SGS-CSTC Standards Technical Services Ltd.

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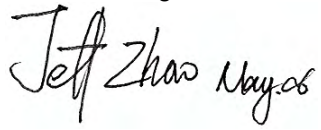
FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

FCC TEST REPORT

Application No. :	GLEMO060400795AV
Applicant:	Zhongshan K-mate Electronics Co.,Ltd.
FCC ID:	RLQAT600
Fundamental Carrier	**Frequency** : 88MHz to 108MHz
Equipment Under Test (EUT):	
Name:	FM Transmitter,holder & car charger for iPod Nano
Model:	AT600
Band Name:	Not supply by client
Standards:	FCC PART 15.239: 2006
	Please refer to section 2 for further details.
Date of Receipt:	23 May 2006
Date of Test:	22 May 2006
Date of Issue:	23 May 2006
Test Result :	**PASS ***

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

Authorized Signature:



Jeff Zhao
Manager

2 Test Summary

Test	Test Requirement	Stanadard Paragraph	Result
Radiated Emission (30MHz to 1000MHz)	FCC PART 15 :2006	Section 15.239	PASS
Occupied Bandwidth	FCC PART 15 :2006	Section 15.239	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant Name:	Zhongshan K-mate Electronics Co.,Ltd.
Applicant Address:	3/F B1 Building Fuwan Ind. Zone Sun wen East Road,Zhongshan,China

4.2 General Description of E.U.T.

Product Name:	FM Transmitter,holder & car charger for iPod Nano
Model:	AT600
Power Supply:	By car charger or 12.0V DC when connect iPod Nano
Power Cord:	N/A-

4.3 Description of Support Units

The EUT was tested as a peripheral unit:it must connet to an iPod Nano and setup correctly.

The transmitter have 100 channels in the 88.1MHz between 107.9MHz with 200KHz channel spacing can in exchange for choice .

4.4 Standards Applicable for Testing

The customer requested FCC tests for a FM transmitter for iPod Nano.

The standard used was FCC PART 15, SUBPART C (2006) section 15.239.

4.5 Test Location

All tests were performed at:-

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China 510663

Tel: +86 20 82155555

Fax: +86 20 82075059

4.6 Other Information Requested by the Customer

None.

4.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0. Effective through December 31, 2004.
- **ACA**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
  The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
  Date of Registration:June 01, 2005. Valid until February 22, 2008
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01: 2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorised test laboratory for the DoC process.
- **Industry Canada (IC)**
  The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5169.

5 Test Results

5.1 Test Instruments

RE in Chamber/OATS						
No:	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
EMC0525	Impact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	06-03-2006	06-03-2007
EMC0525	Compact chamber	ZhongYu	N/A	N/A	20-12-2005	20-12-2006
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	05-12-2005	05-12-2006
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	04-12-2005	04-12-2006
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	16-01-2006	16-01-2007
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	10-05-2005	09-05-2006
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2005	05-12-2006
EMC0520	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A06252	06-03-2006	06-03-2007
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	06-03-2006	06-03-2007
EMC0523	Active Loop Antenna	EMCO	6502	00042963	14-01-2006	14-01-2007
EMC0529	10m Open Site	ZhongYu	N/A	N/A	26-12-2005	26-12-2006

5.2 E.U.T. Operation

Input voltage: By car charger or 12.0V DC when connect iPod Nano

Operating Environment:

Temperature: 26.0 °C

Humidity: 52 % RH

Atmospheric Pressure: 1010 mbar

EUT Operation: Test in transmitting mode:

1. For lowest channel: 88.1MHz.
2. For middle channel: 98.1MHz.
3. For highest channel:107.9MHz

5.3 Test Procedure & Measurement Data

5.3.1 Radiated Emissions

5.3.1.1 Test in transmitting mode

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 C Section 15.239
Test Date:	22 May 2006
Measurement Distance:	3m (Semi-Anechoic Chamber)
Frequency range	30 MHz – 10GHz for transmitting mode.
	Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 M – 25GHz)
Operation:	Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal

Requirements:

(b) The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

(c) The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

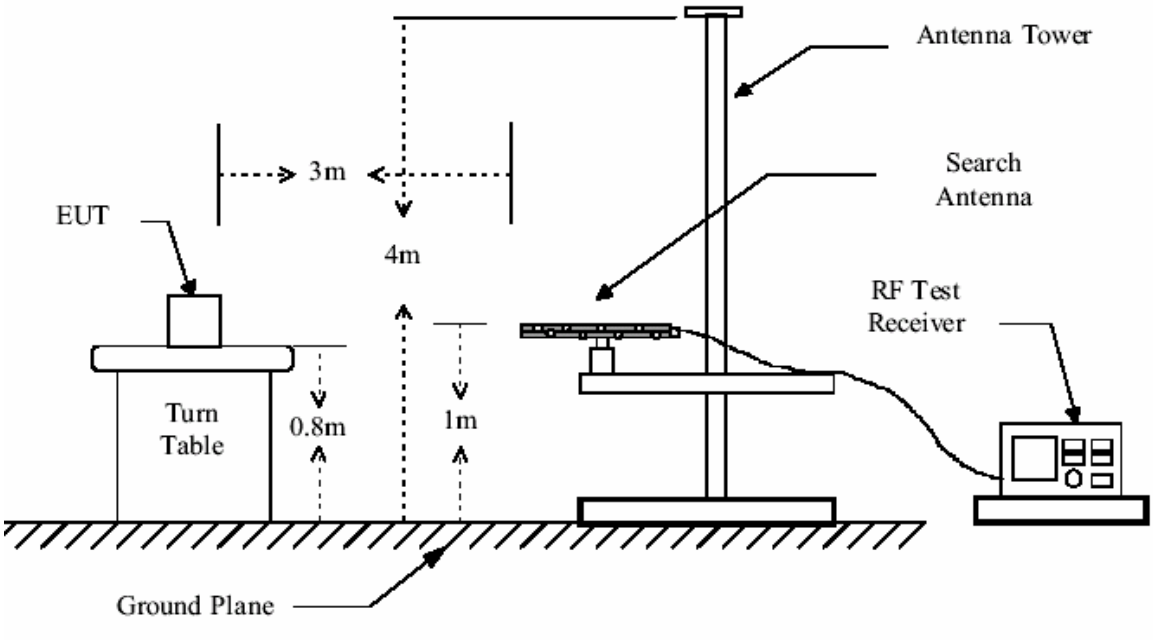
The EUT have 100 channels in the 88.1MHz and 107.9MHz with 200KHz channel spacing can in exchange for choice,According to ANSI 63.4 chapter 12,the test fundamental frequency of the EUT is lowest channel 88.1MHz,middle channel 98.1MHz and highest channel 107.9MHz.

