ADDENDUM TO TEST REPORT FC00-046

FOR THE

CORDLESS KEYBOARD, Y-RC14

FCC PART 15 SUBPART C
PART 15.227

COMPLIANCE

DATE OF ISSUE: JUNE 22, 2000

PREPARED FOR:

Logitech, Inc.
6505 Kaiser Drive
Fremont, CA 94555

W.O. No: 74296

Report No: FC00-046A

PREPARED BY:

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Date of test: May 4, 2000

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	May 4, 2000
PURPOSE OF TEST:	To demonstrate the compliance of the Cordless Keyboard, Y-RC14, with the requirements for FCC Part 15.227 devices. Addendum has additional information for the Detector Function and Bandwidth Plot, Bandwidth Plot and Block Diagram.
MANUFACTURER:	Logitech, Inc. 6505 Kaiser Drive Fremont, CA 94555
REPRESENTATIVE:	Bharat Shah
TEST LOCATION:	CKC Laboratories, Inc. 1653 Los Viboras Road Hollister, CA 95023
TEST PERSONNEL:	Art Rice
TEST METHOD:	ANSI C63.4 1992
FREQUENCY RANGE TESTED:	9 kHz - 1000 MHz
EQUIPMENT UNDER TEST:	**Cordless Keyboard** Manuf: Logitech, Inc. Model: Y-RC14 Serial: 001 FCC ID: DZL221407 (pending)

SUMMARY OF RESULTS

The Logitech, Inc. Cordless Keyboard, Y-RC14, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15.227.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15.227. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

Cordless keyboard.

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ±4dB measurement uncertainty.

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Mouse
Manuf: HP
Model: M-S48A
Serial: LZA95000165
FCC ID: JNZ201213

Monitor
Manuf: HP
Model: D5258A
Serial: DK73795774
FCC ID: C5F7NFCMC1516X

Host PC
Manuf: Dell
Model: Dimension XPS T450
Serial: 1H43F
FCC ID: DoC

Printer
Manuf: HP
Model: C2655-60015
Serial: SG69K111KR
FCC ID: DoC

Modem
Manuf: Best Data
Model: 56SPSX V.90
Serial: 56SPX72729
FCC ID: DoC

Receiver
Manuf: Logitech, Inc.
Model: C-RC3-KBD
Serial: N/A
FCC ID: DZLXXXXX

REPORT OF MEASUREMENTS

The following tables report the highest worst case levels recorded during the tests performed on the Cordless Keyboard, Y-RC14. All readings taken are peak readings unless otherwise noted by a "Q" or "A". The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Fundamental Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Mag dB	Amp dB	PWM dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
27.150	51.2	6.6		0.0		57.8	80.0	-22.2	NA-1
27.150	50.5	6.6		0.0		57.1	80.0	-22.9	NA-2
27.150	43.2	6.6		0.0		49.8	80.0	-30.2	NA-3

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.227
Test Distance: 3 Meters

NOTES:
N = No Polarization
A = Average Reading
1 = keyboard rotated to stand on right edge
2 = keyboard rotated to stand on front edge
3 = keyboard is in normal position, flat on table

COMMENTS: The EUT and ancillary equipment was tested and set up in accordance with ANSI C63.4 1992 test methods. The EUT is a wireless keyboard operating in the 26.96 to 27.28 MHz band. The Y-RC14 wireless keyboard will continuously emit the RF signal to the computer via the RF receiver. The keyboard has been configured to continuously send the letter "i", which causes the Windows 98 operating system to toggle between two icons with names that begin with the letter "i". The RF receiver is connected to the computer PS/2 port. The monitor is displaying the desktop of the Windows 98. The modem, monitor and printer are connected to the host PC. The internal crystals of the EUT are 4.0 and 13.5725 MHz. Measuring transmit fundamental level at 27.145 MHz. Rotated magloop antenna and turntable to maximize signal. Peak readings were pulse width modulation averaged for a 55.9% duty cycle. "Average" readings were measured by reducing the video bandwidth while in the linear mode of the spectrum analyzer.

