



TEST REPORT



Applicant	SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD
Address	NO.2 WEST XINGYE ROAD LAIMEI INDUSTRIAL AREA CHENGHAI SHANTOU GUANGDONG CHINA

Manufacturer or Supplier	SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD
Address	NO.2 WEST XINGYE ROAD LAIMEI INDUSTRIAL AREA CHENGHAI SHANTOU GUANGDONG CHINA
Product	WIFI CAMERA
Brand Name	N/A
Model	X5HW
Additional Model & Model Difference	S026G, S102G, S105G, S107G, S108G, etc., See items 3.1
Date of tests	Jun. 27, 2016 ~ Jul. 19, 2016

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 Chris Chen Manager / EMC Department
	 Date: Jul. 19, 2016

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF160530N003-2	Original release	Jul. 19, 2016



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	WIFI CAMERA
MODEL NO.	X5HW
ADDITIONAL MODELS	S026G, S102G, S105G, S107G, S108G, S109G, S111G, S5, S8, 5F625DE, 5F60A91, 5F62508, 5F62D96, 5F62D95, X3, X3S, X4, X4S, X5, A5A, X5A-1, X5S, X5SC, X5SW, X5HC, X51, X52C, X53HC, X53HW, X54HC, X54HW, X6, X5UC, X5UW, X5UW(720P), X5G, X14, X14C, X14W, X14W(720P), X15, X15C, X15W, X17, X18, X19, D1U, D1W, D1W(720P), K3, D2100WH, HD-8500WH
FCC ID	2AG3M-SYMA20160720
NOMINAL VOLTAGE	DC 3.7V from host unit
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) 2422-2452MHz for 11n(HT40)
PEAK POWER	WLAN: 23.87dBm (Maximum peak Power)
ANTENNA TYPE	Wire Antenna, 2.0dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. The EUT incorporates a SISO function. Physically, the EUT provides one transmitter and one receiver.

MODULATION MODE	FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (20MHz)	1TX/1RX
802.11n (40MHz)	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. Additional models (see above table) are identical in circuitry and electrical, mechanical and physical construction with the test model X5HW, the only differences are the appearance and model no. for trading purpose.
5. Please refer to the EUT photo document (Reference No.: 160530N003-2) for detailed product photo.



3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

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

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	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 DC 3.7V 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 HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
802.11n HT40	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 HT20	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n HT40	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 HT20	1 to 11	1,6, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3,6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 55%RH	DC 3.7V	Eric Fang
RE≥1G	25deg. C, 55%RH	DC 3.7V	Eric Fang
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.7V	Breeze Jiang



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 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	DC Source	N/A	UE503	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	Power cable: unshielded, detachable, 2.5m



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	ESR7	101494	Apr. 05,16	Apr. 04,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 16, 16	Jul. 15, 17
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 30, 15	May 29, 17
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 14	Aug. 07, 16
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,16	Mar. 11,18
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. 04,16	Mar. 03, 17
Pre-Amplifier(1-18G)	HP	8449B	3008A00409	Apr. 25,16	Apr. 24,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,15	Nov. 19,16
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 or 24 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 494399.



4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters 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:

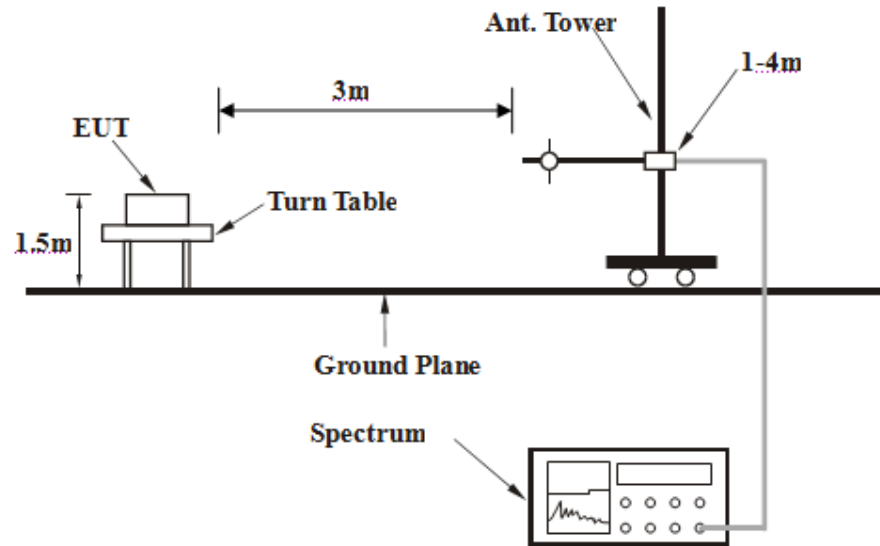
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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



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

4.1.6 EUT OPERATING CONDITIONS

- Set the EUT under full load condition and placed them 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:

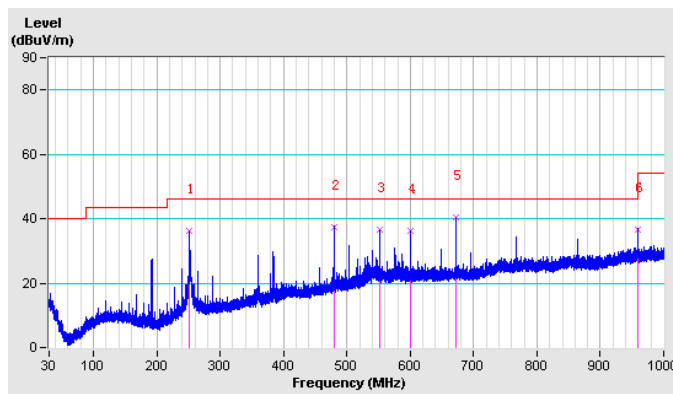
802.11b

CHANNEL	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 (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	251.98	36.30	46.00	-9.70	100	0	51.83	-15.53
2	479.99	37.42	46.00	-8.58	100	0	45.71	-8.29
3	552.01	36.45	46.00	-9.55	100	0	41.85	-5.40
4	600.00	36.25	46.00	-9.75	100	0	41.95	-5.70
5	672.02	40.55	46.00	-5.45	100	0	44.64	-4.09
6	959.99	36.64	46.00	-9.36	100	0	34.90	1.74

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.



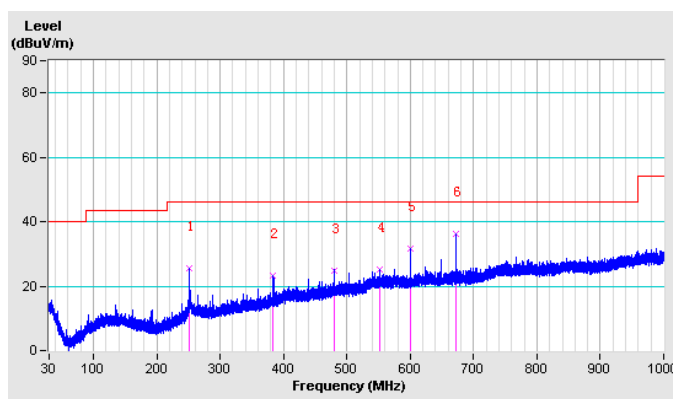


CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	251.98	25.39	46.00	-20.61	100	0	40.92	-15.53
2	383.99	23.28	46.00	-22.72	100	0	34.80	-11.52
3	479.96	24.63	46.00	-21.37	100	0	32.92	-8.29
4	552.01	25.28	46.00	-20.72	100	0	30.68	-5.40
5	600.03	31.65	46.00	-14.35	100	0	37.35	-5.70
6	671.99	36.05	46.00	-9.95	100	0	40.14	-4.09

