

TEST INSTRUMENTATION LIST

LISTING OF REQUIRED MEASUREMENTS
SECTION 2.1033 (c) (14)

MEASUREMENT PER SECTION 2.999 OF THE RULES

SECTION 2.1033 (c) (14)

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

RESPONSE:

The following pages include the data required for the Certification of the FCC ID: **AS5FLX-02**, measured in accordance with the procedures set out in Section 2.999 of the Rules.

Each required measurement and its corresponding exhibit number are:

Measurement: 1	Section 2.1046	RF Power Output
Measurement: 2	Section 2.1047	Modulation Characteristics
Measurement: 3	Section 2.1049	Occupied Bandwidth
Measurement: 4	Section 2.1051	Spurious Emissions at Antenna Terminals
Measurement: 5	Section 2.1053	Field Strength of Spurious Radiation
Measurement: 6	Section 2.1055	Measurement of Frequency Stability
	Section 2.1057	Frequency Spectrum to be Investigated
		Test Instrumentation List

Test Instrumentation List

Manufacturer	Model Number	Serial Number	Description	Last Cal. mm/yy	Cal Cycle Month
R&S	FSEK	830846/008	Spectrum Analyzer	6/99	12
R&S	CMD57	827519-005	Radio Communication Tester	5/00	12
HP	772D	2839A01072	Dual Direction Coupler	07/00	12
HP	8595E	3723U00854	Spectrum Analyzer	12/00	12
HP	8563E	3517A03567	Spectrum Analyzer	09/00	24
R&S	NRTZ44	835374/045	Power Meter	05/00	12
HP	8482A	3318A26143	Power Sensor	08/99	12
HP	E4406A	US39030280	Transmitter Tester	02/99	12
Fluke	PM6685R	SM668747	Frequency Counter	02/00	12
R&S	HFH2-Z2	880458/47	Loop Antenna 9 kHz - 30 MHz	01/00	12
A.R.A.	MWH-1826	1041	Horn Antenna 18 – 26 GHz	05/00	12
A.R.A.	MWH-2640	1021	Horn Antenna 26 – 40 GHz	05/00	12
EMCO	3141	9803/1089	Bikonilog Antenna 30 MHz – 2 GHz	11/00	12
R&S	HL025	320891/013	Log-Per Antenna 1 – 18 GHz	06/00	12
R&S	ESI40	837808/003	Receiver 20 Hz – 40 GHz	11/00	12
R&S	ESH3	872317/025	Receiver 9 kHz – 30 MHz	11/00	12

TEST REPORT

MEASUREMENT OF DC POWER OF FINAL STAGE AMPLIFIER
SECTION 2.1033(c) (8)

TEST REPORT**MEASUREMENT OF DC POWER OF FINAL STAGE AMPLIFIER****SECTION 2.1033(c) (8)**

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

RESPONSE: The TRX19HP nominally uses the following voltages and maximum currents:

Stage	Voltage	Current
Pre Amp	8Volts	381mA
Amplifier	26 Volts	500mA
Power Amp	26 Volts	3.18A

**MEASUREMENT OF
MODULATION CHARACTERISTICS**
SECTION 2.1047

MEASUREMENT: 2**SECTION 2.1047****MEASUREMENT OF MODULATION CHARACTERISTICS**

The modulation methods used in “Flexent GSM 1900 Transceiver” is called GMSK Gaussian Minimum Shift Keying are completely different from those used in FM Analog system. An optional slow frequency hopping is used in which operating frequency within the band changes only once for every TDMA frame. The methods used in evaluating modulation characteristics of the TRX19HP are described in the Draft GSM 05.05 European Standard (Telecommunication Series): “Digital Cellular Telecommunications System (Phase 2+); Radio Transmission and reception (GSM 05.05 Version 8.0.0 Released 1999)”.

1.0 Modulation Accuracy Section 4.6.1 of GSM 05.05

For any 148-bits subsequence of the 511-bits pseudo-random sequence, defined in CCITT Recommendation O.153 fascicle IV.4, the phase error trajectory on the useful part of the burst (including tail bits), shall be measured by computing the difference between the phase of the transmitted waveform and the phase of the expected one. The RMS phase error (difference between the phase error trajectory and its linear regression on the active part of the time slot) shall not be greater than 5° with a maximum peak deviation during the useful part of the burst less than 20° .

1.1 Required Results

TRX19HP was tested using CMD54/57/59 of Rohde and Schwarz a RF Test Instrument with Abis control. This equipment complies with test requirements indicated in prI-ETS 300 609-1 “Digital Cellular Telecommunications System (Phase 2); (Base Station (BSS) equipment specification, Part 1. Radio aspects (GSM 11.21 Version 4.13.0)” April 1999. The measured modulation phase error was less than 5 degrees.

2.0 Spectral Characteristics (Spectrum due to Modulation)

Figure A. 6a: PCS 1900 BTS Modulation and Noise Spectrum due to GMSK modulation.

2.1 Measured Results

The results are presented as plots for upper and lower edges and center channel for each Band in attachment Measurement 3: “Measurement of Occupied Bandwidth”.

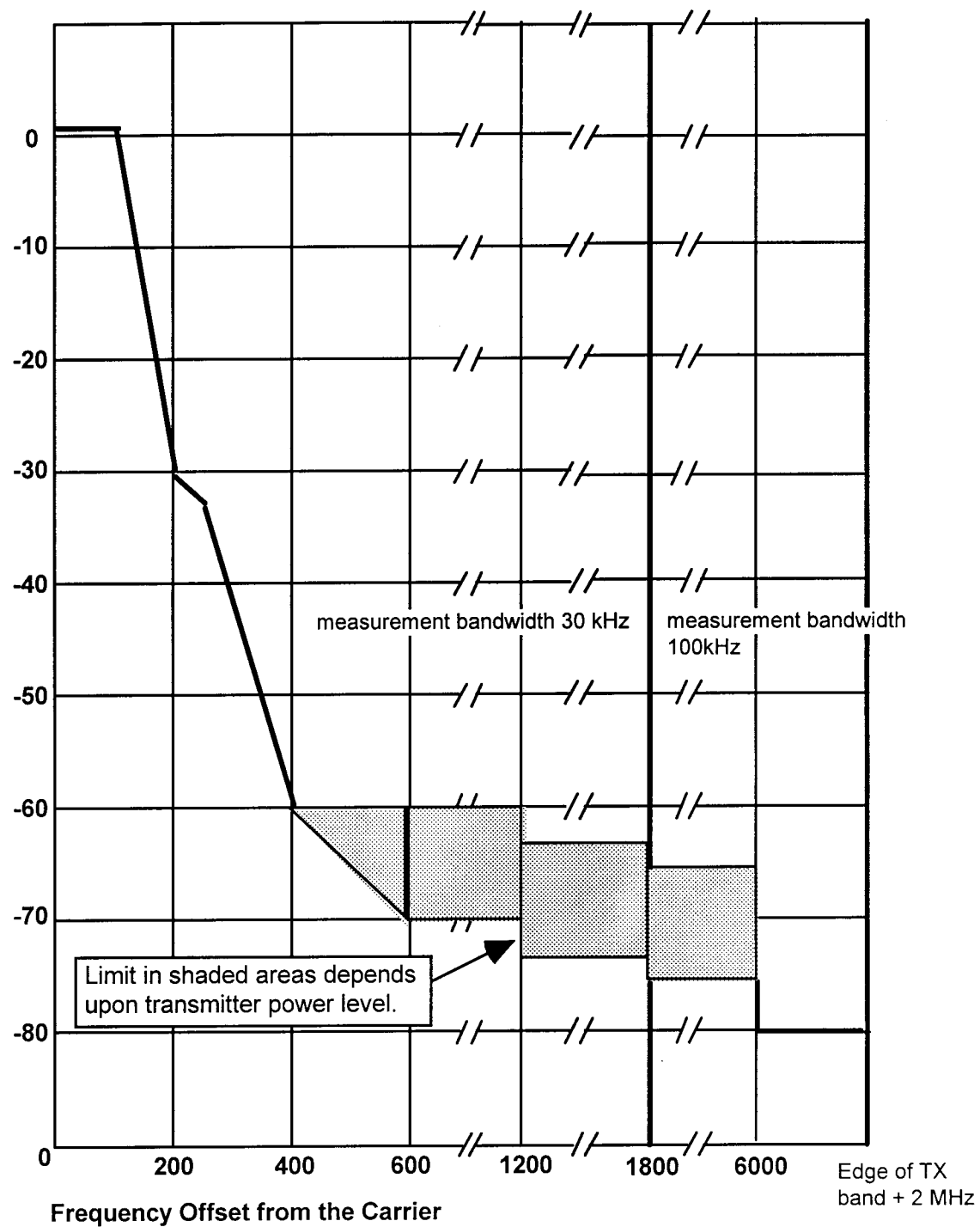


Figure A.6a: PCS 1 900 BTS Modulation & Noise Spectrum Mask due to GMSK modulation

FIELD STRENGTH OF SPURIOUS RADIATION
SECTION 2.1053

MEASUREMENT: 5**SECTION 2.1053****FIELD STRENGTH OF SPURIOUS RADIATION**

Both preliminary and final field strength measurements were made at a 10 m Absorber Lined FCC approved Compliance Chamber at the European Compliance Laboratory of Lucent Technologies at Nuernberg, Germany. A complete description and full measurement data for the site is on file with the Commission.

The TRXHP19s were assembled in a Flexent GSM Macrocell Cabinet. Each TRXHP19's were operating on different frequency blocks. The TRXHP19's were operating at a RF output level of 80 watts. The following configurations were tested:

(a) 4x4x4, (b) 3x3x3, (c) 2x2x2 and (d) 1x1x1. The output terminals (J4) were terminated with 50 ohm load. The spectrum from 10 MHz to the 10th harmonic of the carrier was searched for spurious radiation. Measurements were made according to ANSI C63.4. All emissions more than 20 dB below the specification limit were considered not reportable (Section 2.1057(c)). The calculated emission levels were found by:

Measured level (dBμV) + Cable Loss(dB)+Antenna Factor(dB) = Field Strength (dBμV/m)

Section 24.238 and 2.1053 contains the requirements for the levels of spurious radiation as a function of the level of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an ideal isotropic antenna excited by the transmitter output power of 80 W according to the following relation taken from Reference Data for Radio Engineers, page 27-7, 6th edition, IT&T Corp.

$$E = [(30 \cdot P)^{1/2}] / R$$

$$20 \log (E \cdot 10^6) - (43 + 10 \log P) = 82.2 \text{ dB}\mu\text{V/meter}$$

E = Field Intensity in Volts/meter

P = Transmitted Power in Watts

R = Distance in meters = 3 m

RESULTS:

For this particular test, the field strength of any spurious radiation is required to be less than 82.2 dBμV/meter. Reportable measurements are equal to or greater than 62.2 dBμV/meter. Over the spectrum investigated, 10 MHz to the 10th of the carrier, no reportable spurious emissions were detected. This demonstrates that the " Flexent GSM 1900 Transceiver (TRXHP19)", a single Radio Frequency Unit the subject of this application, complies with Sections 2.1053, 24.238 and 2.1057 of the Rules.

MEASUREMENT: 6

MEASUREMENT OF FREQUENCY STABILITY

MEASUREMENT: 6**SECTION 2.1055****MEASUREMENT OF FREQUENCY STABILITY****RESPONSE:**

The frequency stabilization and accuracy of the GSM signal amplified by the TRXHP19 is a function of reference frequency generator used by the Voltage Controlled Oscillator (VCO). The reference frequency generator is highly accurate frequency unit which is phase-locked with VCO of the TRXHP19. Any change reference frequency generator will affect the output frequency of TRXHP19.

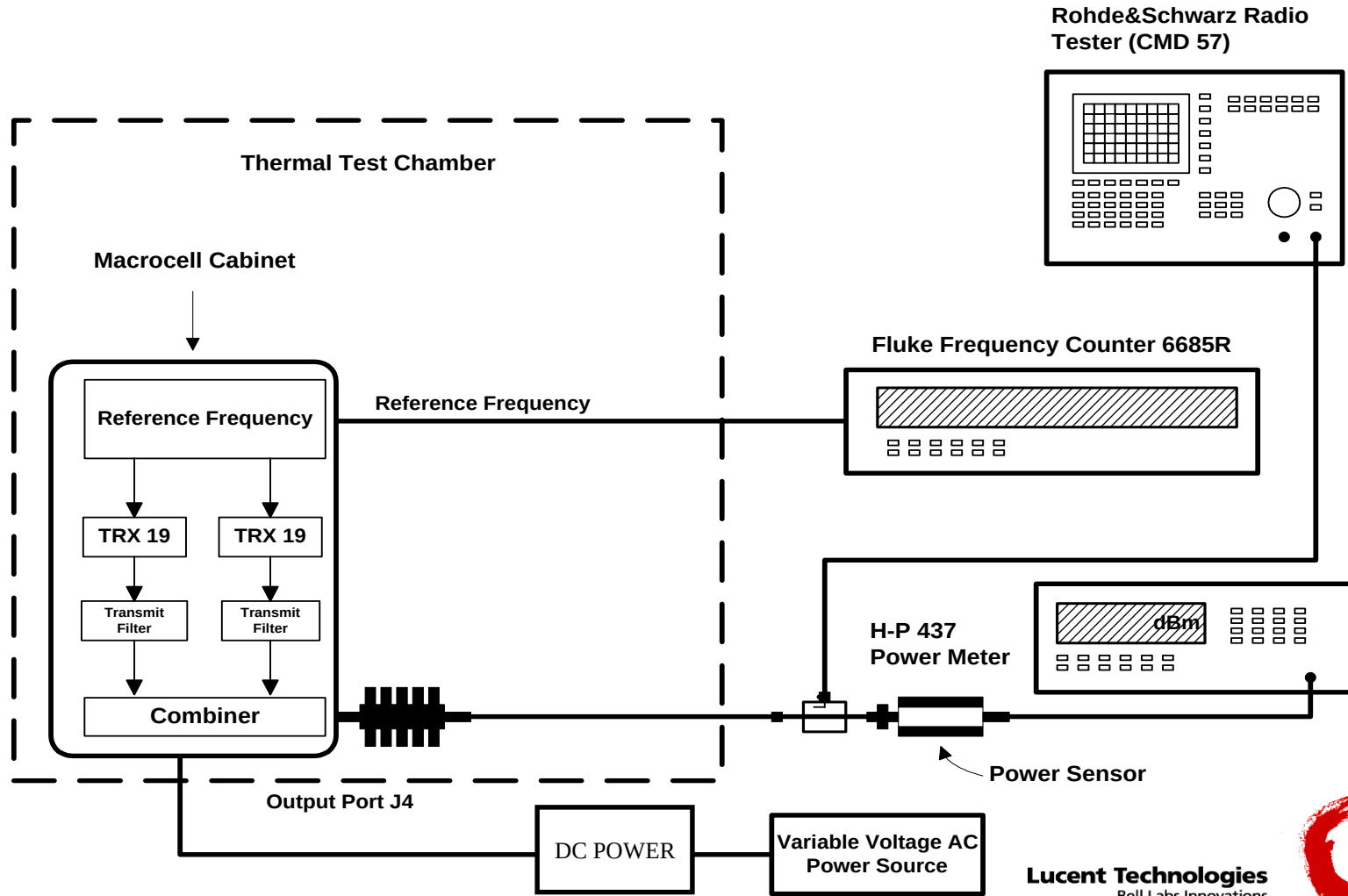
The frequency stability test data was measured TRXHPs installed and tested in a fully configured Flexent GSM indoor Macrocell Cabinet. The entire Macrocell Cabinet was subjected to the FCC specified environments while operating at full rated power. The 13 MHz reference oscillator deviations TRX19 output power frequency deviations were measured. The measurement setup is depicted in Figure 6 A. The TRXHP19 operates from 54V DC power supply and it is capable of operating in temperature range -15C to 55C. Below -15C, the TRXHPs shuts down by temperature sensors and software control. Therefore temperature stability characteristics are not measured below -15C. The low temperature shut down procedure is explained in following pages.

RESULTS:

The required frequency stability over temperature and voltage is 0.05 ppm. The attached measured data documents shows that the worse case frequency stability over temperature and voltage as 0.046 ppm.

TEST CONFIGURATION FOR FREQUENCY STABILITY

Lucent Technologies - Proprietary
Use pursuant to Company Instructions



LOW TEMPERATURE SHUT DOWN PROCEDURE

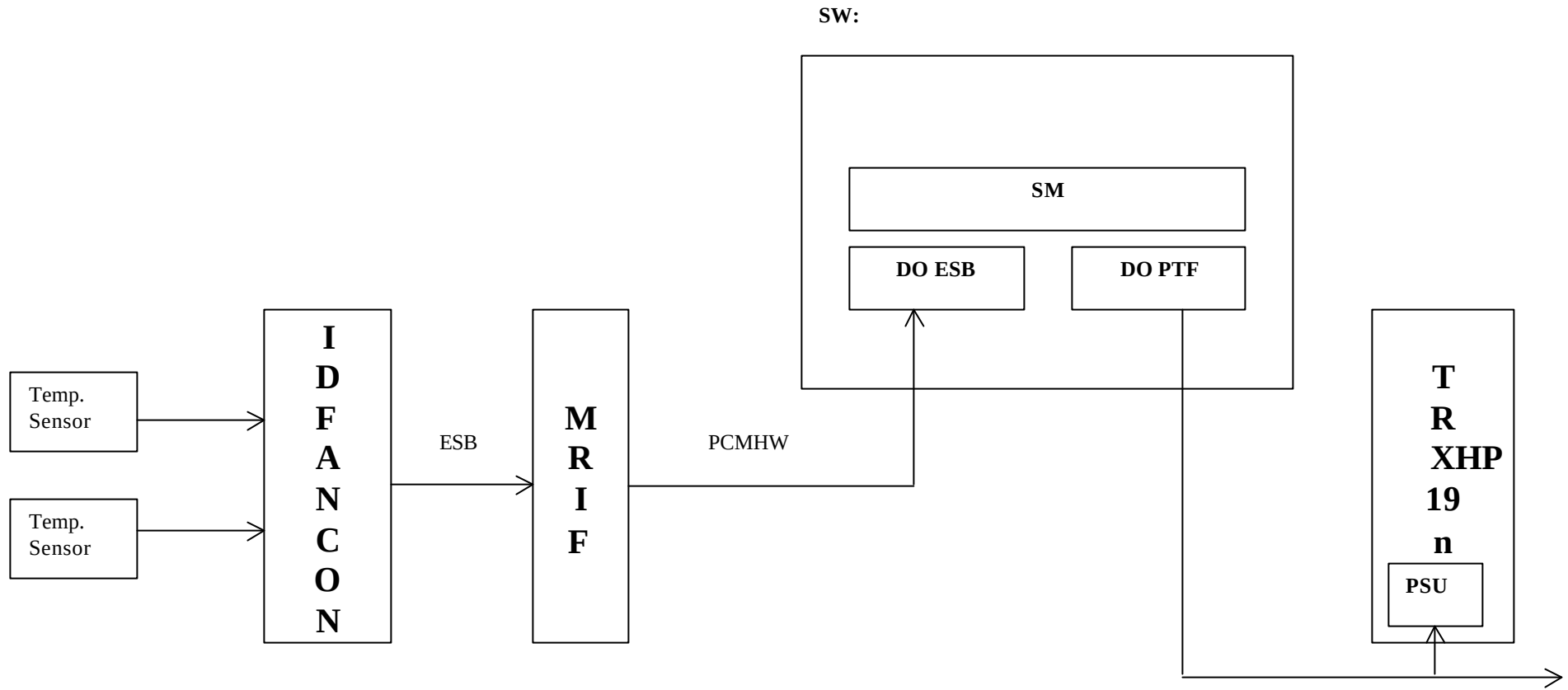
A signal flow diagram is attached to show the functionality with arrowheads.

In the indoor cabinet two temperature sensors are fitted in the door to measure the incoming air temperature. Both of these sensors are connected to the INDOOR FAN CONTROLLER unit fitted on top right corner of the cabinet. Temperature is measured by both IDFANCONs in parallel.

If one of these sensors senses a temperature of < -15 Degrees Celsius, an alarm, (IDFANCON_LOW_TEMP) under software control will be raised by the IDFANCON unit. This alarm signal is forwarded via MRIF to CC (Central Controller) which will interrupt the DO PTF and switch OFF the power to all TRx's. With power supply shut off, there is no transmission from any TRXHP19.

When 5 Degrees Celsius above the turn off temperature is reached then the alarm condition will be cleared. The SM (System Manager) will set power ON to all the TRXHP19' units.

All TRXHP19's will reboot and the unit will restore to normal functionality.



Block diagram for turning off the TRXs at low temperatures

ESB - External Signalling Bus

PCMHW - PCM Highway

SM - System Manager

Note: For other abbreviations see previous page.

**MEASUREMENT OF FREQUENCY STABILITY
(FLEXENT GSM MACROCELL IN-DOOR CABINET)**

Reference and Transmit Frequency Deviation at -15 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.56	47
0.5	13,000,000.58	41
1.0	13,000,000.55	36
1.5	13,000,000.59	39
2.0	13,000,000.57	44
2.5	13,000,000.55	42
3.0	13,000,000.56	43
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at -15 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.56	47
48.0	13,000,000.58	41
50.0	13,000,000.55	36
52.0	13,000,000.60	39
54.0	13,000,000.57	44
56.0	13,000,000.55	42
58.0	13,000,000.56	43
60.0	13,000,000.55	43
62.1	13,000,000.56	45
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at -10 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.58	37
0.5	13,000,000.52	27
1.0	13,000,000.55	34
1.5	13,000,000.52	35
2.0	13,000,000.52	39
2.5	13,000,000.54	31
3.0	13,000,000.55	38
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at -10 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.58	37
48.0	13,000,000.52	27
50.0	13,000,000.55	34
52.0	13,000,000.52	35
54.0	13,000,000.52	39
56.0	13,000,000.54	31
58.0	13,000,000.55	38
60.0	13,000,000.52	38
62.1	13,000,000.53	32
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at 0 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.26	-11
0.5	13,000,000.26	-8
1.0	13,000,000.27	-6
1.5	13,000,000.26	-10
2.0	13,000,000.27	-11
2.5	13,000,000.27	-8
3.0	13,000,000.26	-11
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at 0 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.26	13
48.0	13,000,000.26	-6
50.0	13,000,000.27	-6
52.0	13,000,000.26	-10
54.0	13,000,000.27	-11
56.0	13,000,000.27	-11
58.0	13,000,000.26	-10
60.0	13,000,000.27	-11
62.1	13,000,000.27	-5
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +10 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.18	-18
0.5	13,000,000.17	-17
1.0	13,000,000.19	-16
1.5	13,000,000.18	-20
2.0	13,000,000.19	-18
2.5	13,000,000.18	-21
3.0	13,000,000.18	-20
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +10 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.18	-18
48.0	13,000,000.20	-17
50.0	13,000,000.19	-16
52.0	13,000,000.19	-20
54.0	13,000,000.18	-18
56.0	13,000,000.19	-21
58.0	13,000,000.20	-20
60.0	13,000,000.20	-14
62.1	13,000,000.20	-15
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +20 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.13	-36
0.5	13,000,000.12	-29
1.0	13,000,000.12	-39
1.5	13,000,000.12	-32
2.0	13,000,000.13	-36
2.5	13,000,000.13	-26
3.0	13,000,000.13	-33
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +20 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.13	-36
48.0	13,000,000.12	-29
50.0	13,000,000.12	-39
52.0	13,000,000.12	-32
54.0	13,000,000.13	-36
56.0	13,000,000.13	-26
58.0	13,000,000.13	-33
60.0	13,000,000.12	-36
62.1	13,000,000.12	-30
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +30 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.06	-51
0.5	13,000,000.06	-45
1.0	13,000,000.05	-46
1.5	13,000,000.08	-47
2.0	13,000,000.07	-50
2.5	13,000,000.06	-51
3.0	13,000,000.07	-38
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +30 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.06	-51
48.0	13,000,000.06	-45
50.0	13,000,000.05	-46
52.0	13,000,000.08	-47
54.0	13,000,000.07	-50
56.0	13,000,000.06	-43
58.0	13,000,000.07	-51
60.0	13,000,000.06	-38
62.1	13,000,000.07	-52
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +40 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.06	-54
0.5	13,000,000.05	-51
1.0	13,000,000.06	-45
1.5	13,000,000.05	-48
2.0	13,000,000.06	-47
2.5	13,000,000.05	-47
3.0	13,000,000.06	-48
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +40 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.06	-54
48.0	13,000,000.05	-51
50.0	13,000,000.06	-45
52.0	13,000,000.05	-48
54.0	13,000,000.06	-47
56.0	13,000,000.05	-47
58.0	13,000,000.06	-48
60.0	13,000,000.06	-43
62.1	13,000,000.06	-47
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +50 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	12,999,999.98	-59
0.5	12,999,999.97	-57
1.0	12,999,999.96	-61
1.5	12,999,999.98	-61
2.0	12,999,999.97	-59
2.5	12,999,999.97	-62
3.0	12,999,999.98	-65
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +50 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	12,999,999.98	-61
48.0	12,999,999.97	-57
50.0	12,999,999.96	-61
52.0	12,999,999.98	-61
54.0	12,999,999.97	-59
56.0	12,999,999.97	-62
58.0	12,999,999.98	-69
60.0	12,999,999.97	-65
62.1	12,999,999.97	-60
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at +55 Degrees C @ 54 Volts		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.03	-63
0.5	13,000,000.03	-60
1.0	13,000,000.03	-65
1.5	13,000,000.03	-69
2.0	13,000,000.03	-68
2.5	13,000,000.03	-61
3.0	13,000,000.03	-64
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at +55 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	12,999,999.96	-61
48.0	12,999,999.96	-60
50.0	12,999,999.96	-63
52.0	12,999,999.96	-63
54.0	12,999,999.98	-60
56.0	12,999,999.97	-62
58.0	12,999,999.97	-62
60.0	12,999,999.97	-60
62.1	12,999,999.97	-64
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at 40 Degrees C @ 54 Volts (From +55 Degree C down to +20 C)		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.06	-50
0.5	13,000,000.07	-44
1.0	13,000,000.07	-49
1.5	13,000,000.06	-43
2.0	13,000,000.06	-48
2.5	13,000,000.06	-45
3.0	13,000,000.07	-52
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at 40 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.06	-50
48.0	13,000,000.05	-45
50.0	13,000,000.07	-47
52.0	13,000,000.07	-50
54.0	13,000,000.05	-50
56.0	13,000,000.06	-45
58.0	13,000,000.06	-48
60.0	13,000,000.06	-45
62.1	13,000,000.06	-51
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at 30 Degrees C @ 54 Volts (From +55 Degree C down to +20 C)		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.08	-44
0.5	13,000,000.07	-43
1.0	13,000,000.07	-52
1.5	13,000,000.06	-40
2.0	13,000,000.08	-49
2.5	13,000,000.05	-41
3.0	13,000,000.06	-53
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at 30 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.08	-44
48.0	13,000,000.07	-41
50.0	13,000,000.07	-46
52.0	13,000,000.06	-47
54.0	13,000,000.07	-47
56.0	13,000,000.06	-45
58.0	13,000,000.05	-45
60.0	13,000,000.06	-44
62.1	13,000,000.07	-48
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

Reference and Transmit Frequency Deviation at 20 Degrees C @ 54 Volts (From +55 Degree C down to +20 C)		
Time (Minutes)	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
0	13,000,000.12	-36
0.5	13,000,000.13	-34
1.0	13,000,000.13	-33
1.5	13,000,000.11	-40
2.0	13,000,000.14	-32
2.5	13,000,000.12	-30
3.0	13,000,000.13	-33
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

Reference and Transmit Frequency Deviation at 30 degree C over voltage / frequency range		
Volts DC	Measurement Reference Frequency (Reference Frequency = 13MHz)	Tx Frequency Deviation (Hz)
45.9	13,000,000.12	-37
48.0	13,000,000.12	-33
50.0	13,000,000.14	-28
52.0	13,000,000.12	-34
54.0	13,000,000.13	-36
56.0	13,000,000.12	-31
58.0	13,000,000.13	-29
60.0	13,000,000.13	-30
62.1	13,000,000.13	-34
SPECIFICATION	+ / - .000000650 MHz or 0.65 Hz (+ / - 0.05 ppm)	+ / - 97.04 Hz (+ / - 0.05 ppm)
RESULTS	PASS	PASS

J4 RF Tx Power Deviation = 0.3 dBm, Transmit Channel Monitored: 565 (1940.8MHz)

FREQUENCY SPECTRUM TO BE INVESTIGATED
SECTION 2.1057

SECTION 2.1057

FREQUENCY SPECTRUM TO BE INVESTIGATED

Frequency Spectrum to be investigated, Measurement Bandwidth and detector function used meet or exceed the Specification contained in Section 2.1057, 22.917, ANSI C63.4, IS95A, and IS97. All instrumentation used were calibrated according to our Quality Procedure, laid down by DATech.

MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT
SECTION 2.1046

MEASUREMENT: 1**MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT****SECTION 2.1046**

The test arrangements used to measure the radio frequency power output of the FCC ID: AS5FLX-02 “Flexent GSM 1900 Transceiver” Model TRX19HP is shown on following pages. Measurements were made respectively at each frequency where occupied Bandwidth measurements were performed. The use of the TRX19HP is for a Single GSM Carrier. This requires that the power level at J4 connector be calibrated for the specific channel of use. The test configuration, Figure 1A and Figure 1B, allowed the measurement of RF output power for channels investigated for Occupied Bandwidth. The test set up for Figure 1A for two composite carriers and Figure 1B for single carrier. The measurements were made at upper lower band edges and at the center channel for each Band.

Measurements were made at J4 connector terminals for following configurations:

1. Single carrier with TRX19HP output directly connected to J4.
2. A composite power for two carrier combined.
3. Single carrier with TRX19HP output connected to a J4 through a passive combiner.

A single TRX19HP system has a maximum power output at the antenna terminals of 59 Watts (47.6 dBm) $\pm 1/2$ dB, it also has a minimum power output at the antenna terminals of 0.002 Watts ($\pm 1/2$ dB), across the PCS band (1930.4 –1989.6 MHz).

Two TRX19HPs combined system for two carriers have a maximum composite power output at the antenna terminals of 58 Watts (47.0 dBm) $\pm 1/2$ dB, it also has a minimum power output at the antenna terminals of 0.005 Watts ($\pm 0.5/2$ dB), across the PCS band (1930.4 –1989.6 MHz).

A single TRX19HP connected to a passive combiner with second input port terminated has a maximum composite power output at the antenna terminals of 22 Watts (43.5 dBm) $\pm 1/2$ dB, it also has a minimum power output at the antenna terminals of 0.005 Watts ($\pm 1/2$ dB), across the PCS band (1930.4 –1989.6 MHz).

Digitized pseudo-random traffic stored in an EROM in TRX19HP was used as input.

MEASUREMENT: 1**MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT****EQUIPMENT:**

BTS :	Flexent GSM indoor Macrocell cabinet.
TRX19HP:	Flexent GSM 1900 Transceiver.
ACU 19-4UV	Combiner
Transmit Filter:	Cellular Band Transmit Filter
Directional Coupler:	HP 778D Dual Directional Coupler
Power Meter:	HP 437B with HP 8481A Power Head
Plotter:	HP Model Color Pro
Spectrum Analyzer:	HP 8595E

RESULTS:

The TRX19HP was configured in the test setup shown in Figure 1A and Figure 1B.

1. Single carrier with TRX19HP output directly connected to J4. Maximum RF output power measured: 59W
2. A composite power for two carrier combined. Maximum RF output power measured: 58 W
3. Single carrier with TRX19HP output connected to a J4 through a passive combiner. Maximum RF output power measured: 22W

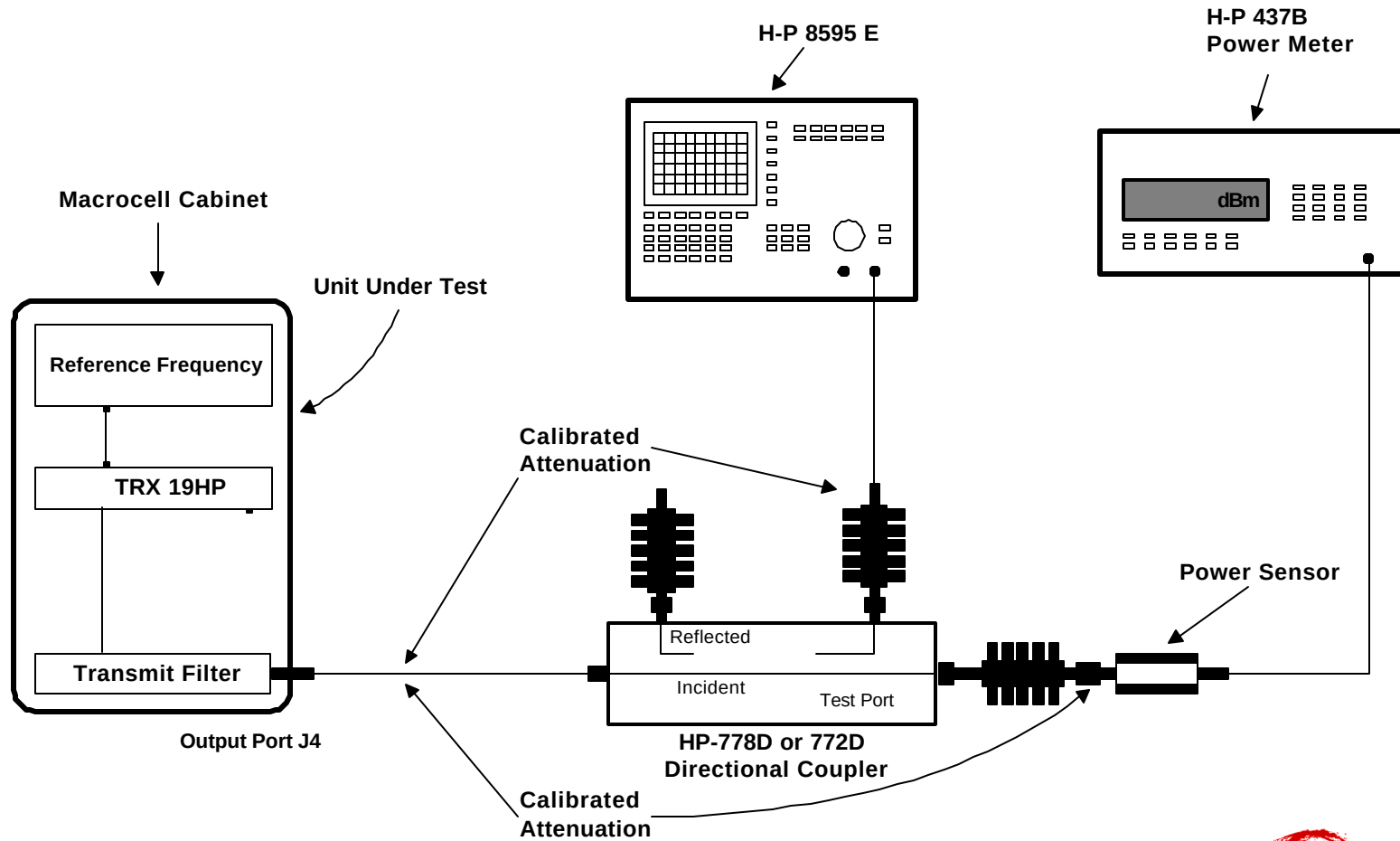
For (1) and (2) above, the data is recorded on the TRX19HP Occupied Bandwidth Data Sheets.

Figure 1A. TEST CONFIGURATION FOR RF POWER OUTPUT

APPLICANT: Lucent Technologies

FCC ID: AS5FLX-02

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Use pursuant to Company Instructions

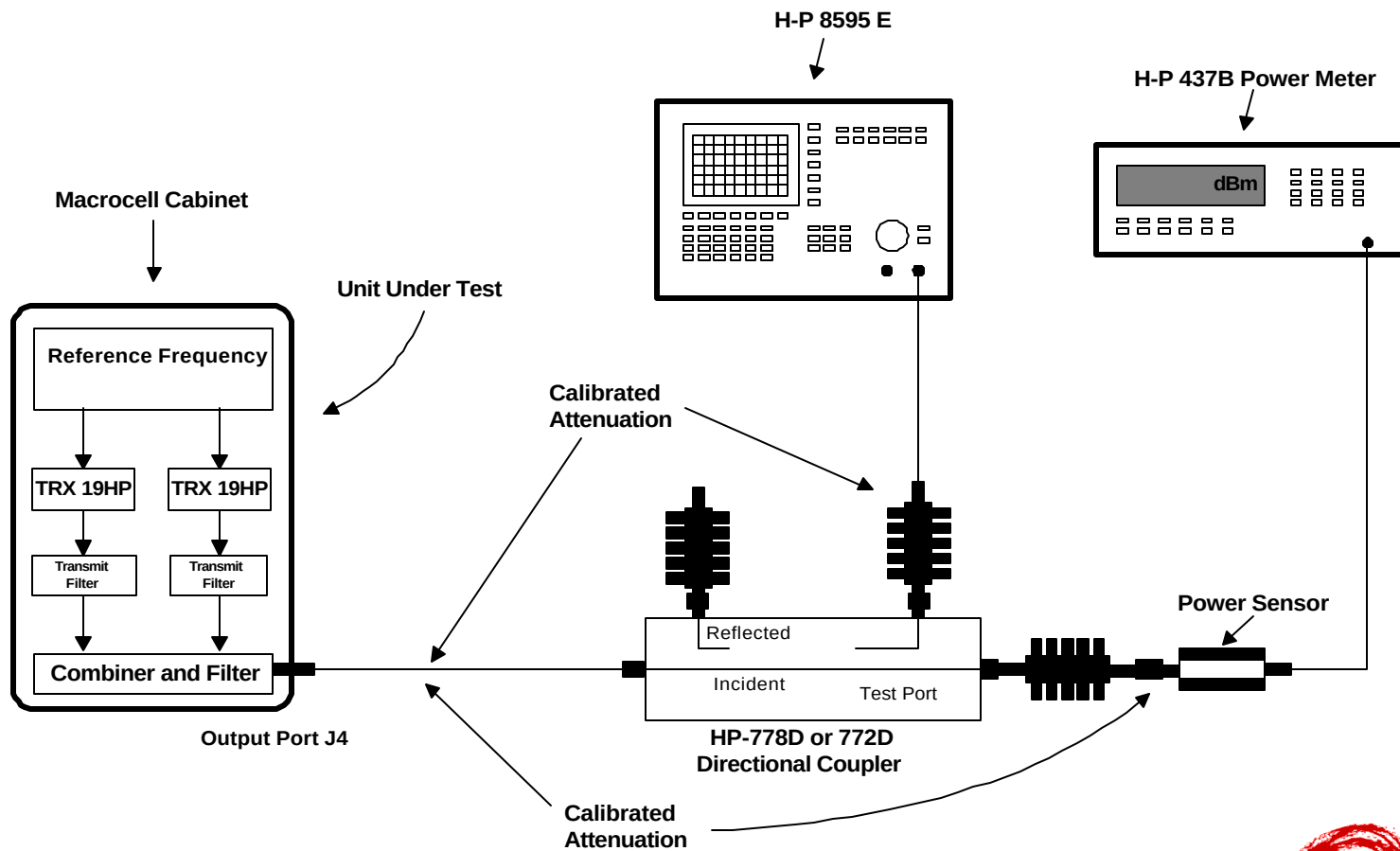


All components are calibrated over the frequency range of interest

Lucent Technologies
Bell Labs Innovations



Figure 1B. TEST CONFIGURATION FOR RF POWER OUTPUT



All components are calibrated over the frequency range of interest

Lucent Technologies
Bell Labs Innovations



MEASUREMENT OF OCCUPIED BANDWIDTH

SECTION 24.238(b) – Measurement 3A

SECTION 2.1049 – Measurement 3B

MEASUREMENT: 3A**SECTION 24.238(b)****MEASUREMENT OF OCCUPIED BANDWIDTH**

The occupied bandwidth of the FCC ID: AS5FLX-02 "Flexent GSM 1900 Transceiver" model TRX19HP was measured using a HP 8563E Spectrum Analyzer and an HP Model 7470A Plotter. The Hp 8563E is designed to measure 99% power bandwidth. The measurements were made for Left Edge, and Right Edge of each PCS band.

