ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CERTIFICATION

Test report file number	**: E01DR-065**
Applicant	**: Salt Digital Co., Ltd.**
Address	**: 3F., Regent Securities Bldg., 99-7, Garak-Dong, Songpa-Gu, Seoul, 138-160, Korea**
Manufacturer	**: Salt Digital Co., Ltd.**
Address	**: 3F., Regent Securities Bldg., 99-7, Garak-Dong, Songpa-Gu, Seoul, 138-160, Korea**
Type of Equipment	**: 7" LCD TV (Low Power Communication Device Transmitter)**
FCC ID.	**: P4Z-SDT70SK**
Model / Type No.	**: SDT-70SK**
Multiple Model/ Type No.	**: N/A**
Serial number	**: N/A**
Total page of Report	**: 16 pages (including this page)**
Date of Incoming	**: December 07, 2001**
Date of issuing	**: December 21, 2001**

SUMMARY

The equipment complies with the requirements of **FCC PART 15 SUBPART C (15.239)**.

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: G. W. Lee/ Ass. Chief Engineer

Reviewed by: Y. K. Kwon/ Chief Engineer

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EMC Testing Dept : 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-City, Kyunggi-Do 464-860 Korea (TEL: 82-31-765-8289 FAX: 82-31-766-2904)

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1. VERIFICATION OF COMPLIANCE

APPLICANT	: Salt Digital Co., Ltd.
ADDRESS	: 3F., Regent Securities Bldg., 99-7, Garak-Dong, Songpa-Gu, Seoul, 138-160, Korea
CONTACT PERSON	: Mr. James Kim / Sales Manager
TELEPHONE NO	: +82-2-3401-2111
FCC ID	: P4Z-SDT70SK
MODEL NO/NAME	: SDT-70SK
SERIAL NUMBER	: N/A
DATE	: December 21, 2001

DEVICE TYPE	Low Power Communication Device Transmitter-Intentional Radiator
E.U.T. DESCRIPTION	7" LCD TV
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	Charter 13 of 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)	FCC PART 15 (15.239)
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. 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.

2. GENERAL INFORMATION

2.1 Product Description

The Salt Digital Co., Ltd., Model SDT-70SK (referred to as the EUT in this report) is a 7" LCD TV that can transmit from 88.4MHz and 88.6MHz for audio signal of FM radio receiver. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	7.6MHz, 14.31818MHz, 4MHz, 3.579545MHz
POWER REQUIREMENT	DC12V from AC/DC adapter
TX WORKING FREQUENCY	88.4MHz and 88.6MHz
NUMBER OF LAYERS	2 Layers
EXTERNAL TERMINALS	Antenna Input, AV1, 2 Input, Earphone, DC IN

Model Differences:

-. The difference(s) compared to the EUT is as follows: none

2.2 Related Submittal(s) / Grant(s)

Original submittal only

2.3 Test System Details

The model numbers for all the equipments which were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
SDT-70SK	Salt Digital Co., Ltd.	P4Z-SDT70SK	7" LCD TV(EUT)	-
SNG-1310	SEUNG JIN ELECTRONICS	N/A	AC/DC ADAPTER	EUT
-	-	N/A	EARPHONE	EUT
CTV-1010XK	KEC	N/A	TV	EUT
NCL3300	NICOM TECHNOLOGY	N/A	VCP	EUT

2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in chapter 13 of ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 12, 1999. (Registration Number: 92819)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	SALT DIGITAL CO., LTD.	SDT-7WSK	N/A
TV TUNER MODULE	SAMSUNG	TCPN9081DA10B	N/A
LCD PANEL	SHARP	B00I4C	N/A

3.2 EUT exercise Software

The 7” LCD TV under test continuously transmitted set RF signal for the purpose of the measurements.

3.2 Cable Description

Product Name	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
7" LCD TV(EUT)	N	-	1.0 (P)
TV	N	N	1.5(P), 1.2(D)
VCP	N	N	1.5(P), 1.2(D)

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

3.4 Noise Suppression Parts on Cable

Product Name	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
7" LCD TV(EUT)	N	N/A	-	-
TV	N	N/A	Y	BOTH END
VCP	N	N/A	Y	BOTH END

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3.5 Equipment Modifications

To achieve compliance to FCC part 15 rules, the following change(s) was made by ONETECH Corp. during compliance testing:

"There was no Modified items during EMI test"

3.6 Configuration of Test System

Line Conducted Test: EUT was connected to the AC adapter and this adapter was connected to LISN, all supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was 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 test were conducted using the procedure in ANSI C63.4/1992 8.3.1.1 and 13.1.4.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3meter open area test site.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

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 an 8568B spectrum analyzer.