Table 2: Six Highest Radiated Emission Levels - 9kHz-30MHz

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Mag dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
0.049	73.2	12.3				85.5	113.8	-28.3	N
0.097	65.6	10.2				75.8	107.9	-32.1	N
0.150	65.1	9.6				74.7	104.1	-29.4	N
0.198	61.0	9.7				70.7	101.7	-31.0	N
0.245	56.1	9.7				65.8	99.8	-34.0	N
4.000	18.7	9.8				28.5	69.5	-41.0	N

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.209
Test Distance: 3 Meters

NOTES:
H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: The EUT and ancillary equipment was tested and set up in accordance with ANSI C63.4 1992 test methods. The EUT is a wireless keyboard operating in the 26.96 to 27.28 MHz band. The Y-RC14 wireless keyboard will continuously emit the RF signal to the computer via the RF receiver. The keyboard has been configured to continuously send the letter "i", which causes the Windows 98 operating system to toggle between two icons with names that begin with the letter "i". The RF receiver is connected to the computer PS/2 port. The monitor is displaying the desktop of the Windows 98. The modem, monitor and printer are connected to the host PC. The internal crystals of the EUT are 4.0 and 13.5725 MHz. Measuring spurious signals from .009 to 30 MHz. Maximized any signal within 10 dB of the limit.

Table 3: Six Highest Radiated Emission Levels – 30MHz-1000MHz

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
54.331	48.3	8.6	-27.1	1.0		30.8	40.0	-9.2	V
54.371	43.1	8.6	-27.1	1.0		25.6	40.0	-14.4	H
135.949	46.1	10.3	-26.8	1.6		31.2	43.5	-12.3	V
499.058	40.3	17.2	-27.8	3.0		32.7	46.0	-13.3	H
798.272	36.2	21.4	-27.6	4.1		34.1	46.0	-11.9	H
832.137	32.8	21.8	-27.5	4.3		31.4	46.0	-14.6	H

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.209
Test Distance: 3 Meters

NOTES:
H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: The EUT and ancillary equipment was tested and set up in accordance with ANSI C63.4 1992 test methods. The EUT is a wireless keyboard operating in the 26.96 to 27.28 MHz band. The Y-RC14 wireless keyboard will continuously emit the RF signal to the computer via the RF receiver. The keyboard has been configured to continuously send the letter "i", which causes the Windows 98 operating system to toggle between two icons with names that begin with the letter "i". The RF receiver is connected to the computer PS/2 port. The monitor is displaying the desktop of the Windows 98. The modem, monitor and printer are connected to the host PC. The internal crystals of the EUT are 4.0 and 13.5725 MHz. Measuring harmonics and spurious signals from 30-1000 MHz. Maximized any signal within 10 dB of the limit. Did not list signals known to be from the support equipment.

TABLE A

LIST OF TEST EQUIPMENT

Hollister Site A

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 85650A QP Adaptor	2430A00541	04/09/2000	04/09/2001	0
HP 85662A Display	2112A02174	04/09/2000	04/09/2001	0
HP 85680A S. A.	2049A01408	04/09/2000	04/09/2001	0
Loop Ant, Emco 6502	2078	06/17/1999	06/17/2000	432
HP 8447F Preamp	2944A03850	03/22/2000	03/22/2001	501
Log Periodic, A.H. SAS200/510	318	04/23/1999	05/19/00	0
Bicon, AH Sys. SAS200/540	273	10/29/1999	10/29/2000	0
Cable, 3m	Cbl3mha00	01/18/2000	01/18/2001	0

EUT SETUP

The equipment under test (EUT) and the peripheral(s) listed were set up in a manner that represented their normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1-3 for radiated emissions. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

I/O cables were connected to the EUT and peripheral(s) in the manner required for normal operation of the system. Excess cabling was bundled in the center in a serpentine fashion using 30-40 centimeter lengths.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect the radiated emissions data for the Cordless Keyboard, Y-RC14. The magloop antenna was used for frequencies below 30 MHz. For radiated measurements between 30 to 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. All antennas were located at a distance of 3 meters from the edge of the EUT.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

TABLE B : ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1-3 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Cordless Keyboard, Y-RC14.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

When the frequencies are below 30 MHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

