

FCC ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

of

CAR ALARM TRANSCEIVER

FCC ID Number : ELVATRBB

Trade Name : NUTEK CORPORATION

Model Number : ATRBB

Agency Series : N/A

Report Number : 02E0429-D

Date : October 31, 2002

Prepared for :

NUTEK CORPORATION

**5F, NO. 3, ALLEY 6, LANE 45, PAO-HSING RD.,
HSING-TIEN CITY, TAIPEI, TAIWAN, R. O. C.**

Prepared by :

C&C LABORATORY CO., LTD.

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C&C Laboratory Co., Ltd.**

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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : NUTЕК CORPORATION
5F, NO. 3, ALLEY 6, LANE 45, PAO-HSING RD.,
HSING-TIEN CITY, TAIPEI, TAIWAN, R. O. C.

CONTACT PERSON : RUBY HSIEH / MARKETING DEPT.

TELEPHONE NO. : (886-2) 2918-9478

EUT DESCRIPTION : CAR ALARM TRANSCEIVER

MODEL NAME/NUMBER : ATRBB

FCC ID : ELVATRBB

DATE TESTED : August 22, 2002 ~ September 4, 2002

REPORT NUMBER : 02E0429

TYPE OF EQUIPMENT	SECURITY EQUIPMENT (INTENTIONAL RADIATOR)
EQUIPMENT TYPE	433.92 MHz CAR ALARM TRANSCEIVER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15

The above equipment was tested by C&C Laboratory Co., Ltd. for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. **Warning:** This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by C&C Laboratory Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by C&C Laboratory Co., Ltd. will constitute fraud and shall nullify the document.

Vince Chiang For.

James Chan / Manager
C&C Laboratory Co., Ltd.

2. PRODUCT DESCRIPTION

Fundamental Frequency	433.92 MHz
Power Source	1.5V Battery
Transmitting Time	Periodic $\leq$ 5 seconds
Associated Receiver	Model: ELVATRBA

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.

4. MEASUREMENT STANDARDS

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. TEST METHODOLOGY

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

6. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Cal Due Date
ROHDE & SCHWARZ	DSAI- D 804.8932.52	EMI Test Display	10/2002
ROHDE & SCHWARZ	ESBI-RF/1005.43 00.52	EMI Test RF Unit	10/2002
H.P.	8595EM	Spectrum Analyzer (9KHz – 6.5GHz)	02/2003
EMCO	3115	Antenna (1-18GHz)	02/2003
SCHWARZBECK	VULB 9160	Antenna (30-2000 MHz)	05/2003
H.P.	8447D	Amplifier	05/2003
H.P.	8449B	Amplifier (1-26.5GHz)	10/2002

7. POWERLINE RFI LIMIT

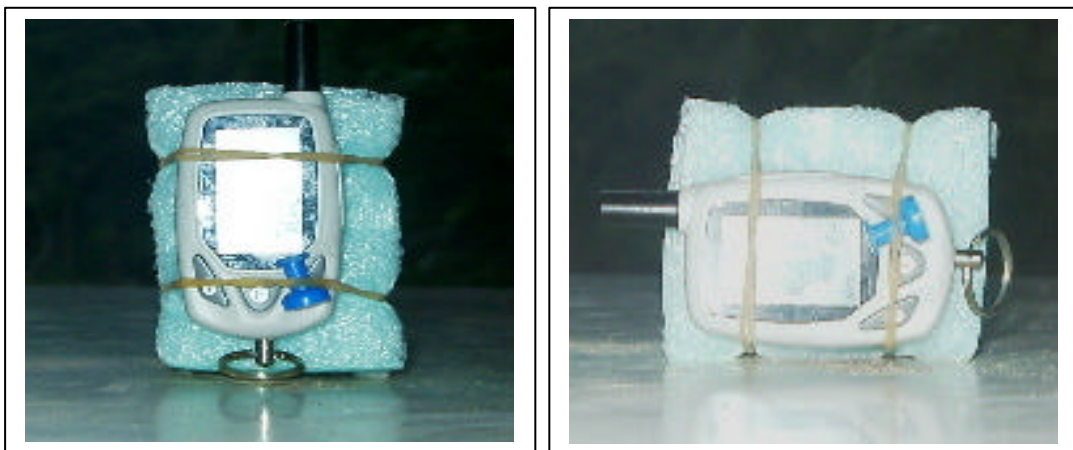
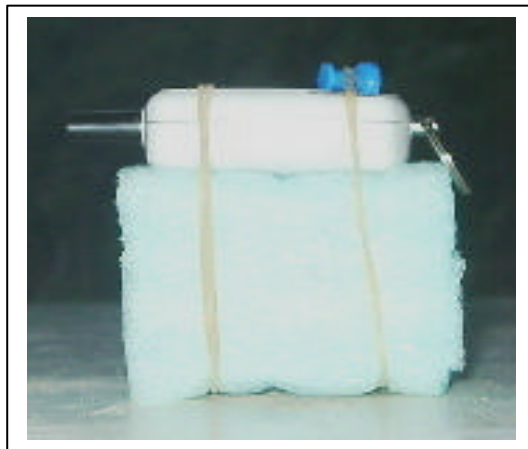
CONNECTED TO AC POWER LINE	SECTION 15.207
CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 kHz TO 30 MHz	SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE.
BATTERY POWER	NO REQUIRED.

8. RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209
RESTRICTED BANDS OF OPERATION	SECTION 15.205
PERIODIC OPERATION IN THE BAND 40.66 -40.70 MHz AND ABOVE 70 MHz.	SECTION 15.231

9. SYSTEM TEST CONFIGURATION

Use a block of foam and combined it with EUT wrapping rubber band around it. This way it can test X.Y, and Z axis. To activate continuous transmission, place a small plastic block between rubber band and EUT push button.



Radiated Open Site Test Set-up (Transmitter Mode)



Radiated Open Site Test Set Up (Receiver Mode)

10. TEST PROCEDURE

Radiated Emissions, 15.231(4)(b)

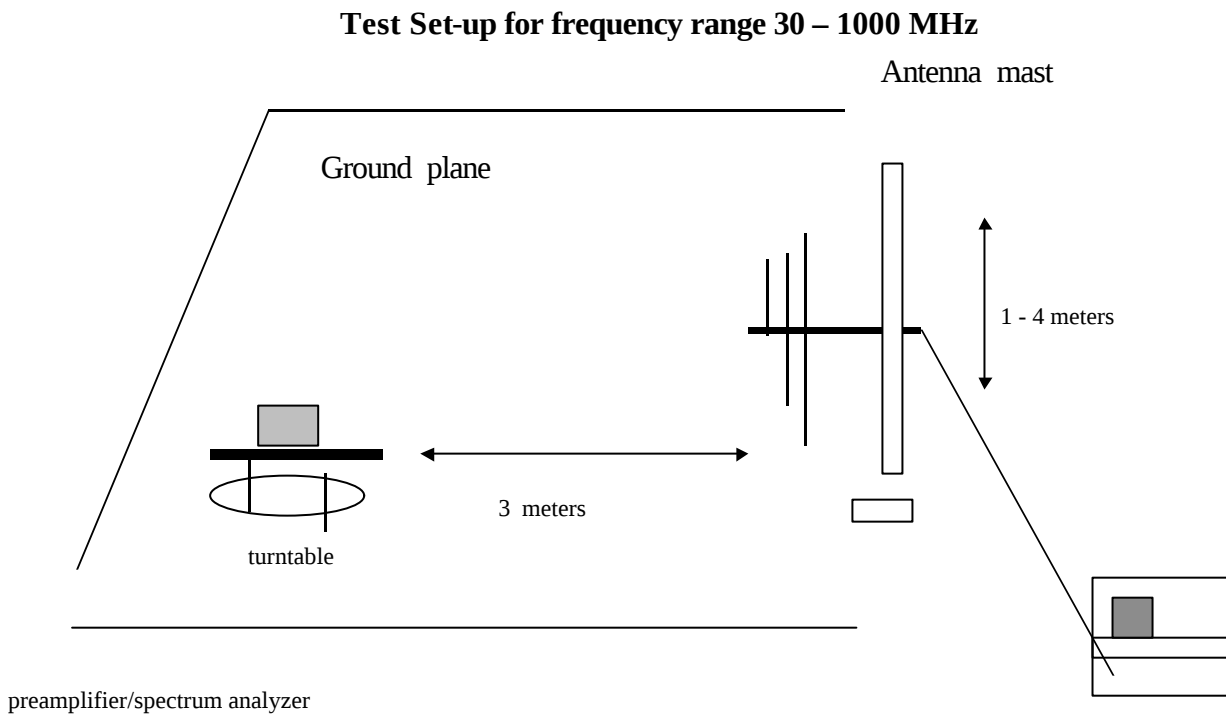


Fig. 1

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3-meters from the EUT.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

