FCC PART 15.225 CLASS 2 PERMISSIVE CHANGE
TEST REPORT

for

THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z (RoHS)
FCC ID: I28-R2844Z

Prepared for

ZEBRA TECHNOLOGIES CORP.
1001 FLYNN RD
CAMARILLO, CA 93012

Prepared by: _____

REYNALD O. RAMIREZ

Approved by: _____

RUBY A. HALL

COMPATIBLE ELECTRONICS INC.
2337 TROUTDALE DRIVE
AGOURA, CALIFORNIA 91301
(818) 597-0600

DATE: AUGUST 4, 2006

	REPORT BODY	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

This electromagnetic emission report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form except in full, without the written permission of Compatible Electronics.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: Thermal Printer with RFID Capabilities
Model: R2844-Z S/U/P (RoHS)
S/N: None

Product Description: This printer is a desktop thermal printer specifically designed for printing labels, tags, receipts, etc. from any operating system or ASCII-based compatible host. Model R2844-Z (S/U/P) is capable of printing at 200dpi with a maximum speed of 4" per second. This product is a Class III equipment and is powered by 20Vdc using an external AC/DC desktop adapter.

Modifications: No modifications were made during the testing. Please see permissive change cover letter for further information.

Manufacturer: Zebra Technologies, Corp.
1001 Flynn Rd.
Camarillo, CA 93012

Test Date: July 21, 2006

Test Specifications: EMI requirements
FCC CFR Title 47, Part 15 Subpart A, B and C
Test Procedure: ANSI C63.4: 2003.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Radiated RF Emissions, 9kHz to 1GHz	The RFID Complies with the limits of FCC CFR Title 47, Part 15 Subpart C 15.209, 15.225 and 15.205 and the requirements of 15.31(e) and the printer complies with subpart B 15.109.
2	Conducted RF Emissions, 150 kHz – 30 MHz	The RFID Complies with the limits of FCC CFR Title 47, Part 15 Subpart C 15.207 (a) and the printer complies with Subpart B 15.107.

1. PURPOSE

This document is a Permissive change test report based on the Electromagnetic Interference (EMI) tests performed on the Thermal Printer with RFID Capabilities Model: R2844-Z (RoHS). The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2003. The tests were performed in order to determine whether the electromagnetic emissions from the RFID portion of the equipment under test, referred to as EUT hereafter, are within the specification limits defined in FCC CFR Title 47, Subpart C 15.207 (a), 15.209, 15.205 and 15.225 and the requirements of 15.31(e).

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 2337 Troutdale Drive, Agoura, California 91301.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Zebra Technologies, Corp.

Homi Ahmadi	Sr. Compliance Engineer

Compatible Electronics Inc.

Reynald O. Ramirez	Senior Test Engineer
Ruby A. Hall	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on July 21, 2006.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
RFID	Radio Frequency Identification

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC CFR Title 47, Subpart C Subpart B Subpart A	FCC Rules – Intentional Radiators. FCC Rules - Unintentional Radiators General
CISPR 16 1993	Specification for radio disturbance and immunity measuring apparatus and methods.
ANSI C63.4 2003	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The EUT was set-up in a tabletop configuration. The EUT was connected to a laptop computer via the serial, USB, and Parallel ports respectively. A mouse was connected to the laptop via the PS2 port. The EUT was running a 4" EPL test file and printing continuously during the test over the USB connection. The R2844-Z Thermal Printer employs RFID capabilities. The printer has an RFID reader antenna installed in it. The user has to use a "Smart Label" which consists of an adhesive label that's embedded with an ultra thin RFID tag. The information is sent to and read from RFID tag by reader using radio waves.

The highest emissions were found when the EUT was running in the above configuration. The final radiated and conducted data was taken in this mode of operation. All initial investigations were performed with the spectrum analyzer in manual mode scanning the frequency range continuously. The EUT was setup and tested as shown in the photographs in Appendix D.

4.1.1 Photograph of Test Configuration – EMI

4.1.2 Cable Construction and Termination

Cable 1

This is a 1.5 meter, foil shielded round cable that connects the mouse to the Laptop computer. The cable is hardwired into the mouse and has a 6 pin mini din connector at the Laptop computer end. The shield of the cable was grounded to the chassis via the connector.

Cable 2

This is a 2 meter, unshielded, round, RS232 cable that connects the EUT to the Laptop computer. The cable has a D-9 pin serial connector at the EUT end and a D-9 pin serial connector at the laptop end. The cable was bundled to a length of 1 meter.

Cable 3

This is a 1.5 meter, shielded, round, type A-B, USB cable that connects the EUT to the Laptop computer. There is a USB connector at each end of the cable. The cable was grounded to the chassis via the connectors. The cable was bundled to a length of 1 meter.

Cable 4

This is a 2 meter, foil shielded, round, parallel cable that connects the EUT to the Laptop computer. The cable has a 36 pin centronics connector at the EUT end and a D-25 pin connector at the Laptop computer end. The shield of the cable was grounded to the chassis via the connectors. The cable was bundled to a length of 1 meter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
1	Thermal Printer with RFID Capabilities (EUT)	ZEBRA TECHNOLOGIES CORP.	R2844-Z S/U/P (RoHS)	FCC ID: I28-R2844Z P/N: 120777-001 S/N: 75A06240006
2	POWER ADAPTER (EUT)	HITEK POWER CORP.	PLUS220	S/N: A60300105
3	LAPTOP COMPUTER	IBM	TYPE: T22 M/N: 2647	S/N: 78-KMDCG
4	MOUSE	LOGITECH	MOUSEMAN	S/N: LTS54201016
5	POWER SUPPLY (LAPTOP COMPUTER)	IBM	P/N: 02K6673	S/N: 11802K6661Z1Z2JY0B6880

