

Nemko Test Report: 5L0360RUS1

Applicant: Navini Networks
2240 Campbell Creek Blvd. Suite 110
Richardson, TX 75082

Equipment Under Test: 2305 – 2360 LMX E
(E.U.T.)

In Accordance With: FCC PART 27, Subpart C Wireless Communications Systems

Tested By: Nemko Dallas Inc.
802 N. Kealy
Lewisville, Texas 75057-3136

Authorized By:

A handwritten signature in black ink, appearing to read 'Abe Cox', is written over a vertical red line.

Abe Cox
Key Account Manager

Date: 11/15/2005

EQUIPMENT: 2305 – 2360 LMX E

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Section 1. Summary of Test Results

Manufacturer: Navini Networks
Model No.: 2305 – 2360 LMX E
Serial No.: None
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 27.

- | | |
|---|---|
| <input checked="" type="checkbox"/> New Submission | <input checked="" type="checkbox"/> Production Unit |
| <input type="checkbox"/> Class II Permissive Change | <input type="checkbox"/> Pre-Production Unit |

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. none
See “ Summary of Test Data”.

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This report applies only to the items tested.

EQUIPMENT: 2305 – 2360 LMX E

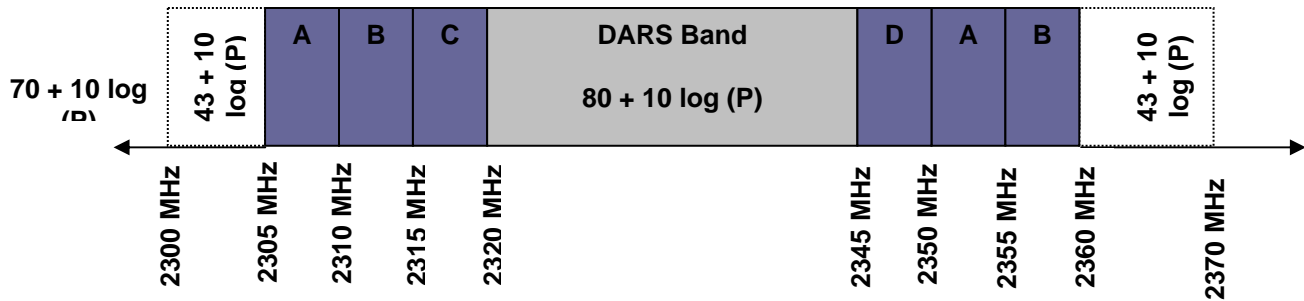
Summary Of Test Data

NAME OF TEST	PARA. NO.	PART 27 PARA. NO.	RESULT
RF Power Output	2.1046	27.50	Complies
Occupied Bandwidth	2.1049	27.53(a)	Complies
Spurious Emissions @ Antenna Terminals	2.1051	27.53(a)	Complies
Field Strength of Spurious Radiation	2.1053	27.53(a)	Complies
Frequency Stability	2.1055	27.54	Complies

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Section 2. General Equipment Specification

Supply Power:	115 Vac
Frequency Range:	See Fig. 1 below
Type(s) of Modulation:	QPSK
Emission Designator:	500KF9W
Output Impedance:	50 ohms
RF Power Output Rated:	See Section 3
Duty Cycle:	Software controlled 50% TDD
Operator Selection Of Operating Frequency:	Software controlled
Power Output Adjustment Capability:	Software controlled



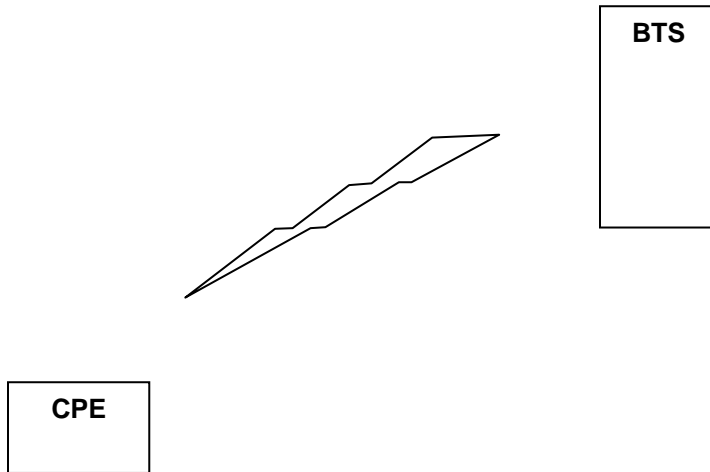
70 + 10 log

EQUIPMENT: 2305 – 2360 LMX E

Description Of EUT

The equipment tested is a Customer Premise Equipment (CPE) transceiver that functions as a wireless broadband data modem.

System Diagram



EQUIPMENT: 2305 – 2360 LMX E

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: Kevin Rose	DATE: September 12, 2005

Test Results: Complies
 Measurement Data:

Antenna is detachable. The rf power output is measured at the rf output from the transmitter. The measured power is Average with a power meter
 Antenna gain: 6 dBi

Navini (SCDMA) Mode

Signal Type	Carrier Position	FCC A or B band Tx Out (dBm)	FCC C or D band TX Out (dBm)
8-Carrier BTS Signal	4 carriers (1 MHz) From DARS		14
	4 carriers (2 MHz) From DARS		23
	4 carriers (3 MHz) From DARS		24
10-Carrier BTS Signal	Outside 4 carriers	24	
	Inside 4 carriers	28	
6-Carrier BTS Signal	Outside 4 Carriers		25
	Inside 4 Carriers		22

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RF Output Power 802.16e Mode

Band	CPE Signal Type	Guard Band	Power (dBm)
A LOW	1.6MHz OFDM	0.1MHz guard band from band edge	24dBm
A LOW	1.6MHz OFDM	1.1MHz or more guard band from band edge	28dBm
A HIGH	1.6MHz OFDM	0.1MHz guard band from band edge	24dBm
A HIGH	1.6MHz OFDM	1.1MHz or more guard band from band edge	28dBm
B LOW	1.6MHz OFDM	0.1MHz guard band from band edge	24dBm
B LOW	1.6MHz OFDM	1.1MHz or more guard band from band edge	28dBm
B HIGH	1.6MHz OFDM	0.1MHz guard band from band edge	24dBm
B HIGH	1.6MHz OFDM	1.1MHz or more guard band from band edge	28dBm
C	1.6MHz OFDM	1MHz guard band from DARS	14dBm
C	1.6MHz OFDM	1.5MHz guard band from DARS	21dBm
C	1.6MHz OFDM	2MHz guard band from DARS	23dBm
C	1.6MHz OFDM	3.3MHz guard band from DARS (0.1MHz guard band from adjacent band edge)	24dBm
D	1.6MHz OFDM	1MHz guard band from DARS	14dBm
D	1.6MHz OFDM	1.5MHz guard band from DARS	21dBm
D	1.6MHz OFDM	2MHz guard band from DARS	23dBm
D	1.6MHz OFDM	3.3MHz guard band from DARS (0.1MHz guard band from adjacent band edge)	24dBm

Test Equipment Used: Agilent Model E4416A s/n GB41290732
 Agilent Model E9327A s/n US40440319

Measurement Uncertainty: +/- 0.69 dB

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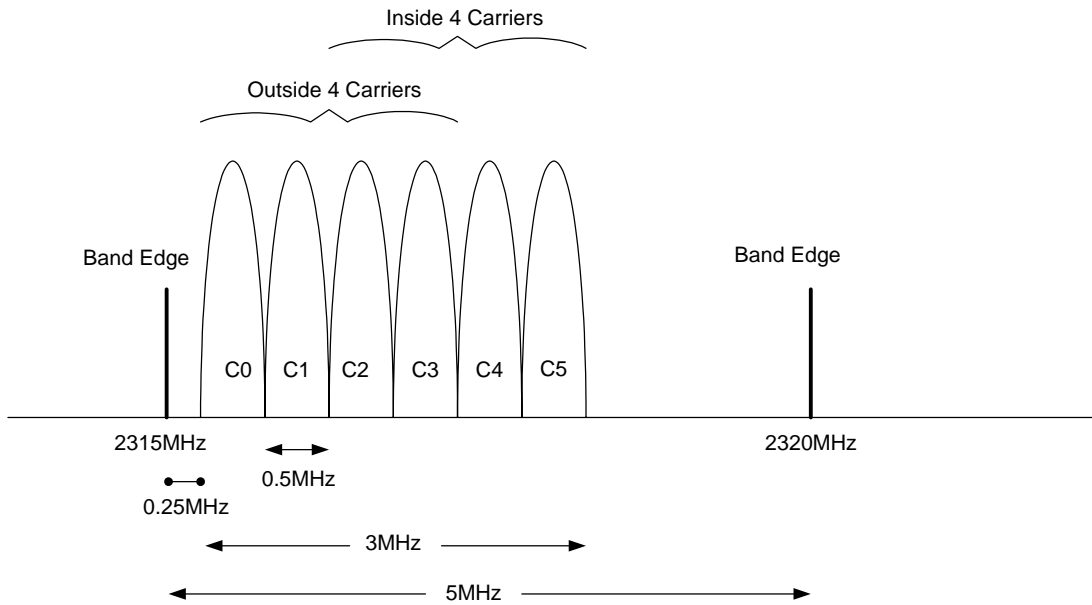


Figure 1. 6-Carrier BTS Signal Operating in WCS C Band

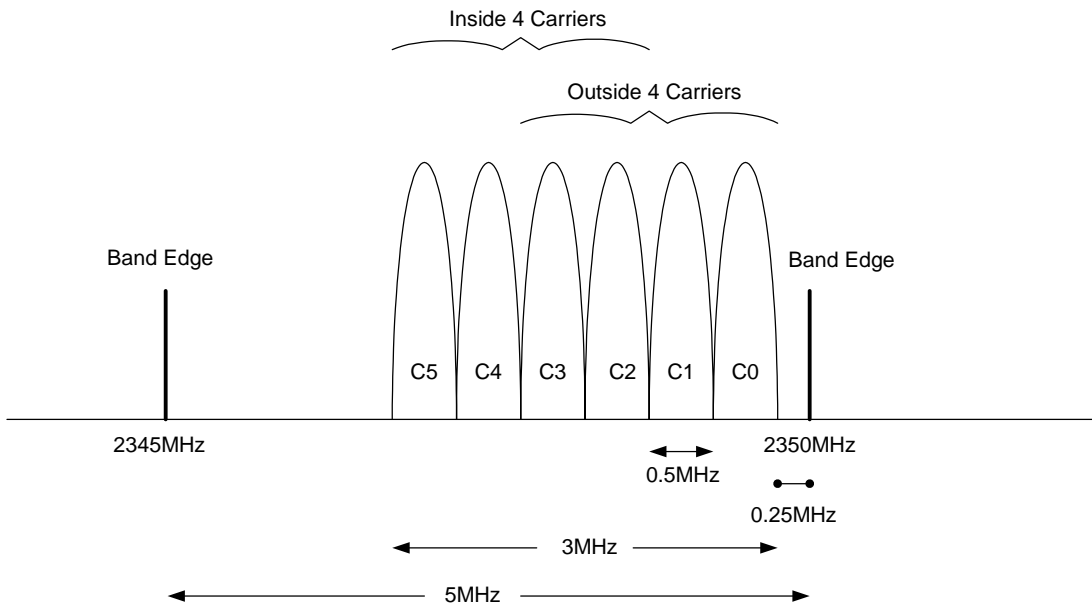


Figure 2. 6-Carrier BTS Signal Operating in WCS D Band

EQUIPMENT: 2305 – 2360 LMX E

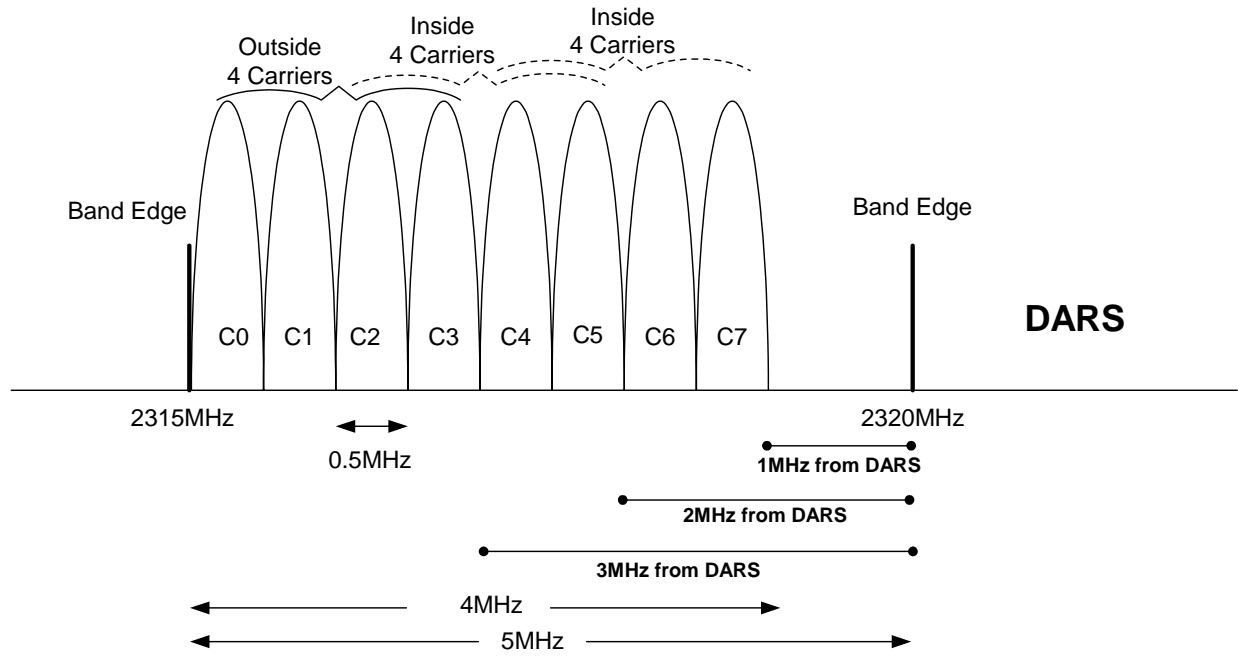


Figure 3. 8-Carrier BTS Signal Operating in WCS C Band

EQUIPMENT: 2305 – 2360 LMX E

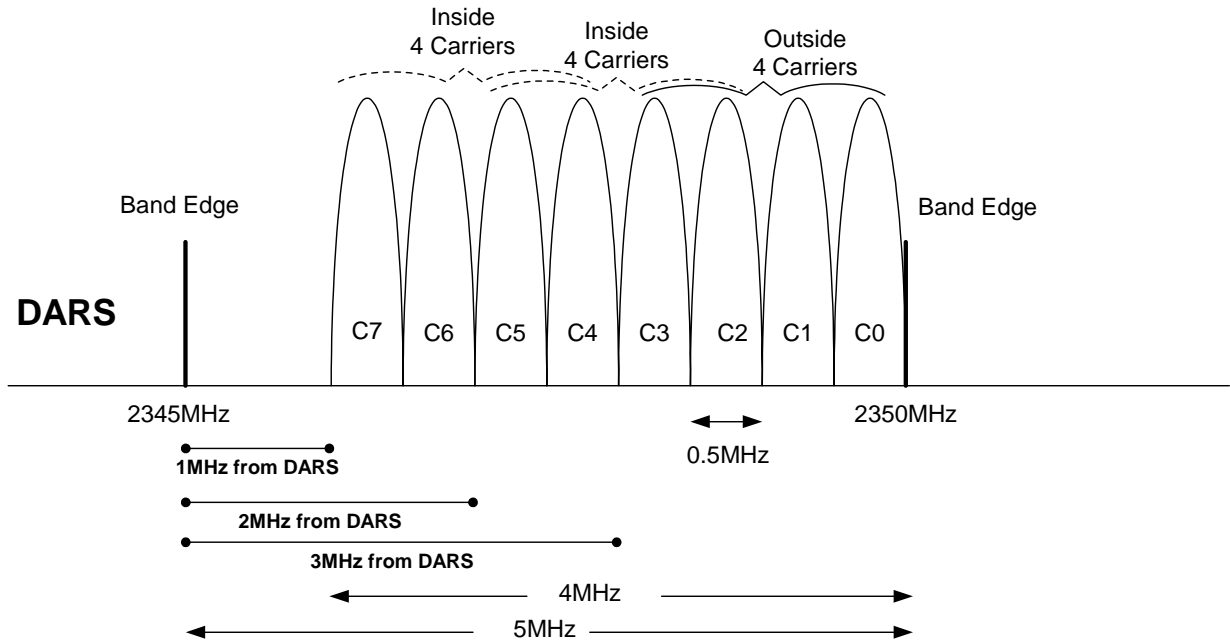


Figure 4. 8-Carrier BTS Signal Operating in WCS D Band

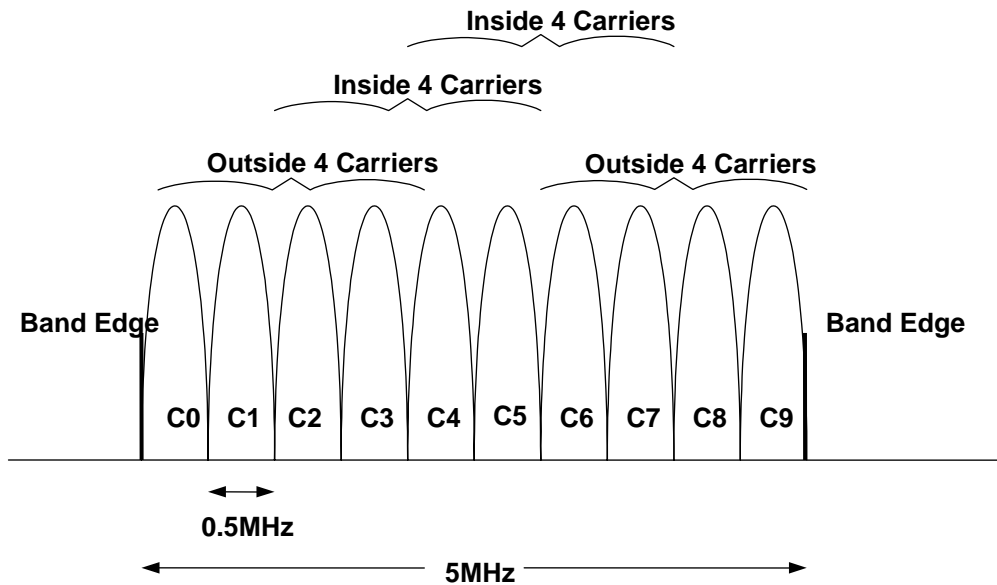


Figure 5. 10-Carrier BTS Signal Operating in WCS A or B Bands

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Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: Kevin Rose	DATE: September 12, 2005

Test Results: Complies

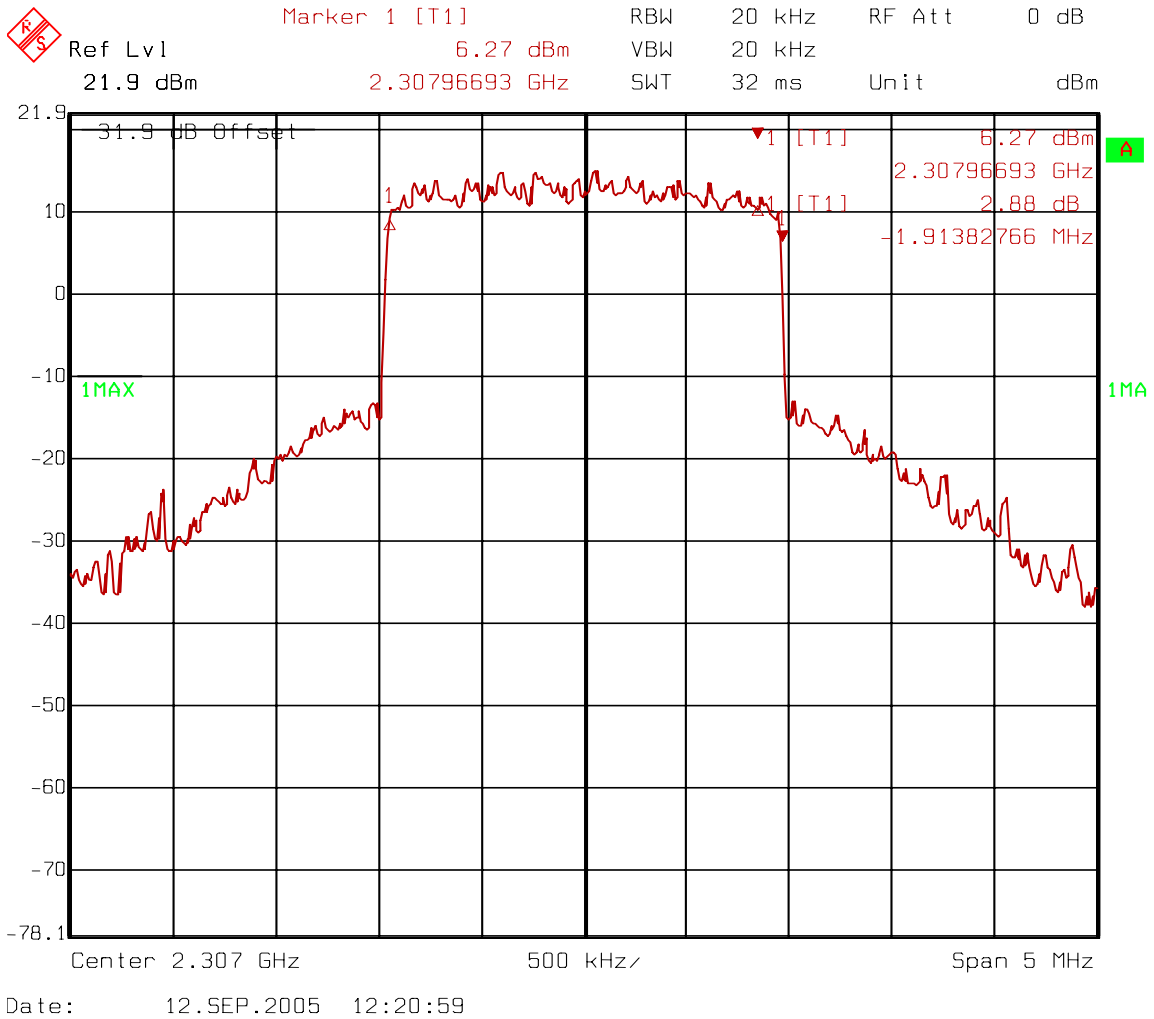
Measurement Data: See attached data sheets.

EQUIPMENT USED 1561, 1562, 1045, 1055, 2072, 2071, 1470,1471,AND 1482.

Mearurement Uncertainty: +/- 1.7 dB

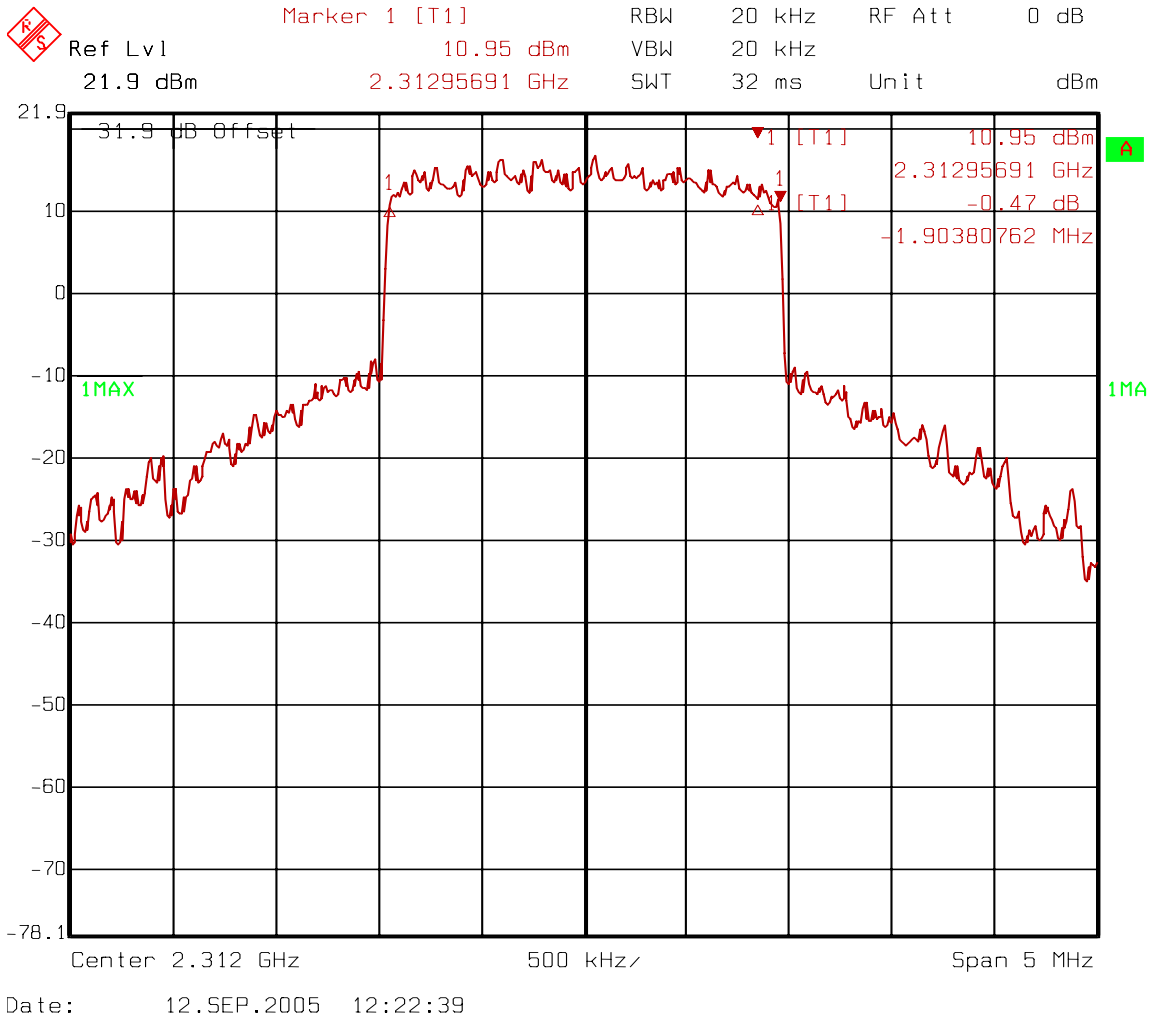
EQUIPMENT: 2305 - 2360 LMX E

A Low 0BW



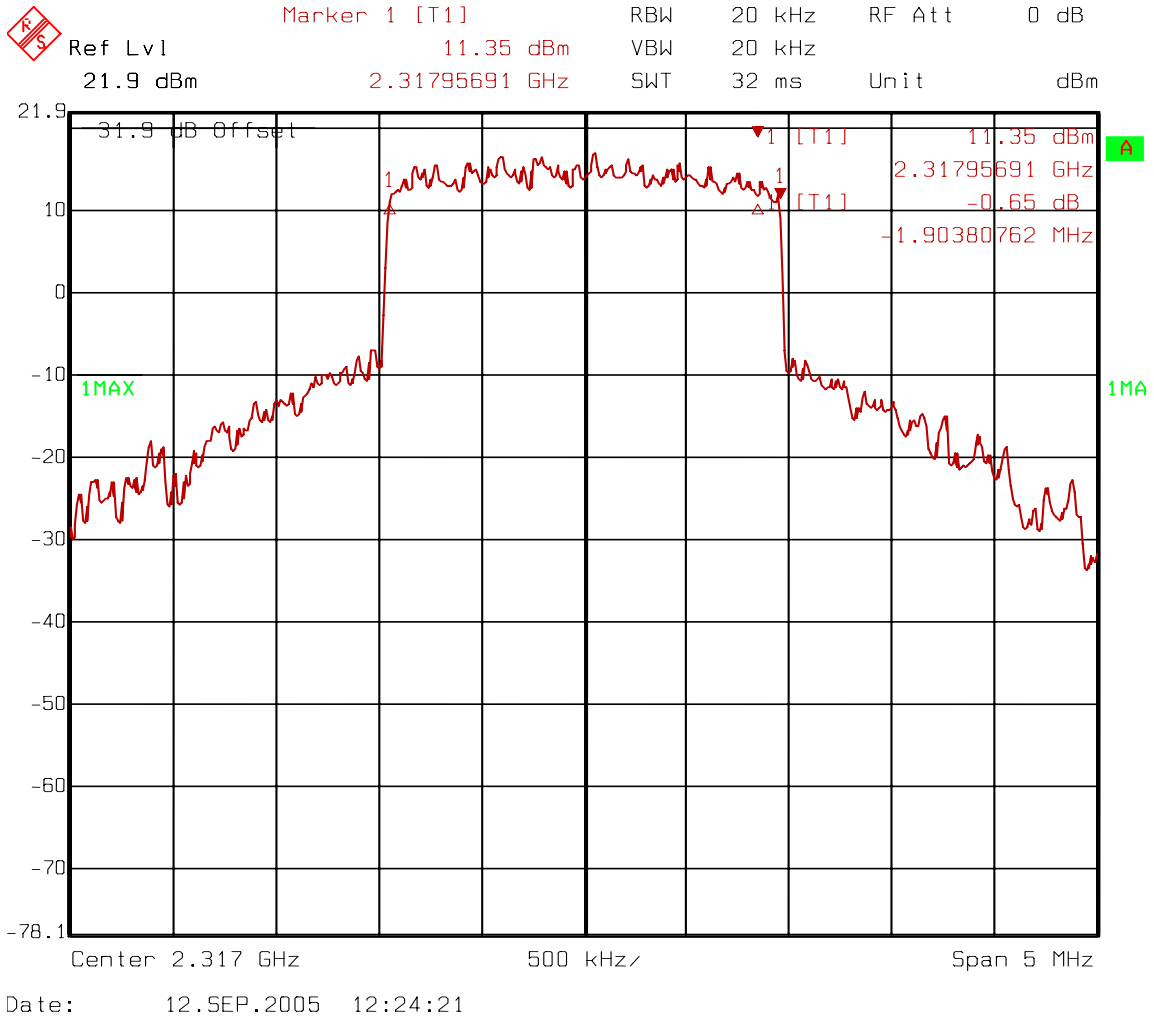
EQUIPMENT: 2305 - 2360 LMX E

B LOW BAND OBW



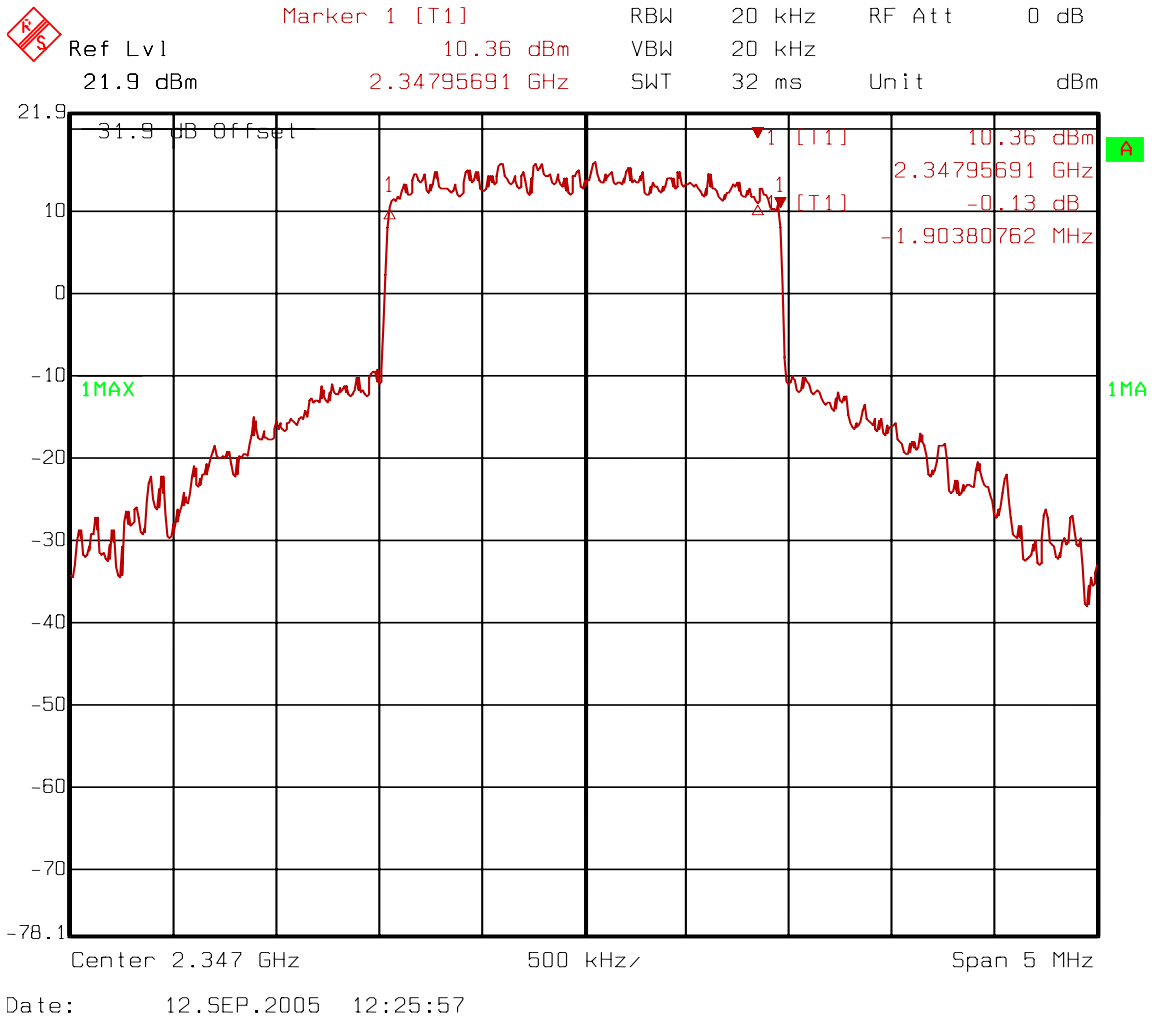
EQUIPMENT: 2305 - 2360 LMX E

C BAND OBW



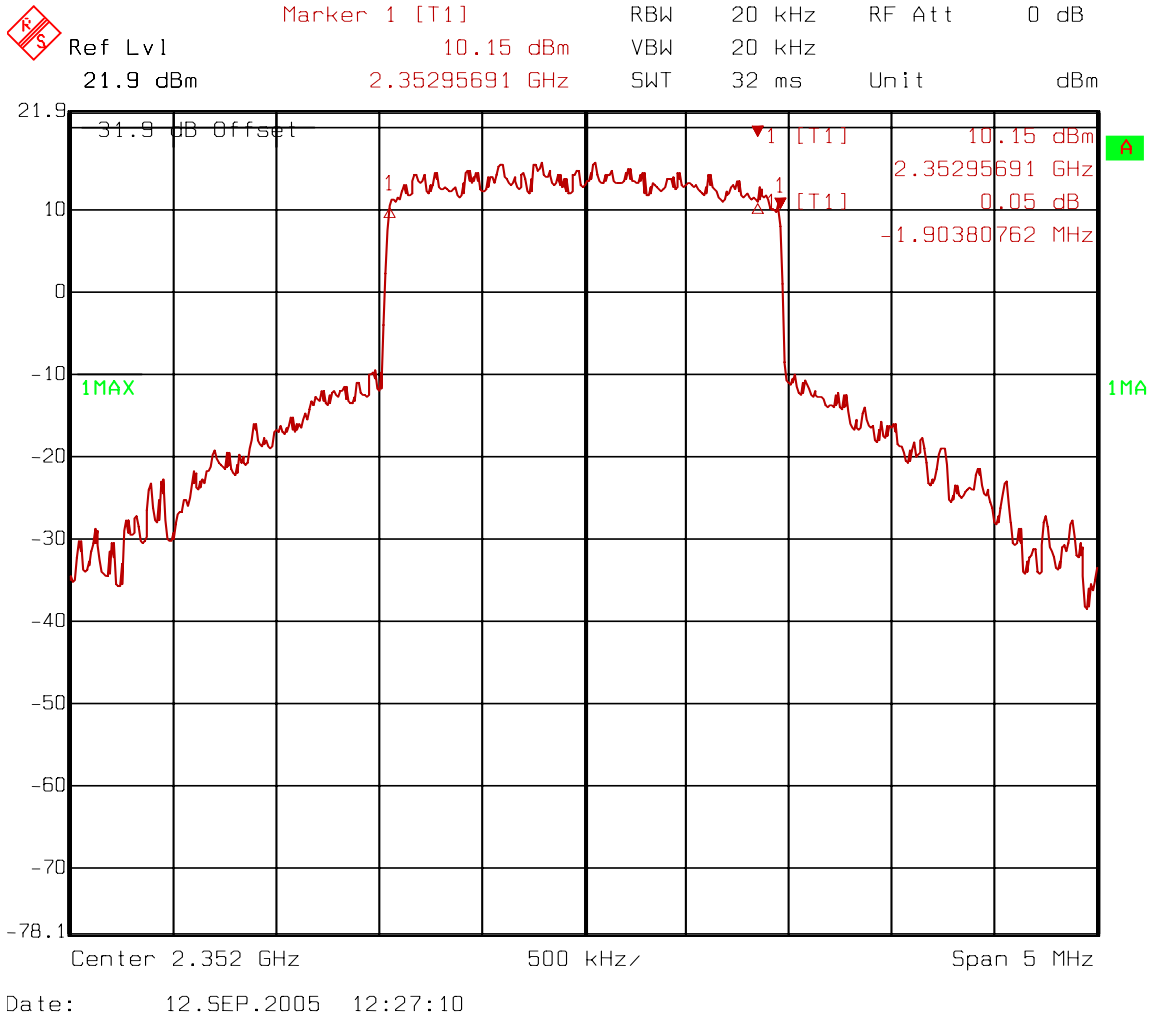
EQUIPMENT: 2305 - 2360 LMX E

D BAND OBW



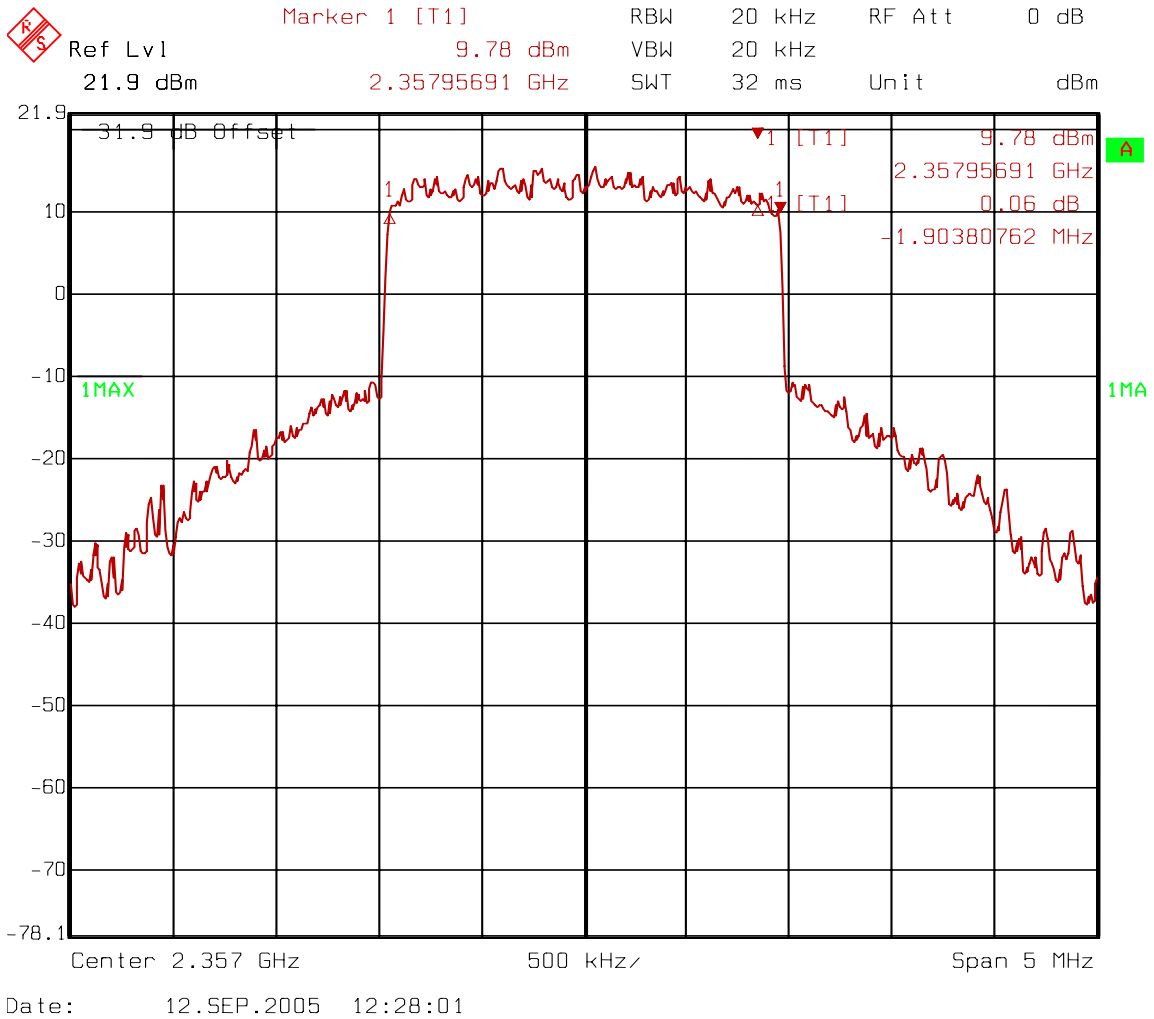
EQUIPMENT: 2305 - 2360 LMX E

A HIGH BAND OBW



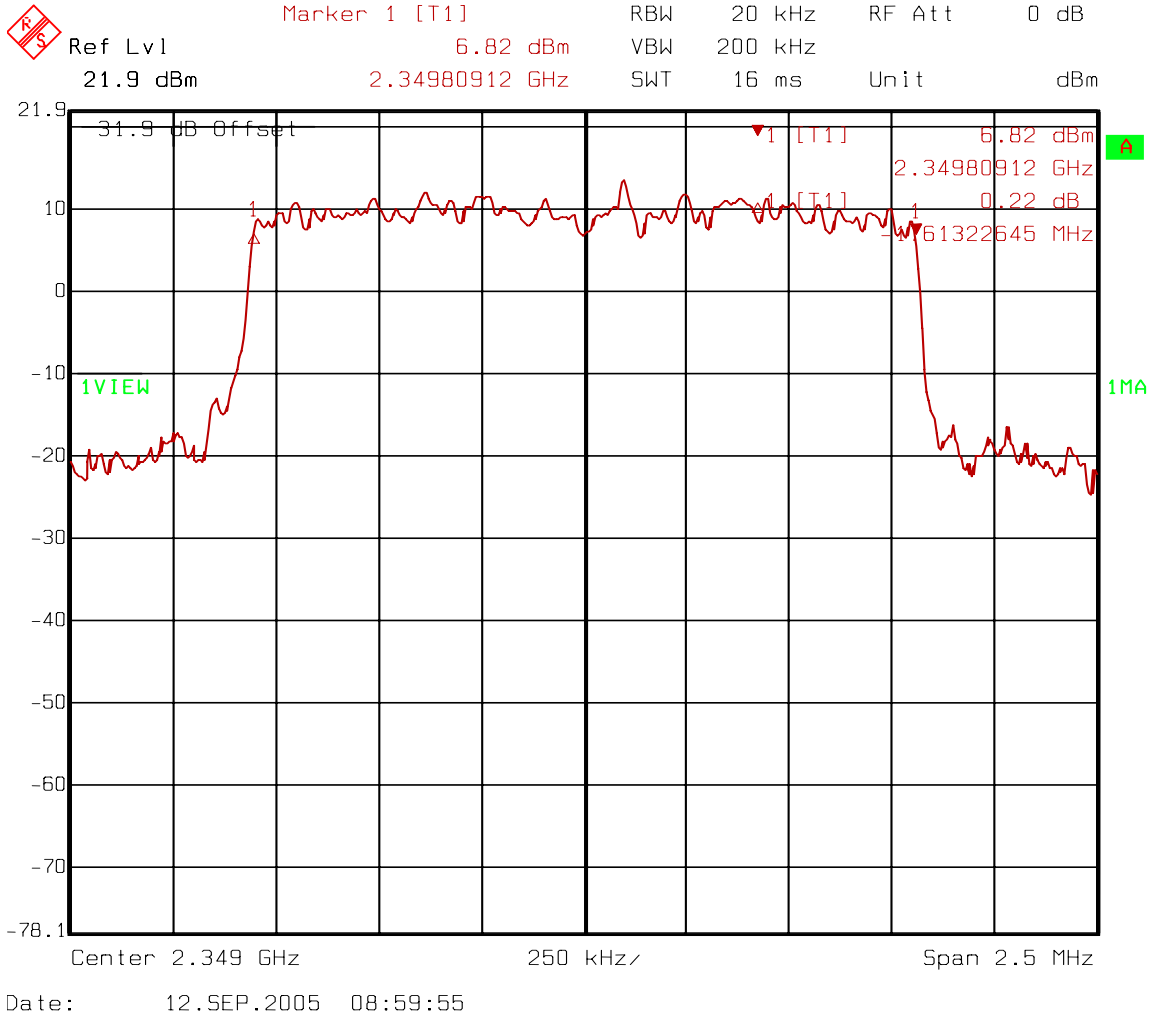
EQUIPMENT: 2305 - 2360 LMX E

B HIGH BAND OBW

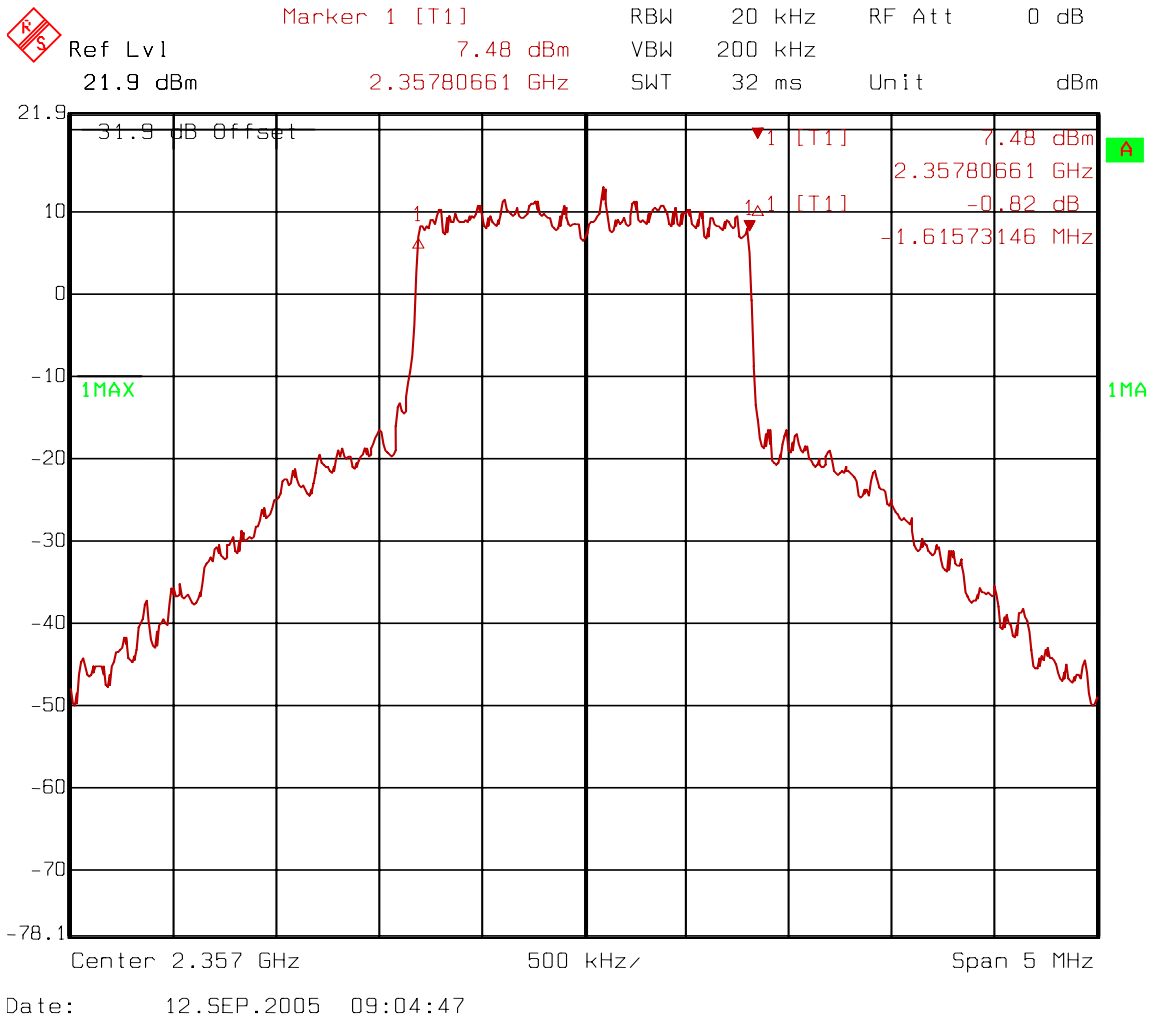


EQUIPMENT: 2305 - 2360 LMX E

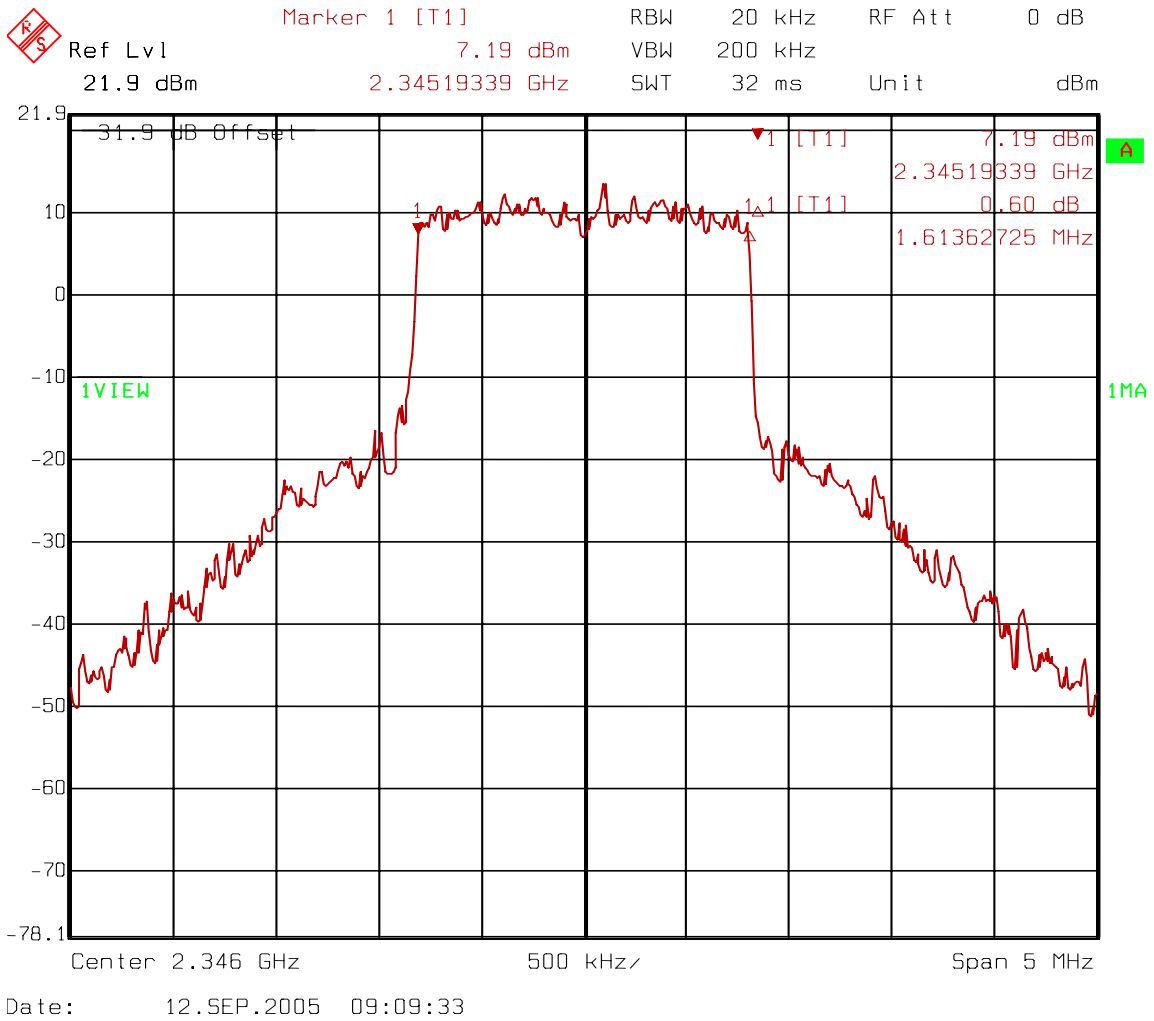
D BAND OBW 6DB POINTS



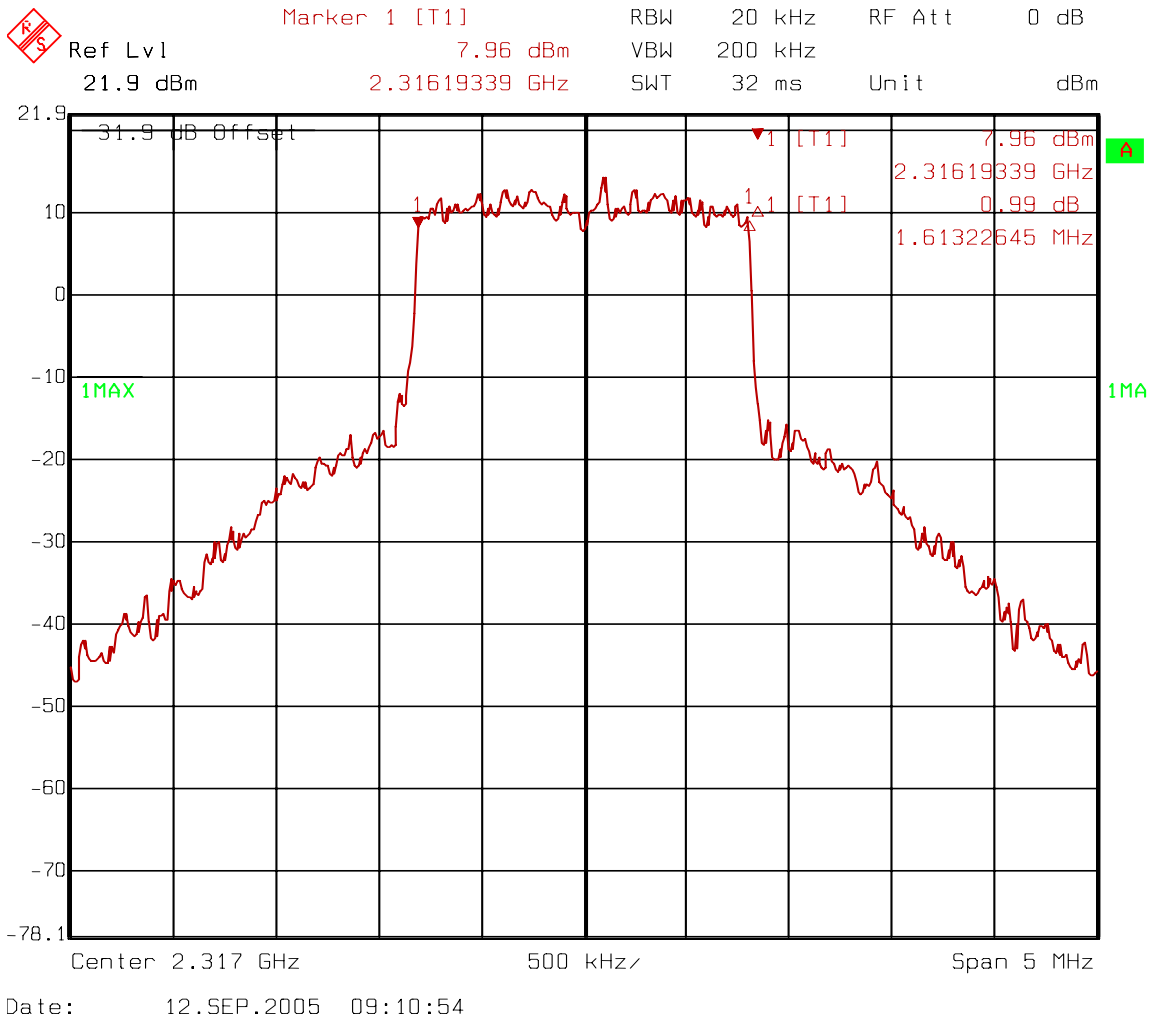
EQUIPMENT: 2305 - 2360 LMX E



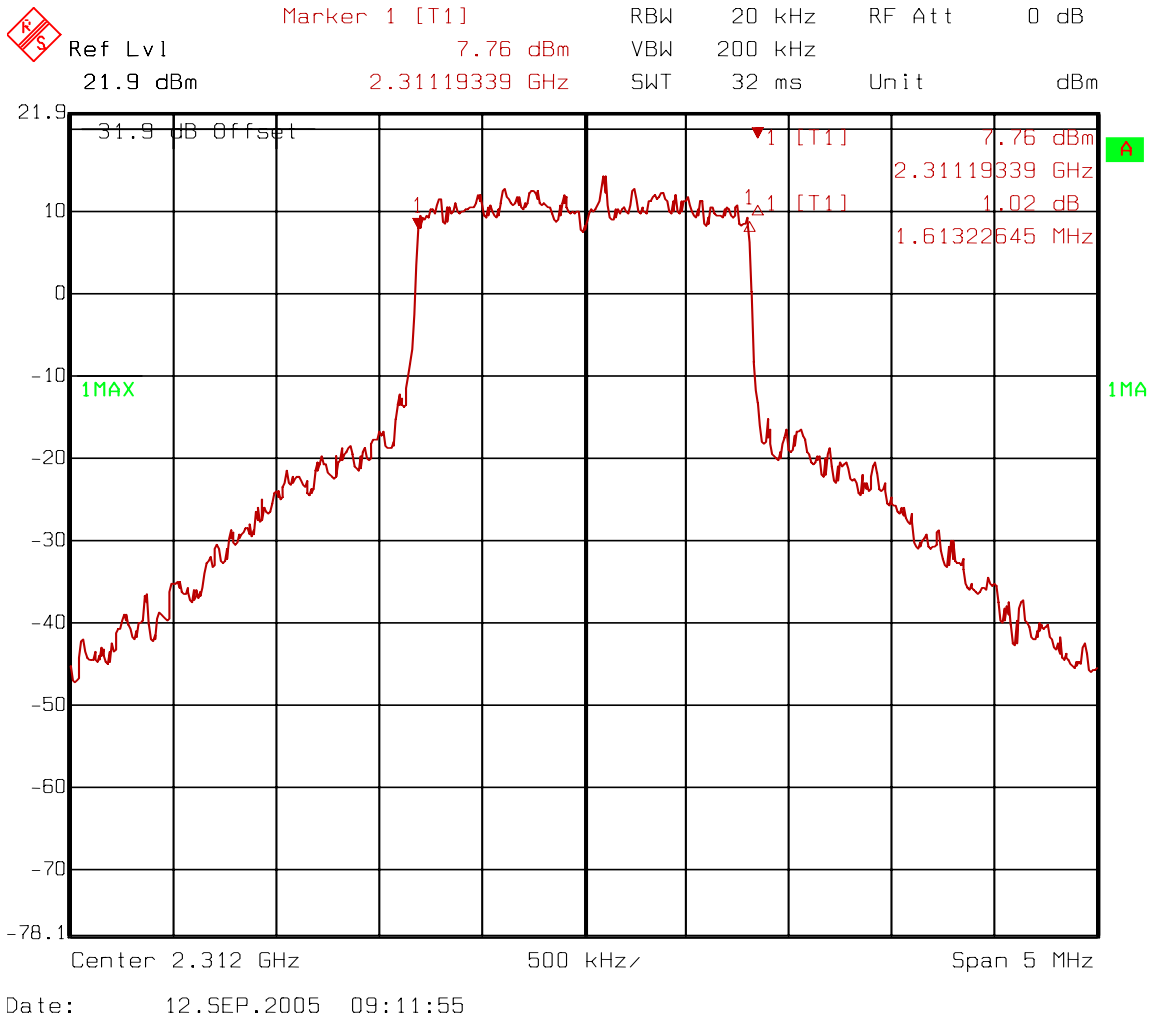
EQUIPMENT: 2305 - 2360 LMX E



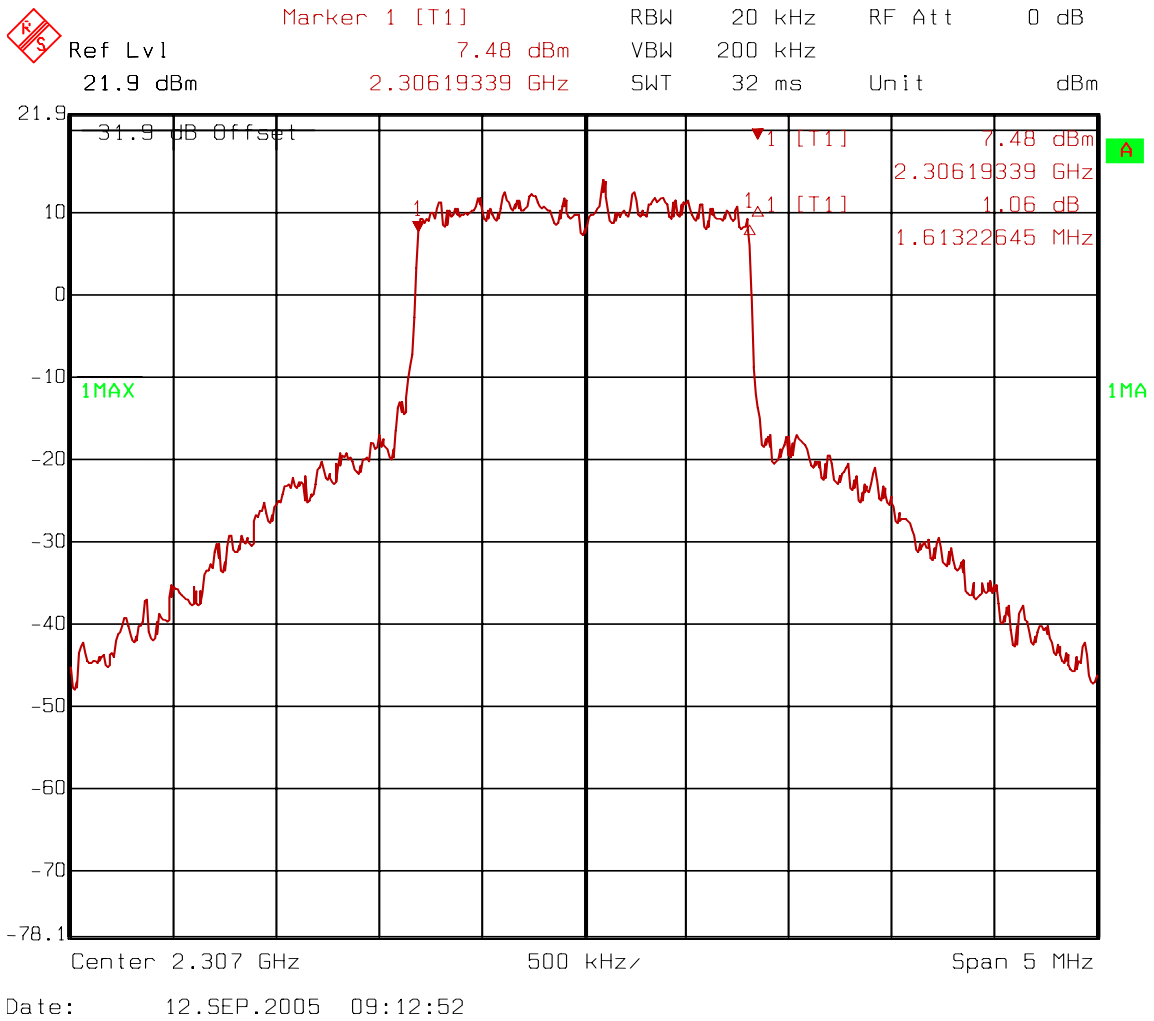
EQUIPMENT: 2305 - 2360 LMX E



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EQUIPMENT: 2305 - 2360 LMX E



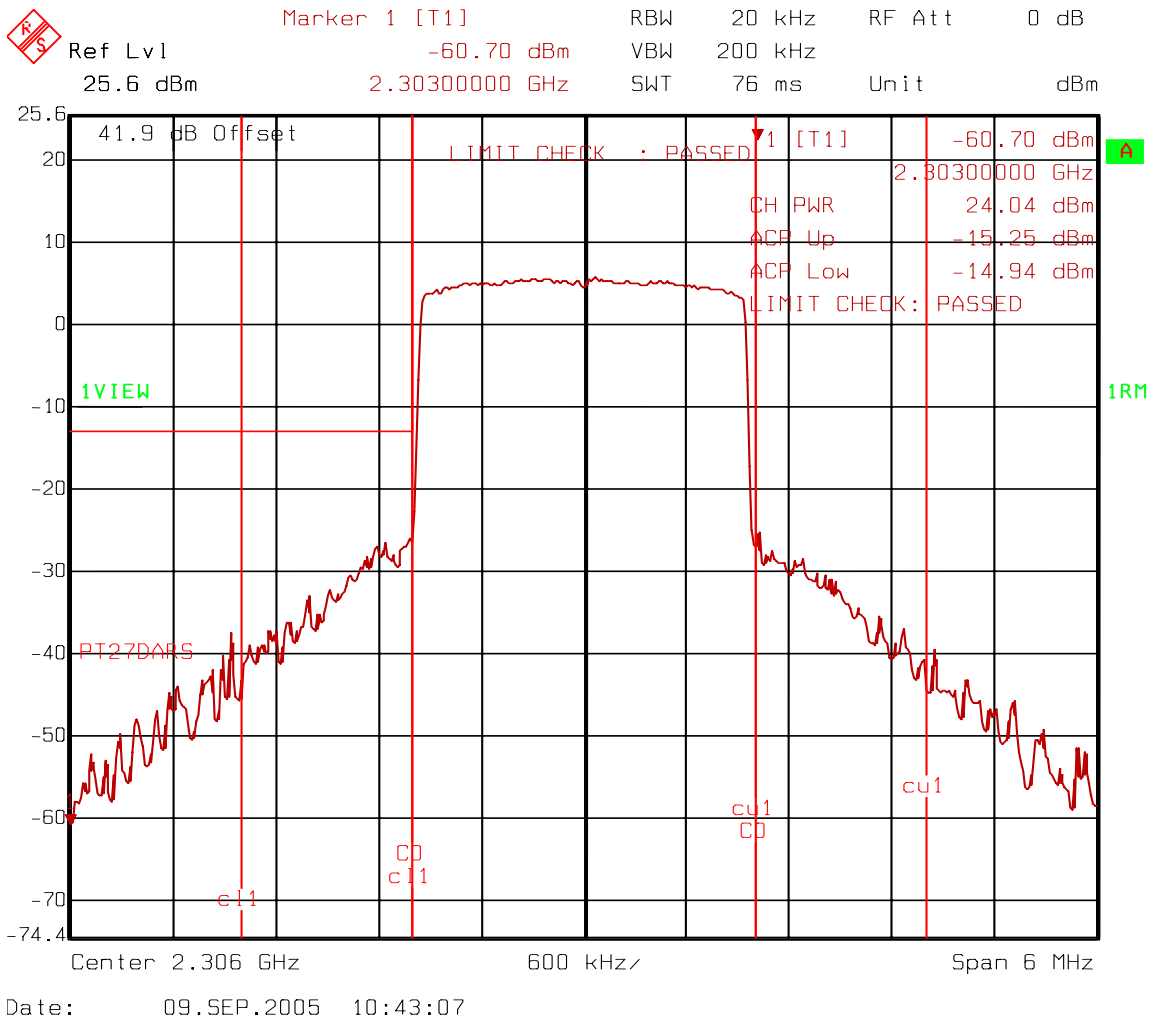
EQUIPMENT: 2305 - 2360 LMX E

September 9, 2005
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EQUIPMENT USED 1561, 1562, 1045, 1055, 2072, 2071, 1470,1471,AND 1482.

