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-39, 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 February 20 to May 16, 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 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-39.**

Michael P. Farina
JW10E0000
Telephone: 973-386-4344
Facsimile: 973-386-3116
mpfarina@lucent.com

May 25, 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-39, 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 specific to 30 kHz bandwidth, Time Domain Multiple Access (TDMA) technology carriers. 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 J41683A-1. 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 February 20 to May 164rt, 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 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.

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-39, and the PCS-TDMA Minicell J41683A-1 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 3 – 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 58-72
Part 2.1053	Field Strength of Spurious Radiation	Pages 73-74
Part 2.1055	Frequency Stability	Pages 75-78
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.

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.

Single Carrier Power Measurement at the Minicell Transmit Antrenna 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	42.18
A (Center)	250	877.50	250	1937.52	42.04
A (High)	498	884.94	498	1944.96	42.38
D (Low)	502	885.06	502	1945.08	41.90
D (Center)	583	887.49	583	1947.51	42.04
D (High)	664	889.92	664	1949.94	42.12
B (Low)	1	870.03	668	1950.06	41.94
B (Center)	250	877.50	917	1957.53	42.04
B (High)	497	884.91	1164	1964.94	41.81
E (Low)	501	885.03	1168	1965.06	41.96
E (Center)	583	887.49	1250	1967.52	42.04
E (High)	664	889.92	1331	1969.95	42.02
F (Low)	1	870.03	1335	1970.07	42.09
F (Center)	83	872.49	1417	1972.53	42.04
F (High)	164	874.92	1498	1974.96	42.10
C (Low)	168	875.04	1502	1975.08	41.87
C (Center)	416	882.48	1750	1982.52	42.04
C (High)	664	889.92	1998	1989.96	42.14

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 42.0 dBm (16 Watts) at the at the transmit (Tx) antenna terminal (J4). 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 2.1046.

EXHIBIT 10: TEST REPORT

Block Diagram Of The Power Measurement Test Set-Up And Test Equipment Configuration:

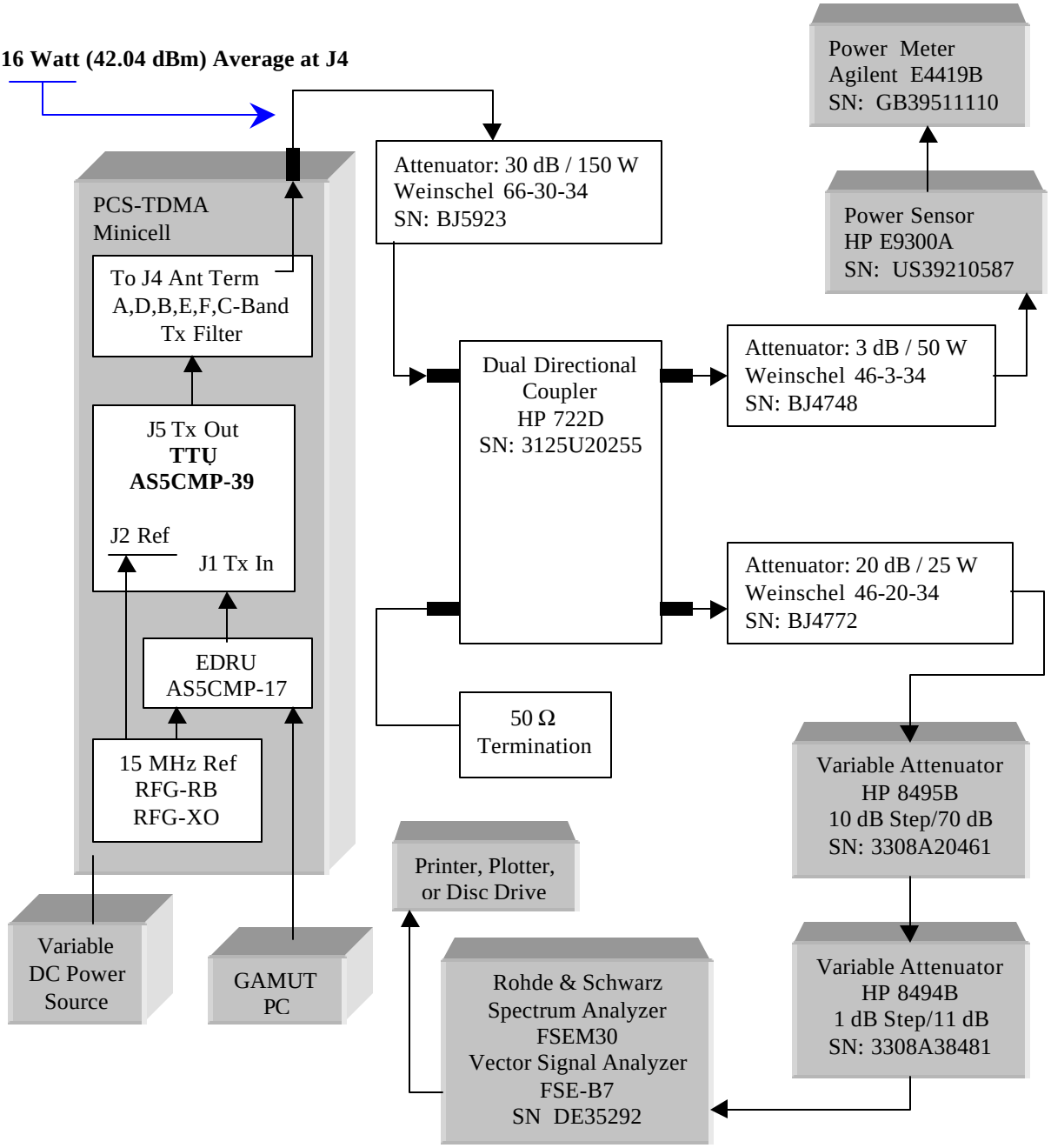


EXHIBIT 10: TEST REPORT

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 ð/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 vector error 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 Vector Error Magnitude 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 Vector Error
A (Center)	250	877.50	3.67 % rms	250	1937.52	5.37 % rms
D (Center)	583	887.49	3.97 % rms	583	1947.51	5.97 % rms
B (Center)	250	877.50	3.97 % rms	917	1957.53	5.77 % rms
E (Center)	583	887.49	3.78 % rms	1250	1967.52	5.48 % rms
F (Center)	83	872.49	3.97 % rms	1417	1972.53	5.75 % rms
C (Center)	416	882.48	3.92 % rms	1750	1982.52	5.58 % rms

Minimum Standard Requirement: The minimum standard requirement is that the RMS vector error magnitude 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-39, 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 vector error values that are well below the 12.5 % requirement. The difference between the cellular input values and the corresponding PCS output values are negligible.

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block A; PCS Ch 250

Ref Lvl
0 dBm

CF 1.93752 GHz
SR 24.3 kHz Symbol/Errors
Demod ã/4 DQPSK

10 dB Offset

Symbol Table

A

0	10101001	00011101	11100100	10100111	00001001
40	00001110	11101011	11001110	10010010	00010100
80	01000001	10011100	01111000	11010100	00111100
120	00111010	11000000	01110001	01010000	10101010
160	00001011	01000000	01001100	00101110	10010101
200	11001000	11110110	10100001	01110010	00111100
240	01011100	10101100	00011011	00100110	01101100
280	01000110	00101001	00010011	11100111	10000000
320	11111010	10011101			

SGL

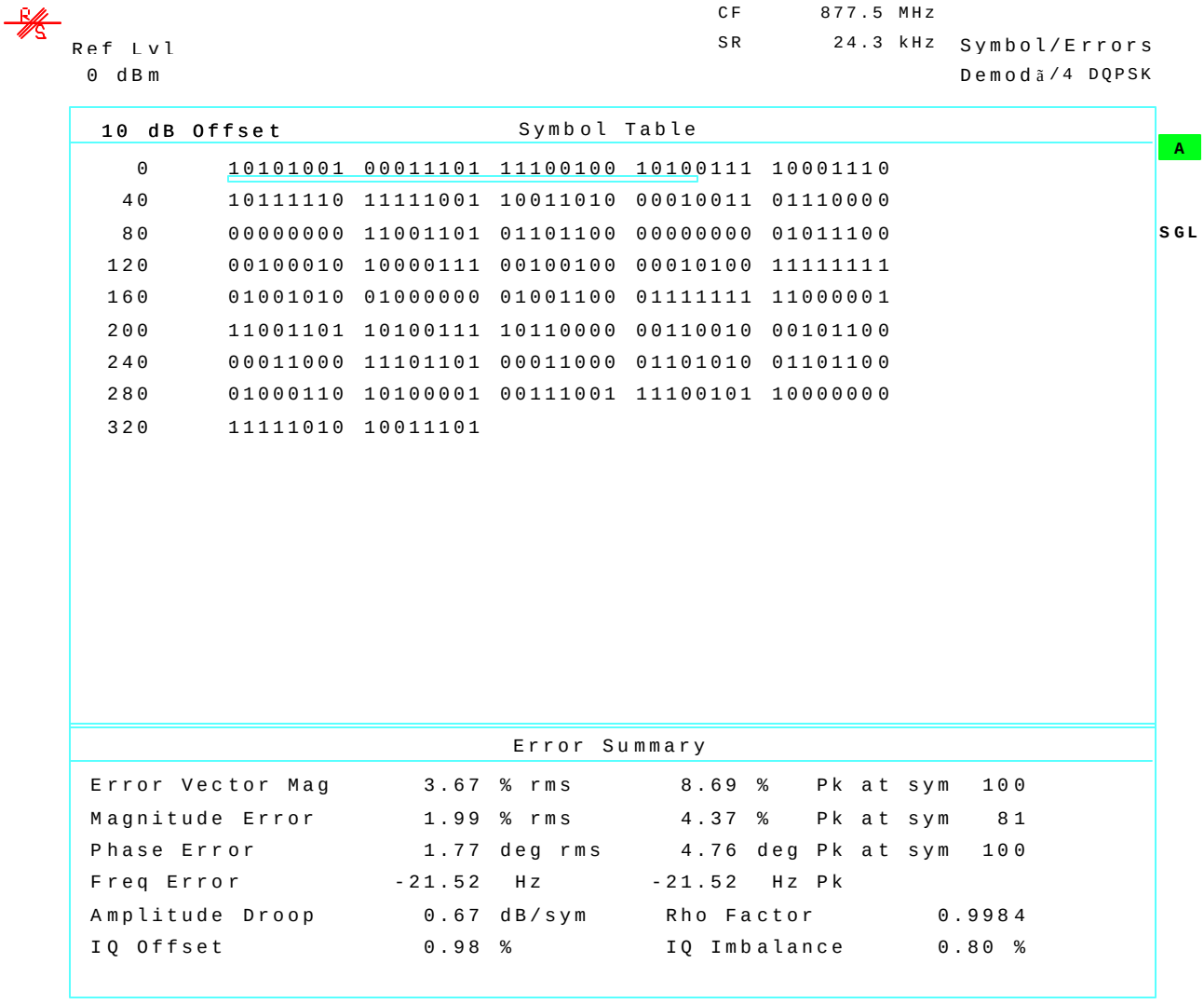
Error Summary

Error Vector Mag	5.37 % rms	13.31 %	Pk at sym 2
Magnitude Error	2.68 % rms	6.73 %	Pk at sym 81
Phase Error	2.68 deg rms	7.57 deg	Pk at sym 2
Freq Error	-48.90 Hz	-48.90 Hz	Pk
Amplitude Droop	0.98 dB/sym	Rho Factor	0.9962
IQ Offset	1.15 %	IQ Imbalance	0.79 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block A, PCS Ch 250
Date: 26.FEB.2001 15:58:55

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block A; AMPS Ch 250



Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block A, AMPS Ch 250
Date: 26.FEB.2001 16:03:46

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block D; PCS Ch 583

mbol Table

0	10101001	00011101	11100100	10101101	10010101
40	00101110	11101110	01011110	10010011	00001000
80	01000010	10001000	11101000	00010101	01101001
120	00100001	11000111	00110100	10100000	10111111
160	01000000	00000000	01001101	00111111	11000010
200	11011101	11100111	10100000	01110110	01101101
240	00001101	10101000	00001011	00111011	01111100
280	01100011	00100000	00011001	01100111	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	5.97 % rms	15.71 %	Pk at sym 103
Magnitude Error	3.04 % rms	-7.03 %	Pk at sym 91
Phase Error	2.96 deg rms	-8.85 deg	Pk at sym 103
Freq Error	-51.12 Hz	-51.12 Hz	Pk
Amplitude Droop	0.97 dB/sym	Rho Factor	0.9964
IQ Offset	0.77 %	IQ Imbalance	1.08 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block D, PCS Ch 583
Date: 27.FEB.2001 09:52:07

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block D; AMPS Ch 583

Ref Lvl
0 dBm

CF 887.49 MHz
SR 24.3 kHz Symbol/Errors
Demod ä/4 DQPSK

A

SGL

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10100111	10001110
40	10111110	11111001	11011110	00010110	01001100
80	00000011	10001111	10101100	00010001	01101001
120	01100000	11000101	11110100	00110001	01101110
160	00000001	01000000	01001101	10100011	10000011
200	11011000	11100110	10100100	10110110	01111100
240	00001000	10101100	00011011	10100010	11101100
280	00000010	00111000	00010101	11100100	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	3.97 % rms	10.50 %	Pk at sym 11
Magnitude Error	2.17 % rms	-5.50 %	Pk at sym 68
Phase Error	1.91 deg rms	-5.58 deg	Pk at sym 11
Freq Error	-21.82 Hz	-21.82 Hz	Pk
Amplitude Droop	0.67 dB/sym	Rho Factor	0.9985
IQ Offset	0.85 %	IQ Imbalance	1.02 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block D, AMPS Ch 583
Date: 26.FEB.2001 17:09:03

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block B; PCS Ch 917

Ref Lvl
0 dBm

CF 1.95753 GHz
SR 24.3 kHz
Symbol/Errors
Demodã/4 DQPSK

A

SGL

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10100111	00001001
40	11101110	11101010	11001110	00000011	00000000
80	00000011	10001110	01111000	01010100	00011101
120	00100101	11010111	00110010	00100001	10111011
160	01001101	01000000	01001100	01111110	11100011
200	10011001	10110001	11100001	00110110	01001100
240	01011100	10101011	00001000	01100111	01111110
280	01100110	00100000	00010001	11100101	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	5.77 % rms	13.41 %	Pk at sym	88	
Magnitude Error	2.91 % rms	-6.73 %	Pk at sym	78	
Phase Error	2.87 deg rms	-7.61 deg	Pk at sym	88	
Freq Error	-51.08 Hz	-51.08 Hz	Pk		
Amplitude Droop	0.89 dB/sym	Rho Factor	0.9968		
IQ Offset	0.01 %	IQ Imbalance	0.29 %		

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block B, PCS Ch 917
Date: 27.FEB.2001 10:01:34

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block B; AMPS Ch 250

ol Table

0	10101001	00011101	11100100	10100001	01111101
40	01110110	11111000	11001110	10000010	01000000
80	00000101	10011100	01101100	00000000	01111101
120	00110010	11010011	00100001	00000001	11011111
160	01001010	01000000	01001101	00111011	10010001
200	11011001	11110011	10110001	00110111	00101100
240	00011100	11101100	00001000	01101110	01101110
280	00100010	00100000	00011011	10100110	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	3.97 % rms	8.65 %	Pk at sym 14
Magnitude Error	2.20 % rms	-5.03 %	Pk at sym 19
Phase Error	1.90 deg rms	4.75 deg	Pk at sym 14
Freq Error	-21.64 Hz	-21.64 Hz	Pk
Amplitude Droop	0.60 dB/sym	Rho Factor	0.9986
IQ Offset	1.10 %	IQ Imbalance	0.66 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block B, AMPS Ch 250
Date: 26.FEB.2001 17:12:50

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block E; PCS Ch 1250

Ref Lvl
0 dBm

CF 1.96752 GHz
SR 24.3 kHz Symbol/Errors
Demodã/4 DQPSK

A

SGL

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10101101	10111000
40	00101110	10101010	10011010	10000010	01000100
80	00001001	10011100	00111100	00000100	01101100
120	01101010	10000101	00100000	00000101	10111111
160	01000010	01000000	01001100	01111011	11000000
200	10011101	11100010	10100000	01110011	00111101
240	00001000	11101100	00001110	00100011	01111110
280	00000110	00111001	00111111	10101100	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	5.48 % rms	13.14 %	Pk at sym 154
Magnitude Error	2.82 % rms	-6.02 %	Pk at sym 80
Phase Error	2.70 deg rms	7.55 deg	Pk at sym 154
Freq Error	-50.95 Hz	-50.95 Hz	Pk
Amplitude Droop	0.79 dB/sym	Rho Factor	0.9967
IQ Offset	0.13 %	IQ Imbalance	0.85 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block E, PCS Ch 1250
Date: 27.FEB.2001 10:08:02

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block E; AMPS Ch 583

Ref Lvl
0 dBm

CF 887.49 MHz
SR 24.3 kHz
Symbol/Errors
Demodã/4 DQPSK

10 dB Offset — Symbol Table

A

0	10101001	00011101	11100100	10100001	01111101
40	10100110	11101001	10001010	10010011	01010101
80	01001111	10001101	00101100	10000100	01111000
120	00111000	11000111	01110001	00110101	11111110
160	00000000	00000000	01001100	01111010	11010011
200	10001001	10100110	10110001	00110110	00101101
240	01001100	11101000	00001011	01100110	11111110
280	01100110	00110001	00111101	11101111	10000000
320	11111010	10011101			

SGL

Error Summary

Error Vector Mag	3.78 % rms	9.06 %	Pk at sym 103
Magnitude Error	2.17 % rms	-4.77 %	Pk at sym 6
Phase Error	1.79 deg rms	-5.19 deg	Pk at sym 103
Freq Error	-21.75 Hz	-21.75 Hz	Pk
Amplitude Droop	0.51 dB/sym	Rho Factor	0.9984
IQ Offset	1.05 %	IQ Imbalance	0.97 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block E, AMPS Ch 583
Date: 26.FEB.2001 17:18:47

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block F; PCS Ch 1417

Ref Lvl
0 dBm

CF 1.97253 GHz
SR 24.3 kHz Symbol/Errors
Demod ã/4 DQPSK

A

SGL

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10100111	10001110
40	00000110	11101001	11001010	00000010	01010100
80	00000000	10011110	01101100	11010001	01011000
120	01100111	11000100	00110010	00000101	01001110
160	01001111	01000000	01001100	11101010	11100001
200	11011000	11100100	11110101	10110110	01011100
240	00001100	11101011	00001111	10101011	01111100
280	01100110	00111001	00011101	10100101	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	5.75 % rms	11.98 %	Pk at sym 57
Magnitude Error	2.90 % rms	-6.11 %	Pk at sym 114
Phase Error	2.87 deg rms	-6.88 deg	Pk at sym 57
Freq Error	-51.28 Hz	-51.28 Hz	Pk
Amplitude Droop	0.81 dB/sym	Rho Factor	0.9968
IQ Offset	0.40 %	IQ Imbalance	0.39 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block F, PCS Ch 1417
Date: 27.FEB.2001 10:18:53

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block F; AMPS Ch 83

Ref Lvl
0 dBm

CF 872.49 MHz
SR 24.3 kHz
Symbol/Errors
Demodã/4 DQPSK

10 dB Offset

Symbol Table

A

0	10101001	00011101	11100100	10101101	10111000
40	01101110	11101010	10011111	11000010	01000100
80	00000100	10011110	00101101	01000100	01001001
120	00101110	11000101	00100000	00010100	10011110
160	01001011	00000000	01001100	01111011	10010001
200	11001101	11100010	10110001	01110110	00101100
240	00011000	11101101	00011011	00100111	01101100
280	01000110	10100000	00010011	10100100	10000000
320	11111010	10011101			

SGL

Error Summary

Error Vector Mag	3.97 % rms	10.67 %	Pk at sym 122
Magnitude Error	2.00 % rms	-3.83 %	Pk at sym 134
Phase Error	1.97 deg rms	6.08 deg	Pk at sym 122
Freq Error	-21.19 Hz	-21.19 Hz	Pk
Amplitude Droop	0.59 dB/sym	Rho Factor	0.9985
IQ Offset	1.25 %	IQ Imbalance	0.80 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block F, AMPS Ch 83
Date: 26.FEB.2001 17:26:12

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Antenna Terminal; Block C; PCS Ch 1750

Ref Lvl
0 dBm

CF 1.98252 GHz
SR 24.3 kHz
Symbol/Errors
Demodã/4 DQPSK

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10101111	00001101
40	00111110	10101001	11011110	01010010	01110000
80	00001111	10011110	01101100	11010001	01111100
120	01111000	11000110	00100000	10110101	01001011
160	01011001	00000000	01001101	11101010	10010011
200	11011100	10100011	10100000	10110010	01111100
240	00001100	10111000	00011000	11101010	11101100
280	00100110	00101001	00011101	10100101	10000000
320	11111010	10011101			

A

SGL

Error Summary

Error Vector Mag	5.58 % rms	14.76 %	Pk at sym 81
Magnitude Error	3.10 % rms	7.10 %	Pk at sym 77
Phase Error	2.67 deg rms	-8.47 deg	Pk at sym 81
Freq Error	-51.38 Hz	-51.38 Hz	Pk
Amplitude Droop	1.03 dB/sym	Rho Factor	0.9966
IQ Offset	0.33 %	IQ Imbalance	0.56 %

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Output: Block C, PCS Ch 1750
Date: 27.FEB.2001 10:23:17

EXHIBIT 10: TEST REPORT

Modulation Characteristics; Input ; Block C; AMPS Ch 416

Ref Lvl
0 dBm

CF 882.48 MHz
SR 24.3 kHz
Symbol/Errors
Demodã/4 DQPSK

A

SGL

10 dB Offset — Symbol Table

0	10101001	00011101	11100100	10101001	11010111
40	01011110	11101011	10011110	10000010	01010100
80	00001100	11011101	00111100	00010000	01111001
120	01101110	10010101	00100100	00000101	11011111
160	01010011	01000000	01001101	01111011	11010000
200	11001001	11110011	10100001	00110111	01101100
240	01011000	11101101	00011010	00100111	01101110
280	01000110	10100000	00010111	11100100	10000000
320	11111010	10011101			

Error Summary

Error Vector Mag	3.92 % rms	8.38 %	Pk at sym	7	
Magnitude Error	2.30 % rms	-5.21 %	Pk at sym	20	
Phase Error	1.83 deg rms	-4.63 deg	Pk at sym	7	
Freq Error	-21.40 Hz	-21.40 Hz	Pk		
Amplitude Droop	0.59 dB/sym	Rho Factor	0.9984		
IQ Offset	1.01 %	IQ Imbalance	1.05 %		

Title: FCC ID: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Modulation Characteristics; Input: Block C, AMPS Ch 416
Date: 26.FEB.2001 17:30:21

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) *F1D 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 1st 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)	664	889.92 MHz	664	1949.94 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 (carrier bandwidth/resolution bandwidth)
10 log (30 kHz/300 Hz) = 20.0 dB offset

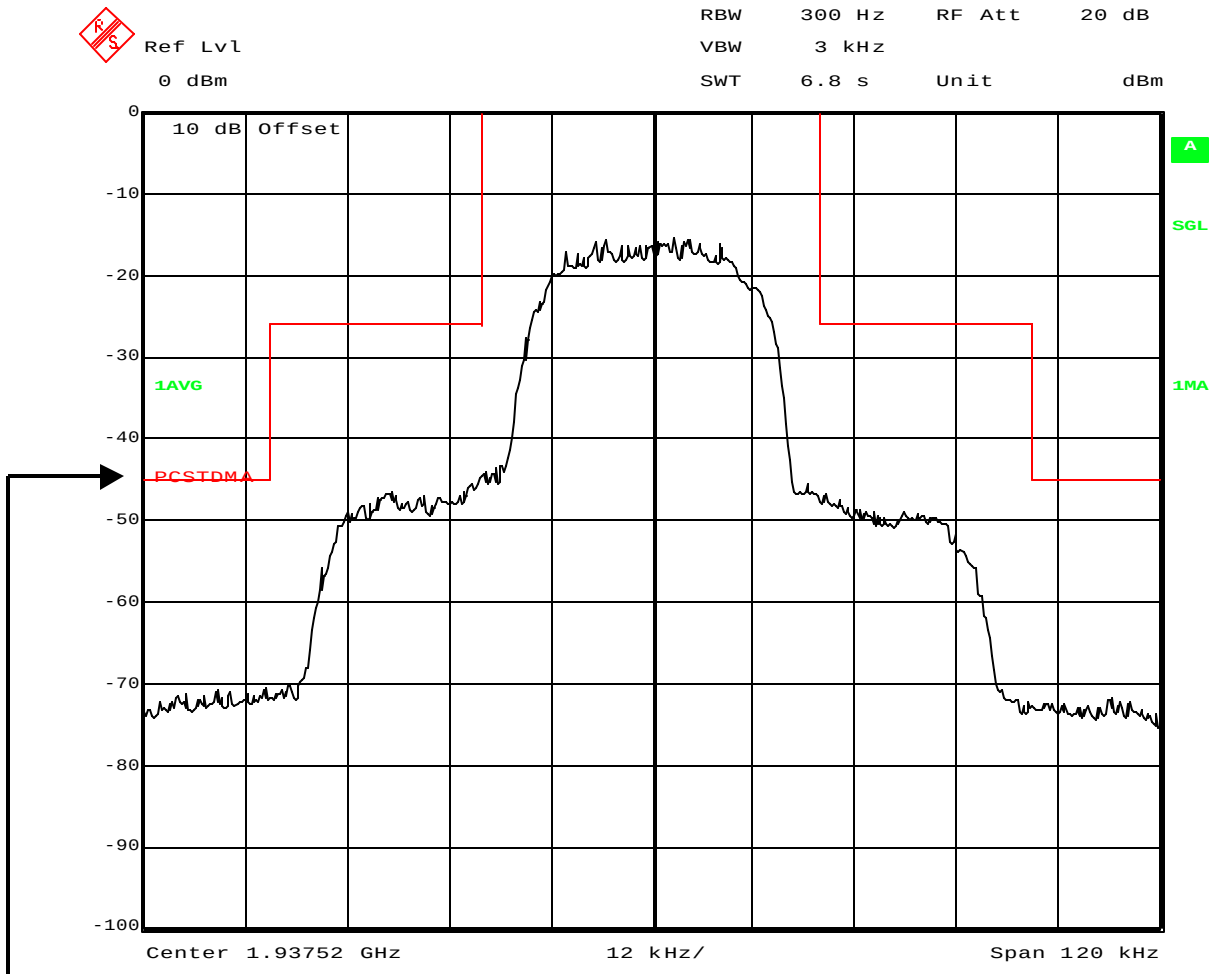
This is accomplished by using a variable attenuator. The spectrum analyzer is first set to a 1 MHz Resolution Bandwidth (RBW), or larger, and the center frequency of the modulated carrier is then positioned to the top of the spectrum analyzer reticle which was previously set at 0 dBm, to establish and 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-39, 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.

