DESCRIPTION	PART NUMBER	REV
UL PTH08080 CON RAD	81-40292	1A

EMC
Test Report

PTH08080 Product Family

Part numbers covered by this report:

PTH08080WAH PTH08080WAS

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	6790	Initial Release	James A. Killion	12/29/2004

TEXAS INSTRUMENTS
27715 Diehl Rd
Warrenville, IL 60555

CONFIDENTIAL

Originator	Date
James Killion	12/29/2004
Reliability Manager	Date
Joseph R Pudlo	1/4/05
Product Designer	Date
Joel Bransfield	1/4/05

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

December 09, 2004

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

UL Reference: File MC1850, Project 04NK30088

Subject: EMC Test and Measurement Report for
Model PTH08080WAH 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 04NK30088.

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: December 09, 2004

Ö **EMISSIONS**

IMMUNITY

Test Report File No.	:	MC1850
Project No.	:	04NK30088
Model / Type	:	PTW08080WAH (Lot Code 0445E710)
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

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
PTH08080WAH	3.3	3 amps	1.1 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

Agilent Model 7405A Spectrum Analyzer No. EMC4242

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 : December 07, 2004

Test Dates

Start : December 07, 2004
End : December 08, 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

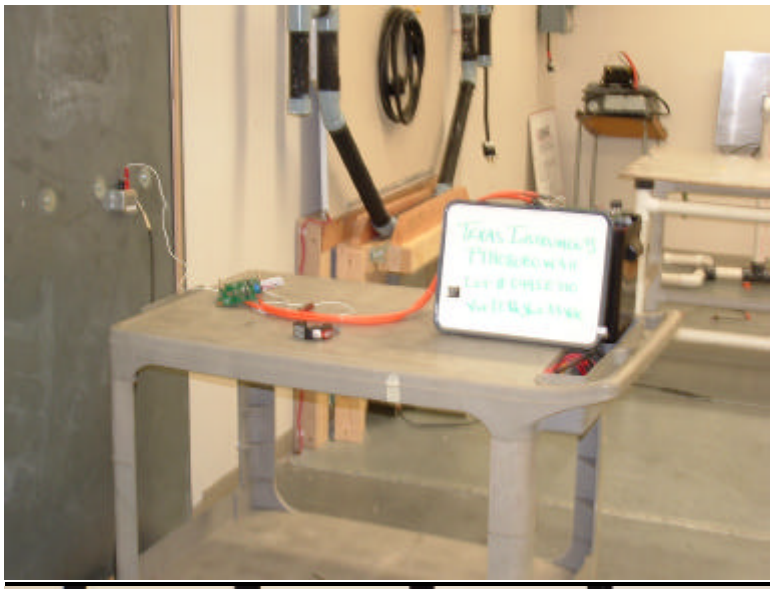
APPENDIX A

Model PTH08080WAH

PHOTOS

EMISSIONS

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

