DESCRIPTION	PART NUMBER	REV
UL PTN78020 CON RAD	81-40264	1C

EMC
Test Report

PTN78020 Product Family

Part numbers covered by this report:

PTN78020AAH PTN78020AAS
PTN78020WAH PTN78020WAS

Test Report Prepared by:
Mike Ehas – Underwriters Laboratories, Inc.

Testing Performed by:
Mike Ehas – Underwriters Laboratories, Inc.

Rev	ECO #	Description of Change	Originator	Date
1A	6623	Initial Release	James A. Killion	10/21/2004
1B	6650	Change PTH78XXX to PTN78XXX	James A. Killion	10/26/2004
1C	6991	Add PTN78000A Data	James A. Killion	3/29/2005

TEXAS INSTRUMENTS
27715 Diehl Rd
Warrenville, IL 60555

CONFIDENTIAL

Originator	Date
James Killion	3/29/2005
Reliability Manager	Date
[signature]	4/5/05
Product Designer	Date
[signature]	4/6/05

UL International EMC Services
333 Pfingsten Road
Northbrook, Illinois 60062-2096
(800) 873-8536
Fax No. (847) 272-8864
http://www.ul.com/emc/

October 14, 2004

Texas Instruments Inc.
Attn: Mr. James Killion
27715 Diehl Road
Warrenville, IL 60555

UL Reference: File MC1850, Project 04NK24802

Subject: EMC Test and Measurement Report for
Model PTH78020WAH Integrated Circuits

Dear Mr. Killion:

We have provided with this letter your EMC Test Report for the above referenced model. The product was determined to comply with the requirements noted in the report.

Please review the attached report and direct any questions or comments to me.

We appreciate your interest in UL's EMC Services, and encourage you to contact us in the future should you need EMC test services. This closes Project 04NK24802.

Best regards,

Mike Ehas (Ext 42351)
EMC Sr. Engineering Associate
International EMC Services

Reviewed by:

Jack Steiner
Engineering Group Leader
International EMC Services

EMC – TEST REPORT

Issue Date: October 14, 2004

Ö **EMISSIONS**

IMMUNITY

Test Report File No.	:	MC1850
Project No.	:	04NK24802
Model / Type	:	PTH78020WAH (Lot Code 0434EW69)
Kind of Product	:	Integrated Circuits
Applicant	:	Texas Instruments Inc.
License Holder	:	Texas Instruments Inc.
Address	:	27715 Diehl Road
	:	Warrenville, IL 60555
	:	
Manufacturer	:	Same as Applicant
	:	
	:	
	:	
Test Result	:	**COMPLIANT**

This report without appendices consists of 9 pages. Appendix A contains test photos, and Appendix B contains original test data. The data contained in this report reflects only the items tested in the configurations and mode of operations described. An attempt has been made to arrange the EUT, with the equipment provided, into a test configuration which maximizes the observed emissions of the EUT while simulating, as close as practical, a typical end-use installation.

Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062
Fax: (847) 272-8864

REPORT DIRECTORY

SECTION TITLE

GENERAL

1.0 General Product Description
1.1 Model Differences
1.2 Environmental Conditions in Test Lab
1.3 Calibration Details of Equipment Used for Measurement
1.4 EUT (Equipment Under Test) Configuration
1.5 EUT Operating Mode
1.6 Device Modifications

EMISSIONS

2.0 Emissions Test Regulations
Conducted Voltage
Radiated Electric Field Emissions

IMMUNITY

3.0 Immunity Test Regulations

CONCLUSION

4.0 General Remarks
4.1 Summary

APPENDICIES

A Test Setups (Photos, Diagrams and Drawings)
B Test Data

1.0 GENERAL PRODUCT DESCRIPTION

The Equipment Under Test (EUT) are component integrated circuits.

1.0.1 Equipment Mobility:

Table-top

1.0.2 Test Voltage and Frequency:

Voltage (V)	Frequency (Hz)
24	DC

1.1 MODEL DIFFERENCES

Any other model(s) represented by the models tested in this investigation will be documented by the manufacturer.

1.2 ENVIRONMENTAL CONDITIONS IN TEST LAB

Temperature:	**20-25 °C**
Relative Humidity:	**30-60% RH**
Atmospheric Pressure:	**860-1060 mbar**

1.3 CALIBRATION OF EQUIPMENT USED FOR MEASUREMENT

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST), therefore, all test data recorded in this report is traceable to NIST.

1.4 EUT CONFIGURATION(s)

See Appendix A for individual set-up configuration(s). In addition to the EUT, the following peripheral devices and/or cables were connected during the measurement:

Device	Manufacturer	Model	Serial #	FCC ID
N/A				

Cable	Manufacturer	Length	Type	Shield Type	Shield Termination
N/A					

1.5 EUT OPERATING MODE(s)

The equipment under test was operated during the measurements under the following conditions:

Continuous operation.

Part Number	Vout	Iout	Rload
PTH78020W	12	5 amps	2.4 ohms

1.6 DEVICE MODIFICATIONS

The following modifications were necessary for compliance:

None.

2.0 EMISSIONS TEST REGULATIONS

The EUT was considered to be a Class B device.

Emissions testing was performed according to the following regulations:

Manufacturer's specified test program. (EUT is a component)

Radiated Emissions Only

Conducted Emissions data is provided for engineering purposes.

EN 55022 : 98 + A1: 2000 + A2 : 2003

CONDUCTED VOLTAGE EMISSIONS

Test Location

Ground Plane (Test Station 3)

UL Procedure

3014ANBK-LPG-001

Test Instruments

Advantest Model R3361D Spectrum Analyzer No. EMC4084
Model R3551 Preselector No. EMC4088

Line Impedance Stabilization Networks (LISNs)

SOLAR Model 8602-50-TS-50-N S/N 963903 No. EMC4064
SOLAR Model 8602-50-TS-50-N S/N 887824 No. EMC4052

Voltage Probe

Solar Model 8614-1, EMC4147

Current Clamp

Tegam Model 94430-6, p/n 11089 EMC4047

Frequency Range on each line

150 kHz to 30MHz

Test Results

Conducted Emissions data is provided for engineering purposes only.

Remarks

See App. B for complete test results.

RADIATED ELECTRIC FIELD EMISSIONS

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-002

Test Instruments

Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector

Hewlett Packard Model 8566B Spectrum Analyzer
Model 85650A Quasi-peak Adapter
Miteq AM-3A-000110-N Preamp No. FCA4003, EMC4016, EMC4151
Model 85685A RF Preselector No. EMC4015

Antennas

Chase EMC Ltd., Biconical Antenna Model VBA6106A	S/N 1246
Chase EMC Ltd., Log Periodic Antenna Model UPA6108	S/N 1120

Frequency Range of Measurement
30MHz-1000MHz

Measurement Distance

10 meters

Test Results

The requirements are:
MET

Remarks

See App. B for complete test results.

3.0 IMMUNITY TEST REGULATIONS

Immunity testing was not performed per the manufacturers request.

