

TEST REPORT

Applicant:	Klipsch L.L.C.
Address of Applicant:	3502 Woodview Trace, Suite 200, Indianapolis, IN 46268, United States.
Manufacturer:	Klipsch L.L.C.
Address of Manufacturer:	3502 Woodview Trace, Suite 200, Indianapolis, IN 46268, United States.
Product name:	Powered Floorstanding Speaker
Model:	R-28PF, R-26PF
Rating(s):	100-120V~ / 220-240V~, 50/60Hz, 260W
Trademark:	Klipsch
FCC register number:	935596
IC register number:	8368A-1
FCC ID:	STI-R28PFR26PF
Standards:	FCC Part15 subpart B: 2017 ICES(Interference-Causing Equipment Standard)-003 Issue 5 April 2017
Date of Receipt:	2017-07-03
Date of Test:	2017-07-03~2017-07-11
Date of Issue:	2017-07-11
Test Result	Pass*

* In the configuration tested, the test item complied with the standards specified above.

Authorized for issue by:**Test by:**

Jul.11, 2017 Jummy Qiu *Jummy qiu*

Project Engineer

Date Name/Position Signature

Reviewed by:

Jul.11, 2017 Pauler Li *Pauler Li*

Project Manager

Date Name/Position Signature

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Testing Laboratory information:

Testing Laboratory Name : I-Test Laboratory
Address : 1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City,
Guangzhou, Guangdong Province, P.R. China
Testing location : Same as above
Tel..... : 0086-20-32209330
Fax : 0086-20-62824387
E-mail : itl@i-testlab.com

Possible test case verdicts:

- test case does not apply to the test object... : N/A
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement . : F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

The models R-26PF and R-28PF are identical to each other except for the model name and the size. R-26PF is the small one, R-28PF is the tall one.

All tests were performed on the model R-28PF as representative.

Test Summary:

The following standards have been applied to ensure the product conforms with the protection requirements of the council directive FCC part 15B / ICES-003.

Electromagnetic Emissions				
Test Item	Test Standard	Test Method	Class/Severity	Result
Conducted Emission(0.15-30MHz)	FCC part 15.107/ ICES-003	ANSI C63.4:2014/ ICES-003	Class B	PASS
Radiated Emission(30-1000MHz)	FCC part 15.109/ ICES-003	ANSI C63.4:2014/ ICES-003	Class B	PASS

Test Location:

All the tests were performed in GuangZhou ITL Co., Ltd. Which is located at 1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China

Tel: 0086-20-32209330, Fax: 0086-20-62824387

No test is subcontracted

TABLE OF CONTENTS

<i>TEST REPORT</i>	1
Test Summary:	3
Test Location:	3
TABLE OF CONTENTS	4
Section 1 General Information and Equipment Used	5
1.1 Client Information.....	5
1.2 EUT General and Technical Descriptions	5
1.3 Support Equipment(s) and Test Configuration.....	5
1.3.1 Details of Support Equipment(s)	5
1.3.2 Working State of EUT.....	5
1.3.3 Block Diagram of Test Configuration	5
1.4 Equipment Used during Test	6
Section 2 Emission Test Results	7
2.1 Conducted Emission at Mains Terminals, 150 kHz to 30MHz.....	7
2.1.1 E.U.T. Operation	7
2.1.2 Test Setup and Procedure	8
2.1.3 Measurement Data	8
2.2 Radiated Emissions, 30MHz to 1GHz.....	11
2.2.1 E.U.T. Operation	11
2.2.2 Test Setup and Procedure	12
2.2.3 Measurement Data	13

Section 1 General Information and Equipment Used

1.1 Client Information

Applicant: Klipsch L.L.C.
 Address of Applicant: 3502 Woodview Trace, Suite 200, Indianapolis, IN 46268, United States.

