

APPLICATION FOR CERTIFICATION
On Behalf of
Chungear Industrial Co., Ltd.

Fan/Light Remote Control (Transmitter)

Model : BCF-00ECX2

FCC ID : KUJCE9002

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

Prepared by : Taiwan Tokin EMC Eng. Corp.
No. 53-11, Tin-Fu Tsun, Lin-Kou,
Taipei Hsien, Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133
Fax: (02) 2609-9303

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1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Fan/Light Remote Control (Transmitter)
Model Number	:	BCF-00ECX2
FCC ID	:	KUJCE9002
Applicant	:	Chungear Industrial Co., Ltd. 160 Kanho Rd., Taichung, Taiwan, R.O.C.
Manufacturer	:	Chungear Industrial Co., Ltd. 160 Kanho Rd., Taichung, Taiwan, R.O.C.
Fundamental Frequency	:	299.6MHz
Power Supply	:	DC 12V
Date of Receipt of Sample	:	May 29, 2001
Date of Test	:	Aug. 10 ~ 16, 2001

Fan/Light Remote Control -Receiver
Model No.: BCF-2DE162
FCC ID : By DoC

1.2. Description of Test Facility

Site Description (No. 5 Open Site)	:	Jan. 29, 2001 Re-File on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A. Registration Number: 90992
Name of Firm	:	Taiwan Tokin EMC Eng. Corp.
Site Location #1	:	No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
Site Location #2	:	No. 67-4, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
NVLAP Lab Code	:	200077-0

1.3. Measurement Uncertainty

- (1) Radiation Uncertainty $U_r = \pm 4.01\text{dB}$
- (2) Conduction Uncertainty $U_c = \pm 2.26\text{dB}$

2. POWERLINE CONDUCTED TEST

【This EUT input voltage is DC power operated, so no conductive emissions were performed according to FCC Part 15 C section § 15.207】

3. RADIATED EMISSION TEST

3.1. Test Equipment

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

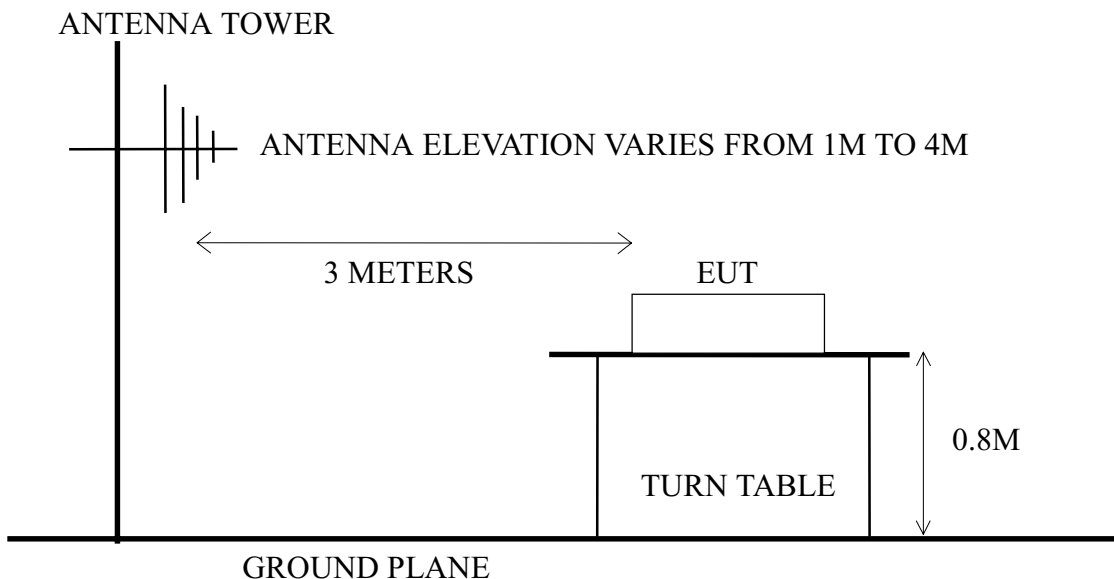
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer (for 30MHz~3GHz)	HP	8595E	3829A03778	Aug. 17, 01'	1 Year
2.	Test Receiver	R&S	ESVS10	849231/017	Dec. 01, 00'	1 Year
3.	Biconical Antenna	Chase	VBA6106A	1227	Apr. 16, 01'	1 Year
4.	Log Periodic Antenna	Chase	UPA6109	1061	Apr. 16, 01'	1 Year
5.	Amplifier (for 1~3GHz)	HP	8449B	3008A01284	Jul.04, 01'	1 Year
6.	Horn Antenna (for 1~3GHz)	EMCO	3115	9112-3775	Apr.17, 01'	1 Year