EXHIBIT 10: TEST REPORT

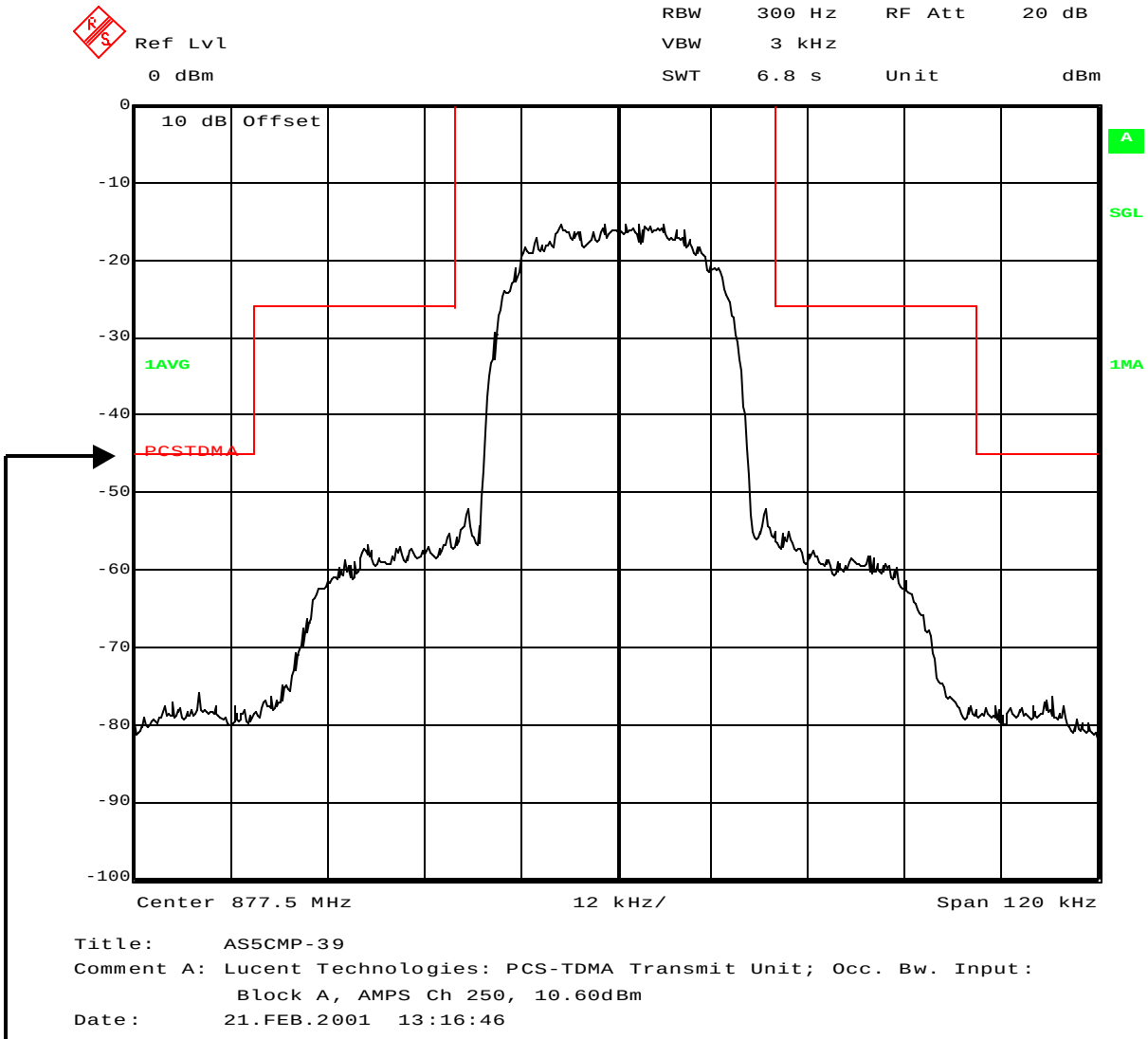
Occupied Bandwidth; Antenna Terminal; Block A; PCS Ch 250



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

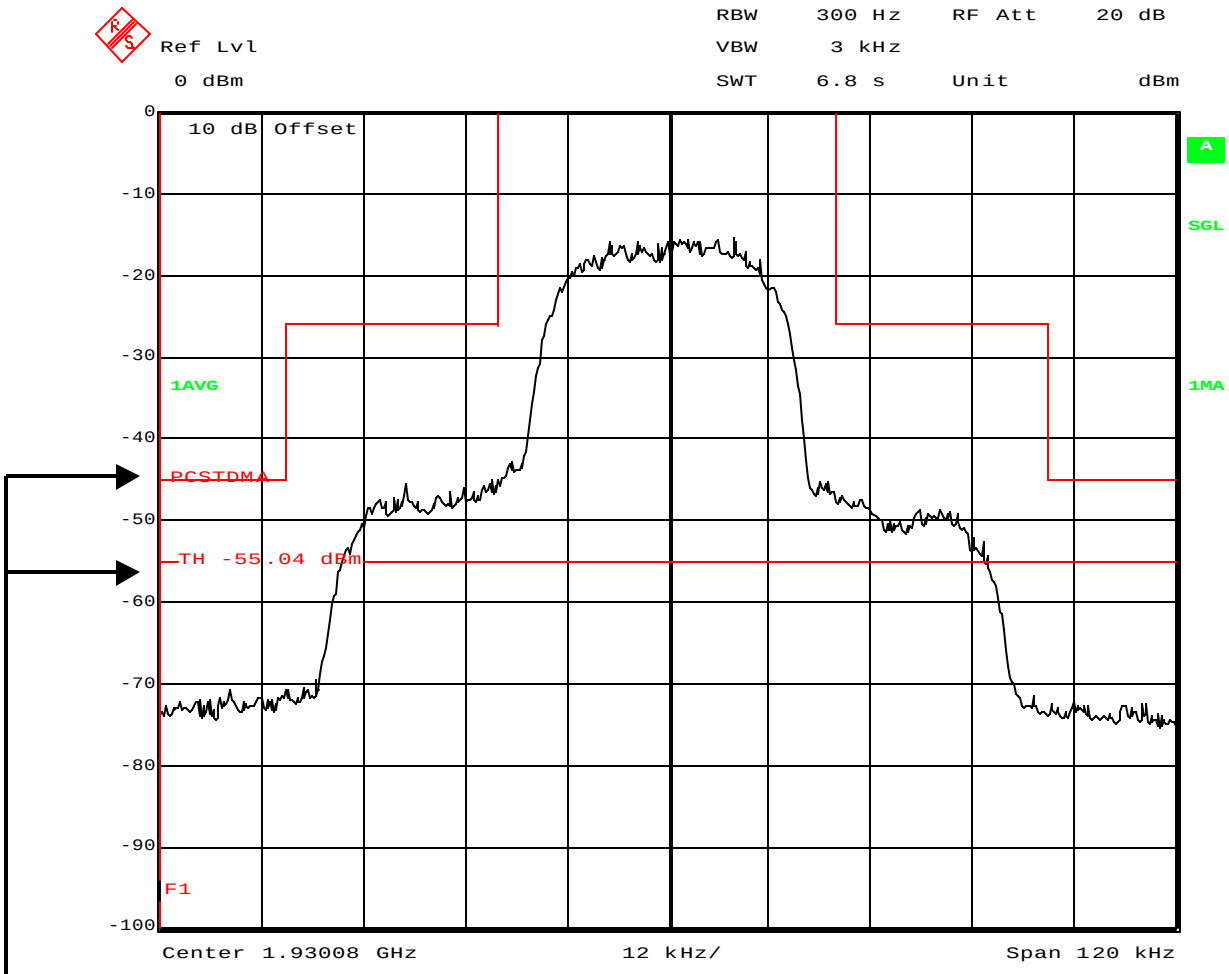
Occupied Bandwidth; Input ; Block A; AMPS Ch 250



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block A; PCS Ch 2

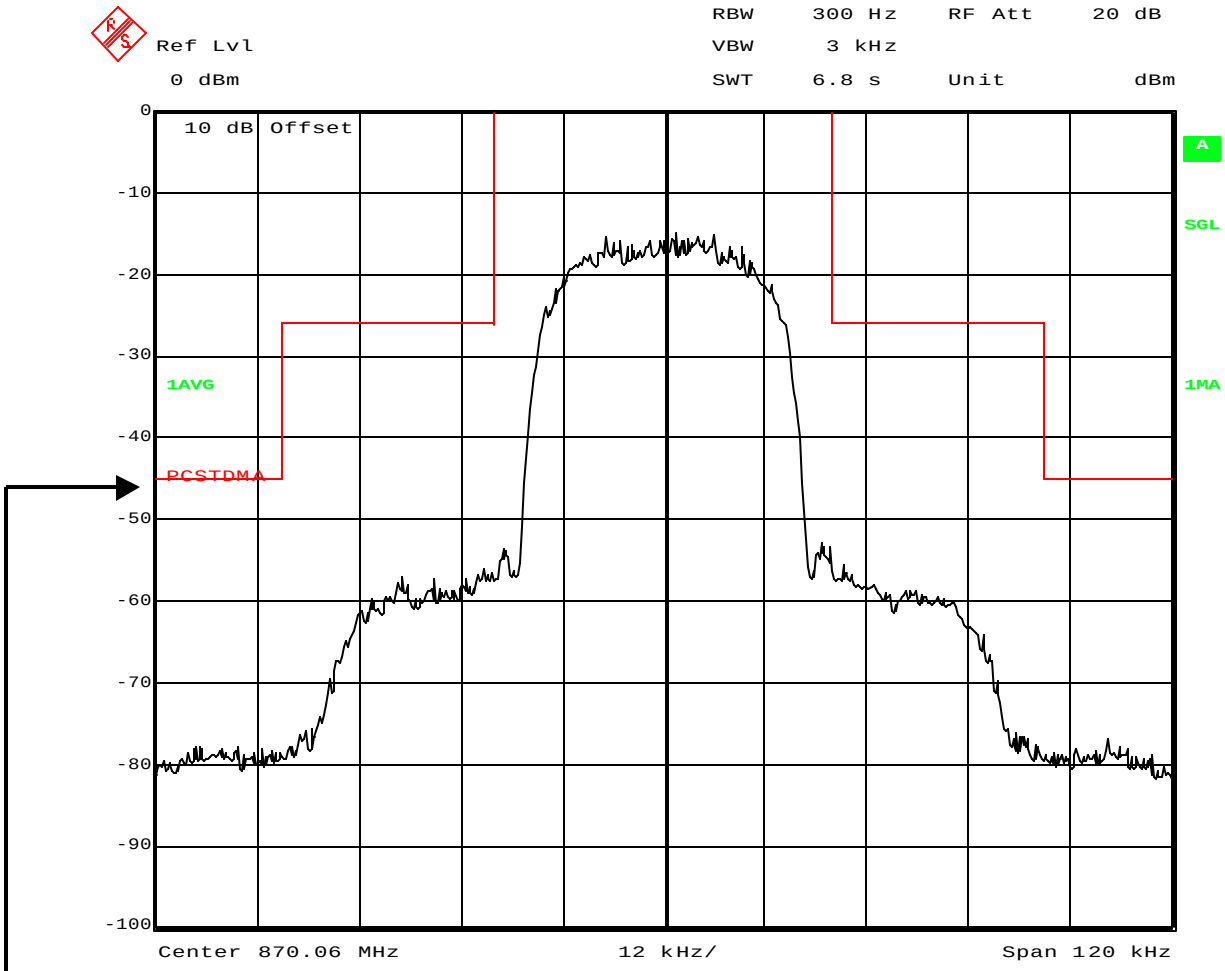


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block A, PCS Ch 2, 16W (42.0 dBm)
Date: 21.FEB.2001 18:22:07

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

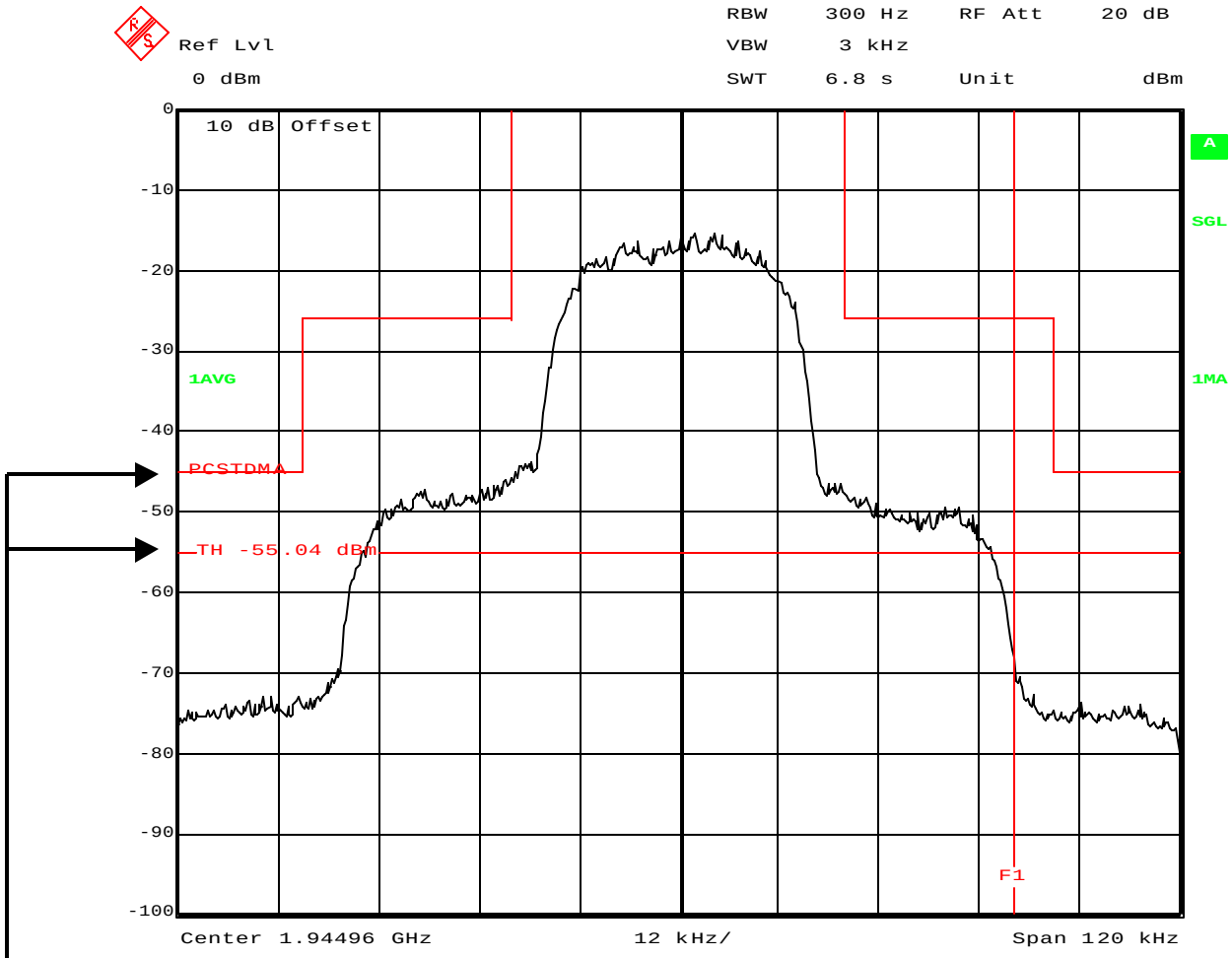
Occupied Bandwidth; Input ; Block A; AMPS Ch 2



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

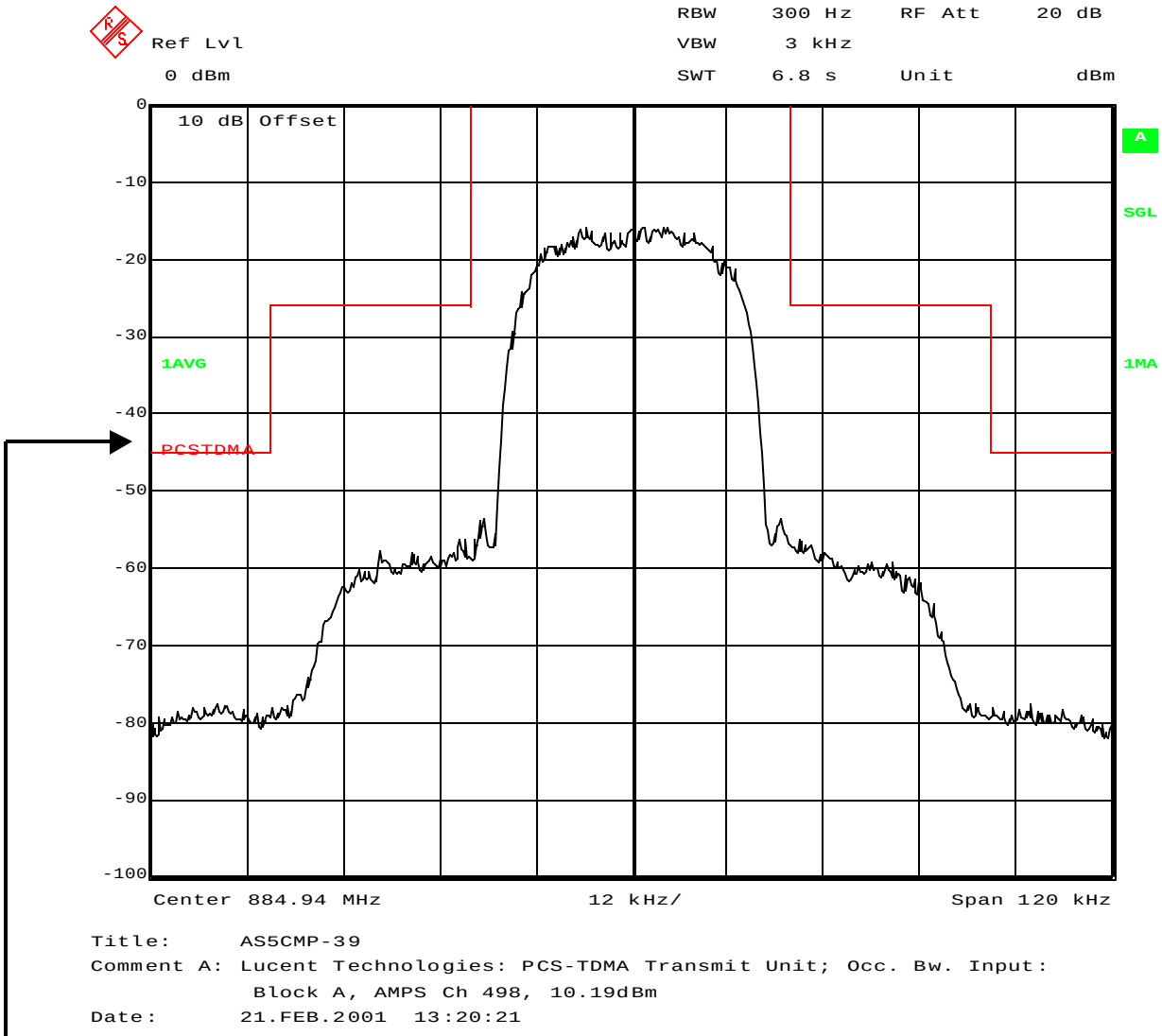
Occupied Bandwidth; Antenna Terminal; Block A; PCS Ch 498



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

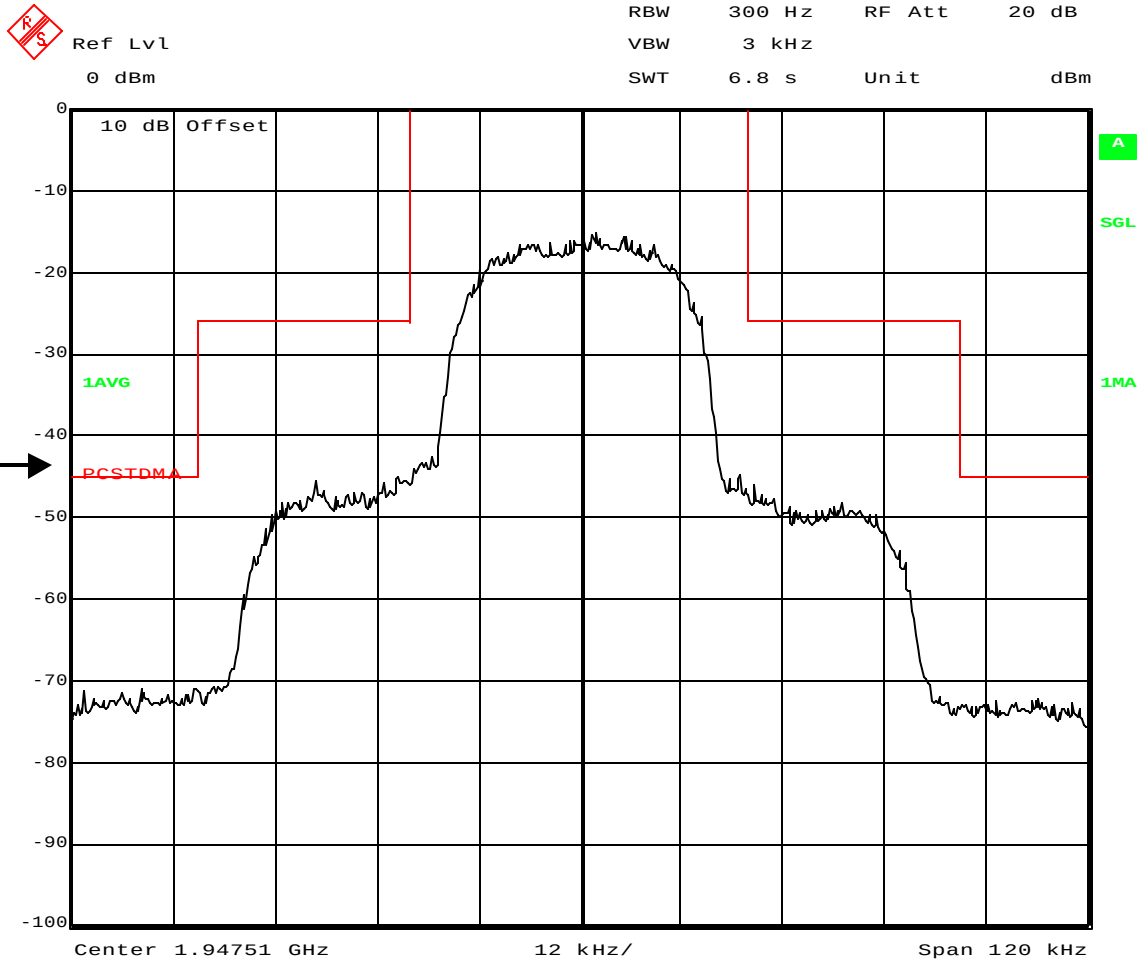
Occupied Bandwidth; Input ; Block A; AMPS Ch 498



