

KTL Test Report:

0R02869
Issue: 2.0

Applicant:

Nortel Networks
21 Richardson Side Road
Kanata, Ontario
K2K 2C1

**Equipment Under Test:
(E.U.T.)**

BTR 28-07M
NTVG14CA N2

In Accordance With:

FCC Part 101, Subpart C

Tested By:

KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:



R. Grant, Wireless Group Manager

Date:

November 8, 2000

Total Number of Pages:

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Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 101, Subpart C.

New Submission

Production Unit

Class II Permissive Change

Pre-Production Unit

T	N	B
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Equipment Code

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



NVLAP LAB CODE: 100351-0

TESTED BY:

Glen Westwell, Technologist

DATE: November 8, 2000

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This report applies only to the items tested.

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Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	101.113	Complies
Occupied Bandwidth	101.111	Complies
Spurious Emissions at Antenna Terminals	101.111	Complies
Field Strength of Spurious Emissions	101.111	Complies
Frequency Stability	101.107	Complies

Footnotes For N/A's:

Test Conditions:

Indoor Temperature: 23 °C
 Humidity: 44 %

Outdoor Temperature: N/A
 Humidity: N/A

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Section 2. General Equipment Specification

Manufacturer: Nortel Networks

Model No.: BTR 28-07M, NTVG14CA N2, S/W Ver. 1.2

Serial No.: NNTM532GNFE5

Date Received In Laboratory: August 10, 2000

KTL Identification No.: Item #2

Transmitter

Supply Voltage Input: -48 VDC

Frequency Range: 29.105 to 29.245 GHz

Tunable Bands: 1

Types of Modulation: 4, 16, 64 QAM, FDMA

Data Rate(s) 7.488 Msps

Internal/External Data Source: External

Emission Designator: 37M9D9W
27M9D9W
17M9D9W
7M88D9W

Output Impedance: 50Ω

RF Power Output (rated): 14.5 dBm to 22.0 dBm

Channel Spacing(s): 10 MHz

Operator Selection of Operating Frequency: None

Power Output Adjustment Capability: 31 to 0 dB attenuation adjustment in 1dB steps

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Section 3. RF Power Output

Para. No.: 1.1046

Test Performed By: Glen Westwell	Date of Test: October 11, 2000
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Minimum Standard: 101.113 (c)

Test Results: Complies. The RF output power is within 1 dB of the manufacturer's rating.

Measurement Data:

	Rated (dBm)	Max. Measured (dBm)
1 Carrier	22.0	22.4
	20.0	20.3
	18.0	18.2
2 Carriers	17.5	18.1
	14.5	15.0
	11.5	12.1
4 Carriers	20.5	20.8
	17.5	18.2
	14.5	14.7

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Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Glen Westwell	Date of Test: August 28, 2000
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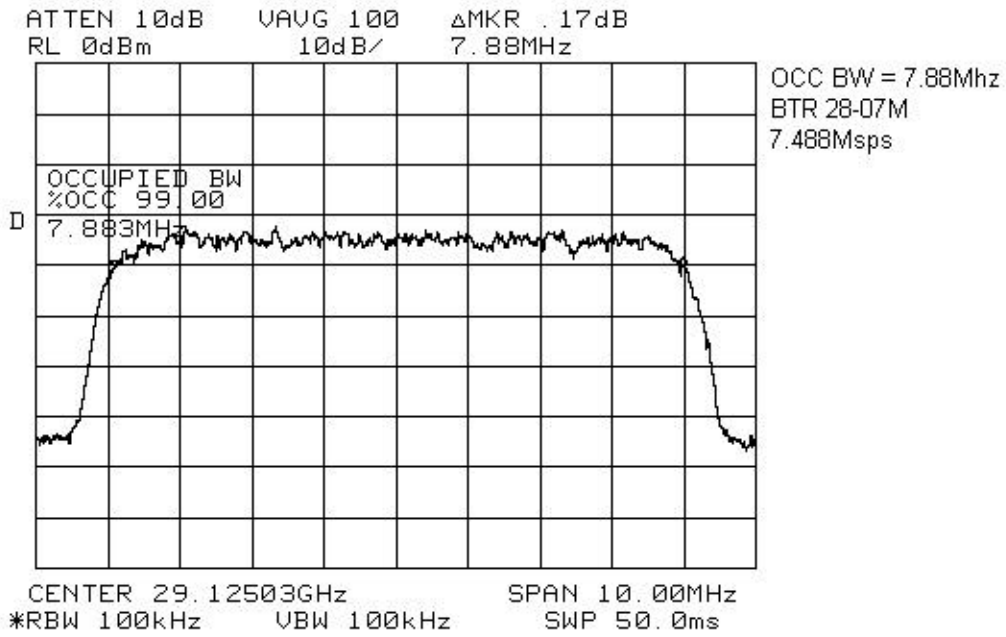
Minimum Standard: 101.111 (a)(2)(ii)

Test Results: Complies

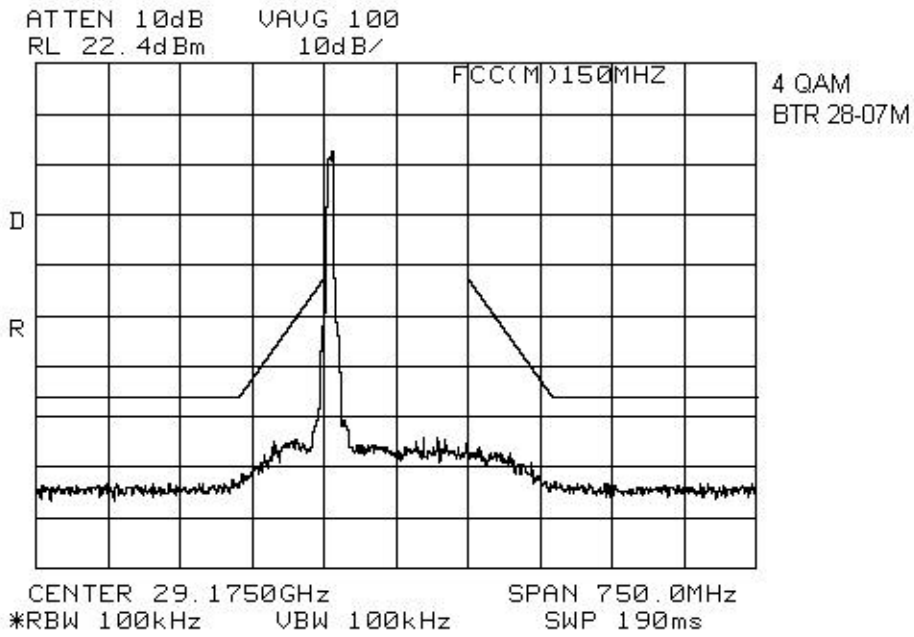
Test Data: See attached graph(s).

Note: Band Edge Spectral Masks were plotted using 100 kHz RBW instead of 1 MHz. The limit line was adjusted 10dB lower.

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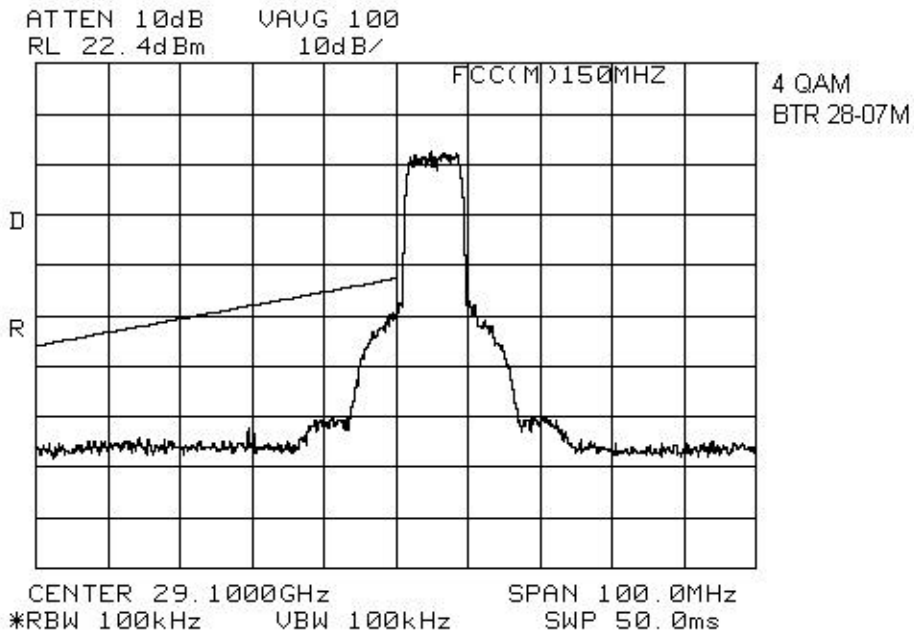


EQUIPMENT: BTR 28-07M
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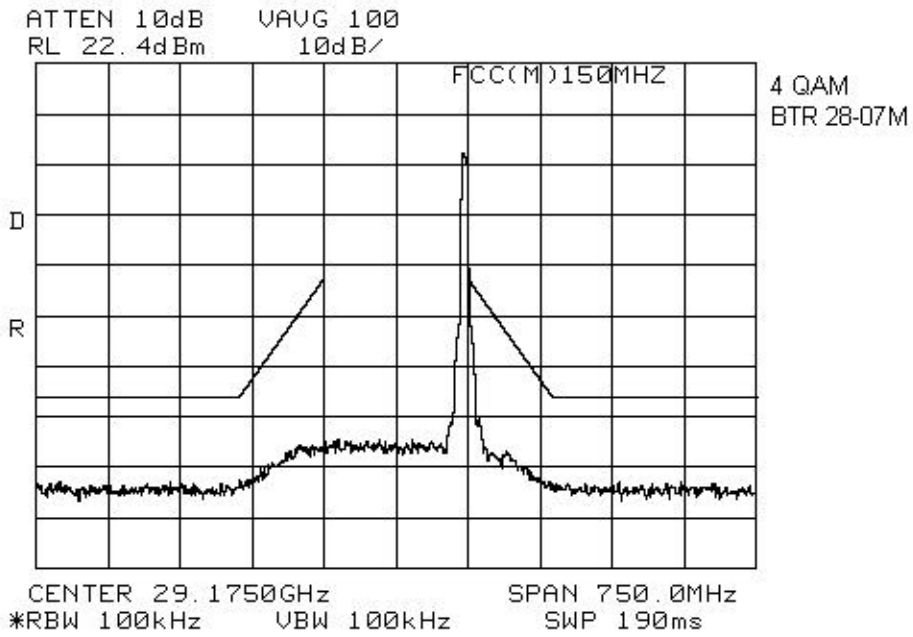
EQUIPMENT: BTR 28-07M

