

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Jiangmen Dascom Computer Peripherals Co.,Ltd.

Label & Barcode Printer

Model Number: DL-210

Additional Model: DL-310

FCC ID: Z7ODL2101

Prepared for : Jiangmen Dascom Computer Peripherals Co.,Ltd.
No 399,Jin Xing Road,Jiang Hai District, Jiangmen City Guang
Dong Province China

Prepared By : EST Technology Co., Ltd.
Santun(guantai Road), Houjie Town, DongGuan City,
GuangDong, China.

Tel: 86-769-83081888-808

Report Number: ESTE-R1609056
Date of Test : July 29~ Sep 15, 2016
Date of Report : Sep 21, 2016

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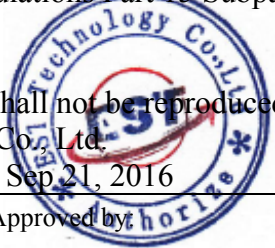
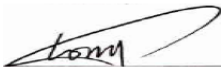
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Test Report Verification

Applicant:	Jiangmen Dascom Computer Peripherals Co.,Ltd.		
Address:	No 399,Jin Xing Road,Jiang Hai District, Jiangmen City Guang Dong Province China		
Factory Address:	Jiangmen Dascom Computer Peripherals Co.,Ltd. No 399,Jin Xing Road,Jiang Hai District, Jiangmen City Guang Dong Province China		
E.U.T:	Label & Barcode Printer		
Model Number:	DL-210		
Additional Model:	DL-310(DL-210 and DL-310 are identical except model name only)		
Power Supply:	AC 100~240V;50/60Hz		
Test Voltage:	AC 120V/60Hz; AC 240V/50Hz		
Trade Name:		Serial No.:	-----
Date of Receipt:	July 29, 2016	Date of Test:	July 29~ Sep 15, 2016
Test Specification:	FCC Rules and Regulations Part 15 Subpart C:2015 ANSI C63.10:2013		
Test Result:	The device described above is tested by EST Technology Co., Ltd.. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements.  This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. Date: Sep 21, 2016		
Prepared by:	Tested by:	Approved by:	
 _____ Ada / Assistant	 _____ Tony.Tang/ Engineer	 _____ IcemanHu / Manager	
Other Aspects:	None.		
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
<i>This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.</i>			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	:	Label & Barcode Printer
Model Number	:	DL-210
Modulation	:	IEEE 802.11b mode: DSSS(CCK,QPSK, BPSK) IEEE 802.11g mode: OFDM (BPSK/QPSK/16QAM/64QAM)
Operation Frequency	:	IEEE 802.11b/g: 2412 ~ 2462 MHz
Number of channel	:	IEEE 802.11b: 11 Channels IEEE 802.11g: 11 Channels
Antenna and Gain	:	PCB Antenna with 3dBi gain (Max)

2. SUMMARY OF TEST

2.1. Summary of test result

Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10:2013	PASS
Radiated Emission	FCC Part 15: 15.209 ANSI C63.10:2013 KDB 558074	PASS
Band Edge Compliance	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Conducted spurious emissions	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
6dB Bandwidth	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Peak Output Power	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Power Spectral Density	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
Note: 558074 D01 DTS Meas Guidance v03r05		

2.2. Test Facilities

EMC Lab	:	Certificated by CNAL, CHINA Registration No.: L5288 Date of registration: December 07, 2015 Certificated by FCC, USA Registration No.: 989591 Date of registration: November 20, 2013 Certificated by Industry Canada Registration No.: 9405A-1 Date of registration: December 30, 2015 Certificated by VCCI, Japan Registration No.: R-3663 & C-4103 Date of registration: July 25, 2011 Certificated by TUV Rheinland, Germany Registration No.: UA 50195514 0001 Date of registration: January 07, 2011 Certificated by TUV/PS, Shenzhen Registration No.: SCN1017 Date of registration: January 27, 2011 Certificated by Intertek ETL SEMKO Registration No.: 2011-RTL-L1-18 Date of registration: April 28, 2011 Certificated by Siemic, Inc. Registration No.: SLCN021 Date of registration: November 8, 2011 Certificated by Nemko, Hong Kong Registration No.: 175193 Date of registration: May 4, 2011
Name of Firm	:	EST Technology Co., Ltd.
Site Location	:	San Tun Management Zone, Houjie Town, Dongguan, Guangdong, China

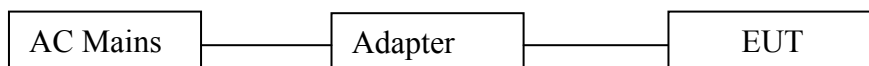
2.3. Assistant equipment used for test

2.3.1. Adapter

Model Number	:	TM-K072V-2403000PD
Manufacturer	:	TURNMAX
INPUT	:	AC 100-240V~50/60Hz 1.8A
OUTPUT	:	DC 24V/3.0A

2.4. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was set into Wifi test mode by software before test.



(EUT: Label & Barcode Printer)

2.5. Test mode

A special test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode and data rate.

Test mode	Lower channel	Center channel	Upper channel
IEEE 802.11b;IEEE 802.11g Transmitting	2412MHz	2437MHz	2462MHz
IEEE 802.11b;IEEE 802.11g Receiving	2412MHz	2437MHz	2462MHz

2.6. Channel List for wifi

IEEE 802.11b;IEEE 802.11g					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
2	2417	7	2442		
3	2422	8	2447		
4	2427	9	2452		
5	2432	10	2457		

2.7. Test Equipment

2.7.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	June,28,16	1 Year
Artificial Mains Networ	Rohde & Schwarz	ENV216	101260	June,28,16	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	June,28,16	1 Year

2.7.2. For radiated emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10	100004	June,28,16	1 Year
Spectrum Analyzer	Agilent	E4411B	MY50140697	June,28,16	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	June,28,16	1 Year
Signal Amplifier	Agilent	310N	187037	June,28,16	1 Year

2.7.3. For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	BBHA9120D1 002	June,28,16	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	9718-212	June,28,16	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211139	June,28,16	1 Year
RF Cable	Hubersuhner	RG 214/U	513423	June,28,16	1 Year

3 POWER LINE CONDUCTED EMISSION TEST

3.1. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.3 Test Procedure

The EUT was placed on a non-metallic table, 10cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

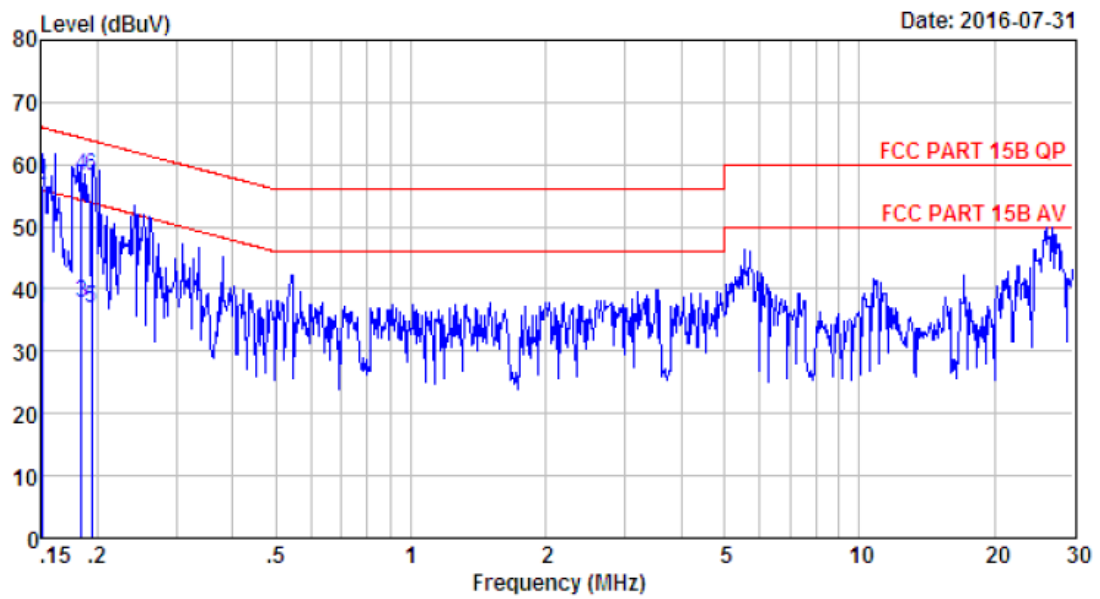
The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Result

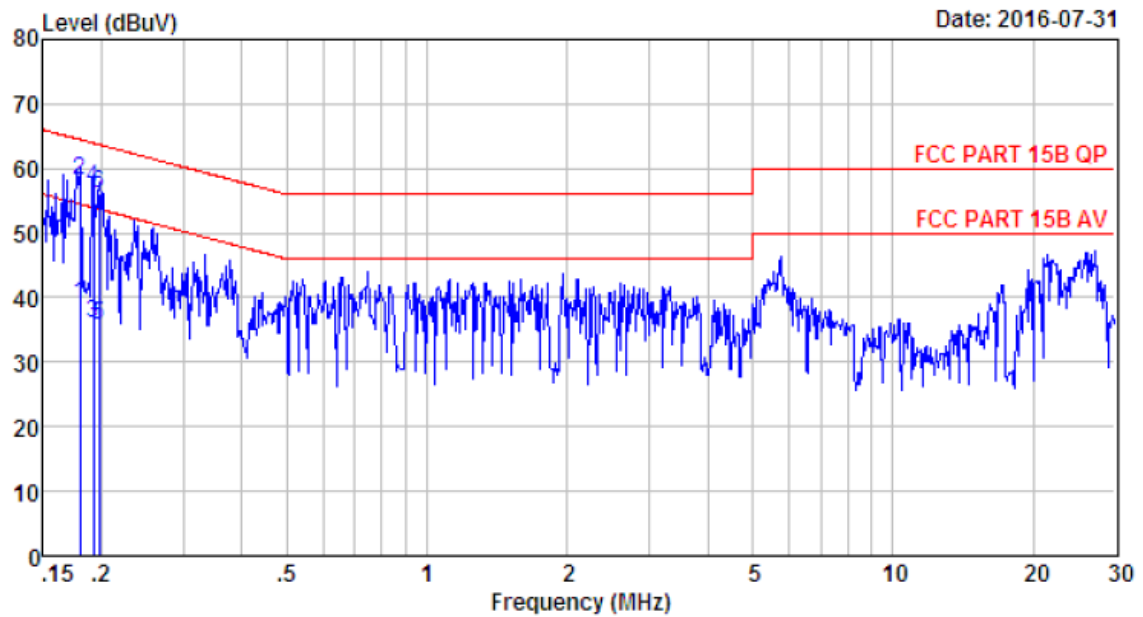
PASS. (All emissions not reported below are too low against the prescribed limits.)

3.5. Test data



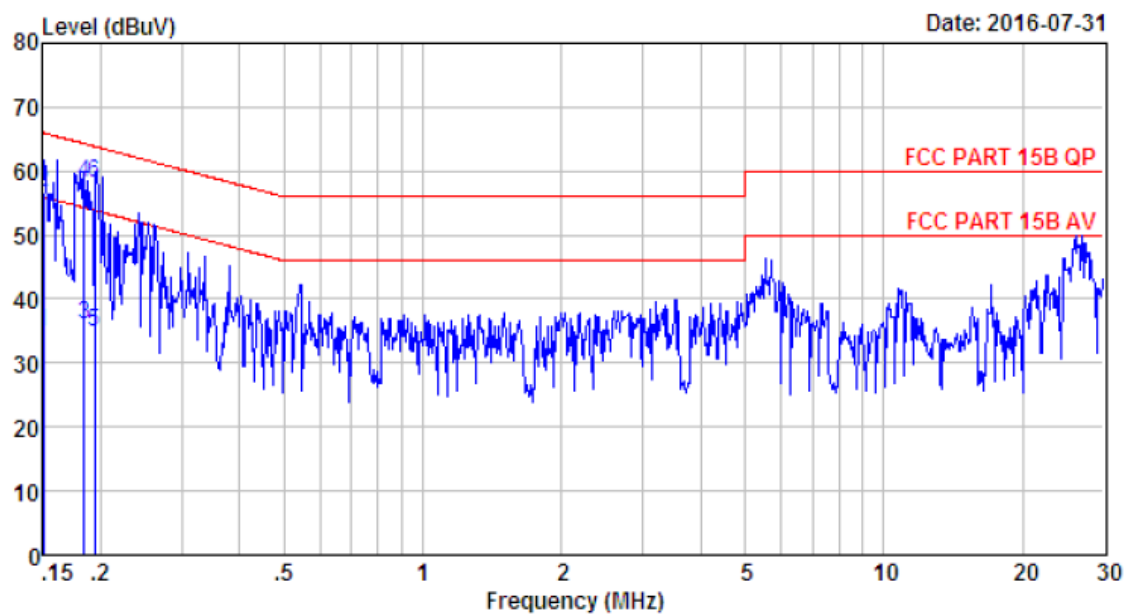
Site no : 844 Shield Room Data no. : 129
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Blake
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.61	9.81	17.50	36.92	56.00	19.08	Average
2	0.15	9.61	9.81	37.32	56.74	66.00	9.26	QP
3	0.18	9.61	9.80	18.50	37.91	54.28	16.37	Average
4	0.18	9.61	9.80	38.65	58.06	64.28	6.22	QP
5	0.19	9.61	9.80	17.50	36.91	53.84	16.93	Average
6	0.19	9.61	9.80	38.63	58.04	63.84	5.80	QP



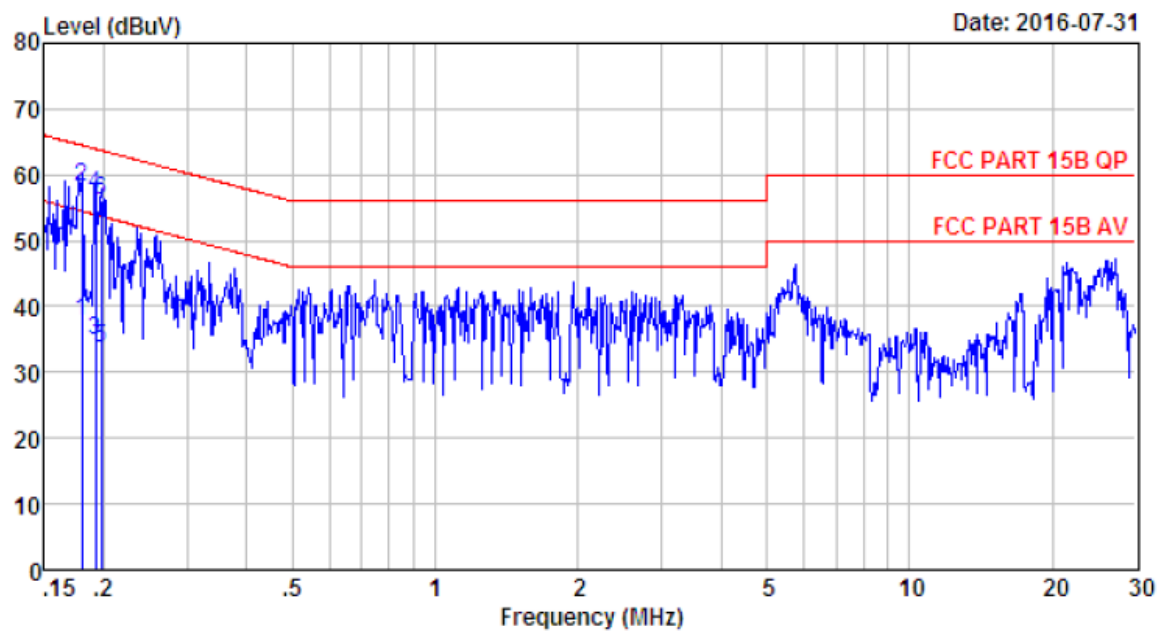
Site no : 844 Shield Room Data no. : 131
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Blake
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.18	9.55	9.80	19.50	38.85	54.50	15.65	Average
2	0.18	9.55	9.80	38.83	58.18	64.50	6.32	QP
3	0.19	9.58	9.80	16.51	35.89	53.93	18.04	Average
4	0.19	9.58	9.80	37.53	56.91	63.93	7.02	QP
5	0.20	9.60	9.80	16.40	35.80	53.71	17.91	Average
6	0.20	9.60	9.80	36.59	55.99	63.71	7.72	QP



Site no : 844 Shield Room Data no. : 141
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Blake
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter Input AC 240V/50Hz
 M/N : DL-210
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.61	9.81	15.50	34.92	56.00	21.08	Average
2	0.15	9.61	9.81	37.32	56.74	66.00	9.26	QP
3	0.18	9.61	9.80	16.50	35.91	54.28	18.37	Average
4	0.18	9.61	9.80	38.65	58.06	64.28	6.22	QP
5	0.19	9.61	9.80	15.50	34.91	53.84	18.93	Average
6	0.19	9.61	9.80	38.63	58.04	63.84	5.80	QP



Site no : 844 Shield Room Data no. : 143
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Blake
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter Input AC 240V/50Hz
 M/N : DL-210
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.18	9.55	9.80	18.50	37.85	54.50	16.65	Average
2	0.18	9.55	9.80	38.83	58.18	64.50	6.32	QP
3	0.19	9.58	9.80	15.51	34.89	53.93	19.04	Average
4	0.19	9.58	9.80	37.53	56.91	63.93	7.02	QP
5	0.20	9.60	9.80	14.40	33.80	53.71	19.91	Average
6	0.20	9.60	9.80	36.59	55.99	63.71	7.72	QP

4 RADIATED EMISSION TEST

4.1 Limit

4.1.1 15.209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

- Remark : (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

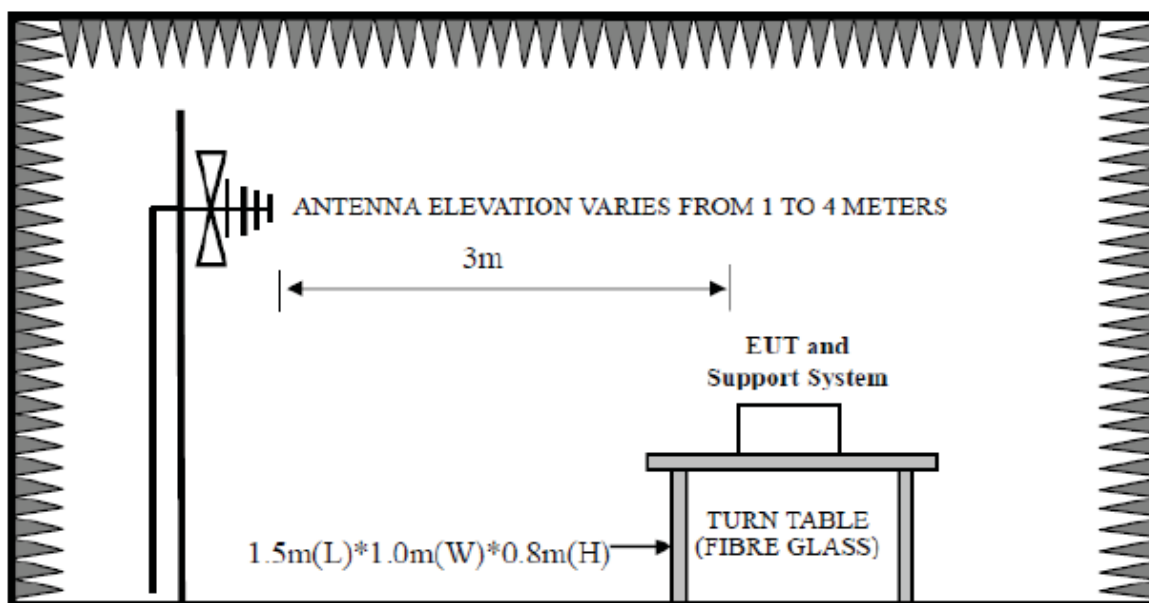
4.1.2 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

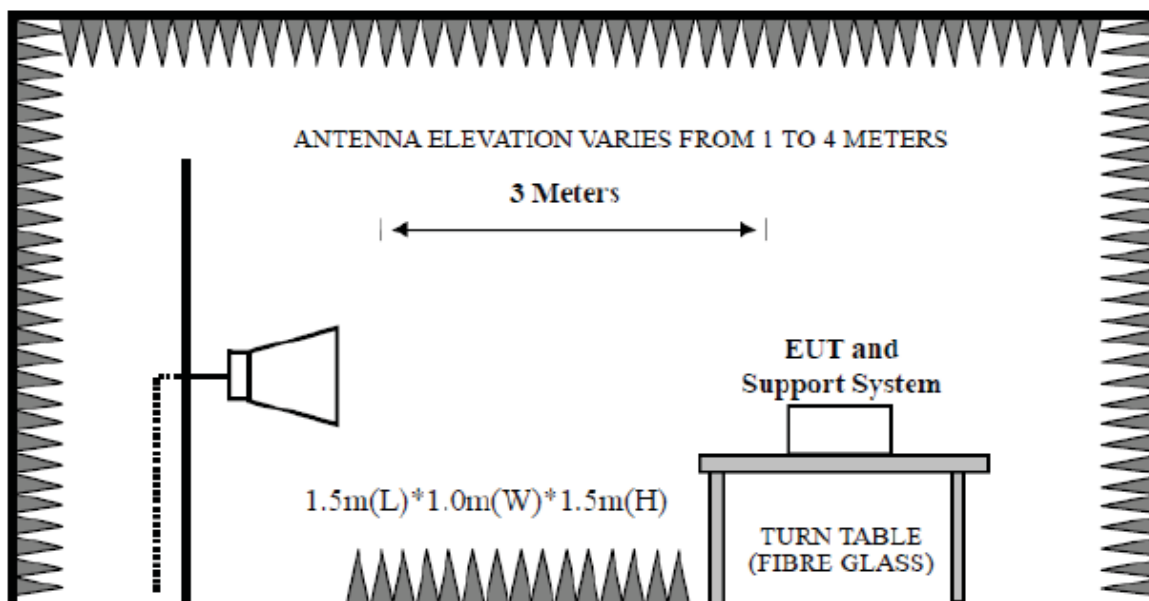
All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.2. Block Diagram of Test setup

30~1000MHz



Above 1GHz



4.3. Test Procedure

EUT and its simulators are placed on a turn table, which is 1.5 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

PEAK detector, 1MHz/1MHz for PAEK measurement,

PEAK detector, 1MHz/10Hz for Average measurement

The frequency range from 30MHz to 10th harmonic (25GHz) are checked.

