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CERTIFICATE #4820.01

BACL
Bay Area Compliance Labs Corp.

FCC PART 15B

TEST REPORT

For

Dongguan Eurosun Electronics Technology ltd

No1.Guangchang Road, Qiaotou Town, Dongguan, China

FCC ID: 2AO52-1B156

Report Type:	**Product Type:**
Original Report	Bladeless Fan
Report Number:	RDG190411002-00
Report Date:	2019-04-17
Reviewed By:	Jerry Zhang EMC Manager Jerry Zhang
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Bladeless Fan
EUT Model:	1B156
Multiple Models:	VIV-IMP-1056
Rated Input Voltage:	DC5V from USB port or DC3.7V from rechargeable battery
The Highest Operating Frequency:	Below 108MHz
External Dimension:	66mm(L)* 56mm(W)*174 mm(H)
Serial Number:	190326002
EUT Received Date:	2019.04.01

Note: The series product, models 1B156, VIV-IMP-1056 are electrically identical, we selected 1B156 for fully testing .The difference between them was explained in the declaration letter.

Objective

This report is prepared on behalf of *Dongguan Eurosun Electronics Technology ltd* in accordance with Part 2, Part J, and Part 15, Subpart A and B of the Federal Communications Commission's rules.

The objective is to determine the compliance of EUT with: FCC Part 15B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.
The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.
The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

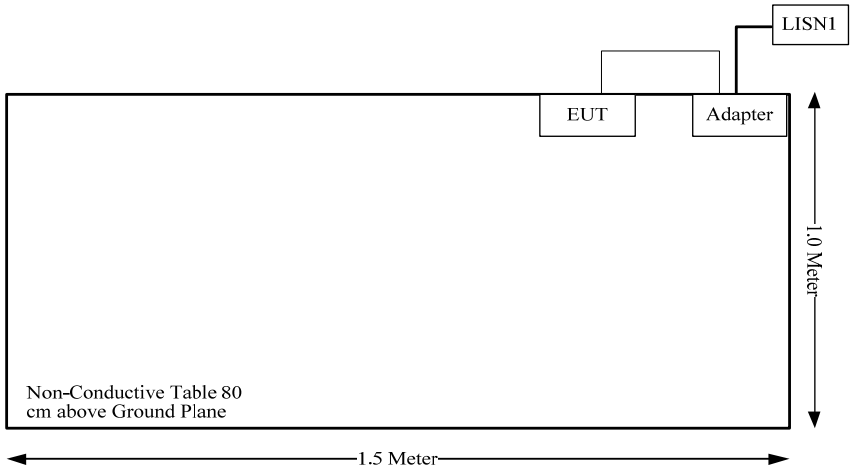
Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

No EUT software was used for testing.

Block Diagram of Test Setup



Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Doangang	adapter	DA-00051000EU001	N/A

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	1.2	EUT USB port	adapter

Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission					
R&S	EMI Test Receiver	ESCI	101121	2019-03-23	2020-03-23
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2018-12-10	2019-12-10
Radiated emissions below 1GHz					
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Environmental Conditions

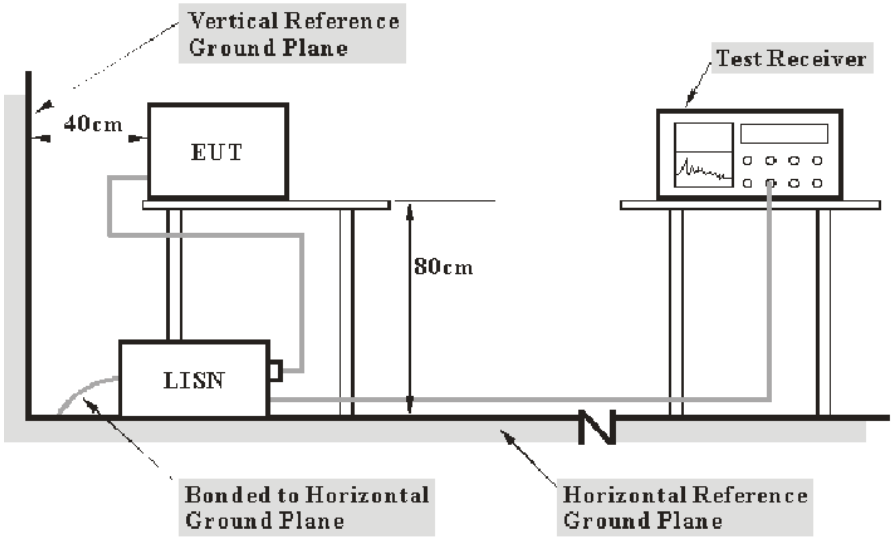
Temperature:	24.3~27.1 °C
Relative Humidity:	40~46%
ATM Pressure:	101.0~ 101.2kPa
Tester:	Ade Xiao, Neil Liao
Test Date:	2019.04.02~2019.04.03