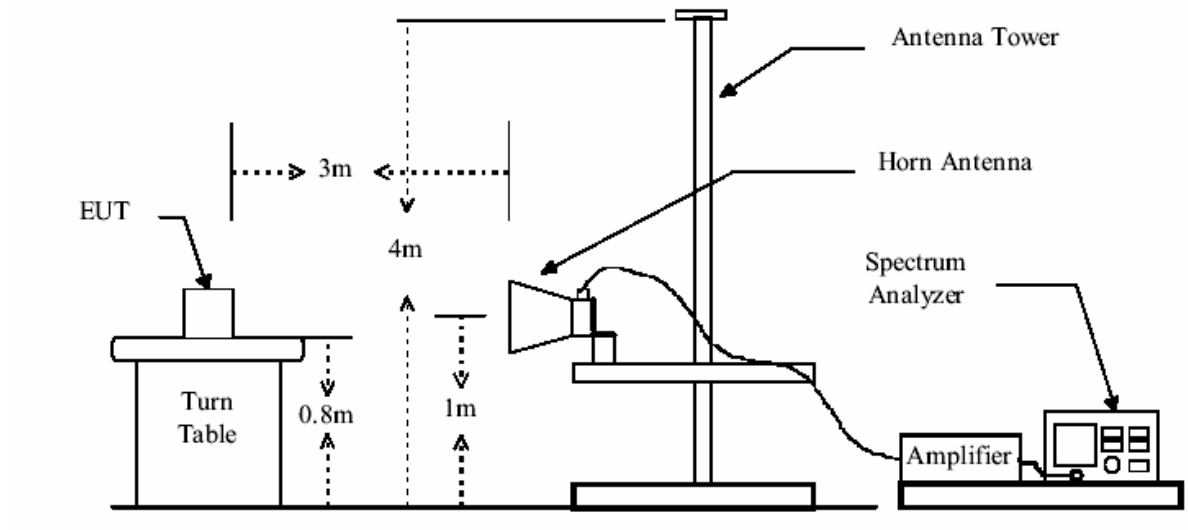
The limit for average field strength dBuv/m for the fundamental frequency = 48.0 dBμV/m.

And the limit for peak field strength dBuv/m for the fundamental frequency = 68.0 dBμV/m

Test Procedure: The procedure uesd was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 25GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Test Configuration:





The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

The following test results were performed on the EUT:

For **lowest channel ,88.1MHz**:

(1). Fundamental emission

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
88.1	30.8	33.7	68.0	37.2	34.3
Average Measurement					
88.1	30.0	32.9	48.0	18.0	15.1

(2). Harmonics & Spurious Emissions

Quasi-peak Measurement

Vertical:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
172.59	28.11	10.25	1.2	24.82	14.74	43.5	-28.76
259.89	28.41	12.06	1.52	24.4	17.59	46	-28.41
356.89	28.6	15.54	1.78	24.76	21.16	46	-24.84
456.8	29.06	17.78	2.08	25.54	23.38	46	-22.62
551.86	28.2	20.09	2.36	25.85	24.8	46	-21.2
688.63	28.17	21.04	2.68	25.71	26.18	46	-19.82

Horizontal:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
143.49	30.03	11.95	1.08	25.03	18.03	43.5	-25.47
261.83	29.93	13.47	1.52	24.4	20.52	46	-25.48
383.08	29.66	16.08	1.85	24.9	22.69	46	-23.31
480.08	30.24	17.76	2.15	25.74	24.41	46	-21.59
581.93	28.56	20.02	2.45	25.82	25.21	46	-20.79
695.42	29.24	21.24	2.69	25.7	27.47	46	-18.53

Remark:

For this intentional radiator operates below 10 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And the disturbance of harmonic of this intentional radiator is very low. So the test result only displays to the max six spurious emission value.

The following test results were performed on the EUT:

For **middle channel,98.1MHz**:

(1). Fundamental emission

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
98.1	29.3	30.9	68.0	38.7	37.1
Average Measurement					
98.1	28.3	29.8	48.0	19.7	18.2

(2). Harmonics & Spurious Emissions

Quasi-peak Measurement

Vertical:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
210.42	26.94	10.8	1.35	24.55	14.54	43.5	-28.96
307.42	28.14	14.3	1.63	24.45	19.62	46	-26.38
415.09	27.67	16.95	1.95	25.14	21.43	46	-24.57
531.49	27.22	19.65	2.3	25.87	23.3	46	-22.7
625.58	28.27	20.72	2.55	25.77	25.77	46	-20.23
747.8	28.24	22.43	2.85	25.65	27.87	46	-18.13

Horizontal:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
199.75	30.21	9.17	1.3	24.6	16.08	43.5	-27.42
287.05	30.2	13.23	1.58	24.4	20.61	46	-25.39
387.93	28.47	16.43	1.87	24.93	21.84	46	-24.16
473.29	29.14	17.49	2.13	25.69	23.07	46	-22.93
570.29	29.29	19.8	2.42	25.83	25.68	46	-20.32
682.81	29.21	21.04	2.67	25.72	27.2	46	-18.8

