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FCC ID: OIRCE238

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TEST EQUIPMENT LIST

- 1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372 Cal. 1/19/01
- 2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057, Cal 3/15/00
- 3.___Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
Cal. 3/16/01
- 4._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
Cal. 3/15/00
- 5.___Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
Cal. 3/15/00
- 6.___Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319
- 7.___18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
- 8.___Horn 40-60GHz: ATM Part #19-443-6R
- 9.___Line Impedance Stabilization Network: Electro-Metrics Model
EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01
- 10.___Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
Cal. 1/21/01
- 11.___Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 11/20/00
- 12.___Peak Power Meter: HP Model 8900C, S/N 2131A00545, Cal. 1/26/01
- 13._X_Open Area Test Site #1-3meters Cal. 12/22/99
- 14.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 11/21/00
- 15.___Signal Generator: HP 8614A, S/N 2015A07428
- 16.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N
9706-1211 Cal. 6/10/00
- 17.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Cal. 11/24/00
- 18.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 2/1/01
- 19.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
- 20.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 11/16/00
- 21.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 2/1/01

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. 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. The ambient temperature of the UUT was &temp& with a humidity of &humr&.

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

ANSI STANDARD C63.4-1992 10.1.7 MEASUREMENT PROCEDURES: The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. 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.

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FCC ID: OIRCE238
NAME OF TEST: RADIATION INTERFERENCE
RULES PART NO.: 15.235
REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEED 80 dBuV/m AT 3M.
OUT-OF-BAND EMISSIONS SHALL NOT EXCEED:

30 - 88 MHz 40.0 dBuV/M MEASURED AT 3 METERS
88 - 216 MHz 43.5 dBuV/M
216 - 960 MHz 46.0 dBuV/M
ABOVE 960 MHz 54.0 dBuV/M
* Harmonics must be less than the fundamental.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
49.9	25.8	v	0.80	11.00	37.60	42.40

SAMPLE CALCULATION: $FSDBuV/m = MR(dBuV) + ACFdB$.

WITH THE TRANSMITTER SECTIONS OF THIS UNIT DISABLED BY REMOVING R11, THE SPECTRUM WAS SCANNED FROM 30 TO 1000 MHz. NO SIGNIFICANT EMISSIONS WERE NOTED.

TEST PROCEDURE: The procedure used was ANSI STANDARD C63.4-1992. The spectrum was scanned from 30 MHz to 1000 MHz. 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.

TEST RESULTS: THE UNIT does MEET THE FCC REQUIREMENTS.

PERFORMED BY: JOSEPH SCOGLIO

DATE: APRIL 20, 2001

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APPLICANT: SHEN ZHEN CHINA EAST ELECTRONICS CO., LTD.

FCC ID: OIRCE238

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NUMBER: 15.209

REQUIREMENTS: 1.705 to 30 MHz: 49.54 dBuV/m @ 3 METERS
30 to 88 MHz: 40.00 dBuV/M @ 3 METERS
88 to 216 MHz: 43.52 dBuV/M
216 to 960 MHz: 46.02 dBuV/M
ABOVE 960 MHz: 54.00 dBuV/M
* Harmonics must be less than the fundamental.

TEST RESULTS: A search was made of the spectrum from 30 to 1000 MHz and the measurements indicate that the unit DOES meet the FCC requirements.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
49.4	25.3	v	0.80	11.00	37.10	2.90

SAMPLE CALCULATION: FSdBuV/m = MR(dBuV) + ACFdB.

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, and an appropriate 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.

PERFORMED BY: JOSEPH SCOGLIO

DATE: APRIL 20, 2001

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APPLICANT: SHEN ZHEN CHINA EAST ELECTRONICS CO., LTD.
FCC ID: OIRCE238
NAME OF TEST: Occupied Bandwidth
RULES PART NO.: 15.235
REQUIREMENTS: The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

THE GRAPHS ON THE FOLLOWING PAGES REPRESENT THE EMISSIONS TAKEN FOR THE DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the following graphs were taken. 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: JOSEPH SCOGIO

