



PERMISSIVE CHANGE II TEST REPORT

FOR THE
TRANSMITTER, MB1K
FCC PART 15 SUBPART C
COMPLIANCE

DATE OF ISSUE: APRIL 21, 1999

PREPARED FOR:

Kostal Mexicana, S.A. de C.V.
Acceso II #36, Zona Ind. Benito Juárez
Queretaro, Queretaro, Mex 76120

P.O. No: C.O.D.
W.O. No: 71245

Report No: FC99-019

PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: April 16, 1999

DOCUMENTATION CONTROL:

Tracy Phillips
Documentation Control Supervisor
CKC Laboratories, Inc.

APPROVED BY:

Dennis Ward

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

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ADMINISTRATIVE INFORMATION

DATE OF TEST: April 16, 1999

PURPOSE OF TEST: To demonstrate the compliance of the Transmitter, MB1K, with the FCC Part 15, Subpart C requirements.

MANUFACTURER: Kostal Mexicana, S.A. de C.V.
Acceso II #36, Zona Ind. Benito Juárez
Queretaro, Queretaro, Mex 76120

REPRESENTATIVE: Armando Escalante

TEST LOCATION: CKC Laboratories, Inc.
22105 Wilson River Hwy
Tillamook, OR 97141

TEST PERSONNEL: Mike Wilkinson

TEST METHOD: ANSI C63.4 1992

FREQUENCY RANGE TESTED: 2 MHz – 3.5 GHz

EQUIPMENT UNDER TEST:

TRANSMITTER
Manuf: Kostal Mexicana S.A. de C.V.
Model: MB1K
Serial: N/A
FCC ID: NCZMB1K

SUMMARY OF RESULTS

The Kostal Mexicana, S.A. de C.V. Transmitter, MB1K, was tested in accordance with ANSI C63.4 1992 for compliance with the requirements of FCC Part 15, Subpart C.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15, Subpart C for radiated emissions. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

Kostal Mexicana transmitter MB1K.

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ± 4 dB measurement uncertainty.

EUT OPERATING FREQUENCY

The EUT was operating at 315 MHz.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

PERIPHERAL DEVICES

The EUT was not tested with any peripheral devices.

REPORT OF MEASUREMENTS

The following table reports the six highest worst case levels recorded during the tests performed on the Transmitter, MB1K. All readings taken are peak readings unless otherwise noted by a "Q" or "A". The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp-B dB	Cable dB	Dist dB				
314.986	76.8	21.2	-27.3	4.6		75.3	75.6	-0.3	VA
629.969	54.3	19.8	-28.4	6.8		52.5	55.6	-3.1	H
944.951	47.9	23.7	-27.8	8.5		52.3	55.6	-3.3	H
1574.915	57.9	25.2	-37.4	6.4		52.1	55.6	-3.5	VA
1889.892	54.5	27.5	-36.6	6.8		52.2	55.6	-3.4	VA
2519.854	50.2	28.7	-35.2	8.1		51.8	55.6	-3.8	HA

Test Method:

ANSI C63.4 1992

NOTES: H = Horizontal Polarization

Spec Limit :

15.231(3)(b)

V = Vertical Polarization

Test Distance:

3 Meters

N = No Polarization

D = Dipole Reading

Q = Quasi Peak Reading

A = Average Reading

COMMENTS: The EUT is tested and set up in accordance with CISPR-22 1993 amendment A-1 / ANSI C63.4 1992 test methods. EUT is operating on batteries and with the key opened. Unit is continuously transmitting a signal at 315 MHz. Fundamental spec limit is 75.6 dB μ V and the spec limit of spurs outside the restricted band are 55.6 dB μ V calculated from FCC pt 15.231 (3)(b). The frequency range investigated during the test was 2 MHz to 3.5 GHz. The test was performed with the EUT in all three orthogonal planes. This is noted on each reading as Flat, Side, or End. The temperature was 65°F and the humidity was 40%.

TABLE A
LIST OF TEST EQUIPMENT

1. EMC Analyzer, Hewlett Packard, Model No. 8593EM, S/N 3624A00159. Calibration date: October 12, 1998. Calibration due date: October 12, 1999.
2. Preamp, Hewlett Packard, Model No. 83017A, S/N 3123A00321. Calibration date: October 26, 1998. Calibration due date: October 26, 1999.
3. Cable, Andrew, Model No. 125' LDF2-50, CKC Asset No. 2086. Calibration date: February 24, 1999. Calibration due date: February 24, 2000.
4. Cable, Andrew, Model No. 10' F1-PNMNM, CKC Asset No. 1016. Calibration date: February 25, 1999. Calibration due date: February 25, 2000.
5. Biconical Antenna, Scharz., Model No. BBA9106, S/N D6901. Calibration date: January 25, 1999. Calibration due date: January 25, 2000.
6. Horn Antenna, EMCO, Model No. 3115, S/N 9006-3413. Calibration date: February 24, 1999. Calibration due date: February 24, 2000
7. Log Periodic Antenna, A & H Systems, Model No. SAS200/510, S/N 463. Calibration date: August 28, 1998. Calibration due date: August 28, 1999.
8. Preamp, Hewlett Packard, Model No. 8447D, S/N 2727A05444. Calibration date: February 24, 1999. Calibration due date: February 24, 2000.
9. Rod Antenna, EMCO, Model No. 3301B, S/A 9101-3083. Calibration date: February 24, 1999. Calibration due date: February 24, 2000.
10. Tillamook site B calibration date: June 12, 1998. Tillamook site B calibration due date: June 12, 1999.
11. Test software, EMI Test 2.91.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Table 1 for radiated emissions. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect the radiated emissions data for the Transmitter, MB1K. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies below 30 MHz the rod antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. Frequencies above 1 GHz were tested using the horn antenna. All antennas were located at a distance of 3 meters from the edge of the EUT.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB μ V, and a vertical scale of 10 dB per division.

