FCC Test Report

Report No.:	RF180111E04
FCC ID:	I88WAP6906
Test Model:	WAP6906
Received Date:	Jan. 11, 2018
Test Date:	Jan. 23 to 31, 2018
Issued Date:	Feb. 23, 2018
Applicant:	Zyxel Communications Corporation
Address:	No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan
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:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RF180111E04	Original release.	Feb. 23, 2018

1 Certificate of Conformity

Product:	AC3800 Tri-Band WiFi Repeater
Brand:	ZYXEL
Test Model:	WAP6906
Sample Status:	ENGINEERING SAMPLE
Applicant:	Zyxel Communications Corporation
Test Date:	Jan. 23 to 31, 2018
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 : Phoenix Huang , **Date:** Feb. 23, 2018

Phoenix Huang / Specialist

Approved by : , **Date:** Feb. 23, 2018

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 -12.56dB at 0.29844MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390MHz.
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(MHF) not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.53 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.08 dB
	6GHz ~ 18GHz	4.98 dB
	18GHz ~ 40GHz	5.19 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC3800 Tri-Band WiFi Repeater
Brand	ZYXEL
Test Model	WAP6906
RF CPU Model No.	QT3840(Quantenna) + QT3860(Quantenna)
RF Chip Model No.	**2.4GHz:** RTL8192(Realtek) **5GHz**: QT2518(Quantenna)
Version of Firmware	1.00(ABKO.1)b1
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 only
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.412 ~ 2.462GHz:** 489.577mW **5.18 ~ 5.24GHz (Client):** 193.209mW **5.18 ~ 5.24GHz (Master):** 801.982mW **5.745 ~ 5.825GHz:** 661.083mW
Antenna Type	PCB
Antenna Connector	i-pex(MHF)
Accessory Device	Adapter x1
Data Cable Supplied	Ethernet cable × 1 (Unshielded, 1.5m)

Note:

1. This device can support different category application which switched to master mode or client mode by software.
2. The EUT has three radios as following table:

Radio 1	Radio 2	Radio 3
WLAN 2.4GHz	WLAN 5G (U-NII-1)	WLAN 5G (U-NII-3)

3. Simultaneously transmission condition.

Condition	Technology		
1	WLAN 2.4GHz	WLAN 5G (U-NII-1)	WLAN 5G (U-NII-3)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.			

4. The EUT must be supplied from power adapter as following table:

Brand	Model No.	Spec.
UMEC	UP0301A-12PA	Input: 100-240Vac, 0.8A, 50/60Hz Output: 12Vdc, 2.5A DC output cable: Unshielded 1.5m

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

Frequency Range (GHz)	Directional Antenna Gain (dBi)
2.4~2.4835	4.79
5.15~5.25	6.42
5.25~5.35	6.15
5.47~5.725	7.2
5.725~5.85	7.3

6. The power setting are list as below:

Modulation Mode	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting
802.11b	2412	42/41	2437	40/39	2462	41/41
802.11g	2412	43/41	2437	55/53	2462	44/42
802.11n (HT20)	2412	40/39	2437	55/53	2462	44/42
802.11n (HT40)	2422	40/39	2437	46/45	2452	44/43

7. The EUT incorporates a MIMO function.

2.4GHz Band					
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**		**NON-TXBF Mode**	**TXBF Mode**
802.11b	1 ~ 11Mbps	2TX	2RX	√	-
802.11g	6 ~ 54Mbps	2TX	2RX	√	-
802.11n (HT20)	MCS 0~7	2TX	2RX	√	-
	MCS 8~15	2TX	2RX	√	-
802.11n (HT40)	MCS 0~7	2TX	2RX	√	-
	MCS 8~15	2TX	2RX	√	-
5GHz Band					
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**		**NON-TXBF Mode**	**TXBF Mode**
802.11a	6 ~ 54Mbps	4TX	4RX	√	-
802.11n (HT20)	MCS 0~7	4TX	4RX	-	√
	MCS 8~15	4TX	4RX	-	√
	MCS 16~23	4TX	4RX	-	√
	MCS 24~31	4TX	4RX	-	√
802.11n (HT40)	MCS 0~7	4TX	4RX	-	√
	MCS 8~15	4TX	4RX	-	√
	MCS 16~23	4TX	4RX	-	√
	MCS 24~31	4TX	4RX	-	√
802.11ac (VHT20)	MCS 0~8, Nss=1	4TX	4RX	-	√
	MCS 0~8, Nss=2	4TX	4RX	-	√
	MCS 0~9, Nss=3	4TX	4RX	-	√
	MCS 0~8, Nss=4	4TX	4RX	-	√
802.11ac (VHT40)	MCS 0~9, Nss=1	4TX	4RX	-	√
	MCS 0~9, Nss=2	4TX	4RX	-	√
	MCS 0~9, Nss=3	4TX	4RX	-	√
	MCS 0~9, Nss=4	4TX	4RX	-	√
802.11ac (VHT80)	MCS 0~9, Nss=1	4TX	4RX	-	√
	MCS 0~9, Nss=2	4TX	4RX	-	√
	MCS 0~9, Nss=3	4TX	4RX	-	√
	MCS 0~9, Nss=4	4TX	4RX	-	√

Note:
1. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
2. All of modulation mode support beamforming function except 2.4G and 802.11a modulation mode.

8. 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):

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

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

Radiated Emission Test (Above 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Power Line Conducted Emission Test:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Antenna Port Conducted Measurement:

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

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

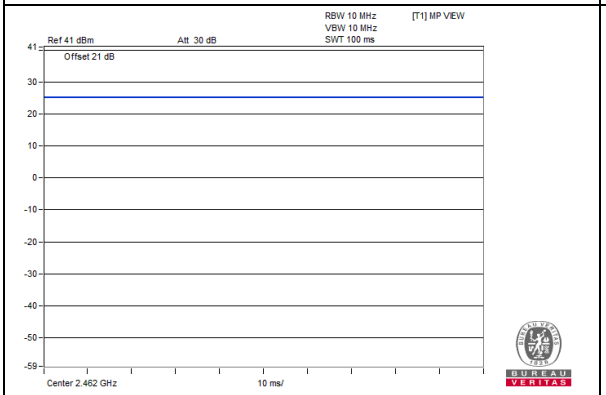
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 68%RH	120Vac, 60Hz	Eason Tseng
RE<1G	22deg. C, 64%RH	120Vac, 60Hz	Eason Tseng
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

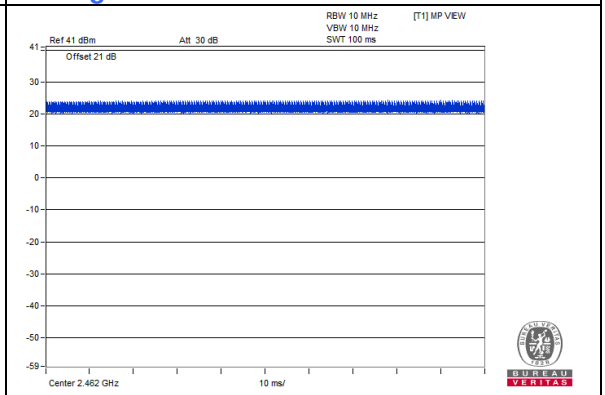
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is 100 %, duty factor is not required.

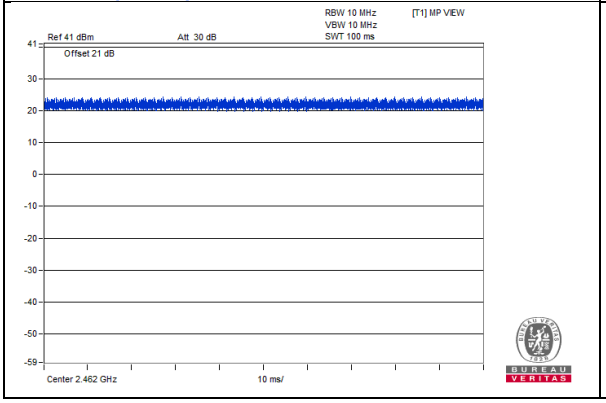
802.11b



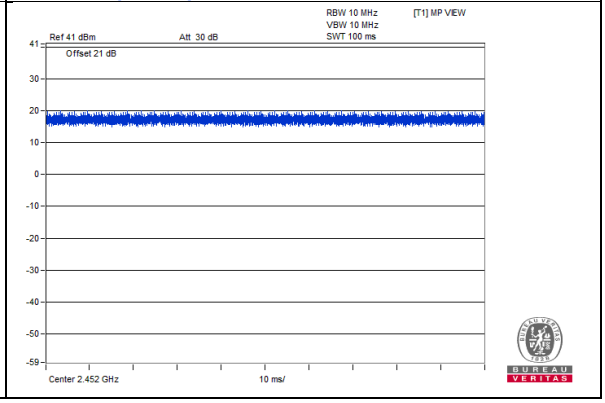
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

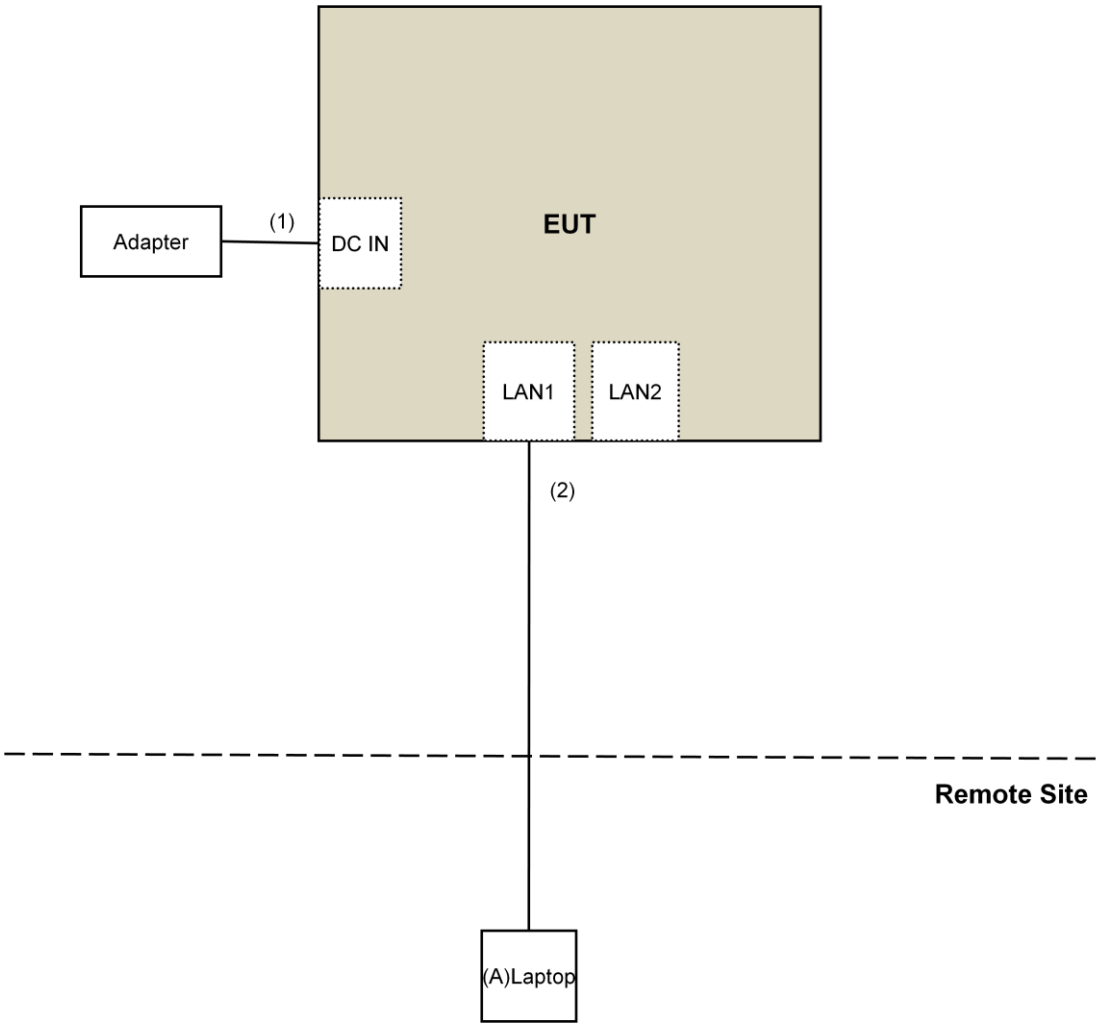
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

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	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	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 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.

