

FCC ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

of

Car Alarm Transmitter

FCC ID Number : H5OT22

Trade Name : Advance Security Inc.

Model Number : SLRF9

Agency Series : N/A

Report Number : C40310404-RP

Date : April 8, 2004

Prepared for :

Advance Security Inc.

3F, 48 Ta An Street, Hsi Chih,

Taipei Hsien, Taiwan, R.O.C.

Prepared by :

Compliance Certification Services Inc.

Hsintien Lab.

No. 165, Chungsen Road, Hsintien City

Taipei Hsien, Taiwan

TEL: (02) 2217-0894

FAX: (02) 2217-1029



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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : Advance Security Inc.
3F, 48 Ta An Street, Hsi Chih,
Taipei Hsien, Taiwan, R.O.C.

CONTACT PERSON : Michael Chen / President

TELEPHONE NO. : (886-2) 8648-1688

EUT DESCRIPTION : Car Alarm Transmitter

MODEL NAME/NUMBER : SLRF9

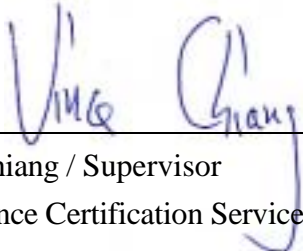
FCC ID : H5OT22

DATE TESTED : March 19, 2003 & March 22, 2003

REPORT NUMBER : C40310404-RP

TYPE OF EQUIPMENT	SECURITY EQUIPMENT (INTENTIONAL RADIATOR)
EQUIPMENT TYPE	302 MHz Car Alarm Transmitter
MEASUREMENT PROCEDURE	ANSI 63.4 / 2001
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15

The above equipment was tested by Compliance Certification Services Inc. 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 Compliance Engineering Services, Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services Inc. will constitute fraud and shall nullify the document.



Vince Chiang / Supervisor
Compliance Certification Services Inc.

2. PRODUCT DESCRIPTION

Fundamental Frequency	302 MHz
Power Source	3V Battery
Transmitting Time	Periodic \leq 5 seconds
Associated Receiver	Model: H5OR38 (FCC ID)

3. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 165 & 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 C63.4/2001.

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
HP	8568B	SPECTRUM ANALYZER	08/18/04
H.P.	8447D A	AMPLIFIER	05/03/04
SCHAFFNER	CBL 6143	ANTENNA	03/19/05
BELDEN	9913	CABLE	07/29/04
CCS	N/A	Site NSA	09/13/04
EMCO	3115	ANTENNA (1-18GHz)	02/02/05
HP	8449B	AMPLIFIER (1-26.5GHz)	02/15/05
JYEBAO	LL143	CABLE (1-18GHz)	02/15/05
JYEBAO	LL142	CABLE (1-18GHz)	02/15/05
HP	8566B	EMC ANALYZER (100Hz-22GHz)	06/25/04

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

10. TEST PROCEDURE

Radiated Emissions, 15.231(4)(b)

