

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38****EXHIBIT 10: TEST REPORT**

The test report attached to this exhibit demonstrates that the Lucent Technologies, AUTOPLEX™ System 1000, Series II, PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, is in full compliance with all requirements of the Rules of the Commission as specified in the Code of Federal Regulations (CFR), Title 47 – Telecommunication; Part 24, Subpart E – Broadband PCS; Section 24.238 - Emission Limits; effective October 1, 2000. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; Revised January 31, 2001.

All testing was performed in the Lucent Technologies, Whippany, NJ, compliance laboratory by F. E. Chetwynd and M. P. Farina during the period September 10 to November 30, 2001. This test program was implemented in adherence to a test plan generated by M. P. Farina, in accordance with Lucent's ISO-9001 and TL9000 Registration. All measurement instrumentation utilized were calibrated also in compliance with Lucent's ISO-9001 Registration. The Whippany 3 & 10 Meter Open Area Test Site (OATS) is authorized by the Federal Communications Commission (FCC) under Registration Number: 90770, in compliance with the requirements of Section 2.948 of the Rules of the Commission.

Frequency stability measurements were performed by T. N. Tye, Lucent Technologies, Columbus, Ohio under the direction of M. P. Farina, and in adherence to the previously cited ISO 9001 test plan. This test program was conducted during the interval April 19 to May 17, 2001.

Lucent Technologies
Bell Labs Innovations



67 Whippany Road
Whippany, NJ 07981

**Subject: Application for Certification of the Lucent
Technologies PCS TDMA Transmit Unit
(TTU) Base Station Power Amplifier,
under FCC ID: AS5CMP-38.**

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November 30, 2001

TEST REPORT

SYNOPSIS:

The Lucent Technologies, AUTOPLEX™ System 1000, Series II, PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, is designed as a frequency up-converting, from cellular to PCS, base station power amplifier. The TTU is specifically designed as a single carrier amplifier and specifically for Time Domain Multiple Access (TDMA) technology carriers with 30 kHz bandwidth. The maximum rated average power output at the TTU RF output terminal 60 Watts (47.8 dBm), per single carrier. The TTU is also designed for utilization in Lucent's AUTOPLEX™ System 1000, Series II, PCS-TDMA Minicell. Path losses in the Minicell due to 2:1 combiner, dual band PCS transmit bandpass filter and coaxial cabling attenuate the 60 Watt TTU output power to nominally 16 Watts (42.0 dBm) average at the Minicell transmit antenna terminal (J4) per single carrier. All conducted emissions tests were performed at the J4 transmit antenna terminal with the single carrier power level adjusted to provide the *antenna terminal rated power level* of 16 Watts (42.0 dBm) average.

The TDMA signal source, utilized for all tests in this report, is Lucent's Enhanced Digital Radio Unit (EDRU) transceiver, which was previously authorized under FCC ID: AS5CMP-17. The EDRU transmits a single carrier, in the cellular frequency band (869-894 MHz), modulated in all three time slots using ¼ - DQPSK TDMA modulation. The emission designator characteristic of this TDMA carrier is 40K0GXW. Using appropriate frequency mixing and filtering, the TTU up-converts the cellular frequency carrier input signal, nominally at +10 dBm, to the PCS frequency band (1930-1990 MHz) and then performs power amplification to provide the rated 60 Watts (47.8 dBm) average maximum at the TTU RF output terminal (J5). The 60 Watt PCS carrier is then transmitted through a 2:1 signal combiner, band pass transmit filter and coaxial cabling to provide a corresponding and attenuated power level at the J4 transmit antenna terminal of nominally 16 Watts (42.0 dBm) average, which is the rated transmit power level for the Minicell. The TTU is designed to provide a nominal gain of 37 dB across the PCS frequency band, at a nominal supply source of +27.25 Vdc.

All testing was performed in the Lucent Technologies, Whippany, NJ, compliance laboratory by F. E. Chetwynd and M. P. Farina during the period September 10 to November 30, 2001. This test program was implemented in adherence to a test plan generated by M. P. Farina, in accordance with Lucent's ISO-9001 Registration. All measurement instrumentation utilized were calibrated also in compliance with Lucent's ISO-9001 Registration. The Whippany 3 & 10 Meter Open Area Test Site (OATS) is authorized by the Federal Communications Commission (FCC) under Registration Number: 90770, in compliance with the requirements of Section 2.948 of the Rules of the Commission.

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Frequency stability measurements were performed by T. N. Tye, Lucent Technologies, Columbus, Ohio under the direction of M. P. Farina, and in adherence to the previously cited ISO 9001 test plan. This test program was conducted during the interval April 19 to May 17, 2001.

This report fully documents all required tests and the test results, sufficient to show full compliance with the Rules of the Commission.

APPLICABLE FCC RULES AND INDUSTRY STANDARDS:

The AUTOPLEX™ System 1000, Series II PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, and the PCS-TDMA Minicell were designed in accordance with the guidelines of TIA/EIA/IS-138-A, TDMA Cellular/PCS – Radio Interface – Minimum Performance Standards for Base Stations, July 1996. The TTU demonstrated full compliance with CFR 47, Part 24, Subpart E – Broadband PCS, and Part 24.238 Emission Limits, effective October 1, 2000; following the test procedures and requirements specified in CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; Revised January 31, 2001. The specific test procedures that are both required for and are applicable to the TTU are:

Part 2.1046	RF Power Output	Pages 4 – 6
Part 2.1047	Modulation Characteristics	Pages 7-19
Part 2.1049	Occupied Bandwidth	Pages 20-57
Part 2.1051	Spurious Emissions at the Antenna Terminals.	Pages 58-62
Part 2.1053	Field Strength of Spurious Radiation	Pages 63-64
Part 2.1055	Frequency Stability	Pages 65-68
Part 2.1057	Frequency Spectrum to be Investigated	
Part 22.917	Emission Limitations for Cellular	
	(d) Occupied Bandwidth emission mask for F1D: wideband data and TDMA	
	(h) Measurement Procedure: required spectrum analyzer settings for resolution bandwidth	
Part 24	Personal Communications Services; Subpart E – Broadband PCS	
Part 24.238	Emission Limits	

ANSI C63.4-1992 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic in the Range of 9 kHz to 40 GHz; July 17, 1992.

TIA/EIA/IS-138-A TDMA Cellular/PCS – Radio Interface- Minimum Performance Standards for Base Stations; July 1996.

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PART 2.1046 MEASUREMENTS REQUIRED: RF POWER OUTPUT

This is a measure of the transmit power linearity, and control, across the PCS frequency band from PCS Ch 2 (1930.08 MHz) to PCS CH 1998 (1989.96 MHz), at the PCS TDMA Minicell J4 transmit antenna terminal. The TTU rated maximum output power is 60 Watts (47.8 dBm) average per single carrier, which corresponds to the Minicell rated output power level at the J4 transmit antenna terminal of 16 Watts (42.04 dBm) average. Note that all conducted emissions tests were performed at the J4 transmit antenna terminal with the single carrier power level adjusted to provide the *antenna terminal rated power level* of 16 Watts (42.0 dBm) average. The signal source was the current production, cellular frequency, Enhanced Digital Radio Unit (EDRU), 44WR8 1:11, previously authorized under FCC ID: AS5CMP-17. The TDMA carrier was modulated in all 3 time slots with a pseudo-random data stream. Current production PCS dual band transmit bandpass filters: A/D, B/E and F/C, were utilized in the tests covered by this report. In each individual PCS frequency block, the EDRU output power level was adjusted to provide 42.04 dBm (16 Watts) average at the J4 transmit antenna terminal for each designated PCS Block center frequency as specified below. Then, without making additional adjustments, the power level at each block edge frequency was measured and recorded. This was performed for each of the 6 PCS Frequency Blocks.

The FCC does not specify tolerance limits or values for the output power. However, IS-138-A, Section 3.2.1.2 recommends a range of +1dB to -3 dB of the nominal 42.04 dBm value. Similarly, the FCC does not specify what channels and how many channels are required for this procedure. Since Part 24.238 does require emissions to be measured at both the lower and upper frequency block edges for each PCS frequency block, the following table lists the channels/frequencies measured at the antenna terminal, corresponding to PCS Frequency Blocks: A, D, B, E, F and C:

- 1) Power level adjusted and measured at each block center frequency;
- 2) Measurement at the lowest settable block edge frequency for each block,
- 3) Measurement at the highest settable block edge frequency for each block.

These same frequencies are used for all conducted emission tests (i.e., Occupied Bandwidth) performed at the antenna terminal (J4) in this report.

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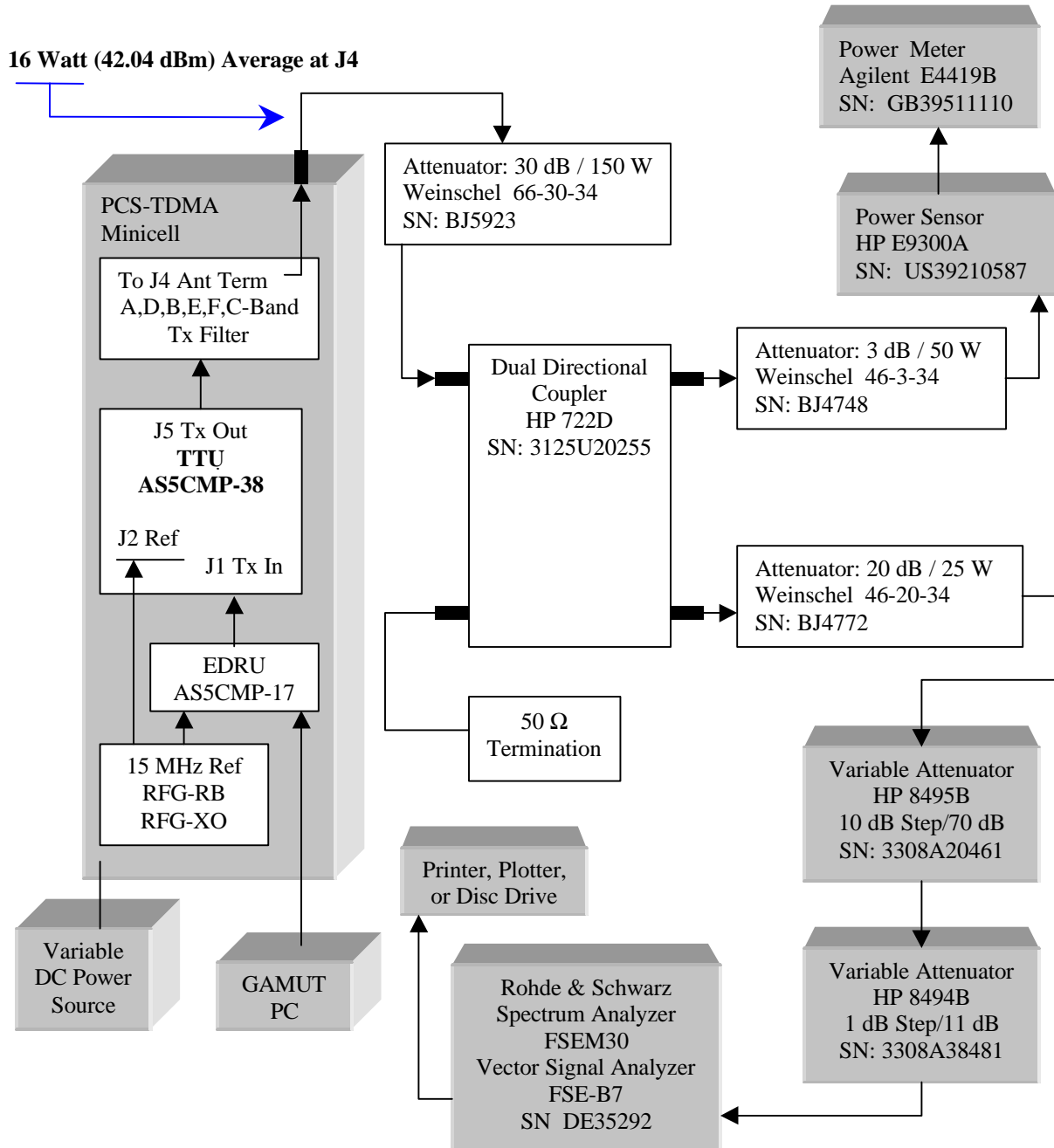
**Single Carrier Power Measurement at the Minicell Transmit Antenna Terminal (J4) and
the Corresponding Channel Frequency Assignment**

PCS Frequency Block	AMPS Channel No.	AMPS Frequency MHz	PCS Channel No.	PCS Frequency MHz	J4 Tx Antenna Terminal dBm
A (Low)	2	870.06	2	1930.08	41.98
A (Center)	250	877.50	250	1937.52	42.04
A (High)	498	884.94	498	1944.96	41.72
D (Low)	502	885.06	502	1945.08	41.86
D (Center)	583	887.49	583	1947.51	42.04
D (High)	664	889.92	664	1949.94	42.08
B (Low)	1	870.03	668	1950.06	41.53
B (Center)	250	877.50	917	1957.53	42.04
B (High)	497	884.91	1164	1964.94	41.64
E (Low)	501	885.03	1168	1965.06	42.05
E (Center)	583	887.49	1250	1967.52	42.04
E (High)	664	889.92	1331	1969.95	41.97
F (Low)	1	870.03	1335	1970.07	42.12
F (Center)	83	872.49	1417	1972.53	42.04
F (High)	164	874.92	1498	1974.96	42.01
C (Low)	168	875.04	1502	1975.08	42.14
C (Center)	416	882.48	1750	1982.52	42.04
C (High)	664	889.92	1998	1989.96	42.48

RESULTS: The power levels measured at the lowest settable and at the highest settable block edge frequencies are all well within +1 dB to -1 dB of the block center frequency adjustment to the rated 42.04 dBm (16 Watts) at the transmit (Tx) antenna terminal (J4). The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, demonstrated full compliance with the requirements of FCC Rule Part 2.1046.

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EXHIBIT 10: TEST REPORT**Block Diagram Of The Power Measurement Test Set-Up And Test Equipment Configuration:**

APPLICANT: LUCENT TECHNOLOGIES

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EXHIBIT 10: TEST REPORT**PART 2.1047 MEASUREMENTS REQUIRED: MODULATION CHARACTERISTICS**

The TDMA Transmit Unit (TTU) is a frequency up-converting power amplifier and does not incorporate TDMA modulation circuitry or capability. However, this test does demonstrate that the frequency up-converting synthesizer and associated circuitry do not alter or degrade the modulation accuracy or characteristics of the TDMA cellular frequency carrier input to the TTU. It is sufficient to demonstrate this at the center frequency of each PCS Frequency Block.

The TDMA modulation type, accuracy and minimum standard, for both PCS and Cellular, are specified in TIA/EIA/IS-138-A: TDMA Cellular/PCS – Radio Interface – Minimum Performance Standards for Base Stations (July 1996), Section 3.3.2 Digital. The requirement for the EDRU (or equivalent TDMA transmitter), used as an authorized TDMA signal source, is that it be capable of generating a $\pi/4$ DQPSK modulated carrier. This test requires that the TDMA carrier be modulated in all three time slots with pseudo-random data field bits. The minimum standard requirement is that the RMS error vector magnitude (EVM) shall be less than 12.5%. Compliance was demonstrated for both the input to and output from the TTU, with the carrier power level at each frequency set to provide 42.04 dBm (16 Watts) average at the J4 transmit antenna terminal. The appropriate measurement equipment utilized was a Rohde & Schwarz FSEM30 Spectrum Analyzer, which incorporated the R&S Vector Signal Analyzer Option FSE-B7.

RMS Error Vector Magnitude (EVM) Measurement Summary:

PCS Frequency Block	AMPS Channel No.	AMPS Frequency MHz	Cellular Frequency Input to TTU Vector Error	PCS Channel No.	PCS Frequency MHz	PCS Frequency Output from TTU at J4 Transmit Antenna Terminal Error Vector Magnitude
A (Center)	250	877.50	3.67 % rms	250	1937.52	4.81 % rms
D (Center)	583	887.49	3.97 % rms	583	1947.51	4.71 % rms
B (Center)	250	877.50	3.97 % rms	917	1957.53	4.58 % rms
E (Center)	583	887.49	3.78 % rms	1250	1967.52	5.41 % rms
F (Center)	83	872.49	3.97 % rms	1417	1972.53	5.01 % rms
C (Center)	416	882.48	3.92 % rms	1750	1982.52	5.43 % rms

Minimum Standard Requirement: The minimum standard requirement is that the RMS error vector magnitude (EVM) shall be less than 12.5%.

Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement.

RESULTS: The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, demonstrated full compliance with the requirements of FCC Rule Part 2.1047. Both the cellular frequency input carriers to the TTU and the corresponding PCS frequency output carriers at the J4 transmit antenna terminal demonstrated full compliance by showing error vector magnitude (EVM) values that are well below the 12.5 % requirement. The difference between the cellular input values and the corresponding PCS output values are negligible.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block A; PCS Ch 250: Output at Tx Antenna Terminal (J4)


 Ref Lvl
0 dB

 CF 1.93752 GHz
 SR 24.3 kHz Symbol/Error
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101111	10111000
40	10100110	11101001	10001011	00010011	01010000
80	00000010	10001101	01111101	11010001	01101001
120	00100101	11010101	01110111	10100100	11101011
160	01001101	00000000	01001101	01101110	11100010
200	10001000	10100100	11100100	00100011	00011100
240	01011000	11101110	00001100	01100111	01111110
280	01100010	00100001	00011001	11101101	10000000
320	11111010	10011101			

A

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Title: AS5CMP-38
 Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block A, PCS Ch 250
 Date: 4.OCT.2001 14:10:31

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block A; AMPS Ch 250: Input to TTU


 Ref Lvl
0 dB

 CF 877.5 MHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset		Symbol Table				A SGL
0	10101001	00011101	11100100	10101010	11011000	
40	00110110	11101001	11001110	00010011	00011000	
80	00000000	10011111	01101100	11010000	00011000	
120	00100110	11000011	00100110	00010101	10111011	
160	00001110	00000000	01001101	00111110	11100001	
200	10011101	10110000	11100000	00110011	01001100	
240	01001001	11101011	00001101	00101110	01101100	
280	01100111	00101000	00010101	11110110	10000000	
320	11111010	10011101				
Error Summary						
Error Vector Mag	3.97 % rms	11.64 %	Pk at sym	28		
Magnitude Error	2.10 % rms	-4.77 %	Pk at sym	152		
Phase Error	1.94 deg rms	6.57 deg	Pk at sym	28		
Freq Error	229.50 Hz	229.50 Hz	Pk			
Amplitude Droop	0.56 dB/sym	Rho Factor		0.9986		
IQ Offset	0.94 %	IQ Imbalance		0.82 %		

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block A, AMPS Ch 250

Date: 4.OCT.2001 14:00:05

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block D; PCS Ch 583: Output at Tx Antenna Terminal (J4)


 Ref Lvl
 0 dB

 CF 1.94751 GHz
 SR 24.3 kHz Symbol/Error:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101101	10111000
40	00000110	10101000	11001110	10010010	01011101
80	01000000	10011101	10111000	10000100	01101101
120	00100010	11000010	10100000	00010100	11111111
160	00000010	00000000	01001100	01110111	10000001
200	11001001	10100110	10110001	00110111	00111100
240	01011100	10101100	00011111	00101011	01111100
280	01000110	00111001	00111111	10100101	10000000
320	11111010	10011101			
Error Summary					
Error Vector Mag	4.71 % rms	9.49 %	Pk at sym	92	
Magnitude Error	2.52 % rms	-7.06 %	Pk at sym	91	
Phase Error	2.29 deg rms	-5.44 deg	Pk at sym	92	
Freq Error	509.34 Hz	509.34 Hz	Pk		
Amplitude Droop	0.73 dB/sym	Rho Factor		0.9974	
IQ Offset	0.98 %	IQ Imbalance		0.94 %	

A

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Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block D, PCS Ch 583

Date: 4.OCT.2001 14:12:52

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block D; AMPS Ch 583: Input to TTU


 Ref Lvl
 0 dB

 CF 887.49 MHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101010	11011000
40	11100110	10101011	11001110	01000010	01011101
80	00001001	10011101	11101100	11010001	01001100
120	00101010	11001111	11110001	00000000	01001010
160	01011011	00000000	01001101	01100110	10000001
200	11000000	11110011	10110001	00100010	00101100
240	00000000	10111101	00001010	00100110	01101100
280	00000110	00100001	00110111	11100110	10000000
320	11111010	10011101			
Error Summary					
Error Vector Mag	3.92 % rms	10.42 %	Pk at sym	77	
Magnitude Error	2.14 % rms	-5.05 %	Pk at sym	46	
Phase Error	1.89 deg rms	-5.58 deg	Pk at sym	77	
Freq Error	232.32 Hz	232.32 Hz	Pk		
Amplitude Droop	0.60 dB/sym	Rho Factor		0.9986	
IQ Offset	0.67 %	IQ Imbalance		0.91 %	

A

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Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block D, AMPS Ch 583

Date: 4.OCT.2001 14:01:17

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block B; PCS Ch 917: Outptut at Tx Antenna Terminal (J4)


 Ref Lvl
0 dB

 CF 1.95753 GHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset		Symbol Table				A SGL
0	<u>10101001</u>	00011101	11100100	10101101	10010101	
40	01101110	11111011	11001110	00000011	01001100	
80	01000010	10011100	11101100	00000101	01011001	
120	01110101	10010000	11110101	01110001	10111010	
160	00001100	00000000	01001101	01110010	11010110	
200	11011001	11100010	11100001	00110010	01101101	
240	00011100	11101001	00001101	01100011	01101100	
280	01100110	00100001	00010111	10100100	10000000	
320	11111010	10011101				
Error Summary						
Error Vector Mag	4.58 % rms	10.30 %	Pk at sym	96		
Magnitude Error	2.64 % rms	-6.96 %	Pk at sym	148		
Phase Error	2.15 deg rms	5.91 deg	Pk at sym	96		
Freq Error	512.57 Hz	512.57 Hz	Pk			
Amplitude Droop	0.99 dB/sym	Rho Factor		0.9973		
IQ Offset	0.45 %	IQ Imbalance		2.06 %		

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block B, PCS Ch 917

Date: 4.OCT.2001 14:35:54

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block B; AMPS Ch 250: Input to TTU


 Ref Lvl
0 dB

 CF 877.5 MHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101010	11011000
40	00001110	11111000	10001010	10010111	00001001
80	01000010	10011100	00111100	10010101	00001100
120	00101001	10010111	01110100	10100001	10101110
160	00000000	00000000	01001101	01101111	10000010
200	10011100	10100110	10100001	01100011	00111101
240	01011101	10101101	00001101	01100010	01101100
280	00100111	10111000	00010111	10110110	10000000
320	11111010	10011101			

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Error Summary

Error Vector Mag	4.35 % rms	10.46 %	Pk at sym	67
Magnitude Error	2.27 % rms	-4.98 %	Pk at sym	66
Phase Error	2.13 deg rms	5.76 deg	Pk at sym	64
Freq Error	229.65 Hz	229.65 Hz	Pk	
Amplitude Droop	0.67 dB/sym	Rho Factor		0.9985
IQ Offset	0.81 %	IQ Imbalance		0.82 %

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block B, AMPS Ch 250

Date: 4.OCT.2001 14:02:33

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block E; PCS Ch 1250: Output at Tx Antenna Terminal (J4)