Section 24.238(b) requires that Resolution Bandwidth (RBW) of at least 1% of emission bandwidth be used to demonstrate RF antenna conducted out-of-band emission compliance at the frequency block edges. Therefore occupied Bandwidth measurements in this section are required to determine RBW at band edges for Measurement 4, Spurious emissions at Antenna Terminals Section (2.1051)

Results:

The plots are provided for Left and Right edges of each PCS band. The Measured 99% power bandwidth is 256 kHz. This determines:

- (1) Emission type : 256KGXW
- (2) Spectrum Analyzer RBW for measurement of antenna conducted emissions in the 1 MHz bands immediately outside and adjacent to the frequency block. A RBW of 10 kHz in 1 MHz band immediately outside and adjacent to frequency blocks was used for Measurement 4.

MEASUREMENT: 3B**SECTION 2.1049****MEASUREMENT OF OCCUPIED BANDWIDTH**

The occupied bandwidth of the FCC ID: AS5FLX-01 "Flexent GSM 1900 Transceiver" model TRX19HP was measured using a Rohde & Schwarz FSEK Spectrum Analyzer and an HP Model Color Pro Plotter. The RF power level was measured using a RF power meter as shown in the test setup in Figure 3A and 3B. The Figure 3A shows occupied Bandwidth measurement without combiner and Figure 3B shows occupied Bandwidth with combiner. The RF output from the transmitter to spectrum analyzer was reduced (to an amplitude usable by the spectrum analyzer) by using a calibrated attenuator. The reference-line on the spectrum analyzer display corresponds to level measured by the RF power meter.

The channel allocations with corresponding frequencies are given in the next page. The channels are available on each authorized frequency blocks are also indicated. The frequencies and channels used are tabulated on the bottom of each plot. Output signal is plotted for a frequency span of 2.4 MHz with channel frequency as center. Plots are provided for Left Edge, Center and Right Edge of each PCS band. These frequencies were chosen to show the occupied bandwidth in the channels in each of the PCS in which this radio can be operated, in compliance with Section 24.229 and 24.238 (c) of the Commission code.

The measurement procedure and specification limits for Occupied Bandwidth are indicated in Section 4.2.1 "spectrum due to the modulation and wide band noise" and Figure A.6a: PCS 1900 BTS Modulation and Noise Spectrum Mask due to GMSK Modulation" of GSM 05.05 "European Standard (Telecommunication Series); Digital Cellular Telecommunication System (Phase 2+); Radio Transmission and Reception" (Release 1999). The measurements were made in accordance with GSM 05.05 using 30 kHz Spectrum Analyzer Resolution Bandwidth. The Resolution Bandwidth setting also meets commissions rule indicated in paragraph 24.238(b) "in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. For conducted spurious emission tests (See Measurement: 4) a resolution bandwidth of 1 MHz is used throughout."

Results:

The results presented as plots for single carrier:

1. For single carrier with TRX19HP output directly connected to J4.
2. For single carrier of two carrier combined system.

Frequency range of PCS 1900 (n = 512...810)

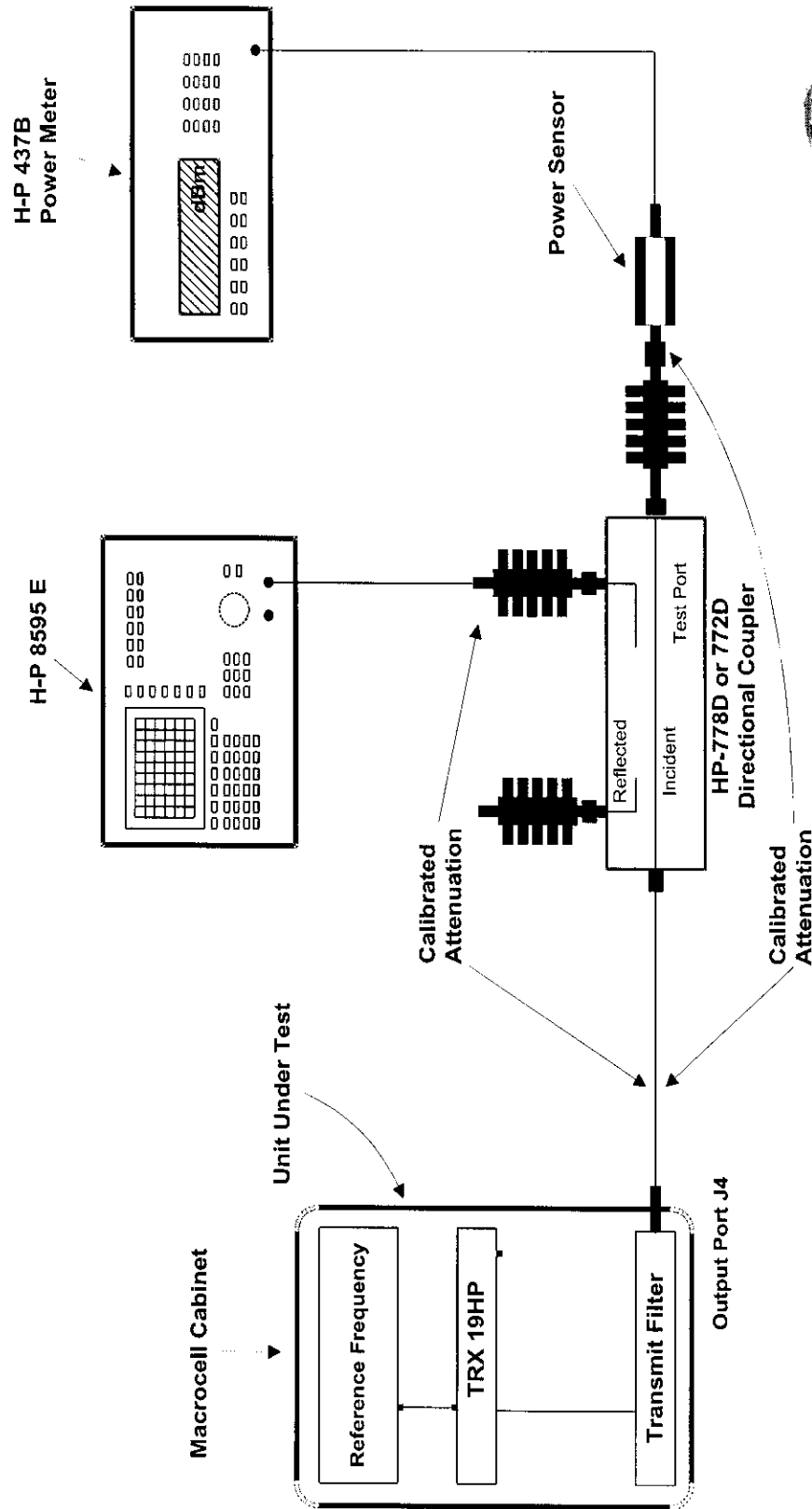
$$dl(n) = 1930.2 + 0.2^*(n - 512)/\text{MHz}$$

$$\text{ul}(n) = 1850.2 + 0.2^*(n - 512)/\text{MHz}$$

[illegible]

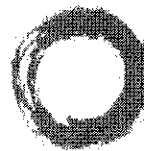
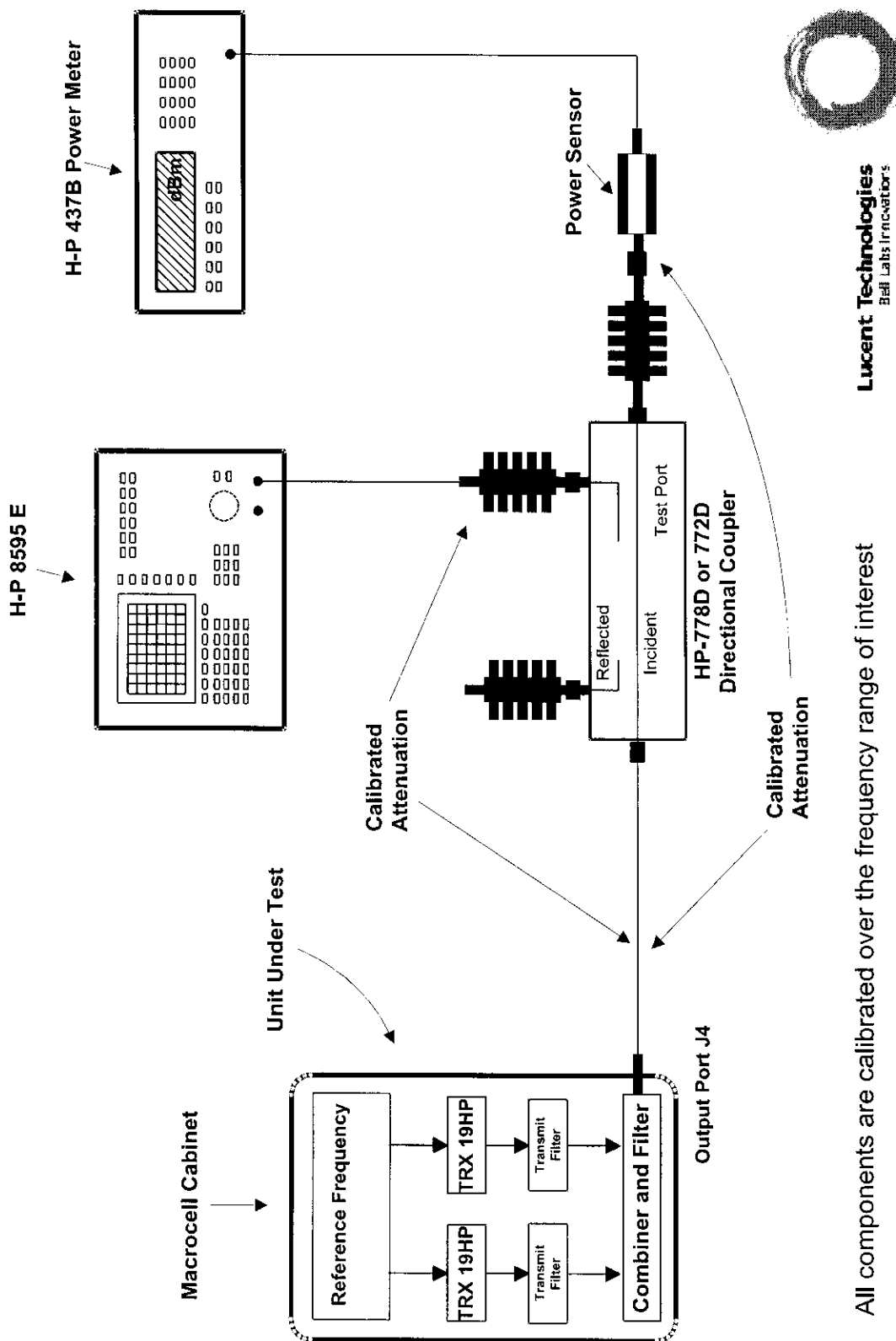
Note: Channels high lighted are **not** available for GSM1900, in accordance with FCC Part 24

Figure 3A. TEST CONFIGURATION FOR OCCUPIED BANDWIDTH



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Figure 3B. TEST CONFIGURATION FOR OCCUPIED BANDWIDTH



MEASUREMENT OF OCCUPIED BANDWIDTH

SECTION 24.238(b) – Measurement 3A

MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

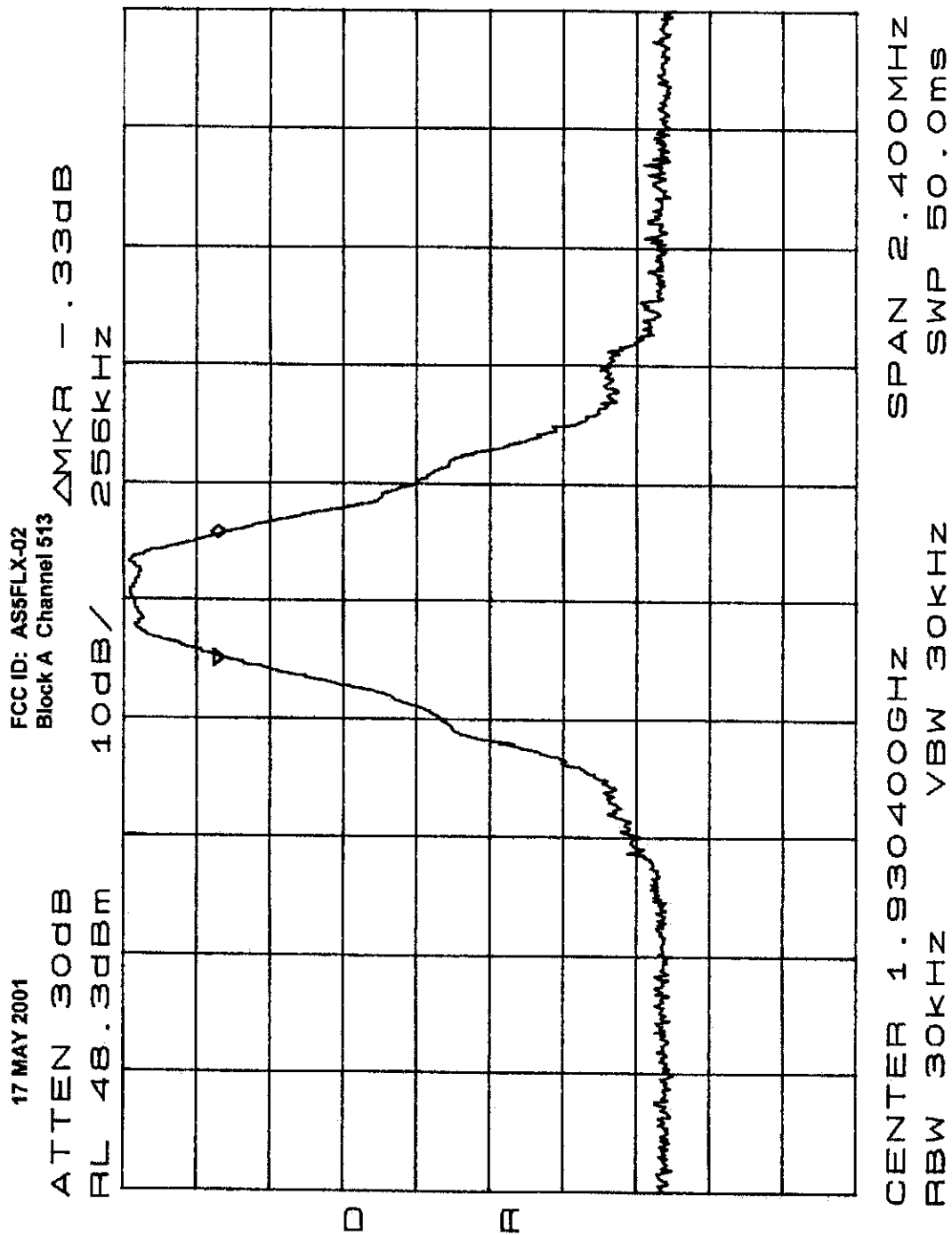
99% OF POWER

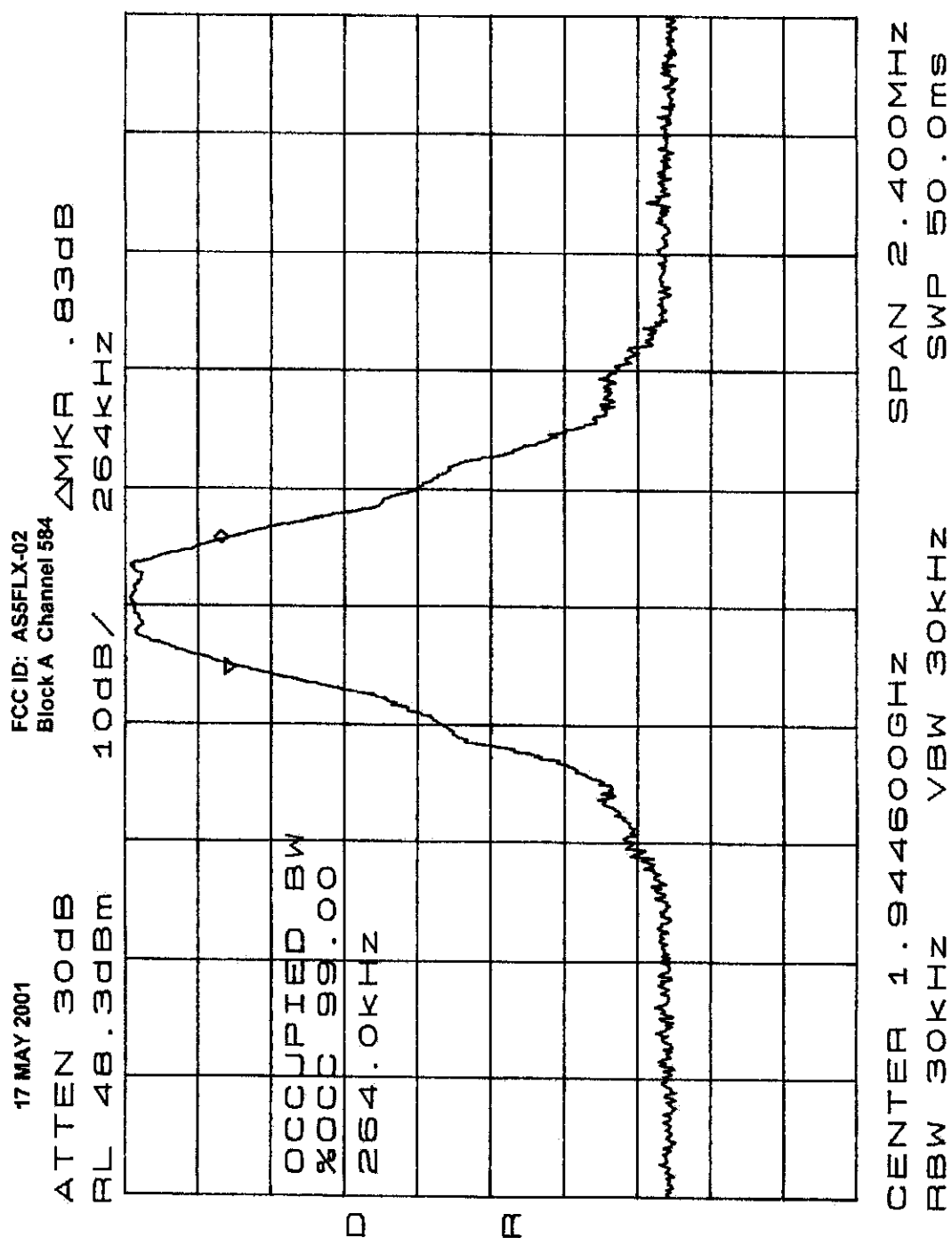
1 TRX WITHOUT COMBINER

BLOCK A

(1930 – 1945 MHz)

Left Edge:	1930.4 MHz (Channel 513)
Right Edge:	1944.6 MHz (Channel 584)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

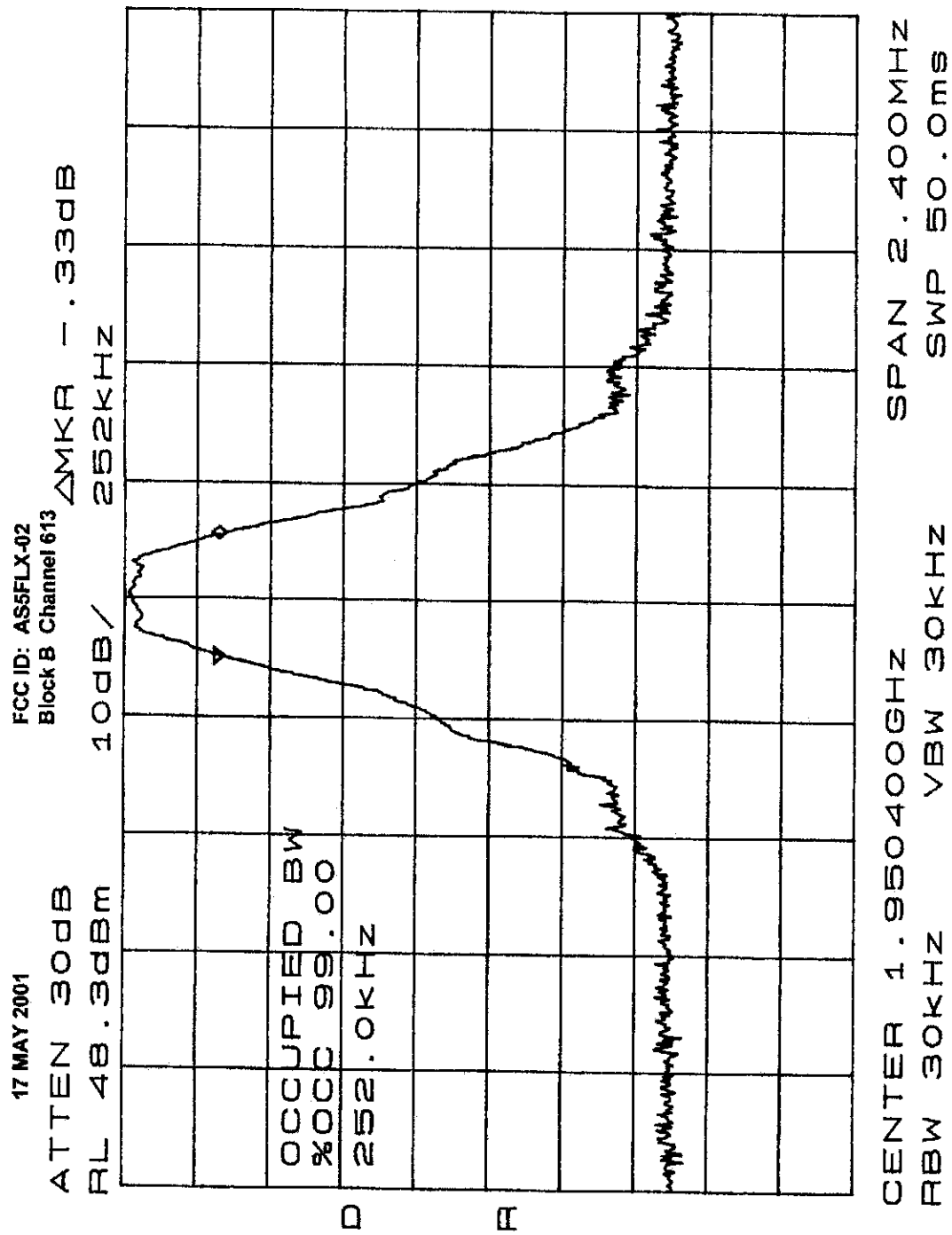
99% OF POWER

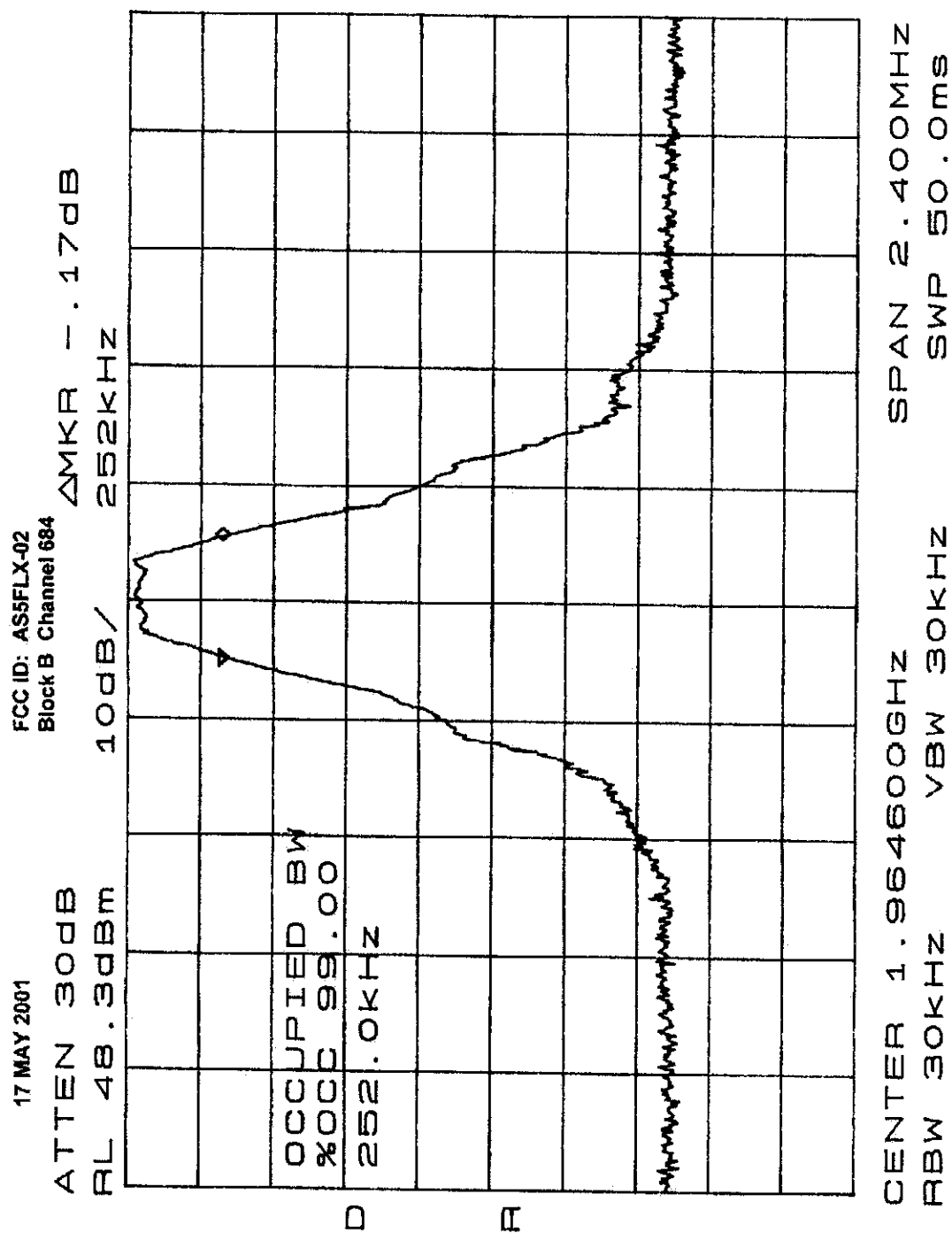
1 TRX WITHOUT COMBINER

BLOCK B

(1950 – 1965 MHz)

Left Edge:	1950.4 MHz (Channel 613)
Right Edge:	1964.6 MHz (Channel 684)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

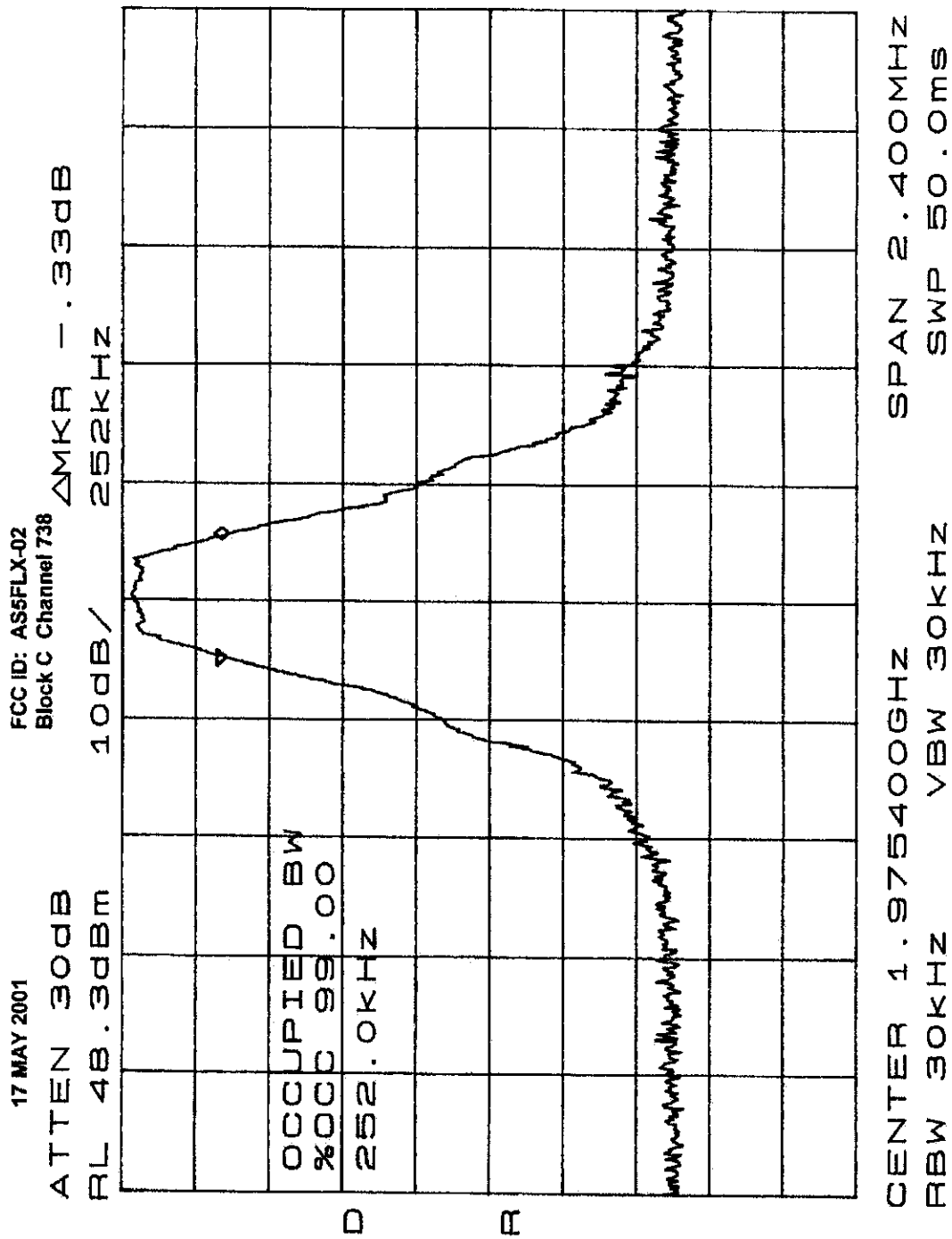
99% OF POWER

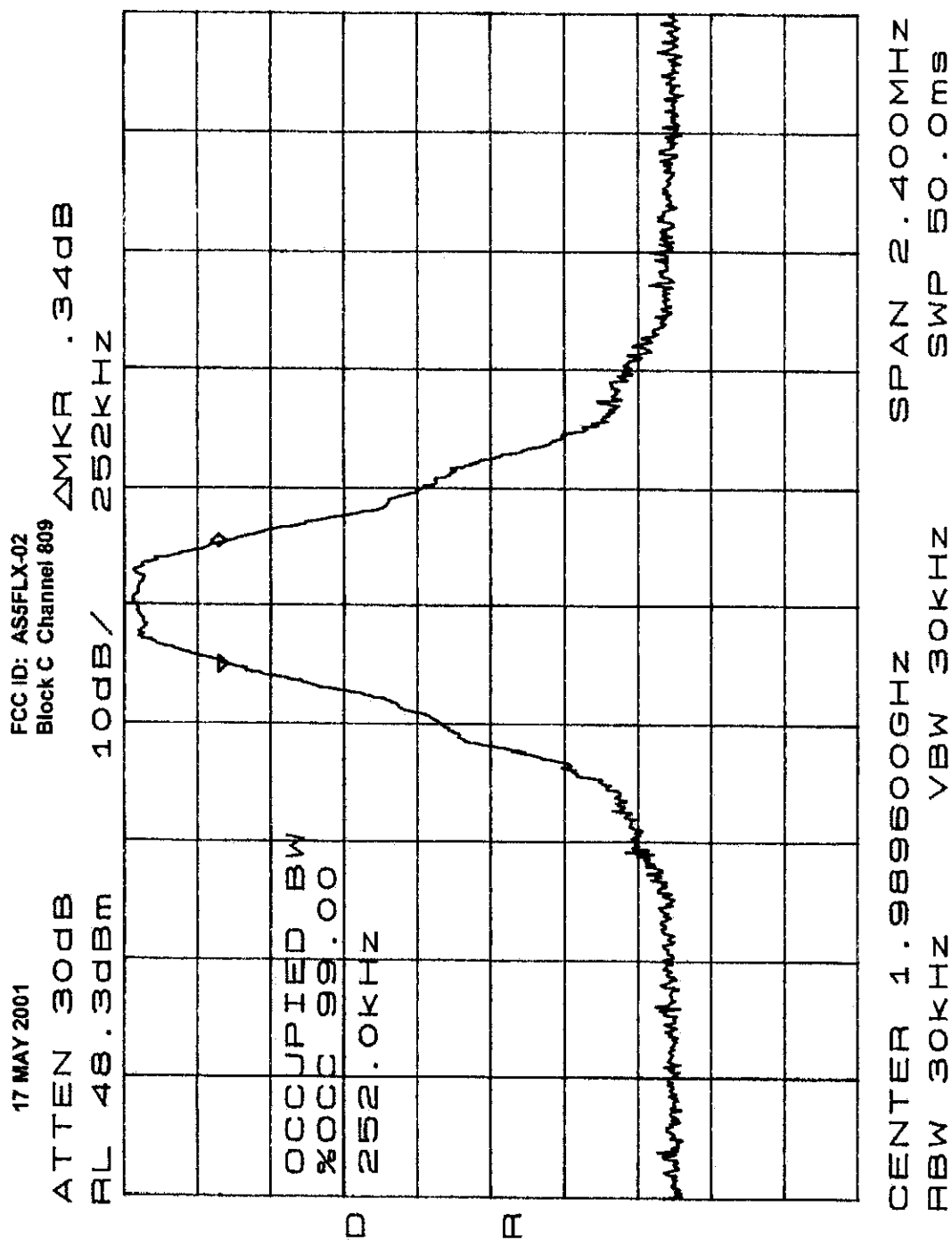
1 TRX WITHOUT COMBINER

BLOCK C

(1975 – 1990 MHz)

Left Edge:	1975.4 MHz (Channel 738)
Right Edge:	1989.6 MHz (Channel 809)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

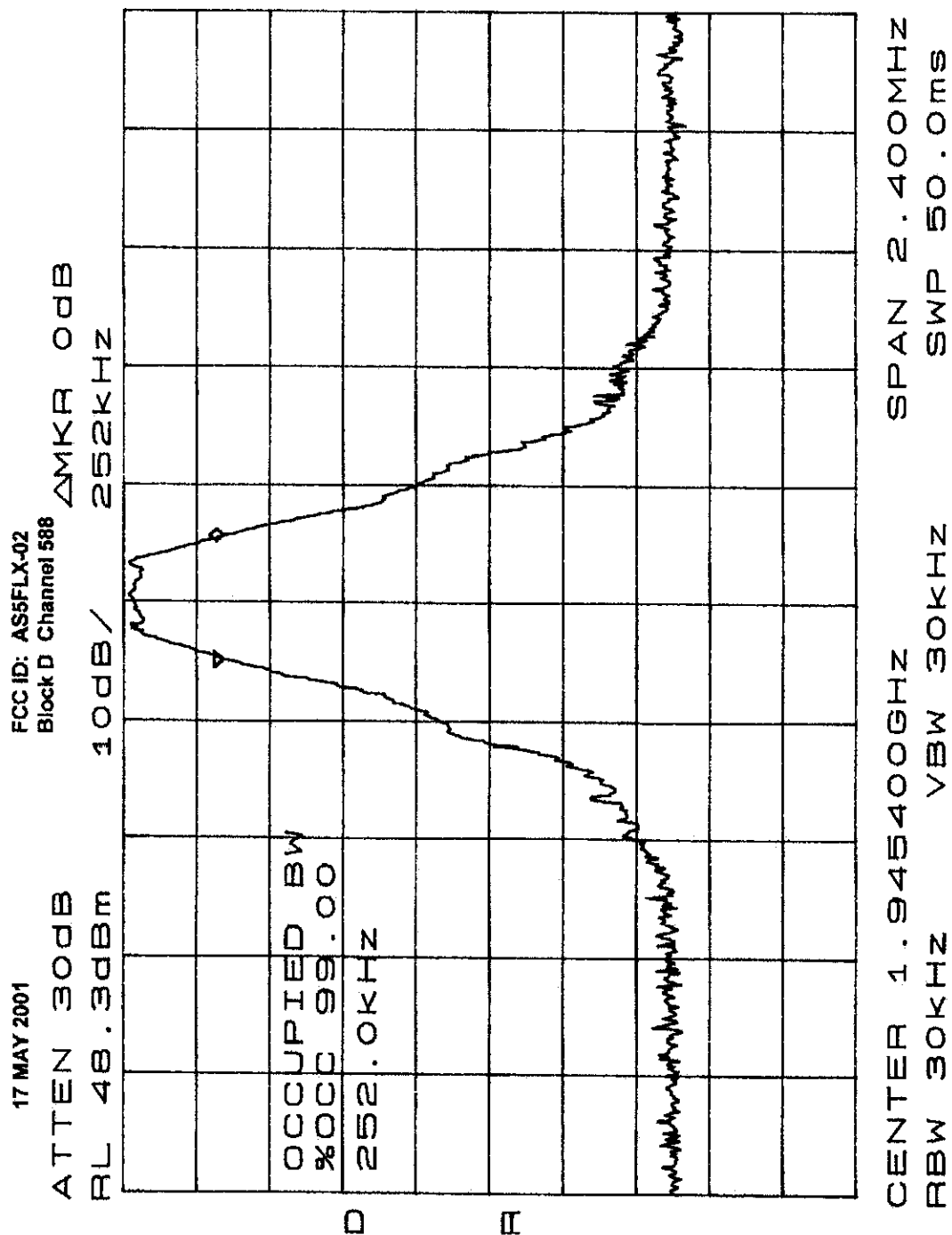
99% OF POWER

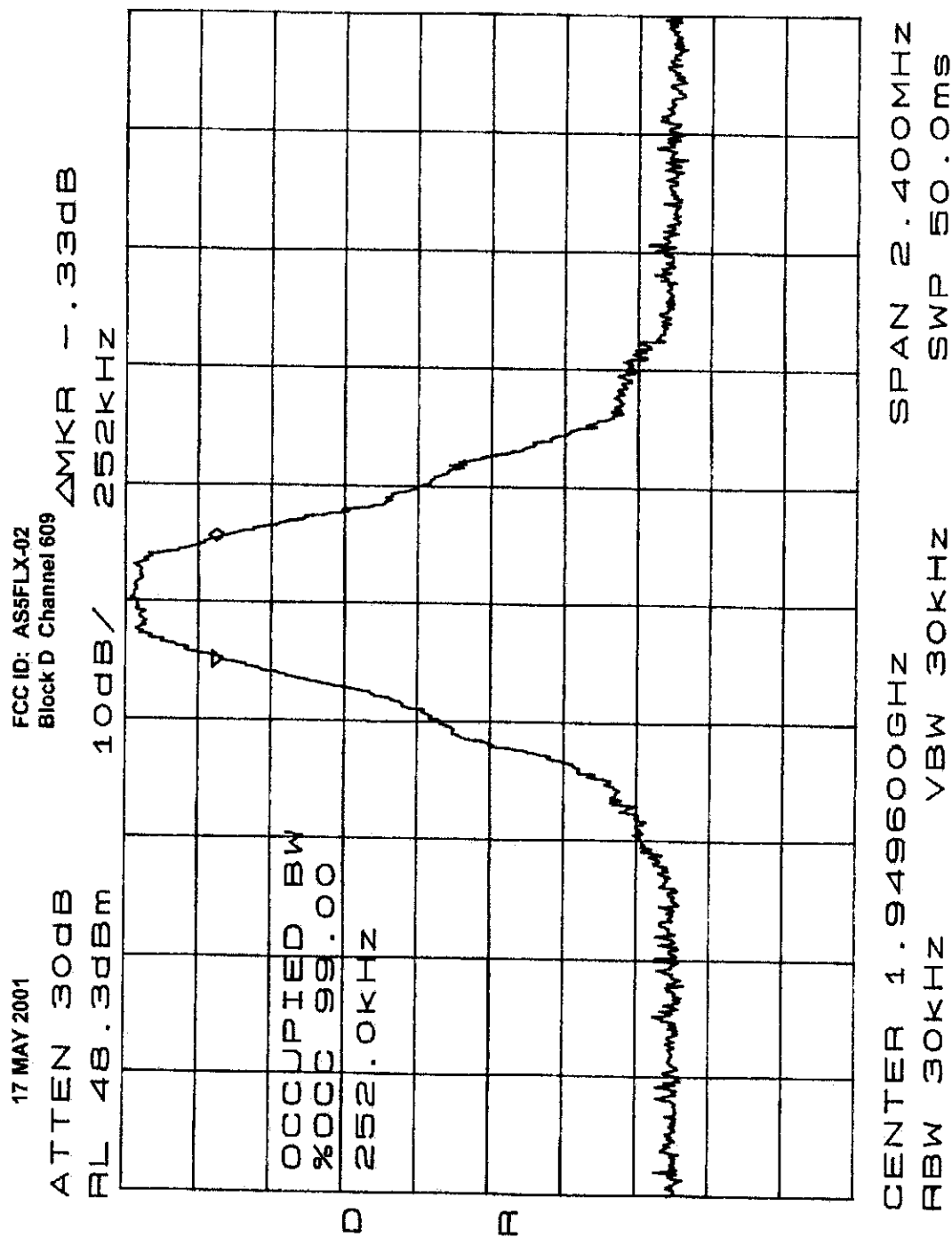
1 TRX WITHOUT COMBINER

BLOCK D

(1945 – 1950 MHz)

