

TEST REPORT FOR CERTIFICATION
On Behalf of
Chungear Industrial Co., Ltd.

Fan-Light Remote Controller (Transmitter)

Model : JY611

FCC ID : KUJ9302

Prepared for : Chungear Industrial Co., Ltd.
106 Kanho Rd., Taichung, Taiwan, R.O.C.

Prepared by : Audix Corporation
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Date of Test : Jul. 07 ~ Sep. 15, 2004
Date of Report : Sep. 17, 2004

TABLE OF CONTENTS

Description	Page
TEST REPORT CERTIFICATION	3
1. GENERAL INFORMATION	4
1.1. Description of Device (EUT)	4
1.2. Description of Test Facility	5
1.3. Measurement Uncertainty	5
2. POWERLINE CONDUCTED MEASUREMENT	6
3. RADIATED EMISSION MEASUREMENT	7
3.1. Test Equipment.....	7
3.2. Test Setup.....	7
3.3. Radiation Emission Limits (§15.209 & 15.231).....	8
3.4. EUT' s Configuration during Compliance Measurement	8
3.5. Operating Condition of EUT	9
3.6. Test Procedure	9
3.7. Radiated Emission Noise Measurement Results.....	10
4. EMISSION BANDWIDTH MEASUREMENT	19
4.1. Test Equipment.....	19
4.2. Block Diagram of Test Setup	19
4.3. Specification Limits (§15.231-(c)).....	19
4.4. EUT' s Configuration during Compliance Measurement	19
4.5. Emission Bandwidth Measurement Results	19
5. PERIODIC OPERATED MEASUREMENT	21
5.1. Test Equipment.....	21
5.2. Block Diagram of Test Setup	21
5.3. Specification Limits [§15.231-(a)-(1)]	21
5.4. EUT' s Configuration during Compliance Measurement	21
5.5. Periodic Operated Measurement Results	21
6. DEVIATION TO TEST SPECIFICATIONS.....	23
7. PHOTOGRAPHS.....	24
7.1. Photos of Radiated Measurement at Semi-Anechoic Chamber (30~1000MHz).....	24
7.2. Photos of Radiated Measurement at Semi-Anechoic Chamber (Above 1GHz)	25
7.3. Photo of Emission Bandwidth Measurement	27
7.4. Photo of Periodic Operated Measurement	27

TEST REPORT CERTIFICATION

Applicant : Chungear Industrial Co., Ltd.
Manufacturer : Satellite Electronic (Zhongshan) Ltd.
EUT Description : Fan-Light Remote Controller (Transmitter)
FCC ID : KUJ9302
(A) MODEL NO. : JY611
(B) SERIAL NO. : N/A
(C) POWER SUPPLY : DC 9V

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, APR. 2004
AND ANSI C63.4-2001
(FCC CFR 47 Part 15C, §15.207, §15.209 and §15.231)

The device described above was tested by Audix Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits both radiated and conducted emissions.

The measurement results are contained in this test report and Audix Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Corporation.

Date of Test : Jul. 07 ~ Sep. 15, 2004

Prepared by : Monica Chang Sep. 17, 2004
(Monica Chang/Administrator)

Test Engineer : Ben Cheng Sep. 17, 2004
(Ben Cheng/Section Manager)

Approved & Authorized Signer : Leon Liu Sep. 17, 2004
(Leon Liu/Senior Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Fan-Light Remote Controller (Transmitter)
Model Number	:	JY611
FCC ID	:	KUJ9302
Applicant	:	Chungear Industrial Co., Ltd. 160 Kanho Rd., Taichung, Taiwan, R.O.C.
Manufacturer	:	Satellite Electronic (Zhongshan) Ltd. No. 15 Zhongshan Troch Hi-Tech Industrial Development Zone, Zhongshan City, Guangdong Province 528437 China.
Fundamental Frequency	:	299.6MHz
Power Supply	:	DC 9V
Date of Receipt of Sample	:	Jun. 29, 2004
Date of Test	:	Jul. 07 ~ Sep. 15, 2004

* Fan/Light Remote Controller -Receiver

(1)Model No.: JP199, FCC by DoC

(2)Model No.: JY326B, FCC by DoC

Remark:

Antenna requirement: This EUT's transmitter antenna is designed to be soldered on a printed circuit board, comply with §15.203 and inform to user that any change and modify is prohibited.

1.2. Description of Test Facility

Name of Firm : Audix Corporation
 Technical Division EMC Department
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei County 24443, Taiwan, R.O.C.

Test Location & Facility (AC) : **Semi-Anechoic Chamber**
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei County 24443, Taiwan, R.O.C.

May. 16, 2003 Re-File on
 Federal Communication Commission
 Registration Number: 90993

NVLAP Lab. Code : 200077-0
 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)

1.3. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	$\pm 1.73\text{dB}$
Radiation Test (Distance: 3m)	30MHz~300MHz	$\pm 2.91\text{dB}$
	300MHz~1000MHz	$\pm 2.94\text{dB}$

Remark : Uncertainty = $k_{uc}(y)$

2. POWERLINE CONDUCTED MEASUREMENT

【The EUT only employs battery power for operation, no conductive emissions limits are required according to FCC Part 15 Section §15.207】

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission tests :

3.1.1.For Frequency 30MHz~1000MHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00248	Sep. 24, 03'	Sep. 23, 04'
2.	Test Receiver	R&S	ESCS30	100265	Sep. 22, 03'	Sep. 21, 04'
3.	Pre-Amplifier	HP	8447D	2944A06305	Mar. 18, 04'	Mar. 17, 05'
4.	Broadband Antenna	Schwarzbeck	BBA 9106	A3L	Feb. 21, 04'	Feb. 20, 05'
5.	Broadband Antenna	Schwarzbeck	UHALP 9108-A	0138	Feb. 21, 04'	Feb. 20, 05'

