



TEST REPORT



Applicant	SHANTOU QSTTOYS CO.,LTD
Address	Tongyi Rd, Chenghai District, Shantou, Guangdong, China

Manufacturer or Supplier	SHANTOU QSTTOYS CO.,LTD
Address	Tongyi Rd, Chenghai District, Shantou, Guangdong, China
Product:	FOLDING WIFI DRONE SERIES
Brand Name:	N/A
Model:	DRW477B
Additional Model & Model Difference	QST1810, QST1811, QST1812, etc., See items 3.1
Date of tests:	Mar. 27, 2017 ~ Apr. 11, 2017

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

Approved by Glyn He Supervisor / EMC Department	Approved by Chris Chen Manager / EMC Department
	 Date: Apr. 18, 2017

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TABLE OF CONTENTS

RELEASE CONTROL RECORD 4

1 SUMMARY OF TEST RESULTS..... 5

2 MEASUREMENT UNCERTAINTY 5

3 GENERAL INFORMATION 6

3.1 GENERAL DESCRIPTION OF EUT..... 6

3.2 DESCRIPTION OF TEST MODES..... 7

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST 8

3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL..... 8

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS..... 10

3.4 DESCRIPTION OF SUPPORT UNITS..... 10

4 TEST TYPES AND RESULTS.....11

4.1 RADIATED EMISSION MEASUREMENT 11

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT 11

4.1.2 TEST INSTRUMENTS..... 12

4.1.3 TEST PROCEDURES 13

4.1.4 DEVIATION FROM TEST STANDARD 13

4.1.5 TEST SETUP 14

4.1.6 EUT OPERATING CONDITIONS 15

4.1.7 TEST RESULTS 16

4.2 6dB BANDWIDTH MEASUREMENT 30

4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT 30

4.2.2 TEST INSTRUMENTS..... 30

4.2.3 TEST PROCEDURE 30

4.2.4 DEVIATION FROM TEST STANDARD 31

4.2.5 TEST SETUP 31

4.2.6 EUT OPERATING CONDITIONS 31

4.2.7 TEST RESULTS 32

4.3 CONDUCTED OUTPUT POWER 36

4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT 36

4.3.2 TEST SETUP 36

4.3.3 TEST INSTRUMENTS..... 36

4.3.4 TEST PROCEDURES 37

4.3.5 DEVIATION FROM TEST STANDARD 37

4.3.6 EUT OPERATING CONDITIONS 37



**BUREAU
VERITAS**

Test Report No.: RF170316N005

4.3.7	TEST RESULTS	38
4.3.7.1	MAXIMUM PEAK OUTPUT POWER	38
4.3.7.2	AVERAGE OUTPUT POWER (FOR REFERENCE).....	39
4.4	POWER SPECTRAL DENSITY MEASUREMENT	40
4.4.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	40
4.4.2	TEST SETUP	40
4.4.3	TEST INSTRUMENTS.....	40
4.4.4	TEST PROCEDURE	40
4.4.5	DEVIATION FROM TEST STANDARD	40
4.4.6	EUT OPERATING CONDITION	41
4.4.7	TEST RESULTS	41
4.5	OUT OF BAND EMISSION MEASUREMENT	45
4.5.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	45
4.5.2	TEST SETUP	45
4.5.3	TEST INSTRUMENTS.....	45
4.5.4	TEST PROCEDURE	45
4.5.5	DEVIATION FROM TEST STANDARD	46
4.5.6	EUT OPERATING CONDITION	46
4.5.7	TEST RESULTS	47
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	53
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	54



BUREAU VERITAS Test Report No.: RF170316N005

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170316N005	Original release	Apr. 18, 2017



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	Unique 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	3.83dB
	1GHz ~ 18GHz	4.93dB
	18GHz ~ 40GHz	4.84dB

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	FOLDING WIFI DRONE SERIES
MODEL NO.	DRW477B
ADDITIONAL MODELS	QST1810, QST1811, QST1812, QST1813, QST1814, QST1815, QST1816, QST1817, QST1819, QST511, QST512, QST513, QST514, QST516, QST517, QST518, QST519, QST801, QST802, QST803, QST804, QST805, QST806, QST807, QST808, QST809
FCC ID	2AGYKQST1811DRW477B
NOMINAL VOLTAGE	DC 3.7V from Fully 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(20MHz) 2422-2452MHz for 11n(40MHz)
PEAK POWER	18.94dBm (Maximum peak Power)
ANTENNA TYPE	Wire Antenna, 1dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. The EUT incorporates a SISO function.

MODULATION MODE	FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (20MHz)	1TX/1RX
802.11n (40MHz)	1TX/1RX

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- Please refer to the EUT photo document (Reference No.: 170316N005) for detailed product photo.
- Additional models (see above table) are identical with the test model DRW477B except the model no. for trading purpose.
- The battery charging mode is test in FCC VOC report



3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(20MHz):

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

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		



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	
A	√	√	-	√	Powered by fully battery with WIFI function

Where **RE<1G**: Radiated Emission below 1GHz **RE≥1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement
NOTE: No need to concern of Conducted Emission due to the EUT is powered by host unit.

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b	1 to 11	1	OFDM	BPSK	6.0	X

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
802.11n(20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
802.11n(40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	X



BANDEDGE 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n(20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n(40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n(20MHz)	1 to 11	1,6, 11	OFDM	BPSK	6.5
802.11n(40MHz)	3 to 9	3,6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 55%RH	DC 3.7V From fully Battery	Eric Fang
RE≥1G	25deg. C, 55%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	Sen He



BUREAU VERITAS Test Report No.: RF170316N005

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 v03r05

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(VoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together without any other necessary accessories or support units.



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. 11,17	Mar. 10,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 14, 16	Jul. 13, 17
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 18,16	May 17,17
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 16	Aug. 07, 17
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 12,16	Mar. 11,17
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 09,17	Mar. 08,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,16	Aug. 07,17

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 502831.



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. The antenna is a broadband 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. 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 10Hz 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.

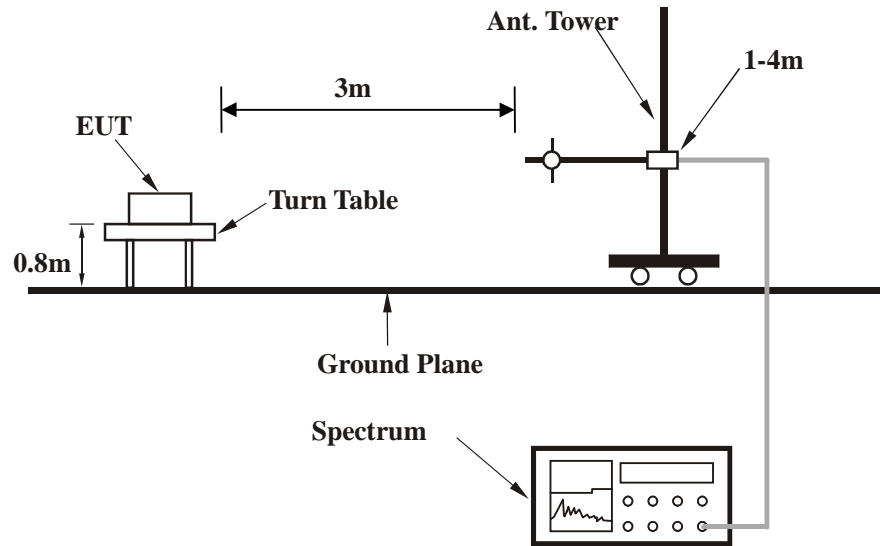
4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



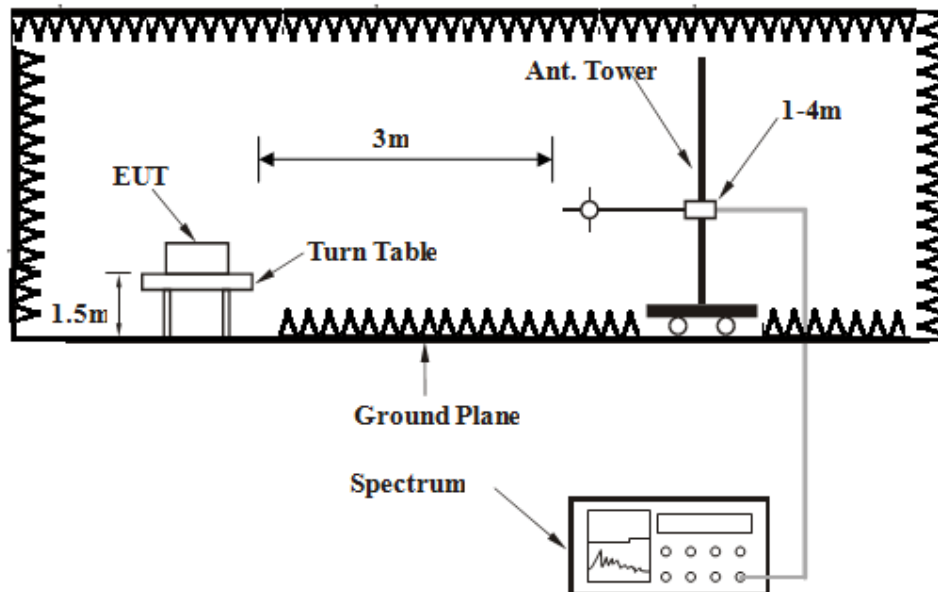
4.1.5 TEST SETUP

Below 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).



