FCC TEST REPORT
(WLAN)

REPORT NO.:	RF120502C13-2
MODEL NO.:	F-12D
FCC ID:	VQK-F12D
RECEIVED:	May 02, 2012
TESTED:	May 27 ~ May 28, 2012
ISSUED:	Jun. 01, 2012

APPLICANT:	FUJITSU LIMITED
ADDRESS:	1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120502C13-2	Original release	Jun. 01, 2012

1. CERTIFICATION

PRODUCT:	Mobile Phone
MODEL NO.:	F-12D
BRAND:	FOMA
APPLICANT:	FUJITSU LIMITED
TESTED:	May 27 ~ May 28, 2012
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)**
	ANSI C63.10-2009

The above equipment (model: F-12D) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan 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 :** Jun. 01, 2012
Pettie Chen / Specialist

APPROVED BY : _____ , **DATE :** Jun. 01, 2012
Gary Chang / Technical Manager

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**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.92dB at 1.93359MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.50dB at 2483.50MHz.
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 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	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

EUT	Mobile Phone
MODEL NO.	F-12D
POWER SUPPLY	5.4Vdc (adapter) 3.7Vdc (Li-ion battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 72.2Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz)
OUTPUT POWER	0.129W
ANTENNA TYPE	λ/4 Monopole antenna with -6.72dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery

NOTE:

1. The EUT provides one completed transmitter and one receiver.

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

2. The EUT consumes power from the following internal Li-ion battery and wireless charger.

BATTERY	
BRAND	Fujitsu Limited
MODEL	F25
RATING	3.7Vdc, 1800mAh, 6.7Wh

3. The following accessory is for support units only.

PRODUCT	BRAND	MODEL	DESCRIPTION
Adapter	SMK	NA	I/P: 100-240Vac, 50-60Hz, 0.12A O/P: 5.4Vdc, 700mA

4. SW version is R09.4e.
5. HW version is V1.3.0.
6. IMEI Code: 352179050012828, 352179050012810
7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**

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 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	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2

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 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)
-	802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2

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	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2

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	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2

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	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	David Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Phoenix Chen

3.3 DESCRIPTION OF SUPPORT UNITS

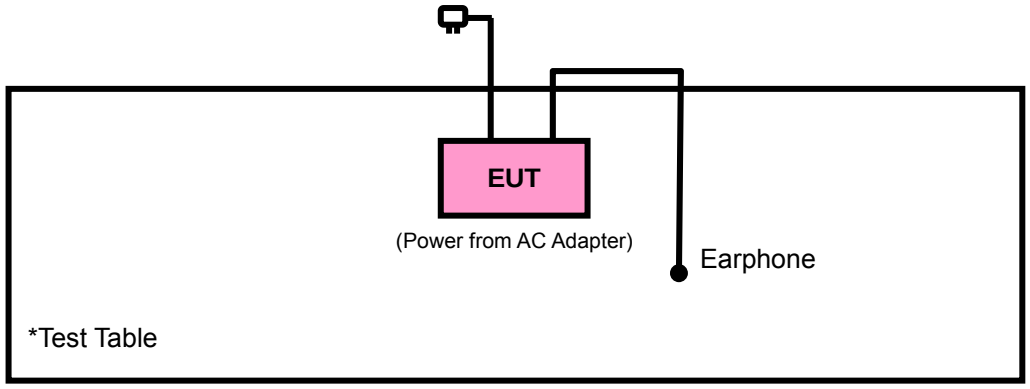
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	EARPHONE	HTC	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.2m audio cable.

NOTE: All power cords of the above support units are non shielded (1.8m).

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v01

ANSI C63.10-2009

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

NOTE: 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 (DoC). The test report has been issued separately.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver Agilent	N9038A	MY51210203	Dec. 22, 2011	Dec. 21, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2011	Dec. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 20, 2011	Dec. 19, 2012
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 30, 2011	Dec. 29, 2012
Preamplifier EMCI	EMC 330H	980112	Dec. 30, 2011	Dec. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 21, 2011	Oct. 20, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Jan. 02, 2012	Jan. 01, 2013
RF signal cable Worken	RG-213	NA	Jan. 02, 2012	Jan. 01, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Jul. 15, 2011	Jul. 14, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments except loop antenna is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 9.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC 7450F-4.

4.1.3 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. Height of receiving antenna 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. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

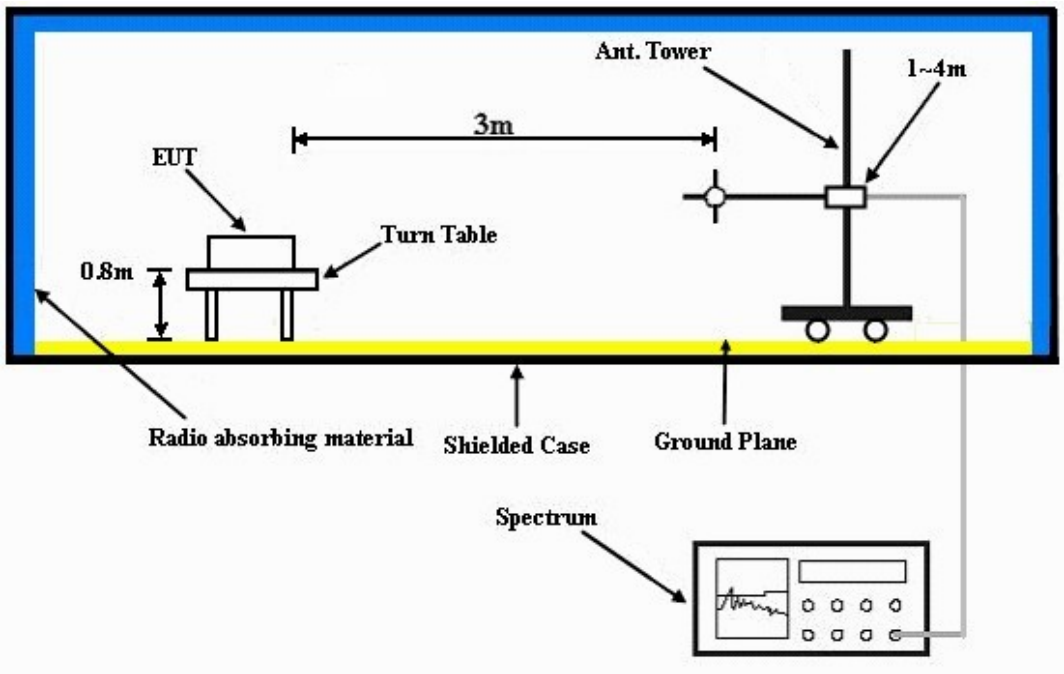
NOTE:

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

a. Placed the EUT on a testing table.

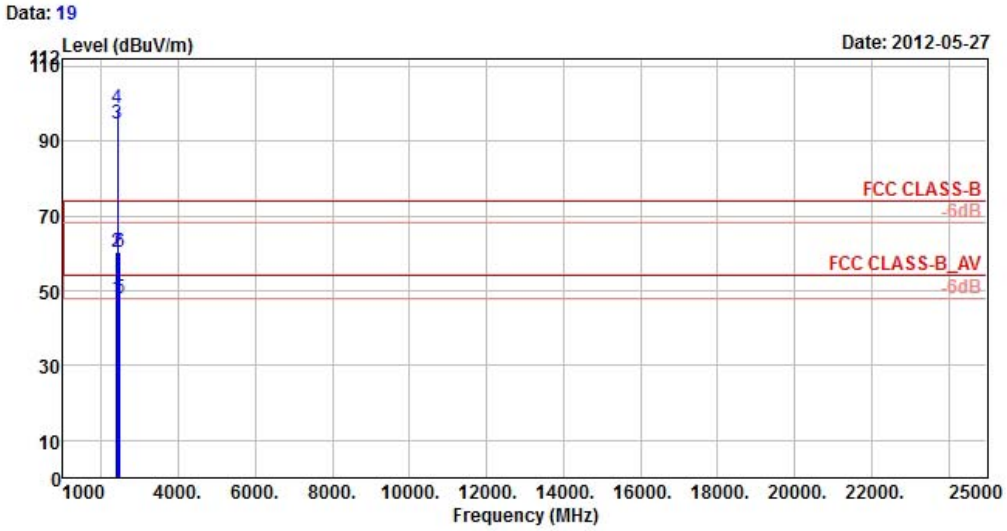
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA：

802.11b

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

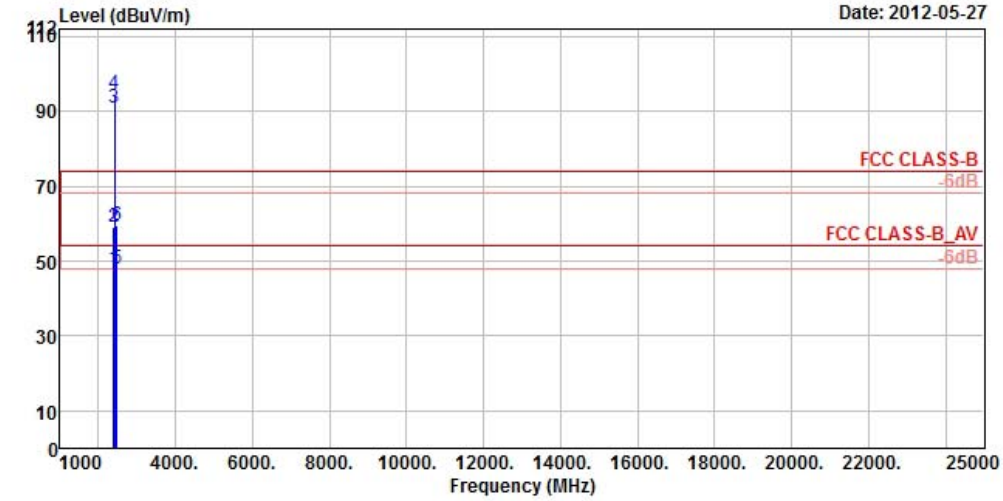


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11B TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.99	53.38	54.00	-6.01	27.26	4.87	37.52	126	92	Average
2	2390.00	60.32	65.71	74.00	-13.68	27.26	4.87	37.52	126	92	Peak
3 pp	2412.00	94.78	100.12			27.31	4.87	37.52	126	92	Average
4 pk	2412.00	98.64	103.98			27.31	4.87	37.52	126	92	Peak
5	2483.50	47.74	52.64	54.00	-6.26	27.50	4.92	37.32	126	92	Average
6	2483.50	60.40	65.30	74.00	-13.60	27.50	4.92	37.32	126	92	Peak

* Item 3, 4 are Fundamental frequency.