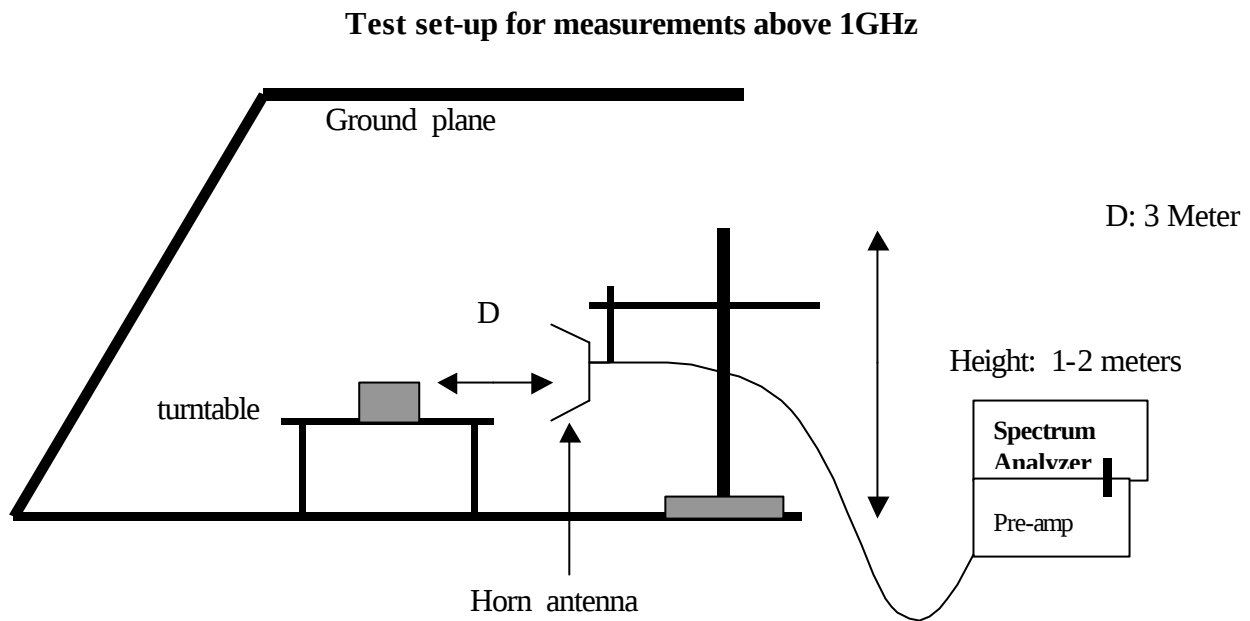


Fig. 2

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 1-meters from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

11. Equipment Modifications

To achieve compliance to FCC Section 15.231 technical limits, the following change(s) were made during compliance testing:

NONE

12. TEST RESULT

Powerline RFI Class B	Eut	Radiated Emission Limits	Eut
SECTION 15.207		SECTION 15.209	X
SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227		SECTION 15.205	
BATTERY POWER	X	SECTION 15.231 (b)	X
		SECTION 15.231 (e)	
		SECTION 15.109	X

12.1 Maximum Modulation Percentage (M%)

CALCULATION:

Average Reading = Peak Reading (dBuV/m)+ 20log (Duty Cycle)

In order to determine possible Maximum Modulation percentage, alternations are made to the EUT.
We measured:

WHERE 1 Period = 106.533 mS
Long pulse = 0.7333 mS
Short pulse = 0.3556 mS
No of Long pulse = 46
No of Short pulse = 32

Duty Cycle = (N1L1+N2L2+...+Nn-1Ln-1+NnLn)/100 or T
Duty Cycle = [(46x0.7333)+(32x0.3556)]/100=0.4511=45.11 % or -6.915dB

12.2 The Emissions Bandwidth

The bandwidth of the emissions were investigated per 15.231(c)

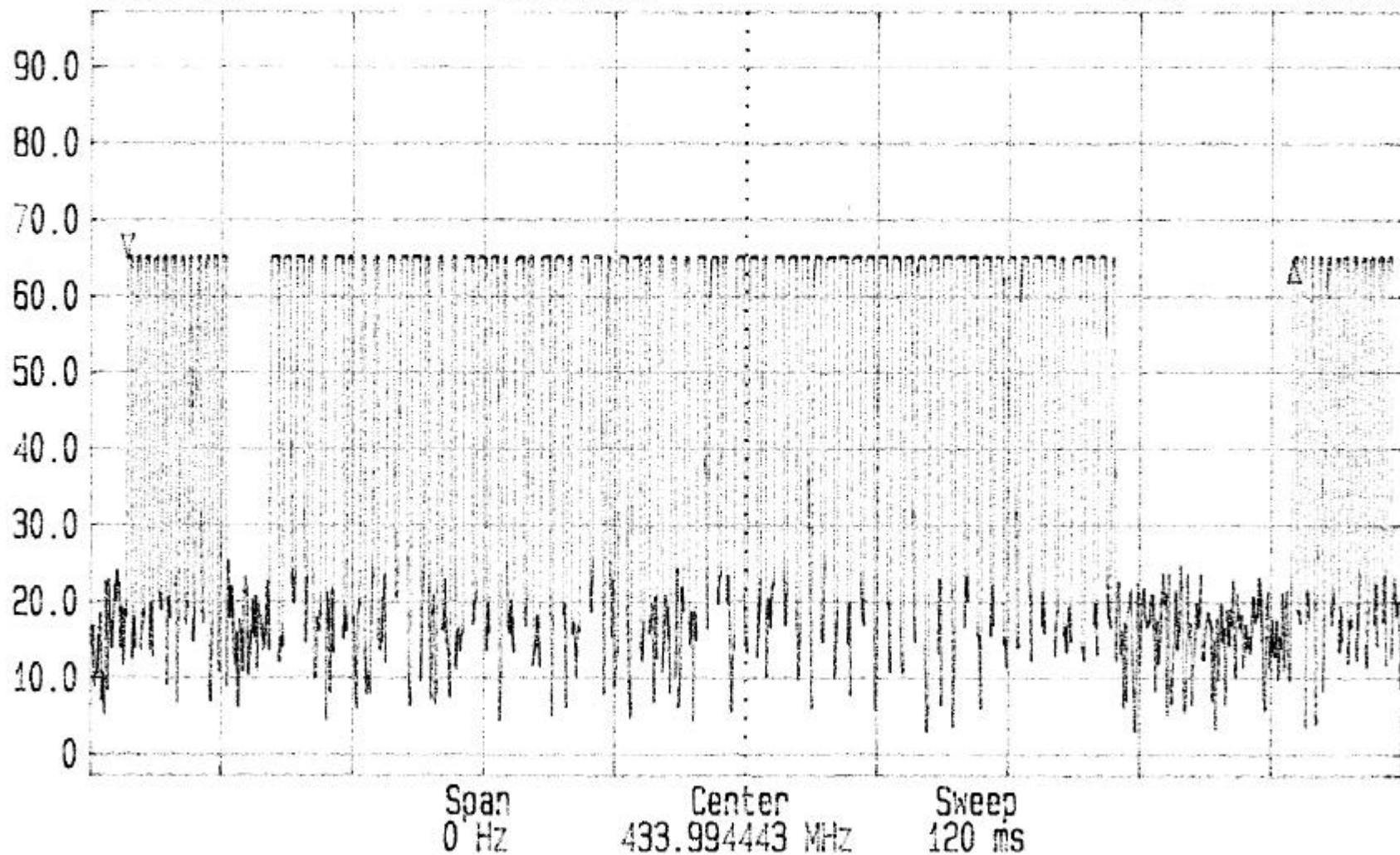
Center Frequency	Measured	Limits
433.92 MHz	404.4 kHz < (refer to plot)	433.92MHzX0.25%=1084.8 kHz