A & B Bands, Navini Mode, 10-Carrier System

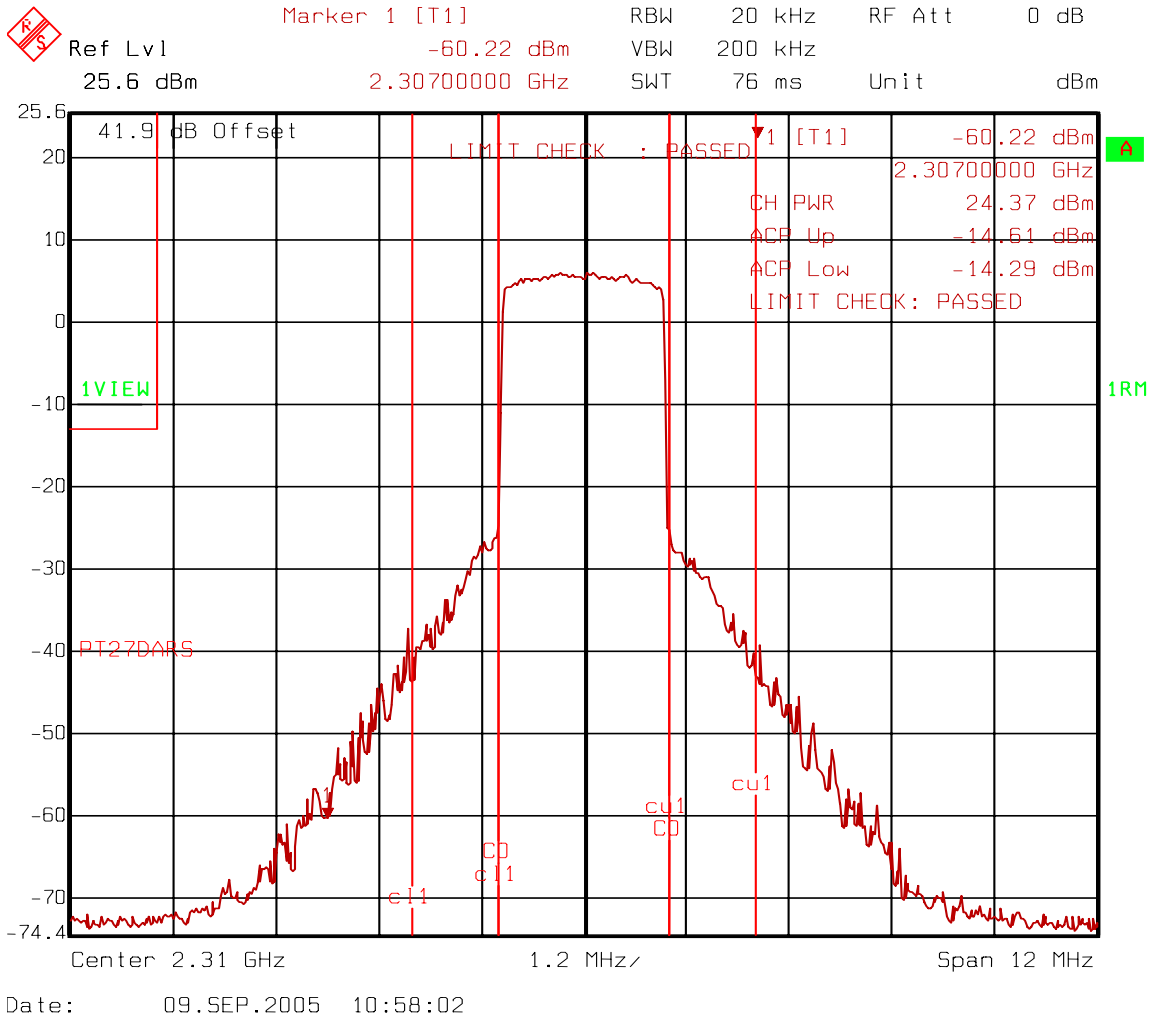
24.32dBm
 2306MHz, GC=172



EQUIPMENT: 2305 - 2360 LMX E

A & B Bands, Navini Mode, 10-Carrier System

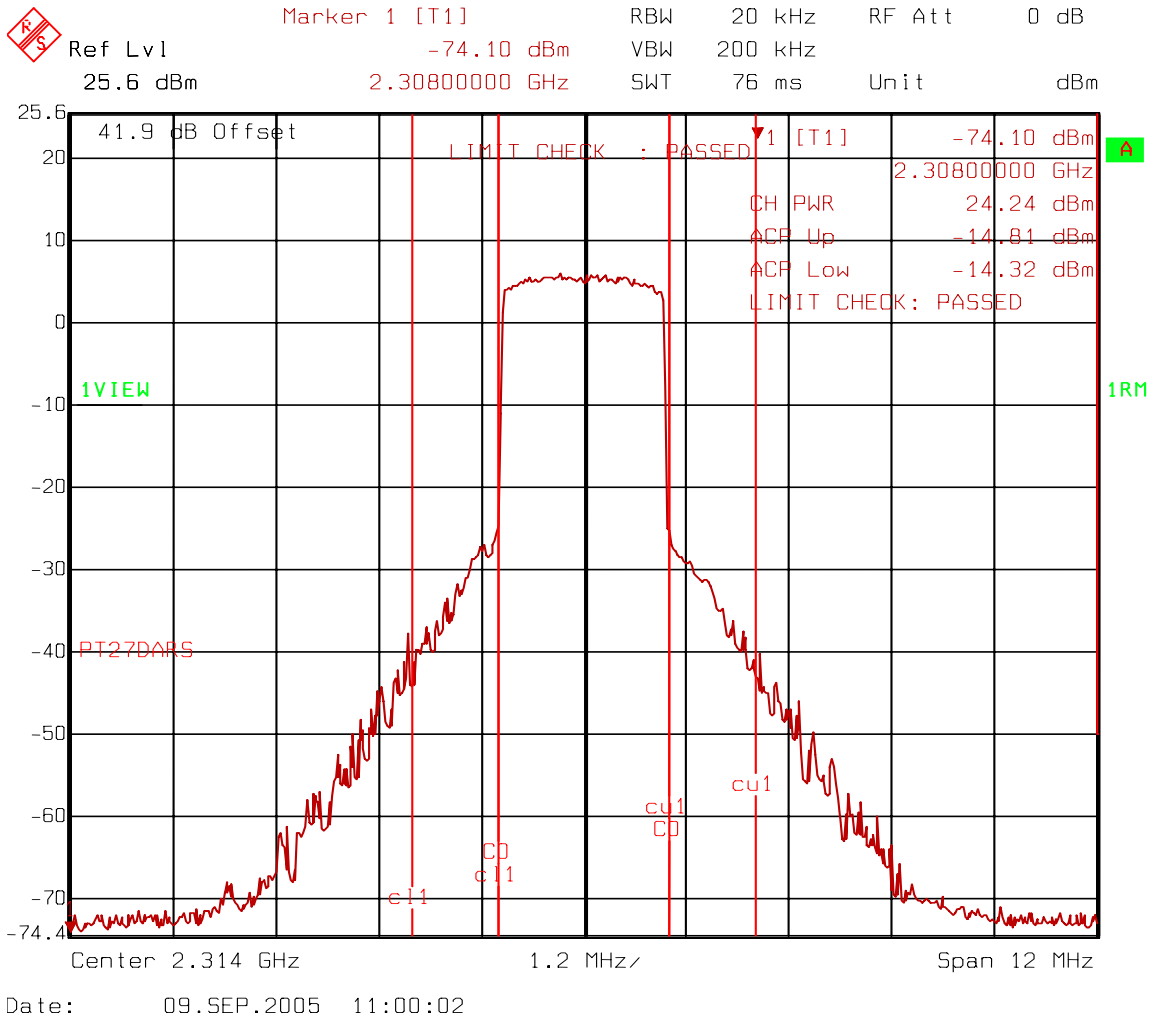
24.6dBm
2310MHz, GC=172,



EQUIPMENT: 2305 - 2360 LMX E

A & B Bands, Navini Mode, 10-Carrier System

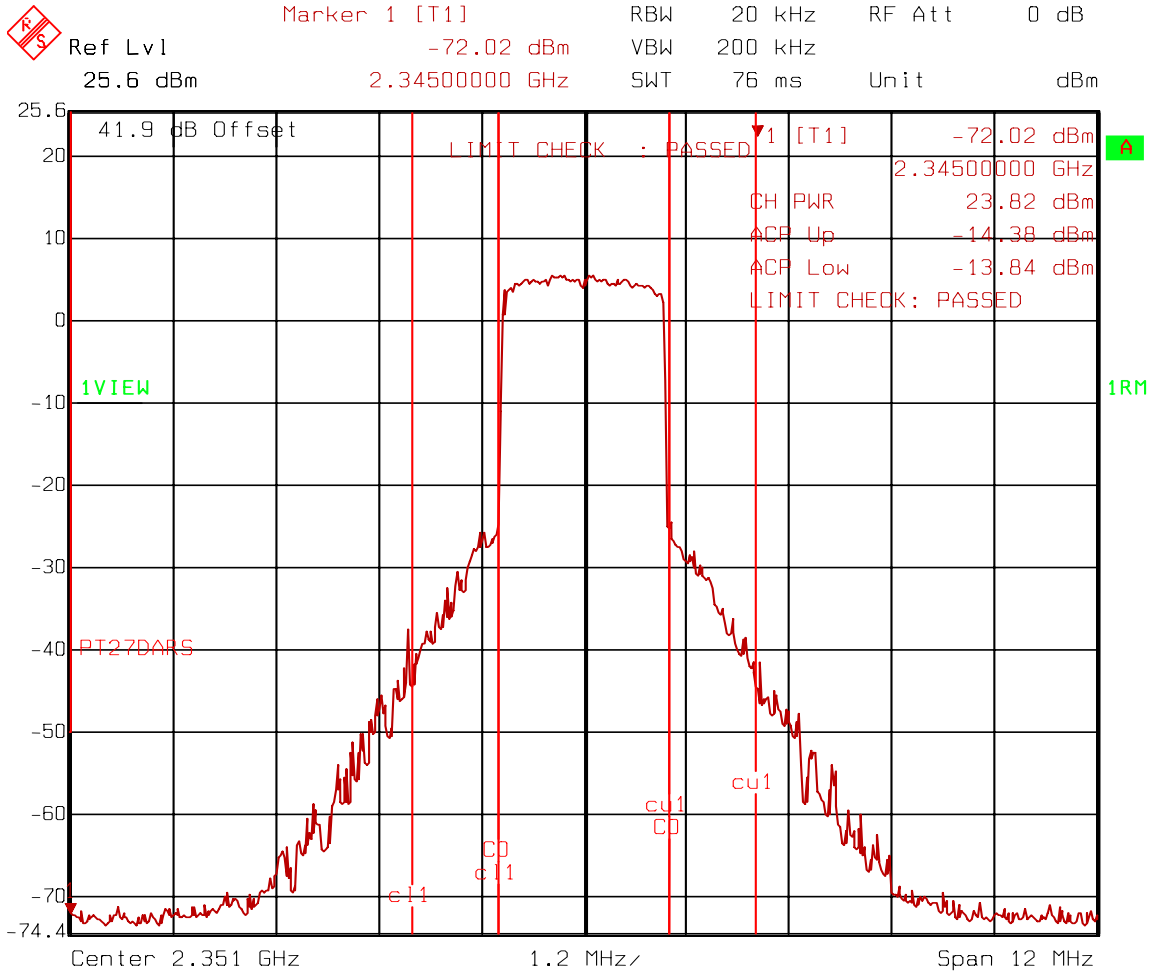
24.6dBm
2314MHz, GC=171,



EQUIPMENT: 2305 - 2360 LMX E

A & B Bands, Navini Mode, 10-Carrier System

24.04dBm
 2351MHz, GC=173

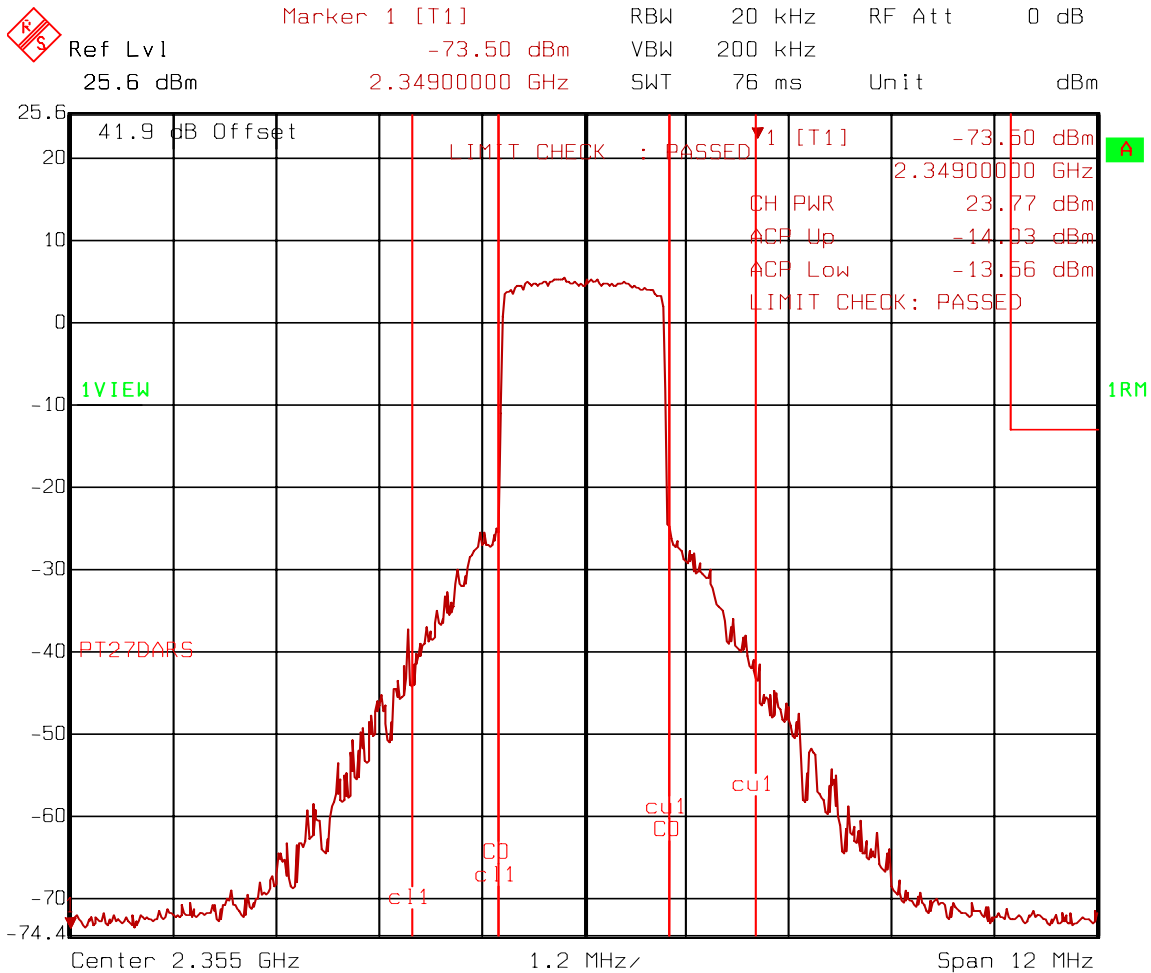


Date: 09.SEP.2005 11:07:19

EQUIPMENT: 2305 - 2360 LMX E

A & B Bands, Navini Mode, 10-Carrier System

24.2dBm
 2355MHz, GC=174

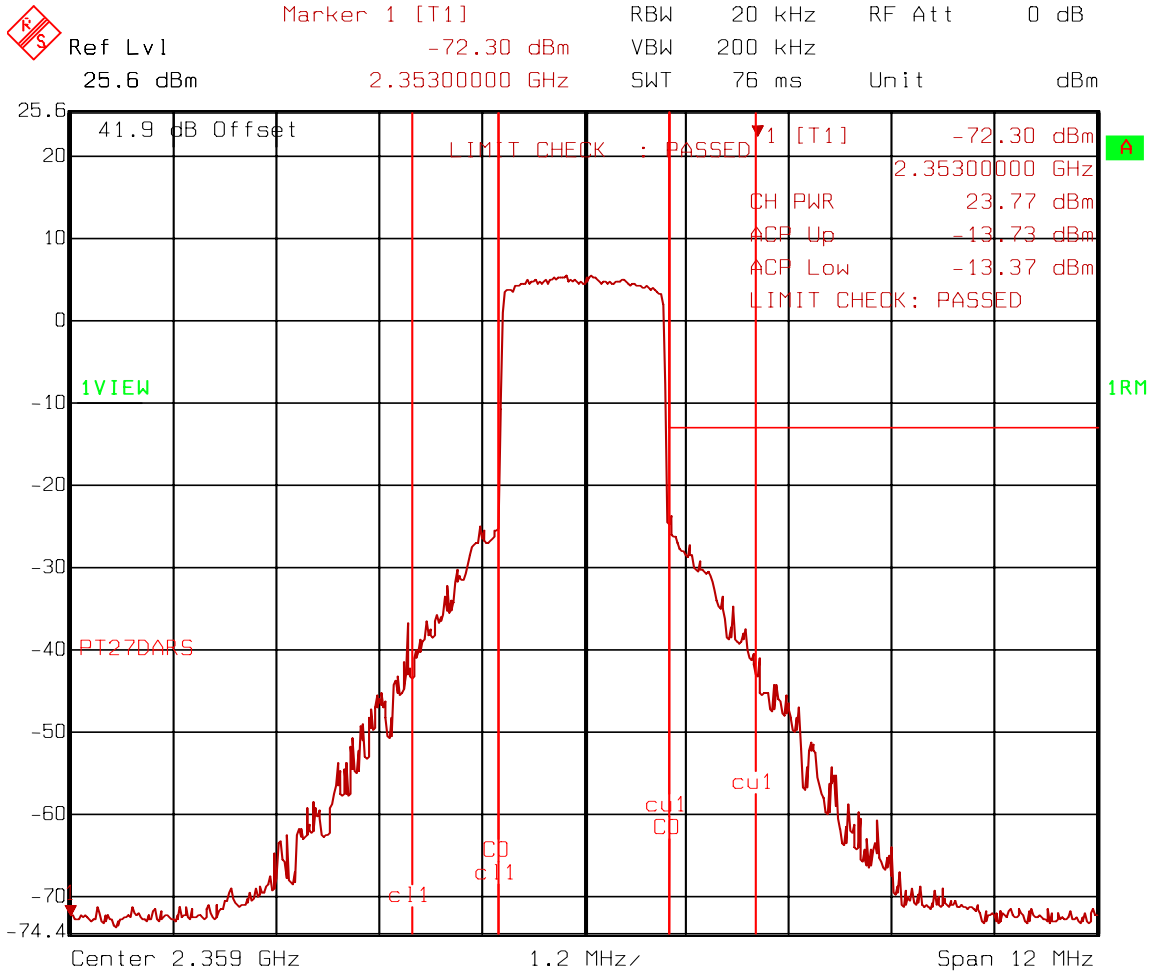


Date: 09.SEP.2005 11:09:50

EQUIPMENT: 2305 - 2360 LMX E

A & B Bands, Navini Mode, 10-Carrier System

24.2dBm
2359MHz, GC=174,

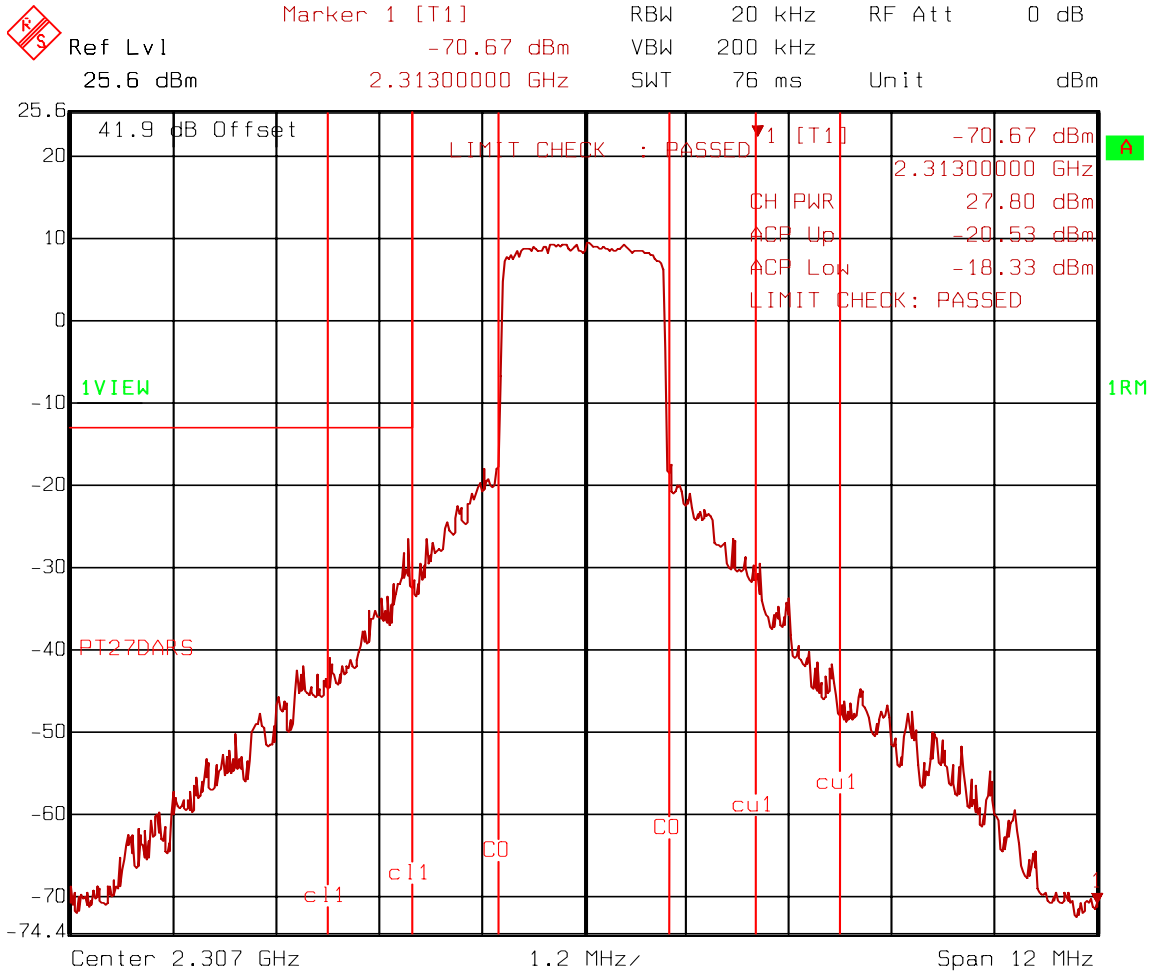


Date: 09.SEP.2005 11:15:26

EQUIPMENT: 2305 - 2360 LMX E

A Band Low, Navini Mode, 10-Carrier System

28dBm
 2307MHz, GC=191

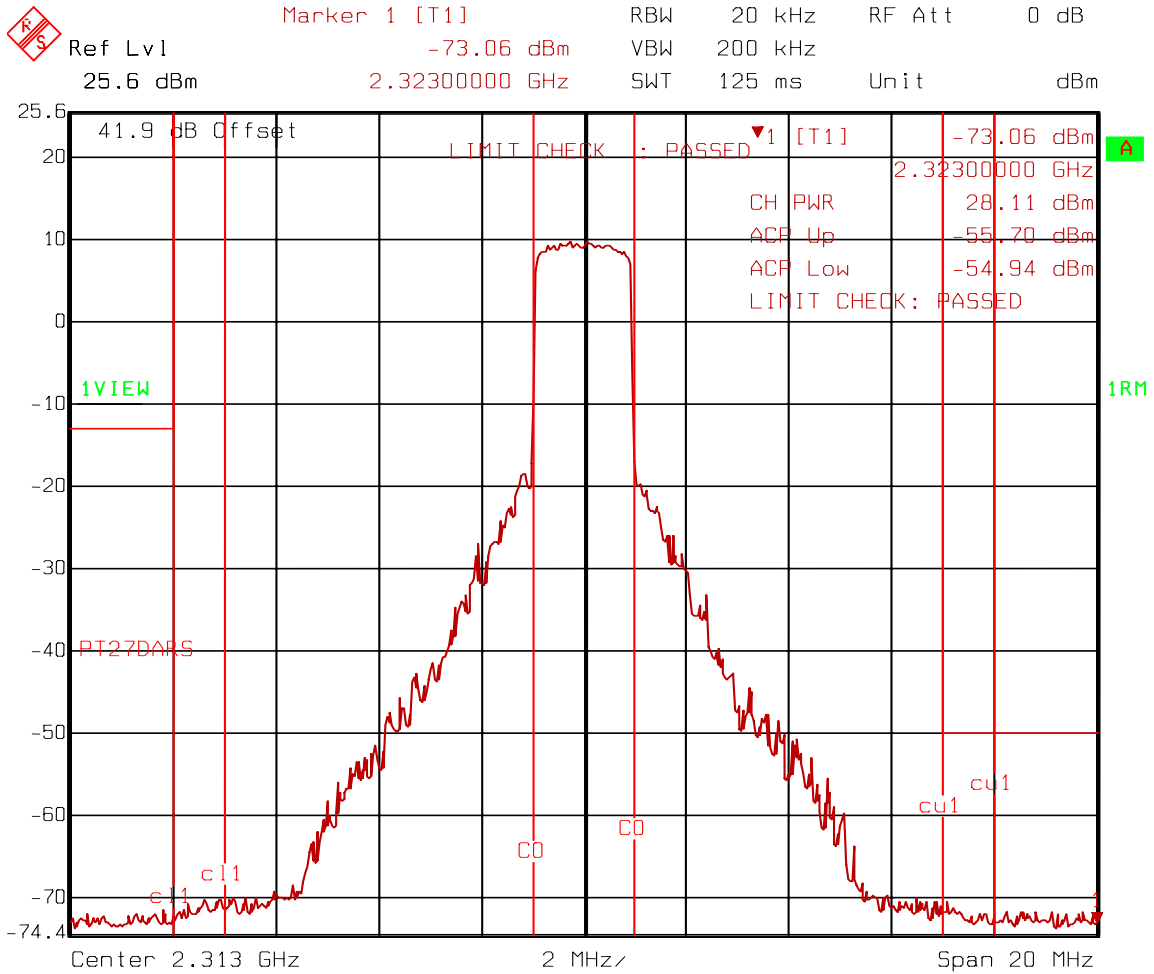


Date: 09.SEP.2005 11:18:36

EQUIPMENT: 2305 - 2360 LMX E

B Band Low, Navini Mode, 10-Carrier System

28.3dBm
2313MHz, GC=191

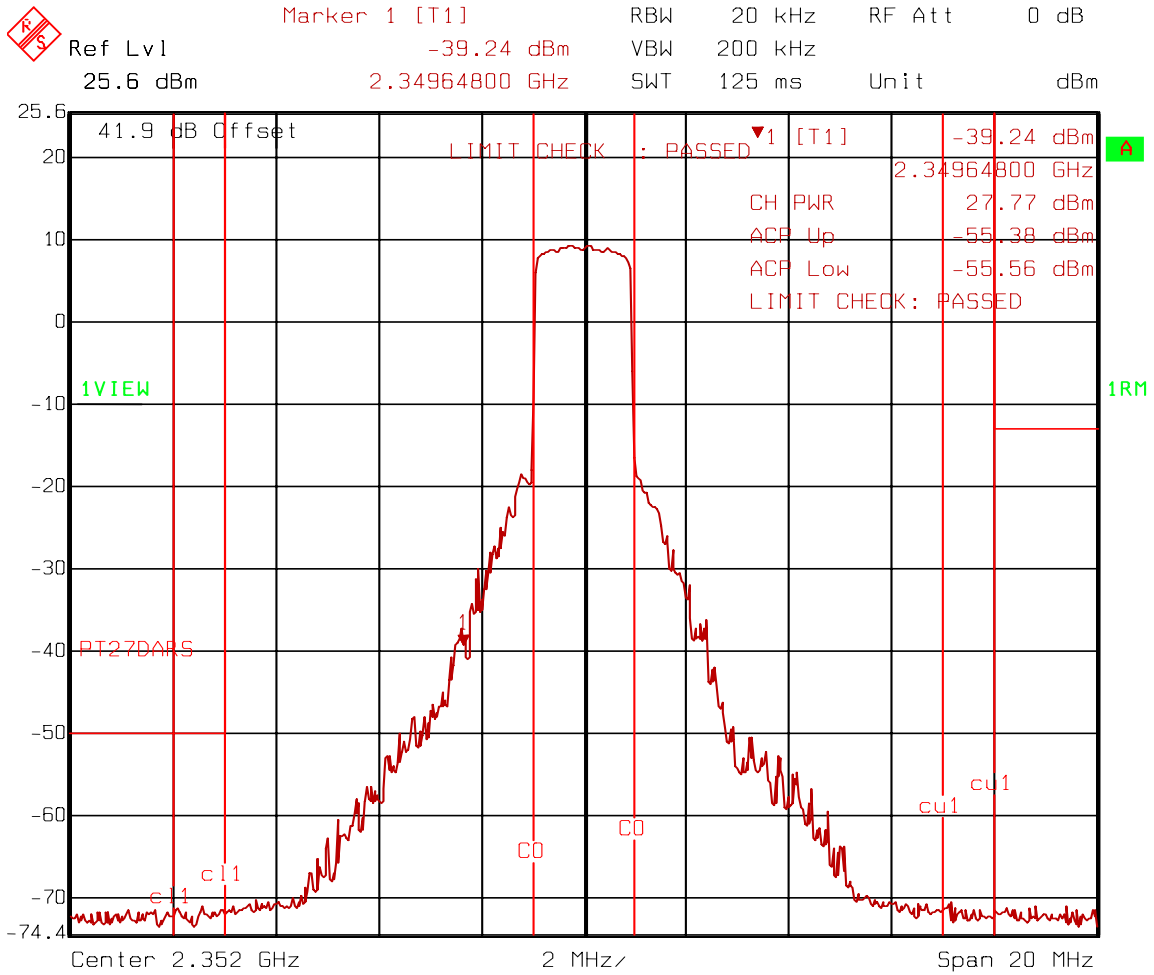


Date: 09.SEP.2005 12:32:43

EQUIPMENT: 2305 - 2360 LMX E

A Band High, Navini Mode, 10-Carrier System

28.15dBm
 2352MHz, GC=196

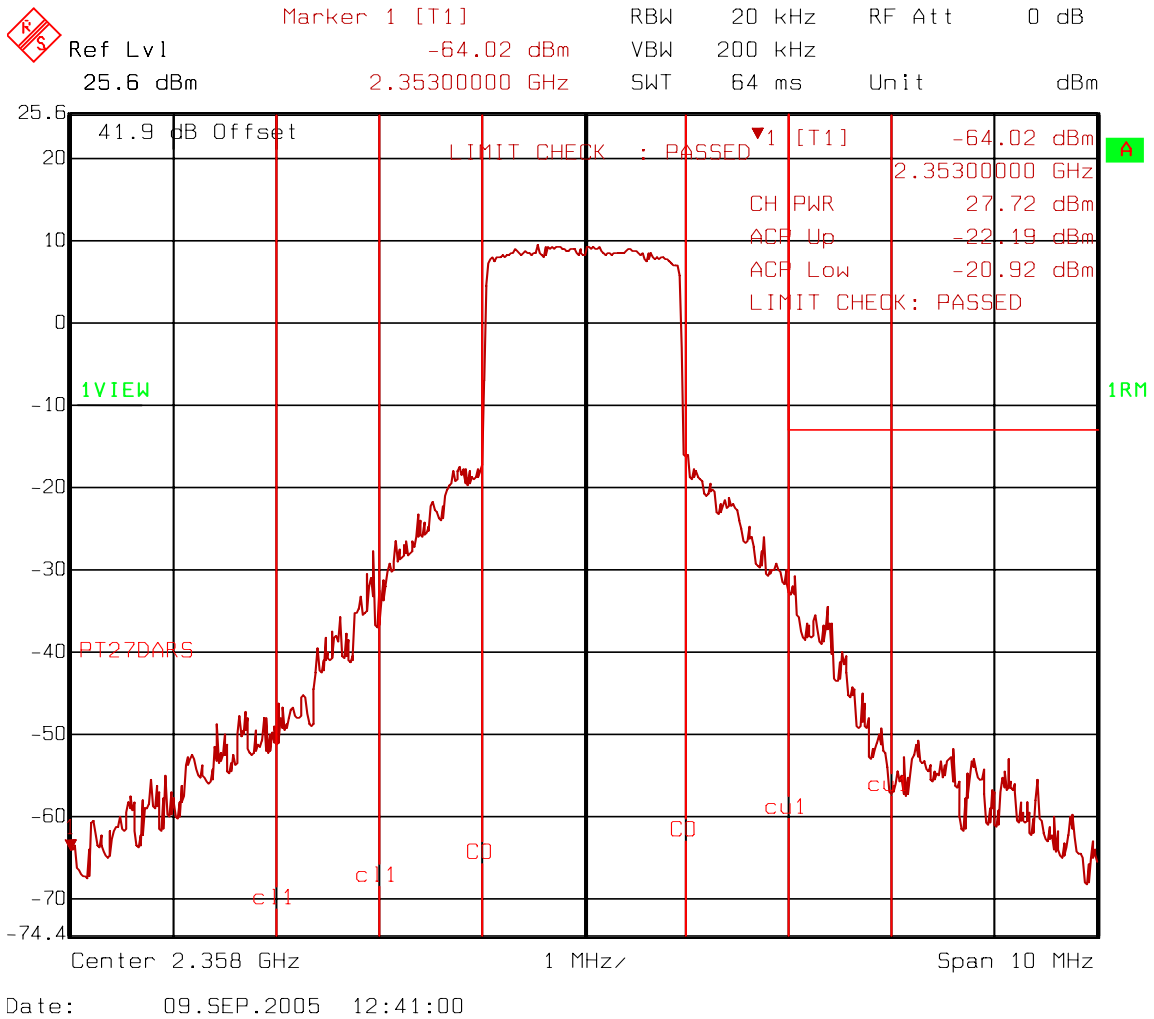


Date: 09.SEP.2005 12:37:49

EQUIPMENT: 2305 - 2360 LMX E

B Band High, Navini Mode, 10-Carrier System

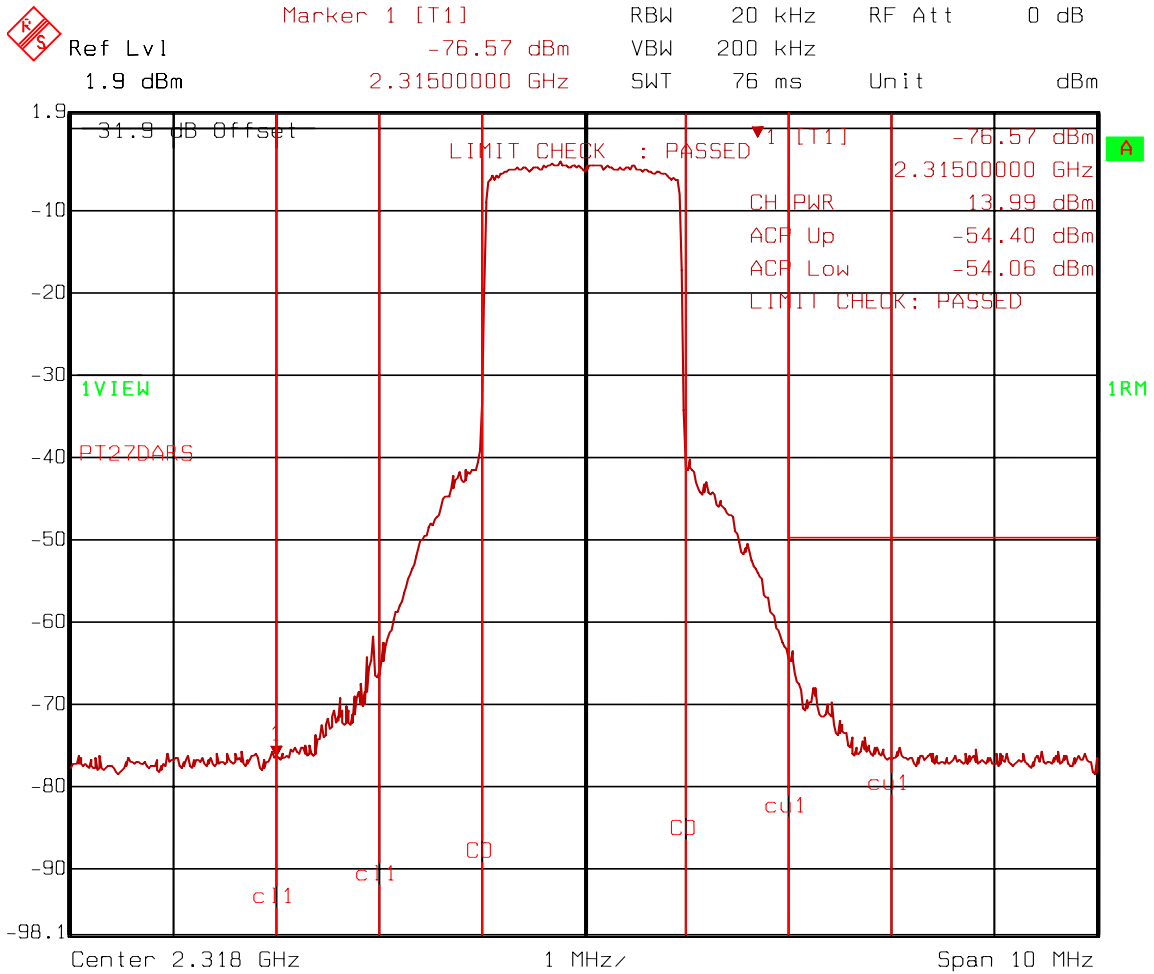
28.19dBm
 2358MHz, GC=201



EQUIPMENT: 2305 – 2360 LMX E

C Band, Navini Mode, 8-Carrier System

14.3dBm, 1MHz Guard Band from DARS
 2318MHz, GC=141

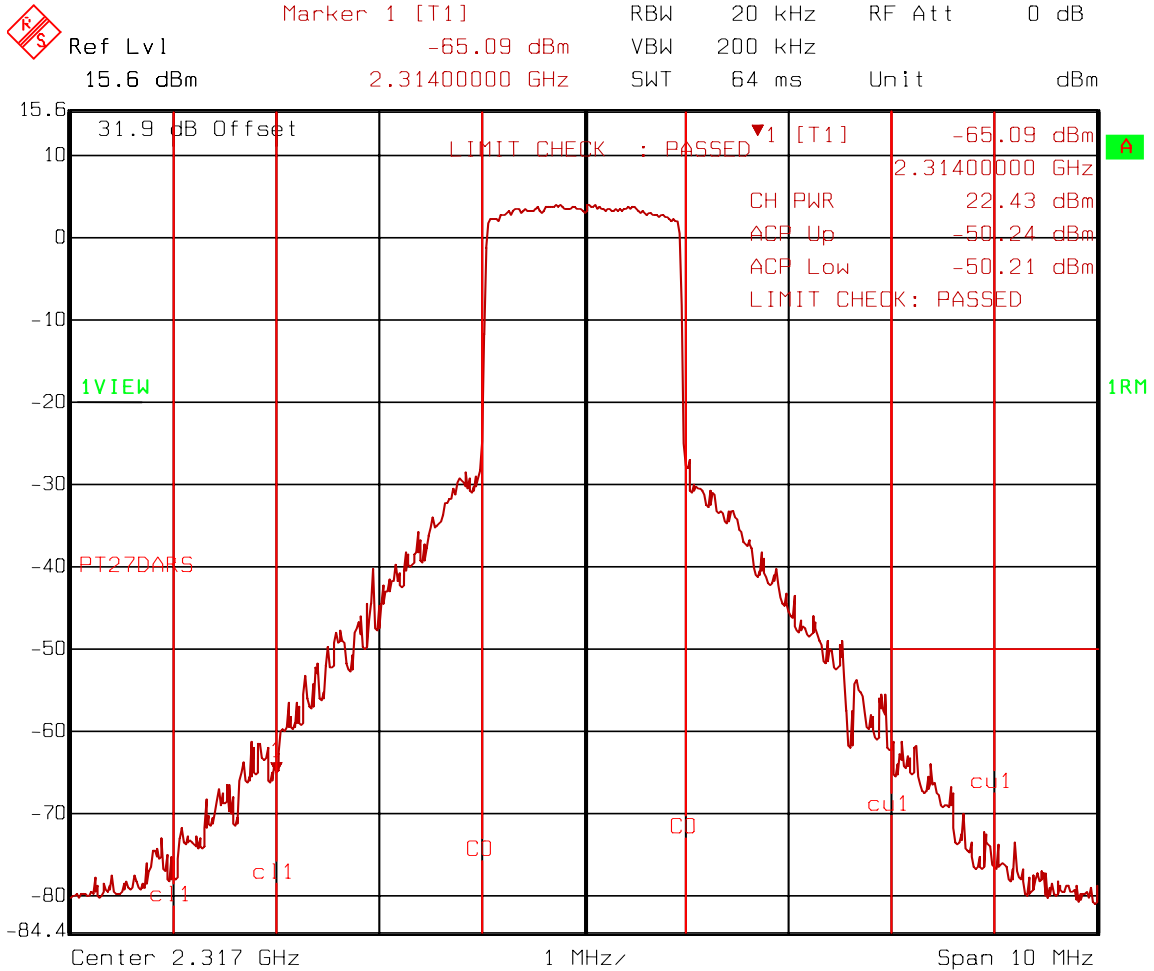


Date: 09.SEP.2005 13:17:46

EQUIPMENT: 2305 - 2360 LMX E

C Band, Navini Mode, 8-Carrier System

23.13dBm, 2MHz Guard Band from DARS
 2317MHz, GC=166, 62degC, CS=3.5MHz, limit < -50dBm/1MHz

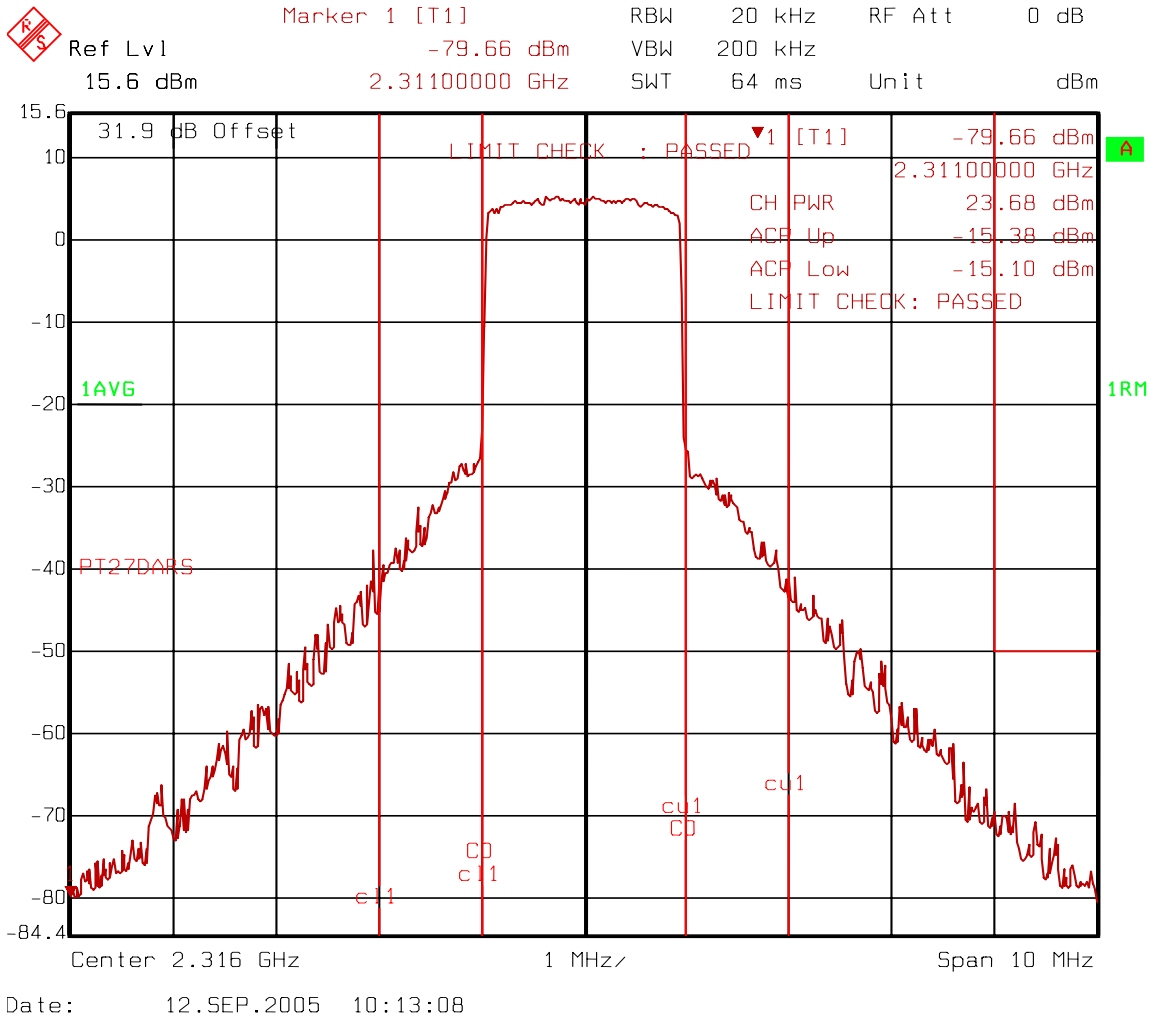


Date: 12.SEP.2005 10:07:24

EQUIPMENT: 2305 - 2360 LMX E

C Band, Navini Mode, 8-Carrier System

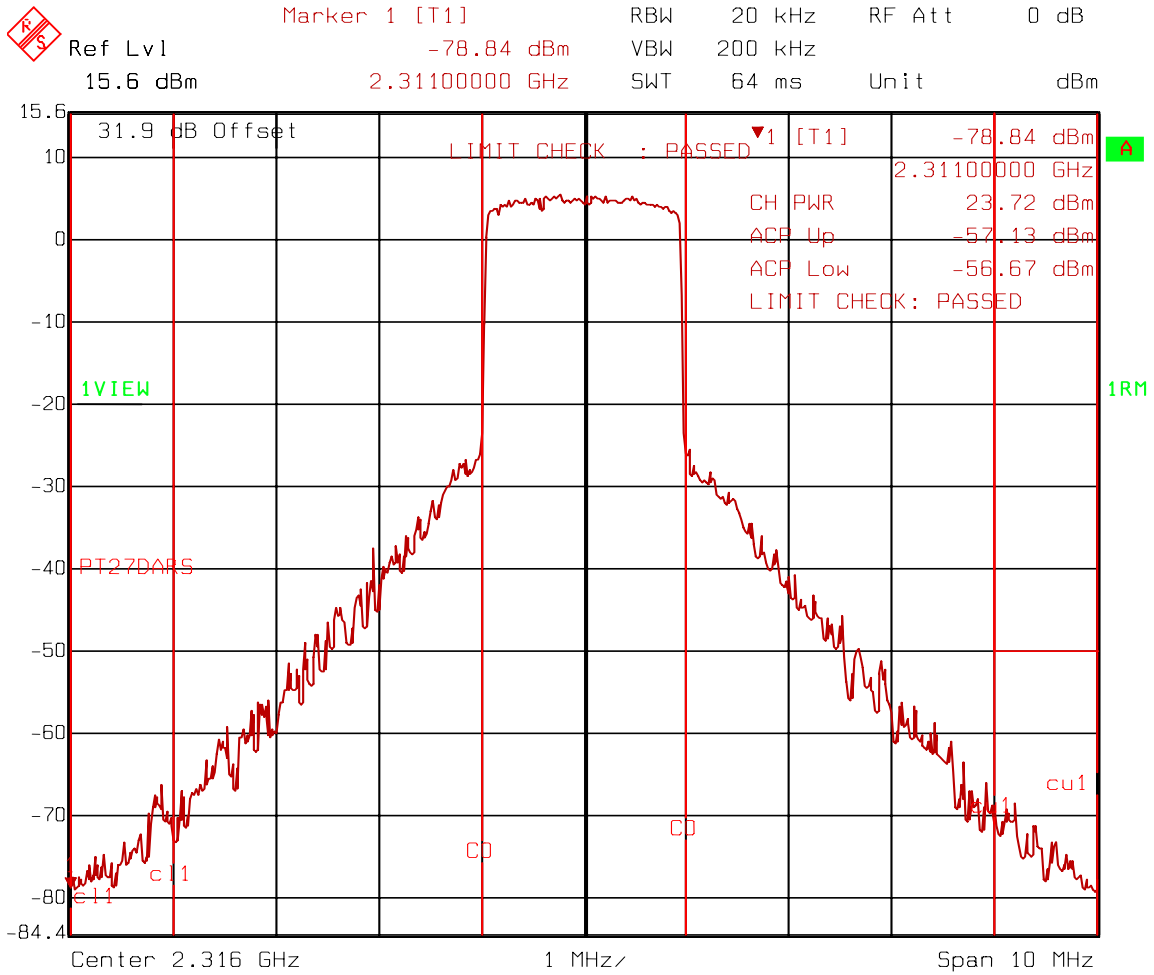
24.3dBm, 3MHz Guard Band from DARS
 2316MHz, GC=170, CS=1.5MHz, limit < -13dBm/1MHz



EQUIPMENT: 2305 - 2360 LMX E

C Band, Navini Mode, 8-Carrier System

24dBm, 3MHz Guard Band from DARS
 2316MHz, GC=170, CS=4.5MHz, limit < -50dBm/1MHz

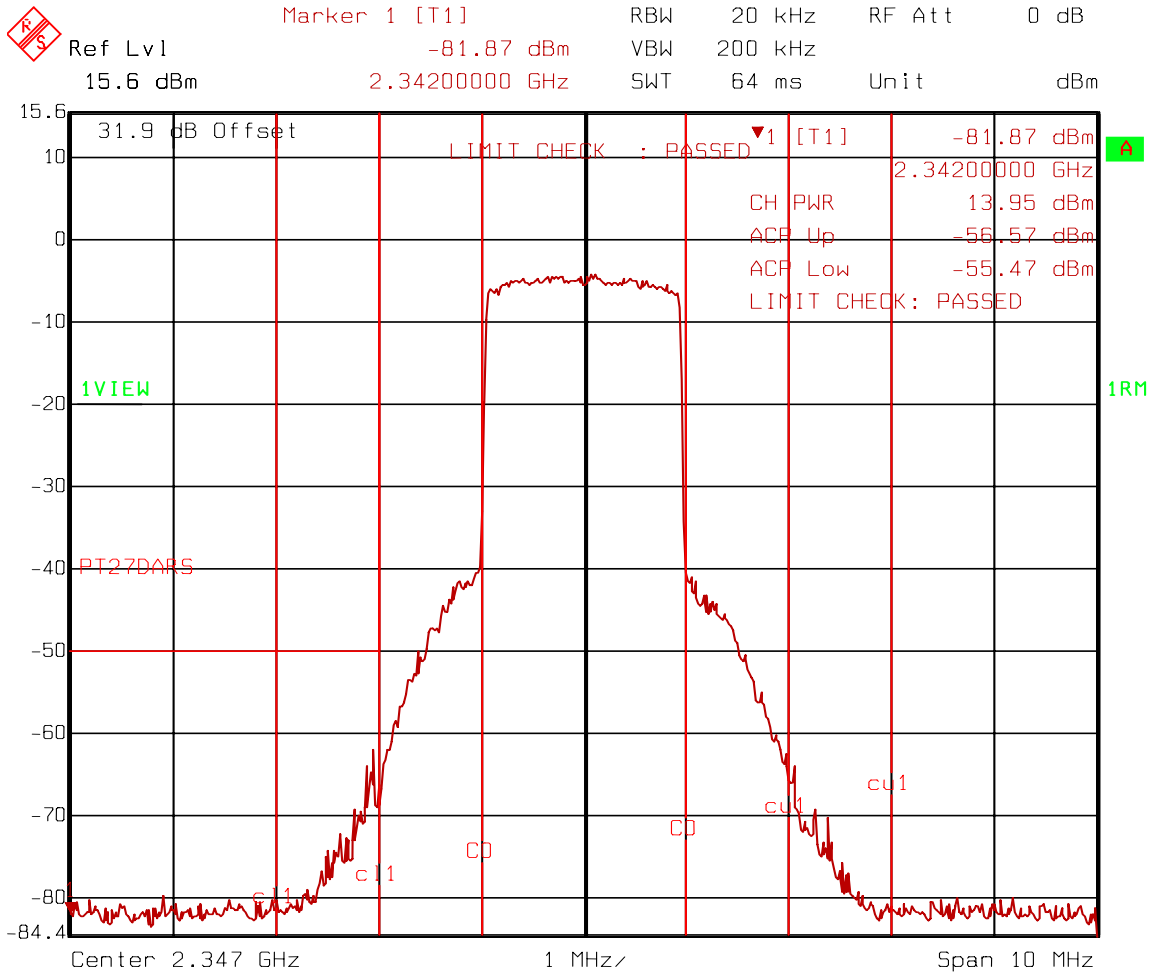


Date: 12.SEP.2005 10:10:31

EQUIPMENT: 2305 - 2360 LMX E

D Band, Navini Mode, 8-Carrier System

14dBm, 1MHz Guard Band from DARS
 2347MHz, GC=144, CS=2.5MHz, limit < -50dBm/1MHz

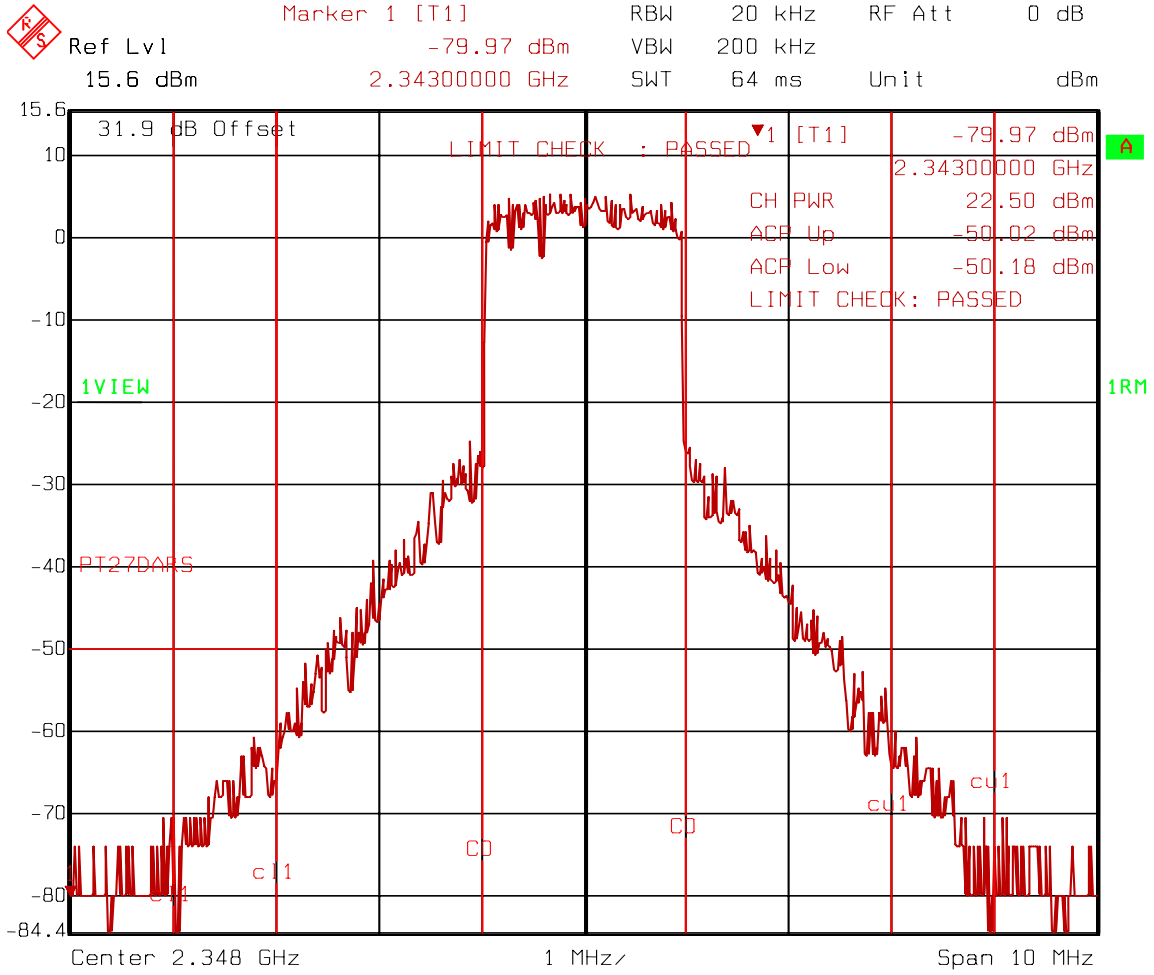


Date: 12.SEP.2005 10:15:45

EQUIPMENT: 2305 - 2360 LMX E

D Band, Navini Mode, 8-Carrier System

23.18dBm, 2MHz Guard Band from DARS
 2348MHz, GC=170, CS=3.5MHz, limit < -50dBm/1MHz

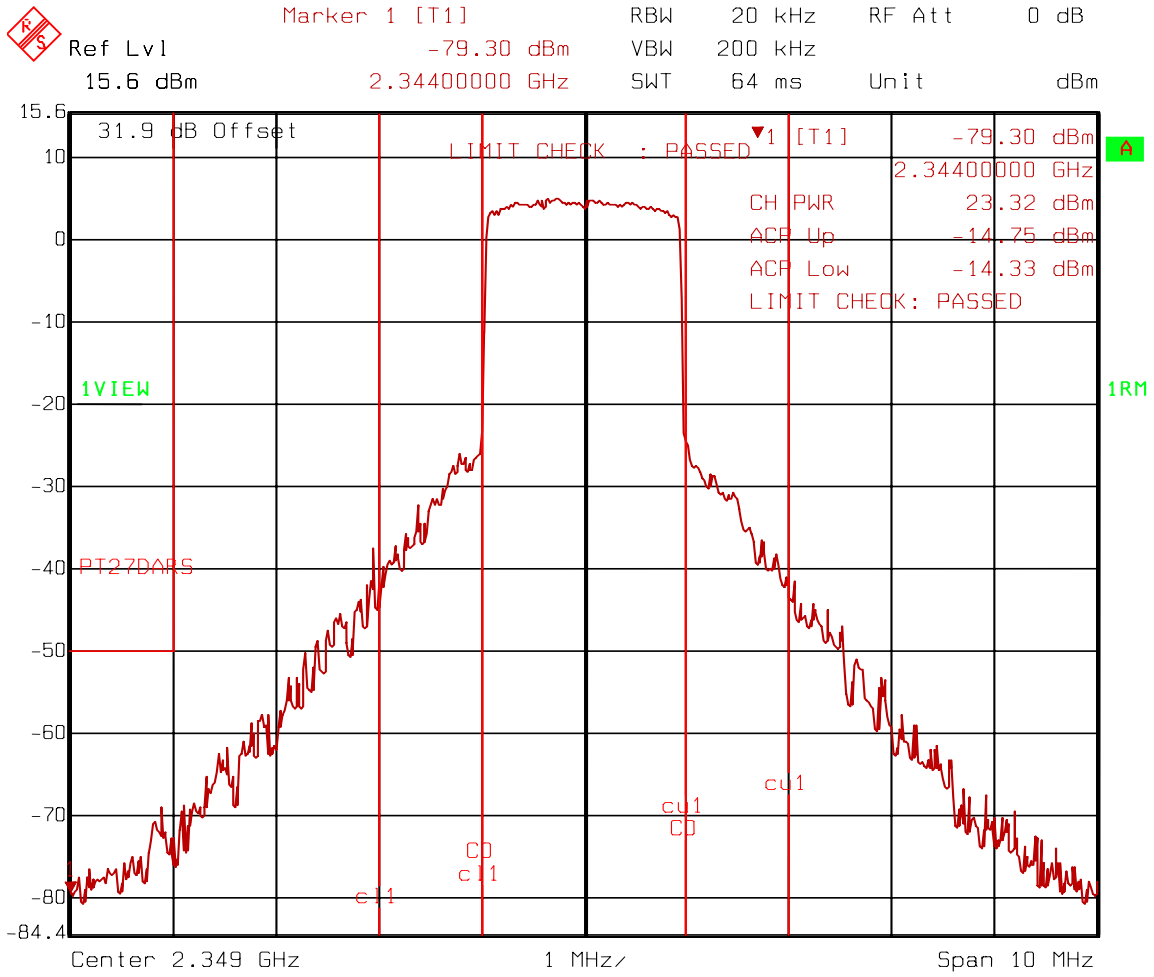


Date: 12.SEP.2005 10:17:39

EQUIPMENT: 2305 - 2360 LMX E

D Band, Navini Mode, 8-Carrier System

24dBm, 3MHz Guard Band from DARS
 2349MHz, GC=170, CS=1.5MHz, limit < -13dBm/1MHz

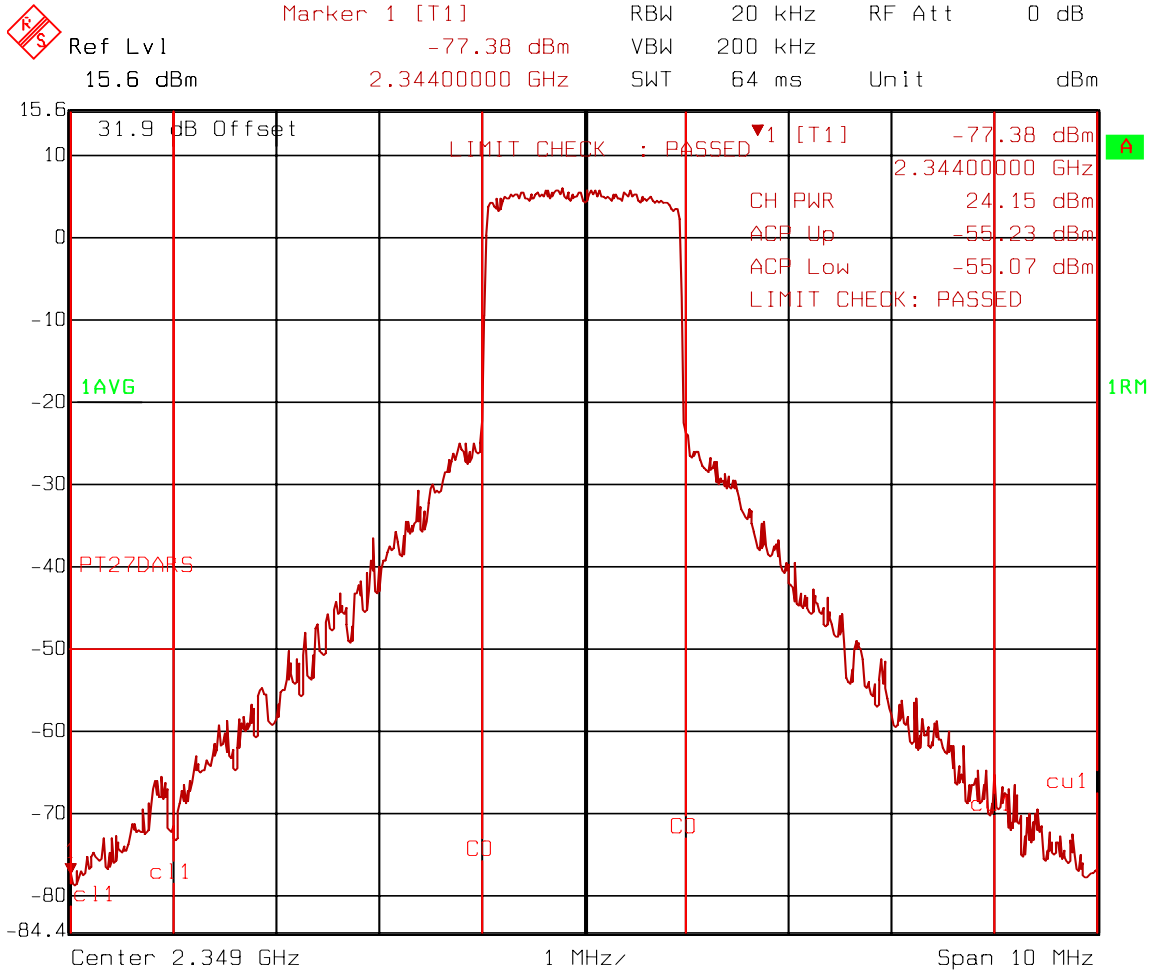


Date: 12.SEP.2005 10:19:40

EQUIPMENT: 2305 - 2360 LMX E

D Band, Navini Mode, 8-Carrier System

24.8dBm, 3MHz Guard Band from DARS
 2349MHz, GC=177, CS=4.5MHz, limit < -50dBm/1MHz

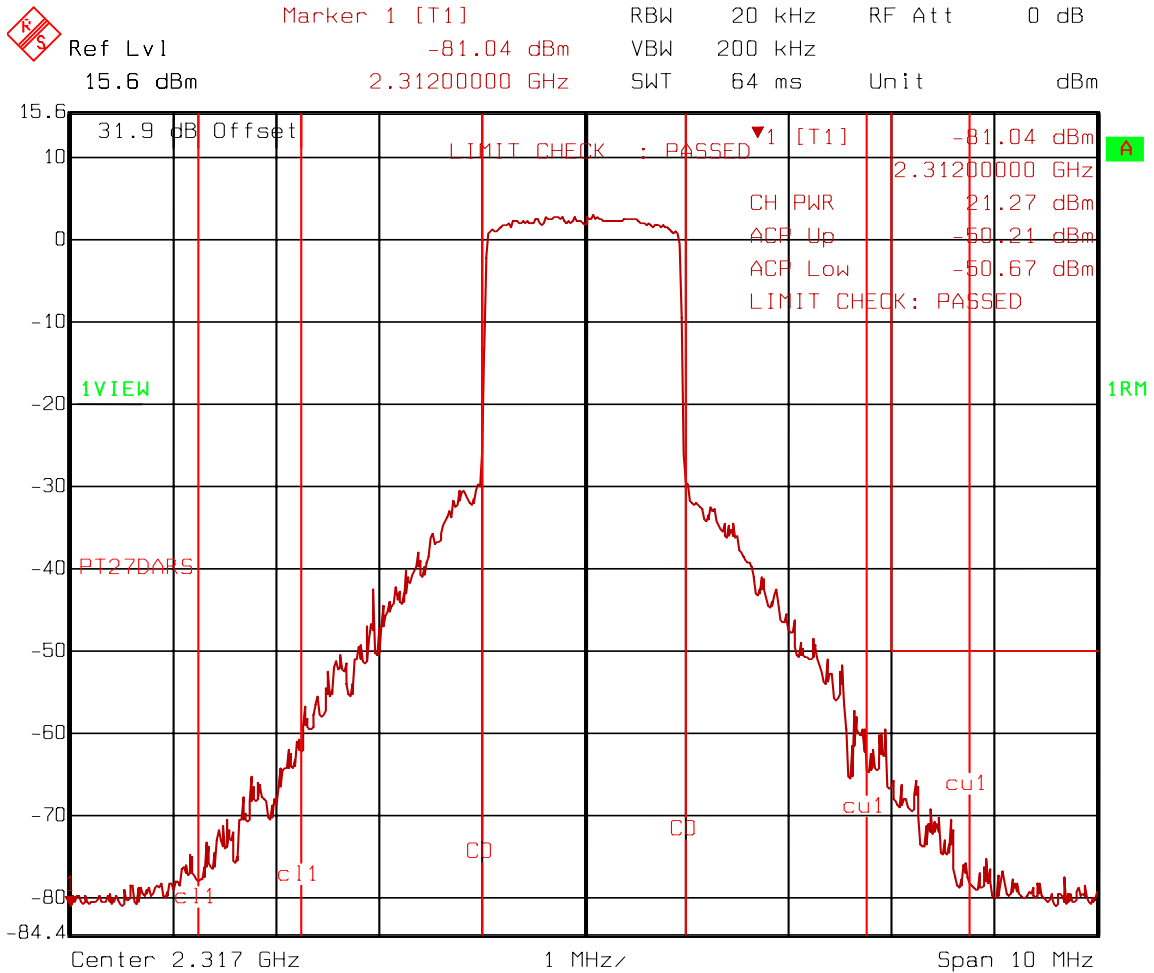


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EQUIPMENT: 2305 - 2360 LMX E

C Band, Navini Mode, 6-Carrier System

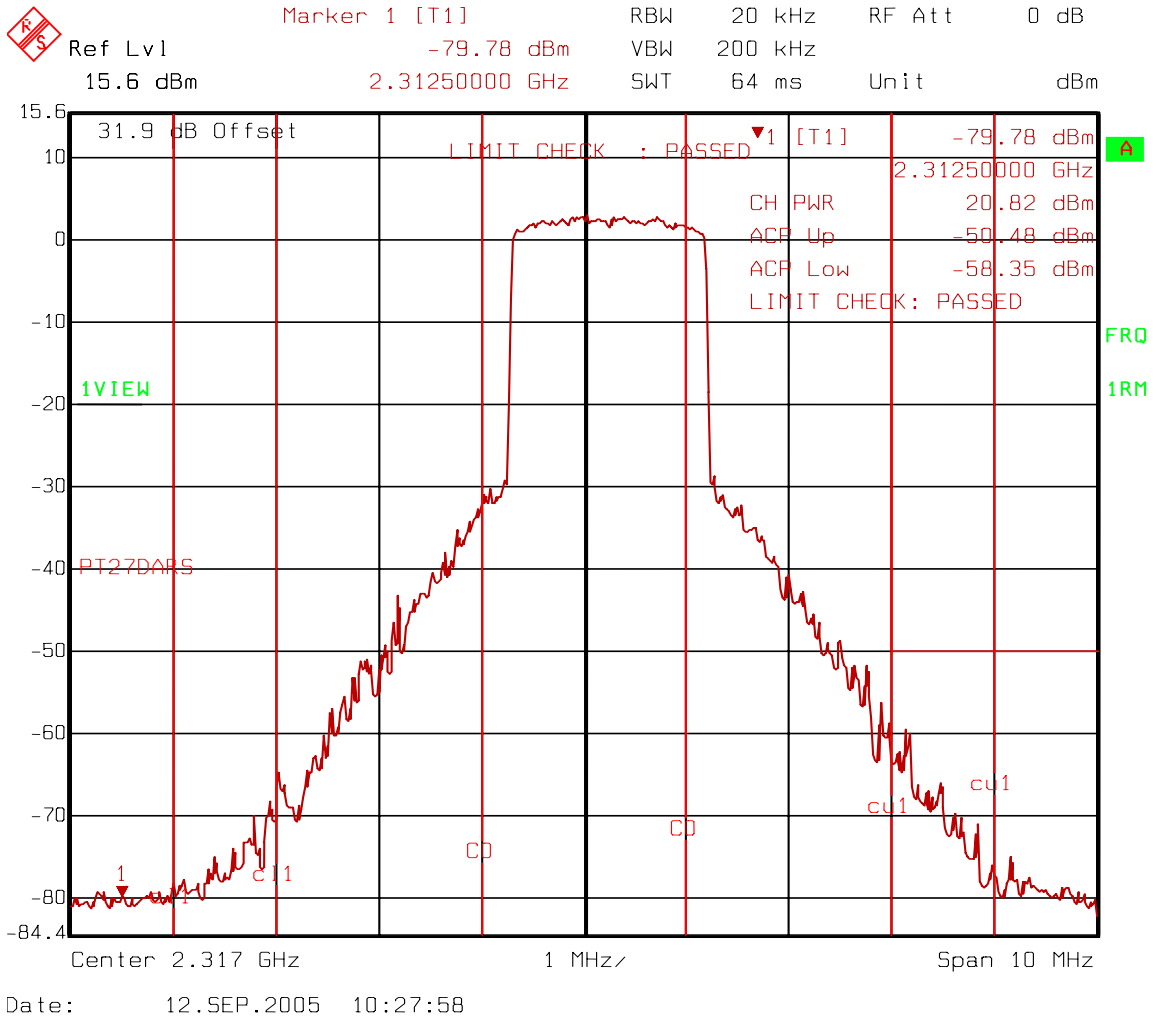
22dBm, 1.75MHz Guard Band from DARS
2317MHz, GC=163, CS=3.25MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 10:25:23

EQUIPMENT: 2305 - 2360 LMX E

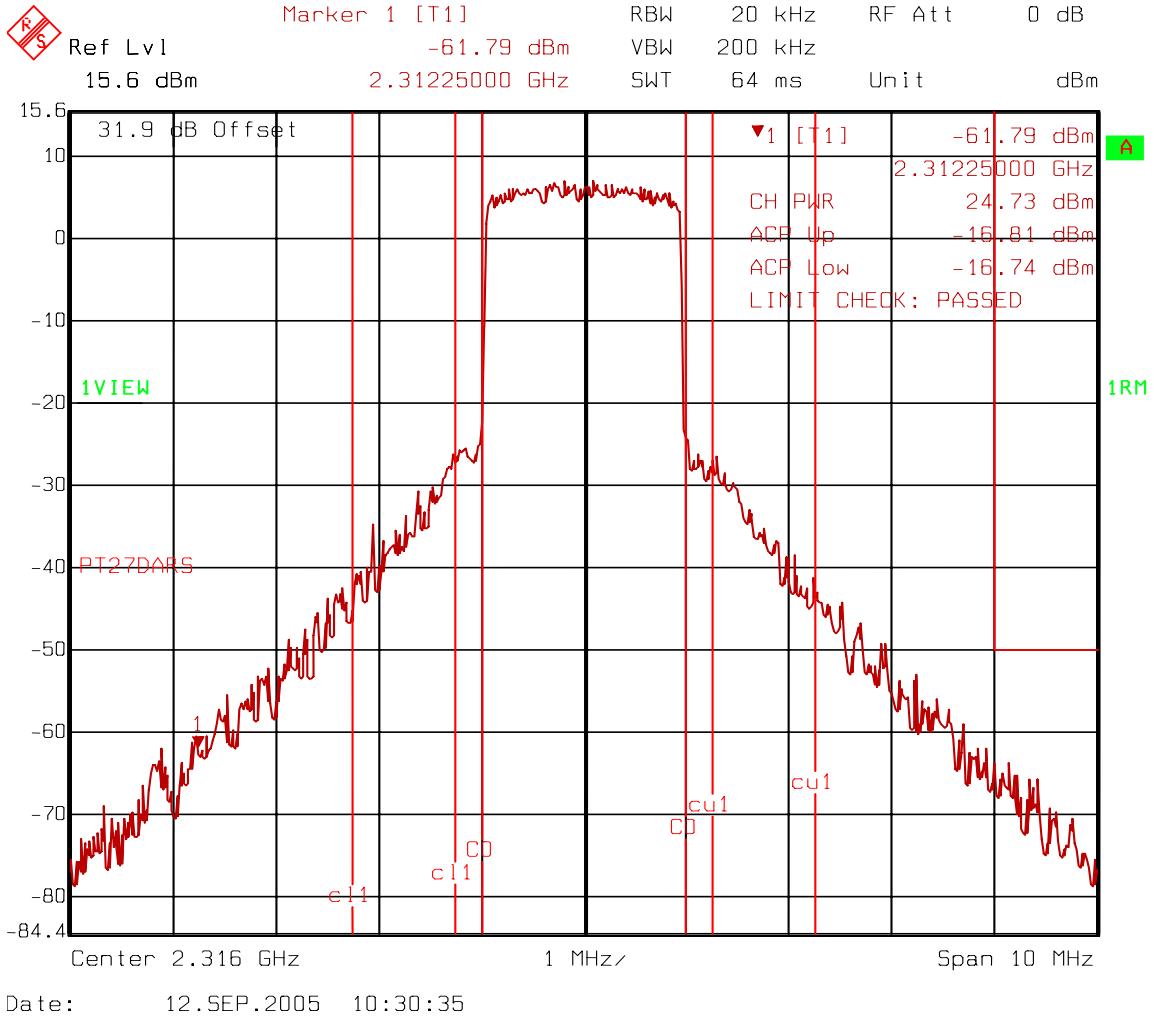
250 KHZ OFFSET



EQUIPMENT: 2305 - 2360 LMX E

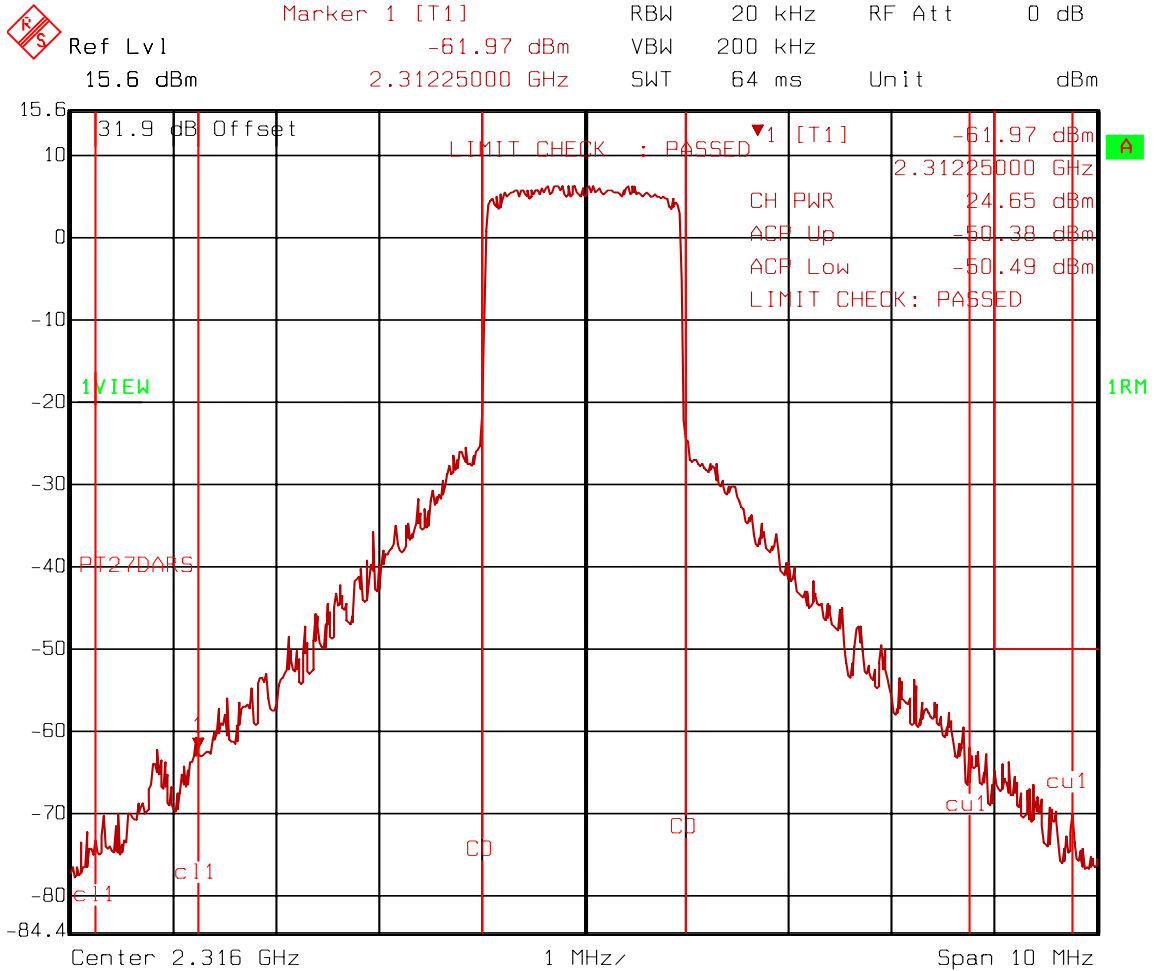
C Band, Navini Mode, 6-Carrier System

25dBm, 2.75MHz Guard Band from DARS
 2316MHz, GC=175, CS=1.75MHz, limit < -13dBm/1MHz



EQUIPMENT: 2305 - 2360 LMX E

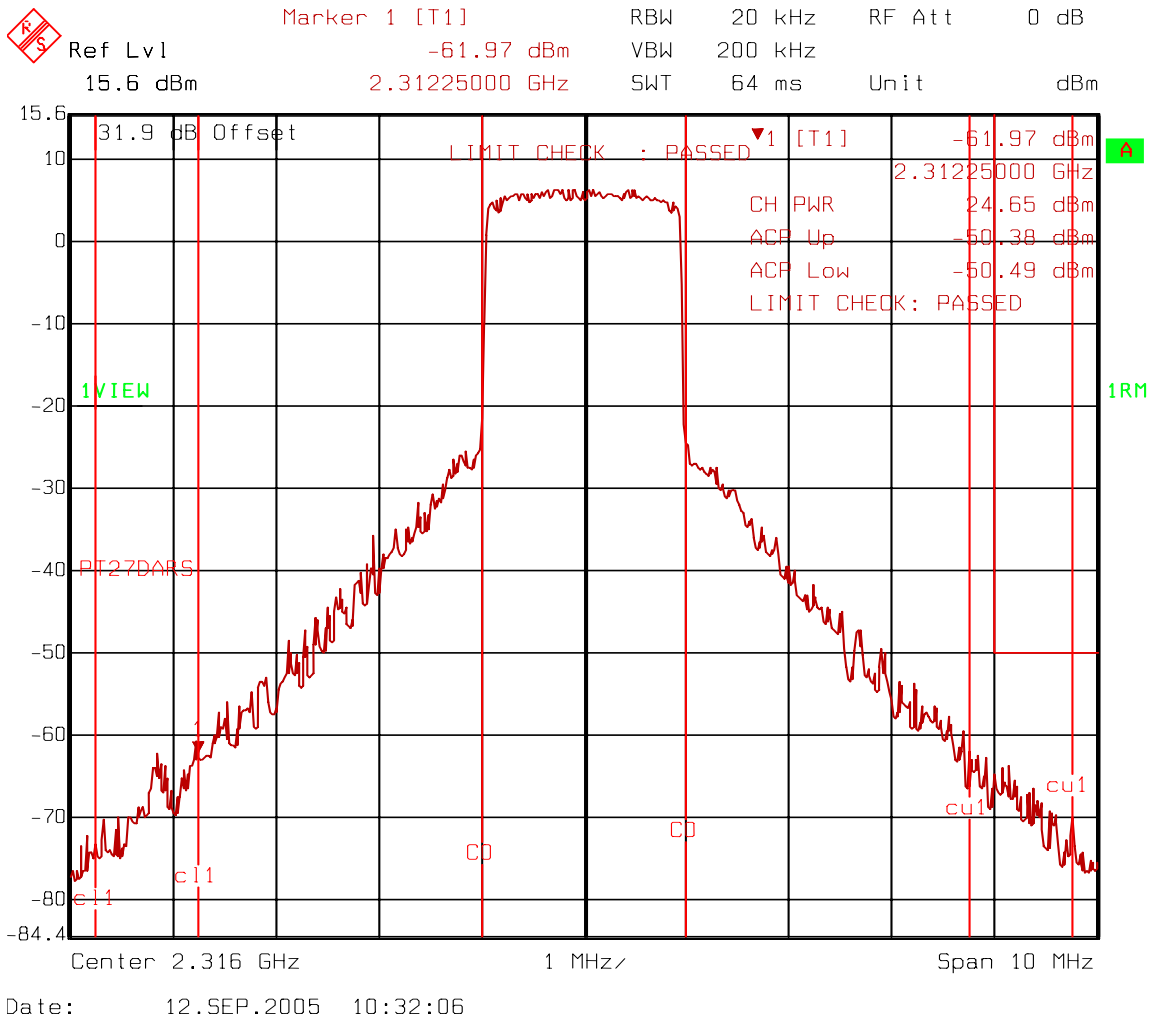
C Band, Navini Mode, 6-Carrier System
 25.2dBm, 2.75MHz Guard Band from DARS
 2316MHz, GC=168, 62degC, CS=4.25MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 10:32:06

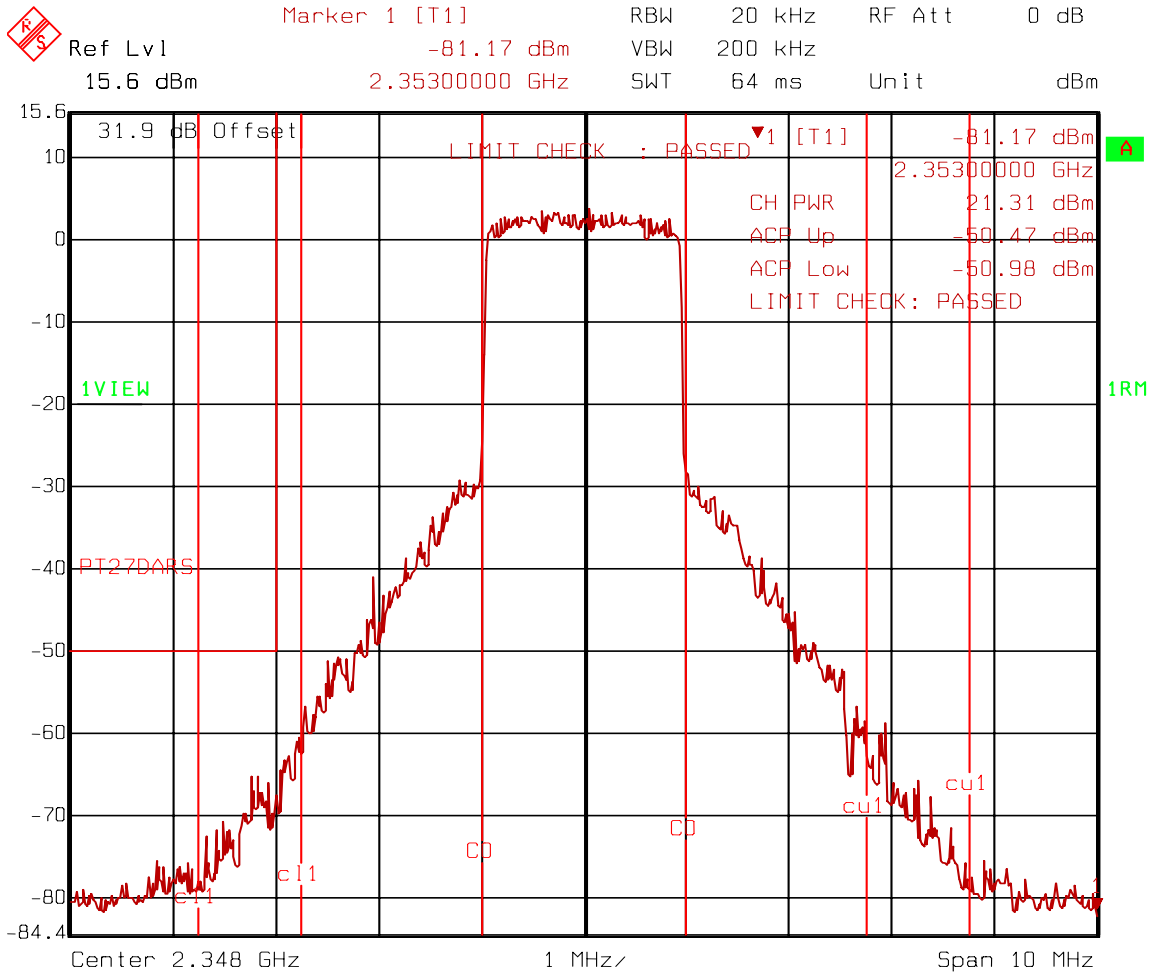
EQUIPMENT: 2305 - 2360 LMX E

250 KHZ OFFSET



EQUIPMENT: 2305 - 2360 LMX E

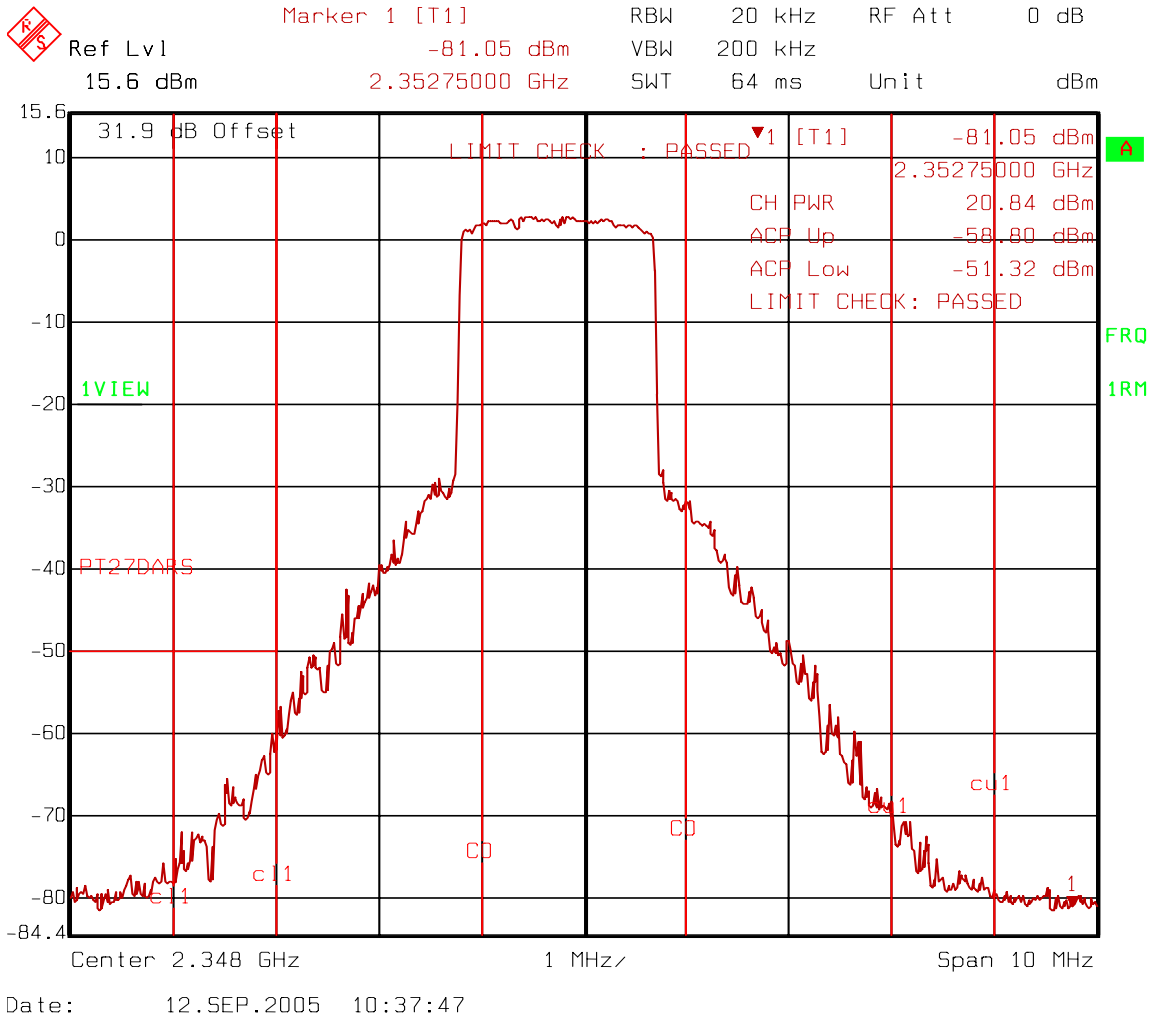
D Band, Navini Mode, 6-Carrier System
 22dBm, 1.75MHz Guard Band from DARS
 2348MHz, GC=161, 62degC, CS=3.25MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 10:36:03

