FCC TEST REPORT (15.407)

REPORT NO.:	RF120823C14-4
MODEL NO.:	F-03E
FCC ID:	VQK-F03E
RECEIVED:	Aug. 23, 2012
TESTED:	Oct. 01 ~ Oct. 05, 2012
ISSUED:	Oct. 09, 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
RF120823C14-4	Original release	Oct. 09, 2012

1. CERTIFICATION

PRODUCT: Mobile Phone
MODEL: F-03E
BRAND: NTT DOCOMO
APPLICANT: FUJITSU LIMITED
TESTED: Oct. 01 ~ Oct. 05, 2012
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.10-2009

The above equipment (model: F-03E) 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 :** Oct. 09, 2012
Pettie Chen / Senior Specialist

APPROVED BY : _____ , **DATE :** Oct. 09, 2012
Ken Liu / Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -1.03dB at 13.55585MHz.
15.407(b/1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.58dB at 31.35MHz.
15.407(a/1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	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	2.44 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-03E
POWER SUPPLY	5.1Vdc (adapter or host equipment) 3.8Vdc (battery)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 72.2Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz)
OUTPUT POWER	7.516mW for 5180 ~ 5240MHz 7.413mW for 5260 ~ 5320MHz 7.780mW for 5500 ~ 5700MHz
ANTENNA TYPE	5180 ~ 5240MHz: PCB antenna with 3.97dBi gain 5260 ~ 5320MHz: PCB antenna with 3.18dBi gain 5500 ~ 5700MHz: PCB antenna with 4.58dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT contains following accessory and components.

ITEM	BRAND	MODEL	SPECIFICATION
Battery	FUJITSU	F29	Rating: 3.8Vdc, 1810mAh Type: Li-ion
LCD Panel	JDI	GCX162BLP-7	--
Photo Camera	ALTEK	AOA0803	--
Video Camera	ALTEK	ASF0104	--

2. The following accessories are for support units only.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter	Motorola	DC4050US0301	Input: 100-240Vac, 50/60Hz, 0.2A Output: 5.1Vdc, 850mA
USB cable	Motorola	NA	1.0m

3. SW version is LYDV01R13Ge
4. HW version is DVT2.
5. IMEI code: 353737050009323, 353737050011543.
6. 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

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

FOR 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

FOR 5500 ~ 5700MHz

8 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

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 **Y-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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	7.2
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (20MHz)		100 to 140	100, 116, 140	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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5700	36 to 140	140	OFDM	BPSK	6.0

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5700	36 to 140	140	OFDM	BPSK	6.0

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	7.2
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	7.2

TEST CONDITION:

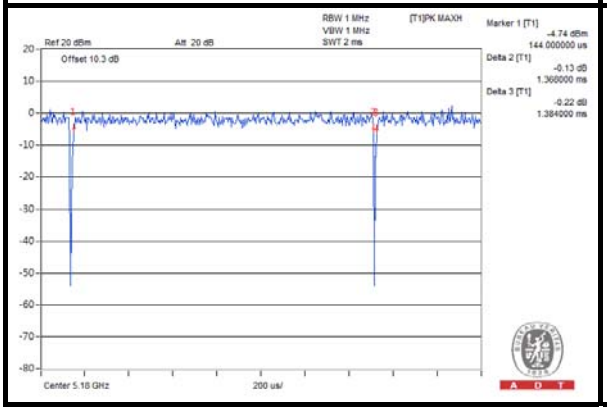
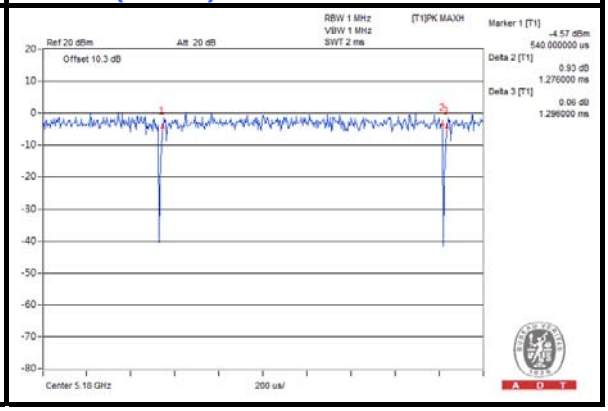
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	26deg. C, 58%RH	120Vac, 60Hz	Kay Wu
RE<1G	26deg. C, 58%RH	120Vac, 60Hz	Kay Wu
PLC	26deg. C, 65%RH	120Vac, 60Hz	David Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Phoenix Chen

3.3 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is > 98 %, duty factor is not required.

802.11a: Duty cycle = 1.368/1.384 = 0.988 x 100% = 98.8%

802.11n (20MHz): Duty cycle = 1.276/1.296 = 0.985 x100% = 98.5%

802.11a	802.11n (20MHz)
	

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.

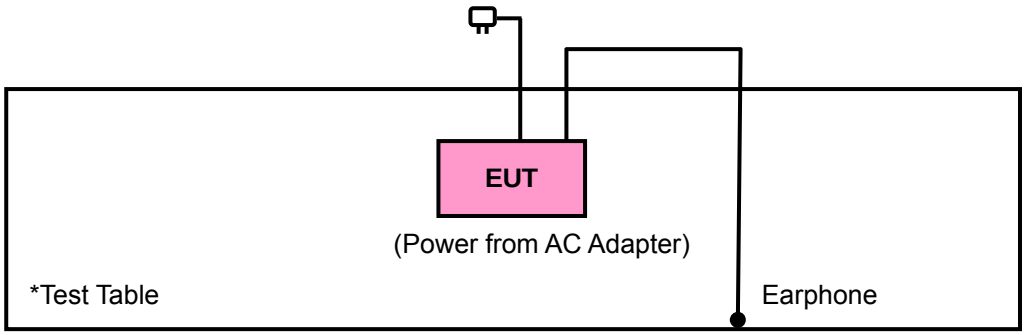
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Earphone	DONGMEI	D-D606	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.32m non-shielded cable without core

NOTE:

1. All power cords of the above support units are non-shielded (1.8 m).
2. Item 1 was provided by client.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



3.5 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 E (15.407)
789033 D01 General UNII Test Procedures v01r01
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:

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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m)
PK	PK
-27	68.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.3 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
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 29, 2011	Oct. 28, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013

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 calibration interval of the 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.

4.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

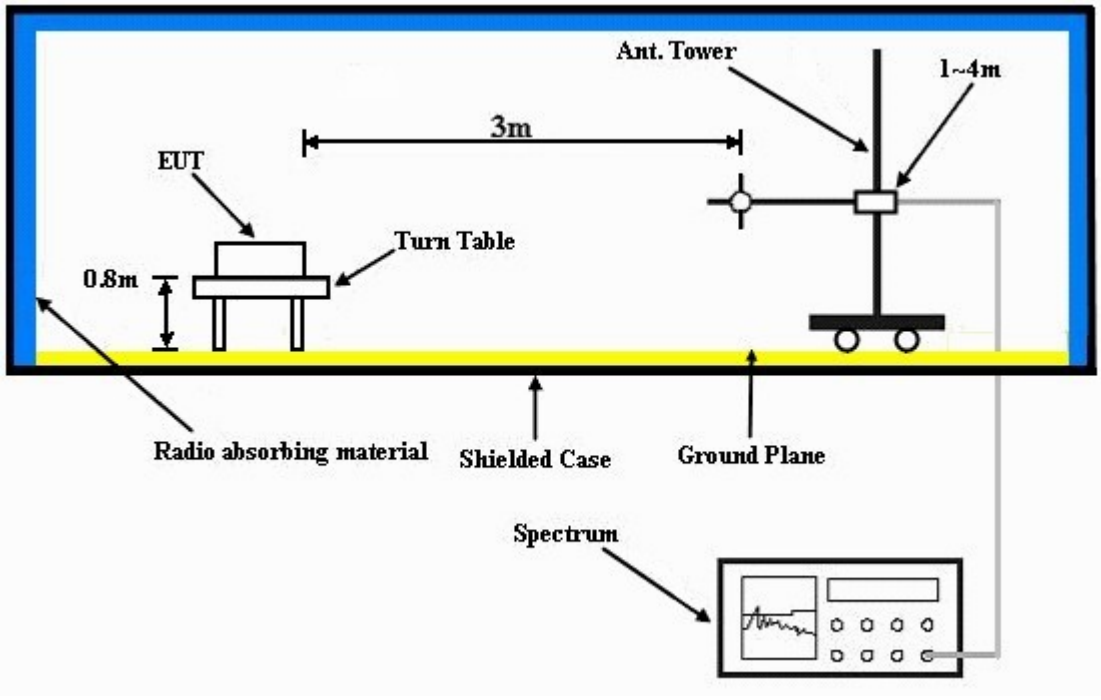
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) 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 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

a. Placed the EUT on a testing table.

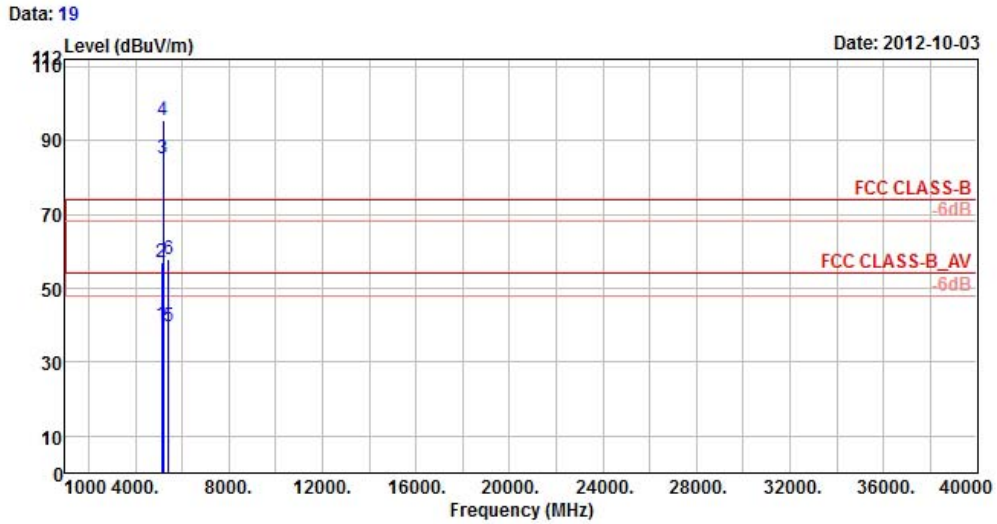
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA：

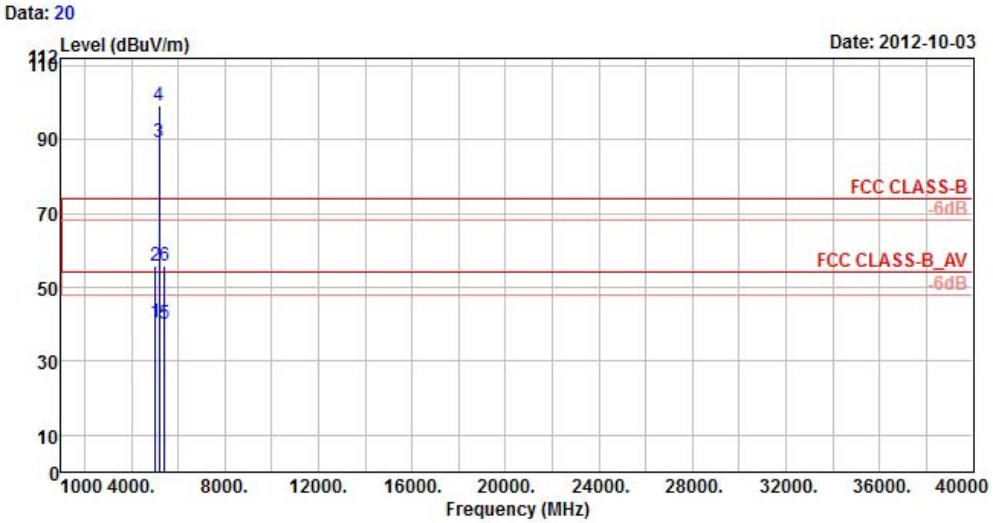
802.11a

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



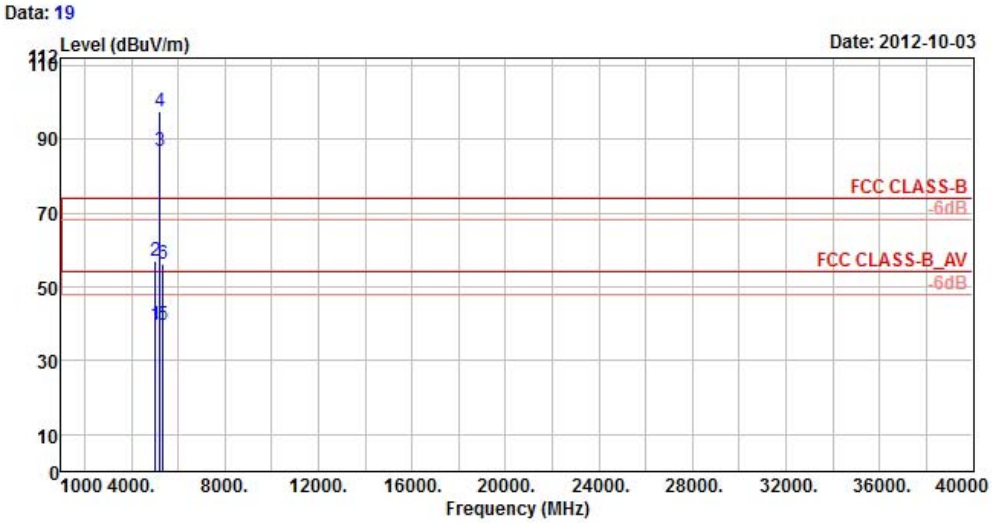
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH36
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5116.00	39.95	38.03	54.00	-14.05	31.85	7.35	37.28	112	143	Average
2	5116.00	57.05	55.13	74.00	-16.95	31.85	7.35	37.28	112	143	Peak
3 pp	5180.00	85.33	83.47			31.88	7.32	37.34	112	143	Average
4 pk	5180.00	95.50	93.64			31.88	7.32	37.34	112	143	Peak
5	5410.00	39.87	37.66	54.00	-14.13	31.99	7.40	37.18	112	143	Average
6	5410.00	57.83	55.62	74.00	-16.17	31.99	7.40	37.18	112	143	Peak



