Test Lab
Cert 2951.01

FCC TEST REPORT

(WIFI + BT LE)

Product:	LTE Smartphone
Model No.:	Ex-Handy 09
FCC ID:	XAM500055GR01
Applicant:	ecom instruments GmbH
Address:	Industriestraße. 2, 97959 Assamstadt, Germany
Manufacturer:	ecom instruments GmbH
Address:	Industriestraße. 2, 97959 Assamstadt, Germany
Prepared by:	Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch
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Report No.:	RF140812N017-7
Received Date:	Aug. 12, 2014
Test Date:	Aug. 12, 2014 ~ Oct. 12, 2014
Issued Date:	Oct. 15, 2014

This report should not be used by the client to claim product certification, approval, or endorsement by A2LA or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140812N017- 7	Original release	Oct. 15, 2014

1 CERTIFICATION

PRODUCT:	LTE Smartphone
BRAND:	ecom MOBILE SAFETY
MODEL NO.:	Ex-Handy 09
APPLICANT:	ecom instruments GmbH
TESTED:	Aug. 12, 2014 ~ Oct. 12, 2014
TEST SAMPLE:	Identical Prototype
STANDARDS:	**FCC Part 15, Subpart C. Section 15.247** ANSI C63.10-2009

The above equipment has been tested by **Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** Oct. 15, 2014
(Yuqiang Yin / Engineer)

APPROVED BY : _____ , **DATE:** Oct. 15, 2014
(Glyn He / Supervisor)

2 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. Minimum passing margin is -13.30dB at 0.62311MHz
15.205 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -5.4dB at 2400.00MHz
15.247(d)	Out of band Emission 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

2.1 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	1.94dB

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	LTE Smartphone
MODEL NO.	Ex-Handy 09
TYPE NUMBER	L12V011BB, L12V011AB, L13V011AB
NOMINAL VOLTAGE	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, polymer)
MODULATION TECHNOLOGY	DSSS, OFDM, DTS
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM BT-LE(GFSK) for DTS
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n: up to 135 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11b/g/n(HT40) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 73.28mW (Maximum) BT-LE: 1.87mW (Maximum)
ANTENNA TYPE	PIFA Antenna with 1.5dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	See note 3

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	Sonim
MODEL:	S11C02
NPUT:	AC 100-240V, 450mA
OUTPUT:	DC 5V, 2100mA

3. The EUT matched the following USB cable:

USB CABLE	
BRAND:	ecom MOBILE SAFETY
MODEL:	Safety Box SB S01
SIGNAL LINE:	1.1 METER

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

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

5. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

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):

CHANNEL	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 Y 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	
-	√	√	√	√	-

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.

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	CCK	DBPSK	1.0
BT-LE	0 to 39	39	DTS	GFSK	1

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.

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

POWER LINE CONDUCTED EMISSION TEST:

The EUT was tested with the following mode

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

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3, 9	OFDM	BPSK	13.5
BT-LE	0 to 39	0, 39	DTS	GFSK	1

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3,6, 9	OFDM	BPSK	13.5
BT-LE	0 to 39	0, 19, 39	DTS	GFSK	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	22deg. C, 54%RH	DC 5V from adaptor	Blue Zheng
RE≥1G	22deg. C, 54%RH	DC 5V from adaptor	Blue Zheng
PLC	25deg. C, 60%RH	DC 5V from adaptor	Yuqiang Yin
APCM	25deg. C, 60%RH	DC 3.7V from battery	Yuqiang Yin

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

Note：

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Verification). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A
2	PC	HP	A6608CN	3CR83825X3	N/A
3	Earphone	Minami	ME-816B5-E	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m
2	AC Line: Unshielded, Detachable 1.5m
3	DC Line: Unshielded, Detachable 1.2m

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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	101418	Mar. 28,14	Mar. 27,15
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 14,14	May 13,15
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 14,14	May 13,15
Test software	ADT	ADT_Cond_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.

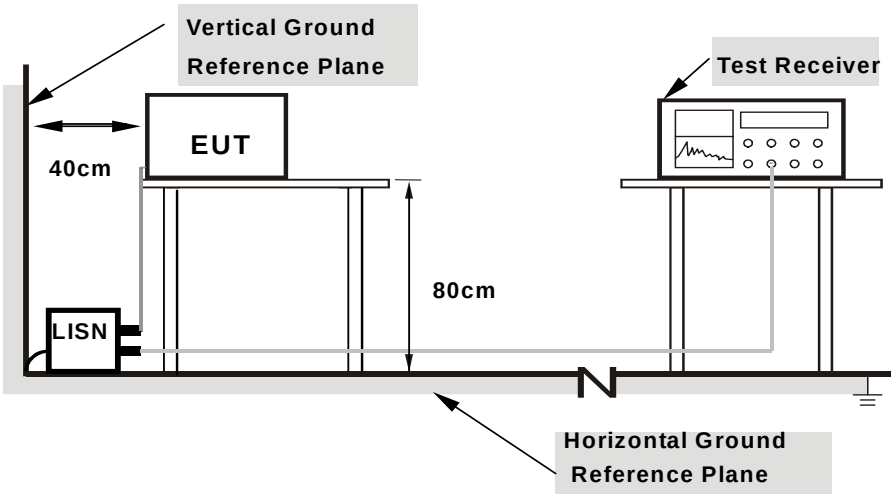
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

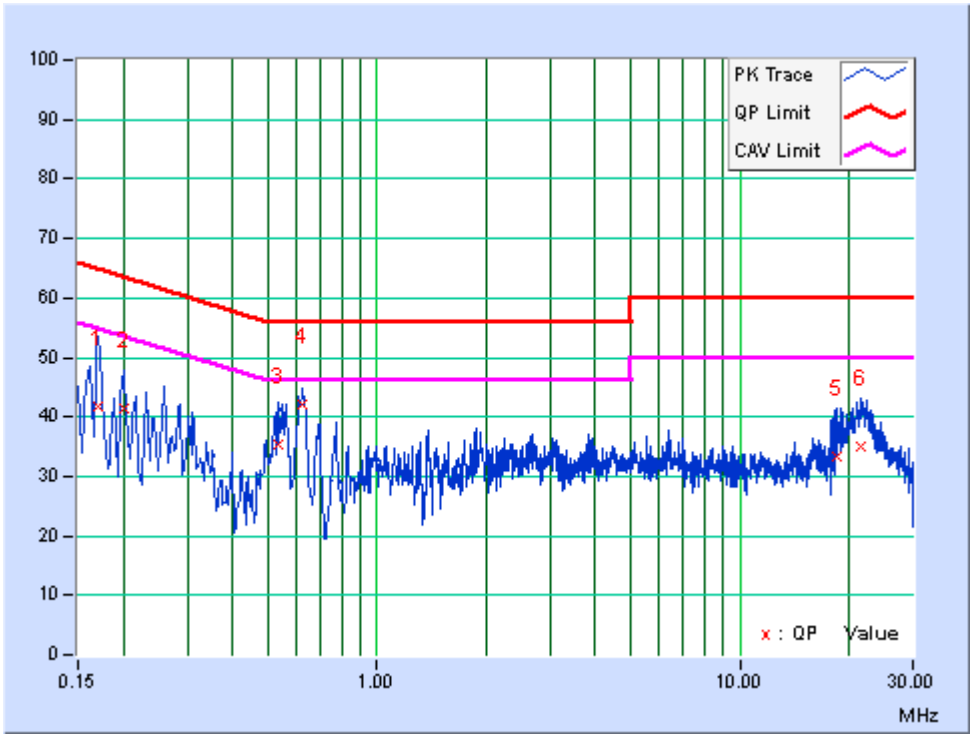
a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.1.7 TEST RESULTS

PHASE	Line	6dB BANDWIDTH	9kHz

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	0.16955	10.75	31.04	14.33	41.79	25.08	64.98	54.98	-23.19	-29.90
2	0.20084	10.63	30.67	14.99	41.30	25.62	63.58	53.58	-22.28	-27.96
3	0.53709	10.53	24.91	14.56	35.44	25.09	56.00	46.00	-20.56	-20.91
4	**0.62311**	**10.48**	**31.48**	**22.22**	**41.96**	**32.70**	**56.00**	**46.00**	**-14.04**	**-13.30**
5	18.42925	10.71	22.65	6.99	33.36	17.70	60.00	50.00	-26.64	-32.30
6	21.61981	10.97	23.92	13.48	34.89	24.45	60.00	50.00	-25.11	-25.55

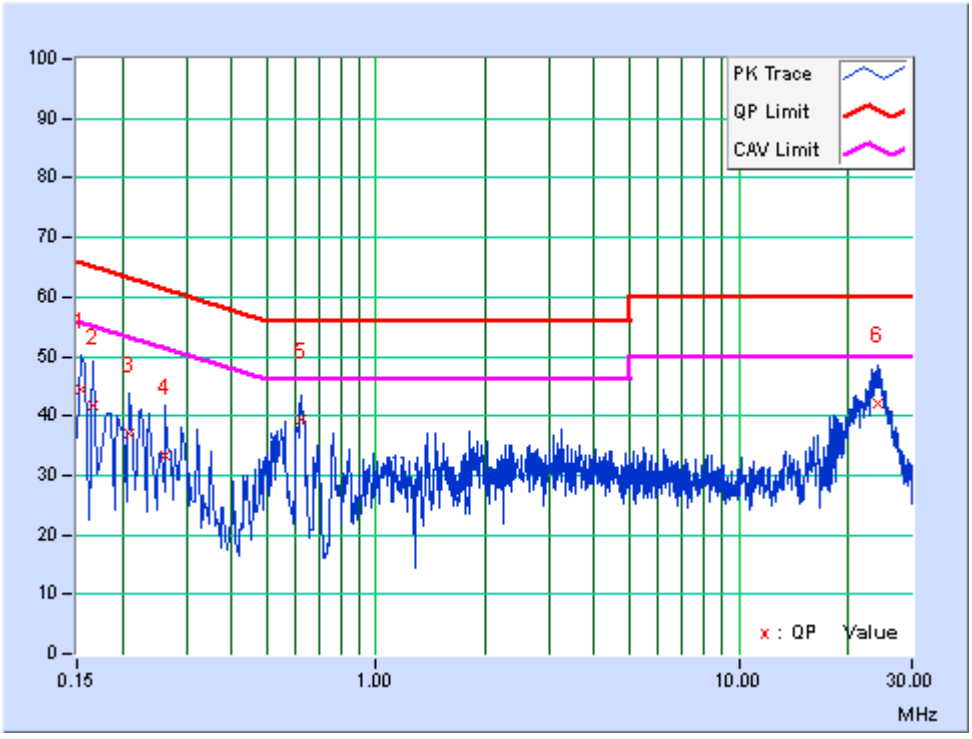
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral	6dB BANDWIDTH	9kHz

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	0.15391	10.62	33.78	15.40	44.40	26.02	65.79	55.79	-21.38	-29.76
2	0.16569	10.60	31.24	11.87	41.84	22.47	65.17	55.17	-23.34	-32.71
3	0.20893	10.52	26.46	10.60	36.98	21.12	63.25	53.25	-26.27	-32.13
4	0.26339	10.52	22.71	8.41	33.23	18.93	61.32	51.32	-28.10	-32.40
5	0.6192	10.45	29.00	16.13	39.45	26.58	56.00	46.00	-16.55	-19.42
6	24.10657	11.05	31.16	15.13	42.21	26.18	60.00	50.00	-17.79	-23.82

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.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 29,14	Apr. 28,15
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	May 17,14	May 16,15
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Dec. 05,13	Dec. 04,14
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	27089	Jul. 27, 14	Jul. 26, 15
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 30,14	May 29,16
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Feb. 13,14	Feb. 12,17
Pre-Amplifier (9kHz~1GHz)	SONOMA	310D	186955	Mar. 05,14	Mar. 04,15
Signal Amplifier	Agilent	8447D	2944A10488	Jun. 25,14	Jun. 24,15
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 13,14	May 12,15
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,13	Nov. 03,14
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Jul. 27,14	Jul. 26, 15
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in 966 Chamber.
3. The FCC Site Registration No. is 502831.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 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.