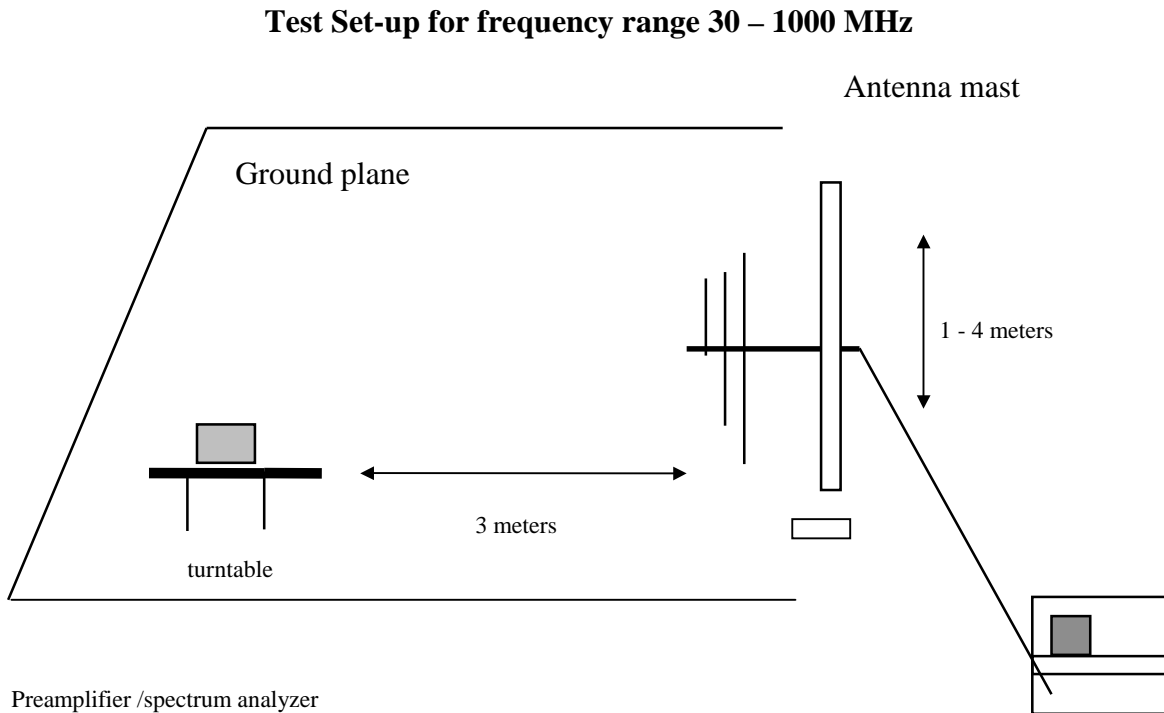


Fig. 1

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.

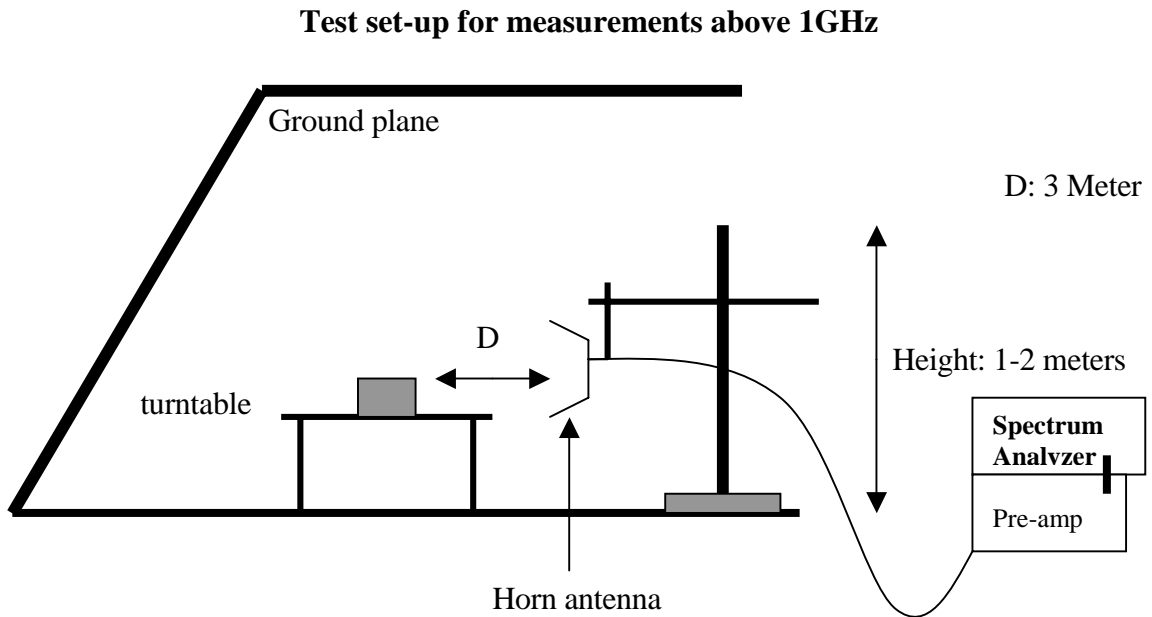


Fig. 2

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	X
BATTERY POWER	X	SECTION 15.231 (b)	X
		SECTION 15.231 (e)	

12.1 Maximum Modulation Percentage (M%)

CALCULATION:

$$\text{Average Reading} = \text{Peak Reading (dBuV/m)} + 20 \log (\text{Duty Cycle})$$

