

## **CERTIFICATE OF COMPLIANCE** **FCC PART 22.901(d) CERTIFICATION**

### **Test Lab:**

**CELLTECH RESEARCH INC.**  
Testing and Engineering Services  
1955 Moss Court  
Kelowna, B.C.  
Canada V1Y 9L3  
Phone: 250 - 860-3130  
Fax: 250 - 860-3110  
Toll Free: 1-877-545-6287  
e-mail: info@celltechlabs.com  
web site: www.celltechlabs.com

### **Applicant Information:**

**WITHUS IT CO., LTD.**  
2F. DongNam Bldg. 448-16  
Shingil-5Dong, YongDungPo-Ku,  
Seoul, Korea

<b>FCC Classification:</b>	<b>Licensed Non-Broadcast Transmitter Held to Ear (TNE)</b>
<b>FCC Rule Part(s):</b>	<b>§22.901(d), §2</b>
<b>FCC ID:</b>	<b>POQWCE-220</b>
<b>Model(s):</b>	<b>WCE-220</b>
<b>Equipment Type:</b>	<b>Single-Mode Cellular CDMA Phone</b>
<b>Tx Frequency Range:</b>	<b>824.70 - 848.31 MHz</b>
<b>Rx Frequency Range:</b>	<b>869.70 - 893.31 MHz</b>
<b>Max. RF Output Power:</b>	<b>0.240 Watts (ERP)</b>
<b>Frequency Tolerance:</b>	<b>± 300 Hz</b>
<b>Emission Designator:</b>	<b>1M25F9W</b>

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

*This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Research Inc. The results and statements contained in this report pertain only to the device(s) evaluated.*



**Shawn McMillen**  
**General Manager**  
**Celltech Research Inc.**



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## **MEASUREMENT REPORT - FCC PART 22.901(d)**

### **1.1 SCOPE**

Measurement and determination of electromagnetic emissions (EME) from radio frequency devices for compliance with the technical rules and regulations of the Federal Communications Commission.

### **1.2 GENERAL INFORMATION - §2.1033(a)**

<b><u>APPLICANT:</u></b>  <b>WITHUS IT CO., LTD.</b> 2F. DongNam Bldg. 448-16 Shingil-5Dong, YongDungPo-Ku, Seoul, Korea	
<b>FCC ID</b>	<b>POQWCE-220</b>
<b>Model(s)</b>	<b>WCE-220</b>
<b>EUT Type</b>	<b>Single-Mode Cellular CDMA Phone</b>
<b>Classification</b>	<b>Licensed Non-Broadcast Transmitter Held to Ear (TNE)</b>
<b>Rule Part(s)</b>	<b>§22.901(d), §2</b>
<b>Max. RF Output Power</b>	<b>0.240 Watts (ERP)</b>
<b>Tx Freq. Range</b>	<b>824.70 – 848.31 MHz</b>
<b>Rx Freq. Range</b>	<b>869.70 – 893.31 MHz</b>
<b>Frequency Tolerance</b>	<b>± 300 Hz</b>
<b>Emission Designator</b>	<b>1M25F9W</b>
<b>Modulation</b>	<b>CDMA</b>
<b>Battery Type(s)</b>	<b>3.6V 950mA/h Lithium Ion</b>
<b>Antenna Type</b>	<b>Retractable Whip (1/4l )</b>

## **2.1 MEASUREMENT PROCEDURES**

### **2.2 RF OUTPUT POWER - §2.1046**

The conducted power was measured using a Gigatronics 8650A Universal Power Meter in modulated average power mode. An offset value in dB was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The transmitter terminal was coupled to the power meter and the EUT was placed into test mode via keypad access at a full data rate in the “always up” power control mode. All subsequent tests were performed using the same tune up procedures.

### **2.3 OCCUPIED BANDWIDTH - §2.1049(c)**

The antenna output terminal of the EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator. The radio transmitter was operating at maximum output power. 100% of the in-band modulation was below the specified mask per §22.917.

Specified Limits:

- (a) On any frequency removed from the assigned carrier frequency by more than 20kHz, up to and including 45kHz, the sideband was at least 26dB below the carrier.
- (b) On any frequency removed from the assigned carrier frequency by more than 45kHz, up to and including 90kHz, the sideband was at least 45dB below the carrier.
- (c) On any frequency removed from the assigned carrier frequency by more than 90kHz, up to the first multiple of the carrier frequency, the sideband was at least 60dB below the carrier of  $40 + \log_{10}$  (mean power output in Watts) dB, whichever was the smaller attenuation.

### **2.4 SPURIOUS EMISSIONS AT ANTENNA TERMINAL - §2.1051**

The level of the carrier and the various conducted spurious frequencies were measured by means of a calibrated spectrum analyzer. The spectrum was scanned from 10MHz to 20GHz. The antenna output terminal of the EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator and coaxial cable.

### **2.5 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053**

Radiated and harmonic emissions were measured on a 3-meter outdoor site. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied in height from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level.

### **2.6 EMISSION DESIGNATOR - §2.202**

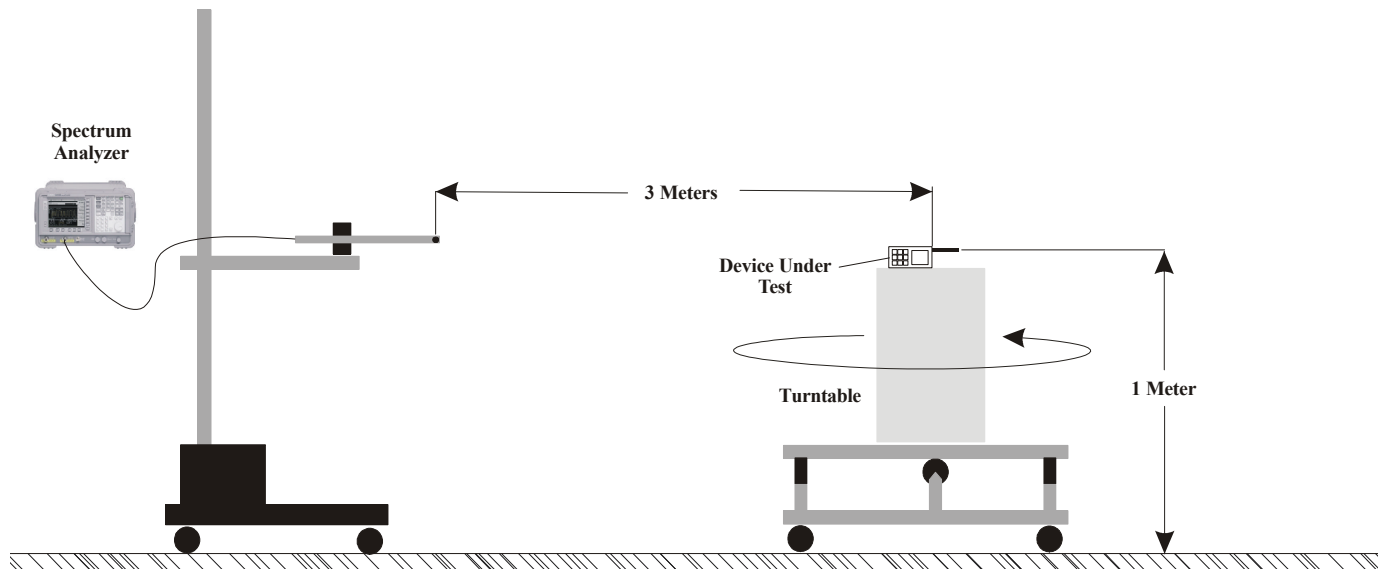
2M + 2DK

CDMA BW = 1.25 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)



**Radiated Measurement Test Setup Diagram**



**Radiated Measurement Test Setup Photograph**

## **2.7 FREQUENCY STABILITY / TEMPERATURE VARIATION - §2.1055**

The minimum frequency stability shall be  $\pm 300\text{Hz}$  referenced to a received carrier frequency from a base station. This meets the requirement for operational accuracy of 0.00005% for digital mode. A base station simulator was used to measure the error in the frequency.

### **Measurement Method:**

The frequency stability of the transmitter was measured by:

1. Temperature: The temperature was varied from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  at intervals no more than  $10^{\circ}\text{C}$  throughout the temperature range using an environmental chamber. A period of time sufficient to stabilize all of the components in the equipment shall be allowed prior to each frequency measurement.
2. Primary Supply Voltage: The primary supply voltage was set at the specified nominal rating and reduced to the battery operating endpoint specified by the manufacturer. The voltage was measured at the terminals of the power supply or at the input to the cable normally provided with the equipment.

