

FCC 47 CFR PART 15 SUBPART B

TEST REPORT

Direcsource Limited

LED LIGHT STRIP SET

Test Model: 95771

Prepared for	:	Direcsource Limited
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Date of receipt of test sample	:	November 03, 2016
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	November 03, 2016~November 16, 2016
Date of Report	:	November 16, 2016

FCC TEST REPORT

FCC 47 CFR PART 15 SUBPART B

Report Reference No. : LCS1611030253E

Date Of Issue : November 16, 2016

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Address..... : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □

Applicant'S Name : Direcsource Limited

Address..... : 8/F Dong Yuan Building, 159 Qi Feng Road, Guan Cheng
District, Dongguan, Guangdong China

Test Specification

Standard : FCC 47 CFR Part 15 Subpart B, ANSI C63.4 -2014

Test Report Form No. : LCSEMC-1.0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

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Test Item Description. : LED LIGHT STRIP SET

Trade Mark..... :



Test Model : 95771

Ratings..... : INPUT: DC 12-24V; OUTPUT: 2A/channel

Result : Positive

Compiled by:

Ada Liang/ File administrators

Supervised by:

Glin Lu/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC --TEST REPORT

Test Report No. : LCS1611030253ENovember 16, 2016

Date of issue

Test Model..... : 95771

EUT..... : LED LIGHT STRIP SET

Applicant..... : Direcsource LimitedAddress..... : 8/F Dong Yuan Building, 159 Qi Feng Road, Guan Cheng
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Manufacturer..... : Shenzhen Kingunion Lighting Co., Ltd.Address..... : 4th&5th Floor, Block A, Fanshen(Yinfeng) Industrial Zone,
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Factory..... : Shenzhen Kingunion Lighting Co., Ltd.Address..... : 4th&5th Floor, Block A, Fanshen(Yinfeng) Industrial Zone,
Jiuwei Village, Xixiang Town, Bao'an District, Shenzhen City,
Guangdong Province, China

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 6: Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
00	2016-11-16	Initial Issue	Gavin Liang

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC 47 CFR Part 15 Subpart B	Class B	PASS
Radiated disturbance	FCC 47 CFR Part 15 Subpart B	Class B	PASS
N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : LED LIGHT STRIP SET

Model Number : 95771

Model Declaration : PCB board, structure and internal of these model(s) are the same, So no additional models were tested.

Test Model : 95771

Power Supply : INPUT: DC 12-24V; OUTPUT: 2A/channel

Hardware Version : YMLED055 V1.0

Software Version : YMIC082 V1.0

Receive Frequency : 433.92MHz

Number of Channels : 1

Modulation Type : ASK

Antenna Description : Internal Antenna, 2.0dBi(Max.)

2.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
--	AC ADAPTER	RS-05/12-S32 6B	--	--

2.3. External I/O Port

I/O Port Description	Quantity	Cable
--	--	--

2.4. Description of Test Facility

Site Description

EMC Lab. : CNAS Registration Number. is L4595.
FCC Registration Number. is 899208.
Industry Canada Registration Number. is 9642A-1.
VCCI Registration Number. is C-4260 and R-3804.
ESMD Registration Number. is ARCB0108.
UL Registration Number. is 100571-492.
TUV SUD Registration Number. is SCN1081.
TUV RH Registration Number. is UA 50296516-001

2.5.Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.6.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
Conducted Emission	(9kHz to 150kHz)	2.63 dB	4.0 dB
	(150kHz to 30MHz)	2.35 dB	3.6 dB
Radiated Emission	(9kHz to 30MHz)	3.68 dB	N/A
Radiated Emission	(30MHz to 1000MHz)	3.48 dB	5.2 dB
Radiated Emission	(above 1000MHz)	3.90 dB	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