DATE: APRIL 20, 2001

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hp

REF 55.5 dB μ V

ATTEN 10 dB +0 dB

MKR 49.86296 MHz

55.30 dB μ V

10 dB/

OFFSET
-20.0
dB

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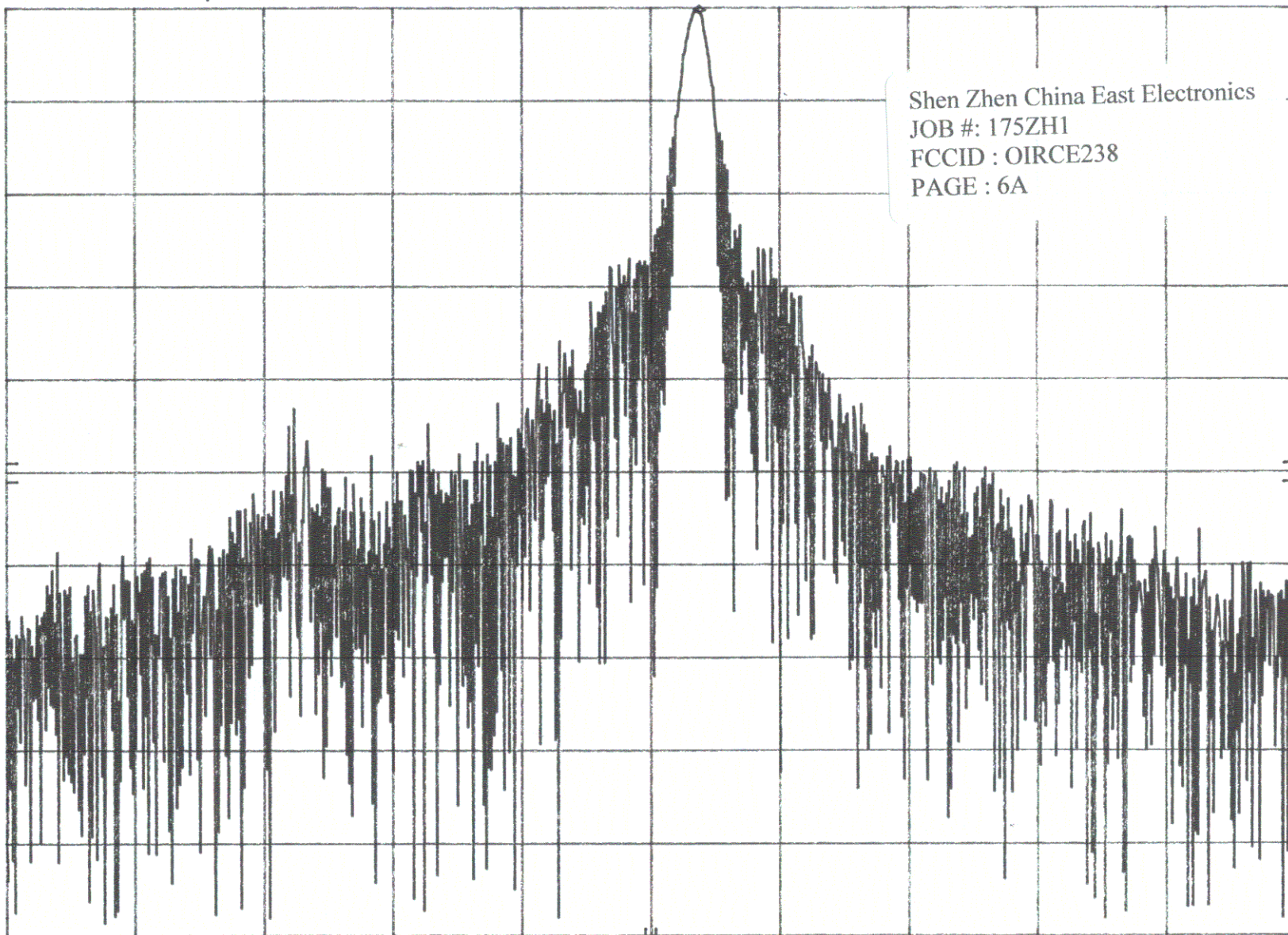
START 49.82000 MHz

