Report No.:	RF191115E06
FCC ID:	KA2BA1520PA1
Test Model:	DBA-1520P
Received Date:	Nov. 15, 2019
Test Date:	Dec. 26, 2019 to Jan. 02, 2020
Issued Date:	Feb. 24, 2020
Applicant:	D-Link Corporation
Address:	No.289, Xinhu 3rd Rd., Neihu District, Taipei City 11494, 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
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF191115E06	Original release.	Feb. 24, 2020

1 Certificate of Conformity

Product:	Business Cloud Wave 2 Access Point, Nuclias Cloud-Managed AC1750 Wave 2 Access Point
Brand:	D-Link
Test Model:	DBA-1520P
Sample Status:	ENGINEERING SAMPLE
Applicant:	D-Link Corporation
Test Date:	Dec. 26, 2019 to Jan. 02, 2020
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 : Joyce Kuo , **Date:** Feb. 24, 2020

Joyce Kuo / Specialist

Approved by : , **Date:** Feb. 24, 2020

Clark Lin / 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 -3.39 dB at 0.40000 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1 dB at 2390.00 MH.
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.

Note:
Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	1.8 dB
Conducted Emissions	-	3.1 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	4.8 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.0 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Business Cloud Wave 2 Access Point, Nuclias Cloud-Managed AC1750 Wave 2 Access Point
Brand	D-Link
Test Model	DBA-1520P
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	Refer to Note
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 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462 GHz **5GHz:** 5.18~ 5.24 GHz, 5.745 ~ 5.825 GHz
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:** 801.158 mW **CDD Mode:** **5.18 ~ 5.24GHz:** 555.87 mW **5.745 ~ 5.825GHz:** 687.313 mW **Beamforming Mode:** **5.18 ~ 5.24GHz:** 473.554 mW **5.745 ~ 5.825GHz:** 425.822 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	NA

Note:

1. Simultaneously transmission condition.

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

2. The EUT must be supplied with a power adapter as following table:

No.	Brand	Model No.	Spec.	Plug
1	Asian Power Devices Inc.	WA-30P12R	AC Input: 100-240Vac, 0.9A, 50/60Hz DC Output: 12V, 2.5A DC Output Cable: 1.2m, Unshielded	US/EU/UK
POE Adapter (Not for sale)				
2	LEI	MU24A5480050-A1	AC Input: 100-240Vac, 0.7A, 50/60Hz DC Output: 48V, 0.5A DC Output Cable: 1.2m, Unshielded	US/EU
Note: From the above conditions, the conducted emissions and radiated emissions worse case was found in POE Adapter. Therefore only the test data of the mode was recorded in this report.				

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

Antenna NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
ANT_1	Hongbo	290-20404	4.58	2.4~2.4835GHz	PIFA	i-pex(MHF)	80
			3.86	5.15~5.25GHz			
			4.69	5.25~5.35GHz			
			4.95	5.47~5.725GHz			
			4.95	5.725~5.85GHz			
ANT_2	Hongbo	290-20405	3.33	2.4~2.4835GHz	PIFA	i-pex(MHF)	90
			4.81	5.15~5.25GHz			
			4.55	5.25~5.35GHz			
			4.54	5.47~5.725GHz			
			4.82	5.725~5.85GHz			
ANT_3	Hongbo	290-20406	2.81	2.4~2.4835GHz	PIFA	i-pex(MHF)	120
			4.71	5.15~5.25GHz			
			4.75	5.25~5.35GHz			
			4.68	5.47~5.725GHz			
			4.73	5.725~5.85GHz			

4. The EUT incorporates a MIMO function:

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	3TX	3RX
802.11g	3TX	3RX
802.11n (HT20)	3TX	3RX
802.11n (HT40)	3TX	3RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	3TX	3RX
802.11n (HT20)	3TX	3RX
802.11n (HT40)	3TX	3RX
802.11ac (VHT20)	3TX	3RX
802.11ac (VHT40)	3TX	3RX
802.11ac (VHT80)	3TX	3RX
Note: All of modulation mode support beamforming function except 2.4GHz and 802.11a modulation mode.		

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 (HT20):

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

7 channels are provided for 802.11n (HT40):

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

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 laying-flat and wall-mount. The worst case was found when positioned of on **laying-flat** (for below 1GHz) and **wall-mount** (for above 1GHz).

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:

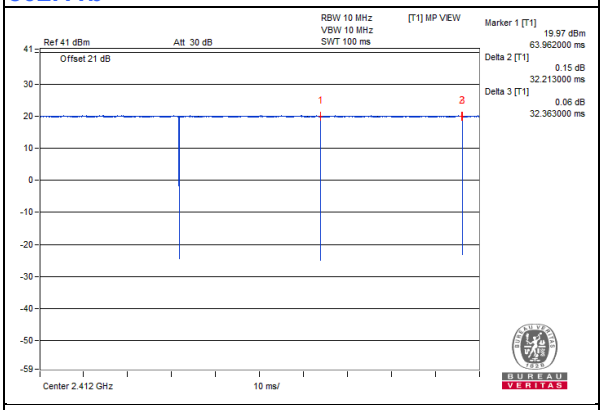
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
RE<1G	25deg. C, 67%RH	120Vac, 60Hz	Tom Yang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

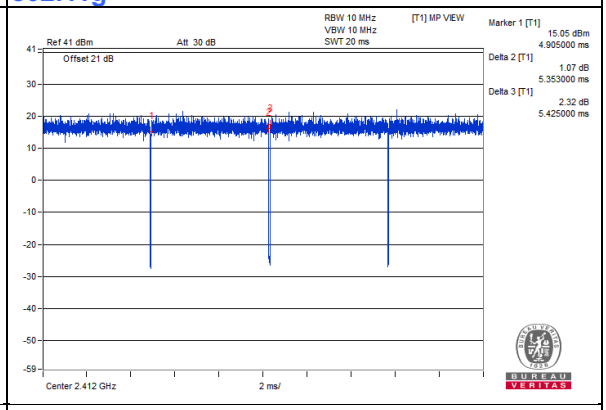
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 32.213 ms/32.363 ms = 0.995
802.11g: Duty cycle = 5.353 ms/5.425 ms = 0.987
802.11n (HT20): Duty cycle = 4.956ms/5.021 ms = 0.987
802.11n (HT40): Duty cycle = 2.403 ms/2.458 ms = 0.978, Duty factor = 10 * log (1/Duty cycle) = 0.1

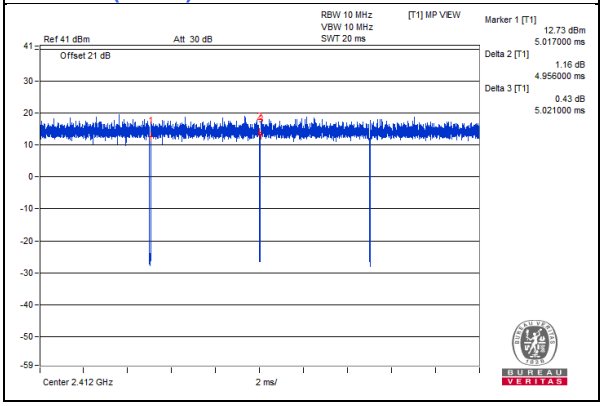
802.11b



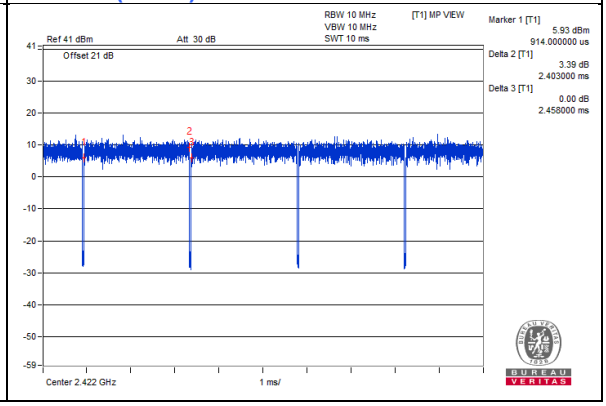
802.11g



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.	POE	D-Link	NA	NA	NA	Supplied by client
B.	POE Adapter	LEI	MU24A5480050-A1	NA	NA	Supplied by client
C.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

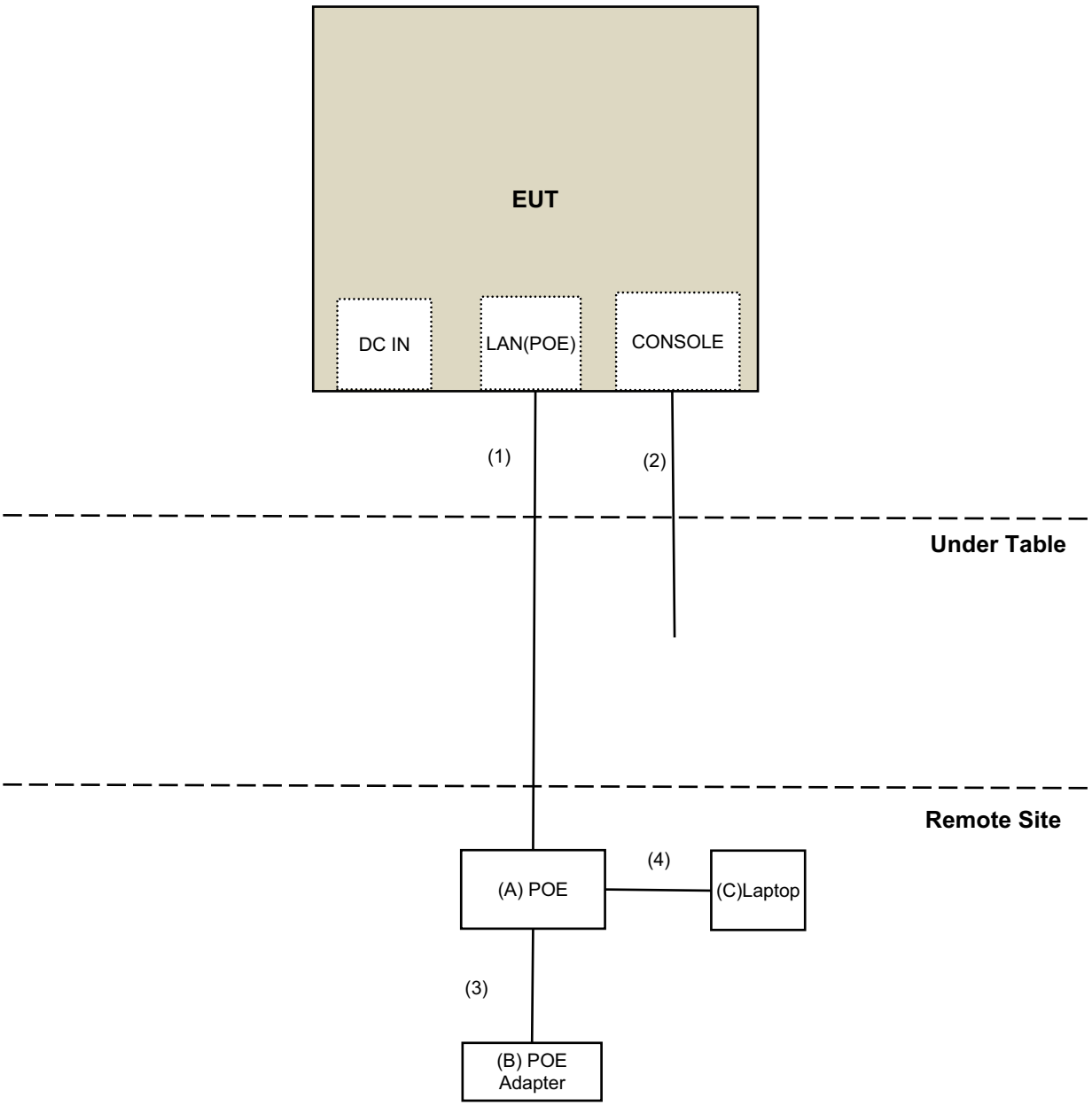
Note:

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

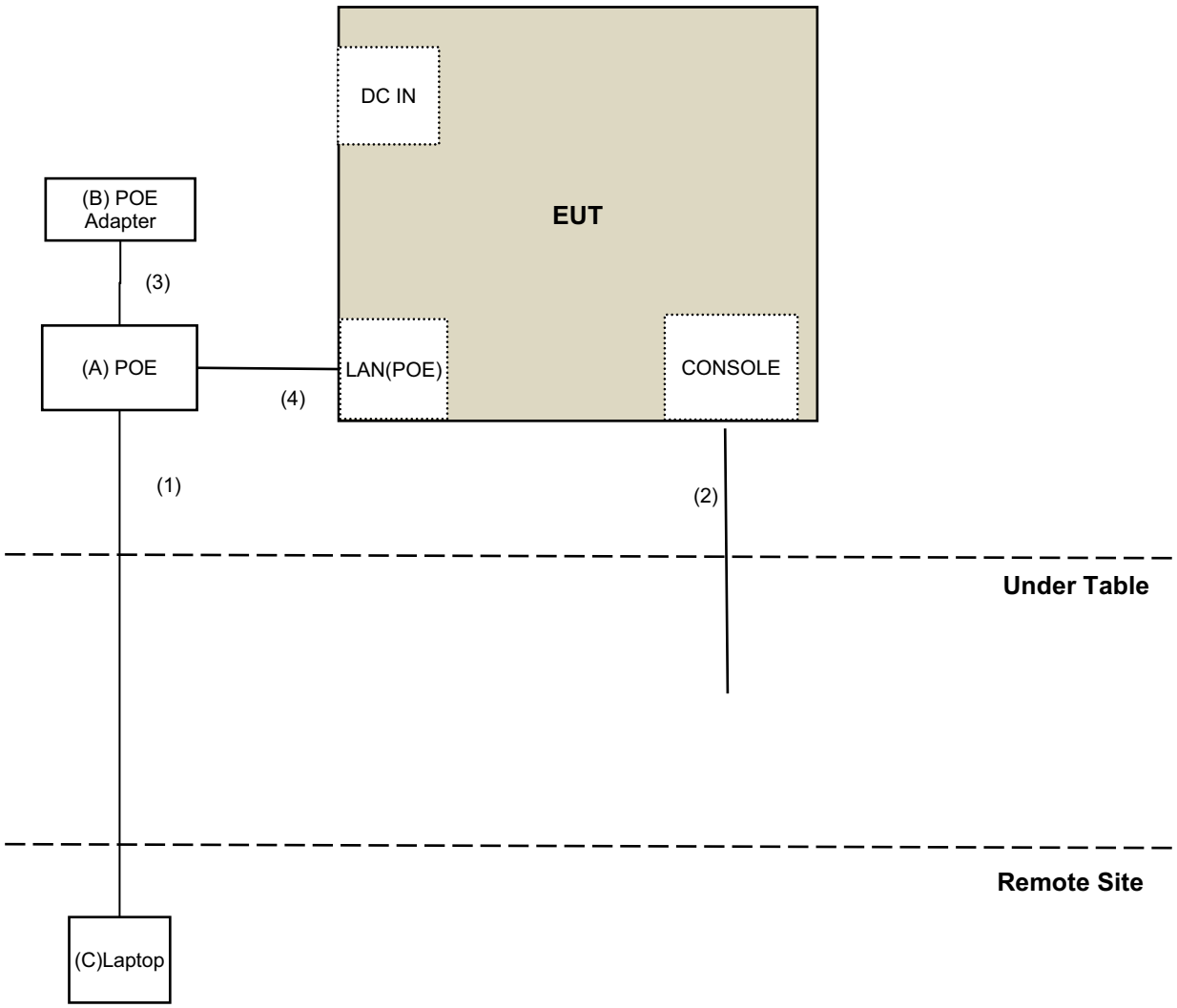
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	Console Cable	1	1.5	No	0	Provided by Lab
3.	DC Cable	1	1.2	No	0	Supplied by client
4.	RJ-45 Cable	1	1.5	No	0	Provided by Lab

