


TEST REPORT



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Manufacturer or Supplier	ONANOFF LIMITED
Address	RM 424, Sino Ind. Plaza, 9 Kai Cheung Road, Kowloon Bay, Kowloon, Hong Kong
Product	StoryPhones
Brand Name	 onanoff
Model	ON-STORYPH
Additional Model & Model Difference	N/A
Date of tests	Nov. 10, 2021 ~ Mar. 28, 2022

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 Eric Fang Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	
Date: Aug. 16, 2022	

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2110WDG0255-3	Original release	Aug. 16, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

2 MEASUREMENT UNCERTAINTY


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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	2.16dB
	30MHz ~ 1GMHz	3.63dB
	1GHz ~ 18GHz	4.96dB
	18GHz ~ 40GHz	4.37dB

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	StoryPhones
BRAND	
MODEL NO.	ON-STORYPH
ADDITIONAL NO.	N/A
FCC ID	2AN2MONSTORYPH
NOMINAL VOLTAGE	DC 3.7V from Li-ion Battery or DC 5V from USB Host Unit
MODULATION TECHNOLOGY	DSSS, OFDM For ESP Module
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
PEAK OUTPUT POWER	224.905mW(Maximum)
ANTENNA TYPE	Ceramic Chip Antenna, with 2dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTES:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
2. Please refer to the EUT photo document (Reference No.: 2110WDG0255) for detailed product photo.
3. When the EUT charging mode the other function can't working.
4. The EUT provides completed transmitters and receivers:

MODULATION MODE	FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX
802.11n (HT40)	1TX/1RX

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, power supply voltage range 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 Link

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

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER(POE)	TESTED BY
RE<1G	25deg. C, 55%RH	DC 3.7V from Fully Battery	Jelly
RE≥1G	25deg. C, 55%RH	DC 3.7V from Fully Battery	Jelly
APCM	25deg. C, 60%RH	DC 3.7V from Fully Battery	YOYO



BUREAU VERITAS

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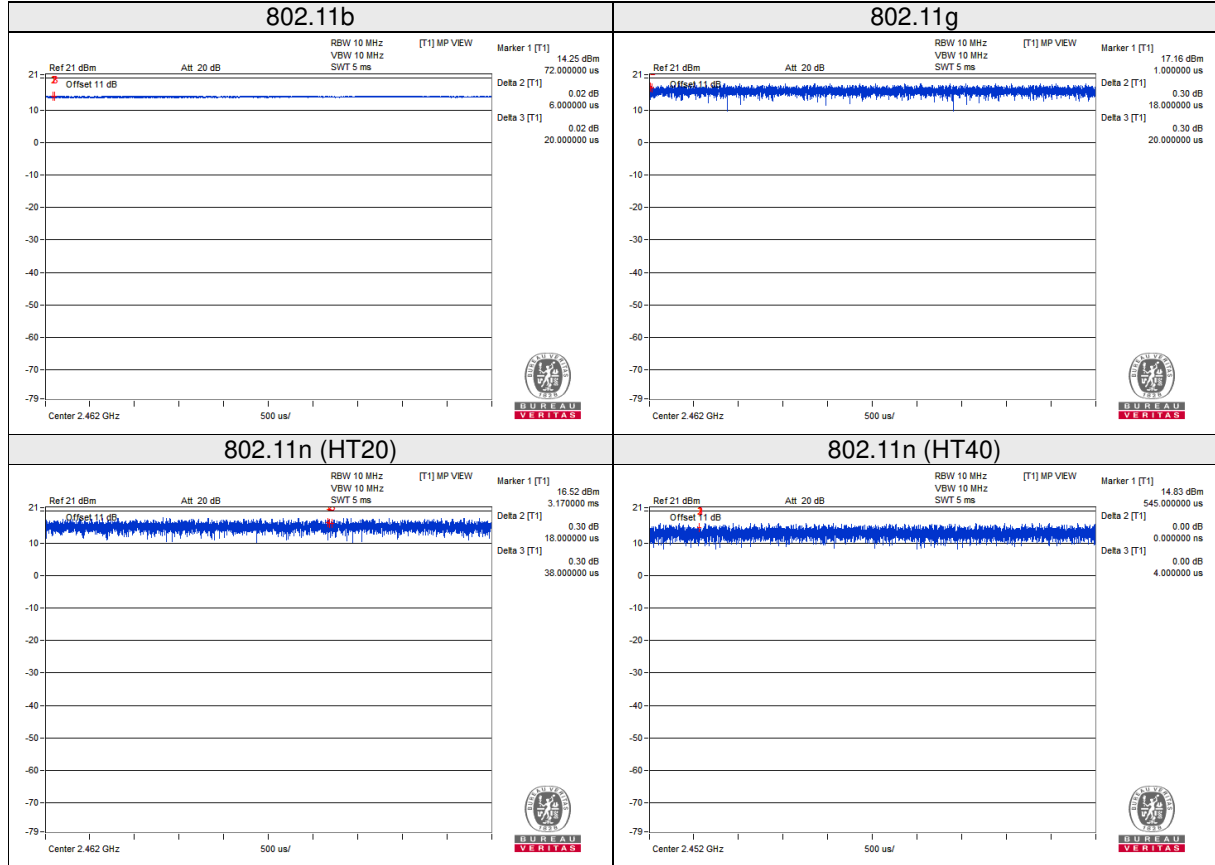
3.3 DUTY CYCLE OF TEST SIGNAL

802.11b: Duty cycle = 1.0

802.11g: Duty cycle = 1.0

802.11n (HT20): Duty cycle = 1.0

802.11n (HT40): Duty cycle = 1.0



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3.4 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 15.247 Meas Guidance v05r02

ANSI C63.10-2013

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

3.5 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	N/A	N/A	N/A	N/A	N/A

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

4 TEST TYPES AND RESULTS

4.1. RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTES:

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.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 07, 23
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	May 09, 22
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 20, 22
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Mar. 13, 23
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	May 21, 22
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 21, 22
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	May 14, 22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 22, 22
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	May 12, 22
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Jan. 10, 23
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A

NOTES:

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



4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTES:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes, the worst-case test configuration was reported on the file test setup photo.

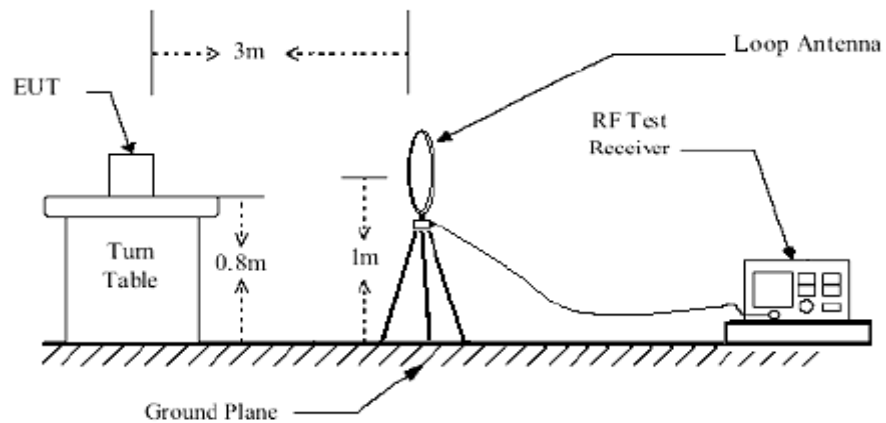


4.1.4 DEVIATION FROM TEST STANDARD

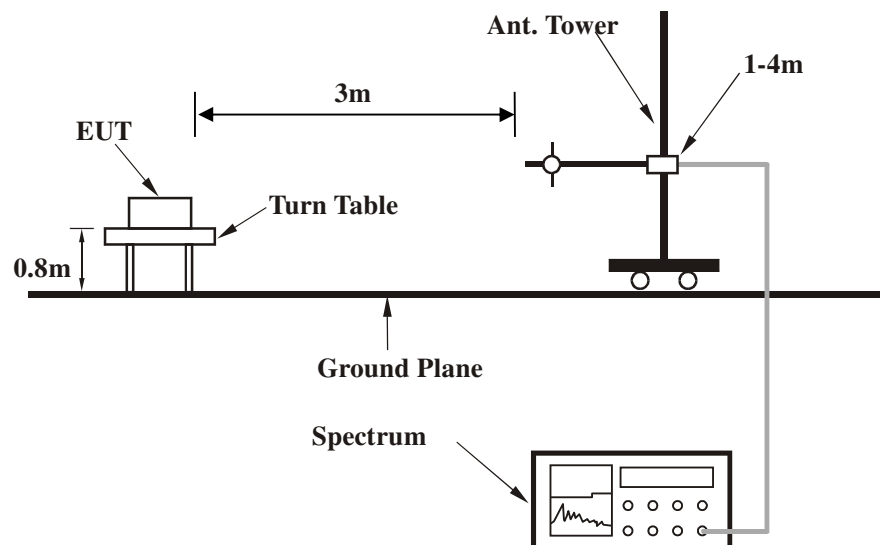
No deviation.