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B. 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 Agilent	N9038A	MY50010156	July 12, 2017	July 11, 2018
Loop Antenna(*) TESEQ	HLA 6121	45745	May 19, 2017	May 18, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-05	May 06, 2017	May 05, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980384	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160922 150317 150322	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Spectrum Analyzer Keysight	N9030A	MY54490679	July 25, 2017	July 24, 2018
Pre-Amplifier EMCI	EMC184045SE	980386	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 11, 2018	Jan. 10, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer Agilent	E4446A	MY48250254	Nov. 21, 2017	Nov. 20, 2018
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018

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. 3.
4. The CANADA Site Registration No. is 20331-1
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Jan. 23 to 31, 2018

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 detects 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:

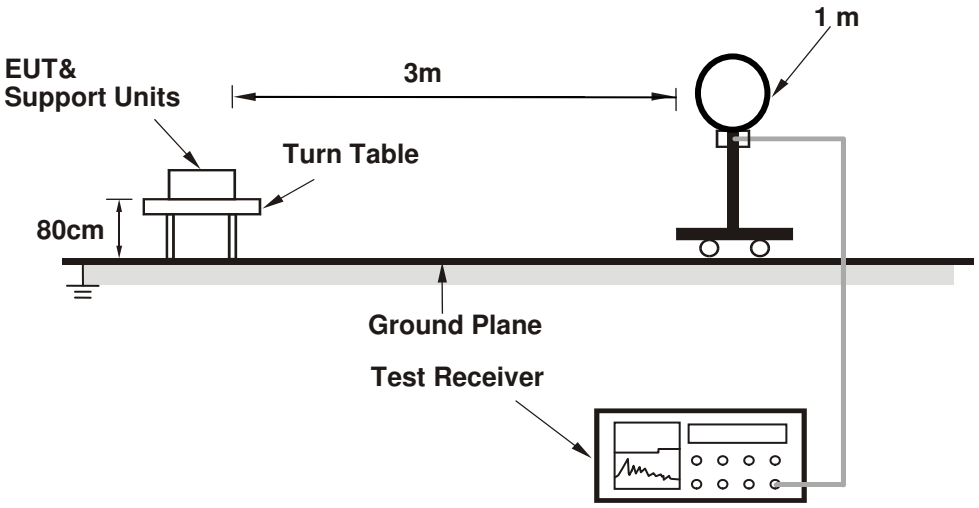
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

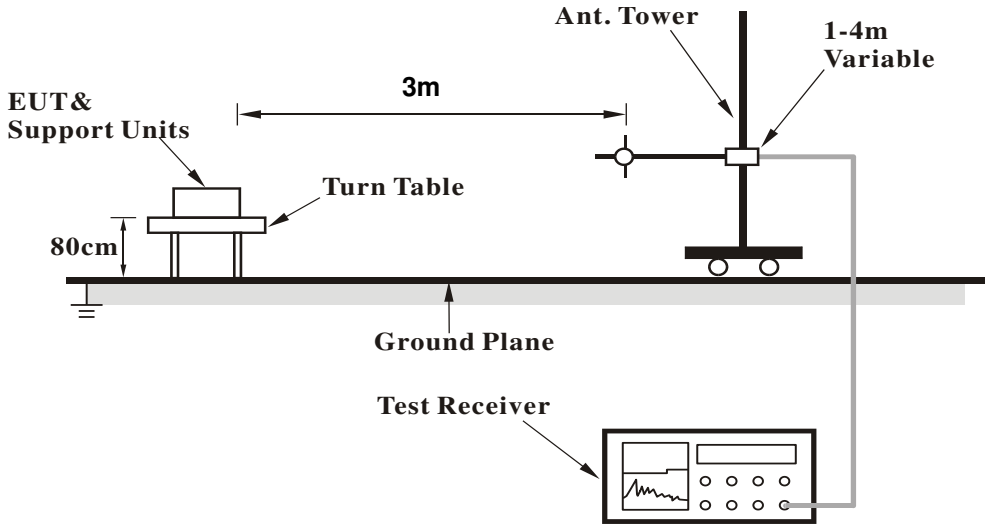
No deviation.

4.1.5 Test Setup

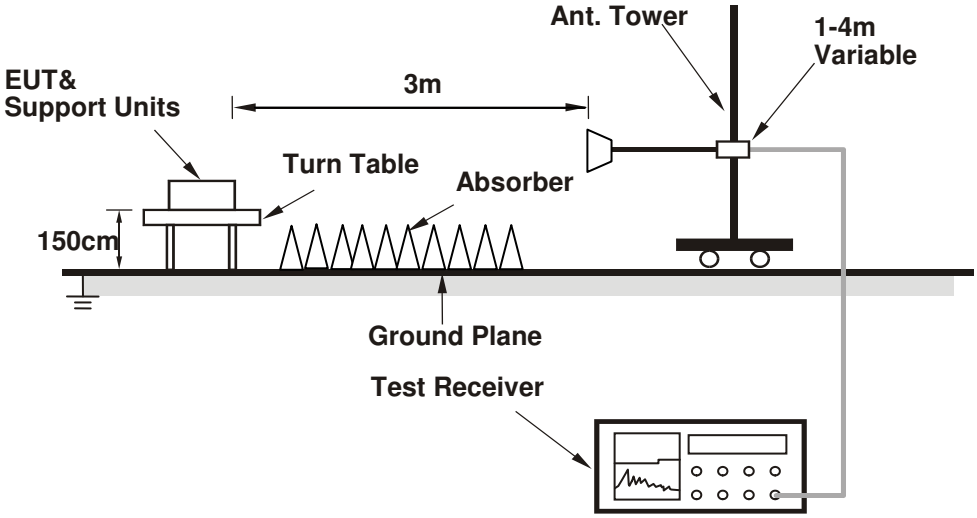
For Radiated emission below 30MHz



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. Controlling software (MPTEST 1.3.8.0) 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	56.2 PK	74.0	-17.8	2.10 H	199	57.4	-1.2
2	2390.00	45.1 AV	54.0	-8.9	2.10 H	199	46.3	-1.2
3	*2412.00	109.9 PK			2.10 H	199	111.2	-1.3
4	*2412.00	107.9 AV			2.10 H	199	109.2	-1.3
5	4824.00	48.7 PK	74.0	-25.3	3.79 H	239	45.6	3.1
6	4824.00	45.3 AV	54.0	-8.7	3.79 H	239	42.2	3.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	2.98 V	217	61.7	-1.2
2	2390.00	53.4 AV	54.0	-0.6	2.98 V	217	54.6	-1.2
3	*2412.00	115.5 PK			2.98 V	217	116.8	-1.3
4	*2412.00	113.4 AV			2.98 V	217	114.7	-1.3
5	4824.00	44.6 PK	74.0	-29.4	1.44 V	35	41.5	3.1
6	4824.00	41.5 AV	54.0	-12.5	1.44 V	35	38.4	3.1

REMARKS:

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

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	52.4 PK	74.0	-21.6	2.23 H	179	53.6	-1.2
2	2390.00	41.9 AV	54.0	-12.1	2.23 H	179	43.1	-1.2
3	*2437.00	109.4 PK			2.23 H	179	111.0	-1.6
4	*2437.00	107.2 AV			2.23 H	179	108.8	-1.6
5	2483.50	51.2 PK	74.0	-22.8	2.23 H	179	52.7	-1.5
6	2483.50	40.2 AV	54.0	-13.8	2.23 H	179	41.7	-1.5
7	4874.00	45.5 PK	74.0	-28.5	3.37 H	247	42.3	3.2
8	4874.00	41.7 AV	54.0	-12.3	3.37 H	247	38.5	3.2
9	7311.00	44.8 PK	74.0	-29.2	1.10 H	218	35.9	8.9
10	7311.00	40.2 AV	54.0	-13.8	1.10 H	218	31.3	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.5 PK	74.0	-19.5	3.36 V	225	55.7	-1.2
2	2390.00	44.2 AV	54.0	-9.8	3.36 V	225	45.4	-1.2
3	*2437.00	114.3 PK			3.36 V	225	115.9	-1.6
4	*2437.00	112.5 AV			3.36 V	225	114.1	-1.6
5	2483.50	52.3 PK	74.0	-21.7	3.36 V	225	53.8	-1.5
6	2483.50	40.2 AV	54.0	-13.8	3.36 V	225	41.7	-1.5
7	4874.00	42.2 PK	74.0	-31.8	1.39 V	30	39.0	3.2
8	4874.00	35.1 AV	54.0	-18.9	1.39 V	30	31.9	3.2
9	7311.00	40.2 PK	74.0	-33.8	2.01 V	223	31.3	8.9
10	7311.00	36.7 AV	54.0	-17.3	2.01 V	223	27.8	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.3 PK			2.22 H	183	110.9	-1.6
2	*2462.00	107.2 AV			2.22 H	183	108.8	-1.6
3	2483.50	54.8 PK	74.0	-19.2	1.32 H	360	56.3	-1.5
4	2483.50	43.2 AV	54.0	-10.8	1.32 H	360	44.7	-1.5
5	4924.00	39.6 PK	74.0	-34.4	1.19 H	105	36.3	3.3
6	4924.00	35.7 AV	54.0	-18.3	1.19 H	105	32.4	3.3
7	7386.00	47.8 PK	74.0	-26.2	1.51 H	219	38.6	9.2
8	7386.00	44.2 AV	54.0	-9.8	1.51 H	219	35.0	9.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.5 PK			3.34 V	249	116.1	-1.6
2	*2462.00	112.9 AV			3.34 V	249	114.5	-1.6
3	2483.50	59.8 PK	74.0	-14.2	3.34 V	249	61.3	-1.5
4	2483.50	52.9 AV	54.0	-1.1	3.34 V	249	54.4	-1.5
5	4924.00	38.7 PK	74.0	-35.3	1.43 V	23	35.4	3.3
6	4924.00	31.2 AV	54.0	-22.8	1.43 V	23	27.9	3.3
7	7386.00	45.4 PK	74.0	-28.6	1.99 V	212	36.2	9.2
8	7386.00	40.8 AV	54.0	-13.2	1.99 V	212	31.6	9.2

REMARKS:

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

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	63.8 PK	74.0	-10.2	2.32 H	170	65.0	-1.2
2	2390.00	46.5 AV	54.0	-7.5	2.32 H	170	47.7	-1.2
3	*2412.00	107.6 PK			2.32 H	170	108.9	-1.3
4	*2412.00	98.4 AV			2.32 H	170	99.7	-1.3
5	4824.00	37.2 PK	74.0	-36.8	3.35 H	251	34.1	3.1
6	4824.00	34.9 AV	54.0	-19.1	3.35 H	251	31.8	3.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.2 PK	74.0	-2.8	3.18 V	245	72.4	-1.2
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**3.18 V**	**245**	**54.7**	**-1.2**
3	*2412.00	112.6 PK			3.18 V	245	113.9	-1.3
4	*2412.00	103.6 AV			3.18 V	245	104.9	-1.3
5	4824.00	44.6 PK	74.0	-29.4	1.41 V	25	41.5	3.1
6	4824.00	41.5 AV	54.0	-12.5	1.41 V	25	38.4	3.1

REMARKS:

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

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	65.9 PK	74.0	-8.1	2.28 H	168	67.1	-1.2
2	2390.00	49.2 AV	54.0	-4.8	2.28 H	168	50.4	-1.2
3	*2437.00	113.5 PK			2.28 H	168	115.1	-1.6
4	*2437.00	104.3 AV			2.28 H	168	105.9	-1.6
5	2483.50	63.2 PK	74.0	-10.8	2.28 H	168	64.7	-1.5
6	2483.50	44.3 AV	54.0	-9.7	2.28 H	168	45.8	-1.5
7	4874.00	41.6 PK	74.0	-32.4	3.35 H	255	38.4	3.2
8	4874.00	38.5 AV	54.0	-15.5	3.35 H	255	35.3	3.2
9	7311.00	48.3 PK	74.0	-25.7	1.04 H	218	39.4	8.9
10	7311.00	40.9 AV	54.0	-13.1	1.04 H	218	32.0	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.0 PK	74.0	-4.0	1.74 V	212	71.2	-1.2
2	2390.00	52.5 AV	54.0	-1.5	1.74 V	212	53.7	-1.2
3	*2437.00	118.9 PK			1.74 V	212	120.5	-1.6
4	*2437.00	109.6 AV			1.74 V	212	111.2	-1.6
5	2483.50	68.9 PK	74.0	-5.1	1.74 V	212	70.4	-1.5
6	2483.50	48.5 AV	54.0	-5.5	1.74 V	212	50.0	-1.5
7	4874.00	47.9 PK	74.0	-26.1	1.36 V	44	44.7	3.2
8	4874.00	44.7 AV	54.0	-9.3	1.36 V	44	41.5	3.2
9	7311.00	54.3 PK	74.0	-19.7	1.99 V	224	45.4	8.9
10	7311.00	46.2 AV	54.0	-7.8	1.99 V	224	37.3	8.9

REMARKS:

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

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	108.1 PK			2.32 H	162	109.7	-1.6
2	*2462.00	99.2 AV			2.32 H	162	100.8	-1.6
3	2483.50	64.2 PK	74.0	-9.8	2.32 H	162	65.7	-1.5
4	2483.50	47.6 AV	54.0	-6.4	2.32 H	162	49.1	-1.5
5	4924.00	38.2 PK	74.0	-35.8	3.31 H	259	34.9	3.3
6	4924.00	35.2 AV	54.0	-18.8	3.31 H	259	31.9	3.3
7	7386.00	55.9 PK	74.0	-18.1	1.02 H	234	46.7	9.2
8	7386.00	47.3 AV	54.0	-6.7	1.02 H	234	38.1	9.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.3 PK			3.41 V	246	113.9	-1.6
2	*2462.00	104.9 AV			3.41 V	246	106.5	-1.6
3	2483.50	70.9 PK	74.0	-3.1	3.41 V	246	72.4	-1.5
4	2483.50	53.4 AV	54.0	-0.6	3.41 V	246	54.9	-1.5
5	4924.00	48.4 PK	74.0	-25.6	1.37 V	35	45.1	3.3
6	4924.00	44.9 AV	54.0	-9.1	1.37 V	35	41.6	3.3
7	7386.00	54.8 PK	74.0	-19.2	2.02 V	239	45.6	9.2
8	7386.00	46.6 AV	54.0	-7.4	2.02 V	239	37.4	9.2

REMARKS:

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

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	64.2 PK	74.0	-9.8	2.33 H	190	65.4	-1.2
2	2390.00	45.1 AV	54.0	-8.9	2.33 H	190	46.3	-1.2
3	*2412.00	104.8 PK			2.33 H	190	106.1	-1.3
4	*2412.00	94.3 AV			2.33 H	190	95.6	-1.3
5	4824.00	37.2 PK	74.0	-36.8	3.34 H	237	34.1	3.1
6	4824.00	34.9 AV	54.0	-19.1	3.34 H	237	31.8	3.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.9 PK	74.0	-4.1	2.88 V	211	71.1	-1.2
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**2.88 V**	**211**	**54.7**	**-1.2**
3	*2412.00	109.9 PK			2.88 V	211	111.2	-1.3
4	*2412.00	100.7 AV			2.88 V	211	102.0	-1.3
5	4824.00	41.1 PK	74.0	-32.9	1.37 V	73	38.0	3.1
6	4824.00	38.1 AV	54.0	-15.9	1.37 V	73	35.0	3.1

REMARKS:

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

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	64.3 PK	74.0	-9.7	2.34 H	181	65.5	-1.2
2	2390.00	47.2 AV	54.0	-6.8	2.34 H	181	48.4	-1.2
3	*2437.00	106.8 PK			2.34 H	181	108.4	-1.6
4	*2437.00	96.2 AV			2.34 H	181	97.8	-1.6
5	2483.50	61.2 PK	74.0	-12.8	2.34 H	181	62.7	-1.5
6	2483.50	42.1 AV	54.0	-11.9	2.34 H	181	43.6	-1.5
7	4874.00	39.2 PK	74.0	-34.8	3.39 H	246	36.0	3.2
8	4874.00	36.4 AV	54.0	-17.6	3.39 H	246	33.2	3.2
9	7311.00	46.8 PK	74.0	-27.2	1.08 H	231	37.9	8.9
10	7311.00	38.7 AV	54.0	-15.3	1.08 H	231	29.8	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.3 PK	74.0	-3.7	1.49 V	119	71.5	-1.2
2	2390.00	51.6 AV	54.0	-2.4	1.49 V	119	52.8	-1.2
3	*2437.00	111.5 PK			1.49 V	119	113.1	-1.6
4	*2437.00	101.9 AV			1.49 V	119	103.5	-1.6
5	2483.50	67.7 PK	74.0	-6.3	1.49 V	119	69.2	-1.5
6	2483.50	49.8 AV	54.0	-4.2	1.49 V	119	51.3	-1.5
7	4874.00	45.8 PK	74.0	-28.2	1.37 V	49	42.6	3.2
8	4874.00	42.9 AV	54.0	-11.1	1.37 V	49	39.7	3.2
9	7311.00	52.7 PK	74.0	-21.3	2.05 V	228	43.8	8.9
10	7311.00	44.7 AV	54.0	-9.3	2.05 V	228	35.8	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.7 PK			2.28 H	188	107.3	-1.6
2	*2462.00	95.4 AV			2.28 H	188	97.0	-1.6
3	2483.50	65.8 PK	74.0	-8.2	2.28 H	188	67.3	-1.5
4	2483.50	46.2 AV	54.0	-7.8	2.28 H	188	47.7	-1.5
5	4924.00	38.9 PK	74.0	-35.1	3.40 H	250	35.6	3.3
6	4924.00	35.2 AV	54.0	-18.8	3.40 H	250	31.9	3.3
7	7386.00	45.2 PK	74.0	-28.8	1.05 H	234	36.0	9.2
8	7386.00	37.8 AV	54.0	-16.2	1.05 H	234	28.6	9.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.1 PK			3.43 V	197	112.7	-1.6
2	*2462.00	101.1 AV			3.43 V	197	102.7	-1.6
3	2483.50	71.7 PK	74.0	-2.3	3.43 V	197	73.2	-1.5
4	2483.50	53.4 AV	54.0	-0.6	3.43 V	197	54.9	-1.5
5	4924.00	42.2 PK	74.0	-31.8	1.37 V	59	38.9	3.3
6	4924.00	39.4 AV	54.0	-14.6	1.37 V	59	36.1	3.3
7	7386.00	49.6 PK	74.0	-24.4	1.97 V	237	40.4	9.2
8	7386.00	41.8 AV	54.0	-12.2	1.97 V	237	32.6	9.2

REMARKS:

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

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	49.6 PK	74.0	-24.4	2.32 H	179	50.8	-1.2
2	2390.00	47.5 AV	54.0	-6.5	2.32 H	179	48.7	-1.2
3	*2422.00	100.2 PK			2.32 H	179	101.7	-1.5
4	*2422.00	90.4 AV			2.32 H	179	91.9	-1.5
5	4844.00	35.8 PK	74.0	-38.2	3.44 H	261	32.7	3.1
6	4844.00	32.5 AV	54.0	-21.5	3.44 H	261	29.4	3.1
7	7266.00	43.2 PK	74.0	-30.8	1.10 H	235	34.3	8.9
8	7266.00	33.4 AV	54.0	-20.6	1.10 H	235	24.5	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.4 PK	74.0	-8.6	1.71 V	216	66.6	-1.2
2	2390.00	53.4 AV	54.0	-0.6	1.71 V	216	54.6	-1.2
3	*2422.00	107.1 PK			1.71 V	216	108.6	-1.5
4	*2422.00	97.1 AV			1.71 V	216	98.6	-1.5
5	4844.00	40.1 PK	74.0	-33.9	1.37 V	50	37.0	3.1
6	4844.00	37.1 AV	54.0	-16.9	1.37 V	50	34.0	3.1
7	7266.00	47.5 PK	74.0	-26.5	2.08 V	243	38.6	8.9
8	7266.00	37.7 AV	54.0	-16.3	2.08 V	243	28.8	8.9

REMARKS:

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

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	48.1 PK	74.0	-25.9	2.33 H	168	49.3	-1.2
2	2390.00	46.5 AV	54.0	-7.5	2.33 H	168	47.7	-1.2
3	*2437.00	103.4 PK			2.33 H	168	105.0	-1.6
4	*2437.00	93.2 AV			2.33 H	168	94.8	-1.6
5	2483.50	60.5 PK	74.0	-13.5	2.33 H	168	62.0	-1.5
6	2483.50	41.1 AV	54.0	-12.9	2.33 H	168	42.6	-1.5
7	4874.00	37.9 PK	74.0	-36.1	3.45 H	258	34.7	3.2
8	4874.00	34.6 AV	54.0	-19.4	3.45 H	258	31.4	3.2
9	7311.00	46.2 PK	74.0	-27.8	1.08 H	221	37.3	8.9
10	7311.00	35.9 AV	54.0	-18.1	1.08 H	221	27.0	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	1.85 V	215	71.3	-1.2
2	2390.00	53.4 AV	54.0	-0.6	1.85 V	215	54.6	-1.2
3	*2437.00	110.4 PK			1.85 V	215	112.0	-1.6
4	*2437.00	100.3 AV			1.85 V	215	101.9	-1.6
5	2483.50	67.5 PK	74.0	-6.5	1.85 V	215	69.0	-1.5
6	2483.50	49.5 AV	54.0	-4.5	1.85 V	215	51.0	-1.5
7	4874.00	42.6 PK	74.0	-31.4	1.37 V	64	39.4	3.2
8	4874.00	39.8 AV	54.0	-14.2	1.37 V	64	36.6	3.2
9	7311.00	49.9 PK	74.0	-24.1	2.11 V	237	41.0	8.9
10	7311.00	40.7 AV	54.0	-13.3	2.11 V	237	31.8	8.9

REMARKS:

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

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	102.1 PK			2.34 H	175	103.7	-1.6
2	*2452.00	92.5 AV			2.34 H	175	94.1	-1.6
3	2483.50	50.1 PK	74.0	-23.9	2.32 H	179	51.6	-1.5
4	2483.50	48.3 AV	54.0	-5.7	2.32 H	179	49.8	-1.5
5	4904.00	38.5 PK	74.0	-35.5	3.45 H	271	35.2	3.3
6	4904.00	33.3 AV	54.0	-20.7	3.45 H	271	30.0	3.3
7	7356.00	44.8 PK	74.0	-29.2	1.05 H	213	35.7	9.1
8	7356.00	34.5 AV	54.0	-19.5	1.05 H	213	25.4	9.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.3 PK			1.47 V	303	109.9	-1.6
2	*2452.00	98.2 AV			1.47 V	303	99.8	-1.6
3	2483.50	72.7 PK	74.0	-1.3	1.47 V	303	74.2	-1.5
4	2483.50	53.3 AV	54.0	-0.7	1.47 V	303	54.8	-1.5
5	4904.00	41.5 PK	74.0	-32.5	1.39 V	74	38.2	3.3
6	4904.00	38.5 AV	54.0	-15.5	1.39 V	74	35.2	3.3
7	7356.00	48.5 PK	74.0	-25.5	2.12 V	240	39.4	9.1
8	7356.00	39.4 AV	54.0	-14.6	2.12 V	240	30.3	9.1

REMARKS:

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

Below 1GHz Data:

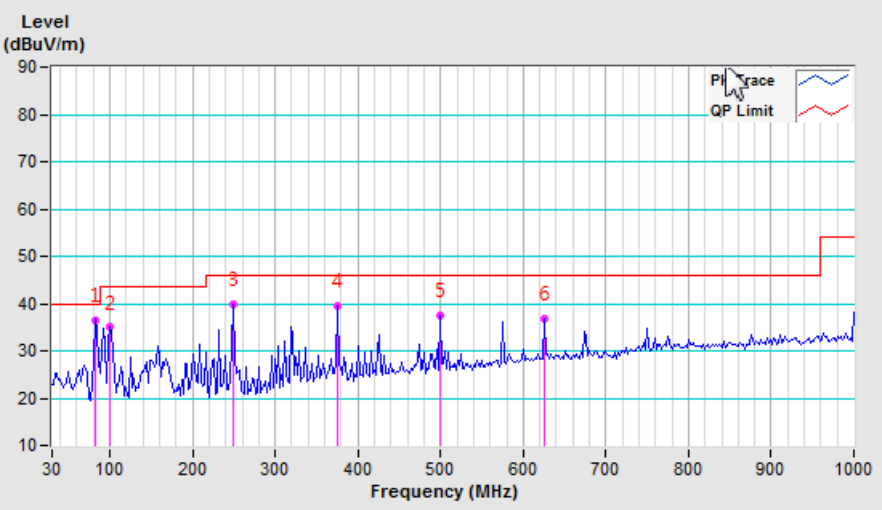
802.11b

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	82.38	36.6 QP	40.0	-3.4	1.00 H	221	49.8	-13.2
2	99.84	35.0 QP	43.5	-8.5	1.50 H	23	47.4	-12.4
3	249.22	39.9 QP	46.0	-6.1	1.50 H	174	49.3	-9.4
4	375.32	39.5 QP	46.0	-6.5	1.00 H	217	45.1	-5.6
5	499.48	37.6 QP	46.0	-8.4	2.00 H	301	40.3	-2.7
6	625.58	36.8 QP	46.0	-9.2	3.50 H	29	36.9	-0.1

REMARKS:

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

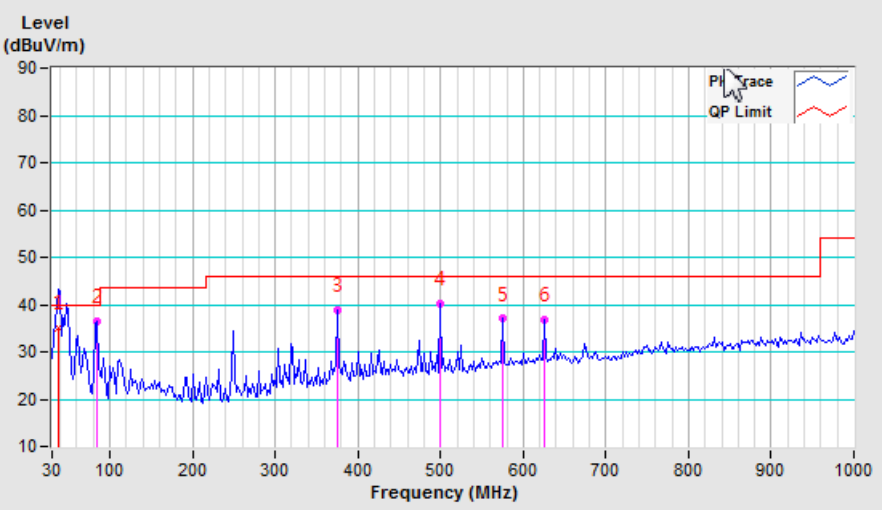


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	38.49	35.2 QP	40.0	-4.8	1.00 V	29	43.7	-8.5
2	84.32	36.4 QP	40.0	-3.6	1.50 V	334	50.0	-13.6
3	375.32	38.8 QP	46.0	-7.2	1.50 V	21	44.4	-5.6
4	499.48	40.2 QP	46.0	-5.8	1.00 V	221	42.9	-2.7
5	575.14	37.0 QP	46.0	-9.0	1.50 V	233	38.2	-1.2
6	625.58	36.9 QP	46.0	-9.1	1.00 V	97	37.0	-0.1

REMARKS:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
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 Conduction 1.
3 Tested Date: Jan. 24, 2018

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.

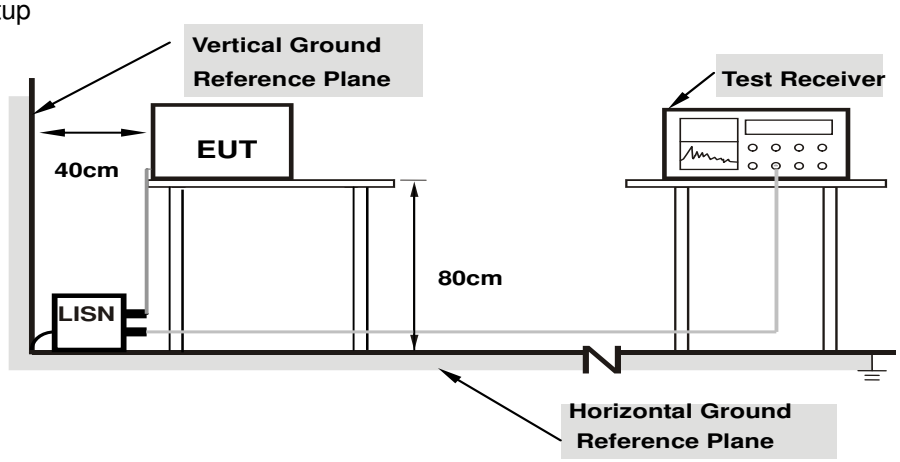
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

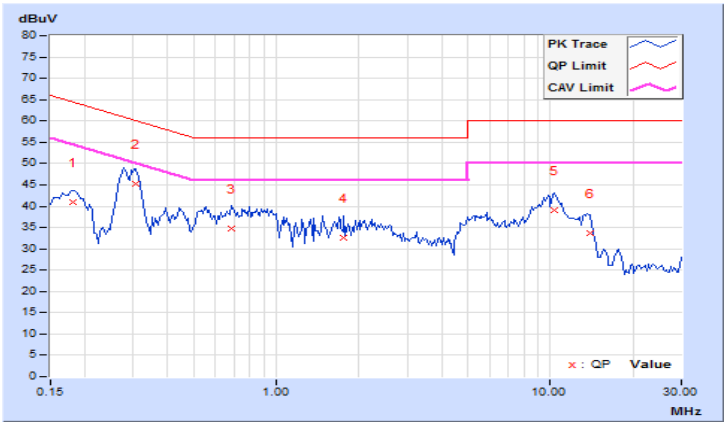
4.2.7 Test Results

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	0.18125	10.14	30.71	22.03	40.85	32.17	64.43	54.43	-23.58	-22.26
2	0.30625	10.18	34.96	25.40	45.14	35.58	60.07	50.07	-14.93	-14.49
3	0.68516	10.22	24.44	16.51	34.66	26.73	56.00	46.00	-21.34	-19.27
4	1.76563	10.29	22.27	15.21	32.56	25.50	56.00	46.00	-23.44	-20.50
5	10.27734	10.83	28.26	24.03	39.09	34.86	60.00	50.00	-20.91	-15.14
6	13.97266	11.10	22.55	18.77	33.65	29.87	60.00	50.00	-26.35	-20.13

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

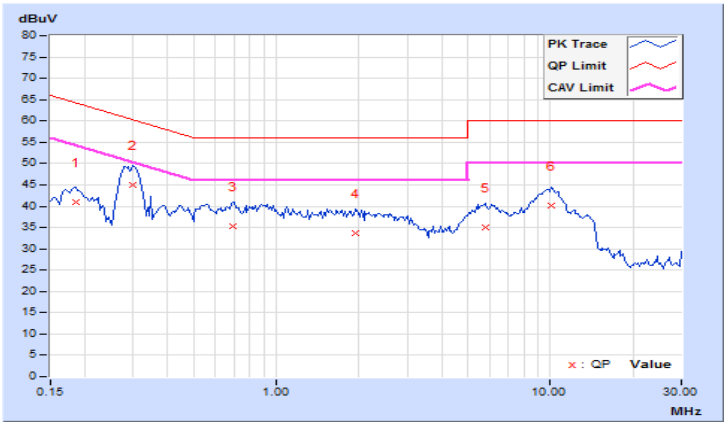


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.18516	10.05	30.96	22.22	41.01	32.27	64.25	54.25	-23.24	-21.98
2	**0.29844**	**10.07**	**34.88**	**27.66**	**44.95**	**37.73**	**60.29**	**50.29**	**-15.34**	**-12.56**
3	0.69688	10.11	25.14	18.64	35.25	28.75	56.00	46.00	-20.75	-17.25
4	1.94922	10.18	23.45	15.77	33.63	25.95	56.00	46.00	-22.37	-20.05
5	5.78125	10.39	24.51	19.68	34.90	30.07	60.00	50.00	-25.10	-19.93
6	10.00391	10.64	29.42	25.16	40.06	35.80	60.00	50.00	-19.94	-14.20

Remarks:

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

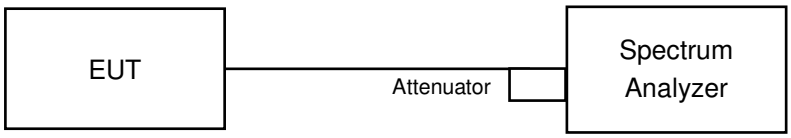


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.11	10.10	0.5	Pass
6	2437	10.09	10.11	0.5	Pass
11	2462	10.09	10.11	0.5	Pass