1.2 EUT General and Technical Descriptions

EUT Name: Powered Floorstanding Speaker
 EUT Model: R-28PF
 EUT Trademark: Klipsch
 Input Voltage: 100-120V ~ / 220-240V~
 Frequency: 50/60Hz
 Input Power/Current: 260W
 Output rated: /
 Power Cable Description: /
 Other Cables Description: /
 I/O Ports: USB Audio in, Optical, SuB out, Aux in, PHONO L+R, Left speaker out
 Function(s) Description: /
 Accessories information: /

1.3 Support Equipment(s) and Test Configuration

1.3.1 Details of Support Equipment(s)

Description	Manufacturer	Model No.	Connection	Working state
PC	/	/	/	Normal

1.3.2 Working State of EUT

Power Supply of EUT: 120V~ 60Hz
 EUT Status: Test the EUT in USB Audio in mode.

1.3.3 Block Diagram of Test Configuration

/

1.4 Equipment Used during Test

Conducted Emission						
No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
ITL-102	EMI Test receiver	R&S	ESCI	100910	2017/06/15	2018/06/15
ITL-103	Two-line v-network	R&S	ENV216	100120	2017/06/15	2018/06/15
ITL-101	Shielded Room	ETS•Lindgren	8*4*3	CT09010	2015/03/09	2018/03/09

Radiated Emission						
No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
ITL-100	Semi-Anechoic chamber	ETS•Lindgren	FACT3 2.0	CT09015	2016/11/02	2019/11/02
ITL-154	EMI test receiver 9kHz to 26.5GHz	R&S	ESR26	101257	2017/01/20	2018/01/20
ITL-105	Biconilog Antenna	ETS•Lindgren	3142D	00108096	2015/01/24	2018/01/24
ITL-116	Pre Amplifier	HP	8447F	3113A05905	2017/01/20	2018/01/20

Section 2 Emission Test Results

2.1 Conducted Emission at Mains Terminals, 150 kHz to 30MHz

Test Requirement:	FCC part 15.107/ ICES-003
Test Method:	ANSI C63.4:2014/ ICES-003
Test Voltage:	120V AC, 60Hz
Test Date:	2017-07-03
Frequency Range:	150 kHz to 30MHz
Detector:	Peak for pre-scan Quasi-Peak and Average at frequency with maximum peak (9 kHz resolution bandwidth)
Uncertainty:	2Uc (V) = 2.3dB
Class / Limit:	Class B

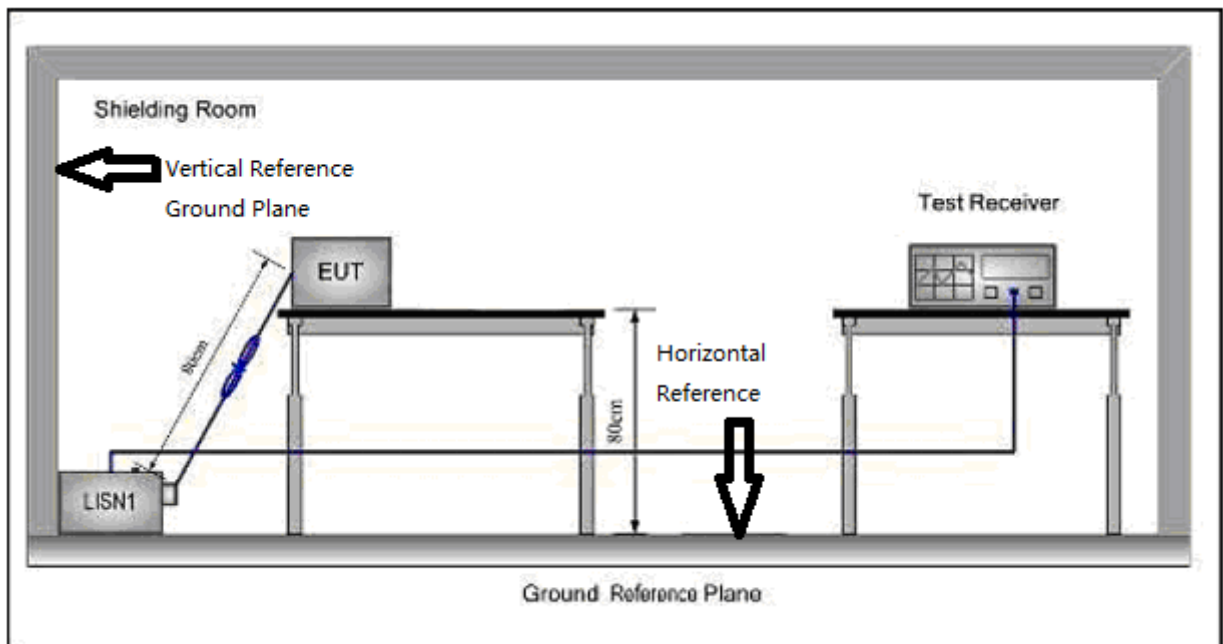
Frequency range MHz	Class B Limits dB (µV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 :The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
NOTE 2: The lower limit is applicable at the transition frequency.		