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

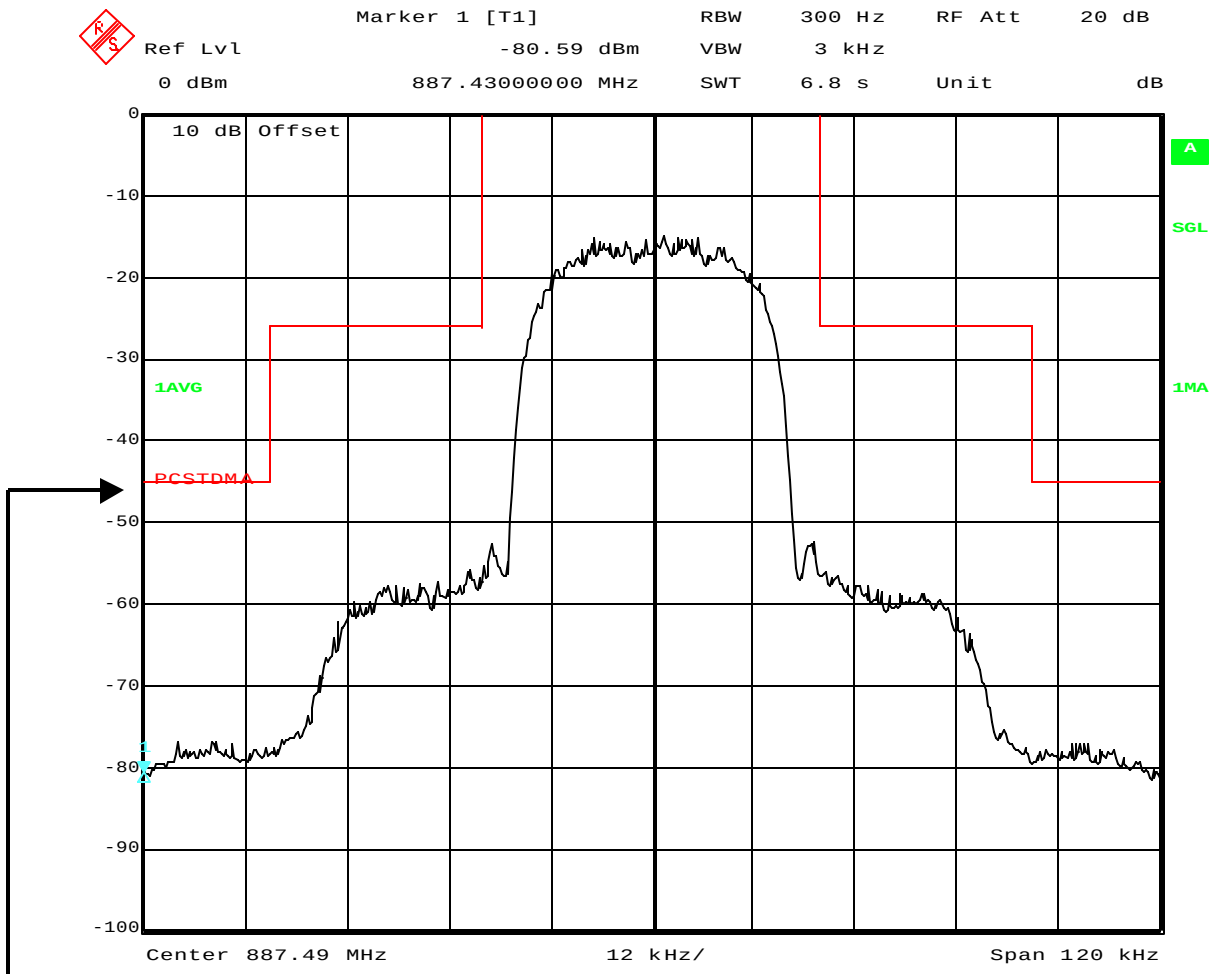
Occupied Bandwidth; Antenna Terminal; Block D; PCS Ch 583



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

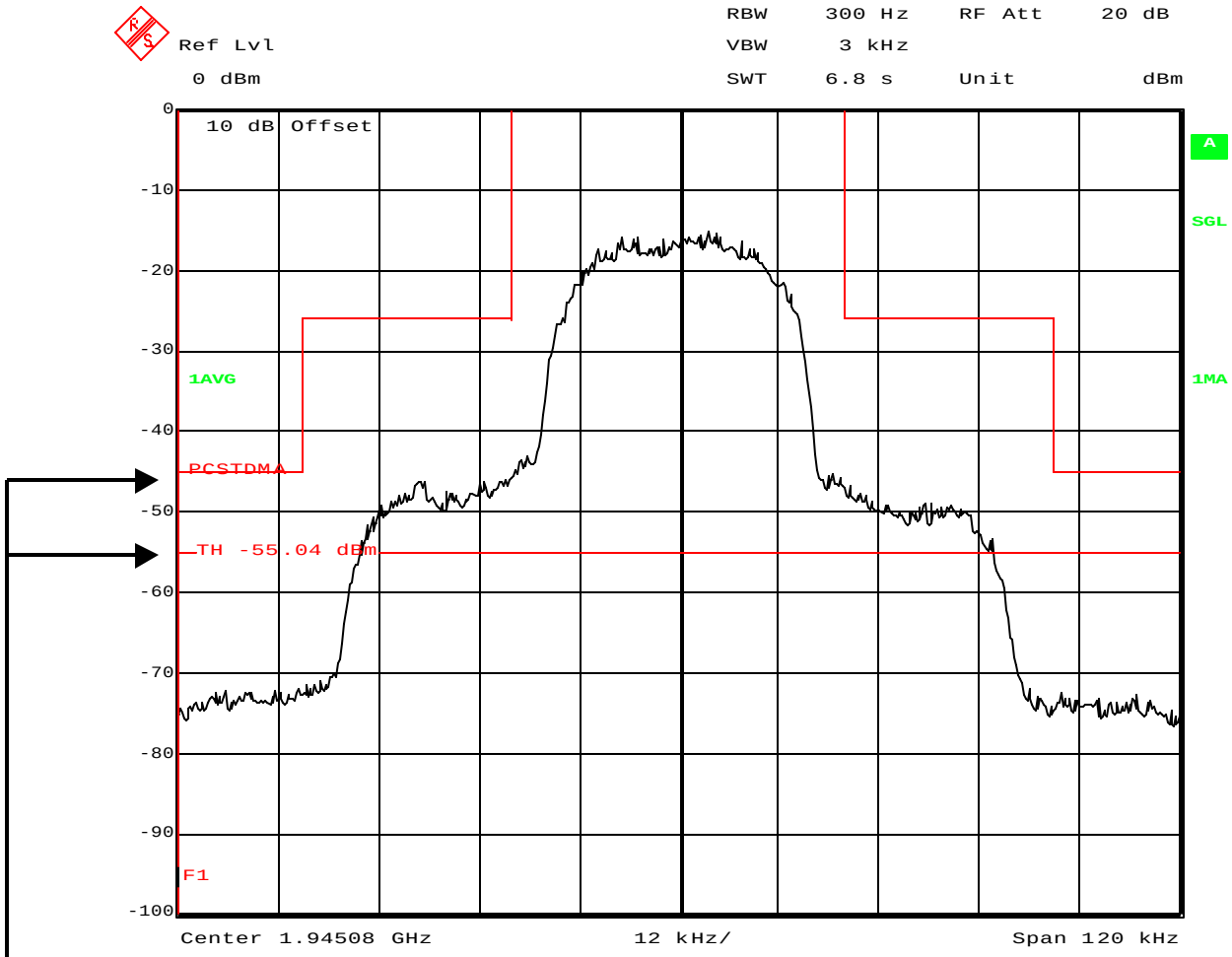
Occupied Bandwidth; Input ; Block D; AMPS Ch 583



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

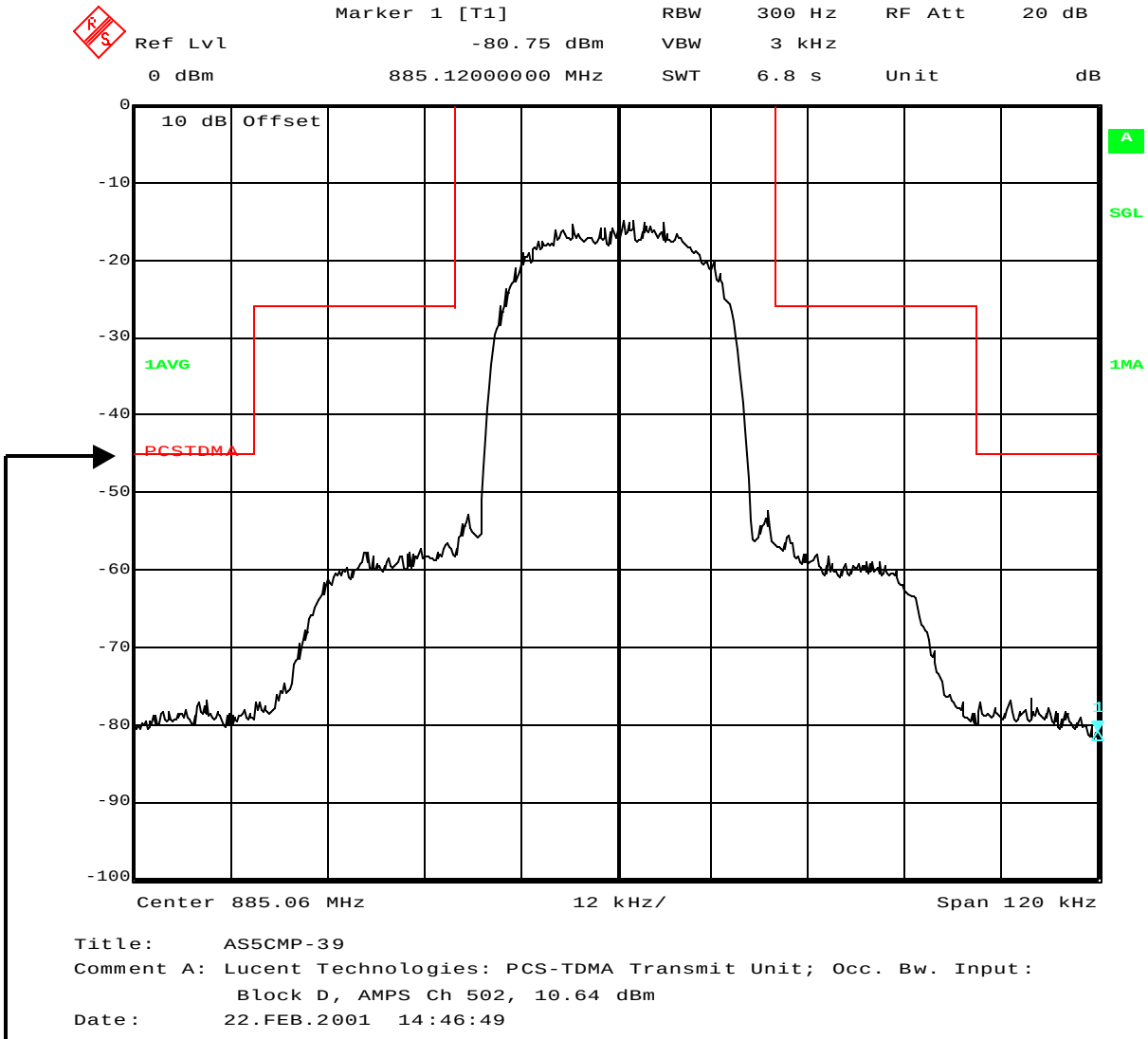
Occupied Bandwidth; Antenna Terminal; Block D; PCS Ch 502



Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block D, PCS Ch 502, 16W (42.0 dBm)
Date: 22.FEB.2001 12:57:14

Note: Ordinate is direct reading in dBc.

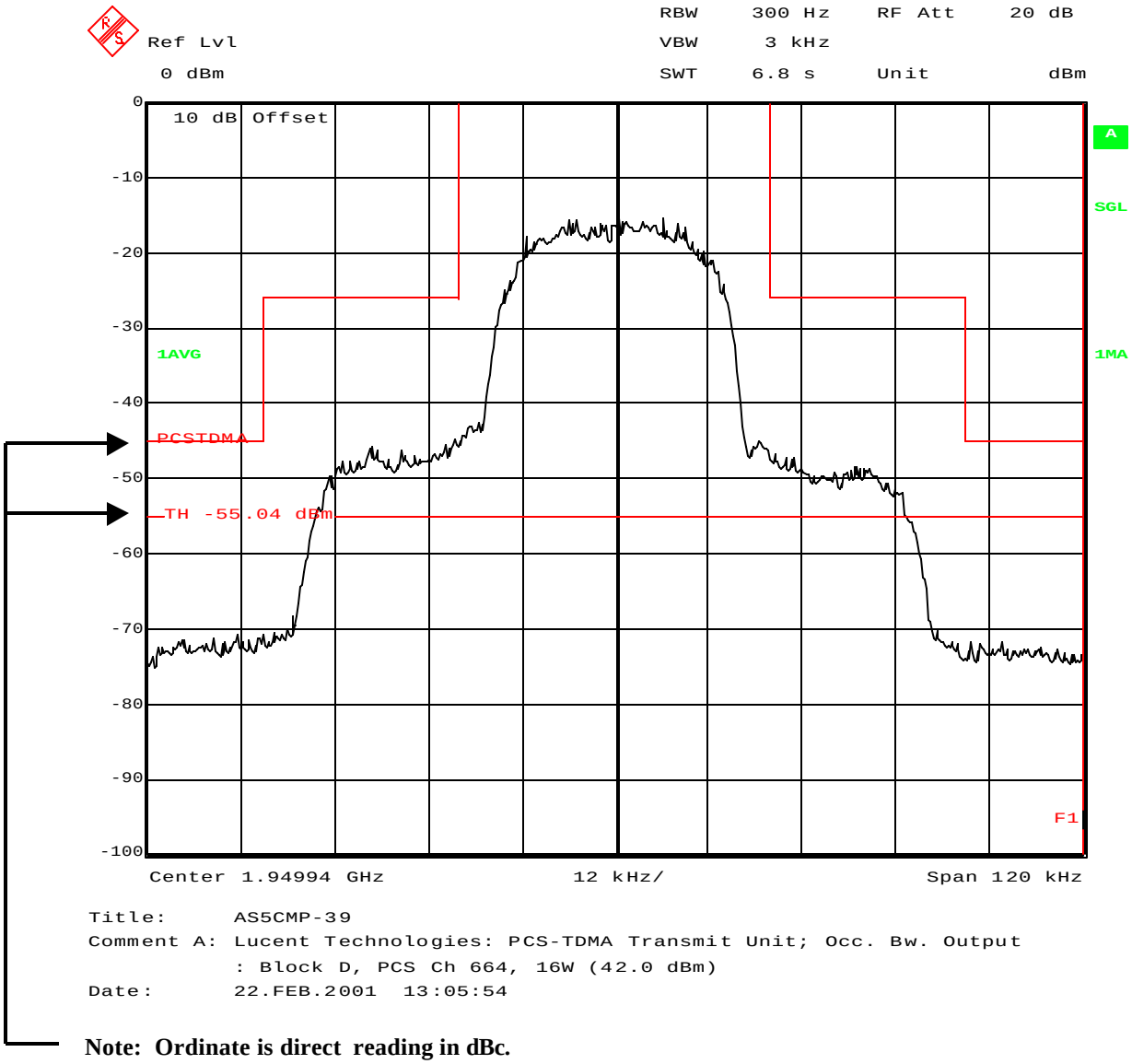
Occupied Bandwidth; Input ; Block D; AMPS Ch 502



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

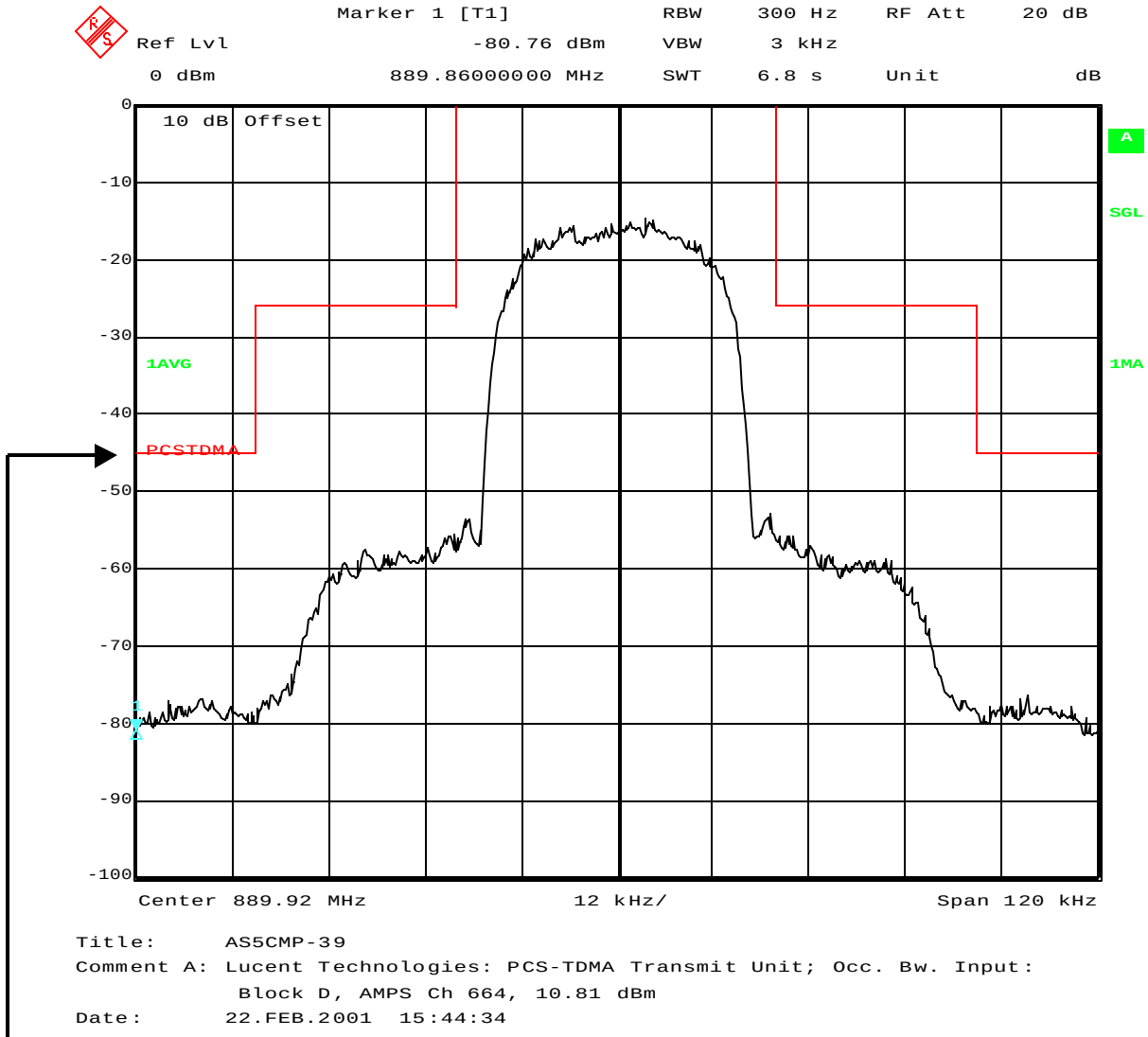
Occupied Bandwidth; Antenna Terminal; Block D; PCS Ch 664



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

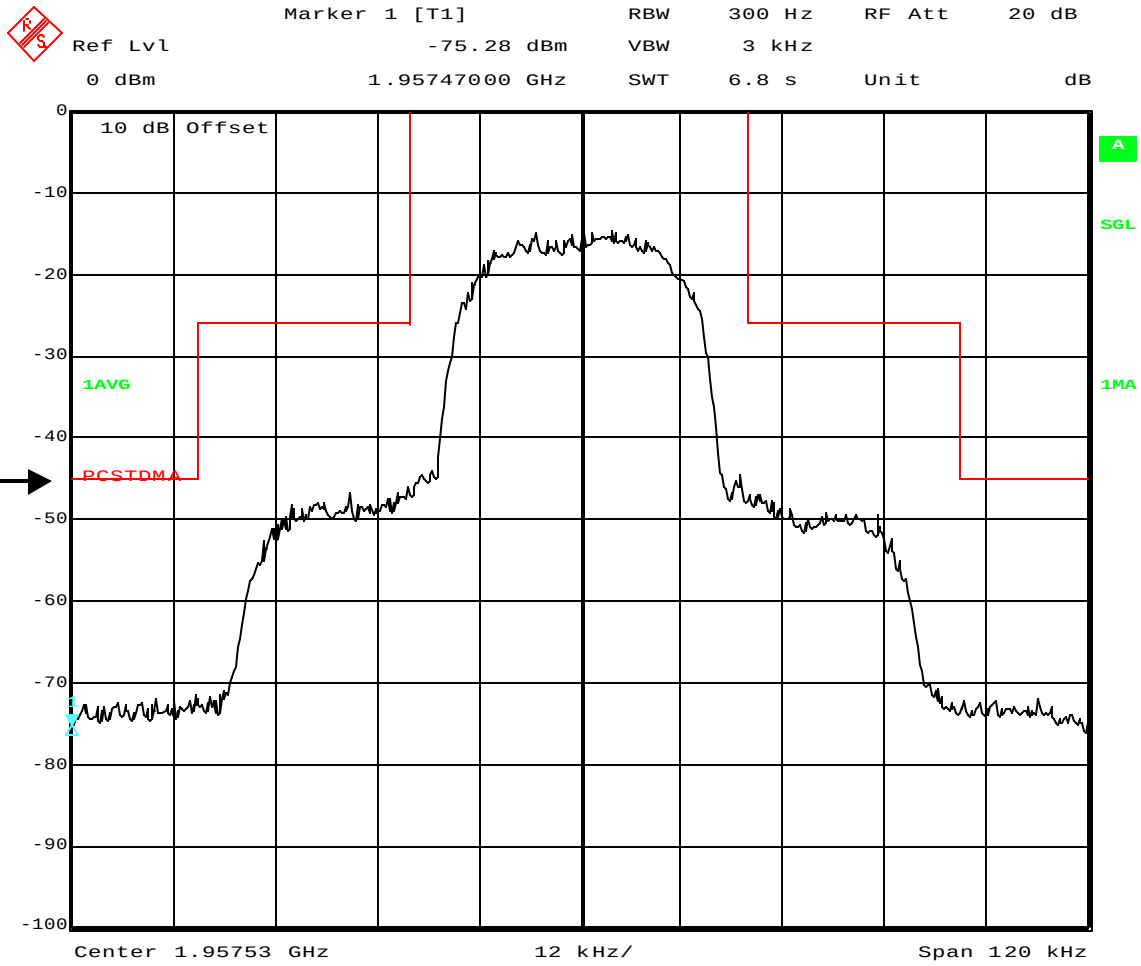
Occupied Bandwidth; Input ; Block D; AMPS Ch 664



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block B; PCS Ch 917

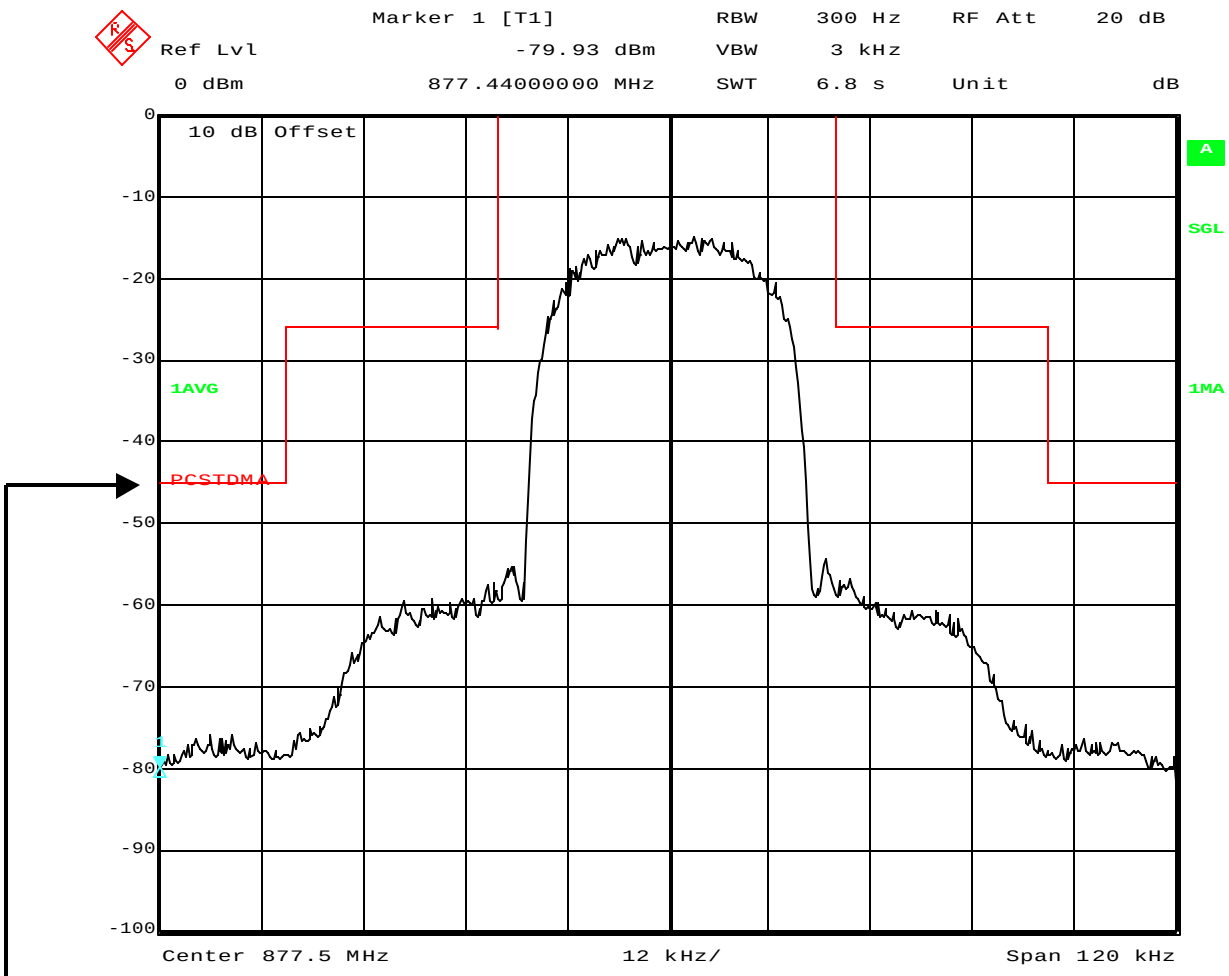


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block B, PCS Ch 917, 16W (42.0 dBm)
Date: 22.FEB.2001 17:08:34