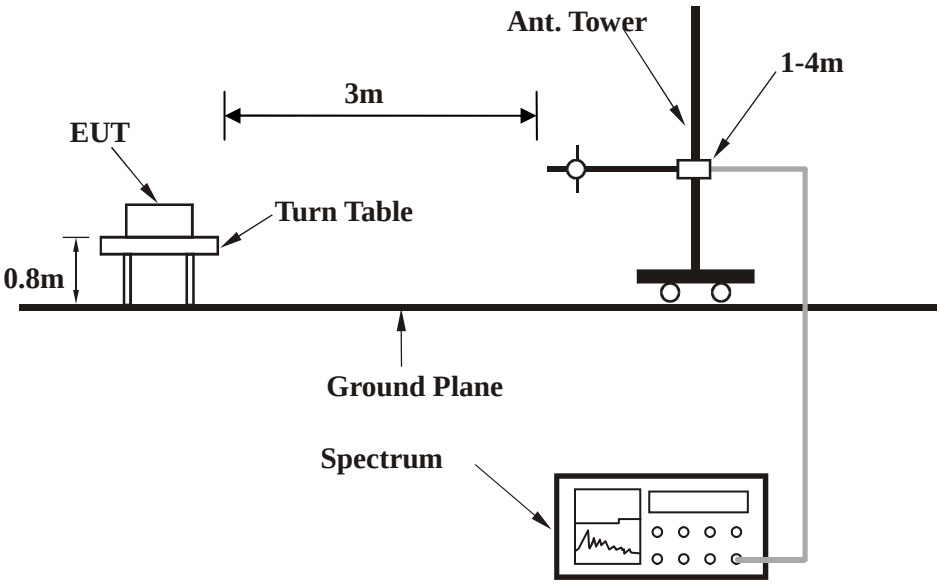
NOTE:

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

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

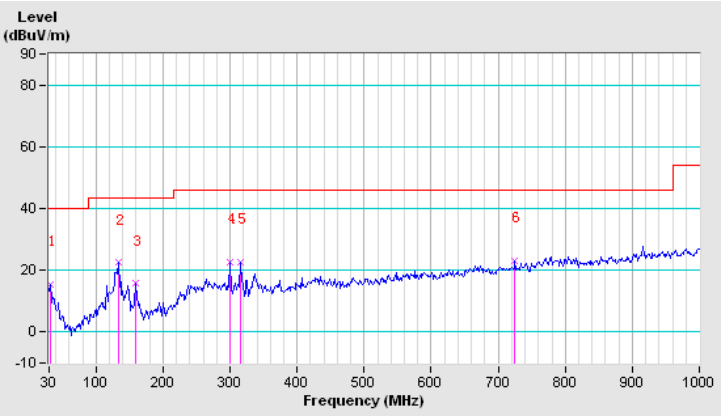
802.11b

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 (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	31.62	15.6 QP	40.0	-24.4	1.00 H	0	-3.27	18.83
2	133.47	22.5 QP	43.5	-21.0	1.00 H	0	8.70	13.78
3	159.33	15.7 QP	43.5	-27.8	1.00 H	0	2.51	13.17
4	299.98	22.8 QP	46.0	-23.3	1.00 H	0	6.37	16.38
5	316.15	22.8 QP	46.0	-23.3	1.00 H	0	5.77	16.98
6	725.17	23.0 QP	46.0	-23.0	1.00 H	0	-3.21	26.23

REMARKS:

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

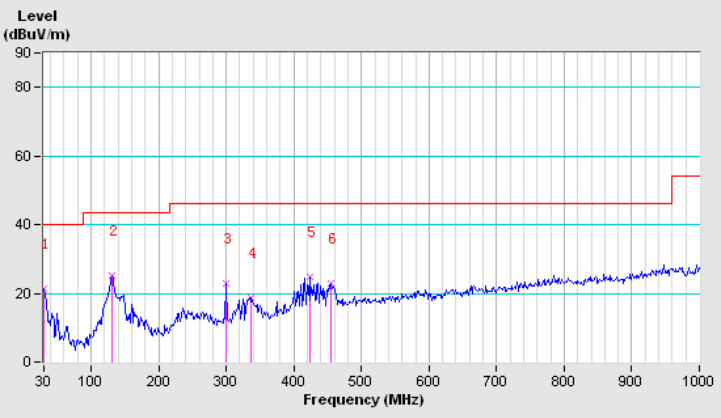


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	21.5 QP	40.0	-18.6	1.00 V	0	1.80	19.65
2	**130.23**	**25.2 QP**	**43.5**	**-18.3**	**1.00 V**	**0**	**11.28**	**13.95**
3	299.98	22.8 QP	46.0	-23.2	1.00 V	0	6.39	16.38
4	337.17	18.6 QP	46.0	-27.4	1.00 V	0	1.16	17.45
5	422.85	24.8 QP	46.0	-21.2	1.00 V	0	4.33	20.48
6	455.18	22.9 QP	46.0	-23.1	1.00 V	0	2.09	20.80

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.



ABOVE 1GHz DATA

802.11b

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

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	49.1 PK	74.0	-24.9	1.92 H	161	12.90	36.20
2	2390.00	36.5 AV	54.0	-17.5	1.92 H	161	0.30	36.20
3	#2400.00	63.5 PK	80.8	-17.3	1.92 H	161	27.29	36.21
4	#2400.00	51.6 AV	76.4	-24.8	1.92 H	161	15.39	36.21
5	*2412.00	100.8 PK			1.92 H	161	64.57	36.23
6	*2412.00	96.4 AV			1.92 H	161	60.17	36.23
7	4824.00	45.2 PK	74.0	-28.8	1.00 H	211	5.51	39.69
8	4824.00	30.4 AV	54.0	-23.6	1.00 H	211	-9.29	39.69
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	49.1 PK	74.0	-24.9	1.85 V	215	12.90	36.20
2	2390.00	35.6 AV	54.0	-18.4	1.85 V	215	-0.60	36.20
3	#2400.00	53.8 PK	71.6	-17.8	1.85 V	215	17.59	36.21
4	#2400.00	40.9 AV	66.1	-25.2	1.85 V	215	4.69	36.21
5	*2412.00	91.6 PK			1.85 V	215	55.37	36.23
6	*2412.00	86.1 AV			1.85 V	215	49.87	36.23
7	4824.00	45.7 PK	74.0	-28.3	1.00 V	129	6.01	39.69
8	4824.00	30.4 AV	54.0	-23.6	1.00 V	129	-9.29	39.69

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

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

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	102.8 PK			1.83 H	168	66.54	36.26
2	*2437.00	97.7 AV			1.83 H	168	61.44	36.26
3	4874.00	44.6 PK	74.0	-29.4	1.00 H	332	4.90	39.70
4	4874.00	30.1 AV	54.0	-23.9	1.00 H	332	-9.60	39.70
5	7311.00	48.9 PK	74.0	-25.1	1.00 H	256	5.74	43.16
6	7311.00	34.9 AV	54.0	-19.1	1.00 H	256	-8.26	43.16
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	94.2 PK			2.22 V	258	57.94	36.26
2	*2437.00	89.4 AV			2.22 V	258	53.14	36.26
3	4874.00	46.2 PK	74.0	-27.8	1.81 V	123	6.50	39.70
4	4874.00	30.2 AV	54.0	-23.8	1.81 V	123	-9.50	39.70
5	7311.00	49.0 PK	74.0	-25.0	1.00 V	360	5.84	43.16
6	7311.00	34.9 AV	54.0	-19.1	1.00 V	360	-8.26	43.16

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 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	104.7 PK			1.89 H	168	68.40	36.30
2	*2462.00	99.8 AV			1.89 H	168	63.50	36.30
3	2483.50	54.1 PK	74.0	-19.9	1.89 H	168	17.77	36.33
4	2483.50	40.8 AV	54.0	-13.2	1.89 H	168	4.47	36.33
5	4924.00	44.2 PK	74.0	-29.8	1.77 H	218	4.49	39.71
6	4924.00	30.1 AV	54.0	-23.9	1.77 H	218	-9.61	39.71
7	7386.00	47.6 PK	74.0	-26.4	1.00 H	360	4.50	43.10
8	7386.00	34.6 AV	54.0	-19.4	1.00 H	360	-8.50	43.10
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	96.2 PK			1.00 V	260	59.90	36.30
2	*2462.00	91.3 AV			1.00 V	260	55.00	36.30
3	2483.50	49.0 PK	74.0	-25.0	1.00 V	260	12.67	36.33
4	2483.50	36.2 AV	54.0	-17.8	1.00 V	260	-0.13	36.33
5	4924.00	43.5 PK	74.0	-30.5	1.66 V	198	3.79	39.71
6	4924.00	30.2 AV	54.0	-23.8	1.66 V	198	-9.51	39.71
7	7386.00	47.8 PK	74.0	-26.2	1.00 V	360	4.70	43.10
8	7386.00	34.7 AV	54.0	-19.3	1.00 V	360	-8.40	43.10

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.
5. " * ": Fundamental frequency.

802.11g

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

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	56.4 PK	74.0	-17.6	1.92 H	162	20.20	36.20
2	2390.00	37.4 AV	54.0	-16.6	1.92 H	162	1.20	36.20
3	#2400.00	71.0 PK	79.4	-8.4	1.92 H	162	34.79	36.21
4	#2400.00	48.3 AV	60.7	-12.4	1.92 H	162	12.09	36.21
5	*2412.00	99.4 PK			1.92 H	162	63.17	36.23
6	*2412.00	80.7 AV			1.92 H	162	44.47	36.23
7	4824.00	44.3 PK	74.0	-29.7	1.00 H	313	4.61	39.69
8	4824.00	29.8 AV	54.0	-24.2	1.00 H	313	-9.89	39.69
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	49.7 PK	74.0	-24.3	1.87 V	257	13.50	36.20
2	2390.00	35.9 AV	54.0	-18.1	1.87 V	257	-0.30	36.20
3	#2400.00	65.3 PK	71.9	-6.6	1.87 V	257	29.09	36.21
4	#2400.00	42.7 AV	54.5	-11.8	1.87 V	257	6.49	36.21
5	*2412.00	91.9 PK			1.87 V	257	55.67	36.23
6	*2412.00	74.5 AV			1.87 V	257	38.27	36.23
7	4824.00	44.6 PK	74.0	-29.4	1.00 V	288	4.91	39.69
8	4824.00	29.9 AV	54.0	-24.1	1.00 V	288	-9.79	39.69

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.4 PK			1.88 H	177	65.14	36.26
2	*2437.00	82.4 AV			1.88 H	177	46.14	36.26
3	4874.00	44.5 PK	74.0	-29.5	1.76 H	166	4.80	39.70
4	4874.00	30.1 AV	54.0	-23.9	1.76 H	166	-9.60	39.70
5	7311.00	48.3 PK	74.0	-25.7	1.00 H	360	5.14	43.16
6	7311.00	34.2 AV	54.0	-19.8	1.00 H	360	-8.96	43.16
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	92.4 PK			2.22 V	253	56.14	36.26
2	*2437.00	75.0 AV			2.22 V	253	38.74	36.26
3	4874.00	43.9 PK	74.0	-30.1	1.56 V	213	4.20	39.70
4	4874.00	30.0 AV	54.0	-24.0	1.56 V	213	-9.70	39.70
5	7311.00	48.5 PK	74.0	-25.5	1.00 V	0	5.34	43.16
6	7311.00	34.7 AV	54.0	-19.3	1.00 V	0	-8.46	43.16

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 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.7 PK			1.87 H	170	65.40	36.30
2	*2462.00	83.5 AV			1.87 H	170	47.20	36.30
3	2483.50	66.3 PK	74.0	-7.7	1.87 H	170	29.97	36.33
4	2483.50	44.3 AV	54.0	-9.7	1.87 H	170	7.97	36.33
5	4924.00	44.5 PK	74.0	-29.5	1.55 H	214	4.79	39.71
6	4924.00	30.3 AV	54.0	-23.7	1.55 H	214	-9.41	39.71
7	7386.00	48.6 PK	74.0	-25.4	1.74 H	168	5.50	43.10
8	7386.00	35.1 AV	54.0	-18.9	1.74 H	168	-8.00	43.10
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	93.5 PK			1.85 V	256	57.20	36.30
2	*2462.00	76.0 AV			1.85 V	256	39.70	36.30
3	2483.50	56.9 PK	74.0	-17.1	1.85 V	256	20.57	36.33
4	2483.50	37.3 AV	54.0	-16.7	1.85 V	256	0.97	36.33
5	4924.00	43.8 PK	74.0	-30.2	1.77 V	288	4.09	39.71
6	4924.00	30.3 AV	54.0	-23.7	1.77 V	288	-9.41	39.71
7	7386.00	49.0 PK	74.0	-25.0	1.00 V	360	5.90	43.10
8	7386.00	35.1 AV	54.0	-18.9	1.00 V	360	-8.00	43.10

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.
5. " * ": Fundamental frequency.