### **Time Period and Procedure:**

1. The carrier frequency of the transmitter was measured at room temperature ( $25^{\circ}\text{C}$  to  $27^{\circ}\text{C}$  to provide a reference).
2. The equipment was subjected to an overnight "soak" at  $-30^{\circ}\text{C}$  without any power applied.
3. After the overnight "soak" at  $-30^{\circ}\text{C}$ , the measurement of the carrier frequency of the transmitter was made within a three-minute interval after applying power to the transmitter.
4. Frequency measurements were made at  $10^{\circ}\text{C}$  intervals up to  $+60^{\circ}\text{C}$ , then back to room temperature. A minimum period of one hour was provided to allow stabilization of the equipment at each temperature level.

### **3.1 TEST DATA**

### ***3.2 EFFECTIVE RADIATED POWER OUTPUT - §2.1046***

#### **800MHz CDMA MODE**

Freq. Tuned	EUT Conducted Power	Max. Field Strength of EUT (dBm) (Horizontal Polarization)		Dipole Gain	Dipole Forward Conducted Power	ERP of EUT Dipole Gain + Dipole Forward Conducted Power	
		Antenna Retracted	Antenna Extended			(dBm)	Watts
824.70	24.00	- 13.70	- 11.50	- 1.44	24.60	23.16	0.207
835.89	24.00	- 14.30	- 10.70	- 1.34	25.00	23.66	0.232
848.31	24.00	- 12.99	- 11.60	- 1.24	25.04	23.80	0.240

#### **NOTES:**

1. ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A half-wave dipole was substituted in place of the EUT. A CDMA signal with the same bandwidth as the EUT was generated, amplified, and fed through a directional coupler. The height and direction of the dipole was adjusted in order to give the field of maximum intensity. The power to the dipole was adjusted in order to give the same field strength reading as previously recorded for the EUT. The power at the couple port was recorded at this point. The feed point for the dipole was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the dipole antenna. The conducted power at the antenna feed point was recorded. The ERP level was determined by adding the forward dipole power and the dipole gain in dB. For readings above 1GHz the above method is repeated using standard gain horn antennas.

2. ERP measurements were performed using the standard battery, which is the only battery option for this phone.

### 3.3 FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

Operating Frequency (MHz): 824.70  
Channel: 1013 (Low)  
Measured Cond. Pwr. (dBm): 24.00  
Measured ERP (dBm): 23.16  
Modulation: CDMA (Internal)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1649.40	-92.76	-69.87	6.6	H	-63.27	-65.41	88.57
2474.10	-93.63	-63.83	7.8	H	-56.03	-58.17	81.33
3298.80	-95.80	-69.22	7.75	H	-61.47	-63.61	86.77
4123.50	-97.01	-68.99	7.6	H	-61.39	-63.53	86.69
4948.20	-96.94	-70.58	8.5	H	-62.08	-64.22	87.38
5772.90	-96.79	-68.91	8.8	H	-60.11	-62.25	85.41
6597.60	-96.77	-68.89	9.6	H	-59.29	-61.43	84.59
7422.30	-96.19	-70.66	9.0	H	-61.66	-63.80	86.96
8247.00	-92.43	-66.22	9.3	H	-56.92	-59.06	82.22

#### Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The video bandwidth and resolution bandwidth were set to 3MHz. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward power for the antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the horn antenna gain in dB.

NOTE: All other spurious emissions were found to be below the magnitude of each harmonic.



**FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053**

Operating Frequency (MHz): 835.89  
Channel: 363 (Mid)  
Measured Cond. Pwr. (dBm): 24.00  
Measured ERP (dBm): 23.66  
Modulation: CDMA (Internal)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1671.78	-91.35	-68.46	6.6	H	-61.86	-64.00	87.66
2507.67	-94.26	-64.46	7.8	H	-56.66	-58.80	82.46
3343.56	-95.89	-69.31	7.75	H	-61.56	-63.70	87.36
4179.45	-96.57	-68.55	7.6	H	-60.95	-63.09	86.75
5015.34	-96.71	-70.35	8.5	H	-61.85	-63.99	87.65
5851.23	-96.73	-68.85	8.8	H	-60.05	-62.19	85.85
6687.12	-96.31	-68.43	9.6	H	-58.83	-60.97	84.63
7523.01	-96.12	-70.59	9.0	H	-61.59	-63.73	87.39
8358.90	-93.21	-67.00	9.3	H	-57.70	-59.84	83.50

**Radiated Measurements by Substitution Method:**

The EUT was placed on a turntable 3-meters from the receive antenna. The video bandwidth and resolution bandwidth were set to 3MHz. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward power for the antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the horn antenna gain in dB.

NOTE: All other spurious emissions were found to be below the magnitude of each harmonic.

**FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053**

Operating Frequency (MHz): 848.31  
Channel: 777 (High)  
Measured Cond. Pwr. (dBm): 24.00  
Measured ERP (dBm): 23.80  
Modulation: CDMA (Internal)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1696.62	-92.21	-69.32	6.6	H	-62.72	-64.86	88.66
2544.93	-93.13	-63.33	7.8	H	-55.53	-57.67	81.47
3393.24	-93.59	-67.01	7.75	H	-59.26	-61.40	85.20
4241.55	-95.27	-67.25	7.6	H	-59.65	-61.79	85.59
5089.86	-95.71	-69.35	8.5	H	-60.85	-62.99	86.79
5938.17	-96.01	-68.13	8.8	H	-59.33	-61.47	85.27
6786.48	-95.89	-68.01	9.6	H	-58.41	-60.55	84.35
7634.79	-95.67	-70.14	9.0	H	-61.14	-63.28	87.08
8483.10	-93.89	-67.68	9.3	H	-58.38	-60.52	84.32

**Radiated Measurements by Substitution Method:**

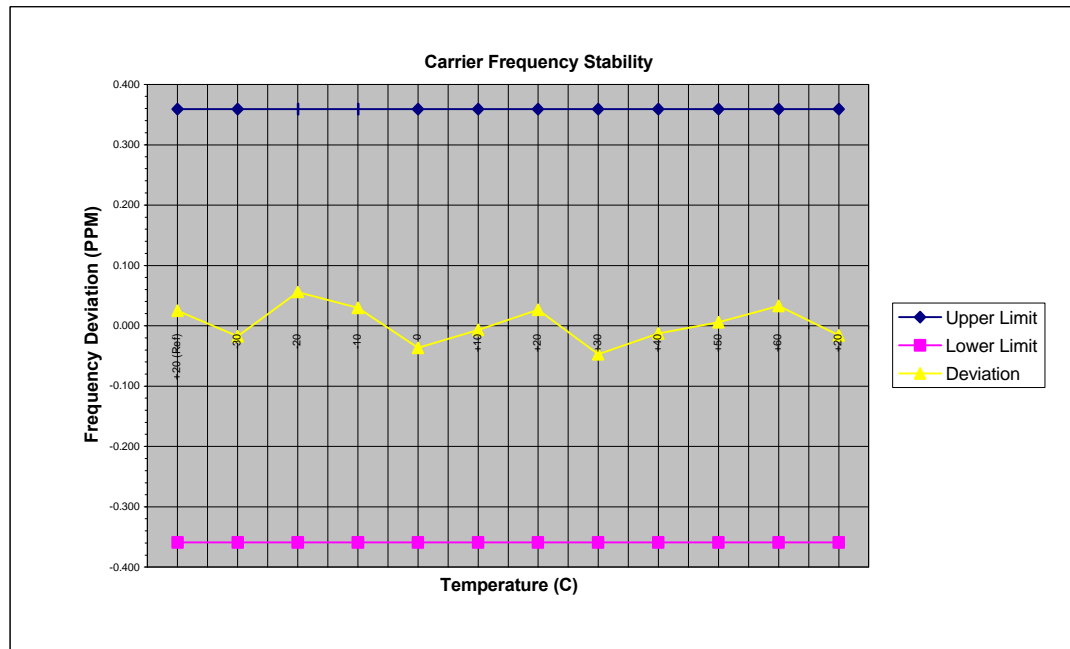
The EUT was placed on a turntable 3-meters from the receive antenna. The video bandwidth and resolution bandwidth were set to 3MHz. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward power for the antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the horn antenna gain in dB.