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

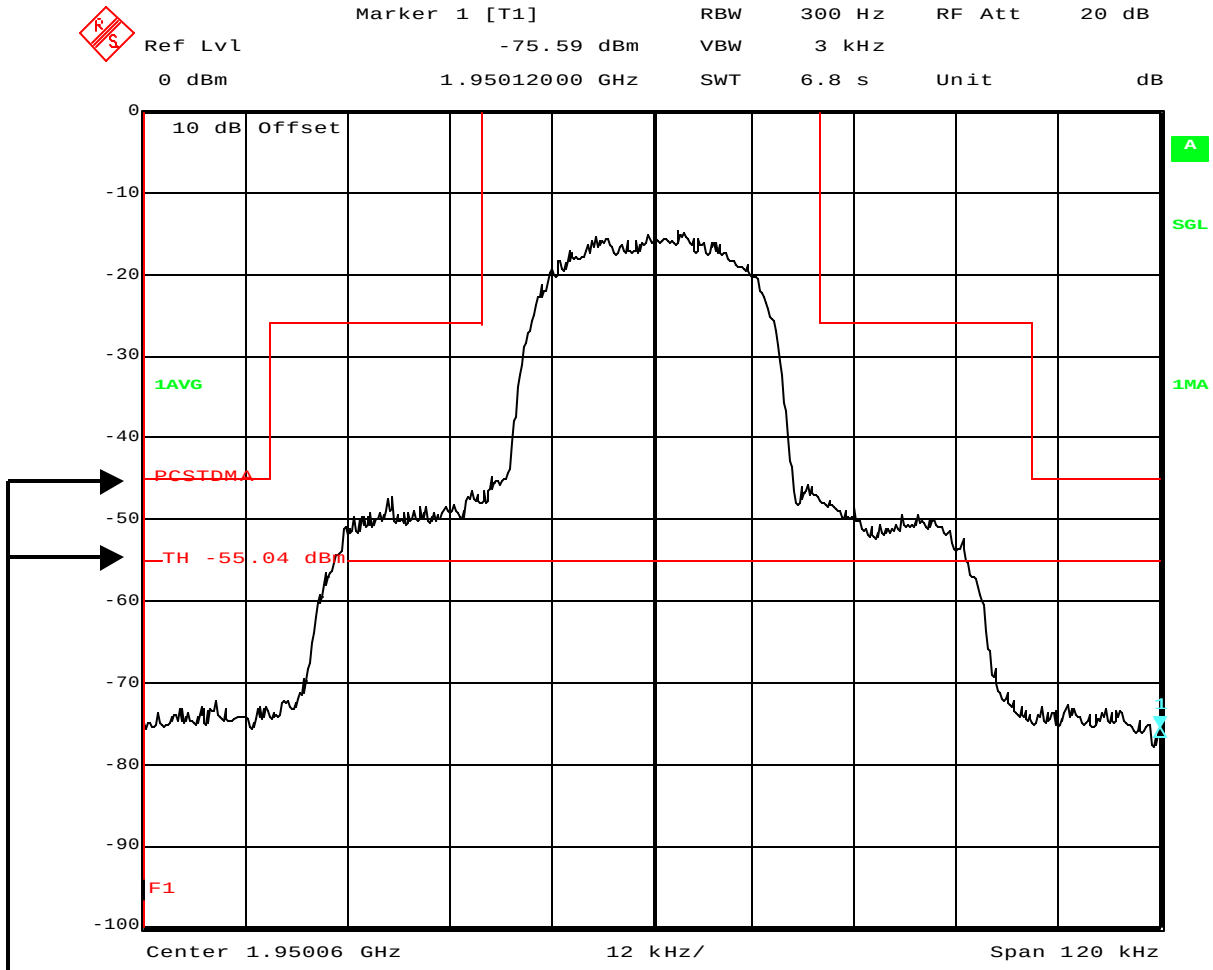
Occupied Bandwidth; Input ; Block B; AMPS Ch 250



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

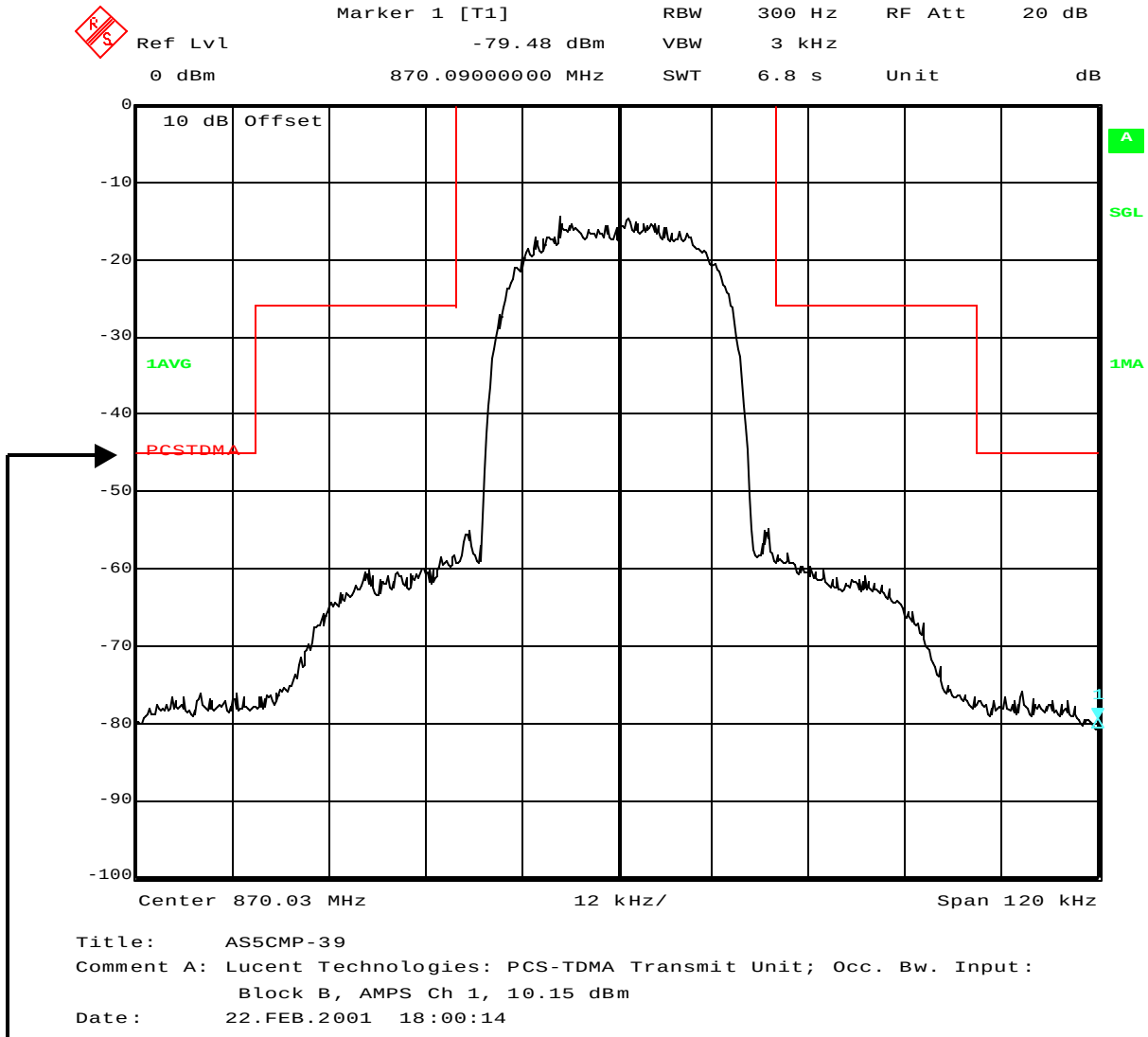
Occupied Bandwidth; Antenna Terminal; Block B; PCS Ch 668



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

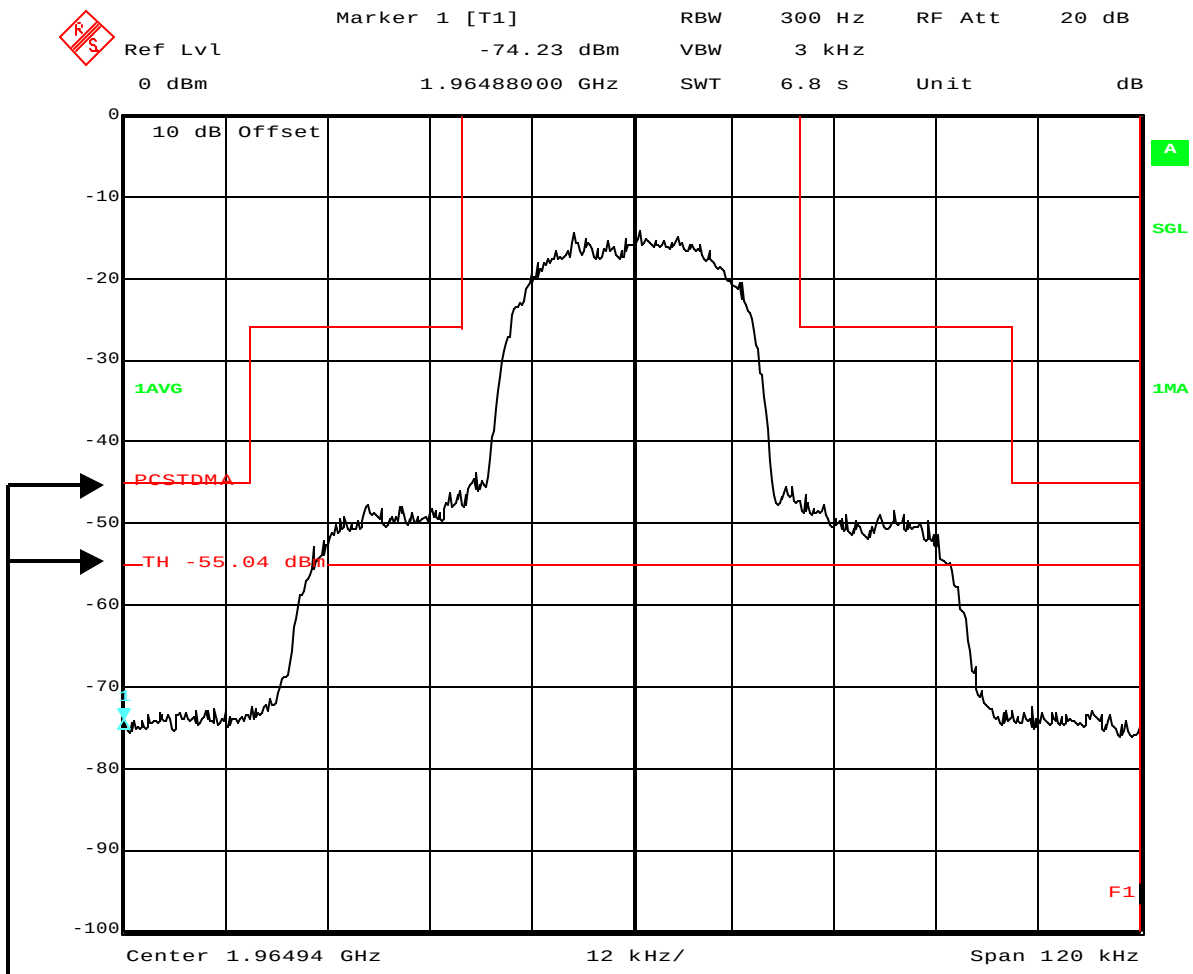
Occupied Bandwidth; Input ; Block B; AMPS Ch 1



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

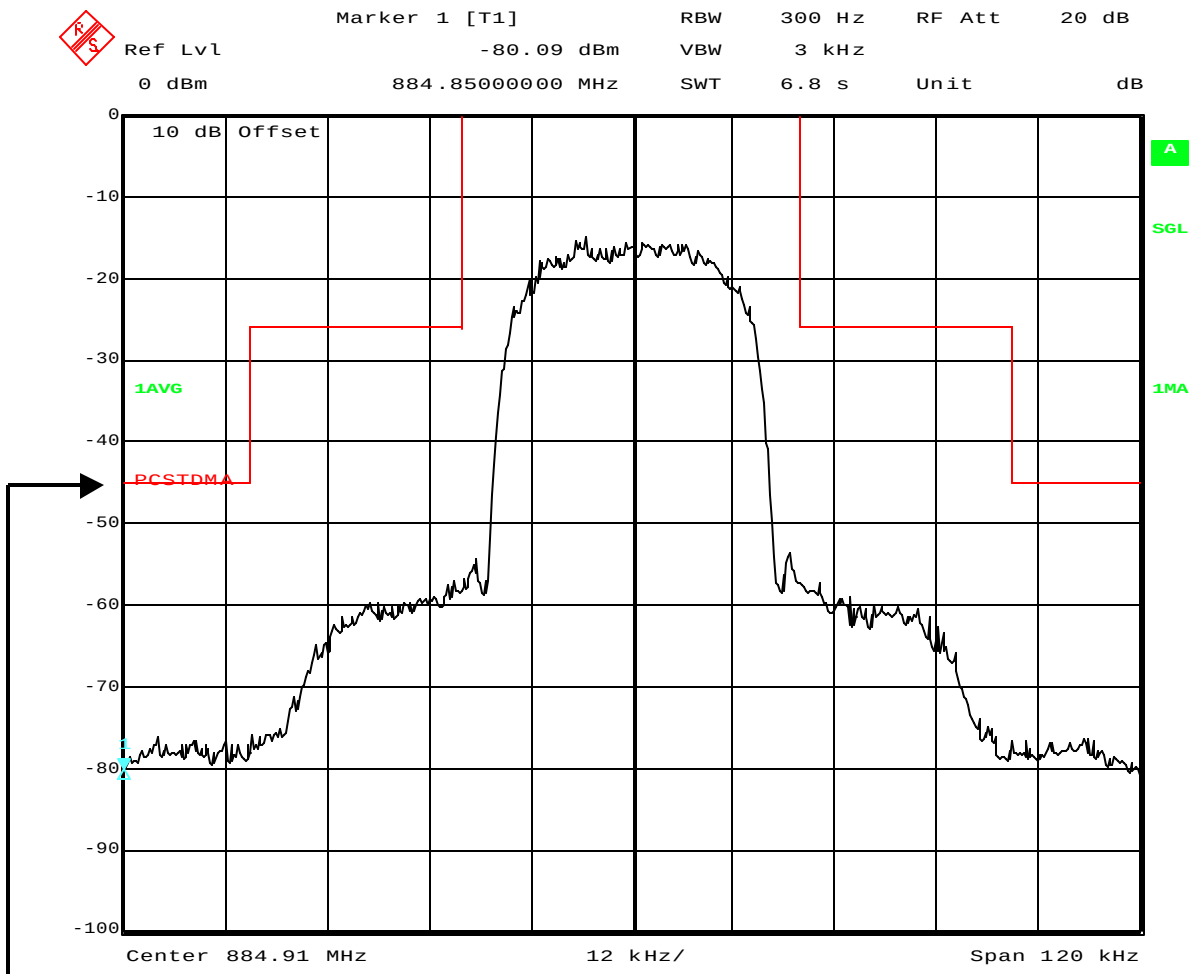
Occupied Bandwidth; Antenna Terminal; Block B; PCS Ch 1164



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

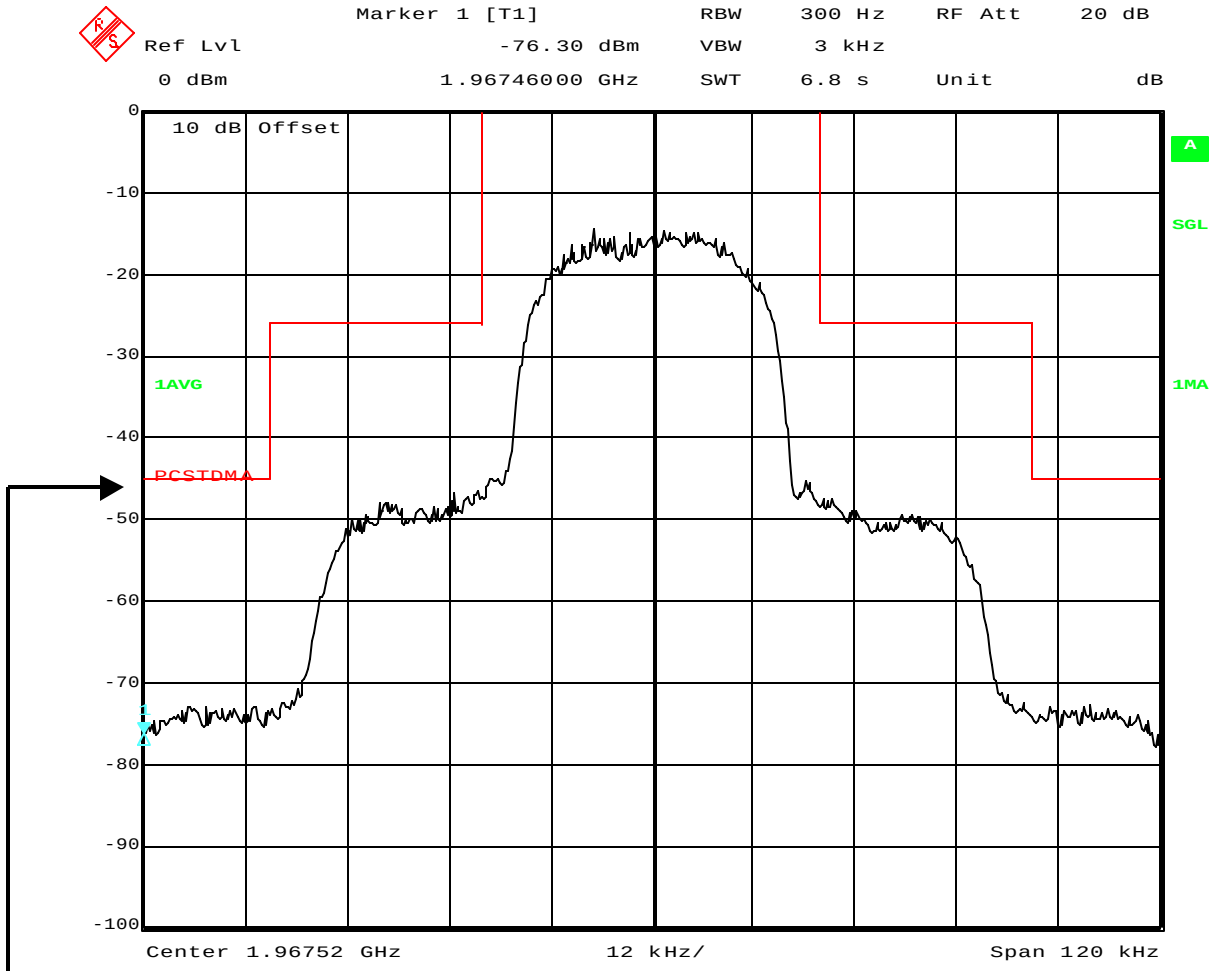
Occupied Bandwidth; Input ; Block B; AMPS Ch 497



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

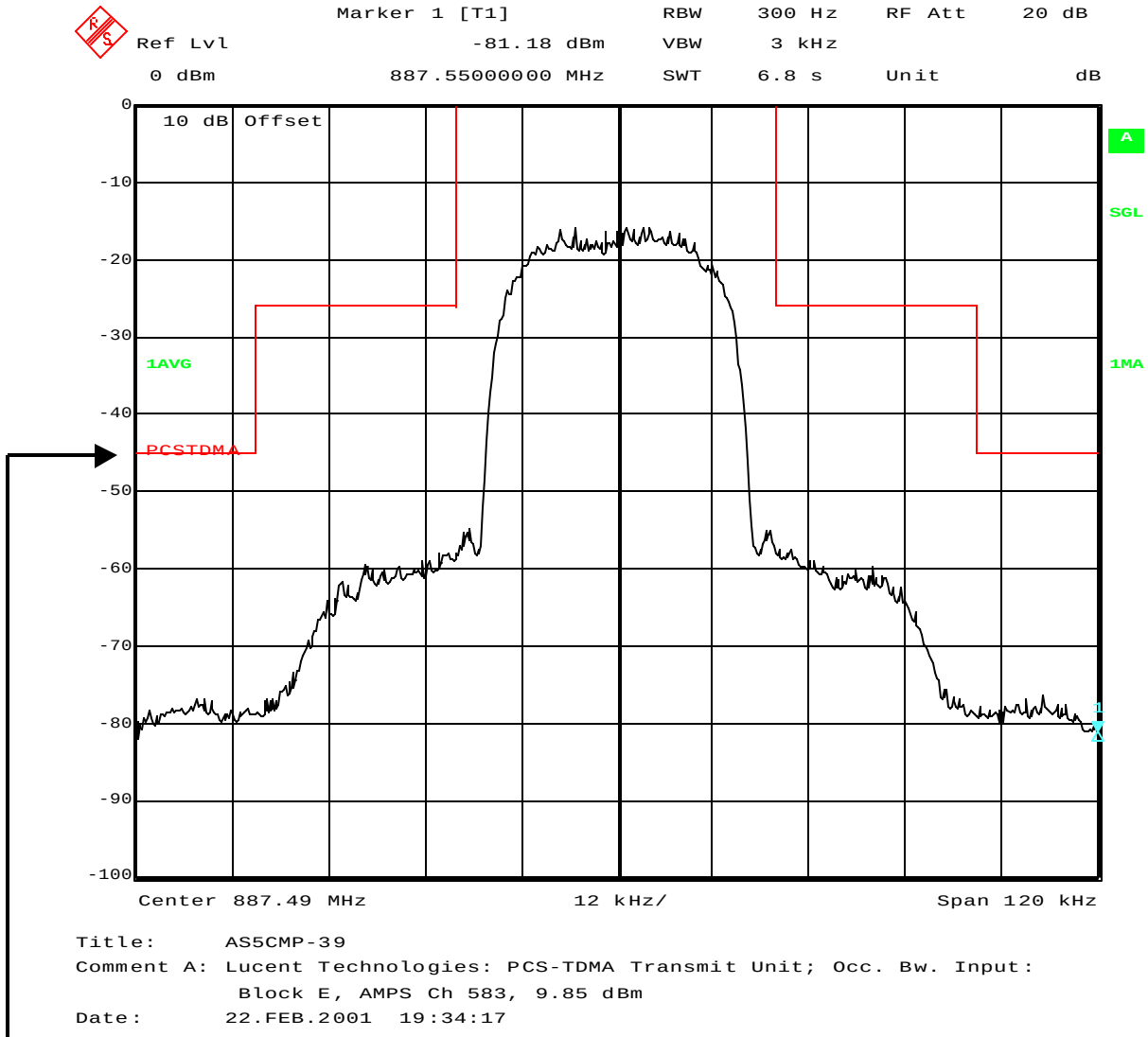
Occupied Bandwidth; Antenna Terminal; Block E; PCS Ch 1250



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

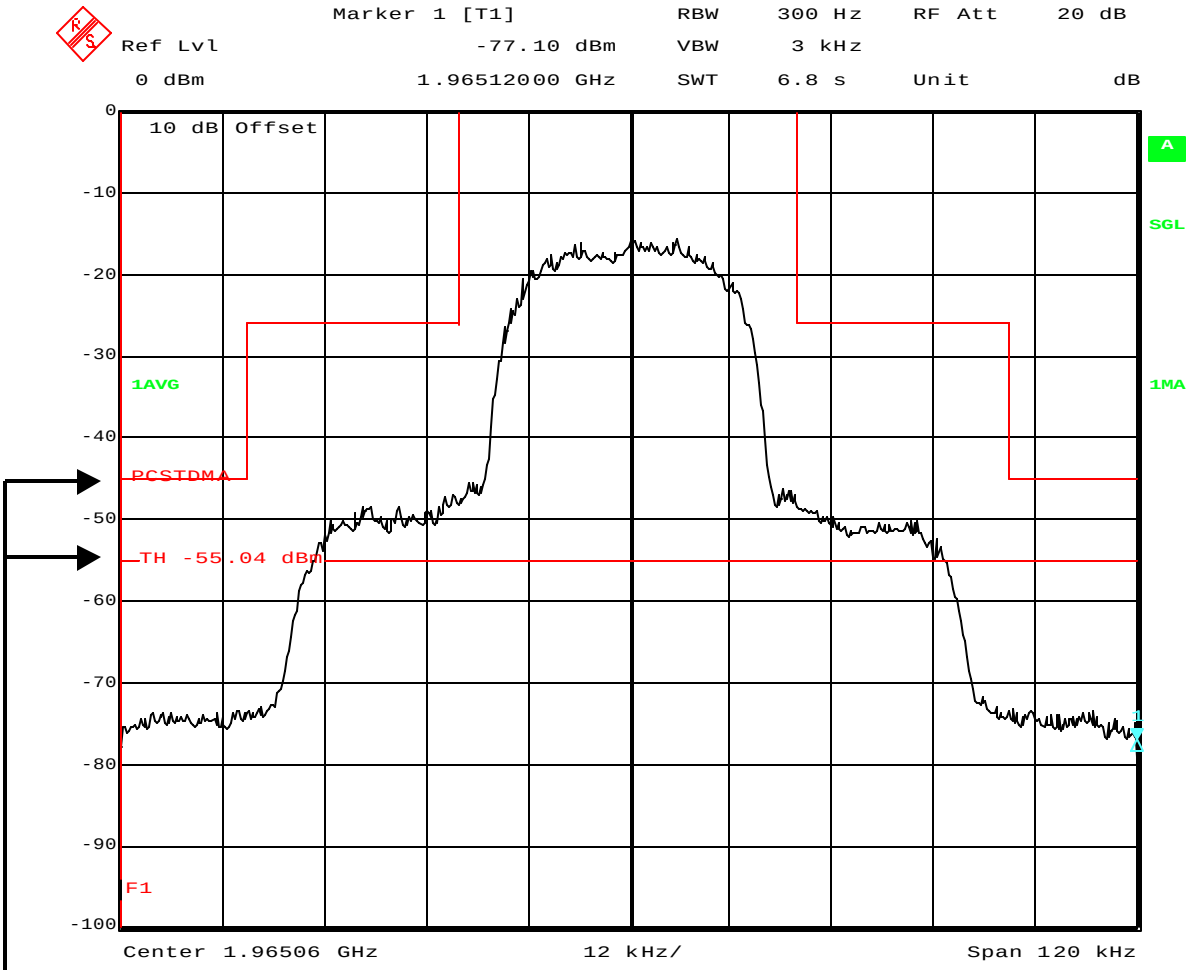
Occupied Bandwidth; Input ; Block E; AMPS Ch 583