TABLE B : ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	3.5 GHz	1 MHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Table 1 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A". The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Transmitter, MB1K.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

When the frequencies are below 30 MHz or exceed 1 GHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

TEST METHODS

The radiated emissions data of the Transmitter, MB1K, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For frequencies below 30 MHz the rod antenna was used. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. The horn antenna was used to scan the frequency range of 1-3.5 GHz. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, a thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation and antenna height. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the emissions readings in Table 1. For radiated emissions in $\text{dB}\mu\text{V}/\text{m}$, the spectrum analyzer reading in $\text{dB}\mu\text{V}$ was corrected by using the following formula:

$$\begin{aligned}
 & \text{Meter reading (dB}\mu\text{V)} \\
 & + \text{Antenna Factor (dB)} \\
 & + \text{Cable Loss (dB)} \\
 & - \text{Distance Correction (dB)} \\
 & - \text{Pre-amplifier Gain (dB)} \\
 \\
 & = \text{Corrected Reading(dB}\mu\text{V/m)}
 \end{aligned}$$

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng $\text{dB}\mu\text{V}$	Cbl-2	Amp-B Or 26.5	Bicon	Ant	Dist	Corr $\text{dB}\mu\text{V/m}$	Spec	Margin	Polar
---	-------------	--------------------------------	-------	---------------------	-------	-----	------	----------------------------------	------	--------	-------

means reading number

Freq MHz is the frequency in MHz of the obtained reading.

Rdng $\text{dB}\mu\text{V}$ is the reading obtained on the spectrum analyzer in $\text{dB}\mu\text{V}$.

Amp-B or 26.5 is short for the preamplifier factor or gain in dB.

Ant is the biconical, log, rod, or horn antenna factors in dB.

Cbl-2 is the cable loss in dB of the coaxial cable on the OATS.

Dist is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.

Corr $\text{dB}\mu\text{V/m}$ is the corrected reading which is now in $\text{dB}\mu\text{V/m}$ (field strength).

Spec is the specification limit (dB) stated in the agency's regulations.

Margin is the closeness to the specified limit in dB; + is over and - is under the limit.

Polar is the Polarity of the antenna with respect to earth.

APPENDIX A
INFORMATION ABOUT THE EQUIPMENT UNDER TEST

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INFORMATION ABOUT THE EQUIPMENT UNDER TEST

Test Software/Firmware:	N/A
CRT was displaying:	N/A
Power Supply Manufacturer:	Battery Operated
Power Supply Part Number:	N/A
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A
Line voltage used during testing:	N/A

I/O PORTS

Type	#
N/A	

CRYSTAL OSCILLATORS

Type	Freq In MHz
Crystal oscillator	4.0
SAW Resonator	315.0

PRINTED CIRCUIT BOARDS

Function	Model & Rev	Clocks, MHz	Layers	Location
Main PCB	02	2 & 315	2	Plastic Cover

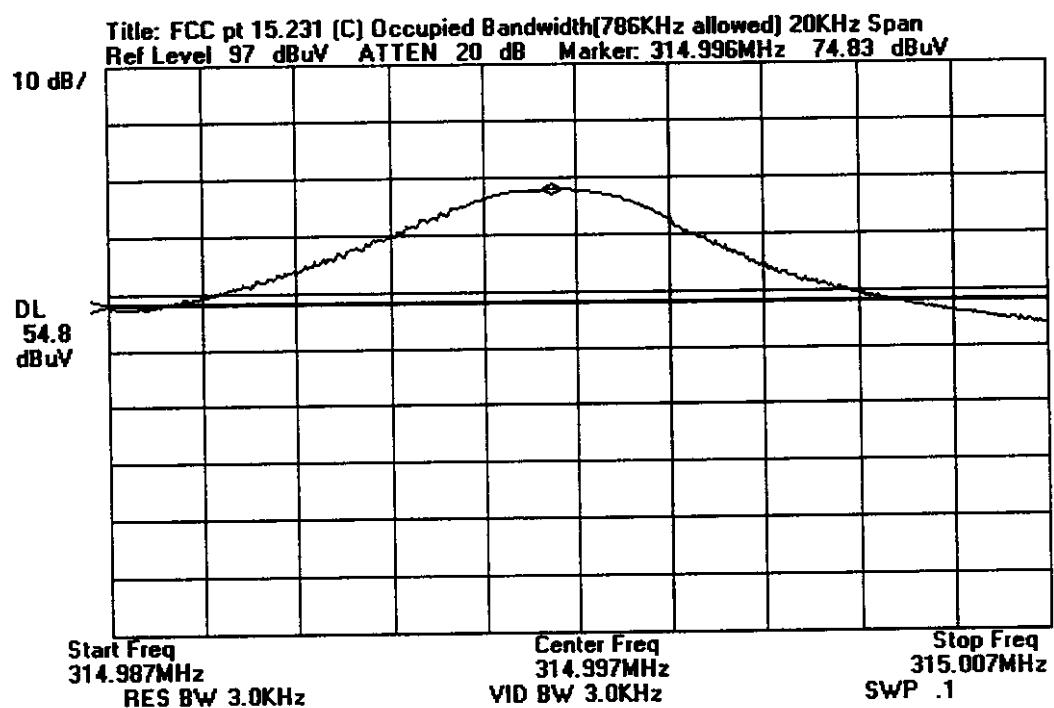
REQUIRED EUT CHANGES TO COMPLY:

None.

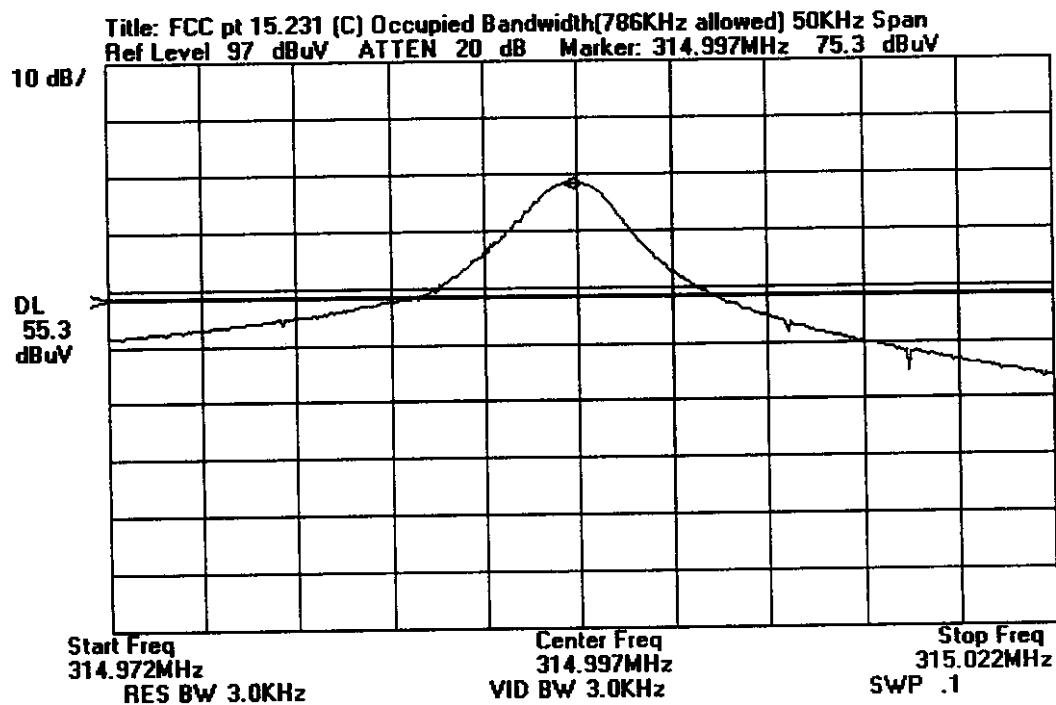
APPENDIX B
MEASUREMENT DATA SHEETS

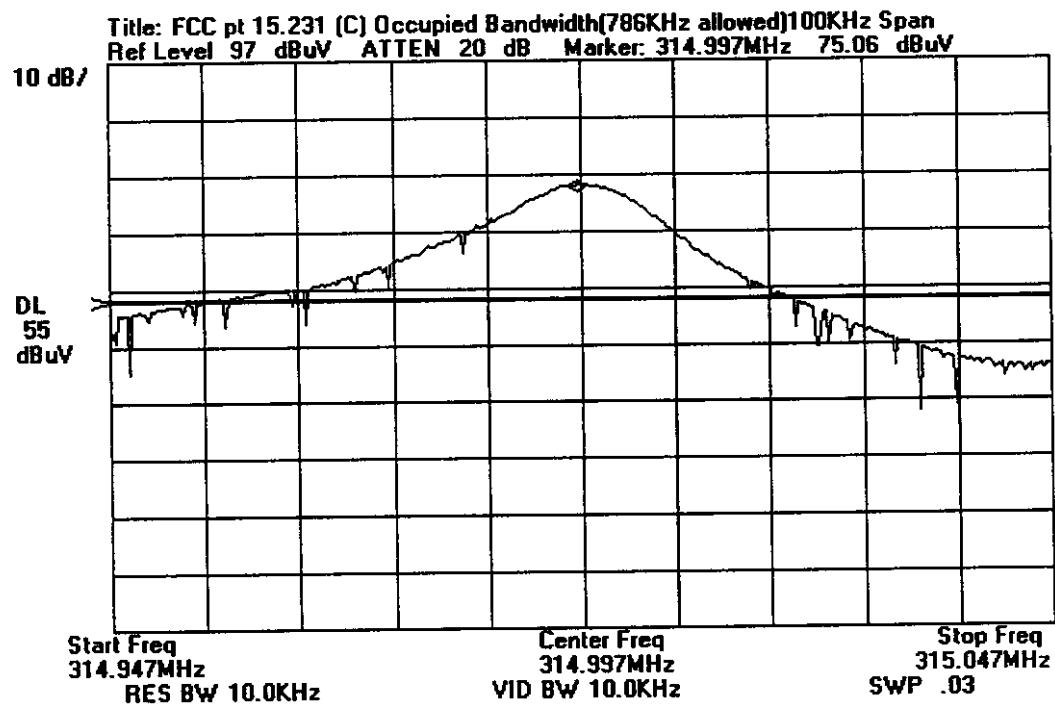
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Occupied Bandwidth Plot

