



Test Report No.: RF180807N009-2



TEST REPORT



Applicant	Asian Express Holdings Limited
Address	RM1702, Sino Centre, 582-592 Nathan Road, Mongkok, Kowloon, Hong Kong.

Manufacturer or Supplier	Asian Express Holdings Limited
Address	RM1702, Sino Centre, 582-592 Nathan Road, Mongkok, Kowloon, Hong Kong.
Product	cloud rider drone with air pressure sensor, cloud rider drone with camera, cloud rider drone, cloud rider drone with 480P
Brand Name	PROPEL
Model	PL-1430
Additional Model & Model Difference	PL-1440, PL-1441, PL-1442, PL-1443, PL-1444, PL-1445, etc., see items 3.1
Date of tests	Aug. 07, 2018 ~ Sep. 09, 2018

The tests have been carried out according to the requirements of the following standard:

FCC Part 15, Subpart C, Section 15.247

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Breeze Jiang Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	
	Date: Oct. 15, 2018

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF180807N009-2	Original release	Oct. 15, 2018

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	Powered by Battery
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

2 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	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.76dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.96dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	cloud rider drone with air pressure sensor, cloud rider drone with camera, cloud rider drone, cloud rider drone with 480P
MODEL NO.	PL-1430
ADDITIONAL NO.	PL-1440, PL-1441, PL-1442, PL-1443, PL-1444, PL-1445, PL-1446, PL-1447, PL-1448, PL-1449, PL-1431, PL-1432, PL-1433, PL-1434, PL-1435, PL-1436, PL-1437, PL-1438, PL-1439, X18
FCC ID	VLEPL-1440W
NOMINAL VOLTAGE	DC3.7V from Plane Li-ion Battery
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20)
PEAK OUTPUT POWER	20.31dBm(Maximum)
ANTENNA TYPE	Wire Antenna, with 2.5dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. The EUT provides completed transmitters and receivers:

MODULATION MODE	FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 180807N009-2) for detailed product photo.
5. Additional models (see above table) are identical with the test model PL-1430 except the model number for marketing purpose
6. When the EUT charging that wireless function can't working, the charging mode was tested in the FCC Part 15B(sDOC) report.(report no.: FS180807N009)



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		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
-	√	√	-	√	Powered by Fully Battery with WIFI Link

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

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, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1.0

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, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5

BANDEGE MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5

ANTENNA PORT CONDUCTED MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 53%RH	DC 3.7V from Fully Battery	Eric Fang
RE≥1G	23deg. C, 53%RH	DC 3.7V from Fully Battery	Eric Fang
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.7V from Fully Battery	Hardy



3.3 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, Section 15.247**
- KDB 558074 D01 DTS Meas Guidance v04**
- ANSI C63.10-2013**

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

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

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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Plane	PROPEL	PL-1430	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A



4 TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

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. As shown in 15.35(b), 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

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 21,18	Mar. 20,19
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 31,18	May 30,19
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Apr. 18,18	Apr. 18,19
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	Jul. 28, 18	Jul. 27, 19
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Jun. 02,18	Jun. 01,19
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	May 05,18	May 04,19
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Feb. 10,18	Feb. 09,19
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Apr. 18,18	Apr. 18,19
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 08,17	Nov. 07,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 10,18	Aug. 09,19

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

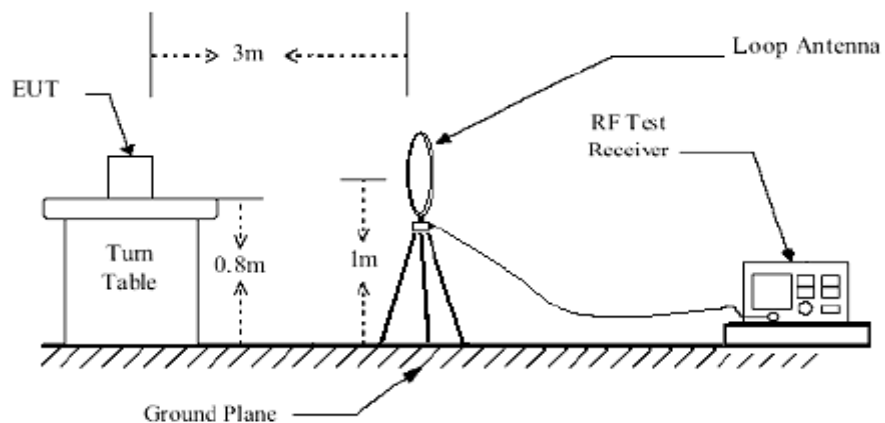
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (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.
5. The testing of the EUT was performed on all 3 orthogonal axes, the worst-case test configuration was reported on the file test setup photo.

4.1.4 DEVIATION FROM TEST STANDARD

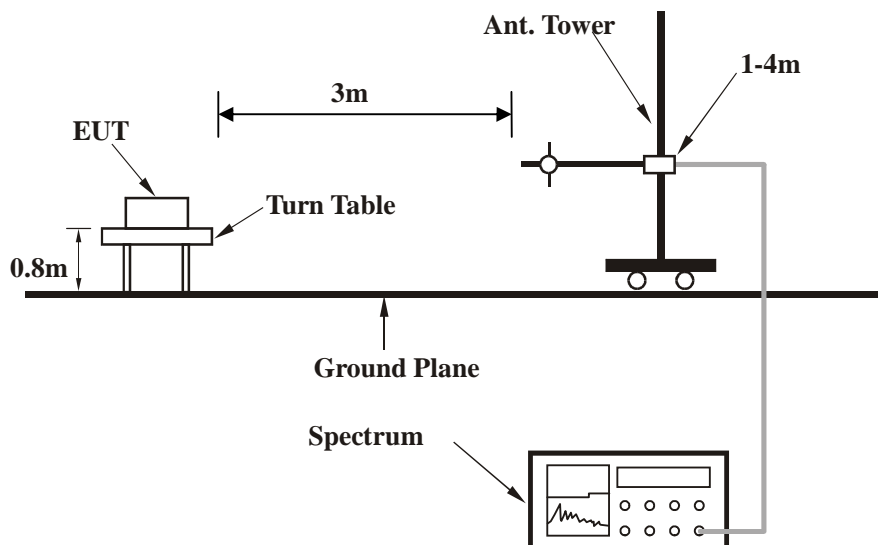
No deviation.