4.4. Test Result

PASS.

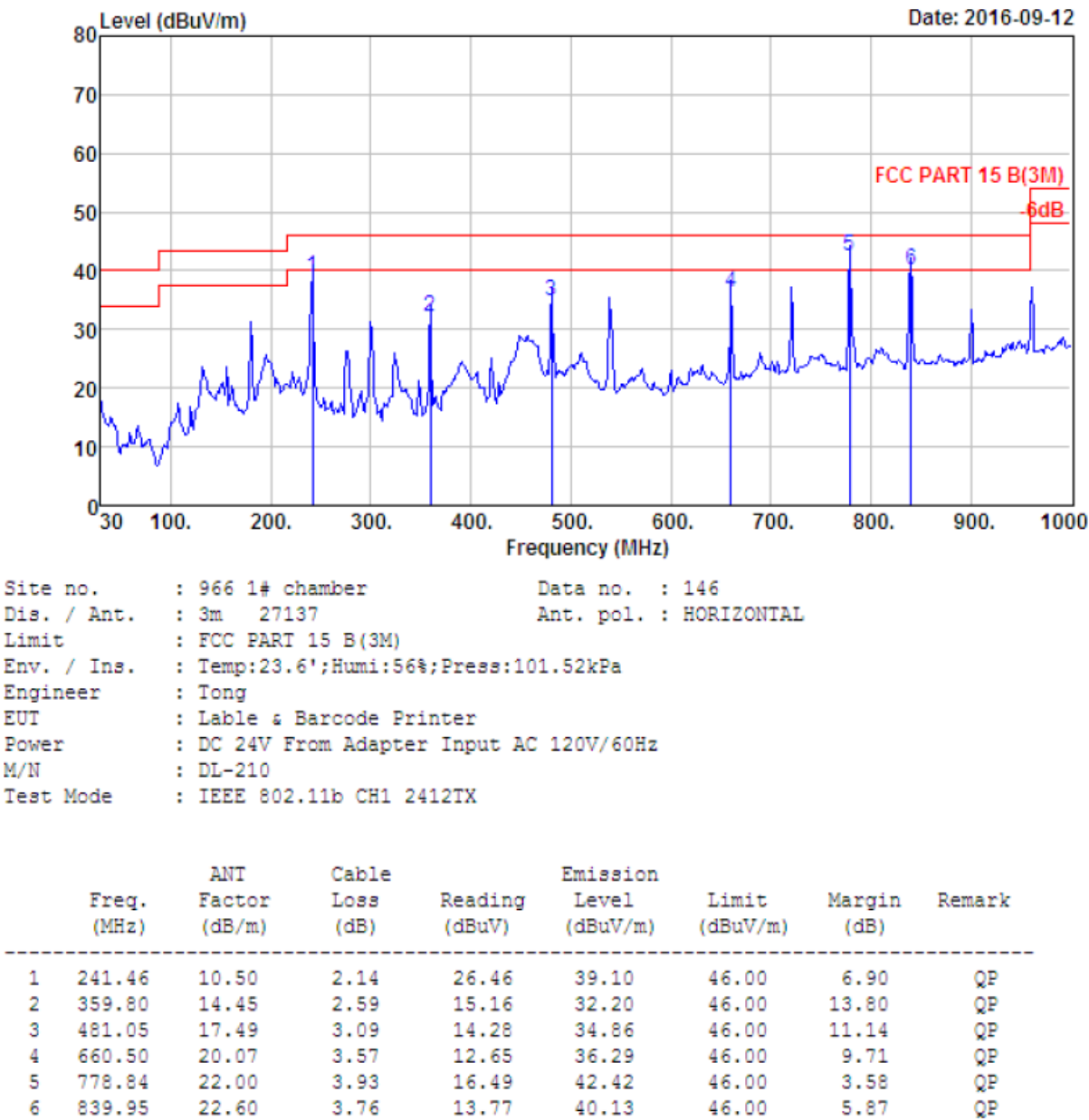
All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

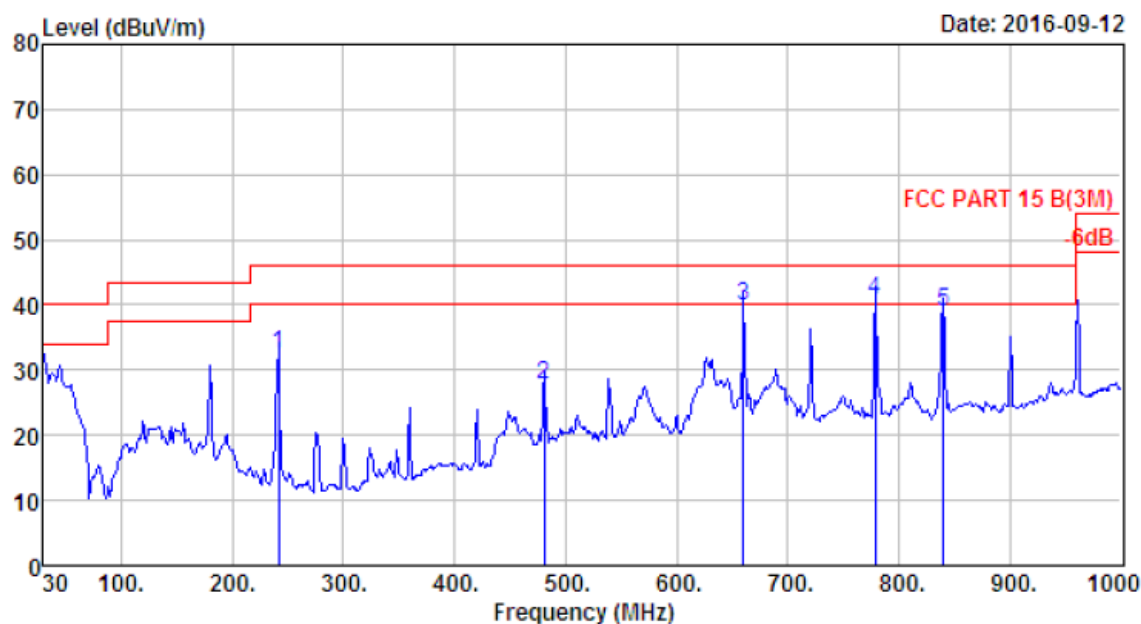
Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

2、 The frequency 2412MHz 、 2437MHz、 2462 MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

4.5. Test Data

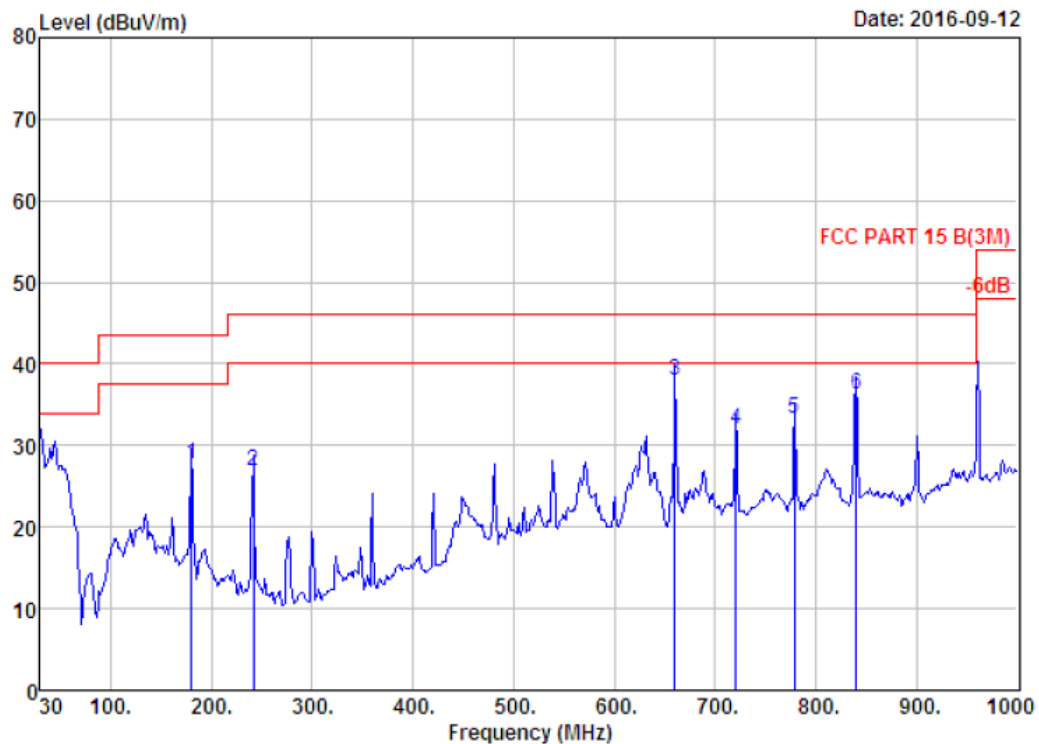
30-1000 MHz





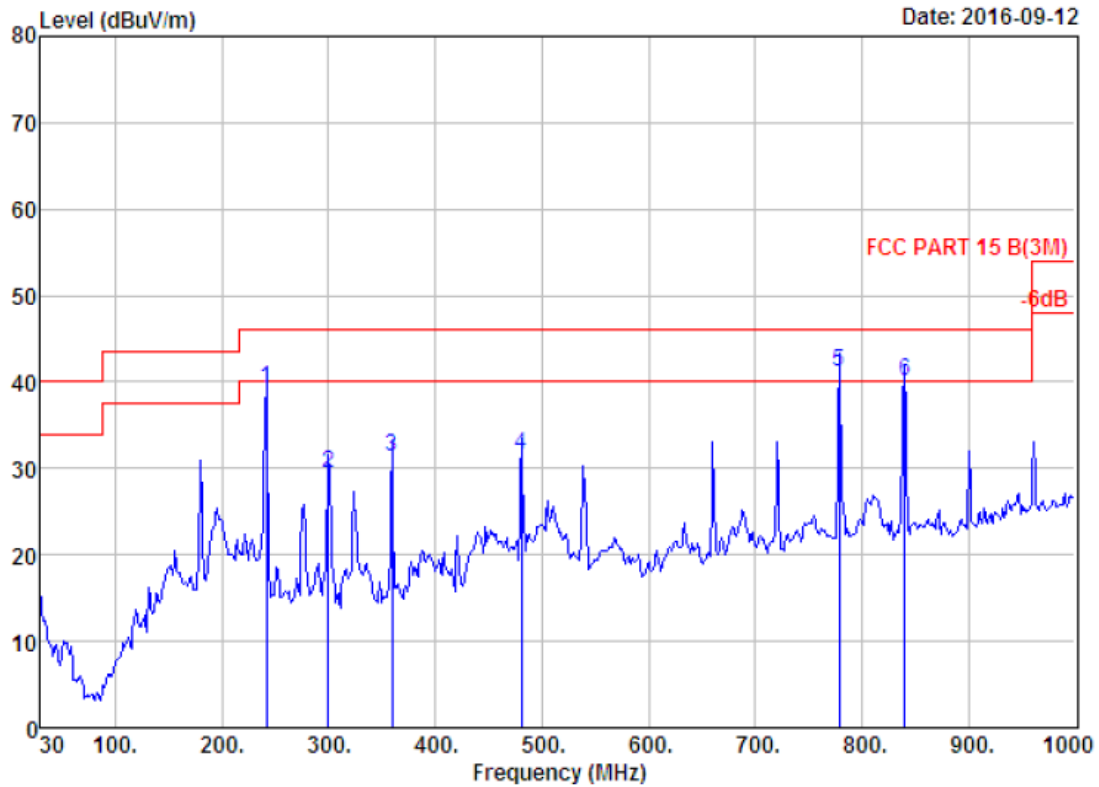
Site no. : 966 1# chamber Data no. : 147
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH1 2412TX

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	241.46	10.50	2.14	19.69	32.33	46.00	13.67	QP
2	481.05	17.49	3.09	7.21	27.79	46.00	18.21	QP
3	660.50	20.07	3.57	16.18	39.82	46.00	6.18	QP
4	778.84	22.00	3.93	14.77	40.70	46.00	5.30	QP
5	839.95	22.60	3.76	12.55	38.91	46.00	7.09	QP



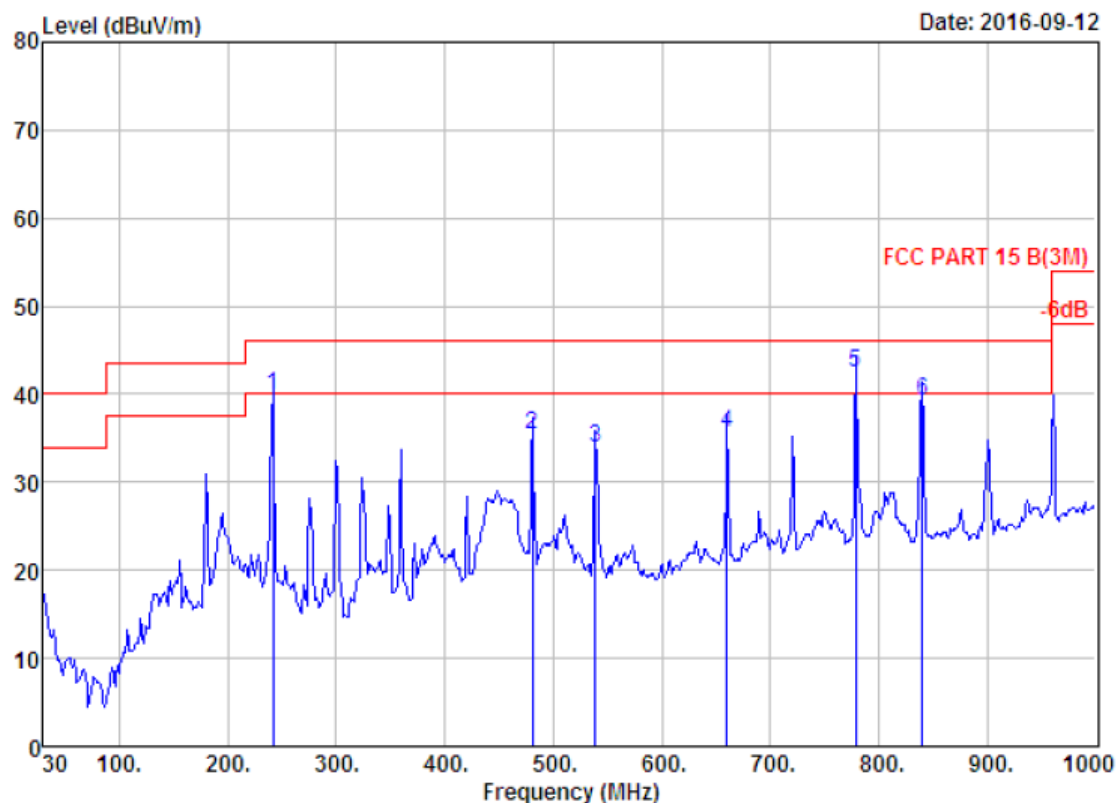
Site no. : 1# 966 chamber Data no. : 148
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	17.08	27.73	43.50	15.77	QP
2	241.46	10.50	2.14	14.20	26.84	46.00	19.16	QP
3	660.50	20.07	3.57	14.27	37.91	46.00	8.09	QP
4	720.64	21.55	3.72	6.74	32.01	46.00	13.99	QP
5	778.84	22.00	3.93	7.27	33.20	46.00	12.80	QP
6	839.95	22.60	3.76	9.93	36.29	46.00	9.71	QP



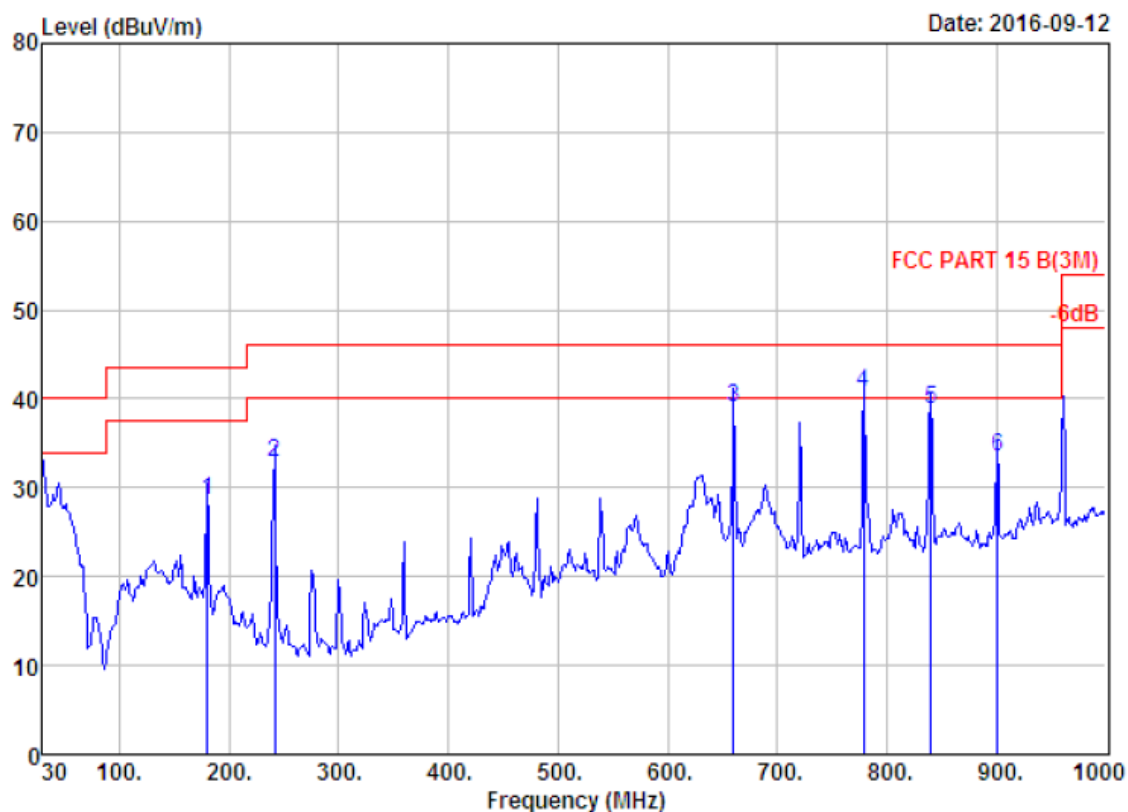
Site no. : 1# 966 chamber Data no. : 149
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	241.46	10.50	2.14	26.68	39.32	46.00	6.68	QP
2	299.66	13.01	2.38	14.10	29.49	46.00	16.51	QP
3	359.80	14.45	2.59	14.30	31.34	46.00	14.66	QP
4	481.05	17.49	3.09	10.94	31.52	46.00	14.48	QP
5	778.84	22.00	3.93	15.31	41.24	46.00	4.76	QP
6	839.95	22.60	3.76	13.77	40.13	46.00	5.87	QP



