

TEST REPORT

Applicant	HUAWEI TECHNOLOGIES CO., LTD.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian Longgang District, Shenzhen 518129 P.R. China

Manufacturer or Supplier	HUAWEI TECHNOLOGIES CO., LTD.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian Longgang District, Shenzhen 518129 P.R. China
Product Name	Huawei STB
Additional Product Name	Smart STB
Brand Name	HUAWEI
Model	EC6108V9
Additional Model & Model Difference	EC6108V9A, EC6108V9B, EC6108V9C, EC6108V9D, EC6108V9E, EC6108V9F; See items 3.1
Date of tests	Aug. 14, 2015 ~ Sep. 13, 2015

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 Blue Zheng Project Engineer / EMC Department	Approved by Chris Chen Assistant Manager / EMC Department
	 Date: Sep. 14, 2015

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Test Report No.: RF150813N009-2

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150813N009-2	Original release	Sep. 14, 2015



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	PASS	Meet the requirement of limit.
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
Conducted emissions	9kHz~30MHz	2.66dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	3.55dB
	1GHz ~ 18GHz	4.84dB
	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 NAME	Huawei STB
ADDITIONAL PRODUCT NAME	Smart STB
MODEL NO.	EC6108V9
ADDITIONAL MODELS	EC6108V9A, EC6108V9B, EC6108V9C, EC6108V9D, EC6108V9E, EC6108V9F
FCC ID	QISEC6108V9
NOMINAL VOLTAGE	DC 12V From Adapter Input AC120V 60Hz
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM BT-LE(GFSK) for DTS
MODULATION TECHNOLOGY	DSSS, OFDM, DTS
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40) 2402-2480MHz for BT-LE(GFSK)
PEAK POWER	WLAN: 21.90dBm (Maximum Peak Power) BT-LE: 0.63dBm (Maximum Peak Power)
ANTENNA TYPE	Wire Antenna; 3dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	HDMI Line: Unshielded, Detachable, 1.50m AV Line: Unshielded, Detachable, 1.50m RJ45 Line: Unshielded, Detachable, 1.50m

NOTE:

1. The EUT provides two completed transmitters and receivers.

MODULATION MODE	FUNCTION
802.11b	2TX/2RX
802.11g	2TX/2RX
802.11n (20MHz)	2TX/2RX
802.11n (40MHz)	2TX/2RX
BLE-GFSK	1TX/1RX

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



4. Please refer to the EUT photo document (Reference No.: 150813N009) for detailed product photo.
5. Additional models EC6108V9A, EC6108V9B, EC6108V9C, EC6108V9D, EC6108V9E, and EC6108V9F are identical with the test model EC6108V9 except the model no. for trading purpose.
6. Additional product name: Smart STB is identical with the test product Huawei STB except the name difference for trading purpose.
7. The EUT can be powered by adapters as list as following:

ADAPTER 1	
BRAND:	FRECOM
MODEL:	F12L14-1201000SPAUL.P.S.
INPUT:	AC 100-240V, 50/60Hz 0.3A
OUTPUT:	DC 12V, 1A
DC LINE:	Unshielded, Non-detachable, 1.50m.
ADAPTER 2	
BRAND:	MASS POWER
MODEL:	NBS12E120100VU-1
INPUT:	AC 100-240V, 50/60Hz 0.3A
OUTPUT:	DC 12V, 1A
DC LINE:	Unshielded, Non-detachable, 1.50m.
ADAPTER 3	
BRAND:	FRECOM
MODEL:	F12W8-120100SPAUL.P.S.
INPUT:	AC 100-240V, 50/60Hz 0.3A
OUTPUT:	DC 12V, 1A
DC LINE:	Unshielded, Non-detachable, 1.50m.
ADAPTER 4	
BRAND:	MASS POWER
MODEL:	NBS12E120100UV-1
INPUT:	AC 100-240V, 50/60HZ 0.3A
OUTPUT:	DC 12V, 1A
DC LINE:	Unshielded, Non-Detachable, 1.50m.



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		

40 channels are provided for BT-LE(GFSK):

CHANNE L	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480



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 adapter with WIFI / BT-LE 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 battery.

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	TESTED CONDITION
-	BT Link+ WIFI (2.4G) Link + Adapter

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)	AXIS
-	802.11g	1 to 11	1	OFDM	BPSK	6.0	X
-	BT-LE	0 to 39	39	DTS	GFSK	1.0	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.

EUT CONFIGURE MODE	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
-	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0	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.

EUT CONFIGURE MODE	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
-	BT-LE	0 to 39	0, 39	DTS	GFSK	1.0



ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	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
-	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 55%RH	DC 12V from Adapter	Bob Chen
RE≥1G	25deg. C, 55%RH	DC 12V from Adapter	Bob Chen
PLC	20deg. C, 56%RH	DC 12V from Adapter	Bob Chen
APCM	20deg. C, 55%RH	DC 12V from Adapter	Blue Zheng



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

558074 D01 DTS Meas Guidance v03r01

ANSI C63.10-2009

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(DoC). 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	Notebook PC	DELL	5P2PM2X	12400120329	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.0m, DC Line: Unshielded, Undetachable 1.8m

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	100962	Mar. 05,15	Mar. 04,16
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	April 25,15	Apr. 24,16
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	April 25,15	Apr. 24,16
Test software	ADT	ADT_Conc_V7.3.7	N/A	N/A	N/A

- NOTE:**
1. The test was performed in shielded room 553.
 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.



4.1.3 TEST PROCEDURES

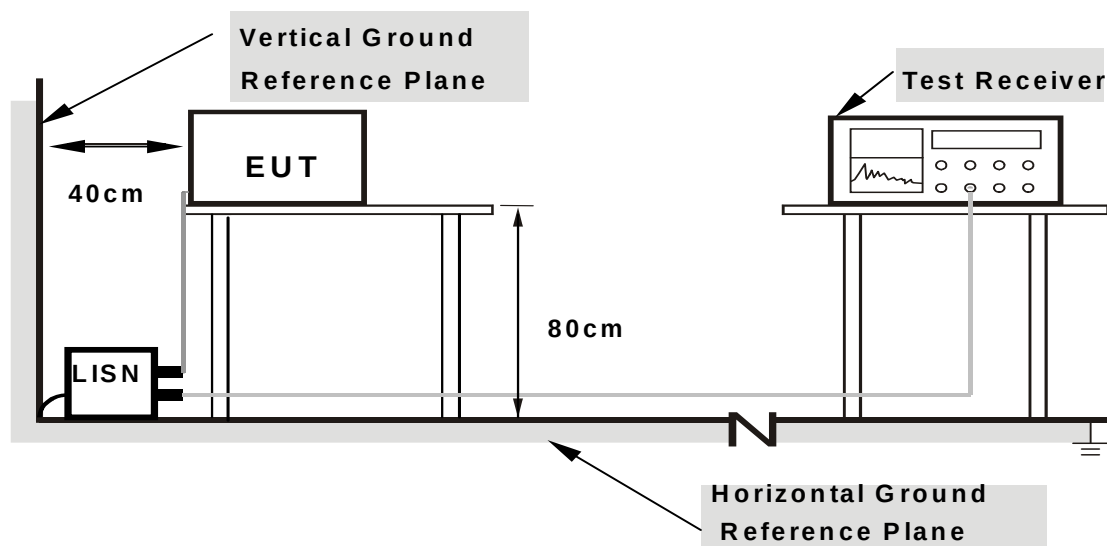
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

- Turned on the power and connected of all equipment.
- EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



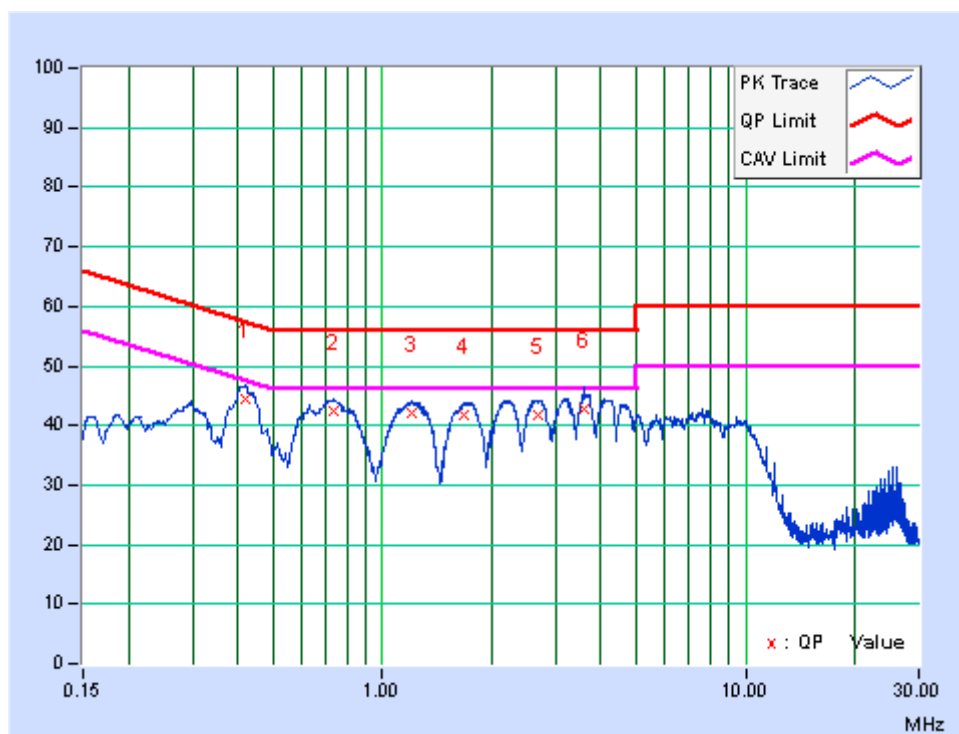
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: BT+WIFI

PHASE	Line	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.42187	9.77	34.56	24.13	44.33	33.90	57.41	47.41	-13.08	-13.51
2	0.73254	9.78	32.48	21.93	42.26	31.71	56.00	46.00	-13.74	-14.29
3	1.20300	9.83	32.40	22.75	42.23	32.58	56.00	46.00	-13.77	-13.42
4	1.67838	9.84	31.91	22.31	41.75	32.15	56.00	46.00	-14.25	-13.85
5	2.67826	9.86	31.94	23.20	41.80	33.06	56.00	46.00	-14.20	-12.94
6	3.57900	9.88	32.85	24.05	42.73	33.93	56.00	46.00	-13.27	-12.07

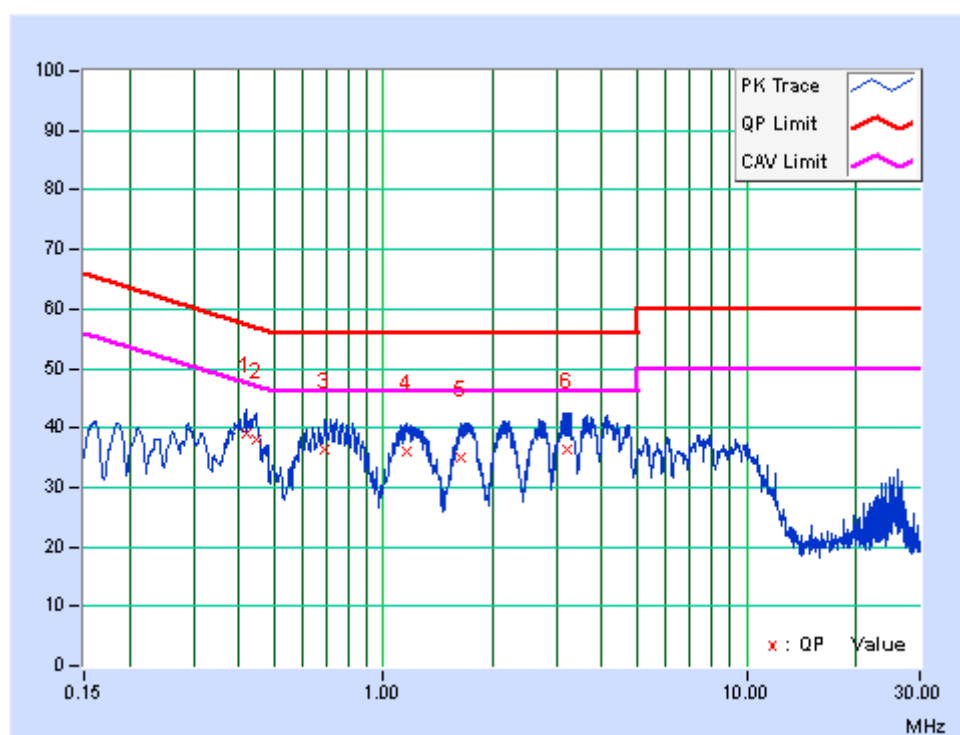
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.41775	9.49	29.45	19.14	38.94	28.63	57.49	47.49	-18.55	-18.86
2	0.44592	9.50	28.69	18.59	38.19	28.09	56.95	46.95	-18.77	-18.87
3	0.69225	9.53	26.73	17.04	36.26	26.57	56.00	46.00	-19.74	-19.43
4	1.16587	9.55	26.36	16.61	35.91	26.16	56.00	46.00	-20.09	-19.84
5	1.64175	9.57	25.52	16.88	35.09	26.45	56.00	46.00	-20.91	-19.55
6	3.19425	9.60	26.76	18.47	36.36	28.07	56.00	46.00	-19.64	-17.93

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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.

**4.2.2 TEST INSTRUMENTS**

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 27,15	Apr. 26,16
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Apr. 23,15	Apr. 22,16
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 16, 15	Jul. 15, 16
Horn Antenna	ETS-Lindgren	3117	00062558	May 30,14	May 29,16
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,15	Mar. 03, 16
Pre-Amplifier (0.5~18GHz)	SCHWARZBECK	BBV 9718	9718-266	Mar 26,14	Mar 25,16
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 15	Aug. 07, 16
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	April. 19,14	April. 18,16
Test Software	ADT	ADT_Radiated V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 21,14	Jan. 20,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,14	Nov. 19,15

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GREGT/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.

4.2.3 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:

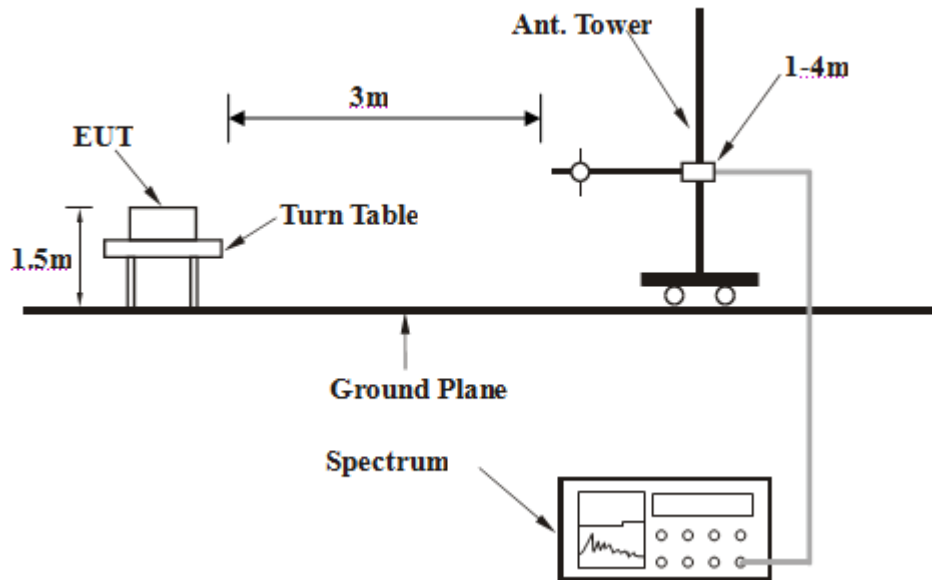
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



4.2.5 TEST SETUP



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

4.2.6 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.



4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

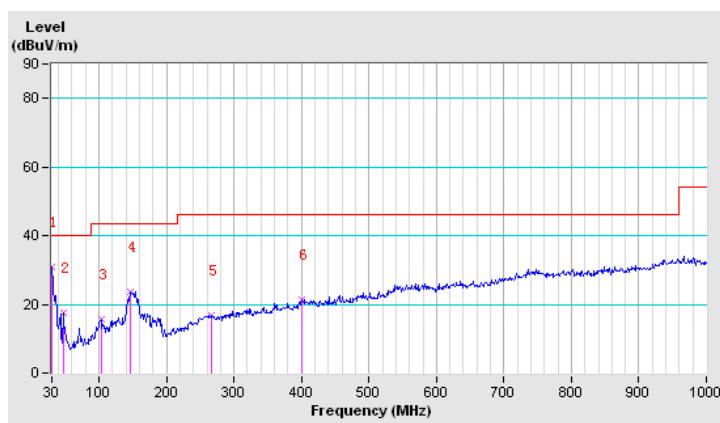
802.11b

CHANNEL	TX 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	30.00	30.76	40.00	-9.24	100	0	39.85	-9.09
2	46.87	17.37	40.00	-22.63	100	0	34.87	-17.50
3	103.10	15.52	43.50	-27.98	100	0	31.98	-16.46
4	146.68	23.69	43.50	-19.81	100	0	38.62	-14.93
5	266.17	16.76	46.00	-29.24	100	0	28.57	-11.81
6	399.72	21.43	46.00	-24.57	100	0	29.53	-8.10

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.