4.0 GENERAL REMARKS

Sample Receipt Date : October 12, 2004

Test Dates

Start : October 12, 2004
End : October 12, 2004

4.1 SUMMARY

The requirements according to the technical regulations are:

MET

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062 USA

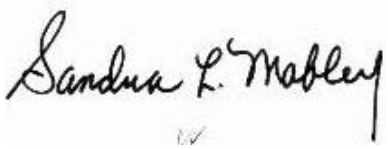
Test Engineer:

Mike Ehas (Ext 42351)
EMC Sr. Engineering Associate
International EMC Services

Reviewed by:

Jack Steiner
Engineering Group Leader
International EMC Services

Report writer:



Sandra L. Mobley
Project Handler III
International EMC Services

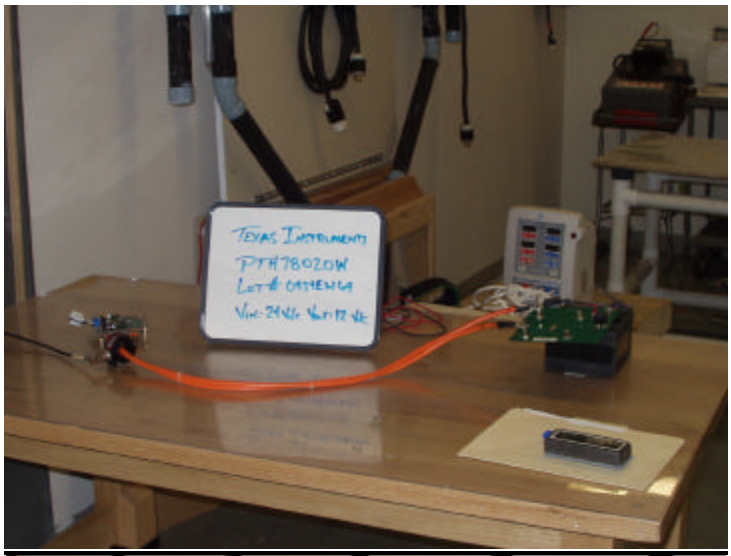
APPENDIX A

Model PTB48520W

PHOTOS

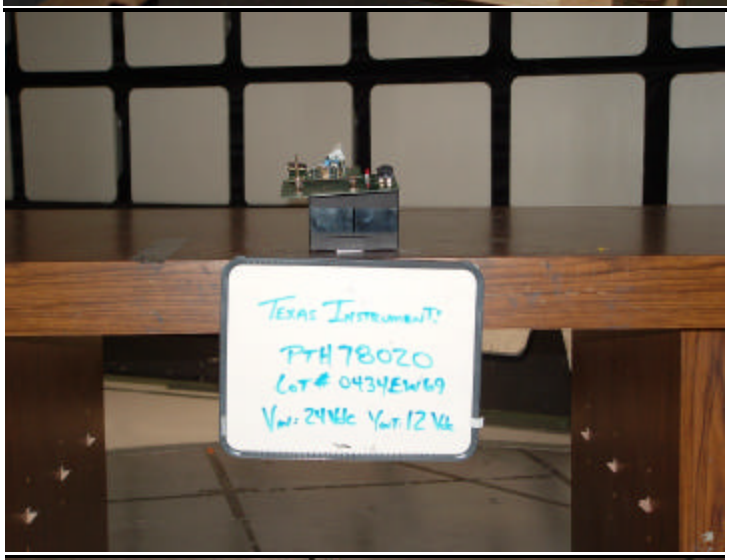
EMISSIONS

Conducted Voltage	Fig. 1
Radiated Emissions	Fig. 2
EUT	Fig. 3



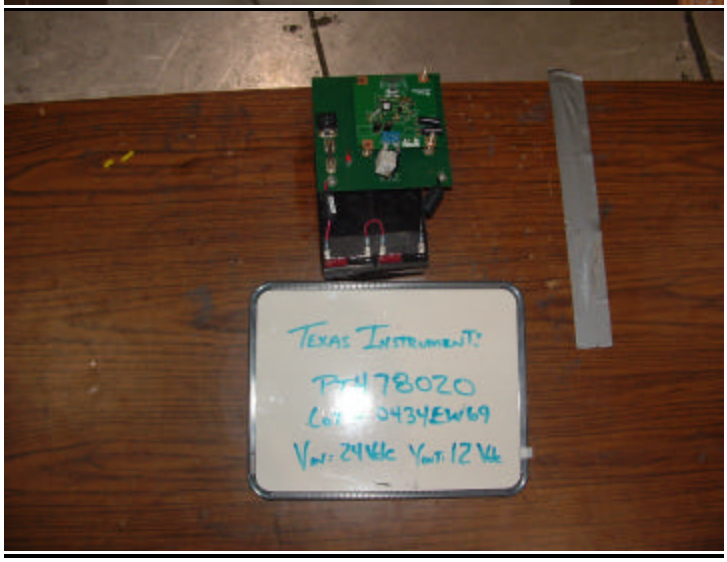
CONDUCTED VOLTAGE

FIG. 1



RADIATED EMISSIONS

FIG. 2



EUT

Fig. 3

APPENDIX B

Model PTH78020W

TEST DATA

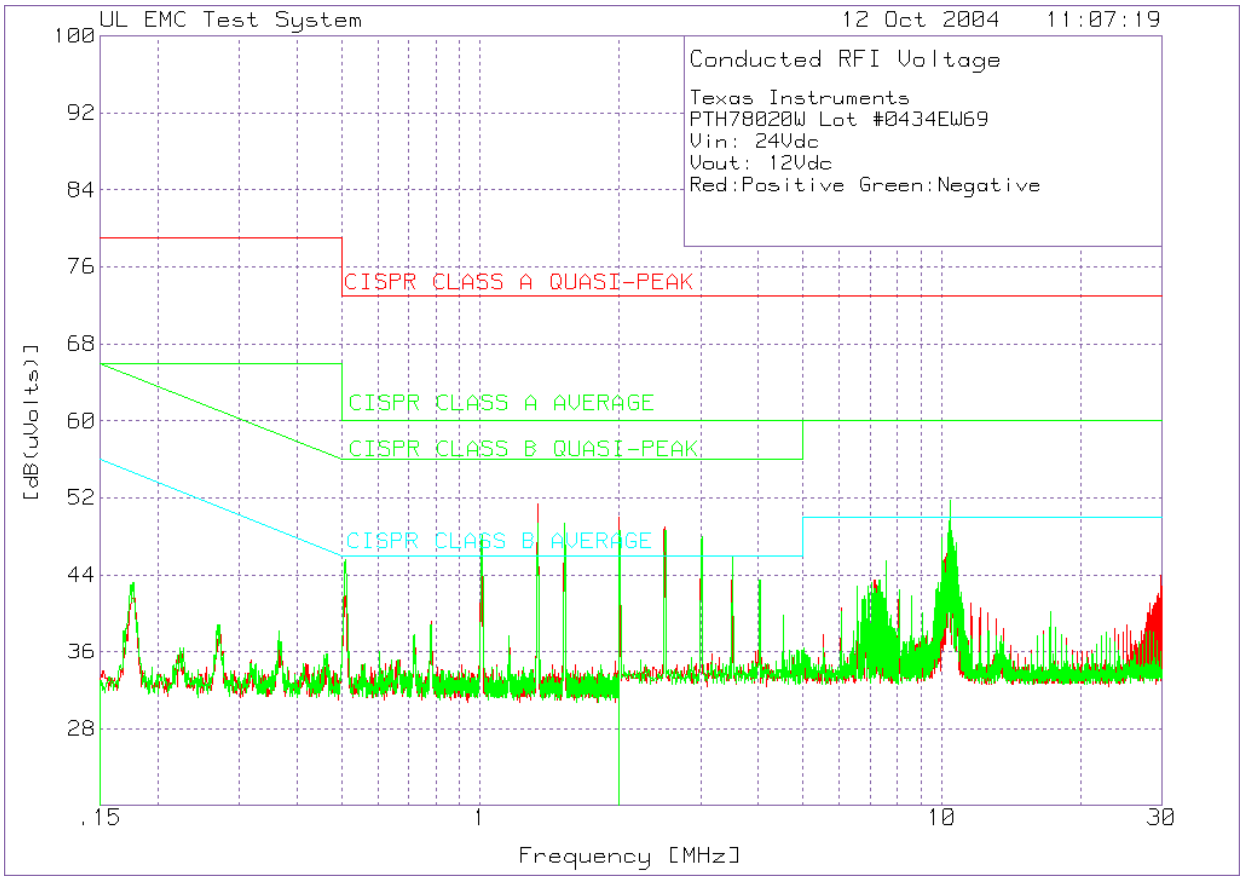
EMISSIONS

Conducted Voltage
Radiated Electric Field Emissions

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 12 Oct 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTH78020WAH**
Requirement	:	**Engineering purposes only (Voltage Probe)**
Detection Mode	:	Quasi-peak (qp) or Peak (pk) or Average (ave)
Bandwidth	:	200 Hz for measurements 9 kHz to 150 kHz 9 kHz for measurements 150 kHz to 30 MHz
Line	:	**Red:** Positive **Green:** Negative



Texas Instruments
PTB48520WAH Lot #0427EW28
Vin: 48Vdc
Vout: 3.3Vdc
Red:Positive Green:Negative

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
Line - L1 .15 - 2MHz									
1	.24603	32.6 pk	0	30	62.6	79	66	61.9	51.9
				Margin [dB]		-16.4	-3.4	.7	10.7