4.1.5 TEST SETUP

Below 30MHz test setup

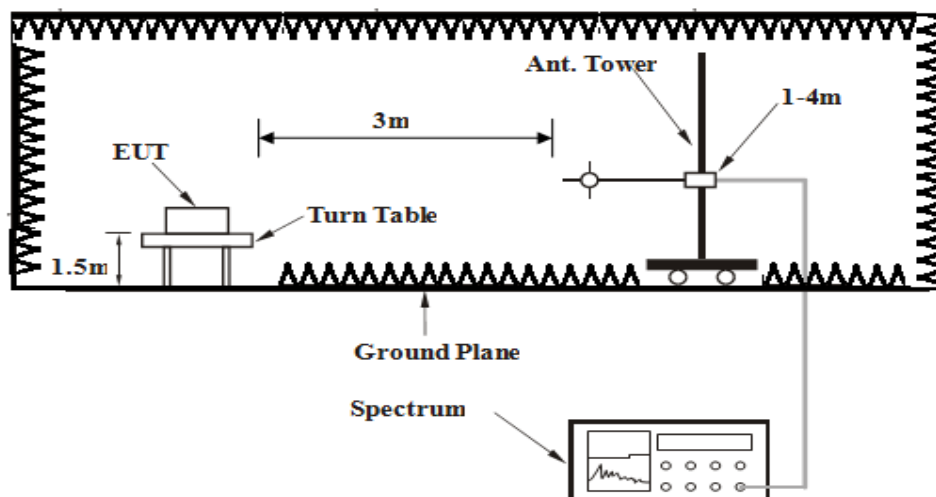


Below 1GHz test setup



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

Above 1GHz test setup



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

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

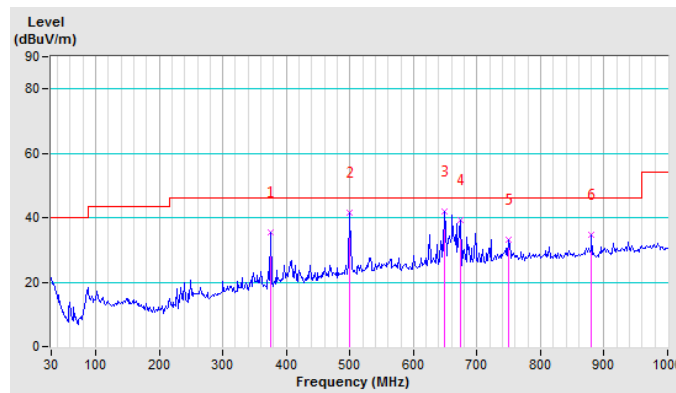
802.11b

CHANNEL	TX Channel 1	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	375.10	35.59 QP	46.00	-10.41	2.00 H	235	46.70	-11.11
2	499.46	41.46 QP	46.00	-4.54	2.00 H	98	48.68	-7.22
3	648.69	42.03 QP	46.00	-3.97	2.00 H	114	45.11	-3.08
4	673.56	39.31 QP	46.00	-6.69	2.00 H	216	42.56	-3.25
5	749.73	33.04 QP	46.00	-12.96	2.00 H	59	34.19	-1.15
6	880.30	34.69 QP	46.00	-11.31	2.00 H	301	35.38	-0.69

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

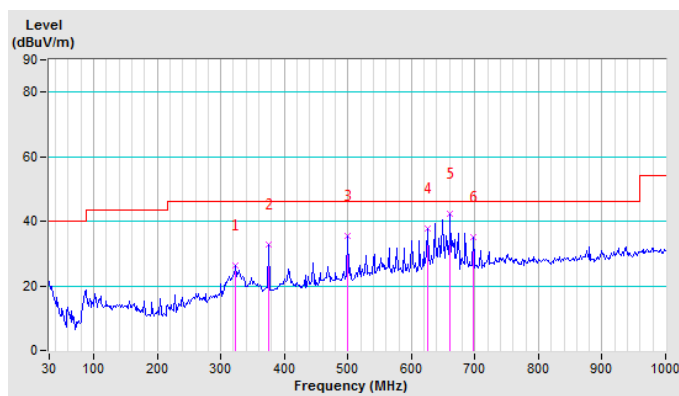


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

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	323.80	26.43 QP	46.00	-19.57	1.00 V	152	39.56	-13.13
2	375.10	32.65 QP	46.00	-13.35	1.00 V	325	43.76	-11.11
3	499.46	35.36 QP	46.00	-10.64	1.00 V	251	42.58	-7.22
4	625.37	37.90 QP	46.00	-8.10	1.00 V	85	41.05	-3.15
5	661.12	42.16 QP	46.00	-3.84	1.00 V	112	45.32	-3.16
6	696.88	34.99 QP	46.00	-11.01	1.00 V	164	38.18	-3.19

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.84 PK	74.00	-22.16	1.00 H	287	49.79	2.05
2	2390.00	32.45 AV	54.00	-21.55	1.00 H	287	30.40	2.05
3	*2412.00	109.64 PK			1.97 H	287	107.43	2.21
4	*2412.00	101.36 AV			1.97 H	287	99.15	2.21
5	4824.00	50.29 PK	74.00	-23.71	1.00 H	254	45.43	4.86
6	4824.00	42.07 AV	54.00	-11.93	1.00 H	254	37.21	4.86
7	7236.00	51.44 PK	74.00	-22.56	1.00 H	360	42.78	8.66
8	7236.00	38.55 AV	54.00	-15.45	1.00 H	360	29.89	8.66
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	44.91 PK	74.00	-29.09	1.78 V	251	42.86	2.05
2	2390.00	38.55 AV	54.00	-15.45	1.78 V	251	36.50	2.05
3	*2412.00	98.69 PK			1.56 V	280	96.48	2.21
4	*2412.00	90.44 AV			1.56 V	280	88.23	2.21
5	4824.00	50.24 PK	74.00	-23.76	1.00 V	0	45.38	4.86
6	4824.00	42.25 AV	54.00	-11.75	1.00 V	0	37.39	4.86
7	7236.00	49.84 PK	74.00	-24.16	1.00 V	360	41.18	8.66
8	7236.00	37.23 AV	54.00	-16.77	1.00 V	360	28.57	8.66