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

- WHERE 1 Period = 72.00 mS
- Long pulse = 1.60 mS
- Short pulse = 0.45 mS
- No of Long pulse = 9
- No of Short pulse = 16

$$\text{Duty Cycle} = (N1L1+N2L2+\dots+Nn-1Ln-1+NnLn)/100 \text{ or } T$$

$$\text{Duty Cycle} = [(9 \times 1.60) + (16 \times 0.45)] / 72.00 = 0.3000 = 30.00 \% \text{ or } -10.458 \text{dB}$$

12.2 The Emissions Bandwidth

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

Center Frequency	Measured	Limits
302 MHz	400.0 kHz < (refer to plot)	302 MHz X 0.25% = 755 kHz

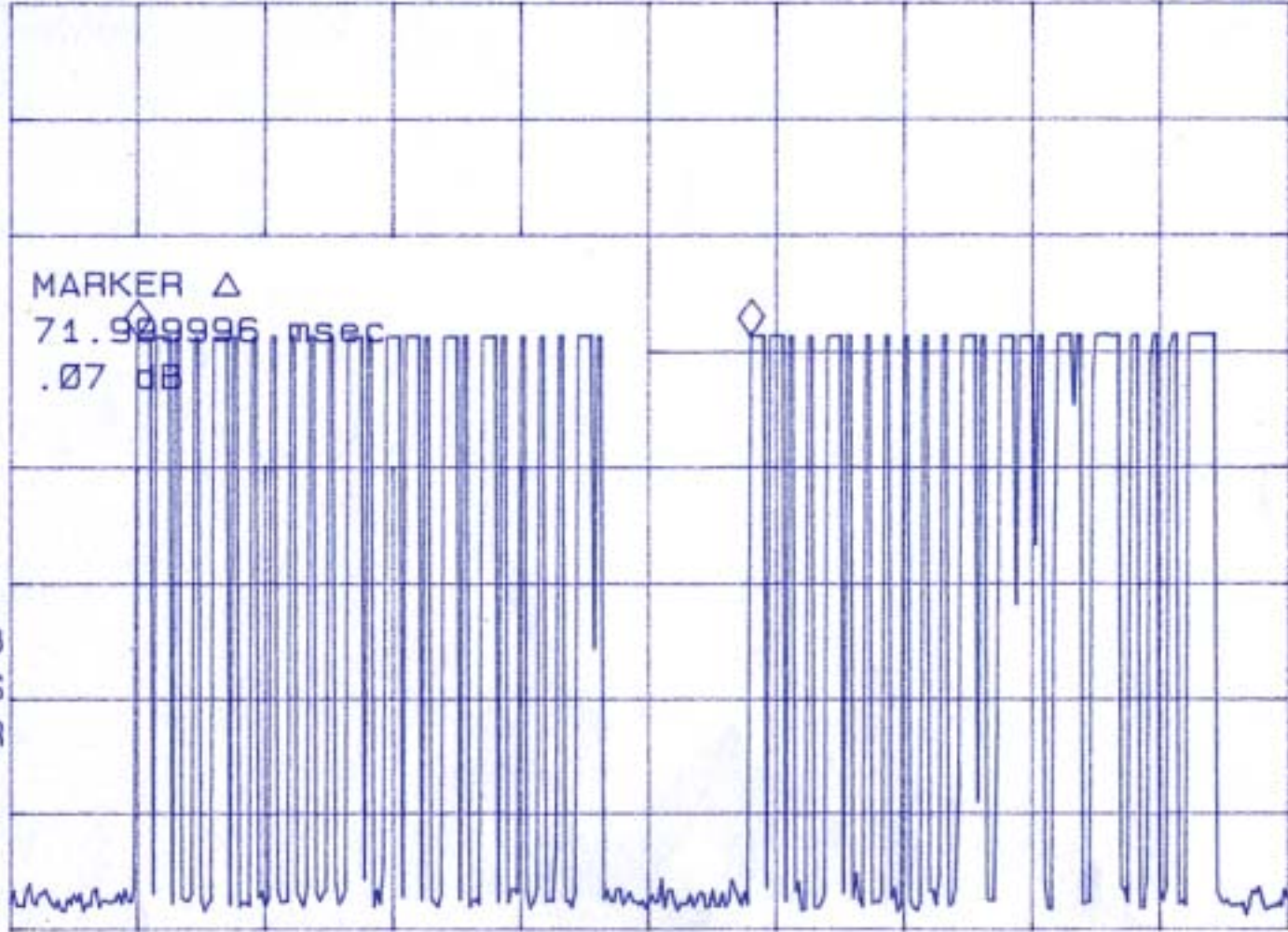
hp

MKR Δ 71.999996 msec

REF 106.0 dBμV ATTEN 10 dB

.07 dB

PEAK
LOG
10