2	.50706	22.6 pk	0	30	52.6	73	60	56	46
				Margin [dB]		-20.4	-7.4	-3.4	6.6
3	.75489	30.4 pk	0	30	60.4	73	60	56	46
				Margin [dB]		-12.6	.4	4.4	14.4
4	1.00371	23.6 pk	0	30	53.6	73	60	56	46
				Margin [dB]		-19.4	-6.4	-2.4	7.6
5	1.25517	31.4 pk	0	30	61.4	73	60	56	46
				Margin [dB]		-11.6	1.4	5.4	15.4
6	1.76073	30.8 pk	0	30	60.8	73	60	56	46
				Margin [dB]		-12.2	.8	4.8	14.8
Line - L1 2 - 30MHz									
7	2.24973	30.4 pk	0	30	60.4	73	60	56	46
				Margin [dB]		-12.6	.4	4.4	14.4
8	2.75417	29 pk	0	30	59	73	60	56	46
				Margin [dB]		-14	-1	3	13
9	3.25861	27.6 pk	0	30	57.6	73	60	56	46
				Margin [dB]		-15.4	-2.4	1.6	11.6
10	3.76306	26 pk	0	30	56	73	60	56	46
				Margin [dB]		-17	-4	0	10
Line - L2 .15 - 2MHz									
11	.2457	36.4 pk	0	30	66.4	79	66	61.9	51.9
				Margin [dB]		-12.6	.4	4.5	14.5
12	.50739	26.2 pk	0	30	56.2	73	60	56	46
				Margin [dB]		-16.8	-3.8	.2	10.2
13	.75489	38 pk	0	30	68	73	60	56	46
				Margin [dB]		-5	8	12	22
14	1.00338	31.4 pk	0	30	61.4	73	60	56	46
				Margin [dB]		-11.6	1.4	5.4	15.4
15	1.25682	36.6 pk	0	30	66.6	73	60	56	46
				Margin [dB]		-6.4	6.6	10.6	20.6
16	1.76073	37.2 pk	0	30	67.2	73	60	56	46
				Margin [dB]		-5.8	7.2	11.2	21.2
Line - L2 2 - 30MHz									
17	2.24973	36.6 pk	0	30	66.6	73	60	56	46
				Margin [dB]		-6.4	6.6	10.6	20.6
18	2.75417	36 pk	0	30	66	73	60	56	46
				Margin [dB]		-7	6	10	20
19	3.25861	34.4 pk	0	30	64.4	73	60	56	46
				Margin [dB]		-8.6	4.4	8.4	18.4
20	3.75806	33 pk	0	30	63	73	60	56	46
				Margin [dB]		-10	3	7	17

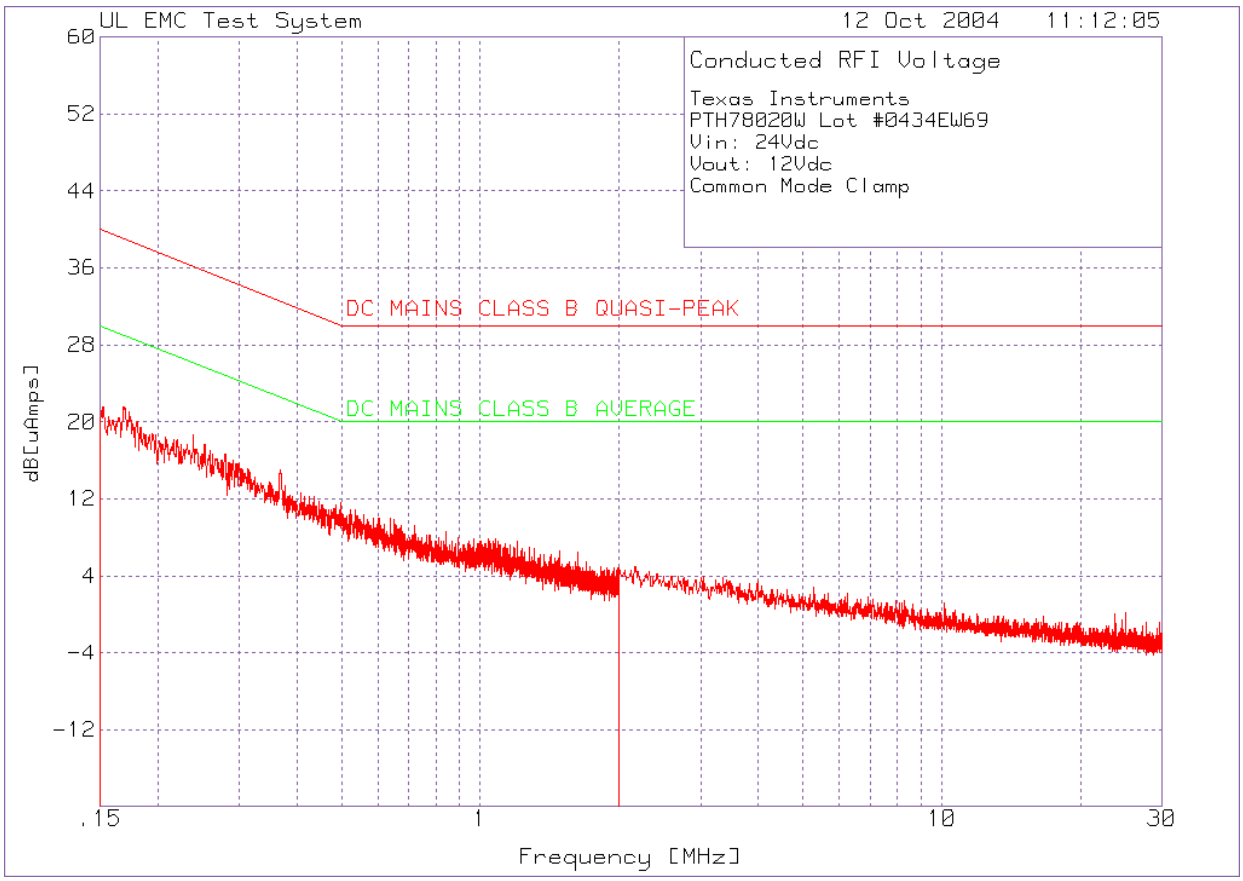
LIMIT 1: CISPR CLASS A QUASI-PEAK
LIMIT 2: CISPR CLASS A AVERAGE
LIMIT 3: CISPR CLASS B QUASI-PEAK
LIMIT 4: CISPR CLASS B AVERAGE