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



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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	*2437.00	108.15 PK			1.42 H	268	105.77	2.38
2	*2437.00	100.63 AV			1.42 H	268	98.25	2.38
3	4874.00	51.23 PK	74.00	-22.77	1.00 H	142	46.26	4.97
4	4874.00	41.47 AV	54.00	-12.53	1.00 H	142	36.50	4.97
5	7311.00	51.37 PK	74.00	-22.63	1.00 H	360	42.61	8.76
6	7311.00	37.45 AV	54.00	-16.55	1.00 H	360	28.69	8.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.64 PK			1.74 V	245	97.26	2.38
2	*2437.00	91.24 AV			1.74 V	245	88.86	2.38
3	4874.00	51.32 PK	74.00	-22.68	1.00 V	147	46.35	4.97
4	4874.00	41.47 AV	54.00	-12.53	1.00 V	147	36.50	4.97
5	7311.00	48.79 PK	74.00	-25.21	1.00 V	0	40.03	8.76
6	7311.00	38.45 AV	54.00	-15.55	1.00 V	0	29.69	8.76

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



Test Report No.: RF180807N009-2

CHANNEL	TX Channel 11	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	*2462.00	110.22 PK			1.68 H	280	107.60	2.62
2	*2462.00	100.85 AV			1.68 H	280	98.23	2.62
3	2483.50	60.97 PK	74.00	-13.03	1.68 H	280	58.27	2.70
4	2483.50	46.87 AV	54.00	-7.13	1.68 H	280	44.17	2.70
5	4924.00	48.61 PK	74.00	-25.39	1.00 H	174	43.48	5.13
6	4924.00	43.25 AV	54.00	-10.75	1.00 H	174	38.12	5.13
7	7386.00	50.14 PK	74.00	-23.86	1.00 H	360	41.27	8.87
8	7386.00	37.15 AV	54.00	-16.85	1.00 H	360	28.28	8.87
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	97.23 PK			1.00 V	275	94.61	2.62
2	*2462.00	88.58 AV			1.00 V	275	85.96	2.62
3	2483.50	50.47 PK	74.00	-23.53	1.00 V	275	47.77	2.70
4	2483.50	39.76 AV	54.00	-14.24	1.00 V	275	37.06	2.70
5	4924.00	49.53 PK	74.00	-24.47	1.00 V	156	44.40	5.13
6	4924.00	38.45 AV	54.00	-15.55	1.00 V	156	33.32	5.13
7	7386.00	52.15 PK	74.00	-21.85	1.00 V	0	43.28	8.87
8	7386.00	38.57 AV	54.00	-15.43	1.00 V	0	29.70	8.87

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. "*" : Fundamental frequency.

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CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
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	46.25 PK	74.00	-27.75	1.12 H	145	44.20	2.05
2	2390.00	31.52 AV	54.00	-22.48	1.12 H	145	29.47	2.05
3	*2412.00	105.05 PK			1.00 H	284	102.84	2.21
4	*2412.00	101.25 AV			1.00 H	284	99.04	2.21
5	4824.00	49.53 PK	74.00	-24.47	1.00 H	214	44.67	4.86
6	4824.00	40.15 AV	54.00	-13.85	1.00 H	214	35.29	4.86
7	7236.00	48.63 PK	74.00	-25.37	1.42 H	274	39.97	8.66
8	7236.00	38.42 AV	54.00	-15.58	1.42 H	274	29.76	8.66
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	45.24 PK	74.00	-28.76	1.17 V	25	43.19	2.05
2	2390.00	39.41 AV	54.00	-14.59	1.17 V	25	37.36	2.05
3	*2412.00	93.26 PK			1.64 V	279	91.05	2.21
4	*2412.00	88.58 AV			1.64 V	279	88.37	2.21
5	4824.00	51.42 PK	74.00	-22.58	1.00 V	164	46.56	4.86
6	4824.00	41.63 AV	54.00	-12.37	1.00 V	164	36.77	4.86
7	7236.00	48.73 PK	74.00	-25.27	1.00 V	0	40.07	8.66
8	7236.00	37.66 AV	54.00	-16.34	1.00 V	0	29.00	8.66

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).
3. The emission levels of other frequencies were less than 20dB margin 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	*2437.00	106.51 PK			1.75 H	284	104.13	2.38
2	*2437.00	92.41 AV			1.75 H	284	90.03	2.38
3	4874.00	50.63 PK	74.00	-23.37	1.00 H	137	45.66	4.97
4	4874.00	41.74 AV	54.00	-12.26	1.00 H	137	36.77	4.97
5	7311.00	49.62 PK	74.00	-24.38	1.00 H	360	40.86	8.76
6	7311.00	39.45 AV	54.00	-14.55	1.00 H	360	30.69	8.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	94.22 PK			1.45 V	227	91.84	2.38
2	*2437.00	89.78 AV			1.45 V	227	87.40	2.38
3	4874.00	52.63 PK	74.00	-21.37	1.00 V	226	47.66	4.97
4	4874.00	40.71 AV	54.00	-13.29	1.00 V	226	35.74	4.97
5	7311.00	47.81 PK	74.00	-26.19	1.00 V	0	39.05	8.76
6	7311.00	38.62 AV	54.00	-15.38	1.00 V	0	29.86	8.76

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



Test Report No.: RF180807N009-2

CHANNEL	TX Channel 11	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	*2462.00	106.94 PK			1.00 H	279	104.32	2.62
2	*2462.00	91.32 AV			1.00 H	279	88.70	2.62
3	2483.50	63.23 PK	74.00	-10.77	1.00 H	279	60.53	2.70
4	2483.50	42.25 AV	54.00	-11.75	1.00 H	279	39.55	2.70
5	4924.00	50.42 PK	74.00	-23.58	1.00 H	145	45.29	5.13
6	4924.00	41.24 AV	54.00	-12.76	1.00 H	145	36.11	5.13
7	7386.00	49.52 PK	74.00	-24.48	1.00 H	0	40.65	8.87
8	7386.00	39.54 AV	54.00	-14.46	1.00 H	0	30.67	8.87
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	95.88 PK			3.64 V	331	93.26	2.62
2	*2462.00	83.22 AV			3.64 V	331	80.60	2.62
3	2483.50	53.49 PK	74.00	-20.51	3.64 V	331	50.79	2.70
4	2483.50	34.96 AV	54.00	-19.04	3.64 V	331	32.26	2.70
5	4924.00	49.53 PK	74.00	-24.47	1.00 V	142	44.40	5.13
6	4924.00	35.62 AV	54.00	-18.38	1.00 V	142	30.49	5.13
7	7386.00	50.35 PK	74.00	-23.65	1.00 V	0	41.48	8.87
8	7386.00	39.65 AV	54.00	-14.35	1.00 V	0	30.78	8.87