dB/



WA SB
SC FS
CORR

CENTER 302.015 MHz

#RES BW 100 kHz

#VBW 300 kHz

SPAN 0 Hz

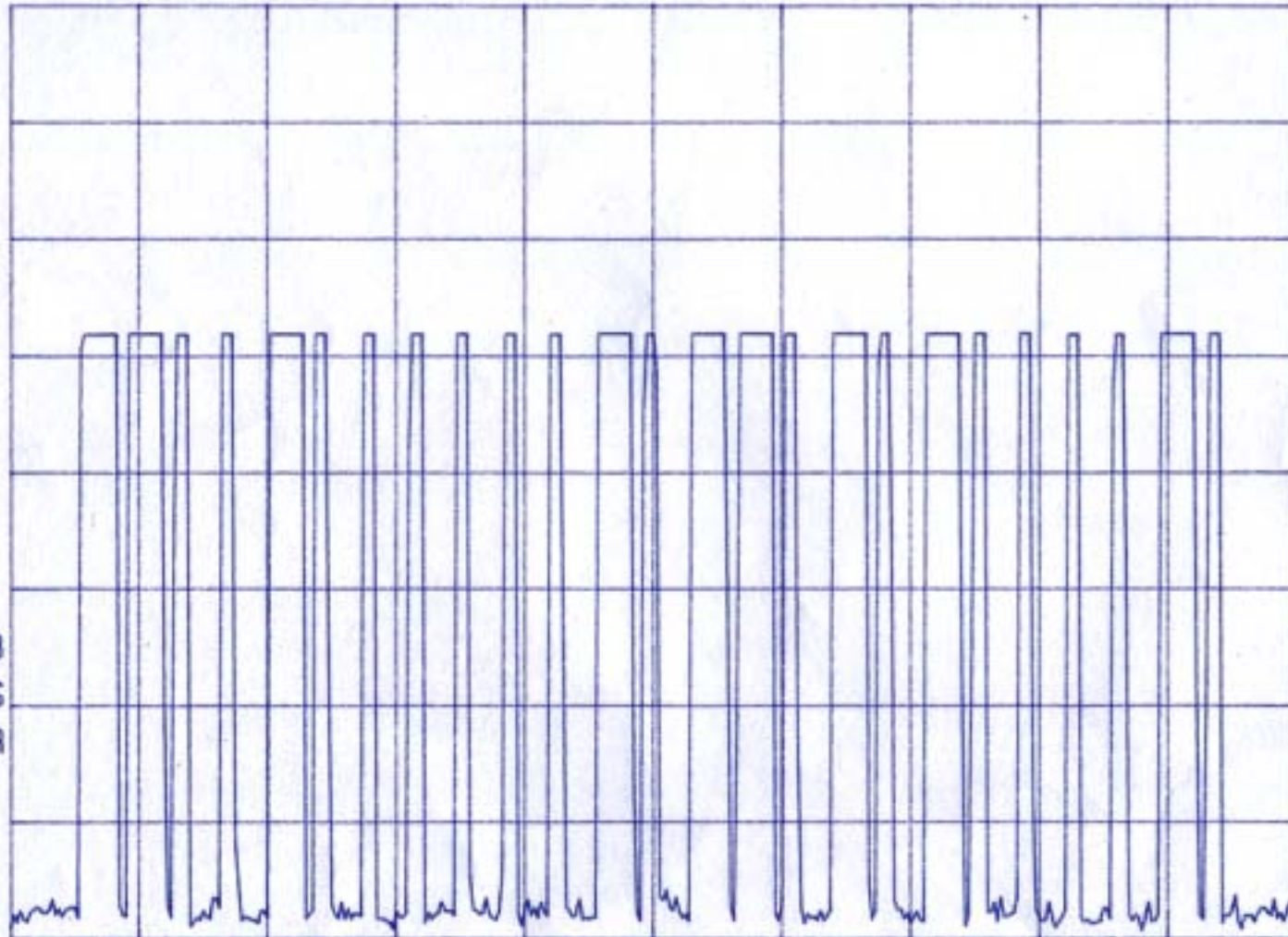
#SWP 150 msec

hp

REF 106.0 dB μ V ATTEN 10 dB

PEAK
LOG
10
dB/

WA SB
SC FS
CORR



CENTER 302.015 MHz

SPAN 0 Hz

#RES BW 100 kHz

#VBW 300 kHz

#SWP 62 msec

hp

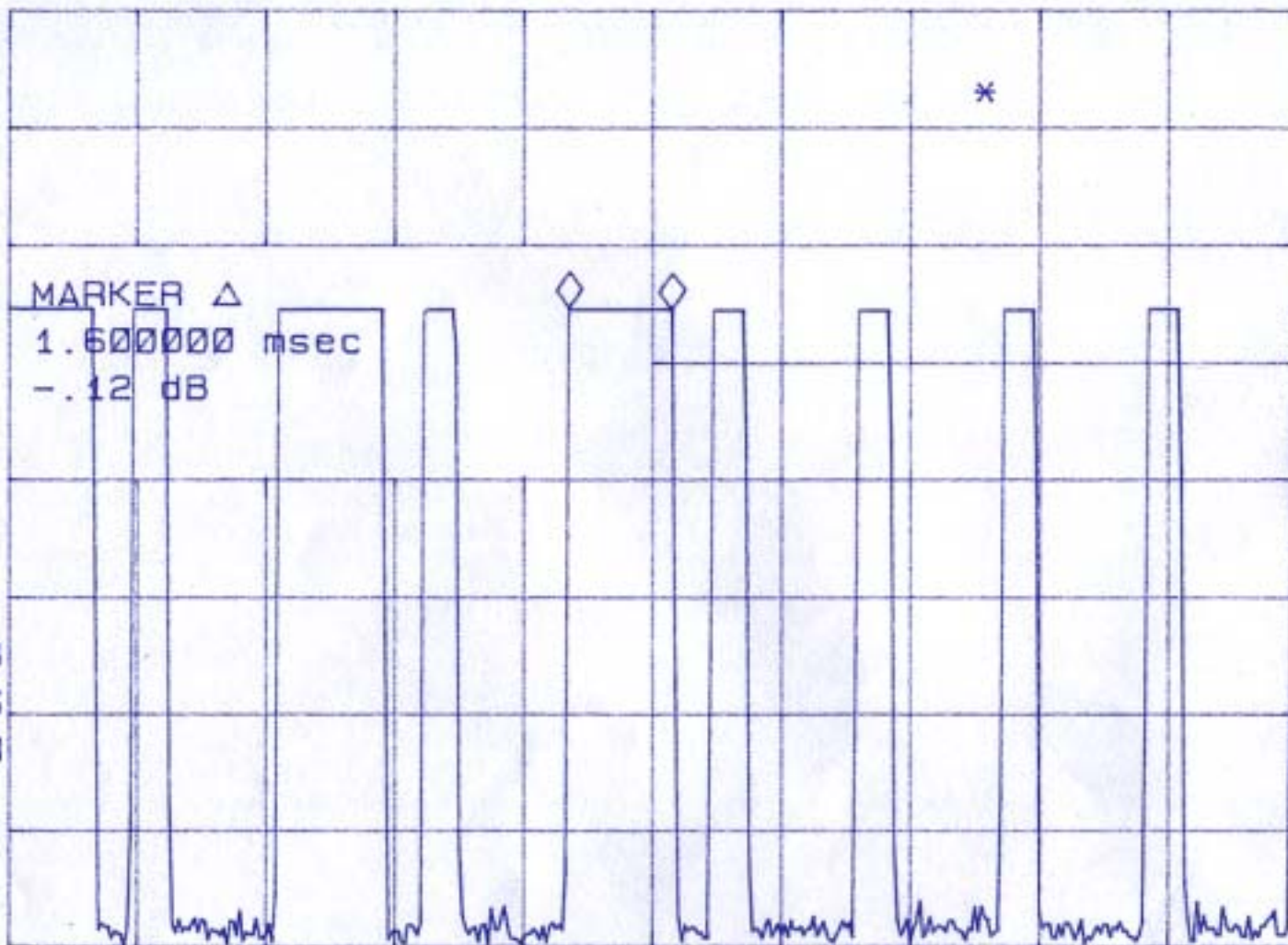