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block E; PCS Ch 1168

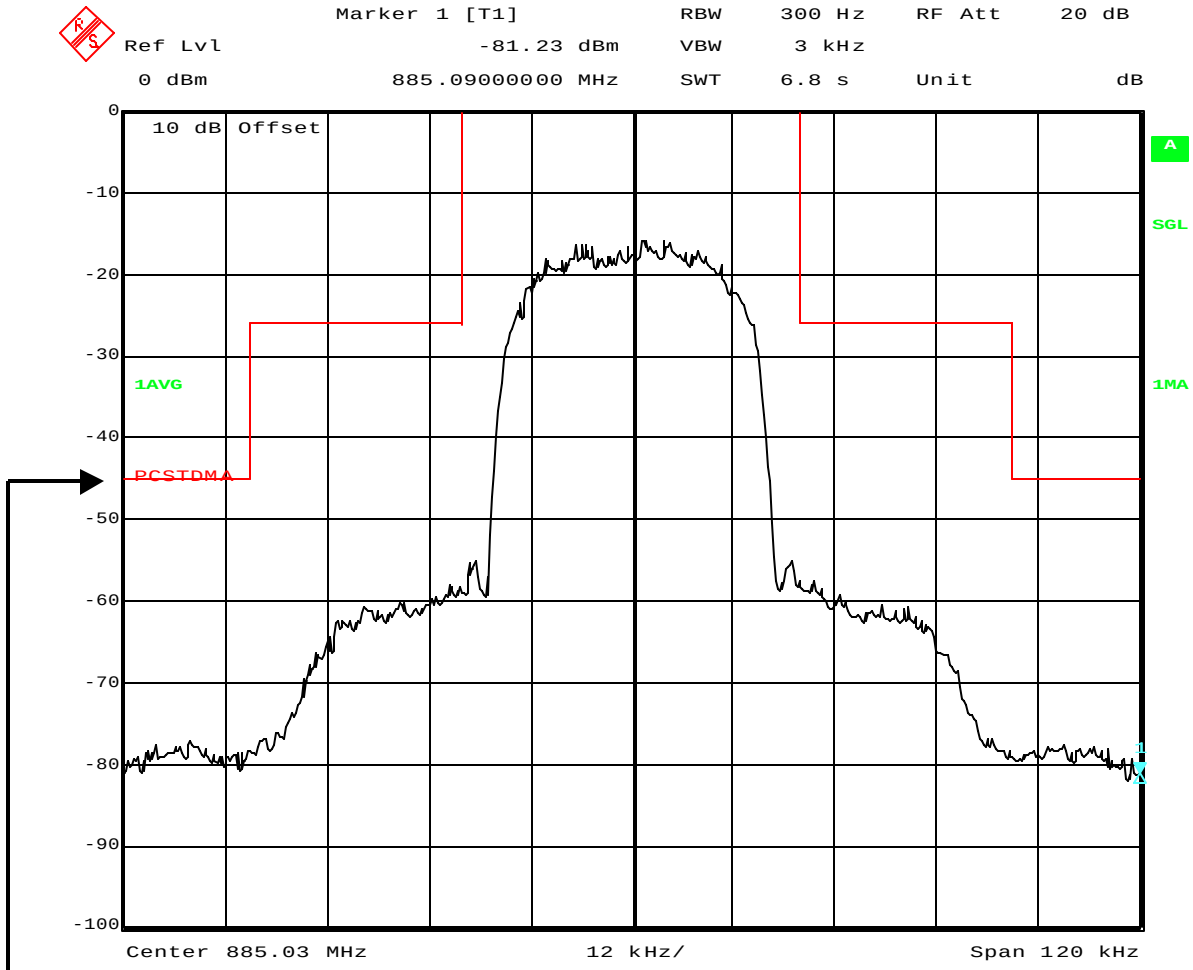


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block E, PCS Ch 1168, 16W (42.0 dBm)
Date: 22.FEB.2001 19:07:13

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Input ; Block E; AMPS Ch 501

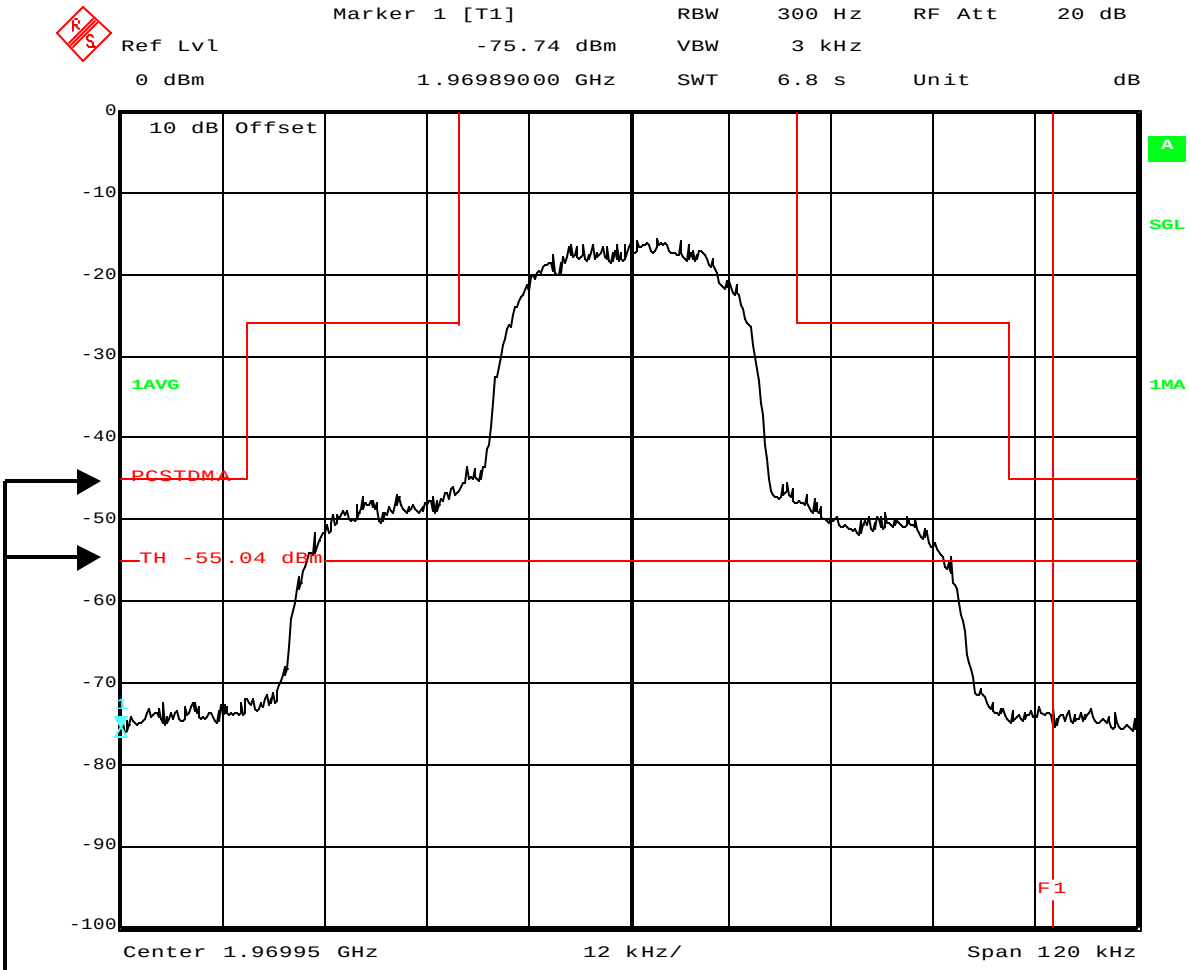


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input:
Block E, AMPS Ch 501, 9.87 dBm
Date: 22.FEB.2001 19:40:13

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

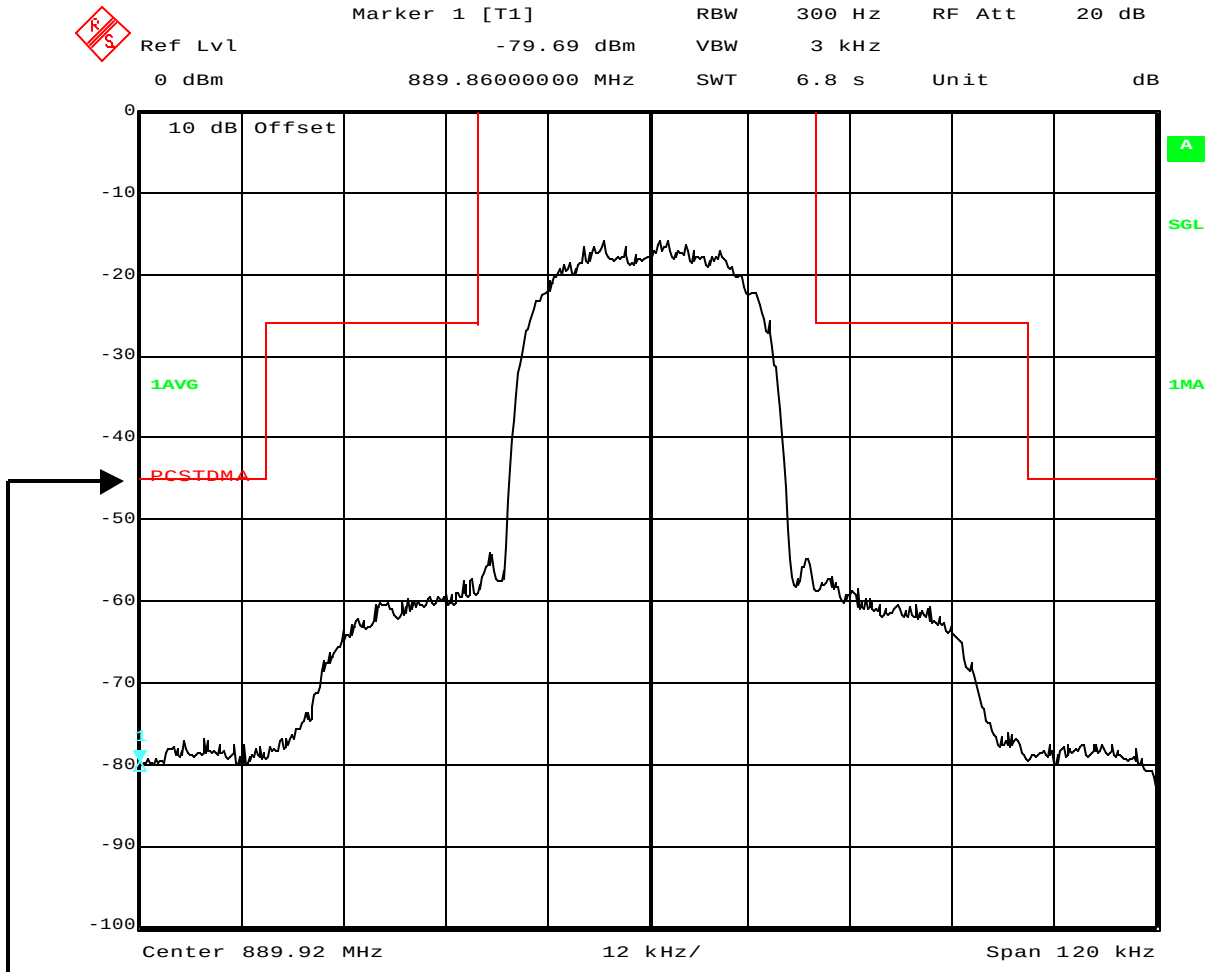
Occupied Bandwidth; Antenna Terminal; Block E; PCS Ch 1331



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Input ; Block E; AMPS Ch 664

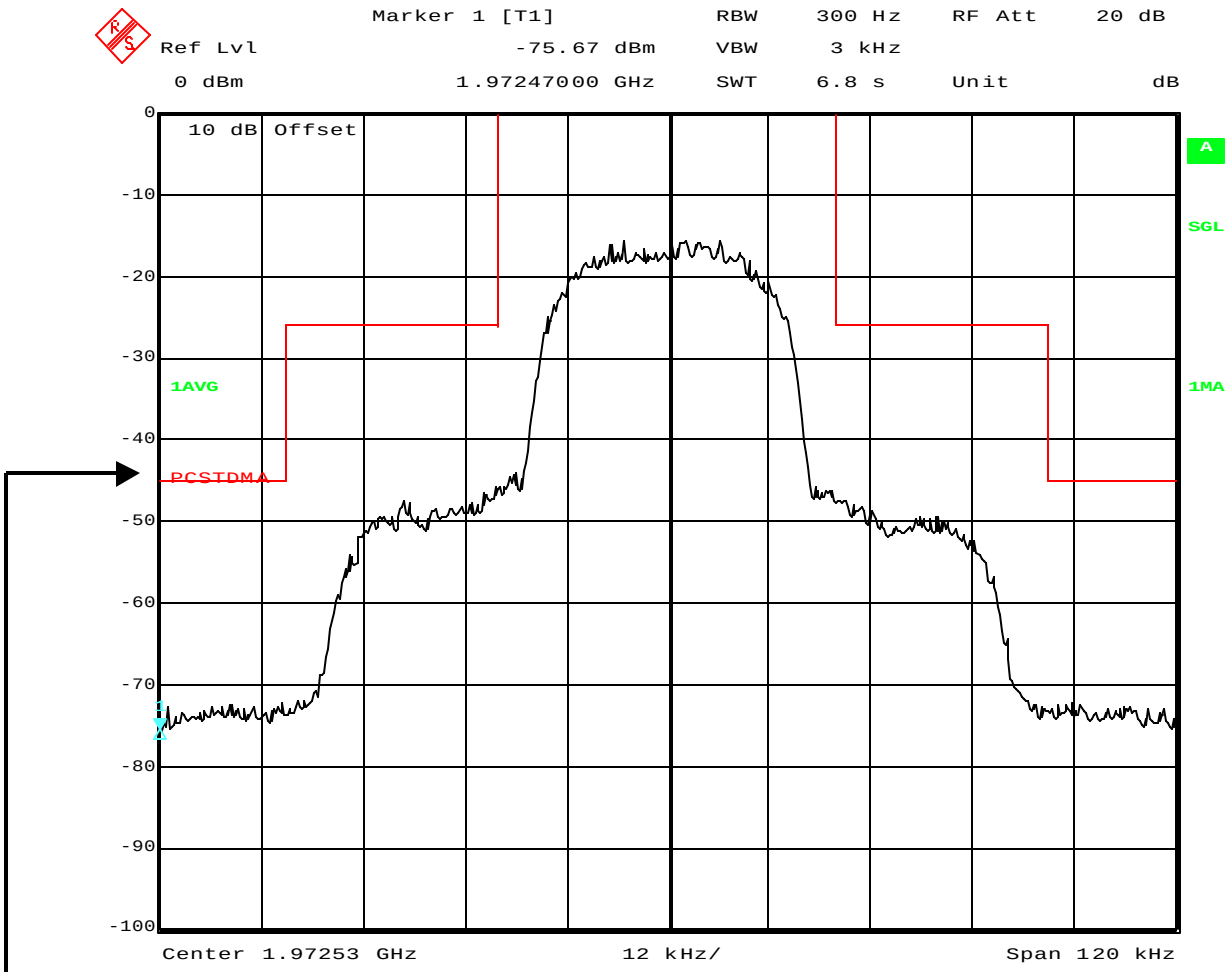


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Input: Block E, AMPS Ch 664, 9.82 dBm
Date: 22.FEB.2001 19:43:23

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block F; PCS Ch 1417

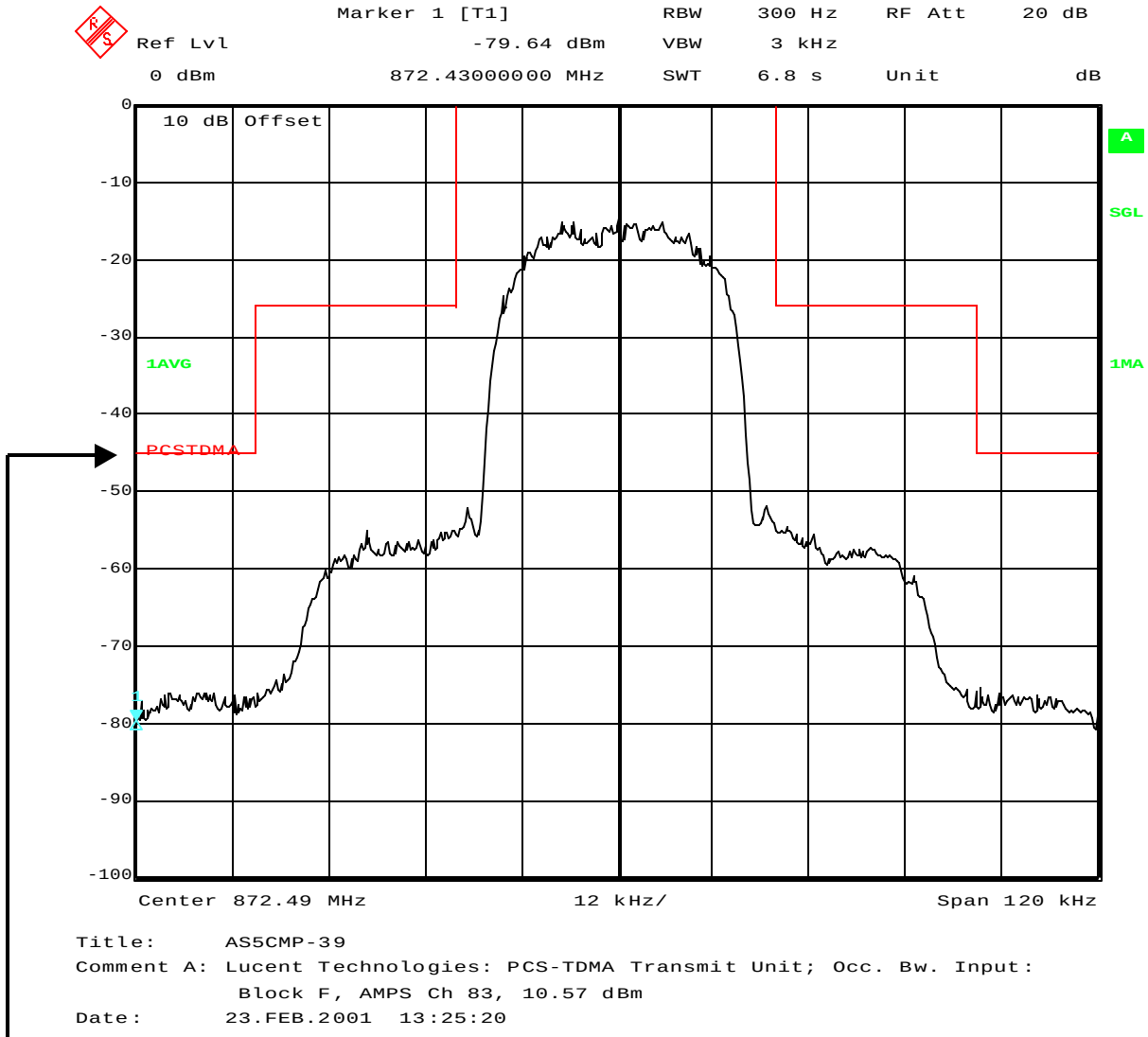


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block F, PCS Ch 1417, 16W (42.0 dBm)
Date: 23.FEB.2001 12:53:28

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

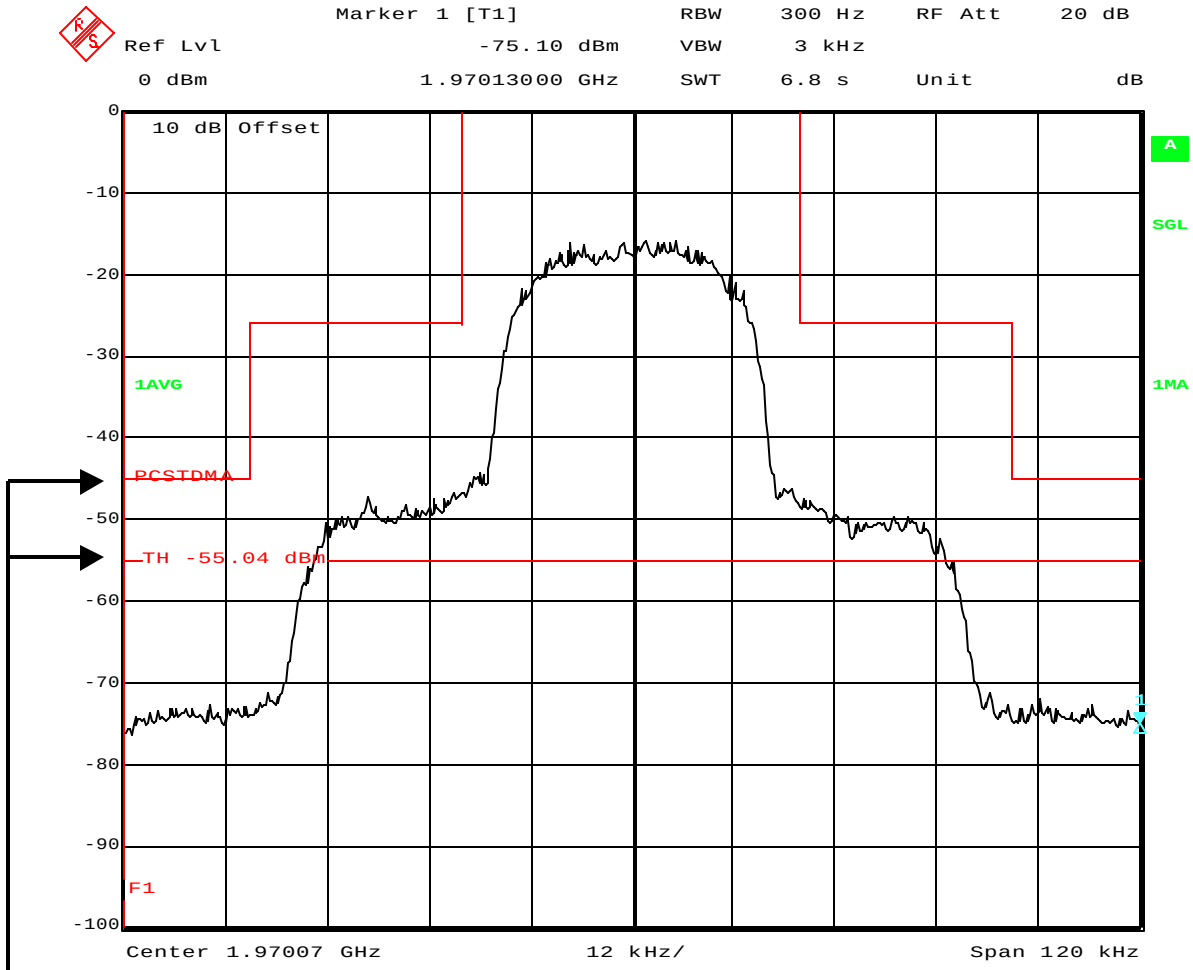
Occupied Bandwidth; Input ; Block F; AMPS Ch 83