3.1.2.For Frequency above 1GHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00248	Sep. 24, 03'	Sep. 23, 04'
2.	Amplifier	HP	8449B	3008A00529	Jan. 29, 04'	Jan. 28, 05'
3.	Horn Antenna	EMCO	3115	9112-3775	May 05, 04'	May 04, 05'

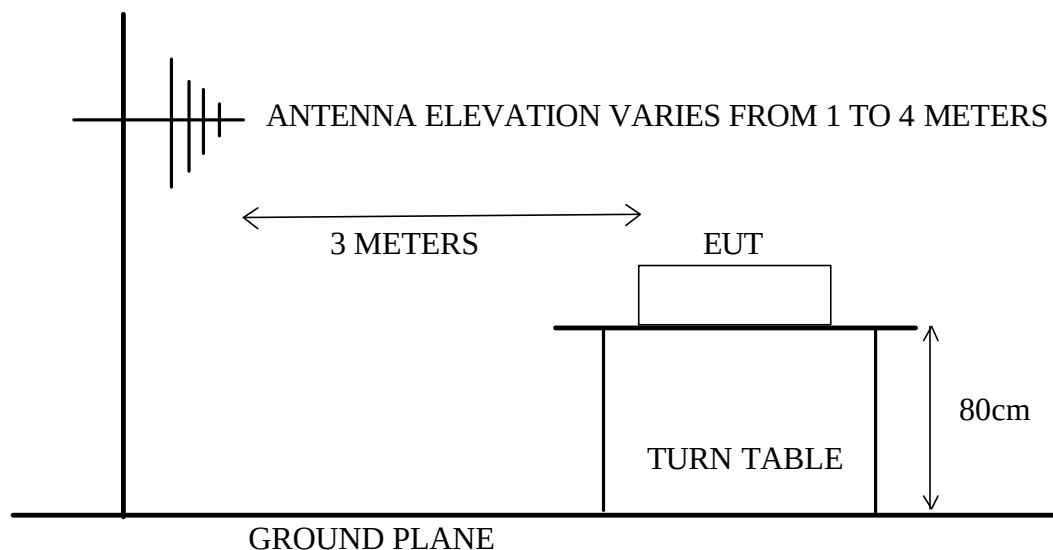
3.2. Test Setup

3.2.1.Block Diagram of connection between EUT and simulators

**FAN-LIGHT REMOTE CONTROLLER (TRANSMITTER)
(EUT)**

3.2.2.Semi-Anechoic Chamber (3m) Setup Diagram

ANTENNA TOWER



3.3. Radiation Emission Limits (§15.209 & 15.231)

3.3.1. Spurious Emission Limit (§15.209)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	3	100	40.00
88 - 216	3	150	43.50
216 - 960	3	200	46.00
Above 960	3	500	54.00

Remarks : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)
 (2) The tighter limit applies at the edge between two frequency bands.
 (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3.2. Fundamental Frequency Emission Limit (§15.231)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
Fundamental Frequency	3	5400.0	74.64 (Average)

Remarks : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)
 (2) The tighter limit applies at the edge between two frequency bands.
 (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 (4) Where limit of Fundamental Freq. is calculated by:
 $41.6667 \times 299.6 - 7083.3333 = 5400.01 \mu\text{V/m} = 74.64 \text{dB}\mu\text{V/m}$
 (5) The limits in this table are based on CFR 47 Part 15.231(b).

3.4. EUT's Configuration during Compliance Measurement

The following equipment was installed on radiated measurement to meet the commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

3.4.1. Fan-Light Remote Controller (Transmitter) (EUT)

Model Number : JY611
 Serial Number : N/A
 Manufacturer : Satellite Electronic (Zhongshan) Ltd.
 Fundamental Frequency : 299.6MHz

3.5. Operating Condition of EUT

- 3.5.1. Set up the EUT and simulator as shown on 3.2.
- 3.5.2. Turned on the power of all equipment.
- 3.5.3. The EUT (Fan-Light Remote Controller (Transmitter)) emitted the fundamental frequency with data code.
- 3.5.4. The EUT worked on maximum transmitting status (high & Light on) during all testing.
- 3.5.5. The above procedures from 3.5.3 to 3.5.4 were repeated.

3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2001 regulation.

The bandwidth of test receiver was set at 120kHz for frequencies below 1GHz and resolution bandwidth of spectrum analyzer was set at 1MHz for frequencies above 1GHz.

EUT with three kinds of positions (Stand、Side、Lying) were tested during radiated measurement and all the test results are listed in section 3.7.

3.7. Radiated Emission Noise Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

Date of Test :	Sep. 15, 2004	Temperature :	24°C
EUT :	Fan-Light Remote Controller (Transmitter)	Humidity :	65%
Test Position :	EUT on Stand		