TEST METHODS

The radiated emissions data of the Cordless Keyboard, Y-RC14, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15.227 and 15.209 emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode, with the I/O cables and line cords facing the antenna. The magloop antenna was used to scan the frequency range of 9 kHz to 30 MHz. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the peripherals and cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

FCC Part 15.215- Occupied Bandwidth Measurements

In accordance with Part 15.215(c), the fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in Tables 1-3. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula:

Meter reading (dBµV)
+ Antenna Factor (dB)
+ Cable Loss (dB)
- Distance Correction (dB)
- Pre-amplifier Gain (dB)

= Corrected Reading (dBµV/m)

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng dBuV	Cable	Amp	Bicon	Log	Dist	Corr dBuV/m	Spec	Margin	Polar
	Mag	PWM									

means reading number
Freq MHz is the frequency in MHz of the obtained reading.
Rdng dBuV is the reading obtained on the spectrum analyzer in dBµV.
Amp is short for the preamplifier factor or gain in dB.
Bicon is the biconical antenna factor in dB.
Log is the log periodic antenna factor in dB.
Cable is the cable loss in dB of the coaxial cable on the OATS.
Dist is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.
Corr dBµV/m is the corrected reading which is now in dBµV/m (field strength).
Spec is the specification limit (dB) stated in the agency's regulations.
Margin is the closeness to the specified limit in dB; + is over and - is under the limit.
Polar is the Polarity of the antenna with respect to earth.
Mag is the magnetic loop antenna factor in dB.
PWM is the pulse width modulation factor in dB as called in 15.35 (c).

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	Key board is constantly emitting " I "
CRT was displaying:	A series of " I " are on CRT
Power Supply Manufacturer:	N/A
Power Supply Part Number:	N/A
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A
Line voltage used during testing:	2 AA Batteries