The following test results were performed on the EUT:

For **highest channel,107.9MHz**:

(1). Fundamental emission

Peak Measurement

Test Frequency (MHz)	Measuring Level (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
107.9	30.6	32.1	68.0	37.4	35.9
Average Measurement					
107.9	29.5	31.0	48.0	18.5	17.0

(2). Harmonics & Spurious Emissions

Quasi-peak Measurement

Vertical:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
209.45	27.97	10.7	1.34	24.56	15.45	43.5	-28.05
312.27	28.06	14.91	1.64	24.48	20.13	46	-25.87
420.91	29.83	17	1.97	25.2	23.6	46	-22.4
531.49	30.17	19.65	2.3	25.87	26.25	46	-19.75
659.53	30.25	20.52	2.62	25.74	27.65	46	-18.35
831.22	29.1	23.42	3.03	25.41	30.14	46	-15.86

Horizontal:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
191.02	29.17	8.79	1.27	24.69	14.54	43.5	-28.96
287.05	32.04	13.23	1.58	24.4	22.45	46	-23.55
360.77	30.61	16.41	1.79	24.78	24.03	46	-21.97
433.52	29.8	17.59	2.01	25.33	24.07	46	-21.93
519.85	30.13	18.23	2.26	25.88	24.74	46	-21.26
619.76	28.16	20.06	2.55	25.78	24.99	46	-21.01

Remark:

For this intentional radiator operates below 10 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And the disturbance of harmonic of this intentional radiator is very low. So the test result only displays to the max six spurious emission value.

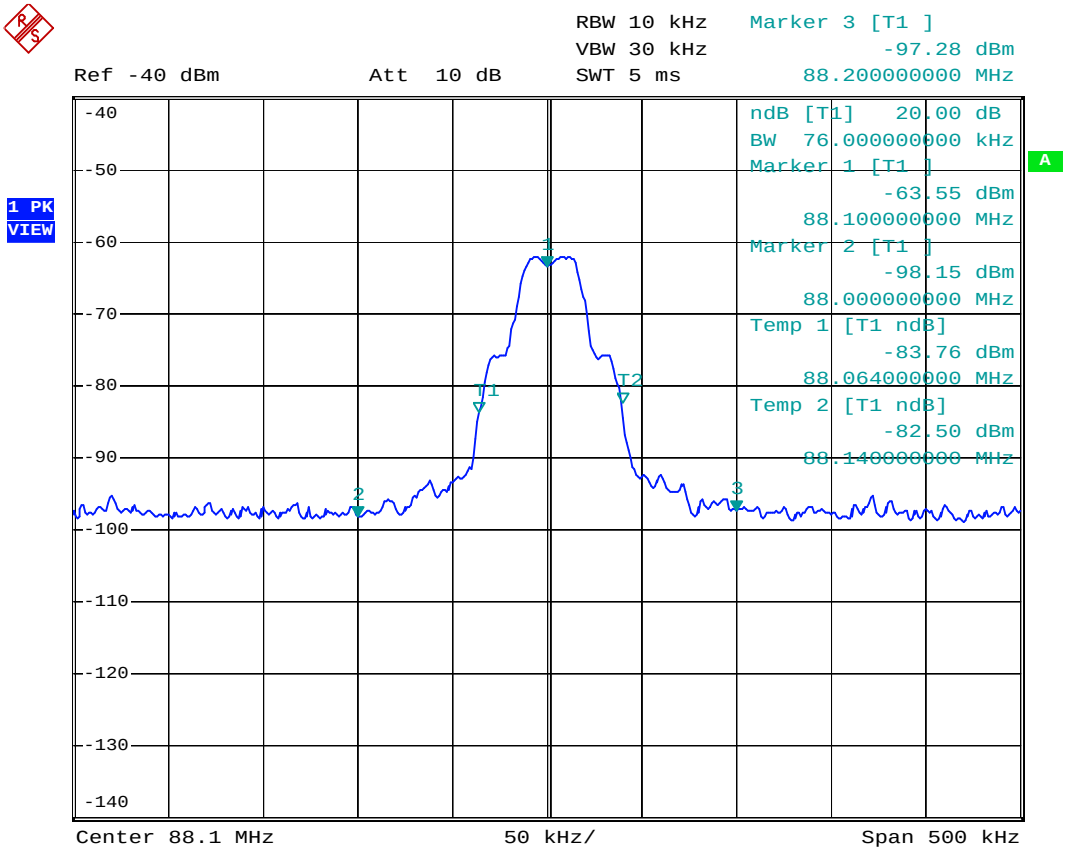
TEST RESULTS: The unit does meet the FCC requirements.