NOTE: All other spurious emissions were found to be below the magnitude of each harmonic.

### 3.4 FREQUENCY STABILITY - § 2.1055

Carrier Frequency: 835.89 MHz  
Channel: 363  
Mode: CDMA  
Deviation Limit (PPM): 0.359

Temperature (C)	Voltage (%)	Power (VDC)	Carrier Frequency Deviation		Specification	
			(Hz)	(PPM)	Upper Limit (PPM)	Lower Limit (PPM)
+20 (Ref)	100	3.7	20.78	0.025	0.359	-0.359
-30	100	3.7	-14.67	-0.018	0.359	-0.359
-20	100	3.7	46.72	0.056	0.359	-0.359
-10	100	3.7	24.87	0.030	0.359	-0.359
0	100	3.7	-30.71	-0.037	0.359	-0.359
+10	100	3.7	-5.74	-0.007	0.359	-0.359
+20	100	3.7	22.00	0.026	0.359	-0.359
+30	100	3.7	-39.40	-0.047	0.359	-0.359
+40	100	3.7	-10.73	-0.013	0.359	-0.359
+50	100	3.7	4.97	0.006	0.359	-0.359
+60	100	3.7	27.57	0.033	0.359	-0.359
+20	Battery Endpoint	3.3	-13.13	-0.016	0.359	-0.359



#### **4.1 TEST EQUIPMENT**

<b><u>Type</u></b>	<b><u>Model</u></b>	<b><u>Calib. Due Date</u></b>	<b><u>Serial No.</u></b>
HP Signal Generator	8648D (9kHz-4.0GHz)	Aug 2002	3847A00611
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	Nov 2002	835537/022
Gigatronics Power Meter	8652A	Oct 2002	1835272
Gigatronics Power Sensor	80701A (0.05-18GHz)	Jan 2002	1833535
Gigatronics Power Sensor	80701A (0.05-18GHz)	Feb 2002	1833542
Amplifier Research Power Amp.	5S1G4 (5W, 800MHz-4.2GHz)	N/A	26235
Microwave System Amplifier	HP 83017A (0.5-26.5GHz)	N/A	3123A00587
Network Analyzer	HP 8753E (30kHz-3GHz)	Nov 2002	US38433013
Audio Analyzer	HP 8903B	Nov 2002	3729A18691
Modulation Analyzer	HP 8901A	July 2002	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 2002	3736A05175
CDMA Base Station Simulator	Agilent E8285A	Feb 2002	US40332926
DC Power Supply	HP E3611A	N/A	KR83015294
Multi-Device Controller	EMCO 2090	N/A	9912-1484
Mini Mast	EMCO 2075	N/A	0001-2277
Turntable	EMCO 2080-1.2/1.5	N/A	0002-1002
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-240
Roberts Dipoles	Compliance Design (2 sets) 3121C	June 2002	
Spectrum Analyzer	HP 8594E	March 2002	3543A02721
Spectrum Analyzer	HP E4408B	Nov 2002	US39240170
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	N/A	16297
Environmental Chamber	ESPEC ECT-2 (Temperature/Humidity)	Feb 2002	0510154-B

### **5.1 CONCLUSION**

The data in this measurement report shows that the WITHUS IT CO., LTD. Model: WCE-220 Single-Mode Cellular CDMA Phone FCC ID: POQWCE-220 complies with all the requirements of Parts 2 and 22.901(d) of the FCC rules.

