 2017	May 21, 2018
LISN With Adapter (for EUT)	AD10	C10Ada-002	May 22, 2017	May 21, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 23, 2016	Nov. 22, 2017
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 9, 2017	May 8, 2018
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 14, 2017	Feb. 13, 2018
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 18, 2017	May 17, 2018
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 14, 2017	Nov. 13, 2018
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 14, 2017	Nov. 13, 2018

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 10.

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.

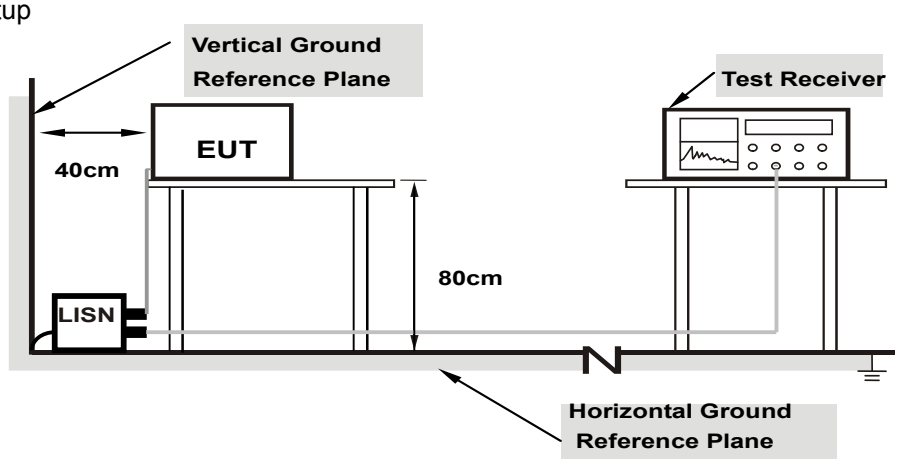
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

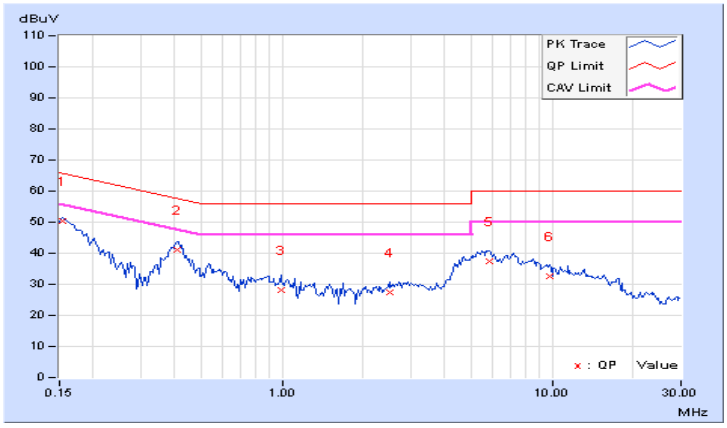
4.2.7 Test Results

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	9.65	40.59	24.28	50.24	33.93	65.79	55.79	-15.55	-21.86
2	0.40781	9.69	31.34	24.62	41.03	34.31	57.69	47.69	-16.66	-13.38
3	0.98984	9.79	18.20	12.08	27.99	21.87	56.00	46.00	-28.01	-24.13
4	2.49609	9.93	17.57	11.74	27.50	21.67	56.00	46.00	-28.50	-24.33
5	5.82422	10.09	27.31	21.93	37.40	32.02	60.00	50.00	-22.60	-17.98
6	9.84375	10.18	22.59	17.32	32.77	27.50	60.00	50.00	-27.23	-22.50

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.

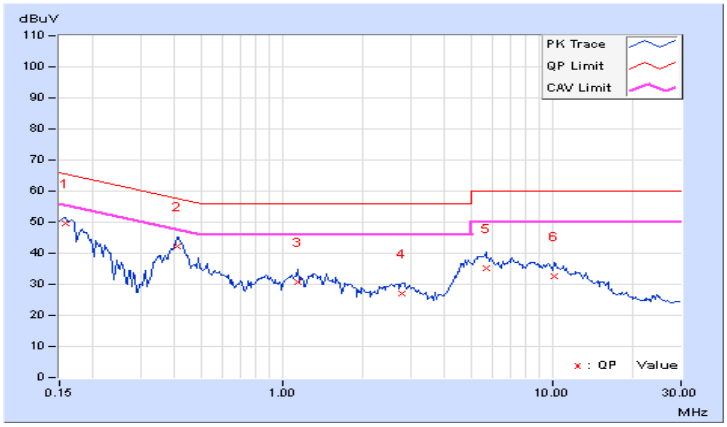


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	9.69	39.78	25.78	49.47	35.47	65.58	55.58	-16.11	-20.11
2	**0.40781**	**9.73**	**32.62**	**26.21**	**42.35**	**35.94**	**57.69**	**47.69**	**-15.34**	**-11.75**
3	1.14453	9.81	20.82	16.42	30.63	26.23	56.00	46.00	-25.37	-19.77
4	2.76953	9.99	17.20	11.53	27.19	21.52	56.00	46.00	-28.81	-24.48
5	5.68359	10.19	25.13	19.44	35.32	29.63	60.00	50.00	-24.68	-20.37
6	10.12500	10.26	22.43	17.25	32.69	27.51	60.00	50.00	-27.31	-22.49

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.

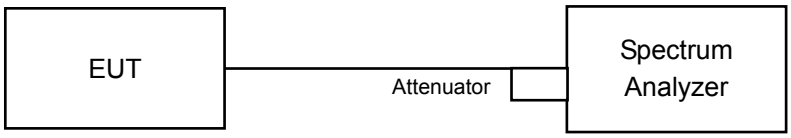


4.3 6dB Bandwidth Measurement

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

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.07	10.06	0.5	PASS
6	2437	10.11	10.10	0.5	PASS
11	2462	9.54	10.04	0.5	PASS

802.11g

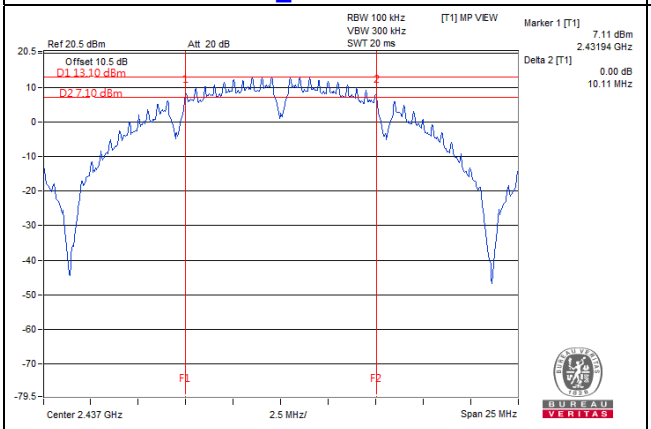
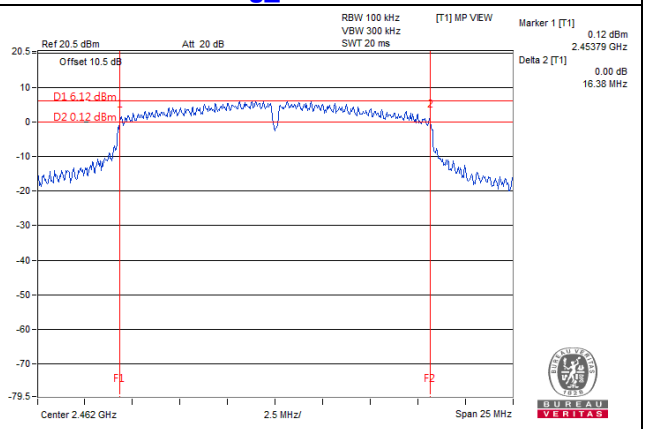
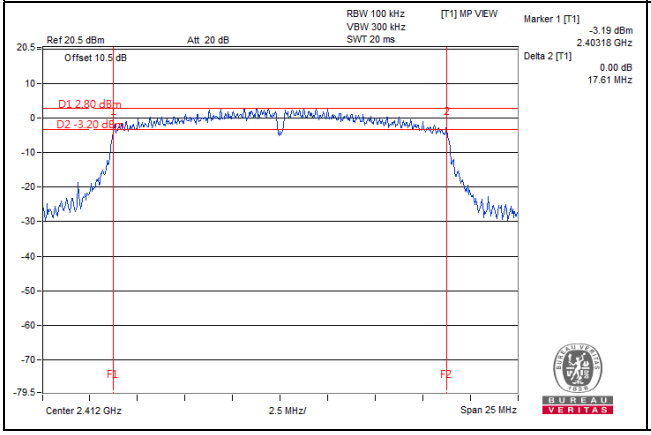
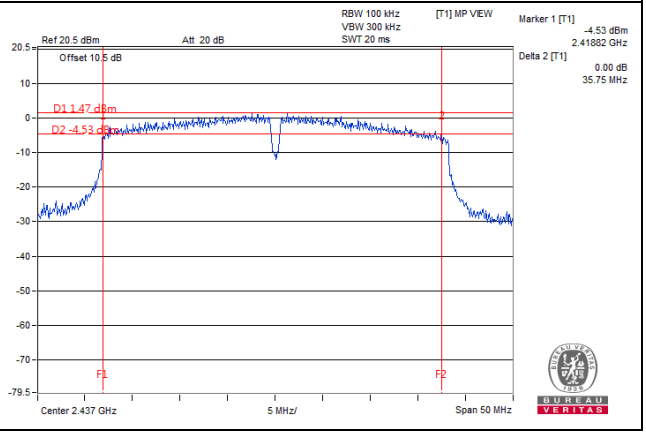
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.34	16.34	0.5	PASS
6	2437	16.37	16.38	0.5	PASS
11	2462	16.38	16.36	0.5	PASS