EQUIPMENT: 2305 - 2360 LMX E

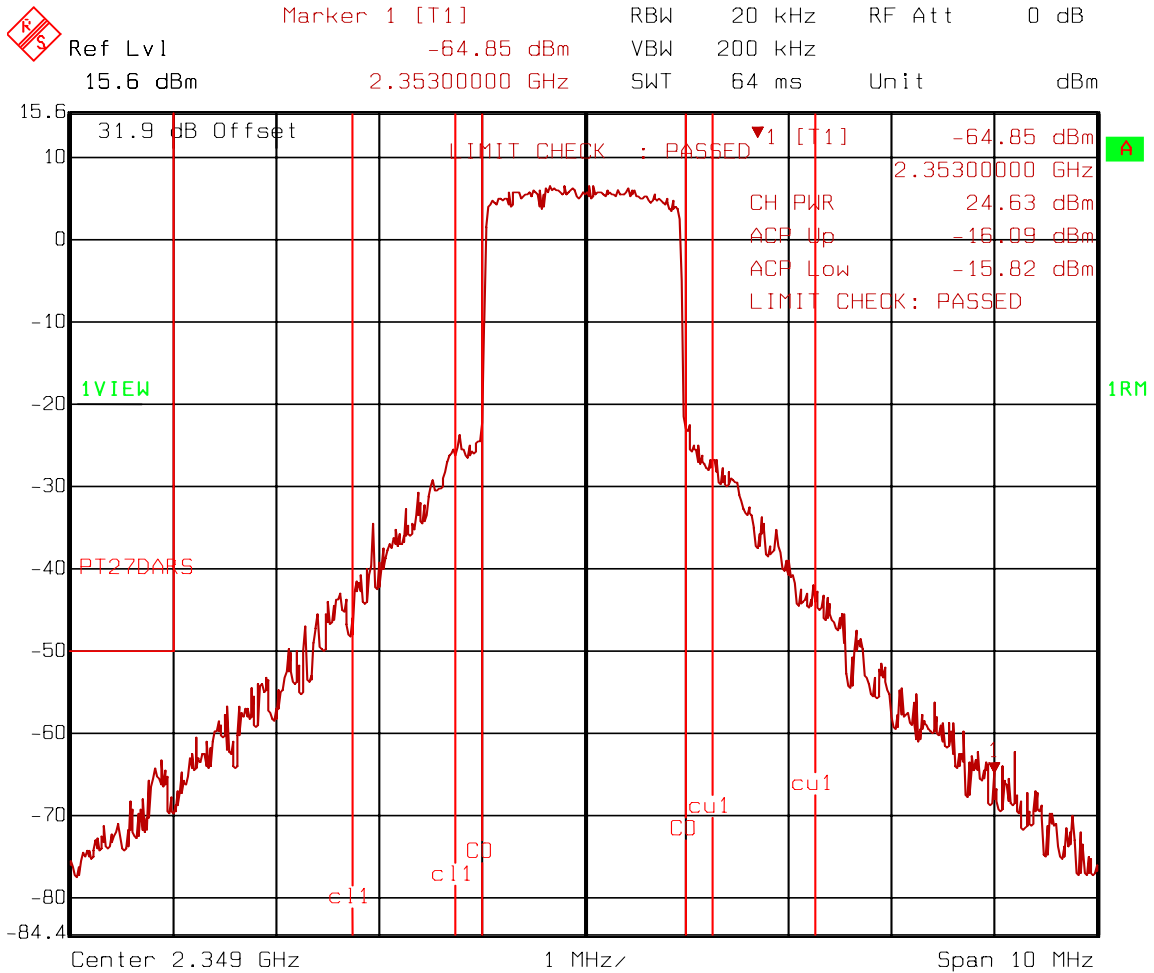
250KHZ FREQ OFFSET



EQUIPMENT: 2305 - 2360 LMX E

D Band, Navini Mode, 6-Carrier System

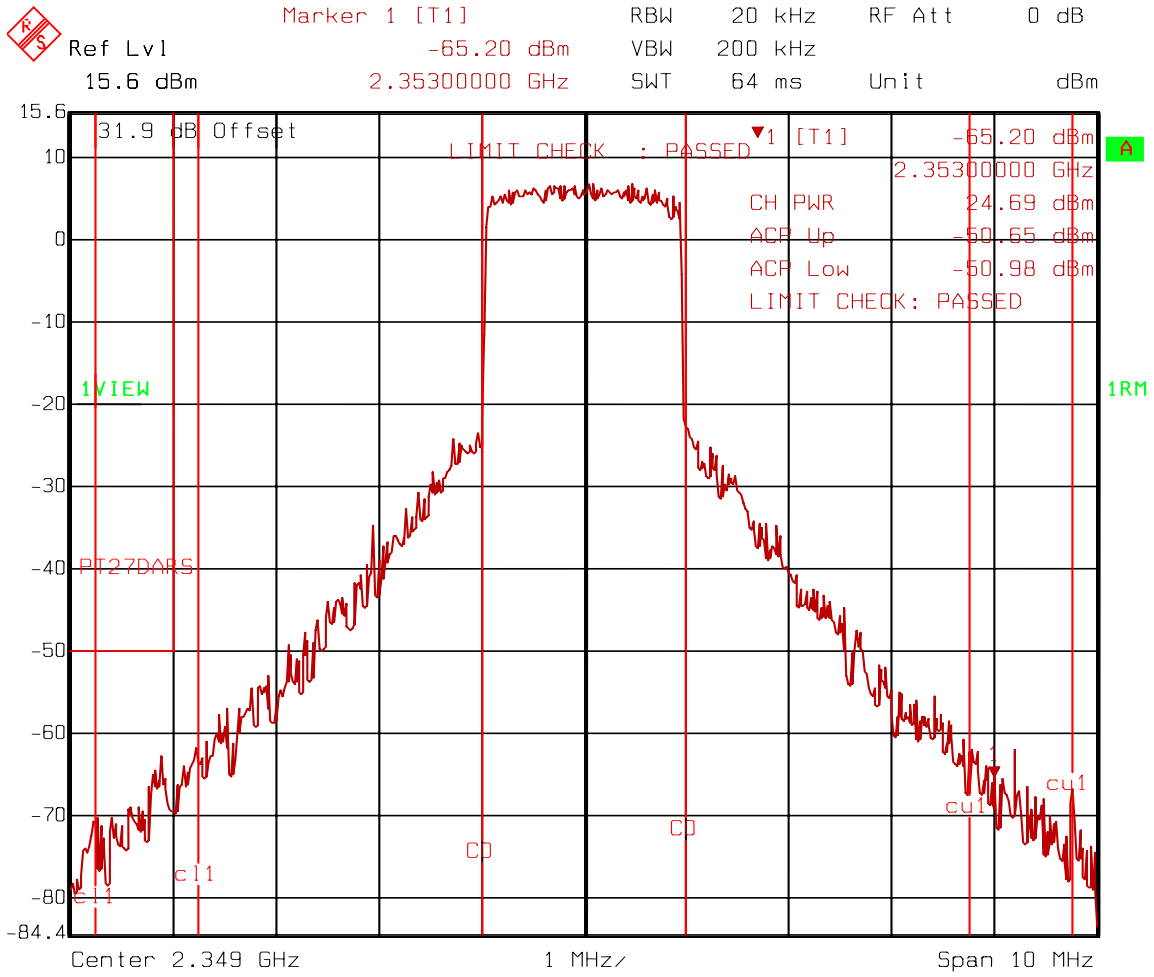
25dBm, 2.75MHz Guard Band from DARS
 2349MHz, GC=177, CS=1.75MHz, limit < -13dBm/1MHz



Date: 12.SEP.2005 10:39:40

EQUIPMENT: 2305 - 2360 LMX E

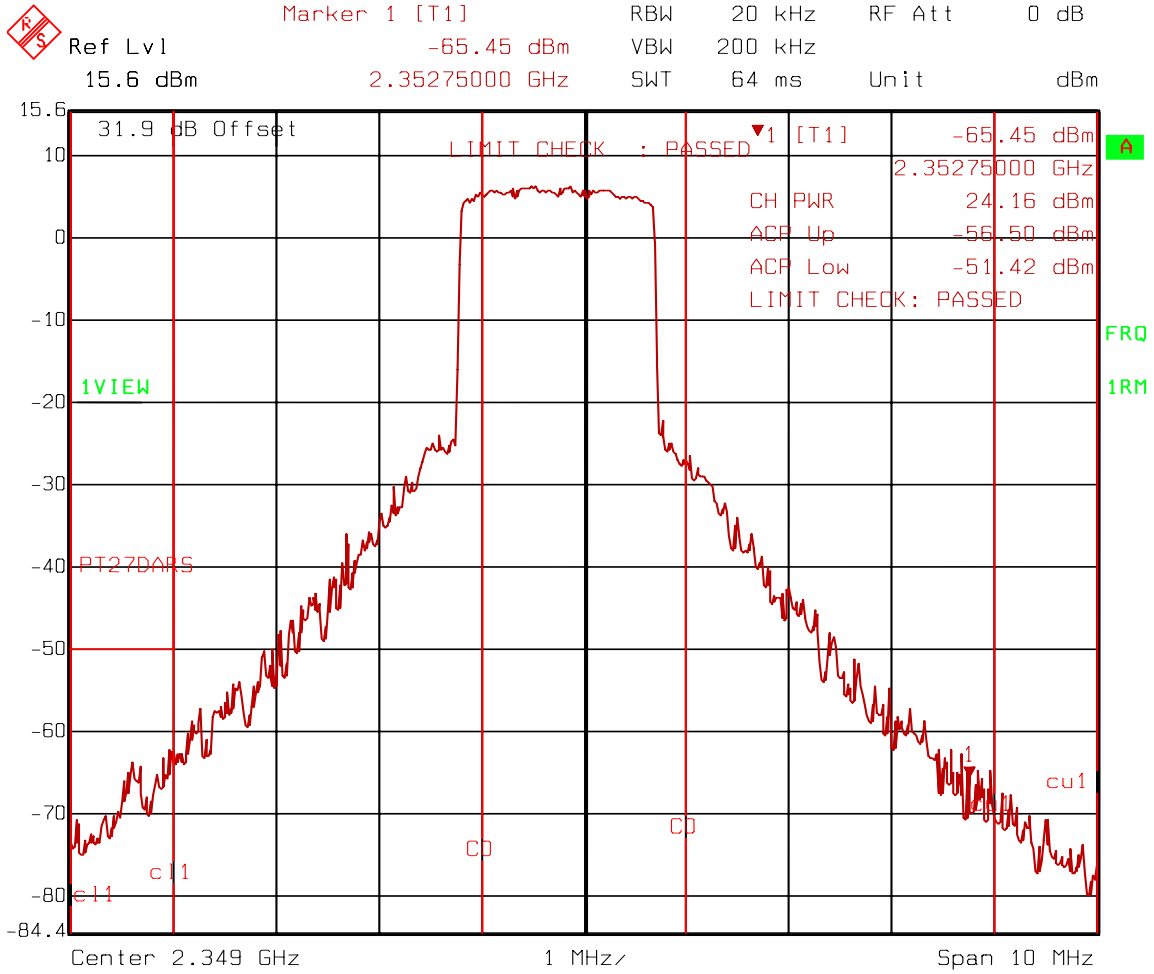
D Band, Navini Mode, 6-Carrier System
 25dBm, 2.75MHz Guard Band from DARS
 2349MHz, GC=172, 62degC, CS=4.25MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 10:40:45

EQUIPMENT: 2305 - 2360 LMX E

250KHZ FREQ OFFSET



Date: 12.SEP.2005 10:42:19

EQUIPMENT: 2305 – 2360 LMX E

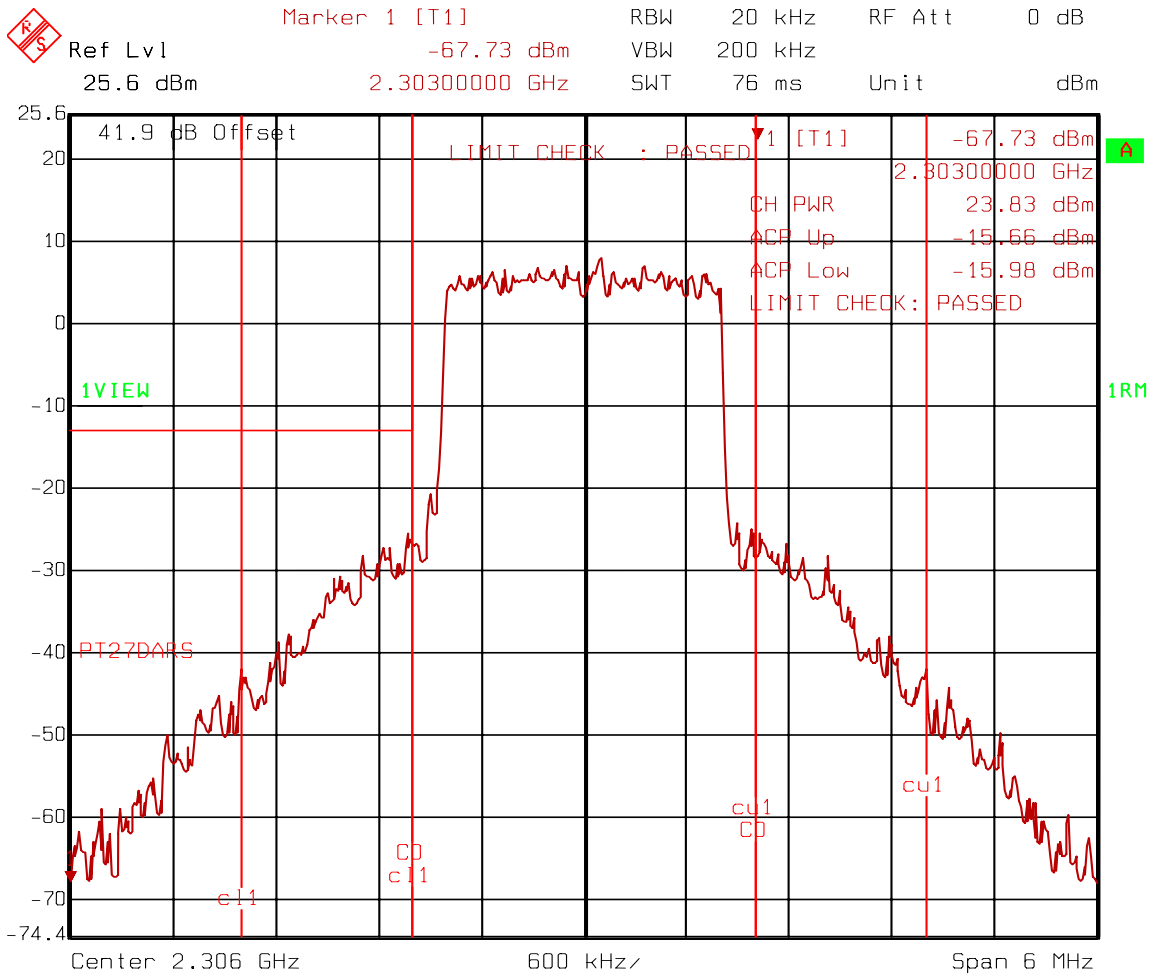
September 9, 2005

2305 – 2360 LMX E

EQUIPMENT USED 1561, 1562, 1045, 1055, 2072, 2071, 1470,1471,AND 1482.

A & B Low Bands, 802.16e Mode, 3 x 1.6MHz OFDM System

24.09dBm
2306MHz, GC=167,

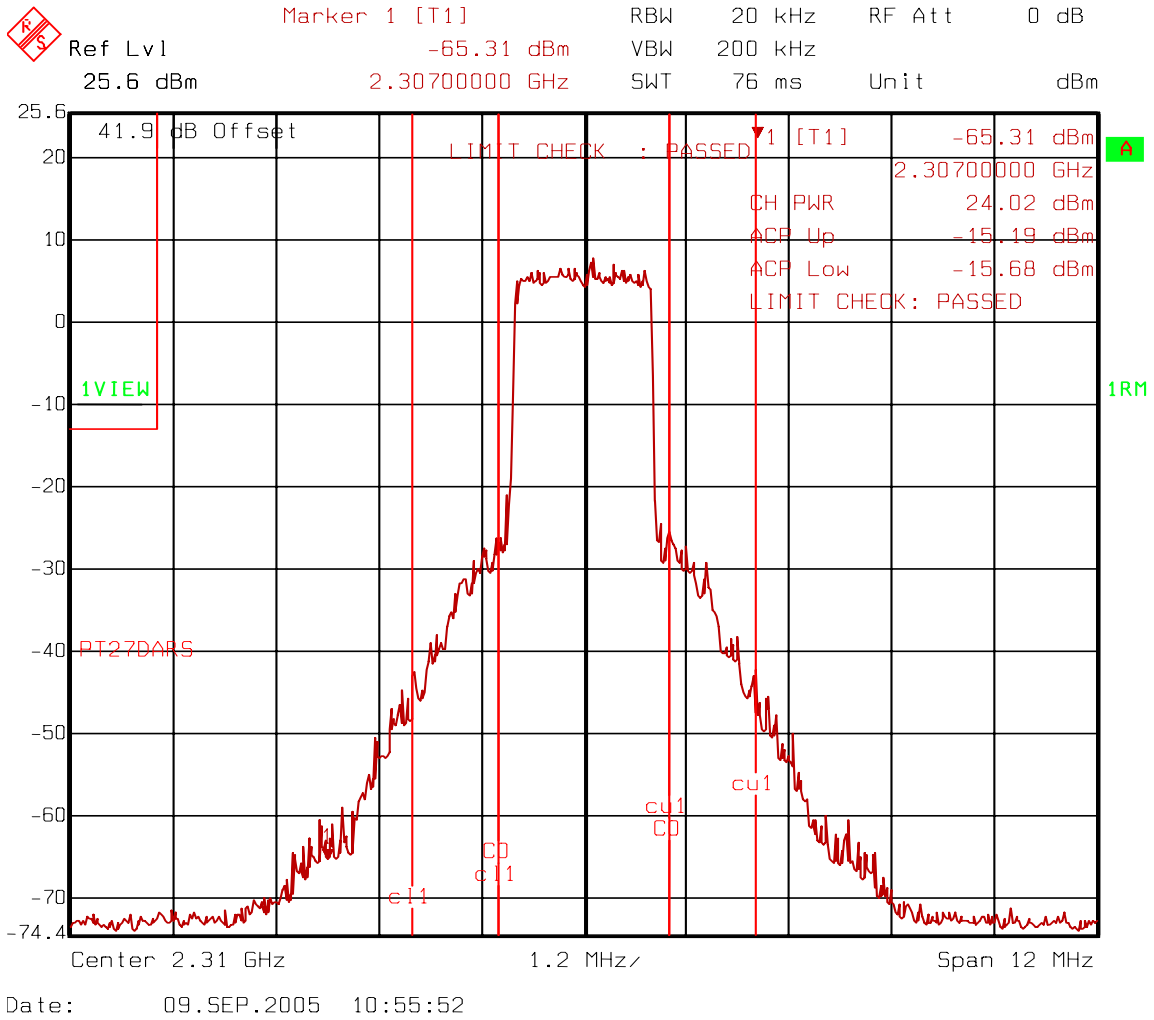


Date: 09.SEP.2005 10:45:35

EQUIPMENT: 2305 - 2360 LMX E

A & B Low Bands, 802.16e Mode

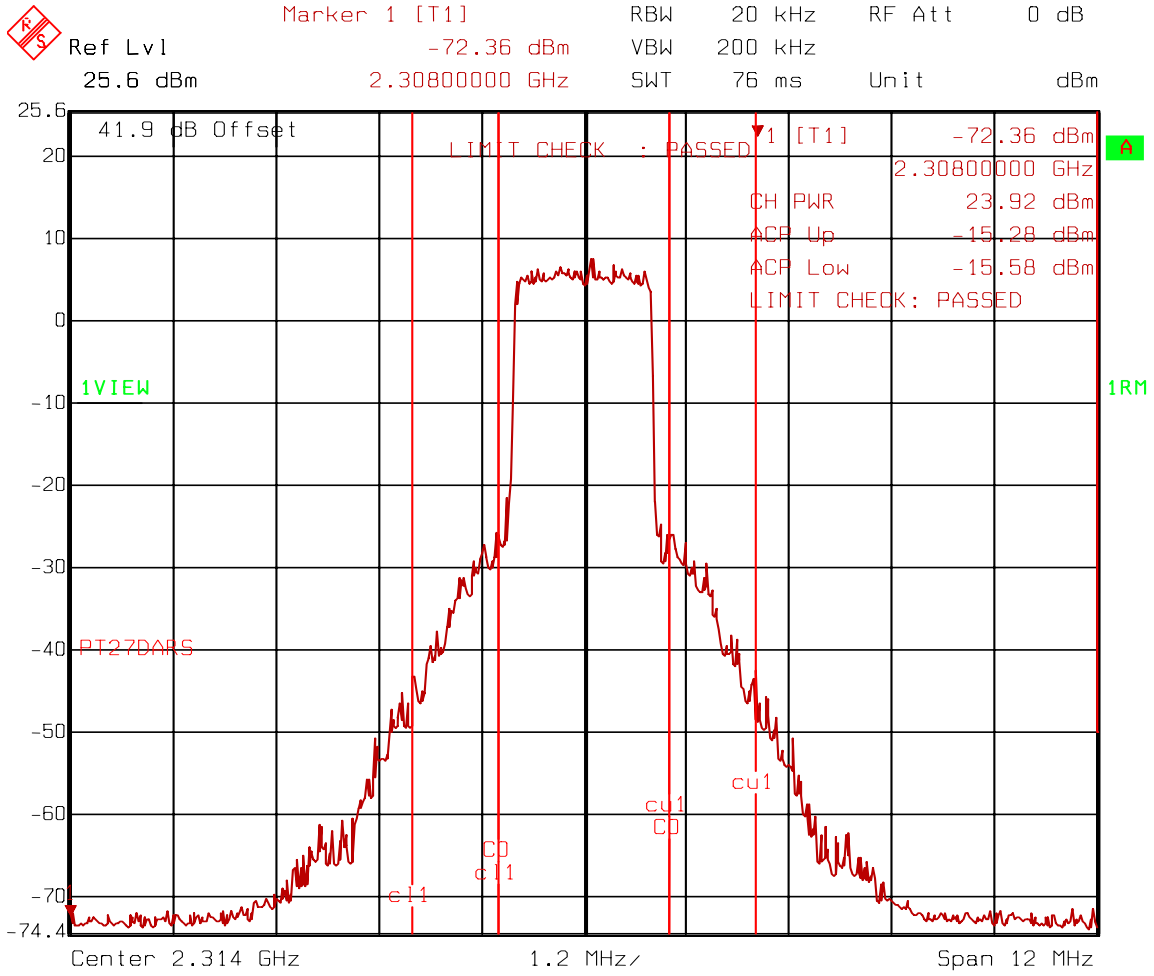
24.2dBm
 2310MHz, GC=172



EQUIPMENT: 2305 - 2360 LMX E

A & B Low Bands, 802.16e Mode

24.16dBm
2314MHz, GC=171

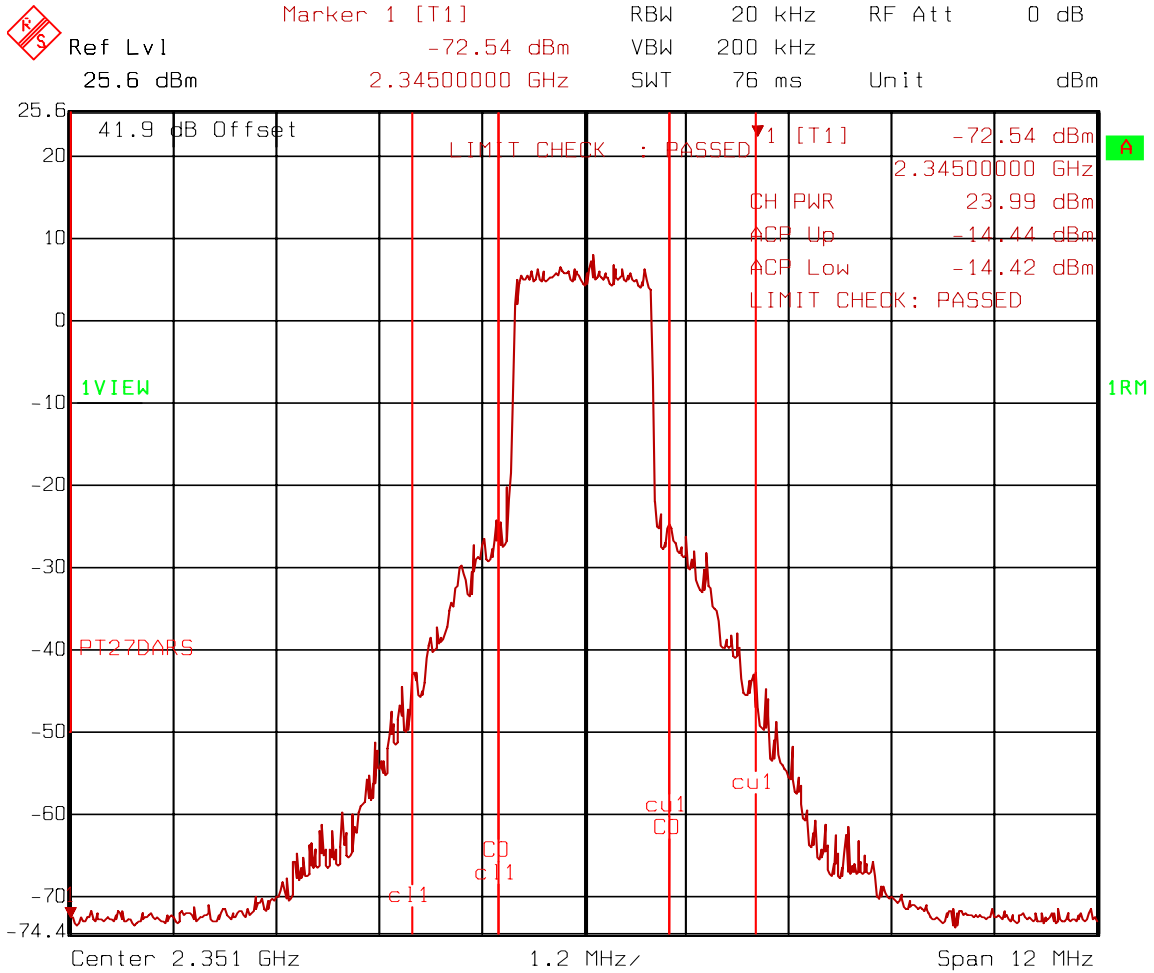


Date: 09.SEP.2005 11:01:40

EQUIPMENT: 2305 - 2360 LMX E

A & B High Bands, 802.16e Mode

24.3dBm
 2351MHz, GC=175

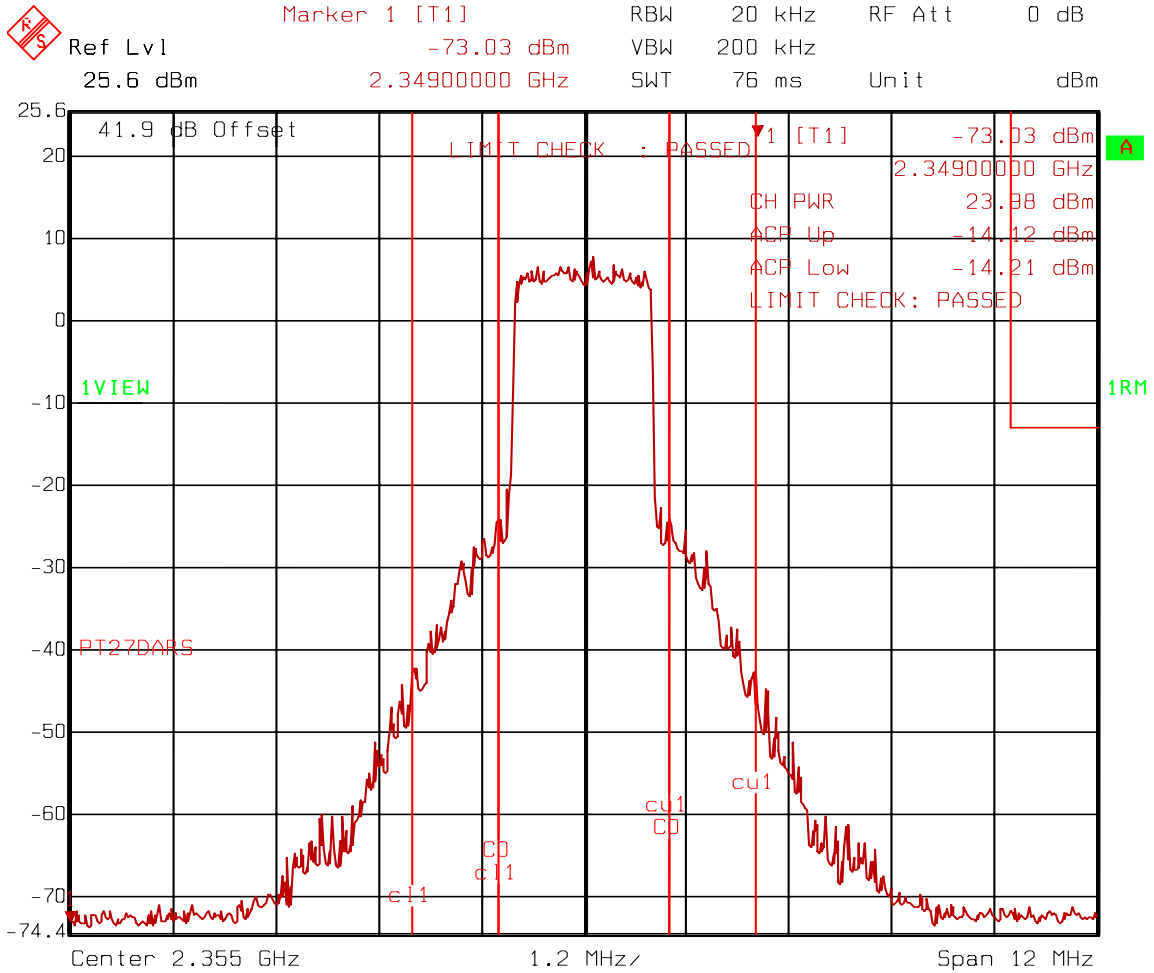


Date: 09.SEP.2005 11:04:23

EQUIPMENT: 2305 - 2360 LMX E

A & B High Bands, 802.16e Mode

24.3dBm
 2355MHz, GC=175

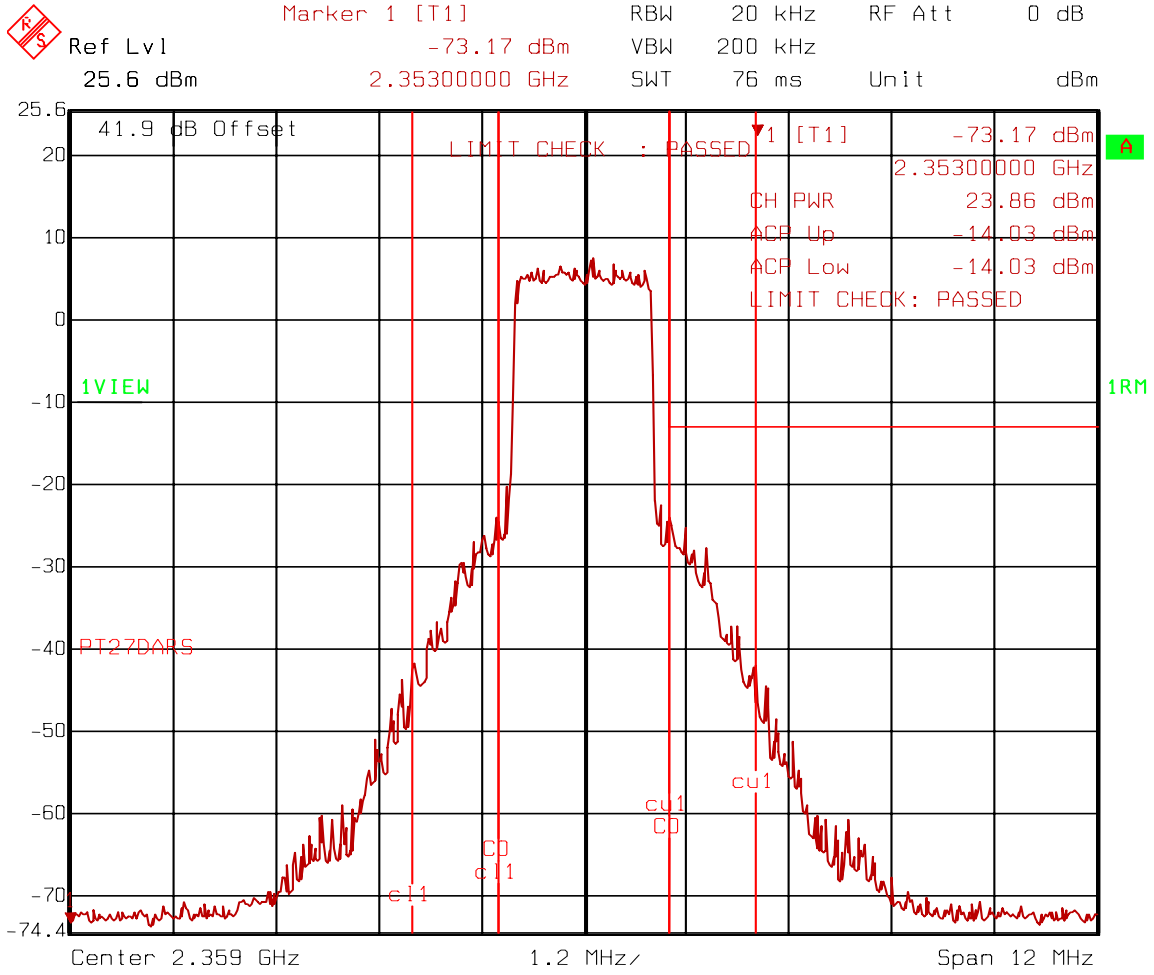


Date: 09.SEP.2005 11:11:26

EQUIPMENT: 2305 - 2360 LMX E

A & B High Bands, 802.16e Mode

24.2dBm
 2359MHz, GC=177

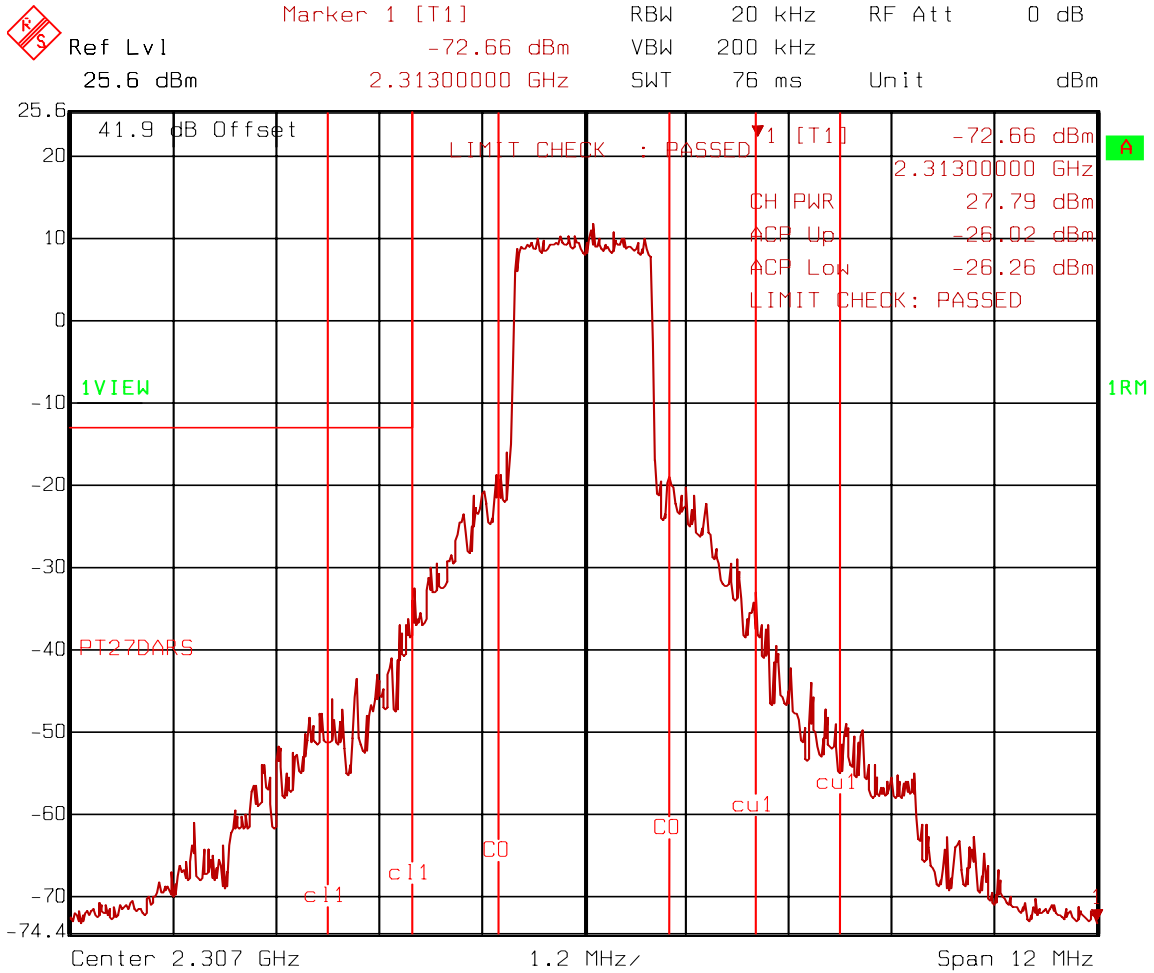


Date: 09.SEP.2005 11:13:58

EQUIPMENT: 2305 - 2360 LMX E

A & B Low Bands, 802.16e Mode

28.05dBm
 2307MHz, GC=193

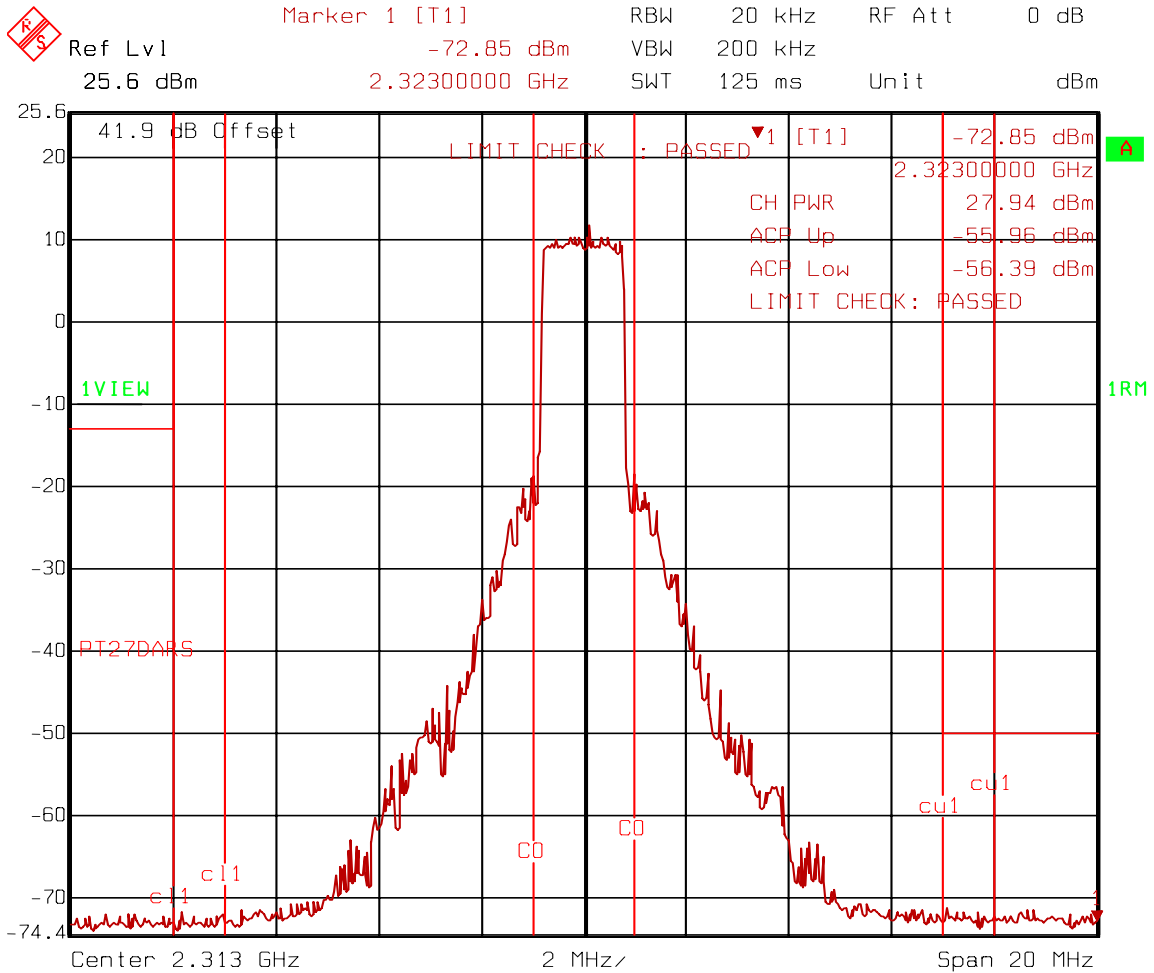


Date: 09.SEP.2005 11:21:13

EQUIPMENT: 2305 - 2360 LMX E

A & B Low Bands, 802.16e Mode

28.18dBm
2313MHz, GC=192

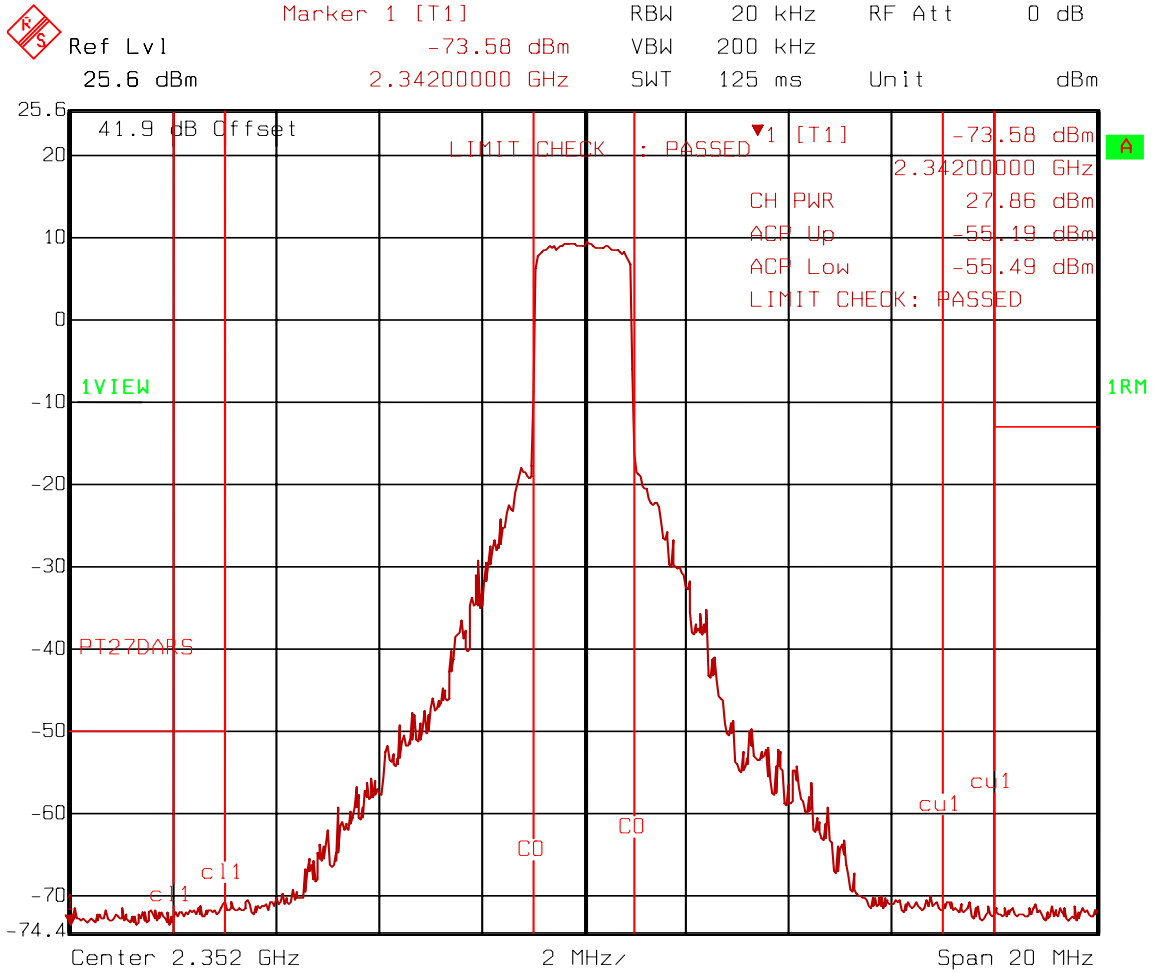


Date: 09.SEP.2005 12:34:18

EQUIPMENT: 2305 - 2360 LMX E

A & B High Bands, 802.16e Mode

28dBm
 2352MHz, GC=193

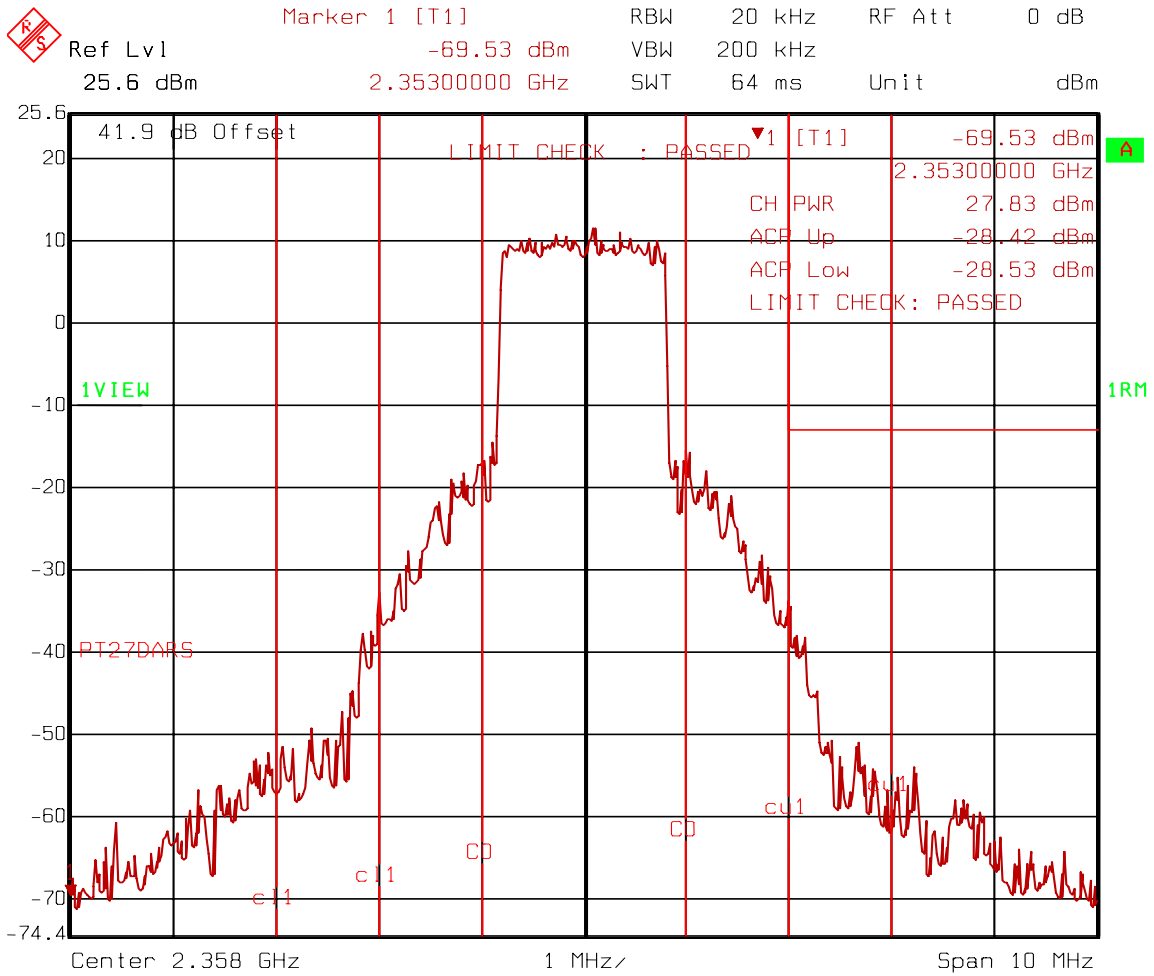


Date: 09.SEP.2005 12:29:35

EQUIPMENT: 2305 - 2360 LMX E

A & B High Bands, 802.16e Mode

28.17dBm
 2358MHz, GC=192

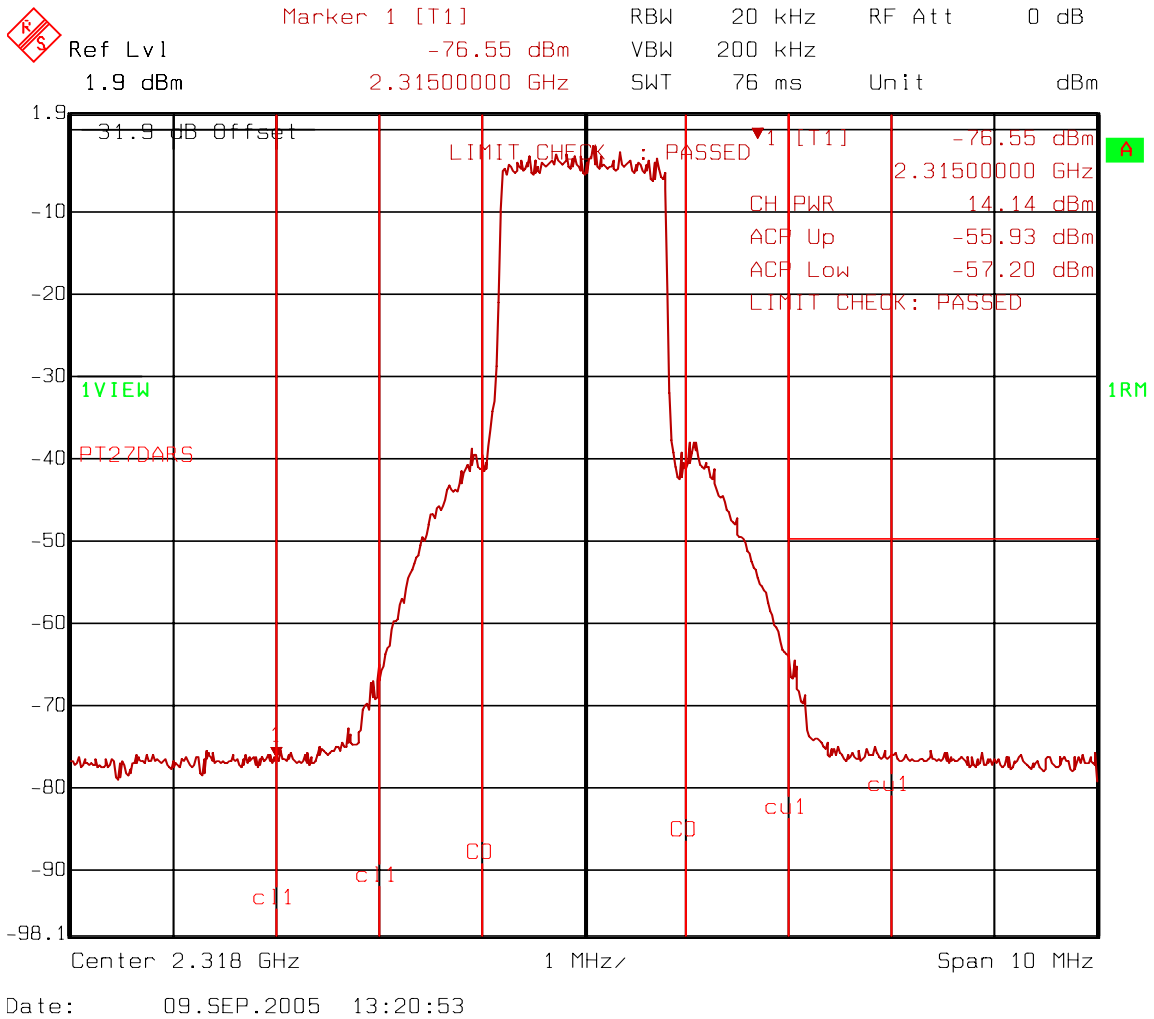


Date: 09.SEP.2005 12:42:27

EQUIPMENT: 2305 - 2360 LMX E

C Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

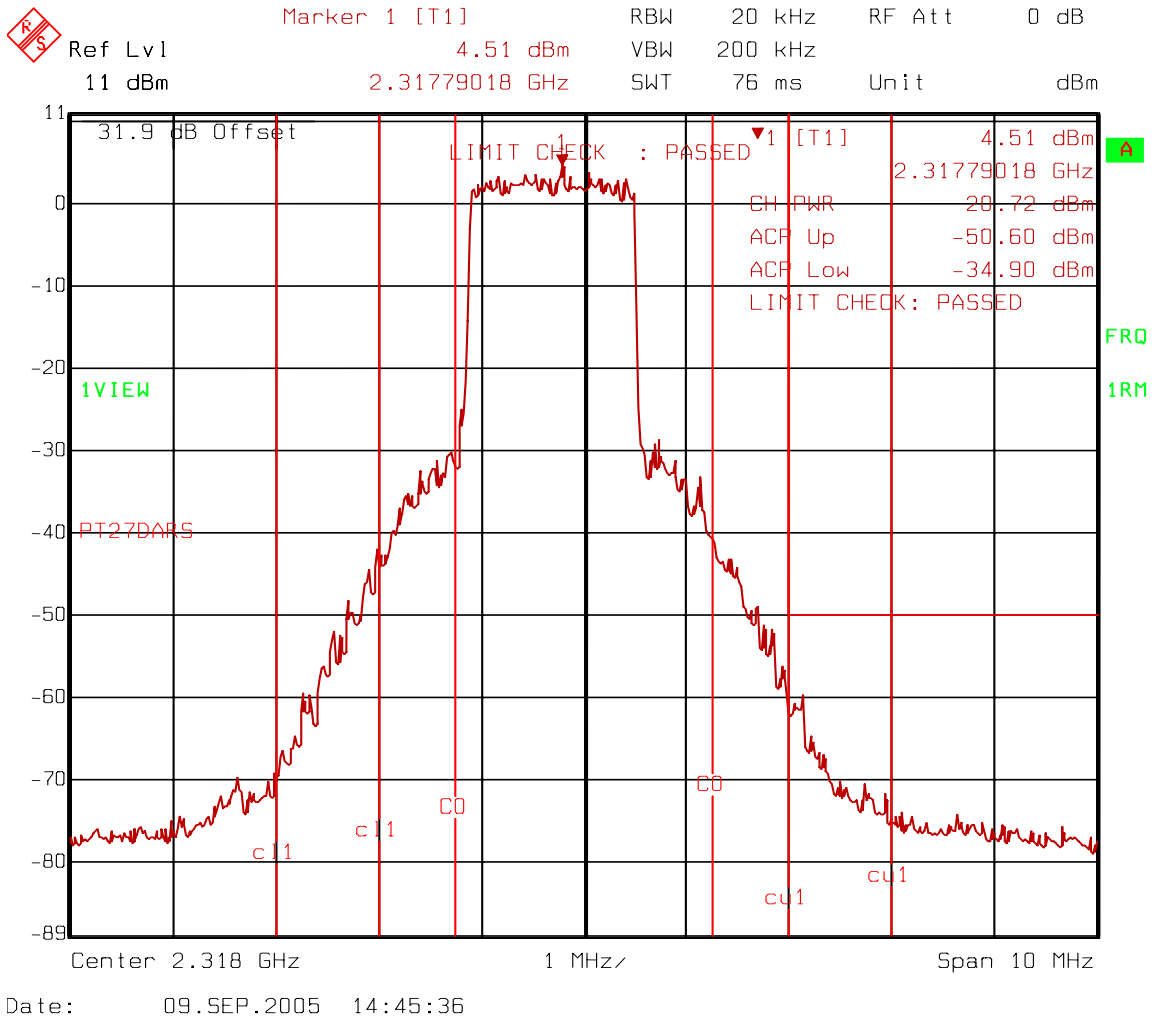
14.5dBm, 1MHz Guard Band from DARS
 2318MHz, GC=143



EQUIPMENT: 2305 - 2360 LMX E

C Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

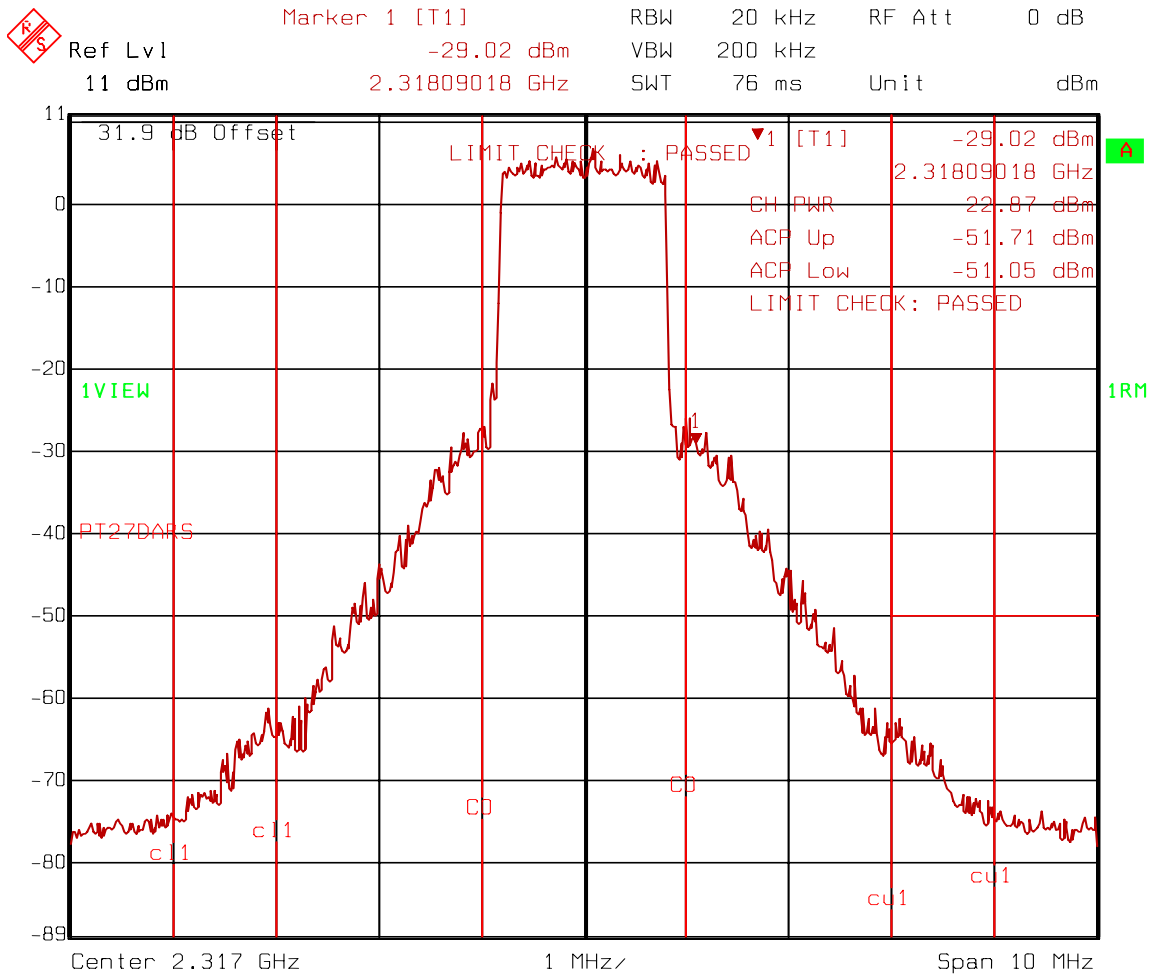
21.2dBm, 1.5MHz Guard Band from DARS
 2318MHz, GC=157, 62degC, CS=2.5MHz, limit < -50dBm/1MHz
 300kHz FREQ SHIFT USED



EQUIPMENT: 2305 - 2360 LMX E

C Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

23.2dBm, 2MHz Guard Band from DARS
 2317MHz, GC=168 limit < -50dBm/1MHz

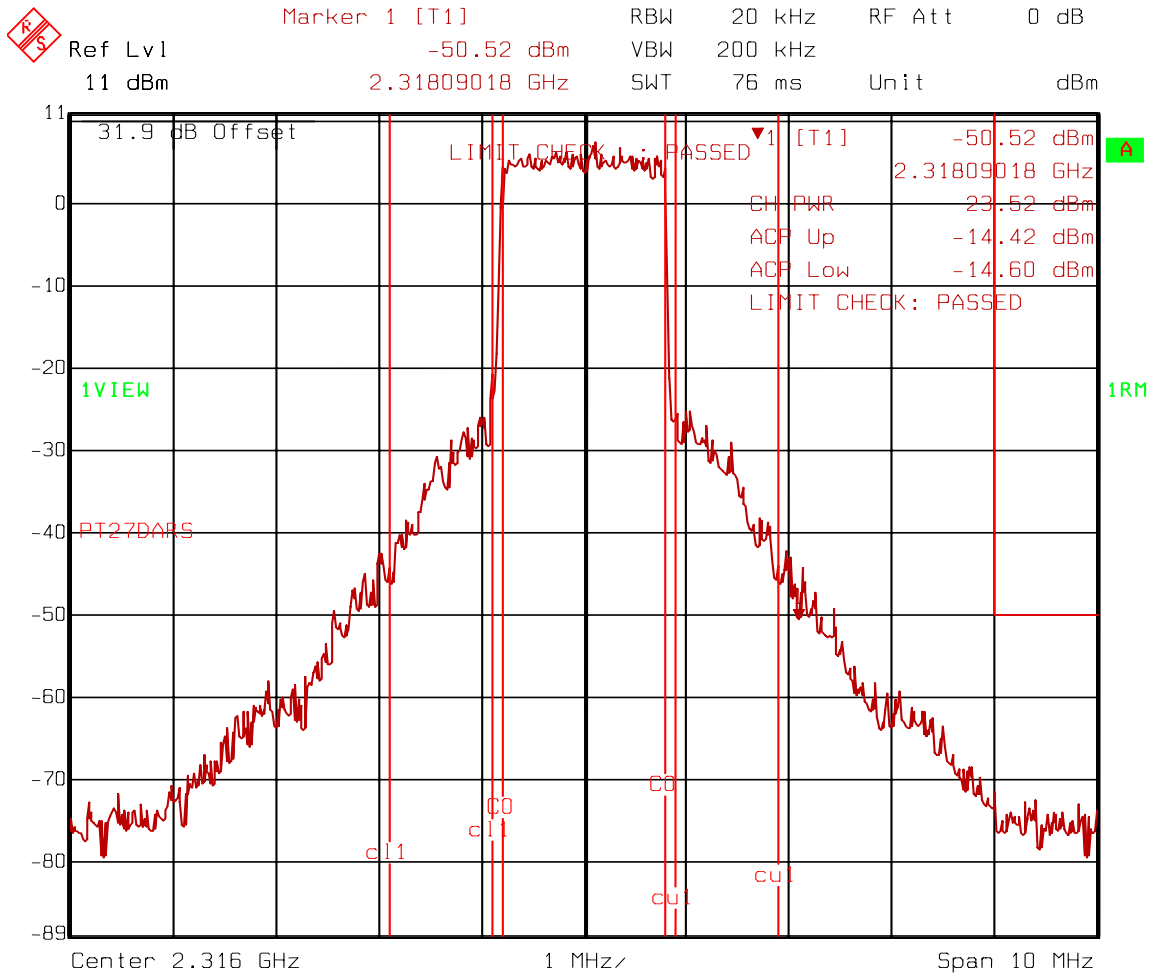


Date: 09.SEP.2005 14:49:47

EQUIPMENT: 2305 - 2360 LMX E

C Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

24dBm, 0.1MHz Guard Band from Adjacent Band
 (3.3MHz Guard Band from DARS)
 2316MHz, GC=166, 62degC, CS=1.4MHz, limit < -13dBm/1MHz

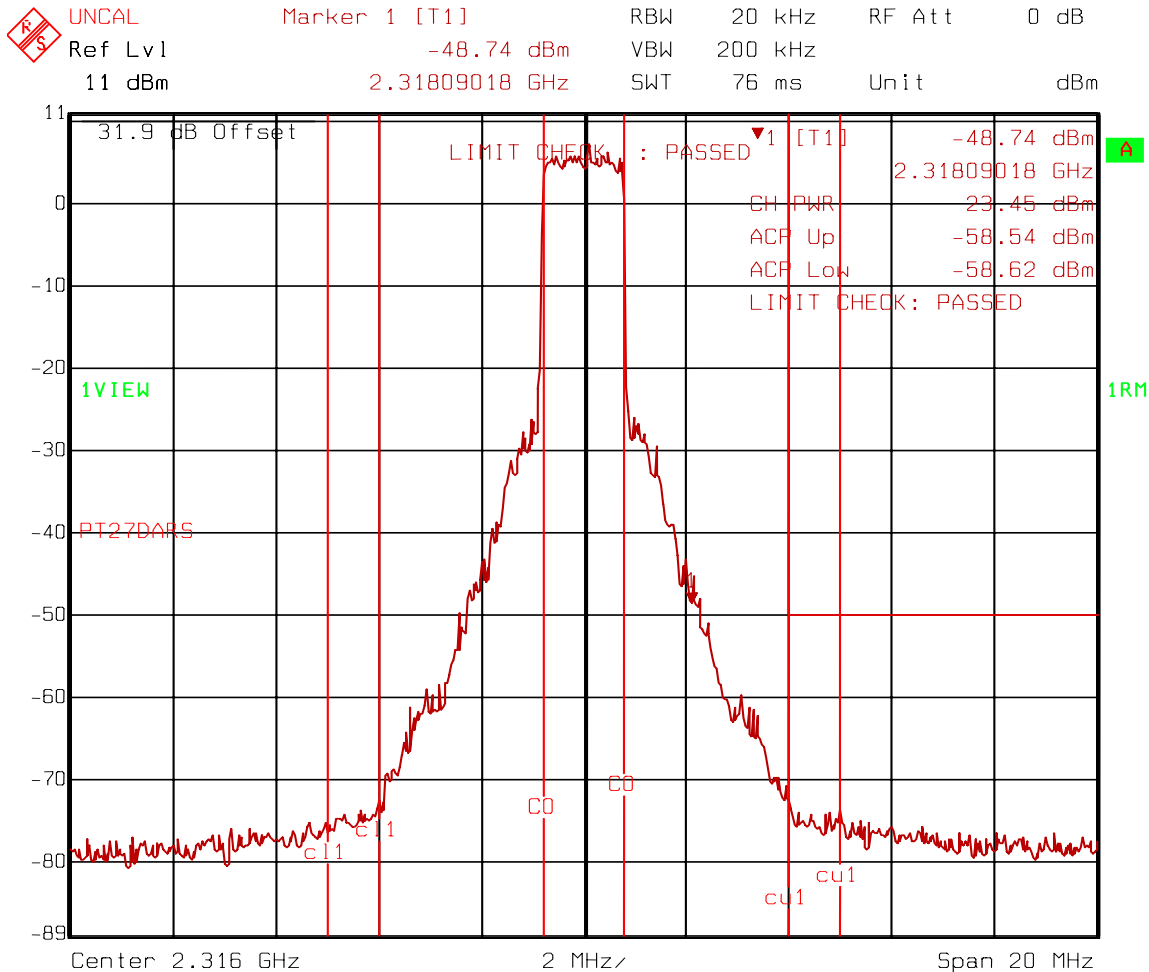


Date: 09.SEP.2005 14:55:13

EQUIPMENT: 2305 - 2360 LMX E

C Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

24dBm, 0.1MHz Guard Band from Adjacent Band
 (3.3MHz Guard Band from DARS)
 2316MHz, GC=172, limit < -50dBm/1MHz

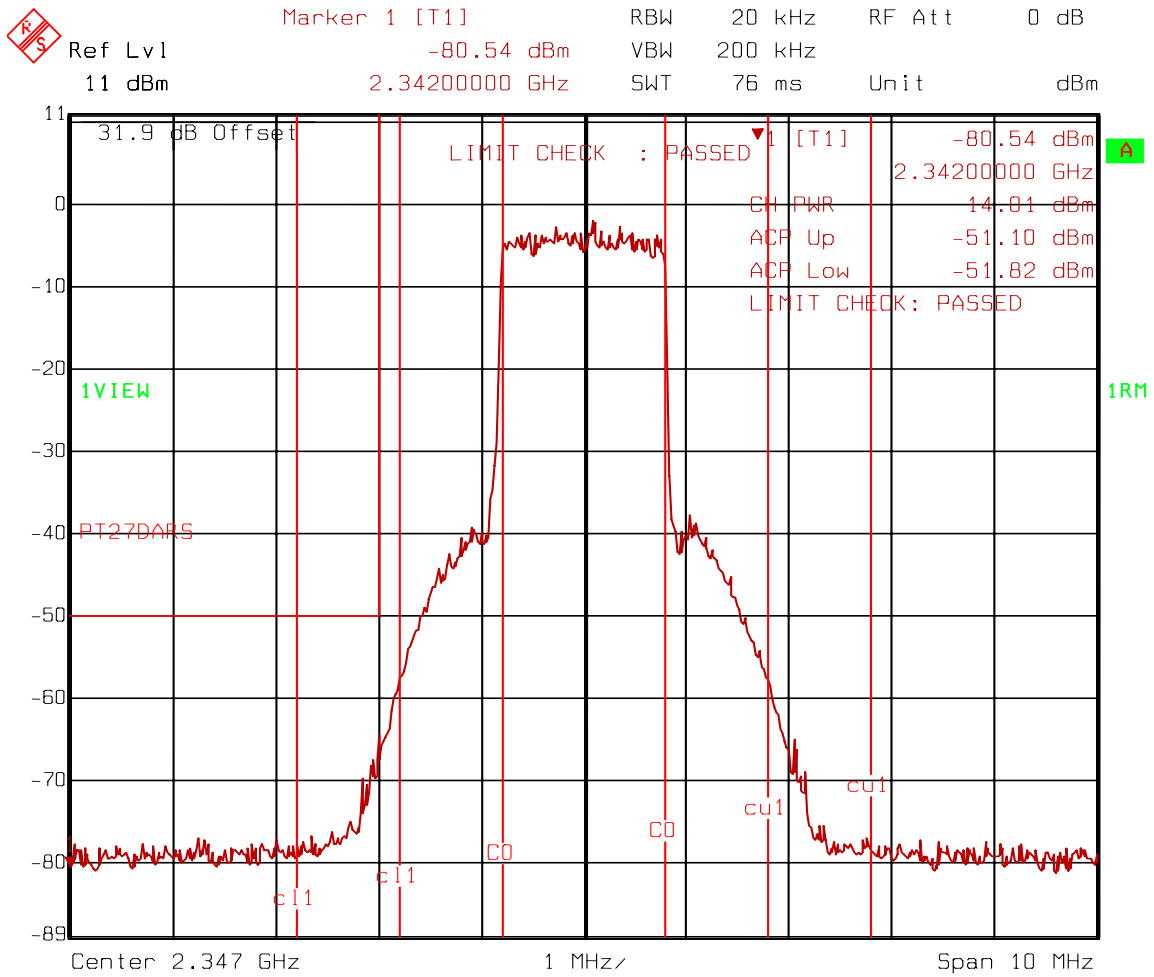


Date: 09.SEP.2005 14:57:50

EQUIPMENT: 2305 - 2360 LMX E

D Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

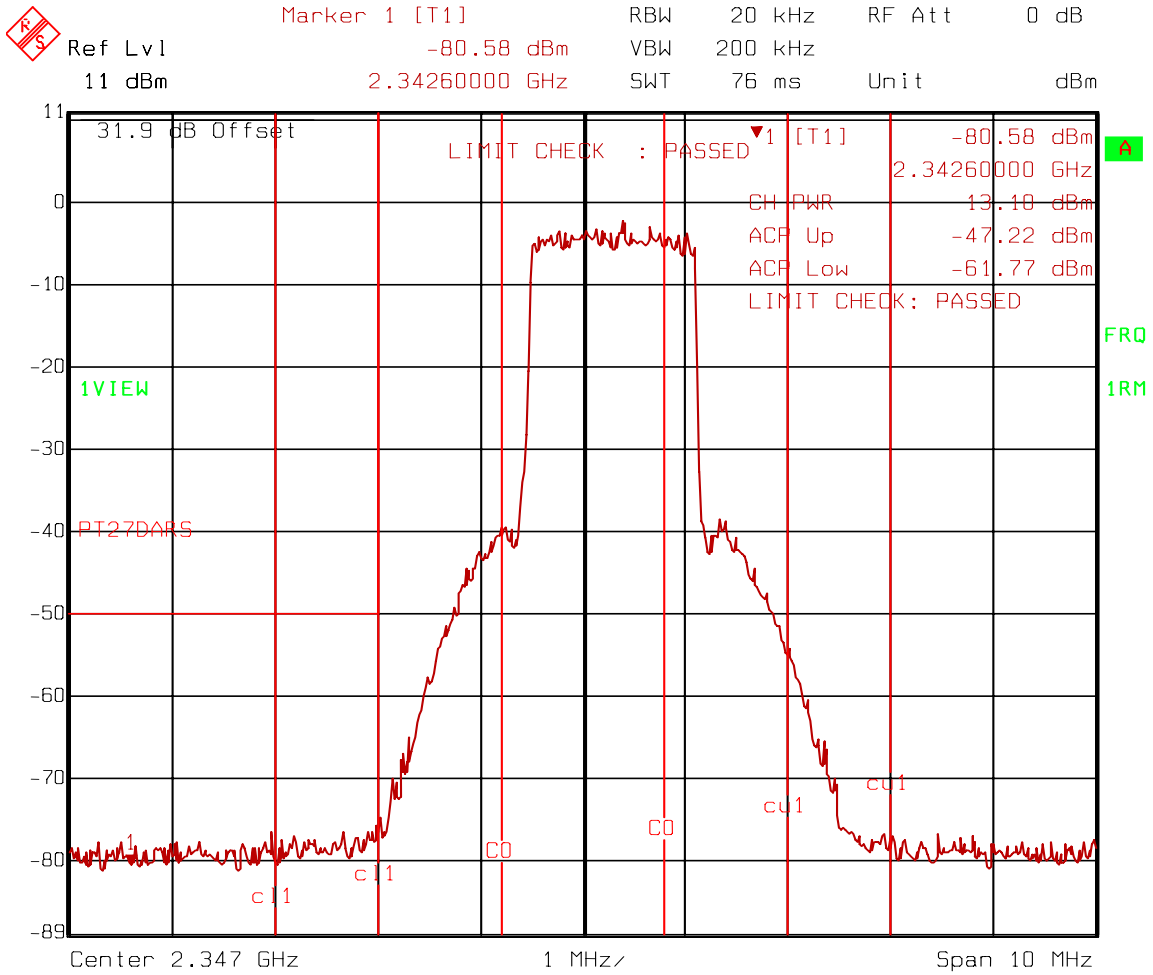
14dBm, 1MHz Guard Band from DARS
 2347MHz, GC=138 (Low Current Mode), 62degC, CS=2.3MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 08:29:50