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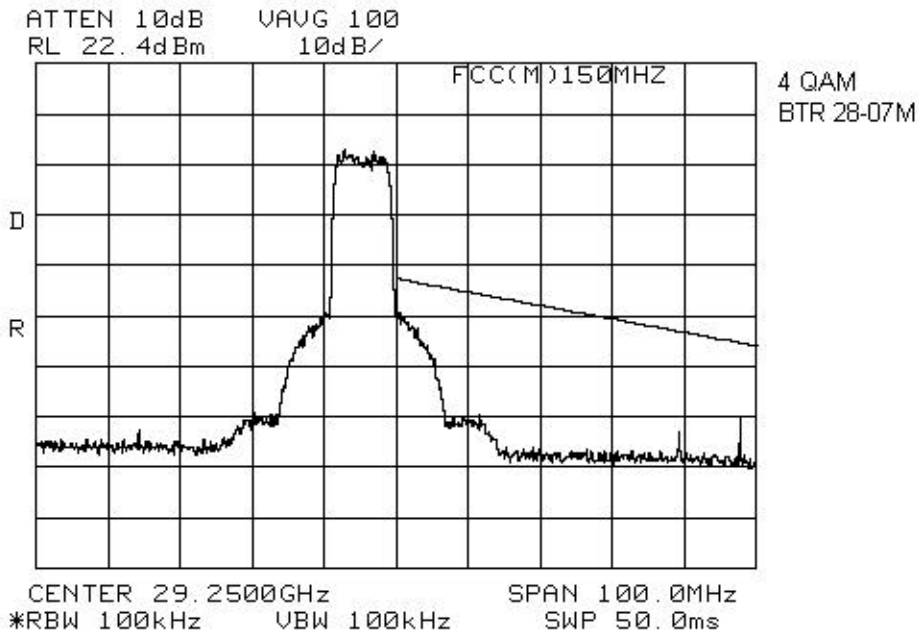
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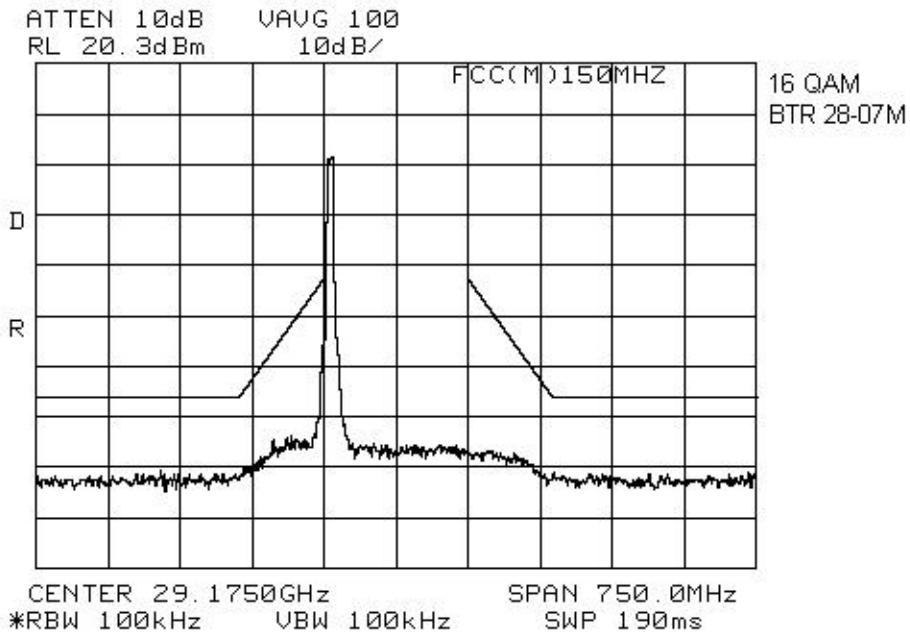
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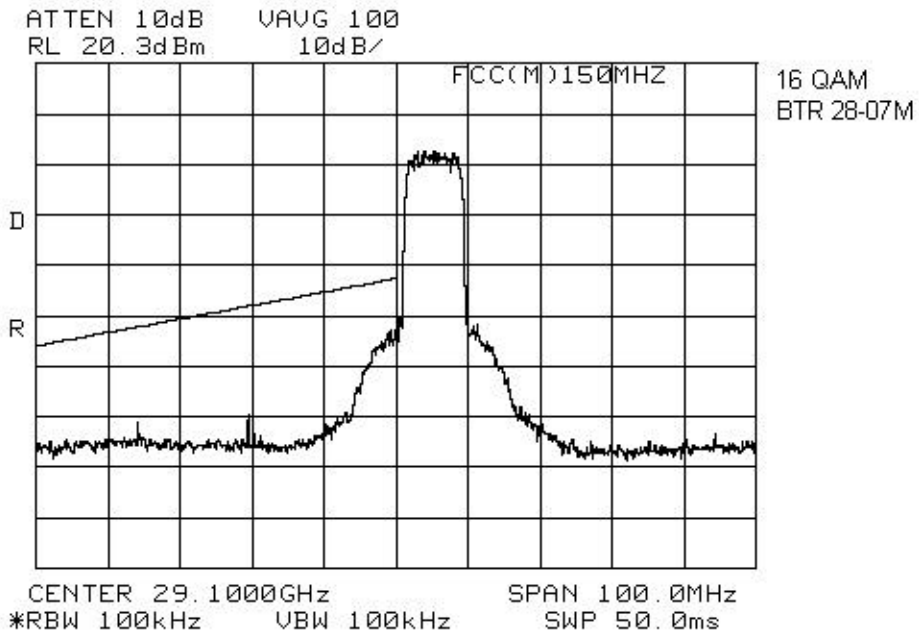


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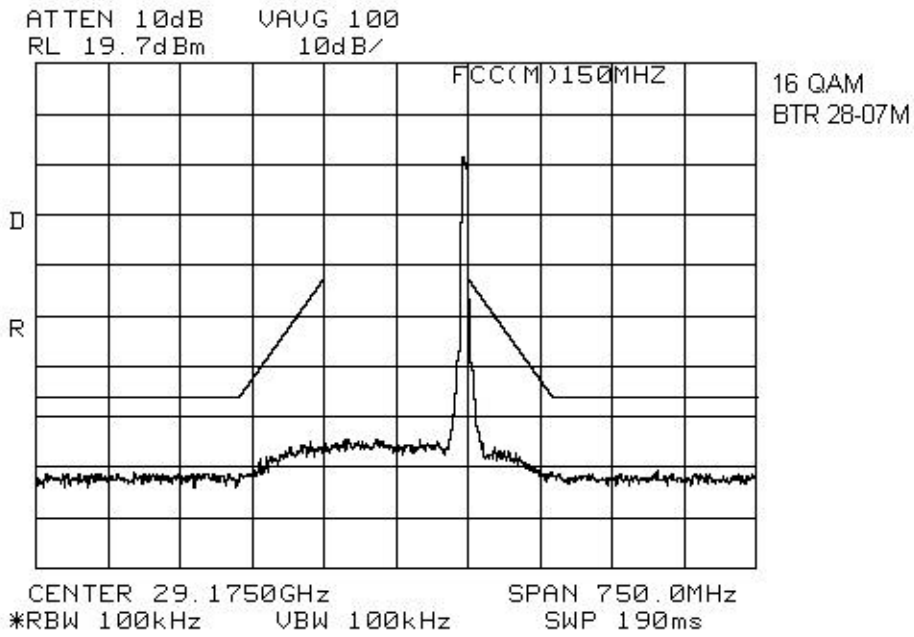


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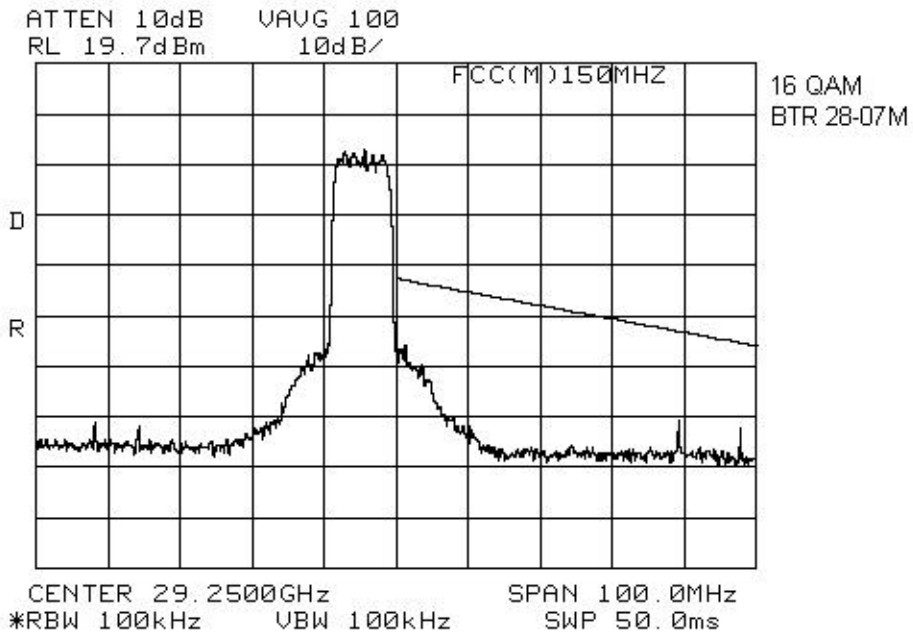
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ISSUE: 2.0

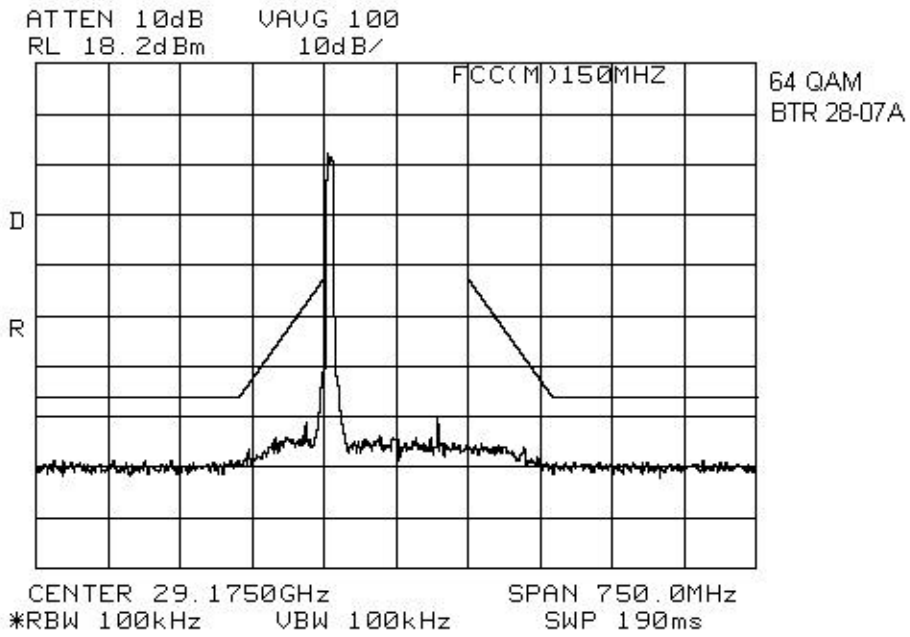


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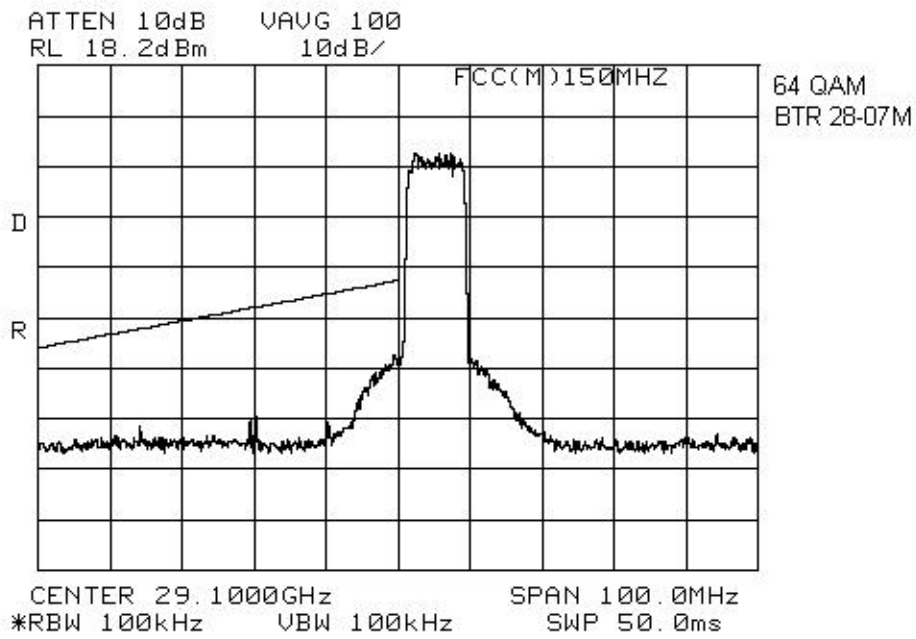


