

FCC PART 15C TEST REPORT

FCC ID: ZQTMLP-EL8

Applicant: AMAROCKS GROUP.

Address: 5119 Mississauga Rd Mississauga, ON Canada

Equipment Under Test(EUT):

Name : MLEARNPAD

Model : MLP – EL8

In Accordance with: FCC 15.247

Report No : STE110622516

Date of Test : Jul 01-Jul 02, 2011

Date of Issue : Jul 04, 2009

Test Result: PASS

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

(Mark Zhu)

General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Certification Technology Service Co., Ltd. Or test done by Shenzhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Certification Technology Service Co., Ltd. Approvals in writing.

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1. General Information

1.1. Description of Device (EUT)

EUT Name : MLEARNPAD

Model No. : MLP – EL8

Power supply : DC 3.7V form battery and DC 5V from power adapter Adapter : Manufacturer: WASENSE TECHNOLOGY CO.,LTD

Input: AC 100-240V Output: DC 5V

Radio Technology : IEEE802.11b/g

Operation frequency : 2412MHz—2462MHz

Modulation : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) (2Mbps)

IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)(6Mpbs)

Antenna Type : Integral Patch Antenna, Maximum Gain 0dBi

Applicant : Amarocks Group

Address : 5119 Mississauga Rd Mississauga, ON Canada

Manufacturer : WASENSE TECHNOLOGY CO.,LTD

Address : Gushu Xixiang Town, Bao'an district, Shenzhen, China

1.2. Test Lab information

Shenzhen Certification Technology Service Co.,Ltd.

3F, Bldg.27, Area A, Tanglang Industrial Zone, Xili Town, Nanshan District,

Shenzhen 518055, Guangdong, P.R. China

FCC Registered No.:305283

2. Summary of test

2.1. Summary of test result

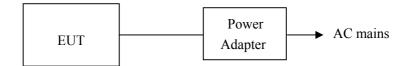
EMISSION				
Description of Test Item	Standard	Results		
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10: 2009	PASS		
Radiated Emission	FCC Part 15: 15.209 ANSI C63.10: 2009	PASS		
Band Edge Compliance	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS		
Conducted spurious emissions	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS		
6dB Bandwidth	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS		
Maximum Output Power	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS		
Power Spectral Density	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS		
Antenna requirement	FCC Part 15: 15.203	PASS		

2.2. Assistant equipment used for test

N/A

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2.3. Block Diagram



Note1: EUT can be powered with external power adapter or built-in battery, according exploratory test, when test with power adapter have maximum output power and radiated emissions, so all the final test were performed with power adapter.

2.4. Test mode

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

Tested mode, channel, and data rate information				
Mode	Data rate (Mpbs)(see	Channel	Frequency	
Mode	Note)	Chainei	(MHz)	
	2	Low:CH1	2412	
IEEE 802.11b	2	Middle: CH6	2437	
	2	High: CH11	2462	
	6	Low:CH1	2412	
IEEE 802.11g	6	Middle: CH6	2437	
	6	High: CH11	2462	

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test. This data rate test is worse case.

2.5. Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

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2.6. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber	3.54dB	Polarize: V
(30MHz to 1GHz)	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber	2.08dB	Polarize: H
(1GHz to 25GHz)	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10-9	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

2.7. Test Equipment

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m	ETS-LINDGRE	N/A	SEL0017	06/06/201	1Year
Semi-Anechoic	N			1	
Spectrum	Agilent	E4443A	MY46185649	06/06/201	1Year
analyzer				1	
Receiver	R&S	ESCI	100492	04/06/201	1Year
				1	
Receiver	R&S	ESCI	101202	07/01/201	1Year
				1	
Bilog Antenna	Sunol	JB3	A121206	04/06/201	1Year
				1	
Horn Antenna	EMCO	3115	640201028-06	04/06/201	1Year
				1	
Power Meter	Anritsu	ML2487A	6K00001491	02/23/201	1Year
				1	
ETS Horn	ETS	3160	SEL0076	12/08/201	1Year
Antenna				0	
Active Loop	Beijing Daze	ZN30900A	SEL0097	06/06/211	1Year
Antenna					
Cable	Resenberger	N/A	No.1	04/06/201	1Year
				1	

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Cable	SCHWARZBEC	N/A	No.2	04/06/201	1Year
	K			1	
Cable	SCHWARZBEC	N/A	No.3	04/06/201	1Year
	K			1	
Pre-amplifier	R&S	AFS42-0010	SEL0081	06/06/201	1Year
		1		1	
		800-25-S-42			
Pre-amplifier	R&S	AFS33-1800	SEL0080	06/06/20	1Year
		2650-30-8P-		11	
		44			

3. Maximum Output power

3.1. Limit

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

3.2. Test Procedure

- 1, Connected the EUT's antenna port to power meter by 20dB attenuator.
- 2, Use a power meter which's bandwidth is above 6dB bandwidth of signal to measure out each test modes' output power.

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

3.3. Test Result

EUT: MLEARNPAD				
M/N: MLP – EL8				
Test date: 2011/07/01	Pressure:100.6 kpa	Humidity:60%		
Tested by: Sunny-lu	Test site: RF site	Temperature:25°C		

Cable loss: 0.6 dB		Attenuator loss: 20 dB	Antenna Gain: 0 dBi
		Result	Limit
Mode	СН	Out + (1D)	Power
		Output power(dBm)	(dBm)
	CH1	11.33	30
11b	СН6	10.98	30
	CH11	10.43	30
	CH1	12.12	30
11g	СН6	11.54	30
	CH11	11.31	30

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4. 6dB bandwidth

4.1. Limit

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

4.2. Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3. Test Result

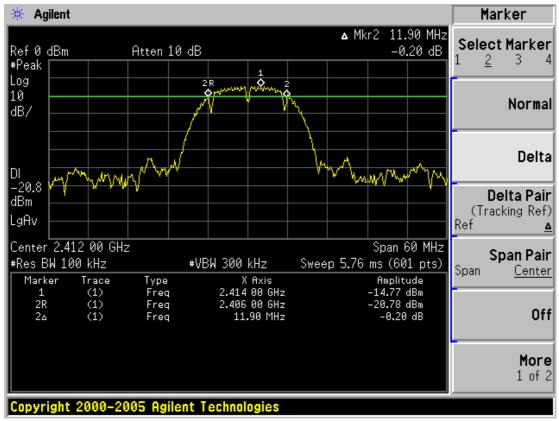
EUT: MLEARNPAD				
M/N: MLP – EL8				
Test date: 2011/07/01	Pressure:100.6 kpa	Humidity:60%		
Tested by: Sunny-lu	Test site: RF site	Temperature:25°C		

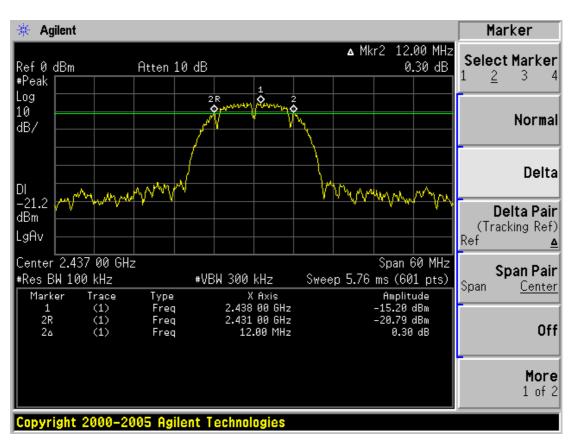
Cable loss: 0.6 dB		Attenuator loss: 20 dB	Antenna Gain: 0 dBi
		Result	Limit
Mode	СН	6dB bandwidth(MHz)	KHz
	CH1	11.90	>500
11b	СН6	12.00	>500
	CH11	12.00	>500
	CH1	16.10	>500
11g	СН6	16.00	>500
	CH11	16.00	>500
Conclusion: PASS			

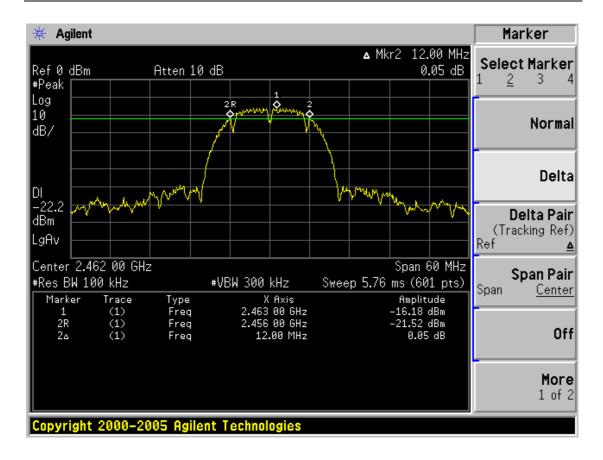
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Original test data

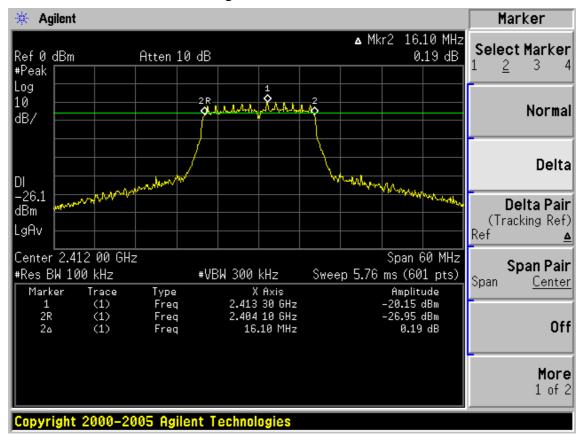
Test Mode: IEEE 802.11b TX

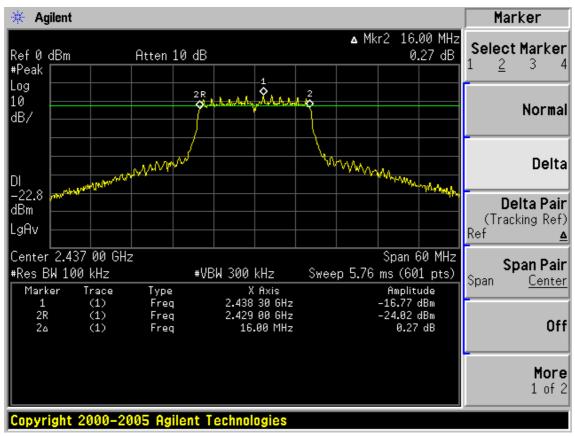


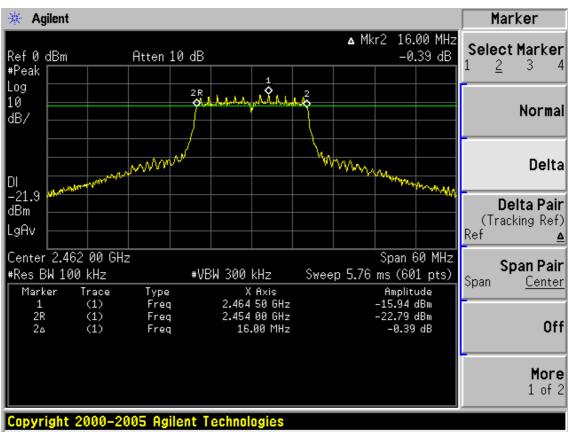




Test Mode: IEEE 802.11g TX







5. Power special density test

5.1. 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.

5.2. Test Procedure

- 1, Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.
- 2, Follow the test procedure as described in ANSI C63.10: 2009 Clause 6.11.2.3 to measure out each test modes and chain's power density with 3KHz.