802.11n (20MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.57	17.61	0.5	PASS
6	2437	17.55	17.58	0.5	PASS
11	2462	16.96	17.59	0.5	PASS

802.11n (40MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	33.91	35.11	0.5	PASS
6	2437	35.09	35.75	0.5	PASS
9	2452	33.86	35.10	0.5	PASS

Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH 6	**802.11g_Chain 0 / CH 11**
	
802.11n (20MHz)_Chain 1 / CH 1	**802.11n (40MHz)_Chain 1 / CH 6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

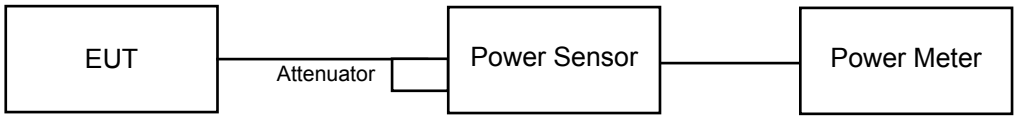
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

A 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.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.36	20.49	220.587	23.44	30	Pass
2	2417	20.95	21.06	252.095	24.02	30	Pass
6	2437	24.37	25.04	**592.681**	27.73	30	Pass
10	2457	21.20	21.34	267.970	24.28	30	Pass
11	2462	21.17	21.32	266.437	24.26	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				
1	2412	17.03	17.14	102.227	20.10	30	Pass
2	2417	20.03	20.12	203.495	23.09	30	Pass
6	2437	21.97	22.77	346.632	25.40	30	Pass
10	2457	19.58	19.71	184.323	22.66	30	Pass
11	2462	17.42	17.50	111.442	20.47	30	Pass

802.11n (20MHz)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.33	16.74	90.160	19.55	30	Pass
2	2417	17.32	17.38	108.653	20.36	30	Pass
6	2437	21.35	21.37	273.546	24.37	30	Pass
10	2457	15.86	16.21	80.331	19.05	30	Pass
11	2462	15.24	15.78	71.264	18.53	30	Pass

802.11n (40MHz)

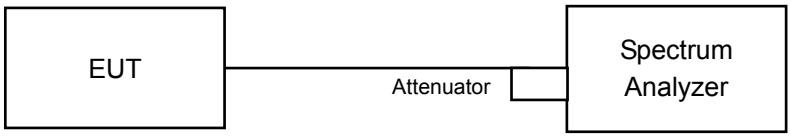
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	13.22	13.53	43.531	16.39	30	Pass
4	2427	15.28	15.51	69.292	18.41	30	Pass
6	2437	17.47	17.78	115.826	20.64	30	Pass
8	2447	15.76	15.93	76.844	18.86	30	Pass
9	2452	13.71	14.05	48.906	16.89	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

For AVG. power (duty cycle ≥ 98%)
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.

For AVG. power (duty cycle < 98%)
a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

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)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-6.33	3.01	-3.32	8	Pass
	6	2437	-4.88	3.01	-1.87	8	Pass
	11	2462	-6.74	3.01	-3.73	8	Pass
1	1	2412	-7.08	3.01	-4.07	8	Pass
	6	2437	-4.15	3.01	-1.14	8	Pass
	11	2462	-7.02	3.01	-4.01	8	Pass

NOTE: Directional gain = 5.89dBi <6dBi, so the power density limit is not reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.62	3.01	0.49	-10.12	8	Pass
	6	2437	-7.60	3.01	0.49	-4.10	8	Pass
	11	2462	-11.24	3.01	0.49	-7.74	8	Pass
1	1	2412	-13.82	3.01	0.49	-10.32	8	Pass
	6	2437	-7.73	3.01	0.49	-4.23	8	Pass
	11	2462	-11.68	3.01	0.49	-8.18	8	Pass

NOTE: Directional gain = 5.89dBi <6dBi, so the power density limit is not reduced.

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.92	3.01	0.56	-11.35	8	Pass
	6	2437	-10.41	3.01	0.56	-6.84	8	Pass
	11	2462	-15.12	3.01	0.56	-11.55	8	Pass
1	1	2412	-14.23	3.01	0.56	-10.66	8	Pass
	6	2437	-9.08	3.01	0.56	-5.51	8	Pass
	11	2462	-15.66	3.01	0.56	-12.09	8	Pass

NOTE: Directional gain = 5.89dBi <6dBi, so the power density limit is not reduced.

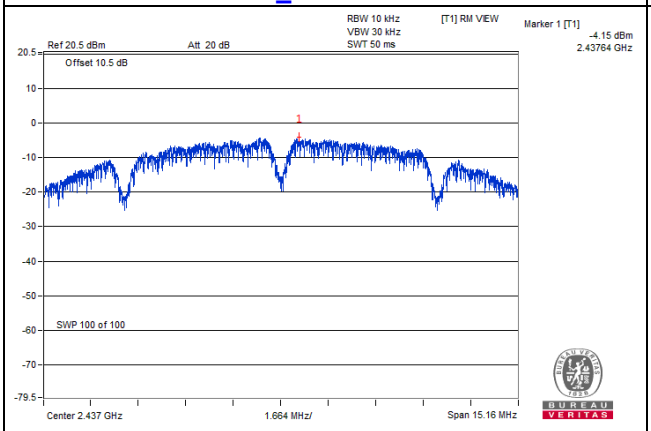
802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-20.52	3.01	1.14	-16.37	8	Pass
	6	2437	-15.75	3.01	1.14	-11.60	8	Pass
	9	2452	-19.77	3.01	1.14	-15.62	8	Pass
1	3	2422	-20.28	3.01	1.14	-16.13	8	Pass
	6	2437	-15.88	3.01	1.14	-11.73	8	Pass
	9	2452	-18.48	3.01	1.14	-14.33	8	Pass

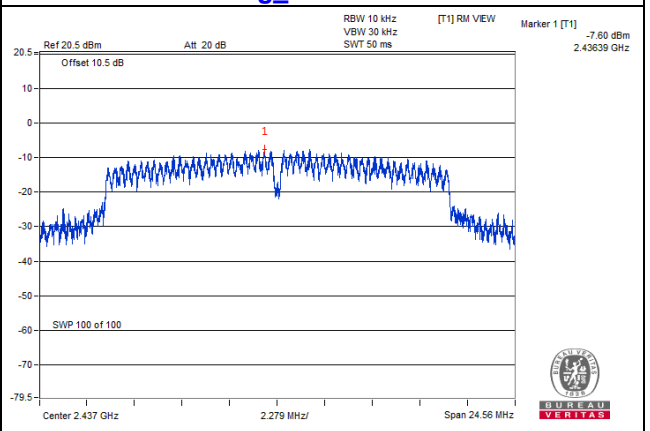
NOTE: Directional gain = 5.89dBi <6dBi, so the power density limit is not reduced.