Left Edge:	1945.4 MHz (Channel 588)
Right Edge:	1949.6 MHz (Channel 609)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

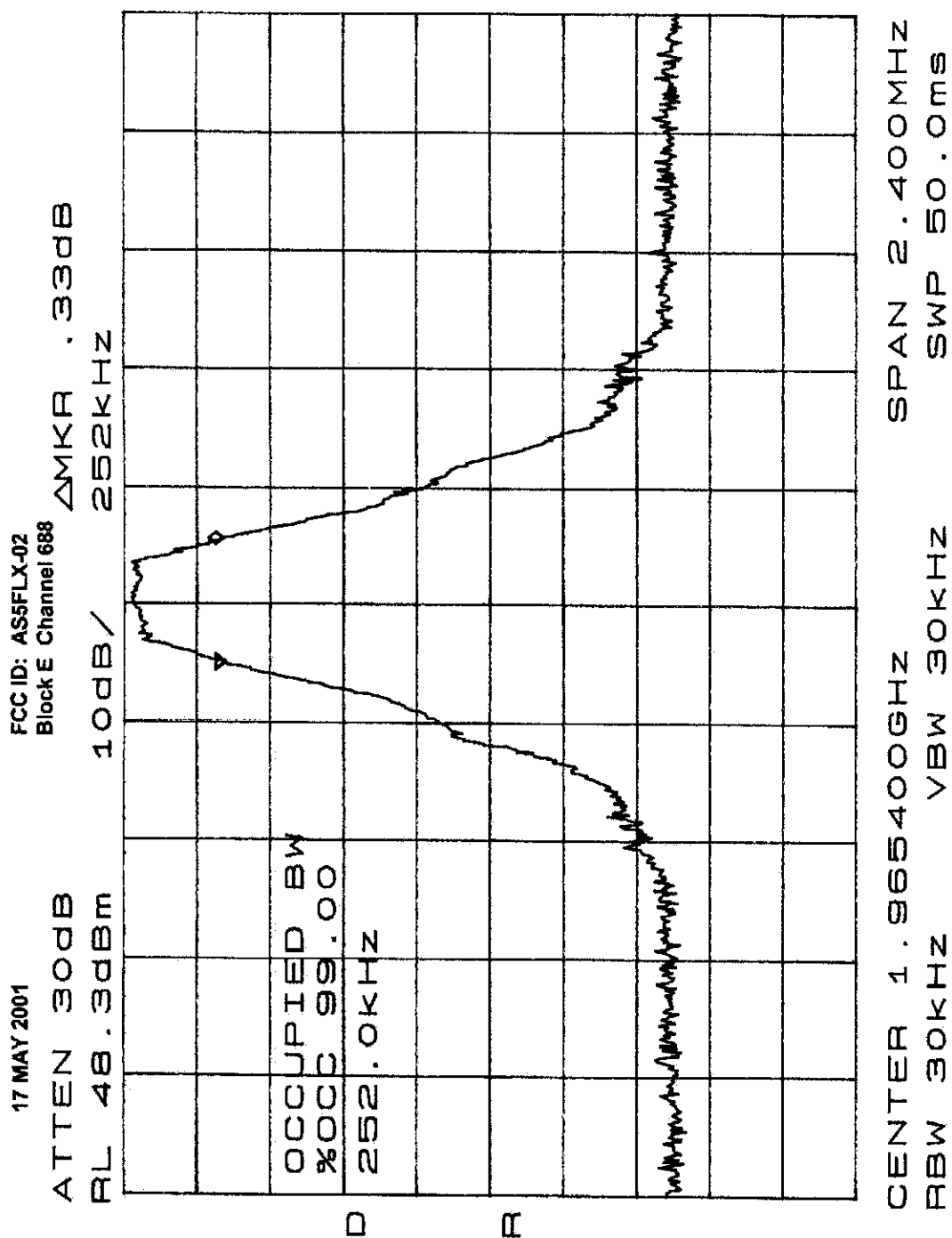
99% OF POWER

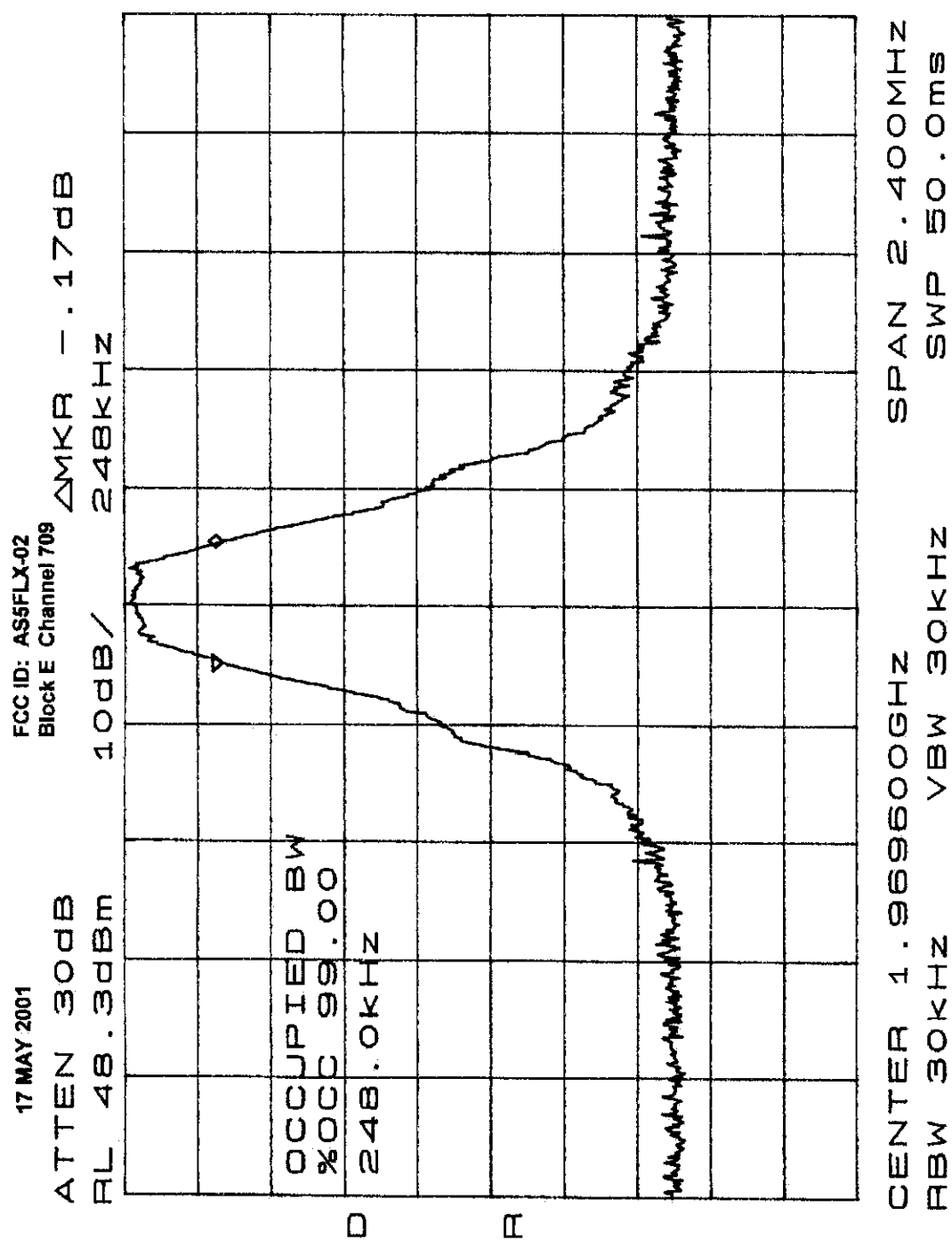
1 TRX WITHOUT COMBINER

BLOCK E

(1965 – 1970 MHz)

Left Edge:	1965.4 MHz (Channel 688)
Right Edge:	1969.6 MHz (Channel 709)





MEASUREMENT: 3

MEASUREMENT

OF

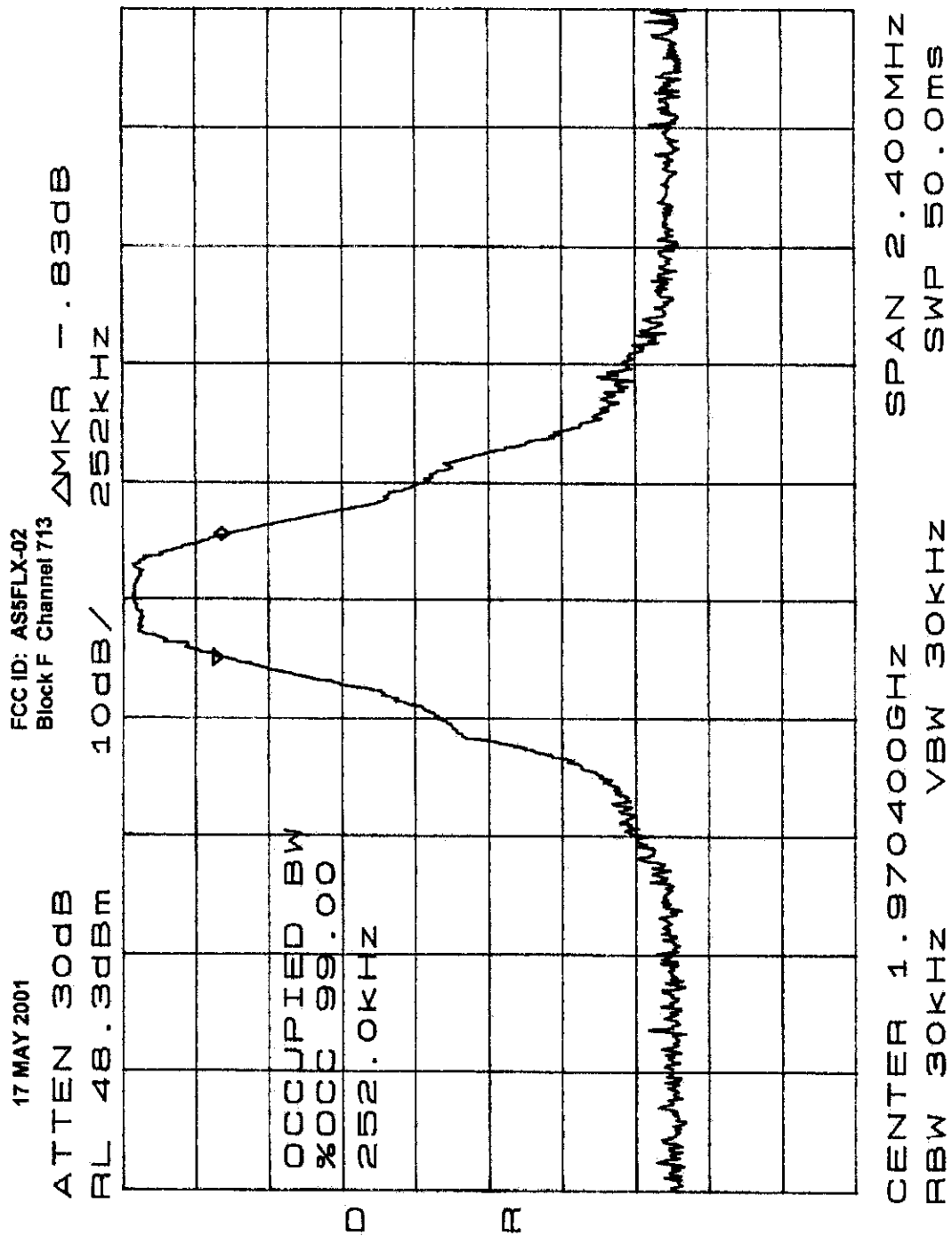
OCCUPIED BANDWIDTH

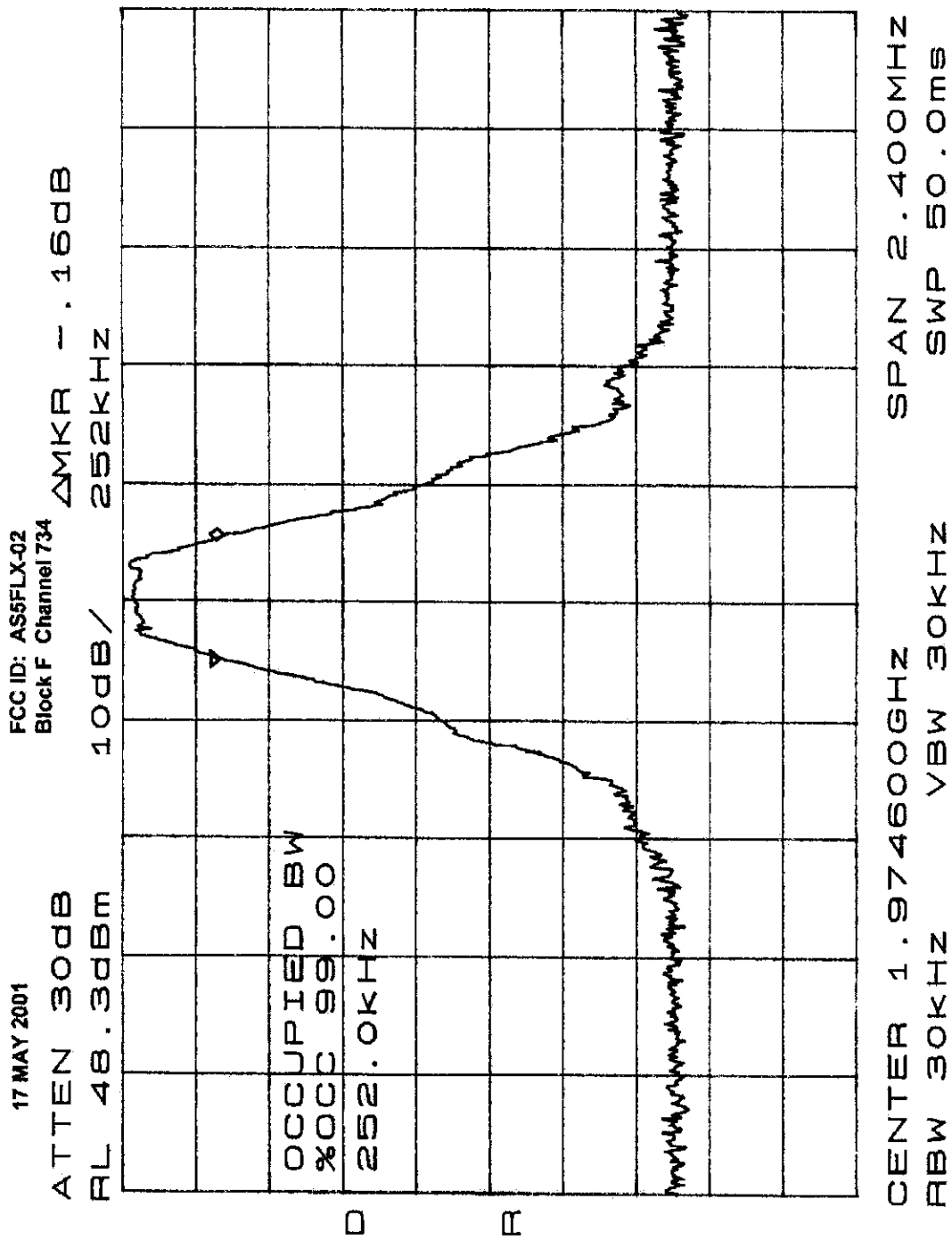
1 TRX WITHOUT COMBINER

BLOCK F

(1970 – 1975 MHz)

Left Edge:	1970.4 MHz (Channel 713)
Right Edge:	1974.6 MHz (Channel 734)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

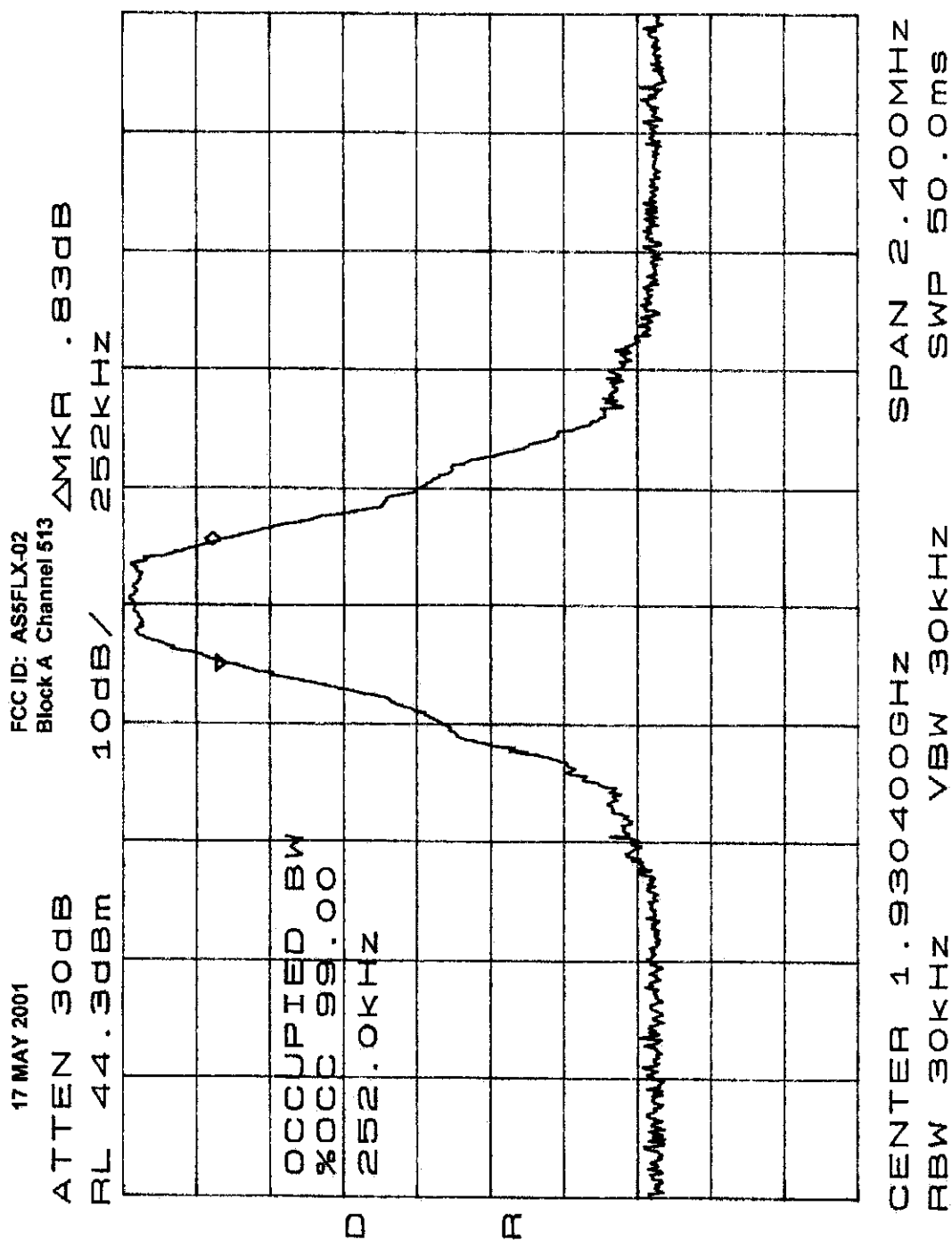
99% OF POWER

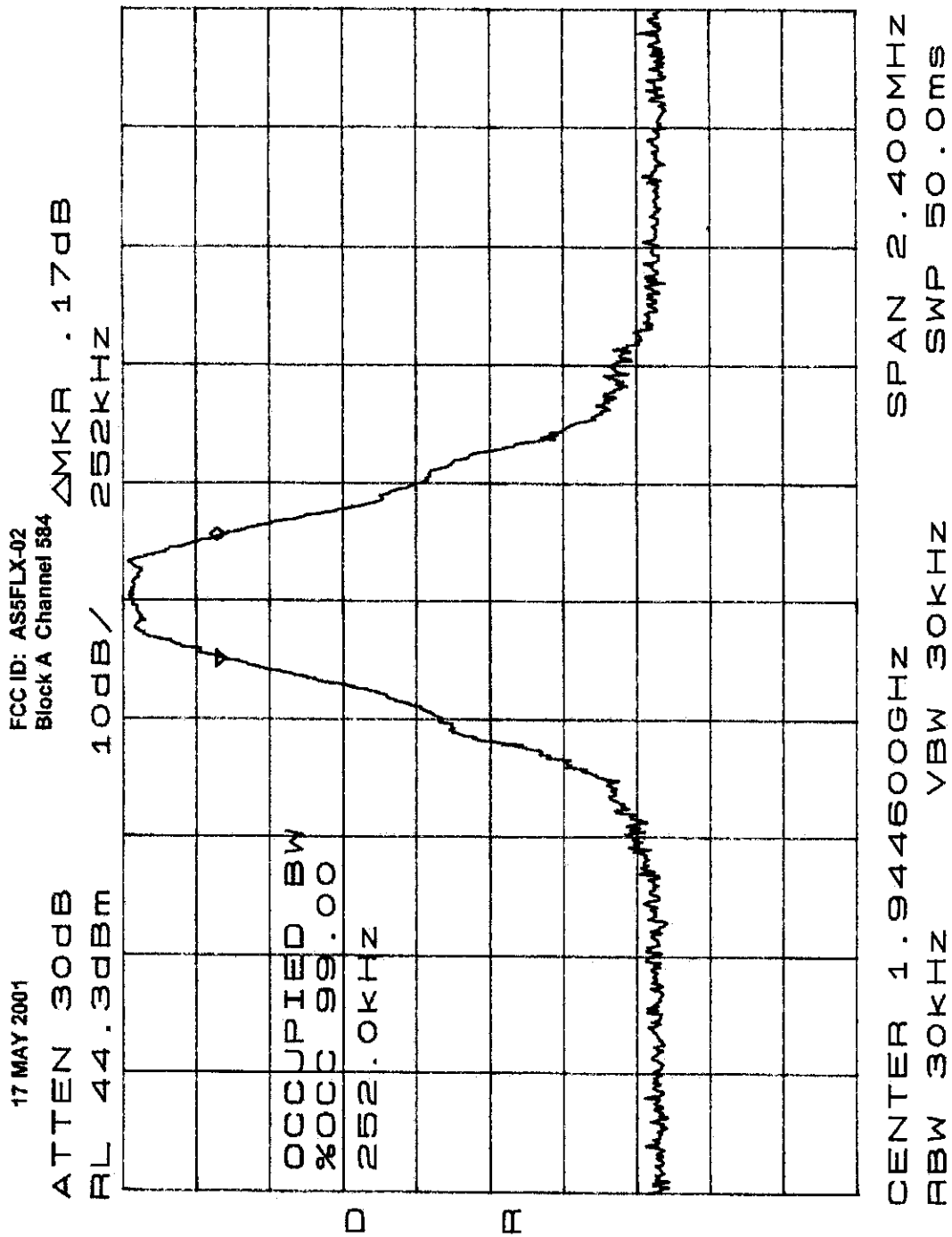
2 TRX WITH COMBINER

BLOCK A

(1930 – 1945 MHz)

Left Edge:	1930.4 MHz (Channel 513)
Right Edge:	1944.6 MHz (Channel 584)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

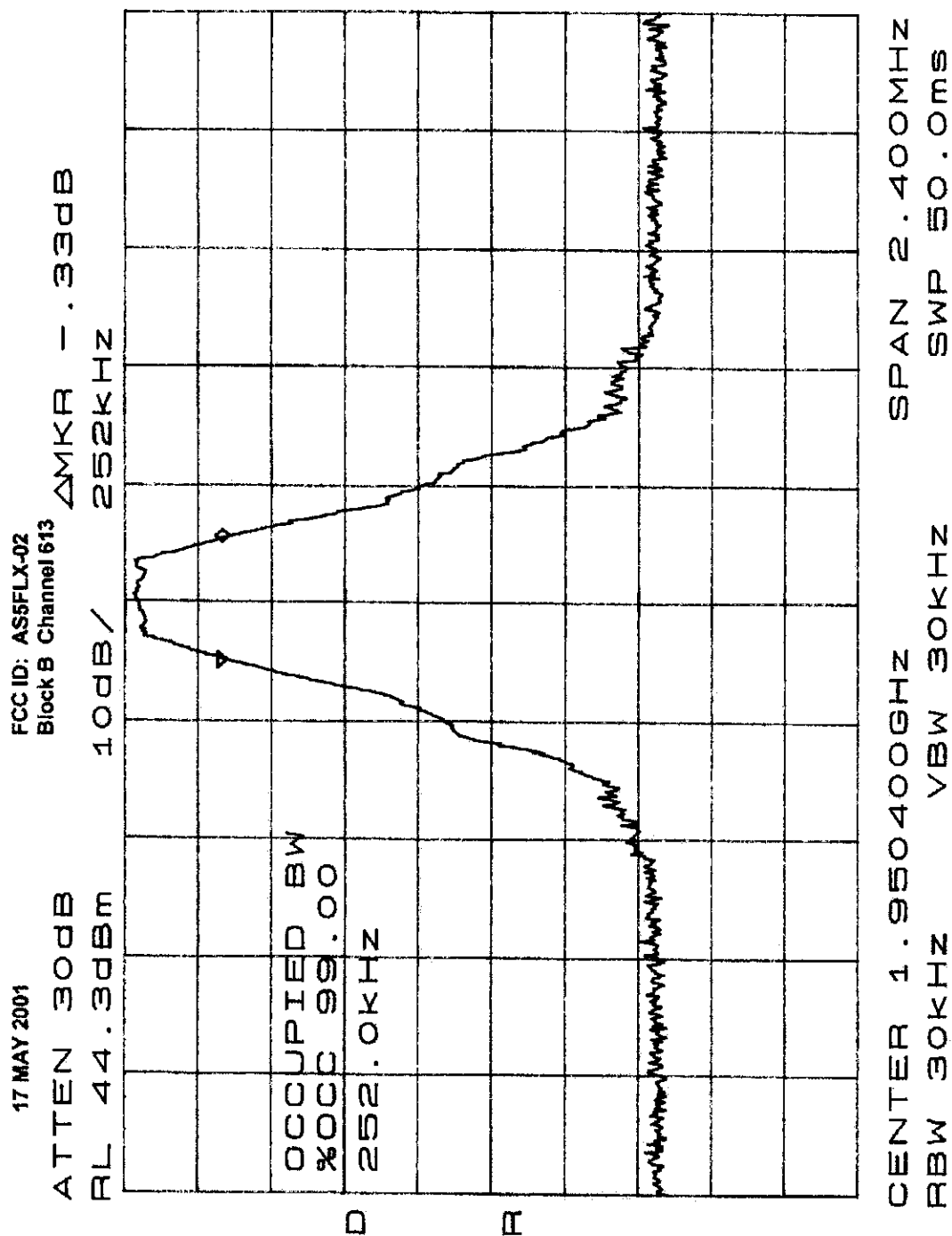
99% OF POWER

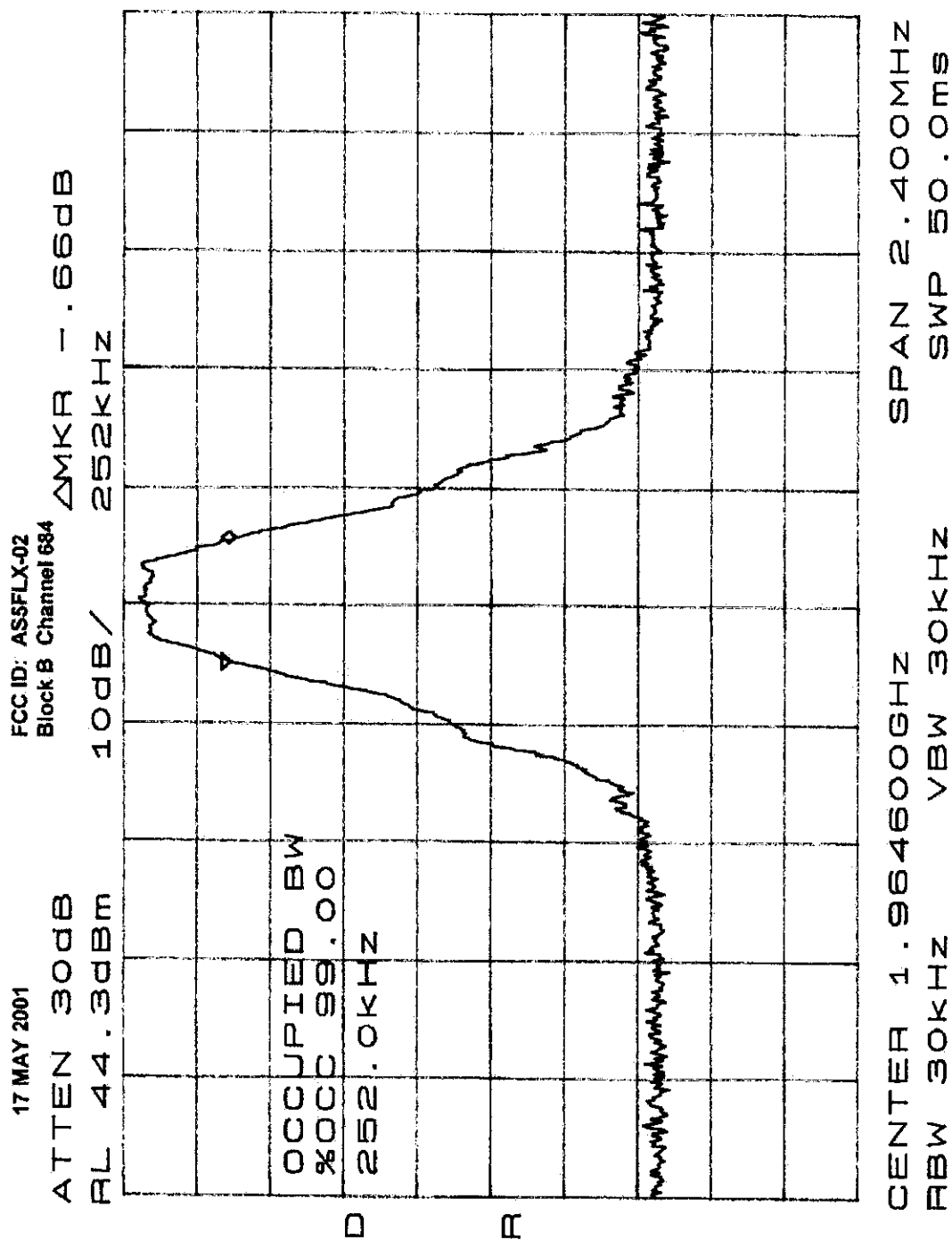
2 TRX WITH COMBINER

BLOCK B

(1950 – 1965 MHz)

Left Edge:	1950.4 MHz (Channel 613)
Right Edge:	1964.6 MHz (Channel 684)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

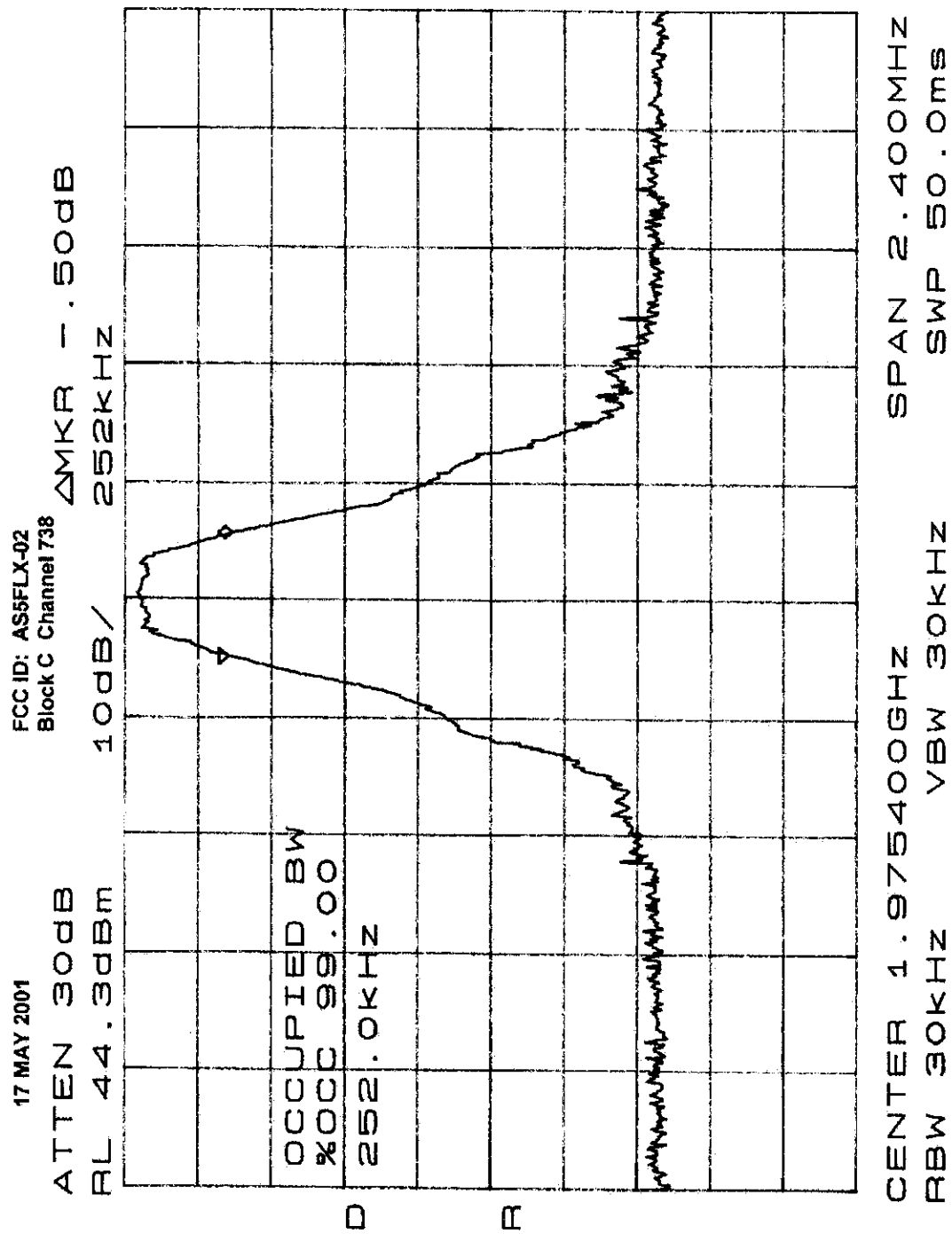
99% OF POWER

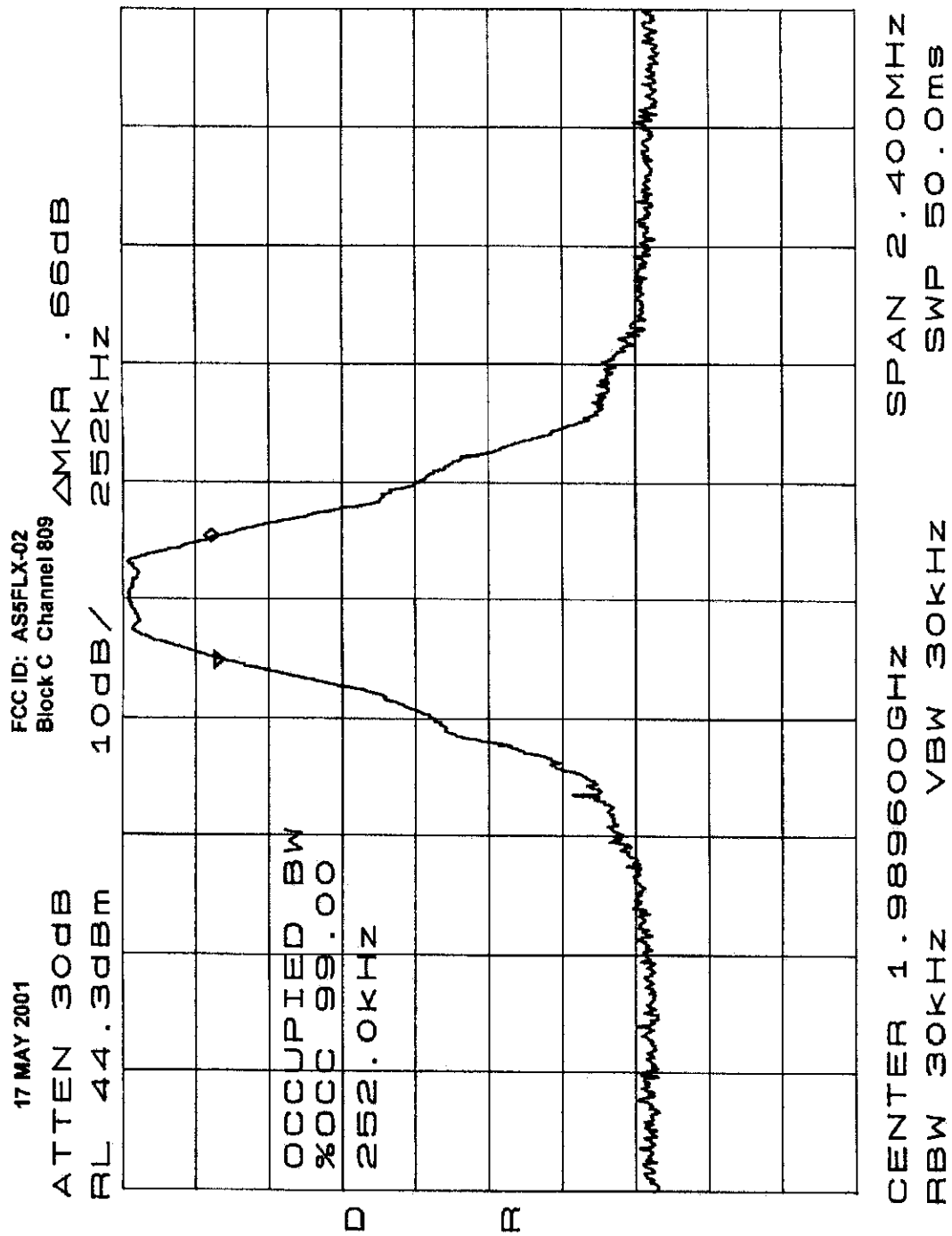
2 TRX WITH COMBINER

BLOCK C

(1975 – 1990 MHz)