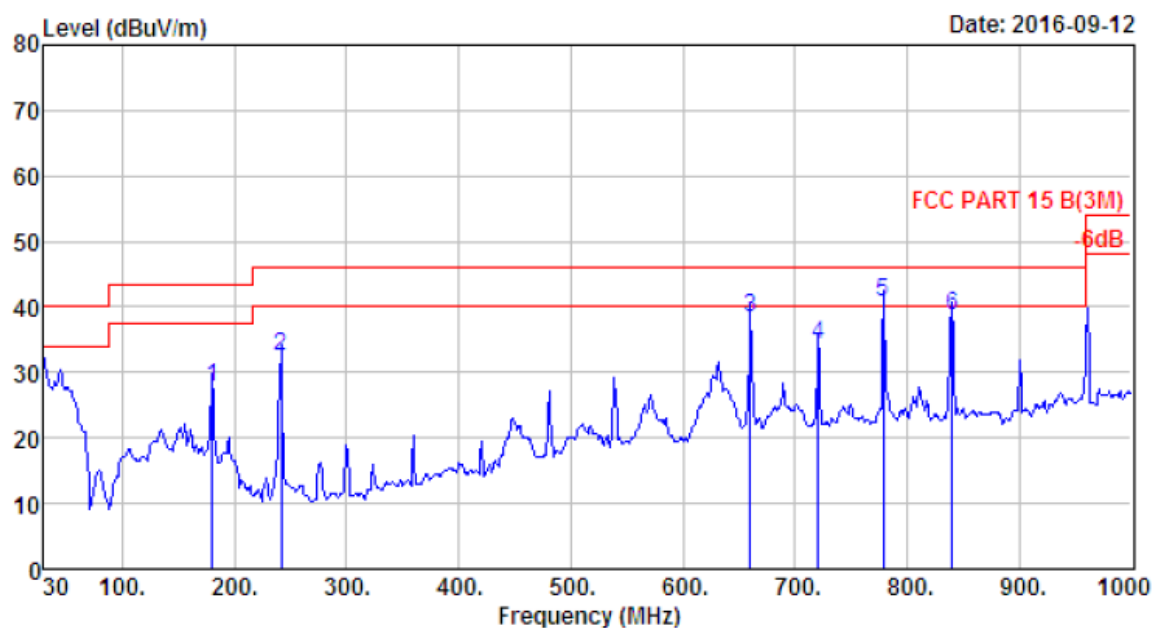
Site no. : 1# 966 chamber Data no. : 150
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	241.46	10.50	2.14	27.23	39.87	46.00	6.13	QP
2	481.05	17.49	3.09	14.76	35.34	46.00	10.66	QP
3	539.25	19.35	3.22	11.33	33.90	46.00	12.10	QP
4	660.50	20.07	3.57	12.03	35.67	46.00	10.33	QP
5	778.84	22.00	3.93	16.46	42.39	46.00	3.61	QP
6	839.95	22.60	3.76	12.97	39.33	46.00	6.67	QP



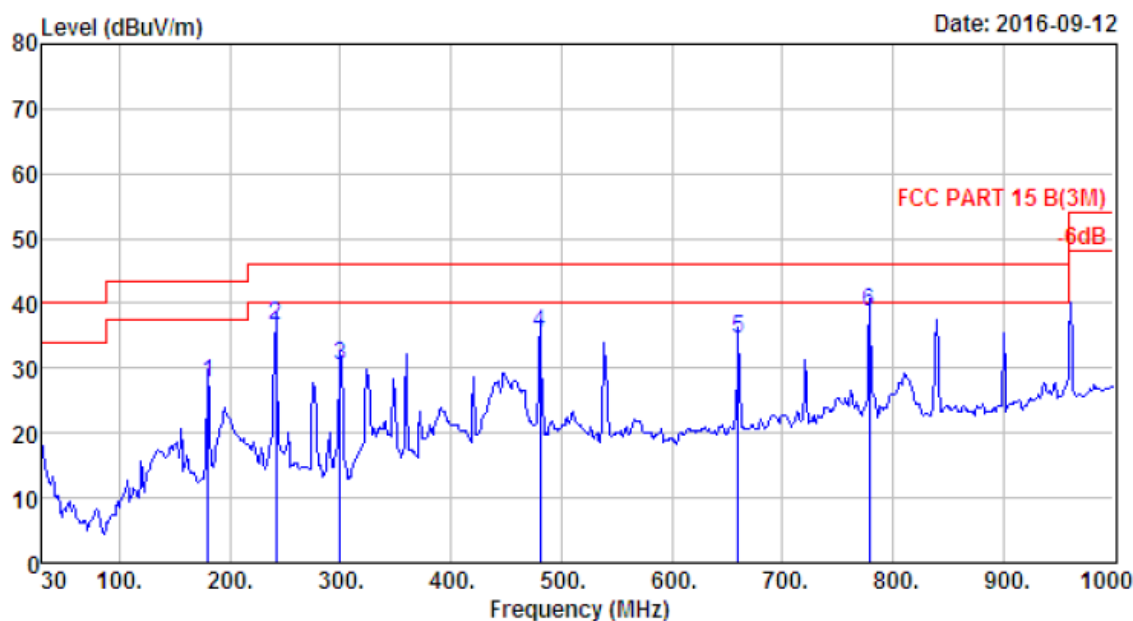
Site no. : 1# 966 chamber Data no. : 151
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	17.84	28.49	43.50	15.01	QP
2	241.46	10.50	2.14	20.14	32.78	46.00	13.22	QP
3	660.50	20.07	3.57	15.49	39.13	46.00	6.87	QP
4	778.84	22.00	3.93	14.87	40.80	46.00	5.20	QP
5	839.95	22.60	3.76	12.38	38.74	46.00	7.26	QP
6	901.06	23.28	4.16	6.00	33.44	46.00	12.56	QP



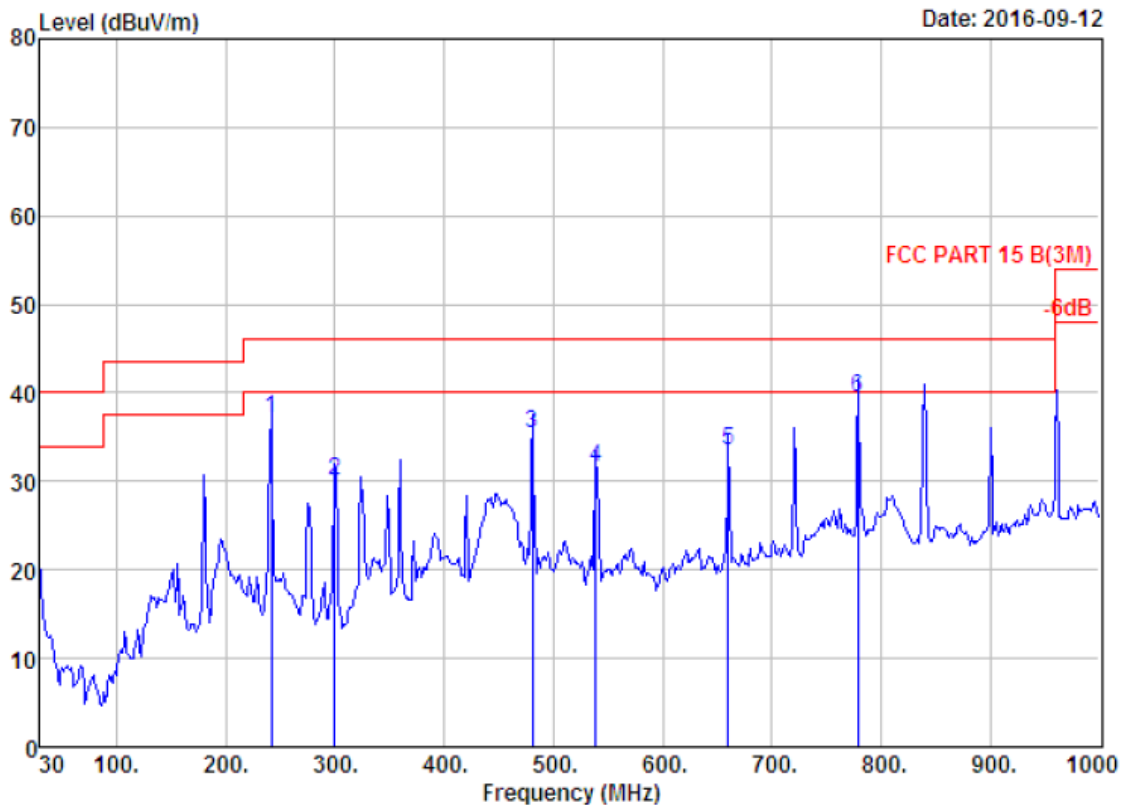
Site no. : 966 1# chamber Data no. : 152
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	17.16	27.81	43.50	15.69	QP
2	241.46	10.50	2.14	19.73	32.37	46.00	13.63	QP
3	660.50	20.07	3.57	14.71	38.35	46.00	7.65	QP
4	720.64	21.55	3.72	8.86	34.13	46.00	11.87	QP
5	778.84	22.00	3.93	14.66	40.59	46.00	5.41	QP
6	839.95	22.60	3.76	12.33	38.69	46.00	7.31	QP



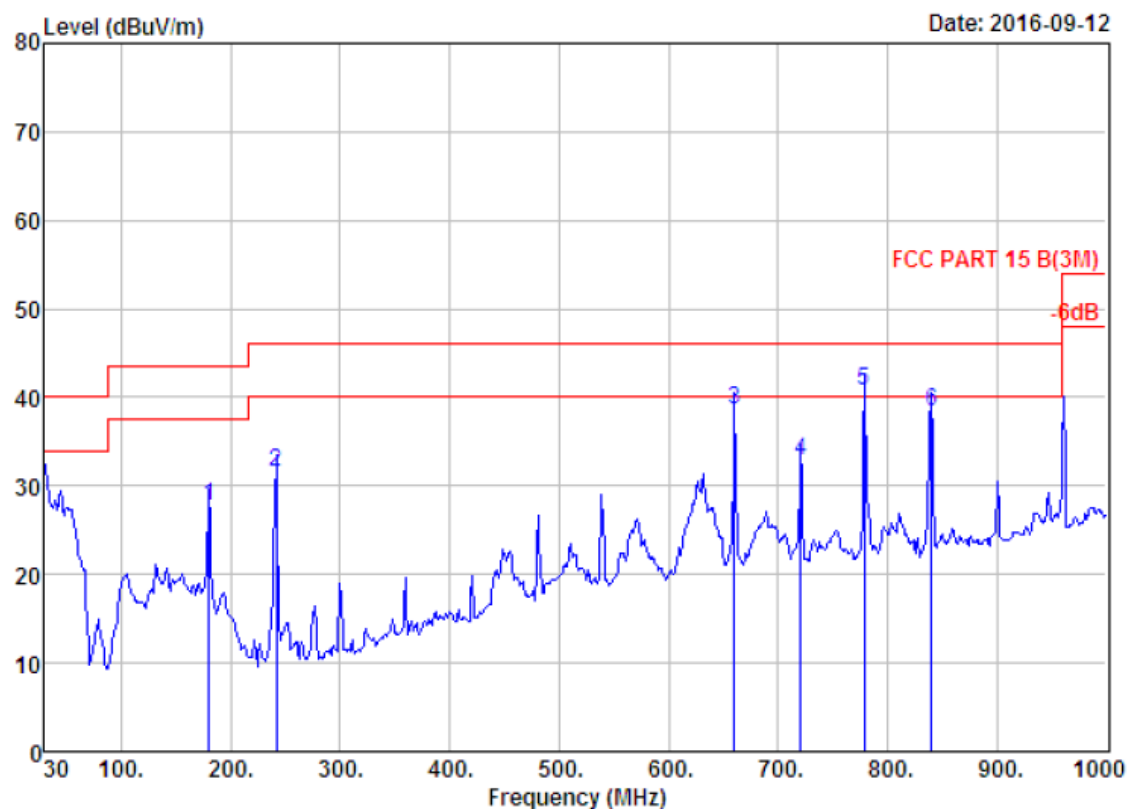
Site no. : 966 1# chamber Data no. : 153
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	17.22	27.87	43.50	15.63	QP
2	241.46	10.50	2.14	23.91	36.55	46.00	9.45	QP
3	299.66	13.01	2.38	14.99	30.38	46.00	15.62	QP
4	481.05	17.49	3.09	14.77	35.35	46.00	10.65	QP
5	660.50	20.07	3.57	10.79	34.43	46.00	11.57	QP
6	778.84	22.00	3.93	12.75	38.68	46.00	7.32	QP



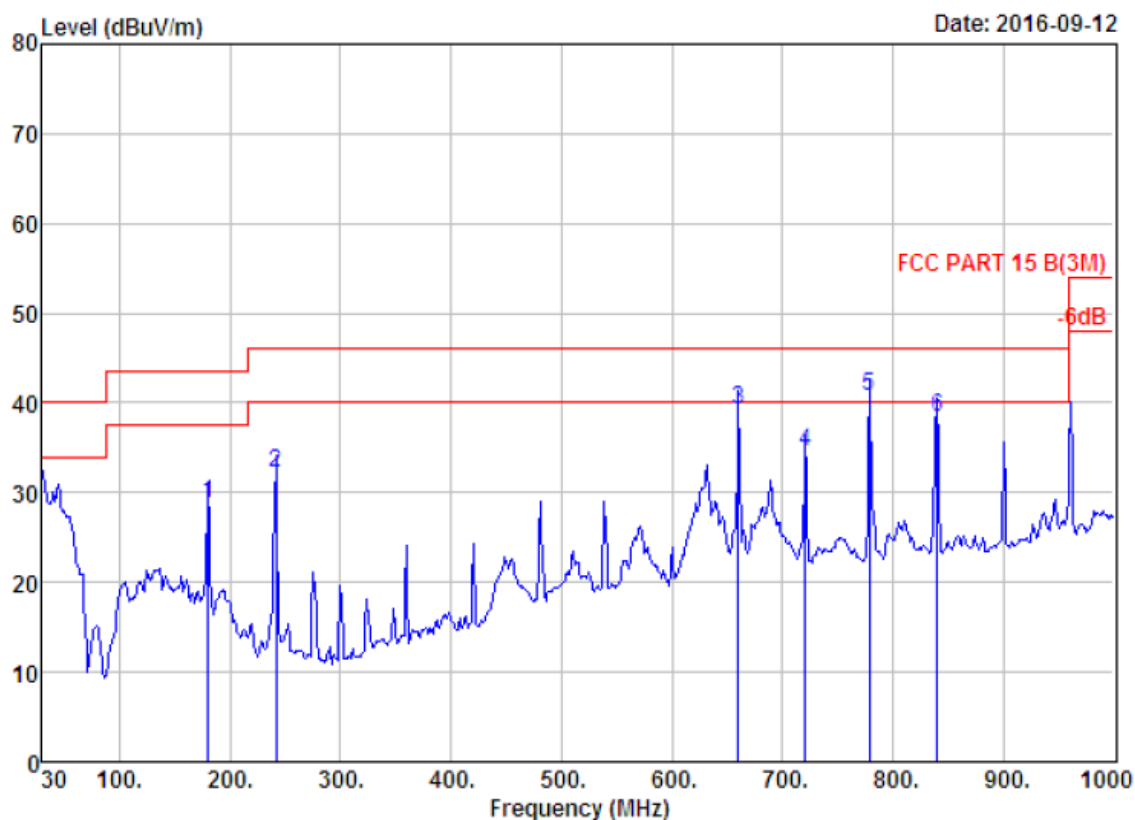
Site no. : 1# 966 chamber Data no. : 154
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	241.46	10.50	2.14	24.43	37.07	46.00	8.93	QP
2	299.66	13.01	2.38	14.65	30.04	46.00	15.96	QP
3	481.05	17.49	3.09	14.88	35.46	46.00	10.54	QP
4	539.25	19.35	3.22	9.02	31.59	46.00	14.41	QP
5	660.50	20.07	3.57	9.86	33.50	46.00	12.50	QP
6	778.84	22.00	3.93	13.59	39.52	46.00	6.48	QP



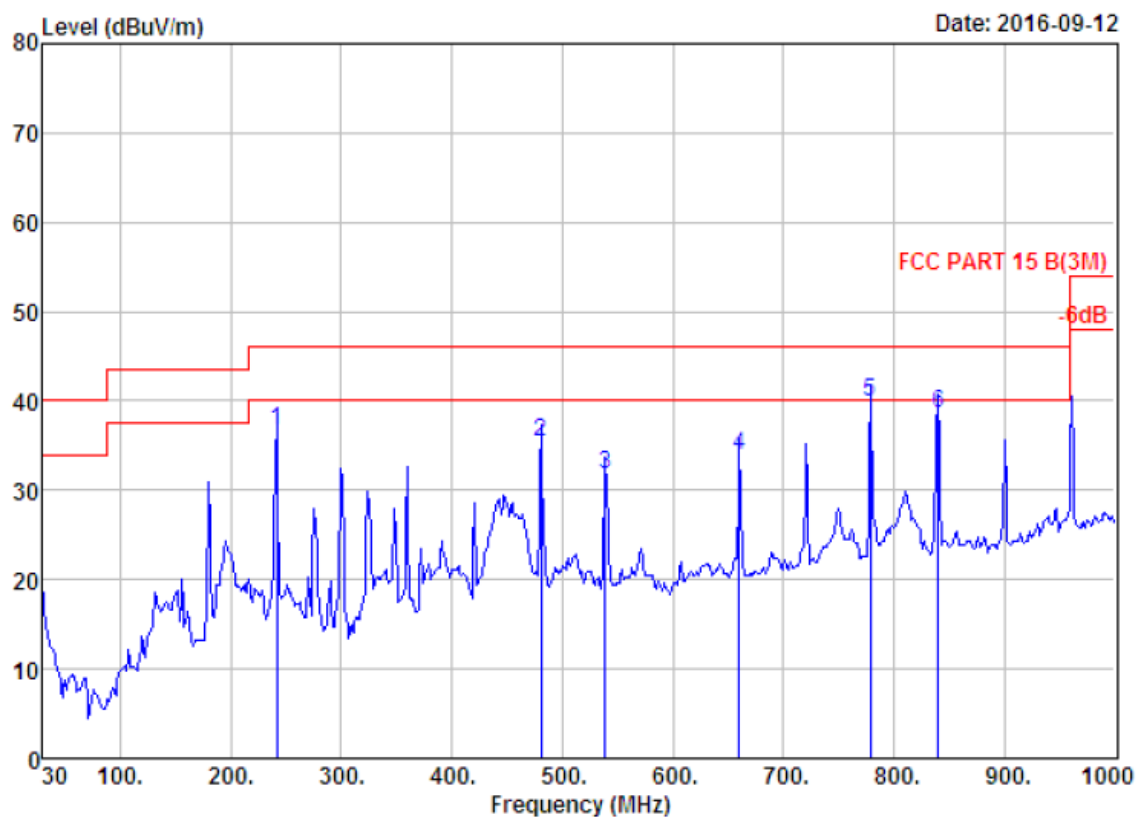
Site no. : 1# 966 chamber Data no. : 155
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6°;Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	17.06	27.71	43.50	15.79	QP
2	241.46	10.50	2.14	18.87	31.51	46.00	14.49	QP
3	660.50	20.07	3.57	14.94	38.58	46.00	7.42	QP
4	720.64	21.55	3.72	7.58	32.85	46.00	13.15	QP
5	778.84	22.00	3.93	14.82	40.75	46.00	5.25	QP
6	839.95	22.60	3.76	12.11	38.47	46.00	7.53	QP



Site no. : 1# 966 chamber Data no. : 156
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	180.35	8.95	1.70	18.18	28.83	43.50	14.67	QP
2	241.46	10.50	2.14	19.55	32.19	46.00	13.81	QP
3	660.50	20.07	3.57	15.71	39.35	46.00	6.65	QP
4	720.64	21.55	3.72	9.28	34.55	46.00	11.45	QP
5	778.84	22.00	3.93	14.82	40.75	46.00	5.25	QP
6	839.95	22.60	3.76	12.11	38.47	46.00	7.53	QP



Site no. : 1# 966 chamber Data no. : 157
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tong
 EUT : Lable & Barcode Printer
 Power : DC 24V From Adapter Input AC 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	241.46	10.50	2.14	23.95	36.59	46.00	9.41	QP
2	481.05	17.49	3.09	14.83	35.41	46.00	10.59	QP
3	539.25	19.35	3.22	9.17	31.74	46.00	14.26	QP
4	660.50	20.07	3.57	10.20	33.84	46.00	12.16	QP
5	778.84	22.00	3.93	13.95	39.88	46.00	6.12	QP
6	839.95	22.60	3.76	12.28	38.64	46.00	7.36	QP