3.2. Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Field Test Site (3M) Setup Diagram



3.3. Radiation Limit (§15.231)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
Fundamental Freq.	3	5400	74.65 (Quasi-Peak)
Spurious Emission	3	540	54.65 (Peak)

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

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. EUT's Configuration during Compliance Measurement

The following equipment were 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 Control (Transmitter) (EUT)

Model Number : BCF-00ECX2
 Serial Number : N/A
 Manufacturer : Chungear Industrial Co., Ltd.
 Fundamental Frequency : 299.6MHz

3.5. Operating Condition of EUT

3.5.1. Setup 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 Control (Transmitter)) was emitted the fundamental frequency with data code.

3.5.4. The EUT was at worked on Fan and Light function mode.

3.5.5. Repeated the above procedures from 3.5.3 to 3.5.4.

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. For 30MHz to 3GHz frequency range, EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 to 4 meters for 30MHz to 3GHz frequency range 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/OET MP-4 regulation.

The bandwidth of test receiver was set at 120KHz and resolution bandwidth of spectrum analyzer was set at 1MHz.

Three kinds of models with the following test modes were done during radiated measurement and all the test results are listed in section 3.8.

No.	Test Model No.	Test Modes
1.	BCF-00ECX2	EUT on Stand, Fan Mode/Hi Speed
2.		EUT on Stand, Fan Mode/Medium Speed
3.		EUT on Stand, Fan Mode/Low Speed
4.		EUT on Stand, Light Mode
5.		EUT on Side, Fan Mode/Hi Speed
6.		EUT on Side, Fan Mode/Medium Speed
7.		EUT on Side, Fan Mode/Low Speed
8.		EUT on Side, Light Mode
9.		EUT on Lie, Fan Mode/Hi Speed
10.		EUT on Lie, Fan Mode/Medium Speed
11.		EUT on Lie, Fan Mode/Low Speed
12.		EUT on Lie, Light Mode

3.7. Test Results

PASSED. Please refer to the following pages.

3.8. Radiated Emission Noise Measurement Results

The frequency spectrum from 30 MHz to 3GHz is investigated. All the emissions not reported below are too low against the FCC part 15 subpart C limit.

Date of Test : Aug. 10, 2001 Temperature : 26°C

EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%

Test Mode : EUT on Stand, Fan Mode/Hi Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Frequency (Quasi-Peak Values)							
299.509	26.09	3.13	0.00	38.14	67.36	74.64	7.28
Spurious Frequency							
599.017	20.48	4.79	0.00	20.15	45.42	54.64	9.22
898.526	23.62	6.23	0.00	13.57	43.42	54.64	11.22
1198.047	25.17	4.42	32.41	49.71	46.89	54.64	7.75
1497.555	25.88	4.80	32.26	45.40	43.82	54.64	10.82
1797.063	26.46	5.58	32.13	43.61	43.52	54.64	11.12
2096.572	26.97	6.20	32.08	40.94	42.03	54.64	12.61
2396.081	27.47	6.68	32.17	42.84	44.82	54.64	9.82
2695.589	27.90	7.10	32.25	40.15	42.90	54.64	11.74
2995.097	28.30	7.48	32.33	40.15	43.60	54.64	11.04

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Frequency (Quasi-Peak Values)							
299.509	25.30	3.13	0.00	38.92	67.35	74.64	7.29
Spurious Frequency							
599.017	20.54	4.79	0.00	21.01	46.34	54.64	8.30
898.526	24.99	6.23	0.00	11.42	42.64	54.64	12.00
1198.047	25.17	4.42	32.41	47.63	44.81	54.64	9.83
1497.555	25.88	4.80	32.26	44.98	43.40	54.64	11.24
1797.063	26.46	5.58	32.13	43.24	43.15	54.64	11.49
2096.572	26.97	6.20	32.08	42.68	43.77	54.64	10.87
2396.081	27.47	6.68	32.17	41.49	43.47	54.64	11.17
2695.589	27.90	7.10	32.25	40.73	43.48	54.64	11.16
2995.097	28.30	7.48	32.33	38.52	41.97	54.64	12.67