BUREAU VERITAS Test Report No.: RF170316N005

4.1.6 EUT OPERATING CONDITIONS

- a. Set the EUT under full load condition and placed them on a testing table.
- b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.



4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

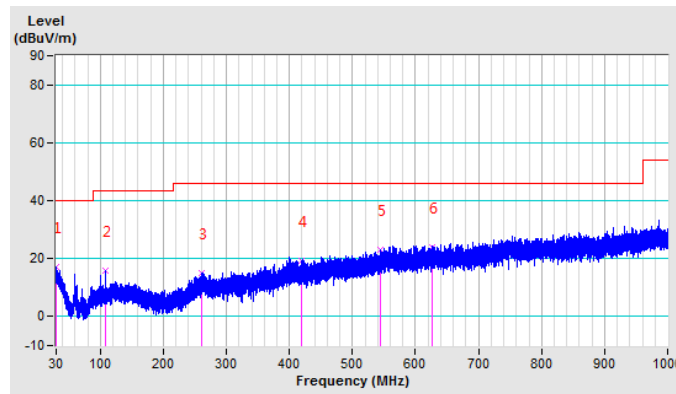
802.11b

CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	30.13	17.00 QP	40.00	-23.00	1.00 H	321	28.33	-11.33
2	107.47	16.02 QP	43.50	-27.48	1.00 H	309	34.03	-18.01
3	261.41	14.93 QP	46.00	-31.07	1.00 H	15	27.58	-12.65
4	419.94	19.32 QP	46.00	-26.68	1.00 H	183	28.19	-8.87
5	545.17	23.07 QP	46.00	-22.93	1.00 H	25	27.60	-4.53
6	626.97	24.02 QP	46.00	-21.98	1.00 H	69	26.86	-2.84

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



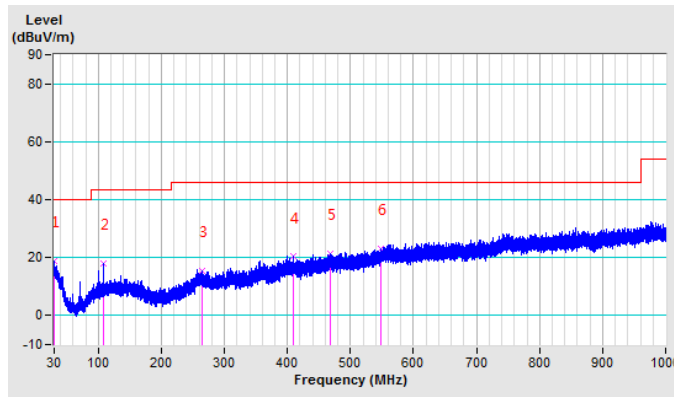


CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	30.55	18.98 QP	40.00	-21.02	1.00 V	334	30.51	-11.53
2	107.50	18.06 QP	43.50	-25.44	1.00 V	287	36.06	-18.00
3	263.87	15.60 QP	46.00	-30.40	1.00 V	32	28.50	-12.90
4	409.30	20.38 QP	46.00	-25.62	1.00 V	195	28.66	-8.28
5	467.76	21.34 QP	46.00	-24.66	1.00 V	31	28.27	-6.93
6	548.11	23.08 QP	46.00	-22.92	1.00 V	72	27.29	-4.21

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low 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	51.93 PK	74.00	-22.07	2.00 H	49	48.88	3.05
2	2390.00	47.90 AV	54.00	-6.10	2.00 H	49	44.85	3.05
3	*2412.00	103.58 PK			2.00 H	49	100.49	3.09
4	*2412.00	100.26 AV			2.00 H	49	97.17	3.09
5	4824.00	45.52 PK	74.00	-28.48	1.00 H	278	40.39	5.13
6	4824.00	42.10 AV	54.00	-11.90	1.00 H	278	36.97	5.13
7	#7236.00	47.71 PK	74.00	-26.29	1.00 H	39	35.69	12.02
8	#7236.00	39.11 AV	54.00	-14.89	1.00 H	39	27.09	12.02

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	46.88 PK	74.00	-27.12	1.00 V	112	43.83	3.05
2	2390.00	40.10 AV	54.00	-13.90	1.00 V	112	37.05	3.05
3	*2412.00	97.58 PK			1.00 V	112	94.49	3.09
4	*2412.00	95.16 AV			1.00 V	112	92.07	3.09
5	4824.00	48.64 PK	74.00	-25.36	1.00 V	22	43.51	5.13
6	4824.00	47.99 AV	54.00	-6.01	1.00 V	22	42.86	5.13
7	#7236.00	48.09 PK	74.00	-25.91	1.00 V	276	36.07	12.02
8	#7236.00	40.61 AV	54.00	-13.39	1.00 V	276	28.59	12.02

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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	102.97 PK			1.00 H	277	99.81	3.16
2	*2437.00	99.57 AV			1.00 H	277	96.41	3.16
3	4874.00	45.08 PK	74.00	-28.92	1.00 H	264	39.86	5.22
4	4874.00	42.45 AV	54.00	-11.55	1.00 H	264	37.23	5.22
5	7311.00	53.11 PK	74.00	-20.89	1.00 H	182	40.80	12.31
6	7311.00	45.88 AV	54.00	-8.12	1.00 H	182	33.57	12.31

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	101.49 PK			2.00 V	158	98.33	3.16
2	*2437.00	101.10 AV			2.00 V	158	97.94	3.16
3	4874.00	48.66 PK	74.00	-25.34	1.00 V	275	43.44	5.22
4	4874.00	46.33 AV	54.00	-7.67	1.00 V	275	41.11	5.22
5	7311.00	50.11 PK	74.00	-23.89	1.00 V	150	37.80	12.31
6	7311.00	43.99 AV	54.00	-10.01	1.00 V	150	31.68	12.31

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



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
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	103.67 PK			1.00 H	278	100.45	3.22
2	*2462.00	99.68 AV			1.00 H	278	96.46	3.22
3	2483.50	46.81 PK	74.00	-27.19	1.00 H	278	43.54	3.27
4	2483.50	39.99 AV	54.00	-14.01	1.00 H	278	36.72	3.27
5	4924.00	44.13 PK	74.00	-29.87	1.00 H	202	38.81	5.32
6	4924.00	41.22 AV	54.00	-12.78	1.00 H	202	35.90	5.32
7	7386.00	45.62 PK	74.00	-28.38	2.00 H	19	33.01	12.61
8	7386.00	37.44 AV	54.00	-16.56	2.00 H	19	24.83	12.61

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	99.99 PK			1.00 V	98	96.77	3.22
2	*2462.00	95.66 AV			1.00 V	98	92.44	3.22
3	2483.50	47.70 PK	74.00	-26.30	1.00 V	98	44.43	3.27
4	2483.50	41.82 AV	54.00	-12.18	1.00 V	98	38.55	3.27
5	4924.00	51.37 PK	74.00	-22.63	1.00 V	250	46.05	5.32
6	4924.00	50.90 AV	54.00	-3.10	1.00 V	250	45.58	5.32
7	7386.00	47.11 PK	74.00	-26.89	1.00 V	169	34.50	12.61
8	7386.00	36.73 AV	54.00	-17.27	1.00 V	169	24.12	12.61

REMARKS:

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



802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
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	66.13 PK	74.00	-7.87	1.00 H	100	63.08	3.05
2	2390.00	50.94 AV	54.00	-3.06	1.00 H	100	47.89	3.05
3	*2412.00	102.82 PK			1.00 H	100	99.73	3.09
4	*2412.00	94.62 AV			1.00 H	100	91.53	3.09
5	4824.00	42.39 PK	74.00	-31.61	1.00 H	177	37.26	5.13
6	4824.00	35.48 AV	54.00	-18.52	1.00 H	177	30.35	5.13
7	#7236.00	46.89 PK	74.00	-27.11	1.00 H	255	34.87	12.02
8	#7236.00	39.88 AV	54.00	-14.12	1.00 H	255	27.86	12.02