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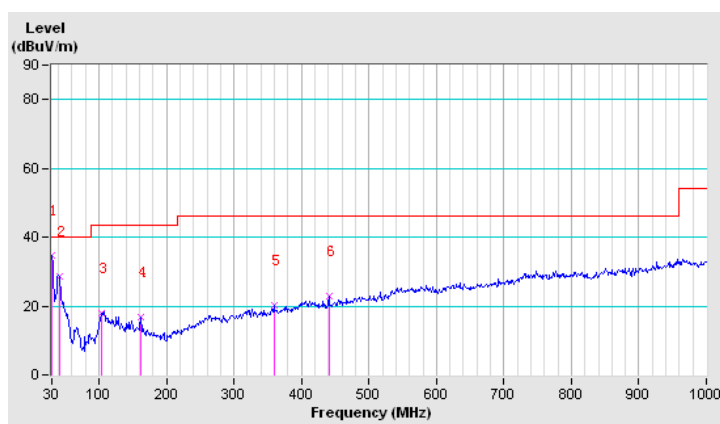
Test Report No.: RF150813N009-2

CHANNEL	TX 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	30.00	34.62	40.00	-5.38	100	0	43.71	-9.09
2	41.25	28.59	40.00	-11.41	100	0	43.11	-14.52
3	103.10	17.96	43.50	-25.54	100	0	34.42	-16.46
4	162.14	16.84	43.50	-26.66	100	0	32.61	-15.77
5	358.96	20.23	46.00	-25.77	100	0	30.12	-9.89
6	440.49	22.83	46.00	-23.17	100	0	30.88	-8.05

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.



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Test Report No.: RF150813N009-2

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	63.9 PK	74.0	-10.1	1.61 H	32	63.54	0.39
2	2390.00	50.3 AV	54.0	-3.7	1.61 H	32	49.91	0.39
3	#2400.00	71.2 PK	89.7	-18.5	1.61 H	32	70.77	0.41
4	#2400.00	59.4 AV	77.6	-18.2	1.61 H	32	58.97	0.41
5	*2412.00	109.7 PK			1.61 H	32	109.24	0.44
6	*2412.00	97.6 AV			1.61 H	32	97.18	0.44
7	4824.00	58.3 PK	74.0	-15.7	1.00 H	147	51.68	6.59
8	4824.00	44.6 AV	54.0	-9.4	1.00 H	147	38.03	6.59
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	60.2 PK	74.0	-13.8	1.20 V	68	59.81	0.39
2	2390.00	47.4 AV	54.0	-6.6	1.20 V	68	47.01	0.39
3	#2400.00	66.4 PK	86.0	-19.6	1.20 V	68	65.95	0.41
4	#2400.00	54.2 AV	74.3	-20.1	1.20 V	68	53.79	0.41
5	*2412.00	106.0 PK			1.20 V	68	105.54	0.44
6	*2412.00	94.3 AV			1.20 V	68	93.87	0.44
7	4824.00	57.6 PK	74.0	-16.4	1.01 V	228	51.03	6.59
8	4824.00	44.0 AV	54.0	-10.0	1.01 V	228	37.43	6.59

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.

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Test Report No.: RF150813N009-2

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	111.0 PK			1.61 H	31	110.51	0.51
2	*2437.00	105.8 AV			1.61 H	31	105.29	0.51
3	4874.00	58.7 PK	74.0	-15.3	1.01 H	214	51.98	6.73
4	4874.00	45.7 AV	54.0	-8.3	1.01 H	214	38.99	6.73
5	7311.00	62.6 PK	74.0	-11.4	1.00 H	249	51.80	10.80
6	7311.00	48.7 AV	54.0	-5.3	1.00 H	249	37.87	10.80
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	106.2 PK			1.16 V	104	105.73	0.51
2	*2437.00	101.2 AV			1.16 V	104	100.68	0.51
3	4874.00	59.0 PK	74.0	-15.0	1.00 V	258	52.29	6.73
4	4874.00	46.1 AV	54.0	-7.9	1.00 V	258	39.38	6.73
5	7311.00	62.2 PK	74.0	-11.8	1.00 V	201	51.39	10.80
6	7311.00	48.0 AV	54.0	-6.0	1.00 V	201	37.22	10.80

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. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.3 PK			1.26 H	32	109.78	0.56
2	*2462.00	105.5 AV			1.26 H	32	104.96	0.56
3	2483.50	59.1 PK	74.0	-14.9	1.26 H	32	58.51	0.61
4	2483.50	50.9 AV	54.0	-3.1	1.26 H	32	50.26	0.61
5	4924.00	58.2 PK	74.0	-15.8	1.00 H	232	51.32	6.88
6	4924.00	45.5 AV	54.0	-8.5	1.00 H	232	38.65	6.88
7	7386.00	63.1 PK	74.0	-10.9	1.00 H	225	52.32	10.80
8	7386.00	18.5 AV	54.0	-35.5	1.00 H	225	7.69	10.80
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	104.9 PK			1.27 V	82	104.36	0.56
2	*2462.00	100.8 AV			1.27 V	82	100.20	0.56
3	2483.50	56.2 PK	74.0	-17.8	1.27 V	82	55.59	0.61
4	2483.50	47.4 AV	54.0	-6.6	1.27 V	82	46.77	0.61
5	4924.00	57.7 PK	74.0	-16.3	1.00 V	220	50.81	6.88
6	4924.00	45.3 AV	54.0	-8.7	1.00 V	220	38.42	6.88
7	7386.00	62.1 PK	74.0	-11.9	1.00 V	118	51.29	10.80
8	7386.00	48.1 AV	54.0	-5.9	1.00 V	118	37.30	10.80

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. " # ": The radiated frequency is out of the restricted band.



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	62.8 PK	74.0	-11.2	1.62 H	29	62.42	0.39
2	2390.00	50.4 AV	54.0	-3.6	1.62 H	29	50.01	0.39
3	#2400.00	70.5 PK	88.4	-17.9	1.62 H	29	70.09	0.41
4	#2400.00	59.3 AV	77.8	-18.5	1.62 H	29	58.89	0.41
5	*2412.00	108.4 PK			1.62 H	29	107.96	0.44
6	*2412.00	97.8 AV			1.62 H	29	97.36	0.44
7	4824.00	58.2 PK	74.0	-15.8	1.00 H	241	51.64	6.59
8	4824.00	45.6 AV	54.0	-8.4	1.00 H	241	39.05	6.59
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	59.1 PK	74.0	-14.9	1.19 V	79	58.72	0.39
2	2390.00	47.3 AV	54.0	-6.8	1.19 V	79	46.86	0.39
3	#2400.00	66.7 PK	84.3	-17.6	1.19 V	79	66.30	0.41
4	#2400.00	54.0 AV	73.8	-19.8	1.19 V	79	53.61	0.41
5	*2412.00	104.3 PK			1.19 V	79	103.86	0.44
6	*2412.00	93.8 AV			1.19 V	79	93.37	0.44
7	4824.00	57.9 PK	74.0	-16.1	1.00 V	66	51.33	6.59
8	4824.00	44.9 AV	54.0	-9.1	1.00 V	66	38.29	6.59

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.



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Test Report No.: RF150813N009-2

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	111.3 PK			1.55 H	44	110.75	0.51
2	*2437.00	98.0 AV			1.55 H	44	97.51	0.51
3	4874.00	59.1 PK	74.0	-14.9	1.00 H	162	52.37	6.73
4	4874.00	46.0 AV	54.0	-8.0	1.00 H	162	39.29	6.73
5	7311.00	62.9 PK	74.0	-11.1	1.00 H	319	52.09	10.80
6	7311.00	48.8 AV	54.0	-5.2	1.00 H	319	37.99	10.80
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	106.9 PK			1.11 V	106	106.39	0.51
2	*2437.00	102.2 AV			1.11 V	106	101.71	0.51
3	4874.00	57.8 PK	74.0	-16.2	1.01 V	321	51.04	6.73
4	4874.00	45.7 AV	54.0	-8.3	1.01 V	321	38.96	6.73
5	7311.00	62.6 PK	74.0	-11.4	1.00 V	202	51.80	10.80
6	7311.00	47.6 AV	54.0	-6.4	1.00 V	202	36.82	10.80

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	112.5 PK			1.25 H	33	111.98	0.56
2	*2462.00	107.9 AV			1.25 H	33	107.33	0.56
3	2483.50	59.2 PK	74.0	-14.8	1.25 H	33	58.60	0.61
4	2483.50	50.4 AV	54.0	-3.6	1.25 H	33	49.75	0.61
5	4924.00	58.1 PK	74.0	-15.9	1.00 H	125	51.22	6.88
6	4924.00	45.3 AV	54.0	-8.7	1.00 H	125	38.42	6.88
7	7386.00	62.2 PK	74.0	-11.8	1.00 H	322	51.44	10.80
8	7386.00	48.7 AV	54.0	-5.3	1.00 H	322	37.87	10.80
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	106.3 PK			1.12 V	97	105.73	0.56
2	*2462.00	101.8 AV			1.12 V	97	101.21	0.56
3	2483.50	55.1 PK	74.0	-18.9	1.12 V	97	54.49	0.61
4	2483.50	47.4 AV	54.0	-6.6	1.12 V	97	46.77	0.61
5	4924.00	57.9 PK	74.0	-16.1	1.01 V	174	51.04	6.88
6	4924.00	44.7 AV	54.0	-9.3	1.01 V	174	37.81	6.88
7	7386.00	62.2 PK	74.0	-11.9	1.00 V	130	51.35	10.80
8	7386.00	48.3 AV	54.0	-5.7	1.00 V	130	37.53	10.80

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	63.7 PK	74.0	-10.4	1.64 H	29	63.26	0.39
2	2390.00	50.6 AV	54.0	-3.4	1.64 H	29	50.22	0.39
3	#2400.00	73.4 PK	92.0	-18.6	1.64 H	29	72.99	0.41
4	#2400.00	60.0 AV	63.0	-3.0	1.64 H	29	59.58	0.41
5	*2412.00	112.0 PK			1.20 V	90	121.56	0.44
6	*2412.00	83.0 AV			1.20 V	90	92.56	0.44
7	4824.00	57.6 PK	74.0	-16.4	1.00 H	236	51.01	6.59
8	4824.00	45.1 AV	54.0	-8.9	1.00 H	236	38.54	6.59
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	59.5 PK	74.0	-14.5	1.22 V	93	59.08	0.39
2	2390.00	48.0 AV	54.0	-6.0	1.22 V	93	47.62	0.39
3	#2400.00	69.2 PK	102.0	-32.8	1.22 V	93	68.80	0.41
4	#2400.00	57.4 AV	73.0	-15.6	1.22 V	93	56.98	0.41
5	*2412.00	122.0 PK			1.22 V	93	121.56	0.44
6	*2412.00	93.0 AV			1.22 V	93	92.56	0.44
7	4824.00	57.1 PK	74.0	-16.9	1.01 V	239	50.47	6.59
8	4824.00	44.9 AV	54.0	-9.1	1.01 V	239	38.33	6.59

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.



**BUREAU
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Test Report No.: RF150813N009-2

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	111.6 PK			1.61 H	28	111.08	0.51
2	*2437.00	106.0 AV			1.61 H	28	105.51	0.51
3	4874.00	59.1 PK	74.0	-14.9	1.00 H	119	52.39	6.73
4	4874.00	45.9 AV	54.0	-8.1	1.00 H	119	39.18	6.73
5	7311.00	62.6 PK	74.0	-11.4	1.00 H	96	51.84	10.80
6	7311.00	48.3 AV	54.0	-5.8	1.00 H	96	37.45	10.80
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	106.2 PK			1.23 V	91	105.73	0.51
2	*2437.00	101.0 AV			1.23 V	91	100.53	0.51
3	4874.00	57.6 PK	74.0	-16.4	1.00 V	251	50.87	6.73
4	4874.00	45.1 AV	54.0	-8.9	1.00 V	251	38.37	6.73
5	7311.00	62.0 PK	74.0	-12.0	1.00 V	108	51.21	10.80
6	7311.00	48.0 AV	54.0	-6.0	1.00 V	108	37.16	10.80

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	107.2 PK			1.56 H	34	106.64	0.56
2	*2462.00	98.6 AV			1.56 H	34	98.00	0.56
3	2483.50	61.2 PK	74.0	-12.8	1.56 H	34	60.59	0.61
4	2483.50	50.7 AV	54.0	-3.3	1.56 H	34	50.10	0.61
5	4924.00	58.2 PK	74.0	-15.8	1.00 H	228	51.28	6.88
6	4924.00	46.2 AV	54.0	-7.8	1.00 H	228	39.35	6.88
7	7386.00	63.2 PK	74.0	-10.9	1.00 H	301	52.35	10.80
8	7386.00	48.7 AV	54.0	-5.3	1.00 H	301	37.90	10.80
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	100.6 PK			1.20 V	95	100.04	0.56
2	*2462.00	92.4 AV			1.20 V	95	91.85	0.56
3	2483.50	55.3 PK	74.0	-18.7	1.20 V	95	54.68	0.61
4	2483.50	46.2 AV	54.0	-7.8	1.20 V	95	45.60	0.61
5	4924.00	59.6 PK	74.0	-14.4	1.00 V	162	52.72	6.88
6	4924.00	45.1 AV	54.0	-8.9	1.00 V	162	38.24	6.88
7	7386.00	62.0 PK	74.0	-12.0	1.00 V	329	51.17	10.80
8	7386.00	48.0 AV	54.0	-6.0	1.00 V	329	37.22	10.80

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	59.5 PK	74.0	-14.5	1.68 H	31	59.11	0.39
2	2390.00	50.6 AV	54.0	-3.4	1.68 H	31	50.21	0.39
3	#2400.00	68.2 PK	85.2	-17.0	1.68 H	31	67.79	0.41
4	#2400.00	57.9 AV	76.1	-18.2	1.68 H	31	57.52	0.41
5	*2422.00	105.2 PK			1.68 H	31	104.73	0.47
6	*2422.00	96.1 AV			1.68 H	31	95.67	0.47
7	4844.00	58.2 PK	74.0	-15.8	1.00 H	174	51.59	6.65
8	4844.00	45.0 AV	54.0	-9.0	1.00 H	174	38.38	6.65
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	55.4 PK	74.0	-18.6	1.24 V	98	55.02	0.39
2	2390.00	46.0 AV	54.0	-8.0	1.24 V	98	45.64	0.39
3	#2400.00	62.5 PK	81.7	-19.2	1.24 V	98	62.09	0.41
4	#2400.00	53.2 AV	72.5	-19.2	1.24 V	98	52.79	0.41
5	*2422.00	101.7 PK			1.24 V	98	101.27	0.47
6	*2422.00	92.5 AV			1.24 V	98	91.98	0.47
7	4844.00	57.9 PK	74.0	-16.1	1.00 V	355	51.23	6.65
8	4844.00	44.9 AV	54.0	-9.1	1.00 V	355	38.21	6.65

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.



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Test Report No.: RF150813N009-2

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	109.4 PK			1.57 H	61	108.91	0.51
2	*2437.00	102.7 AV			1.57 H	61	102.16	0.51
3	4874.00	58.4 PK	74.0	-15.6	1.00 H	99	51.67	6.73
4	4874.00	46.2 AV	54.0	-7.8	1.00 H	99	39.50	6.73
5	7311.00	62.3 PK	74.0	-11.7	1.00 H	267	51.51	10.80
6	7311.00	48.3 AV	54.0	-5.7	1.00 H	267	37.49	10.80
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			1.26 V	46	103.11	0.51
2	*2437.00	97.1 AV			1.26 V	46	96.60	0.51
3	4874.00	57.9 PK	74.0	-16.1	1.00 V	347	51.18	6.73
4	4874.00	44.8 AV	54.0	-9.2	1.00 V	347	38.09	6.73
5	7311.00	61.9 PK	74.0	-12.1	1.00 V	77	51.06	10.80
6	7311.00	47.2 AV	54.0	-6.8	1.00 V	77	36.43	10.80

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	108.9 PK			1.60 H	34	108.41	0.53
2	*2452.00	102.5 AV			1.60 H	34	101.98	0.53
3	2483.50	62.7 PK	74.0	-11.3	1.60 H	34	62.10	0.61
4	2483.50	50.7 AV	54.0	-3.3	1.60 H	34	50.06	0.61
5	4904.00	58.0 PK	74.0	-16.0	1.01 H	57	51.14	6.82
6	4904.00	46.1 AV	54.0	-7.9	1.01 H	57	39.30	6.82
7	7356.00	62.2 PK	74.0	-11.8	1.00 H	126	51.40	10.80
8	7356.00	47.6 AV	54.0	-6.4	1.00 H	126	36.83	10.80
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	103.8 PK			1.24 V	39	103.25	0.53
2	*2452.00	96.2 AV			1.24 V	39	95.71	0.53
3	2483.50	57.2 PK	74.0	-16.8	1.24 V	39	56.60	0.61
4	2483.50	49.7 AV	54.0	-4.3	1.24 V	39	49.06	0.61
5	4904.00	57.2 PK	74.0	-16.8	1.01 V	172	50.41	6.82
6	4904.00	44.1 AV	54.0	-9.9	1.01 V	172	37.32	6.82
7	7356.00	61.8 PK	74.0	-12.2	1.00 V	319	51.01	10.80
8	7356.00	47.0 AV	54.0	-7.0	1.00 V	319	36.23	10.80

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.



