ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

UNINTENTIONAL RADIATOR

AUTO ALARM SYSTEM RECEIVER

MODEL: 136D1888

FCC ID NO: ELVAR1A

REPORT NO: 01E9289

DATE: March 2, 2001

Prepared for
NUTEK CORPORATION
5F, NO. 3, ALLEY 6, LANE 45, PAO-HSING RD.,
HSIN TIEN, TAIPEI,
TAIWAN, R. O. C.

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.

d.b.a.
COMPLIANCE CERTIFICATION SERVICES
1366 BORDEAUX DRIVE
SUNNYVALE, CA 94089, USA
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NVLAP®

LAB CODE: 200065-0

COMPLIANCE
Certification Services
FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TÜV, BCIQ, DHHS, NVLAP

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TEST DATA

- Fundamental Frequency Plot
- Radiated Emission Data

1. VERIFICATION OF COMPLIANCE

COMPANY NAME	:	NUTEK CORPORATION 5F, NO. 3, ALLEY 6, LANE 45, PAO-HSING RD., HSIN TIEN, TAIPEI, TAIWAN, R. O. C.
CONTACT PERSON:	:	RUBY HSIEH/ MARKETING DEPT.
TELEPHONE NO.:	:	(02)2918-9478
EUT DESCRIPTION	:	AUTO ALARM SYSTEM RECEIVER
MODEL NAME/NUMBER	:	136D1888
DATE TESTED	:	March 1, 2001
REPORT NUMBER	:	01E9289

TYPE OF EQUIPMENT	SECURITY EQUIPMENT (UNINTENTIONAL RADIATOR)
EQUIPMENT TYPE	434 MHz SUPERREGENERATE RECEIVER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.109

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements.

Rick Yeo

RICK YEO / EMC MANAGER
COMPLIANCE ENGINEERING SERVICES, INC.

2. PRODUCT DESCRIPTION

NUTEK CORPORATION, Model 136D1888 is the receiving portion of a multi-purpose security device. The associated Transmitter is manufactured by NUTEK CORPORATION. Model No: 136B1889, FCC ID: ELVAT1A.

3. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 199, Chung Sheng Road, Hsin Tien City, Taipei, Taiwan R.O.C. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

The measuring instrument which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

4. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Cal Due Date
R&S	SMY 02	Signal Generator (9 KHz – 2.08 GHz)	11/2001
H.P.	8595EM	Spectrum Analyzer (9 KHz – 6.5 GHz)	01/2002
EMCO	3142	Antenna (30-2000 MHz)	06/2001
T.E.C.	PA-102	Preamplifier (0.1 - 2000 MHz)	05/2001
EMCO	3115	Antenna(1 – 18 GHz)	09/2001
MITEQ	NSP2600-44	Preamplifier (1 - 26.5 GHz)	12/2001

5. TEST CONFIGURATION

Set frequency generator to 434 MHz. EUT receiving transmission continuously. All the wires are placed on the turn table to their maximum length to simulate the worse emission conditions.

6. TESTS CONDUCTED

CFR 47, 15.109 RADIATED EMISSION TESTS	CONDUCTED AT 3 METERS

7. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is 3 meters. During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

8. COHERENT TESTS

During Radiated Emission Tests, R&S signal generator model no: SMY 02 (9K – 2.08G Hz) was used to radiate unmodulated CW signal to EUT at 434 MHz. Please refer to radiated radiate emission plots and data for the highest readings.