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
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	59.63 PK	74.00	-14.37	1.00 H	174	57.58	2.05
2	2390.00	44.51 AV	54.00	-9.49	1.00 H	174	42.46	2.05
3	*2412.00	108.15 PK			1.00 H	174	105.94	2.21
4	*2412.00	101.51 AV			1.00 H	174	99.30	2.21
5	4824.00	49.52 PK	74.00	-24.48	1.00 H	136	44.66	4.86
6	4824.00	36.71 AV	54.00	-17.29	1.00 H	136	31.85	4.86
7	7236.00	52.41 PK	74.00	-21.59	1.00 H	360	43.75	8.66
8	7236.00	39.42 AV	54.00	-14.58	1.00 H	360	30.76	8.66
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	53.26 PK	74.00	-20.74	1.42 V	227	51.21	2.05
2	2390.00	36.52 AV	54.00	-17.48	1.42 V	227	34.47	2.05
3	*2412.00	103.15 PK			1.42 V	227	100.94	2.21
4	*2412.00	93.41 AV			1.42 V	227	91.20	2.21
5	4824.00	49.63 PK	74.00	-24.37	1.00 V	157	44.77	4.86
6	4824.00	37.15 AV	54.00	-16.85	1.00 V	157	32.29	4.86
7	7236.00	52.41 PK	74.00	-21.59	1.00 V	0	43.75	8.66
8	7236.00	39.62 AV	54.00	-14.38	1.00 V	0	30.96	8.66

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).
3. The emission levels of other frequencies were less than 20dB margin 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	*2437.00	103.25 PK			1.68 H	265	100.87	2.38
2	*2437.00	91.52 AV			1.68 H	265	89.14	2.38
3	4874.00	48.62 PK	74.00	-25.38	1.00 H	157	43.65	4.97
4	4874.00	35.41 AV	54.00	-18.59	1.00 H	157	30.44	4.97
5	7311.00	51.24 PK	74.00	-22.76	1.00 H	0	42.48	8.76
6	7311.00	38.65 AV	54.00	-15.35	1.00 H	0	29.89	8.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	93.15 PK			1.53 V	238	90.77	2.38
2	*2437.00	90.42 AV			1.53 V	238	88.04	2.38
3	4874.00	47.53 PK	74.00	-26.47	1.00 V	89	42.56	4.97
4	4874.00	36.52 AV	54.00	-17.48	1.00 V	89	31.55	4.97
5	7311.00	51.42 PK	74.00	-22.58	1.52 V	152	42.66	8.76
6	7311.00	40.84 AV	54.00	-13.16	1.52 V	152	32.08	8.76

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	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	*2462.00	102.93 PK			1.56 H	281	100.31	2.62
2	*2462.00	92.64 AV			1.56 H	281	90.02	2.62
3	2483.50	61.19 PK	74.00	-12.81	1.56 H	281	58.49	2.70
4	2483.50	43.48 AV	54.00	-10.52	1.56 H	281	40.78	2.70
5	4924.00	46.79 PK	74.00	-27.21	1.00 H	227	41.66	5.13
6	4924.00	35.62 AV	54.00	-18.38	1.00 H	227	30.49	5.13
7	7386.00	51.99 PK	74.00	-22.01	1.00 H	0	43.12	8.87
8	7386.00	37.56 AV	54.00	-16.44	1.00 H	0	28.69	8.87
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	102.42 PK			1.00 V	274	99.80	2.62
2	*2462.00	91.24 AV			1.00 V	274	88.62	2.62
3	2483.50	51.14 PK	74.00	-22.86	1.00 V	274	48.44	2.70
4	2483.50	34.59 AV	54.00	-19.41	1.00 V	274	31.89	2.70
5	4924.00	48.63 PK	74.00	-25.37	1.00 V	175	43.50	5.13
6	4924.00	35.42 AV	54.00	-18.58	1.00 V	175	30.29	5.13
7	7386.00	50.71 PK	74.00	-23.29	1.00 V	0	41.84	8.87
8	7386.00	39.54 AV	54.00	-14.46	1.00 V	0	30.67	8.87

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. "*" : Fundamental frequency.

4.2 6dB BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Jun. 13,18	Jun. 12,19
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 13,18	Jun. 12,19
Power Meter	Anritsu	ML2495A	1139001	Apr. 13,18	Apr. 13,19
Power Sensor	Anritsu	MA2411B	1531155	Apr. 13,18	Apr. 13,19
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 21, 17	Oct.20, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,18	Sep. 04,19
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 08,17	Nov. 07,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Jan. 02,18	Jan. 01,19
Agile Signal Generator	Agilent	8645A	Agilent	Sep.01, 18	Aug.31, 19
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 21,18	Mar. 20,19
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Jan. 02,18	Jan. 01,19
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Jul.06, 18	Jul. 05, 19
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

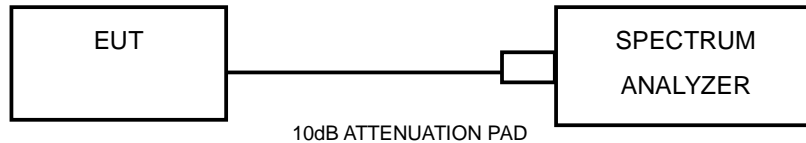
4.2.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