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 12 Oct 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTB48520WAH**
Requirement	:	**Engineering purposes only (Clamp)**
Detection Mode	:	Quasi-peak (qp) or Peak (pk) or Average (ave)
Bandwidth	:	200 Hz for measurements 9 kHz to 150 kHz 9 kHz for measurements 150 kHz to 30 MHz
Line	:	Positive & Negative (Common Mode)



Texas Instruments
PTB48520WAH Lot #0427EW28
Vin: 48Vdc
Vout: 3.3Vdc
Common Mode Clamp

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uAmps]	Limit:1	2
Line - L1 .15 - 2MHz							
1	.24636	18 pk	0	6	24	35.9	25.9
				Margin [dB]		-11.9	-1.9
2	.75423	13.8 pk	0	-1.6	12.2	30	20
				Margin [dB]		-17.8	-7.8
3	1.25682	15.3 pk	0	-3.3	12	30	20
				Margin [dB]		-18	-8
4	1.7604	17 pk	0	-4.8	12.2	30	20
				Margin [dB]		-17.8	-7.8
Line - L1 2 - 30MHz							
5	2.24973	17.8 pk	0	-5.8	12	30	20
				Margin [dB]		-18	-8
6	3.26361	19.4 pk	0	-7	12.4	30	20
				Margin [dB]		-17.6	-7.6
7	4.2725	19.8 pk	0	-7.8	12	30	20
				Margin [dB]		-18	-8
8	5.27639	21.5 pk	0	-8.5	13	30	20
				Margin [dB]		-17	-7
9	6.78973	21.4 pk	0	-9.2	12.2	30	20
				Margin [dB]		-17.8	-7.8
10	8.30805	20.8 pk	0	-9.8	11	30	20
				Margin [dB]		-19	-9

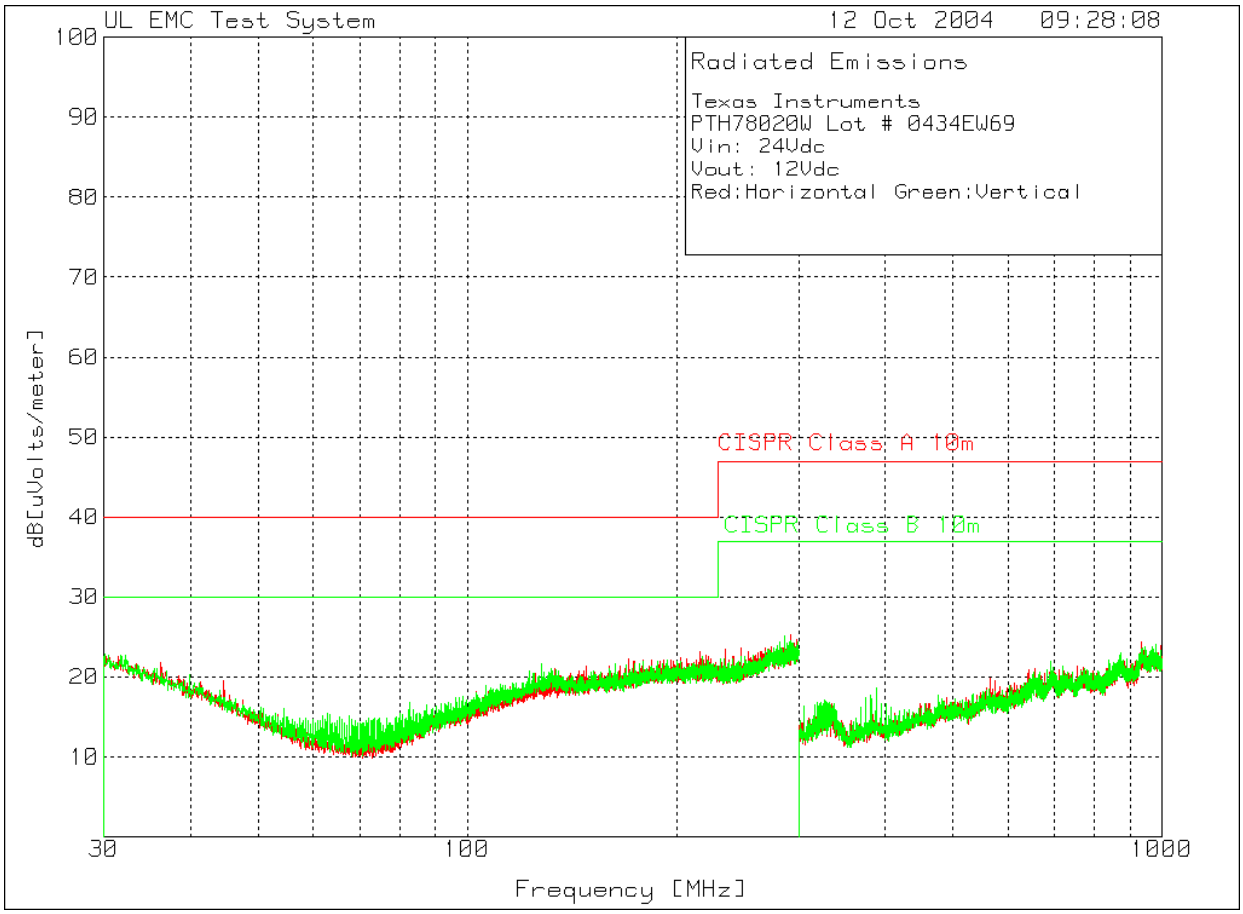
LIMIT 1: DC MAINS CLASS B QUASI-PEAK
LIMIT 2: DC MAINS CLASS B AVERAGE

pk - Peak detector
qp - Quasi-Peak detector

UNDERWRITERS LABORATORIES INC.
Radiated Emissions

Date Tested: 12 Oct 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTH78020WAH**
Requirement	:	**CISPR Class A**
Detection Mode	:	Quasi-peak (qp)
Bandwidth	:	120 kHz
Measurement Distance	:	10 meter
Antenna Type	:	**30 - 300 MHz, Biconical** **300 - 1000 MHz, Log-Periodic**