2.1.1 E.U.T. Operation

Operating Environment:		
Temperature: 24.0 °C	Humidity: 51 % RH	Atmospheric Pressure: 101 kPa
EUT Operation: Test the EUT in USB Audio in mode.		

2.1.2 Test Setup and Procedure

- (1) The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- (2) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (3) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (4) LISN at least 80 cm from nearest part of EUT chassis.
- (5) For the actual test configuration, please refer to the related Item –EUT Test Photos.



- Note: (1) Support units were connected to second LISN.
(2) Both of LISNs (AMN) are 80 cm from EUT and at least 80cm from EUT and at least 80 cm from other units and other metal planes.

2.1.3 Measurement Data

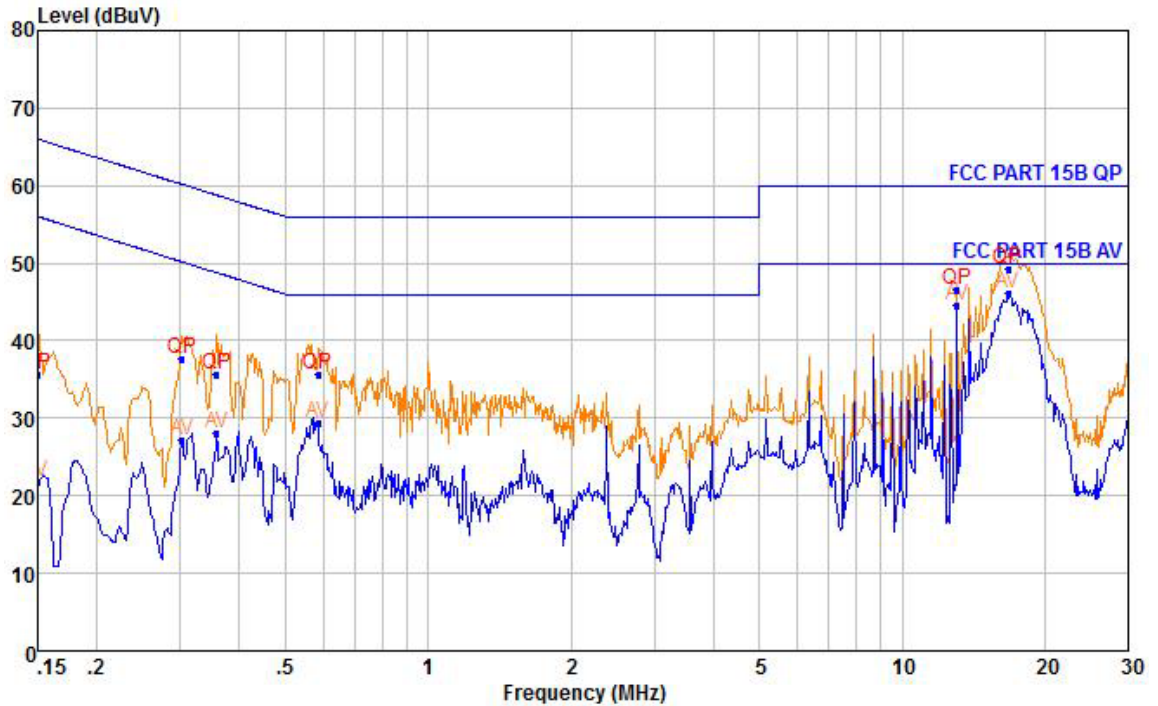
Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected. Please see the attached Quasi-peak and Average test results.