802.11n (20MHz)

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

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	58.0 PK	74.0	-16.0	1.91 H	175	21.80	36.20
2	2390.00	38.3 AV	54.0	-15.7	1.91 H	175	2.10	36.20
3	#2400.00	72.6 PK	78.7	-6.1	1.91 H	175	36.39	36.21
4	#2400.00	48.3 AV	60.4	-12.1	1.91 H	175	12.09	36.21
5	*2412.00	98.7 PK			1.91 H	175	62.47	36.23
6	*2412.00	80.4 AV			1.91 H	175	44.17	36.23
7	4824.00	44.1 PK	74.0	-29.9	1.68 H	193	4.41	39.69
8	4824.00	29.9 AV	54.0	-24.1	1.68 H	193	-9.79	39.69
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	51.0 PK	74.0	-23.0	1.87 V	254	14.80	36.20
2	2390.00	36.1 AV	54.0	-17.9	1.87 V	254	-0.10	36.20
3	#2400.00	64.4 PK	70.5	-6.1	1.87 V	254	28.19	36.21
4	#2400.00	42.8 AV	53.0	-10.2	1.87 V	254	6.59	36.21
5	*2412.00	90.5 PK			1.87 V	254	54.27	36.23
6	*2412.00	73.0 AV			1.87 V	254	36.77	36.23
7	4824.00	44.5 PK	74.0	-29.5	1.65 V	198	4.81	39.69
8	4824.00	30.1 AV	54.0	-23.9	1.65 V	198	-9.59	39.69

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.5 PK			1.88 H	175	63.24	36.26
2	*2437.00	81.3 AV			1.88 H	175	45.04	36.26
3	4874.00	44.5 PK	74.0	-29.5	1.99 H	215	4.80	39.70
4	4874.00	30.4 AV	54.0	-23.6	1.99 H	215	-9.30	39.70
5	7311.00	48.0 PK	74.0	-26.0	1.00 H	0	4.84	43.16
6	7311.00	35.1 AV	54.0	-18.9	1.00 H	0	-8.06	43.16
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	92.1 PK			2.20 V	253	55.84	36.26
2	*2437.00	74.6 AV			2.20 V	253	38.34	36.26
3	4874.00	44.3 PK	74.0	-29.7	1.98 V	212	4.60	39.70
4	4874.00	29.9 AV	54.0	-24.1	1.98 V	212	-9.80	39.70
5	7311.00	48.0 PK	74.0	-26.0	1.00 V	360	4.84	43.16
6	7311.00	35.3 AV	54.0	-18.7	1.00 V	360	-7.86	43.16

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 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.4 PK			1.90 H	176	65.10	36.30
2	*2462.00	82.4 AV			1.90 H	176	46.10	36.30
3	2483.50	63.3 PK	74.0	-10.7	1.90 H	176	26.97	36.33
4	2483.50	45.1 AV	54.0	-8.9	1.90 H	176	8.77	36.33
5	4924.00	44.8 PK	74.0	-29.2	1.88 H	198	5.09	39.71
6	4924.00	30.7 AV	54.0	-23.3	1.88 H	198	-9.01	39.71
7	7386.00	48.1 PK	74.0	-25.9	1.00 H	360	5.00	43.10
8	7386.00	35.2 AV	54.0	-18.8	1.00 H	360	-7.90	43.10
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	92.3 PK			1.87 V	259	56.00	36.30
2	*2462.00	74.9 AV			1.87 V	259	38.60	36.30
3	2483.50	54.2 PK	74.0	-19.8	1.87 V	259	17.87	36.33
4	2483.50	37.0 AV	54.0	-17.0	1.87 V	259	0.67	36.33
5	4924.00	44.7 PK	74.0	-29.3	1.65 V	210	4.99	39.71
6	4924.00	30.2 AV	54.0	-23.8	1.65 V	210	-9.51	39.71
7	7386.00	48.4 PK	74.0	-25.6	1.00 V	0	5.30	43.10
8	7386.00	34.7 AV	54.0	-19.3	1.00 V	0	-8.40	43.10

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.
5. " * ": Fundamental frequency.

802.11n (40MHz)

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

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	55.5 PK	74.0	-18.5	1.86 H	186	19.30	36.20
2	2390.00	38.0 AV	54.0	-16.0	1.86 H	186	1.80	36.20
3	**#2400.00**	**70.5 PK**	**75.9**	**-5.4**	**1.86 H**	**186**	**34.29**	**36.21**
4	#2400.00	43.6 AV	52.1	-8.5	1.86 H	186	7.39	36.21
5	*2422.00	95.9 PK			1.86 H	186	59.66	36.24
6	*2422.00	72.1 AV			1.86 H	186	35.86	36.24
7	4844.00	44.4 PK	74.0	-29.6	1.55 H	231	4.71	39.69
8	4844.00	30.4 AV	54.0	-23.6	1.55 H	231	-9.29	39.69
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	49.7 PK	74.0	-24.3	1.86 V	281	13.50	36.20
2	2390.00	35.7 AV	54.0	-18.3	1.86 V	281	-0.50	36.20
3	#2400.00	58.5 PK	67.1	-8.6	1.86 V	281	22.29	36.21
4	#2400.00	37.7 AV	45.3	-7.6	1.86 V	281	1.49	36.21
5	*2422.00	87.1 PK			1.86 V	281	50.86	36.24
6	*2422.00	65.3 AV			1.86 V	281	29.06	36.24
7	4844.00	44.6 PK	74.0	-29.4	1.98 V	249	4.91	39.69
8	4844.00	30.3 AV	54.0	-23.7	1.98 V	249	-9.39	39.69

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

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

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	96.7 PK			1.89 H	177	60.44	36.26
2	*2437.00	72.7 AV			1.89 H	177	36.44	36.26
3	4874.00	43.0 PK	74.0	-31.0	1.68 H	198	3.30	39.70
4	4874.00	29.9 AV	54.0	-24.1	1.68 H	198	-9.80	39.70
5	7311.00	48.6 PK	74.0	-25.4	1.00 H	360	5.44	43.16
6	7311.00	35.0 AV	54.0	-19.0	1.00 H	360	-8.16	43.16
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	88.8 PK			2.21 V	256	52.54	36.26
2	*2437.00	66.4 AV			2.21 V	256	30.14	36.26
3	4874.00	44.1 PK	74.0	-29.9	2.12 V	267	4.40	39.70
4	4874.00	29.9 AV	54.0	-24.1	2.12 V	267	-9.80	39.70
5	7311.00	48.2 PK	74.0	-25.8	1.00 V	360	5.04	43.16
6	7311.00	34.9 AV	54.0	-19.1	1.00 V	360	-8.26	43.16

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 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	98.5 PK			1.85 H	175	62.22	36.28
2	*2452.00	75.0 AV			1.85 H	175	38.72	36.28
3	2483.50	66.5 PK	74.0	-7.5	1.85 H	175	30.17	36.33
4	2483.50	47.9 AV	54.0	-6.1	1.85 H	175	11.57	36.33
5	4904.00	44.3 PK	74.0	-29.7	1.78 H	188	4.60	39.70
6	4904.00	30.5 AV	54.0	-23.5	1.78 H	188	-9.20	39.70
7	7356.00	48.6 PK	74.0	-25.4	1.00 H	360	5.47	43.13
8	7356.00	35.4 AV	54.0	-18.6	1.00 H	360	-7.73	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	89.8 PK			2.20 V	259	53.52	36.28
2	*2452.00	68.0 AV			2.20 V	259	31.72	36.28
3	2483.50	57.7 PK	74.0	-16.3	2.20 V	259	21.37	36.33
4	2483.50	41.4 AV	54.0	-12.6	2.20 V	259	5.07	36.33
5	4904.00	44.7 PK	74.0	-29.3	2.10 V	289	5.00	39.70
6	4904.00	30.5 AV	54.0	-23.5	2.10 V	289	-9.20	39.70
7	7356.00	48.3 PK	74.0	-25.7	1.00 V	360	5.17	43.13
8	7356.00	35.4 AV	54.0	-18.6	1.00 V	360	-7.73	43.13

REMARKS:

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

BELOW 1GHz WORST-CASE DATA:

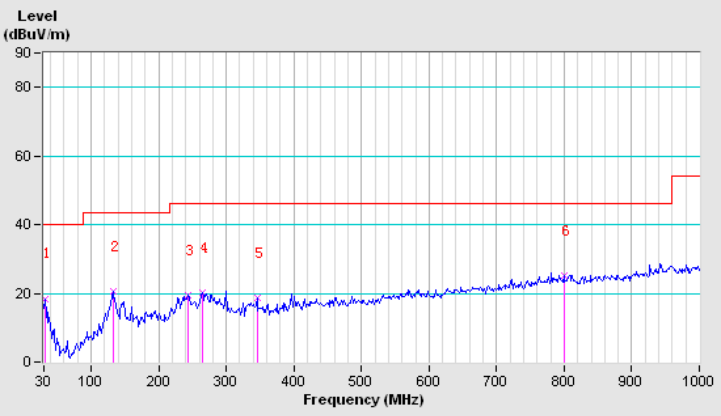
BT-LE (GFSK)

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 (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	31.62	18.5 QP	40.0	-21.5	1.00 H	225	-0.36	18.83
2	131.85	20.6 QP	43.5	-22.9	1.00 H	244	6.75	13.86
3	243.40	19.6 QP	46.0	-26.4	1.00 H	206	5.86	13.71
4	264.42	20.3 QP	46.0	-25.7	1.00 H	179	4.44	15.84
5	345.25	18.8 QP	46.0	-27.2	1.00 H	194	0.77	18.03
6	799.53	25.3 QP	46.0	-20.7	1.00 H	163	-2.26	27.55

REMARKS:

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

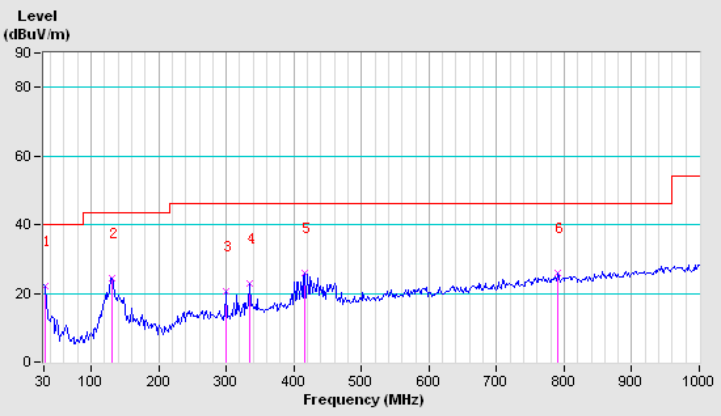


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**31.62**	**22.2 QP**	**40.0**	**-17.8**	**1.00 V**	**257**	**3.37**	**18.83**
2	130.23	24.5 QP	43.5	-19.0	1.00 V	244	10.52	13.95
3	299.98	20.5 QP	46.0	-25.6	1.00 V	295	4.07	16.38
4	333.93	22.8 QP	46.0	-23.2	1.00 V	272	5.47	17.31
5	416.38	26.0 QP	46.0	-20.0	1.00 V	283	5.60	20.42
6	791.45	25.8 QP	46.0	-20.2	1.00 V	308	-2.03	27.85

REMARKS:

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



ABOVE 1GHz 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	48.6 PK	74.0	-25.4	1.97 H	182	12.40	36.20
2	2390.00	36.2 AV	54.0	-17.8	1.97 H	182	0.00	36.20
3	#2400.00	60.8 PK	74.2	-13.4	1.97 H	182	24.59	36.21
4	#2400.00	44.2 AV	52.9	-8.7	1.97 H	182	7.99	36.21
5	*2402.00	94.2 PK			1.97 H	182	57.98	36.22
6	*2402.00	72.9 AV			1.97 H	182	36.68	36.22
7	4804.00	44.7 PK	74.0	-29.3	1.00 H	268	5.02	39.68
8	4804.00	30.4 AV	54.0	-23.6	1.00 H	268	-9.28	39.68
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	48.7 PK	74.0	-25.3	2.34 V	260	12.50	36.20
2	2390.00	36.1 AV	54.0	-17.9	2.34 V	260	-0.10	36.20
3	#2400.00	52.8 PK	64.7	-11.9	2.34 V	260	16.59	36.21
4	**#2400.00**	**39.7 AV**	**46.6**	**-6.9**	**2.34 V**	**260**	**3.49**	**36.21**
5	*2402.00	84.7 PK			2.34 V	260	48.48	36.22
6	*2402.00	66.6 AV			2.34 V	260	30.38	36.22
7	4804.00	44.1 PK	74.0	-29.9	1.00 V	261	4.42	39.68
8	4804.00	30.4 AV	54.0	-23.6	1.00 V	261	-9.28	39.68

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.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	*2440.00	94.4 PK			1.87 H	178	58.13	36.27
2	*2440.00	72.9 AV			1.87 H	178	36.63	36.27
3	4880.00	44.3 PK	74.0	-29.7	1.65 H	164	4.60	39.70
4	4880.00	29.8 AV	54.0	-24.2	1.65 H	164	-9.90	39.70
5	7320.00	48.6 PK	74.0	-25.4	1.00 H	360	5.44	43.16
6	7320.00	35.4 AV	54.0	-18.6	1.00 H	360	-7.76	43.16
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	*2440.00	85.1 PK			2.29 V	261	48.83	36.27
2	*2440.00	66.7 AV			2.29 V	261	30.43	36.27
3	4880.00	43.8 PK	74.0	-30.2	2.16 V	288	4.10	39.70
4	4880.00	29.9 AV	54.0	-24.1	2.16 V	288	-9.80	39.70
5	7320.00	48.9 PK	74.0	-25.1	1.00 V	360	5.74	43.16
6	7320.00	35.3 AV	54.0	-18.7	1.00 V	360	-7.86	43.16

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

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	94.2 PK			1.92 H	181	57.88	36.32
2	*2480.00	72.1 AV			1.92 H	181	35.78	36.32
3	2483.50	47.9 PK	74.0	-26.1	1.92 H	181	11.57	36.33
4	2483.50	35.4 AV	54.0	-18.6	1.92 H	181	-0.93	36.33
5	4960.00	43.0 PK	74.0	-31.0	1.68 H	195	3.29	39.71
6	4960.00	28.3 AV	54.0	-25.7	1.68 H	195	-11.41	39.71
7	7440.00	47.8 PK	74.0	-26.2	1.00 H	360	4.74	43.06
8	7440.00	34.3 AV	54.0	-19.7	1.00 H	360	-8.76	43.06
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	84.7 PK			2.21 V	260	48.38	36.32
2	*2480.00	66.1 AV			2.21 V	260	29.78	36.32
3	2483.50	47.8 PK	74.0	-26.2	2.21 V	260	11.47	36.33
4	2483.50	35.2 AV	54.0	-18.8	2.21 V	260	-1.13	36.33
5	4960.00	42.8 PK	74.0	-31.2	2.22 V	216	3.09	39.71
6	4960.00	28.3 AV	54.0	-25.7	2.22 V	216	-11.41	39.71
7	7440.00	47.7 PK	74.0	-26.3	1.00 V	360	4.64	43.06
8	7440.00	34.1 AV	54.0	-19.9	1.00 V	360	-8.96	43.06

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.
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 30,13	Oct. 29,14
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.04,14	Sep. 03,15
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 13	Oct. 16, 14
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 25,13	Nov. 24,14
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,13	Nov. 03,14
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Mar.14, 14	Mar.13, 15
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 04,14	Sep. 03,15

NOTE:

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

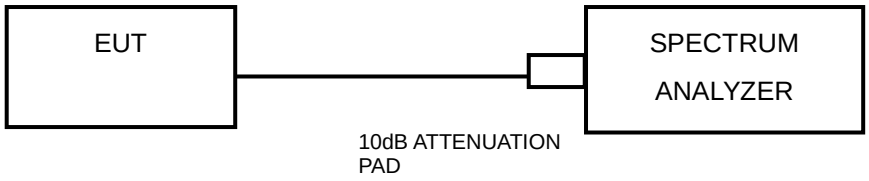
4.3.3 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) 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



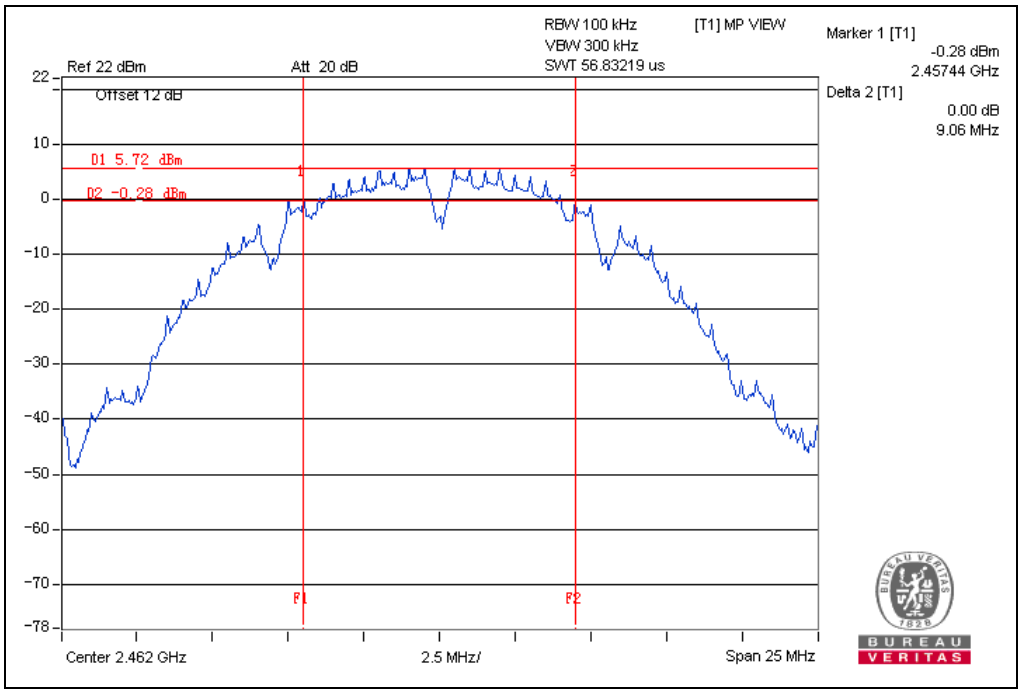
4.3.6 EUT OPERATING CONDITIONS

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

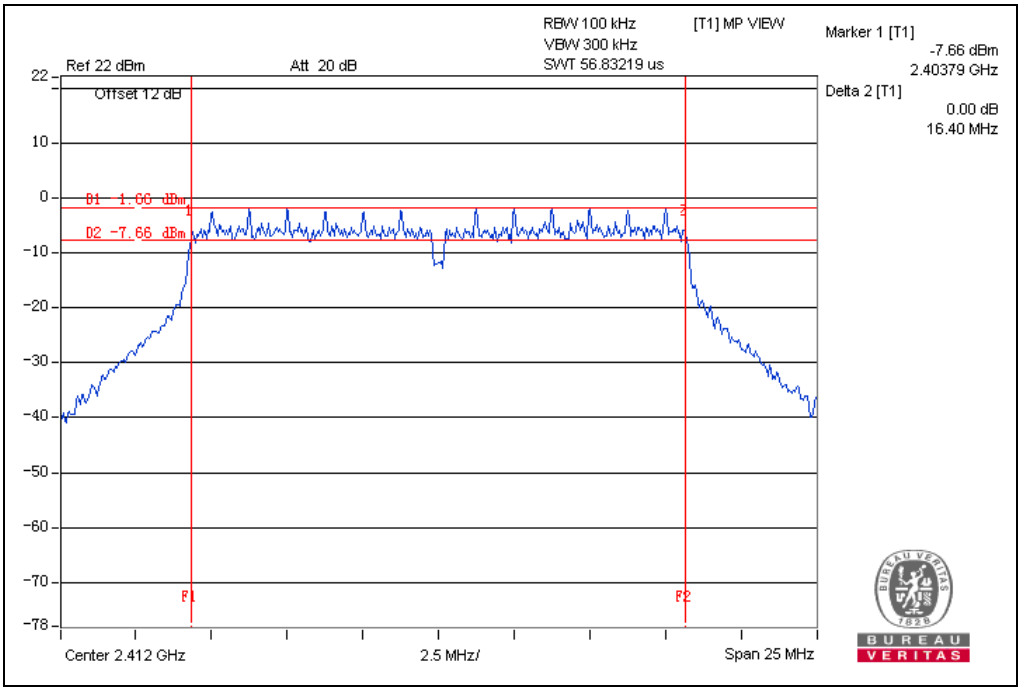
802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.56	0.5	PASS
6	2437	8.58	0.5	PASS
11	2462	9.06	0.5	PASS