3.4.1 Configuration of System under Test

For Radiation:



For Conduction:



3.5 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013

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

References Test Guidance :

KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

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 ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	May 25, 2019	May 24, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier EMCI	EMC330N	980538	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB9168	9168-0842	Nov. 08, 2019	Nov. 07, 2020
RF Cable	8D	966-5-1	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-2	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-3	May 03, 2019	May 02, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980509	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-6000	180505	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Dec. 26, 2019 to Jan. 02, 2020

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. Parallel, perpendicular, and ground-parallel orientations 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:

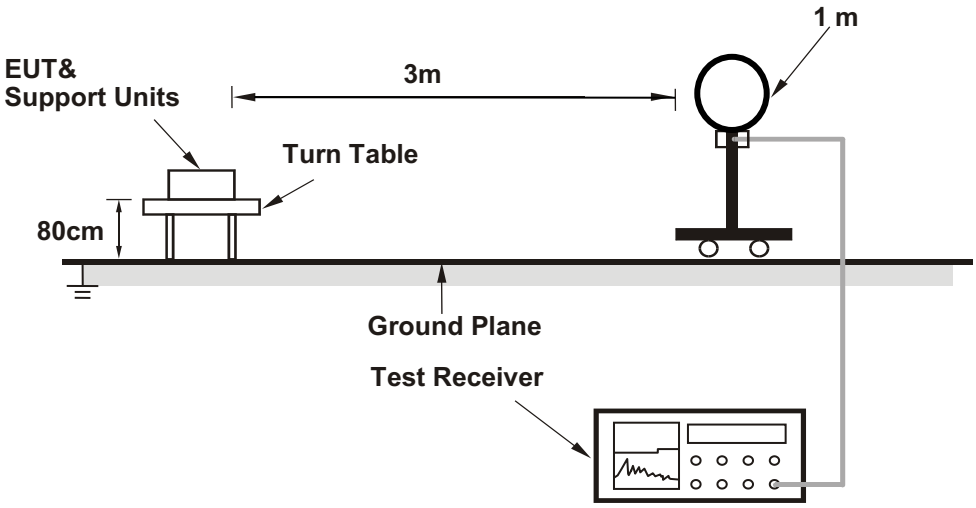
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

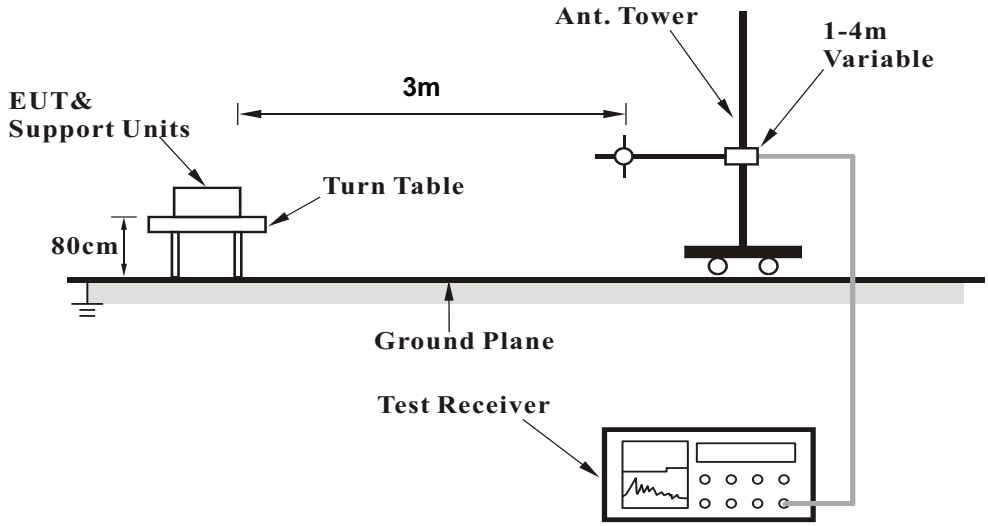
No deviation.

4.1.5 Test Setup

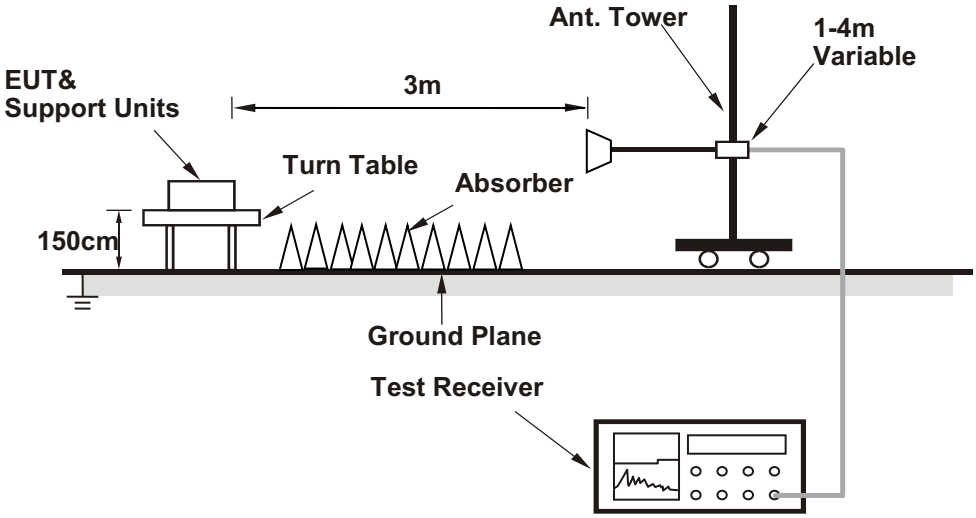
For Radiated emission below 30MHz



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 (QDART-Connectivity(1.0.38)) has been activated to 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	2386.21	61.5 PK	74.0	-12.5	1.62 H	124	64.6	-3.1
2	2386.21	51.9 AV	54.0	-2.1	1.62 H	124	55.0	-3.1
3	2390.00	62.0 PK	74.0	-12.0	1.62 H	124	65.1	-3.1
4	2390.00	52.1 AV	54.0	-1.9	1.62 H	124	55.2	-3.1
5	*2412.00	112.0 PK			1.62 H	124	115.1	-3.1
6	*2412.00	109.6 AV			1.62 H	124	112.7	-3.1
7	4824.00	48.1 PK	74.0	-25.9	2.09 H	303	46.9	1.2
8	4824.00	45.0 AV	54.0	-9.0	2.09 H	303	43.8	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.2 PK	74.0	-14.8	1.56 V	348	62.3	-3.1
2	2390.00	48.3 AV	54.0	-5.7	1.56 V	348	51.4	-3.1
3	*2412.00	108.5 PK			1.56 V	348	111.6	-3.1
4	*2412.00	105.9 AV			1.56 V	348	109.0	-3.1
5	4824.00	48.1 PK	74.0	-25.9	2.64 V	335	46.9	1.2
6	4824.00	45.1 AV	54.0	-8.9	2.64 V	335	43.9	1.2

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	65.1 PK	74.0	-8.9	2.01 H	229	68.2	-3.1
2	2390.00	51.6 AV	54.0	-2.4	2.01 H	229	54.7	-3.1
3	*2437.00	117.5 PK			2.01 H	229	120.6	-3.1
4	*2437.00	115.0 AV			2.01 H	229	118.1	-3.1
5	2483.50	61.4 PK	74.0	-12.6	2.01 H	229	64.5	-3.1
6	2483.50	52.1 AV	54.0	-1.9	2.01 H	229	55.2	-3.1
7	2484.69	60.7 PK	74.0	-13.3	2.01 H	229	63.8	-3.1
8	2484.69	51.6 AV	54.0	-2.4	2.01 H	229	54.7	-3.1
9	4874.00	51.0 PK	74.0	-23.0	2.05 H	297	49.9	1.1
10	4874.00	48.6 AV	54.0	-5.4	2.05 H	297	47.5	1.1
11	7311.00	52.0 PK	74.0	-22.0	1.00 H	248	44.7	7.3
12	7311.00	43.7 AV	54.0	-10.3	1.00 H	248	36.4	7.3
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	59.2 PK	74.0	-14.8	1.43 V	344	62.3	-3.1
2	2390.00	48.3 AV	54.0	-5.7	1.43 V	344	51.4	-3.1
3	*2437.00	114.2 PK			1.43 V	344	117.3	-3.1
4	*2437.00	110.6 AV			1.43 V	344	113.7	-3.1
5	2483.50	58.1 PK	74.0	-15.9	1.43 V	344	61.2	-3.1
6	2483.50	48.7 AV	54.0	-5.3	1.43 V	344	51.8	-3.1
7	4874.00	50.5 PK	74.0	-23.5	2.59 V	345	49.4	1.1
8	4874.00	48.2 AV	54.0	-5.8	2.59 V	345	47.1	1.1
9	7311.00	51.7 PK	74.0	-22.3	1.70 V	335	44.4	7.3
10	7311.00	43.2 AV	54.0	-10.8	1.70 V	335	35.9	7.3

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	113.3 PK			1.52 H	236	116.4	-3.1
2	*2462.00	110.8 AV			1.52 H	236	113.9	-3.1
3	2483.50	63.4 PK	74.0	-10.6	1.52 H	236	66.5	-3.1
4	2483.50	52.2 AV	54.0	-1.8	1.52 H	236	55.3	-3.1
5	2487.72	62.9 PK	74.0	-11.1	1.52 H	236	66.0	-3.1
6	2487.72	51.7 AV	54.0	-2.3	1.52 H	236	54.8	-3.1
7	4924.00	48.2 PK	74.0	-25.8	2.04 H	304	47.0	1.2
8	4924.00	45.0 AV	54.0	-9.0	2.04 H	304	43.8	1.2
9	7386.00	46.1 PK	74.0	-27.9	1.02 H	296	38.7	7.4
10	7386.00	33.7 AV	54.0	-20.3	1.02 H	296	26.3	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			1.08 V	358	111.9	-3.1
2	*2462.00	106.3 AV			1.08 V	358	109.4	-3.1
3	2483.50	59.2 PK	74.0	-14.8	1.08 V	358	62.3	-3.1
4	2483.50	48.6 AV	54.0	-5.4	1.08 V	358	51.7	-3.1
5	2487.73	58.9 PK	74.0	-15.1	1.08 V	358	62.0	-3.1
6	2487.73	48.3 AV	54.0	-5.7	1.08 V	358	51.4	-3.1
7	4924.00	48.5 PK	74.0	-25.5	2.59 V	345	47.3	1.2
8	4924.00	45.2 AV	54.0	-8.8	2.59 V	345	44.0	1.2
9	7386.00	46.2 PK	74.0	-27.8	1.72 V	319	38.8	7.4
10	7386.00	33.6 AV	54.0	-20.4	1.72 V	319	26.2	7.4

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	71.7 PK	74.0	-2.3	2.33 H	230	74.8	-3.1
2	2390.00	53.5 AV	54.0	-0.5	2.33 H	230	56.6	-3.1
3	*2412.00	112.6 PK			2.33 H	230	115.7	-3.1
4	*2412.00	103.1 AV			2.33 H	230	106.2	-3.1
5	4824.00	53.2 PK	74.0	-20.8	2.00 H	310	52.0	1.2
6	4824.00	39.8 AV	54.0	-14.2	2.00 H	310	38.6	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.8 PK	74.0	-6.2	1.61 V	333	70.9	-3.1
2	2390.00	49.7 AV	54.0	-4.3	1.61 V	333	52.8	-3.1
3	*2412.00	109.3 PK			1.61 V	333	112.4	-3.1
4	*2412.00	99.7 AV			1.61 V	333	102.8	-3.1
5	4824.00	52.6 PK	74.0	-21.4	2.73 V	346	51.4	1.2
6	4824.00	39.9 AV	54.0	-14.1	2.73 V	346	38.7	1.2

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	71.9 PK	74.0	-2.1	2.39 H	218	75.0	-3.1
2	2390.00	53.5 AV	54.0	-0.5	2.39 H	218	56.6	-3.1
3	*2437.00	120.7 PK			2.39 H	218	123.8	-3.1
4	*2437.00	110.1 AV			2.39 H	218	113.2	-3.1
5	2483.50	70.1 PK	74.0	-3.9	2.39 H	218	73.2	-3.1
6	2483.50	52.3 AV	54.0	-1.7	2.39 H	218	55.4	-3.1
7	4874.00	56.8 PK	74.0	-17.2	2.22 H	36	55.7	1.1
8	4874.00	42.4 AV	54.0	-11.6	2.22 H	36	41.3	1.1
9	7311.00	49.8 PK	74.0	-24.2	1.30 H	246	42.5	7.3
10	7311.00	36.3 AV	54.0	-17.7	1.30 H	246	29.0	7.3
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	68.4 PK	74.0	-5.6	1.45 V	354	71.5	-3.1
2	2390.00	49.4 AV	54.0	-4.6	1.45 V	354	52.5	-3.1
3	*2437.00	116.3 PK			1.45 V	354	119.4	-3.1
4	*2437.00	105.5 AV			1.45 V	354	108.6	-3.1
5	2483.50	67.9 PK	74.0	-6.1	1.45 V	354	71.0	-3.1
6	2483.50	49.2 AV	54.0	-4.8	1.45 V	354	52.3	-3.1
7	4874.00	55.5 PK	74.0	-18.5	2.82 V	351	54.4	1.1
8	4874.00	42.9 AV	54.0	-11.1	2.82 V	351	41.8	1.1
9	7311.00	50.0 PK	74.0	-24.0	1.65 V	349	42.7	7.3
10	7311.00	36.2 AV	54.0	-17.8	1.65 V	349	28.9	7.3