802.11g

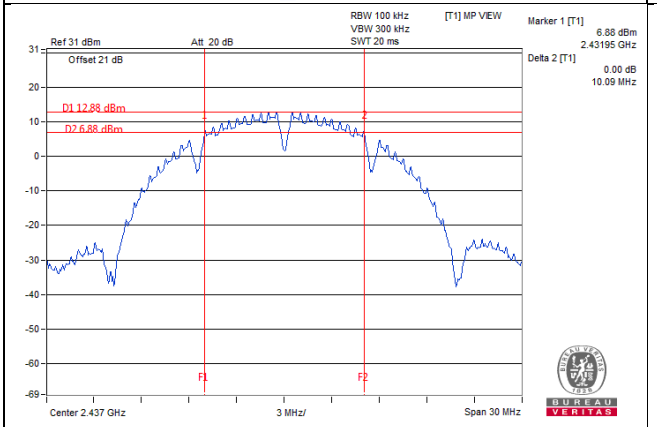
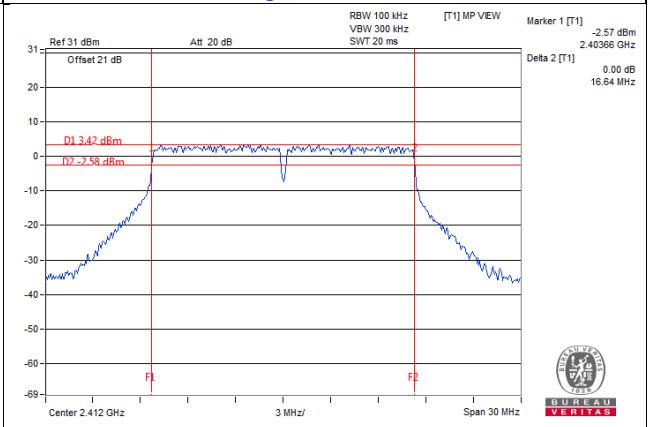
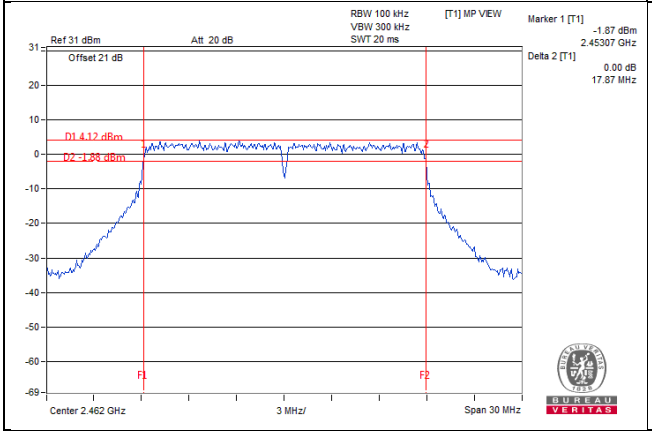
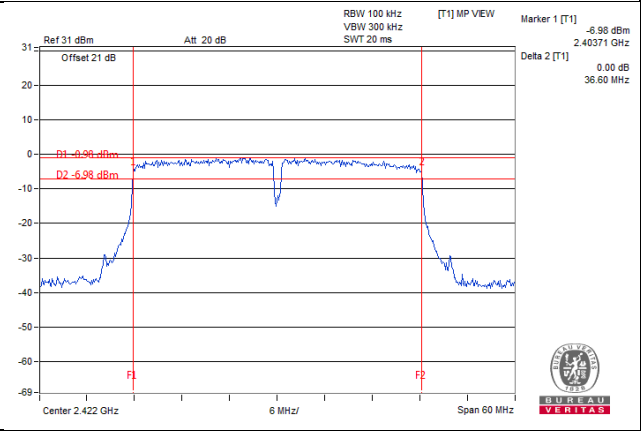
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.64	16.65	0.5	Pass
6	2437	16.65	16.65	0.5	Pass
11	2462	16.66	16.65	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.88	17.89	0.5	Pass
6	2437	17.89	17.89	0.5	Pass
11	2462	17.88	17.87	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.60	36.60	0.5	Pass
6	2437	36.61	36.61	0.5	Pass
9	2452	36.60	36.61	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH6	**802.11g_Chain 0 / CH1**
	
802.11n (HT20) _Chain 1 / CH11	**802.11n (HT40) _Chain 0 / CH3**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

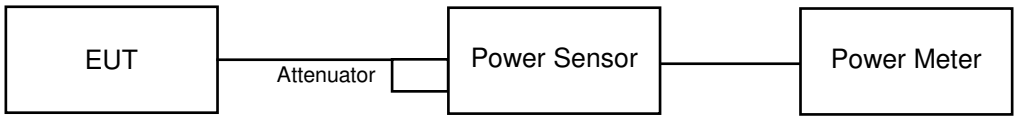
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.61	23.17	437.106	26.41	30	Pass
6	2437	23.54	24.21	489.577	26.90	30	Pass
11	2462	23.11	24.17	465.86	26.68	30	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power limit shall not be reduced.

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	17.41	18.29	122.534	20.88	30	Pass
6	2437	23.56	24.14	486.404	26.87	30	Pass
11	2462	18.32	19.13	149.766	21.75	30	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power limit shall not be reduced.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.56	18.23	123.543	20.92	30	Pass
6	2437	23.58	23.97	477.493	26.79	30	Pass
11	2462	18.36	19.01	148.165	21.71	30	Pass

Note: The directional gain is 4.79dBi < 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				
3	2422	16.26	16.79	90.02	19.54	30	Pass
6	2437	18.61	19.42	160.109	22.04	30	Pass
9	2452	17.36	18.08	118.719	20.75	30	Pass

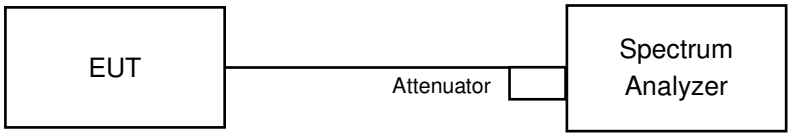
Note: The directional gain is 4.79dBi < 6dBi, so the power limit shall not be reduced.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.25	3.01	-5.24	8	Pass
	6	2437	-8.79	3.01	-5.78	8	Pass
	11	2462	-8.99	3.01	-5.98	8	Pass
1	1	2412	-8.53	3.01	-5.52	8	Pass
	6	2437	-7.79	3.01	-4.78	8	Pass
	11	2462	-7.44	3.01	-4.43	8	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power density limit shall not be reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.67	3.01	-10.66	8	Pass
	6	2437	-8.91	3.01	-5.90	8	Pass
	11	2462	-13.77	3.01	-10.76	8	Pass
1	1	2412	-13.92	3.01	-10.91	8	Pass
	6	2437	-8.67	3.01	-5.66	8	Pass
	11	2462	-13.38	3.01	-10.37	8	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power density limit shall not be reduced.

802.11n (HT20)

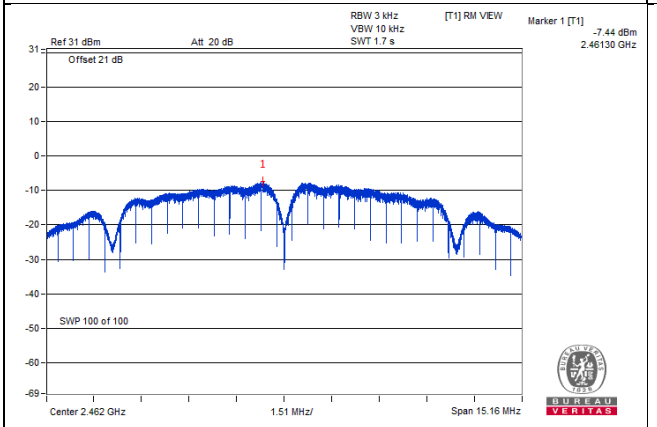
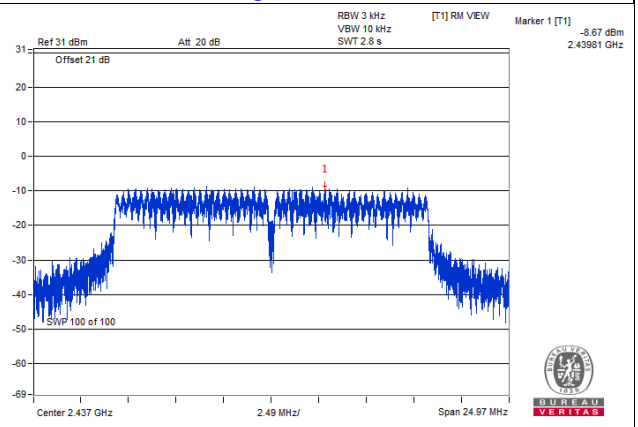
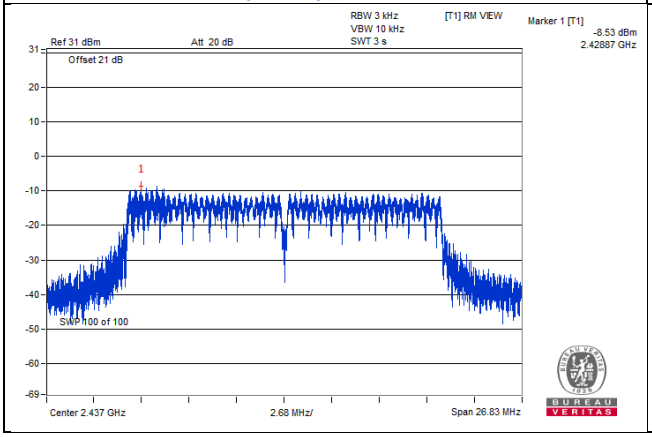
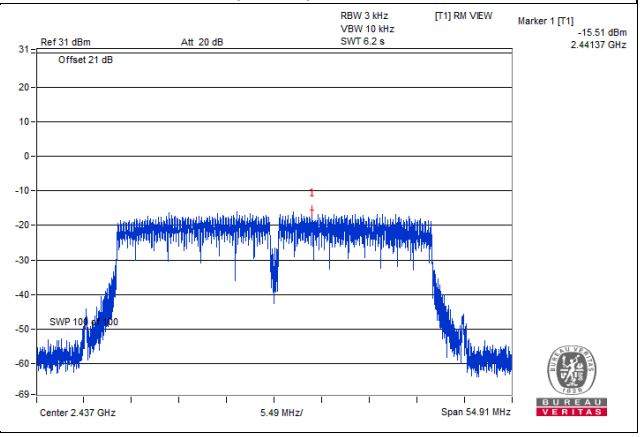
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-16.09	3.01	-13.08	8	Pass
	6	2437	-8.65	3.01	-5.64	8	Pass
	11	2462	-14.34	3.01	-11.33	8	Pass
1	1	2412	-14.36	3.01	-11.35	8	Pass
	6	2437	-8.53	3.01	-5.52	8	Pass
	11	2462	-15.03	3.01	-12.02	8	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-19.32	3.01	-16.31	8	Pass
	6	2437	-16.29	3.01	-13.28	8	Pass
	9	2452	-18.87	3.01	-15.86	8	Pass
1	3	2422	-19.72	3.01	-16.71	8	Pass
	6	2437	-15.51	3.01	-12.50	8	Pass
	9	2452	-17.44	3.01	-14.43	8	Pass

Note: The directional gain is 4.79dBi < 6dBi, so the power density limit shall not be reduced.

