Test Report

TEST PROCEDURES AND TEST SITE DESCRIPTION

MEASUREMENT ITEMS	Section No.
5-1 Field Strength of Radiated Emissions	15.249(a)(b) 15.205 / 15.209
5-2 Power Line Conducted Emissions	15.207

SUPPLEMENT DATA - BAND EDGE EMISSIONS

5-1 Field Strength of Radiated Emissions

15.249(a)(b)
15.205 / 15.209

The measurements were performed in accordance with the ANSI C63.4-1992. Field Strength measurements of radiated spurious emissions were made at the open test site of a 3 meter range maintained by Uniden Corporation in Japan. Complete description and measurement data of this test site have been placed on file with the Commission.

The radio frequency spectrum was scanned in the range of 30 MHz to 10 GHz in accordance with the section 15.33(b) of the FCC Rules. The frequency below 1 GHz, the measurement was carried out by using CISPR quasi-peak detector, Rohde Schwartz EUS-2 Test Receiver or the Spectrum Analyzer in accordance with the sections 15.33(a) and 15.35(a). The frequency above 1 GHz, the measurement was carried out by using the Hewlett Packard 8566B Spectrum Analyzer in accordance with the section 15.35(b).

A bilog antenna CBL6111 was used to cover the range from 30 MHz to 1000 MHz. Narrowband tuned dipole antennas SINGER DM-105 were used over the entire 25 to 1000 MHz range for precision measurements of field strength. Above 1000 MHz, a horn antenna EMCO 3115 was used.

For each spurious or harmonic frequency, the antenna was raised and lowered to obtain a maximum reading on the Spectrum Analyzer with antenna horizontally polarized. Then the turntable, on which the equipment under test was placed, was rotated a minimum of 360 degrees to further increase the reading on the Spectrum Analyzer. This procedure was repeated with the antenna vertically polarized. The equipment under test was placed in its normal operating position on a turntable approximately 1 meter in height.

In order to convert the measured emission levels into field strength in dBuV/m, the actual field strength (Ef) is determined by algebraically adding the measured emission level (Em) and the antenna correction factor (ACF) including the cable loss at the appropriate frequency. Ef [dBuV/m] = Em [dBuV/m] + ACF [dB]

FCC Limits:

a) Fundamental emission: 94 dBuV/m (50,000 uV/m)
b) Spurious emissions:

30 - 88 MHz	40 dBuV/m	(100 uV/m)
88 - 216 MHz	43.5 dBuV/m	(150 uV/m)
216 - 960 MHz	46 dBuV/m	(200 uV/m)
Above 960 MHz	54 dBuV/m	(500 uV/m)

Test Results: Refer to the attached test reports. All emissions not reported were more than 20 dB below the limits.

NOTE:
For measurement of the handset, all of the testing were made with the internal battery that is fully charged.

For measurement of base unit, all of the testing were made with the AC Adapter which connected to a standard voltage source.

5-2 Power Line Conducted Emissions 15.207

The measurements were performed in accordance with the ANSI C63.4-1992. During the measurements, a standard voltage source is fed into the unit under test through a power line impedance stabilization network.

FCC Limits:

The radio frequency voltage that is conducted back into the AC power line on any frequencies within the band from 450kHz to 30MHz shall not exceed 250uV (48 dBuV).

Test Results: Refer to the attached test reports. All emissions not reported were more than 20 dB below the limits.

NOTE:
Regarding the Handset, this FCC requirement is not applicable to it since the Handset is intended to use the battery only.

SUPPLEMENT DATA - BAND EDGE EMISSION

Attached data show the handset's transmission on lowest channel and base unit's transmission on highest channel.

At the frequency on 902 and 928MHz, emissions are well reduced as much as -70dB below the operational channel frequency of the units.

TEST CONDITIONS:

Modulation : 1,000 Hz

Max. Deviation:
+/-13.5 kHz Dev. for Base unit
+/-12.0 kHz Dev. for Base unit

5-1 Field Strength of Radiated Emissions (Test Result)

a) Handset: Fundamental Emissions

Emission	Measured Level		ACF	Field Strength	FCC Limit	Margin
(MHz)	(dBuV)	(V/H)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
902.052464	55.8	H	36.6	92.4	94.0	1.6
904.002470	54.9	H	36.6	91.5	94.0	2.5

b) Handset: Spurious Emissions

Transmitting Frequency: 904.00247MHz						
Emission	Measured Level		ACF	Field Strength	FCC Limit	Margin
(MHz)	(dBuV)	(V/H)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
925.9974	5.4	V	37.3	42.7	46.0	3.3
1806.1049	2.9	V	39.0	41.9	54.0	12.1
1875.1060	7.2	V	39.0	46.2	54.0	7.8

c) Base unit: Fundamental Emissions

Emission	Measured Level		ACF	Field Strength	FCC Limit	Margin
(MHz)	(dBuV)	(V/H)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
925.997447	55.6	V	37.0	92.6	94.0	1.4
927.947465	54.8	V	37.0	91.8	94.0	2.2

d) Base unit: Spurious Emissions

Transmitting Frequency: 926.897465MHz						
Emission	Measured Level		ACF	Field Strength	FCC Limit	Margin
(MHz)	(dBuV)	(V/H)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
463.4487	12.7	V	28.1	40.8	46.0	5.2
893.4475	6.0	V	36.5	42.5	46.0	3.5
1853.7894	4.8	V	49.0	43.8	54.0	10.2