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	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	48.7 PK	74.0	-25.3	1.25 H	205	46.18	2.53
2	2390.00	31.6 AV	54.0	-22.4	1.25 H	205	29.08	2.53
3	*2412.00	103.4 PK			1.25 H	205	100.82	2.59
4	*2412.00	86.3 AV			1.25 H	205	83.72	2.59
5	4824.00	50.6 PK	74.0	-23.4	1.53 H	194	42.84	7.78
6	4824.00	33.5 AV	54.0	-20.5	1.53 H	194	25.74	7.78
7	#7236.00	47.4 PK	83.4	-36.0	1.93 H	79	33.91	13.45
8	#7236.00	30.3 AV	66.3	-36.0	1.93 H	79	16.81	13.45
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	44.4 PK	74.0	-29.6	1.85 V	243	41.82	2.53
2	2390.00	27.3 AV	54.0	-26.7	1.85 V	243	24.72	2.53
3	*2412.00	99.9 PK			1.85 V	243	97.29	2.59
4	*2412.00	82.8 AV			1.85 V	243	80.19	2.59
5	4824.00	52.1 PK	74.0	-21.9	1.33 V	270	44.36	7.78
6	4824.00	35.0 AV	54.0	-19.0	1.33 V	270	27.26	7.78
7	#7236.00	47.5 PK	79.9	-32.4	1.78 V	302	34.01	13.45
8	#7236.00	30.4 AV	62.8	-32.4	1.78 V	302	16.91	13.45

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	106.0 PK			1.98 H	235	103.37	2.65
2	*2437.00	88.9 AV			1.98 H	235	86.27	2.65
3	4874.00	47.3 PK	74.0	-26.7	1.42 H	328	39.45	7.85
4	4874.00	30.2 AV	54.0	-23.8	1.42 H	328	22.35	7.85
5	7311.00	47.9 PK	74.0	-26.1	1.62 H	253	34.29	13.61
6	7311.00	30.8 AV	54.0	-23.2	1.62 H	253	17.19	13.61
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	*2437.00	102.3 PK			1.05 V	231	99.61	2.65
2	*2437.00	85.2 AV			1.05 V	231	82.51	2.65
3	4874.00	50.1 PK	74.0	-23.9	1.53 V	201	42.28	7.85
4	4874.00	33.0 AV	54.0	-21.0	1.53 V	201	25.18	7.85
5	7311.00	47.9 PK	74.0	-26.1	1.58 V	236	34.24	13.61
6	7311.00	30.8 AV	54.0	-23.2	1.58 V	236	17.14	13.61

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.



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	106.1 PK			1.56 H	238	103.35	2.71
2	*2462.00	88.9 AV			1.56 H	238	86.21	2.71
3	2483.50	46.3 PK	74.0	-27.7	1.56 H	238	43.54	2.77
4	2483.50	29.2 AV	54.0	-24.8	1.56 H	238	26.44	2.77
5	4924.00	49.8 PK	74.0	-24.2	1.84 H	231	41.87	7.92
6	4924.00	32.7 AV	54.0	-21.3	1.84 H	231	24.77	7.92
7	7386.00	48.4 PK	74.0	-25.6	1.95 H	74	34.59	13.78
8	7386.00	31.3 AV	54.0	-22.7	1.95 H	74	17.49	13.78
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	100.9 PK			1.75 V	83	98.22	2.71
2	*2462.00	83.8 AV			1.75 V	83	81.12	2.71
3	2483.50	48.1 PK	74.0	-25.9	1.75 V	83	45.33	2.77
4	2483.50	31.0 AV	54.0	-23.0	1.75 V	83	28.23	2.77
5	4924.00	49.4 PK	74.0	-24.6	1.61 V	239	41.43	7.92
6	4924.00	32.3 AV	54.0	-21.7	1.61 V	239	24.33	7.92
7	7386.00	48.0 PK	74.0	-26.0	1.27 V	102	34.23	13.78
8	7386.00	30.9 AV	54.0	-23.1	1.27 V	102	17.13	13.78

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	67.9 PK	74.0	-6.1	1.36 H	201	65.35	2.53
2	2390.00	50.8 AV	54.0	-3.2	1.36 H	201	48.25	2.53
3	*2412.00	109.8 PK			1.36 H	201	107.21	2.59
4	*2412.00	92.7 AV			1.36 H	201	90.11	2.59
5	4824.00	54.0 PK	74.0	-20.0	1.68 H	102	46.26	7.78
6	4824.00	36.9 AV	54.0	-17.1	1.68 H	102	29.16	7.78
7	#7236.00	48.8 PK	89.8	-41.0	1.18 H	239	35.35	13.45
8	#7236.00	31.7 AV	72.7	-41.0	1.18 H	239	18.25	13.45
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	1.57 V	201	63.41	2.53
2	2390.00	48.8 AV	54.0	-5.2	1.57 V	201	46.31	2.53
3	*2412.00	106.5 PK			1.57 V	201	103.90	2.59
4	*2412.00	89.4 AV			1.57 V	201	86.80	2.59
5	4824.00	58.0 PK	74.0	-16.0	1.84 V	239	50.23	7.78
6	4824.00	40.9 AV	54.0	-13.1	1.84 V	239	33.13	7.78
7	#7236.00	49.9 PK	86.5	-36.6	1.69 V	332	36.41	13.45
8	#7236.00	32.8 AV	69.4	-36.6	1.69 V	332	19.31	13.45

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	110.6 PK			1.15 H	230	107.98	2.65
2	*2437.00	93.5 AV			1.15 H	230	90.88	2.65
3	4874.00	49.4 PK	74.0	-24.6	1.75 H	203	41.52	7.85
4	4874.00	32.3 AV	54.0	-21.7	1.75 H	203	24.42	7.85
5	7311.00	48.4 PK	74.0	-25.6	1.02 H	230	34.80	13.61
6	7311.00	31.3 AV	54.0	-22.7	1.02 H	230	17.70	13.61
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	*2437.00	105.4 PK			1.15 V	249	102.74	2.65
2	*2437.00	88.3 AV			1.15 V	249	85.64	2.65
3	4874.00	53.1 PK	74.0	-20.9	1.48 V	230	45.22	7.85
4	4874.00	36.0 AV	54.0	-18.0	1.48 V	230	28.12	7.85
5	7311.00	47.8 PK	74.0	-26.2	1.52 V	18	34.14	13.61
6	7311.00	30.7 AV	54.0	-23.3	1.52 V	18	17.04	13.61

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.



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	108.2 PK			1.28 H	205	105.47	2.71
2	*2462.00	91.1 AV			1.28 H	205	88.37	2.71
3	2483.50	65.9 PK	74.0	-8.1	1.28 H	205	63.12	2.77
4	2483.50	48.8 AV	54.0	-5.2	1.28 H	205	46.02	2.77
5	4924.00	45.3 PK	74.0	-28.7	1.72 H	268	37.38	7.92
6	4924.00	28.2 AV	54.0	-25.8	1.72 H	268	20.28	7.92
7	7386.00	48.0 PK	74.0	-26.0	1.00 H	185	34.22	13.78
8	7386.00	30.9 AV	54.0	-23.1	1.00 H	185	17.12	13.78
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	105.0 PK			1.85 V	243	102.33	2.71
2	*2462.00	87.9 AV			1.85 V	243	85.23	2.71
3	2483.50	58.0 PK	74.0	-16.0	1.85 V	243	55.24	2.77
4	2483.50	40.9 AV	54.0	-13.1	1.85 V	243	38.14	2.77
5	4924.00	46.9 PK	74.0	-27.1	1.02 V	231	38.98	7.92
6	4924.00	29.8 AV	54.0	-24.2	1.02 V	231	21.88	7.92
7	7386.00	47.3 PK	74.0	-26.7	1.85 V	201	33.52	13.78
8	7386.00	30.2 AV	54.0	-23.8	1.85 V	201	16.42	13.78

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	69.1 PK	74.0	-4.9	1.65 H	238	66.57	2.53
2	2390.00	52.0 AV	54.0	-2.0	1.65 H	238	49.47	2.53
3	*2412.00	107.5 PK			1.65 H	238	104.90	2.59
4	*2412.00	90.4 AV			1.65 H	238	87.80	2.59
5	4824.00	51.6 PK	74.0	-22.4	1.85 H	203	43.86	7.78
6	4824.00	34.5 AV	54.0	-19.5	1.85 H	203	26.76	7.78
7	#7236.00	48.8 PK	87.5	-38.7	1.02 H	148	35.33	13.45
8	#7236.00	31.7 AV	70.4	-38.7	1.02 H	148	18.23	13.45
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.1 PK	74.0	-5.9	1.02 V	287	65.59	2.53
2	2390.00	51.0 AV	54.0	-3.0	1.02 V	287	48.49	2.53
3	*2412.00	104.8 PK			1.02 V	287	102.19	2.59
4	*2412.00	87.7 AV			1.02 V	287	85.09	2.59
5	4824.00	56.3 PK	74.0	-17.7	1.68 V	154	48.55	7.78
6	4824.00	39.2 AV	54.0	-14.8	1.68 V	154	31.45	7.78
7	#7236.00	47.2 PK	84.8	-37.6	1.02 V	231	33.72	13.45
8	#7236.00	30.1 AV	67.7	-37.6	1.02 V	231	16.62	13.45

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.