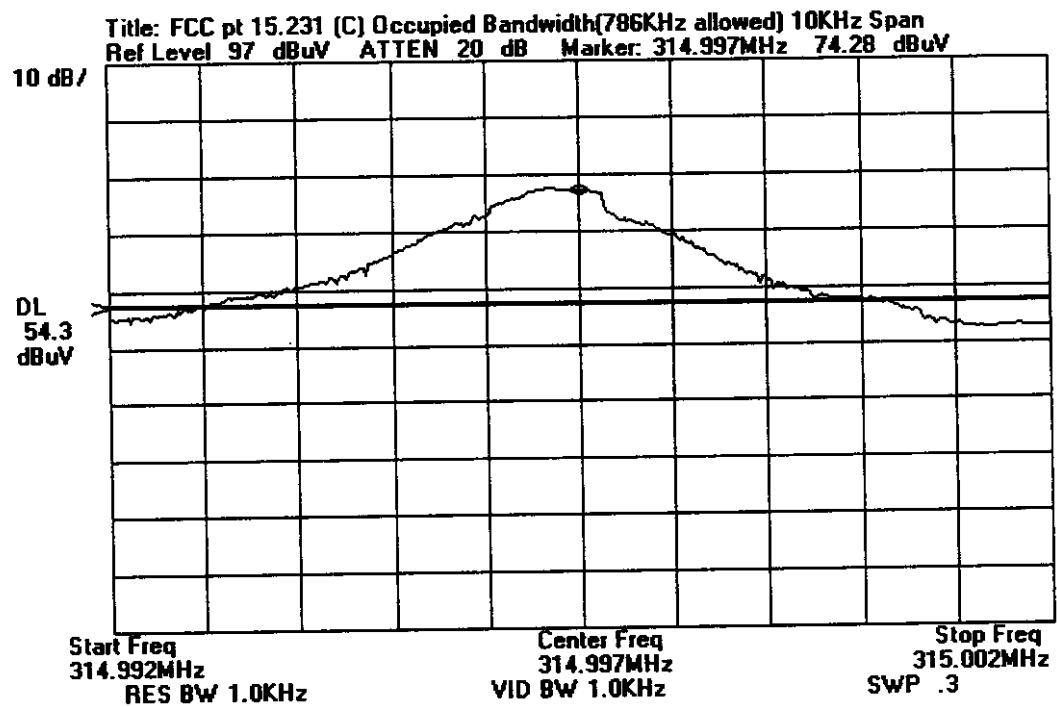


Occupied Bandwidth Plot

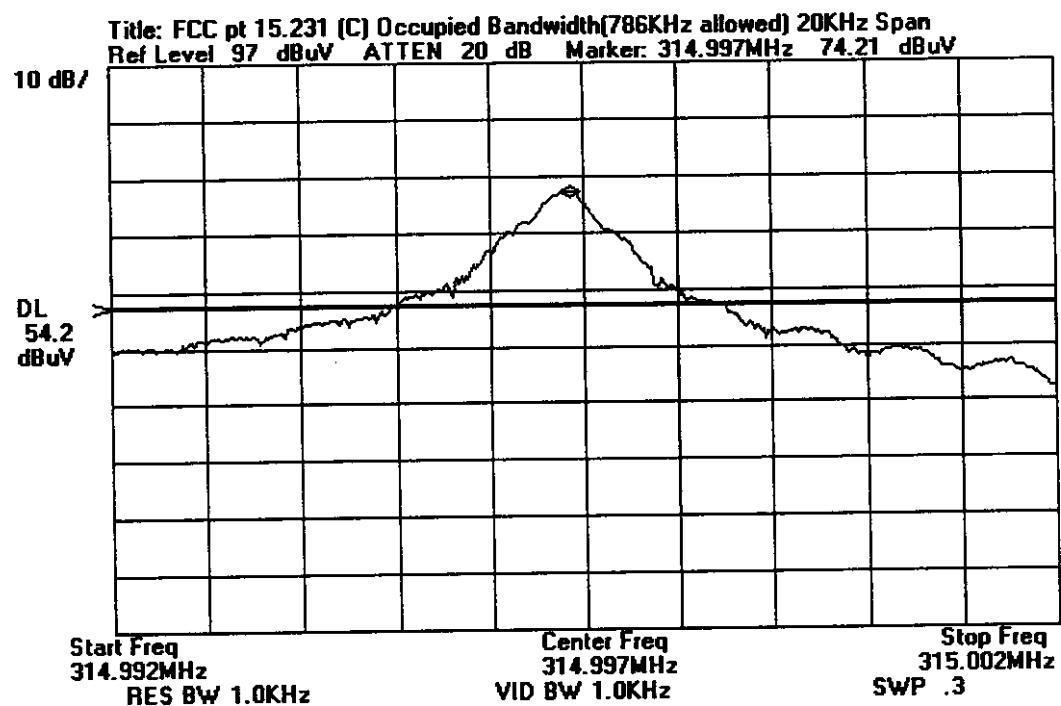


Occupied Bandwidth Plot

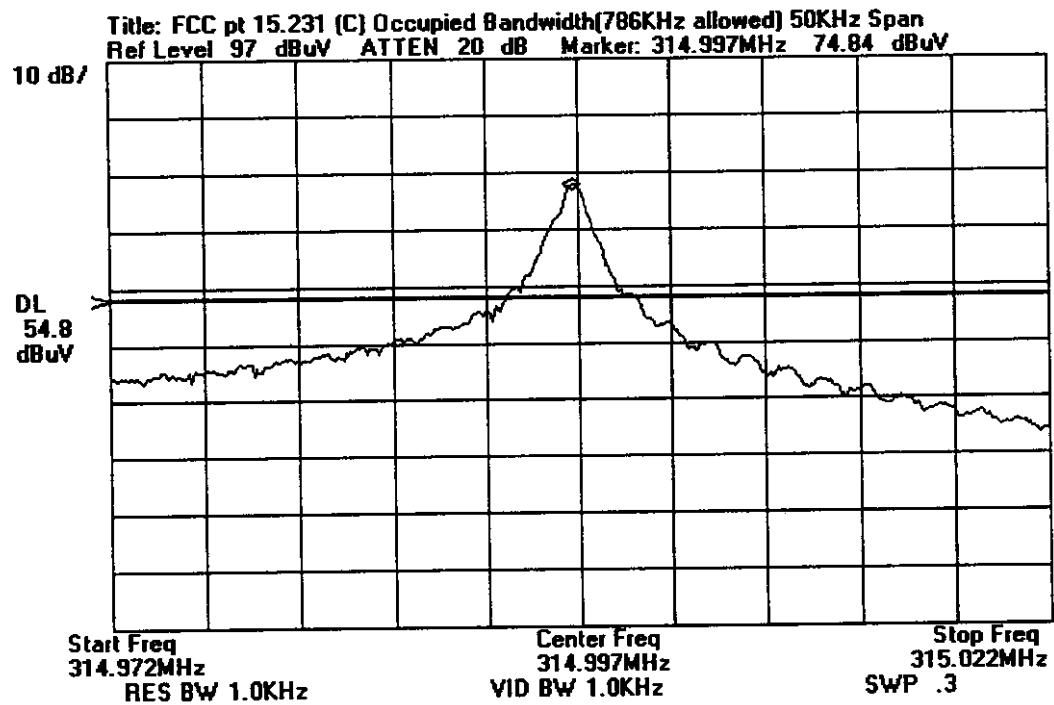
Occupied Bandwidth Plot



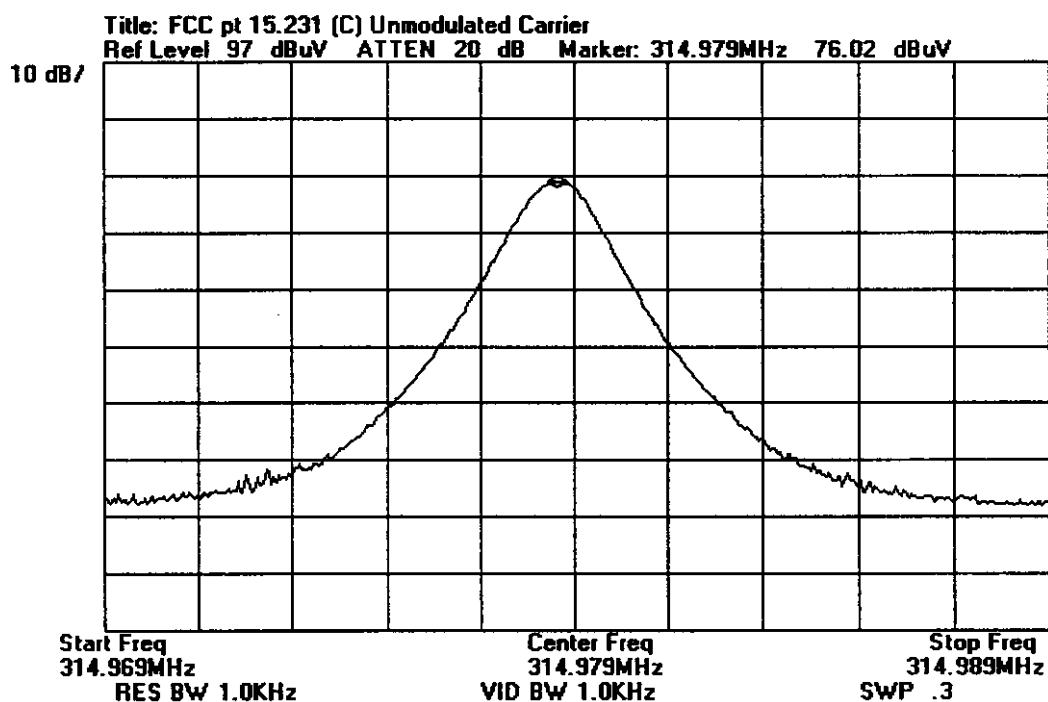
Occupied Bandwidth Plot



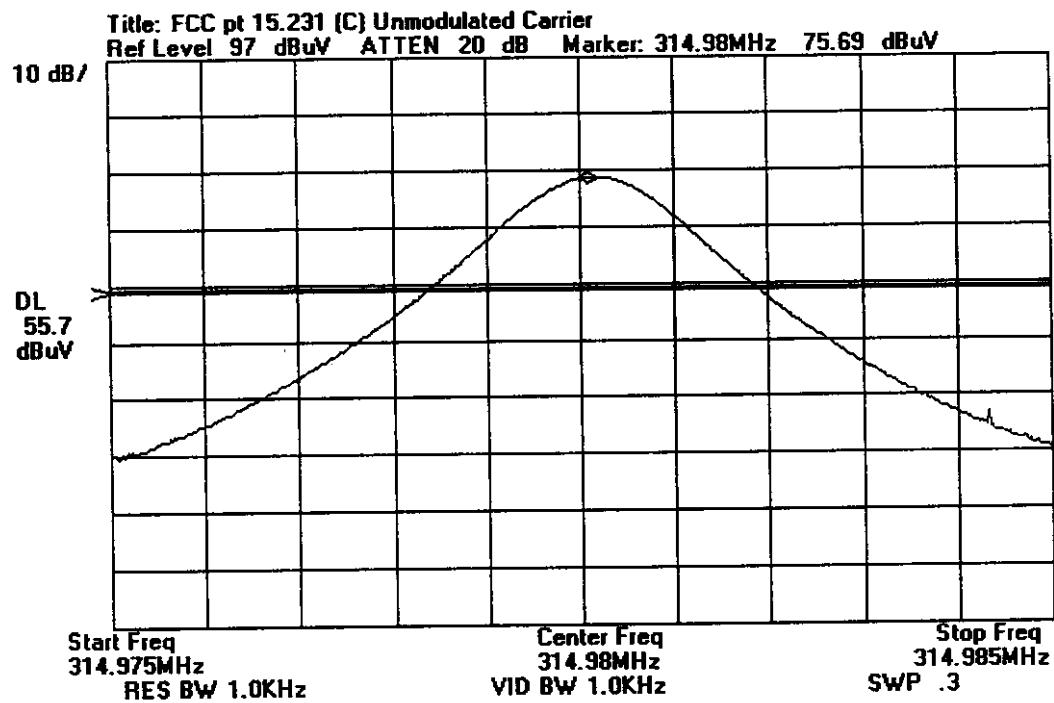
Occupied Bandwidth Plot



Unmodulated Carrier Plot



Unmodulated Carrier Plot



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, Or. 97141 • (800) 500-4EMC

Customer: **Kostal** Date: **Apr-16-99**
 Specification: **15-231** Time: **16:48**
 Test Type: **Radiated Scan** Sequence#: **1**
 Equipment: **TRANSMITTER**
 Manufacturer: **Kostal Mexicana S.A. de C.V.** Tested By: **Mike Wilkinson**
 Model: **MB1K**
 S/N: **N/A**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
TRANSMITTER*	Kostal Mexicana S.A. de C.V.	MB1K	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
None			

Test Conditions / Notes:

The EUT is tested and set up in accordance with CISPR-22 1993 amendment A-1/ ANSI C63.4 1992 test methods. EUT is operating on batteries and with the key opened. Unit is continuously transmitting a signal at 315 MHz. Fundamental spec limit is 75.6 dB_µV and the spec limit of spurs outside the restricted band are 55.6 dB_µV calculated from FCC pt 15.231 (3)(b). The frequency range investigated during the test was 2 MHz to 3.5 GHz. The test was performed with the EUT in all three orthogonal planes. This is noted on each reading as Flat, Side, or End. The temperature was 65° F and the humidity was 40%.