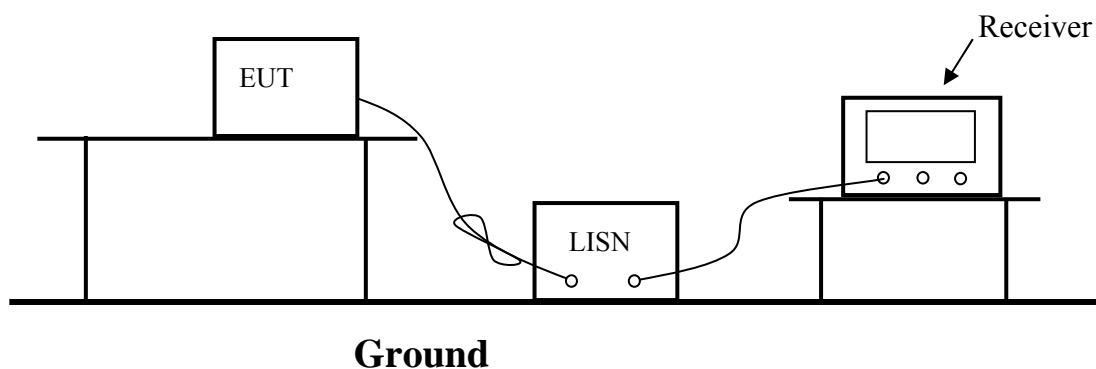
3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2016-06-18	2017-06-17
2	10dB Attenuator	SCHWARZBECK	OSPAM236	9729	2016-06-18	2017-06-17
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2016-06-18	2017-06-17
4	EMI Test Software	AUDIX	E3	N/A	2016-06-18	2017-06-17

3.2. Block Diagram of Test Setup



3.3. Test Standard

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)			Limit (dB μ V)	
			Quasi-peak Level	Average Level
0.15	~	0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50	~	5.00	56.0	46.0
5.00	~	30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.4. EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.5.Operating Condition of EUT

3.5.1.Setup the EUT as shown on Section 3.2

3.5.2.Turn on the power of all equipments.

3.5.3.Let the EUT work in measuring mode (ON) and measure it.

3.6.Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of the test receiver is set at 9kHz.