Data: 20

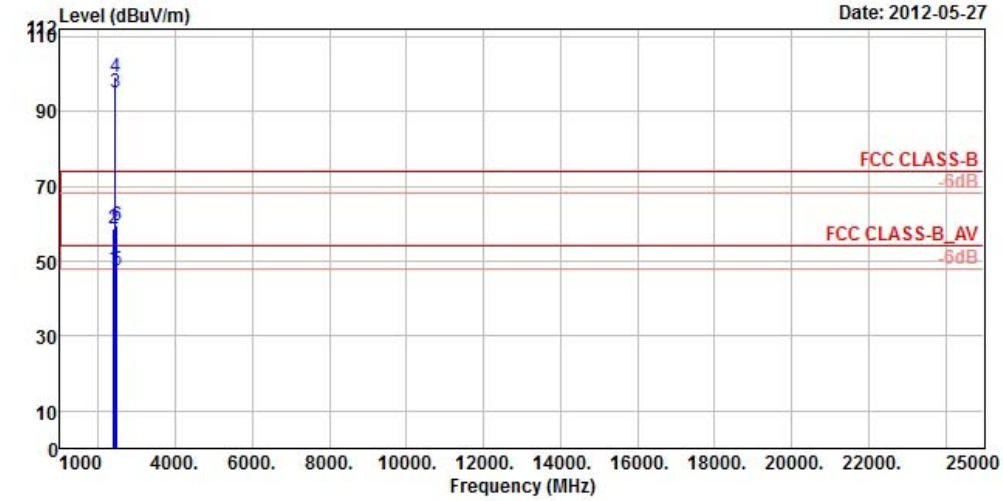


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11B TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.80	53.19	54.00	-6.20	27.26	4.87	37.52	100	267	Average
2	2390.00	59.19	64.58	74.00	-14.81	27.26	4.87	37.52	100	267	Peak
3 pp	2412.00	90.72	96.06			27.31	4.87	37.52	100	267	Average
4 pk	2412.00	94.55	99.89			27.31	4.87	37.52	100	267	Peak
5	2483.50	47.78	52.68	54.00	-6.22	27.50	4.92	37.32	100	267	Average
6	2483.50	59.51	64.41	74.00	-14.49	27.50	4.92	37.32	100	267	Peak

* Item 3, 4 are Fundamental frequency.

Data: 19

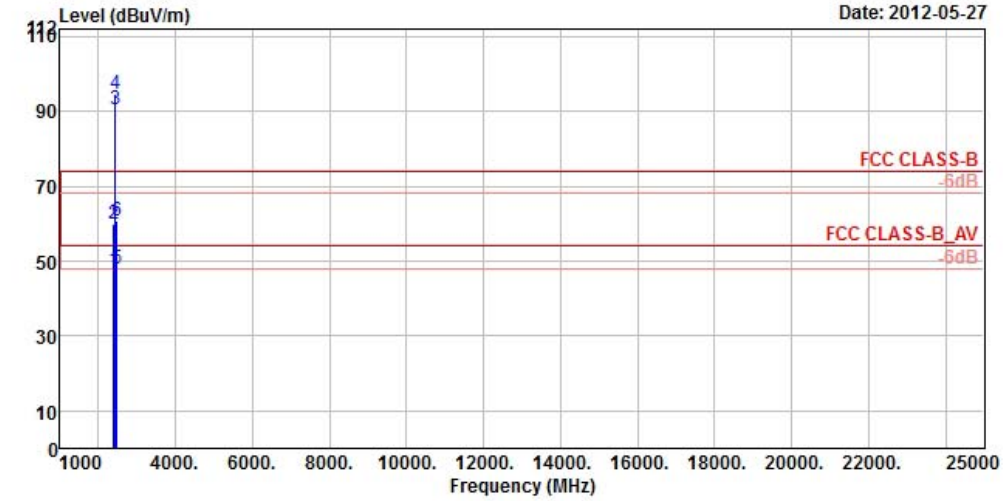


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11B TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.91	53.30	54.00	-6.09	27.26	4.87	37.52	127	90	Average
2	2390.00	58.89	64.28	74.00	-15.11	27.26	4.87	37.52	127	90	Peak
3 pp	2437.00	95.11	100.28			27.40	4.89	37.46	127	90	Average
4 pk	2437.00	99.12	104.29			27.40	4.89	37.46	127	90	Peak
5	2483.50	47.73	52.63	54.00	-6.27	27.50	4.92	37.32	127	90	Average
6	2483.50	59.61	64.51	74.00	-14.39	27.50	4.92	37.32	127	90	Peak

* Item 3, 4 are Fundamental frequency.

Data: 20

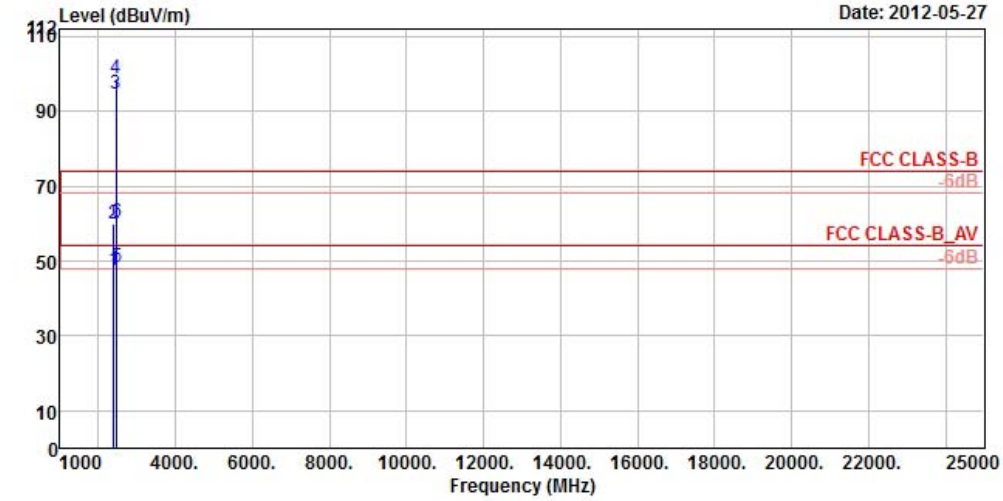


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11B TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.40	52.79	54.00	-6.60	27.26	4.87	37.52	119	271	Average
2	2390.00	60.09	65.48	74.00	-13.91	27.26	4.87	37.52	119	271	Peak
3 pp	2437.00	90.58	95.75			27.40	4.89	37.46	119	271	Average
4 pk	2437.00	94.53	99.70			27.40	4.89	37.46	119	271	Peak
5	2483.50	47.84	52.74	54.00	-6.16	27.50	4.92	37.32	119	271	Average
6	2483.50	60.94	65.84	74.00	-13.06	27.50	4.92	37.32	119	271	Peak

* Item 3, 4 are Fundamental frequency.