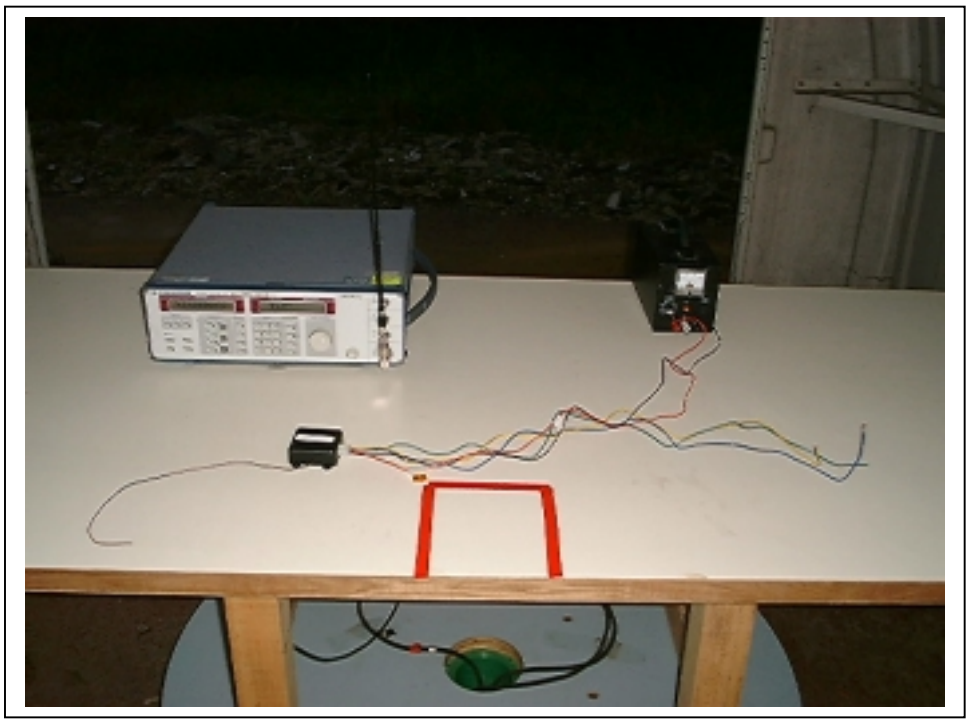
COMPLIANCE CERTIFICATION SERVICES CCS DOCUMENT NO: CCSUP4021B
1366 BORDEAUX DRIVE, SUNNYVALE CA 94089 TEL:(408)752-8166 FAX:(408)752-8168

9. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC section 15.109, the following change(s) were made during compliance testing:

NOT APPLICABLE

10. TEST CONFIGURATION PHOTOS (Radiated Emission Test)



Project No. : 01E9289

Compliance Engineering Services, Inc. Report No. : 9289D8

Date : 2000-03-01

>> 3m RADIATED EMISSION DATA << Test Engr : Vince Chiang

Company : NUTEK CORPORATION
Equipment Under Test : 136D1888
Test Configuration : EUT/DC Power/S.G.
Test Spec. : FCC CLASS B
Mode of Operation : 6 Worst Data Readings

Freq. MHz	Reading dBuV	Antenna dB	Cable dB	Amp. dB	Level dBuV/m	Limit dBuV	Margin dB	Remark P/Q/A	Pol. H/V
418.96	43.53	17.33	3.14	21.31	42.69	46.00	-6.09	Peak	V
424.52	41.90	17.40	3.16	21.32	41.14	46.00	-13.93	Peak	V
426.80	42.99	17.43	3.17	21.31	42.28	46.00	-13.00	Peak	V
432.64	42.61	17.50	3.19	21.28	42.01	46.00	-2.25	Peak	V
441.24	41.72	17.60	3.22	21.24	41.30	46.00	-15.18	Peak	V
443.48	42.31	17.63	3.23	21.23	41.93	46.00	-13.20	Peak	V

Total Data#. 6

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No. 199, Chung Sheng Road,
Hsin Tien City, Taipei,
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Tel:02-2217-0894 Fax:02-2217-1254