EQUIPMENT: 2305 - 2360 LMX E

using a 300khz frq offset

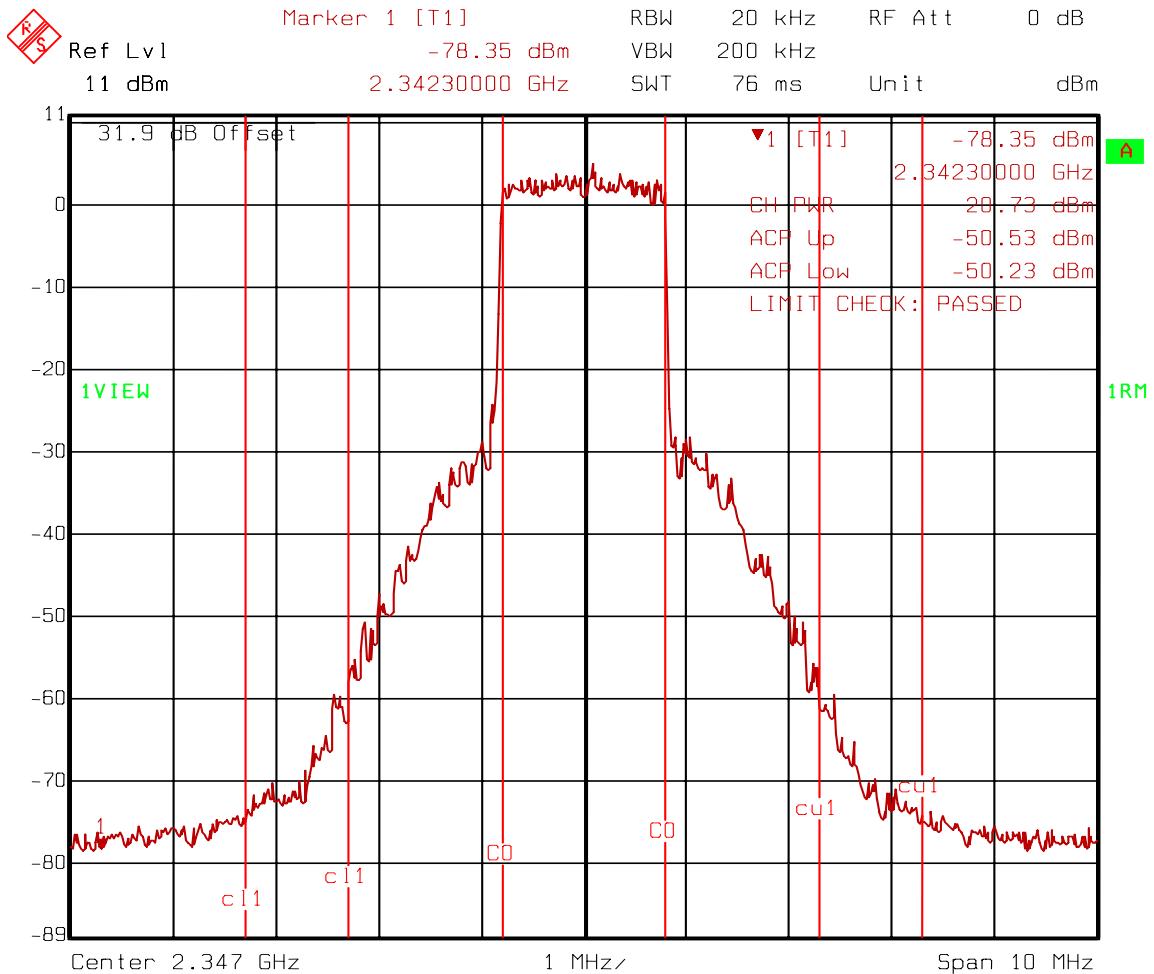


Date: 12.SEP.2005 08:35:41

EQUIPMENT: 2305 - 2360 LMX E

D Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

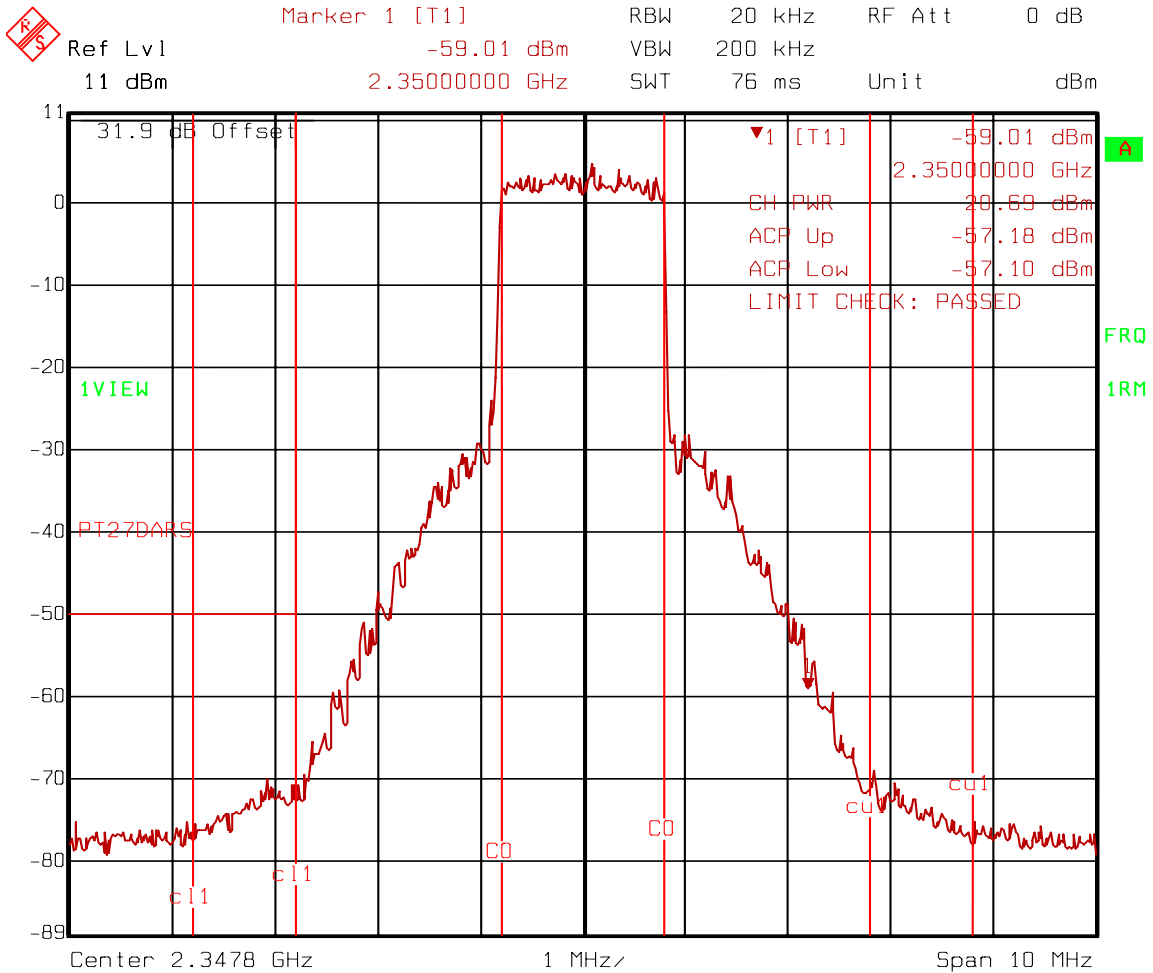
21.4dBm, 1.5MHz Guard Band from DARS
 2347MHz, GC=162, CS=2.8MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 08:40:21

EQUIPMENT: 2305 - 2360 LMX E

800kHz frq offset

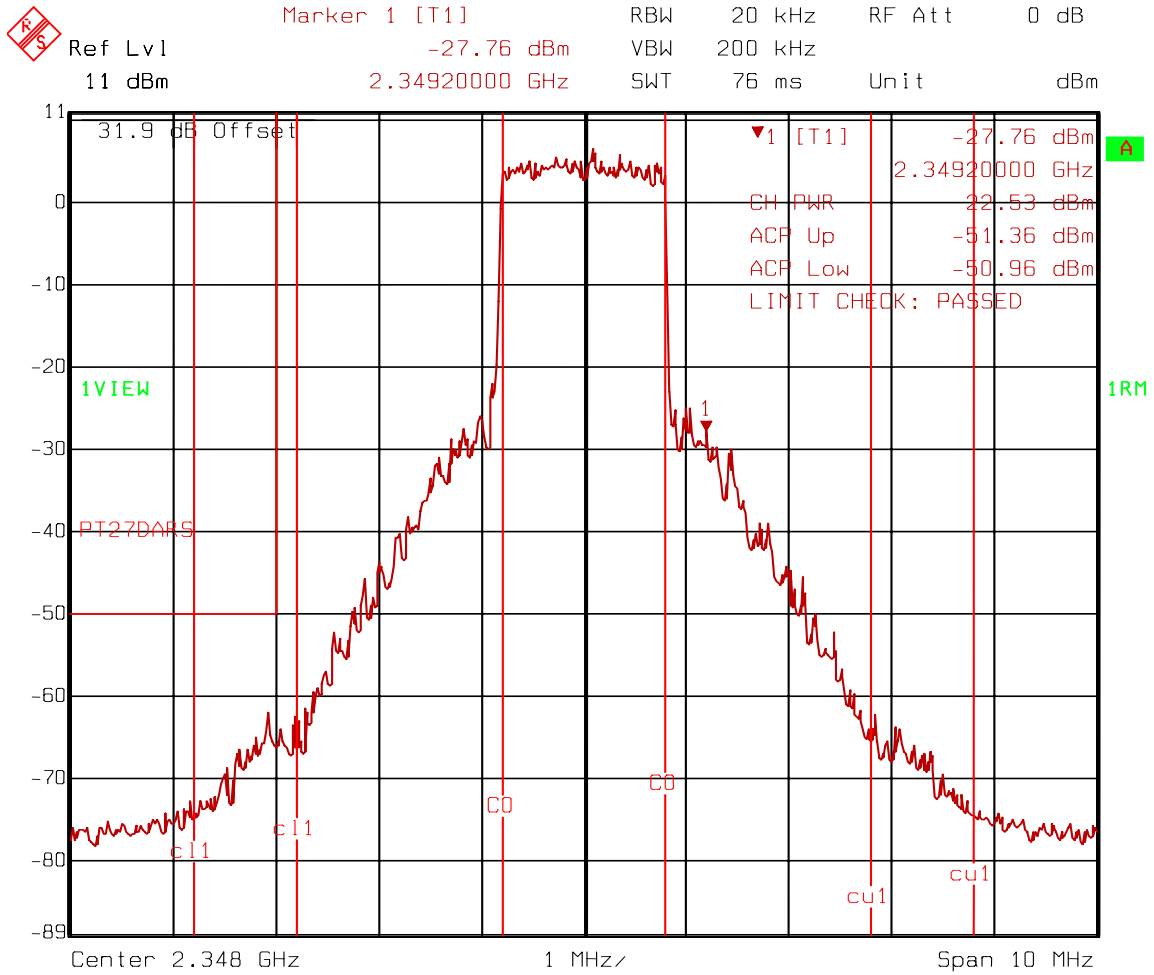


Date: 12.SEP.2005 08:45:16

EQUIPMENT: 2305 - 2360 LMX E

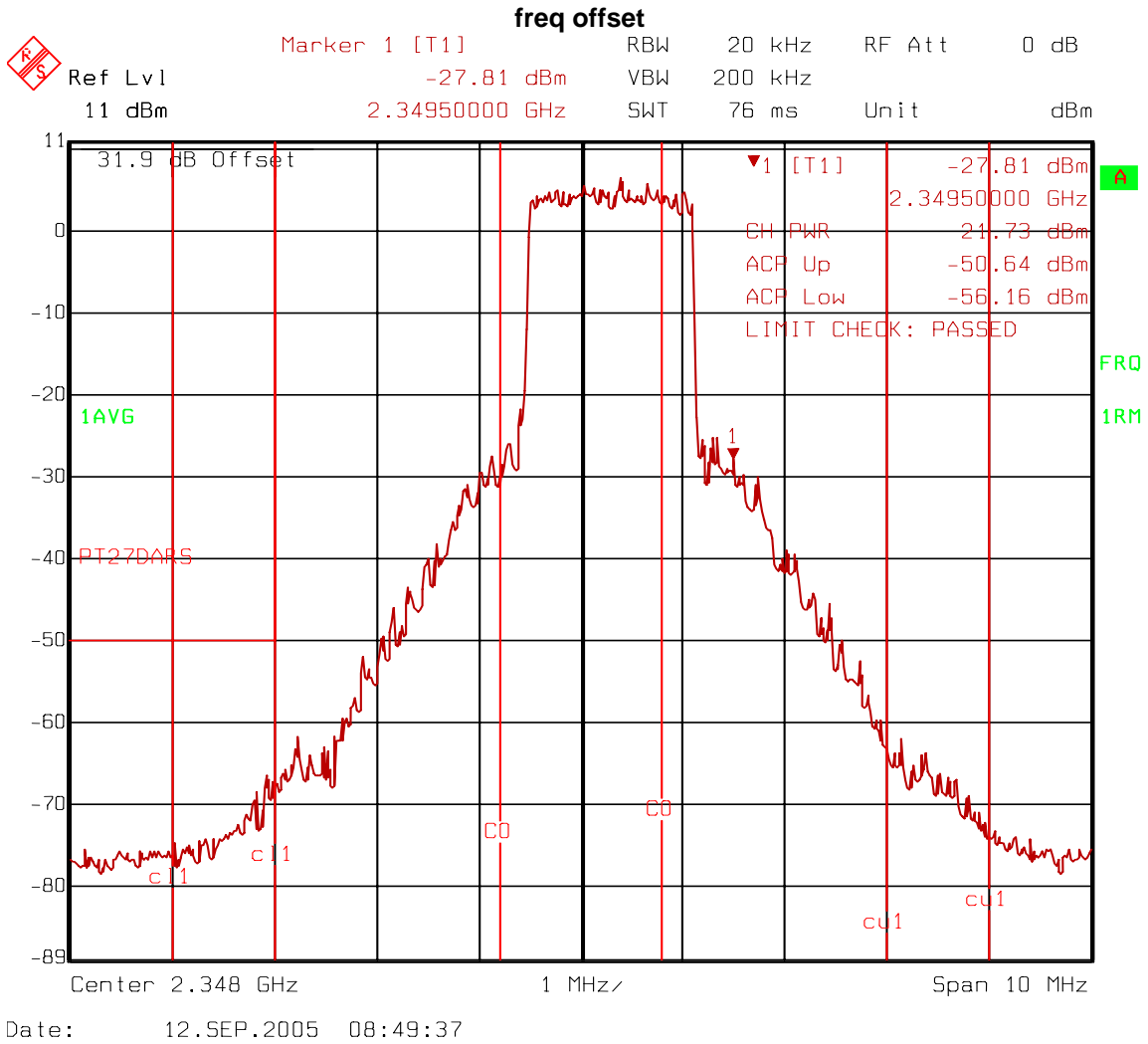
D Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

23dBm, 2MHz Guard Band from DARS
 2348MHz, GC=165, 62degC, CS=3.3MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 08:48:01

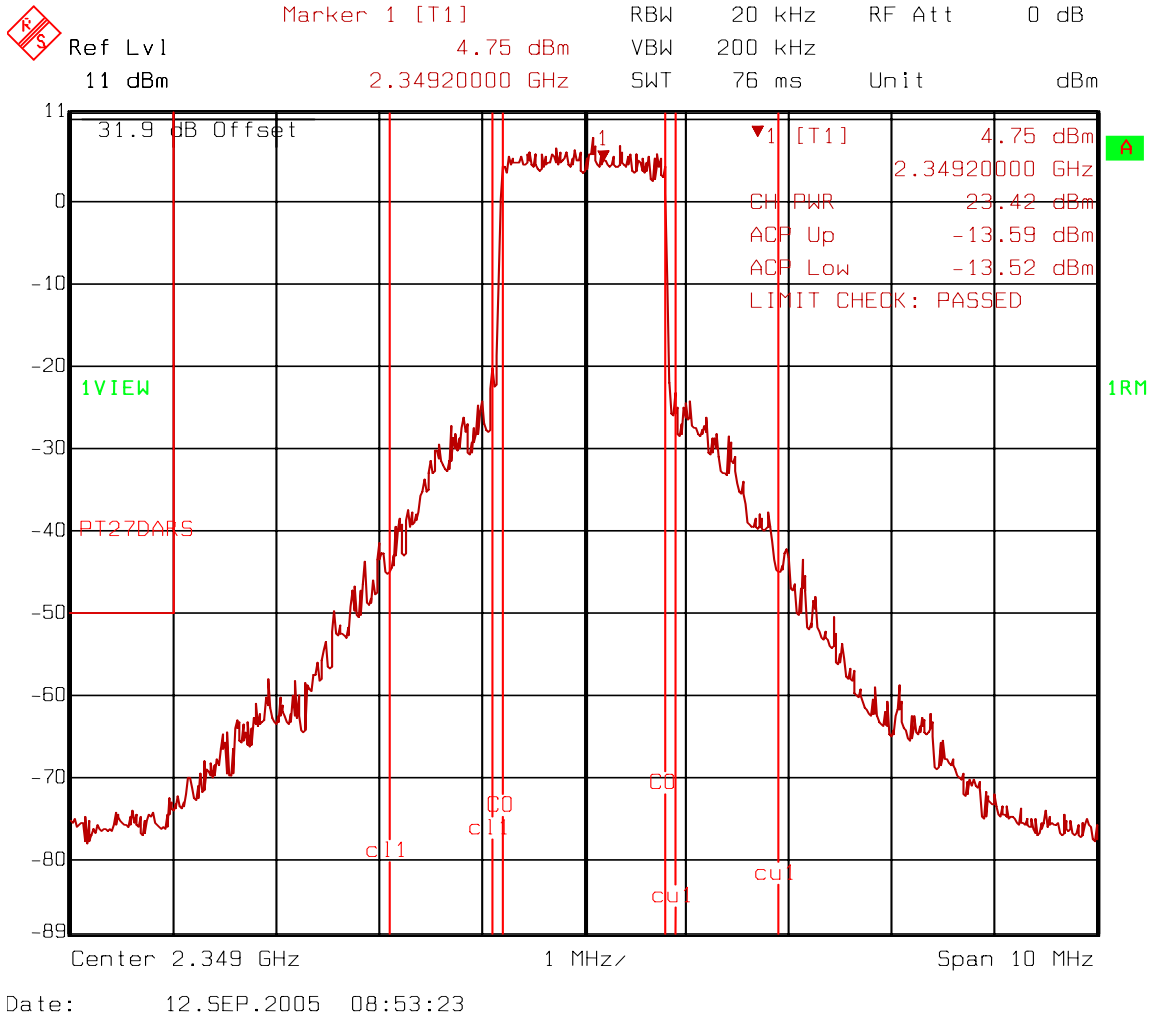
EQUIPMENT: 2305 - 2360 LMX E



EQUIPMENT: 2305 - 2360 LMX E

D Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

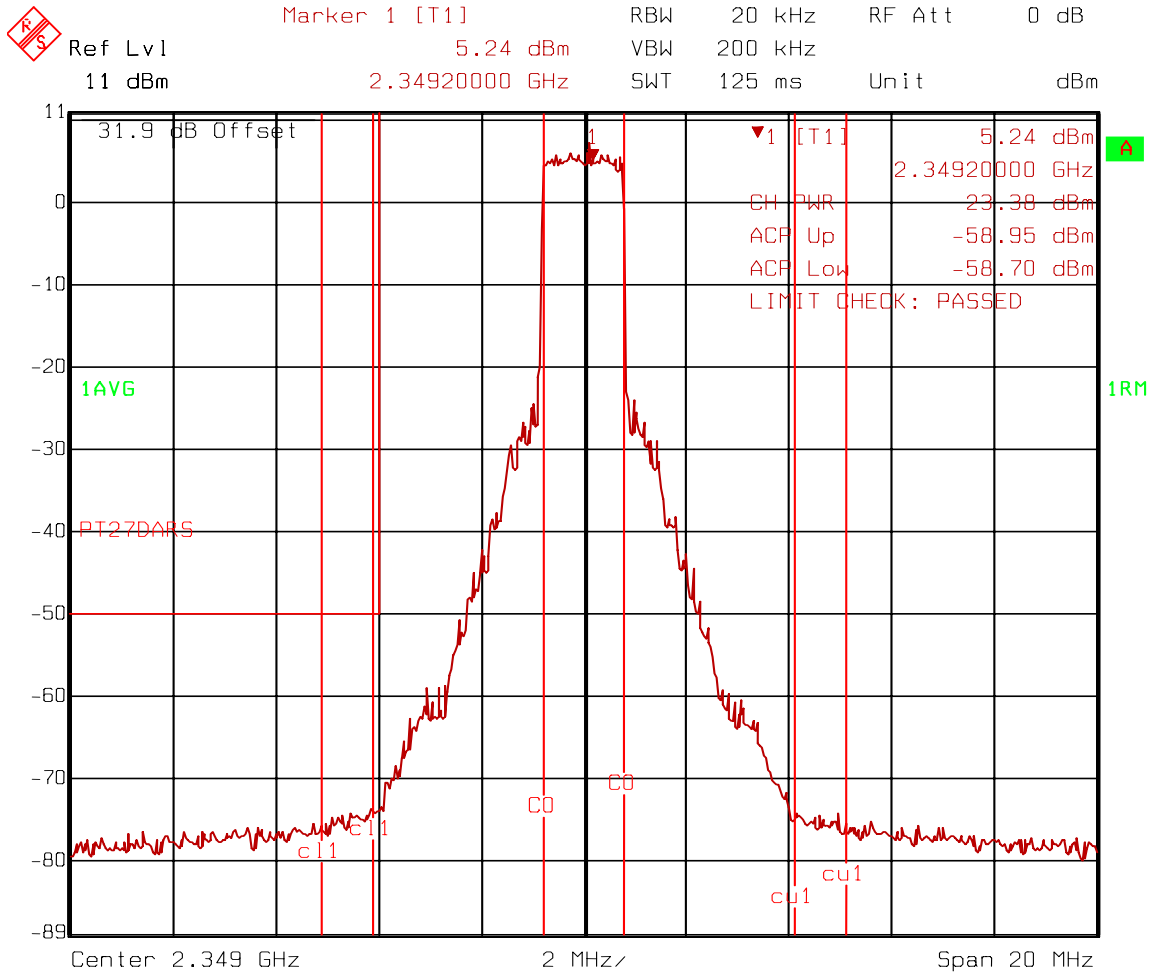
24.2dBm, 0.1MHz Guard Band from Adjacent Band
 (3.3MHz Guard Band from DARS)
 2349MHz, GC=169, 62degC, CS=1.4MHz, limit < -13dBm/1MHz



EQUIPMENT: 2305 - 2360 LMX E

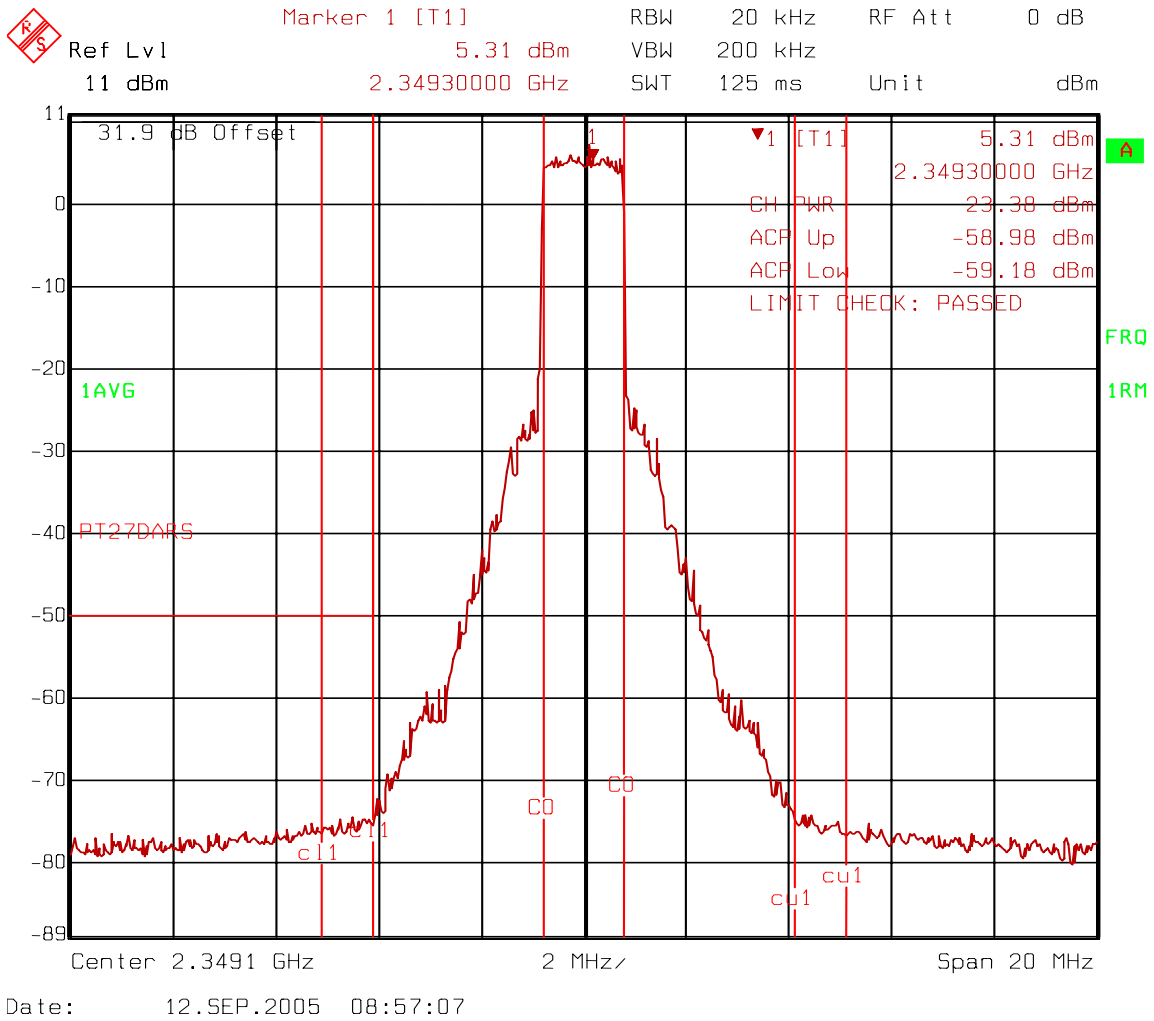
D Band, 802.16e Mode, 2 x 1.6MHz OFDM + extra 0.7MHz OFDM System

24dBm, 0.1MHz Guard Band from Adjacent Band
 (3.3MHz Guard Band from DARS)
 2349MHz, GC=166, 62degC, CS=4.6MHz, limit < -50dBm/1MHz



Date: 12.SEP.2005 08:55:28

EQUIPMENT: 2305 - 2360 LMX E



EQUIPMENT: 2305 – 2360 LMX E

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: Kevin Rose	DATE: September 12, 2005

Test Results:

Complies

Measurement Data:

See attached data sheets.