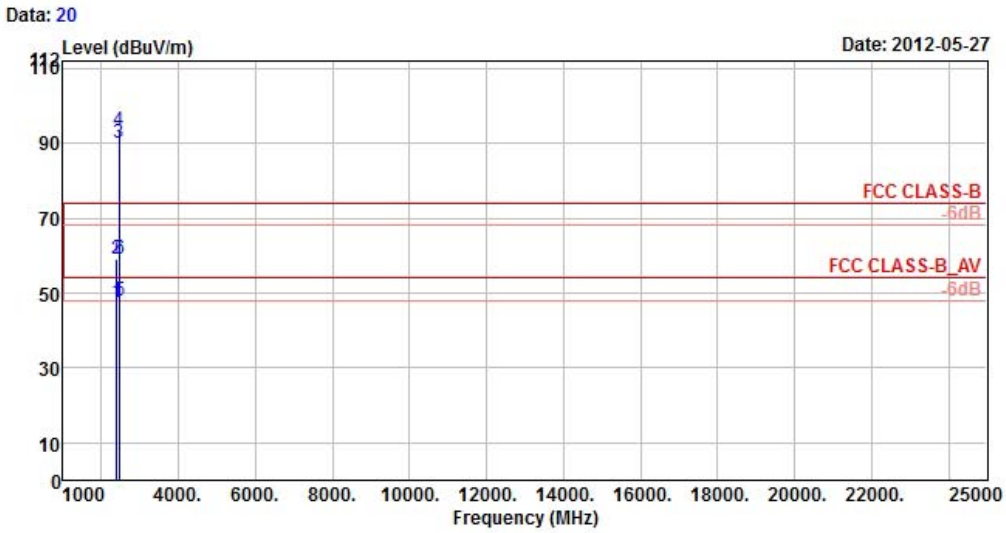
Data: 19



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11B TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.54	52.93	54.00	-6.46	27.26	4.87	37.52	127	91	Average
2	2390.00	59.73	65.12	74.00	-14.27	27.26	4.87	37.52	127	91	Peak
3 pp	2462.00	94.71	99.74			27.45	4.91	37.39	127	91	Average
4 pk	2462.00	98.77	103.80			27.45	4.91	37.39	127	91	Peak
5 !	2483.50	48.31	53.21	54.00	-5.69	27.50	4.92	37.32	127	91	Average
6	2483.50	60.54	65.44	74.00	-13.46	27.50	4.92	37.32	127	91	Peak

* Item 3, 4 are Fundamental frequency.



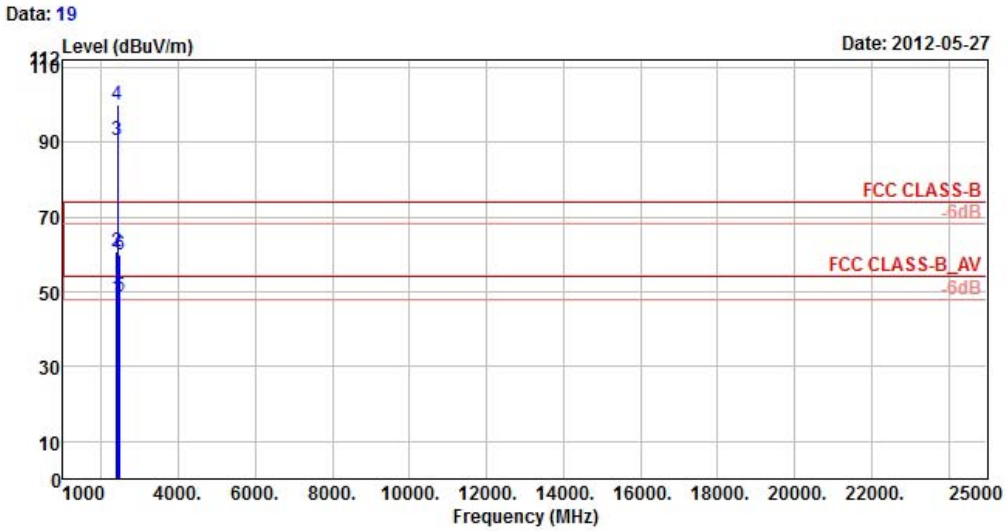
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11B TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 1M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.37	52.76	54.00	-6.63	27.26	4.87	37.52	107	256	Average
2	2390.00	59.13	64.52	74.00	-14.87	27.26	4.87	37.52	107	256	Peak
3 pp	2462.00	90.00	95.03			27.45	4.91	37.39	107	256	Average
4 pk	2462.00	93.54	98.57			27.45	4.91	37.39	107	256	Peak
5	2483.50	47.83	52.73	54.00	-6.17	27.50	4.92	37.32	107	256	Average
6	2483.50	59.26	64.16	74.00	-14.74	27.50	4.92	37.32	107	256	Peak

* Item 3, 4 are Fundamental frequency.

802.11g

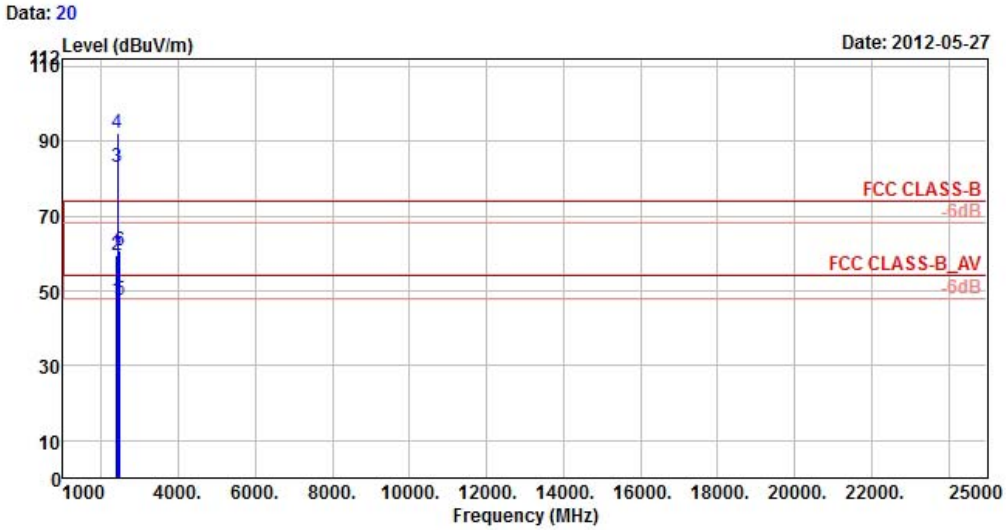
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11G TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1 !	2390.00	48.44	53.83	54.00	-5.56	27.26	4.87	37.52	125	97	Average
2	2390.00	60.75	66.14	74.00	-13.25	27.26	4.87	37.52	125	97	Peak
3 pp	2412.00	90.53	95.87			27.31	4.87	37.52	126	97	Average
4 pk	2412.00	99.95	105.29			27.31	4.87	37.52	126	97	Peak
5 !	2483.50	48.73	53.63	54.00	-5.27	27.50	4.92	37.32	126	97	Average
6	2483.50	59.96	64.86	74.00	-14.04	27.50	4.92	37.32	126	97	Peak

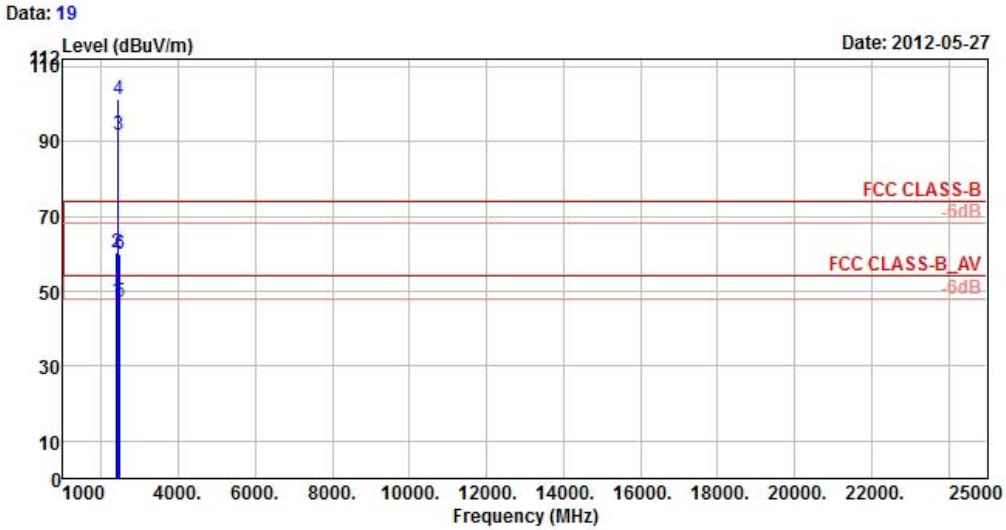
* Item 3, 4 are Fundamental frequency.



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11G TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.73	53.12	54.00	-6.27	27.26	4.87	37.52	100	268	Average
2	2390.00	59.70	65.09	74.00	-14.30	27.26	4.87	37.52	100	268	Peak
3 pp	2412.00	83.04	88.38			27.31	4.87	37.52	100	268	Average
4 pk	2412.00	92.33	97.67			27.31	4.87	37.52	100	268	Peak
5	2483.50	47.52	52.42	54.00	-6.48	27.50	4.92	37.32	100	268	Average
6	2483.50	60.81	65.71	74.00	-13.19	27.50	4.92	37.32	100	268	Peak

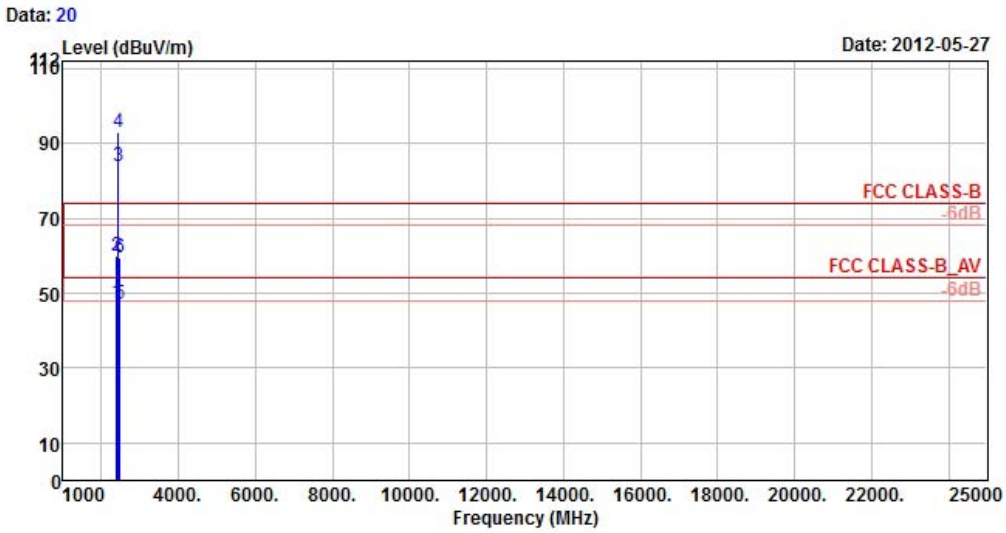
* Item 3, 4 are Fundamental frequency.