UL International EMC Services
333 Pfingsten Road
Northbrook, Illinois 60062-2096
(800) 873-8536
Fax No. (847) 272-8864
http://www.ul.com/emc/

March 17, 2005

Texas Instruments Inc.
Attn: Mr. James Killion
27715 Diehl Road
Warrenville, IL 60555

UL Reference: File MC1850, Project 05NK08147

Subject: EMC Test and Measurement Report for
Model PTN78020AAH Integrated Circuits

Dear Mr. Killion:

We have provided with this letter your EMC Test Report for the above referenced model. The product was determined to comply with the requirements noted in the report.

Please review the attached report and direct any questions or comments to me.

We appreciate your interest in UL's EMC Services, and encourage you to contact us in the future should you need EMC test services. This closes Project 05NK08147.

Best regards,

Mike Ehas (Ext 42351)
Lead Engineering Associate
International EMC Services

Reviewed by:

Lou Madjarov
Senior Project Engineer
International EMC Services

EMC – TEST REPORT

Issue Date: March 16, 2005

Ö **EMISSIONS**

IMMUNITY

Test Report File No.	:	MC1850
Project No.	:	05NK08147
Model / Type	:	PTN78020AAH (Lot Code 0506E800)
Kind of Product	:	Integrated Circuits
Applicant	:	Texas Instruments Inc.
License Holder	:	Texas Instruments Inc.
Address	:	27715 Diehl Road
	:	Warrenville, IL 60555
	:	
Manufacturer	:	Same as Applicant
	:	
	:	
	:	
Test Result	:	**COMPLIANT**

This report without appendices consists of 9 pages. Appendix A contains test photos, and Appendix B contains original test data. The data contained in this report reflects only the items tested in the configurations and mode of operations described. An attempt has been made to arrange the EUT, with the equipment provided, into a test configuration which maximizes the observed emissions of the EUT while simulating, as close as practical, a typical end-use installation.

Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062
Fax: (847) 272-8864

REPORT DIRECTORY

SECTION TITLE

GENERAL

1.0 General Product Description
1.1 Model Differences
1.2 Environmental Conditions in Test Lab
1.3 Calibration Details of Equipment Used for Measurement
1.4 EUT (Equipment Under Test) Configuration
1.5 EUT Operating Mode
1.6 Device Modifications

EMISSIONS

2.0 Emissions Test Regulations
Conducted Voltage
Radiated Electric Field Emissions

IMMUNITY

3.0 Immunity Test Regulations

CONCLUSION

4.0 General Remarks
4.1 Summary

APPENDICIES

A Test Setups (Photos, Diagrams and Drawings)
B Test Data

1.0 GENERAL PRODUCT DESCRIPTION

The Equipment Under Test (EUT) are component integrated circuits.

1.0.1 Equipment Mobility:

Table-top

1.0.2 Test Voltage and Frequency:

Voltage (V)	Frequency (Hz)
12	DC

1.1 MODEL DIFFERENCES

Any other model(s) represented by the models tested in this investigation will be documented by the manufacturer.

1.2 ENVIRONMENTAL CONDITIONS IN TEST LAB

Temperature:	**20-25 °C**
Relative Humidity:	**30-60% RH**
Atmospheric Pressure:	**860-1060 mbar**

1.3 CALIBRATION OF EQUIPMENT USED FOR MEASUREMENT

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST), therefore, all test data recorded in this report is traceable to NIST.

1.4 EUT CONFIGURATION(s)

See Appendix A for individual set-up configuration(s). In addition to the EUT, the following peripheral devices and/or cables were connected during the measurement:

Device	Manufacturer	Model	Serial #	FCC ID
N/A				

Cable	Manufacturer	Length	Type	Shield Type	Shield Termination
N/A					

1.5 EUT OPERATING MODE(s)

The equipment under test was operated during the measurements under the following conditions:

Continuous operation.

Part Number	Vout	Iout	Rload
PTN78020AAH	-15	1.67 amps	9 ohms

1.6 DEVICE MODIFICATIONS

The following modifications were necessary for compliance:

None.

2.0 EMISSIONS TEST REGULATIONS

The EUT was considered to be a Class B device.

Emissions testing was performed according to the following regulations:

Manufacturer's specified test program. (EUT is a component)

Radiated Emissions Only

Conducted Emissions data is provided for engineering purposes.

EN 55022 : 98 + A1: 2000 + A2 : 2003

CONDUCTED VOLTAGE EMISSIONS

Test Location

Ground Plane (Test Station 3)

UL Procedure

3014ANBK-LPG-001

Test Instruments

Spectrum Analyzer / Quasi-peak Adapter

Advantest Model R3361D Spectrum Analyzer S/N 81720342
Model R3551 Preselector S/N 82970023

Line Impedance Stabilization Networks (LISNs)

SOLAR Model 8602-50-TS-50-N S/N 963903 No. EMC4064
SOLAR Model 8602-50-TS-50-N S/N 887824 No. EMC4052

Voltage Probe

Solar Model 8614-1, EMC4147

Current Clamp

Tegam Model 94430-6, p/n 11089 EMC4047

Frequency Range on each line

150 kHz to 30MHz

Test Results

Conducted Emissions data is provided for engineering purposes only.

Remarks

See App. B for complete test results.

RADIATED ELECTRIC FIELD EMISSIONS

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-002

Test Instruments

Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector

Hewlett Packard Model 8566B Spectrum Analyzer
Model 85650A Quasi-peak Adapter
Miteq AM-3A-000110-N Preamp No. FCA4003, EMC4016, EMC4151
Model 85685A RF Preselector No. EMC4015

Antennas

Chase EMC Ltd., Biconical Antenna Model VBA6106A	S/N 1246
Chase EMC Ltd., Log Periodic Antenna Model UPA6108	S/N 1120

Frequency Range of Measurement
30MHz-1000MHz

Measurement Distance

10 meters

Test Results

The requirements are:
MET

Remarks

See App. B for complete test results.

3.0 IMMUNITY TEST REGULATIONS

Immunity testing was not performed per the manufacturers request.

