SECTION 2.1049

MEASUREMENT OF OCCUPIED BANDWIDTH

The occupied bandwidth of the FCC ID: AS5CMP-28 CBR was measured using a Rohde & Schwarz FSEK Spectrum Analyzer and an HP Model 520 DeskJet Printer. The RF power level was measured using RF power meter as shown in the test setup in Figure 13A. The RF output from the CBR to Spectrum Analyzer was reduced (to an amplitude usable by the spectrum analyzer) by using a calibrated attenuator. This attenuation was offset on the display and the signal adjusted to the -16.1 dBc level corresponding to the corrected RF power level for a 30 kHz resolution bandwidth. The reference line on the Spectrum Analyzer display correspond to level measured by RF power meter.

The frequencies and channels used are tabulated on the bottom of each plot. Input and output signals are plotted at each frequency/channel. Plots are provided for Left Edge, Center and Right Edge of each cellular band. These frequencies were chosen to show the occupied bandwidth in the channels in each of the Cellular in which this radio can be operated, in compliance with Section 22.902 (c) of the Commission code. There are no SAT or Wide band data signals associated with CDMA. The signal used to show the occupied bandwidth is defined in Table 14.1. This is the signal recommended in IS-95 Section 7.1.4. The power output level was adjusted to provide the documented power levels at the bottom of each chart.

Туре	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 13A. Base Station Test Model, Nominal

EXHIBIT 13 (continued)

The minimum standard presented in PN-3383 and IS-97.

"Suppression Inside the Licensee's Frequency Block(s)"

For all frequencies within the base station transmit band of 869 to 894 MHz that are within the specific block(s) allocated to the operator's system. The total conducted spurious emissions in any 30 kHz band greater than 750 kHz for the CDMA channel center frequency shall not exceed a level of -45 dBc....

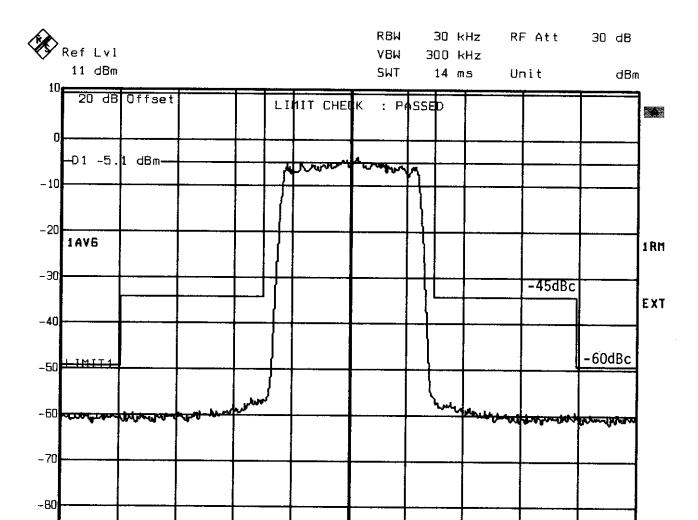
A Resolution Bandwidth of 30 kHz is based on our experience with Section 24.238 of The Code and lacking other guidance.

The spectrum analyzer output plot shows the peak of the CDMA channel signal 16.1 dB below reference line of the spectrum analyzer for the following reason: For the CDMA system there is no carrier without modulation. This relationship was used to provide the correct level for an unmodulated carrier vs. The modulated signal.