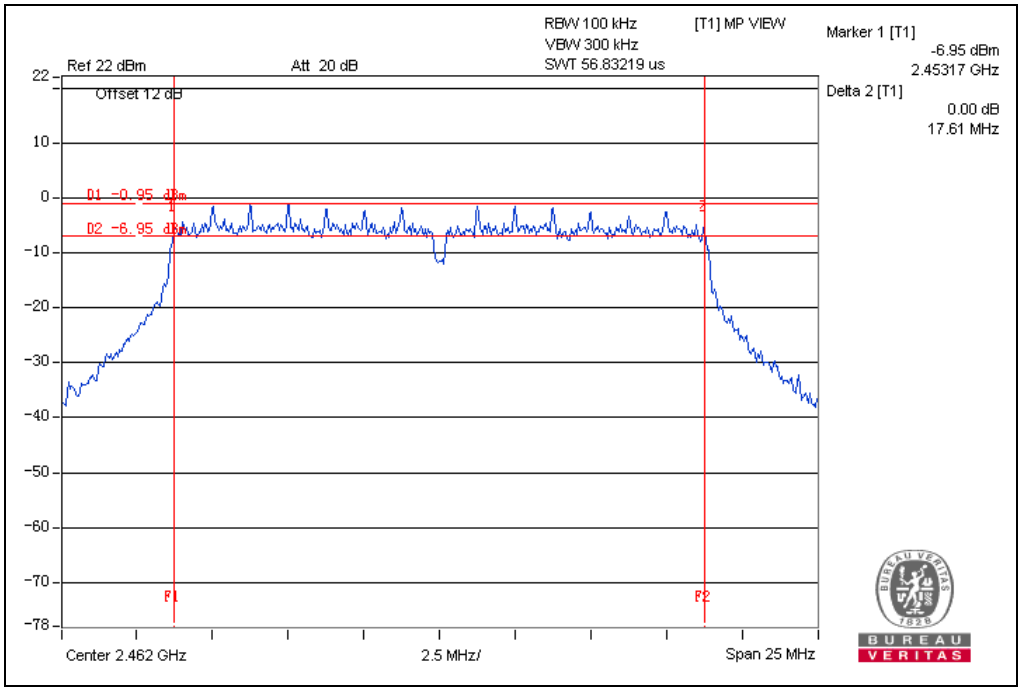
802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.40	0.5	PASS
6	2437	16.38	0.5	PASS
11	2462	16.38	0.5	PASS



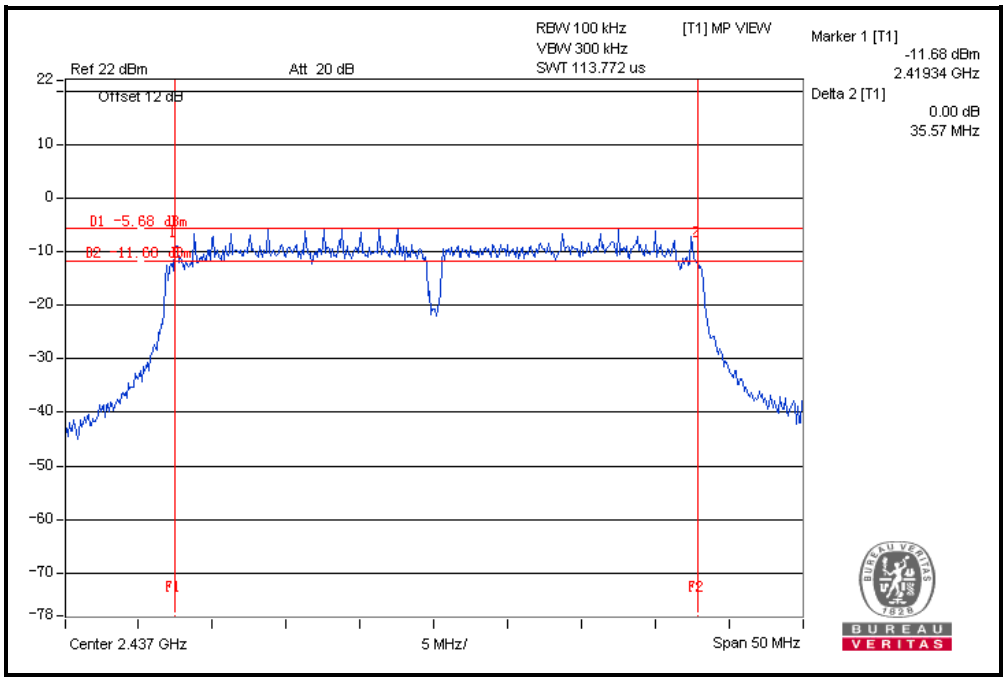
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.59	0.5	PASS
6	2437	17.58	0.5	PASS
11	2462	17.61	0.5	PASS



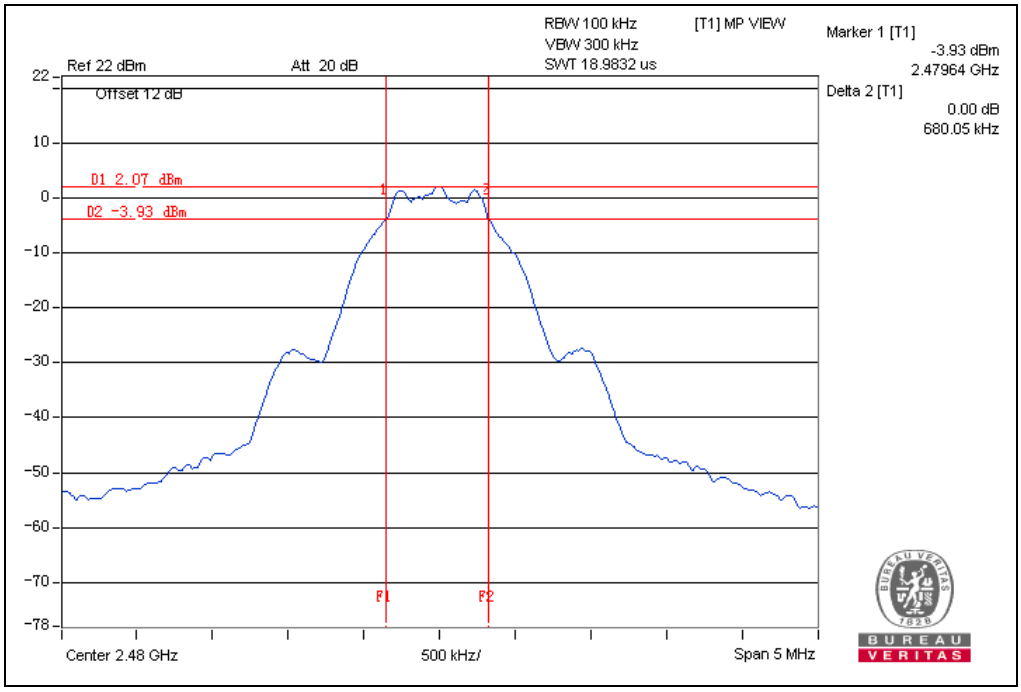
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.20	0.5	PASS
6	2437	35.57	0.5	PASS
9	2452	35.23	0.5	PASS



BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.67	0.5	PASS
19	2440	0.67	0.5	PASS
39	2480	0.68	0.5	PASS

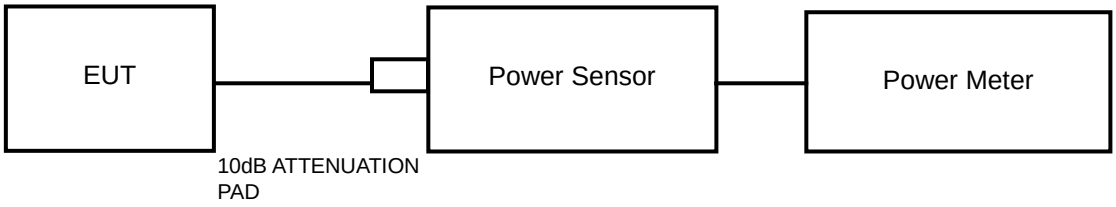


4.4 CONDUCTED OUTPUT POWER

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.
Spectrum Analyzer (9KHz–25GHz)	Agilent	E4446A	MY46180622	May 13,14	May 12,15
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 30, 13	Oct. 29, 14

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in Oven room.

4.4.4 TEST PROCEDURES

A 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.

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	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.65	58.210	1	PASS
6	2437	17.20	52.481	1	PASS
11	2462	17.19	52.360	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	18.65	**73.282**	1	PASS
6	2437	18.24	66.681	1	PASS
11	2462	18.06	63.973	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.42	55.208	1	PASS
6	2437	17.52	56.494	1	PASS
11	2462	17.32	53.951	1	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	17.20	52.481	1	PASS
6	2437	17.85	60.954	1	PASS
9	2452	17.65	58.210	1	PASS

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	2.72	**1.871**	1	PASS
19	2440	2.63	1.832	1	PASS
39	2480	2.30	1.698	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.

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	14.25	N/A
6	2437	14.28	N/A
11	2462	14.29	N/A

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	11.65	N/A
6	2437	11.25	N/A
11	2462	11.36	N/A

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	9.68	N/A
6	2437	9.86	N/A
11	2462	9.80	N/A

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
3	2422	9.23	N/A
6	2437	9.81	N/A
9	2452	9.85	N/A

BT-LE (GFSK)

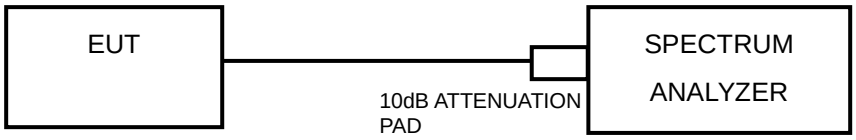
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
0	2402	-0.39	N/A
19	2440	0.69	N/A
39	2480	-1.01	N/A

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

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 100 kHz, VBW ≥ 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