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11G TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.59	52.98	54.00	-6.41	27.26	4.87	37.52	125	95	Average
2	2390.00	60.53	65.92	74.00	-13.47	27.26	4.87	37.52	125	95	Peak
3 pp	2437.00	91.82	96.99			27.40	4.89	37.46	125	95	Average
4 pk	2437.00	101.30	106.47			27.40	4.89	37.46	125	95	Peak
5	2483.50	47.11	52.01	54.00	-6.89	27.50	4.92	37.32	125	95	Average
6	2483.50	59.76	64.66	74.00	-14.24	27.50	4.92	37.32	125	95	Peak

* Item 3, 4 are Fundamental frequency.

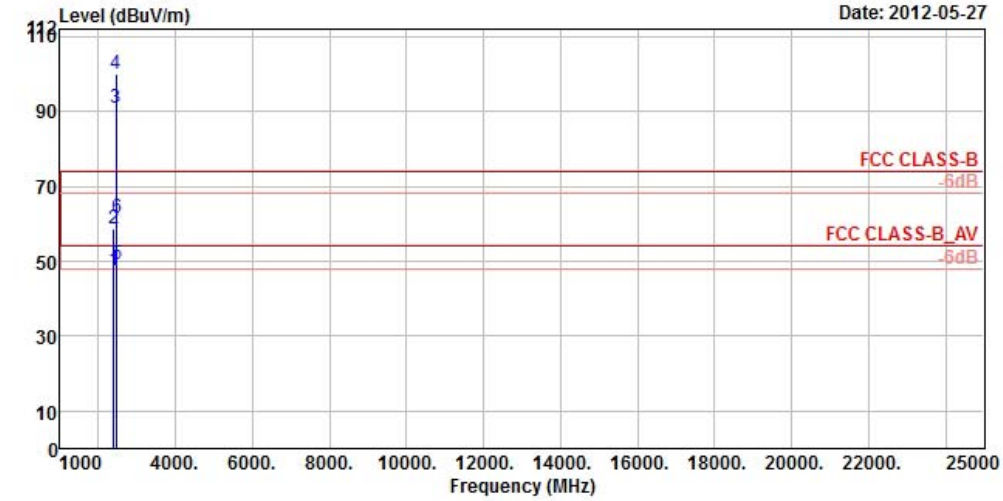


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11G TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.64	53.03	54.00	-6.36	27.26	4.87	37.52	100	323	Average
2	2390.00	59.97	65.36	74.00	-14.03	27.26	4.87	37.52	100	323	Peak
3 pp	2437.00	83.71	88.88			27.40	4.89	37.46	100	323	Average
4 pk	2437.00	92.79	97.96			27.40	4.89	37.46	100	323	Peak
5	2483.50	47.21	52.11	54.00	-6.79	27.50	4.92	37.32	100	323	Average
6	2483.50	59.65	64.55	74.00	-14.35	27.50	4.92	37.32	100	323	Peak

* Item 3, 4 are Fundamental frequency.

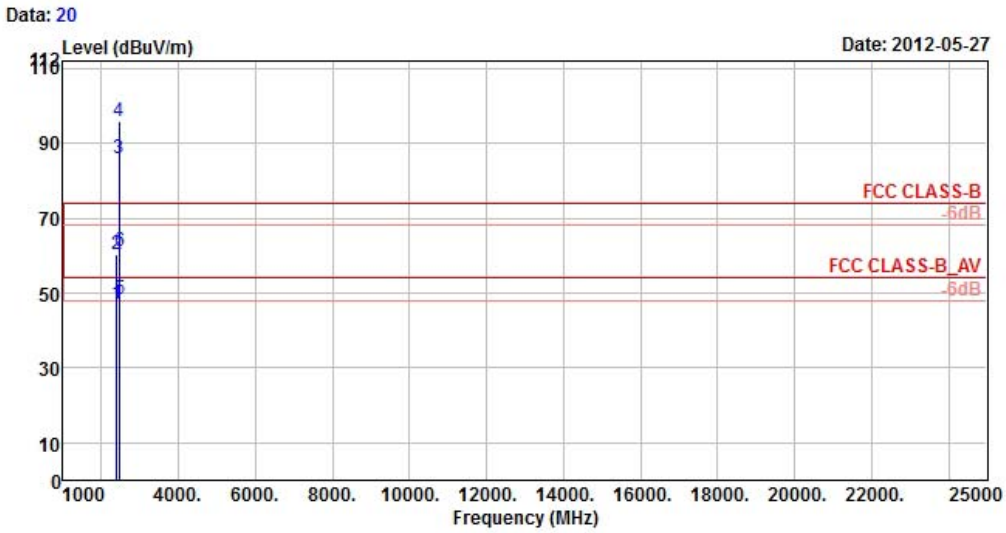
Data: 19



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11G TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.45	52.84	54.00	-6.55	27.26	4.87	37.52	127	92	Average
2	2390.00	58.51	63.90	74.00	-15.49	27.26	4.87	37.52	127	92	Peak
3 pp	2462.00	90.80	95.83			27.45	4.91	37.39	127	92	Average
4 pk	2462.00	99.92	104.95			27.45	4.91	37.39	127	92	Peak
5 !	2483.50	49.22	54.12	54.00	-4.78	27.50	4.92	37.32	127	92	Average
6	2483.50	61.40	66.30	74.00	-12.60	27.50	4.92	37.32	127	92	Peak

* Item 3, 4 are Fundamental frequency.



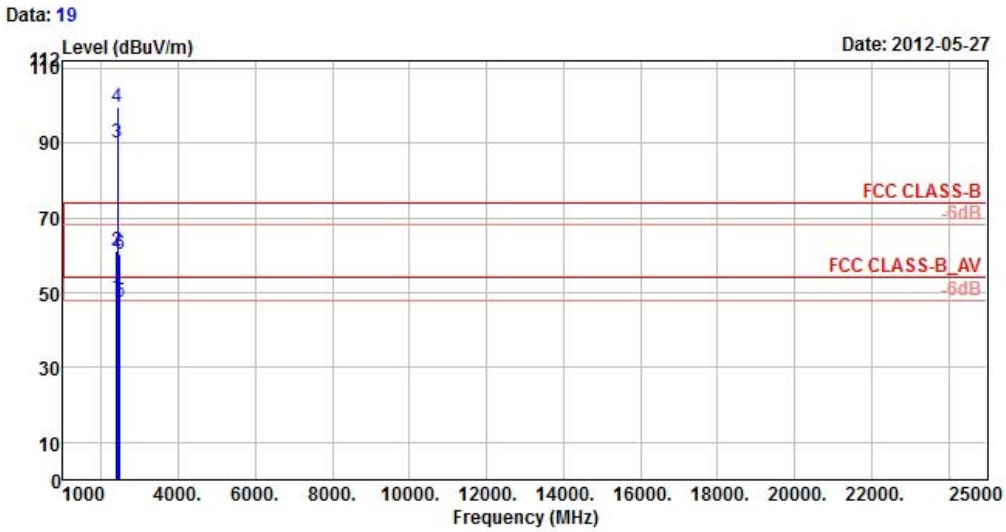
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11G TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : 6M
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.26	52.65	54.00	-6.74	27.26	4.87	37.52	100	122	Average
2	2390.00	60.54	65.93	74.00	-13.46	27.26	4.87	37.52	100	122	Peak
3 pp	2462.00	85.91	90.94			27.45	4.91	37.39	100	122	Average
4 pk	2462.00	95.86	100.89			27.45	4.91	37.39	100	122	Peak
5 !	2483.50	48.35	53.25	54.00	-5.65	27.50	4.92	37.32	100	122	Average
6	2483.50	61.17	66.07	74.00	-12.83	27.50	4.92	37.32	100	122	Peak

* Item 3, 4 are Fundamental frequency.