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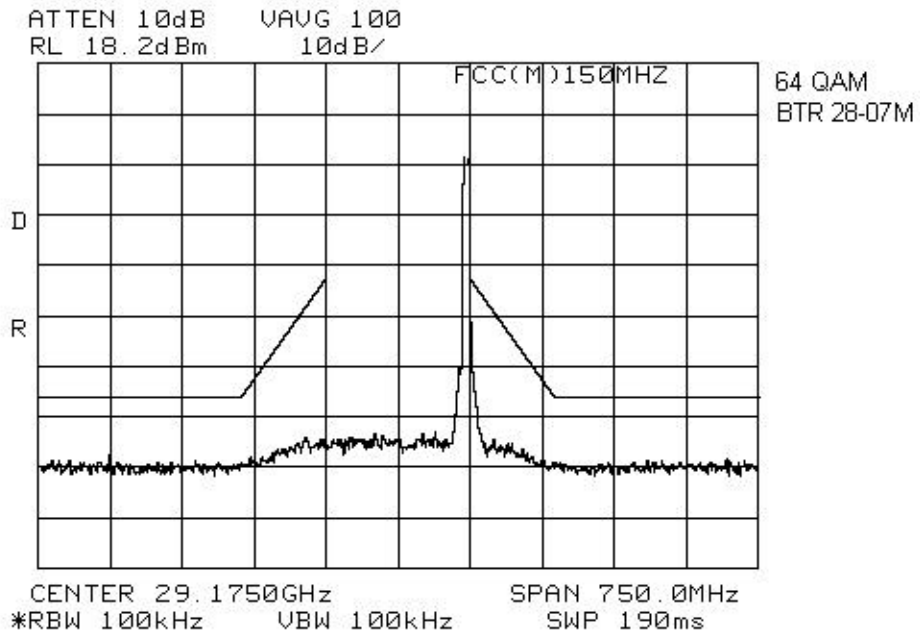
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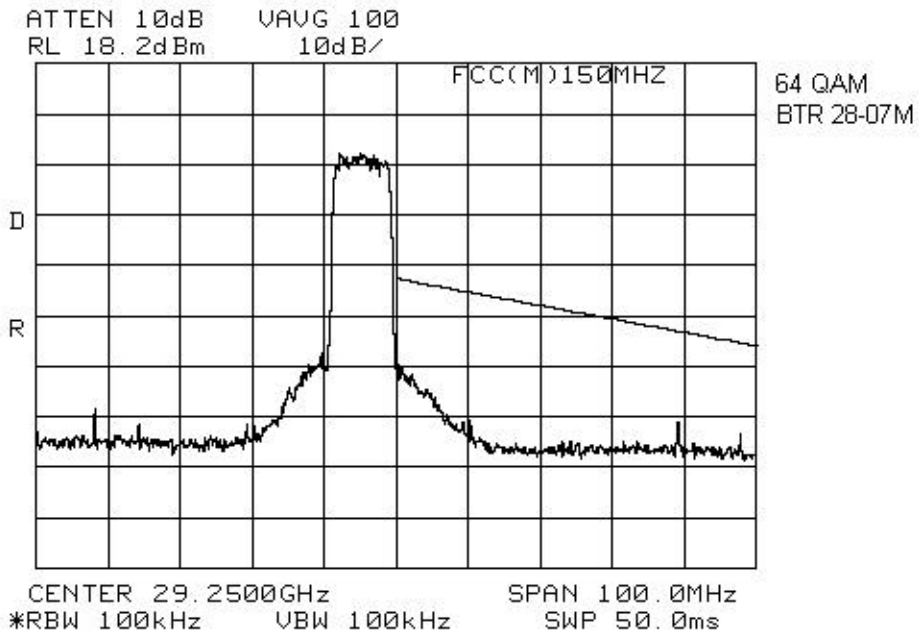


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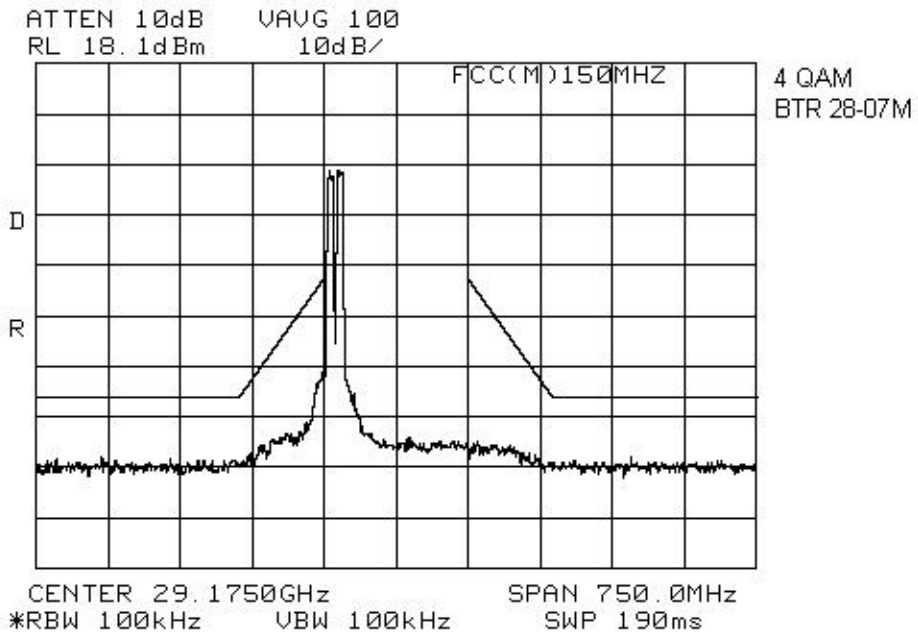


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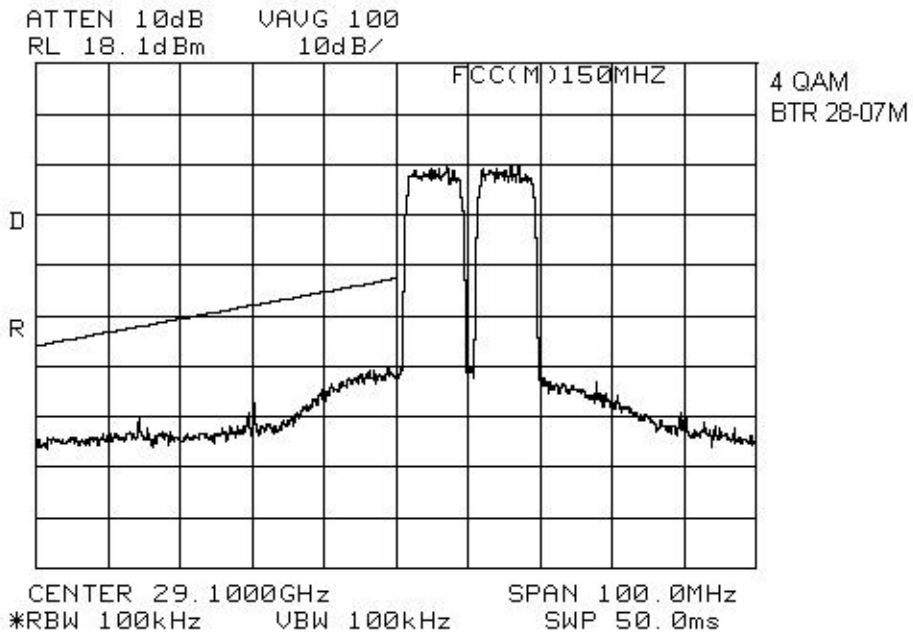
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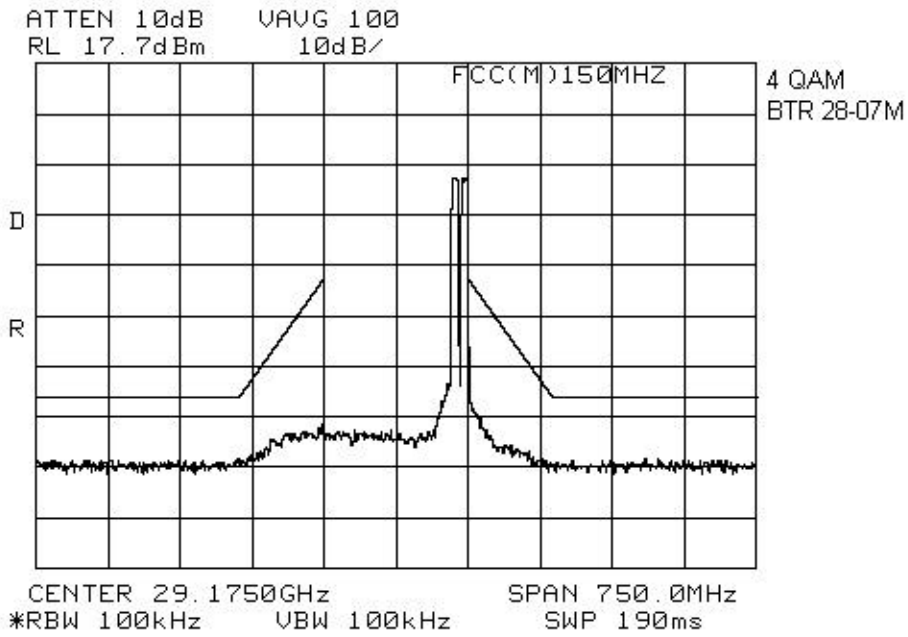
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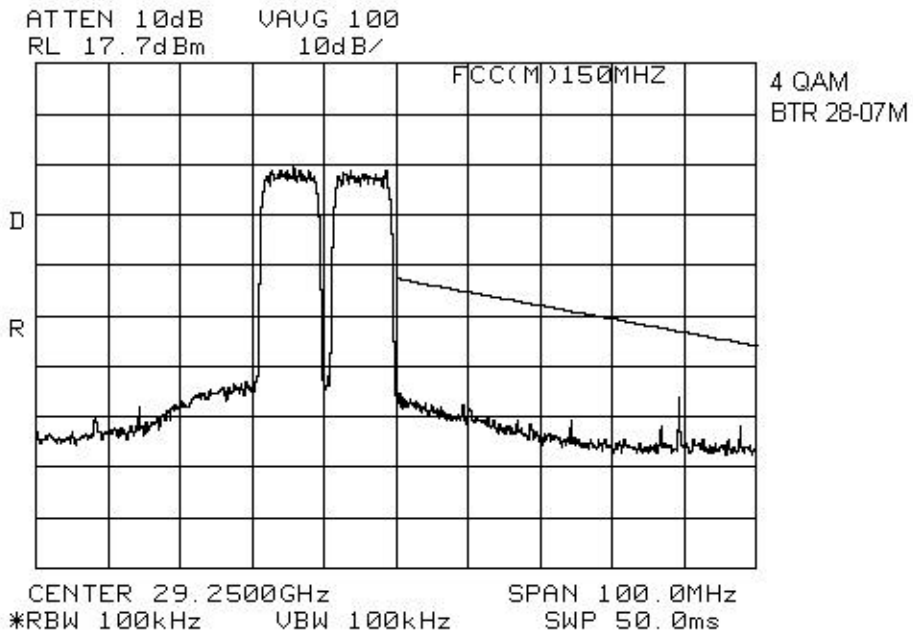


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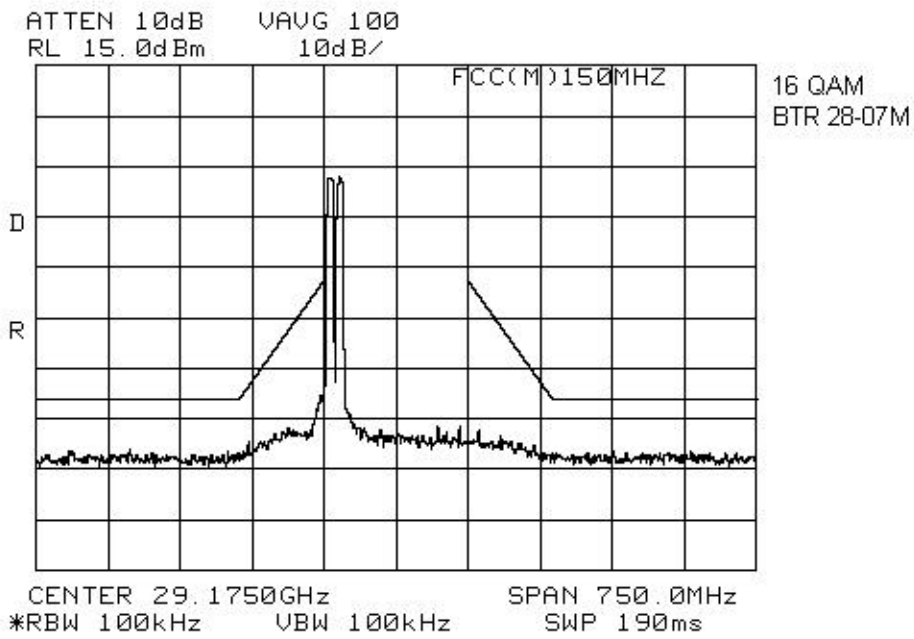