3.7 Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

The FM transmitter antenna of the EUT is built-in the EUT, no consideration of replacement by the user.

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4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
TX mode	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
TX mode	X

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5. FINAL RESULT OF MEASURMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

Humidity Level : 48 % Temperature : 19°C

Limits apply to : FCC CFR 47, PART 15, SUBPART C

Type of Test : Low Power Communication Device Transmitter

Result : PASSED BY –12.53 dB at 18.80 MHz

EUT : 7" LCD TV Date: December 07, 2001

Operating Condition : Transmit audio signal

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	**Amplitude (dBuV)**	**Conductor**	**Limit (dBuV)**	**Margin (dB)**
0.46	29.93	HOT	48.00	-18.07
0.62	23.46	HOT	48.00	-24.54
16.00	30.28	HOT	48.00	-17.72
18.80	35.47	HOT	48.00	-12.53
24.00	30.56	HOT	48.00	-17.44
28.82	28.09	HOT	48.00	-19.91

Line Conducted Emission Tabulated Data

Tested by: Young-Min Choi / Project Engineer

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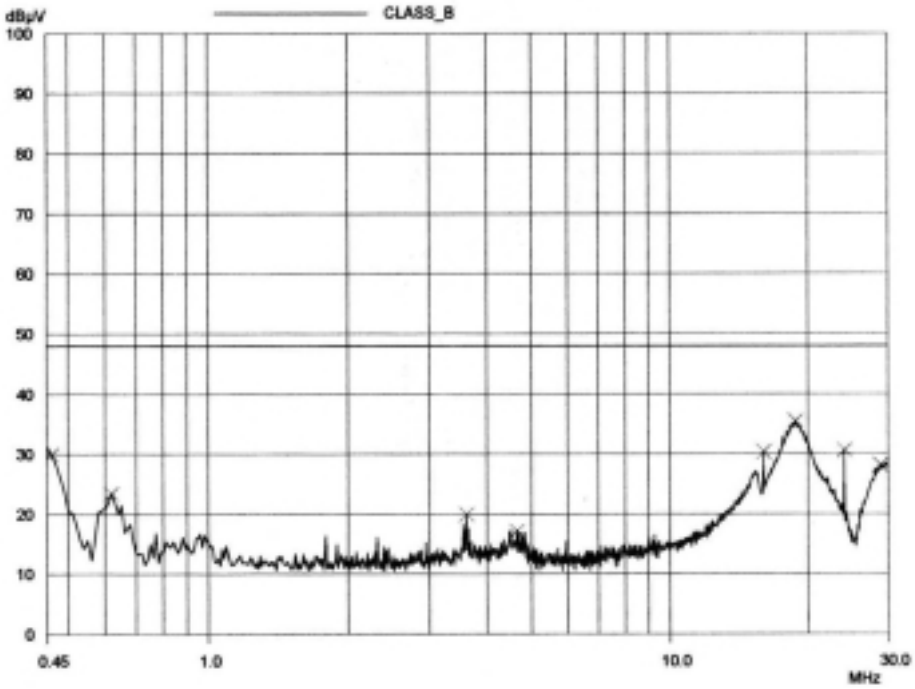
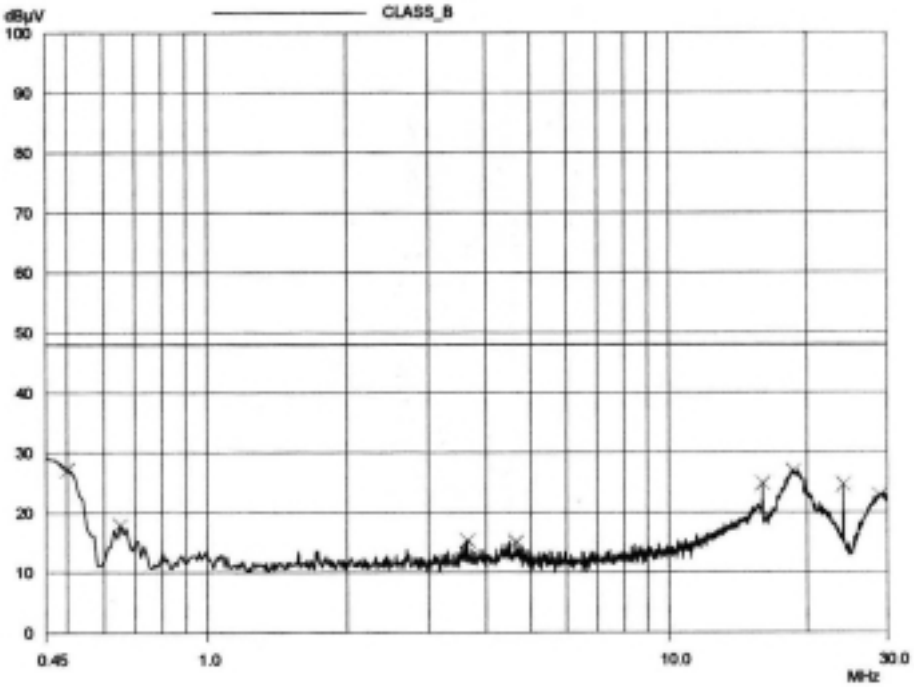


