

## **EXHIBIT 3**

### **OPERATIONAL, ADMINISTRATION AND MAINTENANCE MANUAL**

**EXHIBIT 3**

**SECTION 2.1033 (c) (3)**

A copy of the installation and operating instructions to be furnished the user. A draft copy of the instructions may be submitted if the actual document is not available. The actual document shall be furnished to FCC when it becomes available.

**RESPONSE:** There is not a specific instruction book for the CBR.

A copy of the Operational, Administration and Maintenance manual for the **FLEXENT ®** Land Station Cellular system using Code Division Multiple Access (CDMA) technology is included with this filing.

## **EXHIBIT 4**

### **EMISSIONS, FREQUENCY RANGE, POWER LEVEL**

**EXHIBIT 4****Section 2.1033 (c) (4)**

Type or types of emission.

**RESPONSE:**

The AS5CMP-28 is capable of amplifying transmissions involving the following types of emissions:

**1M23G9W**

**SECTION 2.1033 (c) (5)**

Frequency range.

**RESPONSE: 869 - 894 MHz**

**SECTION 2.1033 (c) (6)**

Range of operating power values or specific operating power levels, and description of any means provided for variation of operating power.

**RESPONSE:**

The AS5CMP-28 CBR is capable of delivering output signal over 30 dB range from -19 dBm to 11 dBm (0.0000126 to 0.0126 watts) at CBR output. The output power that is delivered to the output connector is variable in two ways. Under software control of the output power can be changed over the entire 30 dB range in 0.5 steps. Front panel controls on CBR also allows adjustment for installation over the range of -19 dBm to 11 dBm (+2/ -4 dB) in 0.1 dB steps. This is meant for fine tuning of the cell during installation.

**SECTION 2.1033(c) (7)**

Maximum power rating as defined in the applicable part of the rules.

**RESPONSE:** The maximum average power output of the AS5CMP-28 at the CBR Output connector is 11 dBm.

**EXHIBIT 4 (continued)****SECTION 2.1033 (c) (8)**

The DC voltages applied to and dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

**RESPONSE:** The CBR outputs 11 dBm max. The CBR has the following voltages and maximum currents.

Overall CBR                    +6V @ 0.25A max.

Final Output Transistors: Each device draws two output transistors each draws 0.25A at 6V dc.

## **EXHIBIT 5**

### **TUNE-UP PROCEDURE**

**EXHIBIT 5****SECTION 2.1033 (c) (9)**

Tune-up procedure over the power range, or at specific operating power levels.

**RESPONSE:** The CBR has two controls on the front panel. A two-button switch which allows the CBR output power to be adjusted in the range -19 dBm to 11 dBm (+2/-4 dB) of nominal in 0.1 dB step increments. This is meant to allow the fine tuning of cell output power at cell installation time. An "AUTO/OFF" switch which controls the transmit output of the CBR. Getting this switch to "OFF" results in the CBR output dropping to below -100 dBm (measured in 30 KHz bandwidth). Setting the switch "AUTO" will enable RF output from the CBR, although software must also enable transmission before RF power will be transmitted. Further information can be found on pages 2-13, and 14 of the FLEXENT CDMA Microcell Operation, Administration, and Maintenance Manual (See Exhibit 3 of this filing).

## **EXHIBIT 6**

### **CIRCUITRY OF SUPPRESSION OF SPURIOUS RADIATION**

**(LUCENT TECHNOLOGIES CONFIDENTIAL PROPRIETARY INFORMATION)**

**(THIS EXHIBIT 6 IS PLACED AT THE END  
OF DOCUMENT)**



## **EXHIBIT 8**

### **PHOTOGRAPH OF CONSTRUCTION**

**EXHIBIT 8****SECTION 2.1033 (c) (12)**

Photographs (8" x 10") of the equipment of sufficient clarity to reveal equipment construction, and layout, including meters, if any, and labels for controls and meters and sufficient views of the internal construction to define component placement and chassis assembly. Insofar as these requirements are met by photographs or drawings contained in instruction manuals supplied with the certification request, additional photographs are necessary only to complete the required showing.