 Ref Lvl
 0 dB

 CF 1.96752 GHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101101	10010101
40	10110110	10101111	11001110	00010011	00010001
80	00000100	11011000	01101100	00010001	01101101
120	01100111	10010110	00110000	00000101	11111111
160	01011011	00000000	01001101	00111010	10010001
200	11001001	11110110	10110001	00100111	00101101
240	00011100	11101100	00001111	01101111	11111110
280	01000110	00101000	00110011	00100111	10000000
320	11111010	10011101			
Error Summary					
Error Vector Mag	5.41 % rms	12.96 %	Pk at sym	53	
Magnitude Error	2.91 % rms	-8.40 %	Pk at sym	98	
Phase Error	2.62 deg rms	6.96 deg	Pk at sym	77	
Freq Error	514.94 Hz	514.94 Hz	Pk		
Amplitude Droop	1.07 dB/sym	Rho Factor	0.9969		
IQ Offset	0.69 %	IQ Imbalance	2.33 %		

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Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block E, PCS Ch 1250

Date: 4.OCT.2001 14:38:43

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block E; AMPS Ch 583: Input to TTU


 Ref Lvl
0 dB

 CF 887.49 MHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10100111	00001001
40	10101110	11101001	11001011	10000010	01010101
80	00010000	11011111	00111100	01000100	01111100
120	00110110	10000101	00100100	00000101	11111010
160	01010110	00000000	01001101	01111011	11000001
200	11011001	11110011	11100001	01110111	01101100
240	00011100	10111000	00001110	01101111	01101100
280	00100110	10100001	00011101	10101101	10000000
320	11111010	10011101			

A

SGL

Error Summary

Error Vector Mag	3.92 % rms	9.31 %	Pk at sym	82
Magnitude Error	2.25 % rms	-5.14 %	Pk at sym	46
Phase Error	1.85 deg rms	-5.33 deg	Pk at sym	82
Freq Error	232.44 Hz	232.44 Hz	Pk	
Amplitude Droop	0.52 dB/sym	Rho Factor		0.9986
IQ Offset	1.11 %	IQ Imbalance		0.88 %

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block E, AMPS Ch 583

Date: 4.OCT.2001 14:03:31

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block F; PCS Ch 1417: Output at Tx Antenna Terminal (J4)


 Ref Lvl
0 dB

 CF 1.97253 GHz
 SR 24.3 kHz Symbol/Error:
 Standard NADC

10 dB Offset	Symbol Table					
0	10101001	00011101	11100100	10100111	00001001	
40	01000110	11111111	11001110	10000011	01010001	
80	01001000	10011000	01101100	01000100	00101100	
120	00110011	10010010	01100101	01010100	10111111	
160	00001011	00000000	01001100	01111110	10010101	
200	10001001	10100110	10100000	00100011	01111100	
240	00001100	11101101	00011110	01100010	11101110	
280	00000110	10100001	00110101	00101101	10000000	
320	11111010	10011101				
Error Summary						
Error Vector Mag	5.01 % rms	10.91 %	Pk at sym	96		
Magnitude Error	2.84 % rms	-8.86 %	Pk at sym	128		
Phase Error	2.37 deg rms	6.18 deg	Pk at sym	96		
Freq Error	515.74 Hz	515.74 Hz	Pk			
Amplitude Droop	1.00 dB/sym	Rho Factor		0.9974		
IQ Offset	0.08 %	IQ Imbalance		0.20 %		

A

SGL

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block F, PCS Ch 1417

Date: 4.OCT.2001 14:29:02

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block F; AMPS Ch 83: Input to TTU


 Ref Lvl
0 dB

 CF 872.49 MHz
 SR 24.3 kHz Symbol/Erro:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10100001	01111101
40	10101110	11111111	11001110	00010011	01100100
80	01000111	10011000	01111100	01000101	00101000
120	01110100	11010010	01100001	10100001	10111111
160	00000101	01000000	01001101	00111110	11010011
200	11011001	10100011	11100001	00110010	01101101
240	00011100	10111001	00011001	01101010	11101110
280	00100110	00100001	00110111	00100111	10000000
320	11111010	10011101			
Error Summary					
Error Vector Mag	4.02 % rms	10.52 %	Pk at sym	29	
Magnitude Error	2.04 % rms	4.16 %	Pk at sym	13	
Phase Error	1.99 deg rms	-6.04 deg	Pk at sym	29	
Freq Error	228.28 Hz	228.28 Hz	Pk		
Amplitude Droop	0.57 dB/sym	Rho Factor		0.9985	
IQ Offset	0.96 %	IQ Imbalance		0.60 %	

A

SGL

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block F, AMPS Ch 83

Date: 4.OCT.2001 13:55:52

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block C; PCS Ch 1750: Output at Tx Antenna Terminal (J4)


 Ref Lvl
0 dB

 CF 1.98252 GHz
 SR 24.3 kHz Symbol/Error:
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101101	10111000
40	01100110	11101011	11001010	01010011	01010001
80	01001001	10011111	00101000	01010101	01011001
120	00110110	11000111	00110000	10010101	11011110
160	00001011	00000000	01001100	01111011	11000001
200	11011001	10100111	10110000	00110011	01101101
240	00011100	11101001	00001100	01101111	11101100
280	01100110	10111000	00010101	10101110	10000000
320	11111010	10011101			
Error Summary					
Error Vector Mag	5.43 % rms	11.24 %	Pk at sym	115	
Magnitude Error	3.13 % rms	-8.32 %	Pk at sym	4	
Phase Error	2.55 deg rms	6.40 deg	Pk at sym	115	
Freq Error	518.62 Hz	518.62 Hz	Pk		
Amplitude Droop	1.13 dB/sym	Rho Factor		0.9969	
IQ Offset	0.24 %	IQ Imbalance		1.02 %	

A

SGL

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output Block C, PCS Ch 1750

Date: 4.OCT.2001 14:30:54

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Block C; AMPS Ch 416: Input to TTU


 Ref Lvl
0 dB

 CF 882.48 MHz
 SR 24.3 kHz Symbol/Errors
 Standard NADC

10 dB Offset	Symbol Table				
0	10101001	00011101	11100100	10101101	10111000
40	01000110	11101001	11001110	10010010	01010001
80	01000001	11001101	00111100	01010101	01011001
120	00100111	11000111	00110000	01000100	11111111
160	01111010	00000000	01001100	01111011	11010101
200	11011001	10100001	10100000	00110010	01011100
240	00001000	10101111	00001000	01100011	11011110
280	01000110	00111000	00111111	10100110	10000000
320	11111010	10011101			

A

SGL

Error Summary

Error Vector Mag	3.83 % rms	8.96 %	Pk at sym	57
Magnitude Error	2.10 % rms	-5.39 %	Pk at sym	98
Phase Error	1.85 deg rms	-5.14 deg	Pk at sym	57
Freq Error	230.74 Hz	230.74 Hz	Pk	
Amplitude Droop	0.54 dB/sym	Rho Factor		0.9986
IQ Offset	0.69 %	IQ Imbalance		0.89 %

Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input Block C, AMPS Ch 416

Date: 4.OCT.2001 13:57:20

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT**PART 2.1049 MEASUREMENTS REQUIRED: OCCUPIED BANDWIDTH**

This test procedure demonstrates that the TTU does not alter or degrade the occupied bandwidth of the modulated TDMA carrier, from cellular frequency input to PCS frequency output at the J4 transmit antenna terminal. Measurements were made at both the TTU J1 RF input terminal and at the J4 transmit antenna terminal with the carrier power level set to provide 42.04 dBm (16 Watts) average at the J4 antenna terminal. The measurements were then performed and recorded at both the TTU input terminal and at the J4 antenna terminal. The power level was measured and recorded on each data plot for both input and J4 output. The TDMA carrier was modulated in all 3 time slots with a pseudo-random data stream. In compliance with Part 24.238, occupied bandwidth emissions were measured at both the lowest settable and the highest settable frequency channels, corresponding to the block edge requirement, for each PCS frequency block.

Since the TDMA carrier input to the TTU is in the cellular frequency band, the spectrum analyzer configuration and the occupied bandwidth emission mask are as specified in Part 22.917(h) *Measurement Procedure* and (d) *FID Emission Mask*. For the 30 kHz carrier, both Part 22.917 and Part 24.238 (i.e., 1% of 30 kHz) require the spectrum analyzer to use a Resolution Bandwidth (RBW) of 300 Hz and a Video Bandwidth (VBW) of 3 kHz or greater (i.e., 10 x RBW). The Span utilized was 120 kHz.

In accordance with Part 22.917(d), the emission mask for wideband data (WBD) signals also applies to 30 kHz TDMA digital signals. The occupied bandwidth plot need not extend beyond a 120 kHz span.

Occupied Bandwidth Emission Mask for TDMA	Displacement from the Carrier Center Frequency in a 120 kHz Span	Attenuation below the Unmodulated Carrier (dBc) in a 120 kHz Span
Part 22.917(d)(1)	20 kHz to 45 kHz	26 dBc
Part 22.917(d)(2)	45 kHz to 90 kHz	45 dBc
Part 22.917(d)(3)	> 90 kHz to 1 st Harmonic	At least 60 dBc Or $43 + 10 \log P$ (watts) dBc, Whichever is the lesser attenuation.

In accordance with Part 24.238(a), emissions at each PCS Block edge frequency must be attenuated, in addition to the occupied bandwidth emission mask, by $43 + 10 \log (P)$ dBc, which corresponds to 55.04 dBc (i.e., attenuation below the unmodulated carrier) for 16 Watts at the J4 antenna terminal. In accordance with Part 24.229, the PCS block edge frequencies are: A-Block 1930-1945 MHz; D-Block 1945-1950 MHz; B-Block 1950-1965 MHz; E-Block 1965-1970 MHz; F-Block 1970-1975 MHz; and C-Block 1975-1990 MHz.

The following table lists the corresponding channel numbers and carrier center frequencies that were measured: **1**) the lowest settable block edge, **2**) block center, and **3**) the highest settable (upper) block edge:

PCS Frequency Block	AMPS Channel No.	AMPS Frequency	PCS Channel No.	PCS Frequency
A (Low)	2	870.06 MHz	2	1930.08 MHz
A (Center)	250	877.50 MHz	250	1937.52 MHz
A (High)	498	884.94 MHz	498	1944.96 MHz
D (Low)	502	885.06 MHz	502	1945.08 MHz
D (Center)	583	887.49 MHz	583	1947.51 MHz
D (High)	665	889.95 MHz	665	1949.97 MHz
B (Low)	1	870.03 MHz	668	1950.06 MHz
B (Center)	250	877.50 MHz	917	1957.53 MHz
B (High)	497	884.91 MHz	1164	1964.94 MHz
E (Low)	501	885.03 MHz	1168	1965.06 MHz
E (Center)	583	887.49 MHz	1250	1967.52 MHz
E (High)	664	889.92 MHz	1331	1969.95 MHz
F (Low)	1	870.03 MHz	1335	1970.07 MHz
F (Center)	83	872.49 MHz	1417	1972.53 MHz
F (High)	164	874.92 MHz	1498	1974.96 MHz
C (Low)	168	875.04 MHz	1502	1975.08 MHz
C (Center)	416	882.48 MHz	1750	1982.52 MHz
C (High)	664	889.92 MHz	1998	1989.96 MHz

Measurement Procedure:

The occupied bandwidth emission limitations are based on attenuation below the *unmodulated* carrier. However, the TDMA carrier must be modulated with a pseudo-random bit stream in all three time slots, and can not exist as an unmodulated carrier. The power level of the carrier was first set to 42.04 dBm (16 Watts) average at the J4 Tx antenna terminal for each block center frequency. The carrier power level was then measured for each occupied bandwidth measurement both at the TTU input and at the J4 antenna terminal, and recorded on the data plot.

The spectrum analyzer display is configured such that the top of the display reticle is set to 0 dBm reference level; all emission attenuation will then be read directly from the grid as dBc. Since the occupied bandwidth limitations are specified as required attenuation below the mean power of the unmodulated carrier, the center frequency of the carrier should be displaced from the top of the analyzer display reticle by the following value:

$$10 \log (\text{carrier bandwidth/resolution bandwidth}) \\ 10 \log (30 \text{ kHz}/300 \text{ Hz}) = 20.0 \text{ dB offset}$$

This is accomplished by using a variable attenuator. The spectrum analyzer is first set to a 1 MHz Resolution Bandwidth (RBW), or larger, and the center frequency of the modulated carrier is then positioned to the top of the spectrum analyzer reticle which was previously set at 0 dBm, to establish and set the reference level. The spectrum analyzer is next re-set to the required 300 Hz RBW; this method produces the required nominal 20 dB offset. The detector function is then set to 10 sweep average. The occupied bandwidth data plots for each of the 6 PCS frequency blocks are shown below for each corresponding TTU input and output signal, in accordance with the above cited table of required measurement frequencies.

Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement.

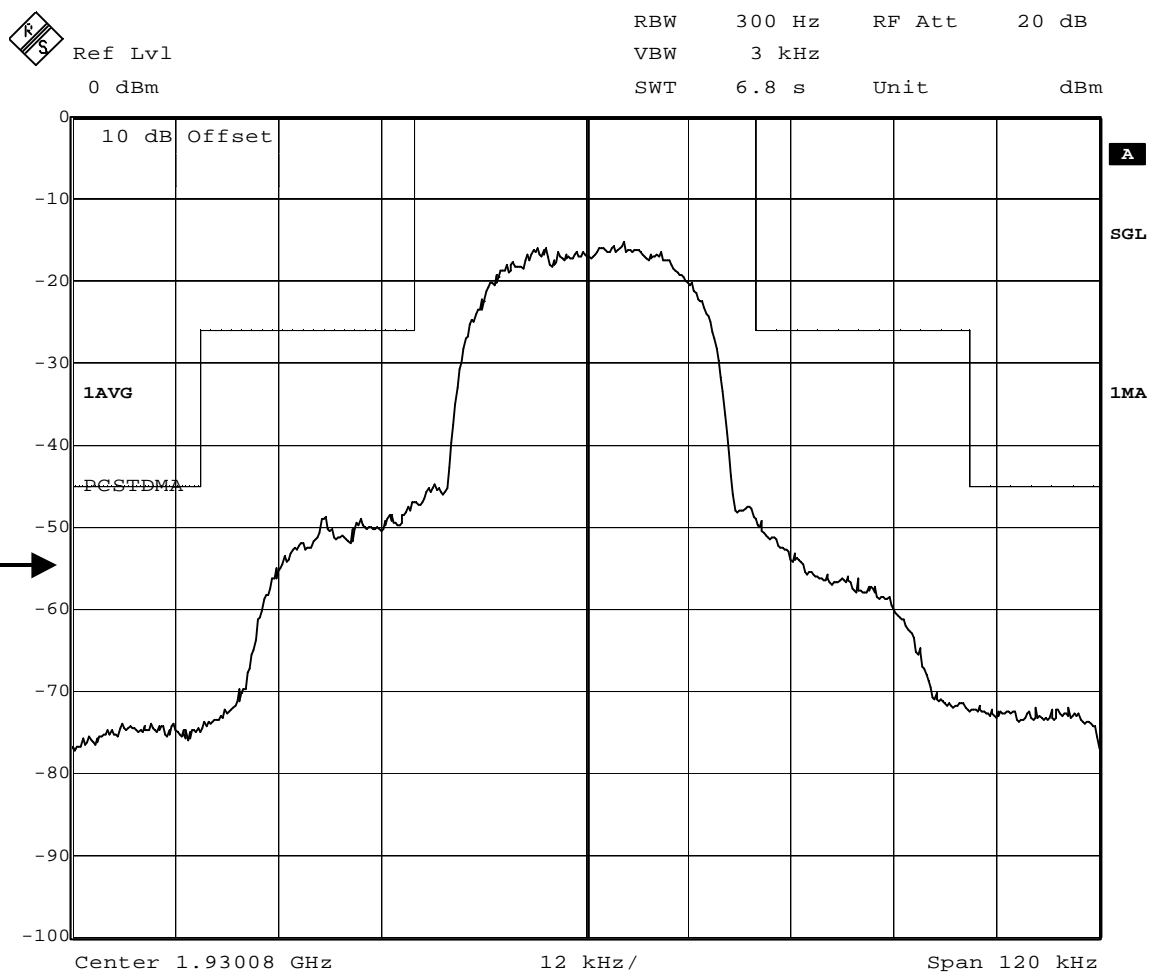
RESULTS: The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, demonstrated full compliance with the requirements of FCC Rule Part 2.1049 and with Part 24.238. The occupied bandwidth emissions from the lowest settable to the highest settable frequency (channel) in each of the 6 PCS frequency blocks demonstrated full compliance with the emission mask limitations and with the PCS block edge limitations, for the carrier center frequencies shown above for each specific PCS block.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; PCS Ch 2: 1930.08 MHz
 Lowest Settable Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block A, PCS Ch2, 16W (42.0 dbm)

Date: 3.OCT.2001 14:53:38

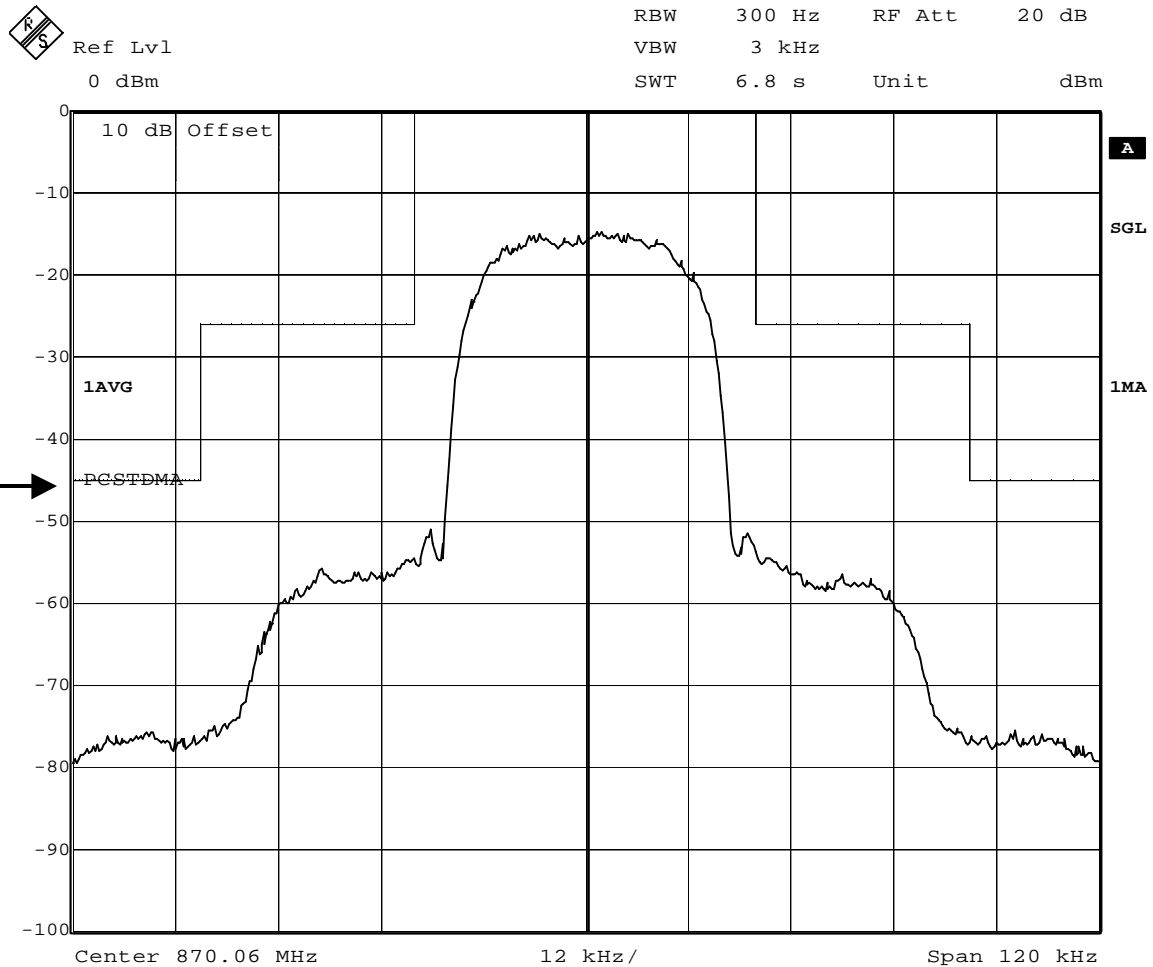
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; AMPS Ch 2: 870.06 MHz
 Lowest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block A, AMPS Ch 2, 9.72 dBm

Date: 4.OCT.2001 10:02:53

Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; PCS Ch 250: 1937.52 MHz

Center Frequency

Output at Tx Antenna Terminal (J4)



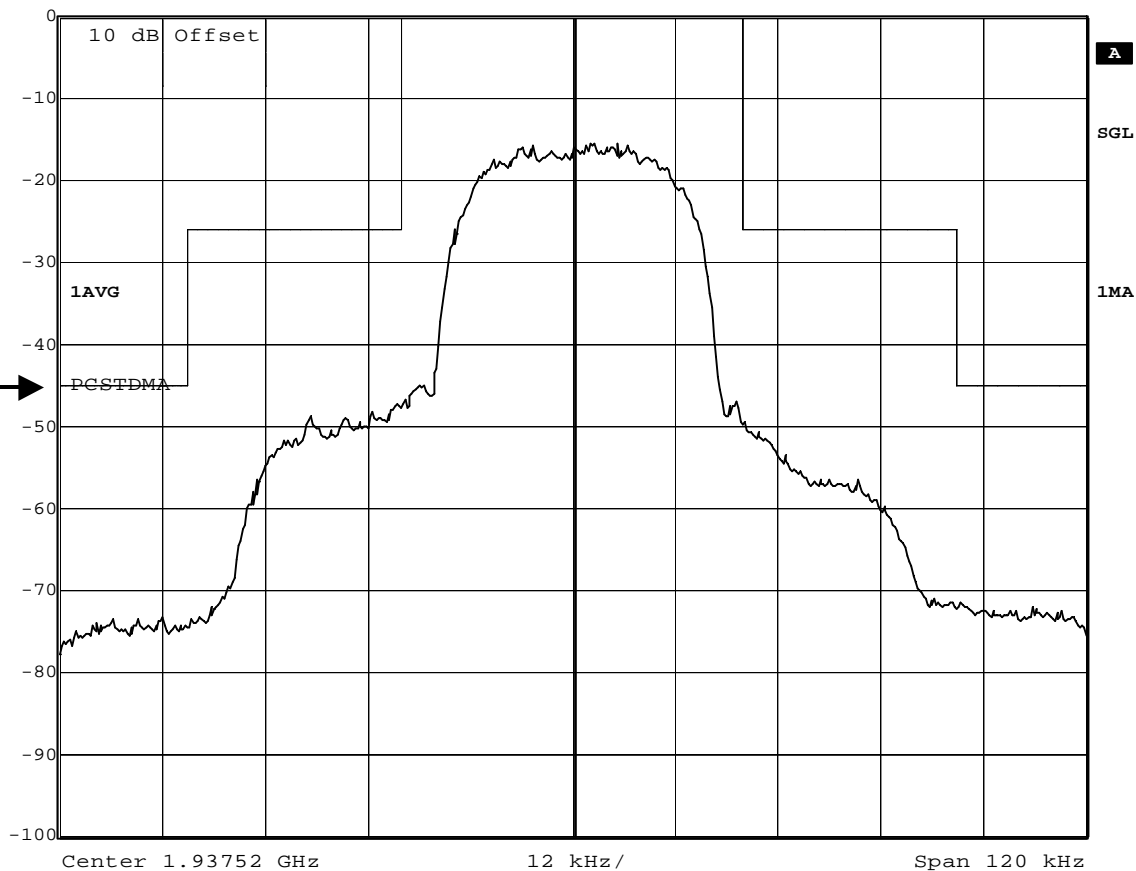
Ref Lvl

0 dBm

RBW 300 Hz RF Att 20 dB

VBW 3 kHz

SWT 6.8 s Unit dBm



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
Block A, PCS Ch250, 16W (42.0 dbm)