1000-18000 MHz

Site no. : 1# 966 chamber Data no. : 250
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.6	6.6	34.6	88.7	88.3	74.0	-14.3	Peak
2	4824.00	31.3	11.8	35.7	36.3	43.7	74.0	30.3	Peak
3	7236.00	36.5	11.5	34.0	27.7	41.7	74.0	32.3	Peak
4	8684.00	37.3	11.5	33.7	28.7	43.8	74.0	30.2	Peak
5	10384.00	38.8	11.4	34.5	27.1	42.8	74.0	31.2	Peak
6	14413.00	41.8	10.9	33.4	26.5	45.8	74.0	28.2	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 251
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.6	6.6	34.6	93.1	92.7	74.0	-18.7	Peak
2	4824.00	31.3	11.8	35.7	31.4	38.8	74.0	35.2	Peak
3	7236.00	36.5	11.5	34.0	30.0	44.0	74.0	30.0	Peak
4	8650.00	37.3	11.5	33.7	30.4	45.5	74.0	28.5	Peak
5	11506.00	39.2	10.9	33.5	28.0	44.6	74.0	29.4	Peak
6	14005.00	41.5	10.9	33.0	26.9	46.3	74.0	27.7	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 252
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.6	6.7	34.8	86.0	85.5	74.0	-11.5	Peak
2	4874.00	31.4	12.1	35.8	34.5	42.2	74.0	31.8	Peak
3	7311.00	36.6	11.6	34.1	29.3	43.4	74.0	30.6	Peak
4	8684.00	37.3	11.5	33.7	30.5	45.6	74.0	28.4	Peak
5	11166.00	39.4	11.2	33.3	29.5	46.8	74.0	27.2	Peak
6	14005.00	41.5	10.9	33.0	27.8	47.2	74.0	26.8	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 253
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.6	6.7	34.8	90.6	90.1	74.0	-16.1	Peak
2	4874.00	31.4	12.1	35.8	33.3	41.0	74.0	33.0	Peak
3	7311.00	36.6	11.6	34.1	29.6	43.7	74.0	30.3	Peak
4	11115.00	39.4	11.2	33.6	28.2	45.2	74.0	28.8	Peak
5	13580.00	40.3	11.4	32.6	27.6	46.7	74.0	27.3	Peak
6	14175.00	41.6	10.9	33.4	27.9	47.0	74.0	27.0	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 254
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.6	6.7	35.0	90.2	89.5	74.0	-15.5	Peak
2	4924.00	31.4	12.3	35.9	30.0	37.8	74.0	36.2	Peak
3	7386.00	36.6	11.6	34.2	30.1	44.1	74.0	29.9	Peak
4	8735.00	37.4	11.5	33.8	28.9	44.0	74.0	30.0	Peak
5	11234.00	39.4	11.1	33.2	27.2	44.5	74.0	29.5	Peak
6	14430.00	41.8	10.9	33.4	28.5	47.8	74.0	26.2	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 255
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.6	6.7	35.0	89.0	88.3	74.0	-14.3	Peak
2	4924.00	31.4	12.3	35.9	31.5	39.3	74.0	34.7	Peak
3	7386.00	36.6	11.6	34.2	29.6	43.6	74.0	30.4	Peak
4	8684.00	37.3	11.5	33.7	29.3	44.4	74.0	29.6	Peak
5	11200.00	39.4	11.1	33.2	27.7	45.0	74.0	29.0	Peak
6	14090.00	41.5	10.9	33.1	27.6	46.9	74.0	27.1	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 256
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.6	6.6	34.6	85.3	84.9	74.0	-10.9	Peak
2	4824.00	31.3	11.8	35.7	31.5	38.9	74.0	35.1	Peak
3	7236.00	36.5	11.5	34.0	30.1	44.1	74.0	29.9	Peak
4	9160.00	37.7	11.5	34.1	29.2	44.3	74.0	29.7	Peak
5	11234.00	39.4	11.1	33.2	26.8	44.1	74.0	29.9	Peak
6	14515.00	41.9	10.9	33.6	27.3	46.5	74.0	27.5	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 257
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.6	6.6	34.6	83.4	83.0	74.0	-9.0	Peak
2	4824.00	31.3	11.8	35.7	34.8	42.2	74.0	31.8	Peak
3	7326.00	36.6	11.6	34.1	31.1	45.2	74.0	28.8	Peak
4	8684.00	37.3	11.5	33.7	30.8	45.9	74.0	28.1	Peak
5	11115.00	39.4	11.2	33.6	29.2	46.2	74.0	27.8	Peak
6	13104.00	39.1	11.4	32.8	29.0	46.7	74.0	27.3	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 258
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.6	6.7	34.8	87.9	87.4	74.0	-13.4	Peak
2	4874.00	31.4	12.1	35.8	32.1	39.8	74.0	34.2	Peak
3	7386.00	36.6	11.6	34.2	29.9	43.9	74.0	30.1	Peak
4	8684.00	37.3	11.5	33.7	29.1	44.2	74.0	29.8	Peak
5	11166.00	39.4	11.2	33.3	27.1	44.4	74.0	29.6	Peak
6	14566.00	41.7	10.9	33.7	27.3	46.2	74.0	27.8	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 259
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH6 2437TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.6	6.7	34.8	83.4	82.9	74.0	-8.9	Peak
2	4874.00	31.4	12.1	35.8	32.8	40.5	74.0	33.5	Peak
3	7311.00	36.6	11.6	34.1	30.4	44.5	74.0	29.5	Peak
4	8684.00	37.3	11.5	33.7	30.1	45.2	74.0	28.8	Peak
5	11234.00	39.4	11.1	33.2	28.2	45.5	74.0	28.5	Peak
6	14005.00	41.5	10.9	33.0	28.1	47.5	74.0	26.5	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 260
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.6	6.7	35.0	83.0	82.3	74.0	-8.3	Peak
2	4924.00	31.4	12.3	35.9	32.9	40.7	74.0	33.3	Peak
3	7386.00	36.6	11.6	34.2	29.8	43.8	74.0	30.2	Peak
4	8684.00	37.3	11.5	33.7	29.6	44.7	74.0	29.3	Peak
5	11200.00	39.4	11.1	33.2	27.9	45.2	74.0	28.8	Peak
6	14005.00	41.5	10.9	33.0	26.5	45.9	74.0	28.1	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 261
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.6	6.7	35.0	87.7	87.0	74.0	-13.0	Peak
2	4924.00	31.4	12.3	35.9	31.0	38.8	74.0	35.2	Peak
3	7386.00	36.6	11.6	34.2	29.2	43.2	74.0	30.8	Peak
4	8616.00	37.2	11.5	33.8	30.1	45.0	74.0	29.0	Peak
5	11030.00	39.5	11.3	34.0	28.1	44.9	74.0	29.1	Peak
6	14124.00	41.6	10.9	33.2	27.2	46.5	74.0	27.5	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

18000MHz – 25000MHz

Pass

Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

5 BAND EDGE COMPLIANCE TEST

5.1 Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits

5.2 Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) Peak : RBW = 1MHz, VBW = 1MHz, Detector=PEAK detector, Sweep time = auto
 - (b) AV : RBW = 1MHz, VBW = 10Hz, Detector=PEAK detector, Sweep time = auto

5.3 Test Result

Pass (The testing data was attached in the next pages.)

- Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
- 2、 The frequency 2412MHz and 2462MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

5.4 Test Data

Site no. : 1# 966 chamber Data no. : 262
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2372.15	27.7	6.6	34.6	42.3	42.0	74.0	32.0	Peak
2	2390.00	27.6	6.6	34.6	43.0	42.6	74.0	31.4	Peak
3	2400.00	27.6	6.6	34.6	50.2	49.8	54.0	4.2	Average
4	2400.00	27.6	6.6	34.6	64.2	63.8	74.0	10.2	Peak
5	2411.15	27.6	6.6	34.6	94.6	94.2	74.0	-20.2	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 263
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2347.45	27.7	6.6	34.6	40.6	40.3	74.0	33.7	Peak
2	2390.00	27.6	6.6	34.6	36.3	35.9	74.0	38.1	Peak
3	2400.00	27.6	6.6	34.6	47.6	47.2	54.0	6.8	Average
4	2400.00	27.6	6.6	34.6	58.6	58.2	74.0	15.8	Peak
5	2411.80	27.6	6.6	34.6	90.1	89.7	74.0	-15.7	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 264
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.75	27.6	6.7	35.0	90.0	89.3	74.0	-15.3	Peak
2	2483.50	27.6	6.7	35.1	41.7	40.9	74.0	33.1	Peak
3	2487.50	27.6	6.7	35.1	43.6	42.8	74.0	31.2	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 265
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11b CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.00	27.6	6.7	35.0	95.1	94.4	74.0	-20.4	Peak
2	2483.50	27.6	6.7	35.1	45.6	44.8	74.0	29.2	Peak
3	2488.50	27.6	6.7	35.1	52.6	51.8	74.0	22.2	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 266
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2363.70	27.7	6.6	34.6	42.3	42.0	74.0	32.0	Peak
2	2390.00	27.6	6.6	34.6	45.8	45.4	74.0	28.6	Peak
3	2400.00	27.6	6.6	34.6	58.2	57.8	74.0	16.2	Peak
4	2405.56	27.6	6.6	34.6	86.0	85.6	74.0	-11.6	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 267
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH1 2412TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2365.65	27.7	6.6	34.6	43.3	43.0	74.0	31.0	Peak
2	2390.00	27.6	6.6	34.6	47.8	47.4	74.0	26.6	Peak
3	2400.00	27.6	6.6	34.6	48.8	48.4	54.0	5.6	Average
4	2400.00	27.6	6.6	34.6	58.8	58.4	74.0	15.6	Peak
5	2417.00	27.6	6.6	34.6	88.8	88.4	74.0	-14.4	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 268
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2467.00	27.6	6.7	35.0	90.0	89.3	74.0	-15.3	Peak
2	2483.50	27.6	6.7	35.1	48.7	47.9	74.0	26.1	Peak
3	2491.50	27.6	6.7	35.2	48.1	47.2	74.0	26.8	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : 1# 966 chamber Data no. : 269
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Label & Barcode Printer
 Power : DC 24V From Adapter AC Input 120V/60Hz
 M/N : DL-210
 Test Mode : IEEE 802.11g CH11 2462TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2455.75	27.6	6.7	35.0	86.9	86.2	74.0	-12.2	Peak
2	2483.50	27.6	6.7	35.1	44.8	44.0	74.0	30.0	Peak
3	2484.25	27.6	6.7	35.1	46.0	45.2	74.0	28.8	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

6 6dB & 20dB Bandwidth Test

6.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

6.2 Test Procedure

- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074
 - (1). Set resolution bandwidth (RBW) = 100 kHz.
 - (2). Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - (3). Detector = Peak.
 - (4). Trace mode = max hold.
 - (5). Sweep = auto couple.
 - (6). Allow the trace to stabilize.
 - (7). Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

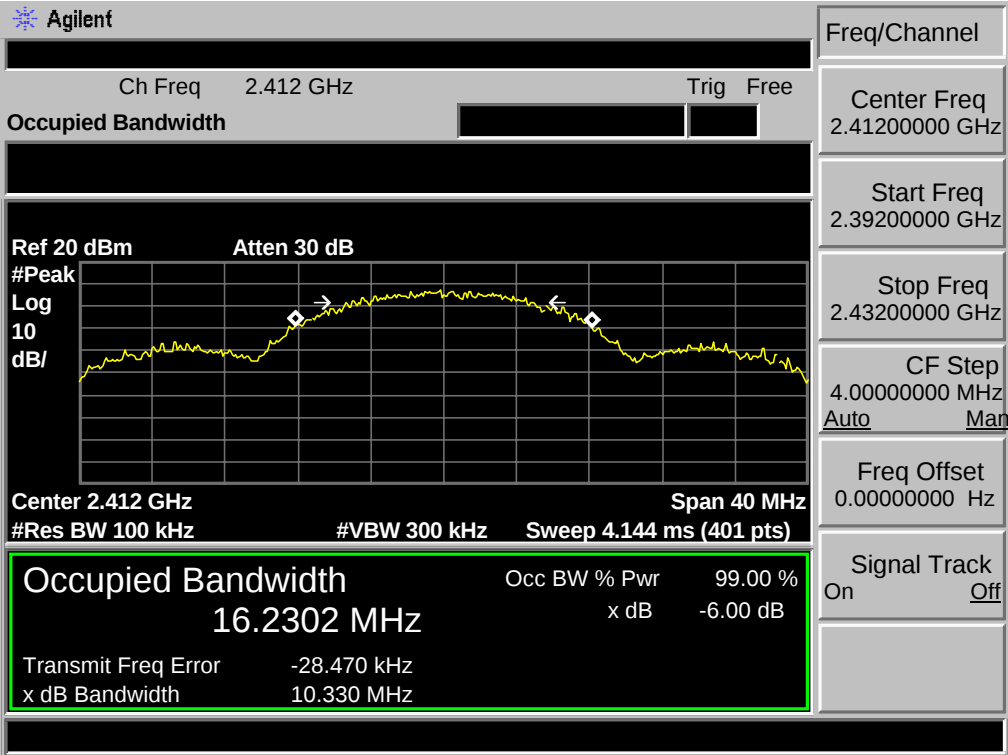
6.3 Test Result

EUT: Label & Barcode Printer			
M/N: DL-210			
Test date: 2016-09-10		Tested by: Tony.Tang	Test site: RF Site
Test Mode	CH	6dB bandwidth (MHz)	Limit (KHz)
IEEE 802.11 b	CH1	10.330	>500
	CH6	10.327	>500
	CH11	9.993	>500
IEEE 802.11 g	CH1	16.445	>500
	CH6	16.440	>500
	CH11	16.452	>500
Conclusion : PASS			

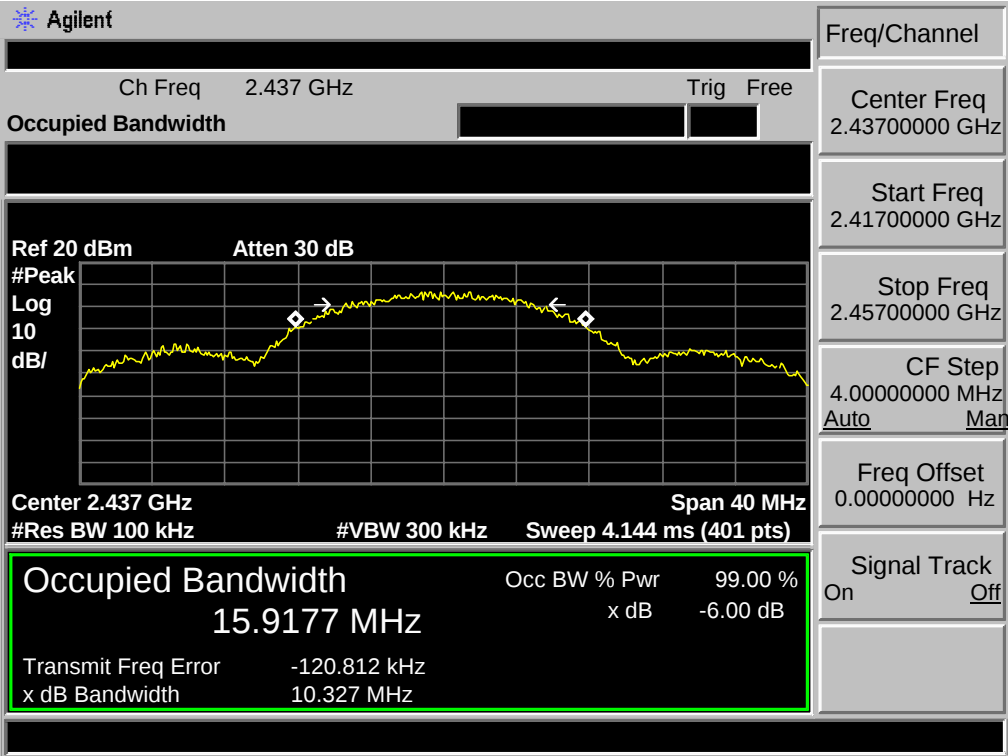
EUT: Label & Barcode Printer			
M/N: DL-210			
Test date: 2016-09-10		Tested by: Tony.Tang	Test site: RF Site
Test Mode	CH	20dB bandwidth (MHz)	Limit (KHz)
IEEE 802.11 b	CH1	17.573	/
	CH6	17.479	/
	CH11	17.401	/
IEEE 802.11 g	CH1	19.869	/
	CH6	19.883	/
	CH11	19.866	/
Conclusion : PASS			