Spectrum Plot of Worst Value

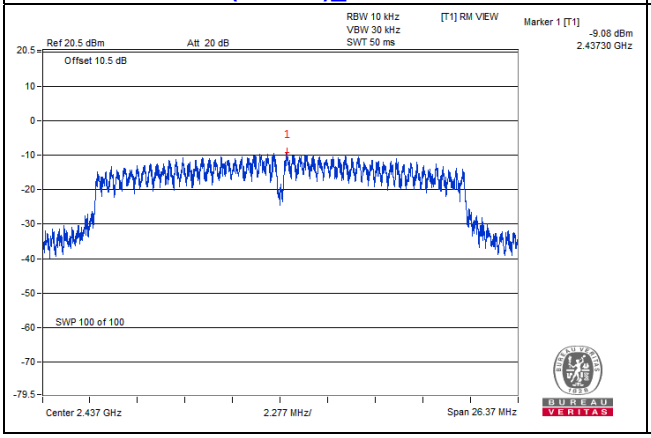
802.11b_Chain 1 / CH 6



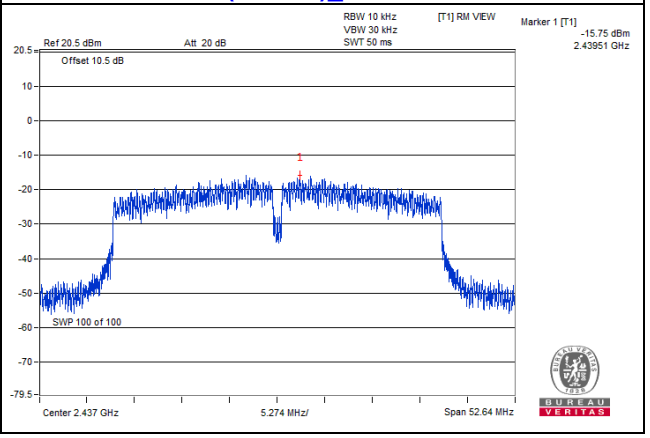
802.11g_Chain 0 / CH 6



802.11n (20MHz)_Chain 1 / CH 6



802.11n (40MHz)_Chain 0 / CH 6

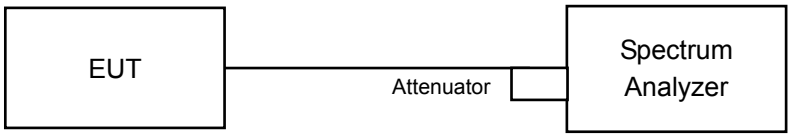


4.6 Conducted Out of Band Emission Measurement

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

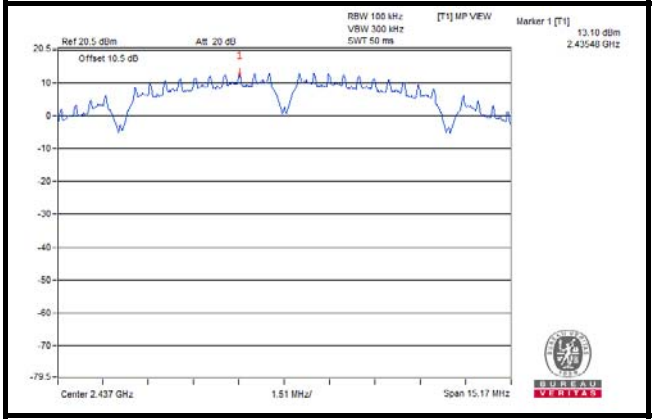
Same as Item 4.3.6

4.6.7 Test Results

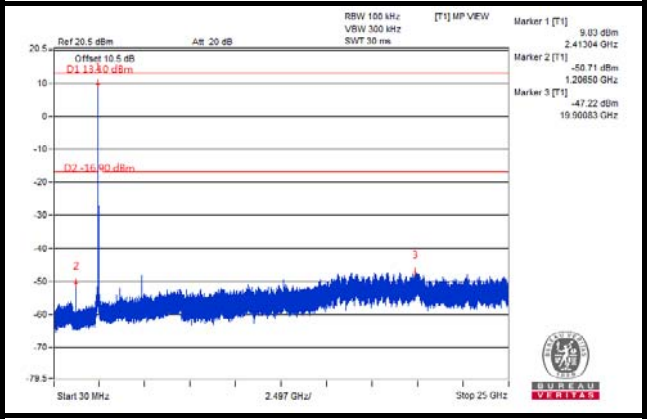
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b: Chain 0

