FCC CERTIFICATION
On Behalf of
Gajah International (HK) Co., Ltd.

RF Mouse
Model No.: PAC168, PAC169

FCC ID: UFKPAC168

Prepared for	:	Gajah International (HK) Co., Ltd.
Address	:	9A, Block Yinxing, Huamaoxin Garden, 7001 Hongli West Road, Futian District, Shenzhen, Guangdong, P.R. China
Prepared by	:	ACCURATE TECHNOLOGY CO. LTD
Address	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China
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Report Number	:	ATE20061337
Date of Test	:	July 20, 2006
Date of Report	:	July 24, 2006

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Description Page

Test Report Certification

Applicant	:	Gajah International (HK) Co., Ltd.
Manufacturer	:	Shenzhen Oliti Computer Technology Co., Ltd.
EUT Description	:	RF Mouse

(A) MODEL NO.: PAC168, PAC169

(B) SERIAL NO.: N/A

(C) POWER SUPPLY: 3.0V DC ("AAA" batteries 2×)

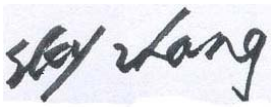
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.227: 2004 & ANSI C63.4: 2003

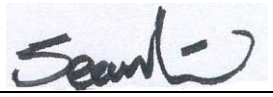
The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.227 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : July 20, 2006

Prepared by : 

(Engineer)

Reviewer : 

(Quality Manager)

Approved & Authorized Signer : 

(Manager)

1. GENERAL INFORMATION

Description of Device (EUT)

1.1.

EUT	:	RF Mouse
Model Number	:	PAC168, PAC169 (Note: The samples are same except the appearance Color are different, So we prepare PAC168 for test only.)
Power Supply	:	3.0V DC ("AAA" batteries 1×)
Applicant	:	Gajah International (HK) Co., Ltd.
Address	:	9A, Block Yinxing, Huamaoxin Garden, 7001 Hongli West Road, Futian District, Shenzhen, Guangdong, P.R. China
Manufacturer	:	Shenzhen Oliti Computer Technology Co., Ltd.
Address	:	Fuqiao 1st Industrial Zone, Qiaotou Village, Fuyong Town, Shenzhen, Guangdong, P.R. China
Date of sample received	:	July 18, 2006
Date of Test	:	July 20, 2006

1.2.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen, May 10, 2004 Accredited by FCC, May 10, 2004 The Certificate Registration Number is 253065 Accredited by Industry Canada, May 18, 2004 The Certificate Registration Number is IC 5077
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3.Measurement Uncertainty

Conducted emission expanded uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty	=	4.12dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.31.2007
EMI Test Receiver	Rohde&Schwarz	ESI26	838786/013	01.02.2007
Loop Antenna	Schwarzbeck	FMZB1516	113	01.02.2007
Bilog Antenna	Schwarzbeck	VULB9163	9163-194	03.31.2007
Bilog Antenna	Chase	CBL6112B	2591	03.31.2007
Horn Antenna	Rohde&Schwarz	HF906	100013	01.02.2007
Spectrum Analyzer	Anritsu	MS2651B	6200238856	03.31.2007
Pre-Amplifier	Agilent	8447D	2944A10619	03.31.2007
L.I.S.N.	Rohde&Schwarz	ESH3-Z5	100305	12.16.2006
L.I.S.N.	Rohde&Schwarz	ESH3-Z5	100310	12.16.2006

3. RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(B)

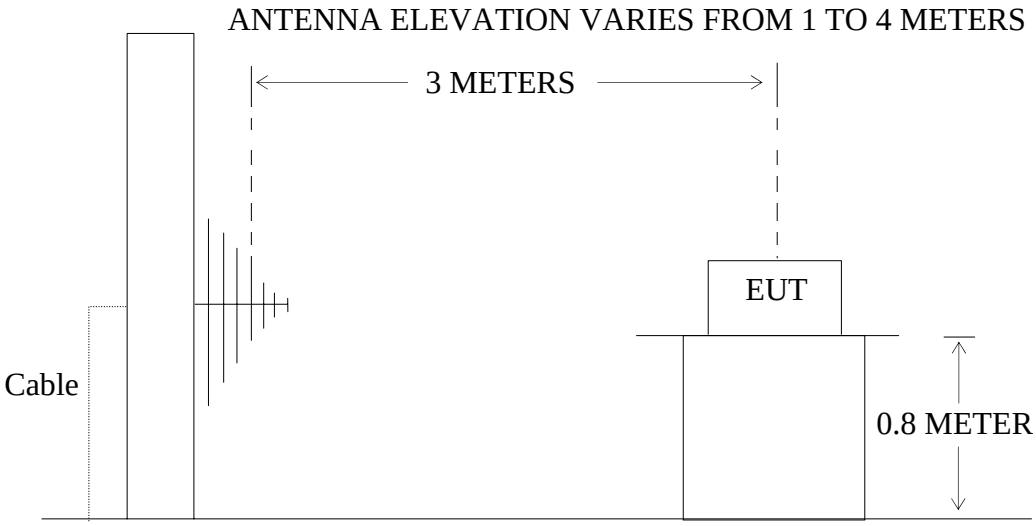
3.1.Block Diagram of Test Setup

3.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: RF Mouse)

3.1.2.Anechoic Chamber Test Setup Diagram



(EUT: RF Mouse)

3.2.The Field Strength of Radiation Emission Measurement Limits

3.2.1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209

Radiation Emission Measurement Limits According to Section 15.209(a)

Frequency (MHz)	Limit,		
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those
30 - 88	100	40	
88 - 216	150	43.5	

216 - 960	200	46	frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
Above 960	500	54	

3.3. Configuration of EUT on Measurement

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

3.3.1. RF Mouse (EUT)

Model Number : PAC168
Serial Number : N/A
Manufacturer : Shenzhen Oliti Computer Technology Co., Ltd.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in TX modes(on) measure it.

3.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 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 polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC Part 15 Subpart C on radiated emission measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 120KHz in 30-1000MHz.
The frequency range from 30MHz to 1000MHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

3.6. The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range 30MHz to 1000MHz is investigated.

Date of Test:	July 20, 2005	Temperature:	22°C
EUT:	RF Mouse	Humidity:	50%
Model No.:	PAC168	Power Supply:	3.0V DC ("AAA"battery 2×)
Test Mode:	TX	Test Engineer:	Andy

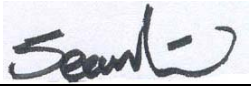
Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	234.670	16.5	9.7	26.2	46	19.8
Horizontal	268.620	16.6	10.8	27.4	46	18.6
Horizontal	363.680	16.5	14.1	30.6	46	15.4
Horizontal	384.050	16.2	14.6	30.8	46	15.2
Horizontal	391.810	15.0	14.8	29.8	46	16.2
Horizontal	402.480	14.7	15.0	29.7	46	16.3
Vertical	393.750	15.9	14.8	30.7	46	15.3
Vertical	402.480	16.3	15.0	31.3	46	14.7
Vertical	413.150	16.6	15.5	32.1	46	13.9
Vertical	428.670	15.2	15.9	31.1	46	14.9
Vertical	438.370	15.4	16.2	31.6	46	14.4
Vertical	447.100	14.2	16.4	30.6	46	15.4

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

Reviewer **:** 

4. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(A)

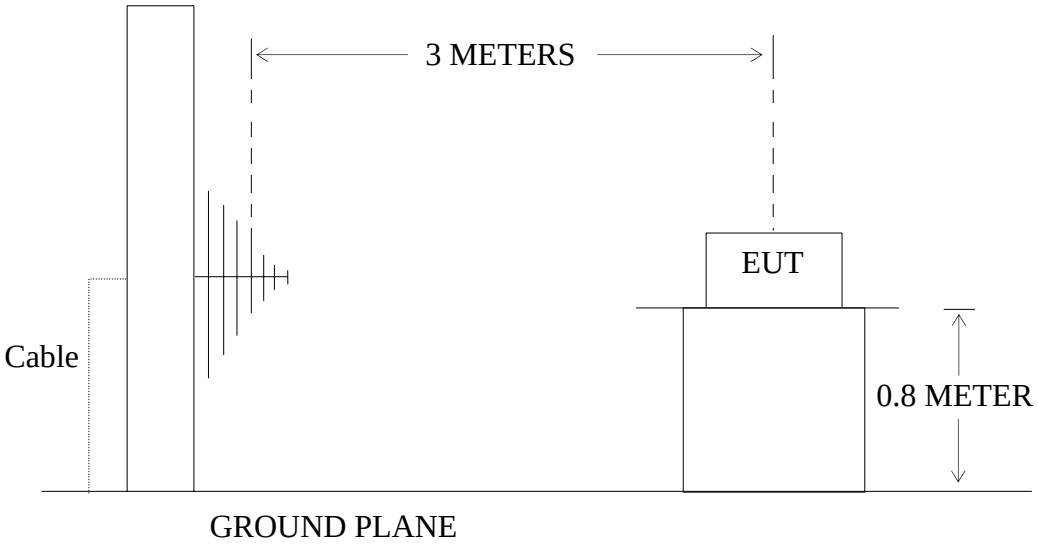
4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: RF Mouse)

4.1.2.Anechoic Chamber Test Setup Diagram



(EUT: RF Mouse)

4.2.The Emission Limit For Section 15.227(a)

4.2.1 The field strength of any emission within this band shall not exceed 10,000microvolts/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 emission apply.