Date: 3.OCT.2001 15:09:45

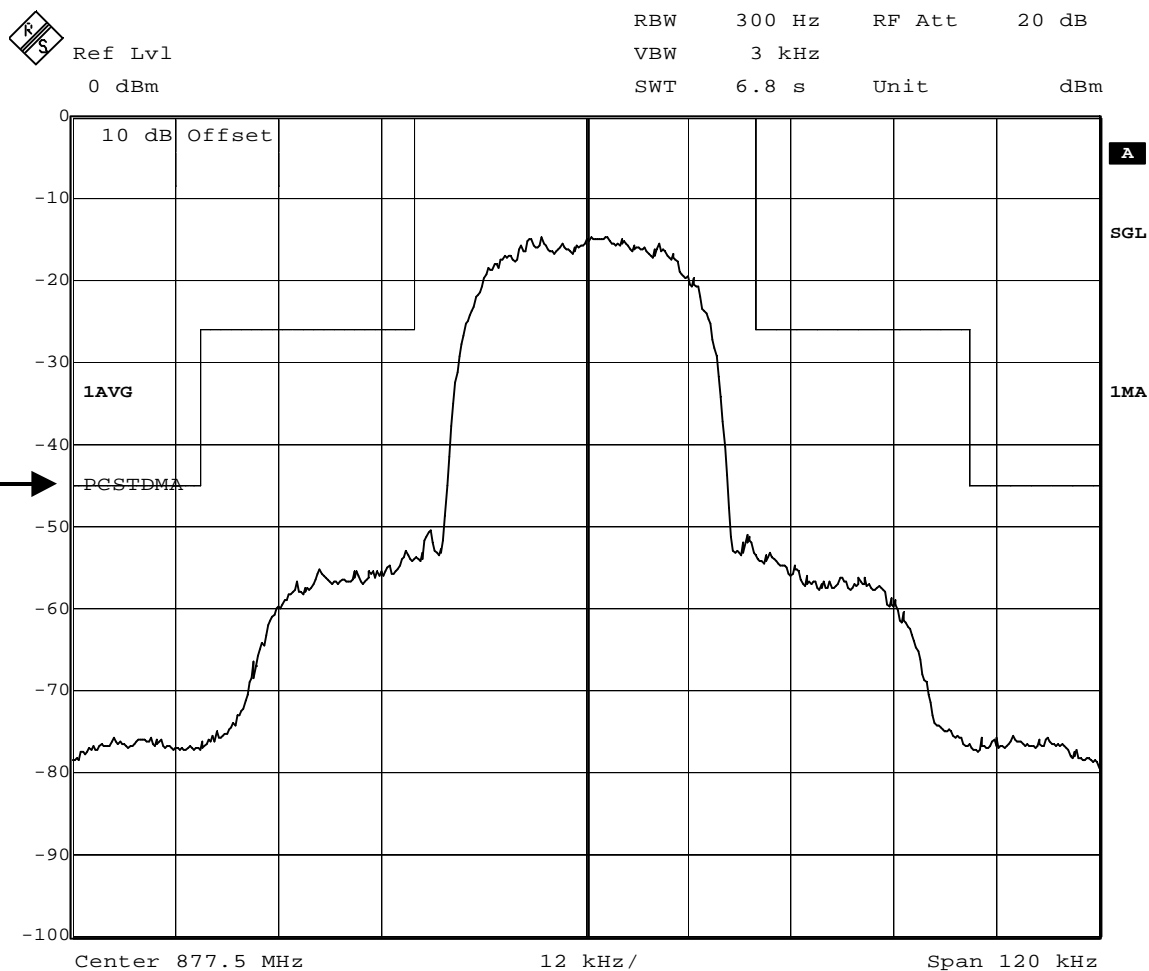
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; AMPS Ch 250: 877.50 MHz
Center Frequency
Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
Block A, AMPS Ch 250, 9.69 dBm

Date: 4.OCT.2001 10:06:56

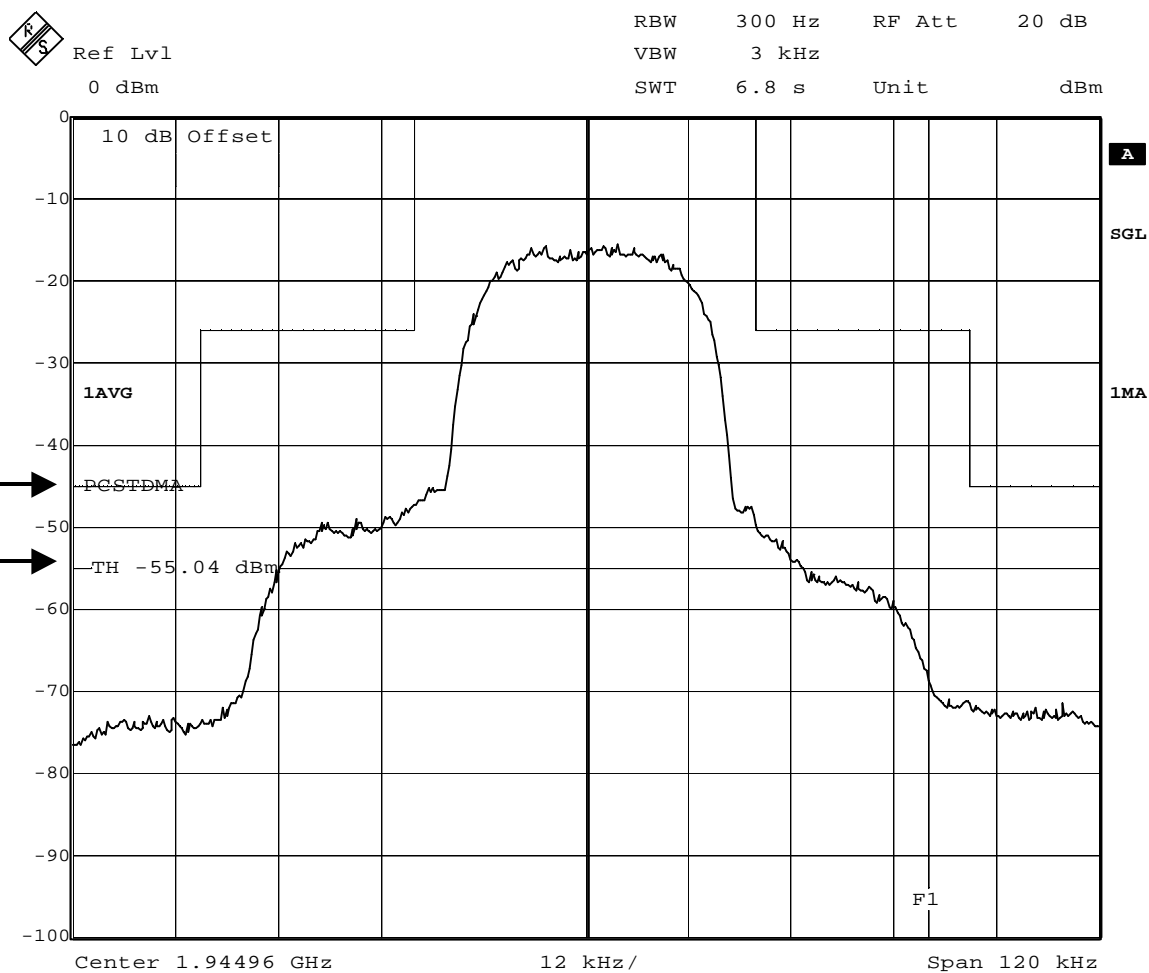
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; PCS Ch 498: 1944.96 MHz
 Highest Settable Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block A, PCS Ch498, 16W (42.0 dbm)

Date: 3.OCT.2001 15:05:24

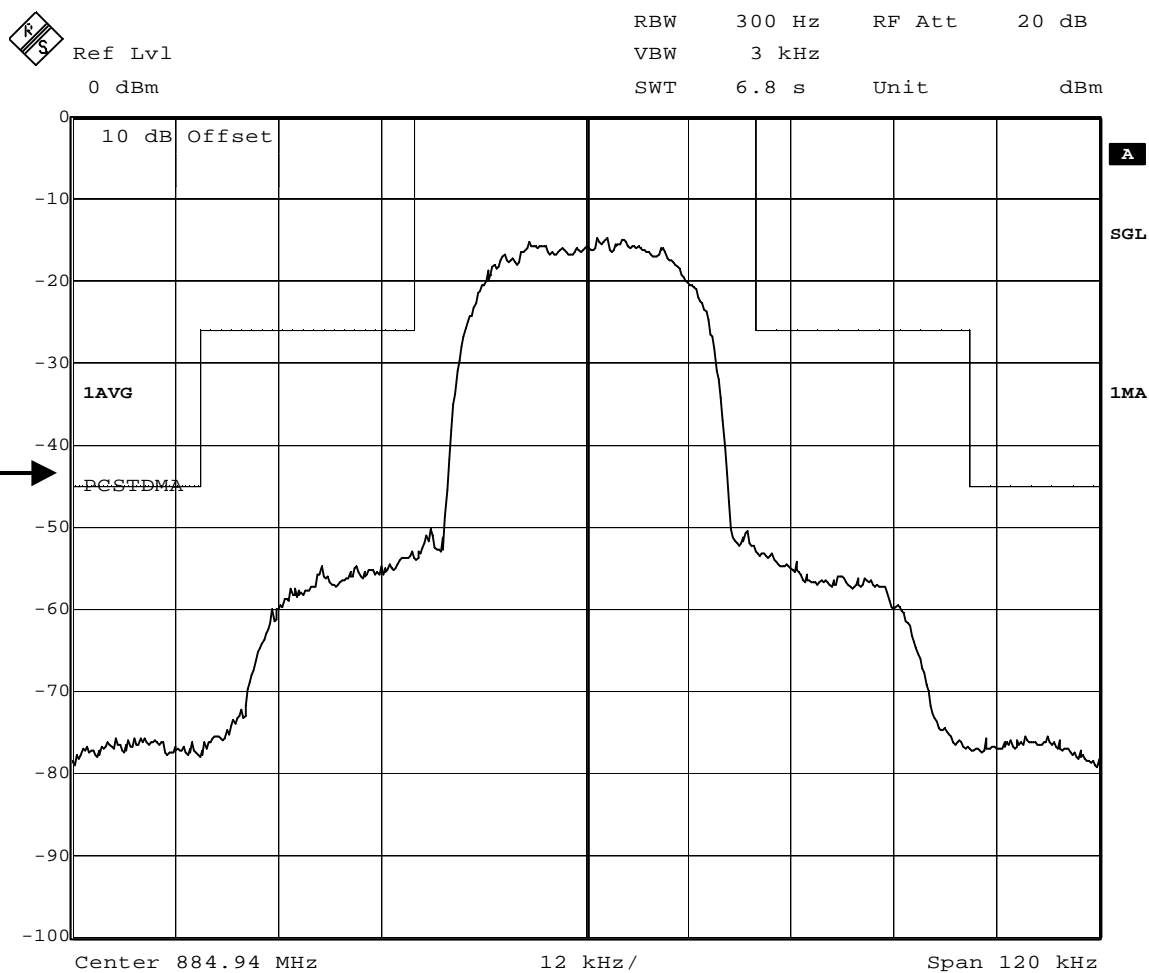
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block A; AMPS Ch 498: 884.94 MHz
 Highest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block A, AMPS Ch 498, 9.32 dBm

Date: 4.OCT.2001 10:10:38

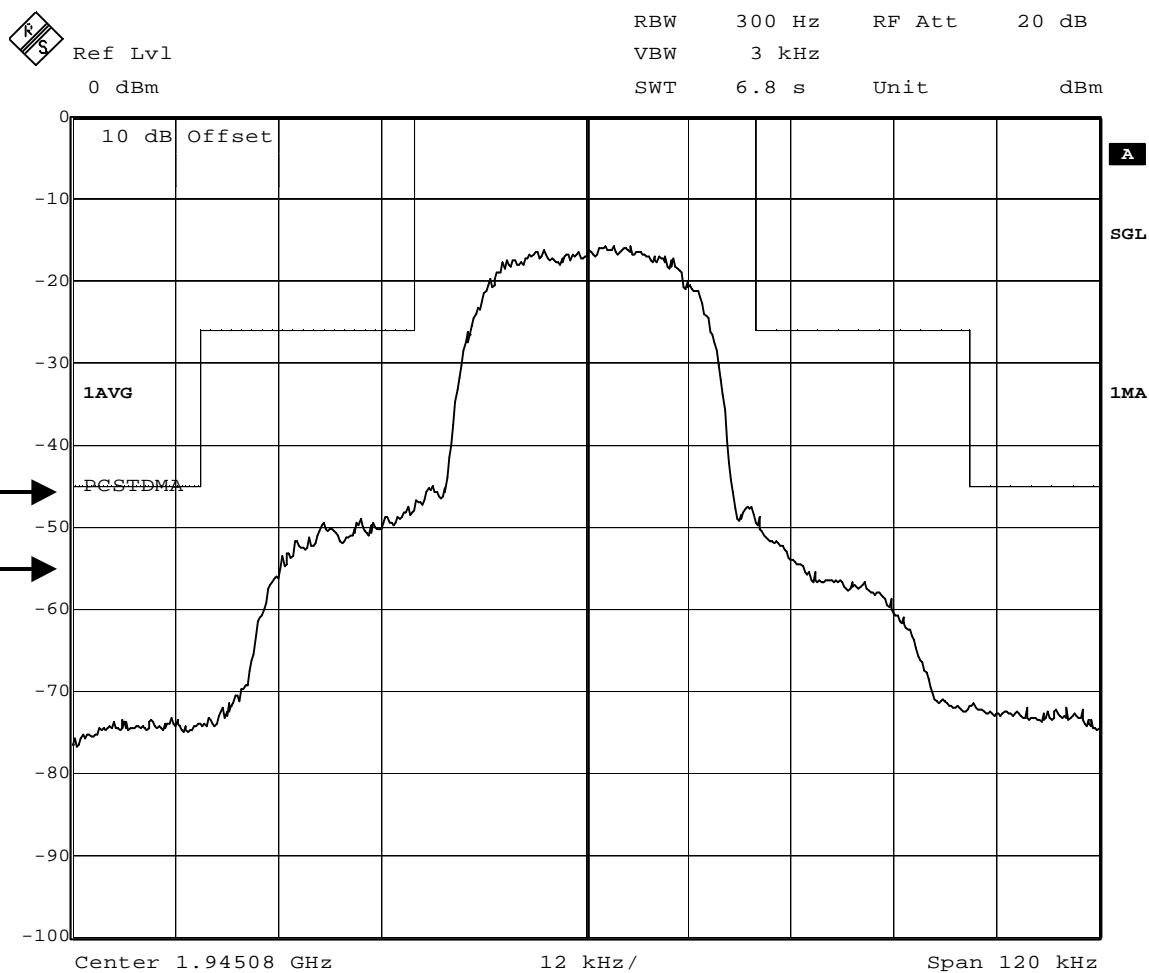
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; PCS Ch 502: 1945.08 MHz
 Lowest Settable Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block D, PCS Ch502, 16W (42.0 dbm)

Date: 3.OCT.2001 15:17:34

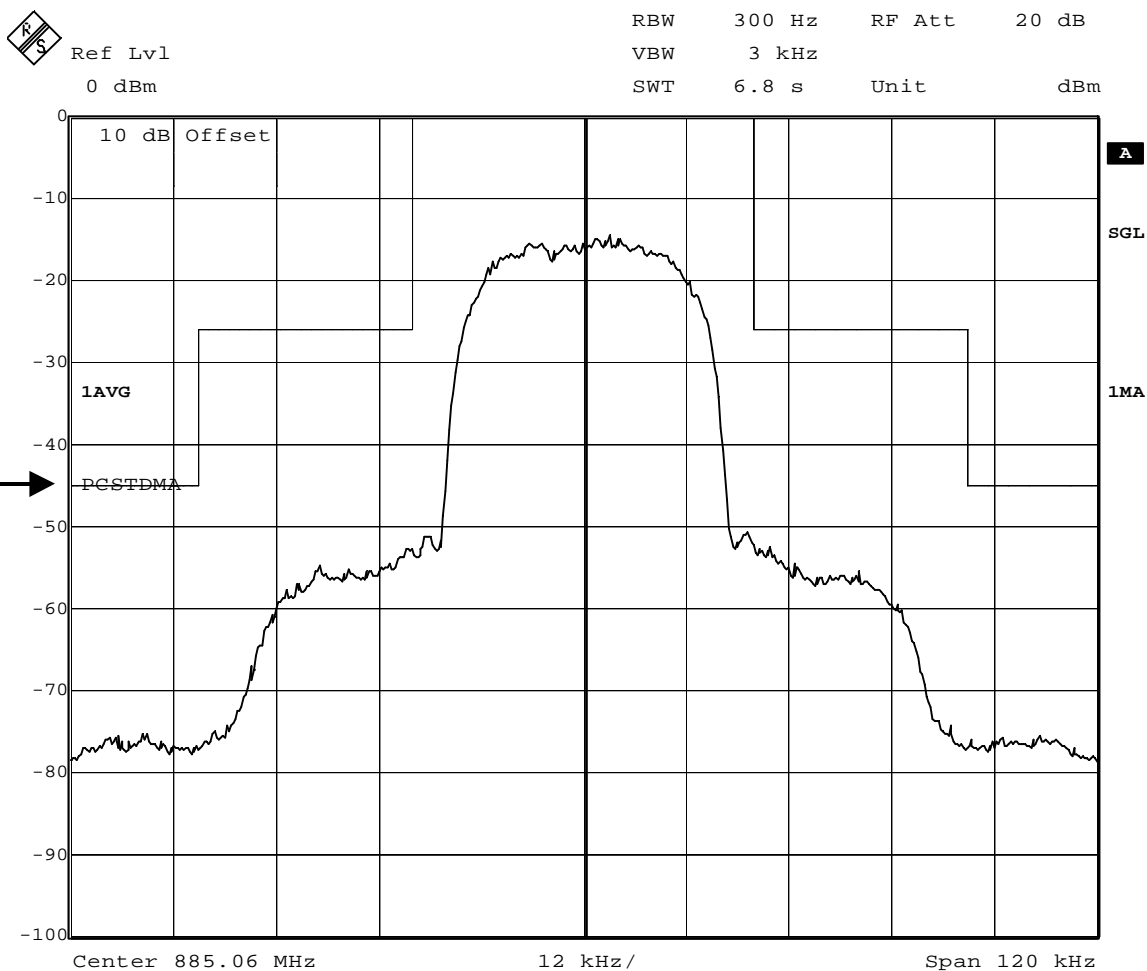
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; AMPS Ch 502: 885.06 MHz
 Lowest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block D, AMPS Ch 502, 9.49 dBm

Date: 4.OCT.2001 10:15:22

Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

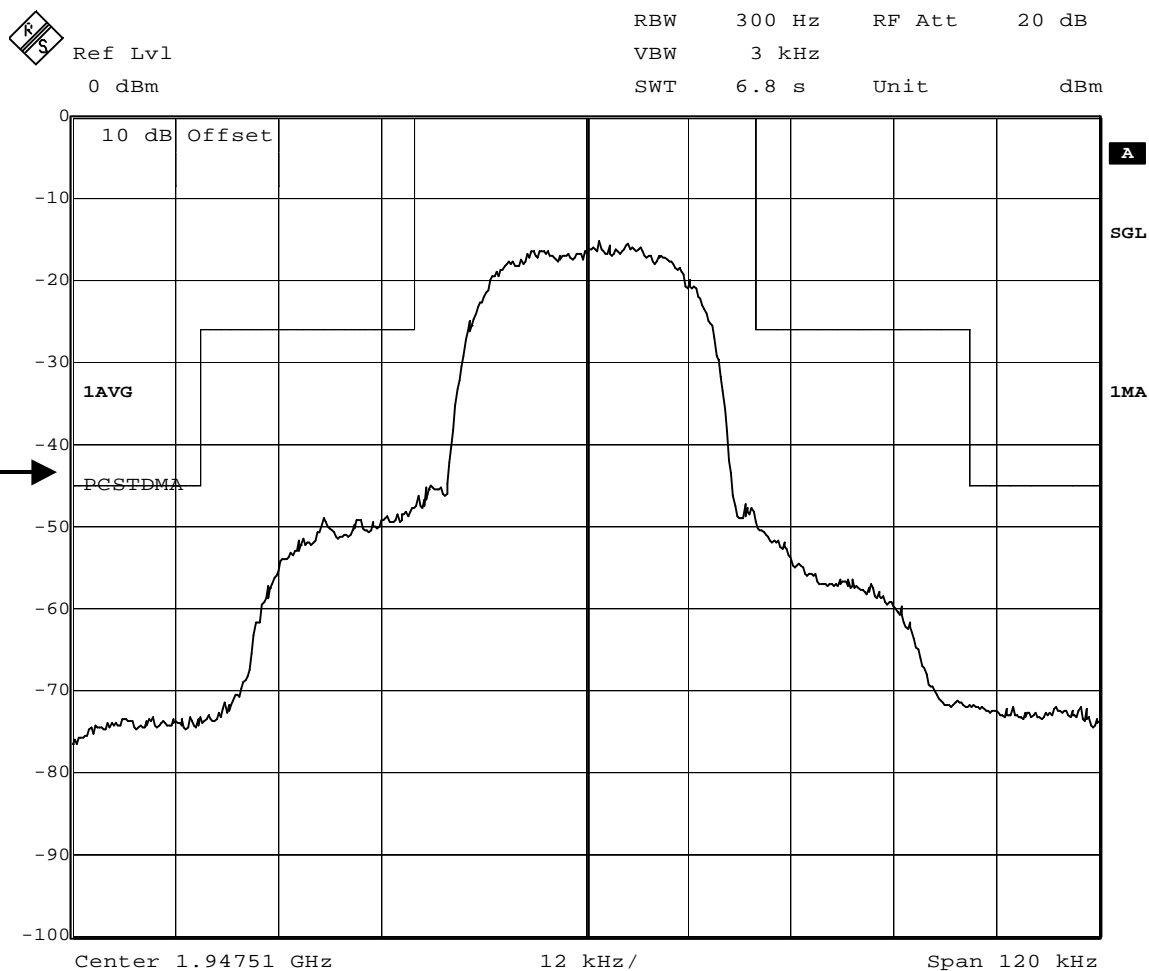
FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; PCS Ch 583: 1947.51 MHz

Center Frequency

Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block D, PCS Ch583, 16W (42.0 dbm)

