

EXHIBIT 2. MODIFICATION LIST :

“There was no Modified items during EMI test”

EXHIBIT 3. TECHNICAL INFORMATION :**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

FM TRANSMITTER CERTIFICATION TO FCC PART 15 REQUIREMENT
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PRODUCT	4" TFT LCD COLOR TELEVISION		
FCC ID	MSE4000		
MODEL NO.	SW-4000	SERIAL NO.	N/A
APPLICANT & ADDRESS	SAMWON ELECTRONICS INC. 694-2, KOJAN-DONG, NAMDONG-KU, INCHON, KOREA.		

REPORT NO.	OTC-RF-9803068	ISSUE DATE	March 23, 1998
PREPARED BY :	ONETECH CORPORATION 2 F. KUNHAN B/D, 1557-11, SEOCHO-DONG, SEOCHO-KU, SEOUL 137-070 KOREA (TEL)02-587-9037 (FAX)02-587-9039		

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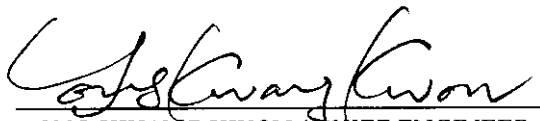
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1. VERIFICATION OF COMPLIANCE

APPLICANT : SAMWON ELECTRONICS INC.
694-2, KOJAN-DONG, NAMDONG-KU, INCHON, KOREA.
CONTACT PERSON : Yun-Sung, Cho / Managing director
TELEPHONE NO : 82-32-813-7111
FCC ID : MSE4000 MODEL NO/NAME : SW-4000
SERIAL NUMBER : N/A
DATE : March 23, 1998

DEVICE TYPE	FM TRANSMITTER-INTENTIONAL RADIATOR
E.U.T. DESCRIPTION	4" TFT LCD COLOR TELEVISION
TX FREQUENCY RANGE	Ch.1: 88.3MHz / Ch.2: 89.1MHz
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	PART 15 SUBPART C § 15.239
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	NO
FINAL TESTS WERE CONDUCTED ON	3 METER OPEN TEST SITE

The above equipment was tested by ONETECH CORPORATION for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.


YONG KWANG KWON / CHIEF ENGINEER
EMC TESTING DEPARTMENT
ONETECH Testing & Eval. Lab.
SEOUL KOREA

2. GENERAL INFORMATION

2.1 Product Description

The SAMWON ELECTRONICS INC. Model SW-4000 (referred to as the EUT in the this report) is a 4" TFT LCD COLOR TELEVISION. Product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
Tx FREQUENCY RANGE	Ch.1 88.3MHz / Ch2. 89.1MHz
ANTENNA	Rod(permanently attached) Telescopic
MODULATION	Audio FM
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	82.5, 12 and 3.58 MHz
POWER REQUIREMENTS	120Vac/60Hz with supplied AC power adaptor 12Vdc car battery with a car battery cord
NUMBER OF LAYERS	1 LAYER
PICTURE SIZE	4-inch (W80.7mm X H60.0mm)
TV SYSTEM	NTSC
TUNER TYPE NO./ MFR.	TEPA5-055A / SANGKI TRADING CO., LTD.
CHANNEL COVERAGE	VHF : 2 - 13, UHF : 14 - 69
NO. OF EXTERNAL CONNECTOR	5 (Telescopic Antenna Jack:2, GPS/VIDEO, AUDIO Input:1, Earphone:1 and DC IN:1)

Model Differences:

The following list consists of added model and their differences. The basic and added models are identical except for trade name and model name only.