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	112.7 PK			2.35 H	239	115.8	-3.1
2	*2462.00	103.2 AV			2.35 H	239	106.3	-3.1
3	2483.50	68.7 PK	74.0	-5.3	2.35 H	239	71.8	-3.1
4	2483.50	53.4 AV	54.0	-0.6	2.35 H	239	56.5	-3.1
5	4924.00	53.3 PK	74.0	-20.7	2.15 H	332	52.1	1.2
6	4924.00	40.5 AV	54.0	-13.5	2.15 H	332	39.3	1.2
7	7386.00	45.2 PK	74.0	-28.8	1.27 H	250	37.8	7.4
8	7386.00	34.2 AV	54.0	-19.8	1.27 H	250	26.8	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.4 PK			1.29 V	330	112.5	-3.1
2	*2462.00	99.9 AV			1.29 V	330	103.0	-3.1
3	2483.50	68.0 PK	74.0	-6.0	1.29 V	330	71.1	-3.1
4	2483.50	49.4 AV	54.0	-4.6	1.29 V	330	52.5	-3.1
5	4924.00	53.5 PK	74.0	-20.5	2.67 V	335	52.3	1.2
6	4924.00	40.6 AV	54.0	-13.4	2.67 V	335	39.4	1.2
7	7386.00	44.8 PK	74.0	-29.2	1.63 V	355	37.4	7.4
8	7386.00	33.8 AV	54.0	-20.2	1.63 V	355	26.4	7.4

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	70.3 PK	74.0	-3.7	1.08 H	115	73.4	-3.1
2	2390.00	52.7 AV	54.0	-1.3	1.08 H	115	55.8	-3.1
3	*2412.00	111.2 PK			1.08 H	115	114.3	-3.1
4	*2412.00	100.9 AV			1.08 H	115	104.0	-3.1
5	4824.00	51.2 PK	74.0	-22.8	2.11 H	324	50.0	1.2
6	4824.00	38.5 AV	54.0	-15.5	2.11 H	324	37.3	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.36 V	322	70.2	-3.1
2	2390.00	48.4 AV	54.0	-5.6	1.36 V	322	51.5	-3.1
3	*2412.00	107.2 PK			1.36 V	322	110.3	-3.1
4	*2412.00	96.3 AV			1.36 V	322	99.4	-3.1
5	4824.00	51.6 PK	74.0	-22.4	2.74 V	327	50.4	1.2
6	4824.00	38.7 AV	54.0	-15.3	2.74 V	327	37.5	1.2

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	72.1 PK	74.0	-1.9	1.00 H	110	75.2	-3.1
2	2390.00	53.6 AV	54.0	-0.4	1.00 H	110	56.7	-3.1
3	*2437.00	120.2 PK			1.00 H	110	123.3	-3.1
4	*2437.00	109.8 AV			1.00 H	110	112.9	-3.1
5	2483.50	70.4 PK	74.0	-3.6	1.00 H	110	73.5	-3.1
6	2483.50	52.8 AV	54.0	-1.2	1.00 H	110	55.9	-3.1
7	4874.00	56.9 PK	74.0	-17.1	2.08 H	326	55.8	1.1
8	4874.00	42.3 AV	54.0	-11.7	2.08 H	326	41.2	1.1
9	7311.00	49.8 PK	74.0	-24.2	1.31 H	262	42.5	7.3
10	7311.00	36.2 AV	54.0	-17.8	1.31 H	262	28.9	7.3
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	68.7 PK	74.0	-5.3	1.44 V	346	71.8	-3.1
2	2390.00	49.3 AV	54.0	-4.7	1.44 V	346	52.4	-3.1
3	*2437.00	115.7 PK			1.44 V	346	118.8	-3.1
4	*2437.00	104.9 AV			1.44 V	346	108.0	-3.1
5	2483.50	66.4 PK	74.0	-7.6	1.44 V	346	69.5	-3.1
6	2483.50	48.4 AV	54.0	-5.6	1.44 V	346	51.5	-3.1
7	4874.00	55.7 PK	74.0	-18.3	2.65 V	345	54.6	1.1
8	4874.00	43.3 AV	54.0	-10.7	2.65 V	345	42.2	1.1
9	7311.00	49.4 PK	74.0	-24.6	1.64 V	336	42.1	7.3
10	7311.00	35.8 AV	54.0	-18.2	1.64 V	336	28.5	7.3

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	112.0 PK			1.04 H	108	115.1	-3.1
2	*2462.00	101.5 AV			1.04 H	108	104.6	-3.1
3	2483.50	69.5 PK	74.0	-4.5	1.04 H	108	72.6	-3.1
4	2483.50	53.1 AV	54.0	-0.9	1.04 H	108	56.2	-3.1
5	4924.00	52.5 PK	74.0	-21.5	2.09 H	323	51.3	1.2
6	4924.00	39.5 AV	54.0	-14.5	2.09 H	323	38.3	1.2
7	7386.00	44.9 PK	74.0	-29.1	1.34 H	268	37.5	7.4
8	7386.00	34.1 AV	54.0	-19.9	1.34 H	268	26.7	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.0 PK			1.42 V	338	112.1	-3.1
2	*2462.00	97.4 AV			1.42 V	338	100.5	-3.1
3	2483.50	67.2 PK	74.0	-6.8	1.42 V	338	70.3	-3.1
4	2483.50	49.1 AV	54.0	-4.9	1.42 V	338	52.2	-3.1
5	4924.00	52.6 PK	74.0	-21.4	2.68 V	347	51.4	1.2
6	4924.00	39.8 AV	54.0	-14.2	2.68 V	347	38.6	1.2
7	7386.00	45.2 PK	74.0	-28.8	1.65 V	341	37.8	7.4
8	7386.00	34.2 AV	54.0	-19.8	1.65 V	341	26.8	7.4

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	68.9 PK	74.0	-5.1	2.66 H	232	72.0	-3.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.66 H**	**232**	**57.0**	**-3.1**
3	*2422.00	105.3 PK			2.66 H	232	108.4	-3.1
4	*2422.00	95.8 AV			2.66 H	232	98.9	-3.1
5	4844.00	45.3 PK	74.0	-28.7	2.14 H	323	44.1	1.2
6	4844.00	34.3 AV	54.0	-19.7	2.14 H	323	33.1	1.2
7	7266.00	43.2 PK	74.0	-30.8	1.33 H	258	36.1	7.1
8	7266.00	29.8 AV	54.0	-24.2	1.33 H	258	22.7	7.1
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	66.4 PK	74.0	-7.6	1.48 V	354	69.5	-3.1
2	2390.00	48.7 AV	54.0	-5.3	1.48 V	354	51.8	-3.1
3	*2422.00	100.6 PK			1.48 V	354	103.7	-3.1
4	*2422.00	90.7 AV			1.48 V	354	93.8	-3.1
5	4844.00	45.4 PK	74.0	-28.6	2.65 V	351	44.2	1.2
6	4844.00	34.2 AV	54.0	-19.8	2.65 V	351	33.0	1.2
7	7266.00	43.6 PK	74.0	-30.4	1.66 V	342	36.5	7.1
8	7266.00	29.9 AV	54.0	-24.1	1.66 V	342	22.8	7.1

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.8 PK	74.0	-7.2	2.85 H	232	69.9	-3.1
2	2390.00	52.2 AV	54.0	-1.8	2.85 H	232	55.3	-3.1
3	*2437.00	111.7 PK			2.85 H	232	114.8	-3.1
4	*2437.00	101.8 AV			2.85 H	232	104.9	-3.1
5	2483.50	64.5 PK	74.0	-9.5	2.85 H	232	67.6	-3.1
6	2483.50	51.9 AV	54.0	-2.1	2.85 H	232	55.0	-3.1
7	4874.00	49.9 PK	74.0	-24.1	2.11 H	332	48.8	1.1
8	4874.00	36.7 AV	54.0	-17.3	2.11 H	332	35.6	1.1
9	7311.00	46.3 PK	74.0	-27.7	1.36 H	250	39.0	7.3
10	7311.00	32.1 AV	54.0	-21.9	1.36 H	250	24.8	7.3
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	68.5 PK	74.0	-5.5	1.52 V	347	71.6	-3.1
2	2390.00	48.3 AV	54.0	-5.7	1.52 V	347	51.4	-3.1
3	*2437.00	106.3 PK			1.52 V	347	109.4	-3.1
4	*2437.00	96.2 AV			1.52 V	347	99.3	-3.1
5	2483.50	65.9 PK	74.0	-8.1	1.52 V	347	69.0	-3.1
6	2483.50	47.4 AV	54.0	-6.6	1.52 V	347	50.5	-3.1
7	4874.00	49.8 PK	74.0	-24.2	2.66 V	341	48.7	1.1
8	4874.00	36.5 AV	54.0	-17.5	2.66 V	341	35.4	1.1
9	7311.00	46.1 PK	74.0	-27.9	1.61 V	350	38.8	7.3
10	7311.00	31.7 AV	54.0	-22.3	1.61 V	350	24.4	7.3

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	106.9 PK			1.00 H	115	110.0	-3.1
2	*2452.00	96.7 AV			1.00 H	115	99.8	-3.1
3	2483.50	65.7 PK	74.0	-8.3	1.00 H	115	68.8	-3.1
4	2483.50	53.5 AV	54.0	-0.5	1.00 H	115	56.6	-3.1
5	4904.00	47.0 PK	74.0	-27.0	2.07 H	341	45.8	1.2
6	4904.00	35.2 AV	54.0	-18.8	2.07 H	341	34.0	1.2
7	7356.00	43.9 PK	74.0	-30.1	1.39 H	248	36.5	7.4
8	7356.00	30.4 AV	54.0	-23.6	1.39 H	248	23.0	7.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.3 PK			1.40 V	337	105.4	-3.1
2	*2452.00	92.1 AV			1.40 V	337	95.2	-3.1
3	2483.50	66.2 PK	74.0	-7.8	1.40 V	337	69.3	-3.1
4	2483.50	48.8 AV	54.0	-5.2	1.40 V	337	51.9	-3.1
5	4904.00	47.3 PK	74.0	-26.7	2.71 V	343	46.1	1.2
6	4904.00	35.4 AV	54.0	-18.6	2.71 V	343	34.2	1.2
7	7356.00	43.8 PK	74.0	-30.2	1.66 V	333	36.4	7.4
8	7356.00	30.7 AV	54.0	-23.3	1.66 V	333	23.3	7.4

REMARKS:

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

Below 1GHz Data:

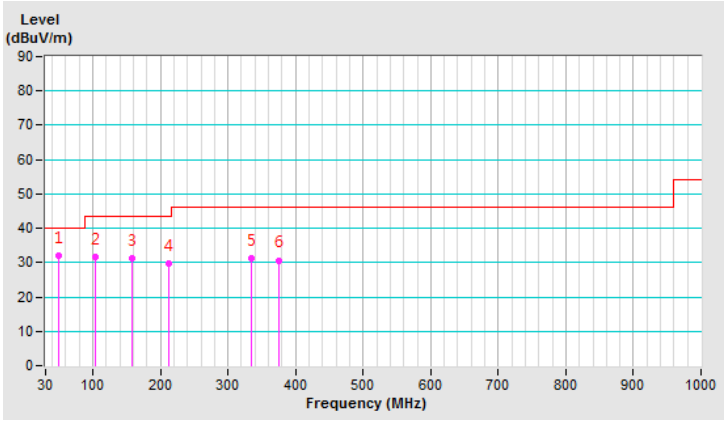
802.11b

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	48.60	32.0 QP	40.0	-8.0	1.50 H	40	44.6	-12.6
2	104.06	31.7 QP	43.5	-11.8	3.00 H	235	48.3	-16.6
3	157.39	31.2 QP	43.5	-12.3	2.00 H	252	43.8	-12.6
4	212.02	29.6 QP	43.5	-13.9	1.50 H	231	45.6	-16.0
5	334.29	31.3 QP	46.0	-14.7	1.00 H	109	42.4	-11.1
6	375.00	30.7 QP	46.0	-15.3	1.00 H	123	40.8	-10.1

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

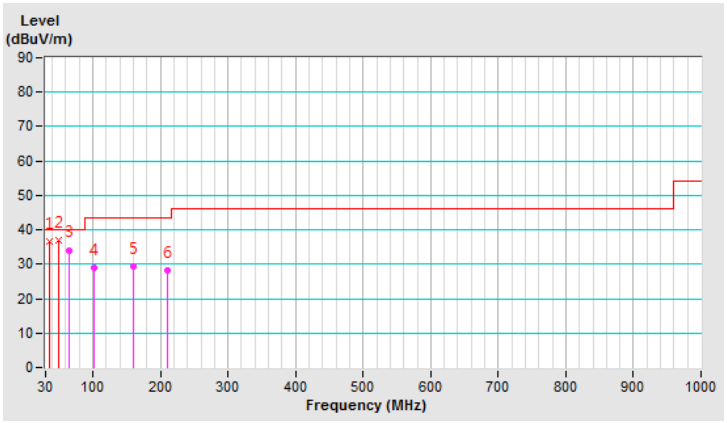


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	36.02	36.7 QP	40.0	-3.3	1.00 V	0	50.5	-13.8
2	49.40	36.9 QP	40.0	-3.1	1.00 V	360	49.5	-12.6
3	65.55	34.1 QP	40.0	-5.9	1.00 V	356	48.4	-14.3
4	102.05	29.0 QP	43.5	-14.5	1.50 V	360	46.0	-17.0
5	160.42	29.3 QP	43.5	-14.2	1.00 V	280	42.0	-12.7
6	210.01	28.3 QP	43.5	-15.2	1.00 V	146	44.4	-16.1

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



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	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	50	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
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. 02, 2020

4.2.3 Test Procedures

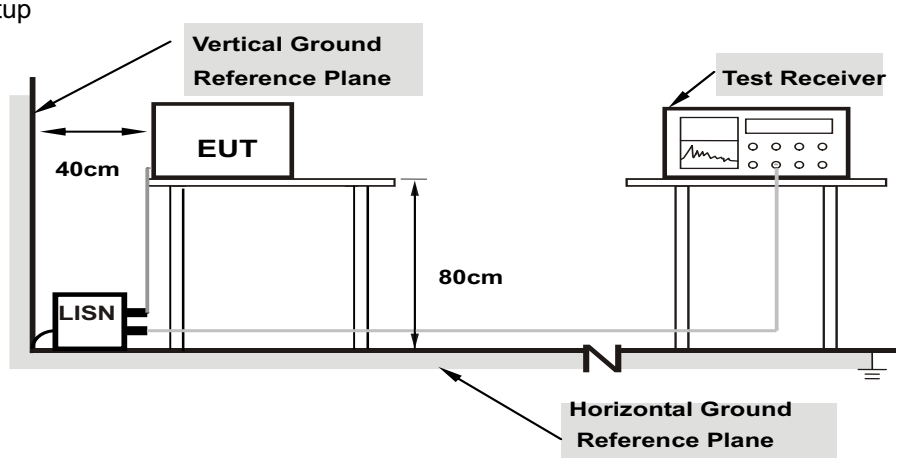
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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.