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	2729A04566	Jan. 10, 2006	Jan. 10, 2007
Quasi-Peak Adapter	Hewlett Packard	85650A	2521A00682	Jan. 10, 2006	Jan. 10, 2007
Preamplifier	Com Power	CPPA-103	161068	Dec. 08, 2005	Dec. 08, 2006
LISN	Com Power	LI-215	12037	Oct. 14, 2005	Oct. 14, 2006
LISN (Accessory)	Com Power	LI-115	02030	Oct. 14, 2005	Oct. 14, 2006
Transient Limiter	Com Power	HZ560	#3549	Dec. 05, 2005	Dec. 05, 2006
Biconical Antenna	Com Power	AB-100	01535	Dec. 29, 2005	Dec. 29, 2006
Log Periodic Antenna	Com Power	AL-100	01116	Dec. 28, 2005	Dec. 28, 2006
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TTW-595	N/A	N/A	N/A
Computer	Hewlett Packard	Pavilion 4530	US91912022	N/A	N/A
Printer	Hewlett Packard	C6427B	MY066160TW	N/A	N/A
Conducted Emissions Test Software	Compatible Electronics	SR21	3.1	N/A	N/A
Radiated Emissions Test Software	Compatible Electronics	Vcap1A	2.3	N/A	N/A
Active Loop Antenna	Com-Power	AL-130	17107	Jul. 28, 2005	Jul. 28, 2006

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded through the AC power cord.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The Spectrum Analyzer was used as a measuring meter along with the quasi-peak adapter. The data was collected with the Spectrum Analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the Spectrum Analyzer input stage, and the Spectrum Analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the Spectrum Analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2003. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The test data is located in Appendix E.

7.1.2 Radiated Emissions Test

The spectrum analyzer was used as a measuring meter along with a quasi-peak adapter. A Preamplifier was used to increase the sensitivity of the instrument. The Spectrum Analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps. This final reading is then recorded into the a Computer data recording program, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The quasi-peak was used only for those readings, which are marked accordingly on the data sheets. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured (200 Hz for 10kHz-150kHz, 9 kHz for 0.150kHz-30MHz and 120 kHz for 30-1000MHz).

Broadband loop, biconical and log periodic antennas were used as transducers during the measurement. The loop antenna was used from 9 kHz to 30 MHz the biconical antenna was used from 30 MHz to 300 MHz and the log periodic antenna was used from 300 MHz to 1 GHz. The final data was taken with a frequency span of 1 MHz. Furthermore, the frequency span was reduced during the preliminary investigations as deemed necessary.

In the frequency range of 9kHz to 30MHz, a calibrated loop antenna was used and positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The loop antenna was also positioned horizontally at the specified distance from the EUT. The center of the loop shall be 1 m above the ground.

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2003. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength).

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a test distance of 3 meters to obtain final test data. The test data is located in Appendix E.

Preliminary Testing and Monitoring:

Preliminary testing was done at a distance of 1 meter instead of 3 meters to determine the predominant harmonics and spurious emission frequencies. An open field test site was used for the preliminary investigations. Broadband antennas were used to scan large frequency bands while manipulating the unit. If and when any frequency was found to be above 30 microvolts/meter level (at a 1 meter distance), this frequency was recorded as a significant frequency. All significant frequencies were further examined carefully at a frequency span on the spectrum analyzer while changing the antenna height and EUT orientation. The EUT was tested again at a test distance of 3 meters to obtain the final test data. The bandwidth of the spectrum analyzer was varied to ensure that pulse desensitization did not occur.

8. TEST PROCEDURE DEVIATIONS

Since there were no changes to the RFID transmitter, the temperature testing was omitted during the Course of testing.

9. CONCLUSIONS

The Thermal Printer with RFID Capabilities complies with Class B limits of the FCC CFR, title 47 part 15 subpart B, sec. 15.109, and 15.107 and the RFID portion of the printer hereafter referred to as EUT are within the specification limits defined in FCC CFR Title 47, Subpart C 15.207 (a), 15.209, 15.205 and 15.225 and the requirements of 15.31(e).

APPENDIX A

LABORATORY ACCREDITATIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

Silverado/Lake Forest Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005270.htm
Brea Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005280.htm
Agoura Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2000630.htm

Compatible Electronics has been accredited by ANSI and appointed by the FCC to serve as a Telecommunications Certification Body (TCB). Compatible Electronics ANSI TCB listing can be found at: http://www.ansi.org/public/ca/ansi_cp.html

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/EU CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/emc-cabs-mar02.pdf

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/APEC CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/apec/bsmi-cabs-may02.pdf

World Wide Market Access with Nemko

Compatible Electronics has been validated by NEMKO against ISO/IEC 17025 under the NEMKO EMC Laboratory Authorization (ELA) program to all EN standards required by the European Union (EU) EMC Directive 89/336/EEC. Please follow the link to the Compatible Electronics' web site for each of our facilities NEMKO ELA certificate and scope of accreditation. http://www.celectronics.com/certs.htm

We are also certified/listed for IT products by the following country/agency:

Compatible Electronics VCCI listing can be found at:
http://www.vcci.or.jp/vcci_e/member/tekigo/setsubi_index_id.html

Just type "Compatible Electronics" into the Keyword search box.

Compatible Electronics FCC listing can be found at:
https://gullfoss2.fcc.gov/prod/oet/index_ie.html

Just type "Compatible Electronics" into the Test Firms search box.