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Test Report No.: RF150813N009-2

BELOW 1GHz WORST-CASE DATA:

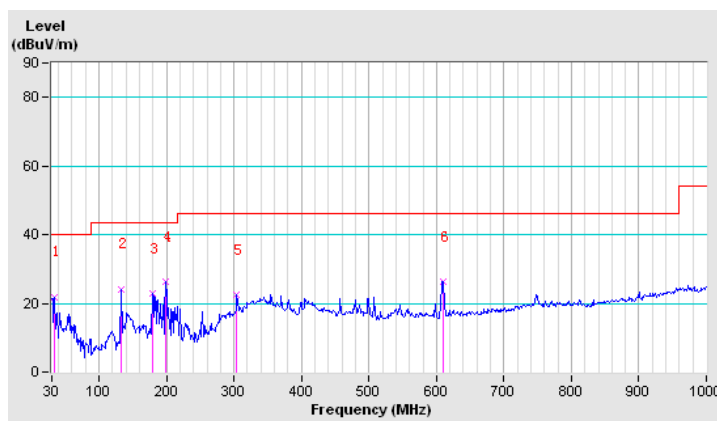
BT-LE (GFSK)

CHANNEL	TX Channel 39	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	34.22	21.90	40.00	-18.10	100	0	36.27	-14.37
2	132.62	24.21	43.50	-19.29	100	0	42.40	-18.19
3	179.01	23.00	43.50	-20.50	100	0	43.01	-20.01
4	198.70	26.22	43.50	-17.28	100	0	47.13	-20.91
5	304.13	22.44	46.00	-23.56	100	0	37.37	-14.93
6	610.59	26.31	46.00	-19.69	100	0	31.99	-5.68

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.





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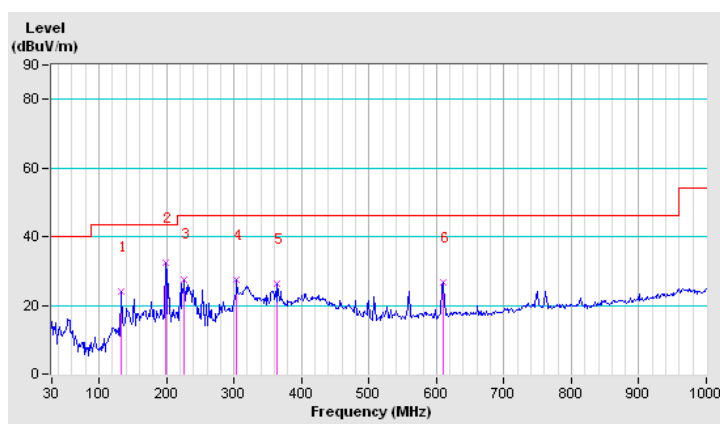
Test Report No.: RF150813N009-2

CHANNEL	TX Channel 39	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	132.62	24.05	43.50	-19.45	100	0	42.24	-18.19
2	198.70	32.33	43.50	-11.17	100	0	53.24	-20.91
3	226.81	27.61	46.00	-18.39	100	0	46.71	-19.10
4	304.13	27.38	46.00	-18.62	100	0	42.31	-14.93
5	364.58	26.25	46.00	-19.75	100	0	39.20	-12.95
6	609.19	26.66	46.00	-19.34	100	0	32.39	-5.73

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.





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Test Report No.: RF150813N009-2

ABOVE 1GHz TEST DATA:

BT-LE (GFSK)

CHANNEL	TX Channel 0	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	54.3 PK	74.0	-19.7	1.00 H	144	53.91	0.39
2	2390.00	36.9 AV	54.0	-17.1	1.00 H	144	36.51	0.39
3	*2402.00	88.1 PK			1.00 H	144	87.68	0.42
4	*2402.00	66.9 AV			1.00 H	144	66.48	0.42
5	4804.00	51.6 PK	74.0	-22.4	1.00 H	211	45.08	6.52
6	4804.00	36.2 AV	54.0	-17.8	1.00 H	211	29.68	6.52
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	55.6 PK	74.0	-18.4	1.09 V	278	55.21	0.39
2	2390.00	36.9 AV	54.0	-17.1	1.09 V	278	36.51	0.39
3	*2402.00	90.4 PK			1.09 V	278	89.98	0.42
4	*2402.00	69.7 AV			1.09 V	278	69.28	0.42
5	4804.00	52.4 PK	74.0	-21.6	1.00 V	98	45.88	6.52
6	4804.00	37.1 AV	54.0	-16.9	1.00 V	98	30.58	6.52

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.



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VERITAS**

Test Report No.: RF150813N009-2

CHANNEL	TX Channel 19	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	#2441.00	89.1 PK			1.00 H	214	88.59	0.51
2	#2441.00	67.6 AV			1.00 H	214	67.09	0.51
3	4882.00	51.8 PK	74.0	-22.2	1.00 H	266	45.04	6.76
4	4882.00	36.4 AV	54.0	-17.6	1.00 H	266	29.64	6.76
5	7323.00	54.6 PK	74.0	-19.4	1.00 H	341	43.80	10.80
6	7323.00	39.3 AV	54.0	-14.7	1.00 H	341	28.50	10.80
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	#2441.00	91.9 PK			1.06 V	192	91.39	0.51
2	#2441.00	70.1 AV			1.06 V	192	69.59	0.51
3	4882.00	52.1 PK	74.0	-21.9	1.00 V	145	45.34	6.76
4	4882.00	36.3 AV	54.0	-17.7	1.00 V	145	29.54	6.76
5	7323.00	54.3 PK	74.0	-19.7	1.08 V	271	43.50	10.80
6	7323.00	39.2 AV	54.0	-14.8	1.08 V	271	28.40	10.80

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. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 39	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	*2480.00	88.8 PK			1.00 H	208	88.20	0.60
2	*2480.00	67.8 AV			1.00 H	208	67.20	0.60
3	2483.50	62.6 PK	74.0	-11.4	1.00 H	208	61.99	0.61
4	2483.50	36.8 AV	54.0	-17.2	1.00 H	208	36.19	0.61
5	4960.00	52.1 PK	74.0	-21.9	1.00 H	145	45.11	6.99
6	4960.00	36.5 AV	54.0	-17.5	1.00 H	145	29.51	6.99
7	7440.00	54.3 PK	74.0	-19.7	1.00 H	360	43.50	10.80
8	7440.00	39.8 AV	54.0	-14.2	1.00 H	360	29.00	10.80
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	*2480.00	91.6 PK			1.03 V	180	91.00	0.60
2	*2480.00	70.0 AV			1.03 V	180	69.40	0.60
3	2483.50	64.8 PK	74.0	-9.2	1.03 V	180	64.19	0.61
4	2483.50	37.0 AV	54.0	-17.0	1.03 V	180	36.39	0.61
5	4960.00	52.3 PK	74.0	-21.7	1.00 V	145	45.31	6.99
6	4960.00	36.4 AV	54.0	-17.6	1.00 V	145	29.41	6.99
7	7440.00	54.3 PK	74.0	-19.7	1.00 V	260	43.50	10.80
8	7440.00	39.6 AV	54.0	-14.4	1.00 V	260	28.80	10.80

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.



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,15	Feb. 17,16
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,15	Feb. 17,16
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Oct. 27,14	Oct. 26,15
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 14	Oct. 16, 15
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 05,14	Nov. 04,15
Signal Generator	Agilent	N5183A	MY50140980	Nov. 05,14	Nov. 04,15
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 15	Apr. 21, 16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Oct. 27,14	Oct. 26,15

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.

4.3.3 TEST PROCEDURE

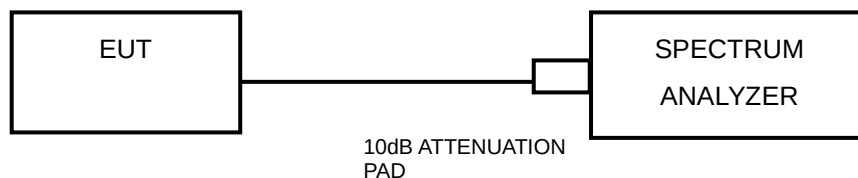
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.



4.3.5 TEST SETUP



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****802.11b**

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	10.07	10.08	0.5	PASS
6	2437	10.10	10.07	0.5	PASS
11	2462	9.60	10.08	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.09	16.09	0.5	PASS
6	2437	16.32	16.07	0.5	PASS
11	2462	16.35	16.12	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.13	17.09	0.5	PASS
6	2437	16.12	17.09	0.5	PASS
11	2462	16.11	16.98	0.5	PASS

**802.11n (40MHz)**

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.27	35.42	0.5	PASS
6	2437	35.38	35.39	0.5	PASS
9	2452	35.39	35.46	0.5	PASS

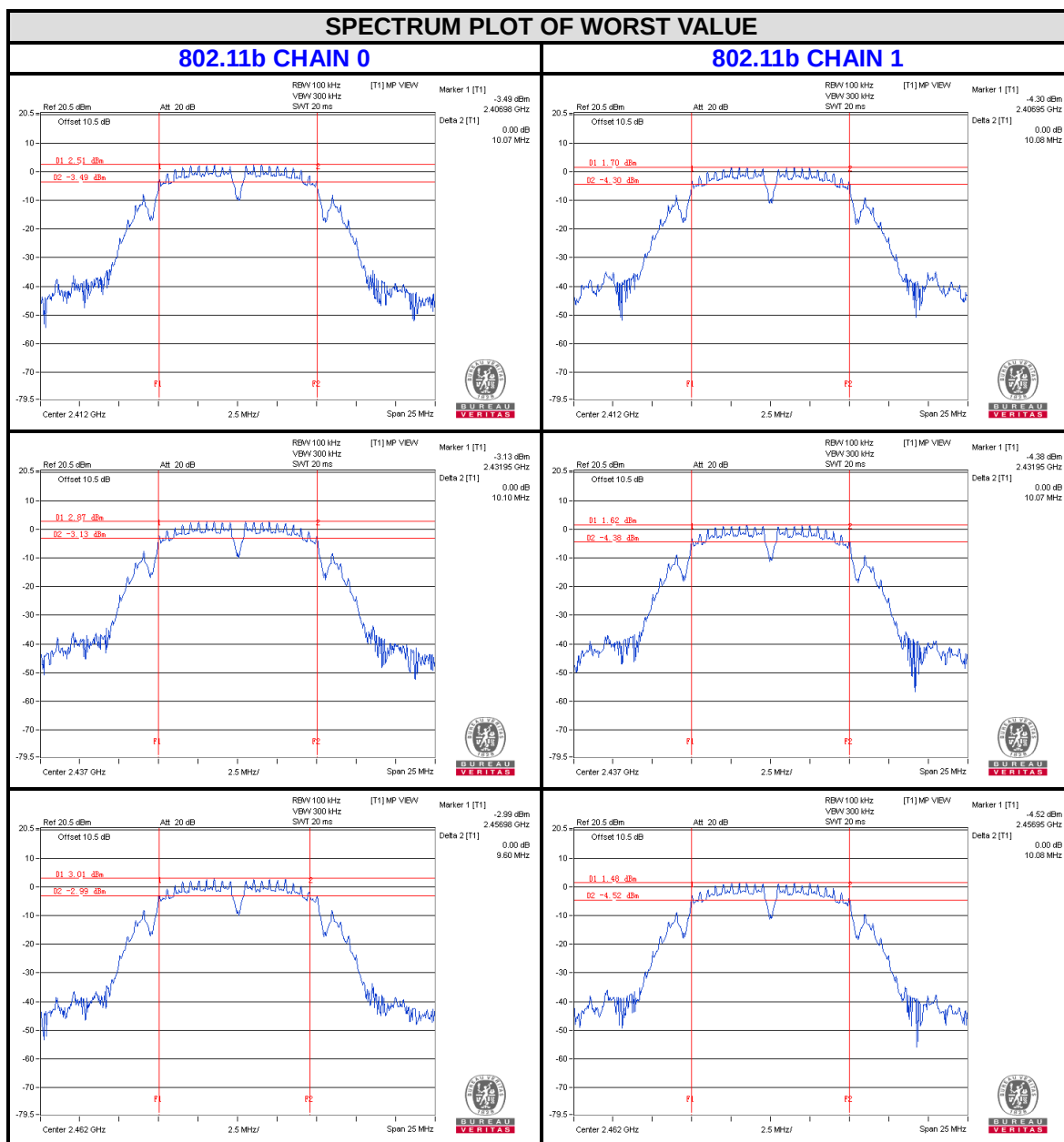
BT-LE (GFSK)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 2		
0	2402	0.74	0.5	PASS
19	2440	0.74	0.5	PASS
39	2480	0.76	0.5	PASS



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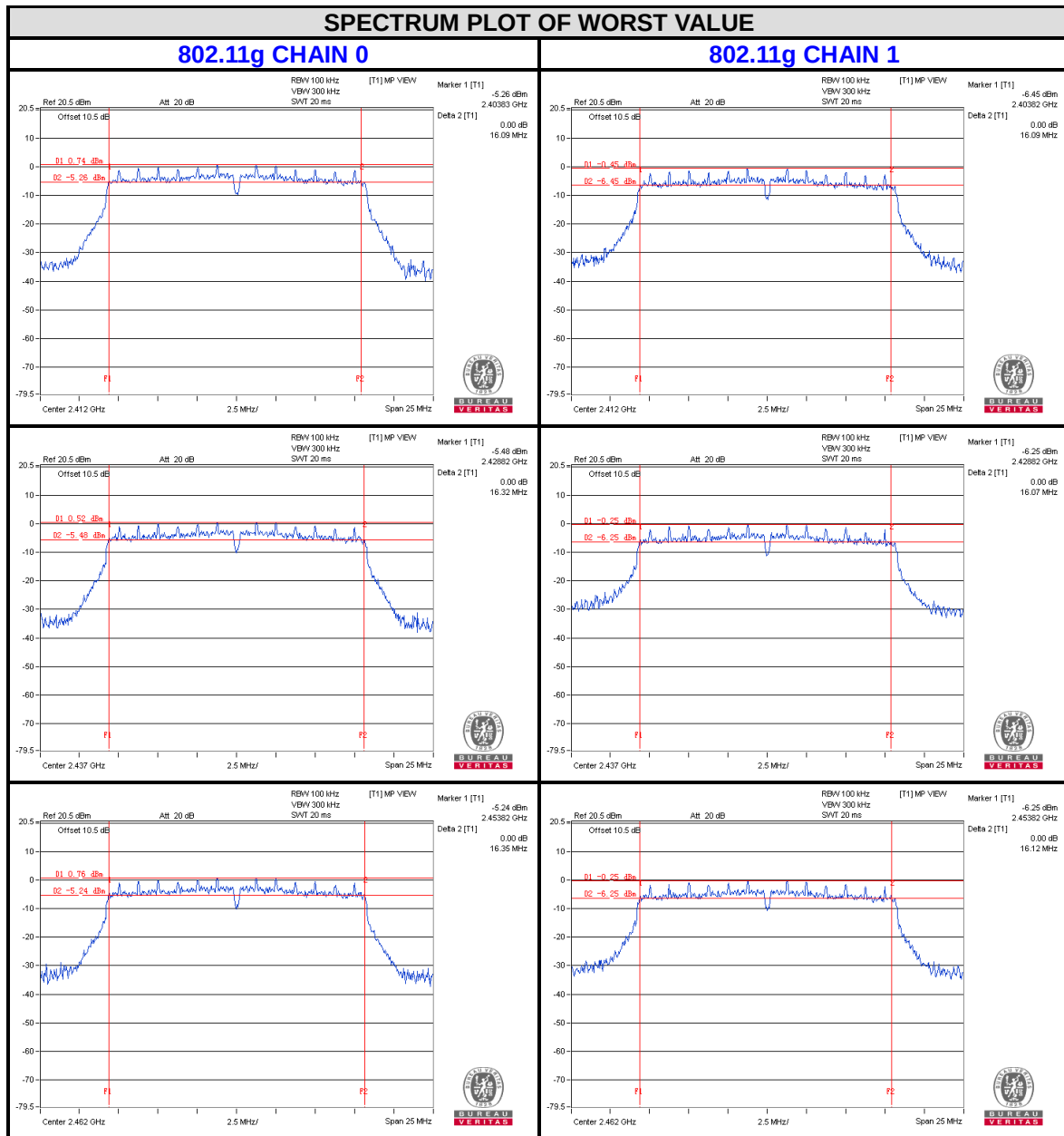
No. 34, Chenwulu Section, Guantai Rd., Houjie
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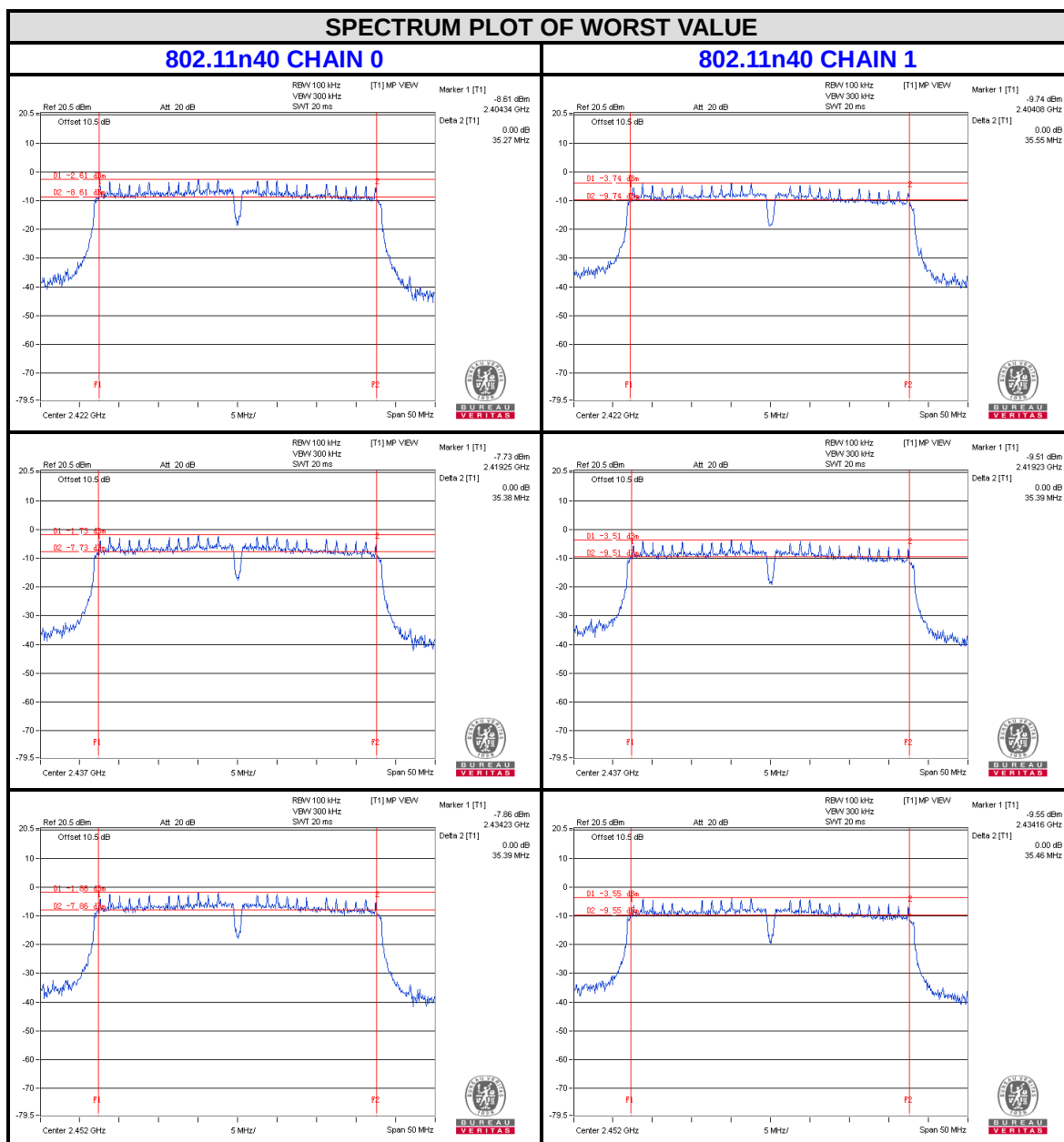