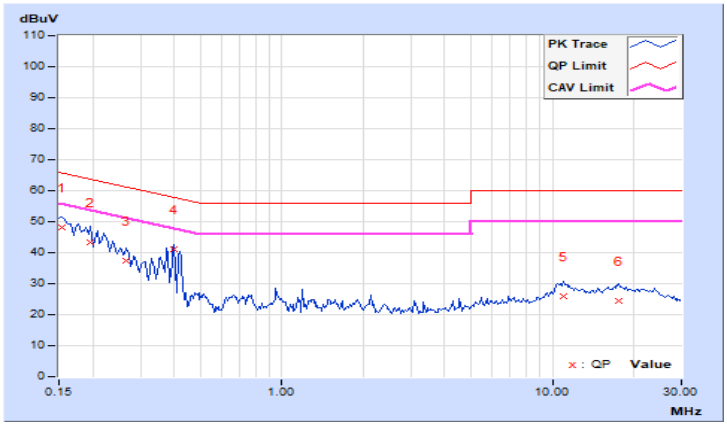
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.99	38.16	23.55	48.15	33.54	65.79	55.79	-17.64	-22.25
2	0.19687	9.99	33.21	21.42	43.20	31.41	63.74	53.74	-20.54	-22.33
3	0.26719	9.99	27.52	20.33	37.51	30.32	61.20	51.20	-23.69	-20.88
4	0.40000	10.00	31.28	29.89	41.28	39.89	57.85	47.85	-16.57	-7.96
5	11.02344	10.72	15.38	10.49	26.10	21.21	60.00	50.00	-33.90	-28.79
6	17.59375	11.20	13.39	8.35	24.59	19.55	60.00	50.00	-35.41	-30.45

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

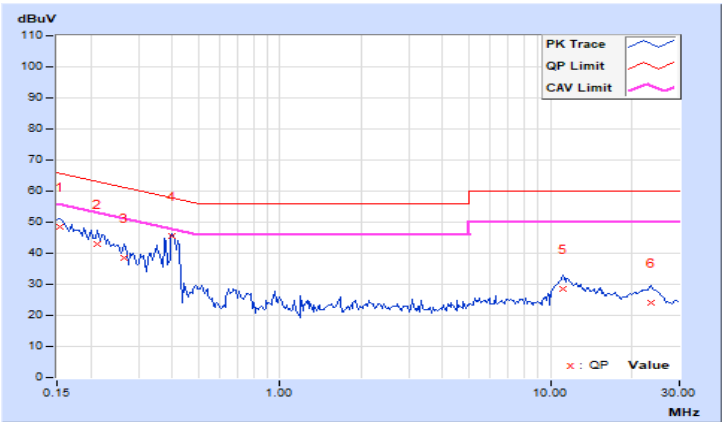


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.99	38.61	22.80	48.60	32.79	65.79	55.79	-17.19	-23.00
2	0.21250	9.99	32.91	23.19	42.90	33.18	63.11	53.11	-20.21	-19.93
3	0.26719	10.00	28.43	21.40	38.43	31.40	61.20	51.20	-22.77	-19.80
4	**0.40000**	**10.01**	**35.59**	**34.45**	**45.60**	**44.46**	**57.85**	**47.85**	**-12.25**	**-3.39**
5	11.20313	10.64	17.98	12.67	28.62	23.31	60.00	50.00	-31.38	-26.69
6	23.43750	11.19	12.71	8.84	23.90	20.03	60.00	50.00	-36.10	-29.97

Remarks:

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

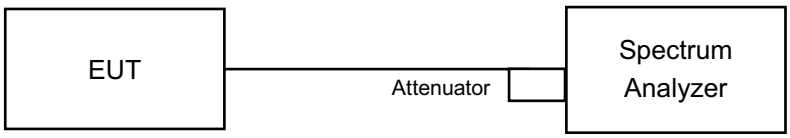


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	10.14	10.12	10.13	0.5	Pass
6	2437	10.12	10.13	10.12	0.5	Pass
11	2462	10.10	10.12	10.11	0.5	Pass

802.11g

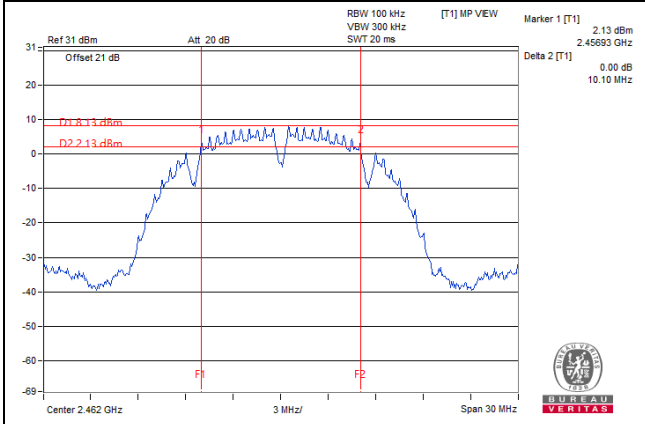
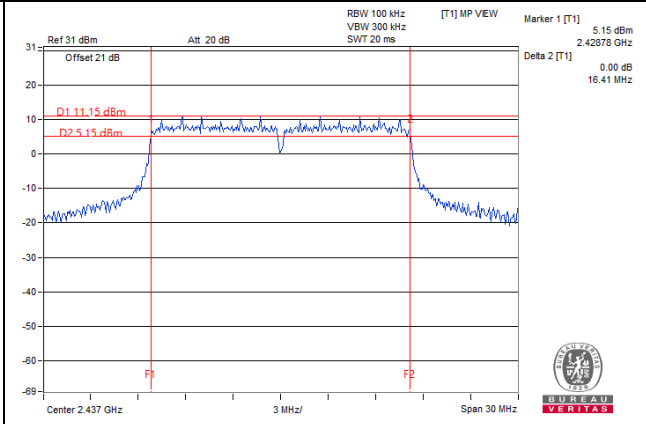
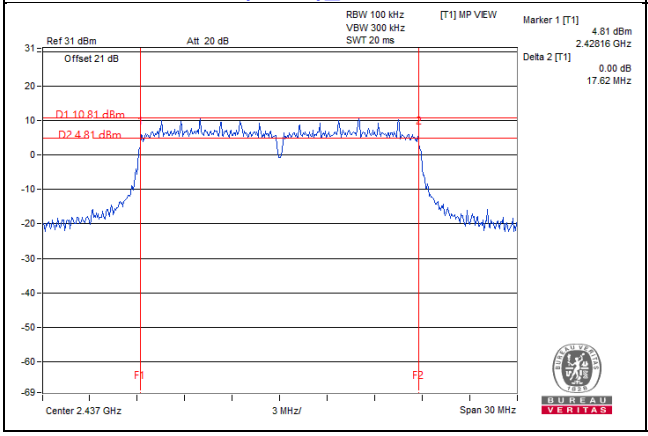
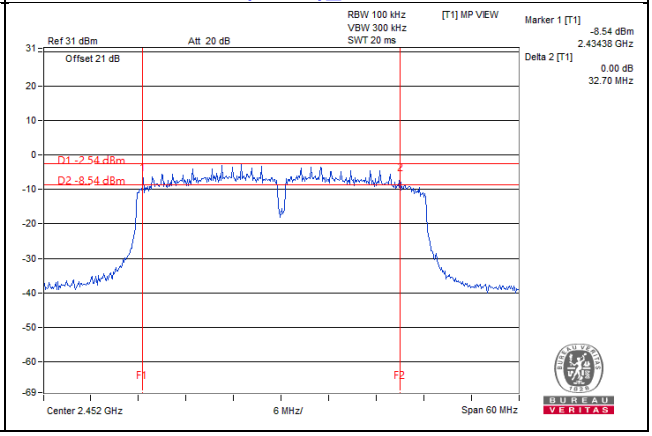
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.46	16.43	16.43	0.5	Pass
6	2437	16.41	16.41	16.42	0.5	Pass
11	2462	16.41	16.43	16.41	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	17.63	17.66	17.63	0.5	Pass
6	2437	17.63	17.63	17.62	0.5	Pass
11	2462	17.66	17.66	17.66	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	34.35	35.14	35.12	0.5	Pass
6	2437	34.35	35.20	35.16	0.5	Pass
9	2452	35.32	33.93	32.70	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH11	**802.11g_Chain 0 / CH6**
	
802.11n (HT20)_Chain 2 / CH6	**802.11n (HT40)_Chain 2 / CH9**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

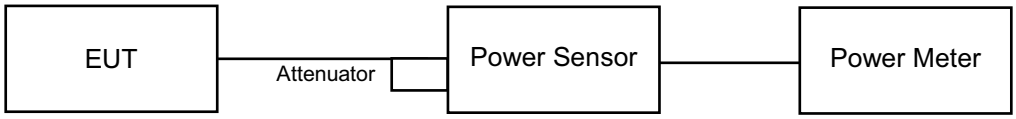
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

4.4.5 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.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	17.77	18.06	17.83	184.488	22.66	30.00	Pass
6	2437	24.07	24.44	24.28	801.158	29.04	30.00	Pass
11	2462	17.24	18.01	17.57	173.355	22.39	30.00	Pass

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	14.16	14.11	14.25	78.432	18.94	30.00	Pass
6	2437	22.44	22.67	22.85	553.067	27.43	30.00	Pass
11	2462	14.56	14.91	15.13	92.134	19.64	30.00	Pass

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	12.17	12.09	12.11	48.918	16.89	30.00	Pass
6	2437	22.61	22.43	22.75	545.74	27.37	30.00	Pass
11	2462	12.69	12.98	13.11	58.903	17.70	30.00	Pass

802.11n (HT40)

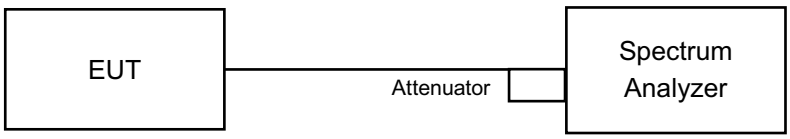
Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	9.53	9.11	9.37	25.771	14.11	30.00	Pass
6	2437	17.31	17.14	17.28	159.044	22.02	30.00	Pass
9	2452	11.41	10.81	11.26	39.252	15.94	30.00	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm 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

802.11b, 802.11g, 802.11n (HT20)

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.

802.11n (HT40)

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/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.89	4.77	-9.12	5.62	Pass
	6	2437	-6.41	4.77	-1.64	5.62	Pass
	11	2462	-13.85	4.77	-9.08	5.62	Pass
1	1	2412	-13.42	4.77	-8.65	5.62	Pass
	6	2437	-8.34	4.77	-3.57	5.62	Pass
	11	2462	-12.97	4.77	-8.20	5.62	Pass
2	1	2412	-13.96	4.77	-9.19	5.62	Pass
	6	2437	-7.55	4.77	-2.78	5.62	Pass
	11	2462	-14.39	4.77	-9.62	5.62	Pass

Note: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2$ / 3] = 8.38dBi > 6dBi , so the power density limit shall be reduced to 8-(8.38-6) = 5.62dBm..

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-18.52	4.77	-13.75	5.62	Pass
	6	2437	-10.43	4.77	-5.66	5.62	Pass
	11	2462	-18.43	4.77	-13.66	5.62	Pass
1	1	2412	-18.27	4.77	-13.50	5.62	Pass
	6	2437	-11.30	4.77	-6.53	5.62	Pass
	11	2462	-17.88	4.77	-13.11	5.62	Pass
2	1	2412	-16.92	4.77	-12.15	5.62	Pass
	6	2437	-10.20	4.77	-5.43	5.62	Pass
	11	2462	-18.28	4.77	-13.51	5.62	Pass

Note: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2$ / 3] = 8.38dBi > 6dBi , so the power density limit shall be reduced to 8-(8.38-6) = 5.62dBm..