Industry Canada Industrie Canada

Compatible Electronics IC listing can be found at:
http://spectrum.ic.gc.ca/~cert/labs/oats_lab_c_e.html

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

No modifications were made during the testing. Please see permissive change cover letter for further information.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	THERMAL PRINTER WITH RFID CAPABILITIES Model: R2844-Z S/U/P (RoHS)

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP (LAB F)

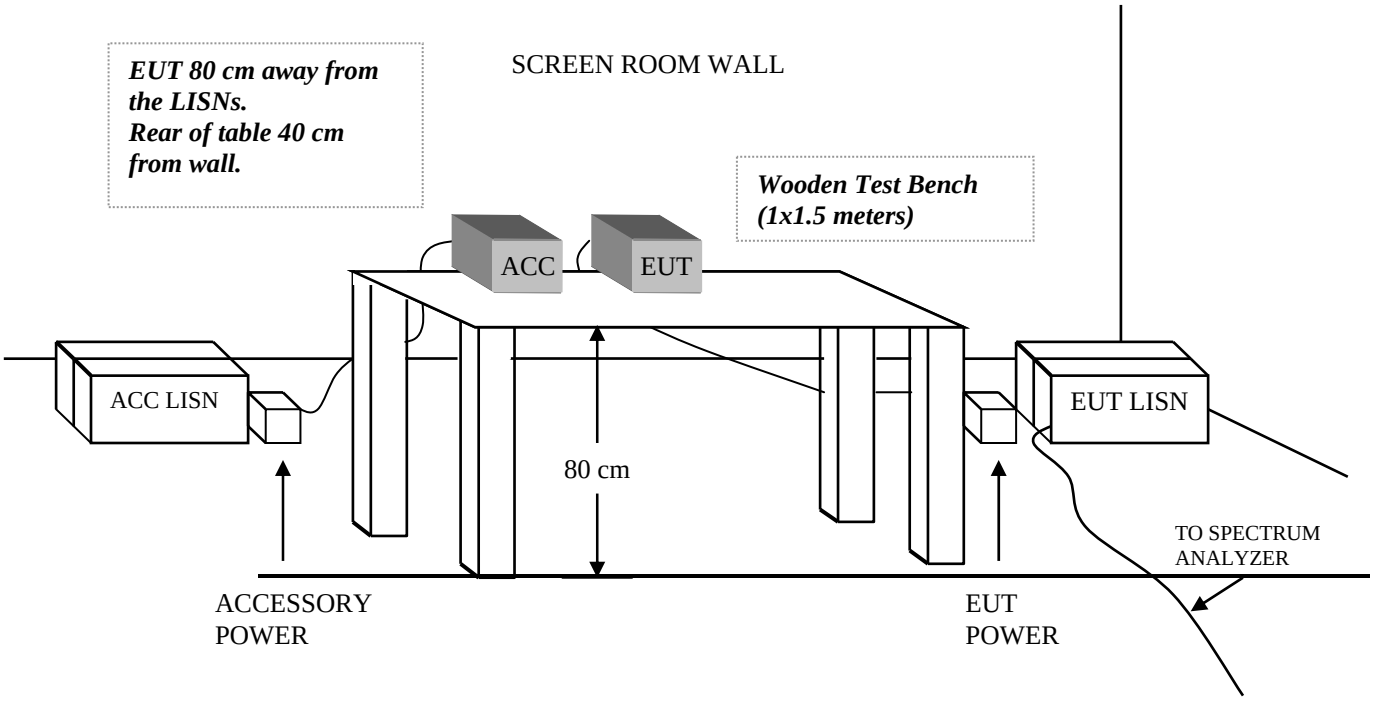
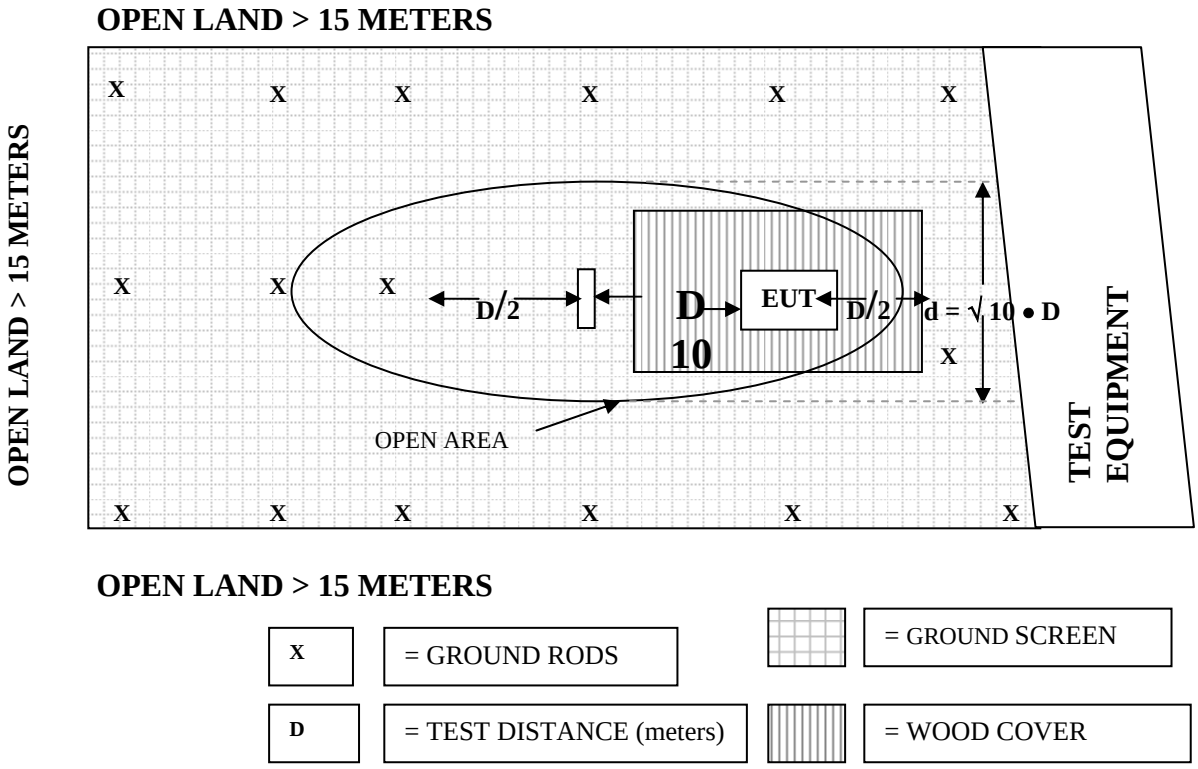