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Stand, Fan Mode/Medium Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	26.09	3.13	0.00	36.00	65.22	74.64	9.42
Spurious Frequency							
599.117	20.48	4.79	0.00	20.37	45.64	54.64	9.00
898.676	23.62	6.23	0.00	12.77	42.62	54.64	12.02
1198.234	25.17	4.42	32.41	50.18	47.36	54.64	7.28
1497.792	25.88	4.80	32.26	47.42	45.84	54.64	8.80
1797.351	26.46	5.58	32.13	47.08	46.99	54.64	7.65
2096.909	26.97	6.20	32.08	45.98	47.07	54.64	7.57
2396.468	27.47	6.68	32.17	38.25	40.23	54.64	14.41
2696.027	27.90	7.10	32.25	41.85	44.60	54.64	10.04
2995.585	28.30	7.48	32.33	40.66	44.11	54.64	10.53

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	25.30	3.13	0.00	38.79	67.22	74.64	7.42
Spurious Frequency							
599.117	20.54	4.79	0.00	20.08	45.41	54.64	9.23
898.676	24.99	6.23	0.00	10.39	41.61	54.64	13.03
1198.234	25.17	4.42	32.41	48.63	45.81	54.64	8.83
1497.792	25.88	4.80	32.26	42.03	40.45	54.64	14.19
1797.351	26.46	5.58	32.13	43.63	43.54	54.64	11.10
2096.909	26.97	6.20	32.08	37.82	38.91	54.64	15.73
2396.468	27.47	6.68	32.17	39.14	41.12	54.64	13.52
2696.027	27.90	7.10	32.25	39.10	41.85	54.64	12.79
2995.585	28.30	7.48	32.33	37.47	40.92	54.64	13.72

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Stand, Fan Mode/Low Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBµV	Emission Level Horizontal dBµV/m	Limits dBµV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	26.09	3.13	0.00	37.63	66.85	74.64	7.79
Spurious Frequency							
599.107	20.48	4.79	0.00	19.15	44.42	54.64	10.22
898.666	23.62	6.23	0.00	12.29	42.14	54.64	12.50
1198.214	25.17	4.42	32.41	48.25	45.43	54.64	9.21
1497.767	25.88	4.80	32.26	44.77	43.19	54.64	11.45
1797.321	26.46	5.58	32.13	44.58	44.49	54.64	10.15
2096.875	26.97	6.20	32.08	40.89	41.98	54.64	12.66
2396.428	27.47	6.68	32.17	44.23	46.21	54.64	8.43
2695.981	27.90	7.10	32.25	44.20	46.95	54.64	7.69
2995.535	28.30	7.48	32.33	39.36	42.81	54.64	11.83

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBµV	Emission Level Vertical dBµV/m	Limits dBµV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	25.30	3.13	0.00	37.74	66.17	74.64	8.47
Spurious Frequency							
599.107	20.54	4.79	0.00	19.51	44.84	54.64	9.80
898.661	24.99	6.23	0.00	10.92	42.14	54.64	12.50
1198.214	25.17	4.42	32.41	50.51	47.69	54.64	6.95
1497.767	25.88	4.80	32.26	44.42	42.84	54.64	11.80
1797.321	26.46	5.58	32.13	43.17	43.08	54.64	11.56
2096.875	26.97	6.20	32.08	42.82	43.91	54.64	10.73
2396.428	27.47	6.68	32.17	41.51	43.49	54.64	11.15
2695.981	27.90	7.10	32.25	42.84	45.59	54.64	9.05
2995.535	28.30	7.48	32.33	37.36	40.81	54.64	13.83

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Stand, Light Mode

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.658	26.09	3.13	0.00	37.11	66.33	74.64	8.31
Spurious Frequency							
599.316	20.48	4.79	0.00	20.18	45.45	54.64	9.19
898.976	23.62	6.23	0.00	12.81	42.66	54.64	11.98
1198.631	25.17	4.42	32.41	48.04	45.22	54.64	9.42
1498.289	25.88	4.80	32.26	44.56	42.98	54.64	11.66
1797.947	26.46	5.58	32.13	43.26	43.17	54.64	11.47
2097.605	26.98	6.21	32.09	42.04	43.14	54.64	11.50
2397.263	27.47	6.68	32.17	40.15	42.13	54.64	12.51
2696.921	27.91	7.10	32.25	40.09	42.85	54.64	11.79
2996.579	28.30	7.48	32.33	36.98	40.43	54.64	14.21