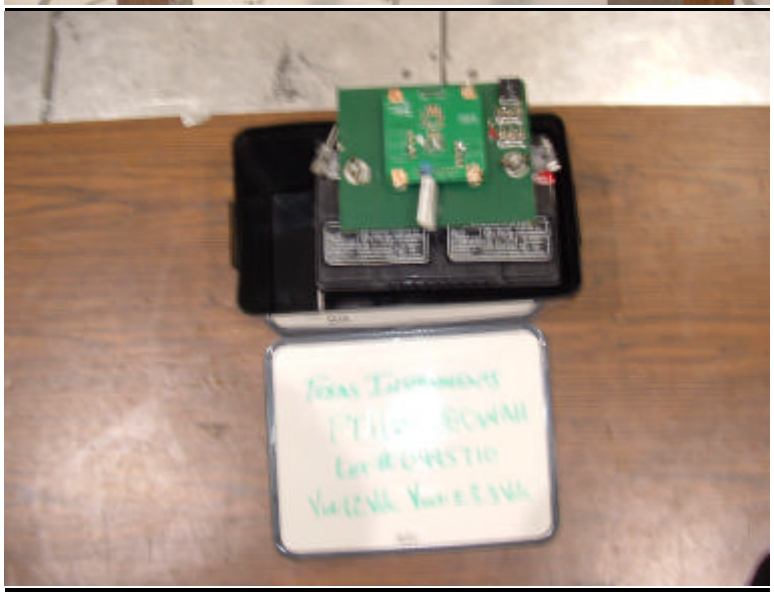


CONDUCTED VOLTAGE

FIG. 1

RADIATED EMISSIONS

FIG. 2



EUT

FIG. 3

APPENDIX B

Model PTH08080WAH

TEST DATA

EMISSIONS

Conducted Voltage
Radiated Electric Field Emissions

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 07 December 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTH08080WAH**
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
PTH08080WAH LOT#0445E710
Vin: 12Vdc
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	5	6
Line - L1 .15 - 2MHz											
1	.30927	36.72 pk	0	30	66.72	79	66	60	50	-	-
				Margin [dB]		-12.28	.72	6.72	16.72	-	-
2	.62087	32.63 pk	0	30	62.63	73	60	56	46	-	-
				Margin [dB]		-10.37	2.63	6.63	16.63	-	-
3	1.85691	25.7 pk	0	30	55.7	73	60	56	46	-	-
				Margin [dB]		-17.3	-4.3	-.3	9.7	-	-
Line - L1 2 - 30MHz											
4	2.78602	24.8 pk	0	30	54.8	73	60	56	46	-	-
				Margin [dB]		-18.2	-5.2	-1.2	8.8	-	-
5	29.3711	24.4 pk	0	30	54.4	73	60	60	50	-	-
				Margin [dB]		-18.6	-5.6	-5.6	4.4	-	-
Line - L2 .15 - 2MHz											
6	.30927	33.26 pk	0	30	63.26	79	66	60	50	-	-
				Margin [dB]		-15.74	-2.74	3.26	13.26	-	-
7	.61972	29.39 pk	0	30	59.39	73	60	56	46	-	-
				Margin [dB]		-13.61	-.61	3.39	13.39	-	-
8	1.85345	19.65 pk	0	30	49.65	73	60	56	46	-	-
				Margin [dB]		-23.35	-10.35	-6.35	3.65	-	-
Line - L2 2 - 30MHz											
9	2.78602	20.26 pk	0	30	50.26	73	60	56	46	-	-
				Margin [dB]		-22.74	-9.74	-5.74	4.26	-	-
10	29.35364	22.43 pk	0	30	52.43	73	60	60	50	-	-
				Margin [dB]		-20.57	-7.57	-7.57	2.43	-	-

