ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

UNINTENTIONAL RADIATOR

AUTO ALARM SYSTEM RECEIVER

MODEL: AC300-R

FCC ID: PEW-AC300-R

REPORT NO: 00E9157

DATE: DECEMBER 28, 2000

Prepared for
MOLTEN CORP.
5 - 8, 1 CHOME, NAKAHIRO-CHO, NISHI-KU,
HIROSHIMA, JAPAN

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.
No. 199, CHUNG SHENG ROAD
HSIN TIEN CITY, TAIPEI, TAIWAN R.O.C.
TEL: (02) 2217-0894
FAX: (02) 2217-1254

NVLAP®

LAB CODE: SL2-IN-E-0005

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

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TEST DATA

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- Radiated Emission Data

1. VERIFICATION OF COMPLIANCE

COMPANY NAME	:	MOLTEN CORP. 5 - 8, 1 CHOME, NAKAHIRO-CHO, NISHI-KU, HIROSHIMA, JAPAN
CONTACT PERSON	:	MR. Y. NAGAO / G. MANAGER
TELEPHONE NO.	:	81-82-232-5627
EUT DESCRIPTION	:	AUTO ALARM SYSTEM RECEIVER
MODEL NAME/NUMBER	:	AC300-R
FCC ID	:	PEW-AC300-R
DATE TESTED	:	DECEMBER 28, 2000
REPORT NUMBER	:	00E9157

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

MOLTEN CORP., Model AC300-R is the receiving portion of a multi-purpose security device. The associated Transmitter is manufactured by MOLTEN CORP. Model No: AC300-T, FCC ID: PEW-AC300-T .

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)	01/2001
H.P.	8595EM	Spectrum Analyzer (9 KHz – 6.5 GHz)	01/2001
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)	12/2000

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.

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)

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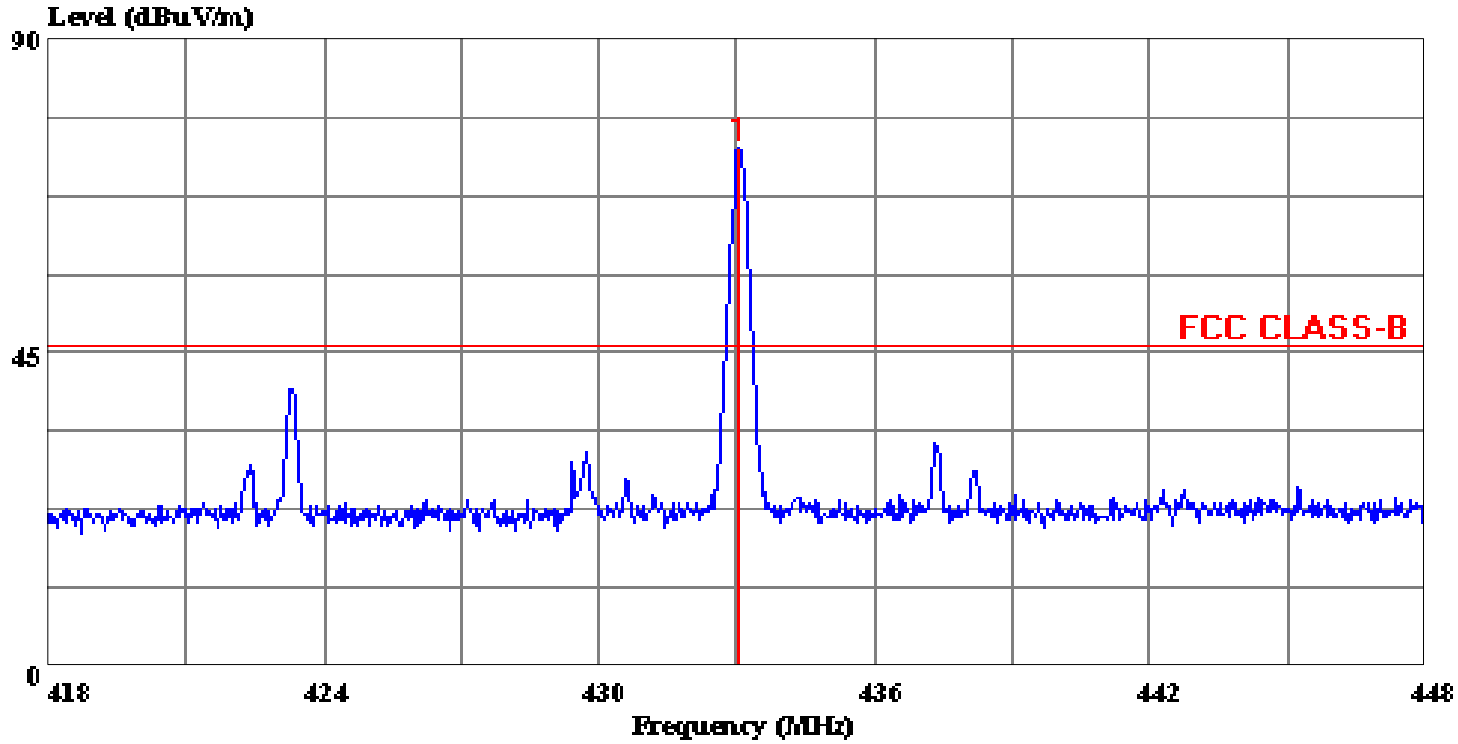