5.3. Test Result

EUT: MLEARNPAD						
M/N: MLP – EL8						
Test date: 2011/07/01	Pressure:100.6 kpa	Humidity:60%				
Tested by: Sunny-lu	Test site: RF site	Temperature:25°C				

Cable lo	ss: 0.6 dB	Attenuator	Antenna Gain: 0 dBi		
		Result Power den	Limit		
Mode	СН	Measured Result		dBm/3KHz	
	CH1	-30.51	-9.91	8	
11b	СН6	-32.66	-12.06	8	
	CH11	-30.85	-10.25	8	
	CH1	-34.81	-14.21	8	
11g	СН6	-33.69	-13.09	8	
	CH11	-33.12	-12.52	8	

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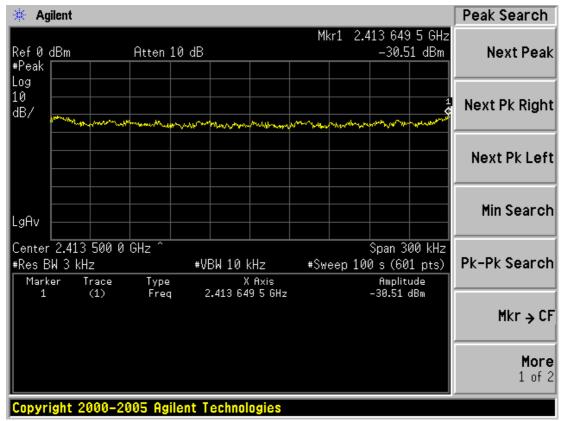
Note: Result = Measured + Cable loss + Attenuator loss

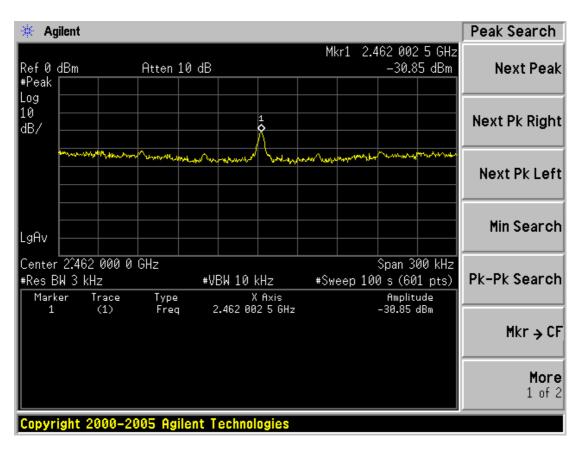
Conclusion: PASS

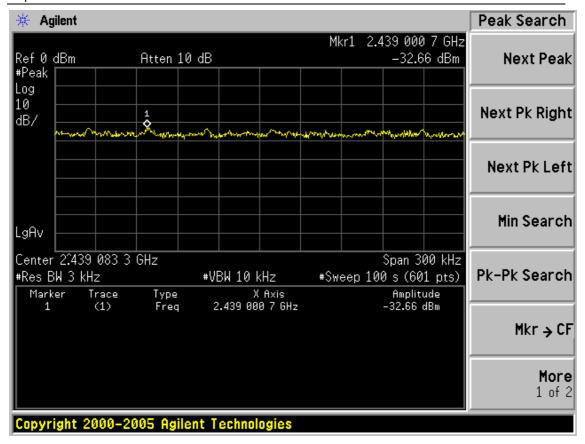
FCC ID: ZQTMLP-EL8

Original test data

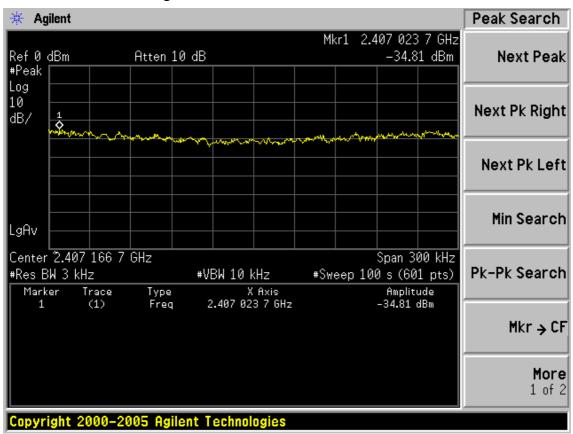
Test Mode: IEEE 802.11b

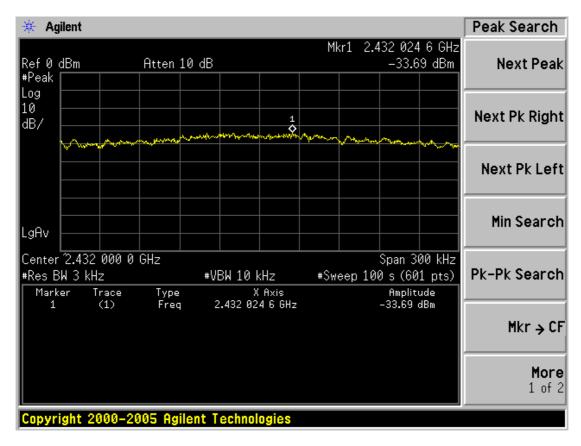


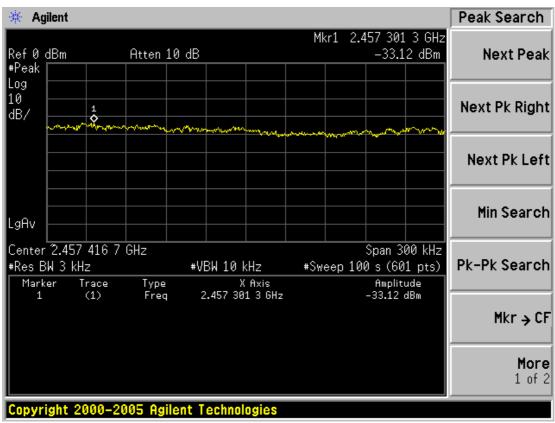




Test Mode: IEEE 802.11g







6. Conducted spurious emissions

6.1. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB or 30dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

6.2. Test Procedure

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

6.3. Test Result

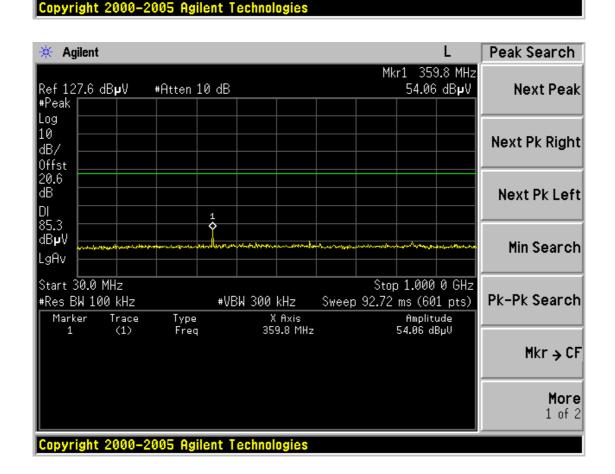
PASS (The testing data was attached in the next pages.)

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator are at least 30dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

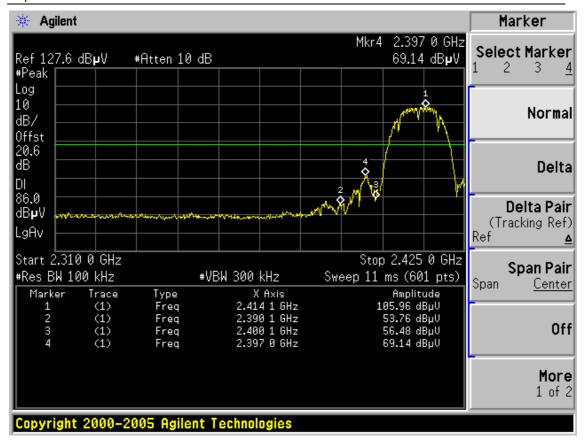
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* Agilent Marker Mkr3 9.64 GHz Select Marker 65.65 dBpV Ref 127.6 dBpV #Atten 10 dB 1 2 3 #Peak Log 10 Normal dB/ Offst 20.6 dB Delta 2 **◊** DI 85.3 **Delta Pair** dB₽V (Tracking Ref) LaAv Ref Δ Start 1.00 GHz Stop 25.00 GHz Span Pair #Res BW 100 kHz #VBW 300 kHz Sweep 2.294 s (601 pts) Center Span Type Freq X Axis 2.40 GHz Marker Trace Amplitude 105.27 dBμV 67.41 dBμV 65.65 dBμV (1) (1) (1) Freq 4.84 GHz 9.64 GHz 2 3 Off Freq More

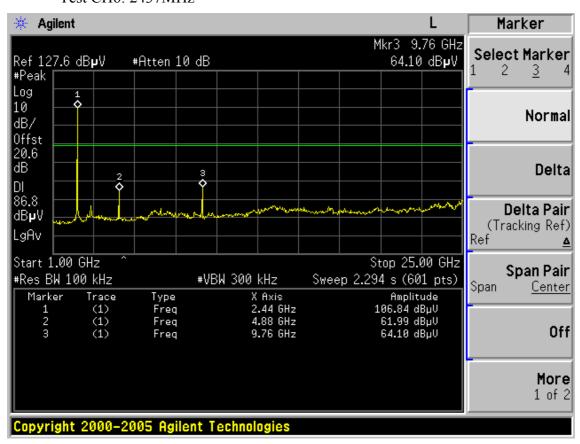
Test Mode: IEEE 802.11b TX Test CH1: 2412MHz