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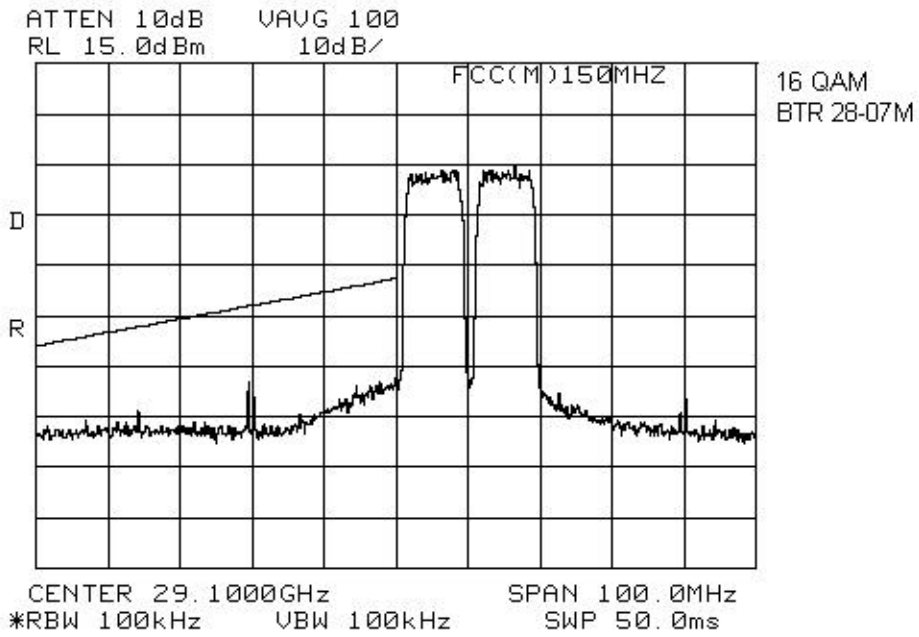
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ISSUE: 2.0



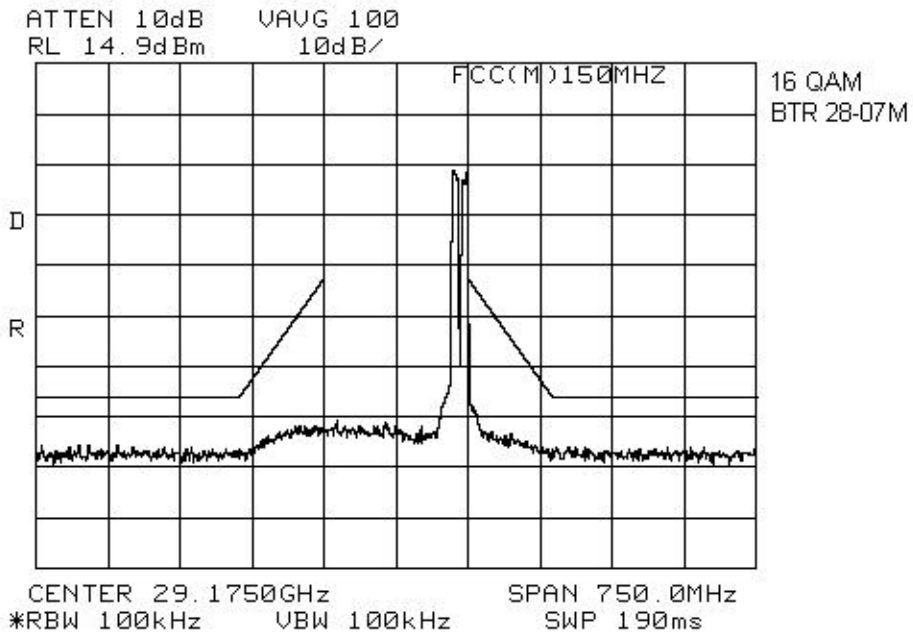
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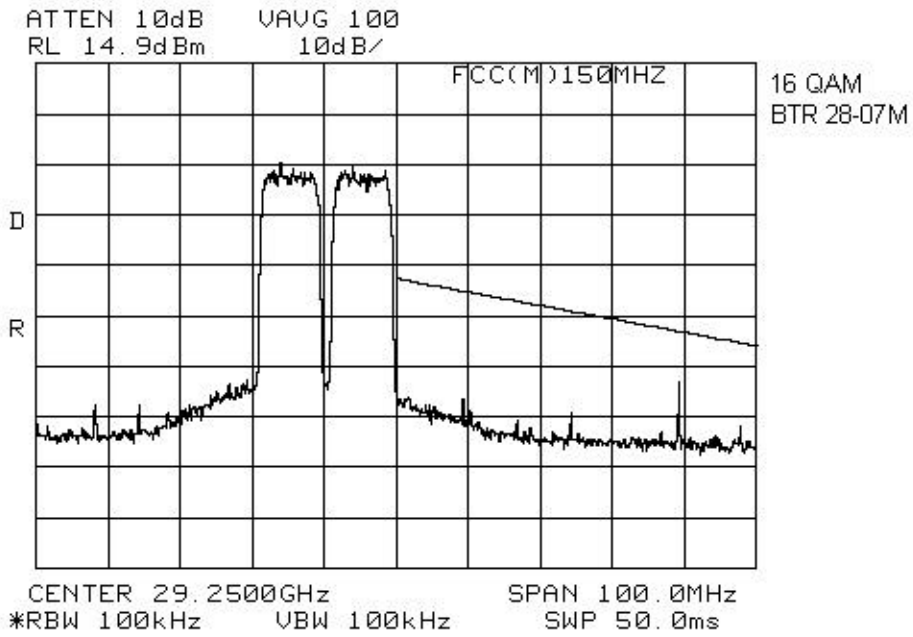
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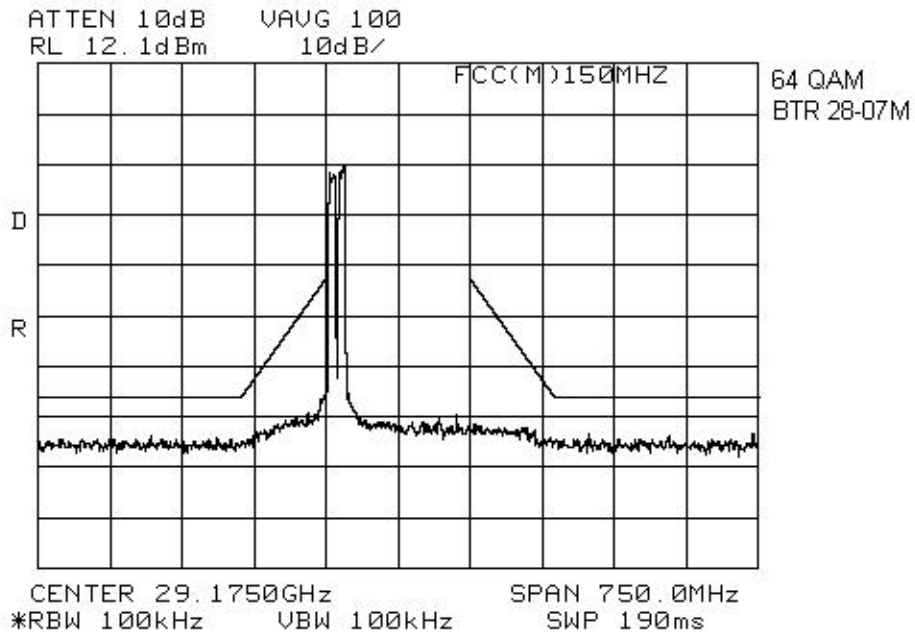
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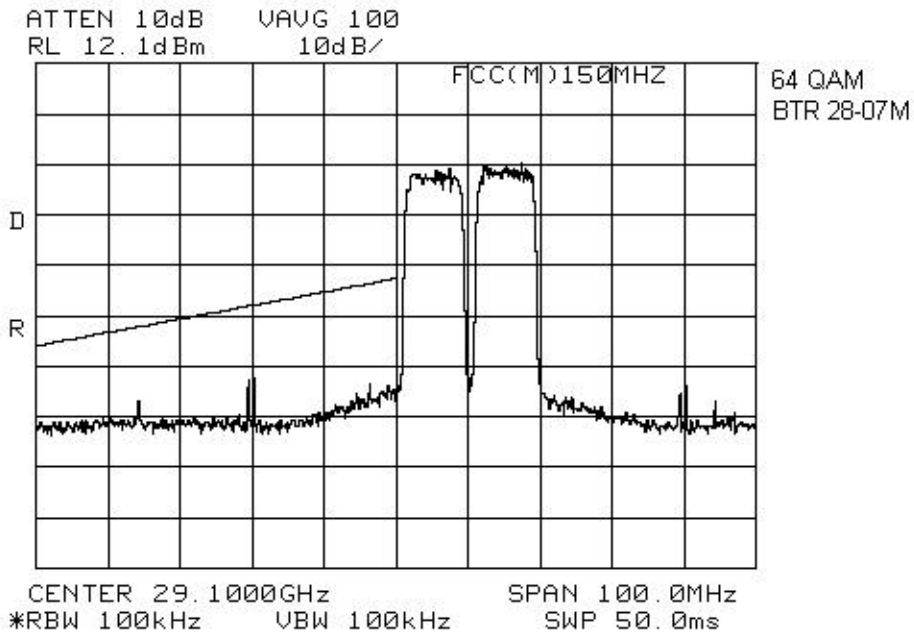
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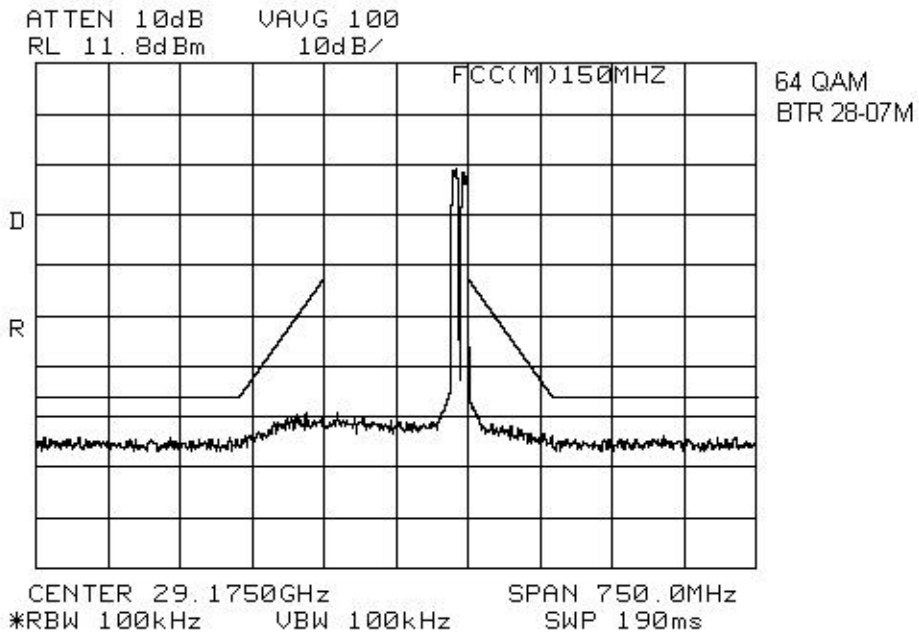