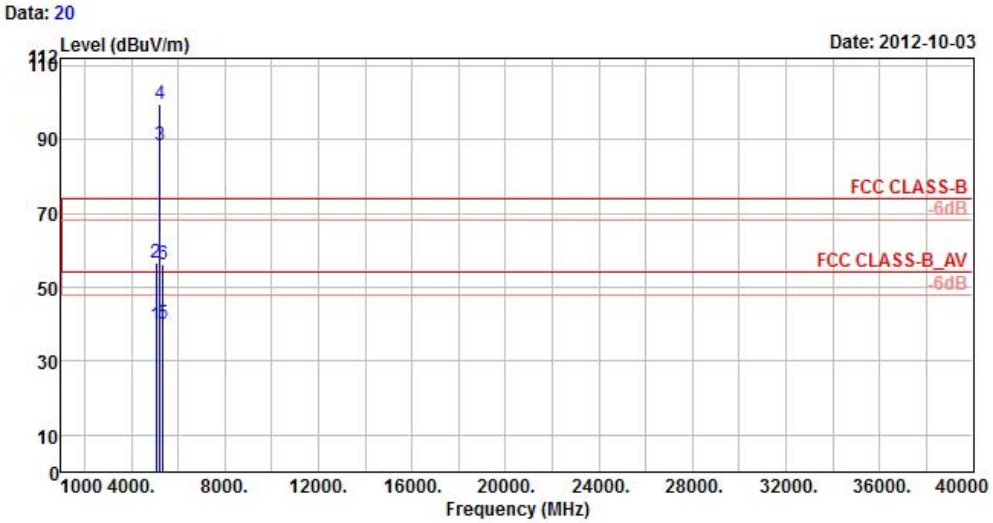
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH36
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5028.00	40.64	38.88	54.00	-13.36	31.81	7.19	37.24	100	185	Average
2	5028.00	55.90	54.14	74.00	-18.10	31.81	7.19	37.24	100	185	Peak
3 pp	5180.00	89.12	87.26			31.88	7.32	37.34	100	185	Average
4 pk	5180.00	99.12	97.26			31.88	7.32	37.34	100	185	Peak
5	5410.00	39.91	37.70	54.00	-14.09	31.99	7.40	37.18	100	185	Average
6	5410.00	55.75	53.54	74.00	-18.25	31.99	7.40	37.18	100	185	Peak



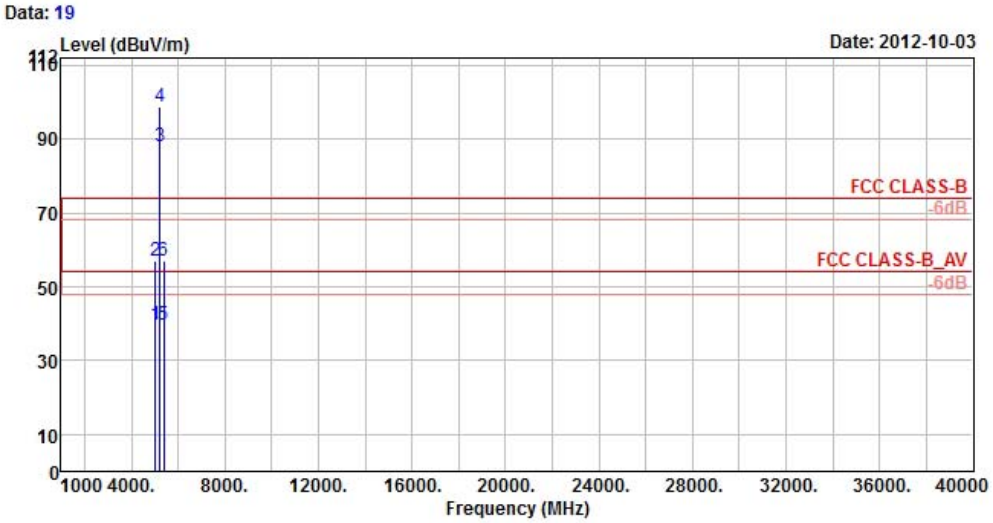
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH44
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5026.00	39.71	37.95	54.00	-14.29	31.81	7.19	37.24	107	16	Average
2	5026.00	57.24	55.48	74.00	-16.76	31.81	7.19	37.24	107	16	Peak
3 pp	5220.00	86.71	84.85			31.90	7.32	37.36	107	16	Average
4 pk	5220.00	97.50	95.64			31.90	7.32	37.36	107	16	Peak
5	5362.00	39.84	37.65	54.00	-14.16	31.97	7.40	37.18	107	16	Average
6	5362.00	56.26	54.07	74.00	-17.74	31.97	7.40	37.18	107	16	Peak



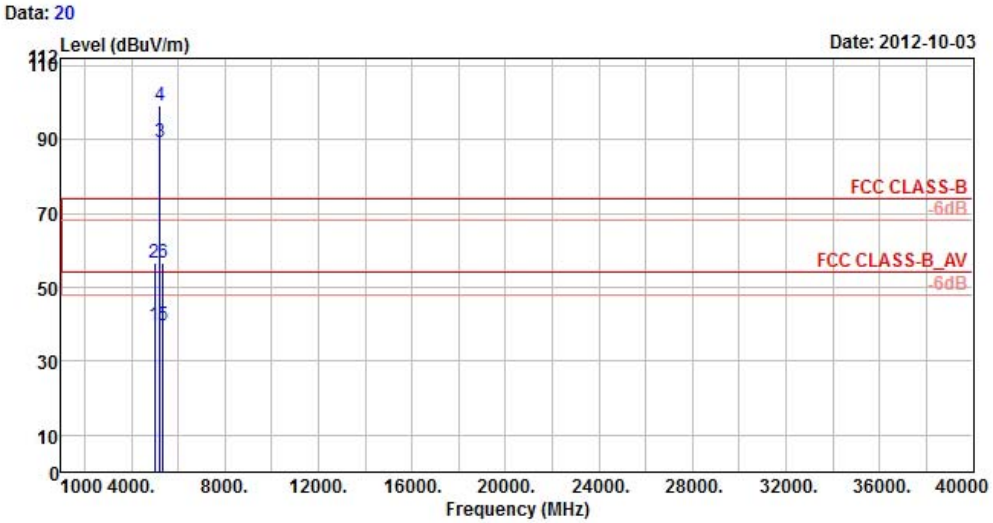
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH44
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5048.00	39.67	37.85	54.00	-14.33	31.82	7.25	37.25	100	194	Average
2	5048.00	56.70	54.88	74.00	-17.30	31.82	7.25	37.25	100	194	Peak
3 pp	5220.00	88.61	86.75			31.90	7.32	37.36	100	194	Average
4 pk	5220.00	99.68	97.82			31.90	7.32	37.36	100	194	Peak
5	5356.00	39.99	37.80	54.00	-14.01	31.97	7.40	37.18	100	194	Average
6	5356.00	56.14	53.95	74.00	-17.86	31.97	7.40	37.18	100	194	Peak



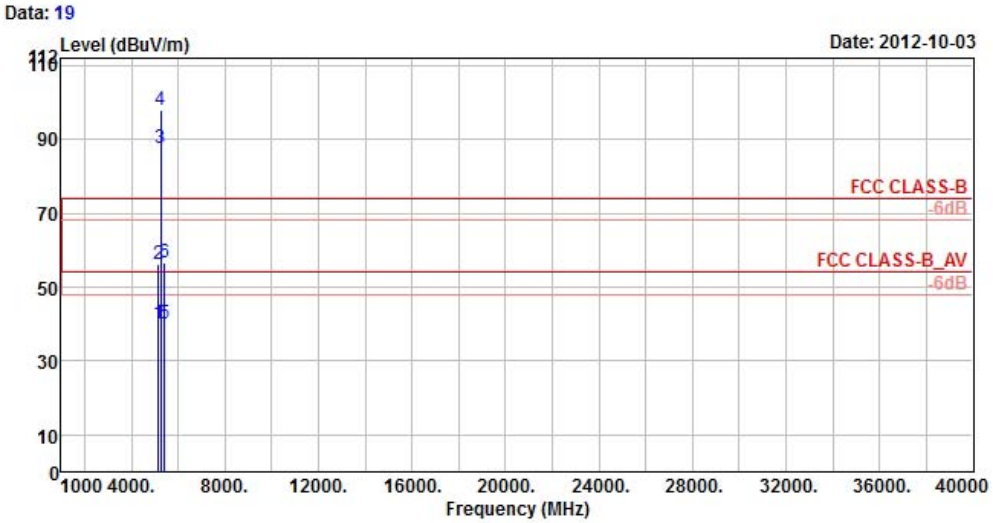
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH48
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5024.00	39.72	37.96	54.00	-14.28	31.81	7.19	37.24	105	5	Average
2	5024.00	56.98	55.22	74.00	-17.02	31.81	7.19	37.24	105	5	Peak
3 pp	5240.00	87.87	85.94			31.91	7.34	37.32	105	5	Average
4 pk	5240.00	98.66	96.73			31.91	7.34	37.32	105	5	Peak
5	5388.00	39.86	37.66	54.00	-14.14	31.98	7.40	37.18	105	5	Average
6	5388.00	56.91	54.71	74.00	-17.09	31.98	7.40	37.18	105	5	Peak



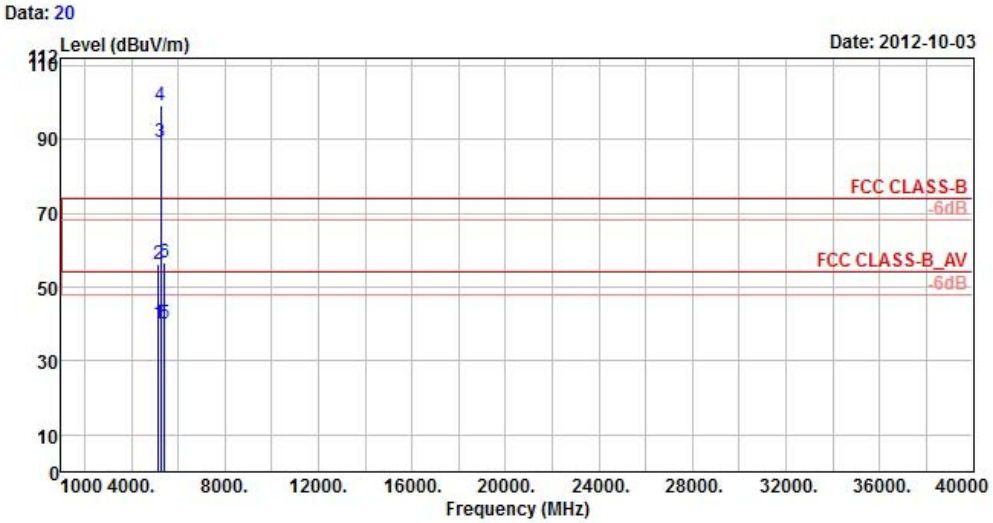
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH48
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5008.00	39.65	37.94	54.00	-14.35	31.80	7.14	37.23	100	180	Average
2	5008.00	56.54	54.83	74.00	-17.46	31.80	7.14	37.23	100	180	Peak
3 pp	5240.00	89.30	87.37			31.91	7.34	37.32	100	180	Average
4 pk	5240.00	99.04	97.11			31.91	7.34	37.32	100	180	Peak
5	5358.00	39.87	37.68	54.00	-14.13	31.97	7.40	37.18	100	180	Average
6	5358.00	56.80	54.61	74.00	-17.20	31.97	7.40	37.18	100	180	Peak



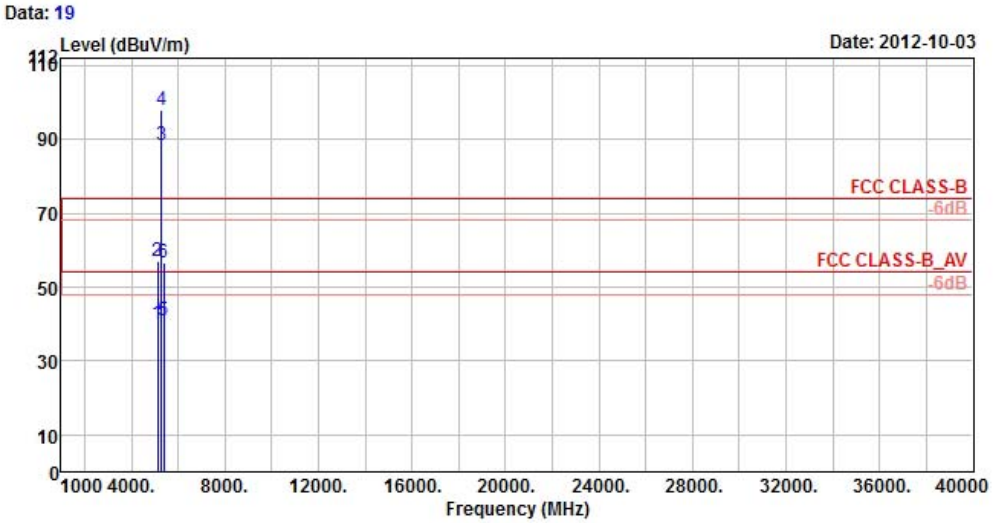
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH52
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5150.00	39.95	38.07	54.00	-14.05	31.87	7.33	37.32	105	23	Average
2	5150.00	56.16	54.28	74.00	-17.84	31.87	7.33	37.32	105	23	Peak
3 pp	5260.00	87.82	85.81			31.92	7.36	37.27	105	23	Average
4 pk	5260.00	97.86	95.85			31.92	7.36	37.27	105	23	Peak
5	5418.00	39.91	37.69	54.00	-14.09	32.00	7.40	37.18	105	23	Average
6	5418.00	56.53	54.31	74.00	-17.47	32.00	7.40	37.18	105	23	Peak