10*log (Resolution Bandwidth/Transmit Bandwidth) = Signal Offset

For the peak of the CDMA signal measured with a resolution bandwidth of 30 kHz the signal offset is:

Signal Offset = $10*\log (30 \text{ kHz}/1.23 \text{ MHz}) = -16.1 \text{ dB}$



500 kHz/

Span 5 MHz

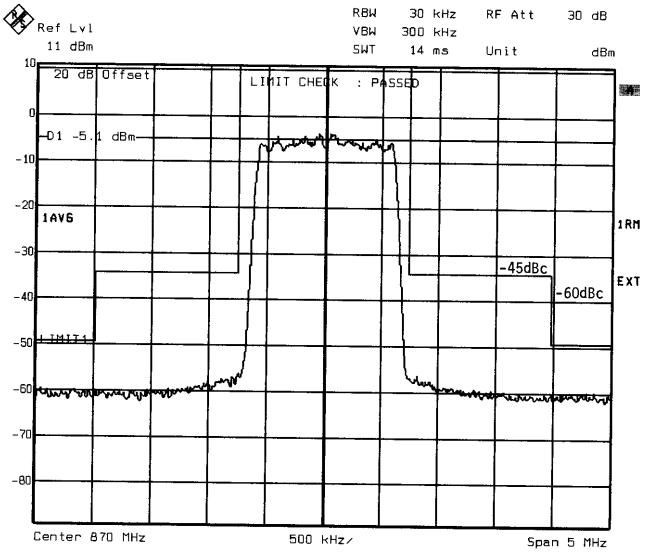
Title: OCCUPIED BANDWIDTH

Center 869.7 MHz

Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 1013. CBR OUTPUT POWER 11 dBm

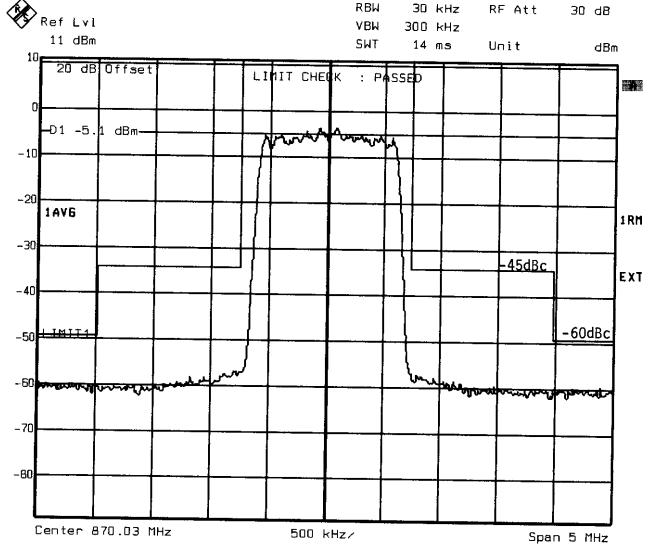
Date: 10.FEB.99 19:15:50



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 1023. CBR OUTPUT POWER 11 dBm