SUMMARY OF TEST RESULTS

SN	Rule and Clause	Description of Test	Test Result
1	FCC §15.107	Conducted emissions	Compliance
2	FCC §15.109	Radiated emissions	Compliance

1 – CONDUCTED EMISSIONS

EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:
Corr. = Cable loss + Factor of coupling device

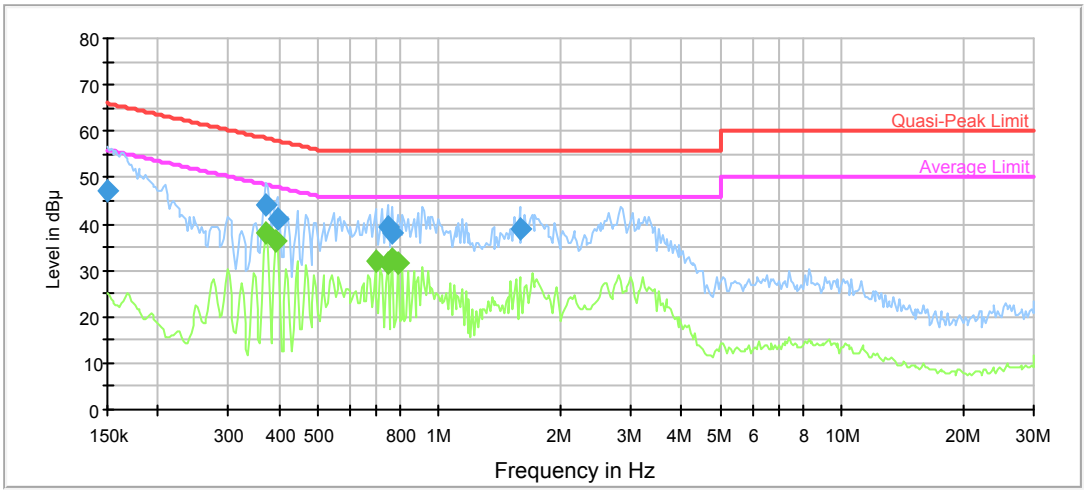
The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

Please refer to following table and plots:

Model Number:	1B156
Port:	L
Test Mode:	Charging&Normal Work
Power Source:	AC 120V/60Hz
Note:	