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-20.42	4.77	-15.65	5.62	Pass
	6	2437	-9.79	4.77	-5.02	5.62	Pass
	11	2462	-20.45	4.77	-15.68	5.62	Pass
1	1	2412	-19.68	4.77	-14.91	5.62	Pass
	6	2437	-11.51	4.77	-6.74	5.62	Pass
	11	2462	-11.27	4.77	-6.50	5.62	Pass
2	1	2412	-21.06	4.77	-16.29	5.62	Pass
	6	2437	-11.57	4.77	-6.80	5.62	Pass
	11	2462	-20.35	4.77	-15.58	5.62	Pass

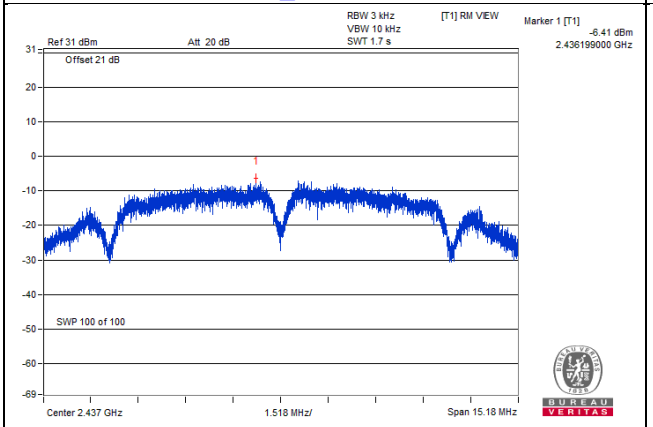
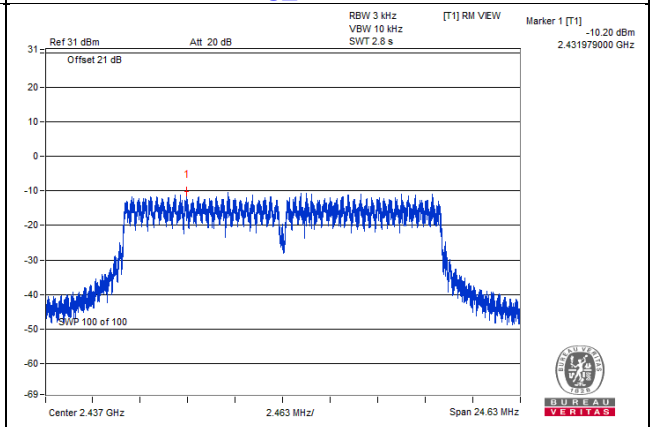
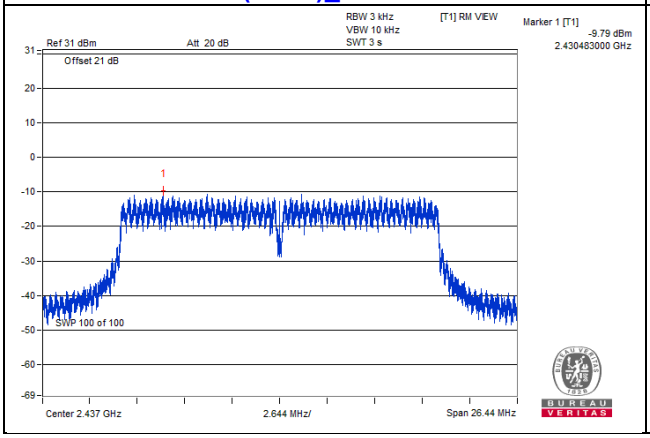
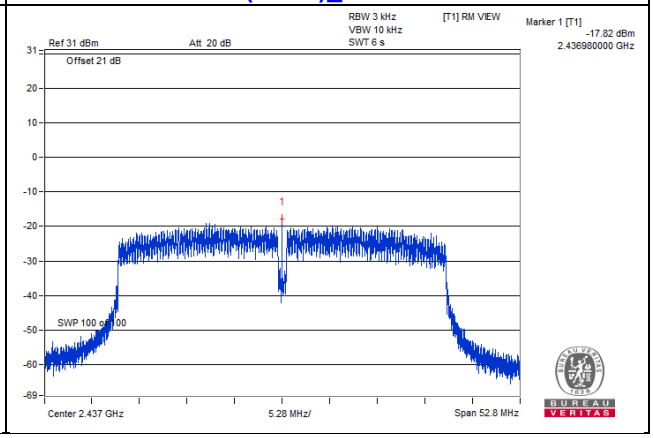
Note: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2$ / 3] = 8.38dBi > 6dBi , so the power density limit shall be reduced to 8-(8.38-6) = 5.62dBm..

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-26.38	4.77	0.10	-21.51	5.62	Pass
	6	2437	-18.45	4.77	0.10	-13.58	5.62	Pass
	9	2452	-24.40	4.77	0.10	-19.53	5.62	Pass
1	3	2422	-25.86	4.77	0.10	-20.99	5.62	Pass
	6	2437	-17.82	4.77	0.10	-12.95	5.62	Pass
	9	2452	-23.09	4.77	0.10	-18.22	5.62	Pass
2	3	2422	-26.15	4.77	0.10	-21.28	5.62	Pass
	6	2437	-18.21	4.77	0.10	-13.34	5.62	Pass
	9	2452	-24.85	4.77	0.10	-19.98	5.62	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2$ / 3] = 8.38dBi > 6dBi , so the power density limit shall be reduced to 8-(8.38-6) = 5.62dBm..

2. Refer to section 3.3 for duty cycle spectrum plot.

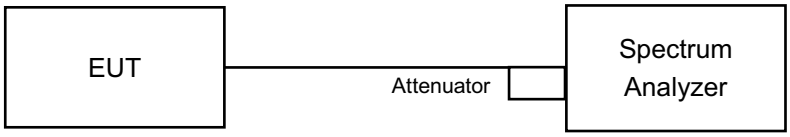
Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH6	**802.11g_Chain 2 / CH6**
	
802.11n (HT20)_Chain 0 / CH6	**802.11n (HT40)_Chain 1 / CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