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

4.2.7 TEST RESULTS

802.11b

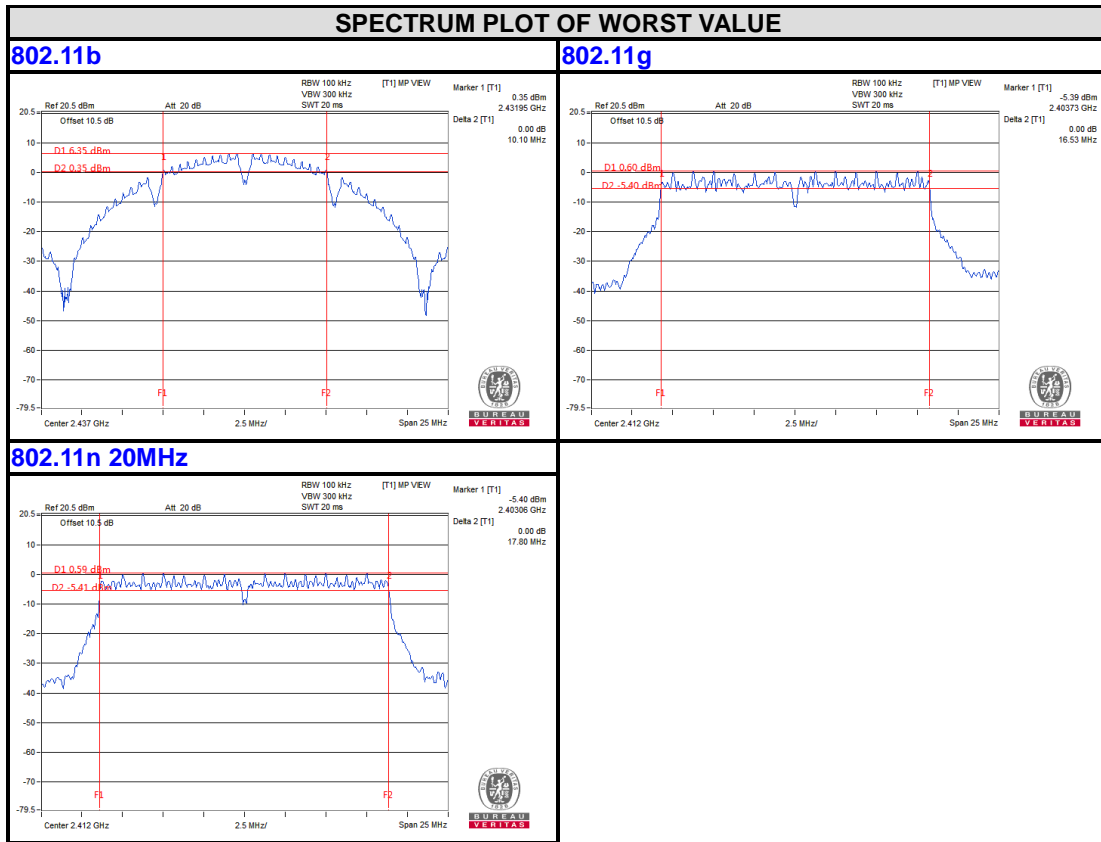
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.09	0.5	PASS
6	2437	10.10	0.5	PASS
11	2462	10.10	0.5	PASS

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CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.53	0.5	PASS
6	2437	16.52	0.5	PASS
11	2462	16.52	0.5	PASS

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CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.80	0.5	PASS
6	2437	17.78	0.5	PASS
11	2462	17.78	0.5	PASS

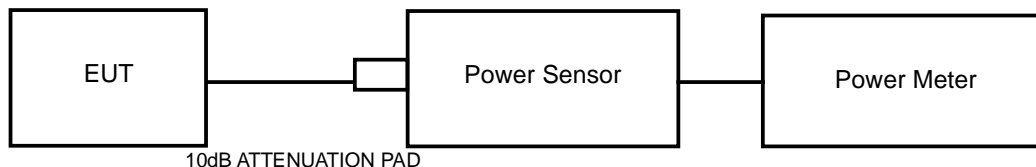


4.3 CONDUCTED OUTPUT POWER

4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Jun. 13,18	Jun. 12,19
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 13,18	Jun. 12,19
Power Meter	Anritsu	ML2495A	1139001	Apr. 13,18	Apr. 13,19
Power Sensor	Anritsu	MA2411B	1531155	Apr. 13,18	Apr. 13,19
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 21, 17	Oct.20, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,18	Sep. 04,19
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 08,17	Nov. 07,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Jan. 02,18	Jan. 01,19
Agile Signal Generator	Agilent	8645A	Agilent	Sep.01, 18	Aug.31, 19
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 21,18	Mar. 20,19
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Jan. 02,18	Jan. 01,19
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Jul.06, 18	Jul. 05, 19
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



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4.3.4 TEST PROCEDURES

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

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

MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	19.24	83.946	1	PASS
6	2437	19.19	82.985	1	PASS
11	2462	19.15	82.224	1	PASS

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CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	19.68	92.897	1	PASS
6	2437	19.54	89.95	1	PASS
11	2462	19.32	85.507	1	PASS

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CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	20.26	106.17	1	PASS
6	2437	20.31	107.399	1	PASS
11	2462	20.18	104.232	1	PASS

AVERAGE OUTPUT POWER (FOR REFERENCE)

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	16.77	47.534
6	2437	16.57	45.394
11	2462	16.49	44.566

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CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	11.83	15.241
6	2437	11.72	14.859
11	2462	11.59	14.421

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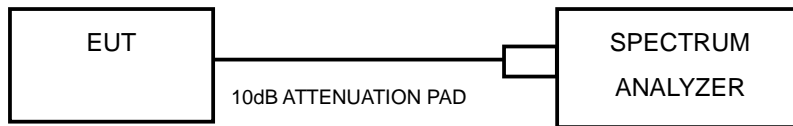
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	12.04	15.996
6	2437	12.06	16.069
11	2462	11.92	15.56

4.4 POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.4.4 TEST PROCEDURE

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the DTS Bandwidth.
- c) Set RBW to: 3KHz
- d) Set VBW $\geq 3 \times$ RBW.
- e) Detector = peak
- f) Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- g) Sweep time = auto couple.
- h) Use the peak marker function to determine the maximum amplitude level.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITION

Same as item 4.3.6.