NOTE: All emissions not reported were more than 20 dB below the FCC limit.

5-2 Power Line Conducted Emissions

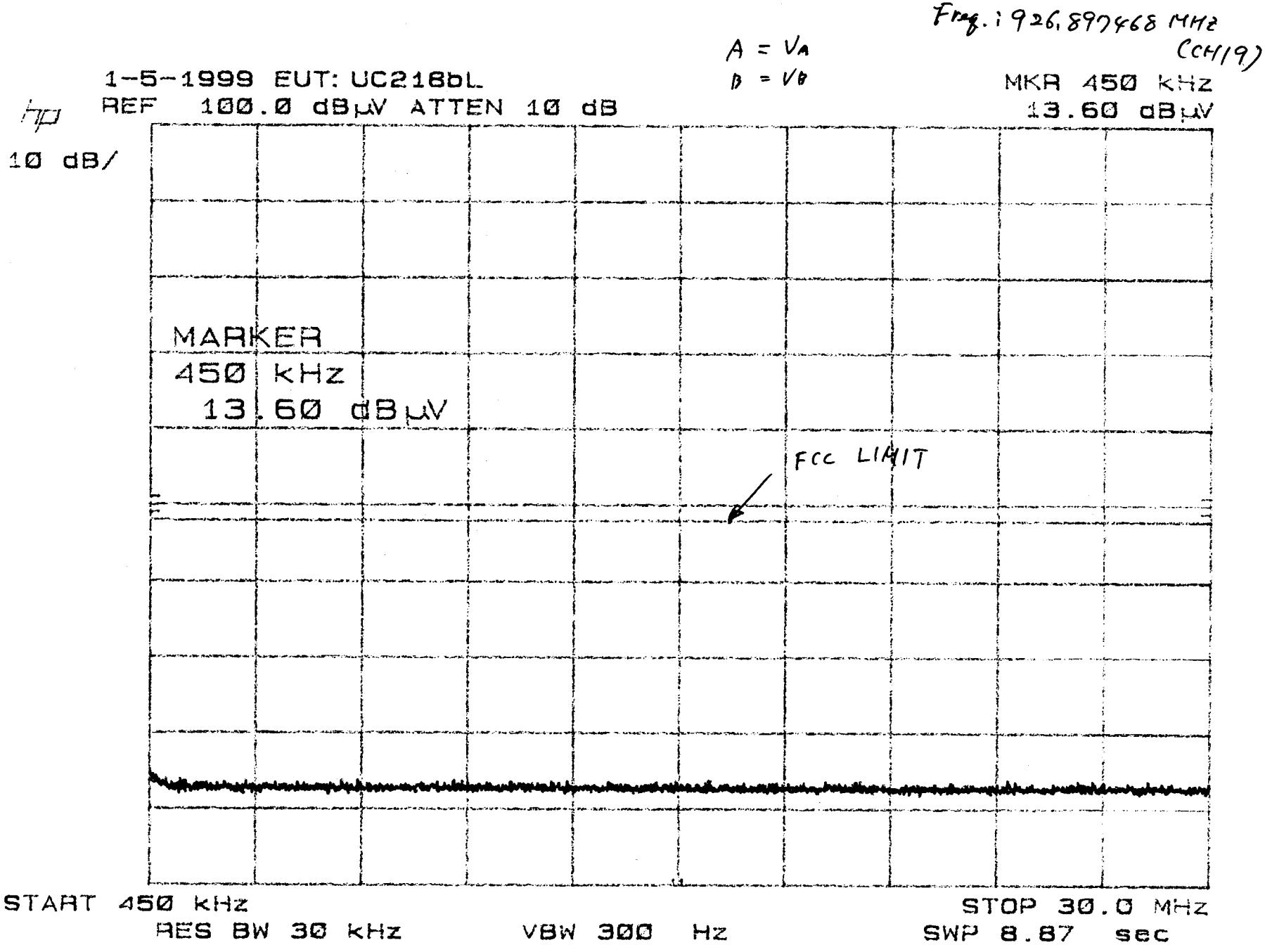
Test Result

Transmitting frequency	Emissions Frequency	Measured Level
926.897468MHz	NO EMISSIONS EXCEEDS 20dB BELOW THE FCC LIMIT.	