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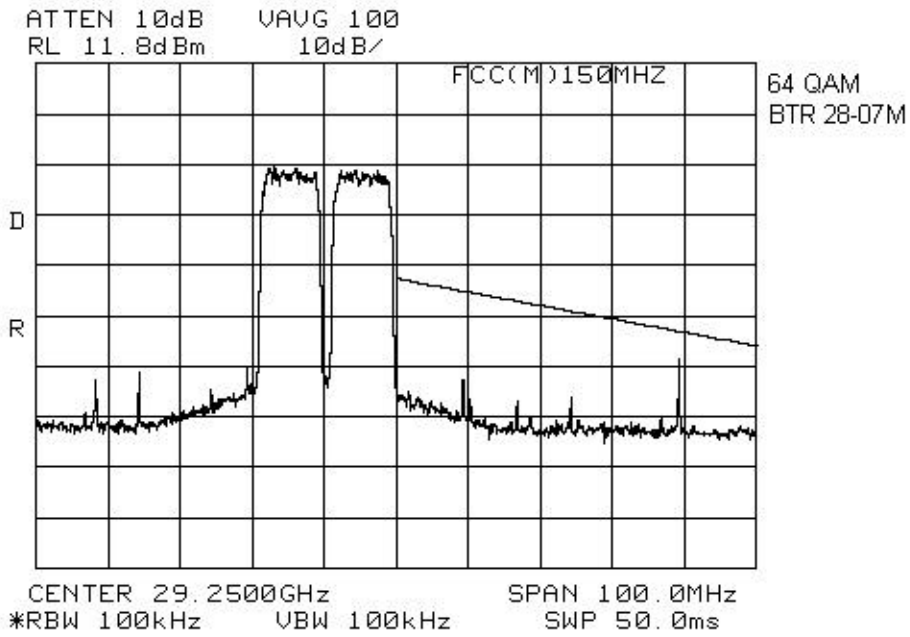


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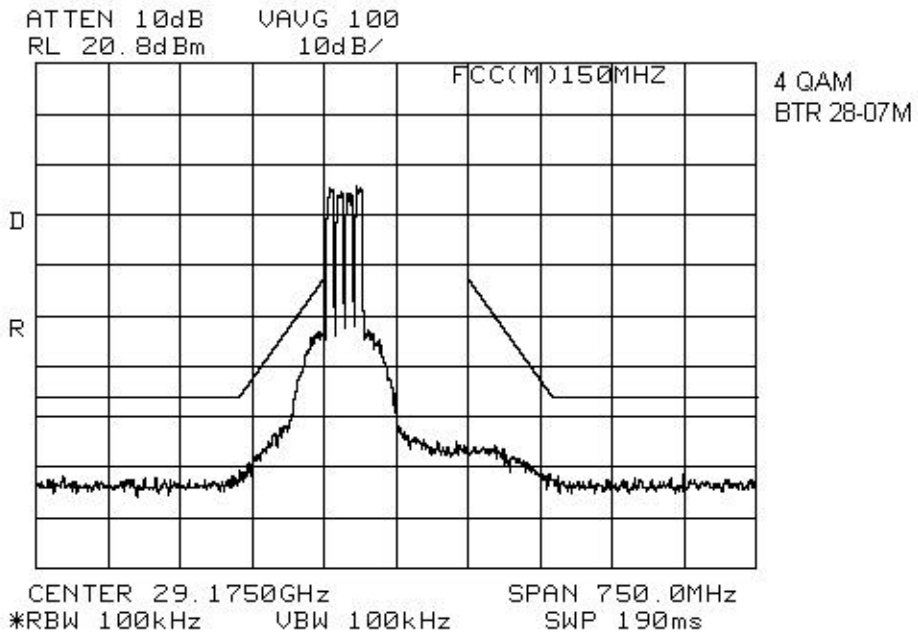
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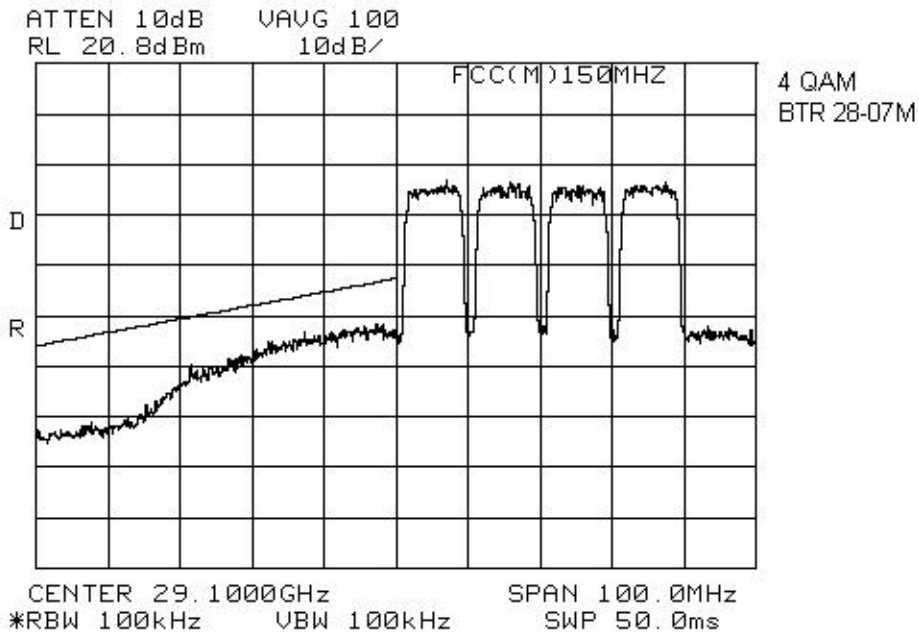
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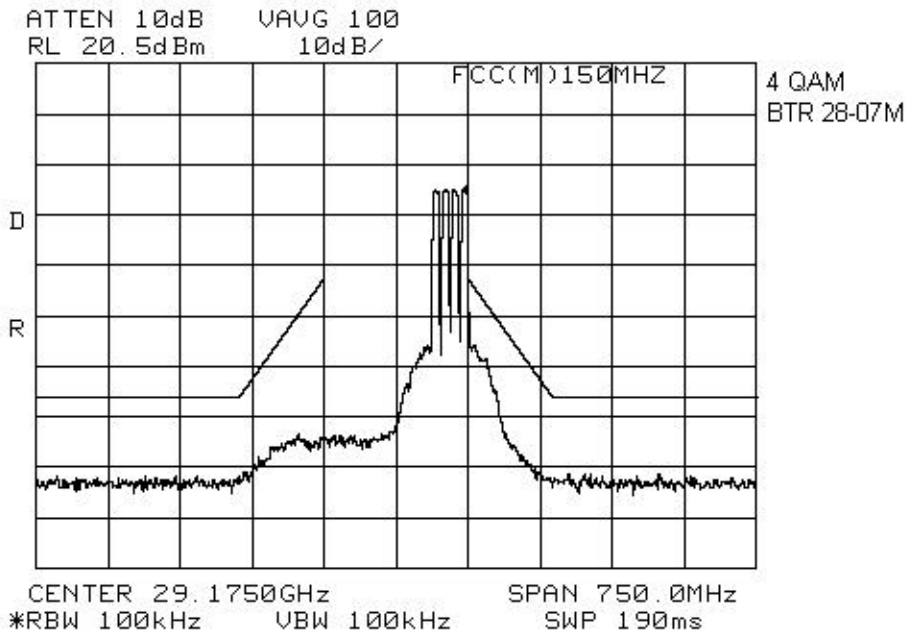
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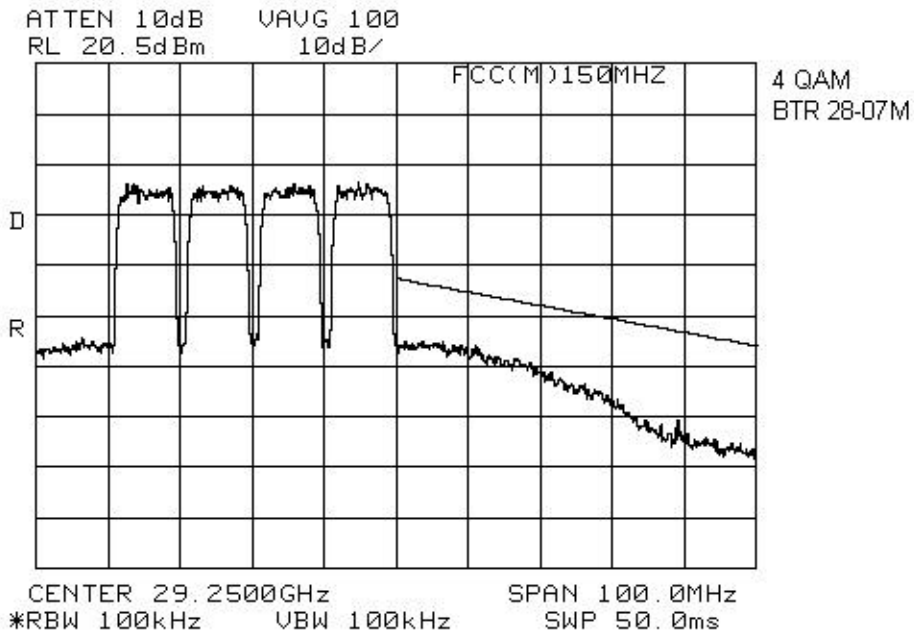


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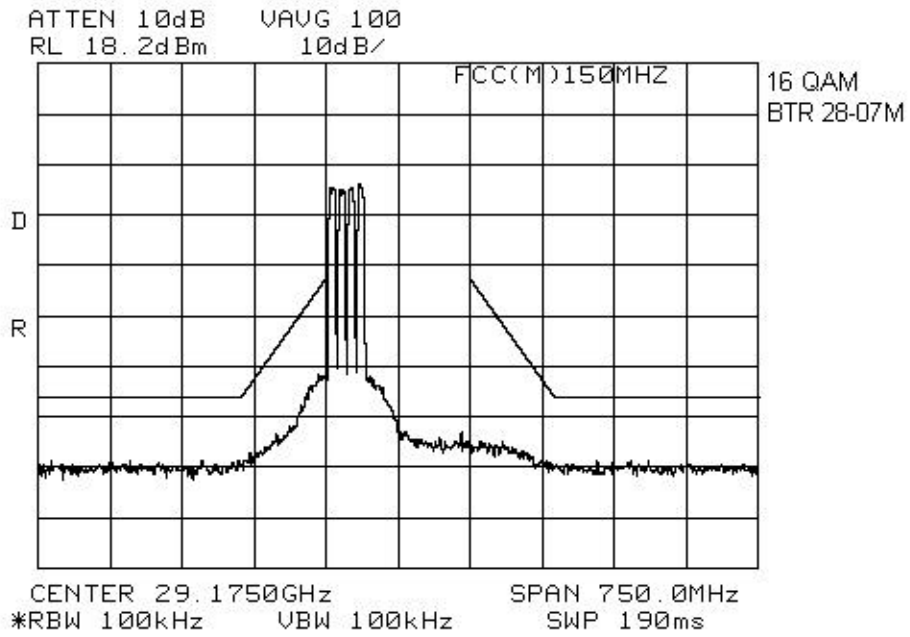