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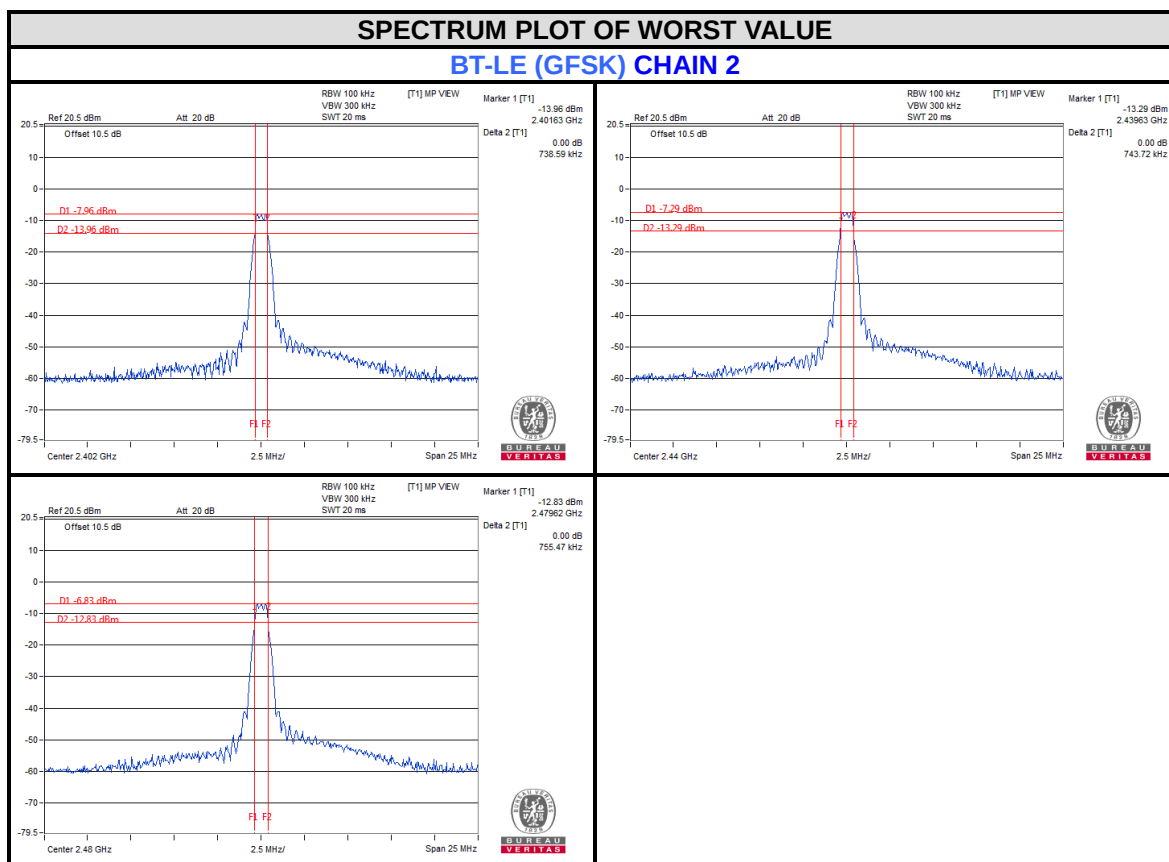
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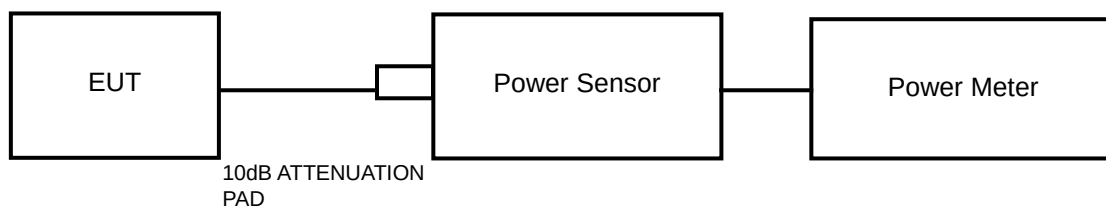


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,15	Feb. 17,16
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,15	Feb. 17,16
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Oct. 27,14	Oct. 26,15
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 14	Oct. 16, 15
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 05,14	Nov. 04,15
Signal Generator	Agilent	N5183A	MY50140980	Nov. 05,14	Nov. 04,15
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 15	Apr. 21, 16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Oct. 27,14	Oct. 26,15

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.



4.4.4 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.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

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

**4.4.7 TEST RESULTS****4.4.7.1 MAXIMUM PEAK OUTPUT POWER****802.11b**

Channel Number	Frequency (MHz)	Max. power output (dBm)		Max. power output (mW)		Total Max. power output		Max. power limit (dBm)	PASS / FAIL
		Chain0	Chain1	Chain0	Chain1	mW	dBm		
1	2412	16.63	16.85	46.026	48.417	94.443	19.75	30.00	PASS
6	2437	16.87	16.58	48.641	45.499	94.140	19.74	30.00	PASS
11	2462	16.92	16.51	49.204	44.771	93.975	19.73	30.00	PASS

802.11g

Channel Number	Frequency (MHz)	Max. power output (dBm)		Max. power output (mW)		Total Max. power output		Max. power limit (dBm)	PASS / FAIL
		Chain0	Chain1	Chain0	Chain1	mW	dBm		
1	2412	18.58	19.17	72.111	82.604	154.715	21.90	30.00	PASS
6	2437	18.28	18.91	67.298	77.804	145.102	21.62	30.00	PASS
11	2462	18.45	18.45	69.984	69.984	139.968	21.46	30.00	PASS

802.11n (20MHz)

Channel Number	Frequency (MHz)	Max. power output (dBm)		Max. power output (mW)		Total Max. power output		Max. power limit (dBm)	PASS / FAIL
		Chain0	Chain1	Chain0	Chain1	mW	dBm		
1	2412	17.56	18.07	57.016	64.121	121.137	20.83	30.00	PASS
6	2437	17.59	17.92	57.412	61.944	119.356	20.77	30.00	PASS
11	2462	17.58	17.79	57.280	60.117	117.397	20.70	30.00	PASS

**802.11n (40MHz)**

Channel Number	Frequency (MHz)	Max. power output (dBm)		Max. power output (mW)		Total Max. power output		Max. power limit (dBm)	PASS / FAIL
		Chain0	Chain1	Chain0	Chain1	mW	dBm		
3	2422	17.15	17.28	51.880	53.456	105.336	20.23	30.00	PASS
6	2437	17.14`	17.31	51.761	53.827	105.588	20.24	30.00	PASS
9	2452	17.15	17.56	51.880	57.016	108.896	20.37	30.00	PASS

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	-1.15	0.767	1	PASS
19	2440	0.01	1.002	1	PASS
39	2480	0.63	1.156	1	PASS



4.4.7.2 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.

FOR AVERAGE POWER
802.11b

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	10.49	10.80	23.217	13.66	30	PASS
6	2437	10.57	10.67	23.070	13.63	30	PASS
11	2462	10.66	10.34	22.455	13.51	30	PASS

802.11g

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	10.24	10.90	22.871	13.59	30	PASS
6	2437	10.16	10.59	21.830	13.39	30	PASS
11	2462	10.19	10.51	21.693	13.36	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	9.25	9.93	18.254	12.61	30	PASS
6	2437	9.39	9.42	17.440	12.42	30	PASS
11	2462	9.39	9.70	18.023	12.56	30	PASS



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802.11n (40MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	9.30	9.54	17.506	12.43	30	PASS
6	2437	9.22	9.41	17.086	12.33	30	PASS
9	2452	9.48	9.68	18.162	12.59	30	PASS

BLE

GFSK

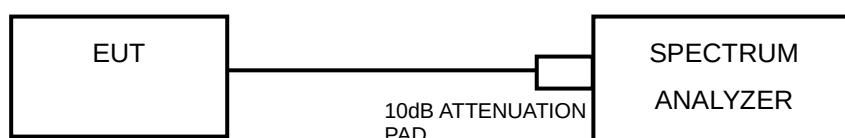
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
0	2402	-2.89	0.514
19	2440	-1.65	0.684
39	2480	-1.05	0.785

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

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

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

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

11b

TX chain	Channel Number	Freq. (MHz)	PSD (dBm)	10 * log(N=2) (dB)	Total PSD (dBm)	PSD Limit (dBm)	PASS / FAIL
0	1	2412	-11.83	3.01	-8.82	7.99	PASS
	6	2437	-11.97	3.01	-8.96	7.99	PASS
	11	2462	-10.43	3.01	-7.42	7.99	PASS
1	1	2412	-11.93	3.01	-8.92	7.99	PASS
	6	2437	-12.05	3.01	-9.04	7.99	PASS
	11	2462	-12.99	3.01	-9.98	7.99	PASS

NOTE: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 7.99dBm.

11g

TX chain	Channel Number	Freq. (MHz)	PSD (dBm)	10 * log(N=2) (dB)	Total PSD (dBm)	PSD Limit (dBm)	PASS / FAIL
0	1	2412	-13.96	3.01	-10.95	7.99	PASS
	6	2437	-14.01	3.01	-11.00	7.99	PASS
	11	2462	-13.97	3.01	-10.96	7.99	PASS
1	1	2412	-14.18	3.01	-11.17	7.99	PASS
	6	2437	-15.45	3.01	-12.44	7.99	PASS
	11	2462	-15.55	3.01	-12.54	7.99	PASS

NOTE: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 7.99dBm.

11n(20)

TX chain	Channel Number	Freq. (MHz)	PSD (dBm)	10 * log(N=2) (dB)	Total PSD (dBm)	PSD Limit (dBm)	PASS / FAIL
0	1	2412	-15.05	3.01	-12.04	7.99	PASS
	6	2437	-14.98	3.01	-11.97	7.99	PASS
	11	2462	-13.20	3.01	-10.19	7.99	PASS
1	1	2412	-15.71	3.01	-12.70	7.99	PASS
	6	2437	-16.45	3.01	-13.44	7.99	PASS
	11	2462	-16.01	3.01	-13.00	7.99	PASS

NOTE: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 7.99dBm.

11n(40)

TX chain	Channel Number	Freq. (MHz)	PSD (dBm)	10 * log(N=2) (dB)	Total PSD (dBm)	PSD Limit (dBm)	PASS / FAIL
0	3	2422	-17.75	3.01	-14.74	7.99	PASS
	6	2437	-17.59	3.01	-14.58	7.99	PASS
	9	2452	-17.06	3.01	-14.05	7.99	PASS
1	3	2422	-18.55	3.01	-15.54	7.99	PASS
	6	2437	-20.38	3.01	-17.37	7.99	PASS
	9	2452	-19.45	3.01	-16.44	7.99	PASS

NOTE: Directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi , so the power density limit shall be reduced to 7.99dBm.

BLE GFSK

TX chain	Channel Number	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	PASS / FAIL
2	0	2402	-22.40	8.00	PASS
	19	2440	-21.74	8.00	PASS
	39	2480	-21.23	8.00	PASS

NOTE: Directional gain = 3dBi + 10log(1) = 3.00dBi < 6dBi , so the power density is 8dBm.



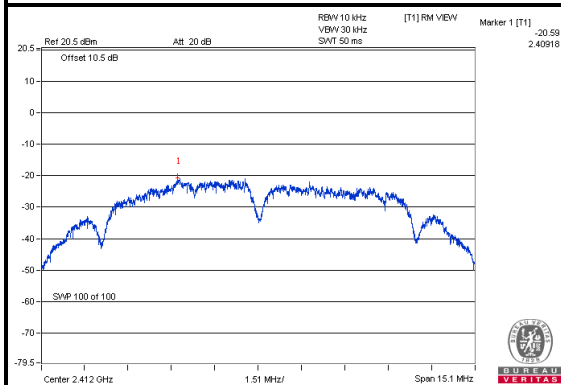
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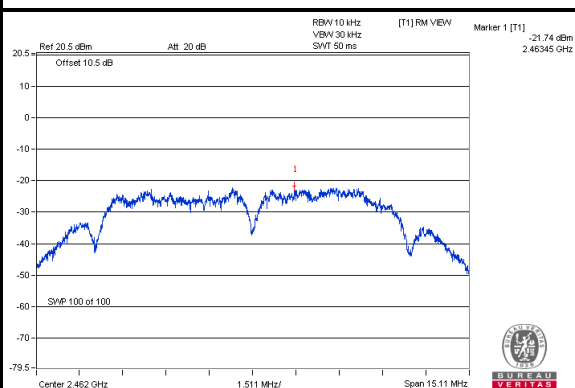
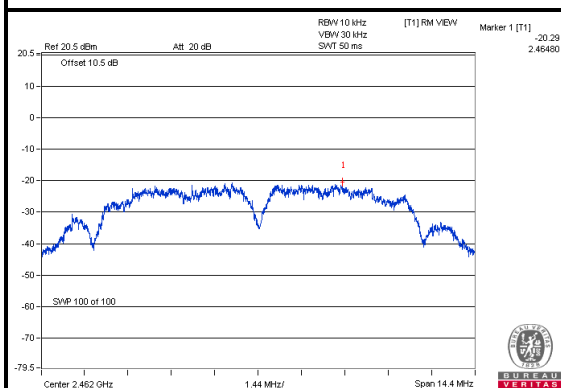
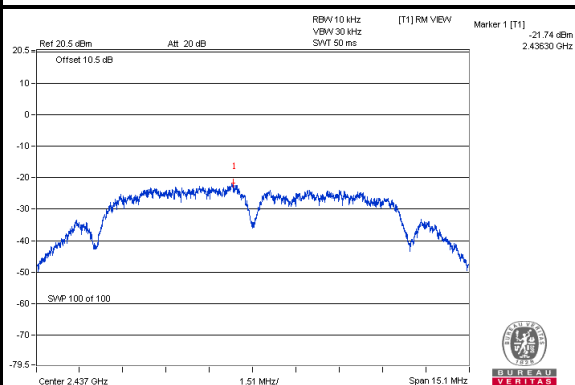
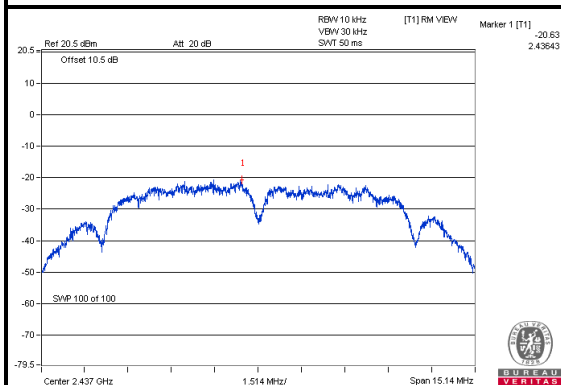
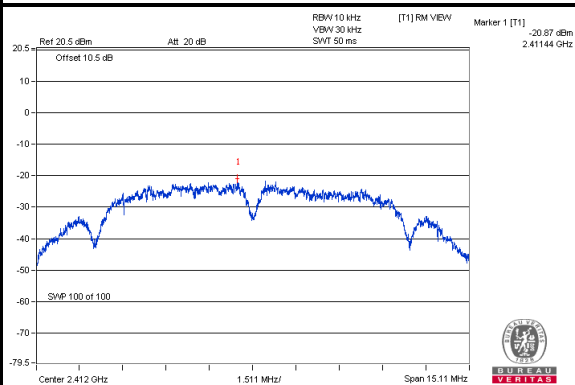
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SPECTRUM PLOT OF WORST VALUE