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	62.22 PK	74.00	-11.78	1.00 V	97	59.17	3.05
2	2390.00	48.00 AV	54.00	-6.00	1.00 V	97	44.95	3.05
3	*2412.00	101.53 PK			1.00 V	97	98.44	3.09
4	*2412.00	93.86 AV			1.00 V	97	90.77	3.09
5	4824.00	42.33 PK	74.00	-31.67	1.00 V	133	37.20	5.13
6	4824.00	35.56 AV	54.00	-18.44	1.00 V	133	30.43	5.13
7	#7236.00	50.72 PK	74.00	-23.28	1.00 V	148	38.70	12.02
8	#7236.00	42.11 AV	54.00	-11.89	1.00 V	148	30.09	12.02

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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	101.71 PK			1.00 H	345	98.55	3.16
2	*2437.00	93.39 AV			1.00 H	345	90.23	3.16
3	4874.00	45.82 PK	74.00	-28.18	1.00 H	150	40.60	5.22
4	4874.00	38.11 AV	54.00	-15.89	1.00 H	150	32.89	5.22
5	7311.00	44.19 PK	74.00	-29.81	1.00 H	188	31.88	12.31
6	7311.00	38.76 AV	54.00	-15.24	1.00 H	188	26.45	12.31

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	95.66 PK			1.00 V	98	92.50	3.16
2	*2437.00	89.29 AV			1.00 V	98	86.13	3.16
3	4874.00	44.85 PK	74.00	-29.15	1.00 V	99	39.63	5.22
4	4874.00	37.63 AV	54.00	-16.37	1.00 V	99	32.41	5.22
5	7311.00	47.23 PK	74.00	-26.77	2.00 V	153	34.92	12.31
6	7311.00	40.61 AV	54.00	-13.39	2.00 V	153	28.30	12.31

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



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
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	101.62 PK			1.00 H	20	98.40	3.22
2	*2462.00	93.24 AV			1.00 H	20	90.02	3.22
3	2483.50	62.62 PK	74.00	-11.38	1.00 H	20	59.35	3.27
4	2483.50	44.29 AV	54.00	-9.71	1.00 H	20	41.02	3.27
5	4924.00	44.17 PK	74.00	-29.83	1.00 H	131	38.85	5.32
6	4924.00	37.53 AV	54.00	-16.47	1.00 H	131	32.21	5.32
7	7386.00	47.19 PK	74.00	-26.81	2.00 H	325	34.58	12.61
8	7386.00	40.25 AV	54.00	-13.75	2.00 H	325	27.64	12.61

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	98.62 PK			1.00 V	153	95.40	3.22
2	*2462.00	89.08 AV			1.00 V	153	85.86	3.22
3	2483.50	60.48 PK	74.00	-13.52	1.00 V	153	57.21	3.27
4	2483.50	40.54 AV	54.00	-13.46	1.00 V	153	37.27	3.27
5	4924.00	45.69 PK	74.00	-28.31	1.00 V	157	40.37	5.32
6	4924.00	38.12 AV	54.00	-15.88	1.00 V	157	32.80	5.32
7	7386.00	48.30 PK	74.00	-25.70	2.00 V	177	35.69	12.61
8	7386.00	40.34 AV	54.00	-13.66	2.00 V	177	27.73	12.61

REMARKS:

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



802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.85 PK	74.00	-5.15	1.00 H	344	65.80	3.05
2	2390.00	49.96 AV	54.00	-4.04	1.00 H	344	46.91	3.05
3	*2412.00	103.41 PK			1.00 H	344	100.32	3.09
4	*2412.00	93.56 AV			1.00 H	344	90.47	3.09
5	4824.00	57.50 PK	74.00	-16.50	1.00 H	262	52.37	5.13
6	4824.00	42.58 AV	54.00	-11.42	1.00 H	262	37.45	5.13
7	#7236.00	49.01 PK	74.00	-24.99	1.00 H	177	36.99	12.02
8	#7236.00	40.39 AV	54.00	-13.61	1.00 H	177	28.37	12.02

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	63.09 PK	74.00	-10.91	2.00 V	97	60.04	3.05
2	2390.00	46.04 AV	54.00	-7.96	2.00 V	97	42.99	3.05
3	*2412.00	97.83 PK			2.00 V	97	94.74	3.09
4	*2412.00	89.57 AV			2.00 V	97	86.48	3.09
5	4824.00	47.18 PK	74.00	-26.82	1.00 V	98	42.05	5.13
6	4824.00	39.15 AV	54.00	-14.85	1.00 V	98	34.02	5.13
7	#7236.00	49.89 PK	74.00	-24.11	1.00 V	133	37.87	12.02
8	#7236.00	42.57 AV	54.00	-11.43	1.00 V	133	30.55	12.02

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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	101.21 PK			1.00 H	280	98.05	3.16
2	*2437.00	91.84 AV			1.00 H	280	88.68	3.16
3	4874.00	42.13 PK	74.00	-31.87	1.00 H	179	36.91	5.22
4	4874.00	35.57 AV	54.00	-18.43	1.00 H	179	30.35	5.22
5	7311.00	49.88 PK	74.00	-24.12	2.00 H	252	37.57	12.31
6	7311.00	42.67 AV	54.00	-11.33	2.00 H	252	30.36	12.31

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	97.34 PK			1.00 V	153	94.18	3.16
2	*2437.00	86.50 AV			1.00 V	153	83.34	3.16
3	4874.00	52.52 PK	74.00	-21.48	1.00 V	155	47.30	5.22
4	4874.00	47.11 AV	54.00	-6.89	1.00 V	155	41.89	5.22
5	7311.00	51.93 PK	74.00	-22.07	1.00 V	199	39.62	12.31
6	7311.00	45.11 AV	54.00	-8.89	1.00 V	199	32.80	12.31

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



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
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	102.79 PK			1.00 H	64	99.57	3.22
2	*2462.00	92.91 AV			1.00 H	64	89.69	3.22
3	2483.50	66.19 PK	74.00	-7.81	1.00 H	64	62.92	3.27
4	2483.50	44.60 AV	54.00	-9.40	1.00 H	64	41.33	3.27
5	4924.00	44.21 PK	74.00	-29.79	1.00 H	293	38.89	5.32
6	4924.00	31.93 AV	54.00	-22.07	1.00 H	293	26.61	5.32
7	7386.00	40.59 PK	74.00	-33.41	1.00 H	150	27.98	12.61
8	7386.00	35.87 AV	54.00	-18.13	1.00 H	150	23.26	12.61

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	94.30 PK			1.00 V	97	91.08	3.22
2	*2462.00	86.21 AV			1.00 V	97	82.99	3.22
3	2483.50	50.92 PK	74.00	-23.08	1.00 V	97	47.65	3.27
4	2483.50	35.05 AV	54.00	-18.95	1.00 V	97	31.78	3.27
5	4924.00	42.78 PK	74.00	-31.22	1.00 V	93	37.46	5.32
6	4924.00	33.91 AV	54.00	-20.09	1.00 V	93	28.59	5.32
7	7386.00	42.77 PK	74.00	-31.23	1.00 V	144	30.16	12.61
8	7386.00	36.19 AV	54.00	-17.81	1.00 V	144	23.58	12.61

REMARKS:

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



802.11n (40MHz)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.39 PK	74.00	-8.61	2.00 H	115	62.34	3.05
2	2390.00	46.81 AV	54.00	-7.19	2.00 H	115	43.76	3.05
3	*2422.00	101.32 PK			2.00 H	115	98.20	3.12
4	*2422.00	92.77 AV			2.00 H	115	89.65	3.12
5	4844.00	56.33 PK	74.00	-17.67	1.00 H	155	51.17	5.16
6	4844.00	41.92 AV	54.00	-12.08	1.00 H	155	36.76	5.16
7	7266.00	48.17 PK	74.00	-25.83	1.00 H	151	36.04	12.13
8	7266.00	39.68 AV	54.00	-14.32	1.00 H	151	27.55	12.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.34 PK	74.00	-12.66	2.00 V	113	58.29	3.05
2	2390.00	44.98 AV	54.00	-9.02	2.00 V	113	41.93	3.05
3	*2422.00	94.23 PK			2.00 V	113	91.11	3.12
4	*2422.00	85.66 AV			2.00 V	113	82.54	3.12
5	4844.00	50.29 PK	74.00	-23.71	1.00 V	159	45.13	5.16
6	4844.00	42.11 AV	54.00	-11.89	1.00 V	159	36.95	5.16
7	7266.00	51.37 PK	74.00	-22.63	2.00 V	99	39.24	12.13
8	7266.00	45.07 AV	54.00	-8.93	2.00 V	99	32.94	12.13

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.38 PK			1.00 H	155	96.22	3.16
2	*2437.00	89.76 AV			1.00 H	155	86.60	3.16
3	4874.00	41.19 PK	74.00	-32.81	1.00 H	225	35.97	5.22
4	4874.00	34.79 AV	54.00	-19.21	1.00 H	225	29.57	5.22
5	7311.00	50.37 PK	74.00	-23.63	2.00 H	189	38.06	12.31
6	7311.00	43.88 AV	54.00	-10.12	2.00 H	189	31.57	12.31

