

APPLICATION FOR CERTIFICATION

On Behalf of

eComm Solutions Inc.

MuziLighter

Model Number: K220

FCC ID: YMWK2XXV01

Prepared for : eComm Solutions Inc.
Suite 3F20, 5 Hsin-Yi Road Section 5, Taipei 11011,
Taiwan

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

Tel: (0755) 26639496

Report Number : ACS-F10221
Date of Test : Aug.05~10, 2010
Date of Report : Aug.16, 2010

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TEST REPORT CERTIFICATION

Applicant : eComm Solutions Inc.
Manufacturer : eComm Solutions Inc.
EUT Description : MuziLighter
MODEL NO. : K220
FCC ID : YMWK2XXV01
POWER SUPPLY : DC 3.7V
TEST VOLTAGE : DC 3.7V, DC 5V From PC AC 120V/60Hz

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2008

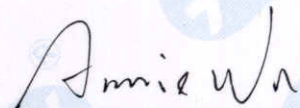
The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits for radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : Aug.05~ 10, 2010

Prepared by :



Annie Wu / Supervisor

Reviewer :



Jamy Yu / Supervisor

Approved & Authorized Signer :



信華科技(深圳)有限公司

Audix Technology (Shenzhen) Co., Ltd.

EMC 部門報告專用章

Stamp only for EMC Dept. Report

Signature:



Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Carrier Frequency Separation Test	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
20dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS
Number Of Hopping Frequency Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Dwell Time Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Maximum Peak Output Power Test	FCC Part 15: 15.247(b)(1)\ ANSI C63.10 :2009	PASS
Band Edge Compliance Test	FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product name	:	MuziLighter
Model Number	:	K220
FCC ID	:	YMWK2XXV01
Operation frequency	:	2402MHz~2480MHz
Modulation	:	GFSK, $\pi/4$ DQPSK, 8-DPSK
Applicant	:	eComm Solutions Inc. Suite 3F20, 5 Hsin-Yi Road Section 5, Taipei 11011, Taiwan
Manufacturer	:	eComm Solutions Inc. Suite 3F20, 5 Hsin-Yi Road Section 5, Taipei 11011, Taiwan
Date of Test	:	Aug.05~10, 2010
Date of Receipt	:	Aug.04, 2010
Sample Type	:	Prototype production

2.2. Test information

The test software “bluesuite.exe” was used to control EUT work in Continuous TX mode, and select test channel.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)	Channel	Frequency (MHz)
Tx Mode GFSK modulation	1	Low :CH 0	2402
	1	Middle: CH39	2441
	1	High: CH78	2480
Tx Mode 8-DPSK modulation	3	Low :CH 0	2402
	3	Middle: CH39	2441
	3	High: CH78	2480
Charging mode	/	/	/
Note: $\pi/4$ DQPSK modulation is same type modulation with 8-DPSK, and according exploratory test, 8-DPSK will have worse emissions, so the final test were only performed with GFSK and 8-DPSK modulation.			

2.3. Tested Supporting System Details

2.3.1. Notebook

M/N	:	PP09S
S/N	:	N/A
Manufacturer	:	DELL
Power Adaptor	:	Manufacturer: DELL, M/N: LA65NS1-00 Cable: Unshielded, Detachable, 4.0m (Bond one ferrite core)

2.4. Test Facility

Site Description

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block, Shenzhen
Science & Industrial Park, Nantou,
Shenzhen, Guangdong, China

3m Anechoic Chamber : Mar.31, 2009 File on Federal
Communication Commission
Registration Number: 90454

3m & 10m Anechoic Chamber : Dec. 30, 2009 File on Federal
Communication Commission
Registration Number: 794232

EMC Lab. : Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Feb. 02, 2009

Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr. 01, 2010

2.5. Test Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.40dB
Uncertainty for Radiation Emission test in 3m chamber	3.82 dB (Polarize: V)
	4.32 dB (Polarize: H)
Uncertainty for Radiated Spurious Emission test in RF chamber	2.70 dB (Bilog antenna 30M~1000MHz)
	2.27 dB (Horn antenna 1000M~25000MHz)
Uncertainty for Temperature and humidity test	2%
	1°C
Uncertainty for Bandwidth test	1×10^{-9}
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

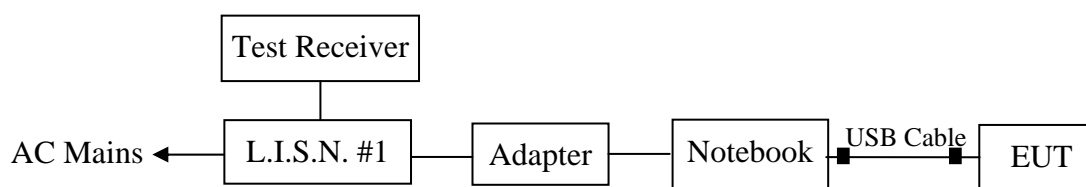
3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.18, 09	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Mar.30, 10	1 Year
3.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 10	1 Year
4.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 10	1 Year
5.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 10	1 Year
6.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 10	1 Year

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and Supporting System



(EUT: MuziLighter)

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
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.

3.4.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. MuziLighter (EUT)

Model Number : K220

Serial Number : N/A

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2

3.5.Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turned on the power of all equipment.

3.5.3. Let the EUT worked in test modes (Charging Mode) and measured it.

3.6.Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via Notebook connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). Both 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: 2009 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.

The test result are reported on Section 3.7.

3.7.Power Line Conducted Emission Test Results

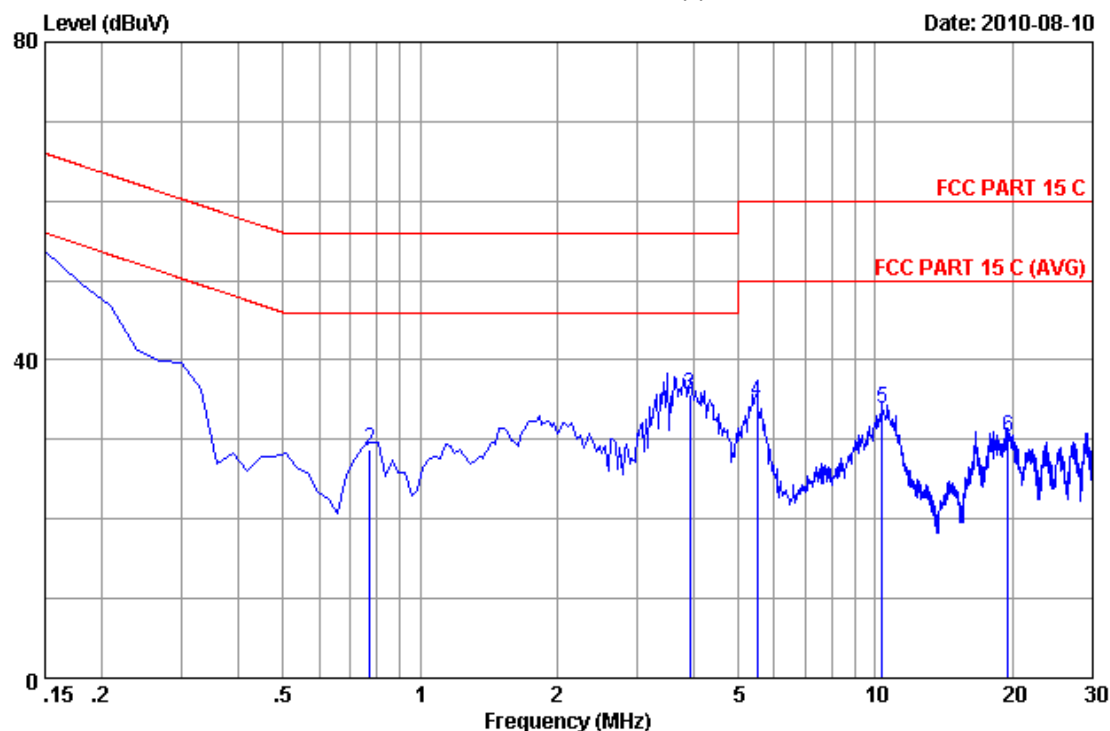
PASS. (All emissions not reported below are too low against the prescribed limits.)



Shenzhen Science&Industry Park
Nantou Shenzhen, Guangdong, China
Tel:+86-755-26639495
Fax:+86-755-26632877
Postcode:518057

Data: 4 File: D:\DATA\2010 REPORT\ACS10QH216.EM6 (4)

Date: 2010-08-10



Site no :1#conduction Data No :4
Dis./Ant. :** 2010 ESH2-Z5 LINE
Limit :FCC PART 15 C
Env./Ins. :29.5°C/55% Engineer :Paul Tian
EUT :MuziLighter
Power Rating :DC 5V From PC input AC 120/60Hz
Test Mode :Charging Mode
M/N :K220

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.23	9.88	41.66	51.77	66.00	14.23	QP
2	0.77685	0.24	9.89	18.53	28.66	56.00	27.34	QP
3	3.911	0.27	9.94	25.51	35.72	56.00	20.28	QP
4	5.493	0.28	9.94	24.57	34.79	60.00	25.21	QP
5	10.329	0.41	9.99	23.41	33.81	60.00	26.19	QP
6	19.582	0.52	10.08	19.82	30.42	60.00	29.58	QP

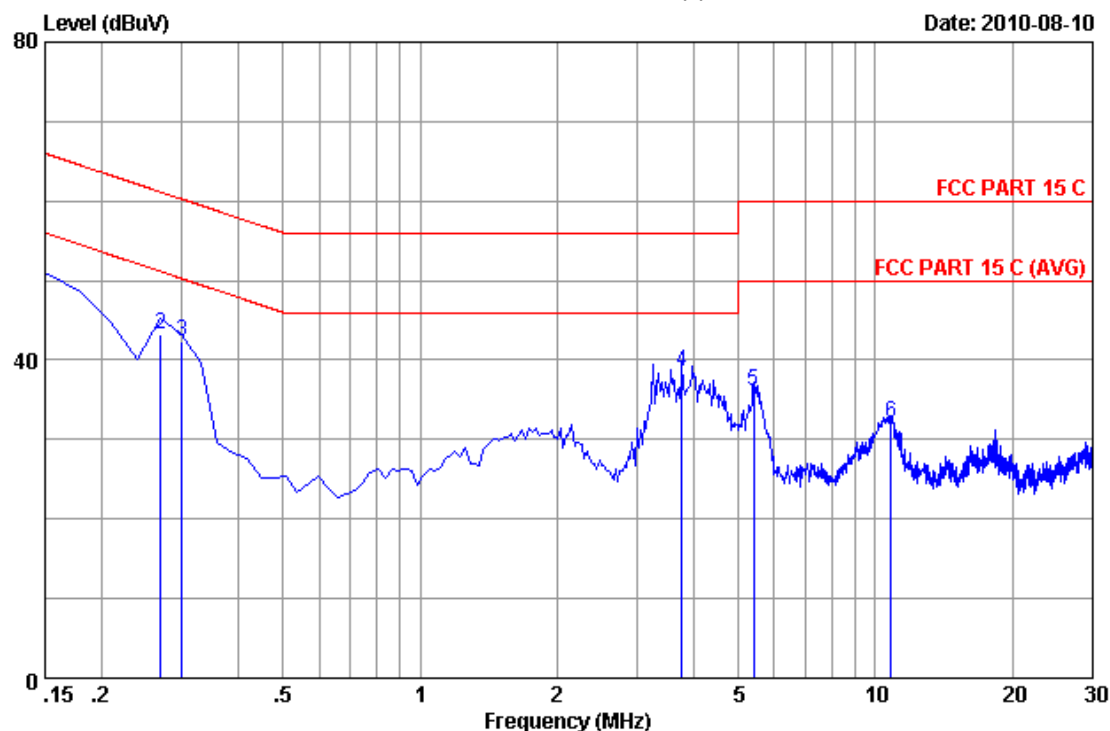
Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)
+Reading.
2.If the average limit is met when using a quasi-peak detector,
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



Shenzhen Science&Industry Park
Nantou Shenzhen, Guangdong, China
Tel:+86-755-26639495
Fax:+86-755-26632877
Postcode:518057

Data: 3 File: D:\DATA\2010 REPORT\ACS10QH216.EM6 (4)

Date: 2010-08-10



Site no :1#conduction Data No :3
Dis./Ant. :** 2010 ESH2-Z5 NEUTRAL
Limit :FCC PART 15 C
Env./Ins. :29.5°C/55% Engineer :Paul Tian
EUT :MuziLighter
Power Rating :DC 5V From PC input AC 120/60Hz
Test Mode :Charging Mode
M/N :K220

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.21	9.88	38.85	48.94	66.00	17.06	QP
2	0.26940	0.21	9.88	33.24	43.33	61.14	17.81	QP
3	0.29925	0.21	9.88	32.20	42.29	60.26	17.97	QP
4	3.762	0.28	9.94	28.38	38.60	56.00	17.40	QP
5	5.404	0.28	9.94	25.89	36.11	60.00	23.89	QP
6	10.836	0.45	9.99	21.62	32.06	60.00	27.94	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)
+Reading.
2.If the average limit is met when using a quasi-peak detector,
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency rang: 30~1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 10	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 10	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 10	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 09	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 10	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 10	1 Year

Frequency rang: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 09	1.5 Year
3	Horn Antenna	EMCO	3116	00060089	Nov.25, 09	1.5 Year
4	Amplifier	Agilent	8449B	3008A00863	May.08, 10	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 10	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	29091/2	May.08, 10	1 Year

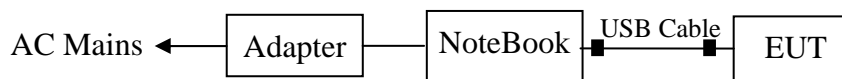
4.2. Block Diagram of Test Setup

4.2.1. Block Diagram of connection between EUT and simulators

TX Mode

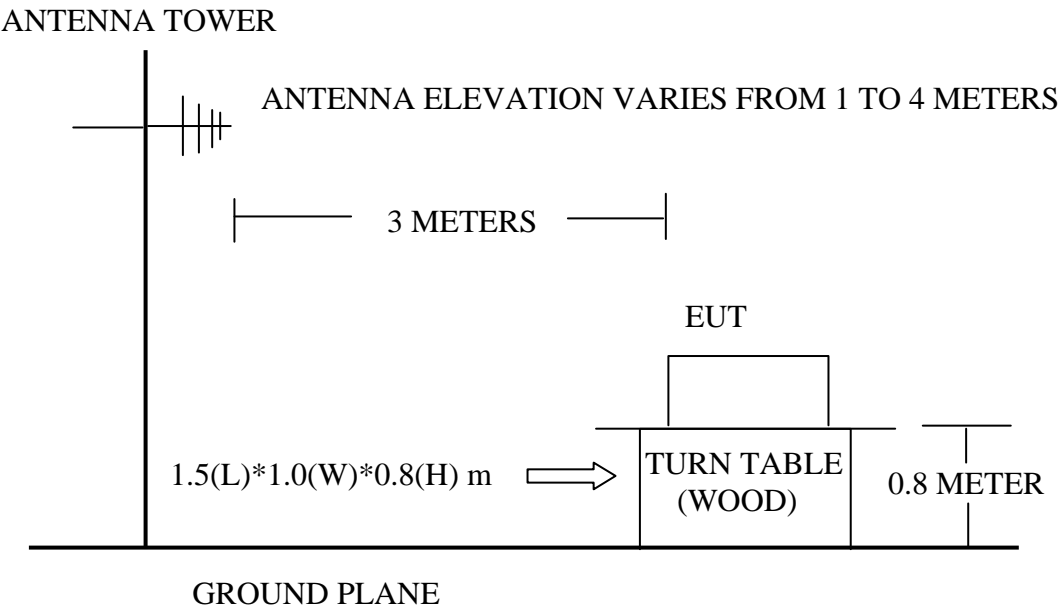


Charging Mode



(EUT: MuziLighter)

4.2.2. Anechoic Chamber Setup Diagram



4.3. Radiated Emission Limit

4.3.1.15.209 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 960MHz	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.

4.3.2. 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.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. MuziLighter(EUT)

Model Number : K220
Serial Number : N/A

4.4.2. Support Equipment: As Tested Supporting System Detail, in Section 2.2.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2..

4.5.2. Turned on the power of all equipment.

4.5.3. Let the EUT worked in test mode (Tx Mode / Charging Mode) and tested it.

4.6. 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.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

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 VBW is set at 10Hz, RBW is set at 1MHz for average emissions measurements 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.

4.7. Radiated Emission Test Results

PASS

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

Note: The points 2402MHz, 2441MHz, 2480MHz are fundamental emissions of device, and no need to comply with the radiated emissions limit, just for reference in here.

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

Frequency: 30MHz~1GHz

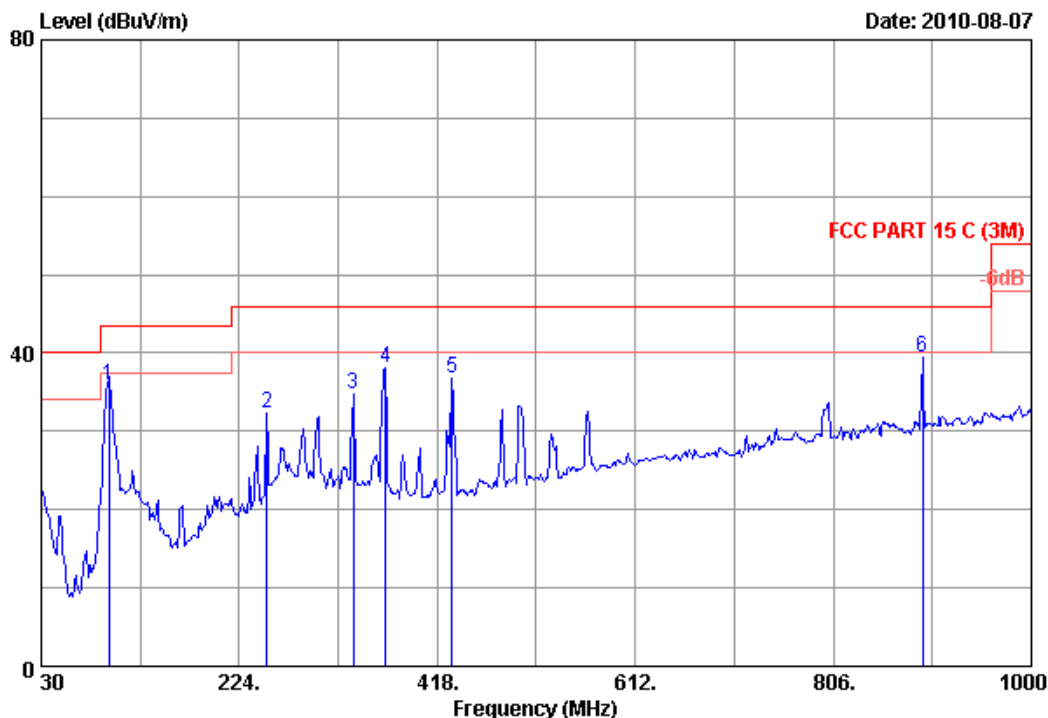


No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 2

File: D:\2010 Report Data\YACS10QH216.EM6 (4)

Date: 2010-08-07



Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24°C/56% Engineer : Sunny-lu
EUT : MuziLighter M/N:K220
Power rating : DC 5V From PC input AC 120V/60Hz
Test Mode : Charging
:

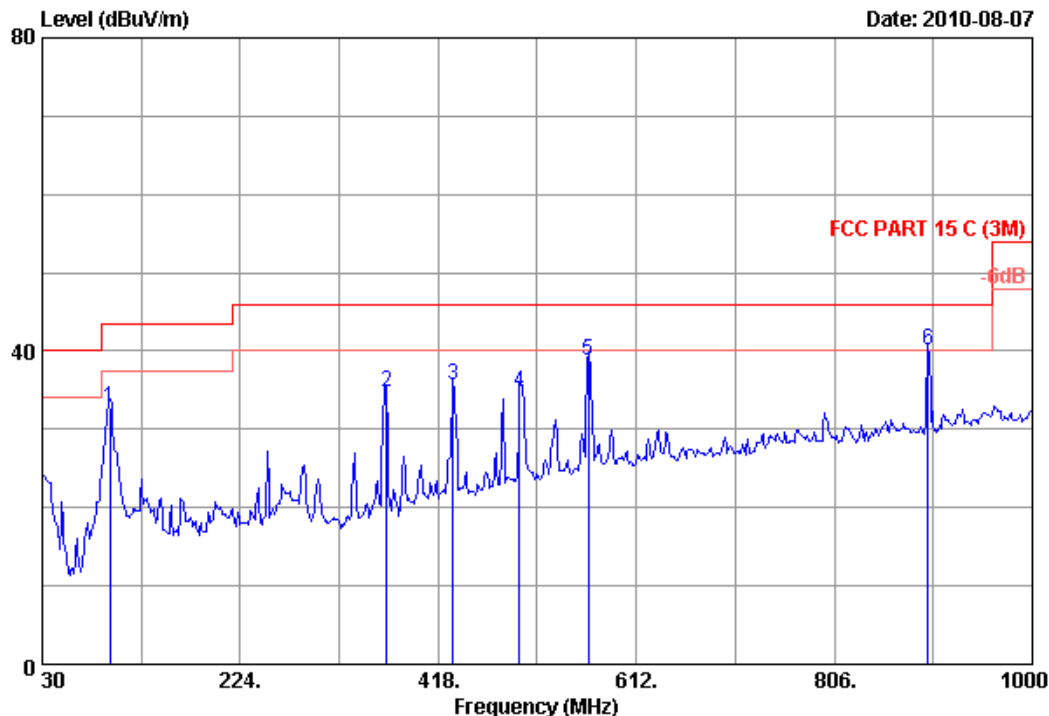
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	95.960	9.84	1.09	24.99	35.92	43.50	7.58	QP
2	251.160	12.90	2.18	17.20	32.28	46.00	13.72	QP
3	335.550	14.62	2.63	17.50	34.75	46.00	11.25	QP
4	367.560	15.53	2.77	19.80	38.10	46.00	7.90	QP
5	432.550	17.42	3.12	16.25	36.79	46.00	9.21	QP
6	893.300	22.87	5.18	11.37	39.42	46.00	6.58	QP

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou, ShenZhen, GuangDong, China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

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Site no. : 3m Chamber Data no. : 1
Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : VERTICAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24°C/56% Engineer : Sunny-lu
EUT : MuziLighter M/N:K220
Power rating : DC 5V From PC input AC 120V/60Hz
Test Mode : Charging
:

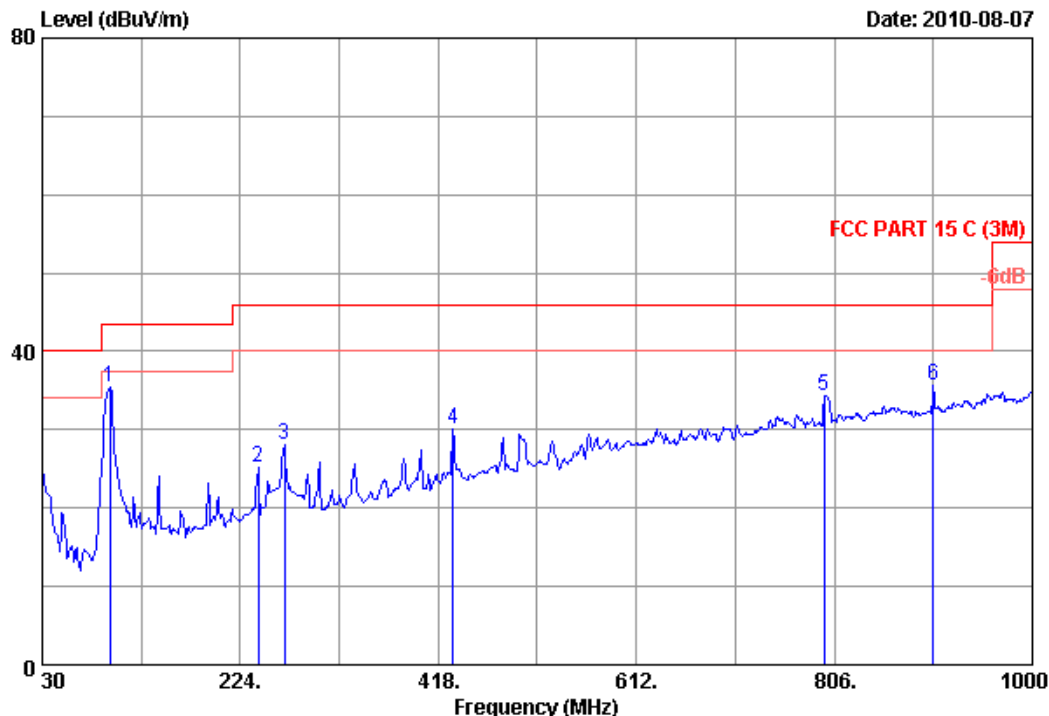
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	95.960	9.84	1.09	21.93	32.86	43.50	10.64	QP
2	367.560	15.53	2.77	16.44	34.74	46.00	11.26	QP
3	432.550	17.42	3.12	15.11	35.65	46.00	10.35	QP
4	497.540	18.27	3.53	13.03	34.83	46.00	11.17	QP
5	565.440	19.61	3.92	15.34	38.87	46.00	7.13	QP
6	898.150	22.82	5.19	12.10	40.11	46.00	5.89	QP

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 3 File: D:\2010 Report Data\YACS10QH216.EM6 (4)



Site no.	: 3m Chamber	Data no.	: 3
Dis. / Ant.	: 3m 2010 CBL6111C	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 C (3M)		
Env. / Ins.	: 24°C/56%	Engineer	: Sunny-lu
EUT	: MuziLighter M/N:K220		
Power rating	: DC 5V		
Test Mode	: Tx Mode		
	:		

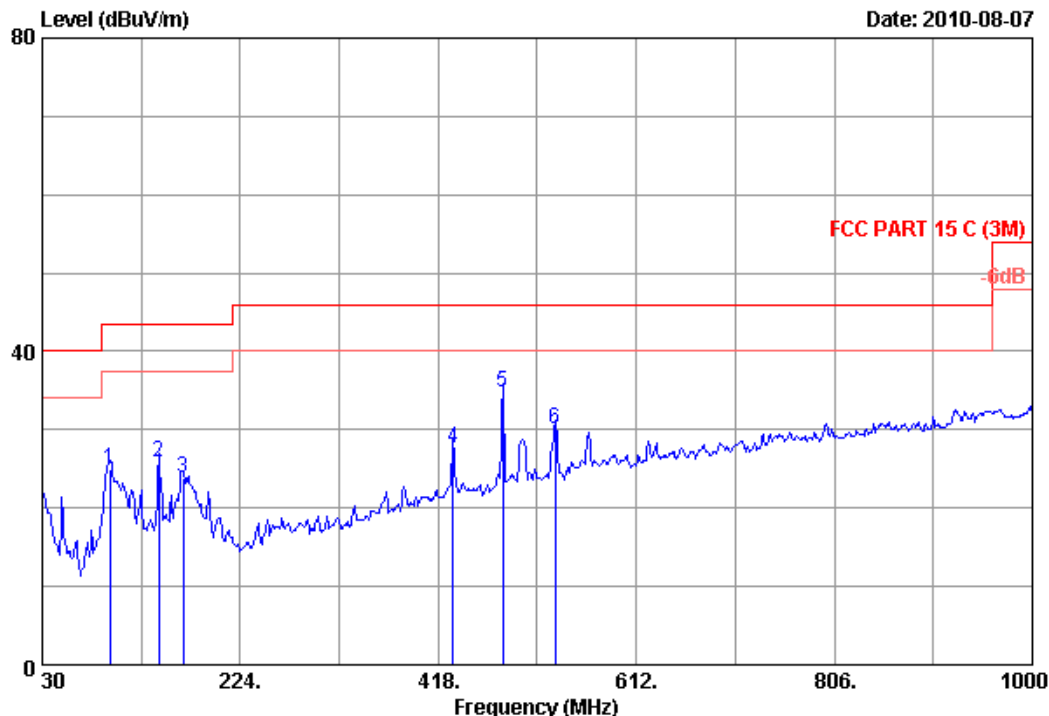
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	95.960	9.84	1.09	24.43	35.36	43.50	8.14	QP
2	241.460	11.93	2.09	11.26	25.28	46.00	20.72	QP
3	267.650	13.50	2.28	12.25	28.03	46.00	17.97	QP
4	432.550	17.42	3.12	9.65	30.19	46.00	15.81	QP
5	796.300	22.04	4.88	7.40	34.32	46.00	11.68	QP
6	903.000	22.89	5.21	7.50	35.60	46.00	10.40	QP

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou, ShenZhen, GuangDong, China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 4 File: D:\2010 Report Data\YACS10QH216.EM6 (4)



Site no.	: 3m Chamber	Data no.	: 4
Dis. / Ant.	: 3m 2010 CBL6111C	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 C (3M)		
Env. / Ins.	: 24°C/56%	Engineer	: Sunny-lu
EUT	: MuziLighter M/N:K220		
Power rating	: DC 5V		
Test Mode	: Tx Mode		
	:		

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	95.960	9.84	1.09	14.10	25.03	43.50	18.47	QP
2	144.460	11.92	1.14	12.85	25.91	43.50	17.59	QP
3	167.740	10.40	1.34	12.08	23.82	43.50	19.68	QP
4	432.550	17.42	3.12	7.11	27.65	46.00	18.35	QP
5	481.050	18.11	3.43	13.28	34.82	46.00	11.18	QP
6	532.460	18.27	3.73	8.19	30.19	46.00	15.81	QP

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

Frequency: 1GHz~18GHz

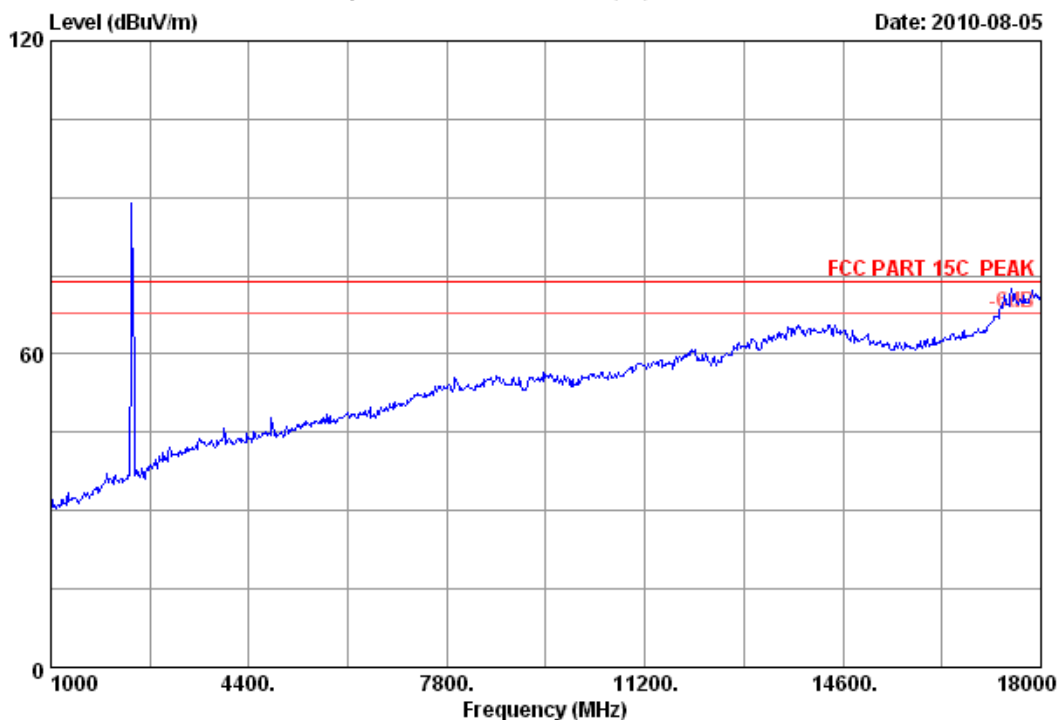


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Noutou, ShenZhen, GuangDong, China
Tel:+86-755-26639495-7
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Data: 1

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05

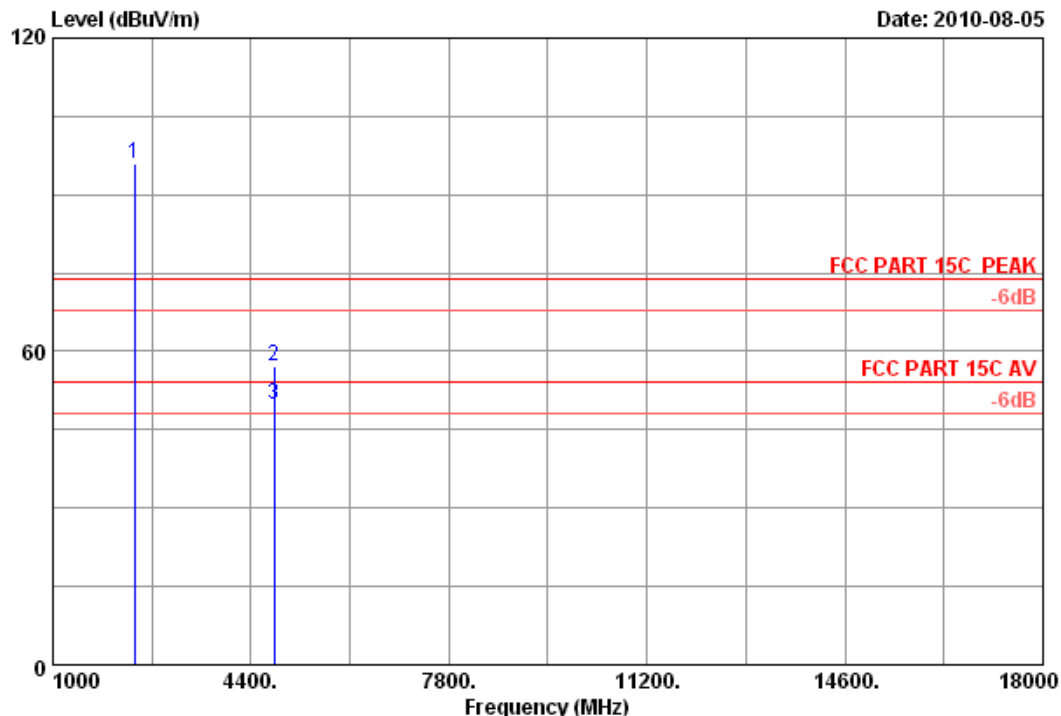


Site no.	: RF Chamber	Data no.	: 1
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
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Data: 2 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 2
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		

	Freq.	Ant.	Cable	Amp.		Emission			
	(MHz)	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2402.000	29.44	7.43	36.62	95.58	95.83	74.00	-21.83	Peak
2	4804.000	34.30	10.62	35.10	47.27	57.09	74.00	16.91	Peak
3	4804.000	34.30	10.62	35.10	40.07	49.89	54.00	4.11	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.