4.1.5 TEST SETUP

Below 30MHz test setup

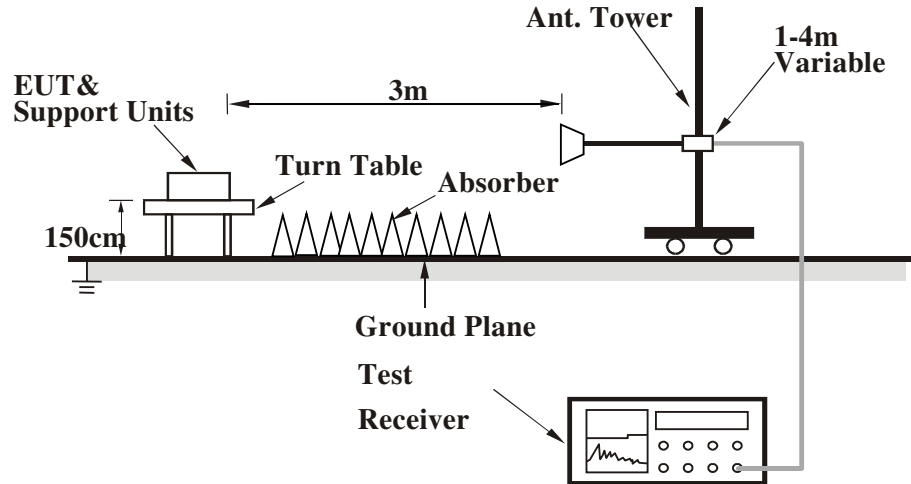


Below 1GHz test setup



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

Above 1GHz test setup



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

4.1.6 EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

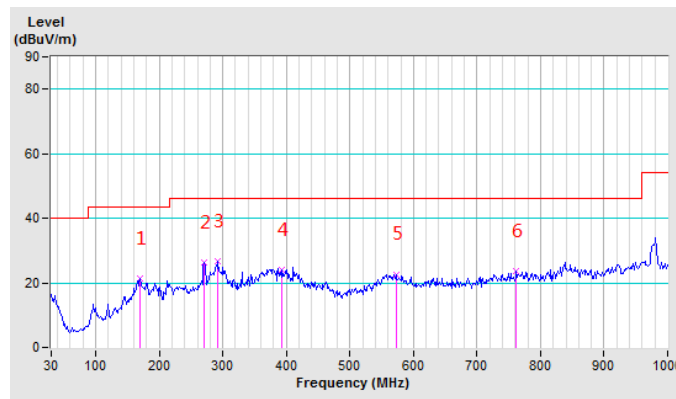
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	169.90	21.29 QP	43.50	-22.21	1.00 H	152	40.35	-19.06
2	270.95	26.15 QP	46.00	-19.85	1.00 H	303	43.05	-16.90
3	292.71	26.53 QP	46.00	-19.47	1.00 H	179	42.66	-16.13
4	393.75	24.07 QP	46.00	-21.93	1.00 H	204	37.43	-13.36
5	572.52	22.67 QP	46.00	-23.33	1.00 H	82	31.10	-8.43
6	762.16	23.56 QP	46.00	-22.44	1.00 H	77	29.20	-5.64

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.



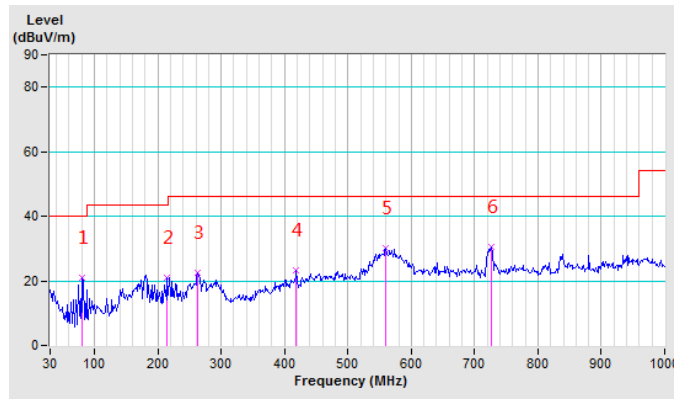


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	179.23	21.44 QP	43.50	-22.06	1.00 V	61	41.13	-19.69
2	281.83	17.92 QP	46.00	-28.08	1.00 V	46	34.43	-16.51
3	417.07	22.35 QP	46.00	-23.65	1.00 V	34	34.78	-12.43
4	477.69	23.06 QP	46.00	-22.94	1.00 V	23	34.43	-11.37
5	560.08	29.19 QP	46.00	-16.81	1.00 V	12	37.22	-8.03
6	721.75	29.35 QP	46.00	-16.65	1.00 V	2	35.51	-6.16

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. 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	50.34 PK	74.00	-23.66	1.54 H	217	48.37	1.97
2	2390.00	36.69 AV	54.00	-17.31	1.54 H	217	34.72	1.97
3	*2412.00	102.29 PK			1.54 H	217	100.31	1.98
4	*2412.00	98.12 AV			1.54 H	217	96.14	1.98
5	4824.00	53.26 PK	74.00	-20.74	1.05 H	48	48.30	4.96
6	4824.00	47.32 AV	54.00	-6.68	1.05 H	48	42.36	4.96
7	#7236.00	59.25 PK	74.00	-14.75	1.00 H	193	49.56	9.69
8	#7236.00	51.51 AV	54.00	-2.49	1.00 H	193	41.82	9.69

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	48.70 PK	74.00	-25.30	1.83 V	124	46.73	1.97
2	2390.00	34.20 AV	54.00	-19.80	1.83 V	124	32.23	1.97
3	*2412.00	92.25 PK			1.83 V	124	90.27	1.98
4	*2412.00	88.66 AV			1.83 V	124	86.68	1.98
5	4824.00	51.28 PK	74.00	-22.72	2.00 V	219	46.32	4.96
6	4824.00	45.33 AV	54.00	-8.67	2.00 V	219	40.37	4.96
7	#7236.00	57.25 PK	74.00	-16.75	1.00 V	311	47.56	9.69
8	#7236.00	49.28 AV	54.00	-4.72	1.00 V	311	39.59	9.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.44 PK			1.52 H	225	100.45	1.99
2	*2437.00	98.53 AV			1.52 H	225	96.54	1.99
3	4874.00	54.01 PK	74.00	-19.99	1.36 H	299	48.85	5.16
4	4874.00	48.22 AV	54.00	-5.78	1.36 H	299	43.06	5.16
5	7311.00	60.15 PK	74.00	-13.85	1.00 H	25	50.15	10.00
6	7311.00	51.37 AV	54.00	-2.63	1.00 H	25	41.37	10.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	93.05 PK			1.09 V	28	91.06	1.99
2	*2437.00	88.23 AV			1.09 V	28	86.24	1.99
3	4874.00	52.94 PK	74.00	-21.06	1.00 V	219	47.78	5.16
4	4874.00	47.17 AV	54.00	-6.83	1.00 V	219	42.01	5.16
5	7311.00	58.37 PK	74.00	-15.63	1.06 V	213	48.37	10.00
6	7311.00	49.08 AV	54.00	-4.92	1.06 V	213	39.08	10.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