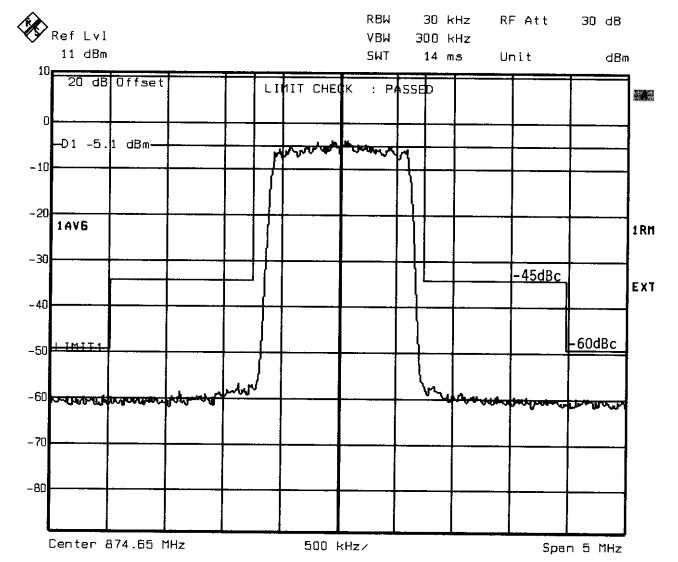
Date: 10.FEB.99 19:18:36



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 1. CBR OUTPUT POWER 11 dBm

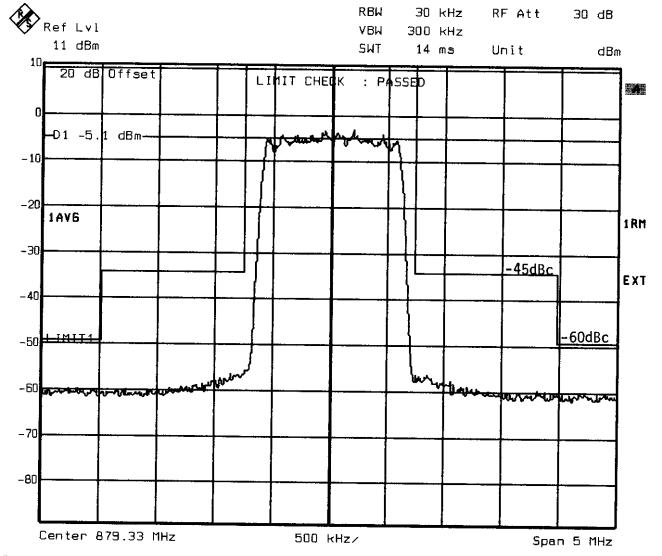
Date: 10.FEB.99 19:19:24



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 155. CBR OUTPUT POWER 11 dBm

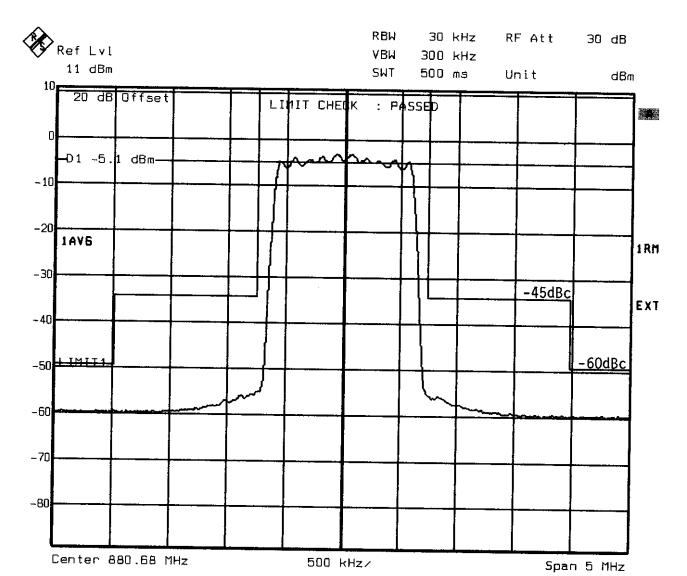
Date: 10.FEB.99 19:11:31



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL:311 CBR OUTPUT POWER 11 dBm

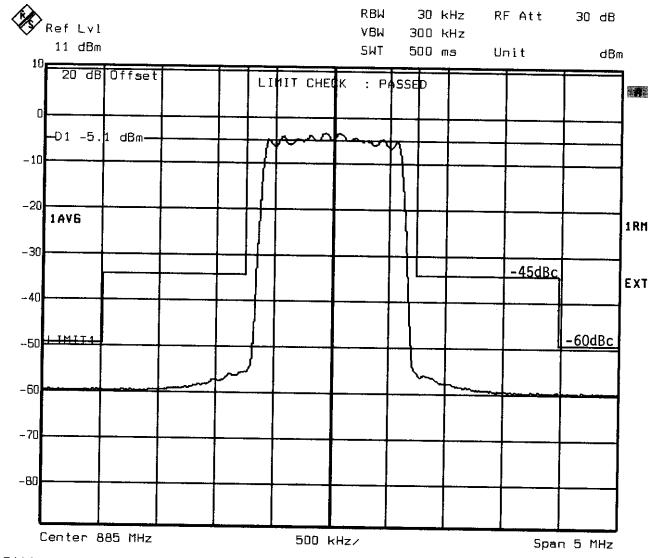
Date: 10.FEB.99 19:17:20



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 356. CBR OUTPUT. POWER 11.0 dBm.