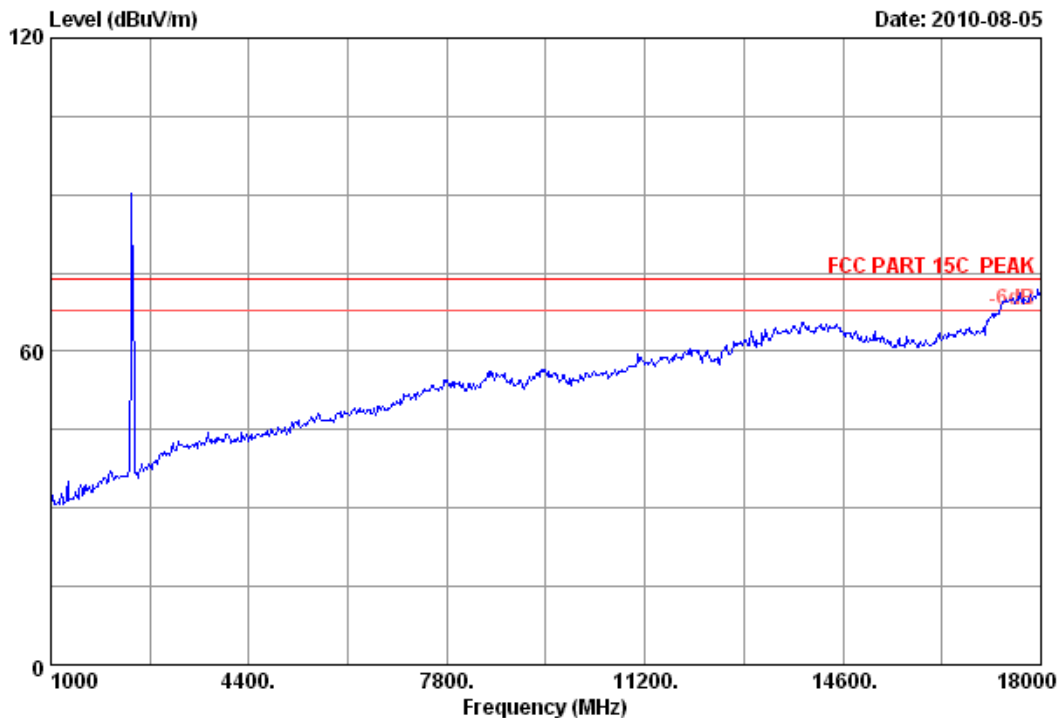


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Noutou,ShenZhen,GuangDong,China
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Data: 3

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05

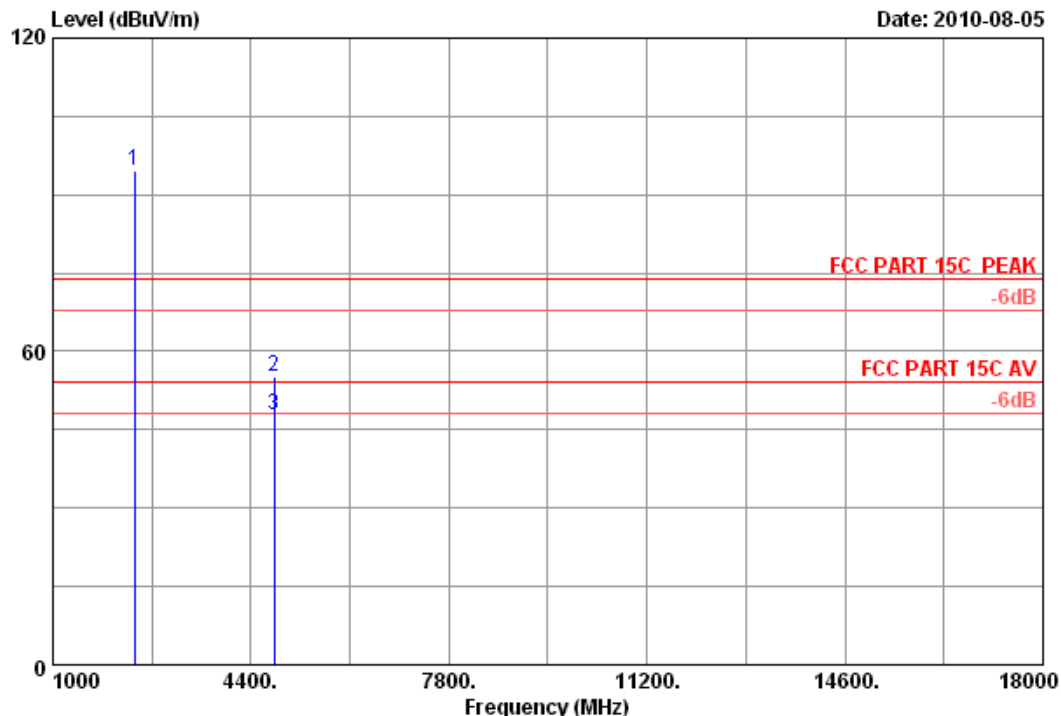


Site no.	: RF Chamber	Data no.	: 3
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		



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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 4 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 4
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		

	Freq.	Ant. Factor	Cable loss	Amp. Factor	Reading	Emission Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2402.000	29.44	7.43	36.62	94.50	94.75	74.00	-20.75	Peak
2	4804.000	34.30	10.62	35.10	45.25	55.07	74.00	18.93	Peak
3	4804.000	34.30	10.62	35.10	38.05	47.87	54.00	6.13	Average

Remarks:

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

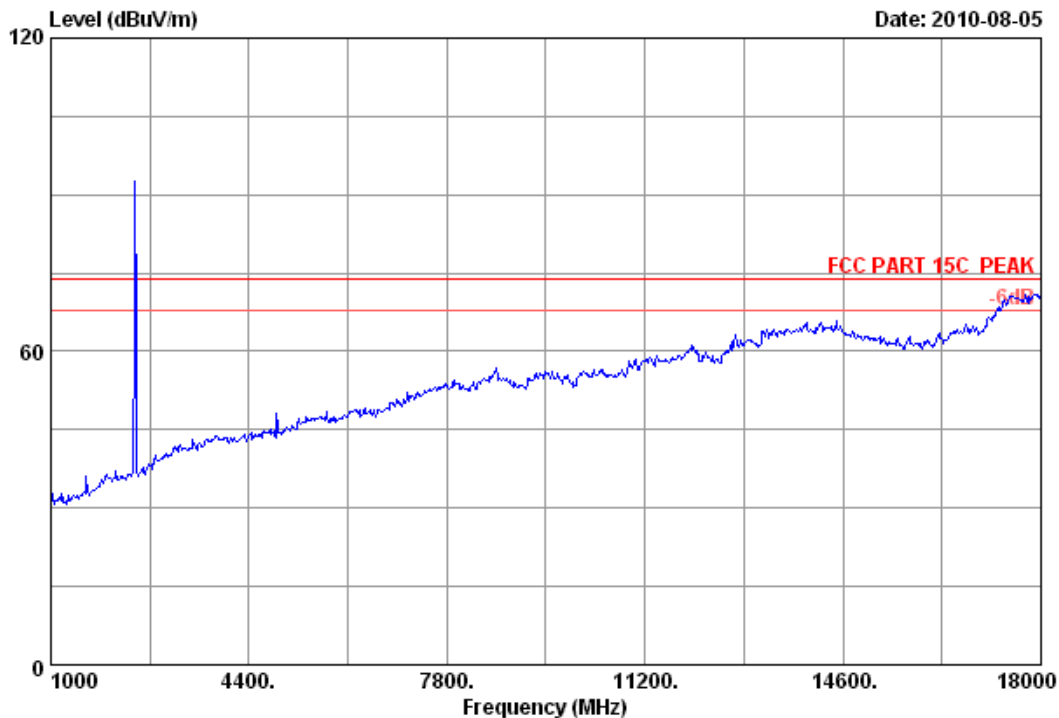


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Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
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Data: 5

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no.	: RF Chamber	Data no.	: 5
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2441MHz		

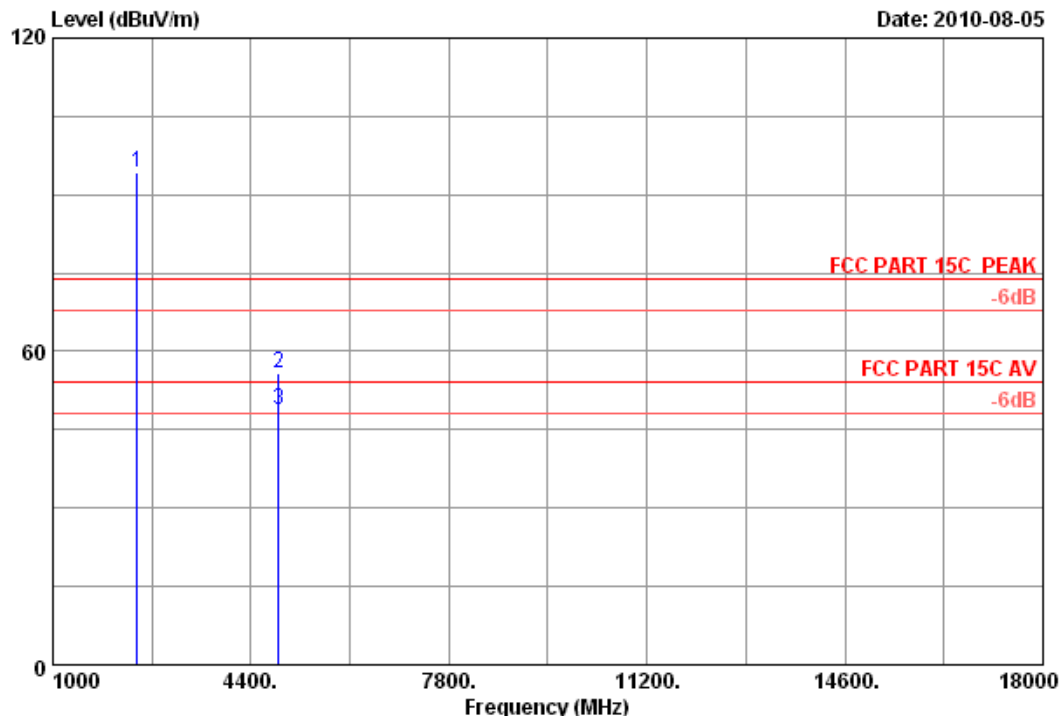


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ShenZhen Science & Industry Park
Noutou, ShenZhen, GuangDong, China
Tel:+86-755-26639495-7
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Data: 6

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no. : RF Chamber Data no. : 6
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : GFSK Tx 2441MHz

	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	2441.000	29.47	7.50	36.61	94.05	94.41	74.00	-20.41	Peak
2	4882.000	34.41	10.71	35.03	45.85	55.94	74.00	18.06	Peak
3	4882.000	34.41	10.71	35.03	38.65	48.74	54.00	5.26	Average

Remarks:

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

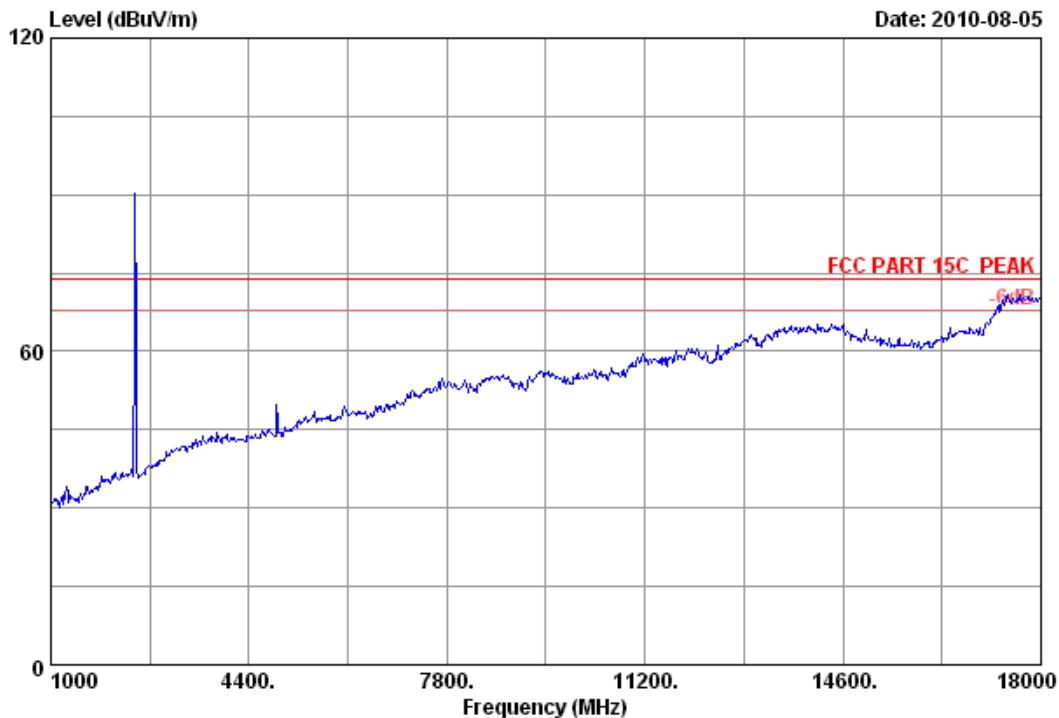


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Noutou,ShenZhen,GuangDong,China
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Data: 7

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no.	: RF Chamber	Data no.	: 7
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2441MHz		

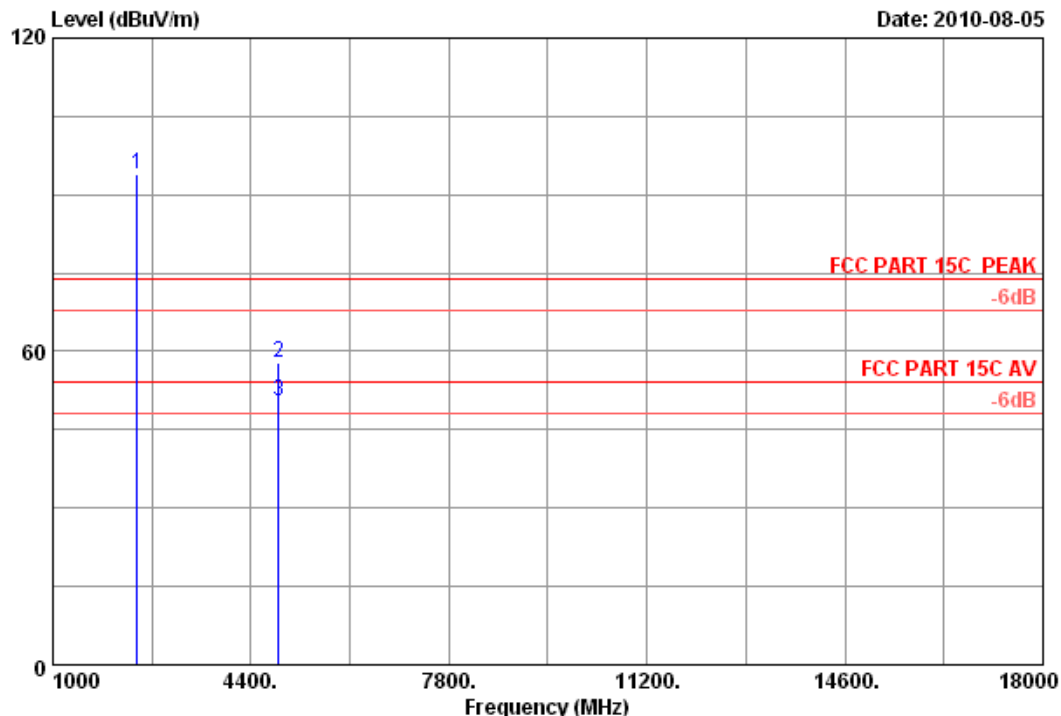


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Noutou,ShenZhen,GuangDong,China
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Data: 8

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no. : RF Chamber Data no. : 8
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : GFSK Tx 2441MHz

	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	2441.000	29.47	7.50	36.61	93.40	93.76	74.00	-19.76	Peak
2	4882.000	34.41	10.71	35.03	47.63	57.72	74.00	16.28	Peak
3	4882.000	34.41	10.71	35.03	40.40	50.49	54.00	3.51	Average

Remarks:

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

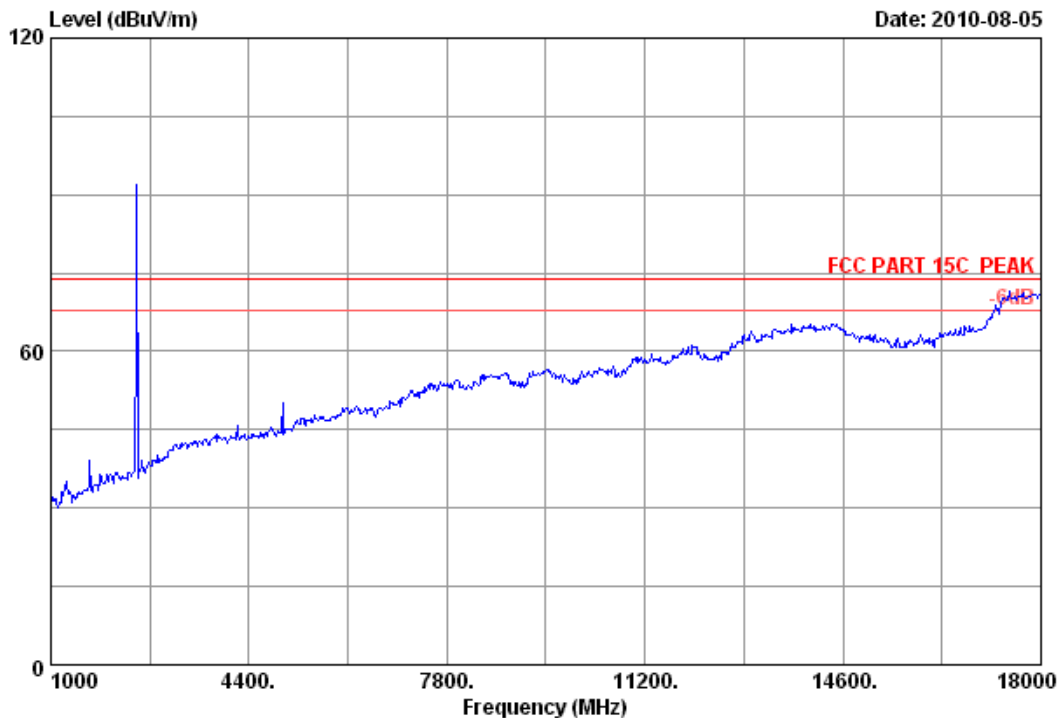


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Noutou,ShenZhen,GuangDong,China
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Data: 9

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



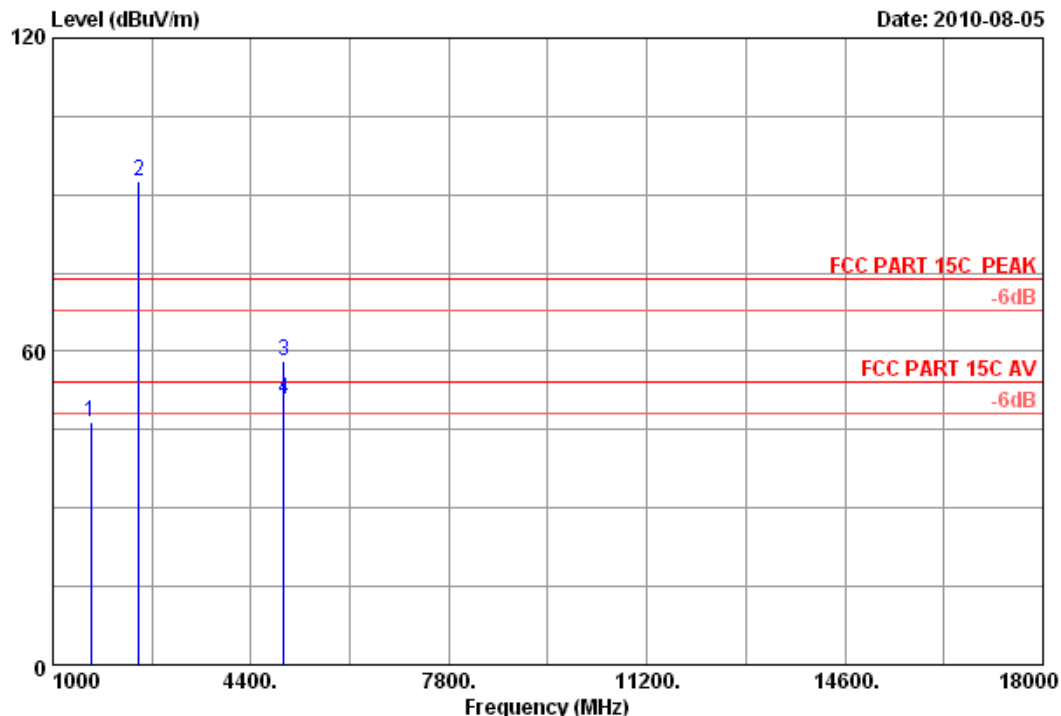
Site no.	: RF Chamber	Data no.	: 9
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2480MHz		



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ShenZhen Science & Industry Park
Noutou, ShenZhen, GuangDong, China
Tel:+86-755-26639495-7
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Data: 10 File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no. : RF Chamber Data no. : 10
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : GFSK Tx 2480MHz

	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 1646.000	27.24	5.99	36.92	50.16	46.47	74.00	27.53	Peak	
2 2480.000	29.49	7.58	36.60	92.17	92.64	74.00	-18.64	Peak	
3 4960.000	34.54	10.80	34.95	47.70	58.09	74.00	15.91	Peak	
4 4960.000	34.54	10.80	34.95	40.48	50.87	54.00	3.13	Average	

Remarks:

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

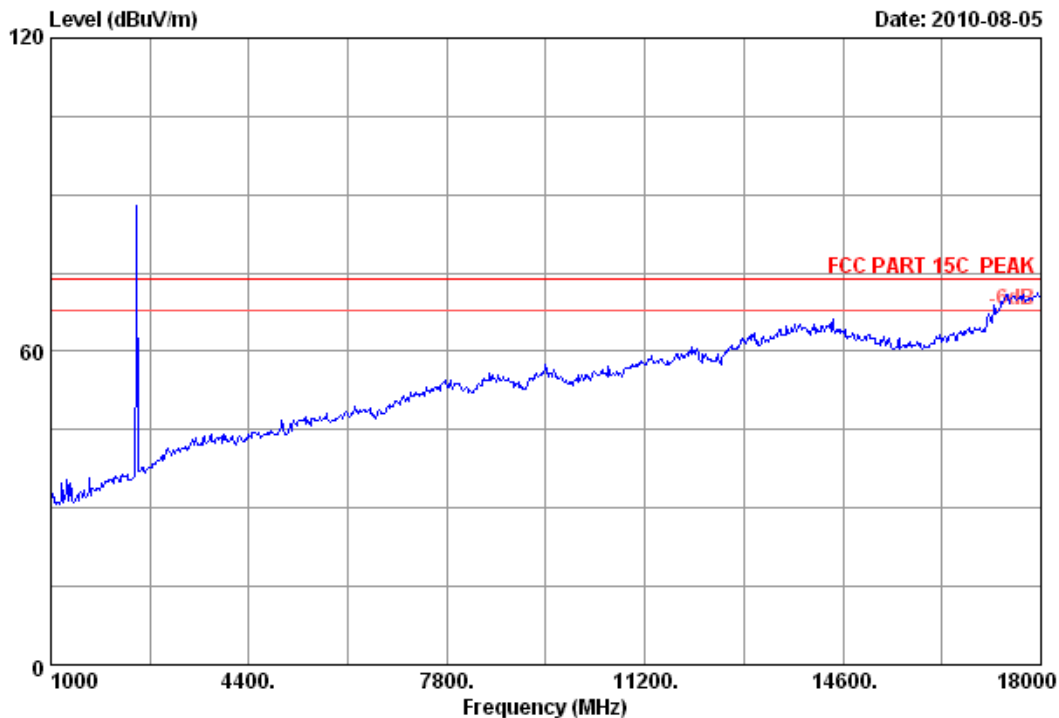


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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
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Data: 11

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



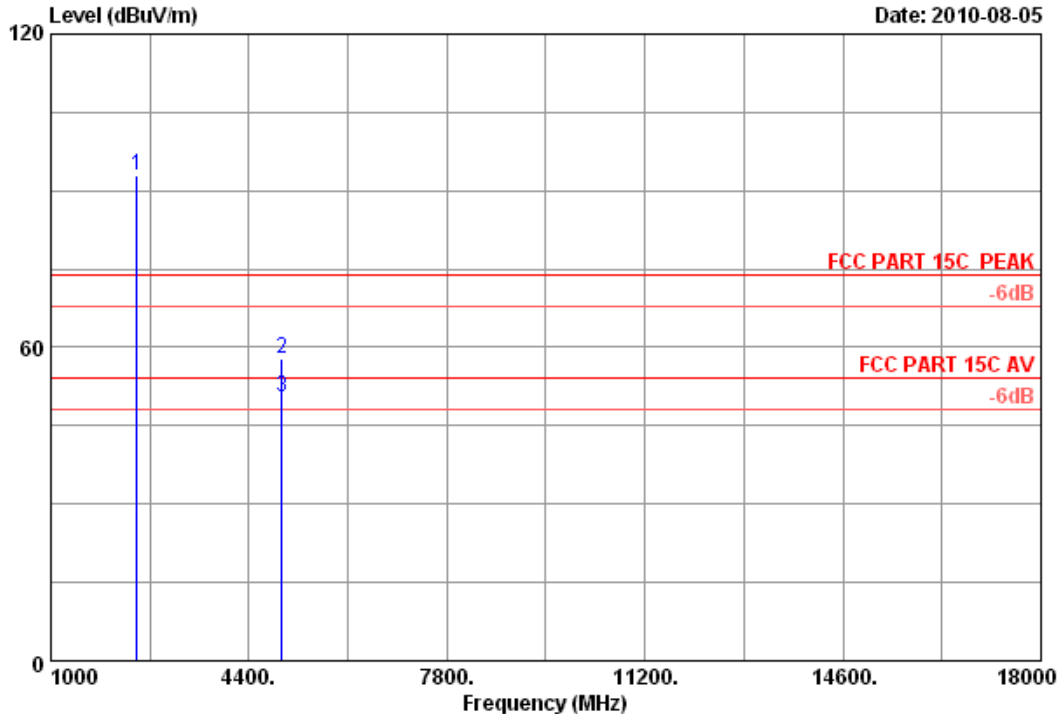
Site no.	: RF Chamber	Data no.	: 11
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2480MHz		



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Noutou,ShenZhen,GuangDong,China
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Data: 12 File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no. : RF Chamber Data no. : 12
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : GFSK Tx 2480MHz

	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	2480.000	29.49	7.58	36.60	92.56	93.03	74.00	-19.03	Peak
2	4960.000	34.54	10.80	34.95	47.31	57.70	74.00	16.30	Peak
3	4960.000	34.54	10.80	34.95	40.02	50.41	54.00	3.59	Average

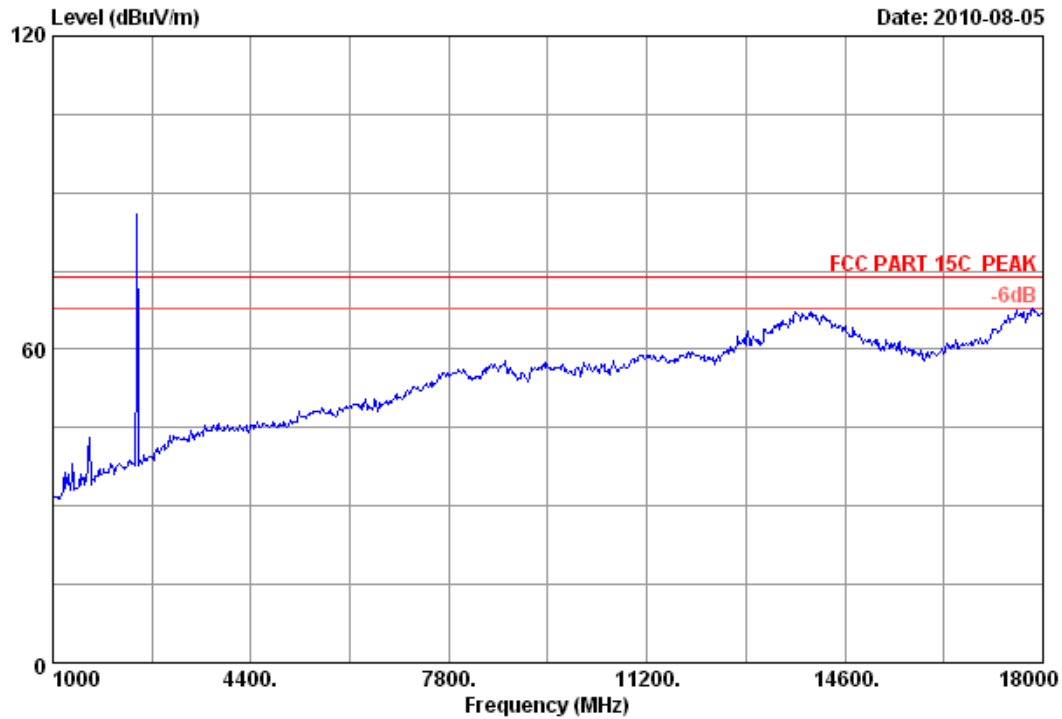
Remarks:

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



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Data: 25 File: E:\2010 report data\E\ACSH216.EM6 (40)

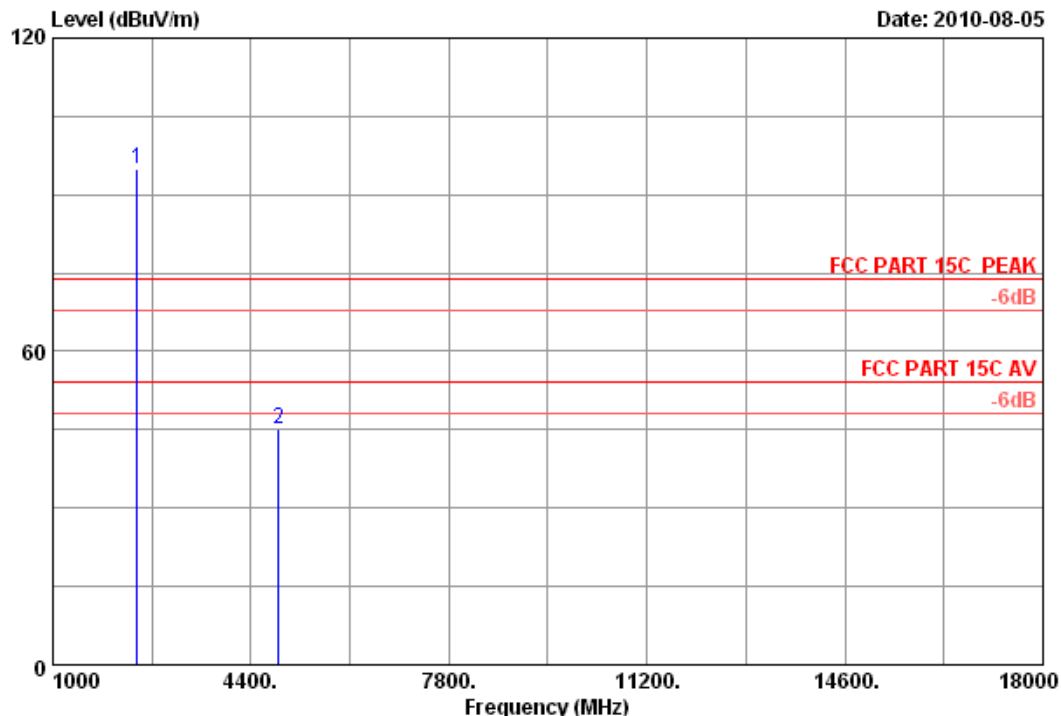


Site no.	: RF Chamber	Data no.	: 25
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2441MHz		



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Noutou,ShenZhen,GuangDong,China
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Data: 26 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 26
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2441MHz		

	Freq.	Ant.	Cable	Amp.		Emission			
	(MHz)	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2441.000	29.47	8.77	36.06	92.81	94.99	74.00	-20.99	Peak
2	4882.000	34.41	12.44	35.36	33.59	45.08	74.00	28.92	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.