**RESPONSE:** Equipment construction, layout, including meters, and labels for control are indicated in Installation and Operational Manual (See Exhibit 3).

Following additional photographs are included:

- 12.1. Photograph of CBR Installed.
- 12.2. Photograph of CBR Outside.
- 12.3. Photograph of CBR Inside.

## **EXHIBIT 9**

### **DESCRIPTION OF MODULATION SYSTEM**

**EXHIBIT 9****SECTION 2.1033 (c) (13)**

For equipment employing digital modulation techniques, a detailed description of the modulation system to be used, including the response characteristics (frequency, phase and amplitude) of any filters provided, and a description of the modulating wavetrain, shall be submitted for the maximum rated conditions under which the equipment will be operated.

**RESPONSE:**

The CBR employs Code Division Multiple Access (CDMA) System Specified by IS95 and IS97. These functions are controlled by the CDMA Radio Frequency Board (RFB) BNK2 circuit. Descriptions of these circuits are included in Exhibit 6, for which confidential status has been requested.

The CBR supplies signal to be amplified to ICLA (AS5CMP-29). These are cavity type transmit filters which limit spurious and harmonic content. The performance characteristics of these filters are included in Figure 6a and 6b in Exhibit 6.

## **EXHIBIT 10**

### **LISTING OF REQUIRED MEASUREMENTS**

**EXHIBIT 10****SECTION 2.1033 (c) (14)**

The data required by Section 2.1046 through 2.1057, inclusive, measured in accordance with the procedures set out in Section 2.1041.

**RESPONSE:**

The following pages include the data required for the Certification of the FCC ID: **AS5CMP-28**, measured in accordance with the procedures set out in Section 2.999 of the Rules.

Each required measurement and its corresponding exhibit number are:

Exhibit 11:	Section 2.1046	RF Power Output
Exhibit 12:	Section 2.1047	Modulation Characteristics
Exhibit 13:	Section 2.1049	Occupied Bandwidth
Exhibit 14:	Section 2.1051	Spurious Emissions at Antenna Terminals
Exhibit 15:	Section 2.1053	Field Strength of Spurious Radiation
Exhibit 16:	Section 2.1055	Measurement of Frequency Stability
Exhibit 17:	Section 2.1057	Frequency Spectrum to be Investigated

## **EXHIBIT 11**

### **MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT**

**EXHIBIT 11****SECTION 2.1046****MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT**

The test arrangements used to measure the radio frequency power output of the CDMA Baseband Radio (CBR 850) FCC ID: AS5CMP-28 is on the following page. Measurements were made respectively at each frequency where Occupied Bandwidth measurements were performed (all cellular bands). The test configuration, Figure 11A, allowed the measurement of output power for each channel investigated for Occupied Bandwidth. These included the upper lower block edges and at the center channel for each cellular bands. The CBR does not contain post amplification filters.

The CBR provides 30 dB of output level control with a power output rating of -19 dBm to +11.0 dBm. In typical use the output level necessary from the CBR for maximum output from the ICLA is 7.1 dBm. The actual power level delivered from the BCR to the ICLA is under software control. The software control only allow not only for adjustment in power up to the 11 dBm maximum but provides a typical calibration of the output level to within  $\pm 0.1$  dB across all cellular bands.

The CBR has a maximum power output of 11.0 dBm  $\pm 2/-4$  dB, it also has minimum power output of -19 dBm, across the Cellular band (869-894 MHz). The power level was commanded to a maximum output at each measurement channel to verify the spectral performance at that power level at each specific frequency band of interest. The attenuation range was also verified. The specific frequencies and channels and set power level was documented on each "Occupied Bandwidth" sheets in the Exhibit 13.