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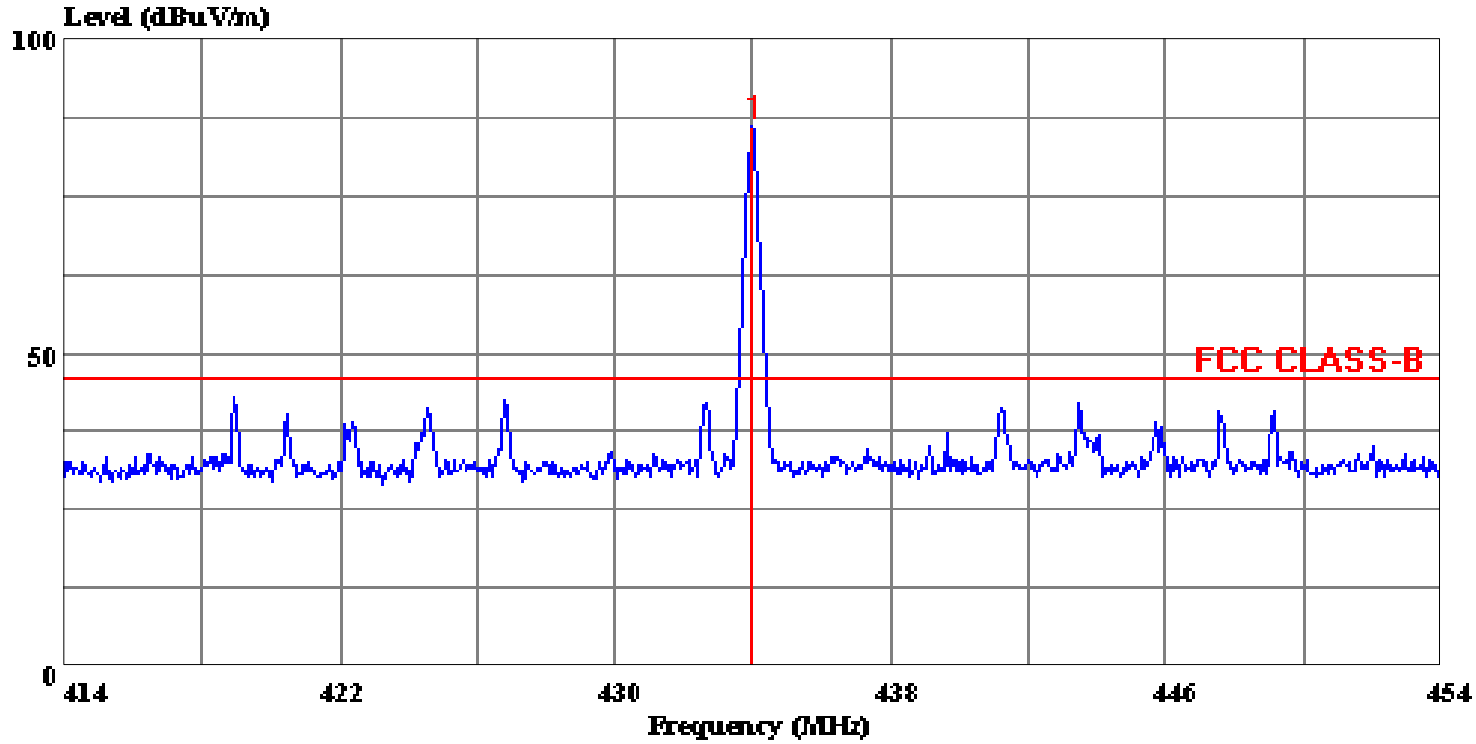

(CCS D-Site)

Trace: 1 Ref Trace:

Condition: VERTICAL
Report No. : 01E9289
Test Engr. : VINCE CHIANG
Company : NUTEK CORPORATION
EUT : 136D1888
Test Config : EUT /S.G./DC POWER
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