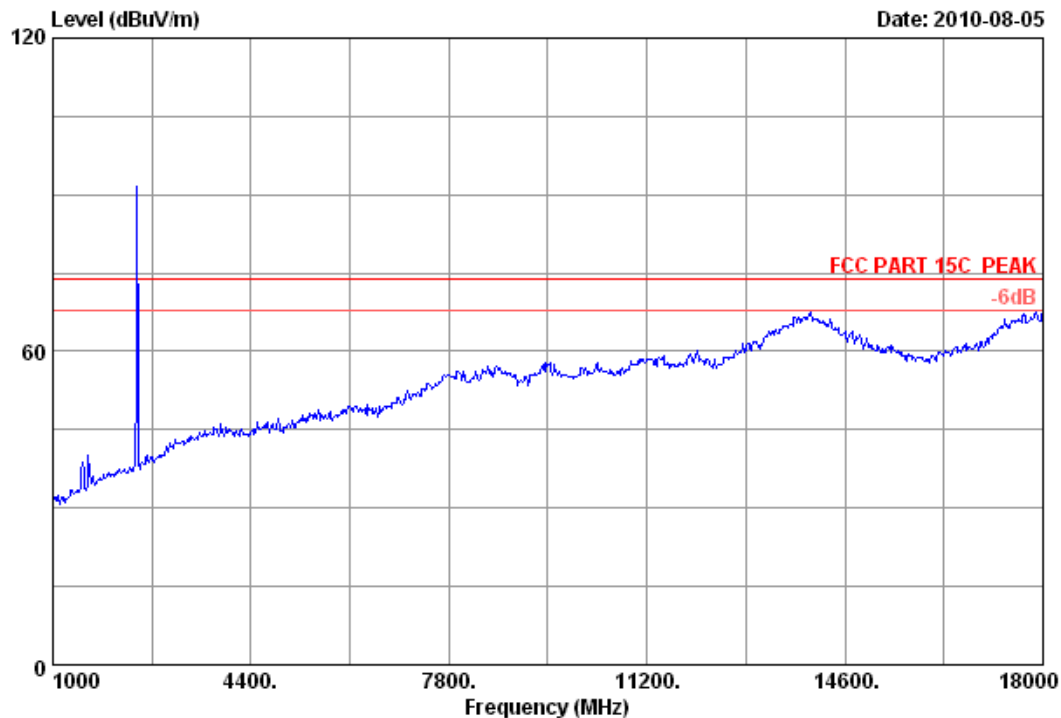


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Data: 27

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05

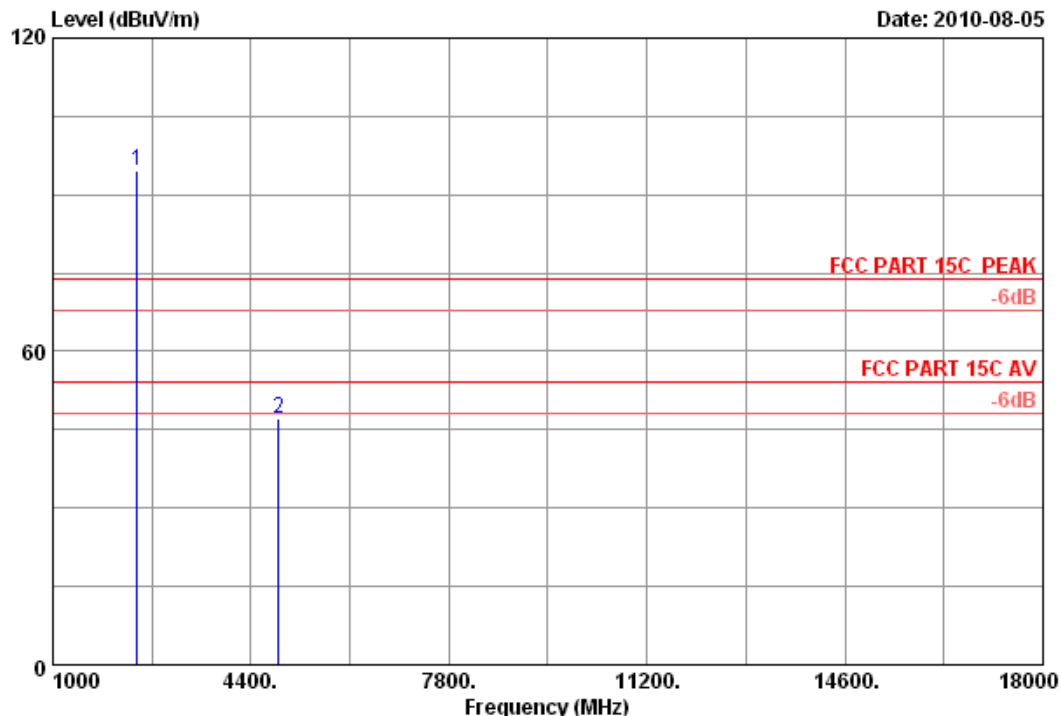


Site no.	: RF Chamber	Data no.	: 27
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2441MHz		



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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
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Data: 28 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 28
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2441MHz		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2441.000	29.47	8.77	36.06	92.56	94.74	74.00	-20.74	Peak
2	4882.000	34.41	12.44	35.36	35.59	47.08	74.00	26.92	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.

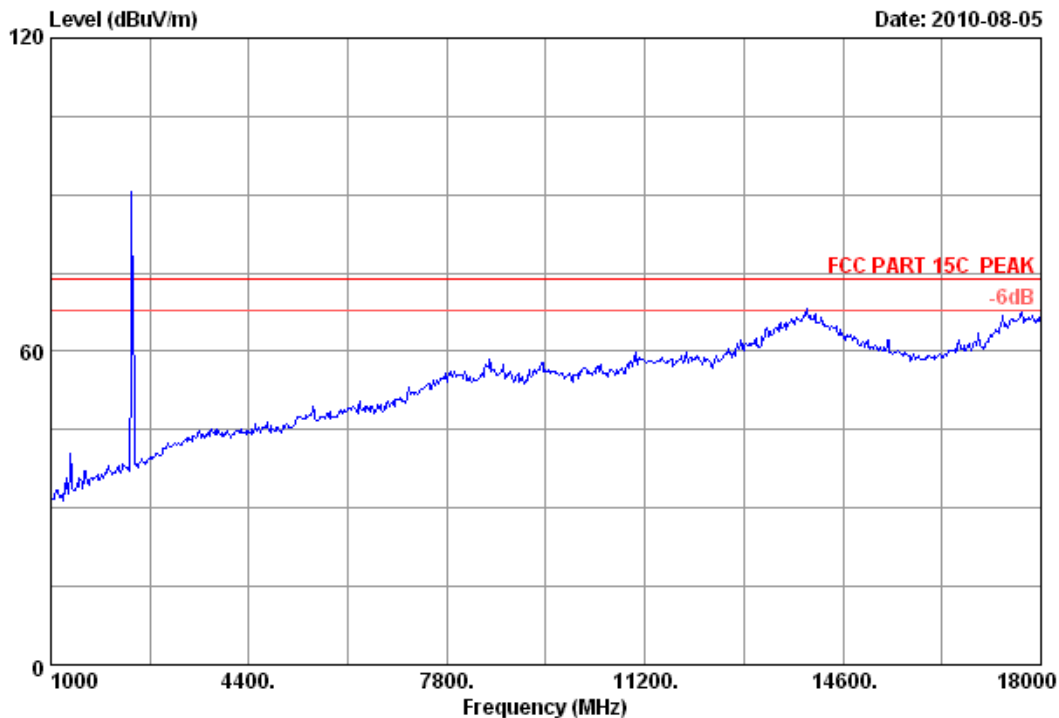


No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
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Postcode:518057

Data: 29

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



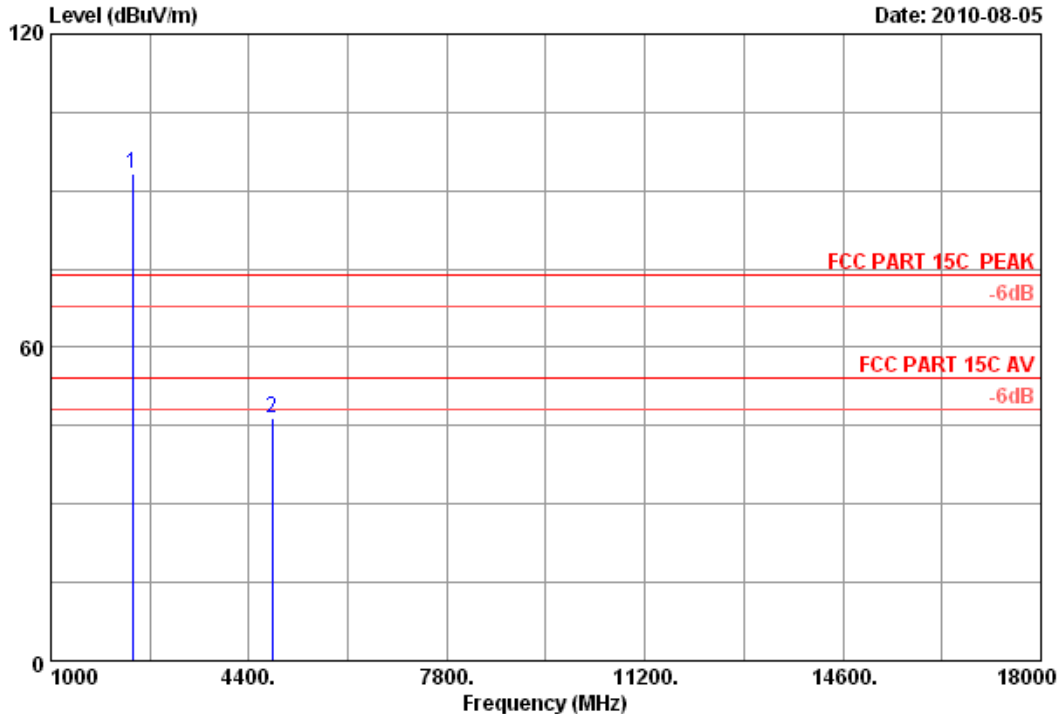
Site no.	: RF Chamber	Data no.	: 29
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2402MHz		



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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
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Data: 30 File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no.	: RF Chamber	Data no.	: 30
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2402MHz		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2402.000	29.44	8.72	36.09	91.07	93.14	74.00	-19.14	Peak
2	4804.000	34.30	12.35	35.37	35.20	46.48	74.00	27.52	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.

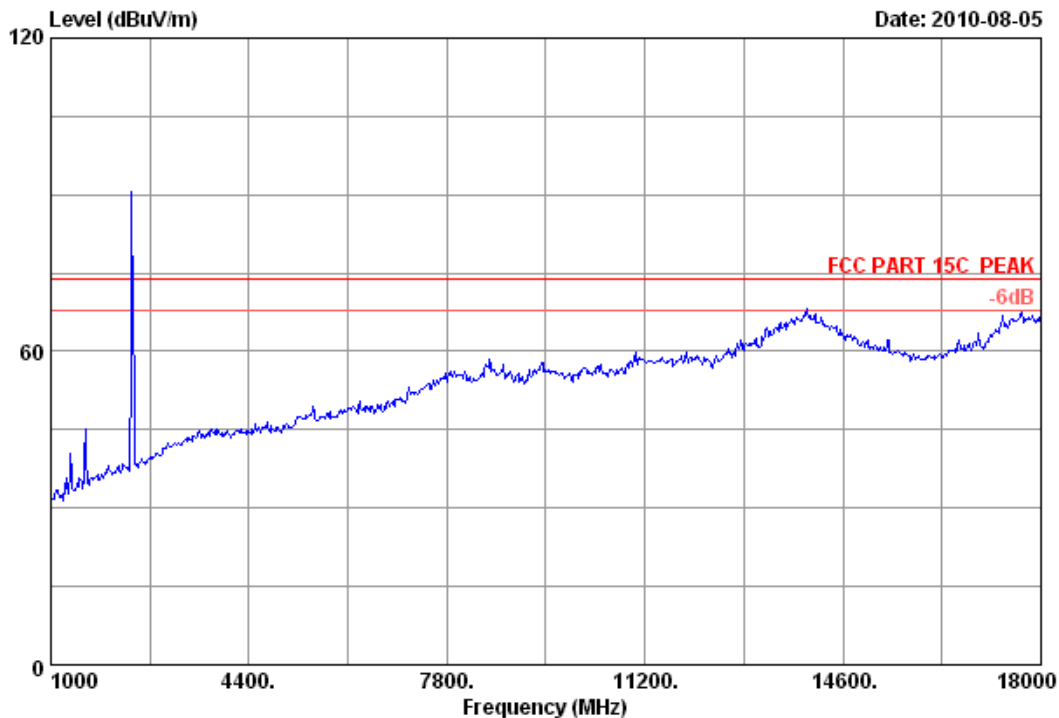


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Data: 31

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



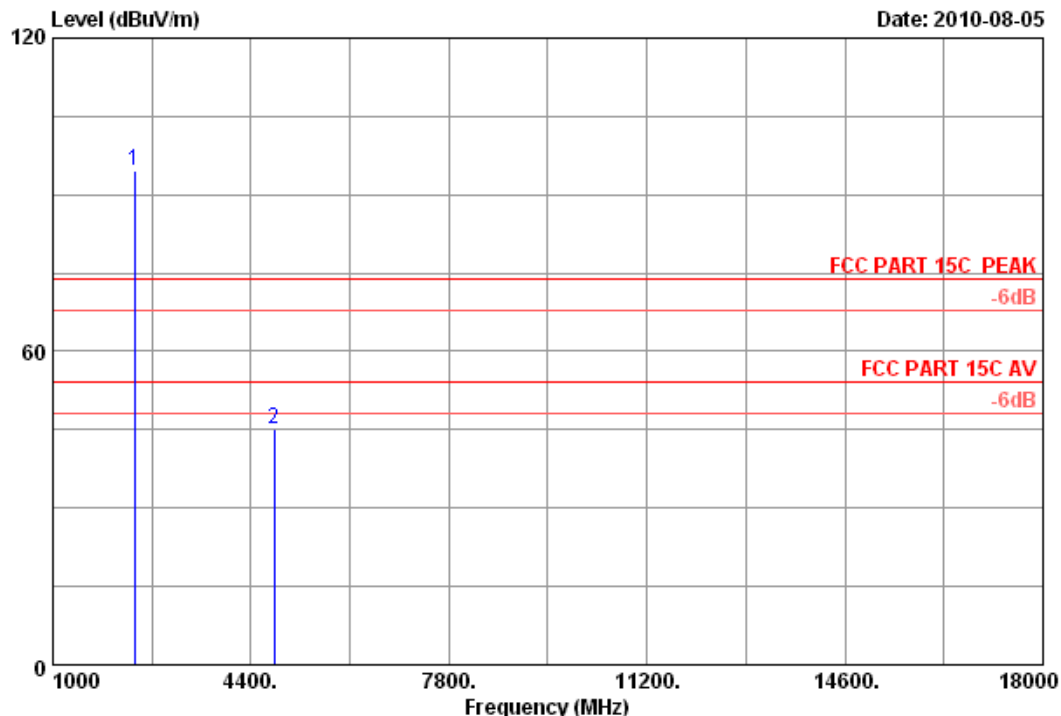
Site no.	: RF Chamber	Data no.	: 31
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2402MHz		



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ShenZhen Science & Industry Park
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Tel:+86-755-26639495-7
Fax:+86-755-26632877
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Data: 32 File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05



Site no. : RF Chamber Data no. : 32
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : 8DPSK 2402MHz

		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	2402.000	29.44	8.72	36.09	92.56	94.63	74.00	-20.63	Peak
2	4804.000	34.30	12.35	35.37	33.91	45.19	74.00	28.81	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.

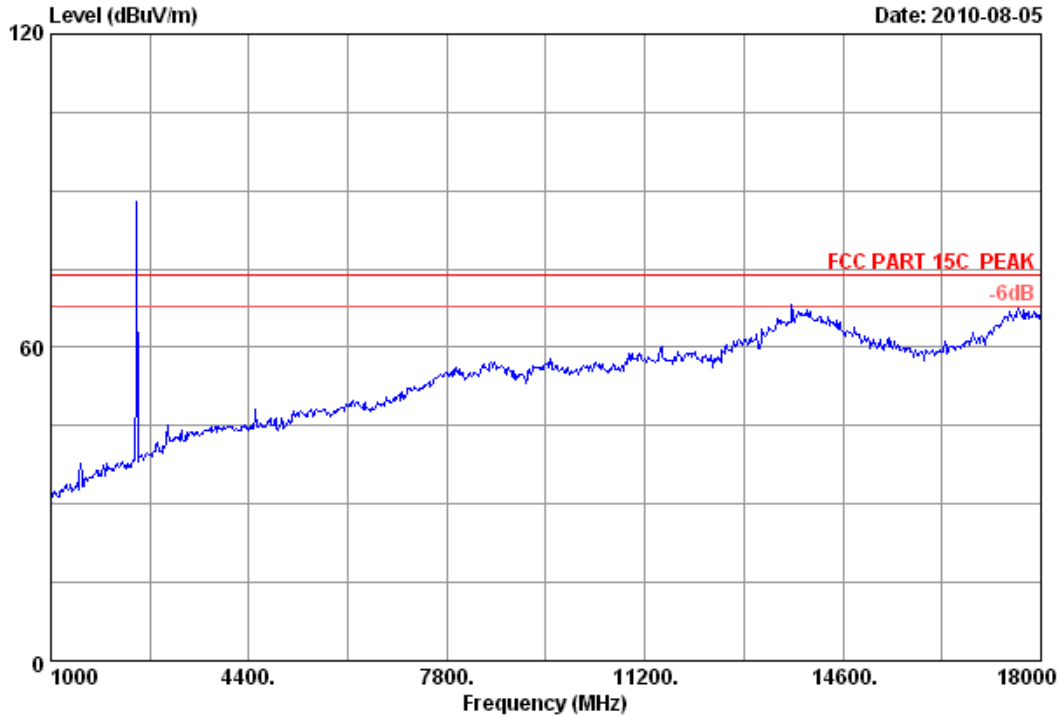


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Data: 21

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05

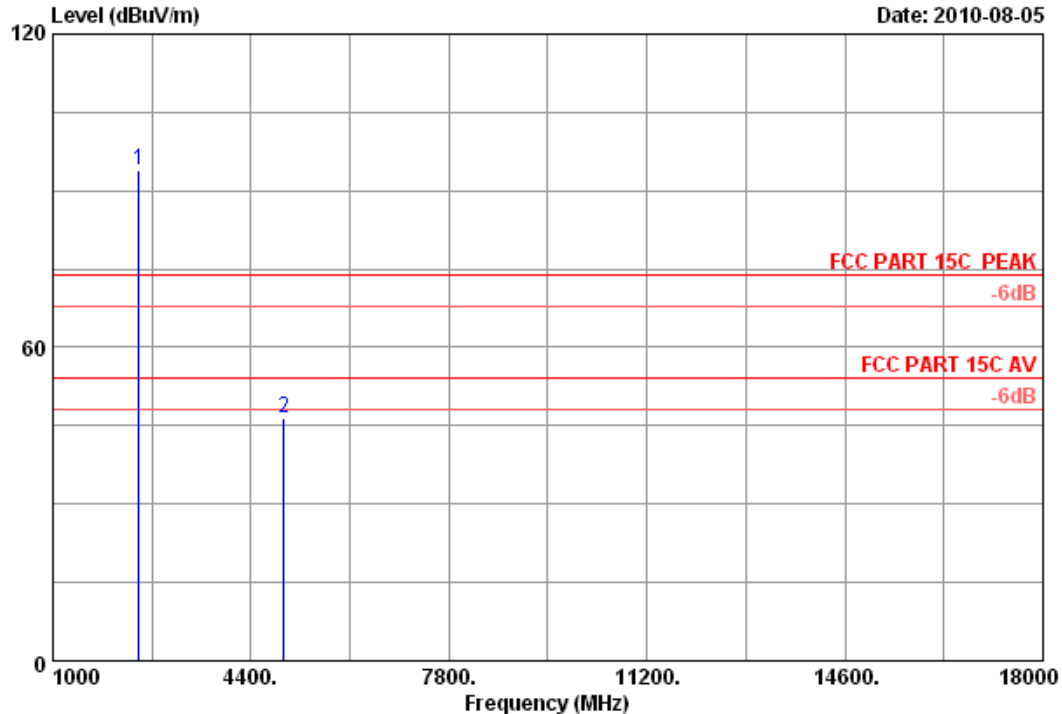


Site no.	: RF Chamber	Data no.	: 21
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2480MHz		



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ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 22 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 22
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2480MHz		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2480.000	29.49	8.87	35.97	91.58	93.97	74.00	-19.97	Peak
2	4960.000	34.54	12.53	35.37	34.85	46.55	74.00	27.45	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.

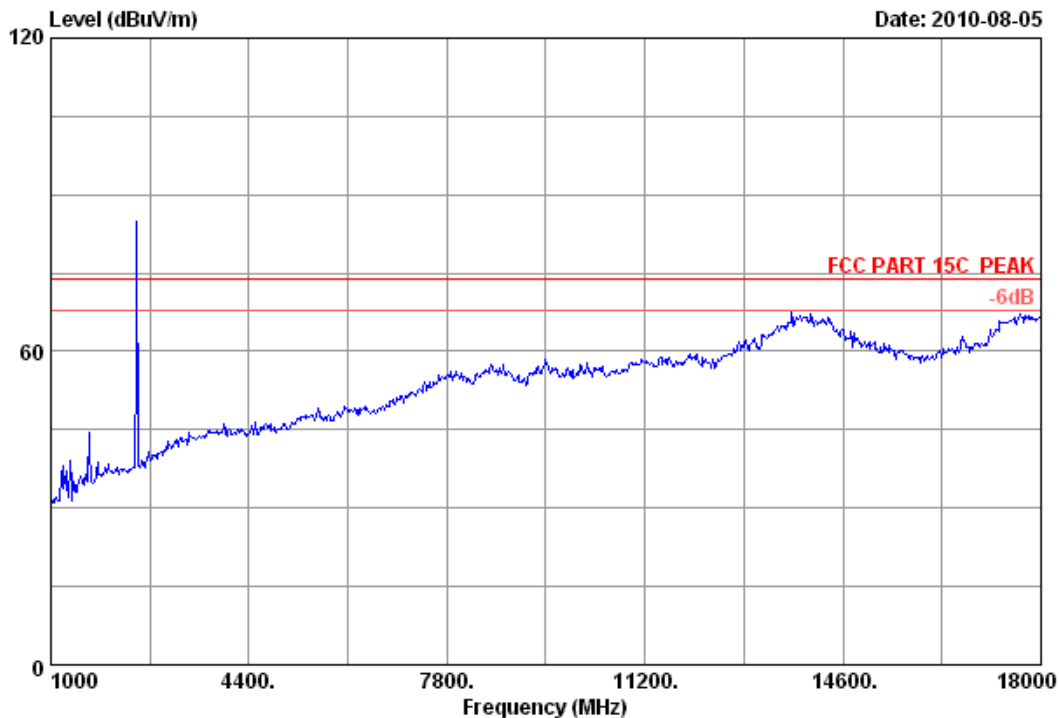


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Tel:+86-755-26639495-7
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Data: 23

File: E:\2010 report data\E\ACSH216.EM6 (40)

Date: 2010-08-05

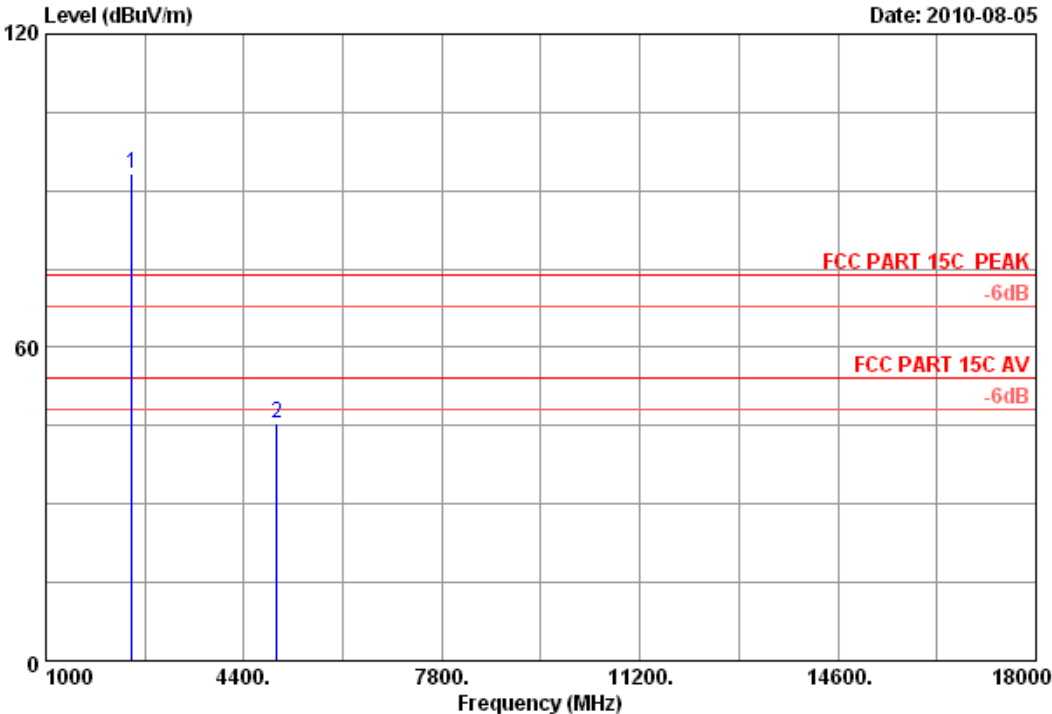


Site no.	: RF Chamber	Data no.	: 23
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2480MHz		



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
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Data: 24 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 24
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK 2480MHz		

	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 2480.000	29.49	8.87	35.97	90.92	93.31	74.00	-19.31	Peak	
2 4960.000	34.54	12.53	35.37	33.79	45.49	74.00	28.51	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.

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,10	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08,10	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,10	1Year

5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

5.3. Test Procedure

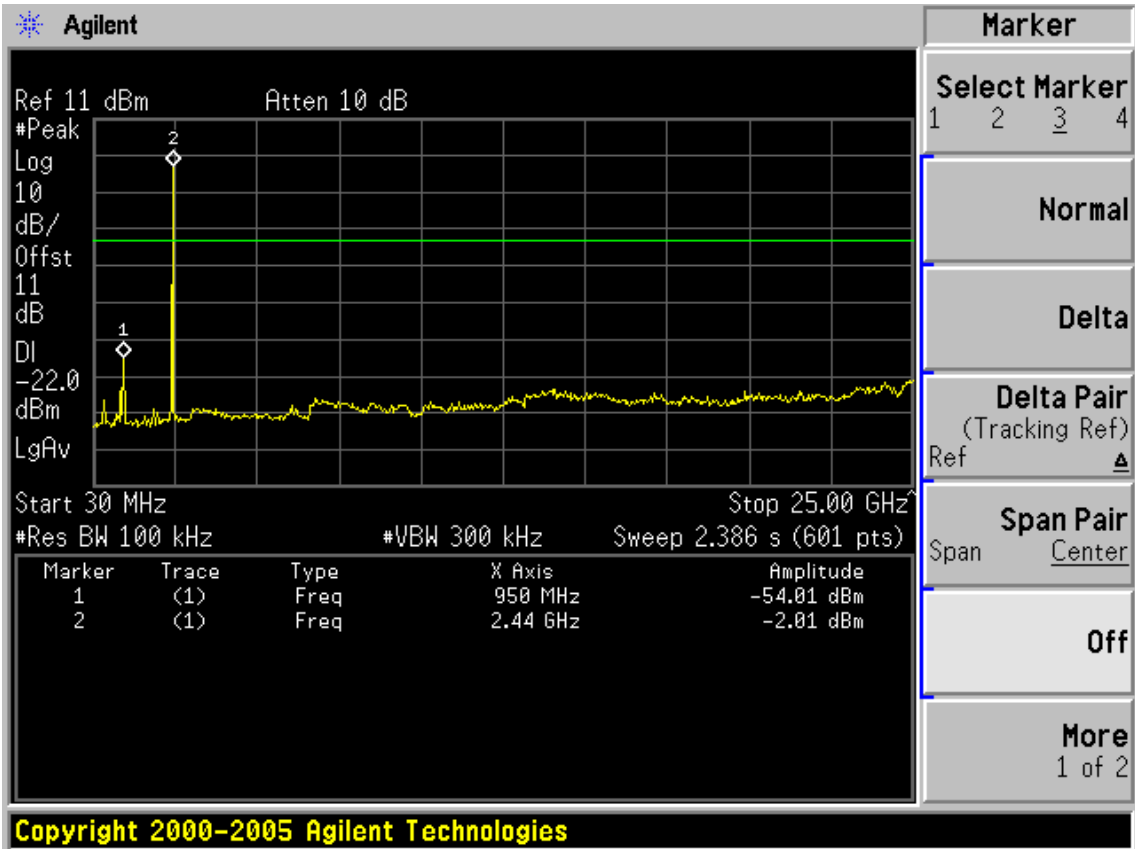
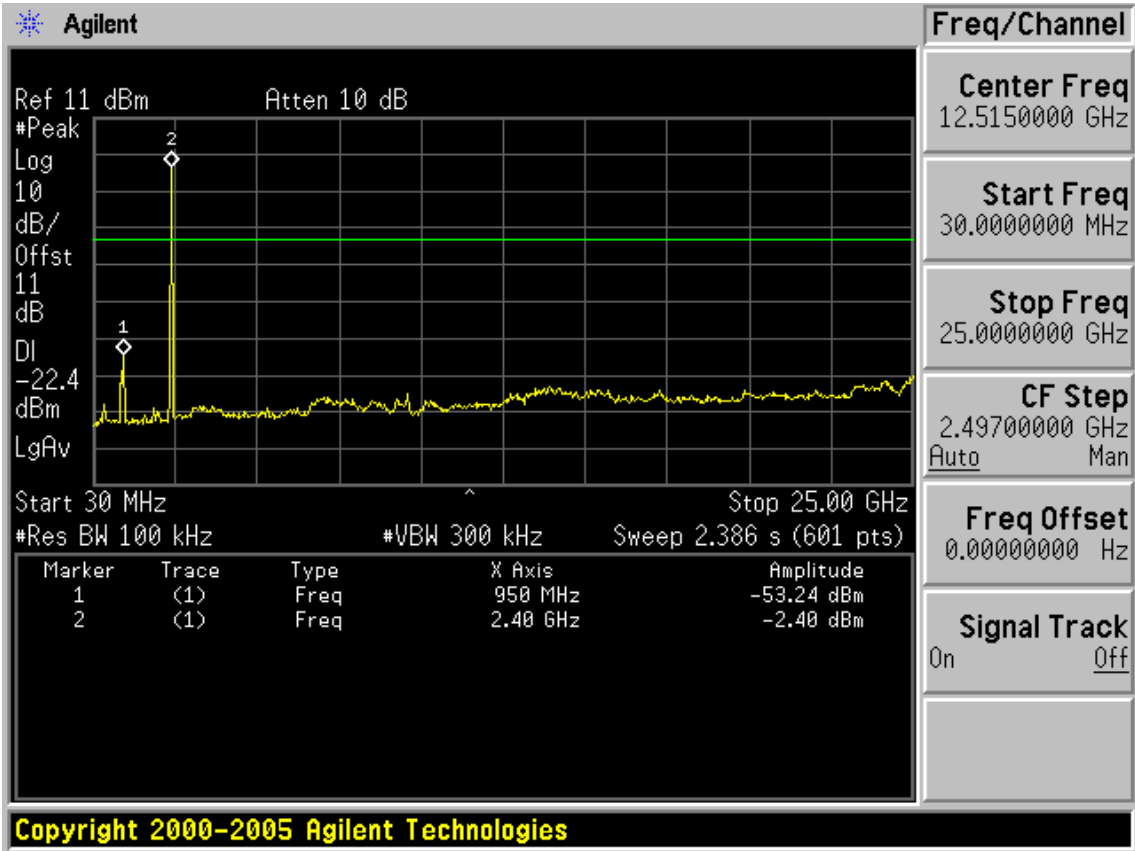
- 1, Connected the EUT's antenna port to spectrum analyzer by 20dB attenuator.
- 2, Measure all the conducted emissions from antenna port by spectrum analyzer as below set:

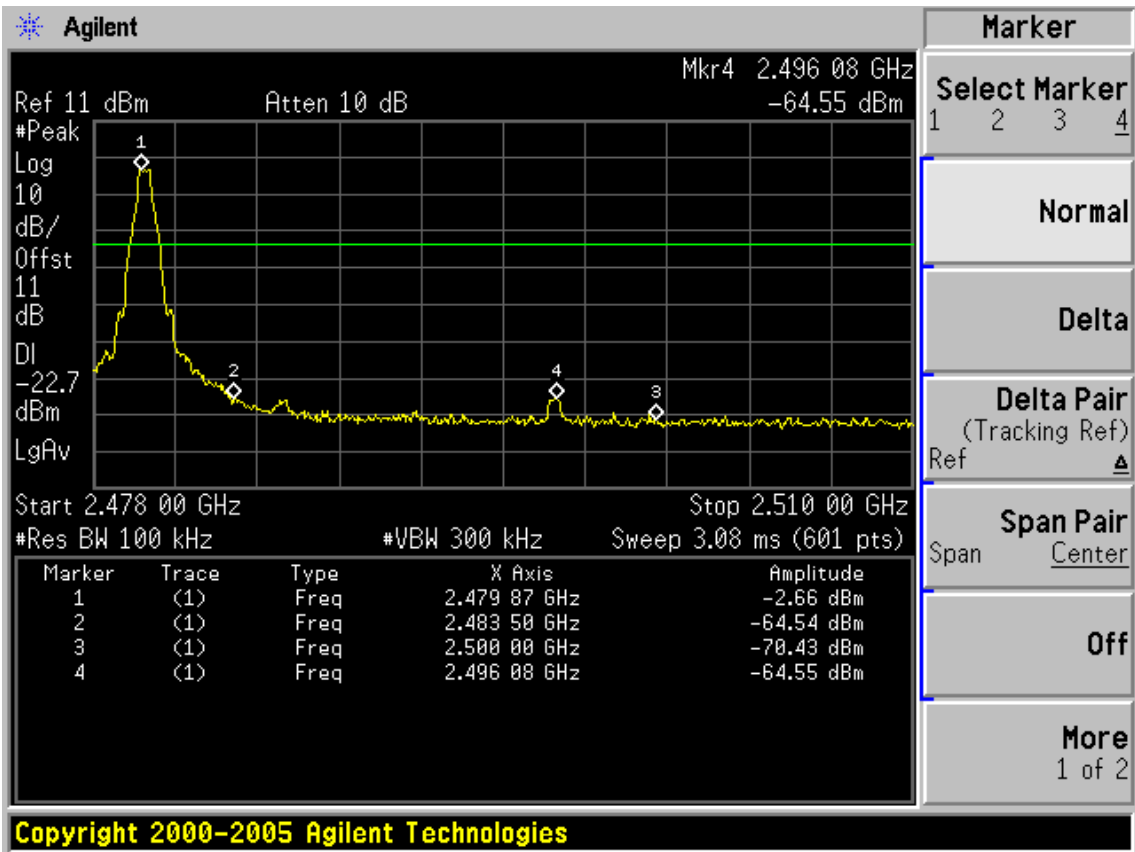
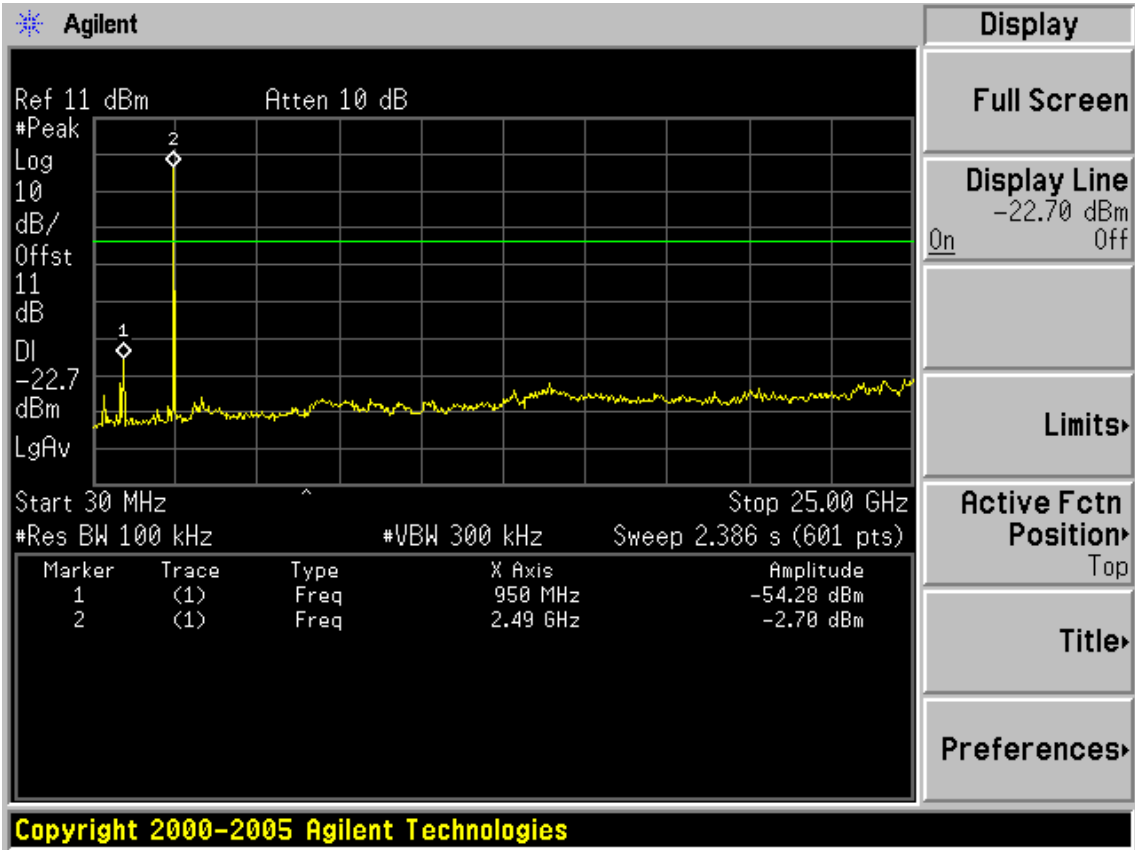
RBW=100KHz; VBW=300KHz; Detector: Peak; Sweep time: Auto

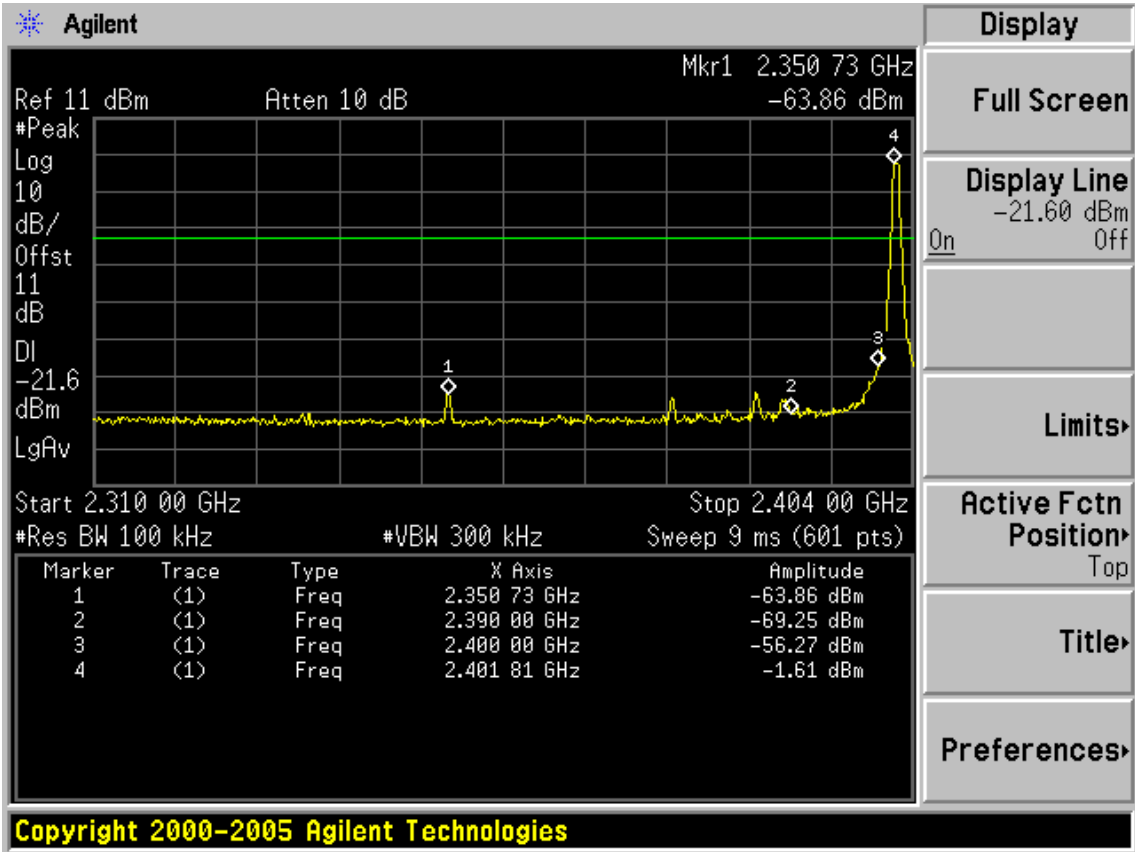
Note: The cable loss and attenuator loss were offset into spectrum analyzer as an amplitude offset.

5.4. Test result

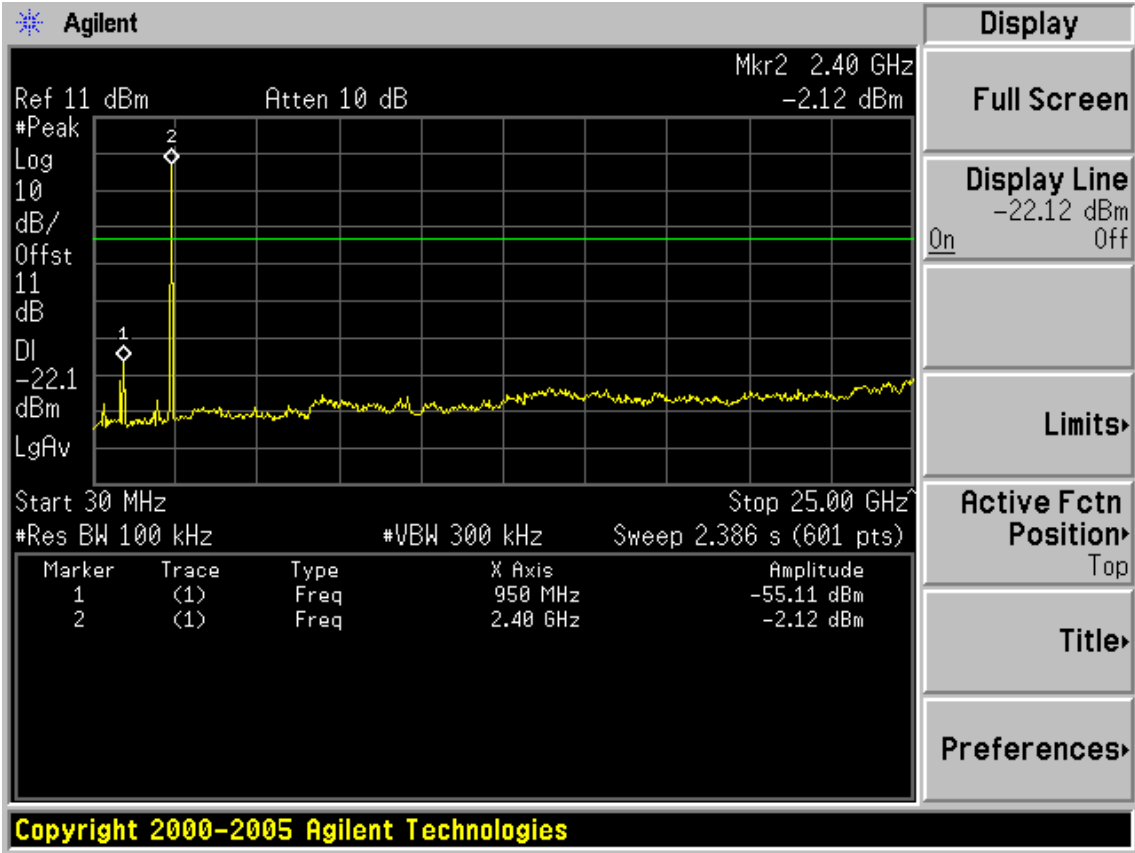
Test Mode: GFSK

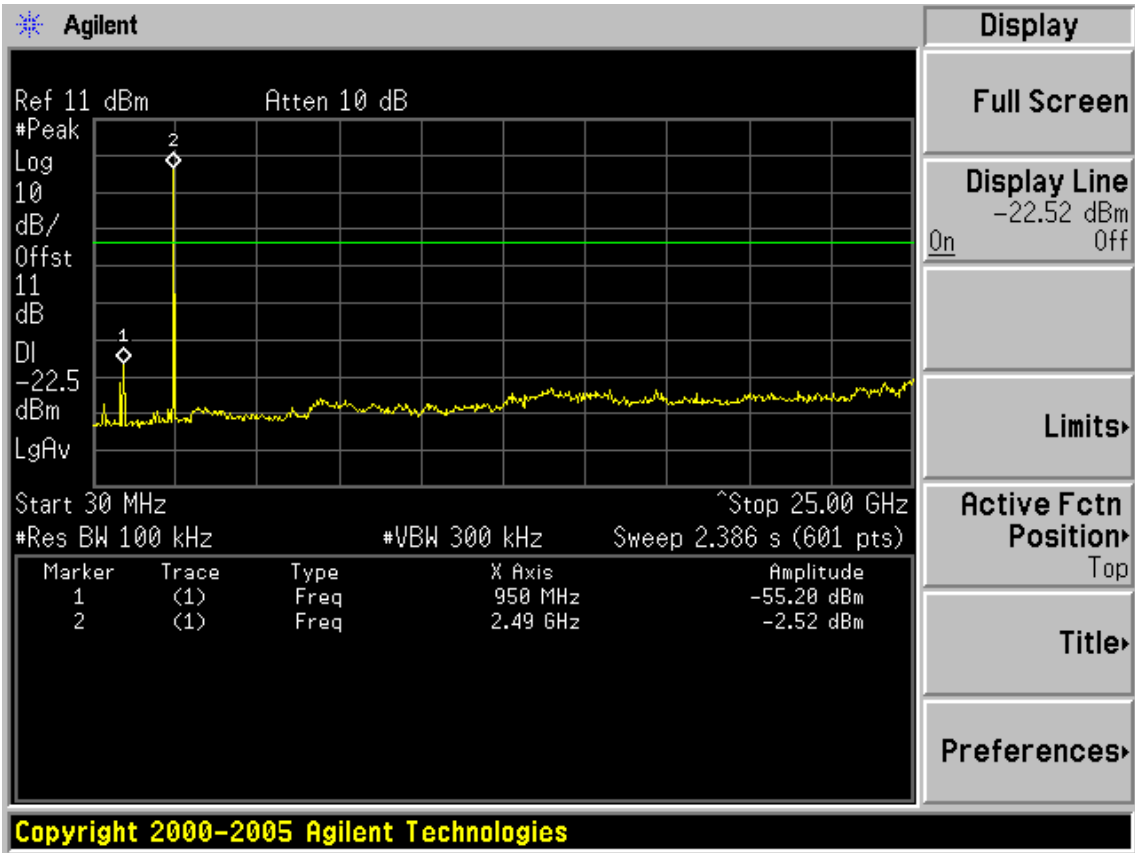
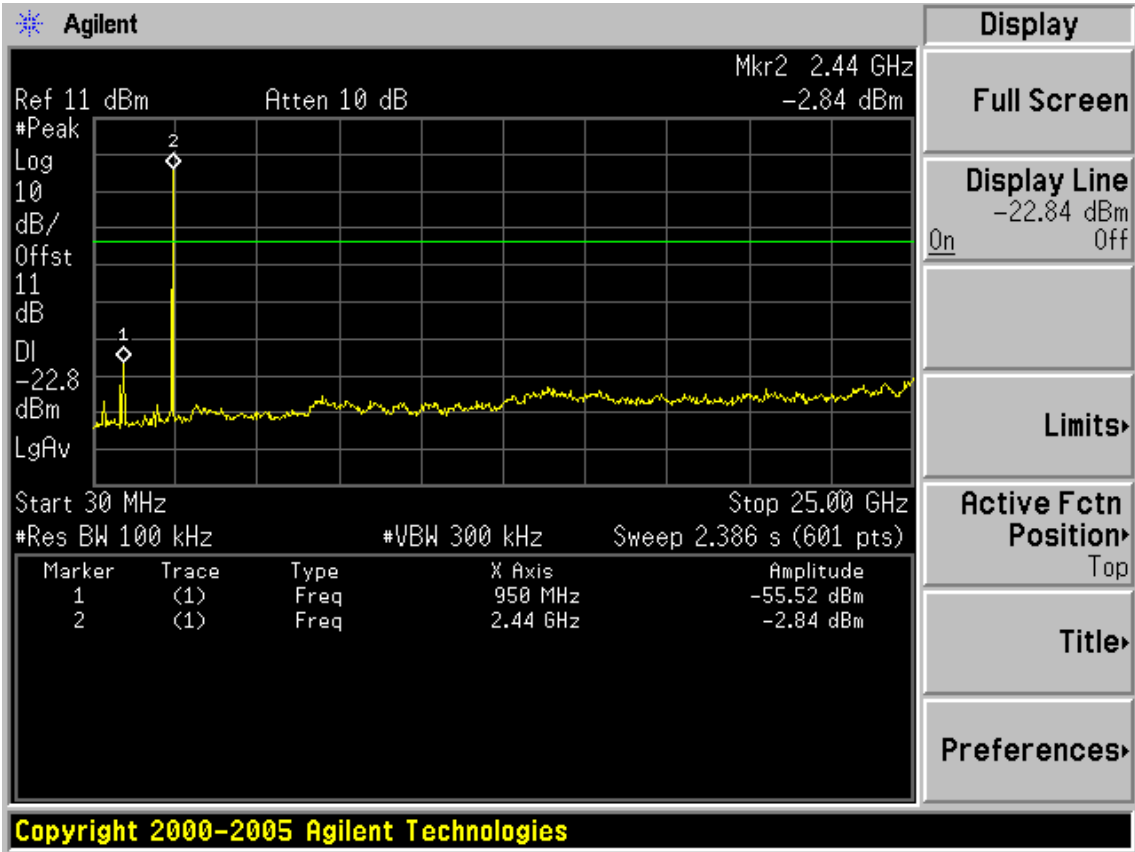


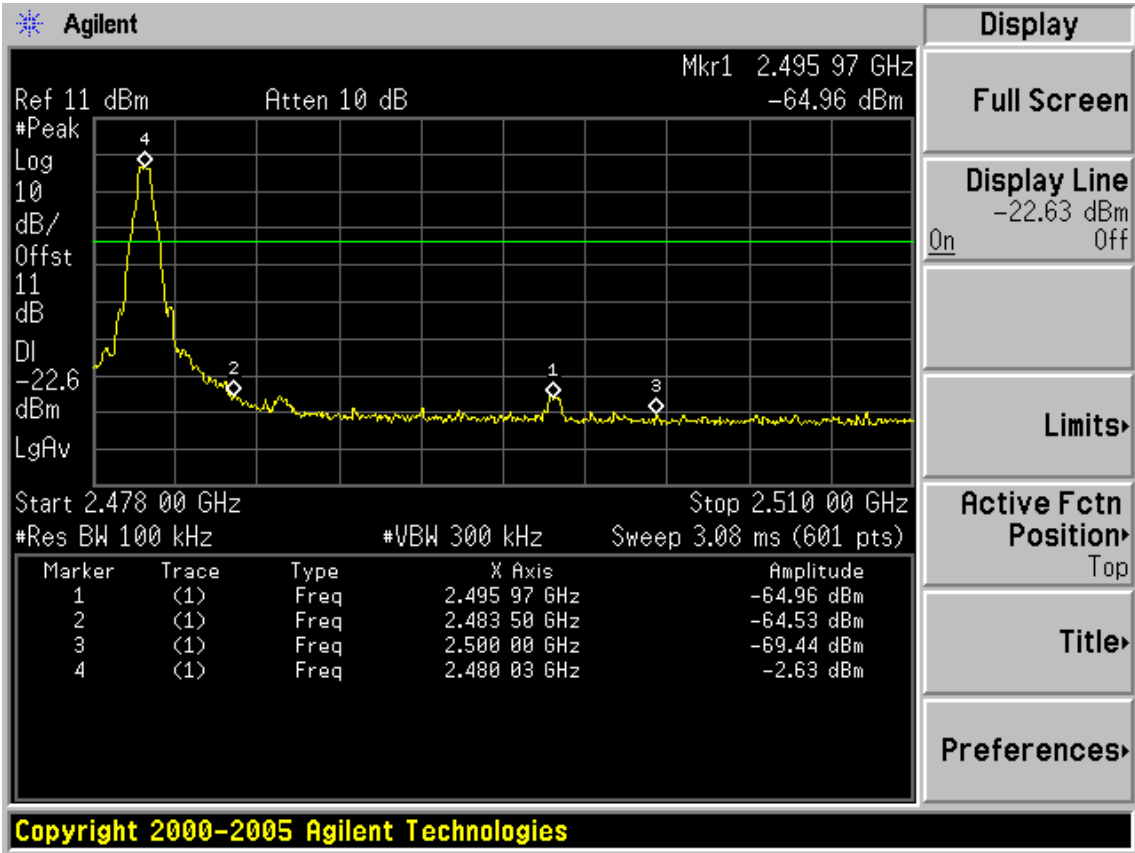
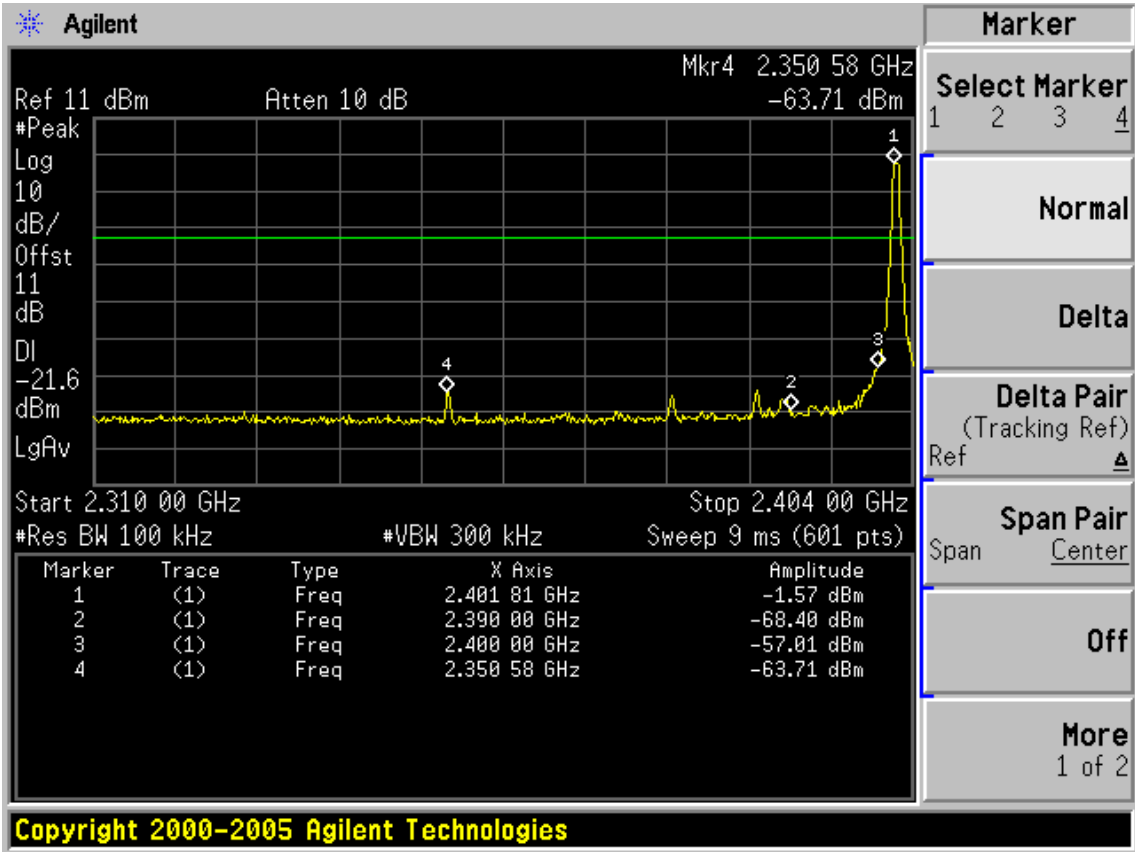




Test Mode: 8-DPSK







6. CARRIER FREQUENCY SEPARATION TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2.	RF Cable	Hubersuhner	SUCOFLE X102	28618/2	May.08,10	1 Year

6.2. Limit

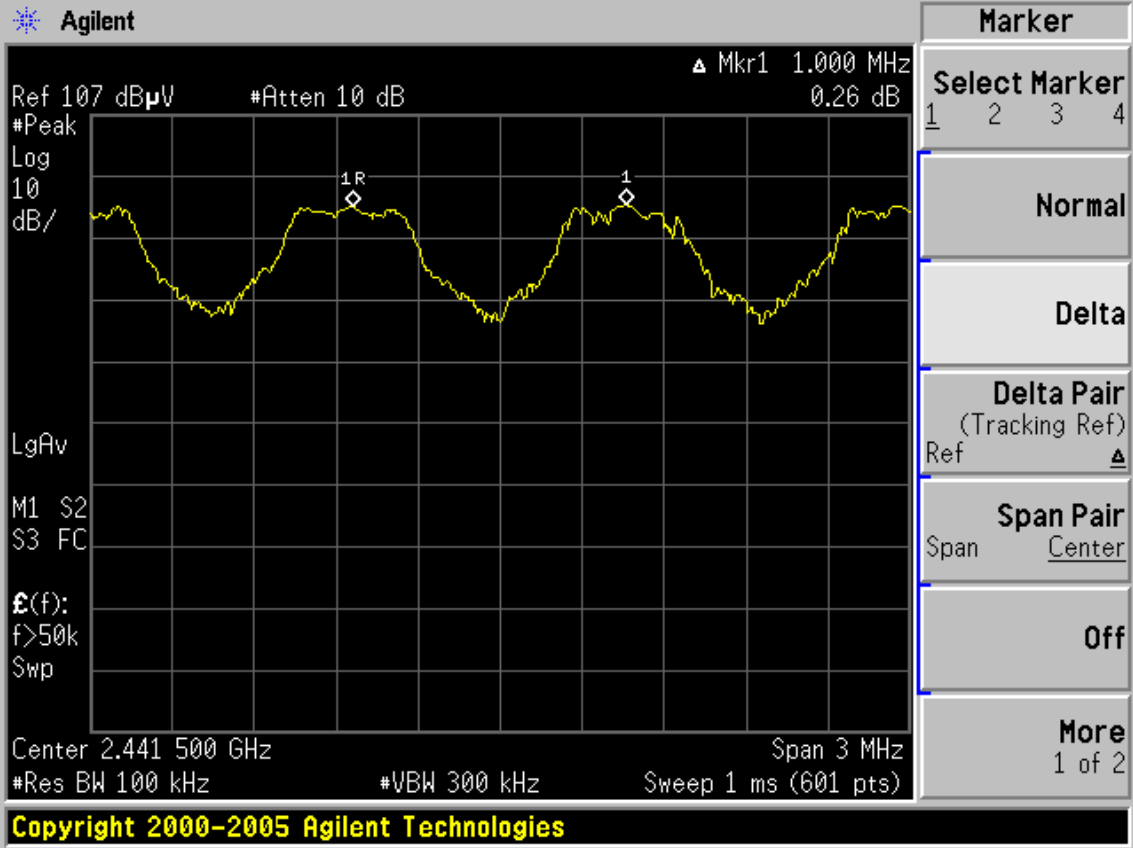
Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

6.3. Test Results.

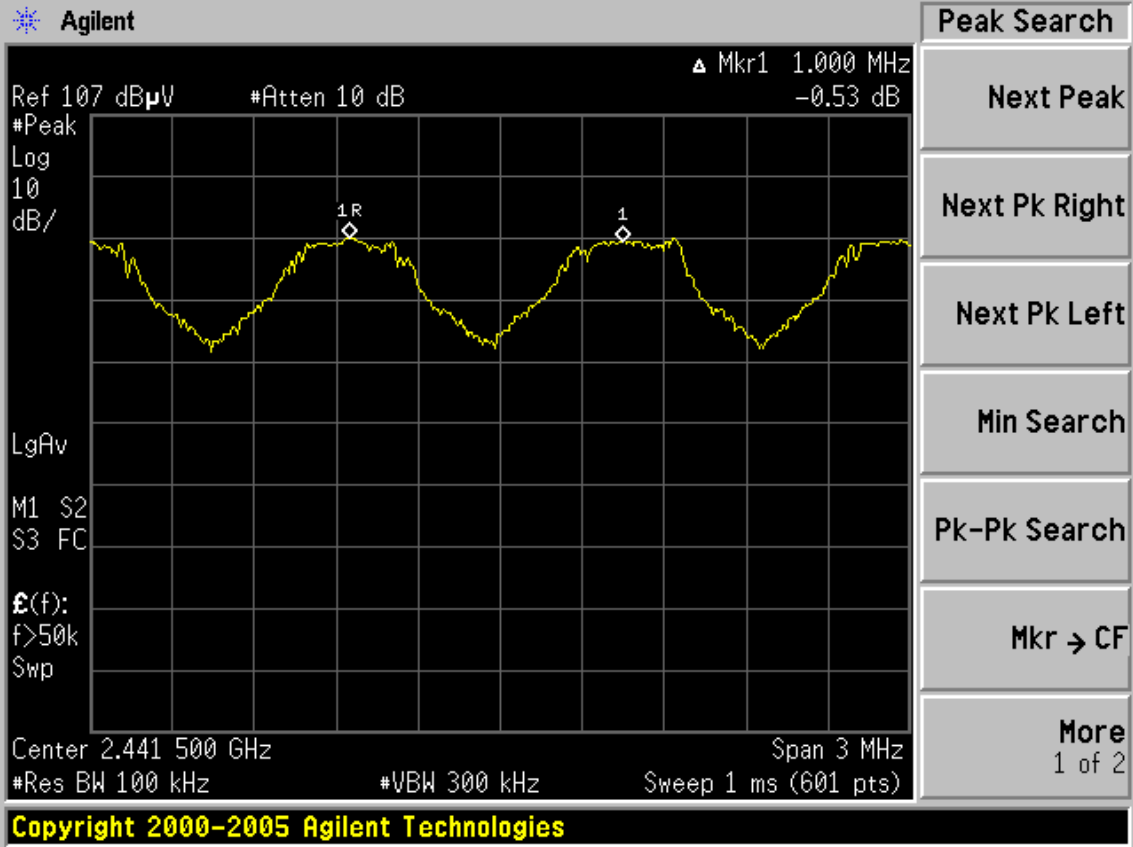
EUT: MuziLighter		
M/N: K220		
Test date:2010-08-10	Pressure:100.6 kpa	Humidity:53%
Tested by:Sunny Lu	Test site: RF site	Temperature:25 °C

Mode	Channel separation	Conclusion
GFSK	1.00MHz	PASS
8-DPSK	1.00MHz	PASS

Mode: GFSK



Mode: 8-DPSK



7. 20 DB BANDWIDTH TEST

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,10	1 Year
2.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,10	1Year