Left Edge:	1975.4 MHz (Channel 738)
Right Edge:	1989.6 MHz (Channel 809)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

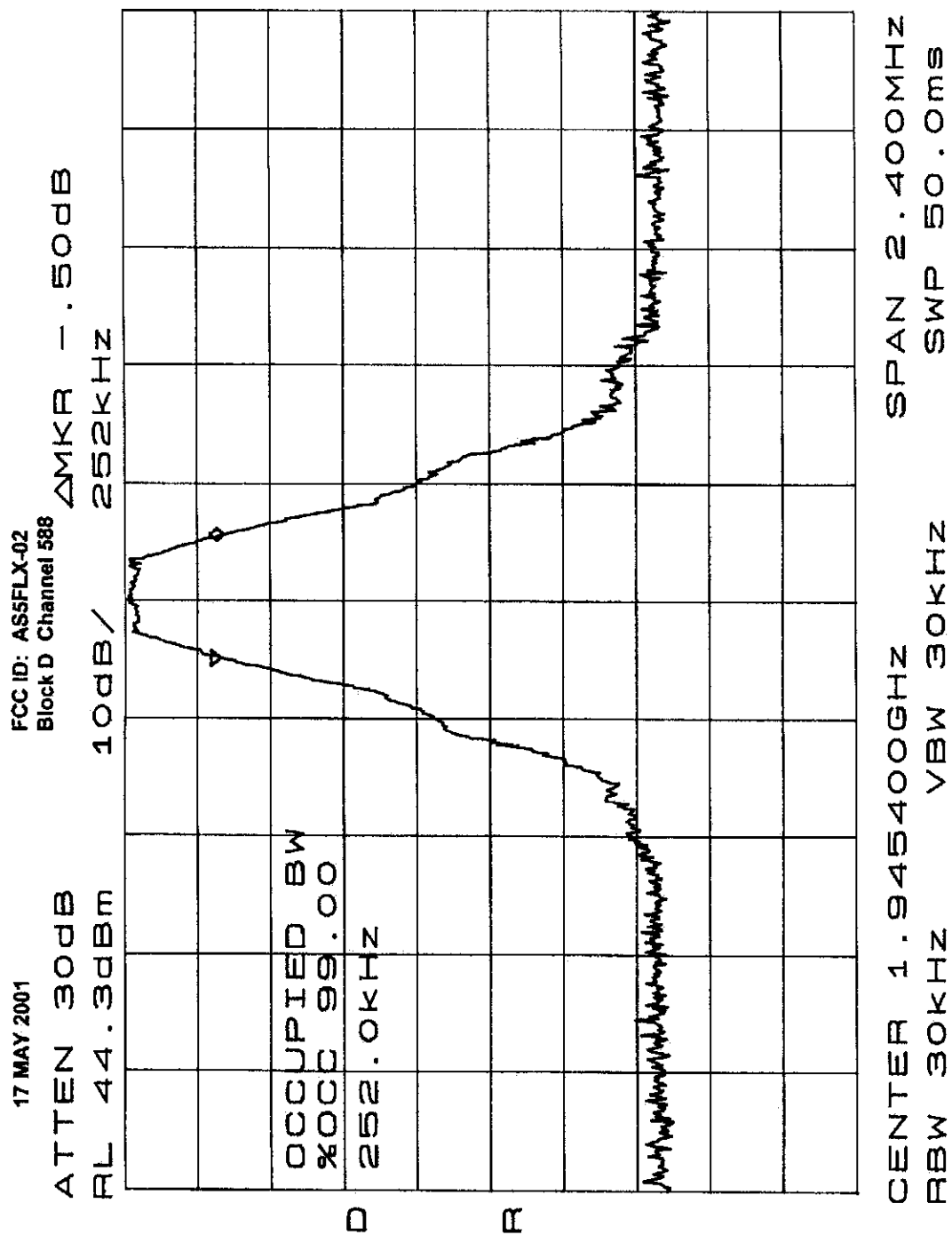
99% OF POWER

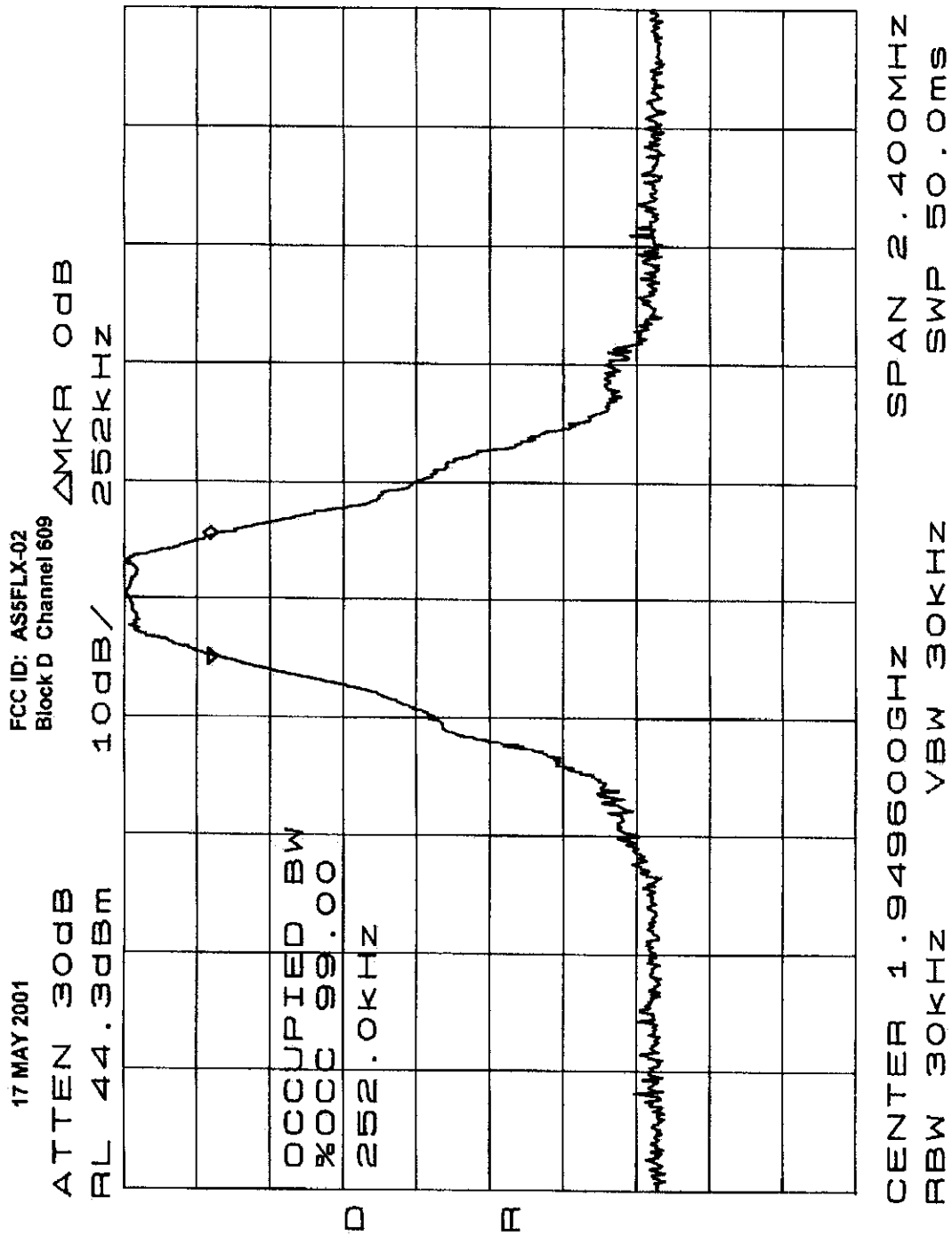
2 TRX WITH COMBINER

BLOCK D

(1945 – 1950 MHz)

Left Edge:	1945.4 MHz (Channel 588)
Right Edge:	1949.6 MHz (Channel 609)





MEASUREMENT: 3

MEASUREMENT

OF

OCCUPIED BANDWIDTH

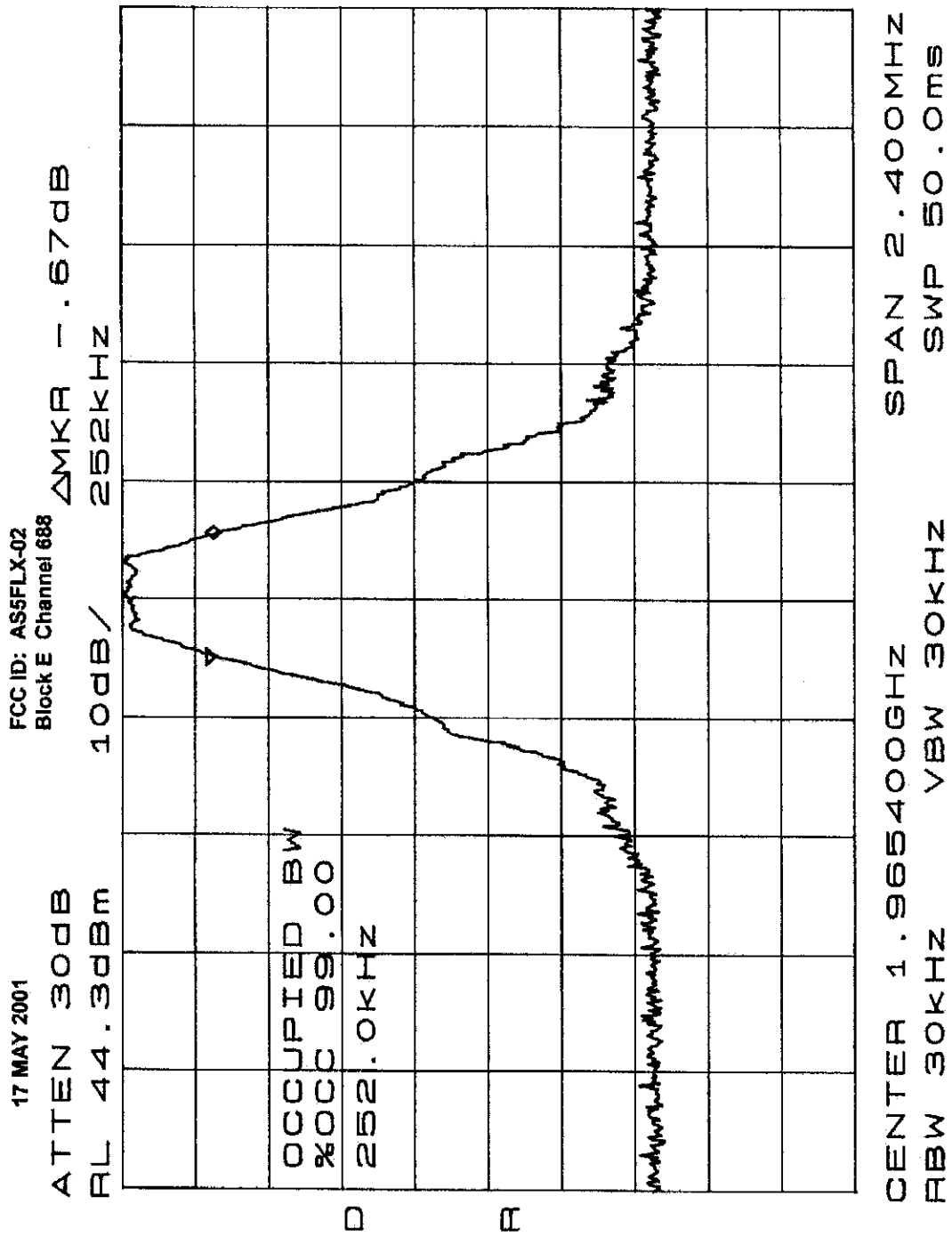
99% OF POWER

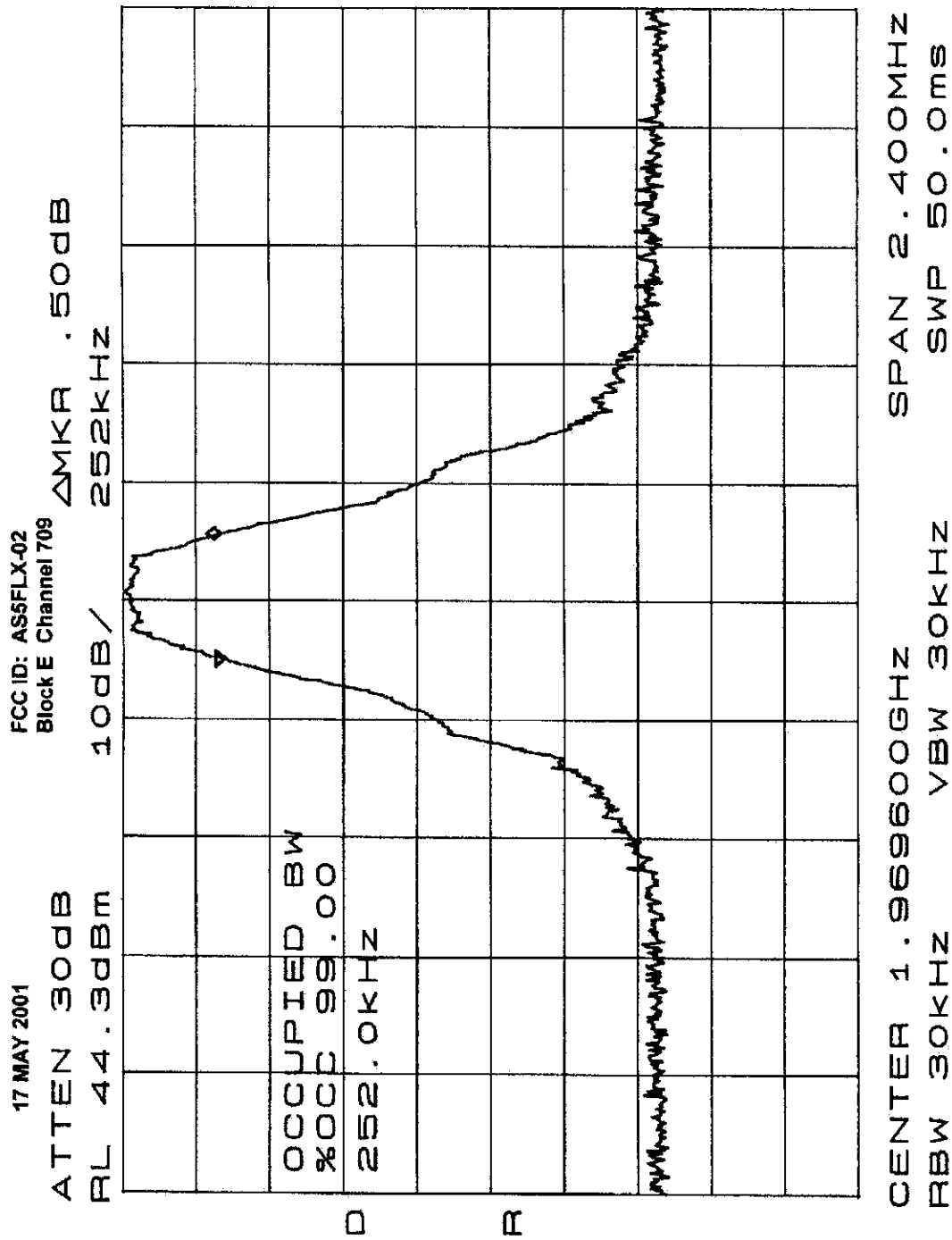
2 TRX WITH COMBINER

BLOCK E

(1965 – 1970 MHz)

Left Edge:	1965.4 MHz (Channel 688)
Right Edge:	1969.6 MHz (Channel 709)





MEASUREMENT: 3

MEASUREMENT

OF

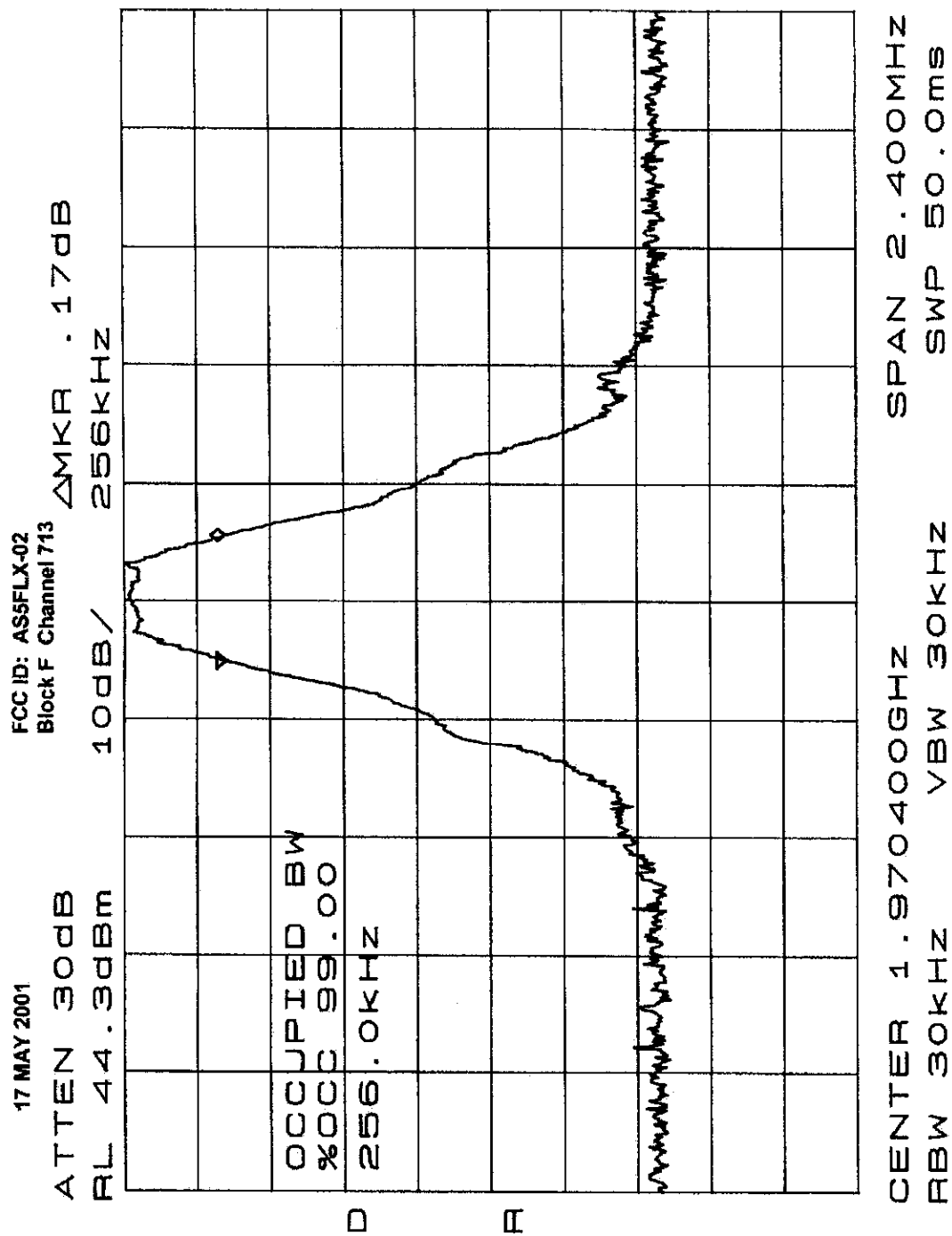
OCCUPIED BANDWIDTH

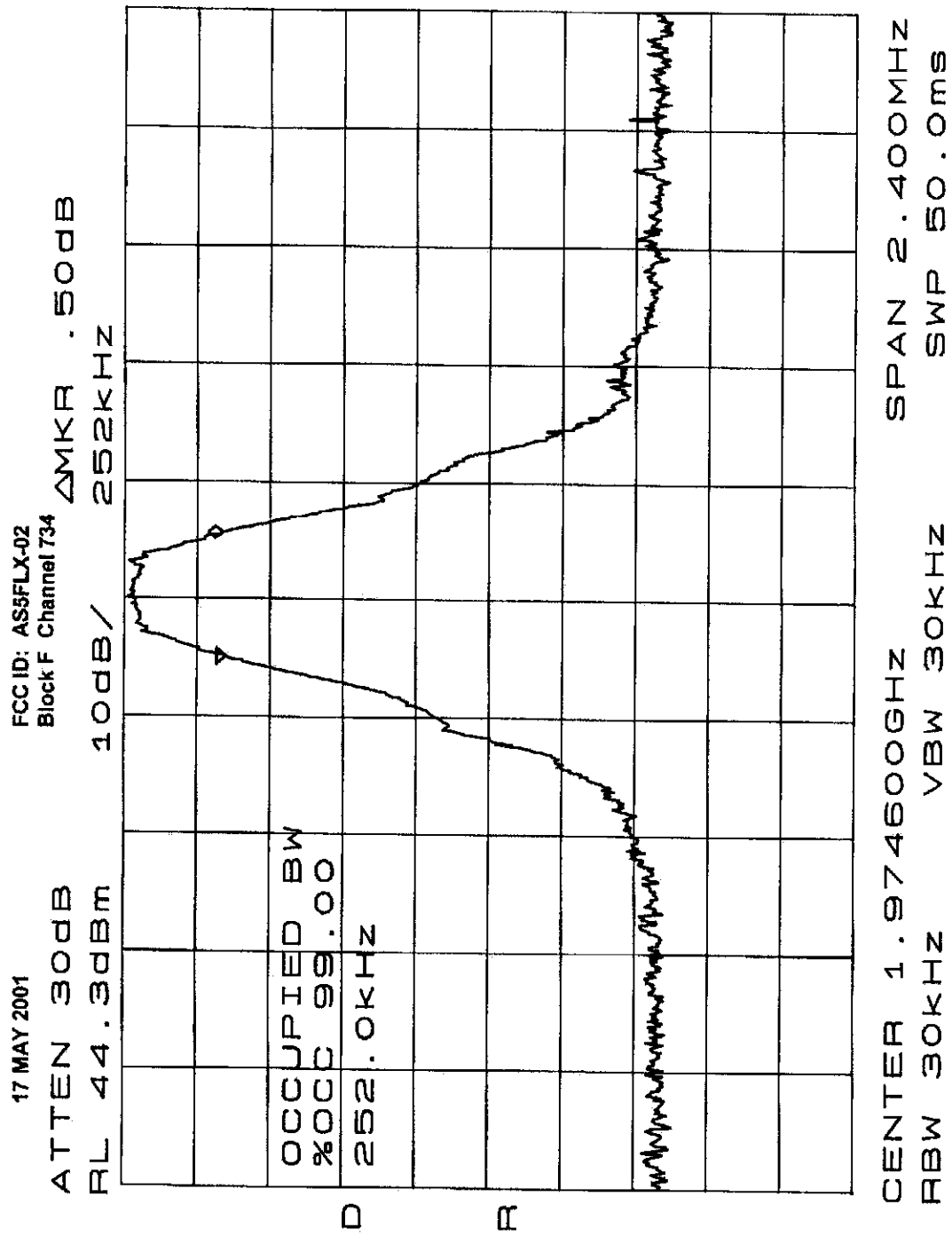
2 TRX WITH COMBINER

BLOCK F

(1970 – 1975 MHz)

Left Edge:	1970.4 MHz (Channel 713)
Right Edge:	1974.6 MHz (Channel 734)





MEASUREMENT OF OCCUPIED BANDWIDTH

CONTINUES AFTER MEASUREMENT 3A DATA

SECTION 2.1049 – Measurement 3B

MEASUREMENT: 3

MEASUREMENT

OF

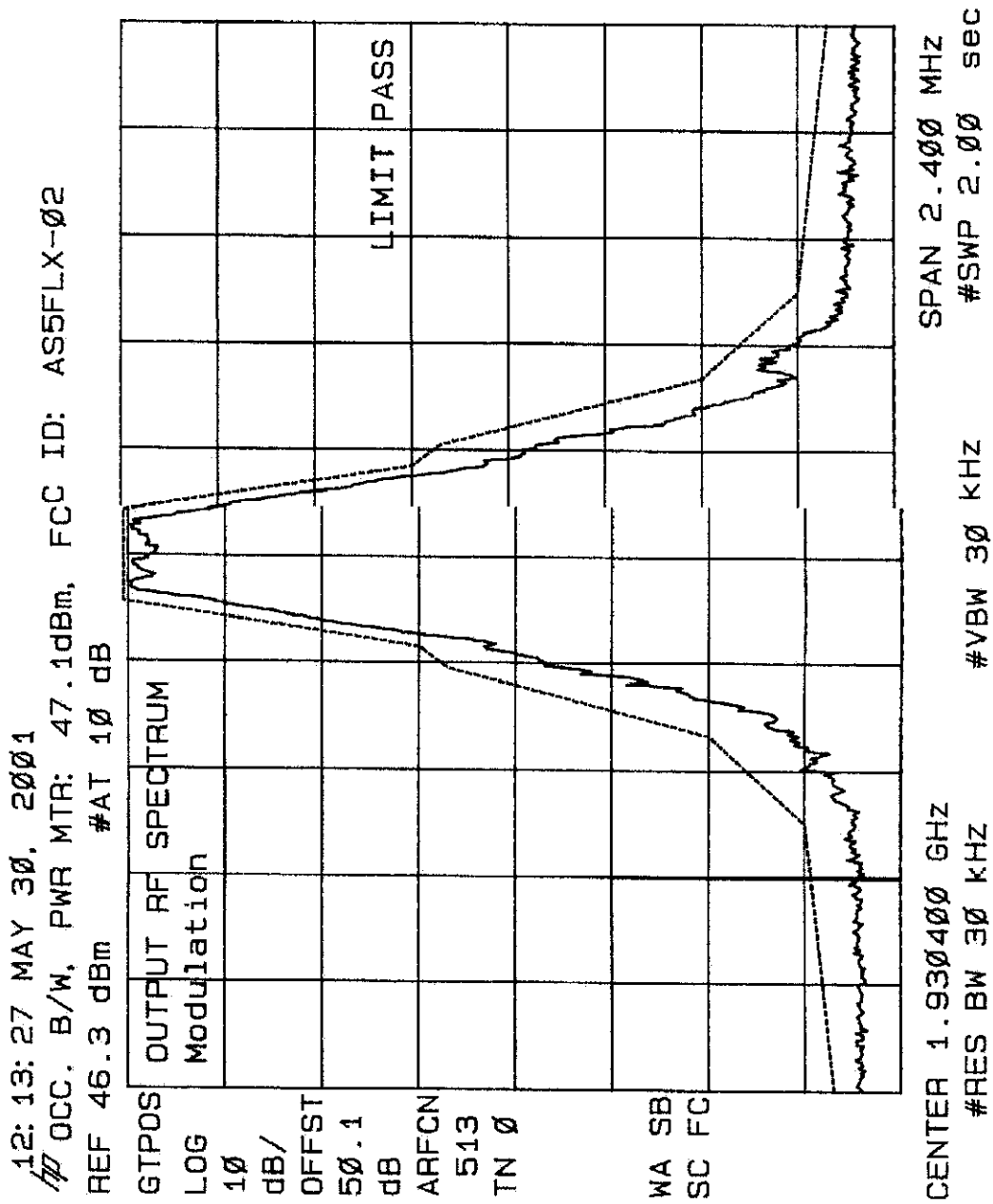
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK A

(1930 – 1945 MHz)

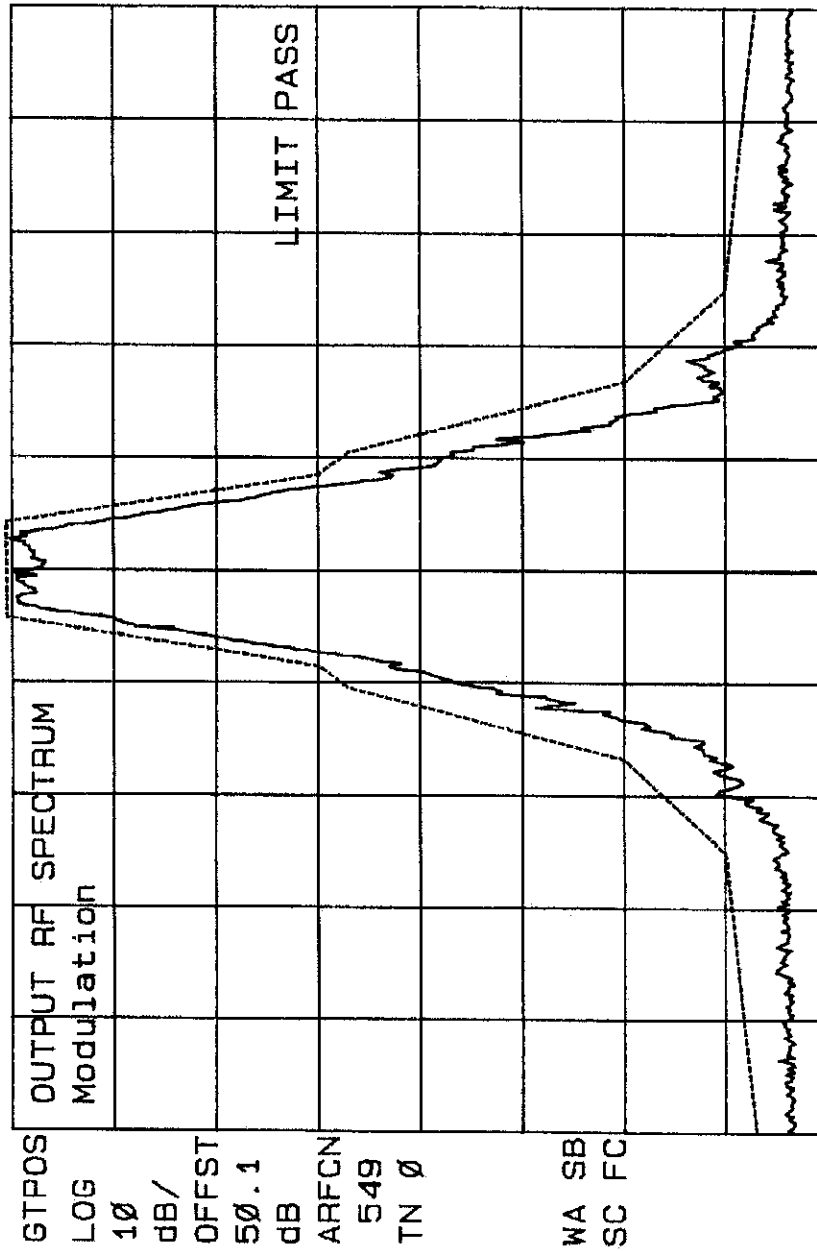
Left Edge:	1930.4 MHz (Channel 513)
Center:	1937.6 MHz (Channel 547)
Right Edge:	1944.6 MHz (Channel 584)



GTSMP		OUTPUT RF SPECTRUM			
LOG		Modulation			
10		- Offset		+ Offset	
dB/		Offset	Freq	dB	dBm
OFFST		0	KHz	0.0	36.0
50.1		100	KHz	-6.9	29.1
dB		200	KHz	-33.7	2.3
ARFCN		250	KHz	-44.2	-8.2
513		400	KHz	-70.9	-34.8
TN 0		600	KHz	-76.8	-40.8
BURST		800	KHz	-80.3	-44.2
1		1000	KHz	-77.7	-41.6
		1200	KHz	-78.4	-42.4
SA SB		1400	KHz	-81.1	-45.1
SC EC		1600	KHz	-80.7	-44.7
		1800	KHz	-73.9	-37.9
				0.0	36.0
				-3.9	32.1
				-33.4	2.6
				-46.2	-10.2
				-69.5	-33.5
				-78.0	-42.0
				-79.9	-43.9
				-79.5	-43.5
				-81.5	-45.5
				-80.2	-44.2
				-79.0	-43.0
				-74.1	-38.1

CENTER 1.9304000 GHz
#RES BW 30 KHZ
#VBW 30 KHZ
SPAN 0 HZ
#SWP 320 usec

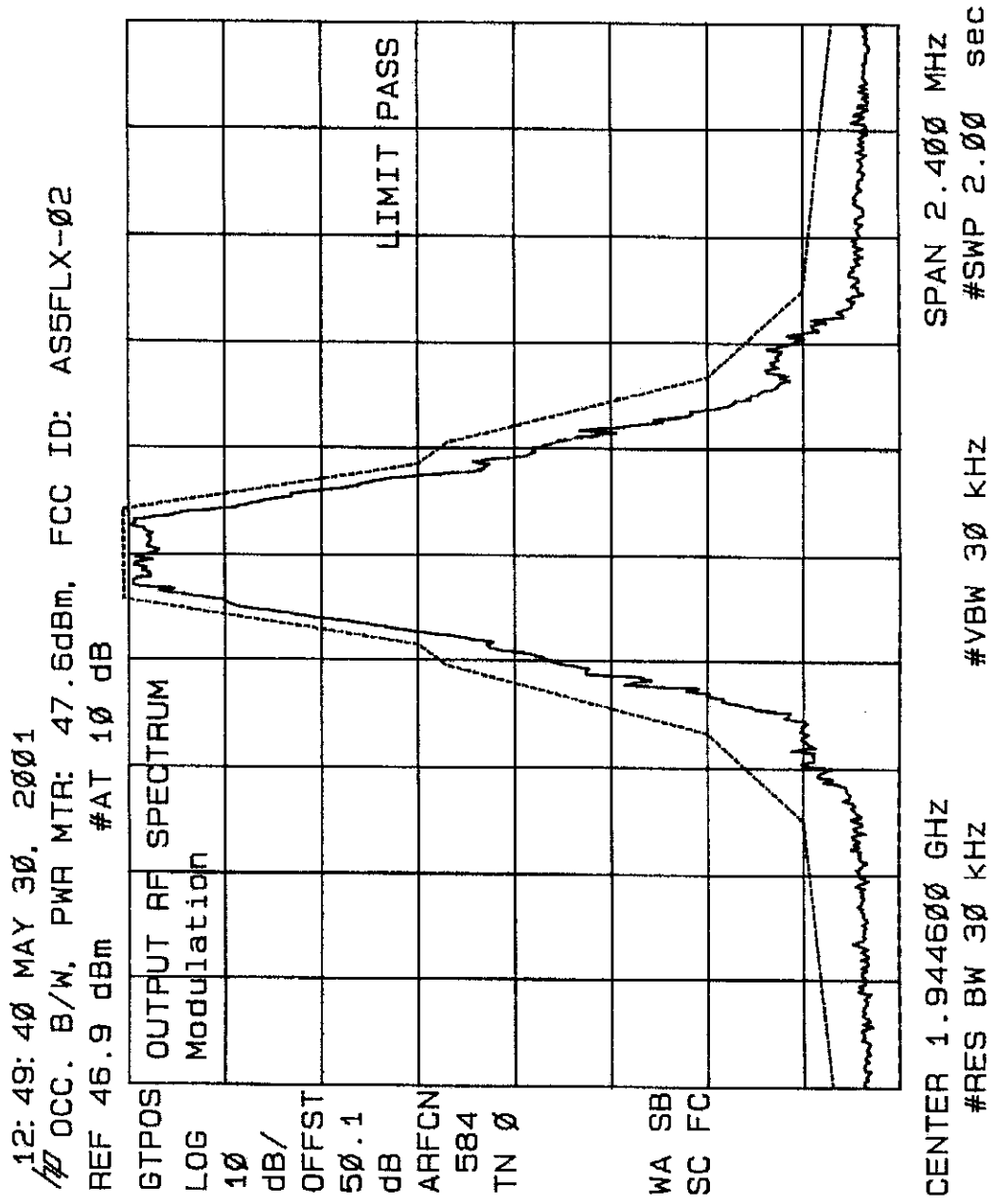
12:30:57 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 46.8 dBm #AT 10 dB



12: 41: 25 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 44.7 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
549					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	kHz	dBm	dBm
		0.0	0.0	36.3	0.0
		-7.0	100	29.3	-4.0
		-33.7	200	2.6	-33.4
		-44.1	250	-7.8	-46.0
		-68.6	400	-32.3	-74.5
		-78.1	600	-41.8	-77.3
		-78.8	800	-42.5	-77.9
		-79.7	1000	-43.4	-78.9
		-81.5	1200	-45.2	-80.3
		-80.8	1400	-44.5	-77.6
		-79.3	1600	-42.9	-79.4
		-74.5	1800	-38.2	-74.3

CENTER 1.9376000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



13:01:11 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

OUTPUT RF SPECTRUM				
LOG	Modulation			
10				
dB/				
OFFST	Offset Freq	- Offset	+ Offset	
50.1	kHz	dB	dB	dBm
dB				
ARFCN				
584				
TN 0				
BURST				
1				
SA SB				
SC EC				
	0 kHz	0.0	0.0	36.4
	100 kHz	-6.8	-3.8	32.6
	200 kHz	-33.6	-33.5	2.9
	250 kHz	-43.6	-46.0	-9.7
	400 kHz	-71.0	-70.6	-34.2
	600 kHz	-76.5	-77.6	-41.2
	800 kHz	-78.3	-78.2	-41.9
	1000 kHz	-78.9	-79.8	-43.4
	1200 kHz	-81.2	-80.4	-44.0
	1400 kHz	-78.7	-81.7	-45.3
	1600 kHz	-78.3	-81.6	-45.2
	1800 kHz	-75.0	-74.2	-37.8