(CCS D-Site)

Trace: 1 Ref Trace:

Condition: VERTICAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

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		Freq	Level
		MHz	dBuV/m
1	*	433.060	74.51

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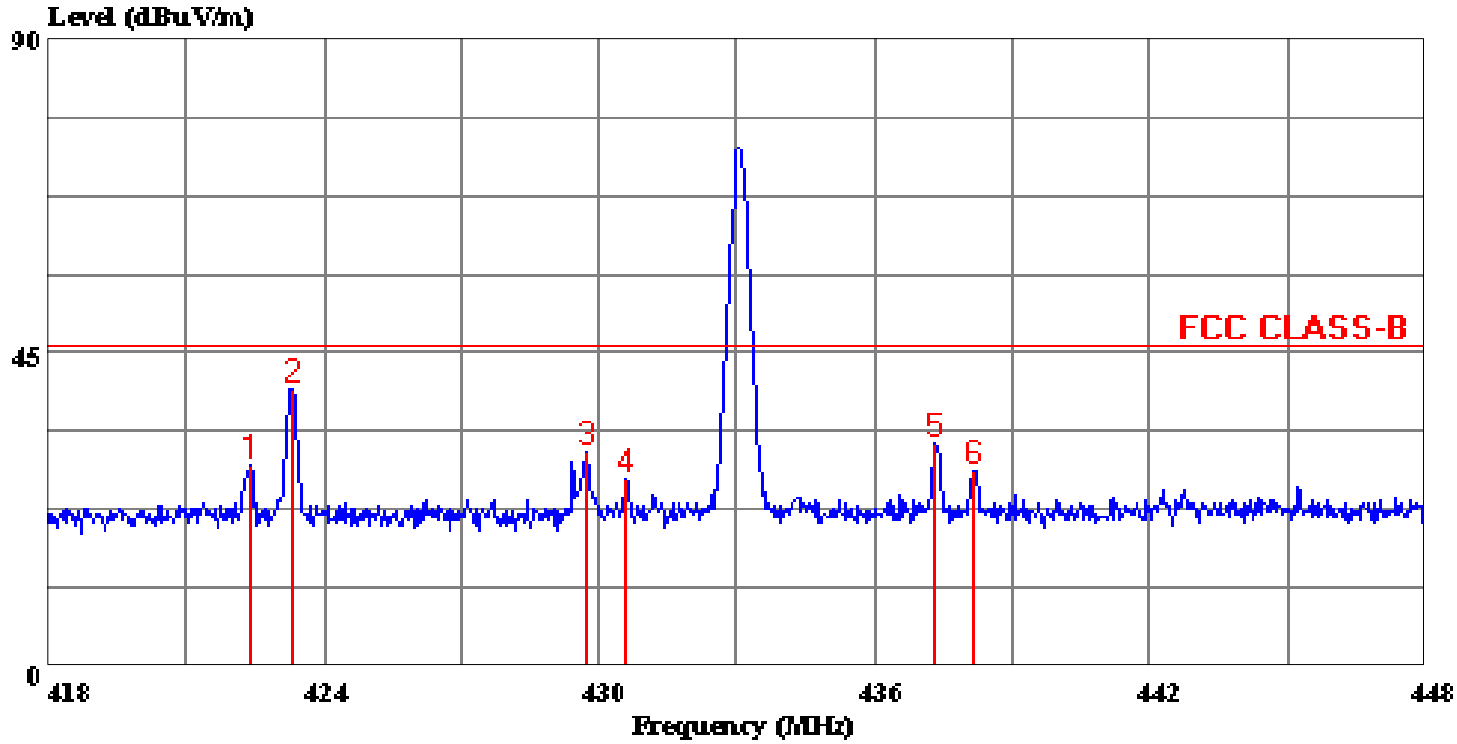

(CCS D-Site)

Trace: 1 Ref Trace:

Condition: VERTICAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
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	422.380	30.17	17.37	2.45	21.31	28.68	46.00	-17.32	Peak
2	423.340	41.40	17.39	2.45	21.32	39.91	46.00	-6.09	Peak
3	429.730	31.95	17.46	2.52	21.30	30.63	46.00	-15.37	Peak
4	430.600	28.09	17.47	2.54	21.29	26.81	46.00	-19.19	Peak
5	437.320	33.12	17.55	2.66	21.26	32.07	46.00	-13.93	Peak
6	438.130	29.23	17.56	2.68	21.26	28.21	46.00	-17.79	Peak

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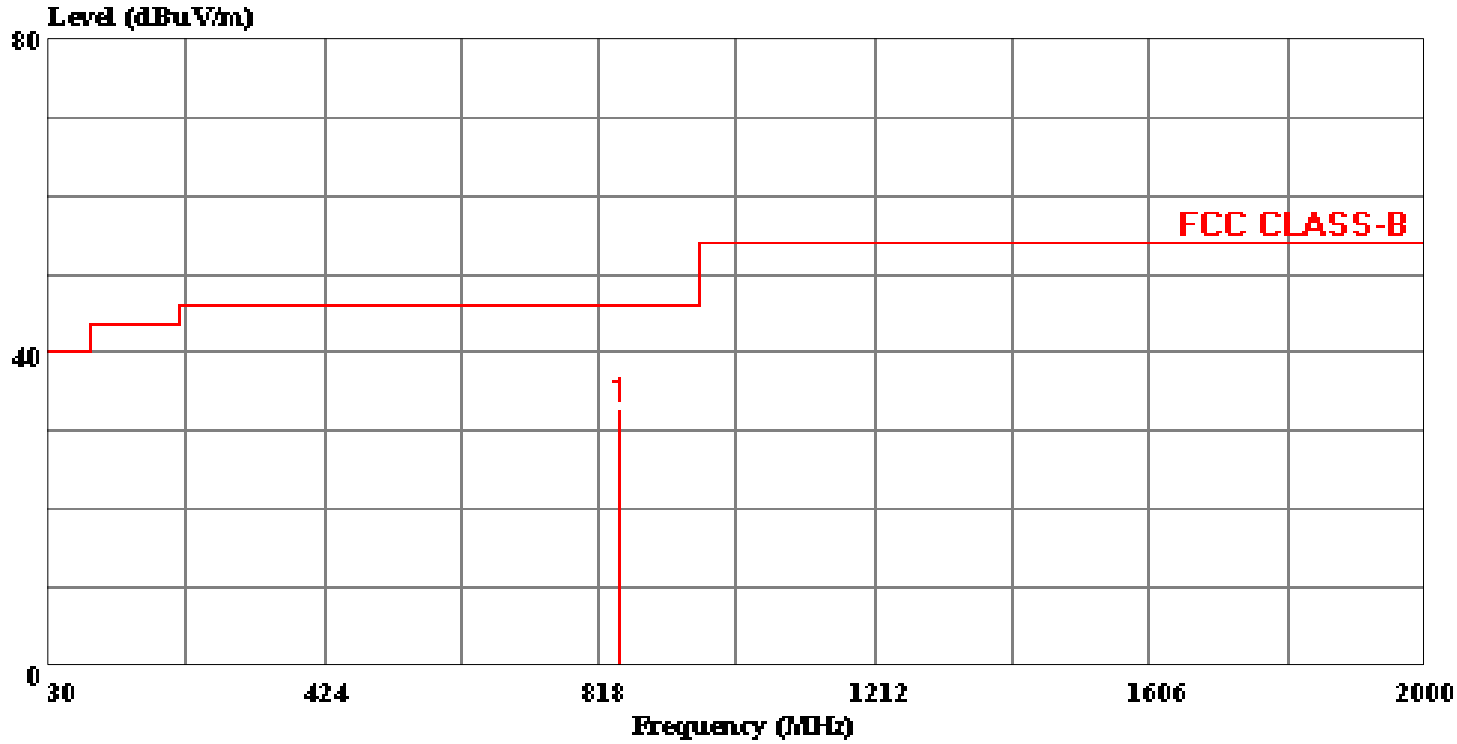

(CCS D-Site)

Trace: Ref Trace:

Condition: VERTICAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
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	846.400	26.24	23.10	4.17	20.51	33.00	46.00	-13.00	Peak