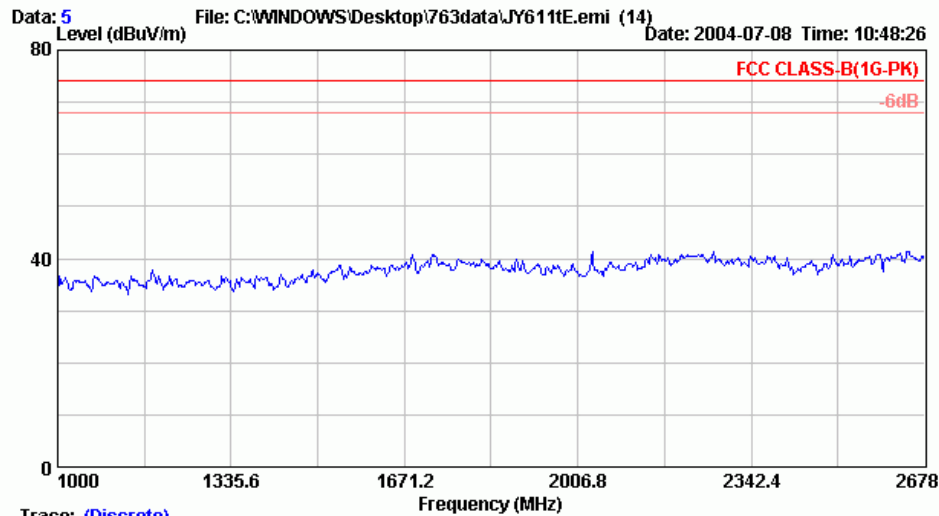
Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.77	3.90	25.80	56.47	74.64	18.17
Spurious / Harmonic Freq. (Quasi-Peak Value)						
91.830	16.08	2.00	5.35	23.43	43.50	20.07
101.550	17.29	2.10	5.28	24.67	43.50	18.83
153.930	20.71	2.60	6.54	29.85	43.50	13.65
219.540	21.91	3.21	5.31	30.43	46.00	15.57
263.280	24.58	3.60	3.26	31.44	46.00	14.56
599.200	21.30	6.30	13.68	41.28	46.00	4.72
898.800	24.96	7.30	1.64	33.90	46.00	12.10

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.86	3.90	31.96	62.72	74.64	11.92
Spurious / Harmonic Freq. (Quasi-Peak Value)						
52.680	15.42	1.50	4.61	21.53	40.00	18.47
56.190	14.21	1.60	7.28	23.09	40.00	16.91
129.090	18.43	2.40	6.52	27.35	43.50	16.15
131.790	18.94	2.40	8.33	29.67	43.50	13.83
156.090	21.06	2.70	6.35	30.11	43.50	13.39
599.200	21.64	6.30	15.78	43.72	46.00	2.28
898.800	25.84	7.30	4.55	37.69	46.00	8.31

- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
 2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.

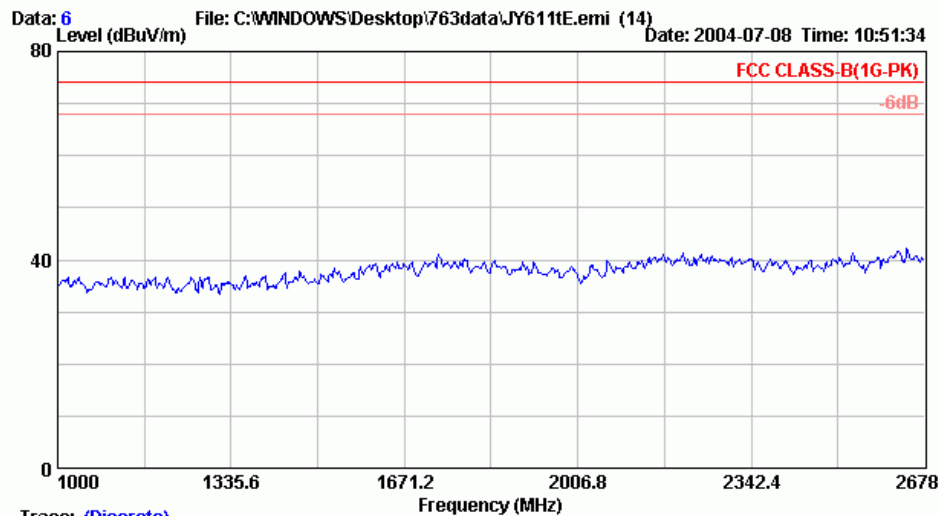


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Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 5
Ant. / Dis.	: 3115 3m	Ant. pol.	: HORIZONTAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---stand		

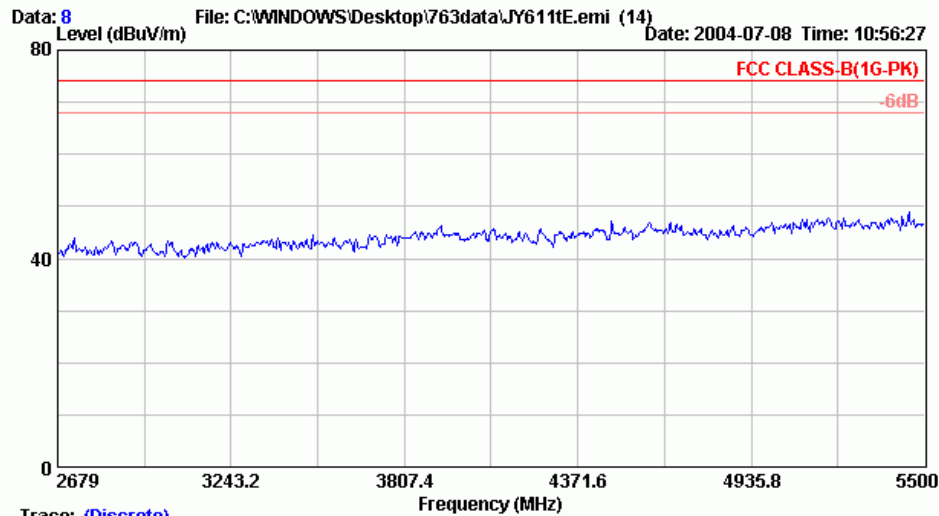


Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 6
Ant. / Dis.	: 3115 3m	Ant. pol.	: VERTICAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---stand		