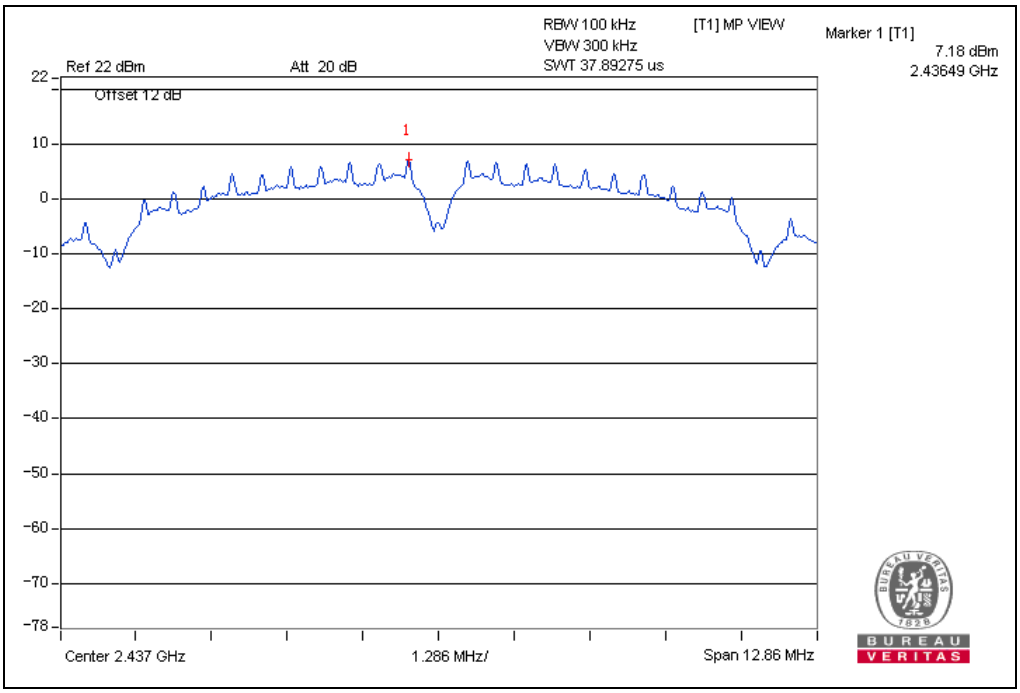
4.5.6 EUT OPERATING CONDITION

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

4.5.7 TEST RESULTS

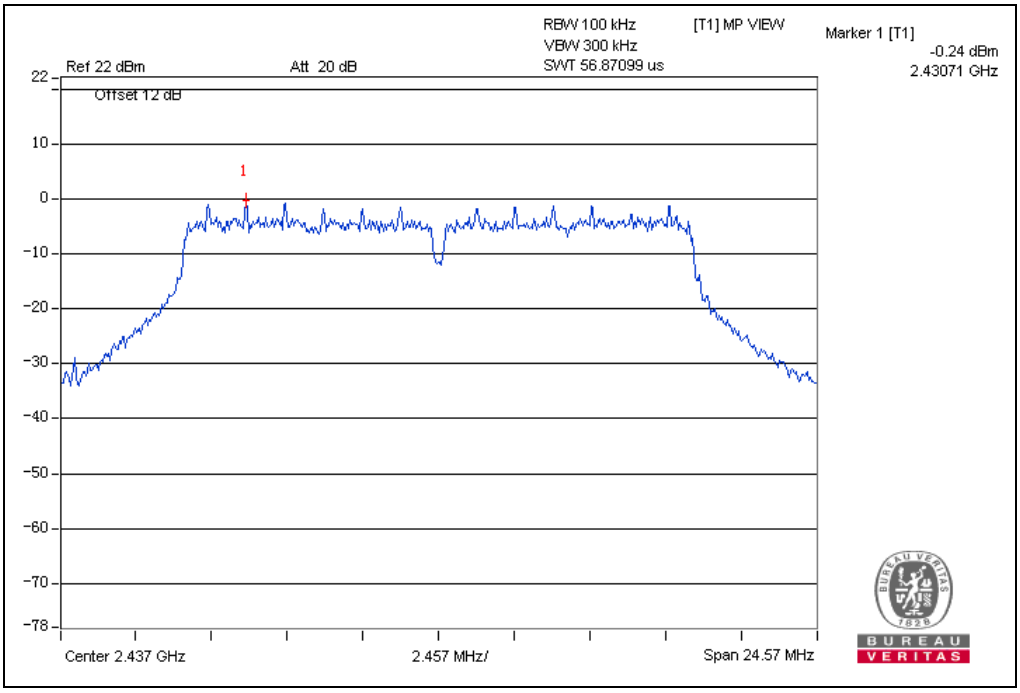
802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.51	8	PASS
6	2437	7.18	8	PASS
11	2462	6.98	8	PASS



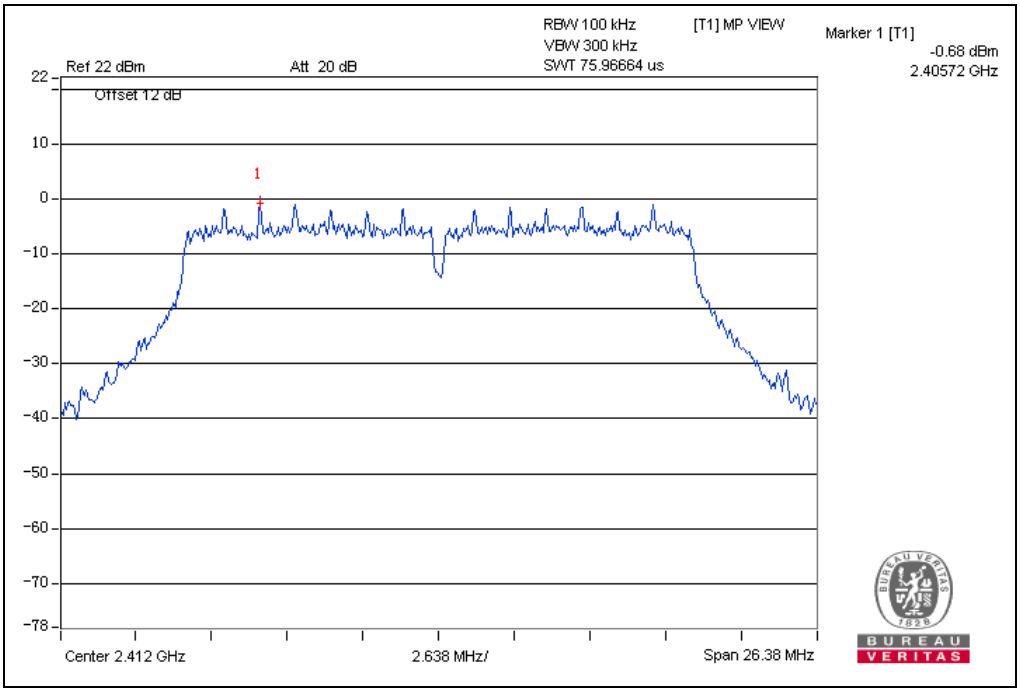
802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-1.06	8	PASS
6	2437	-0.24	8	PASS
11	2462	-0.85	8	PASS



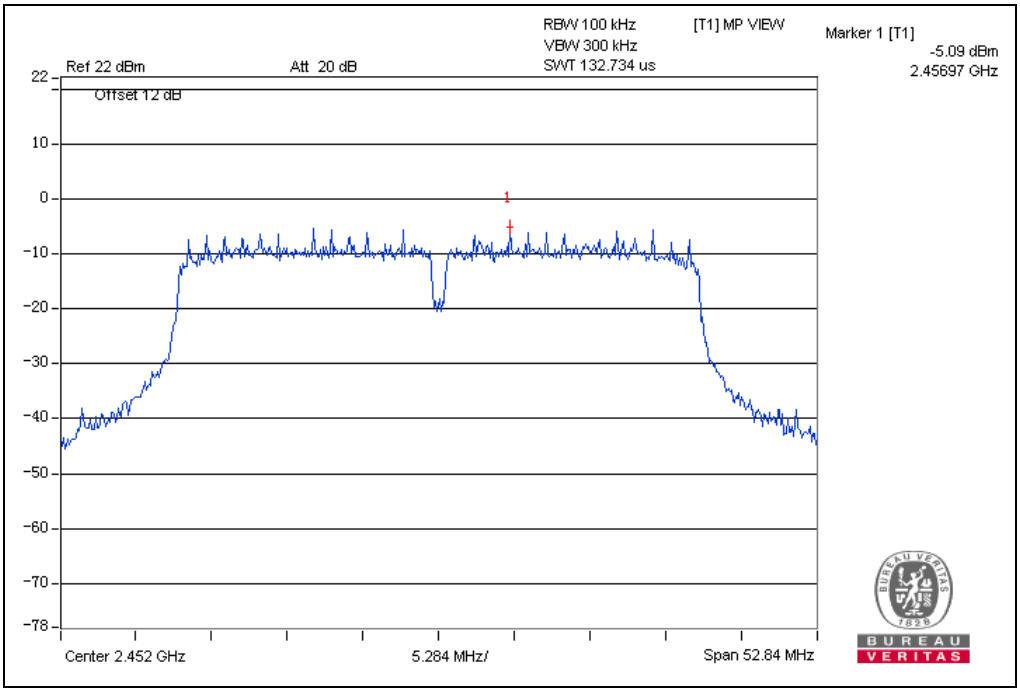
802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-0.68	8	PASS
6	2437	-1.36	8	PASS
11	2462	-0.73	8	PASS



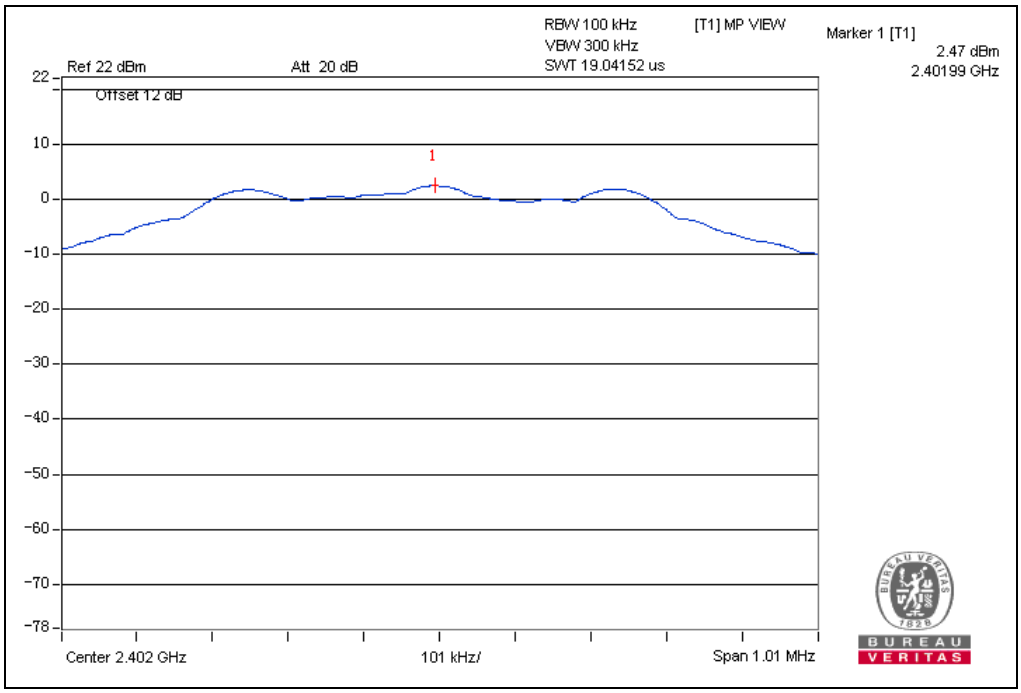
802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-5.99	8	PASS
6	2437	-5.29	8	PASS
9	2452	-5.09	8	PASS



BT-LE (GFSK)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	2.47	8	PASS
19	2440	2.39	8	PASS
39	2480	2.07	8	PASS

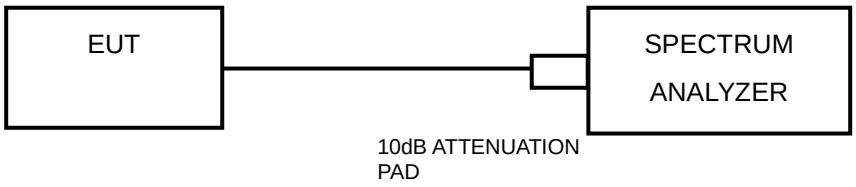


4.6 OUT OF BAND EMISSION MEASUREMENT

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 REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 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 OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 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

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

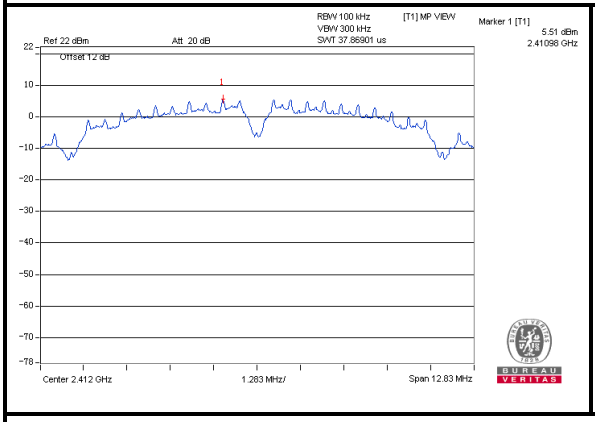
4.6.7 TEST RESULTS

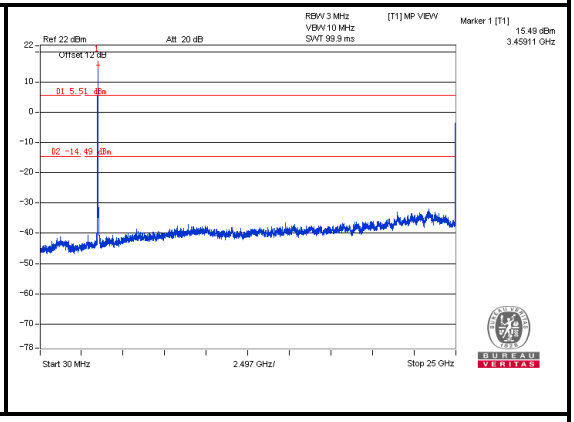
The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