802.11b CHAIN 0



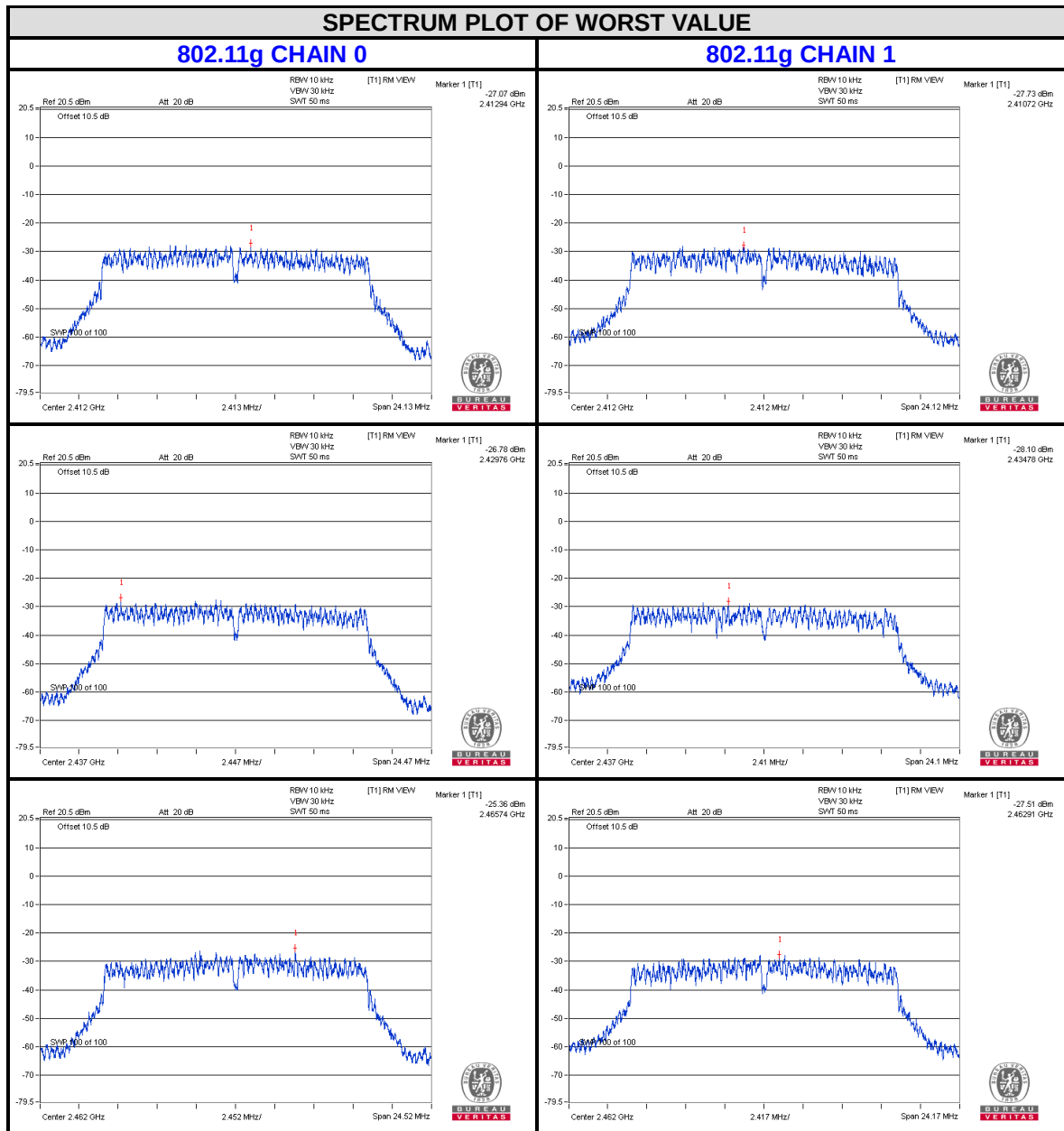
802.11b CHAIN 1





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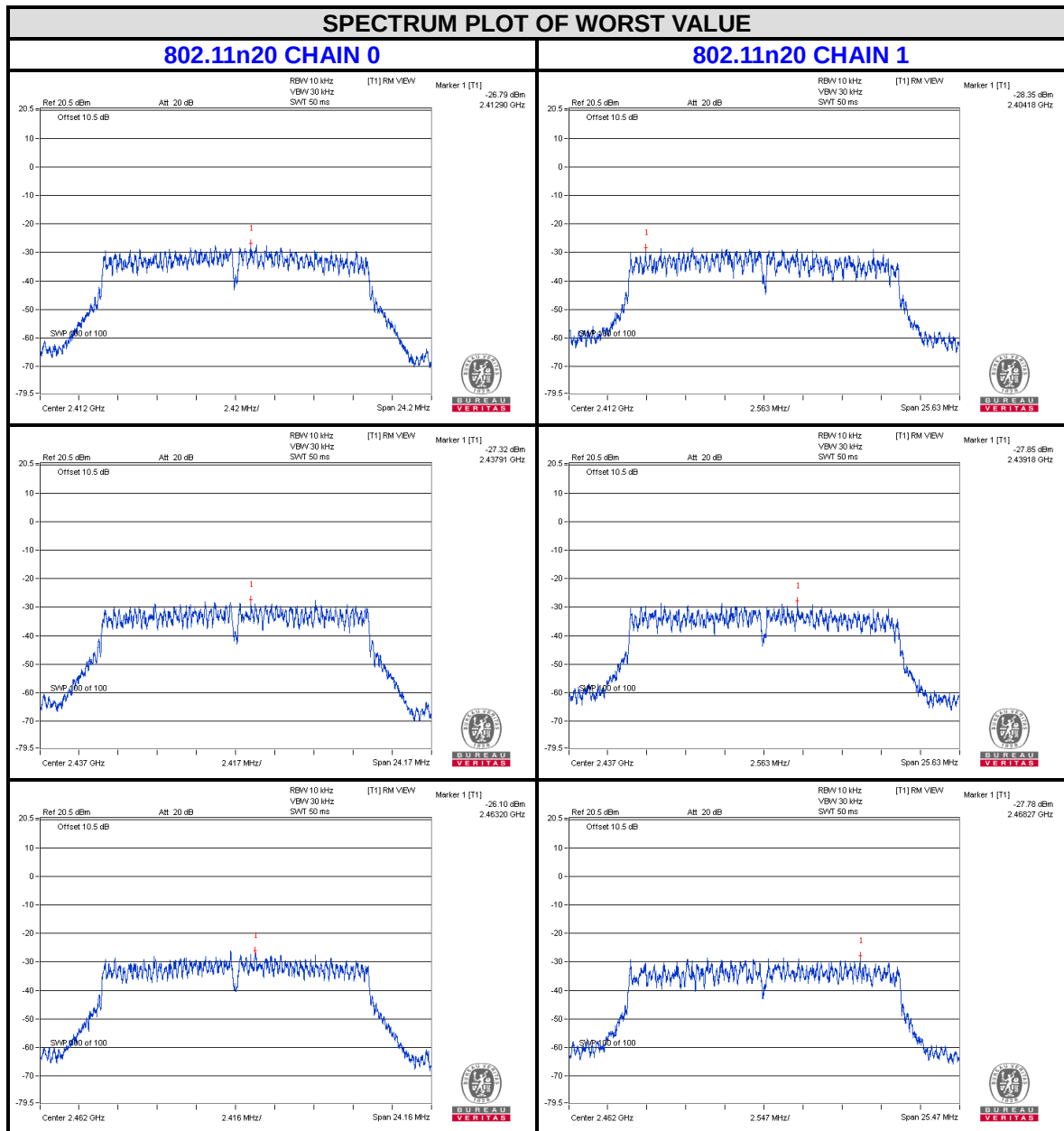
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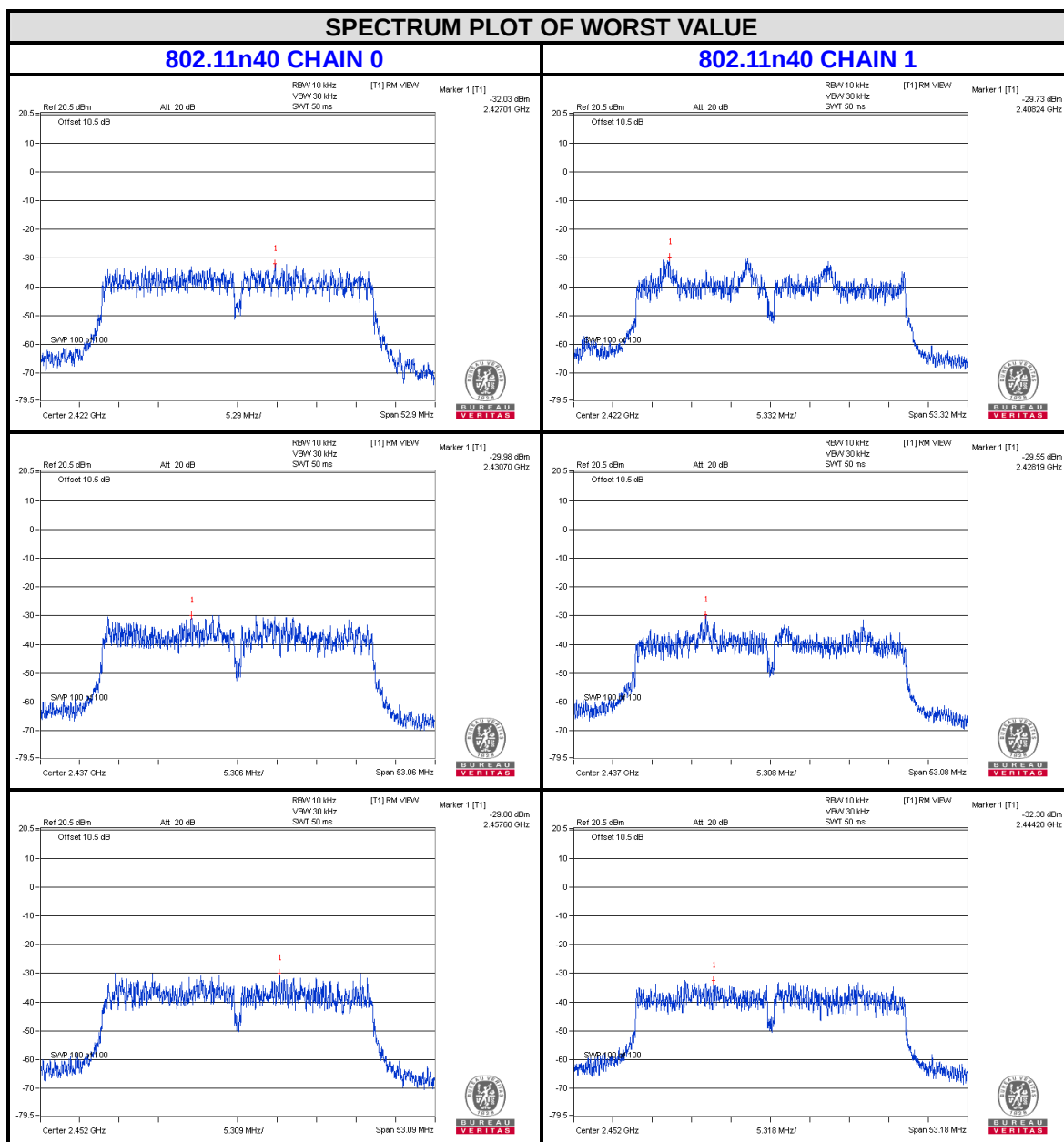
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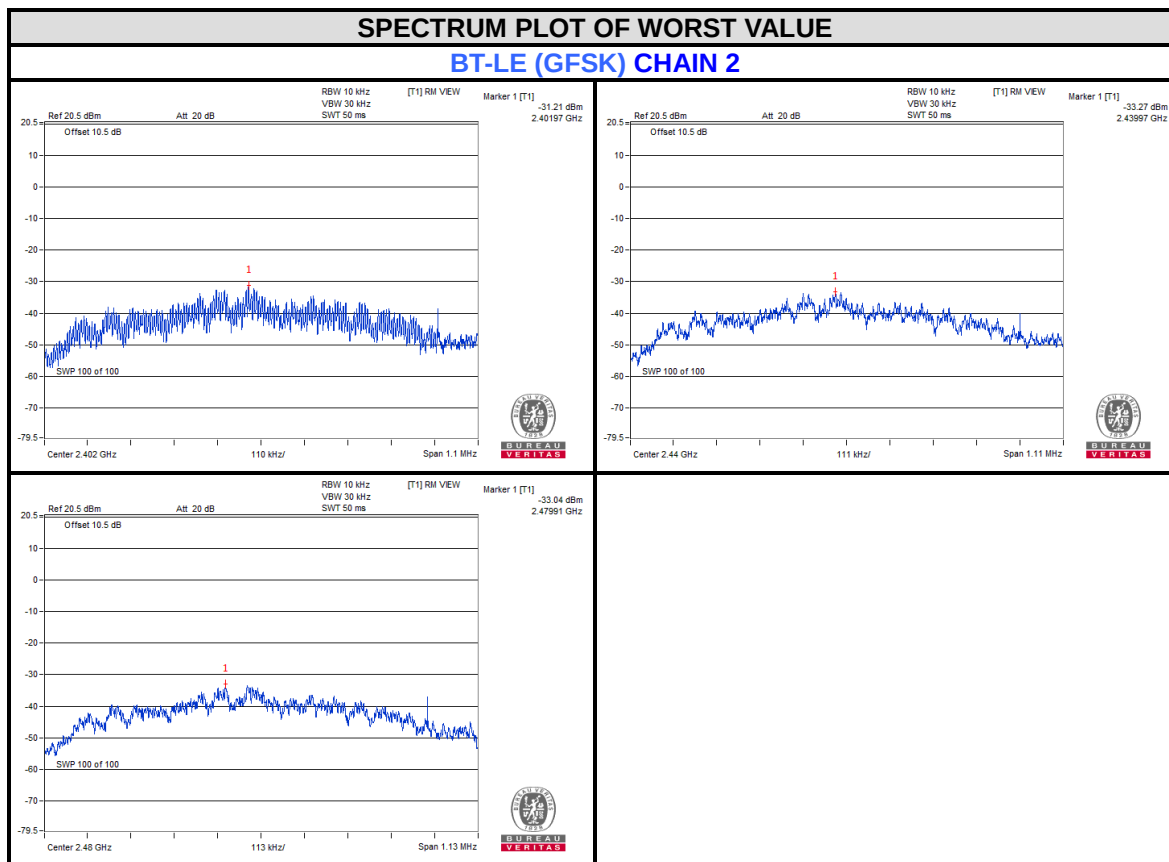
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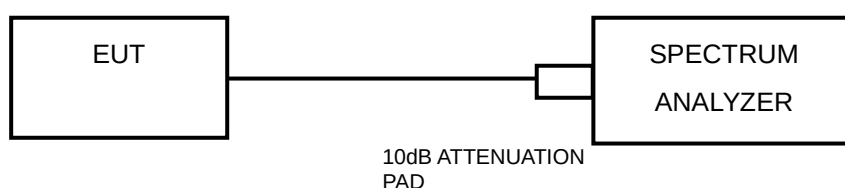
Report Version 1

4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.6.4 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.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6



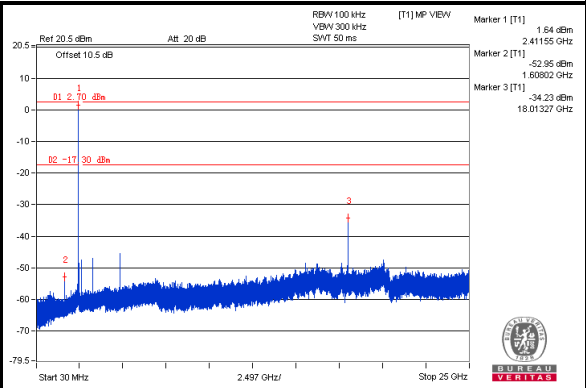
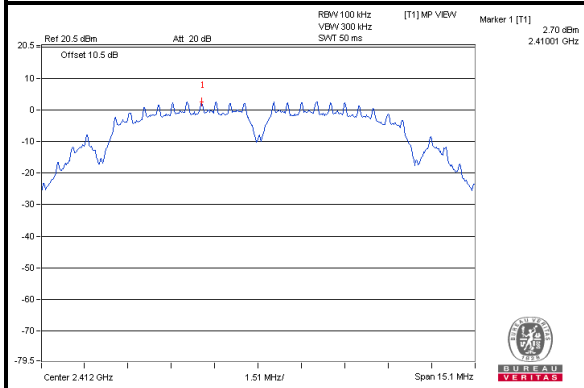
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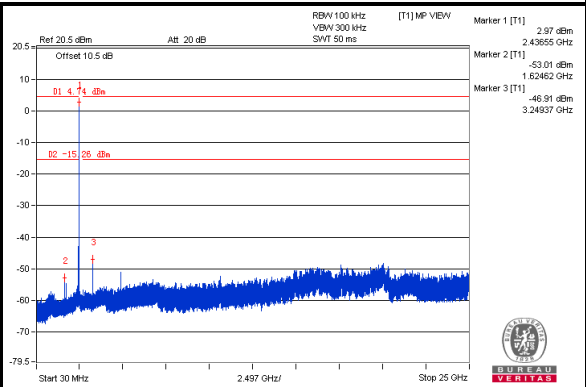
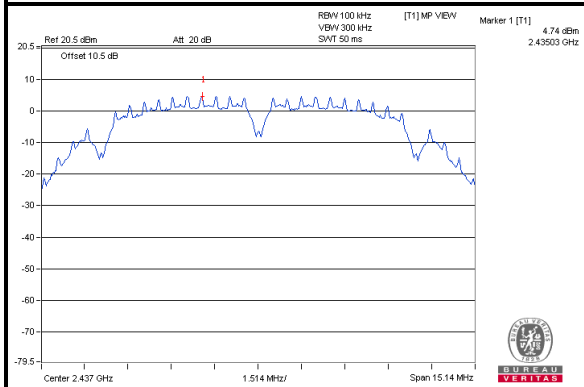
4.6.7 TEST RESULTS