Measurement Data:		Sorted by Margin					Test Distance: 3 Meters				
#		Amp-B			Ant		Dist	Corr	Spec	Margin	Polar
	Freq MHz	Rdng dB _µ V	Cbl-2 dB	Cbl-2 dB	26.5 dB	Ant	dB	dB _µ V/m	dB _µ V/m	dB	
1	314.986	76.8	-27.3		+4.6	+21.2		75.3	75.6	-0.3	Vert
							+0.0				
	Average		+0.0	+0.0	+0.0	+0.0					
	Side										
	314.986	76.8	-27.3		+4.6	+21.2	+0.0	75.3	75.6	-0.3	Vert
			+0.0	+0.0	+0.0	+0.0					
	Side										
	314.986	71.3	-27.3		+4.6	+21.2	+0.0	69.8	75.6	-5.8	Vert
			+0.0	+0.0	+0.0	+0.0					
	End										
	314.987	61.3	-27.3		+4.6	+21.2	+0.0	59.8	75.6	-15.8	Vert
			+0.0	+0.0	+0.0	+0.0					
	Flat										
5	314.976	76.1	-27.3		+4.6	+21.2	+0.0	74.6	75.6	-1.0	Horiz
			+0.0	+0.0	+0.0	+0.0					
	Average										
	Flat										

	314.945	76.8	-27.3	+4.6	+21.2	+0.0	75.3	75.6	-0.3	Horiz
Flat			+0.0	+0.0	+0.0	+0.0				
	314.987	72.8	-27.3	+4.6	+21.2	+0.0	71.3	75.6	-4.3	Horiz
End			+0.0	+0.0	+0.0	+0.0				
	314.991	65.0	-27.3	+4.6	+21.2	+0.0	63.5	75.6	-12.1	Horiz
Side			+0.0	+0.0	+0.0	+0.0				
9	629.969	54.3	-28.4	+6.8	+19.8	+0.0	52.5	55.6	-3.1	Horiz
Flat			+0.0	+0.0	+0.0	+0.0				
10	944.951	47.9	-27.8	+8.5	+23.7	+0.0	52.3	55.6	-3.3	Horiz
Flat			+0.0	+0.0	+0.0	+0.0				
11	1889.892	54.5	+0.0	+0.0	+0.0	+0.0	52.2	55.6	-3.4	Vert
Average			+0.8	+6.0	-36.6	+27.5				
Side			+0.8	+6.0	-36.6	+27.5				
	1889.894	56.0	+0.0	+0.0	+0.0	+0.0	53.7	55.6	-1.9	Vert
Side			+0.8	+6.0	-36.6	+27.5				
	1889.891	54.8	+0.0	+0.0	+0.0	+0.0	52.5	55.6	-3.1	Vert
End			+0.8	+6.0	-36.6	+27.5				
	1889.906	52.0	+0.0	+0.0	+0.0	+0.0	49.7	55.6	-5.9	Vert
			+0.8	+6.0	-36.6	+27.5				
15	1574.915	57.9	+0.0	+0.0	+0.0	+0.0	52.1	55.6	-3.5	Vert
Average			+0.9	+5.5	-37.4	+25.2				
End			+0.9	+5.5	-37.4	+25.2				
	1574.905	59.4	+0.0	+0.0	+0.0	+0.0	53.6	55.6	-2.0	Vert
End			+0.9	+5.5	-37.4	+25.2				
	1574.914	57.1	+0.0	+0.0	+0.0	+0.0	51.3	55.6	-4.3	Vert
Side			+0.9	+5.5	-37.4	+25.2				
	1574.903	55.2	+0.0	+0.0	+0.0	+0.0	49.4	55.6	-6.2	Vert
			+0.9	+5.5	-37.4	+25.2				
19	2519.854	50.2	+0.0	+0.0	+0.0	+0.0	51.8	55.6	-3.8	Horiz
Average			+0.9	+7.2	-35.2	+28.7				
End			+0.9	+7.2	-35.2	+28.7				
	2519.852	52.8	+0.0	+0.0	+0.0	+0.0	54.4	55.6	-1.2	Horiz
End			+0.9	+7.2	-35.2	+28.7				
	2519.861	48.8	+0.0	+0.0	+0.0	+0.0	50.4	55.6	-5.2	Horiz
Side			+0.9	+7.2	-35.2	+28.7				
22	1889.898	54.0	+0.0	+0.0	+0.0	+0.0	51.7	55.6	-3.9	Horiz
Side			+0.8	+6.0	-36.6	+27.5				