# TEST PLOTS

---



15:45:47 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 1013

Ref 24 dBm

#Atten 5 dB

Mkr1 2.425 GHz

-32.2 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

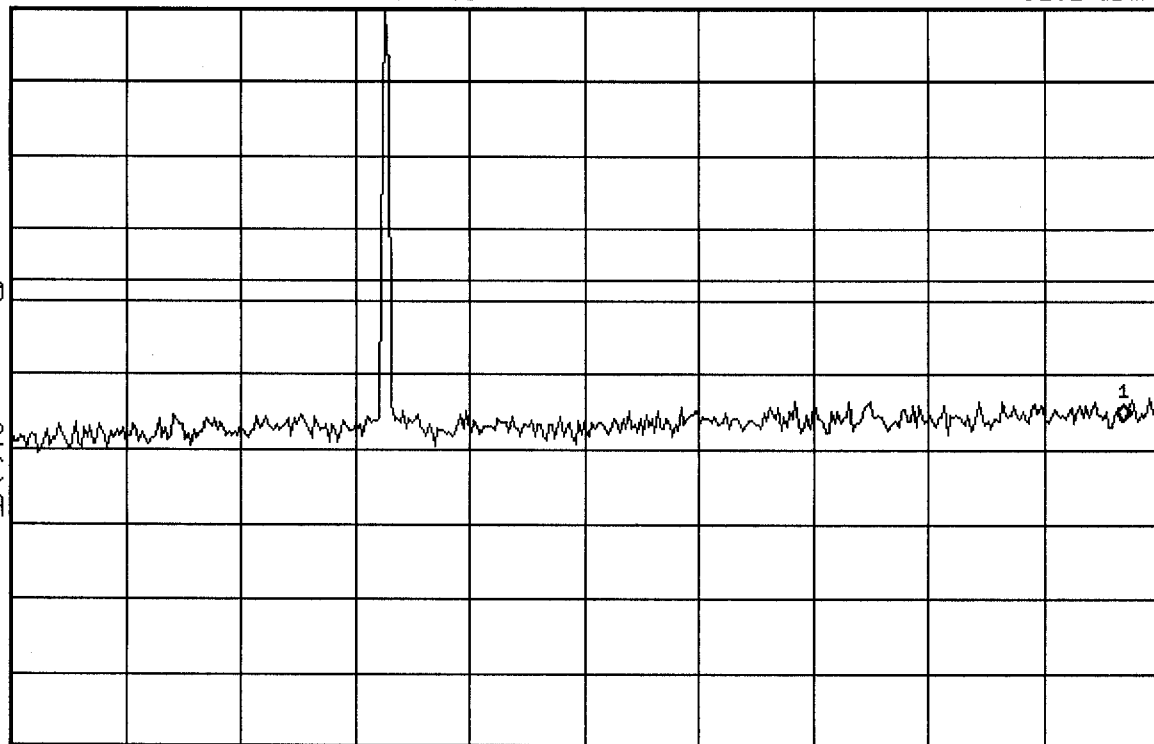
Start 10 MHz

\*Res BW 3 MHz

\*VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms





15:44:52 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 1013

Ref 24 dBm

\*Atten 5 dB

Mkr1 2.988 GHz

-28.65 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

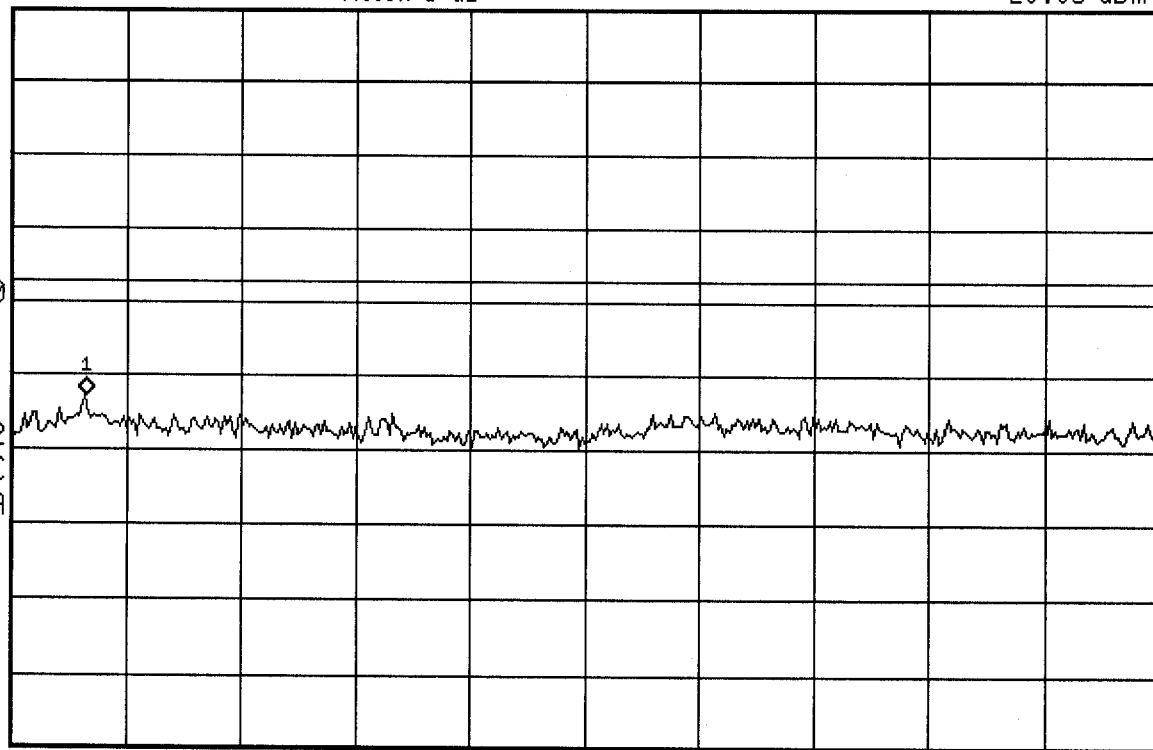
Start 2.5 GHz

\*Res BW 3 MHz

\*VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms







15:44:25 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 1013

Mkr1 13.33 GHz

Ref 24 dBm

#Atten 5 dB

-30.47 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

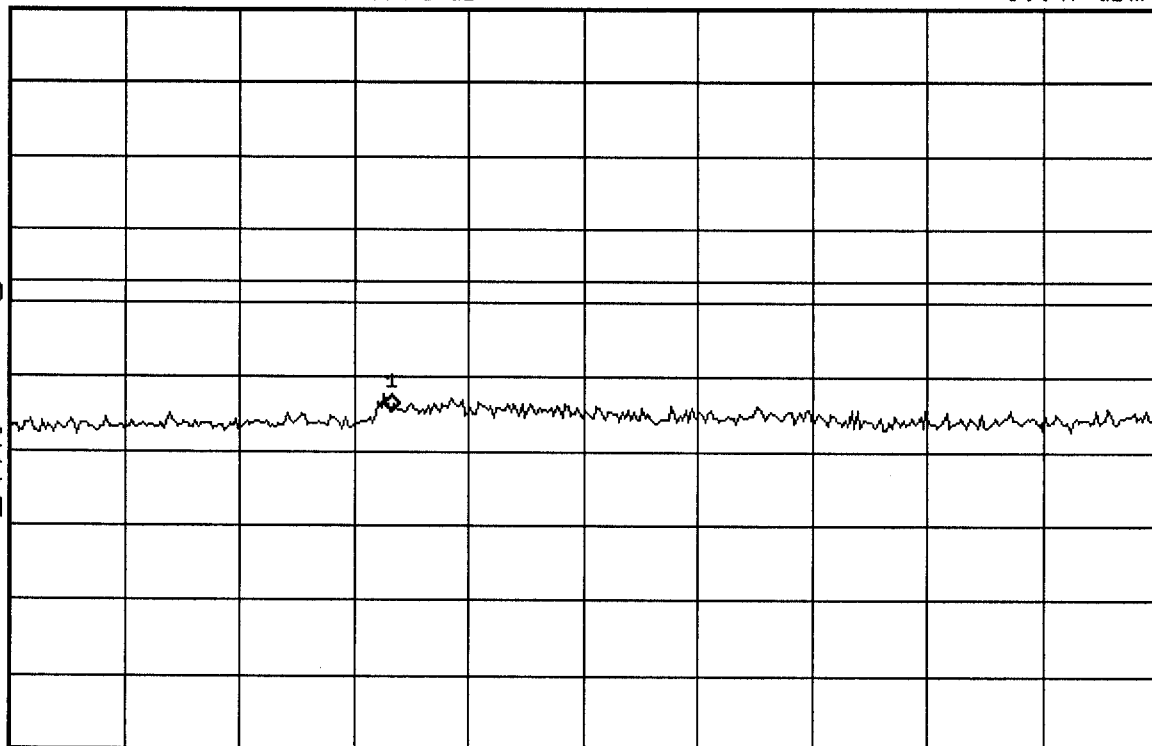