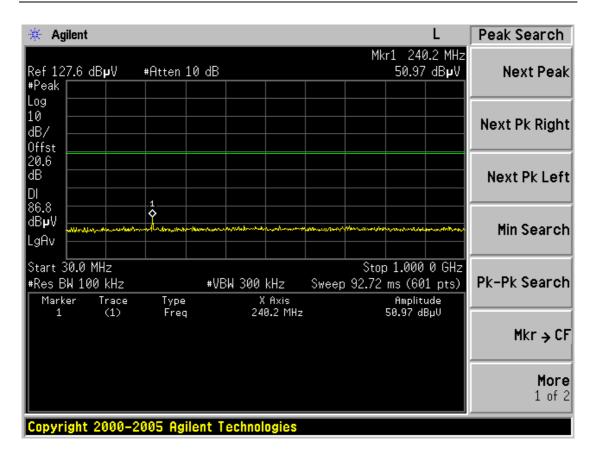


1 of 2

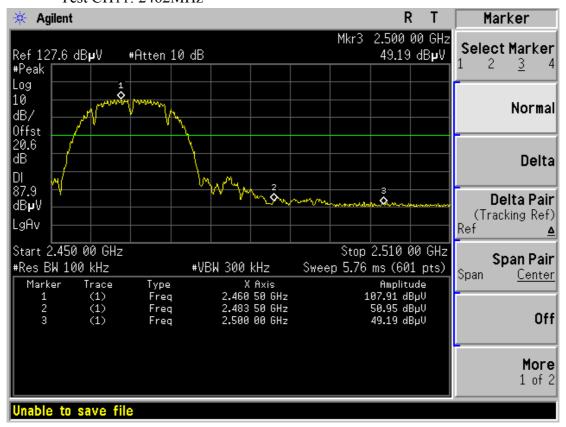


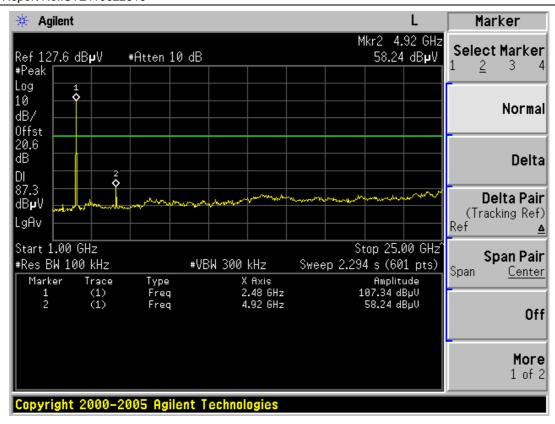
Test CH6: 2437MHz

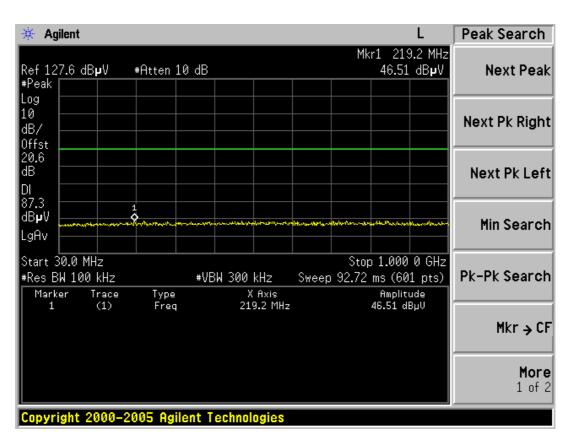




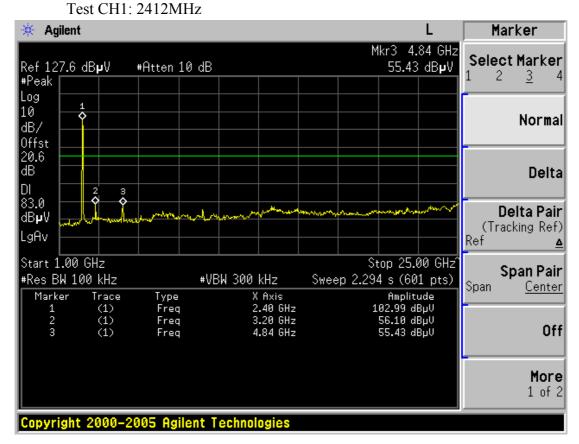
Test CH11: 2462MHz

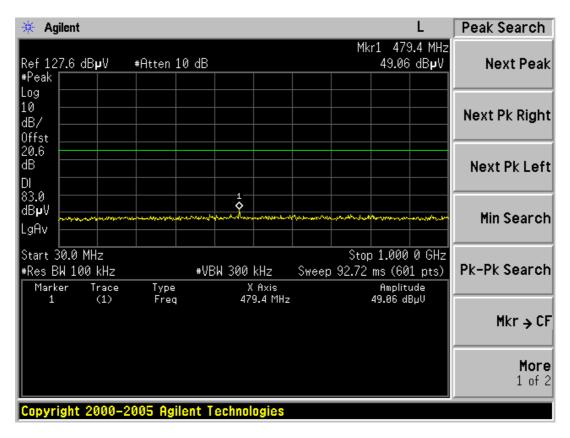


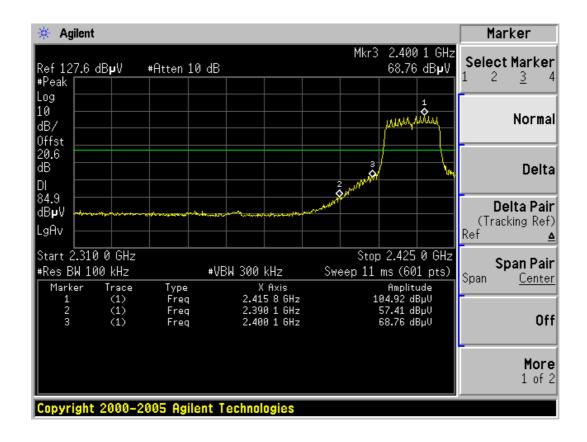




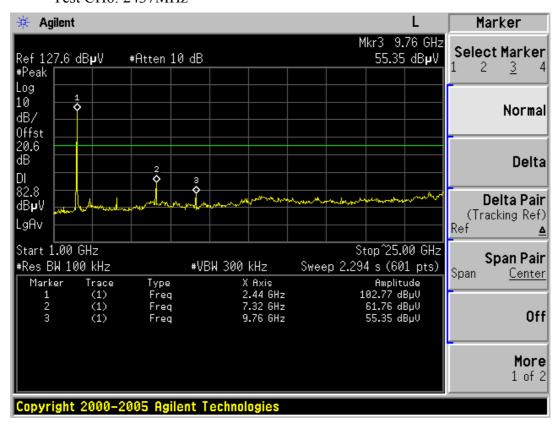
Test Mode: IEEE 802.11g TX

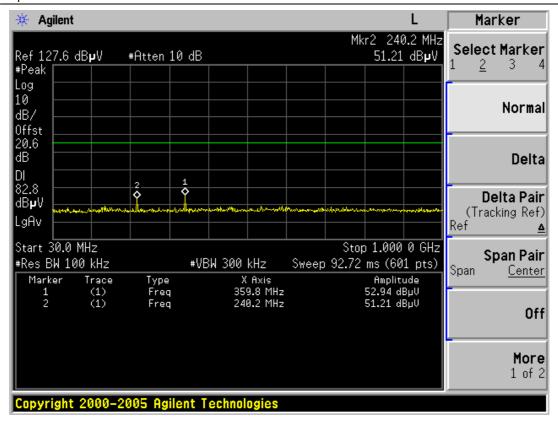




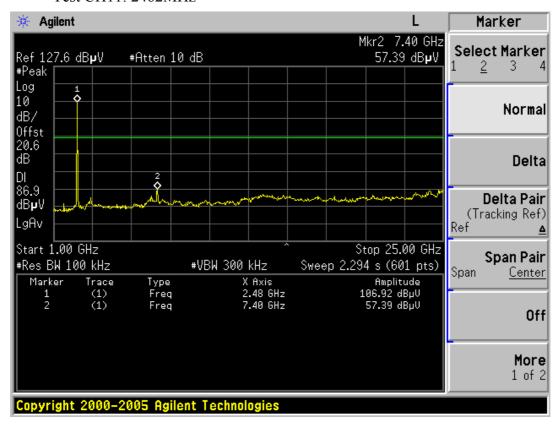


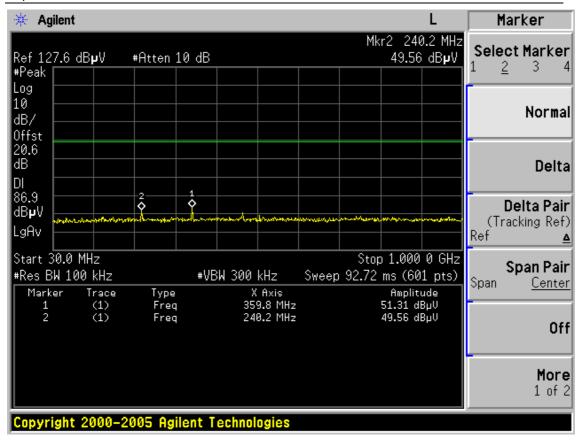
Test CH6: 2437MHz

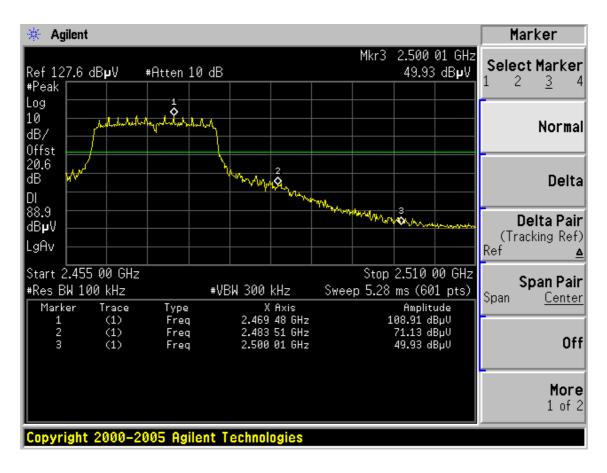




Test CH11: 2462MHz







7. Radiated emission

7.1. Limit

7.1.1. 15.209 limits

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMIT		
MHz	Meters	$\mu V/m$	$dB(\mu V)/m$	
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 dB(µV)/m (Peak)		
		54.0 dB(μV)/m (Average)		

Remark : (1) Emission level $dB\mu V = 20 \log Emission level \mu V/m$

- (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.

7.1.2. 15.205 Restricted bands of operation

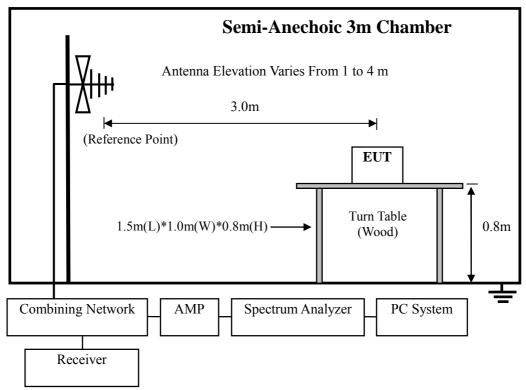
MIL	MIL	MIĿ	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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	Ô

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.

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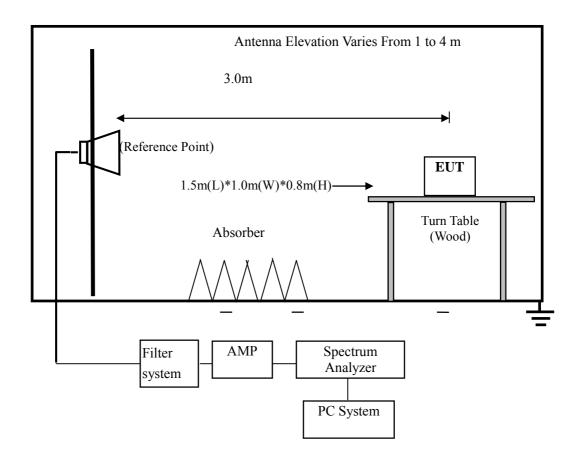
7.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz

Semi-Anechoic 3m Chamber



7.3. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 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 (R&S ESVS10) 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

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

Note 1: In the exploratory test, the power supply was varied between 85% and 115% of the nominal rated supply voltage(AC 120V/60Hz), and no any of obvious changes of emissions include fundamental emission and frequency were detected, so all the final test were performed with nominal rated supply voltage: AC 120V/60Hz

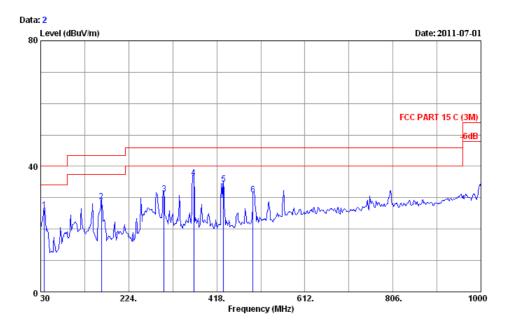
Note 2: EUT was tested with three azimuths, and the maximum emission level was found went EUT planed to table as test photo indicated, all the final radiated emissions were tested with EUT in that azimuths.