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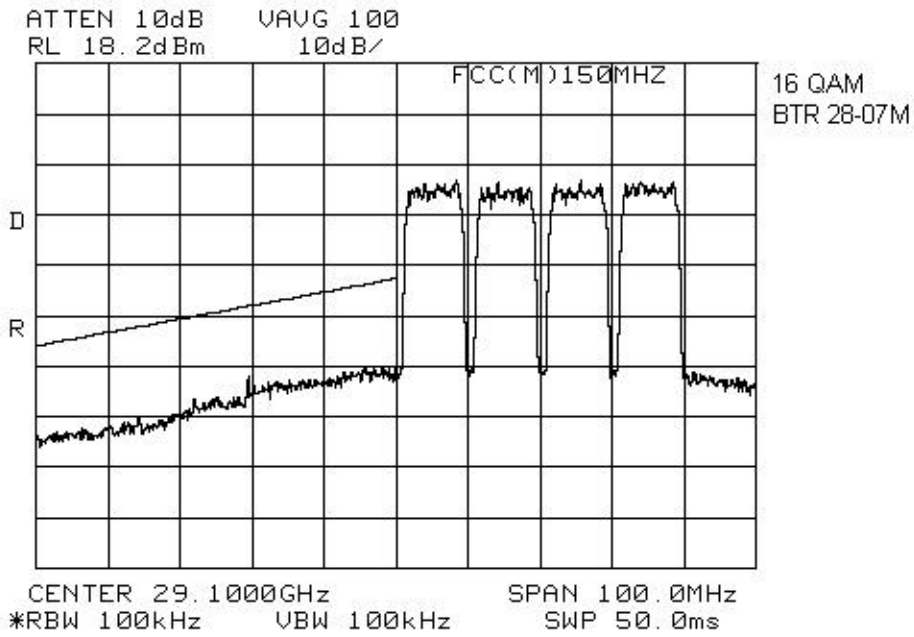
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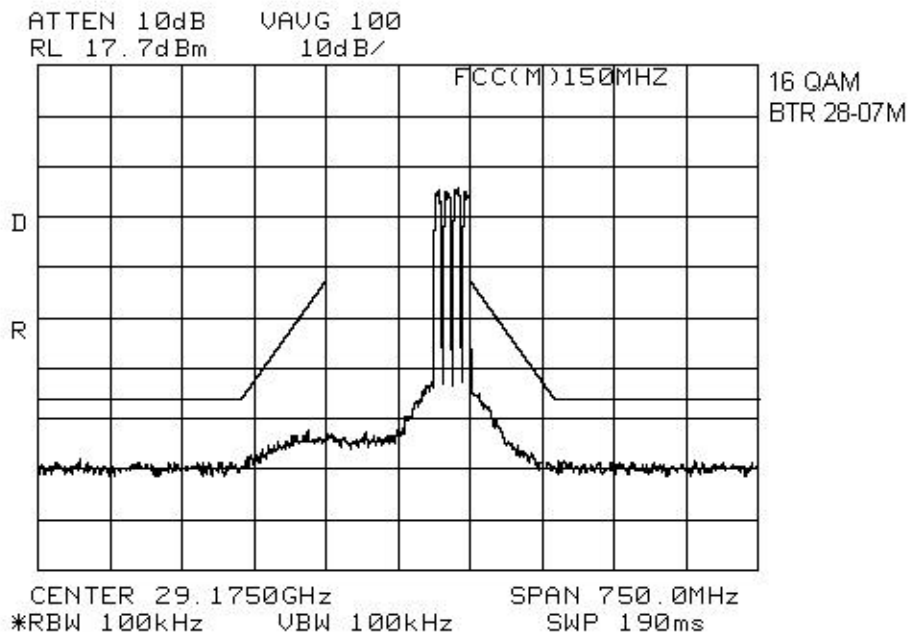


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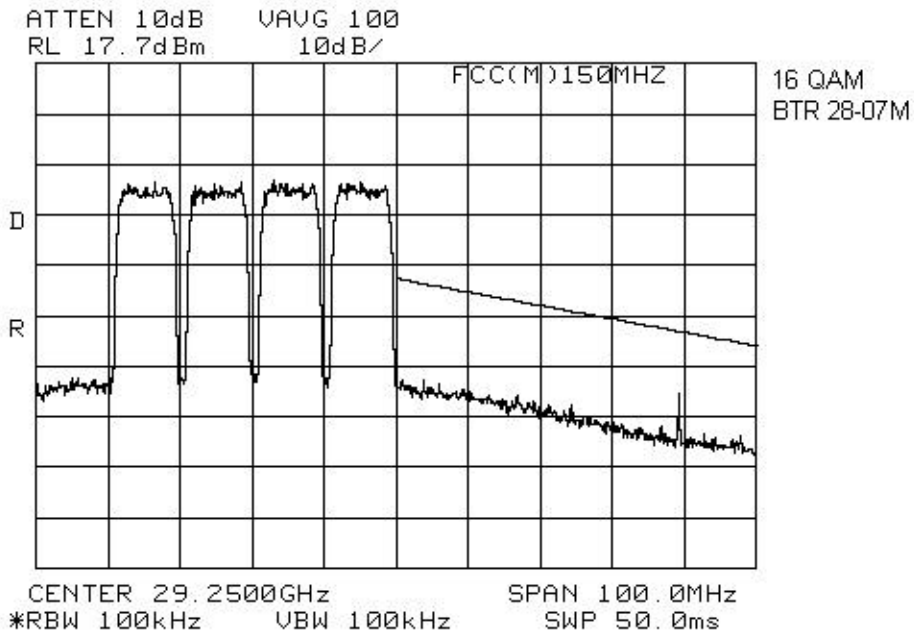


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ISSUE: 2.0



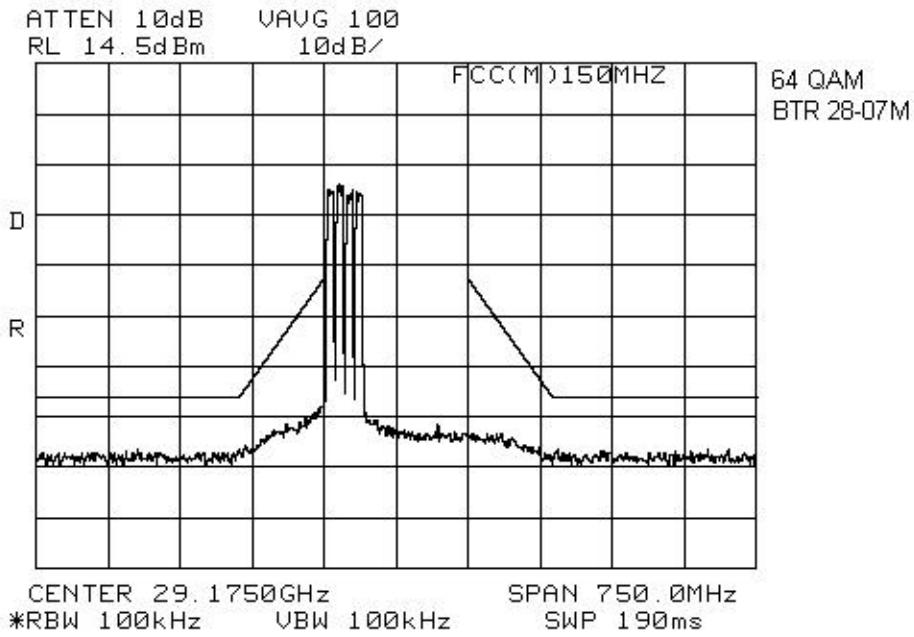
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ISSUE: 2.0



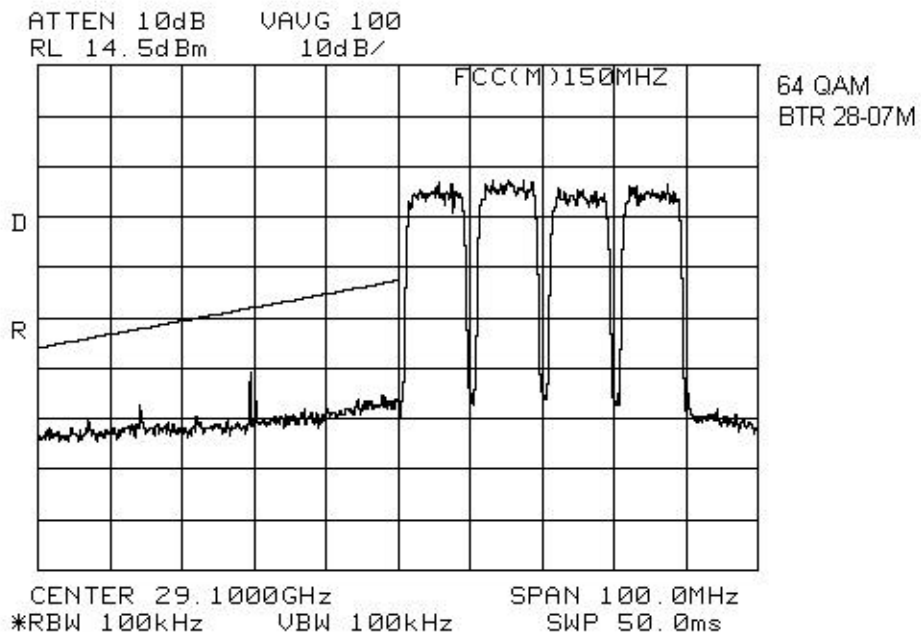
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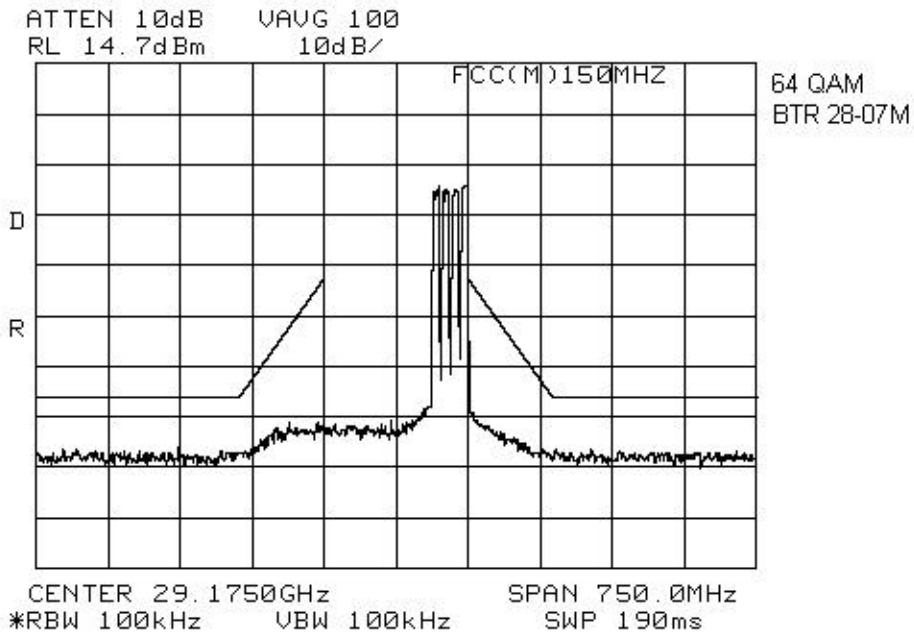
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ISSUE: 2.0



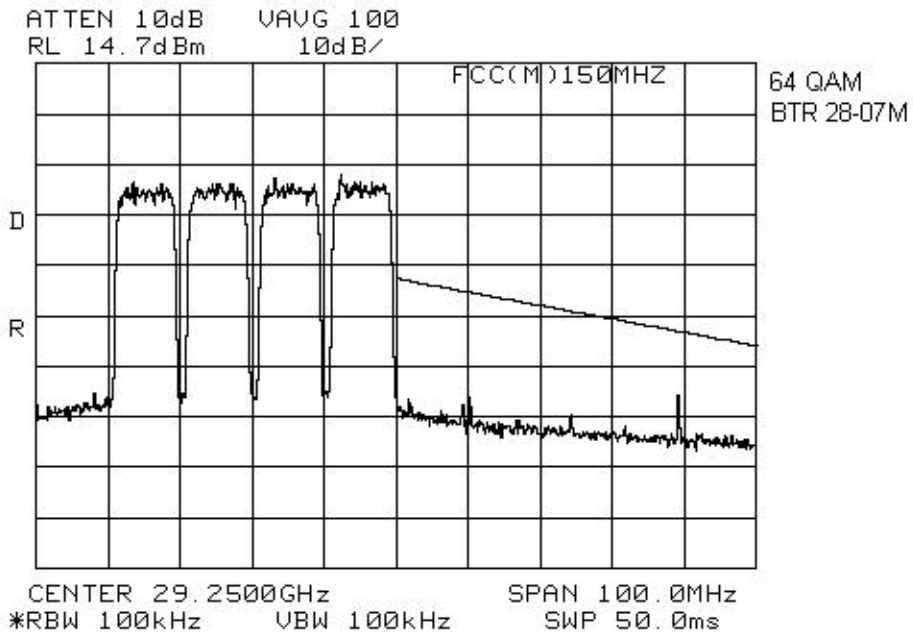
EQUIPMENT: BTR 28-07M

ISSUE: 2.0



EQUIPMENT: BTR 28-07M

ISSUE: 2.0



EQUIPMENT: BTR 28-07M

ISSUE: 2.0

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Glen Westwell	Date of Test: August 29, 2000
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Minimum Standard: 101.111 (a)(2)(iii), -13 dBm