802.11n (20MHz)

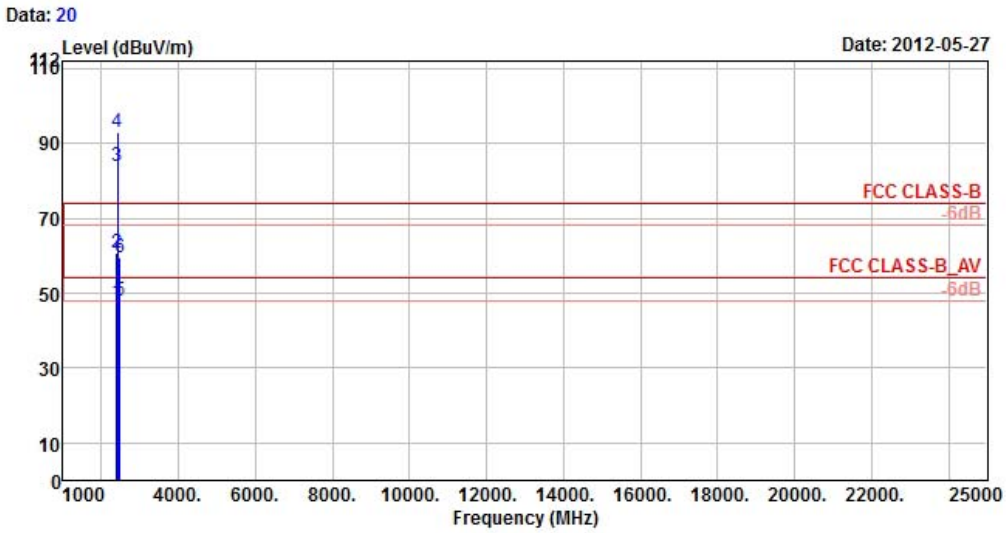
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11N TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1 !	2390.00	48.94	54.33	54.00	-5.06	27.26	4.87	37.52	129	93	Average
2	2390.00	60.99	66.38	74.00	-13.01	27.26	4.87	37.52	129	93	Peak
3 pp	2412.00	90.00	95.34			27.31	4.87	37.52	129	93	Average
4 pk	2412.00	99.79	105.13			27.31	4.87	37.52	129	93	Peak
5	2483.50	47.63	52.53	54.00	-6.37	27.50	4.92	37.32	129	93	Average
6	2483.50	60.15	65.05	74.00	-13.85	27.50	4.92	37.32	129	93	Peak

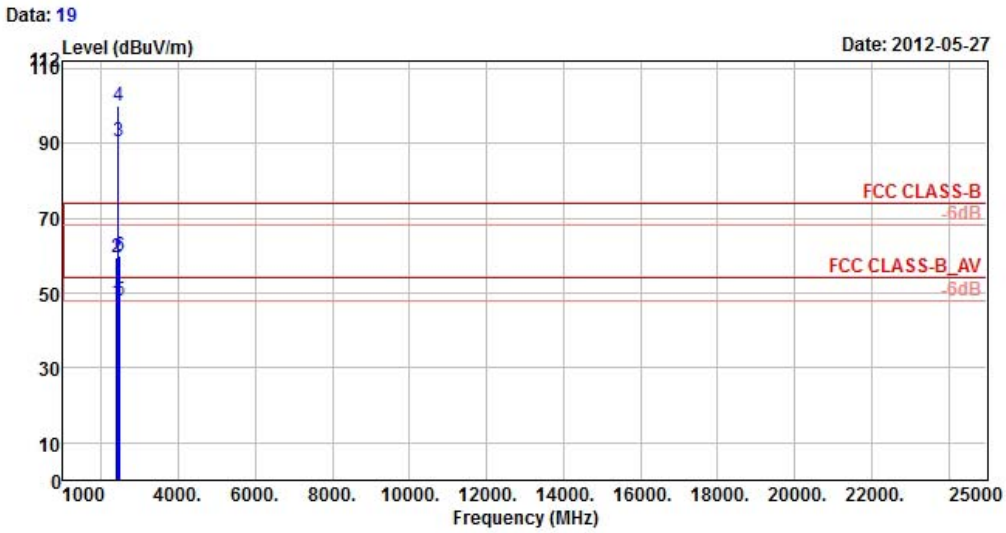
* Item 3, 4 are Fundamental frequency.



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11N TX CH01
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.40	52.79	54.00	-6.60	27.26	4.87	37.52	100	330	Average
2	2390.00	60.76	66.15	74.00	-13.24	27.26	4.87	37.52	100	330	Peak
3 pp	2412.00	84.02	89.36			27.31	4.87	37.52	100	330	Average
4 pk	2412.00	92.90	98.24			27.31	4.87	37.52	100	330	Peak
5	2483.50	47.83	52.73	54.00	-6.17	27.50	4.92	37.32	100	330	Average
6	2483.50	59.46	64.36	74.00	-14.54	27.50	4.92	37.32	100	330	Peak

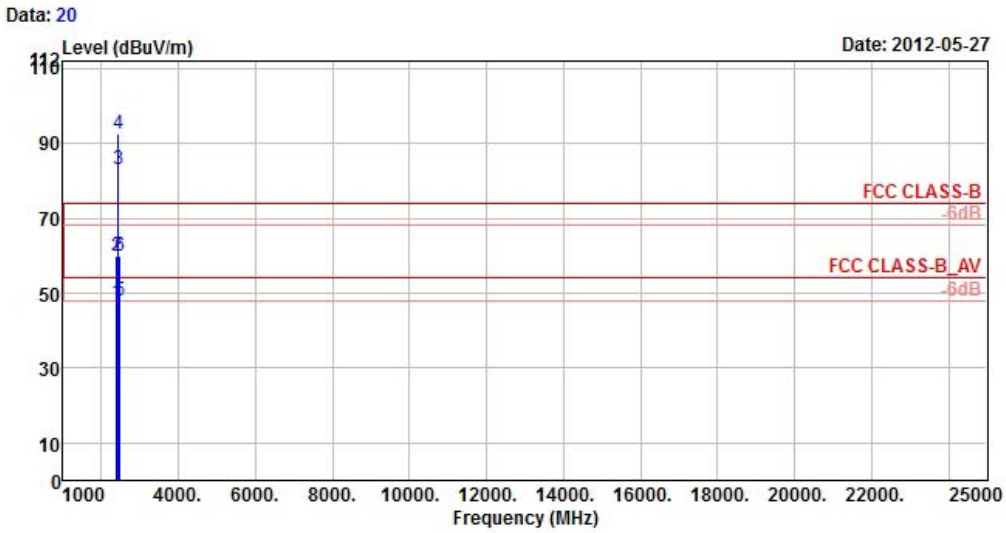
* Item 3, 4 are Fundamental frequency.



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11N TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.58	52.97	54.00	-6.42	27.26	4.87	37.52	128	92	Average
2	2390.00	59.57	64.96	74.00	-14.43	27.26	4.87	37.52	128	92	Peak
3 pp	2437.00	90.71	95.88			27.40	4.89	37.46	128	92	Average
4 pk	2437.00	100.09	105.26			27.40	4.89	37.46	128	92	Peak
5 !	2483.50	48.11	53.01	54.00	-5.89	27.50	4.92	37.32	128	92	Average
6	2483.50	59.83	64.73	74.00	-14.17	27.50	4.92	37.32	128	92	Peak

* Item 3, 4 are Fundamental frequency.

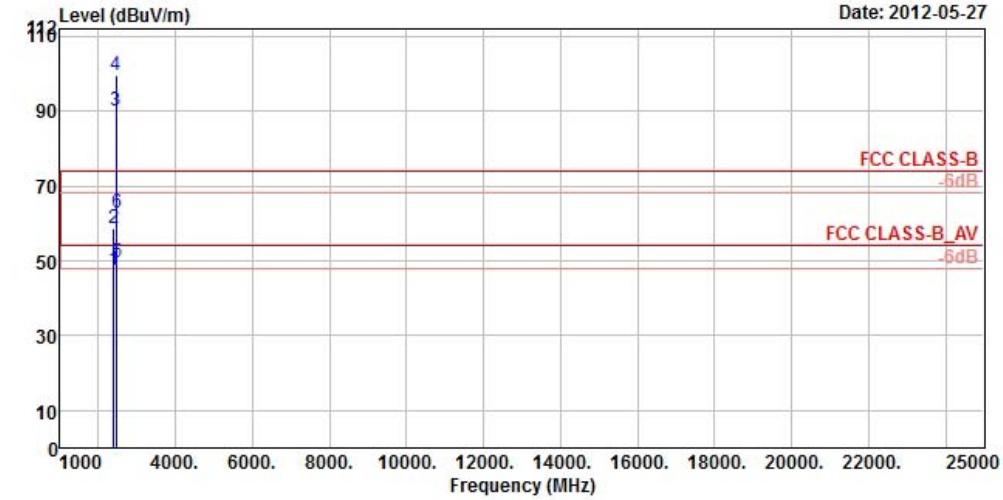


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11N TX CH06
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.48	52.87	54.00	-6.52	27.26	4.87	37.52	100	330	Average
2	2390.00	60.05	65.44	74.00	-13.95	27.26	4.87	37.52	100	330	Peak
3 pp	2437.00	83.04	88.21			27.40	4.89	37.46	100	330	Average
4 pk	2437.00	92.56	97.73			27.40	4.89	37.46	100	330	Peak
5	2483.50	47.86	52.76	54.00	-6.14	27.50	4.92	37.32	100	330	Average
6	2483.50	59.86	64.76	74.00	-14.14	27.50	4.92	37.32	100	330	Peak

* Item 3, 4 are Fundamental frequency.