Date: 3.OCT.2001 15:21:32

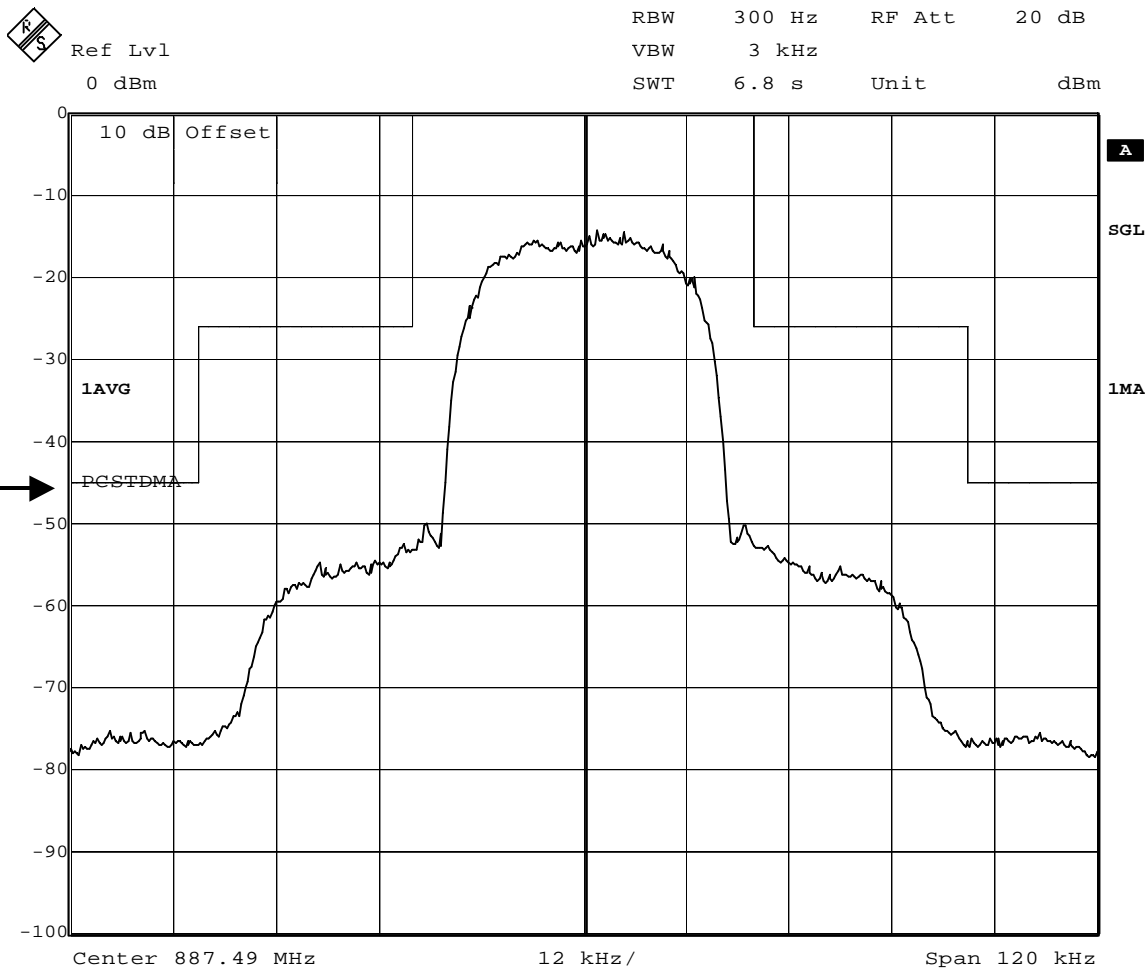
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; AMPS Ch 583: 887.49 MHz
Center Frequency
Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
Block D, AMPS Ch 583, 9.68 dBm

Date: 4.OCT.2001 10:19:09

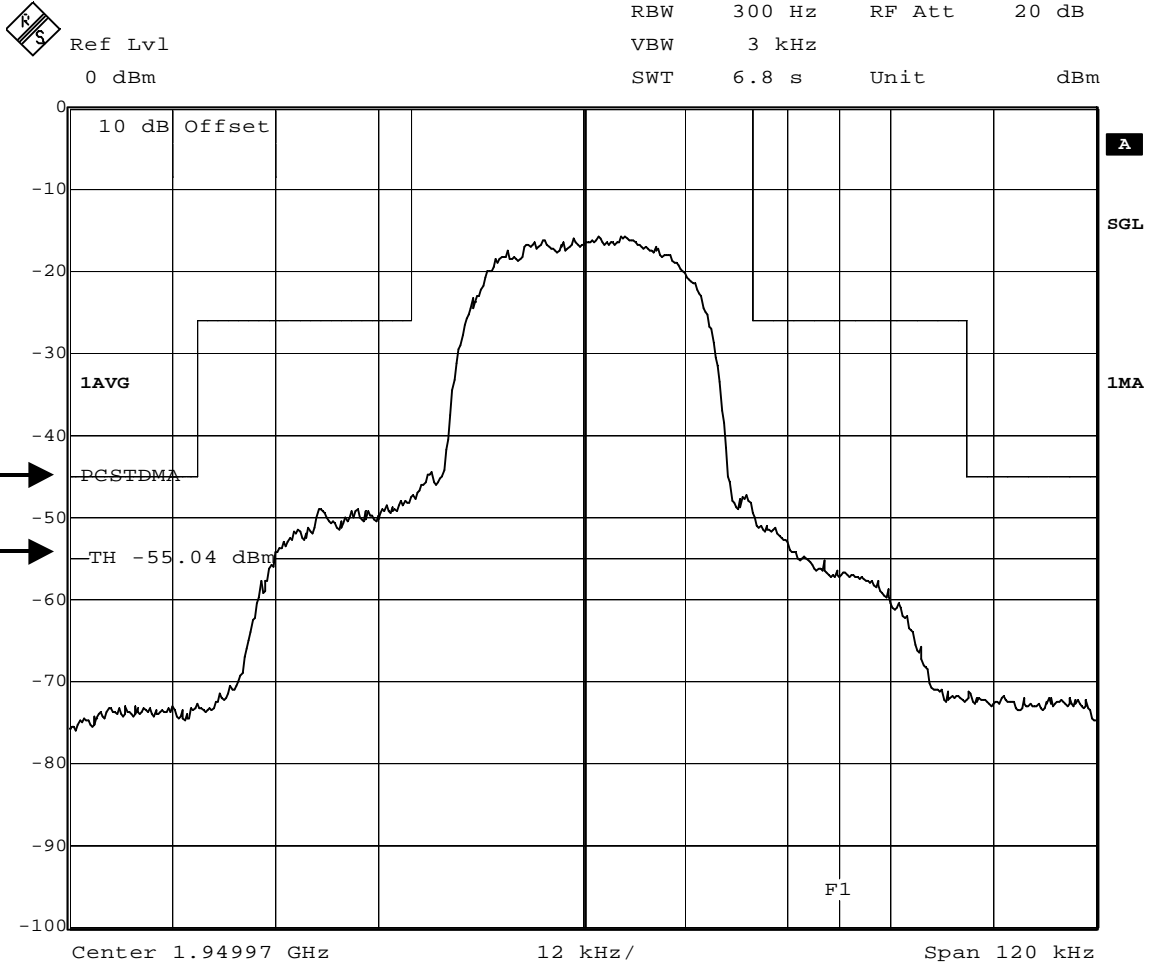
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; PCS Ch 665: 1949.97 MHz
 Highest Settable Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block D, PCS Ch665, 16W (42.0 dbm)

Date: 3.OCT.2001 15:35:05

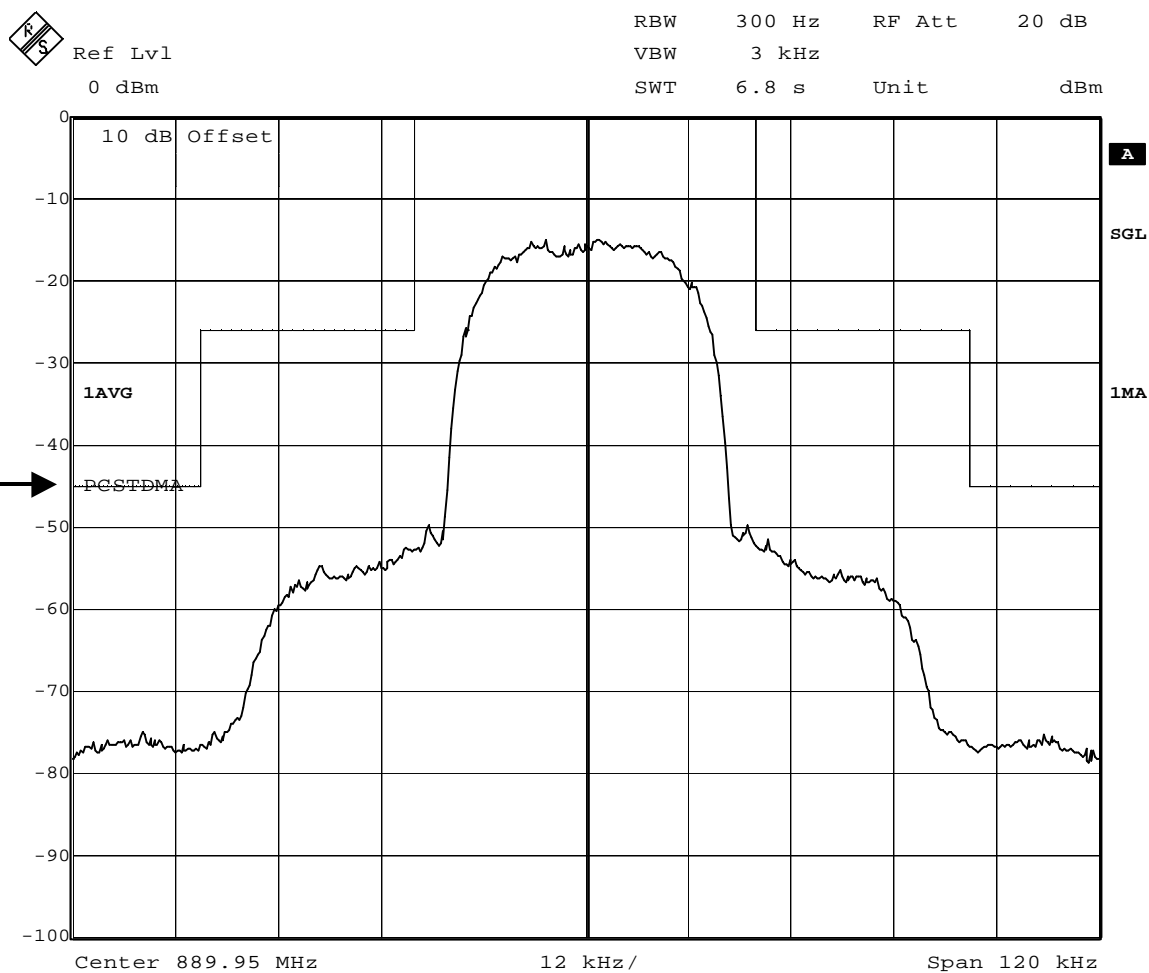
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block D; AMPS Ch 665: 889.95 MHz
 Highest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block D, AMPS Ch 665, 9.71 dBm

Date: 4.OCT.2001 10:26:40

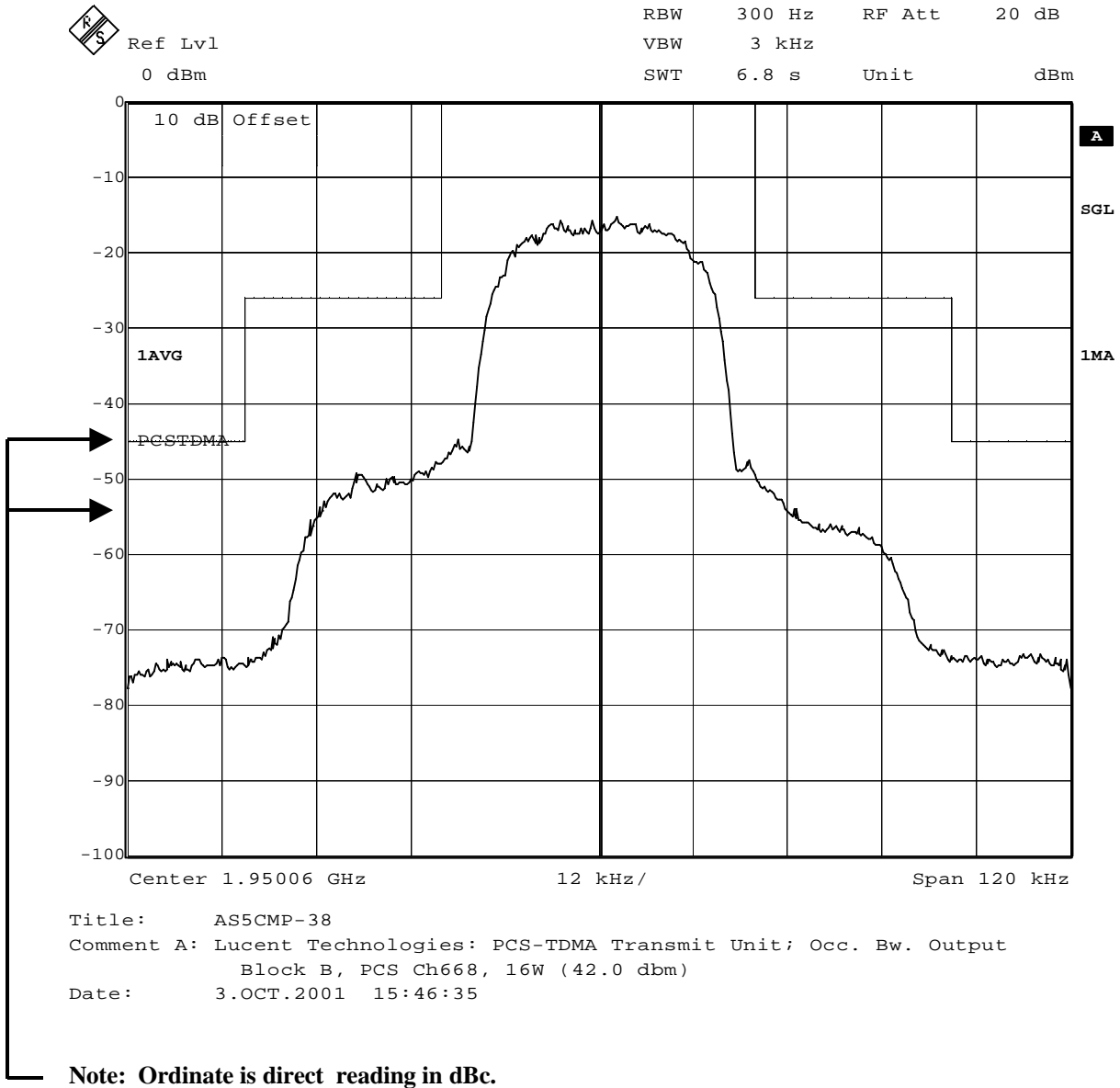
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block B; PCS Ch 668: 1950.06 MHz
 Lowest Settable Frequency
 Output at Tx Antenna Terminal (J4)



APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block B; PCS Ch 917: 1957.53 MHz

Center Frequency

Output at Tx Antenna Terminal (J4)



Ref Lvl

0 dBm

RBW 300 Hz

RF Att

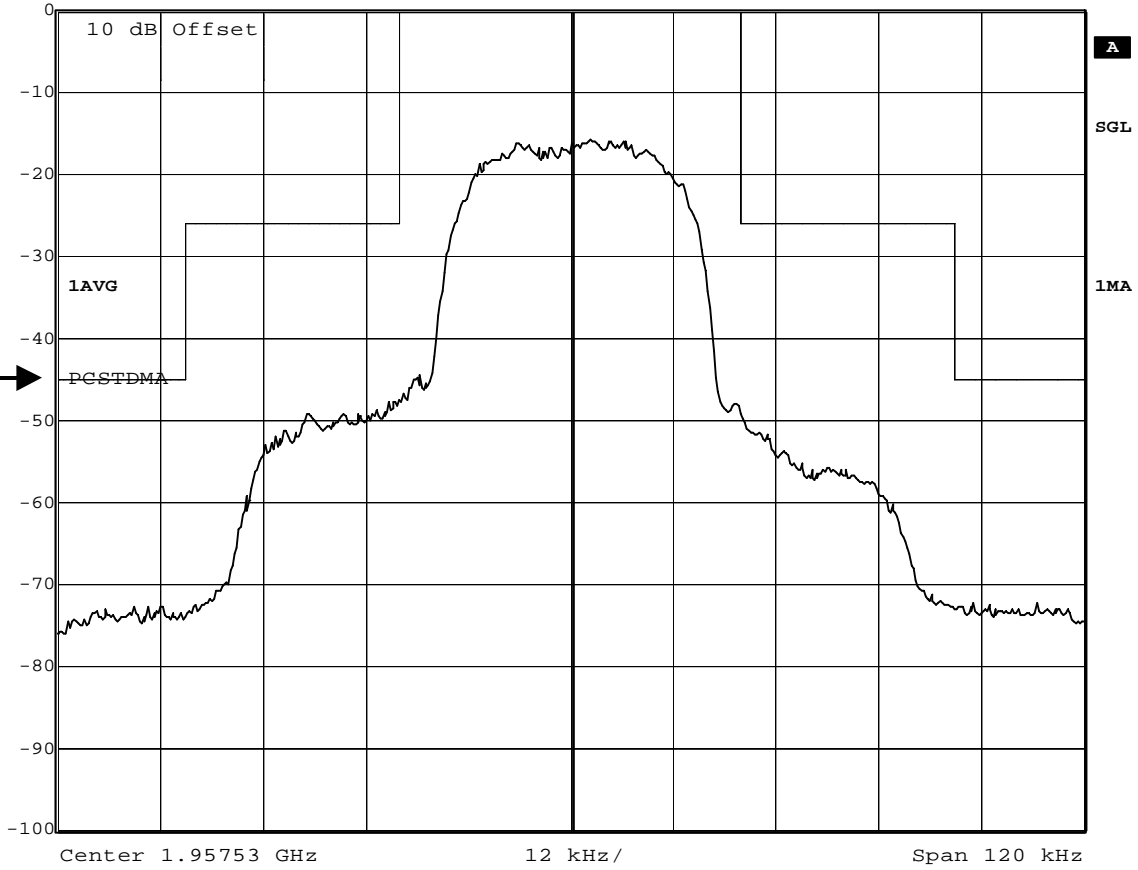
20 dB

VBW 3 kHz

SWT 6.8 s

Unit

dBm



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block B, PCS Ch917, 16W (42.0 dbm)

Date: 3.OCT.2001 15:51:01

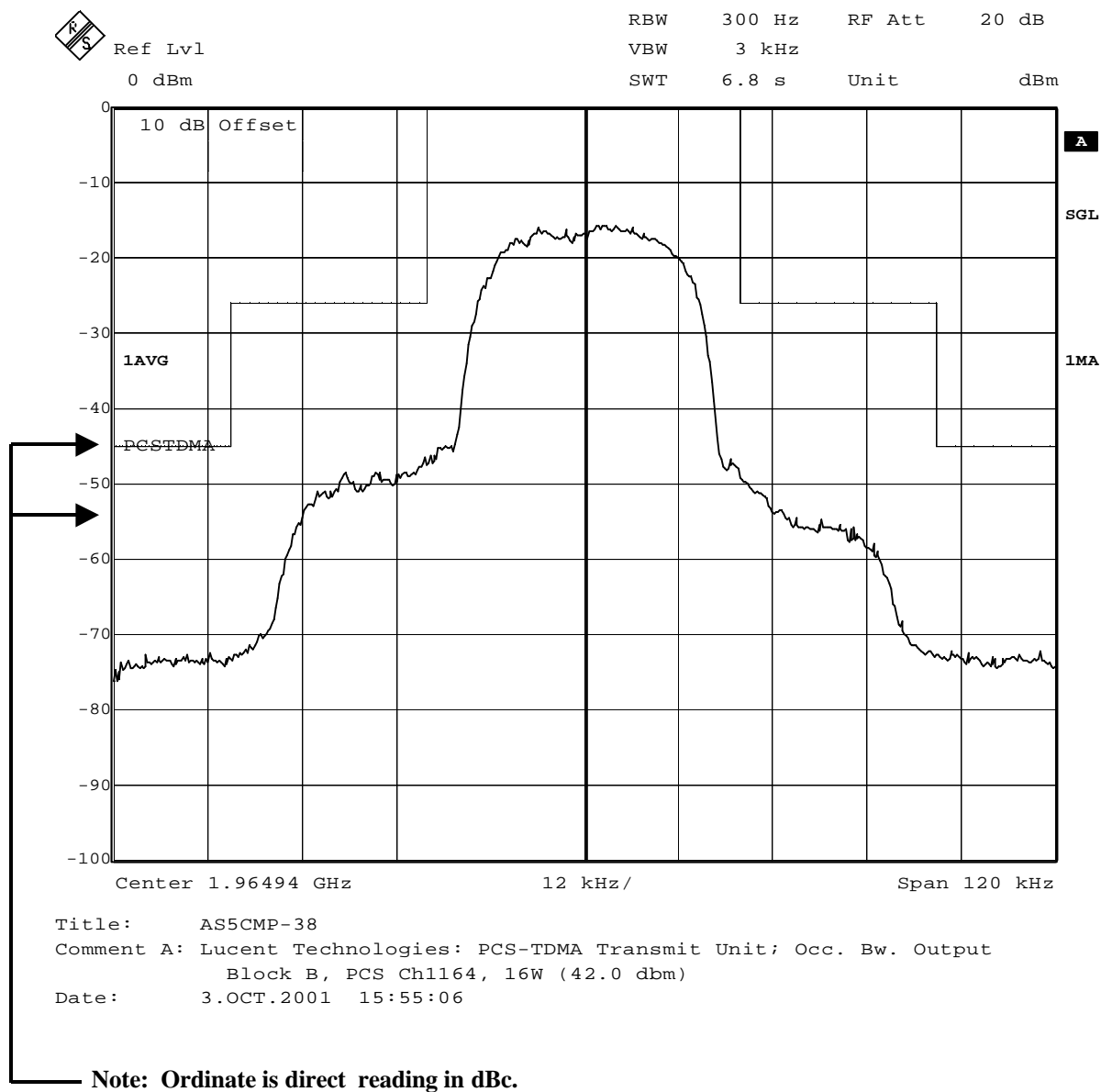
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block B; PCS Ch 1164: 1964.94 MHz
 Highest Settable Frequency
 Output at Tx Antenna Terminal (J4)