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE
(LAB F)



COM-POWER AL-130

ACTIVE LOOP ANTENNA

S/N: 17107

CALIBRATION DATE: JULY 28, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
0.009	11.99	1	11.71
0.01	11.58	2	12.2
0.02	11.04	3	11.9
0.03	12.44	4	11.8
0.04	12.14	5	12.4
0.05	10.8	6	12.5
0.06	11.4	7	12.1
0.07	11.2	8	12.26
0.08	11.07	9	12.57
0.09	11.34	10	12.17
0.1	11.34	15	9.53
0.2	8.7	20	8.9
0.3	11.44	25	10.63
0.4	11.2	30	3.4
0.5	11.2		
0.6	11.67		
0.7	11.63		
0.8	11.63		
0.9	11.54		

COM-POWER AB-100

BICONICAL ANTENNA

S/N: 1535

CALIBRATION DATE: DEC. 29, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	14.03	120	11.07
35	12.77	125	11.17
40	12.02	140	12.25
45	12.80	150	12.75
50	11.84	160	13.26
55	11.08	175	14.14
60	10.16	180	14.22
65	9.56	200	15.45
70	9.11	225	15.76
80	8.47	250	17.09
90	8.42	275	17.63
100	8.73	300	20.04

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 01116

CALIBRATION DATE: DEC. 28, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	14.80	650	17.37
330	19.70	700	19.33
340	15.03	725	19.22
350	16.47	750	22.96
360	15.12	800	20.17
370	14.65	850	21.91
400	13.75	900	22.02
425	15.51	925	22.67
450	15.54	950	23.38
500	17.20	975	23.45
550	15.28	1000	23.58
600	18.12		

COM-POWER PA-103

PREAMPLIFIER

S/N: 161068

CALIBRATION DATE: DEC. 8, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.7	300	32.1
40	32.5	350	32.0
50	32.4	400	32.1
60	32.5	450	31.8
70	32.5	500	31.4
80	32.4	550	32.0
90	32.4	600	31.6
100	32.3	650	31.4
125	32.4	700	31.5
150	32.2	750	32.1
175	32.4	800	31.0
200	32.2	850	31.3
225	32.4	900	31.5
250	32.3	950	31.2
275	32.1	1000	29.7

FRONT VIEW

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 7-21-06

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 7-21-06

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C - CONDUCTED EMISSIONS – 7-21-06

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C - CONDUCTED EMISSIONS – 7-21-06

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

COMPATIBLE ELECTRONICS

Test Location : Compatible Electronics **Page** : 1/1
Customer : Homi Ahmadi **Date** : 07/21/2006
Manufacturer : Zebra Technologies Corp. **Time** : 08:18:40 AM
Eut name : Thermal Printer RFID (RoHS) **Lab** : F
Model : R2844-Z wtih Hitek PLUS220 (RoHS) **Test Distance** : 3.00 Meters
Serial # : 75A06240006 P/N: 120777-001
Specification : FCC pt. 15.225 fund.
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Qualification
13.56 MHz. Fundamental
Test Engineer: R. Ramirez

Pol	Freq	Reading	Cable loss	Antenna factor	Amplifier gain	Corr'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB
1V	13.560	34.70	1.53	10.19	0.00	46.42	124.00	-77.58
2H	13.560	34.90	1.53	10.19	0.00	46.62	124.00	-77.38

CALCULATION OF LIMIT:

Spec limit: 15,848 uV/m = 15,848logx20=83.99dBuV/m

30m to 3m =30/3=10logx40=40

LIMIT=123.99

COMPATIBLE ELECTRONICS

Test Location : Compatible Electronics **Page** : 1/1
Customer : Homi Ahmadi **Date** : 07/21/2006
Manufacturer : Zebra Technologies Corp. **Time** : 08:26:30 AM
Eut name : Thermal Printer RFID (RoHS) **Lab** : F
Model : R2844-Z wtih Hitek PLUS220 (RoHS) **Test Distance** : 3.00 Meters
Serial # : 75A06240006 P/N: 120777-001
Specification : 15.225 2nd Harmonic
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Qualification
2nd Harmonic
Test Engineer: R. Ramirez

Pol	Freq	Reading	Cable loss	Antenna factor	Amplifier gain	Corr'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB
1V	27.120	31.70	2.08	7.40	0.00	41.18	69.54	-28.36
2H	27.120	30.60	2.08	7.40	0.00	40.08	69.54	-29.46

COMPATIBLE ELECTRONICS

Test Location : Compatible Electronics **Page** : 1/1
Customer : Homi Ahmadi **Date** : 07/21/2006
Manufacturer : Zebra Technologies Corp. **Time** : 09:07:18 AM
Eut name : Thermal Printer RFID (RoHS) **Lab** : F
Model : R2844-Z wtih Hitek PLUS220 (RoHS) **Test Distance** : 3.00 Meters
Serial # : 75A06240006 P/N: 120777-001
Specification : FCC Pt. 15- Class B
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Qualification
Harmonics
Test Engineer: R. Ramirez