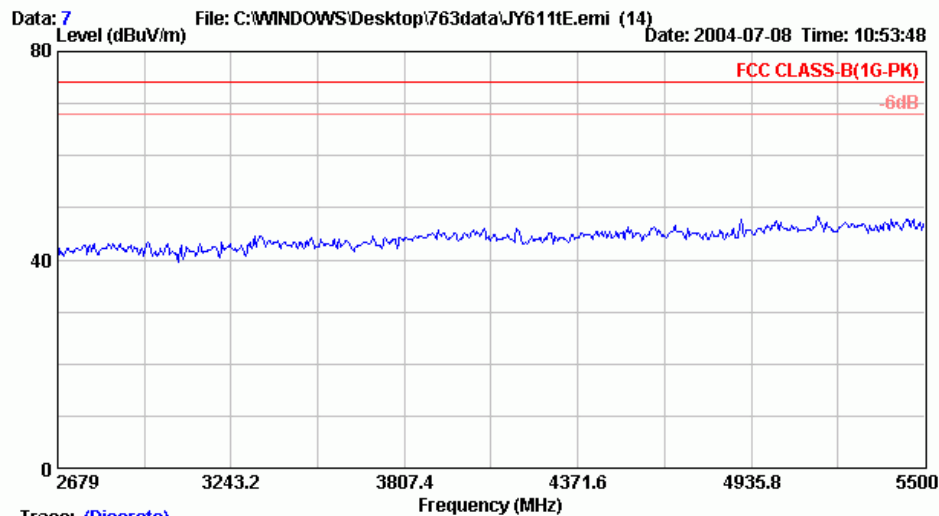


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Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 8
Ant. / Dis.	: 3115 3m	Ant. pol.	: HORIZONTAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---stand		



Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 7
Ant. / Dis.	: 3115 3m	Ant. pol.	: VERTICAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---stand		

Date of Test : Sep. 15, 2004 Temperature : 24°C

EUT : Fan-Light Remote Controller
(Transmitter) Humidity : 65%

Test Position : EUT on Side

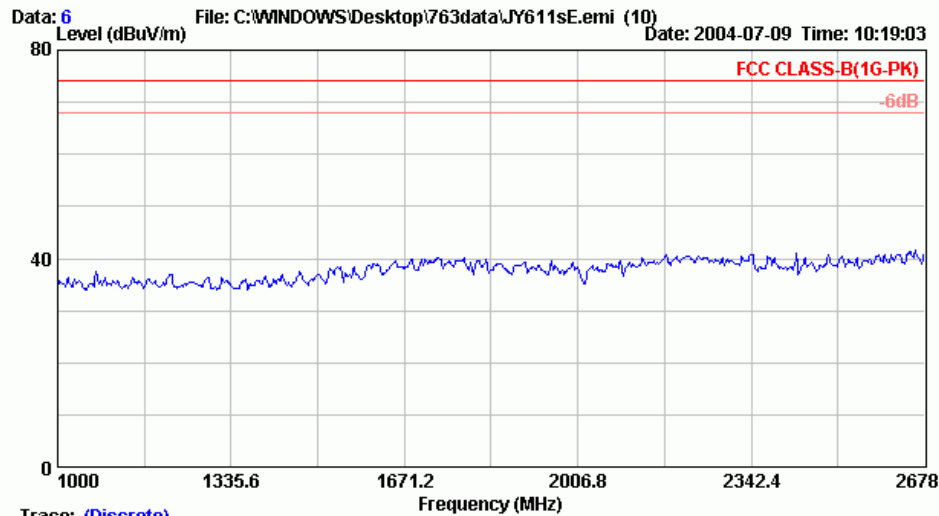
Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.77	3.90	39.81	70.48	74.64	4.16
Spurious / Harmonic Freq. (Quasi-Peak Value)						
57.540	13.77	1.60	5.19	20.56	40.00	19.44
62.130	12.28	1.60	6.12	20.00	40.00	20.00
91.830	16.08	2.00	4.69	22.77	43.50	20.73
100.740	17.17	2.10	4.14	23.41	43.50	20.09
107.490	17.87	2.20	2.49	22.56	43.50	20.94
599.200	21.20	6.30	16.02	43.52	46.00	2.48
898.800	24.98	7.30	2.95	35.23	46.00	10.77

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.86	3.90	28.16	58.92	74.64	15.72
Spurious / Harmonic Freq. (Quasi-Peak Value)						
50.790	16.01	1.50	6.65	24.16	40.00	15.84
89.940	15.97	2.00	1.46	19.43	43.50	24.07
131.790	18.94	2.40	2.26	23.60	43.50	19.90
234.930	24.80	3.40	-1.28	26.92	46.00	19.08
599.200	21.61	6.30	12.36	40.27	46.00	5.73
630.400	21.09	6.40	2.29	29.78	46.00	16.22
898.800	25.86	7.30	0.08	33.24	46.00	12.76

- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.

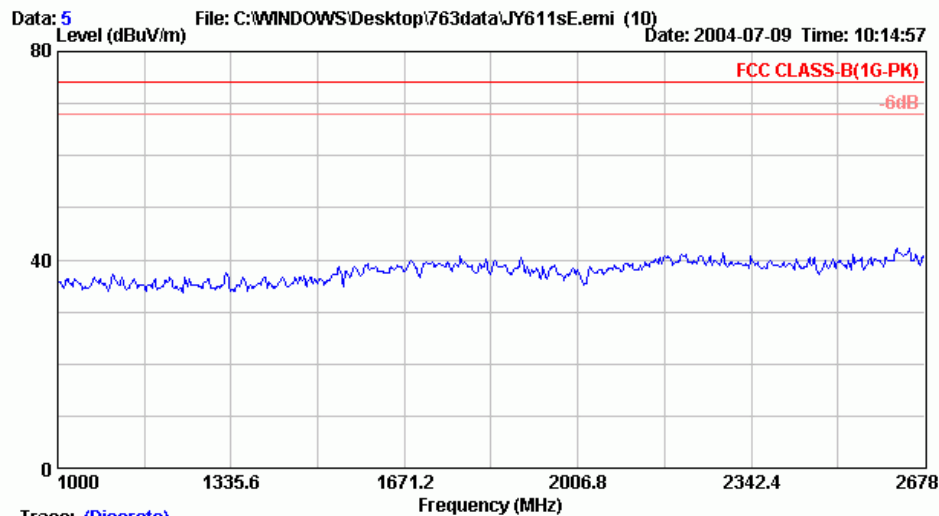


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Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 6
Ant. / Dis.	: 3115 3m	Ant. pol.	: HORIZONTAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---side		