Date 22.Aug.'02 Time 12:59:46
Ref.Lvl 97.00 dB μ V
Delta 0.02 dB
106.533 ms

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 433.000 MHz

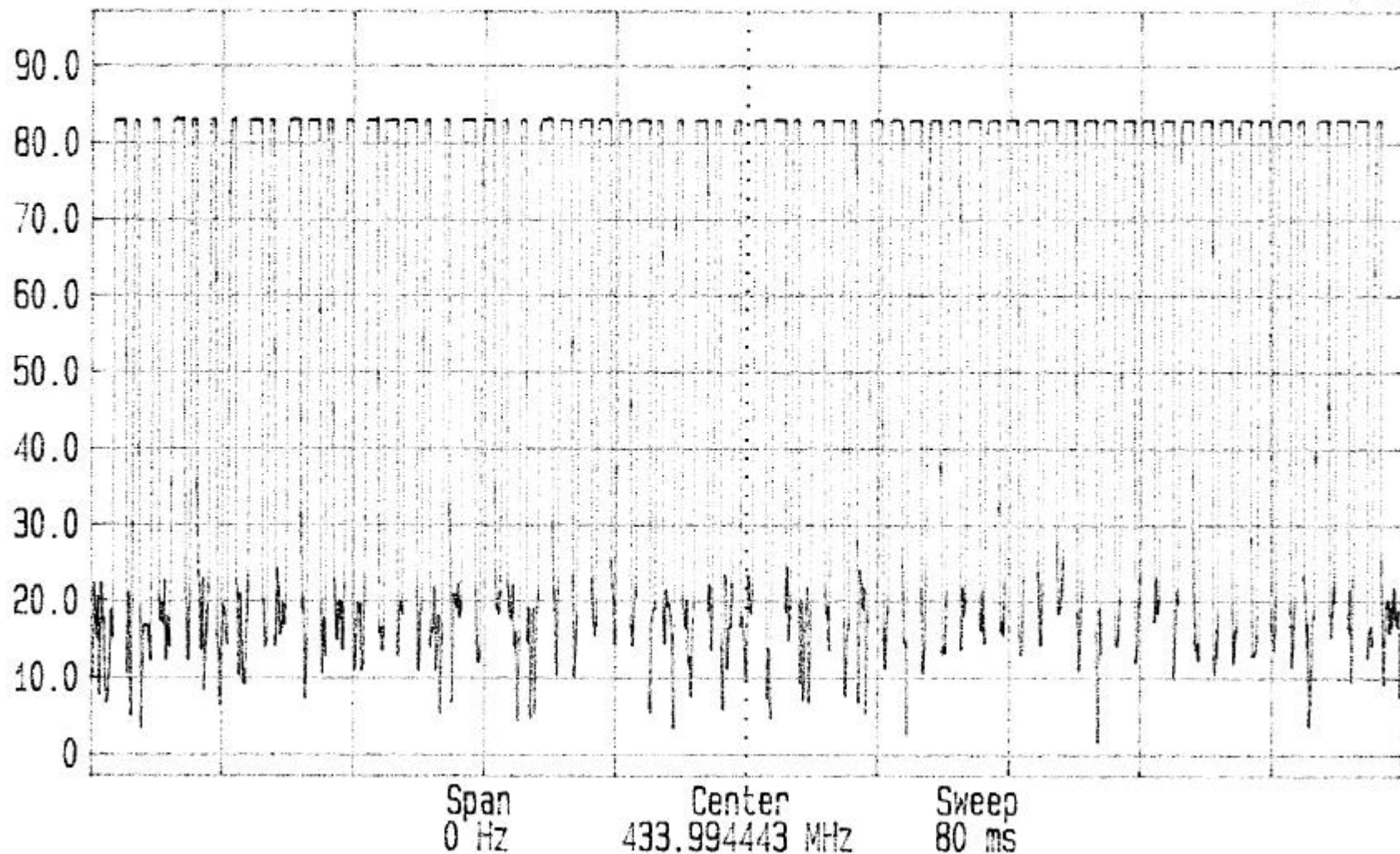
Vid.Bw 300 kHz
RF.Att 0 dB
Unit [dB μ V]





Date 22.Aug.'02 TRG
Time 11:37:07
Ref.Lvl
97.00 dBμV

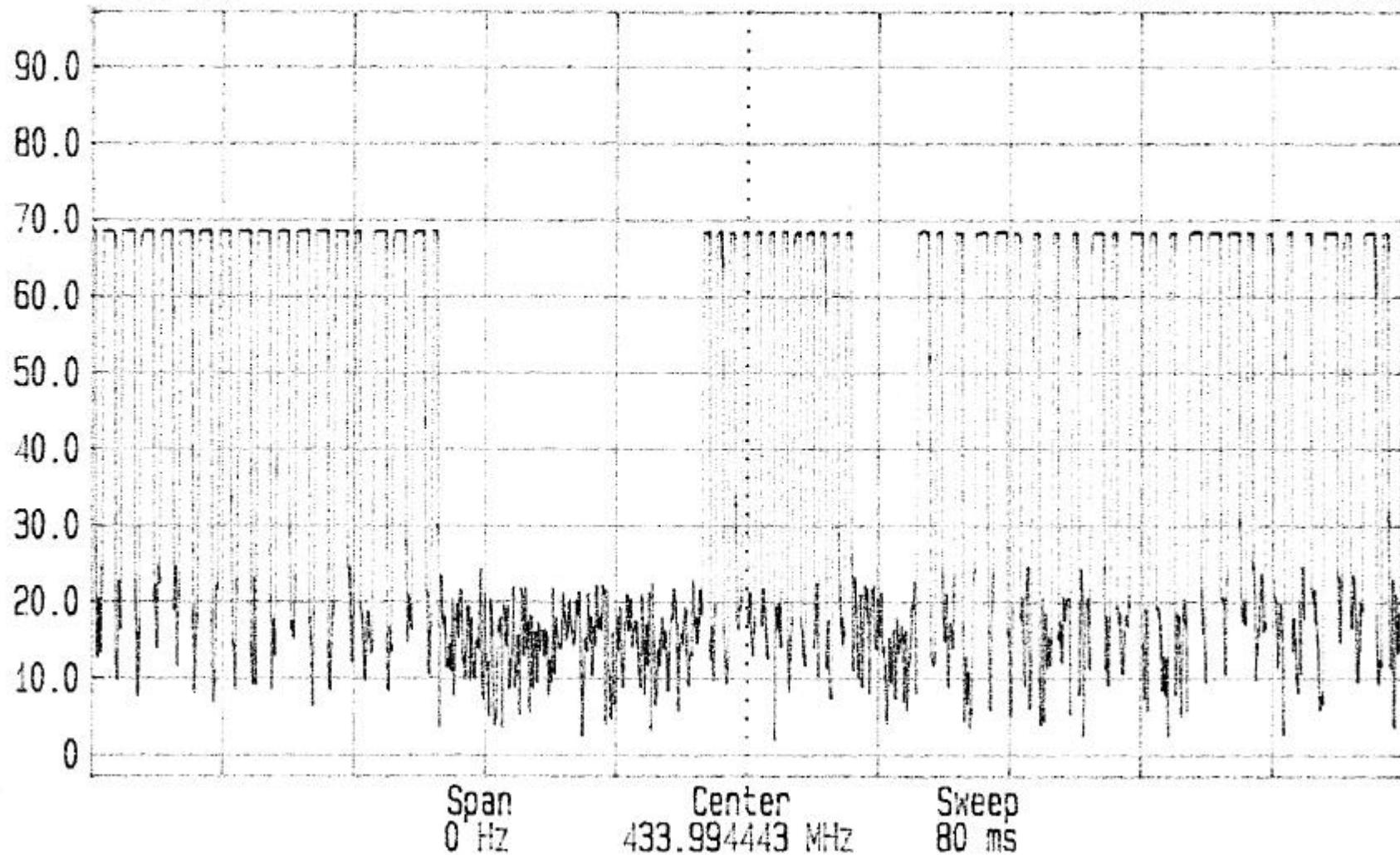
Res.Bw 120 kHz [imp] Vid.Bw 300 kHz
TG.Lvl off
CF.Stp 433.000 MHz RF.Att 0 dB
Unit [dBμV]