Pol	Freq	Reading	Cable loss	Antenna factor	Amplifier gain	Corr'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB
1V	40.681	46.90	2.31	12.13	32.49	28.85	40.00	-11.15
2V	54.241	50.70	2.49	11.19	32.44	31.94	40.00	-8.06
3V	67.801	52.50	2.68	9.30	32.50	31.98	40.00	-8.02
4V	108.480	50.90	3.14	9.77	32.34	31.47	43.50	-12.03
5V	81.342	55.70	2.91	8.46	32.40	34.68	40.00	-5.32
6V	122.040	49.10	3.19	11.11	32.39	31.01	43.50	-12.49
7V	135.600	44.60	3.24	11.95	32.31	27.48	43.50	-16.02
8H	40.681	41.00	2.31	12.13	32.49	22.95	40.00	-17.05
9H	54.241	42.60	2.49	11.19	32.44	23.84	40.00	-16.16
10H	67.801	51.50	2.68	9.30	32.50	30.98	40.00	-9.02
11H	81.357	52.70	2.91	8.46	32.40	31.68	40.00	-8.32
12H	108.477	48.90	3.14	9.77	32.34	29.47	43.50	-14.03
13H	122.041	42.00	3.19	11.11	32.39	23.91	43.50	-19.59
14H	135.612	42.80	3.24	11.95	32.31	25.68	43.50	-17.82

COMPATIBLE ELECTRONICS

Test Location : Compatible Electronics
Customer : Homi Ahmadi
Manufacturer : Zebra Technologies Corp.
Eut name : Thermal Printer RFID (RoHS)
Model : R2844-Z wtih Hitek PLUS220 (RoHS)
Serial # : 75A06240006 P/N: 120777-001
Specification : FCC Pt. 15- Class B
Distance correction factor (20 * log(test/spec)) :
Test Mode : Qualification

Page : 1/1
Date : 07/21/2006
Time : 09:47:19 AM
Lab : F
Test Distance : 3.00 Meters
: 0.00

Spurious Emissions 30-1000 MHz.
Test Engineer: R. Ramirez
Clocks: 16.667, 48 MHz.

Pol	Freq	Reading	Cable loss	Antenna factor	Amplifier gain	Corr'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB
1V	116.855	51.60	3.17	10.73	32.37	33.13	43.50	-10.37
2V	133.175	44.30	3.23	11.77	32.33	26.98	43.50	-16.52
3V	199.980	44.20	4.00	15.45	32.20	31.45	43.50	-12.05
4V	233.282	39.70	4.17	16.22	32.37	27.73	46.00	-18.27
5V	266.634	45.20	4.43	17.45	32.16	34.92	46.00	-11.08
6V	48.000	53.40	2.38	12.21	32.42	35.58	40.00	-4.42
7V	96.057	48.50	3.06	8.61	32.34	27.84	43.50	-15.66
8V	120.036	55.90	3.18	11.07	32.38	37.77	43.50	-5.73
9V	143.997	45.90	3.28	12.45	32.24	29.39	43.50	-14.11
10V	192.022	43.40	3.82	14.97	32.26	29.93	43.50	-13.57
11V	240.027	45.40	4.39	16.58	32.34	34.03	46.00	-11.97
12V	115.612	51.10	3.17	10.59	32.37	32.49	43.50	-11.01
13V	120.855	55.90	3.18	11.09	32.38	37.79	43.50	-5.71
14V	128.894	49.60	3.22	11.46	32.37	31.91	43.50	-11.59
15H	48.001	40.60	2.38	12.21	32.42	22.78	40.00	-17.22
16H	96.069	47.30	3.06	8.61	32.34	26.64	43.50	-16.86
17H	120.254	43.20	3.18	11.08	32.38	25.08	43.50	-18.42
18H	166.263	45.90	3.37	13.64	32.33	30.57	43.50	-12.93
19H	192.004	43.80	3.82	14.97	32.26	30.33	43.50	-13.17
20H	240.218	40.80	4.40	16.59	32.34	29.45	46.00	-16.55
21H	250.041	43.40	4.70	17.09	32.30	32.89	46.00	-13.11
22V	333.315	41.20	4.74	18.14	32.03	32.04	46.00	-13.96
23V	399.985	44.00	5.30	13.75	32.10	30.95	46.00	-15.05
24V	533.311	43.80	5.56	15.90	31.81	33.46	46.00	-12.54
25V	336.030	44.30	4.75	16.87	32.03	33.89	46.00	-12.11
26V	466.635	42.40	5.97	16.11	31.66	32.82	46.00	-13.18
27H	300.019	44.80	4.60	14.80	32.10	32.10	46.00	-13.90
28H	333.318	42.30	4.74	18.13	32.03	33.14	46.00	-12.86
29H	366.598	41.70	4.97	14.81	32.03	29.45	46.00	-16.55
30H	399.977	50.70	5.30	13.75	32.10	37.65	46.00	-8.35
31H	433.264	40.40	5.77	15.52	31.90	29.80	46.00	-16.20
32H	466.634	43.80	5.97	16.11	31.66	34.22	46.00	-11.78
33H	666.624	43.80	7.69	18.04	31.43	38.10	46.00	-7.90
34H	733.306	43.50	7.03	20.48	31.90	39.11	46.00	-6.89
35H	799.982	43.20	8.50	20.17	31.00	40.87	46.00	-5.13
36H	336.023	45.60	4.75	16.87	32.03	35.19	46.00	-10.81
37H	406.886	51.20	5.40	14.25	32.06	38.79	46.00	-7.21

Note: The EUT was tested to 1 GHz

COMPATIBLE ELECTRONICS

7/21/2006 13:51:29

FCC Conducted Emissions
Zebra Technologies Corp.
Thermal Printer RFID (RoHS)
R2844-Z w/Hitek PLUS220
Line 120V
Line LI-215 Due 10-14-06
TEST ENGINEER : R. Hall

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12 highest peaks above -50.00 dB of New FCC Class B (Avg) limit line
Peak criteria : 3.00 dB, Curve : Peak **See average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.325	45.12	46.00	-0.88**
2	1.049	44.82	46.00	-1.18**
3	0.558	43.53	46.00	-2.47**
4	0.683	43.33	46.00	-2.67**
5	0.862	43.33	46.00	-2.67**
6	1.629	43.01	46.00	-2.99**
7	1.352	42.92	46.00	-3.08
8	0.172	50.04	54.86	-4.82
9	0.461	41.63	46.67	-5.03
10	1.178	40.82	46.00	-5.18
11	1.130	40.72	46.00	-5.28
12	0.160	50.14	55.47	-5.33