6.4 6dB Test Data

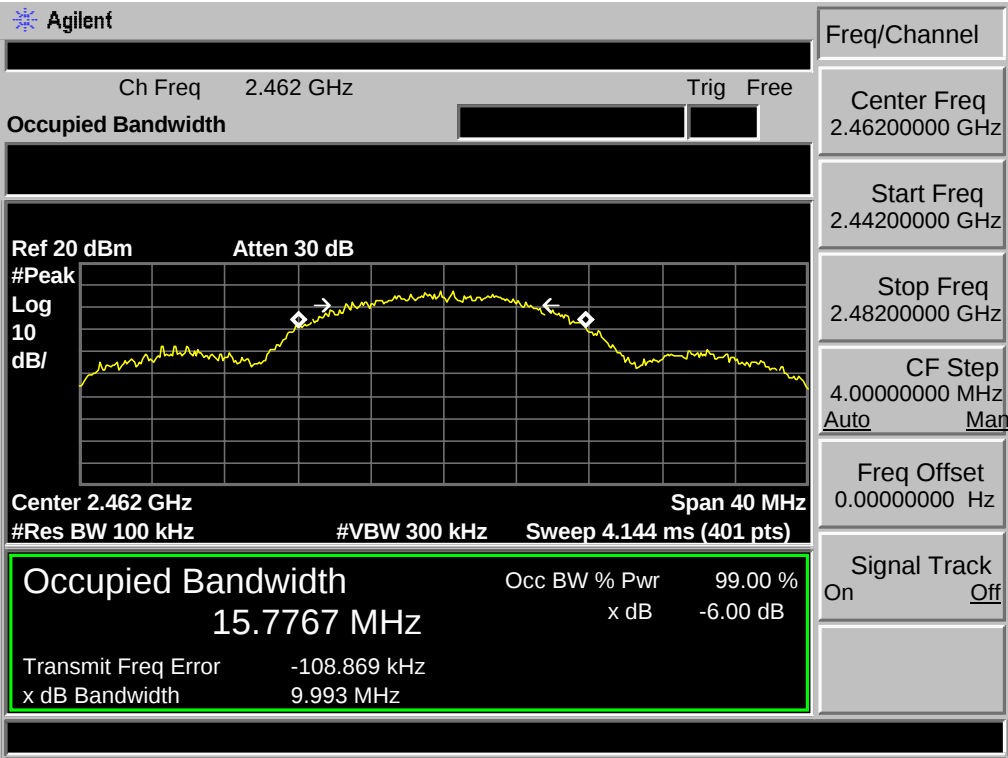
Test Mode: IEEE 802.11b 2412MHz



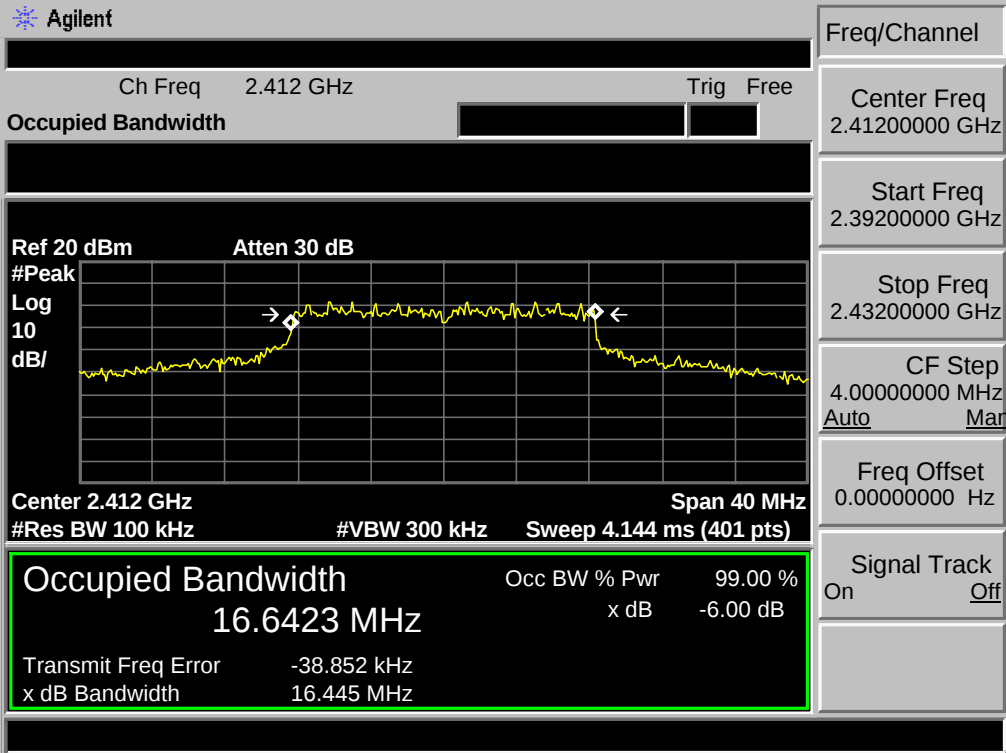
Test Mode: IEEE 802.11b 2437MHz



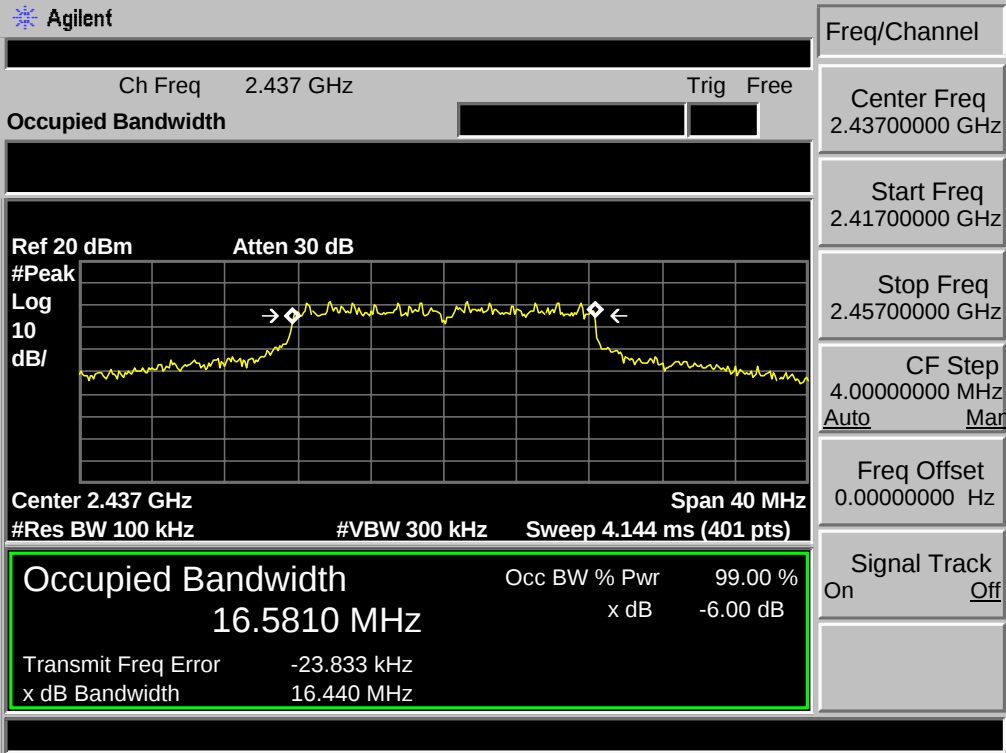
Test Mode: IEEE 802.11b 2462MHz



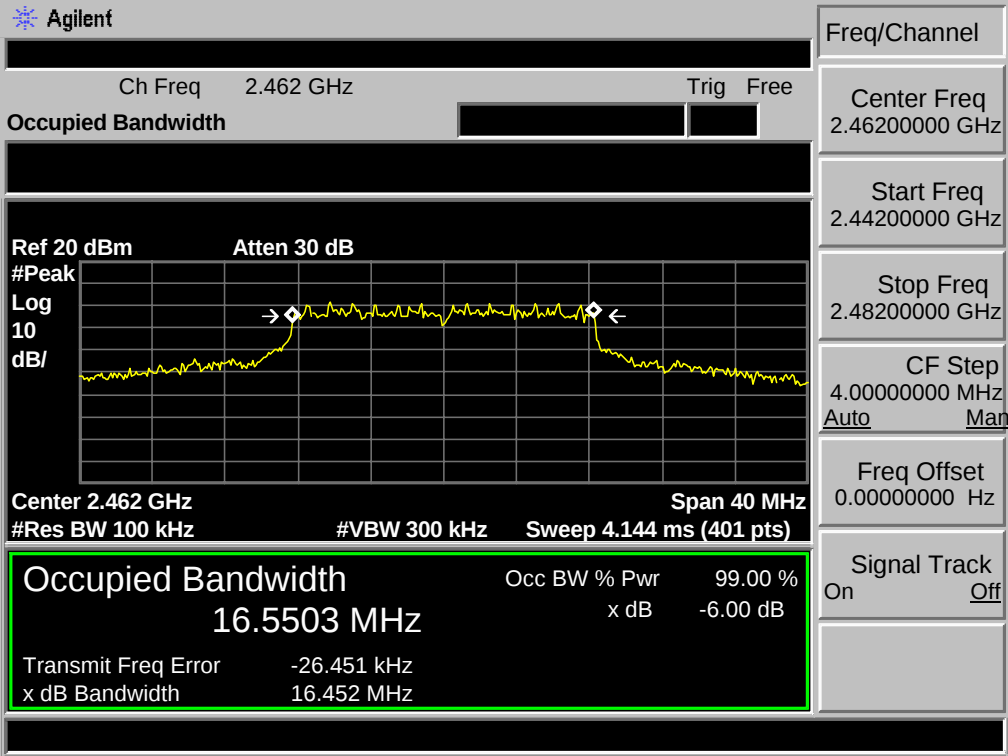
Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz

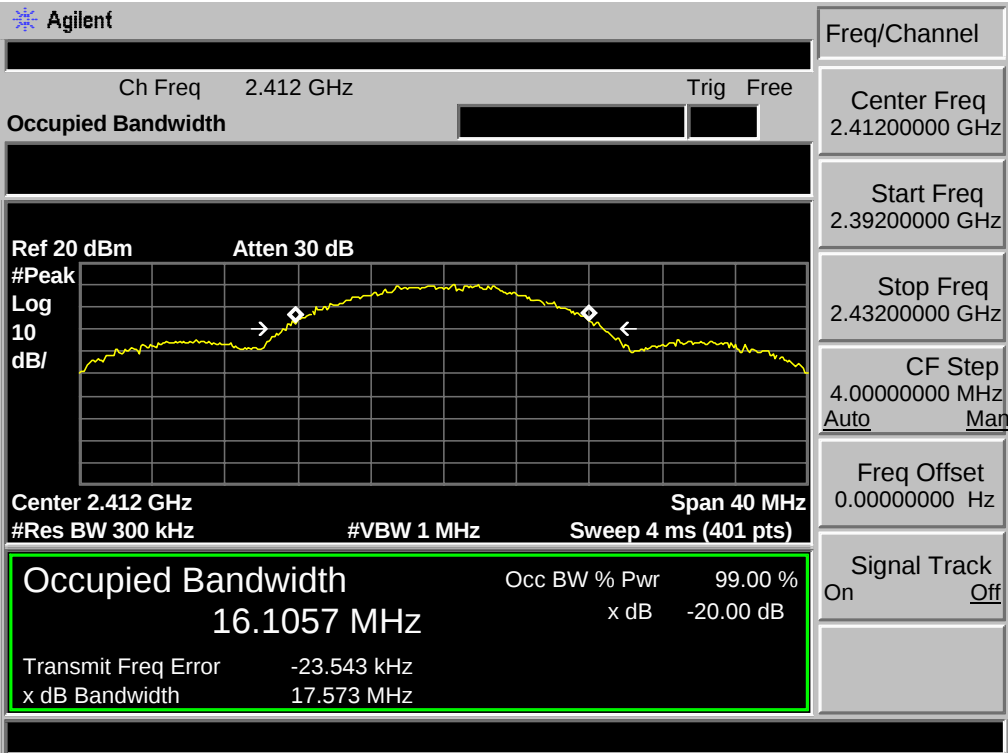


Test Mode: IEEE 802.11g 2462MHz

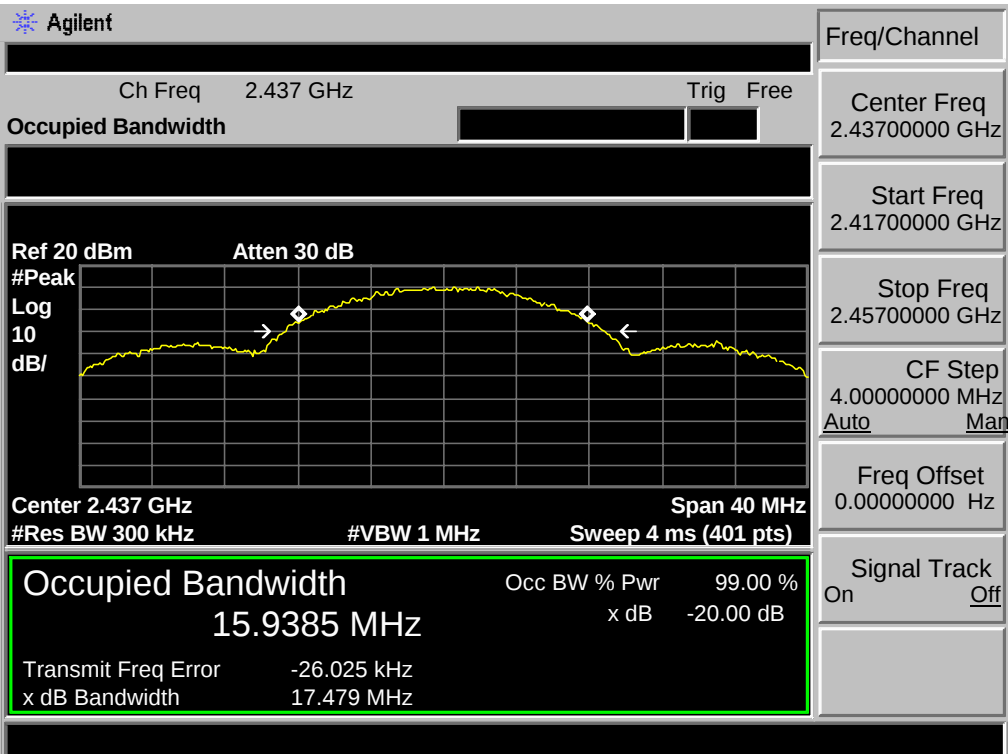


6.5 20dB Test Data

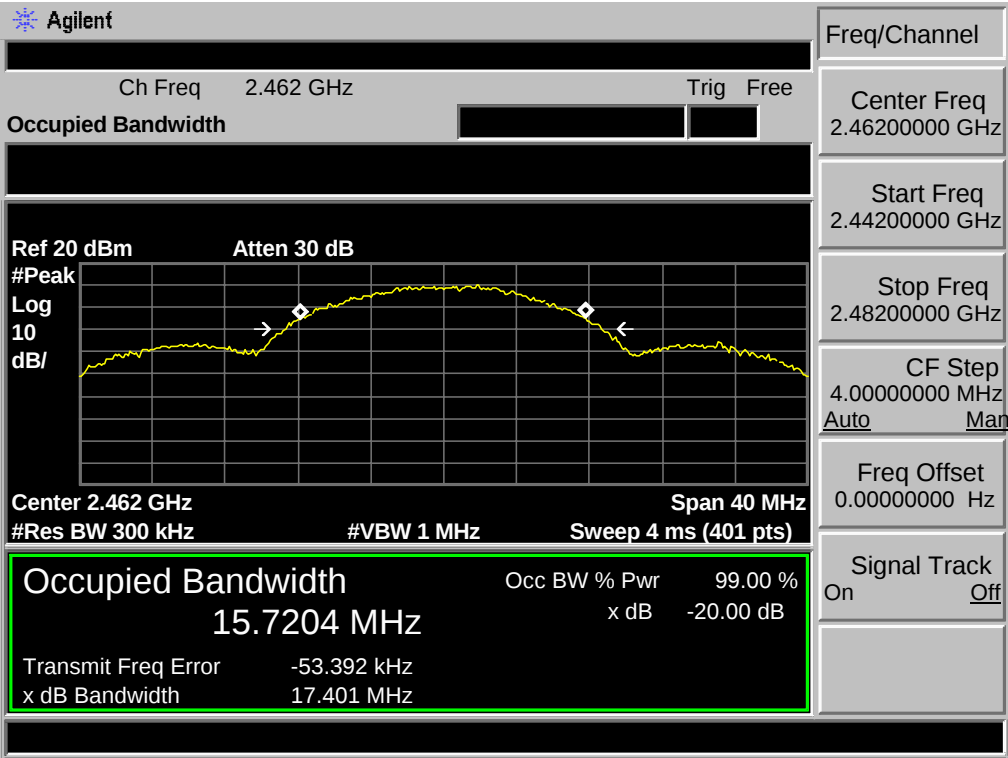
Test Mode: IEEE 802.11b 2412MHz



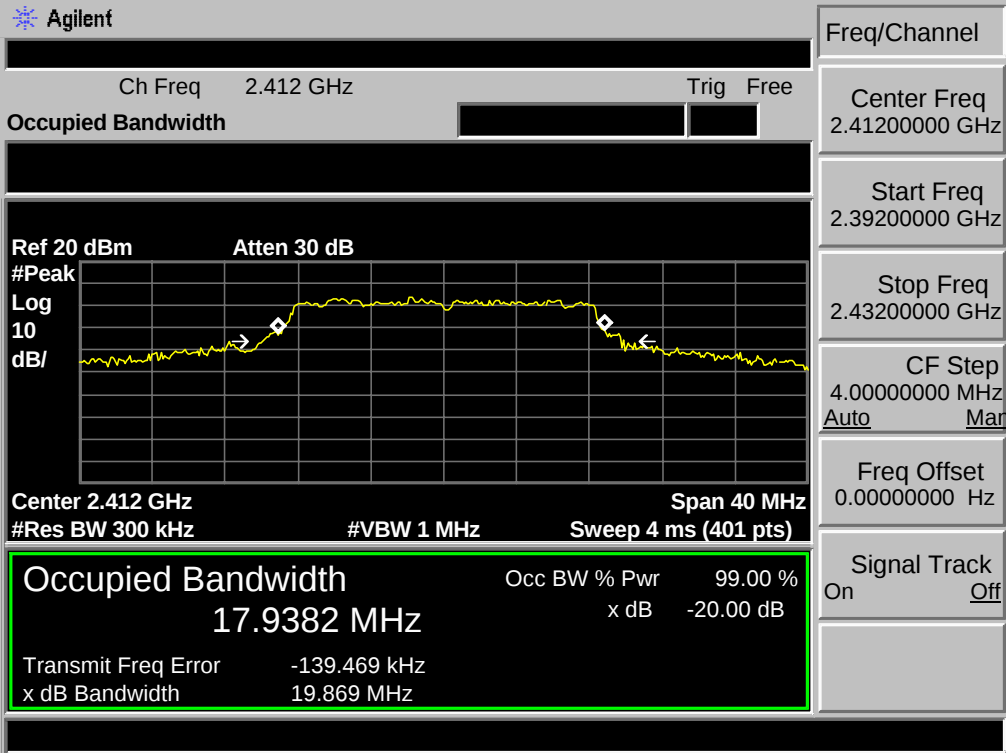
Test Mode: IEEE 802.11b 2437MHz



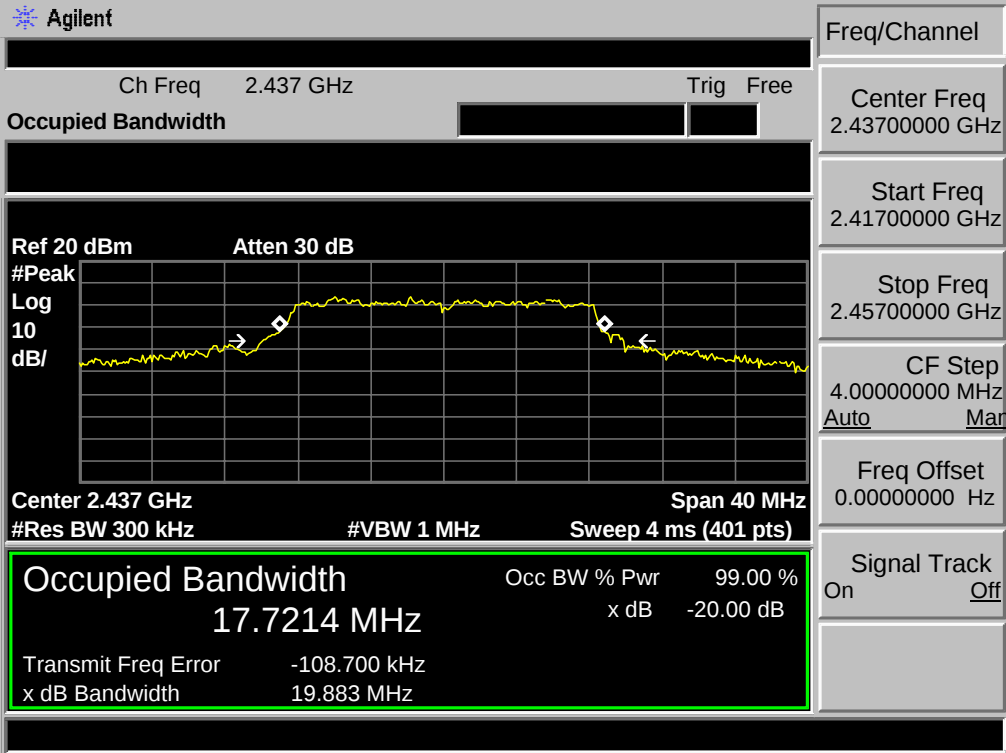
Test Mode: IEEE 802.11b 2462MHz



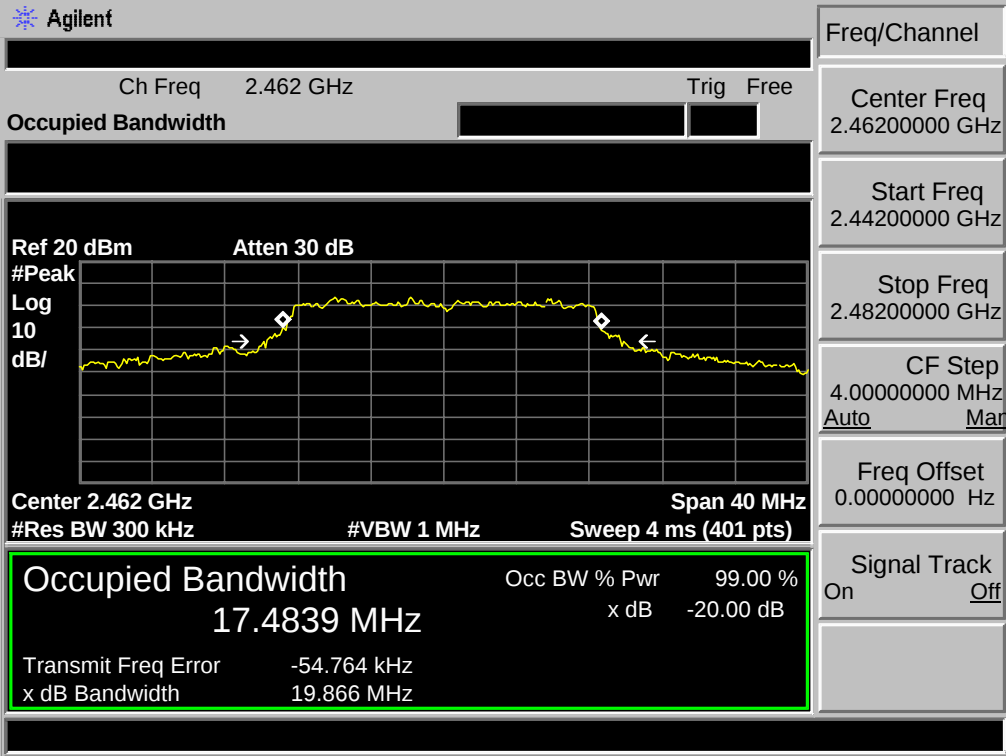
Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz



7 OUTPUT POWER TEST

7.1 Limit

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm)

7.2 Test Procedure

7.3 Test Procedure

- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074
 - (1)Set span to at least 1.5 times the OBW.
 - (2)Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
 - (3)Set VBW $\geq 3 \times$ RBW.
 - (4)Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
 - (4)Sweep time = auto.
 - (5)Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
 - (6)If transmit duty cycle $< 98 \%$, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq 98 \%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
 - (7)Trace average at least 100 traces in power averaging (i.e., RMS) mode.
 - (8)Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