TRG
Date 22.Aug.'02 Time 11:44:30
Ref.Lvl
97.00 dB μ V

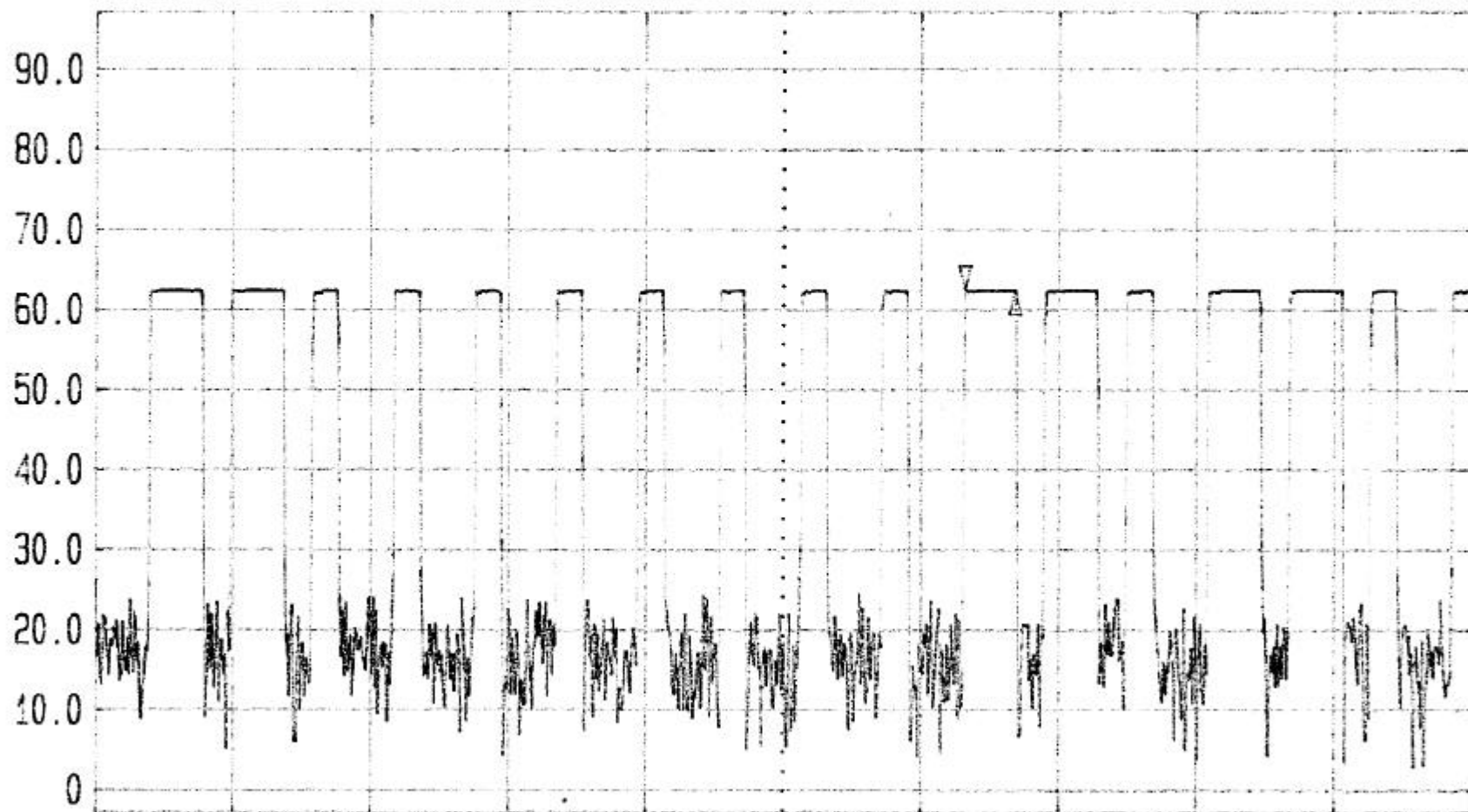
Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 433.000 MHz
Vid.Bw 300 kHz
RF.Att 0 dB
Unit [dB μ V]





Date 22.Aug.'02 Time 11:50:43
Ref.Lvl 97.00 dB μ V
TRG Delta -0.05 dB
733.333 μ s

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 433.000 MHz
Vid.Bw 300 kHz
RF.Att 0 dB
Unit [dB μ V]



Span
0 Hz

Center
433.994443 MHz

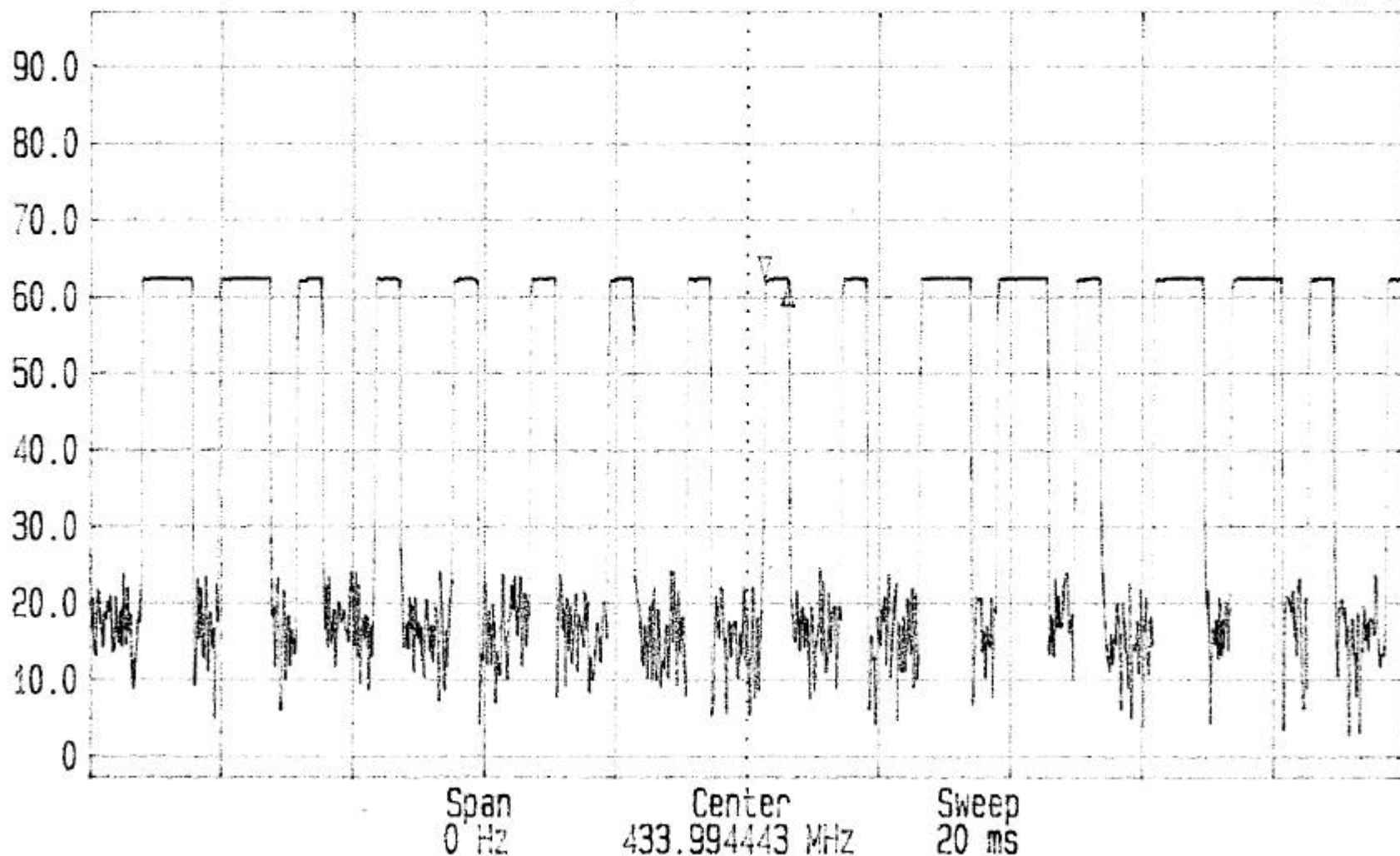
Sweep
20 ms



Date 22.Aug.'02 Time 11:54:40
Ref.Lvl 97.00 dB μ V
Delta -0.20 dB
355.556 μ s

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 433.000 MHz

Vid.Bw 300 kHz
RF.Att 0 dB
Unit [dB μ V]