7.2. Limit

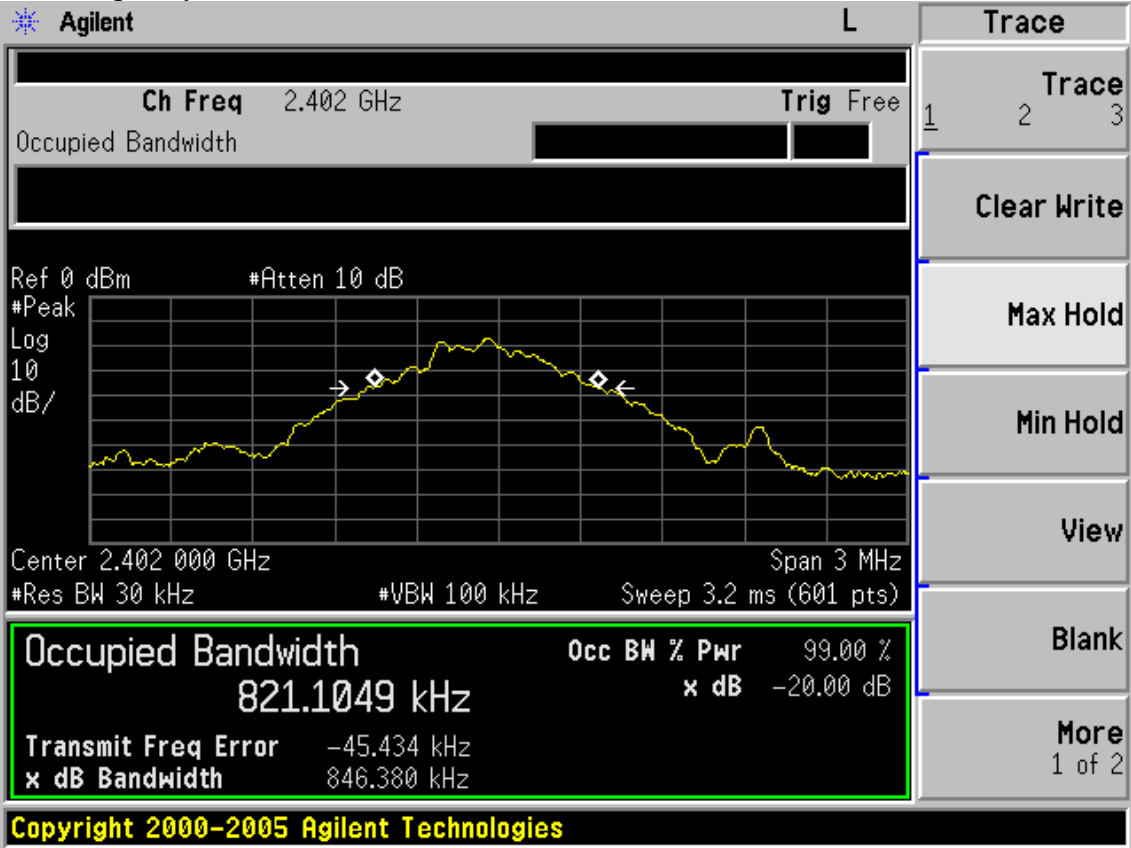
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

7.3. Test Results

EUT: MuziLighter		
M/N: K220		
Test date: 2010-08-10	Pressure:100.6 kpa	Humidity:52 %
Tested by: Sunny Lu	Test site: RF site	Temperature : 25 °C

Mode	Frequency (MHz)	20dB bandwidth (KHz)	Limit (KHz)
GFSK	2402	846.380	NA
	2441	849.954	NA
	2480	856.662	NA
8-DPSK	2402	1202	NA
	2441	1209	NA
	2480	1207	NA
Conclusion : PASS			

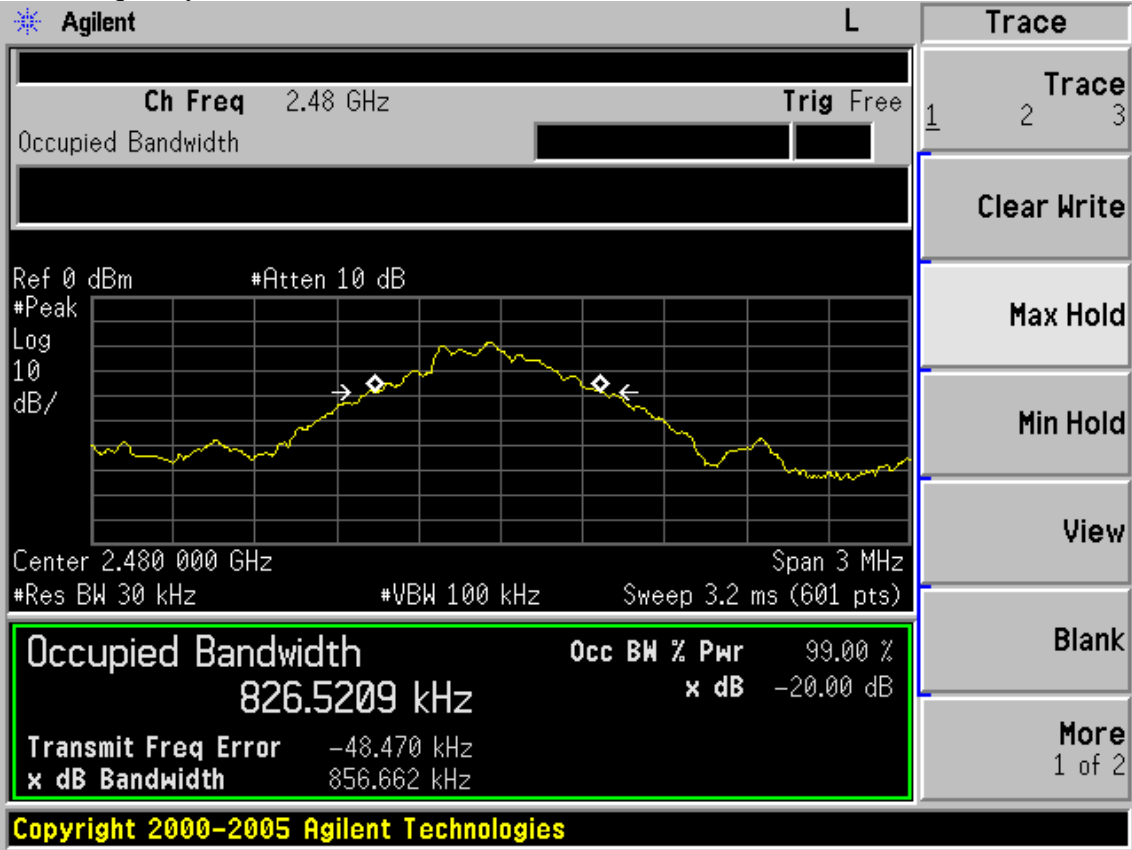
Test Mode: GFSK
Test Frequency: 2402MHz



Test Frequency: 2441MHz

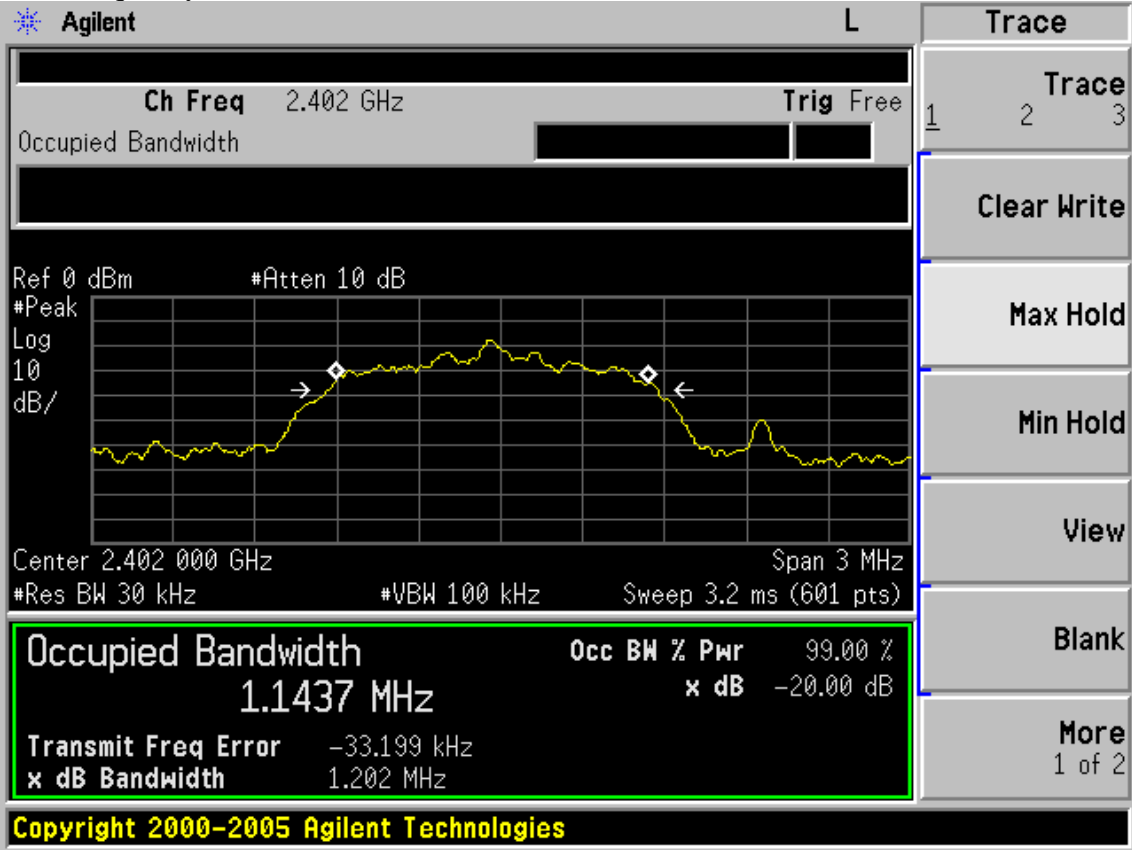


Test Frequency: 2480MHz

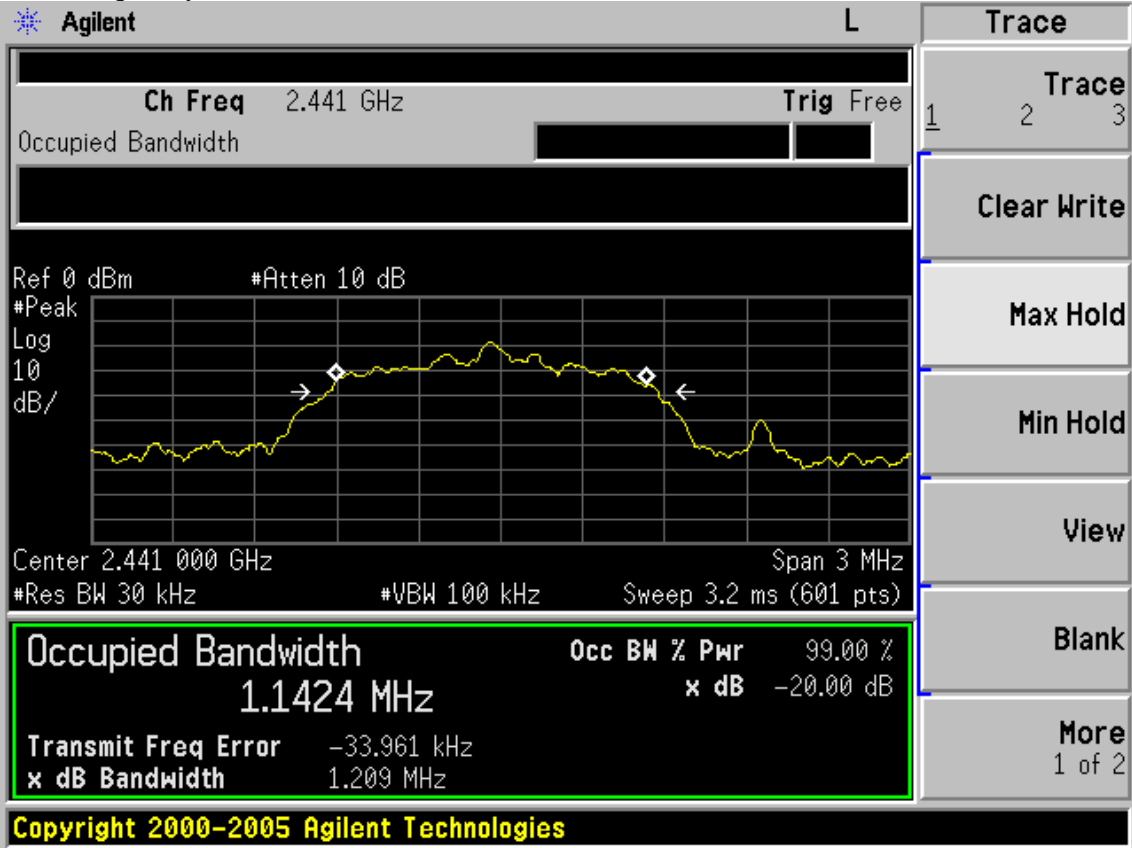


Test Mode: 8-DPSK

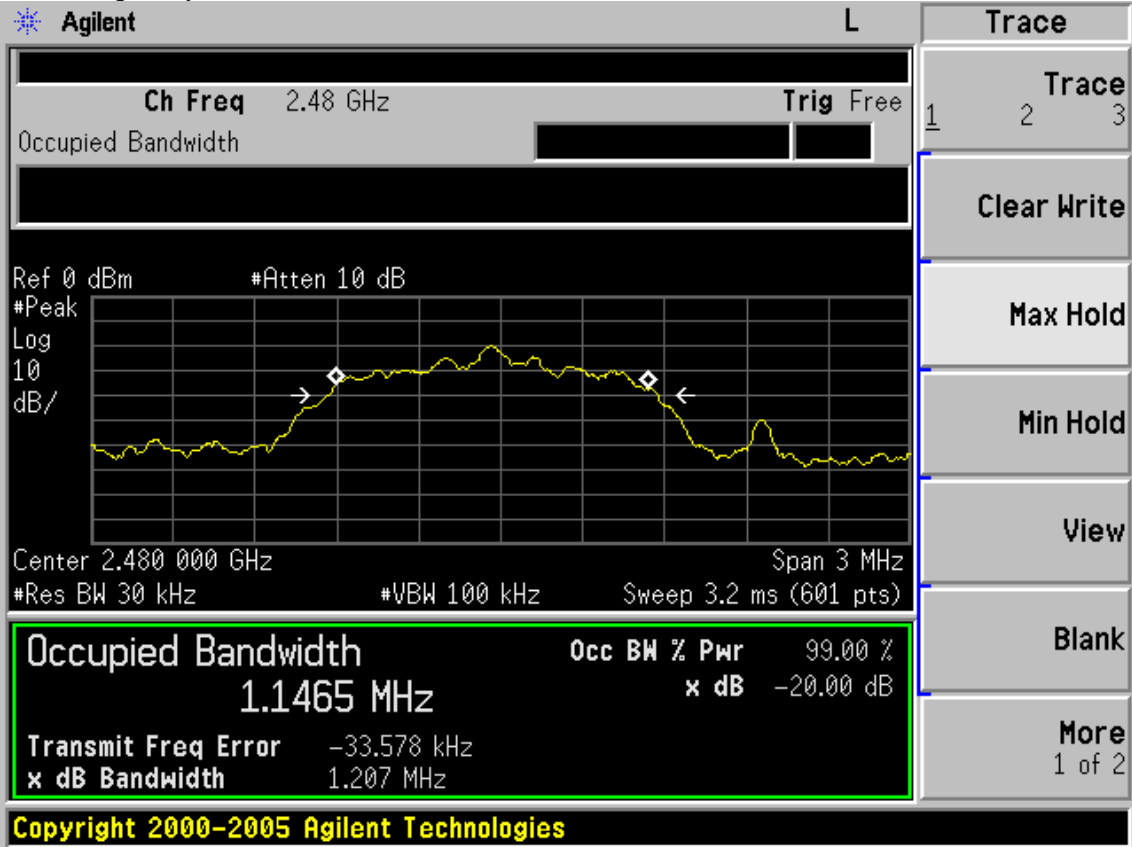
Test Frequency: 2402MHz



Test Frequency: 2441MHz



Test Frequency: 2480MHz



8. NUMBER OF HOPPING FREQUENCY TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May,08, 10	1Year

8.2. Limit

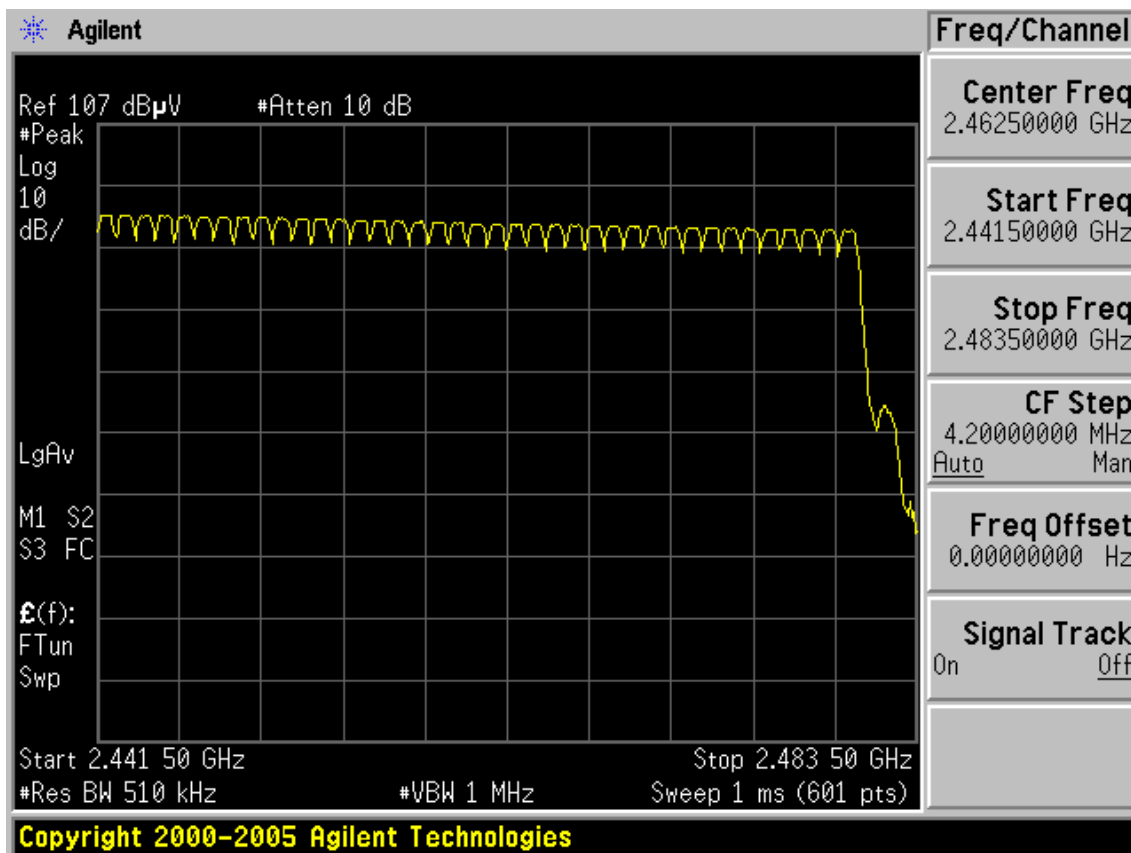
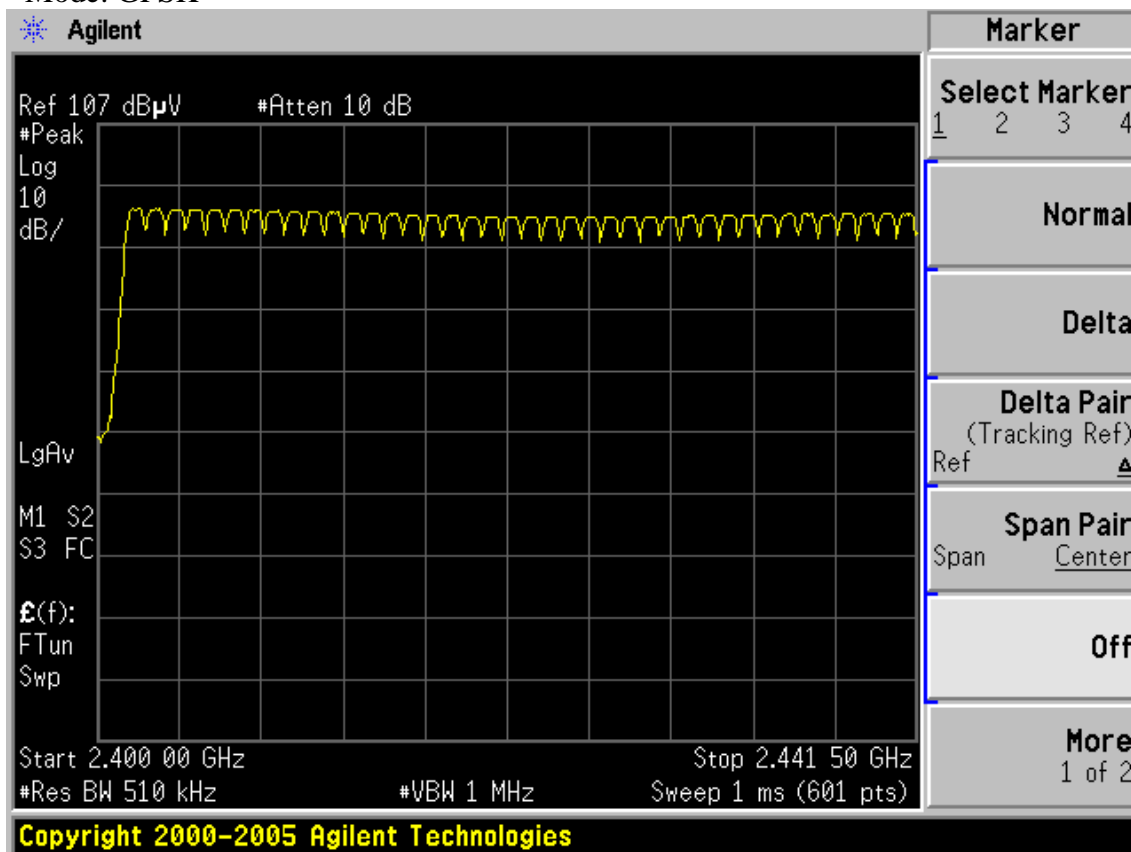
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

8.3. Test Result

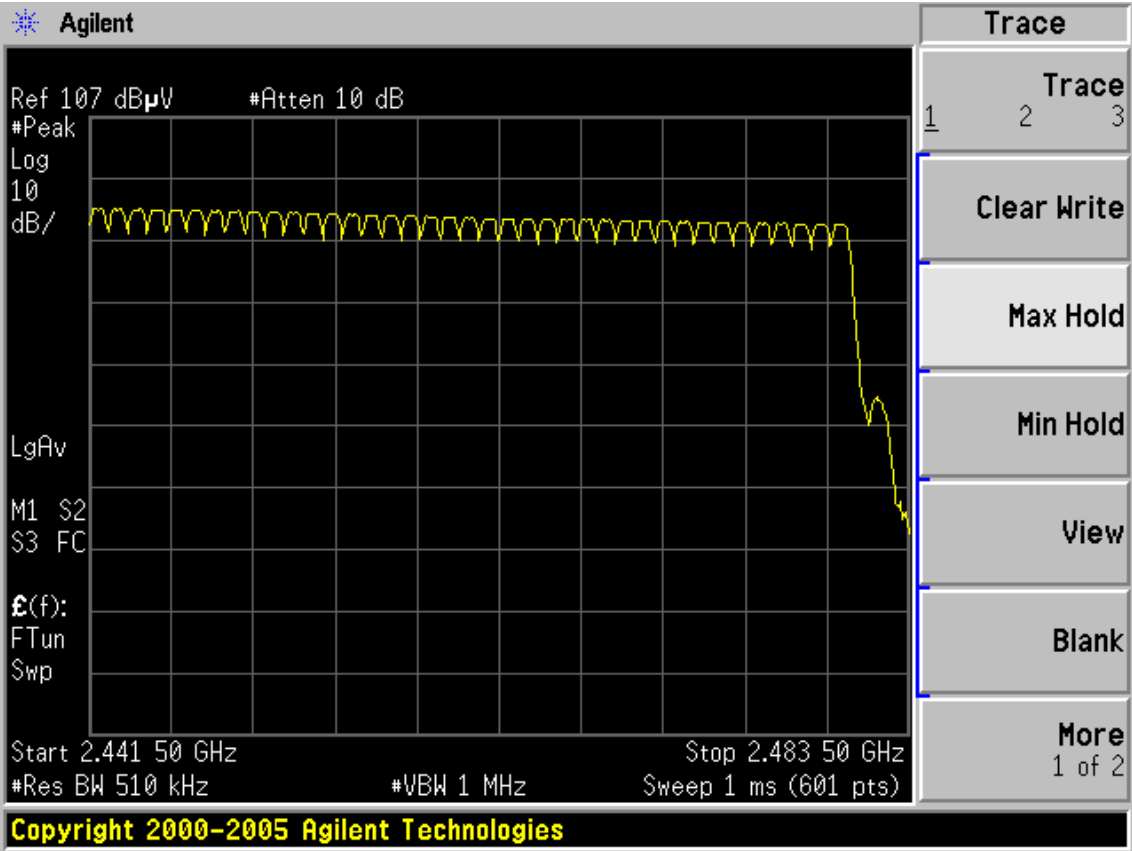
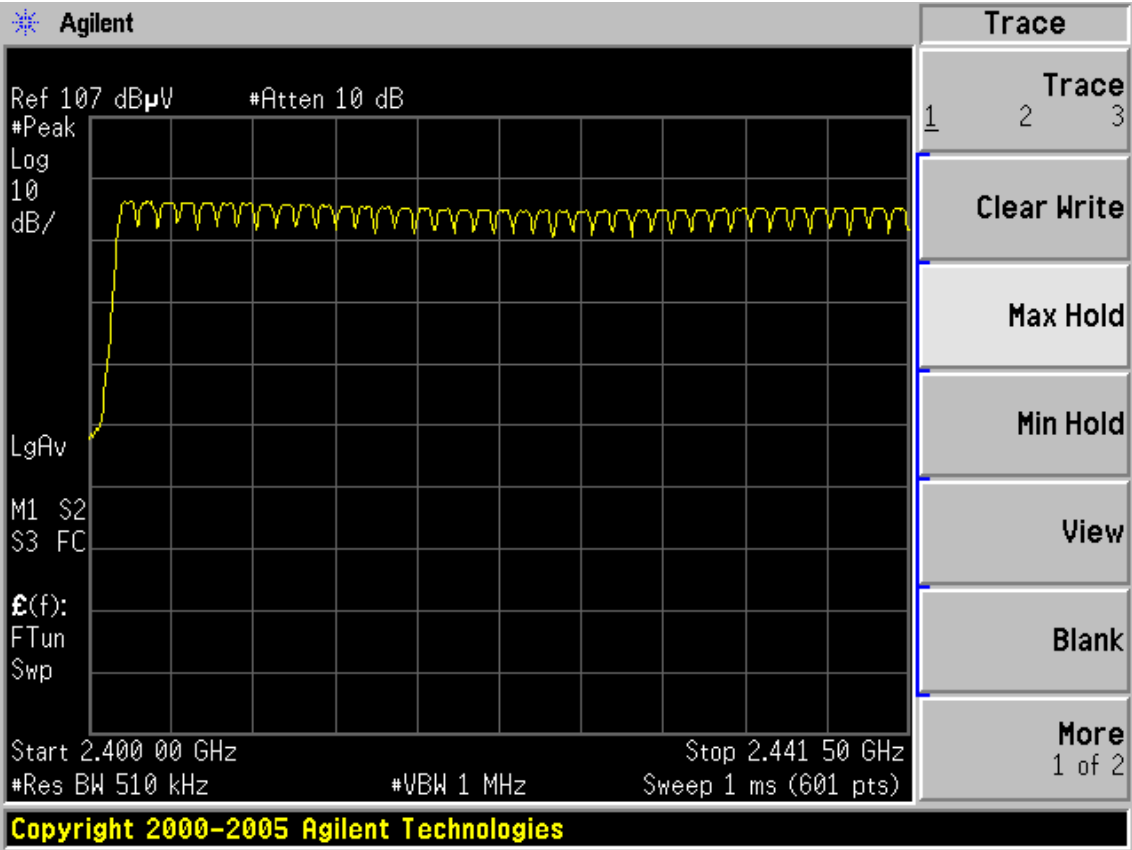
EUT: MuziLighter		
M/N: K220		
Test date:2010-08-10	Pressure:100.6 kpa	Humidity:53%
Tested by: Sunny Lu	Test site: RF site	Temperature:25 °C

Number of channel	Limit	Conclusion
79	>=15	PASS

Mode: GFSK



Mode: 8DPSK



9. DWELL TIME

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May,08, 10	1Year

9.2. Limit

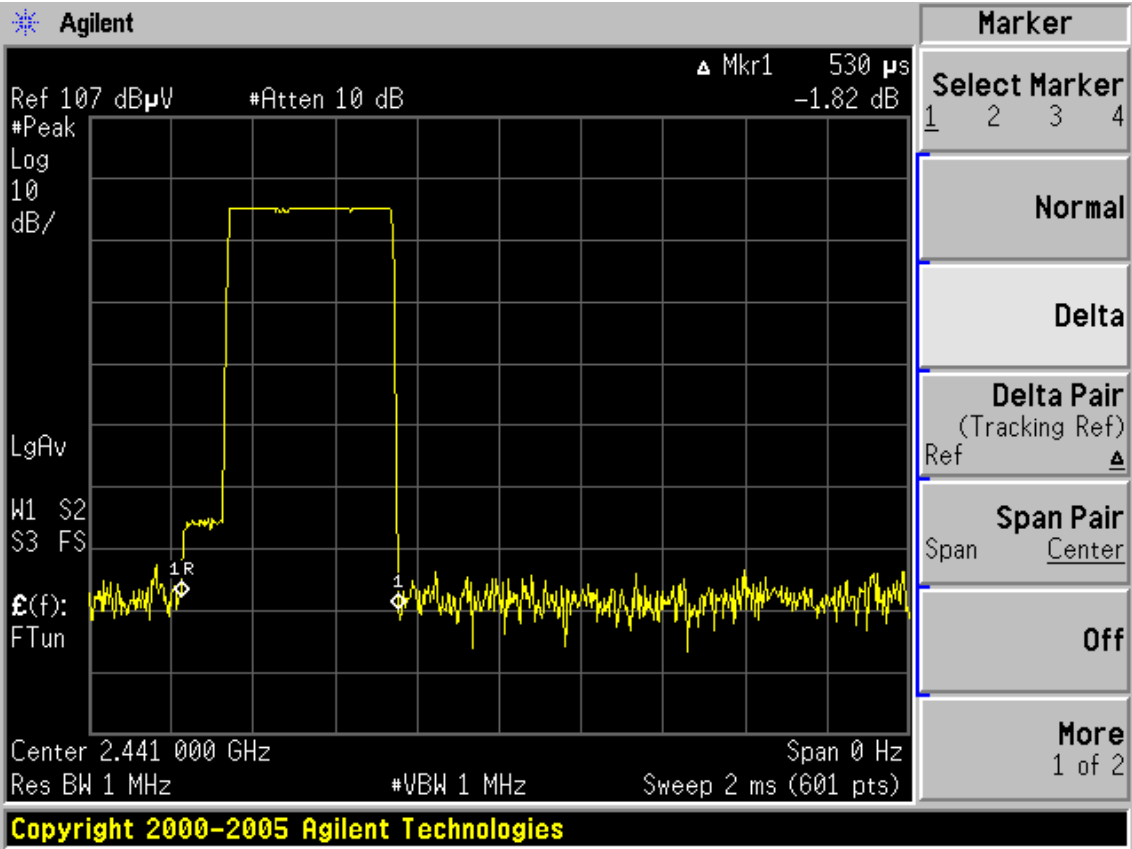
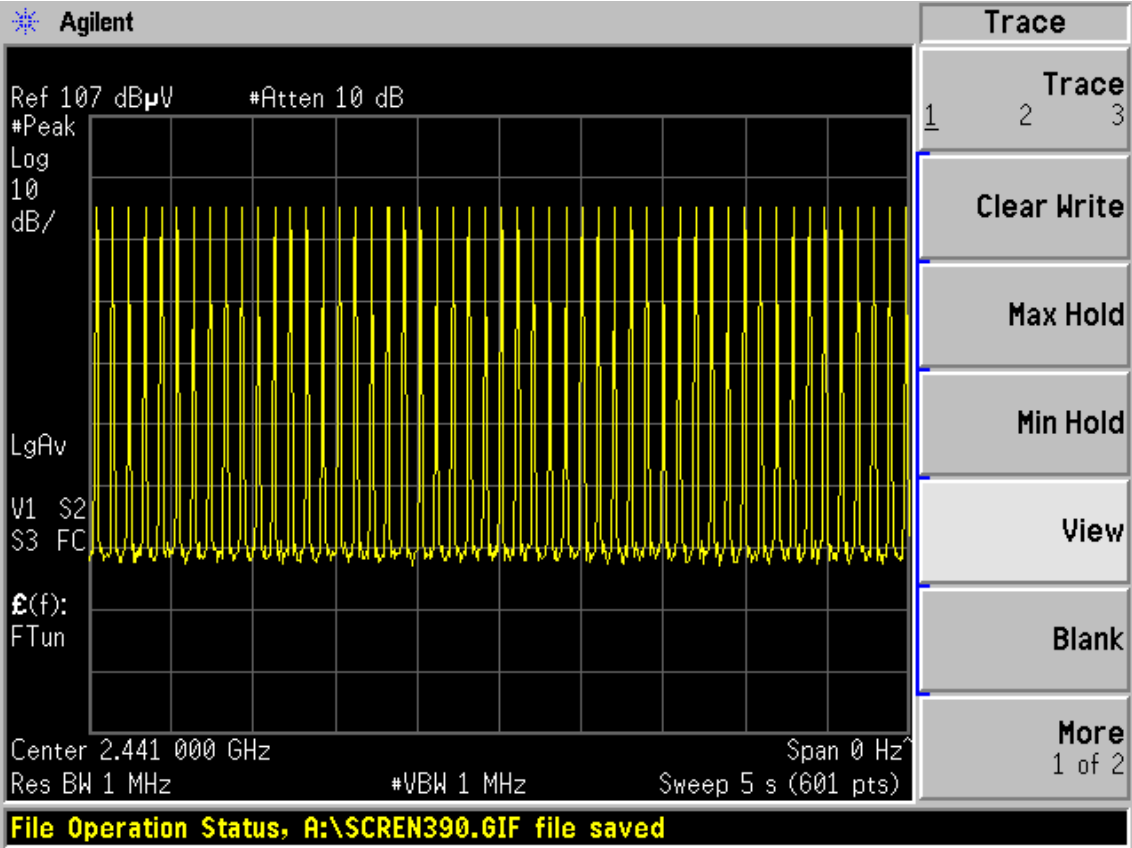
The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3. Test Results