CENTER 1.9446000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec

MEASUREMENT: 3

MEASUREMENT

OF

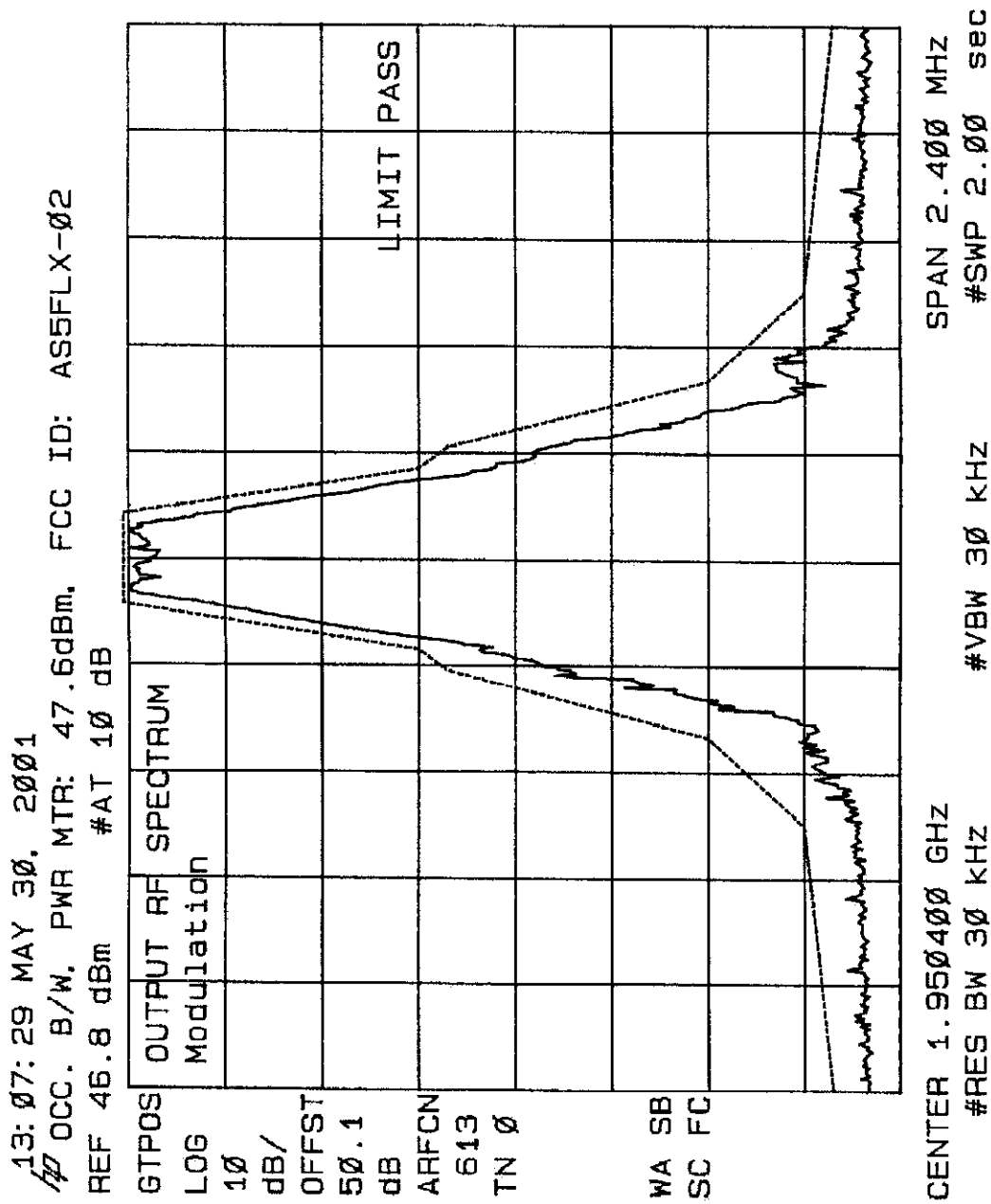
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK B

(1950 – 1965 MHz)

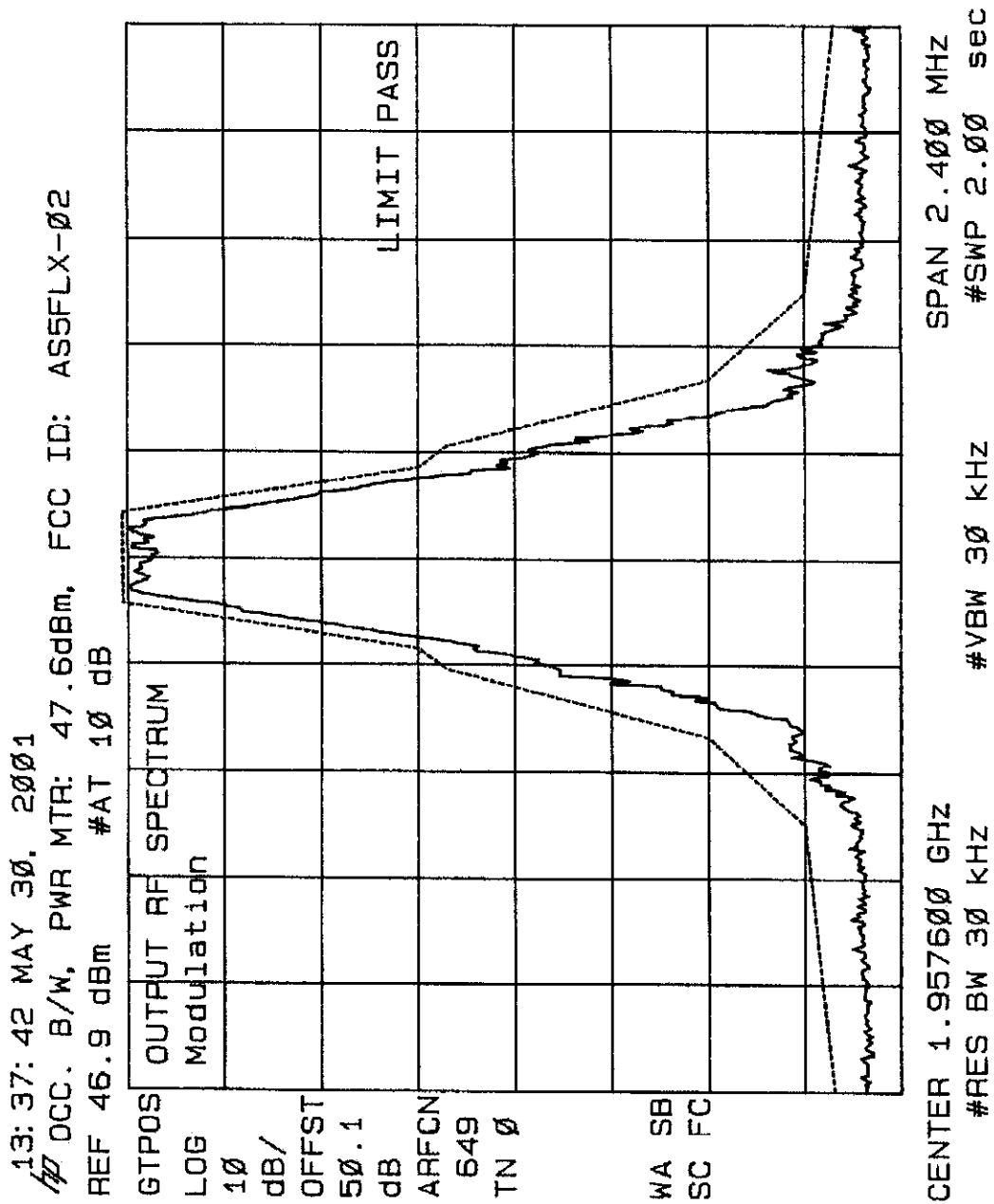
Left Edge:	1950.4 MHz (Channel 613)
Center:	1957.6 MHz (Channel 649)
Right Edge:	1964.6 MHz (Channel 684)



13:18:22 MAY 30, 2001
 17 OCC.: B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation	- Offset		+ Offset	
10		Offset	Freq	dB	dBm
dB/					
OFFST					
50.1	0 KHz	0.0		0.0	36.5
dB	100 KHz	-6.8		-4.2	32.3
ARFCN	200 KHz	-33.8		-33.5	3.0
613	250 KHz	-44.3		-46.5	-10.1
TN 0	400 KHz	-72.1		-71.5	-35.0
BURST	600 KHz	-75.9		-77.7	-41.2
1	800 KHz	-76.2		-79.2	-42.8
	1000 KHz	-82.2		-77.2	-40.8
	1200 KHz	-81.4		-81.8	-45.3
SA SB	1400 KHz	-80.5		-78.9	-42.4
SC EC	1600 KHz	-79.5		-81.3	-44.8
	1800 KHz	-74.3		-73.9	-37.4

CENTER 1.9504000 GHz SPAN 0 Hz
 #RES BW 30 KHz #VBW 30 KHz #SWP 320 μsec

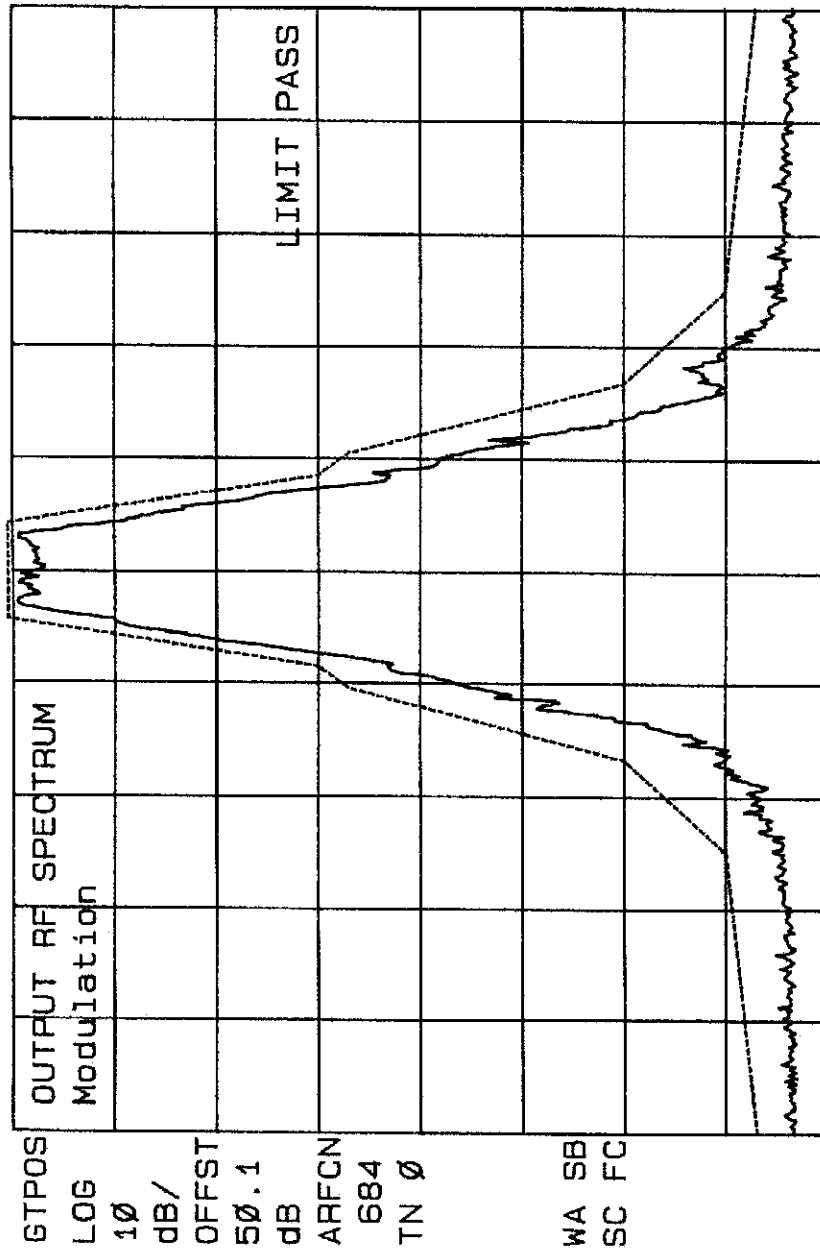


13: 49: 17 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10		- Offset		+ Offset	
dB/		Offset	Freq	dB	dBm
OFFST					
50.1		0	KHz	0.0	36.4
dB		100	KHz	-6.8	29.6
ARFCN		200	KHz	-33.8	2.6
649		250	KHz	-43.9	-7.5
TN 0		400	KHz	-71.7	-35.3
BURST		600	KHz	-79.7	-43.3
1		800	KHz	-78.5	-42.1
		1000	KHz	-80.7	-44.3
		1200	KHz	-79.7	-43.3
SA SB		1400	KHz	-79.3	-42.9
SC EC		1600	KHz	-80.2	-43.8
		1800	KHz	-75.3	-38.9
				0.0	36.4
				-4.1	32.3
				-33.5	2.9
				-46.0	-9.6
				-68.8	-32.4
				-78.9	-42.5
				-79.6	-43.2
				-79.9	-43.5
				-80.2	-43.8
				-81.8	-45.4
				-81.0	-44.6
				-76.4	-40.0

CENTER 1.9576000 GHz SPAN 0 Hz
 #RES BW 30 KHz #VBW 30 KHz #SWP 320 μsec

14:03:34 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 47.0 dBm #AT 10 dB



CENTER 1.964600 GHZ
 #RES BW 30 KHZ
 #VBW 30 KHZ
 SPAN 2.400 MHZ
 #SWP 2.00 sec

OUTPUT RF SPECTRUM				
Modulation				
Offset Freq	- Offset		+ Offset	
	dB	dBm	dB	dBm
0 KHz	0.0	36.4	0.0	36.4
100 KHz	-6.9	29.5	-3.9	32.5
200 KHz	-33.8	2.6	-33.5	2.9
250 KHz	-43.6	-7.3	-46.3	-10.0
400 KHz	-72.9	-36.5	-71.4	-35.0
600 KHz	-78.9	-42.6	-77.7	-41.3
800 KHz	-78.2	-41.9	-77.5	-41.2
1000 KHz	-79.0	-42.6	-80.0	-43.6
1200 KHz	-80.8	-44.4	-80.0	-43.6
1400 KHz	-81.4	-45.0	-81.3	-45.0
1600 KHz	-81.5	-45.1	-80.6	-44.2
1800 KHz	-74.3	-37.9	-74.5	-38.2

CENTER 1.9646000 GHz
#RES BW 30 kHz

SPAN 0 Hz
#SWP 320 μ sec

#VBW 30 kHz

MEASUREMENT: 3

MEASUREMENT

OF

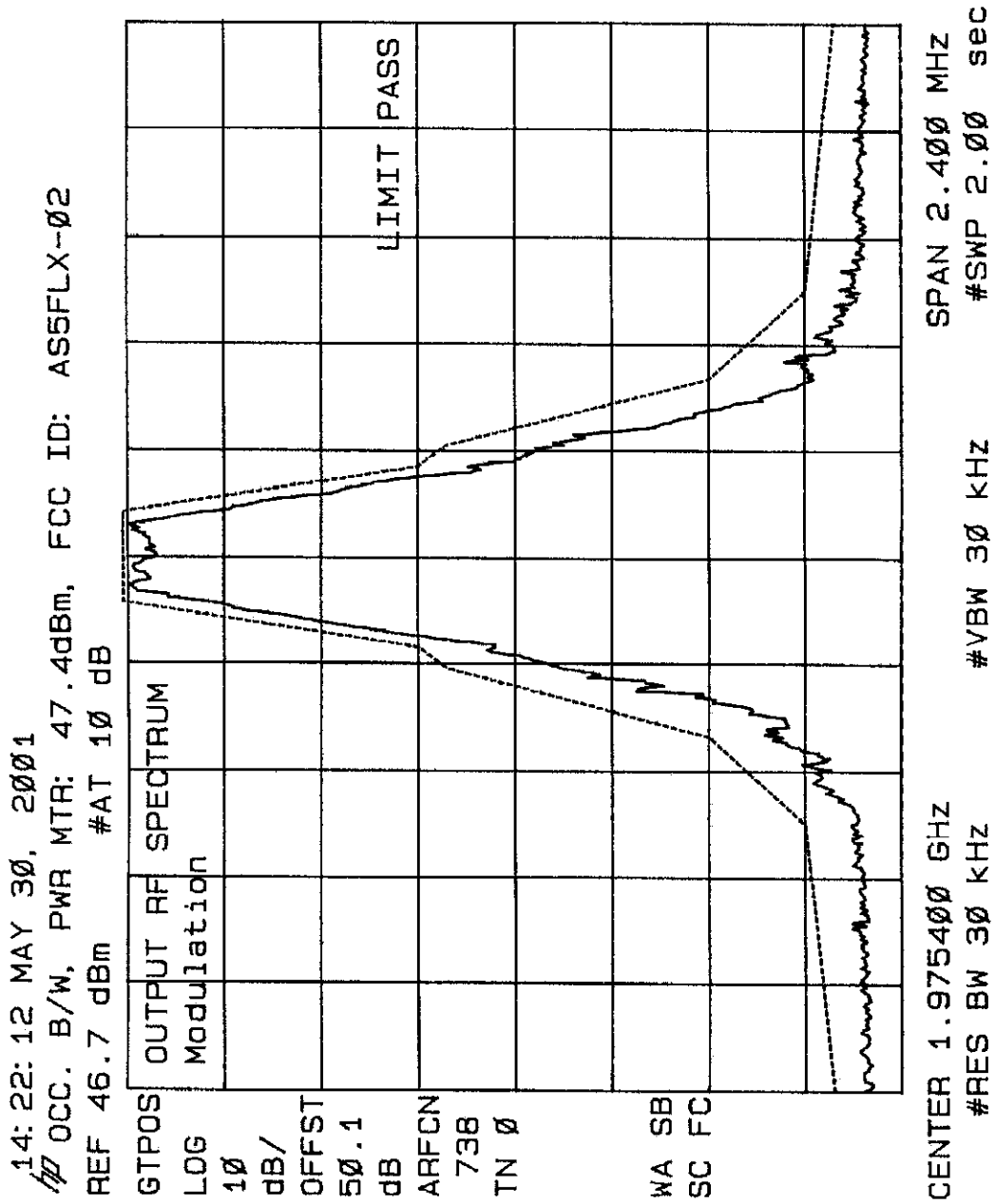
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK C

(1975 – 1990 MHz)

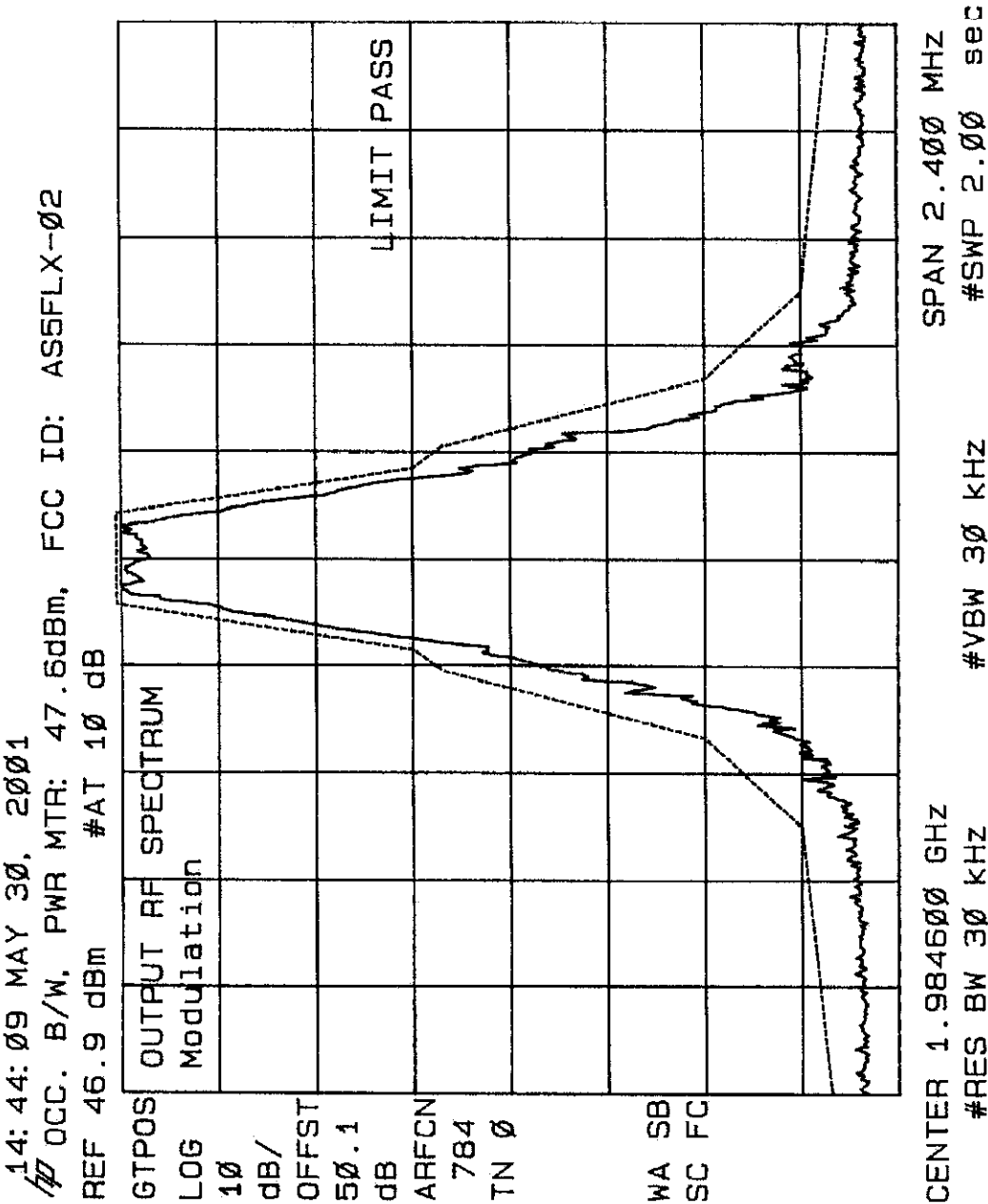
Left Edge:	1975.4 MHz (Channel 738)
Center:	1984.6 MHz (Channel 784)
Right Edge:	1989.6 MHz (Channel 809)



14: 34: 52 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.4dBm, FCC ID: AS5FLX-02
 REF 44.7 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
73B					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	kHz	dB	dBm
		0.0	0	0.0	36.2
		-6.7	100	-4.0	32.2
		-33.6	200	-33.5	2.7
		-43.8	250	-45.8	-9.6
		-73.4	400	-71.0	-34.7
		-76.3	600	-77.6	-41.4
		-79.4	800	-75.6	-39.4
		-82.1	1000	-81.0	-44.8
		-78.5	1200	-78.0	-41.8
		-81.1	1400	-79.6	-43.4
		-79.3	1600	-81.0	-44.8
		-74.2	1800	-75.1	-38.9

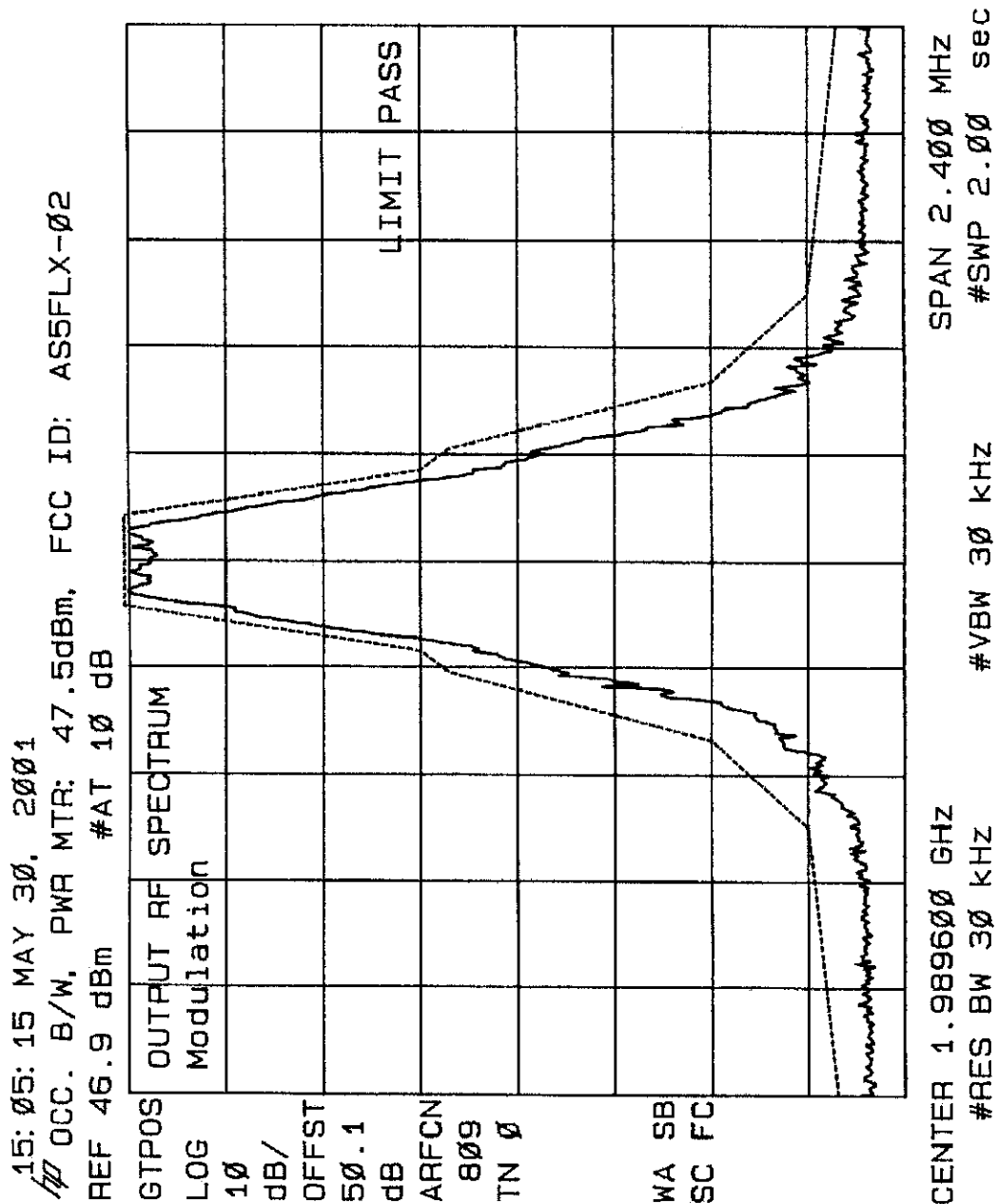
CENTER 1.9754000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



14:57:52 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 45.0 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
784					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		dB	dBm	dB	dBm
		0 KHz	0.0	0.0	36.6
		100 KHz	-6.8	-4.1	32.5
		200 KHz	-33.7	-33.5	3.1
		250 KHz	-43.8	-46.4	-9.8
		400 KHz	-69.2	-69.8	-33.2
		600 KHz	-78.1	-77.5	-40.9
		800 KHz	-79.4	-78.5	-42.0
		1000 KHz	-77.8	-79.9	-43.3
		1200 KHz	-80.6	-77.5	-40.9
		1400 KHz	-79.7	-80.6	-44.0
		1600 KHz	-79.5	-79.6	-43.0
		1800 KHz	-76.4	-74.1	-37.5

CENTER 1.9846000 GHz SPAN 0 Hz
 #RES BW 30 KHz #VBW 30 KHz #SWP 320 μsec



15:16:02 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 45.0 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
809					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	kHz	dB	dBm
		dB	kHz	dBm	dBm
		0.0	0	36.6	0.0
		-6.7	100	29.8	-4.0
		-33.7	200	2.9	-33.5
		-43.8	250	-7.2	-45.9
		-73.0	400	-36.4	-69.0
		-78.3	600	-41.7	-78.0
		-81.1	800	-44.5	-77.5
		-80.0	1000	-43.4	-80.6
		-79.7	1200	-43.1	-80.5
		-79.3	1400	-42.7	-81.3
		-80.3	1600	-43.7	-79.3
		-76.3	1800	-39.8	-75.5

CENTER 1.9896000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec

MEASUREMENT: 3

MEASUREMENT

OF

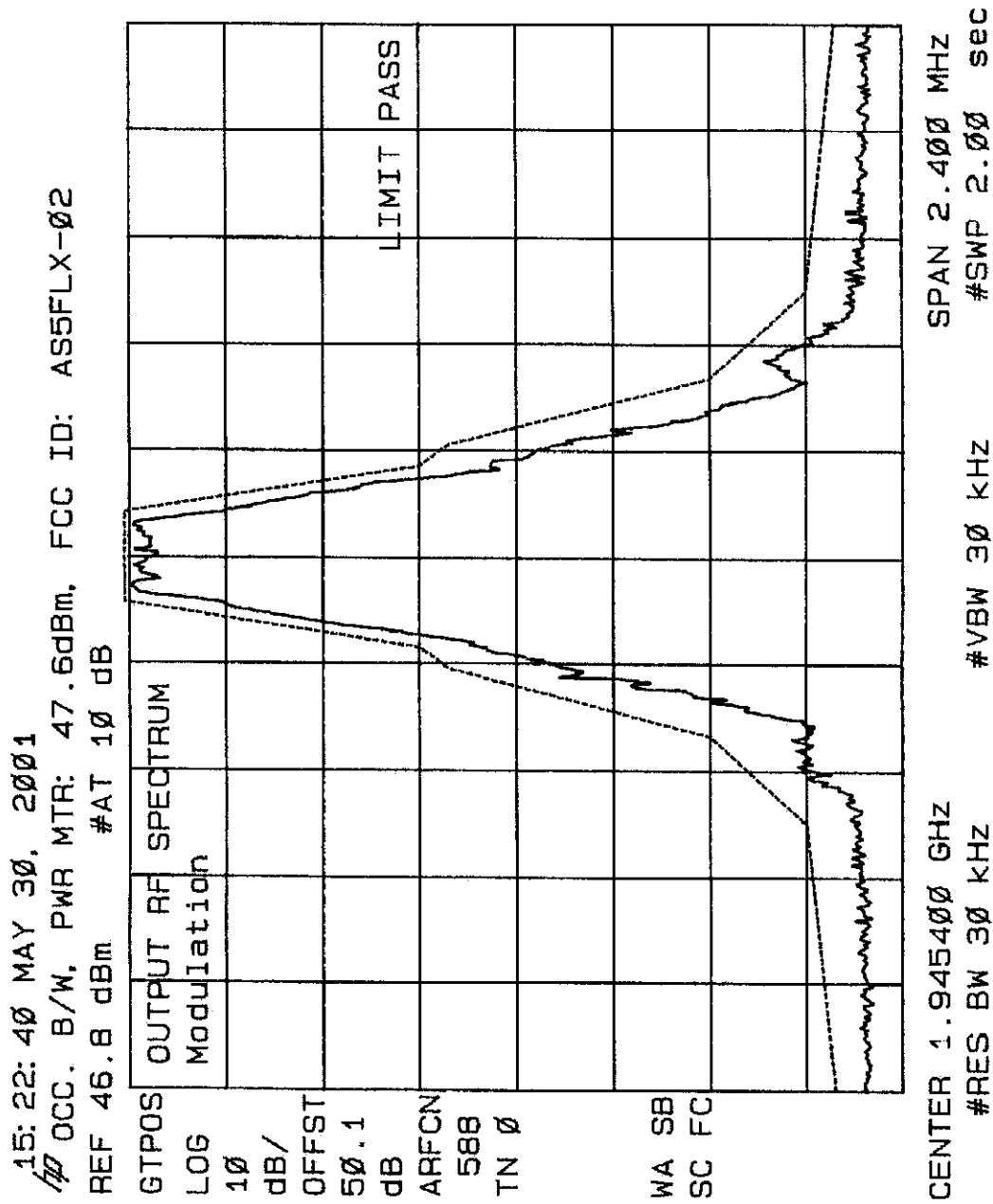
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK D

(1945 – 1950 MHz)

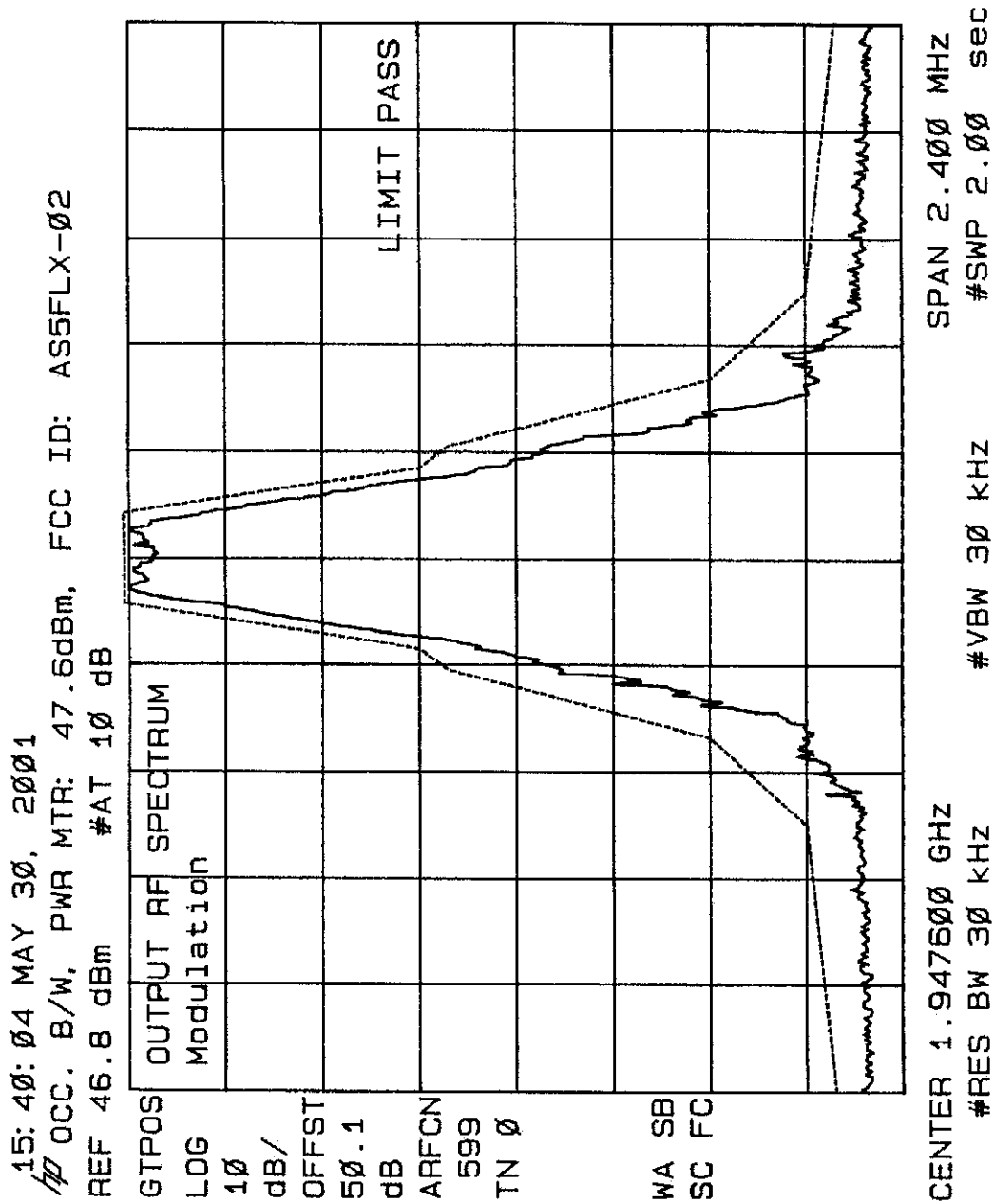
Left Edge:	1945.4 MHz (Channel 588)
Center:	1947.6 MHz (Channel 599)
Right Edge:	1949.6 MHz (Channel 609)



15:34:05 MAY 30, 2001
 /00C. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

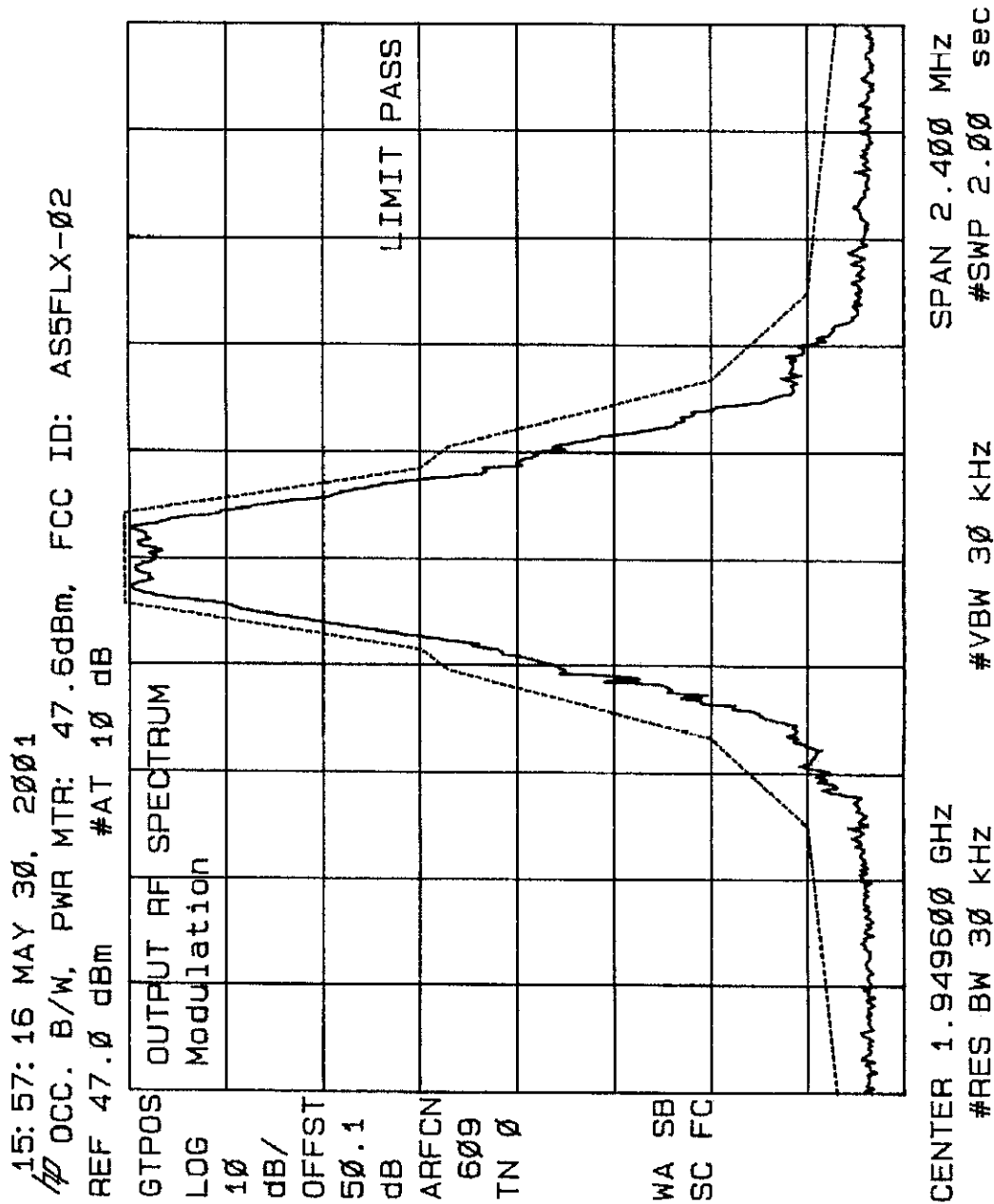
GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
588					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	36.4	0.0
		100	-6.6	29.8	-4.0
		200	-33.9	2.5	-33.5
		250	-43.8	-7.4	-46.0
		400	-73.7	-37.3	-72.0
		600	-77.8	-41.4	-77.7
		800	-79.6	-43.2	-78.0
		1000	-79.6	-43.2	-75.6
		1200	-79.7	-43.3	-79.2
		1400	-80.3	-43.9	-79.2
		1600	-78.9	-42.5	-80.3
		1800	-74.5	-38.1	-75.3

