FCC TEST REPORT

REPORT NO.: RF90021305-1
MODEL NO.: 1220 U/P
LT9524 (for OEM)
RECEIVED: May 9, 2001
TESTED: May 11, 2001

APPLICANT: Chic Technology Corp.

ADDRESS: 16F, No. 150, Chien- I Road, Chung Ho, Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

0528

Lab Code: 200102-0

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1 CERTIFICATION

PRODUCT :	Wireless Mouse
BRAND NAME :	Chic
MODEL NO :	1220U/P
APPLICANT :	Chic Technology Corp.
OEM BRAND NAME :	Lifetec
OEM MODEL NO :	LT9524
STANDARDS :	47 CFR Part 15, Subpart C , ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility on May 11, 2001. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

TESTED BY: Gary Chang , **DATE:** May 22, 2001
(Gary Chang)

CHECKED BY: Demi Chen , **DATE:** May 22, 2001
(Demi Chen)

APPROVED BY: , **DATE:** May 22, 2001
(Harris W. Lai)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Standard Section	Test Type	Result	Remarks
FCC PART 15, SUBPART C, 15.107, 15.227	Conducted Test	NA	POWER SUPPLY IS 3VDC FROM BATTERIES.
	Radiated Test	PASS	Meets Class B Limit Minimum passing margin is –8.1dBuV at 243.80 MHz

NOTE: The receiver part of the Wireless Mouse has been verified to comply with FCC Part 15, Subpart B, Class B (DoC) in ADT. The test report can be provided upon request.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Mouse (Transmitter part)
MODEL NO.	1220 U/P, LT9524 (for OEM)
POWER SUPPLY	3VDC (1.5V x 2 batteries)
MODULATION TYPE	FSK
FREQUENCY RANGE	NA
CARRIER FREQUENCY OF EACH CHANNEL	27.045, 27.095MHz
NUMBER OF CHANNEL	2
ANTENNA TYPE	Printed Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE :

1. The EUT is the transmitter part of a wireless mouse.
2. This report is prepared for FCC class II permissive change. The difference compared with the original design is PCB re-layout as the outer appearance change. So the test is necessary.
3. The 1210 U/P with original design has been approved by FCC under FCC ID:IOW1210. The difference between 1210 U/P and 1220 U/P are outer appearance and the dimensions of PCB.
4. 1220 U/P and LT9524 are identical except for brand name and model number.
5. For a more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Two channels are provided from EUT.

Channel	Frequency	Channel	Frequency
1	27.045 MHz	7	
2	27.095 MHz	8	
3		9	
4		10	
5		11	
6			

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is the transmitter part of a Wireless Mouse. According to the specifications of the manufacturers, it must comply with the requirements of the following standards:

FCC CFR 47 Part 15, Subpart C.

ANSI C63.4-1992

All tests have been performed and recorded as per the above standards. The conducted test is not necessary, as the power input of EUT is DC 3V from batteries.

3.4 DESCRIPTION OF SUPPORT UNITS

NA

4 TEST PROCEDURES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

NA

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.227 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBμV/meter)	
26.96-27.28	Peak	Average
	100	80

Field strength limits are at the distance of 3 meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Other Frequencies (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8590L	3544A01176	May 7, 2002
*HP Preamplifier	8447D	2944A08485	Nov. 4, 2001
* HP Preamplifier	8449B	3008A01201	Dec. 13, 2001
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 25, 2002
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2001
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 4, 2001
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Aug. 4, 2001
* TIMES RF cable	LMR-600	CABLE-ST5-01	Aug. 4, 2001
* Antenna (Horn)	BBHA9120-D	D130	July 10, 2001
Open Field Test Site	Site 5	ADT-R05	July 28, 2001
Site Registration No.	FCC: 90422 VCCI : R-1039 Canada IC: IC 3789-5		

NOTE:

1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipments are used for the final measurement.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open field site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