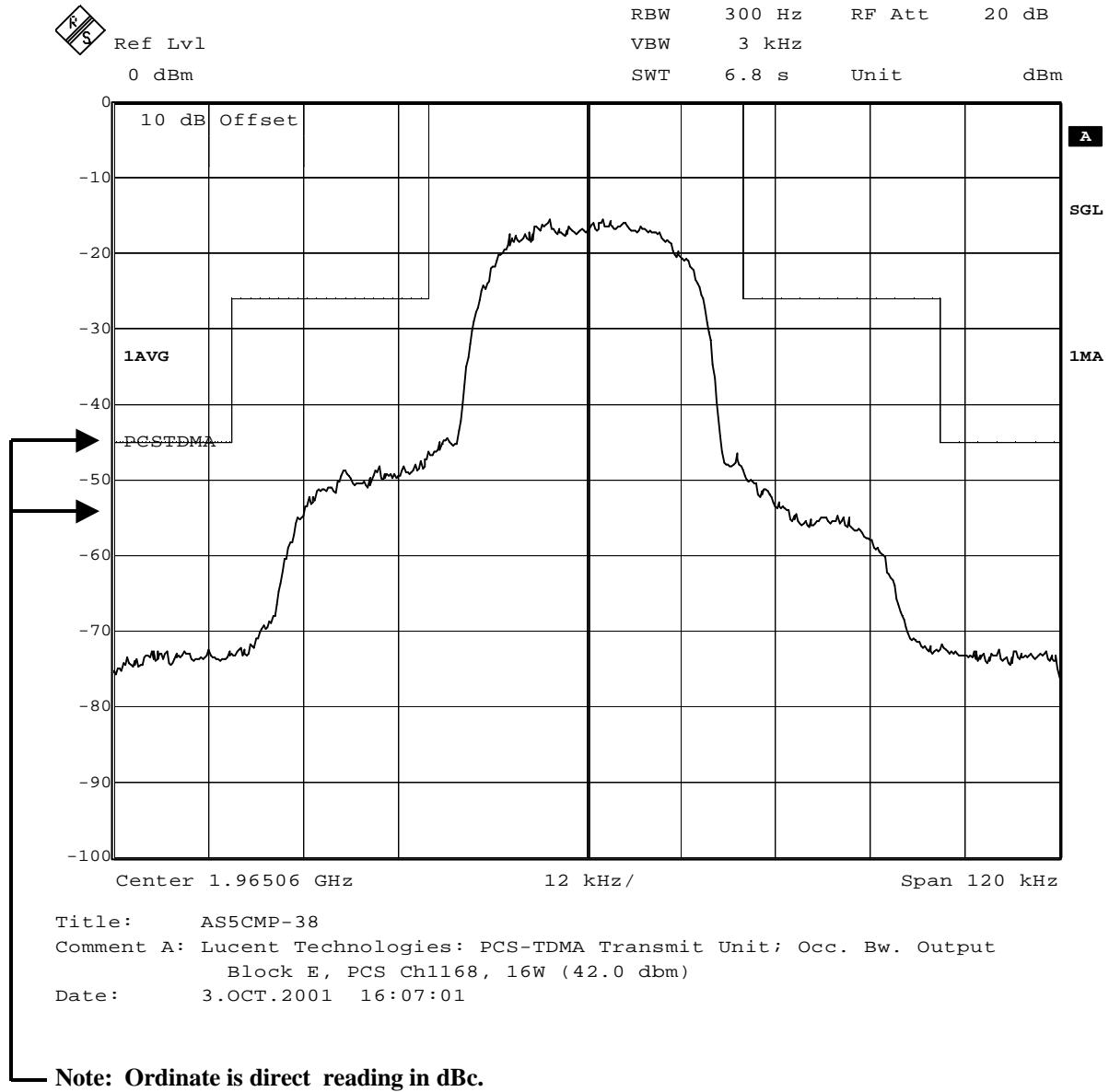


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; PCS Ch 1168: 1965.06 MHz
 Lowest Settable Frequency
 Output at Tx Antenna Terminal (J4)

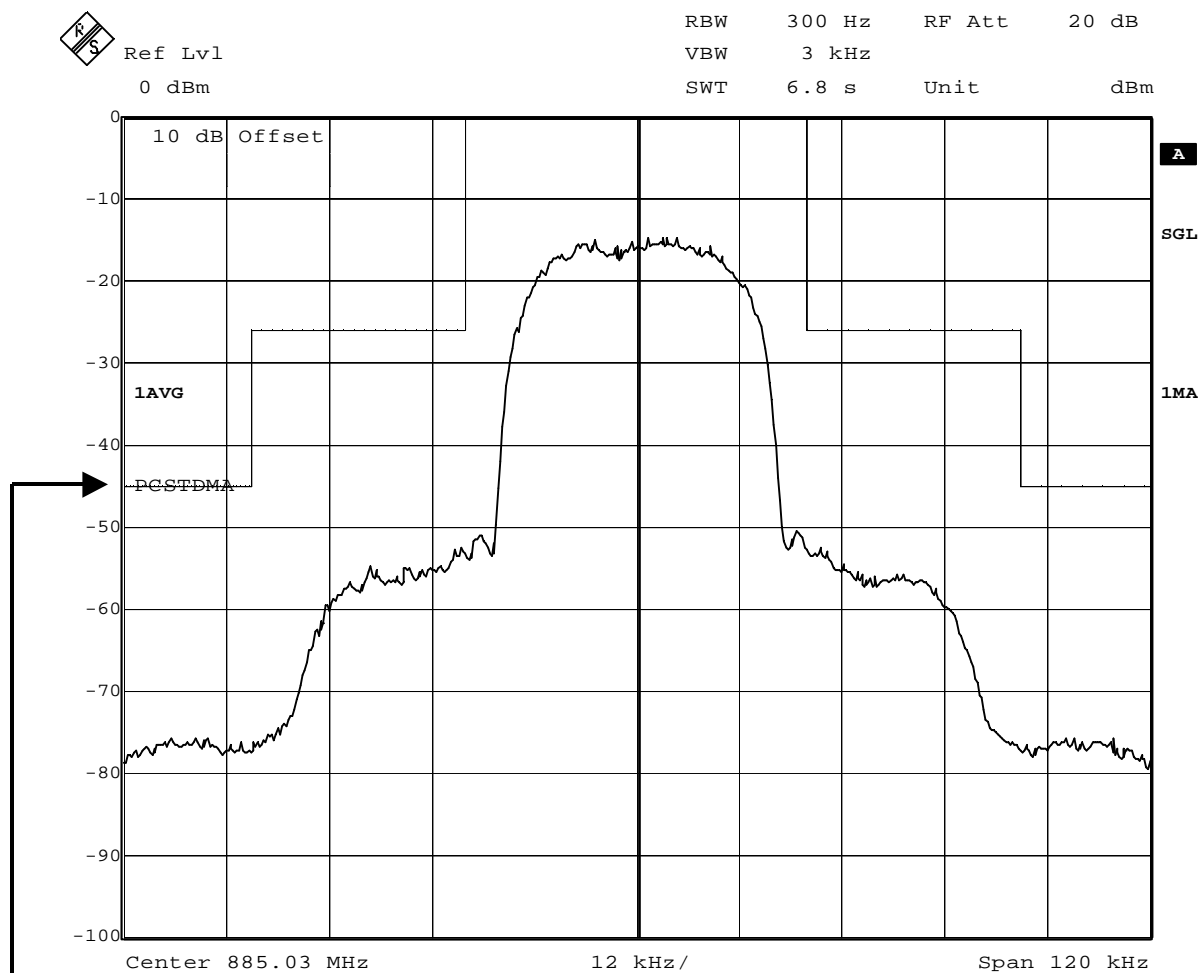


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; AMPS Ch 501: 885.03 MHz
 Lowest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block E, AMPS Ch 501, 8.99 dBm

Date: 4.OCT.2001 12:28:05

Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

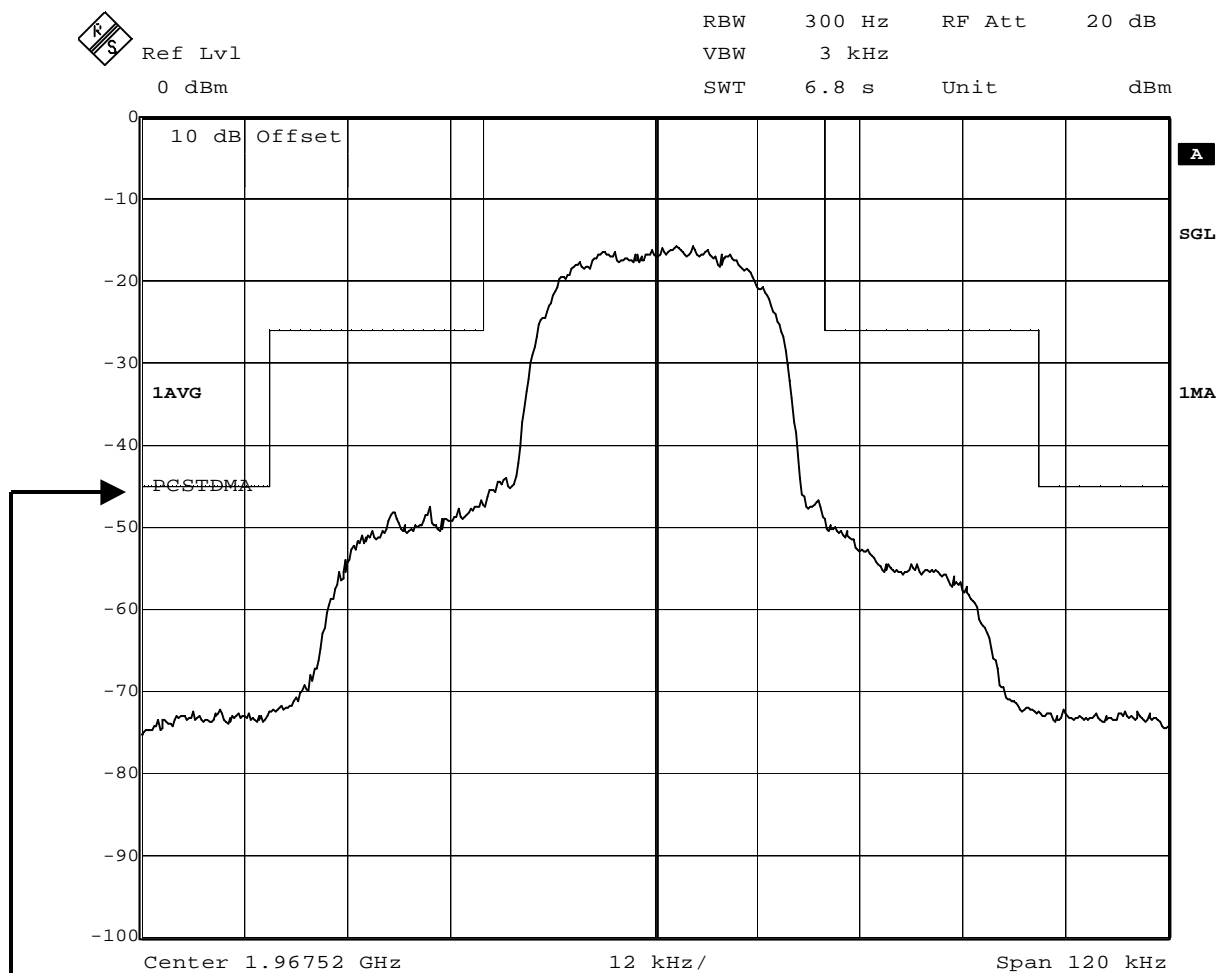
FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; PCS Ch 1250: 1967.52 MHz

Center Frequency

Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
Block E, PCS Ch1250, 16W (42.0 dbm)

Date: 3.OCT.2001 16:10:46

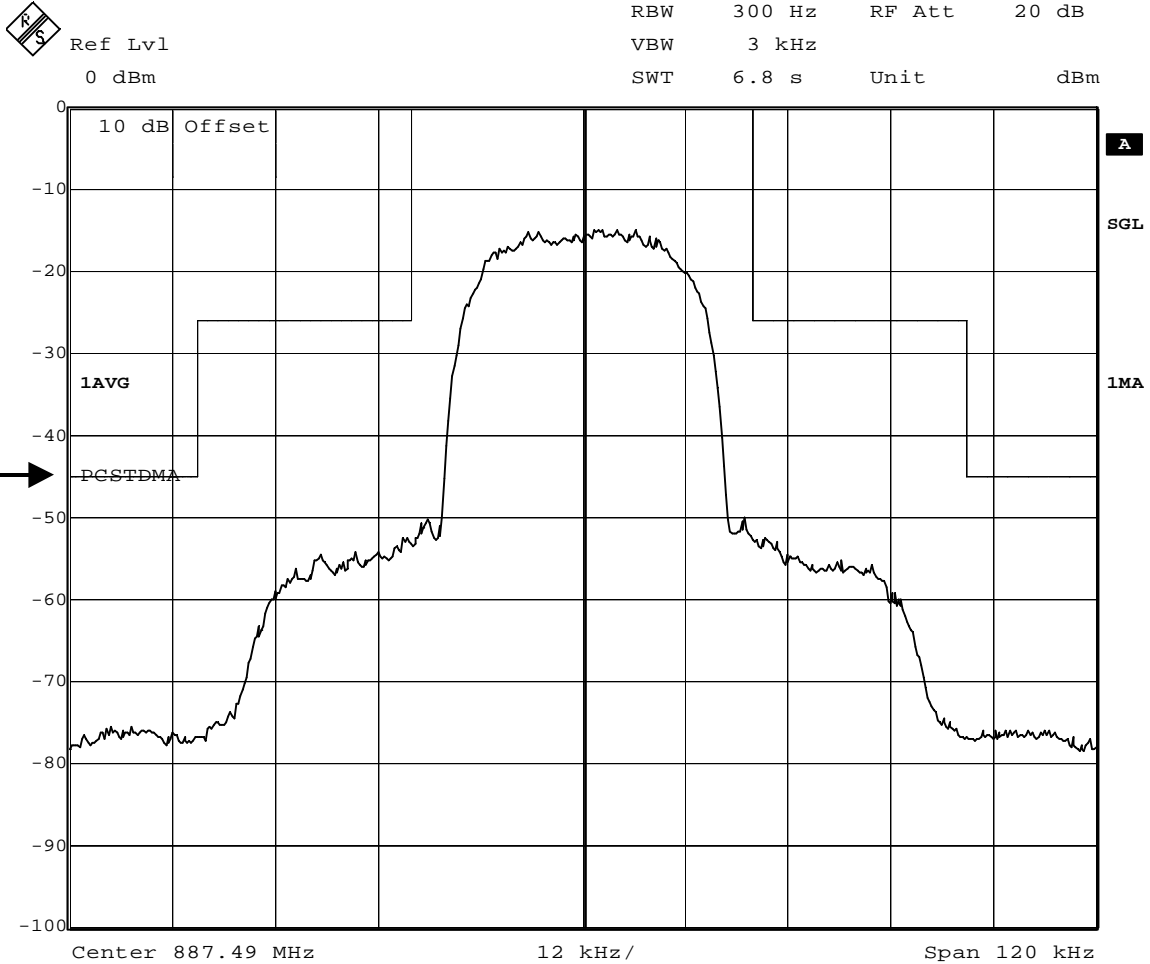
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; AMPS Ch 583: 887.49 MHz
Center Frequency
Input to TTU



Title: AS5CMP-38
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
Block E, AMPS Ch 583, 9.03 dBm
Date: 4.OCT.2001 12:31:51

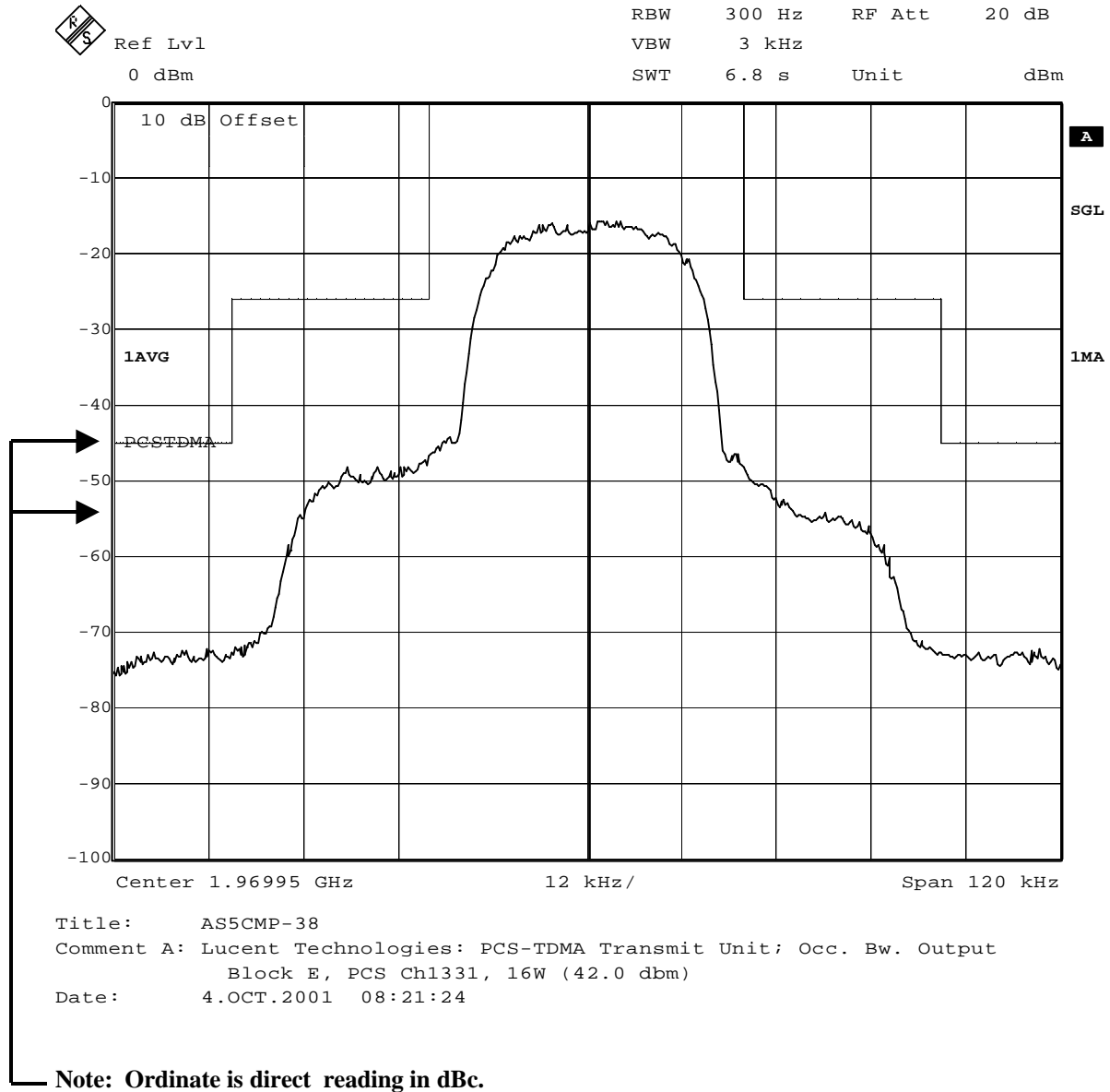
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; PCS Ch 1331: 1969.95 MHz
 Highest Settable Frequency
 Output at Tx Antenna Terminal (J4)

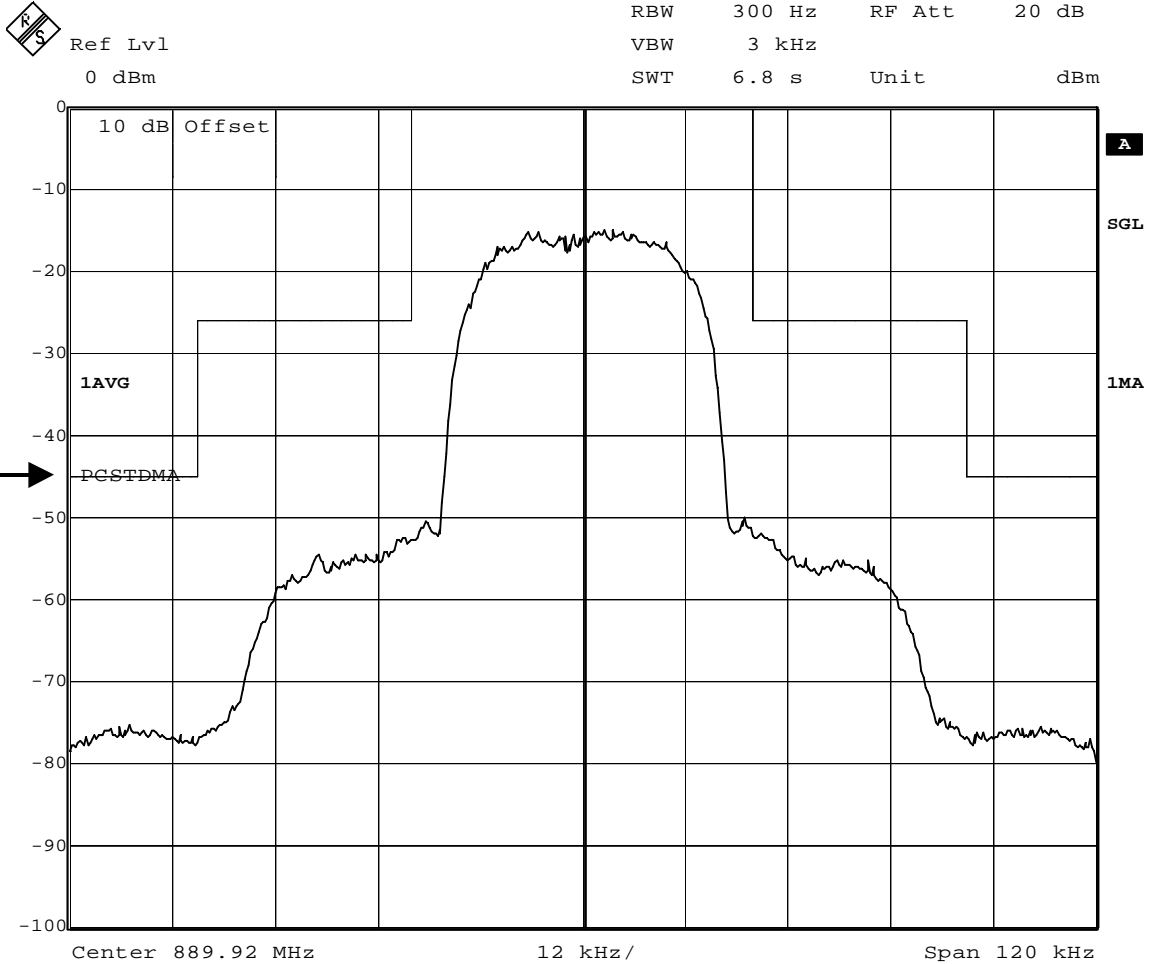


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block E; AMPS Ch 664: 889.92 MHz
 Highest Settable Frequency
 Input to TTU



Title: AS5CMP-38
 Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block E, AMPS Ch 664, 9.00 dBm
 Date: 4.OCT.2001 12:36:12