CENTER 1.9454000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



GTSMF				OUTPUT RF SPECTRUM			
LOG				Modulation			
10				- Offset		+ Offset	
dB/	OFFST	Offset	Freq	dB	dBm	dB	dBm
50.1		0	KHz	0.0	36.4	0.0	36.4
dB		100	KHz	-6.7	29.7	-4.0	32.4
ARFCN		200	KHz	-33.6	2.8	-33.3	3.1
599		250	KHz	-43.5	-7.0	-45.4	-9.0
TN 0		400	KHz	-74.7	-38.2	-68.8	-32.4
BURST		600	KHz	-78.1	-41.7	-76.4	-40.0
1		800	KHz	-77.4	-41.0	-80.2	-43.8
		1000	KHz	-81.9	-45.5	-80.2	-43.8
SA SB		1200	KHz	-79.2	-42.8	-81.2	-44.7
SC EC		1400	KHz	-81.1	-44.7	-78.8	-42.4
		1600	KHz	-80.9	-44.5	-79.5	-43.1
		1800	KHz	-76.6	-40.2	-73.1	-36.7

CENTER 1.9476000 GHz
#RES BW 30 kHz #VBW 30 kHz #SWP 320 μ sec SPAN 0 Hz



16:08:12 MAY 30, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10		- Offset		+ Offset	
dB/		Offset	Freq	dB	dBm
OFFST					
50.1		0	kHz	0.0	36.4
dB		100	kHz	-6.7	29.7
ARFCN		200	kHz	-33.6	2.8
609		250	kHz	-43.8	-7.4
TN 0		400	kHz	-64.7	-28.3
BURST		600	kHz	-77.3	-40.9
1		800	kHz	-76.8	-40.4
		1000	kHz	-80.9	-44.5
SA SB		1200	kHz	-81.9	-45.5
SC EC		1400	kHz	-79.7	-43.3
		1600	kHz	-79.8	-43.4
		1800	kHz	-73.5	-37.0

CENTER 1.9496000 GHz #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec SPAN 0 Hz

MEASUREMENT: 3

MEASUREMENT

OF

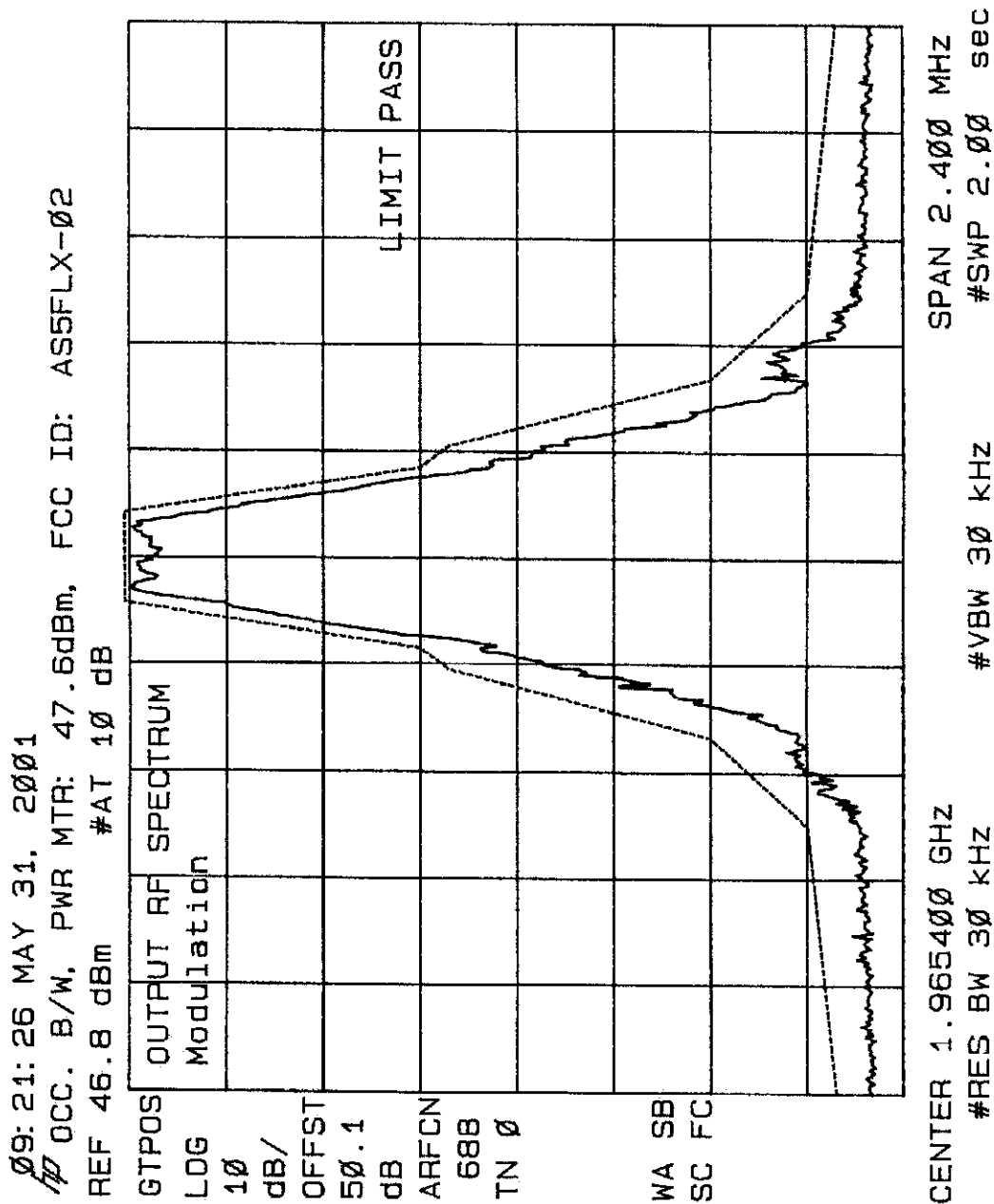
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK E

(1965 – 1970 MHz)

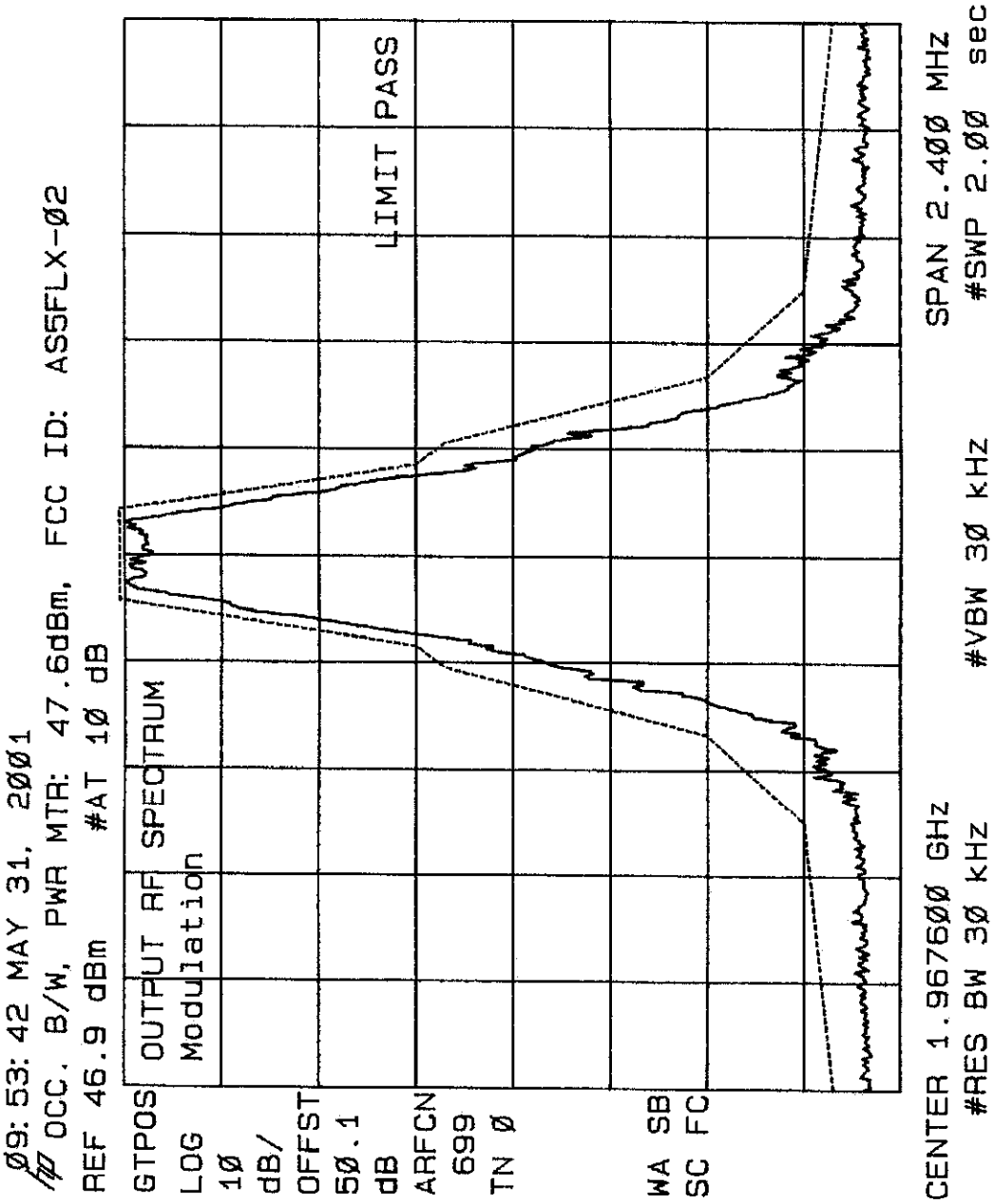
Left Edge:	1965.4 MHz (Channel 688)
Center:	1967.6 MHz (Channel 699)
Right Edge:	1969.6 MHz (Channel 709)



09:41:17 MAY 31, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.7 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
688					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	36.4	36.4
		100	-6.8	29.6	32.3
		200	-33.6	2.9	3.1
		250	-44.0	-7.6	-9.6
		400	-69.6	-33.1	-35.6
		600	-76.9	-40.5	-42.2
		800	-79.6	-43.2	-39.9
		1000	-80.6	-44.2	-43.5
		1200	-80.5	-44.1	-43.3
		1400	-80.3	-43.9	-44.4
		1600	-81.6	-45.1	-43.0
		1800	-74.5	-38.0	-37.9

CENTER 1.9654000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



10: 11:52 MAY 31, 2001
 OCC. B/W, PWR MTR: 47.6dBm, FCC ID: AS5FLX-02
 REF 44.7 dBm #AT 10 dB

GTSM

907

10

BB/

15730

50.1

82

ARFCN

50

~~SECRET~~

Index

SA SB

OUTPUT RF SPECTRUM			
Modulation			
- Offset		+ Offset	
Offset Freq	dB	dB	dBm
0 KHz	0.0	0.0	36.5
100 KHz	-6.7	-4.1	32.4
200 KHz	-34.0	-33.5	2.9
250 KHz	-43.4	-46.4	-9.9
400 KHz	-69.9	-71.0	-34.5
600 KHz	-75.1	-76.0	-39.6
800 KHz	-78.9	-77.6	-41.1
1000 KHz	-78.4	-80.1	-43.6
1200 KHz	-79.8	-78.8	-42.4
1400 KHz	-81.3	-81.7	-45.2
1600 KHz	-80.5	-78.4	-41.9
1800 KHz	-75.2	-74.8	-38.4

CENTER 1.9676000 GHz

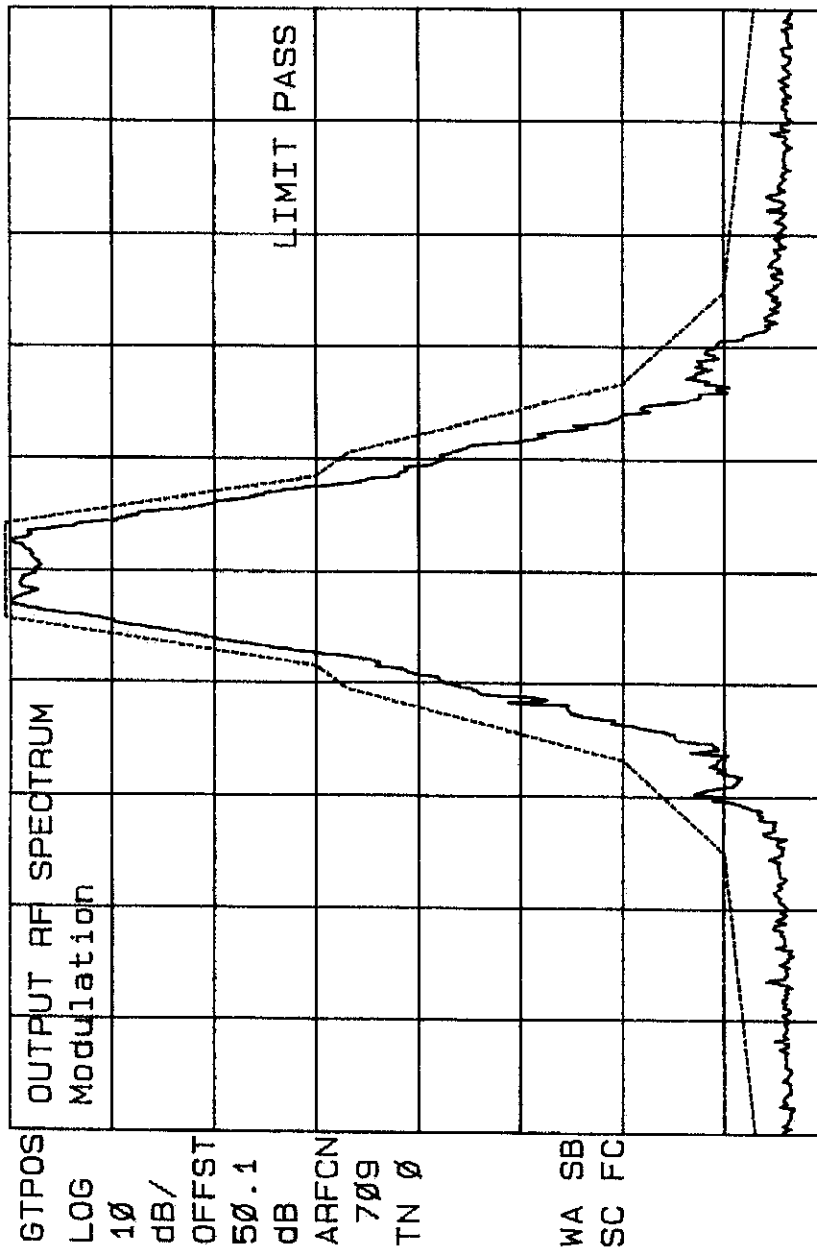
#RES BW 30 KHZ

SPAN Ø HZ

#SWP 320 usec

#VBW 30 KHZ

10:20:39 MAY 31, 2001
 OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 46.8 dBm #AT 10 dB



CENTER 1.969600 GHz
 #RES BW 30 KHZ
 #VBW 30 KHZ
 SPAN 2.400 MHz
 #SWP 2.00 sec

10:31:45 MAY 31, 2001
 10 OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
709					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	36.4	0.0
		100	-6.7	29.7	-3.9
		200	-33.9	2.5	-33.4
		250	-43.8	-7.4	-46.5
		400	-72.2	-35.7	-70.4
		600	-80.0	-43.5	-76.2
		800	-80.1	-43.6	-78.2
		1000	-81.0	-44.5	-79.8
		1200	-79.0	-42.6	-78.4
		1400	-82.9	-46.4	-80.5
		1600	-79.2	-42.8	-79.4
		1800	-73.5	-37.1	-74.8

CENTER 1.9696000 GHZ
 #RES BW 30 KHZ
 #VBW 30 KHZ
 #SWP 320 μsec
 SPAN 0 Hz

MEASUREMENT: 3

MEASUREMENT

OF

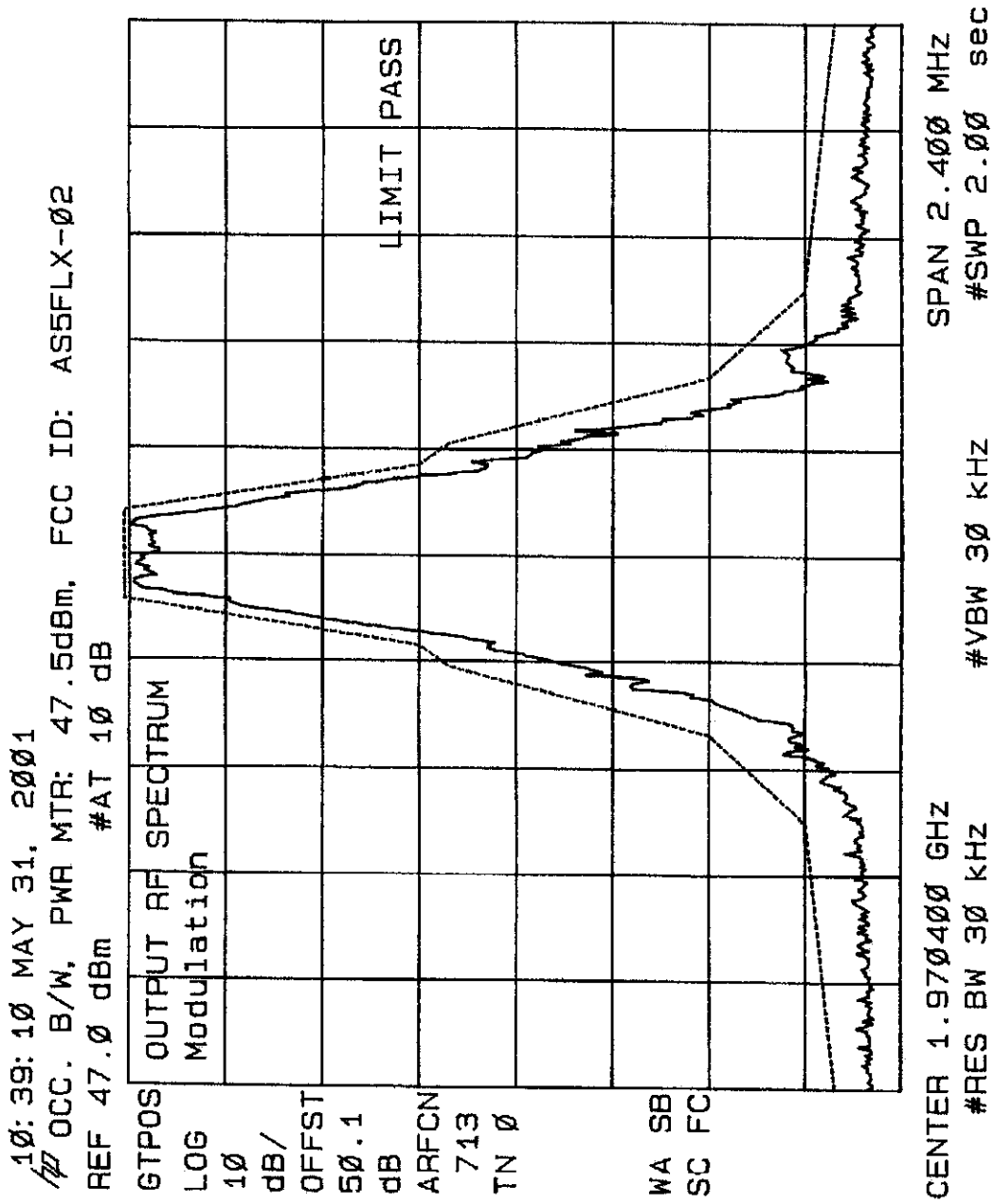
OCCUPIED BANDWIDTH

1 TRX WITHOUT COMBINER

BLOCK F

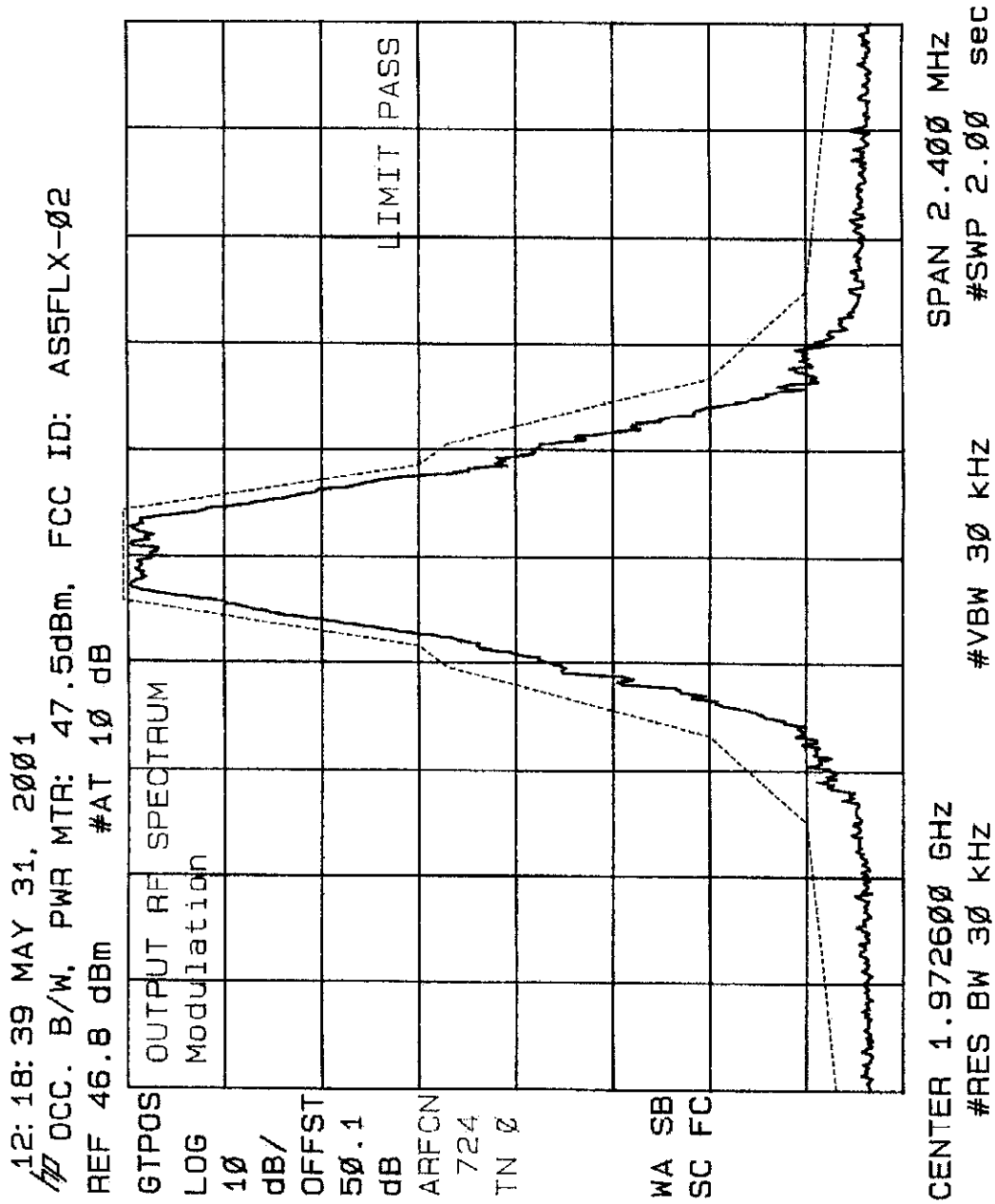
(1970 – 1975 MHz)

Left Edge:	1970.4 MHz (Channel 713)
Center:	1972.6 MHz (Channel 724)
Right Edge:	1974.6 MHz (Channel 734)



OUTPUT RF SPECTRUM			
Modulation			
		- Offset	+ Offset
Offset	Freq	dB	dBm
0	KHz	0.0	36.4
100	KHz	-6.8	29.6
200	KHz	-33.7	2.7
250	KHz	-43.7	-7.3
400	KHz	-72.5	-36.1
600	KHz	-79.5	-43.1
800	KHz	-80.2	-43.8
1000	KHz	-77.7	-41.3
1200	KHz	-80.6	-44.2
1400	KHz	-80.9	-44.5
1600	KHz	-81.1	-44.7
1800	KHz	-72.7	-36.3

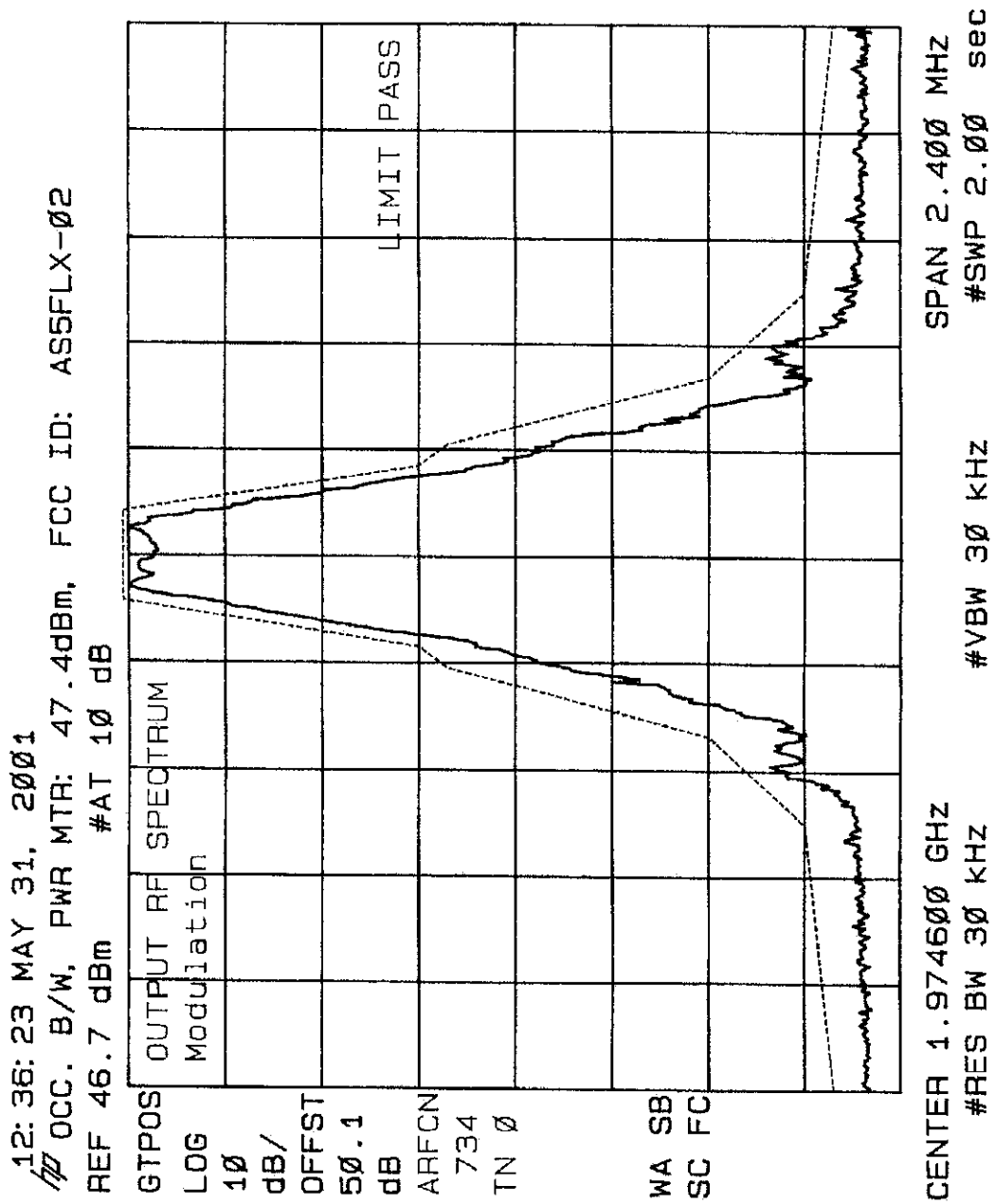
CENTER 1.9704000 GHz
#RES BW 30 kHz
#VBW 30 kHz
#SWP 320 μsec
SPAN 0 Hz



12:29:59 MAY 31, 2001
 / OCC. B/W, PWR MTR: 47.5dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
724					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	kHz	dBm	dBm
		0	0	36.4	36.4
		100	0	29.6	32.3
		200	0	2.6	2.6
		250	0	-7.4	-10.2
		400	0	-36.2	-33.0
		600	0	-42.3	-36.6
		800	0	-42.7	-41.8
		1000	0	-44.4	-42.8
		1200	0	-44.8	-43.8
		1400	0	-43.8	-44.0
		1600	0	-45.6	-44.9
		1800	0	-39.4	-38.5

CENTER 1.9726000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



12:50:39 MAY 31, 2001
 OCC. B/W, PWR MTR: 47.4dBm, FCC ID: AS5FLX-02
 REF 44.9 dBm #AT 10 dB

GTSMP		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
50.1					
dB					
ARFCN					
734					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	dBm	dBm	dBm
	0 KHz	0.0	36.3	0.0	36.3
	100 KHz	-6.6	29.7	-4.1	32.2
	200 KHz	-33.8	2.5	-33.4	2.9
	250 KHz	-43.7	-7.4	-46.3	-10.0
	400 KHz	-69.4	-33.1	-71.1	-34.8
	600 KHz	-76.5	-40.2	-77.2	-40.9
	800 KHz	-75.9	-39.6	-79.3	-43.0
	1000 KHz	-80.0	-43.7	-78.9	-42.6
	1200 KHz	-82.4	-46.1	-80.0	-43.7
	1400 KHz	-79.5	-43.2	-81.1	-44.8
	1600 KHz	-77.5	-41.3	-81.8	-45.5
	1800 KHz	-76.0	-39.7	-73.1	-36.8

CENTER 1.9745000 GHZ SPAN 0 Hz
 #RES BW 30 KHz #VBW 30 KHz #SWP 320 usec

MEASUREMENT: 3

MEASUREMENT

OF

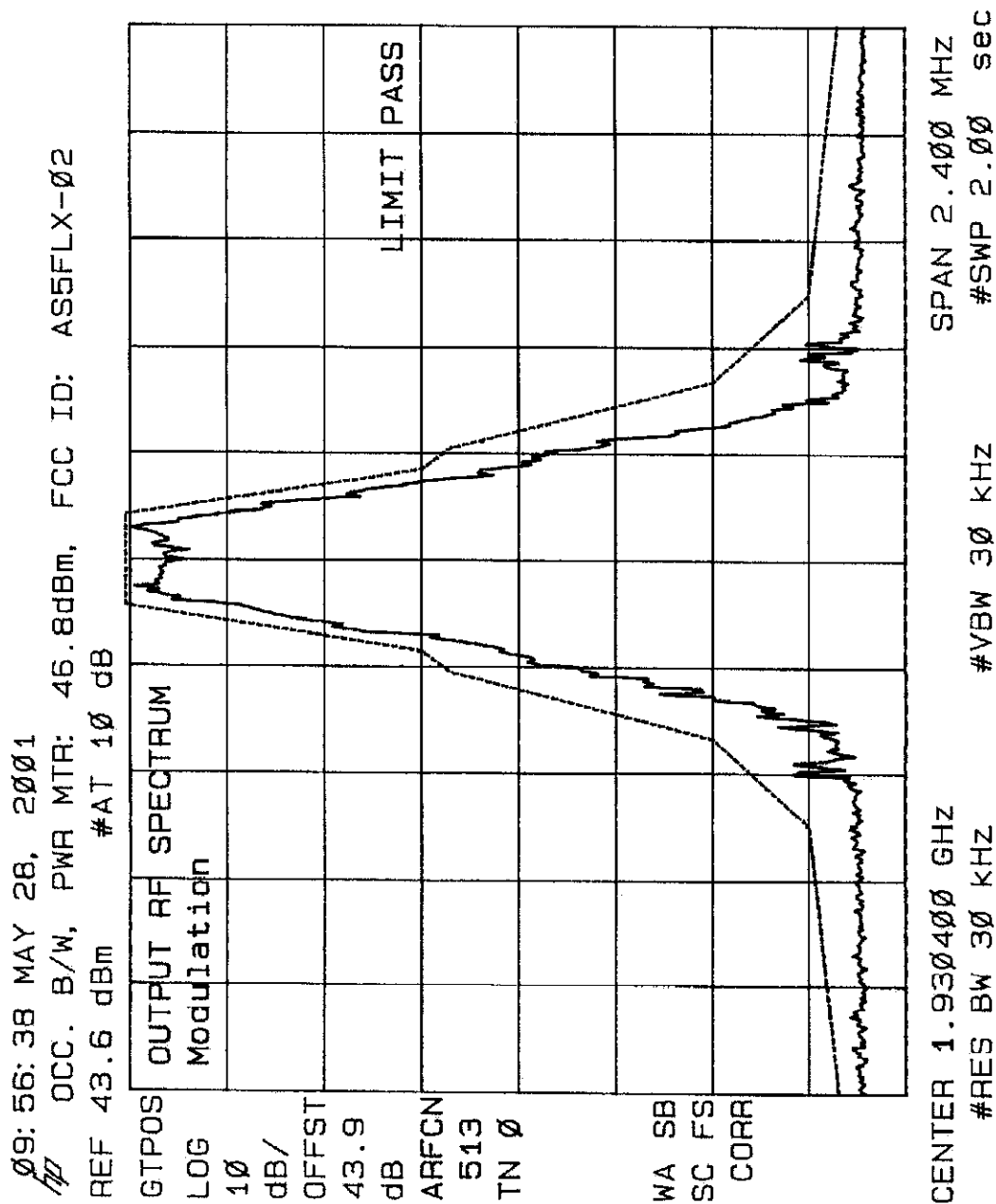
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK A

(1930 – 1945 MHz)

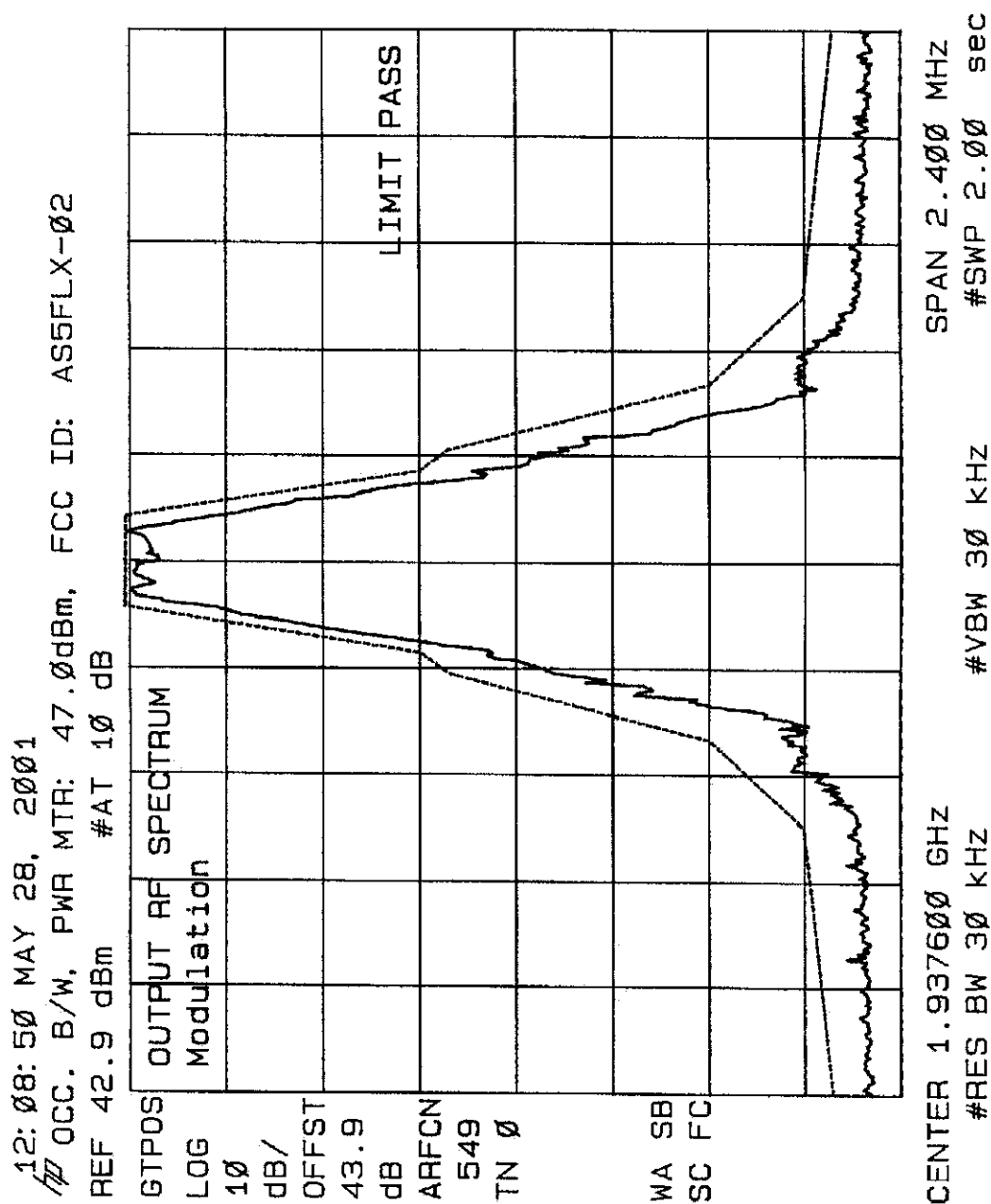
Left Edge:	1930.4 MHz (Channel 513)
Center:	1937.6 MHz (Channel 547)
Right Edge:	1944.6 MHz (Channel 584)



11:59:36 MAY 28, 2001
 OCC. B/W, PWR MTR: 46.8, FCC ID: AS5FLX-02
 REF 40.5 dBm #AT 10 dB

GTSMP		OUTPUT RF SPECTRUM			
LOG		Modulation			
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
513					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	32.3	0.0
		100	-6.9	25.4	-4.1
		200	-33.5	-1.2	-33.5
		250	-43.7	-11.4	-45.9
		400	-68.7	-36.5	-71.4
		600	-77.3	-45.1	-78.4
		800	-77.0	-44.7	-79.4
		1000	-78.1	-45.9	-80.3
		1200	-78.9	-46.6	-81.5
		1400	-77.5	-45.3	-82.6
		1600	-80.8	-48.6	-80.8
		1800	-74.5	-42.2	-75.9