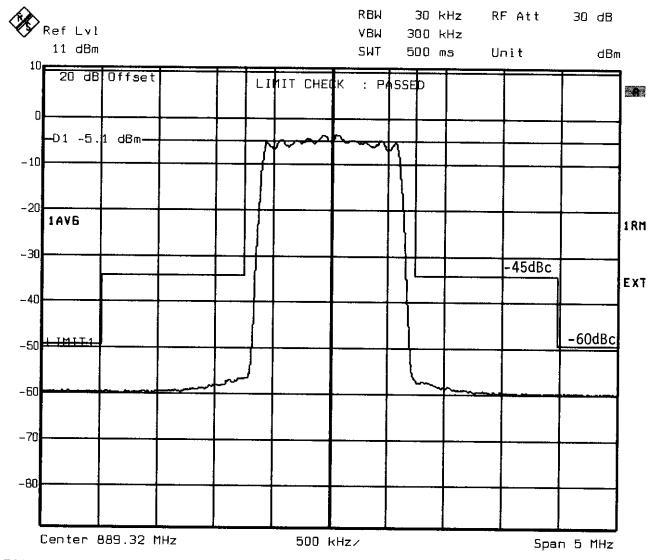
Date: 10.FEB.99 15:53:42



Comment A: FCC ID: AS5CMP +28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 500. CBR OUTPUT. POWER 11.0 dBm.

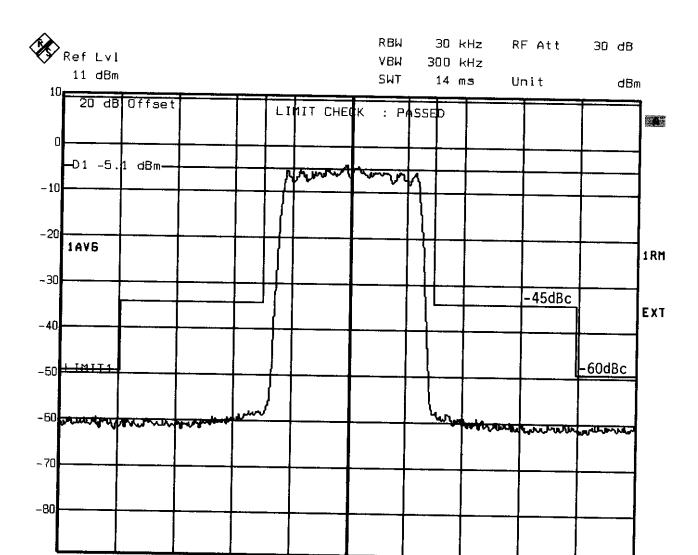
Date: 10.FEB.99 15:58:51



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 644. CBR OUTPUT. POWER 11.0 dBm.