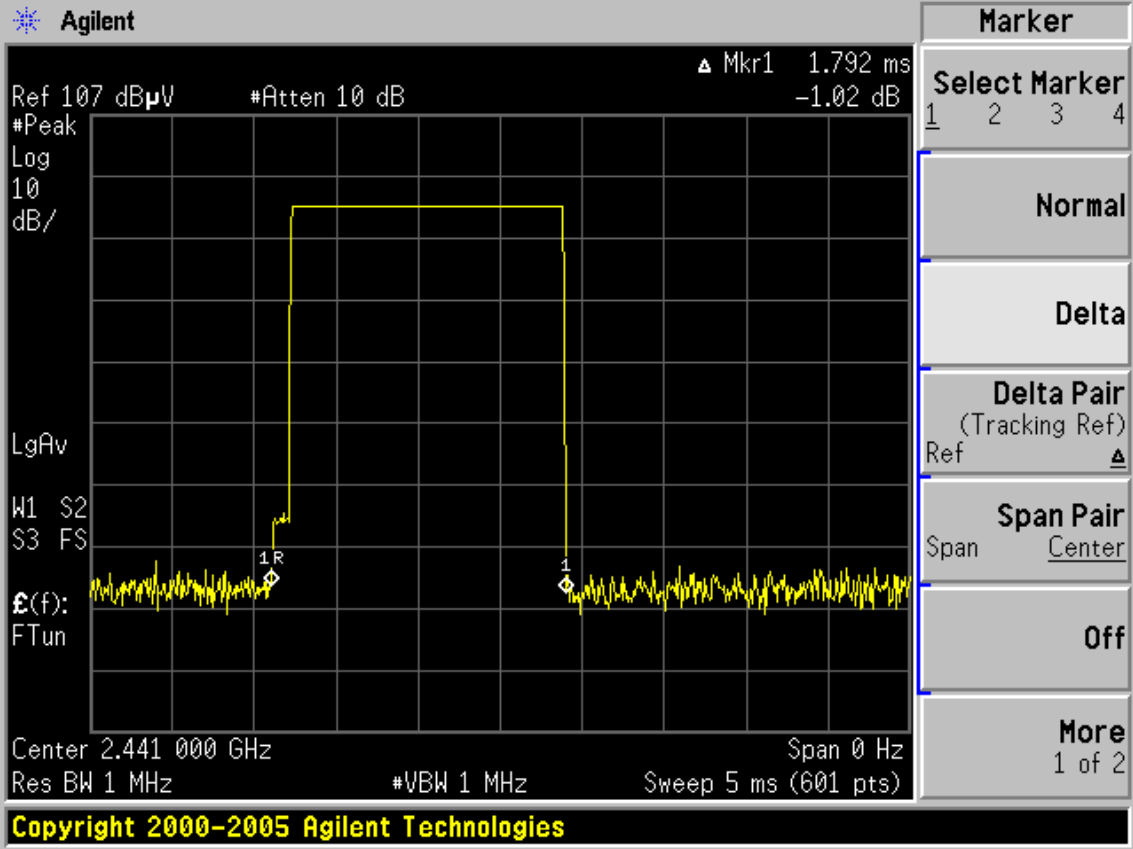
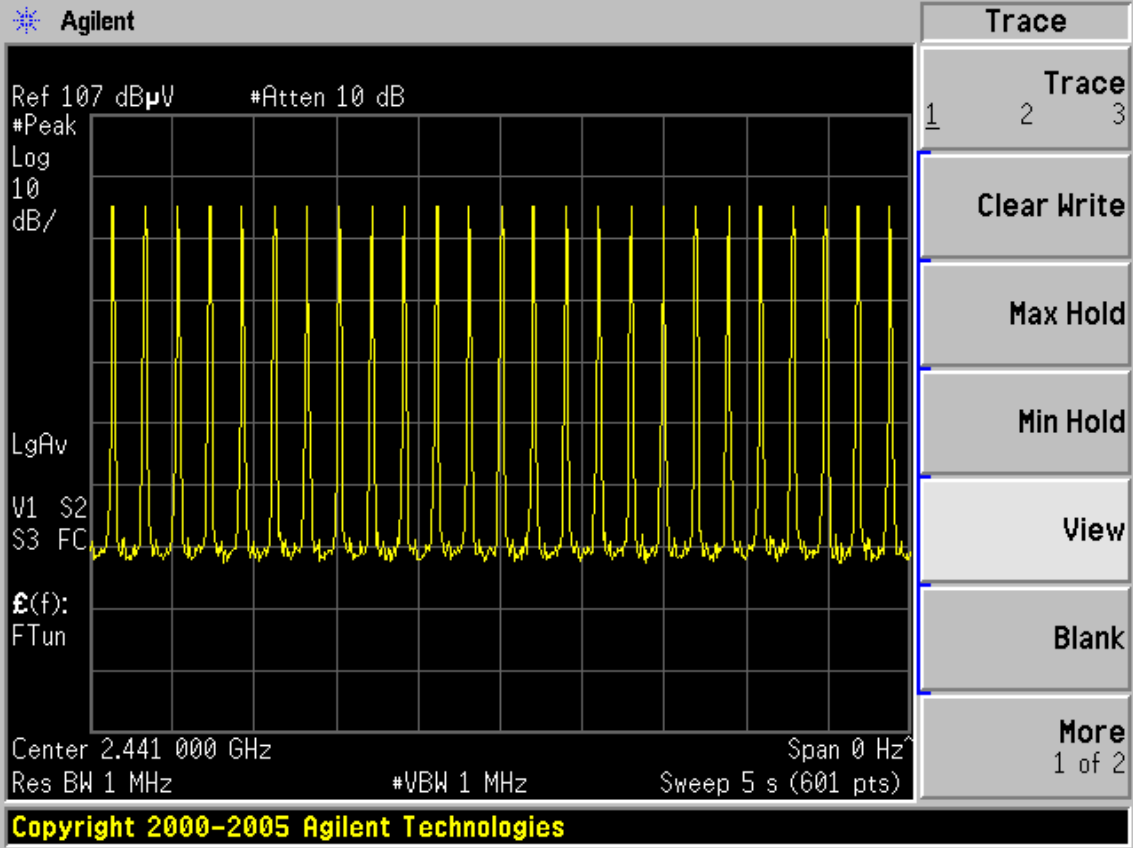
EUT: MuziLighter		
M/N: K220		
Test date: 2010-08-10	Pressure: 100.6 kpa	Humidity: 53%
Tested by: Sunny Lu	Test site: RF site	Temperature: 25 °C

Mode	dwel time	Limit
DH1	$51\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 0.53\text{ms} = 170.83\text{ms}$	<400ms
DH3	$25\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 1.792\text{ms} = 283.14\text{ms}$	<400ms
DH5	$17\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 2.95\text{ms} = 316.95\text{ms}$	<400ms
3-DH1	$50\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 0.44\text{ms} = 139.04\text{ms}$	<400ms
3-DH3	$25\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 1.7\text{ms} = 268.6\text{ms}$	<400ms
3-DH5	$17\text{hops}/5\text{s} \times 0.4 \times 79\text{chanel s} \times 3.05\text{ms} = 327.69\text{ms}$	<400ms
Conclusion: PASS		

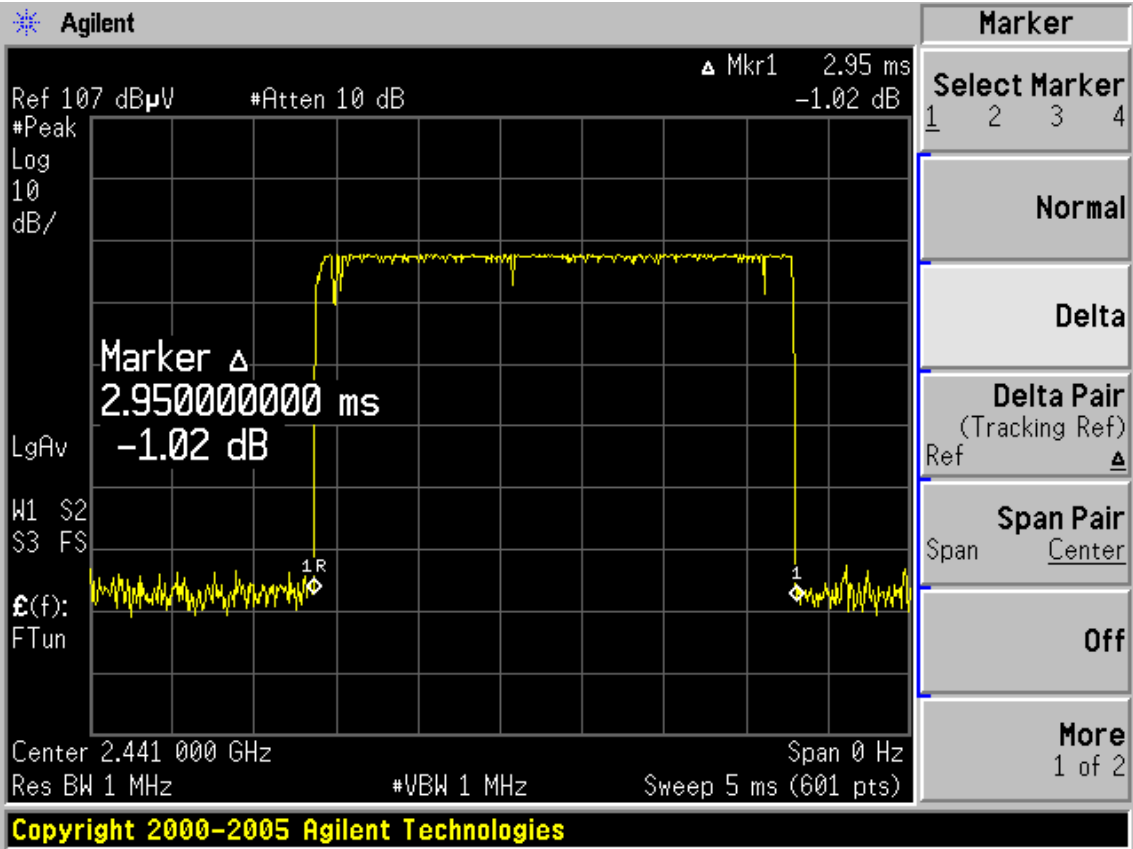
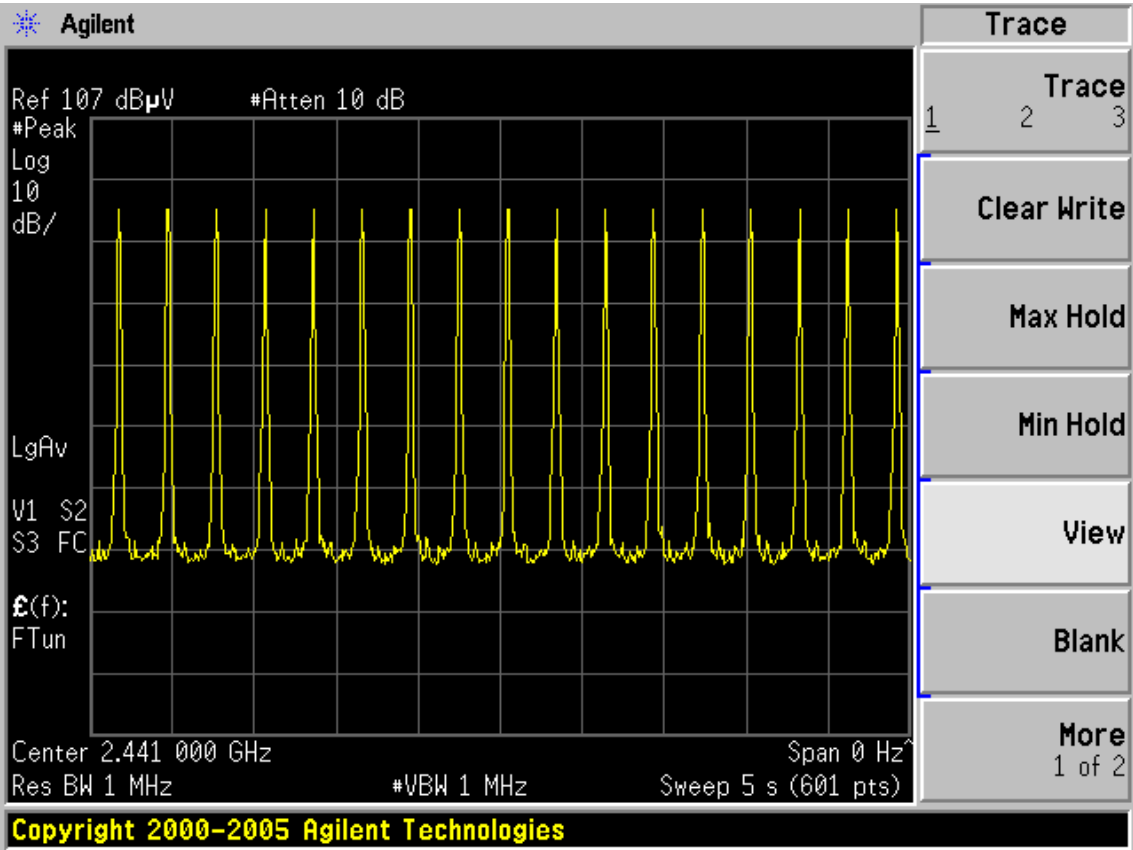
Modulation: GFSK
DH 1



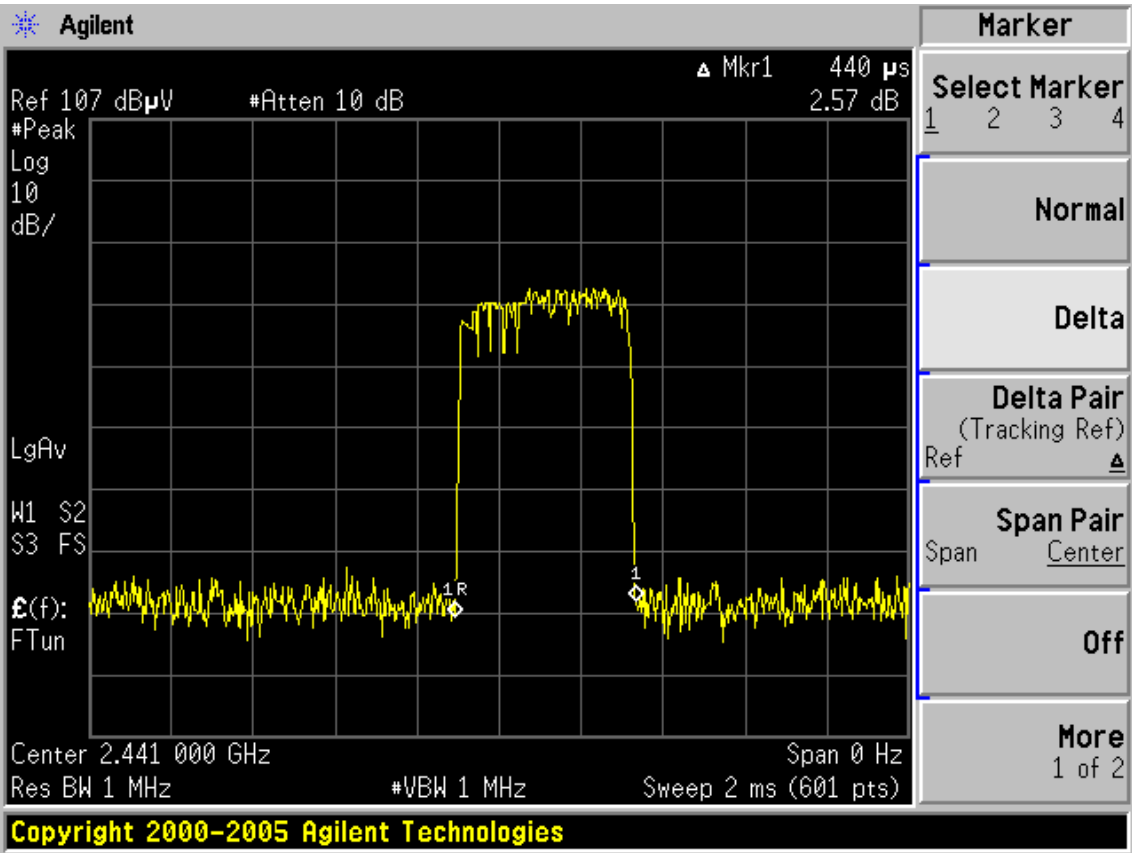
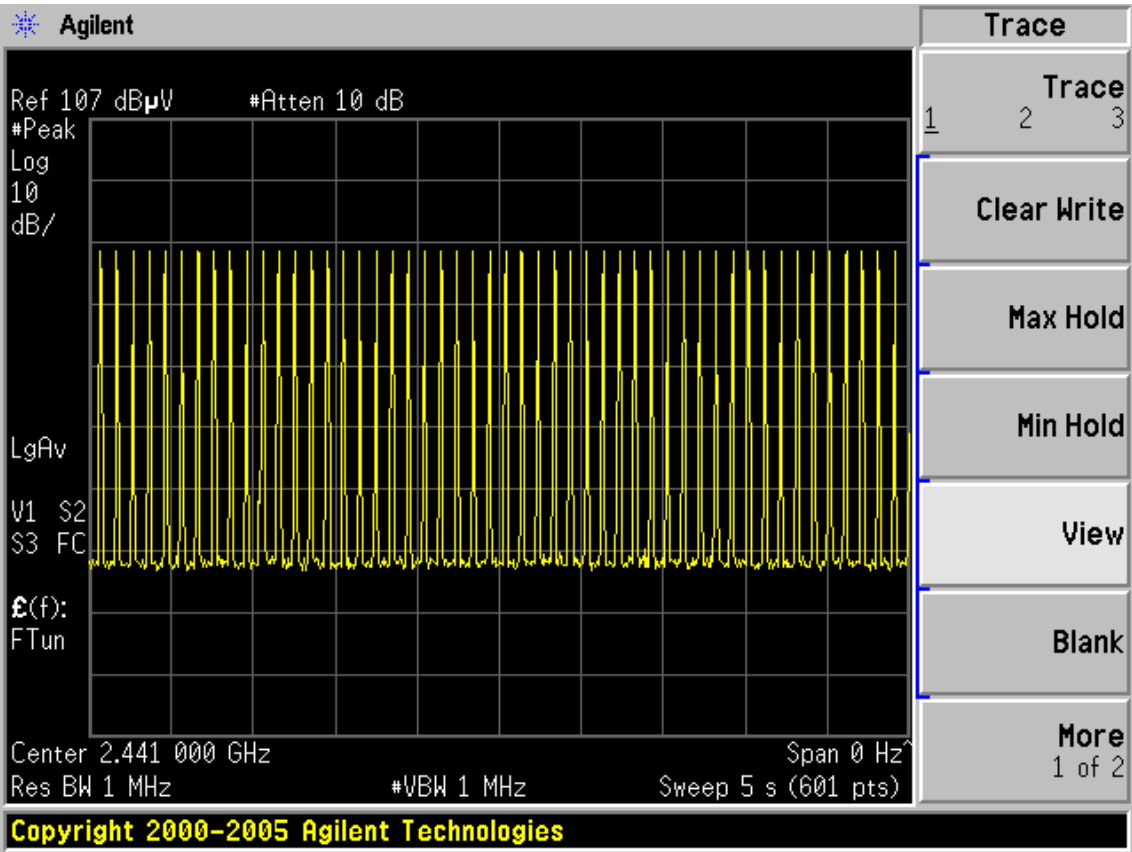
DH 3



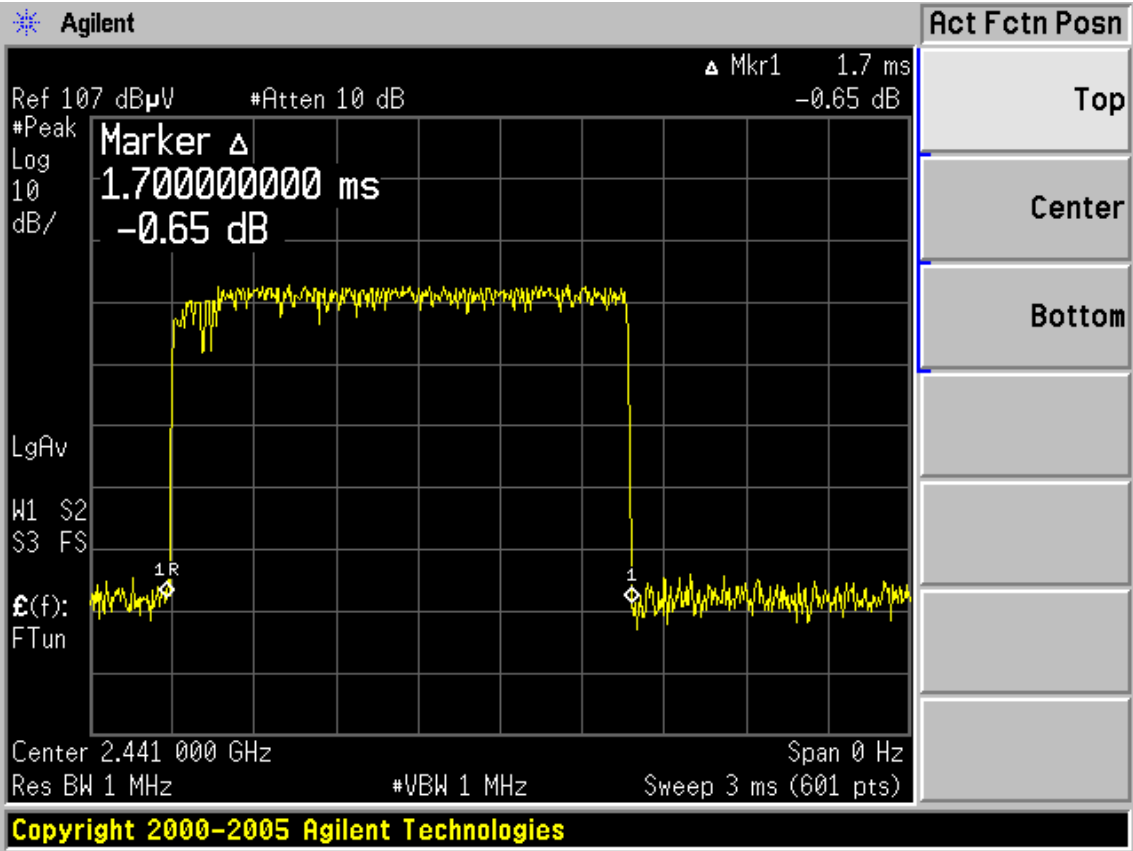
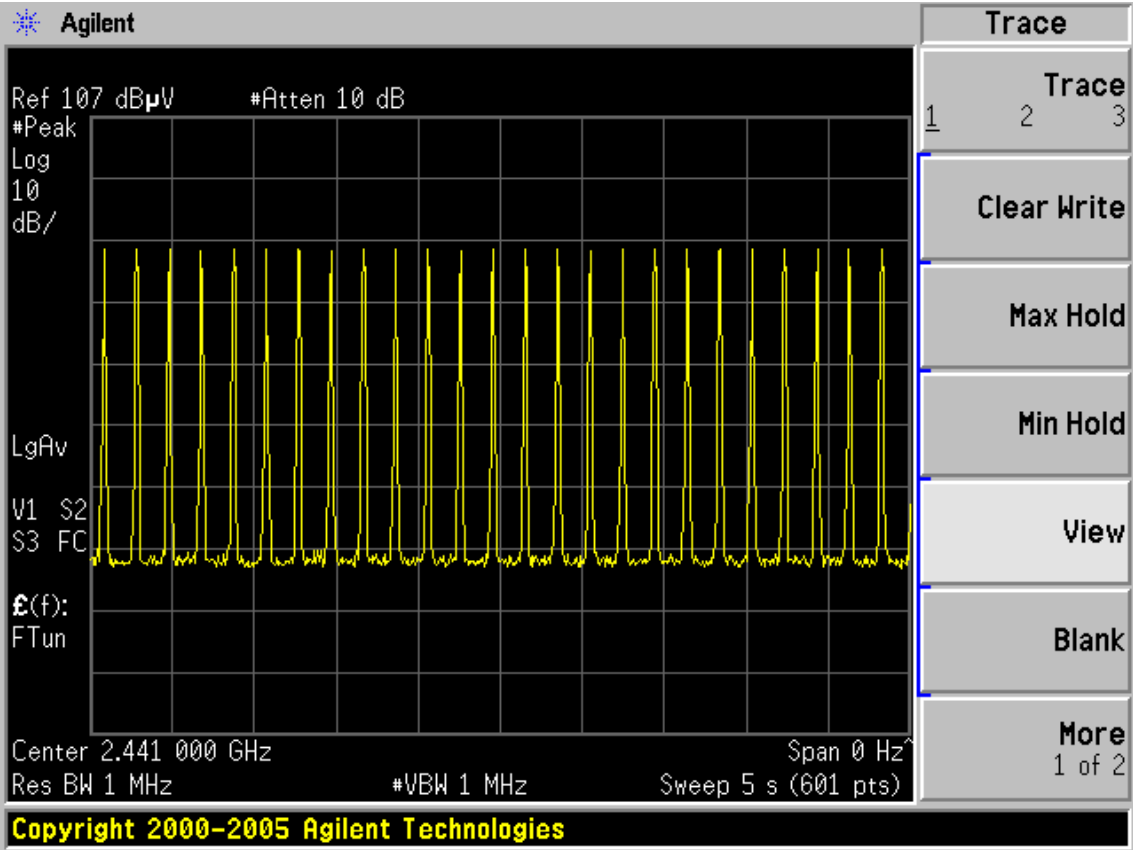
DH 5



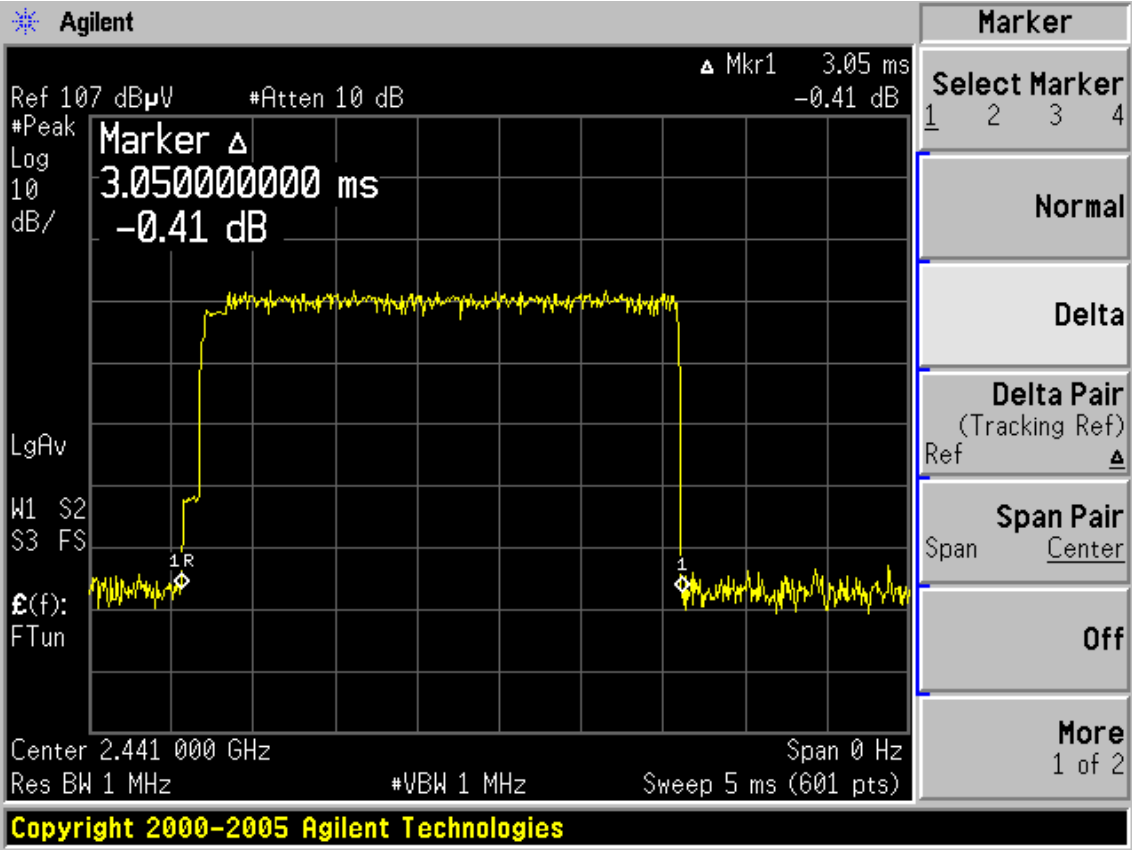
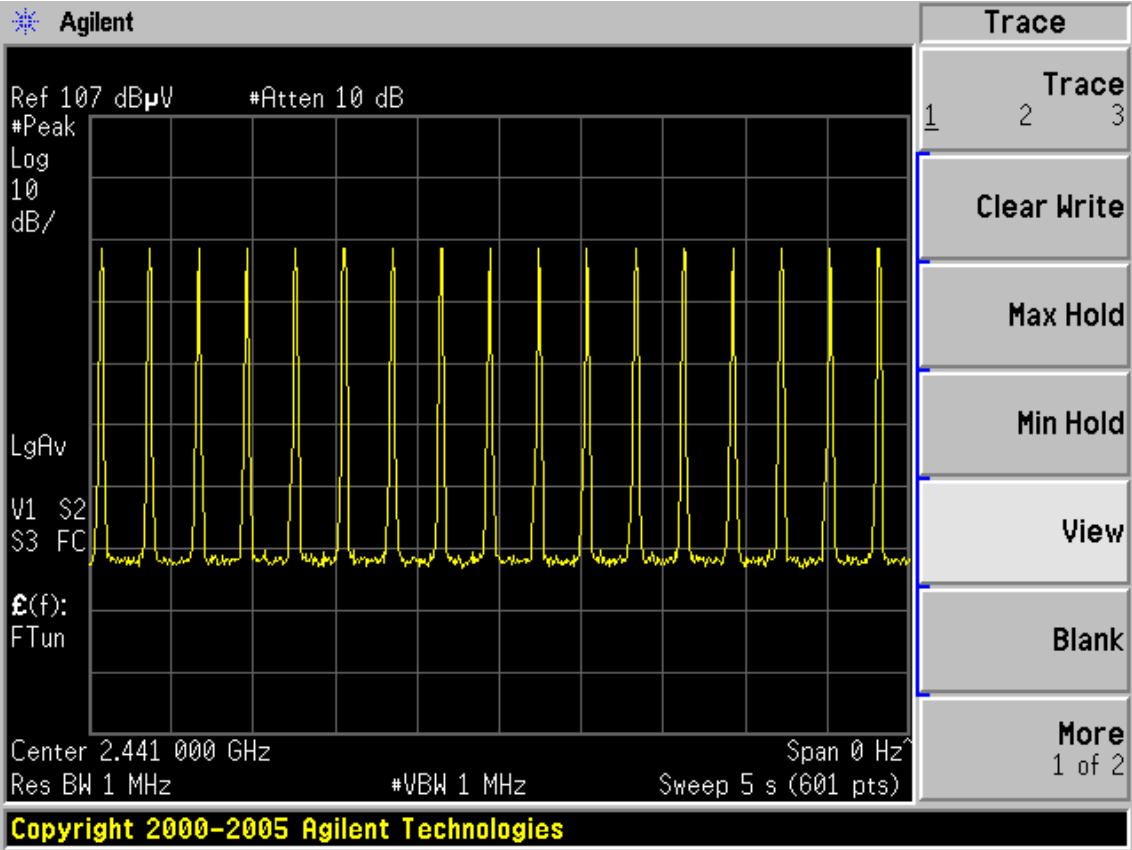
Modulation: 8-DPSK
3-DH 1



3-DH3



3-DH5



10. MAXIMUM PEAK OUTPUT POWER TEST

10.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May.08, 10	1 Year
2.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year

10.2. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.3. Test Procedure

- 1, Connected the EUT's antenna port to Spectrum analyzer
- 2, Set Spectrum analyzer's RBW=2MHz, VBW=3MHz, measure the PK output power of device.