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	94.36 PK			1.00 V	200	91.20	3.16
2	*2437.00	85.34 AV			1.00 V	200	82.18	3.16
3	4874.00	51.33 PK	74.00	-22.67	1.00 V	198	46.11	5.22
4	4874.00	37.22 AV	54.00	-16.78	1.00 V	198	32.00	5.22
5	7311.00	53.96 PK	74.00	-20.04	2.00 V	177	41.65	12.31
6	7311.00	46.23 AV	54.00	-7.77	2.00 V	177	33.92	12.31

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



CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
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	*2452.00	101.23 PK			1.00 H	100	98.04	3.19
2	*2452.00	89.78 AV			1.00 H	100	86.59	3.19
3	2483.50	65.34 PK	74.00	-8.66	1.00 H	100	62.07	3.27
4	2483.50	43.87 AV	54.00	-10.13	1.00 H	100	40.60	3.27
5	4904.00	46.11 PK	74.00	-27.89	1.00 H	261	40.83	5.28
6	4904.00	32.87 AV	54.00	-21.13	1.00 H	261	27.59	5.28
7	7356.00	41.99 PK	74.00	-32.01	1.00 H	190	29.50	12.49
8	7356.00	36.45 AV	54.00	-17.55	1.00 H	190	23.96	12.49

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	90.78 PK			1.00 V	200	87.59	3.19
2	*2452.00	85.30 AV			1.00 V	200	82.11	3.19
3	2483.50	51.88 PK	74.00	-22.12	1.00 V	200	48.61	3.27
4	2483.50	36.74 AV	54.00	-17.26	1.00 V	200	33.47	3.27
5	4904.00	45.98 PK	74.00	-28.02	1.00 V	138	40.70	5.28
6	4904.00	39.61 AV	54.00	-14.39	1.00 V	138	34.33	5.28
7	7356.00	45.98 PK	74.00	-28.02	1.00 V	220	33.49	12.49
8	7356.00	37.55 AV	54.00	-16.45	1.00 V	220	25.06	12.49

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 other emission levels were very low 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	May 04,16	May 03,17
Power Sensor	Keysight	U2021XA	MY55060018	May 04,16	May 03,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 16	Aug.07, 17
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 16	Aug.07, 17

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

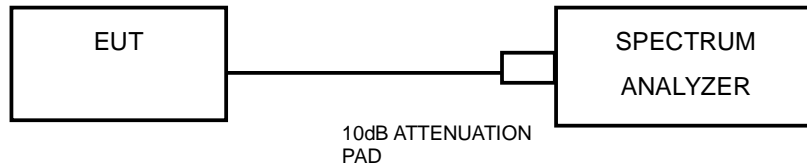
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that 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

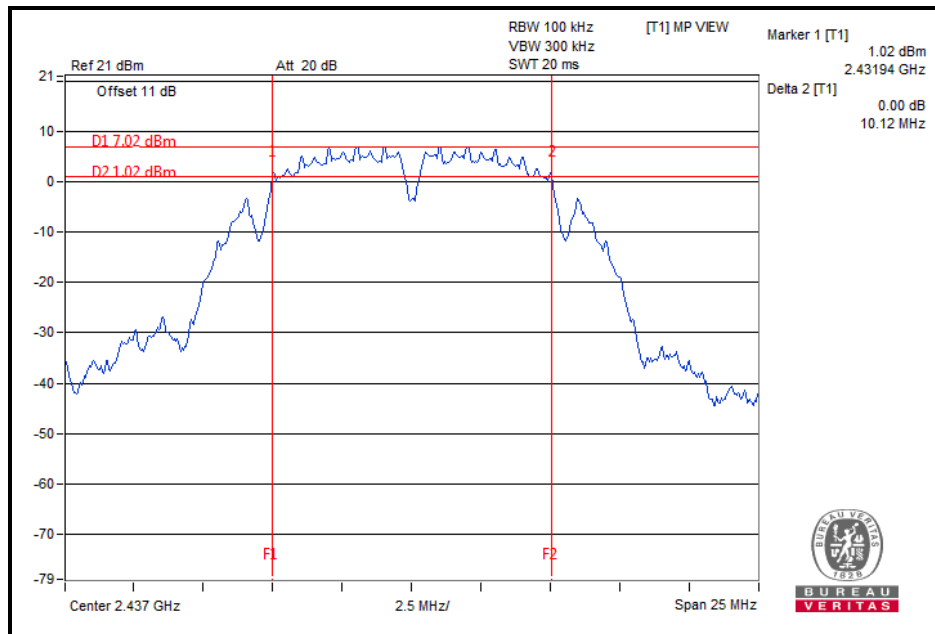
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.2.7 TEST RESULTS

802.11b

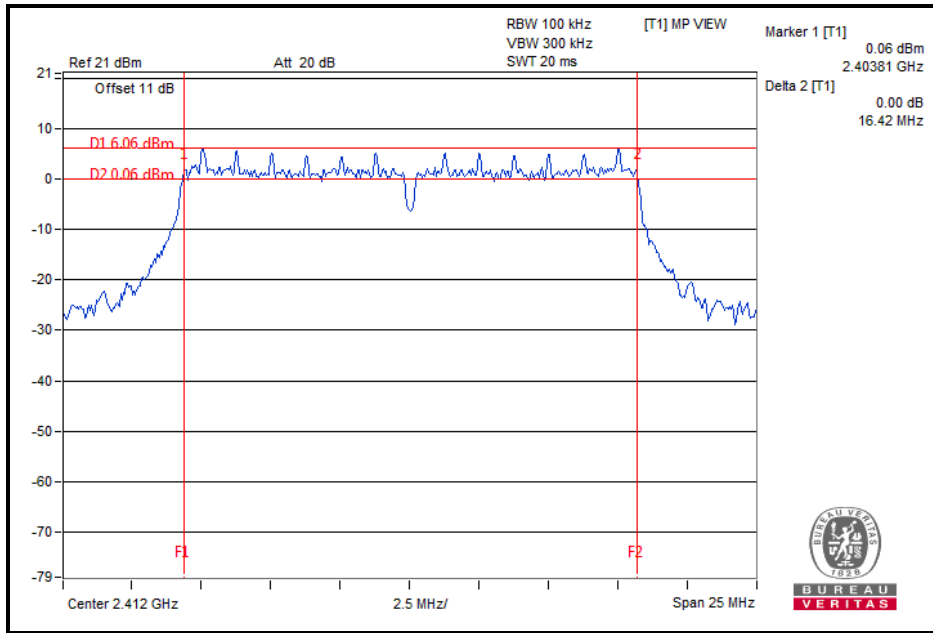
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.11	0.5	PASS
6	2437	10.12	0.5	PASS
11	2462	10.12	0.5	PASS





802.11g

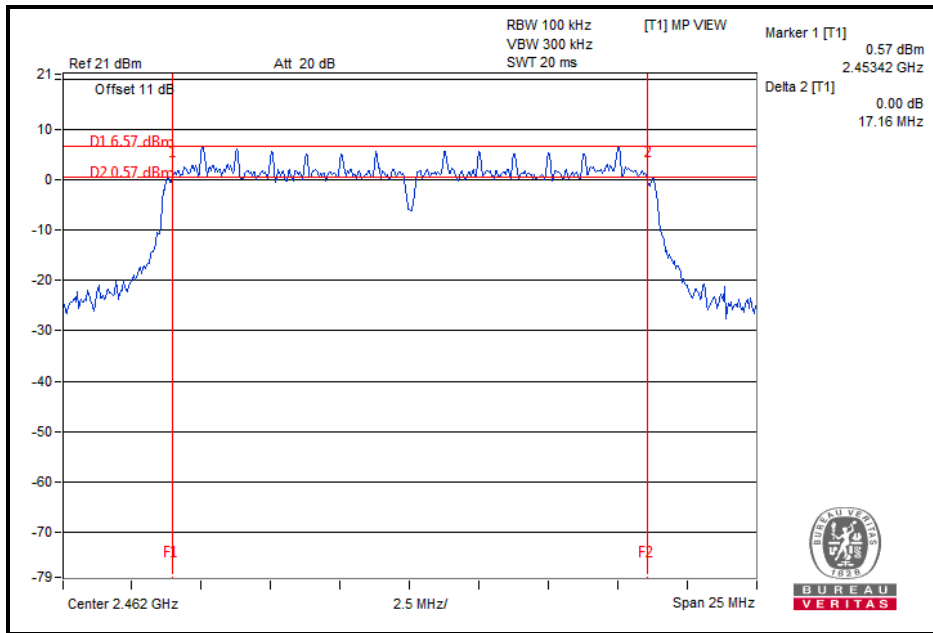
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.42	0.5	PASS
6	2437	16.42	0.5	PASS
11	2462	16.42	0.5	PASS





802.11n (20MHz)