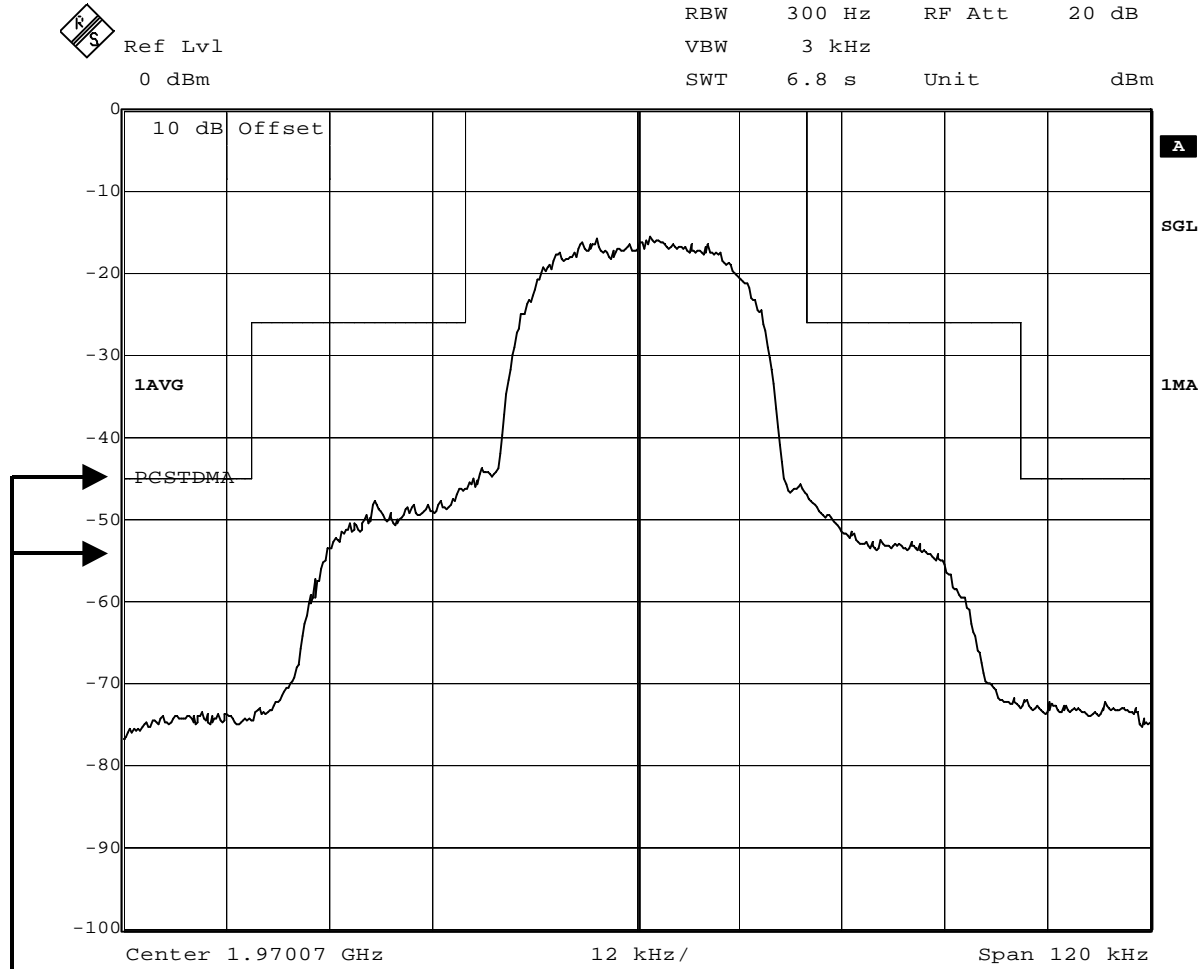
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; PCS Ch 1335: 1970.07 MHz
 Lowest Settable Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

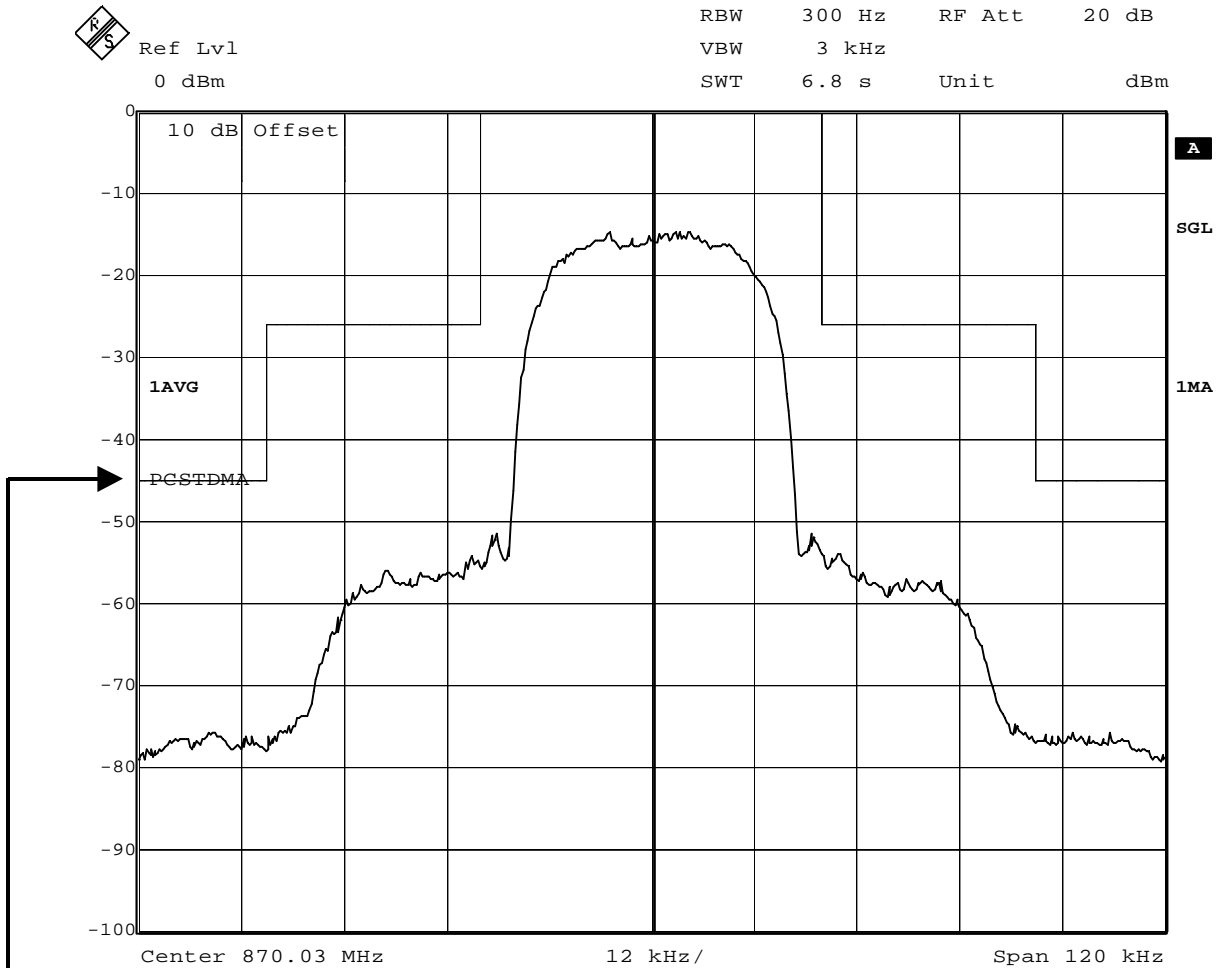
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block F, PCS Ch1335, 16W (42.0 dbm)

Date: 4.OCT.2001 08:36:43

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; AMPS Ch 1: 870.03 MHz
Lowest Settable Frequency
Input to TTU



Title: AS5CMP-38
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
Block F, AMPS Ch 1, 9.30 dBm
Date: 4.OCT.2001 09:50:06

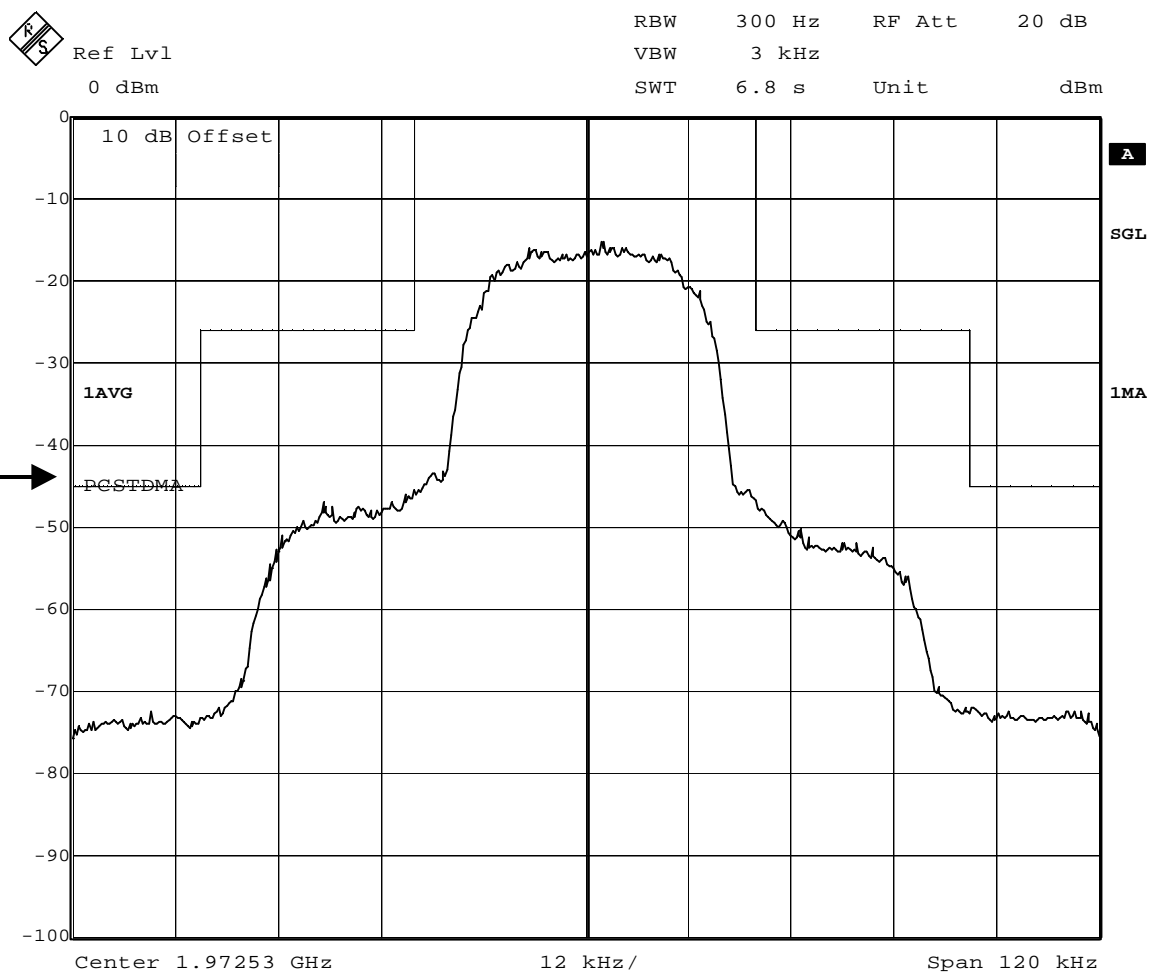
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; PCS Ch 1417: 1972.53 MHz
 Center Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block F, PCS Ch1417, 16W (42.0 dbm)

Date: 4.OCT.2001 08:41:34

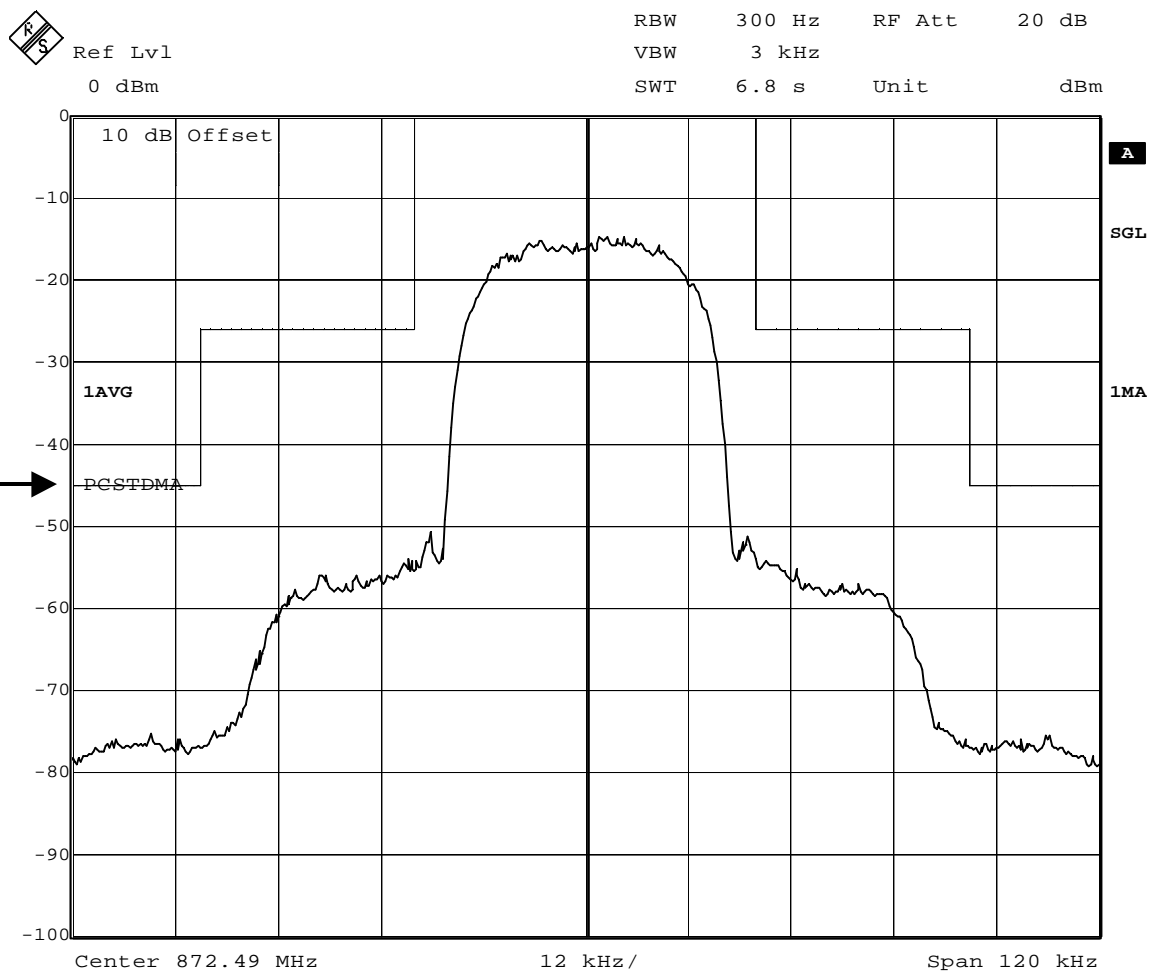
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; AMPS Ch 83: 872.49 MHz
Center Frequency
Input to TTU



Title: AS5CMP-38
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
Block F, AMPS Ch 83, 9.18 dBm
Date: 4.OCT.2001 09:54:09

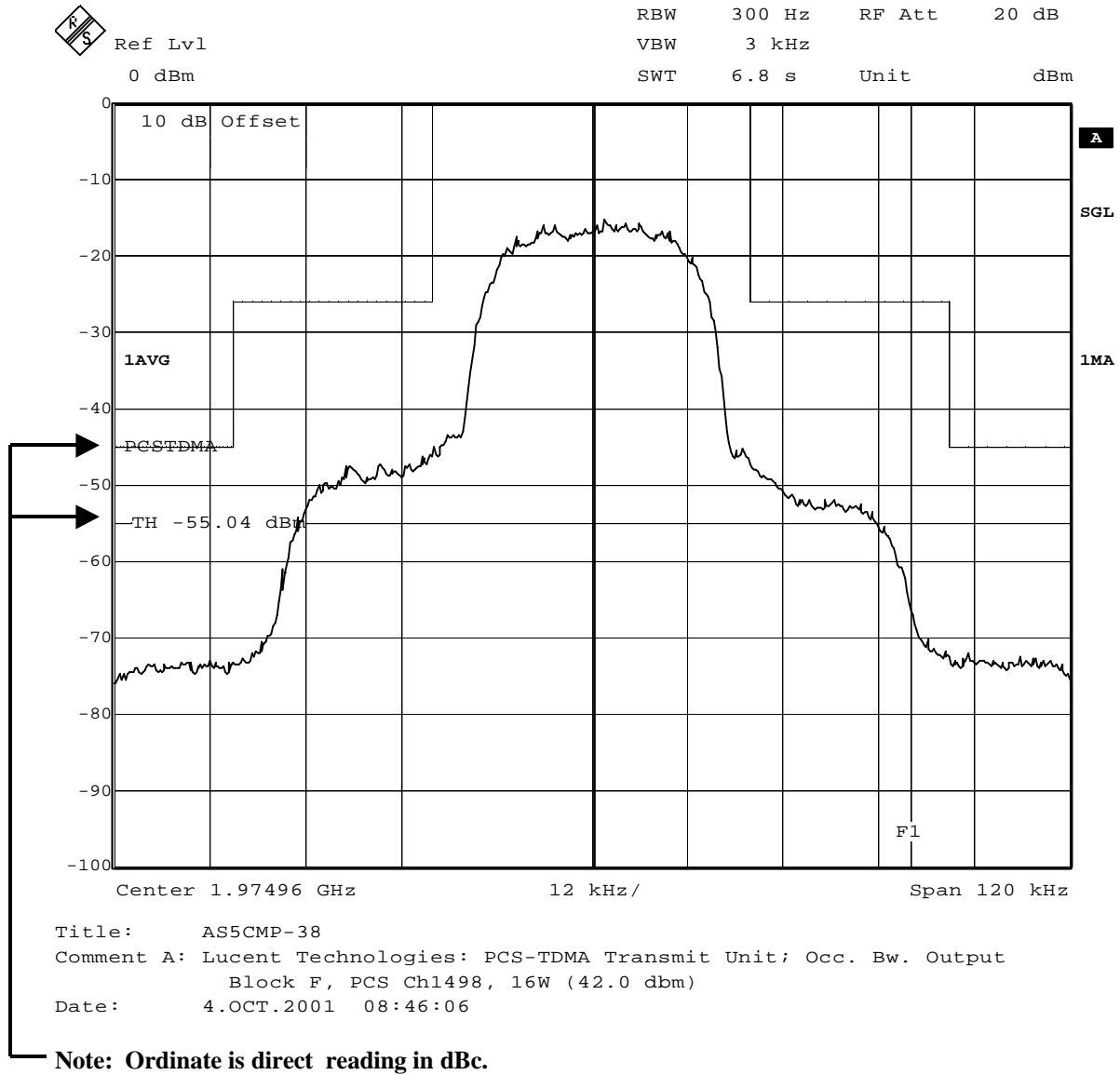
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; PCS Ch 1498: 1974.96 MHz
 Highest Settable Frequency
 Output at Tx Antenna Terminal (J4)

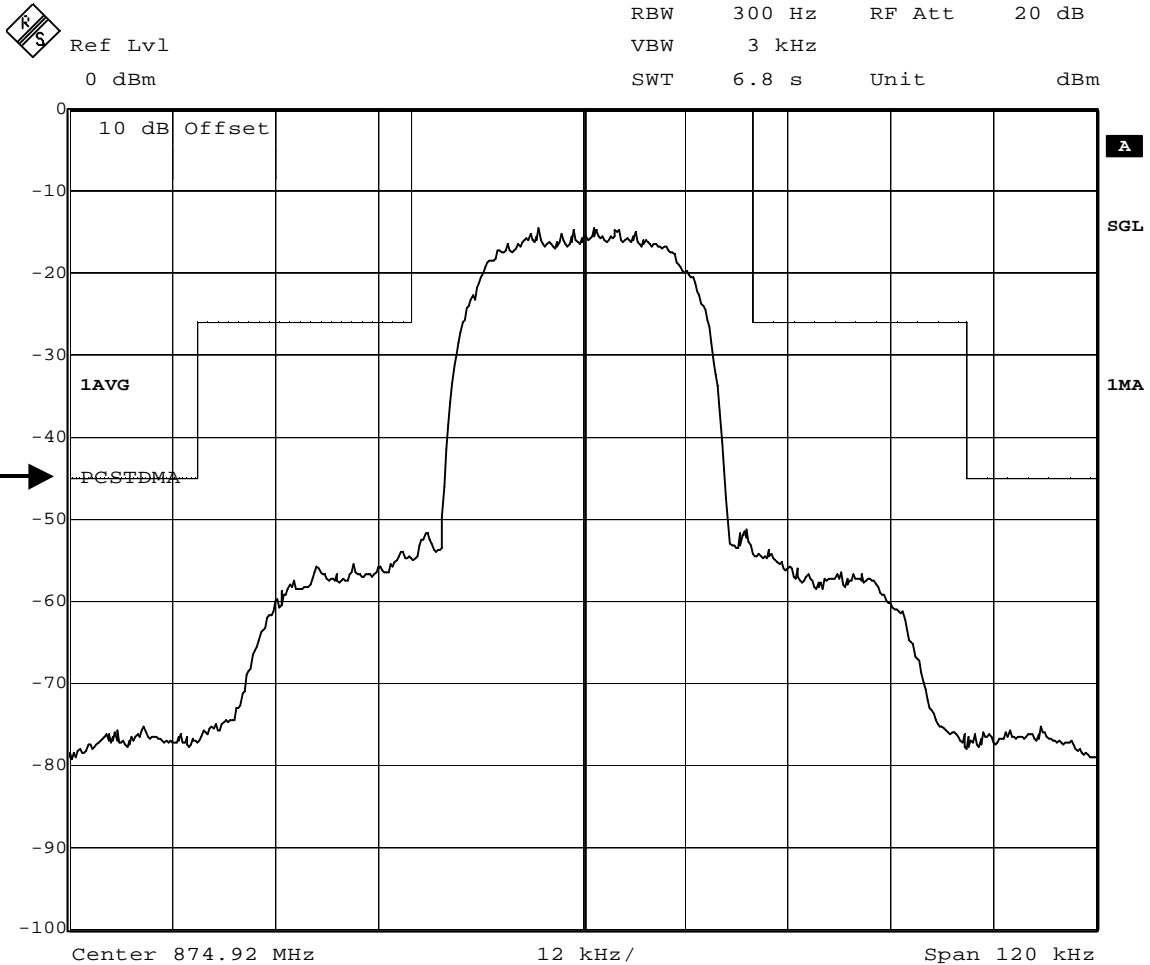


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block F; AMPS Ch 164: 874.92 MHz
 Highest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block F, AMPS Ch 164, 9.16 dBm

Date: 4.OCT.2001 09:58:26

Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block C; PCS Ch 1502: 1975.08 MHz

Lowest Settable Frequency

Output at Tx Antenna Terminal (J4)