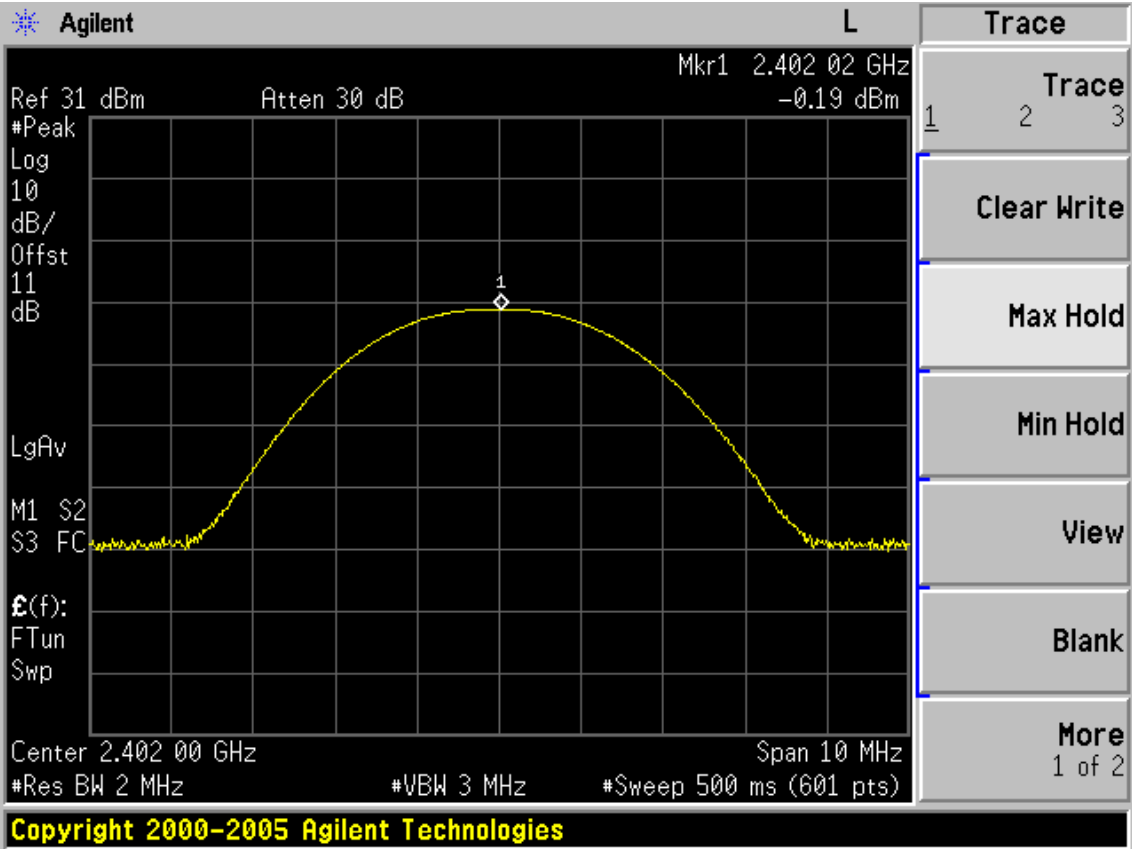
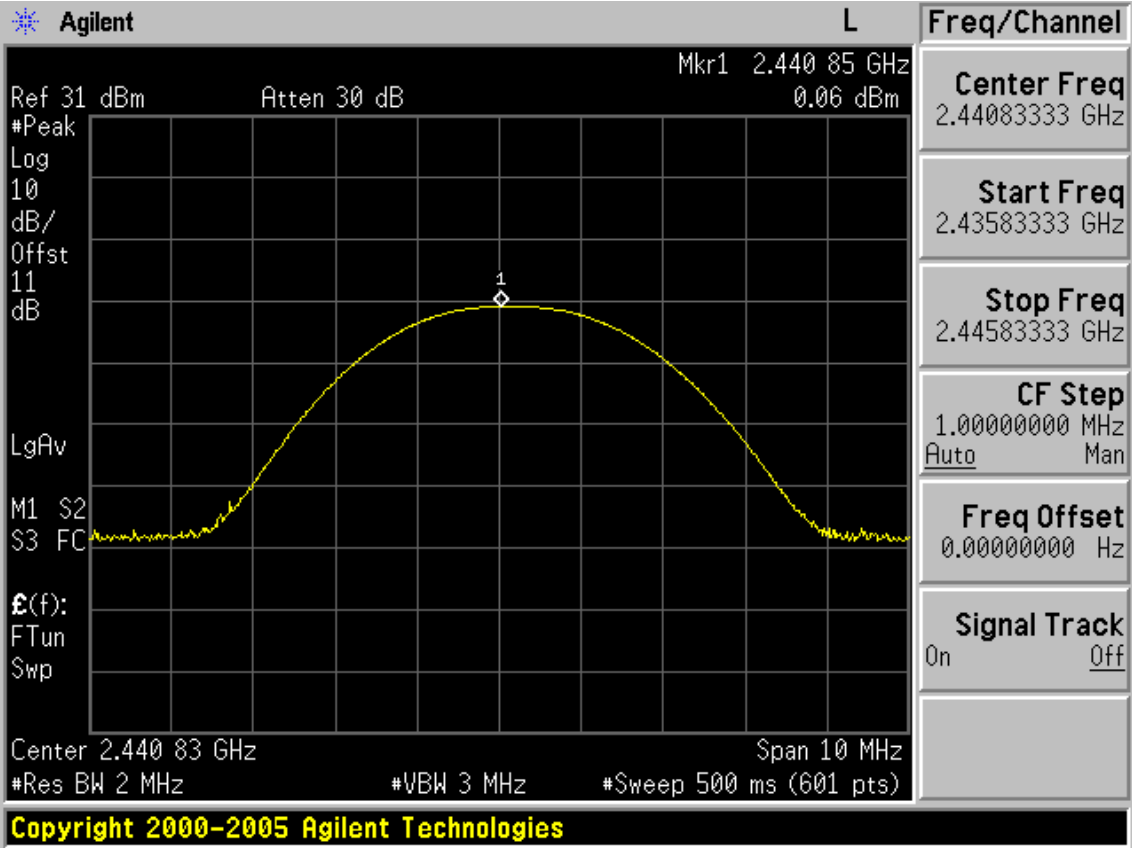
Note: The cable loss was offset into measure device as an amplitude offset.

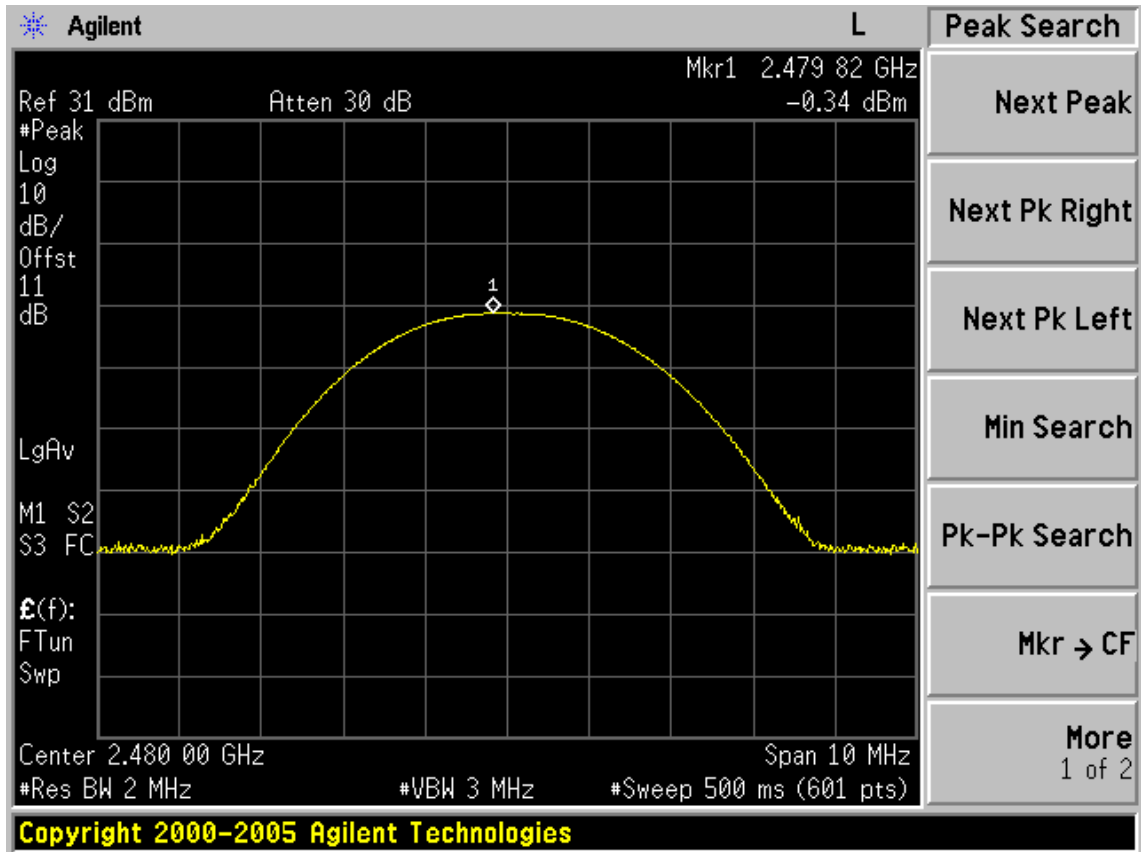
10.4. Test Results

EUT: MuzilLighter		
M/N: K220		
Test date: 2010-08-10	Pressure: 100.1 kpa	Humidity: 60%
Tested by: Sunny Lu	Test site: RF site	Temperature: 24 °C

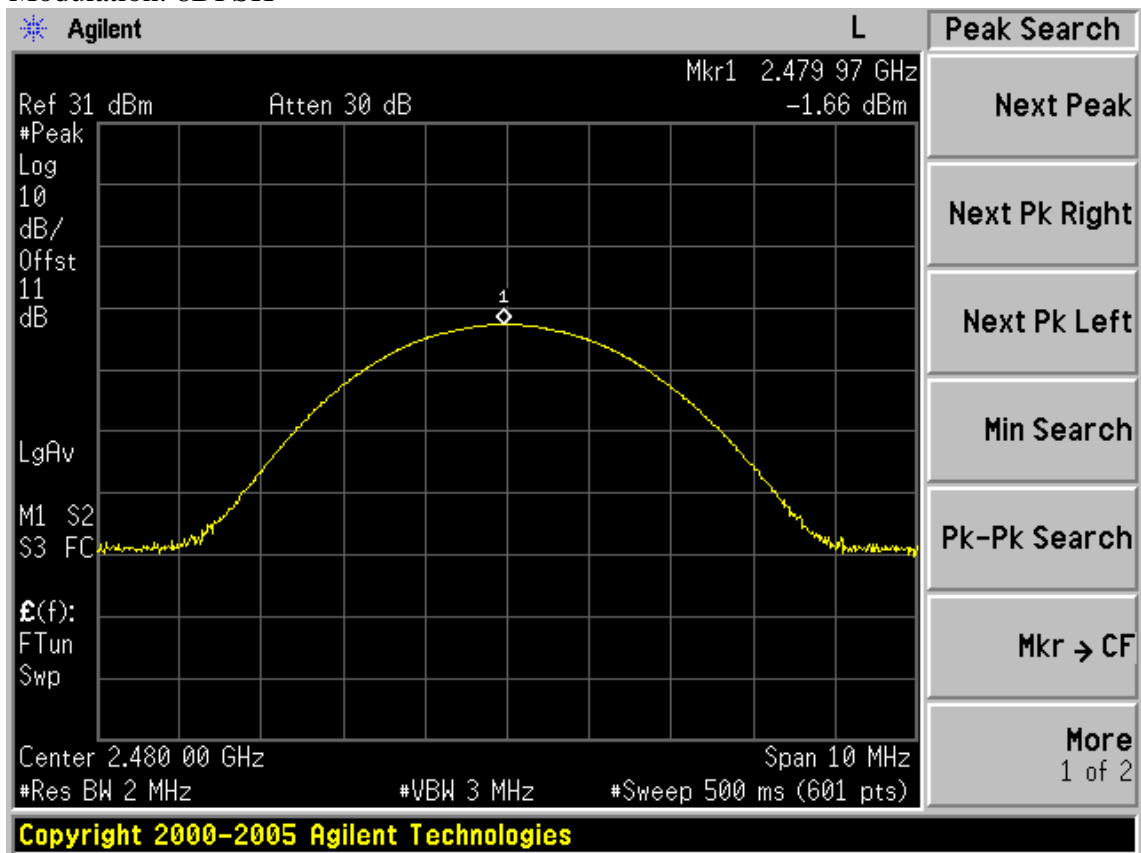
Cable loss: 1dB		Attenuator loss: 10 dB	Antenna Gain: 0 dBi
Mode	CH	Result	Limit
		PK Output power(dBm)	(dBm)
GFSK	CH1	-0.19	30
	CH39	0.06	30
	CH79	-0.34	30
8-DPSK	CH1	-0.92	30
	CH39	-1.27	30
	CH79	-1.66	30
Conclusion: PASS			

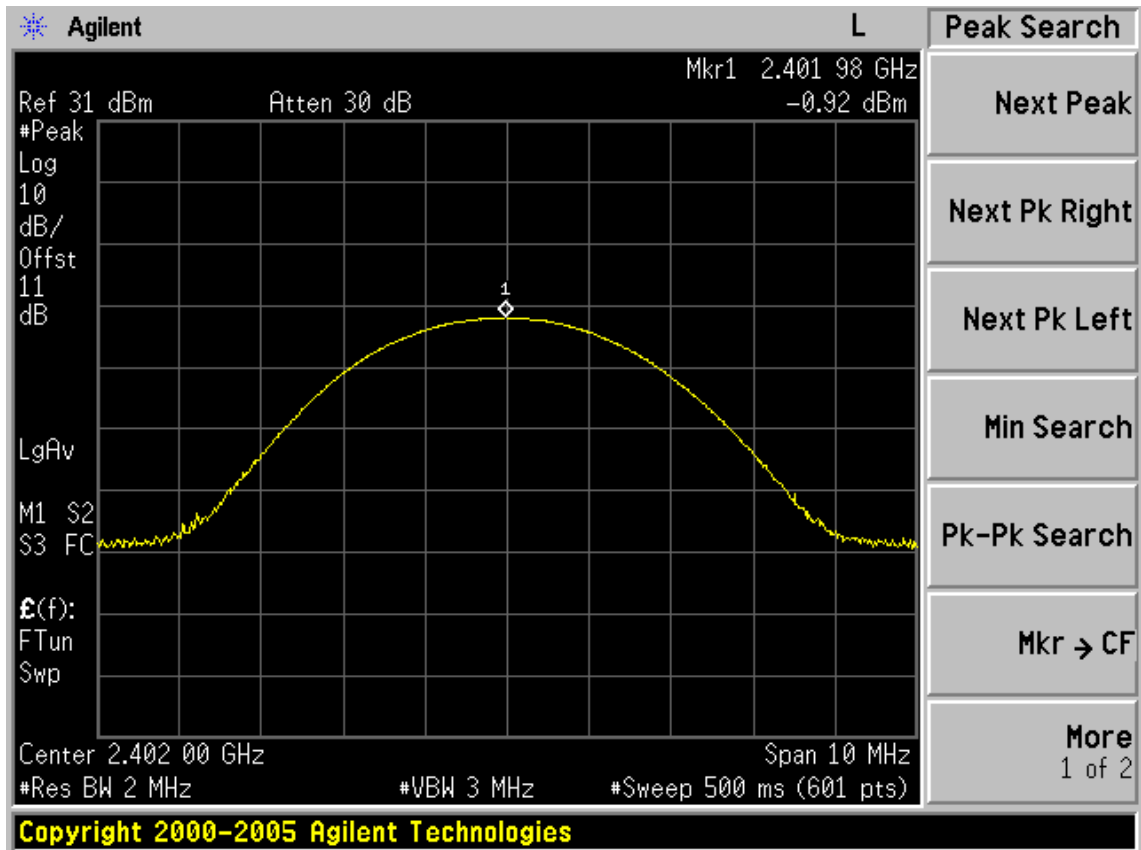
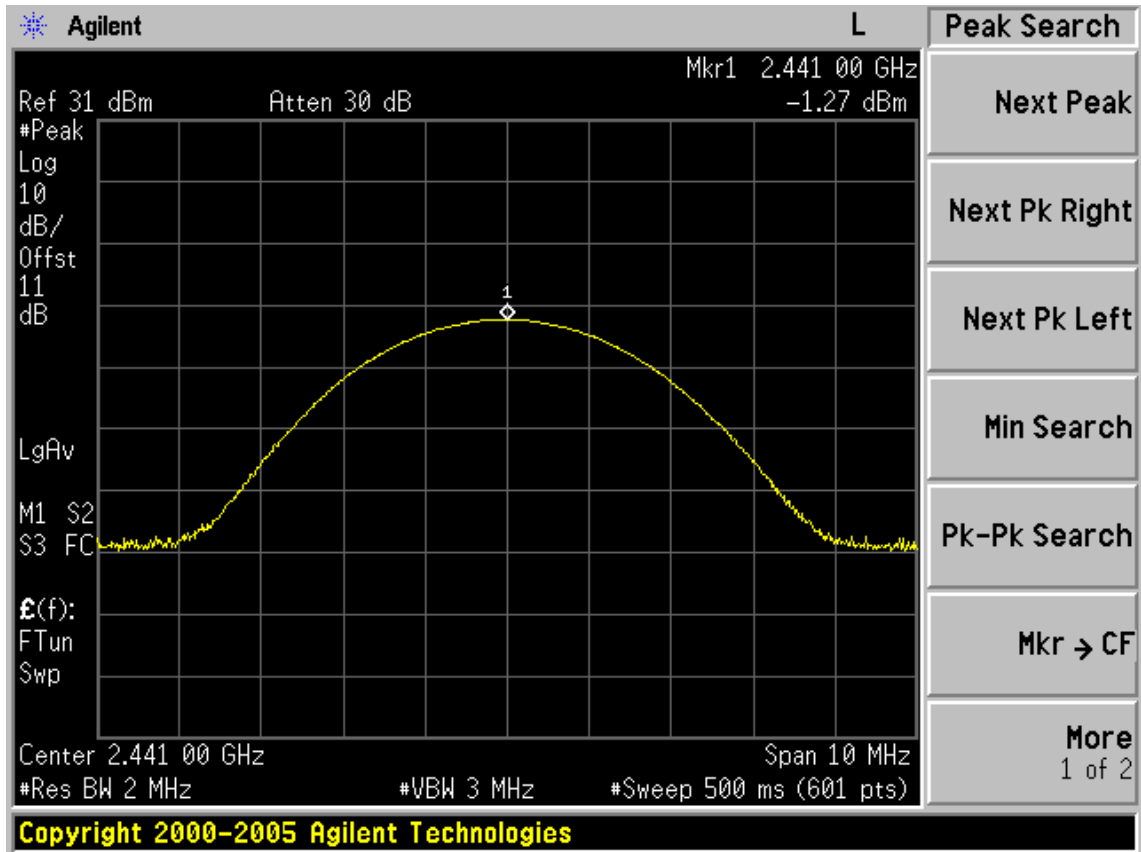
Modulation: GFSK





Modulation: 8DPSK





11.BAND EDGE COMPLIANCE TEST

11.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,10	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 09	1.5 Year
3.	Amplifier	Agilent	8449B	3008A02495	May.08, 10	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,10	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,10	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,10	1 Year

11.2.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.

11.3.Test Produce

1. The EUT is placed on a turntable, which is 0.8m 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 upperband-edges of the emission:
 - (a) PEAK: RBW=1MHz ;VBW=3MHz, PK detector, Sweep=AUTO
 - (b) Average: RBW=1MHz; VBW=10Hz, PK detector, Sweep =AUTO

11.4. Test Results

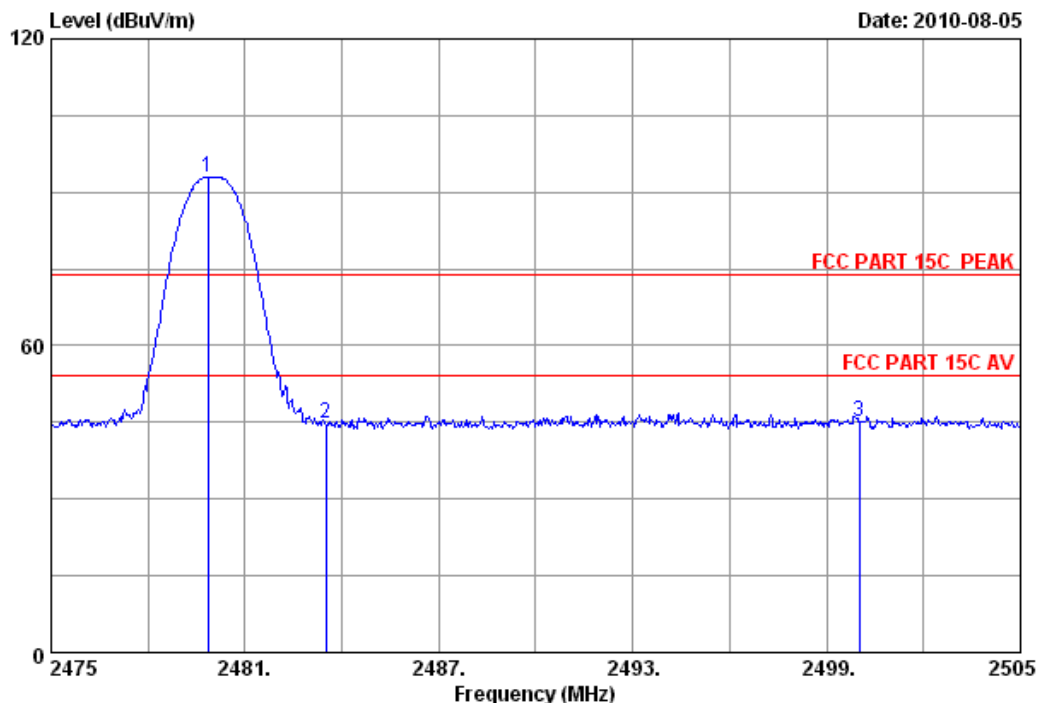
Pass (The testing data was attached in the next pages.)

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 13 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 13
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2480MHz		

	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	2479.860	29.49	7.58	36.60	92.54	93.01	74.00	-19.01	Peak
2	2483.500	29.49	7.58	36.60	44.21	44.68	74.00	29.32	Peak
3	2500.000	29.50	7.62	36.60	44.47	44.99	74.00	29.01	Peak

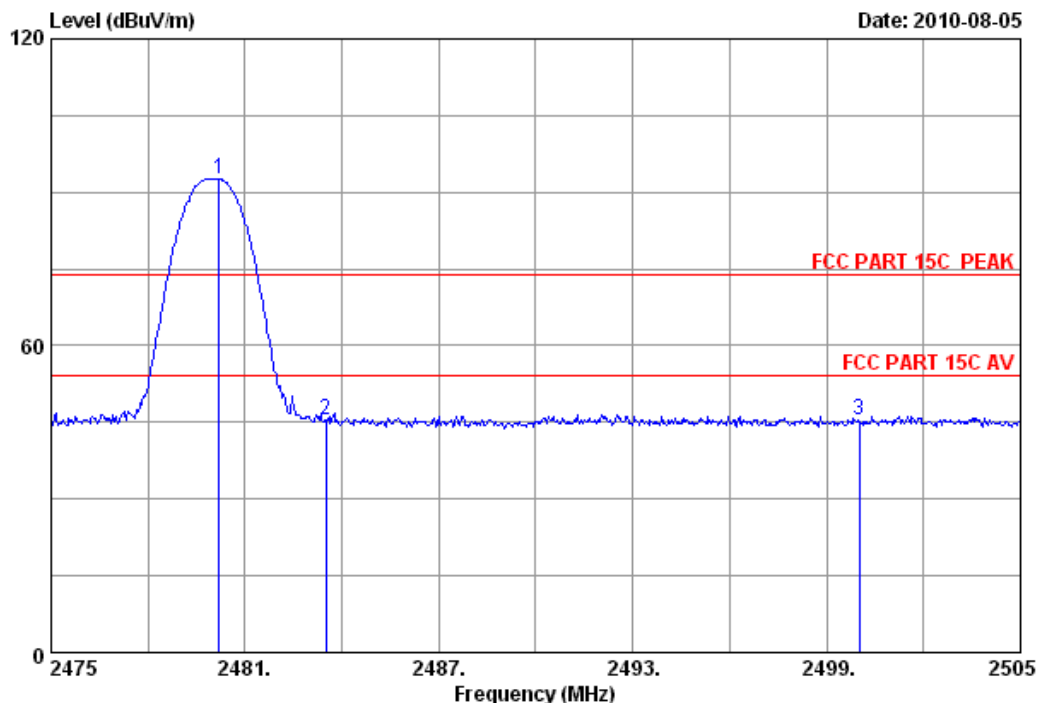
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 14 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 14
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2480MHz		

	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	2480.190	29.49	7.58	36.60	92.09	92.56	74.00	-18.56	Peak
2	2483.500	29.49	7.58	36.60	44.86	45.33	74.00	28.67	Peak
3	2500.000	29.50	7.62	36.60	44.85	45.37	74.00	28.63	Peak

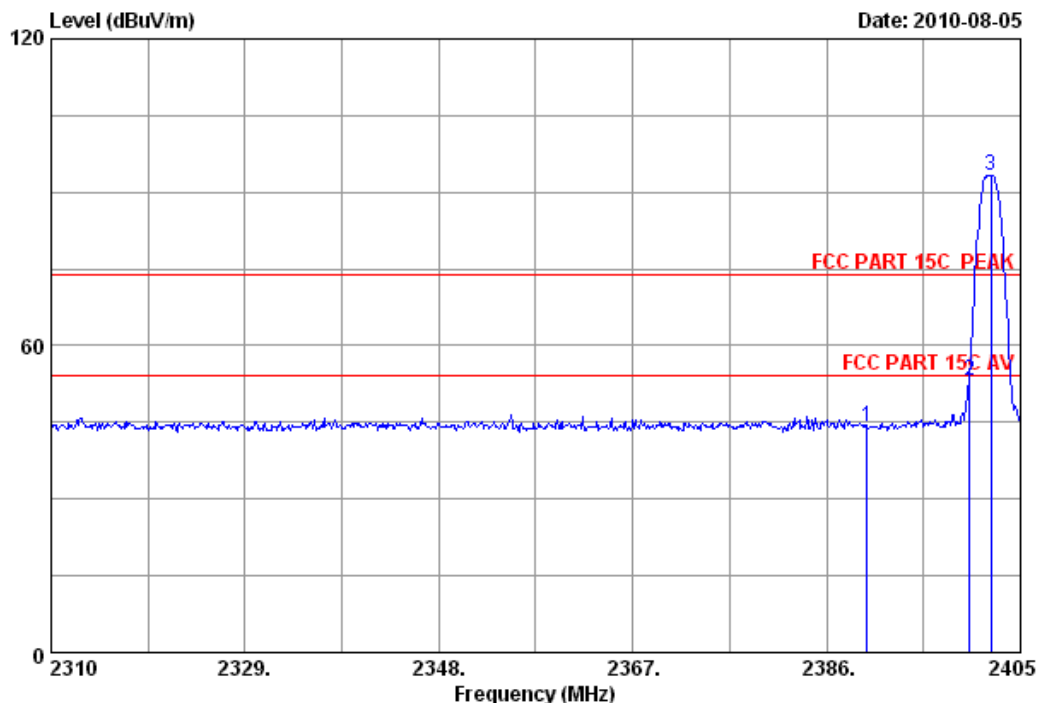
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 15 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 15
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		

	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	2390.000	29.44	7.39	36.62	43.98	44.19	74.00	29.81	Peak
2	2400.000	29.44	7.43	36.62	52.84	53.09	74.00	20.91	Peak
3	2402.150	29.44	7.43	36.62	93.14	93.39	74.00	-19.39	Peak

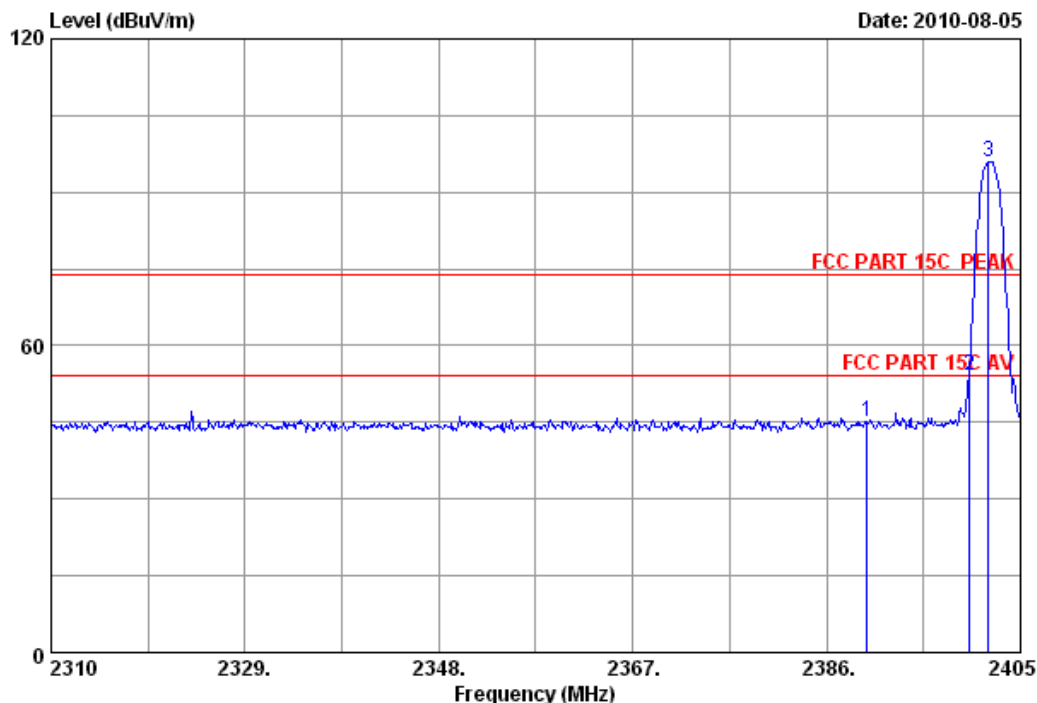
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 16 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 16
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Tx 2402MHz		

	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	2390.000	29.44	7.39	36.62	44.81	45.02	74.00	28.98	Peak
2	2400.000	29.44	7.43	36.62	53.91	54.16	74.00	19.84	Peak
3	2401.865	29.44	7.43	36.62	95.61	95.86	74.00	-21.86	Peak