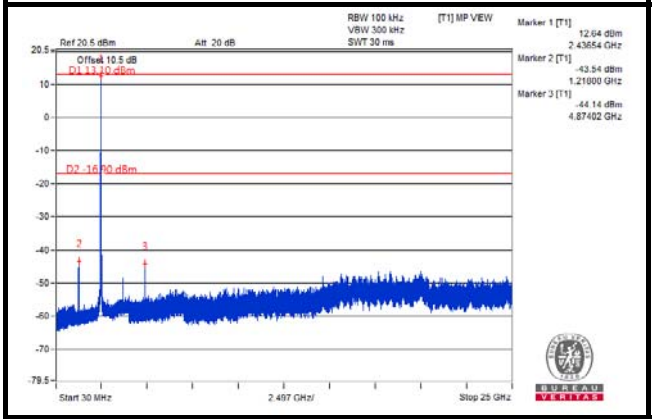
Reference Level



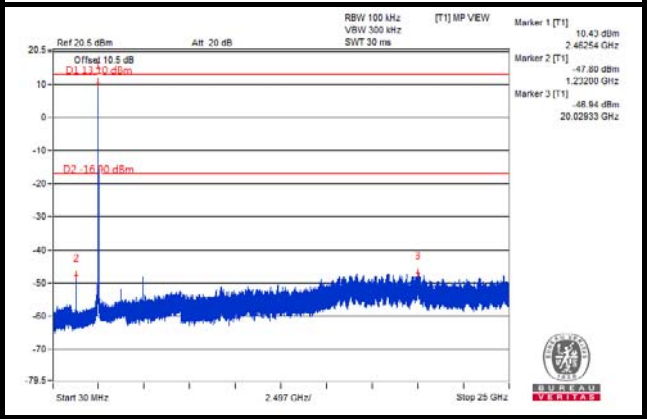
CH 1



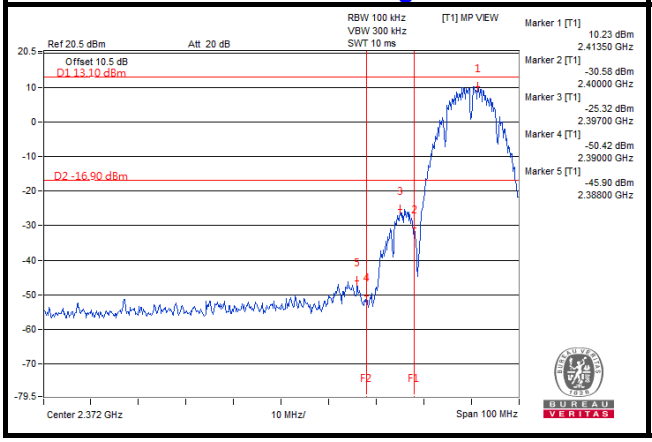
CH 6



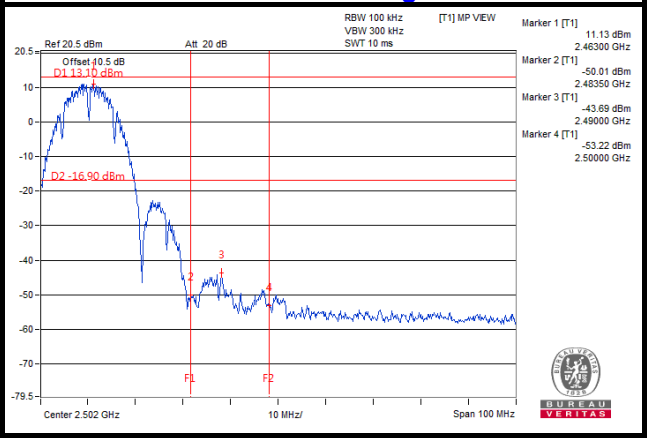
CH 11



CH 1 Band edge

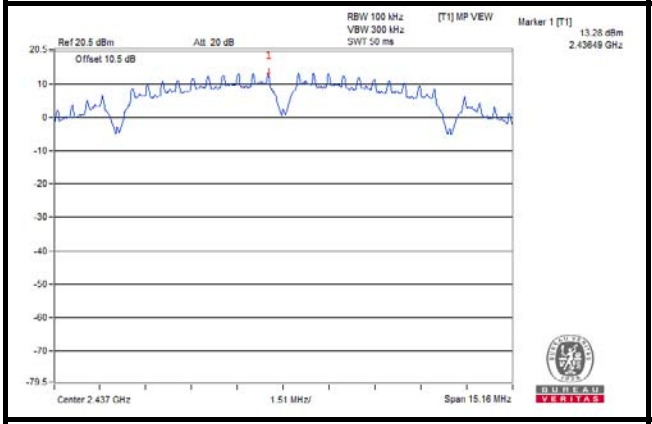


CH 11 Band edge

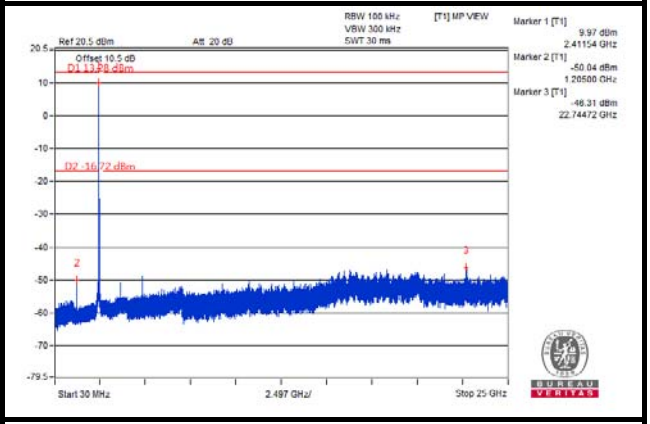


Chain 1

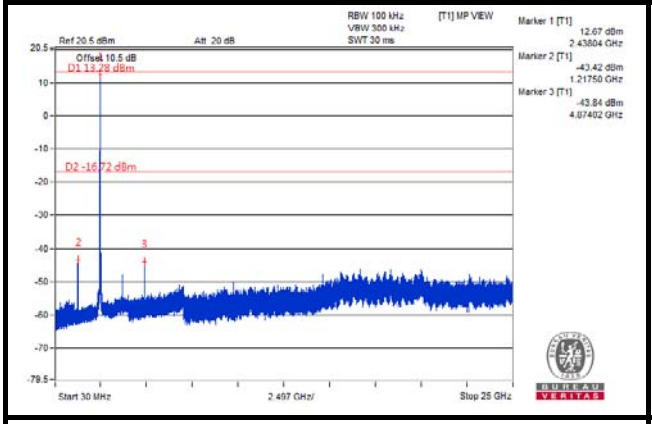
Reference Level



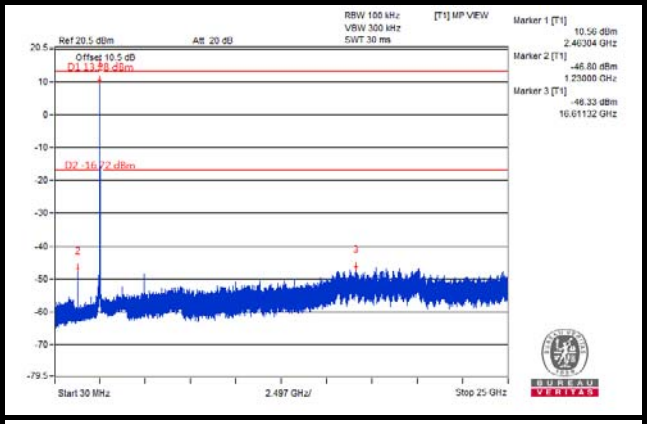
CH 1



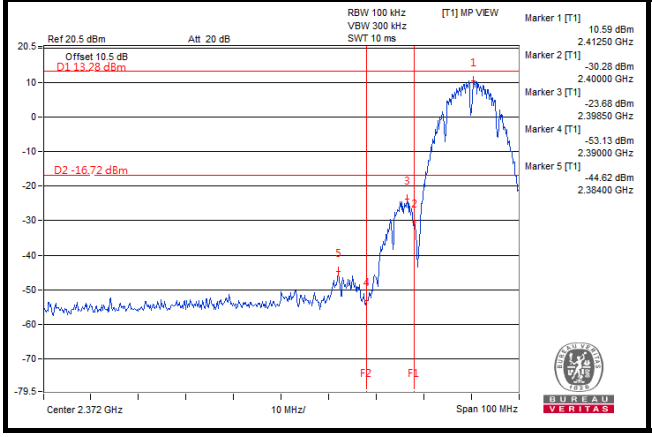
CH 6



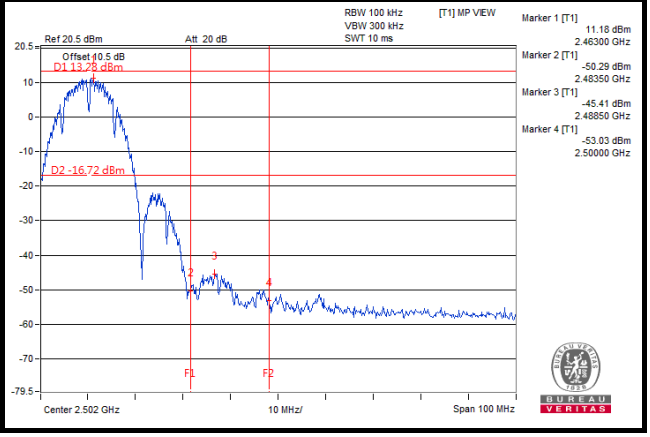
CH 11



CH 1 Band edge