MKR Δ 1.600000 msec

REF 106.0 dB μ V ATTEN 10 dB

-.12 dB

PEAK
LOG
10
dB/

WA SB
SC FS
CORR



CENTER 302.015 MHz

SPAN 0 Hz

#RES BW 100 kHz

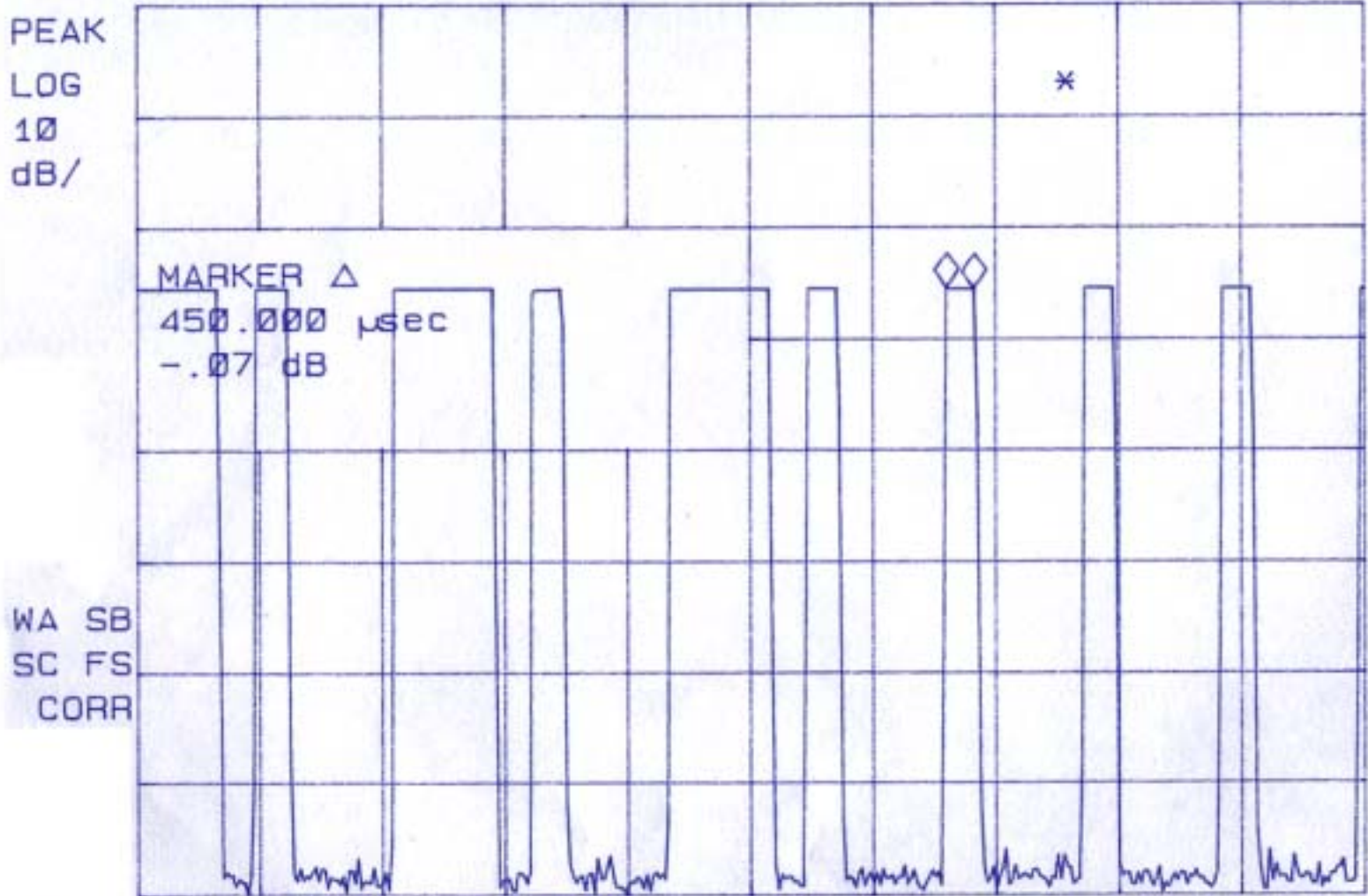
#VBW 300 kHz

#SWP 20 msec

hp

REF 106.0 dB μ V ATTEN 10 dB

MKR Δ 450.000 μ sec
-.07 dB



CENTER 302.015 MHz
#RES BW 100 kHz

#VBW 300 kHz

SPAN 0 Hz