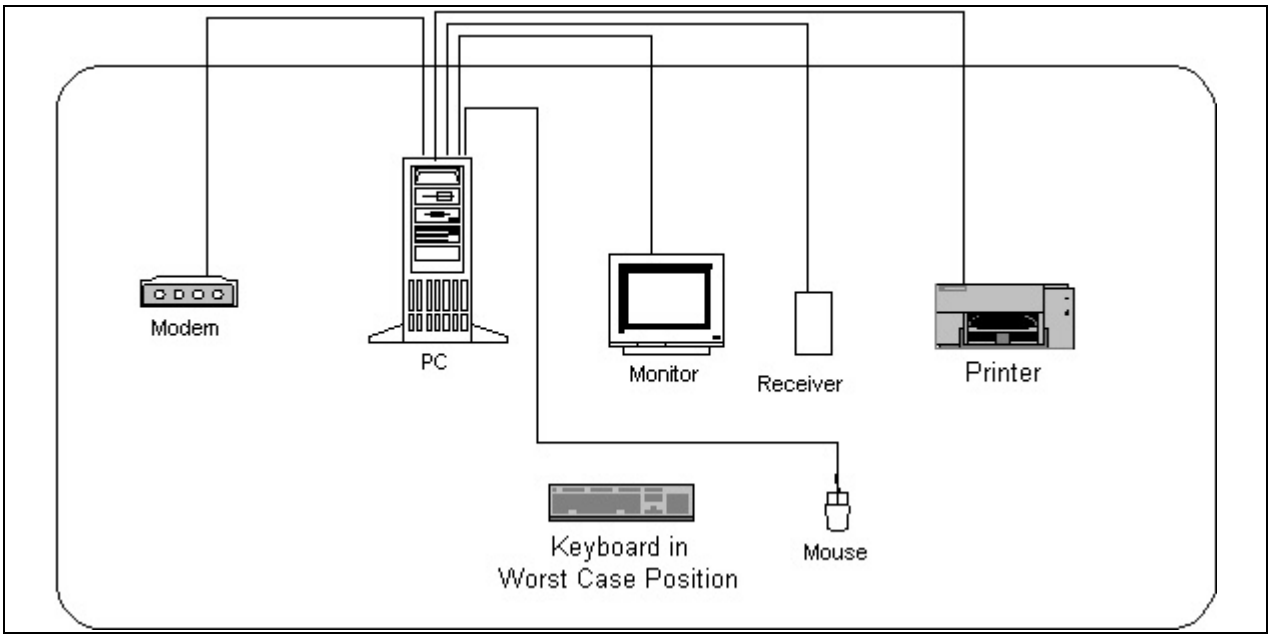
I/O PORTS	
Type	#
	1

CRYSTAL OSCILLATORS	
Type	Freq In MHz
Crystal	13.5725 MHz
Crystal	4 MHz

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
		13.5725and 4 MHz	2	

REQUIRED EUT CHANGES TO COMPLY:
None.

EQUIPMENT CONFIGURATION BLOCK DIAGRAM



The block diagram represents a typical setup. The setup photo shows the device in a position that will most likely never be used. However, since the keyboard can be considered a 'portable' device because it can be held in the lap etc, this orthogonal position was tested and found to be worse case. Thus the photo shows this angle. All three orthogonal positions were tested.

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

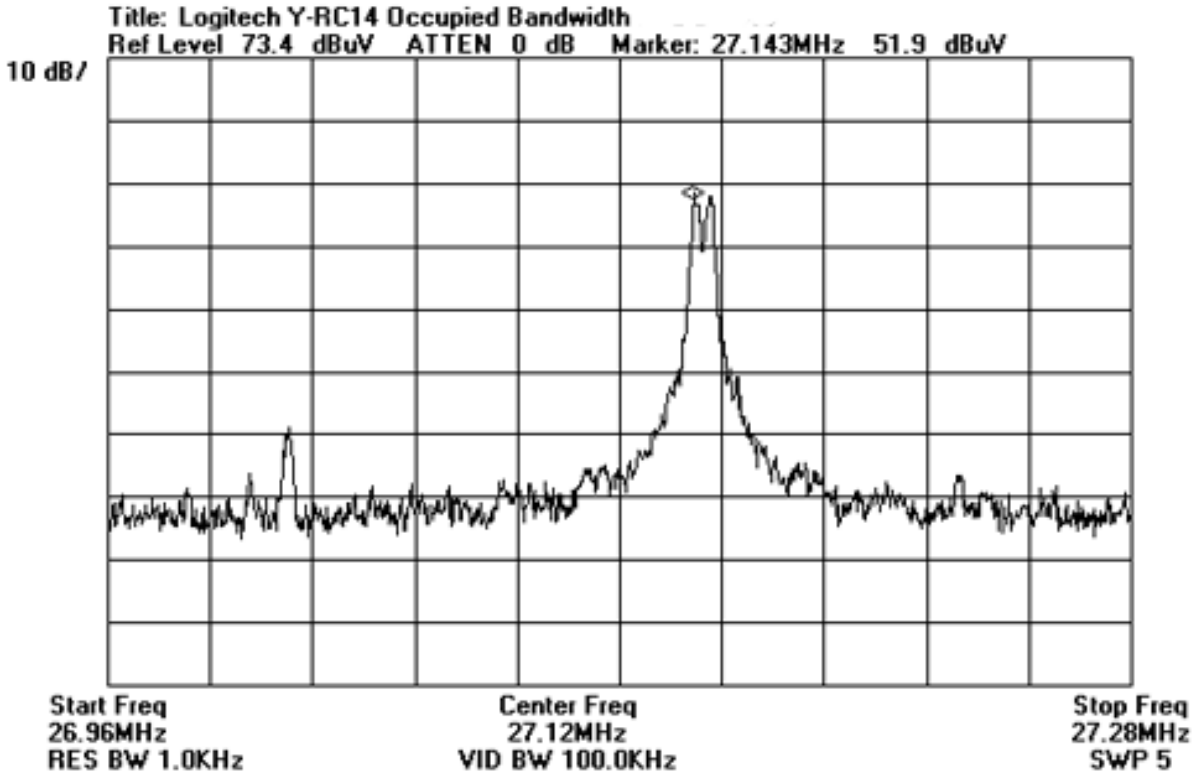
PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