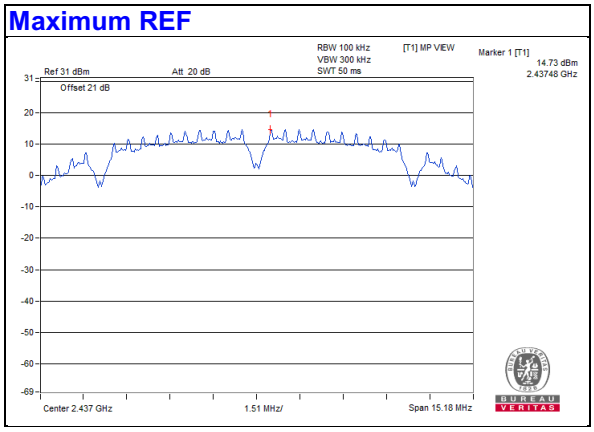
Same as Item 4.3.6

4.6.7 Test Results

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

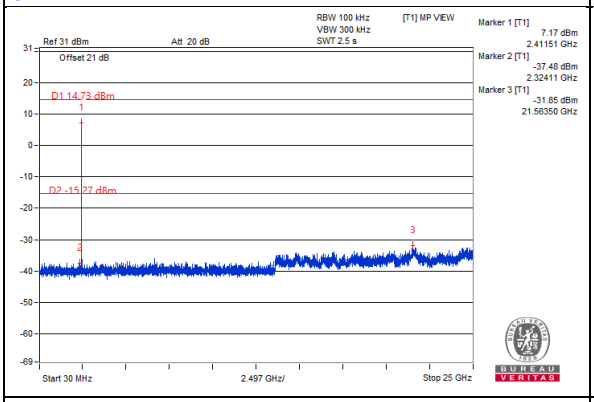
802.11b

Maximum REF

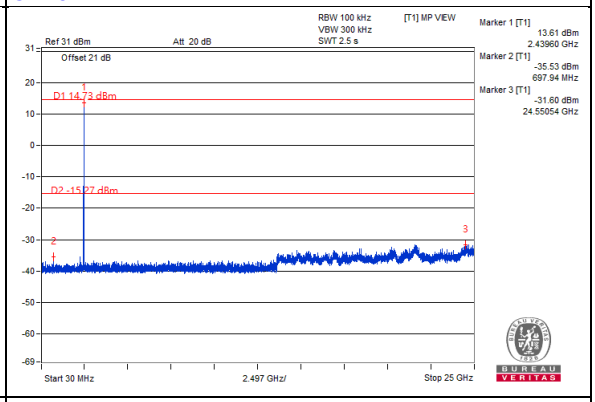


Chain 0

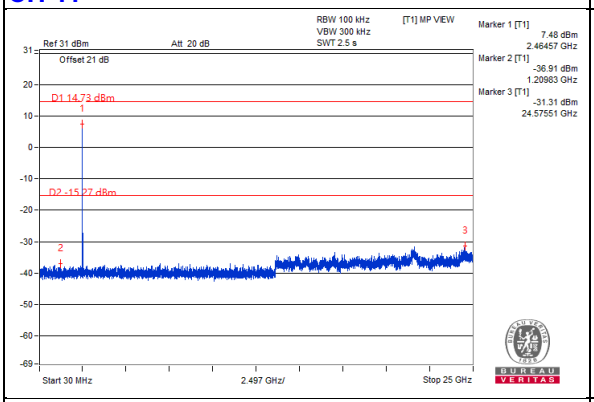
CH 1



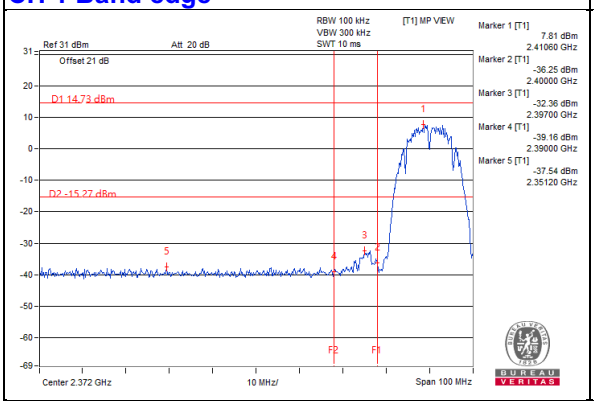
CH 6



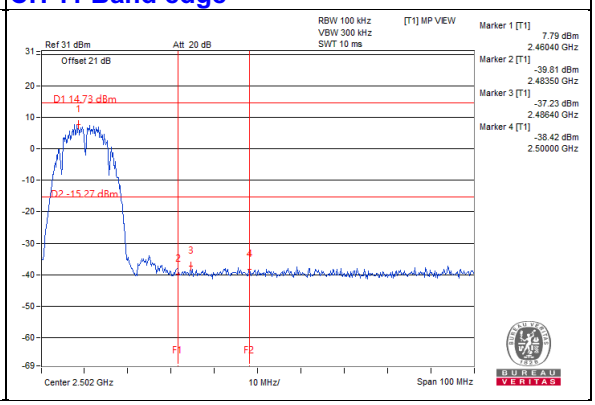
CH 11



CH 1 Band edge

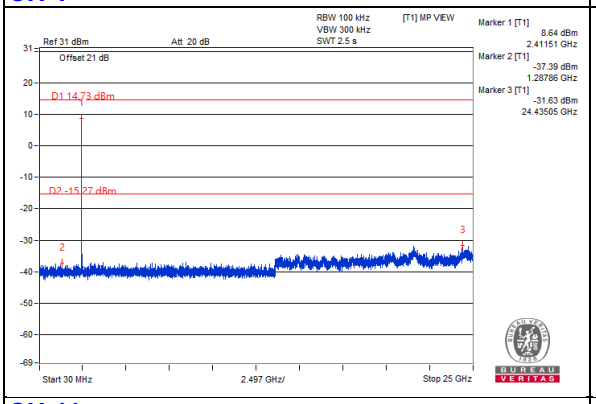


CH 11 Band edge

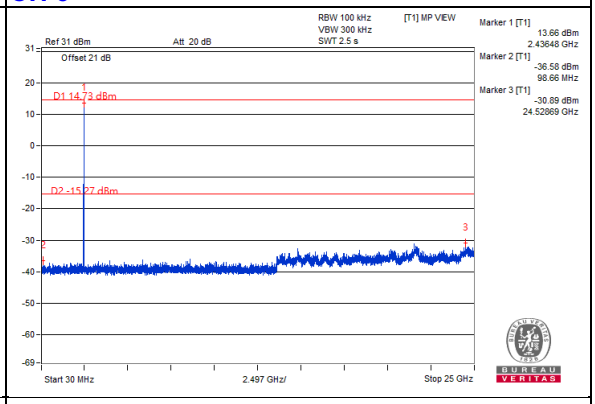


Chain 1

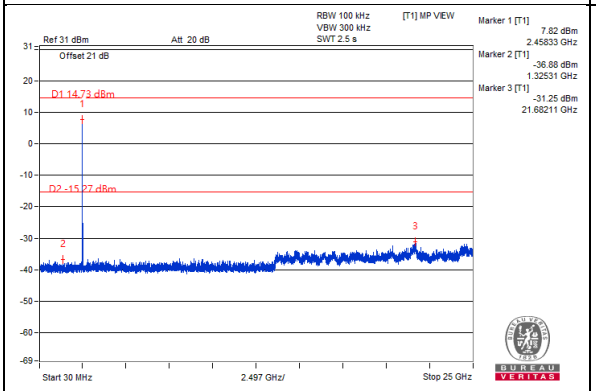
CH 1



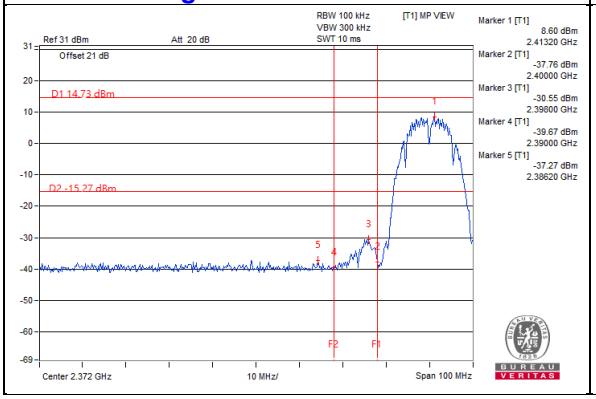
CH 6



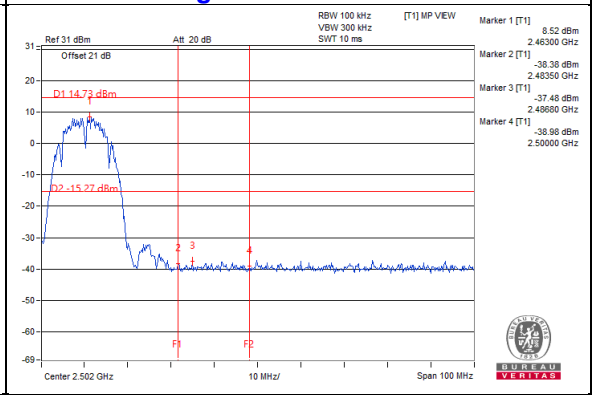
CH 11



CH 1 Band edge

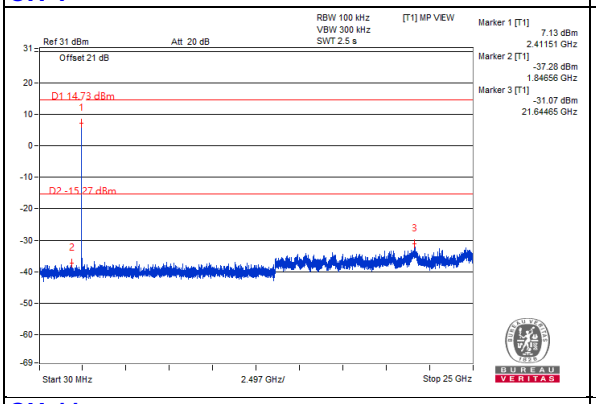


CH 11 Band edge

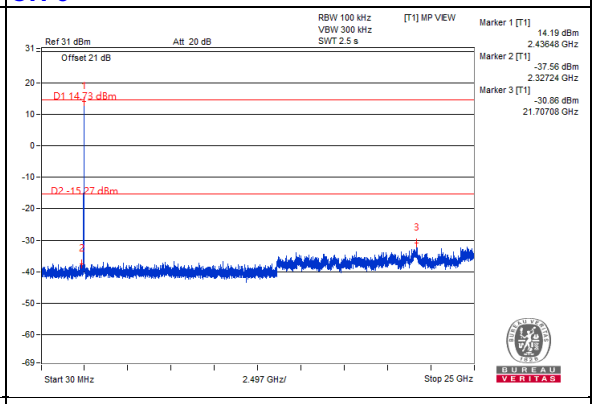


Chain 2

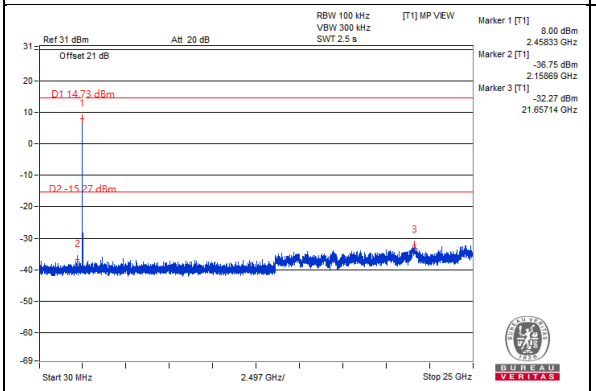
CH 1



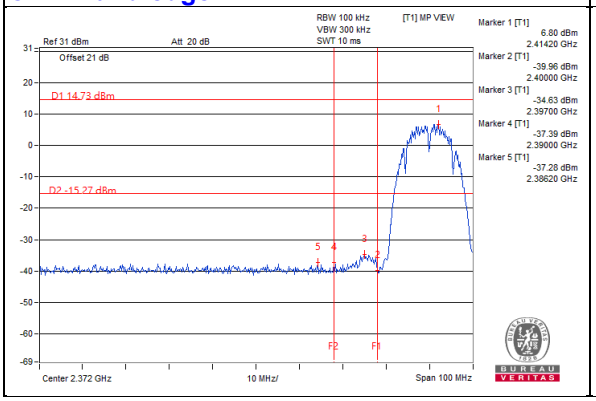
CH 6



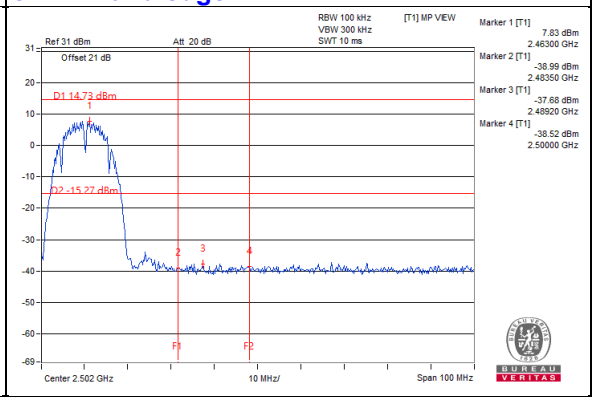
CH 11



CH 1 Band edge

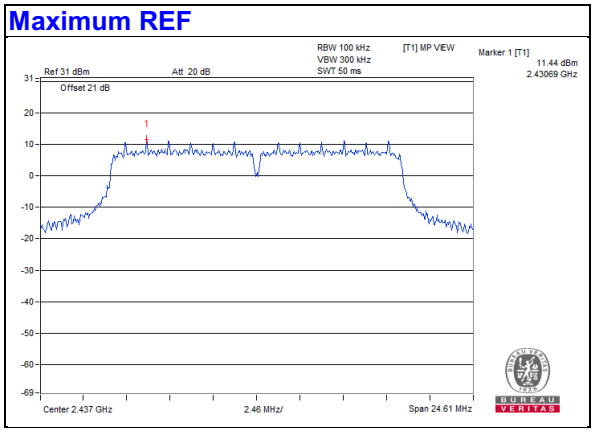