7.4. Test Result

PASS

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

30MHz-1GHz Radiated emissions test data:



Site no. : 3m Chamber
Dis. / Ant. : 3m 2011 CBL6111C
Limit : FCC PART 15 C (3M) Data no. : 2 Ant. pol. : VERTICAL

Env. / Ins. : 24*C/56% Engineer : Paul Tian

: MLEARNPAD M/N: MLP - EL8

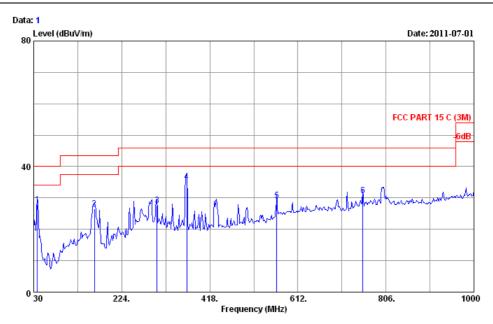
Power rating : DC 5V Input From AC 120V/60Hz

Test Mode : Tx Mode

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	37.760	15.58	0.67	9.90	26.15	40.00	13.85	QP	
2	163.860	10.78	1.30	16.74	28.82	43.50	14.68	QP	
3	301.600	13.75	2.49	14.99	31.23	46.00	14.77	QP	
4	367.560	15.53	2.77	18.10	36.40	46.00	9.60	QP	
5	432.550	17.42	3.12	13.88	34.42	46.00	11.58	QP	
6	497.540	18.27	3.53	9.16	30.96	46.00	15.04	QP	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

^{2.} The emission levels that are 20dB below the official limit are not reported.



Data no. : 1 Site no. : 3m Chamber

Ant. pol. : HORIZONTAL

Dis. / Ant. : 3m 2011 CBL6111C Limit : FCC PART 15 C (3M) Env. / Ins. : 24*C/56%

Engineer : Paul Tian

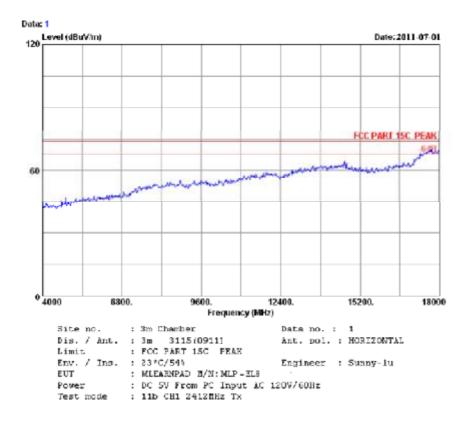
: MLEARNPAD M/N: MLP-EL8 EUT Power rating : DC 5V Input From AC 120V/60Hz

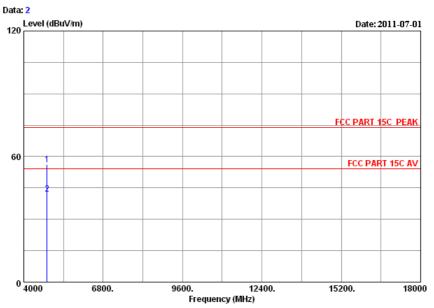
Test Mode : Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	37.760	15.58	0.67	11.54	27.79	40.00	12.21	QP
2	163.860	10.78	1.30	14.47	26.55	43.50	16.95	QP
3	301.600	13.75	2.49	11.42	27.66	46.00	18.34	QP
4	367.560	15.53	2.77	16.98	35.28	46.00	10.72	QP
5	565.440	19.61	3.92	5.67	29.20	46.00	16.80	QP
6	755.560	22.00	4.72	4.00	30.72	46.00	15.28	QP

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

1GHz-18GHz Radiated emissions test data:





Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)

Data no. : 2 Ant. pol. : HORIZONTAL

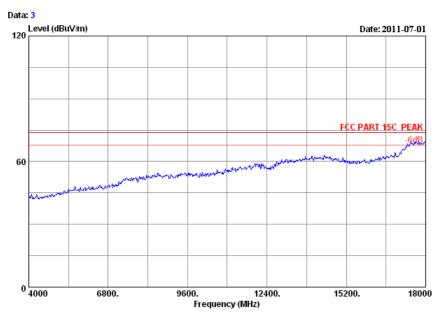
Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH1 2412MHz Tx

-	Factor	loss	_	Emission Level (dBuV/m)	Limits	-	Remark
4824.000 4824.000				56.06 42.15		17.94 11.85	Peak Average

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. : 3m Chamber

Dis. / Ant. : 3m 3115(0911)

Limit : FCC PART 15C PEAK

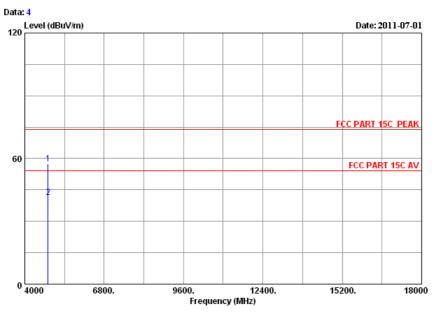
Env. / Ins. : 23*C/54% Data no. : 3 Ant. pol. : VERTICAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH1 2412MHz Tx



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 4 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8

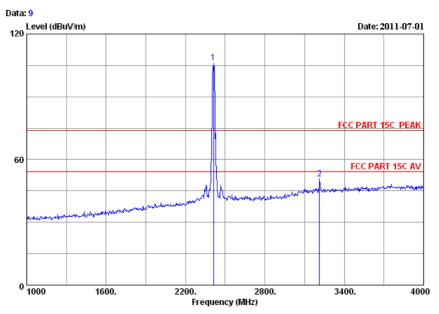
Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH1 2412MHz Tx

-		Factor	_	Level (dBuV/m)	-	Remark
4824.000 4824.000				57.54 41.54	 16.46 12.46	Peak Average

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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 9 Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

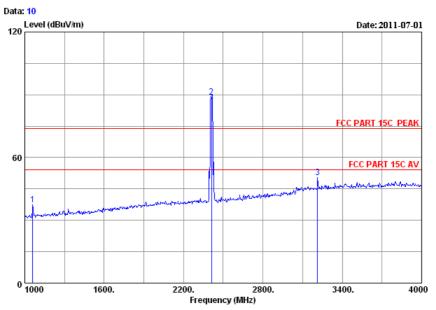
EUT : MLEARNPAD M/N:MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH1 2412MHz Tx

-	Factor	loss	Reading	Level (dBuV/m)	Limit	_	Remark	
2412.000				106.45 50.79		-32.45 23.21	Peak Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 10 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

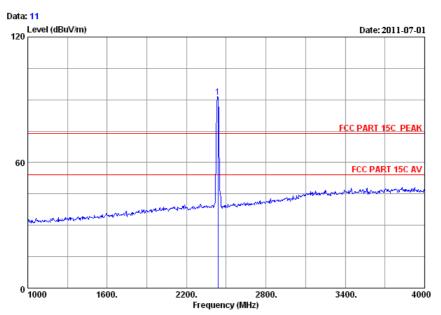
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH1 2412MHz Tx

				Amp.		Emission				
	-				_	Level		-	Remark	
	(MHZ)	(dB/m)	(as)	(aB)	(dBuV)	(dBuV/m)	(aBuv/)	m) (ab)		
1	1060.000	1 25 54	4 89	37 81	44 72	37.34	74.00	36.66	Peak	
	2412.000					88.95		-14.95	Peak	
3	3214.000	32.54	8.79	36.28	45.35	50.40	74.00	23.60	Peak	
3	3214.000	32.54	8.79	36.28	45.35	50.40	74.00	23.60	Peak	

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



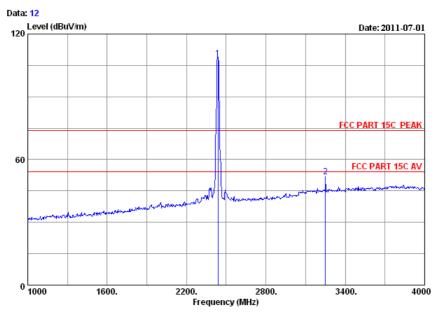
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 11 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH6 2437MHz Tx

		Ant.	Cable	Amp.		Emission		
	Freq.	Factor	loss	Factor	Reading	Level	Limits Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m) (dB)	
L	2437.000	29.47	7.46	36.61	90.81	91.13	74.00 -17.13	Peak

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



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 12 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

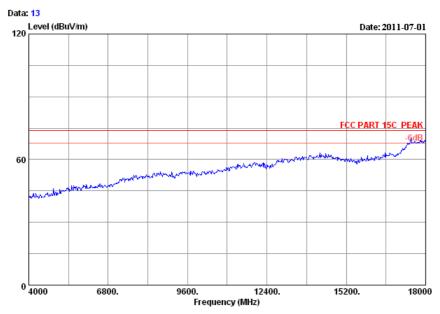
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH6 2437MHz Tx

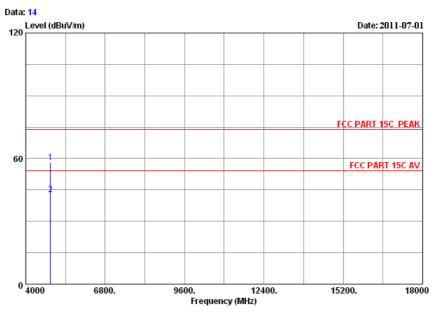
-	Factor	loss	Reading	Level (dBuV/m)	Limit	-	Remark	
2437.000				108.17 51.91		-34.17 22.09	Peak Peak	

- 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. : 3m Chamber Data no.
Dis. / Ant. : 3m 3115(0911) Ant. pol
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer
EUT : MLEARNPAD M/N: MLP - EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH6 2437MHz Tx Data no. : 13 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 14 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

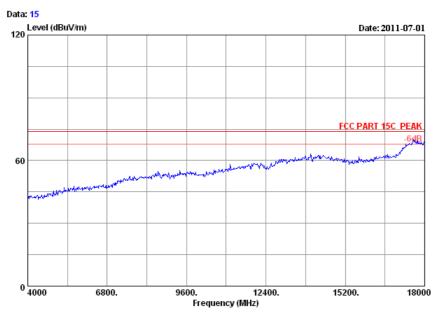
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH6 2437MHz Tx

	Factor	Factor	 Level (dBuV/m)	Limits		Remark
4874.000 4874.000			58.09 42.81	74.00 54.00	15.91 11.19	Peak Average

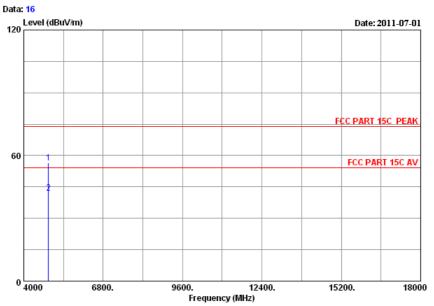
- 1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Data no. : 15 Ant. pol. : VERTICAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH6 2437MHz Tx



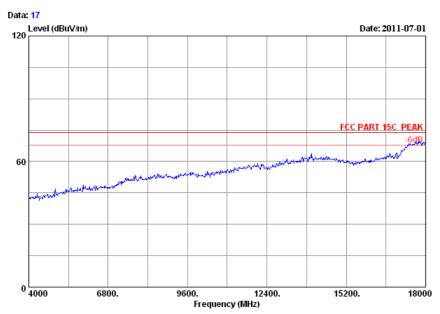
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 16 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH6 2437MHz Tx