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block F; PCS Ch 1335

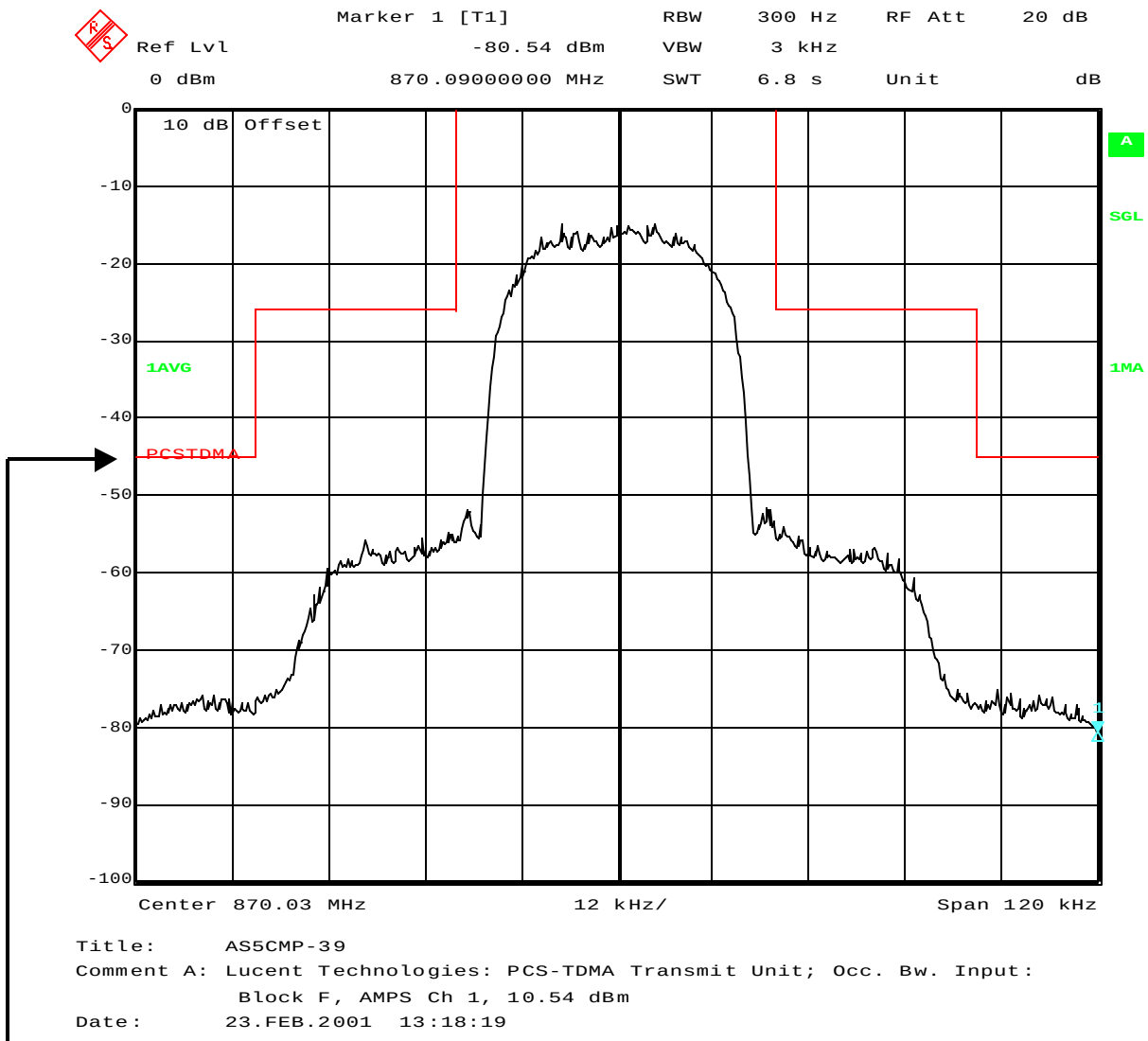


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Output : Block F, PCS Ch 1335, 16W (42.0 dBm)
Date: 23.FEB.2001 13:12:36

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

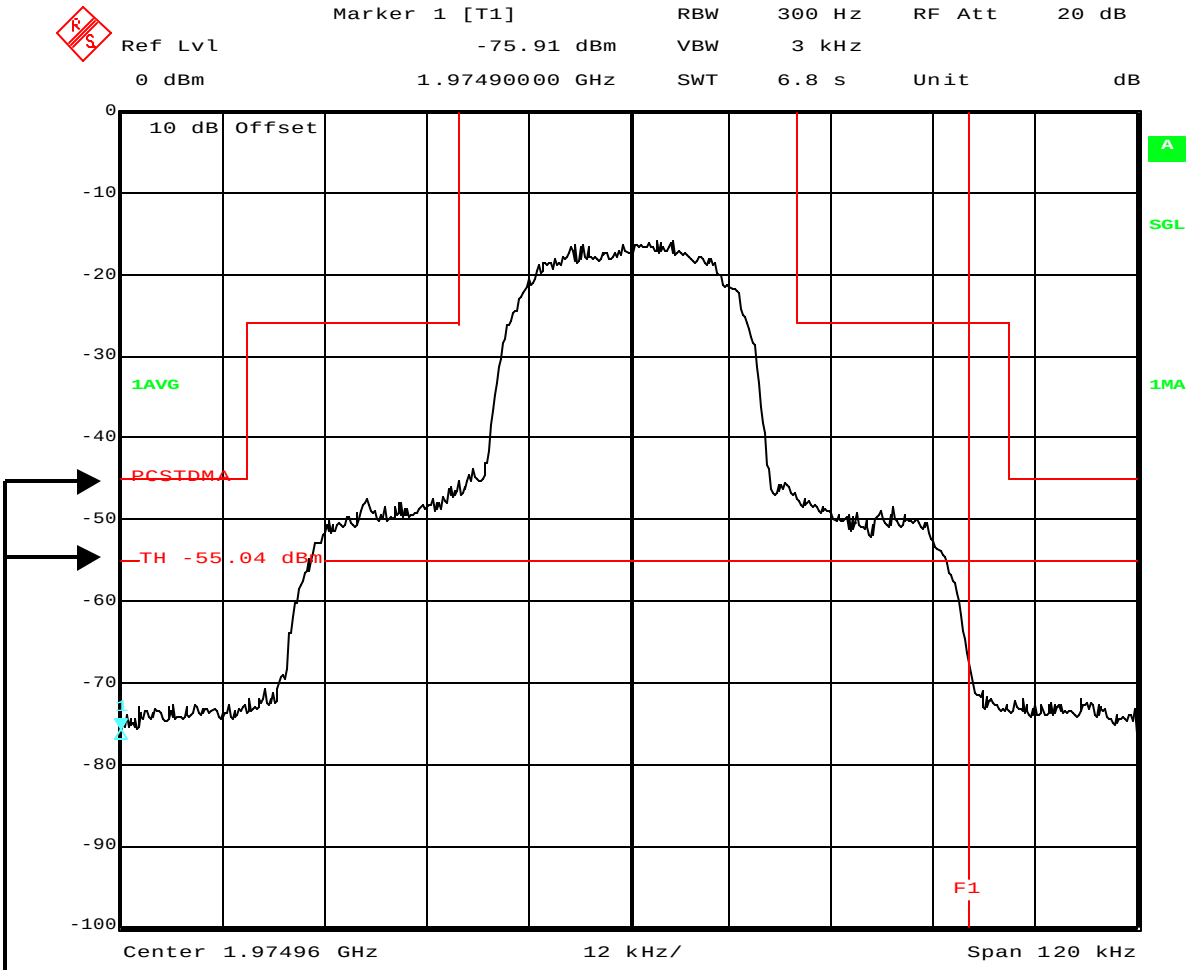
Occupied Bandwidth; Input ; Block F; AMPS Ch 1



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

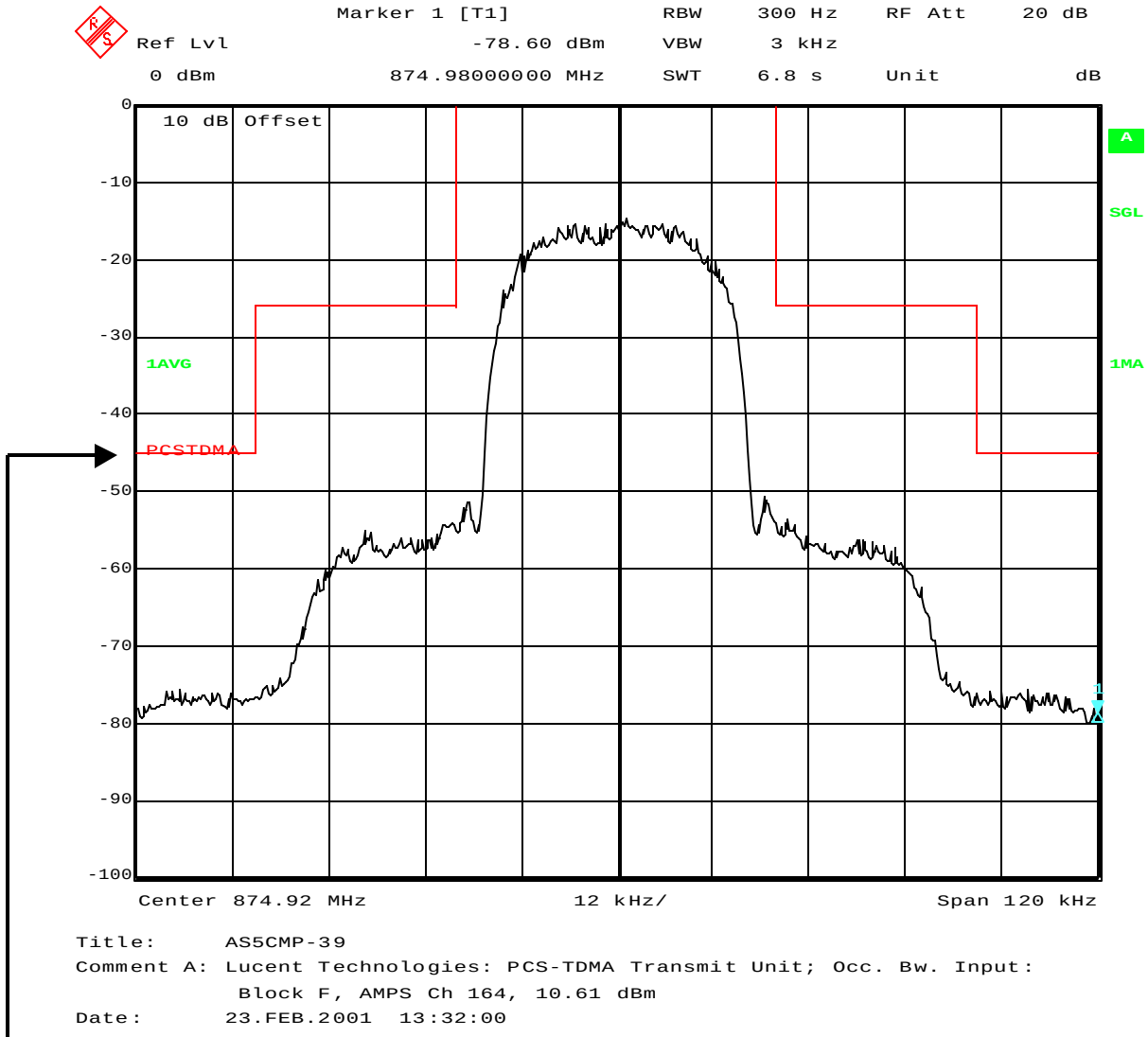
Occupied Bandwidth; Antenna Terminal; Block F; PCS Ch 1498



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

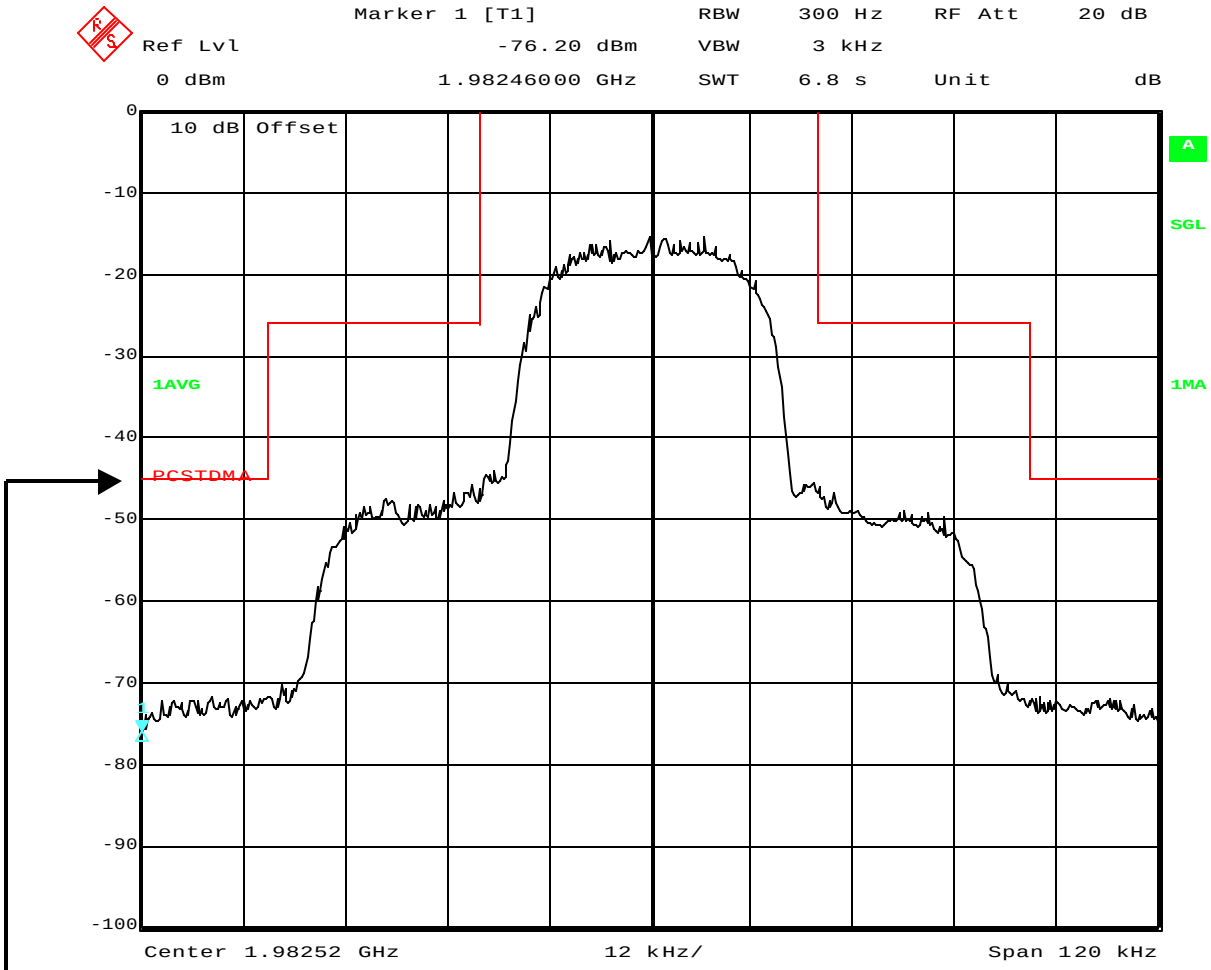
Occupied Bandwidth; Input ; Block F; AMPS Ch 164



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

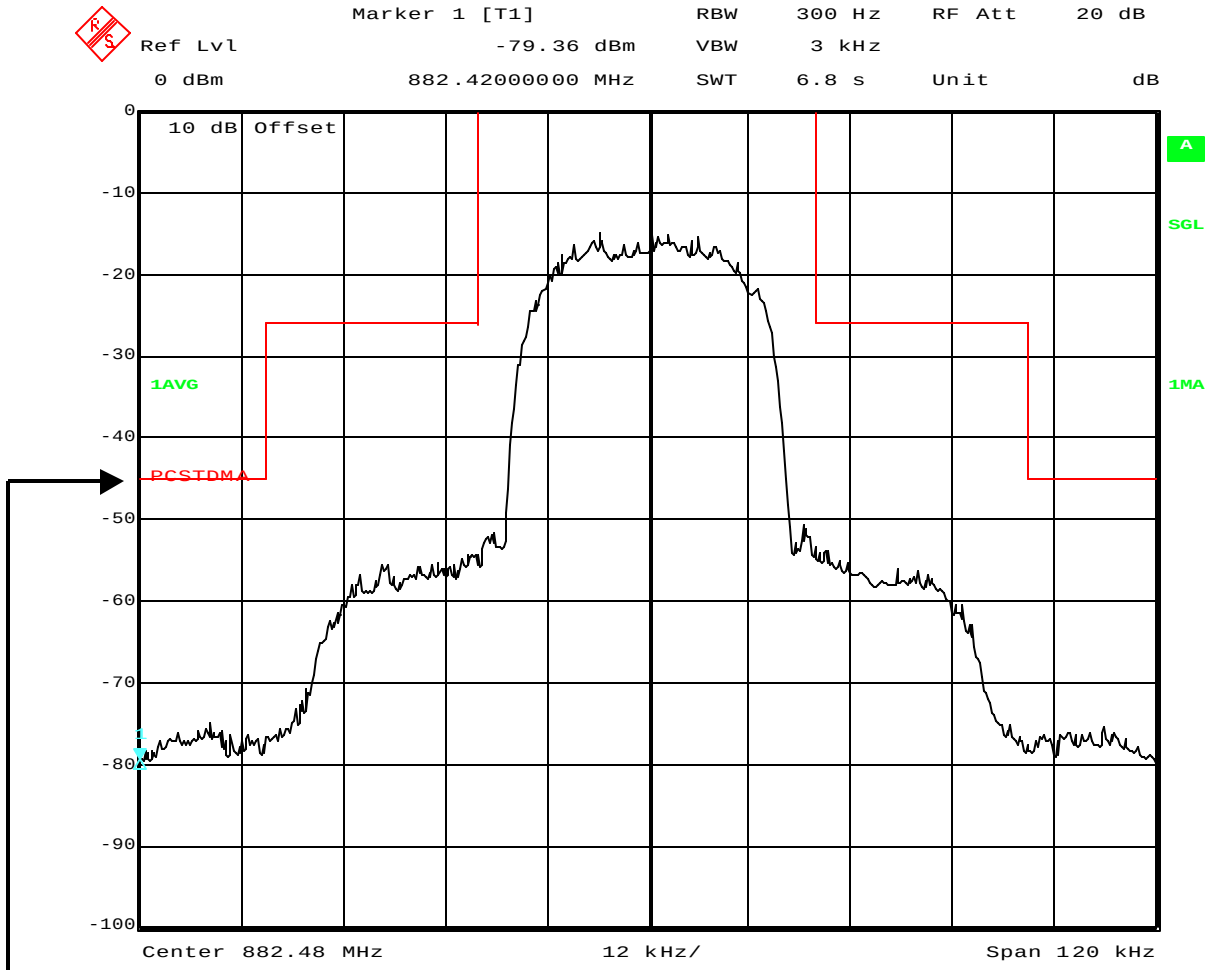
Occupied Bandwidth; Antenna Terminal; Block C; PCS Ch 1750



Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Input ; Block C; AMPS Ch 416

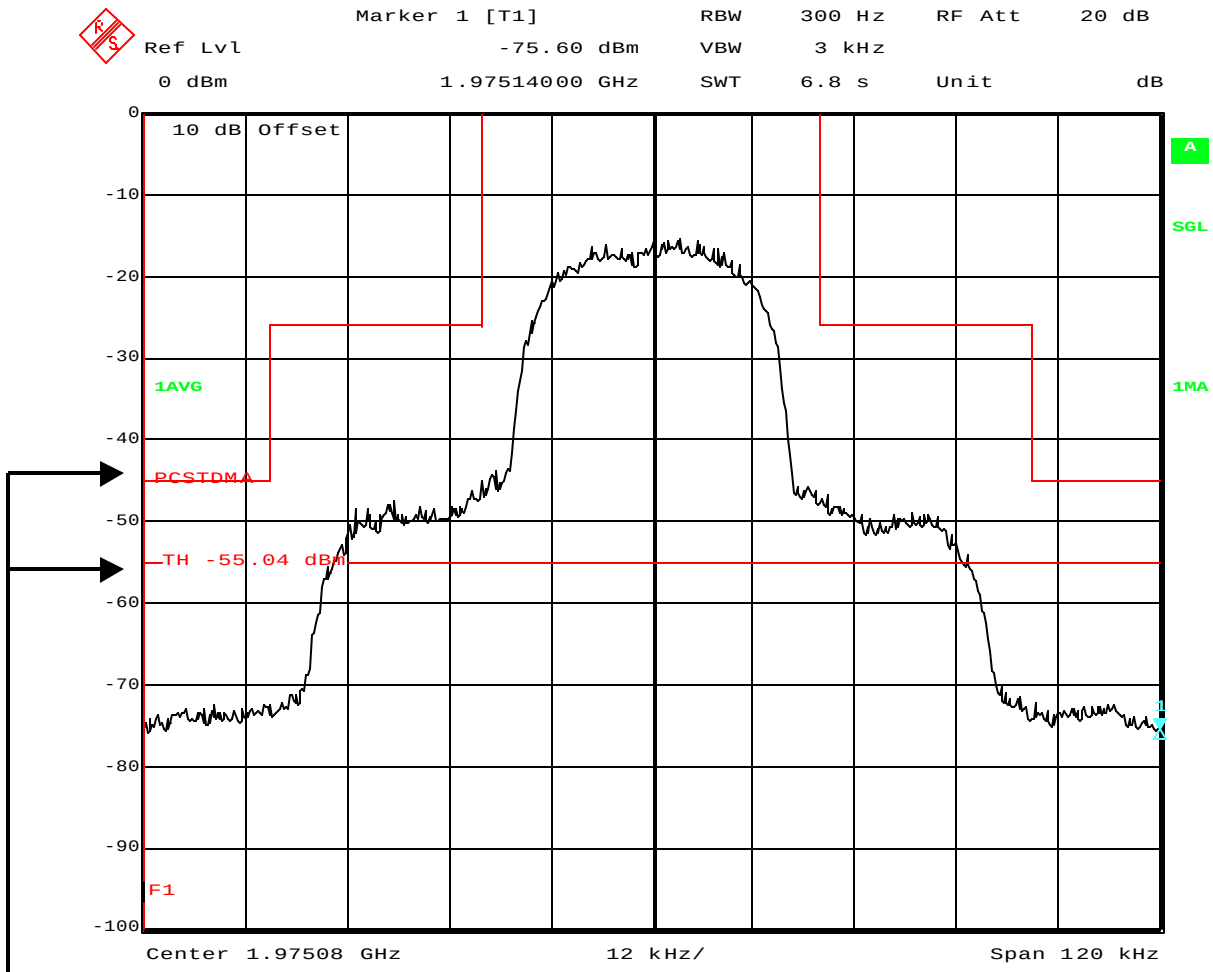


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Inut: Block C, AMPS Ch 416, 10.79dBm
Date: 23.FEB.2001 15:28:37

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block C; PCS Ch 1502

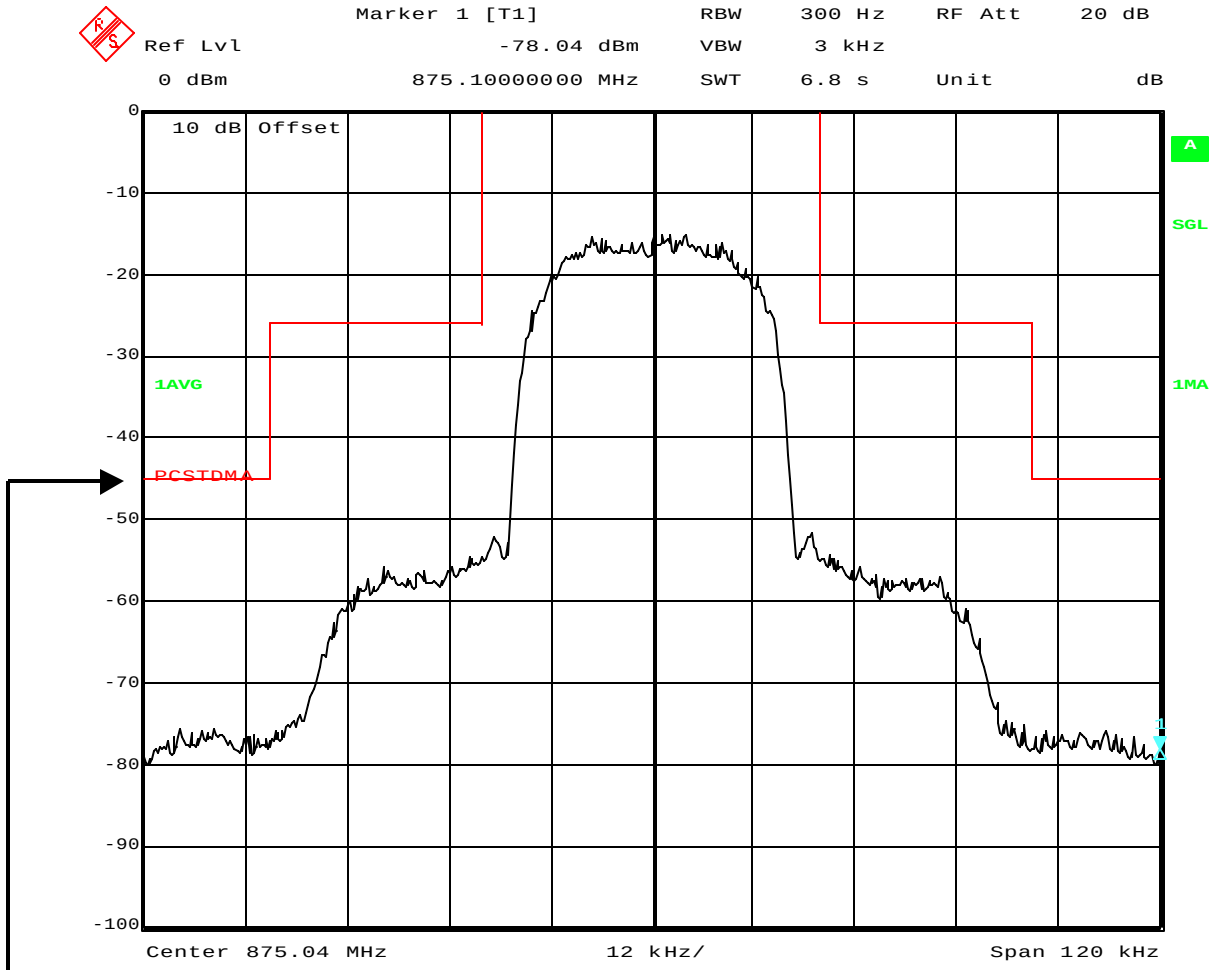


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Outut:
Block C, PCS Ch 1502, 16W (42.0 dBm)
Date: 23.FEB.2001 15:10:18

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Input ; Block C; AMPS Ch 168

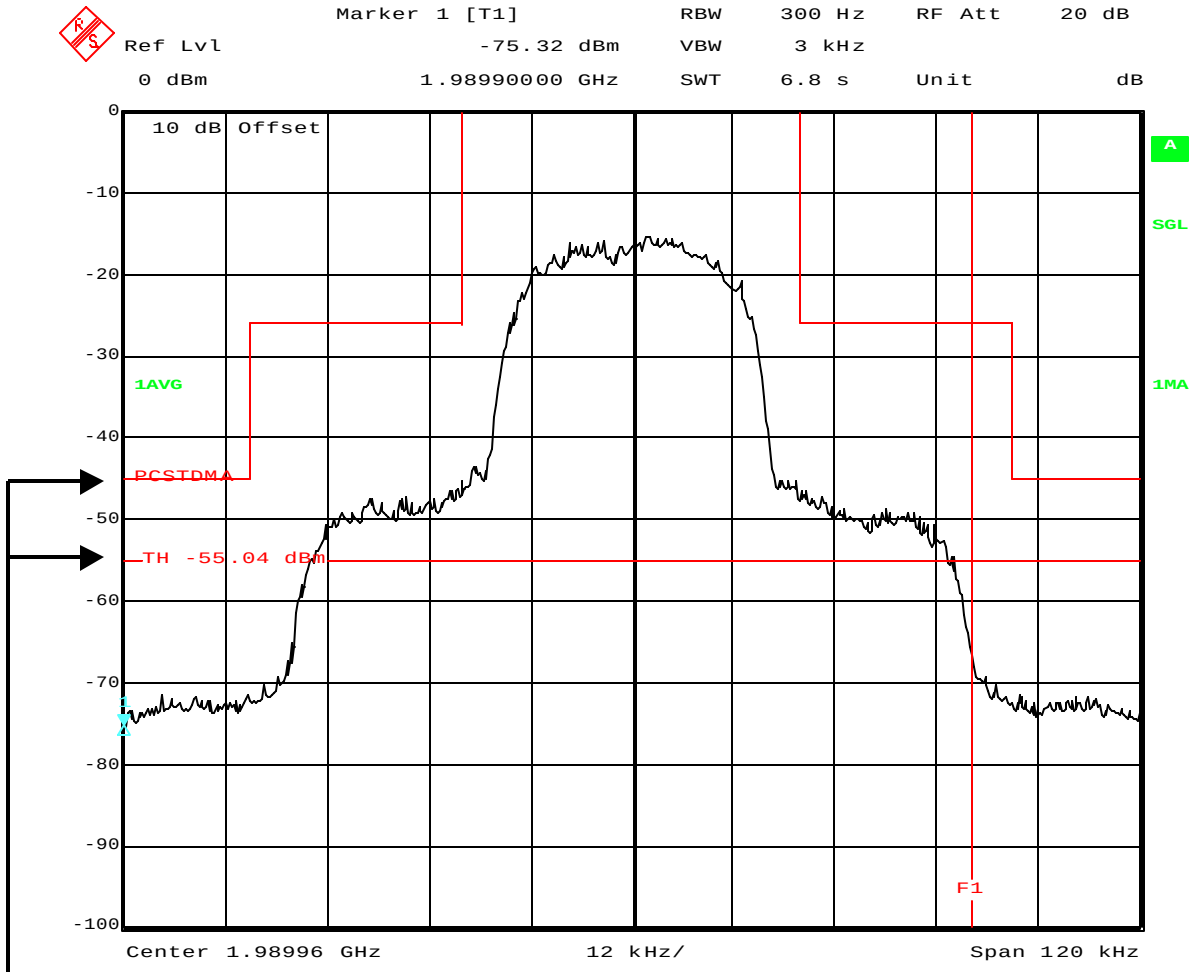


Title: AS5CMP-39
Comment A: Lucent Technologies: PCS-TDMA Transmit Unit; Occ. Bw. Inut: Block C, AMPS Ch 168, 10.86dBm
Date: 23.FEB.2001 15:24:19

Note: Ordinate is direct reading in dBc.