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.658	25.30	3.13	0.00	37.81	66.24	74.64	8.40
Spurious Frequency							
599.316	20.54	4.79	0.00	21.09	46.42	54.64	8.22
898.976	24.99	6.23	0.00	12.93	44.15	54.64	10.49
1198.631	25.17	4.42	32.41	47.39	44.57	54.64	10.07
1498.289	25.88	4.80	32.26	43.56	41.98	54.64	12.66
1797.947	26.46	5.58	32.13	42.04	41.95	54.64	12.69
2097.605	26.98	6.21	32.09	41.40	42.50	54.64	12.14
2397.263	27.47	6.68	32.17	39.22	41.20	54.64	13.44
2696.921	27.91	7.10	32.25	40.99	43.75	54.64	10.89
2996.579	28.30	7.48	32.33	37.73	41.18	54.64	13.46

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test :	Aug. 10, 2001	Temperature :	26°C
EUT :	Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2	Humidity :	64%
Test Mode :	EUT on Side, Fan Mode/Hi Speed		

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dB μ V	Emission Level Horizontal dB μ V/m	Limits dB μ V/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.509	26.09	3.13	0.00	35.92	65.14	74.64	9.50
Spurious Frequency							
599.017	20.48	4.79	0.00	19.37	44.64	54.64	10.00
898.526	23.62	6.23	0.00	11.49	41.34	54.64	13.30
1198.047	25.17	4.42	32.41	47.45	44.63	54.64	10.01
1497.555	25.88	4.80	32.26	44.98	43.40	54.64	11.24
1797.063	26.46	5.58	32.13	40.49	40.40	54.64	14.24
2096.572	26.97	6.20	32.08	39.22	40.31	54.64	14.33
2396.081	27.47	6.68	32.17	40.45	42.43	54.64	12.21
2695.589	27.90	7.10	32.25	39.05	41.80	54.64	12.84
2995.097	28.30	7.48	32.33	36.04	39.49	54.64	15.15

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dB μ V	Emission Level Vertical dB μ V/m	Limits dB μ V/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.509	25.30	3.13	0.00	36.91	65.34	74.64	9.30
Spurious Frequency							
599.017	20.54	4.79	0.00	19.01	44.34	54.64	10.30
898.526	24.99	6.23	0.00	11.47	42.69	54.64	11.95
1198.047	25.17	4.42	32.41	47.86	45.04	54.64	9.60
1497.555	25.88	4.80	32.26	44.19	42.61	54.64	12.03
1797.063	26.46	5.58	32.13	42.17	42.08	54.64	12.56
2096.572	26.97	6.20	32.08	39.24	40.33	54.64	14.31
2396.081	27.47	6.68	32.17	39.26	41.24	54.64	13.40
2695.589	27.90	7.10	32.25	40.10	42.85	54.64	11.79
2995.097	28.30	7.48	32.33	35.73	39.18	54.64	15.46

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Side, Fan Mode/Medium Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	26.09	3.13	0.00	38.00	67.22	74.64	7.42
Spurious Frequency							
599.117	20.48	4.79	0.00	20.38	45.65	54.64	8.99
898.676	23.62	6.23	0.00	12.80	42.65	54.64	11.99
1198.234	25.17	4.42	32.41	50.25	47.43	54.64	7.21
1497.792	25.88	4.80	32.26	45.68	44.10	54.64	10.54
1797.351	26.46	5.58	32.13	41.81	41.72	54.64	12.92
2096.909	26.97	6.20	32.08	40.42	41.51	54.64	13.13
2396.468	27.47	6.68	32.17	39.21	41.19	54.64	13.45
2696.027	27.90	7.10	32.25	41.55	44.30	54.64	10.34
2995.585	28.30	7.48	32.33	36.99	40.44	54.64	14.20

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	25.30	3.13	0.00	39.51	67.94	74.64	6.70
Spurious Frequency							
599.117	20.54	4.79	0.00	19.88	45.21	54.64	9.43
898.676	24.99	6.23	0.00	10.39	41.61	54.64	13.03
1198.234	25.17	4.42	32.41	49.65	46.83	54.64	7.81
1497.792	25.88	4.80	32.26	43.12	41.54	54.64	13.10
1797.351	26.46	5.58	32.13	40.68	40.59	54.64	14.05
2096.909	26.97	6.20	32.08	41.12	42.21	54.64	12.43
2396.468	27.47	6.68	32.17	41.33	43.31	54.64	11.33
2696.027	27.90	7.10	32.25	41.33	44.08	54.64	10.56
2995.585	28.30	7.48	32.33	37.50	40.95	54.64	13.69