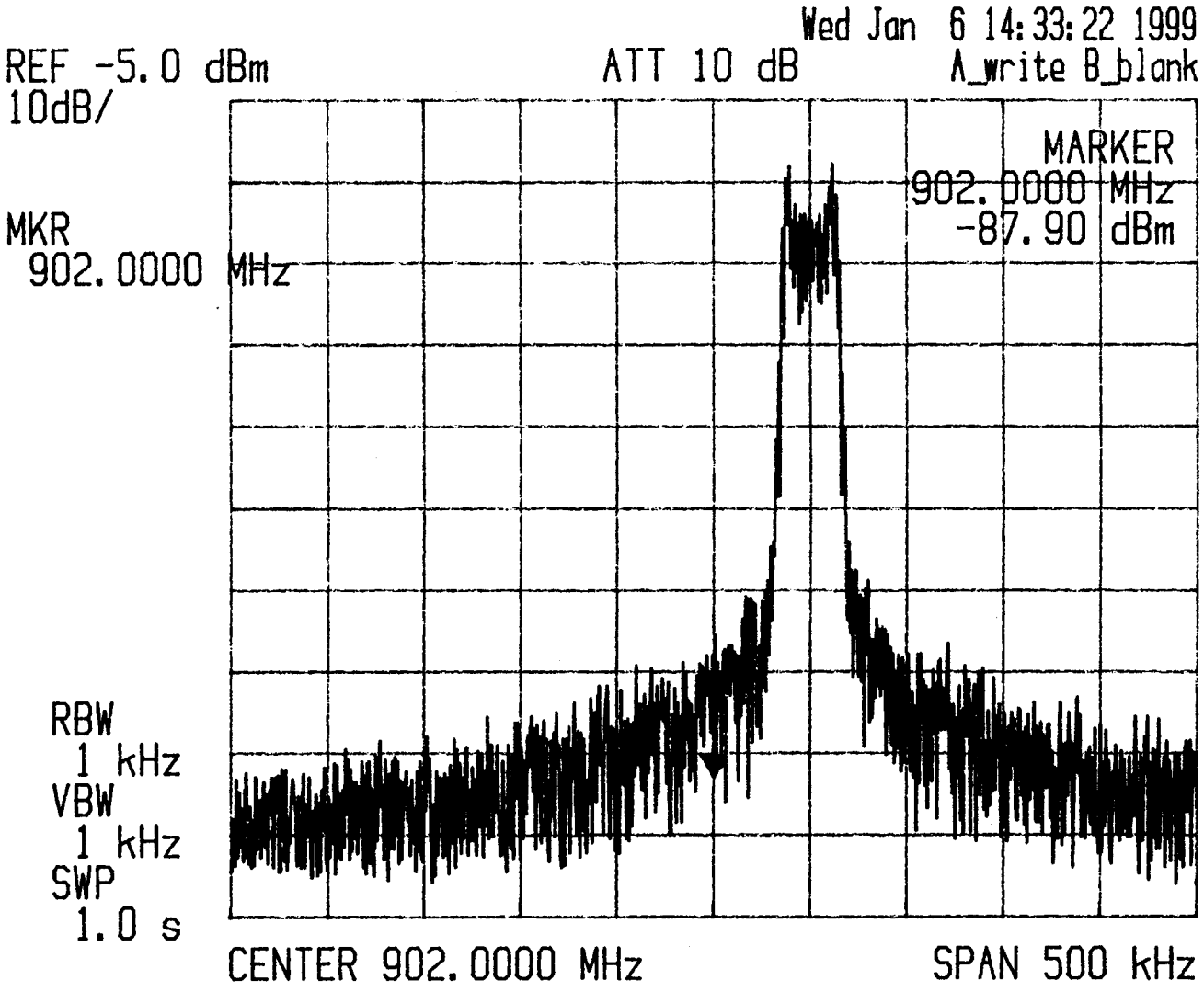
All emissions not reported were more than 20 dB below the FCC limit.
(See attached graphs as an example.)

Handset:
The FCC requirement do not apply to the handset
since the handset is designed to operate with internal battery only.