CH 11 Band edge



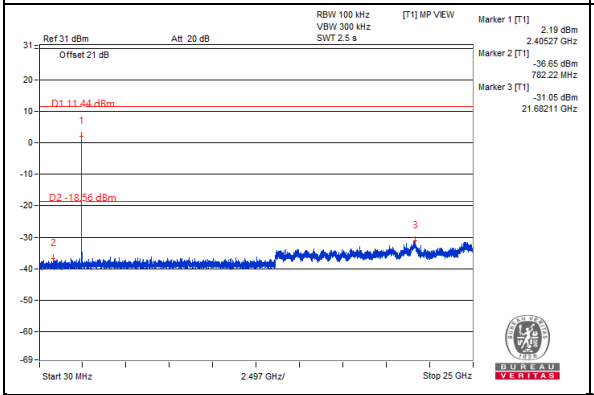
802.11g

Maximum REF

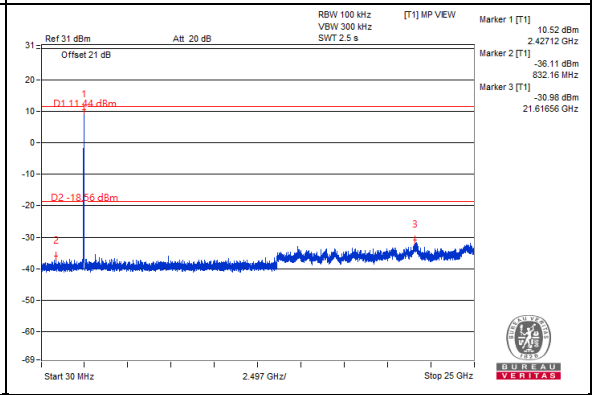


Chain 0

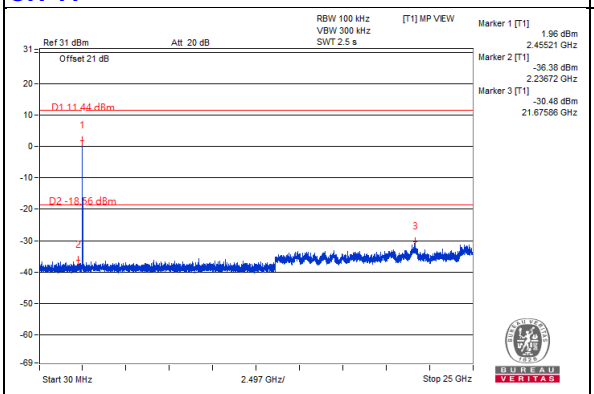
CH 1



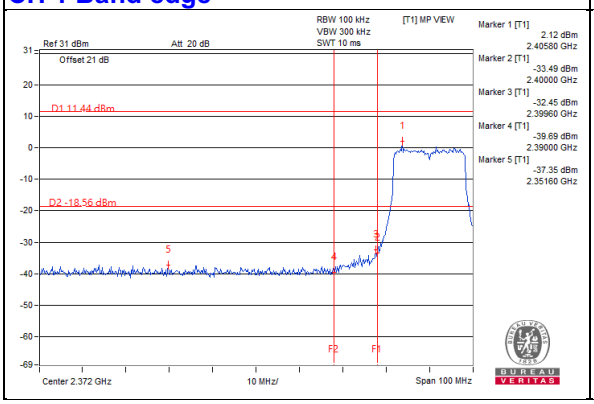
CH 6



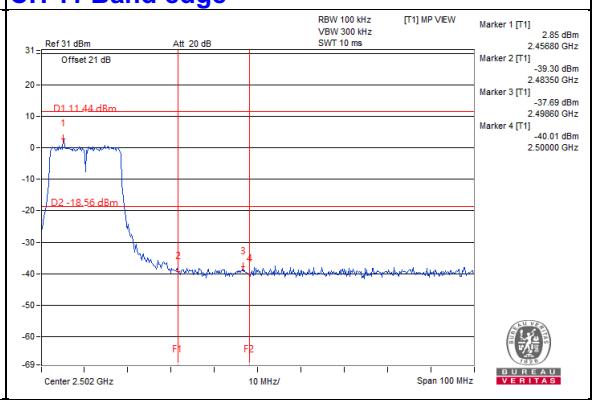
CH 11



CH 1 Band edge

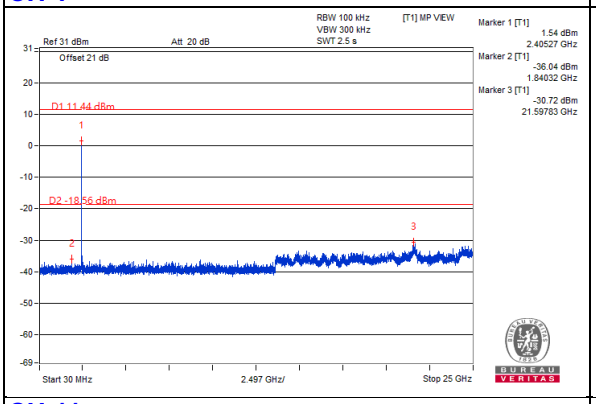


CH 11 Band edge

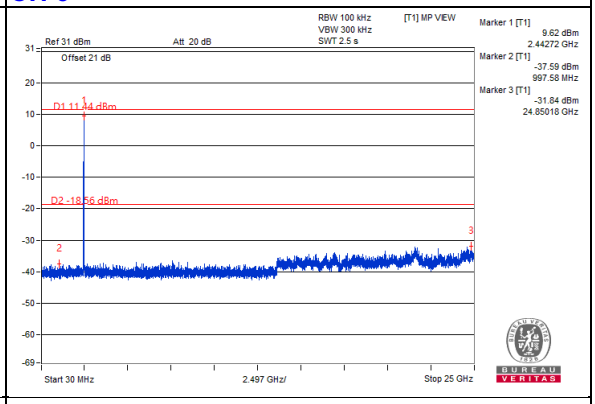


Chain 1

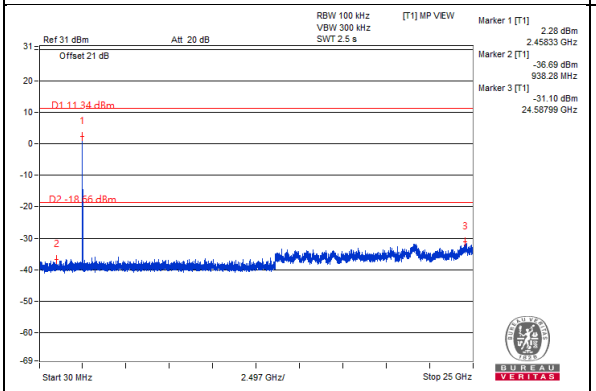
CH 1



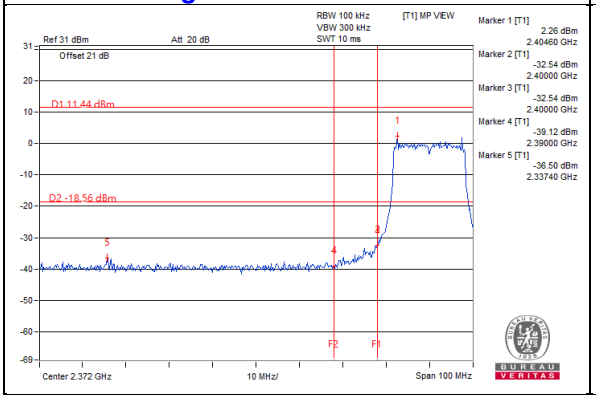
CH 6



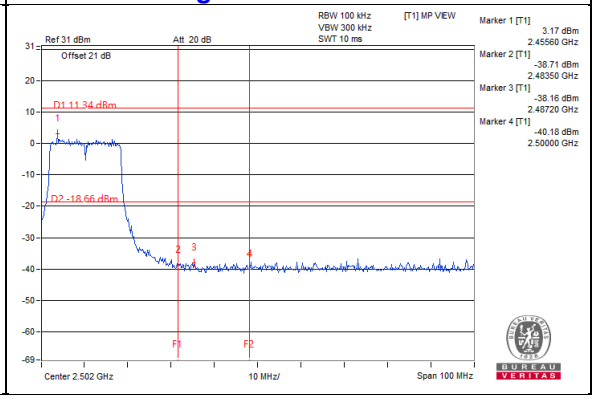
CH 11



CH 1 Band edge

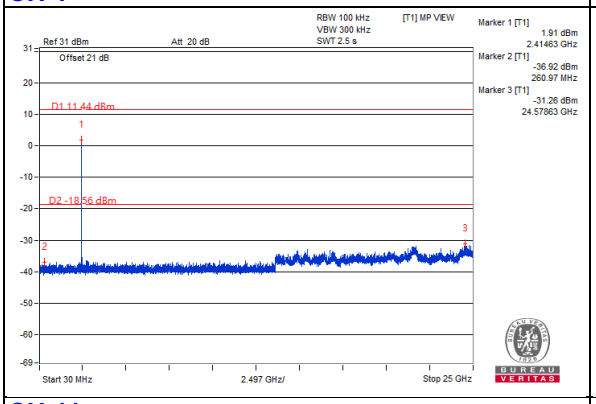


CH 11 Band edge

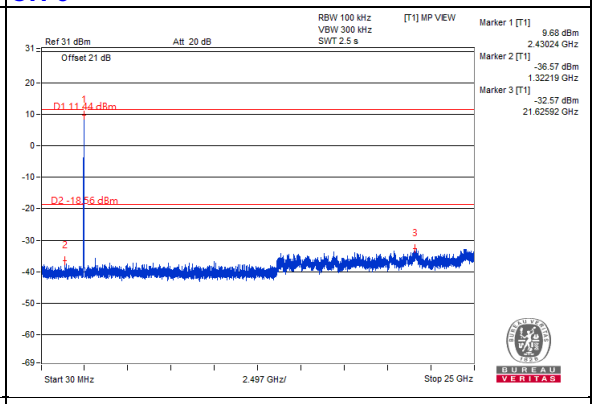


Chain 2

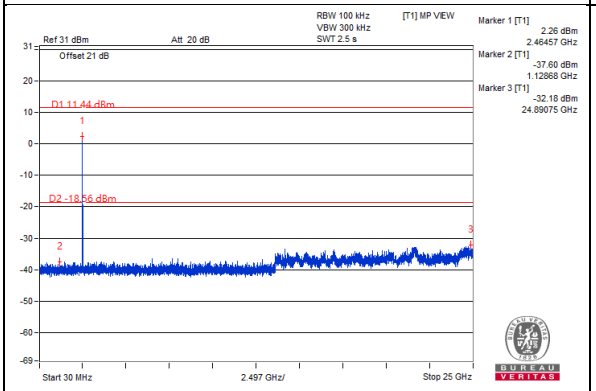
CH 1



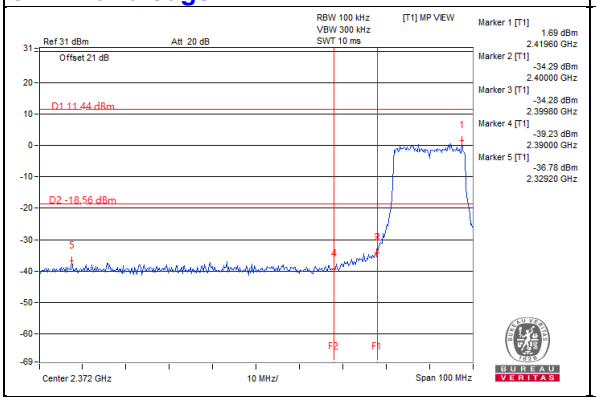
CH 6



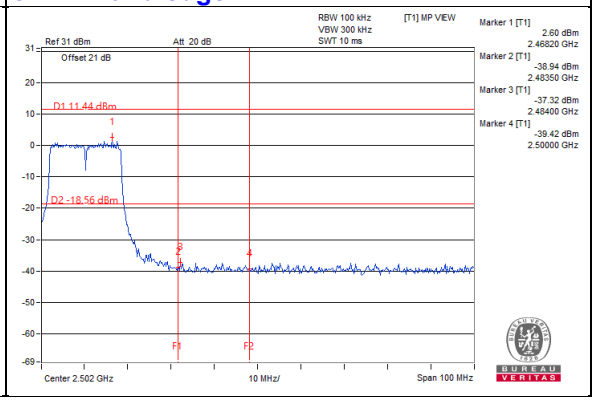
CH 11



CH 1 Band edge

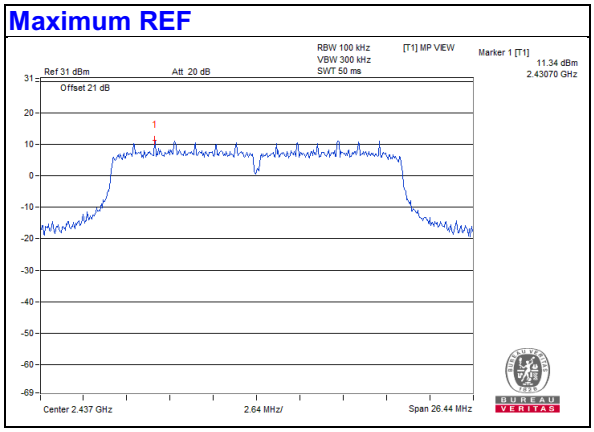


CH 11 Band edge



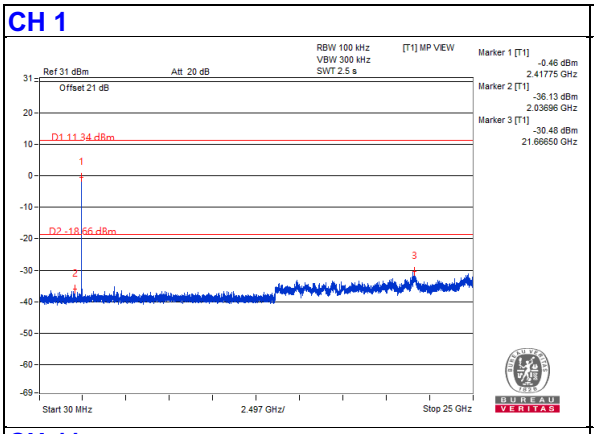
802.11n (HT20)