Ref Lvl

0 dBm

RBW 300 Hz

RF Att 20 dB

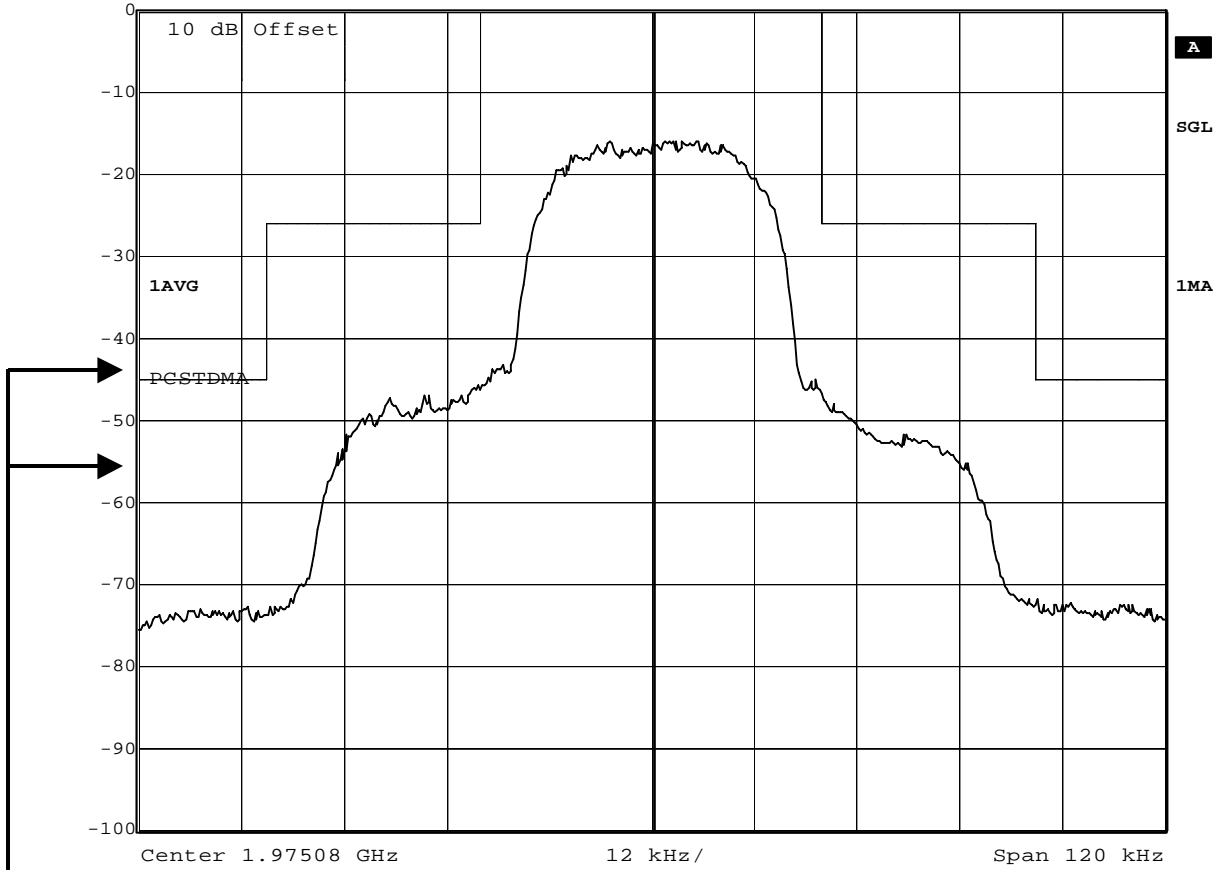
20 dB

VBW 3 kHz

SWT 6.8 s

Unit

dBm



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
Block C, PCS Ch1502, 16W (42.0 dbm)

Date: 4.OCT.2001 08:54:51

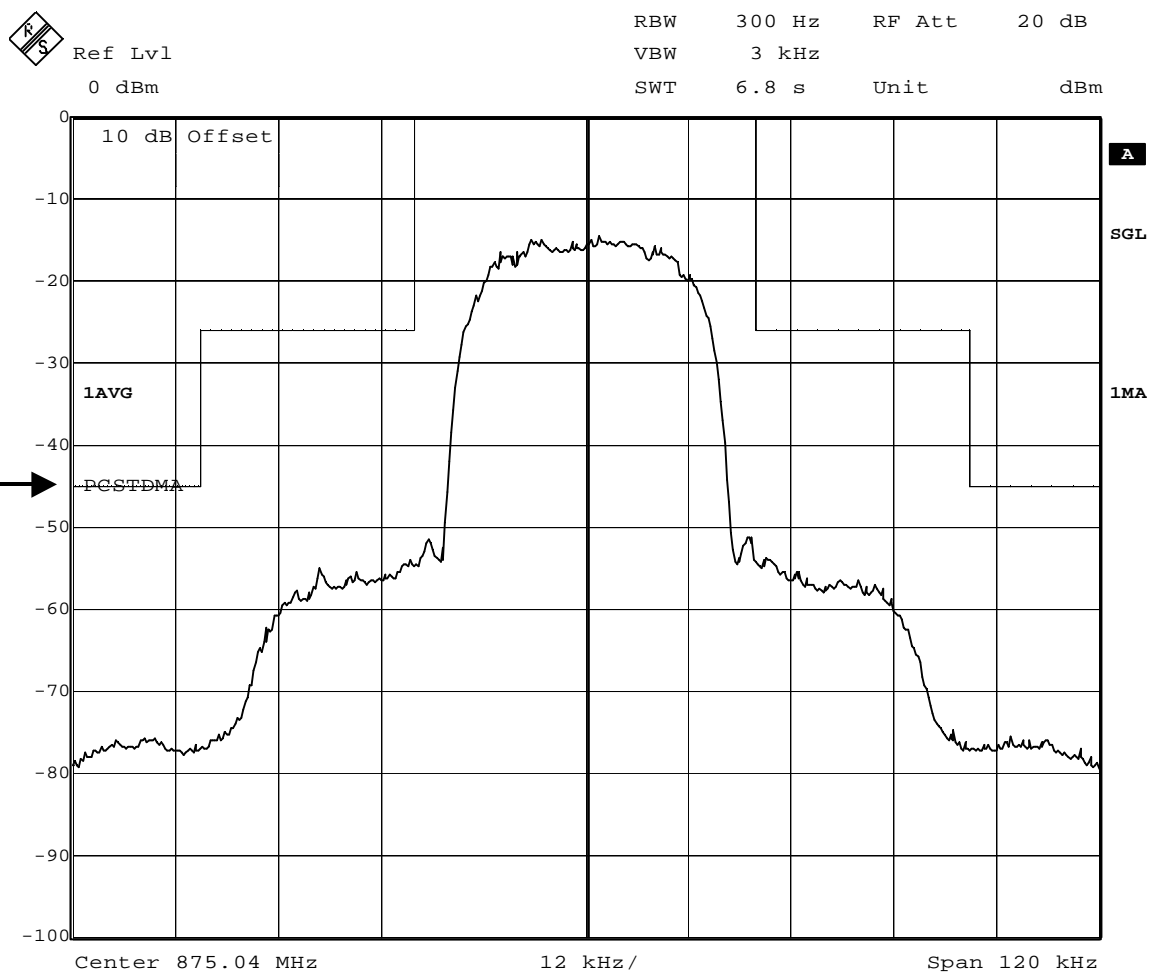
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block C; AMPS Ch 168: 875.04 MHz
 Lowest Settable Frequency
 Input to TTU



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input
 Block C, AMPS Ch 168, 9.29 dBm

Date: 4.OCT.2001 09:32:50

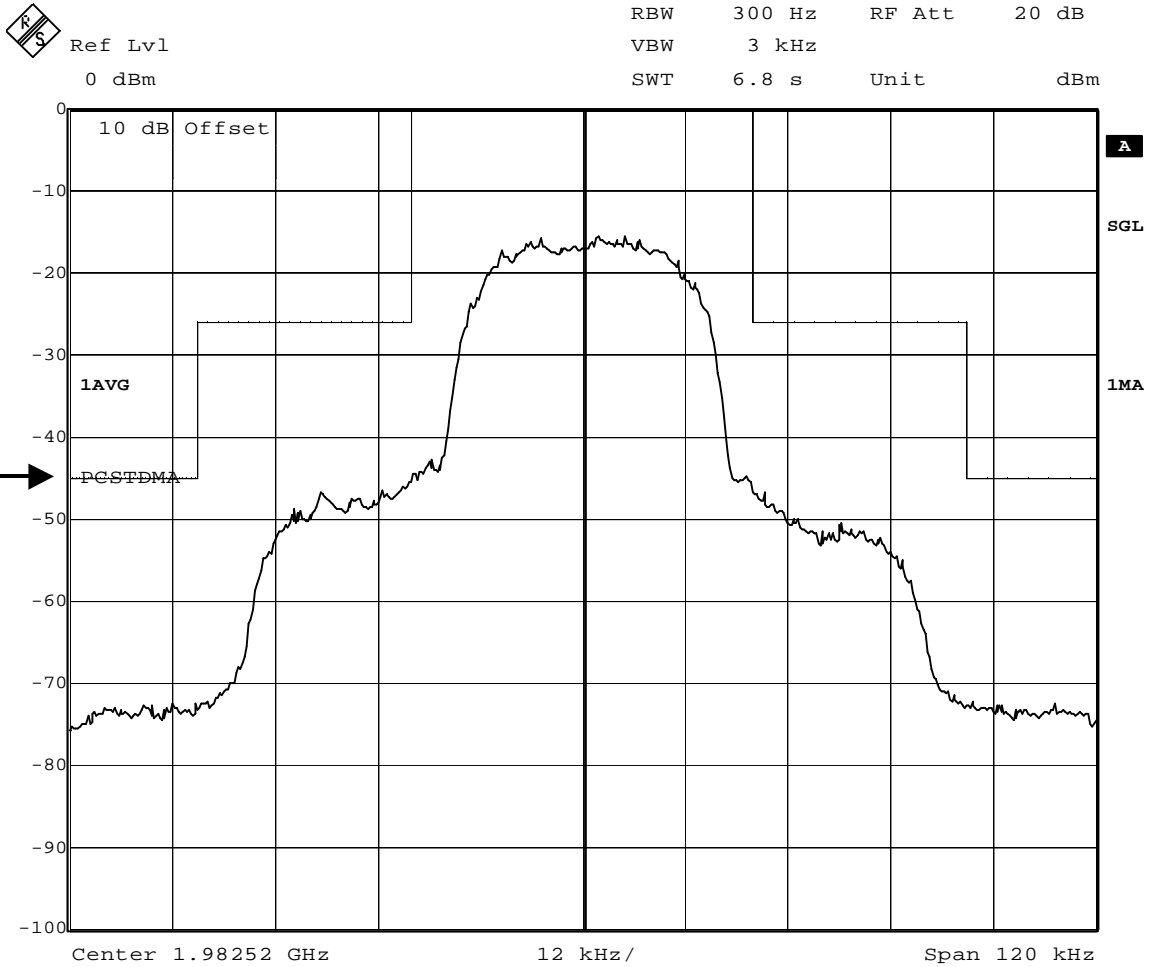
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block C; PCS Ch 1750: 1982.52 MHz
 Center Frequency
 Output at Tx Antenna Terminal (J4)



Title: AS5CMP-38

Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output
 Block C, PCS Ch1750, 16W (42.0 dbm)

Date: 4.OCT.2001 08:59:26

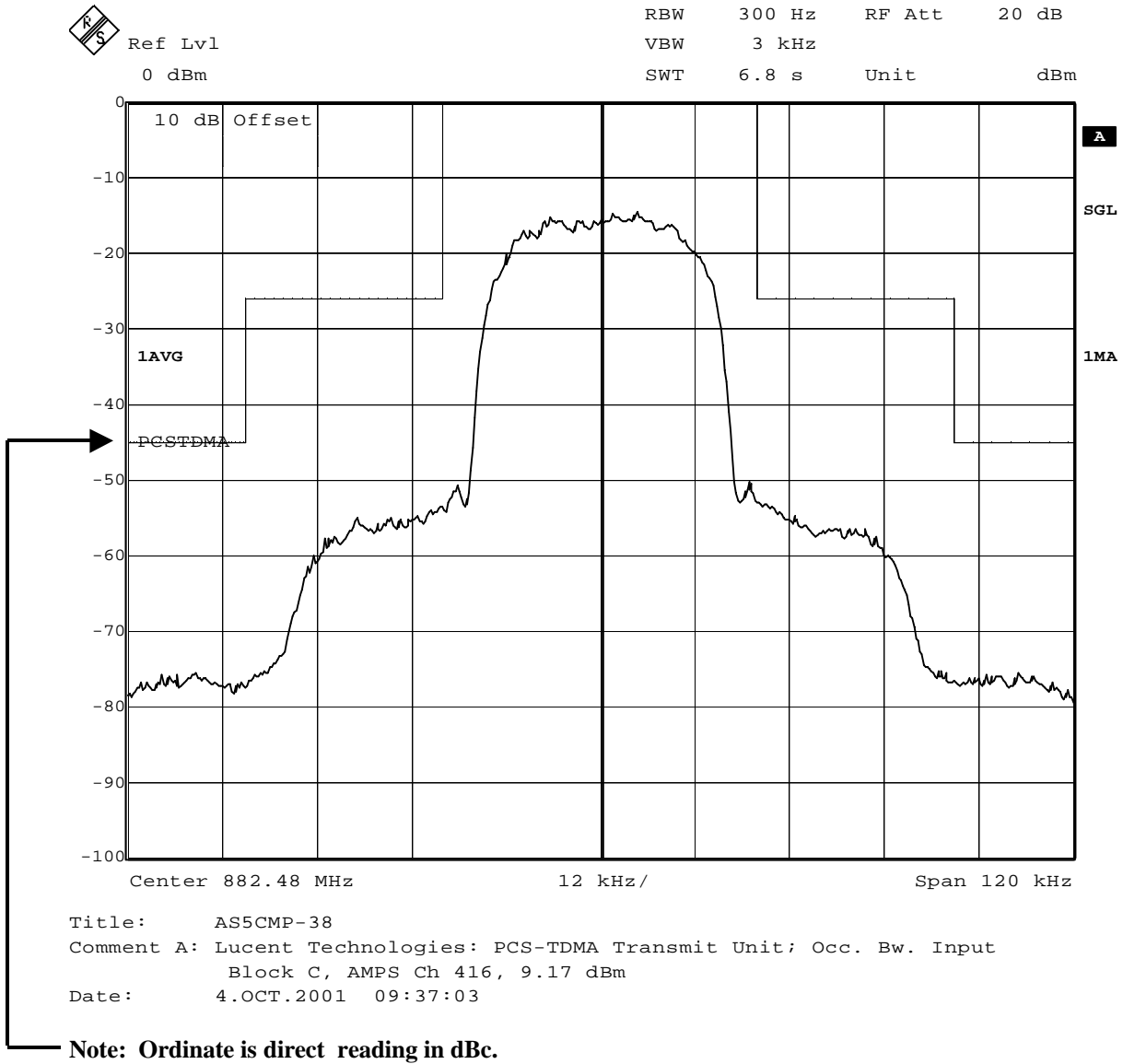
Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block C; AMPS Ch 416: 882.48 MHz
Center Frequency
Input to TTU

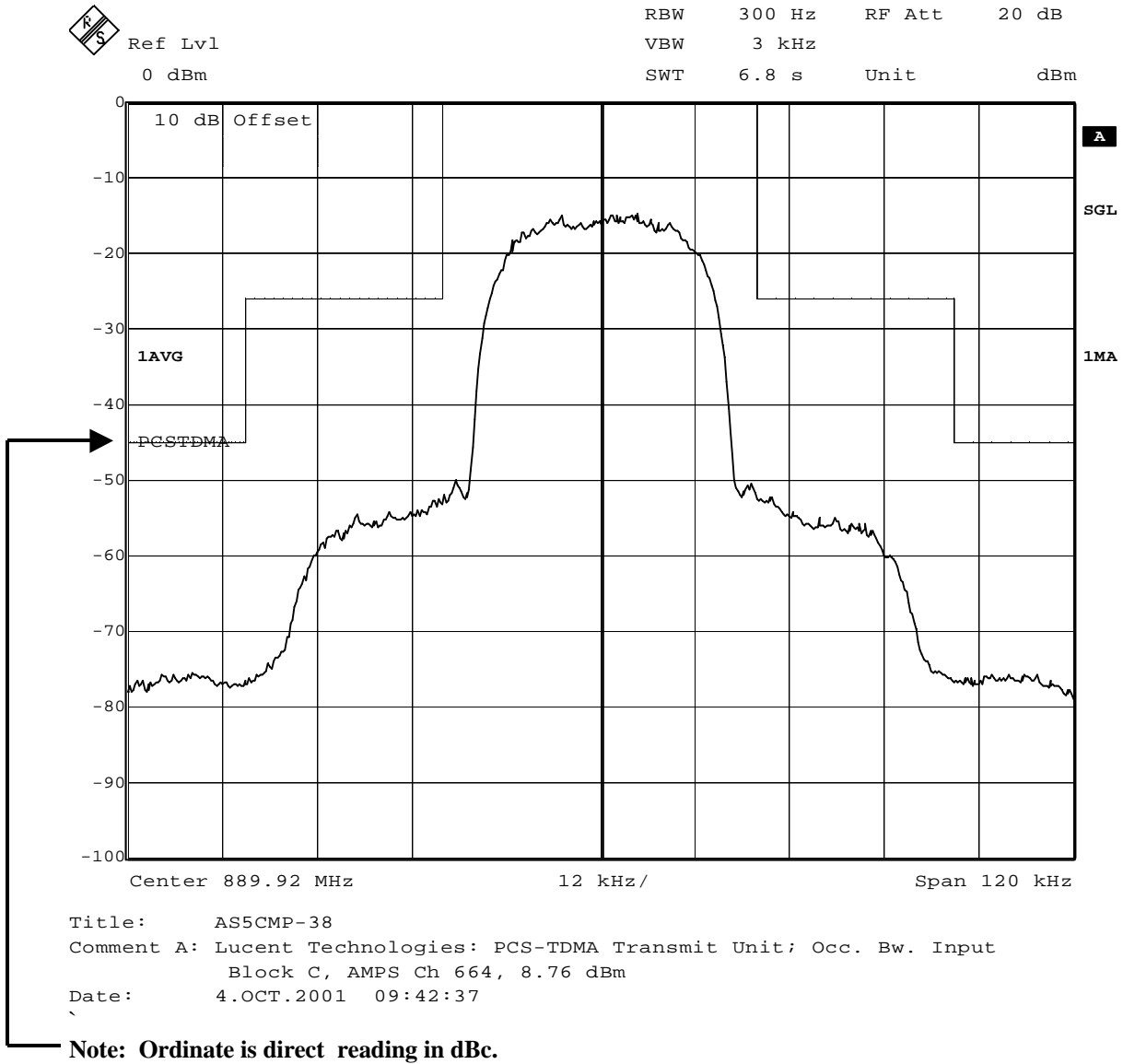


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Block C; AMPS Ch 664: 889.92 MHz
 Highest Settable Frequency
 Input to TTU



APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT**PART 2.1051 MEASUREMENTS REQUIRED: SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS.**

This test procedure is an extension of the occupied bandwidth measurement at the J4 transmit antenna terminal, using the same carrier frequencies, power level setting procedure and modulated carrier offset procedure. In accordance with Part 2.1057(a), the required frequency spectrum to be investigated extends from the lowest RF signal generated to the 10th harmonic of the carrier at the J4 terminal. The emission limits at the antenna terminal are specified in Part 24.238 (a) ... the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dBc. The power P is the average carrier power measured at the J4 antenna terminal in Watts. Setting the power level at J4 to 16 Watts average, produces an emission attenuation below the carrier limit of 55.04 dBc. Part 24.238 (b) specifies the required Resolution Bandwidth (RBW) to be 1 MHz. In accordance with Part 2.1051, "the magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified"; i.e., these are not reportable. Hence, the measurement equipment must be adjusted and configured to provide an instrumentation noise floor that is at least 20 dB or more below the $43 + 10 \log (P)$ dBc limit, which equates to 75.04 dBc. The pertinent test parameters are:

1. Frequency Spectrum: 15 MHz to 20 GHz
2. Resolution Bandwidth: 1 MHz (Part 24.238)
3. Emission Limitation: $43 + 10 \log (P)$ dBc = $43 + 10 \log (16 \text{ Watts}) = 55.04$ dBc
4. Instrumentation Noise Floor: at least 20 dB greater than " $43 + 10 \log (P)$ dBc" = 75.04 dBc

Minimum Standard Requirement:

The emission limits at the antenna terminal are specified in Part 24.238 (a) ... the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dBc (i.e., attenuation below the unmodulated carrier). The power P is the average carrier power measured at the J4 antenna terminal in Watts. The measurement equipment must be adjusted and configured to provide an instrumentation noise floor that is 20 dB or more below the $43 + 10 \log (P)$ dBc limit. In summary:

1. Carrier Power Level = 42.0 dBm
2. Emission Limitation = 42.0 dBm – 55.0 dBc = -13.0 dBm
3. Reportable Emission Limit = -13.0 dBm – 20 dBc = -33.0 dBm
4. Emission power levels less than -33.0 dBm are not reportable; i.e., at 75.0 dBc

Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement.

Method of Measurement:

In order to suppress the instrumentation noise floor sufficient to detect and measure spurious signals that have power levels as low as 20 dB below the required limit, or as low as -33.0 dBm (i.e., 75 dBc), an EMC software package was employed to drive the spectrum analyzer, collect and compile the acquired data, perform mathematical corrections to the data by incorporating (i.e., programming) pre-measured path losses into the software, and then generate a graphical display as shown in this exhibit. The software package is: *TILE/IC* (*Total Integrated Laboratory Environment/Instrument Control System*); purchased and licensed from Quantum Change/EMC Systems, Inc. The instrumentation noise floor is suppressed by the software's ability to split the spectrum being measured into many small segments, perform the mathematical corrections to each segment, and then sequentially compile all the segments into a continuous graphical display.

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38**

Part 24.238 requires that emissions over the required spectrum 10 MHz to 20 GHz be measured using an instrumentation resolution bandwidth of 1 MHz. The TILE/IC software was able to sufficiently suppress to normally high noise floor associated with 1 MHz RBW by measuring the spectrum in a sequential series of short segments using a peak detector, in combination with an appropriate low-pass filter and then with an appropriate high-pass filter, installed at the input terminal of the spectrum analyzer, to prevent the carrier from over driving the spectrum analyzer, as shown in the table below. The spectrum portion 1.8 – 2.5 GHz, in close proximity to the carrier, was measured without filters, but with a 30 kHz RBW and sample detector.

Start Frequency	Stop Frequency	Number of Ranges (Segements)	Resolution Bandwidth	Dectector Function
10.0 MHz	1.80 GHz	15	1 MHz	Peak
1.80 GHz	1.93 GHz	6	30 kHz	Sample
1.93 GHz	1.99 GHz	12	30 kHz	Sample
1.99 GHz	2.50 GHz	20	30 kHz	Sample
2.50 GHz	10.0 GHz	8	1 MHz	Peak
10.0 GHz	20.0 GHz	10	1 MHz	Peak

The specific EMC test filters used were manufactured by TRILITHIC, Inc., Indianapolis, IN:

1. Low Pass Filter: Model 10LC1790-3-AA; SN 200033011; Product No. 23042
2. High Pass Filter: Model 5HC2850/18050-1-.8-KK; SN 9926050; Product No. 23042

Part 24.238 requires that this test be performed for the lowest settable and for the highest settable carrier frequencies in each of the 6 PCS frequency blocks, which are summarized in the following table.

PCS Frequency Block	AMPS Channel No.	AMPS Frequency	PCS Channel No.	PCS Frequency
A (Low)	2	870.06 MHz	2	1930.08 MHz
A (High)	498	884.94 MHz	498	1944.96 MHz
D (Low)	502	885.06 MHz	502	1945.08 MHz
D (High)	665	889.95 MHz	665	1949.97 MHz
B (Low)	1	870.03 MHz	668	1950.06 MHz
B (High)	497	884.91 MHz	1164	1964.94 MHz
E (Low)	501	885.03 MHz	1168	1965.06 MHz
E (High)	664	889.92 MHz	1331	1969.95 MHz
F (Low)	1	870.03 MHz	1335	1970.07 MHz
F (High)	164	874.92 MHz	1498	1974.96 MHz
C (Low)	168	875.04 MHz	1502	1975.08 MHz
C (High)	664	889.92 MHz	1998	1989.96 MHz

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38**

RESULTS: The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, demonstrated full compliance with the requirements of FCC Rule Part 2.1051 and with Part 24.238. All of the above tabulated carriers displayed both 2nd and 3rd harmonic signals. The only reportable emissions between -13 dBm and -33 dBm, corresponding to 55 dBc and 75 dBc, respectively, are summarized in the table below. Only D-Block, PCS Channel 502 displayed a reportable 3rd harmonic of the carrier spurious signal. The measurement plot/graph is shown below.