#SWP 20 msec

hp

REF 106.0 dB μ V ATTEN 10 dB

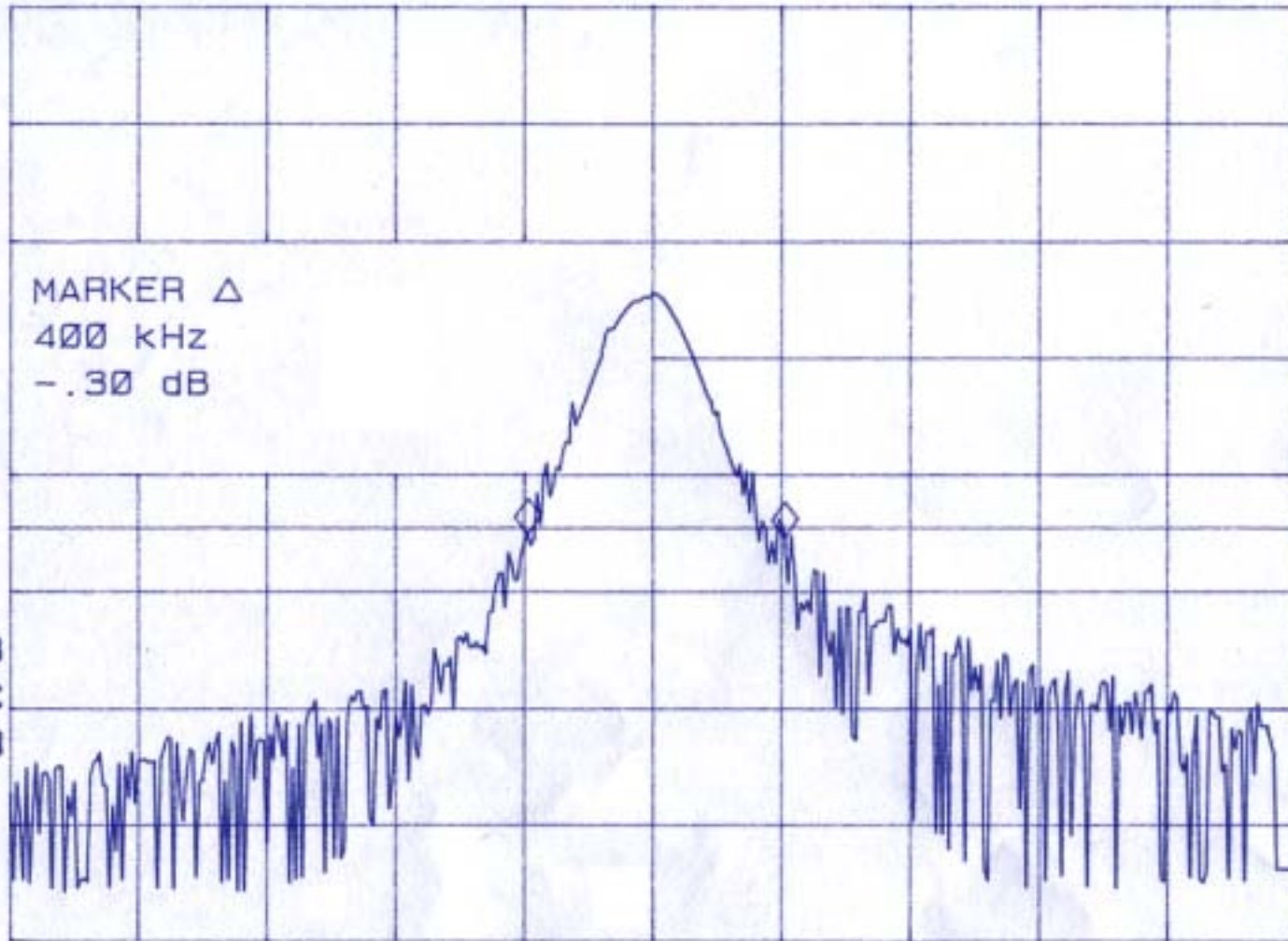
MKR Δ 400 kHz
-.30 dB

PEAK
LOG
10
dB/

DL
61.5
dB μ V

MARKER Δ
400 kHz
-.30 dB

MA SB
SC FC
CORR



CENTER 302.025 MHz
#RES BW 100 kHz

#VBW 300 kHz

SPAN 2.000 MHz
SWP 20 msec



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Services Inc.

