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FCC ID: KN3 910C-924C

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TEST EQUIPMENT LIST

1. Spectrum Analyzer: Hewlett Packard 8566B - Opt 462, w/ preselector 85685A, & Quasi-Peak Adapter HP 85650A, & HP 8449B - OPT H02 Cal. 6/26/98
2. Signal Generator, Hewlett Packard 8640B, cal. 10/1/98
3. Eaton Biconnical Antenna Model 94455-1
20-200 MHz Serial No. 0997 Cal. 5/15/98
4. Electro-Metric Dipole Kit, 20-1000 MHz, Model TDA-30 10/15/98
5. Electro-Metric Horn 1-18 GHz, Model RGA-180, Cal. 8/15/98
6. Electro-Metric Antennas Model TDA-30/1-4, Cal. 10/15/98
7. Electro-Metric Line Impedance Stabilization Network Model No. EM-7821, Serial No. 101; 100KHz-30MHz 50uH. Cal. 11/19/98
8. Electro-Metric Line Impedance Stabilization Network Model No. EM-7820, Serial No. 2682; 10KHz-30MHz 50uH. Cal. 11/19/98
9. Special low loss cable was used above 1 GHz
10. Tenney Temperature Chamber

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. The UUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the UUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	METER READING + ACF = FS
33	20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 74.3oF with a humidity of 69%.

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TEST PROCEDURES CONTINUED

ANSI STANDARD C63.4-1992 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSIC63.4-1992 with the EUT 40 cm from the vertical ground wall.

CIRCUIT DESCRIPTION:

The transmitter is activated when the power switch SW-1 is turned on. The 12VDC comes into the camera module to the 5.0V regulator, IC4. IC-4 supplies regulated voltage to the all camera circuits. The image via the lens to the optical intergrated circuit IC1. In addition to the visual signal the video timing and the video carrier is also fed into IC6 from IC1 & IC11. The visual signal along with the timing pulses are fed into the video processing intergrated circuit IC6. The audio from the microphone is fed into the microphone amplifier Q1 and Q2 which is fed into the camera module and is turn into the process chip IC6. The video signal with audio is fed from the camera module to the modulator. This composite signal is then fed to the mixer stage. From the mixer stage the signal is fed to a series of RF amplifiers and then to the antenna.

This unit is a low power television transmitter operating in the 2450-2400-2483.5MHz band.

ANTENNA & GROUND:

This unit uses a short, antenna. The antenna is self contained and there is no provision for connecting an external antenna.

No ground connection is provided. The only ground used is the ground track on the PC board.

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NAME OF TEST: RADIATION INTERFERENCE

RULES PART NUMBER: 15.249, 15.209

REQUIREMENTS:

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental: 902-928 MHz 2.4-2.4835 GHz 94 dBuV/m @3m	of Harmonics 54 dBuV/m @3m	30 - 88 MHz 40 dBuV/m @3M 88 -216 MHz 43.5 216 -960 MHz 46 ABOVE 960 MHz 54dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

TEST RESULTS: This unit DOES meet the FCC requirements.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING AT 3 METERS dBuV	COAX LOSS dB	ANTENNA CORRECTION FACTOR dB	PEAK FIELD STRENGTH dBuV/m@3m	MARGIN dB	ANT. POL.
CHANNEL 4						
2410.76	28.10	1.09	29.03	58.22	35.78	H
4821.52	12.60	1.45	33.92	22.78	31.22	H
7232.28	-7.40	1.82	36.64	31.05	22.95	V
12053.80	-12.50	2.34	38.54	28.38	25.62	V
14464.50	-7.40	2.57	39.30	34.47	19.53	V
21696.80	-7.30	3.25	41.00	36.95	17.05	V
24107.70	-6.40	3.48	41.00	38.08	15.92	H
CHANNEL 2						
2452.72	29.50	1.10	29.13	59.73	34.27	H
4905.40	10.20	1.47	34.02	45.68	8.32	V
7358.22	-15.50	1.83	36.78	23.11	30.89	H
14716.20	10.50	2.59	38.93	52.02	1.98	V
17168.90	6.40	2.82	40.31	49.53	4.47	V
CHANNEL 3						
2472.72	31.50	1.10	29.18	61.78	32.22	V
4945.44	10.80	1.47	34.06	46.34	7.66	V
7418.16	6.20	1.84	36.85	44.89	9.11	V
14836.32	5.80	2.60	38.75	47.15	6.85	V

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NAME OF TEST: RADIATION INTERFERENCE

TEST PROCEDURE: ANSI STANDARD C63.4-1992 using a Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, Electro-Metric Dipole Kits Models TDA, TDS-25-1, TDS-25-2, and an Eaton Model 94455-1 Biconical Antenna. The bandwidth of spectrum analyzer was 100 kHz with an appropriate sweep speed. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth(10) harmonic of the fundamental.

PERFORMED BY: S. S. SANDERS _____ DATE: MARCH 9, 1999

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APPLICANT: WOO JU COMMUNICATIONS CO., LTD.
FCC ID: KN3 910C-924C
NAME OF TEST: Occupied Bandwidth
RULES PART NO.: 15.249
REQUIREMENTS: The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

THE PLOTS IN EXHIBIT 8 REPRESENTS THE EMISSIONS TAKEN FOR THIS DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 5 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: __S. S. SANDERS_____ MARCH 9, 1999

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APPLICANT: WOO JU COMMUNICATIONS CO., LTD.
FCC ID: KN3 910C-924C
NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE
RULES PART NUMBER: 15.107
MINIMUM REQUIREMENTS: FREQUENCY LEVEL
 ___MHz___ __uV__
 0.450-30 250
TEST PROCEDURE: ANSI STANDARD C63.4-1992

THE HIGHEST EMISSION READ FOR LINE 1 WAS 16.198 uV @ 690 kHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 40.223 uV @ 800 kHz.

THE PLOTS IN EXHIBIT 9A-9B REPRESENT THE EMISSIONS READ FOR
POWERLINE CONDUCTED FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

PERFORMED BY: __S. S. SANDERS__ DATE: MARCH 9, 1999

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