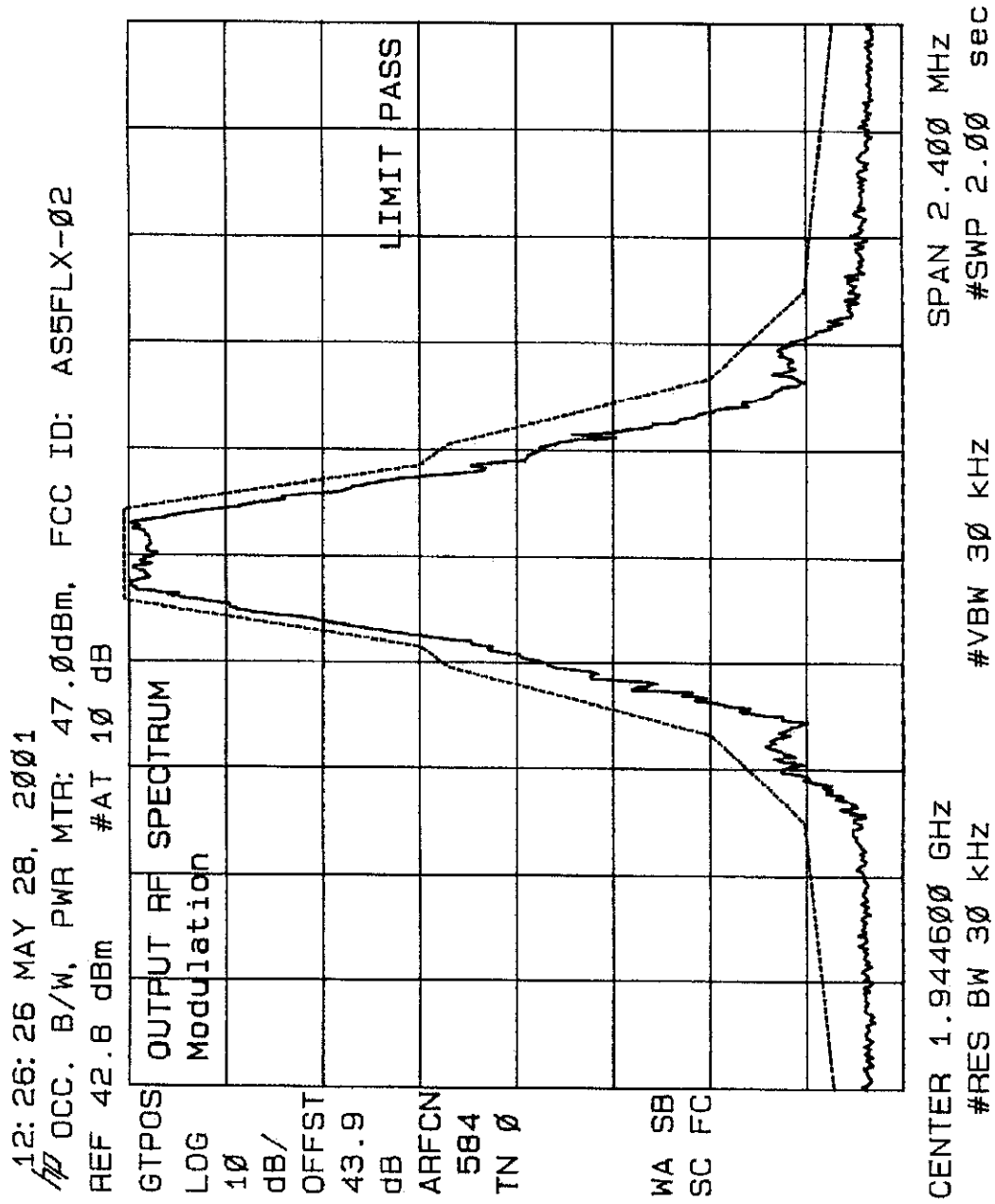
CENTER 1.9304000 GHZ SPAN 0 Hz
 #RES BW 30 KHZ #VBW 30 KHZ #SWP 320 μsec



12:19:45 MAY 28, 2001
 OCC. B/W, PWR MTR: 47.0dBm, FCC ID: AS5FLX-02
 REF 40.8 dBm #AT 10 dB

GTSMP		OUTPUT RF SPECTRUM			
LOG	Modulation	- Offset		+ Offset	
10		dB	dBm	dB	dBm
dB/	Offset Freq				
OFFST					
43.9	0 KHZ	0.0	32.4	0.0	32.4
dB	100 KHZ	-6.9	25.5	-3.8	28.6
ARFCN	200 KHZ	-33.4	-1.0	-33.3	-0.9
549	250 KHZ	-43.3	-10.8	-45.8	-13.4
TN 0	400 KHZ	-73.6	-41.2	-71.8	-39.4
BURST	600 KHZ	-77.0	-44.6	-75.1	-42.7
1	800 KHZ	-79.3	-46.9	-79.5	-47.1
	1000 KHZ	-80.3	-47.9	-78.6	-46.2
SA SB	1200 KHZ	-78.8	-46.3	-80.9	-48.4
SC EC	1400 KHZ	-79.9	-47.5	-79.7	-47.3
	1600 KHZ	-80.1	-47.7	-80.2	-47.8
	1800 KHZ	-74.4	-42.0	-74.2	-41.7

CENTER 1.9376000 GHZ SPAN 0 HZ
 #RES BW 30 KHZ #VBW 30 KHZ #SWP 320 μsec



12:41:00 MAY 28, 2001
 OCC. B/W, PWR MTR: 47.0dBm, FCC ID: AS5FLX-02
 REF 40.9 dBm #AT 10 dB

OUTPUT RF SPECTRUM			
Modulation			
	- Offset		+ Offset
	Offset Freq	dB	dBm
		dB	dBm
0 KHZ	0.0	0.0	32.4
100 KHZ	-6.8	-4.2	28.2
200 KHZ	-33.5	-33.5	-1.2
250 KHZ	-43.2	-45.5	-13.2
400 KHZ	-72.3	-73.0	-40.6
600 KHZ	-80.3	-78.2	-45.8
800 KHZ	-77.5	-77.5	-45.1
1000 KHZ	-78.6	-78.8	-46.5
1200 KHZ	-80.4	-78.7	-46.4
1400 KHZ	-78.9	-78.3	-45.9
1600 KHZ	-77.0	-81.4	-49.0
1800 KHZ	-73.3	-75.9	-43.5

CENTER 1.9446000 GHz
 #RES BW 30 KHz
 #VBW 30 KHz
 #SWP 320 μsec
 SPAN 0 Hz

MEASUREMENT: 3

MEASUREMENT

OF

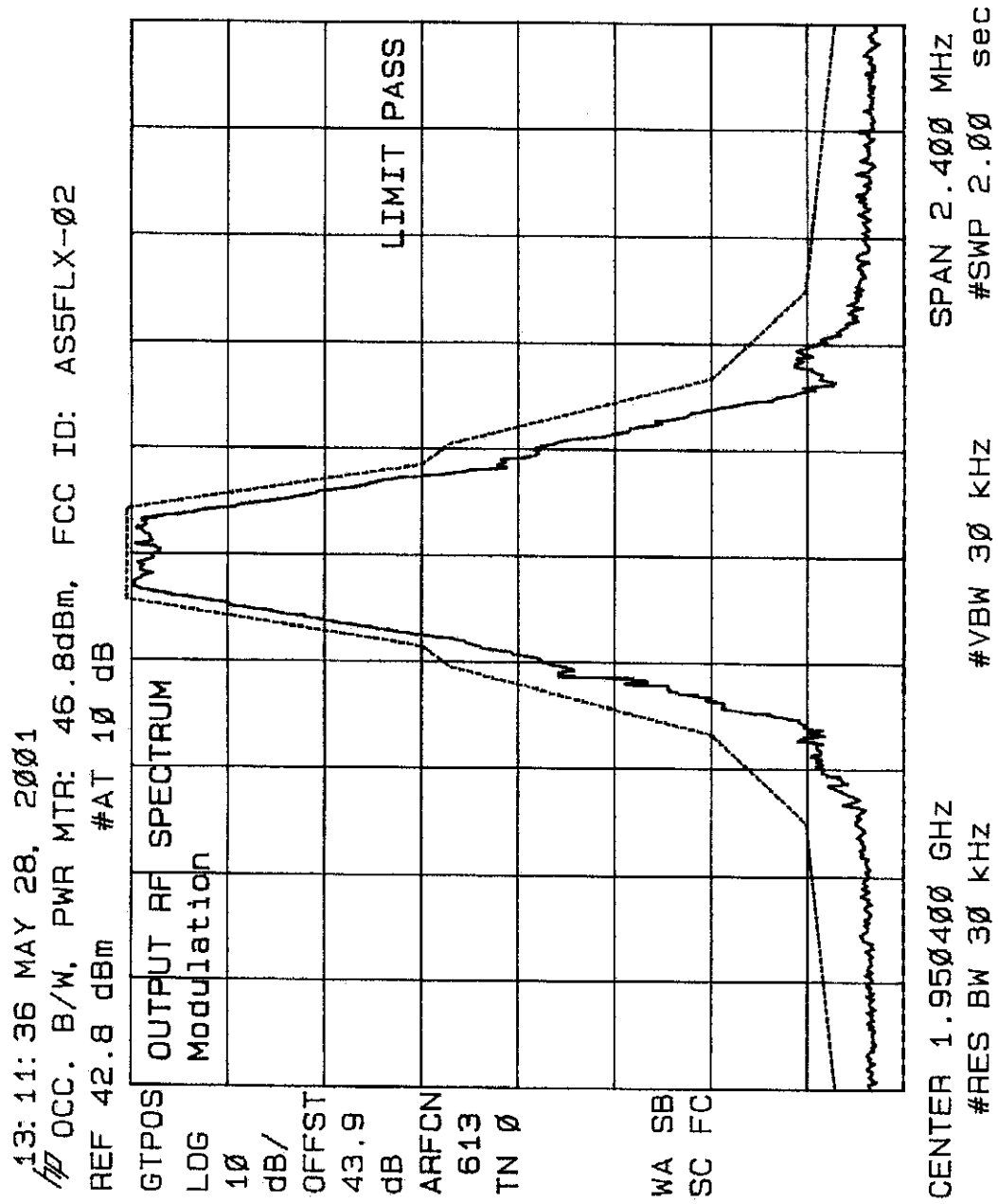
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK B

(1950 – 1965 MHz)

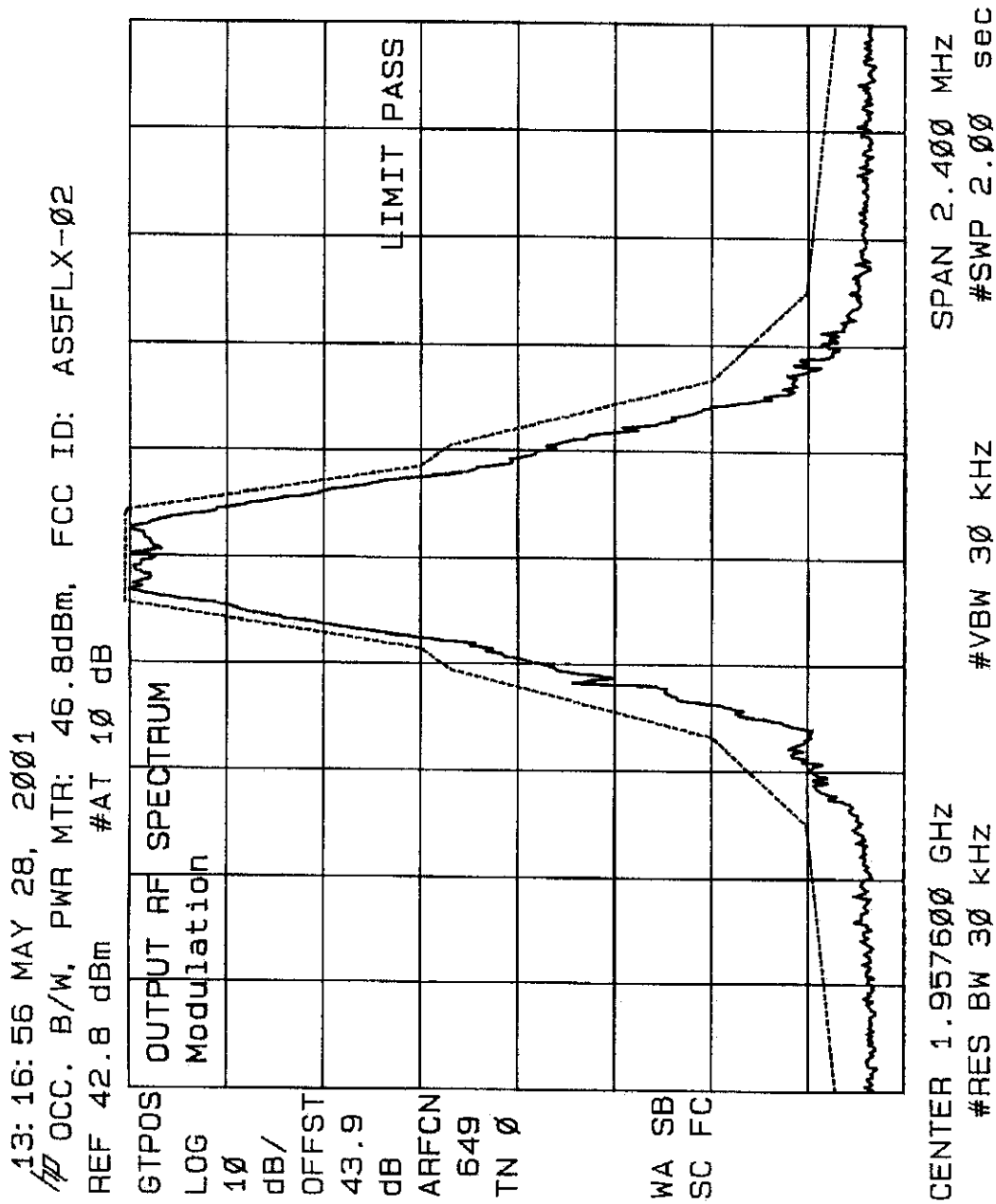
Left Edge:	1950.4 MHz (Channel 613)
Center:	1957.6 MHz (Channel 649)
Right Edge:	1964.6 MHz (Channel 684)



13:05:24 MAY 28, 2001
 OCC. B/W, PWR MTR: 46.8dBm, FCC ID: AS5FLX-02
 REF 40.9 dBm #AT 10 dB

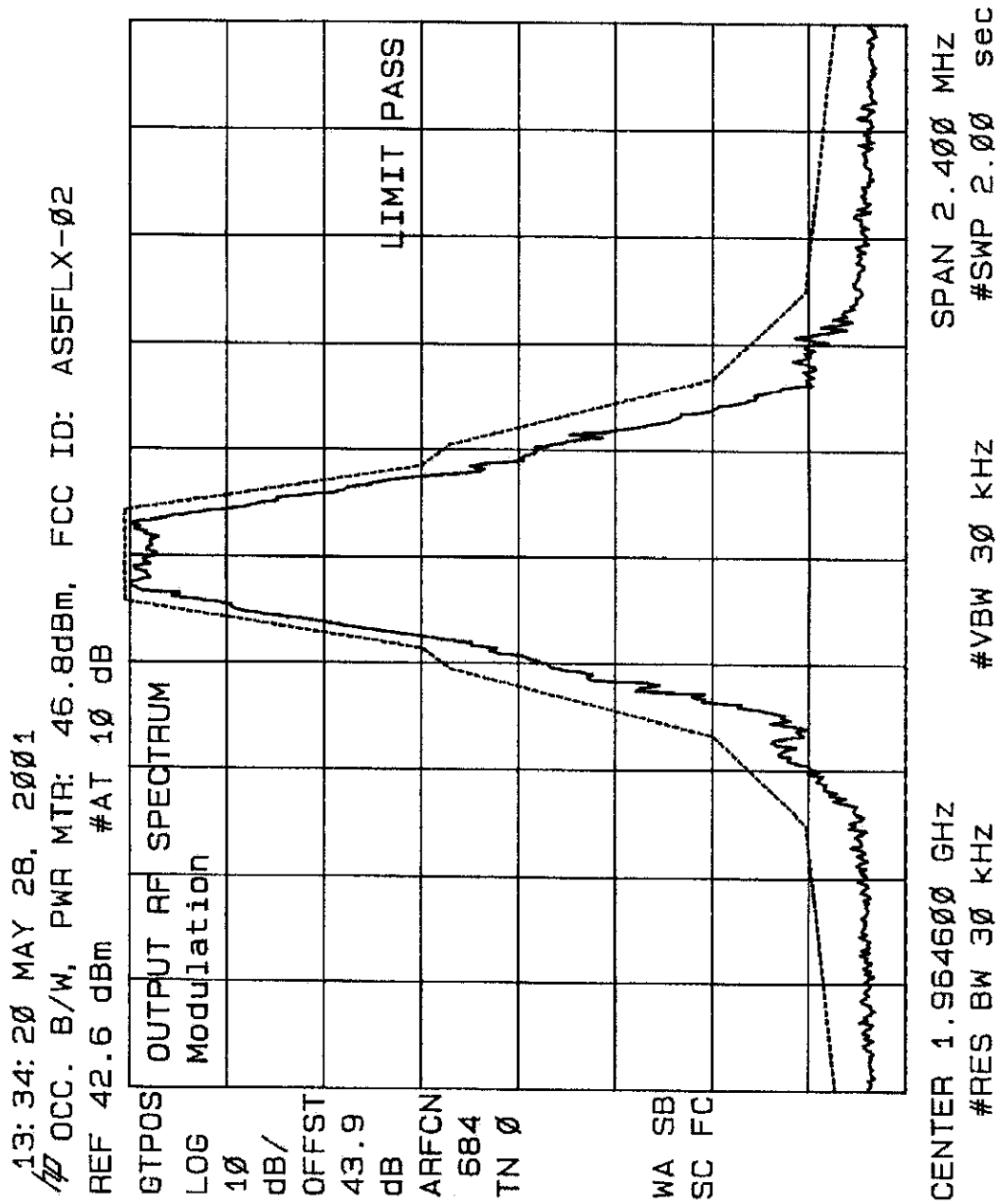
GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
613					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dB	dBm
		0	0.0	0.0	32.5
		100	-6.8	-4.0	28.5
		200	-33.5	-33.3	-0.8
		250	-43.4	-46.5	-14.0
		400	-72.5	-74.4	-41.9
		600	-80.1	-78.3	-45.8
		800	-78.9	-79.7	-47.2
		1000	-78.3	-80.5	-48.0
		1200	-80.9	-83.3	-50.9
		1400	-82.4	-80.8	-48.3
		1600	-79.7	-80.8	-48.3
		1800	-74.1	-74.5	-42.0

CENTER 1.9504000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



GTSMP				OUTPUT RF SPECTRUM			
LOG				Modulation			
10				- Offset		+ Offset	
dB/	OFFST	Offset	Freq	dB	dBm	dB	dBm
43.9		0	KHz	0.0	32.5	0.0	32.5
dB		100	KHz	-6.8	25.7	-4.1	28.5
ARFCN		200	KHz	-33.4	-0.9	-33.5	-1.0
649		250	KHz	-43.7	-11.2	-46.4	-13.9
TN 0		400	KHz	-70.2	-37.6	-70.4	-37.9
BURST		600	KHz	-77.6	-45.1	-75.1	-42.6
1		800	KHz	-79.4	-46.9	-77.4	-44.9
		1000	KHz	-78.8	-46.3	-77.9	-45.4
SA SB		1200	KHz	-81.6	-49.1	-80.9	-48.4
SC EC		1400	KHz	-81.5	-49.0	-80.4	-47.9
		1600	KHz	-82.1	-49.6	-83.1	-50.6
		1800	KHz	-74.1	-41.6	-75.0	-42.5

CENTER 1.9576000 GHz
#RES BW 30 KHZ
#VBW 30 KHZ
SPAN 0 HZ
#SWP 320 uSec



GTSMP				OUTPUT RF SPECTRUM			
LOG				Modulation			
10				- Offset		+ Offset	
dB/	OFFST	Offset Freq		dB	dBm	dB	dBm
43.9		0 KHz		0.0	32.3	0.0	32.3
dB		100 KHz		-6.7	25.6	-3.9	28.4
ARFCN		200 KHz		-33.4	-1.1	-33.6	-1.2
684		250 KHz		-43.8	-11.5	-46.1	-13.7
TN 0		400 KHz		-72.3	-39.9	-71.8	-39.5
BURST		600 KHz		-80.5	-48.1	-75.8	-43.5
1		800 KHz		-79.8	-47.4	-79.0	-46.7
		1000 KHz		-79.4	-47.1	-81.0	-48.6
SA SB		1200 KHz		-79.3	-47.0	-81.6	-49.3
SC EC		1400 KHz		-76.1	-43.7	-83.1	-50.8
		1600 KHz		-78.4	-46.1	-81.6	-49.3
		1800 KHz		-74.2	-41.8	-74.2	-41.8

CENTER 1.9646000 GHZ
#RES BW 30 KHZ
#VBW 30 KHZ
#SWP 320 μ sec
SPAN 0 HZ

MEASUREMENT: 3

MEASUREMENT

OF

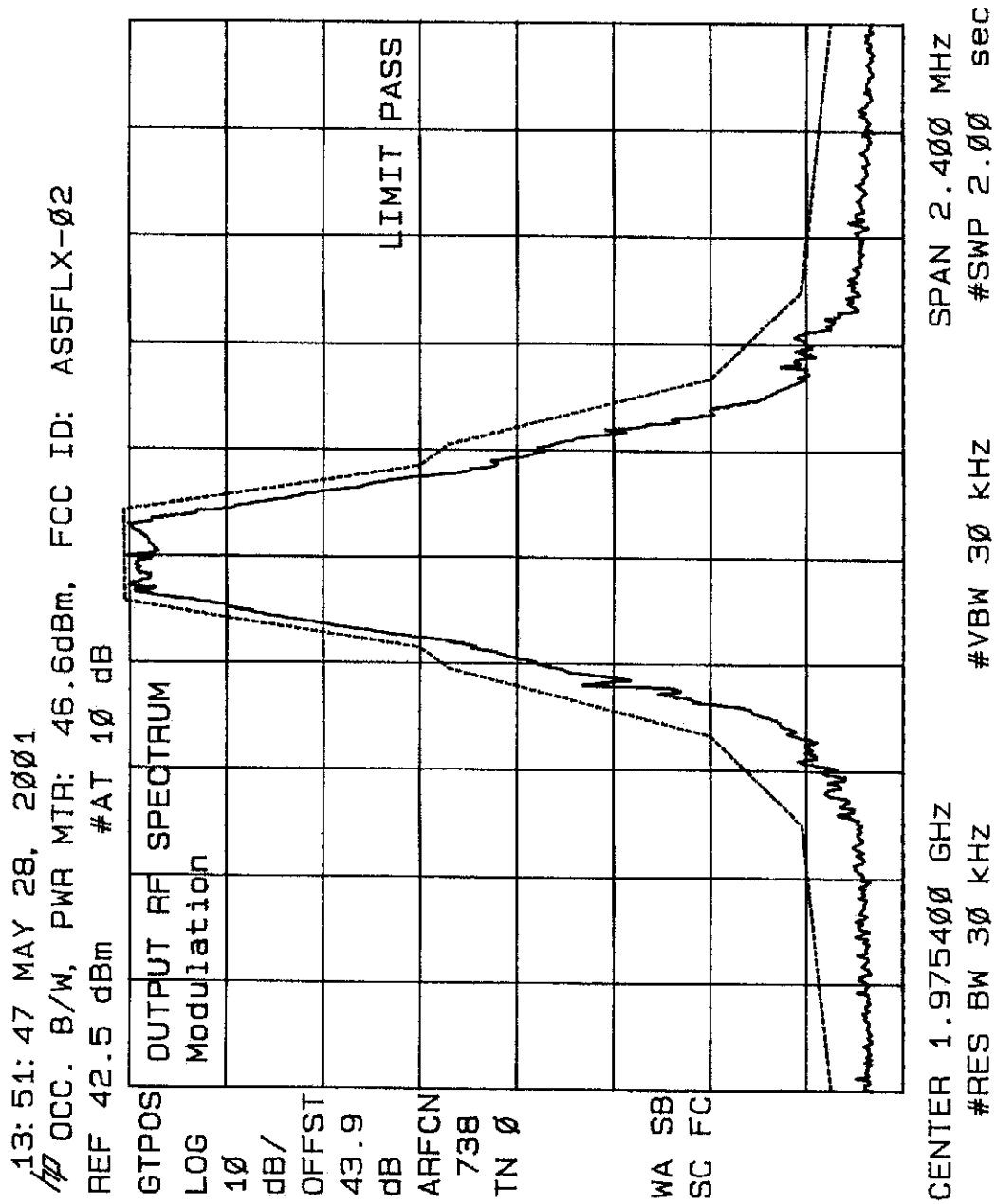
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK C

(1975 – 1990 MHz)

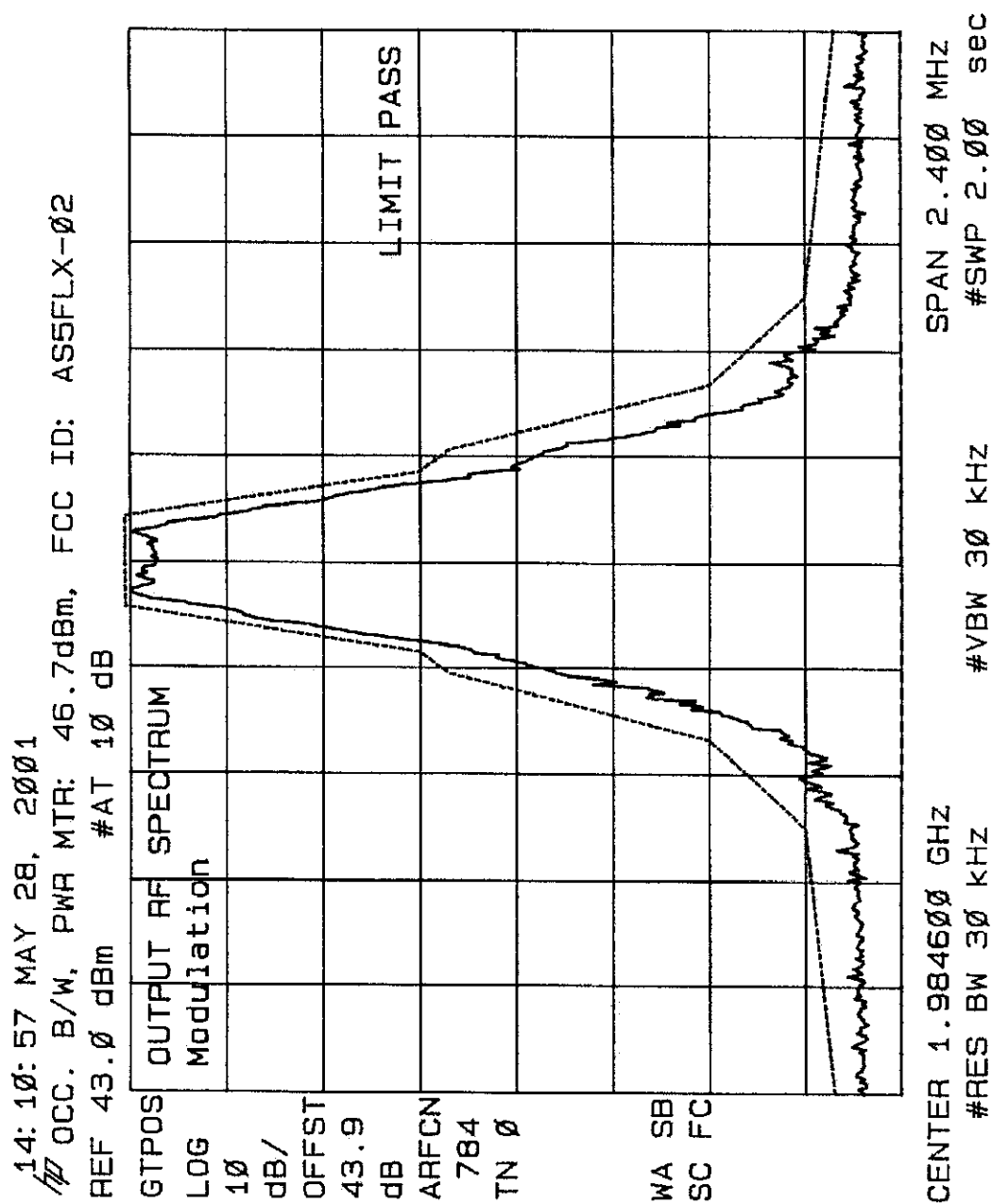
Left Edge:	1975.4 MHz (Channel 738)
Center:	1984.6 MHz (Channel 784)
Right Edge:	1989.6 MHz (Channel 809)



14:04:17 MAY 28, 2001
 OCC. B/W, PWR MTR: 46.6dBm, FCC ID: AS5FLX-02
 REF 40.7 dBm #AT 10 dB

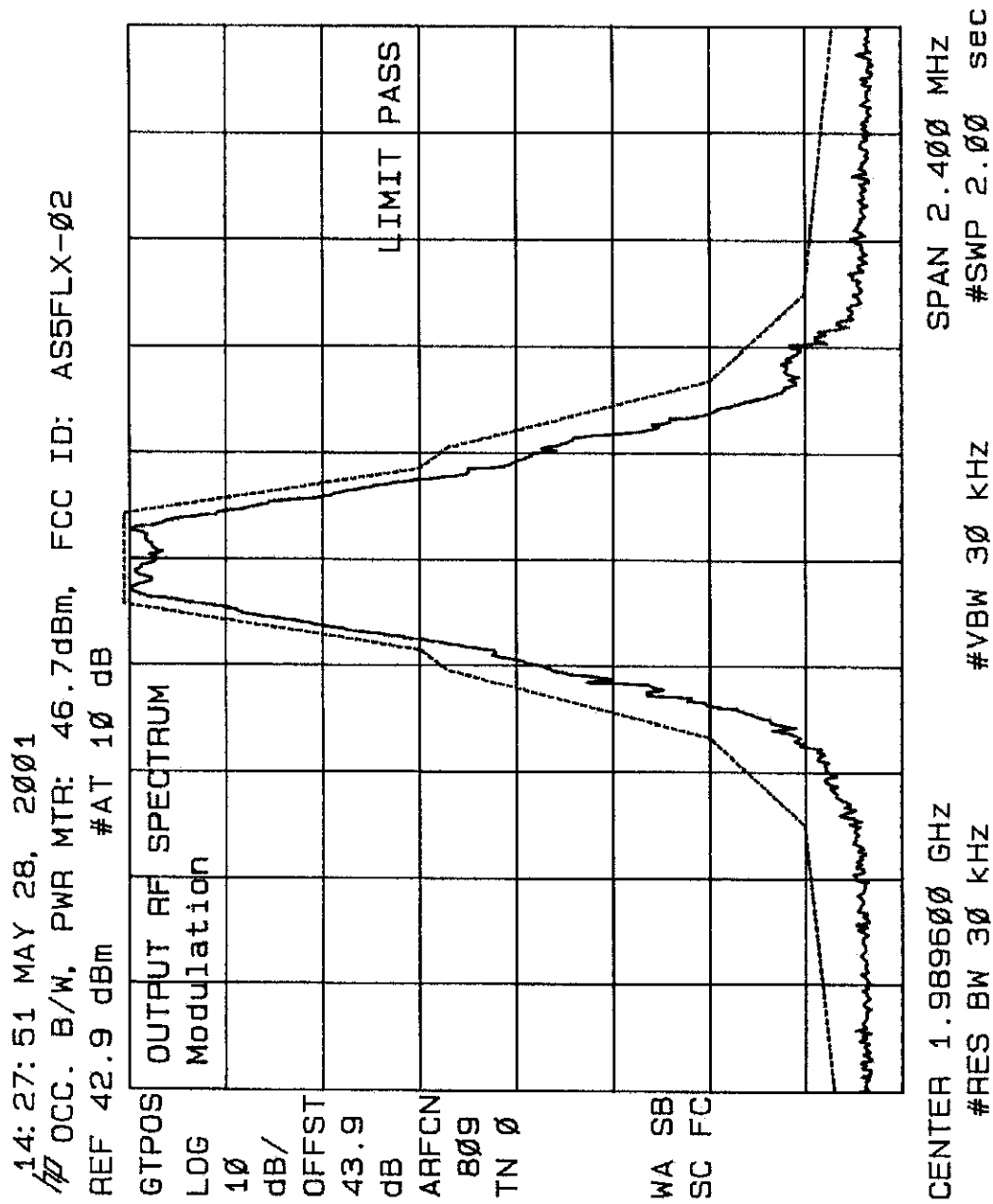
OUTPUT RF SPECTRUM					
Modulation					
	Offset Freq	- Offset		+ Offset	
		dB	dBm	dB	dBm
0 KHZ	0 KHZ	0.0	32.3	0.0	32.3
100 KHZ	100 KHZ	-6.8	25.5	-4.1	28.1
200 KHZ	200 KHZ	-33.4	-1.1	-33.7	-1.4
250 KHZ	250 KHZ	-43.6	-11.4	-46.1	-13.9
400 KHZ	400 KHZ	-64.9	-32.7	-66.4	-34.1
600 KHZ	600 KHZ	-79.6	-47.4	-77.6	-45.3
800 KHZ	800 KHZ	-77.9	-45.7	-79.1	-46.8
1000 KHZ	1000 KHZ	-79.6	-47.4	-80.6	-48.4
1200 KHZ	1200 KHZ	-82.0	-49.7	-82.7	-50.4
1400 KHZ	1400 KHZ	-81.0	-48.7	-82.5	-50.2
1600 KHZ	1600 KHZ	-80.7	-48.4	-82.2	-49.9
1800 KHZ	1800 KHZ	-76.7	-44.4	-75.6	-43.4

CENTER 1.9754000 GHZ SPAN 0 Hz
 #RES BW 30 KHZ #VBW 30 KHZ #SWP 320 μsec



GTSMP		OUTPUT RF SPECTRUM			
LOG	Modulation	- Offset		+ Offset	
10		Offset	Freq	dB	dBm
dB/					
OFFST					
43.9					
dB					
ARFCN					
784					
TN 0					
BURST					
1					
SA SB					
SC EC					

CENTER 1.9845000 GHz
#RES BW 30 kHz #VBW 30 kHz #SWP 320 usec SPAN 0 Hz



14:38:31 MAY 28, 2001
 OCC. B/W, PWR MTR: 46.7dBm, FCC ID: AS5FLX-02
 REF 40.8 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
809					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	32.3	0.0
		100	-6.8	25.6	-4.0
		200	-33.4	-1.1	-33.4
		250	-43.6	-11.2	-46.4
		400	-70.0	-37.7	-72.7
		600	-78.0	-45.6	-79.1
		800	-78.5	-46.1	-80.3
		1000	-79.0	-46.7	-77.1
		1200	-80.0	-47.6	-79.5
		1400	-80.7	-48.3	-78.8
		1600	-77.5	-45.2	-84.5
		1800	-75.1	-42.8	-74.7

CENTER 1.9896000 GHZ
 #RES BW 30 KHZ
 #VBW 30 KHZ
 #SWP 320 μsec
 SPAN 0 Hz

MEASUREMENT: 3

MEASUREMENT

OF

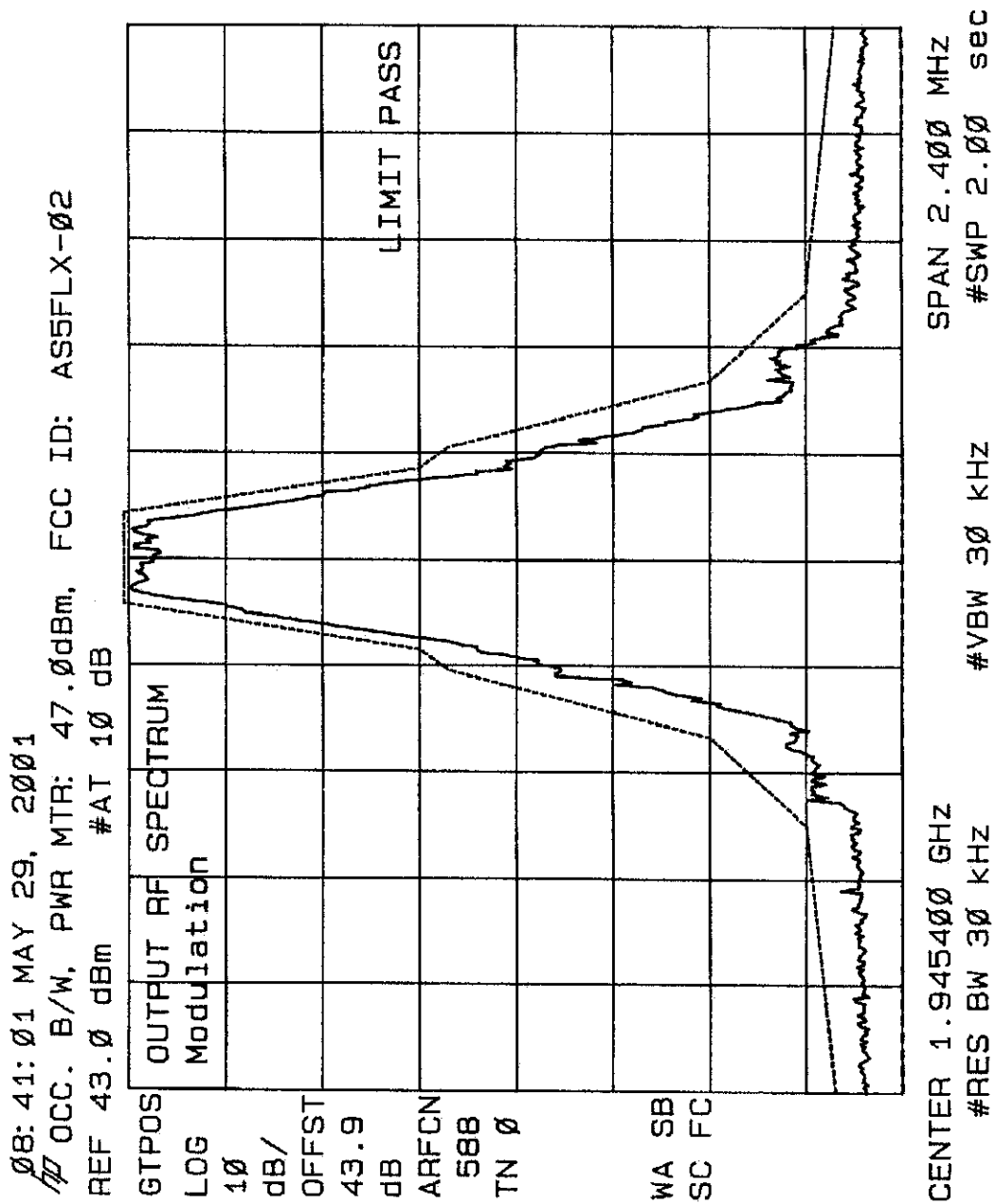
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK D

(1945 – 1950 MHz)