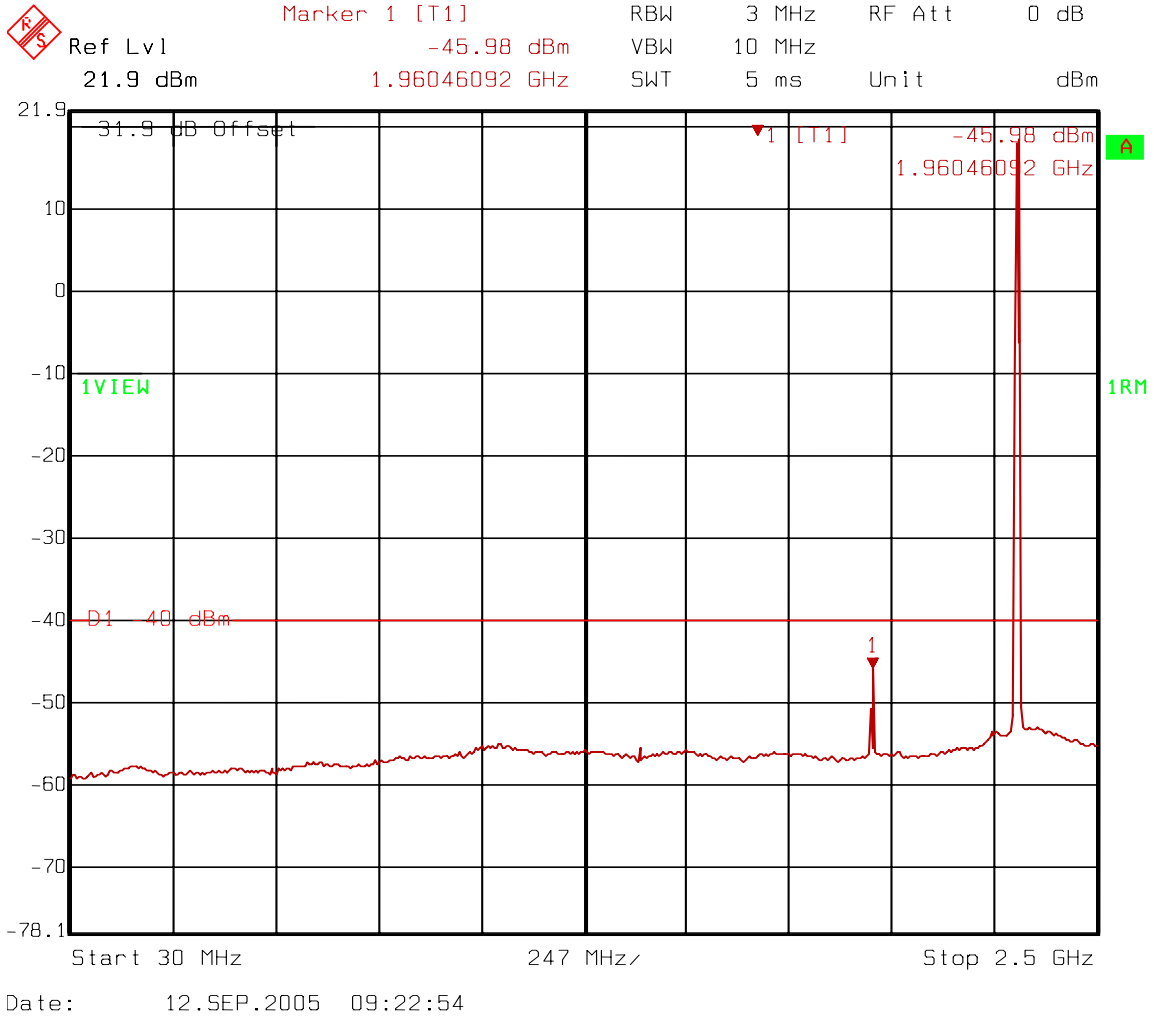
Measurement Uncertainty: +/- 1.7 dB

Test Data – Spurious Emissions at Antenna Terminals

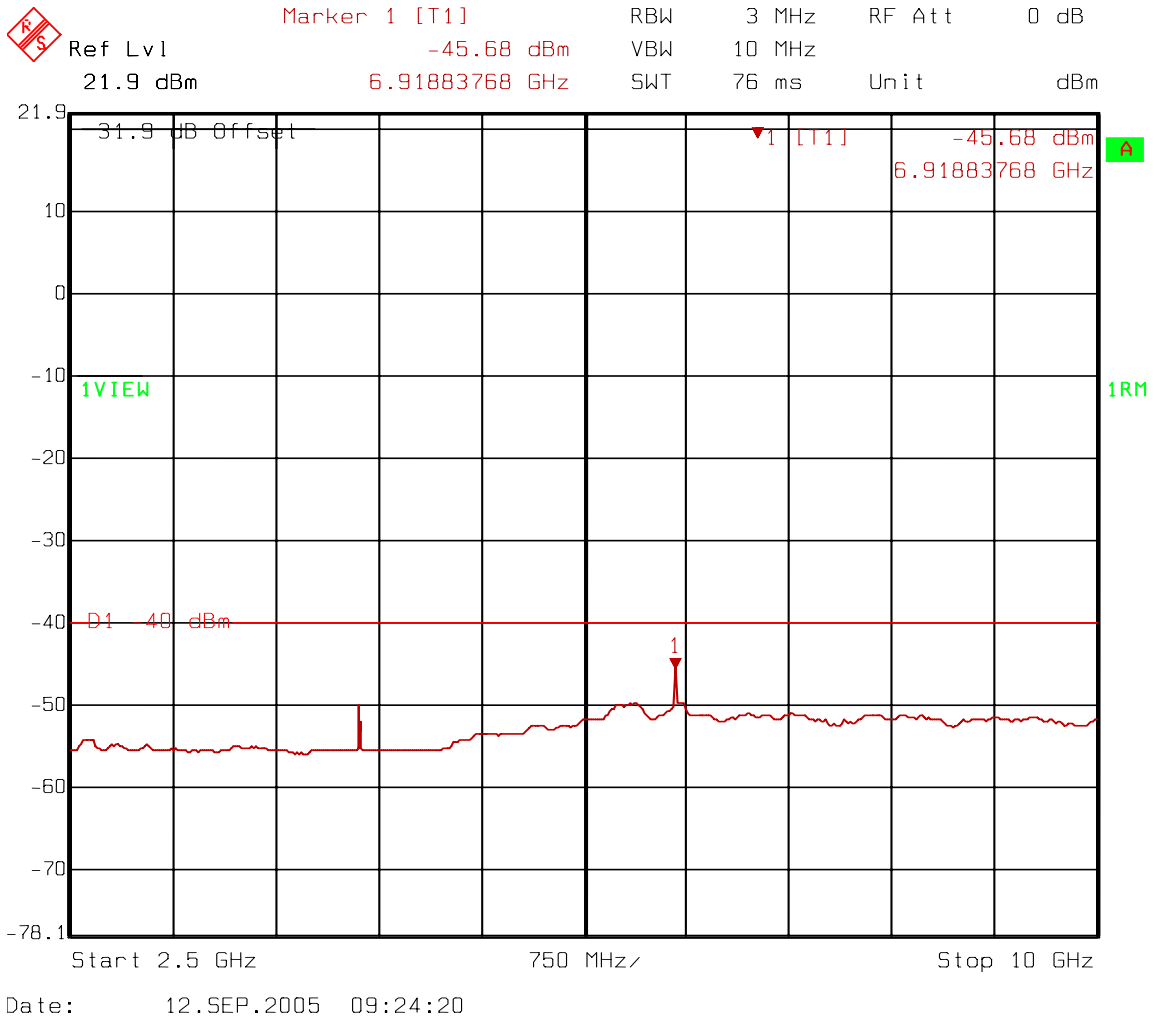
Test Data - +22 dBm

EQUIPMENT: 2305 - 2360 LMX E

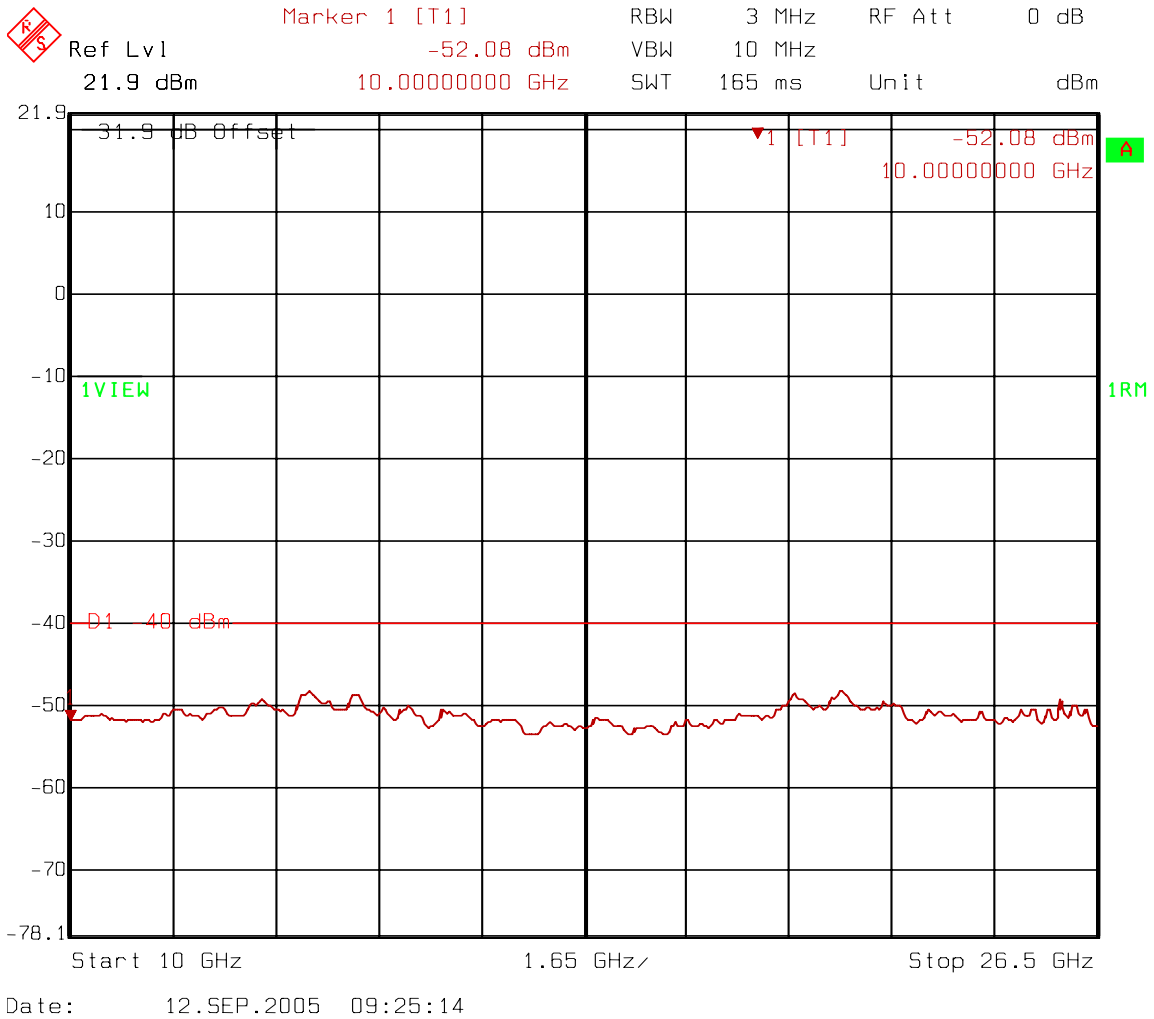
A LOW BANDWIMAX SPURIOUS CONDUCTED



EQUIPMENT: 2305 - 2360 LMX E

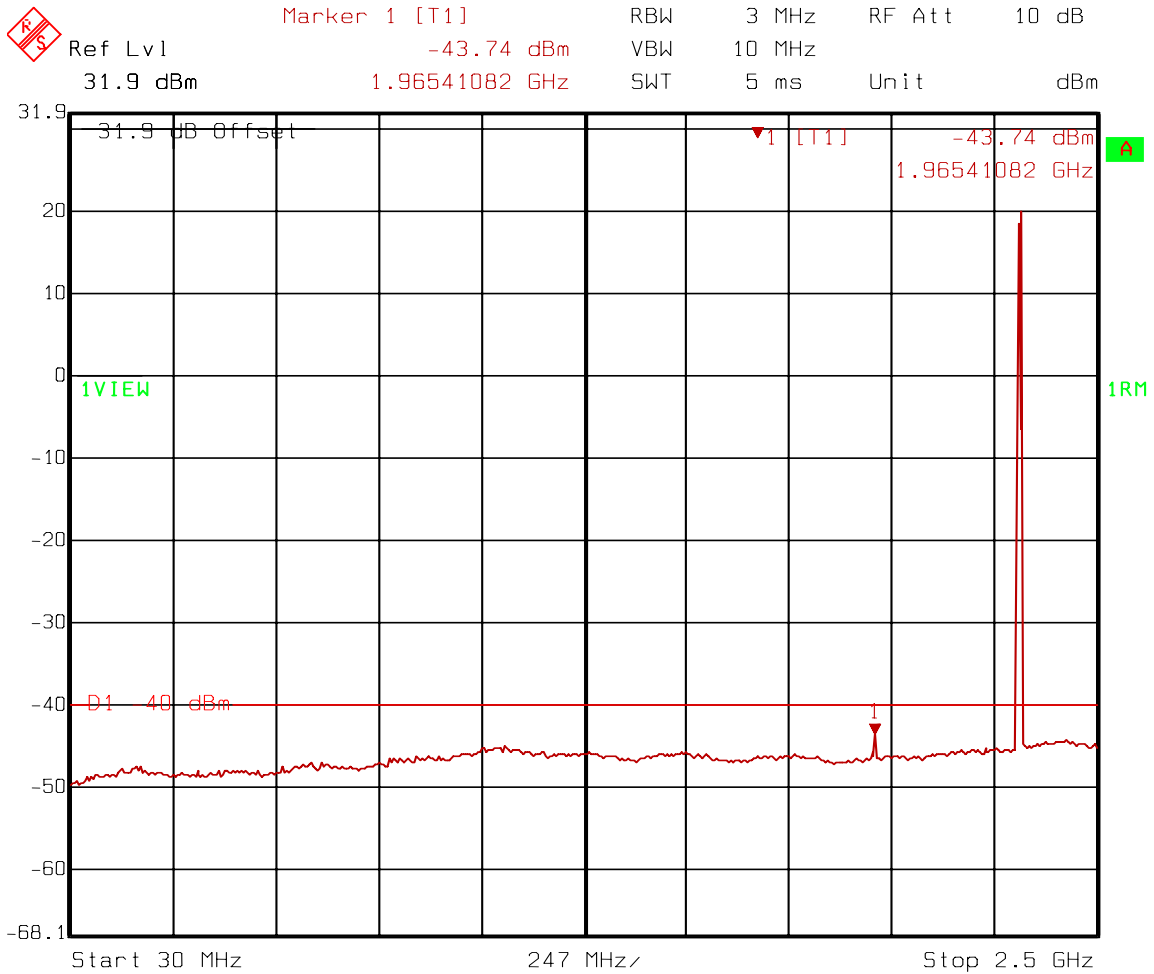


EQUIPMENT: 2305 - 2360 LMX E



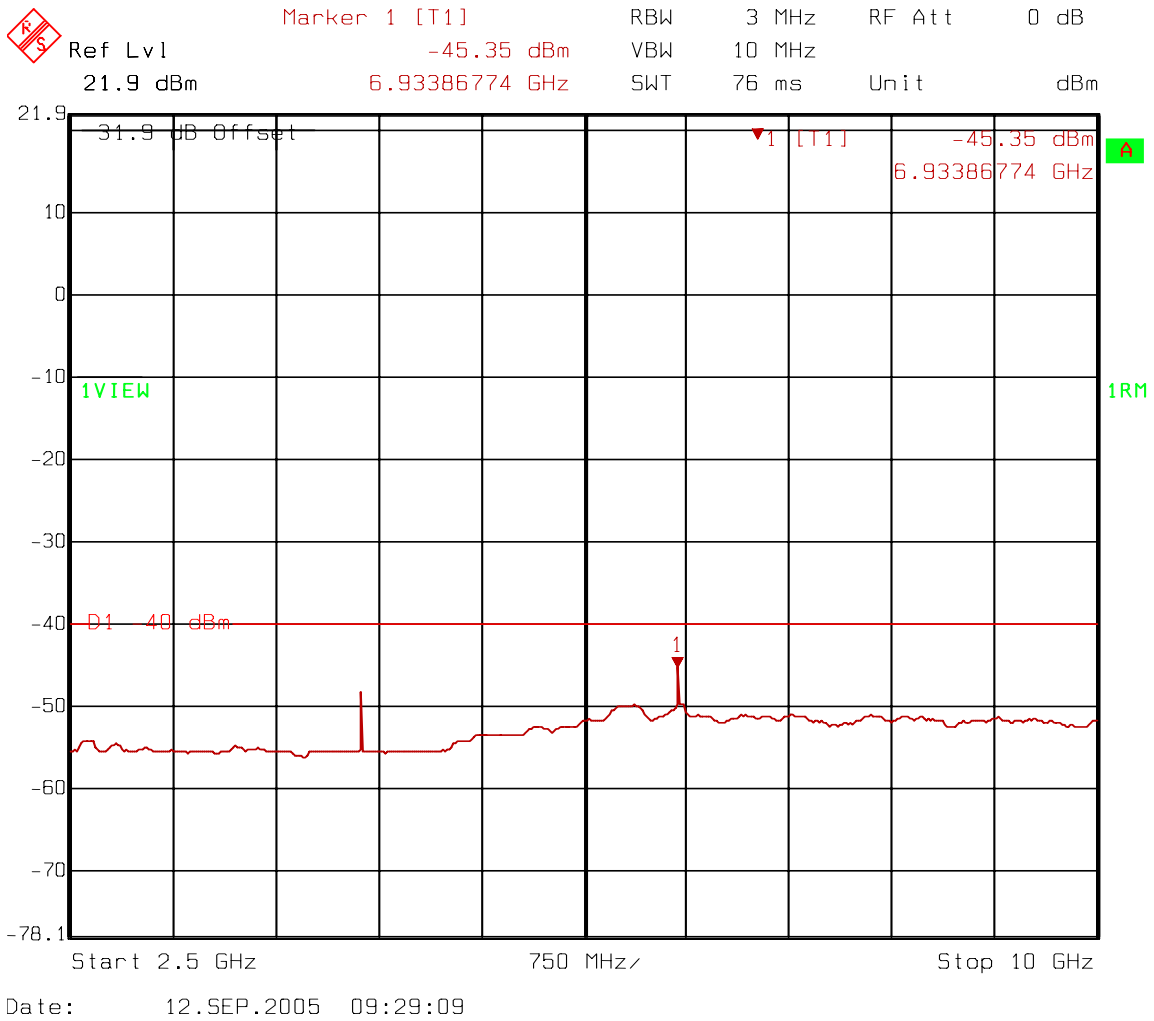
EQUIPMENT: 2305 - 2360 LMX E

B BAND SPURIOUS

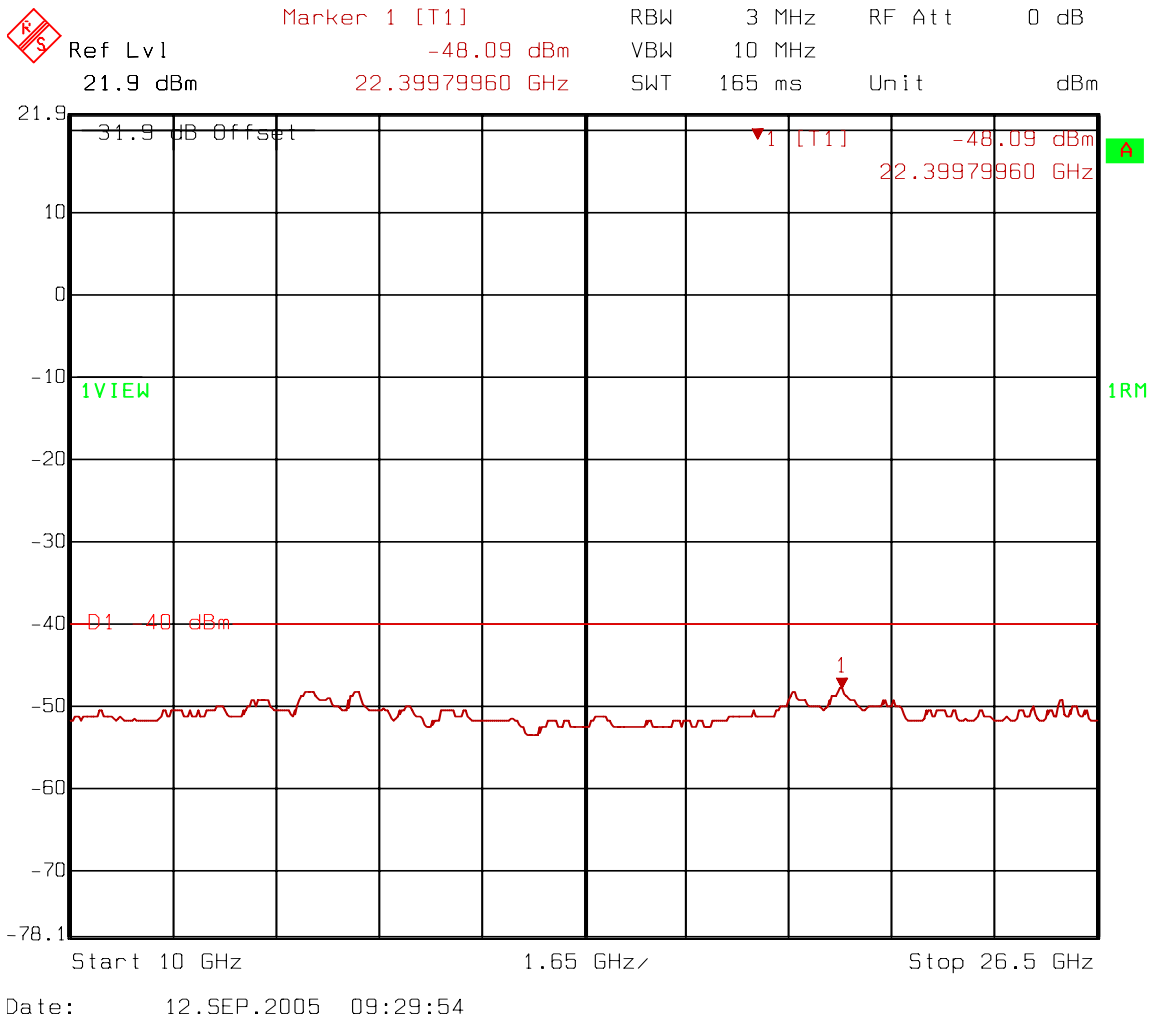


Date: 12.SEP.2005 09:27:58

EQUIPMENT: 2305 - 2360 LMX E

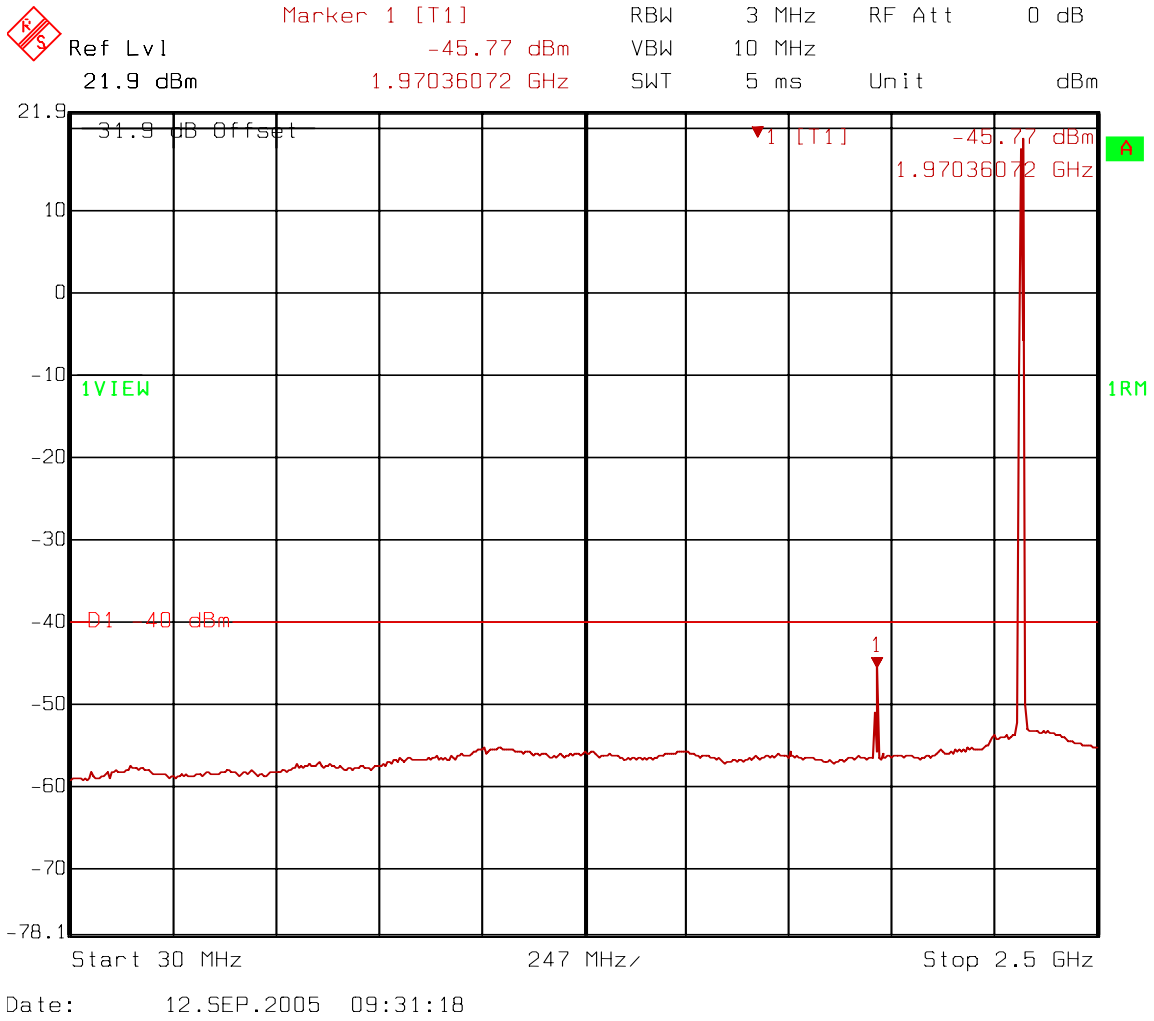


EQUIPMENT: 2305 - 2360 LMX E

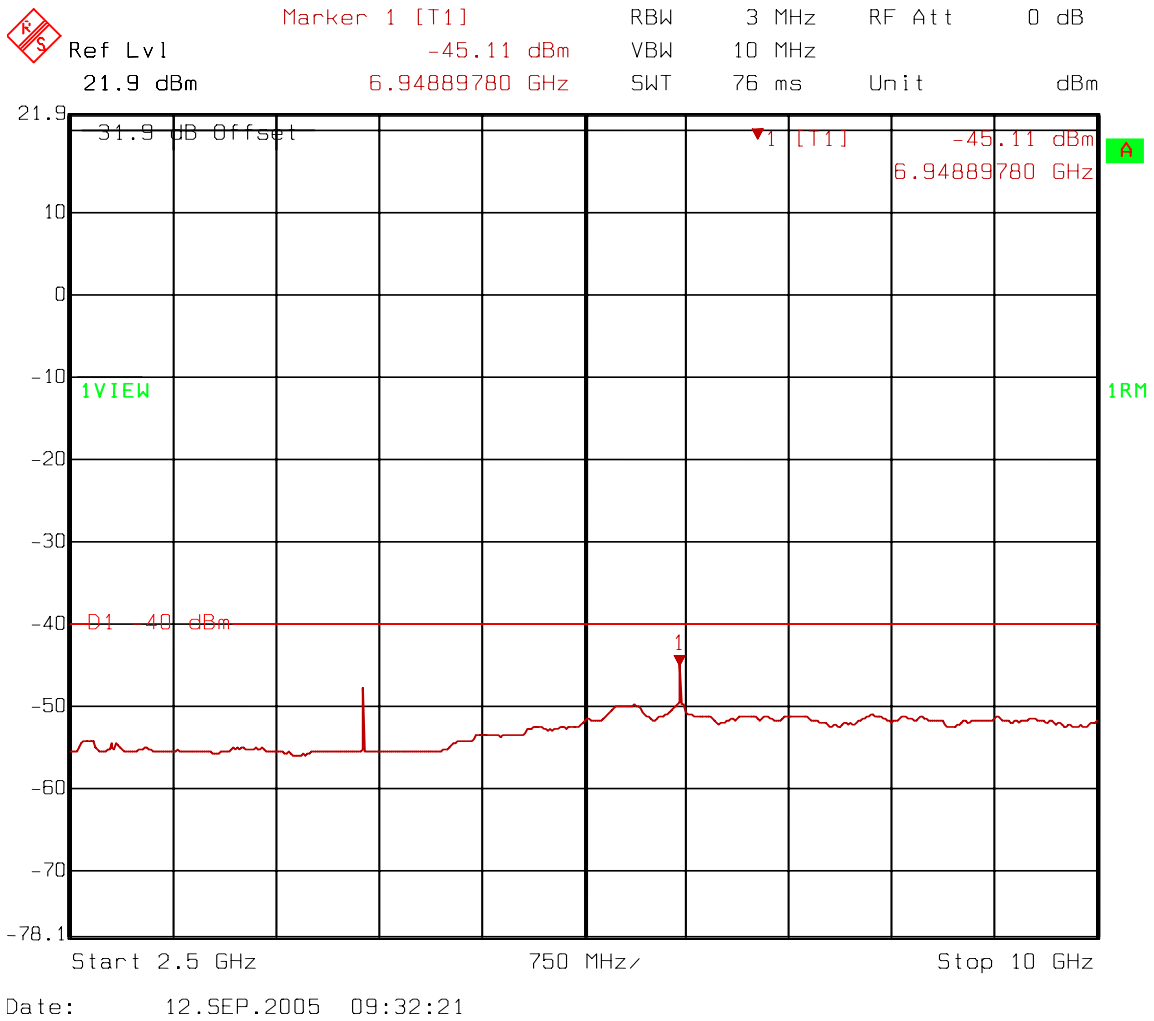


EQUIPMENT: 2305 - 2360 LMX E

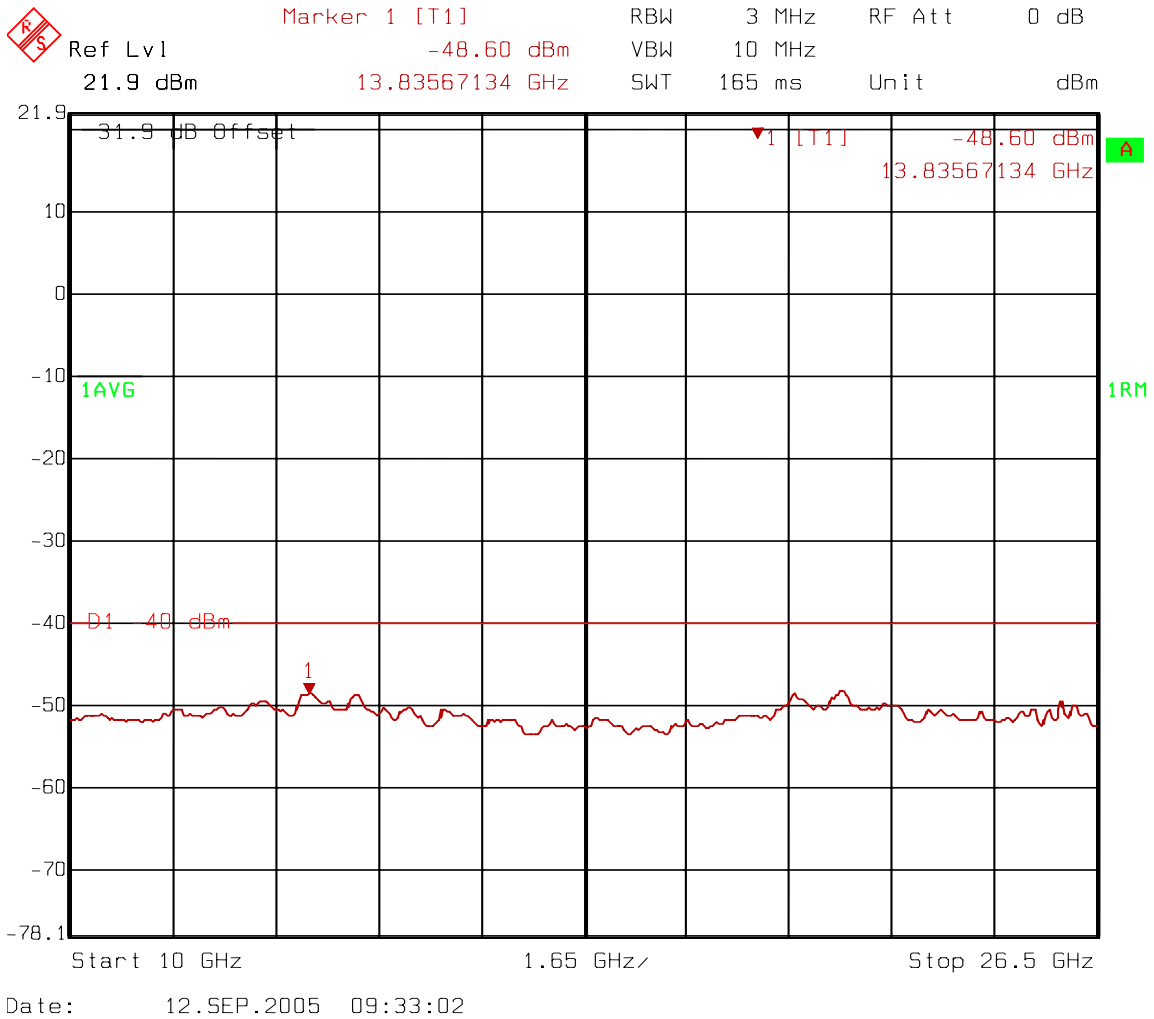
C BAND SPUR



EQUIPMENT: 2305 - 2360 LMX E

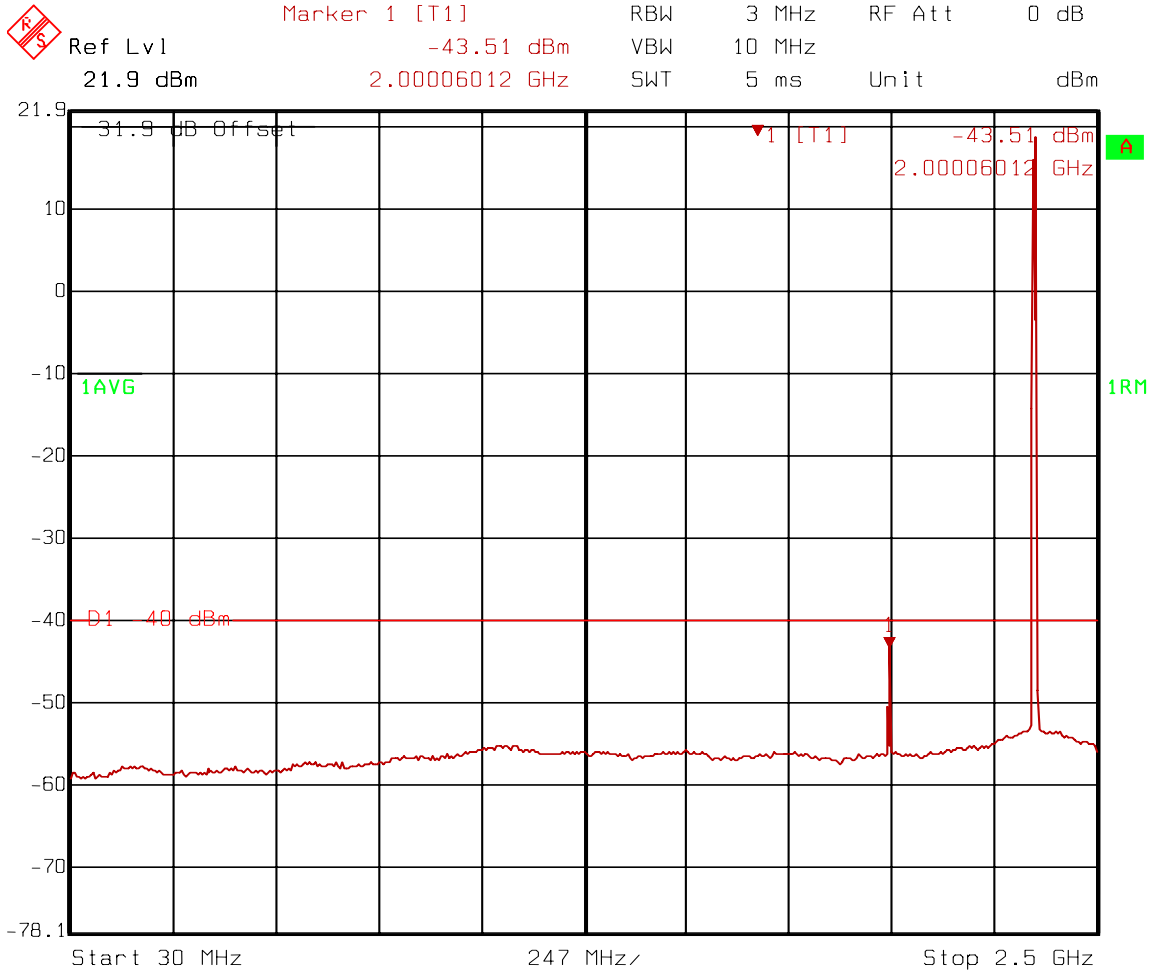


EQUIPMENT: 2305 - 2360 LMX E



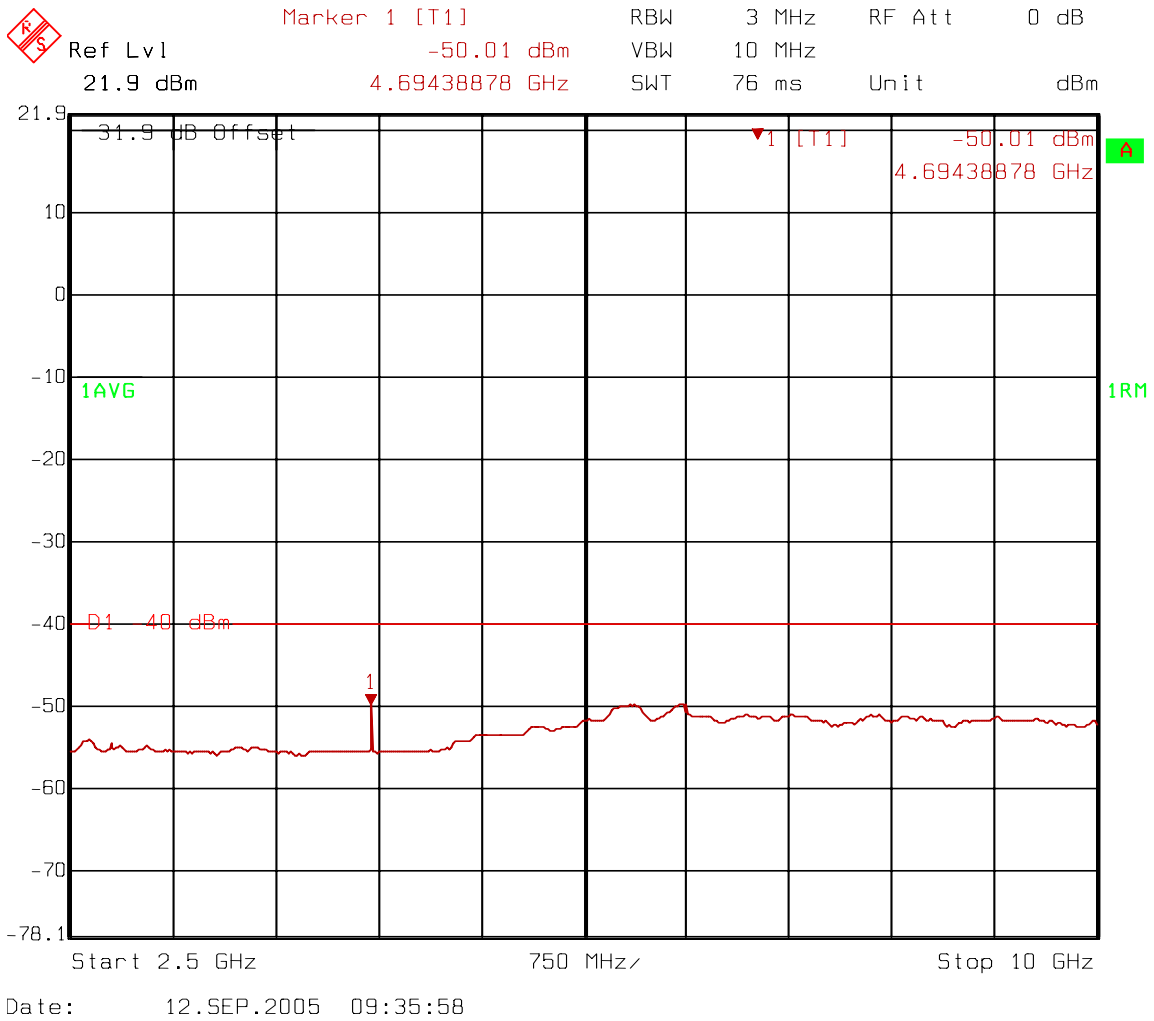
EQUIPMENT: 2305 - 2360 LMX E

D BAND SPURIOUS

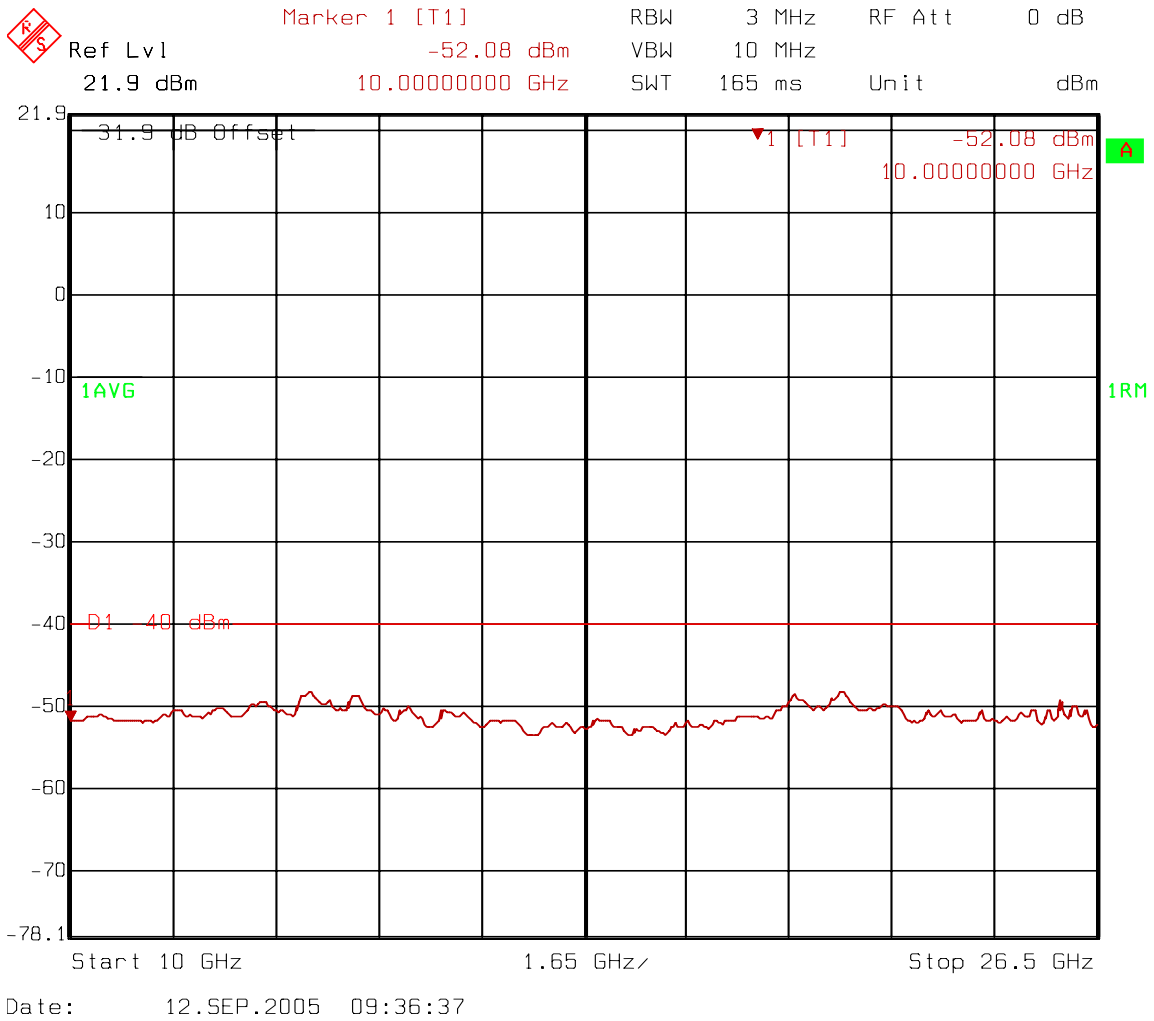


Date: 12.SEP.2005 09:34:46

EQUIPMENT: 2305 - 2360 LMX E

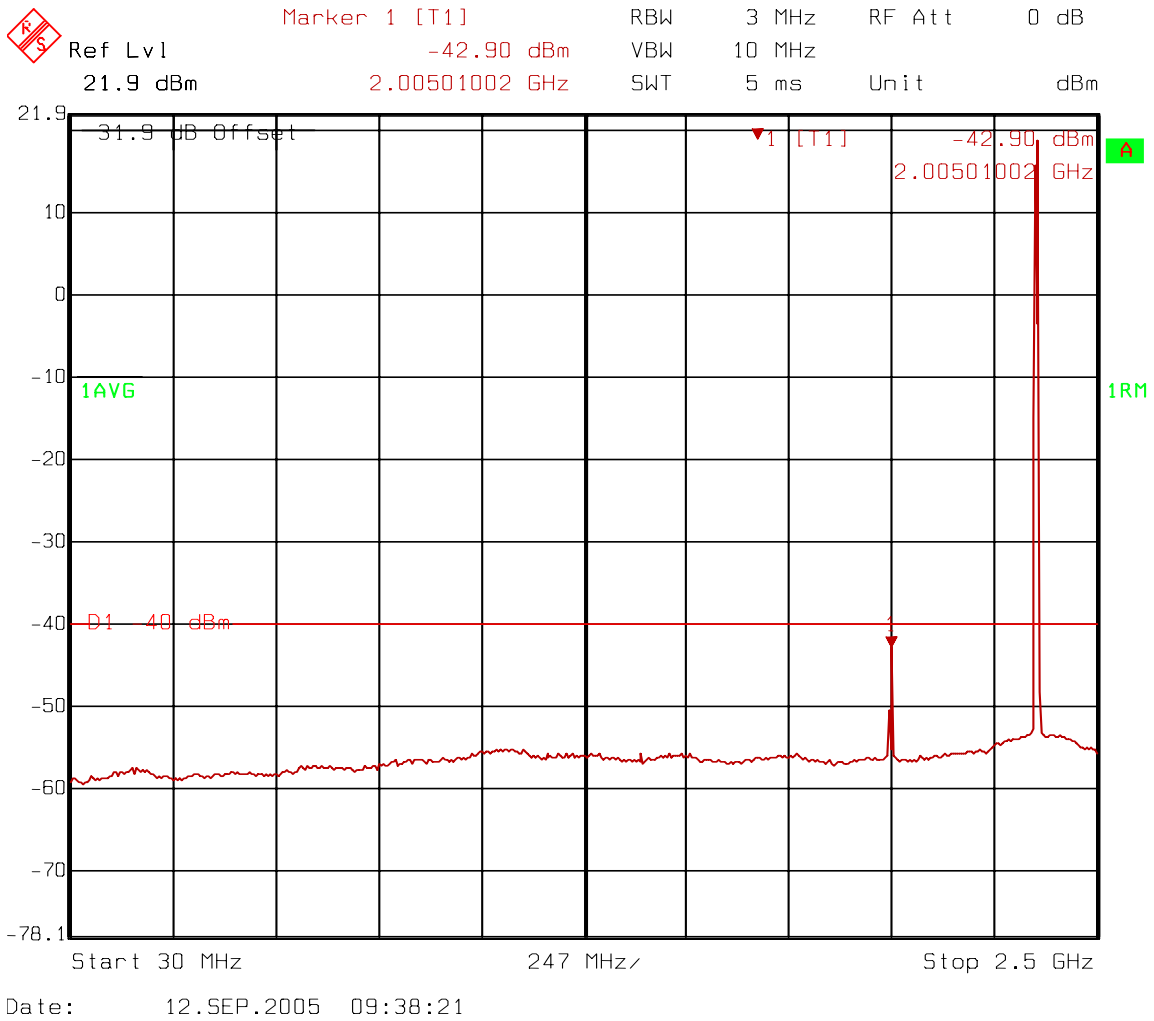


EQUIPMENT: 2305 - 2360 LMX E

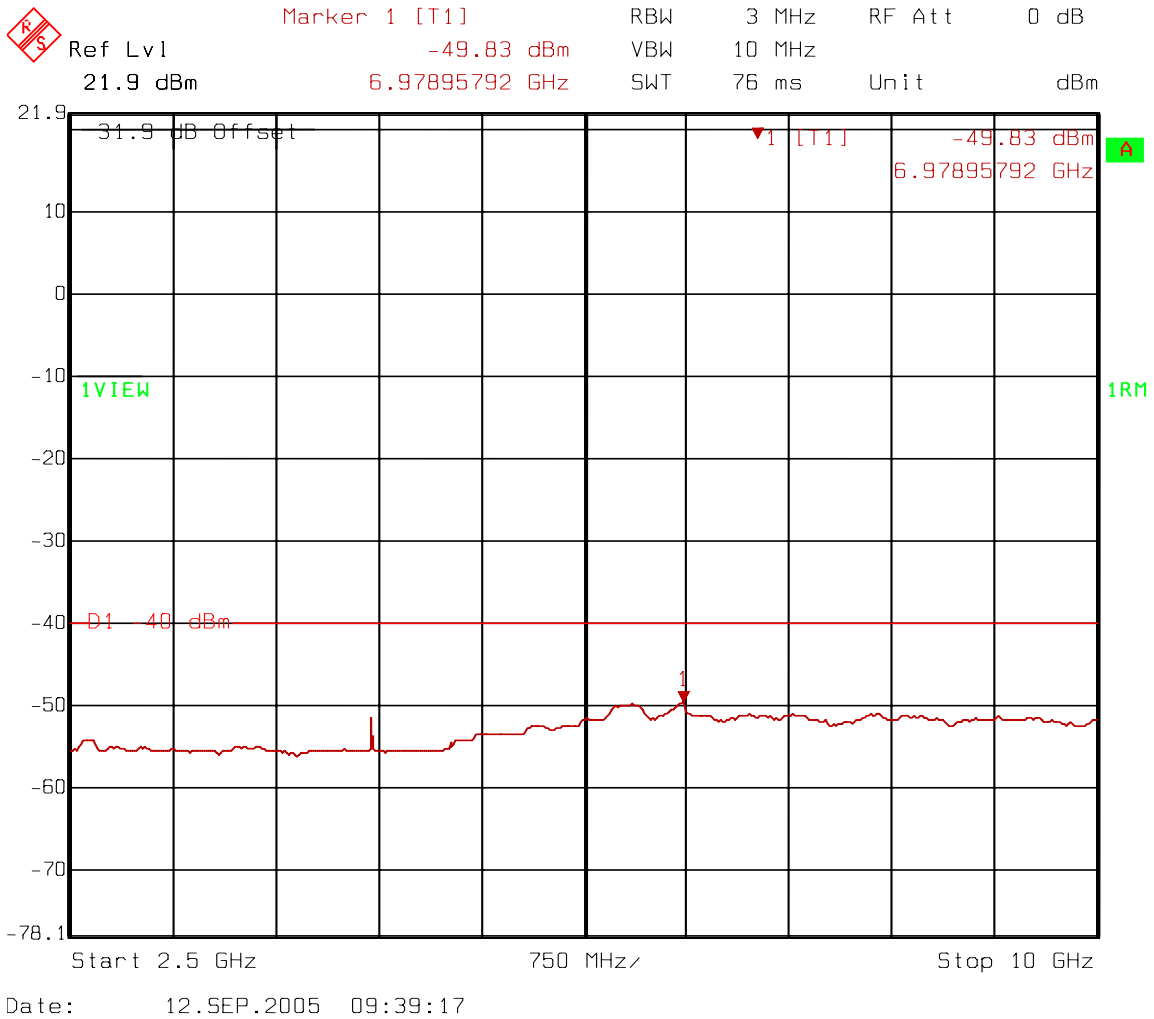


EQUIPMENT: 2305 - 2360 LMX E

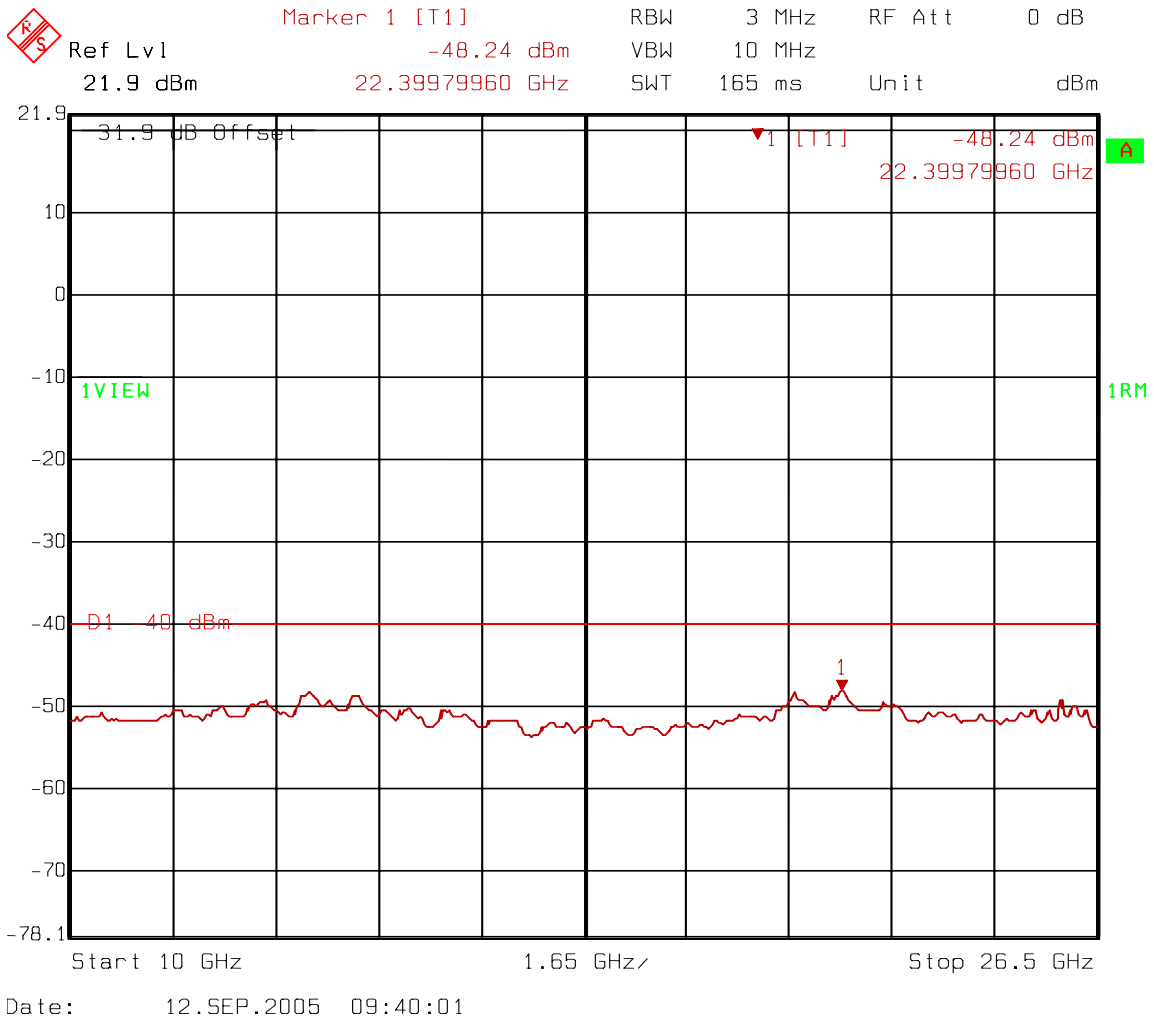
A HIGH BAND SPURIOUS



EQUIPMENT: 2305 - 2360 LMX E

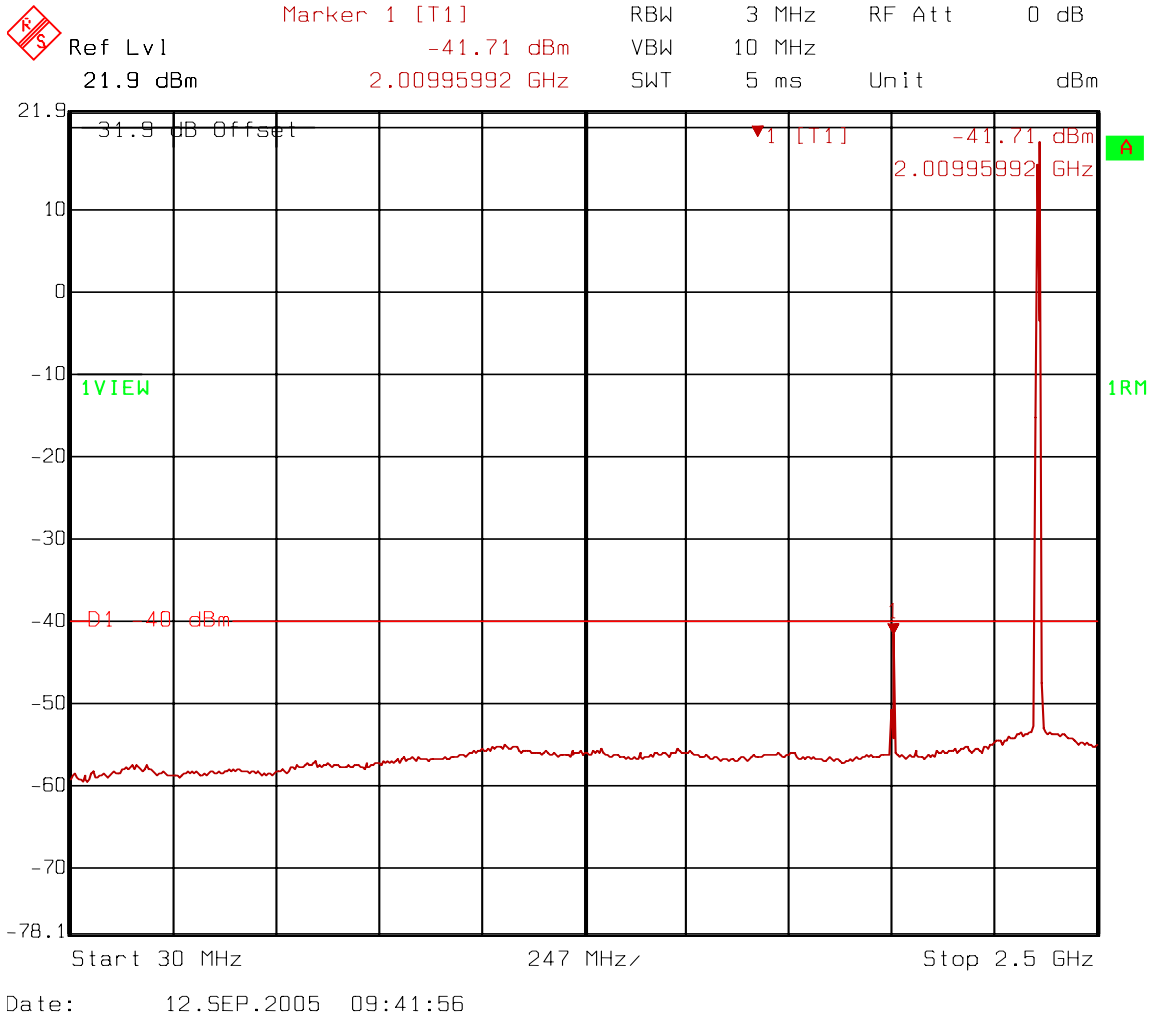


EQUIPMENT: 2305 - 2360 LMX E

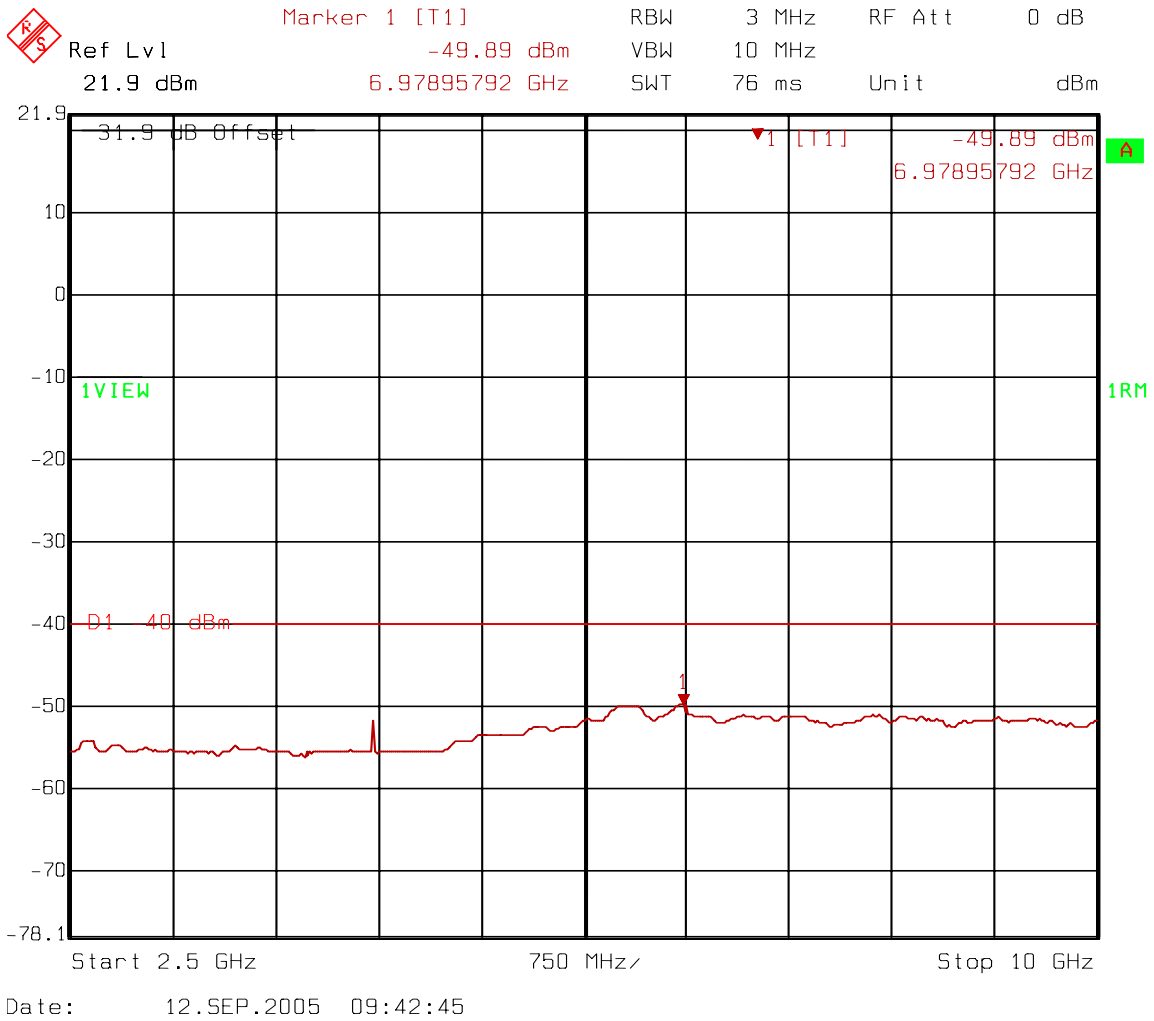


EQUIPMENT: 2305 - 2360 LMX E

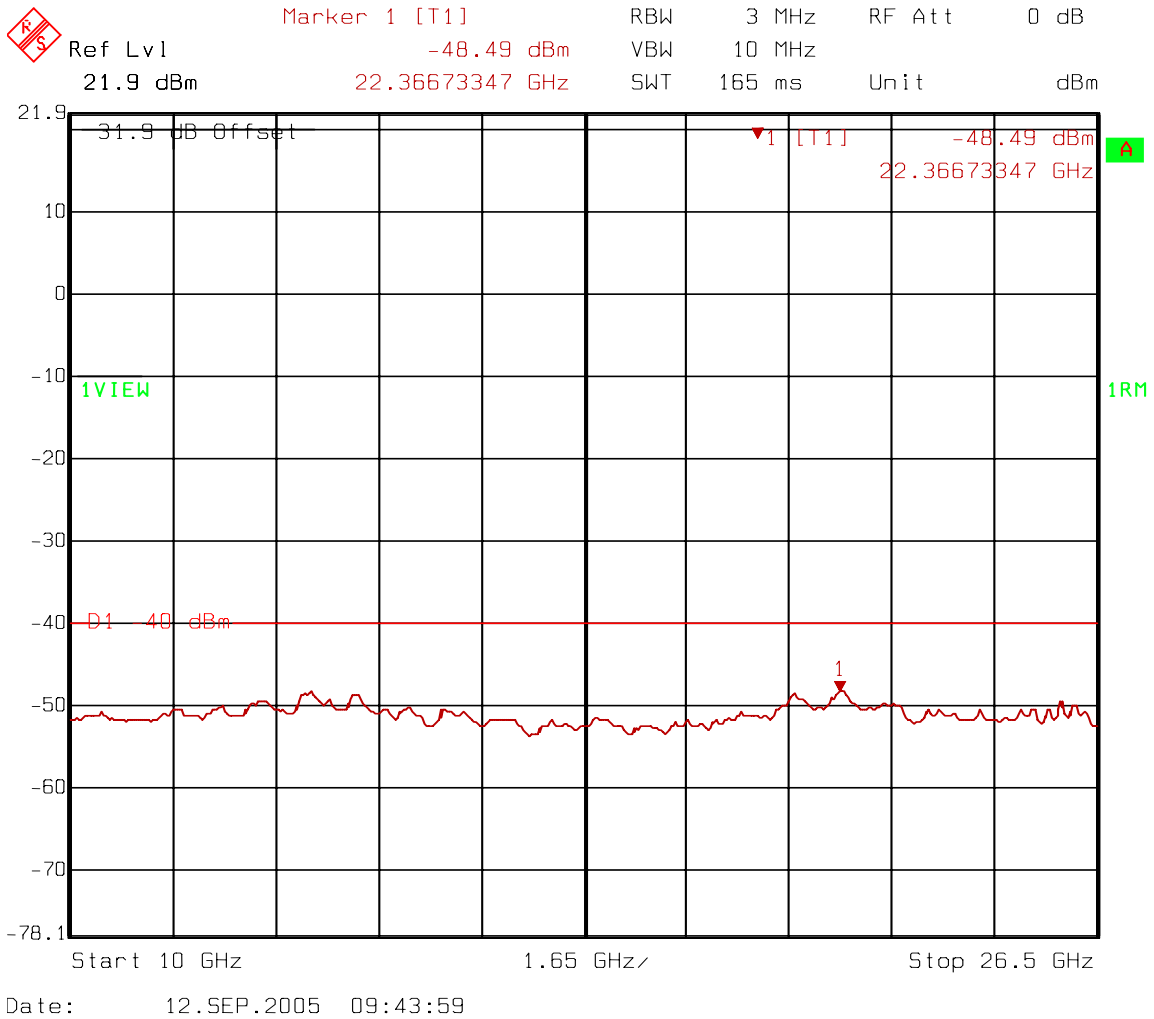
B HIGH BAND SPURIOUS



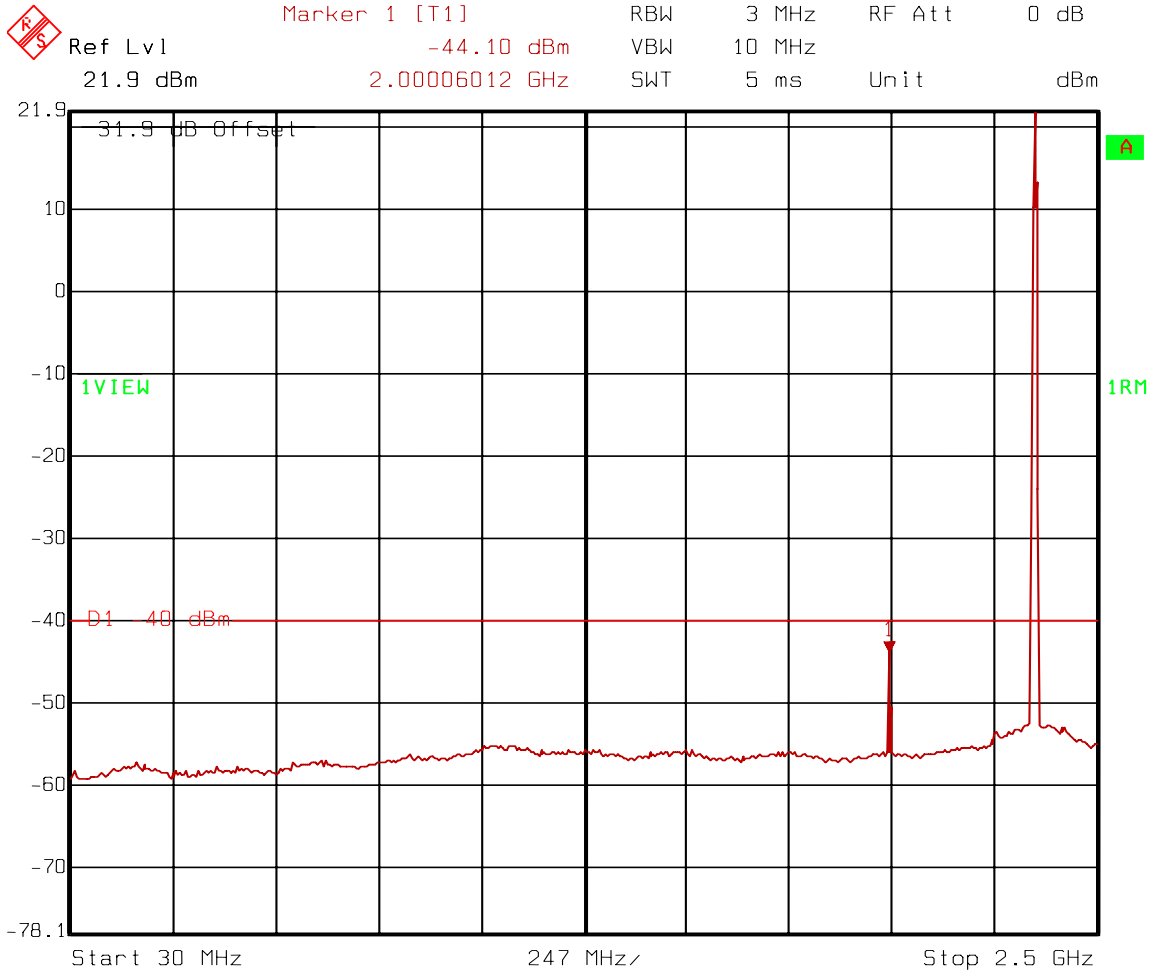
EQUIPMENT: 2305 - 2360 LMX E



EQUIPMENT: 2305 - 2360 LMX E

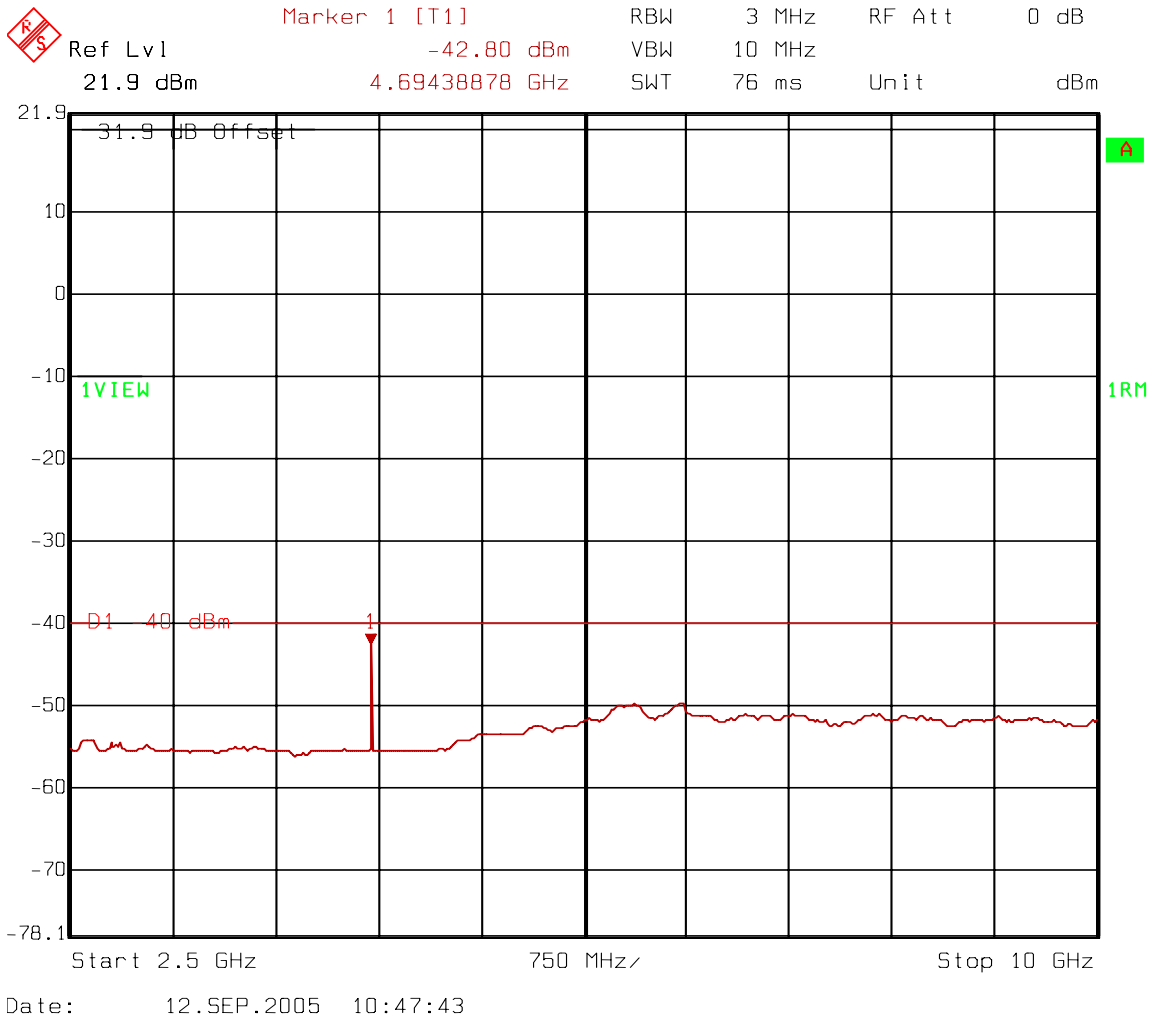


EQUIPMENT: 2305 - 2360 LMX E

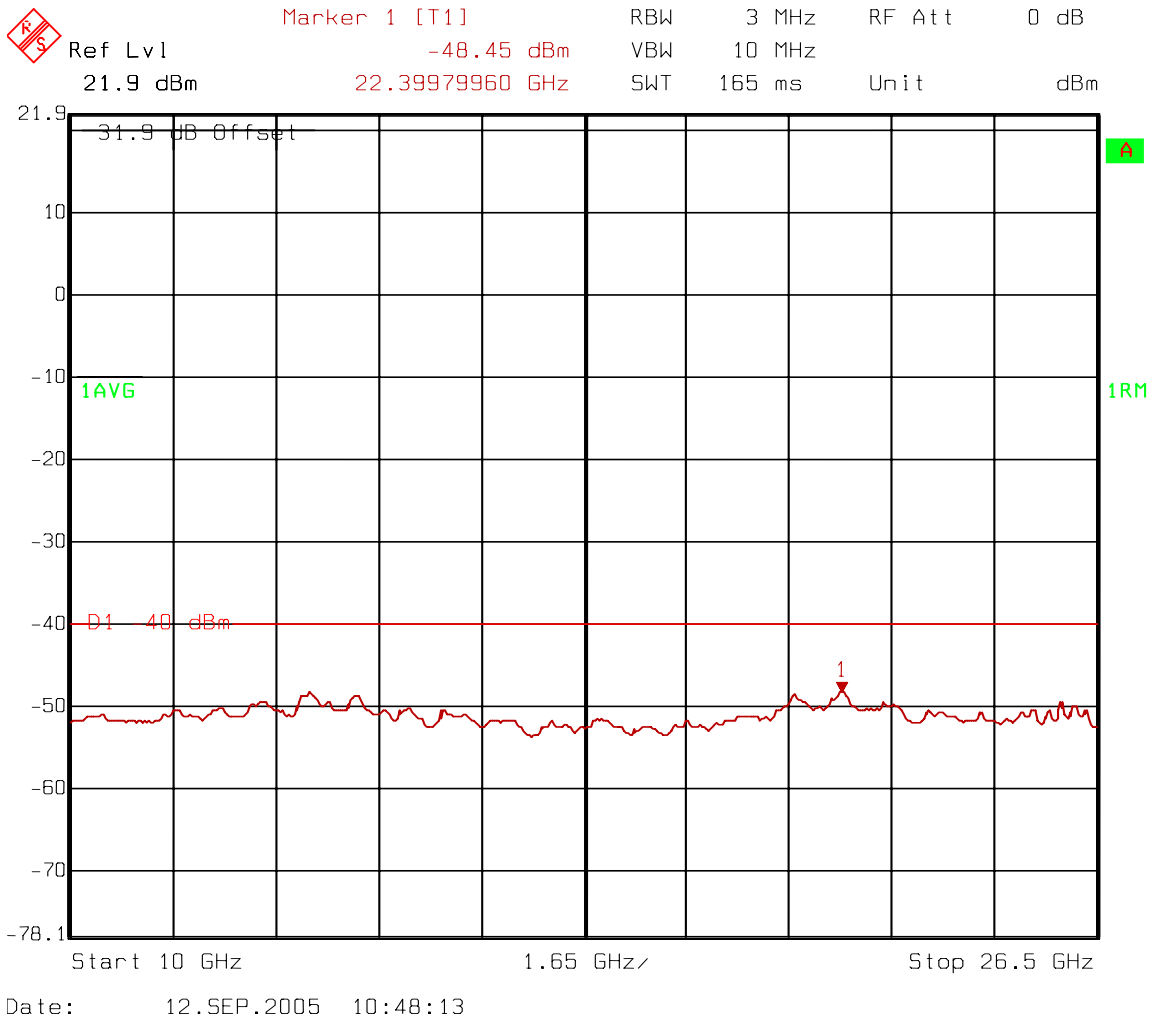


Date: 12.SEP.2005 10:45:58

EQUIPMENT: 2305 - 2360 LMX E

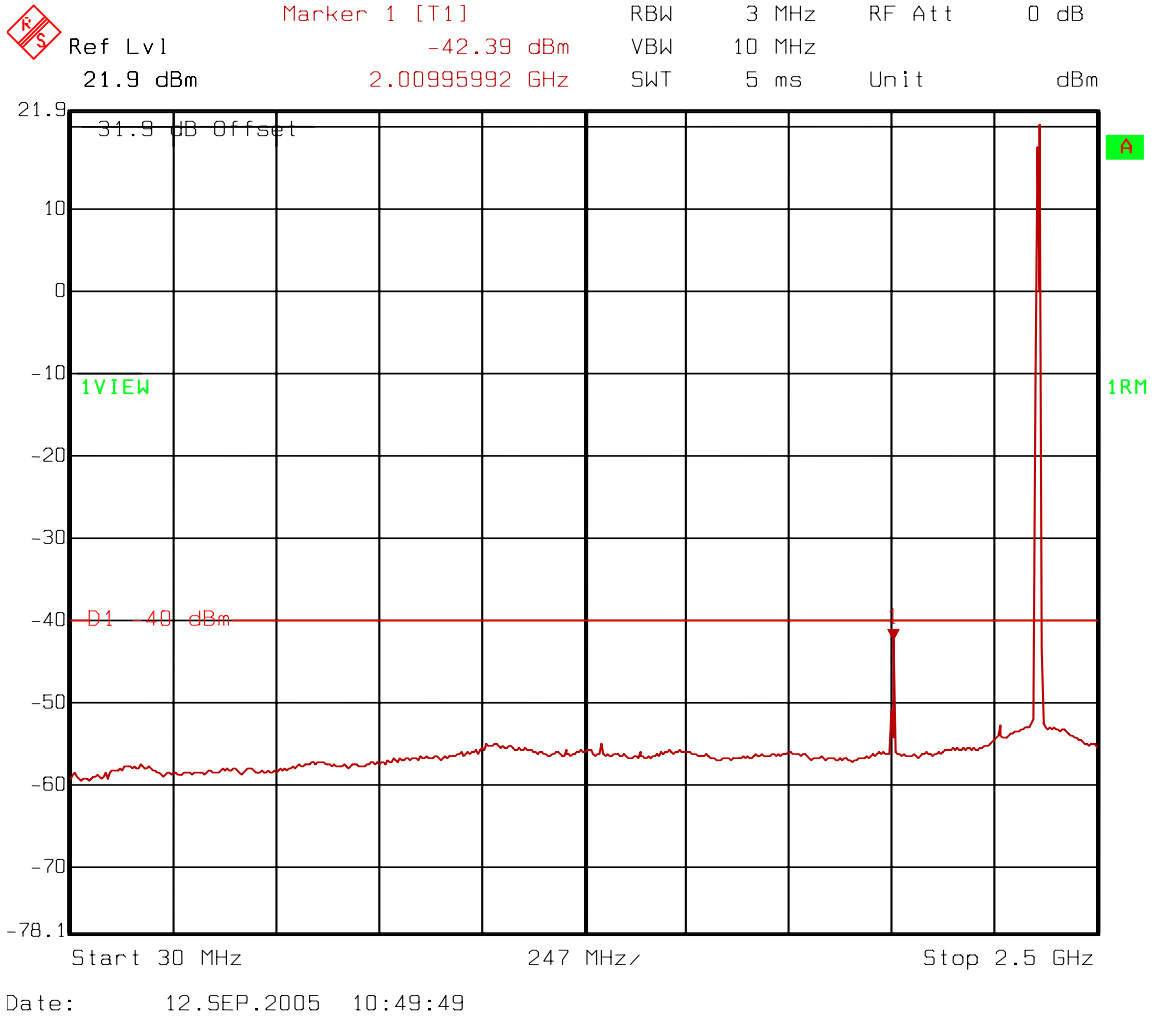


EQUIPMENT: 2305 - 2360 LMX E

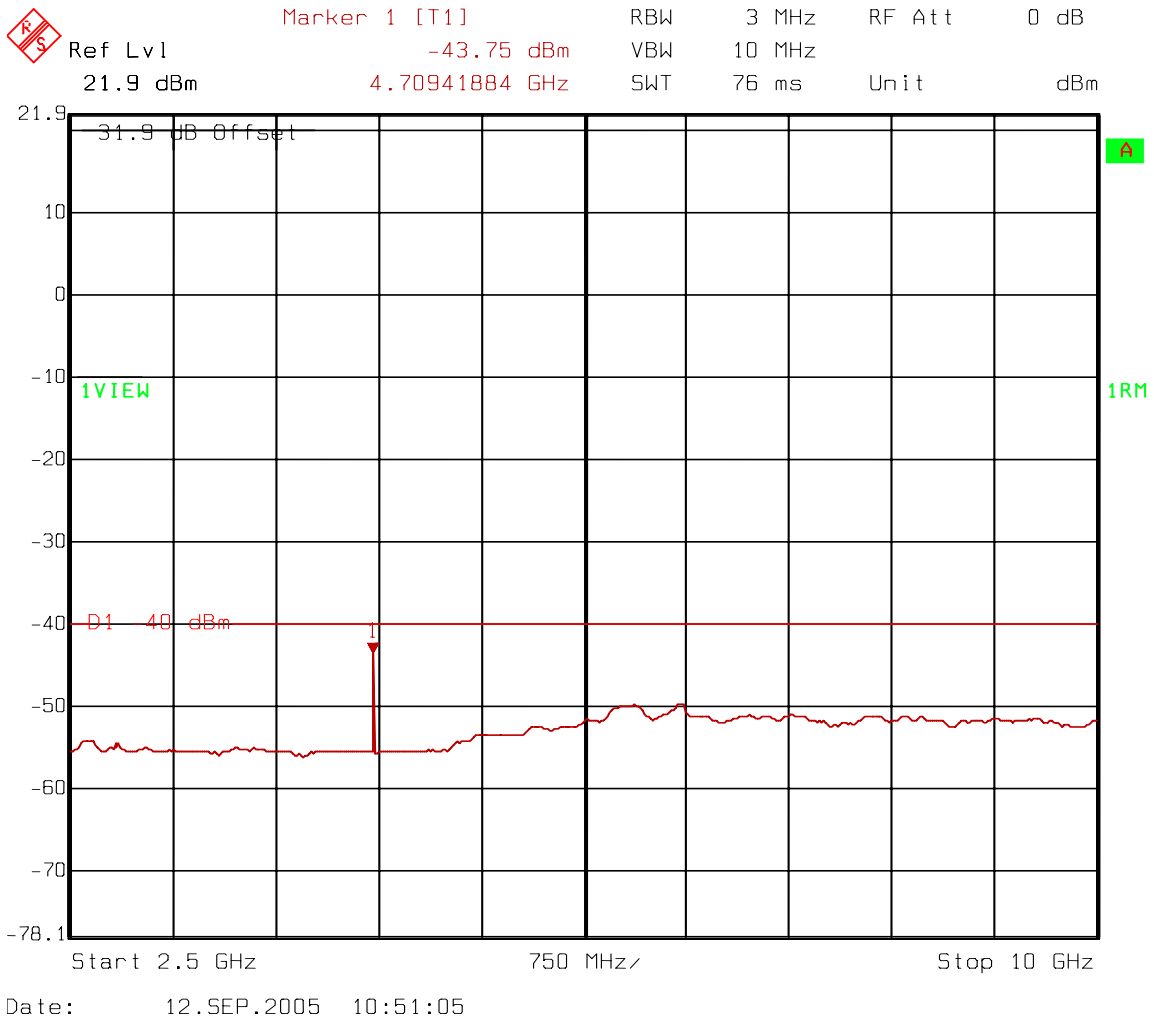


EQUIPMENT: 2305 - 2360 LMX E

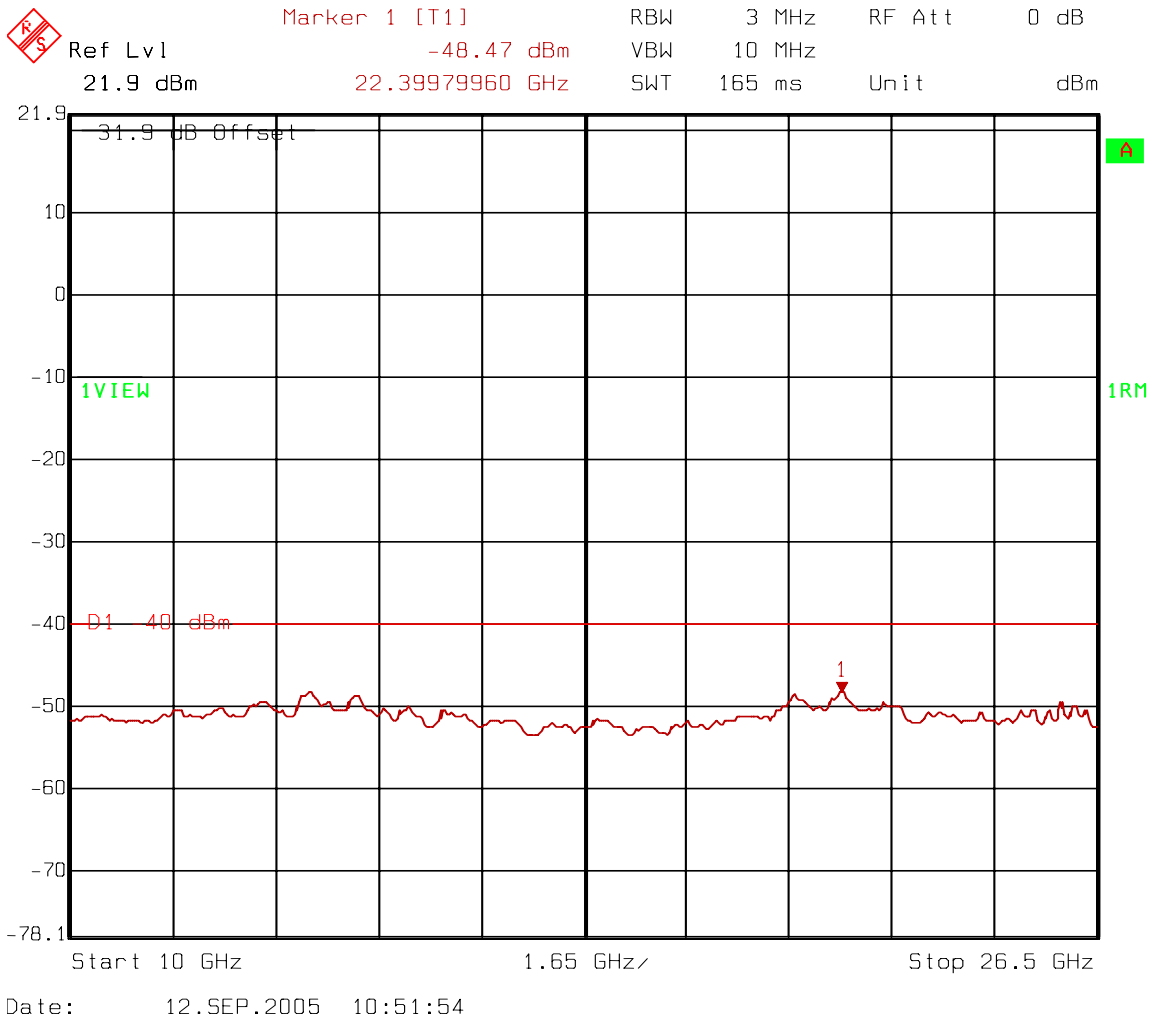
A HIGH BAND



EQUIPMENT: 2305 - 2360 LMX E

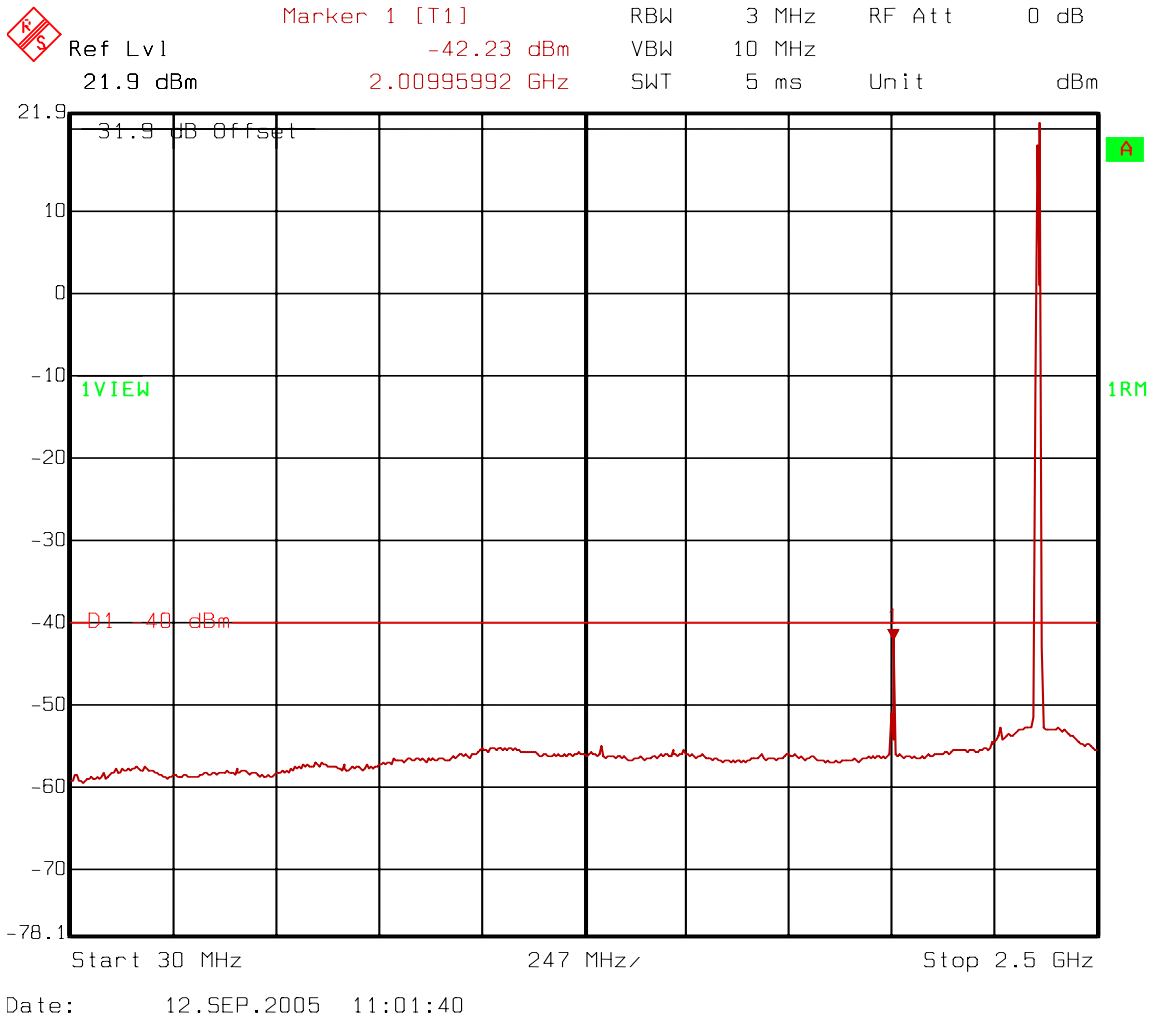


EQUIPMENT: 2305 - 2360 LMX E

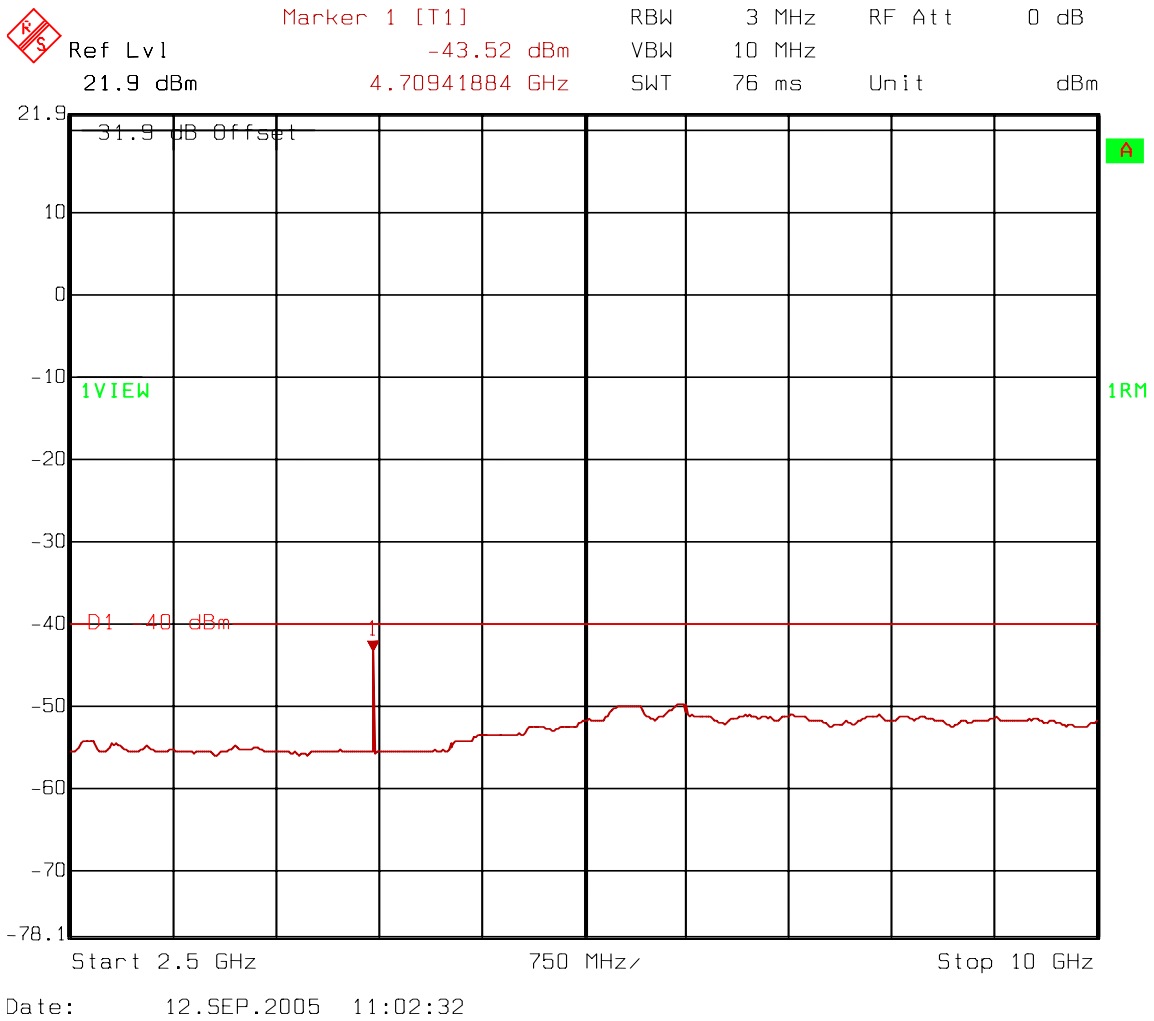


EQUIPMENT: 2305 - 2360 LMX E

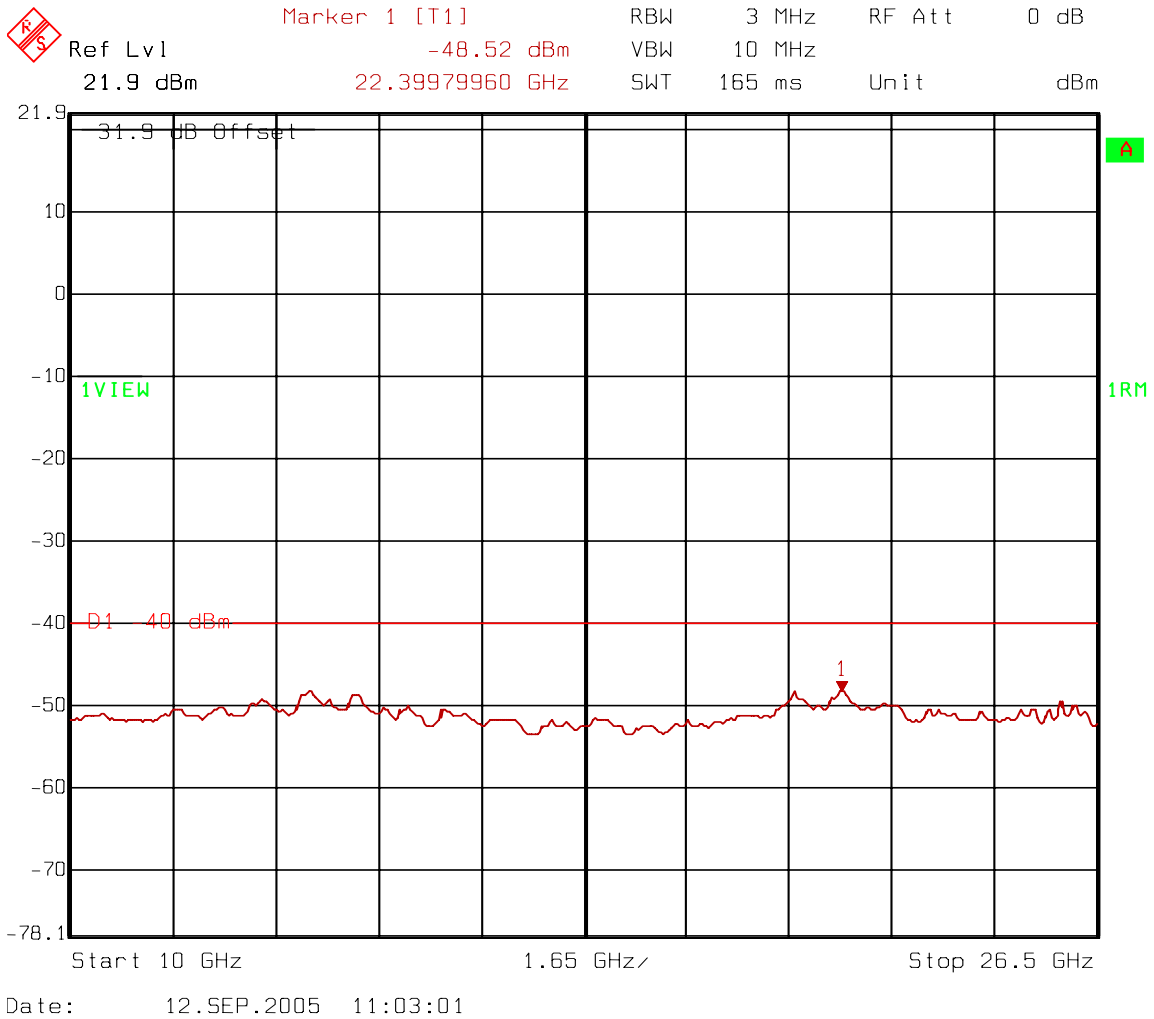
B HIGH BAND SPURIOUS



EQUIPMENT: 2305 - 2360 LMX E

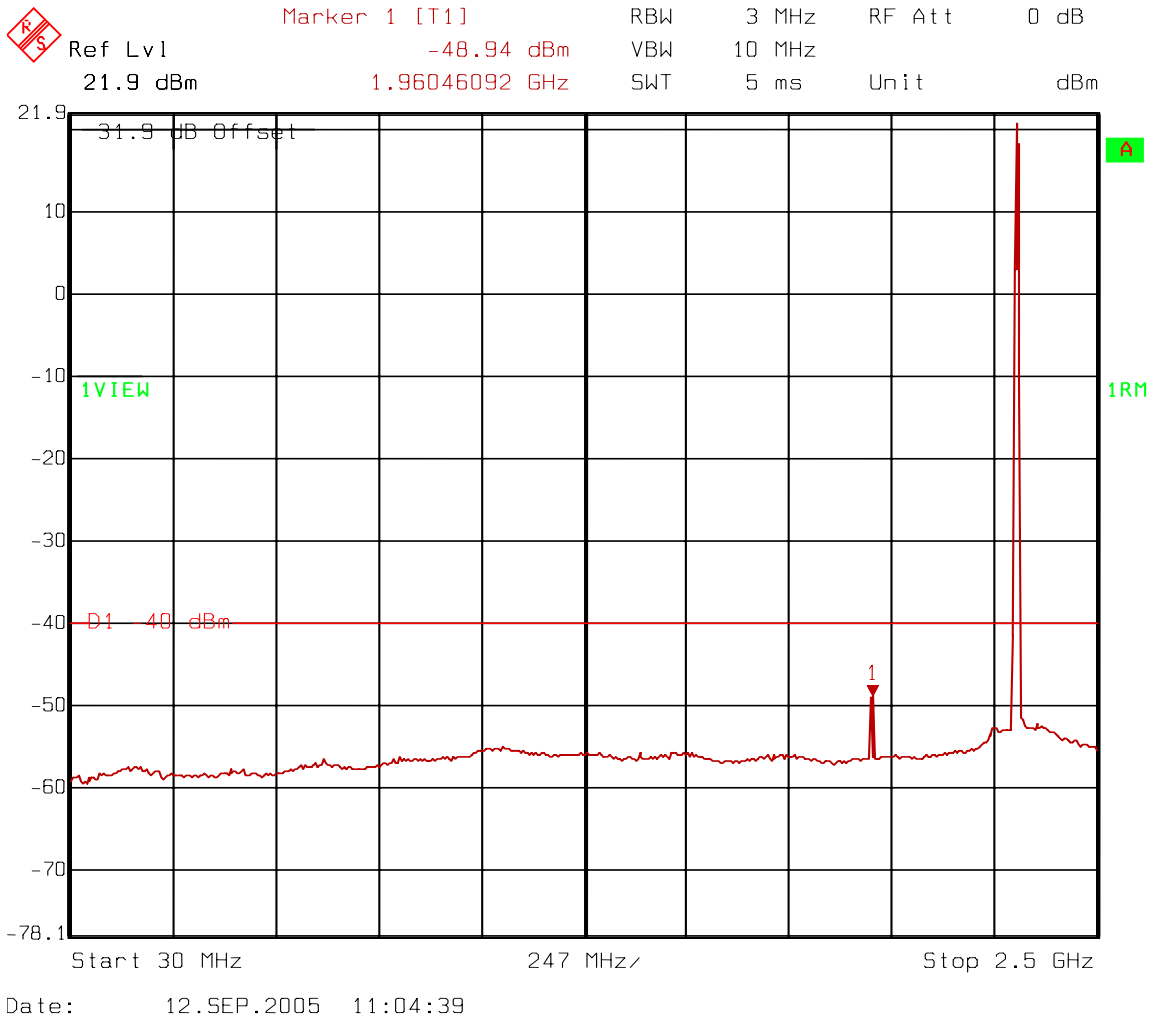


EQUIPMENT: 2305 - 2360 LMX E

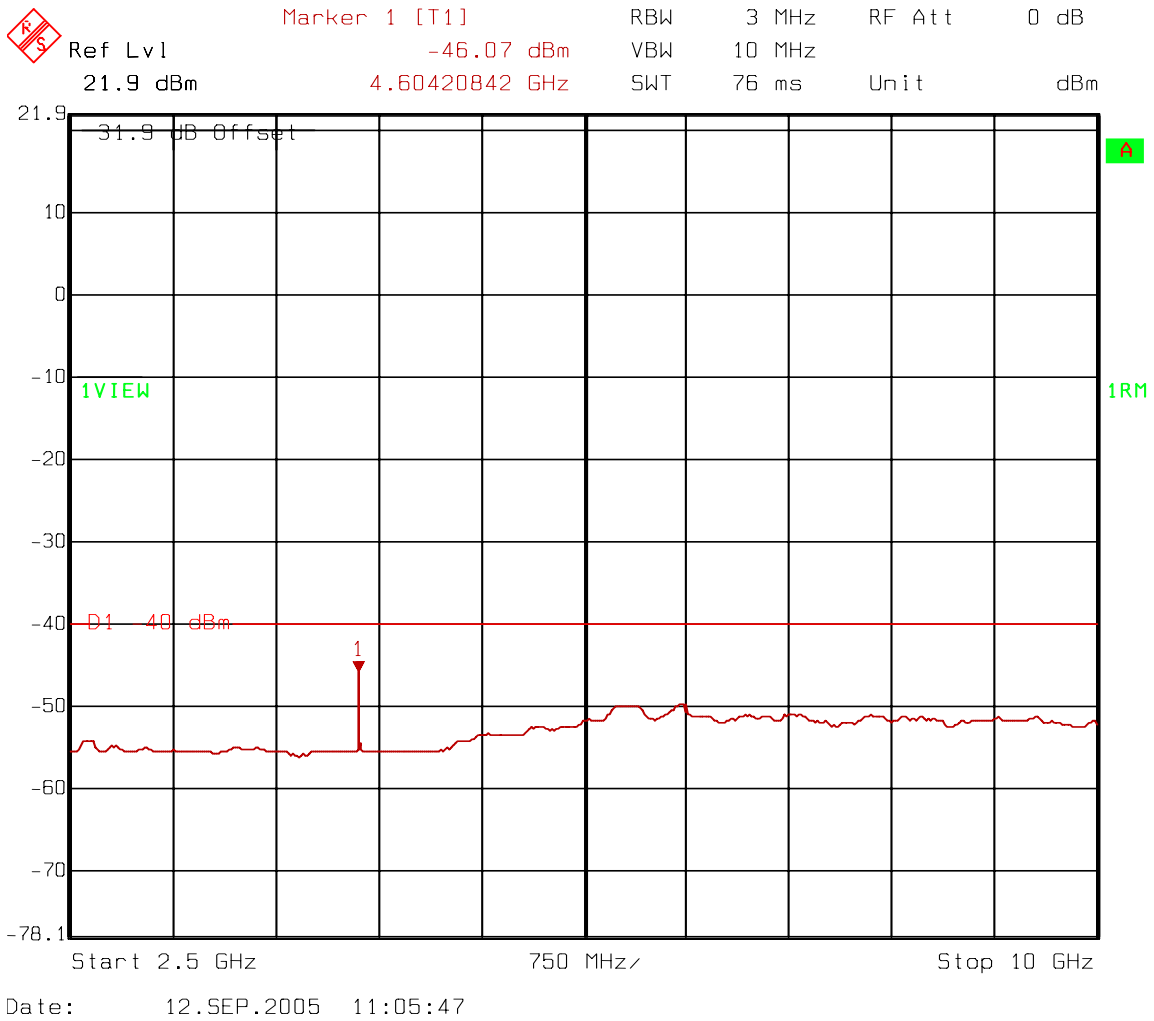


EQUIPMENT: 2305 - 2360 LMX E

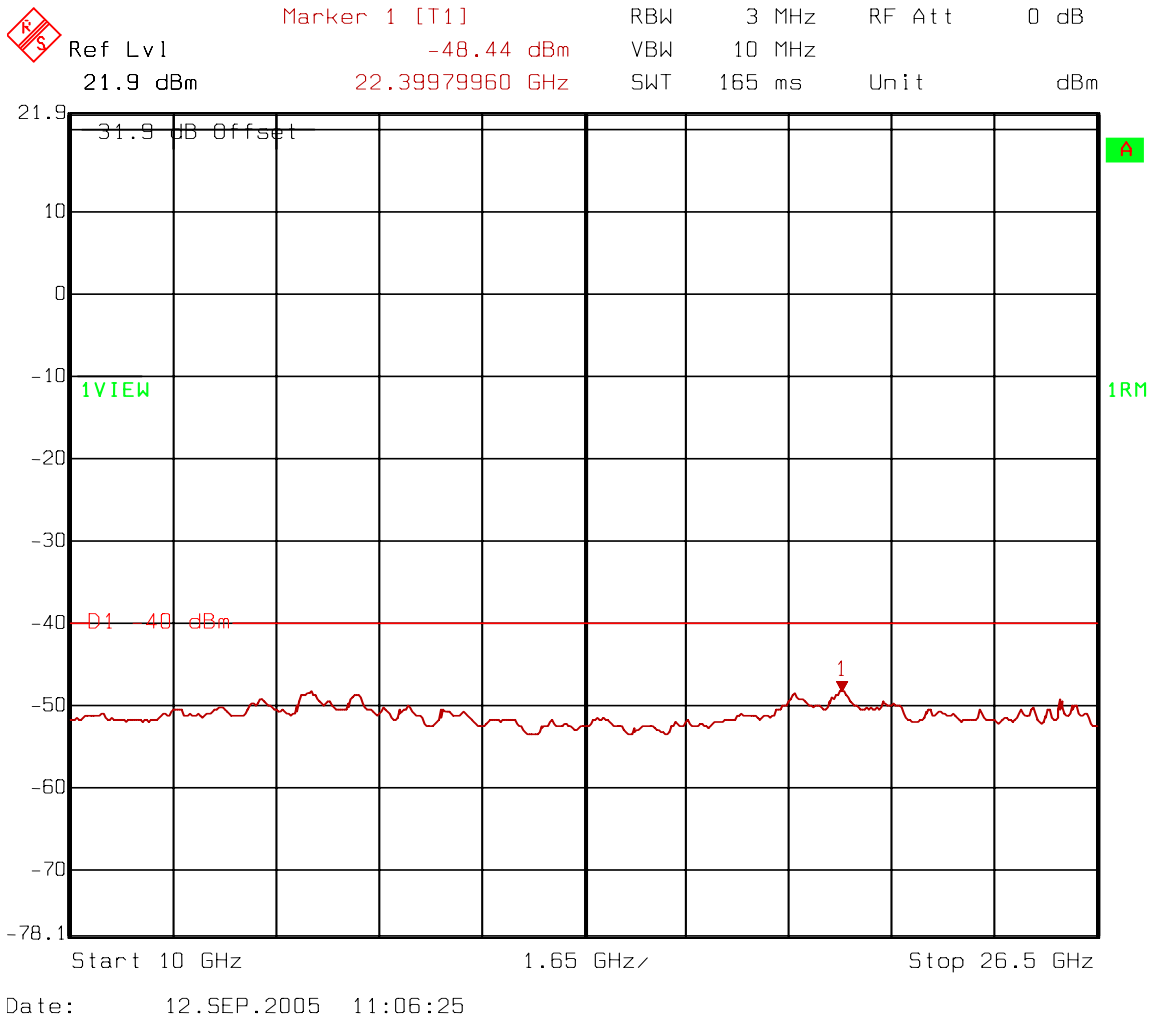
A LOW BAND SPURIOUS



EQUIPMENT: 2305 - 2360 LMX E

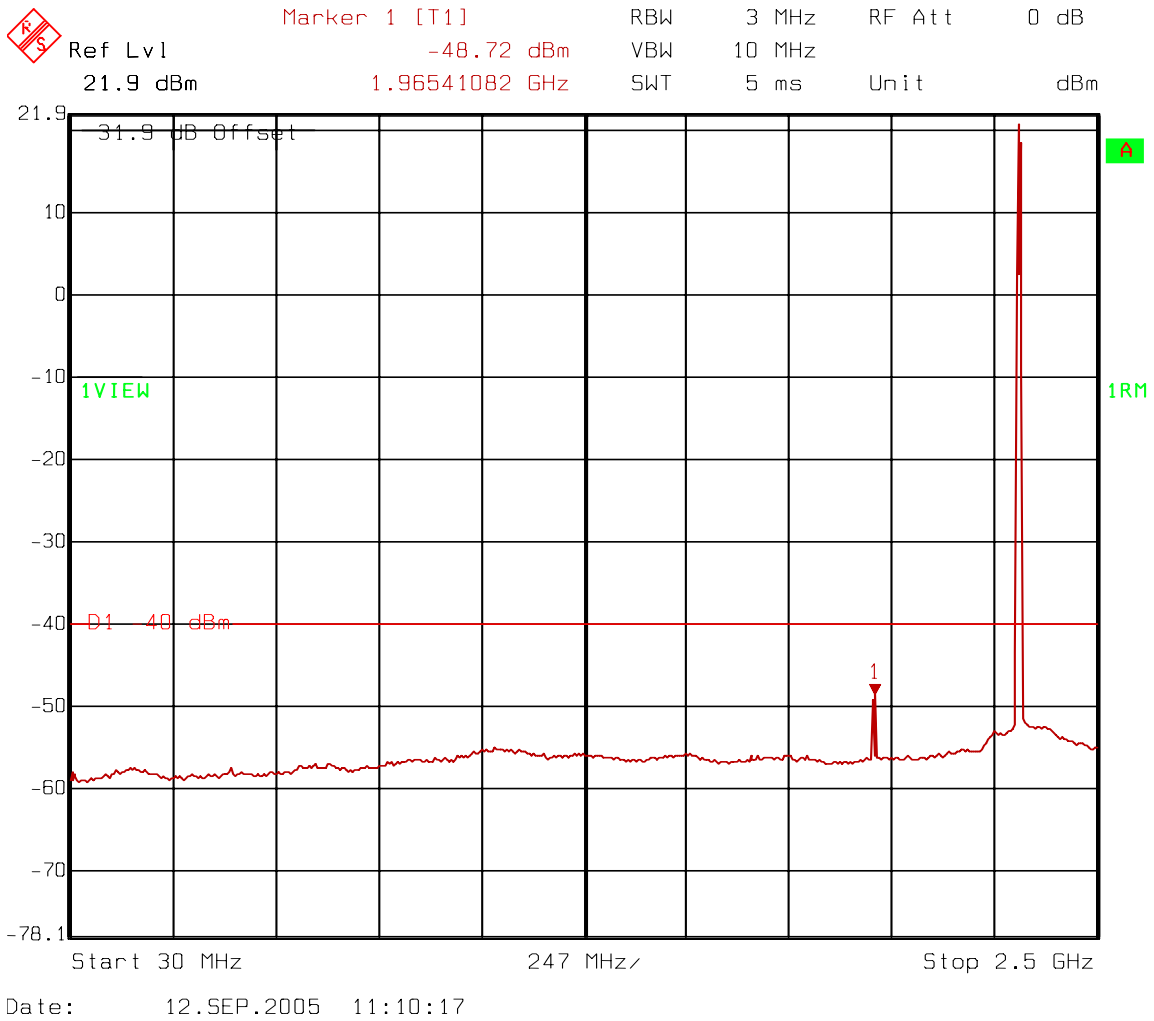


EQUIPMENT: 2305 - 2360 LMX E

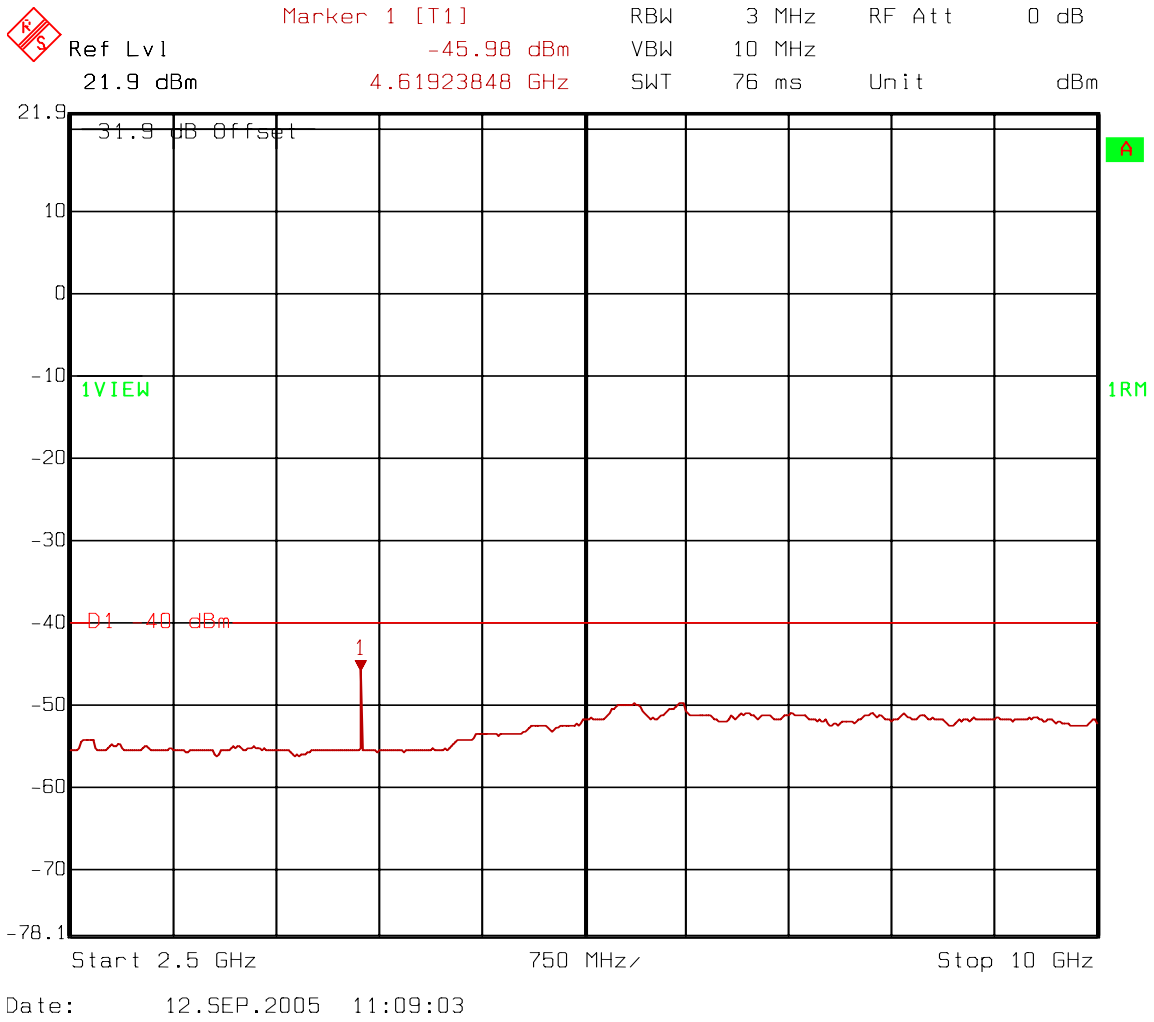


EQUIPMENT: 2305 - 2360 LMX E

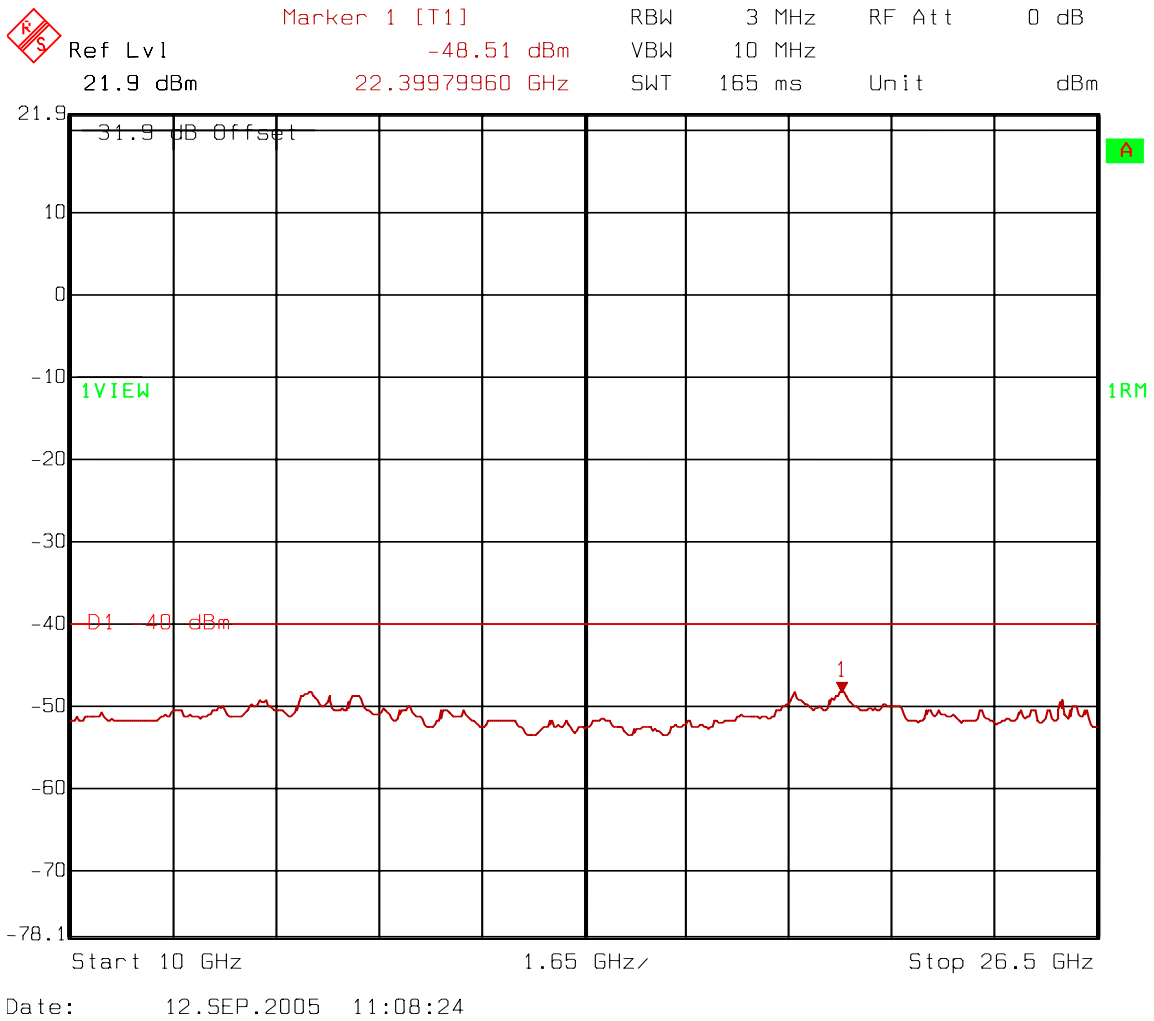
B LOW BAND SPURIOUS



EQUIPMENT: 2305 - 2360 LMX E

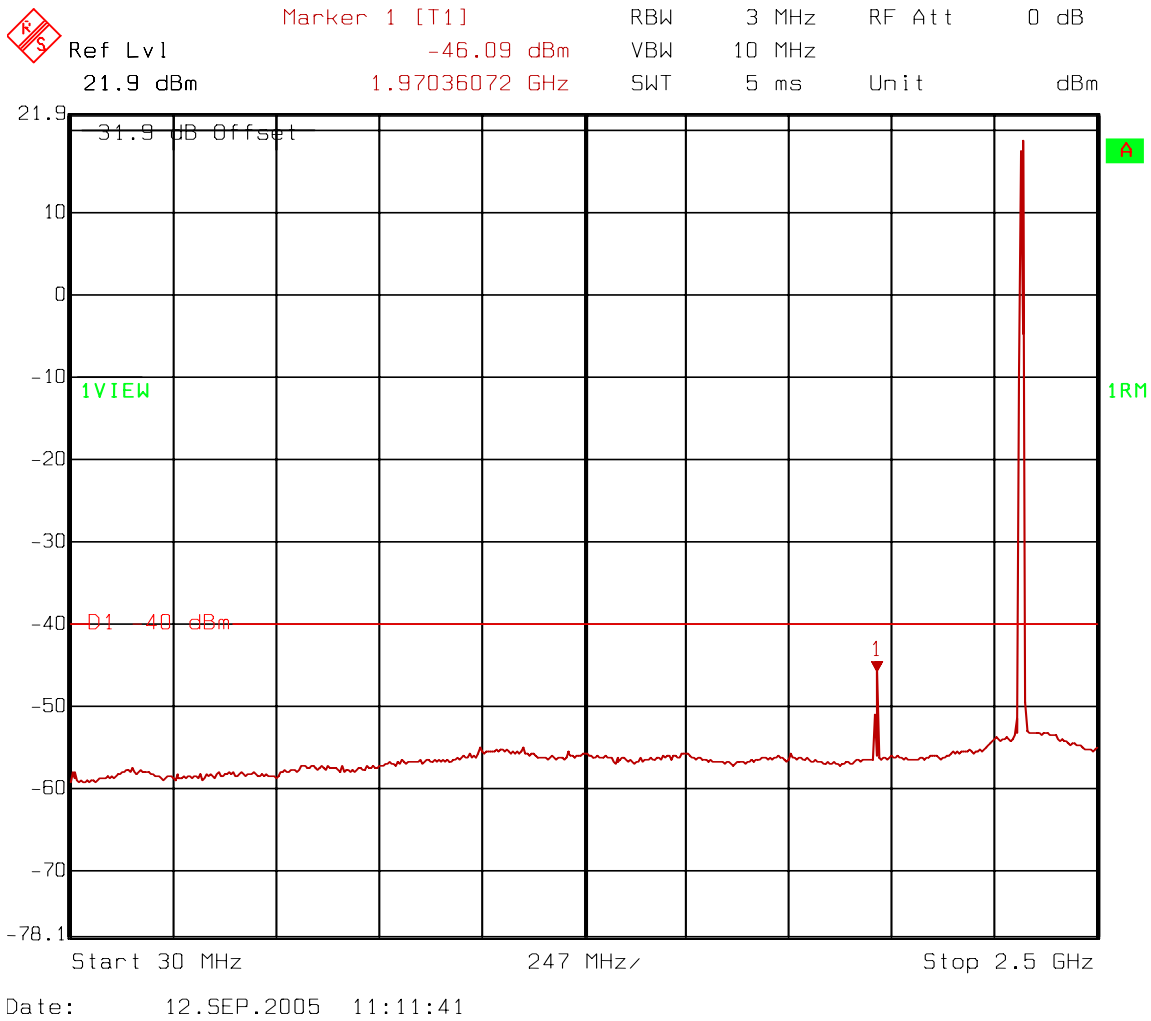


EQUIPMENT: 2305 - 2360 LMX E

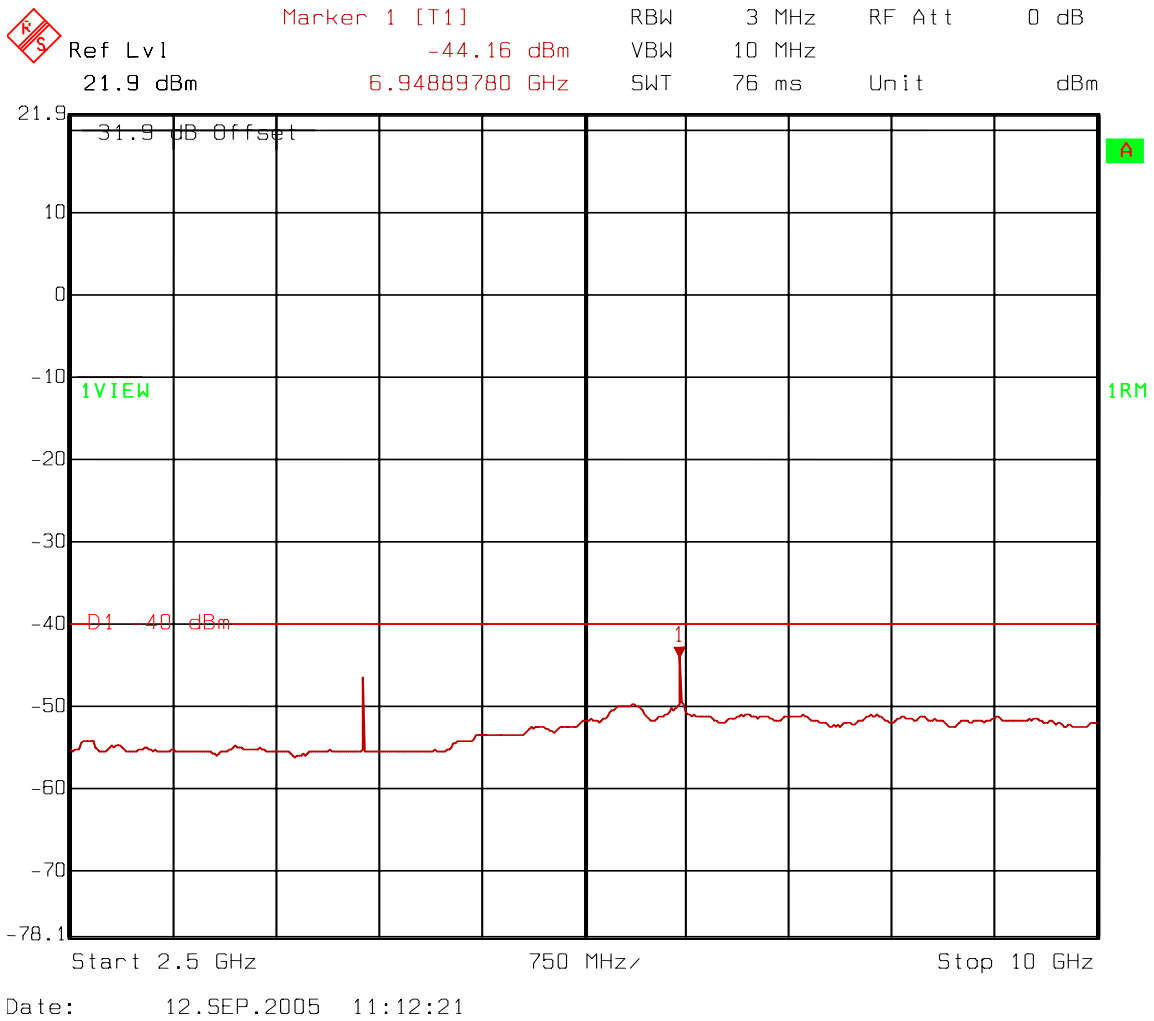


EQUIPMENT: 2305 - 2360 LMX E

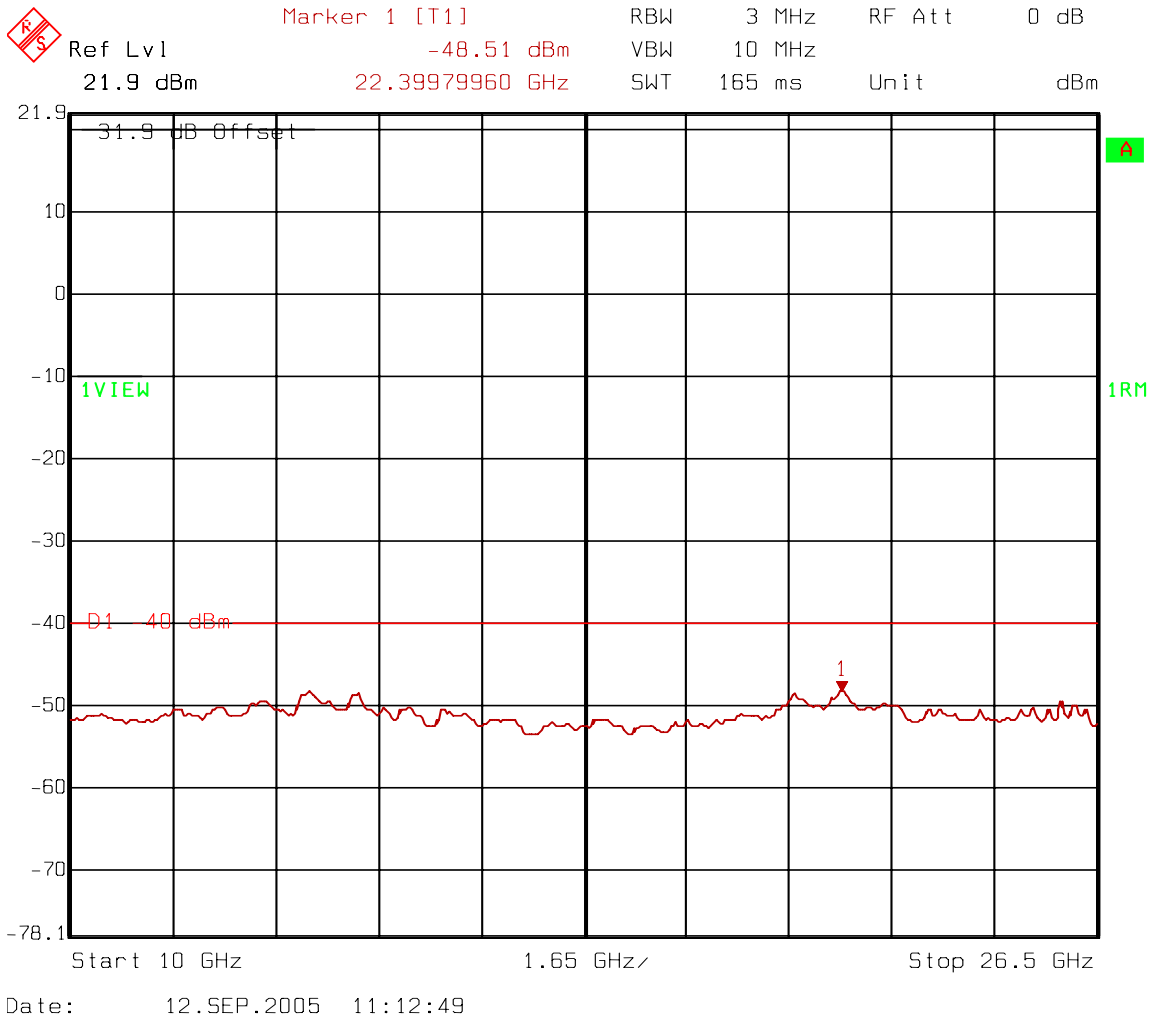
C BAND SPURIOUS



EQUIPMENT: 2305 - 2360 LMX E



EQUIPMENT: 2305 - 2360 LMX E



EQUIPMENT: 2305 – 2360 LMX E

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1053
TESTED BY: Kevin rose	DATE: September 12, 2005

Test Results:

Complies

Measurement Data:

See attached table.

