

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS**

for

INTENTIONAL RADIATOR

27 MHz WIRELESS KEYBOARD

MODEL: KF-9801

**PRODUCT FAMILY:KF-1101; KF-1102; KF-1110; KF-1120; KF-1150; KF-1181; KF-1182;
KF-1118; KF-1128; KF-1158; KF-1201; KF-1202; KF-1210; KF-1220; KF-1250; KF-1281;
KF-1282; KF-1218; KF-1228; KF-1258; KF-1501; KF-1502; KF-1510; KF-1520; KF-1550;
KF-1581; KF-1582; KF-1518; KF-1528; KF-1558; KF-1601; KF-1602; KF-1610; KF-1620;
KF-1650; KF-1681; KF-1682; KF-1618; KF-1628; KF-1658; KF-1701; KF-1702; KF-1710;
KF-1720; KF-1750; KF-1781; KF-1782; KF-1718; KF-1728; KF-1758; KF-1801; KF-1802;
KF-1810; KF-1820; KF-1850; KF-1881; KF-1882; KF-1818; KF-1828; KF-1858; KF-1901;
KF-1902; KF-1910; KF-1920; KF-1950; KF-1981; KF-1982; KF-1918; KF-1928; KF-1958;
KF-9802; KF-9810; KF-9820; KF-9850; KF-9881; KF-9882; KF-9818; KF-9828; KF-9858**

FCC ID NO: HQKKF9801

REPORT NO: 01R9829

ISSUE DATE: January 11, 2002

Prepared for

**KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
6F-9, No. 3, Wu-Chuan 1st Rd., Hsin Chuang City,
Taipei, Taiwan, R. O. C.**

Prepared by

**COMPLIANCE ENGINEERING SERVICES, INC.
NO. 199, CHUNG SHENG ROAD, HSIN TIEN CITY, TAIPEI,
TAIWAN, R. O. C.**

d.b.a.

COMPLIANCE CERTIFICATION SERVICES



**FCC, VCCI, CISPR, CE
UL, CSA, TÜV, VDE**

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1. VERIFICATION OF COMPLIANCE

COMPANY NAME: KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
6F-9, No. 3, Wu-Chuan 1st Rd., Hsin Chuang City,
Taipei, Taiwan, R. O. C.

CONTACT PERSON: Nell Wu / R&D Assistant

TELEPHONE NO.: 886-2-2298-2929

EUT DESCRIPTION: 27 MHz WIRELESS KEYBOARD

MODEL NAME/NUMBER: KF-9801

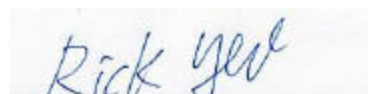
FCC ID: HQKKF9801

DATE TESTED: December 7, 2001

REPORT NUMBER: 01R9829

TYPE OF EQUIPMENT	REMOTE CONTROL
EQUIPMENT TYPE	27 MHz WIRELESS KEYBOARD
MEASUREMENT PROCEDURE	ANSI C63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15

The above equipment was tested by Compliance Engineering 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 Engineering Services, Inc. will constitute fraud and shall nullify the document.



RICK YEO / EMC MANAGER
COMPLIANCE ENGINEERING SERVICES, INC.

2. PRODUCT DESCRIPTION

CHASSIS TYPE	Plastic
Fundamental Frequency	27.095MHz, 27.145MHz
Power source	4.5V Battery
Transmitting Time	Continuous
Local Oscillators	N/A

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
R & S	DSAI-D 804.8932.52	EMI Test Display (20Hz – 5GHz)	10/2002
R & S	ESBI- RF/1005.4300.52	EMI Test RF Unit (20Hz – 5GHz)	10/2002
EMCO	6502	Antenna (9KHz – 30MHz)	04/2002
SCHWARZBECK	VULB 9160	Antenna (30 - 2000 MHz)	05/2002
H.P.	8447D	Pre-Amplifier	05/2002
H.P.	8566B	Spectrum Analyzer	11/2002
Agilent	E3640A	DC Power Supply	12/2002
HP	7475A	Plotter	N/A

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	NOT REQUIRED.

8. RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209
RESTRICTED BANDS OF OPERATION	SECTION 15.205
OPERATION WITHIN THE BAND 26.69 – 27.20MHz	SECTION 15.227

9. SYSTEM TEST CONFIGURATION

The EUT was configured for testing in a typical fashion (as a customer would normally use it).



Radiated Open Site Test Set-up

10. SYSTEM TEST CONFIGURATION

To achieve compliance to FCC Section 15.227 technical limits, the following change(s) were made during compliance testing:

There is no modification on this EUT.

11. TEST PROCEDURE AND RESULT

Powerline RFI Limits	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
BATTEY POWER	X	SECTION 15.227	X

11. 1 Radiated Emission Test Procedure and Result

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT antenna was mounted vertically was 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.
3. Once maximum direction was determined,, the search antenna was raised and lowered in both vertical and horizontal polarizations. The readings so obtained are recorded in data listed appendix.



Project #: 01R9829
Report #: 9829D1
Date& Time: 2001/12/7
Test Engr: JAMES LIAO

NO. 199, CHUNG SHENG ROAD, HSIN TIEN CITY, TAIPEI, TAIWAN, R. O. C.

TEL: (02) 2217-0894 FAX: (02) 2217-1254

Company: KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
EUT Description: KF-9801 (Keyboard TX / 27MHz)
Test Configuration : EUT ONLY
Type of Test: FCC 15.227/FCC 15.209
Mode of Operation: TX CH1 27.095MHz

☒ D-Site ☐ E-Site

6 Worst Data

Descending

Freq. (MHz)	Reading (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)
27.099	48.75	9.10	1.00	0.00	58.85	80.00	-21.15	3mV	270	1.3	P
54.080	38.80	12.44	1.05	22.42	29.87	40.00	-10.13	3mV	270	1.2	P
81.205	38.70	8.75	1.22	22.30	26.37	40.00	-13.63	3mV	270	1.5	P
108.245	37.50	10.90	1.43	22.10	27.73	43.50	-15.77	3mV	270	1.0	P
135.285	32.40	13.07	1.51	21.95	25.02	43.50	-18.48	3mV	270	1.0	P
162.360	32.30	13.72	1.64	21.86	25.79	43.50	-17.71	3mV	270	1.0	P
189.400	37.00	11.21	1.76	21.73	28.24	43.50	-15.26	3mV	270	1.0	P
216.425	32.40	10.68	1.88	21.22	23.74	46.00	-22.26	3mV	270	1.0	P
243.410	35.80	11.79	2.00	20.48	29.11	46.00	-16.89	3mV	270	1.0	P
270.450	31.60	12.47	2.11	20.28	25.90	46.00	-20.10	3mV	270	1.0	P
297.440	33.00	13.15	2.23	20.25	28.13	46.00	-17.87	3mV	270	1.0	P

Total data #: 11



Project #: 01R9829
Report #: 9829D2
Date& Time: 2001/12/7
Test Engr: JAMES LIAO

NO. 199, CHUNG SHENG ROAD, HSIN TIEN CITY, TAIPEI, TAIWAN, R. O. C.

TEL: (02) 2217-0894 FAX: (02) 2217-1254

Company: KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
EUT Description: KF-9801 (Keyboard TX / 27MHz)
Test Configuration : EUT ONLY
Type of Test: FCC 15.227/FCC 15.209
Mode of Operation: TX CH1 27.095MHz

Freq. (MHz)	Reading (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)
27.098	50.82	9.10	1.00	0.00	60.92	80.00	-19.08	3mH	270	1.3	P
54.188	32.70	12.44	1.05	22.42	23.77	40.00	-16.23	3mH	270	2.5	P
81.178	36.70	8.75	1.22	22.30	24.37	40.00	-15.63	3mH	270	2.0	P
108.078	42.60	10.90	1.43	22.10	32.83	43.50	-10.67	3mH	270	1.0	P
135.213	33.00	13.07	1.51	21.95	25.62	43.50	-17.88	3mH	270	1.0	P
162.253	31.10	13.72	1.64	21.86	24.59	43.50	-18.91	3mH	270	1.0	P
189.333	35.90	11.21	1.76	21.73	27.14	43.50	-16.36	3mH	270	1.0	P
216.373	32.30	10.68	1.88	21.22	23.64	46.00	-22.36	3mH	270	1.0	P
243.413	39.70	11.79	2.00	20.48	33.01	46.00	-12.99	3mH	270	1.0	P
270.433	32.20	12.47	2.11	20.28	26.50	46.00	-19.50	3mH	270	1.0	P
297.473	30.00	13.15	2.23	20.25	25.13	46.00	-20.87	3mH	270	1.0	P