L C I E Test Report No.: RF160530N003-2

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	108.3 PK			1.05 H	208	105.66	2.65
2	*2437.00	91.2 AV			1.05 H	208	88.56	2.65
3	4874.00	45.3 PK	74.0	-28.7	1.95 H	203	37.47	7.85
4	4874.00	28.2 AV	54.0	-25.8	1.95 H	203	20.37	7.85
5	7311.00	47.7 PK	74.0	-26.3	1.69 H	203	34.05	13.61
6	7311.00	30.6 AV	54.0	-23.4	1.69 H	203	16.95	13.61
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	*2437.00	103.6 PK			1.84 V	203	100.90	2.65
2	*2437.00	86.5 AV			1.84 V	203	83.80	2.65
3	4874.00	46.7 PK	74.0	-27.3	1.33 V	279	38.87	7.85
4	4874.00	29.6 AV	54.0	-24.4	1.33 V	279	21.77	7.85
5	7311.00	47.4 PK	74.0	-26.6	1.85 V	206	33.77	13.61
6	7311.00	30.3 AV	54.0	-23.7	1.85 V	206	16.67	13.61

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.



L C I E Test Report No.: RF160530N003-2

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	105.7 PK			1.05 H	350	102.96	2.71
2	*2462.00	88.6 AV			1.05 H	350	85.86	2.71
3	2483.50	63.2 PK	74.0	-10.8	1.05 H	350	60.44	2.77
4	2483.50	46.1 AV	54.0	-7.9	1.05 H	350	43.34	2.77
5	4924.00	44.1 PK	74.0	-29.9	1.36 H	201	36.18	7.92
6	4924.00	27.0 AV	54.0	-27.0	1.36 H	201	19.08	7.92
7	7386.00	47.8 PK	74.0	-26.2	1.32 H	261	34.06	13.78
8	7386.00	30.7 AV	54.0	-23.3	1.32 H	261	16.96	13.78
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	102.0 PK			1.73 V	238	99.24	2.71
2	*2462.00	84.9 AV			1.73 V	238	82.14	2.71
3	2483.50	54.3 PK	74.0	-19.7	1.05 V	216	51.56	2.77
4	2483.50	37.2 AV	54.0	-16.8	1.05 V	216	34.46	2.77
5	4924.00	45.8 PK	74.0	-28.2	1.13 V	234	37.89	7.92
6	4924.00	28.7 AV	54.0	-25.3	1.13 V	234	20.79	7.92
7	7386.00	47.9 PK	74.0	-26.1	1.20 V	154	34.16	13.78
8	7386.00	30.8 AV	54.0	-23.2	1.20 V	154	17.06	13.78

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	67.1 PK	74.0	-6.9	1.20 H	203	64.56	2.53
2	2390.00	50.0 AV	54.0	-4.0	1.20 H	203	47.46	2.53
3	*2422.00	104.1 PK			1.20 H	203	101.53	2.61
4	*2422.00	87.0 AV			1.20 H	203	84.43	2.61
5	4844.00	44.1 PK	74.0	-29.9	1.92 H	201	36.33	7.81
6	4844.00	27.0 AV	54.0	-27.0	1.92 H	201	19.23	7.81
7	7266.00	47.6 PK	74.0	-26.4	1.26 H	285	34.10	13.51
8	7266.00	30.5 AV	54.0	-23.5	1.26 H	285	17.00	13.51
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	64.6 PK	74.0	-9.4	1.65 V	273	62.05	2.53
2	2390.00	47.5 AV	54.0	-6.5	1.65 V	273	44.95	2.53
3	*2422.00	101.1 PK			1.65 V	273	98.50	2.61
4	*2422.00	84.0 AV			1.65 V	273	81.40	2.61
5	4844.00	47.7 PK	74.0	-26.3	1.25 V	316	39.85	7.81
6	4844.00	30.6 AV	54.0	-23.4	1.25 V	316	22.75	7.81
7	7266.00	47.5 PK	74.0	-26.5	1.84 V	268	34.03	13.51
8	7266.00	30.4 AV	54.0	-23.6	1.84 V	268	16.93	13.51

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	104.6 PK			1.16 H	208	101.97	2.65
2	*2437.00	87.5 AV			1.16 H	208	84.87	2.65
3	4874.00	42.6 PK	74.0	-31.4	2.03 H	198	34.71	7.85
4	4874.00	25.5 AV	54.0	-28.5	2.03 H	198	17.61	7.85
5	7311.00	48.7 PK	74.0	-25.3	1.85 H	45	35.09	13.61
6	7311.00	31.6 AV	54.0	-22.4	1.85 H	45	17.99	13.61
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	*2437.00	100.5 PK			1.68 V	201	97.82	2.65
2	*2437.00	83.4 AV			1.68 V	201	80.72	2.65
3	4874.00	44.5 PK	74.0	-29.5	1.64 V	36	36.67	7.85
4	4874.00	27.4 AV	54.0	-26.6	1.64 V	36	19.57	7.85
5	7311.00	48.4 PK	74.0	-25.6	1.94 V	201	34.76	13.61
6	7311.00	31.3 AV	54.0	-22.7	1.94 V	201	17.66	13.61

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.



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	104.6 PK			1.41 H	198	101.90	2.68
2	*2452.00	87.5 AV			1.41 H	198	84.80	2.68
3	2483.50	63.5 PK	74.0	-10.5	1.95 H	185	60.76	2.77
4	2483.50	46.4 AV	54.0	-7.6	1.95 H	185	43.66	2.77
5	4904.00	44.3 PK	74.0	-29.7	1.87 H	203	36.40	7.90
6	4904.00	27.2 AV	54.0	-26.8	1.87 H	203	19.30	7.90
7	7356.00	47.8 PK	74.0	-26.2	1.67 H	195	34.11	13.71
8	7356.00	30.7 AV	54.0	-23.3	1.67 H	195	17.01	13.71
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	99.4 PK			1.06 V	285	96.75	2.68
2	*2452.00	82.3 AV			1.06 V	285	79.65	2.68
3	2483.50	56.4 PK	74.0	-17.6	1.06 V	285	53.59	2.77
4	2483.50	39.3 AV	54.0	-14.7	1.06 V	285	36.49	2.77
5	4904.00	43.3 PK	74.0	-30.7	1.28 V	164	35.39	7.90
6	4904.00	26.2 AV	54.0	-27.8	1.28 V	164	18.29	7.90
7	7356.00	47.6 PK	74.0	-26.4	1.49 V	203	33.92	13.71
8	7356.00	30.5 AV	54.0	-23.5	1.49 V	203	16.82	13.71

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. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 16	Apr. 21, 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

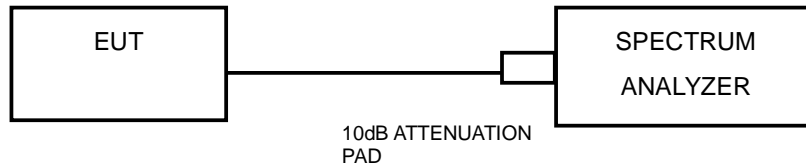
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower)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