Measurement Uncertainty: +/-1.7 dB

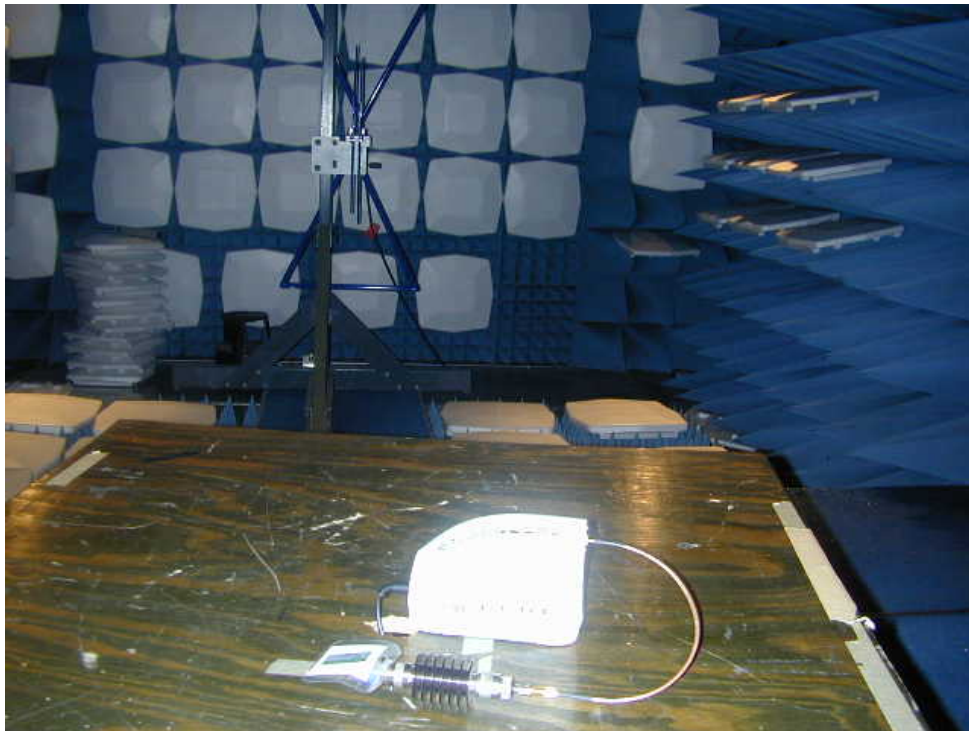
EQUIPMENT: 2305 – 2360 LMX E

Photos – Field Strength of Spurious Emissions

Rear



Side



EQUIPMENT: 2305 – 2360 LMX E

Section 7. Frequency Stability

NAME OF TEST: Frequency Stability 5	PARA. NO.: 2.1055
TESTED BY: Kevin Rose	DATE: 09/14/05

Test Results:

Complies

Measurement Data:

See attached data sheets.

The following plots show that the transmitted signal stays within the required emission limits when the equipment is subjected to temperature and voltage variations.

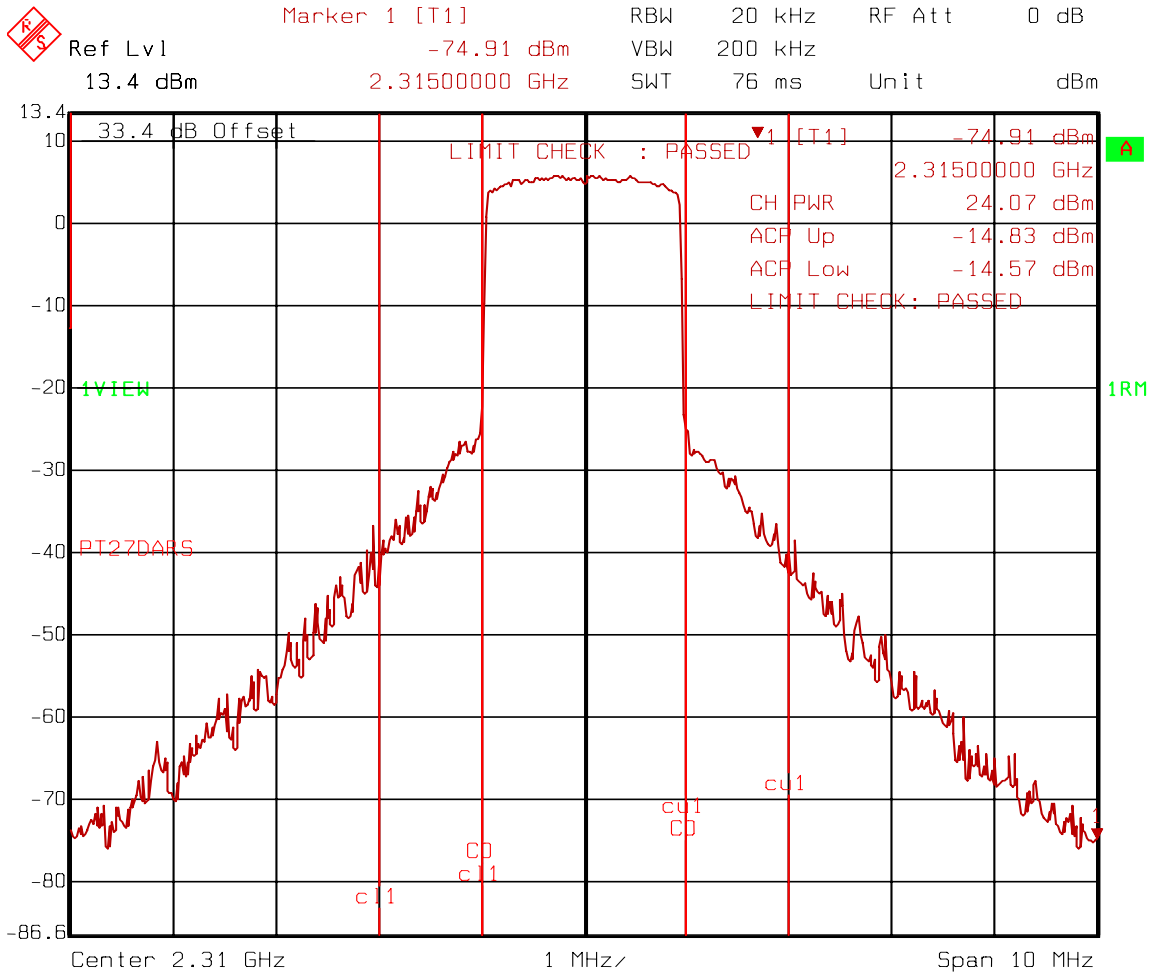
Measurement Uncertainty: 1×10^{-7} ppm

EQUIPMENT USED 1561, 1562, 1045, 1055, 2072, 2071, 1470,1471, 619, 283, 1629, AND 1482

EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES 115 TNOM

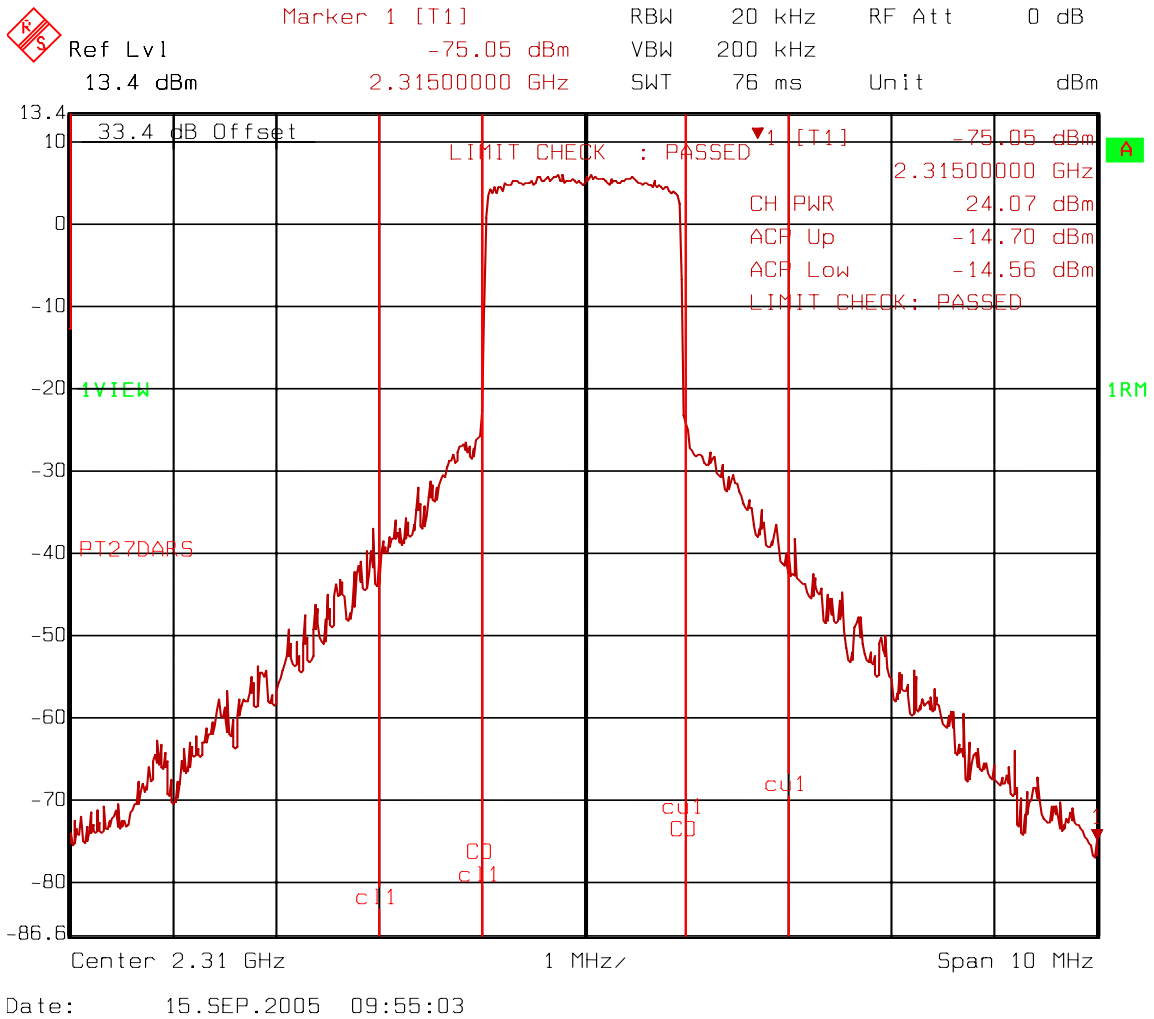
A BAND 24DBM OUTPUT



Date: 15.SEP.2005 09:56:32

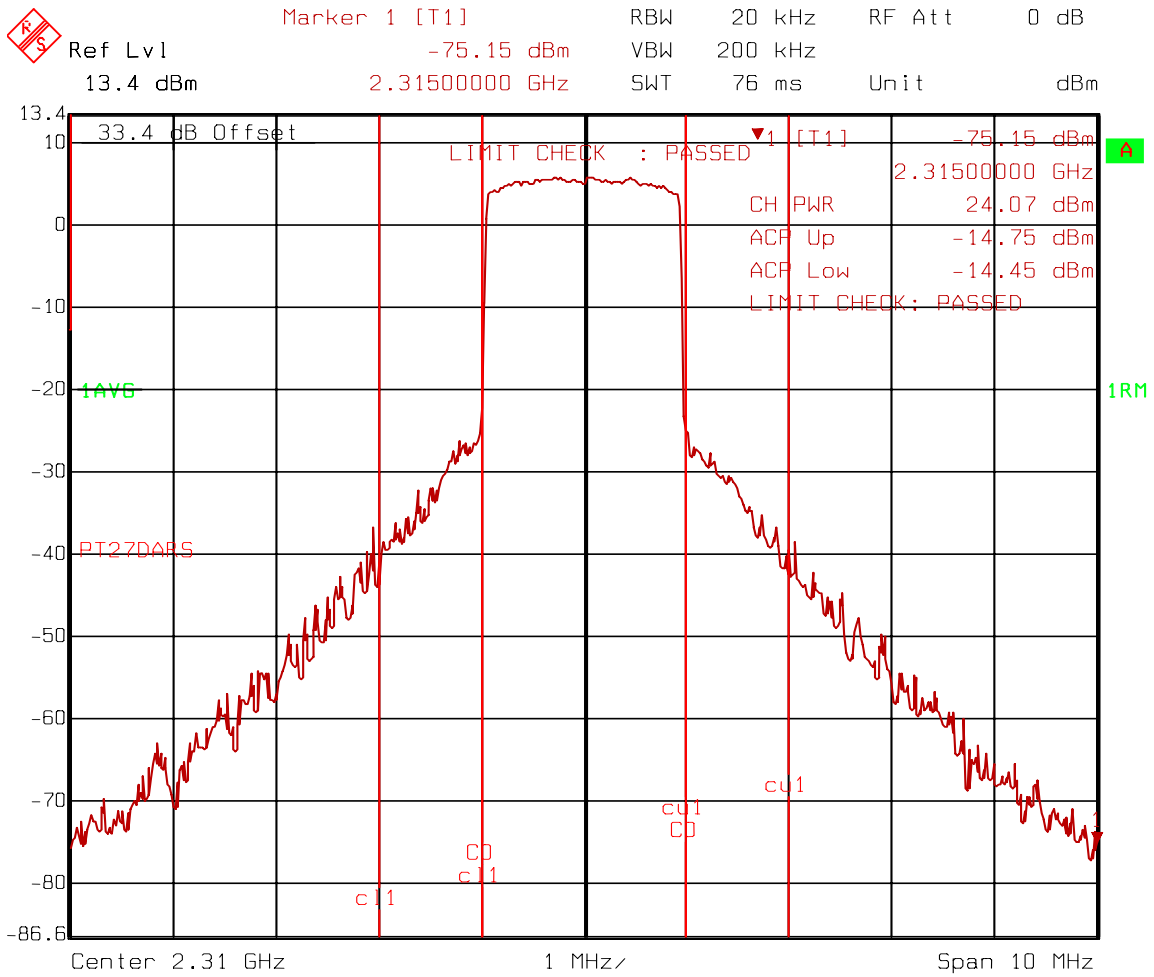
EQUIPMENT: 2305 - 2360 LMX E

20DEGREES TMIN



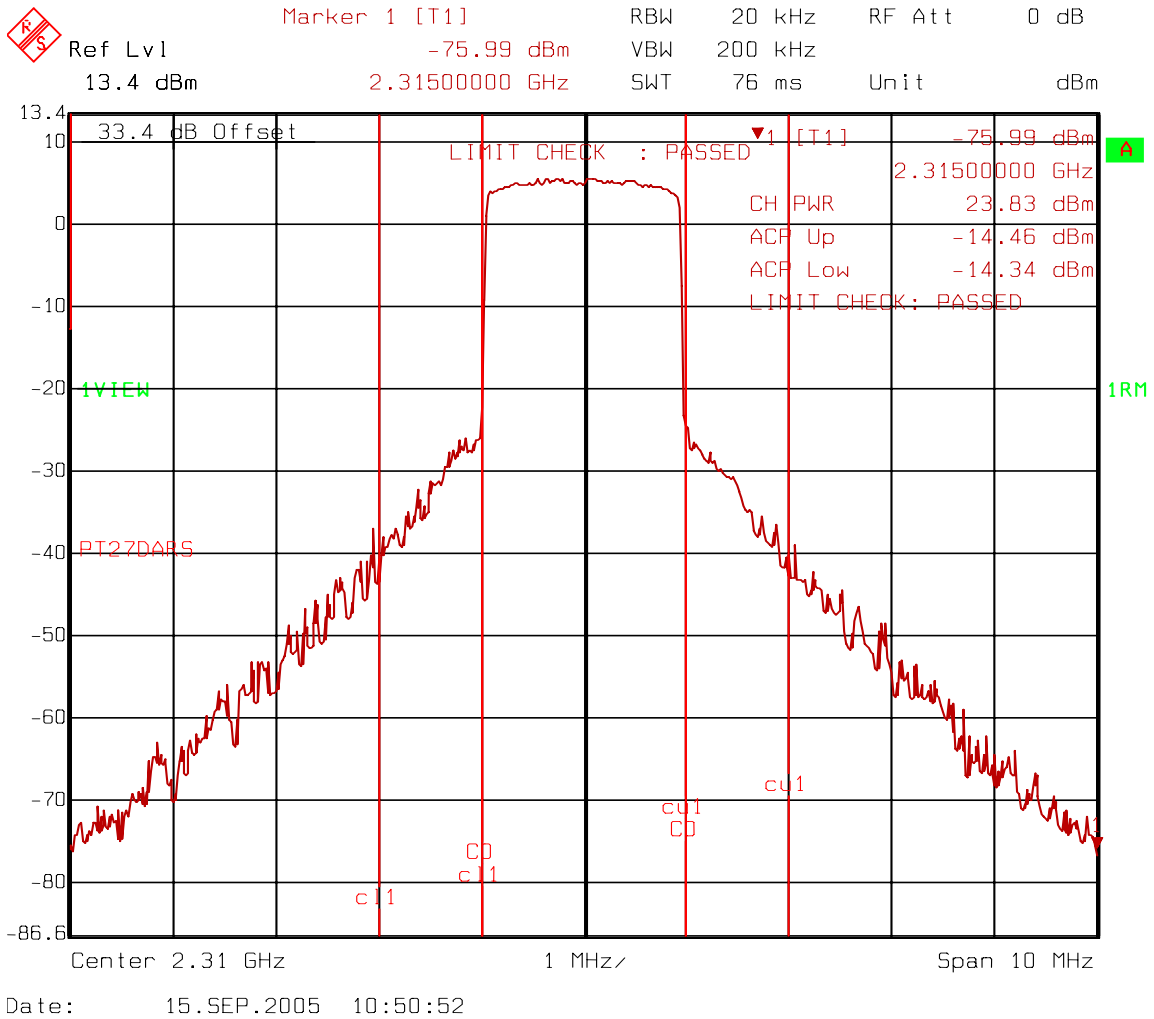
EQUIPMENT: 2305 - 2360 LMX E

20DEGREES T MAX



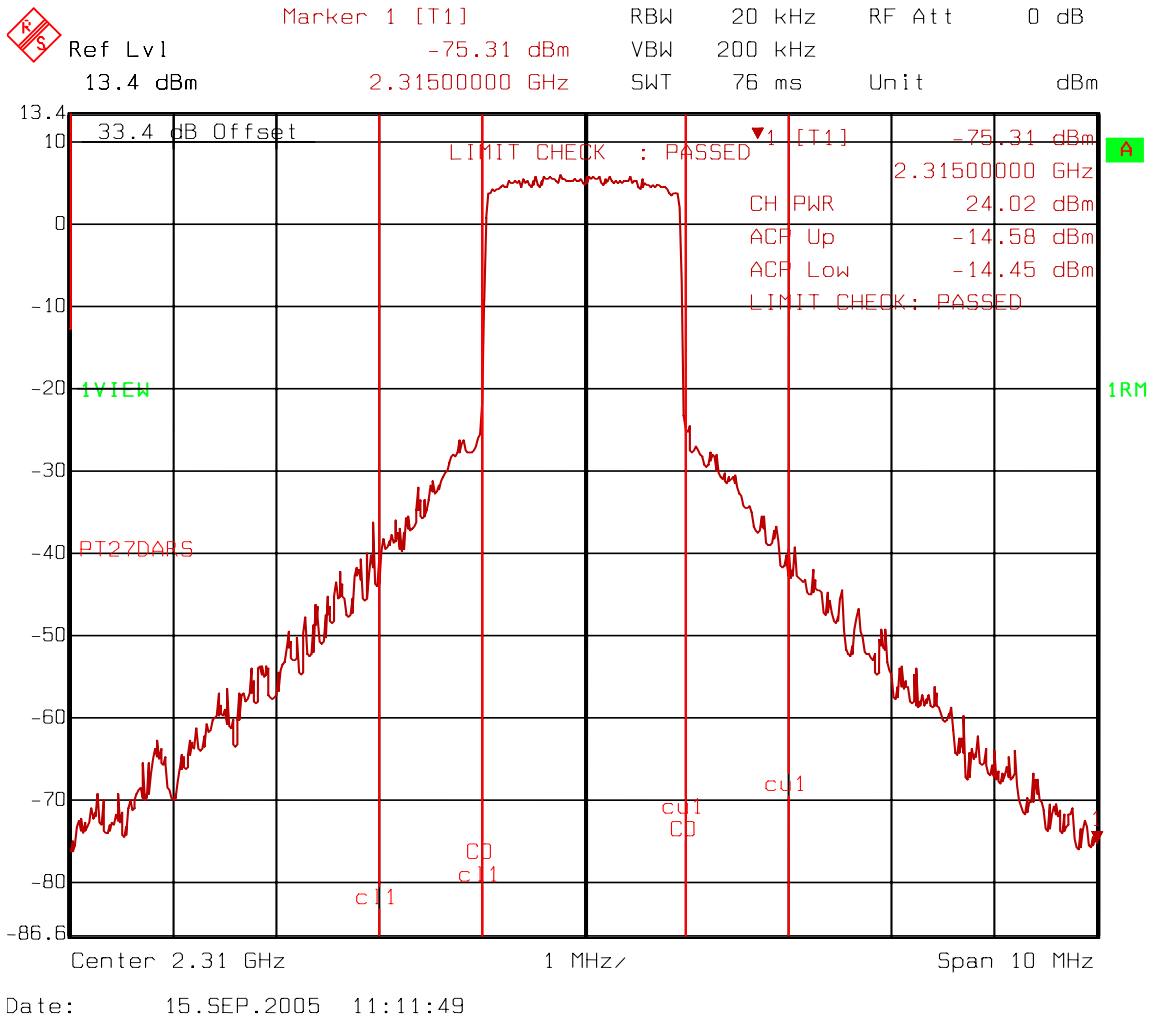
EQUIPMENT: 2305 - 2360 LMX E

50C



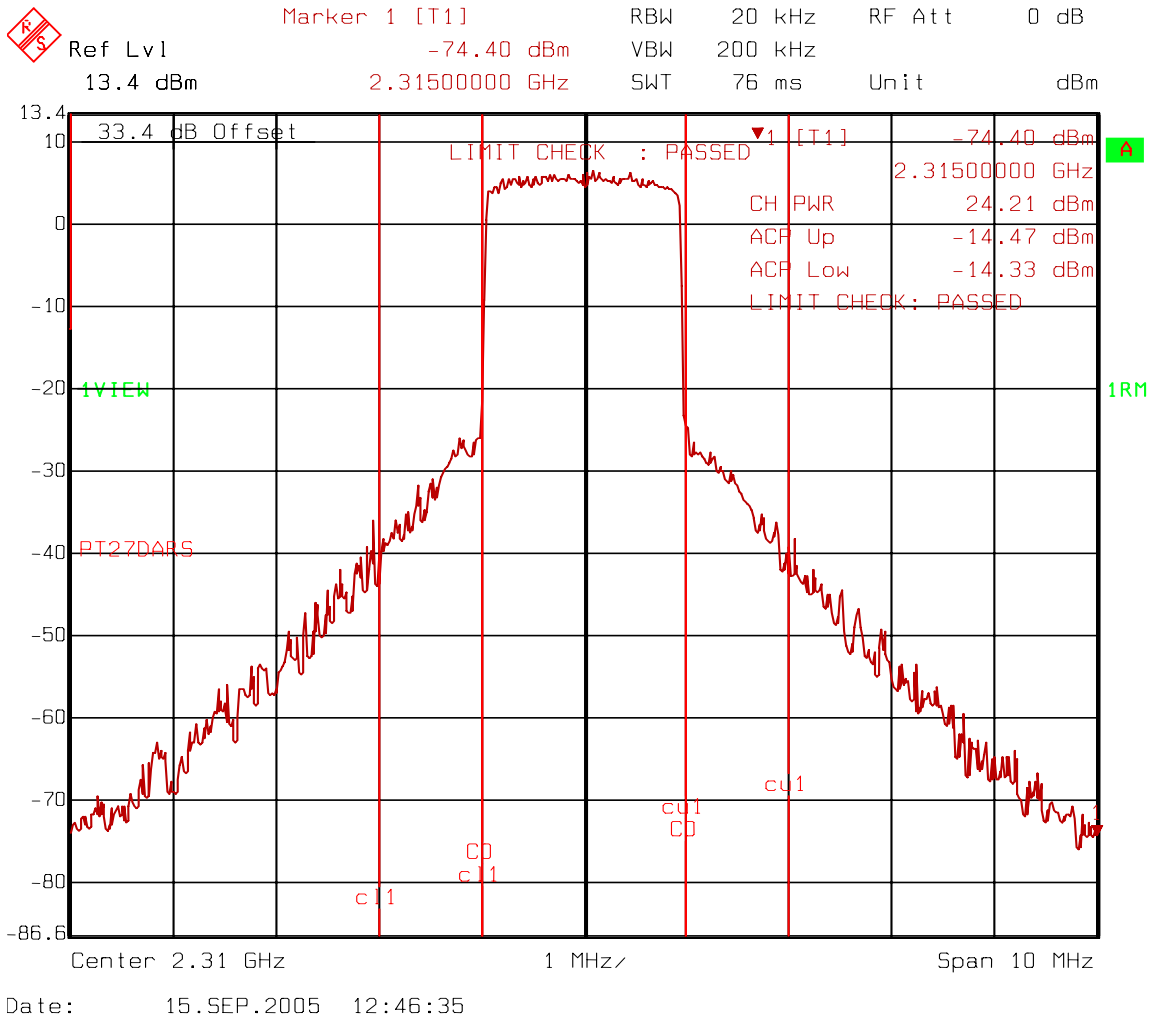
EQUIPMENT: 2305 - 2360 LMX E

40 C



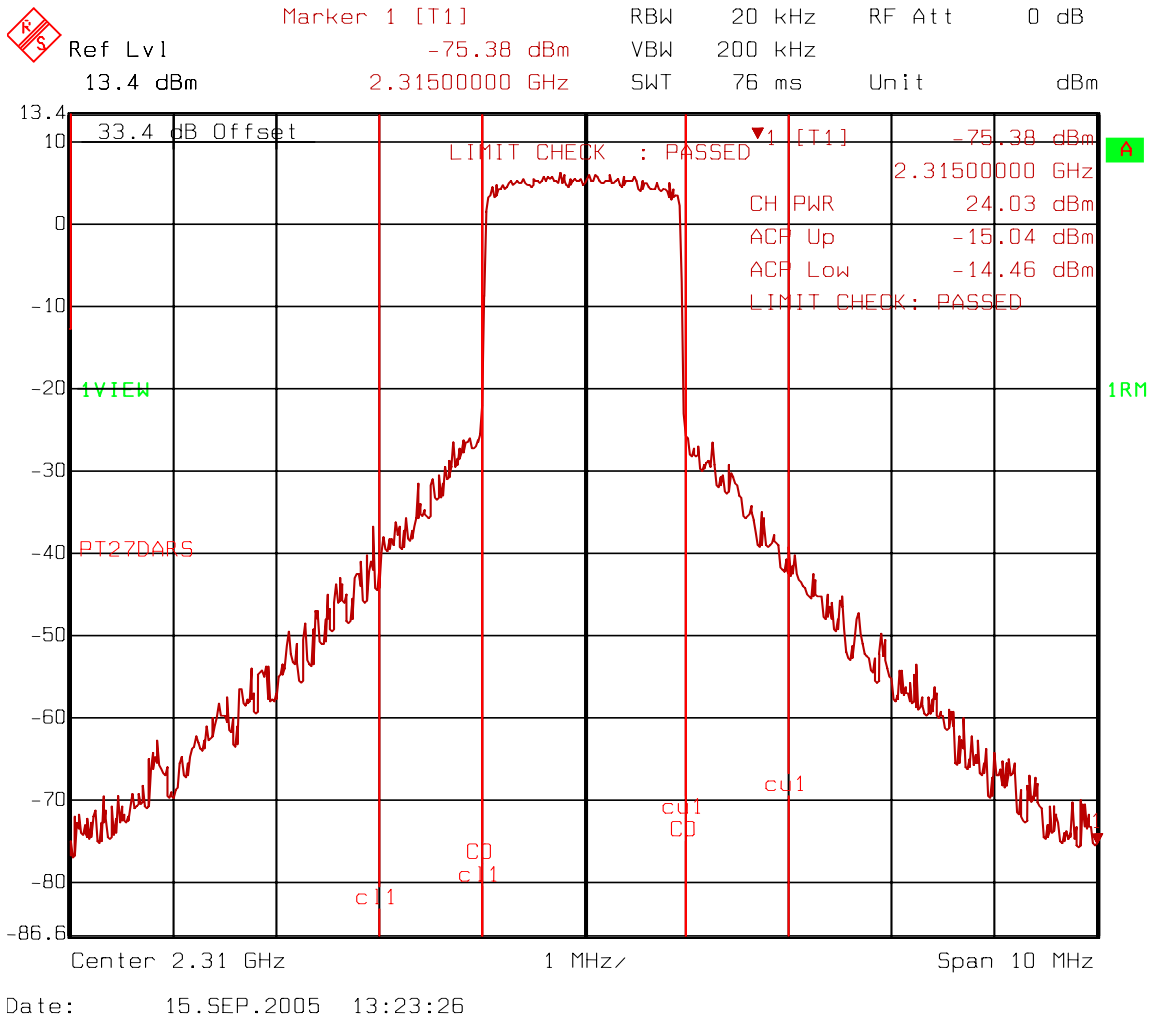
EQUIPMENT: 2305 - 2360 LMX E

30C



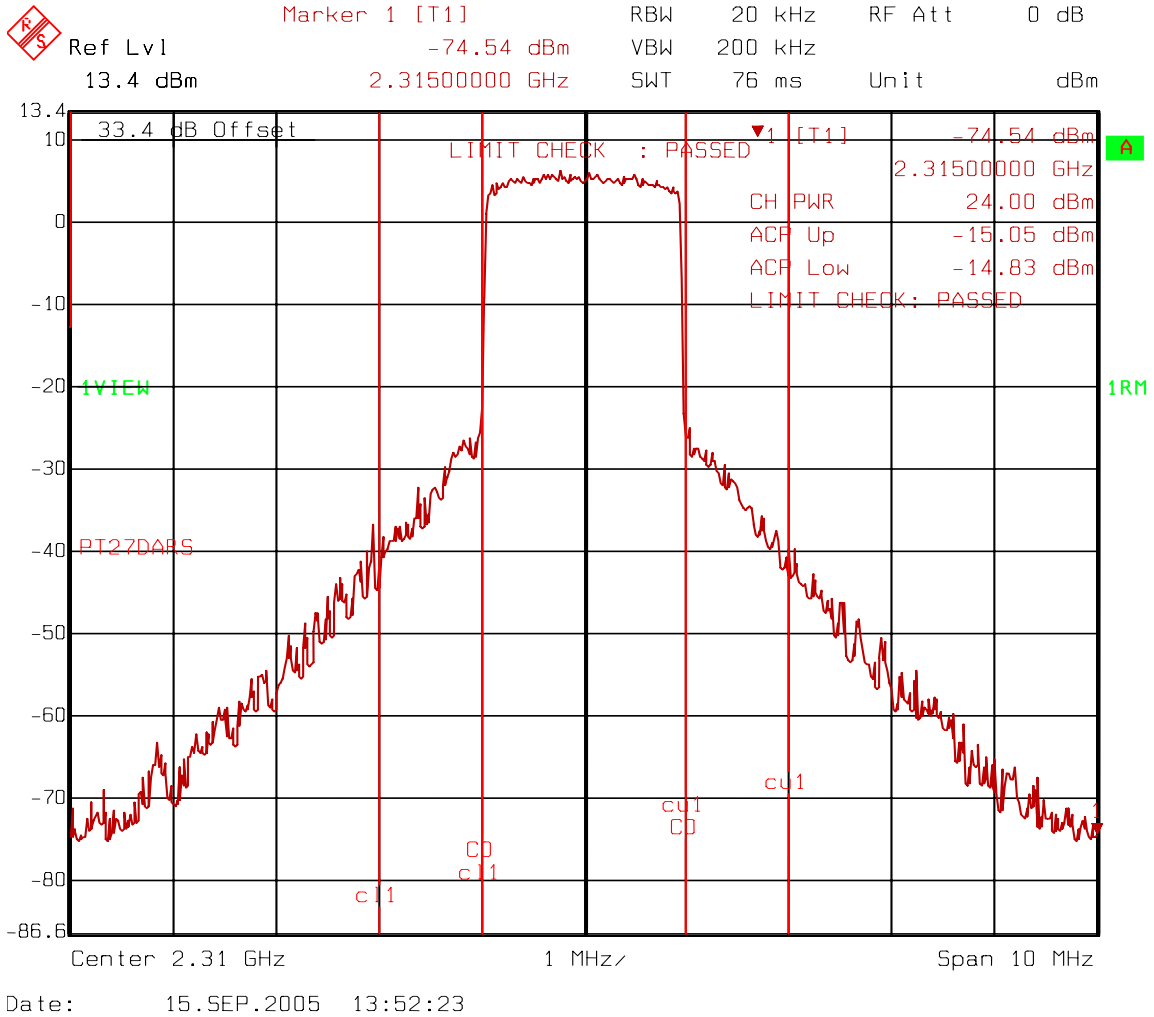
EQUIPMENT: 2305 - 2360 LMX E

10 C



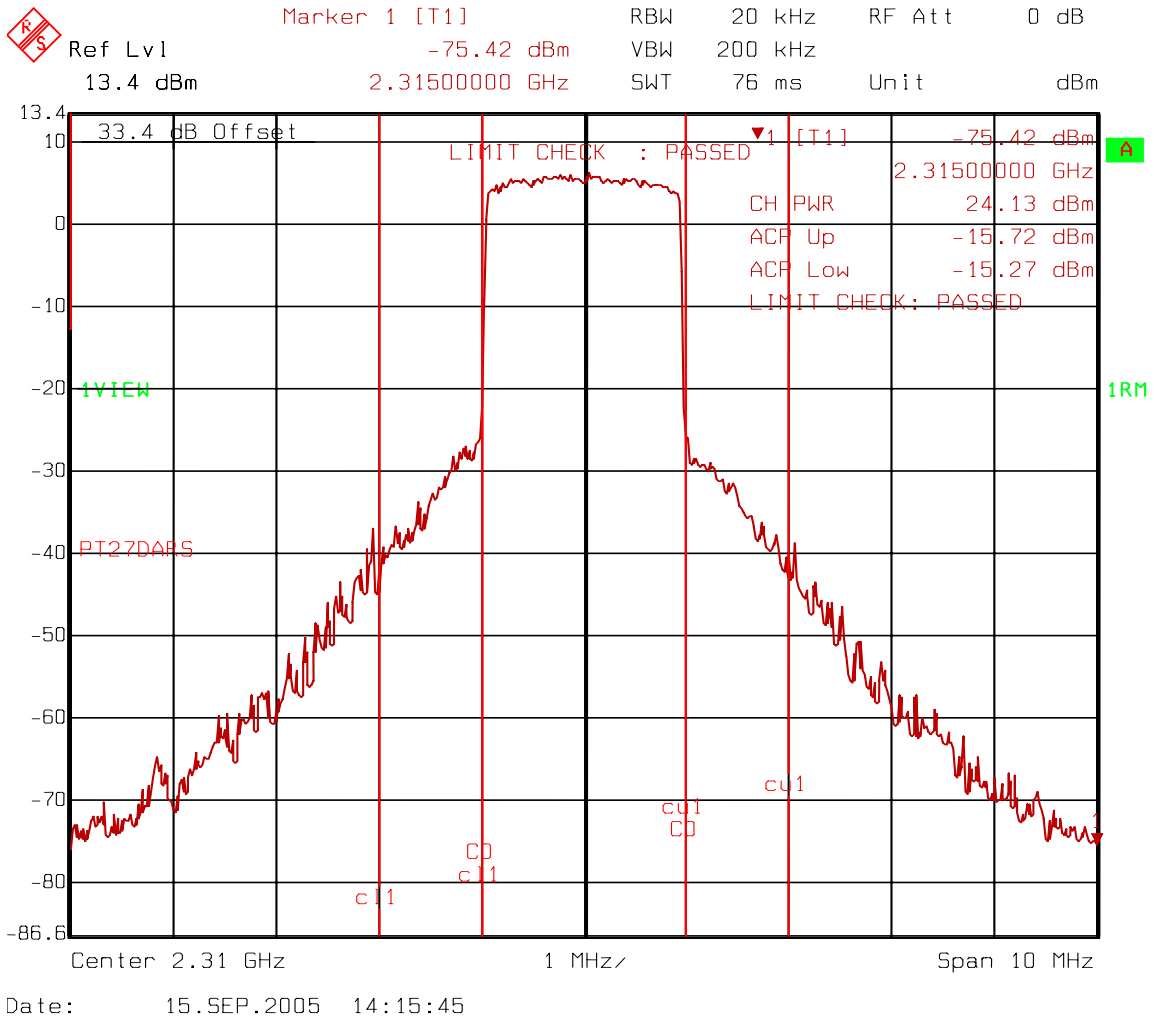
EQUIPMENT: 2305 - 2360 LMX E

0 C



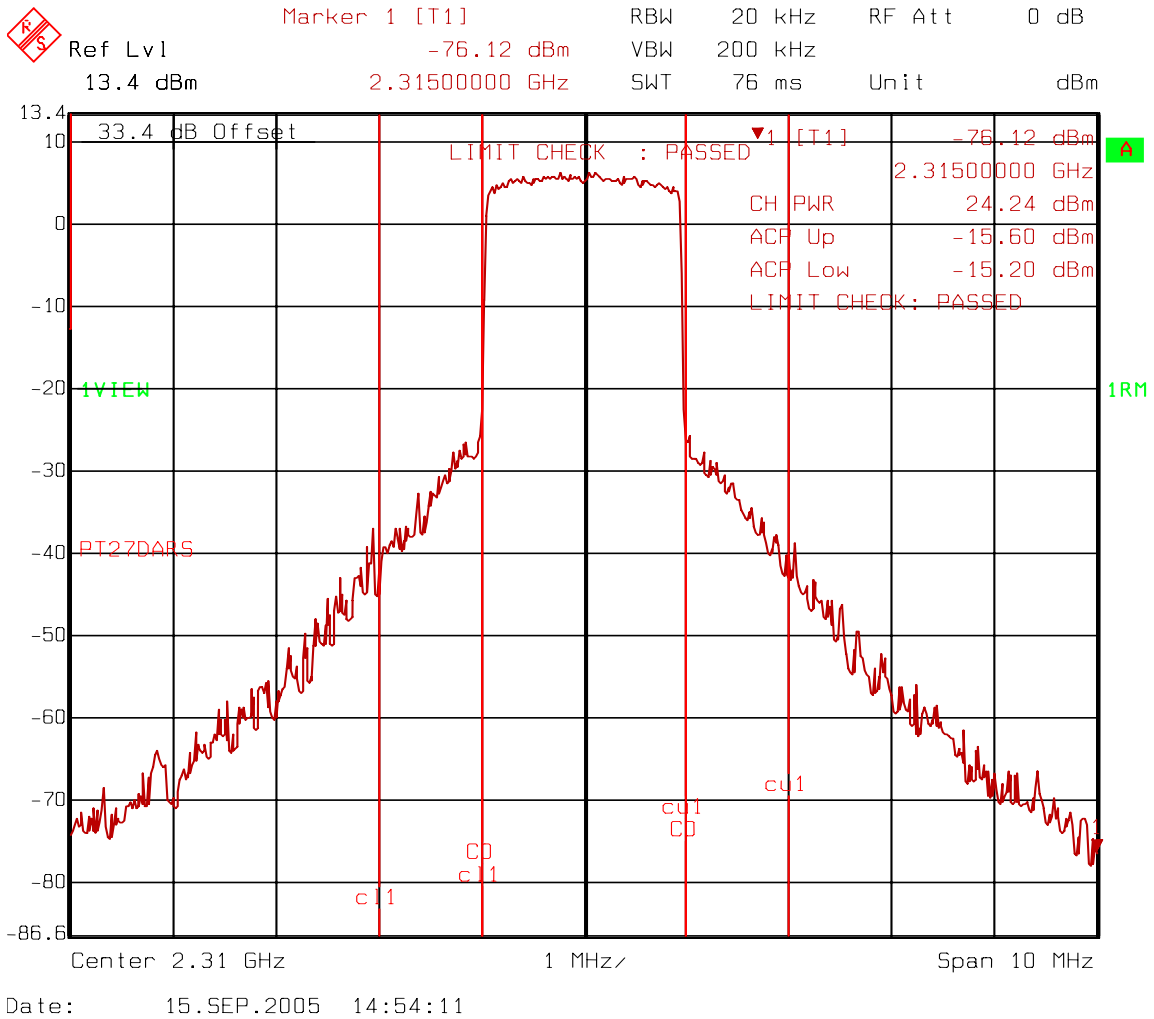
EQUIPMENT: 2305 - 2360 LMX E

-10 C



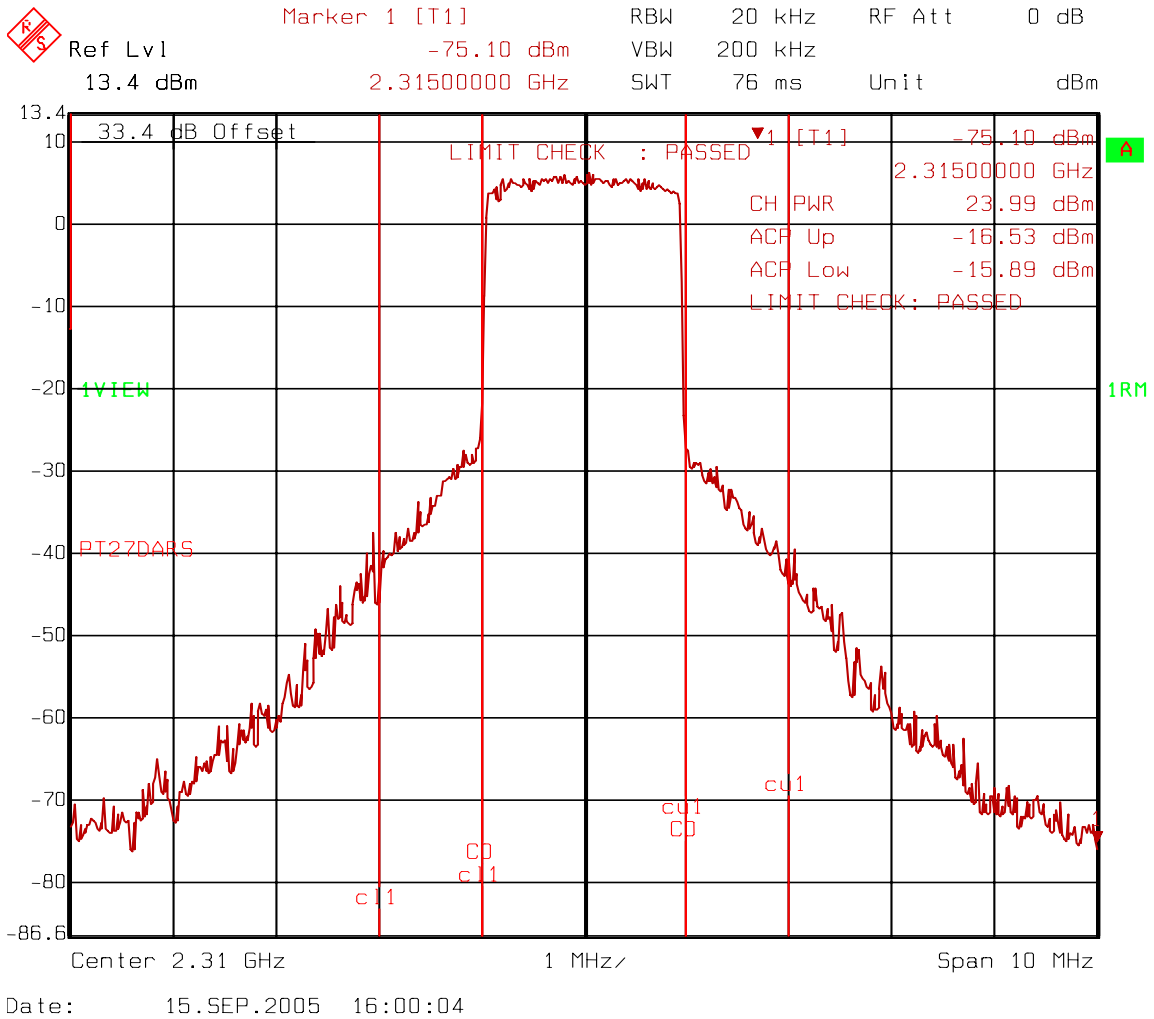
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

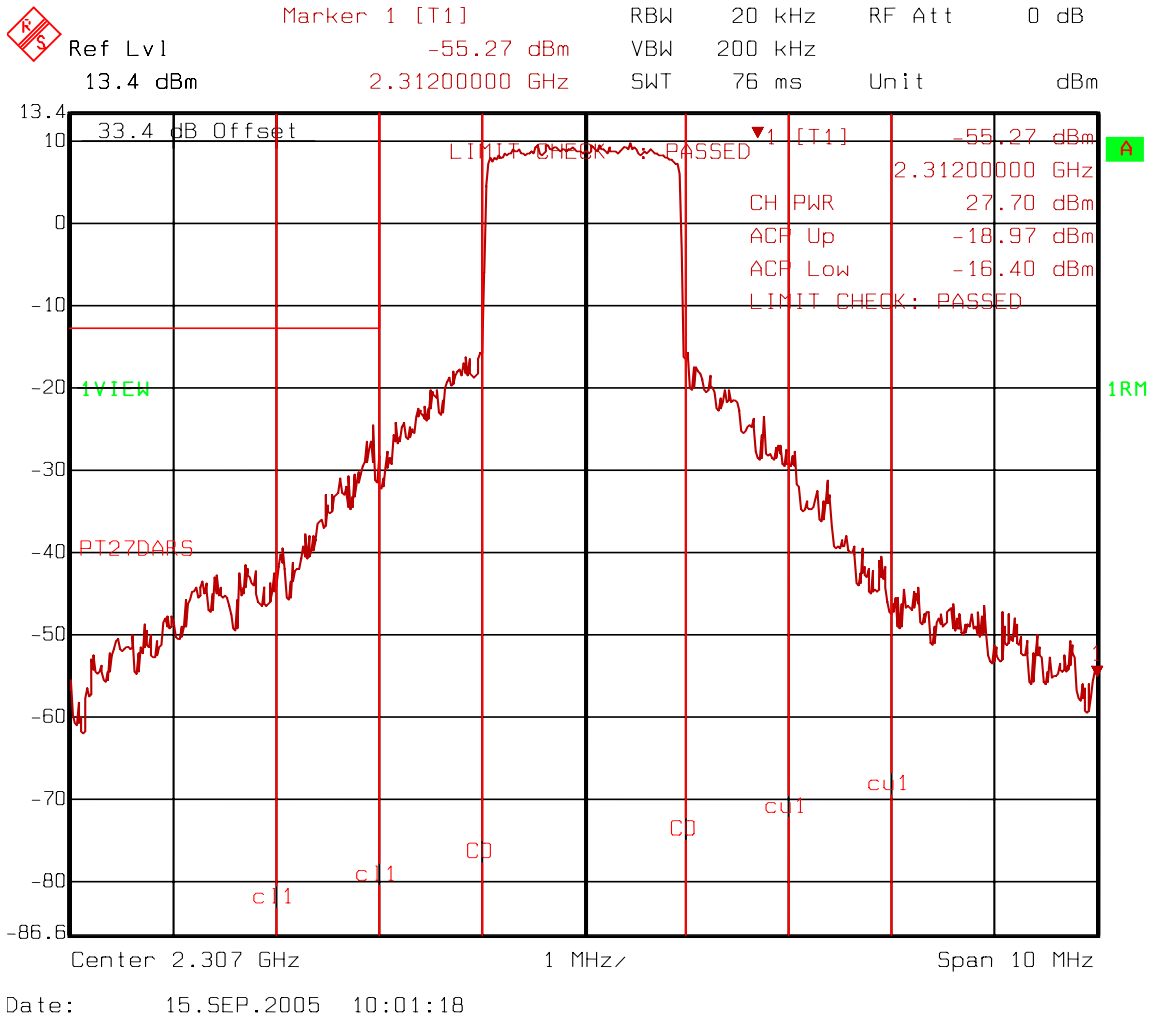
-30 C



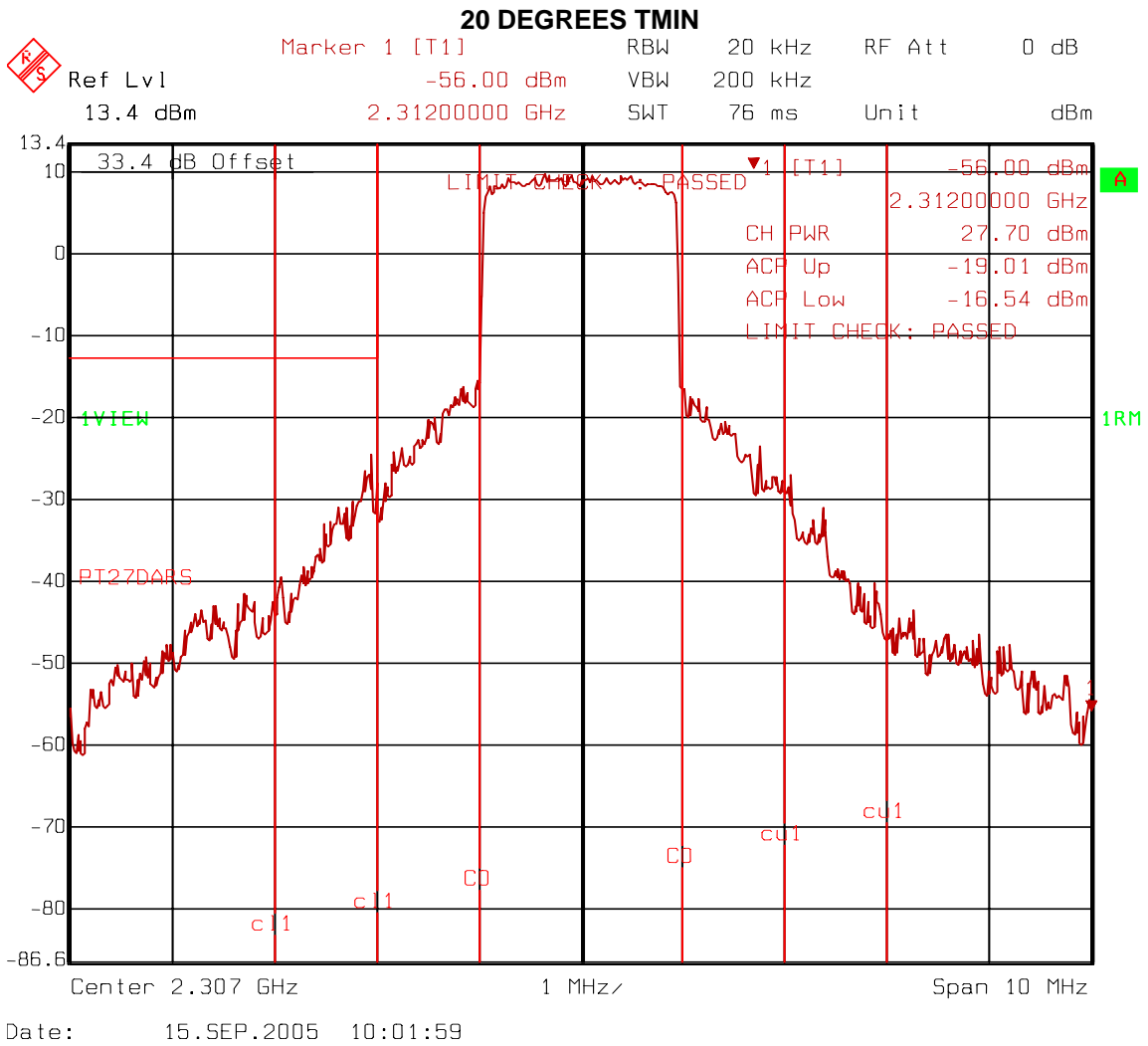
EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES 115 TNOM

A BAND 28DBM OUTPUT

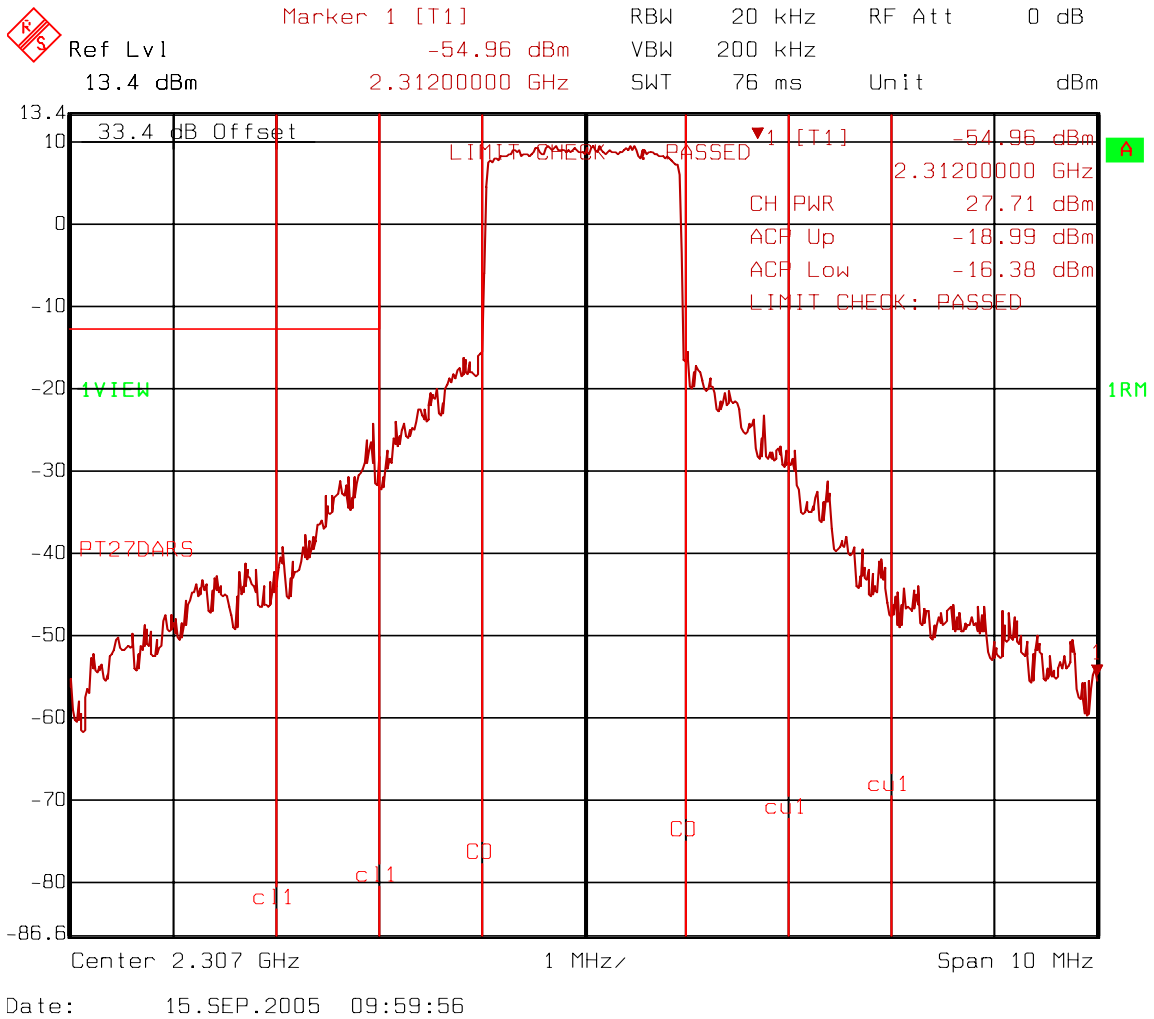


EQUIPMENT: 2305 - 2360 LMX E



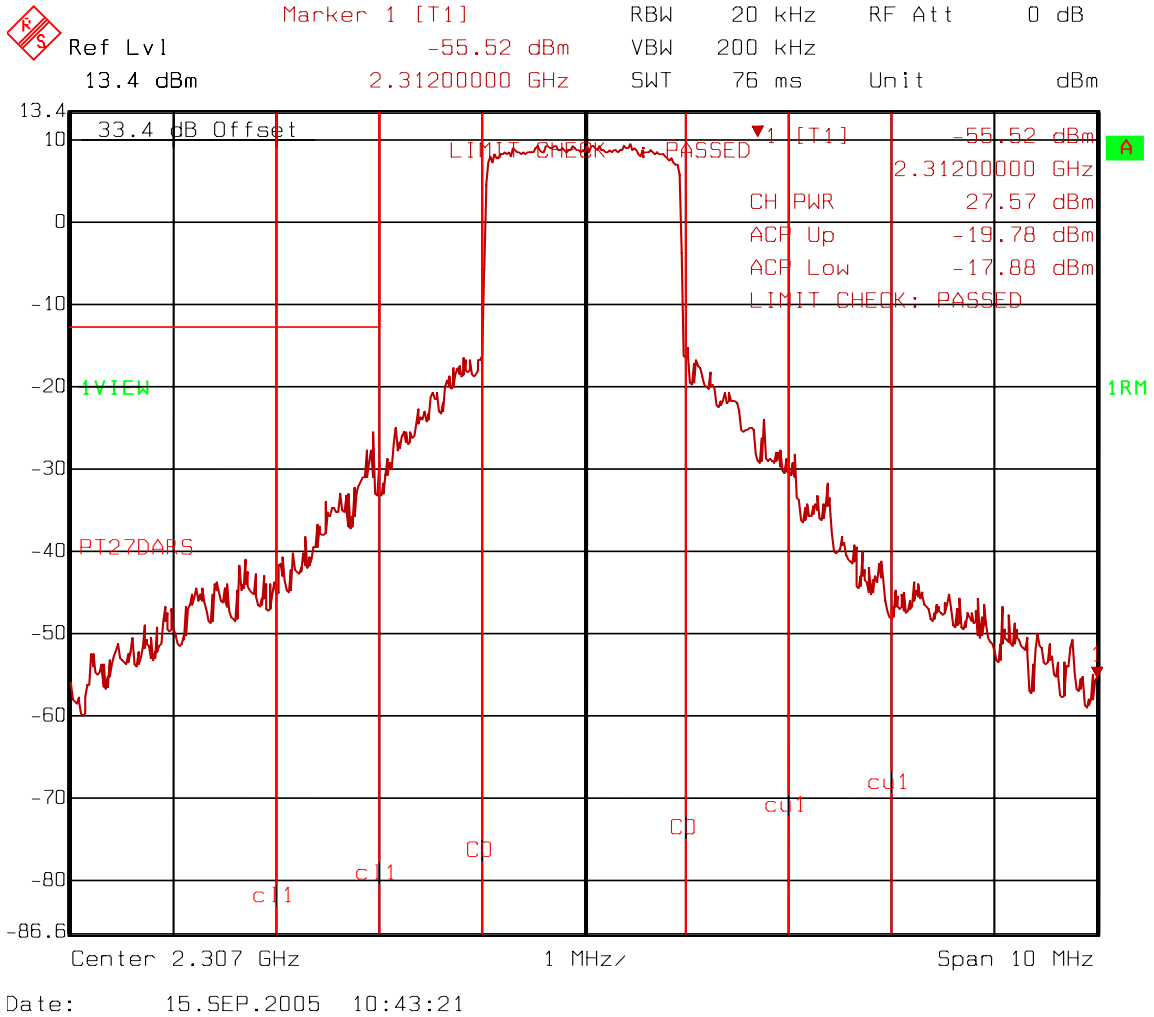
EQUIPMENT: 2305 - 2360 LMX E

20DEGREES TMAX



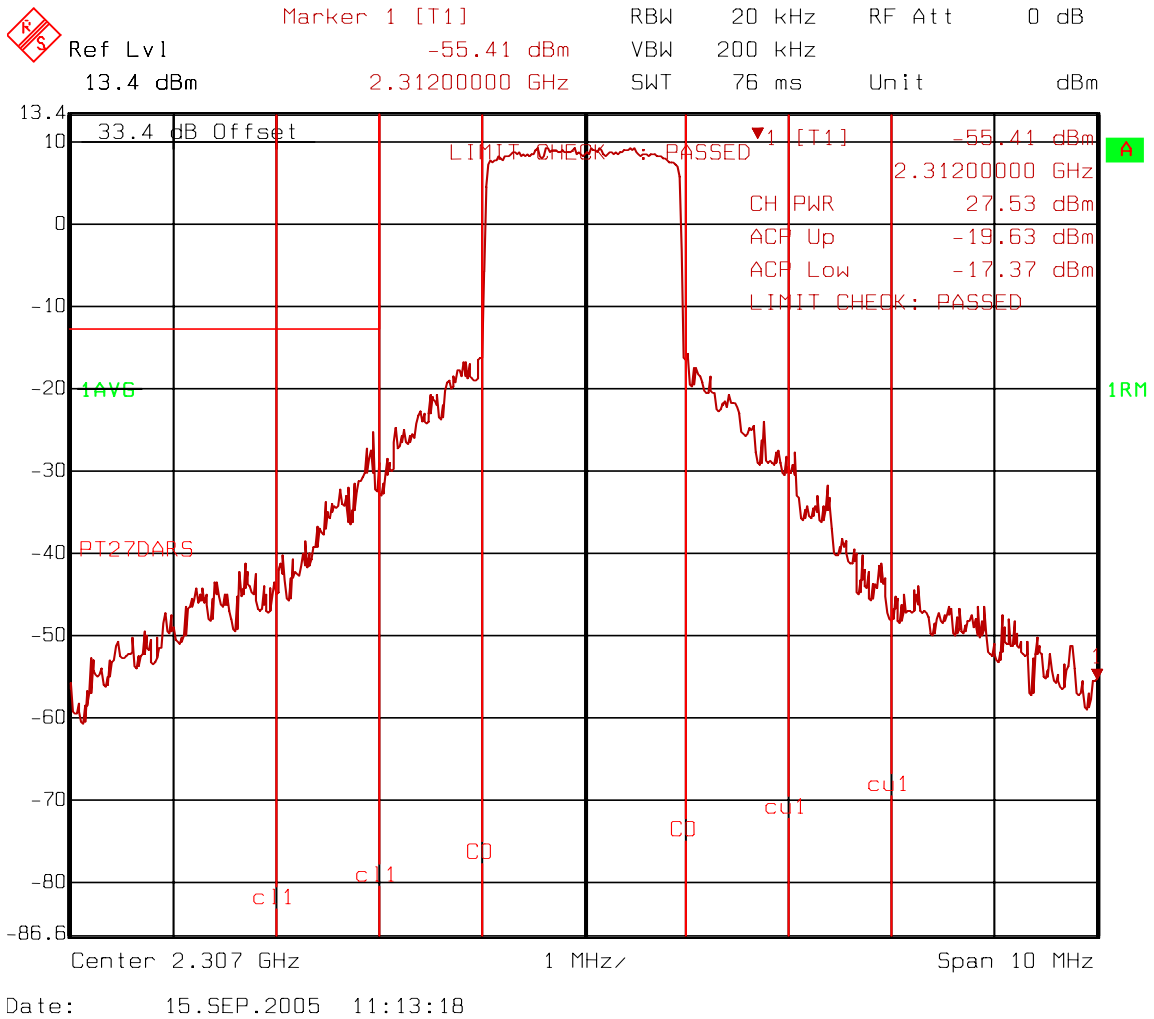
EQUIPMENT: 2305 - 2360 LMX E

50 C



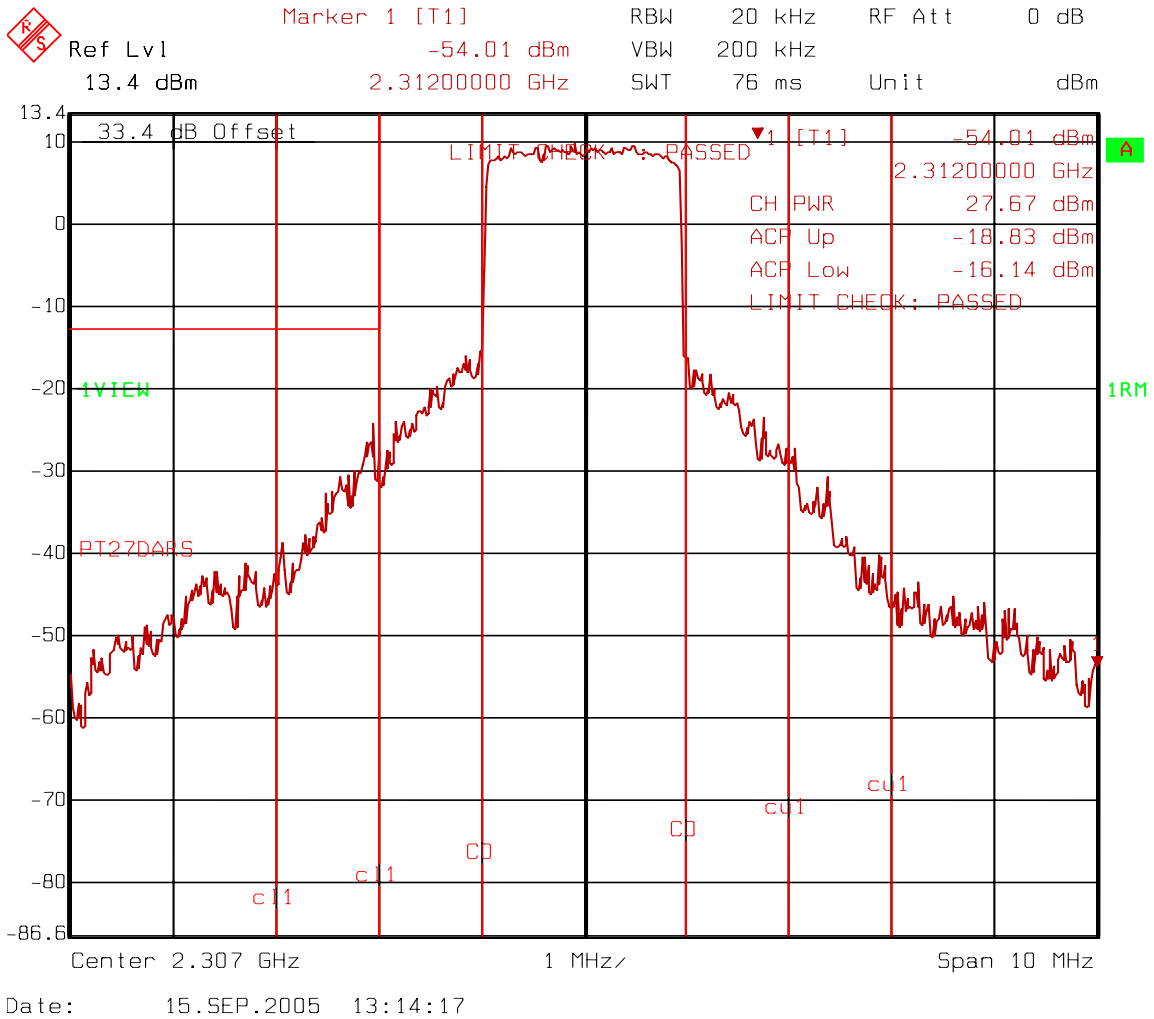
EQUIPMENT: 2305 - 2360 LMX E

40C



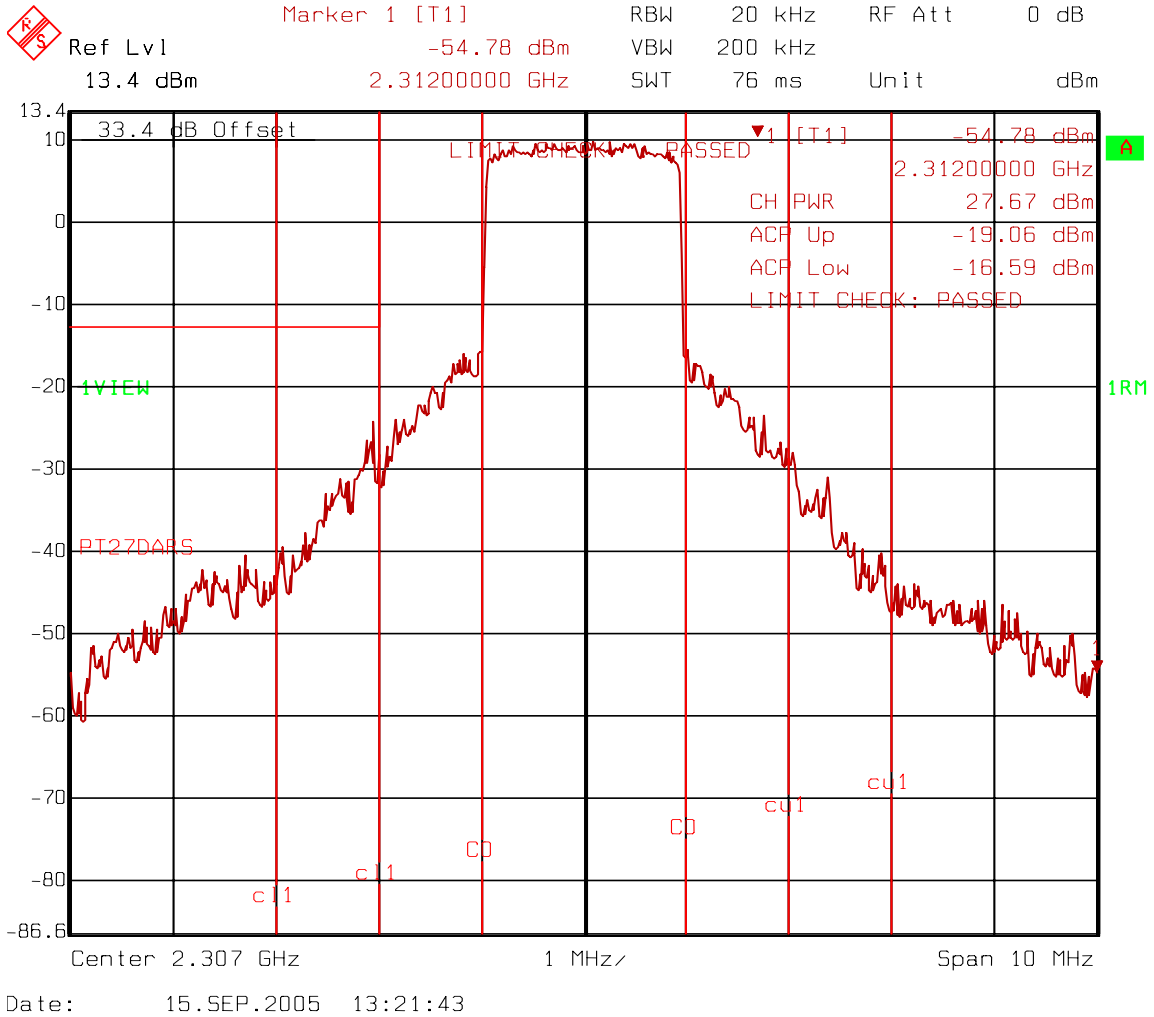
EQUIPMENT: 2305 - 2360 LMX E

30 C



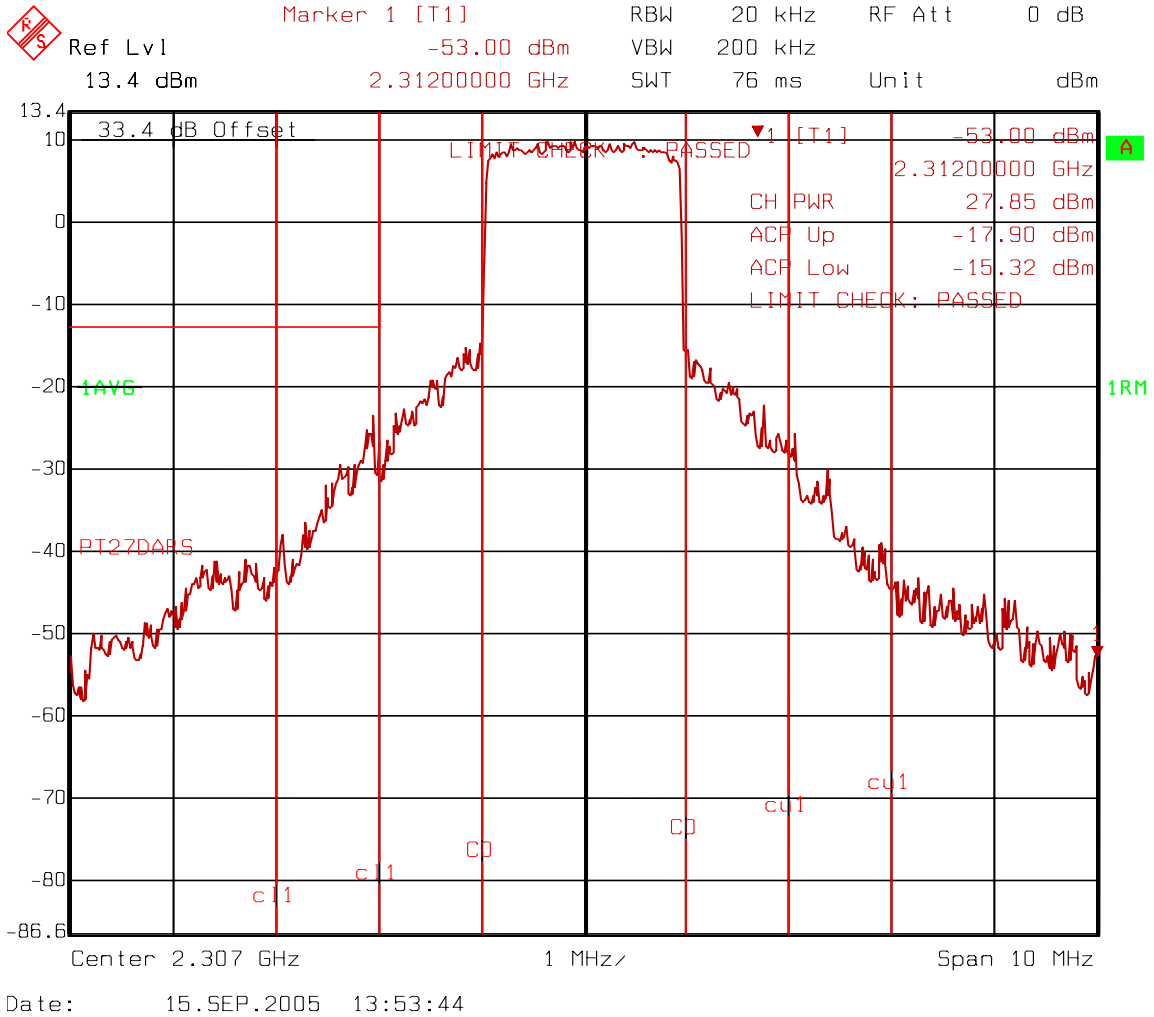
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10 C