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Antenna Terminal; Block C; PCS Ch 1998

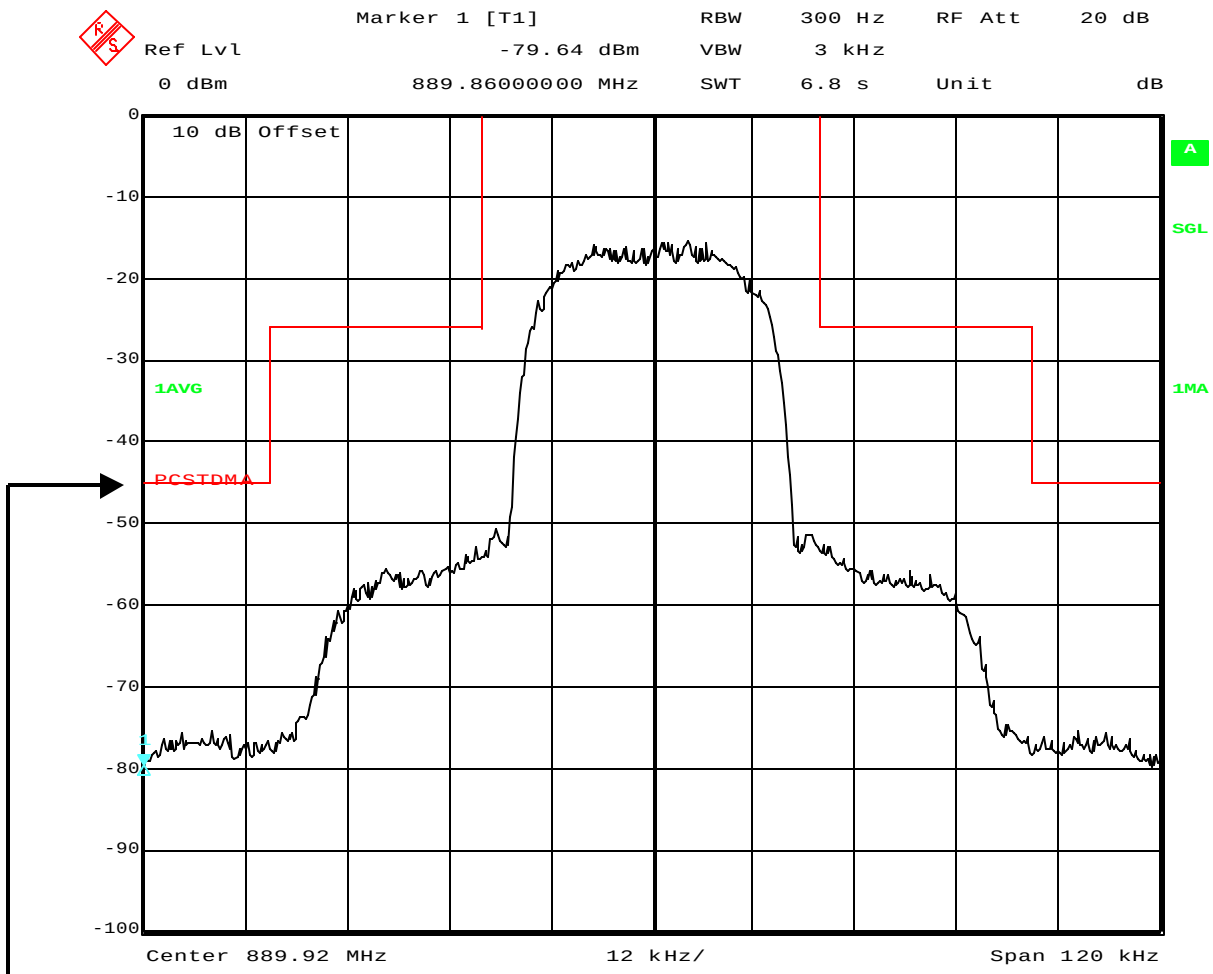


Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

Occupied Bandwidth; Input ; Block C; AMPS Ch 664



Note: Ordinate is direct reading in dBc.

APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

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 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 10^{th} 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 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.

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-39**

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)	664	889.92 MHz	664	1949.94 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-39**

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 2.1051 and with Part 24.238. The only reportable emissions between –13 dBm and –33 dBm, corresponding to 55 dBc and 75 dBc, respectively, are summarized in the table below. The only spurious signal detectable was the 3rd harmonic of the carrier.

PCS Frequency Block	Carrier Channel No.	Carrier Frequency MHz	Harmonic of the Carrier Measured	Emission Power Level	Passing Margin Relative to –13 dBm
D	664	1949.94	3 rd	-31.5 dBm	18.5 dB
B	668	1950.06	3 rd	-30.6 dBm	17.6 dB
E	1331	1969.95	3 rd	-31.4 dBm	18.4 dB
F	1498	1974.96	3 rd	-31.5 dBm	18.5 dB
C	1502	1975.08	3 rd	-31.7 dBm	18.7 dB
C	1998	1989.96	3 rd	-29.9 dBm	16.9 dB

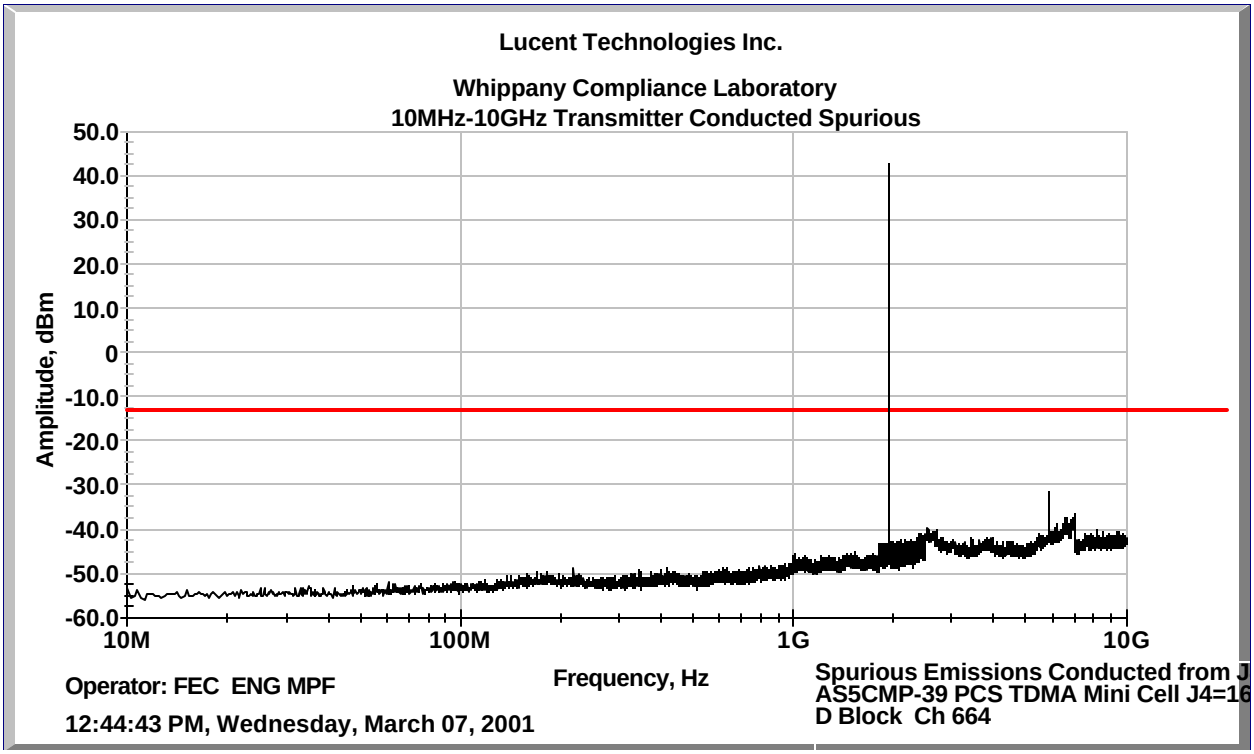
The 3rd harmonic emissions generated by A-Block Channels 2 and 498; D-Block Channel 502; B-Block Channel 1164; E-Block Channel 1168; and F-Block Channel 1335 were all suppressed greater than 20 dB below the required 55 dBc limitation.

As required, the data plots of the above 6 reportable emissions are included in this exhibit.

APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

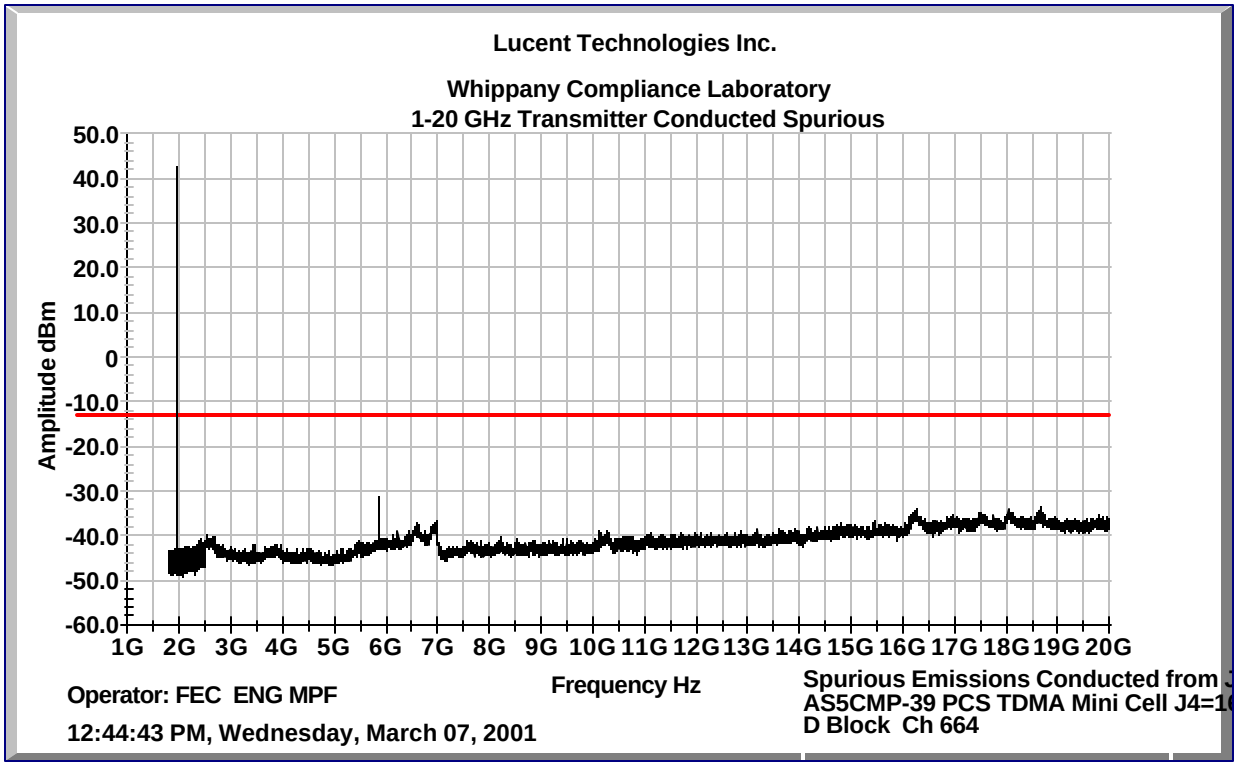
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block D; PCS Ch 664



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

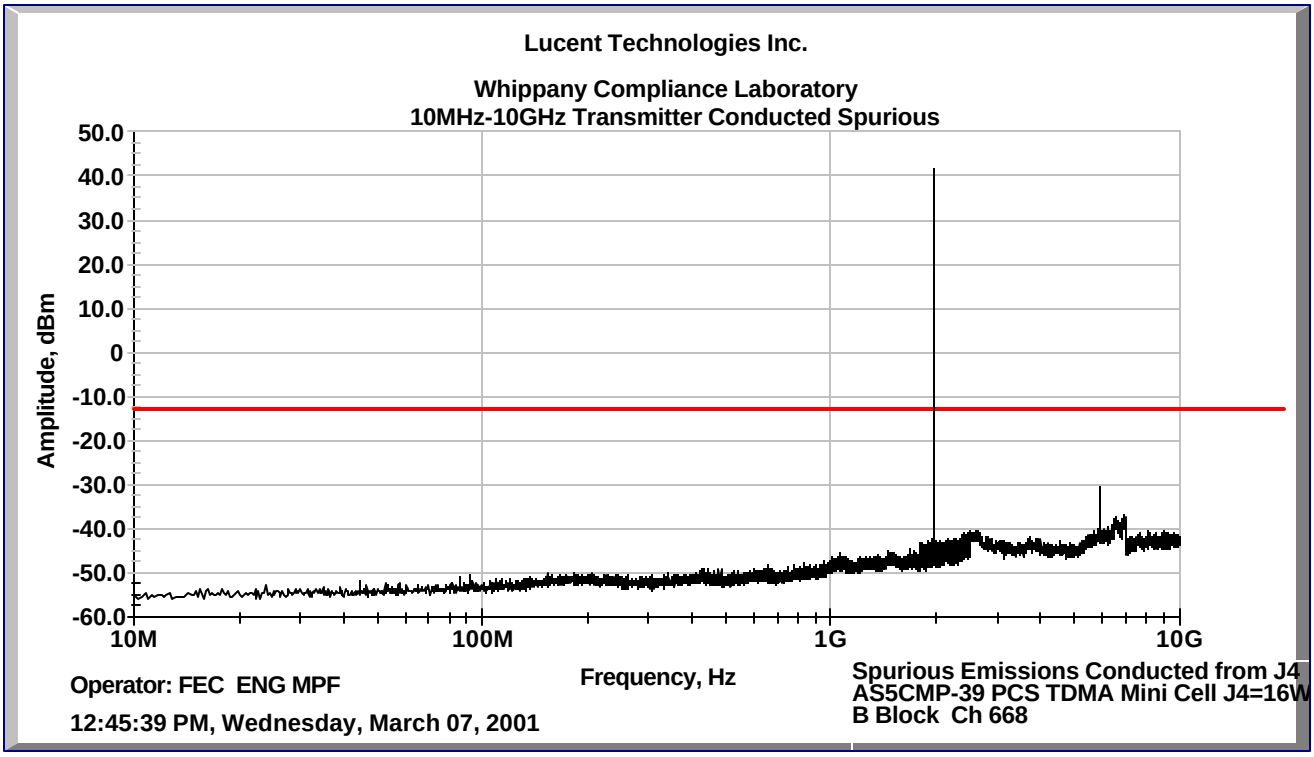
Conducted Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block D; PCS Ch 664



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

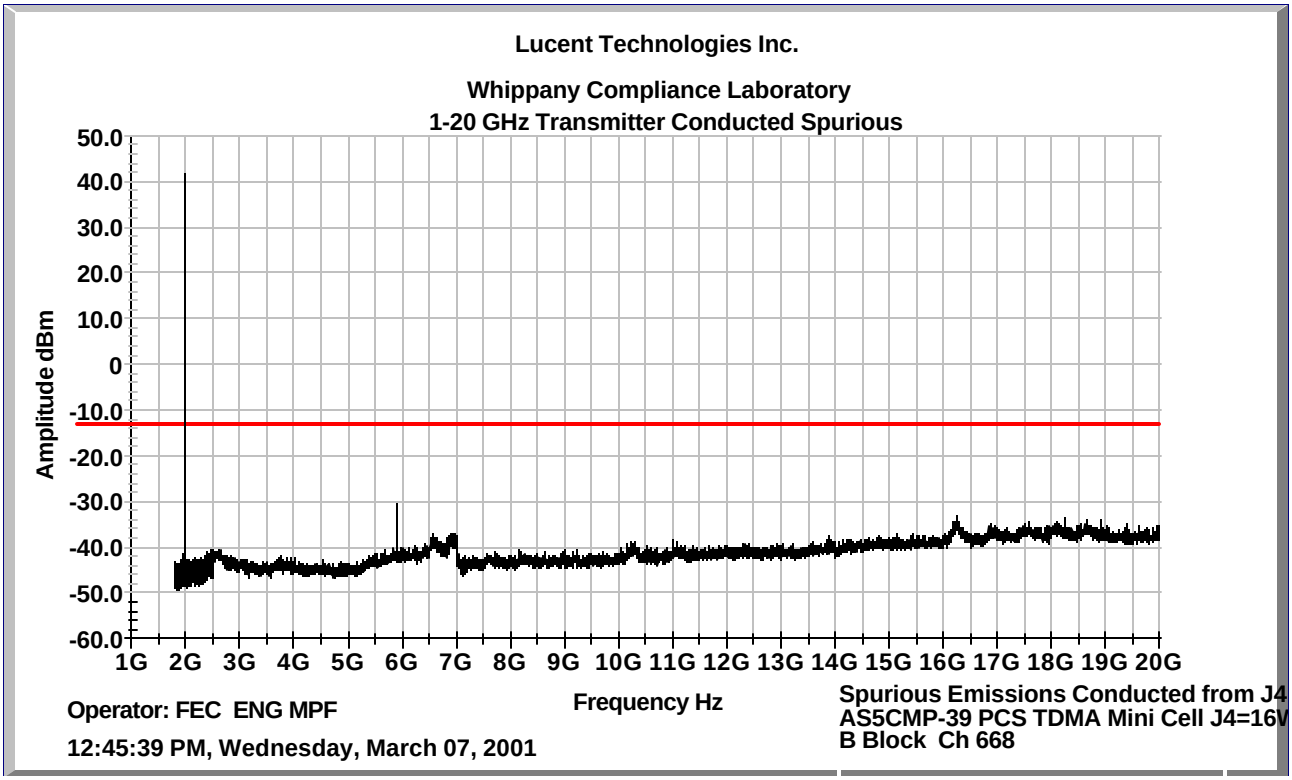
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block B; PCS Ch 668



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

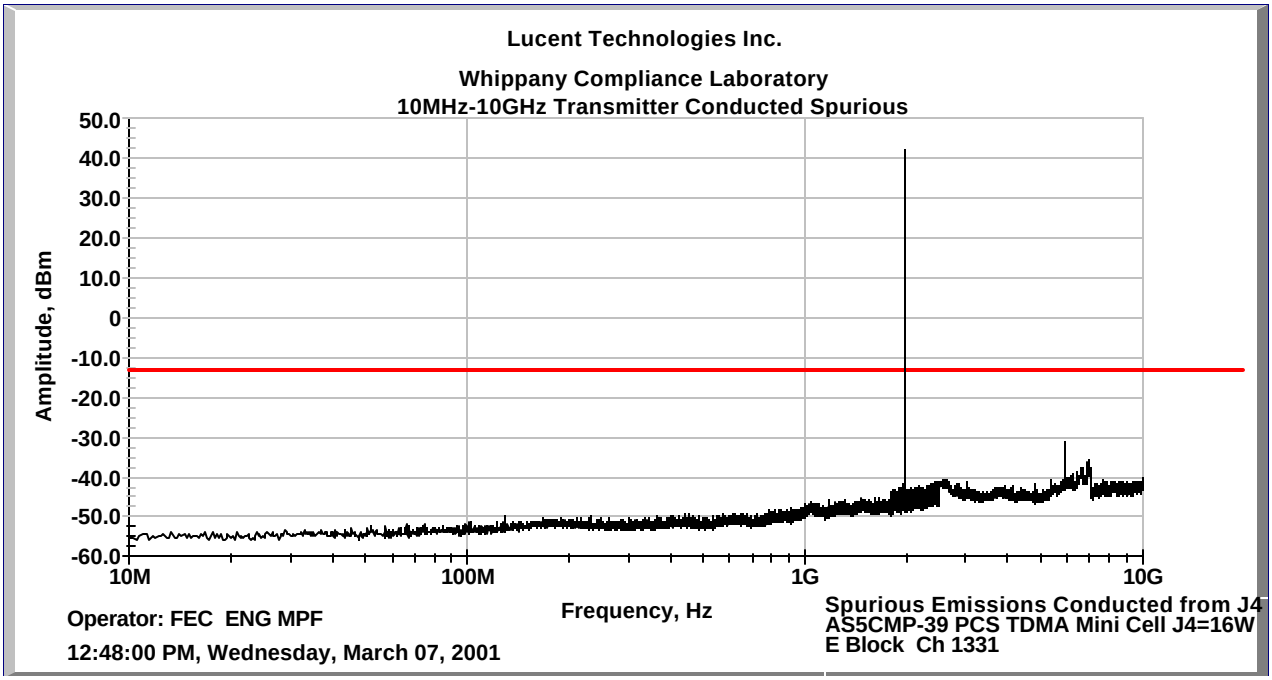
Conducted Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block B; PCS Ch 668