HOT LINE



NEUTRAL LINE

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5.2 Radiated Emission Test (Within the permitted 200kHz band)

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

Humidity Level : 48 % Temperature : 16°C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239

Type of Test : Low Power Communication Device Transmitter

Result : PASSED BY –17.18 dB at 88.60 MHz

EUT : 7" LCD TV Date: December 18, 2001

Operating Condition : Transmit audio signal

Distance : 3 Meter

Radiated Emission			Ant	Correction Factors		Total	Limit	Margin
Freq. (MHz)	Amp. (dBuV)	Detect Mode	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	(dBuV/m)	(dB)
88.40	25.00	Peak	V	7.98	1.10	34.08	48.00	-14.92
	20.10	Average	V	7.98	1.10	29.18	48.00	-18.82
88.60	23.60	Peak	V	8.02	1.10	34.72	48.00	-13.28
	21.70	Average	V	8.02	1.10	30.82	48.00	-17.18

Radiated Emission Tabulated Data

Tested by: Young-Min Choi / Project Engineer

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5.3 Radiated Emission Test (Outside of the specified 200kHz band)

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

Humidity Level : 48 % Temperature : 16 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209
Type of Test : Low Power Communication Device Transmitter
Result : PASSED BY –9.68 dB at 177.68 MHz

EUT : 7" LCD TV Date: December 18, 2001
Operating Condition : Transmit audio signal
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Distance : 3 Meter

TX	Radiated Emission		Ant	Correction Factors		Total	FCC	
Freq. (MHz)	Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
88.40	176.80	13.20	V	16.11	1.44	30.75	43.50	-12.75
	265.21	9.40	H	12.54	1.87	23.81	46.00	-22.19
	353.61	6.90	H	14.63	2.30	23.83	46.00	-22.17
88.60	177.68	16.20	V	16.17	1.45	33.82	43.50	-9.68
	266.28	10.10	H	12.59	1.87	24.56	46.00	-21.44
	354.88	9.80	H	14.64	2.30	26.74	46.00	-19.26

Radiated Emission Tabulated Data

Tested by: Young-Min Choi / Project Engineer

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5.4 Bandwidth of the operating frequency

Humidity Level : 49 % Temperature : 20 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239

Result : PASSED

EUT : 7" LCD TV Date: December 18, 2001

Operating Condition : Transmit audio signal on AV mode

Minimum Resolution Bandwidth : 10 kHz

Freq. (MHz)	Bandwidth of the emission. (kHz)	Limit (kHz)	Remark
88.40	166.5	200	-
88.60	145.0	200	-

Remark: Refer to Plot #2 Test Data in next page.