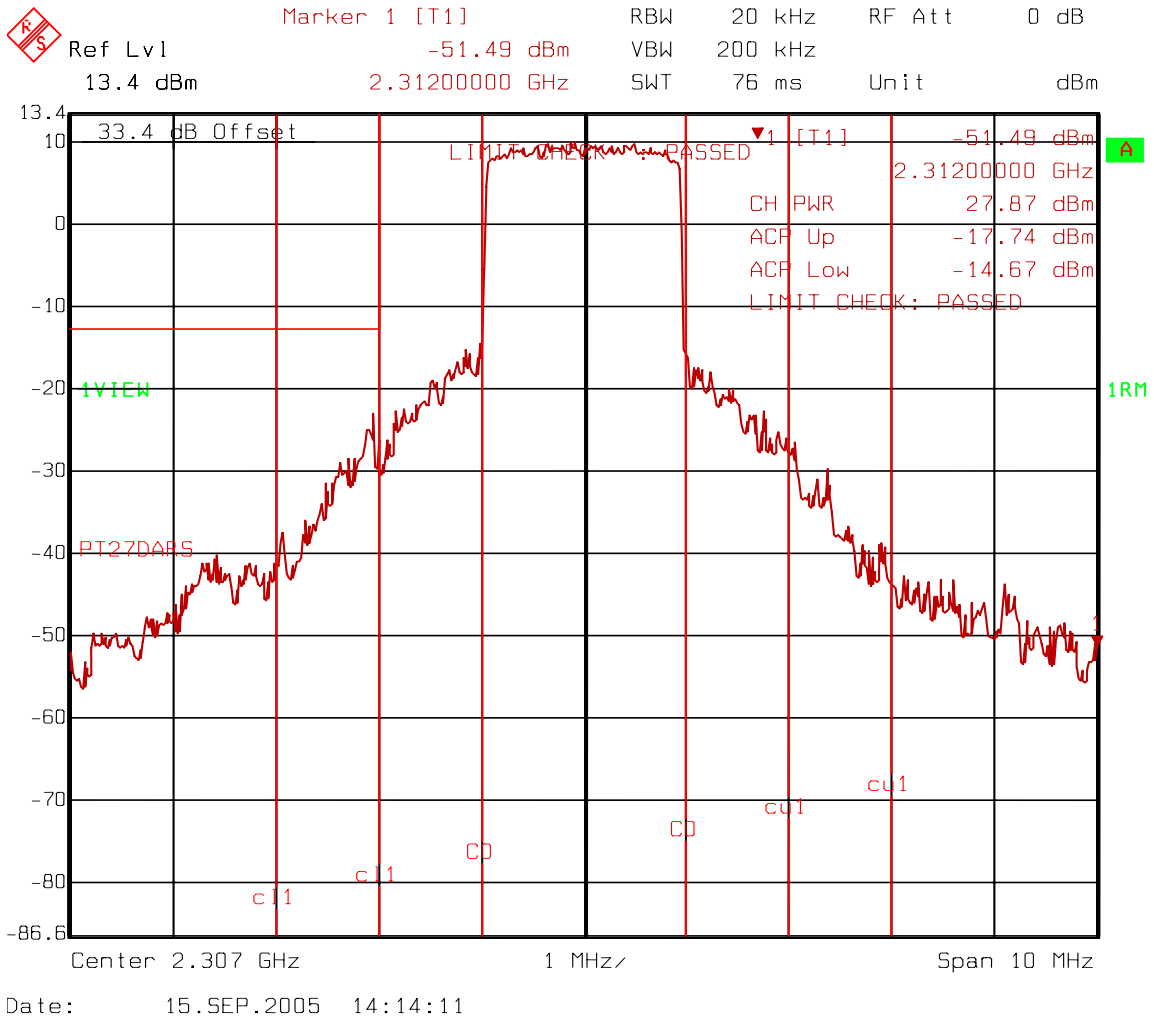
EQUIPMENT: 2305 - 2360 LMX E

0 C



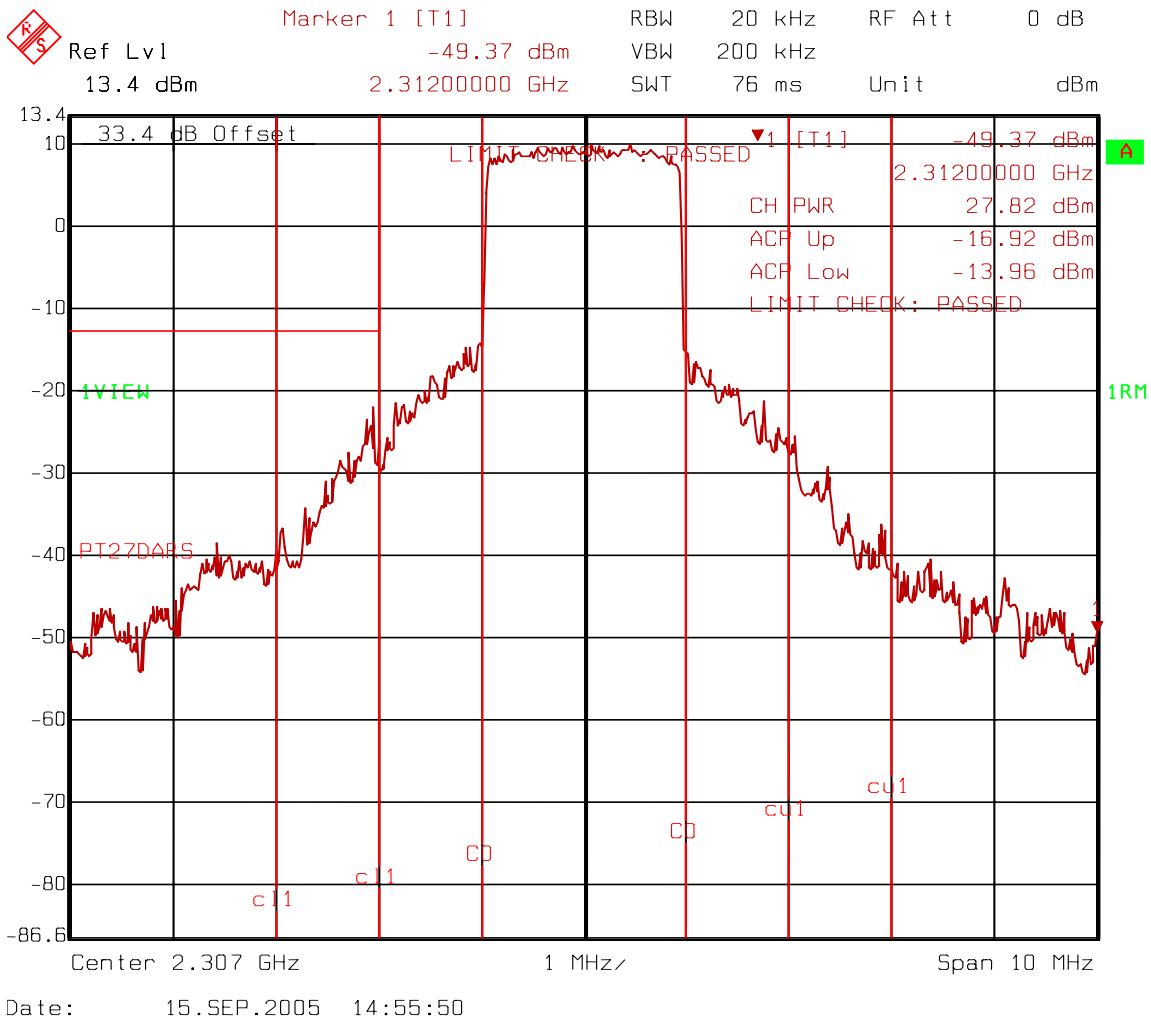
EQUIPMENT: 2305 - 2360 LMX E

-10 C



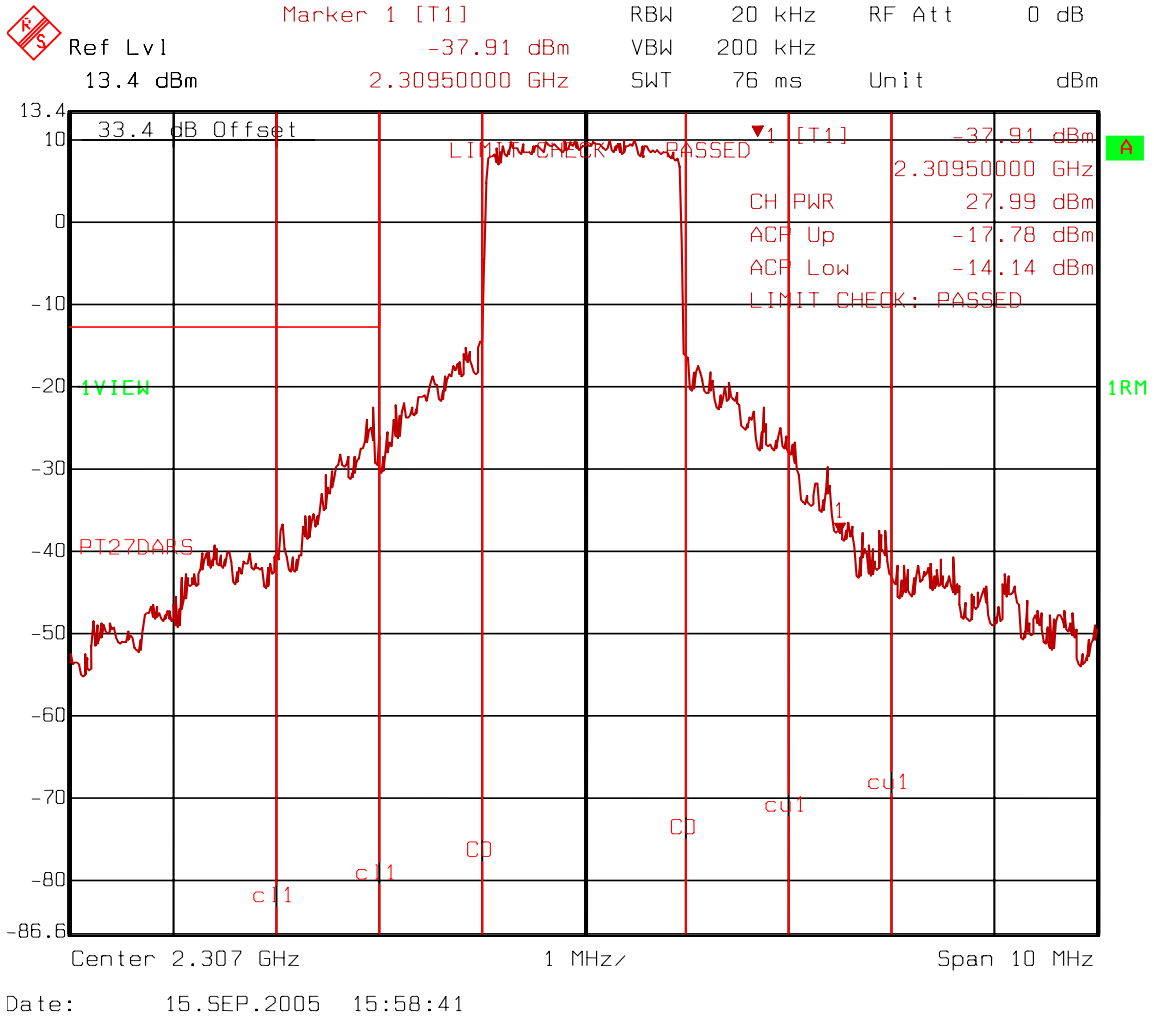
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

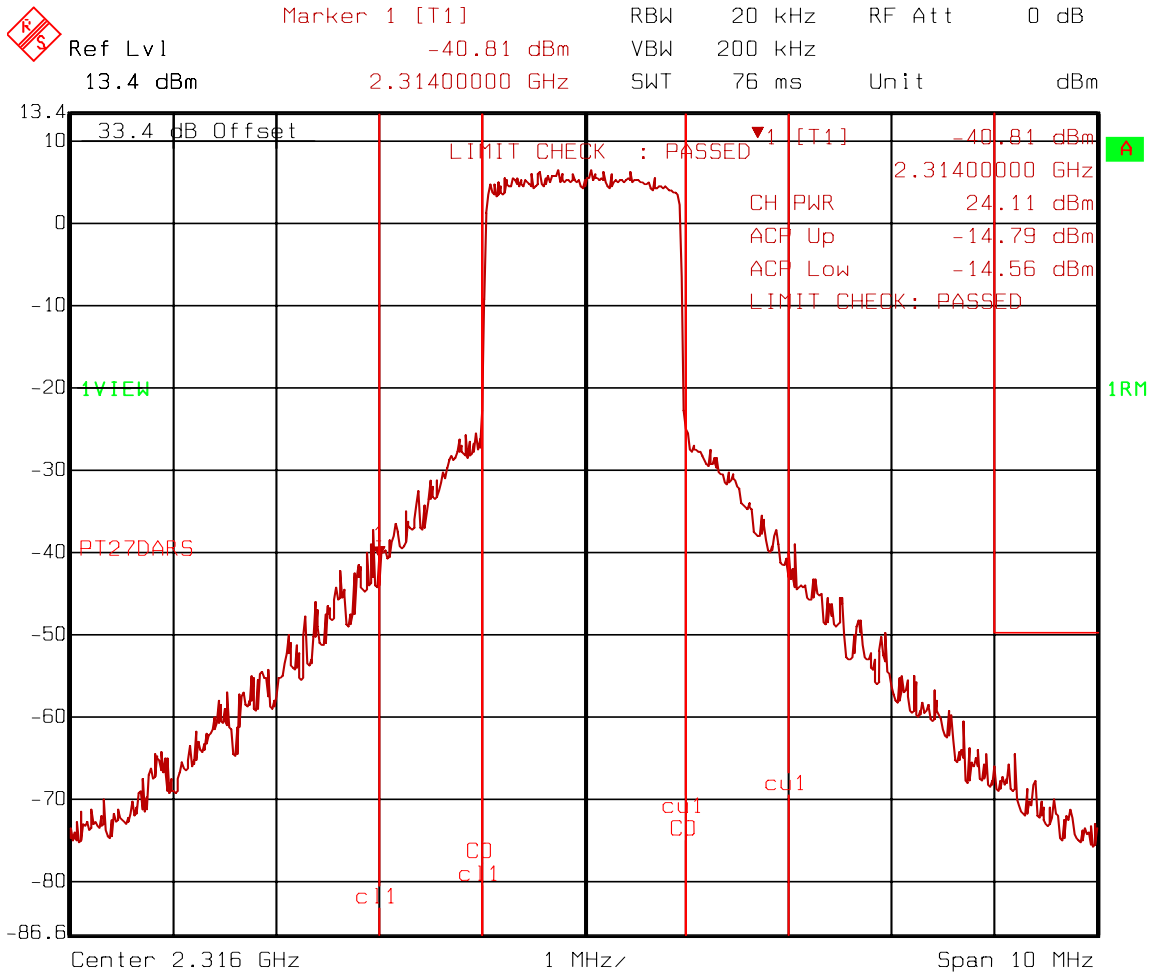
-30 C



EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES 115 TNOM

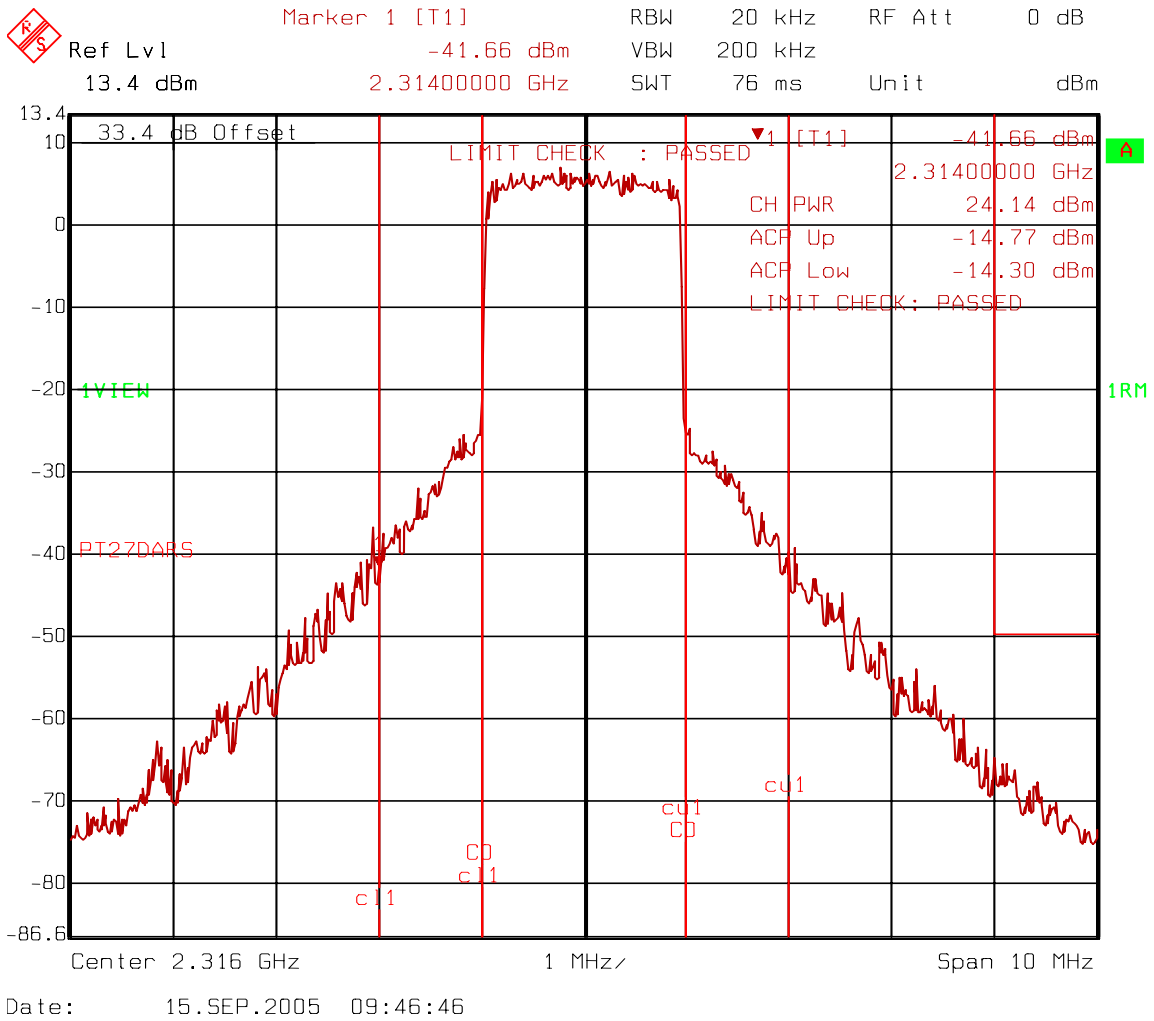
C BAND 24DBM OUTPUT



Date: 15.SEP.2005 09:48:11

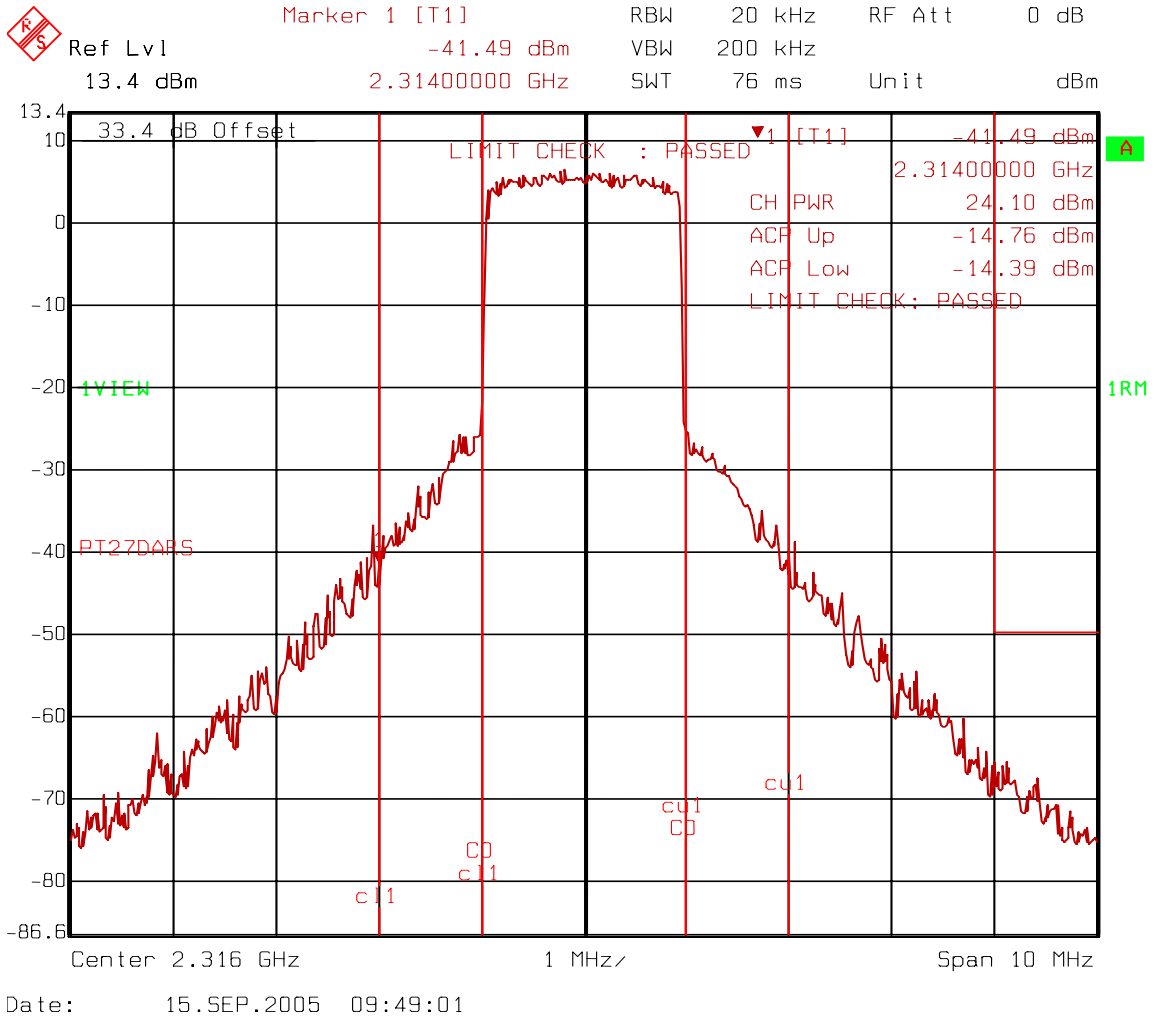
EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES TMIN



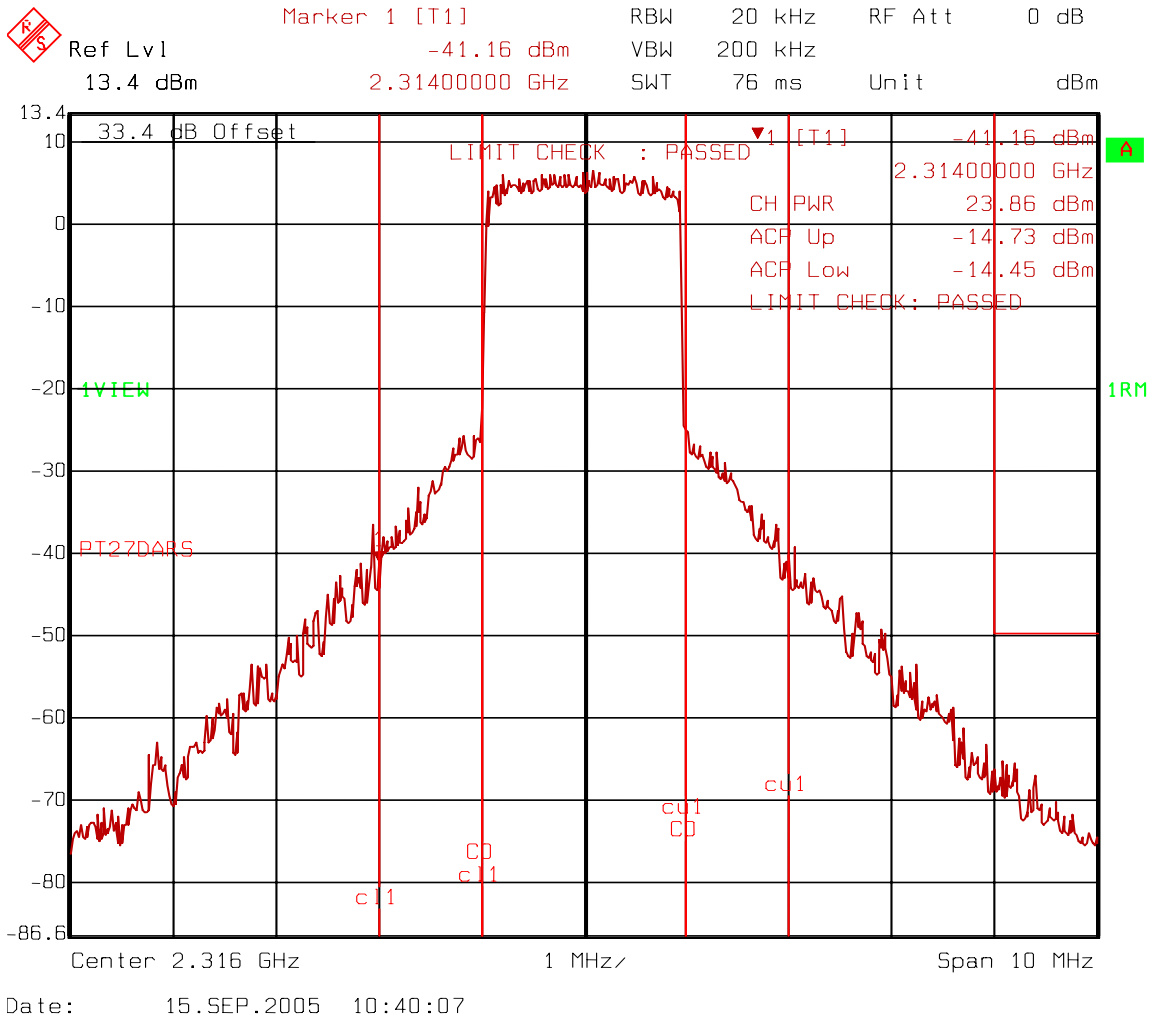
EQUIPMENT: 2305 - 2360 LMX E

20DEGREES TMAX



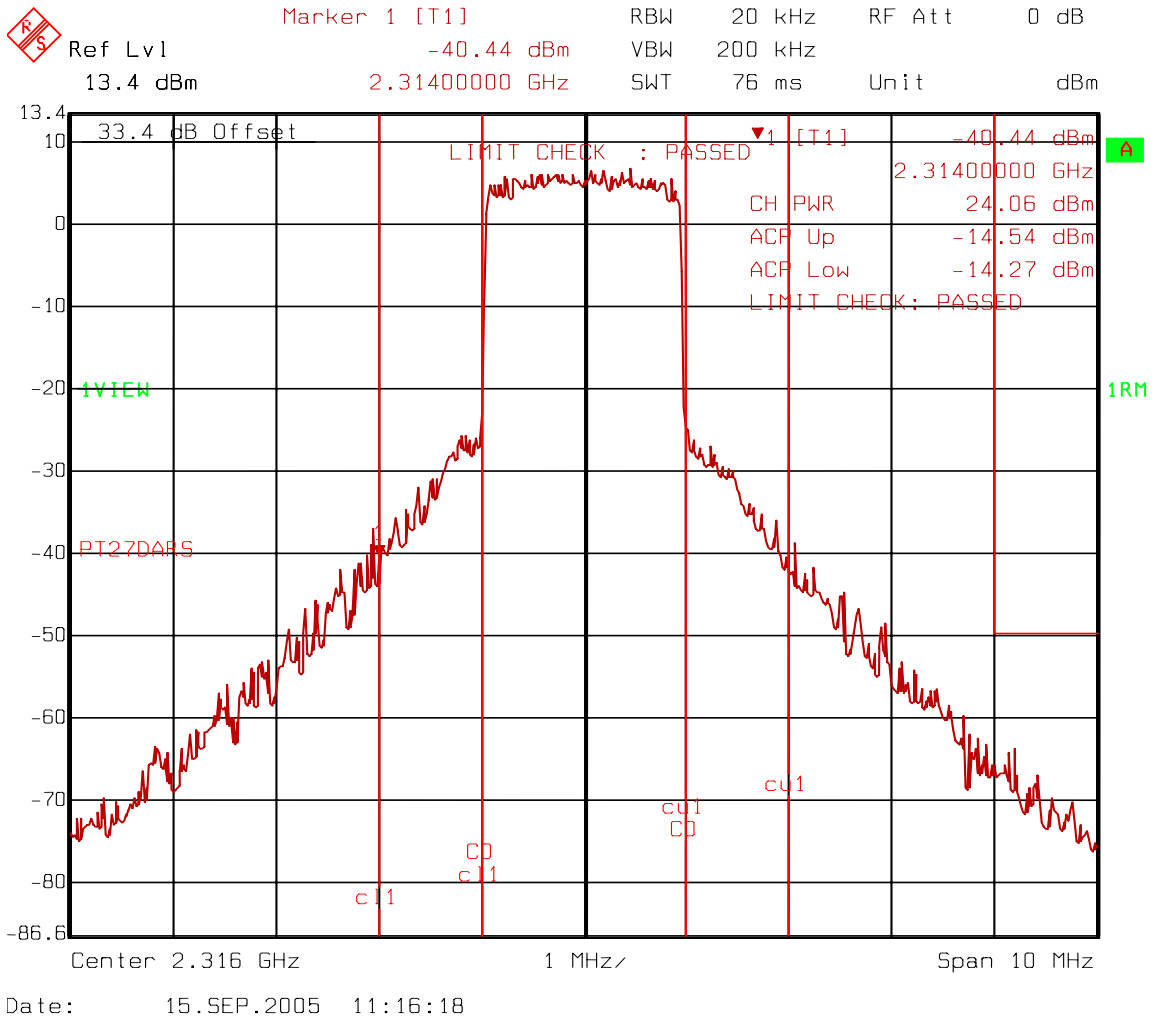
EQUIPMENT: 2305 - 2360 LMX E

50C



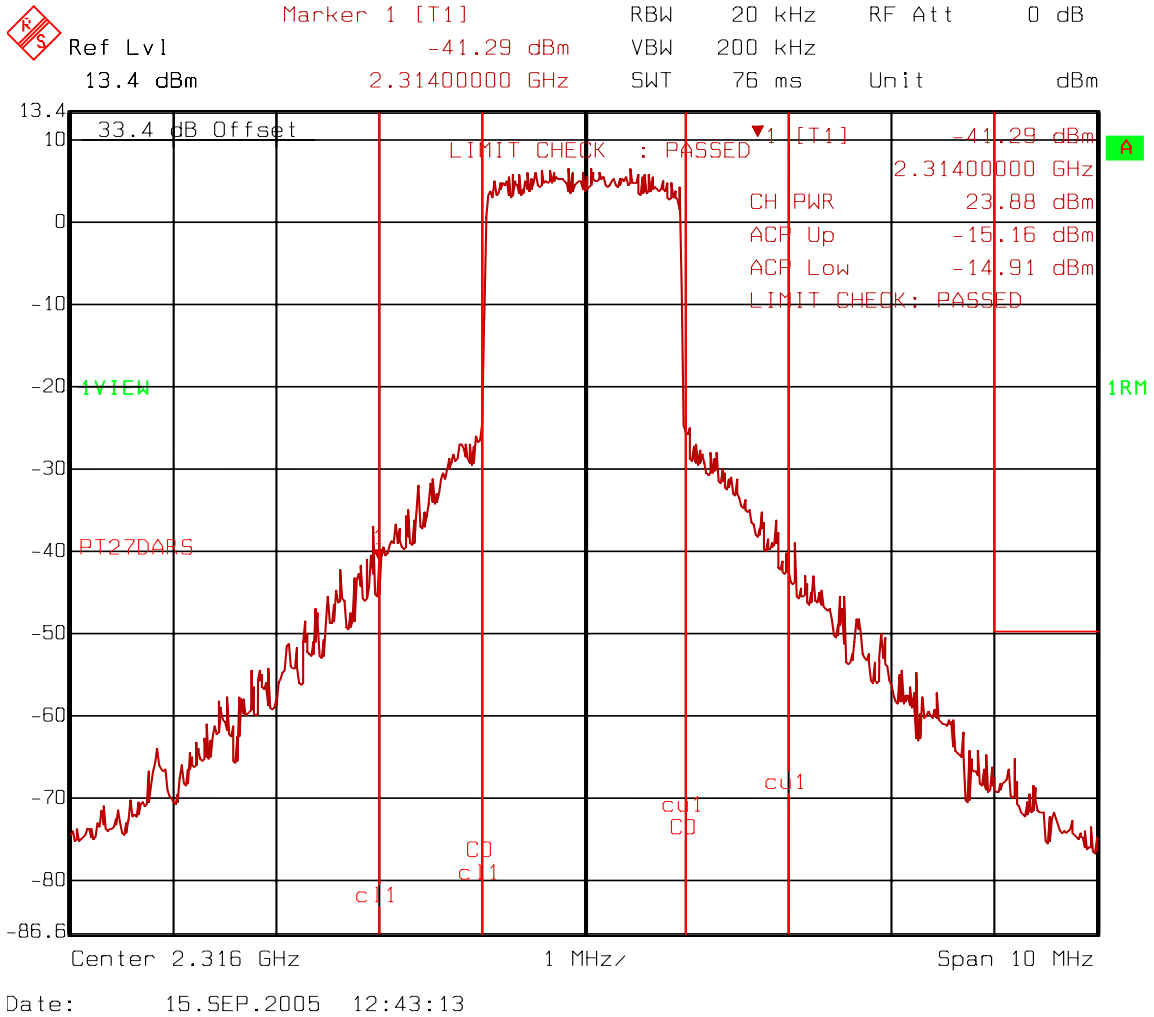
EQUIPMENT: 2305 - 2360 LMX E

40 C



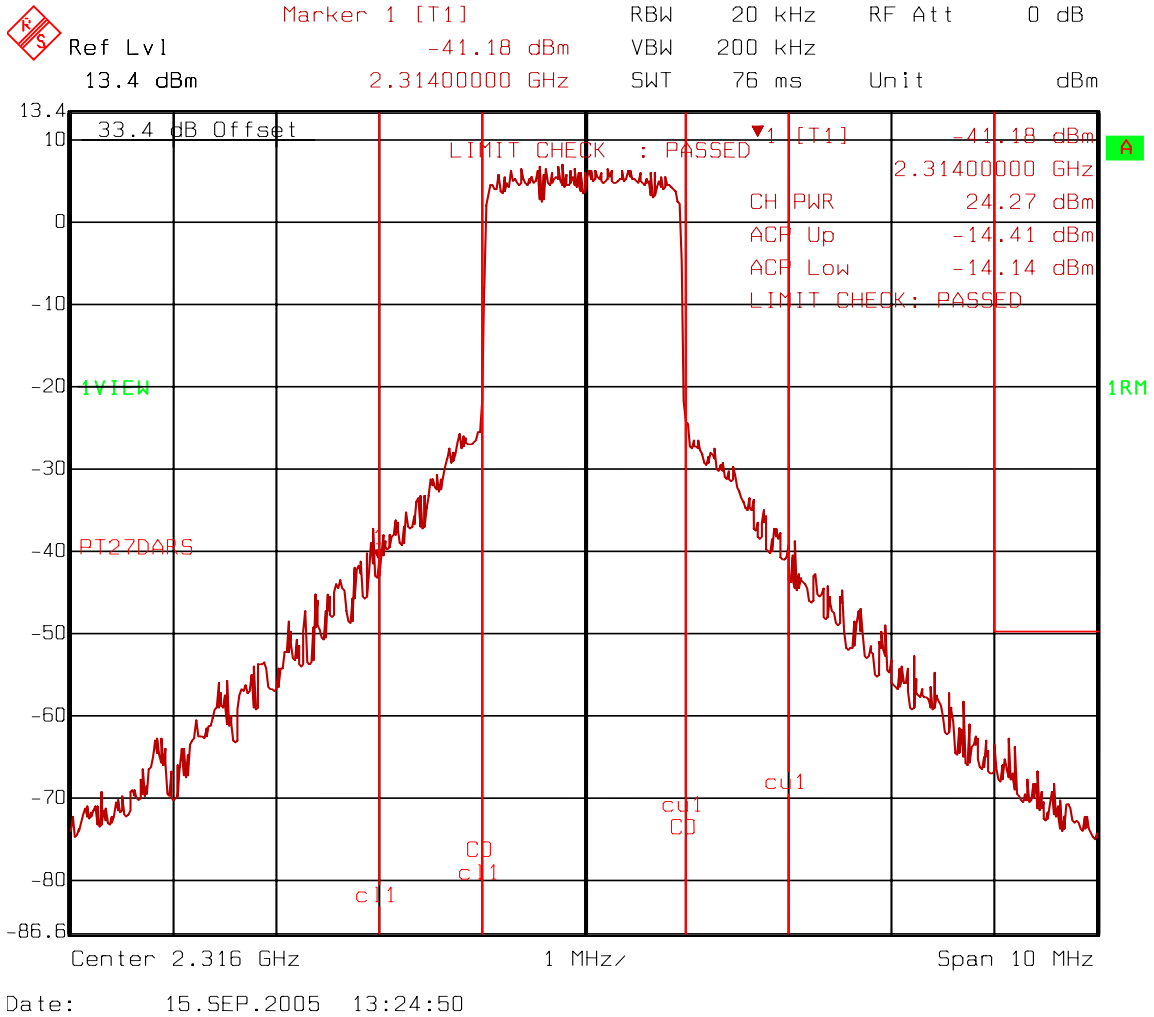
EQUIPMENT: 2305 - 2360 LMX E

30C



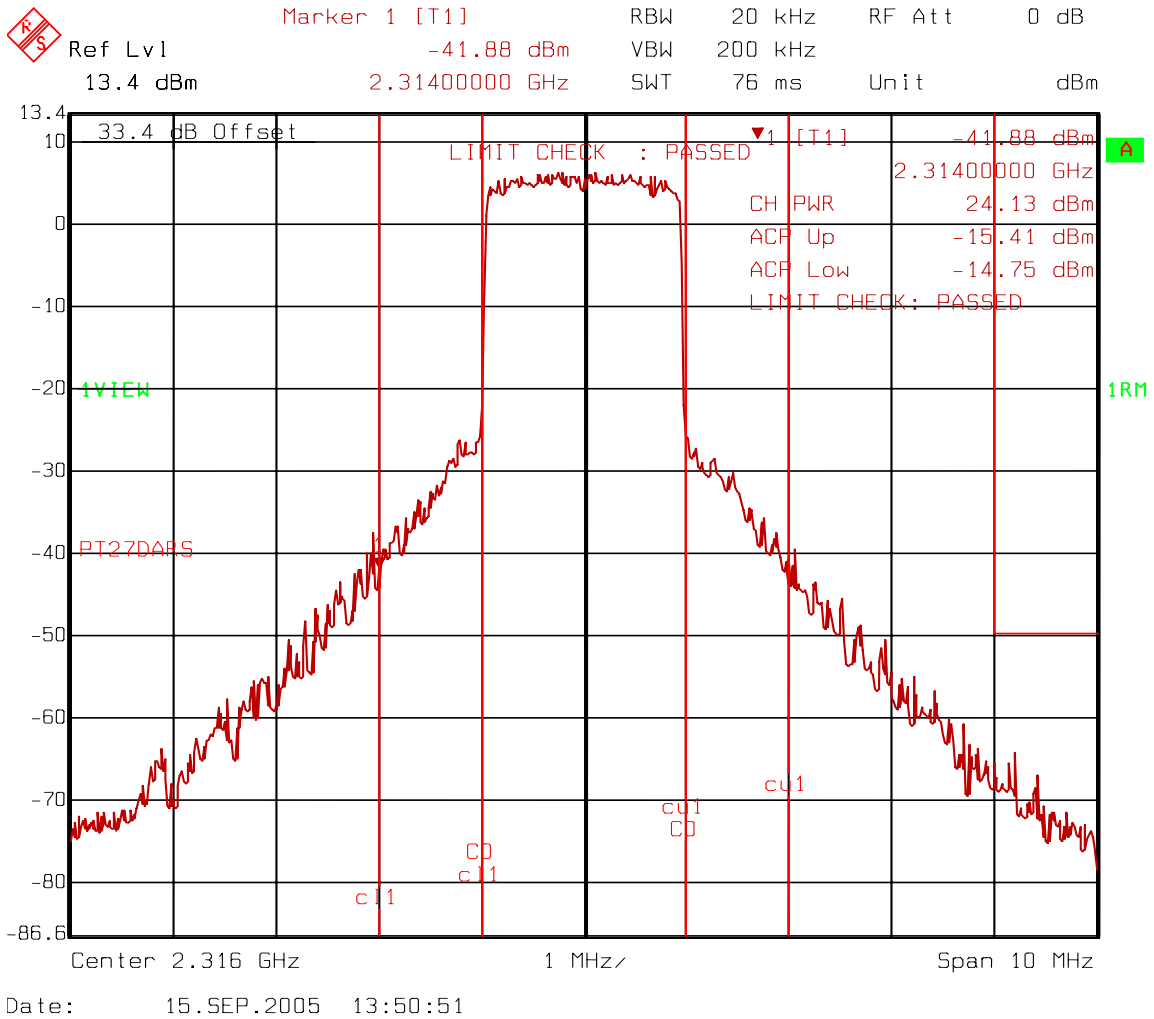
EQUIPMENT: 2305 - 2360 LMX E

10 C



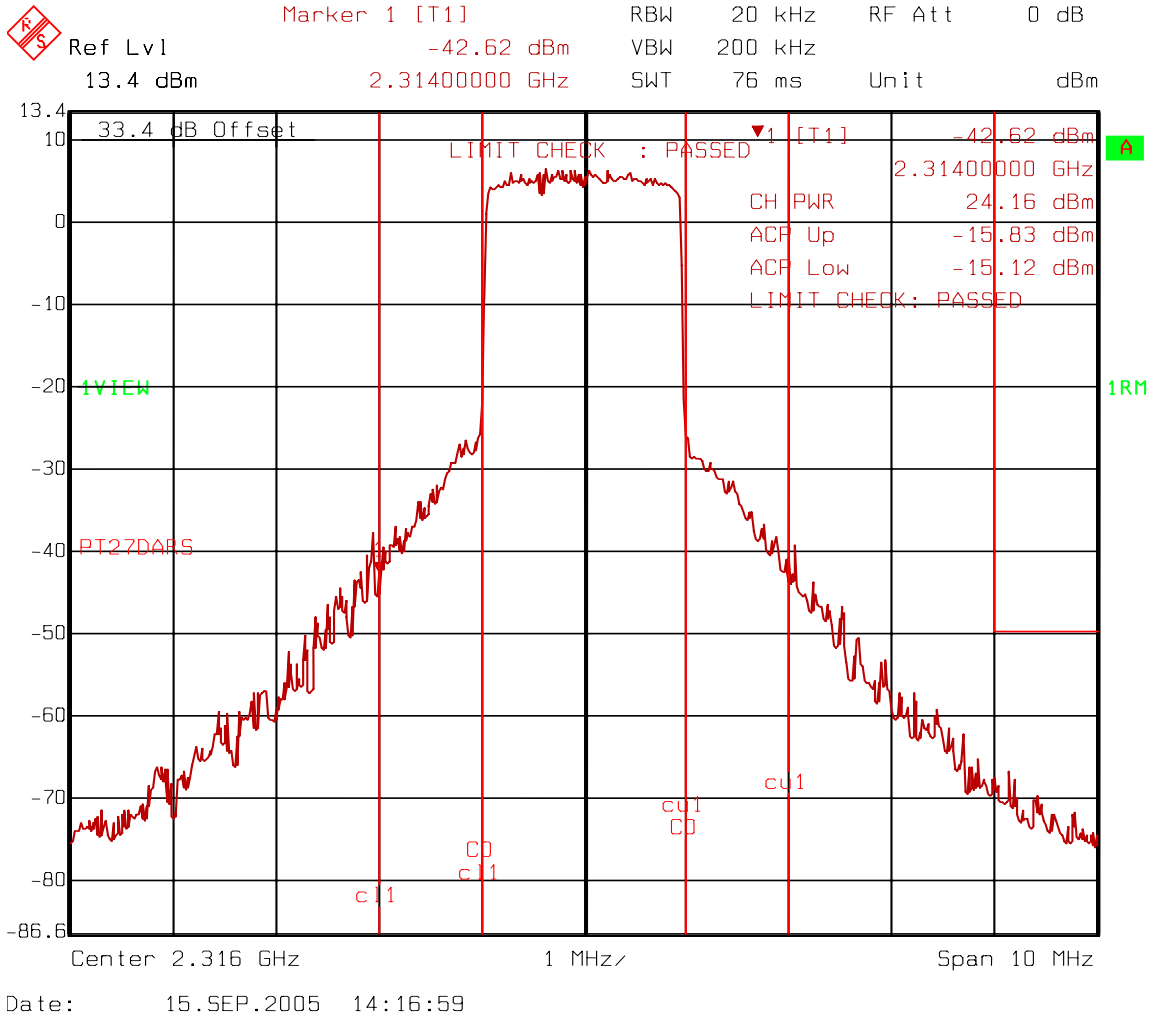
EQUIPMENT: 2305 - 2360 LMX E

0 C



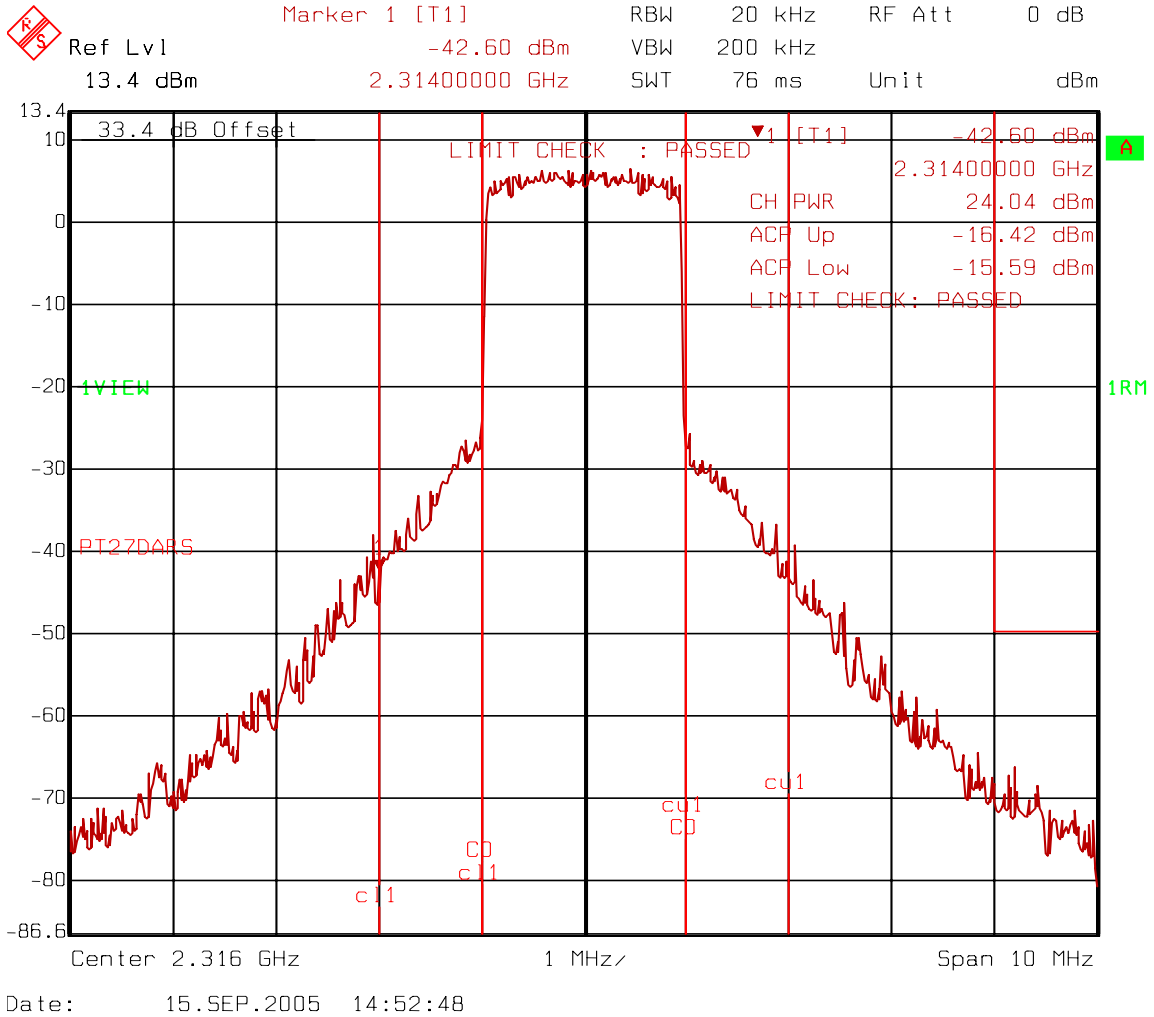
EQUIPMENT: 2305 - 2360 LMX E

-10 C



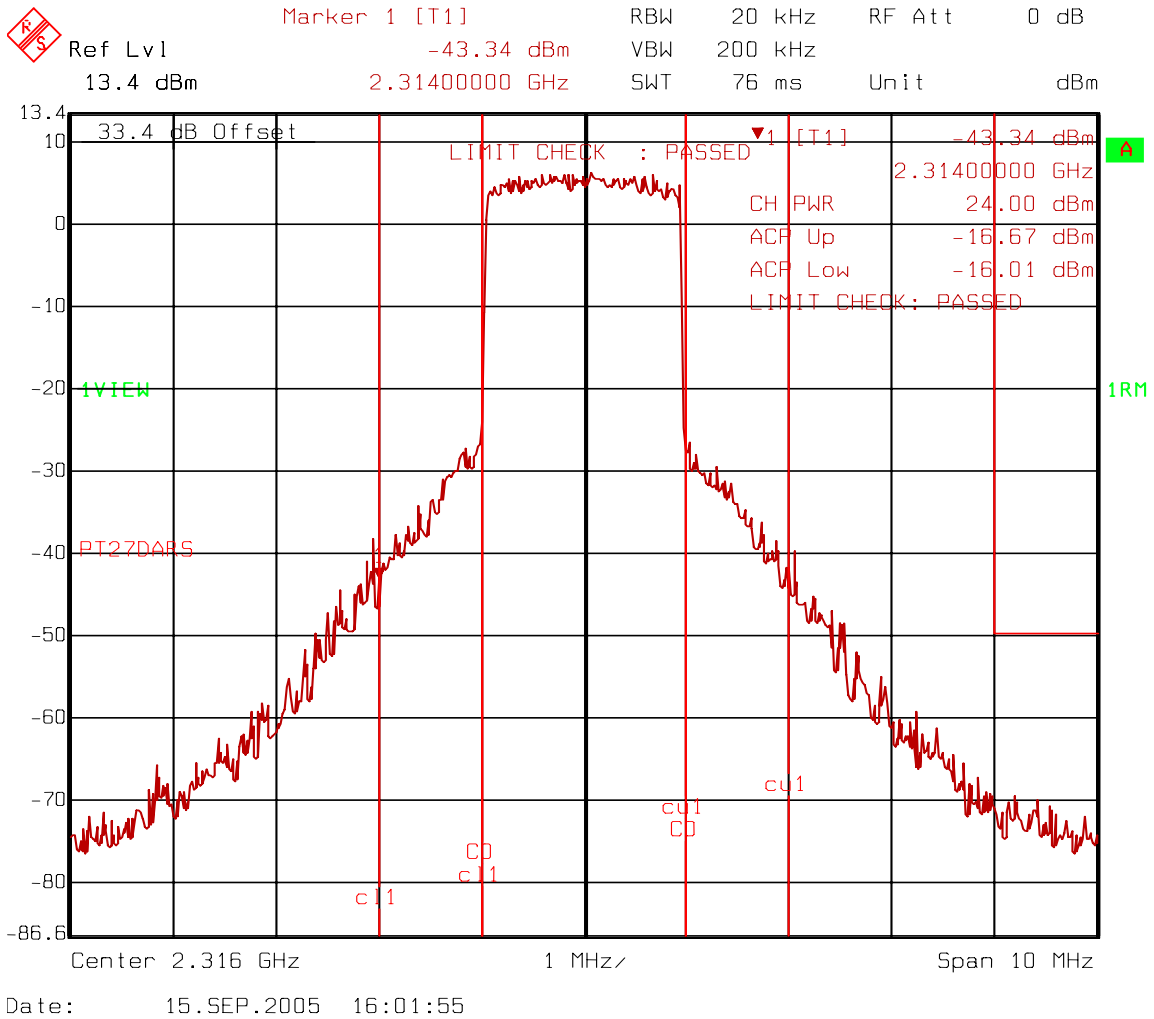
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

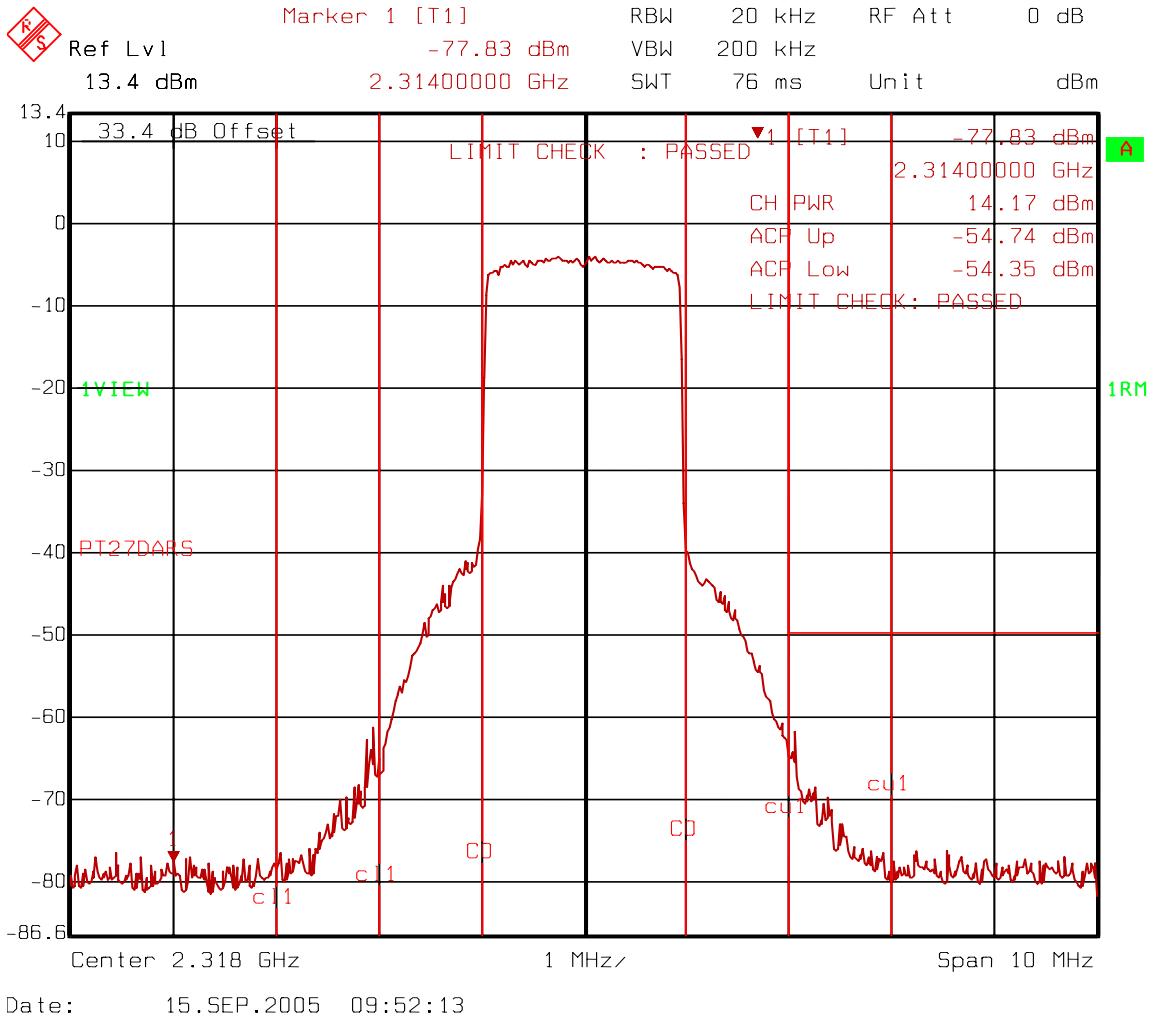
-30 C



EQUIPMENT: 2305 - 2360 LMX E

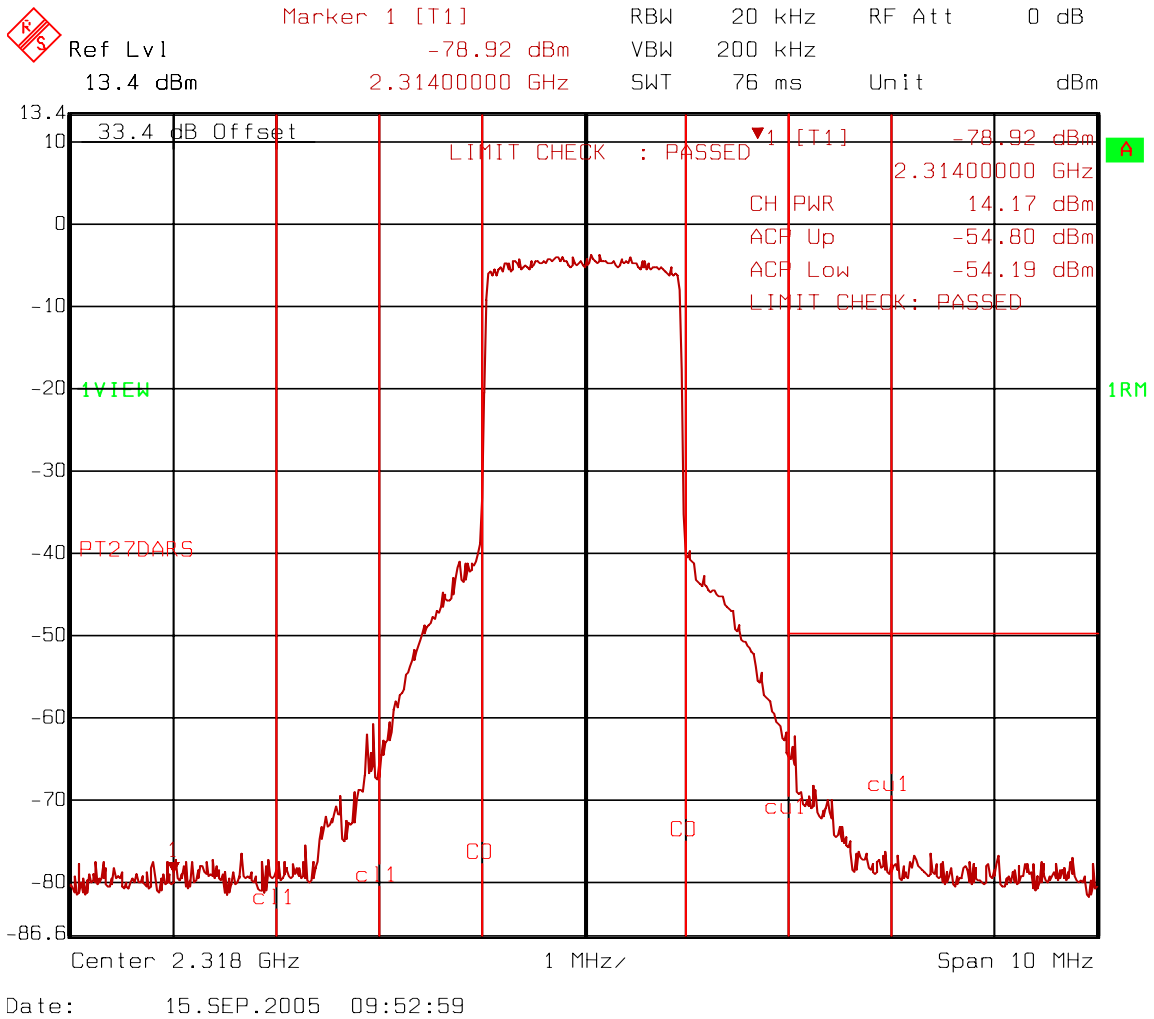
20 DEGREES 115 TNOM

C BAND 14DBM OUTPUT



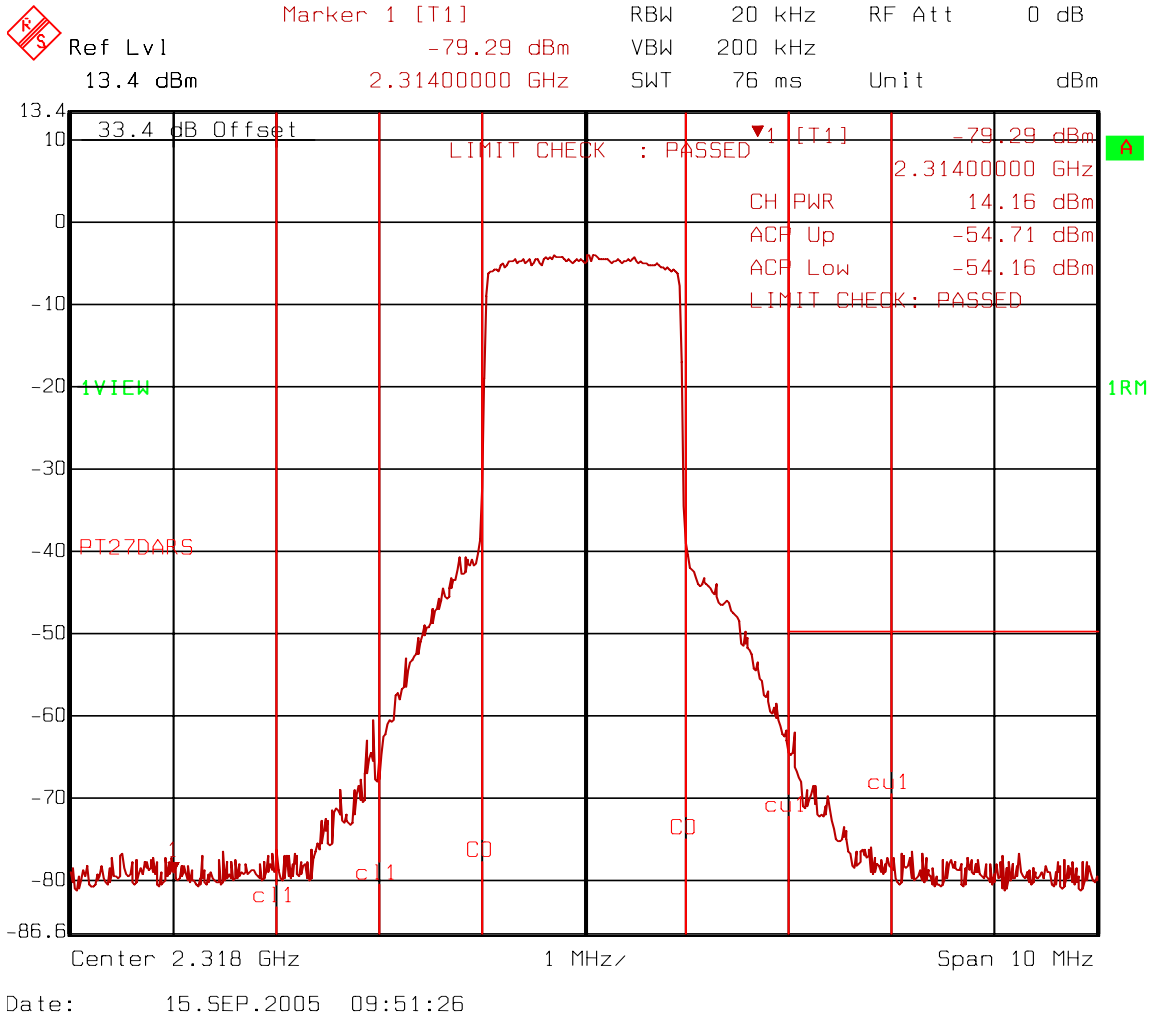
EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES TMIN



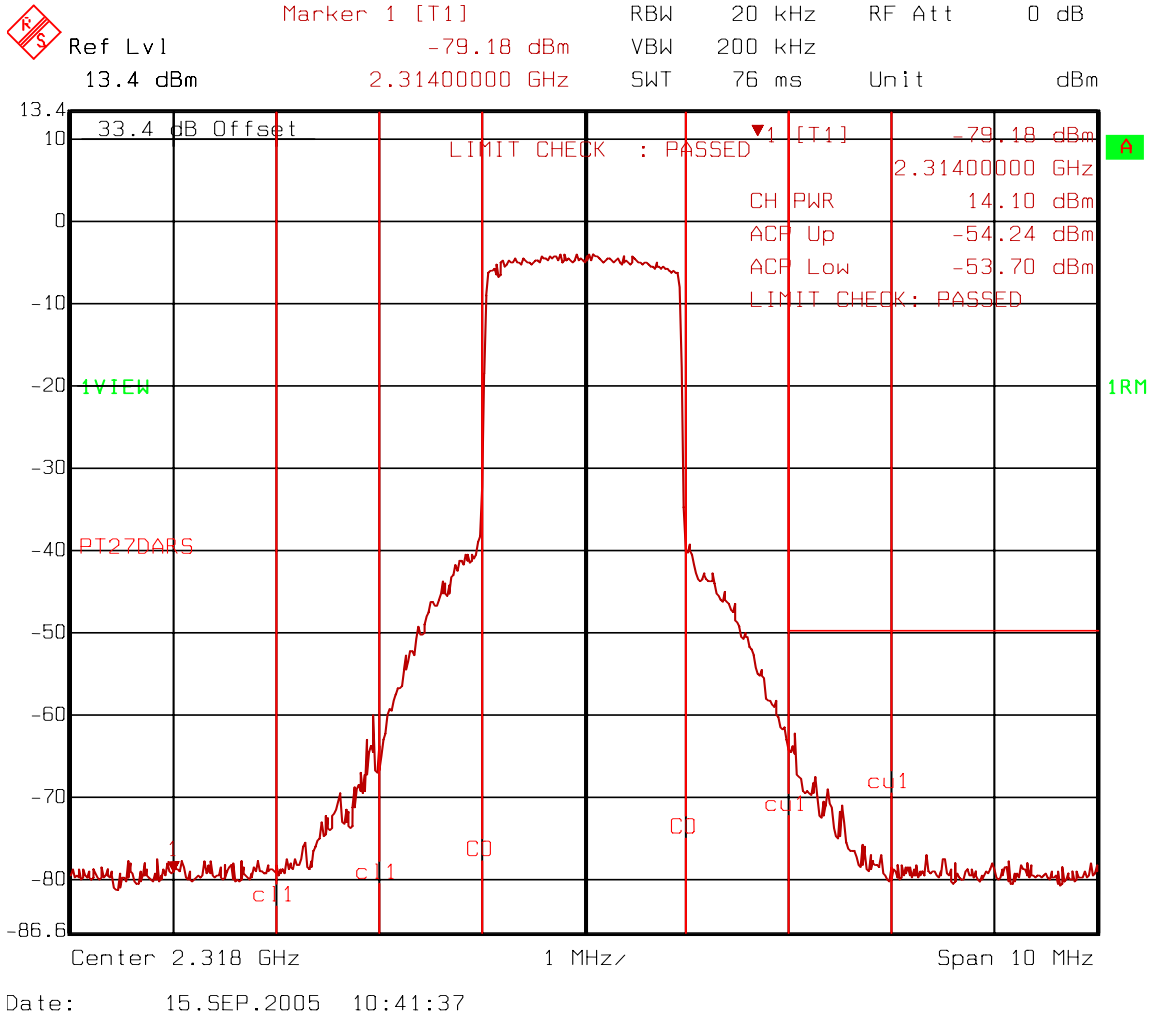
EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES TMAX