4.0 GENERAL REMARKS

Sample Receipt Date : March 15, 2005

Test Dates

Start : March 15, 2005
End : March 15, 2005

4.1 SUMMARY

The requirements according to the technical regulations are:

MET

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062 USA

Test Engineer:

Mike Ehas (Ext 42351)
Lead Engineering Associate
International EMC Services

Reviewed by:

Lou Madjarov
Senior Project Engineer
International EMC Services

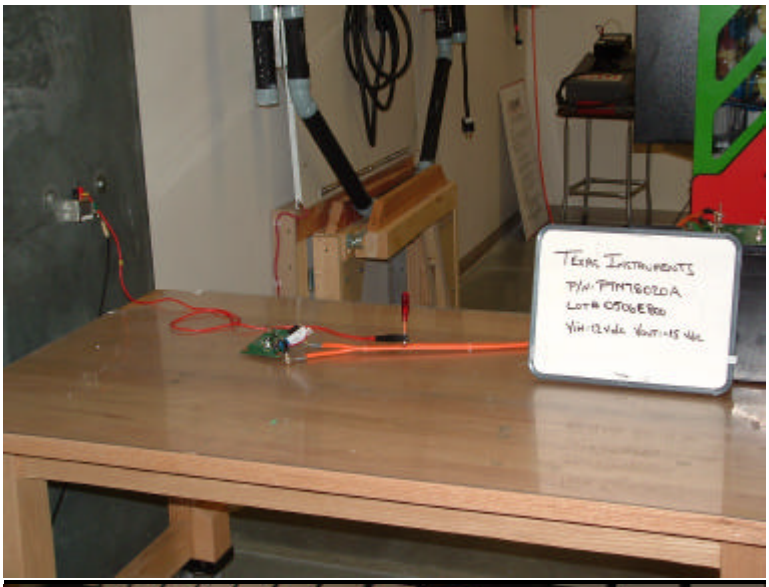
APPENDIX A

Model PTN78020AAH

PHOTOS

EMISSIONS

Conducted Voltage	Fig. 1
Radiated Emissions	Fig. 2
EUT	Fig. 3



CONDUCTED VOLTAGE

FIG. 1

RADIATED EMISSIONS

FIG. 2

EUT

Fig. 3

APPENDIX B

Model PTN78020AAH

TEST DATA

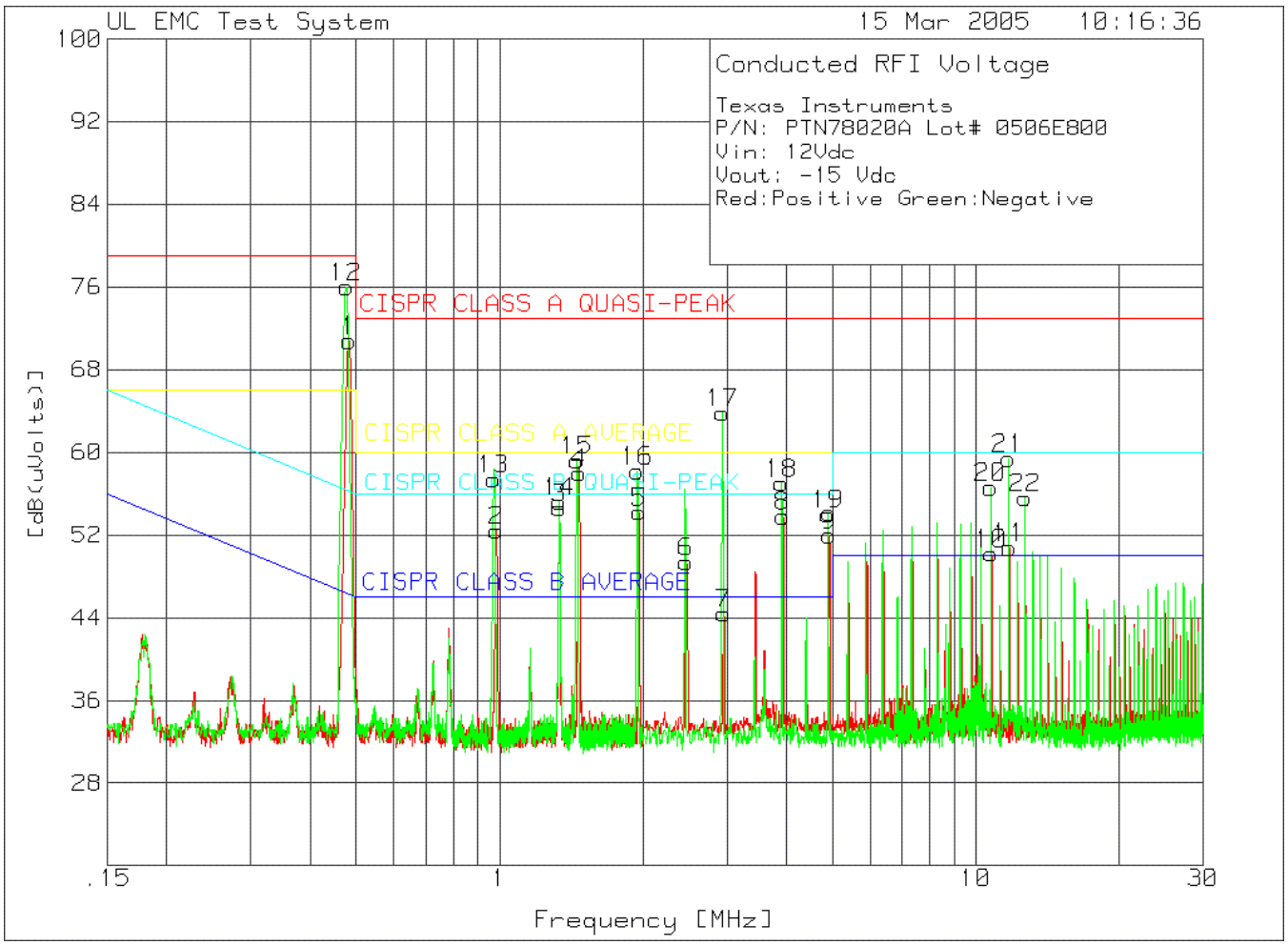
EMISSIONS

Conducted Voltage
Radiated Electric Field Emissions

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 15 March 2005

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTN78020AAH**
Requirement	:	**Engineering purposes only (Voltage Probe)**
Detection Mode	:	Quasi-peak (qp) or Peak (pk) or Average (ave)
Bandwidth	:	200 Hz for measurements 9 kHz to 150 kHz 9 kHz for measurements 150 kHz to 30 MHz
Line	:	**Red:** Positive **Green:** Negative



Texas Instruments
P/N: PTN78020A Lot# 0506E800
Vin: 12Vdc
Vout: -15 Vdc
Red:Positive Green:Negative