Test Report No.: RF2110WDG0255-3

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	103.04 PK			1.00 H	194	101.03	2.01
2	*2462.00	98.77 AV			1.00 H	194	96.76	2.01
3	2483.50	47.85 PK	74.00	-26.15	1.00 H	194	45.82	2.03
4	2483.50	40.80 AV	54.00	-13.20	1.00 H	194	38.77	2.03
5	4924.00	53.55 PK	74.00	-20.45	1.04 H	21	48.20	5.35
6	4924.00	47.84 AV	54.00	-6.16	1.04 H	21	42.49	5.35
7	7386.00	59.39 PK	74.00	-14.61	1.77 H	193	49.09	10.30
8	7386.00	51.23 AV	54.00	-2.77	1.77 H	193	40.93	10.30
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	93.14 PK			1.06 V	125	91.13	2.01
2	*2462.00	89.07 AV			1.06 V	125	87.06	2.01
3	2483.50	46.34 PK	74.00	-27.66	1.06 V	125	44.31	2.03
4	2483.50	38.24 AV	54.00	-15.76	1.06 V	125	36.21	2.03
5	4924.00	51.71 PK	74.00	-22.29	1.00 V	215	46.36	5.35
6	4924.00	45.64 AV	54.00	-8.36	1.00 V	215	40.29	5.35
7	7386.00	58.04 PK	74.00	-15.96	1.44 V	107	47.74	10.30
8	7386.00	49.74 AV	54.00	-4.26	1.44 V	107	39.44	10.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. "*" : Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.80 PK	74.00	-12.20	1.08 H	75	59.83	1.97
2	2390.00	46.95 AV	54.00	-7.05	1.08 H	75	44.98	1.97
3	*2412.00	103.71 PK			1.08 H	75	101.73	1.98
4	*2412.00	99.24 AV			1.08 H	75	97.26	1.98
5	4824.00	51.33 PK	74.00	-22.67	1.12 H	229	46.37	4.96
6	4824.00	39.94 AV	54.00	-14.06	1.12 H	229	34.98	4.96
7	#7236.00	55.63 PK	74.00	-18.37	1.00 H	331	45.94	9.69
8	#7236.00	43.24 AV	54.00	-10.76	1.00 H	331	33.55	9.69
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.44 PK	74.00	-14.56	1.00 V	56	57.47	1.97
2	2390.00	45.12 AV	54.00	-8.88	1.00 V	56	43.15	1.97
3	*2412.00	94.37 PK			1.00 V	56	92.39	1.98
4	*2412.00	90.31 AV			1.00 V	56	88.33	1.98
5	4824.00	49.78 PK	74.00	-24.22	1.57 V	251	44.82	4.96
6	4824.00	38.26 AV	54.00	-15.74	1.57 V	251	33.30	4.96
7	#7236.00	54.54 PK	74.00	-19.46	1.00 V	300	44.85	9.69
8	#7236.00	41.77 AV	54.00	-12.23	1.00 V	300	32.08	9.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	102.89 PK			1.32 H	59	100.90	1.99
2	*2437.00	98.54 AV			1.32 H	59	96.55	1.99
3	4874.00	51.44 PK	74.00	-22.56	1.21 H	106	46.28	5.16
4	4874.00	37.35 AV	54.00	-16.65	1.21 H	106	32.19	5.16
5	7311.00	58.41 PK	74.00	-15.59	1.00 H	299	48.41	10.00
6	7311.00	46.75 AV	54.00	-7.25	1.00 H	299	36.75	10.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	93.57 PK			1.03 V	307	91.58	1.99
2	*2437.00	89.94 AV			1.03 V	307	87.95	1.99
3	4874.00	49.86 PK	74.00	-24.14	1.33 V	25	44.70	5.16
4	4874.00	36.23 AV	54.00	-17.77	1.33 V	25	31.07	5.16
5	7311.00	57.65 PK	74.00	-16.35	1.00 V	214	47.65	10.00
6	7311.00	45.44 AV	54.00	-8.56	1.00 V	214	35.44	10.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



Test Report No.: RF2110WDG0255-3

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	104.02 PK			1.51 H	201	102.01	2.01
2	*2462.00	100.33 AV			1.51 H	201	98.32	2.01
3	2483.50	65.68 PK	74.00	-8.32	1.51 H	201	63.65	2.03
4	2483.50	47.90 AV	54.00	-6.10	1.51 H	201	45.87	2.03
5	4924.00	50.27 PK	74.00	-23.73	1.53 H	15	44.92	5.35
6	4924.00	36.46 AV	54.00	-17.54	1.53 H	15	31.11	5.35
7	7386.00	57.19 PK	74.00	-16.81	1.00 H	284	46.89	10.30
8	7386.00	45.23 AV	54.00	-8.77	1.00 H	284	34.93	10.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	95.21 PK			1.00 V	37	93.20	2.01
2	*2462.00	91.49 AV			1.00 V	37	89.48	2.01
3	2483.50	60.27 PK	74.00	-13.73	1.00 V	37	58.24	2.03
4	2483.50	46.34 AV	54.00	-7.66	1.00 V	37	44.31	2.03
5	4924.00	49.22 PK	74.00	-24.78	1.12 V	208	43.87	5.35
6	4924.00	35.71 AV	54.00	-18.29	1.12 V	208	30.36	5.35
7	7386.00	56.83 PK	74.00	-17.17	1.00 V	359	46.53	10.30
8	7386.00	44.09 AV	54.00	-9.91	1.00 V	359	33.79	10.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.56 PK	74.00	-7.44	1.24 H	183	64.59	1.97
2	2390.00	49.17 AV	54.00	-4.83	1.24 H	183	47.20	1.97
3	*2412.00	102.49 PK			1.24 H	183	100.51	1.98
4	*2412.00	98.44 AV			1.24 H	183	96.46	1.98
5	4824.00	52.15 PK	74.00	-21.85	1.35 H	204	47.19	4.96
6	4824.00	39.33 AV	54.00	-14.67	1.35 H	204	34.37	4.96
7	#7236.00	58.43 PK	74.00	-15.57	1.00 H	351	48.74	9.69
8	#7236.00	44.22 AV	54.00	-9.78	1.00 H	351	34.53	9.69
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	64.29 PK	74.00	-9.71	1.04 V	37	62.32	1.97
2	2390.00	47.33 AV	54.00	-6.67	1.04 V	37	45.36	1.97
3	*2412.00	94.27 PK			1.04 V	37	92.29	1.98
4	*2412.00	90.35 AV			1.04 V	37	88.37	1.98
5	4824.00	50.75 PK	74.00	-23.25	1.55 V	219	45.79	4.96
6	4824.00	38.44 AV	54.00	-15.56	1.55 V	219	33.48	4.96
7	#7236.00	57.05 PK	74.00	-16.95	1.00 V	308	47.36	9.69
8	#7236.00	42.75 AV	54.00	-11.25	1.00 V	308	33.06	9.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Test Report No.: RF2110WDG0255-3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.11 PK			1.22 H	203	101.12	1.99
2	*2437.00	99.27 AV			1.22 H	203	97.28	1.99
3	4874.00	50.75 PK	74.00	-23.25	1.06 H	207	45.59	5.16
4	4874.00	38.04 AV	54.00	-15.96	1.06 H	207	32.88	5.16
5	7311.00	58.21 PK	74.00	-15.79	1.00 H	29	48.21	10.00
6	7311.00	44.15 AV	54.00	-9.85	1.00 H	29	34.15	10.00
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	94.75 PK			1.00 V	57	92.76	1.99
2	*2437.00	90.21 AV			1.00 V	57	88.22	1.99
3	4874.00	48.84 PK	74.00	-25.16	1.16 V	302	43.68	5.16
4	4874.00	37.22 AV	54.00	-16.78	1.16 V	302	32.06	5.16
5	7311.00	57.16 PK	74.00	-16.84	1.00 V	48	47.16	10.00
6	7311.00	43.44 AV	54.00	-10.56	1.00 V	48	33.44	10.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	103.25 PK			1.08 H	92	101.24	2.01
2	*2462.00	99.47 AV			1.08 H	92	97.46	2.01
3	2483.50	71.68 PK	74.00	-2.32	1.08 H	92	69.65	2.03
4	2483.50	51.39 AV	54.00	-2.61	1.08 H	92	49.36	2.03
5	4924.00	50.34 PK	74.00	-23.66	1.17 H	56	44.99	5.35
6	4924.00	37.28 AV	54.00	-16.72	1.17 H	56	31.93	5.35
7	7386.00	57.49 PK	74.00	-16.51	1.00 H	25	47.19	10.30
8	7386.00	43.29 AV	54.00	-10.71	1.00 H	25	32.99	10.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	95.31 PK			1.07 V	253	93.30	2.01
2	*2462.00	91.25 AV			1.07 V	253	89.24	2.01
3	2483.50	70.30 PK	74.00	-3.70	1.07 V	253	68.27	2.03
4	2483.50	49.06 AV	54.00	-4.94	1.07 V	253	47.03	2.03
5	4924.00	49.38 PK	74.00	-24.62	1.43 V	217	44.03	5.35
6	4924.00	36.22 AV	54.00	-17.78	1.43 V	217	30.87	5.35
7	7386.00	55.94 PK	74.00	-18.06	1.00 V	309	45.64	10.30
8	7386.00	42.71 AV	54.00	-11.29	1.00 V	309	32.41	10.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. "*" : Fundamental frequency.



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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	62.23 PK	74.00	-11.77	1.05 H	24	60.26	1.97
2	2390.00	50.87 AV	54.00	-3.13	1.05 H	24	48.90	1.97
3	*2422.00	103.57 PK			1.05 H	24	101.58	1.99
4	*2422.00	99.23 AV			1.05 H	24	97.24	1.99
5	4844.00	51.25 PK	74.00	-22.75	1.47 H	306	46.21	5.04
6	4844.00	38.38 AV	54.00	-15.62	1.47 H	306	33.34	5.04
7	7266.00	57.34 PK	74.00	-16.66	1.00 H	217	47.53	9.81
8	7266.00	41.75 AV	54.00	-12.25	1.00 H	217	31.94	9.81

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	61.08 PK	74.00	-12.92	1.37 V	54	59.11	1.97
2	2390.00	49.86 AV	54.00	-4.14	1.37 V	54	47.89	1.97
3	*2422.00	95.21 PK			1.37 V	54	93.22	1.99
4	*2422.00	91.05 AV			1.37 V	54	89.06	1.99
5	4844.00	50.44 PK	74.00	-23.56	1.02 V	39	45.40	5.04
6	4844.00	37.25 AV	54.00	-16.75	1.02 V	39	32.21	5.04
7	7266.00	55.86 PK	74.00	-18.14	1.00 V	25	46.05	9.81
8	7266.00	40.24 AV	54.00	-13.76	1.00 V	25	30.43	9.81