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802.11b

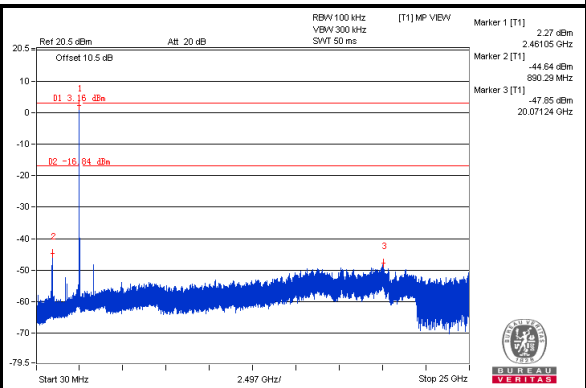
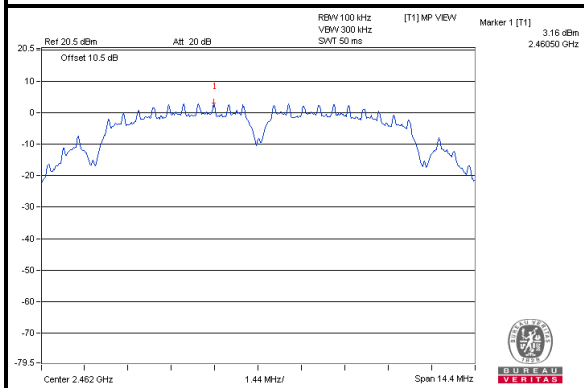
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CH 6



CH 11



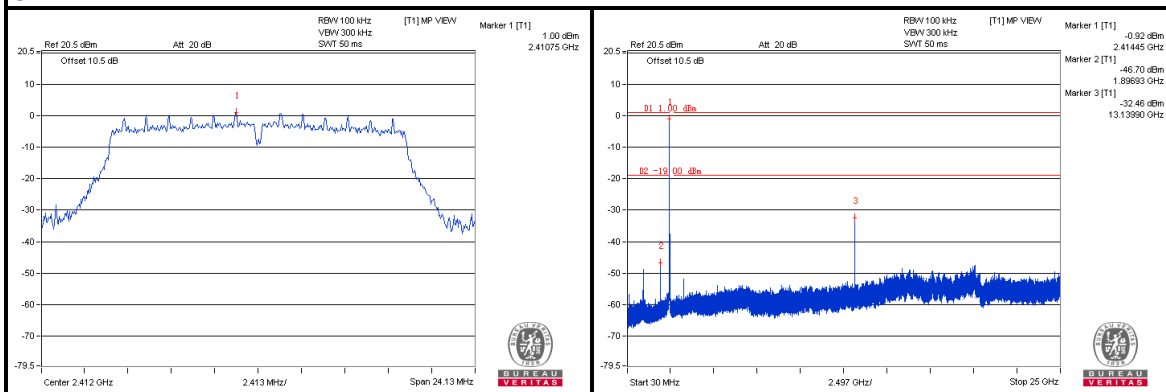


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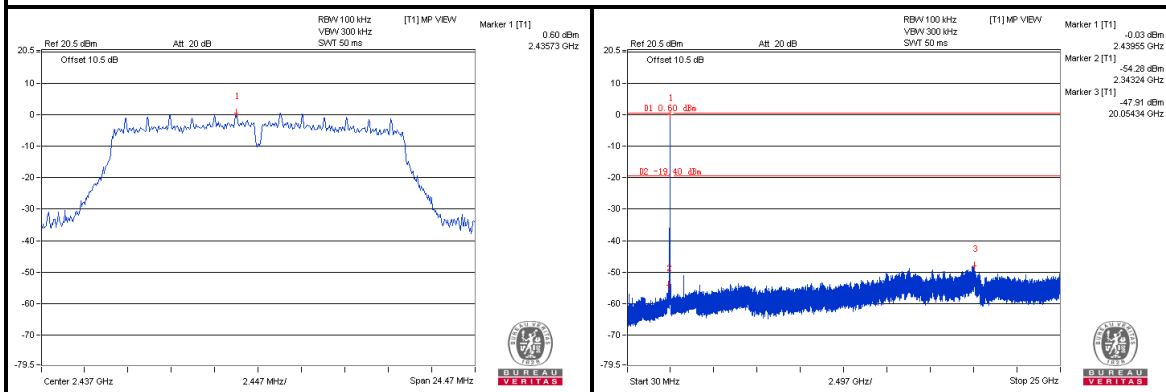
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CHAIN 0
802.11g

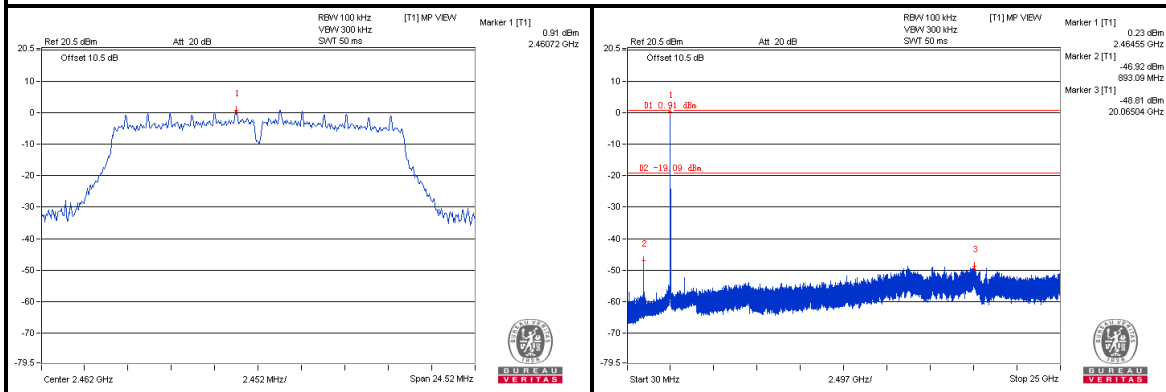
CH 1



CH 6



CH 11



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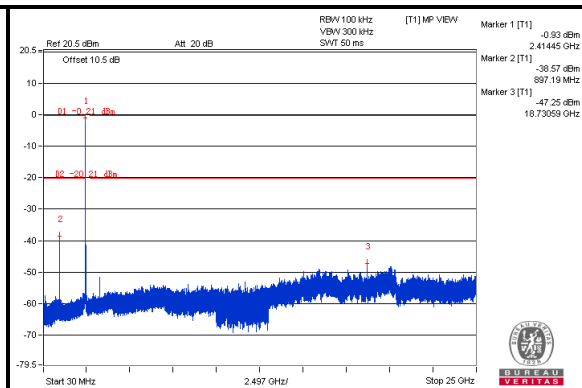
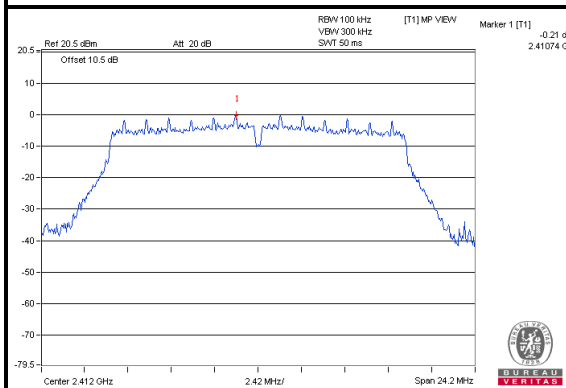


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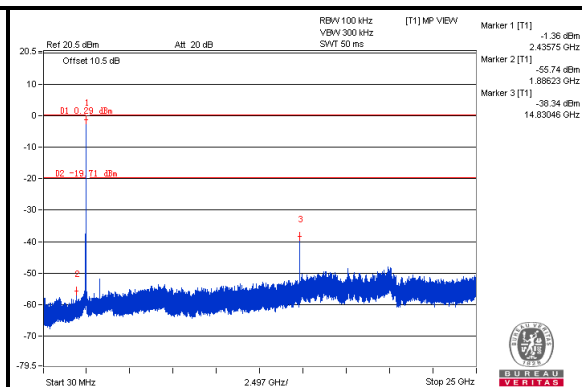
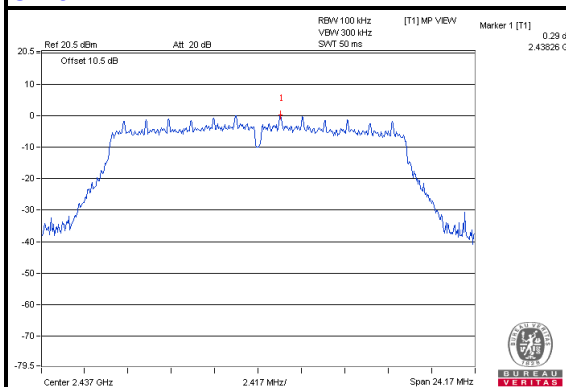
Test Report No.: RF150813N009-2

CHAIN 0
802.11n (20MHz)

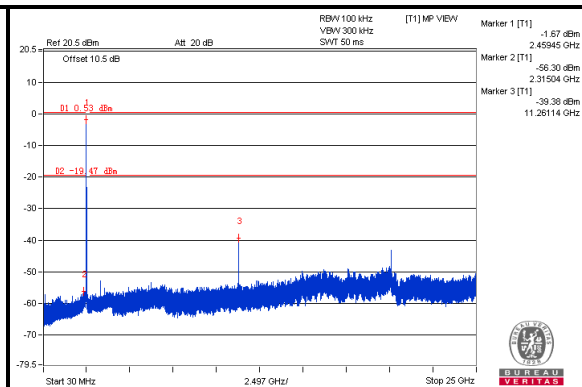
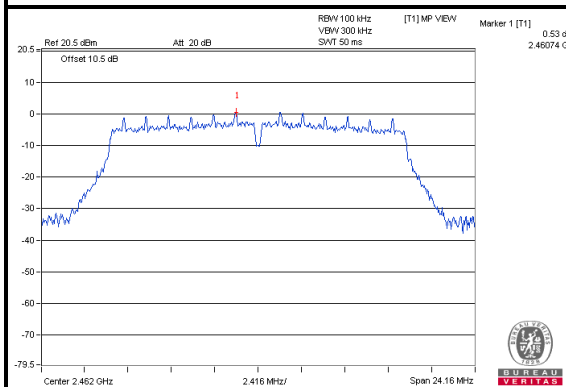
CH 1



CH 6



CH 11



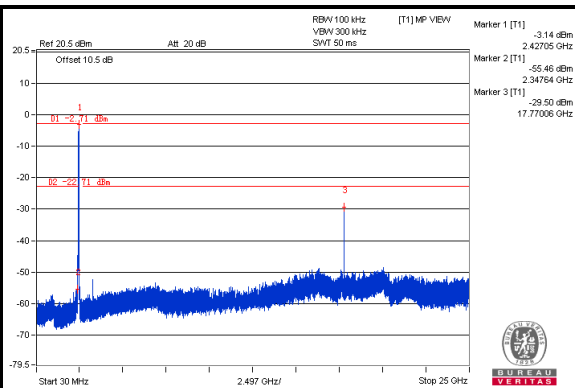
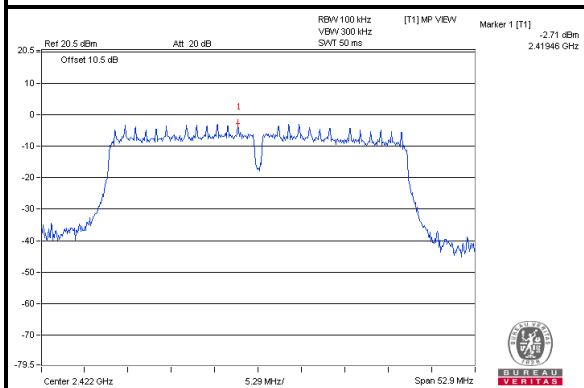


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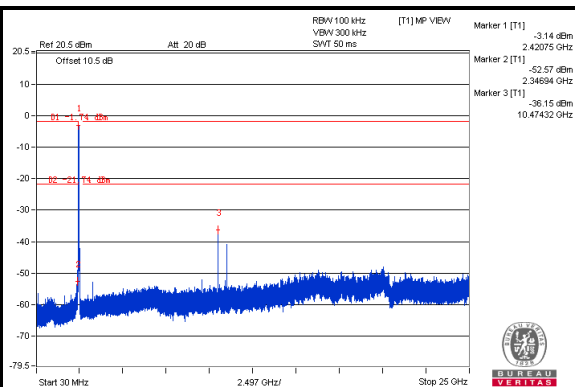
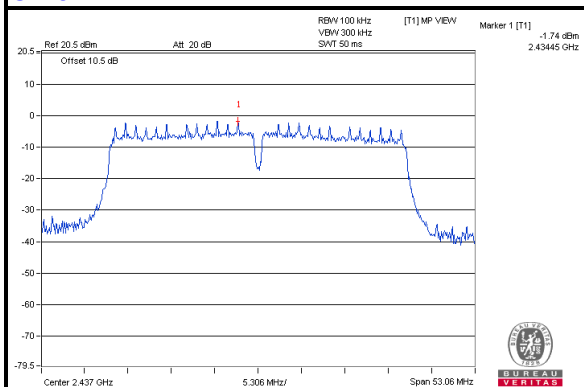
Test Report No.: RF150813N009-2

CHAIN 0
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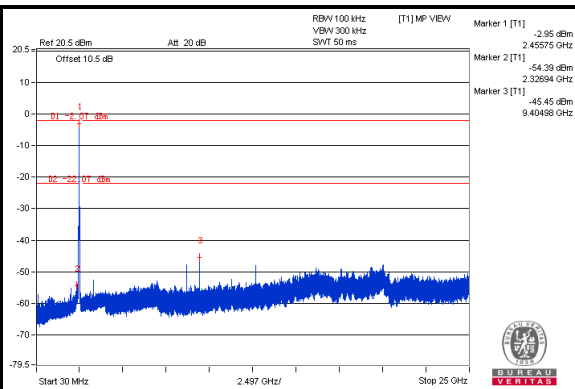
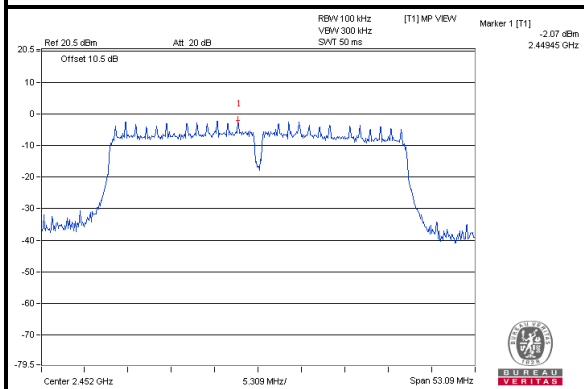
CH 3