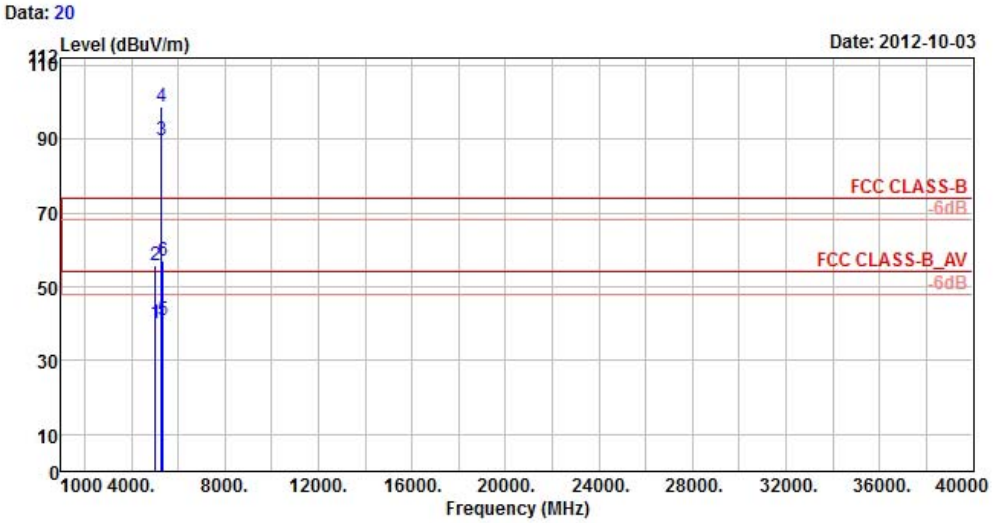
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH52
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5150.00	40.17	38.29	54.00	-13.83	31.87	7.33	37.32	100	191	Average
2	5150.00	56.38	54.50	74.00	-17.62	31.87	7.33	37.32	100	191	Peak
3 pp	5260.00	89.29	87.28			31.92	7.36	37.27	100	191	Average
4 pk	5260.00	99.17	97.16			31.92	7.36	37.27	100	191	Peak
5	5412.00	39.91	37.69	54.00	-14.09	32.00	7.40	37.18	100	191	Average
6	5412.00	56.53	54.31	74.00	-17.47	32.00	7.40	37.18	100	191	Peak



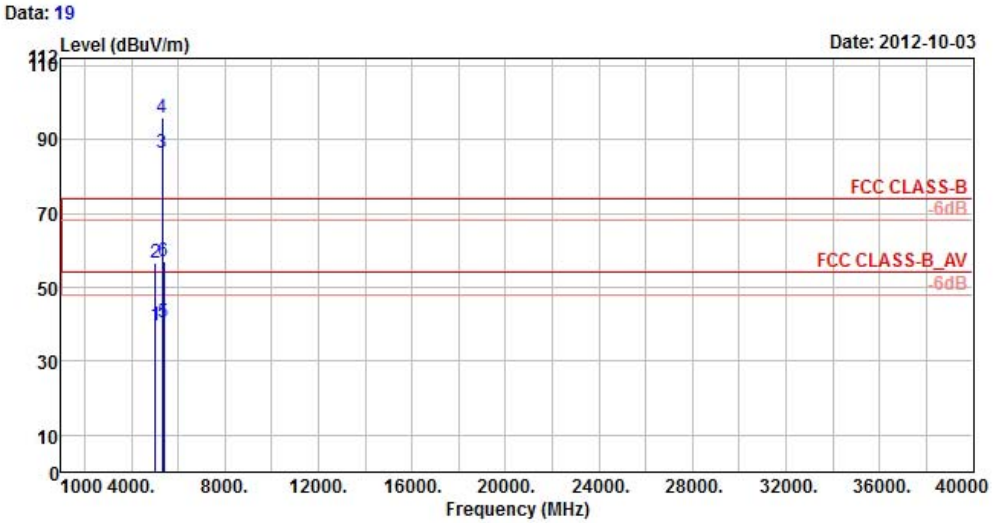
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH60
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5138.00	39.97	38.07	54.00	-14.03	31.86	7.34	37.30	106	14	Average
2	5138.00	56.92	55.02	74.00	-17.08	31.86	7.34	37.30	106	14	Peak
3 pp	5300.00	88.46	86.31			31.94	7.40	37.19	106	14	Average
4 pk	5300.00	97.79	95.64			31.94	7.40	37.19	106	14	Peak
5	5390.00	40.88	38.68	54.00	-13.12	31.98	7.40	37.18	106	14	Average
6	5390.00	56.46	54.26	74.00	-17.54	31.98	7.40	37.18	106	14	Peak



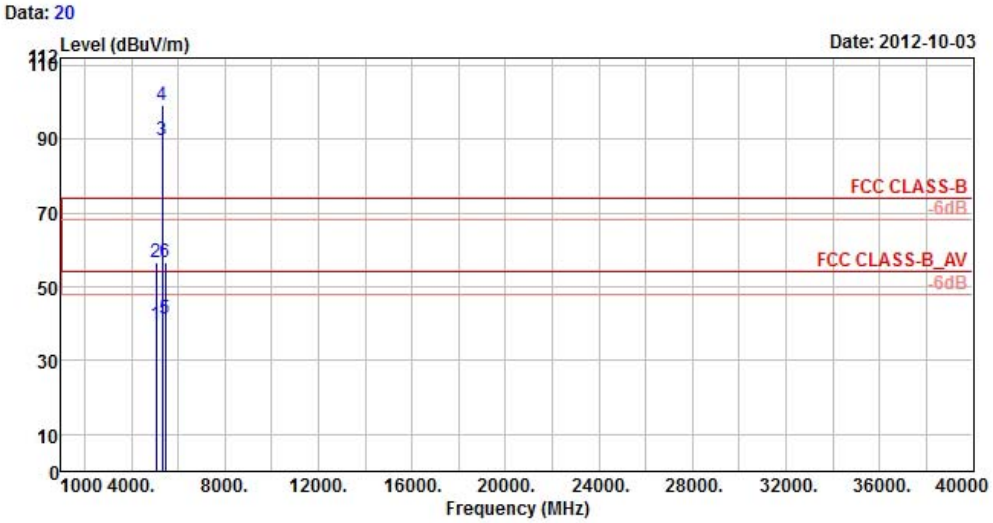
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH60
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5022.00	39.90	38.14	54.00	-14.10	31.81	7.19	37.24	100	118	Average
2	5022.00	55.85	54.09	74.00	-18.15	31.81	7.19	37.24	100	118	Peak
3 pp	5300.00	89.56	87.41			31.94	7.40	37.19	100	118	Average
4 pk	5300.00	98.94	96.79			31.94	7.40	37.19	100	118	Peak
5	5356.00	40.84	38.65	54.00	-13.16	31.97	7.40	37.18	100	118	Average
6	5356.00	57.01	54.82	74.00	-16.99	31.97	7.40	37.18	100	118	Peak



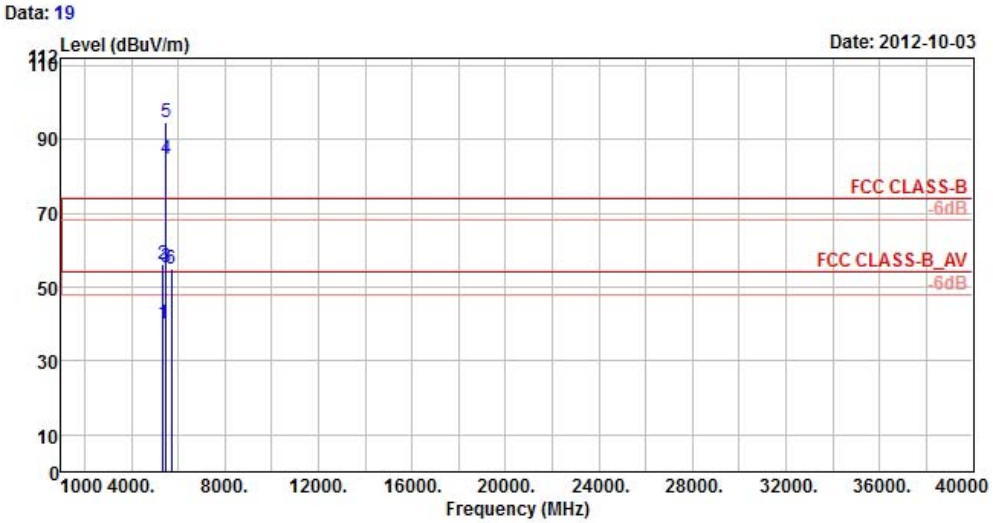
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH64
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5028.00	39.70	37.94	54.00	-14.30	31.81	7.19	37.24	102	168	Average
2	5028.00	56.60	54.84	74.00	-17.40	31.81	7.19	37.24	102	168	Peak
3 pp	5320.00	86.35	84.19			31.95	7.40	37.19	102	168	Average
4 pk	5320.00	95.88	93.72			31.95	7.40	37.19	102	168	Peak
5	5402.00	40.46	38.25	54.00	-13.54	31.99	7.40	37.18	102	168	Average
6	5402.00	57.02	54.81	74.00	-16.98	31.99	7.40	37.18	102	168	Peak



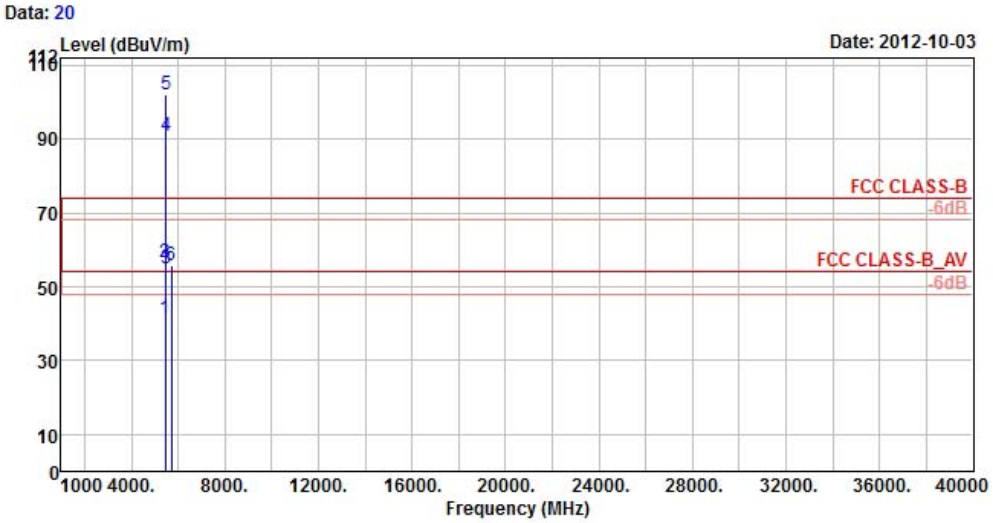
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH64
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5046.00	39.85	38.03	54.00	-14.15	31.82	7.25	37.25	100	118	Average
2	5046.00	56.49	54.67	74.00	-17.51	31.82	7.25	37.25	100	118	Peak
3 pp	5320.00	89.56	87.40			31.95	7.40	37.19	100	118	Average
4 pk	5320.00	99.39	97.23			31.95	7.40	37.19	100	118	Peak
5	5456.00	41.40	38.94	54.00	-12.60	32.01	7.53	37.08	100	118	Average
6	5456.00	56.53	54.07	74.00	-17.47	32.01	7.53	37.08	100	118	Peak



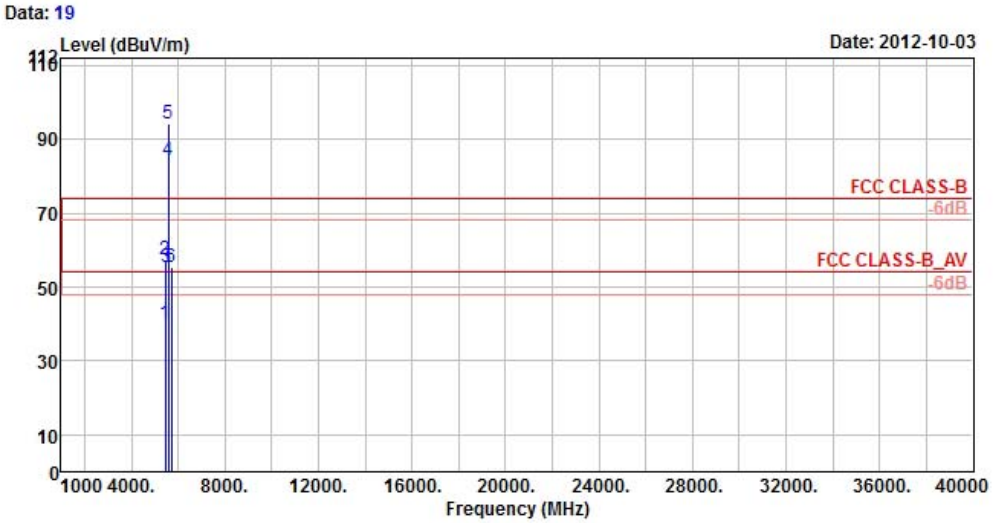
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH100
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5348.00	40.08	37.89	54.00	-13.92	31.97	7.40	37.18	100	177	Average
2	5348.00	56.03	53.84	74.00	-17.97	31.97	7.40	37.18	100	177	Peak
3	5470.00	55.56	53.09	68.30	-12.74	32.02	7.53	37.08	100	177	Peak
4 pp	5500.00	84.86	82.26			32.04	7.59	37.03	100	177	Average
5 pk	5500.00	94.50	91.90			32.04	7.59	37.03	100	177	Peak
6	5725.00	55.04	52.40	68.30	-13.26	32.36	7.71	37.43	100	177	Peak



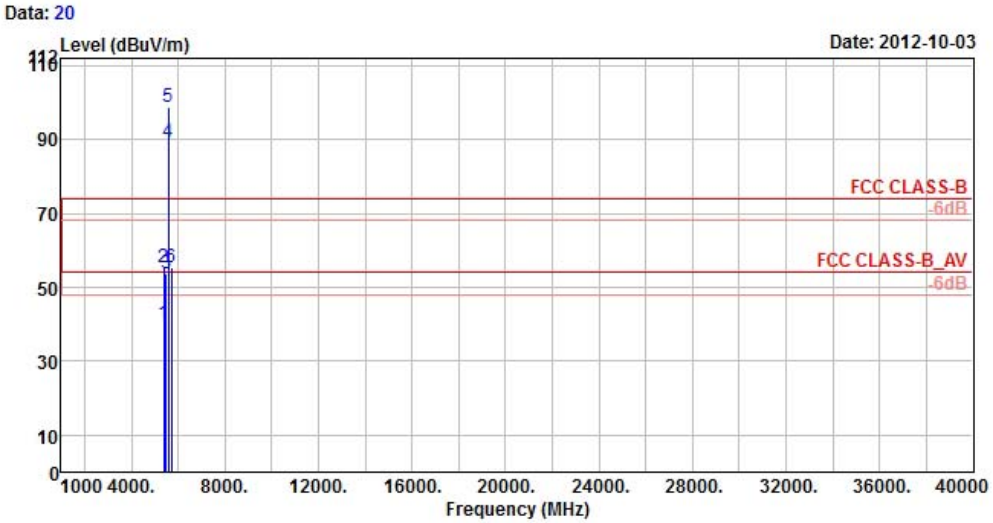
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH100
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