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



Test Report No.: RF2110WDG0255-3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.79 PK			1.00 H	48	101.80	1.99
2	*2437.00	99.21 AV			1.00 H	48	97.22	1.99
3	4874.00	53.37 PK	74.00	-20.63	1.03 H	328	48.21	5.16
4	4874.00	40.16 AV	54.00	-13.84	1.03 H	328	35.00	5.16
5	7311.00	59.26 PK	74.00	-14.74	1.00 H	55	49.26	10.00
6	7311.00	43.33 AV	54.00	-10.67	1.00 H	55	33.33	10.00
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	96.21 PK			1.54 V	208	94.22	1.99
2	*2437.00	92.33 AV			1.54 V	208	90.34	1.99
3	4874.00	52.09 PK	74.00	-21.91	1.30 V	211	46.93	5.16
4	4874.00	39.54 AV	54.00	-14.46	1.30 V	211	34.38	5.16
5	7311.00	58.41 PK	74.00	-15.59	1.00 V	39	48.41	10.00
6	7311.00	42.06 AV	54.00	-11.94	1.00 V	39	32.06	10.00

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



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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	101.59 PK			1.00 H	192	99.58	2.01
2	*2452.00	97.21 AV			1.00 H	192	95.20	2.01
3	2483.50	66.69 PK	74.00	-7.31	1.00 H	192	64.66	2.03
4	2483.50	51.73 AV	54.00	-2.27	1.00 H	192	49.70	2.03
5	4904.00	52.43 PK	74.00	-21.57	1.33 H	201	47.16	5.27
6	4904.00	39.27 AV	54.00	-14.73	1.33 H	201	34.00	5.27
7	7356.00	58.49 PK	74.00	-15.51	1.00 H	36	48.31	10.18
8	7356.00	42.95 AV	54.00	-11.05	1.00 H	36	32.77	10.18
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	93.22 PK			1.22 V	304	91.21	2.01
2	*2452.00	89.75 AV			1.22 V	304	87.74	2.01
3	2483.50	64.32 PK	74.00	-9.68	1.22 V	304	62.29	2.03
4	2483.50	50.05 AV	54.00	-3.95	1.22 V	304	48.02	2.03
5	4904.00	51.37 PK	74.00	-22.63	1.00 V	217	46.10	5.27
6	4904.00	38.46 AV	54.00	-15.54	1.00 V	217	33.19	5.27
7	7356.00	57.22 PK	74.00	-16.78	1.04 V	75	47.04	10.18
8	7356.00	41.13 AV	54.00	-12.87	1.04 V	75	30.95	10.18

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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.	Next Cal.
Power Sensor	Keysight	U2021XA	MY57320002	Feb. 23, 23
Power Sensor	Keysight	U2021XA	MY55060018	May 09, 22
Power Meter	Anritsu	ML2495A	1139001	Feb. 24, 23
Power Sensor	Anritsu	MA2411B	1531155	Feb. 24, 23
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Nov. 03, 22
Oscilloscope	Agilent	DSO9254A	MY51260160	Aug. 11, 22
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Jan. 16, 23
Signal Generator	Agilent	N5183A	MY50140980	Mar. 23, 23
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 14, 22
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A

NOTES: 1. The test was performed in RF Oven room. (Chen Wu)
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

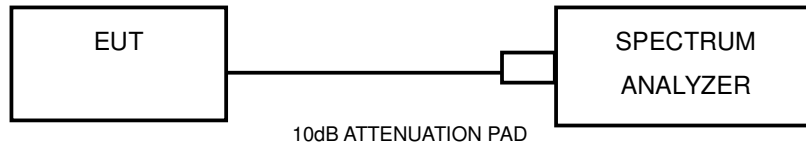
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) 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	9.13	0.5	PASS
6	2437	9.12	0.5	PASS
11	2462	9.16	0.5	PASS

802.11g

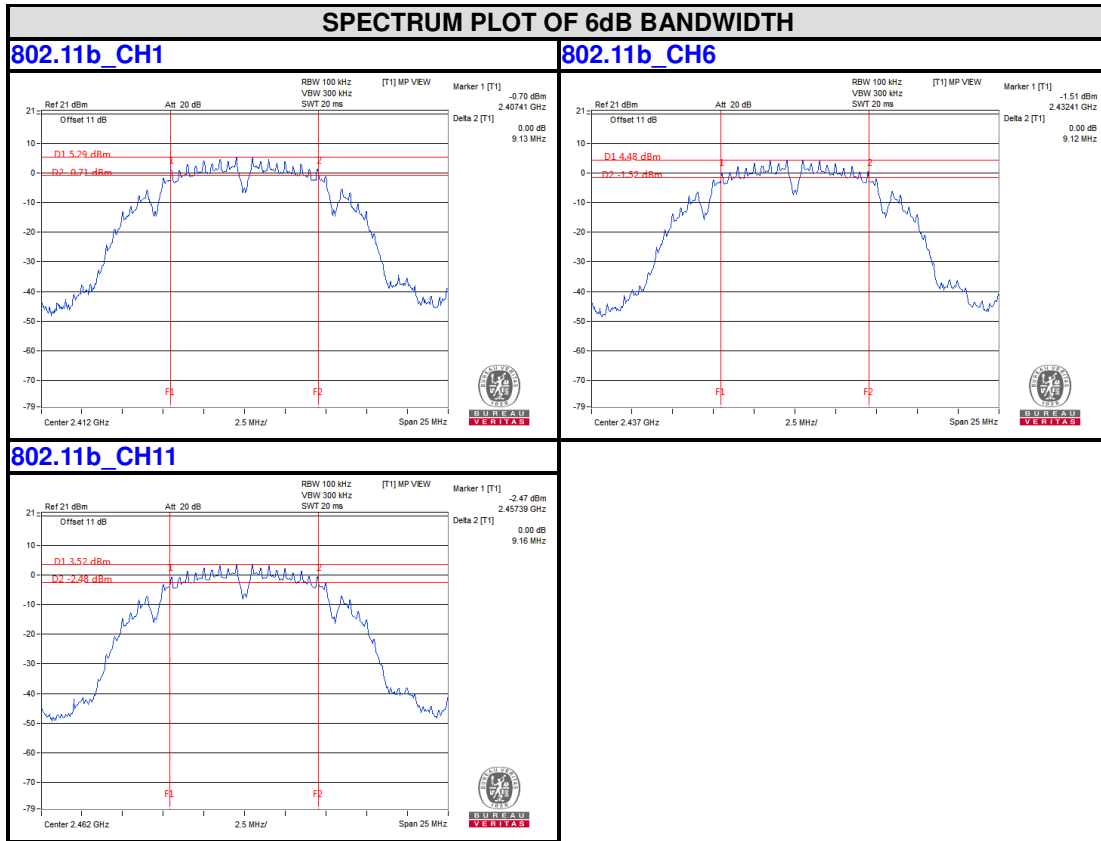
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.46	0.5	PASS
6	2437	16.45	0.5	PASS
11	2462	16.44	0.5	PASS