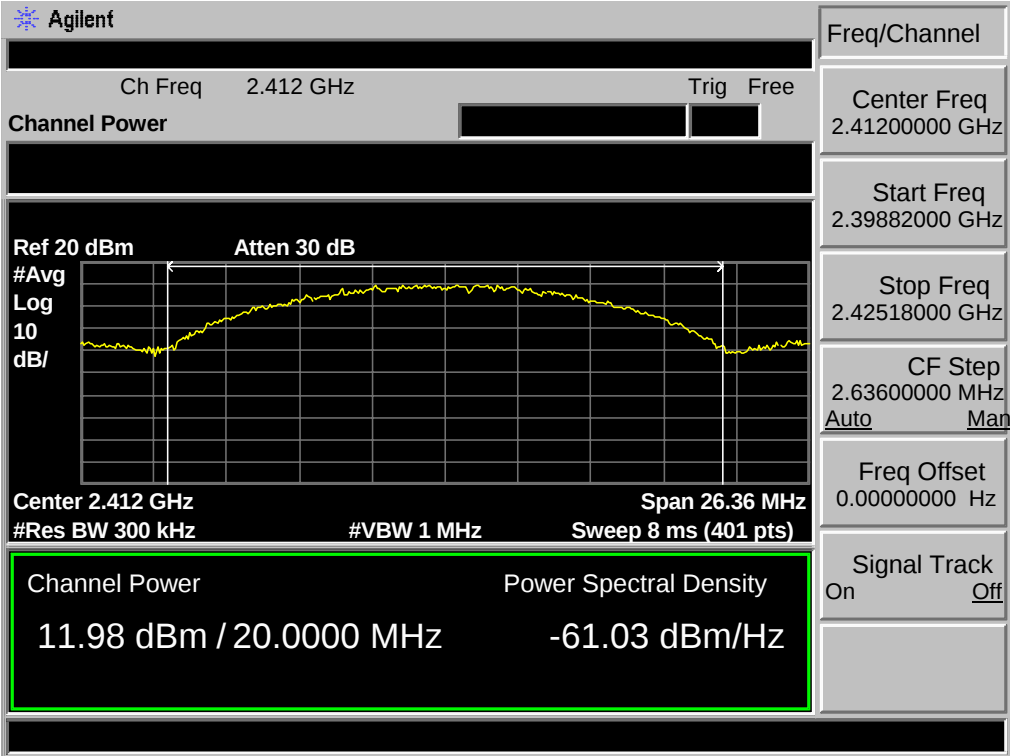
Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

7.4 Test Result

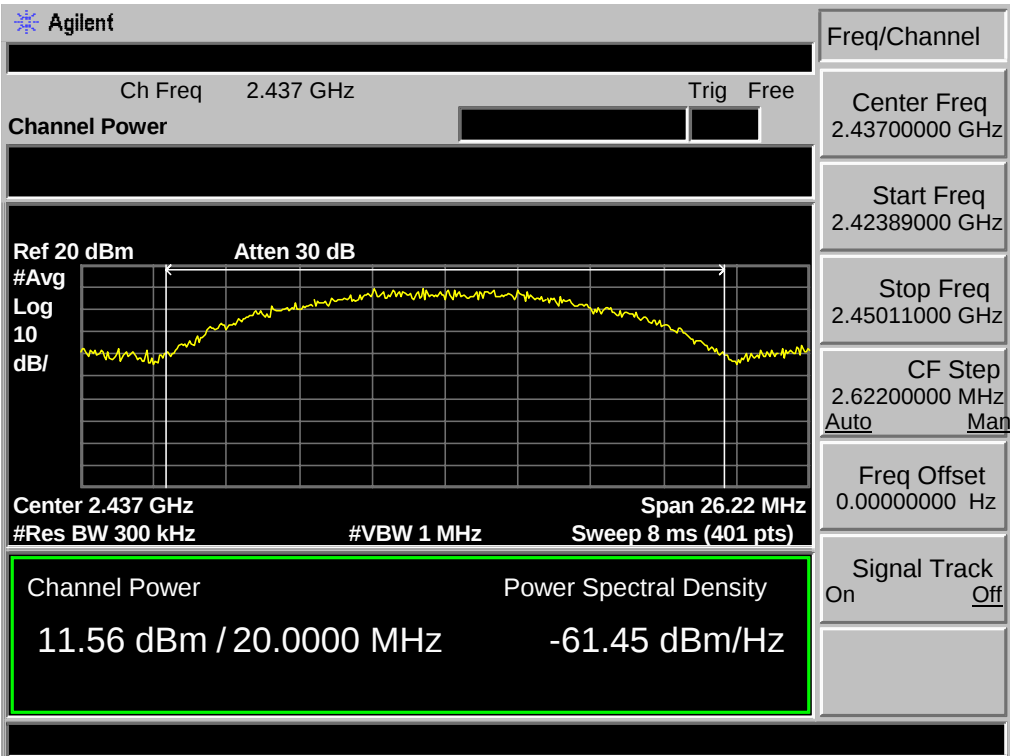
EUT: Label & Barcode Printer			
M/N: DL-210			
Test date: 2016-09-10		Tested by: Tony.Tang	Test site: RF Site
Pass			
Test Mode	CH	Conducted Power (dBm)	Limit (dBm)
IEEE 802.11 b	CH1	11.98	30
	CH6	11.56	30
	CH11	11.27	30
IEEE 802.11 g	CH1	2.60	30
	CH6	1.05	30
	CH11	3.08	30
Conclusion : PASS			

7.5 Test Data

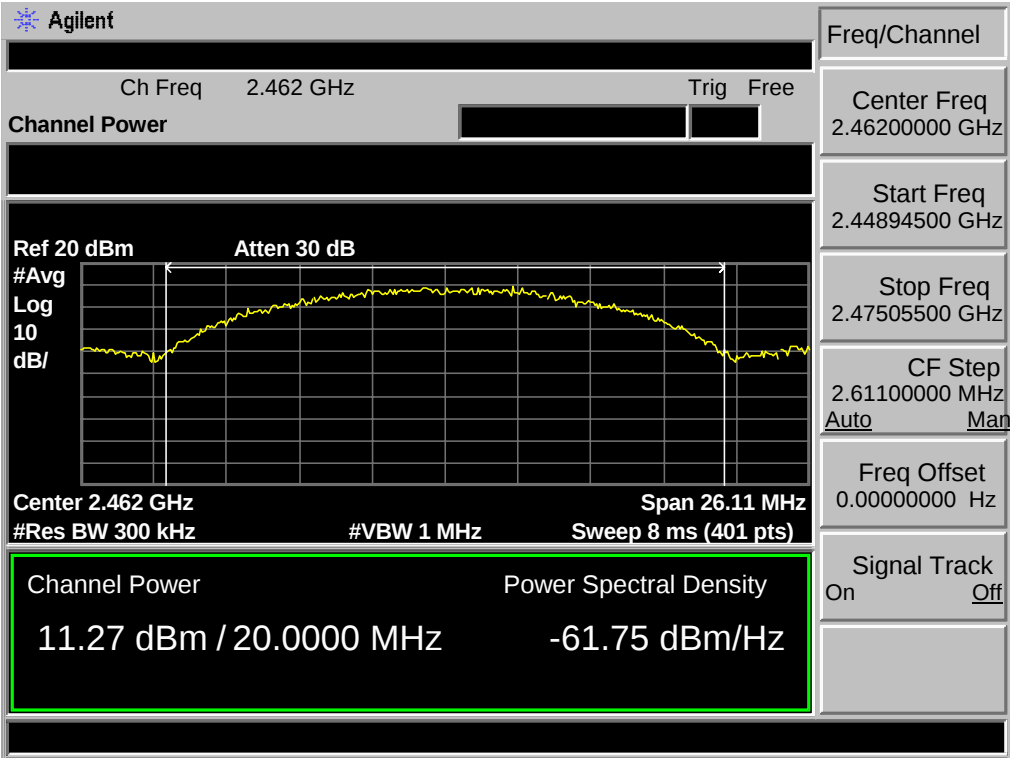
Test Mode: IEEE 802.11 b 2412MHz



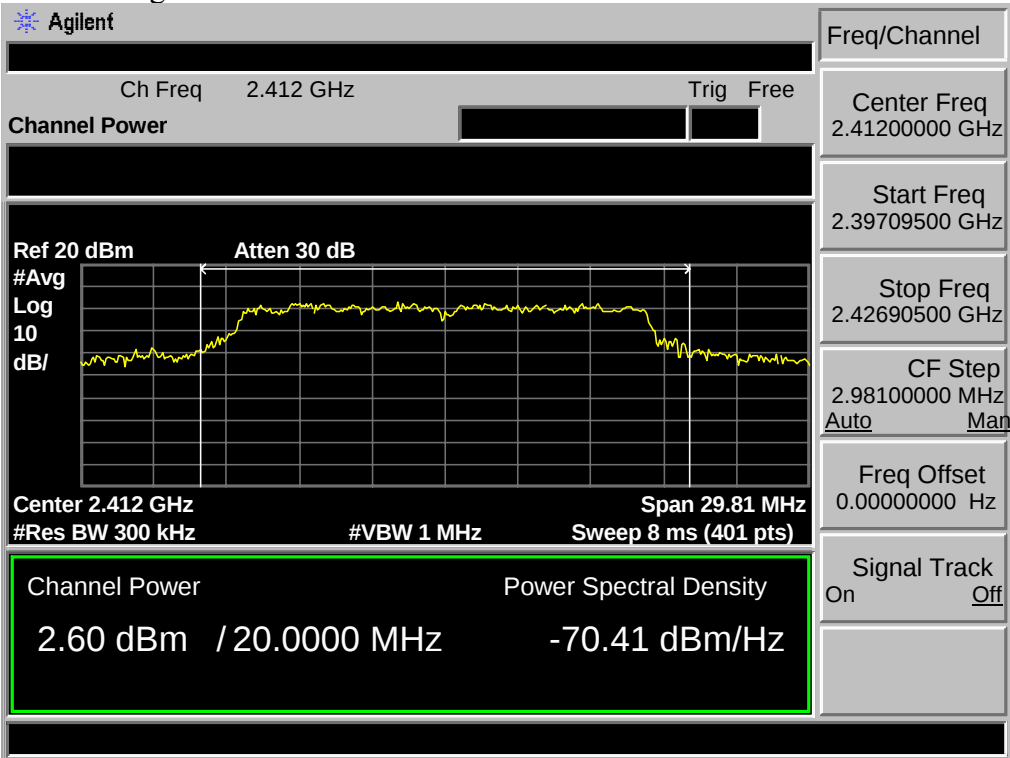
Test Mode: IEEE 802.11 b 2437MHz



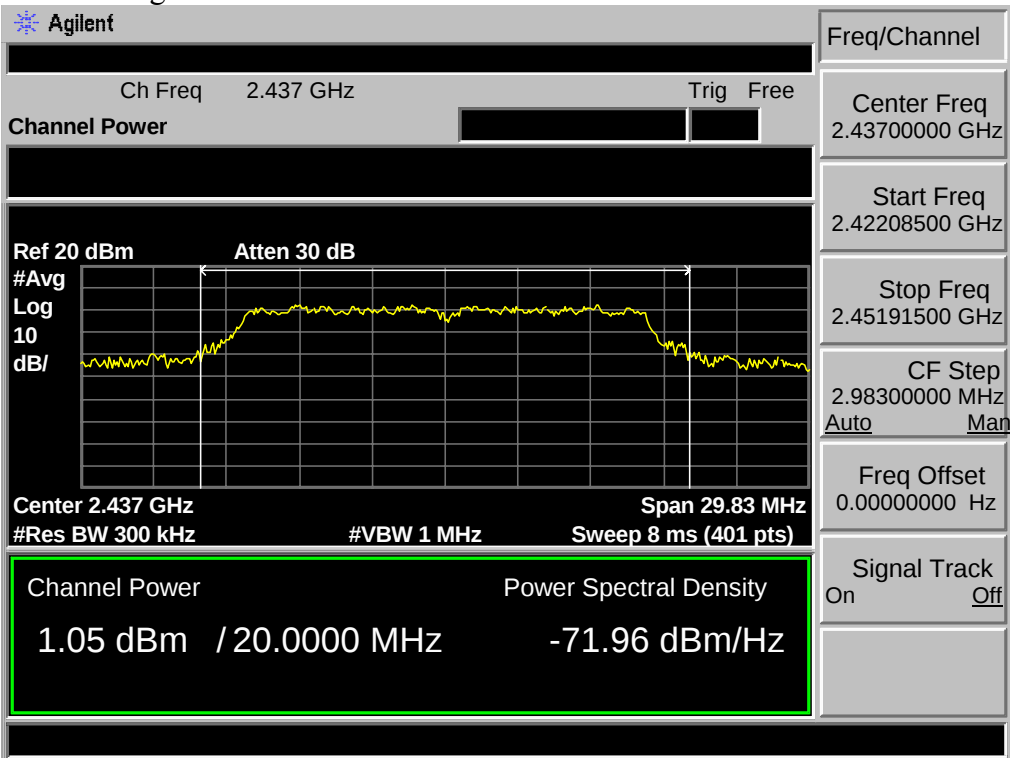
Test Mode: IEEE 802.11 b 2462MHz



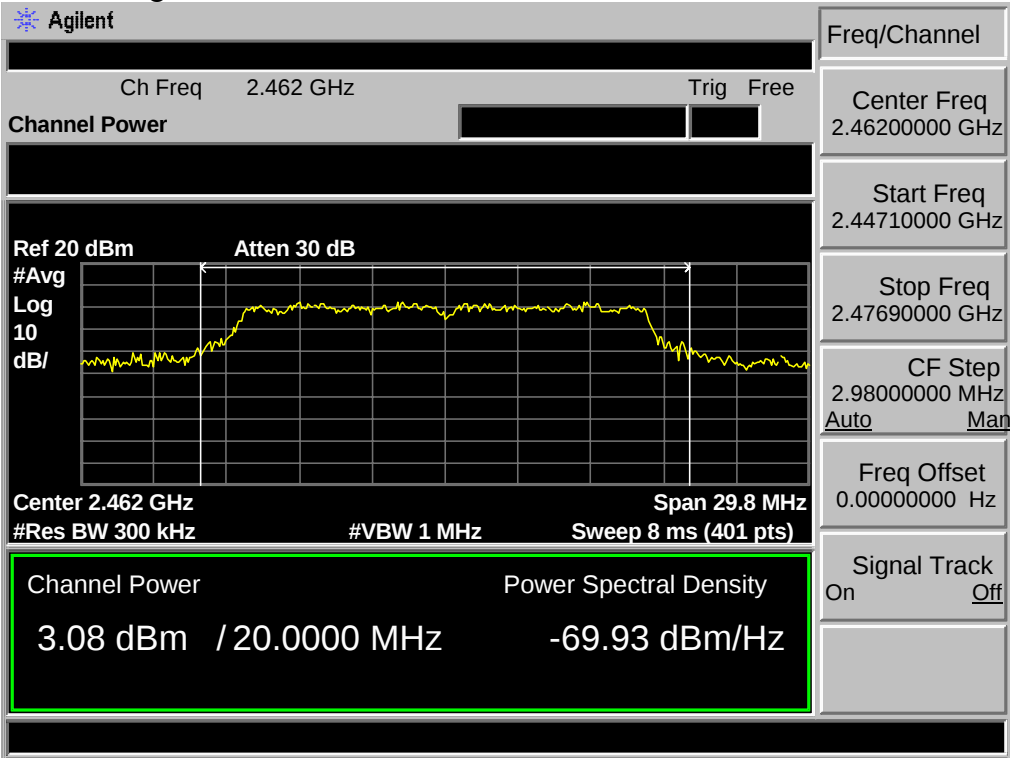
Test Mode: IEEE 802.11 g 2412MHz



Test Mode: IEEE 802.11 g 2437MHz



Test Mode: IEEE 802.11 g 2462MHz



8 POWER SPECTRAL DENSITY TEST

8.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

8.2 Test Procedure

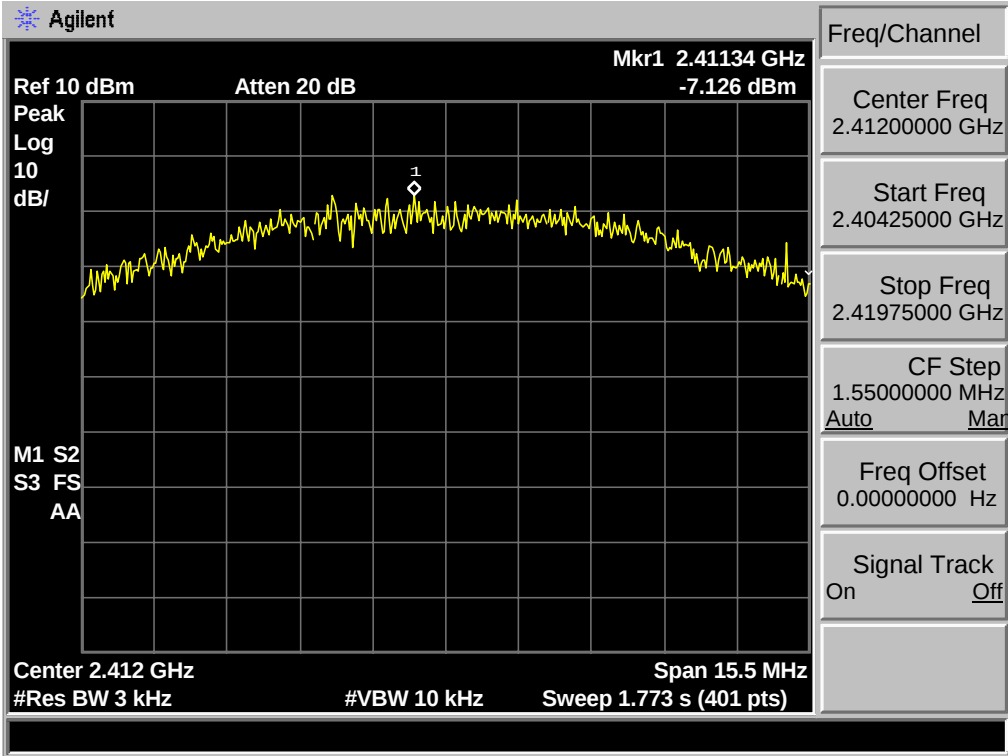
- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074
 - (1). Set analyzer center frequency to DTS channel center frequency.
 - (2). Set the span to 1.5 times the DTS bandwidth.
 - (3). Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - (4). Set the VBW $\geq 3 \text{ RBW}$.
 - (5). Detector = peak.
 - (6). Sweep time = auto couple.
 - (7). Trace mode = max hold.
 - (8). Allow trace to fully stabilize.
 - (9). Use the peak marker function to determine the maximum amplitude level.
 - (10). If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.3 Test Result

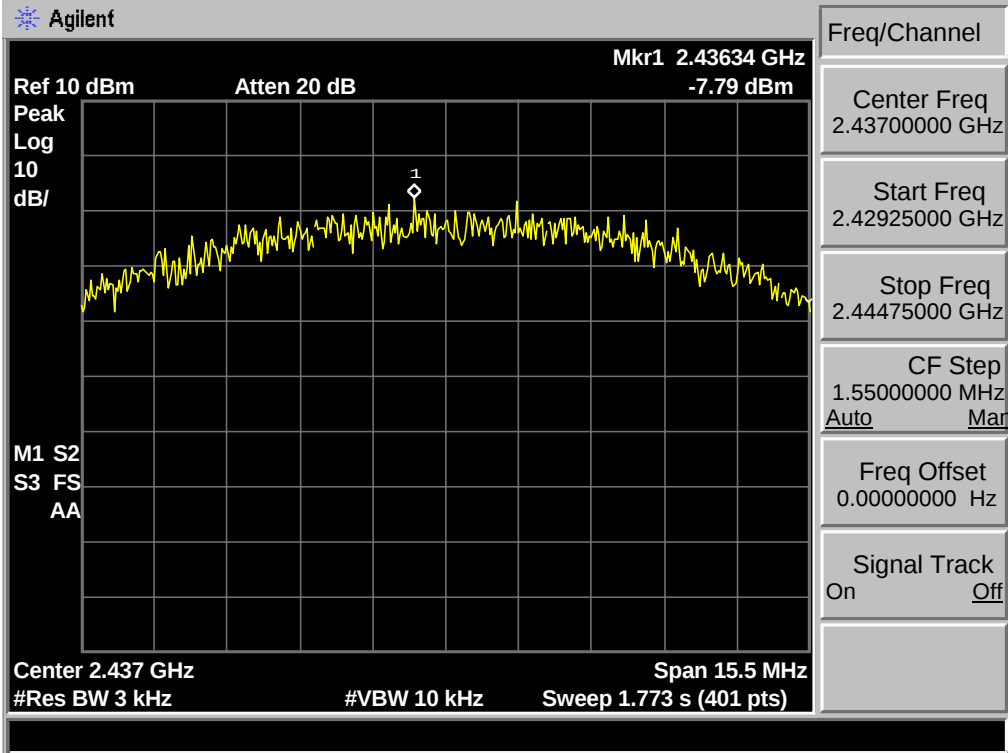
EUT: Label & Barcode Printer			
M/N: DL-210			
Test date: 2016-09-10		Tested by: Tony Tang	Test site: RF site
Pass			
Test Mode	CH	Power density (dBm/3kHz)	Limit (dBm/3kHz)
IEEE 802.11 b	CH1	-7.126	8
	CH6	-7.790	8
	CH11	-8.037	8
IEEE 802.11 g	CH1	-13.570	8
	CH6	-16.850	8
	CH11	-16.710	8
Conclusion: PASS			