	Model Differences	Trade Name
Basic Model	SW-4000	SAMWON
Added Model	SW-4000	TRIONE
	CD501DC	WHISTLER

2.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

2.3 Test System Details

The EUT was tested with the following all equipment used in the tested system are:

MODEL	MANUFACTURER	FCC ID	DESCRIPTION	CONNECTED TO
SW-4000	Samwon Electronics Inc.	MSE4000	4" TFT LCD COLOR TELEVISION	N/A
LEEMAX	N/A	N/A	STEREO EARPHONE	EUT
N/A	Samwon Electronics Inc.	N/A	DIVERSITY CONTROL UNIT(DCU)	EUT
N/A	Samwon Electronics Inc.	N/A	DIVERSITY ANTENNA	DCU
KSA-1278K	Giseung Electronics	N/A	AC ADAPTER	EUT

2.4 Test Methodology

Both Conducted, Radiated emission testing and Bandwidth of operating frequency were performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at an antenna to EUT distance of 3 meters.

2.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Detailed description of test facility was submitted to the Commission on January 24, 1996(31040/SIT, 1200F2).

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the following components inside the EUT were installed.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	SAMWON	SW4000 REV. 03	N/A

3.2 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
EUT	N	N	2.0(P), 1.0(D)
Diversity Control Unit(DCU)	N	N	1.5(P), 1.0(D)
Diversity Antenna	N/A	N	1.0(D)
Stereo Earphone	N/A	N	2.0(D)
AC Adapter	N	N/A	2.0(P)

* The marked "(D)" means the Data Cable and "(P)" means the Power Cable.

3.3 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	N	N/A	N	N/A
Diversity Control Unit(DCU)	N	N/A	Y	BOTH END
Diversity Antenna	N	N/A	Y	BOTH END
Stereo Earphone	N	N/A	N	N/A
AC Adapter	N	N/A	Y	EUT END

3.4 Equipment Modifications

To achieve compliance to FCC part 15 rule, the following change(s) were made by SAMWON ELECTRONICS INC. during compliance testing : **“There was no Modified items during EMI test”**

3.5 Configuration of Test System

Line Conducted Test : EUT was connected to AC adapter and the adapter was connected to LISN, all supporting equipments were connected to another LISN. Preliminary Powerline Conducted Emission tests were performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emissions tests were conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter open area test site.

Occupied Bandwidth Measurement:

This measurement is performed with the antenna located close enough to give a full scale deflection of the modulated carrier on the spectrum analyzer. The plot is taken at 50kHz/division frequency span, 10kHz resolution bandwidth and 5dB/division logarithmic display from a 8568B spectrum analyzer.

3.6 Antenna Requirement

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the applicant can be use with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with this requirement.

CONCLUSION:

The SAMWON transmitter complies with the requirment of § 15.203. The antenna is permanently secured and made of **Rod Antenna**.

4. PRELIMINARY TESTS

4.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Supplied voltage from AC/DC Adaptor	X
Supplied voltage from new battery	N/A

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes was investigated;

Operation Mode	The Worse operating condition (Please check one only)
Supplied voltage from AC/DC Adaptor	X
Supplied voltage from new battery	

Tested by : GEA WON, LEE

Date : March 23, 1997

6. FINAL RESULT OF MEASUREMENT

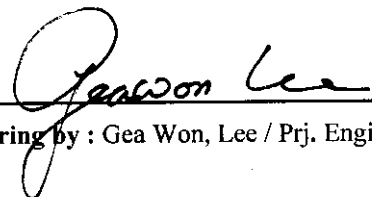
Per preliminary tests, the following normal mode of operations were selected which shown the maximum emissions level.