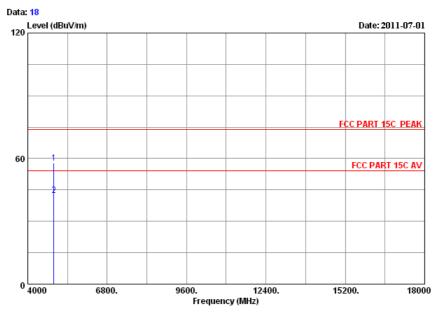
-	Factor	Factor	Reading (dBuV)			-	Remark
4874.000 4874.000				56.45 42.22	74.00 54.00		Peak Average

- 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. : 3m Chamber Data no.
Dis. / Ant. : 3m 3115(0911) Ant. pol
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer
EUT : MLEARNPAD M/N: MLP - EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx Data no. : 17 Ant. pol. : VERTICAL

Engineer : Sunny-lu



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 18 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

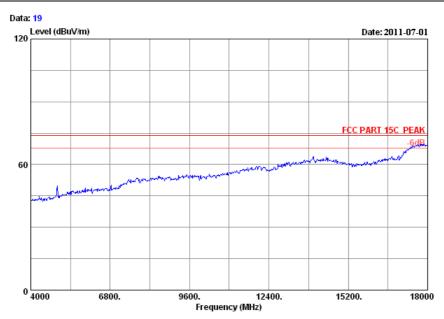
EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH11 2462MHz Tx

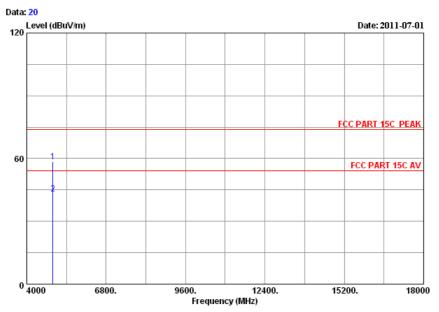
		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	4924.000	34.49	10.76	34.98	47.54	57.81	74.00	16.19	Peak
2	4924.000	34.49	10.76	34.98	32.25	42.52	54.00	11.48	Average

- 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. : 3m Chamber Data no.
Dis. / Ant. : 3m 3115(0911) Ant. pol
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer
EUT : MLEARNPAD M/N: MLP - EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx Data no. : 19 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu



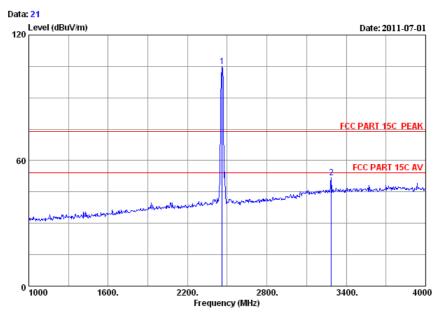
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 20 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	4924.000	34.49	10.76	34.98	48.34	58.61	74.00	15.39	Peak
2	4924.000	34.49	10.76	34.98	32.87	43.14	54.00	10.86	Average

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 21 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

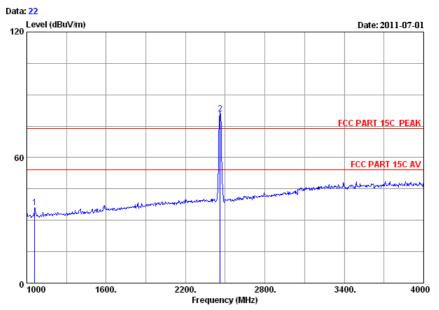
EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11b CH11 2462MHz Tx

-	loss	Factor	Reading	Level (dBuV/m)	Limits	-	Remark	
2462.000 3286.000				104.83 51.82	74.00 74.00		Peak Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 22 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

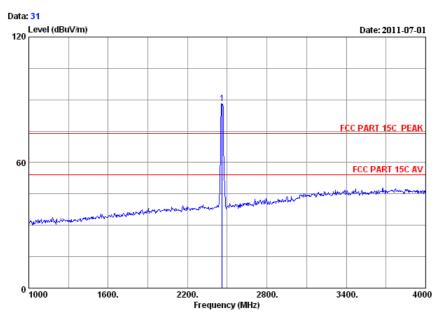
EUT : MLEARNPAD M/N:MLP-EL8

Power : DC 5V From PC Input &C 120V/60Hz

Test mode : 11b CH11 2462MHz Tx

	-	Factor	loss		_	Emission Level (dBuV/m)		-	Remark	
1	1060.000	 D 25.54	4.89	37.81	43.60	36.22	74.00	37.78	Peak	
2	2462.000	29.48	7.54	36.61	80.37	80.78	74.00	-6.78	Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 31 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

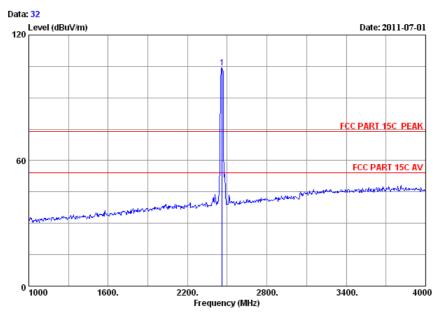
EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission		
							Limits Margin (dBuV/m) (dB)	Remark
1	2462.000	29.48	7.54	36.61	87.68	88.09	74.00 -14.09	Peak

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 32 Ant. pol. : HORIZONTAL

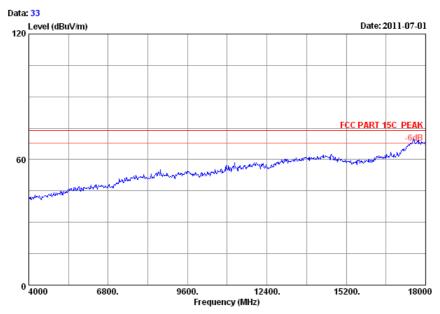
Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx

	-		loss	Factor	_	Emission Level (dBuV/m)		_	Remark	
1	2462.000	29.48	7.54	36.61	103.96	104.37	74.00	-30.37	Peak	

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



Site no. : 3m Chamber

Dis. / Ant. : 3m 3115(0911)

Limit : FCC PART 15C PEAK

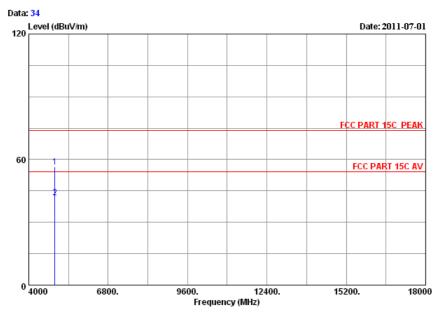
Env. / Ins. : 23*C/54% Data no. : 33 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 34 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

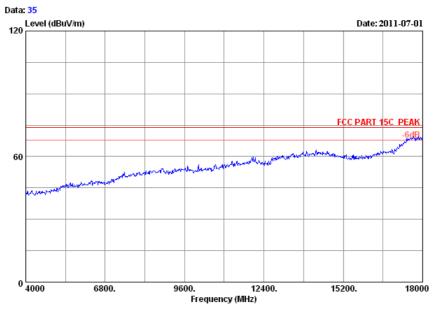
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx

-	Factor	Factor	Reading (dBuV)			_	Remark
4924.000				56.62 41.85	74.00 54.00		Peak Average

- 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. : 3m Chamber Data no.

Dis. / Ant. : 3m 3115(0911) Ant. pol

Limit : FCC PART 15C PEAK

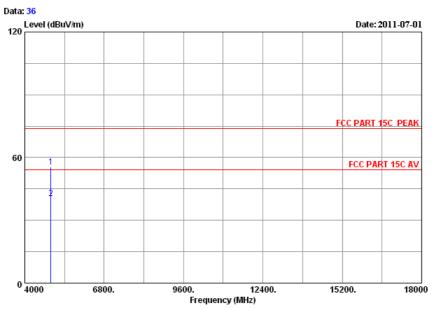
Env. / Ins. : 23*C/54% Engineer

EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx Data no. : 35 Ant. pol. : VERTICAL

Engineer : Sunny-lu



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Data no. : 36 Ant. pol. : VERTICAL

Engineer : Sunny-lu

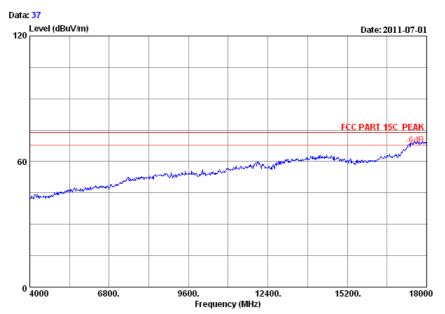
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH11 2462MHz Tx

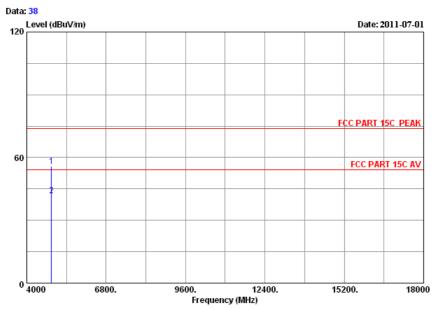
	Factor	Factor	 Level (dBuV/m)		Remark
4924.000			55.65 40.34	 18.35 13.66	Peak Average

- 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. : 3m Chamber Data no.
Dis. / Ant. : 3m 3115(0911) Ant. pol
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer
EUT : MLEARNPAD M/N: MLP - EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH6 2437MHz Tx Data no. : 37 Ant. pol. : VERTICAL

Engineer : Sunny-lu



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 38 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

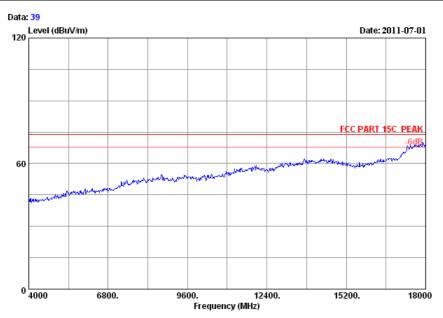
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH6 2437MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	4874.000	34.41	10.69	35.03	45.87	55.94	74.00	18.06	Peak
2	4874.000	34.41	10.69	35.03	31.74	41.81	54.00	12.19	Average

- 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. : 3m Chamber Data no.