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UL, CSA, TUV, BSMI, DHHS, NVLAP
No. 165, Chung Sheng Road,
Hsin Tien City, Taipei, Taiwan, R.O.C.
TEL: 02-2217-0894 FAX: 02-2217-1029

Project #: C40310404
Report #: C40310404-RP
Date: 2004/04/21
Test Engr: JASON LEE

Company: Advance Security Inc.
EUT Description: SLRF9 (302MHz / Car Alarm Transmitter)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: Normal Mode



$$M\% = ((t1+t2+t3+...)/T) * 100\% = 30 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20*\log(M\%) \\ 20*\log(M\%) &= -10.458 \end{aligned}$$

	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 #1:											
X	301.99	60.25	49.79	11.78	2.99	25.97	38.59	74.81	-36.21	3mV	180	1.00
	604.02	41.23	30.77	17.48	4.52	27.22	25.55	54.81	-29.26	3mV	90	1.10
	906.01	43.23	32.77	19.97	5.40	26.31	31.83	54.81	-22.98	3mV	0	1.00
Y	302.00	59.63	49.17	11.78	2.99	25.97	37.97	74.81	-36.84	3mV	180	1.20
	604.01	36.25	25.79	17.48	4.52	27.22	20.57	54.81	-34.24	3mV	90	1.10
	906.01	40.23	29.77	19.97	5.40	26.31	28.83	54.81	-25.98	3mV	270	1.30
Z	302.00	59.36	48.90	11.78	2.99	25.97	37.70	74.81	-37.10	3mV	0	1.20
	604.02	44.99	34.53	17.48	4.52	27.22	29.31	54.81	-25.50	3mV	90	1.50
	906.02	44.56	34.10	19.97	5.40	26.31	33.16	54.81	-21.65	3mV	270	1.00
X	302.00	73.23	62.77	11.78	2.99	25.97	51.57	74.81	-23.23	3mH	270	1.10
	604.01	42.06	31.60	17.48	4.52	27.22	26.38	54.81	-28.43	3mH	180	1.20
	906.02	45.32	34.86	19.97	5.40	26.31	33.92	54.81	-20.89	3mH	90	1.00
Y	301.99	74.05	63.59	11.78	2.99	25.97	52.39	74.81	-22.41	3mH	270	1.30
	604.02	43.69	33.23	17.48	4.52	27.22	28.01	54.81	-26.80	3mH	270	1.20
	906.04	43.02	32.56	19.97	5.40	26.31	31.62	54.81	-23.19	3mH	180	1.00
Z	302.00	64.58	54.12	11.78	2.99	25.97	42.92	74.81	-31.88	3mH	0	1.00
	604.02	38.35	27.89	17.48	4.52	27.22	22.67	54.81	-32.14	3mH	90	1.40
	906.03	39.88	29.42	19.97	5.40	26.31	28.48	54.81	-26.33	3mH	0	1.00

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): Pk Reading - 10.458dB

Total Data #18



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Services Inc.

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UL, CSA, TUV, BSMI, DHHS, NVLAP
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Mode of Operation: Normal Mode



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)
1206	57.59	47.13	24.26	4.28	37.71	37.96	54.00	-16.04	3mV	90	1.2	A
1510	52.36	41.90	24.71	4.82	37.34	34.09	54.00	-19.91	3mV	180	1.1	A
1813	52.03	41.57	26.01	5.32	37.22	35.68	54.81	-19.13	3mV	270	1.0	A
1206	52.03	41.57	24.26	4.28	37.71	32.40	54.00	-21.60	3mH	90	1.1	A
1714	54.01	43.55	25.59	5.16	37.26	37.04	54.00	-16.96	3mH	270	1.3	A
1851	54.26	43.80	26.18	5.38	37.20	38.16	54.81	-16.65	3mH	180	1.0	A

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

Total data #6
V.2d

P(Peak): RBW=VBW=1MHz
A(Average): Pk Reading -10.458dB