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Side, Fan Mode/Low Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	26.09	3.13	0.00	36.21	65.43	74.64	9.21
Spurious Frequency							
599.107	20.48	4.79	0.00	19.97	45.24	54.64	9.40
898.666	23.62	6.23	0.00	10.29	40.14	54.64	14.50
1198.214	25.17	4.42	32.41	49.27	46.45	54.64	8.19
1497.767	25.88	4.80	32.26	41.91	40.33	54.64	14.31
1797.321	26.46	5.58	32.13	46.19	46.10	54.64	8.54
2096.875	26.97	6.20	32.08	39.94	41.03	54.64	13.61
2396.428	27.47	6.68	32.17	43.04	45.02	54.64	9.62
2695.981	27.90	7.10	32.25	38.23	40.98	54.64	13.66
2995.535	28.30	7.48	32.33	36.99	40.44	54.64	14.20

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	25.30	3.13	0.00	36.89	65.32	74.64	9.32
Spurious Frequency							
599.107	20.54	4.79	0.00	19.51	44.84	54.64	9.80
898.661	24.99	6.23	0.00	10.90	42.12	54.64	12.52
1198.214	25.17	4.42	32.41	49.74	46.92	54.64	7.72
1497.767	25.88	4.80	32.26	45.58	44.00	54.64	10.64
1797.321	26.46	5.58	32.13	41.73	41.64	54.64	13.00
2096.875	26.97	6.20	32.08	40.94	42.03	54.64	12.61
2396.428	27.47	6.68	32.17	38.10	40.08	54.64	14.56
2695.981	27.90	7.10	32.25	37.26	40.01	54.64	14.63
2995.535	28.30	7.48	32.33	40.54	43.99	54.64	10.65

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Side, Light Mode

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBµV	Emission Level Horizontal dBµV/m	Limits dBµV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.658	26.09	3.13	0.00	36.00	65.22	74.64	9.42
Spurious Frequency							
599.316	20.48	4.79	0.00	19.26	44.53	54.64	10.11
898.976	23.62	6.23	0.00	11.56	41.41	54.64	13.23
1198.631	25.17	4.42	32.41	47.22	44.40	54.64	10.24
1498.289	25.88	4.80	32.26	45.68	44.10	54.64	10.54
1797.947	26.46	5.58	32.13	43.33	43.24	54.64	11.40
2097.605	26.98	6.21	32.09	40.02	41.12	54.64	13.52
2397.263	27.47	6.68	32.17	38.27	40.25	54.64	14.39
2696.921	27.91	7.10	32.25	40.82	43.58	54.64	11.06
2996.579	28.30	7.48	32.33	37.84	41.29	54.64	13.35

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBµV	Emission Level Vertical dBµV/m	Limits dBµV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.658	25.30	3.13	0.00	38.99	67.42	74.64	7.22
Spurious Frequency							
599.316	20.54	4.79	0.00	20.18	45.51	54.64	9.13
898.976	24.99	6.23	0.00	12.29	43.51	54.64	11.13
1198.629	25.17	4.42	32.41	47.36	44.54	54.64	10.10
1498.287	25.88	4.80	32.26	41.42	39.84	54.64	14.80
1797.945	26.46	5.58	32.13	41.38	41.29	54.64	13.35
2097.603	26.98	6.21	32.09	41.85	42.95	54.64	11.69
2397.260	27.47	6.68	32.17	39.24	41.22	54.64	13.42
2696.918	27.91	7.10	32.25	37.43	40.19	54.64	14.45
2996.576	28.30	7.48	32.33	35.75	39.20	54.64	15.44

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Lie, Fan Mode/Hi Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.509	26.09	3.13	0.00	37.24	66.46	74.64	8.18
Spurious Frequency							
599.017	20.48	4.79	0.00	20.38	45.65	54.64	8.99
898.526	23.62	6.23	0.00	11.60	41.45	54.64	13.19
1198.034	25.17	4.42	32.41	46.36	43.54	54.64	11.10
1497.542	25.88	4.80	32.26	43.77	42.19	54.64	12.45
1797.051	26.46	5.58	32.13	42.19	42.10	54.64	12.54
2096.560	26.97	6.20	32.08	38.91	40.00	54.64	14.64
2396.068	27.47	6.68	32.17	40.12	42.10	54.64	12.54
2695.576	27.90	7.10	32.25	39.03	41.78	54.64	12.86
2995.085	28.30	7.48	32.33	36.76	40.21	54.64	14.43