4.4.7 TEST RESULTS

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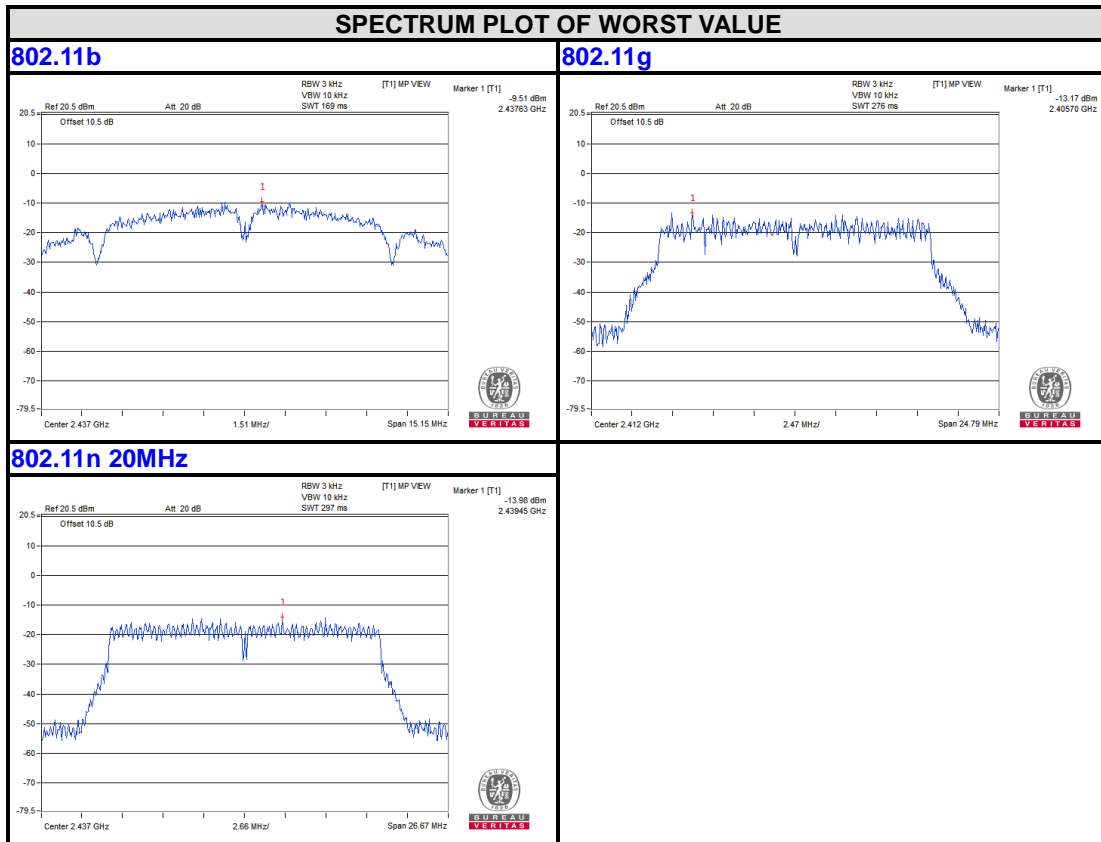
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.92	8.00	PASS
6	2437	-9.51	8.00	PASS
11	2462	-9.55	8.00	PASS

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Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.17	8.00	PASS
6	2437	-13.20	8.00	PASS
11	2462	-13.39	8.00	PASS

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Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.98	8.00	PASS
6	2437	-13.98	8.00	PASS
11	2462	-14.76	8.00	PASS



4.5 OUT OF BAND EMISSION MEASUREMENT

4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 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.



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Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.5.5 DEVIATION FROM TEST STANDARD

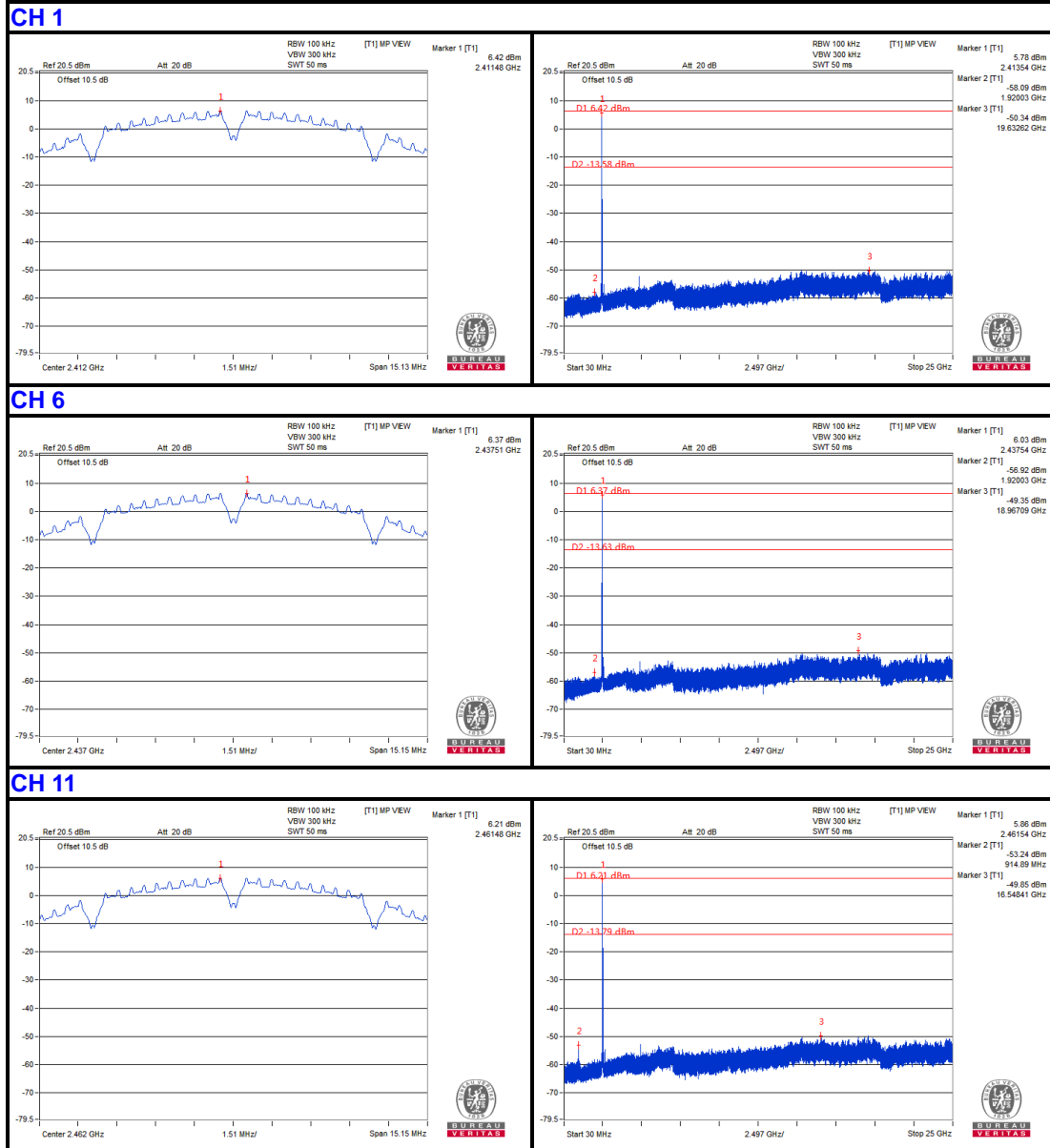
No deviation.