	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	5450.00	41.44	38.98	54.00	-12.56	32.01	7.53	37.08	111	138	Average
2	5450.00	56.69	54.23	74.00	-17.31	32.01	7.53	37.08	111	138	Peak
3	5470.00	54.97	52.50	68.30	-13.33	32.02	7.53	37.08	111	138	Peak
4 pp	5500.00	90.78	88.18			32.04	7.59	37.03	111	138	Average
5 pk	5500.00	102.10	99.50			32.04	7.59	37.03	111	138	Peak
6	5725.00	55.74	53.10	68.30	-12.56	32.36	7.71	37.43	111	138	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH116
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

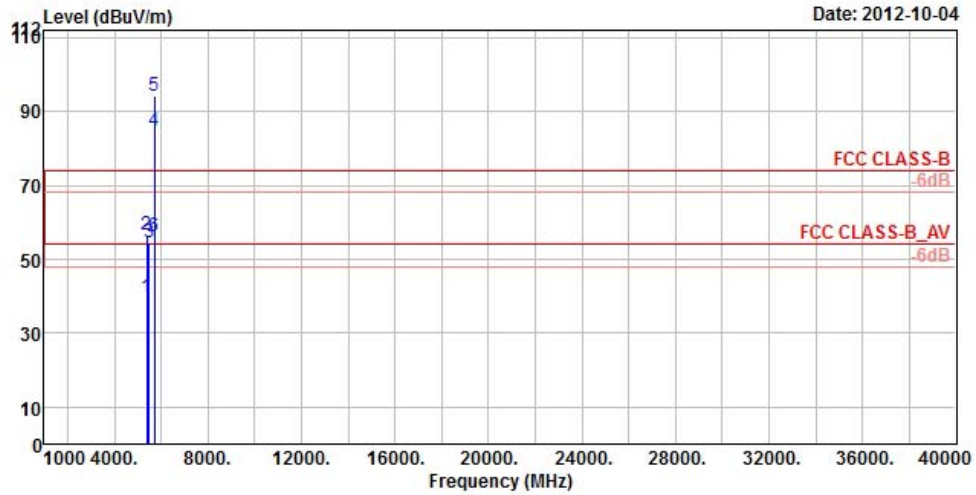
	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5458.00	40.03	37.57	54.00	-13.97	32.01	7.53	37.08	109	176	Average
2	5458.00	57.46	55.00	74.00	-16.54	32.01	7.53	37.08	109	176	Peak
3	5470.00	55.35	52.88	68.30	-12.95	32.02	7.53	37.08	109	176	Peak
4 pp	5580.00	84.45	81.90			32.14	7.57	37.16	109	176	Average
5 pk	5580.00	94.19	91.64			32.14	7.57	37.16	109	176	Peak
6	5725.00	55.35	52.71	68.30	-12.95	32.36	7.71	37.43	109	176	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH116
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -13

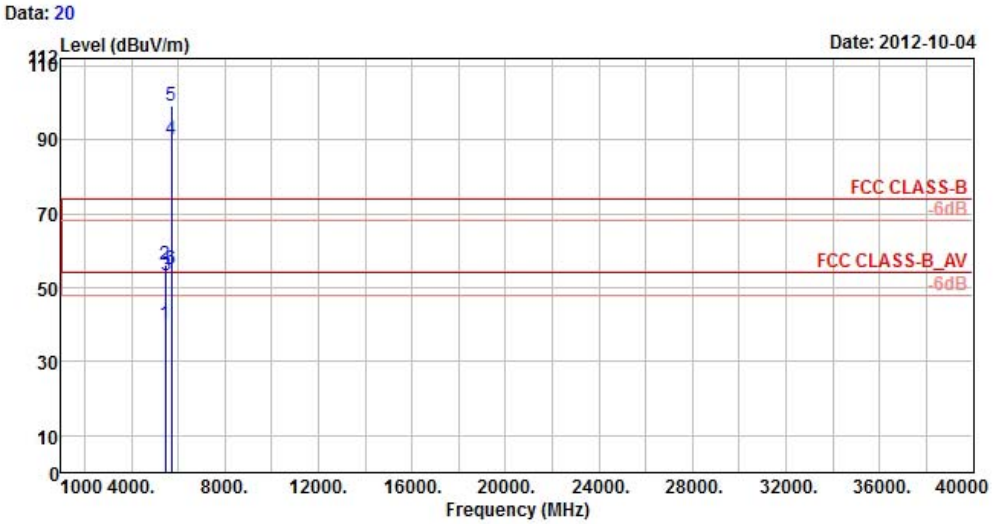
	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5402.00	39.99	37.78	54.00	-14.01	31.99	7.40	37.18	100	143	Average
2	5402.00	55.54	53.33	74.00	-18.46	31.99	7.40	37.18	100	143	Peak
3	5470.00	53.72	51.25	68.30	-14.58	32.02	7.53	37.08	100	143	Peak
4 pp	5580.00	89.41	86.86			32.14	7.57	37.16	100	143	Average
5 pk	5580.00	98.85	96.30			32.14	7.57	37.16	100	143	Peak
6	5725.00	55.38	52.74	68.30	-12.92	32.36	7.71	37.43	100	143	Peak

Data: 19



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11A TX CH140
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -14

	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	5404.00	39.88	37.67	54.00	-14.12	31.99	7.40	37.18	100	79	Average
2	5404.00	56.80	54.59	74.00	-17.20	31.99	7.40	37.18	100	79	Peak
3	5470.00	54.42	51.95	68.30	-13.88	32.02	7.53	37.08	100	79	Peak
4 pp	5700.00	84.61	82.01			32.31	7.69	37.40	100	79	Average
5 pk	5700.00	94.18	91.58			32.31	7.69	37.40	100	79	Peak
6	5725.00	56.29	53.65	68.30	-12.01	32.36	7.71	37.43	100	79	Peak

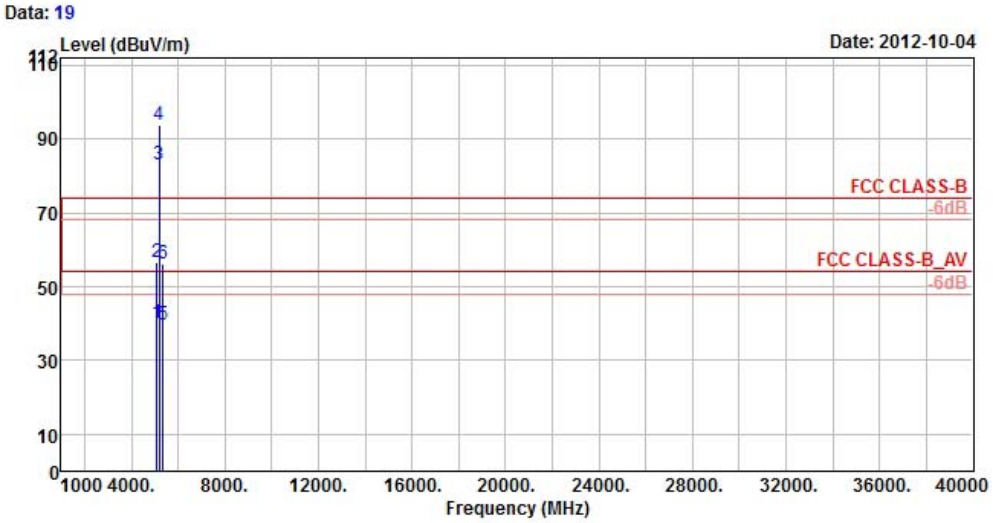


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11A TX CH140
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : 6M
Power : -14

	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	5454.00	40.17	37.71	54.00	-13.83	32.01	7.53	37.08	100	149	Average
2	5454.00	56.10	53.64	74.00	-17.90	32.01	7.53	37.08	100	149	Peak
3	5470.00	53.49	51.02	68.30	-14.81	32.02	7.53	37.08	100	149	Peak
4 pp	5700.00	89.97	87.37			32.31	7.69	37.40	100	149	Average
5 pk	5700.00	99.02	96.42			32.31	7.69	37.40	100	149	Peak
6	5725.00	55.02	52.38	68.30	-13.28	32.36	7.71	37.43	100	149	Peak

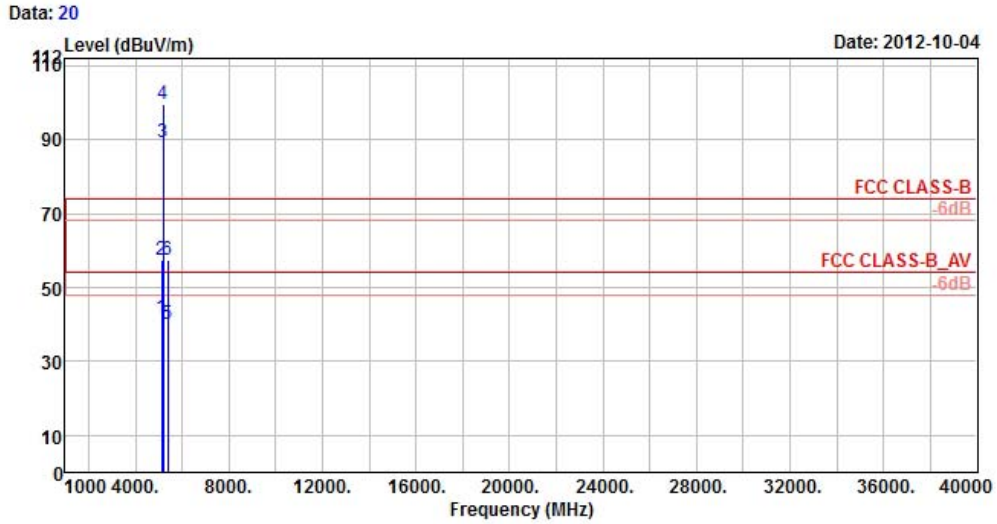
802.11n(20MHz)

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-03E
Remark : 11N_HT20 CH36
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

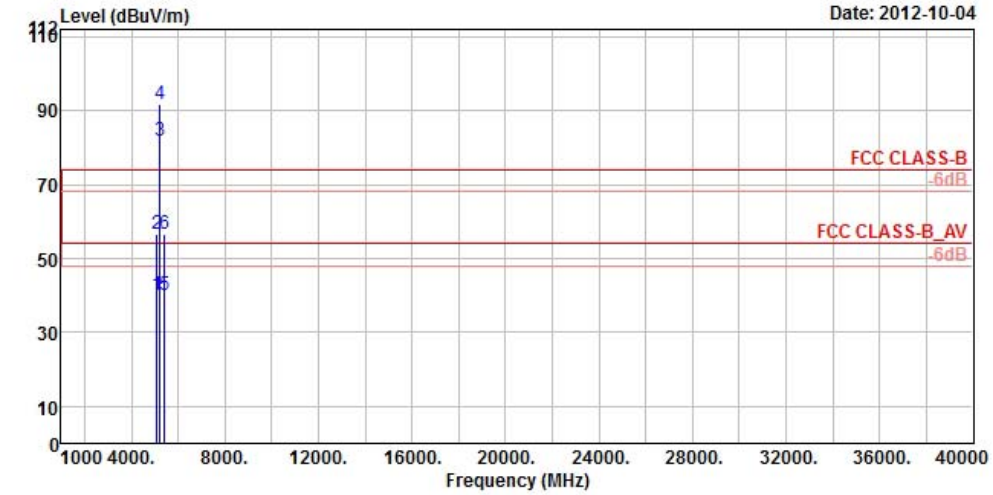
	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5098.00	39.99	38.08	54.00	-14.01	31.84	7.35	37.28	110	84	Average
2	5098.00	56.42	54.51	74.00	-17.58	31.84	7.35	37.28	110	84	Peak
3 pp	5180.00	83.24	81.38			31.88	7.32	37.34	110	84	Average
4 pk	5180.00	93.80	91.94			31.88	7.32	37.34	110	84	Peak
5	5354.00	39.86	37.67	54.00	-14.14	31.97	7.40	37.18	110	84	Average
6	5354.00	56.03	53.84	74.00	-17.97	31.97	7.40	37.18	110	84	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH36
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

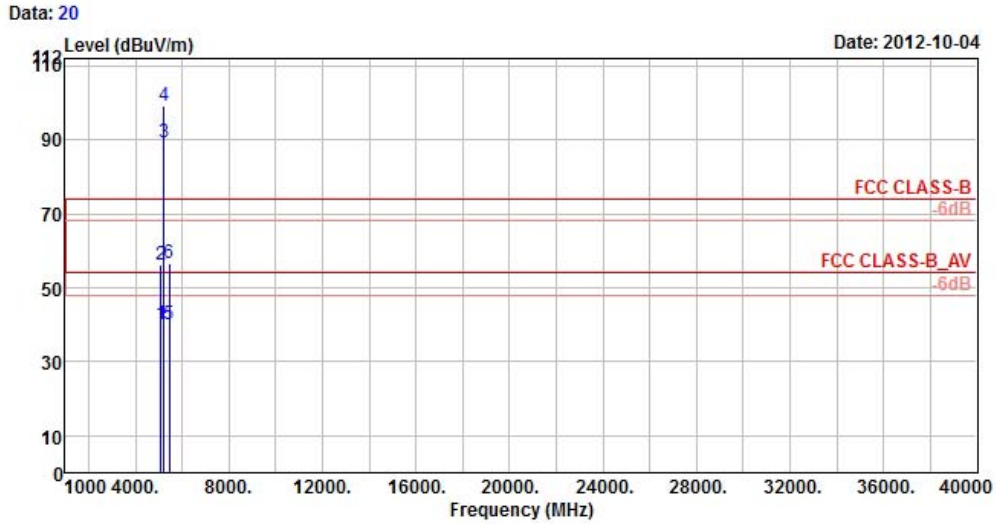
	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5126.00	41.59	39.69	54.00	-12.41	31.86	7.34	37.30	100	145	Average
2	5126.00	57.36	55.46	74.00	-16.64	31.86	7.34	37.30	100	145	Peak
3 pp	5180.00	89.18	87.32			31.88	7.32	37.34	100	145	Average
4 pk	5180.00	99.50	97.64			31.88	7.32	37.34	100	145	Peak
5	5390.00	39.90	37.70	54.00	-14.10	31.98	7.40	37.18	100	145	Average
6	5390.00	57.52	55.32	74.00	-16.48	31.98	7.40	37.18	100	145	Peak