Model: R-28PF

Live Line:

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement

NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Margin dB
1	0.150	21.79	Average	9.98	0.01	56.00	-34.21
2	0.150	35.66	QP	9.98	0.01	66.00	-30.34
3	0.302	27.29	Average	9.98	0.02	50.19	-22.90
4	0.302	37.56	QP	9.98	0.02	60.19	-22.63
5	0.358	27.98	Average	9.98	0.02	48.78	-20.80
6	0.358	35.72	QP	9.98	0.02	58.78	-23.06
7	0.585	29.40	Average	9.98	0.03	46.00	-16.60
8	0.585	35.55	QP	9.98	0.03	56.00	-20.45
9	13.057	44.53	Average	10.58	0.11	50.00	-5.47
10	13.057	46.66	QP	10.58	0.11	60.00	-13.34
11	16.750	46.21	Average	10.80	0.12	50.00	-3.79
12	16.750	49.17	QP	10.80	0.12	60.00	-10.83

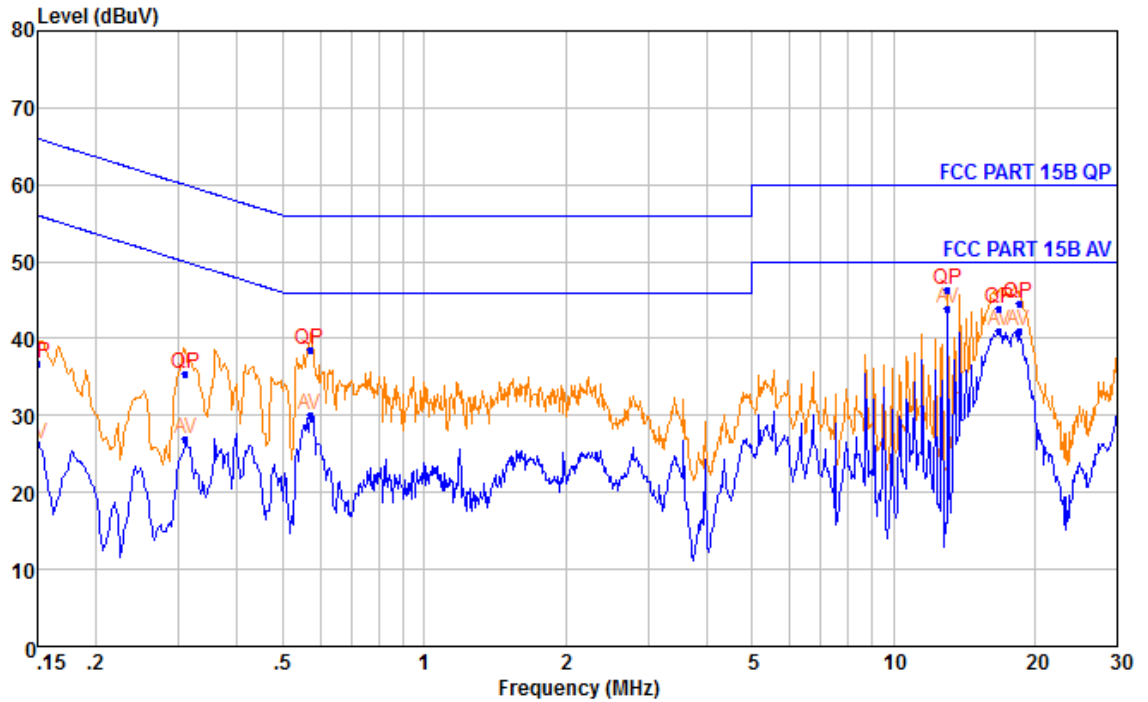
Level=Read Level + Lisen Factor + Cable Loss

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Neutral Line:

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement

NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Margin dB
1	0.150	26.21	Average	9.98	0.01	56.00	-29.79
2	0.150	36.66	QP	9.98	0.01	66.00	-29.34
3	0.310	27.03	Average	9.98	0.02	49.97	-22.94
4	0.310	35.41	QP	9.98	0.02	59.97	-24.56
5	0.570	30.01	Average	9.98	0.03	46.00	-15.99
6	0.570	38.49	QP	9.98	0.03	56.00	-17.51
7	13.057	43.83	Average	10.58	0.11	50.00	-6.17
8	13.057	46.36	QP	10.58	0.11	60.00	-13.64
9	16.839	40.92	Average	10.81	0.12	50.00	-9.08
10	16.839	43.87	QP	10.81	0.12	60.00	-16.13
11	18.524	41.09	Average	10.89	0.12	50.00	-8.91
12	18.524	44.55	QP	10.89	0.12	60.00	-15.45

Level=Read Level + Lisn Factor + Cable Loss

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2.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	FCC part 15.109/ ICES-003
Test Method:	ANSI C63.4:2014/ ICES-003
Test Voltage:	120V AC, 60Hz
Test Date:	2017-07-05
Frequency Range:	30MHz to 1GHz
Measurement Distance	3m
Detector:	Peak for pre-scan Quasi-Peak if maximised peak within 6dB of limit (120 kHz resolution bandwidth)
Uncertainty:	$2U_c (V) = 3.35\text{dB}$
Class / Limit:	Class B

Frequency range MHz	Quasi-peak limits dB ($\mu\text{V/m}$)
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54
At transitional frequencies the lower limit applies	

2.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C

Humidity: 50 % RH

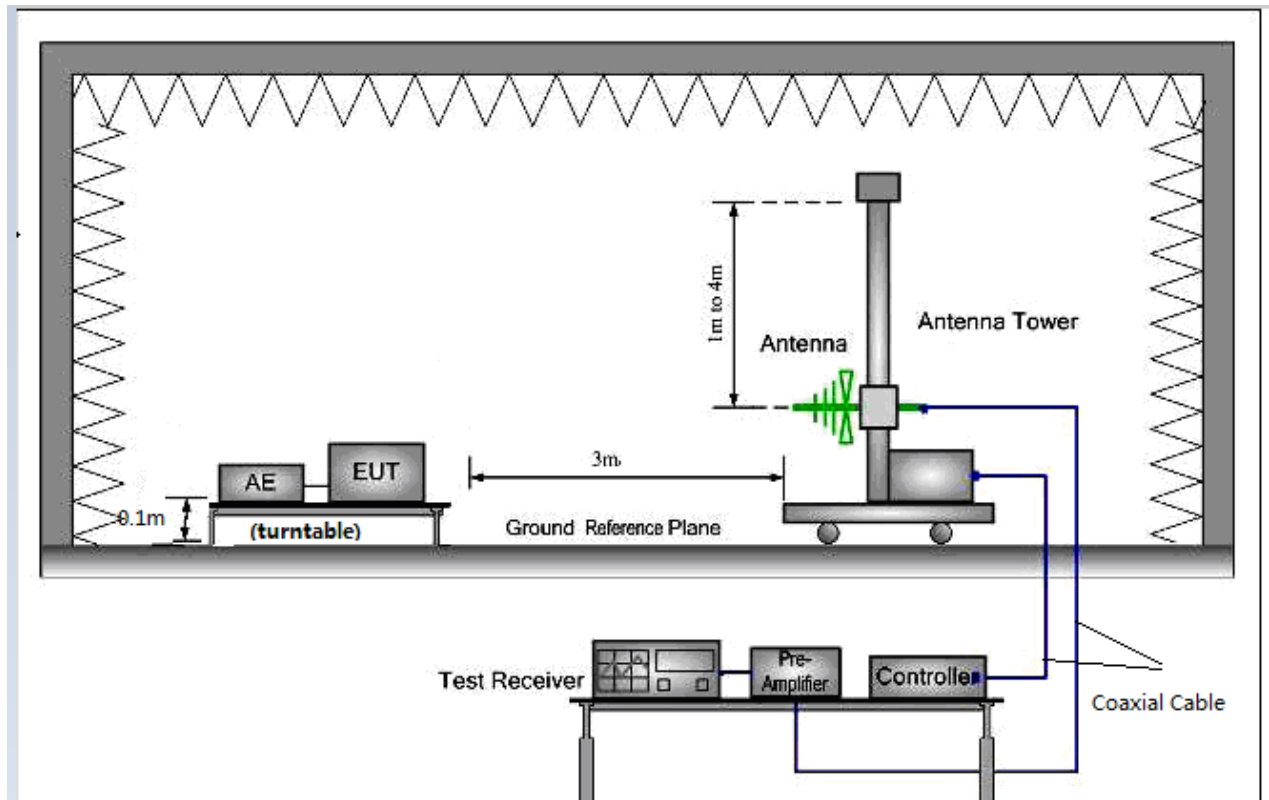
Atmospheric Pressure: 101 kPa

EUT Operation: Test the EUT in USB Audio in mode.