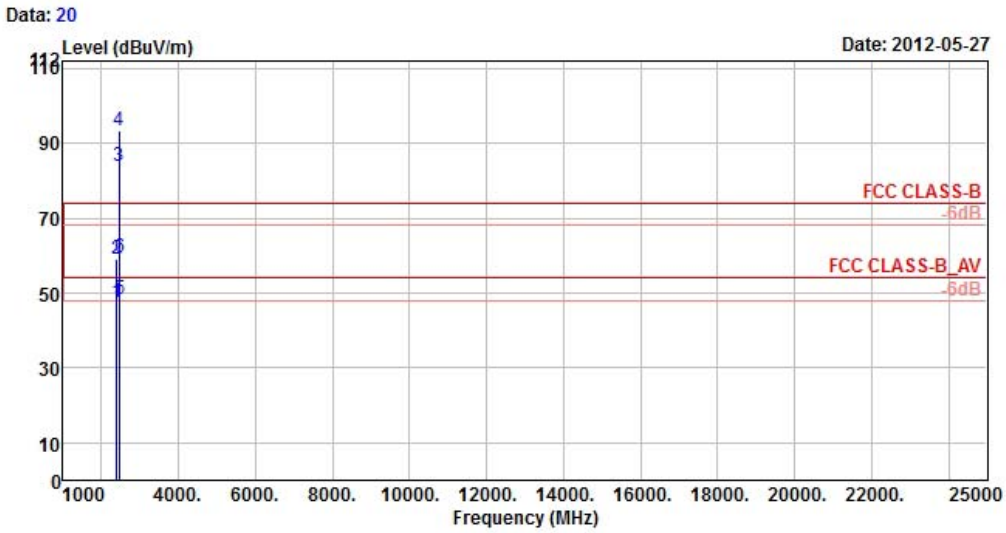
Data: 19



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-12D
Remark : 11N TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.46	52.85	54.00	-6.54	27.26	4.87	37.52	124	90	Average
2	2390.00	58.76	64.15	74.00	-15.24	27.26	4.87	37.52	124	90	Peak
3 pp	2462.00	90.12	95.15			27.45	4.91	37.39	124	90	Average
4 pk	2462.00	99.54	104.57			27.45	4.91	37.39	124	90	Peak
5 !	2483.50	49.50	54.40	54.00	-4.50	27.50	4.92	37.32	124	90	Average
6	2483.50	62.97	67.87	74.00	-11.03	27.50	4.92	37.32	124	90	Peak

* Item 3, 4 are Fundamental frequency.



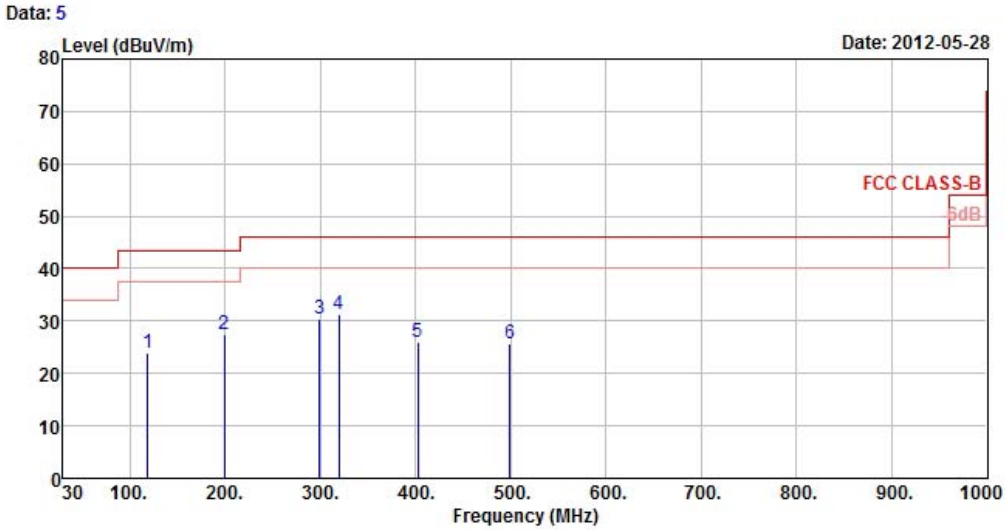
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-12D
Remark : 11N TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0
Power : Auto

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	2390.00	47.55	52.94	54.00	-6.45	27.26	4.87	37.52	116	260	Average
2	2390.00	59.19	64.58	74.00	-14.81	27.26	4.87	37.52	116	260	Peak
3 pp	2462.00	83.85	88.88			27.45	4.91	37.39	116	260	Average
4 pk	2462.00	93.52	98.55			27.45	4.91	37.39	116	260	Peak
5 !	2483.50	48.43	53.33	54.00	-5.57	27.50	4.92	37.32	116	260	Average
6	2483.50	59.35	64.25	74.00	-14.65	27.50	4.92	37.32	116	260	Peak

* Item 3, 4 are Fundamental frequency.

BELOW 1GHz WORST-CASE DATA：802.11n(20MHz)

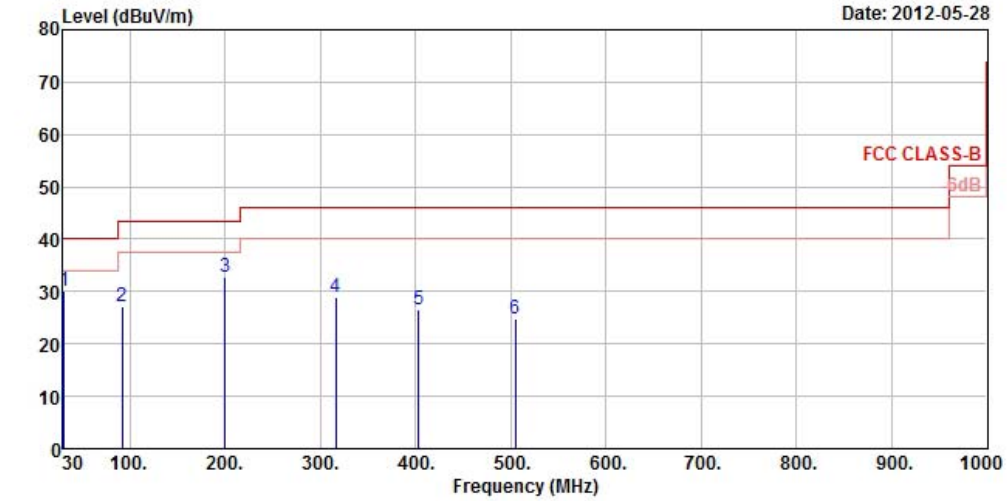
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_30M~1G_LF HORIZONTAL
Brand/Model: F-12D
Remark : WIFI TX LF
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	118.56	23.77	43.65	43.50	-19.73	10.83	1.18	31.89	100	224	Peak
2	199.02	27.32	48.06	43.50	-16.18	9.43	1.59	31.76	132	221	Peak
3	298.92	30.31	47.17	46.00	-15.69	12.91	2.05	31.82	154	212	Peak
4 pp	319.60	31.21	47.55	46.00	-14.79	13.43	2.12	31.89	102	221	Peak
5	402.20	25.86	40.13	46.00	-20.14	15.39	2.43	32.09	133	174	Peak
6	498.80	25.63	37.22	46.00	-20.37	17.29	2.77	31.65	110	117	Peak

Data: 6



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_30M~1G_LF VERTICAL
Brand/Model: F-12D
Remark : WIFI TX LF
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1 pp	31.35	30.08	48.49	40.00	-9.92	12.14	0.57	31.12	120	220	Peak
2	92.37	27.17	49.65	43.50	-16.33	8.45	1.03	31.96	132	274	Peak
3	200.10	32.69	53.51	43.50	-10.81	9.36	1.59	31.77	107	47	Peak
4	316.10	28.79	45.26	46.00	-17.21	13.33	2.11	31.91	107	74	Peak
5	402.90	26.68	40.95	46.00	-19.32	15.39	2.43	32.09	132	228	Peak
6	505.10	24.91	36.27	46.00	-21.09	17.44	2.80	31.60	100	121	Peak

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 19, 2011	Nov. 18, 2012
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 22, 2011	Dec. 21, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4.2.3 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.

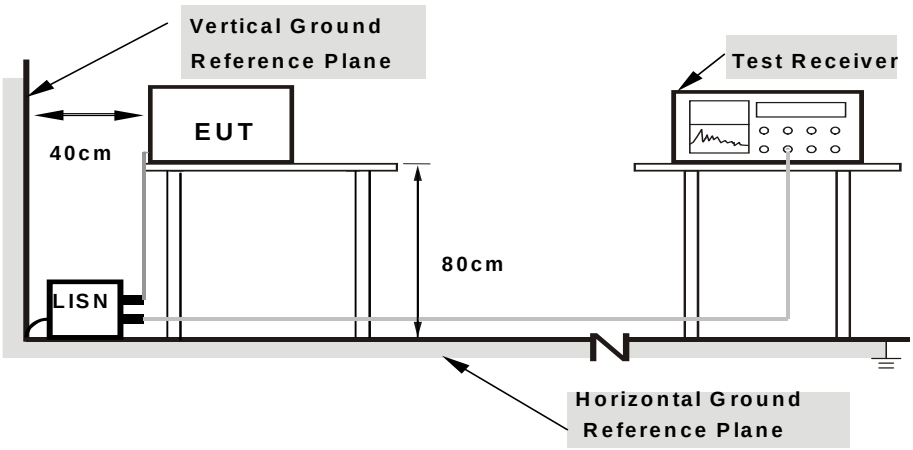
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 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).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