4.5.6 EUT OPERATING CONDITION

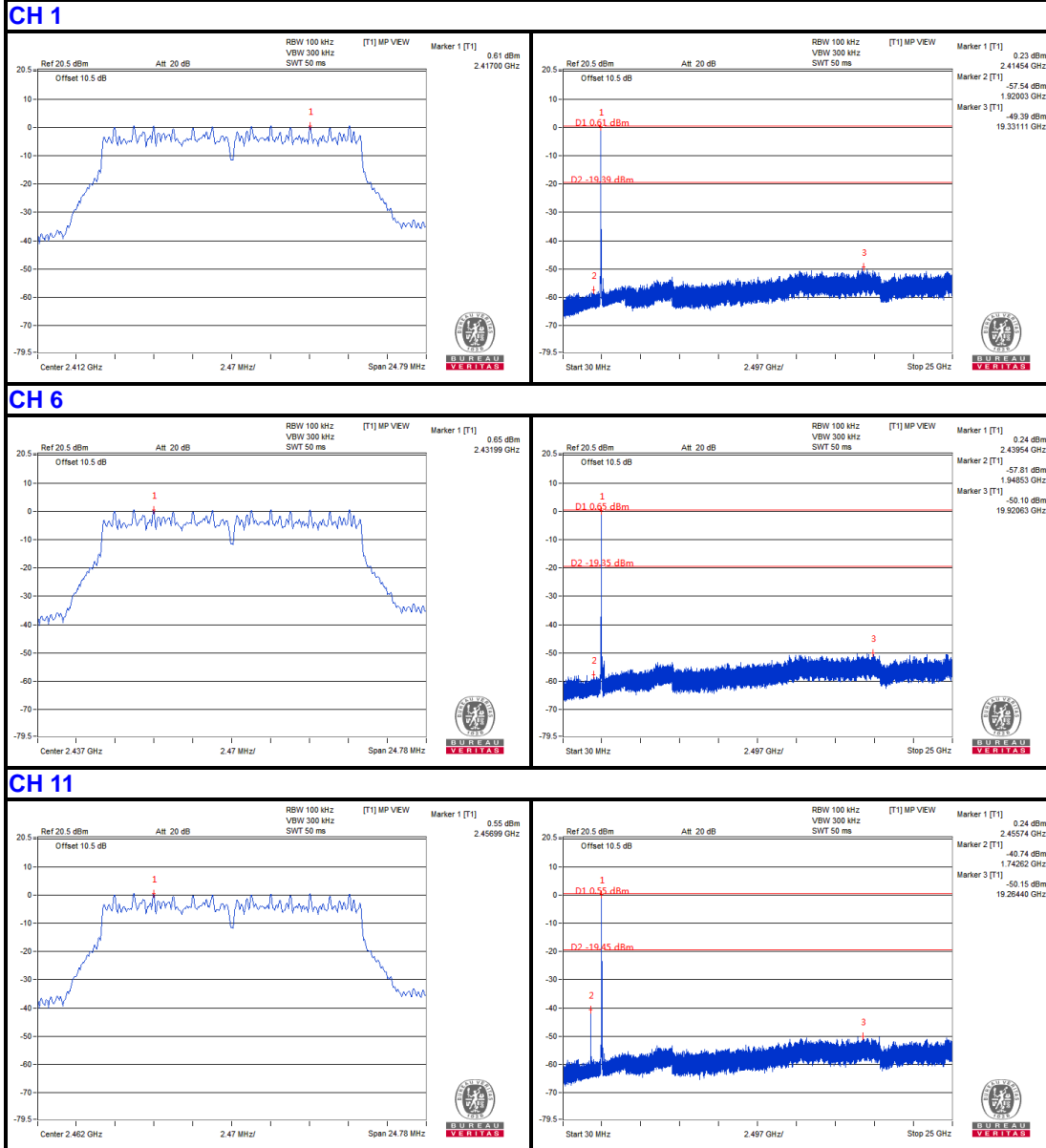
Same as item 4.3.6

4.5.7 TEST RESULTS

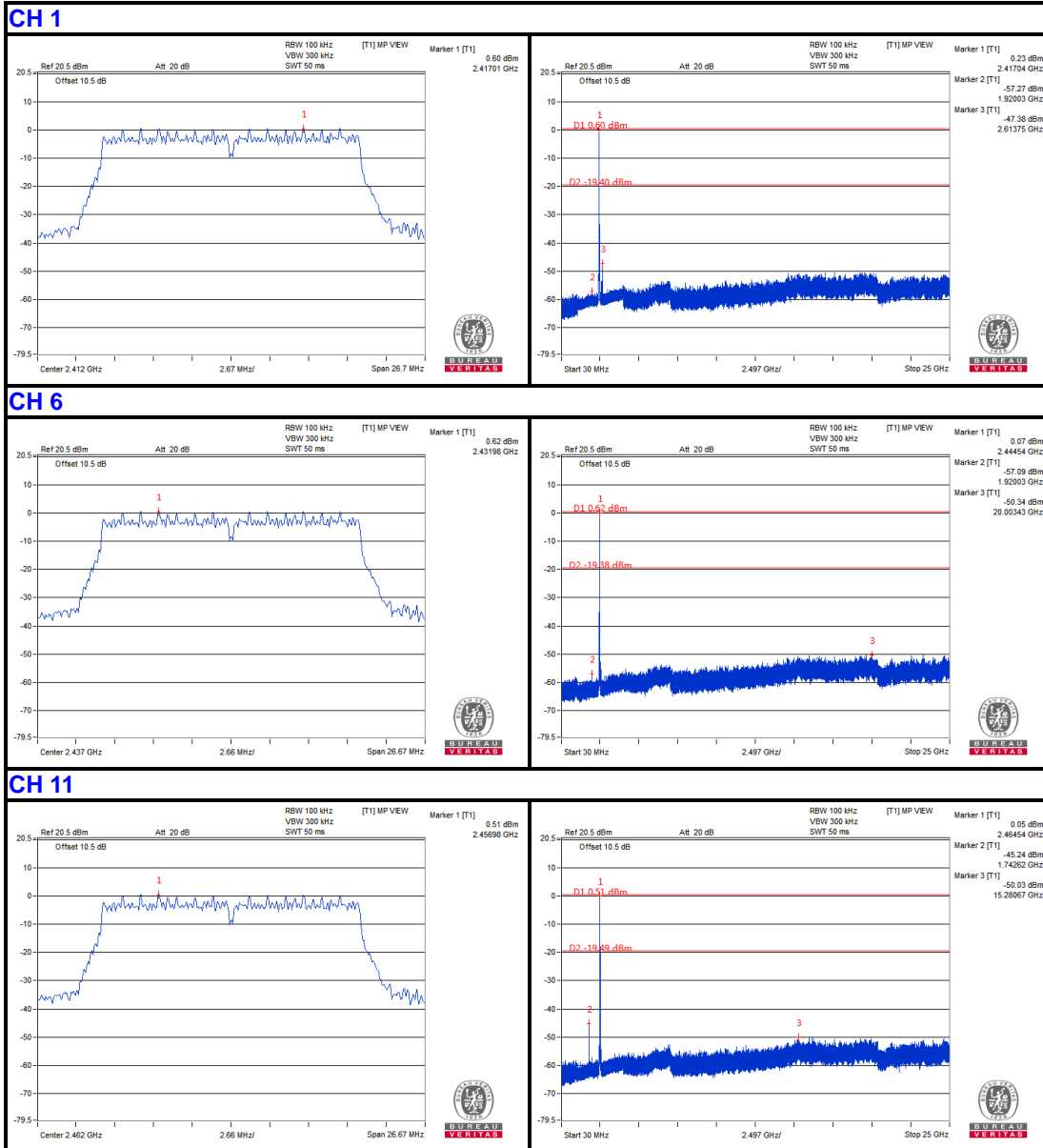
802.11b



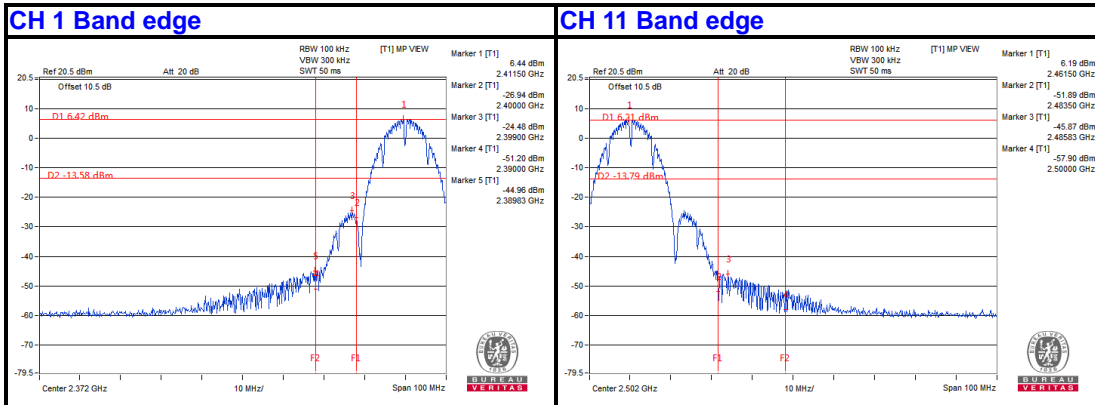
802.11g