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Pilot	1	0.2000	-7.0	Walsh 0
Sync	1	0.0471	-13.3	Walsh 32, always 1/8 rate
Paging	1	0.1882	-7.3	Walsh 1, full rate only
Traffic	6	0.09412 each	-10.3 each	Variable Walsh Assignments, full rate only

**TABLE 11.1 BASE STATION TEST MODEL, NOMINAL**



**EXHIBIT 11 (continued)****TEST SETUP FOR MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT****EQUIPMENT:**

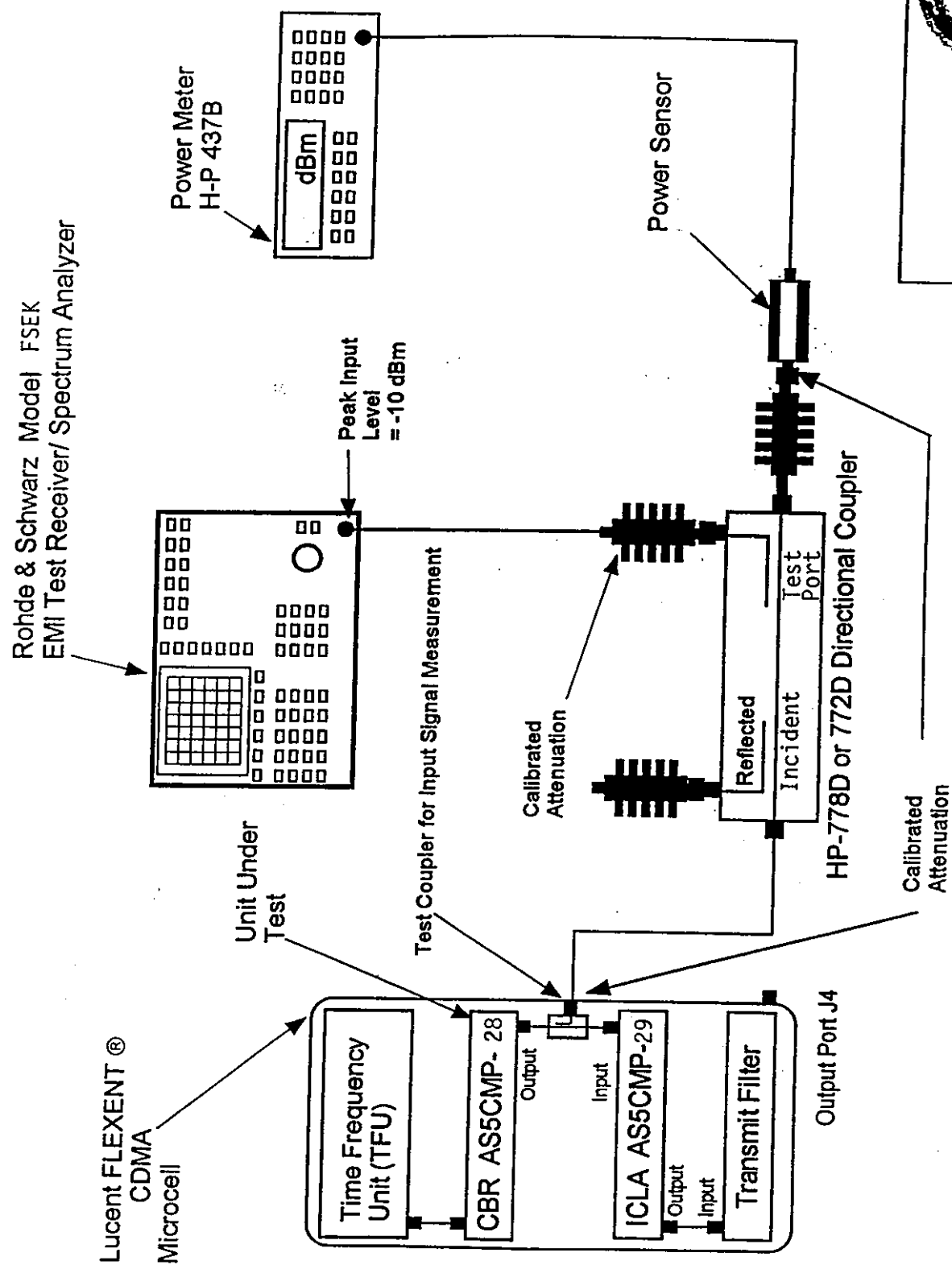
<b>TFU:</b>	<b>Time/Frequency Unit, 15 MHz</b>
<b>CBR:</b>	<b>CDMA Baseband Radio</b>
<b>ICLA:</b>	<b>Individual Channel Linear Amplifier (FCCID: AS5CMP-29)</b>
<b>Transmit Filter:</b>	<b>Cellular Band Transmit Filter appropriate for the investigated Band</b>
<b>Directional Coupler:</b>	<b>HP 778D Dual Directional Coupler</b>
<b>Power Meter:</b>	<b>HP 437B with HP 8481A Power Head</b>
<b>Plotter:</b>	<b>HP Model 520 DeskJet Printer</b>
<b>Spectrum Analyzer:</b>	<b>Rohde &amp; Schwarz FSEK EMI Test Receiver</b>