Reportable Emission

PCS Frequency Block	PCS Channel No.	Carrier Frequency MHz	Harmonic of the Carrier Measured	Emission Power Level	Passing Margin Relative to -13 dBm	Corresponding Attenuation Below the Carrier
D	502	1945.08	2 nd	-36.7 dBm	23.7 dB	78.7 dBc
D	502	1945.08	3 rd	-31.3 dBm	18.3 dB	73.3 dBc

The 2nd and 3rd harmonic emissions generated by A-Block Channels 2 and 498; D-Block Channel 665; B-Block Channels 668 and 1164; E-Block Channels 1168 and 1331; F-Block Channels 1335 and 1498; and C-Block Channels 1502 and 1998 were all suppressed greater than 20 dB below the required 55 dBc limitation.; i.e., greater than 75 dBc. Hence, they are not reportable.

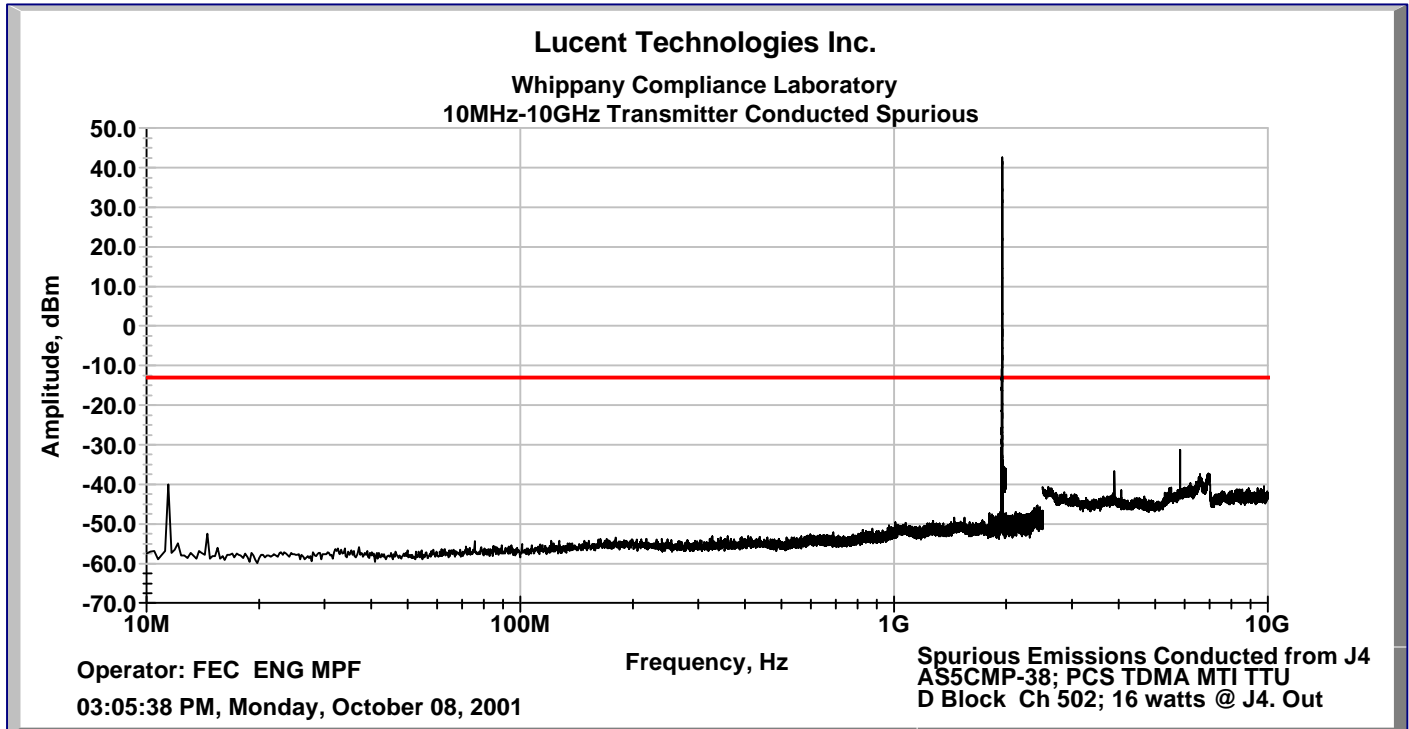
As required, the data plots of the above reportable emission are included in this exhibit.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Conducted Spurious Emissions at the J4 Transmit Antenna Terminal
10 MHz to 10 GHz
Block D; PCS Ch 502; 1945.08 MHz

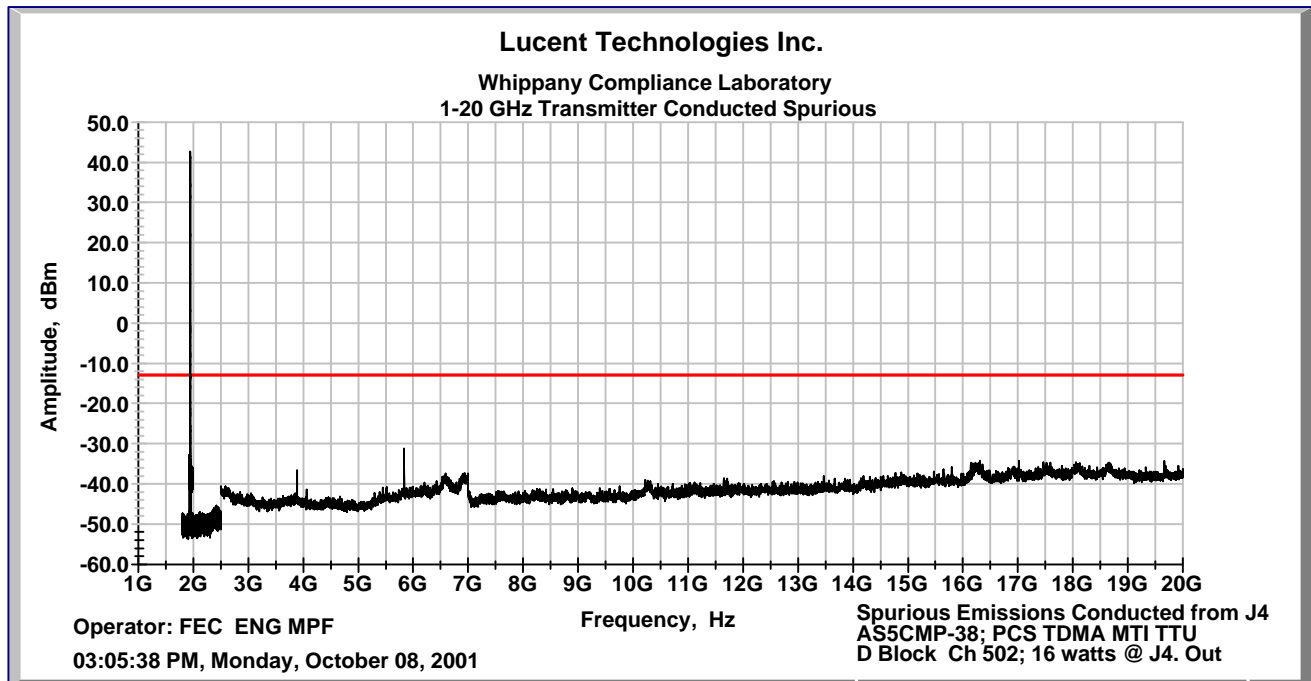


APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT

Conducted Spurious Emissions at the J4 Transmit Antenna Terminal
 1.0 GHz to 20 GHz
 Block D; PCS Ch 502; 1945.08 MHz



APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT**PART 2.1053 MEASUREMENTS REQUIRED: FIELD STRENGTH OF SPURIOUS RADIATION**

This test requires a single carrier, at maximum rated power, transmitting into a non-radiating dummy load. As required, the frequency range investigated was from 10 MHz to 20 GHz as in the previous conducted spurious emissions test procedure. This test was performed for each of the 6 PCS frequency blocks, with a single carrier set to the block center frequency, as cited in the previous occupied bandwidth tests, and adjusted to provide 16 Watts (42.0 dBm) at the J4 transmit antenna terminal. In compliance with the guidelines of ANSI C63.4-1992, the equipment under test (EUT) was first evaluated in an RF shielded chamber, while configured as recommended for *floor standing equipment*. The EUT was installed and operated as in the *normal mode of operation* with external alarm and T1 cables connected to the EUT and routed as prescribed in ANSI C63.4-1992. The 10 highest field strength signals, between 10 MHz and 1000 MHz, were identified in the preliminary scans conducted in the RF chamber and then accurately remeasured on the Whippany Open Area Test Site (OATS), which is FCC listed and approved. Knowing the exact local oscillator (LO) and harmonic frequencies between 1 GHz and 20 GHz, these emissions were directly measured on the Whippany OATS, without the need of a preliminary procedure.

Any emissions radiating from the cabinet are treated as radiating from a halfwave dipole antenna, as specified in Part 2, Section 2.1053(a). Limitations are based on attenuation below the carrier (dBc) using the formula $43 + 10 \log (P \text{ Watts}) = \text{dBc}$, where P is the signal power level at the transmit antenna terminal (J4). In accordance with Part 24.238, the required resolution bandwidth was 1 MHz. However, the 1 MHz RBW produced too high an instrumentation noise floor and was then reduced to 30 kHz in order to detect and measure the spurious emissions and be able to distinguish them from the RF ambient. In all tests, spectrum analyzer was set to max hold. As stated in Part 2.1051, the magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

For a dipole antenna in free space:

$$E = [(49.2)(P)\exp(1/2)]/R$$

Where: E = field intensity in Volts/Meter
 P = transmitted power in Watts
 R = distance in meters

The required attenuation is:

$$\text{Att} = 43 + 10\log (P \text{ in Watts}) \text{ dBc}$$

The required limitation is then:

$$E(\text{lim}) = E - \text{Att} \text{ (in dBuV/m)}$$

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38****Minimum Standard Requirement:**

Radiated emission measurements in the frequency range 30 MHz to 1000 MHz were performed on the Whippany OATS using calibrated biconical and log periodic antennas, at a separation distance from the EUT of 4 meters. Both vertical and horizontal antenna polarization was utilized. This separation was necessary in order to aid distinguishing the EUT emission from the RF ambient. Using the above equations for a carrier power level of 16 Watts and 4 meters separation, the FCC field strength limitation is 81.9 dBuV/m.

Radiated emission measurements in the frequency range 1.0 GHz to 18 GHz were performed on the Whippany OATS using a calibrated double ridged guide antenna at a separation distance from the EUT of 3 meters, and both vertical and horizontal antenna polarization. Since the exact local oscillators (LO) and carrier harmonic frequencies were known above 1.0 GHz, a preliminary test procedure in an RF chamber was not required. Using the above equations for a carrier power level of 16 Watts and 3 meters separation, the FCC field strength limitation is 84.4 dBuV/m.

RESULTS:

The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, demonstrated full compliance with the requirements of FCC Rule Part 2.1053 and with the requirements of Part 24.238. All radiated emissions that were detected and measured had field strengths that were substantially greater than 20 dB below the FCC limitation. Therefore, there are no reportable radiated spurious emissions.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT**PART 2.1055 MEASUREMENTS REQUIRED: FREQUENCY STABILITY**

The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-38, incorporates carrier frequency determining circuitry which performs frequency up-conversion from cellular input to PCS output. This test procedure demonstrates that TTU is compliant with the FCC's requirements for frequency stability of the transmitted carrier at the J4 antenna terminal.

Frequency stability measurements were performed by T. N. Tye, Lucent Technologies, Columbus, Ohio under the direction of M. P. Farina, and in adherence to the previously cited ISO 9001 test plan. This test program was conducted during the interval April 19 to May 17, 2001.

The procedure required by the FCC is specified in CFR 47, Part 2, Subpart J – Equipment Authorization Procedures, Section 2.1055 – Measurements Required: Frequency Stability, Effective: October 16, 2000. The requirements for base station/land station equipment, are summarized as:

Section 2.1055(a)(1): The frequency stability shall be measured with variation of ambient temperature from -30°C to $+50^{\circ}\text{C}$

Section 2.1055(b): Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10°C through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. (*Note: The term "keying" does not apply to base station/land station equipment. "Heating element" applies to "heat cartridges" if used.*) Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test. Note: This applies to the TTU carrier frequency determining circuitry cited above.

Section 2.1055(d)(1): The frequency stability shall be measured with variation of primary supply voltage from 85% to 115% of the nominal value.

Frequency Stability Limitation:

The frequency stability is the measurement of the carrier center frequency deviation from its assigned value as a function of (1) temperature variation from -30°C to $+50^{\circ}\text{C}$, in $+10^{\circ}\text{C}$ increments, and (2) variation of supply voltage, at the equipment frame power input terminals, from 85% to 115% of the nominal value. This is a lengthy procedure and is performed one time with a single carrier set to approximately mid PCS frequency band. The required tolerance limit is specified for base station/land station equipment as follows:

Standard	Effective Date	Technology	Tolerance
FCC Part 22.355: Base Station	October 1, 2000	850 TDMA	± 1.50 ppm

Since the input signal to the TTU is a TDMA cellular frequency carrier, the above specified tolerance limit of ± 1.50 ppm applies. IS-138-A defines the frequency tolerance as "error from the nominal channel frequency". Hence, the center frequency deviation will be measured at the J4 transmit antenna terminal.

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38****Measurement Procedure:**

This procedure required measurement at a single carrier frequency, as specified below. The procedure was performed for both Reference Frequency Generators: the primary rubidium RFG-RB, and the secondary crystal oscillator RFG-XO.

- A. The PCS TDMA Minicell was installed in an environmental chamber with thermocouples attached to (1) TTU faceplate, (2) EDRU faceplate, (3) exterior surface of the Minicell, and (4) chamber ambient. The Minicell was evaluated with all doors and panels secured in place and operated as in the normal operational mode.
- B. One EDRU + TTU was set to transmit in PCS B-Block , using AMPS Channel 250, which is up-converted to PCS Channel 917 at 1957.53 MHz. The carrier was modulated in all 3 time slots with pseudo-random data. The power level was adjusted to provide 16 Watts (42.04 dBm) at the J4 transmit antenna terminal, using the correct PCS Block transmit filter.
- C. The Minicell was first allowed to thermally stabilize at +20°C, with the power source set 100% of nominal supply voltage = 26.0 Vdc. Sufficient soak time was allowed to achieve thermal stability at each temperature prior to frequency measurement.
- D. Next the power source was adjusted to 85% of nominal = 22.1 Vdc, and the frequency measurement procedure was repeated.
- E. The power source was next adjusted to 115% of nominal = 29.9 Vdc and the frequency measurement procedure was repeated.
- F. The preceding procedure was repeated by sequentially thermally stabilizing the Minicell in -10°C steps, from +20°C to -30°C, and repeating the above procedure at each temperature.
- G. The Minicell was then returned to +20°C and thermally stabilized.
- H. The Minicell was then sequenced in +10°C steps, from +20°C to +50°C, with the above procedure repeated at each stabilized temperature.
- I. This procedure was performed using first the rubidium 15 MHz reference and then with the crystal oscillator reference generators.

Measurement Equipment:

	Description	Model	Barcode/SN	Calibration Info
1	Main Power Supply	HP6683A	228922	Due on 12-19-01
2	DC Power Supply	HP6644A	227573A	Due on 08-11-01
3	Frequency Counter	HP53132A	MY40001149	Due on 07-27-02
4	Spectrum Analyzer	HP8595E	207930	Due on 01-04-02
5	Power Meter	HP438A	207720	Due on 07-31-01
6	Power Sensor	HP8481D	208187	Due on 12-12-01
7	Switch	HP 8769K	3717A02593	Not Required
8	Attenuator Switch Driver	HP11713A	231652	Not Required
9	GPS Receiver	HP58503B	233646	Not Required
10	Distribution Amplifier	HP58502A	233647	Not Required
11	Datalogger	Fluke Hydra SII	229719	Due on 07-05-01

APPLICANT: LUCENT TECHNOLOGIES**FCC ID: AS5CMP-38****Summary of Measurement Data:**

The summary of the measurements are shown as deviations from the assigned channel frequency of 1957.53 MHz, measured at the J4 transmit antenna terminal with a carrier power level of 16 Watts (42.0 dBm).

Rubidium Reference Frequency Oscillator

Nominal Supply Voltage = 26.0 Vdc

85 % of Nominal Supply Voltage = 22.1 Vdc

115% of Nominal Supply Voltage = 29.9 Vdc

Stabilized Temperature °C	Frequency Deviation at 85 % Nom. Supply ppm	Frequency Deviation at 100 % Nom. Supply ppm	Frequency Deviation at 115 % Nom. Supply ppm
- 30	2.52E-03	2.71E-03	2.39E-03
- 20	9.44E-04	1.54E-04	1.04E-03
- 10	1.54E-04	8.47E-04	1.21E-04
0	5.03E-02	7.73E-04	1.51E-04
+ 10	2.01E-04	2.99E-04	5.48E-04
+ 20	1.63E-04	5.18E-04	2.34E-04
+ 30	2.34E-04	1.42E-04	2.04E-04
+ 40	5.12E-04	9.18E-05	1.48E-04
+ 50	4.14E-04	2.96E-05	5.12E-04

Crystal Reference Frequency Oscillator

Nominal Supply Voltage = 26.0 Vdc

85 % of Nominal Supply Voltage = 22.1 Vdc

115% of Nominal Supply Voltage = 29.9 Vdc

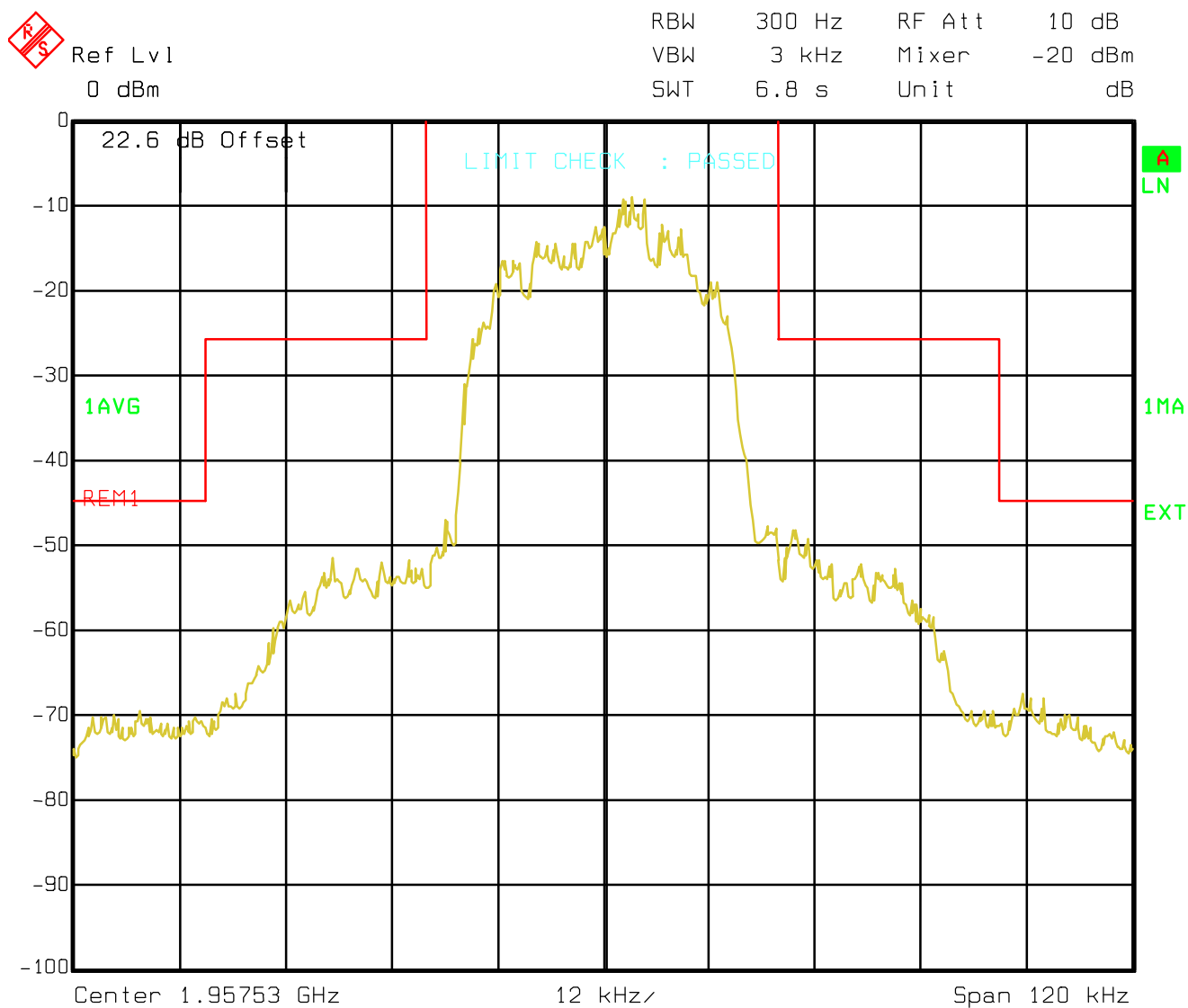
Stabilized Temperature °C	Frequency Deviation at 85 % Nom. Supply ppm	Frequency Deviation at 100 % Nom. Supply ppm	Frequency Deviation at 115 % Nom. Supply ppm
- 30	1.53E-03	2.68E-03	2.58E-03
- 20	2.90E-04	3.46E-04	5.83E-04
- 10	1.51E-04	6.81E-04	5.36E-04
0	3.82E-04	4.85E-04	2.28E-04
+ 10	2.40E-04	5.68E-04	6.54E-04
+ 20	8.32E-04	4.44E-04	4.97E-04
+ 30	7.10E-05	3.02E-04	1.78E-04
+ 40	4.06E-04	4.44E-05	3.34E-04
+ 50	1.16E-03	2.63E-04	5.00E-04

RESULTS: The PCS TDMA Transmit Unit (TTU), subject of this application for certification under FCC ID: AS5CMP-39, demonstrated full compliance with the requirements of FCC Rule Part 2.1055. The frequency stability of the carrier at the Minicell J4 transmit antenna terminal is substantially less than the required ± 1.50 ppm for both rubidium and crystal reference oscillators. A sample measurement is attached to this exhibit.

APPLICANT: LUCENT TECHNOLOGIES

FCC ID: AS5CMP-38

EXHIBIT 10: TEST REPORT



Title: TTU SN MTI-J008, File name M08P50mB.WMF
 Comment A: 100% Voltage, Temp(C) 50, Oscillator Xo
 FREQ. ERROR(PPM) 2.634E-4, EVM(%) 6.8675251,
 Date: 12.MAY.2001 23:52:22

Figure A2- 354

Screen capture of R&S Filename: M08P50MB.WMF

TTU manufacturer: MTI

Oscillator: Xo

Chamber Temperature (degrees C): +50

Voltage (percent nominal): 110%

Signal: Output of TTU