Data: 19



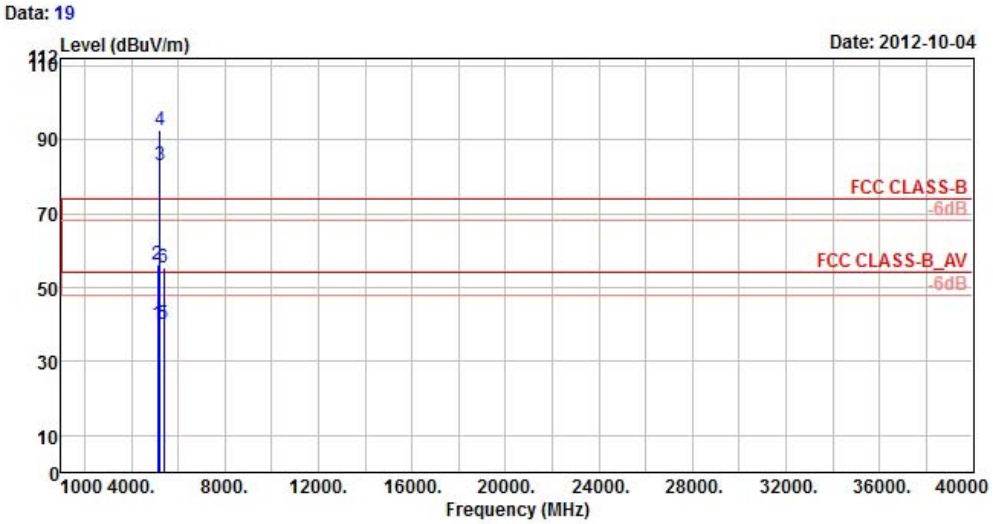
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH44
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5108.00	40.09	38.17	54.00	-13.91	31.85	7.35	37.28	100	77	Average
2	5108.00	56.47	54.55	74.00	-17.53	31.85	7.35	37.28	100	77	Peak
3 pp	5220.00	81.69	79.83			31.90	7.32	37.36	100	77	Average
4 pk	5220.00	91.63	89.77			31.90	7.32	37.36	100	77	Peak
5	5414.00	39.94	37.72	54.00	-14.06	32.00	7.40	37.18	100	77	Average
6	5414.00	56.82	54.60	74.00	-17.18	32.00	7.40	37.18	100	77	Peak



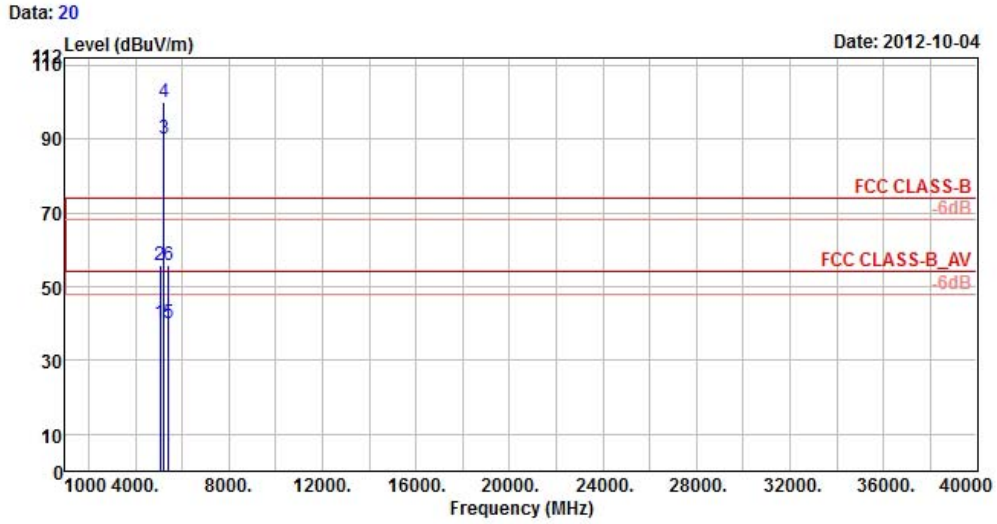
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH44
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5110.00	40.00	38.08	54.00	-14.00	31.85	7.35	37.28	100	152	Average
2	5110.00	56.31	54.39	74.00	-17.69	31.85	7.35	37.28	100	152	Peak
3 pp	5220.00	89.14	87.28			31.90	7.32	37.36	100	152	Average
4 pk	5220.00	99.01	97.15			31.90	7.32	37.36	100	152	Peak
5	5448.00	40.15	37.80	54.00	-13.85	32.01	7.47	37.13	100	152	Average
6	5448.00	56.61	54.26	74.00	-17.39	32.01	7.47	37.13	100	152	Peak



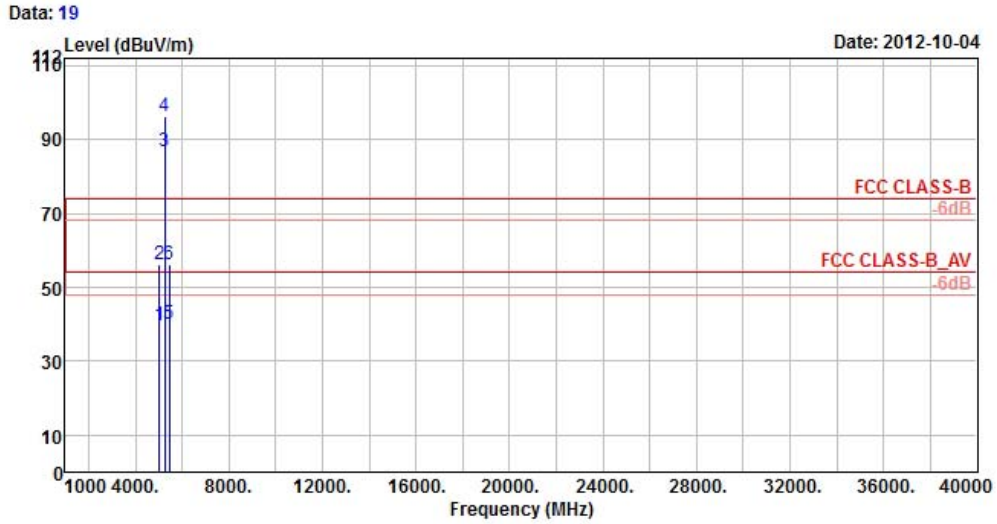
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH48
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5114.00	40.00	38.08	54.00	-14.00	31.85	7.35	37.28	100	351	Average
2	5114.00	56.27	54.35	74.00	-17.73	31.85	7.35	37.28	100	351	Peak
3 pp	5240.00	82.90	80.97			31.91	7.34	37.32	100	351	Average
4 pk	5240.00	92.78	90.85			31.91	7.34	37.32	100	351	Peak
5	5390.00	39.91	37.71	54.00	-14.09	31.98	7.40	37.18	100	351	Average
6	5390.00	55.52	53.32	74.00	-18.48	31.98	7.40	37.18	100	351	Peak



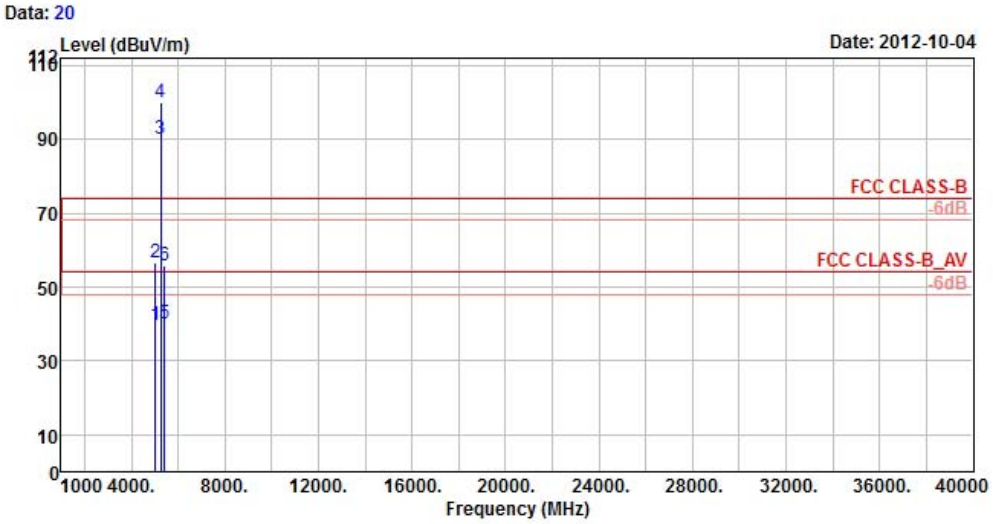
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH48
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5076.00	39.99	38.13	54.00	-14.01	31.83	7.30	37.27	100	180	Average
2	5076.00	55.77	53.91	74.00	-18.23	31.83	7.30	37.27	100	180	Peak
3 pp	5240.00	90.11	88.18			31.91	7.34	37.32	100	180	Average
4 pk	5240.00	99.91	97.98			31.91	7.34	37.32	100	180	Peak
5	5412.00	39.98	37.76	54.00	-14.02	32.00	7.40	37.18	100	180	Average
6	5412.00	55.67	53.45	74.00	-18.33	32.00	7.40	37.18	100	180	Peak



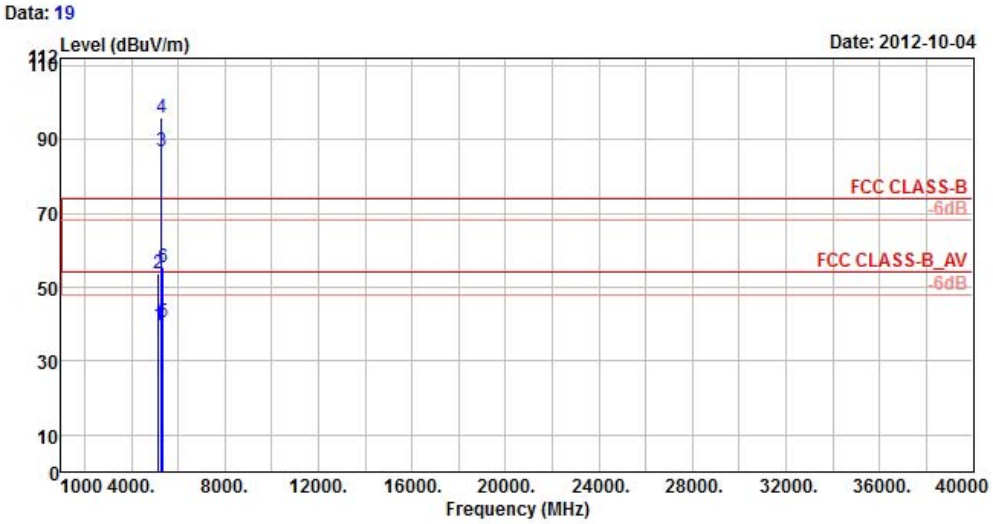
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH52
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5022.00	39.82	38.06	54.00	-14.18	31.81	7.19	37.24	103	164	Average
2	5022.00	56.12	54.36	74.00	-17.88	31.81	7.19	37.24	103	164	Peak
3 pp	5260.00	86.65	84.64			31.92	7.36	37.27	103	164	Average
4 pk	5260.00	96.49	94.48			31.92	7.36	37.27	103	164	Peak
5	5444.00	39.96	37.61	54.00	-14.04	32.01	7.47	37.13	103	164	Average
6	5444.00	56.35	54.00	74.00	-17.65	32.01	7.47	37.13	103	164	Peak



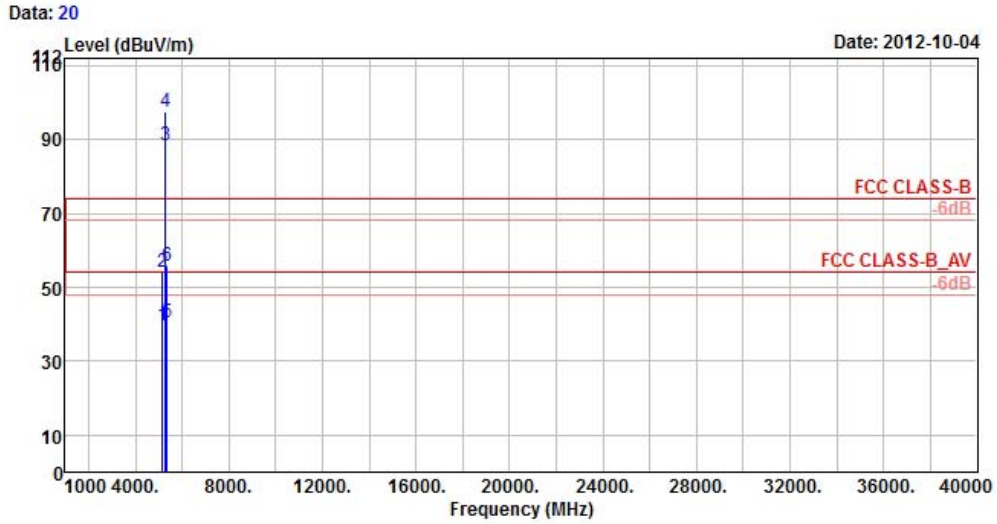
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH52
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5016.00	39.83	38.12	54.00	-14.17	31.80	7.14	37.23	100	183	Average
2	5016.00	56.42	54.71	74.00	-17.58	31.80	7.14	37.23	100	183	Peak
3 pp	5260.00	89.90	87.89			31.92	7.36	37.27	100	183	Average
4 pk	5260.00	100.11	98.10			31.92	7.36	37.27	100	183	Peak
5	5410.00	40.06	37.85	54.00	-13.94	31.99	7.40	37.18	100	183	Average
6	5410.00	55.80	53.59	74.00	-18.20	31.99	7.40	37.18	100	183	Peak