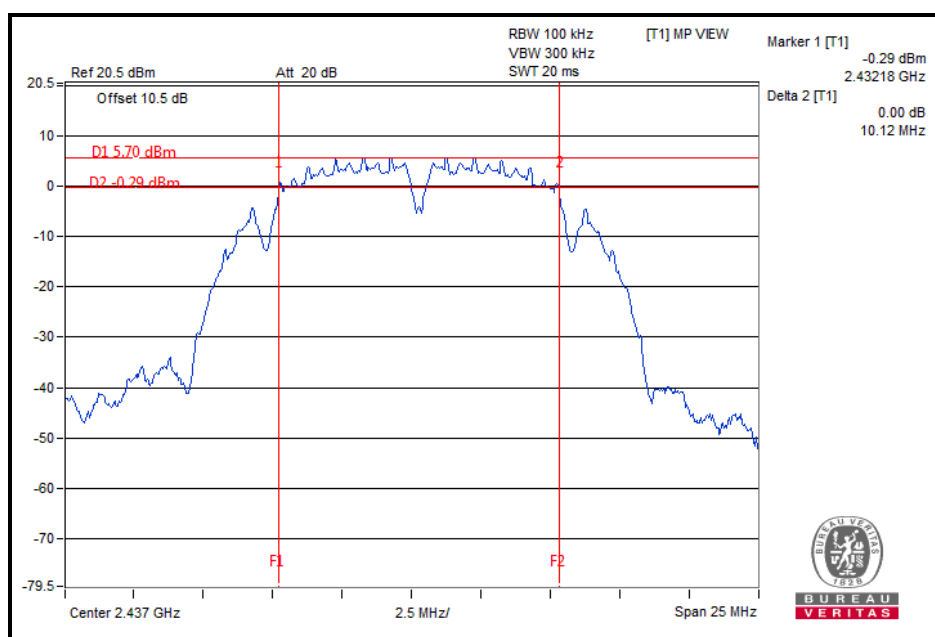
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.2.7 TEST RESULTS

802.11b

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

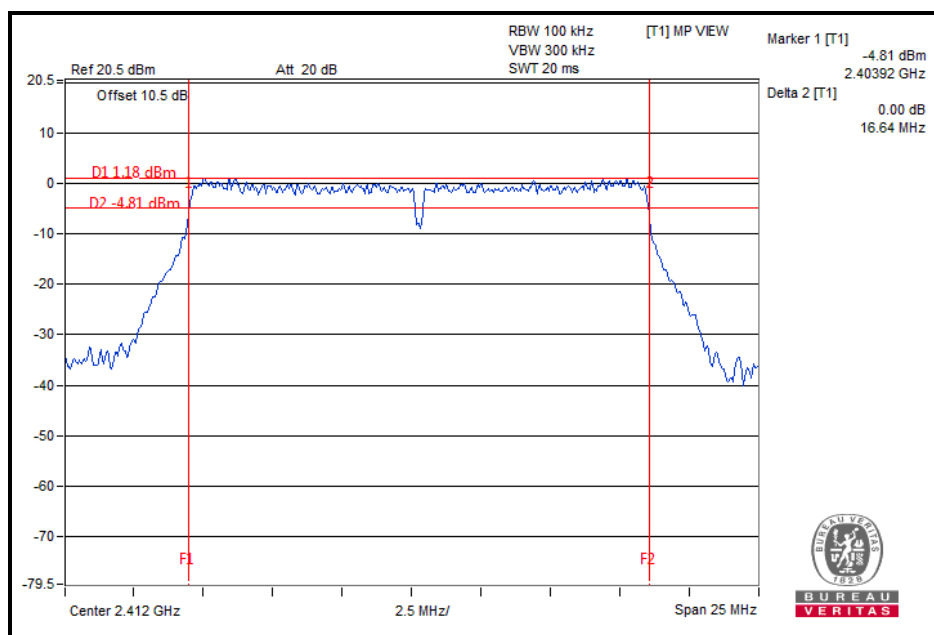




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802.11g

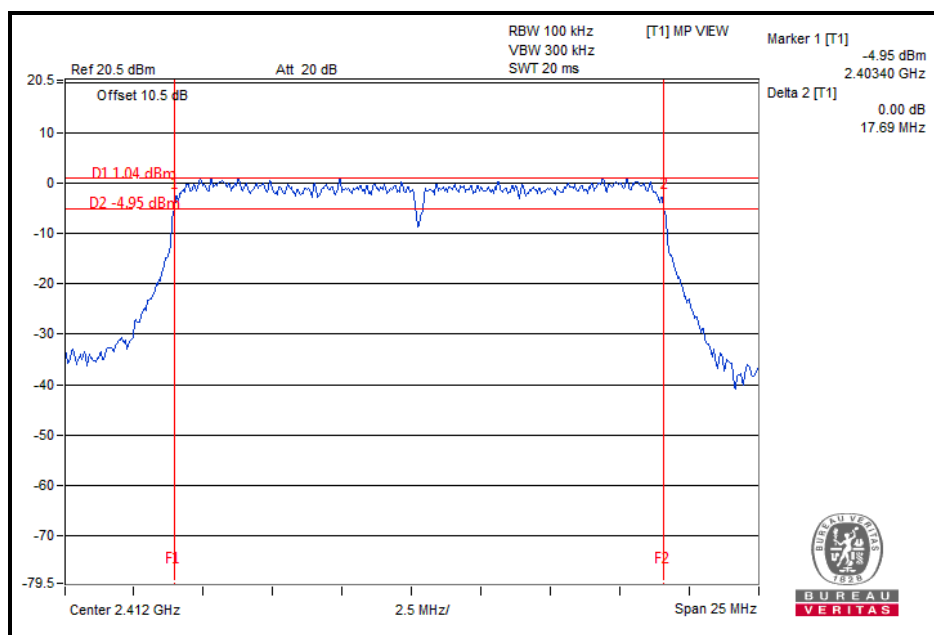
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.64	0.5	PASS
6	2437	16.62	0.5	PASS
11	2462	16.63	0.5	PASS





802.11n (20MHz)

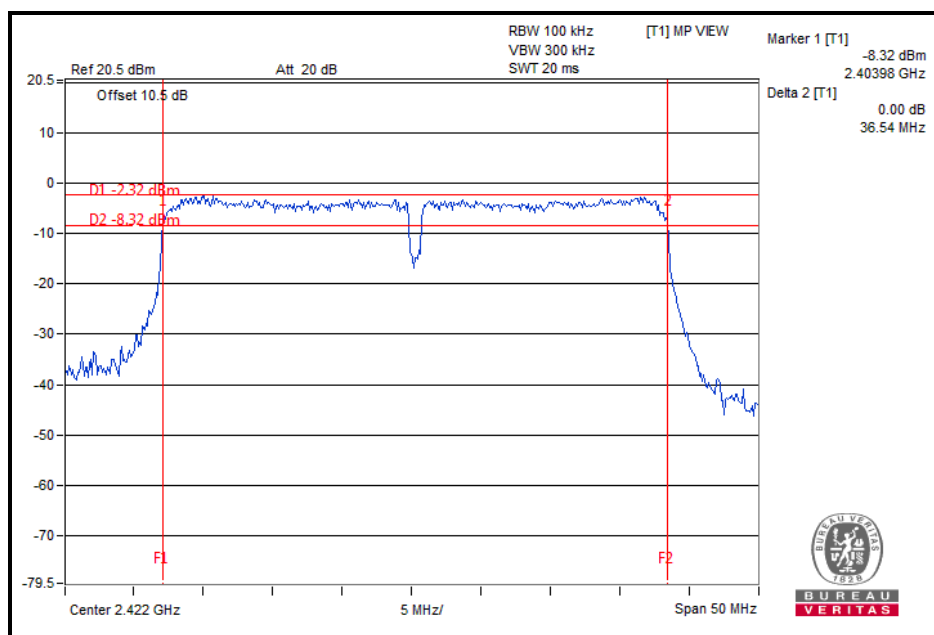
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.69	0.5	PASS
6	2437	17.69	0.5	PASS
11	2462	17.68	0.5	PASS





802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.54	0.5	PASS
6	2437	36.46	0.5	PASS
9	2452	36.46	0.5	PASS



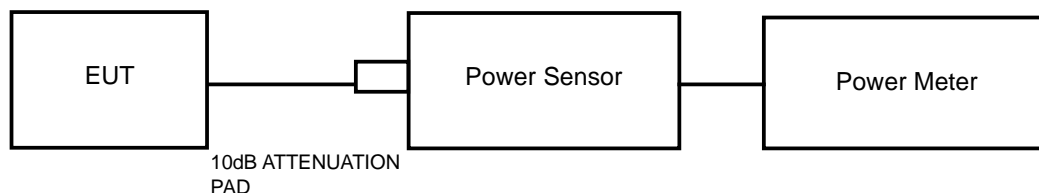


4.3 CONDUCTED OUTPUT POWER

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. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 16	Apr. 21, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

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.