CH 6



CH 9



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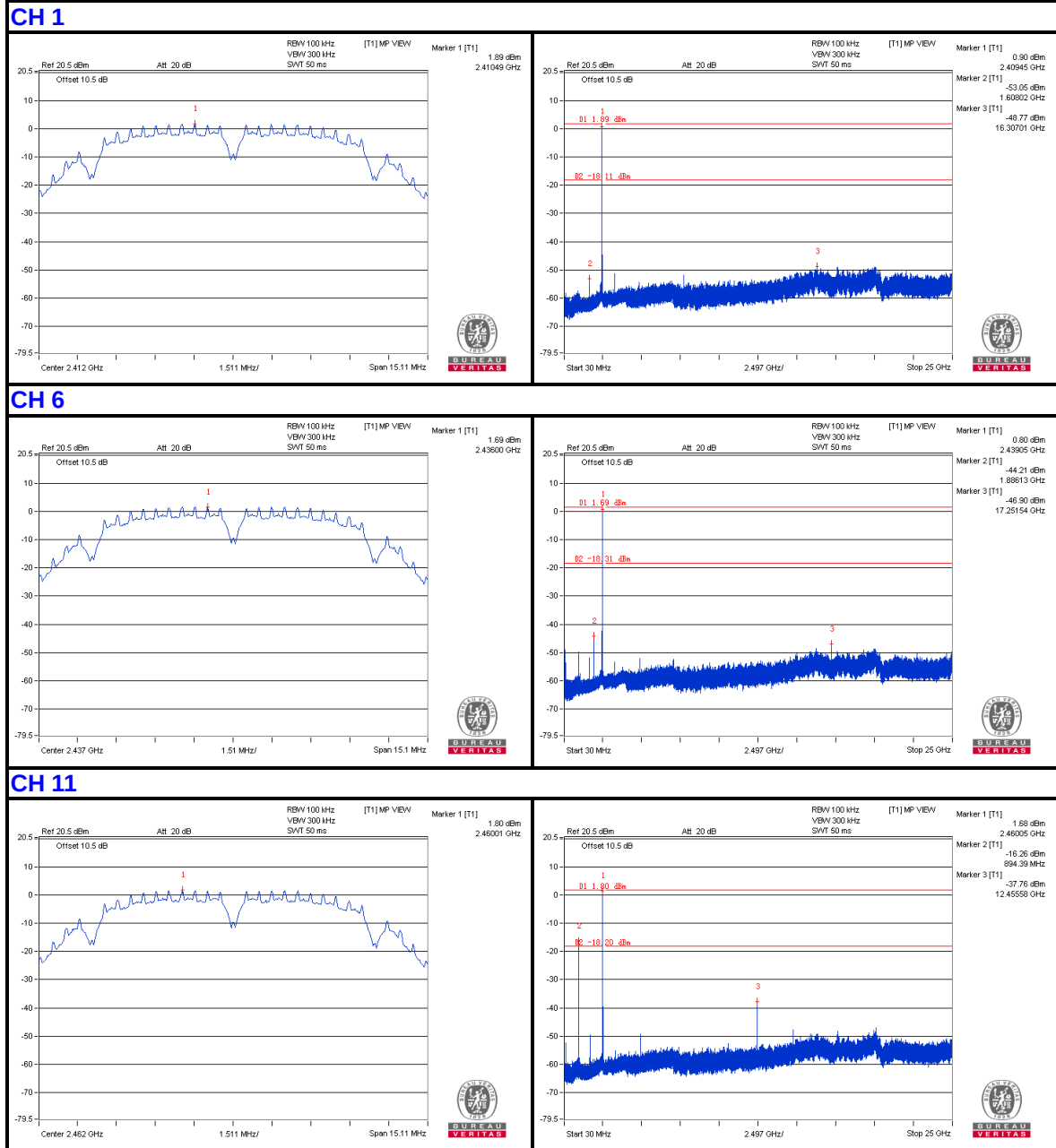
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CHAIN 1
802.11b



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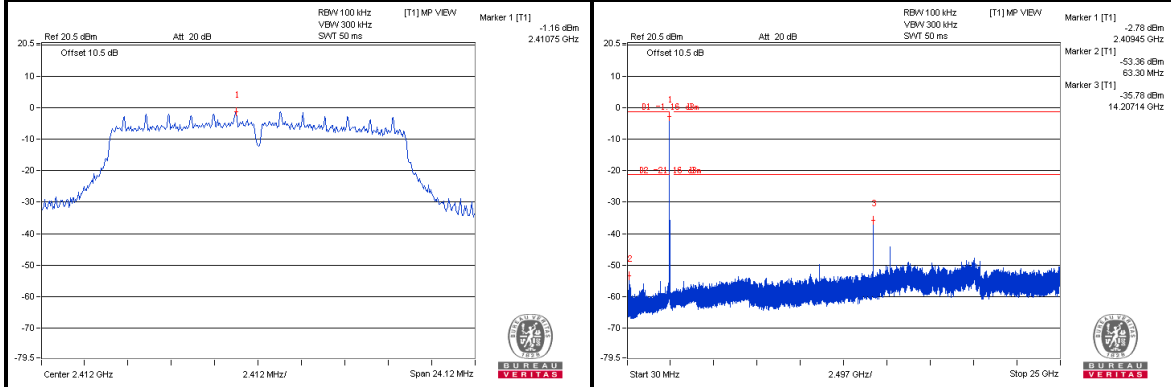


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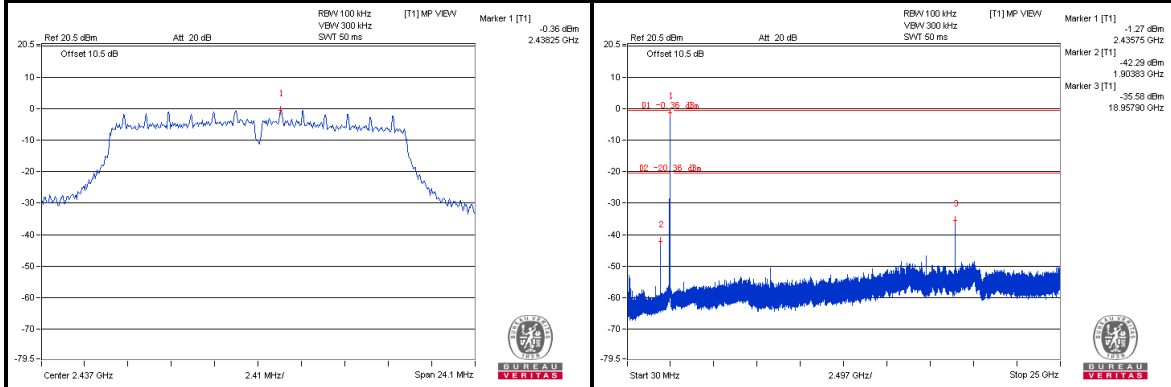
Test Report No.: RF150813N009-2

CHAIN 1
802.11g

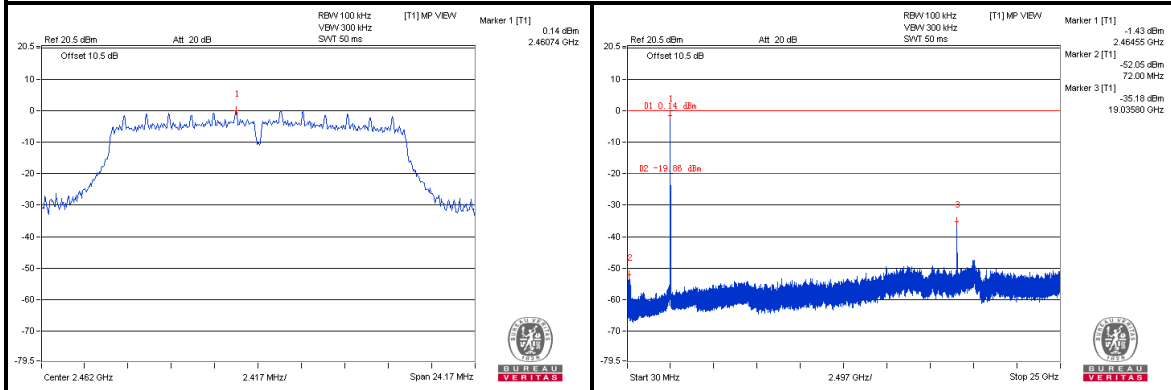
CH 1



CH 6



CH 11



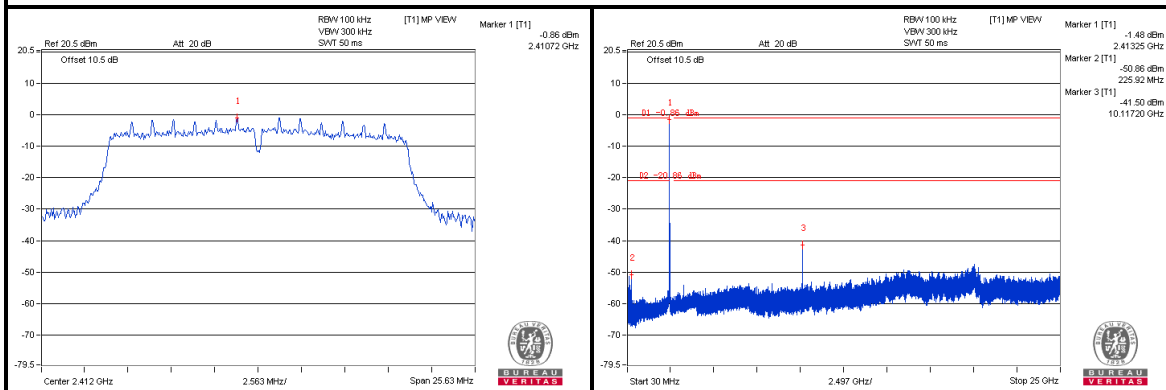


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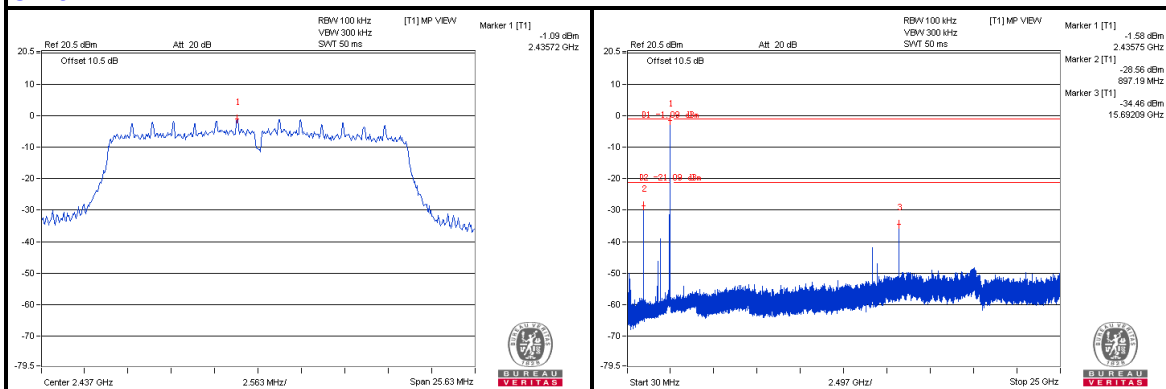
Test Report No.: RF150813N009-2

CHAIN 1
802.11n (20MHz)

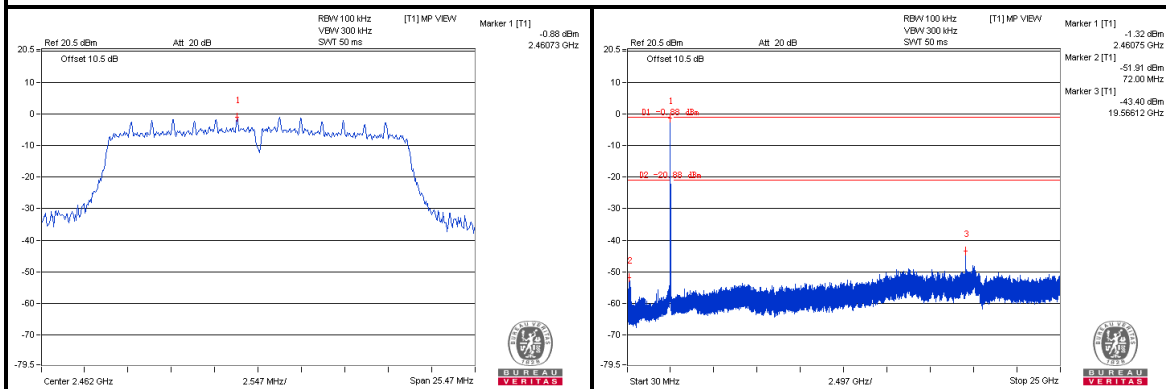
CH 1



CH 6



CH 11



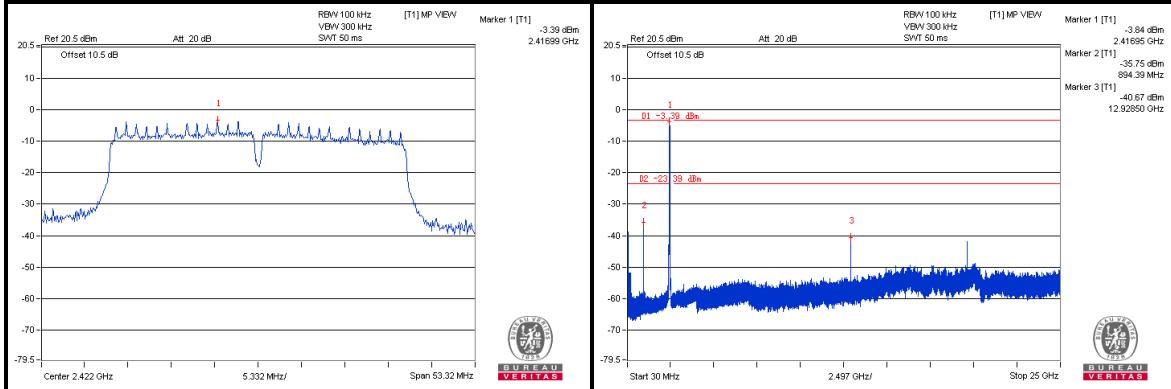


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VERITAS

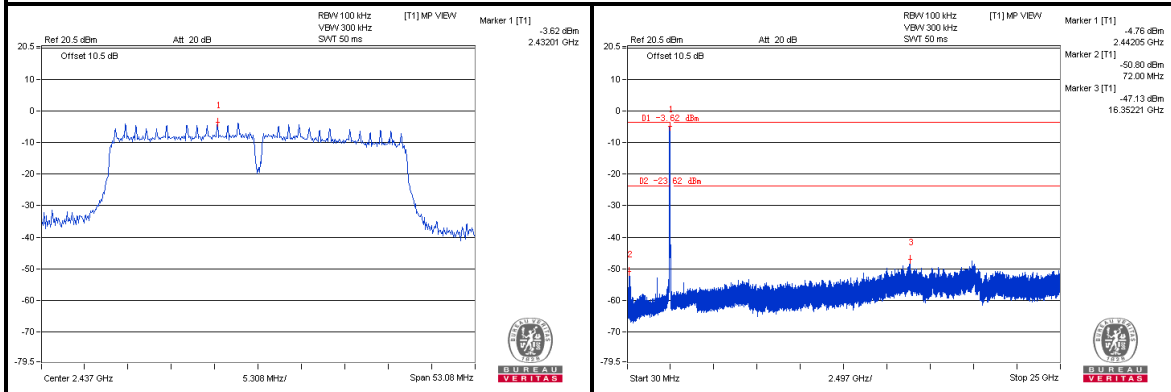
Test Report No.: RF150813N009-2

CHAIN 1
802.11n (40MHz)

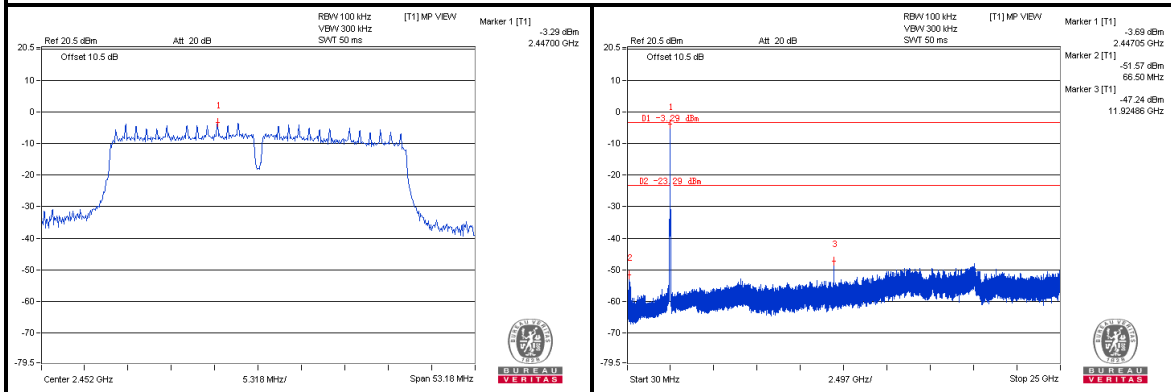
CH 3



CH 6



CH 9



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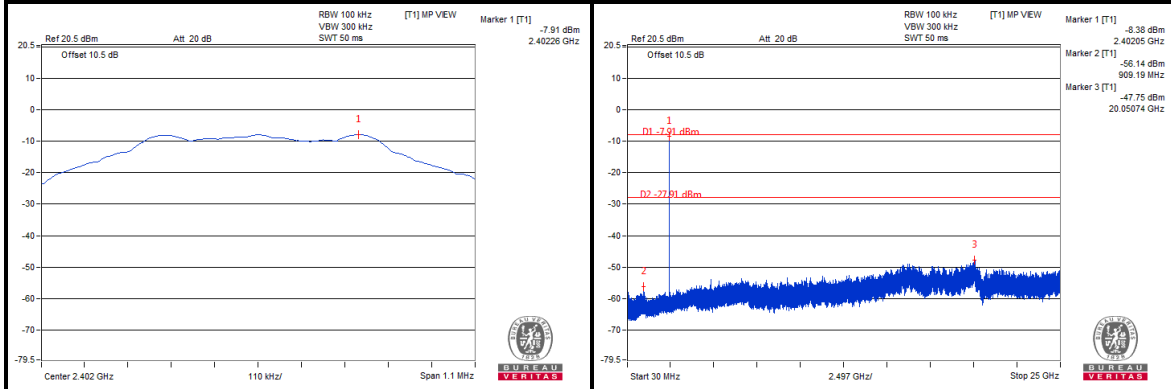