**RESULTS:**

The CBR was configured in the test setup shown in Figure 11A. For each of the cellular channels tested the CBR delivered 11 dBm power when measured at output connection. The power measurement data is recorded on the Occupied Bandwidth Data Sheets in Exhibit 13.



**Figure 11A. Test Configuration For RF Power Output**



All components are calibrated over the frequency range of interest

## **EXHIBIT 12**

### **MEASUREMENT OF MODULATION CHARACTERISTICS**

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**EXHIBIT 12****MEASUREMENT OF MODULATION CHARACTERISTICS****SECTION 2.1047**

The modulation methods used in CDMA are completely different from those used in FM analog System. The methods used in evaluating the CBR are described in the EIA/TAIS document IS-97 "recommended Minimum performance Standards for Base Stations Supporting Dual-Mode Wideband Spread Spectrum Cellular Mobile Stations". The modulation quantify criteria are as follows:

**1.0 Modulation Requirements – Section 10.3 of IS-97**

Waveform specifications are tested by measuring the waveform quality of  $\rho$ , as defined in IS-97 Section 12.4.2.1, and code domain power as defined in 12.4.2.2.

Transmit waveform quality can be viewed as the output of a normalized matched filter. The range of values for the transmit waveform quality is from 1.0 for a perfect CDMA waveform to 0.0 for a non-CDMA signal. As an example, the base station with a 0.5 dB degradation in its transmit waveform would have a quality,  $\rho$ , of 0.89.

**1.1 Required Results**

Section 10.3.2.3 of IS-97 "The normal cross correlation coefficient,  $\rho$ , shall be greater than 0.912 (excess power <0.4 dB)".

The test method and diagrams are taken from IS-97 Section 10.

**1.2 Waveform Quality**

- 1.2.1 Definition Waveform quality is measured by determining the normalized correlated power between the actual waveform and the identical waveform
- 1.2.2 Method of Measurement – Refer to Figure 12A. of this exhibit for functional block diagram of the test set-up.

1. Configure transmit channel as shown in Table 12.1.
2. Tune the CBR to the test middle channel.
3. Apply a CDMA digital transmit signal from arbitrary waveform generator at the CBR backplane that will product 15% modulation level (pilot only) of the appropriate level for full transmit power (TX\_IQ\_SIN\_FULL) -8.24 dB.
4. Set the CBR power level to 40 for Cellular.
5. Measure Rho. This measurement should be greater than TX\_RHO limit.

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Pilot	1	0.2000	-7.0	Walsh 0
Sync	1	0.0471	-13.3	Walsh 32, always 1/8 rate
Paging	1	0.1882	-7.3	Walsh 1, full rate only
Traffic	6	0.09412 each	-10.3 each	Variable Walsh Assignments, full rate only

**TABLE 12.1 Base Station Test Model, Nominal**

### 1.3 Minimum Standard

The normalized cross correlation coefficient,  $\rho$ , shall be greater than 0.912 (excess power <0.4 dB).

### 1.4 Results

The test verified that the waveform quality factor, the normalized cross correlation coefficient,  $\rho$ , is  $\geq 0.98$ . It also verifies that the frequency assignment is less than (+0.05 PPM) of the frequency assignment.