Freq.: 926.897468 MHz
(CH19)

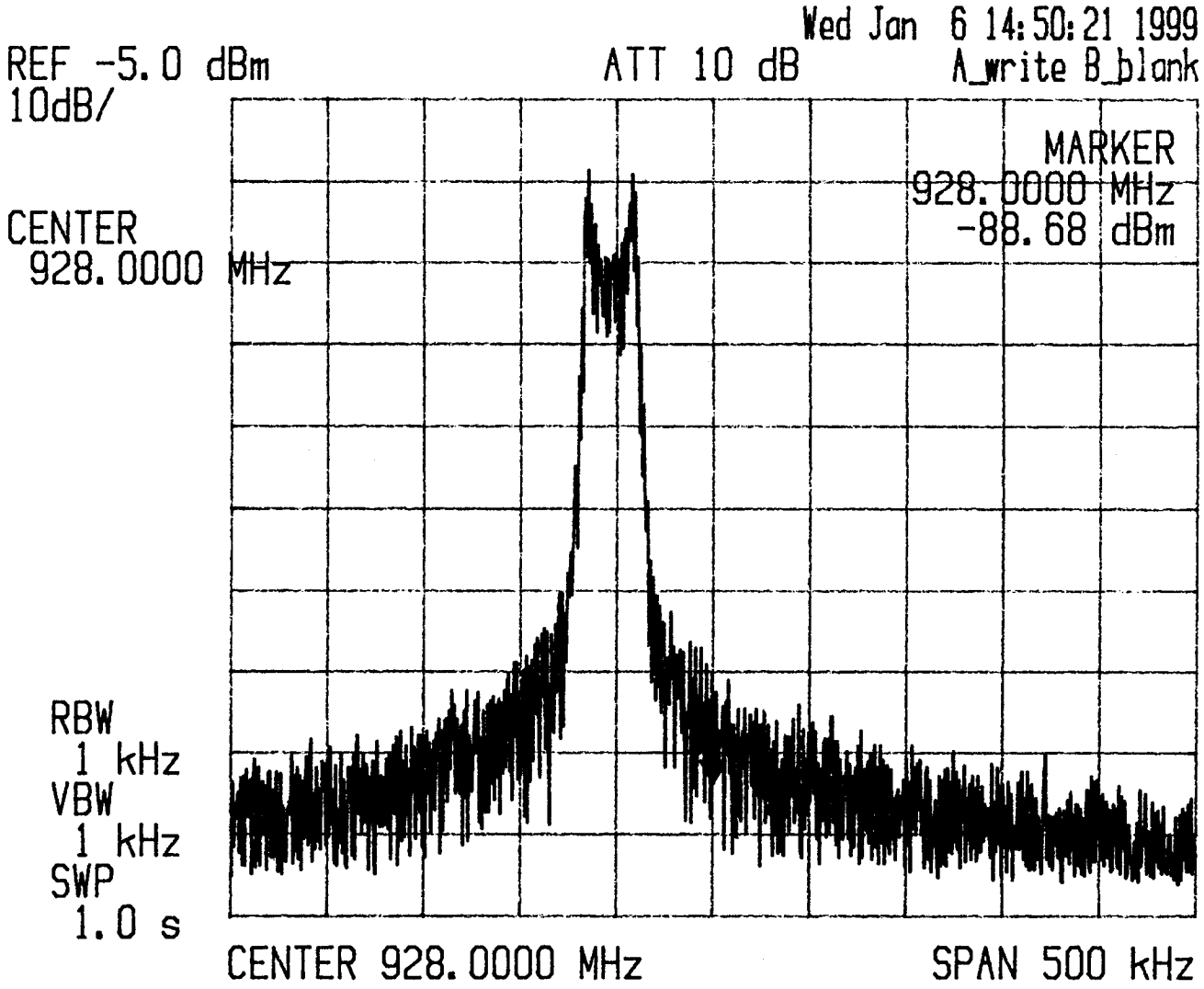


Band Edge Emission (Lower side)



Power = -5dBm
PORT = 1CH
Mod = 12kHz dev
f(AF) = 1kHz

Band Edge Emission (Upper side)



Power = -6.5 dBm
Base = 40CH
Mod = 13.5KHz dev
f(AF) = 1KHz

LIST OF MEASUREMENT EQUIPMENTS

ENG-NO	TEST EQUIPMENT	TYPE	MFR	SERIAL NO.	CATEGORY	CODE
1287	AMPLIFIER	AFS30010040020	MITEQ	138315	2171	D
1294	ANTENNA(BILOG)	CBL6111	CHASE	1057	2121	D
1602	ANTENNA(DIPOLE)	3120-B1	EMCO	0075		D
1603	ANTENNA(DIPOLE)	3120-B2	EMCO	0076		D
1604	ANTENNA(DIPOLE)	3120-B3	EMCO	0076		D
1560	ANTENNA(HORN)	3115	EMCO	2167		D
1388	LISN	KNW407	KYOURITSU	8-833-21		4
0682	POWER SUPPLY	AA300	TAKASAGO	31783013	2171	4
1305	SPECTRUM ANALYZER	8566B	HP	2504A01433	2171	D
0205	SPECTRUM ANALYZER	R3265	ADVANTEST	25060158	2171	4