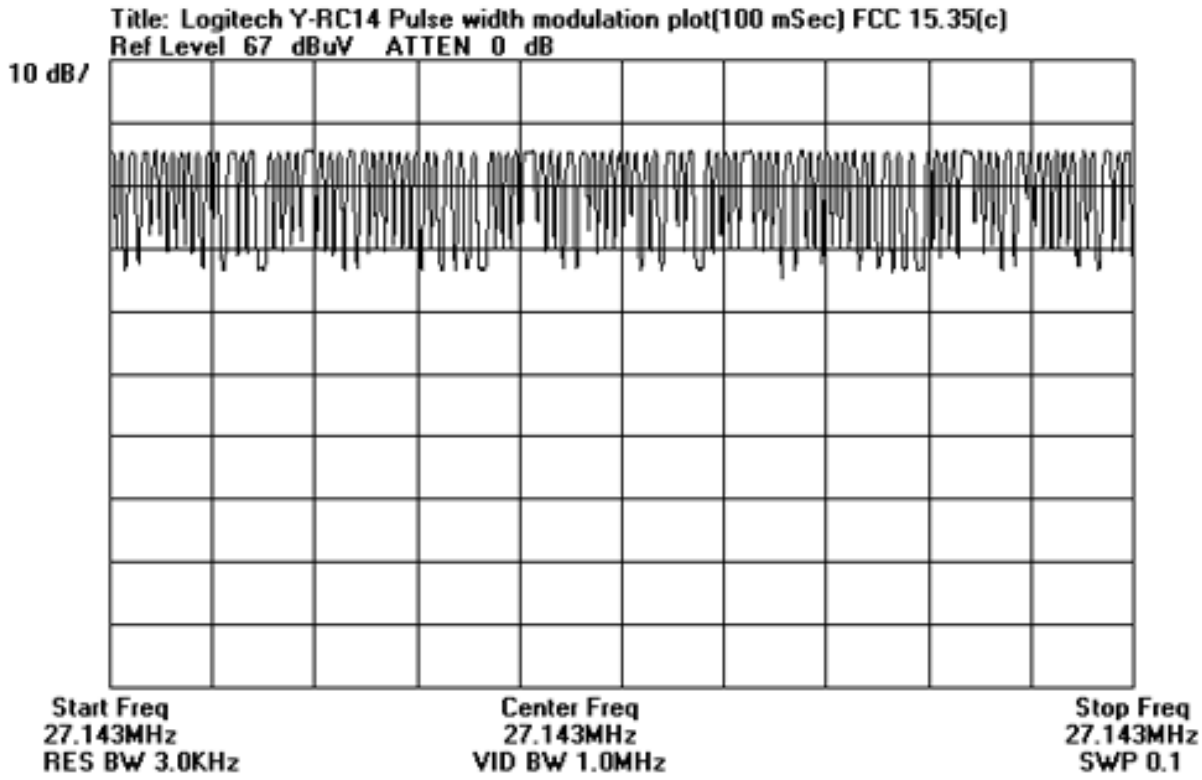
APPENDIX B

MEASUREMENT DATA SHEETS

Occupied Bandwidth Plot Part 15.215(c)



Detector Functions and Bandwidth Part 15.35 (c)