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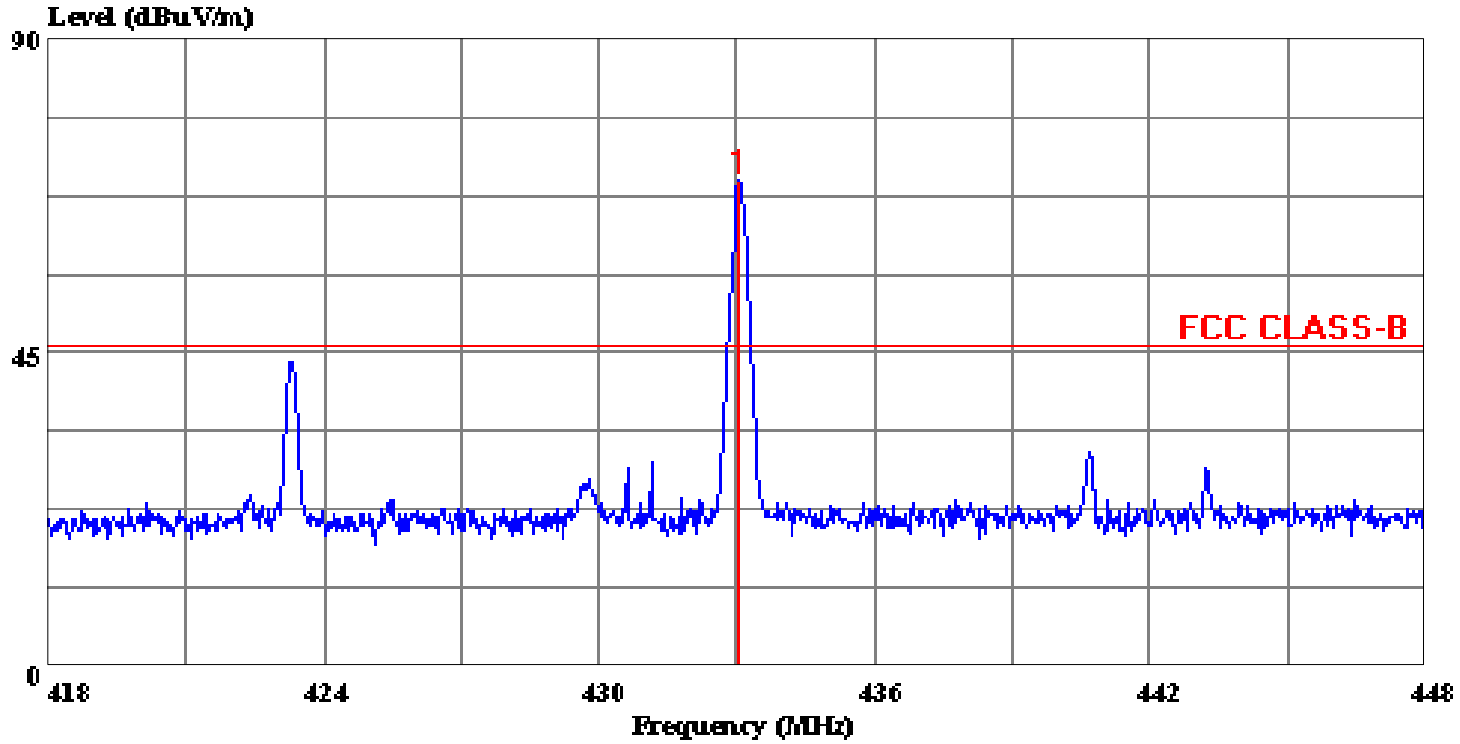

(CCS D-Site)

Trace: 3 Ref Trace:

Condition: HORIZONTAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

		Freq	Level
		MHz	dBuV/m
1	*	433.060	69.63

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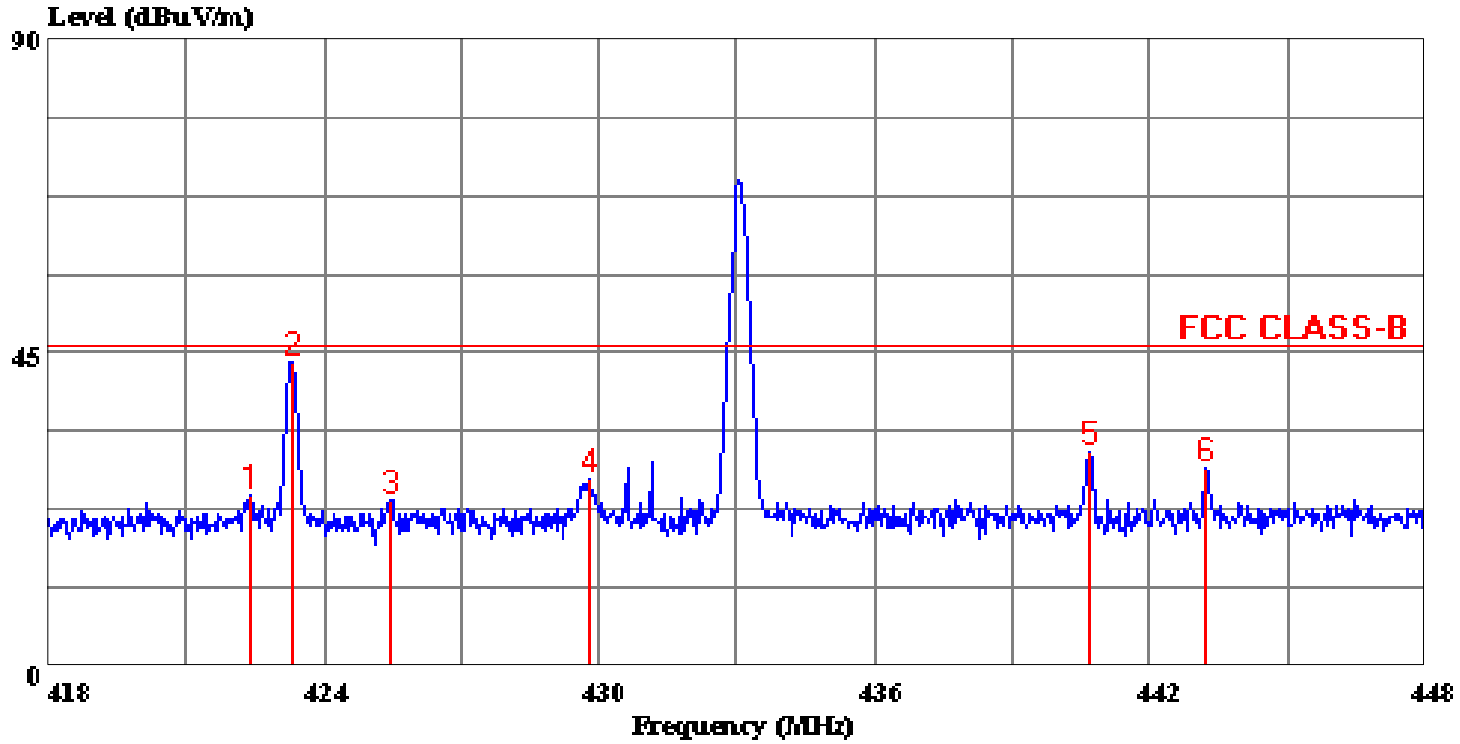

(CCS D-Site)

Trace: 3 Ref Trace:

Condition: HORIZONTAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
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	422.380	26.21	17.37	2.45	21.31	24.72	46.00	-21.28	Peak
2	423.310	45.23	17.39	2.45	21.32	43.75	46.00	-2.25	Peak
3	425.470	25.22	17.41	2.44	21.32	23.75	46.00	-22.25	Peak
4	429.790	28.01	17.46	2.52	21.30	26.70	46.00	-19.30	Peak
5	440.650	31.75	17.59	2.72	21.25	30.82	46.00	-15.18	Peak
6	443.230	29.39	17.62	2.77	21.24	28.55	46.00	-17.45	Peak