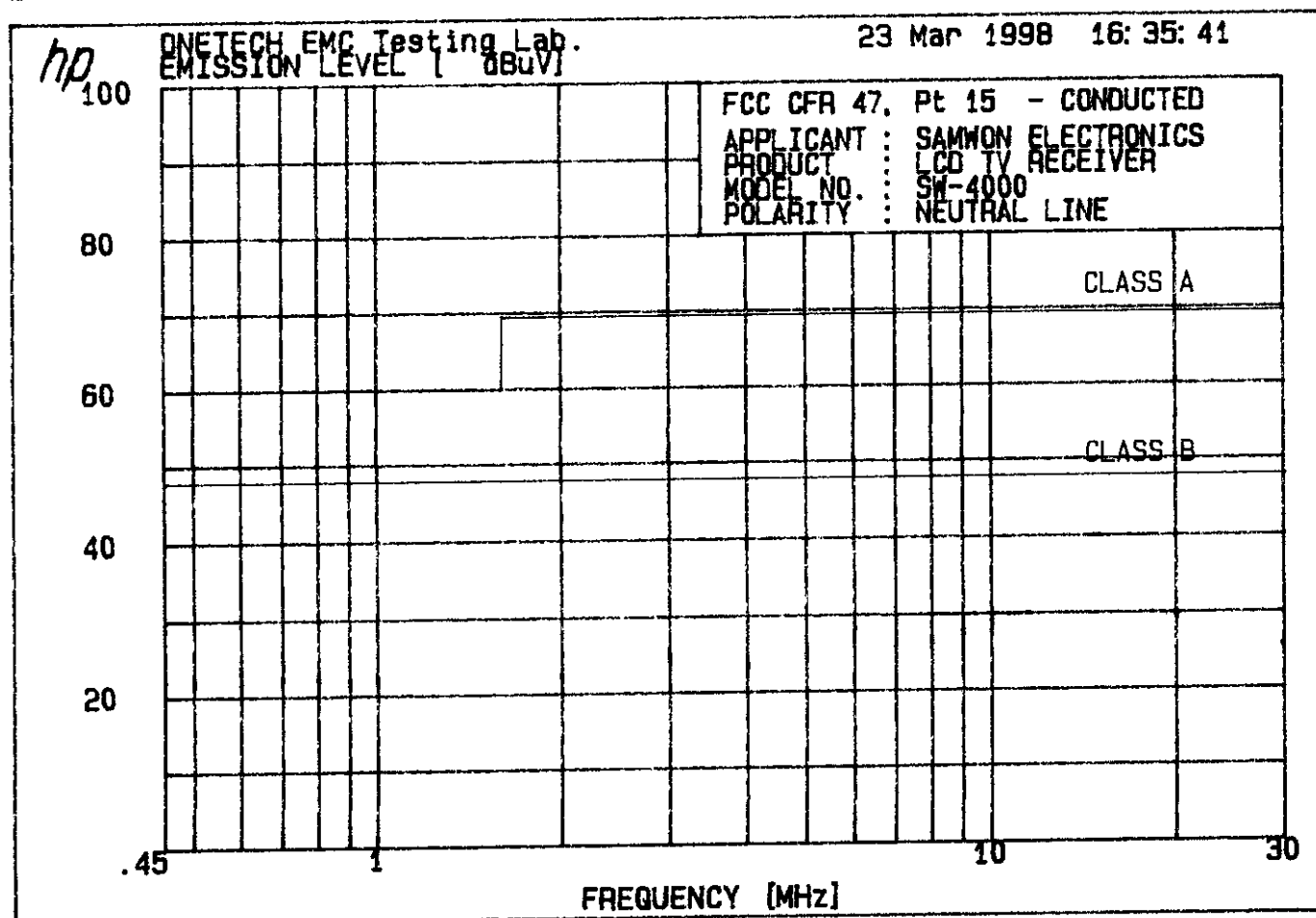
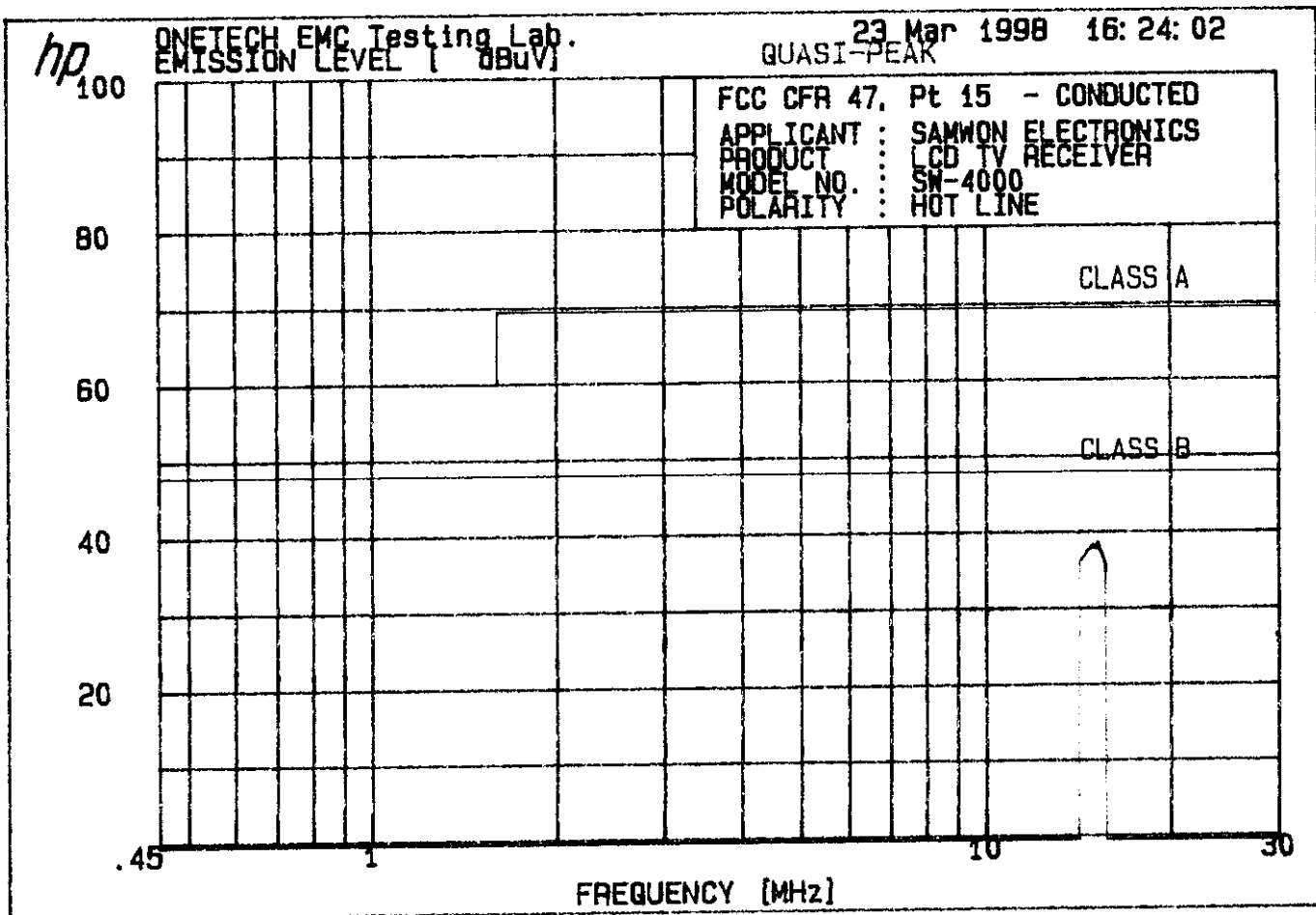
6.1 Conducted Emissions Tests