Total data #: 11



Project #: 01R9829
Report #: 9829D1
Date& Time: 2001/12/7
Test Engr: JAMES LIAO

NO. 199, CHUNG SHENG ROAD, HSIN TIEN CITY, TAIPEI, TAIWAN, R. O. C.

TEL: (02) 2217-0894 FAX: (02) 2217-1254

Company: KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
EUT Description: KF-9801 (Keyboard TX / 27MHz)
Test Configuration : EUT ONLY
Type of Test: FCC 15.227/FCC 15.209
Mode of Operation: TX CH2 27.145MHz

Freq. (MHz)	Reading (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)
27.148	39.55	9.10	1.00	0.00	49.65	80.00	-30.35	3mV	270	1.3	P
54.055	28.00	12.44	1.05	28.42	13.07	40.00	-26.93	3mV	270	1.2	P
81.230	34.25	8.75	1.22	28.30	15.92	40.00	-24.08	3mV	270	1.5	P
108.111	43.25	10.90	1.43	28.10	27.48	43.50	-16.02	3mV	270	1.0	P
135.334	33.55	13.07	1.51	27.95	20.17	43.50	-23.33	3mV	270	1.0	P
162.364	33.39	13.72	1.64	27.86	20.88	43.50	-22.62	3mV	270	1.0	P
189.354	38.36	11.21	1.76	27.73	23.60	43.50	-19.90	3mV	270	1.0	P
216.689	33.69	10.68	1.88	27.22	19.03	46.00	-26.97	3mV	270	1.0	P
243.203	40.25	11.77	1.99	26.51	27.51	46.00	-18.49	3mV	270	1.0	P
270.678	32.69	12.50	2.12	26.28	21.03	46.00	-24.97	3mV	270	1.0	P
297.236	32.65	13.15	2.23	26.25	21.78	46.00	-24.22	3mV	270	1.0	P

Total data #: 11



Project #: 01R9829
Report #: 9829D2
Date& Time: 2001/12/7
Test Engr: JAMES LIAO

NO. 199, CHUNG SHENG ROAD, HSIN TIEN CITY, TAIPEI, TAIWAN, R. O. C.

TEL: (02) 2217-0894 FAX: (02) 2217-1254

Company: KEY MOUSE ELECTRONIC ENTERPRISE CO., LTD.
EUT Description: KF-9801 (Keyboard TX / 27MHz)
Test Configuration : EUT ONLY
Type of Test: FCC 15.227/FCC 15.209
Mode of Operation: TX CH2 27.145MHz



Freq. (MHz)	Reading (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)
27.149	52.91	9.10	1.00	0.00	63.01	80.00	-16.99	3mH	270	1.3	P
54.055	31.00	12.44	1.05	28.42	16.07	40.00	-23.93	3mH	270	2.5	P
81.230	35.11	8.75	1.22	28.30	16.78	40.00	-23.22	3mH	270	2.0	P
108.011	41.66	10.90	1.43	28.10	25.89	43.50	-17.61	3mH	270	1.0	P
135.330	34.55	13.07	1.51	27.95	21.17	43.50	-22.33	3mH	270	1.0	P
162.354	32.33	13.72	1.64	27.86	19.82	43.50	-23.68	3mH	270	1.0	P
189.321	36.22	11.21	1.76	27.73	21.46	43.50	-22.04	3mH	270	1.0	P
216.556	32.01	10.68	1.88	27.22	17.35	46.00	-28.65	3mH	270	1.0	P
243.102	39.02	11.77	1.99	26.51	26.28	46.00	-19.72	3mH	270	1.0	P
270.532	31.53	12.47	2.11	26.28	19.83	46.00	-26.17	3mH	270	1.0	P
297.124	31.53	13.15	2.23	26.25	20.66	46.00	-25.34	3mH	270	1.0	P