Start 10 GHz

\*Res BW 3 MHz

\*VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





15:36:10 Nov 21, 2001

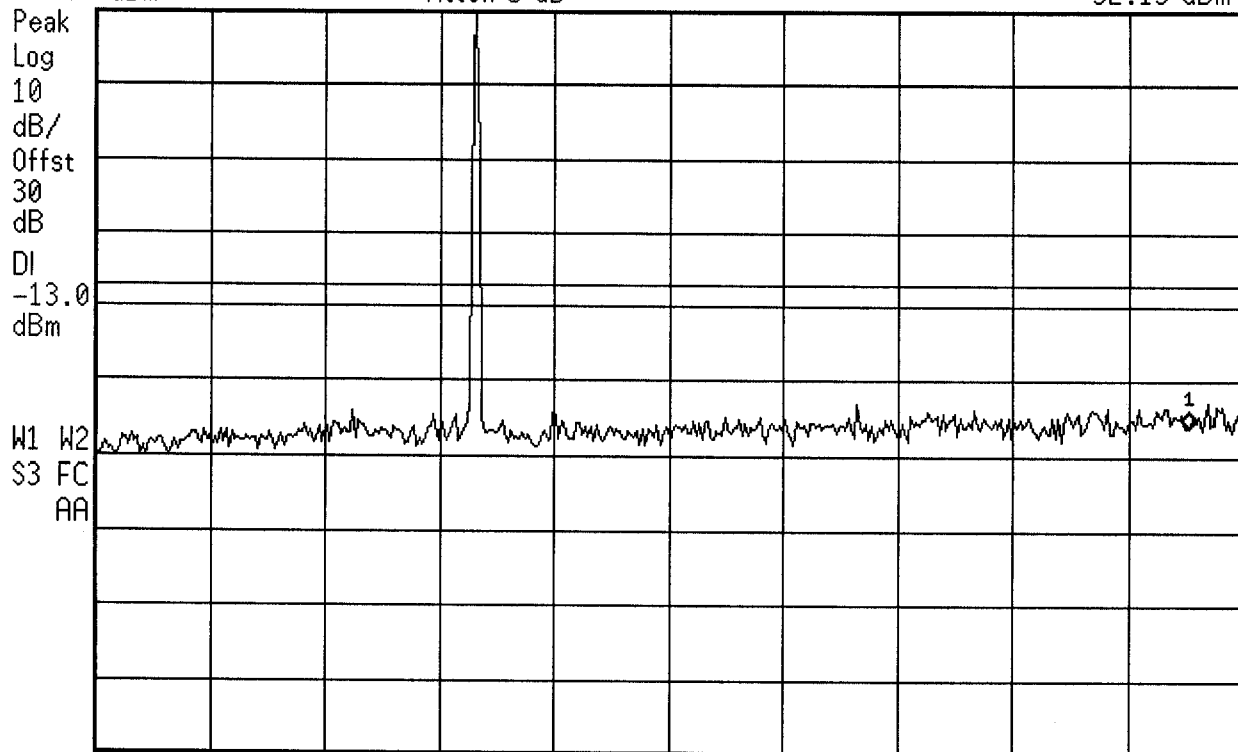
WITHUS WCE-220 COND SPURS CH 363

Ref 24 dBm

#Atten 5 dB

Mkr1 2.382 GHz

-32.13 dBm



Start 10 MHz

\*Res BW 3 MHz

\*VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms



15:36:39 Nov 21, 2001

WTHUS WCE-220 COND SPURS CH 363

Mkr1 2.988 GHz

Ref 24 dBm

#Atten 5 dB

-30.13 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

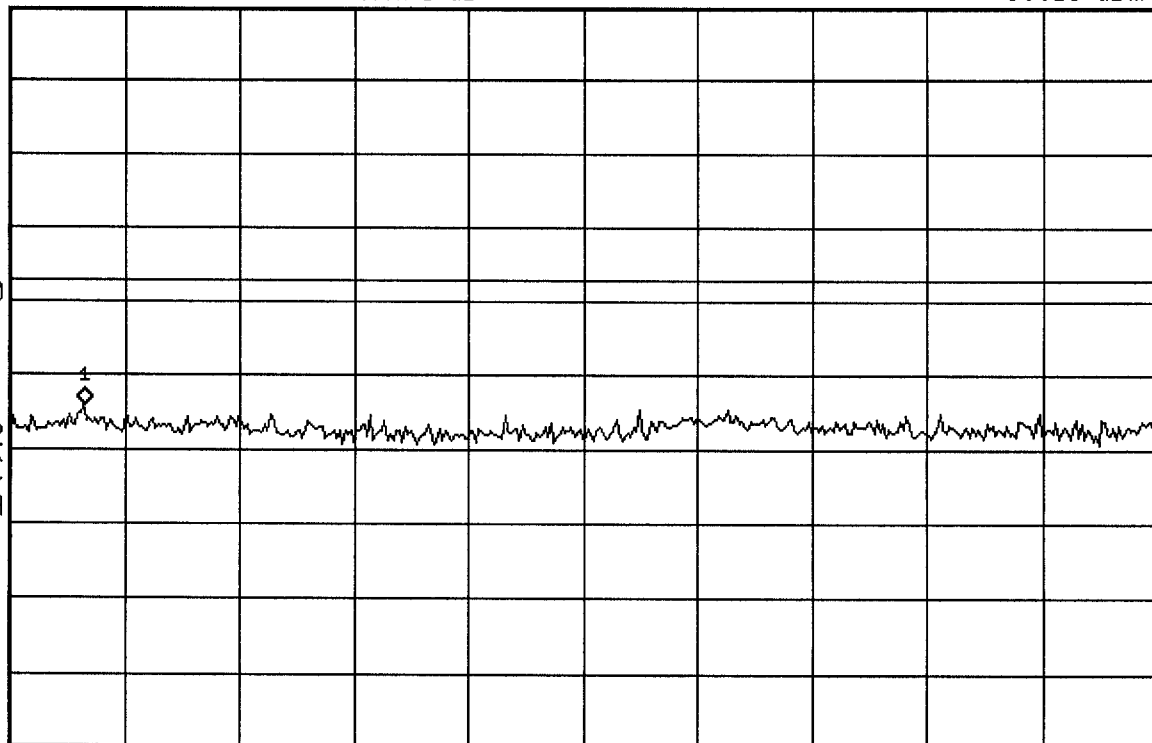
Start 2.5 GHz

#Res BW 3 MHz

#VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms





15:37:10 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 363

Ref 24 dBm

#Atten 5 dB

Mkr1 14.13 GHz

-30.82 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

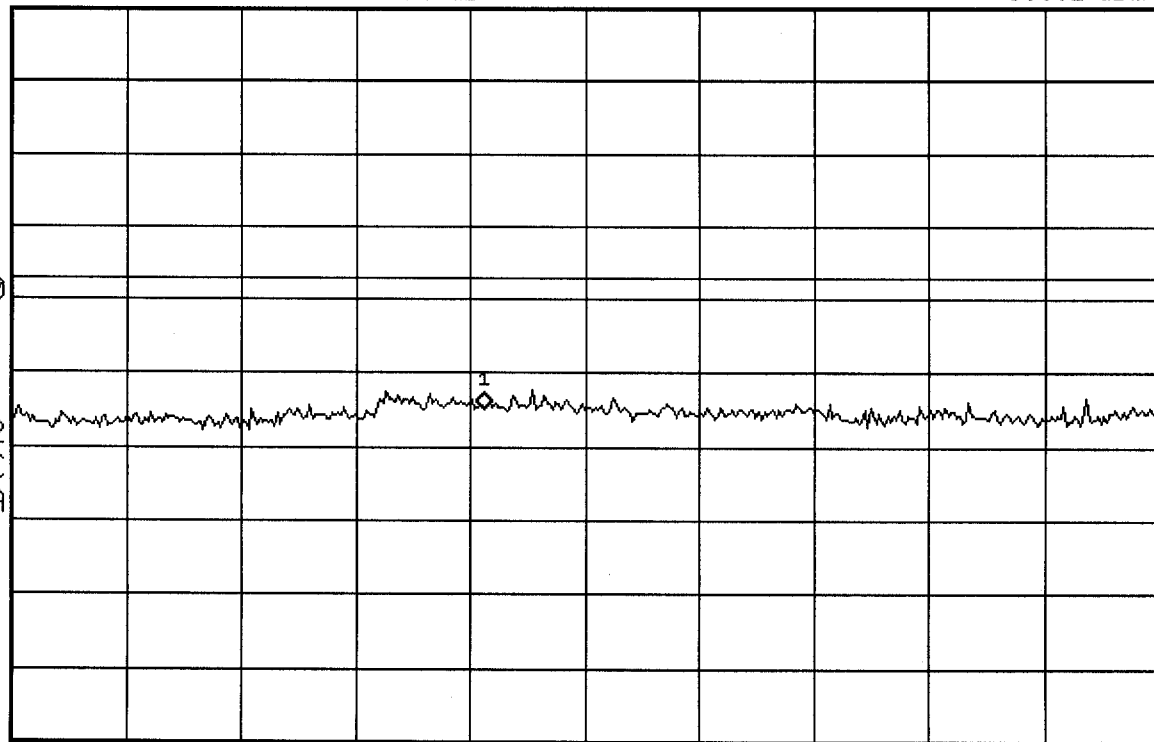
Start 10 GHz