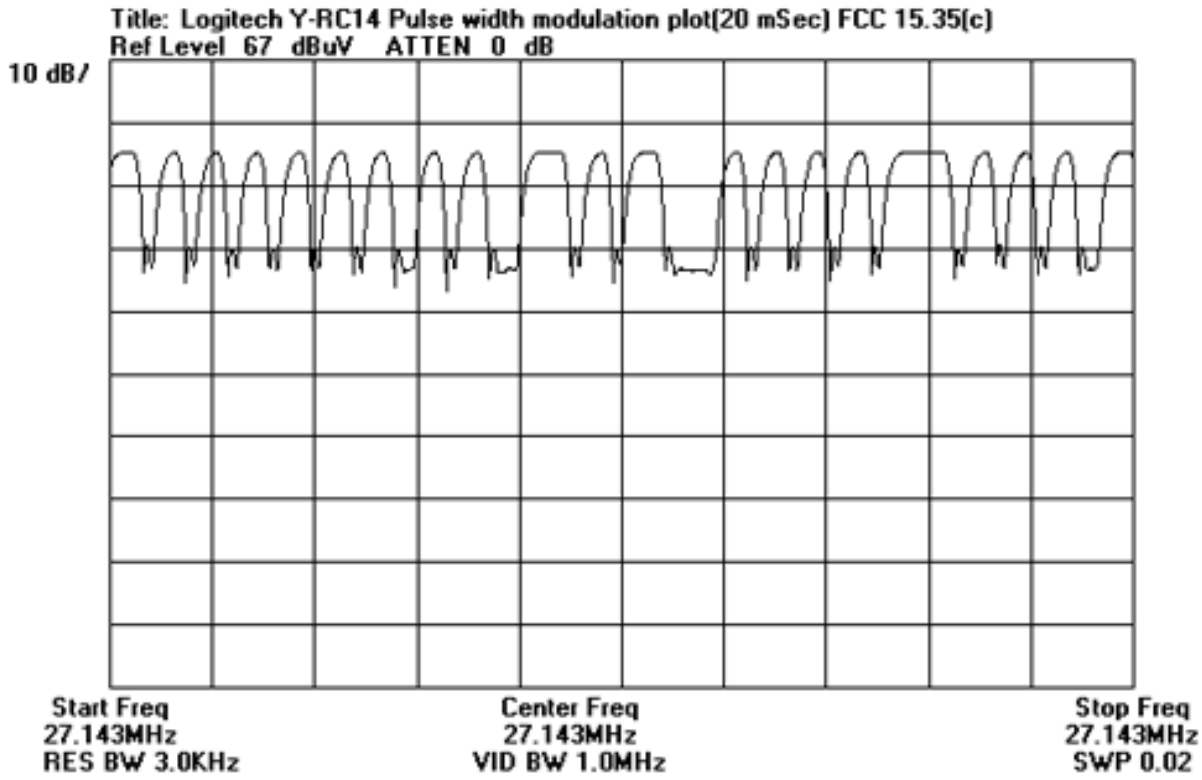
Calculations

1) .5 mA pulse x 79 = 39.5 mS
2) .7 mA pulse x 16 = 11.2 mS
3) 1.3 mA pulse x 4 = 5.2 mS
4) 1.5 mA pulse x 0 = 0.0 mS

55.9 mS

55.9/100 = .559
20log(.559) = -5.05 dB

Detector Functions and Bandwidth Part 15.35 (c)



Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **Logitech, Inc.**
Specification: **FCC15.227 (26.96-27.28 MHz)**
Work Order #: **74296** Date: 05/04/2000
Test Type: **Radiated Scan** Time: 13:05:14
Equipment: **Wireless Keyboard** Sequence#: 2
Manufacturer: Logitech Tested By: Art Rice
Model: Y-RC14
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Wireless Keyboard*	Logitech	Y-RC14	001

Support Devices:

Function	Manufacturer	Model #	S/N
Mouse	HP	M-S48A	LZA95000165
Monitor	HP	D5258A	DK73795774
Host PC	Dell	Dimension XPS T450	1H43F
Printer	HP	C2655-60015	SG69K111KR
Modem	Best Data	56SPSX V.90	56SPX72729
Receiver	Logitech, Inc.	C-RC3-KBD	N/A

Test Conditions / Notes:

COMMENTS: The EUT and ancillary equipment was tested and set up in accordance with ANSI C63.4 1992 test methods. The EUT is a wireless keyboard operating in the 26.96 to 27.28 MHz band. The Y-RC14 wireless keyboard will continuously emit the RF signal to the computer via the RF receiver. The keyboard has been configured to continuously send the letter "i", which causes the Windows 98 operating system to toggle between two icons with names that begin with the letter "i". The RF receiver is connected to the computer PS/2 port. The monitor is displaying the desktop of the Windows 98. The modem, monitor and printer are connected to the host PC. The internal crystals of the EUT are 4.0 and 13.5725 MHz. Measuring transmit fundamental level at 27.145 MHz. Rotated magloop antenna and turntable to maximize signal. Peak readings were pulse width modulation averaged for a 55.9% duty cycle. "Average" readings were measured by reducing the video bandwidth while in the linear mode of the spectrum analyzer.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Mag dB	PWM dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1 Ave	27.150M	51.2	+6.6	+0.0			+0.0	57.8	80.0	-22.3	None
									Keyboard rotated to stand on right edge.		
^	27.150M	53.7	+6.6	-5.5			+0.0	54.8	80.0	-25.2	None
									Keyboard is rotated to stand on front edge.		
^	27.150M	53.5	+6.6	-5.5			+0.0	54.6	80.0	-25.4	None
									Keyboard rotated to stand on right edge.		