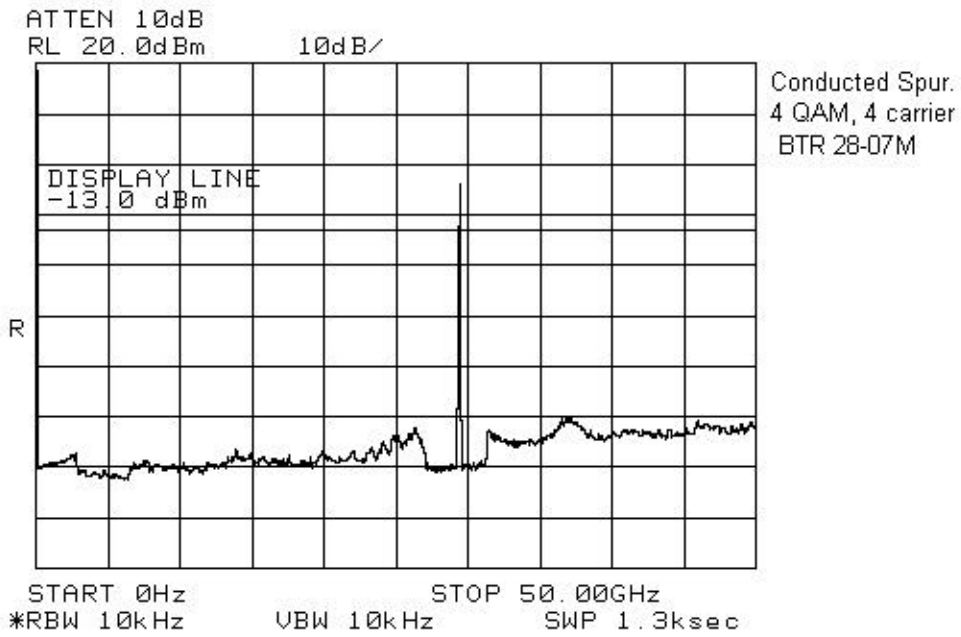
Test Results: Complies

No emissions were detected within 20 dB of the specification limit.

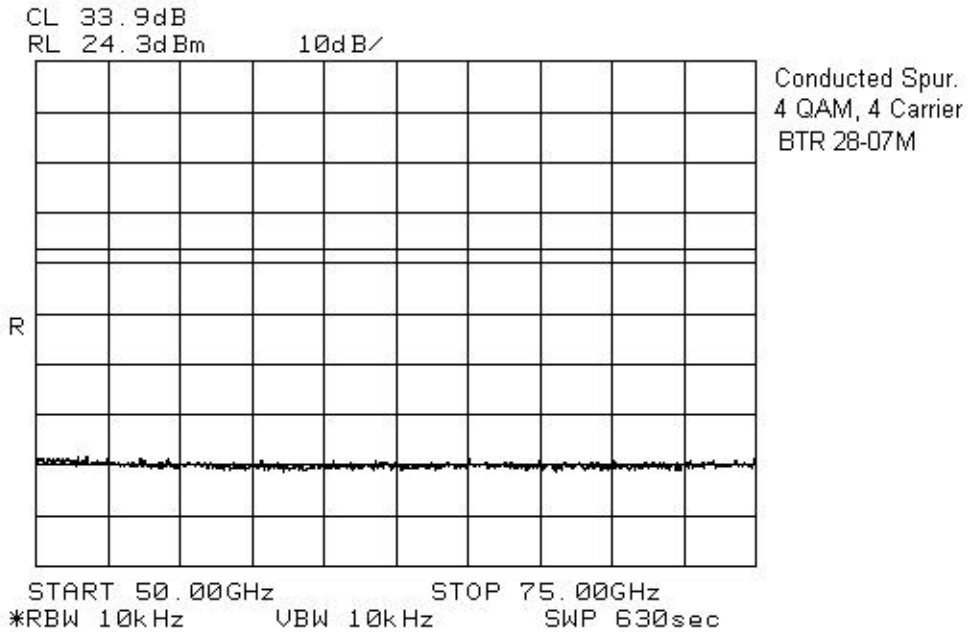
Test Data: See attached graph(s).

EQUIPMENT: BTR 28-07M

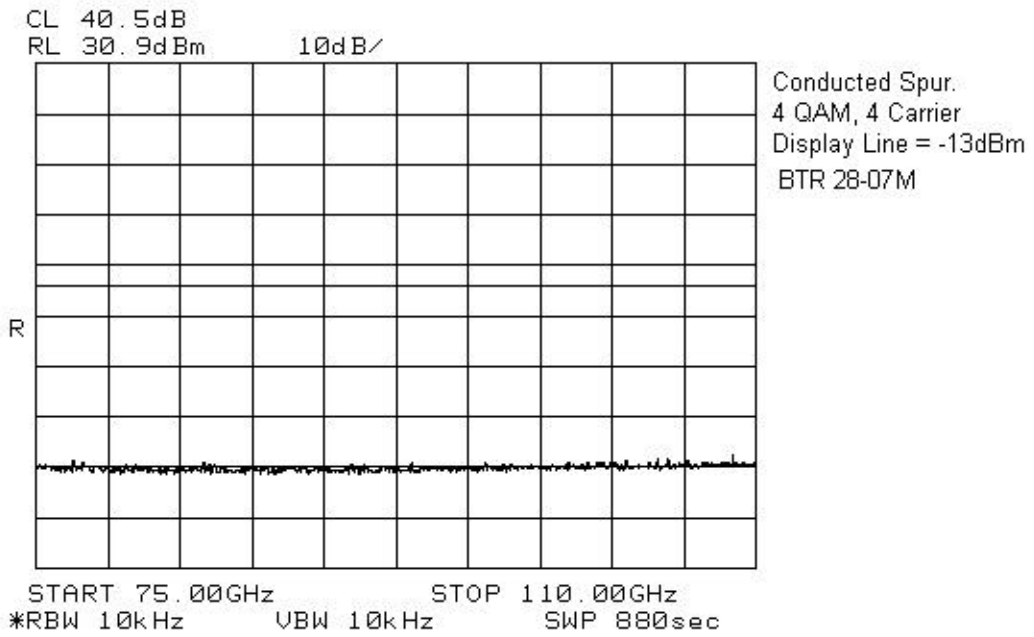
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EQUIPMENT: BTR 28-07M
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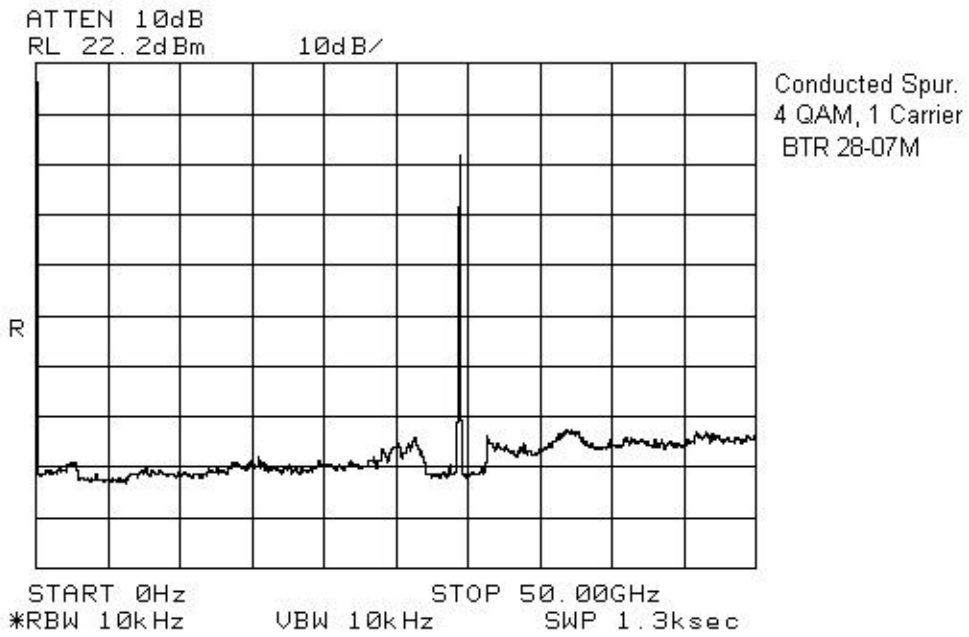