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.509	25.30	3.13	0.00	35.91	64.34	74.64	10.30
Spurious Frequency							
599.017	20.54	4.79	0.00	19.19	44.52	54.64	10.12
898.526	24.99	6.23	0.00	9.35	40.57	54.64	14.07
1198.047	25.17	4.42	32.41	47.51	44.69	54.64	9.95
1497.555	25.88	4.80	32.26	43.61	42.03	54.64	12.61
1797.063	26.46	5.58	32.13	40.89	40.80	54.64	13.84
2096.572	26.97	6.20	32.08	39.22	40.31	54.64	14.33
2396.081	27.47	6.68	32.17	40.64	42.62	54.64	12.02
2695.589	27.90	7.10	32.25	40.96	43.71	54.64	10.93
2995.097	28.30	7.48	32.33	35.77	39.22	54.64	15.42

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Lie, Fan Mode/Medium Speed

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	26.09	3.13	0.00	36.94	66.16	74.64	8.48
Spurious Frequency							
599.117	20.48	4.79	0.00	21.37	46.64	54.64	8.00
898.676	23.62	6.23	0.00	12.77	42.62	54.64	12.02
1198.234	25.17	4.42	32.41	48.48	45.66	54.64	8.98
1497.792	25.88	4.80	32.26	47.49	45.91	54.64	8.73
1797.351	26.46	5.58	32.13	41.03	40.94	54.64	13.70
2096.909	26.97	6.20	32.08	40.75	41.84	54.64	12.80
2396.468	27.47	6.68	32.17	43.32	45.30	54.64	9.34
2696.027	27.90	7.10	32.25	40.06	42.81	54.64	11.83
2995.585	28.30	7.48	32.33	39.78	43.23	54.64	11.41

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.559	25.30	3.13	0.00	37.77	66.20	74.64	8.44
Spurious Frequency							
599.117	20.54	4.79	0.00	20.88	46.21	54.64	8.43
898.676	24.99	6.23	0.00	11.43	42.65	54.64	11.99
1198.234	25.17	4.42	32.41	45.74	42.92	54.64	11.72
1497.792	25.88	4.80	32.26	41.10	39.52	54.64	15.12
1797.351	26.46	5.58	32.13	42.45	42.36	54.64	12.28
2096.909	26.97	6.20	32.08	38.84	39.93	54.64	14.71
2396.468	27.47	6.68	32.17	41.28	43.26	54.64	11.38
2696.027	27.90	7.10	32.25	43.57	46.32	54.64	8.32
2995.585	28.30	7.48	32.33	40.64	44.09	54.64	10.55

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test :	Aug. 10, 2001	Temperature :	26°C
EUT :	Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2	Humidity :	64%
Test Mode :	EUT on Lie, Fan Mode/Low Speed		

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dB μ V	Emission Level Horizontal dB μ V/m	Limits dB μ V/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	26.09	3.13	0.00	35.61	64.83	74.64	9.81
Spurious Frequency							
599.107	20.48	4.79	0.00	19.94	45.21	54.64	9.43
898.666	23.62	6.23	0.00	13.30	43.15	54.64	11.49
1198.214	25.17	4.42	32.41	48.48	45.66	54.64	8.98
1497.767	25.88	4.80	32.26	43.88	42.30	54.64	12.34
1797.321	26.46	5.58	32.13	41.56	41.47	54.64	13.17
2096.875	26.97	6.20	32.08	41.91	43.00	54.64	11.64
2396.428	27.47	6.68	32.17	40.41	42.39	54.64	12.25
2695.981	27.90	7.10	32.25	39.04	41.79	54.64	12.85
2995.535	28.30	7.48	32.33	38.99	42.44	54.64	12.20

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dB μ V	Emission Level Vertical dB μ V/m	Limits dB μ V/m	Margin dB

Fundamental Frequency (Quasi-Peak Values)							
299.554	25.30	3.13	0.00	36.69	65.12	74.64	9.52
Spurious Frequency							
599.107	20.54	4.79	0.00	19.51	44.84	54.64	9.80
898.661	24.99	6.23	0.00	9.90	41.12	54.64	13.52
1198.214	25.17	4.42	32.41	50.35	47.53	54.64	7.11
1497.767	25.88	4.80	32.26	43.72	42.14	54.64	12.50
1797.321	26.46	5.58	32.13	44.87	44.78	54.64	9.86
2096.875	26.97	6.20	32.08	42.82	43.91	54.64	10.73
2396.428	27.47	6.68	32.17	41.53	43.51	54.64	11.13
2695.981	27.90	7.10	32.25	44.45	47.20	54.64	7.44
2995.535	28.30	7.48	32.33	37.91	41.36	54.64	13.28