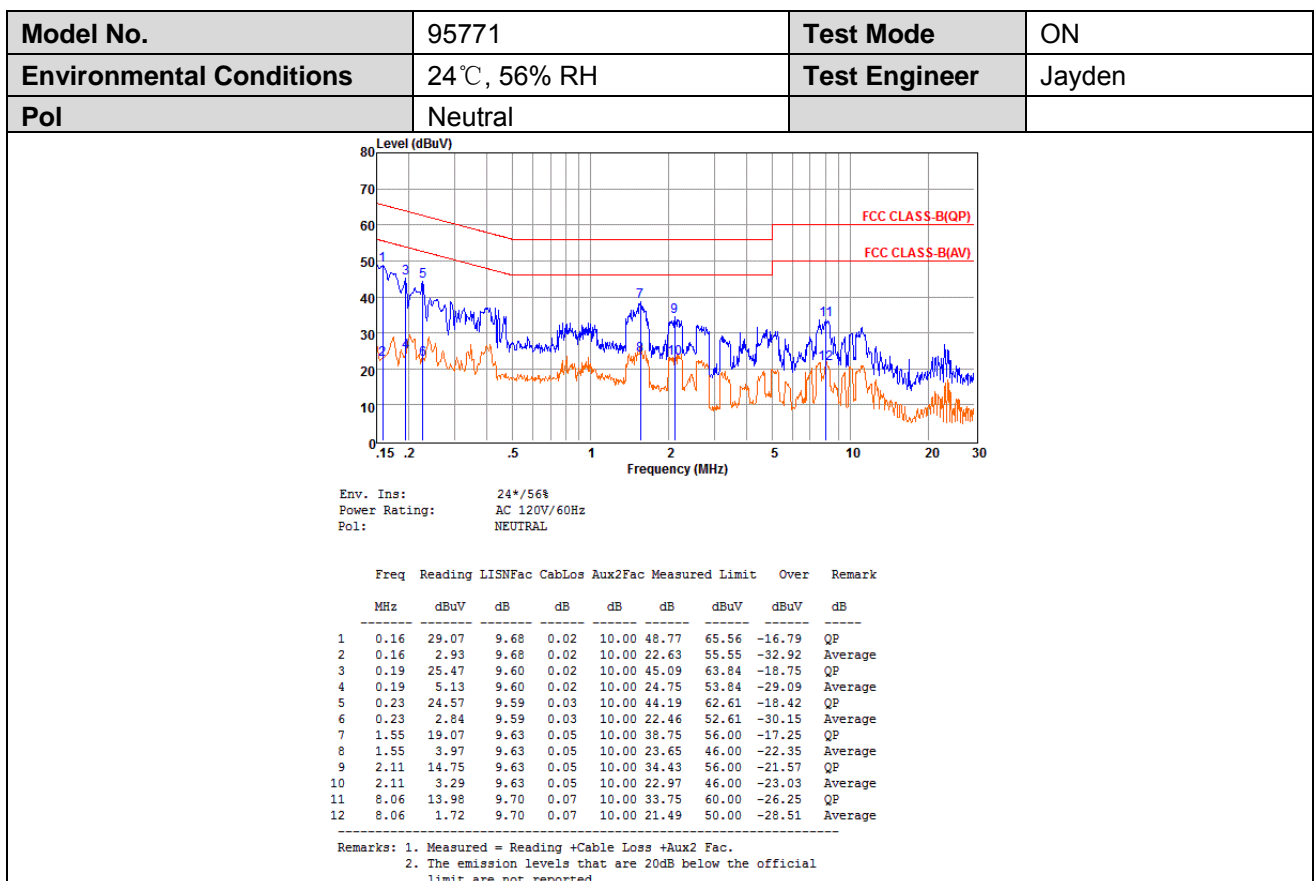
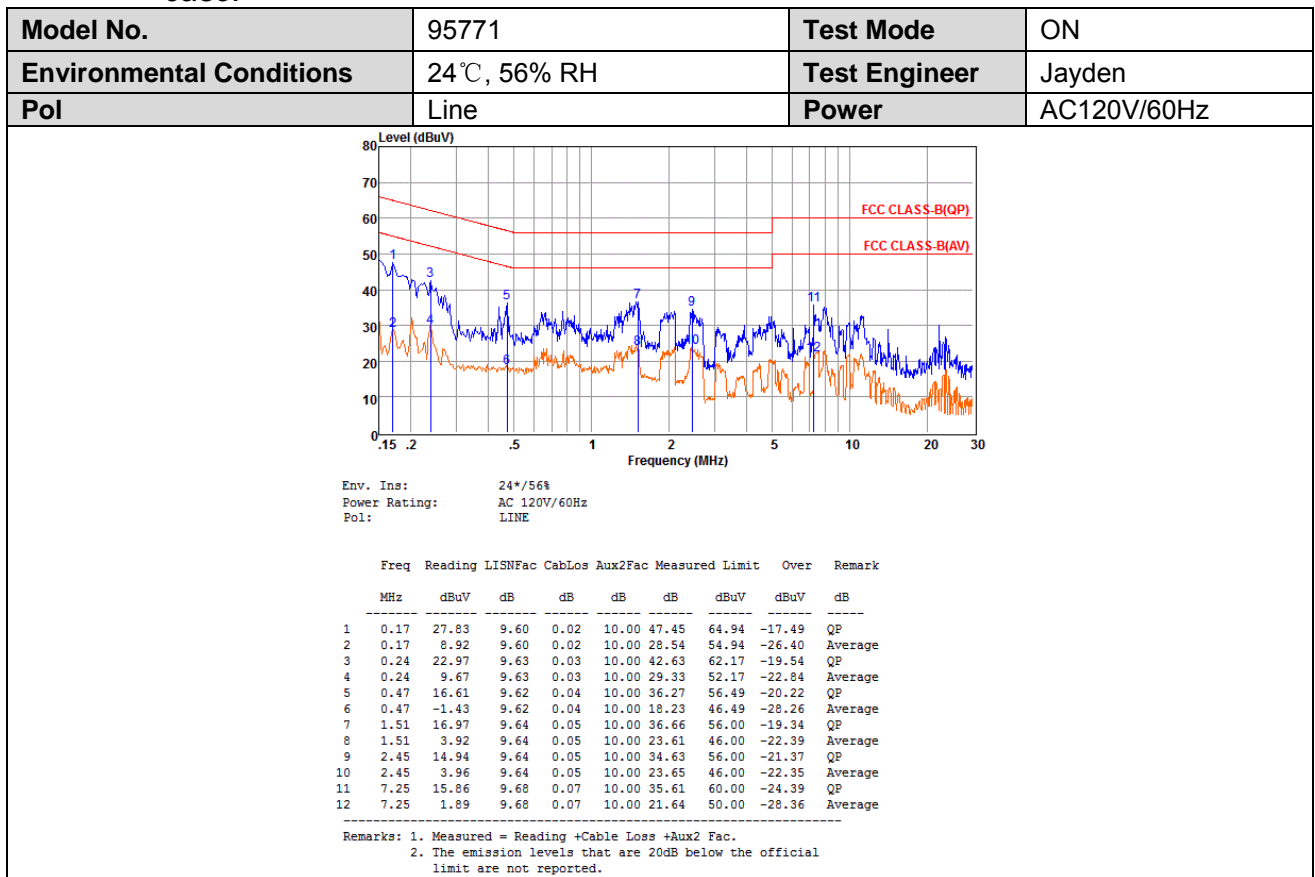
The frequency range from 150kHz to 30MHz is investigated