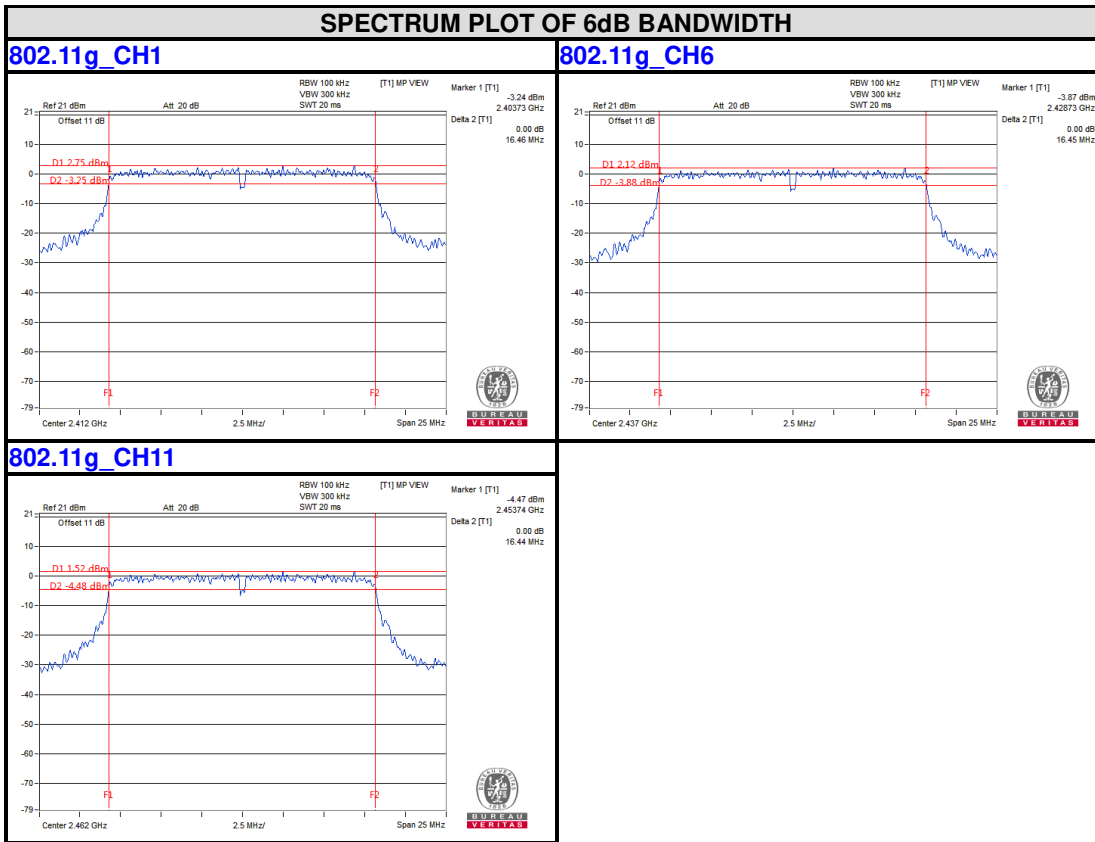
802.11n HT20

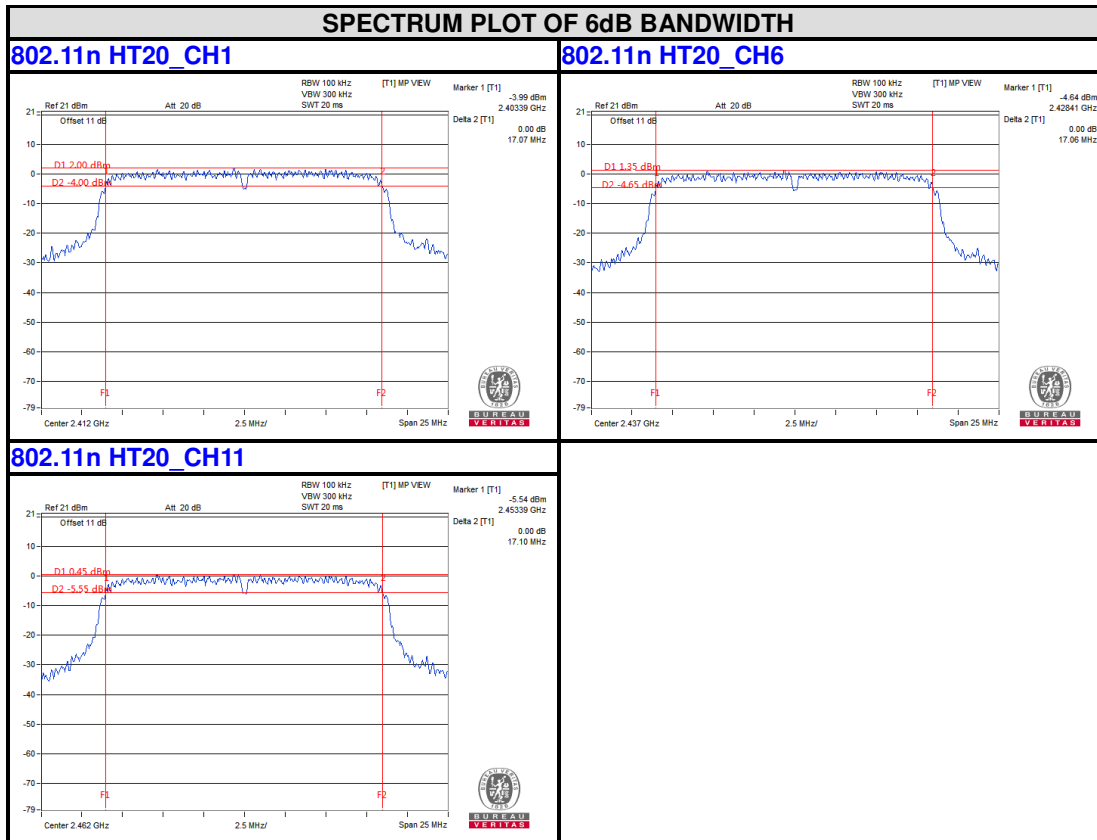
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.07	0.5	PASS
6	2437	17.06	0.5	PASS
11	2462	17.10	0.5	PASS

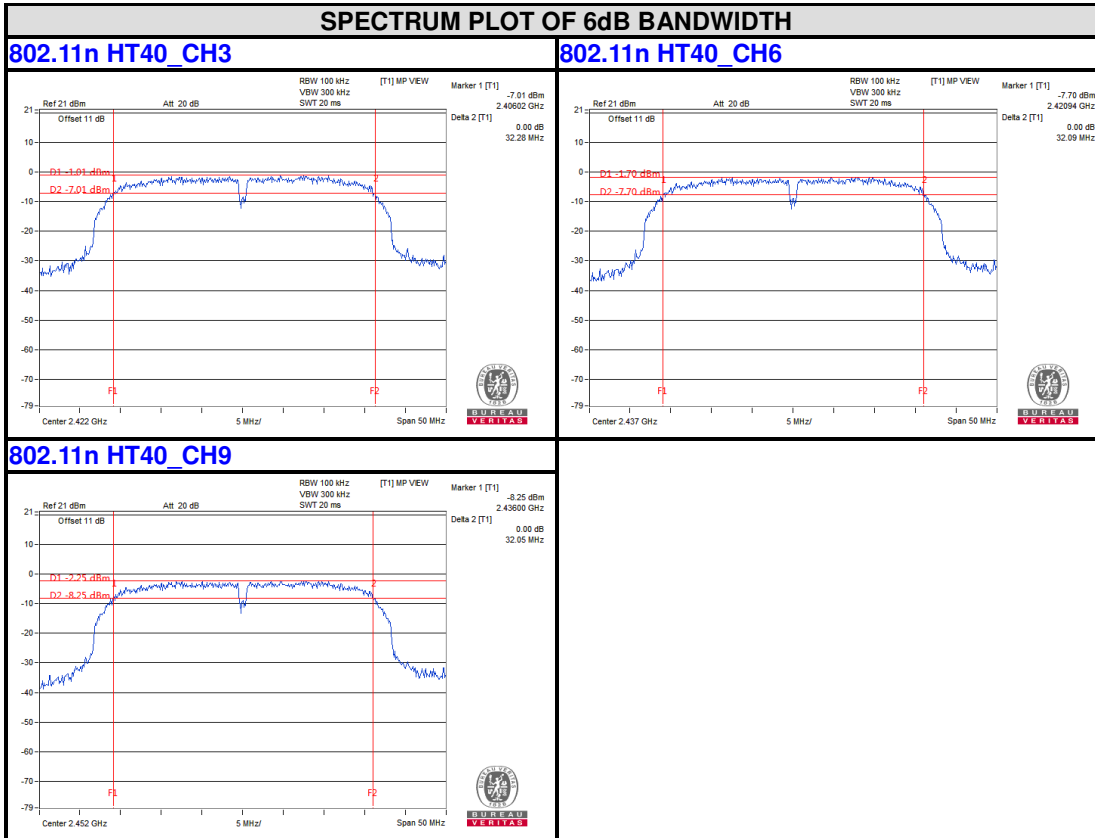
802.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	32.28	0.5	PASS
6	2437	32.09	0.5	PASS
9	2452	32.05	0.5	PASS







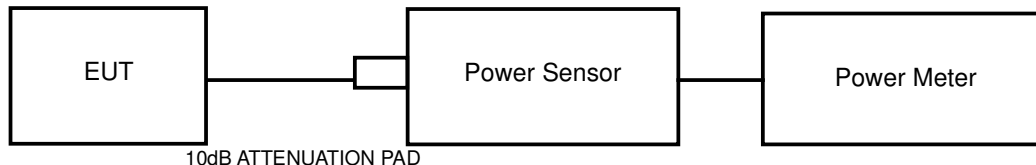


4.3 CONDUCTED OUTPUT POWER

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.	Next Cal.
Power Sensor	Keysight	U2021XA	MY57320002	Feb. 23, 23
Power Sensor	Keysight	U2021XA	MY55060018	May 09, 22
Power Meter	Anritsu	ML2495A	1139001	Feb. 24, 23
Power Sensor	Anritsu	MA2411B	1531155	Feb. 24, 23
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Nov. 03, 22
Oscilloscope	Agilent	DSO9254A	MY51260160	Aug. 11, 22
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Jan. 16, 23
Signal Generator	Agilent	N5183A	MY50140980	Mar. 23, 23
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 14, 22
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A

NOTES:

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



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4.3.4 TEST PROCEDURES

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

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.84	60.814	1	PASS
6	2437	17.32	53.951	1	PASS
11	2462	16.36	43.251	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	22.95	197.242	1	PASS
6	2437	22.78	189.671	1	PASS
11	2462	22.64	183.654	1	PASS

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	23.52	224.905	1	PASS
6	2437	23.03	200.909	1	PASS
11	2462	22.88	194.089	1	PASS

02.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	23.25	211.349	1	PASS
6	2437	23.33	215.278	1	PASS
9	2452	23.14	206.063	1	PASS

AVERAGE OUTPUT POWER (FOR REFERENCE)

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	14.67	29.309
6	2437	14.07	25.527
11	2462	13.21	20.941

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	15.16	32.810
6	2437	15.12	32.509
11	2462	14.99	31.550

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	15.69	37.068
6	2437	15.14	32.659
11	2462	15.07	32.137

802.11n HT40

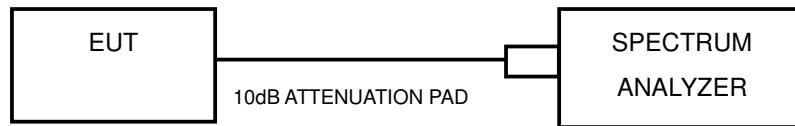
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
3	2422	15.67	36.898
6	2437	15.72	37.325
9	2452	15.62	36.475

4.4 POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.4.4 TEST PROCEDURE

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITION

Same as item 4.3.6.