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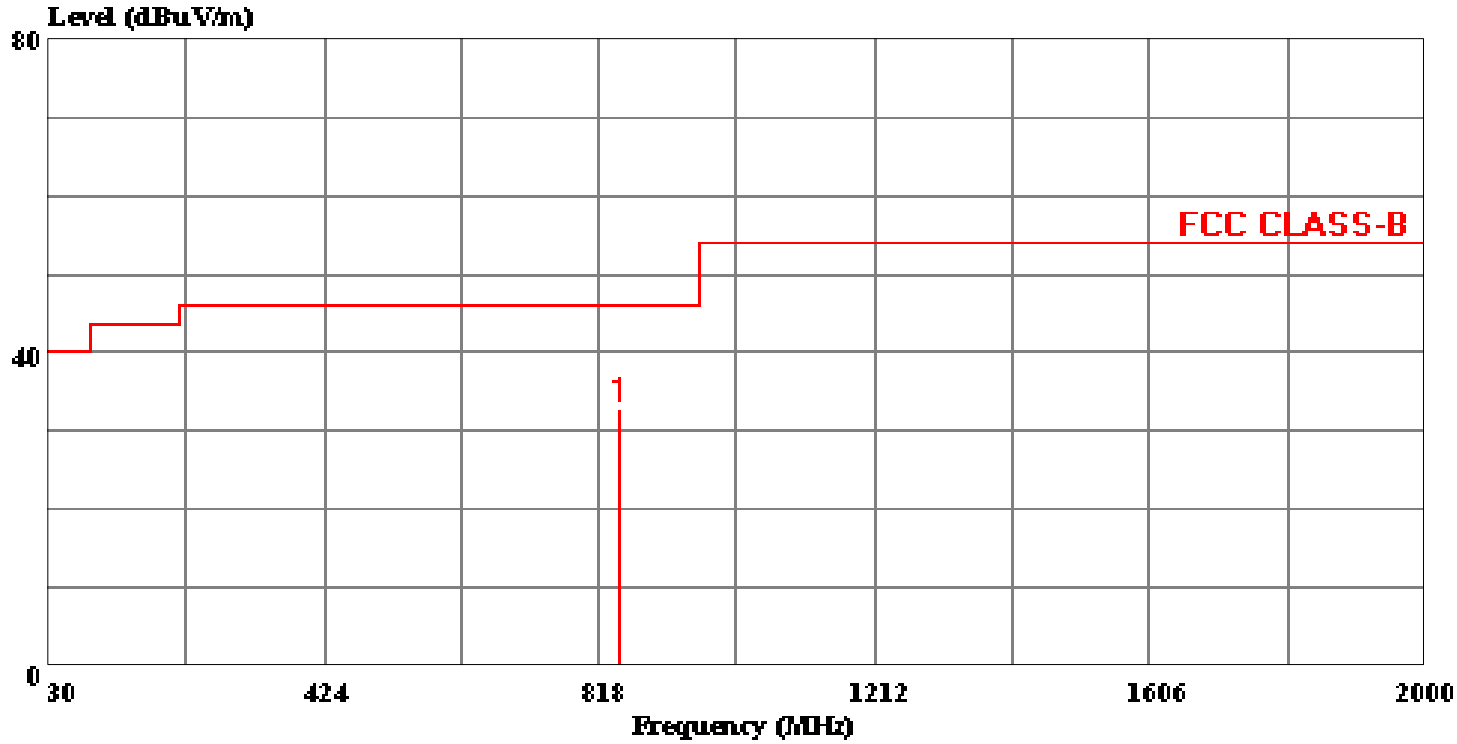

(CCS D-Site)

Trace: Ref Trace:

Condition: HORIZONTAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company : MOLTEN CORP.
EUT : AC300-R
Test Config : EUT/DC POWER/S.G.
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	846.422	26.04	23.10	4.17	20.51	32.80	46.00	-13.20	Peak

Project No. : 00E9157

Compliance Engineering Services, Inc. Report No. : 9157D1

Date : 2000-12-07

>> 3m RADIATED EMISSION DATA << Test Engr : Michael Hung

Company : MOLTEN CORP.
Equipment Under Test : AC300-R
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
423.34	41.40	17.39	2.45	21.32	39.91	46.00	-6.09	Peak	V
437.32	33.12	17.55	2.66	21.26	32.07	46.00	-13.93	Peak	V
846.40	26.24	23.10	4.17	20.51	33.00	46.00	-13.00	Peak	V
423.31	45.23	17.39	2.45	21.32	43.75	46.00	-2.25	Peak	H
440.65	31.75	17.59	2.72	21.25	30.82	46.00	-15.18	Peak	H
846.42	26.04	23.10	4.17	20.51	32.80	46.00	-13.20	Peak	H

Total Data#. 6

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Data#: 33 File#: 9157d.emi Date: 2001-03-09 Time: 17:57:14
CCS D-Site

Condition: VERTICAL
Report No. : 00E9157
Test Engr. : VINCE CHIANG
Company   : MOLTEN CORP.
EUT   : AC300-R
Test Config : EUT/TX
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	36.022	35.67	1.20	36.87	40.00	-3.13	Peak
2	49.133	37.60	-4.76	32.84	40.00	-7.16	Peak
3	58.856	40.14	-6.39	33.75	40.00	-6.25	Peak
4	62.000	43.90	-6.65	37.25	40.00	-2.75	Peak
5	84.422	35.46	-6.59	28.87	40.00	-11.13	Peak
6	111.656	42.73	-5.51	37.22	43.50	-6.28	Peak
7	193.256	33.69	-1.88	31.81	43.50	-11.69	Peak
8	423.289	38.38	5.21	43.59	46.00	-2.41	QP

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Data#: 34 File#: 9157d.emi Date: 2001-03-09 Time: 18:17:40
CCS D-Site