3.7.Test Results

PASS.

The test result please refer to the next page.

Note: AC 120 and AC 240 are tested and we only report AC 120V as it's the worst case.



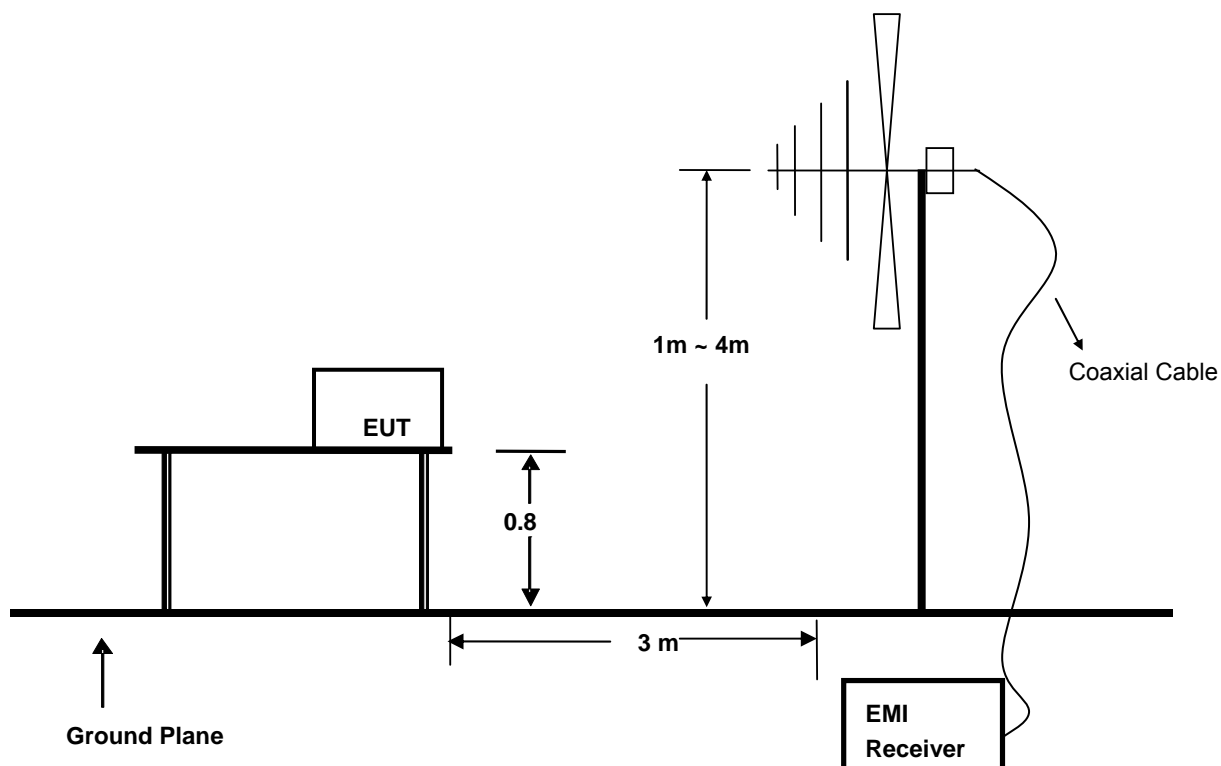
4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2016/02/04	2017/02/03
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2016/06/18	2017-06-17
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2016/06/18	2017-06-17
4	EMI Test Software	AUDIX	E3	N/A	2016/06/18	2017-06-17
5	Positioning Controller	MF	MF-7082	/	2016/06/18	2017-06-17