4.3.4 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	19.96	99.083	1	PASS
6	2437	19.53	89.743	1	PASS
11	2462	18.62	72.778	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	22.69	185.780	1	PASS
6	2437	23.48	222.844	1	PASS
11	2462	23.87	243.781	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	20.92	123.595	1	PASS
6	2437	20.81	120.504	1	PASS
11	2462	20.59	114.551	1	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	20.24	105.682	1	PASS
6	2437	20.02	100.462	1	PASS
7	2452	19.96	99.083	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	16.83	48.195
6	2437	16.79	47.753
11	2462	16.16	41.305

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	15.30	33.884
6	2437	15.27	33.651
11	2462	15.23	33.343

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	13.43	22.029
6	2437	13.20	20.893
11	2462	13.03	20.091

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
3	2422	12.92	19.588
6	2437	12.84	19.231
7	2452	12.85	19.275

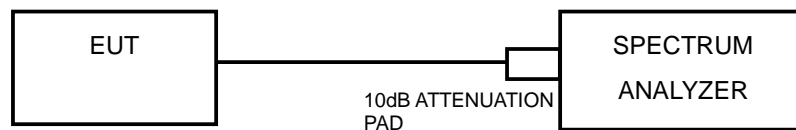


4.4 POWER SPECTRAL DENSITY MEASUREMENT

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.



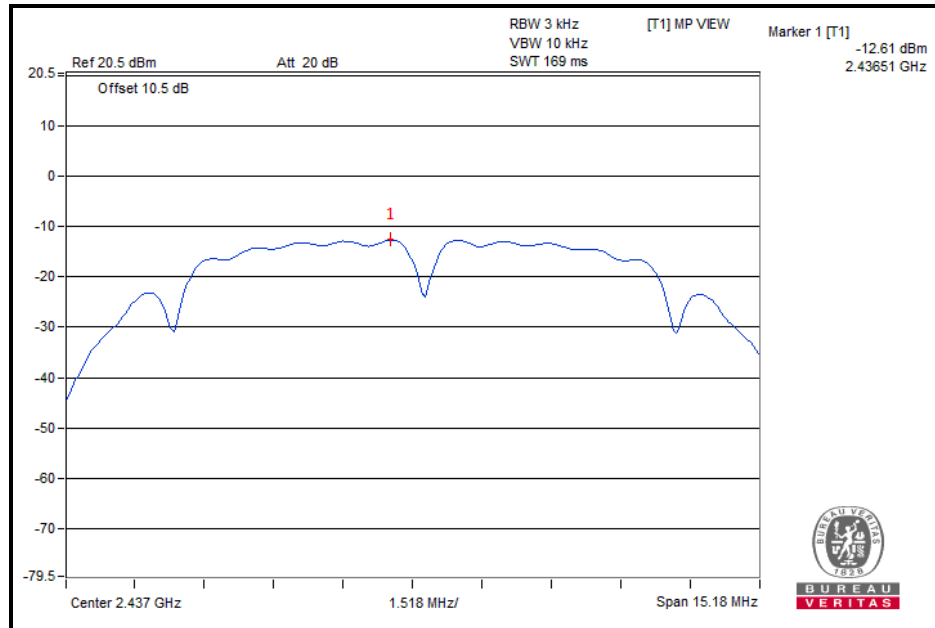
4.4.6 EUT OPERATING CONDITION

Same as item 4.3.6

4.4.7 TEST RESULTS

802.11b

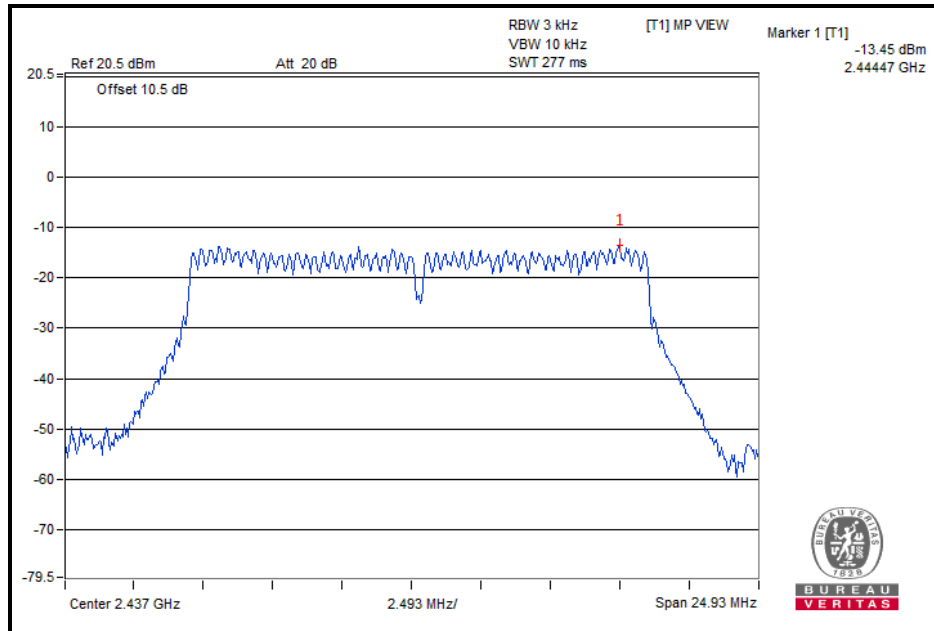
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-14.55	8	PASS
6	2437	-12.61	8	PASS
11	2462	-13.25	8	PASS





802.11g

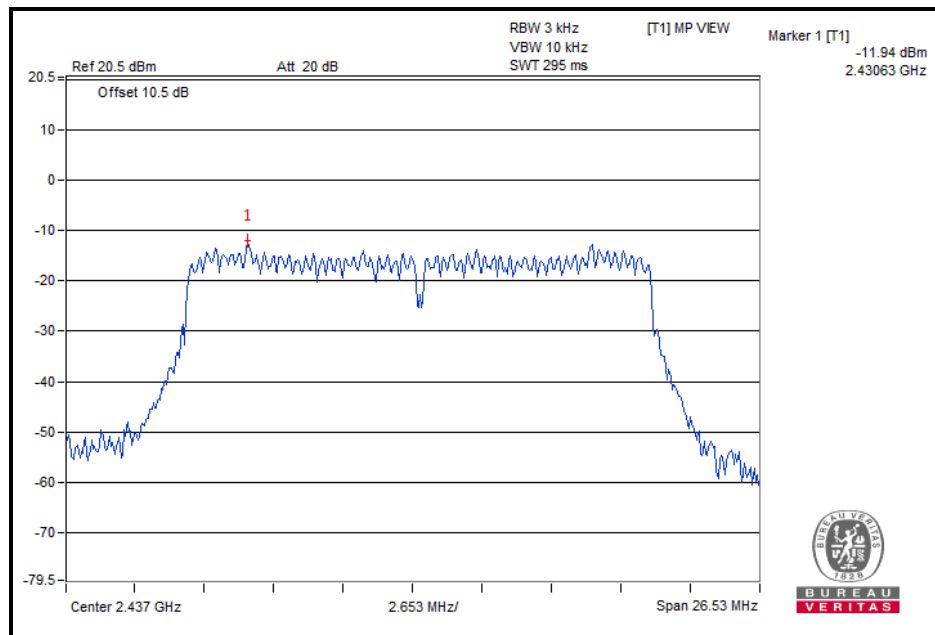
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.49	8	PASS
6	2437	-13.45	8	PASS
11	2462	-13.49	8	PASS





802.11n (20MHz)