Condition: HORIZONTAL
Report No. : 00E9157
Test Engr. : VINCE CHIANG
Company   : MOLTEN CORP.
EUT   : AC300-R
Test Config : EUT/TX
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	58.713	32.67	-6.39	26.28	40.00	-13.72	Peak
2	83.167	42.09	-6.83	35.26	40.00	-4.74	Peak
3	109.400	37.29	-5.38	31.91	43.50	-11.59	Peak
4	123.611	33.76	-6.13	27.63	43.50	-15.87	Peak
5	134.200	31.63	-5.64	25.99	43.50	-17.51	Peak
6	423.268	31.58	5.21	36.79	46.00	-9.21	Peak

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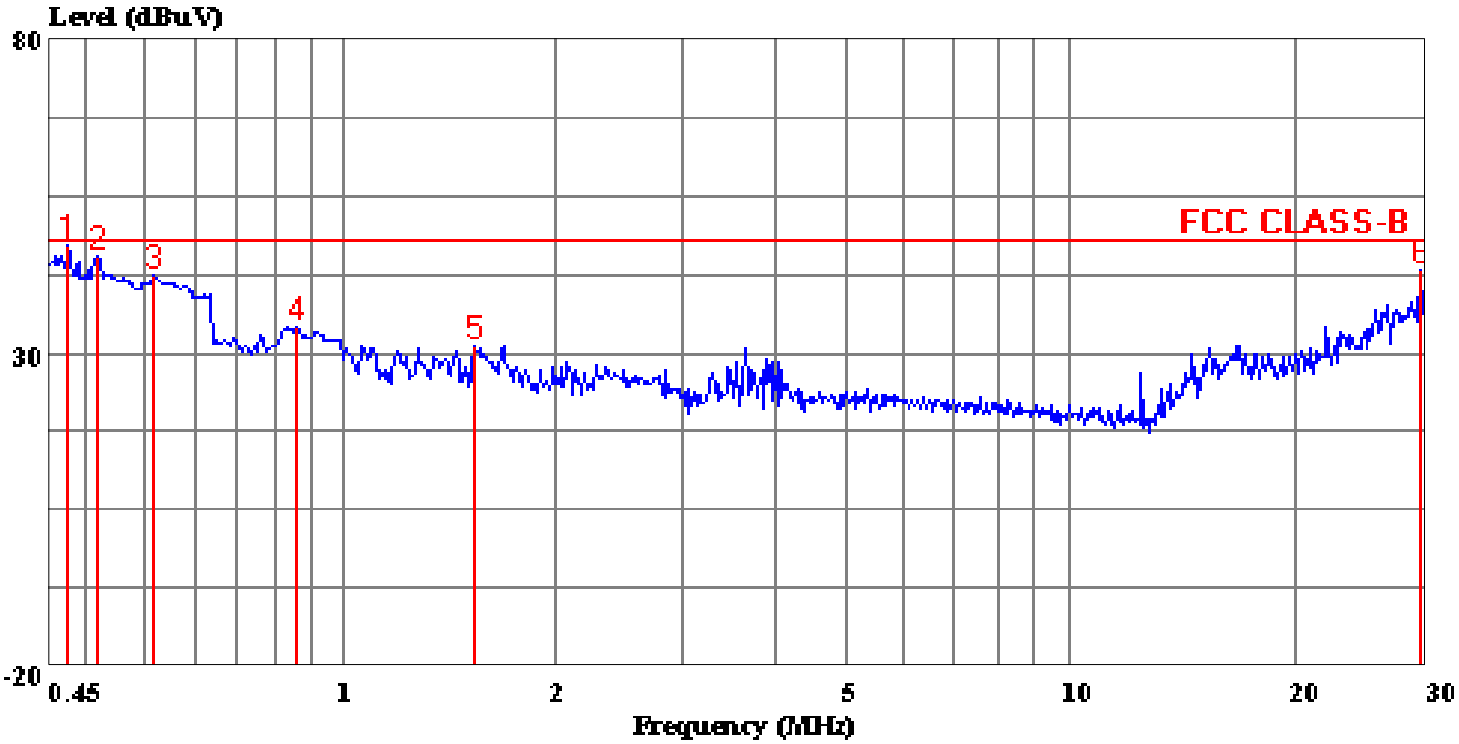

(CCS D-Site)

Trace: 32 Ref Trace:

Condition: LINE
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company   : MOLTEN CORP.
EUT   : AC300-R
Test Config : EUT/TX
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.476	46.80	0.10	46.90	48.00	-1.10	Peak
2	0.521	45.30	0.11	45.41	48.00	-2.59	Peak
3	0.621	42.23	0.12	42.34	48.00	-5.66	Peak
4	0.958	34.18	0.13	34.31	48.00	-13.69	Peak
5	1.645	30.92	0.14	31.06	48.00	-16.94	Peak
6	29.371	42.83	0.53	43.36	48.00	-4.64	Peak