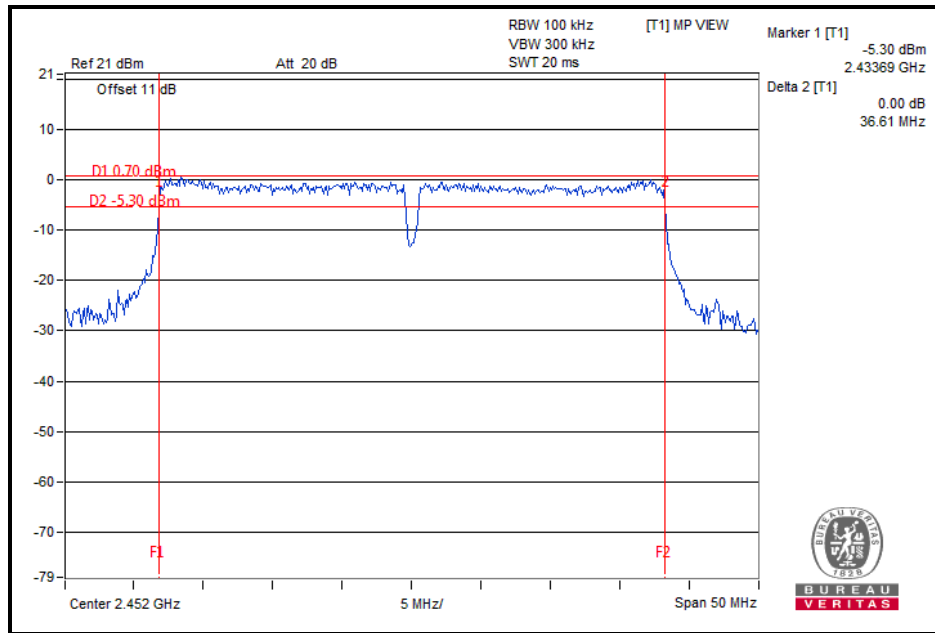
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.15	0.5	PASS
6	2437	17.15	0.5	PASS
11	2462	17.16	0.5	PASS





802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.41	0.5	PASS
6	2437	36.42	0.5	PASS
9	2452	36.61	0.5	PASS



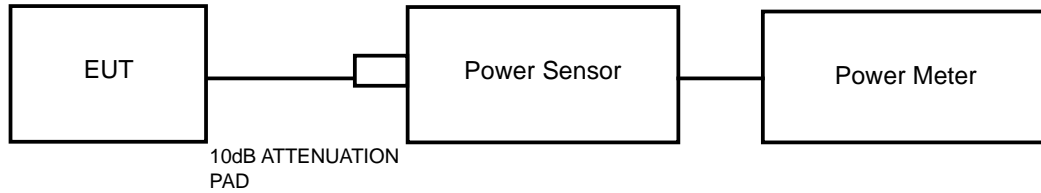


4.3 CONDUCTED OUTPUT POWER

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	May 04,16	May 03,17
Power Sensor	Keysight	U2021XA	MY55060018	May 04,16	May 03,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04, 17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 16	Aug.07, 17
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 16	Aug.07, 17

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.



BUREAU VERITAS Test Report No.: RF170316N005

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

4.3.7.1 MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	18.36	68.549	1	PASS
6	2437	18.68	73.790	1	PASS
11	2462	18.94	78.343	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.98	62.806	1	PASS
6	2437	17.66	58.345	1	PASS
11	2462	17.38	54.702	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.28	53.456	1	PASS
6	2437	17.02	50.350	1	PASS
11	2462	16.86	48.529	1	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	17.94	62.230	1	PASS
6	2437	17.32	53.951	1	PASS
9	2452	17.69	58.749	1	PASS



4.3.7.2 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)	AVERAGE POWER (mW)
1	2412	18.01	63.241
6	2437	18.44	69.823
11	2462	18.62	72.778

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	17.38	54.702
6	2437	17.22	52.723
11	2462	17.02	50.350

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	16.86	48.529
6	2437	16.71	46.881
11	2462	16.42	43.853

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
3	2422	17.28	53.456
6	2437	16.78	47.643
9	2452	17.05	50.699

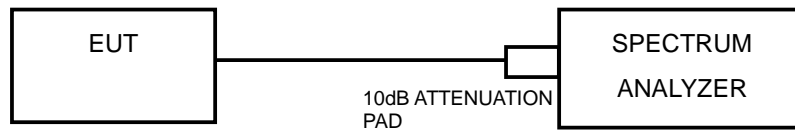


4.4 POWER SPECTRAL DENSITY MEASUREMENT

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 4.3.2 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 OBW.
- c) Set RBW to: 3 kHz
- 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.



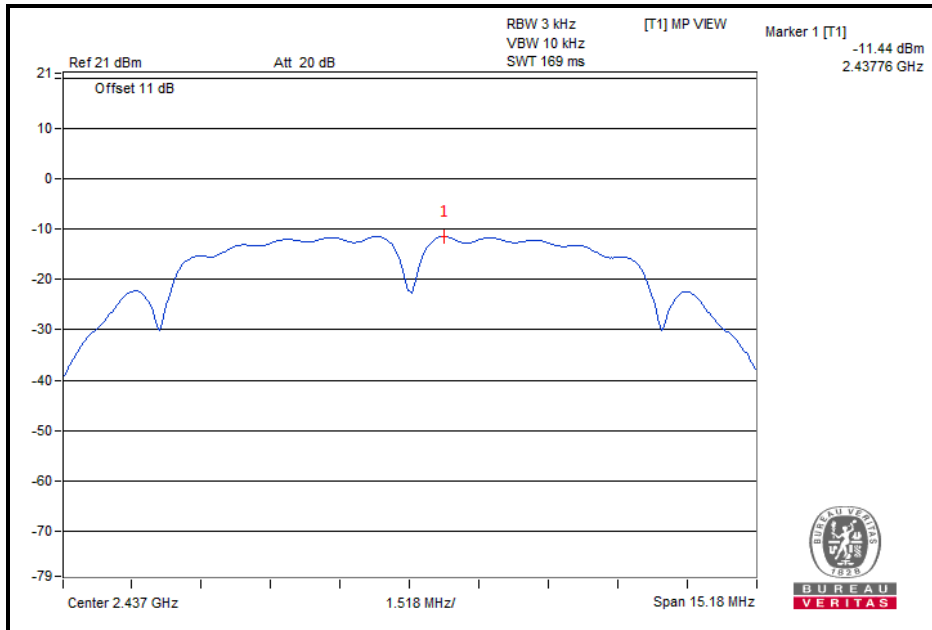
4.4.6 EUT OPERATING CONDITION

Same as item 4.3.6

4.4.7 TEST RESULTS

802.11b

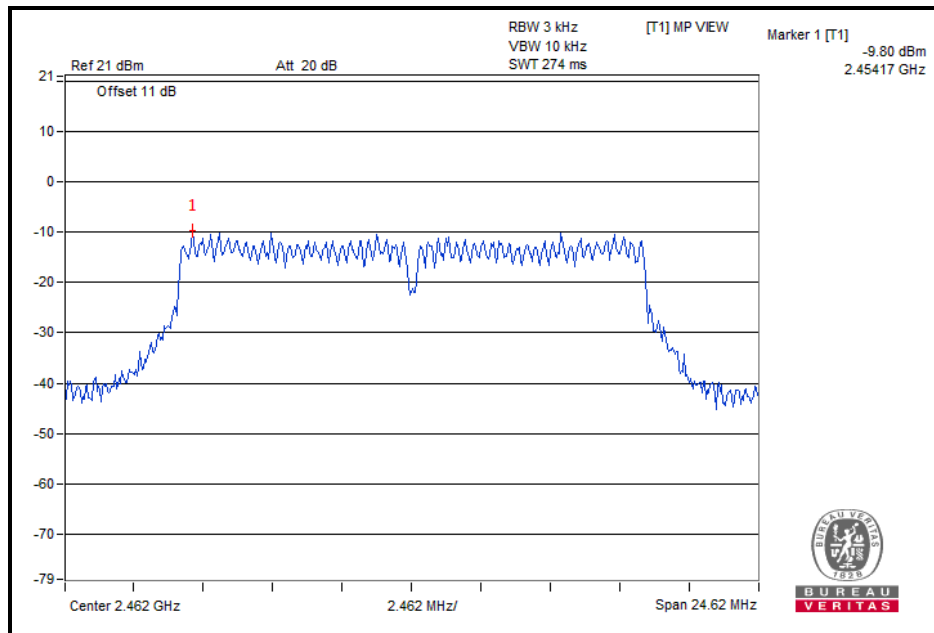
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.68	8	PASS
6	2437	-11.44	8	PASS
11	2462	-11.93	8	PASS