2.2.2 Test Setup and Procedure

- (1) The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- (2) The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The height of the antenna shall vary between 1m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- (6) For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported



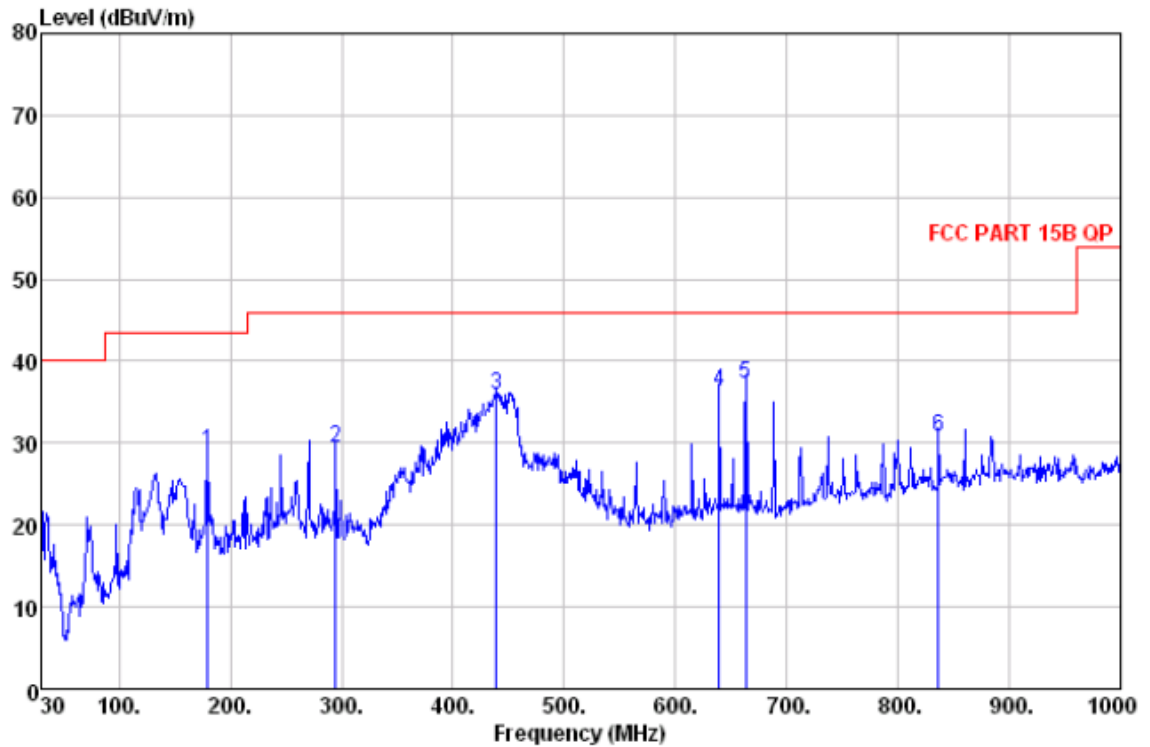
2.2.3 Measurement Data

Model: R-28PF

Horizontal:

Peak scan

Level (dBµV/m)