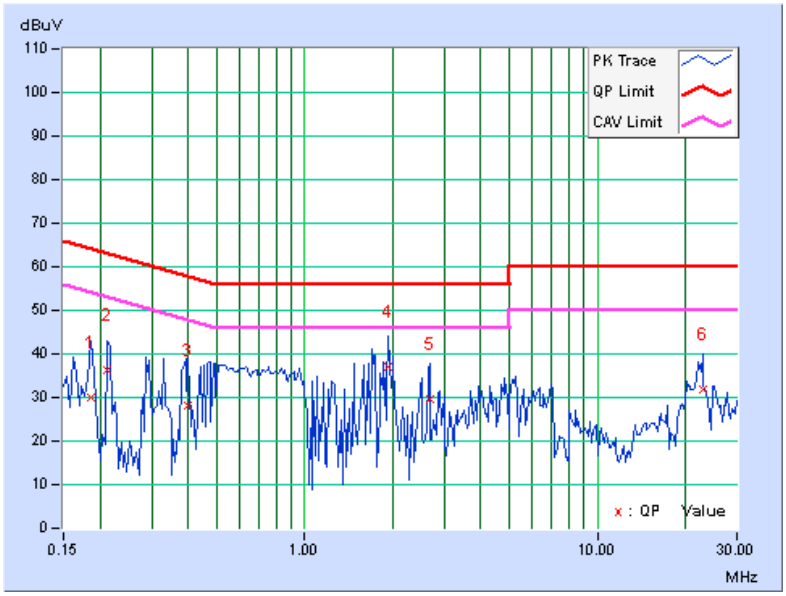
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：802.11n(20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.15	29.67	6.43	29.82	6.58	64.25	54.25	-34.43	-47.67
2	0.21250	0.15	36.29	17.66	36.44	17.81	63.11	53.11	-26.67	-35.30
3	0.40000	0.17	28.12	5.87	28.29	6.04	57.85	47.85	-29.56	-41.81
4	**1.93359**	**0.26**	**36.82**	**19.48**	**37.08**	**19.74**	**56.00**	**46.00**	**-18.92**	**-26.26**
5	2.68750	0.29	29.24	12.57	29.53	12.86	56.00	46.00	-26.47	-33.14
6	23.00781	0.60	31.33	18.53	31.93	19.13	60.00	50.00	-28.07	-30.87

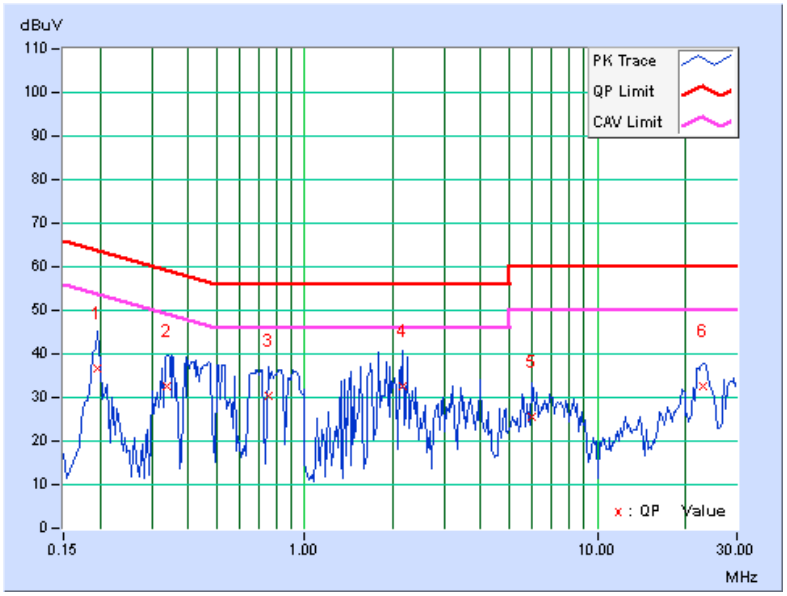
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Line 2	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	0.14	36.45	12.83	36.59	12.97	63.74	53.74	-27.15	-40.77
2	0.33750	0.15	32.42	15.73	32.57	15.88	59.26	49.26	-26.69	-33.38
3	0.75156	0.18	30.03	11.88	30.21	12.06	56.00	46.00	-25.79	-33.94
4	2.16016	0.27	32.29	19.79	32.56	20.06	56.00	46.00	-23.44	-25.94
5	5.96094	0.39	25.20	11.48	25.59	11.87	60.00	50.00	-34.41	-38.13
6	22.93359	0.67	31.77	18.62	32.44	19.29	60.00	50.00	-27.56	-30.71

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.

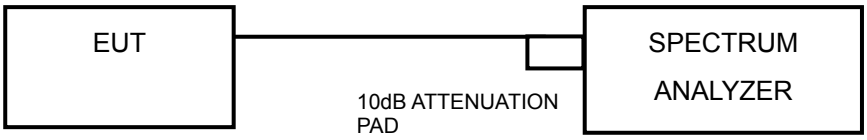


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

a. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	7.54	0.5	PASS
6	2437	8.00	0.5	PASS
11	2462	8.02	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.00	0.5	PASS
6	2437	15.88	0.5	PASS
11	2462	15.92	0.5	PASS

802.11n (20MHz)

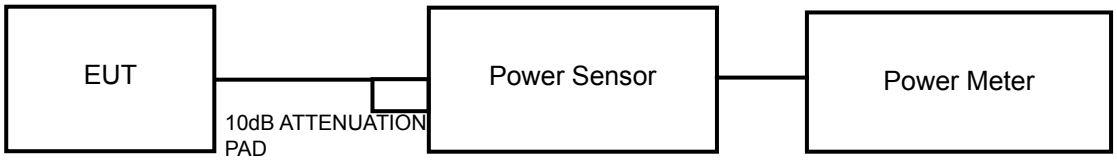
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.28	0.5	PASS
6	2437	17.34	0.5	PASS
11	2462	17.24	0.5	PASS

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 bands: 1 Watt (30dBm)

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A 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

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (W)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	0.025	13.92	30	PASS
6	2437	0.024	13.73	30	PASS
11	2462	0.023	13.57	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (W)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	0.127	21.05	30	PASS
6	2437	0.121	20.82	30	PASS
11	2462	0.109	20.39	30	PASS

802.11n (20MHz)

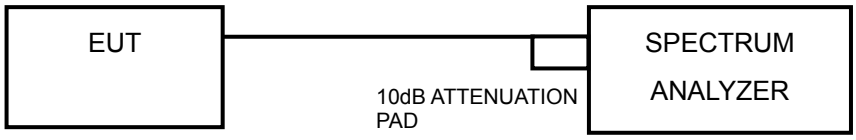
CHANNEL	FREQUENCY (MHz)	PEAK POWER (W)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	0.129	21.12	30	PASS
6	2437	0.123	20.91	30	PASS
11	2462	0.113	20.52	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

a. Set the RBW = 100 kHz, VBW =300 kHz, Detector = peak.
b. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
c. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
d. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(3 kHz/100kHz)

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	3.77	-11.43	8	PASS
6	2437	3.66	-11.54	8	PASS
11	2462	3.40	-11.80	8	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.31	-14.89	8	PASS
6	2437	0.29	-14.91	8	PASS
11	2462	0.29	-14.91	8	PASS

802.11n (20MHz)

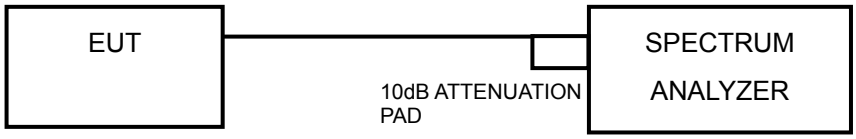
Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.50	-14.70	8	PASS
6	2437	0.48	-14.72	8	PASS
11	2462	0.39	-14.81	8	PASS

4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED 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 4.1.2 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

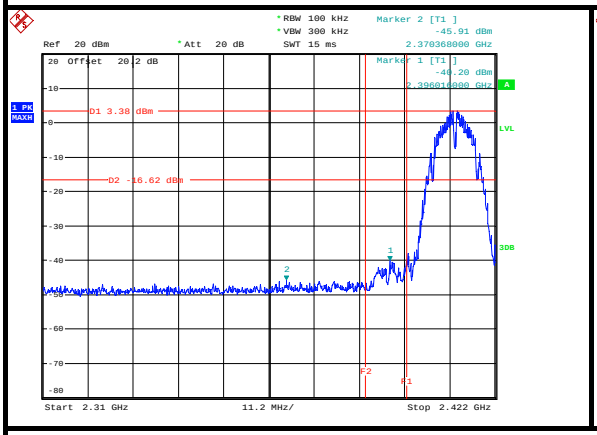
Same as Item 4.3.6

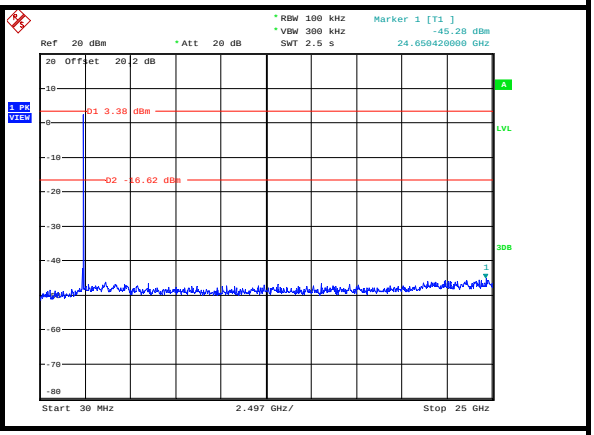
4.6.7 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