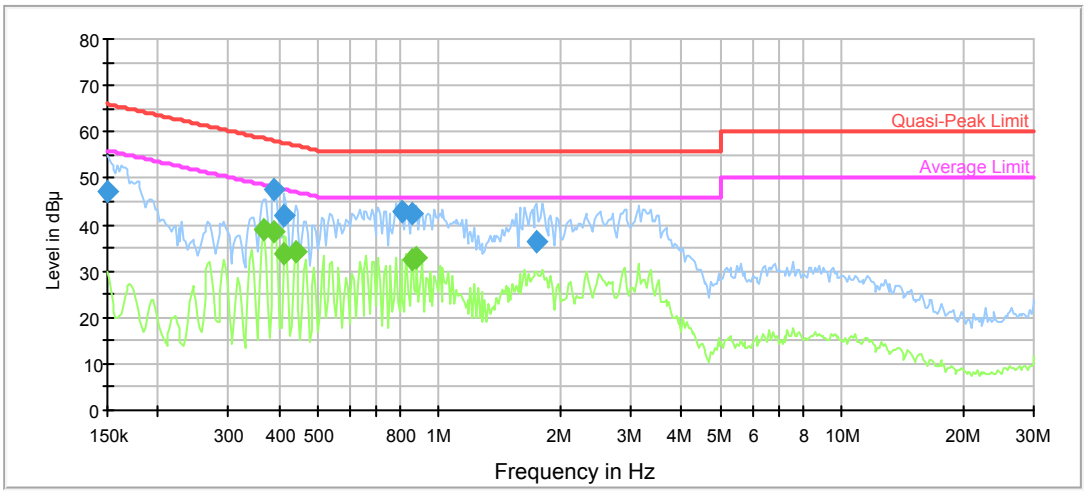
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	47.3	9.000	L1	11.2	18.7	66.0
0.370968	43.9	9.000	L1	10.0	14.6	58.5
0.397728	41.0	9.000	L1	10.0	16.9	57.9
0.744445	39.2	9.000	L1	9.8	16.8	56.0
0.767003	38.0	9.000	L1	9.8	18.0	56.0
1.585832	38.8	9.000	L1	9.7	17.2	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.370968	38.0	9.000	L1	10.0	10.5	48.5
0.393790	36.1	9.000	L1	10.0	11.8	48.0
0.694357	31.8	9.000	L1	9.8	14.2	46.0
0.744445	31.7	9.000	L1	9.8	14.3	46.0
0.767003	32.5	9.000	L1	9.8	13.5	46.0
0.790244	31.4	9.000	L1	9.8	14.6	46.0

Model Number:	1B156
Port:	N
Test Mode:	Charging&Normal Work
Power Source:	AC 120V/60Hz
Note:	



Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	47.2	9.000	N	11.2	18.8	66.0
0.389891	47.8	9.000	N	10.0	10.3	58.1
0.413877	42.2	9.000	N	9.9	15.4	57.6
0.806127	42.8	9.000	N	9.8	13.2	56.0
0.855721	42.2	9.000	N	9.8	13.8	56.0
1.751745	36.5	9.000	N	9.8	19.5	56.0

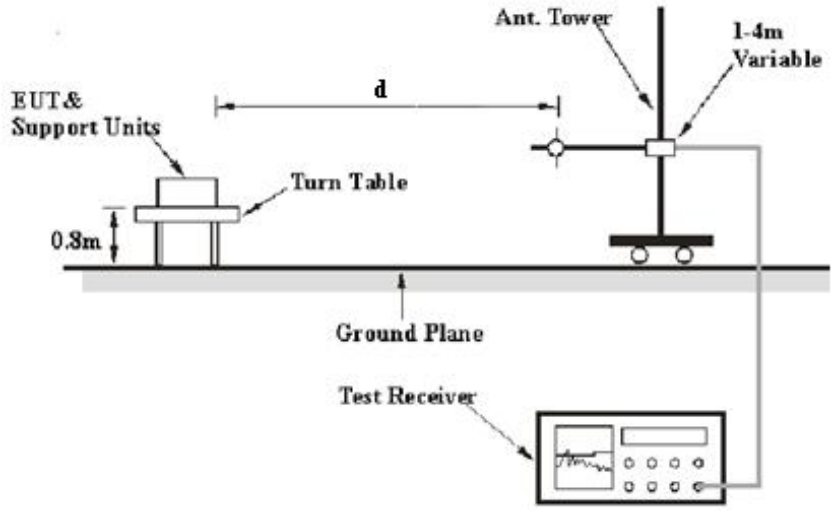
Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.367295	39.0	9.000	N	10.0	9.6	48.6
0.389891	38.7	9.000	N	10.0	9.4	48.1
0.413877	33.7	9.000	N	9.9	13.9	47.6
0.439339	34.0	9.000	N	9.9	13.1	47.1
0.855721	32.4	9.000	N	9.8	13.6	46.0
0.881650	33.0	9.000	N	9.8	13.0	46.0