802.11g

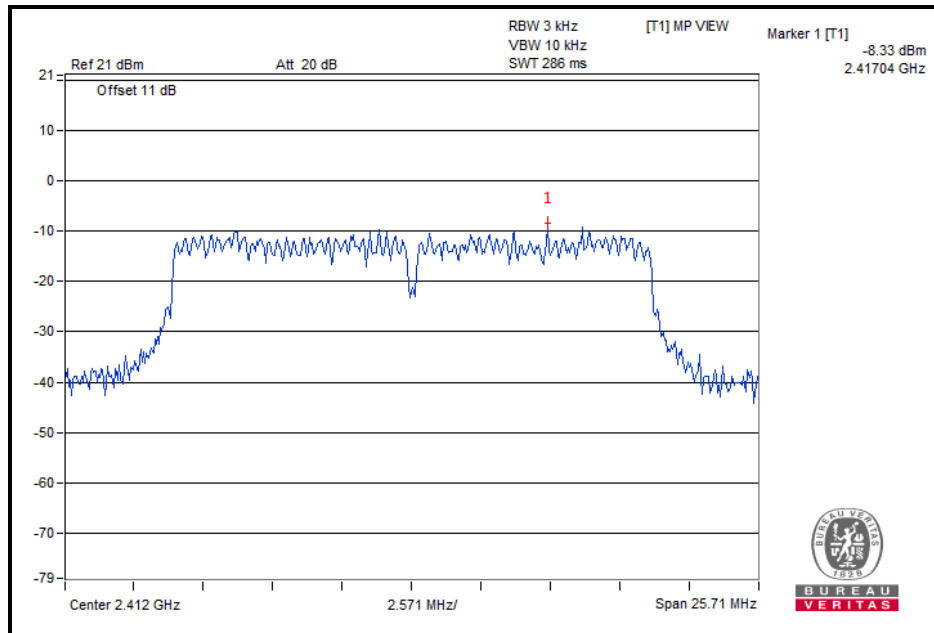
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-10.68	8	PASS
6	2437	-10.08	8	PASS
11	2462	-9.80	8	PASS





802.11n (20MHz)

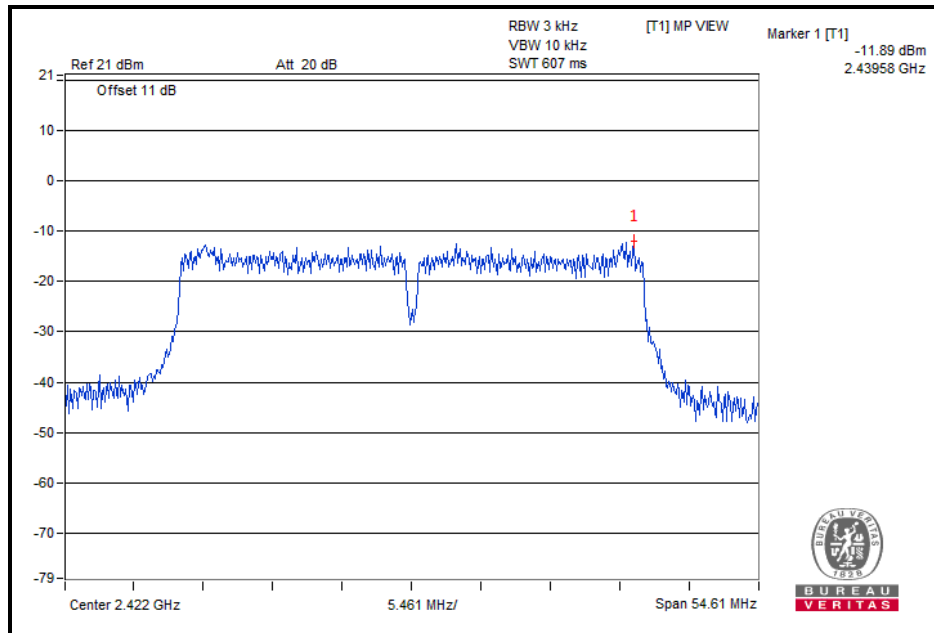
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-8.33	8	PASS
6	2437	-9.89	8	PASS
11	2462	-9.15	8	PASS





802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-11.89	8	PASS
6	2437	-12.73	8	PASS
9	2452	-12.22	8	PASS



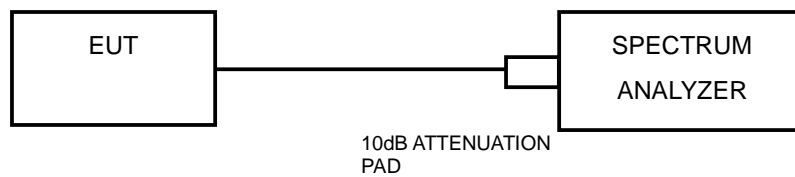


4.5 OUT OF BAND EMISSION MEASUREMENT

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 4.3.2 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.



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.