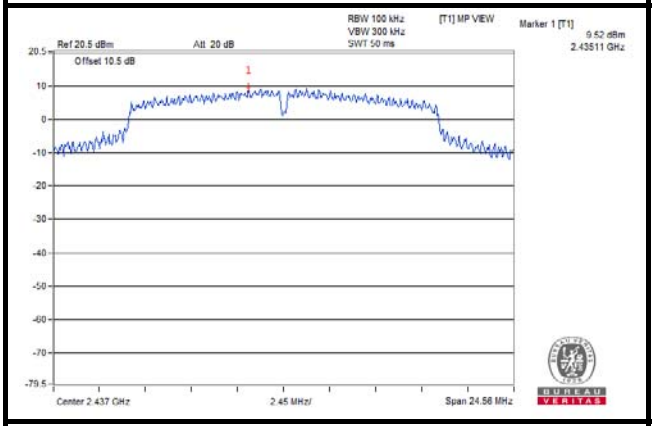


CH 11 Band edge

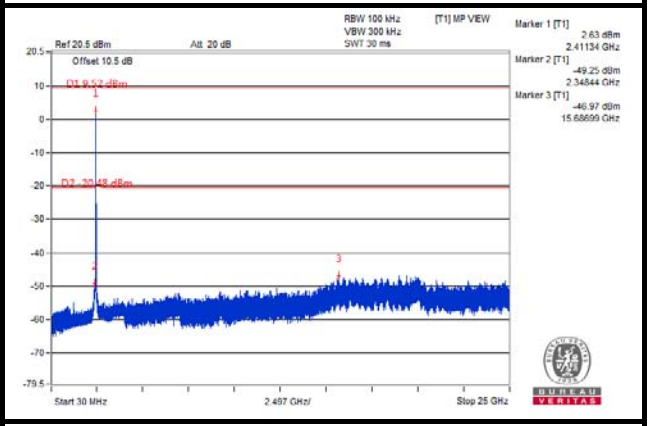


802.11g: Chain 0

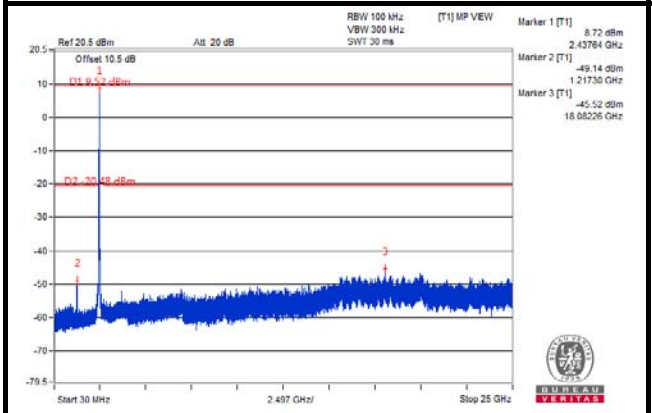
Reference Level



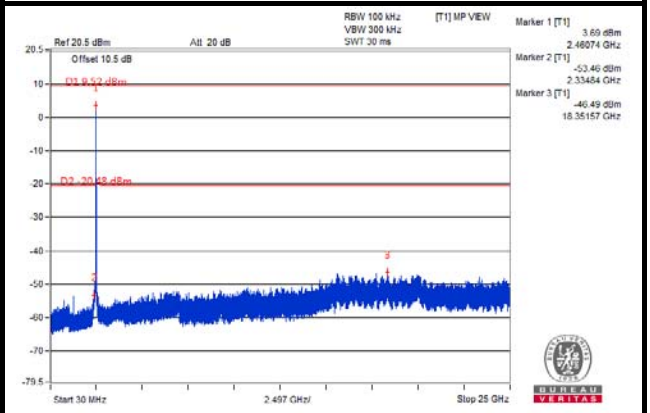
CH 1



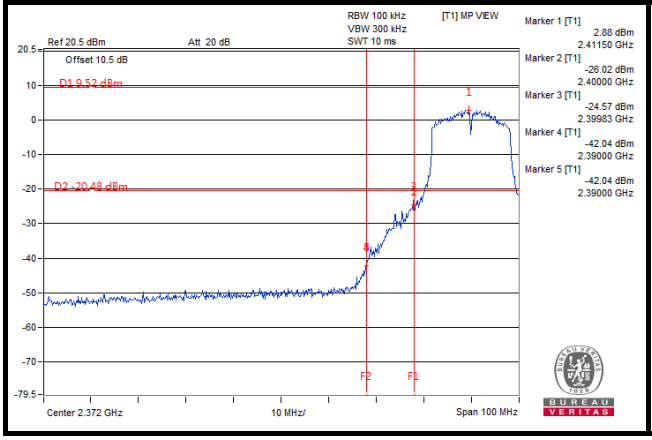
CH 6



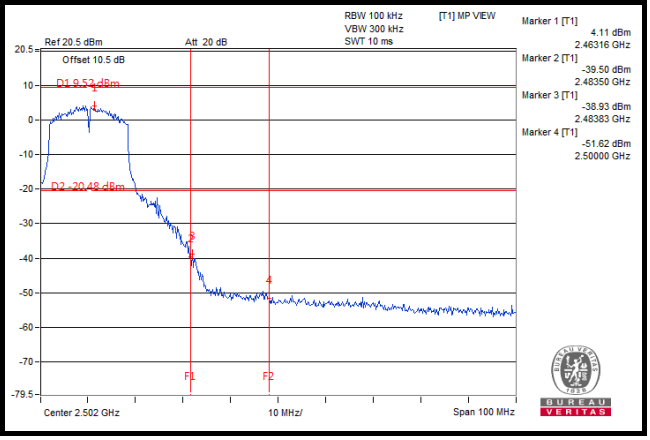
CH 11



CH 1 Band edge

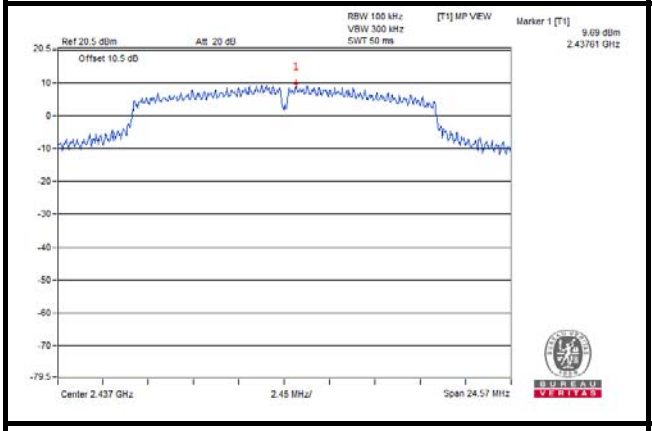


CH 11 Band edge

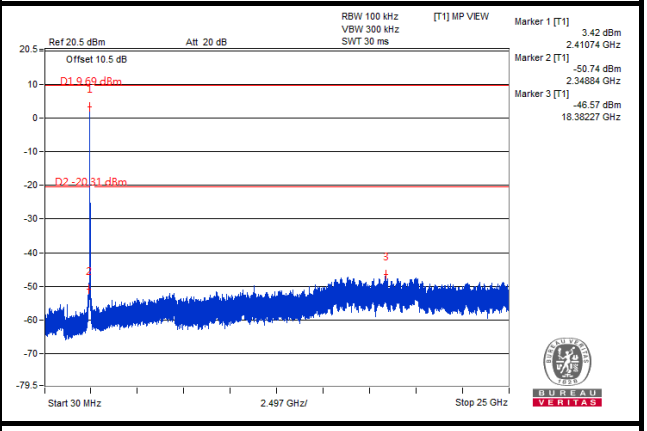


Chain 1

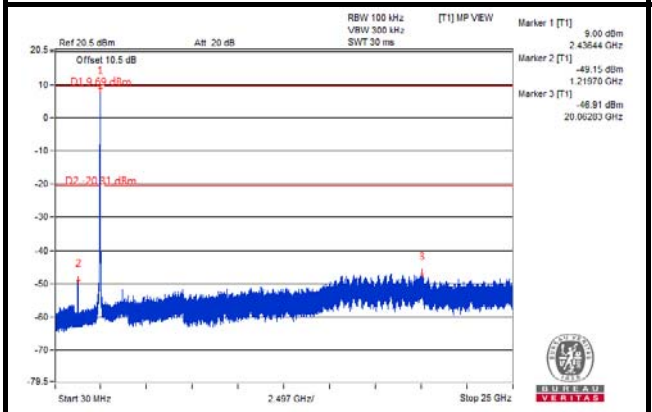
Reference Level



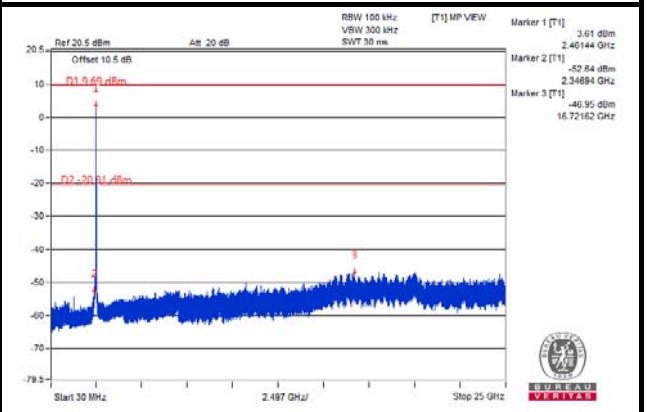
CH 1