4.6.8 TEST RESULTS

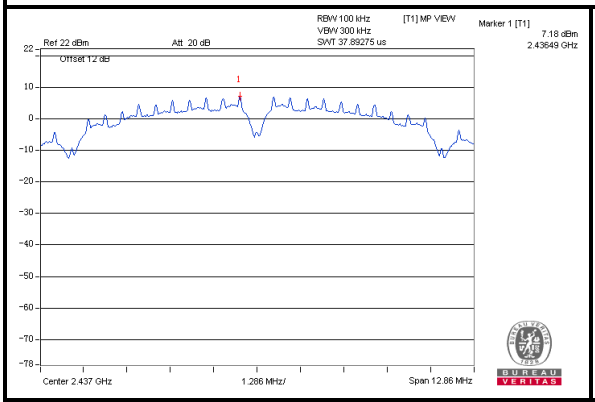
802.11b

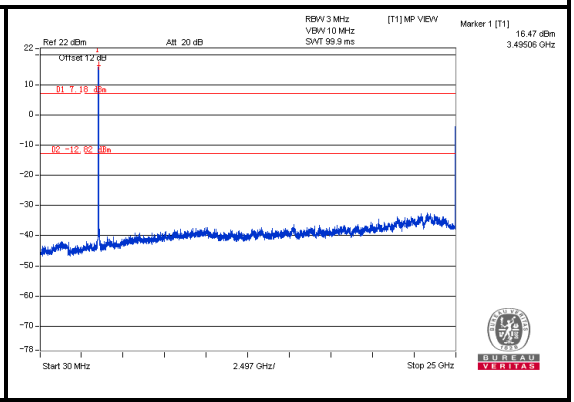
CH 1



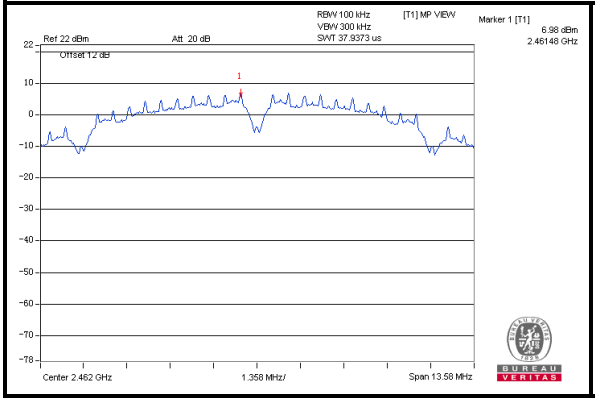


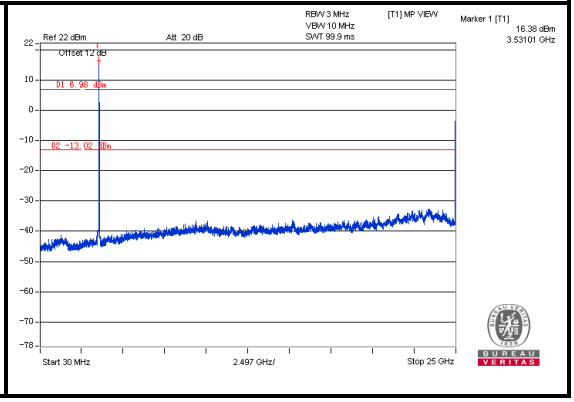
CH 6





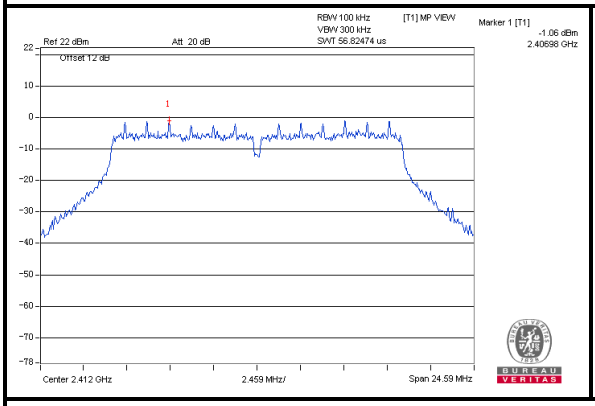
CH 11

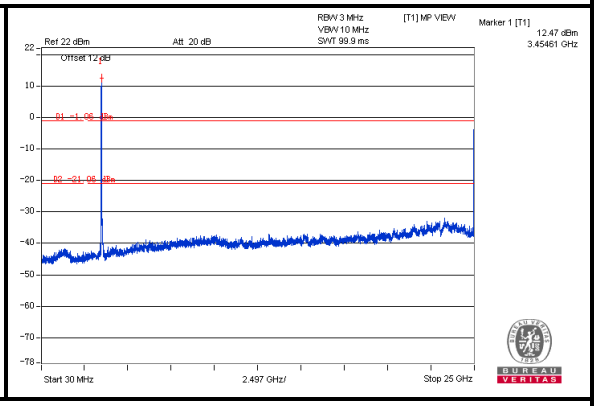




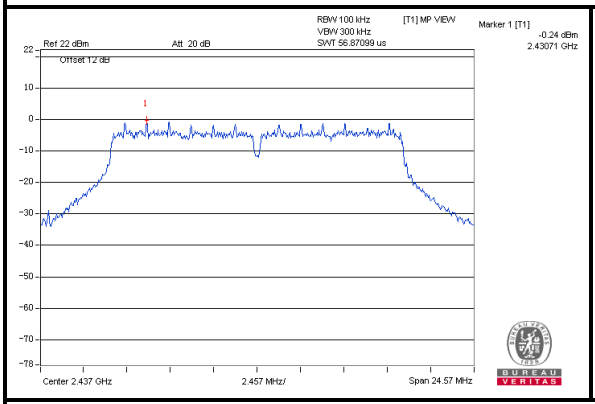
802.11g

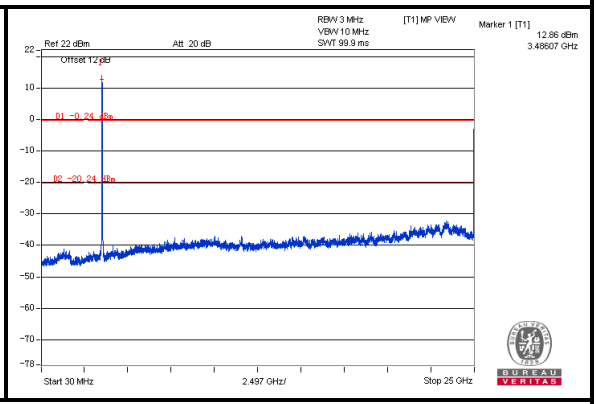
CH 1



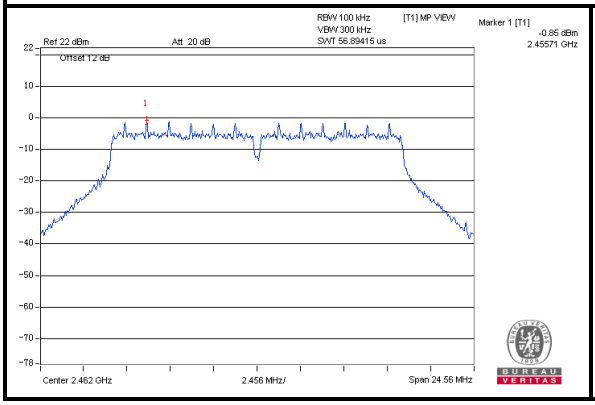


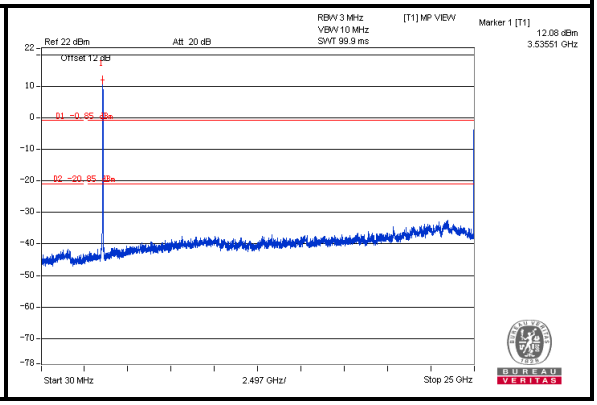
CH 6





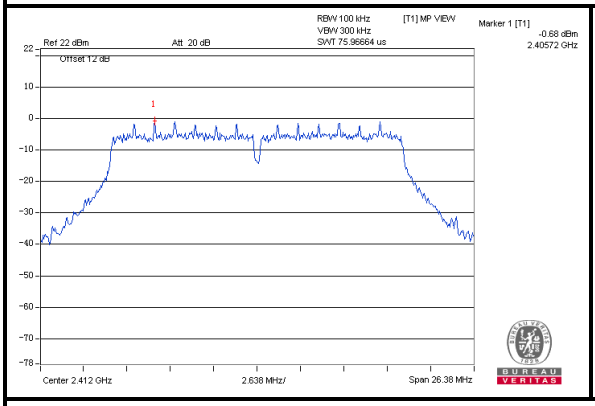
CH 11

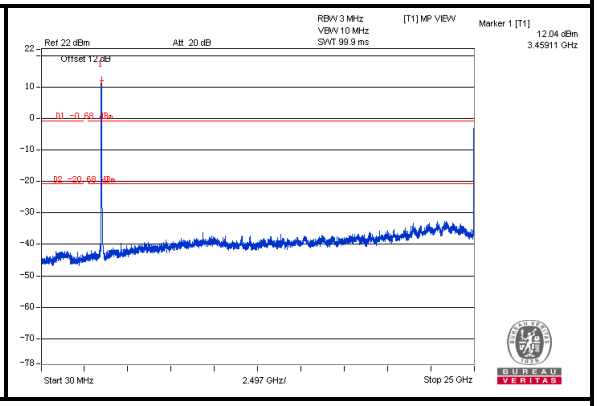




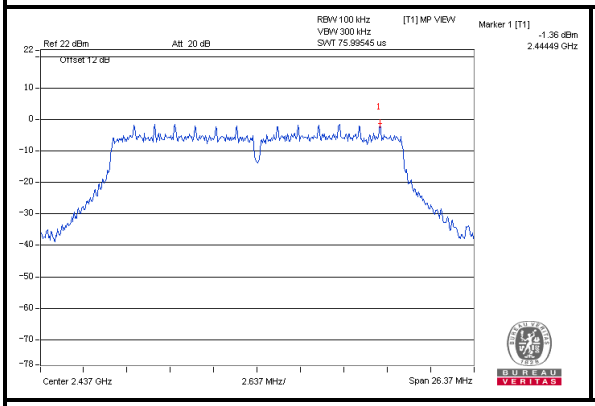
802.11n (20MHz)