Dis. / Ant. : 3m 3115(0911) Ant. pol

Limit : FCC PART 15C PEAK

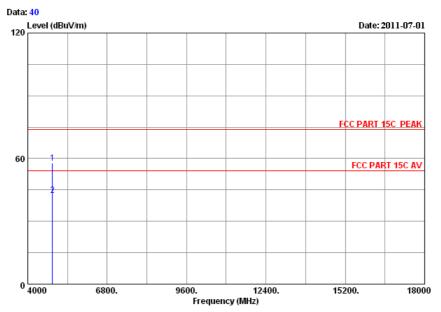
Env. / Ins. : 23*C/54% Engineer

EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH6 2437MHz Tx Data no. : 39 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Data no. : 40 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

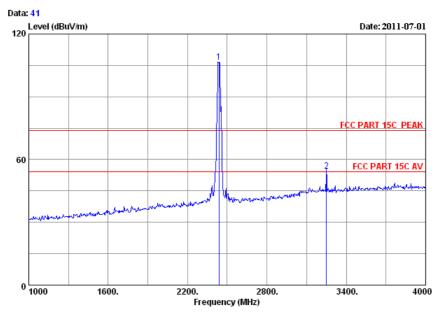
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH6 2437MHz Tx

-	Factor	Factor	_	Level (dBuV/m)	_	Remark
4874.000 4874.000				57.70 42.52	 16.30 11.48	Peak Average

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 41 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

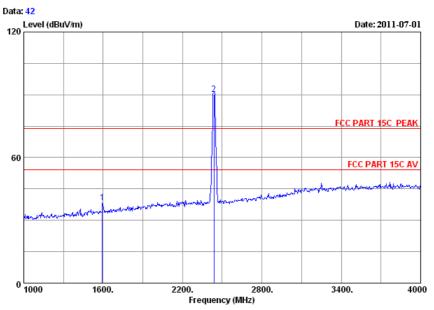
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH6 2437MHz Tx

-	loss	Factor	Reading	Emission Level (dBuV/m)	-	Remark	
2437.000 3250.000				106.61 54.38	 -32.61 19.62	Peak Peak	

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



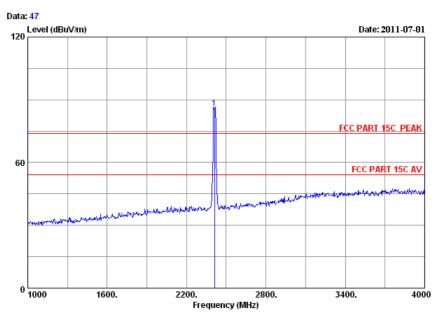
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 42 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH6 2437MHz Tx

-	loss	Factor	Reading (dBuV)		_	Remark
1594.000 2437.000				 74.00 74.00		Peak Peak

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



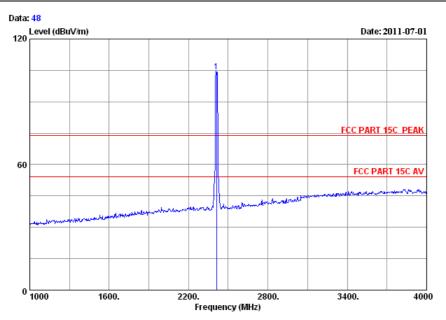
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 47 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

		Ant.	Cable	Amp.		Emission				
	-					Level			Remark	
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m) (dB)		
1	2412.000	29.45	7.43	36.62	85.55	85.81	74.00	-11.81	Peak	

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



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 48 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54%

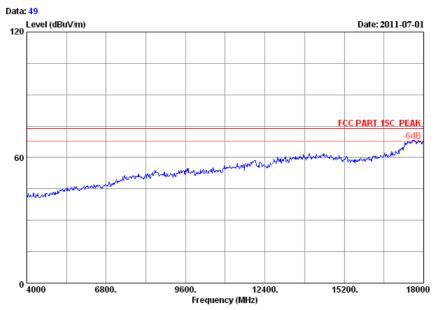
Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH1 2412MHz Tx

		Ant.	Cable	Amp.		Emission				
	-					Level (dBuV/m)			Remark	
L	2412.000	29.45	7.43	36.62	104.04	104.30	74.00	-30.30	Peak	

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



Site no. : 3m Chamber

Dis. / Ant. : 3m 3115(0911)

Limit : FCC PART 15C PEAK

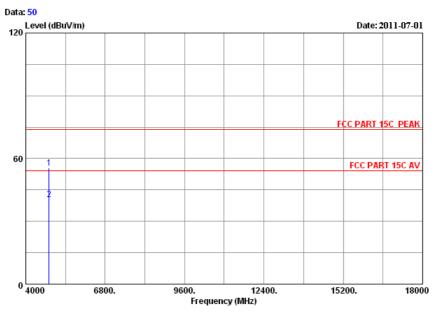
Env. / Ins. : 23*C/54% Data no. : 49 Ant. pol. : VERTICAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH1 2412MHz Tx



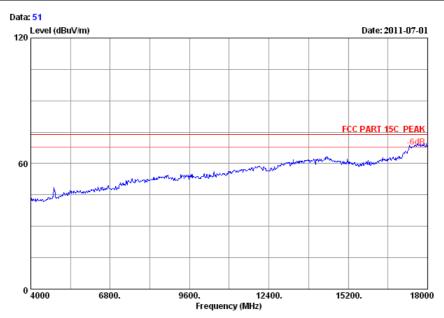
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911) Data no. : 50 Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

-		Factor	_	Level (dBuV/m)	Limits	-	Remark
4824.000 4824.000				55.57 40.46	74.00 54.00	18.43 13.54	Peak Average

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



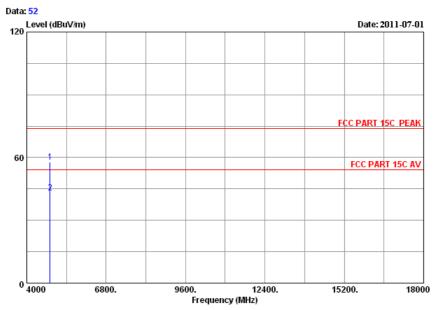
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Data no. : 51 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP - EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH1 2412MHz Tx



Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54* Data no. : 52 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

-	Factor	Factor	_	Level (dBuV/m)	-	Remark
4824.000 4824.000				57.85 43.06	 16.15 10.94	Peak Average

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

8. Band Edge Compliance

8.1. 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.

8.2. Test Block Diagram

8.3. Test Procedure

EUT was placed on a turn table, which is 0.8 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. Both horizontal and vertical polarization of the antenna are set on test.

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of emissions

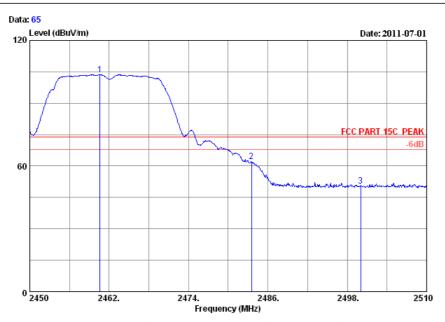
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

8.4. Test Result

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

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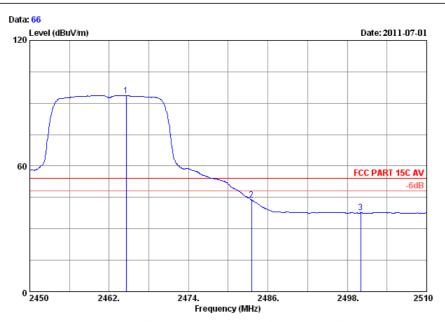
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 65 Ant. pol. : HORIZONTAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH11 2462MHz Tx

	-		loss	Factor		Emission Level (dBuV/m)	Limit	_	Remark	
1	2460.620	29.48	7.54	36.61	103.19	103.60	74.00	-29.60	Peak	
2	2483.500	29.49	7.58	36.60	61.58	62.05	74.00	11.95	Peak	
3	2500.000	29.50	7.62	36.60	50.12	50.64	74.00	23.36	Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PADT *** Data no. : 66 Ant. pol. : HORIZONTAL

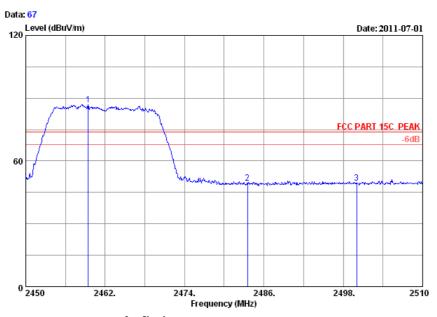
Limit : FCC PART 15C AV Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limit	s Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/:	m) (dB)	
1	2464.580	29.48	7.54	36.61	93.33	93.74	54.00	-39.74	Average
2	2483.500	29.49	7.58	36.60	43.38	43.85	54.00	10.15	Average
3	2500.000	29.50	7.62	36.60	37.10	37.62	54.00	16.38	Average

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



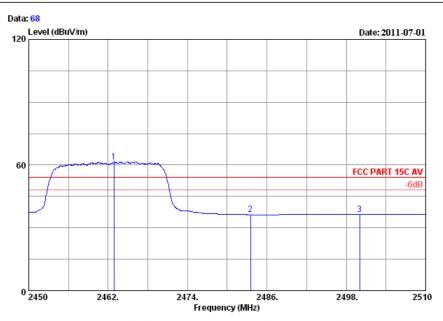
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 67 Ant. pol. : VERTICAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limit	s Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/	m) (dB)	
1	2459.420	29.48	7.54	36.61	86.43	86.84	74.00	-12.84	Peak
2	2483.500	29.49	7.58	36.60	48.88	49.35	74.00	24.65	Peak
3	2500.000	29.50	7.62	36.60	49.02	49.54	74.00	24.46	Peak

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Data no. : 68 Ant. pol. : VERTICAL

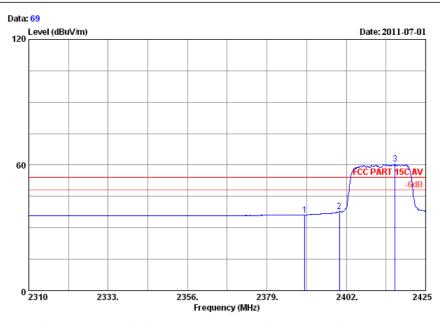
Engineer : Sunny-lu

: MLEARNPAD M/N:MLP-EL8

Power : DC SV From PC Input AC 120V/60Hz
Test mode : 11g CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.		loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)		2	Remark
1	2462.900	29.48	7.54	36.61	61.10	61.51	54.00	-7.51	Average
2	2483.500	29.49	7.58	36.60	35.80	36.27	54.00	17.73	Average
3	2500.000	29.50	7.62	36.60	35.85	36.37	54.00	17.63	Average

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 107 Data no. : 69 Ant. pol. : VERTICAL

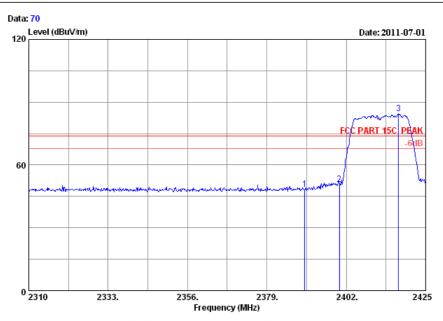
Limit : FCC PART 15C AV Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

	Freq. (MHz)			Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)		Margin) (dB)	Remark
1	2390.000	29.44	7.39	36.62	36.00	36.21	54.00	17.79	Average
2	2400.000	29.44	7.43	36.62	37.49	37.74	54.00	16.26	Average
3	2416.149	5 29.45	7.43	36.61	60.12	60.39	54.00	-6.39	Average

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



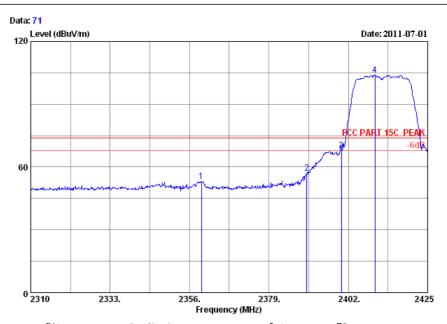
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 70 Ant. pol. : VERTICAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limit	s Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/:	m) (dB)	
1	2390.000	29.44	7.39	36.62	48.24	48.45	74.00	25.55	Peak
2	2400.000	29.44	7.43	36.62	50.72	50.97	74.00	23.03	Peak
3	2417.180	29.45	7.43	36.61	84.18	84.45	74.00	-10.45	Peak

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



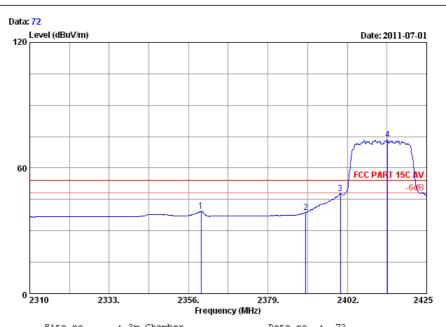
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54* Data no. : 71 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11g CH1 2412MHz Tx