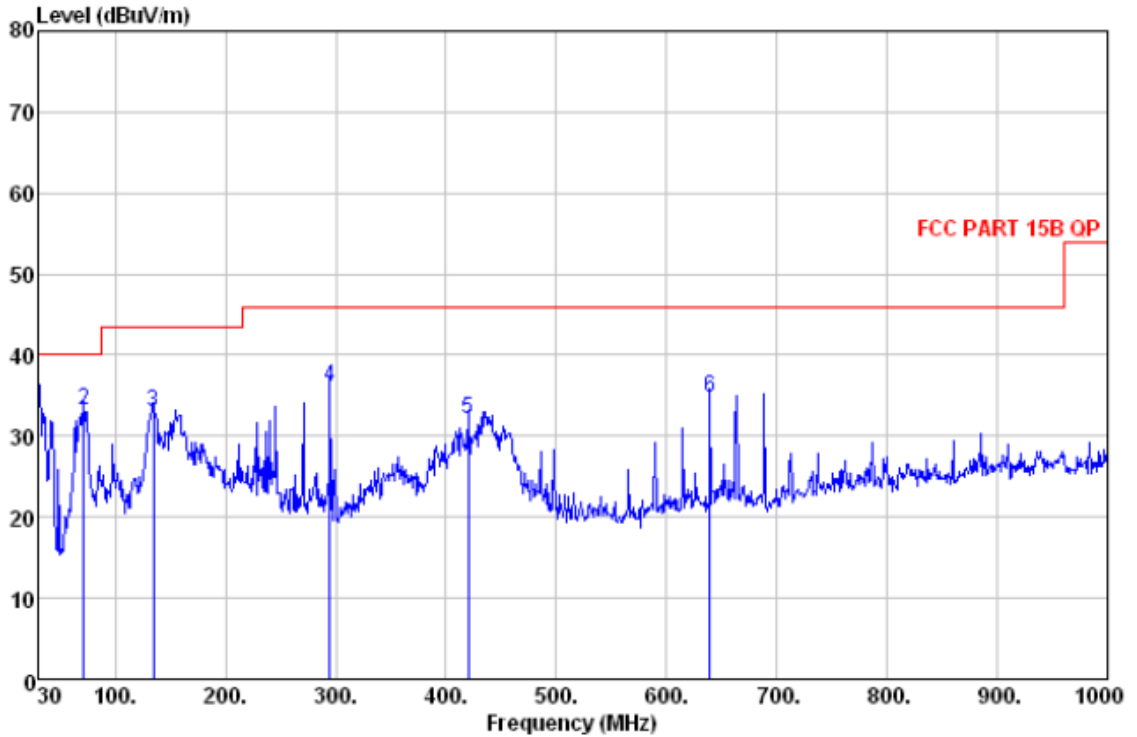


Quasi-peak measurement

No.	Freq MHz	Read Level dBµV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBµV/m	Limit Line dBµV/m	Over Limit dB	Pol/Phase	Remark
1	179.380	46.89	8.20	1.61	27.84	28.86	43.50	-14.64	HORIZONTAL	QP
2	294.810	41.30	13.49	2.10	27.55	29.34	46.00	-16.66	HORIZONTAL	QP
3	439.340	45.04	16.59	2.59	28.39	35.83	46.00	-10.17	HORIZONTAL	QP
4	639.160	41.20	20.37	3.17	28.43	36.31	46.00	-9.69	HORIZONTAL	QP
5	663.410	41.94	20.67	3.23	28.52	37.32	46.00	-8.68	HORIZONTAL	QP
6	836.070	31.94	22.78	3.65	27.54	30.83	46.00	-15.17	HORIZONTAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Vertical:
 Peak scan
 Level (dBµV/m)



Quasi-peak measurement

No.	Freq MHz	Read Level dBµV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBµV/m	Limit Line dBµV/m	Over Limit dB	Pol/Phase	Remark
1	30.000	46.14	17.70	0.63	28.50	35.97	40.00	-4.03	VERTICAL	QP
2	71.710	53.46	7.10	0.99	28.26	33.29	40.00	-6.71	VERTICAL	QP
3	134.760	52.56	7.40	1.38	28.30	33.04	43.50	-10.46	VERTICAL	QP
4	294.810	48.14	13.49	2.10	27.55	36.18	46.00	-9.82	VERTICAL	QP
5	419.940	41.22	16.50	2.52	28.12	32.12	46.00	-13.88	VERTICAL	QP
6	639.160	39.73	20.37	3.17	28.43	34.84	46.00	-11.16	VERTICAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

END OF THE TEST REPORT

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