4.4.7 TEST RESULTS

802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-10.88	8.00	PASS
6	2437	-11.57	8.00	PASS
11	2462	-12.48	8.00	PASS

802.11g

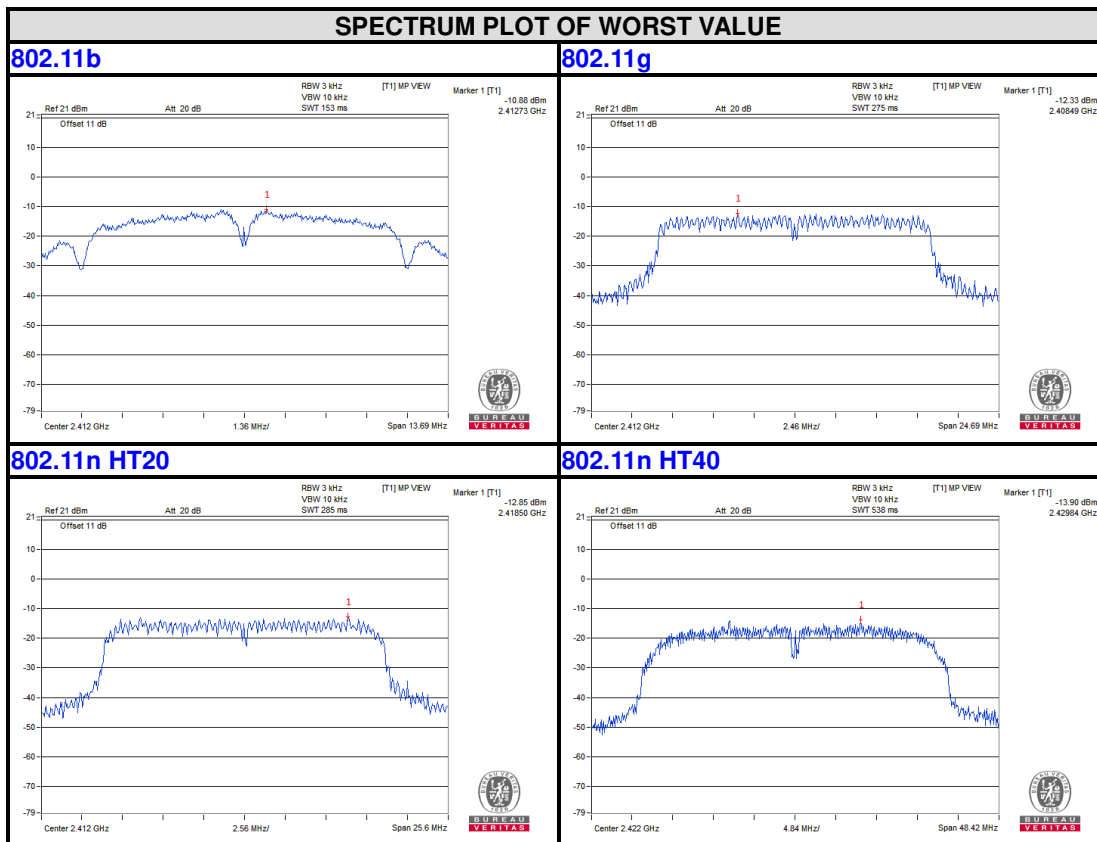
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.33	8.00	PASS
6	2437	-12.96	8.00	PASS
11	2462	-13.63	8.00	PASS

802.11n HT20

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.85	8.00	PASS
6	2437	-13.65	8.00	PASS
11	2462	-13.94	8.00	PASS

802.11n HT40

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-13.90	8.00	PASS
6	2437	-14.61	8.00	PASS
9	2452	-14.90	8.00	PASS

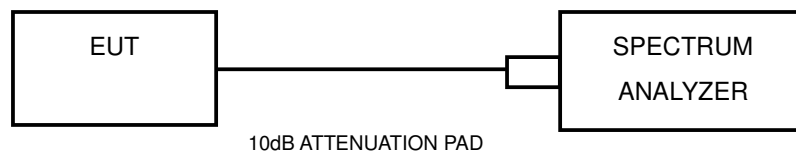


4.5 OUT OF BAND EMISSION MEASUREMENT

4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

Measurement Procedure - Reference Level

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



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Measurement Procedure –Unwanted Emission Level

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

4.5.5 DEVIATION FROM TEST STANDARD

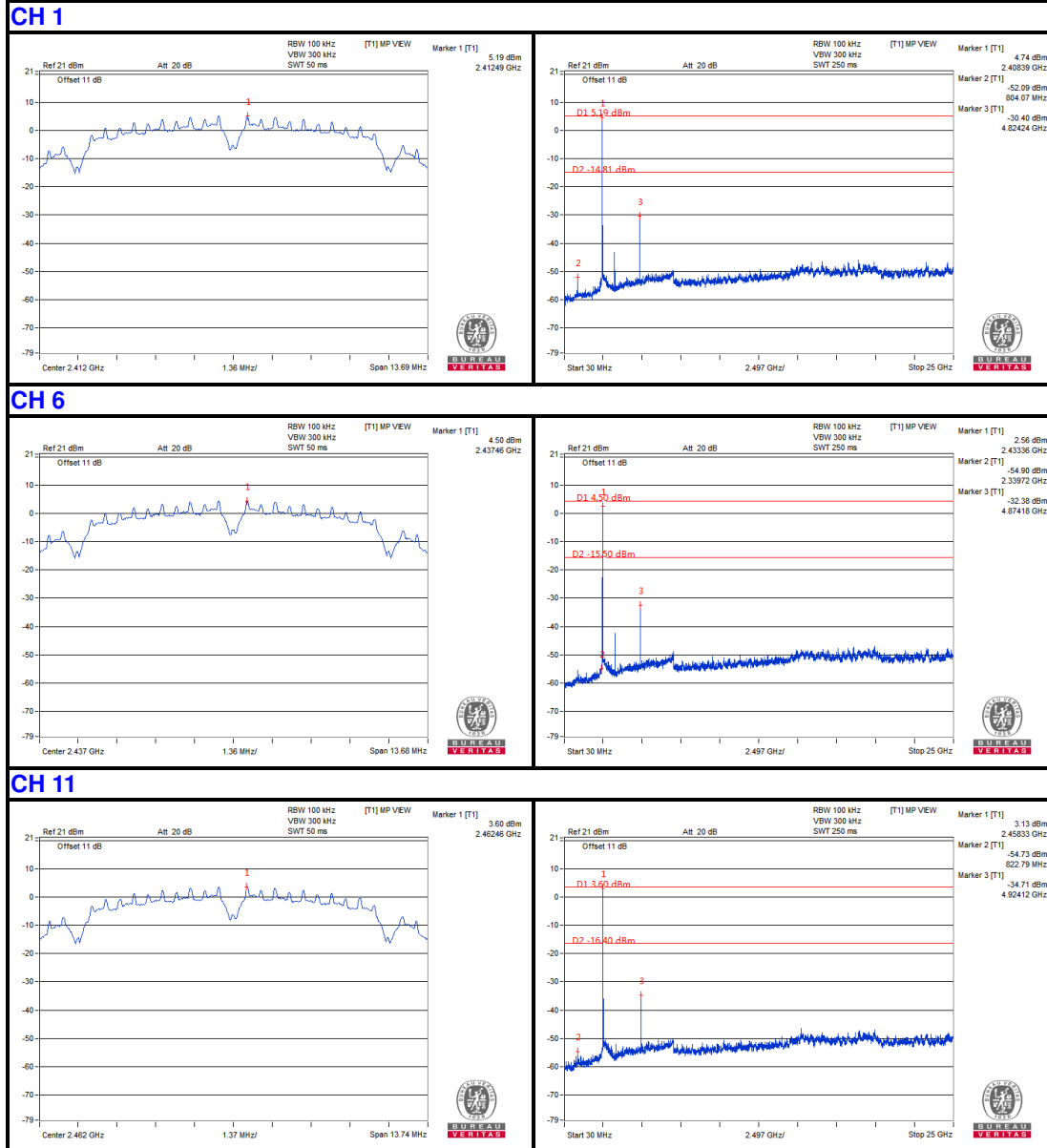
No deviation.