Humidity Level : 48 % Temperature : 19 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C
Result : PASSED BY -9.0dB
Operating Condition : Supplied from AC/DC Adaptor Date : March 23, 1998
Detector : CISPR Quasi-Peak (6 dB Bandwidth : 9 KHz)

Power Line Conducted Emissions			FCC Limit	
Frequency (MHz)	Amplitude (dB μ V)	conductor	Limit (dB μ V)	Margin (dB)
5.58	31.40	H	48	-16.6
9.66	32.20	H	48	-15.8
9.83	31.80	H	48	-16.2
12.43	36.20	H	48	-11.8
15.33	39.00	H	48	-9.0
19.64	31.90	H	48	-16.1

Line Conducted Emissions Tabulated Data


Measuring by : Gea Won, Lee / Prj. Engineer

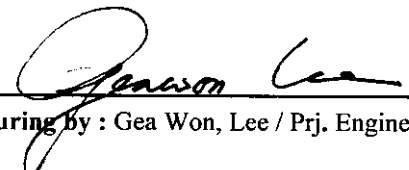


6.2 Radiated Emission Tests (Within the permitted 200kHz band)

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % Temperature : 15 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C
 Result : PASSED BY -12.62 dB
 Operating Condition : Supplied from AC/DC Adaptor Date : March 23, 1998
 Detector : CISPR Quasi-Peak (6 dB Bandwidth : 120 KHz)
 Distance : 3 Meter