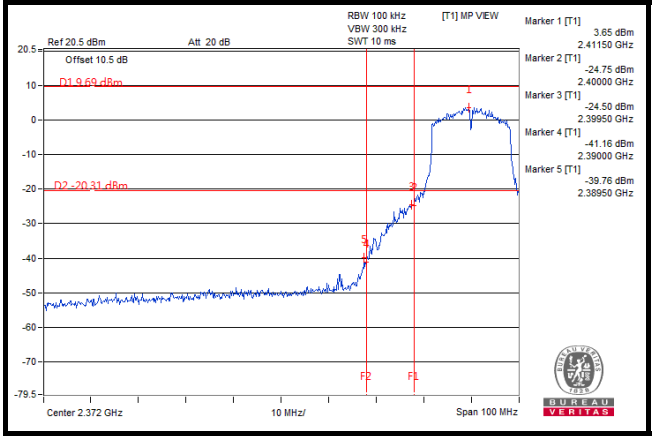
CH 6



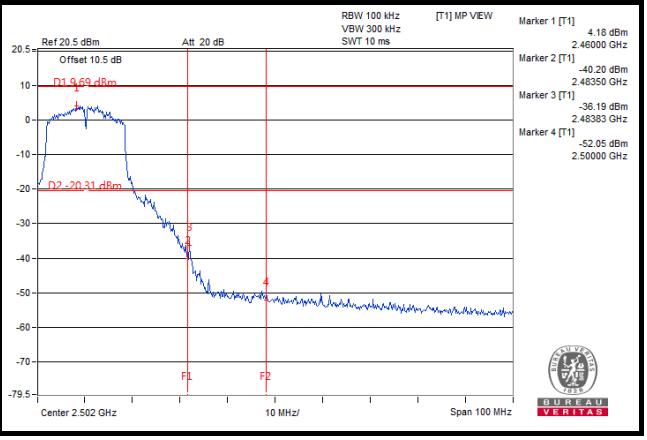
CH 11



CH 1 Band edge

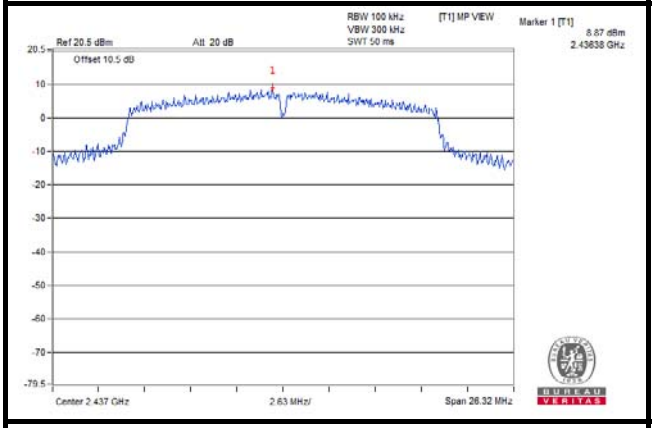


CH 11 Band edge

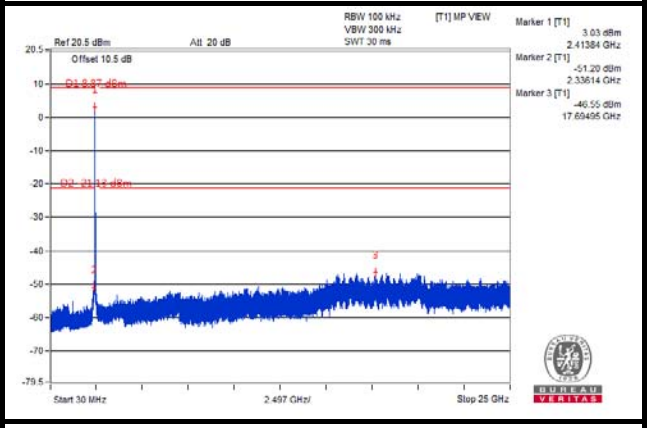


802.11n (20MHz): Chain 0

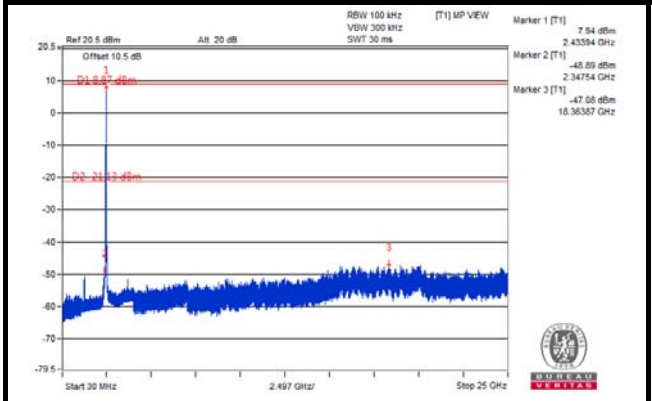
Reference Level



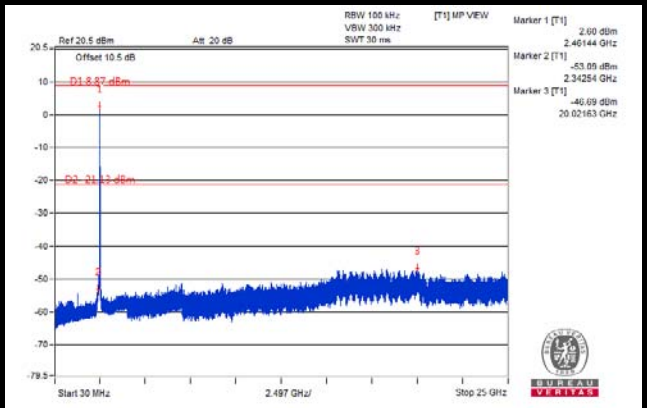
CH 1



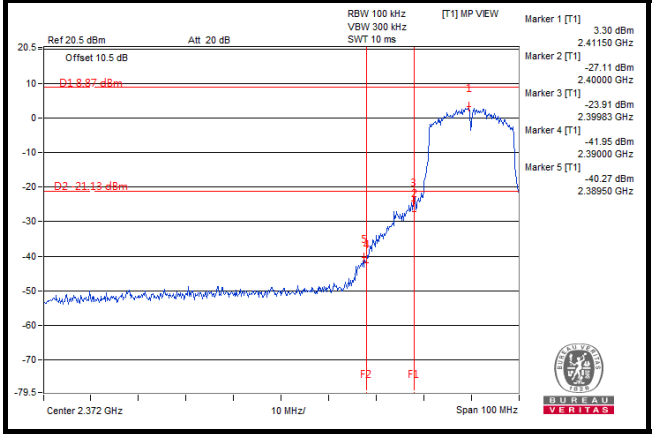
CH 6



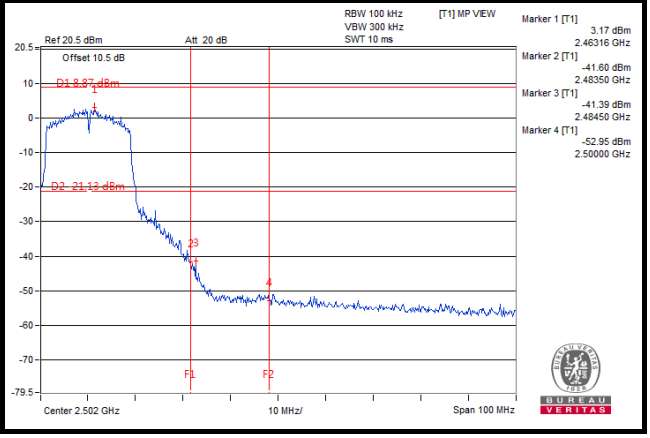
CH 11



CH 1 Band edge

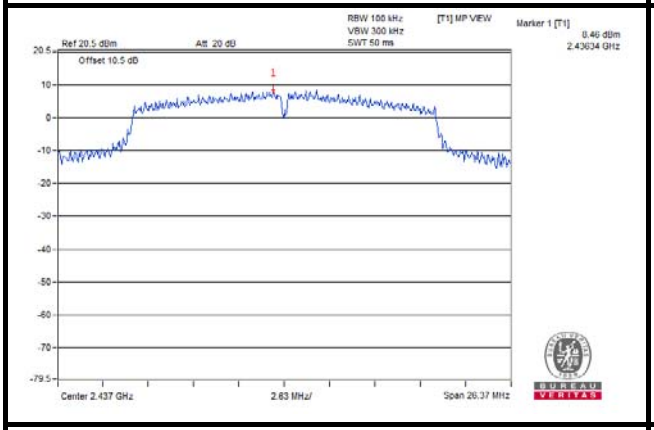


CH 11 Band edge

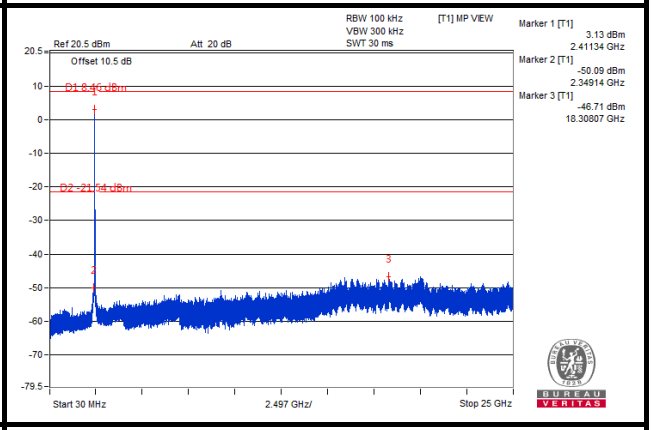