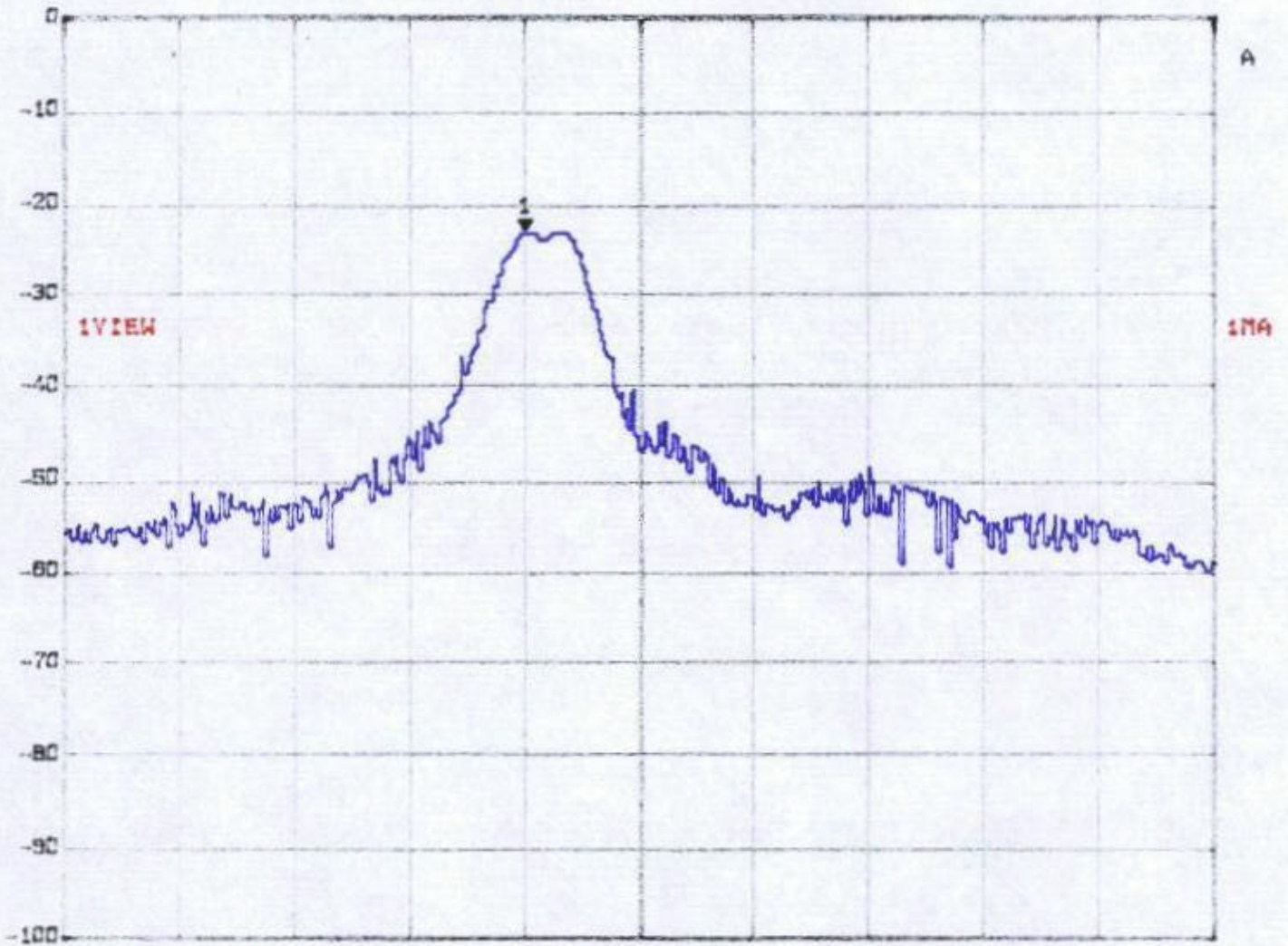
Total data #: 11



Ref Lvl
0 dBm

Marker 1 [T1]
-23.17 dBm
27.08825651 MHz

RBW	10 kHz	RF Att	20 dB
VBW	30 kHz		
SWT	30 ms	Unit	dBm

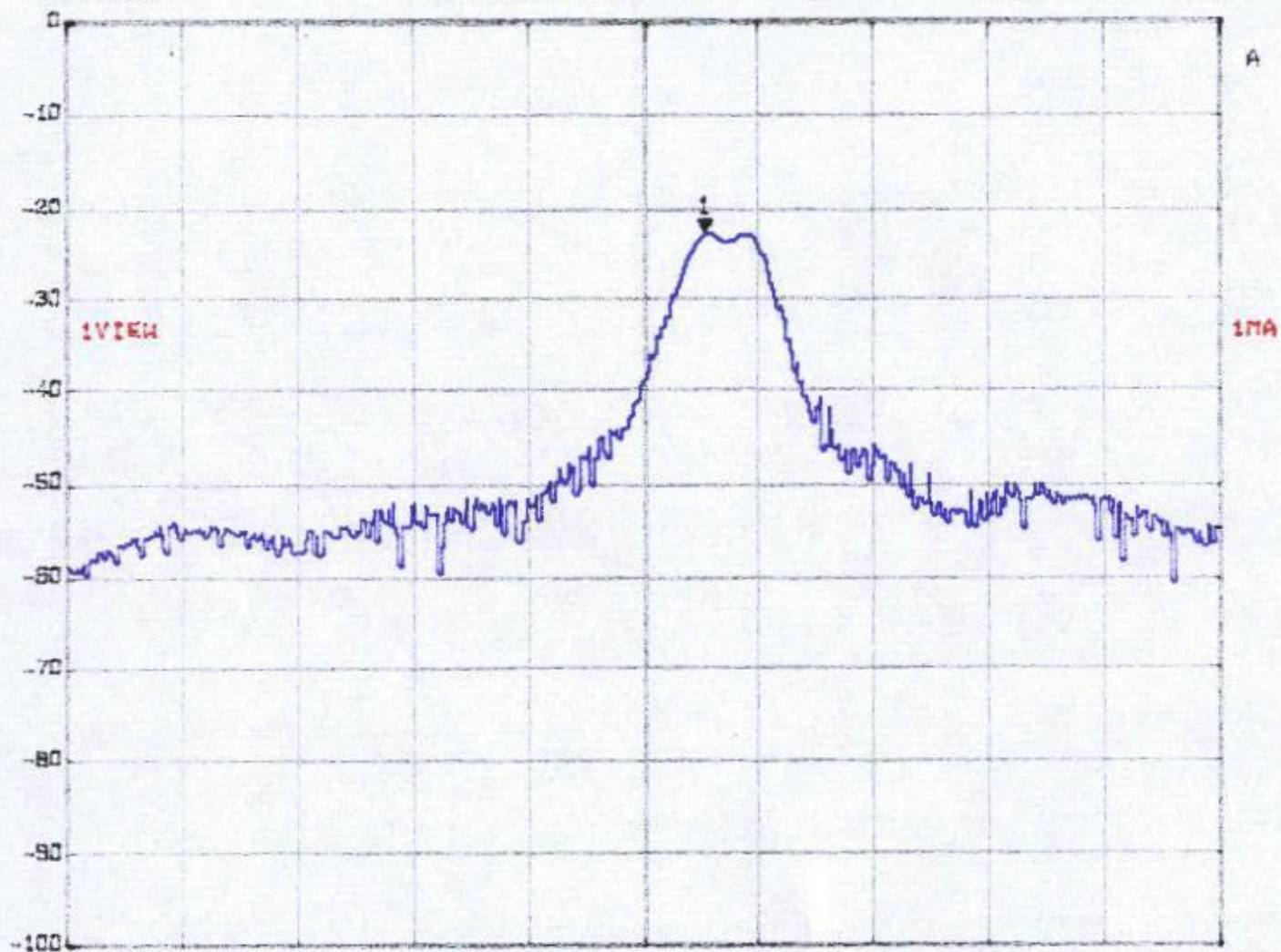


Comment A: KB

Date: 07.DEC.01 16:30:12



Marker 1 [T1] RBW 10 kHz RF Att 20 dB
Ref Lvl -22.94 dBm VBW 30 kHz
0 dBm 27.13699399 MHz SWT 30 ms Unit dBm



Comment A: X3
Date: 07.DEC.01 16:42:25