2 – RADIATED EMISSIONS

EUT Setup

Below 1GHz:



The radiated emission tests were performed at the 3 meters distance, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP

Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:
Corrected = Antenna Factor + Cable Loss - Amplifier Gain
or
Corrected = Antenna Factor + Cable Loss + Insertion loss of attenuator - Amplifier Gain

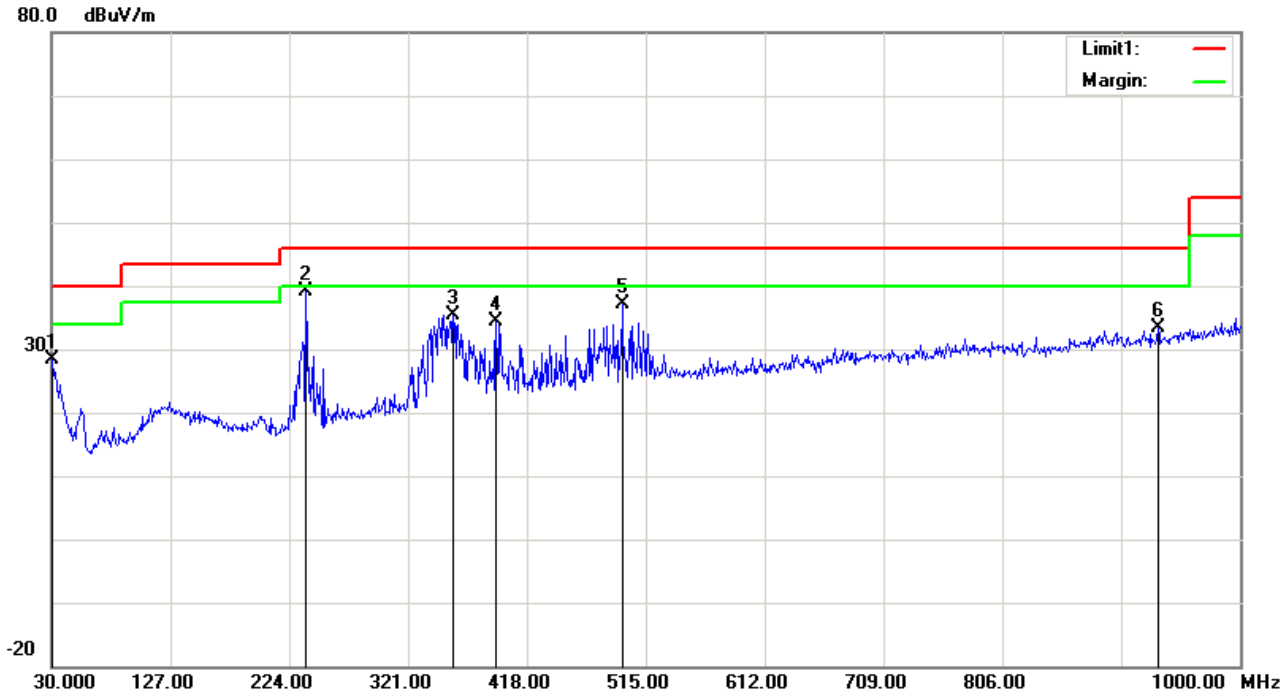
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

Please refer to following table and plots:

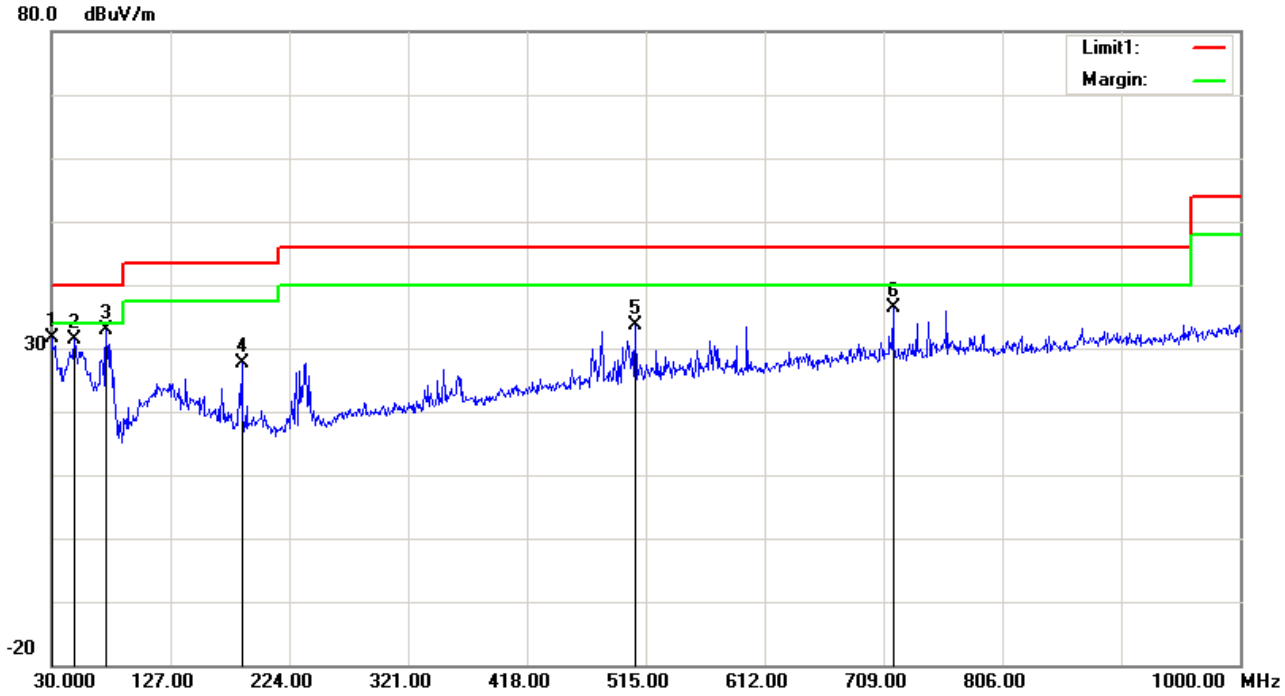
Condition:	FCC Part 15B Class B	**Polarization:**	Horizontal
EUT:	Bladeless Fan	**Power:**	AC 120V/60Hz
Model:	1B156	**Distance:**	3m
Test Mode:	Charging&Normal Work		
Note:			



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.9700	27.51	peak	0.91	28.42	40.00	11.58
2	237.5800	45.24	peak	-6.14	39.10	46.00	6.90
3	357.8600	38.20	peak	-2.82	35.38	46.00	10.62
4	392.7800	36.65	peak	-2.20	34.45	46.00	11.55
5	495.6000	37.47	peak	-0.26	37.21	46.00	8.79
6	933.0700	36.74	peak	-3.45	33.29	46.00	12.71

Note: Since peak value is meeting the Limit requirement, so the QP value is not recorded.

Condition:	FCC Part 15B Class B	**Polarization:**	Vertical
EUT:	Bladeless Fan	**Power:**	AC 120V/60Hz
Model:	1B156	**Distance:**	3m
Test Mode:	Charging&Normal Work		
Note:			



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.0000	29.79	peak	1.72	31.51	40.00	8.49
2	48.4300	42.24	peak	-10.74	31.50	40.00	8.50
3	74.6200	43.86	peak	-11.03	32.83	40.00	7.17
4	185.2000	35.12	peak	-7.40	27.72	43.50	15.78
5	506.2700	33.94	peak	-0.28	33.66	46.00	12.34
6	716.7600	33.15	peak	3.25	36.40	46.00	9.60

Note: Since peak value is meeting the Limit requirement, so the QP value is not recorded.

*******END OF REPORT*******