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line - L1 .15 - 2MHz											
1	.4833	40.8 pk	0	30	70.8	79	66	56.3	46.3	-	-
				Margin [dB]		-8.2	4.8	14.5	24.5	-	-
2	.98402	22.4 pk	0	30	52.4	73	60	56	46	-	-
				Margin [dB]		-20.6	-7.6	-3.6	6.4	-	-
3	1.33448	24.6 pk	0	30	54.6	73	60	56	46	-	-
				Margin [dB]		-18.4	-5.4	-1.4	8.6	-	-
4	1.47	28 pk	0	30	58	73	60	56	46	-	-
				Margin [dB]		-15	-2	2	12	-	-
5	1.96126	24.1 pk	.1	30	54.2	73	60	56	46	-	-
				Margin [dB]		-18.8	-5.8	-1.8	8.2	-	-
Line - L1 2 - 30MHz											
6	2.46611	19.3 pk	.1	30	49.4	73	60	56	46	-	-
				Margin [dB]		-23.6	-10.6	-6.6	3.4	-	-
7	2.95552	14.3 pk	.1	30	44.4	73	60	56	46	-	-
				Margin [dB]		-28.6	-15.6	-11.6	-1.6	-	-
8	3.93102	23.7 pk	.1	30	53.8	73	60	56	46	-	-
				Margin [dB]		-19.2	-6.2	-2.2	7.8	-	-
9	4.91318	21.8 pk	.2	30	52	73	60	56	46	-	-
				Margin [dB]		-21	-8	-4	6	-	-
10	10.77617	19.9 pk	.3	30	50.2	73	60	60	50	-	-
				Margin [dB]		-22.8	-9.8	-9.8	.2	-	-
11	11.74834	20.4 pk	.4	30	50.8	73	60	60	50	-	-
				Margin [dB]		-22.2	-9.2	-9.2	.8	-	-
Line - L2 .15 - 2MHz											
12	.4767	46 pk	0	30	76	79	66	56.4	46.4	-	-
				Margin [dB]		-3	10	19.6	29.6	-	-
13	.97104	27.4 pk	0	30	57.4	73	60	56	46	-	-
				Margin [dB]		-15.6	-2.6	1.4	11.4	-	-
14	1.33514	25.2 pk	0	30	55.2	73	60	56	46	-	-
				Margin [dB]		-17.8	-4.8	-.8	9.2	-	-
15	1.45284	29.2 pk	0	30	59.2	73	60	56	46	-	-
				Margin [dB]		-13.8	-.8	3.2	13.2	-	-
16	1.94542	28.2 pk	0	30	58.2	73	60	56	46	-	-
				Margin [dB]		-14.8	-1.8	2.2	12.2	-	-
Line - L2 2 - 30MHz											
17	2.93555	33.8 pk	0	30	63.8	73	60	56	46	-	-
				Margin [dB]		-9.2	3.8	7.8	17.8	-	-
18	3.91105	27 pk	0	30	57	73	60	56	46	-	-
				Margin [dB]		-16	-3	1	11	-	-
19	4.88988	24 pk	0	30	54	73	60	56	46	-	-
				Margin [dB]		-19	-6	-2	8	-	-
20	10.73289	26.6 pk	0	30	56.6	73	60	60	50	-	-
				Margin [dB]		-16.4	-3.4	-3.4	6.6	-	-
21	11.70173	29.4 pk	0	30	59.4	73	60	60	50	-	-
				Margin [dB]		-13.6	-.6	-.6	9.4	-	-
22	12.68056	25.6 pk	0	30	55.6	73	60	60	50	-	-
				Margin [dB]		-17.4	-4.4	-4.4	5.6	-	-

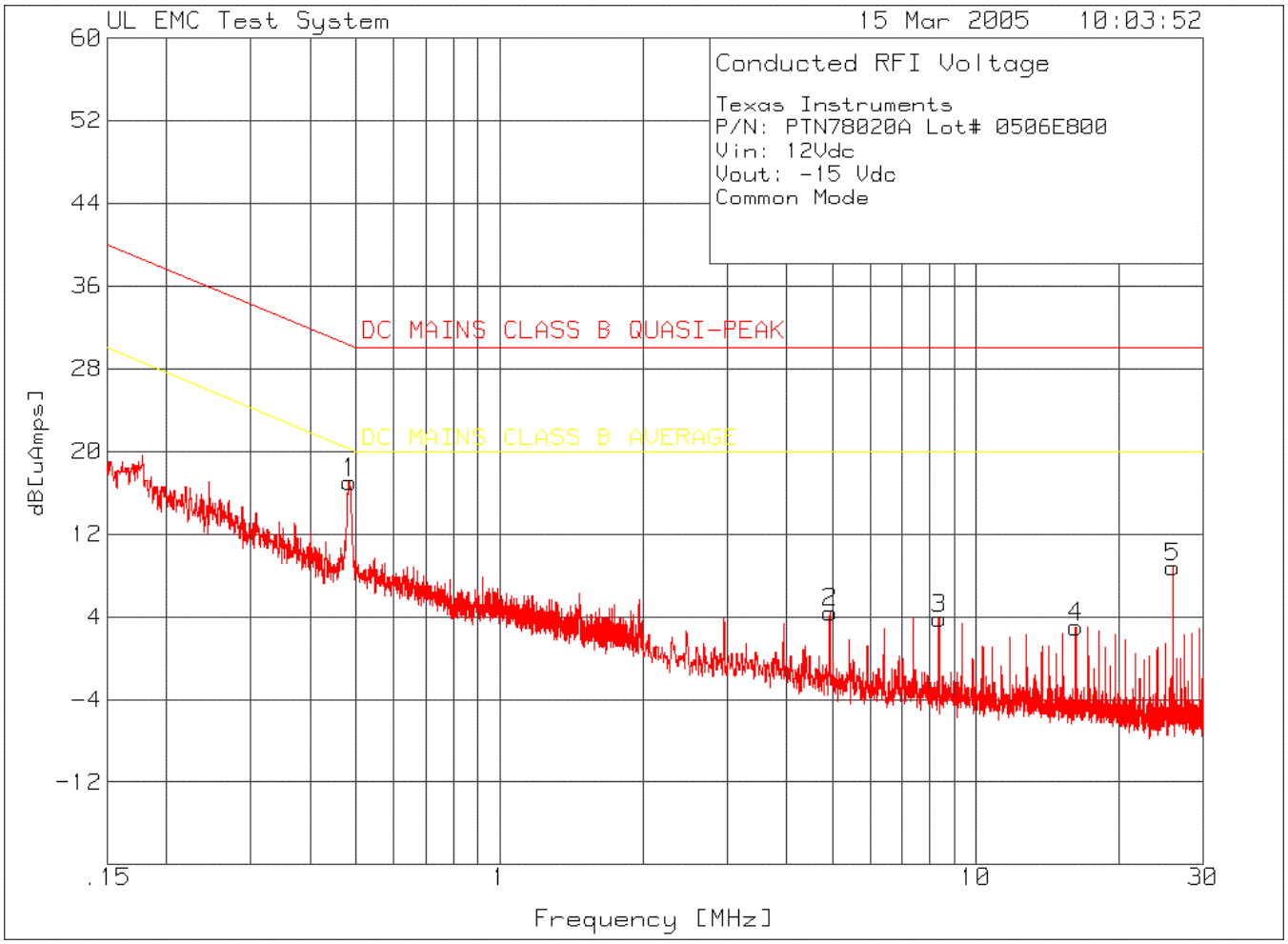
LIMIT 1: CISPR CLASS A QUASI-PEAK
LIMIT 2: CISPR CLASS A AVERAGE
LIMIT 3: CISPR CLASS B QUASI-PEAK
LIMIT 4: CISPR CLASS B AVERAGE