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

Date of Test : Aug. 10, 2001 Temperature : 26°C
 EUT : Fan/Light Remote Control (Transmitter), M/N: BCF-00ECX2 Humidity : 64%
 Test Mode : EUT on Lie, Light Mode

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Frequency (Quasi-Peak Values)							
299.658	26.09	3.13	0.00	36.11	65.33	74.64	9.31
Spurious Frequency							
599.316	20.48	4.79	0.00	19.95	45.22	54.64	9.42
898.976	23.62	6.23	0.00	11.80	41.65	54.64	12.99
1198.631	25.17	4.42	32.41	50.18	47.36	54.64	7.28
1498.289	25.88	4.80	32.26	45.79	44.21	54.64	10.43
1797.947	26.46	5.58	32.13	42.51	42.42	54.64	12.22
2097.605	26.98	6.21	32.09	39.95	41.05	54.64	13.59
2397.263	27.47	6.68	32.17	41.24	43.22	54.64	11.42
2696.921	27.91	7.10	31.25	41.09	44.85	54.64	9.79
2996.579	28.30	7.48	32.33	38.38	41.83	54.64	12.81

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Frequency (Quasi-Peak Values)							
299.658	25.30	3.13	0.00	35.80	64.23	74.64	10.41
Spurious Frequency							
599.316	20.54	4.79	0.00	16.78	42.11	54.64	12.53
898.976	24.99	6.23	0.00	9.93	41.15	54.64	13.49
1198.631	25.17	4.42	32.41	48.40	45.58	54.64	9.06
1498.289	25.88	4.80	32.26	45.35	43.77	54.64	10.87
1797.947	26.46	5.58	32.13	42.02	41.93	54.64	12.71
2097.605	26.98	6.21	32.09	40.24	41.34	54.64	13.30
2397.263	27.47	6.68	32.17	41.10	43.08	54.64	11.56
2696.921	27.91	7.10	32.25	40.99	43.75	54.64	10.89
2996.579	28.30	7.48	32.33	37.57	41.02	54.64	13.62

- Remark :
1. For Fundamental Frequency, the readings are Quasi-Peak values below 1000MHz; For Spurious Frequency, the readings are Quasi-Peak values below 1000MHz; the readings are peak values above 1GHz.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
 3. Measurement was up to 10th harmonic (~3GHz), but the emissions level were too low against the official limit and not report.

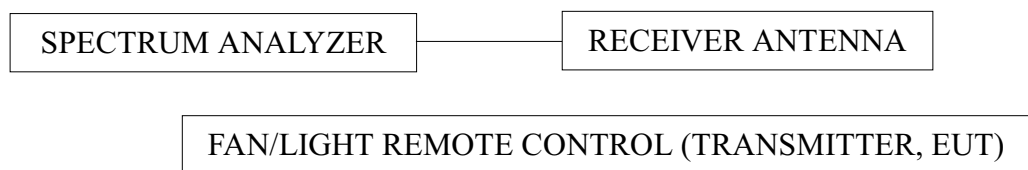
4. EMISSION BANDWIDTH TEST

4.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8590L	3710A01838	Aug.06, 01'	1 Year

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 were same as section 3.4.