Date: 10.FEB.99 16:00:40



500 kHz/

Span 5 MHz

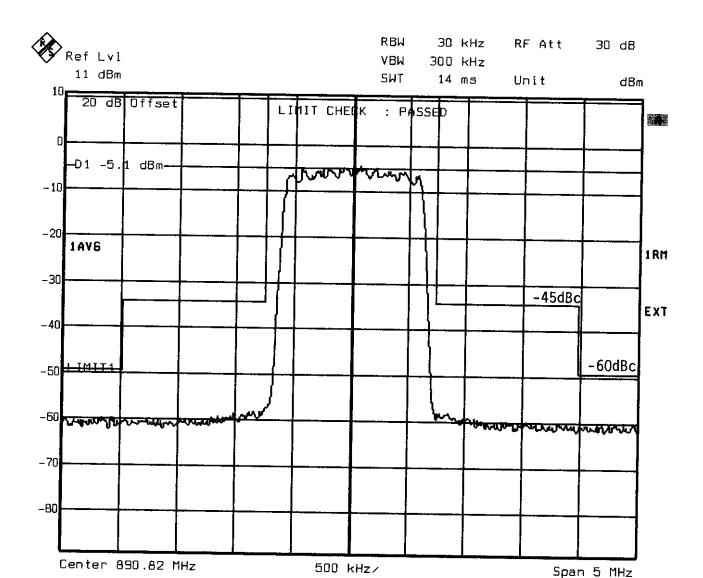
Title: OCCUPIED BANDWIDTH

Center 890.67 MHz

Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL:689. CBR OUTPUT POWER 11 dBm

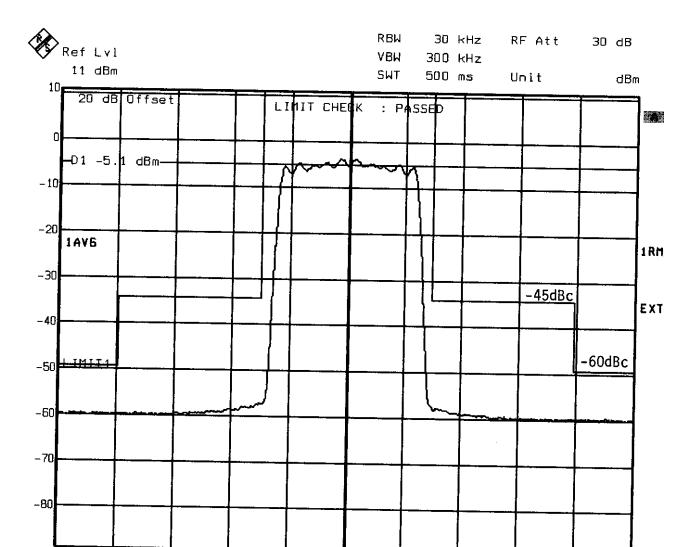
Date: 10.FEB.99 19:20:49



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL:694. CBR OUTPUT POWER 11 dBm

Date: 10.FEB.99 19:21:53



500 kHz/

Span 5 MHz

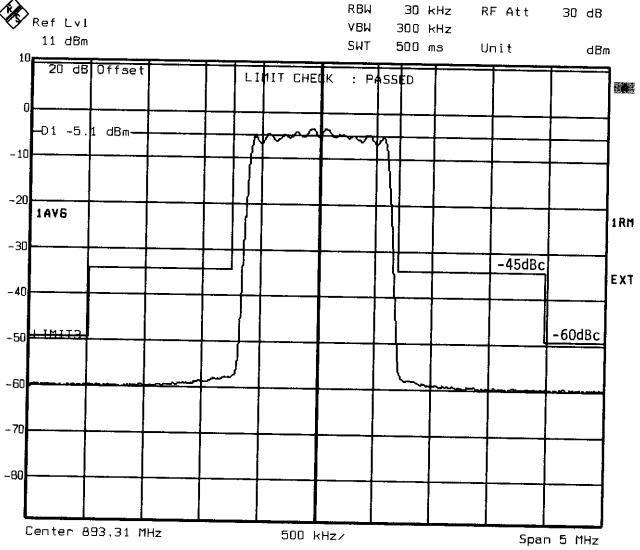
Title: OCCUPIED BANDWIDTH

Center 892.17 MHz

Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 739. CBR OUTPUT. POWER 11.0 dBm.

Date: 10.FEB.99 16:01:48



Comment A: FCC ID: AS5CMP-28. FLEXENT CDMA CELLULAR MICROCELL

CHANNEL: 777. CBR OUTPUT. POWER 11.0 dBm.