COMPATIBLE ELECTRONICS

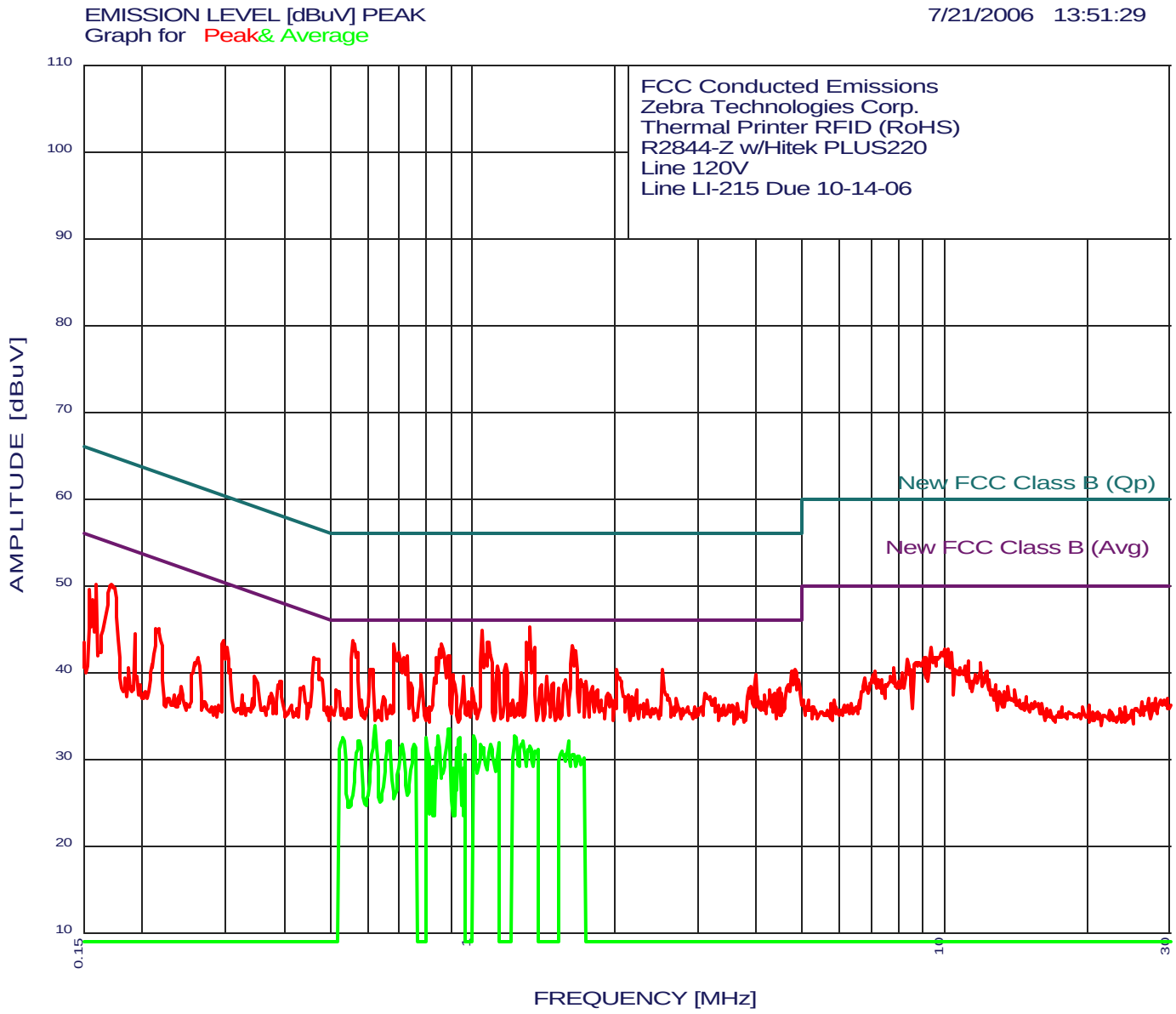
7/21/2006 13:51:29

FCC Conducted Emissions
Zebra Technologies Corp.
Thermal Printer RFID (RoHS)
R2844-Z w/Hitek PLUS220
Line 120V
Line LI-215 Due 10-14-06
TEST ENGINEER : R. Hall

---

12 highest peaks above -50.00 dB of New FCC Class B (Avg) limit line
Peak criteria : 3.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.621	33.76	46.00	-12.24
2	0.890	33.53	46.00	-12.47
3	0.844	32.71	46.00	-13.29
4	1.006	32.70	46.00	-13.30
5	1.230	32.70	46.00	-13.30
6	0.801	32.50	46.00	-13.50
7	0.939	32.50	46.00	-13.50
8	0.532	32.40	46.00	-13.60
9	0.665	32.08	46.00	-13.92
10	1.594	32.07	46.00	-13.93
11	0.573	32.05	46.00	-13.95
12	1.136	31.82	46.00	-14.18



COMPATIBLE ELECTRONICS

COMPATIBLE ELECTRONICS

7/21/2006 14:46:21

FCC Conducted Emissions
Zebra Technologies Corp.
Thermal Printer RFID (RoHS)
R2844-Z w/Hitek PLUS220
Neutral 120V
Neut LI-215 Due 10-14-06
TEST ENGINEER : R. Hall