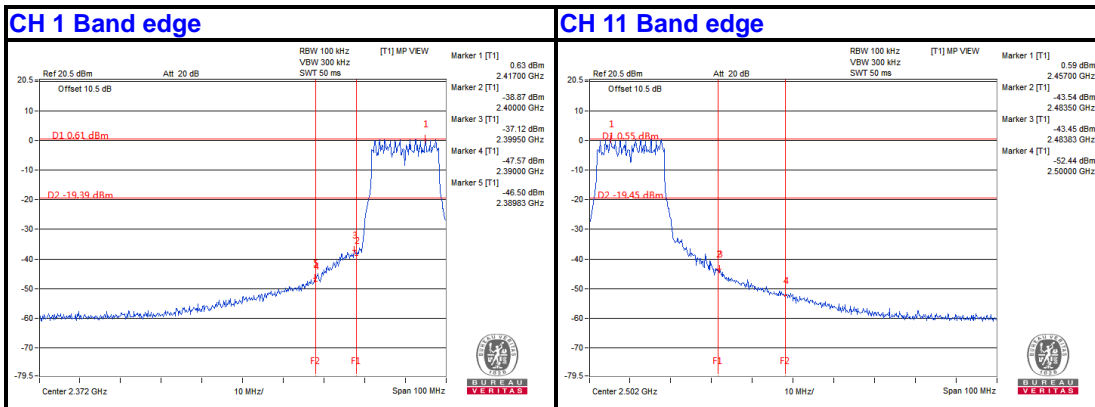
802.11n HT20



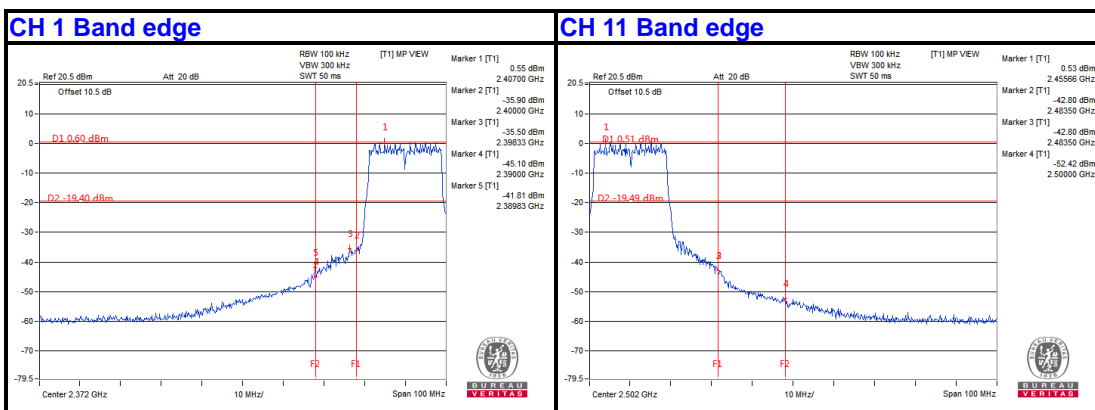
802.11b



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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---