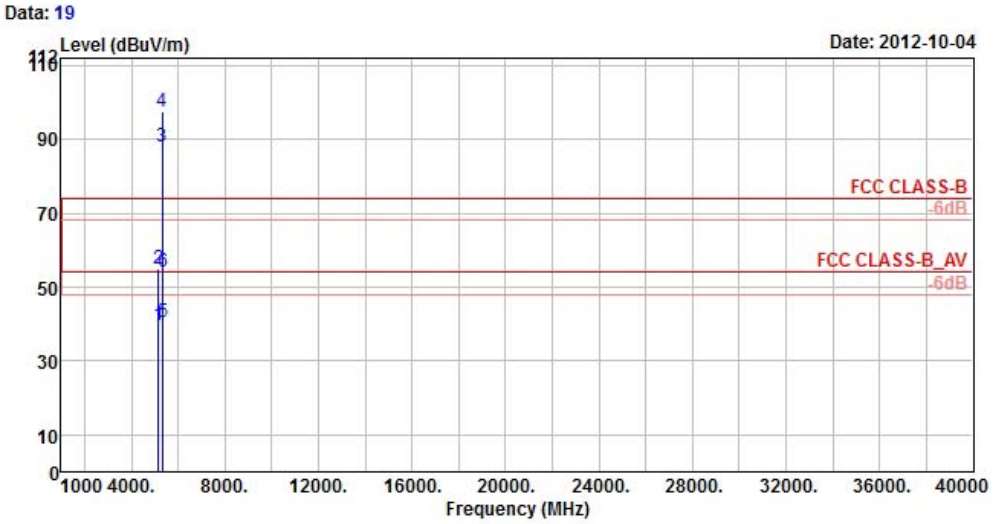
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH60
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5150.00	39.59	37.71	54.00	-14.41	31.87	7.33	37.32	103	162	Average
2	5150.00	53.78	51.90	74.00	-20.22	31.87	7.33	37.32	103	162	Peak
3 pp	5300.00	86.80	84.65			31.94	7.40	37.19	103	162	Average
4 pk	5300.00	95.82	93.67			31.94	7.40	37.19	103	162	Peak
5	5362.00	40.60	38.41	54.00	-13.40	31.97	7.40	37.18	103	162	Average
6	5362.00	55.45	53.26	74.00	-18.55	31.97	7.40	37.18	103	162	Peak



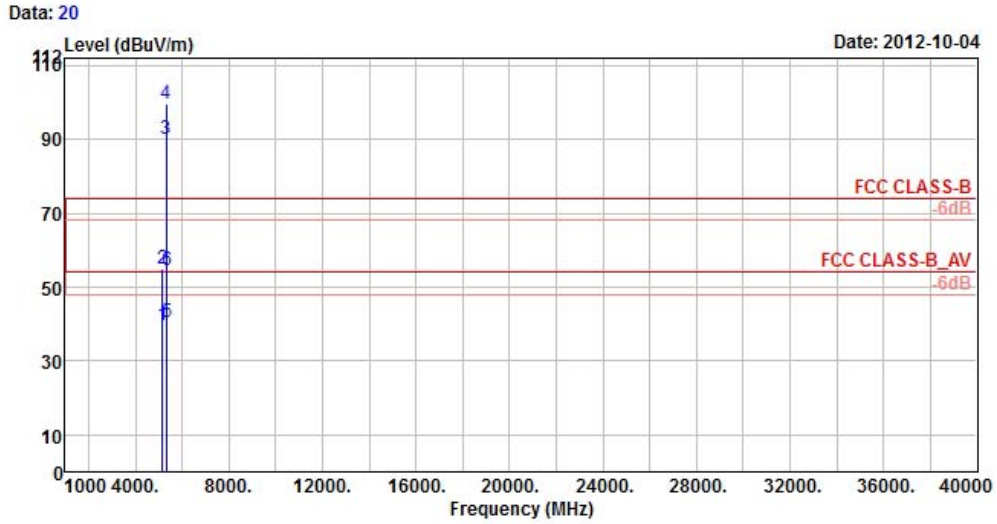
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH60
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5150.00	39.74	37.86	54.00	-14.26	31.87	7.33	37.32	100	115	Average
2	5150.00	54.05	52.17	74.00	-19.95	31.87	7.33	37.32	100	115	Peak
3 pp	5300.00	88.61	86.46			31.94	7.40	37.19	100	115	Average
4 pk	5300.00	97.71	95.56			31.94	7.40	37.19	100	115	Peak
5	5364.00	40.55	38.36	54.00	-13.45	31.97	7.40	37.18	100	115	Average
6	5364.00	55.80	53.61	74.00	-18.20	31.97	7.40	37.18	100	115	Peak



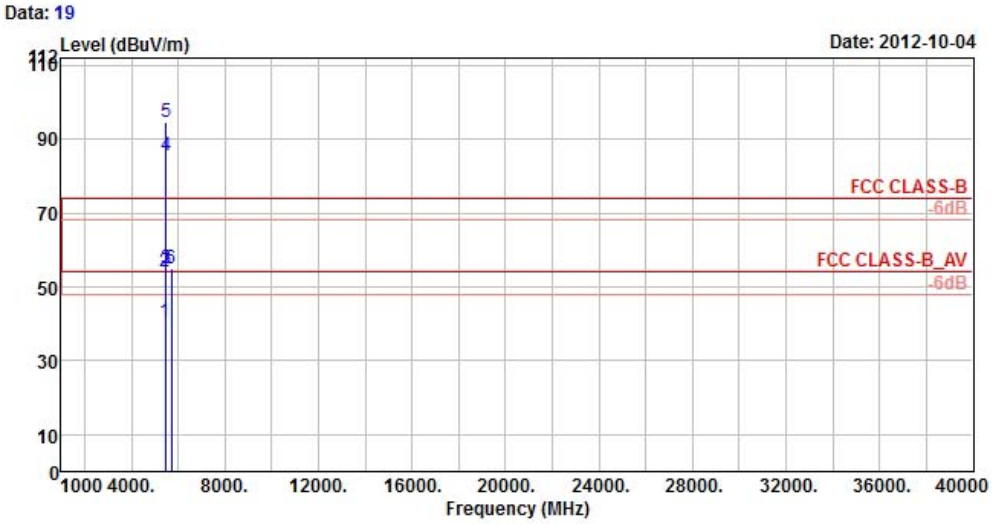
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH64
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -13

	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	5150.00	39.63	37.75	54.00	-14.37	31.87	7.33	37.32	101	162	Average
2	5150.00	55.07	53.19	74.00	-18.93	31.87	7.33	37.32	101	162	Peak
3 pp	5320.00	88.09	85.93			31.95	7.40	37.19	101	162	Average
4 pk	5320.00	97.49	95.33			31.95	7.40	37.19	101	162	Peak
5	5350.00	40.50	38.31	54.00	-13.50	31.97	7.40	37.18	101	162	Average
6	5350.00	54.18	51.99	74.00	-19.82	31.97	7.40	37.18	101	162	Peak



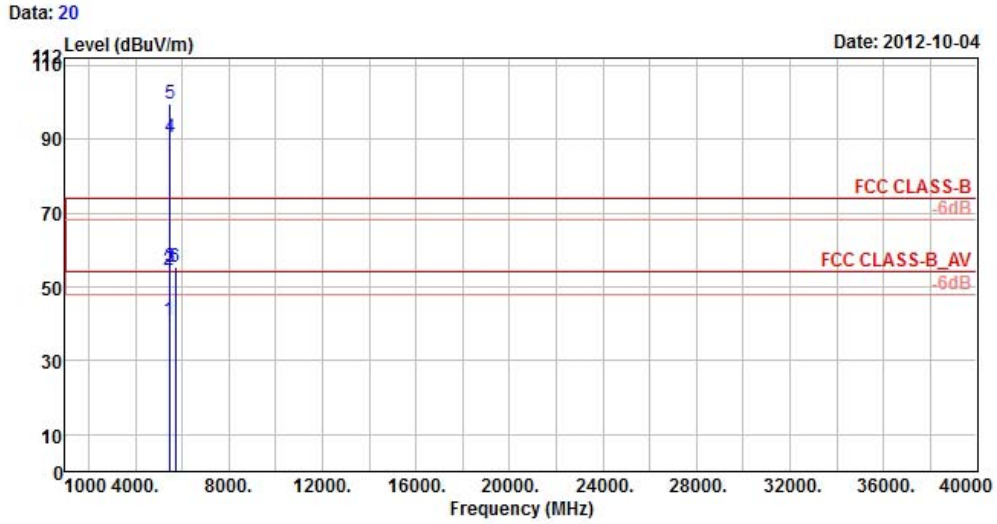
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH64
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -13

	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	5150.00	39.69	37.81	54.00	-14.31	31.87	7.33	37.32	100	117	Average
2	5150.00	54.79	52.91	74.00	-19.21	31.87	7.33	37.32	100	117	Peak
3 pp	5320.00	89.99	87.83			31.95	7.40	37.19	100	117	Average
4 pk	5320.00	99.45	97.29			31.95	7.40	37.19	100	117	Peak
5	5350.00	40.63	38.44	54.00	-13.37	31.97	7.40	37.18	100	117	Average
6	5350.00	54.39	52.20	74.00	-19.61	31.97	7.40	37.18	100	117	Peak



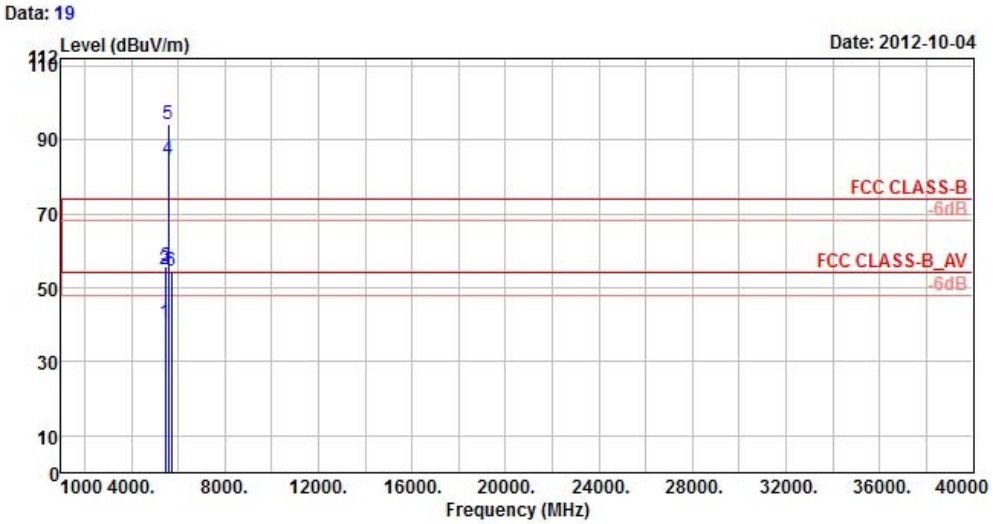
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH100
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -12

	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	5460.00	40.58	38.12	54.00	-13.42	32.01	7.53	37.08	100	164	Average
2	5460.00	54.08	51.62	74.00	-19.92	32.01	7.53	37.08	100	164	Peak
3	5470.00	54.98	52.51	68.30	-13.32	32.02	7.53	37.08	100	164	Peak
4 pp	5500.00	85.72	83.12			32.04	7.59	37.03	100	164	Average
5 pk	5500.00	94.75	92.15			32.04	7.59	37.03	100	164	Peak
6	5725.00	54.91	52.27	68.30	-13.39	32.36	7.71	37.43	100	164	Peak



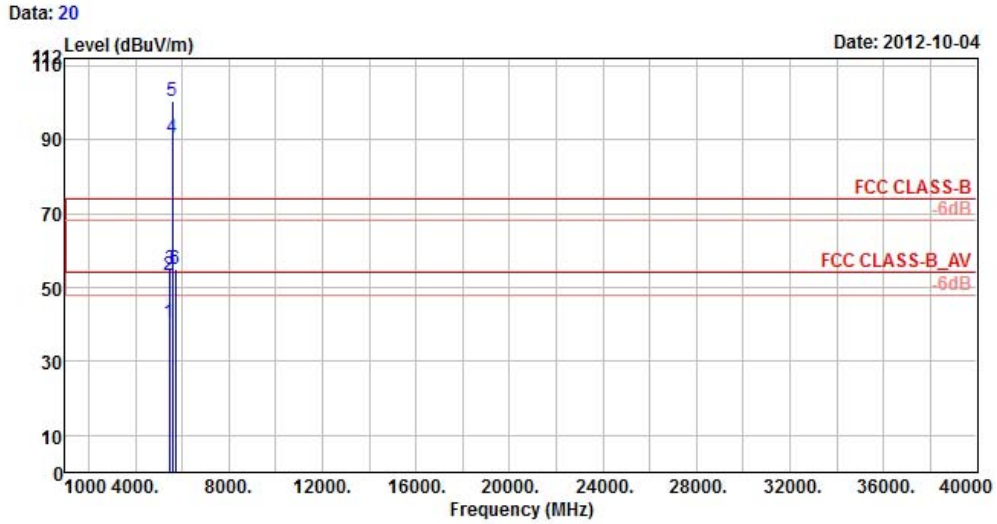
Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH100
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -12

	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	5460.00	40.75	38.29	54.00	-13.25	32.01	7.53	37.08	100	128	Average
2	5460.00	54.40	51.94	74.00	-19.60	32.01	7.53	37.08	100	128	Peak
3	5470.00	55.39	52.92	68.30	-12.91	32.02	7.53	37.08	100	128	Peak
4 pp	5500.00	90.44	87.84			32.04	7.59	37.03	100	128	Average
5 pk	5500.00	99.68	97.08			32.04	7.59	37.03	100	128	Peak
6	5725.00	55.54	52.90	68.30	-12.76	32.36	7.71	37.43	100	128	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH116
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -12