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VERITAS

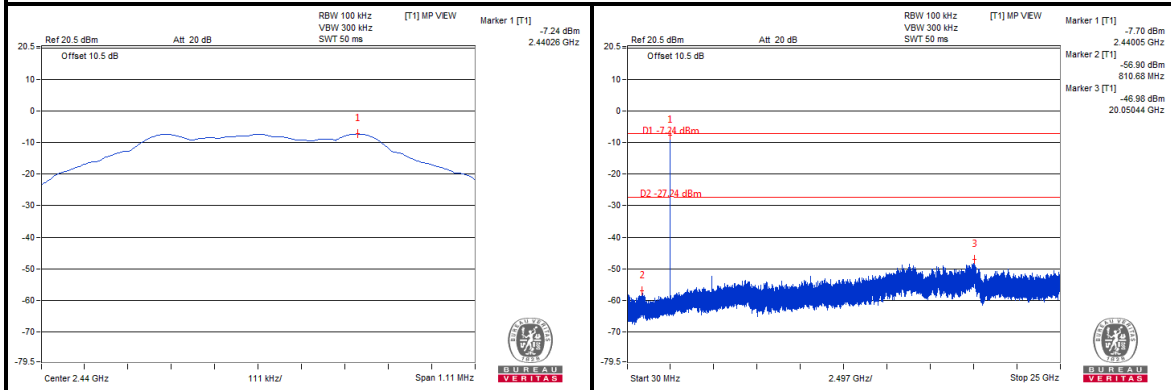
Test Report No.: RF150813N009-2

CHAIN 2
BT-LE (GFSK)

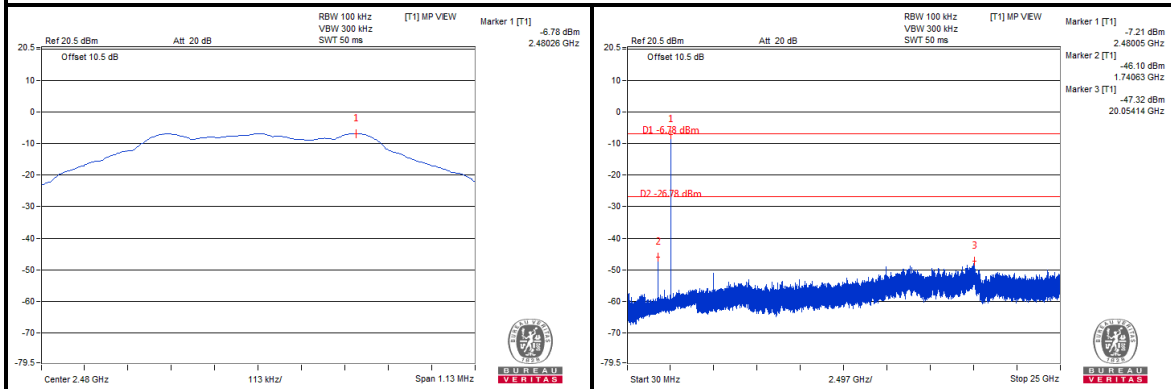
CH 0



CH 19



CH 39



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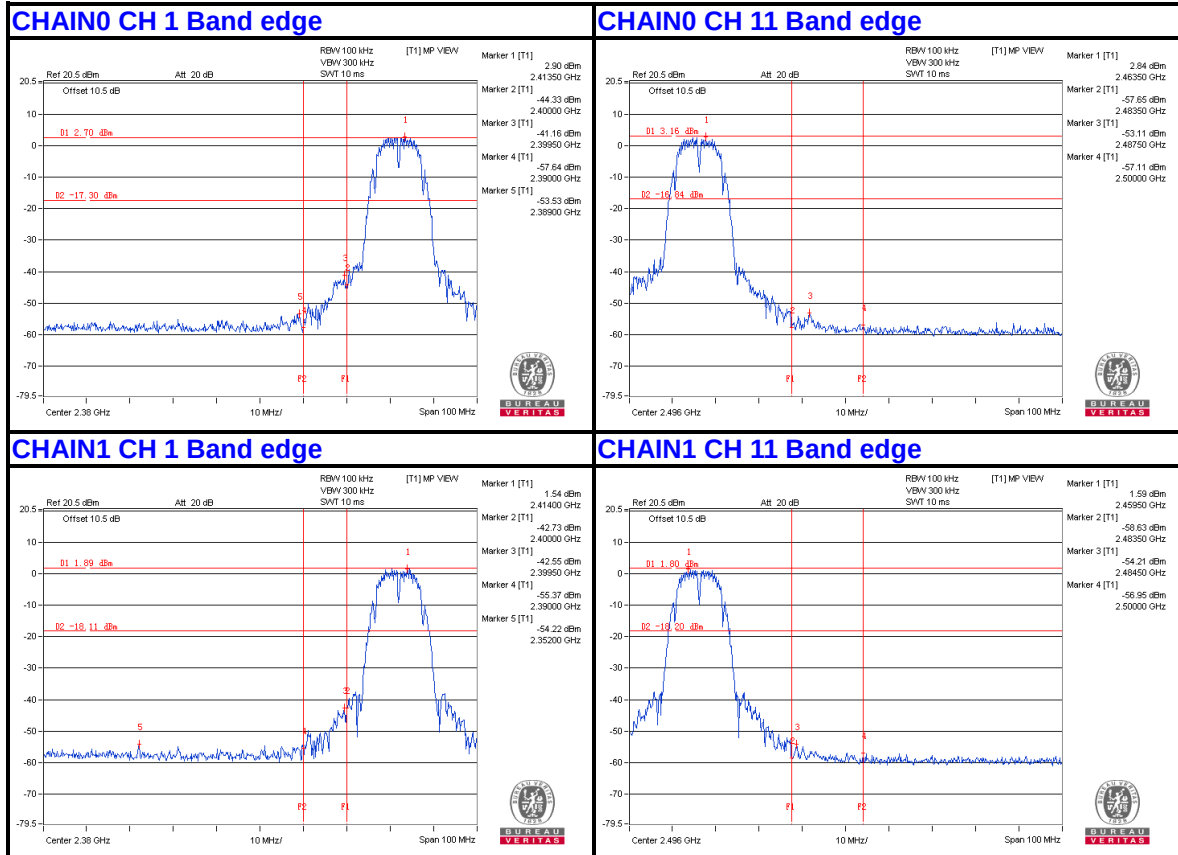
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Test Report No.: RF150813N009-2

802.11b



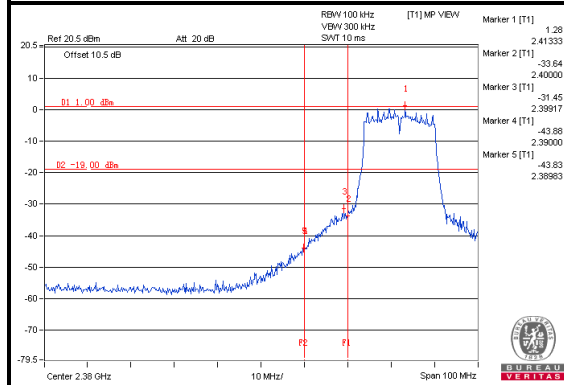


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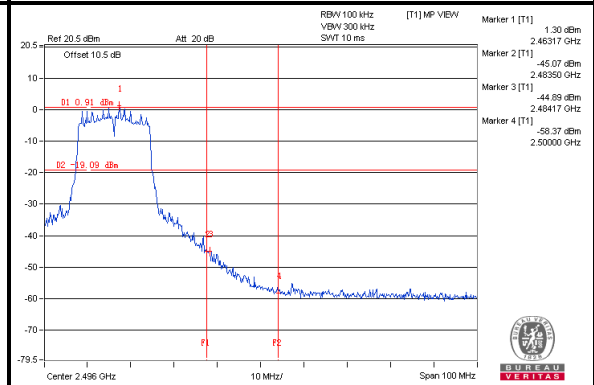
Test Report No.: RF150813N009-2

802.11g

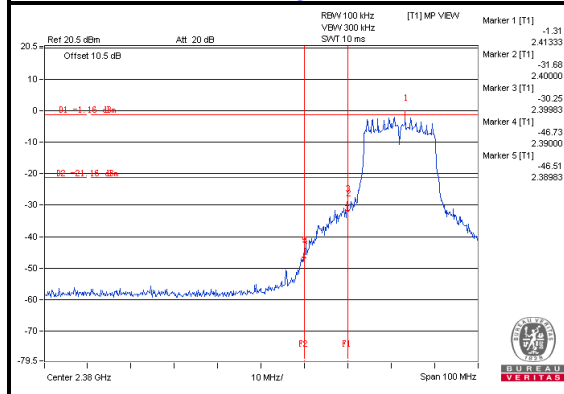
CHAIN0 CH 1 Band edge



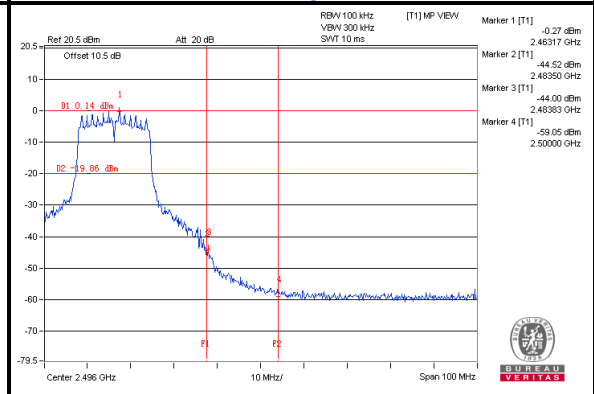
CHAIN0 CH 11 Band edge



CHAIN1 CH 1 Band edge



CHAIN1 CH 11 Band edge



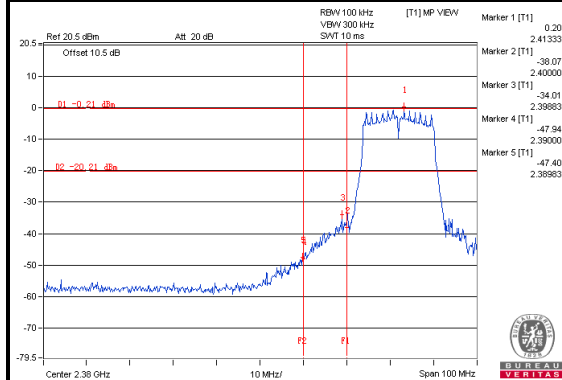


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VERITAS

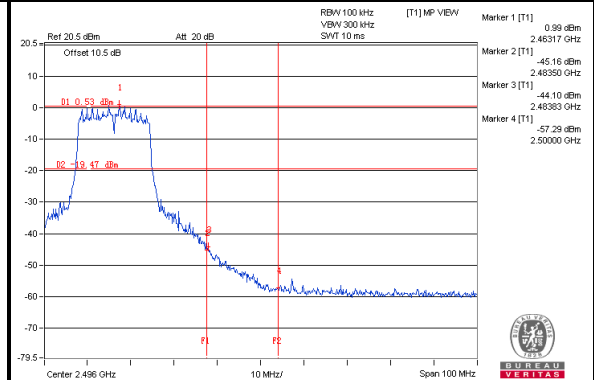
Test Report No.: RF150813N009-2

802.11n (20MHz)

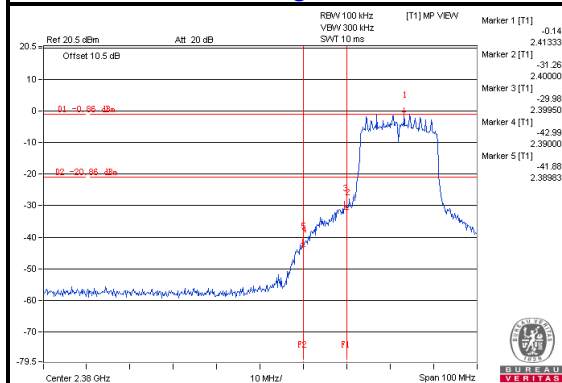
CHAIN0 CH 1 Band edge



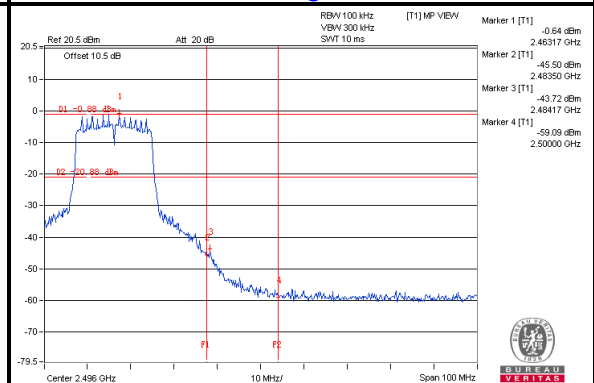
CHAIN0 CH 11 Band edge



CHAIN1 CH 1 Band edge



CHAIN1 CH 11 Band edge



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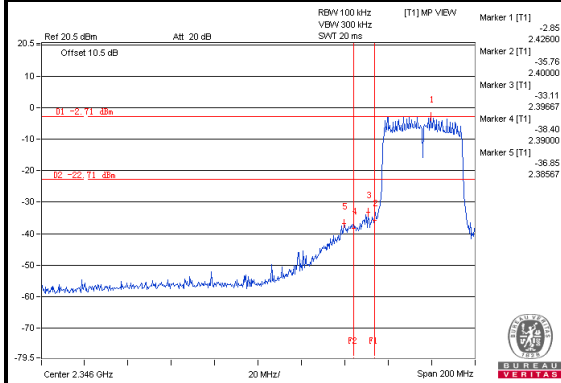


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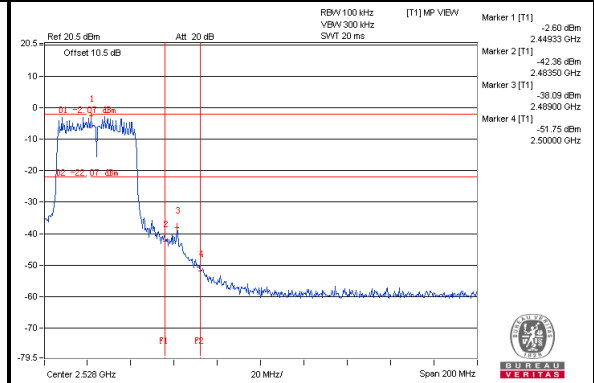
Test Report No.: RF150813N009-2

802.11n (40MHz)

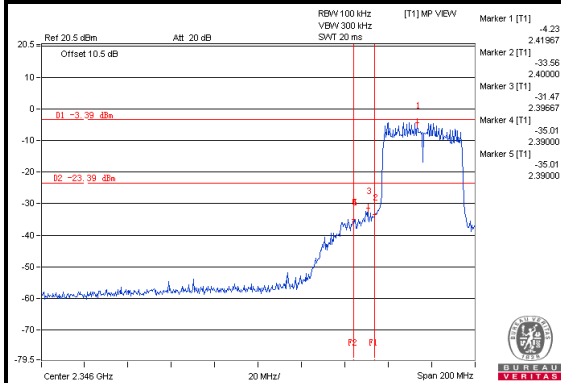
CHAIN0 CH 3 Band edge



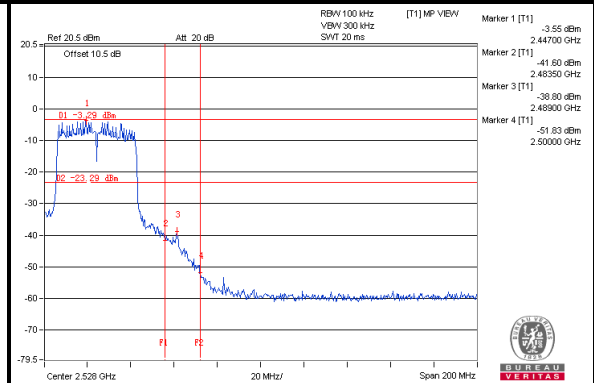
CHAIN0 CH 9 Band edge



CHAIN1 CH 3 Band edge

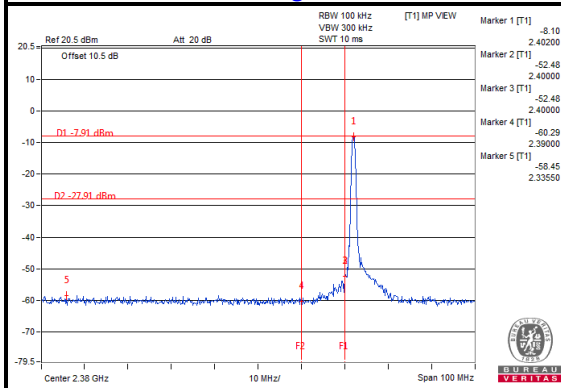


CHAIN1 CH 9 Band edge

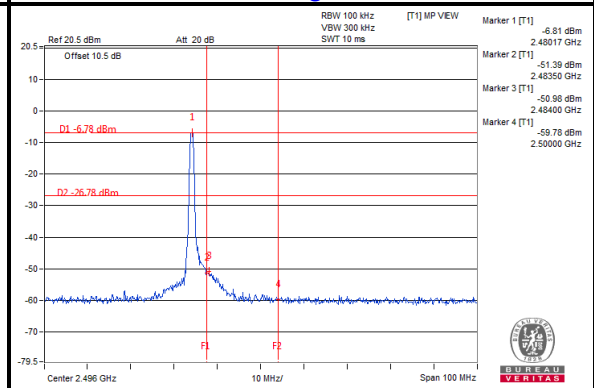


BT-LE (GFSK)

CHAIN2 CH 0 Band edge



CHAIN2 CH 39 Band edge





Test Report No.: RF150813N009-2

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---