8.4 Test Data

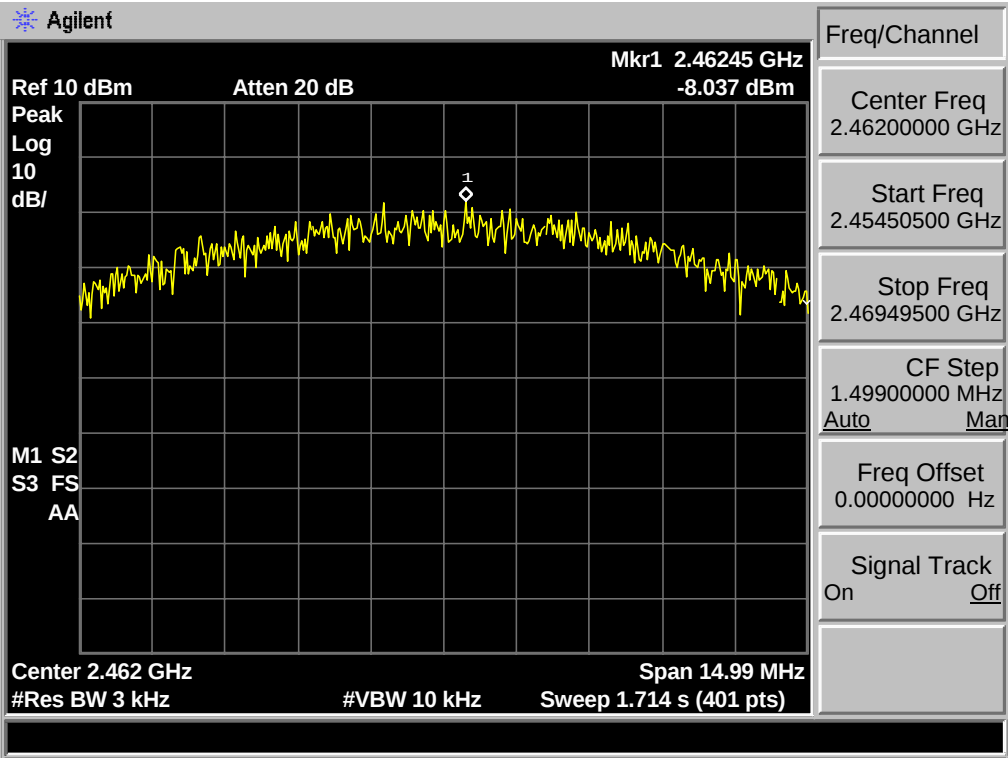
Test Mode: IEEE 802.11b 2412MHz



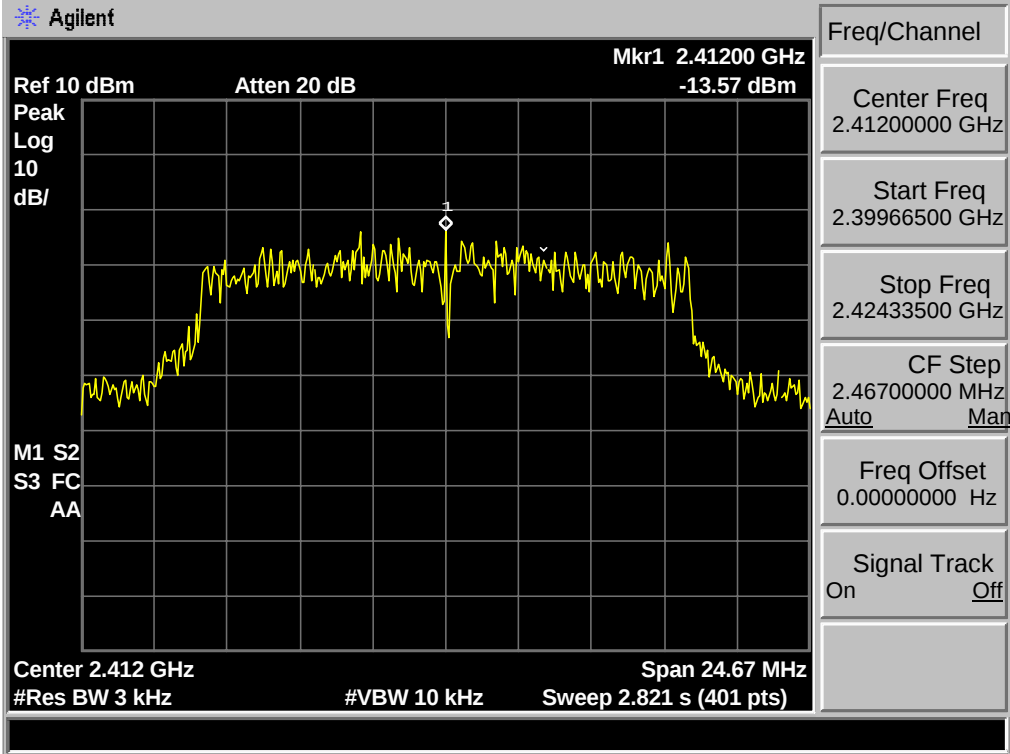
Test Mode: IEEE 802.11b 2437MHz



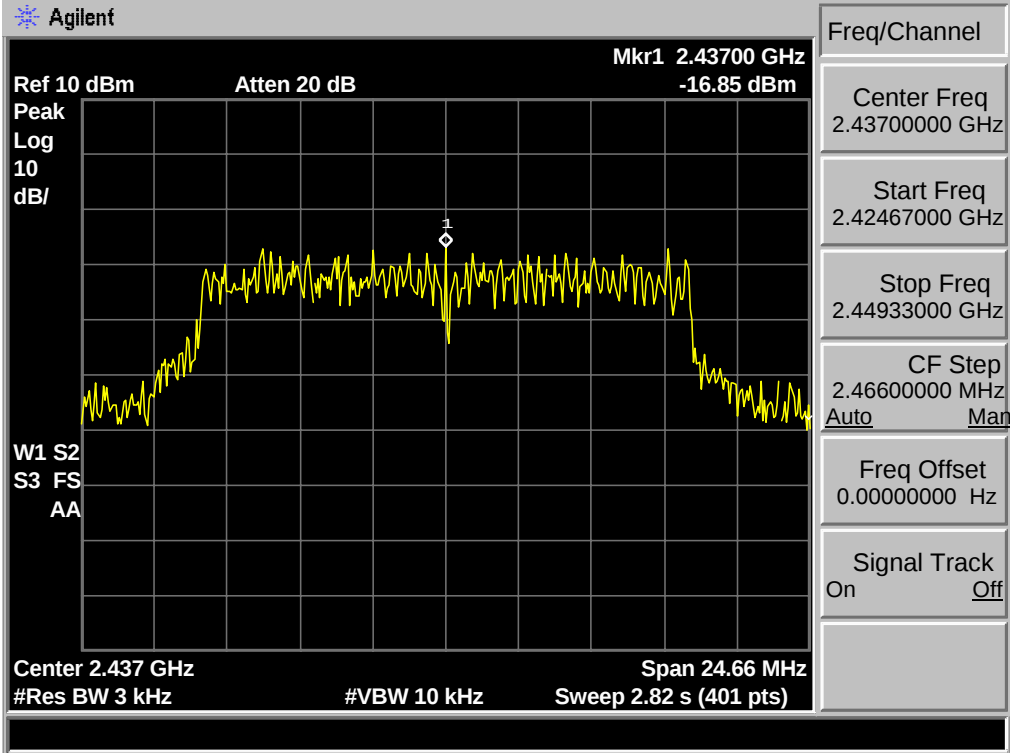
Test Mode: IEEE 802.11b 2462MHz



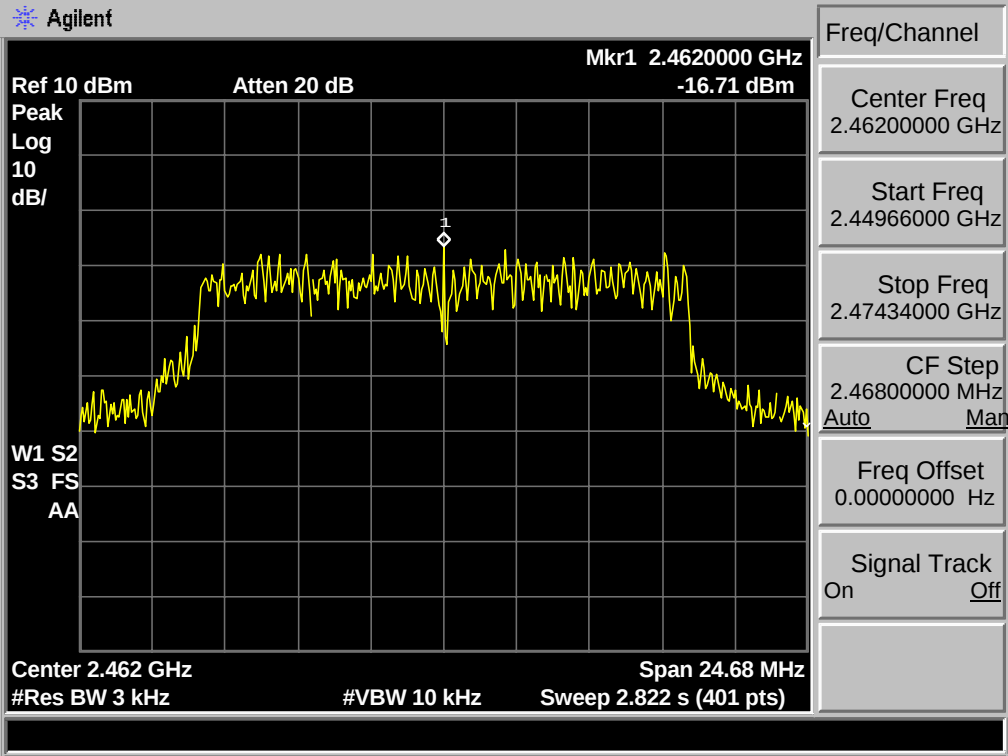
Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz



9 ANTENNA REQUIREMENTS

9.1 Limit

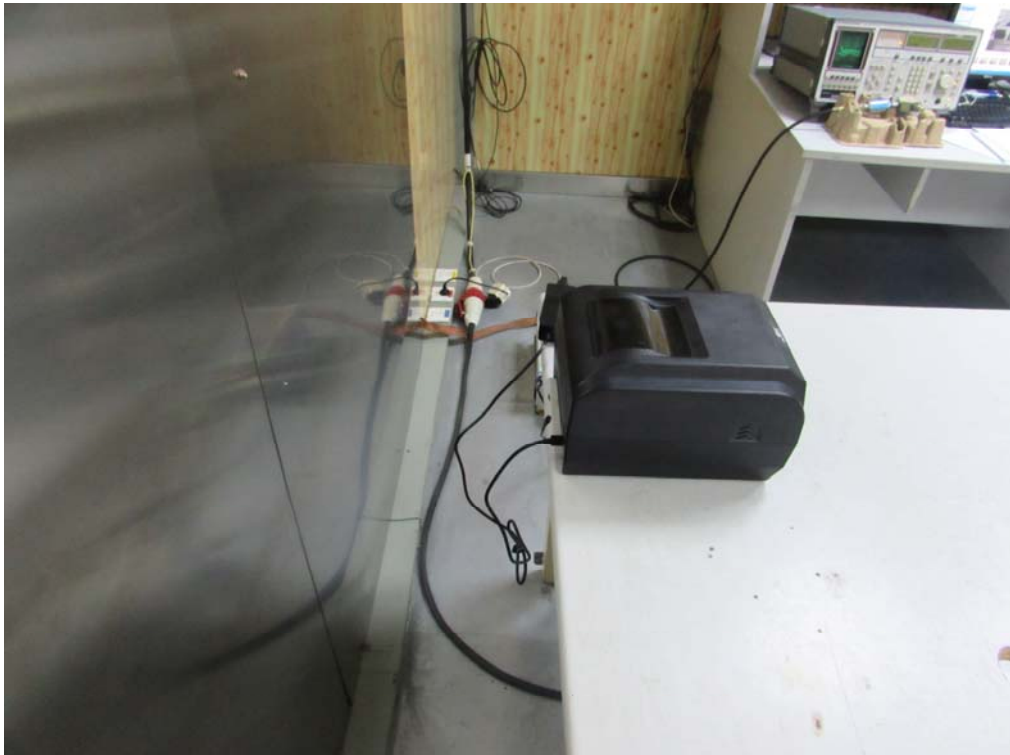
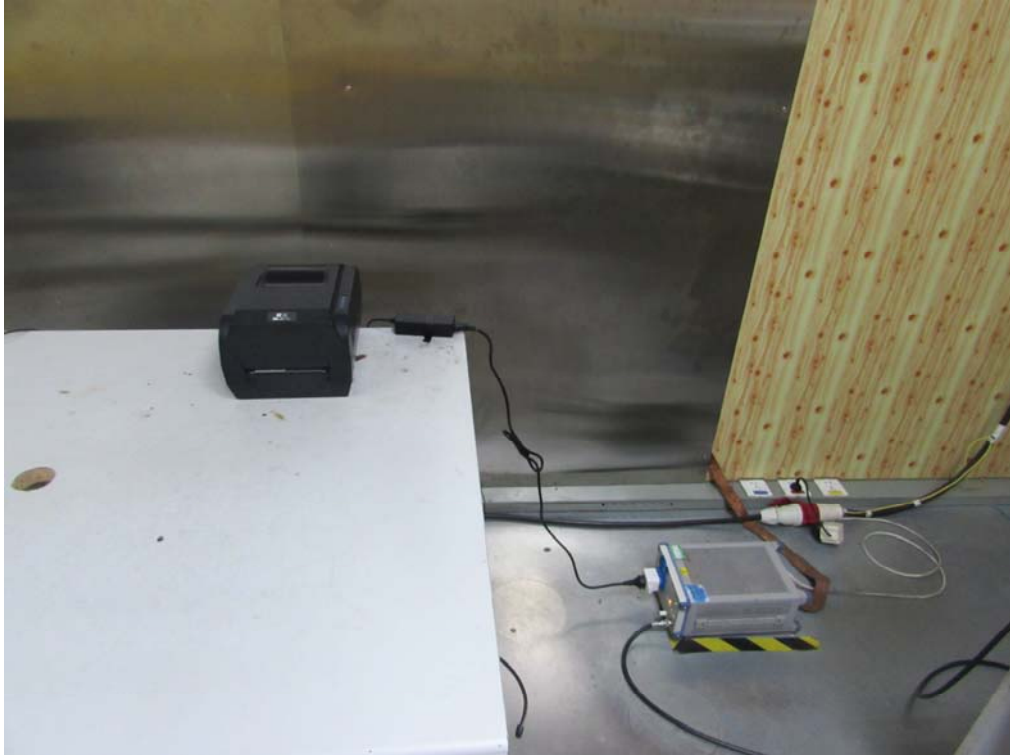
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.2 Result

The antennas used for this product are Integral antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 3 dBi.

10 TEST SETUP PHOTO

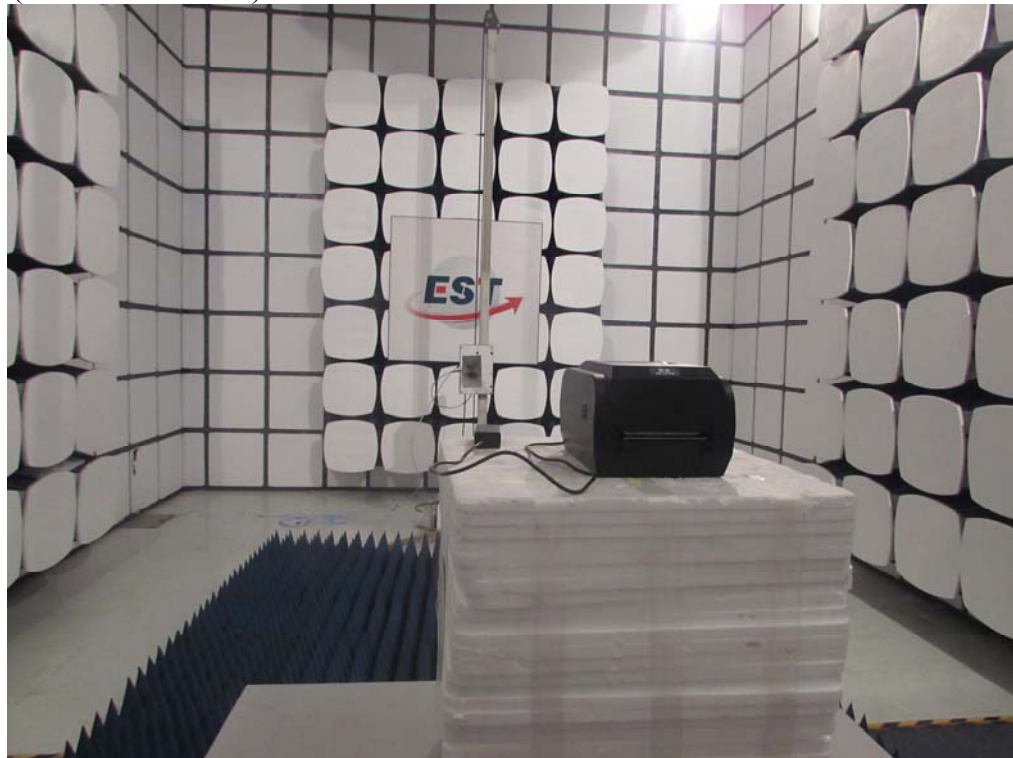
Conducted Test



Radiated Test (30-1000 MHz)



Radiated Test (1000-25000 MHz)