#Res BW 3 MHz

#VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





15:49:09 Nov 21, 2001

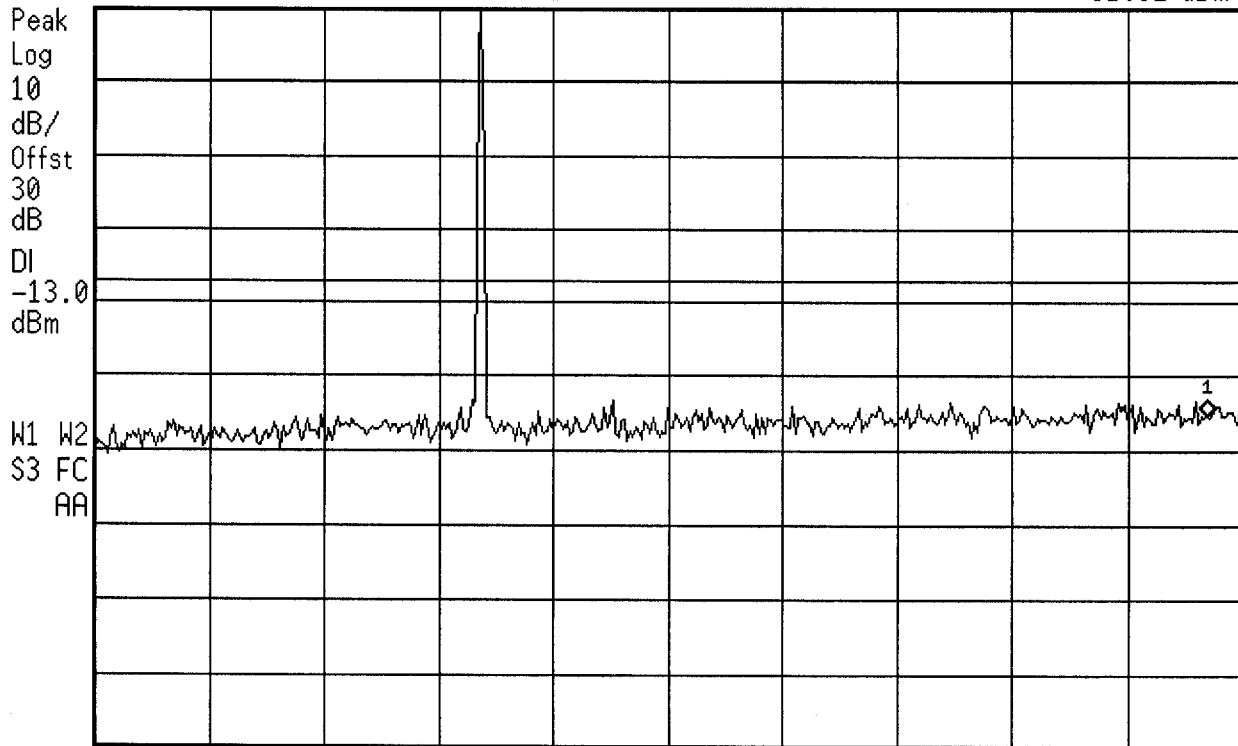
WITHUS WCE-220 COND SPURS CH 777

Ref 24 dBm

#Atten 5 dB

Mkr1 2.425 GHz

-31.32 dBm



Start 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms

15:49:33 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 777

Ref 24 dBm

\*Atten 5 dB

Mkr1 2.969 GHz

-30.95 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

Start 2.5 GHz

\*Res BW 3 MHz

\*VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms



15:49:58 Nov 21, 2001

WITHUS WCE-220 COND SPURS CH 777

Ref 24 dBm

#Atten 5 dB

Mkr1 13.43 GHz

-30.59 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 W2

S3 FC

AA

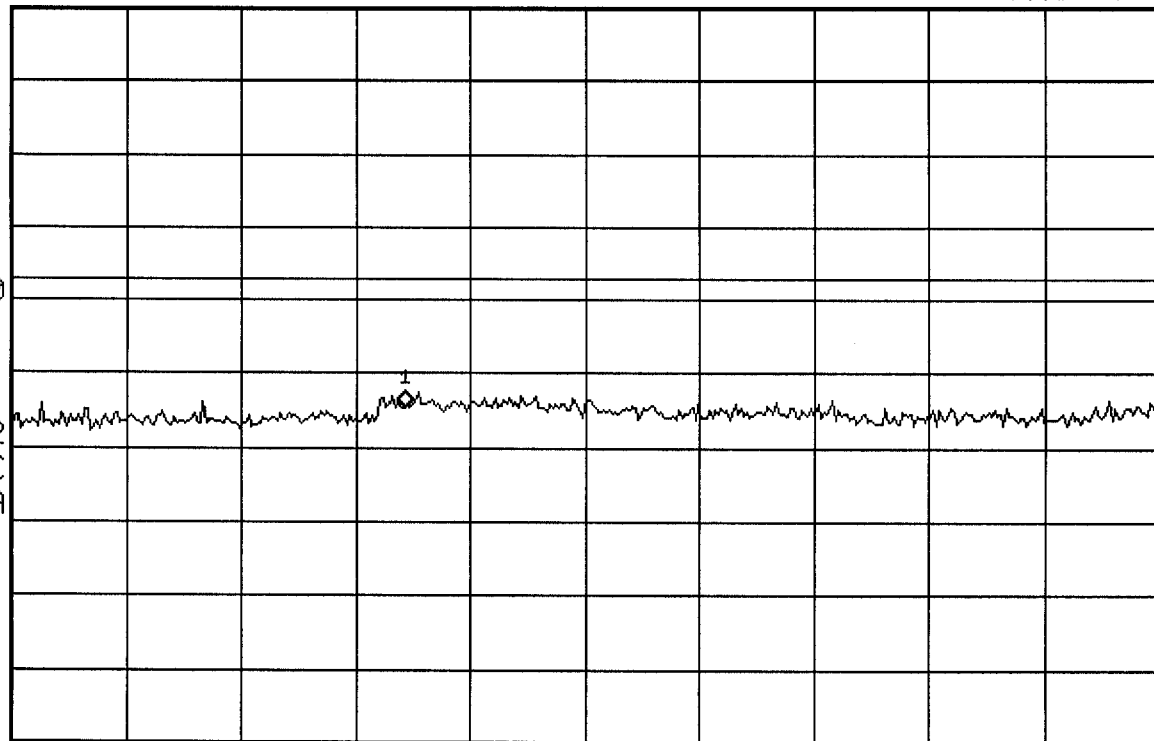
Start 10 GHz

#Res BW 3 MHz

#VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