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

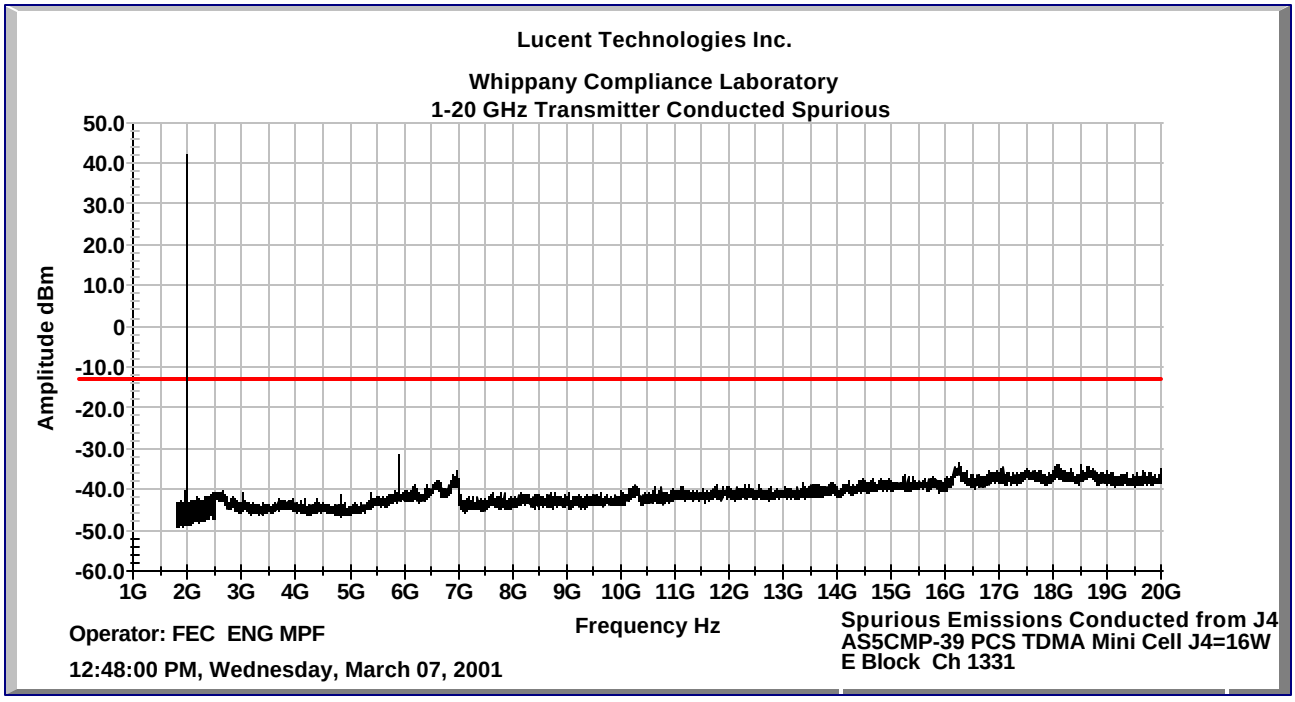
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block E; PCS Ch 1331



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

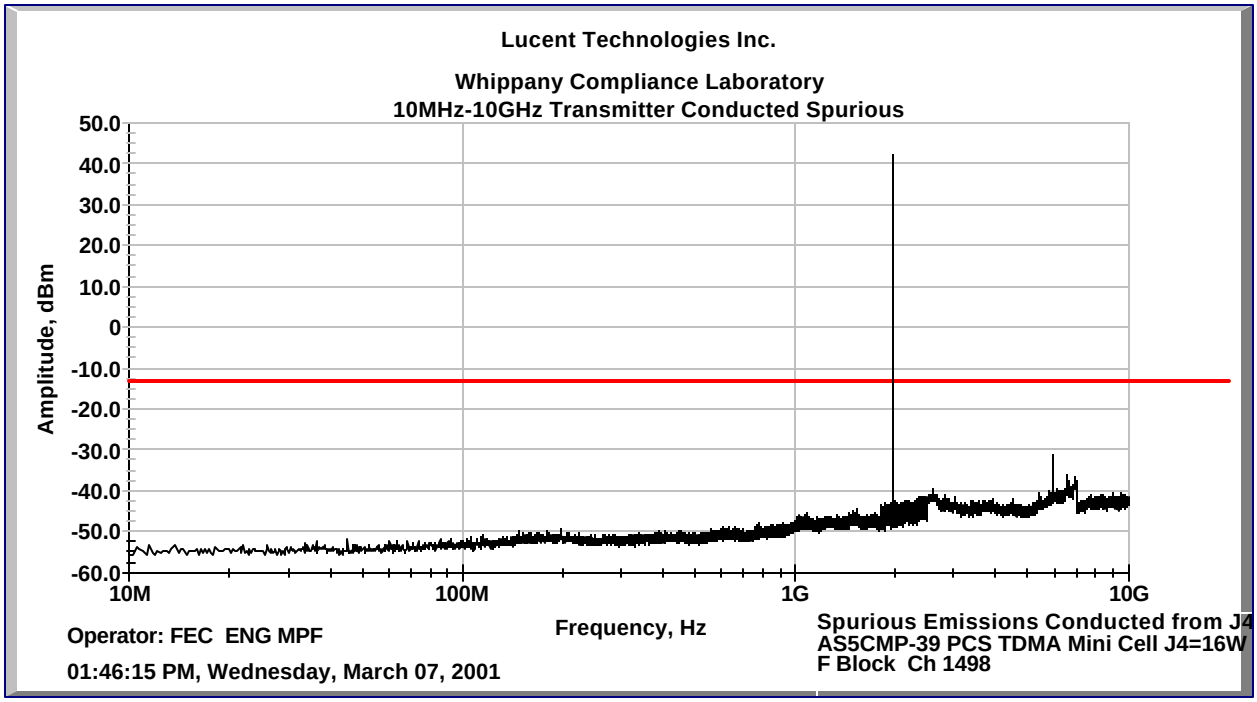
Conducted Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block E; PCS Ch 1331



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

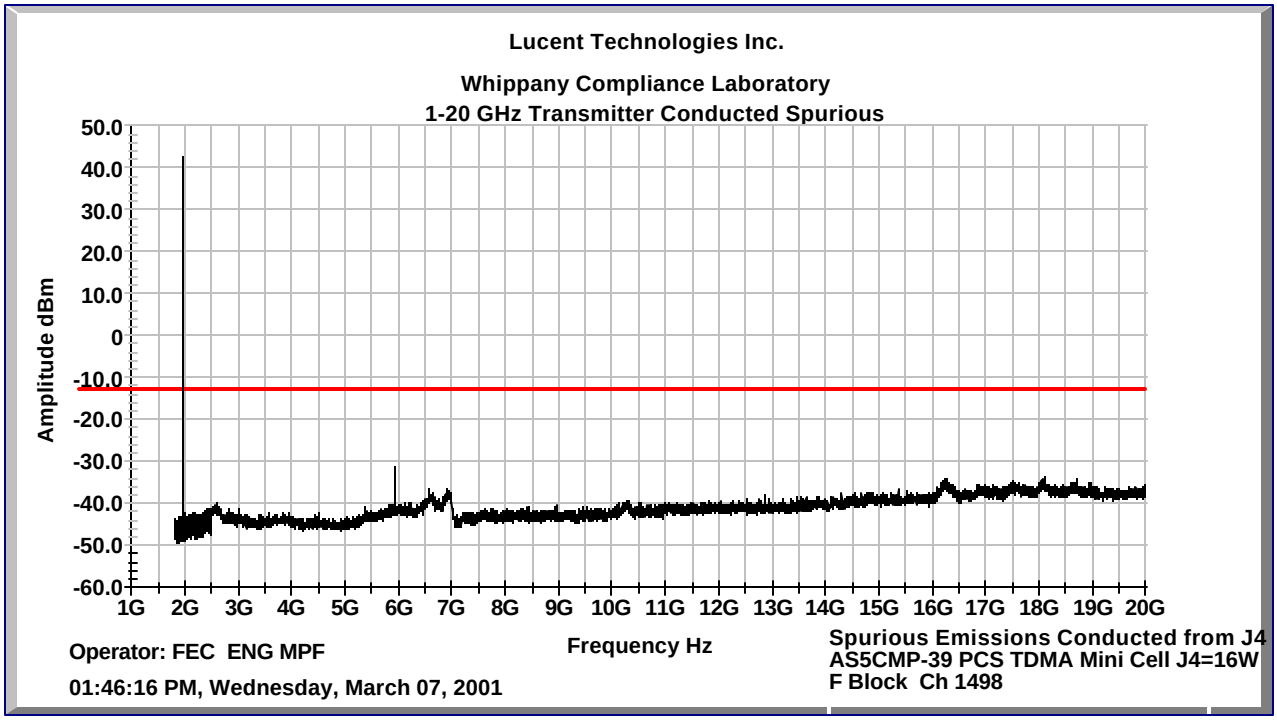
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block F; PCS Ch 1498



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

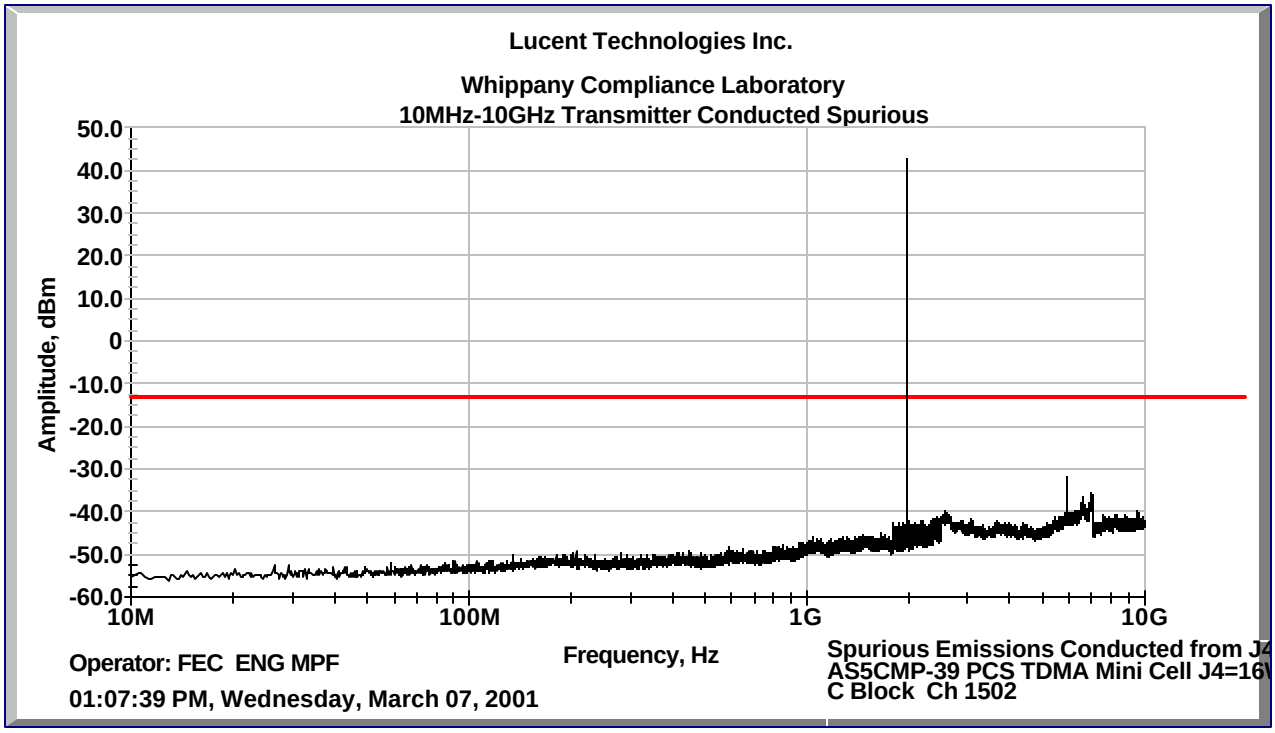
Conducted Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block F; PCS Ch 1498



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

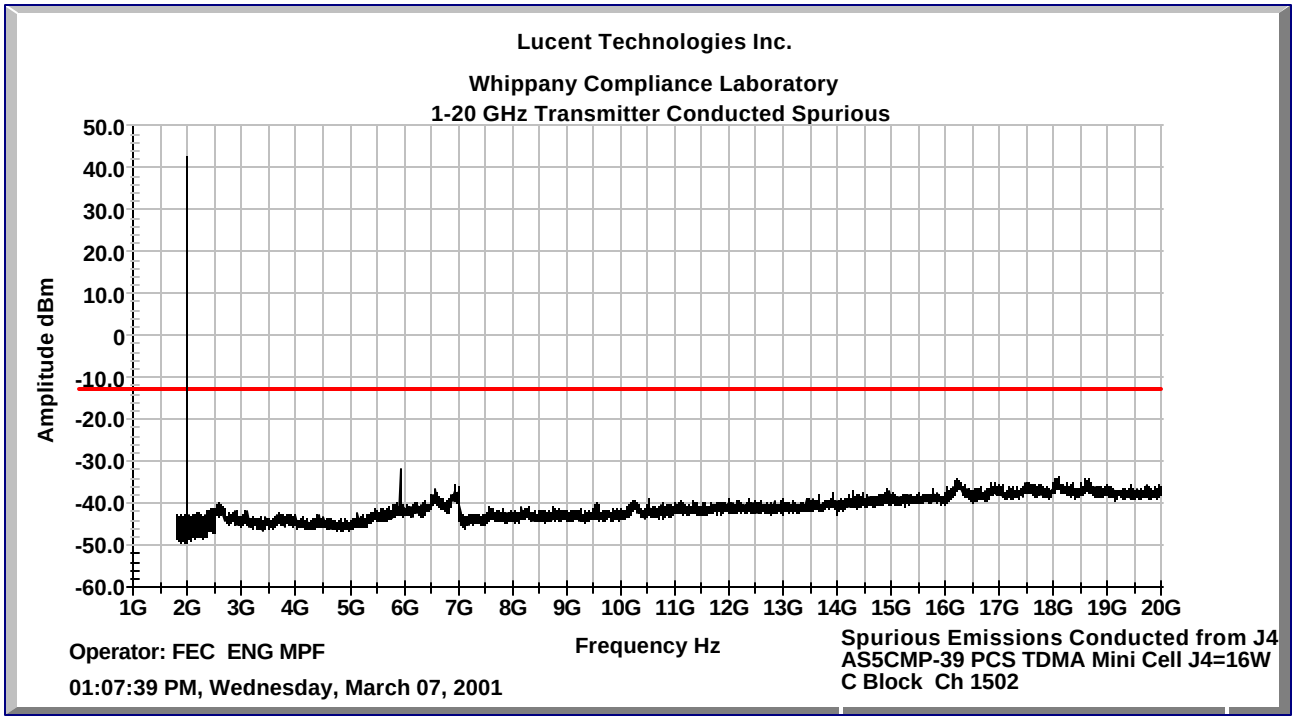
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block C; PCS Ch 1502



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

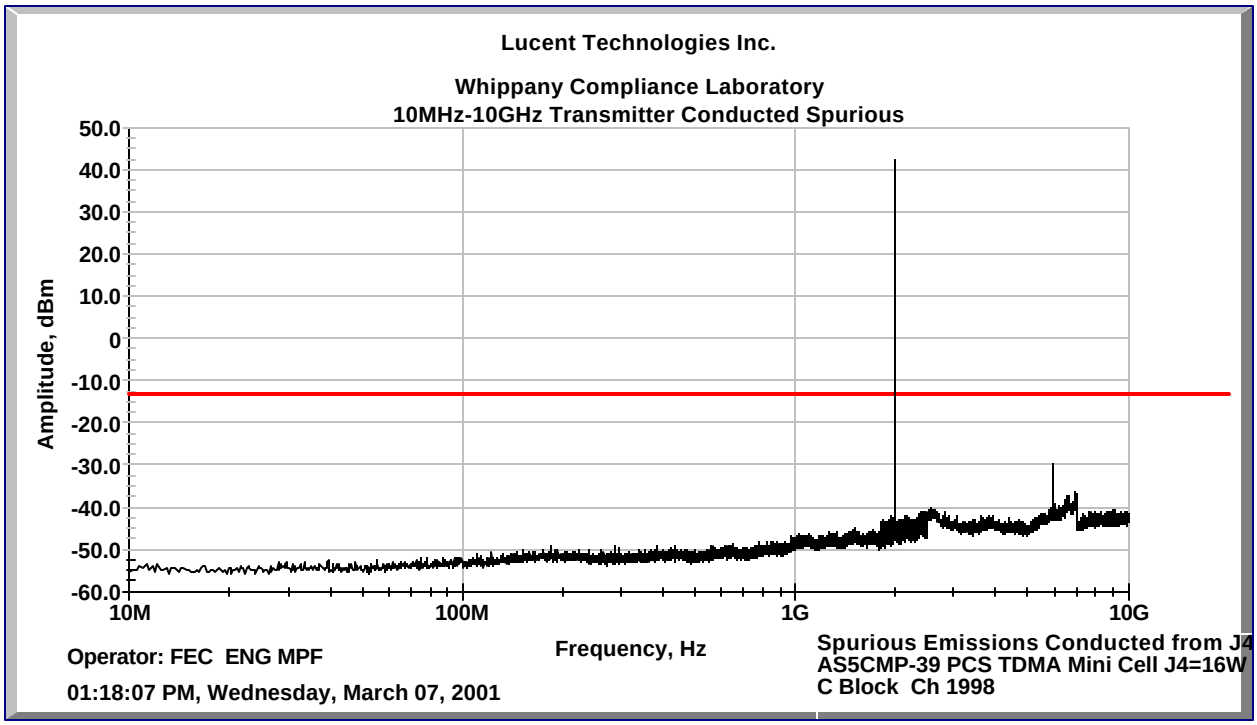
Conducted Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block C; PCS Ch 1502



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

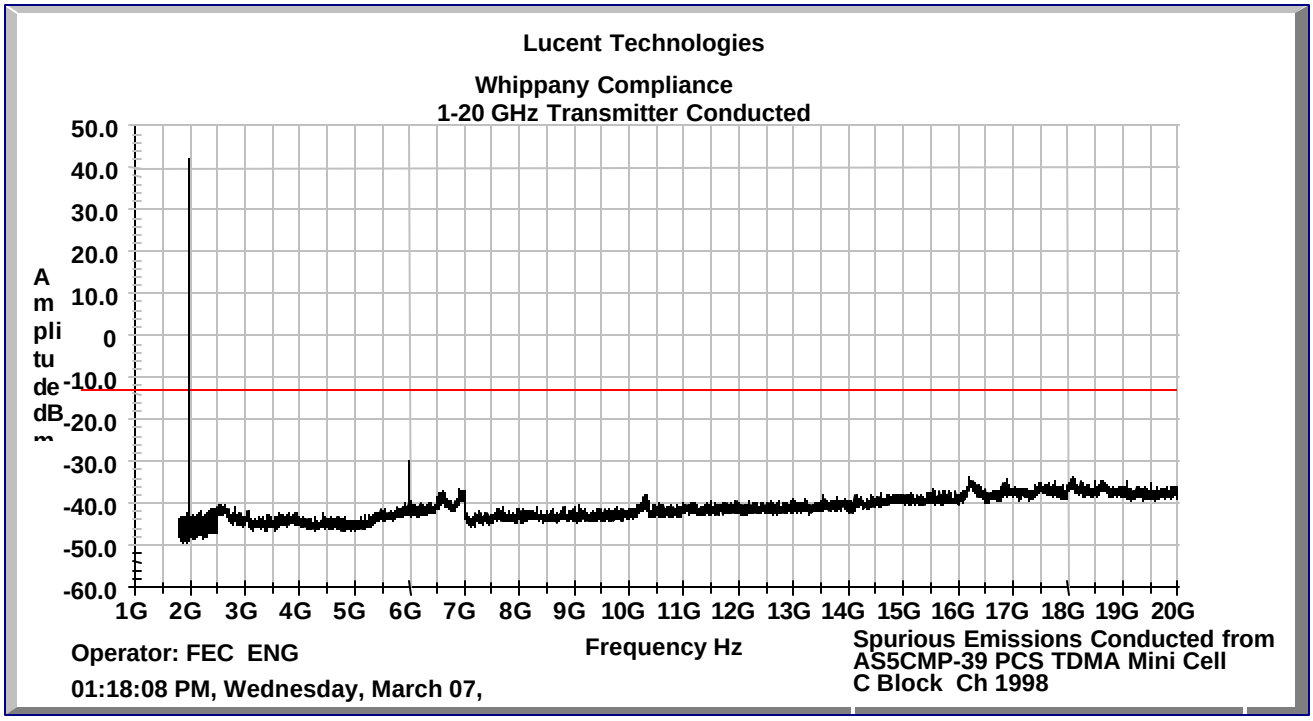
Conducted Spurious Emissions; Antenna Terminal; 10 MHz to 10 GHz; Block C; PCS Ch 1998



APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

EXHIBIT 10: TEST REPORT

Conductd Spurious Emissions; Antenna Terminal; 1.0 GHz to 20 GHz; Block C; PCS Ch 1998



APPLICANT: LUCENT TECHNOLOGIES FCC ID: AS5CMP-39

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. Limitations are based on attenuation below the carrier (dBc) using the formula 43 + 10 log (P Watts) = 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:

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

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

The required attenuation is:

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

The required limitation is then:

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

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-39, 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 strenghts that were substantially greater than 20 dB below the FCC limitation. Therefor, there are no reportable radiated spurious emissions.

APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

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-39, 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 °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°C, in +10°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 antenna terminal.

APPLICANT: LUCENT TECHNOLOGIES **FCC ID: AS5CMP-39**

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-39**

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	2.49E-03	1.95E-03	2.43E-03
- 20	1.64E-03	2.84E-04	9.77E-04
- 10	4.11E-04	1.75E-04	1.05E-03
0	4.94E-04	1.72E-04	1.48E-05
+ 10	2.75E-04	5.03E-05	4.14E-04
+ 20	2.16E-04	3.40E-04	3.23E-04
+ 30	1.42E-04	4.77E-04	5.89E-04
+ 40	2.49E-04	4.56E-04	1.92E-04
+ 50	5.42E-04	4.14E-05	5.12E-04

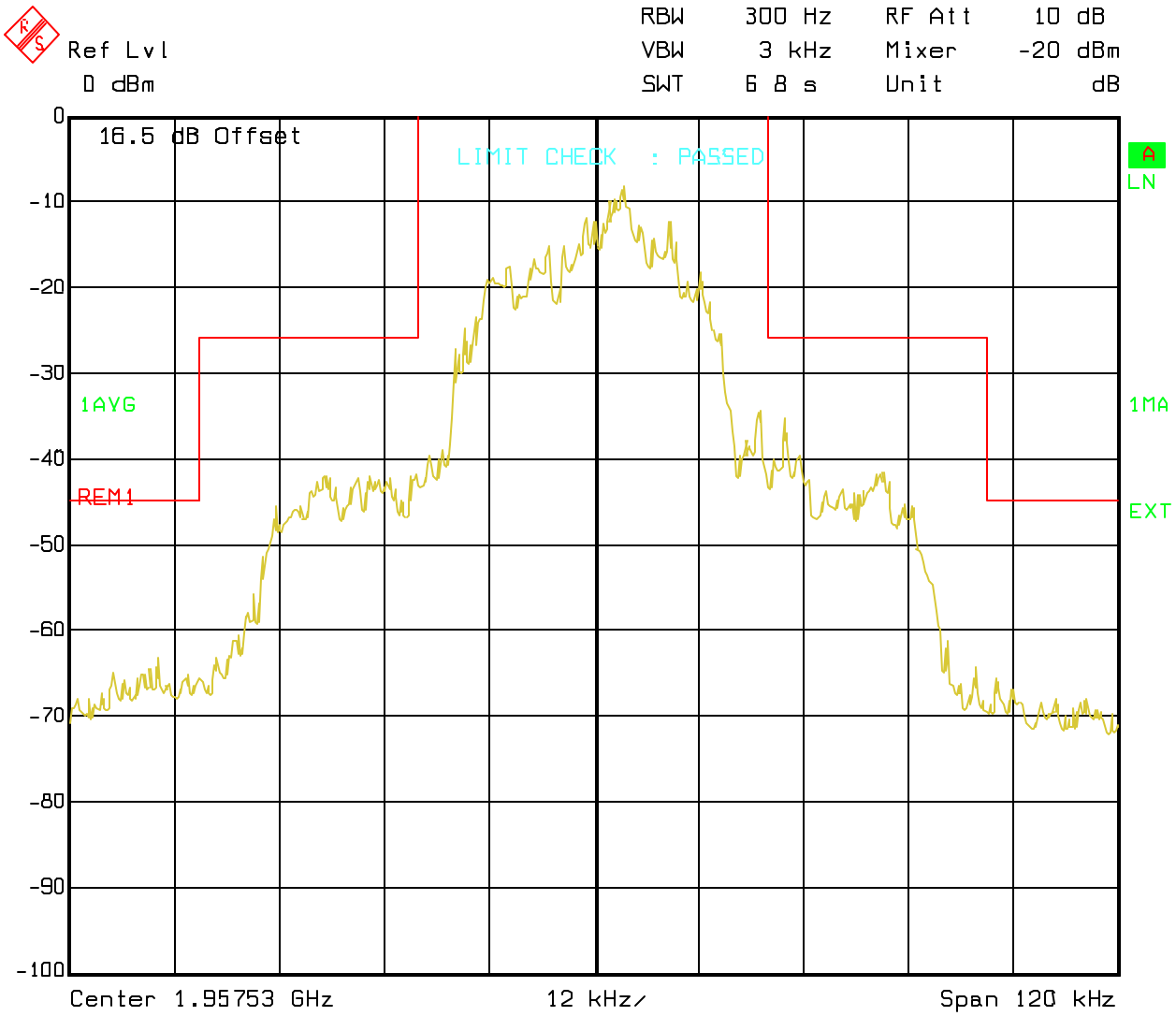
Crystal Reference Frequency Oscillator
Nominal Supply Voltage = 26.0 Vdc
85 % of Nominal Supply Voltage = 22.1 Vdc
115% of Nominal Supply Voltage = 29.9 Vdc

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	2.67E-03	2.32E-03	2.61E-03
- 20	9.84E-04	4.74E-04	1.69E-04
- 10	5.54E-04	5.54E-04	3.43E-04
0	4.71E-04	4.67E-04	6.36E-04
+ 10	2.75E-04	2.96E-04	6.54E-04
+ 20	5.27E-04	1.57E-04	6.96E-04
+ 30	5.74E-04	3.85E-05	1.66E-04
+ 40	3.26E-04	4.71E-04	9.18E-05
+ 50	7.52E-04	5.39E-04	6.16E-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-39**

EXHIBIT 10: TEST REPORT



Title: TTU SN Andrew-A146, File name A46M401B WMF
Comment A: 85% Voltage, Temp(C) -40, Oscillator Rb
FREQ. ERROR(PPM) 1.959E-3, EVM(%) 8.59187889,
Date: 15.MAY.2001 13:42:20