		Freq	Read Level
		MHz	dBuV
1	*	434.000	86.90

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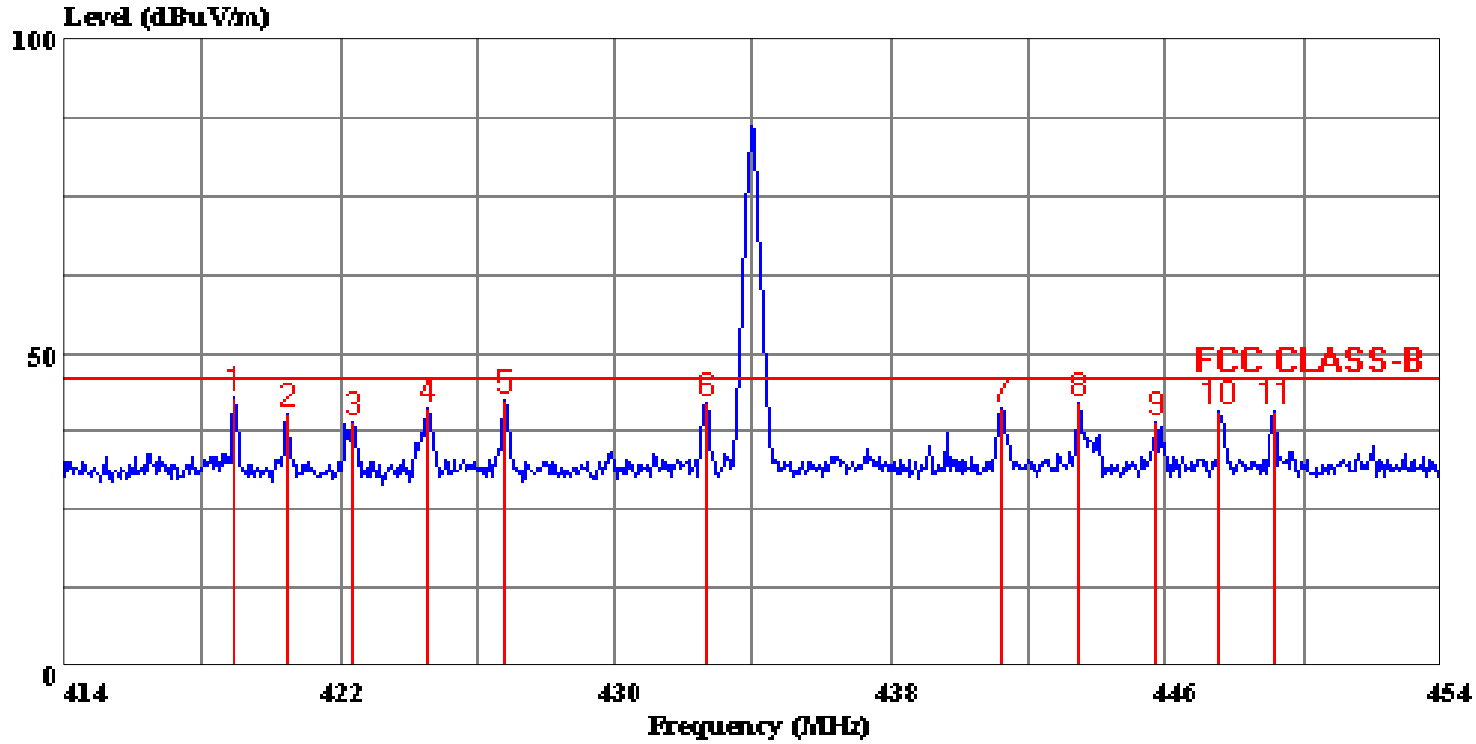

(CCS D-Site)

Trace: 1 Ref Trace:

Condition: VERTICAL
Report No. : 01E9289
Test Engr. : VINCE CHIANG
Company : NUTEK CORPORATION
EUT : 136D1888
Test Config : EUT /S.G./DC POWER
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	418.960	43.53	17.33	3.14	21.31	42.69	46.00	-3.31	Peak
2	420.440	41.09	17.35	3.15	21.31	40.28	46.00	-5.72	Peak
3	422.360	39.74	17.37	3.15	21.31	38.96	46.00	-7.04	Peak
4	424.520	41.90	17.40	3.16	21.32	41.14	46.00	-4.86	Peak
5	426.800	42.99	17.43	3.17	21.31	42.28	46.00	-3.72	Peak
6	432.640	42.61	17.50	3.19	21.28	42.01	46.00	-3.99	Peak
7	441.240	41.72	17.60	3.22	21.24	41.30	46.00	-4.70	Peak
8	443.480	42.31	17.63	3.23	21.23	41.93	46.00	-4.07	Peak
9	445.720	39.49	17.65	3.24	21.22	39.16	46.00	-6.84	Peak
10	447.560	40.99	17.67	3.25	21.22	40.69	46.00	-5.31	Peak
11	449.160	40.88	17.69	3.25	21.21	40.62	46.00	-5.38	Peak