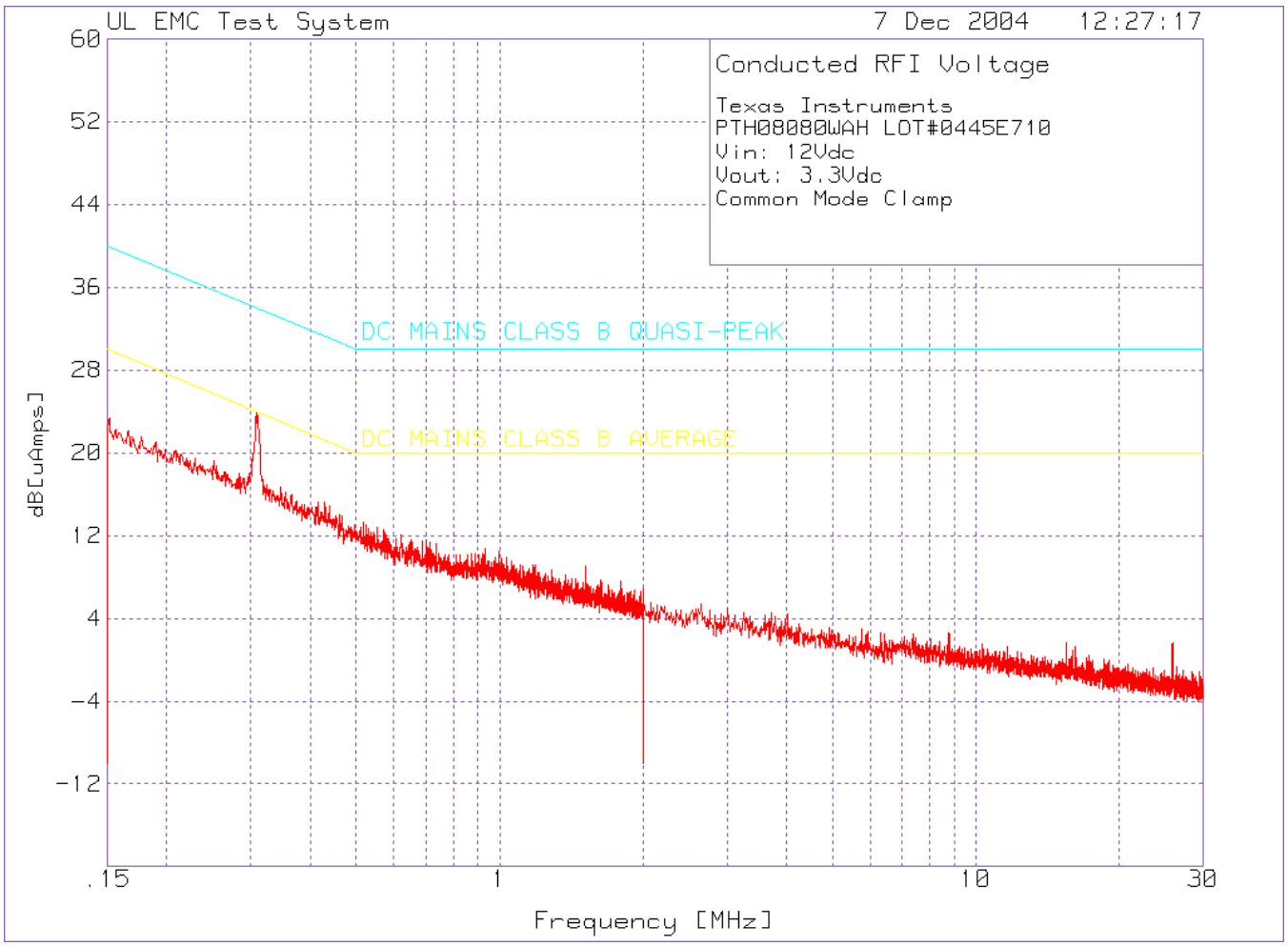
LIMIT 1: CISPR CLASS A QUASI-PEAK
LIMIT 2: CISPR CLASS A AVERAGE
LIMIT 3: CISPR CLASS B QUASI-PEAK
LIMIT 4: CISPR CLASS B AVERAGE

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Conducted Emissions

Date Tested: 07 December 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTH08080WAH**
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
PTH08080WAH LOT#0445E710
Vin: 12Vdc
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	3	4	5	6
Line - L1 .15 - 2MHz											
1	.30846	19.4 pk	0	4.5	23.9	34	24	-	-	-	-
				Margin [dB]		-10.1	-.1	-	-	-	-
Line - L1 2 - 30MHz											
2	25.83199	14.2 pk	0	-12.6	1.6	30	20	-	-	-	-
				Margin [dB]		-28.4	-18.4	-	-	-	-