5.3.2 Occupied Bandwidth

Test Requirement:	FCC Part 15 C Section 15.239.
Test Method:	Based on FCC Part15 C & Part 2.1049
	Operation within the band 88MHz – 108MHz
Test Date:	22 May 2006
Requirements:	(a) Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.
Method of measurement:	A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken. The vertical is set to 10dB per division. The horizontal scale is set to 50KHz per division.

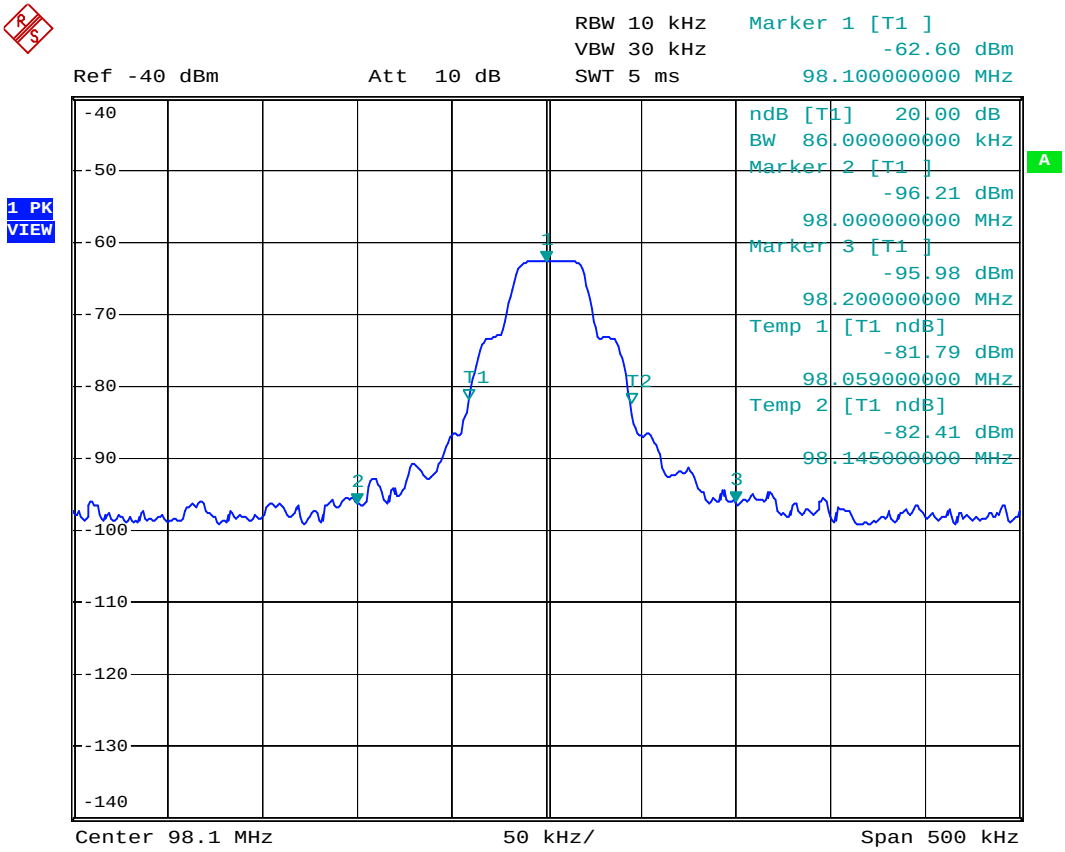
(1). **For lowest Channel:88.1MHz**

The occupied bandwidth as below:



(2). For middle Channel:98.1MHz

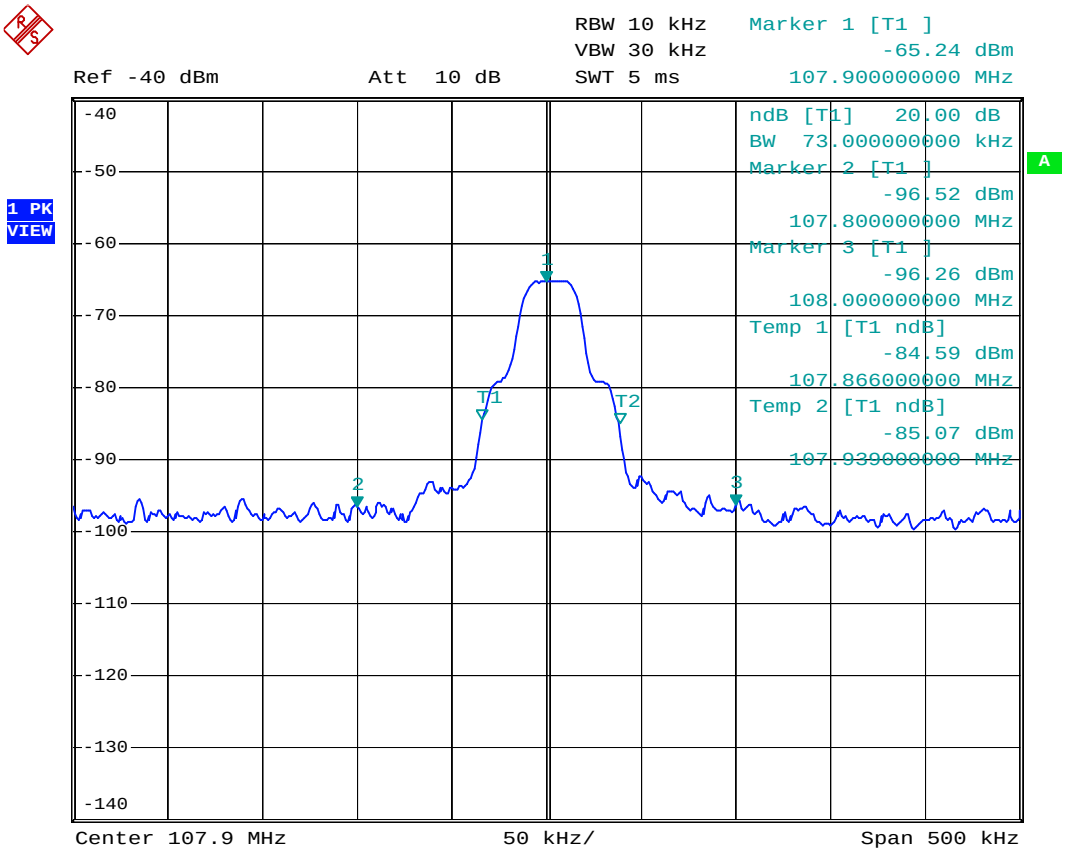
The occupied bandwidth as below:



Date: 22.MAY.2006 17:48:21

(3). For highest Channel:107.9MHz

The occupied bandwidth as below:



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The results: The unit does meet the FCC requirements.