RES BW 1 kHz

VBW 100 kHz

STOP 49.90000 MHz

SWP 1.0 sec



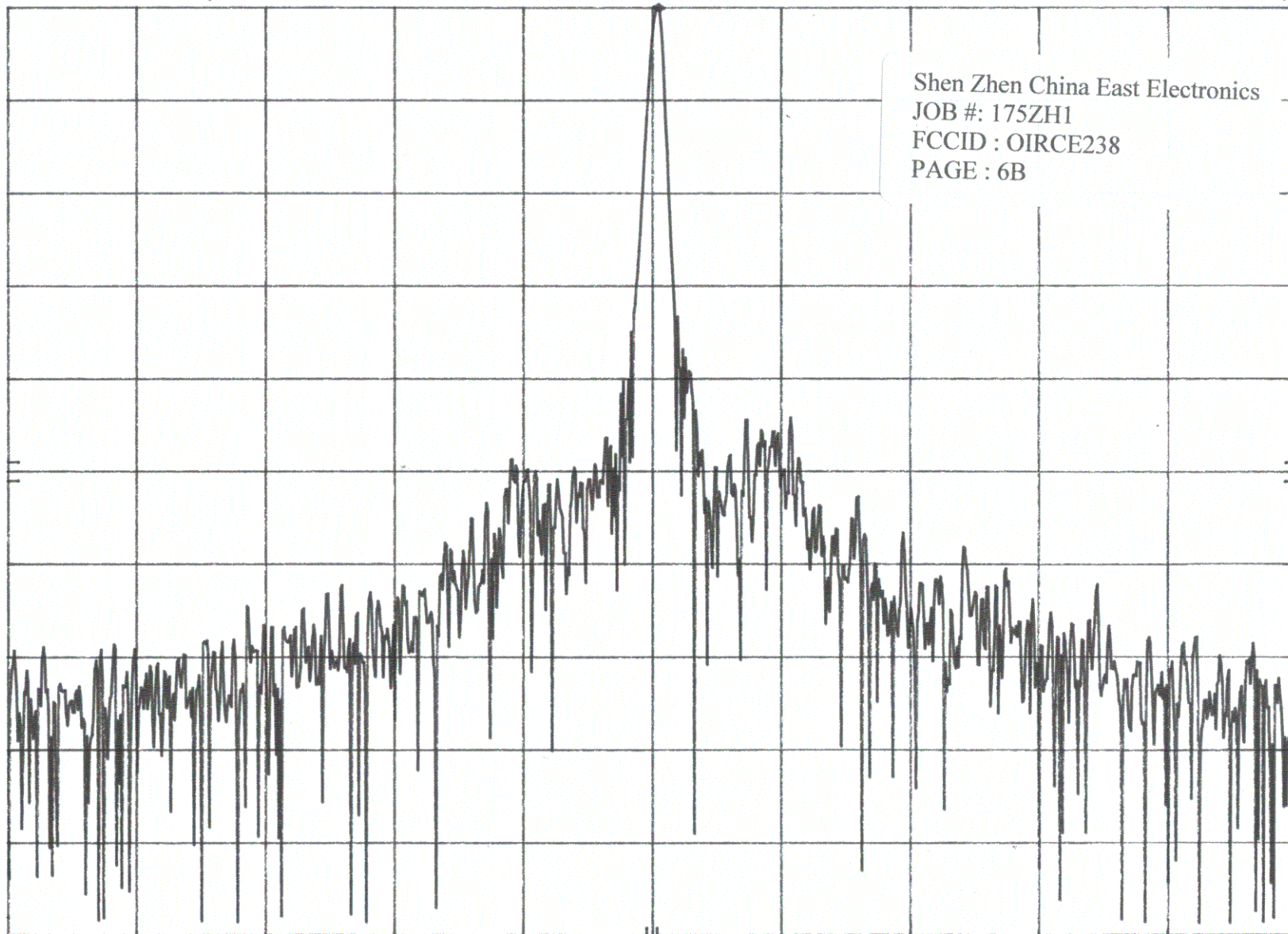
MKR 49.40520 MHz
55.00 dB μ V

hp REF 55.0 dB μ V ATTEN 10 dB +0 dB

10 dB/

OFFSET
-20.0
dB

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CENTER 49.40500 MHz

RES BW 300 Hz

VBW 100 kHz

SPAN 50.00 kHz

SWP 1.0 sec