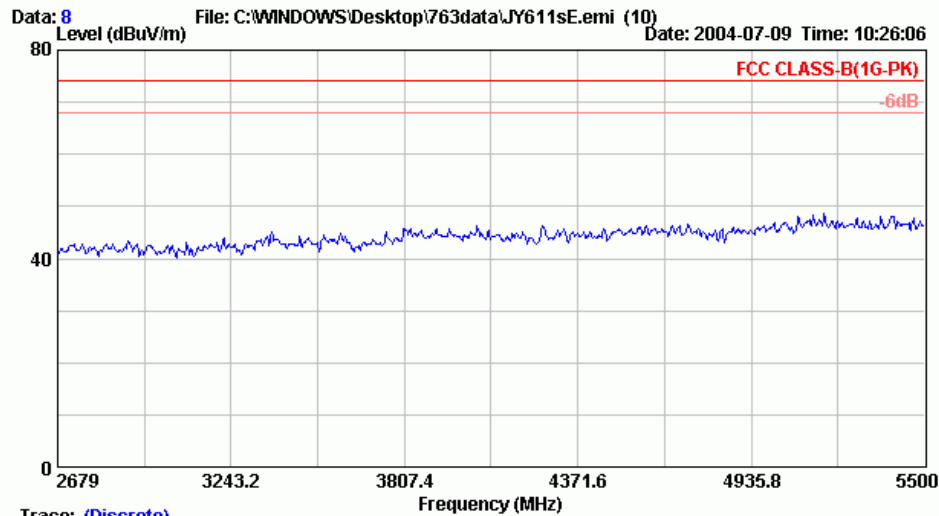


Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 5
Ant. / Dis.	: 3115 3m	Ant. pol.	: VERTICAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---side		

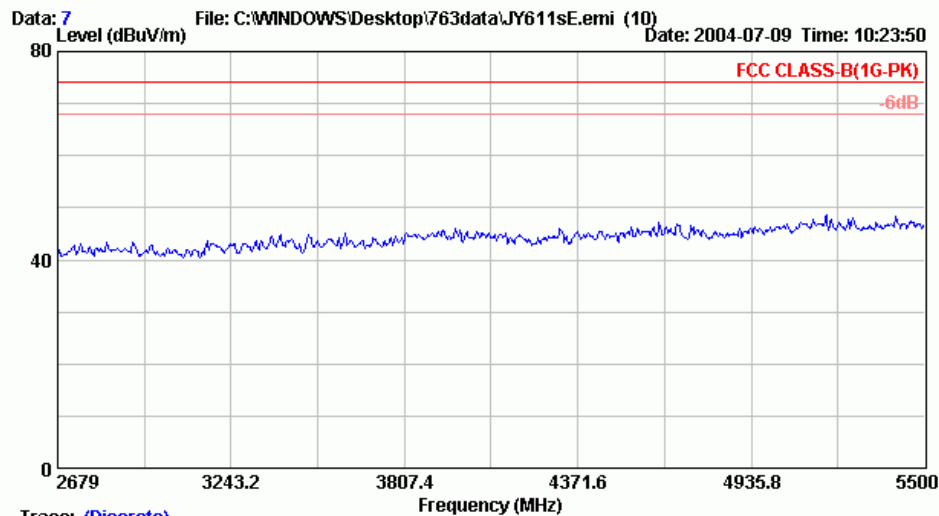


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Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 8
Ant. / Dis.	: 3115 3m	Ant. pol.	: HORIZONTAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---side		



Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 7
Ant. / Dis.	: 3115 3m	Ant. pol.	: VERTICAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---side		