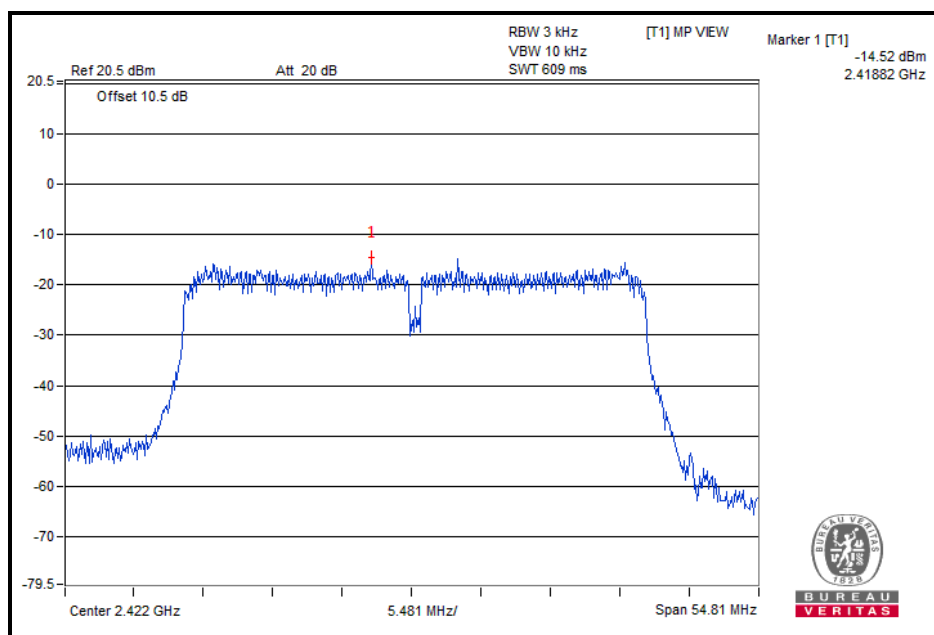
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.60	8	PASS
6	2437	-11.94	8	PASS
11	2462	-12.55	8	PASS





802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-14.52	8	PASS
6	2437	-17.79	8	PASS
7	2452	-17.39	8	PASS



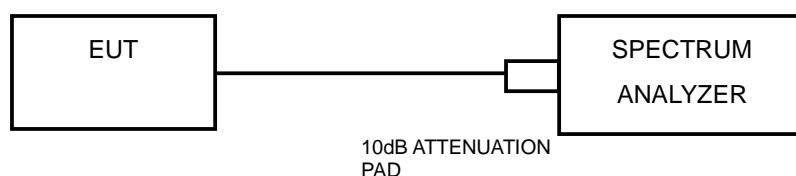


4.5 OUT OF BAND EMISSION MEASUREMENT

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.