^	27.150M	46.1	+6.6	-5.5		+0.0	47.2	80.0	-32.8	None Keyboard is in normal position, flat on table.
5	27.150M Ave	50.5	+6.6	+0.0		+0.0	57.1	80.0	-22.9	None Keyboard is rotated to stand on front edge.
6	27.150M Ave	43.2	+6.6	+0.0		+0.0	49.8	80.0	-30.2	None Keyboard is in normal position, flat on table.

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **Logitech, Inc.**
Specification: **FCC15.209**
Work Order #: **74296** Date: 05/04/2000
Test Type: **Maximized Emissions** Time: 14:02:01
Equipment: **Wireless Keyboard** Sequence#: 3
Manufacturer: Logitech Tested By: Art Rice
Model: Y-RC14
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Wireless Keyboard*	Logitech	Y-RC14	001

Support Devices:

Function	Manufacturer	Model #	S/N
Mouse	HP	M-S48A	LZA95000165
Monitor	HP	D5258A	DK73795774
Host PC	Dell	Dimension XPS T450	1H43F
Printer	HP	C2655-60015	SG69K111KR
Modem	Best Data	56SPSX V.90	56SPX72729
Receiver	Logitech, Inc.	C-RC3-KBD	N/A

Test Conditions / Notes:

COMMENTS: The EUT and ancillary equipment was tested and set up in accordance with ANSI C63.4 1992 test methods. The EUT is a wireless keyboard operating in the 26.96 to 27.28 MHz band. The Y-RC14 wireless keyboard will continuously emit the RF signal to the computer via the RF receiver. The keyboard has been configured to continuously send the letter "i", which causes the Windows 98 operating system to toggle between two icons with names that begin with the letter "i". The RF receiver is connected to the computer PS/2 port. The monitor is displaying the desktop of the Windows 98. The modem, monitor and printer are connected to the host PC. The internal crystals of the EUT are 4.0 and 13.5725 MHz. Measuring spurious signals from .009 to 30 MHz. Maximized any signal within 10 dB of the limit.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Mag dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	48.680k	73.2	+12.3				+0.0	85.5	113.8	-28.3	None
2	150.090k	65.1	+9.6				+0.0	74.7	104.1	-29.4	None
3	197.880k	61.0	+9.7				+0.0	70.7	101.7	-31.0	None
4	97.050k	65.6	+10.2				+0.0	75.8	107.9	-32.1	None
5	244.700k	56.1	+9.7				+0.0	65.8	99.8	-34.0	None
6	4.000M	18.7	+9.8				+0.0	28.5	69.5	-41.0	None
7	13.527M	16.5	+8.8				+0.0	25.3	69.5	-44.2	None

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485
Customer: **Logitech, Inc.**
Specification: **FCC15.209**
Work Order #: **74296** Date: 05/04/2000
Test Type: **Maximized Emissions** Time: 16:26:43
Equipment: **Wireless Keyboard** Sequence#: 4
Manufacturer: Logitech Tested By: Art Rice
Model: Y-RC14
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Wireless Keyboard*	Logitech	Y-RC14	001

Support Devices:

Function	Manufacturer	Model #	S/N
Mouse	HP	M-S48A	LZA95000165
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Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Bicon dB	Cable dB	Log dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	62.111M	50.7	-27.0	+8.0	+1.1	+0.0	+0.0	32.8	40.0 BB noise	-7.2	Vert
2	144.392M	49.4	-26.7	+10.6	+1.7	+0.0	+0.0	35.0	43.5 BB noise	-8.5	Vert
3	54.331M	48.3	-27.1	+8.6	+1.0	+0.0	+0.0	30.8	40.0	-9.2	Vert
4	147.154M	48.2	-26.7	+10.7	+1.7	+0.0	+0.0	33.9	43.5 BB noise	-9.6	Vert
5	54.365M	47.9	-27.1	+8.6	+1.0	+0.0	+0.0	30.4	40.0 BB noise	-9.6	Vert
6	798.272M	36.2	-27.6	+0.0	+4.1	+21.4	+0.0	34.1	46.0	-11.9	Horiz
7	45.973M	44.6	-27.1	+9.7	+0.9	+0.0	+0.0	28.1	40.0 BB noise	-11.9	Vert
8	135.949M	46.1	-26.8	+10.3	+1.6	+0.0	+0.0	31.2	43.5	-12.3	Vert
9	499.058M	40.3	-27.8	+0.0	+3.0	+17.2	+0.0	32.7	46.0	-13.3	Horiz

10	54.371M	43.1	-27.1	+8.6	+1.0	+0.0	+0.0	25.6	40.0	-14.4	Horiz
11	832.137M	32.8	-27.5	+0.0	+4.3	+21.8	+0.0	31.4	46.0	-14.6	Horiz
12	192.077M	40.7	-26.5	+12.7	+1.9	+0.0	+0.0	28.8	43.5	-14.7	Horiz
13	135.932M	42.3	-26.8	+10.3	+1.6	+0.0	+0.0	27.4	43.5	-16.1	Horiz
14	615.774M	32.5	-28.0	+0.0	+3.4	+20.4	+0.0	28.3	46.0	-17.7	Horiz
15	81.607M	39.9	-27.0	+7.7	+1.2	+0.0	+0.0	21.8	40.0	-18.2	Vert
16	163.149M	38.0	-26.6	+11.2	+1.8	+0.0	+0.0	24.4	43.5	-19.1	Vert
17	492.546M	34.5	-27.8	+0.0	+3.0	+17.1	+0.0	26.8	46.0	-19.2	Horiz
18	526.517M	33.1	-27.9	+0.0	+3.1	+17.9	+0.0	26.2	46.0	-19.8	Horiz
19	399.331M	34.7	-27.2	+0.0	+2.7	+15.7	+0.0	25.9	46.0	-20.1	Horiz
20	432.225M	33.3	-27.4	+0.0	+2.9	+16.2	+0.0	25.0	46.0	-21.0	Horiz
21	217.596M	35.7	-26.4	+13.5	+2.0	+0.0	+0.0	24.8	46.0	-21.2	Horiz
22	190.396M	34.2	-26.5	+12.6	+1.9	+0.0	+0.0	22.2	43.5	-21.3	Horiz
23	190.418M	34.1	-26.5	+12.6	+1.9	+0.0	+0.0	22.1	43.5	-21.4	Vert
24	108.807M	37.8	-26.9	+9.0	+1.4	+0.0	+0.0	21.3	43.5	-22.2	Vert
25	163.189M	33.4	-26.6	+11.3	+1.8	+0.0	+0.0	19.9	43.5	-23.6	Horiz
26	217.618M	32.3	-26.4	+13.5	+2.0	+0.0	+0.0	21.4	46.0	-24.6	Vert
27	81.548M	33.2	-27.0	+7.7	+1.2	+0.0	+0.0	15.1	40.0	-24.9	Horiz
28	244.828M	30.0	-26.2	+14.1	+2.2	+0.0	+0.0	20.1	46.0	-25.9	Vert
29	272.015M	27.6	-26.3	+15.4	+2.3	+0.0	+0.0	19.0	46.0	-27.0	Vert
30	108.791M	32.4	-26.9	+9.0	+1.4	+0.0	+0.0	15.9	43.5	-27.6	Horiz
31	271.996M	26.1	-26.3	+15.4	+2.3	+0.0	+0.0	17.5	46.0	-28.5	Horiz
32	244.796M	26.9	-26.2	+14.1	+2.2	+0.0	+0.0	17.0	46.0	-29.0	Horiz