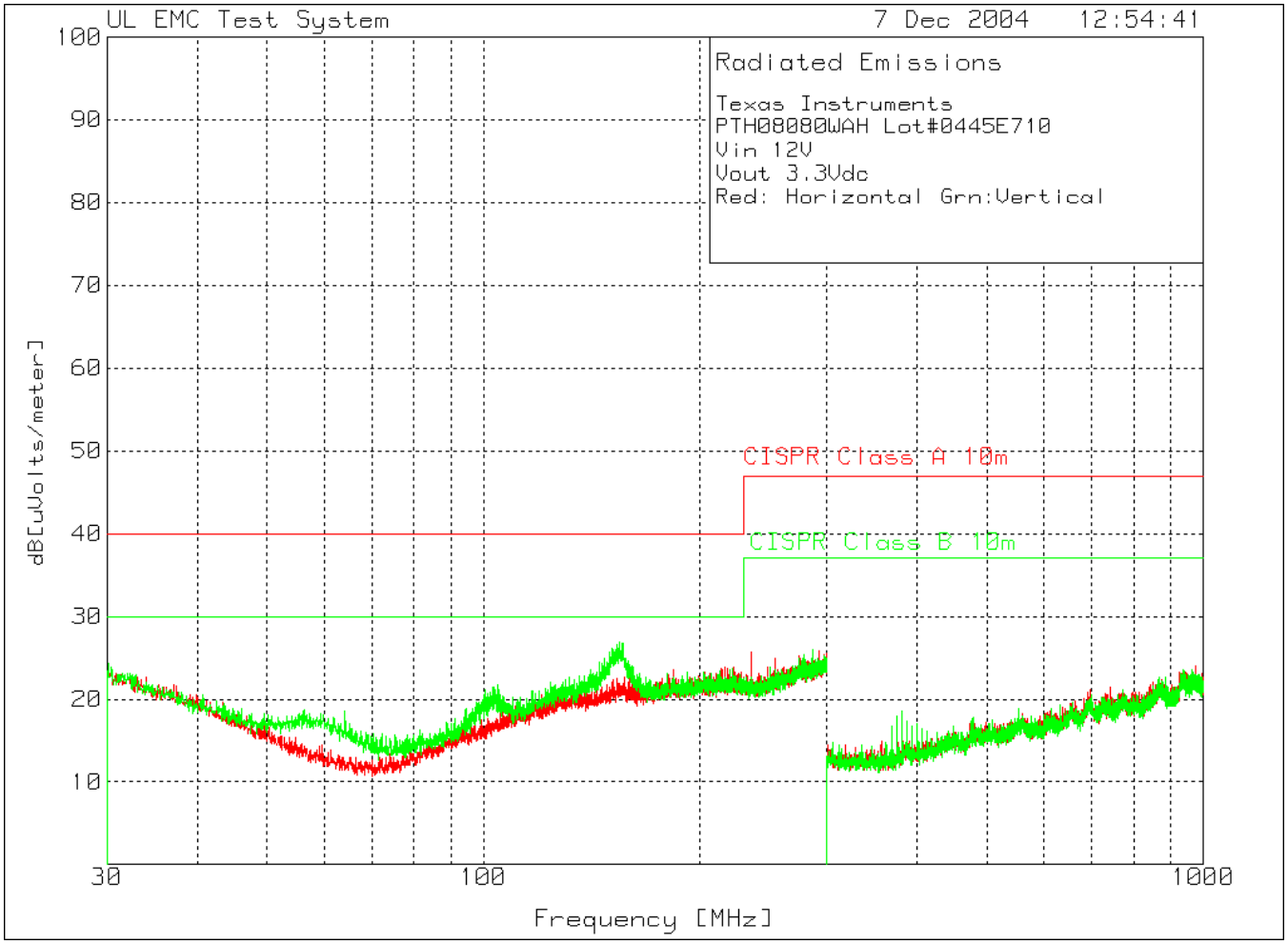
LIMIT 1: DC MAINS CLASS B QUASI-PEAK
LIMIT 2: DC MAINS CLASS B AVERAGE

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Radiated Emissions

Date Tested: 07 December 2004

Manufacturer	:	**Texas Instruments Inc.**
Equipment Under Test	:	**PTH08080WAH**
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
 PTH08080WAH Lot#0445E710
 Vin 12V
 Vout 3.3Vdc
 Red: Horizontal Grn:Vertical
      Test     Meter     Gain/Loss  Transducer  Level  Limit:1      2
No. Frequency  Reading    Factor     Factor  dB[uVolts/meter]
     [MHz]     [dB(uV)]     [dB]      [dB]
================================================================================
Range 2 30 - 300MHz ------------------------------------------------------
1  104.4637     35.9 pk      -25.6     11.4      21.7    40       30
   Azimuth:157   Height:100 Vert     Margin [dB]          -18.3    -8.3
2  154.2411     37.6 pk      -25.6     14.9      26.9    40       30
   Azimuth:344   Height:100 Vert     Margin [dB]          -13.1    -3.1

  Test     Meter     Gain/Loss  Transducer  Level  Limit:1      2
Frequency  Reading    Factor     Factor  dB[uVolts/meter]
 [MHz]     [dB(uV)]     [dB]      [dB]
================================================================================
Range 1 30 - 300MHz
153.754    34.4 qp       -25.6     14.9      23.7    40       30
Azimuth: 145  Height:108 Vert         Margin [dB]:   -16.3    -6.3


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

pk - Peak detector
qp - Quasi-Peak detector
```

Frequency MHz	Measurement dBuV	CISPR A dBuV	CISPR B dBuV
153.754	23.7	40	30