## CBR TEST INTERFACE

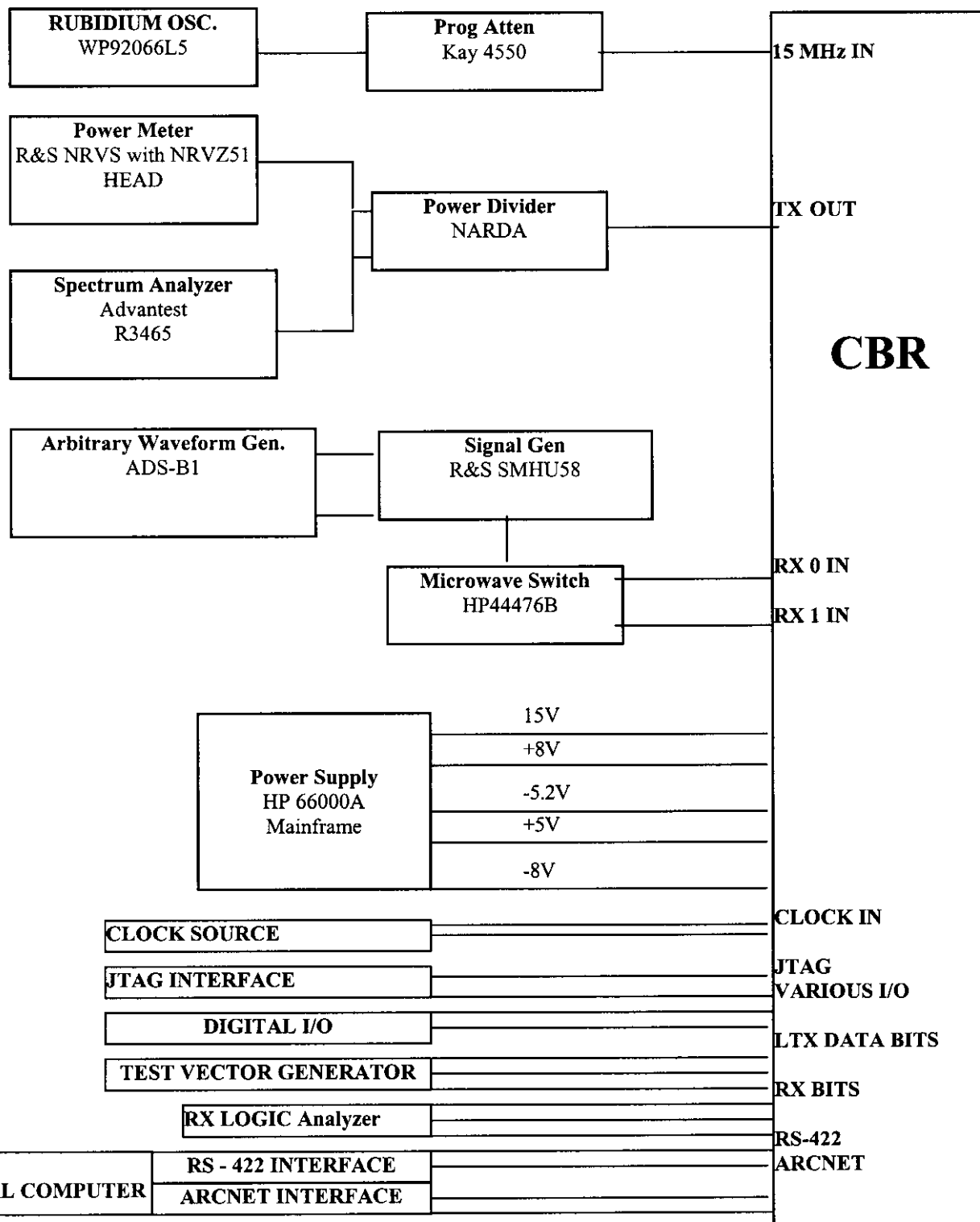


Figure: 12A. Test Configuration For Measurement of Quality Factor “p”