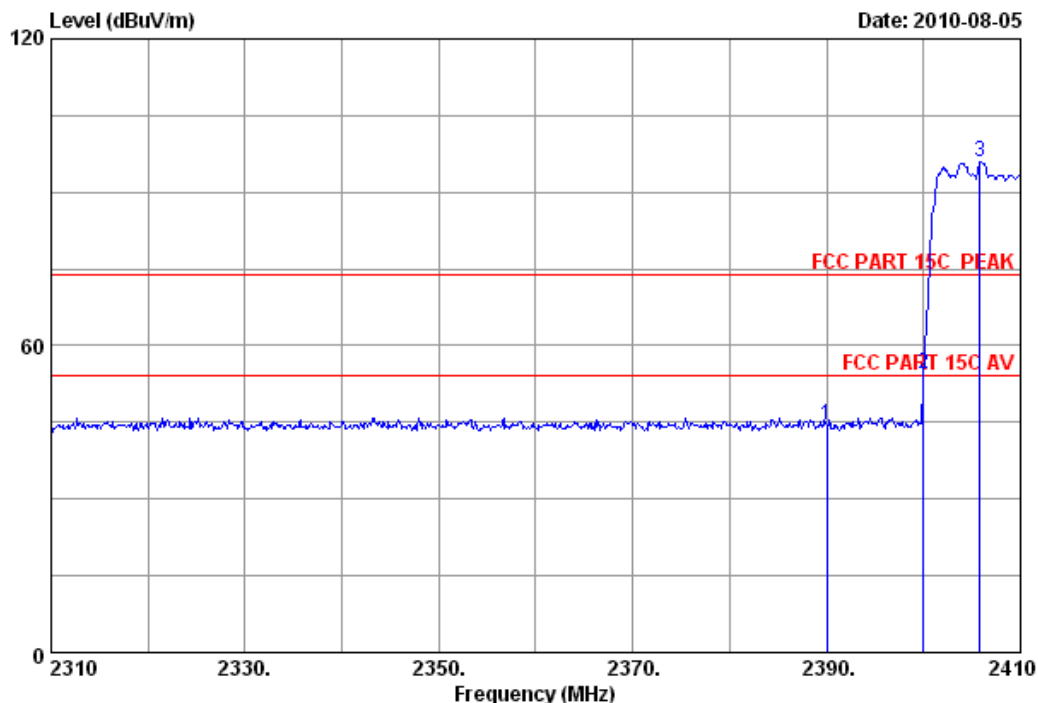
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
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Data: 17 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 17
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Hopping ON		

	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	2390.000	29.44	7.39	36.62	44.34	44.55	74.00	29.45	Peak
2	2400.000	29.44	7.43	36.62	54.09	54.34	74.00	19.66	Peak
3	2405.800	29.45	7.43	36.62	95.79	96.05	74.00	-22.05	Peak

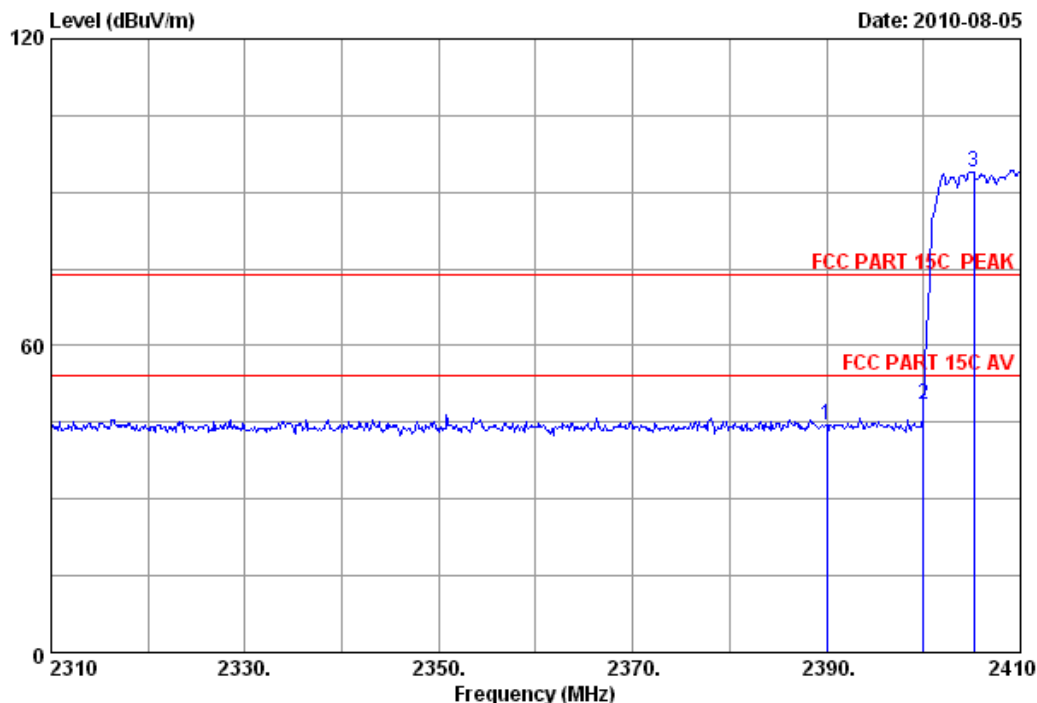
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 18 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 18
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Hopping ON		

	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	2390.000	29.44	7.39	36.62	44.25	44.46	74.00	29.54	Peak
2	2400.000	29.44	7.43	36.62	48.26	48.51	74.00	25.49	Peak
3	2405.200	29.45	7.43	36.62	93.68	93.94	74.00	-19.94	Peak

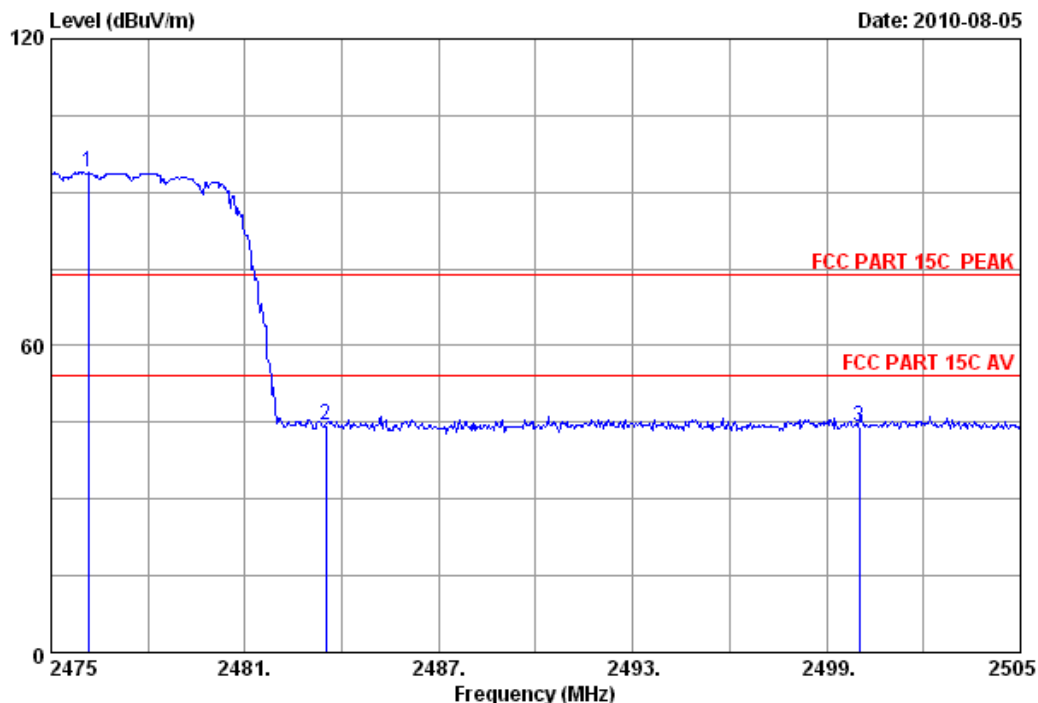
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

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Site no.	: RF Chamber	Data no.	: 19
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Sunny Lu
Env. / Ins.	: 23°C/54%		
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Hopping ON		

	Freq.	Ant.	Cable	Amp.		Emission			
	(MHz)	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2476.140	29.49	7.54	36.60	93.37	93.80	74.00	-19.80	Peak
2	2483.500	29.49	7.58	36.60	44.00	44.47	74.00	29.53	Peak
3	2500.000	29.50	7.62	36.60	43.76	44.28	74.00	29.72	Peak

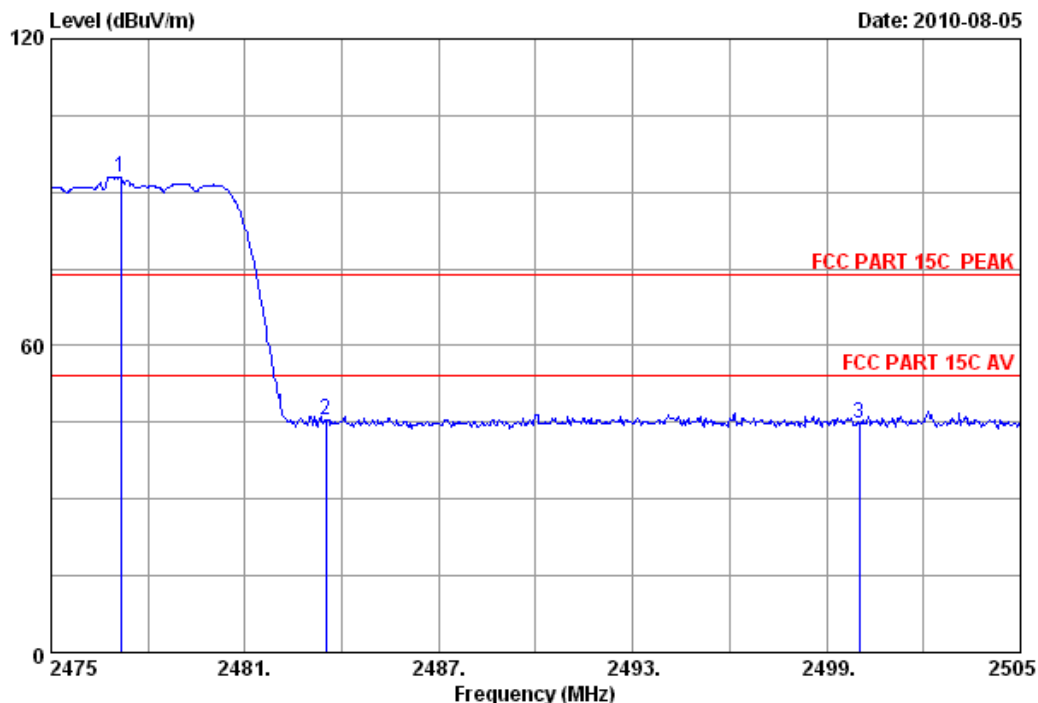
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 20 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 20
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: GFSK Hopping ON		

	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	2477.160	29.49	7.54	36.60	92.53	92.96	74.00	-18.96	Peak
2	2483.500	29.49	7.58	36.60	45.14	45.61	74.00	28.39	Peak
3	2500.000	29.50	7.62	36.60	44.29	44.81	74.00	29.19	Peak

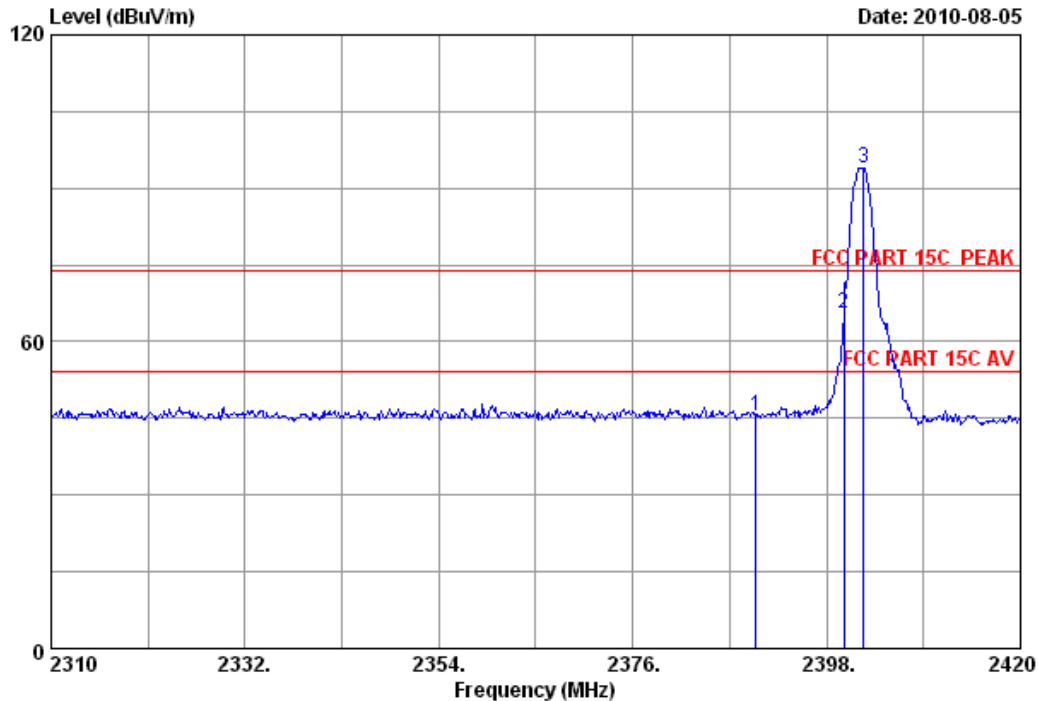
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 33 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 33
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Tx 2402MHz		

	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	2390.000	29.44	8.67	36.09	43.43	45.45	74.00	28.55	Peak
2	2400.000	29.44	8.72	36.09	63.56	65.63	74.00	8.37	Peak
3	2402.180	29.44	8.72	36.09	91.99	94.06	74.00	-20.06	Peak

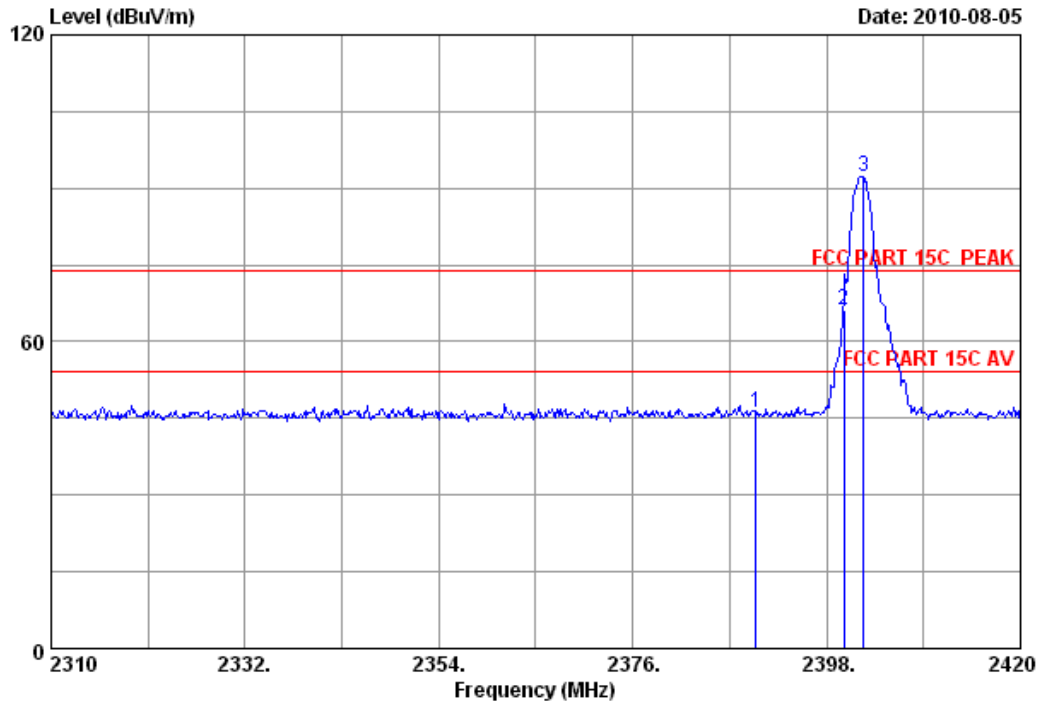
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 34 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 34
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Tx 2402MHz		

	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	2390.000	29.44	8.67	36.09	44.25	46.27	74.00	27.73	Peak
2	2400.000	29.44	8.72	36.09	64.19	66.26	74.00	7.74	Peak
3	2402.180	29.44	8.72	36.09	90.23	92.30	74.00	-18.30	Peak

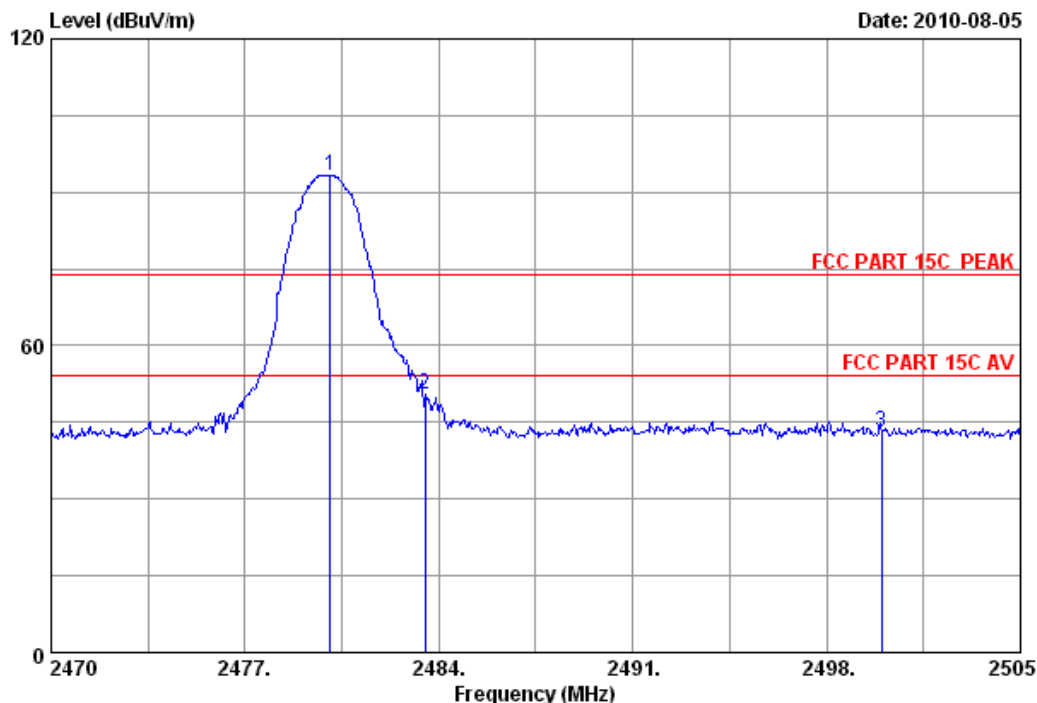
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

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Site no.	: RF Chamber	Data no.	: 35
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Tx 2480MHz		

	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	2480.080	29.49	8.87	35.97	91.00	93.39	74.00	-19.39	Peak
2	2483.500	29.49	8.87	35.97	48.00	50.39	74.00	23.61	Peak
3	2500.000	29.50	8.92	36.00	40.78	43.20	74.00	30.80	Peak

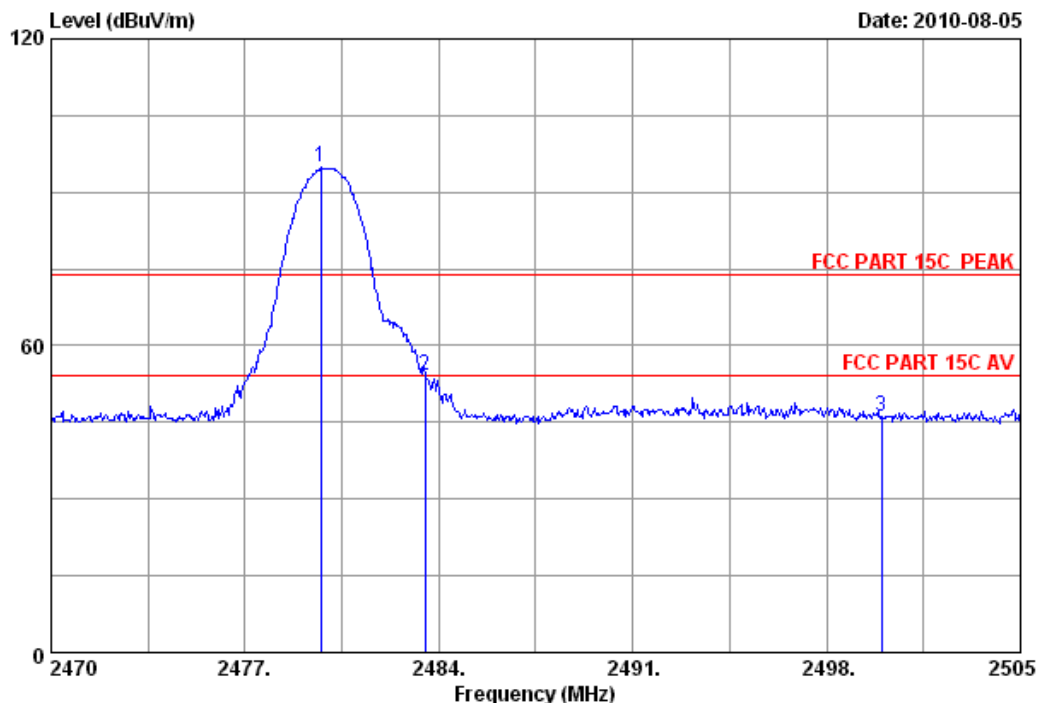
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 36 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 36
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Tx 2480MHz		

	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	2479.730	29.49	8.87	35.97	92.42	94.81	74.00	-20.81	Peak
2	2483.500	29.49	8.87	35.97	51.67	54.06	74.00	19.94	Peak
3	2500.000	29.50	8.92	36.00	43.86	46.28	74.00	27.72	Peak

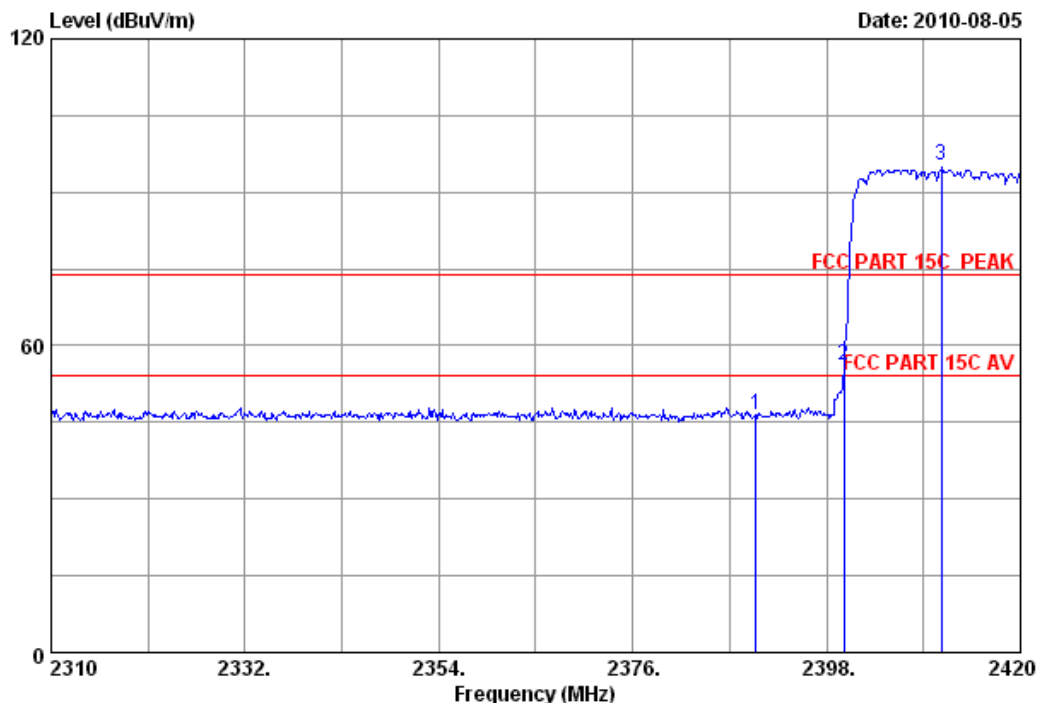
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 37 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 37
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Hopping on		

	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	2390.000	29.44	8.67	36.09	44.39	46.41	74.00	27.59	Peak
2	2400.000	29.44	8.72	36.09	54.09	56.16	74.00	17.84	Peak
3	2410.980	29.45	8.72	35.95	93.14	95.36	74.00	-21.36	Peak

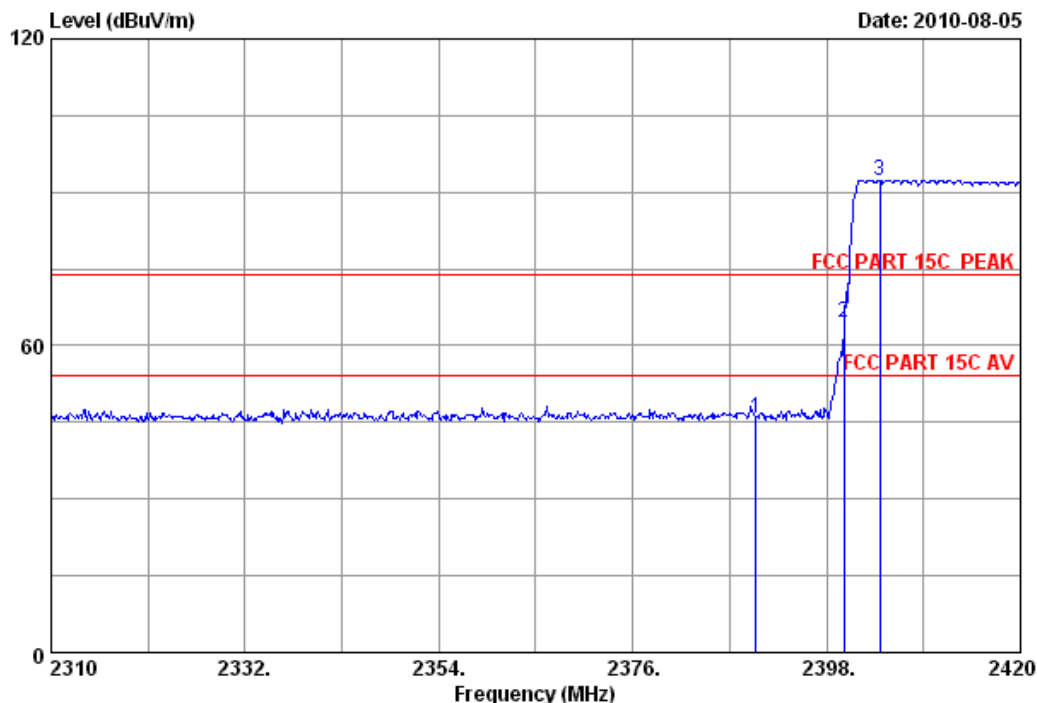
Remarks:

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



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Postcode:518057

Data: 38 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 38
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Hopping on		

	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	2390.000	29.44	8.67	36.09	43.79	45.81	74.00	28.19	Peak
2	2400.000	29.44	8.72	36.09	62.45	64.52	74.00	9.48	Peak
3	2404.050	29.45	8.72	35.95	90.08	92.30	74.00	-18.30	Peak

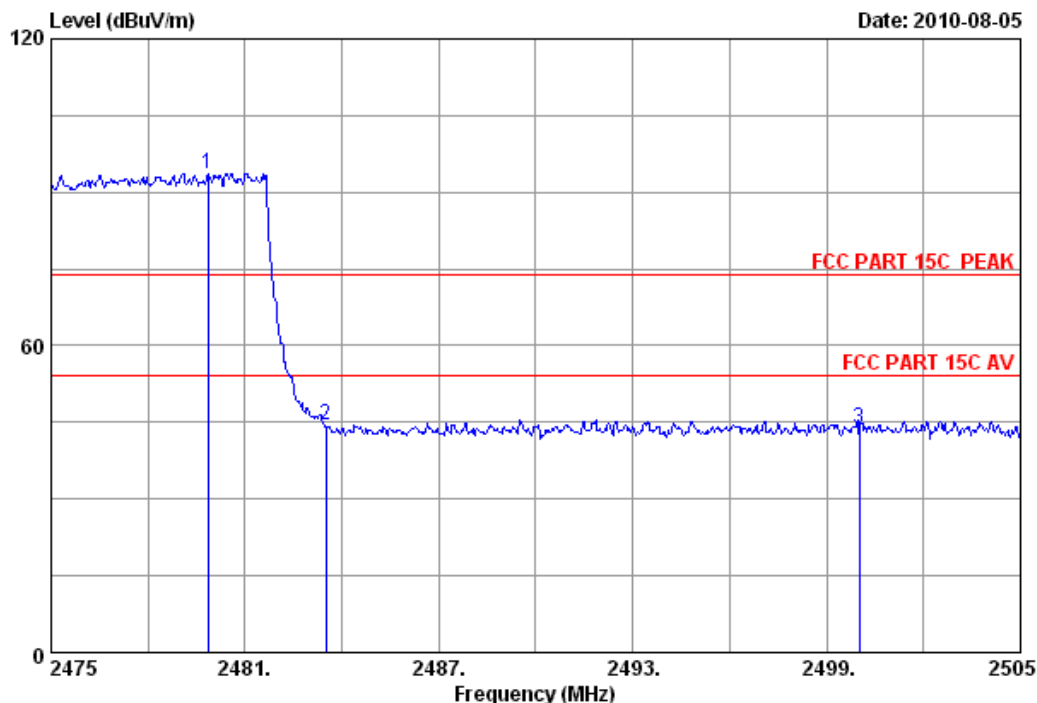
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 39 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no.	: RF Chamber	Data no.	: 39
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny Lu
EUT	: MuziLighter M/N:K220		
Power	: DC 3.7V		
Test mode	: 8DPSK Hopping on		

	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	2479.860	29.49	8.87	35.97	91.32	93.71	74.00	-19.71	Peak
2	2483.500	29.49	8.87	35.97	42.02	44.41	74.00	29.59	Peak
3	2500.000	29.50	8.92	36.00	41.42	43.84	74.00	30.16	Peak

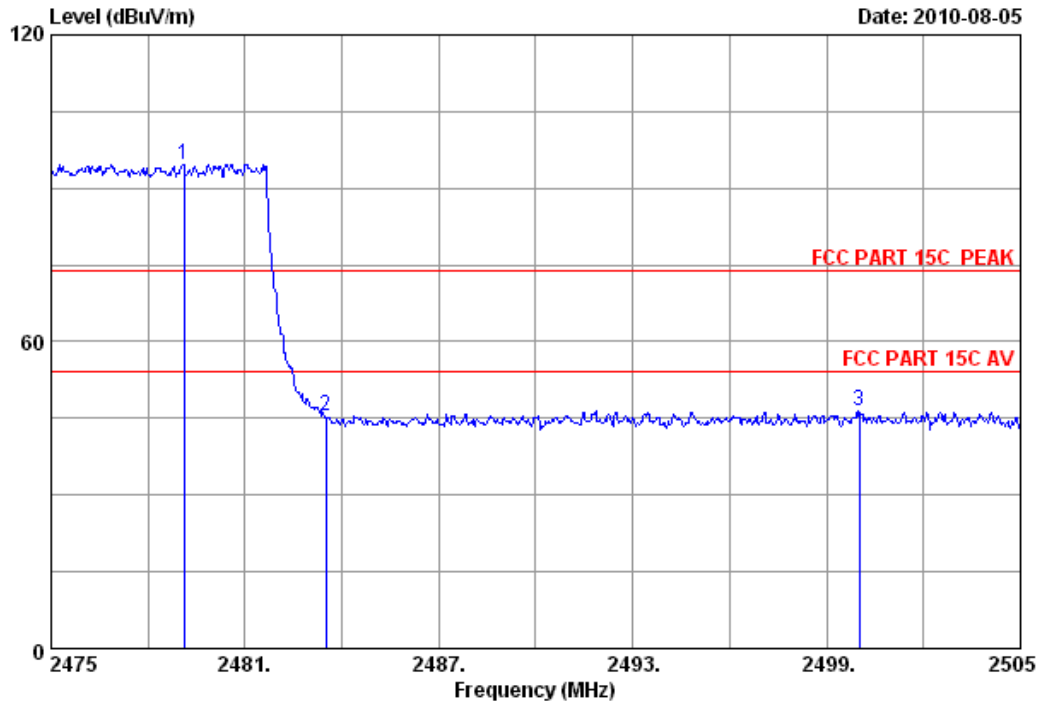
Remarks:

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



No.6 Ke Feng Road,Block 52,
ShenZhen Science & Industry Park
Noutou,ShenZhen,GuangDong,China
Tel:+86-755-26639495-7
Fax:+86-755-26632877
Postcode:518057

Data: 40 File: E:\2010 report data\E\ACSH216.EM6 (40)



Site no. : RF Chamber Data no. : 40
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny Lu
EUT : MuziLighter M/N:K220
Power : DC 3.7V
Test mode : 8DPSK Hopping on

	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	2479.110	29.49	8.87	35.97	92.25	94.64	74.00	-20.64	Peak
2	2483.500	29.49	8.87	35.97	43.02	45.41	74.00	28.59	Peak
3	2500.000	29.50	8.92	36.00	43.95	46.37	74.00	27.63	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.

12. ANTENNA REQUIREMENT

11.1 STANDARD APPLICABLE

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.

11.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used for this product is a PCB integral antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of this antenna is only 0dBi.

13.DEVIATION TO TEST SPECIFICATIONS

[NONE]