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Freq. to which tuned(Ch.)	OSC. Freq (MHz)	Ampl. (dB μ V)	Pol.	Ant. (dB μ V)	Cable (dB)	Ampl (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Ch.1	88.3	21.80	V	11.18	2.40	35.38	48	-12.62
Ch.2	89.1	19.20	V	13.26	2.50	34.96	48	-13.04


 Measuring by : Gea Won, Lee / Prj. Engineer

6.3 Radiated Emission Tests (Outside of the specified 200kHz band)

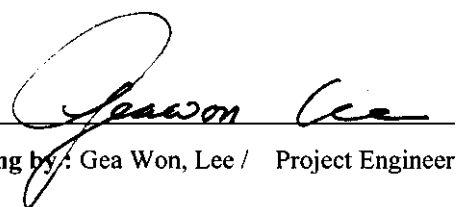
Humidity Level : 50 % Temperature : 15 °CLimits apply to : FCC CFR 47, PART 15, SUBPART CResult : PASSED BY -9.09 dB

Operating Condition : Supplied from AC/DC Adaptor Date : March 23, 1998

Detector : CISPR Quasi-Peak (6 dB Bandwidth : 120 KHz)

Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC Limit	
Freq. (MHz)	Amp. (dB μ V)	Pol.	Ant. (dB μ V)	Cable (dB)	Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
82.32	18.10	V	6.84	3.25	28.19	40.00	-11.81
88.43	15.30	V	7.81	3.30	26.41	43.50	-17.09
202.60	9.20	H	11.61	4.23	25.04	43.50	-18.46
308.80	17.30	H	14.41	5.20	36.91	46.00	-9.09
522.53	8.50	H	17.96	6.29	32.75	46.00	-13.25



Measuring by : Gea Won, Lee / Project Engineer

6.4 Bandwidth of the operating frequency

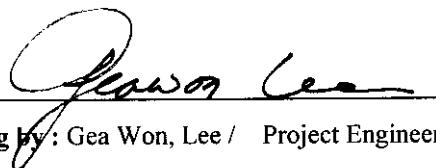
Humidity Level : 52 % Temperature : 17 °CLimits apply to : FCC CFR 47, PART 15, SUBPART CResult : PASSEDOperating Condition : Supplied from AC/DC Adaptor

Date : March 23, 1998

~~Detector~~ *Minimum* : ~~CISPR Quasi-Peak (6 dB Bandwidth: 120 KHz)~~Distance : ~~3 Meter~~*100 Hz.**R.F.*

Freq. to which tuned(Ch.)	OSC. Freq (MHz)	Bandwidth of the emission. (kHz)	Limit (kHz)	Remark
Ch.1	88.3	21.80	200	-
Ch.2	89.1	23.20	200	-

Remark: Refer to Plot #1 Test Data in next page.