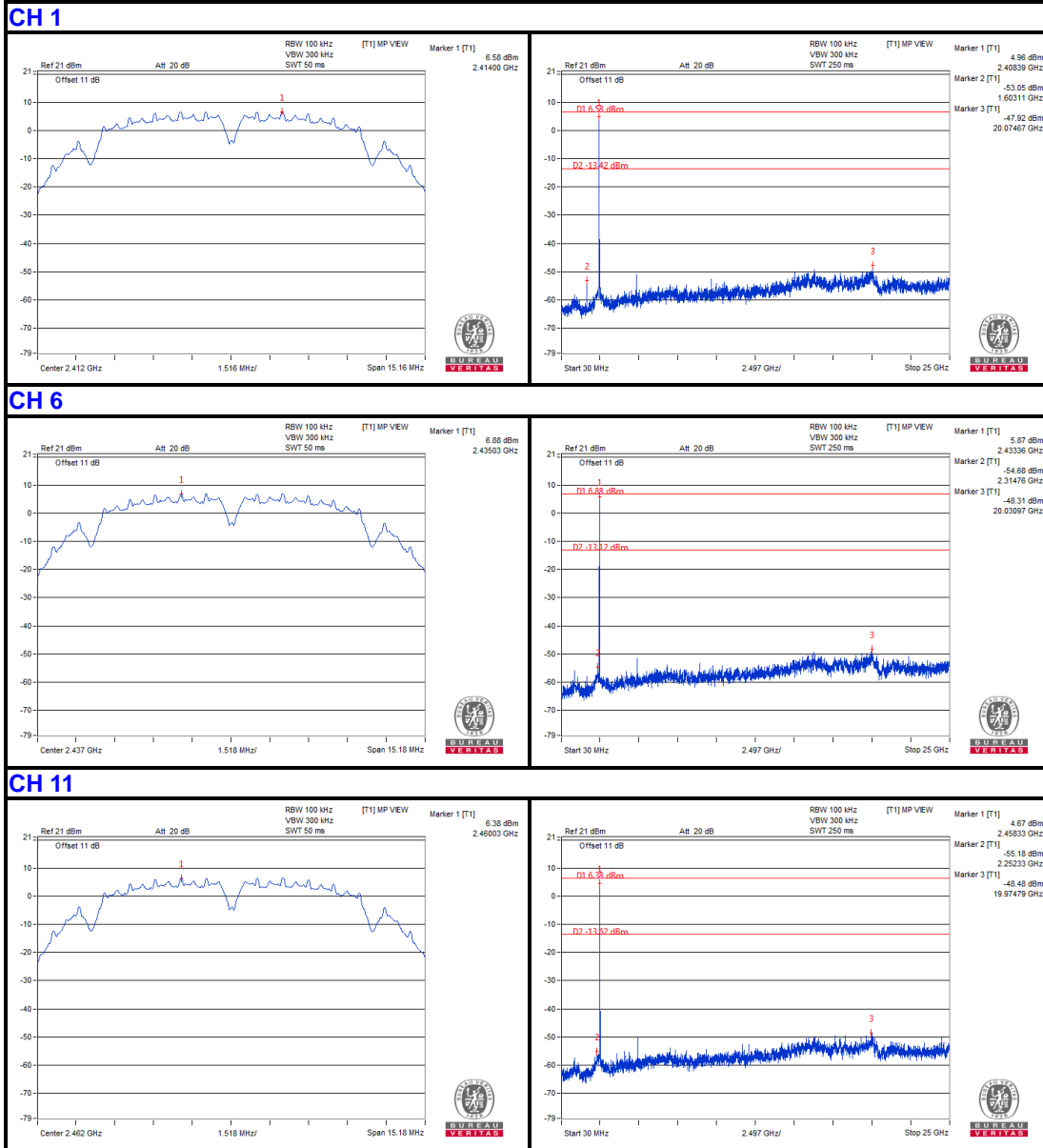
4.5.6 EUT OPERATING CONDITION

Same as item 4.2.6



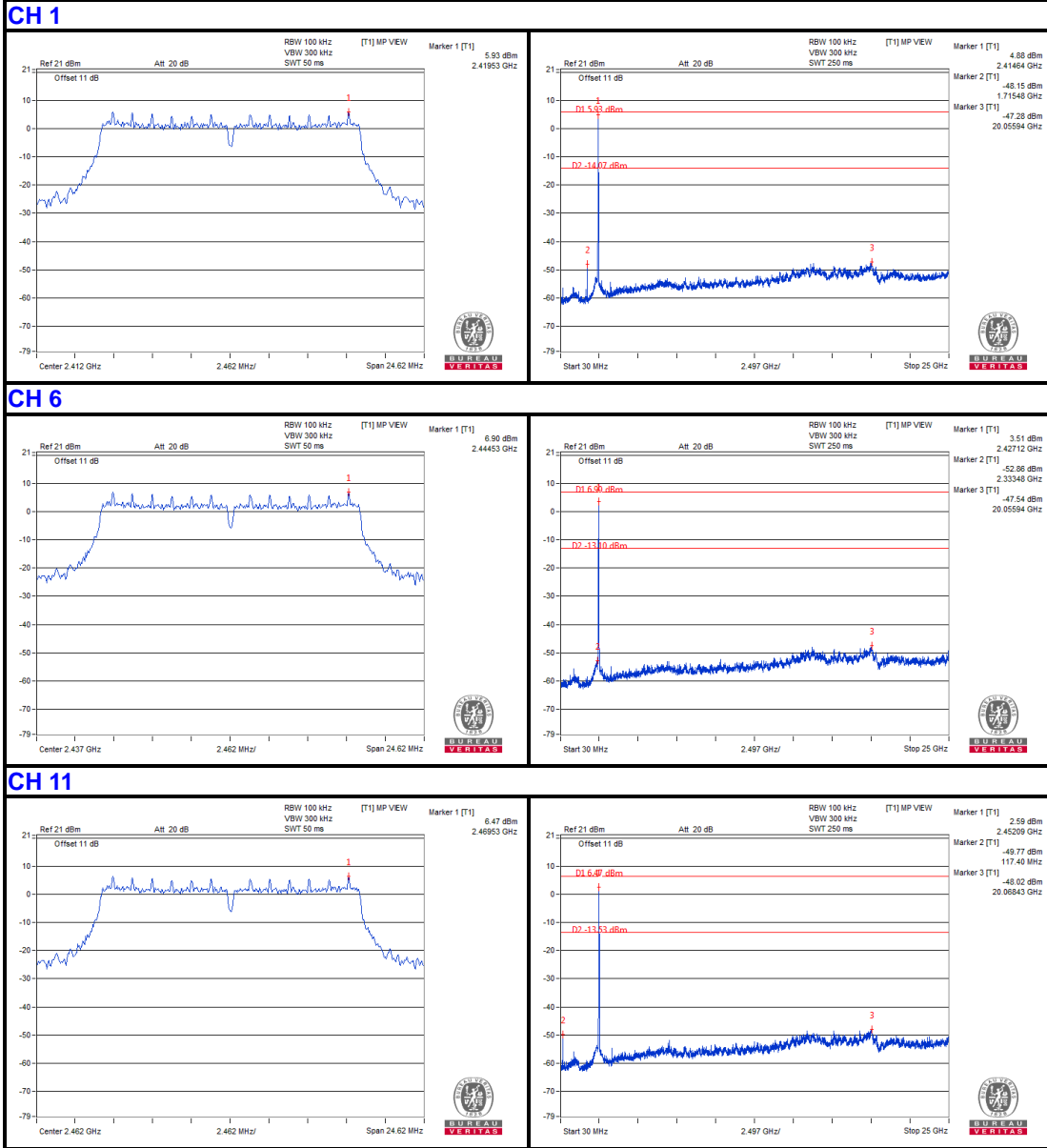
4.5.7 TEST RESULTS

802.11b



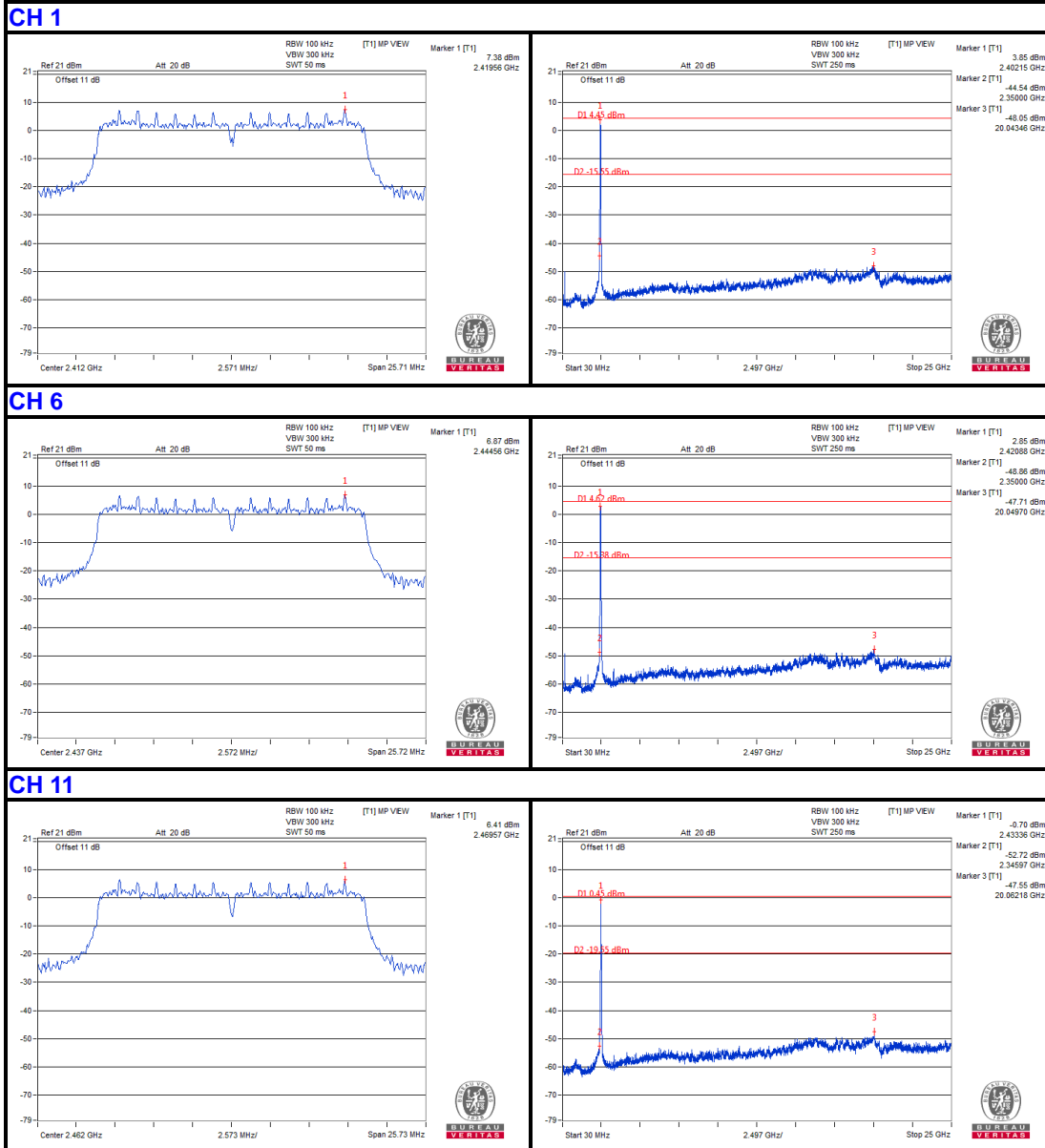


802.11g



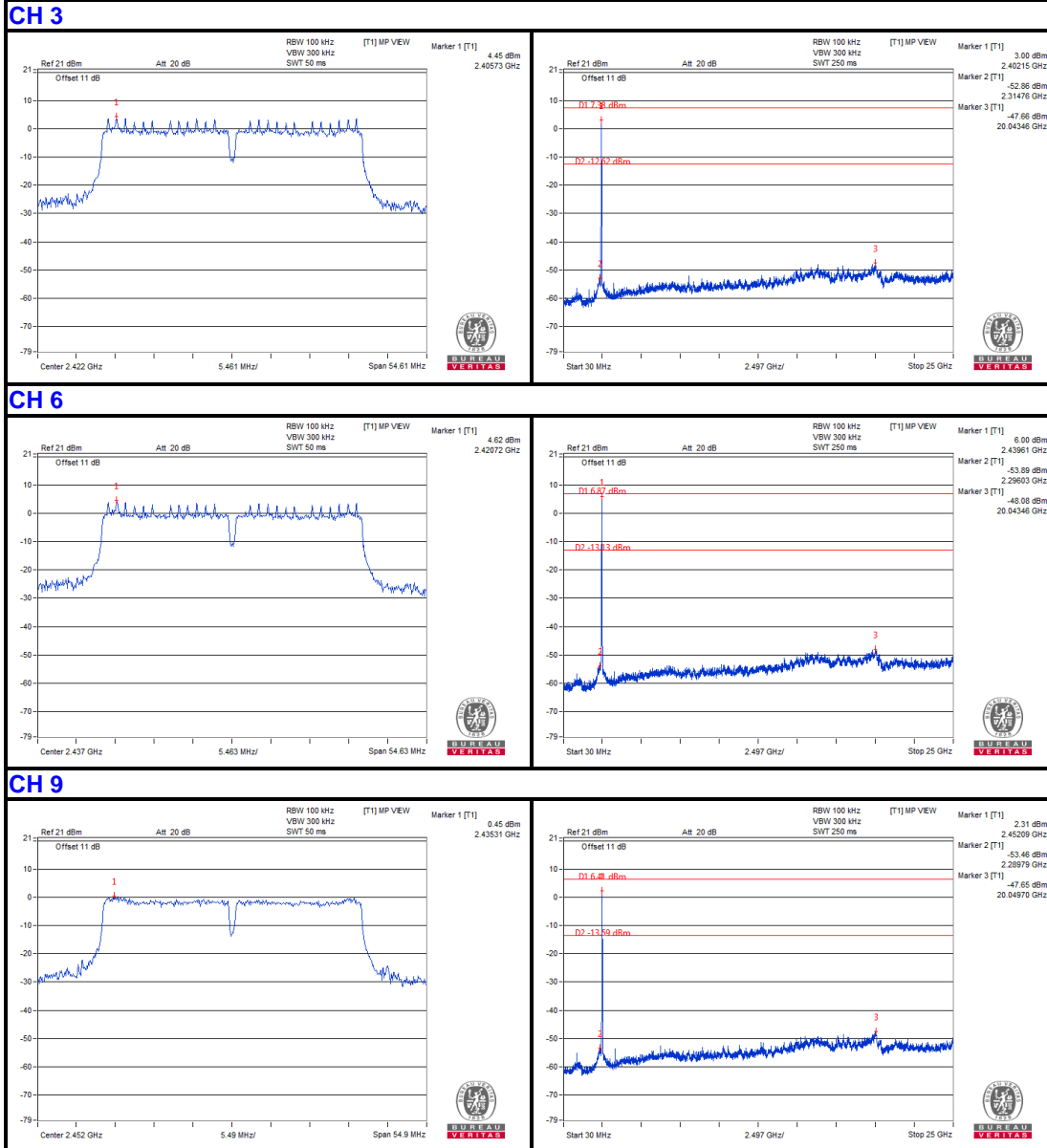


802.11n (20MHz)



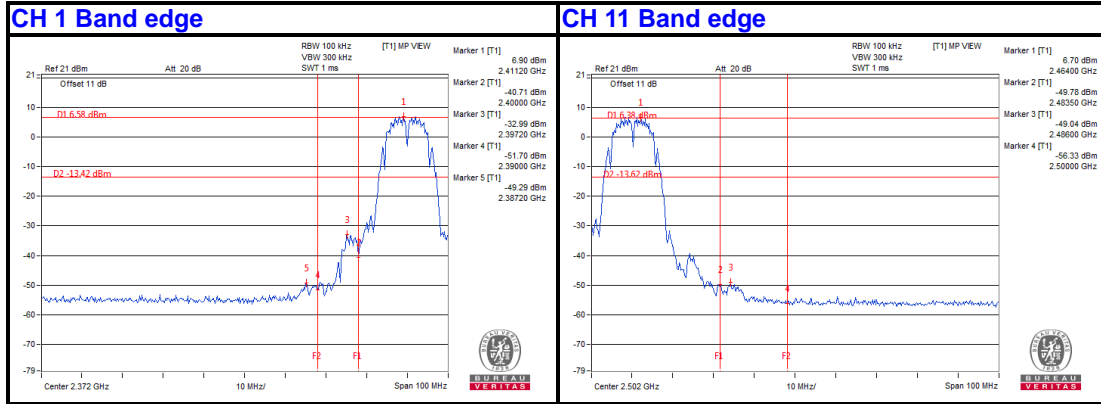


802.11n (40MHz)

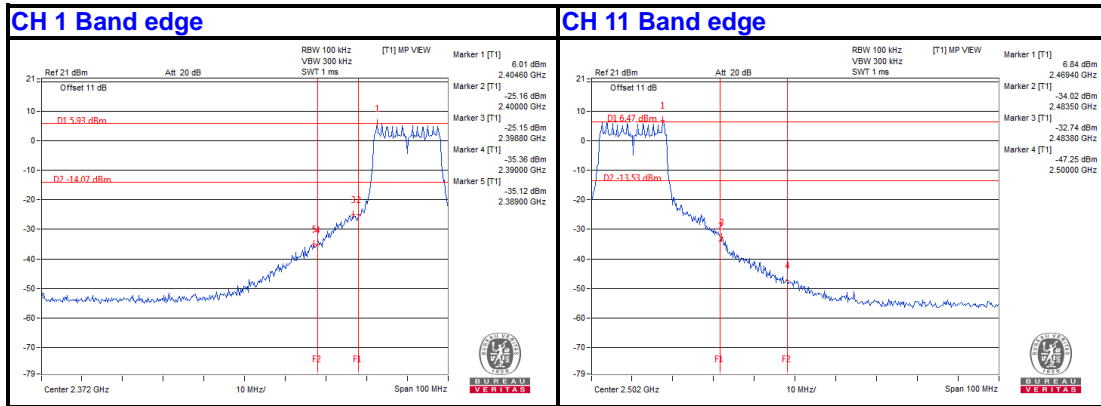