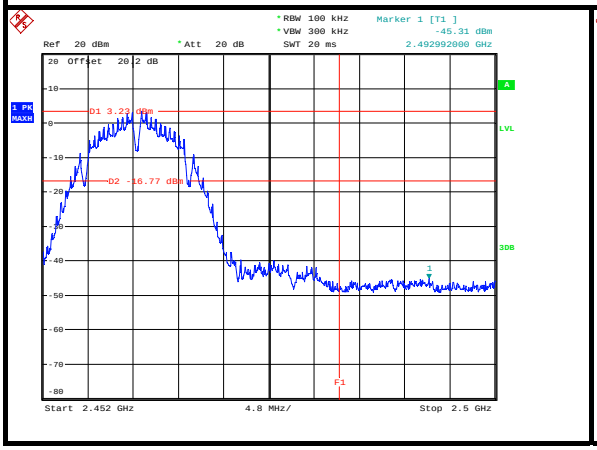
802.11b

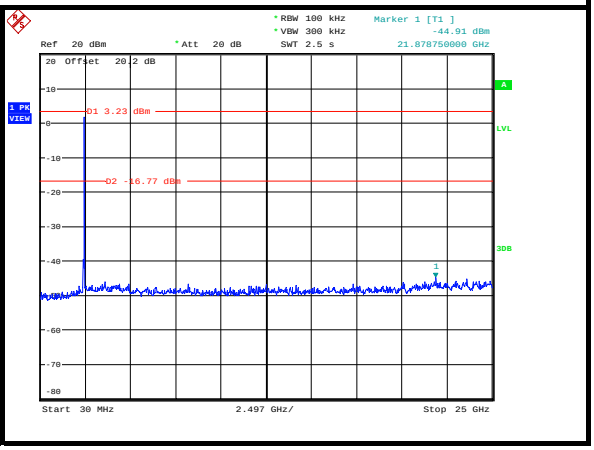
CH 1





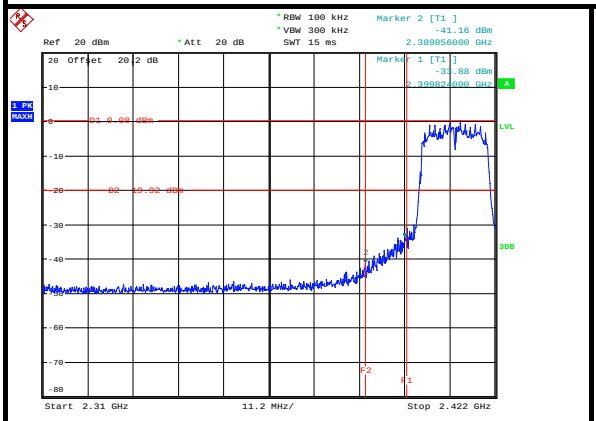
CH 11

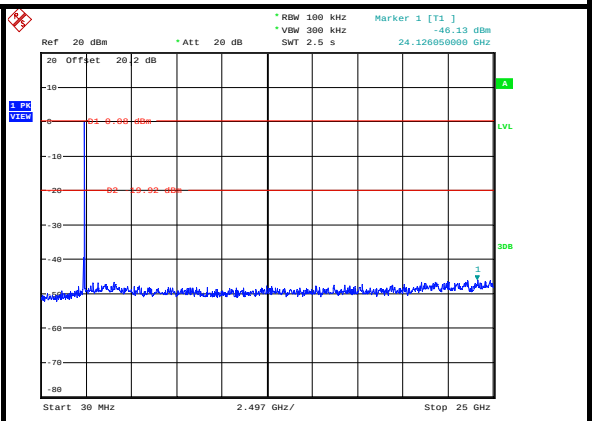




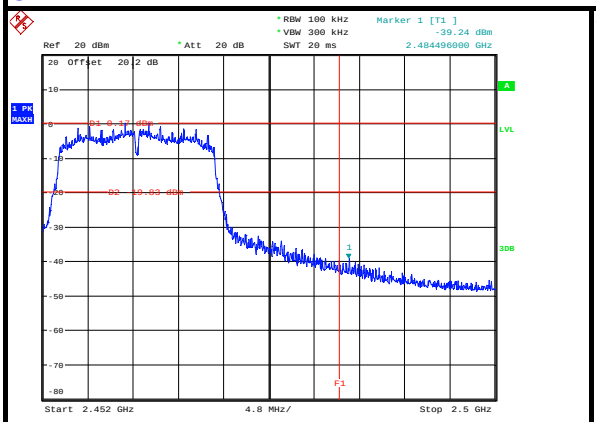
802.11g

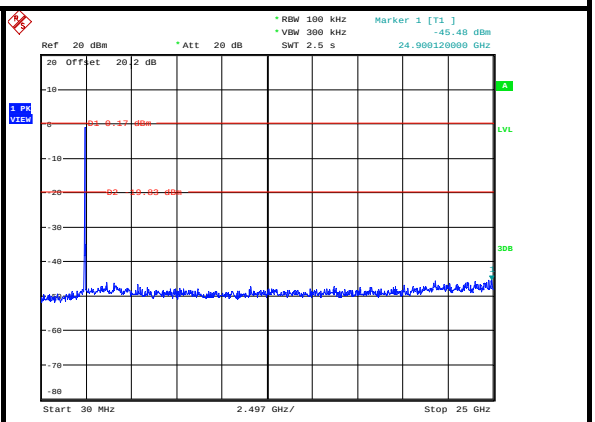
CH 1





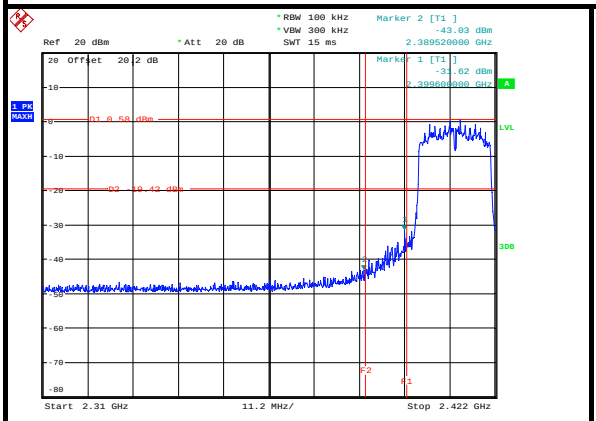
CH 11

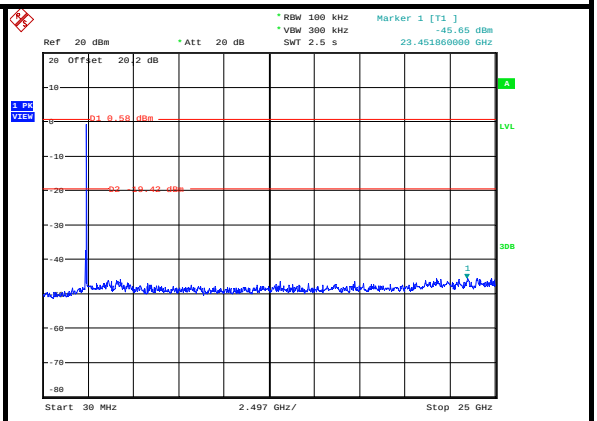




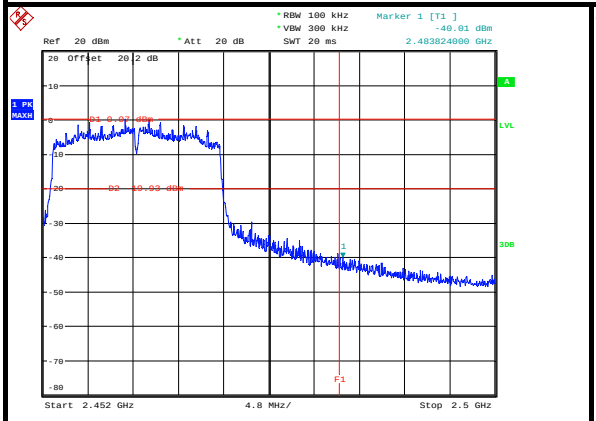
802.11n (20MHz)

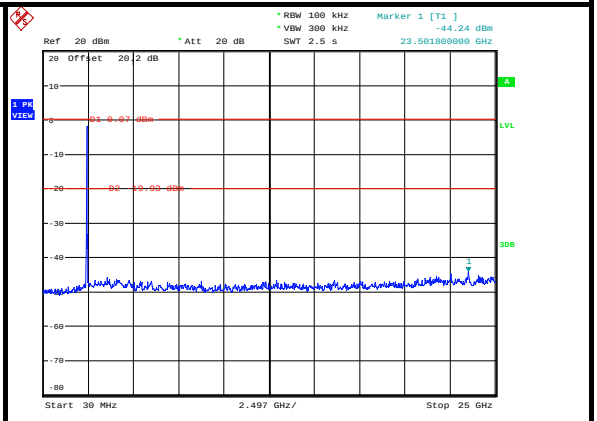
CH 1





CH 11





5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
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Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7. 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---