Measuring by: Gea Won, Lee / Project Engineer

hp

5 dB/

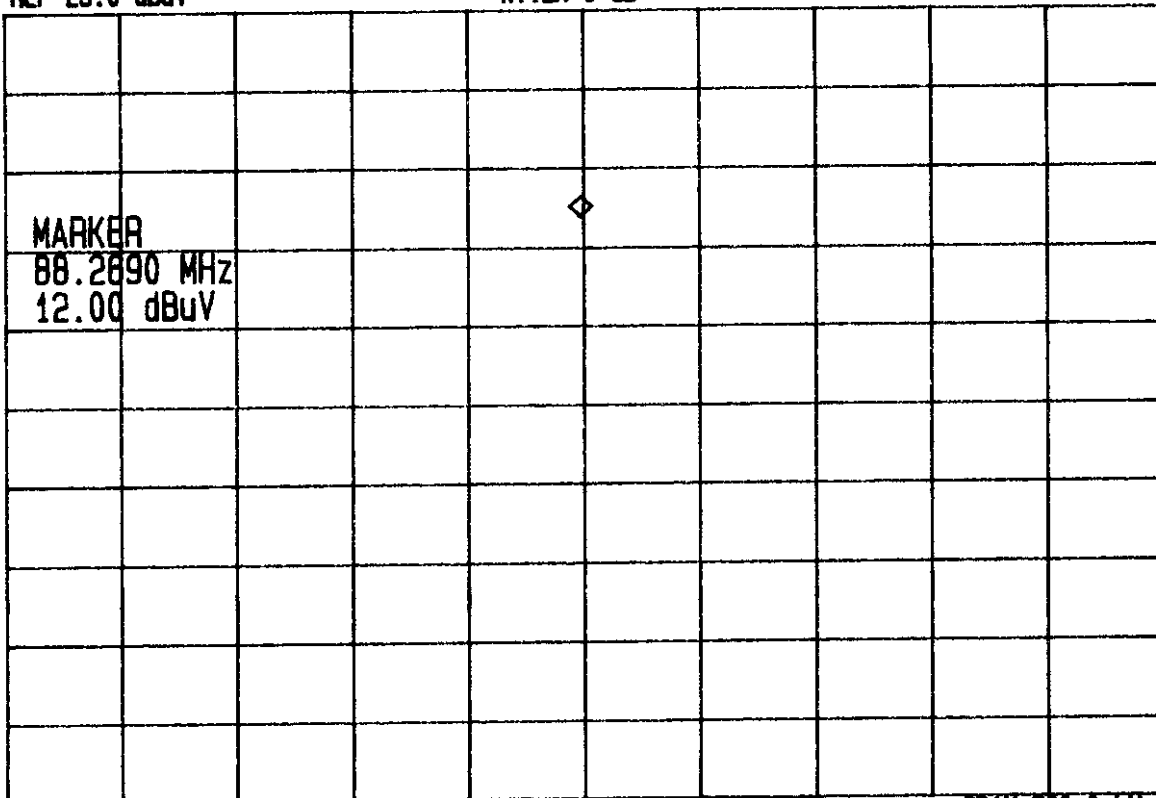
POS PK

OFFSET
-20.0
dB

REF 25.0 dBuV

ATTEN 0 dB

MKR 88.2690 MHz
12.00 dBuV



CENTER 88.2695 MHz
RES BW 10 kHz (1)