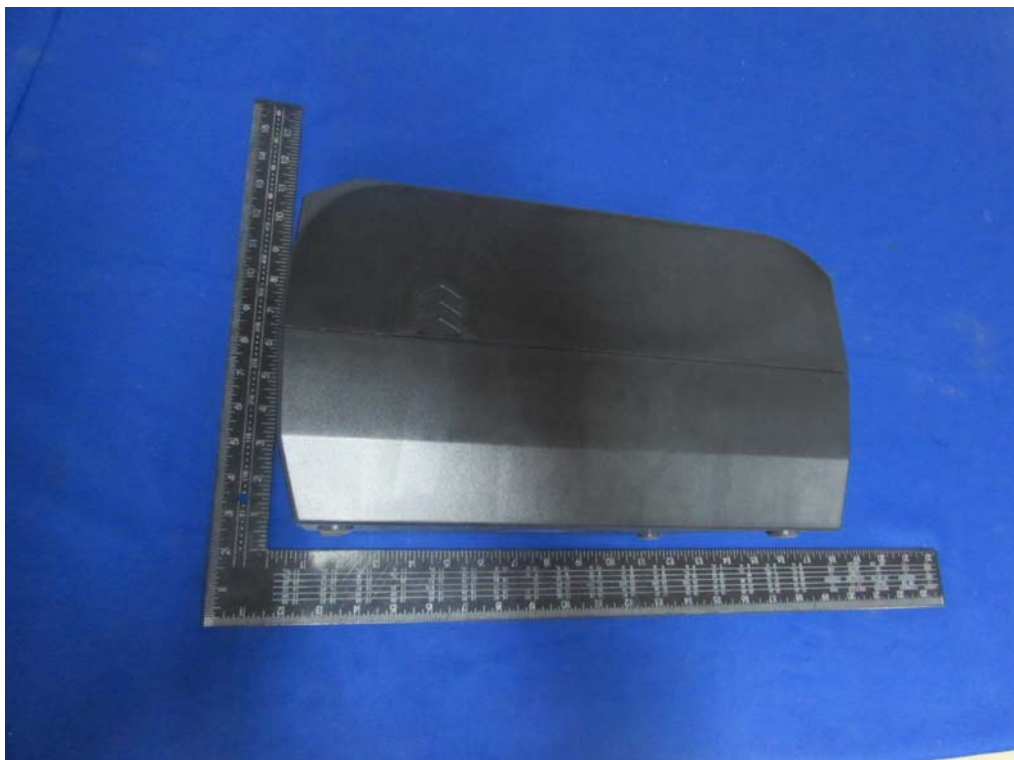
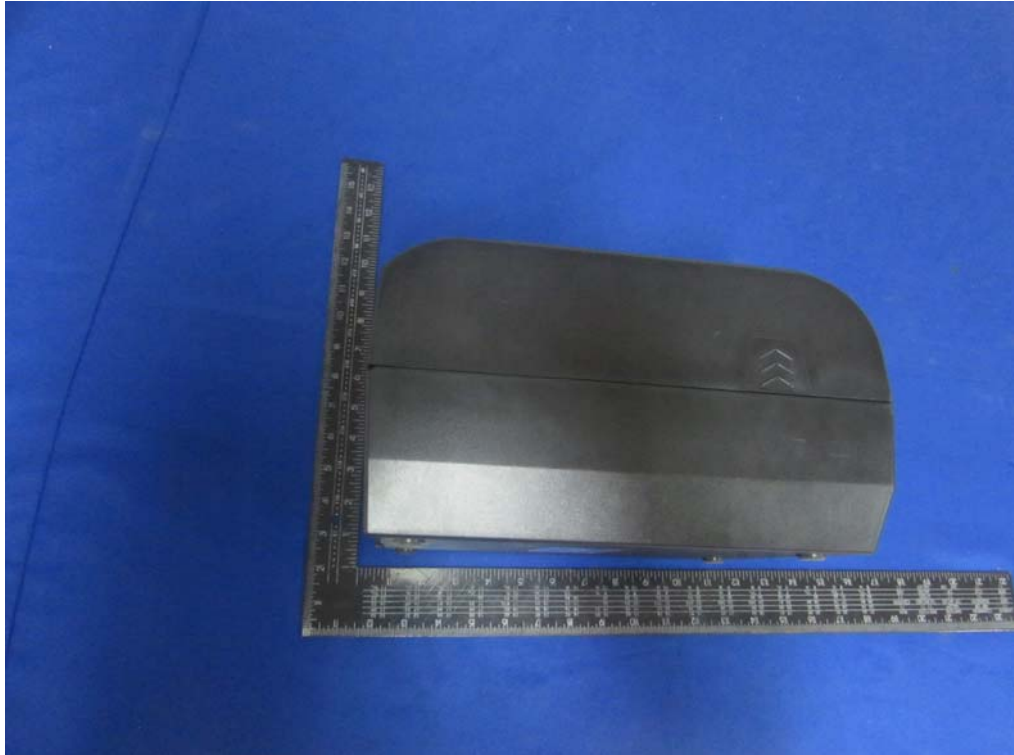
11 PHOTOS OF EUT

External Photos

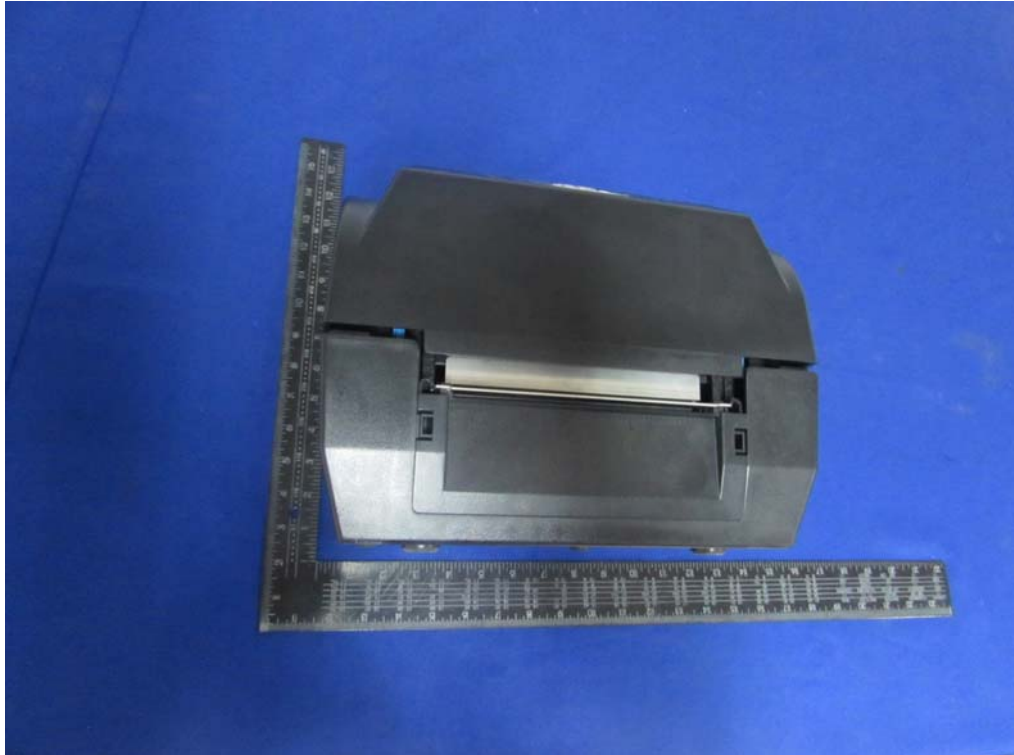
M/N: DL-210



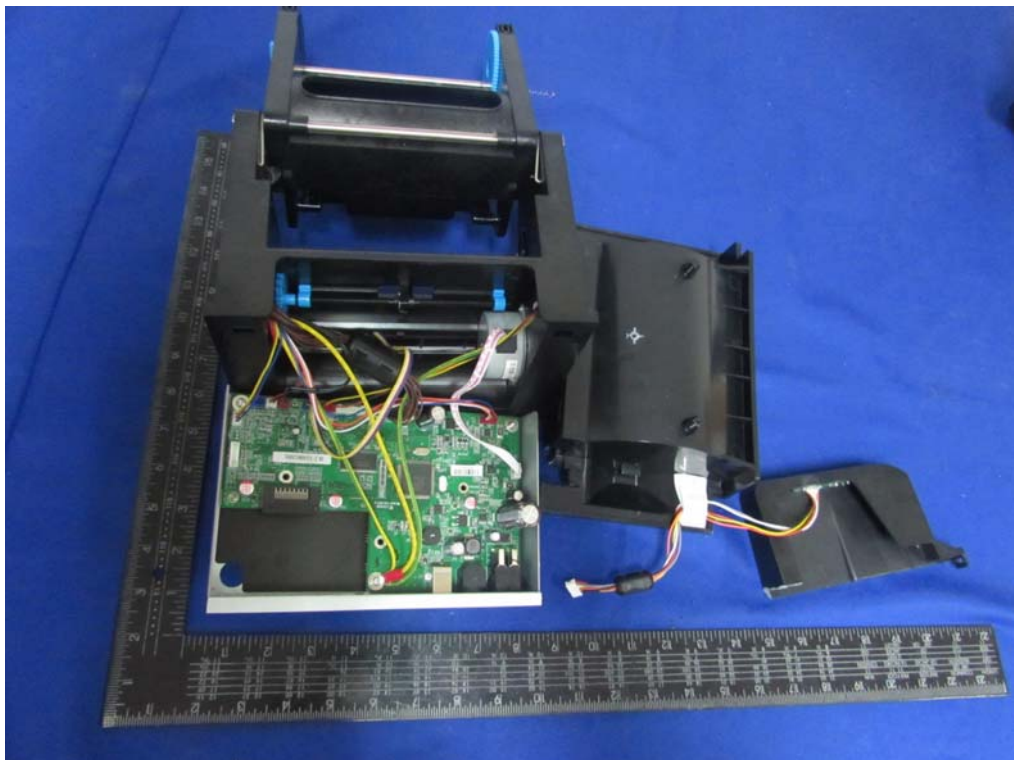
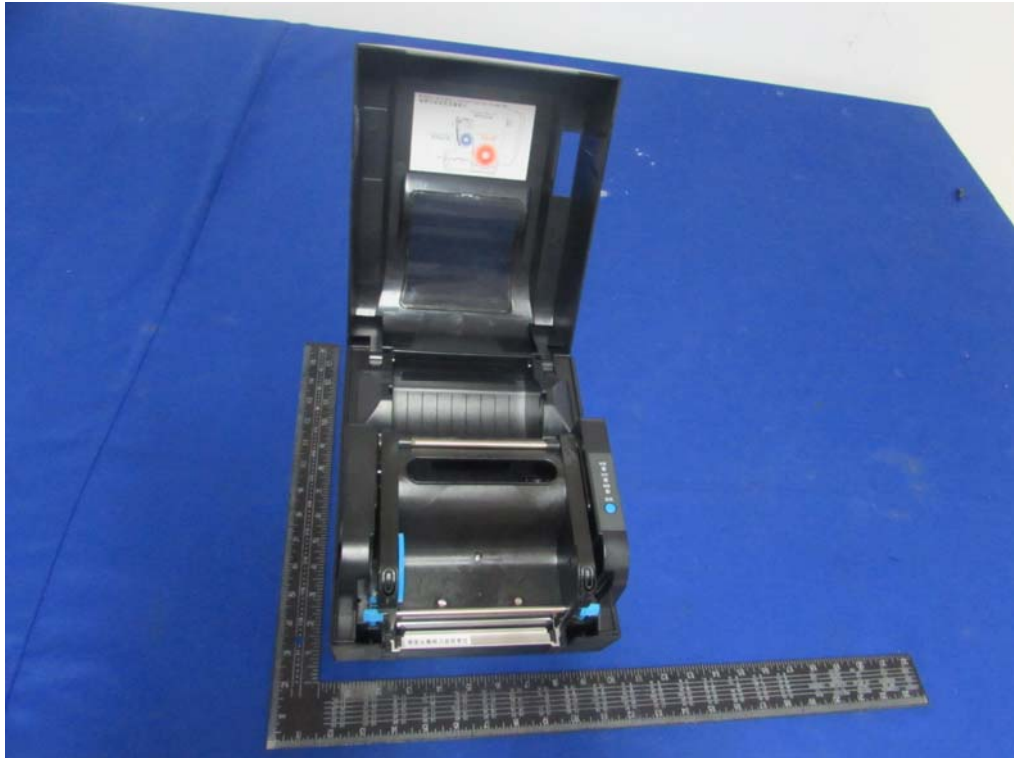
External Photos
M/N: DL-210



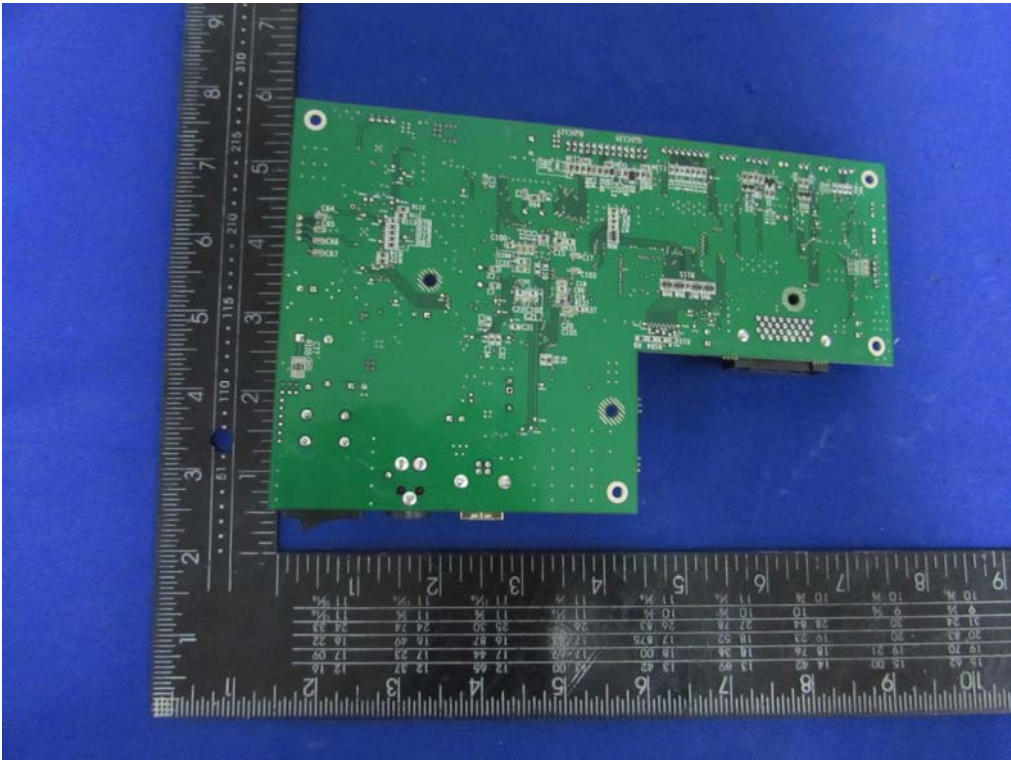
External Photos
M/N: DL-210



Internal Photos
M/N: DL-210

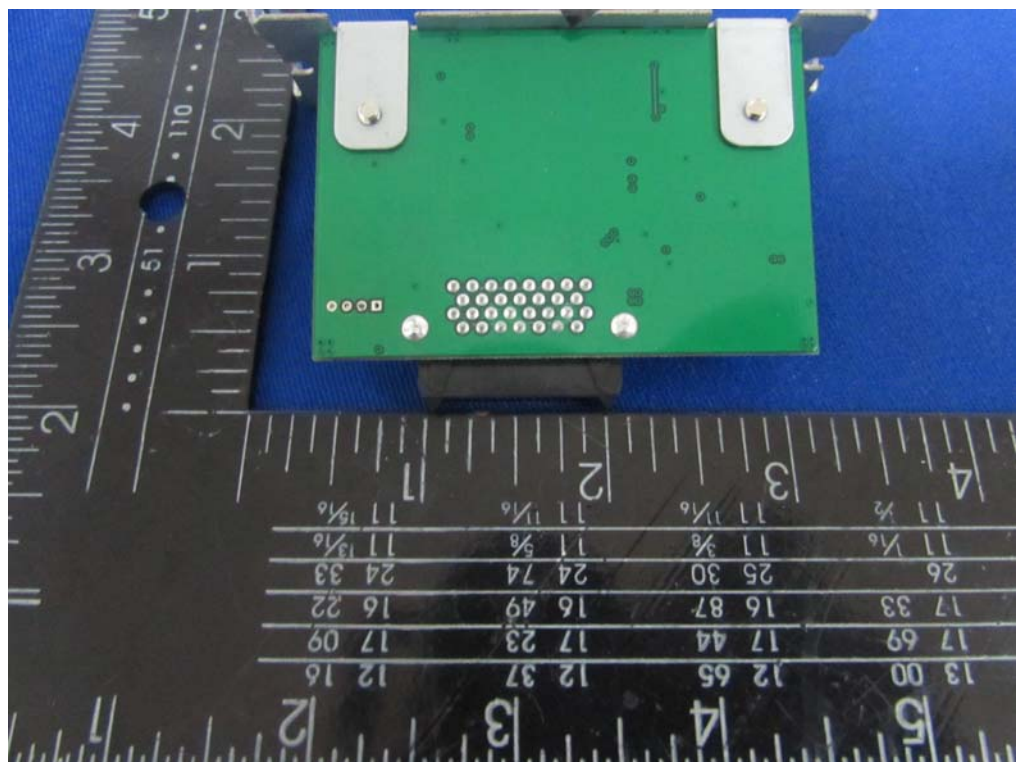
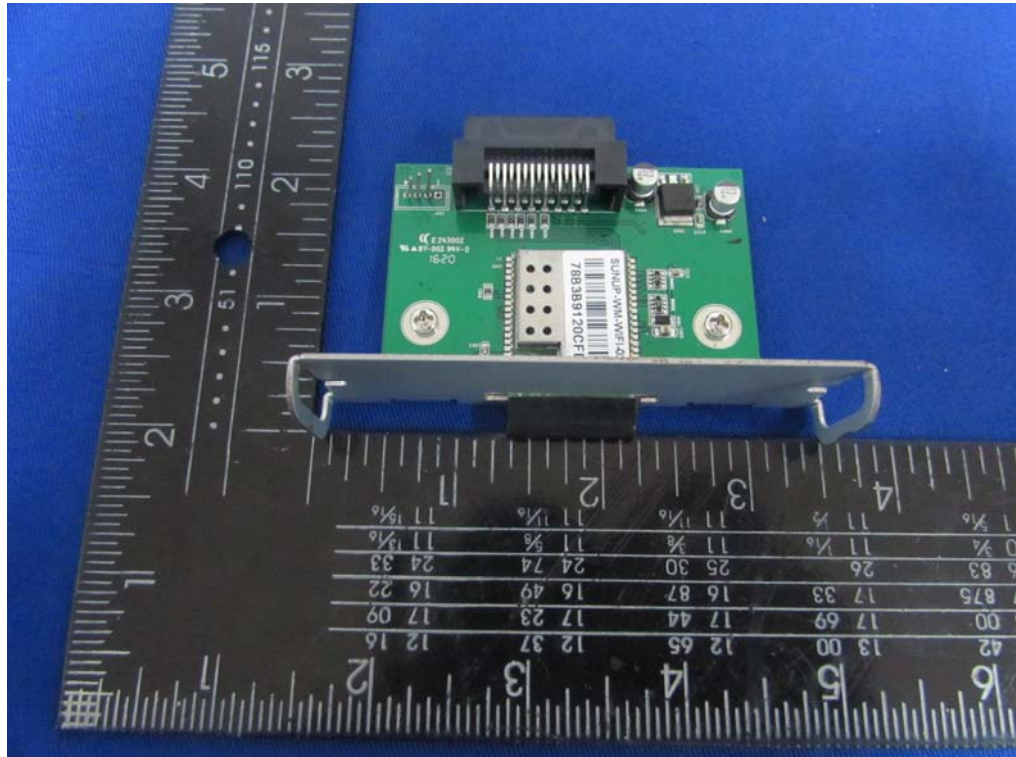


Internal Photos
M/N: DL-210

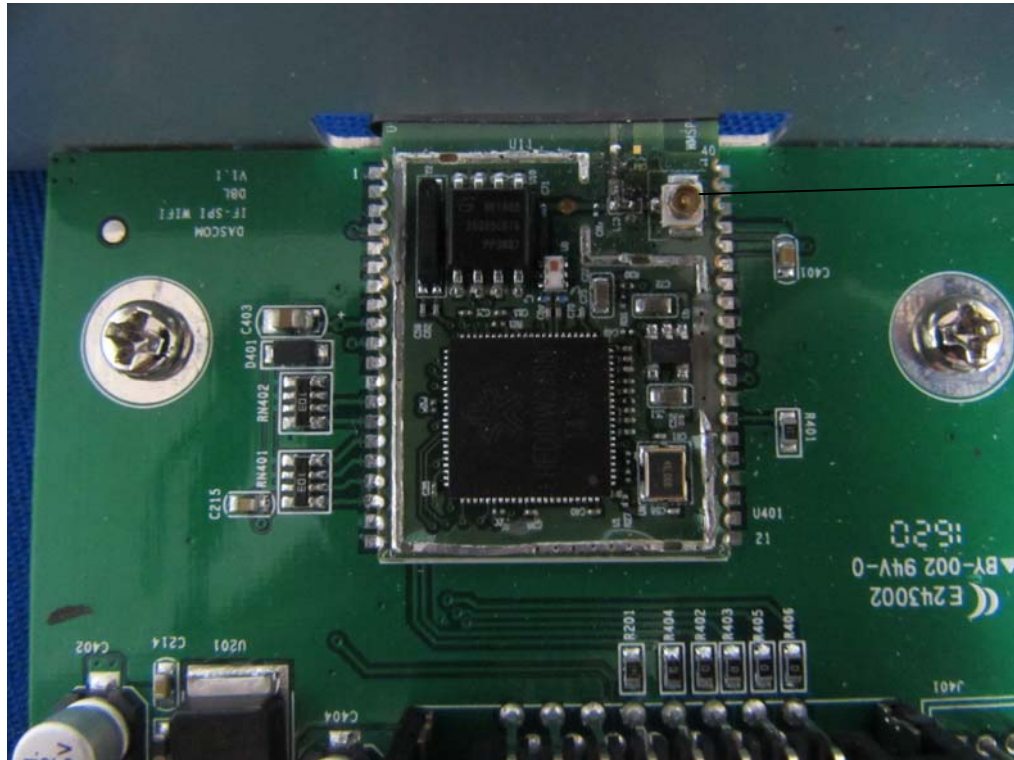


Internal Photos

M/N: DL-210



Internal Photos
M/N: DL-210



Wifi Antenna

Adapter