Date: 10.FEB.99 16:03:08

MEASUREMENT OF SPURIOUS EMISSIONS AT ANTENNA

Section 2.1051

Spurious Emissions at Antenna Terminals

Spurious Emissions at the antenna terminals were investigated over the frequency range of 0 MHz to the 10th harmonic of the carrier frequency. The test setup was as described in Figure 14A. Measurements were made using a Rohde & Schwarz FSEK Spectrum Analyzer and an HP Model 520 DeskJet printer. The RF power level was continuously monitored via the test setup in Figure 14A. The required emission limitation specified in Section 22.917 of the Code was applied to these tests. The applied signal met the recommended characteristics per IS-95 Section 7.1.4 as defined below. All measurements were made for the CBR output of 11 dBm at the upper lower block edges and at the center channel for each cellular band.

Based upon the criterion given in Section 22.917 of the Code the required emission limitation is equal to -24.0 dBc or -13 dBm. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not specified. (Section 2.1051 and 2.1057 (a) (c)).

Туре	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 15.1 Base Station Test Model, Nominal

RESULTS:

The reportable measurements are equal to or greater than -33dBm. Over the spectrum investigated from 0 MHz to 10GHz, no reportable spurious emissions were detected.

FIELD STRENGTH OF SPURIOUS RADIATION

SECTION 2.1053

FIELD STRENGTH OF SPURIOUS RADIATION

Field strength measurements of radiated spurious emissions were made at a ten meter Open Area Test Site (OATS) maintained by Lucent Technologies Bell Laboratories Global Product Compliance Laboratory in Holmdel, New Jersey. A complete description and full measurement data for the site is on file with the Commission. (FCC file31040/SIT)

The CBR was assembled with an ICLA and all other associated equipment in an FLEXENT® CDMA MicroCell. The spectrum from 10 MHz to the 10th harmonic of the carrier was searched for spurious radiation. Measurements were made according to ANSI C63.4. All emissions more than 20 dB below the specification limit were considered not reportable (Section 2.1057 (a) (c)).

The calculated emission levels were found by:

Measured level ($dB\mu V$) + Cable Loss(dB)+Antenna Factor(dB) = Field Strength ($dB\mu V/m$)

Section 22.907 and 2.1053 contains the requirements for the levels of spurious radiation as a function of the level of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an ideal dipole excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 676, 4th edition, IT&T Corp.

E=
$$[(49.2*P)^{1/2}]/R$$

20 log (E*10⁶) - (43 + 10 log P) = 73.9 dB μ V/meter

E = Field Intensity in Volts/meter
P = Transmitted Power in Watts = 15W
R = Distance in meters = 10 m

RESULTS:

For this particular test, the field strength of any spurious radiation is required to be less than 73.9 dB μ V/meter. Reportable measurements are equal to or greater than 53.9 dB μ V/meter. Over the spectrum investigated, 10 MHz to 10th harmonic of the carrier, no reportable spurious emissions were detected. This demonstrates that the (CBR), the subject of this application, complies with Sections 2.1053, 24.238 and 2.1057 of the Rules.