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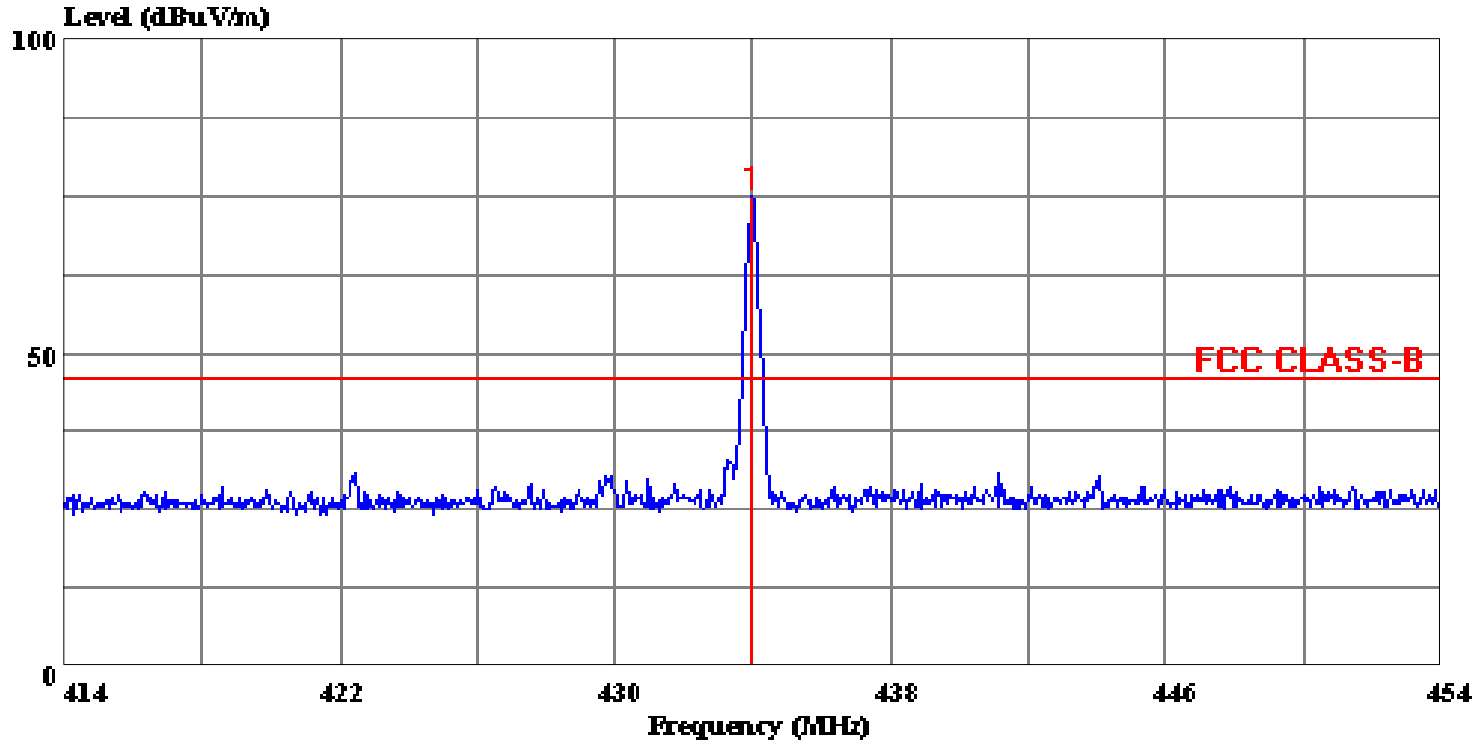

(CCS D-Site)

Trace: 2 Ref Trace:

Condition: HORIZONTAL
Report No. : 01E9289
Test Engr. : VINCE CHIANG
Company : NUTEK CORPORATION
EUT : 136D1888
Test Config : EUT /S.G./DC POWER
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