08:57:42 Nov 22, 2001

WITHUS WCE-220 CDMA CH 1013

Ref 24 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

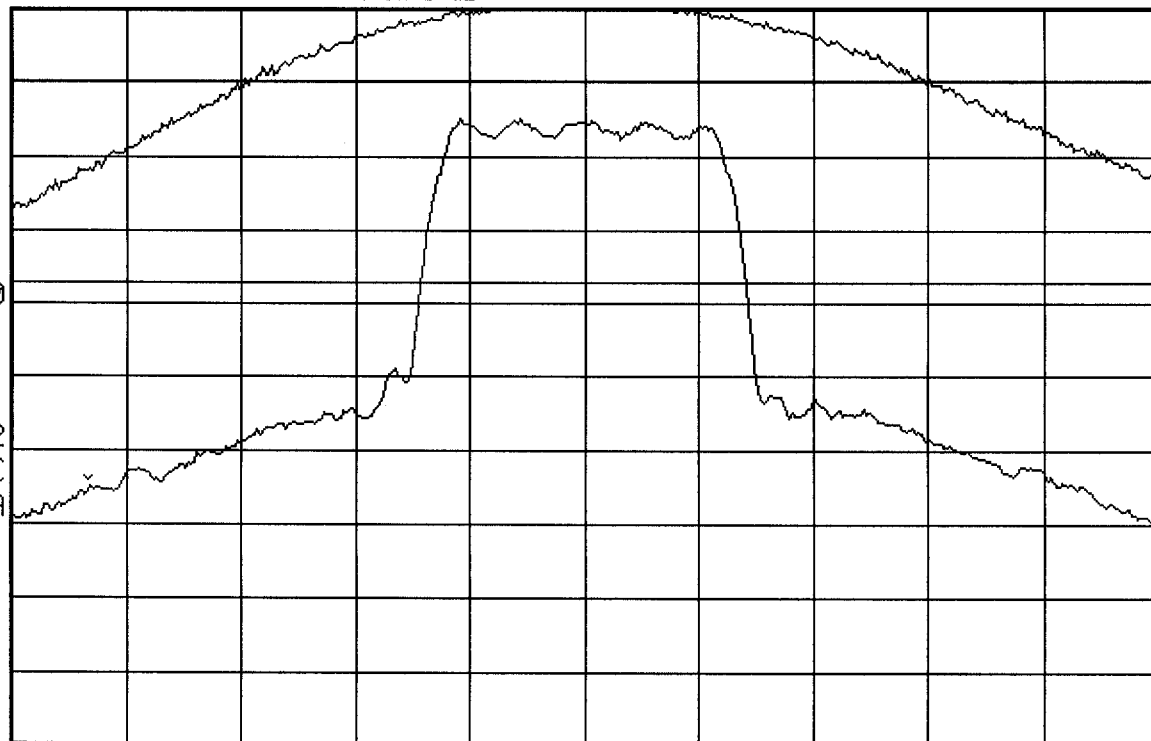
-13.0

dBm

M1 W2

S3 FC

AA



Center 824.7 MHz

\*Res BW 30 kHz

\*VBW 100 Hz

Span 5 MHz

Sweep 2.083 s



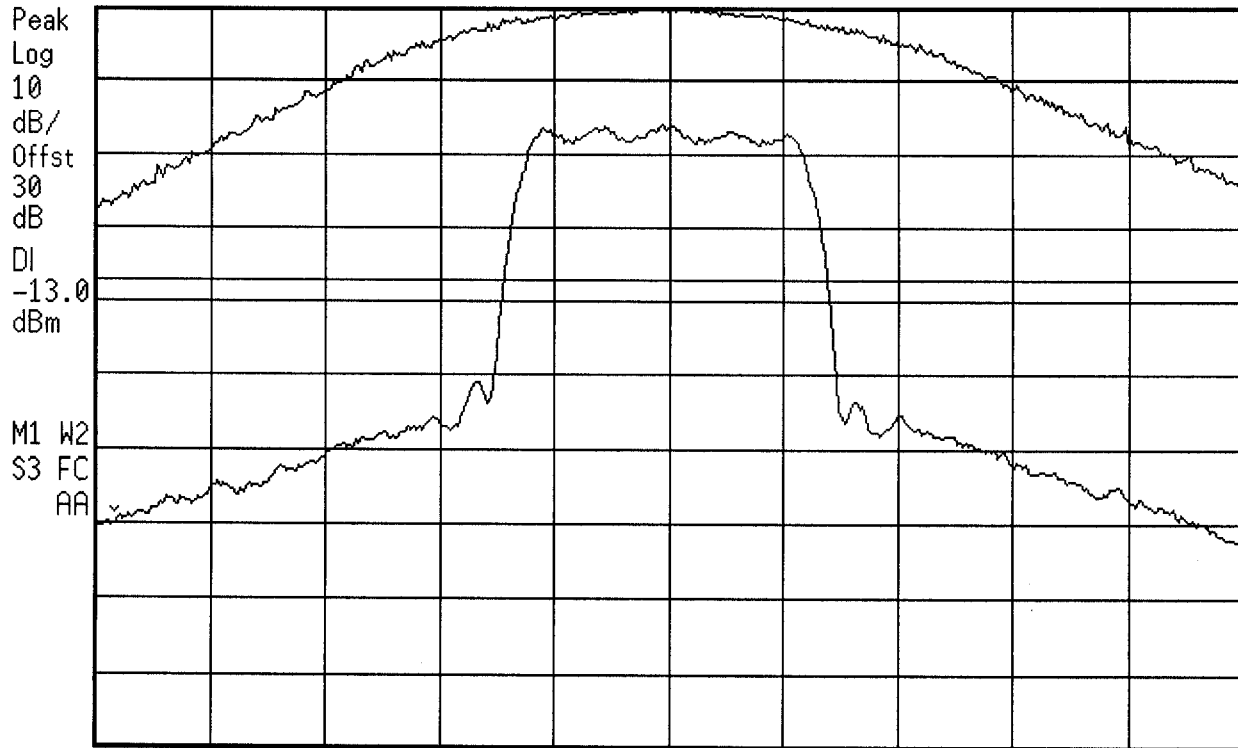


15:33:43 Nov 21, 2001

WITHUS WCE-220 CDMA CH 363

Ref 24 dBm

#Atten 5 dB



Center 835.9 MHz

\*Res BW 30 kHz

\*VBW 100 Hz

Span 5 MHz

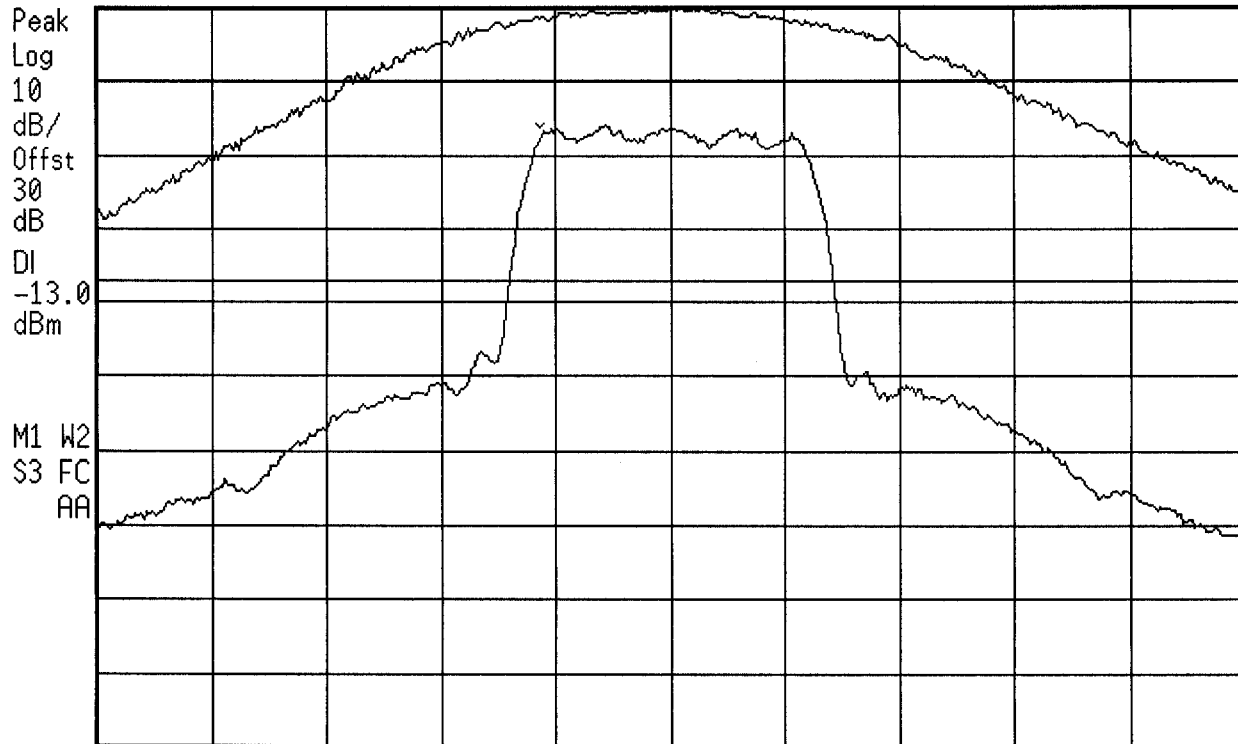
Sweep 2.083 s

hp 16:21:52 Nov 21, 2001

WITHUS WCE-220 CDMA CH 777

Ref 24 dBm

\*Atten 5 dB



Center 848.3 MHz

\*Res BW 30 kHz

\*VBW 100 Hz

Span 5 MHz

Sweep 2.083 s



08:59:40 Nov 22, 2001

WITHUS WCE-220 BAND EDGE CDMA LOW CH

Ref 24 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

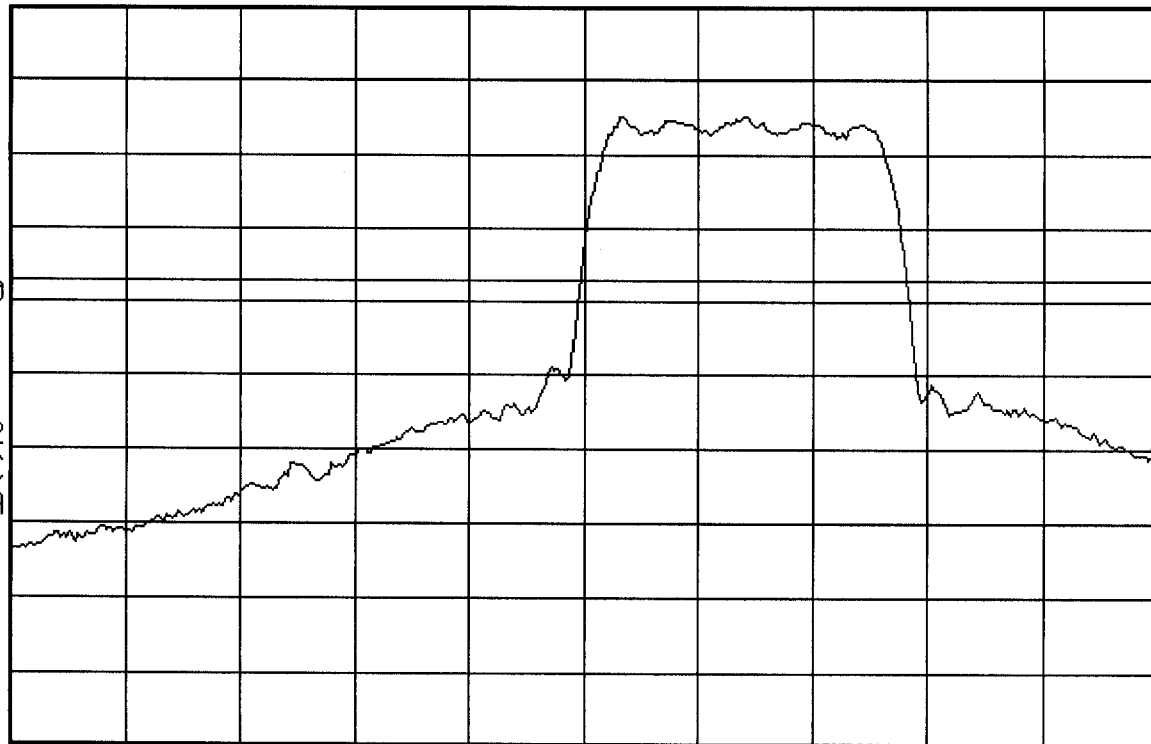
-13.0

dBm