APPLICANT: Lucent Technologies

FCC ID: AS5CMP-28

EXHIBIT 16

MEASUREMENT OF FREQUENCY STABILITY

SECTION 2.1055

MEASUREMENT OF FREQUENCY STABILITY

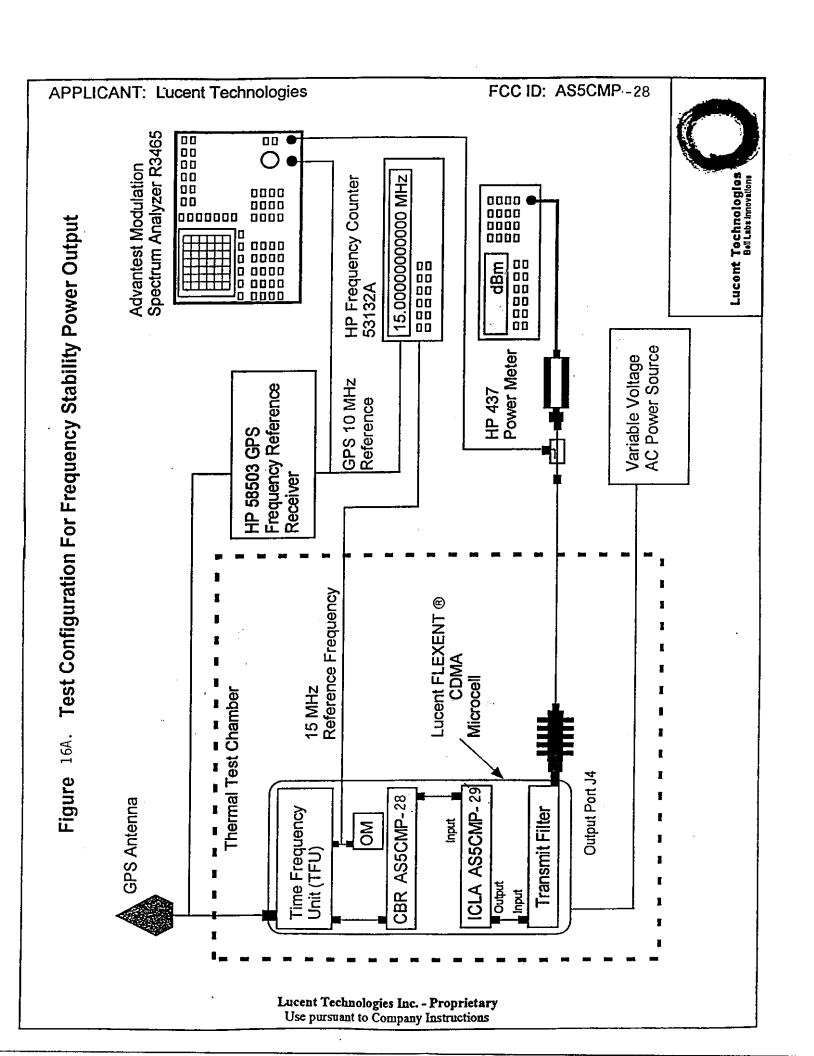
RESPONSE:

The frequency stabilization and accuracy of the CDMA signal amplified by the ICLA is a function of the input signal which it is provided from the CBR (FCC ID: AS5CMP-28). The Time Frequency Unit (TFU) provides the time and frequency reference used by the CBR (FCC ID: AS5CMP-28). The TFU is highly accurate time and frequency unit which relies upon a signal lock of GPS satellite signals to provide the primary discipline of system timing. In the event of loss of GPS lock the Oscillator Module (OM) can provides up to eight hours of freewheel operation. The system provides for automatic timing synchronization upon reacquisition of GPS lock. These units are powered by an AC-DC converter with battery backup to provide immunity to power fluctuations and failures.

The following frequency stability test data for the TFU, CBR and OM was measured as installed and tested in a FLEXENT ® MicroCell. The entire MicroCell was subjected to the FCC specified environments while operating at full rated power. Both Carrier center frequency and reference oscillator deviations were measured. The measurement setup is depicted in Figure 16A.

RESULTS:

The attached data documents that the worse case frequency stability over temperature and voltage was 0.0795 ppm.



Measurement Frequency Stability: For Voltage and Temperature Variation.

15 MHz Reference Frequency Deviation From GPS at -40C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-1
0.5	-3
1	-1
1.5	-3
2	-1
2.5	0
3	+3
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at -40C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-1
97	7
103	4
109	8
115	5
121	6
127	15
132	-17
265	-18
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level Deviation from 20C = +1.42

15 MHz Reference Frequency Deviation From GPS at -30C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-706
0.5	-702
1	-701
1.5	-793
2	-789
2.5	-792
3	-795
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at -30C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	49
97	26
103	26
109	20
115	27
121	30
127	27
132	28
265	30
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level Deviation from 20C = +1.23

15 MHz Reference Frequency Deviation From GPS at -20C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0.5	-105
1	-104
1.5	-49
2	-47
2.5	-43
3	-50
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at -20C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-64
97	-21
103	-28
109	-29
115	-32
121	-26
127	-24
132	-22
265	-20
SPECIFICATION	+/-100,000
RESULT	PASS

¹⁵ MHz Reference level Deviation from 20C = +1.3 dB.