23	1259.922	59.5	+0.0 +0.7	+0.0 +4.8	+0.0 -38.6	+0.0 +24.9	+0.0	51.3	55.6	-4.3	Vert
End											
24	314.989	72.8	-27.3 +0.0	+4.6 +0.0	+21.2 +0.0	+0.0 +0.0	71.3	75.6	-4.3	Horiz	
Average											
25	2204.874	52.3	+0.0 +0.9	+0.0 +6.5	+0.0 -36.1	+0.0 +27.6	+0.0	51.2	55.6	-4.4	Vert
End											
26	1574.918	56.5	+0.0 +0.9	+0.0 +5.5	+0.0 -37.4	+0.0 +25.2	+0.0	50.7	55.6	-4.9	Horiz
Side											
27	2519.854	49.0	+0.0 +0.9	+0.0 +7.2	+0.0 -35.2	+0.0 +28.7	+0.0	50.6	55.6	-5.0	Vert
Average											
^	2519.841	52.1	+0.0 +0.9	+0.0 +7.2	+0.0 -35.2	+0.0 +28.7	+0.0	53.7	55.6	-1.9	Vert
^	2519.846	52.0	+0.0 +0.9	+0.0 +7.2	+0.0 -35.2	+0.0 +28.7	+0.0	53.5	55.6	-2.1	Vert
End											
^	2519.854	50.8	+0.0 +0.9	+0.0 +7.2	+0.0 -35.2	+0.0 +28.7	+0.0	52.4	55.6	-3.2	Vert
Side											
31	1574.911	56.3	+0.0 +0.9	+0.0 +5.5	+0.0 -37.4	+0.0 +25.2	+0.0	50.5	55.6	-5.1	Horiz
32	1259.933	58.5	+0.0 +0.7	+0.0 +4.8	+0.0 -38.6	+0.0 +24.9	+0.0	50.3	55.6	-5.3	Horiz
Side											
33	944.972	45.9	-27.8 +0.0	+8.5 +0.0	+23.7 +0.0	+0.0 +0.0	+0.0	50.3	55.6	-5.3	Vert
End											
34	629.965	51.9	-28.4 +0.0	+6.8 +0.0	+19.8 +0.0	+0.0 +0.0	+0.0	50.1	55.6	-5.5	Vert
End											
35	1259.947	58.2	+0.0 +0.7	+0.0 +4.8	+0.0 -38.6	+0.0 +24.9	+0.0	50.0	55.6	-5.6	Horiz
36	2204.883	50.6	+0.0 +0.9	+0.0 +6.5	+0.0 -36.1	+0.0 +27.6	+0.0	49.5	55.6	-6.1	Vert
37	2834.834	44.2	+0.0 +1.2	+0.0 +7.8	+0.0 -33.4	+0.0 +29.6	+0.0	49.4	55.6	-6.2	Vert
Side											
38	1889.891	51.6	+0.0 +0.8	+0.0 +6.0	+0.0 -36.6	+0.0 +27.5	+0.0	49.3	55.6	-6.3	Horiz
39	944.945	44.9	-27.8 +0.0	+8.5 +0.0	+23.7 +0.0	+0.0 +0.0	+0.0	49.3	55.6	-6.3	Horiz
Side											
40	1889.892	51.5	+0.0 +0.8	+0.0 +6.0	+0.0 -36.6	+0.0 +27.5	+0.0	49.2	55.6	-6.4	Horiz
End											

41	629.977	50.9	-28.4		+6.8	+19.8	+0.0	49.1	55.6	-6.5	Horiz
			+0.0	+0.0	+0.0	+0.0	+0.0				
42	944.954	44.4	-27.8		+8.5	+23.7	+0.0	48.8	55.6	-6.8	Vert
			+0.0	+0.0	+0.0	+0.0	+0.0				
43	629.965	49.8	-28.4		+6.8	+19.8	+0.0	48.0	55.6	-7.6	Vert
			+0.0	+0.0	+0.0	+0.0	+0.0				
44	944.918	43.5	-27.8		+8.5	+23.7	+0.0	47.9	55.6	-7.7	Horiz
			+0.0	+0.0	+0.0	+0.0	+0.0				
45	2204.868	48.5	+0.0		+0.0	+0.0	+0.0	47.4	55.6	-8.2	Horiz
			+0.9	+6.5	-36.1	+27.6					
46	944.974	42.8	-27.8		+8.5	+23.7	+0.0	47.2	55.6	-8.4	Vert
			+0.0	+0.0	+0.0	+0.0	+0.0				
47	1259.935	54.3	+0.0		+0.0	+0.0	+0.0	46.1	55.6	-9.5	Horiz
			+0.7	+4.8	-38.6	+24.9					
48	2204.894	46.9	+0.0		+0.0	+0.0	+0.0	45.8	55.6	-9.8	Vert
			+0.9	+6.5	-36.1	+27.6					
49	1259.933	54.0	+0.0		+0.0	+0.0	+0.0	45.8	55.6	-9.8	Vert
			+0.7	+4.8	-38.6	+24.9					
50	1259.921	53.7	+0.0		+0.0	+0.0	+0.0	45.5	55.6	-10.1	Vert
			+0.7	+4.8	-38.6	+24.9					
51	629.976	47.2	-28.4		+6.8	+19.8	+0.0	45.4	55.6	-10.2	Horiz
			+0.0	+0.0	+0.0	+0.0	+0.0				
52	2204.878	46.4	+0.0		+0.0	+0.0	+0.0	45.3	55.6	-10.3	Horiz
			+0.9	+6.5	-36.1	+27.6					
53	2204.881	45.6	+0.0		+0.0	+0.0	+0.0	44.5	55.6	-11.1	Horiz
			+0.9	+6.5	-36.1	+27.6					
54	629.988	45.1	-28.4		+6.8	+19.8	+0.0	43.3	55.6	-12.3	Vert
			+0.0	+0.0	+0.0	+0.0	+0.0				
55	1574.916	47.5	+0.0		+0.0	+0.0	+0.0	41.7	55.6	-13.9	Horiz
			+0.9	+5.5	-37.4	+25.2					