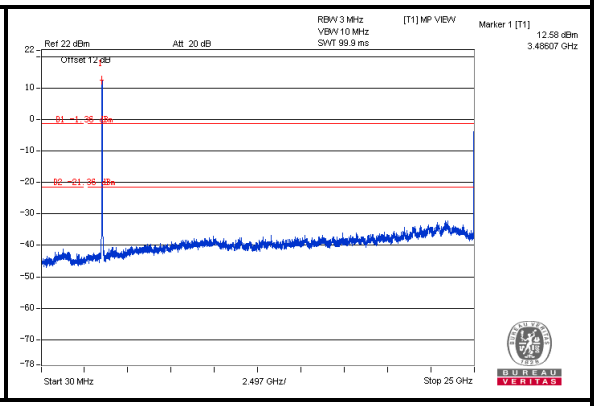
CH 1



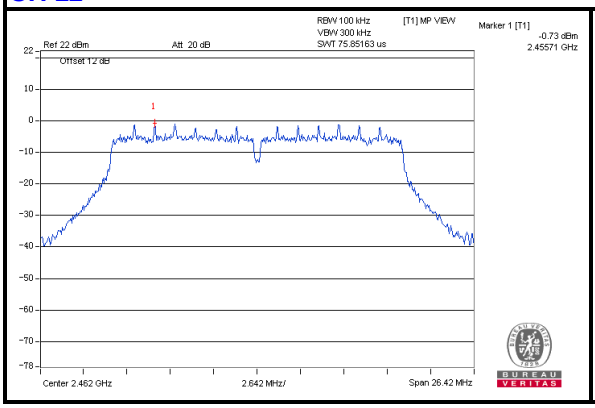


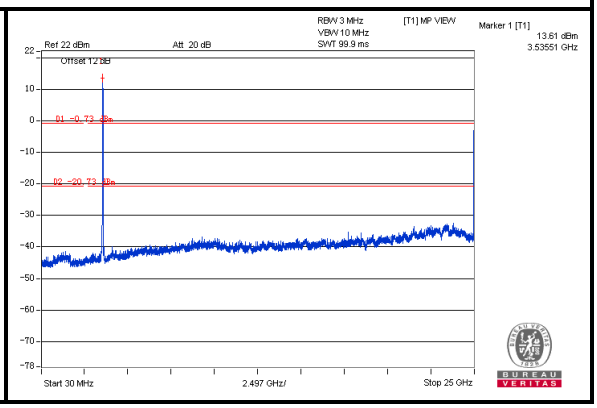
CH 6





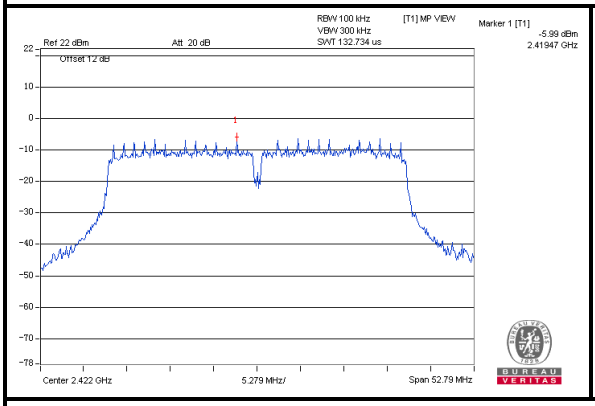
CH 11

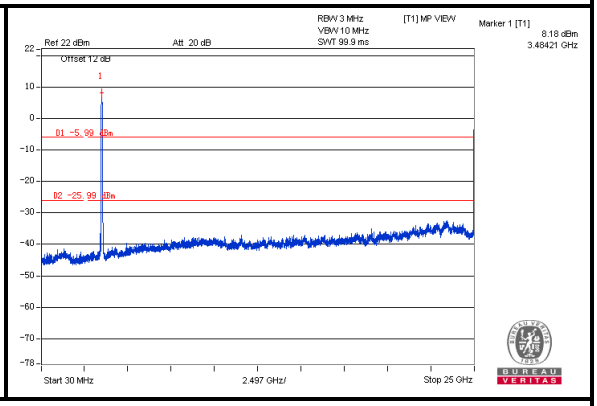




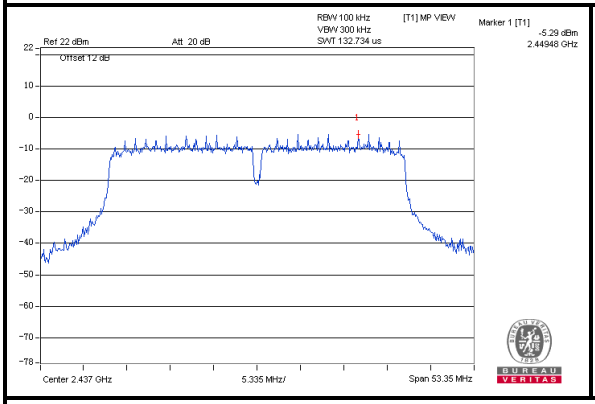
802.11n (40MHz)

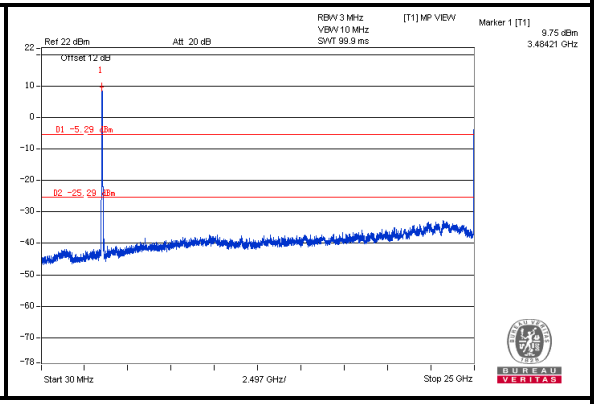
CH 1



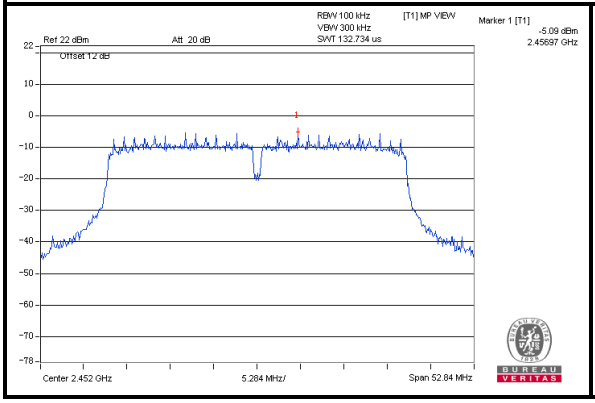


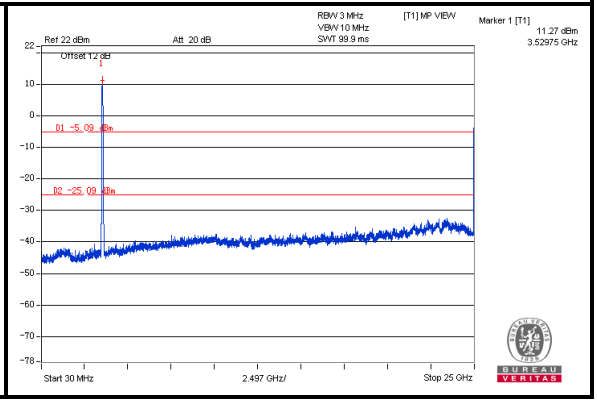
CH 6





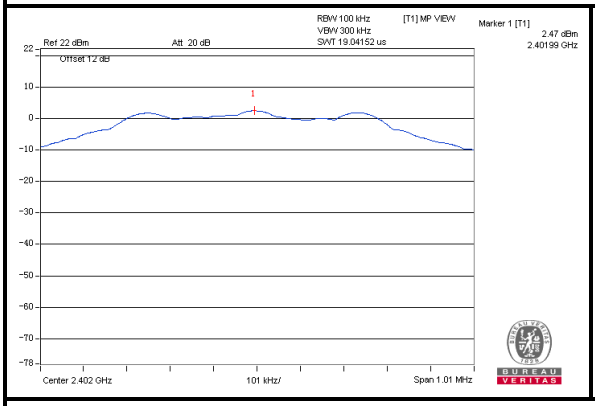
CH 11

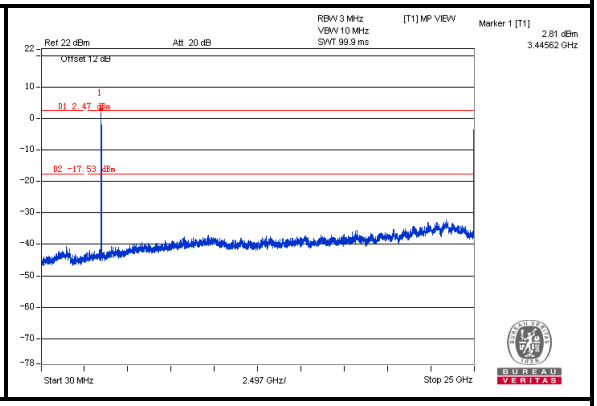




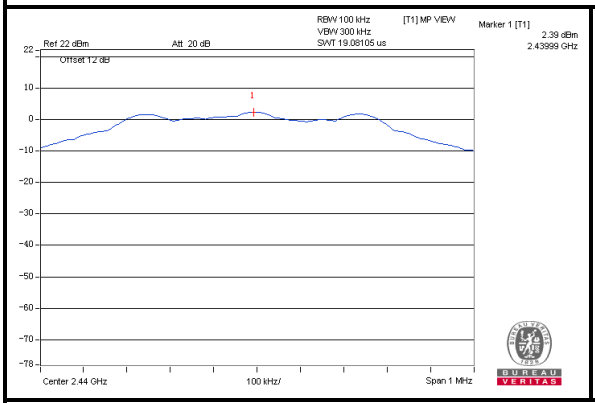
BT-LE (GFSK)

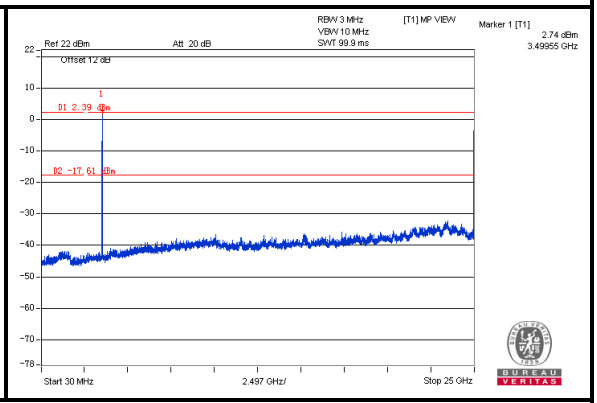
CH 0



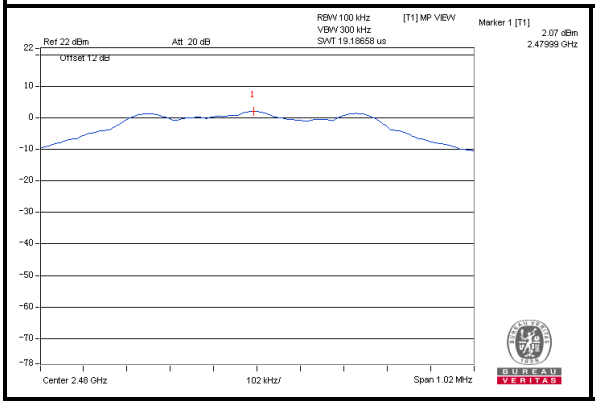


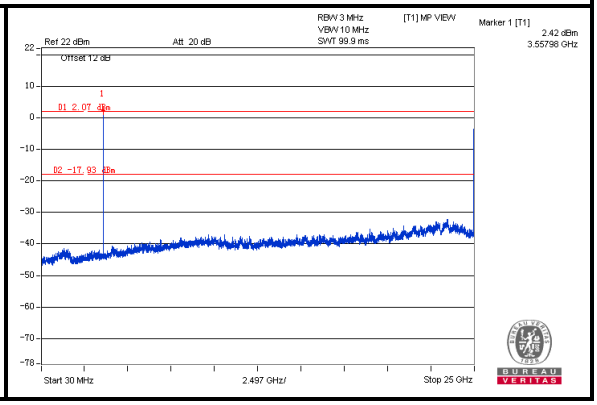
CH 19





CH 39





5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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---