VBW 10 kHz

SPAN 500.0 kHz
SWP 1.0 sec

hp

5 dB/

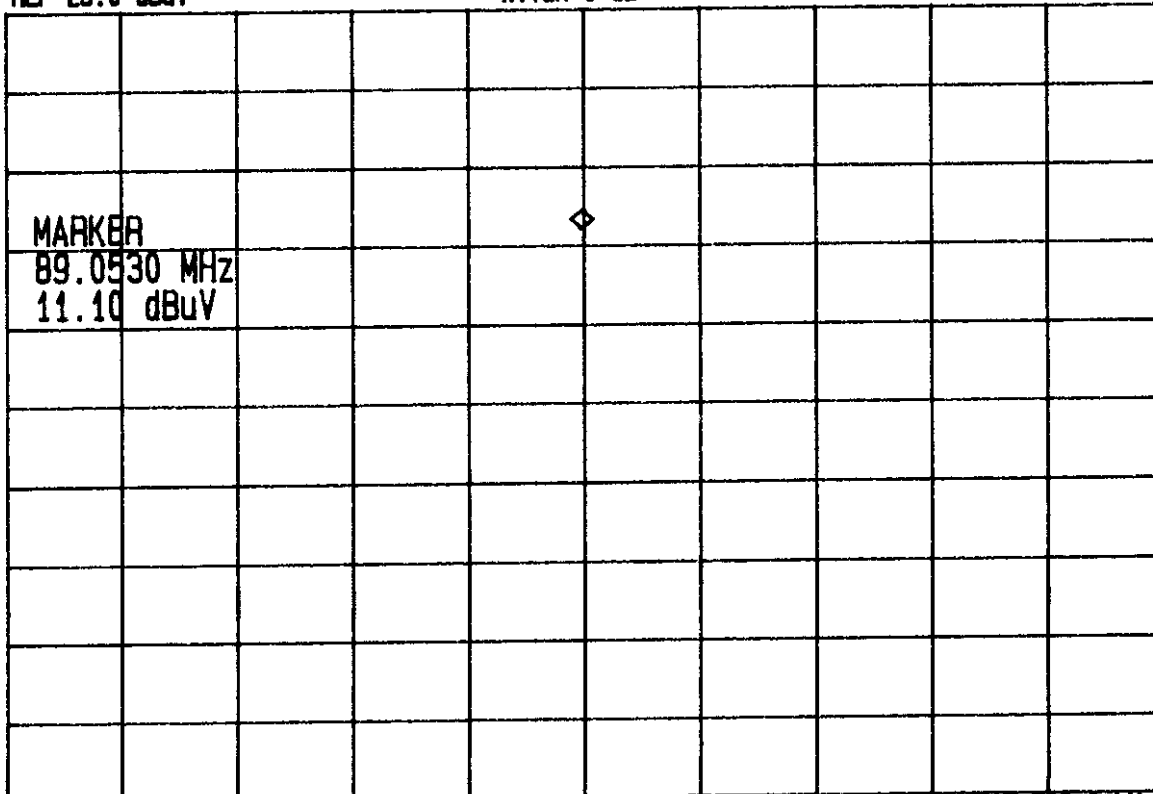
POS PK

OFFSET
-20.0
dB

REF 25.0 dBuV

ATTEN 0 dB

MKR 89.0530 MHz
11.10 dBuV



CENTER 89.0530 MHz
RES BW 10 kHz (1)

VBW 10 kHz

SPAN 500.0 kHz
SWP 1.0 sec

7. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dB μV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dB μV /meter)

- Specification Limit (dB μV /meter)

= dB Relative to Spec (+/- dB)

8. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 30	826638/008	AUG/97	12MONTH	■
2.	Spectrum analyzer	HP	8568B	3026A0226	AUG/97	12MONTH	■
3.	RF preselector	HP	85685A	3107A01264	AUG/97	12MONTH	■
4.	Quasi-Peak Adapter	HP	85650A	3107A01542	AUG/97	12MONTH	■
5.	Signal Generator	Philips	PM5518-TX	N/A	APRIL/97	12MONTH	
6.	Loop Antenna	EMCO	6502	9108-2668	DEC/95	12MONTH	
7.	Dipole Antenna	EMCO	3121C	9107-745	DEC/95	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	FEB/98	12MONTH	■
9.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	FEB/98	12MONTH	■
10.	LISN	EMCO	3825/2	9109-1867 9109-1869	FEB/98	12MONTH	■
11.	RF Amplifier	HP	8447F	3113A04554	N/A	N/A	
12.	Transient Limiter	HP	11947	N/A	N/A	N/A	
13.	Spectrum Analyzer	HP	8591A	3131A02312	APRIL/96	12MONTH	
14.	Computer System Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	N/A N/A	■ ■
15.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
16.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
17.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
18.	Turn Table	ROBOTECH			N/A	N/A	
19.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■
20.	Antenna Master	COMPLIANCE DESIGN INC	CD M-100		N/A	N/A	
21.	Spectrum Analyzer	ADVANTEST	R4131BN	91520070	Feb/97	12MONTH	

EXHIBIT 4. PHOTO REPORT

FM TRANSMITTER CERTIFICATION TO FCC PART 15 REQUIREMENT
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PRODUCT	4" TFT LCD COLOR TELEVISION		
FCC ID	MSE4000		
MODEL NO.	SW-4000	SERIAL NO.	N/A
APPLICANT & ADDRESS	SAMWON ELECTRONICS INC. 694-2, KOJAN-DONG, NAMDONG-KU, INCHON, KOREA.		

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