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 15 March 2005

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTN78020AAH**
Requirement	:	**Engineering purposes only (Clamp)**
Detection Mode	:	Quasi-peak (qp) or Peak (pk) or Average (ave)
Bandwidth	:	200 Hz for measurements 9 kHz to 150 kHz 9 kHz for measurements 150 kHz to 30 MHz
Line	:	Positive & Negative (Common Mode)



Texas Instruments
P/N: PTN78020A Lot# 0506E800
Vin: 12Vdc
Vout: -15 Vdc
Common Mode

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uAmps]	Limit:1	2	3	4	5	6
Line - L1 .15 - 2MHz											
1	.48418	15.9 pk	0	1.1	17	30.3	20.3	-	-	-	-
				Margin [dB]		-13.3	-3.3	-	-	-	-
Line - L1 2 - 30MHz											
2	4.92983	12.7 pk	0	-8.3	4.4	30	20	-	-	-	-
				Margin [dB]		-25.6	-15.6	-	-	-	-
3	8.36239	13.6 pk	0	-9.8	3.8	30	20	-	-	-	-
				Margin [dB]		-26.2	-16.2	-	-	-	-
4	16.19302	14.4 pk	0	-11.4	3	30	20	-	-	-	-
				Margin [dB]		-27	-17	-	-	-	-
5	25.85812	21.4 pk	0	-12.6	8.8	30	20	-	-	-	-
				Margin [dB]		-21.2	-11.2	-	-	-	-

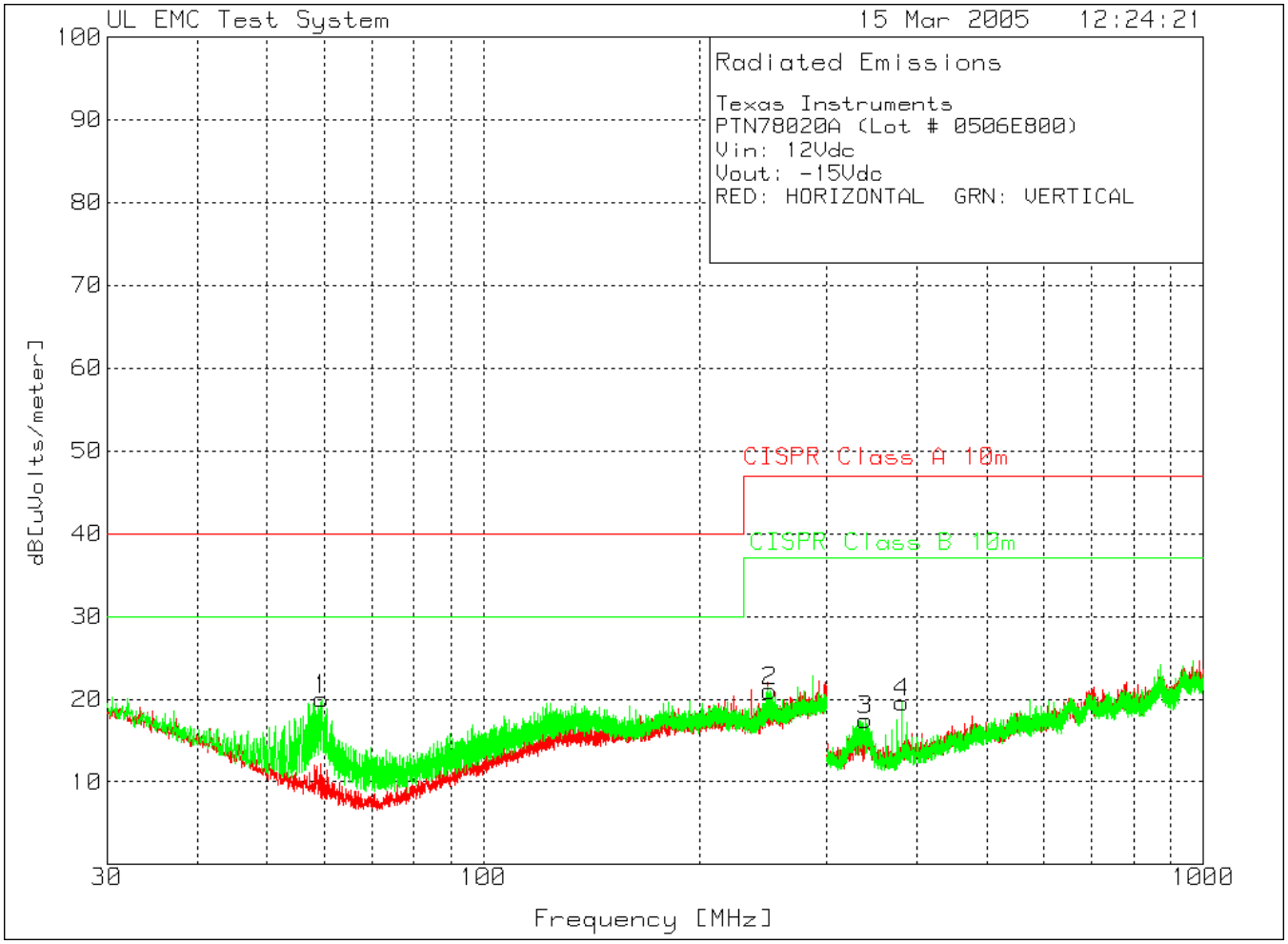
LIMIT 1: DC MAINS CLASS B QUASI-PEAK
LIMIT 2: DC MAINS CLASS B AVERAGE

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Radiated Emissions

Date Tested: 15 March 2005

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTN78020AAH**
Requirement	:	**CISPR Class B**
Detection Mode	:	Quasi-peak (qp)
Bandwidth	:	120 kHz
Measurement Distance	:	10 meter
Antenna Type	:	**30 - 300 MHz, Biconical**
		300 - 1000 MHz, Log-Periodic



Texas Instruments
PTN78020A (Lot # 0506E800)
Vin: 12Vdc
Vout: -15Vdc
RED: HORIZONTAL GRN: VERTICAL

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Range 2 30 - 300MHz											
1	59.5428	43.2 pk	-30.3	7.1	20	40	30	-	-	-	-
	Azimuth:240	Height:200 Vert		Margin [dB]		-20	-10	-	-	-	-
2	249.6827	34.3 pk	-29.5	16.2	21	47	37	-	-	-	-
	Azimuth:240	Height:100 Vert		Margin [dB]		-26	-16	-	-	-	-
Range 4 300 - 1000MHz											
3	339.1706	35.4 pk	-32.5	14.6	17.5	47	37	-	-	-	-
	Azimuth:62	Height:100 Vert		Margin [dB]		-29.5	-19.5	-	-	-	-
4	381.4889	36.5 pk	-32.2	15.3	19.6	47	37	-	-	-	-
	Azimuth:196	Height:200 Vert		Margin [dB]		-27.4	-17.4	-	-	-	-

LIMIT 1: CISPR Class A 10m
LIMIT 2: CISPR Class B 10m

pk - Peak detector

Frequency MHz	Measurement dBuV	CISPR A dBuV	CISPR B dBuV
339.1706	**17.5 (peak)**	40	30
No Quasi-Peak Measurements Required.		40	30