Maximum REF

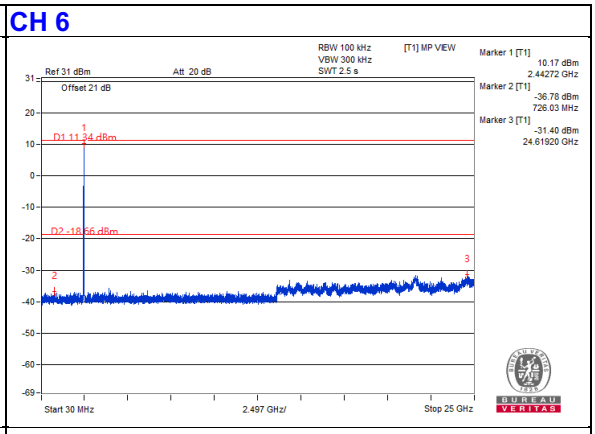


Chain 0

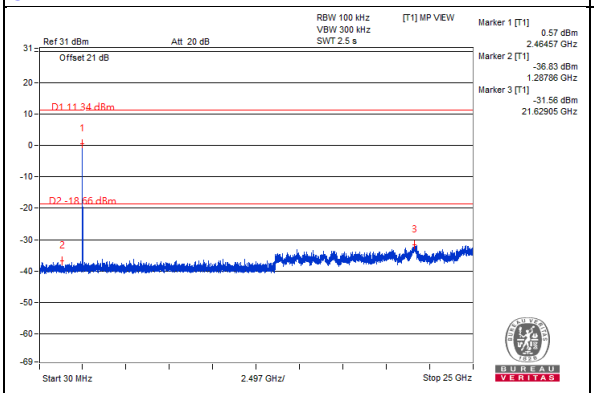
CH 1



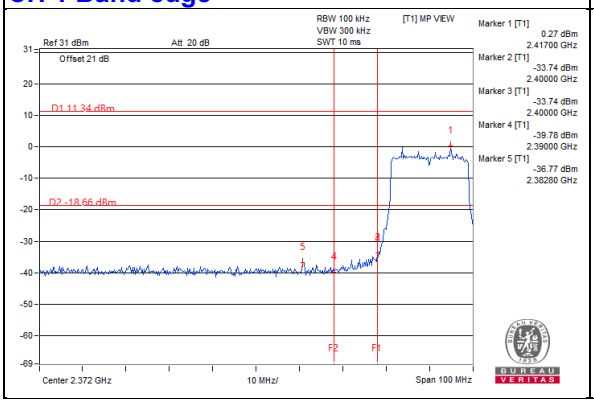
CH 6



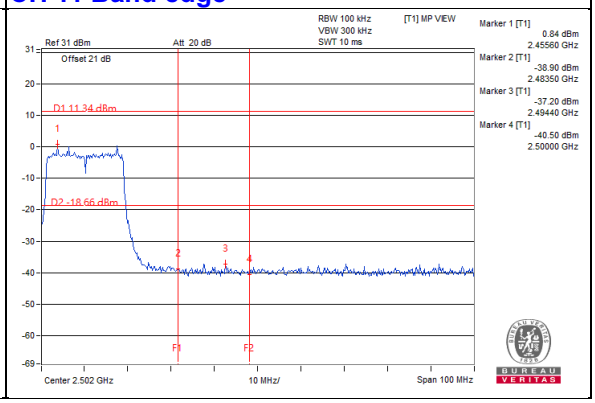
CH 11



CH 1 Band edge

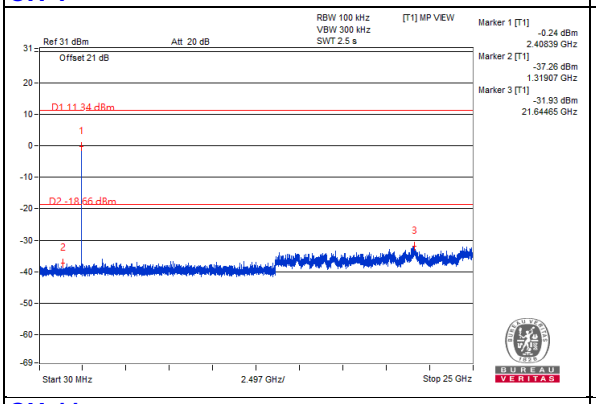


CH 11 Band edge

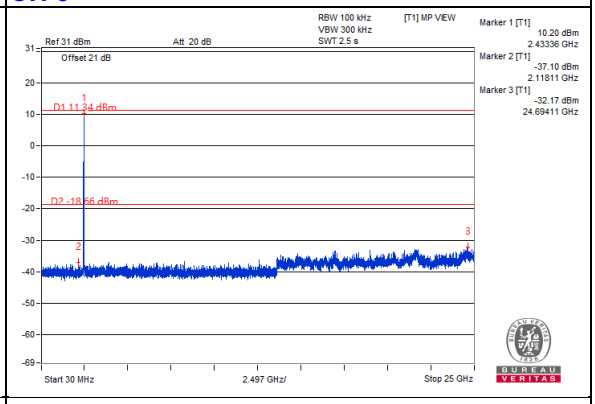


Chain 1

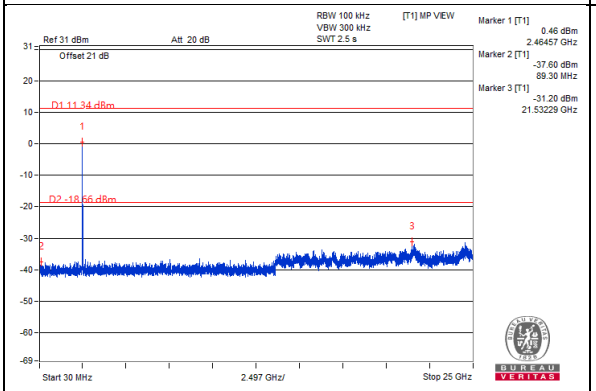
CH 1



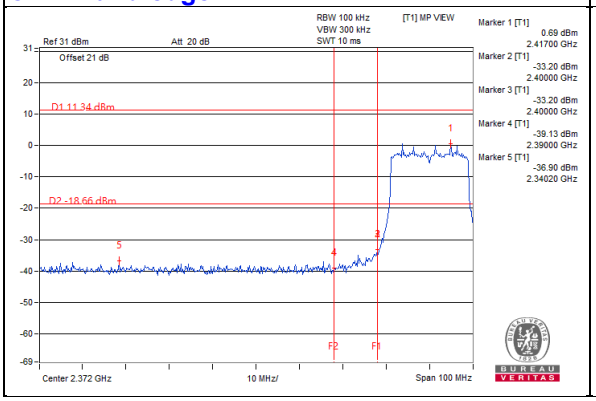
CH 6



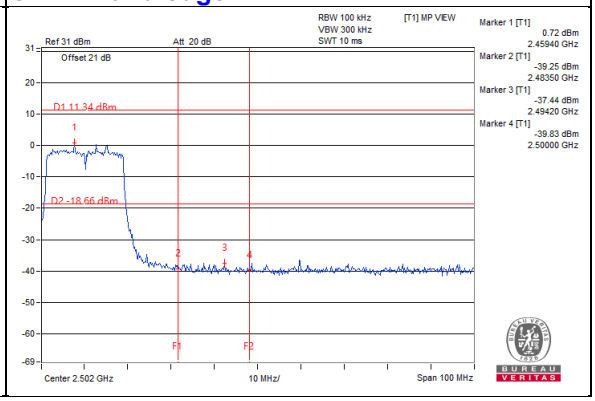
CH 11



CH 1 Band edge

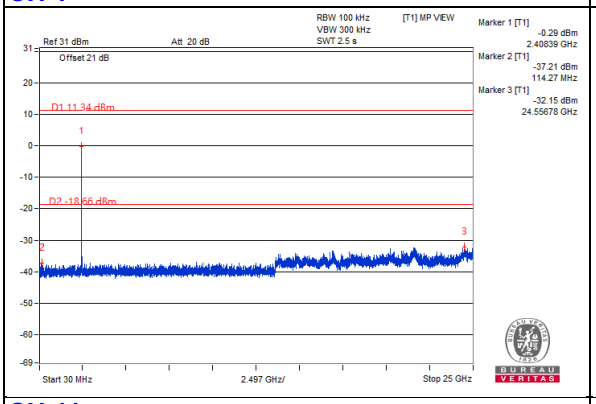


CH 11 Band edge

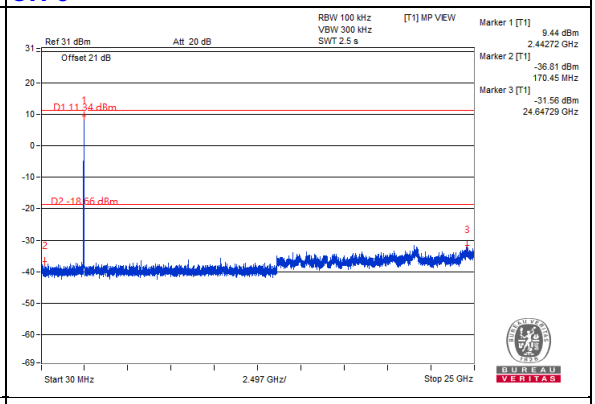


Chain 2

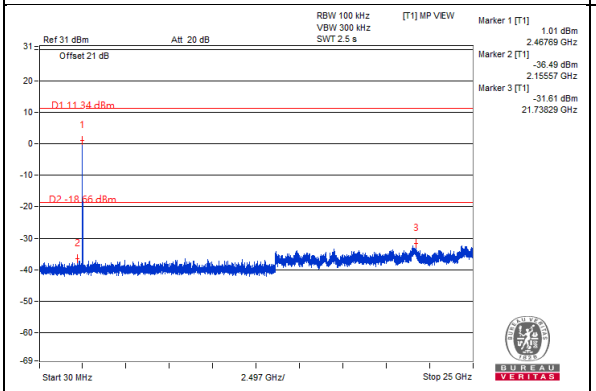
CH 1



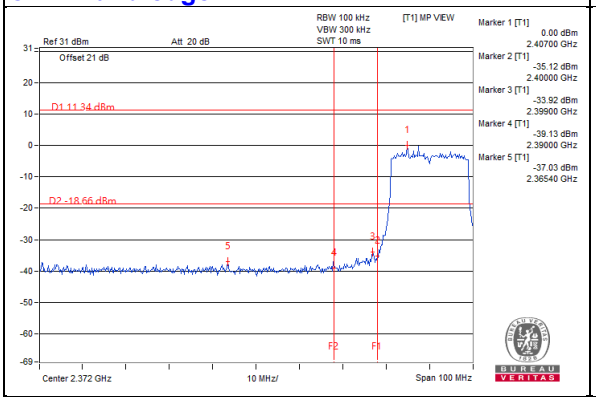
CH 6



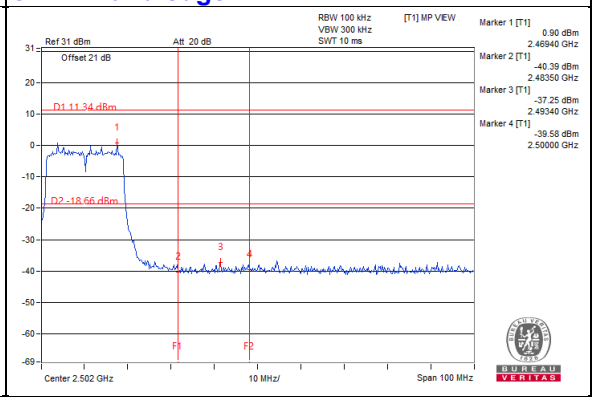
CH 11



CH 1 Band edge

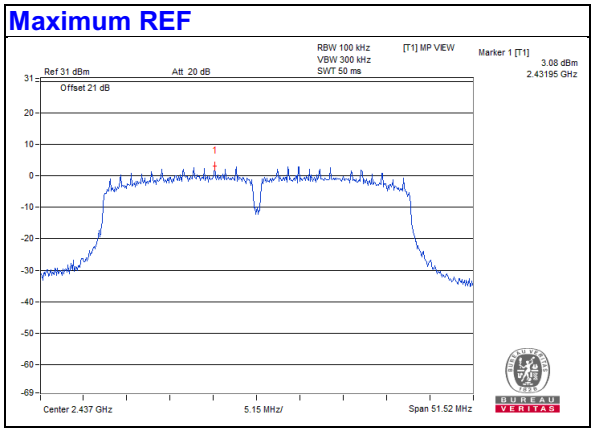


CH 11 Band edge



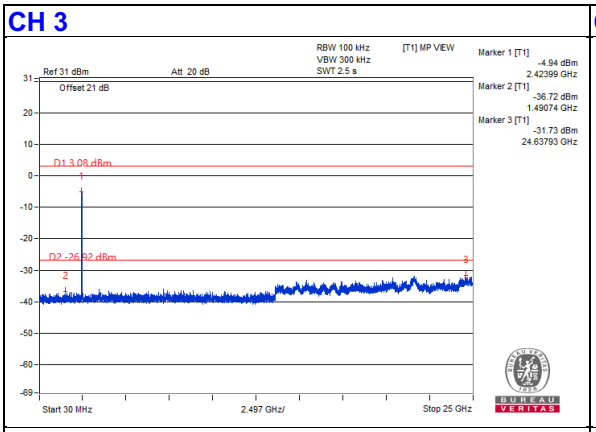
802.11n (HT40)

Maximum REF

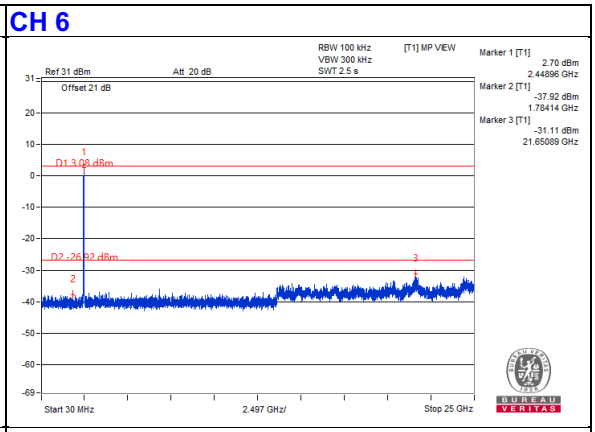


Chain 0

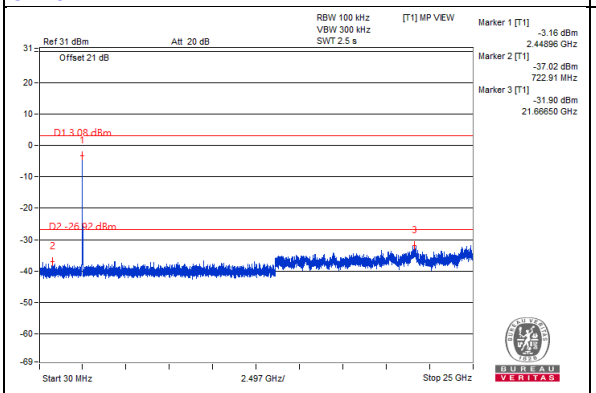
CH 3



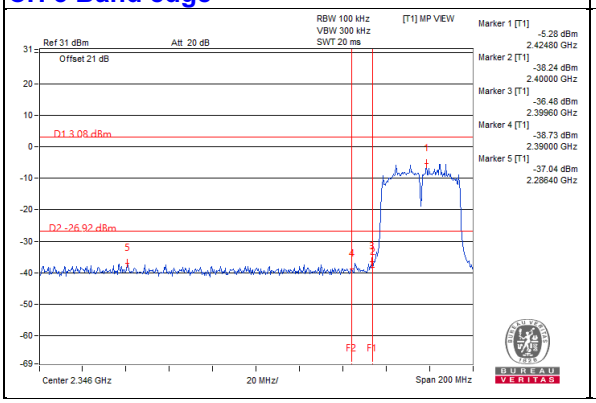
CH 6



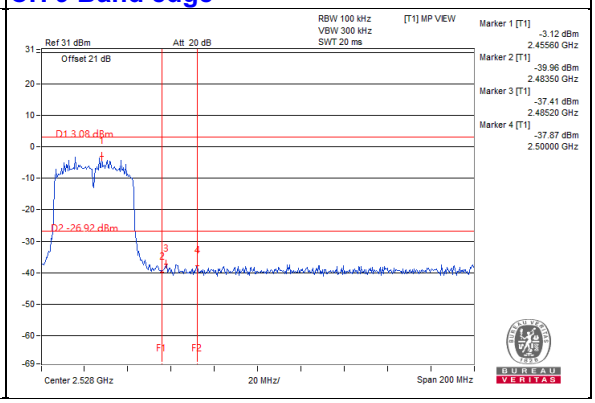
CH 9



CH 3 Band edge

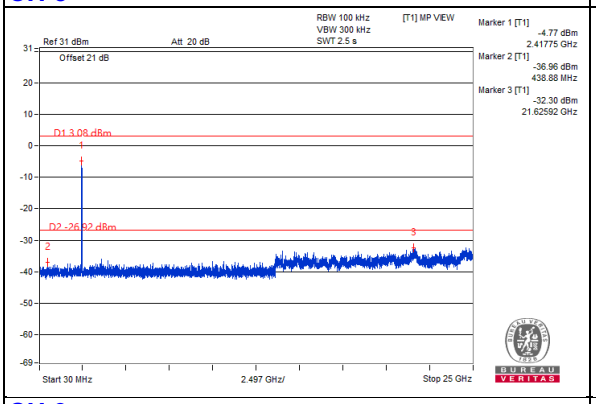


CH 9 Band edge

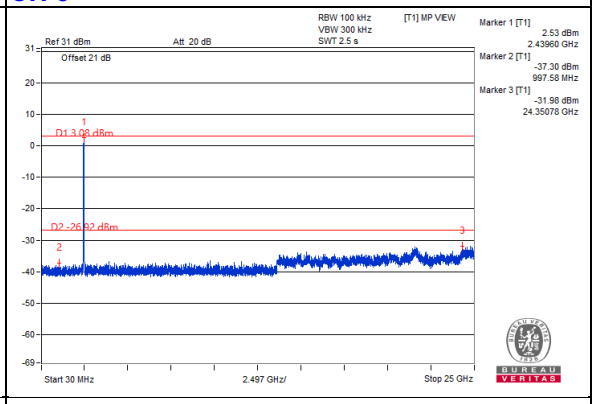


Chain 1

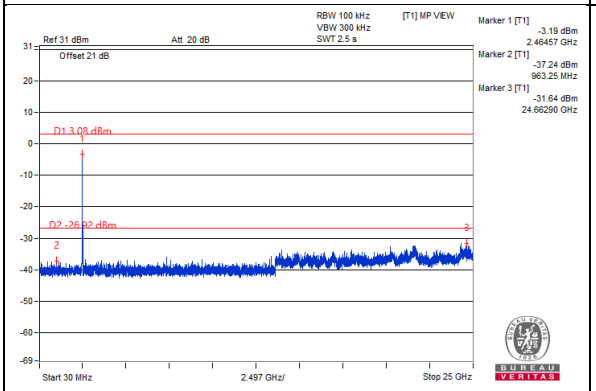
CH 3



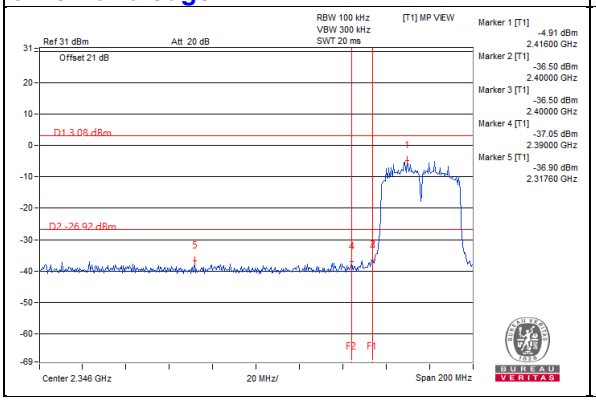
CH 6



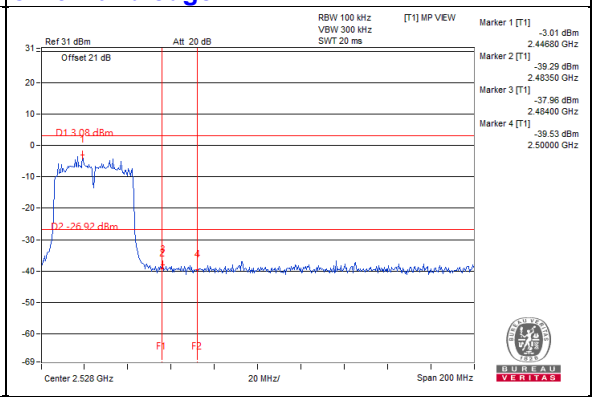
CH 9



CH 3 Band edge

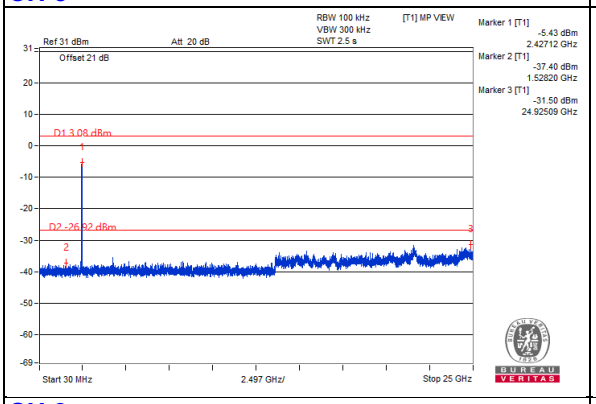


CH 9 Band edge

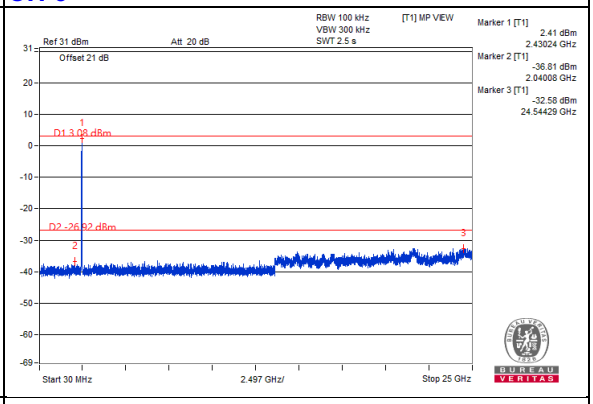


Chain 2

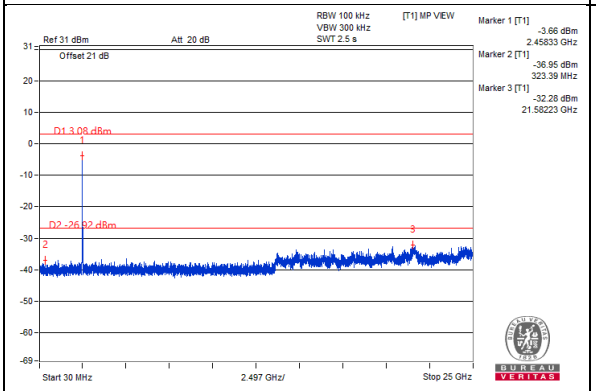
CH 3



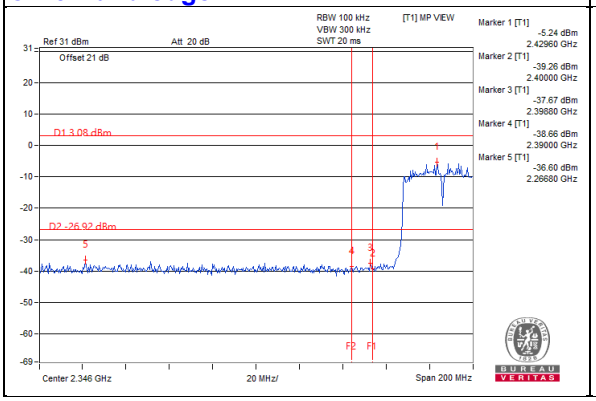
CH 6



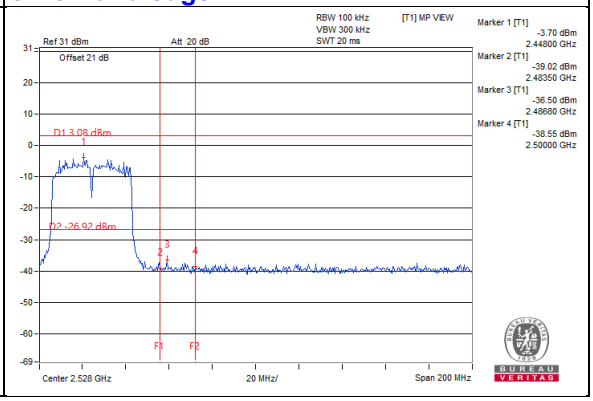
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of 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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