EQUIPMENT: BTR 28-07M
ISSUE: 2.0

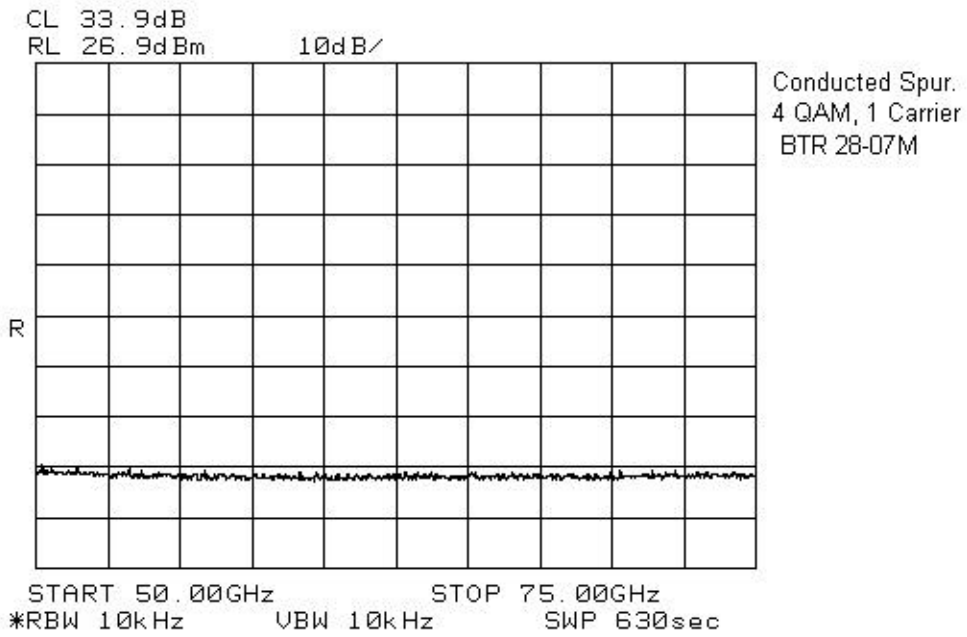


EQUIPMENT: BTR 28-07M

ISSUE: 2.0

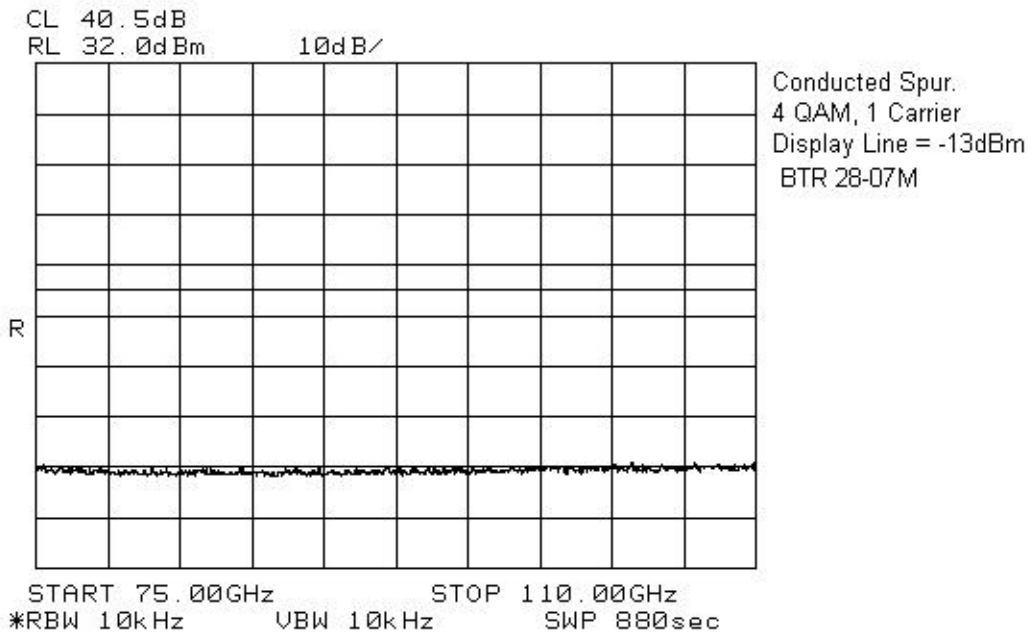


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ISSUE: 2.0



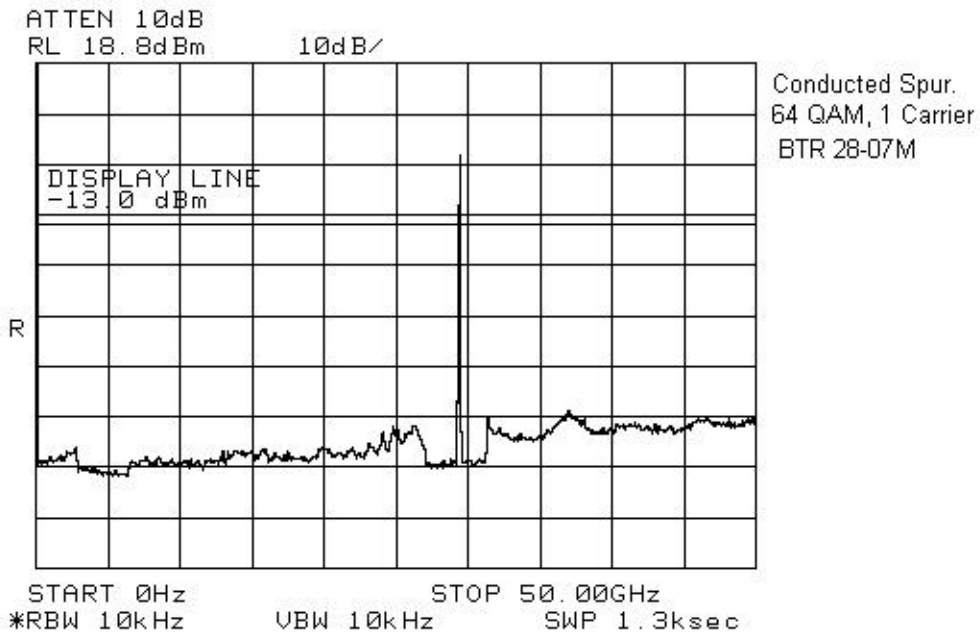
EQUIPMENT: BTR 28-07M

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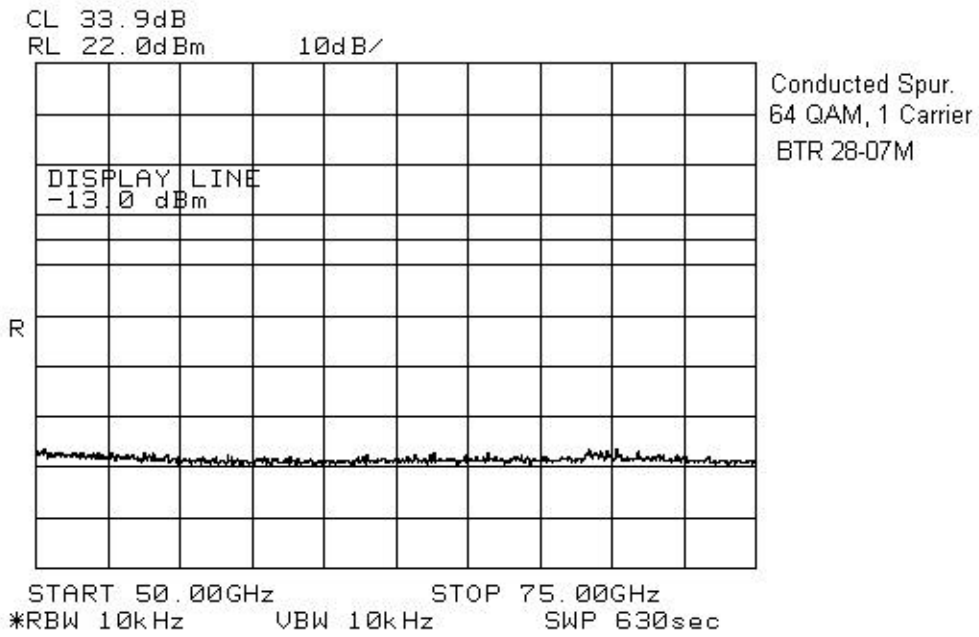


EQUIPMENT: BTR 28-07M

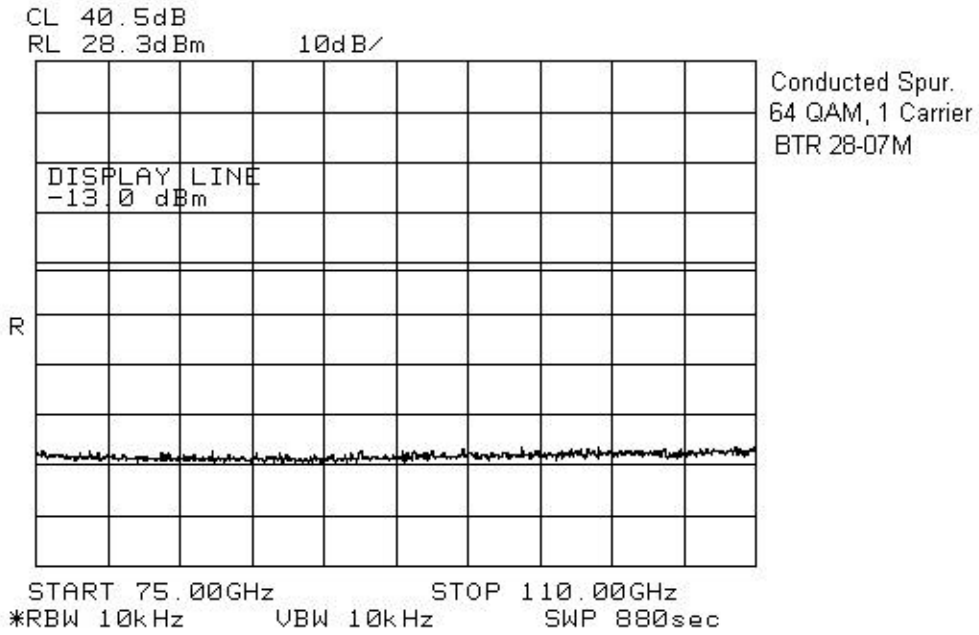
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EQUIPMENT: BTR 28-07M
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EQUIPMENT: BTR 28-07M
ISSUE: 2.0



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Section 6. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Glen Westwell	Date of Test: September 29, 2000
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Minimum Standard: 101.111 (a)(2)(iii), -13 dBm
84.4 dB μ V/m @ 3m < 1 GHz
82.2 dB μ V/m @ 3m > 1 GHz

Test Results: Complies
No emissions were detected within 20 dB of the specification limit.

Test Data: The spectrum was searched from 400 MHz to 140 GHz.
No emissions were detected.

EQUIPMENT: BTR 28-07M
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Section 7. Frequency Stability

Para. No.: 2.1055

Test Performed By: Glen Westwell	Date of Test: August 30, 2000
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Minimum Standard: 101.107, 0.001% (291 kHz)

Test Results: Complies

The maximum frequency drift is 53 kHz.
This is 0.000182%

Test Data: Standard Test Voltage: STV -48 VDC
Standard Test Frequency: 29 175.000 MHz

Test Condition	Frequency (MHz)	Frequency Drift (kHz)
STV	29 175.043	43
115% STV	29 175.043	43
85% STV	29 175.042	42
-30 °C	29 175.053	53
-20 °C	29 175.047	47
-10 °C	29 175.044	44
0 °C	29 175.043	43
+10 °C	29 175.044	44
+30 °C	29 175.035	35
+40 °C	29 175.038	38
+50 °C	29 175.035	35

EQUIPMENT: BTR 28-07M

ISSUE: 2.0

Section 8. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/00	June 16/01
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	COU	COU
3 Year	RF Generator	Rohde & Schwarz	SIMIQ03E	DE24154	Oct. 4/99	Oct. 4/01
	Power Supply	Hewlett Packard	6274B	2552A-08243	NCR	NCR
1 Year	Power Meter	Hewlett Packard	E4418B	FA001413	Nov. 8/99	Dec. 7/00
1 Year	Power Sensor	Hewlett Packard	8487A	FA001419	Nov. 18/99	Dec. 7/00
	20 dB Attenuator	Dorado		20-507	COU	COU
	Waveguide to SMA	Dorado			COU	COU
	Power Supply	Tektronix	PS280	FA001428	NCR	NCR

NA: Not Applicable
NCR: No Cal Required
COU: CAL On Use

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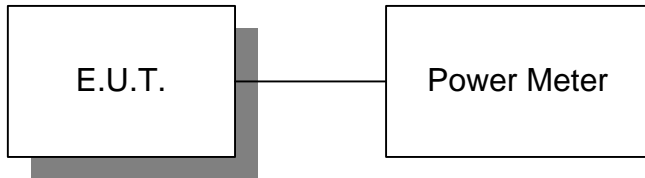
Annex A

Test Diagrams

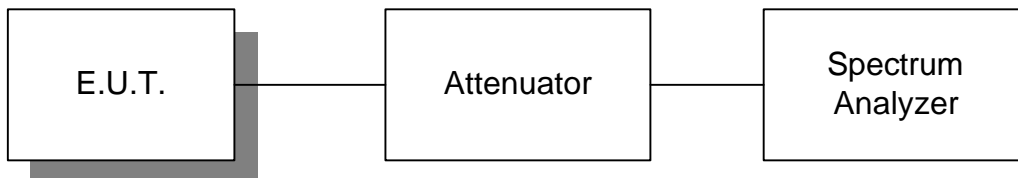
EQUIPMENT: BTR 28-07M

ISSUE: 2.0

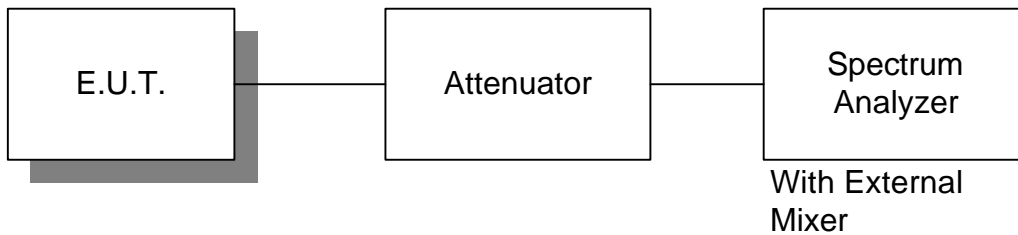
Para. No. 2.1046 - R.F. Power Output



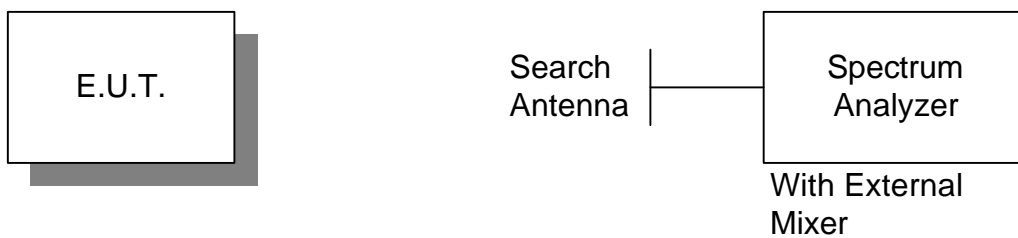
Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Spurious Radiation



EQUIPMENT: BTR 28-07M

ISSUE: 2.0

Para. No. 2.1055 - Frequency Stability