Tested by: Young-Min Choi / Project Engineer

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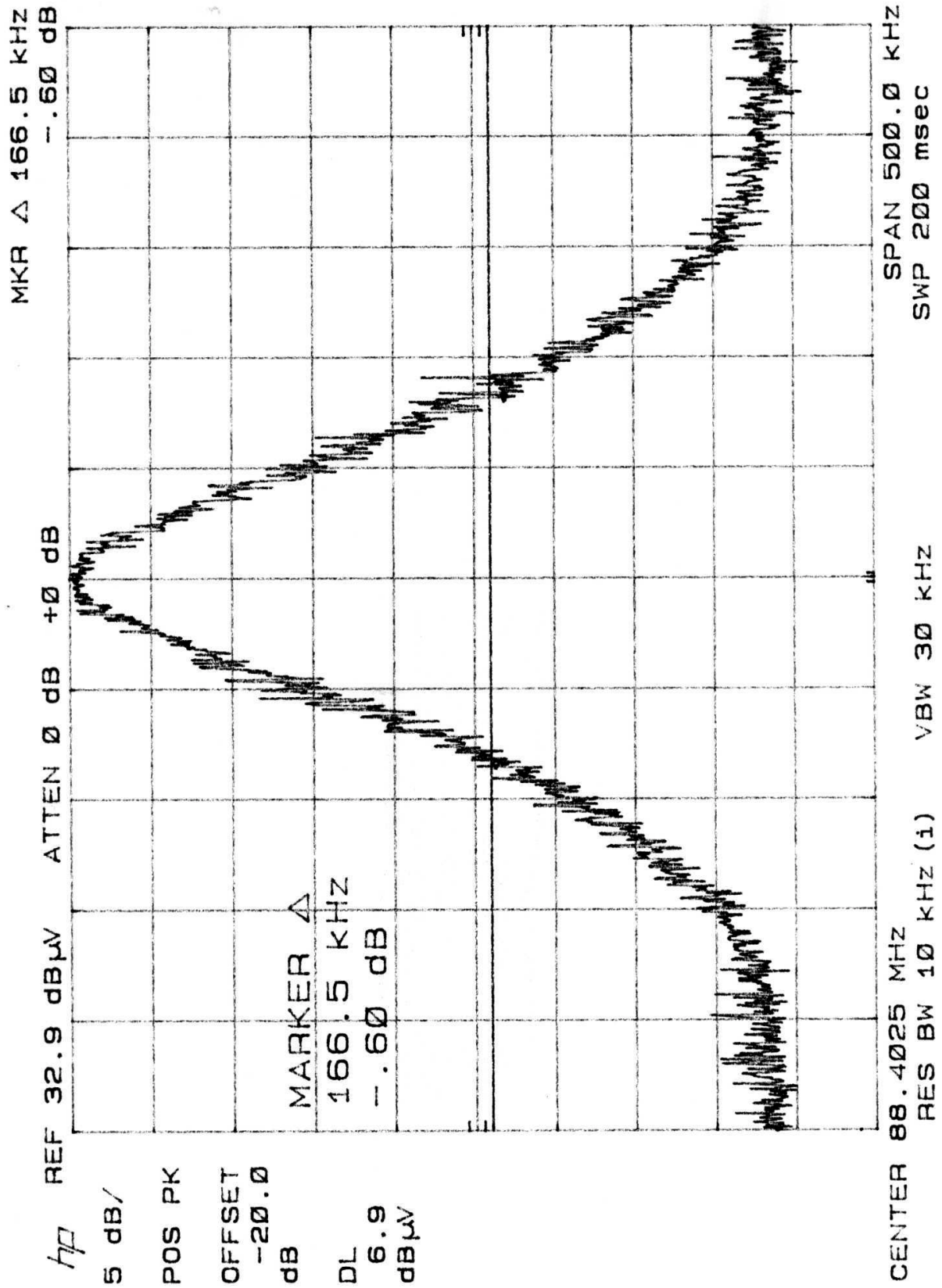