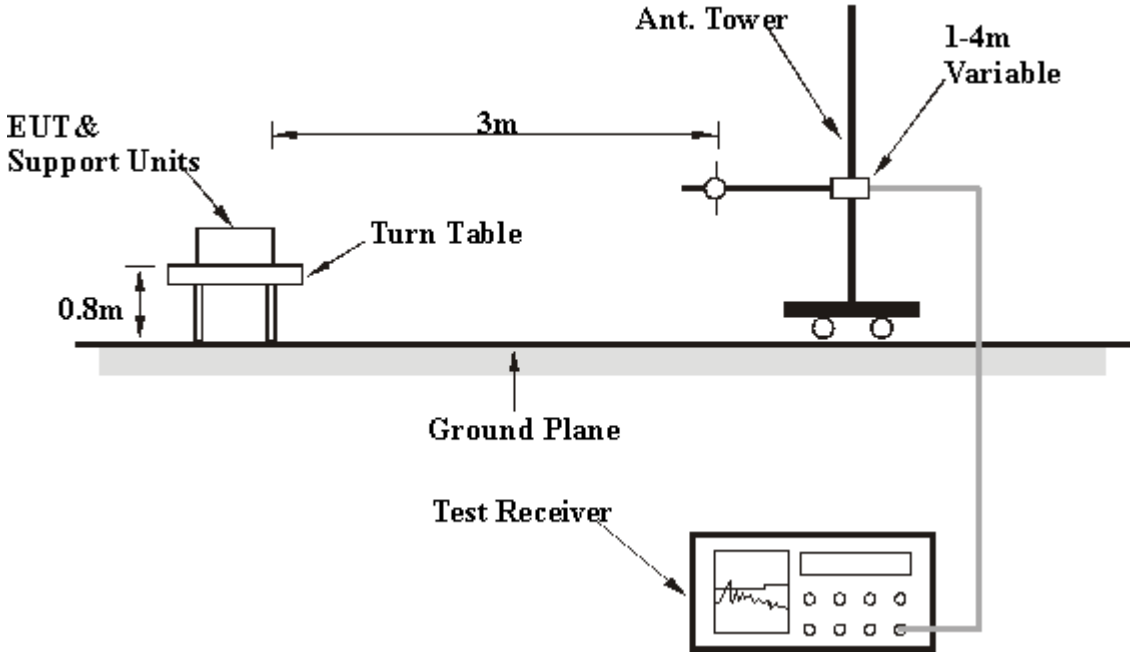
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi- peak method or average method as specified and then reported In Data sheet peak mode and QP mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.5 EUT OPERATING CONDITIONS

a. Turn on the power of all equipment.
b. The EUT was operated at transmitting condition continuously during the test.

4.2.6 TEST RESULTS

EUT	Wireless Mouse (Transmitter Part)	**MODEL**	1220 U/P
MODE	27MHz	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak / Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 hPa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	*27.02	50.7 PK	80.0	-19.1	1.00	356	68.83	6.80	2.03	27.00	18.17
2	108.13	43.5 PK	43.5	-12.2	1.00	354	45.15	10.80	2.31	27.00	13.88
3	189.29	33.5 PK	43.5	-10.0	1.00	365	49.31	8.51	2.73	27.00	15.76
4	216.36	32.4 PK	46.0	-13.6	1.00	2	47.13	9.43	8.82	27.00	14.75
5	243.80	37.9 PK	46.0	-8.1	1.00	343	50.96	11.07	2.87	27.00	13.07
6	270.80	32.2 PK	46.0	-13.8	1.00	292	44.13	12.08	2.95	27.00	11.97
7	405.63	34.8 PK	46.0	-11.2	1.79	83	42.91	15.43	3.44	27.00	8.13
8	432.64	35.5 PK	46.0	-10.5	1.07	290	43.41	15.82	3.31	27.00	7.87
9	459.77	35.1 PK	46.0	-10.9	1.00	63	42.57	16.24	3.30	27.00	7.45
10	487.30	33.3 PK	46.0	-12.7	1.03	67	39.95	16.75	3.57	27.00	6.67

NOTE:

1. Emission level (dBuV/m) = Reading value (dBuV) - Correction Factor (dB)
2. Correction Factor (dB/m) = External Preamp. Gain (dB) - Ant. Factor (dB/m) - Cable loss (dB)
   (External Preamp. Gain = 0, when the test receiver is used for the test.)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. " * " : Fundamental frequency

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	*26.99	62.0 PK	80.0	-18.0	1.03	11	80.21	6.80	2.03	27.00	18.17
2	135.00	25.3 PK	43.5	-18.2	1.00	356	38.90	10.90	2.54	27.00	13.56
3	162.28	29.0 PK	43.5	-14.5	1.00	112	44.32	9.04	2.62	27.00	15.35
4	189.31	30.7 PK	43.5	-12.8	1.00	350	46.44	8.51	2.73	27.00	15.76
5	216.36	31.0 PK	46.0	-15.0	1.00	33	45.75	9.43	2.82	27.00	14.75
6	243.41	33.6 PK	46.0	-12.4	1.00	101	46.64	11.07	2.87	27.00	13.07
7	432.65	28.9 PK	46.0	-17.1	2.66	129	36.75	15.82	3.31	27.00	7.87
8	459.79	31.0 PK	46.0	-15.0	2.07	34	38.47	16.24	3.30	27.00	7.45

NOTE:

1. Emission level (dBuV/m) = Reading value (dBuV) - Correction Factor (dB/m)
2. Correction Factor (dB/m) = External Preamp. Gain (dB) - Ant. Factor (dB/m) - Cable loss (dB)
   (External Preamp. Gain = 0, when the test receiver is used for the test.)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. " * " : Fundamental frequency

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST

6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.