4.2. Block Diagram of Test Setup



4.3. Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4.EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5.Operating Condition of EUT

4.5.1.Setup the EUT as shown in Section 4.2.

4.5.2.Let the EUT work in test mode (on) and measure it.

4.6.Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

Above 1G:

The bandwidth of the EMI test receiver is set at 1MHz, 3MHz for Peak detector.

The bandwidth of the EMI test receiver is set at 1MHz, 10Hz for Average detector

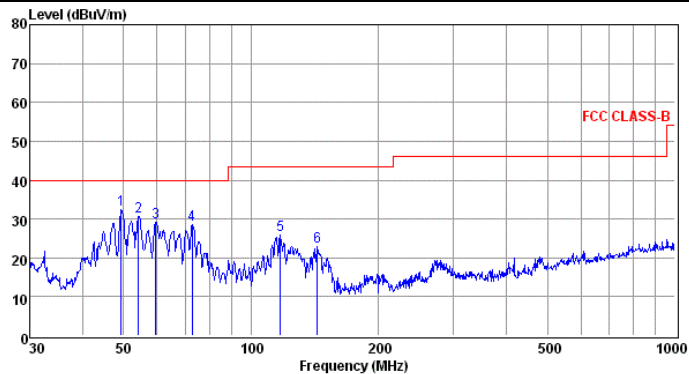
The frequency range from 1GHz to 26.5GHz is checked.

4.7.Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

Model No.	95771	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Jayden		

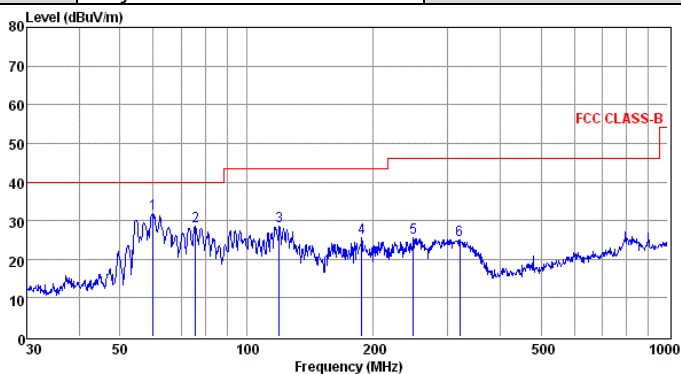


Env./Ins: 24°C/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	49.36	18.53	0.54	13.29	32.36	40.00	-7.64	QP
2	54.26	17.24	0.46	13.05	30.75	40.00	-9.25	QP
3	59.44	15.88	0.49	12.73	29.10	40.00	-10.90	QP
4	72.59	19.68	0.55	8.21	28.44	40.00	-11.56	QP
5	117.36	14.28	0.68	10.95	25.91	43.50	-17.59	QP
6	143.33	13.96	0.71	8.21	22.88	43.50	-20.62	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the official limit are not reported