4.5.6 EUT OPERATING CONDITION

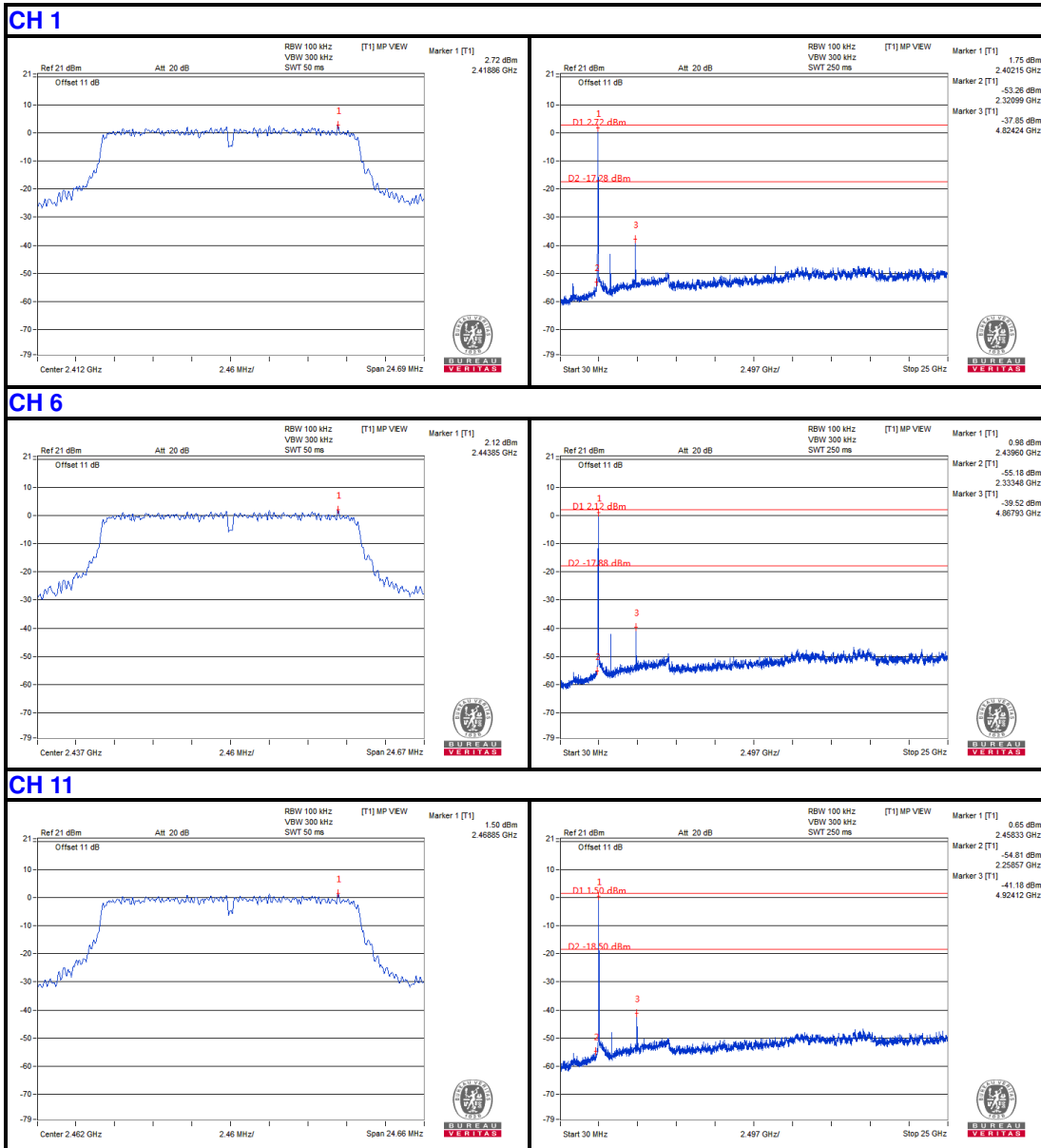
Same as item 4.3.6

4.5.7 TEST RESULTS

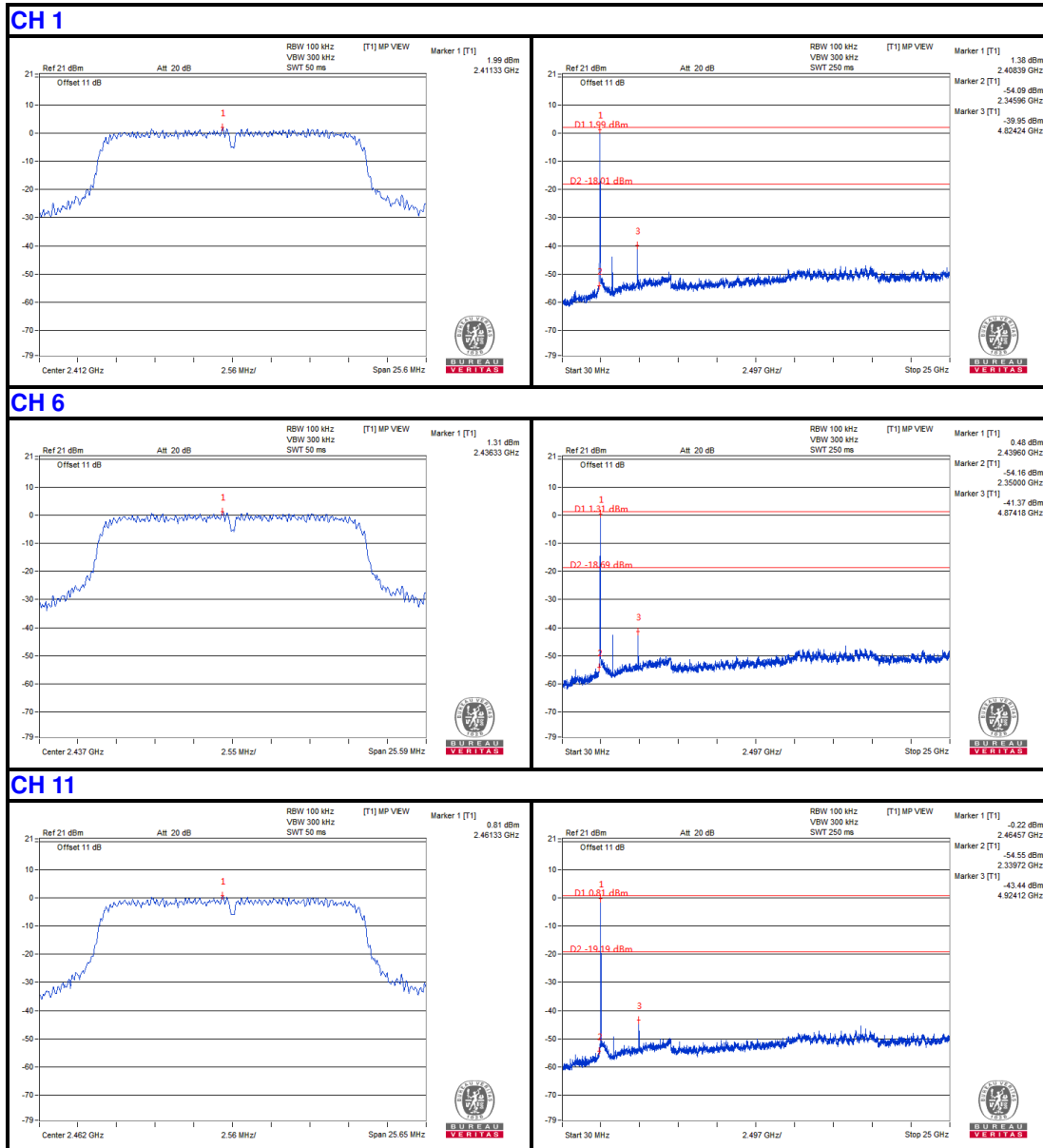
802.11b



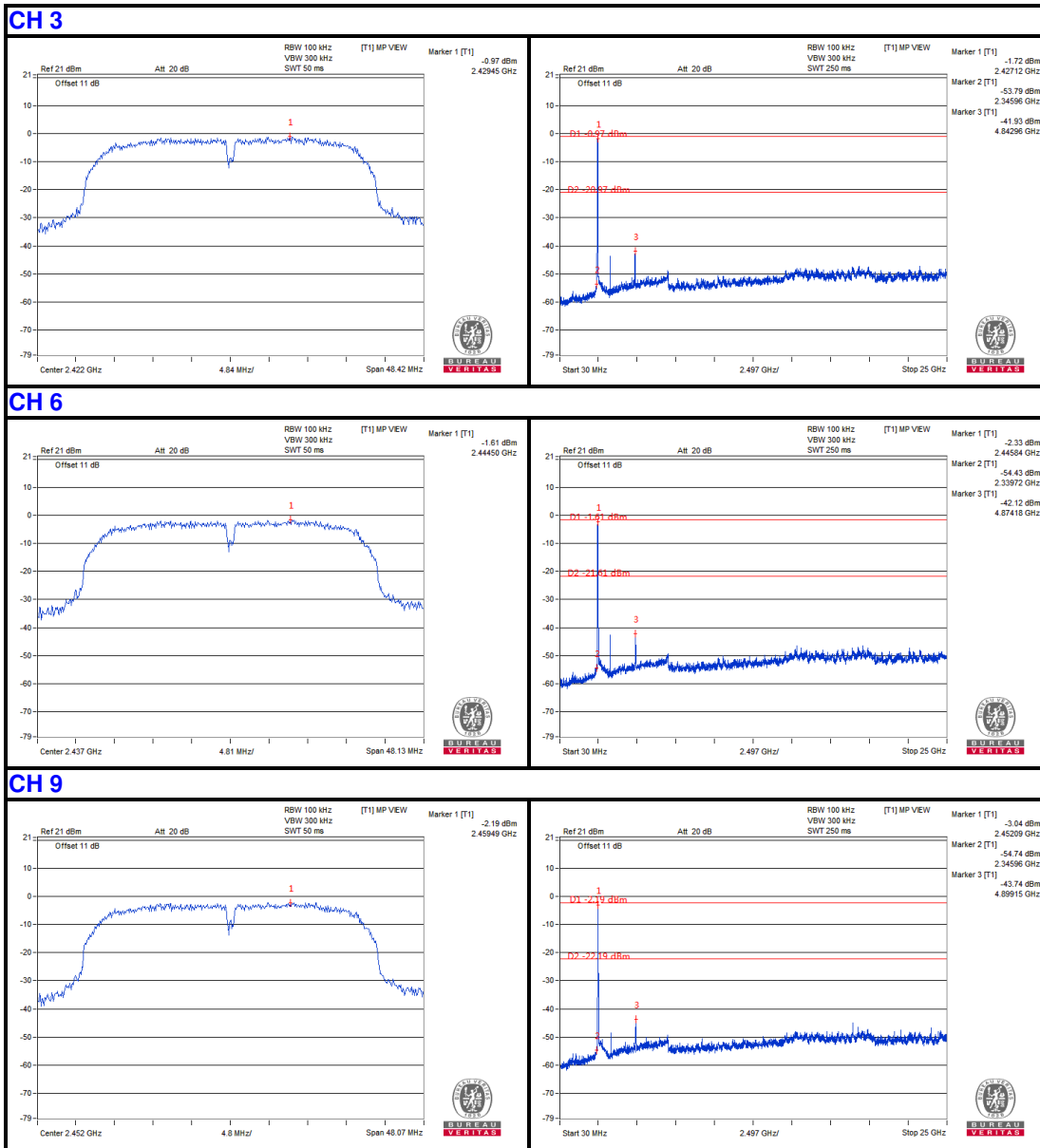
802.11g



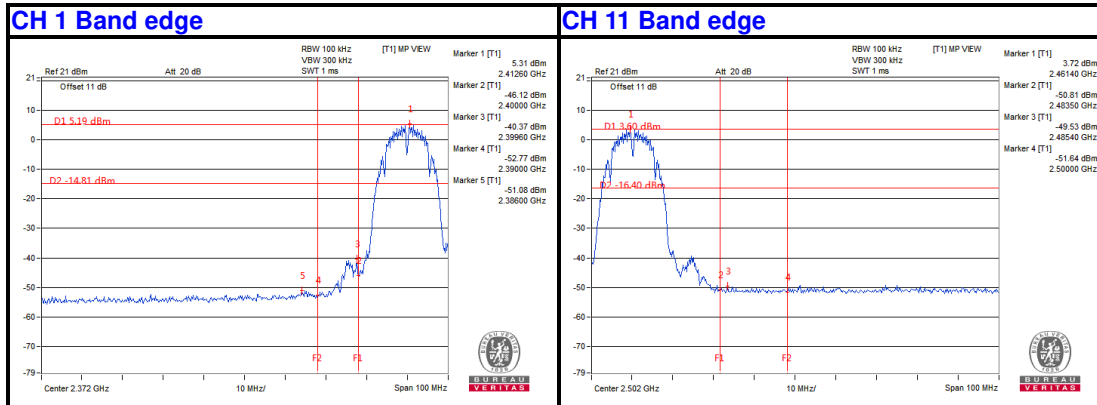
802.11n HT20



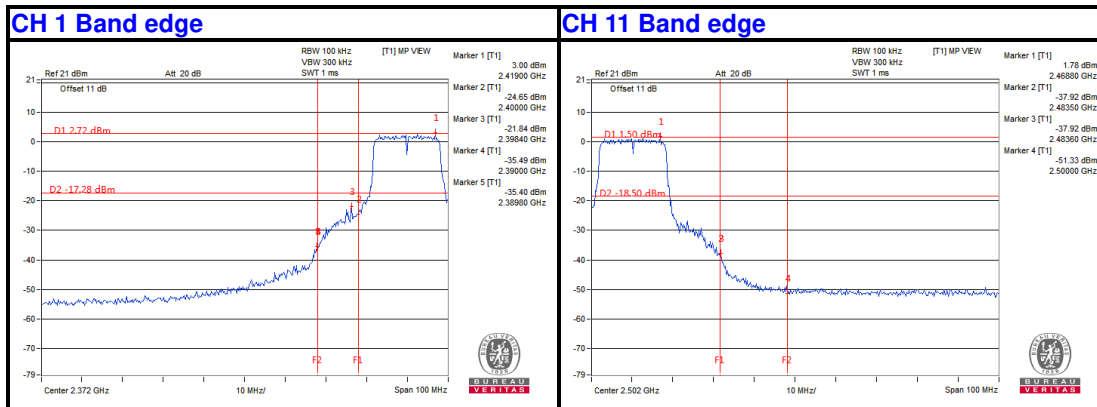
802.11n HT40



802.11b