4.3.EUT Configuration on Measurement

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

4.3.1. RF Mouse (EUT)

Model Number	**:**	PAC168
Serial Number	**:**	N/A
Manufacturer	**:**	Shenzhen Oliti Computer Technology Co., Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipment.

4.4.3.Let the EUT work in TX mode (On) measure it.

4.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. calibrated Loop antenna is used as receiving antenna. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC Part 15 on radiated emission measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 9KHz in 9kHz-30MHz

4.6. The Emission Measurement Result

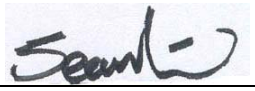
PASS.

Date of Test:	July 20, 2005	Temperature:	22°C
EUT:	RF Mouse	Humidity:	50%
Model No.:	PAC168	Power Supply:	3.0V DC ("AAA"battery 2×)
Test Mode:	TX	Test Engineer:	Andy

Fundamental Radiated Emissions

Test conditions		Fundamental Frequency	
		27.045MHz	
T_{nom}(20°C)	Unit	(dBμV/m)/ (μ V/m) AV	(dBμV/m)/(μ V/m) PEAK
		50.7/343	53.5/473
limit		80/10,000	100/100,000
Note: Measurement was performed with modulated signal with average detector and peak detector.			

The spectral diagrams in appendix 1.

Reviewer **:** 

5. BAND EDGES

5.1.The Requirement

5.1.1. The wanted emission within the band 26.96-27.28MHz.

5.2.EUT Configuration on Measurement

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

5.2.1.RF Mouse (EUT)

Model Number	**:**	PAC168
Serial Number	**:**	N/A
Manufacturer	**:**	Shenzhen Oliti Computer Technology Co., Ltd.

5.3.Operating Condition of EUT

5.3.1.Setup the EUT and simulator as shown as Section 4.1.

5.3.2.Turn on the power of all equipment.

5.3.3.Let the EUT work in TX mode (On) measure it.

5.4.Test Procedure

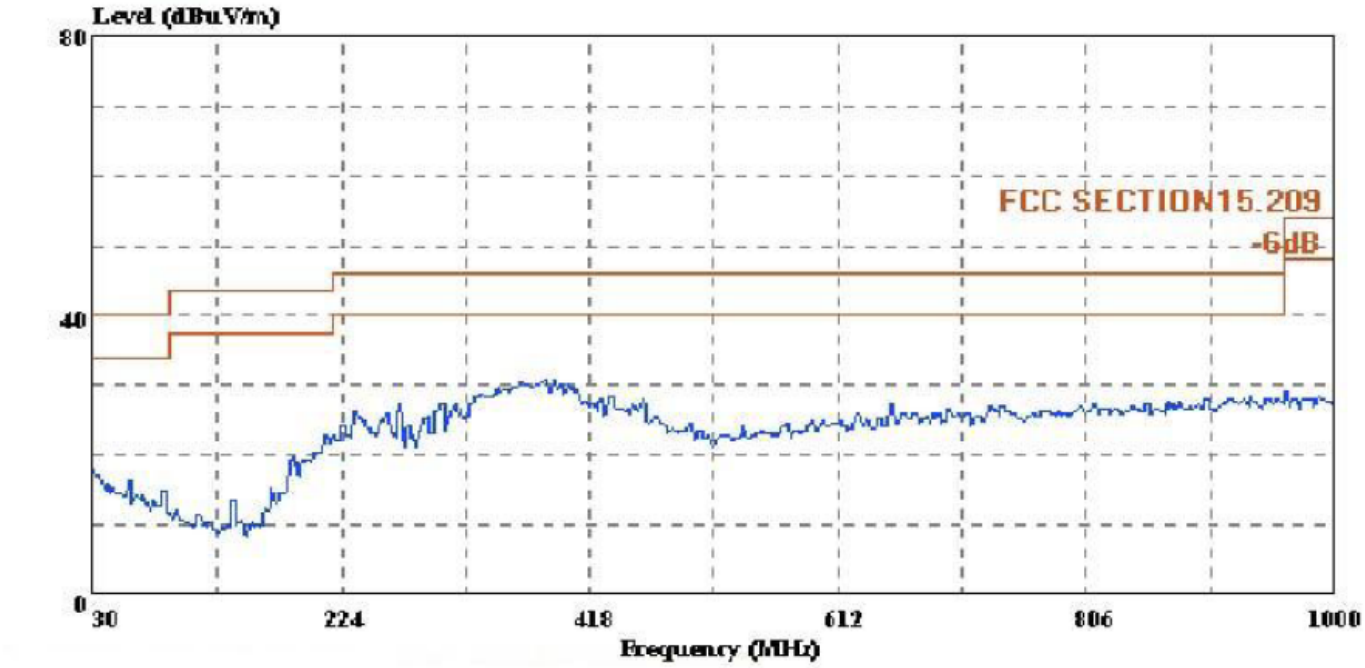
The transmitter output was fed into the spectrum analyzer and photo was taken. The vertical scale is set to 10dB per division; the horizontal scale is set to 32kHz per division. Star frequency are 26.96MHz, stop frequency are 27.28MHz .
RBW are 3kHz, VBW are 3kHz, Sweep time are 50ms.