1 2359.450 29.42 7.35 36.63 53.01 53.15 74.00 20.85 Peak 2 2390.000 29.44 7.39 36.62 56.94 57.15 74.00 16.85 Peak 3 2400.000 29.44 7.43 36.62 67.48 67.73 74.00 6.27 Peak 4 2409.705 29.45 7.43 36.62 103.59 103.85 74.00 -29.85 Peak		-				Reading (dBuV)				Remark	
4 2409.705 29.45 7.43 36.62 103.59 103.85 74.00 -29.85 Peak	2	2390.000 2400.000	29.44 29.44	7.39 7.43	36.62 36.62	56.94 67.48	57.15 67.73	74.00 74.00	16.85 6.27	Peak Peak	
	4	2409.70	5 29.45	7.43	36.62	103.59	103.85	74.00	-29.85	Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54* Data no. : 72 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

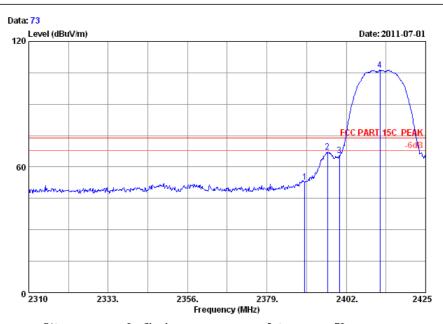
EUT : MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz

Test mode : 11g CH1 2412MHz Tx

	Freq. F	Ant. actor dB/m)	Cable loss (dB)	-	Reading (dBuV)	Emission Level (dBuV/m)		s Margin m) (dB)	Remark
1 2 3	2359.680 2390.000 2400.000	29.44 29.44	7.39 7.43	36.62 36.62	39.16 38.63 47.65	39.30 38.84 47.90	54.00 54.00 54.00	14.70 15.16 6.10	Average Average Average
4	2413.730	29.45	7.43	36.62	73.22	73.48	54.00	-19.48	Average

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



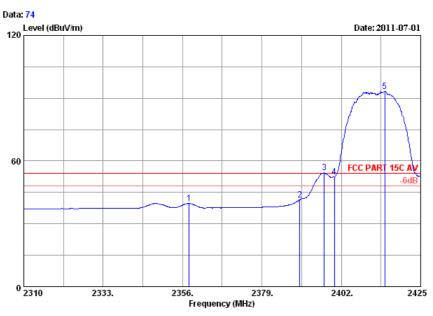
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54* Data no. : 73 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH1 2412MHz Tx

	-				Reading (dBuV)	Lmission Level (dBuV/m)		s Margin m) (dB)	Remark	
1	2390.000	29.44	7.39	36.62	52.75	52.96	74.00	21.04	Peak	
2	2396.595	5 29.44	7.39	36.62	67.08	67.29	74.00	6.71	Peak	
3	2400.000	29.44	7.43	36.62	65.20	65.45	74.00	8.55	Peak	
4	2411.775	5 29.45	7.43	36.62	106.05	106.31	74.00	-32.31	Peak	

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



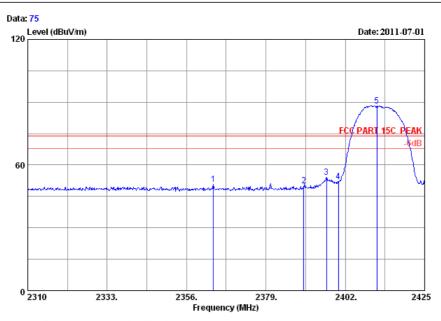
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Data no. : 74 Ant. pol. : HORIZONTAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH1 2412MHz Tx

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/n	s Margin	Remark	
1 2 3 4 5	2357.955 2390.000 2397.055 2400.000 2414.650	29.44 5 29.44 5 29.44	7.39 7.39 7.43	36.62 36.62 36.62	41.36 54.12	39.64 41.57 54.33 52.61 93.32	54.00 54.00 54.00 54.00 54.00	14.36 12.43 -0.33 1.39 -39.32	Average Average Average Average Average	

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



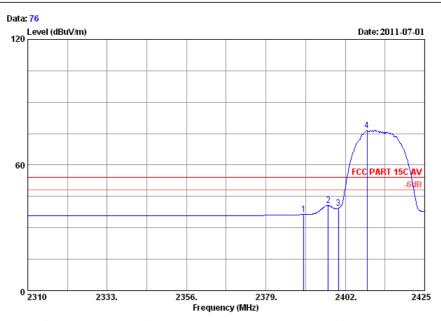
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 75 Ant. pol. : VERTICAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH1 2412MHz Tx

	-	Ant. Factor (dB/m)		Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)			Remark	
1	2363.820	29.42	7.35	36.63	50.60	50.74	74.00	23.26	Peak	
2	2390.000	29.44	7.39	36.62	49.97	50.18	74.00	23.82	Peak	
3	2396.595	29.44	7.39	36.62	53.81	54.02	74.00	19.98	Peak	
4	2400.000	29.44	7.43	36.62	51.99	52.24	74.00	21.76	Peak	
5	2411.200	29.45	7.43	36.62	88.11	88.37	74.00	-14.37	Peak	

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



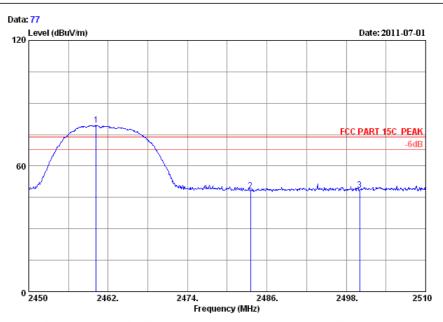
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Data no. : 76 Ant. pol. : VERTICAL

Engineer : Sunny-lu

EUT : MLEARNPAD M/N: MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH1 2412MHz Tx

1 2390.000 29.44 7.39 36.62 36.16 36.37 54.00 17.63 Average 2 2397.055 29.44 7.39 36.62 40.47 40.68 54.00 13.32 Average 3 2400.000 29.44 7.43 36.62 39.27 39.52 54.00 14.48 Average			Ant. Factor (dB/m)	loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)		s Margin m) (dB)	Remark	
4 2408.325 29.45 7.43 36.62 76.32 76.58 54.00 -22.58 Average	2	2397.055 2400.000	5 29.44 29.44	7.39 7.43	36.62 36.62	40.47 39.27	40.68 39.52	54.00 54.00	13.32 14.48	Average Average	

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



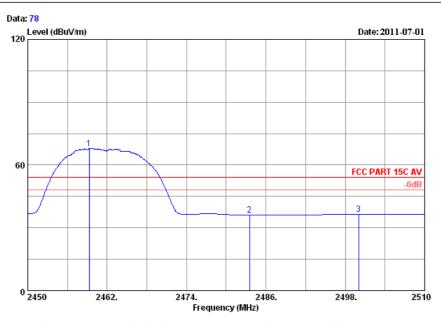
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 77 Ant. pol. : VERTICAL Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m) (dB)	
1	2460.200	29.48	7.54	36.61	79.01	79.42	74.00	-5.42	Peak
2	2483.500	29.49	7.58	36.60	47.54	48.01	74.00	25.99	Peak
3	2500.000	29.50	7.62	36.60	47.98	48.50	74.00	25.50	Peak

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PART 107 Data no. : 78 Ant. pol. : VERTICAL

Limit : FCC PART 15C AV Env. / Ins. : 23*C/54%

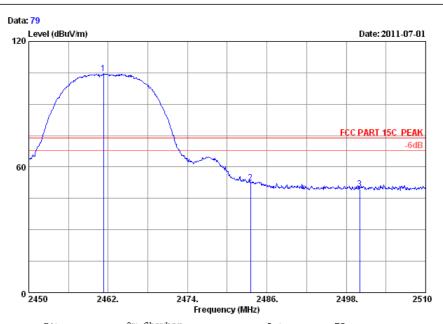
Engineer : Sunny-lu

: MLEARNPAD M/N: MLP-EL8

Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx

	Freq.	Factor	Cable loss (dB)	_	Reading (dBuV)	Emission Level (dBuV/m)	Limit	s Margin m) (dB)	Remark
1	2459.300	29.48	7.54	36.61	67.53	67.94	54.00	-13.94	Average
2	2483.500	29.49	7.58	36.60	35.67	36.14	54.00	17.86	Average
3	2500.000	29.50	7.62	36.60	35.77	36.29	54.00	17.71	Average

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



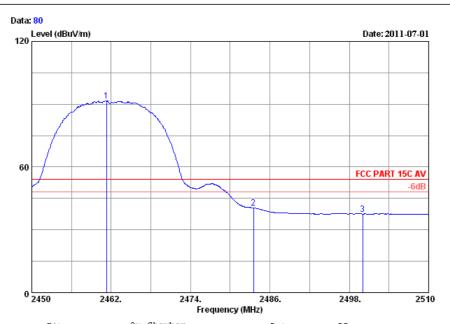
Site no. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC Paper 177 Data no. : 79 Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission				
	Freq.	Factor	loss	Factor	Reading	Level	Limit	s Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/	m) (dB)		
1	2461.280	29.48	7.54	36.61	104.06	104.47	74.00	-30.47	Peak	
2	2483.500	29.49	7.58	36.60	51.90	52.37	74.00	21.63	Peak	
3	2500.000	29.50	7.62	36.60	49.05	49.57	74.00	24.43	Peak	

- 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. : 3m Chamber
Dis. / Ant. : 3m 3115(0911)
Limit : FCC PADT *** Data no. : 80 Ant. pol. : HORIZONTAL

Limit : FCC PART 15C AV Env. / Ins. : 23*C/54%

Engineer : Sunny-lu

EUT : MLEARNPAD M/N:MLP-EL8
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 11b CH11 2462MHz Tx

		Ant.	Cable	Amp.		Emission			
	-		loss	Factor	Reading	Level		s Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/	m) (dB)	
1	2461.280	29.48	7.54	36.61	91.19	91.60	54.00	-37.60	Average
2	2483.500	29.49	7.58	36.60	40.07	40.54	54.00	13.46	Average
3	2500.000	29.50	7.62	36.60	37.07	37.59	54.00	16.41	Average

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

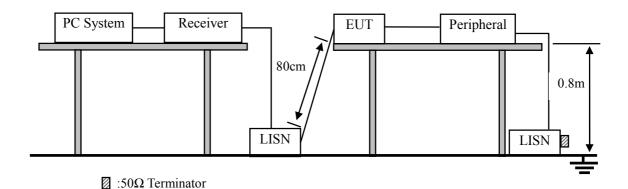
9. Power Line Conducted Emissions

9.1. Limit

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

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

9.2. Block Diagram of Test Setup



9.3. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT was charged form PC's USB port which connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#).. Both sides of 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 C63.4: 2003 on Conducted Emission Test.

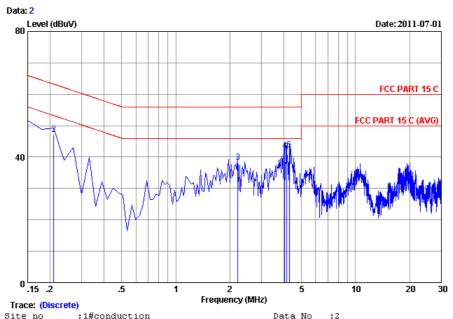
The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

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

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^{2.} The lower limit shall apply at the transition frequencies.