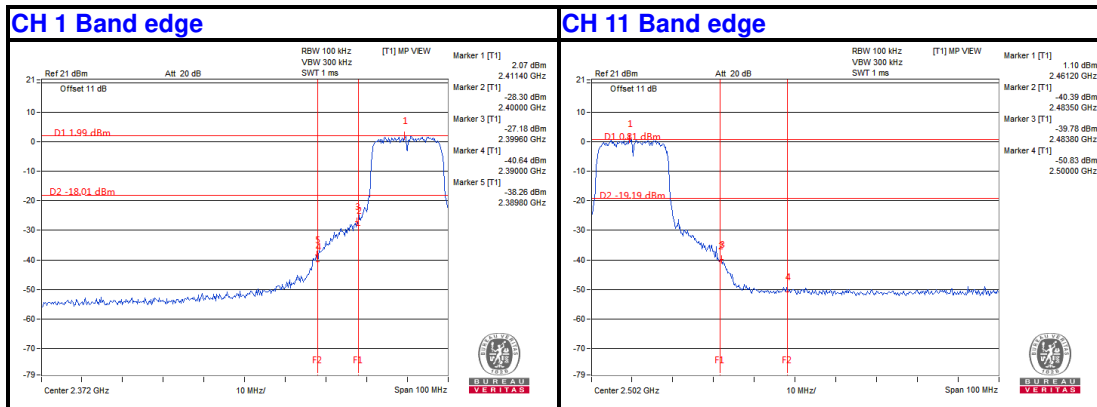


802.11g

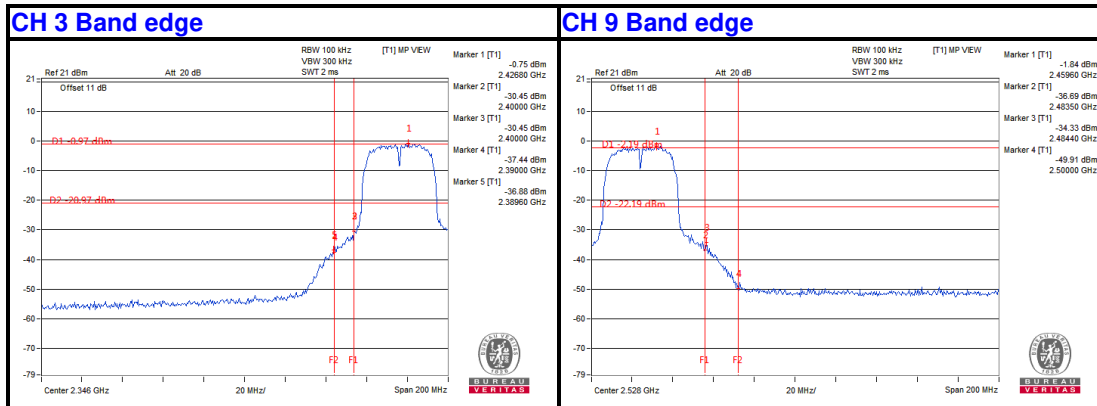




802.11n HT20



802.11n HT40





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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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

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

---END---