5.5. The Measurement Result

The EUT does meet the FCC requirement.

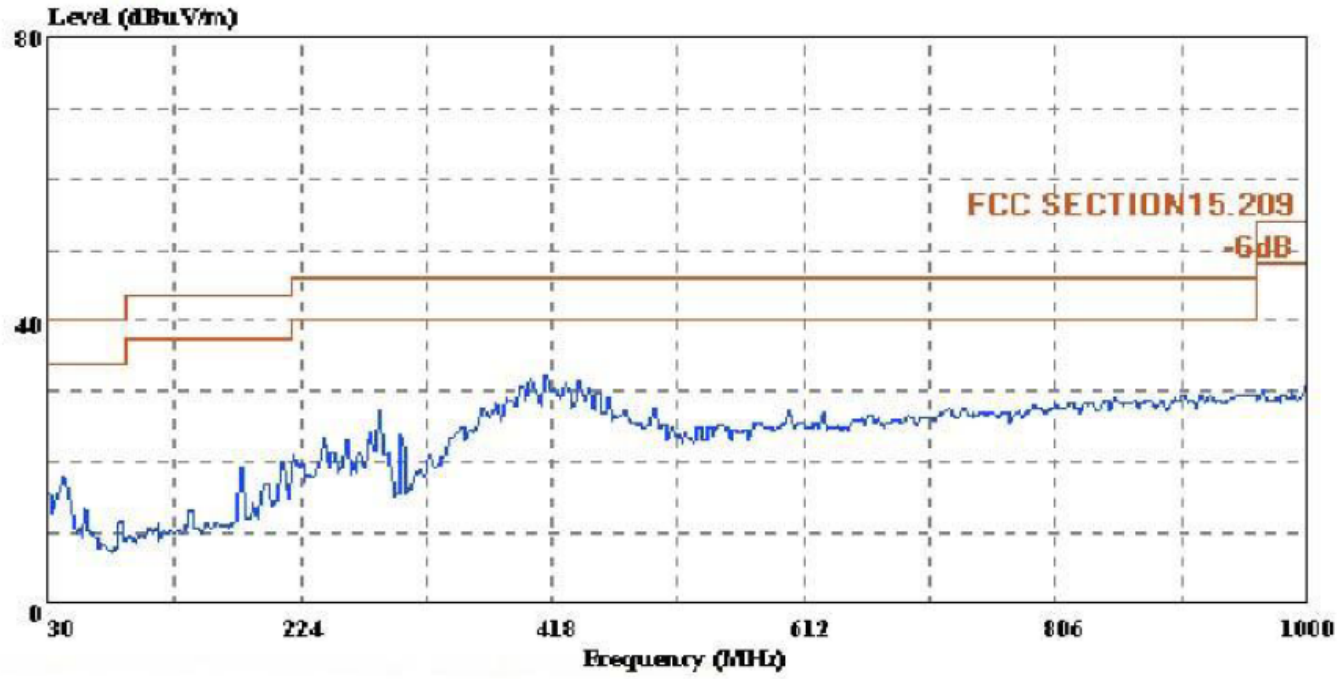
The spectral diagrams in appendix 1.