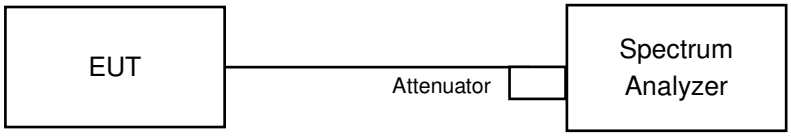
Spectrum Plot of Worst Value	
802.11b_Chain 1 / CH11	**802.11g_Chain 1 / CH6**
	
802.11n (HT20)_Chain 1 / CH6	**802.11n (HT40)_Chain 1 / CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

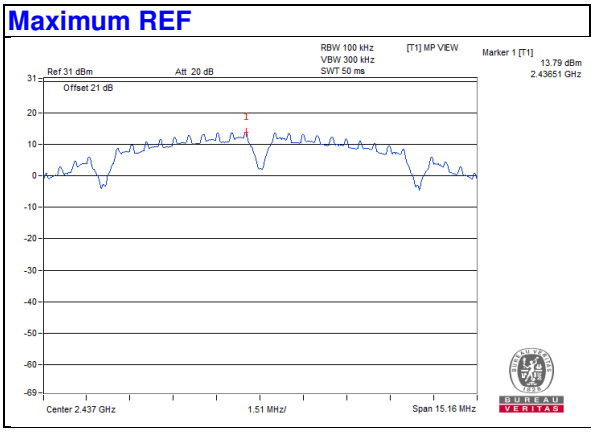
Same as Item 4.3.6

4.6.7 Test Results

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

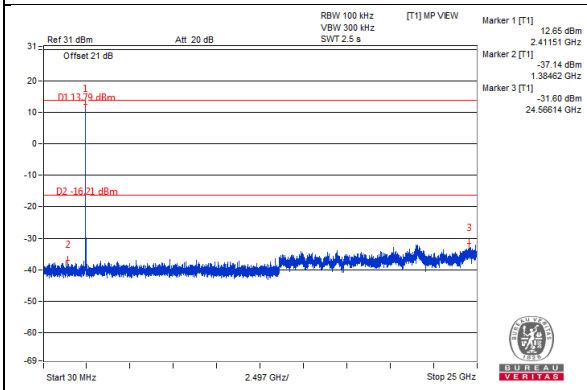
802.11b

Maximum REF

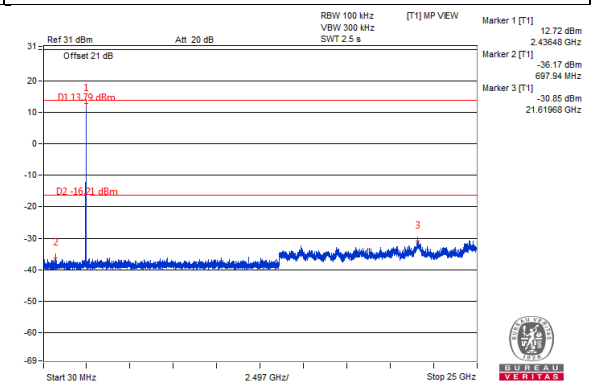


Chain 0

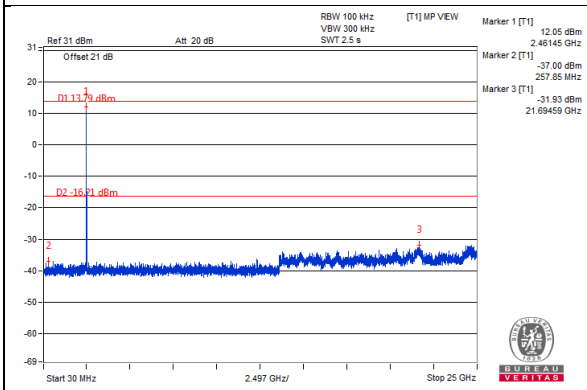
CH 1



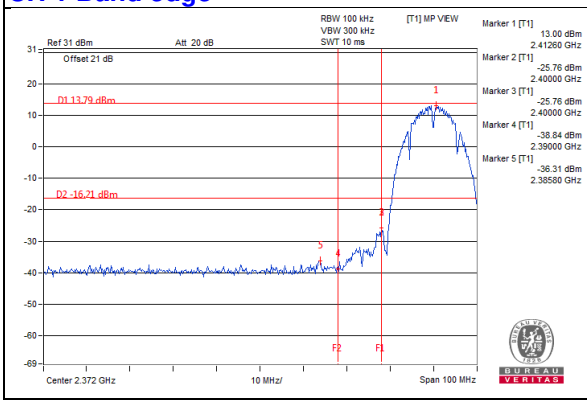
CH 6



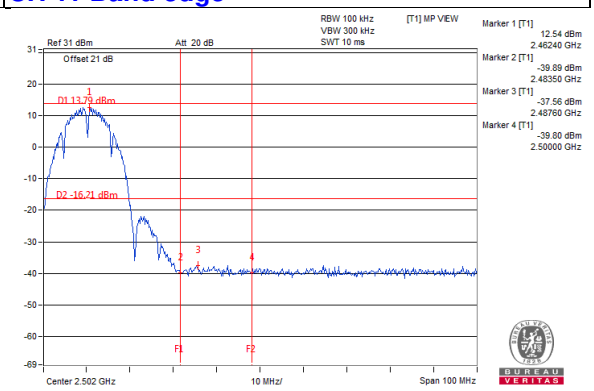
CH 11



CH 1 Band edge

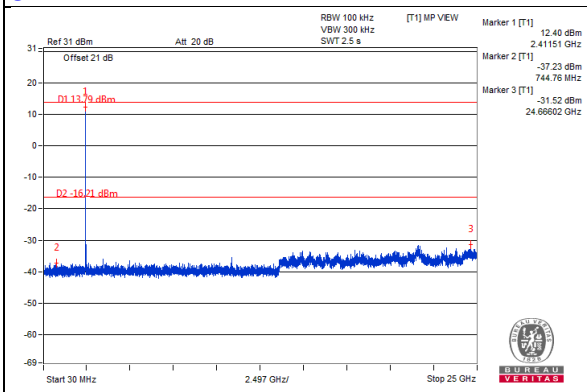


CH 11 Band edge

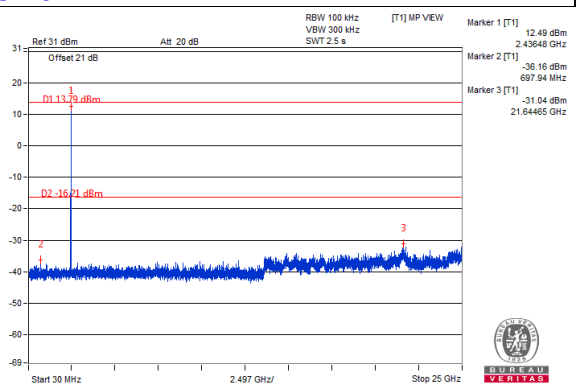


Chain 1

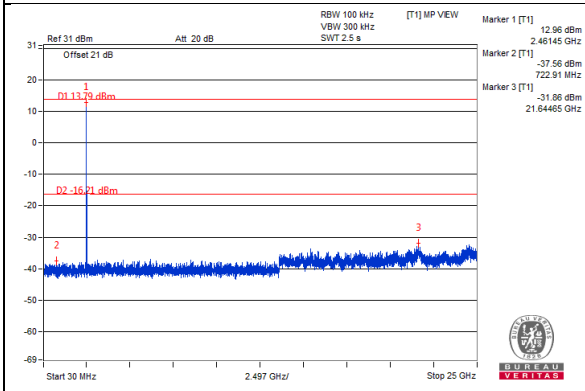
CH 1