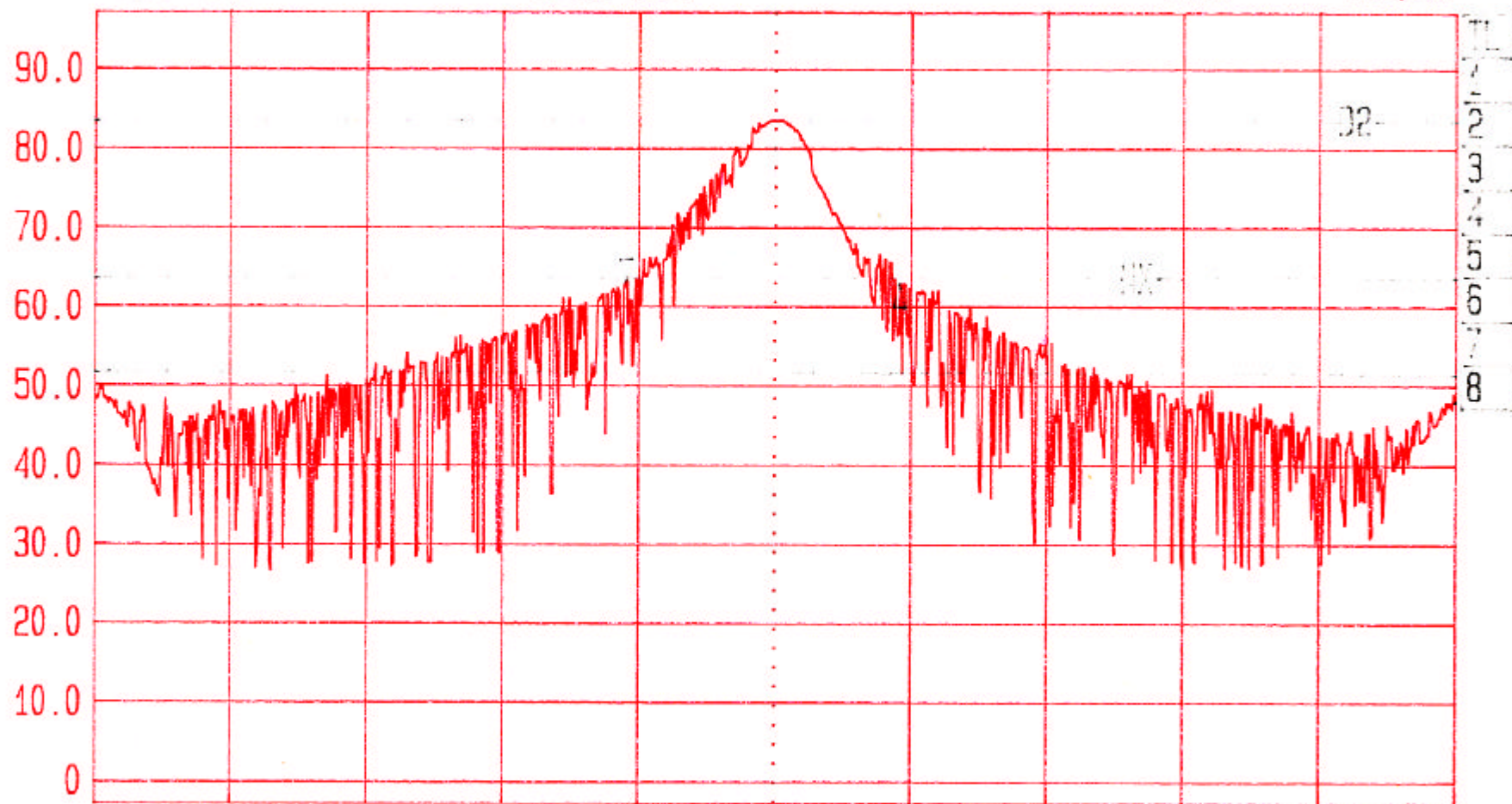


Date 22.Aug.'02 Time 11:10:44

Ref.Lvl 97.00 dBμV
Delta 0.03 dB
404.4 kHz

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 433.000 MHz

Vid.Bw 300 kHz
RF.Att 0 dB
Unit [dBμV]



Start
432.996666 MHz

Span
2 MHz

Center
433.996666 MHz

Sweep
20 ms

Stop
434.996666 MHz

N dB down Level 20.0 dB
DELTA MARK 404.4 kHz

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FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0429
Report #: 0429D1
Date& Time: 2002/08/29
Test Engr: DAVID HUNG

Company: NUTEK CORPORATION
EUT Description: ATRBB (433.92 MHz / TRANSCEIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE

☒ D-Site

M% = ((t1+t2+t3+...)/T) * 100% = **45.11 %**

Av Reading = Pk Reading + 20*log(M%)

20*log(M%) = **-6.915**

	Freq.	Pk Rdg	Av Rdg	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height
	(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)
	Button #1:											
X	433.99	79.01	72.10	18.14	3.19	26.83	66.60	80.83	-14.23	3mV	270	1.00
	868.02	44.93	38.02	24.10	5.05	26.26	40.91	60.83	-19.92	3mV	270	1.20
Y	434.00	78.78	71.87	18.14	3.19	26.83	66.37	80.83	-14.46	3mV	0	1.00
	868.02	49.34	42.43	24.10	5.05	26.26	45.32	60.83	-15.51	3mV	0	1.30
Z	434.01	85.10	78.19	18.14	3.19	26.83	72.69	80.83	-8.14	3mV	90	1.00
	868.01	44.32	37.41	24.10	5.05	26.26	40.30	60.83	-20.53	3mV	90	1.40
X	434.02	85.07	78.16	18.14	3.19	26.83	72.66	80.83	-8.17	3mH	90	1.00
	868.03	47.19	40.28	24.10	5.05	26.26	43.17	60.83	-17.66	3mH	90	1.50
Y	434.00	84.51	77.60	18.14	3.19	26.83	72.10	80.83	-8.73	3mH	180	1.00
	868.03	47.59	40.68	24.10	5.05	26.26	43.57	60.83	-17.26	3mH	180	1.40
Z	434.00	77.76	70.85	18.14	3.19	26.83	65.35	80.83	-15.48	3mH	270	1.10
	868.02	43.64	36.73	24.10	5.05	26.26	39.62	60.83	-21.21	3mH	270	1.30

Peak: RBW= 120KHz

VBW= 300KHz

A(Average): PkReading - 6.915dB

Total Data #12

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FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0429
Report #: 0428D2
Date& Time: 2002/08/29
Test Engr: DAVID HUNG

Company: NUTEK CORPORATION
EUT Description: ATRBB (433.92 MHz / TRANSCEIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE

☒ D-Site

☐ E-Site

M% = ((t1+t2+t3+...)/T) * 100% = **45.11 %**

Av Reading = Pk Reading + 20*log(M%)

20*log(M%) = **-6.91**

	Freq.	Pk Rdg	Av Rdg	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height
	(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)
	Button #2:											
X	434.00	74.21	67.30	18.14	3.19	26.83	61.80	80.83	-19.03	3mV	270	1.00
	868.02	49.60	42.69	24.10	5.05	26.26	45.58	60.83	-15.25	3mV	270	1.30
Y	434.01	86.01	79.10	18.14	3.19	26.83	73.60	80.83	-7.23	3mV	0	1.00
	868.02	44.85	37.94	24.10	5.05	26.26	40.83	60.83	-20.00	3mV	0	1.30
Z	434.01	79.23	72.32	18.14	3.19	26.83	66.82	80.83	-14.01	3mV	90	1.00
	868.02	48.94	42.03	24.10	5.05	26.26	44.92	60.83	-15.91	3mV	90	1.40
X	434.00	81.26	74.35	18.14	3.19	26.83	68.85	80.83	-11.98	3mH	90	1.00
	868.02	42.62	35.71	24.10	5.05	26.26	38.60	60.83	-22.23	3mH	90	1.20
Y	434.00	79.00	72.09	18.14	3.19	26.83	66.59	80.83	-14.24	3mH	180	1.10
	868.02	44.65	37.74	24.10	5.05	26.26	40.63	60.83	-20.20	3mH	180	1.10
Z	434.00	84.82	77.91	18.14	3.19	26.83	72.41	80.83	-8.42	3mH	270	1.10
	868.00	46.30	39.39	24.10	5.05	26.26	42.28	60.83	-18.55	3mH	270	1.30

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): PkReading - 6.915dB

Total Data #12

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FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

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Report #: 0429D3
Date& Time: 2002/08/29
Test Engr: DAVID HUNG

Company: NUTEK CORPORATION
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Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE

☒ D-Site

☐ E-Site

M% = ((t1+t2+t3+...)/T) * 100% = **45.11 %**

Av Reading = Pk Reading + 20*log(M%)

20*log(M%) = **-6.915**

	Freq.	Pk Rdg	Av Rdg	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height
	(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)
X	Button #3:											
	434.01	73.95	67.04	18.14	3.19	26.83	61.54	80.83	-19.29	3mV	270	1.00
Y	868.02	50.28	43.37	24.10	5.05	26.26	46.26	60.83	-14.57	3mV	270	1.30
	434.01	77.96	71.05	18.14	3.19	26.83	65.55	80.83	-15.28	3mV	0	1.00
Z	868.03	49.01	42.10	24.10	5.05	26.26	44.99	60.83	-15.84	3mV	0	1.30
	434.00	85.76	78.85	18.14	3.19	26.83	73.35	80.83	-7.48	3mV	90	1.00
	868.01	40.96	34.05	24.10	5.05	26.26	36.94	60.83	-23.89	3mV	90	1.40
X	434.01	87.21	80.30	18.14	3.19	26.83	74.80	80.83	-6.03	3mH	90	1.00
	868.02	42.96	36.05	24.10	5.05	26.26	38.94	60.83	-21.89	3mH	90	1.20
Y	434.01	82.94	76.03	18.14	3.19	26.83	70.53	80.83	-10.30	3mH	180	1.10
	868.02	41.78	34.87	24.10	5.05	26.26	37.76	60.83	-23.07	3mH	180	1.10
Z	434.01	78.40	71.49	18.14	3.19	26.83	65.99	80.83	-14.84	3mH	270	1.10
	868.02	44.80	37.89	24.10	5.05	26.26	40.78	60.83	-20.05	3mH	270	1.30

Peak: RBW= 120KHz

VBW= 300KHz

A(Average): PkReading - 6.915dB

Total Data #12

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FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

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Project #: 02E0429
Report #: 0429D4
Date & Time: 2002/08/29
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Company: NUTEK CORPORATION
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Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE

☒ D-Site

☐ E-Site

M% = ((t1+t2+t3+...)/T) * 100% = **45.11 %**

Av Reading = Pk Reading + 20*log(M%)

20*log(M%) = **-6.9145**

	Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)
	Button #4:											
X	434.01	73.70	66.79	18.14	3.19	26.83	61.29	80.83	-19.54	3mV	270	1.00
	868.02	49.85	42.94	24.10	5.05	26.26	45.83	60.83	-15.00	3mV	270	1.30
Y	434.00	75.84	68.93	18.14	3.19	26.83	63.43	80.83	-17.40	3mV	0	1.00
	868.01	46.02	39.11	24.10	5.05	26.26	42.00	60.83	-18.83	3mV	0	1.30
Z	434.00	83.85	76.94	18.14	3.19	26.83	71.44	80.83	-9.39	3mV	90	1.00
	868.02	40.71	33.80	24.10	5.05	26.26	36.69	60.83	-24.14	3mV	90	1.40
X	434.01	82.74	75.83	18.14	3.19	26.83	70.33	80.83	-10.50	3mH	90	1.00
	868.01	44.70	37.79	24.10	5.05	26.26	40.68	60.83	-20.15	3mH	90	1.20
Y	433.99	82.08	75.17	18.14	3.19	26.83	69.67	80.83	-11.16	3mH	180	1.10
	868.02	40.05	33.14	24.10	5.05	26.26	36.03	60.83	-24.80	3mH	180	1.10
Z	434.00	83.85	76.94	18.14	3.19	26.83	71.44	80.83	-9.39	3mH	270	1.10
	868.02	40.71	33.80	24.10	5.05	26.26	36.69	60.83	-24.14	3mH	270	1.30

There are total 5 buttons, only one has function, the other 4 buttons which if pressed will produce the digital control signals and modulate the carrier signal.