APPENDIX I
(Test Curves)



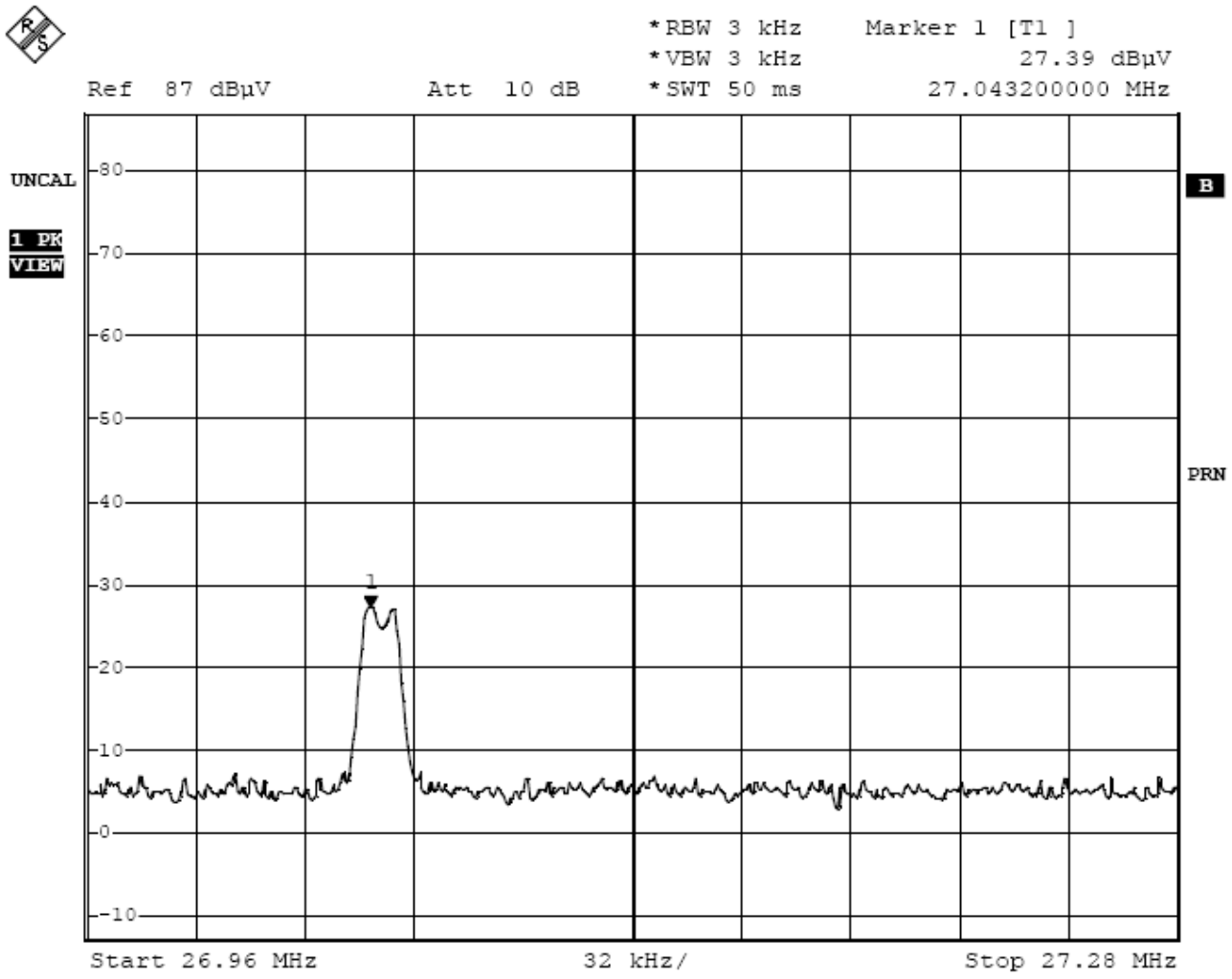
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC VULB9163(NEW) HORIZONTAL
eut : RF MOUSE M/N:PAC168
power : DC 3.0V
memo : TX
manuf : Gajah International
sample no.: 061996



Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC VULB9163(NEW) VERTICAL
eut : RF MOUSE M/N:PAC168
power : DC 3.0V
memo : TX
manuf : Gajah International
sample no.: 061996


*RBW 3 kHz
*VBW 3 kHz
*SWT 50 ms
Marker 1 [T1]
27.39 dBµV
27.043200000 MHz
Ref 87 dBµV
Att 10 dB
UNCAL
1 PK
VIEW
B
PRN
80
70
60
50
40
30
20
10
0
-10
1
Start 26.96 MHz
32 kHz/
Stop 27.28 MHz