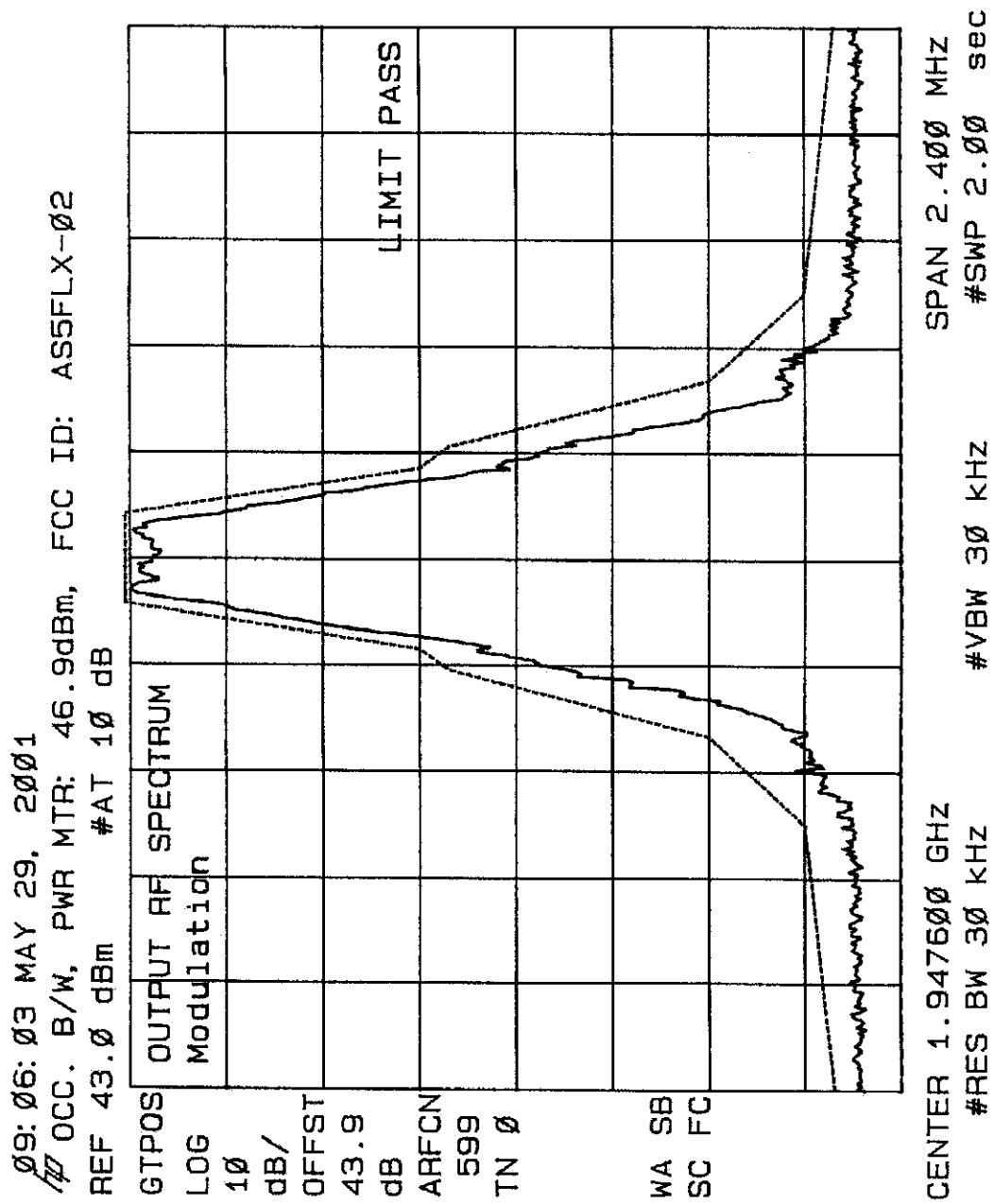
Left Edge:	1945.4 MHz (Channel 588)
Center:	1947.6 MHz (Channel 599)
Right Edge:	1949.6 MHz (Channel 609)



08:54:26 MAY 29, 2001
 OCC. B/W, PWR MTR: 47.0dBm, FCC ID: AS5FLX-02
 REF 41.1 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
588					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	32.5	0.0
		100	-6.8	25.6	-4.0
		200	-33.4	-1.0	-33.5
		250	-43.7	-11.2	-45.8
		400	-72.8	-40.4	-68.7
		600	-75.3	-42.8	-76.9
		800	-78.6	-46.2	-77.0
		1000	-78.1	-45.6	-80.7
		1200	-79.9	-47.4	-80.1
		1400	-79.2	-46.7	-79.7
		1600	-79.9	-47.4	-81.2
		1800	-74.6	-42.2	-72.2

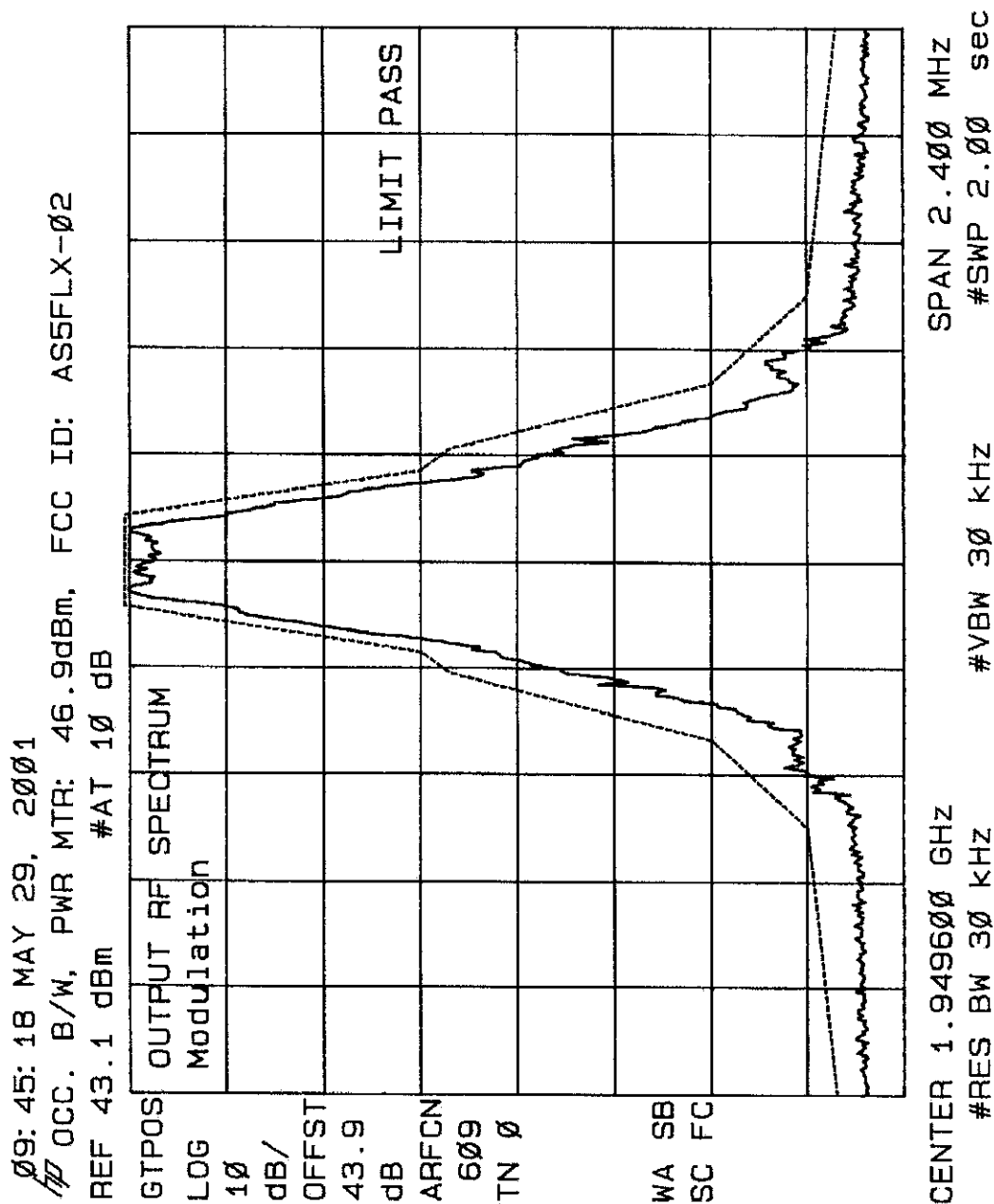
CENTER 1.9454000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



09:33:00 MAY 29, 2001
 OCC. B/W, PWR MTR: 46.9dBm, FCC ID: AS5FLX-02
 REF 41.8 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
599					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		dB	dBm	dB	dBm
		kHz			
		0	0.0	0.0	35.6
		100	-7.8	-9.9	25.7
		200	-35.9	-36.7	-1.1
		250	-41.5	-39.4	-3.8
		400	-69.7	-71.0	-35.3
		600	-80.3	-77.2	-41.6
		800	-82.2	-80.5	-44.8
		1000	-84.7	-81.6	-46.0
		1200	-81.6	-84.5	-48.9
		1400	-84.9	-84.8	-49.2
		1600	-84.5	-81.0	-45.4
		1800	-78.8	-78.1	-42.4

CENTER 1.9476000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



09:58:21 MAY 29, 2001
 OCC. B/W, PWR MTR: 46.9dBm, FCC ID: AS5FLX-02
 REF 41.1 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
609					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dB	dBm
		0	0.0	0.0	32.5
		100	-6.8	-4.1	28.4
		200	-33.4	-33.8	-1.2
		250	-43.4	-46.1	-13.6
		400	-71.6	-69.5	-37.0
		600	-79.5	-78.3	-45.8
		800	-77.7	-81.0	-48.4
		1000	-76.7	-78.1	-45.6
		1200	-78.9	-79.7	-47.2
		1400	-80.1	-80.0	-47.4
		1600	-78.2	-81.1	-48.5
		1800	-74.1	-73.3	-40.8

CENTER 1.9496000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec

MEASUREMENT: 3

MEASUREMENT

OF

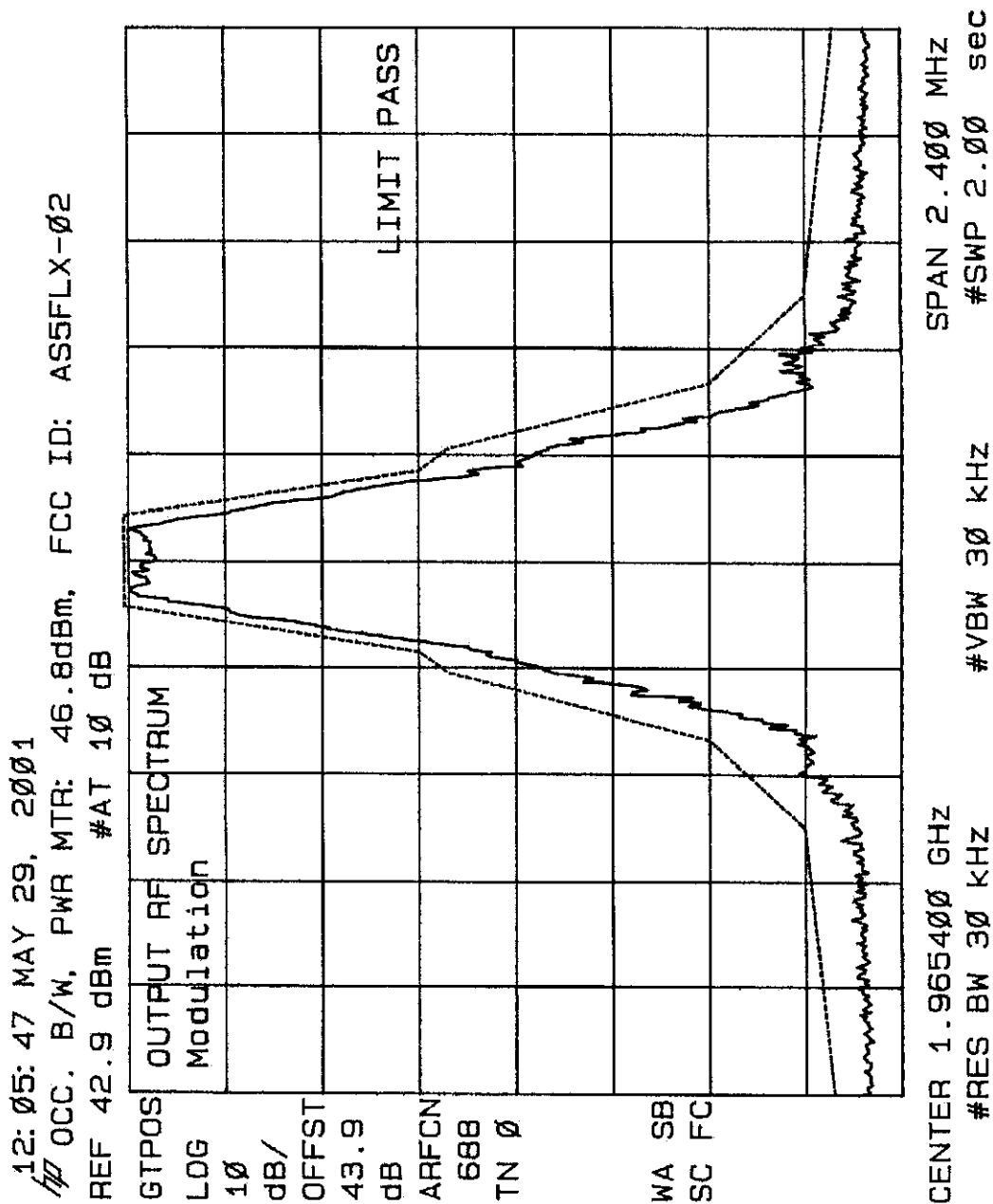
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK E

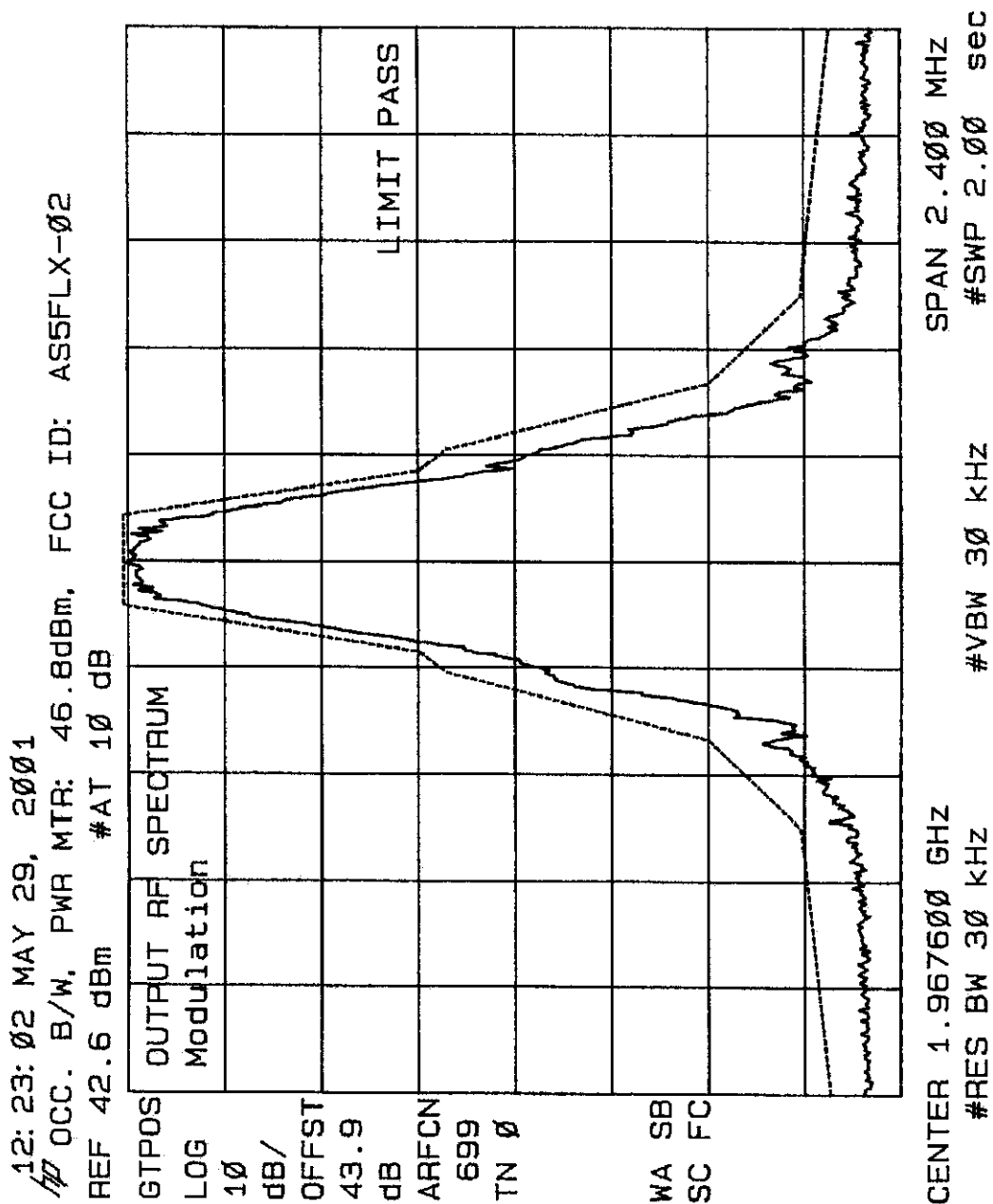
(1965 – 1970 MHz)

Left Edge:	1965.4 MHz (Channel 688)
Center:	1967.6 MHz (Channel 699)
Right Edge:	1969.6 MHz (Channel 709)



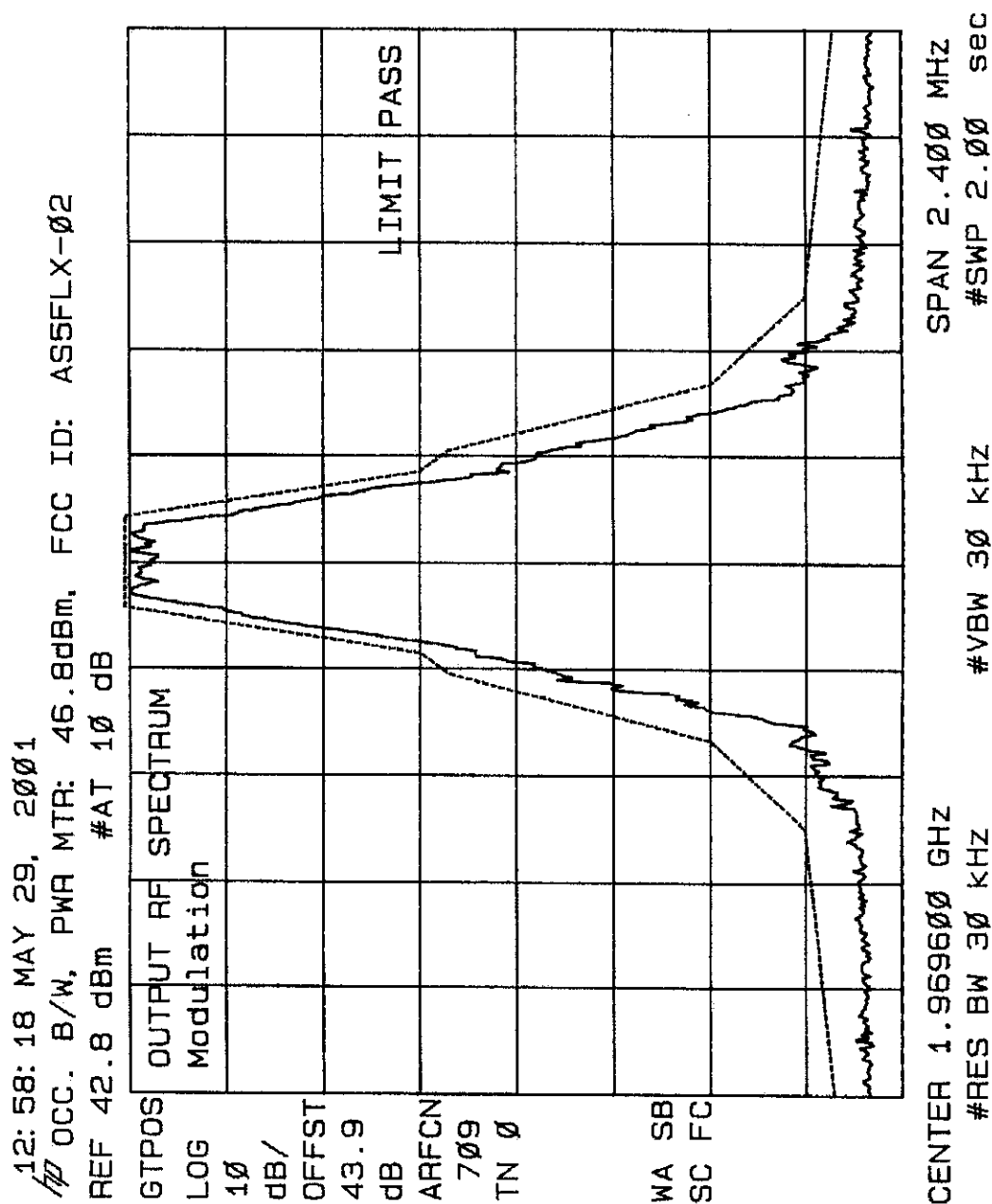
GTSMP				OUTPUT RF SPECTRUM			
LOG				Modulation			
10							
dB/	Offset	Freq		- Offset		+ Offset	
				dB	dBm	dB	dBm
OFFST	0	KHZ		0.0	32.5	0.0	32.5
43.9	100	KHZ		-6.7	25.8	-3.9	28.6
dB	200	KHZ		-33.6	-1.1	-33.6	-1.1
ARFCN	250	KHZ		-43.4	-10.9	-46.3	-13.8
688	400	KHZ		-70.0	-37.5	-70.1	-37.6
TN 0	500	KHZ		-78.0	-45.5	-75.4	-43.0
BURST	800	KHZ		-78.6	-46.1	-79.3	-46.8
1	1000	KHZ		-79.5	-47.0	-79.7	-47.2
	1200	KHZ		-80.6	-48.1	-81.9	-49.4
SA SB	1400	KHZ		-83.9	-51.5	-78.4	-45.9
SC EC	1600	KHZ		-80.6	-48.1	-79.2	-46.7
	1800	KHZ		-74.8	-42.3	-73.3	-40.8

CENTER 1.9654000 GHZ
#RES BW 30 KHZ
#VBW 30 KHZ
SPAN 0 HZ
#SWP 320 usec



GTSMP				OUTPUT RF SPECTRUM			
LOG				Modulation			
10				- Offset		+ Offset	
dB/	OFFST	Offset Freq		dB	dBm	dB	dBm
43.9		0 KHz		0.0	35.7	0.0	35.7
dB		100 KHz		-8.6	27.1	-11.4	24.3
ARFCN		200 KHz		-37.9	-2.1	-35.9	-0.2
699		250 KHz		-41.3	-5.6	-41.5	-5.8
TN 0		400 KHz		-71.9	-36.2	-73.6	-37.9
BURST		600 KHz		-81.0	-45.3	-82.2	-46.5
1		800 KHz		-83.6	-47.9	-80.8	-45.1
		1000 KHz		-83.5	-47.8	-84.1	-48.4
SA SB		1200 KHz		-80.7	-45.0	-83.0	-47.3
SC EC		1400 KHz		-84.6	-48.9	-83.7	-48.0
		1600 KHz		-84.5	-48.8	-83.7	-48.0
		1800 KHz		-80.8	-45.1	-78.9	-43.2

CENTER 1.9676000 GHz
#RES BW 30 kHz
#VBW 30 kHz
SPAN 0 Hz
#SWP 320 μ sec



13:09:49 MAY 29, 2001
 OCC. B/W, PWR MTR: 46.8dBm, FCC ID: AS5FLX-02
 REF 41.0 dBm #AT 10 dB

GTSMP		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
709					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		kHz	dB	dBm	dBm
		0	0.0	32.5	0.0
		100	-6.9	25.6	-4.1
		200	-33.5	-1.0	-33.3
		250	-43.7	-11.2	-46.1
		400	-72.9	-40.4	-70.1
		500	-80.1	-47.6	-77.7
		800	-77.7	-45.2	-78.6
		1000	-81.0	-48.5	-76.8
		1200	-79.4	-46.9	-80.5
		1400	-81.1	-48.6	-80.6
		1600	-78.0	-45.6	-81.4
		1800	-72.9	-40.4	-74.2

CENTER 1.9696000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec

MEASUREMENT: 3

MEASUREMENT

OF

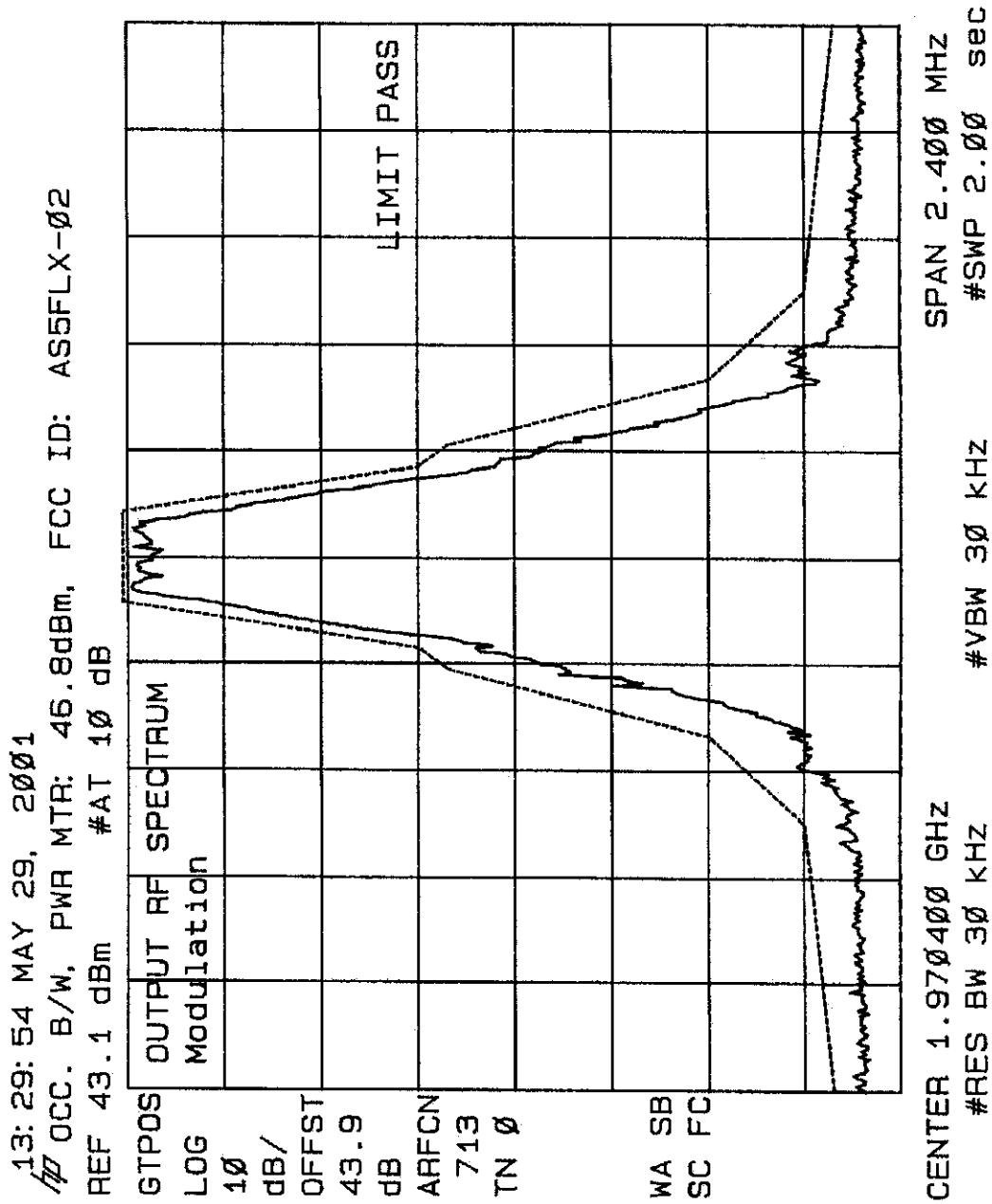
OCCUPIED BANDWIDTH

2 TRX WITH COMBINER

BLOCK F

(1970 – 1975 MHz)

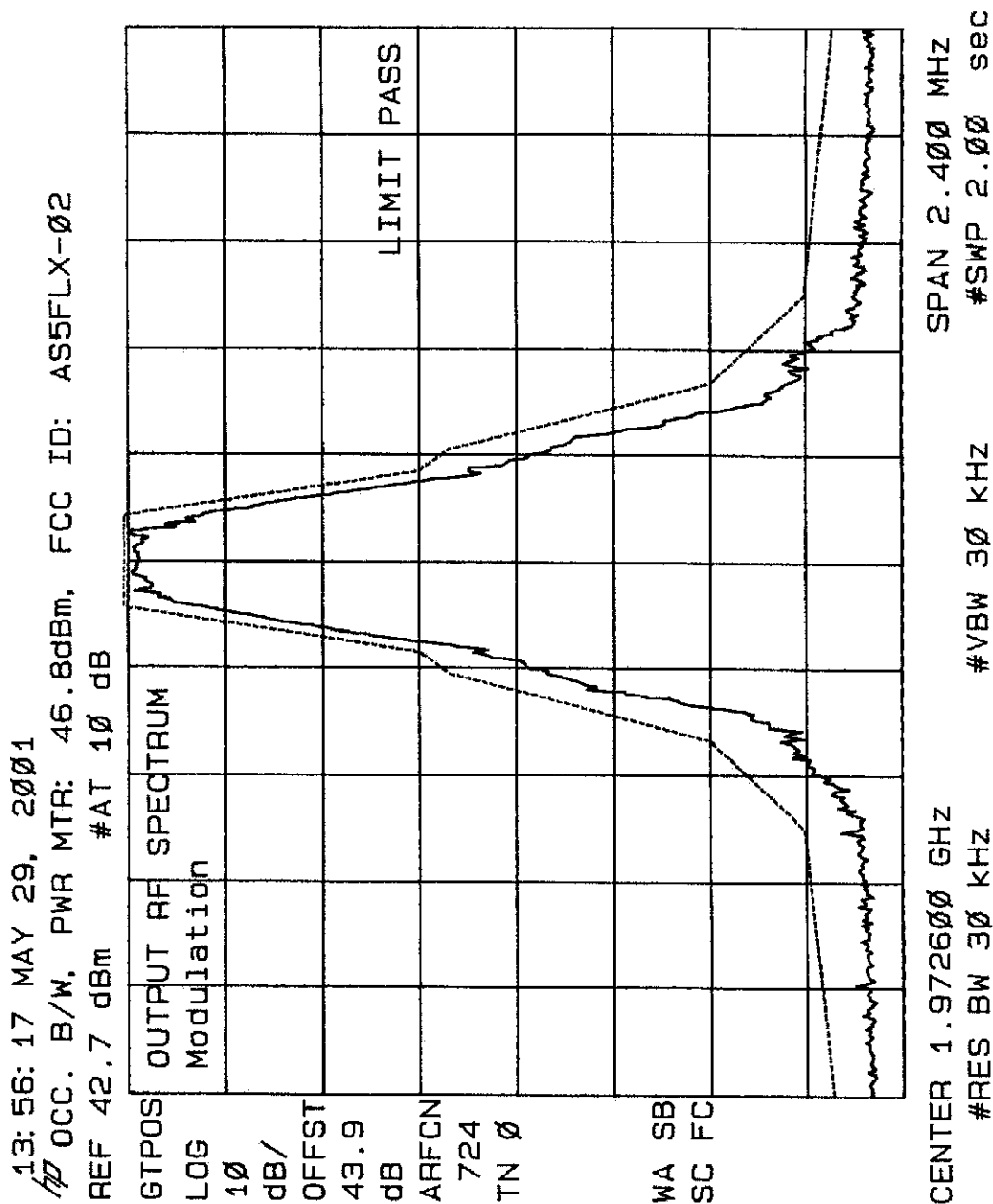
Left Edge:	1970.4 MHz (Channel 713)
Center:	1972.6 MHz (Channel 724)
Right Edge:	1974.6 MHz (Channel 734)



13: 47: 33 MAY 29, 2001
 OCC. B/W, PWR MTR: 46.8dBm, FCC ID: AS5FLX-02
 REF 41.1 dBm #AT 10 dB

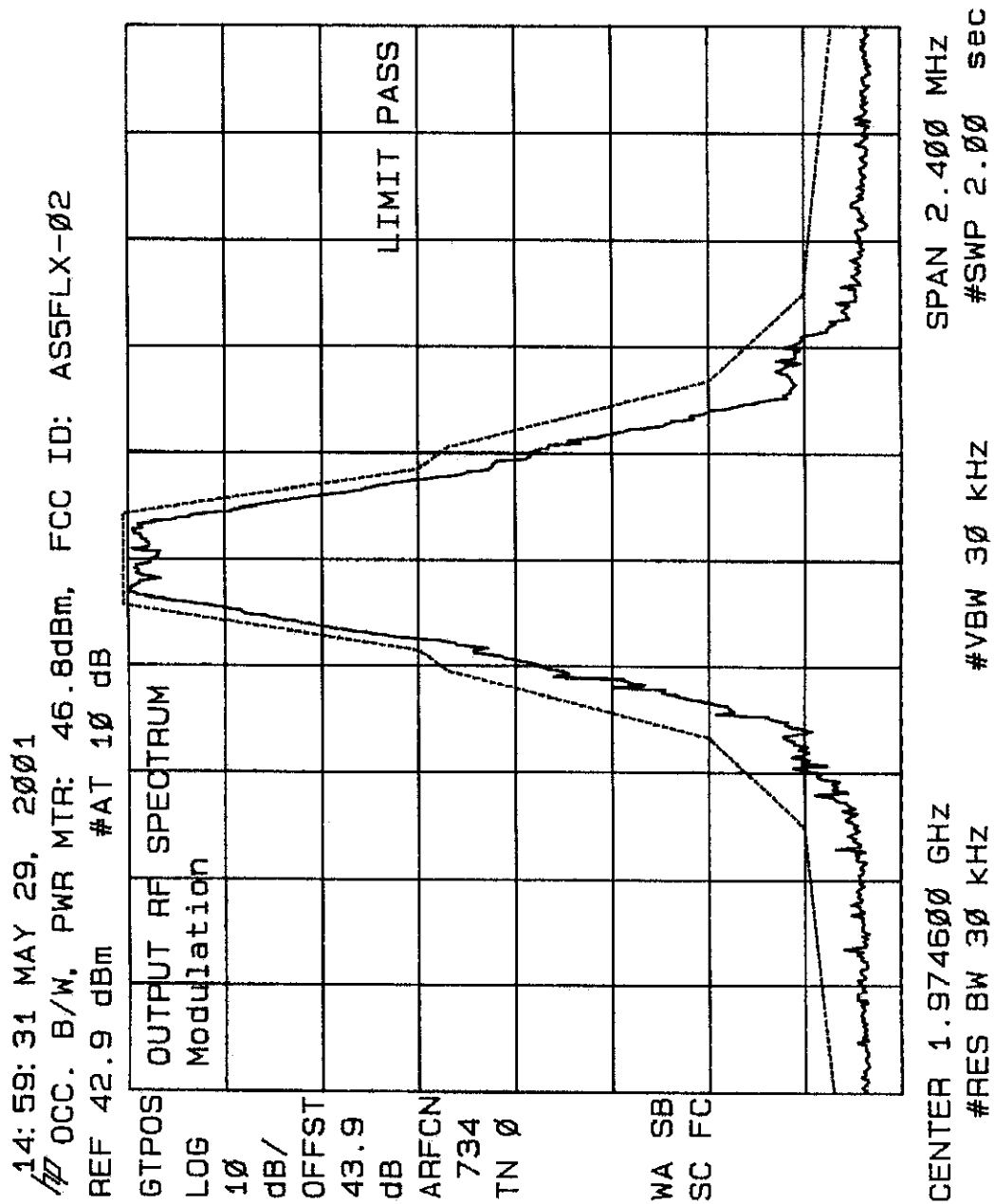
GTSMP		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
713					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset Freq	- Offset	+ Offset	
		dB	dBm	dB	dBm
		kHz			
		0	0.0	0.0	32.4
		100	-6.7	-4.2	28.3
		200	-33.5	-33.4	-0.9
		250	-43.4	-45.5	-13.1
		400	-69.5	-67.7	-35.3
		600	-75.9	-77.7	-45.2
		800	-77.5	-80.3	-47.9
		1000	-77.1	-76.6	-44.1
		1200	-77.6	-80.5	-48.0
		1400	-78.9	-79.7	-47.2
		1600	-81.4	-79.5	-47.1
		1800	-75.1	-74.1	-41.7

CENTER 1.9704000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec



GTSMP				OUTPUT RF SPECTRUM			
LOG				Modulation			
10				- Offset		+ Offset	
dB/	OFFST	Offset	Freq	dB	dBm	dB	dBm
43.9		0	KHz	0.0	35.5	0.0	35.5
dB		100	KHz	-11.9	23.7	-9.0	26.6
ARFCN		200	KHz	-36.1	-0.6	-38.1	-2.6
724		250	KHz	-40.3	-4.7	-41.8	-6.3
TN 0		400	KHz	-69.7	-34.1	-76.4	-40.8
BURST		600	KHz	-79.4	-43.9	-81.3	-45.8
1		800	KHz	-80.1	-44.5	-82.0	-46.5
		1000	KHz	-82.4	-46.9	-81.3	-45.8
SA SB		1200	KHz	-82.1	-46.5	-86.5	-50.9
SC EC		1400	KHz	-82.0	-46.4	-82.4	-46.9
		1600	KHz	-81.3	-45.7	-83.5	-48.0
		1800	KHz	-78.1	-42.5	-78.4	-42.8

CENTER 1.9726000 GHz
#RES BW 30 KHZ
#VBW 30 KHZ
SPAN 0 HZ
#SWP 320 μ sec



15:10:12 MAY 29, 2001
 OCC. B/W, PWR MTR: 46.8dBm, FCC ID: AS5FLX-02
 REF 40.9 dBm #AT 10 dB

GTSMF		OUTPUT RF SPECTRUM			
LOG	Modulation				
10					
dB/					
OFFST					
43.9					
dB					
ARFCN					
734					
TN 0					
BURST					
1					
SA SB					
SC EC					
		Offset	Freq	- Offset	+ Offset
		dB	kHz	dB	dBm
		0	0	0	0
		100	0	-6.9	32.3
		200	0	-33.6	25.5
		250	0	-43.7	-1.3
		400	0	-64.9	-11.4
		600	0	-76.7	-32.6
		800	0	-78.2	-44.4
		1000	0	-78.8	-45.9
		1200	0	-79.9	-46.5
		1400	0	-77.5	-47.5
		1600	0	-79.4	-45.1
		1800	0	-73.9	-47.1
					-41.6
					32.3
					-4.1
					-33.6
					-45.9
					-65.8
					-78.8
					-78.3
					-81.6
					-78.7
					-77.6
					-80.2
					-74.5
					-42.2

CENTER 1.9746000 GHz SPAN 0 Hz
 #RES BW 30 kHz #VBW 30 kHz #SWP 320 μsec