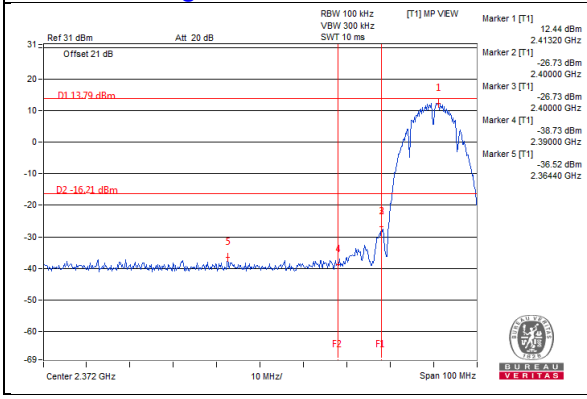
CH 6



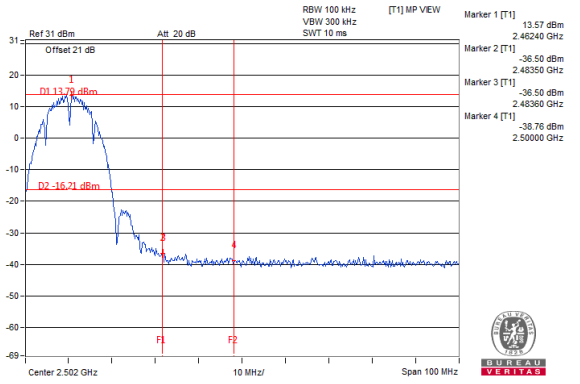
CH 11



CH 1 Band edge

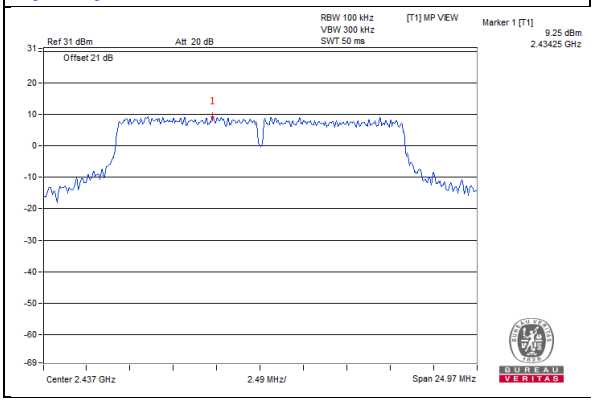


CH 11 Band edge



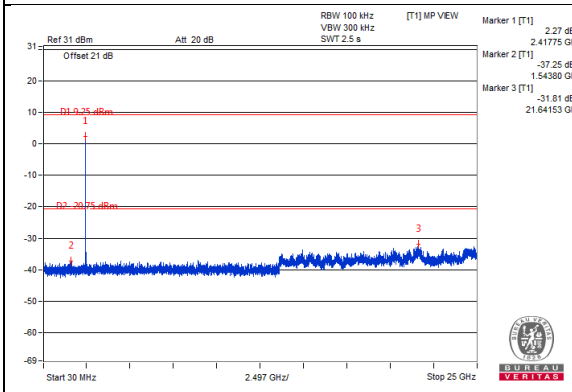
802.11g

Maximum REF

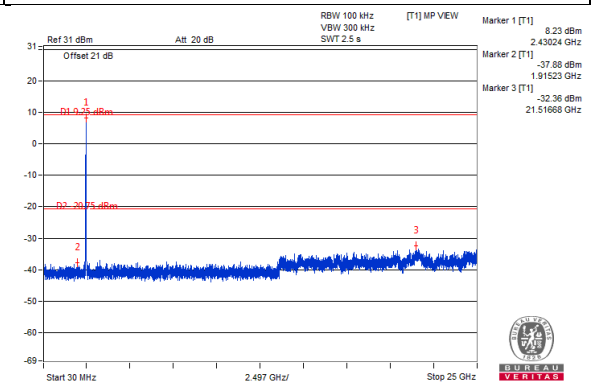


Chain 0

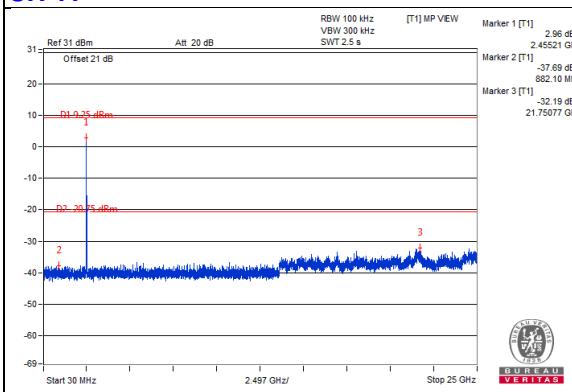
CH 1



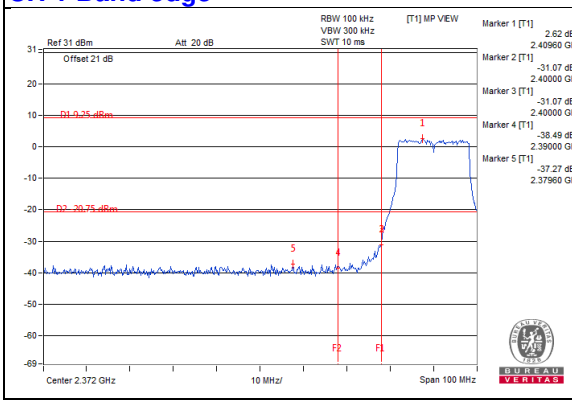
CH 6



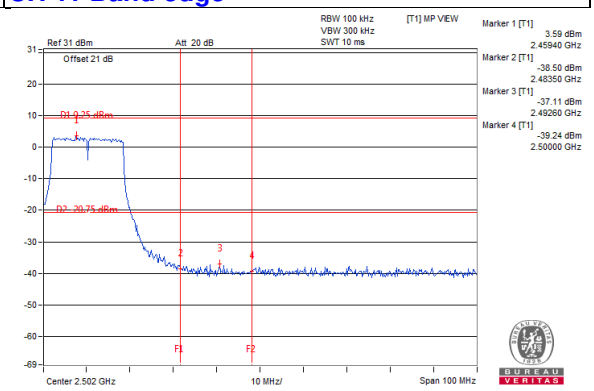
CH 11



CH 1 Band edge

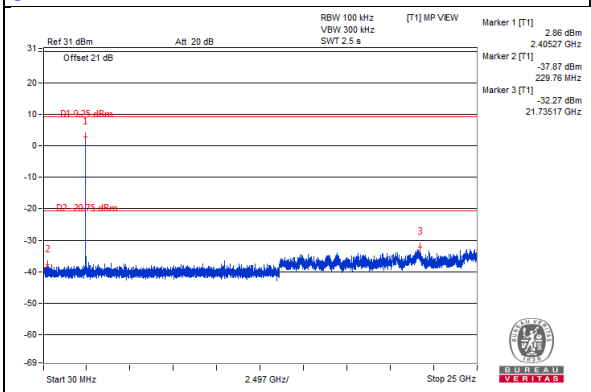


CH 11 Band edge

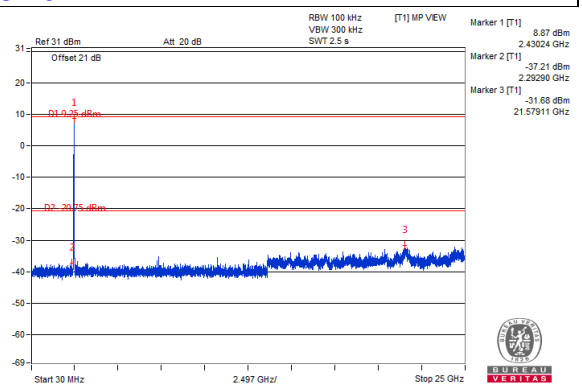


Chain 1

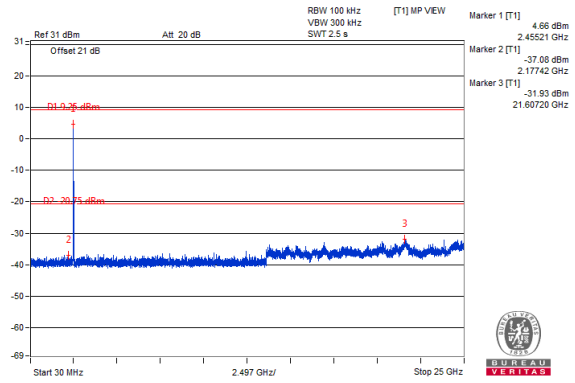
CH 1



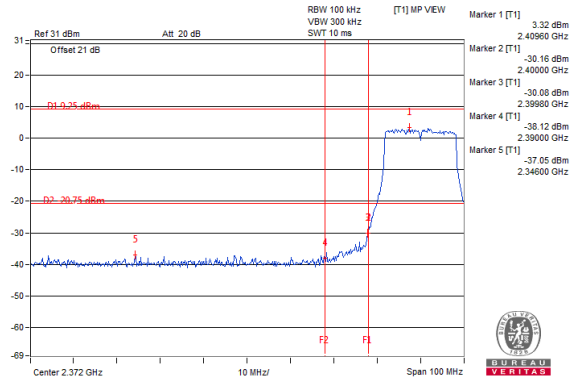
CH 6



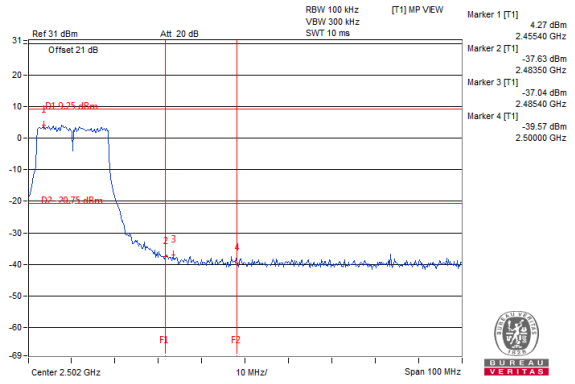
CH 11



CH 1 Band edge

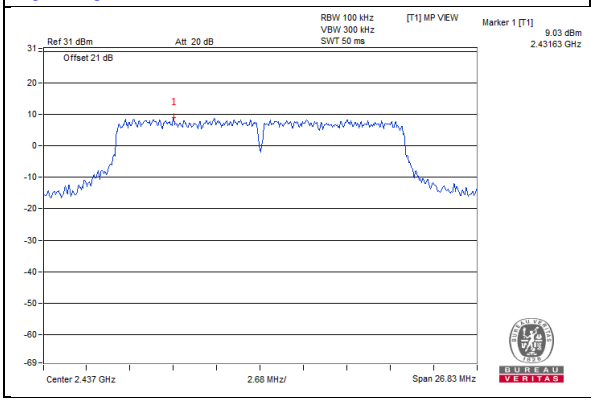


CH 11 Band edge



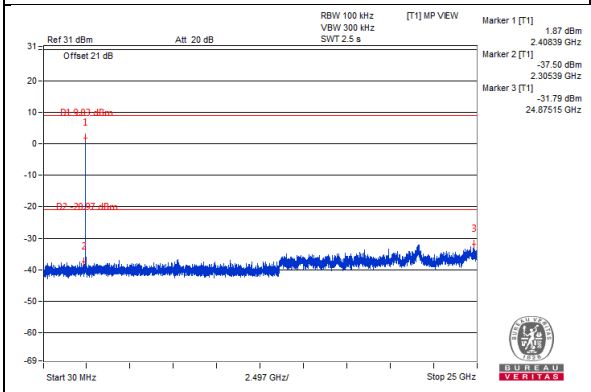
802.11n (HT20)