4.5. Emission Bandwidth Measurement Results

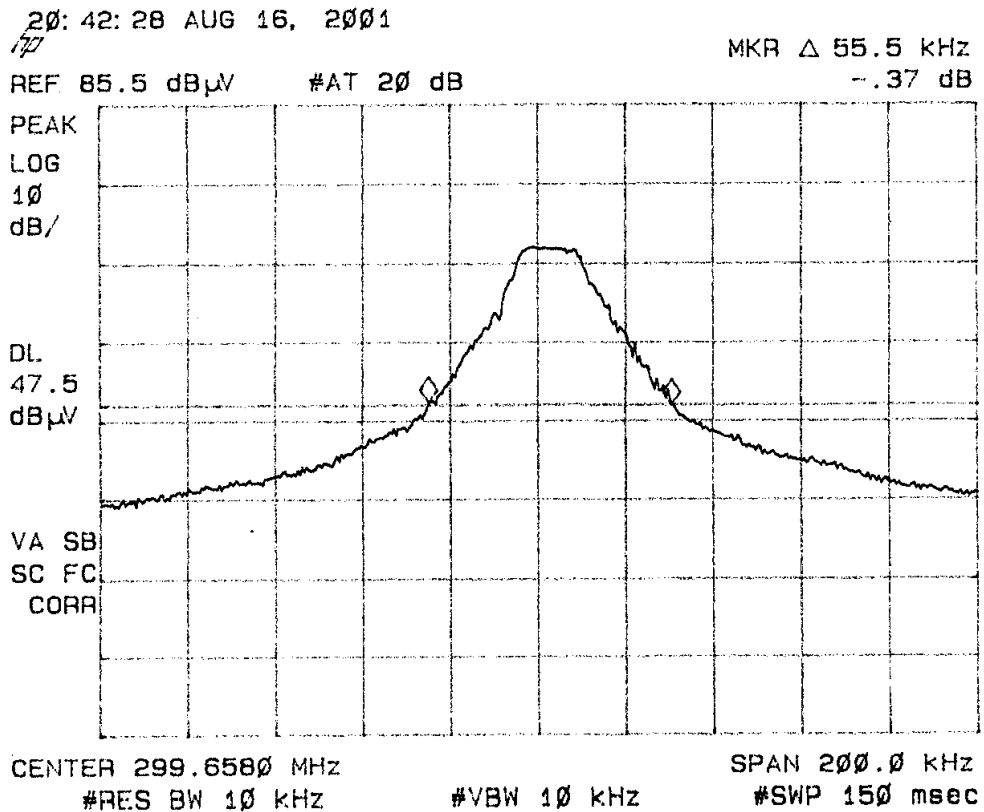
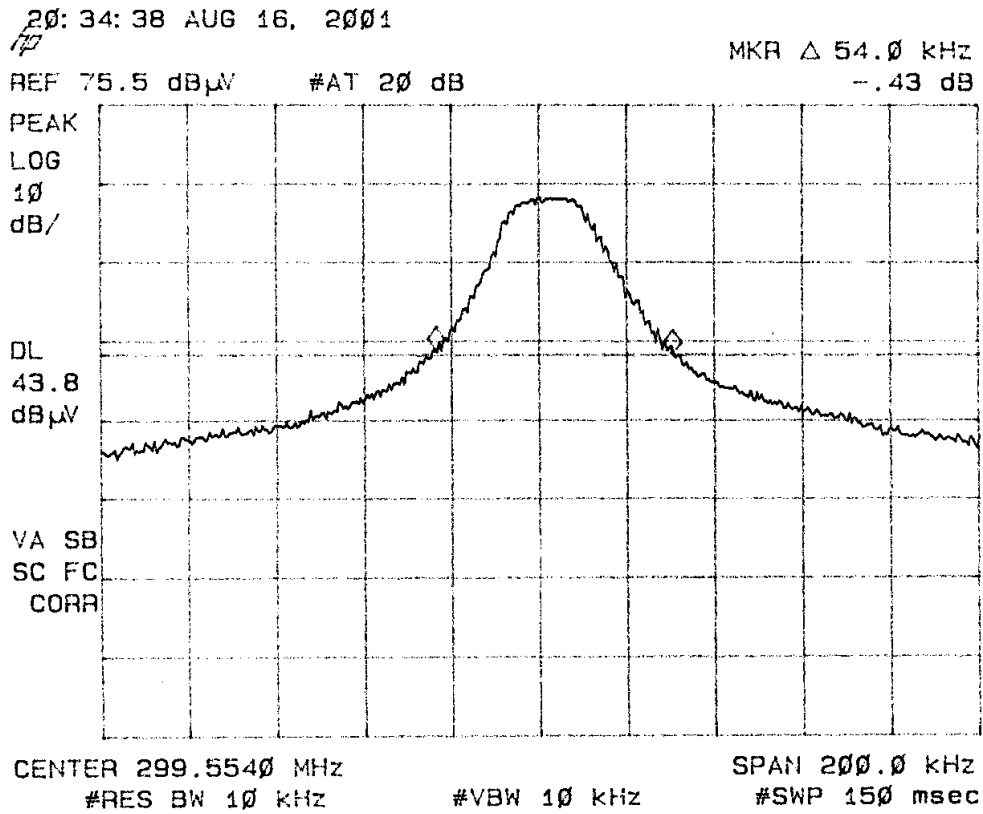
Fundamental Frequency: 299.6MHz

Date of Test: Aug. 16, 2001

No.	Test Model	Mode	Center Frequency	Bandwidth	Tolerance (%)
1.	BCF-00ECX2	Fan	299.5540MHz	54.0kHz	0.018%
2.		Light	299.6580MHz	55.5kHz	0.018%

The bandwidth test graphs are attached in next page.

(1) BCF-00ECX2/Fan Mode (2) BCF-00ECX2/Light Mode



5. DEVIATION TO TEST SPECIFICATIONS

【NONE】