Chain 1

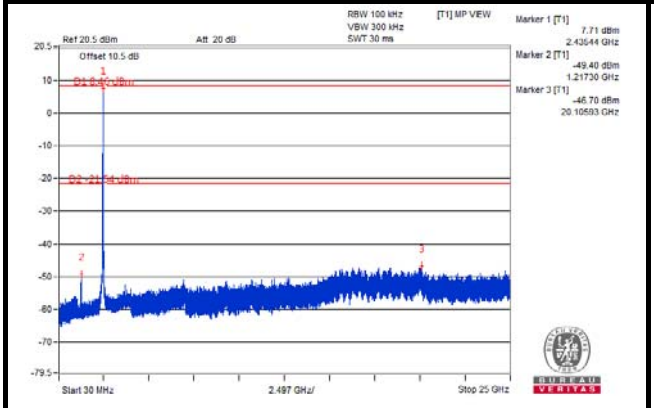
Reference Level



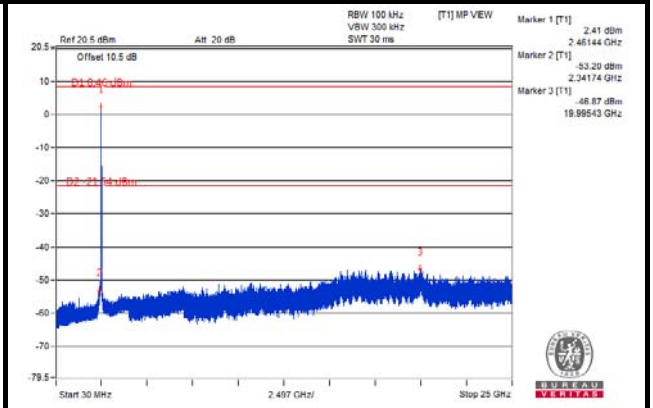
CH 1



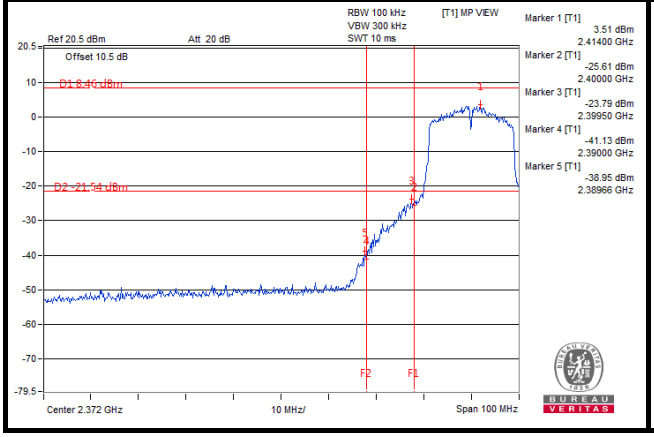
CH 6



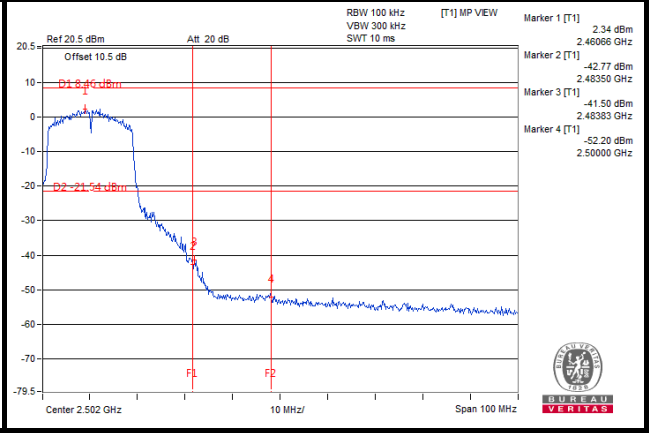
CH 11



CH 1 Band edge

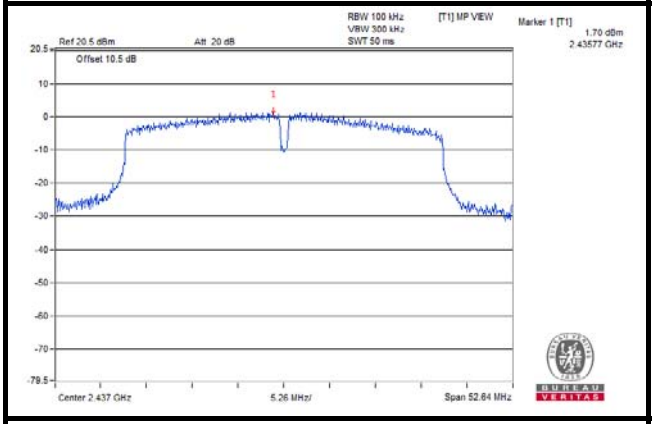


CH 11 Band edge

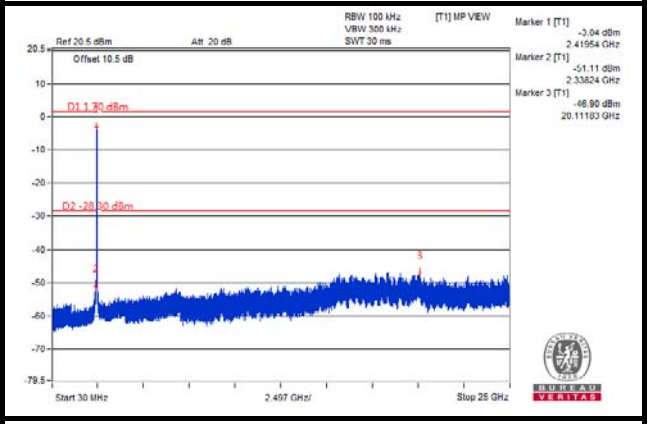


802.11n (40MHz): Chain 0

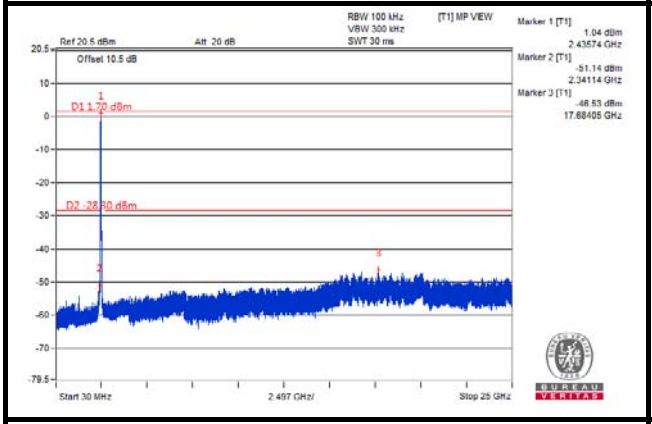
Reference Level



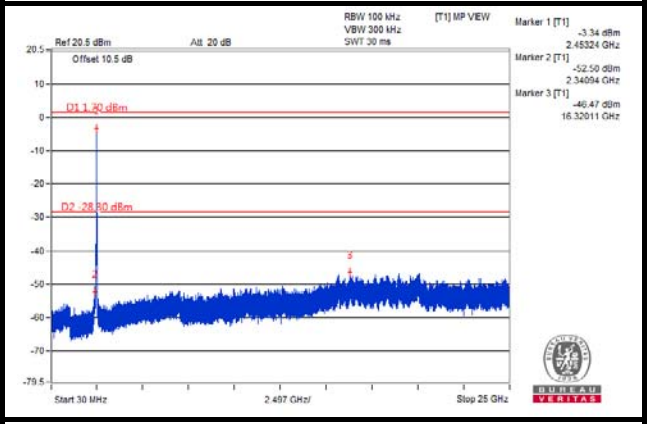
CH 3



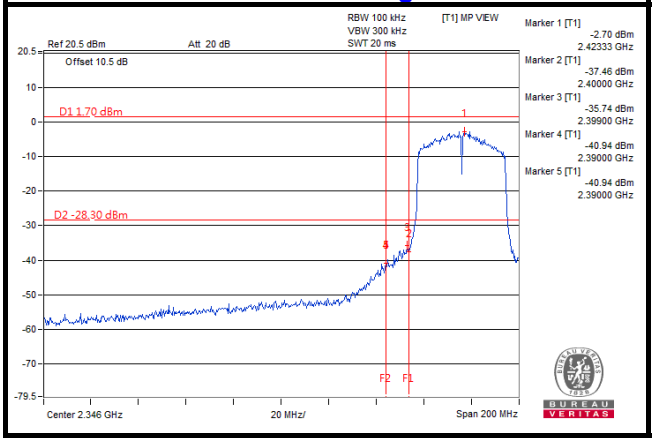
CH 6



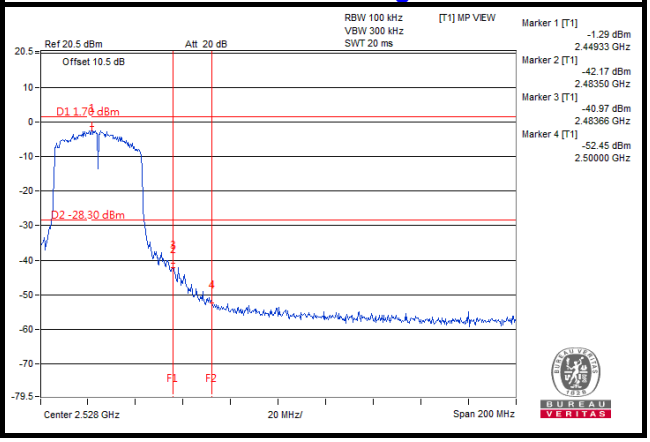