Date of Test : Sep. 15, 2004 Temperature : 24°C

EUT : Fan-Light Remote Controller
(Transmitter) Humidity : 65%

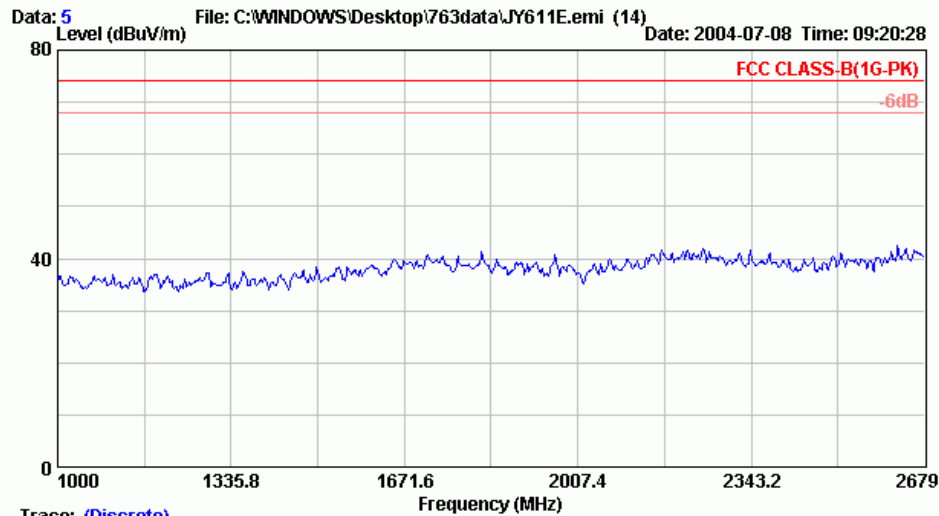
Test Position : EUT on Lying

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.77	3.90	41.53	72.20	74.64	2.44
Spurious / Harmonic Freq. (Quasi-Peak Value)						
57.540	13.77	1.60	6.97	22.34	40.00	17.66
59.430	13.16	1.60	8.80	23.56	40.00	16.44
62.130	12.28	1.60	8.53	22.41	40.00	17.59
91.830	16.08	2.00	7.54	25.62	43.50	17.88
100.740	17.17	2.10	7.18	26.45	43.50	17.05
107.490	17.87	2.20	4.26	24.33	43.50	19.17
599.200	21.20	6.30	15.58	43.08	46.00	2.92
898.800	24.98	7.30	2.27	34.55	46.00	11.45
948.900	25.88	7.50	0.35	33.73	46.00	12.27
Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Value)						
299.600	26.86	3.90	29.93	60.69	74.64	13.95
Spurious / Harmonic Freq. (Quasi-Peak Value)						
50.790	16.01	1.50	8.96	26.47	40.00	13.53
89.940	15.97	2.00	6.37	24.34	43.50	19.16
129.090	18.43	2.40	4.95	25.78	43.50	17.72
131.790	18.94	2.40	5.22	26.56	43.50	16.94
234.930	24.80	3.40	1.78	29.98	46.00	16.02
599.200	21.61	6.30	14.31	42.22	46.00	3.78
630.400	21.09	6.40	3.56	31.05	46.00	14.95
898.800	25.86	7.30	0.98	34.14	46.00	11.86

- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.

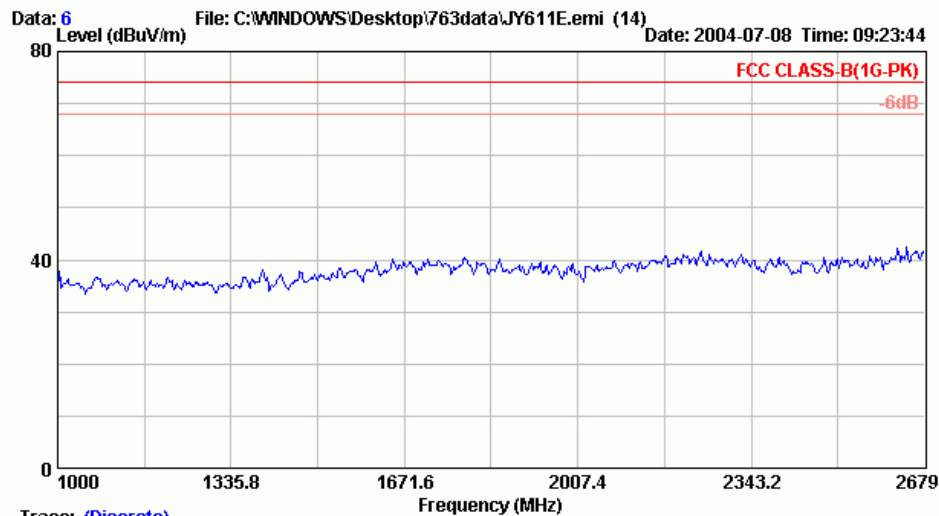


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Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 5
Ant. / Dis.	: 3115 3m	Ant. pol.	: HORIZONTAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---	Lying	

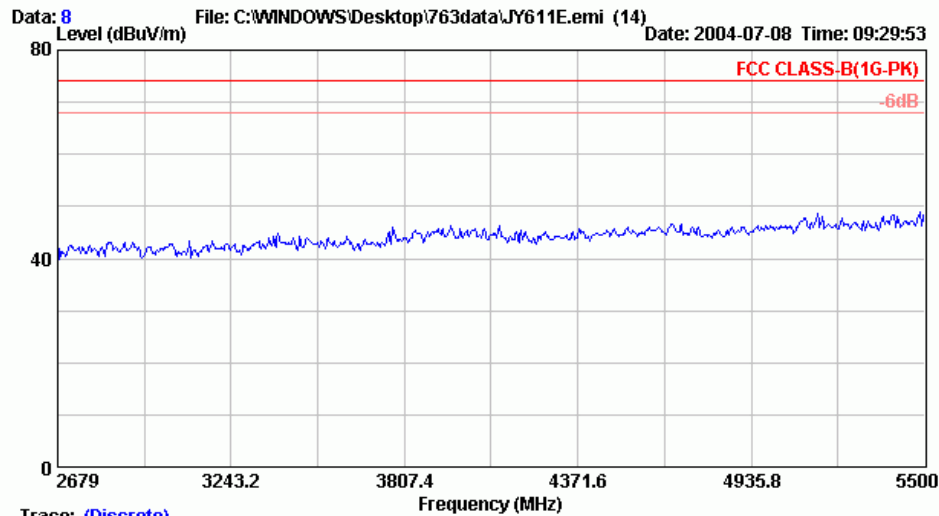


Trace: (Discrete)

Site no.	: A/C Chamber	Data no.	: 6
Ant. / Dis.	: 3115 3m	Ant. pol.	: VERTICAL
Limit	: FCC CLASS-B(1G-PK)		
Env. / Ins.	: 8593EM 25°C/68%	Engineer	: henning
EUT	: Fan-Light Remote Controller	M/N:	JY611
Power Rating	: DC 9V		
Test Mode	: TX---	Lying	