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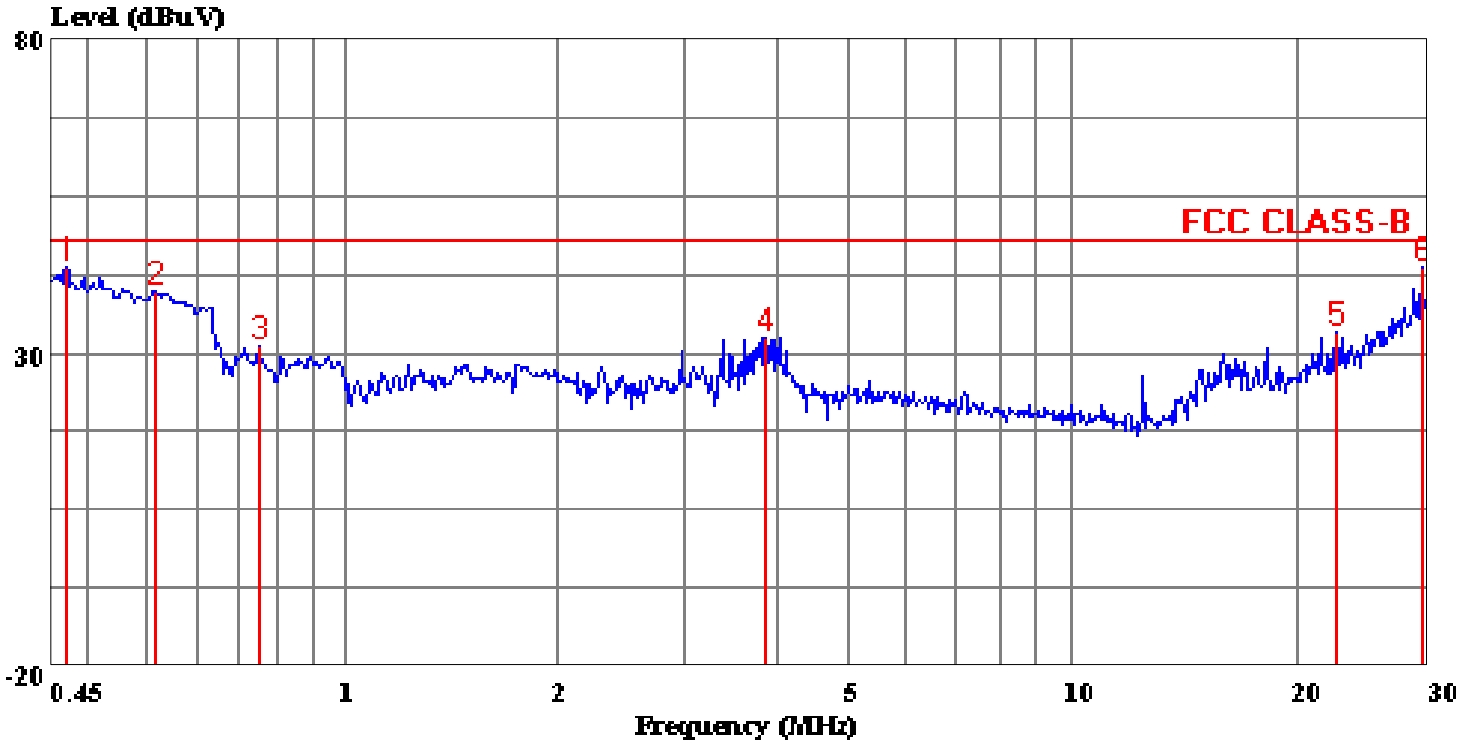
Data#: 36 File#: 9157d.emi Date: 2001-03-09 Time: 19:08:54



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Trace: 24 Ref Trace:

Condition: NEUTRAL
Report No. : 00E9157
Test Engr. : MICHAEL HUNG
Company   : MOLTEN CORP.
EUT   : AC300-R
Test Config : EUT/TX
Type of Test: FCC CLASS B
Mode of Op. : NORMAL MODE

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.471	43.53	0.10	43.62	48.00	-4.38	Peak
2	0.621	39.72	0.12	39.83	48.00	-8.17	Peak
3	0.848	30.81	0.12	30.93	48.00	-17.07	Peak
4	3.964	32.26	0.15	32.41	48.00	-15.59	Peak
5	22.655	32.96	0.50	33.46	48.00	-14.54	Peak
6	29.371	43.13	0.53	43.66	48.00	-4.34	Peak