CH 9



CH 3 Band edge

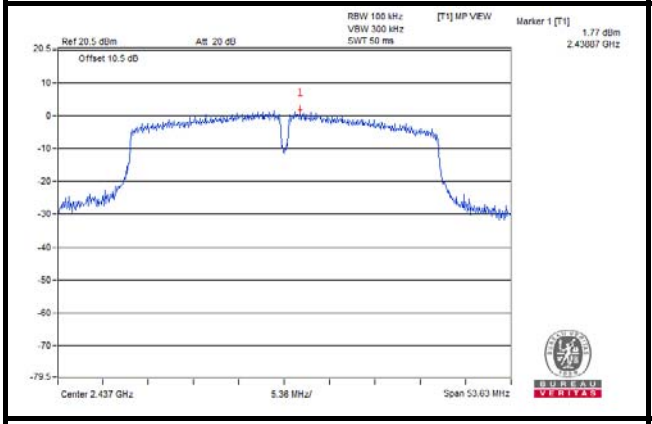


CH 9 Band edge

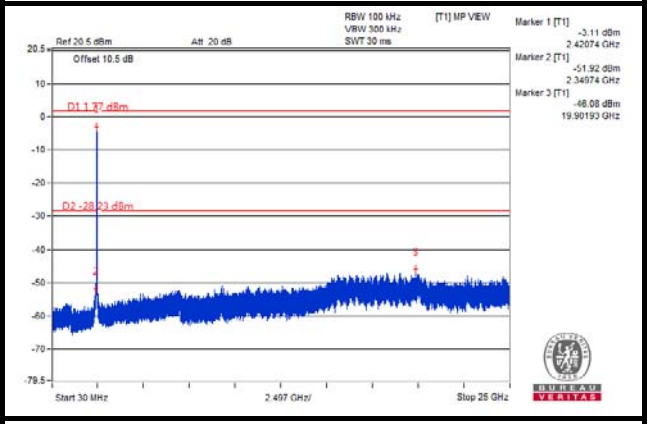


Chain 1

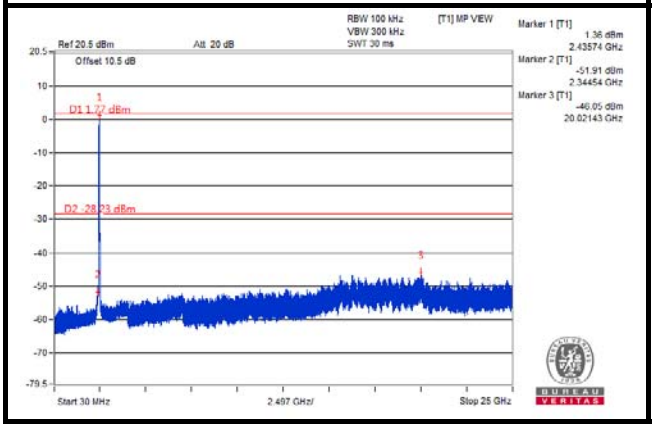
Reference Level



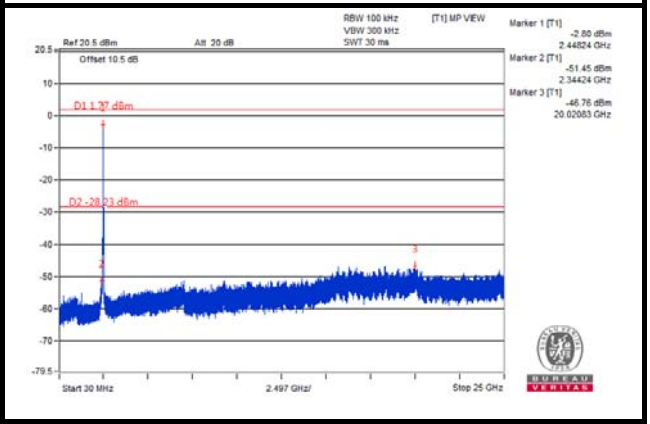
CH 3



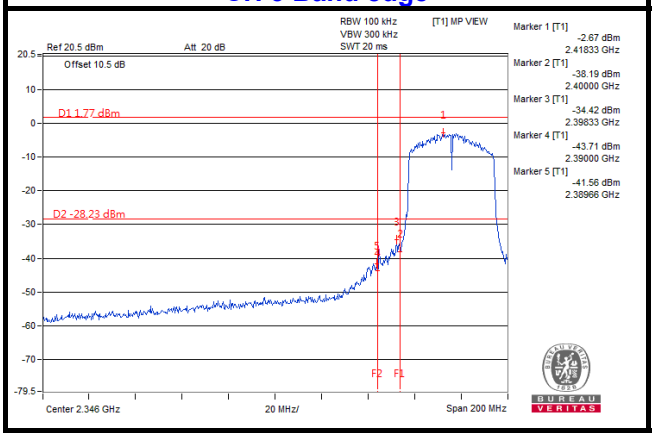
CH 6



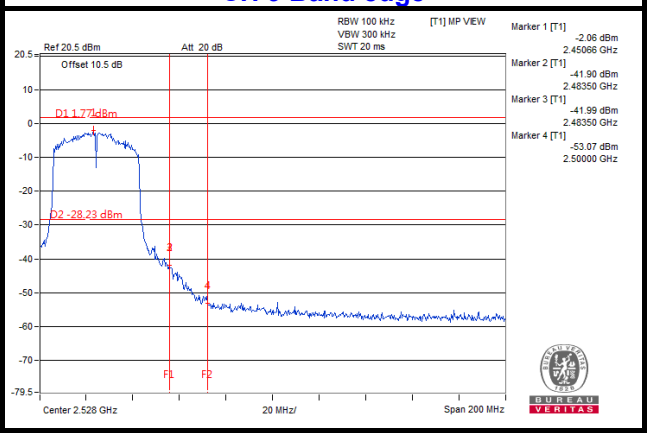
CH 9



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:

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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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