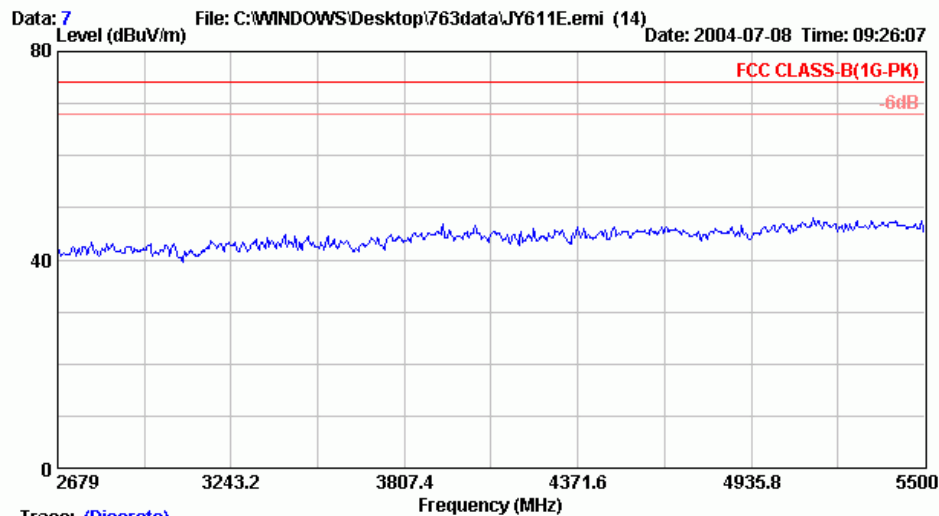


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Trace: (Discrete)

Site no. : A/C Chamber Data no. : 8
Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL
Limit : FCC CLASS-B(1G-PK)
Env. / Ins. : 8593EM 25°C/68% Engineer : henning
EUT : Fan-Light Remote Controller M/N:JY611
Power Rating : DC 9V
Test Mode : TX---: Lying



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 7
Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL
Limit : FCC CLASS-B(1G-PK)
Env. / Ins. : 8593EM 25°C/68% Engineer : henning
EUT : Fan-Light Remote Controller M/N:JY611
Power Rating : DC 9V
Test Mode : TX---: Lying

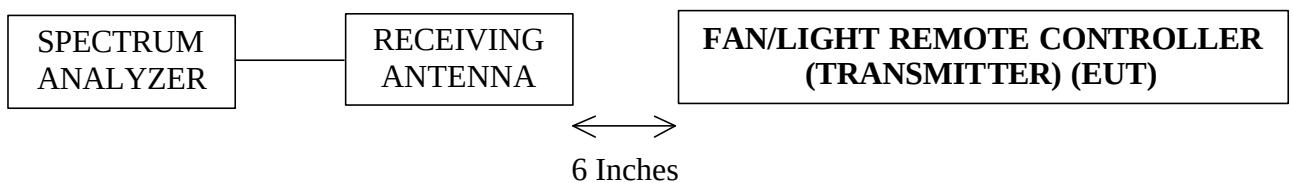
4. EMISSION BANDWIDTH MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the Emission Bandwidth Test :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8465EC	3946A00249	Aug. 28, 03'	Aug. 27, 04'
2.	Antenna	DIAMOND	RH799	2944A06305	N/A'	N/A

4.2. Block Diagram of Test Setup



4.3. Specification Limits (§15.231-(c))

The bandwidth of emission shall be no wider than 0.25% of the center frequency for device operating above 70MHz and below 900MHz. Bandwidth is determined at the points 20dB down from the modulated carrier.

4.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

4.5. Emission Bandwidth Measurement Results

PASS.