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15 highest peaks above -50.00 dB of New FCC Class B (Avg) limit line
Peak criteria : 2.00 dB, Curve : Peak** See average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	13.559	55.60	50.00	5.60**
2	1.038	49.46	46.00	3.46**
3	0.853	48.97	46.00	2.97**
4	0.779	48.47	46.00	2.47**
5	0.809	48.47	46.00	2.47**
6	0.944	48.27	46.00	2.27**
7	2.423	47.84	46.00	1.84**
8	0.990	47.07	46.00	1.07**
9	2.540	47.04	46.00	1.04**
10	0.161	56.18	55.43	0.75**
11	2.322	46.64	46.00	0.64**
12	0.924	46.47	46.00	0.47**
13	0.285	50.58	50.67	-0.09**
14	0.890	45.57	46.00	-0.43**
15	3.107	45.33	46.00	-0.67**

COMPATIBLE ELECTRONICS

7/21/2006 14:46:21

FCC Conducted Emissions
Zebra Technologies Corp.
Thermal Printer RFID (RoHS)
R2844-Z w/Hitek PLUS220
Neutral 120V
Neut LI-215 Due 10-14-06
TEST ENGINEER : R. Hall

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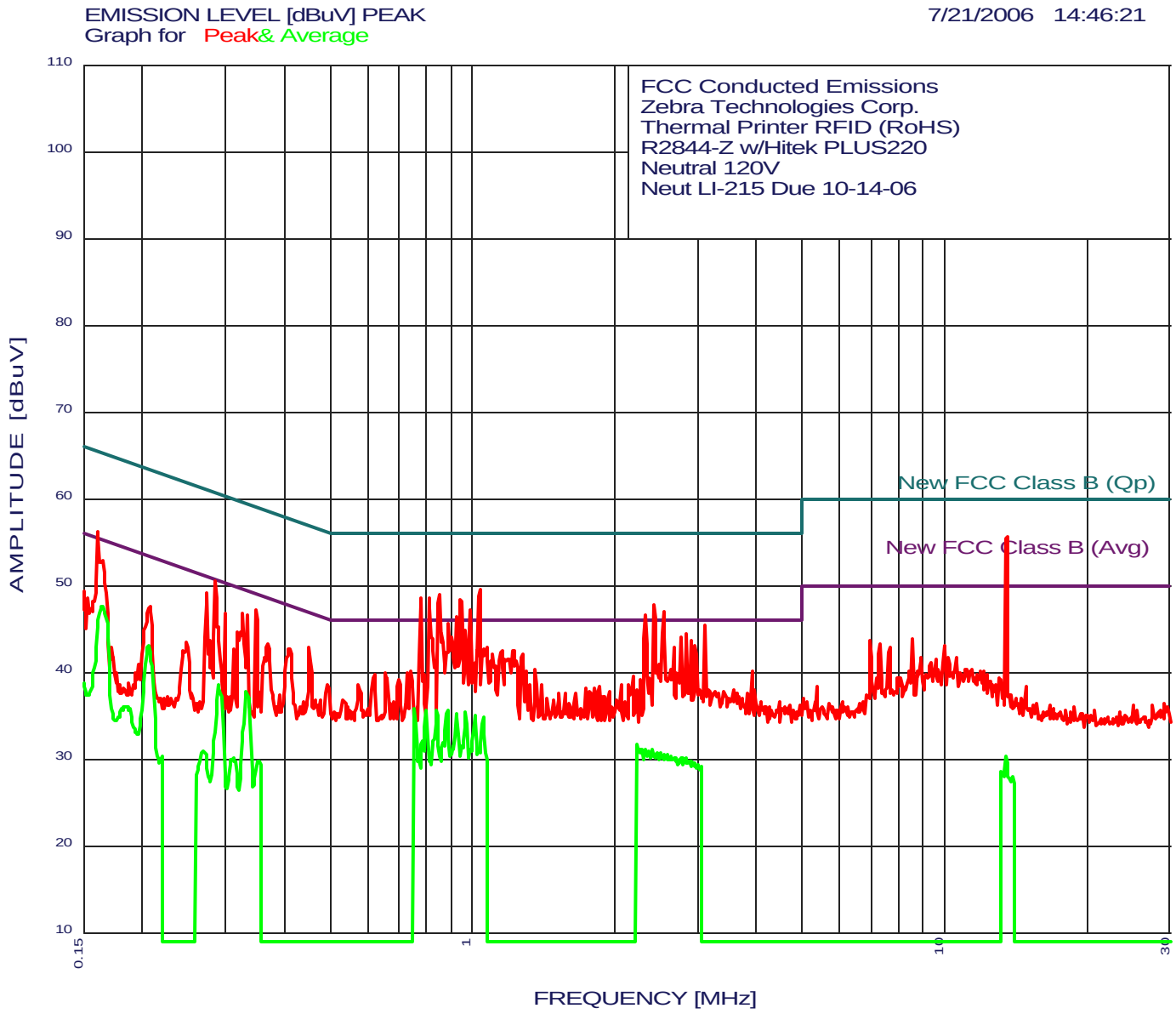
15 highest peaks above -50.00 dB of New FCC Class B (Avg) limit line
Peak criteria : 2.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.164	47.51	55.25	-7.74
2	0.755	35.77	46.00	-10.23
3	0.206	43.12	53.35	-10.24
4	0.885	35.65	46.00	-10.35
5	0.796	35.59	46.00	-10.41
6	0.839	35.50	46.00	-10.50
7	0.969	35.39	46.00	-10.61
8	0.924	35.17	46.00	-10.83
9	1.011	35.09	46.00	-10.91
10	1.055	34.85	46.00	-11.15
11	0.332	37.80	49.39	-11.60
12	0.290	38.50	50.54	-12.04
13	2.238	31.69	46.00	-14.31
14	0.352	29.80	48.91	-19.11
15	13.486	30.36	50.00	-19.64