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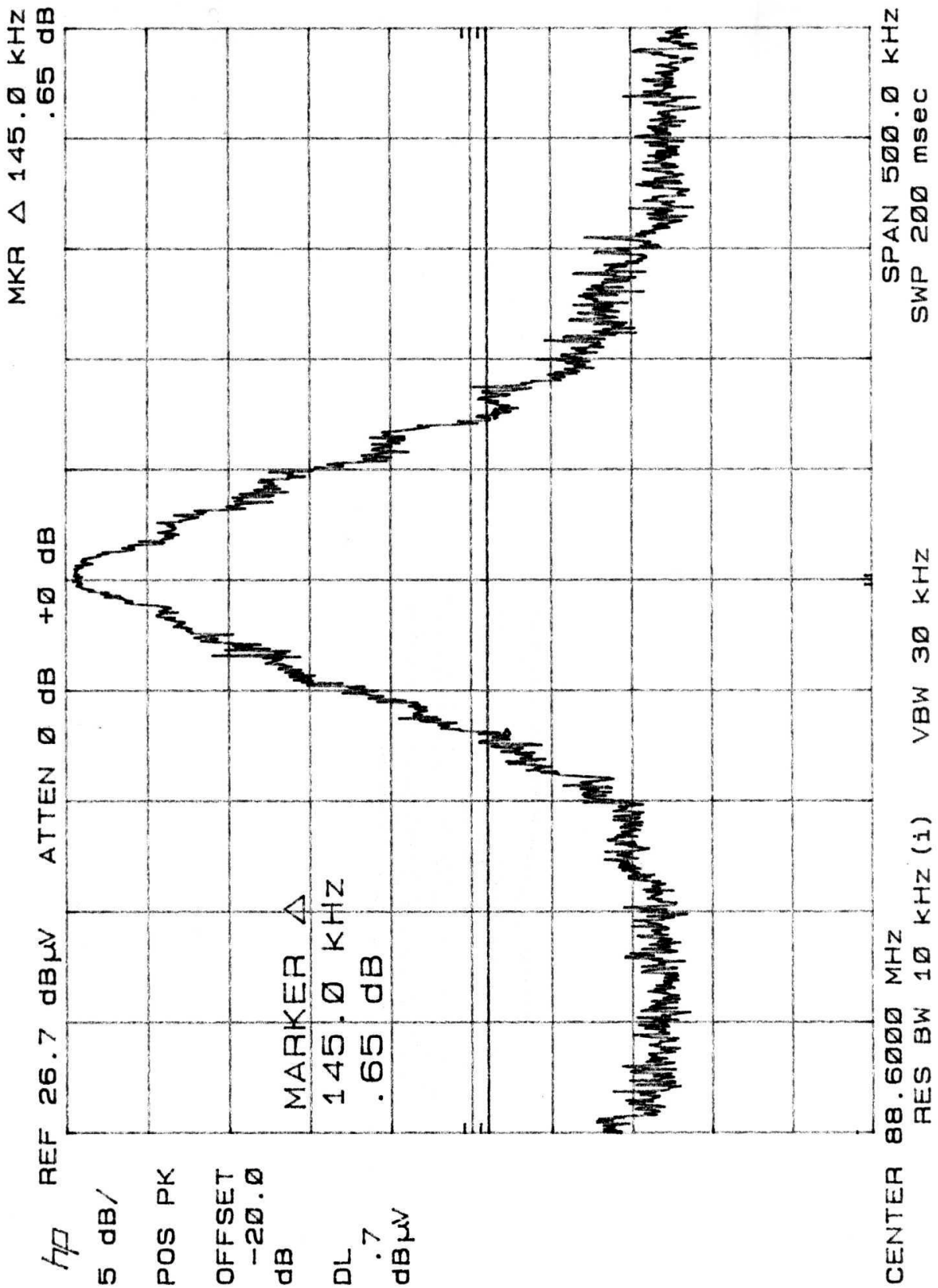
hp
REF 26.7 dBμV
ATTEN 0 dB +0 dB
MKR Δ 145.0 kHz
.65 dB
5 dB/
POS PK
OFFSET
-20.0
dB
DL
.7
dBμV
MARKER Δ
145.0 kHz
.65 dB
CENTER 88.6000 MHz
RES BW 10 kHz (i)
VBW 30 kHz
SPAN 500.0 kHz
SWP 200 msec

6. FIELD STRENGTH CALCULATION

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

+	Meter reading	(dBuV)
+	Cable Loss	(dB)
+	Antenna Factor (Loss)	(dB/meter)
=	Corrected Reading	(dBuV/meter)
-	Specification Limit	(dBuV/meter)
=	dB Relative to Spec	(+/- dB)

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7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	OCT/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/01	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/01	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/01	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/01	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/01	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/01	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUL/01	12MONTH	■
9.	Computer System Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	N/A N/A	■ ■
10.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■

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