		Freq	Read Level
		MHz	dBuV
1	*	433.960	75.67

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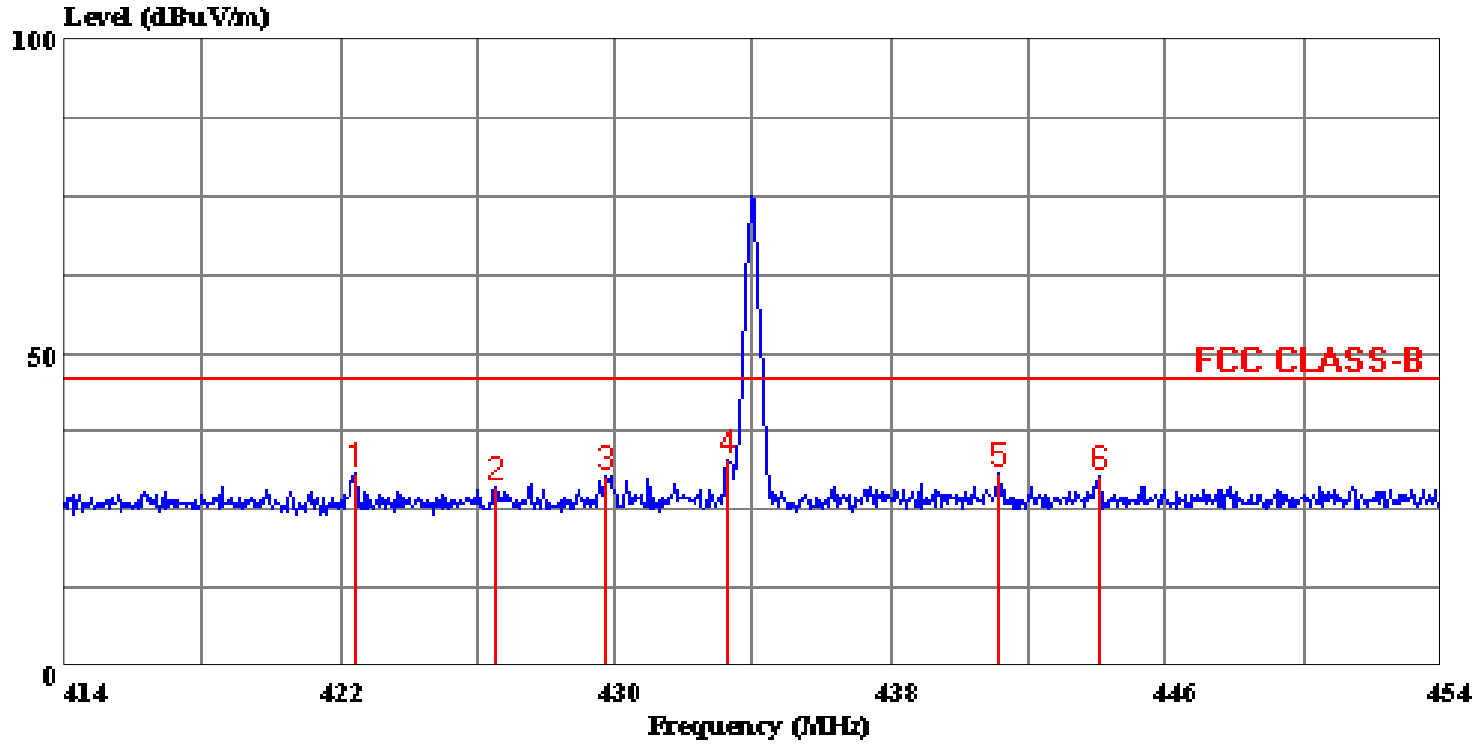

(CCS D-Site)

Trace: 2 Ref Trace:

Condition: HORIZONTAL
Report No. : 01E9289
Test Engr. : VINCE CHIANG
Company : NUTEK CORPORATION
EUT : 136D1888
Test Config : EUT /S.G./DC POWER
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	422.440	31.51	17.38	3.15	21.31	30.73	46.00	-15.27	Peak
2	426.560	29.35	17.42	3.17	21.31	28.63	46.00	-17.37	Peak
3	429.720	30.88	17.46	3.18	21.30	30.22	46.00	-15.78	Peak
4	433.280	33.49	17.50	3.19	21.28	32.91	46.00	-13.09	Peak
5	441.120	31.28	17.60	3.22	21.25	30.86	46.00	-15.14	Peak
6	444.040	30.65	17.63	3.23	21.23	30.28	46.00	-15.72	Peak