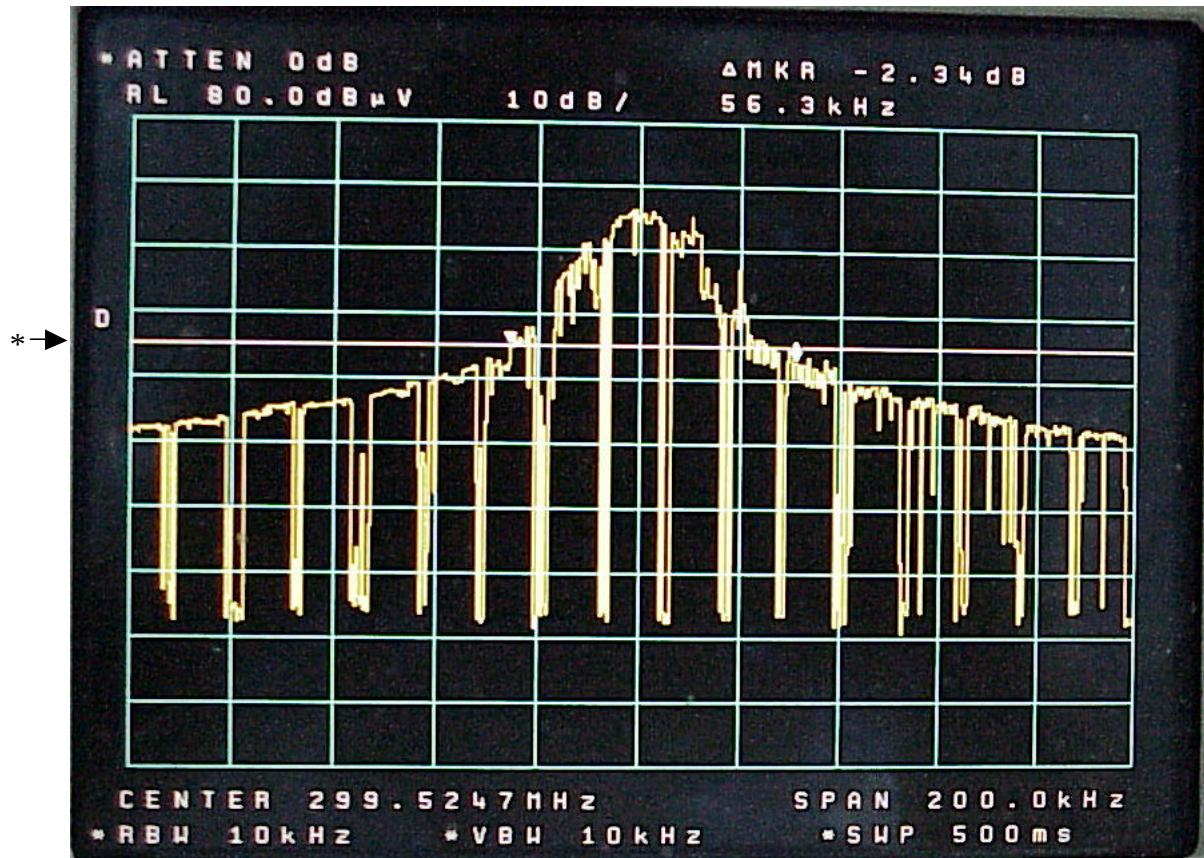
Fundamental Frequency: 299.6000MHz

Test Date: Jul. 07, 2004 Temperature: 26°C Humidity: 69%

No.	Center Frequency	Bandwidth	Tolerance (%)
1.	299.6000MHz	0.0563MHz	0.0187%

The bandwidth of emission was measured at the points 20dB down from the center frequency of modulated carrier.

Graph of Bandwidth Measurement



Note: "*" The line is 20dB from the modulated carrier.

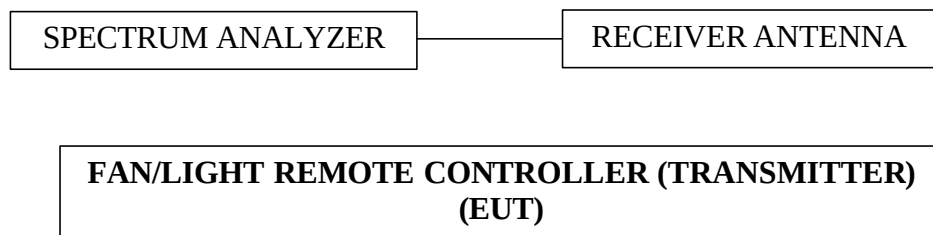
5. PERIODIC OPERATED MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the periodic operated test :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8465EC	3946A00249	Aug. 28, 03'	Aug. 27, 04'
2.	Antenna	DIAMOND	RH799	2944A06305	N/A'	N/A

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.231-(a)-(1)]

The operation of this device is manually operated transmitter that is automatically deactivated the transmitter within not more than 5 seconds of being released, Compliance with §15.231 (a)- (1).

5.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

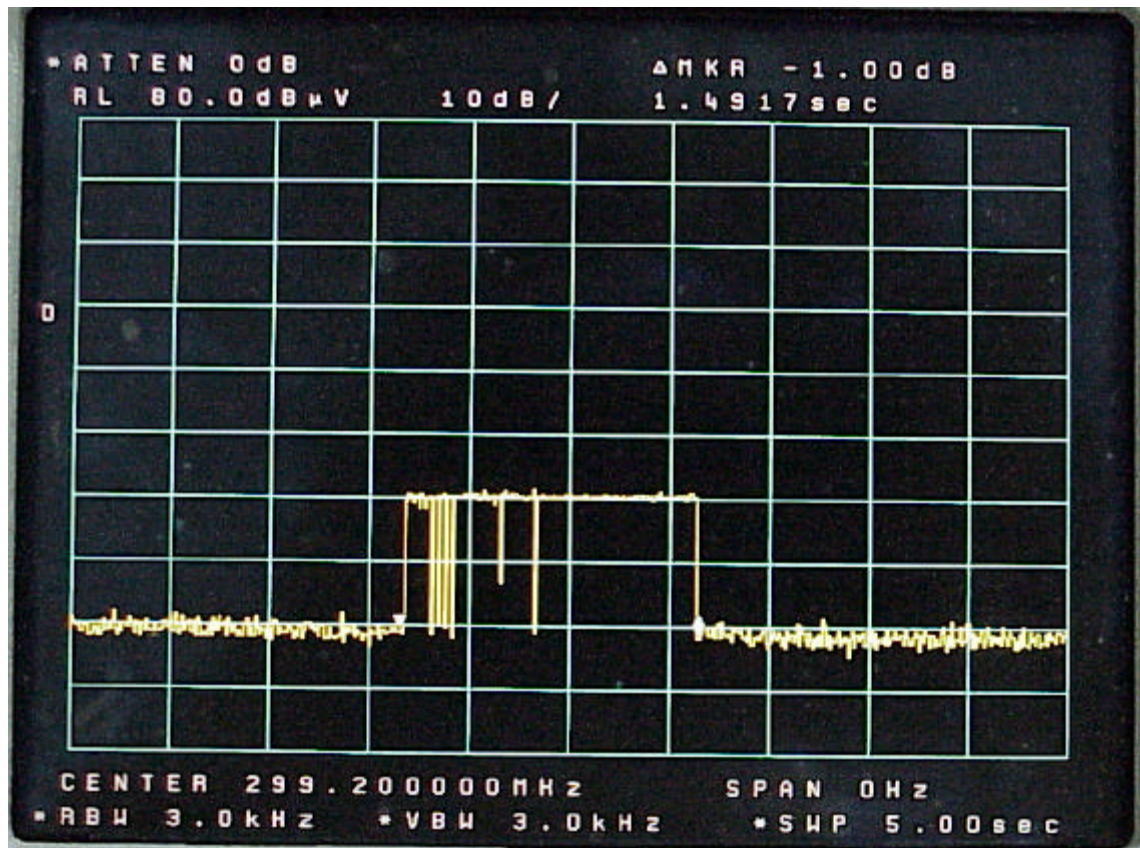
5.5. Periodic Operated Measurement Results

PASS. T=1.4917 sec. (< 5sec.)

Test Date: Jul. 07, 2004 Temperature: 26°C Humidity: 69%

The graph of testing is attached in next page.

Graph of Periodic Operated Measurement



6. DEVIATION TO TEST SPECIFICATIONS

【NONE】