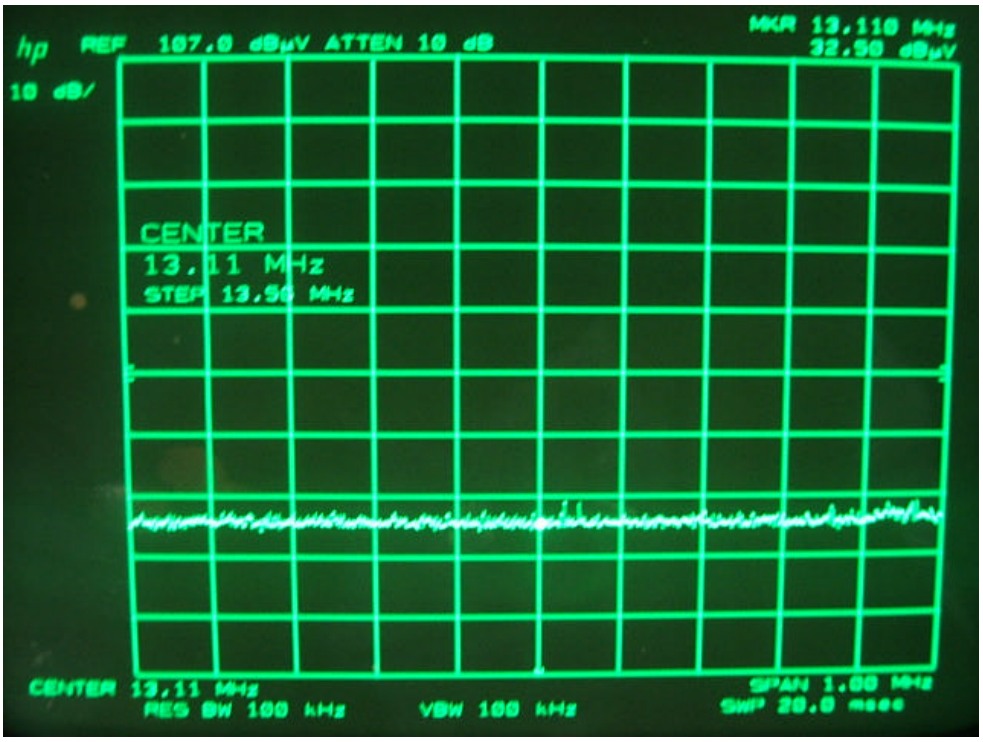


COMPATIBLE ELECTRONICS

COMPATIBLE ELECTRONICS

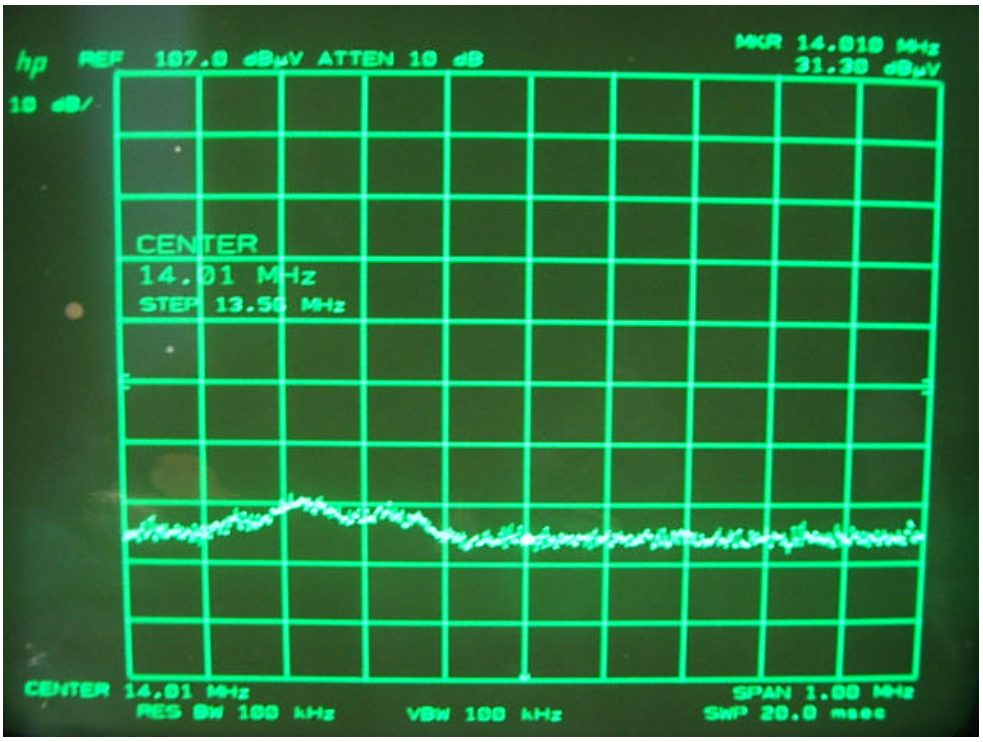
Test Location : Compatible Electronics **Page** : 1/1
Customer : Homi Ahmadi **Date** : 07/21/2006
Manufacturer : Zebra Technologies Corp. **Time** : 08:35:44 AM
Eut name : Thermal Printer RFID (RoHS) **Lab** : F
Model : R2844-Z wtih Hitek PLUS220 (RoHS) **Test Distance** : 3.00 Meters
Serial # : 75A06240006 P/N: 120777-001
Specification : fcc 15.225 bandedge
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Qualification
BandEdge 13.110-14.010 MHz
Test Engineer: R. Ramirez

Pol	Freq	Reading	Cable loss	Antenna factor	Amplifier gain	Corr'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB
1V	13.110	32.50	1.52	10.41	0.00	44.42	80.50	-36.08
2V	14.010	31.30	1.55	9.97	0.00	42.82	80.50	-37.68



LOWER BAND EDGE

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C – 15.225 – 7-21-06



UPPER BAND EDGE

ZEBRA TECHNOLOGIES CORP.
THERMAL PRINTER WITH RFID CAPABILITIES
Model: R2844-Z S/U/P (RoHS)
FCC PART 15 SUBPART C – 15.225 – 7-21-06