15 MHz Reference Frequency Deviation From GPS at -10C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-13
0.5	-13
1	-12
1.5	-15
2	-13
2.5	-19
3	-13
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at -10C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-13
97	-13
103	-16
109	-9
115	-11
121	
127	-10
132	-9
265	-13
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level Deviation from 20C = +1.21 dB

15 MHz Reference Frequency Deviation From GPS at 0C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-21
0.5	-22
i	-23
1.5	-23
2	-19
2.5	-17
3	-19
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at 0C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-18
97	-19
103	-20
109	-29
115	-27
121	-23
127	-24
132	-28
265	-26
SPECIFICATION	+/-100,000
RESULT	PASS

Ref level deviation from 20C = +1.07 dB

15 MHz Reference Frequency Deviation From GPS at +10C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	94
0.5	72
1	75
1.5	76
2	79
2.5	80
3	77
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +10C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	40
97	47
103	52
109	50
115	50
121	55
127	49
132	46
265	45
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level deviation from 20C = +0.8 dB

15 MHz Reference Frequency Deviation From GPS at +20C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	286
0.5	254
1	317
1.5	308
2	325
2.5	315
3	340
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +20C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	315
97	371
103	320
109	335
115	291
121	342
127	126
132	330
265	301
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference deviation from 20C = 0 dB

Applicant: Lucent Technologies

FCC ID: AS5CMP-28

15 MHz Reference Frequency Deviation From GPS at +30C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-82
0.5	-86
1	-85
1.5	-88
2	-87
2.5	-86
3	-82
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +30C over voltage range

AC Voltage (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-67
97	-71
103	-69
109	-75
115	-78
121	-76
127	-72
132	-67
265	-65
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level deviation from 20C = -0.6dB

15 MHz Reference Frequency Deviation From GPS at +40C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-4
0.5	0
1	-4
1.5	-6
2	-8
2.5	-3
3	-6
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +40C over voltage range

AC Voltage (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-7
97	-3
103	-4
109	-11
115	-13
121	-10
127	-10
132	-10
265	-6
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level deviation from 20C = -1.2 dB

15 MHz Reference Frequency Deviation From GPS at 50C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0	-9
0.5	-10
1	-11
1.5	-10
2	-6
2.5	-9
3	-6
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +50C over voltage range

AC Voltage	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	-6
97	-8
103	-10
109	-9
115	-12
121	-17
127	-19
132	-25
265	-19
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level deviation from 20C = -1.6 dB

Upon Return to +20C

15 MHz Reference Frequency Deviation From GPS at +20C at 115 volts

Time (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
0.5	182
1	181
1.5	185
2	182
2.5	182
3	184
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference Frequency Deviation From GPS at +20C over voltage range

AC Voltage (minutes)	15 MHz Dev. from GPS (10 ⁻⁴ Hz)
115	183
97	177
103	173
109	176
115	179
121	181
127	176
132	175
265	181
SPECIFICATION	+/-100,000
RESULT	PASS

15 MHz Reference level deviation from 20C Baseline = -0.3 dB

APPLICANT: Lucent Technologies FCC ID: AS5CMP-28

EXHIBIT 17

FREQUENCY SPECTRUM TO BE INVESTIGATED

SECTION 2.1057

FREQUENCY SPECTRUM TO BE INVESTIGATED

Frequency Spectrum to be investigated, Measurement Bandwidth and detector function used meet or exceed the Specification contained in Section 2.1057, 22.917, ANSI C63.4, IS95A and IS97.