W1 W2

S3 FC

AA



Center 824 MHz

\*Res BW 30 kHz

\*VBW 100 Hz

Span 5 MHz

Sweep 2.083 s

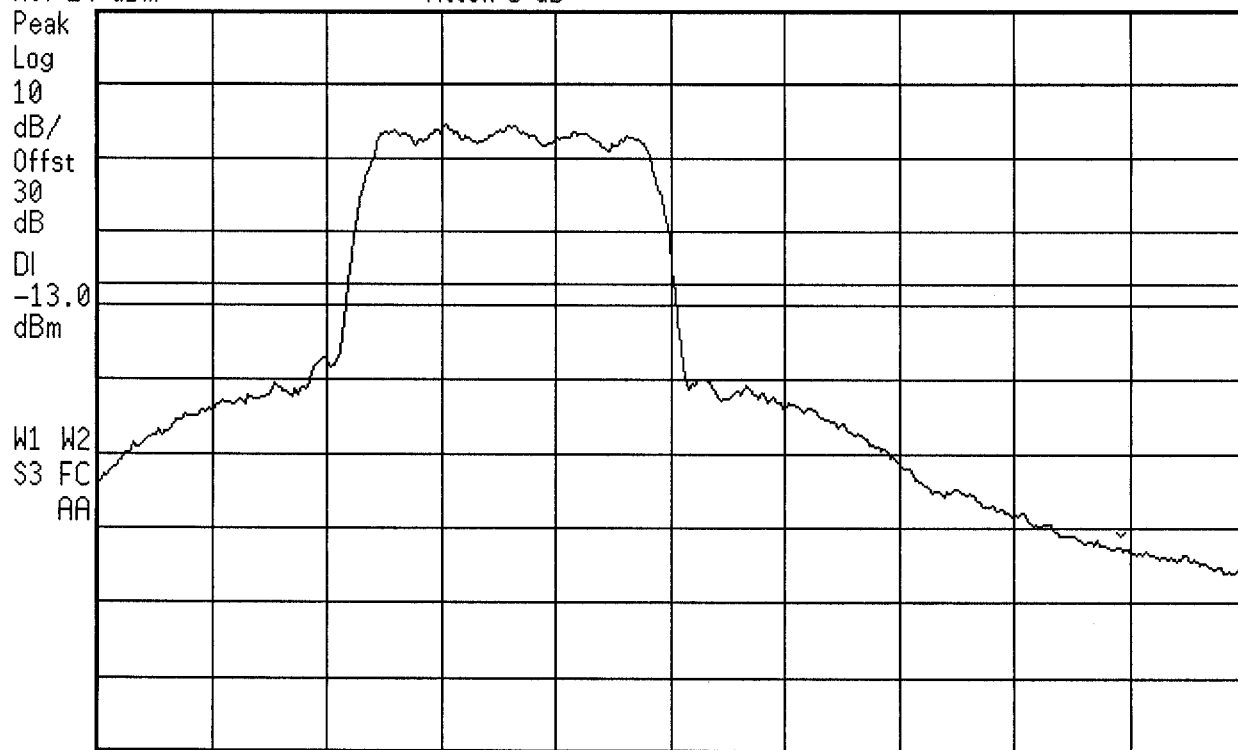


16:09:08 Nov 21, 2001

WITHUS WCE-220 BAND EDGE CDMA HIGH CH

Ref 24 dBm

#Atten 5 dB



Center 849 MHz

\*Res BW 30 kHz

\*VBW 100 Hz

Span 5 MHz

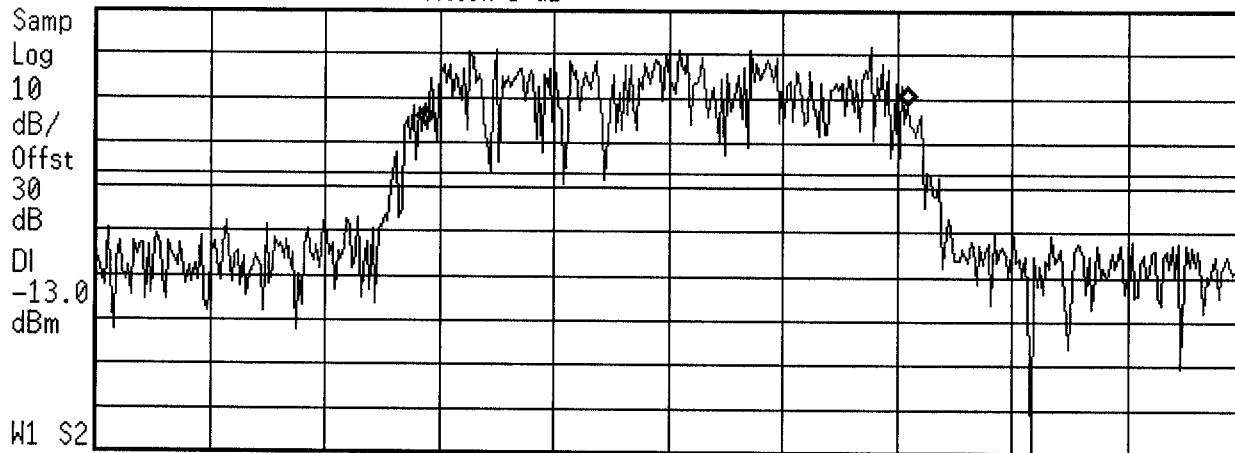
Sweep 2.083 s

15:28:58 Nov 21, 2001

WITHUS WCE-220 OCCUPIED BAND WIDTH

Ref 24 dBm

#Atten 5 dB



Center 835.9 MHz

Span 3 MHz

#Res BW 30 kHz

#VBW 300 kHz

Sweep 9.167 ms

Occupied Bandwidth Results (measuring..)

Occupied Bandwidth  
1.272 MHz

Occ BW % Pwr 99.00 %

Transmit Freq Error -4.447 kHz



16:04:16 Nov 21, 2001

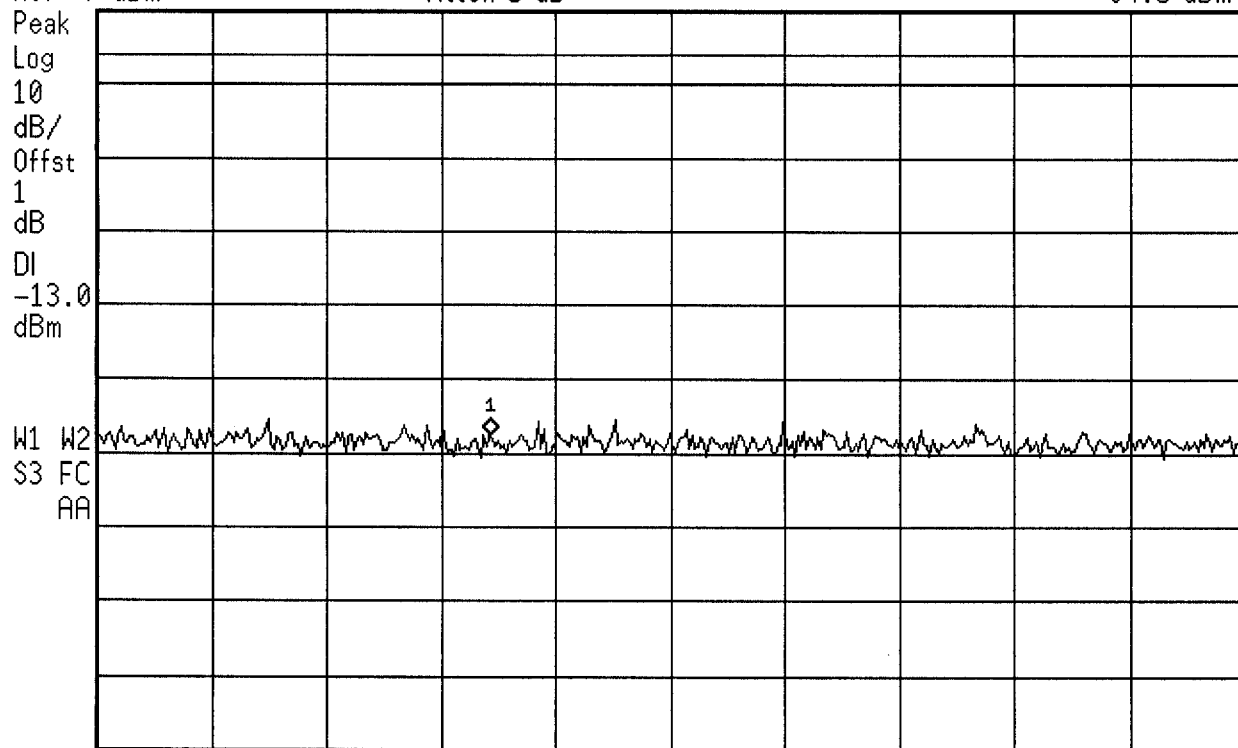
WITHUS WCE-220 RECEIVER SPURS

Ref -7 dBm

#Atten 5 dB

Mkr1 877.56 MHz

-64.5 dBm



Start 869 MHz

#Res BW 3 MHz

Stop 894 MHz

#VBW 3 MHz

Sweep 5 ms