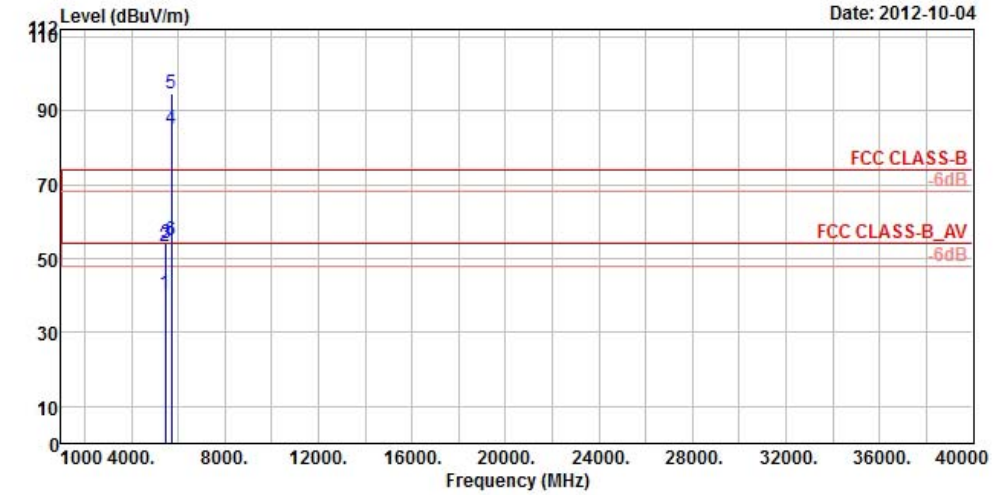
	Freq	Level	Read Level	Limit Line	OverLimit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5460.00	40.58	38.12	54.00	-13.42	32.01	7.53	37.08	100	203	Average
2	5460.00	55.11	52.65	74.00	-18.89	32.01	7.53	37.08	100	203	Peak
3	5470.00	55.75	53.28	68.30	-12.55	32.02	7.53	37.08	100	203	Peak
4 pp	5580.00	84.62	82.07			32.14	7.57	37.16	100	203	Average
5 pk	5580.00	94.05	91.50			32.14	7.57	37.16	100	203	Peak
6	5725.00	54.37	51.73	68.30	-13.93	32.36	7.71	37.43	100	203	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH116
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -12

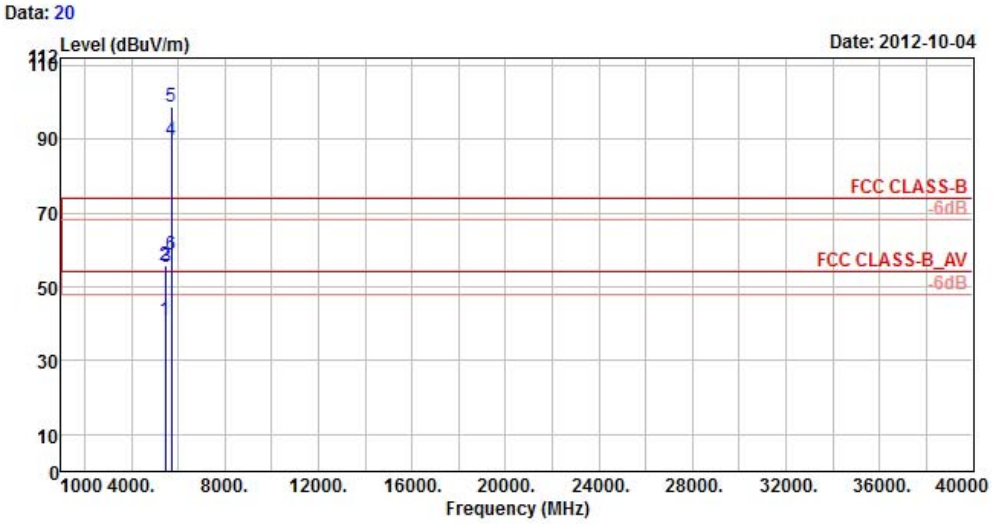
	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	5460.00	40.65	38.19	54.00	-13.35	32.01	7.53	37.08	121	139	Average
2	5460.00	53.27	50.81	74.00	-20.73	32.01	7.53	37.08	121	139	Peak
3	5470.00	54.77	52.30	68.30	-13.53	32.02	7.53	37.08	121	139	Peak
4 pp	5580.00	90.52	87.97			32.14	7.57	37.16	121	139	Average
5 pk	5580.00	100.55	98.00			32.14	7.57	37.16	121	139	Peak
6	5725.00	54.80	52.16	68.30	-13.50	32.36	7.71	37.43	121	139	Peak

Data: 19



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-03E
Remark : 11N_HT20 CH140
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5460.00	40.44	37.98	54.00	-13.56	32.01	7.53	37.08	122	80	Average
2	5460.00	53.42	50.96	74.00	-20.58	32.01	7.53	37.08	122	80	Peak
3	5470.00	54.00	51.53	68.30	-14.30	32.02	7.53	37.08	122	80	Peak
4 pp	5700.00	85.29	82.69			32.31	7.69	37.40	122	80	Average
5 pk	5700.00	94.50	91.90			32.31	7.69	37.40	122	80	Peak
6	5725.00	55.04	52.40	68.30	-13.26	32.36	7.71	37.43	122	80	Peak

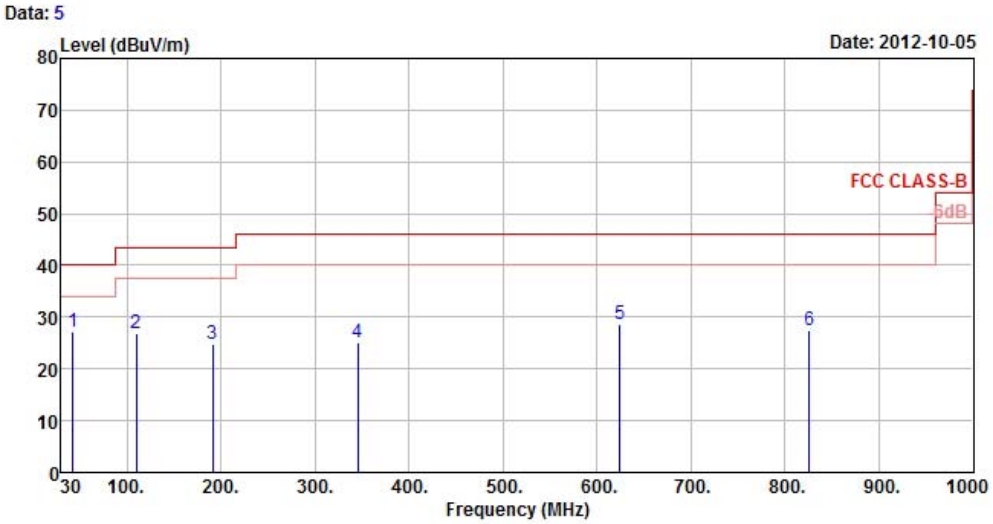


Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-03E
Remark : 11N_HT20 CH140
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y
Rate : MCS0
Power : -14

	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	5460.00	40.76	38.30	54.00	-13.24	32.01	7.53	37.08	131	144	Average
2	5460.00	55.94	53.48	74.00	-18.06	32.01	7.53	37.08	131	144	Peak
3	5470.00	55.43	52.96	68.30	-12.87	32.02	7.53	37.08	131	144	Peak
4 pp	5700.00	89.51	86.91			32.31	7.69	37.40	131	144	Average
5 pk	5700.00	98.83	96.23			32.31	7.69	37.40	131	144	Peak
6	5725.00	58.51	55.87	68.30	-9.79	32.36	7.71	37.43	131	144	Peak

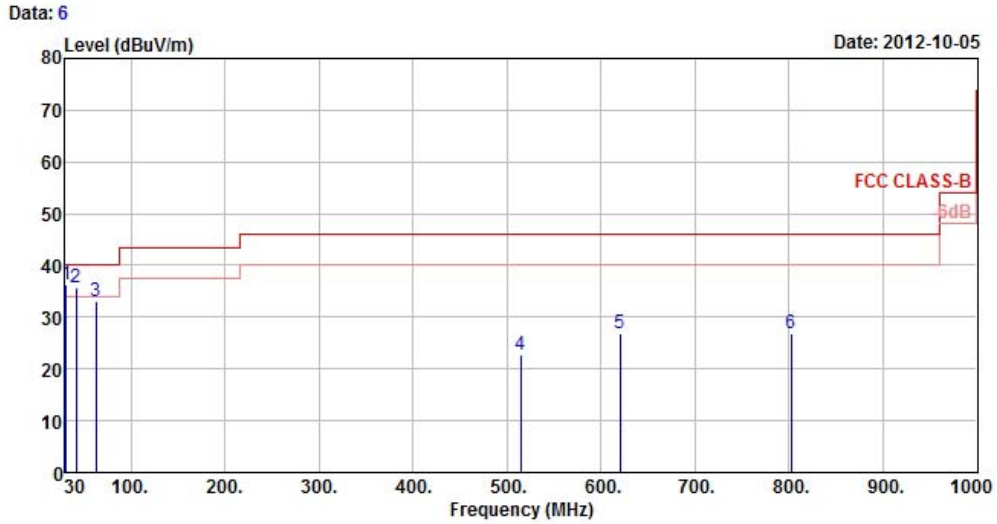
BELOW 1GHz WORST-CASE DATA：802.11a

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-03E
Remark : 11AI TX LF
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y

	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	42.42	27.11	43.91	40.00	-12.89	13.58	0.70	31.08	133	220	Peak
2	109.65	26.73	47.46	43.50	-16.77	9.99	1.12	31.84	200	331	Peak
3	191.19	24.71	44.86	43.50	-18.79	9.98	1.55	31.68	225	122	Peak
4	345.50	25.21	40.80	46.00	-20.79	14.03	2.21	31.83	133	223	Peak
5	624.10	28.73	37.84	46.00	-17.27	19.89	3.16	32.16	100	0	Peak
6	825.70	27.60	32.96	46.00	-18.40	22.55	3.76	31.67	100	145	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_30M~1G_LF VERTICAL
Brand/Model: F-03E
Remark : 11AI TX LF
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : Y

	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	36.42	54.83	40.00	-3.58	12.14	0.57	31.12	100	221	Peak
2 !	41.61	35.66	52.47	40.00	-4.34	13.56	0.68	31.05	133	202	Peak
3	62.40	32.99	51.89	40.00	-7.01	11.71	0.84	31.45	196	67	Peak
4	514.90	22.74	33.83	46.00	-23.26	17.66	2.83	31.58	100	67	Peak
5	620.60	26.84	36.00	46.00	-19.16	19.86	3.15	32.17	100	185	Peak
6	801.90	26.80	32.28	46.00	-19.20	22.25	3.70	31.43	100	52	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. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
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.

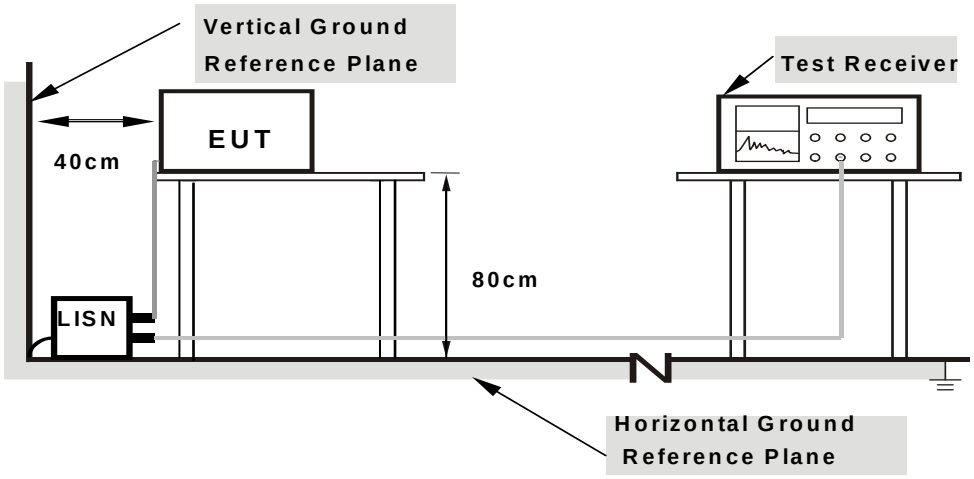
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

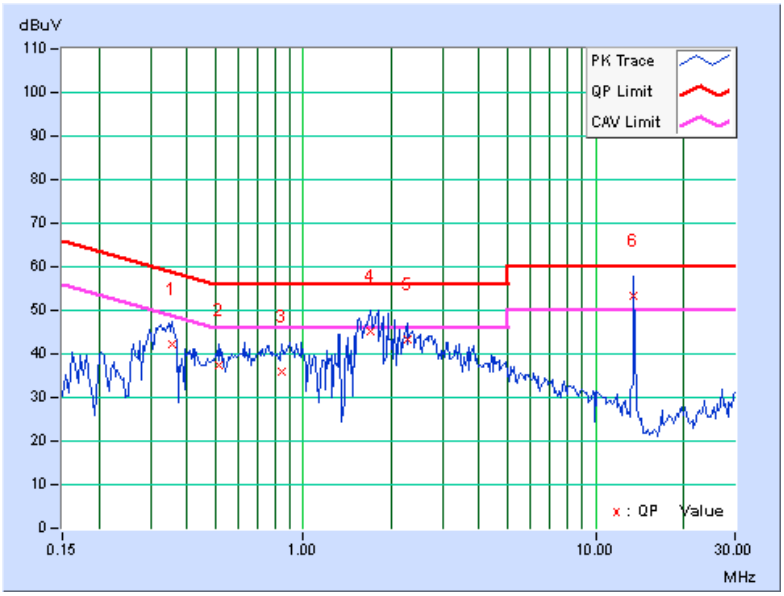
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：802.11a

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	0.35703	0.17	42.02	31.18	42.19	31.35	58.80	48.80	-16.61	-17.45
2	0.51719	0.17	37.15	24.45	37.32	24.62	56.00	46.00	-18.68	-21.38
3	0.84531	0.18	35.63	25.86	35.81	26.04	56.00	46.00	-20.19	-19.96
4	1.69141	0.24	44.85	35.62	45.09	35.86	56.00	46.00	-10.91	-10.14
5	2.26563	0.27	43.00	34.68	43.27	34.95	56.00	46.00	-12.73	-11.05
6	**13.55585**	**0.50**	**52.91**	**48.47**	**53.41**	**48.97**	**60.00**	**50.00**	**-6.59**	**-1.03**