9.4. Test Result



:1#conduction :** 2011 ESH2-Z5 LINE :FCC PART 15 C Site no Data No

Dis./Ant.

Limit :29.5*C/55% Env./Ins.

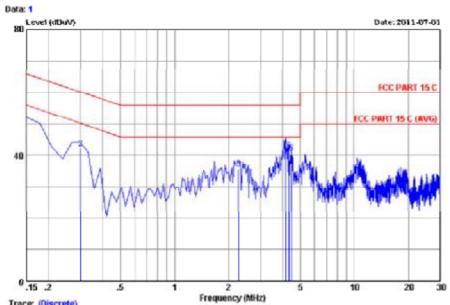
Engineer :Leo-Li :MLEARNPAD M/N:MLP-EL8 EUT

Power Rating :DC 5V From PC Input AC 120V/60Hz Test Mode :Tx Mode

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emissio Level (dBuV)	n Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.23	9.88	36.58	46.69	66.00	19.31	QP
2	0.20970	0.22	9.88	37.09	47.19	63.22	16.03	QP
3	2.210	0.25	9.91	28.23	38.39	56.00	17.61	QP
4	4.031	0.27	9.93	31.88	42.08	56.00	13.92	QP
5	4.120	0.27	9.93	31.44	41.64	56.00	14.36	QP
6	4.269	0.27	9.94	32.23	42.44	56.00	13.56	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +Reading.

^{2.}If the average limit is met when useing a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Trace: (Discrete)

:1#conduction Site no

Data No :1

:** 2011 ESH2-25 NEUTRAL :FCC PART 15 C Dis./Ant. Limit

Env./Ins. :29.5°C/55% Engineer :Leo-Li

: MLEARNPAD M/N: MLP - ELS EUT

Power Rating :DC SV From PC Input &C 120V/60Hz

:Tx Mode Test Mode

PISM			capie		THIT881011			
No	Freq	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(SHM)	(dB)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dB)	
1	0.15000	0.21	9.88	39.01	49.10	66.00	16.90	QP
2	0.29925	0.21	9.88	32.01	42.10	60.26	18.16	QP
3	2.269	0.26	9.92	25.45	35.63	56.00	20.37	QP
4	4.150	0.28	9.93	32.69	42.90	56.00	13.10	QP
5	4.329	0.28	9.94	31.21	41.43	56.00	14.57	QP
6	4.478	0.28	9.94	30.47	40.69	56.00	15.31	QP

Remarks: 1.Emission Level=LISM Factor+Cable loss(Include 10dB pulse limit) +Reading.

^{2.1} f the average limit is met when useing a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

10. Antenna Requirements

10.1.Limit

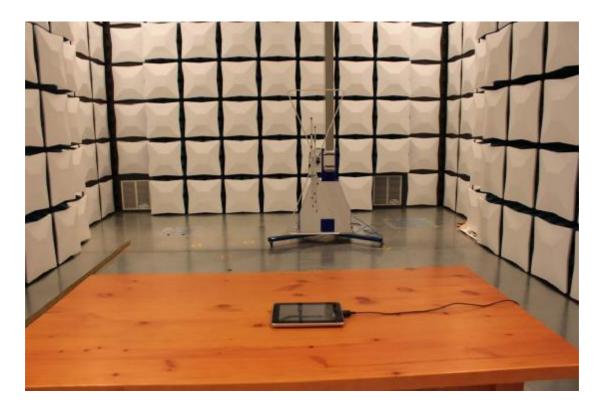
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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.

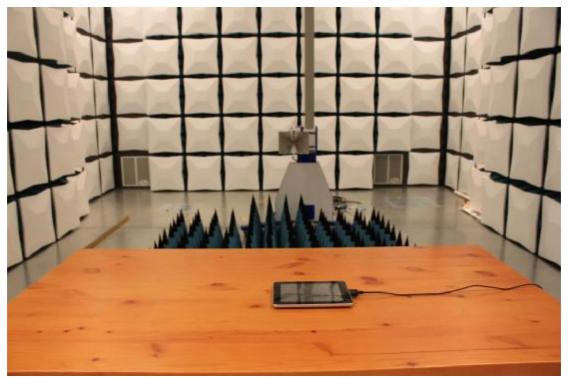
10.2.Result

The antennas used for this product are integral Patch 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 0dBi.

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11. Test setup photo





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12.Photos of EUT





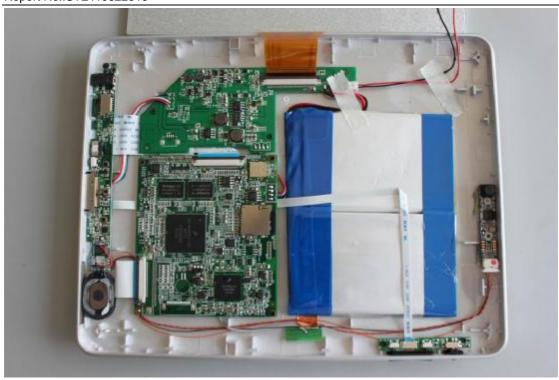
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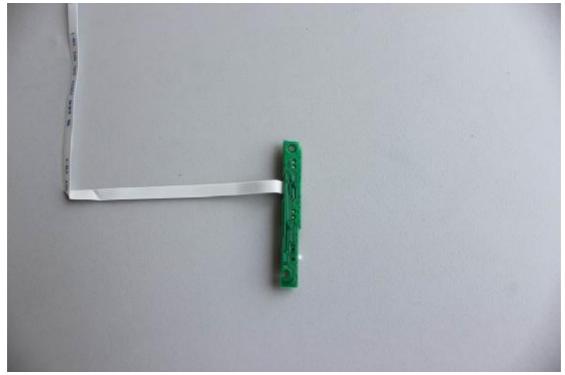


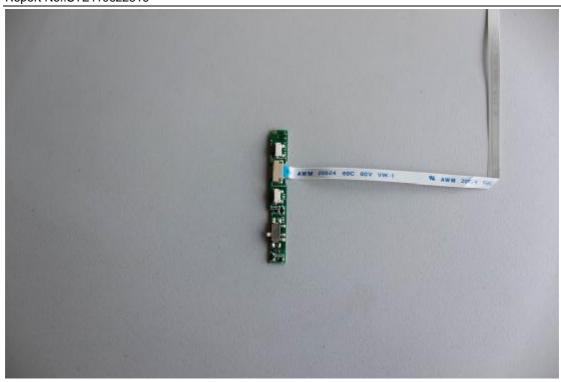


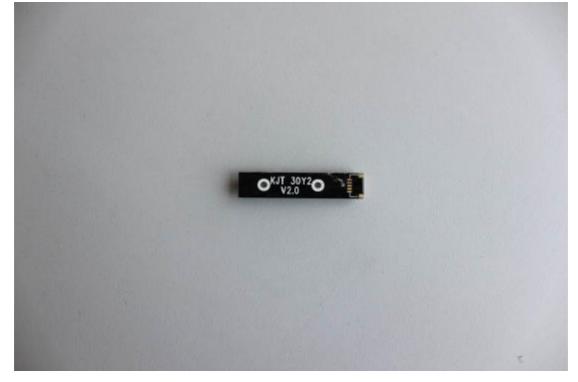


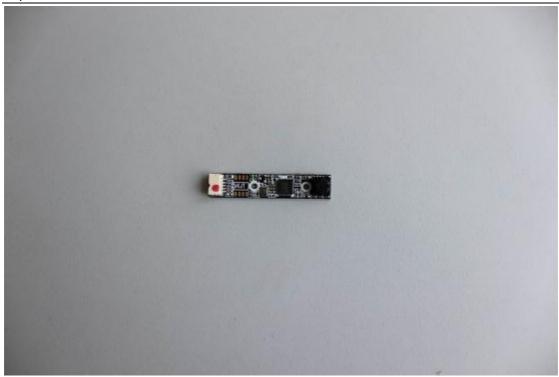


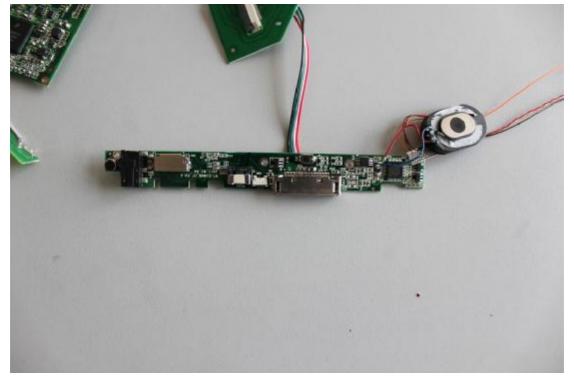




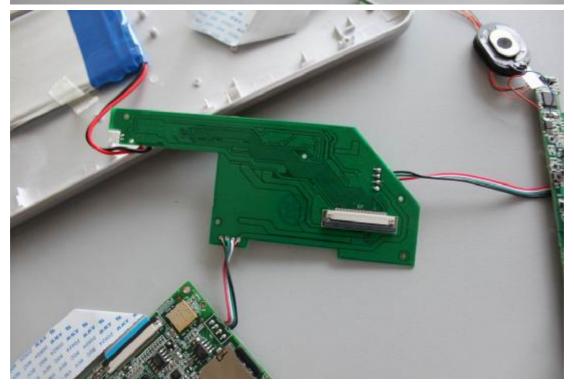




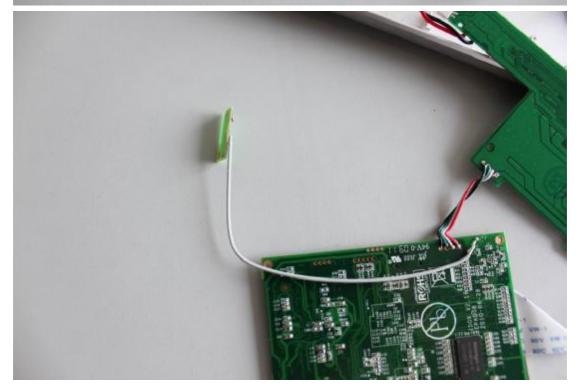


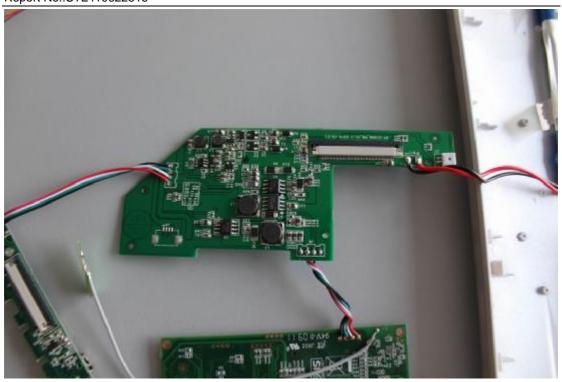


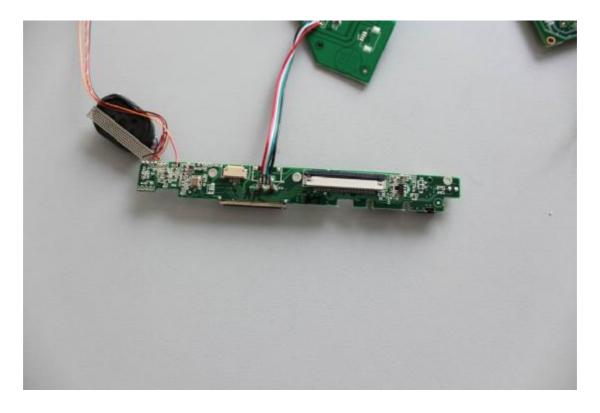












END OF REPORT