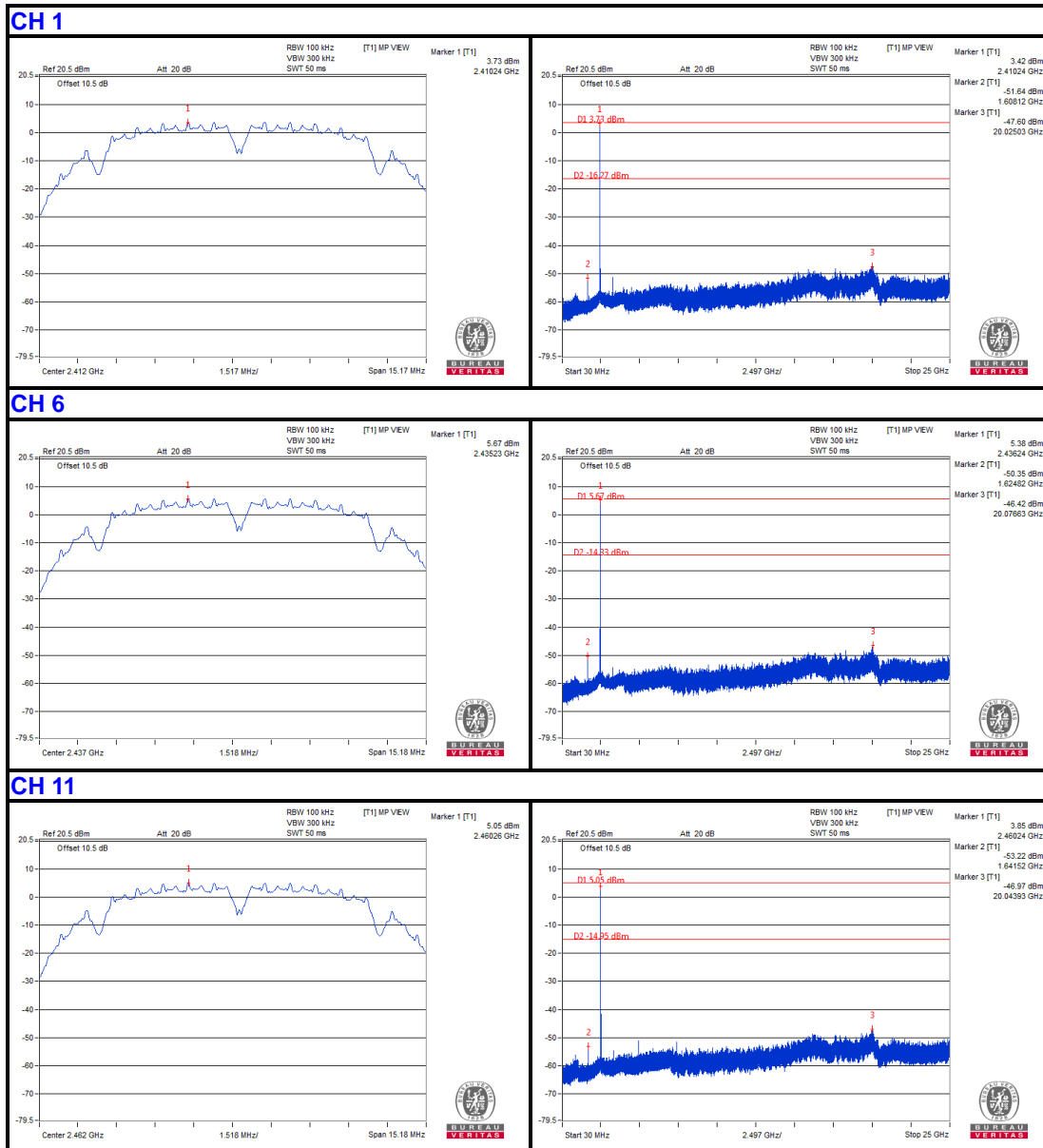
4.5.6 EUT OPERATING CONDITION

Same as item 4.2.6



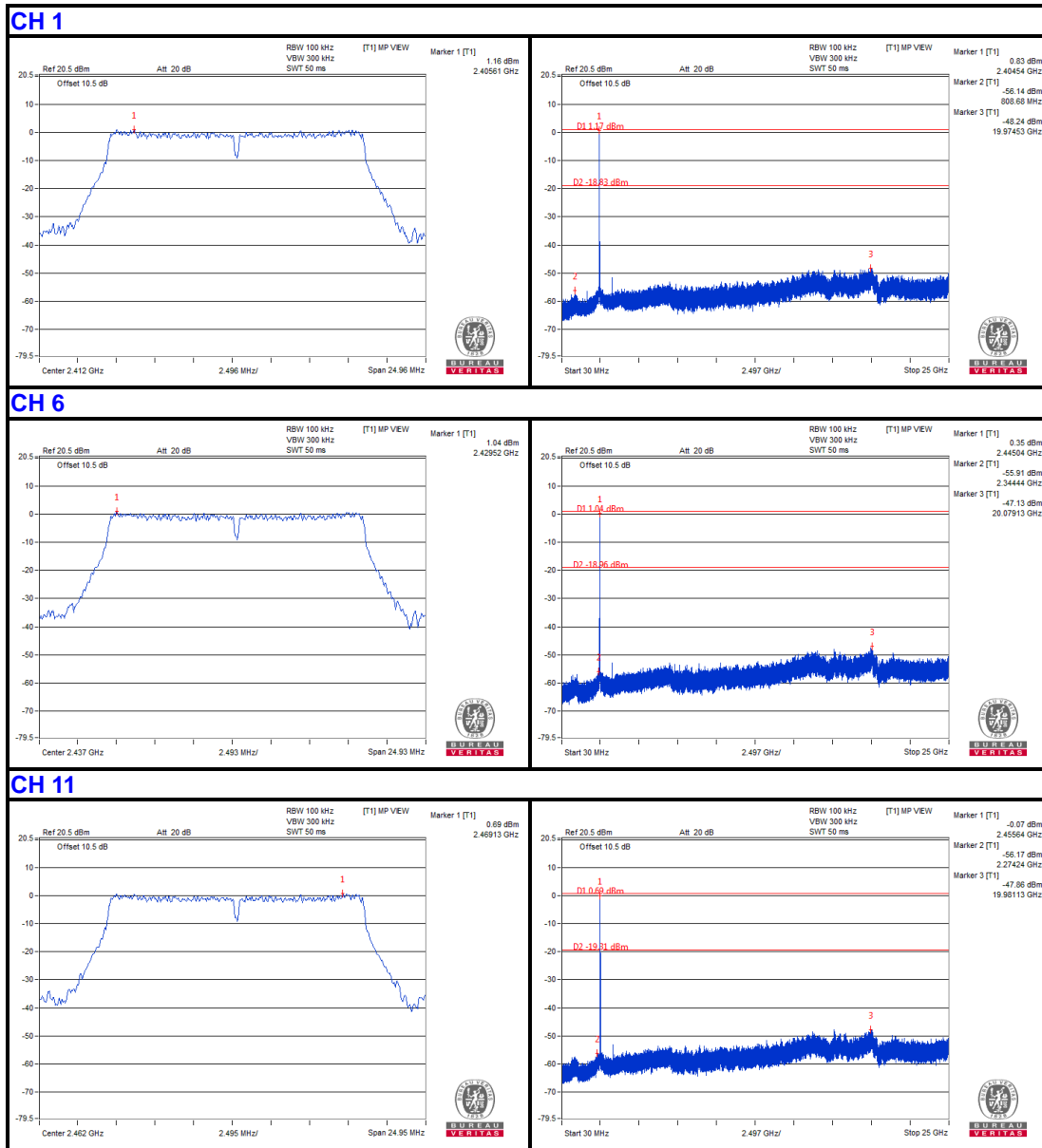
4.5.7 TEST RESULTS

802.11b



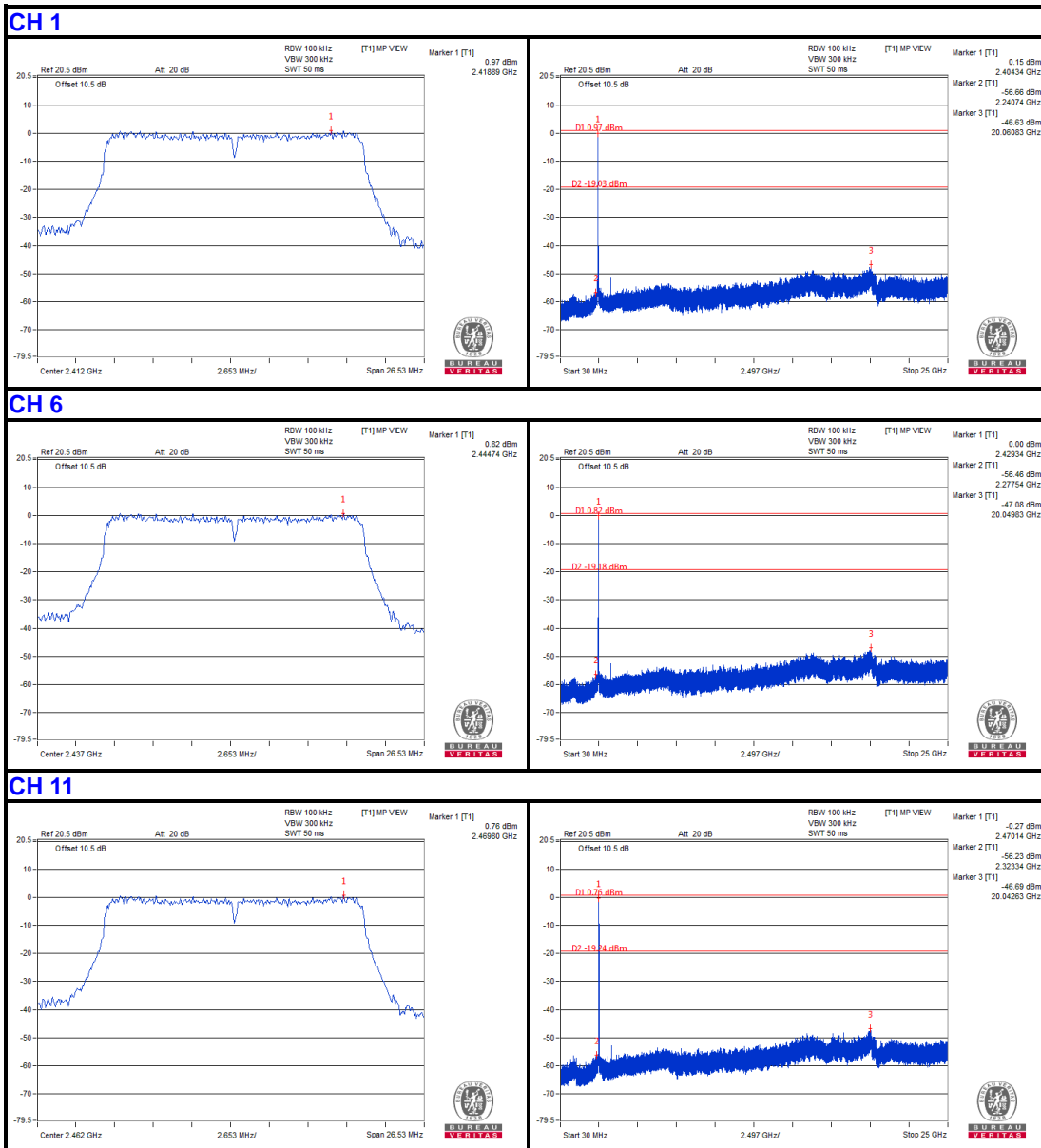


802.11g



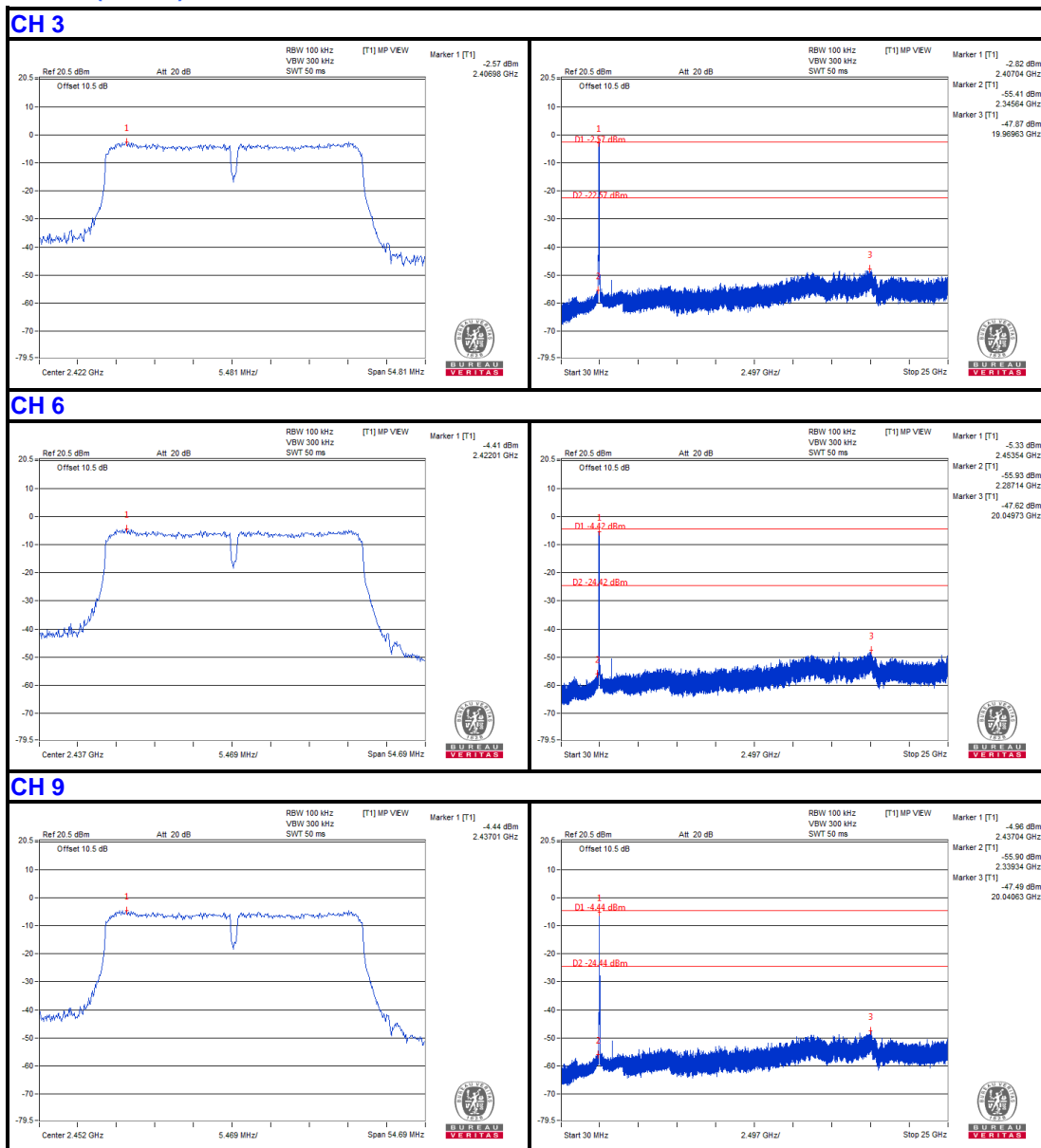


802.11n (20MHz)



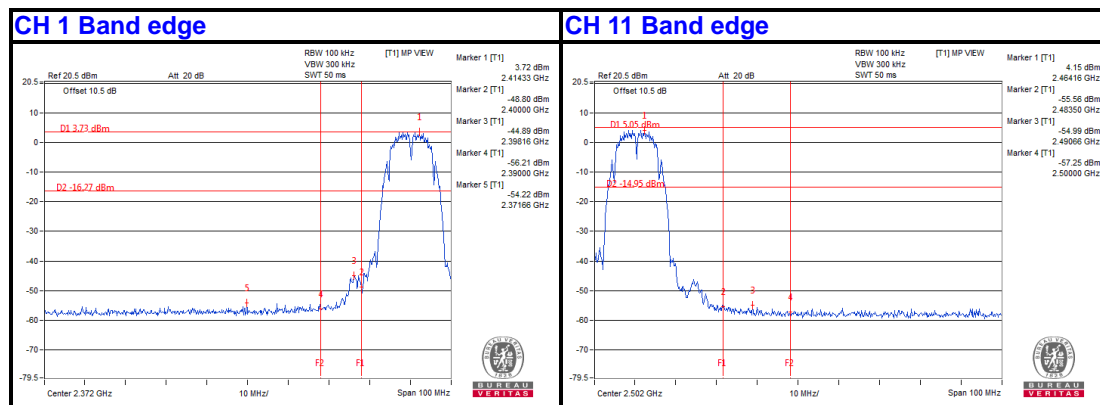


802.11n (40MHz)

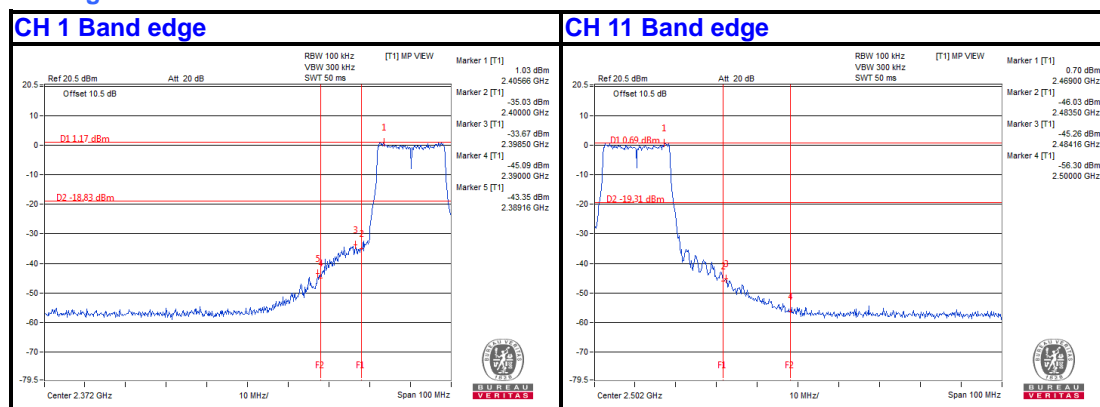




802.11b



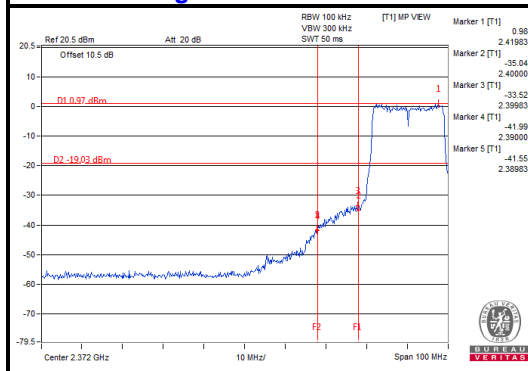