802.11b

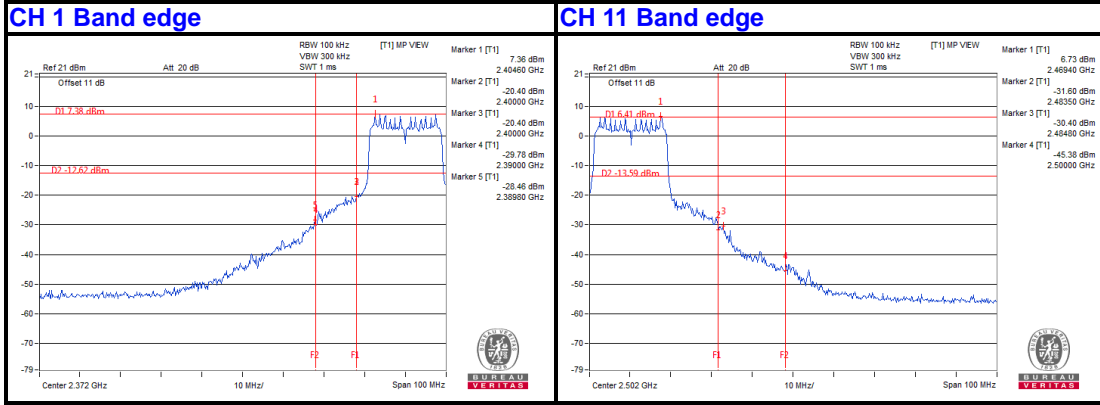


802.11g

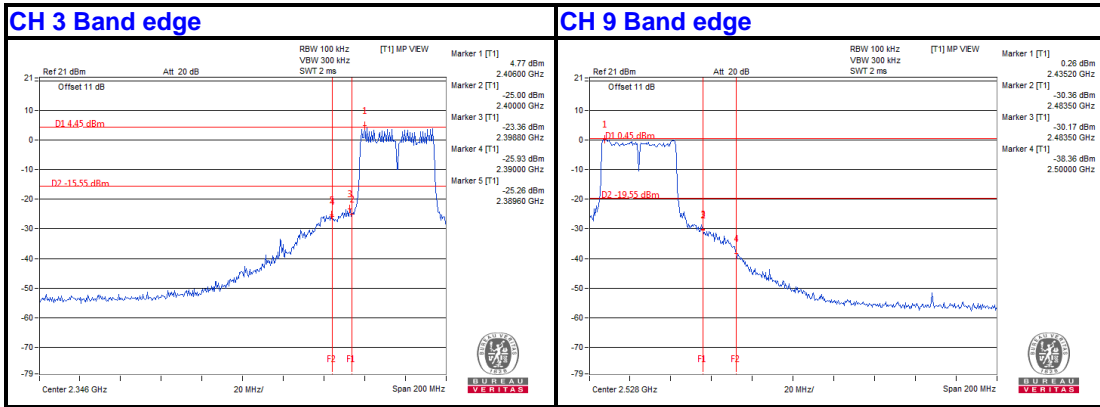




802.11n (20MHz)



802.11n (40MHz)





BUREAU
VERITAS Test Report No.: RF170316N005

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



BUREAU
VERITAS Test Report No.: RF170316N005

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---