Maximum REF

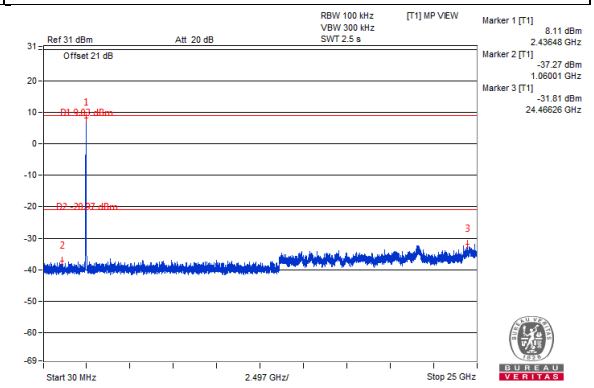


Chain 0

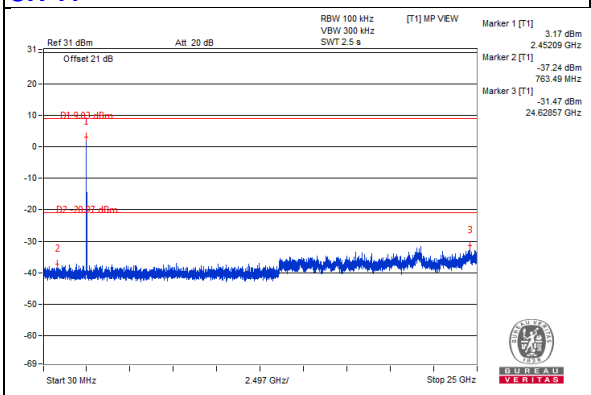
CH 1



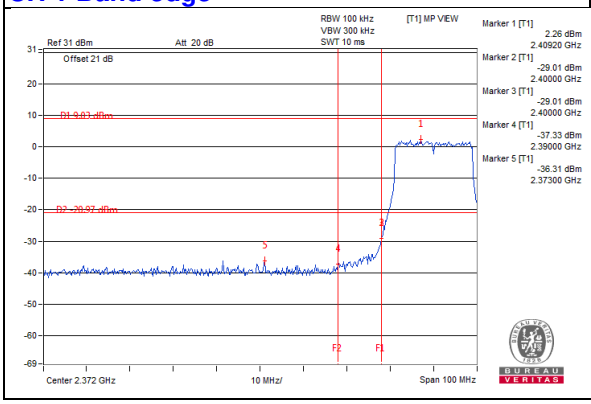
CH 6



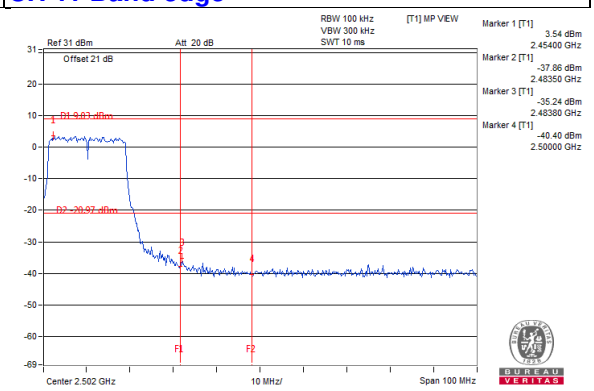
CH 11



CH 1 Band edge

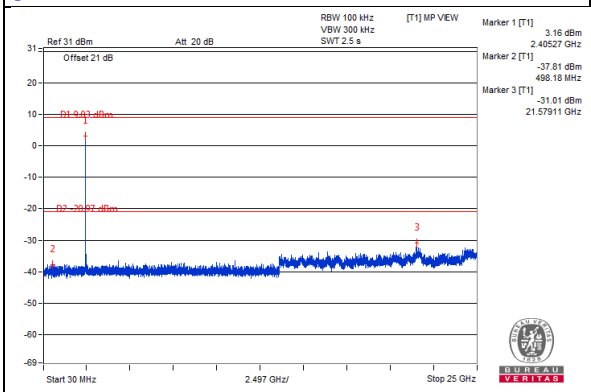


CH 11 Band edge

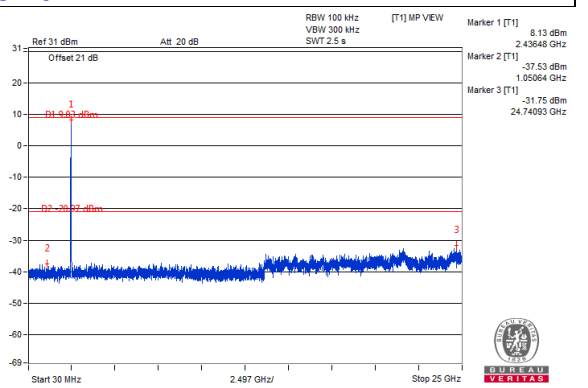


Chain 1

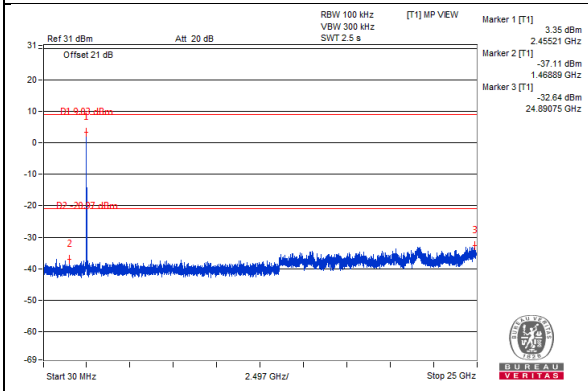
CH 1



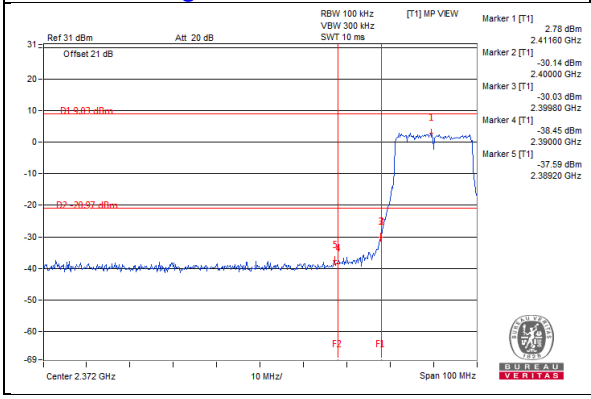
CH 6



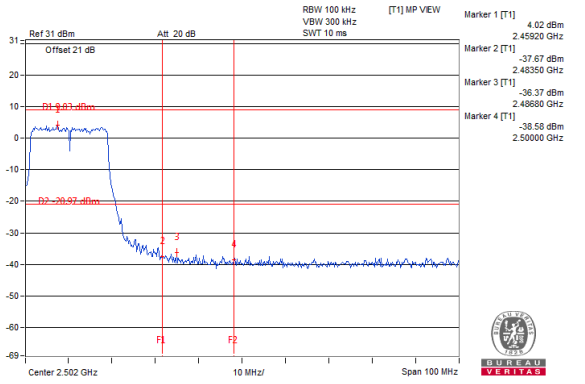
CH 11



CH 1 Band edge

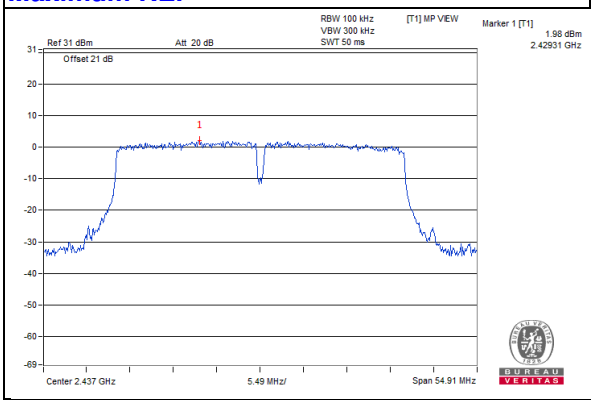


CH 11 Band edge



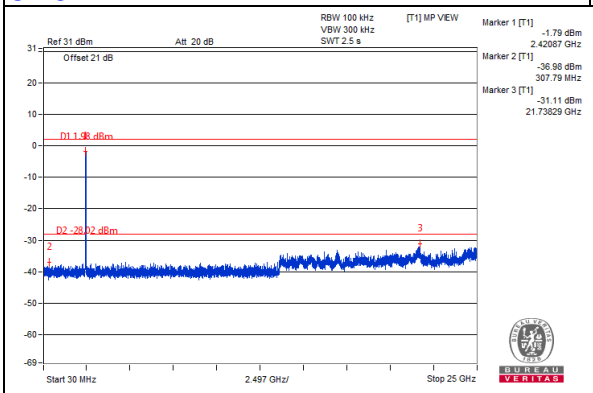
802.11n (HT40)

Maximum REF

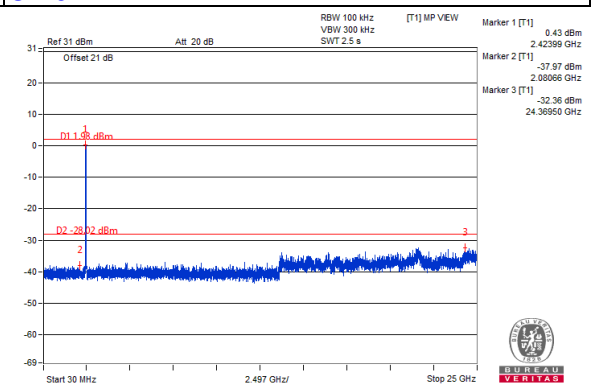


Chain 0

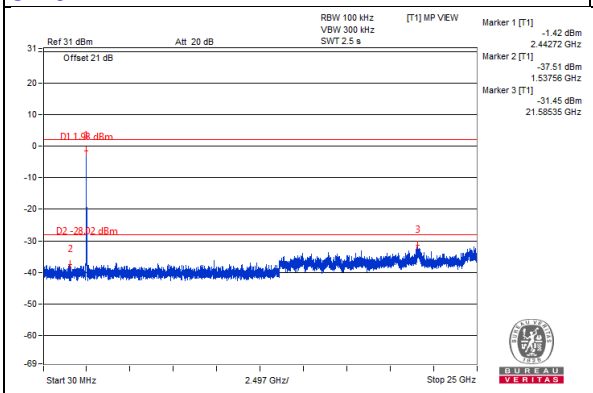
CH 3



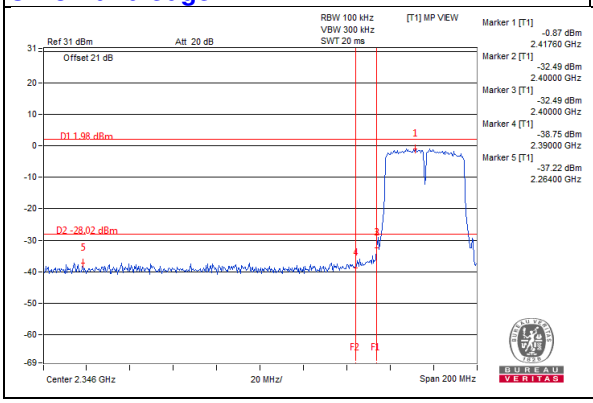
CH 6



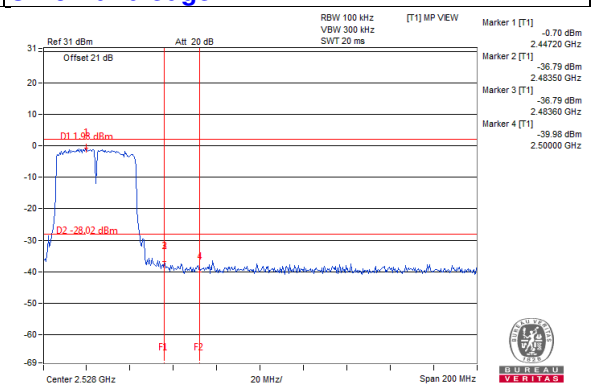
CH 9



CH 3 Band edge

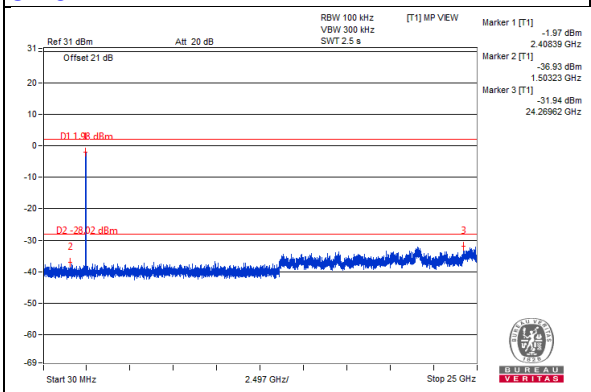


CH 9 Band edge

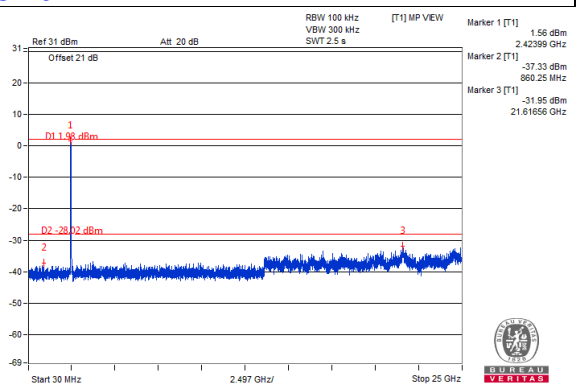


Chain 1

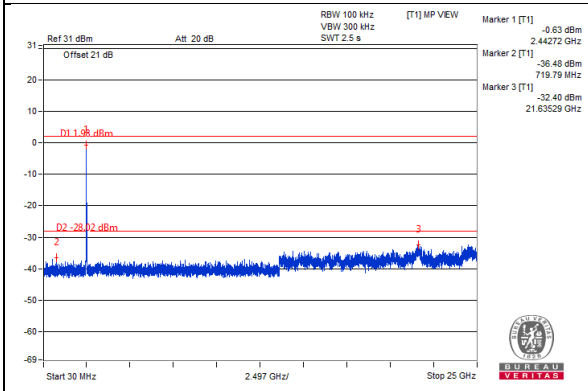
CH 3



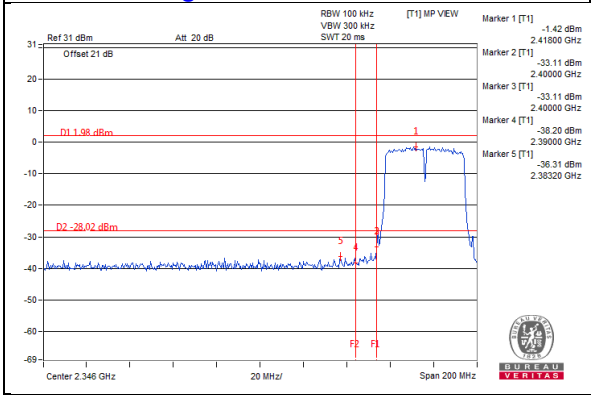
CH 6



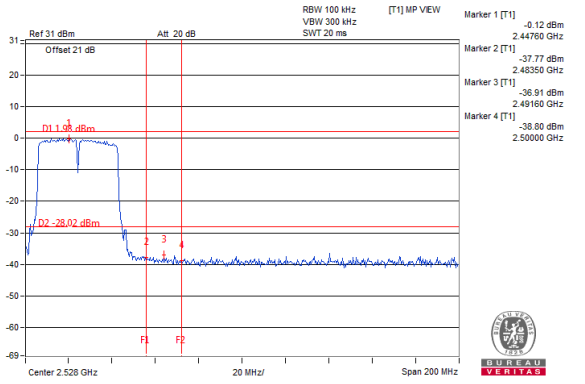
CH 9



CH 3 Band edge



CH 9 Band edge



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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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

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