802.11g



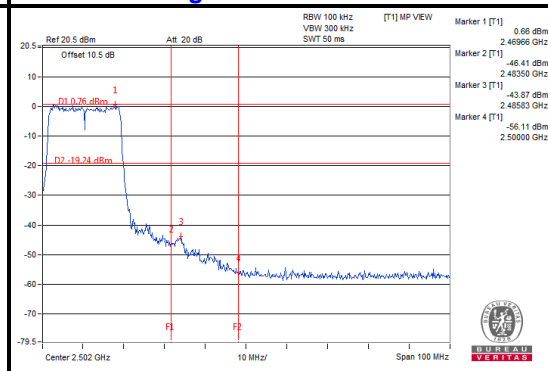


802.11n (20MHz)

CH 1 Band edge

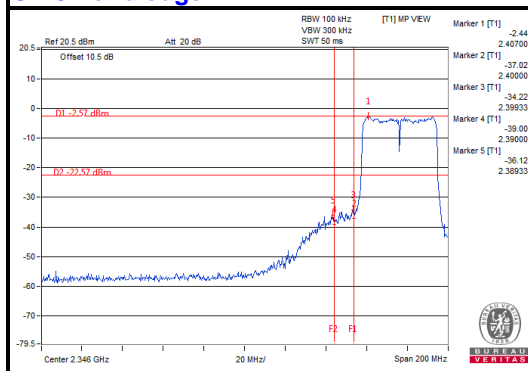


CH 11 Band edge

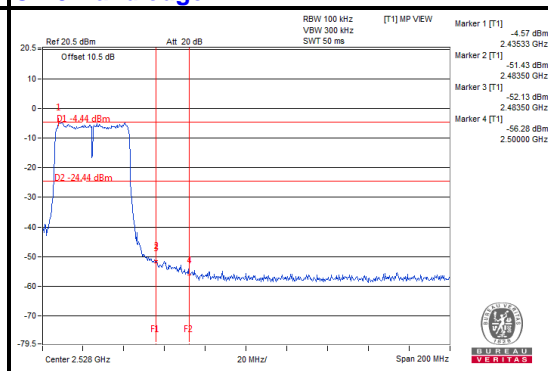


802.11n (40MHz)

CH 3 Band edge



CH 9 Band edge





5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



L C I E Test Report No.: RF160530N003-2

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---