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): PkReading - 6.915dB

Total Data #12

C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

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Project #: 02E0429
Report #: 0429D5
Date& Time: 2002/08/29
Test Engr: DAVID HUNG

Company: NUTEK CORPORATION
EUT Description: ATRBB (433.92 MHz / TRANSCEIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)/FCC 15.209
Mode of Operation: TRANSMITTER MODE

☒ D-Site

☐ E-Site

6 Worst Data

Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
1302	53.11	46.195	24.87	3.59	37.07	37.59	54.0	-16.42	1mV	0	1.0	A
1736	57.16	50.245	26.38	4.45	36.46	44.62	60.8	-16.21	1mV	0	1.0	A
2170	60.58	53.665	27.74	4.50	36.07	49.84	60.8	-10.99	1mV	60	1.0	A
2604	60.58	53.665	28.81	5.65	36.02	52.11	60.8	-8.72	1mV	60	1.0	A
3038	62.42	55.505	30.38	5.81	36.06	55.64	60.8	-5.19	1mV	90	1.0	A
3472	57.32	50.405	31.25	6.13	35.64	52.15	60.8	-8.68	1mV	150	1.0	A
3906	50.37	43.455	32.30	6.68	35.21	47.23	54.0	-6.78	1mV	240	1.0	A
4340	49.56	42.645	32.36	7.15	35.17	46.99	54.0	-7.02	1mV	150	1.0	A
1302	54.96	48.045	24.87	3.59	37.07	39.44	54.0	-14.57	1mH	0	1.0	A
1736	62.03	55.115	26.38	4.45	36.46	49.49	60.8	-11.34	1mH	0	1.0	A
2170	58.86	51.945	27.74	4.50	36.07	48.12	60.8	-12.71	1mH	60	1.0	A
2604	62.93	56.015	28.81	5.65	36.02	54.46	60.8	-6.36	1mH	60	1.0	A
3038	57.70	50.785	30.38	5.81	36.06	50.92	60.8	-9.90	1mH	90	1.0	A
3472	55.68	48.765	31.25	6.13	35.64	50.51	60.8	-10.32	1mH	150	1.0	A
3906	51.70	44.785	32.30	6.68	35.21	48.56	54.0	-5.44	1mH	240	1.0	A
4340	50.70	43.785	32.36	7.15	35.17	48.13	54.0	-5.87	1mH	150	1.0	A

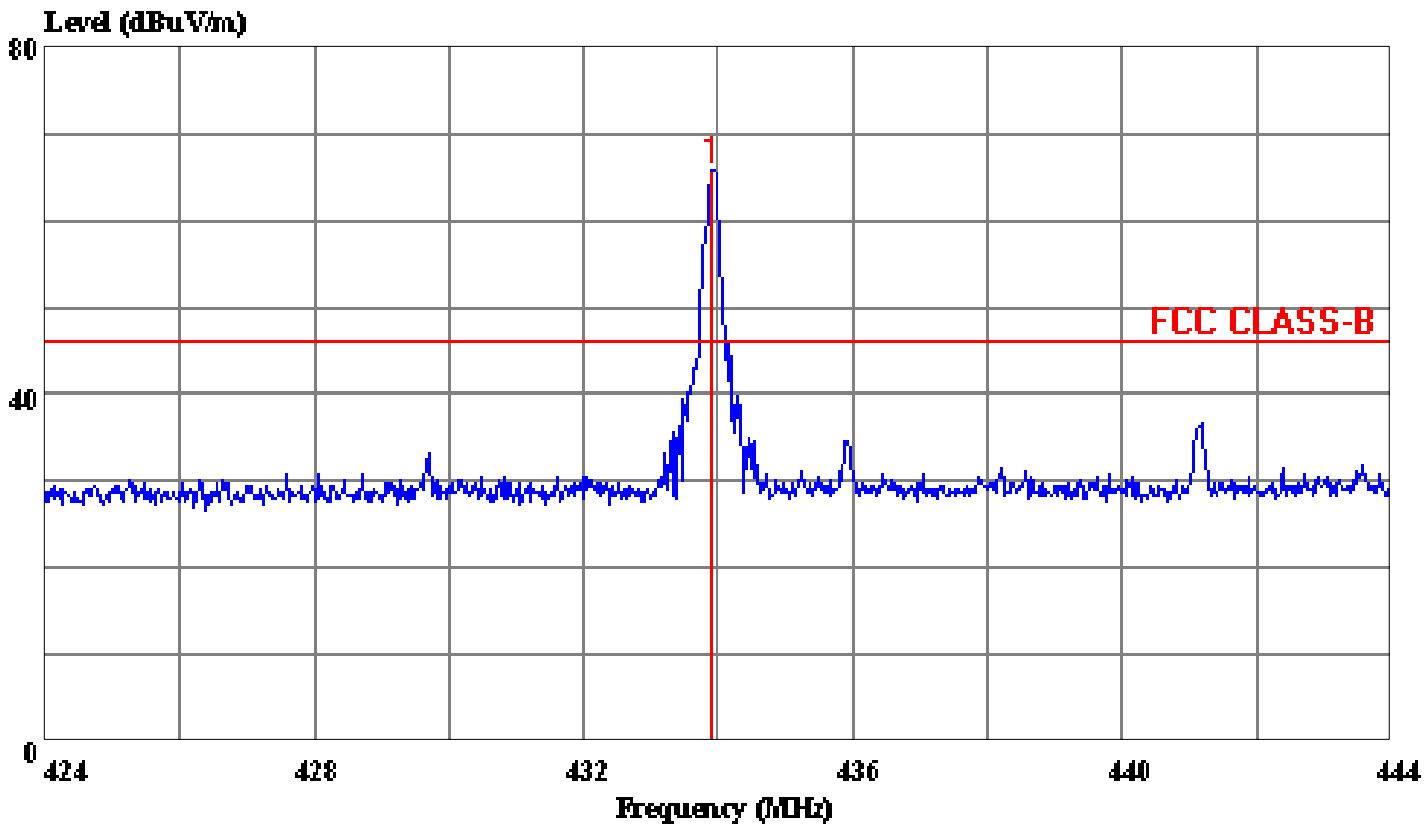
* No other emission were found within 20dB under the limits upto 4.5 GHz.

Total data #16
V.2d

P(Peak): RBW=VBW=1MHz
A(Average): Pk Reading -6.915 dB(For FCC 15.231(b))

Data#: 201 File#: 0246d.EMI

Date: 2002-09-04 Time: 11:24:20



(D- Site)

Trace: 195

Ref Trace:

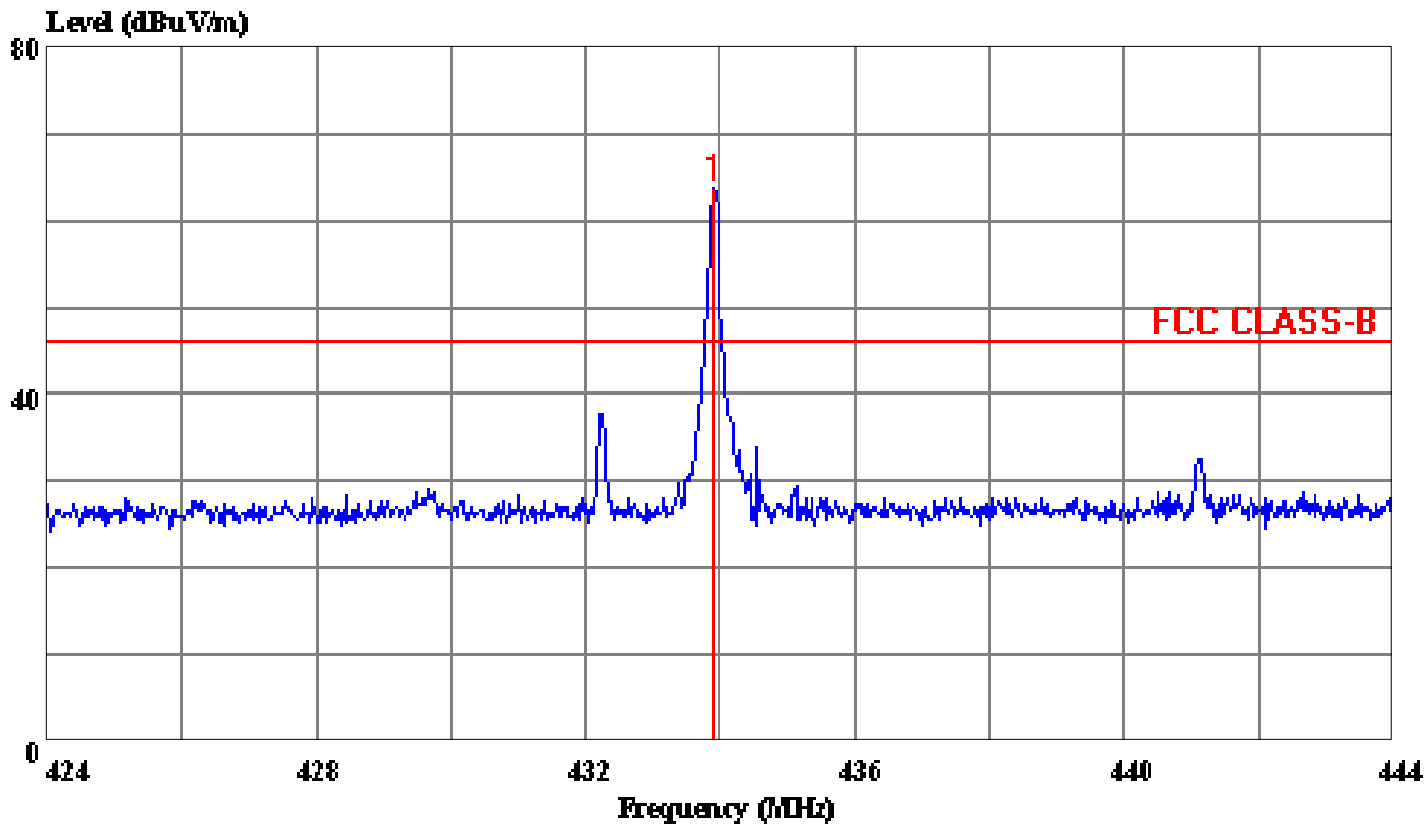
Condition: VERTICAL
Report No. : 02E0429
Test Engr. : DAVID HUNG
Company : NUTЕК CORPORATION
EUT : ATRBB
Test Config : EUT / TX
Type of Test: FCC 15.109
Mode of Op. : RECEIVER MODE (Model No. ATRBA transmit signal and trigger EUT to product signal)

Page: 1

	Freq	Read Level
	MHz	dBuV
1 *	433.900	65.88

Data#: 202 File#: 0246d.EMI

Date: 2002-09-04 Time: 11:29:16



(D- Site)

Trace: 196

Ref Trace:

Condition: HORIZONTAL

Report No. : 02E0429

Test Engr. : DAVID HUNG

Company : NUTEK CORPORATION

EUT : ATRBB

Test Config : EUT / TX

Type of Test: FCC 15.109

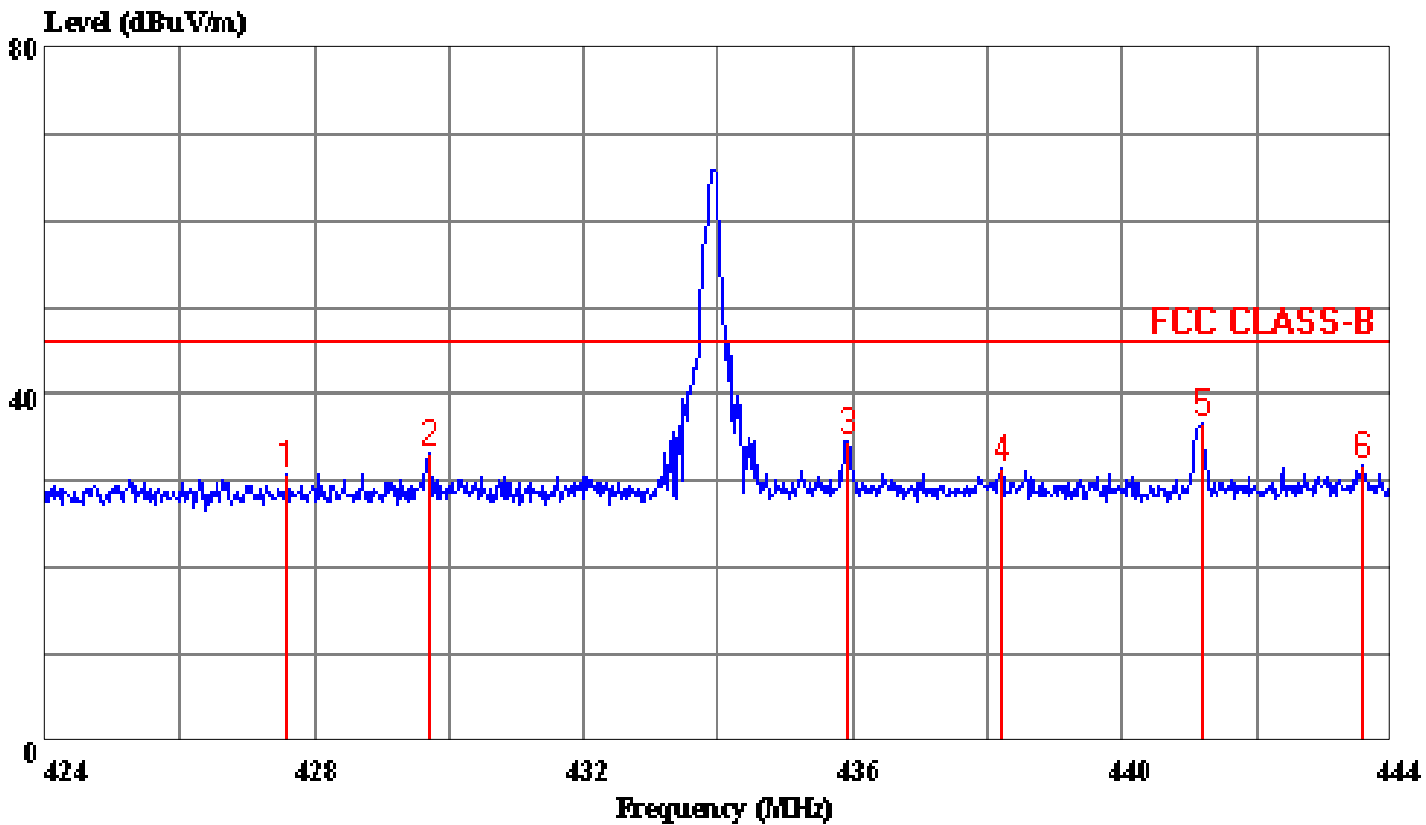
Mode of Op. : RECEIVER MODE (Model No. ATRBA transmit signal and trigger EUT to product signal)

Page: 1

	Freq	Read
	MHz	dBuV
1 *	433.900	63.88

Data#: 199 File#: 0246d.EMI

Date: 2002-09-04 Time: 11:34:28



(D- Site)

Trace: 195

Ref Trace:

Condition: VERTICAL

Report No. : 02E0429

Test Engr. : DAVID HUNG

Company : NUTEK CORPORATION

EUT : ATRBB

Test Config : EUT / TX

Type of Test: FCC 15.109

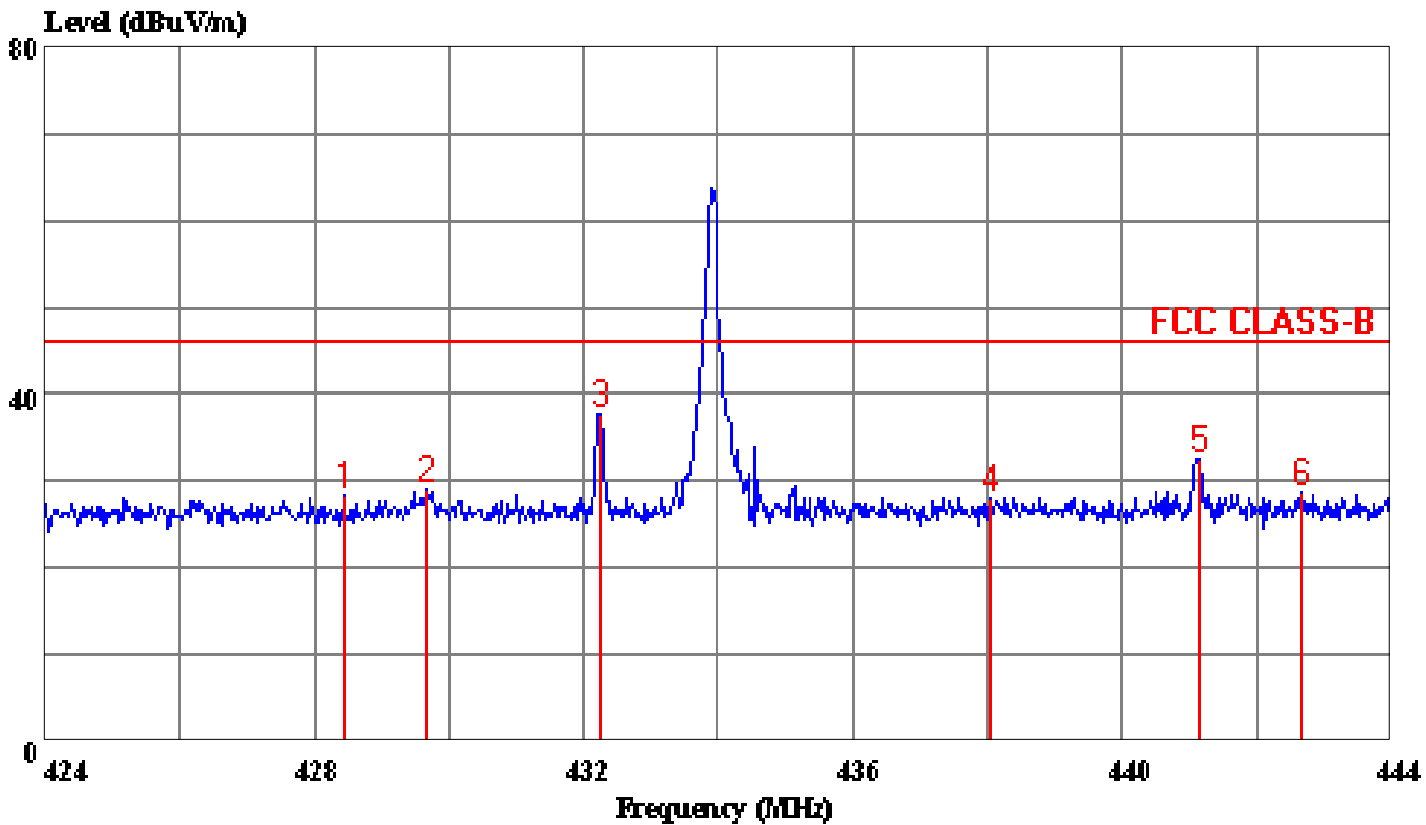
Mode of Op. : RECEIVER MODE (Model No. ATRBA transmit signal and trigger EUT to product signal)

Page: 1

	Freq	Read Level	Probe Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	427.600	36.62	18.01	3.17	26.81	30.98	46.00	-15.02	Peak
2	429.720	38.75	18.06	3.18	26.82	33.17	46.00	-12.83	Peak
3	435.940	40.07	18.21	3.20	26.84	34.65	46.00	-11.35	Peak
4	438.220	36.87	18.27	3.21	26.84	31.51	46.00	-14.49	Peak
5	441.180	42.08	18.34	3.22	26.85	36.79	46.00	-9.21	Peak
6	443.580	37.02	18.40	3.23	26.86	31.80	46.00	-14.20	Peak

Data#: 205 File#: 0246d.EMI

Date: 2002-09-04 Time: 11:39:02



(D- Site)

Trace: 196

Ref Trace:

Condition: HORIZONTAL

Report No. : 02E0429

Test Engr. : DAVID HUNG

Company : NUTEK CORPORATION

EUT : ATRBB

Test Config : EUT / TX

Type of Test: FCC 15.109

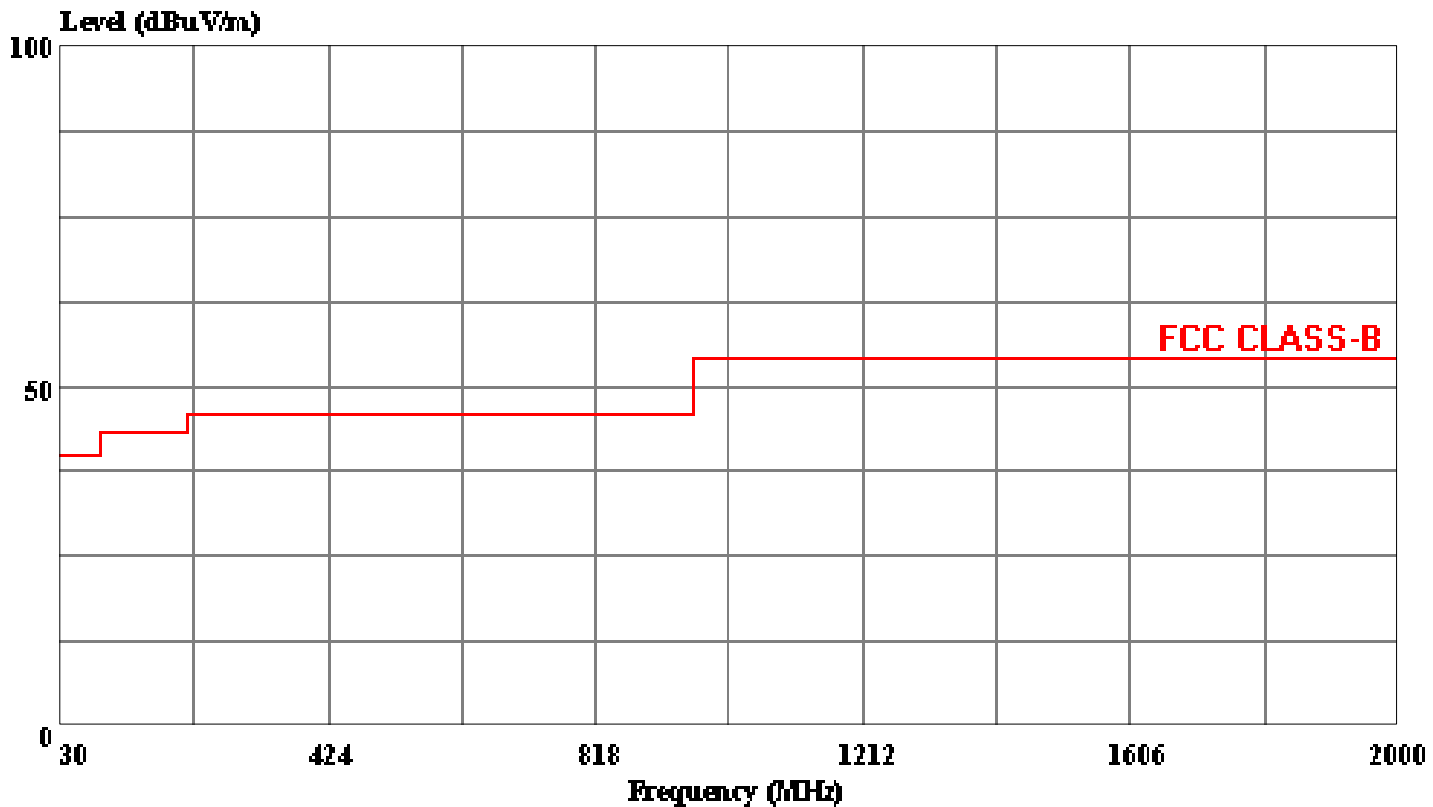
Mode of Op. : RECEIVER MODE (Model No. ATRBA transmit signal and trigger EUT to product signal)

Page: 1

	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	428.440	33.88	18.03	3.17	26.81	28.26	46.00	-17.74	Peak
2	429.640	34.81	18.06	3.18	26.82	29.23	46.00	-16.77	Peak
3	432.240	43.30	18.12	3.19	26.82	37.78	46.00	-8.22	Peak
4	438.060	33.47	18.27	3.21	26.84	28.10	46.00	-17.90	Peak
5	441.140	37.94	18.34	3.22	26.85	32.65	46.00	-13.35	Peak
6	442.660	33.98	18.38	3.23	26.86	28.73	46.00	-17.27	Peak

Data#: 206 File#: 0246d.EMI

Date: 2002-09-04 Time: 11:44:26



(D-Site)

Trace:

Ref Trace:

Condition:

Report No. : 02E0429

Test Engr. : DAVID HUNG

Company : NUTEK CORPORATION

EUT : ATRBB

Test Config : EUT / TX

Type of Test: FCC 15.109

Mode of Op. : RECEIVER MODE

: NO OTHER EMISSION WERE FOUND WITHIN / 20 dB BELOW THE LIMITS FROM 30-2000MHZ