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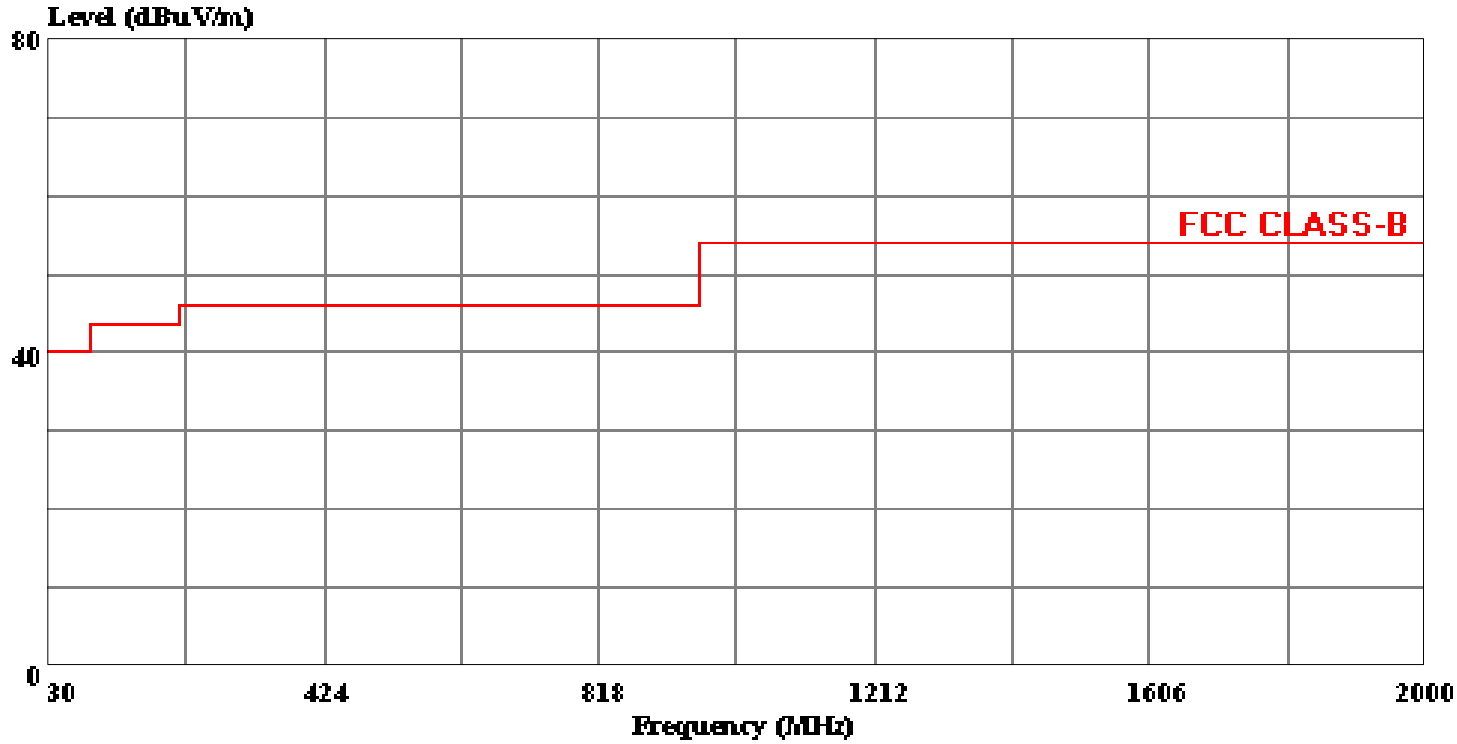

(Compliance D-Site)

Trace: Ref Trace:

Report No. : 01E9289
Test Engr. : VINCE CHIANG
Company : NUTEK CORPORATION
EUT : 136D1888
Test Config : EUT /S.G./DC POWER
Type of Test: FCC CLASS B
Mode of Op. : Except the readings from fundamental
: graph, No other emissions were found
: between 30 - 2000MHz