Model No.	95771	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Jayden		



Env./Ins: 24°C/56%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	59.86	18.70	0.49	12.70	31.89	40.00	-8.11	QP
2	75.45	20.00	0.54	7.87	28.41	40.00	-11.59	QP
3	119.44	17.32	0.64	10.58	28.54	43.50	-14.96	QP
4	187.75	14.11	0.98	10.36	25.45	43.50	-18.05	QP
5	248.55	12.42	1.02	12.07	25.51	46.00	-20.49	QP
6	321.06	10.50	1.16	13.37	25.03	46.00	-20.97	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the official limit are not reported

Model No.	95771	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Peak+AV
Test Engineer	Jayden	Distance	3m

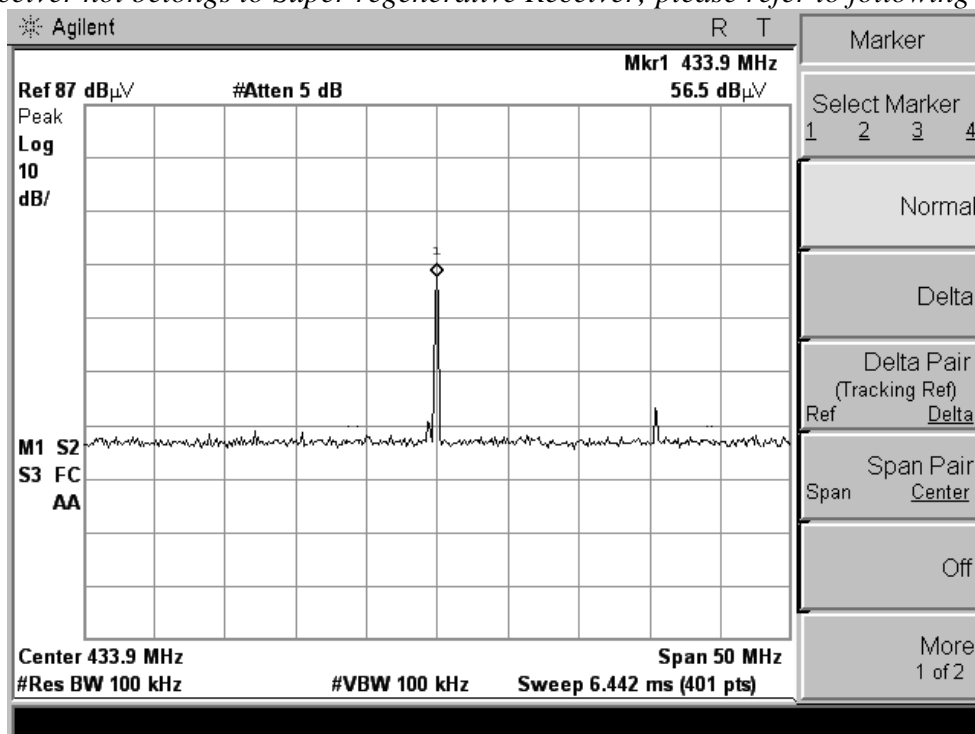
Polarization	Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m	
		Peak	AVG	Peak	AVG	Peak	AVG
Horizontal	1258.62	59.56	42.35	74.00	54.00	-14.44	-11.65
	2862.32	58.96	43.02	74.00	54.00	-15.04	-10.98
	5128.36	57.63	43.11	74.00	54.00	-16.37	-10.89
Vertical	1289.57	56.98	42.20	74.00	54.00	-17.02	-11.80
	3456.77	62.01	42.63	74.00	54.00	-11.99	-11.37
	5202.52	57.63	42.22	74.00	54.00	-16.37	-11.78

Notes:

1. Measuring frequencies from 9k~26.5GHz, No emission found between lowest internal used/generated frequencies to 30MHz.
2. Radiated emissions measured in frequency range from 9k~26.5GHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measure

Receiver Type:

The receiver not belongs to Super regenerative Receiver; please refer to following confirm plots.



----- THE END OF TEST REPORT -----