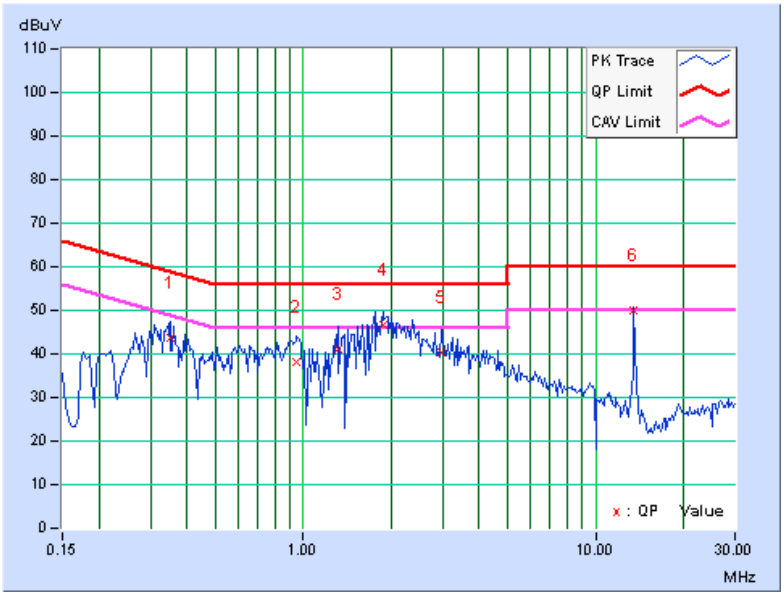
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading 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	0.35313	0.16	43.39	30.52	43.55	30.68	58.89	48.89	-15.34	-18.21
2	0.94688	0.19	37.79	26.14	37.98	26.33	56.00	46.00	-18.02	-19.67
3	1.31250	0.21	40.72	30.07	40.93	30.28	56.00	46.00	-15.07	-15.72
4	1.87500	0.25	46.43	36.46	46.68	36.71	56.00	46.00	-9.32	-9.29
5	2.98828	0.30	40.24	31.26	40.54	31.56	56.00	46.00	-15.46	-14.44
6	13.55469	0.57	49.52	46.92	50.09	47.49	60.00	50.00	-9.91	-2.51

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



4.3 AVERAGE TRANSMIT POWER MEASUREMENT

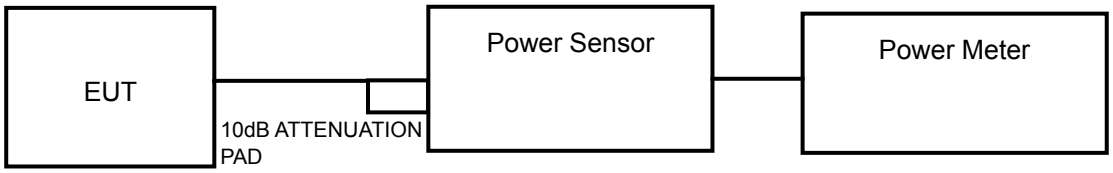
4.3.1 LIMITS OF AVERAGE TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

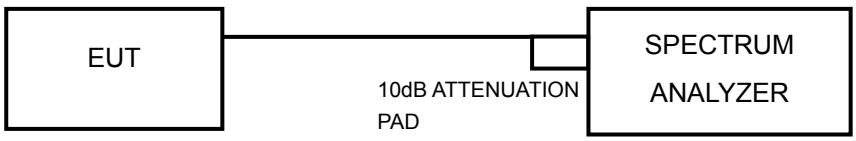
NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 26dB BANDWIDTH

1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

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 specific channel frequencies individually.

4.3.7 TEST RESULTS

POWER OUTPUT:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	7.447	8.72	17	PASS
44	5220	7.516	8.76	17	PASS
48	5240	7.328	8.65	17	PASS
52	5260	7.413	8.70	24	PASS
60	5300	7.278	8.62	24	PASS
64	5320	7.194	8.57	24	PASS
100	5500	5.902	7.71	24	PASS
116	5580	6.339	8.02	24	PASS
140	5700	7.780	8.91	24	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	6.982	8.44	17	PASS
44	5220	7.031	8.47	17	PASS
48	5240	6.871	8.37	17	PASS
52	5260	6.950	8.42	24	PASS
60	5300	6.855	8.36	24	PASS
64	5320	6.761	8.30	24	PASS
100	5500	5.957	7.75	24	PASS
116	5580	6.397	8.06	24	PASS
140	5700	7.762	8.90	24	PASS

26dB BANDWIDTH:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	29.97	PASS
44	5220	23.16	PASS
48	5240	23.08	PASS
52	5260	24.40	PASS
60	5300	23.46	PASS
64	5320	22.76	PASS
100	5500	23.06	PASS
116	5580	23.32	PASS
140	5700	22.76	PASS

802.11n (20MHz)

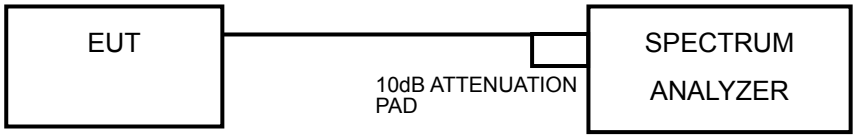
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	23.60	PASS
44	5220	23.81	PASS
48	5240	24.02	PASS
52	5260	23.27	PASS
60	5300	24.13	PASS
64	5320	23.23	PASS
100	5500	23.11	PASS
116	5580	23.09	PASS
140	5700	22.92	PASS

4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.4.4 TEST PROCEDURES

Using method SA-1 alternative

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Sweep time = 26 second.
4) Perform a single sweep.
5) Record the max value

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-4.13	4	PASS
44	5220	-4.32	4	PASS
48	5240	-4.19	4	PASS
52	5260	-4.19	11	PASS
60	5300	-4.23	11	PASS
64	5320	-4.29	11	PASS
100	5500	-4.84	11	PASS
116	5580	-4.52	11	PASS
140	5700	-6.49	11	PASS

802.11n (20MHz)

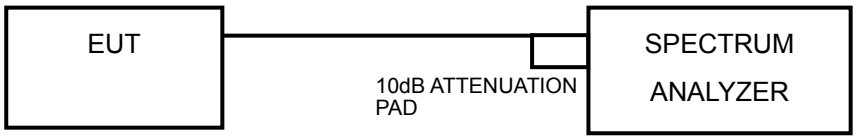
CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-5.19	4	PASS
44	5220	-5.02	4	PASS
48	5240	-4.86	4	PASS
52	5260	-4.92	11	PASS
60	5300	-4.88	11	PASS
64	5320	-4.85	11	PASS
100	5500	-5.11	11	PASS
116	5580	-4.82	11	PASS
140	5700	-6.58	11	PASS

4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

1) Set RBW = 1 MHz, VBW ≥ 3 MHz, Detector = peak.
2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
3) Use the peak search function to find the peak of the spectrum.
4) Measure the PPSD.
5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

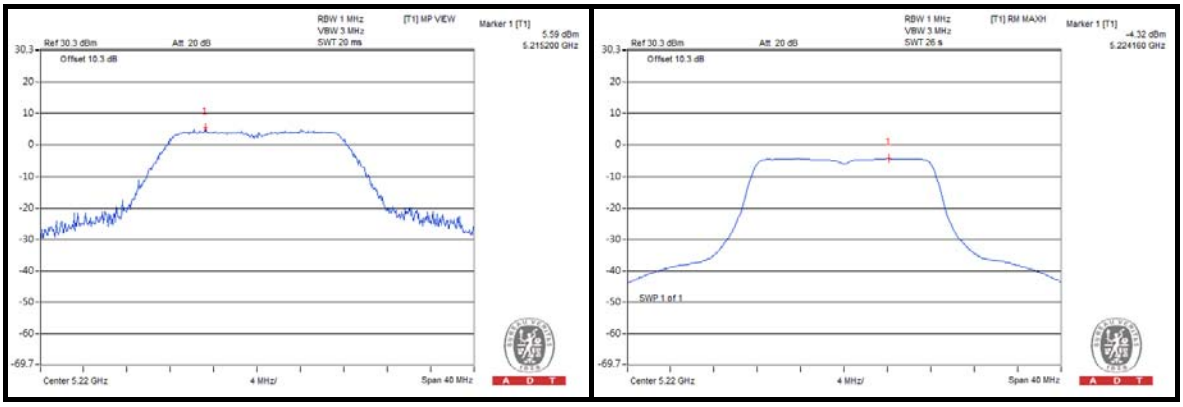
4.5.6 EUT OPERATING CONDITIONS

Same as 4.2.6

4.5.7 TEST RESULTS

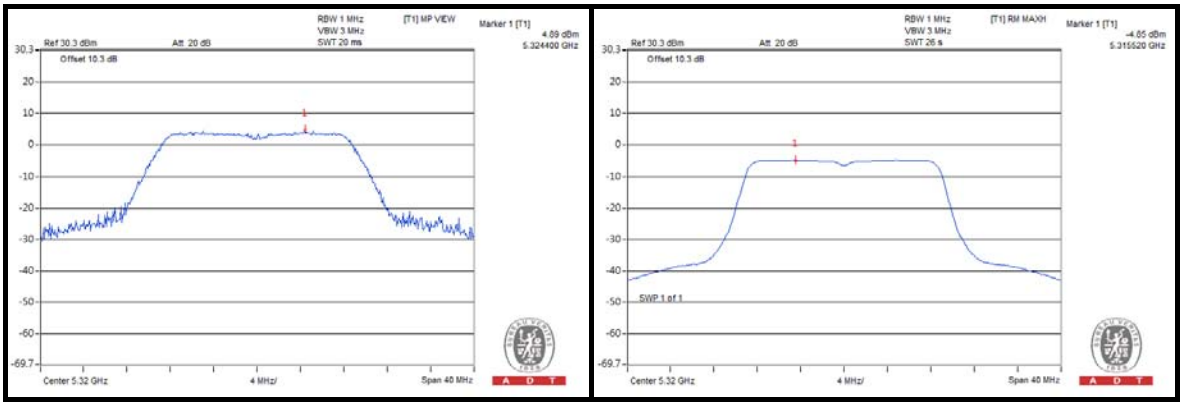
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	5.62	-4.13	9.75	13	PASS
44	5220	5.59	-4.32	9.91	13	PASS
48	5240	5.27	-4.19	9.46	13	PASS
52	5260	5.14	-4.19	9.33	13	PASS
60	5300	5.21	-4.23	9.44	13	PASS
64	5320	4.68	-4.29	8.97	13	PASS
100	5500	4.08	-4.84	8.92	13	PASS
116	5580	4.31	-4.52	8.83	13	PASS
140	5700	3.29	-6.49	9.78	13	PASS



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	4.16	-5.19	9.35	13	PASS
44	5220	4.06	-5.02	9.08	13	PASS
48	5240	4.83	-4.86	9.69	13	PASS
52	5260	4.76	-4.92	9.68	13	PASS
60	5300	4.41	-4.88	9.29	13	PASS
64	5320	4.89	-4.85	9.74	13	PASS
100	5500	4.32	-5.11	9.43	13	PASS
116	5580	4.20	-4.82	9.02	13	PASS
140	5700	2.53	-6.58	9.11	13	PASS

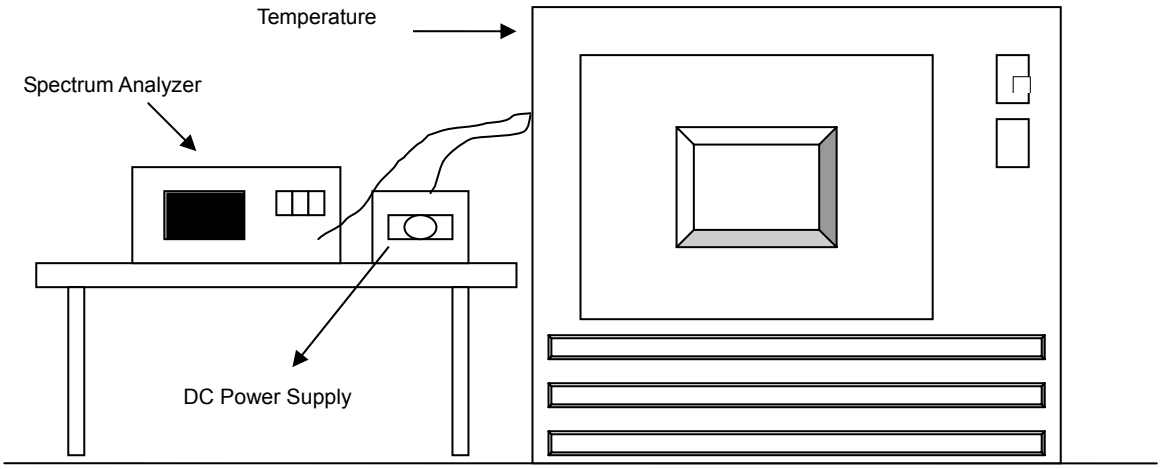


4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.6.4 TEST PROCEDURE

a. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.

b. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.

c. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 TEST RESULTS

FREQUEMCY STABILITY VERSUS TEMP.				
802.11a				
Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.19	5188.81	0.000
44	5220	5211.33	5228.67	0.000
48	5240	5231.27	5248.63	-9.542
52	5260	5251.26	5268.74	0.000
60	5300	5291.29	5308.62	-8.491
64	5320	5311.29	5328.61	-9.398
100	5500	5491.32	5508.59	-8.182
116	5580	5571.34	5588.58	-7.168
140	5700	5691.32	5708.67	-0.877

FREQUEMCY STABILITY VERSUS TEMP.				
802.11n (20MHz)				
Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5170.68	5189.26	-5.79
44	5220	5210.74	5229.23	-2.87
48	5240	5230.70	5249.24	-5.73
52	5260	5250.70	5269.24	-5.70
60	5300	5290.62	5309.31	-6.60
64	5320	5310.69	5329.24	-6.58
100	5500	5490.73	5509.25	-1.82
116	5580	5570.68	5589.26	-5.38
140	5700	5690.69	5709.22	-7.89

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:

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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 modifications were made to the EUT by the lab during the test.

---END---