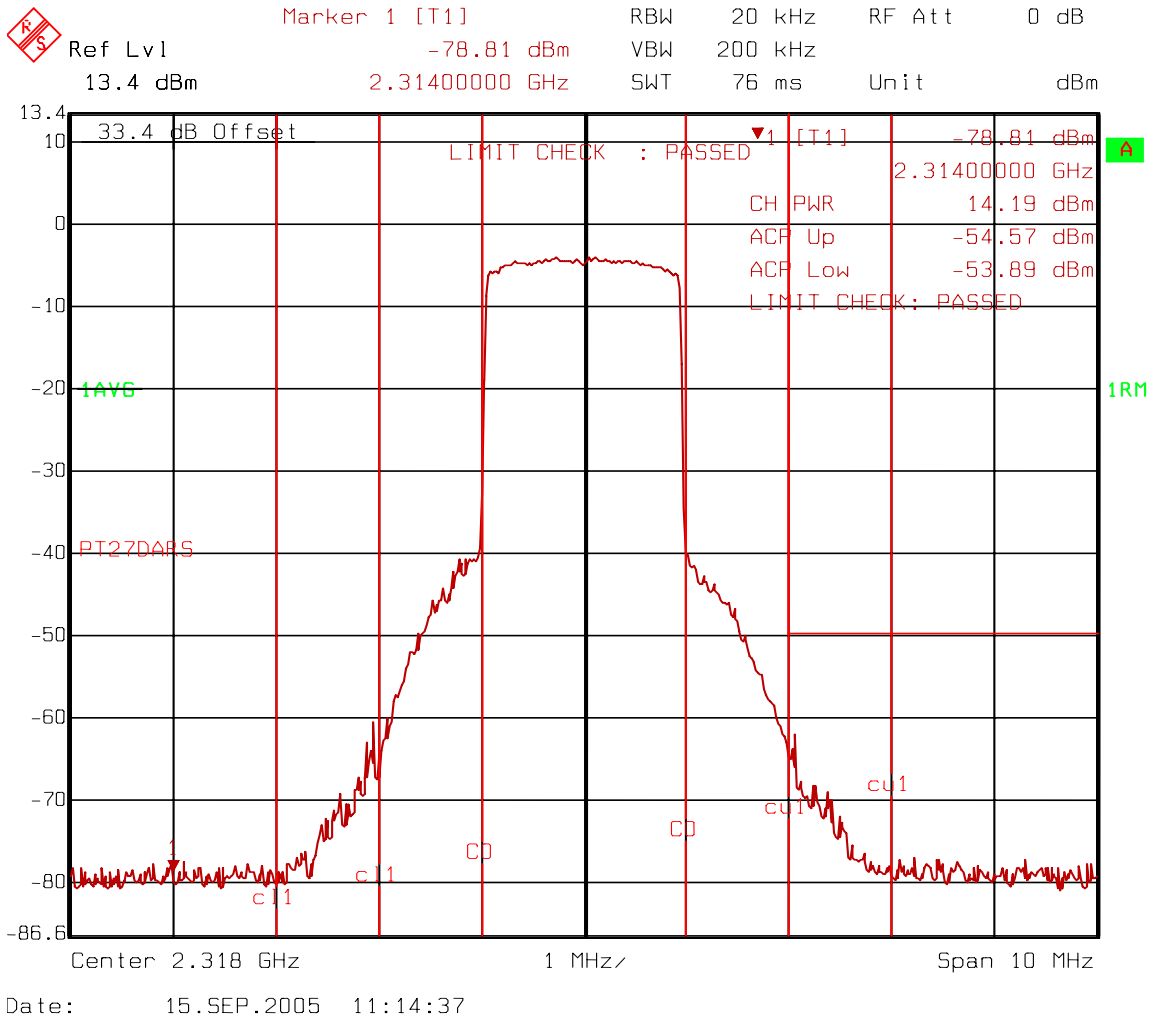
EQUIPMENT: 2305 - 2360 LMX E

50 C



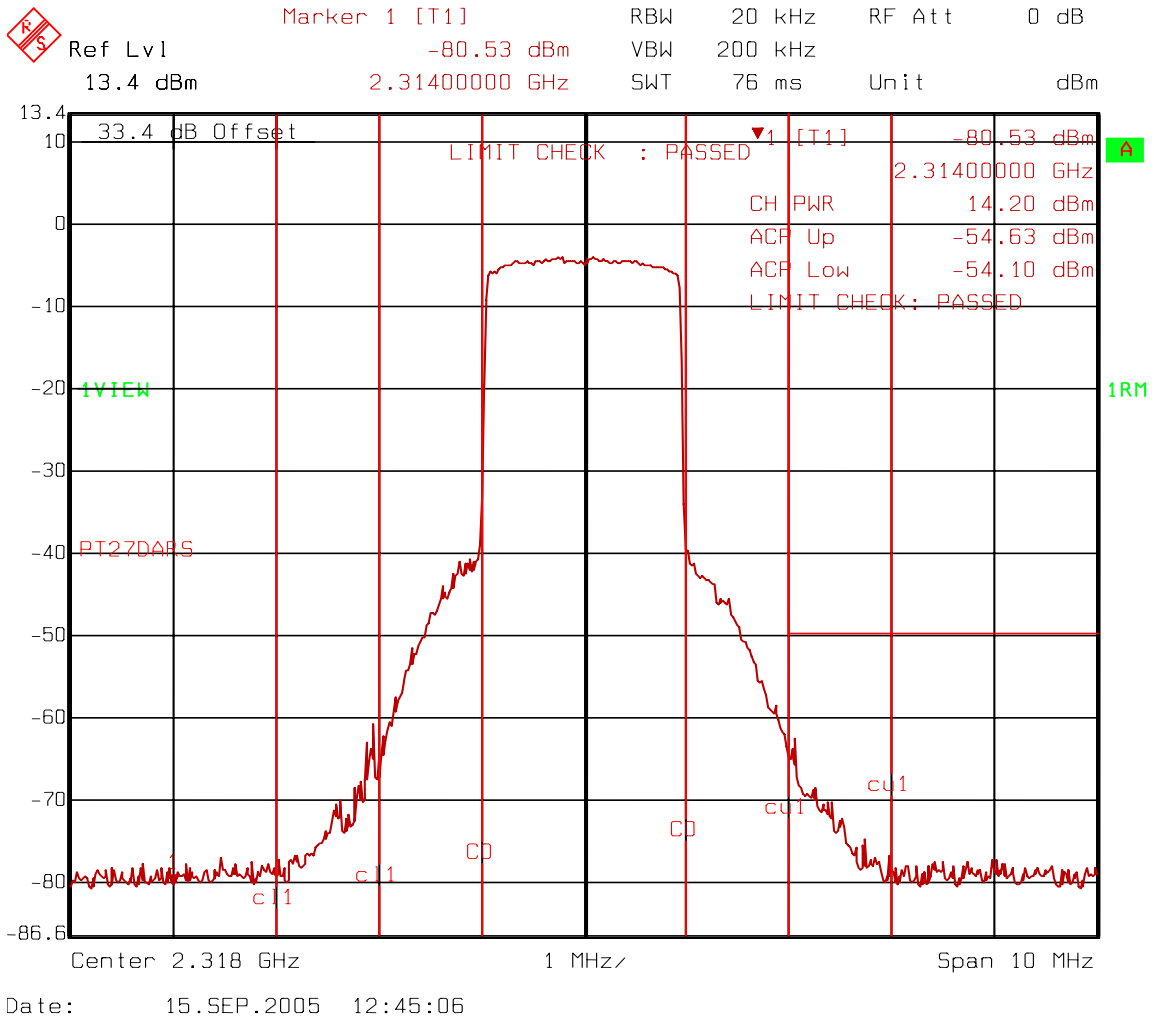
EQUIPMENT: 2305 - 2360 LMX E

40 C



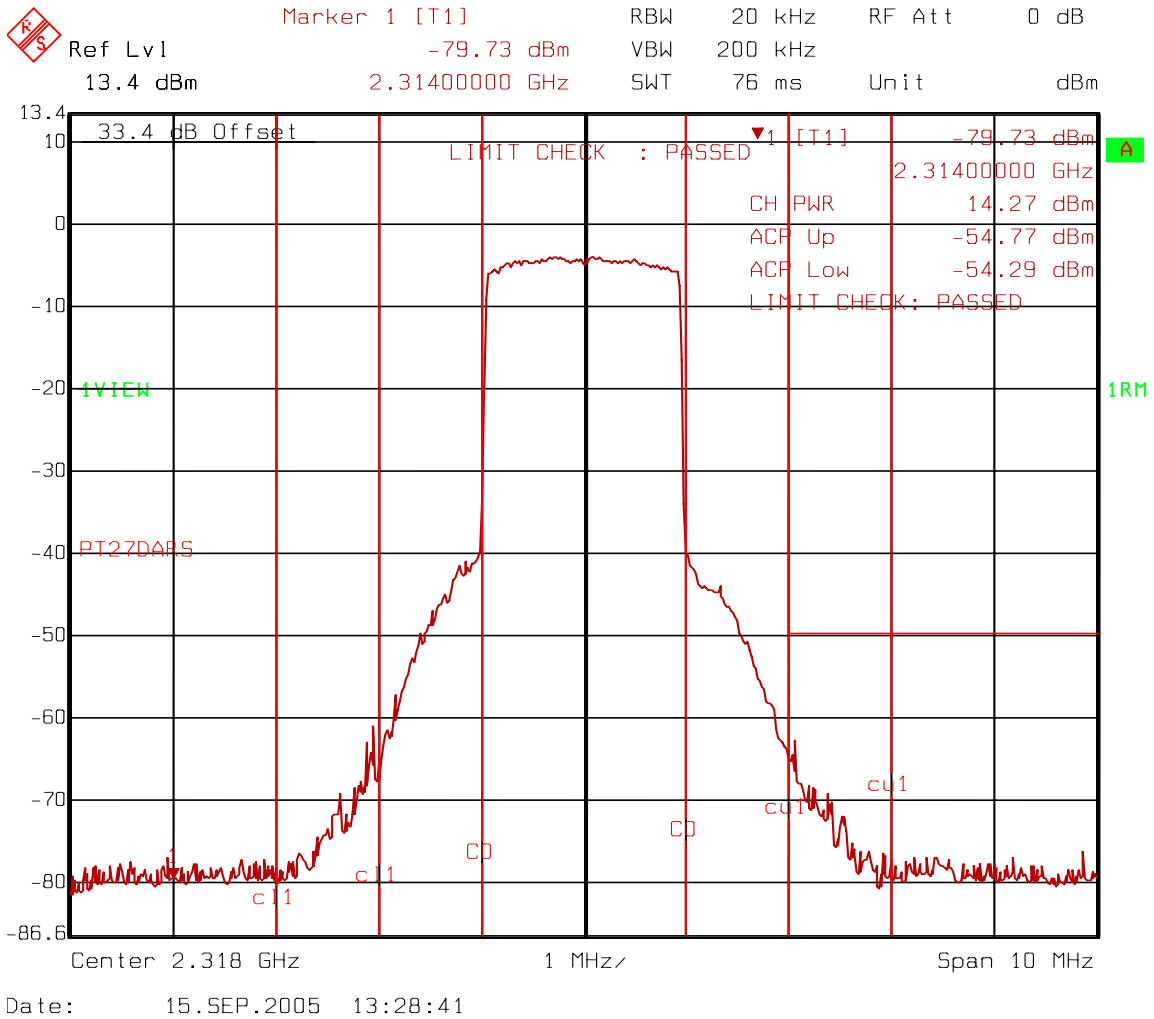
EQUIPMENT: 2305 - 2360 LMX E

30 C



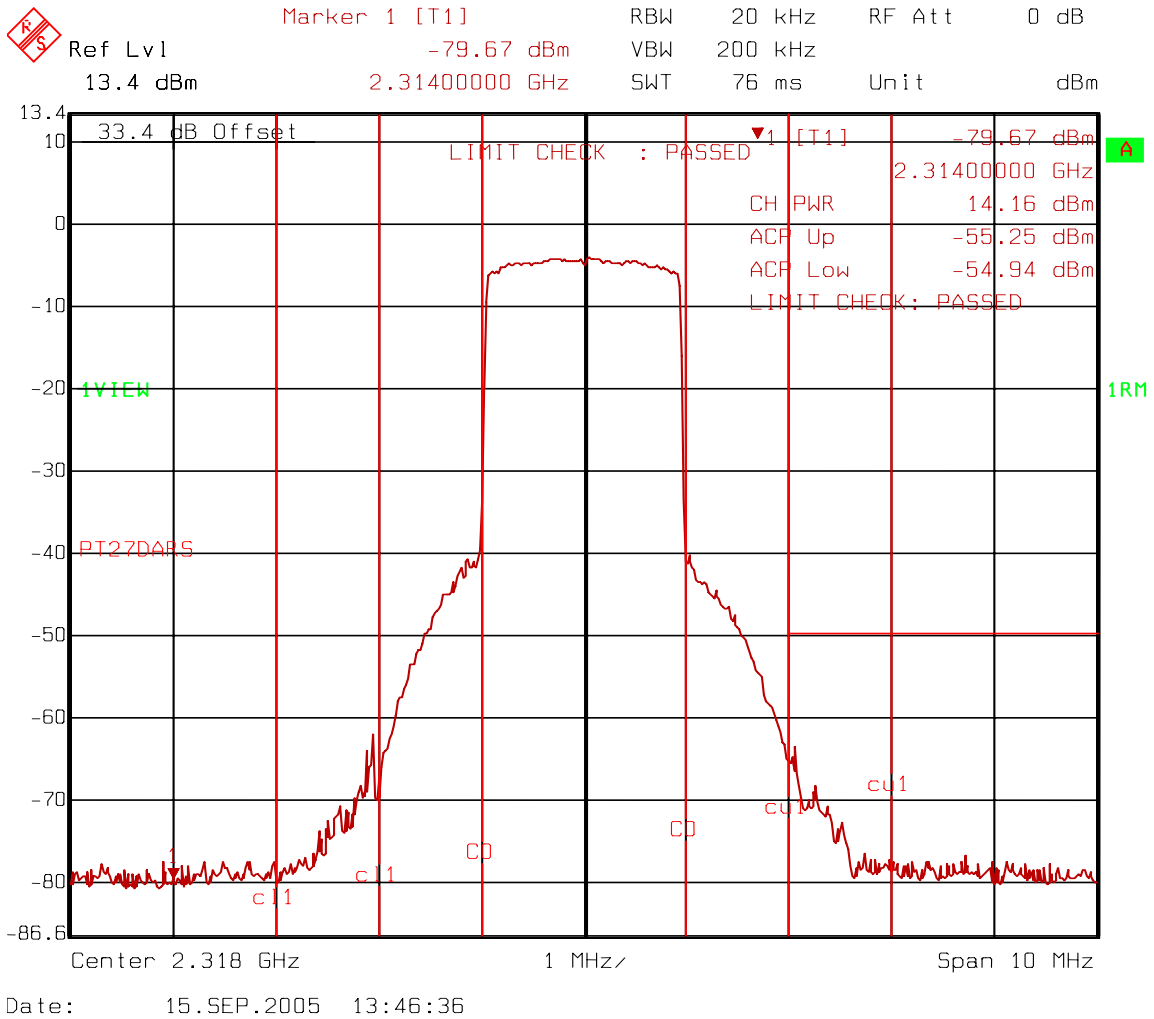
EQUIPMENT: 2305 - 2360 LMX E

10 C



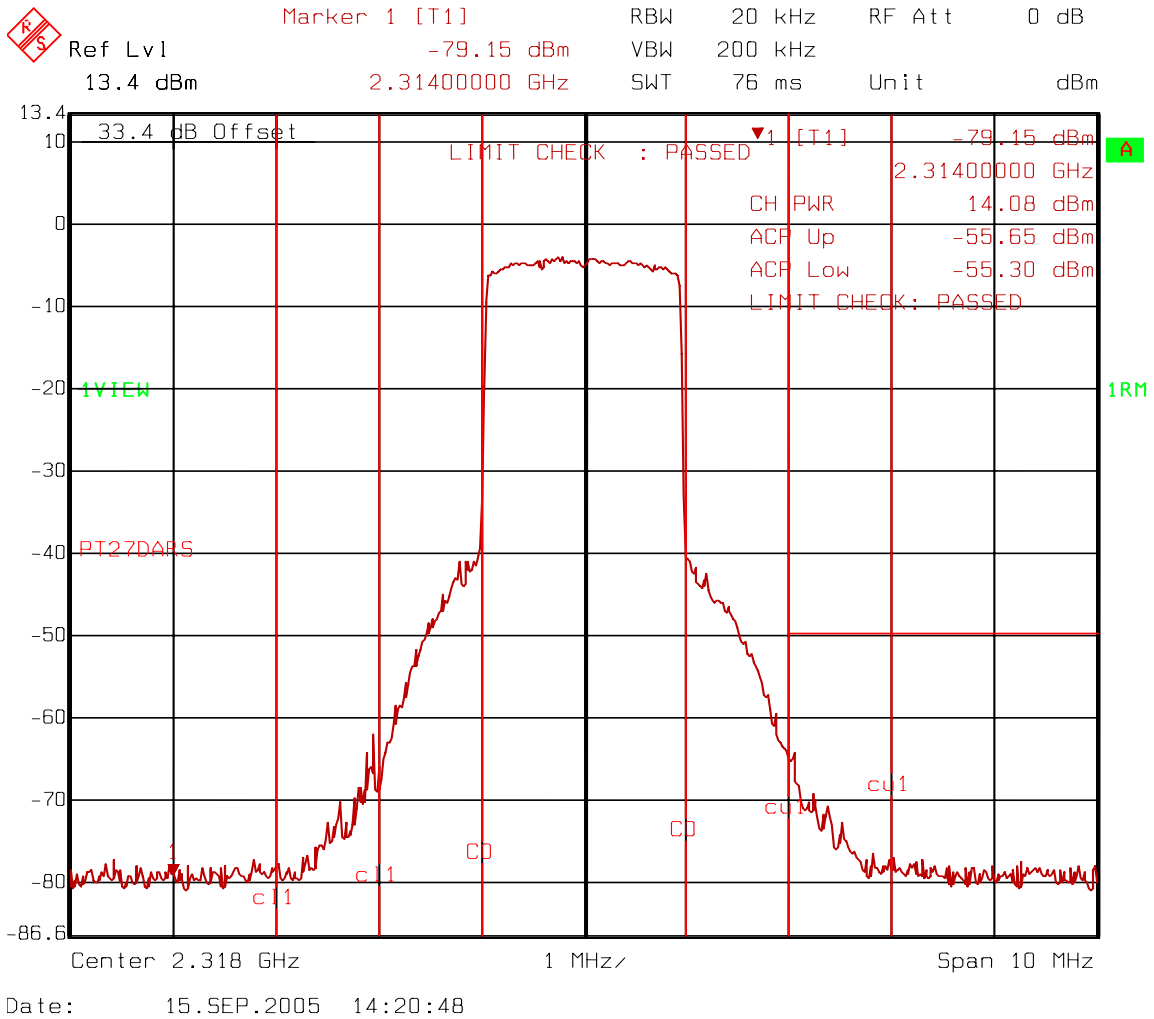
EQUIPMENT: 2305 - 2360 LMX E

0 C



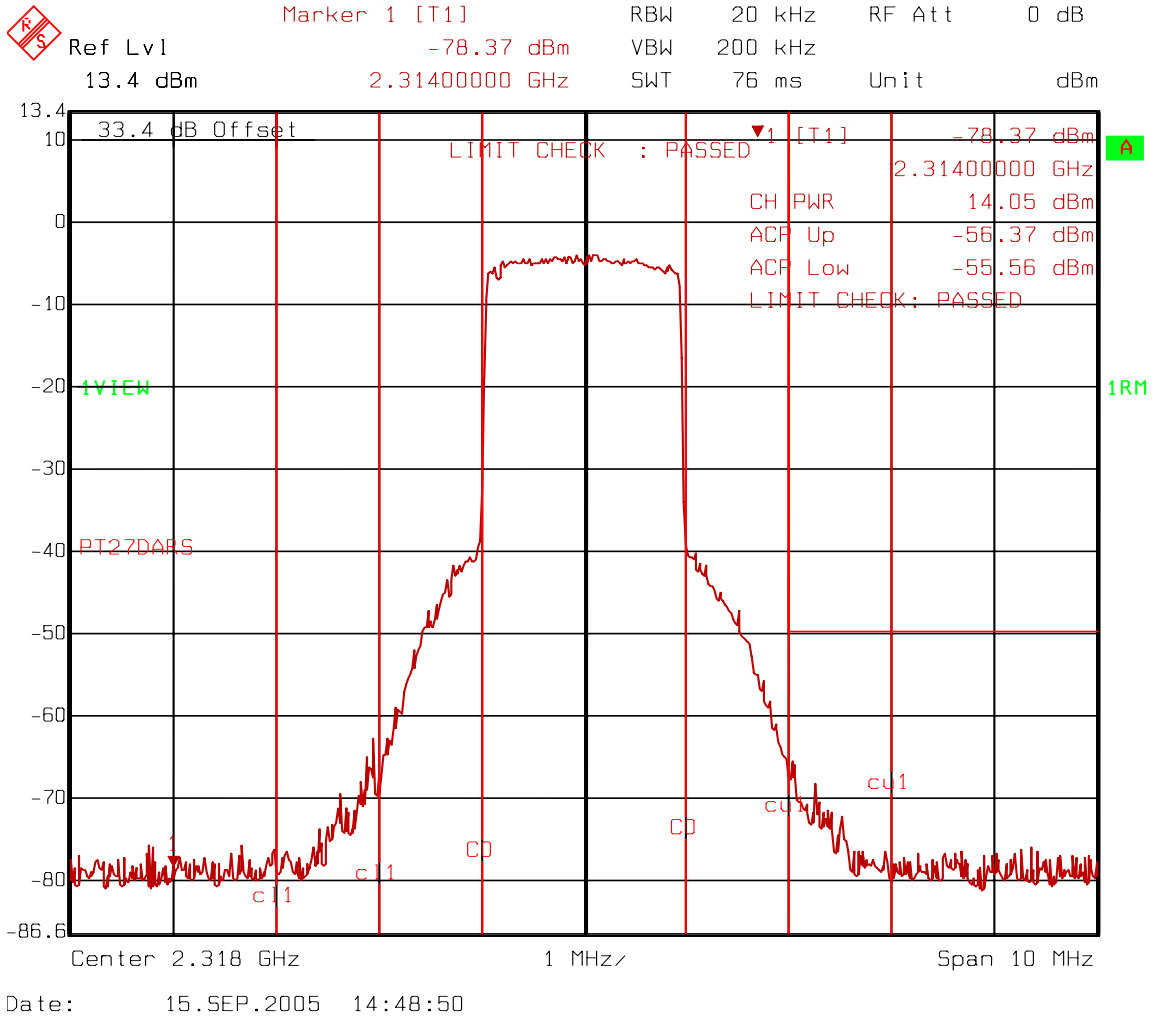
EQUIPMENT: 2305 - 2360 LMX E

-10 C



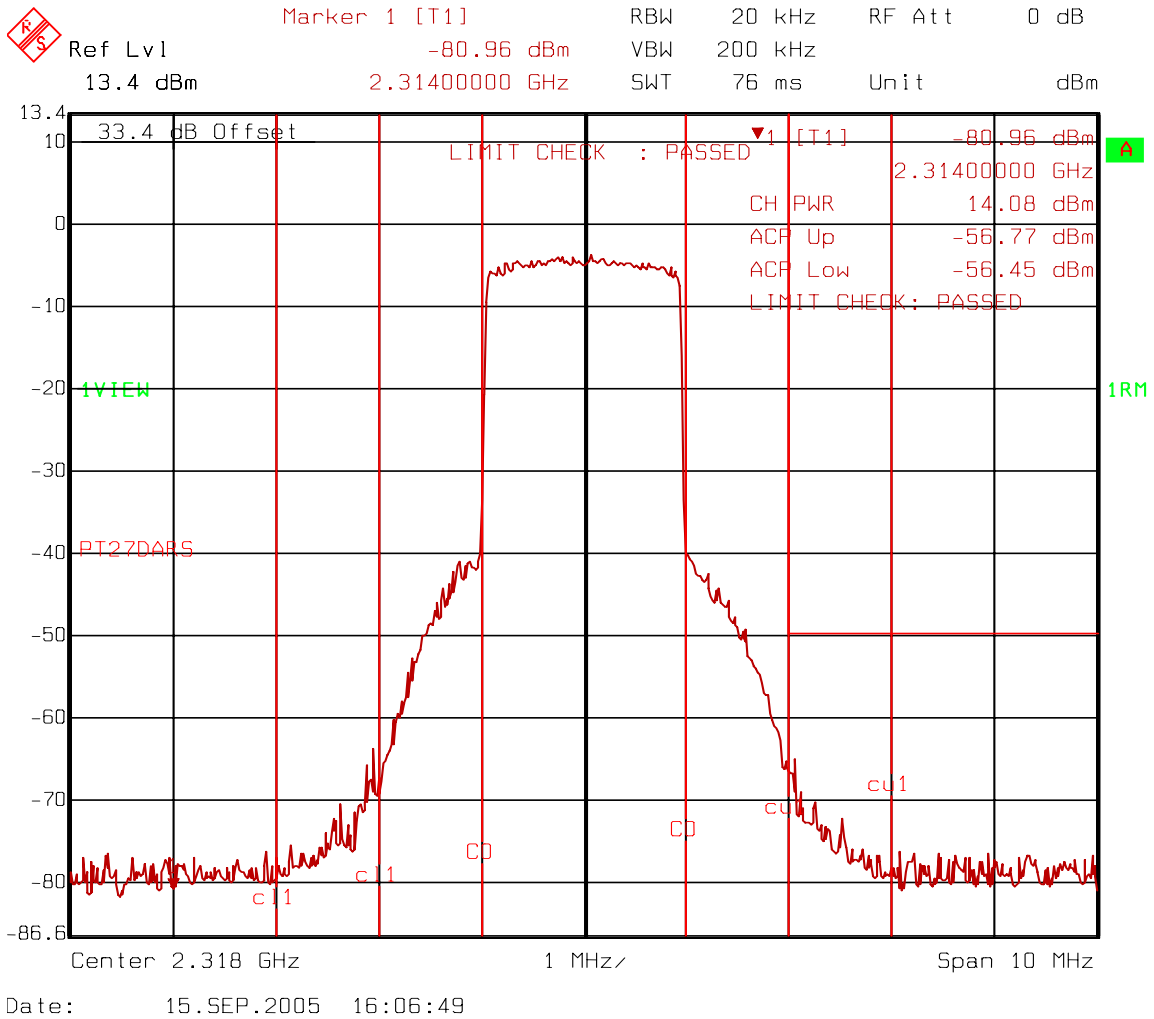
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

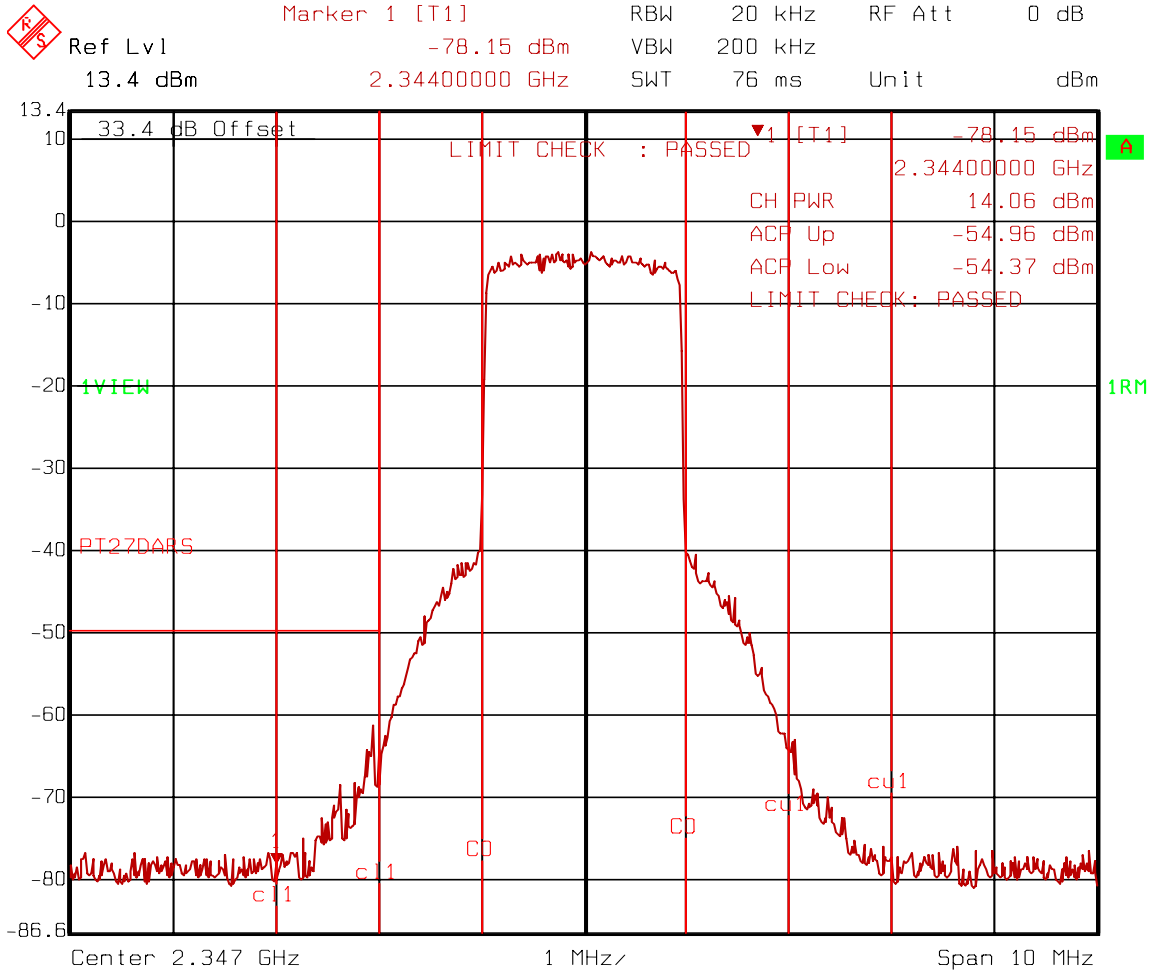
-30 C



EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES 115 TNOM

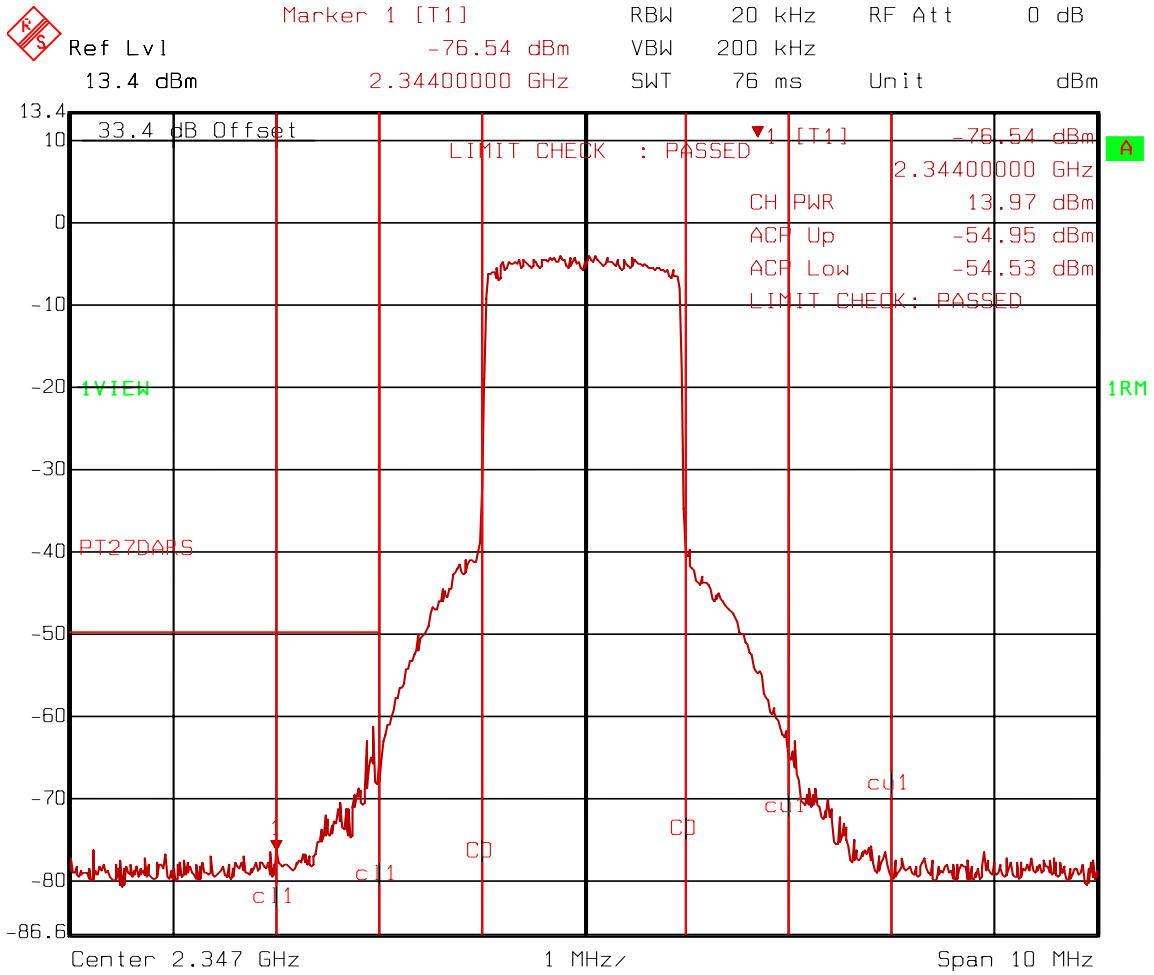
D BAND 14DBM OUTPUT



Date: 15.SEP.2005 09:44:30

EQUIPMENT: 2305 - 2360 LMX E

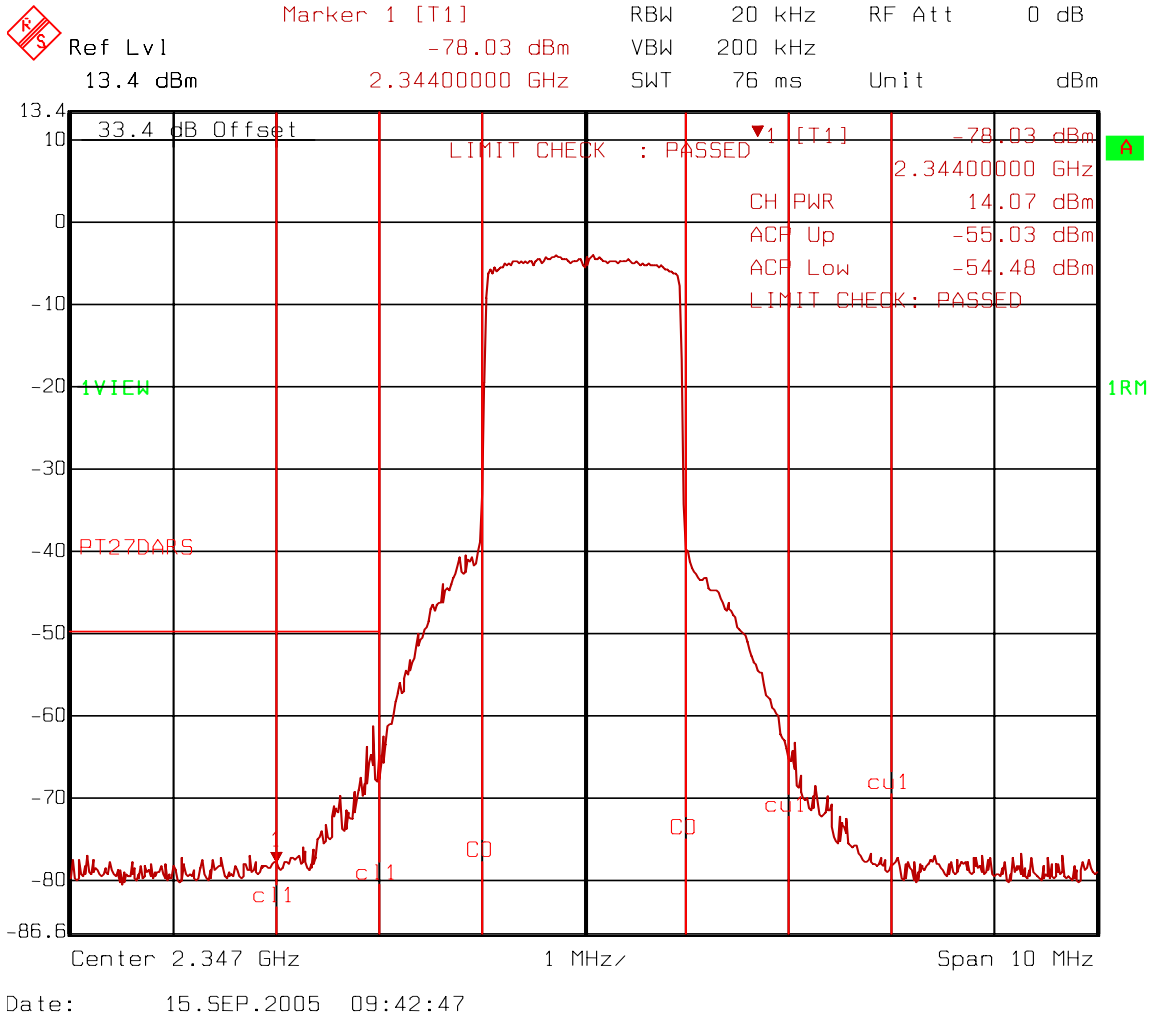
20DEGREES TMIN



Date: 15.SEP.2005 09:45:17

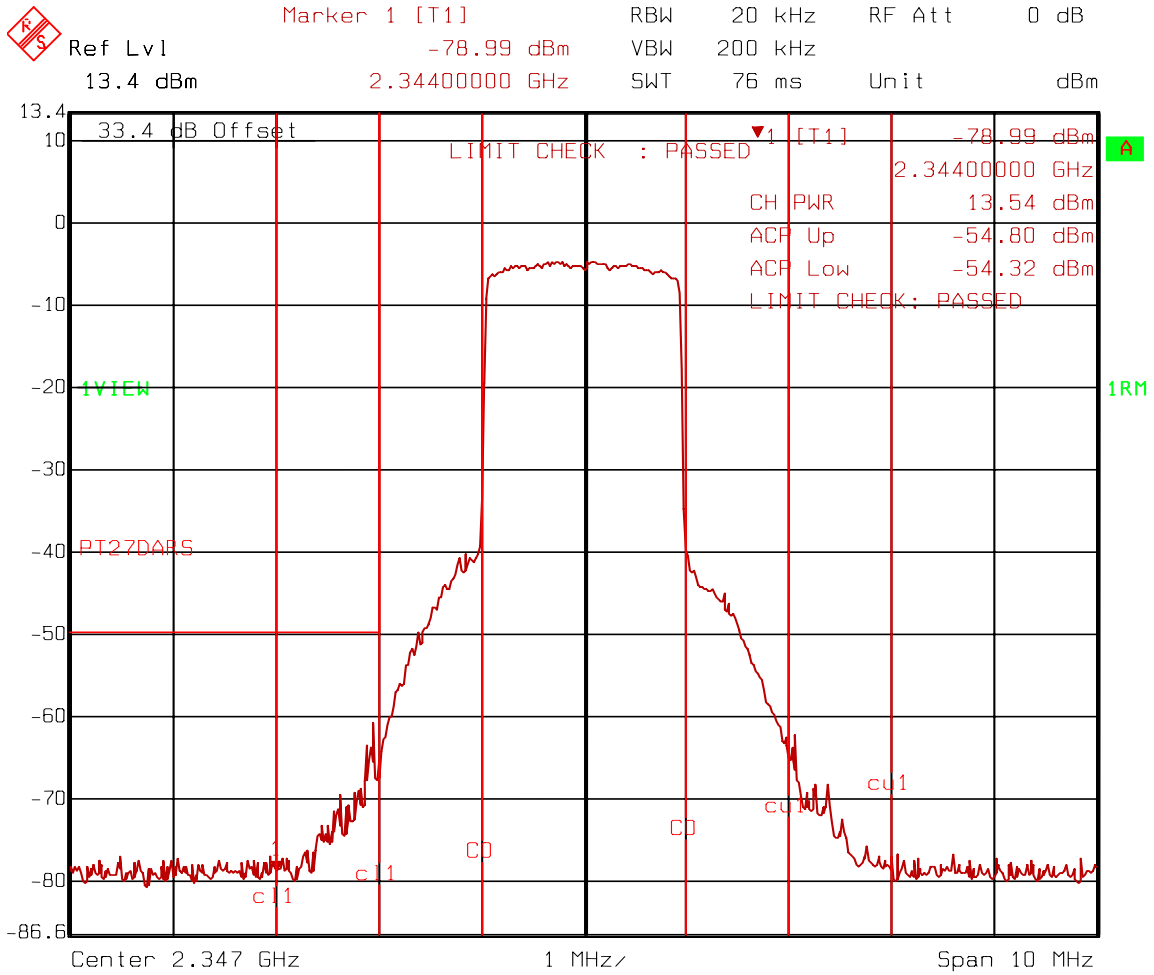
EQUIPMENT: 2305 - 2360 LMX E

20DEGREES TMAX



EQUIPMENT: 2305 - 2360 LMX E

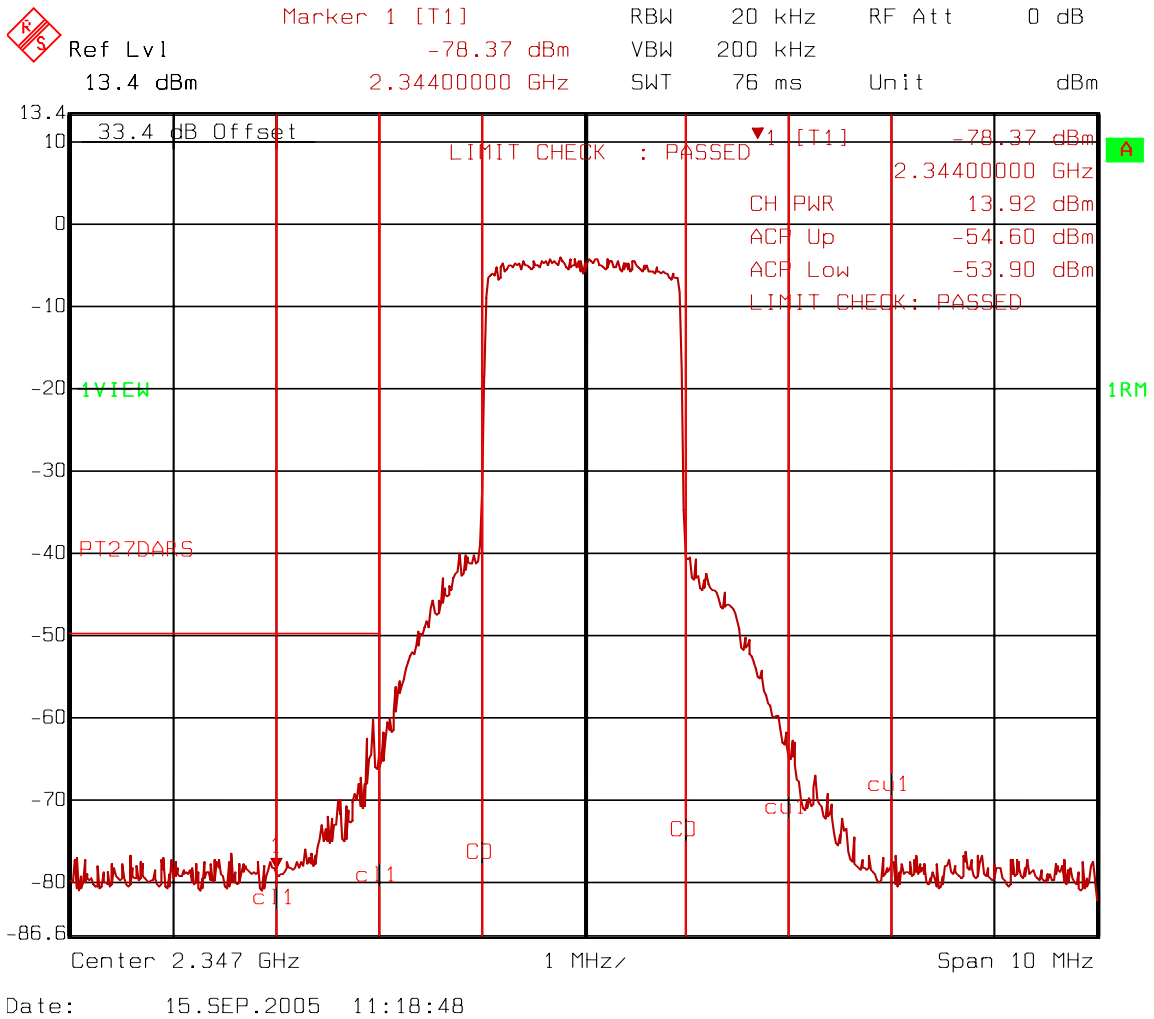
50 C



Date: 15.SEP.2005 10:35:09

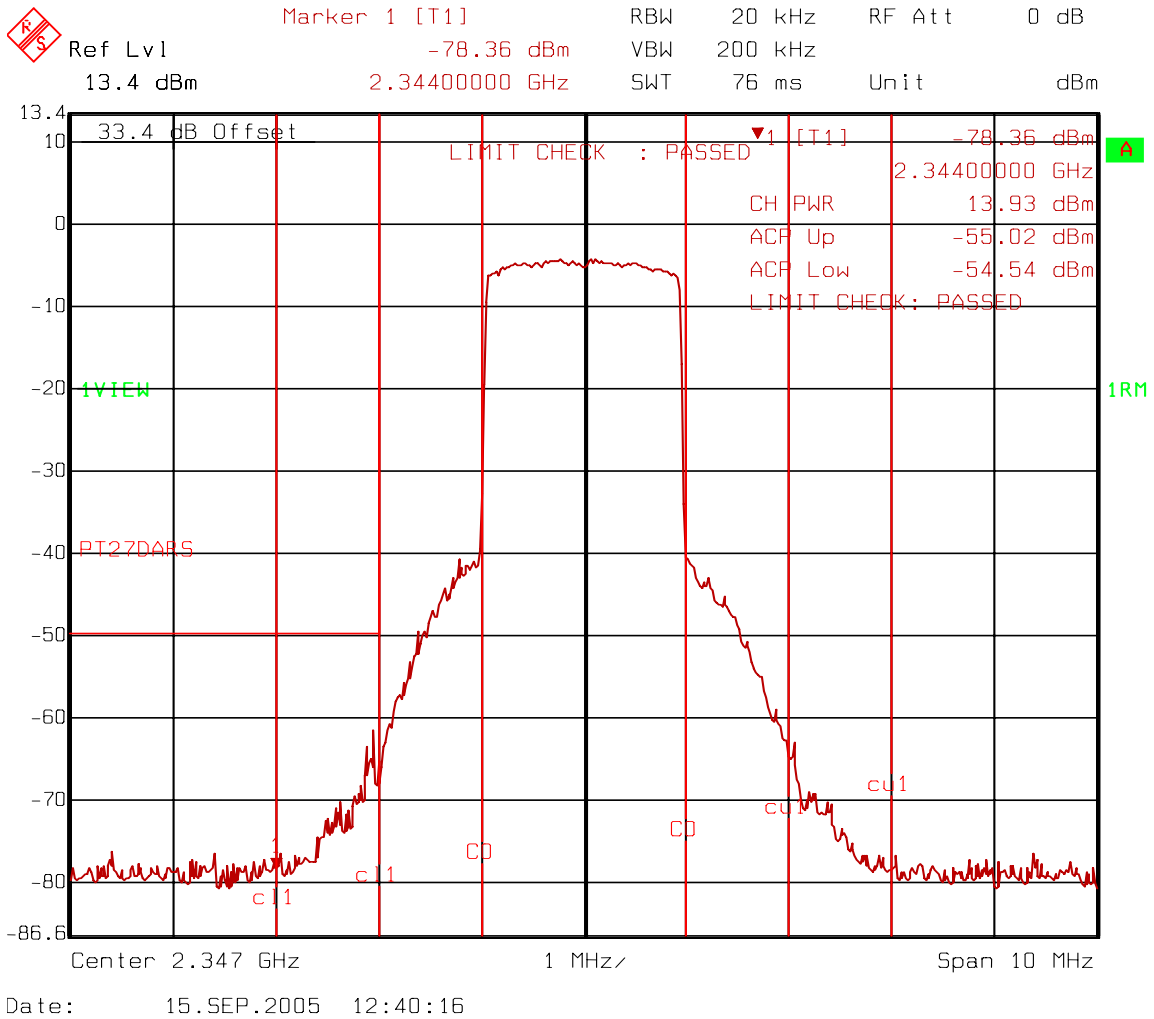
EQUIPMENT: 2305 - 2360 LMX E

40C



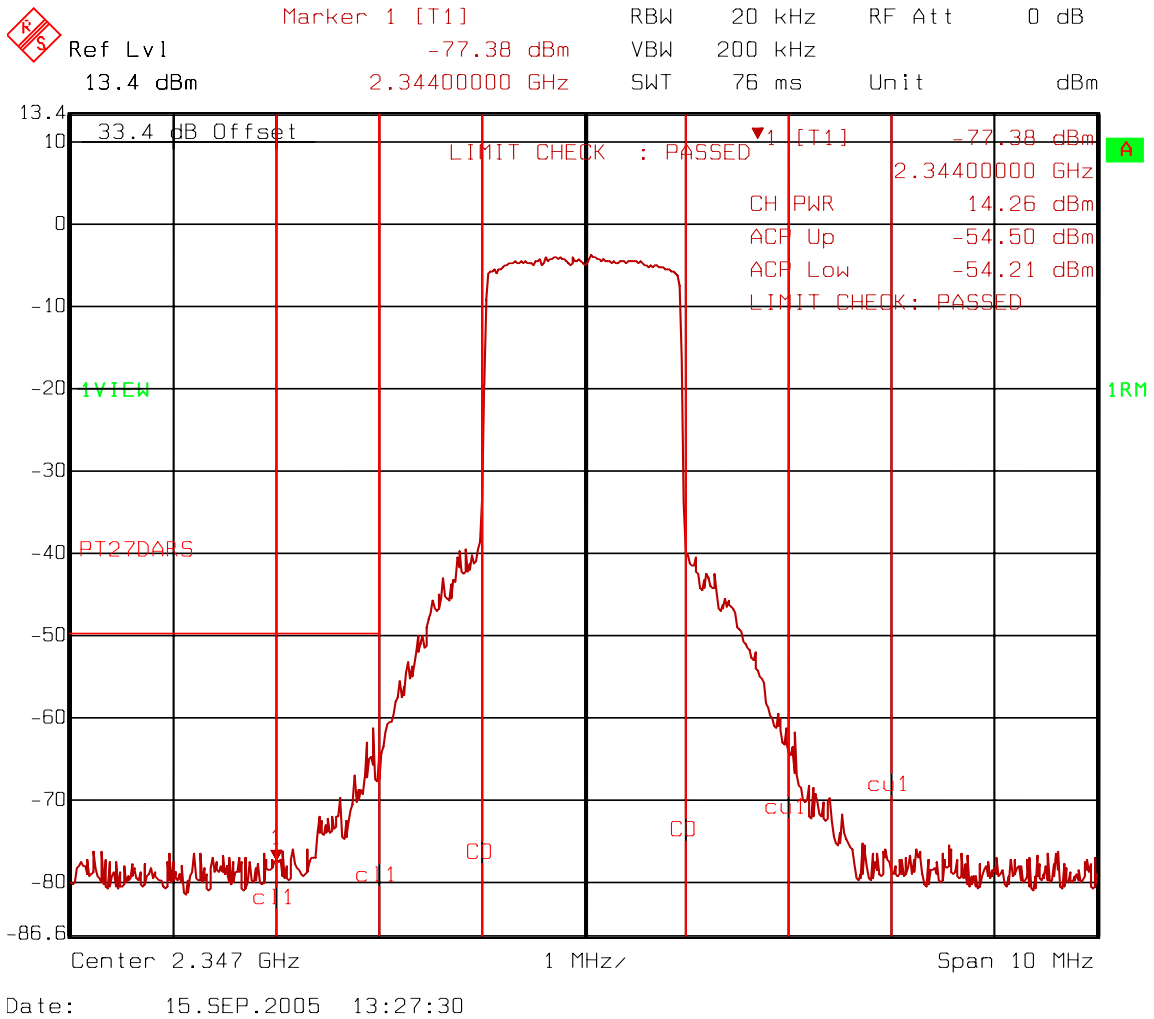
EQUIPMENT: 2305 - 2360 LMX E

30 C



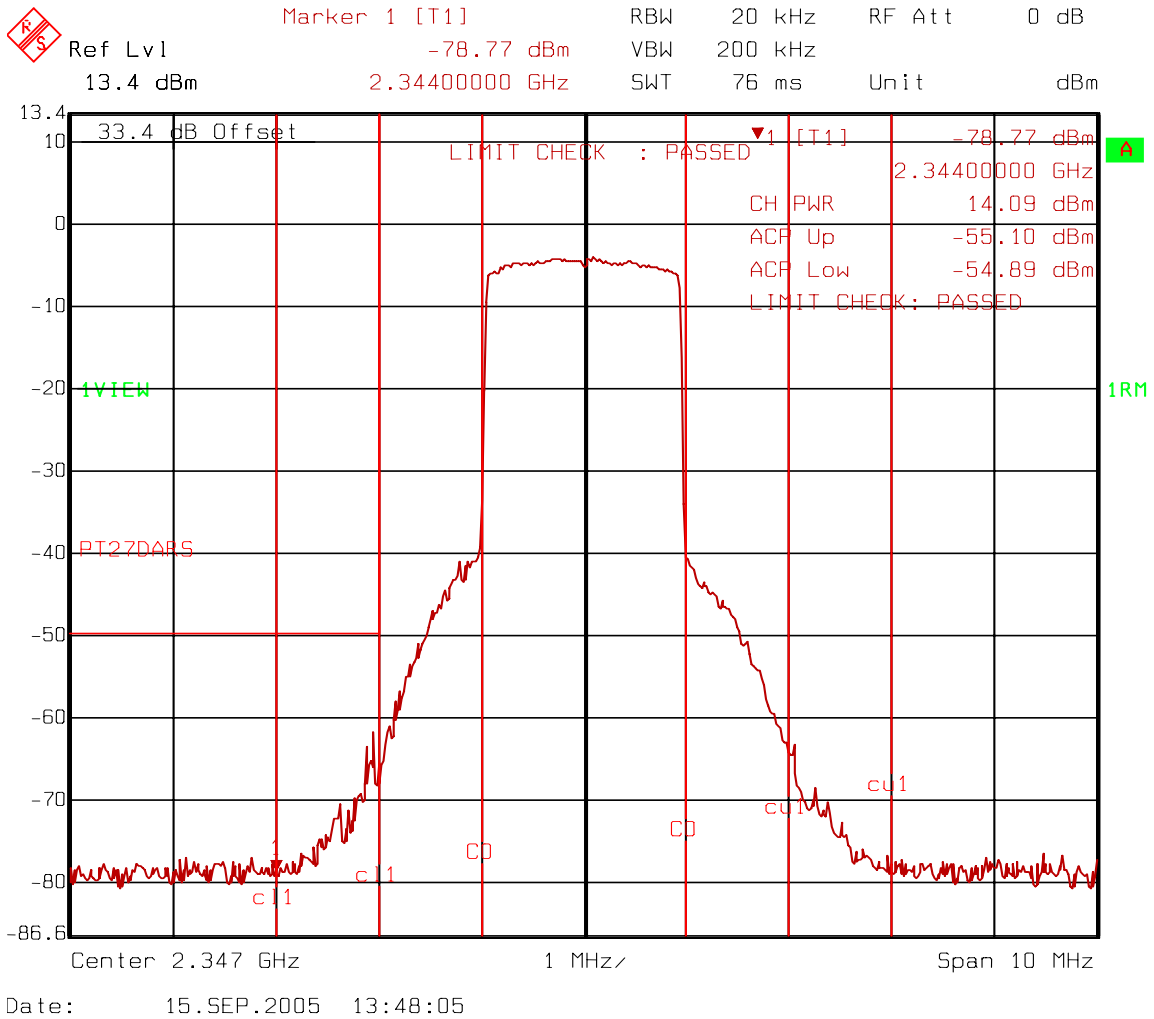
EQUIPMENT: 2305 - 2360 LMX E

10 C



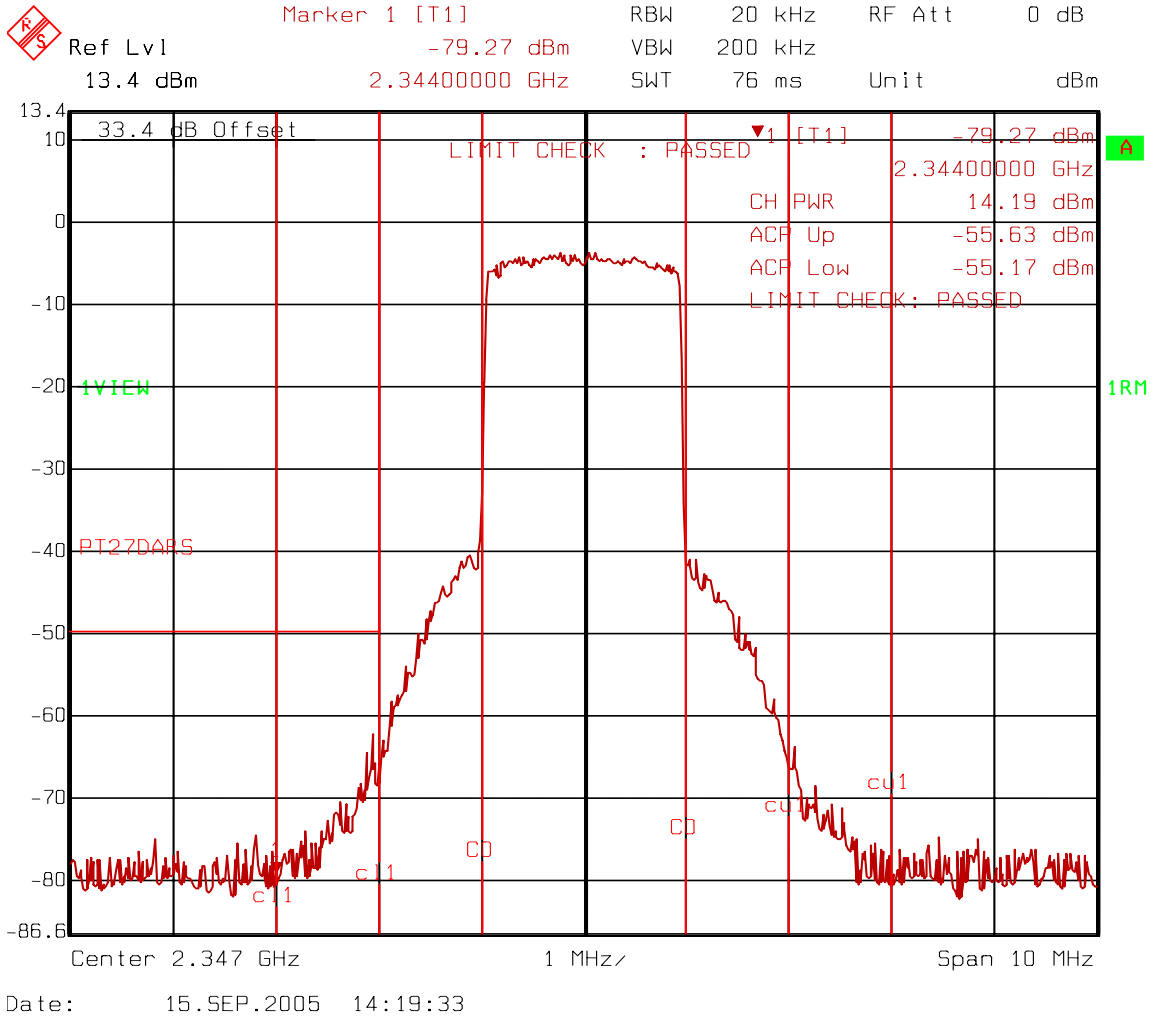
EQUIPMENT: 2305 - 2360 LMX E

0 C



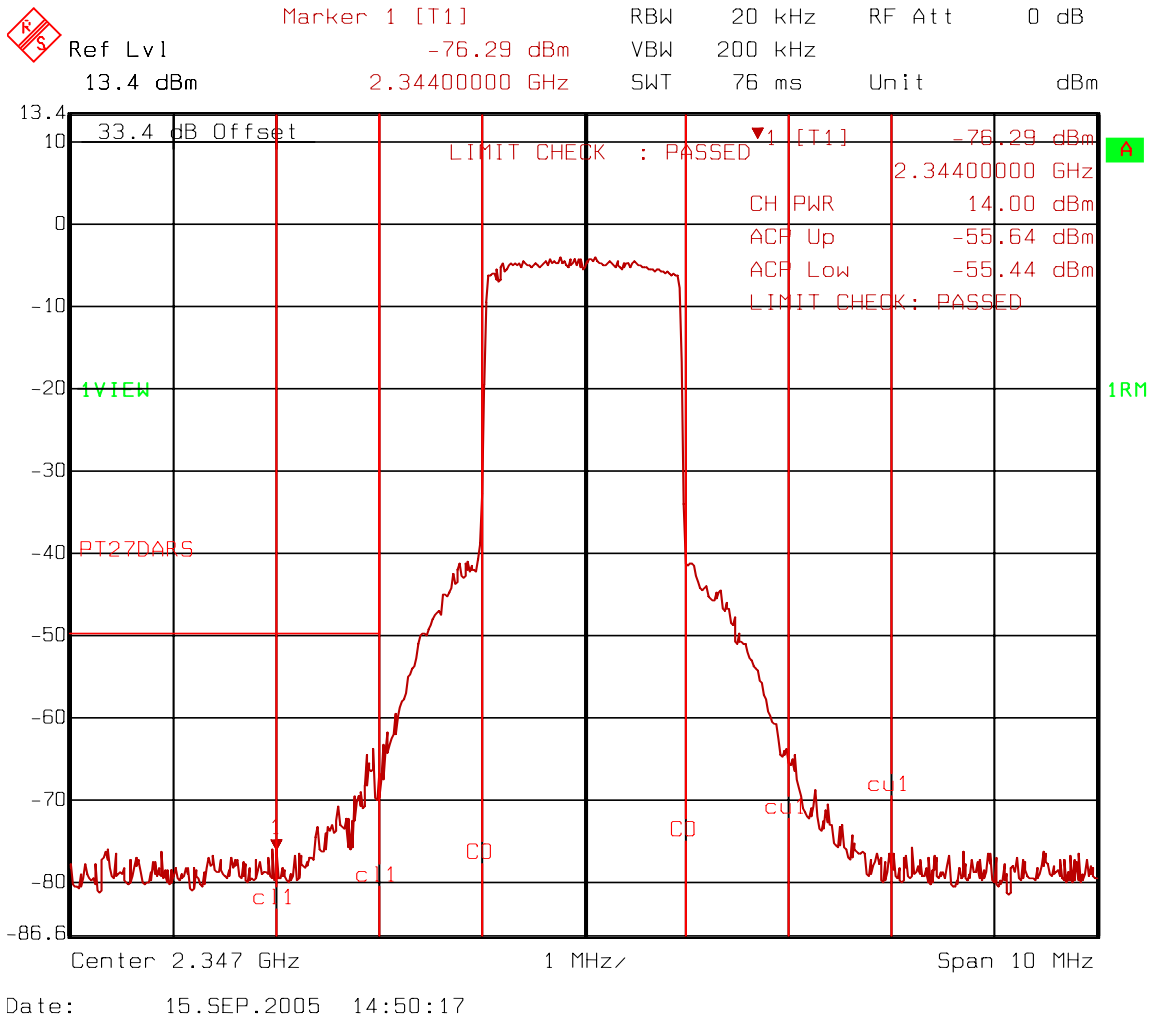
EQUIPMENT: 2305 - 2360 LMX E

-10 C



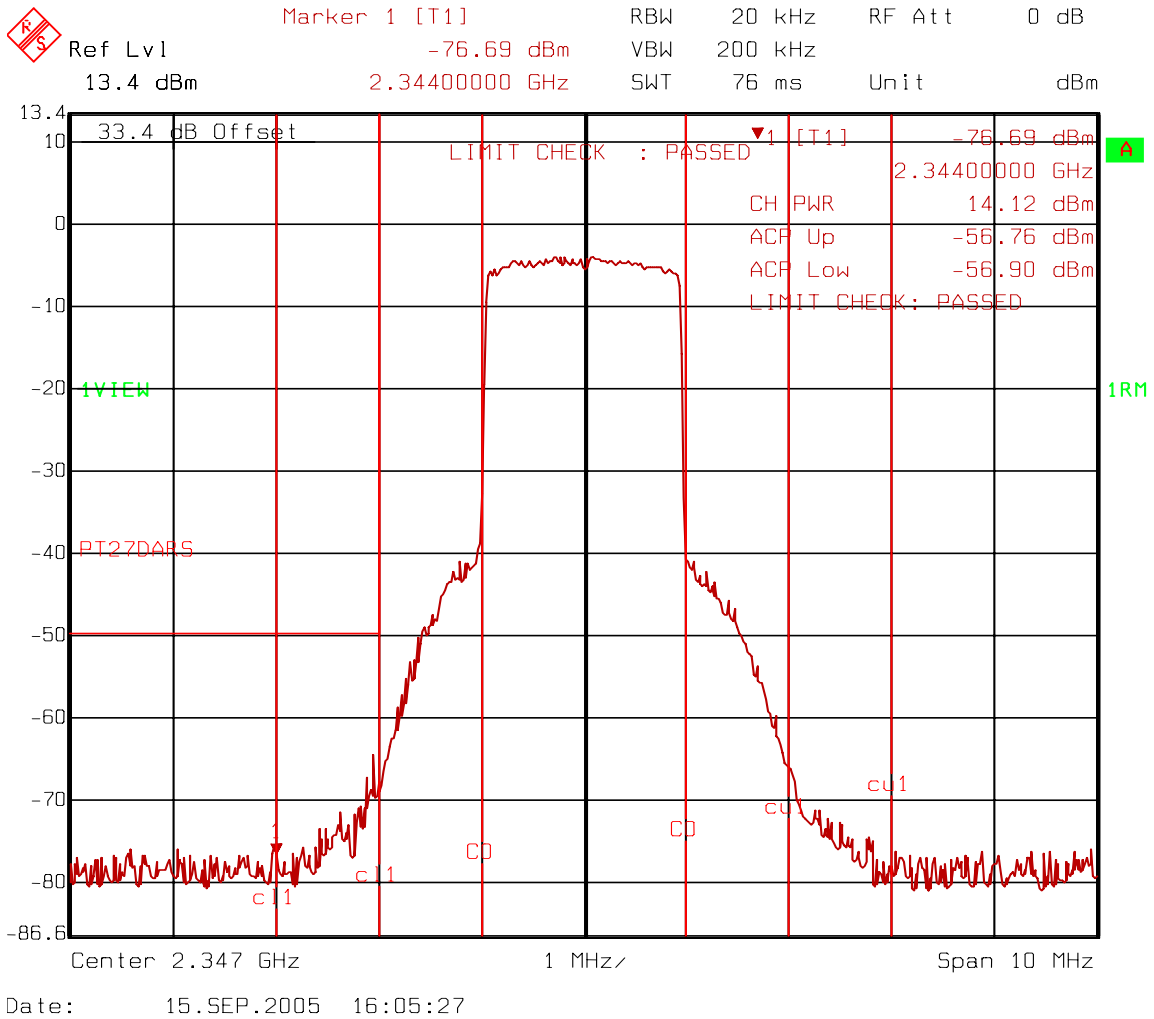
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

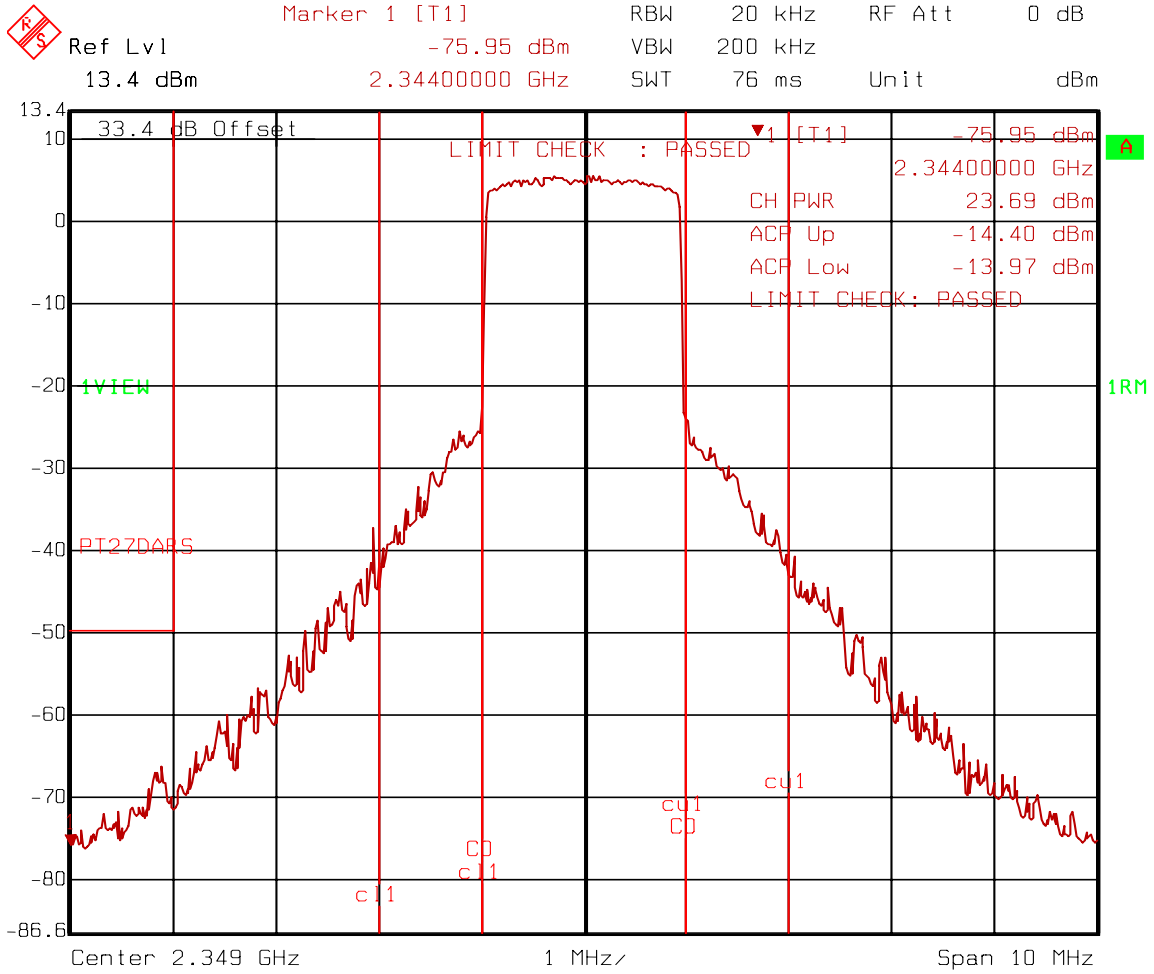
-30 C



EQUIPMENT: 2305 - 2360 LMX E

20 DEGREES 115 TNOM

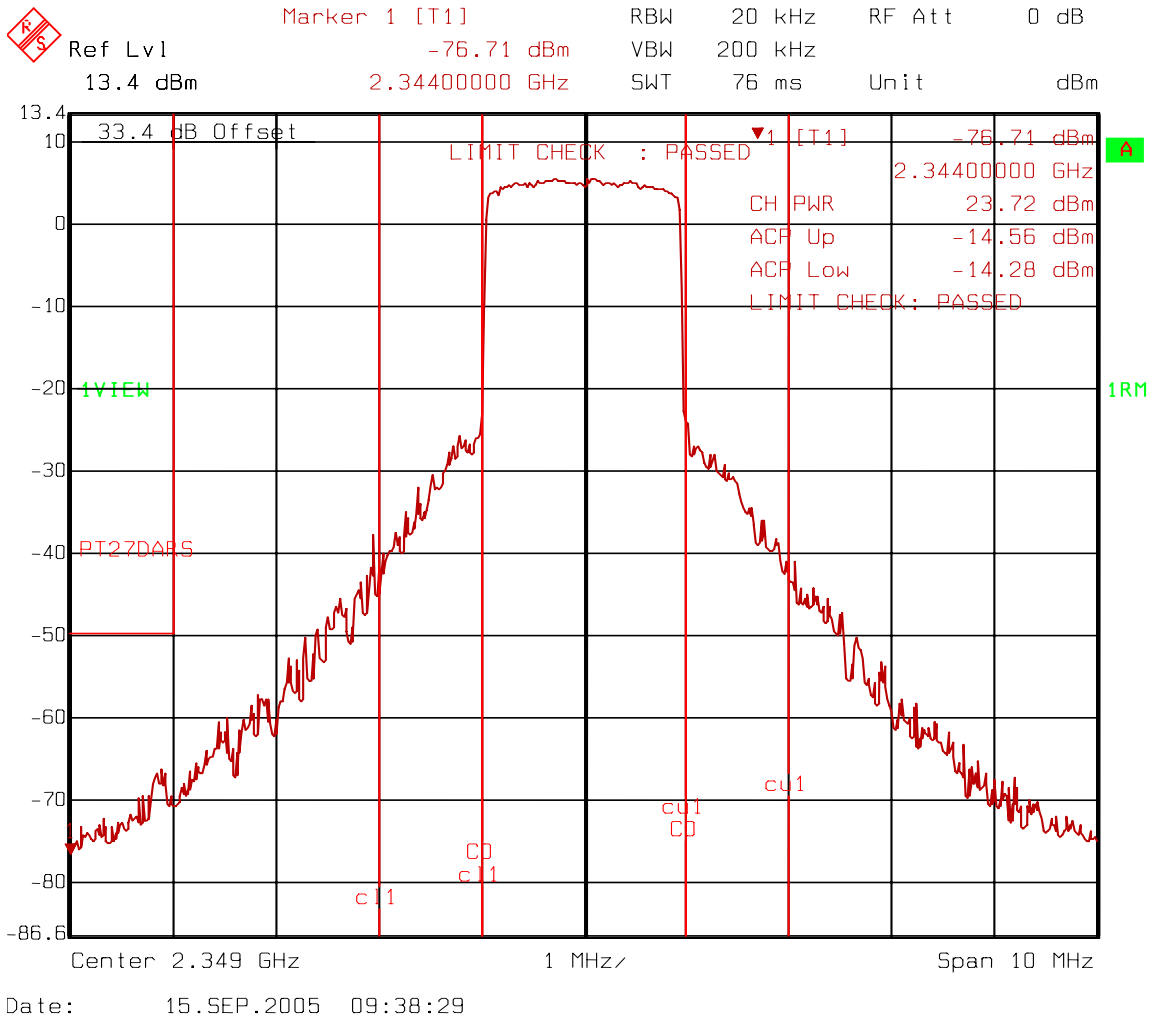
D BAND 24DBM OUTPUT



Date: 15.SEP.2005 09:35:19

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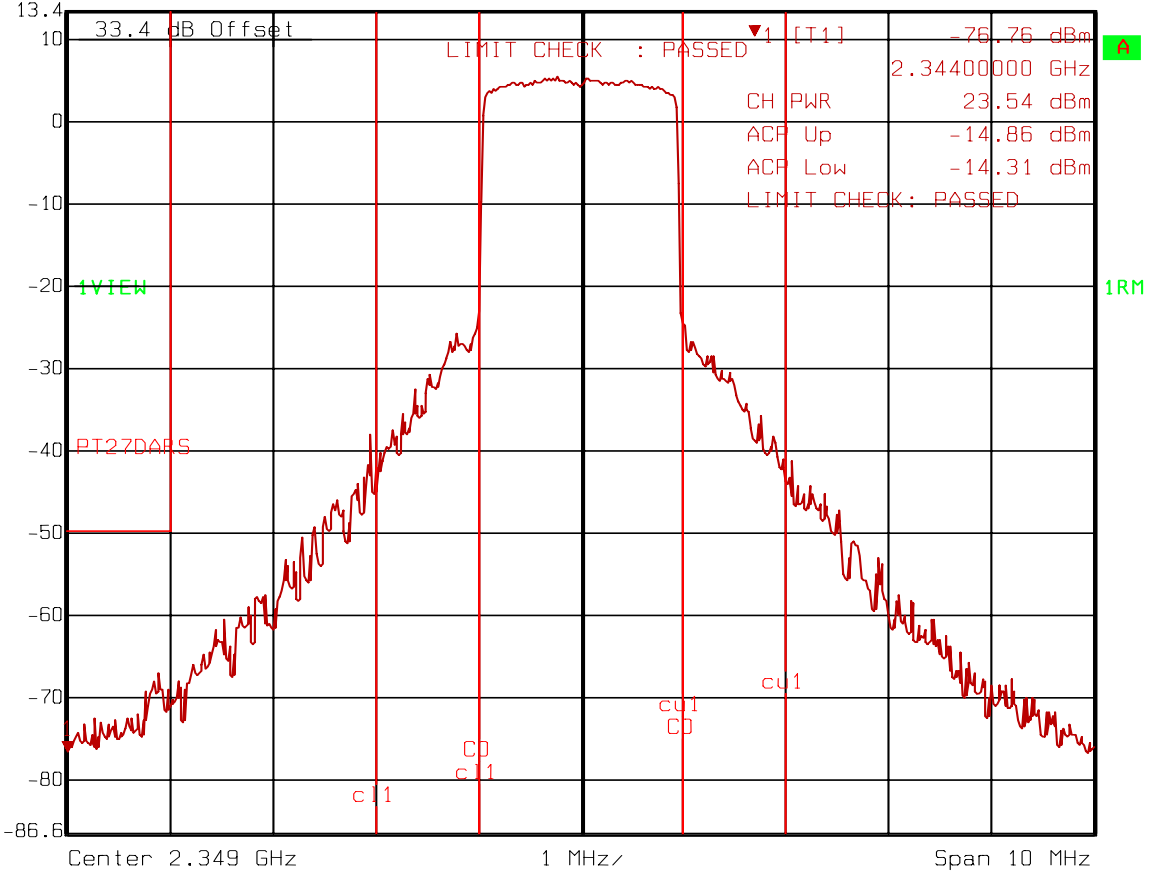
20 DEGREES TMIN



EQUIPMENT: 2305 - 2360 LMX E

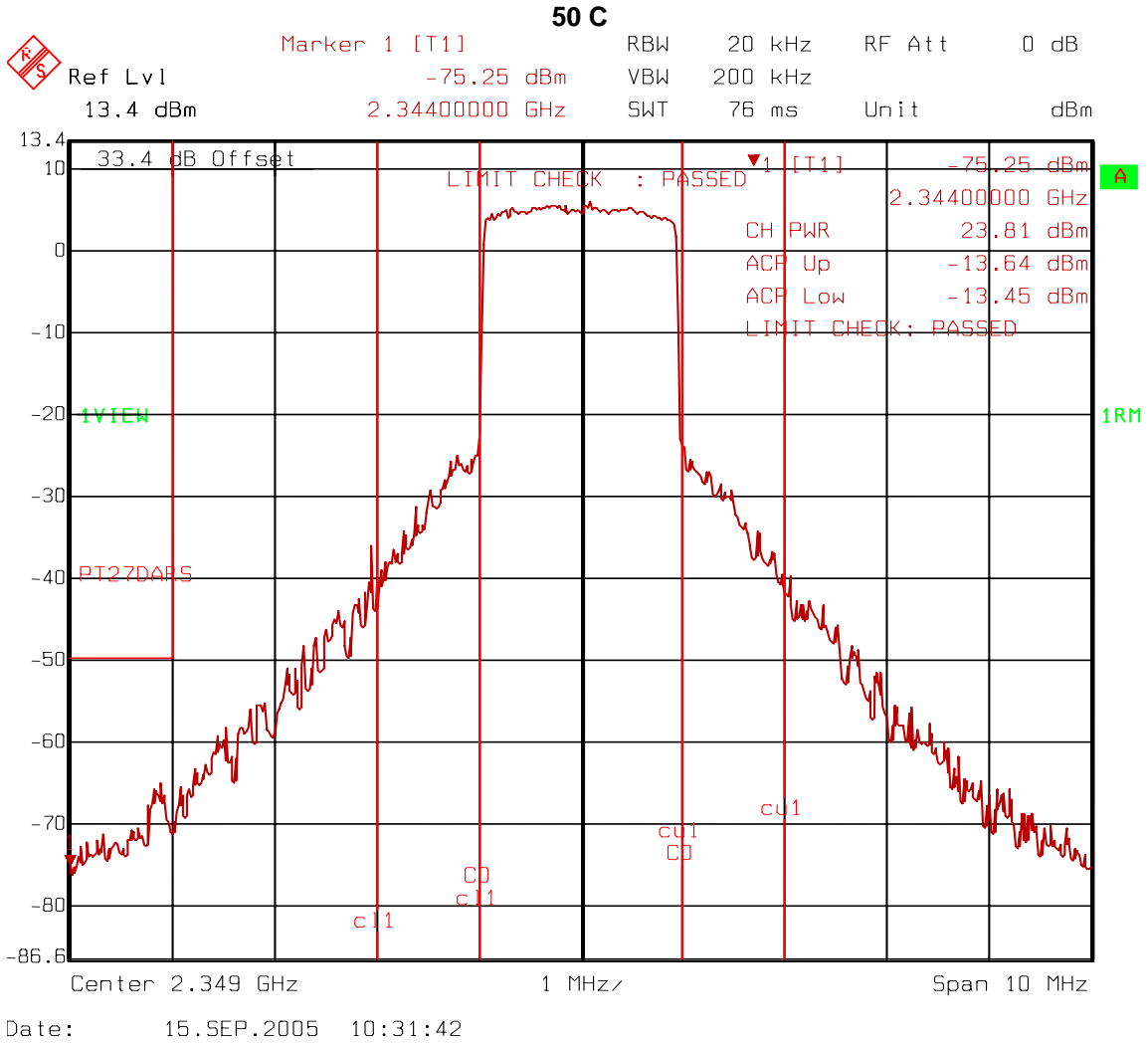
20 DEGREES TMAX

Marker 1 [T1] RBW 20 kHz RF Att 0 dB
Ref Lvl -76.76 dBm VBW 200 kHz
13.4 dBm 2.34400000 GHz SWT 76 ms Unit dBm



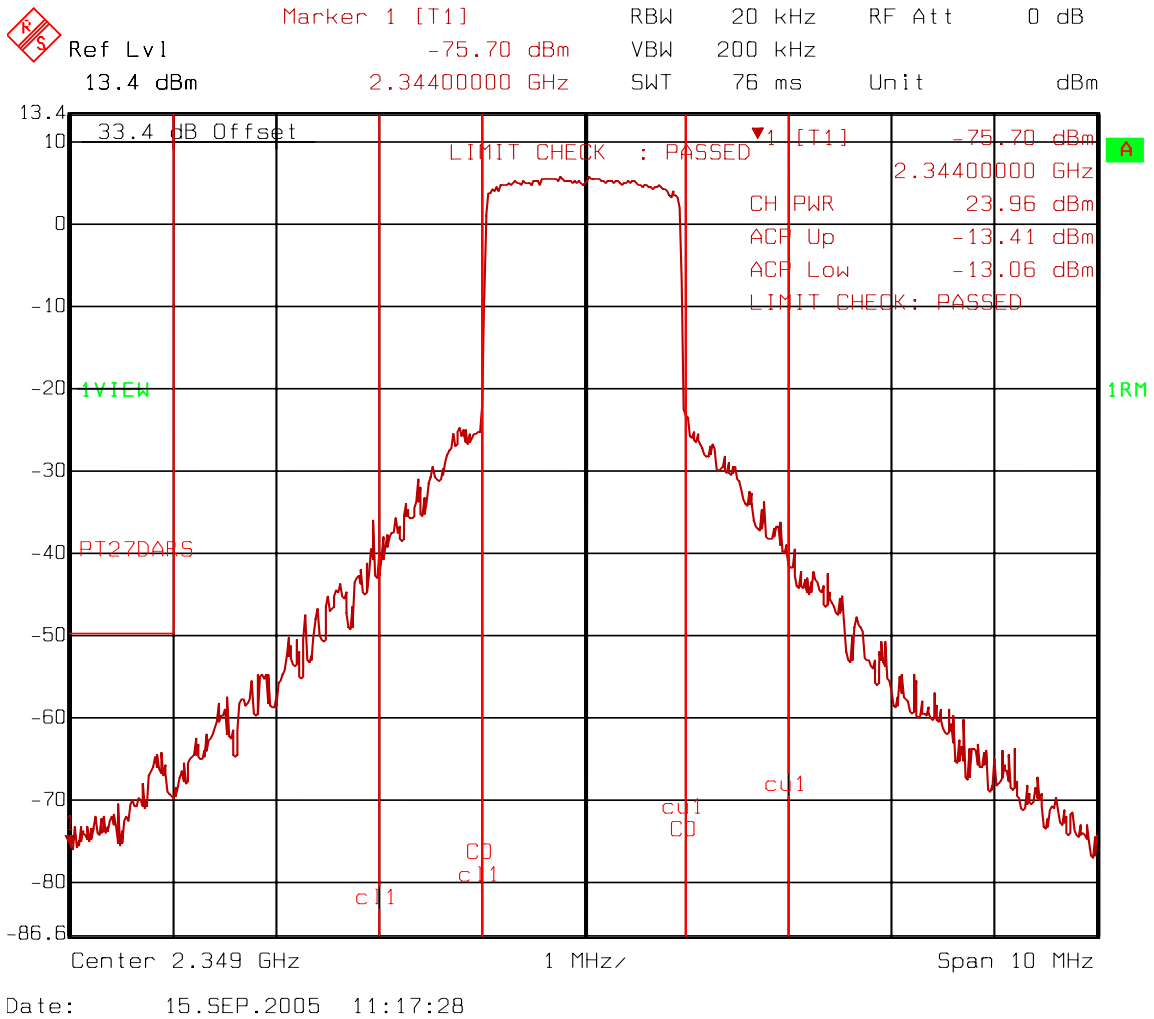
Date: 15.SEP.2005 09:39:52

EQUIPMENT: 2305 - 2360 LMX E



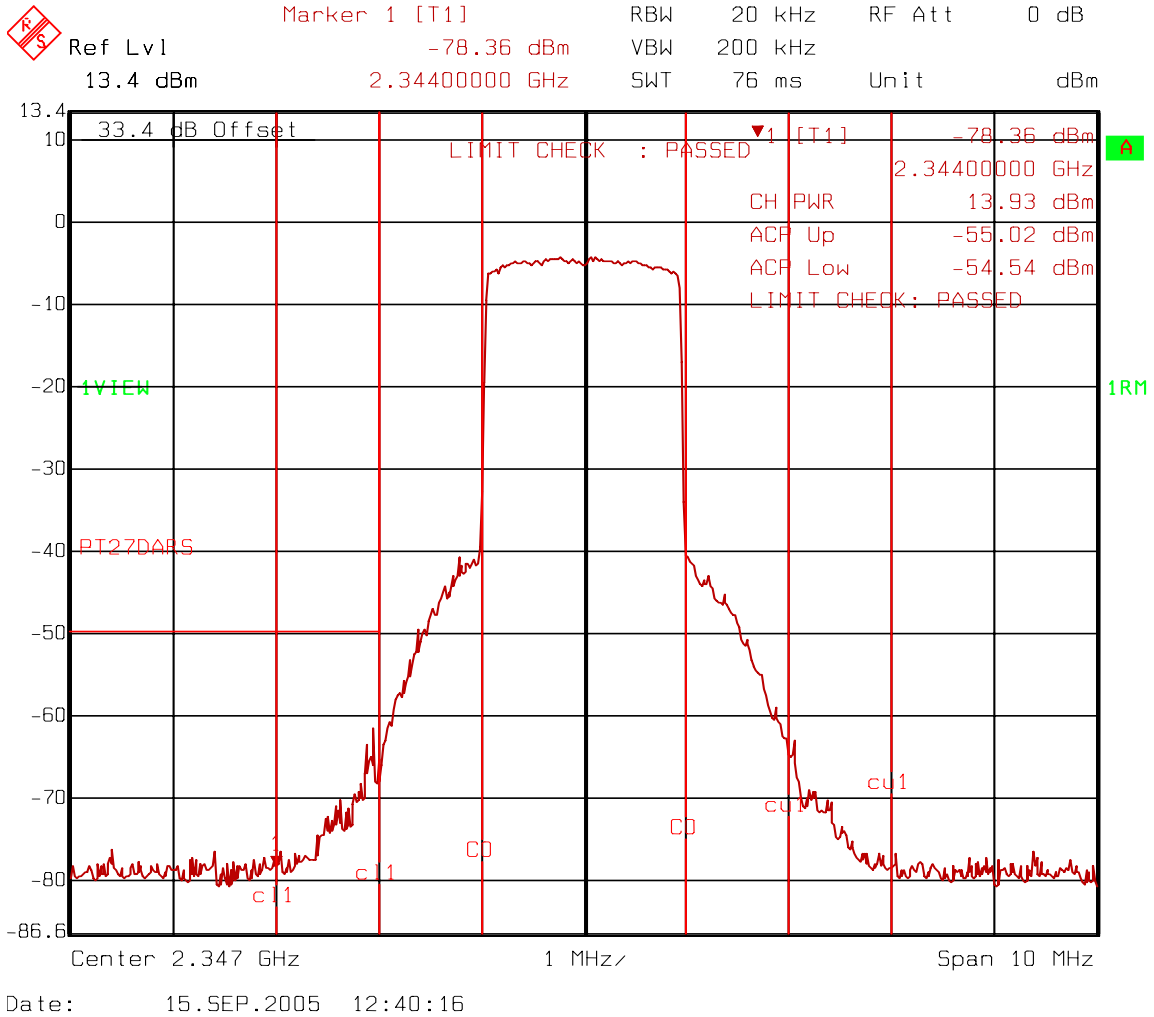
EQUIPMENT: 2305 - 2360 LMX E

40 C



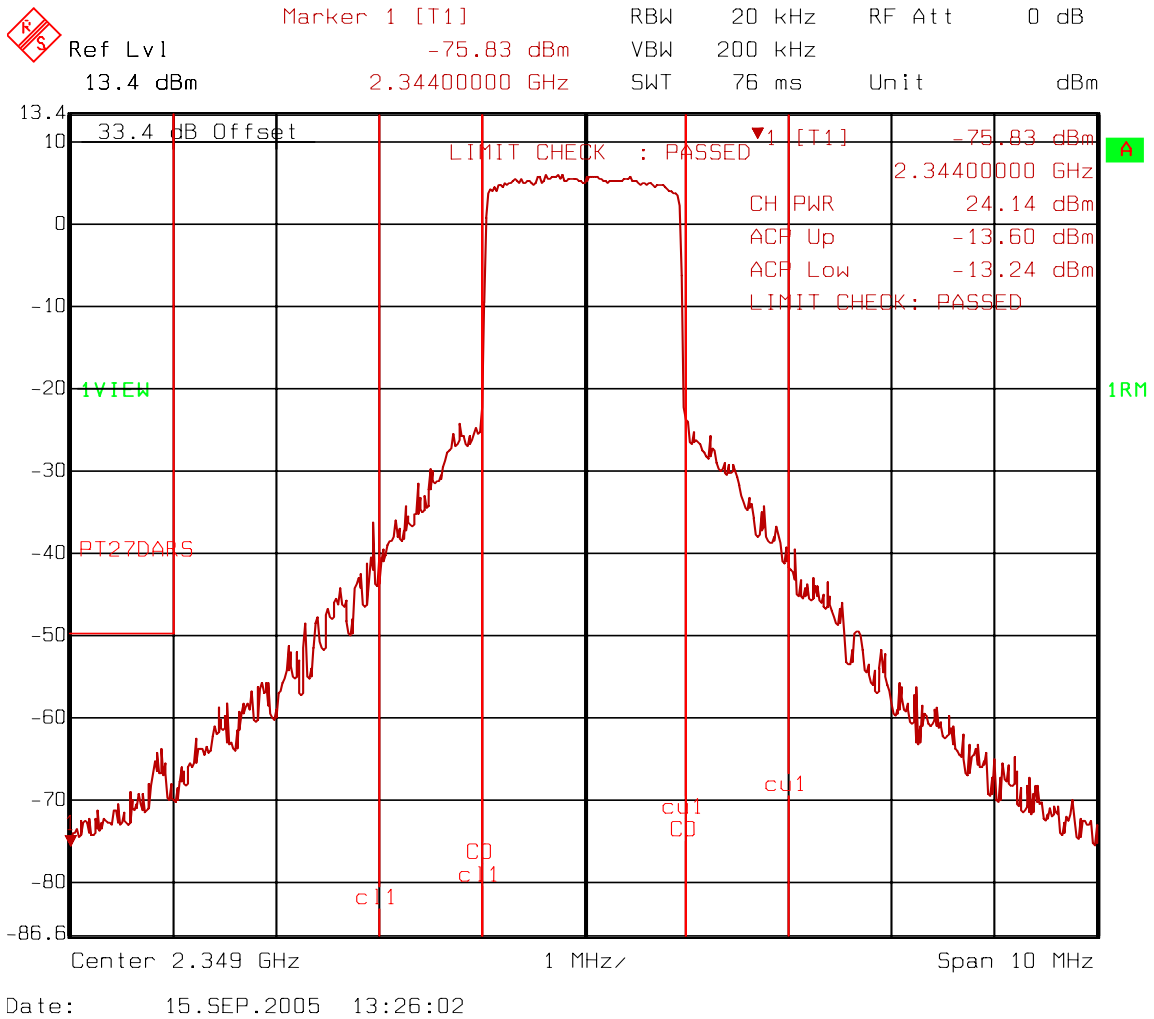
EQUIPMENT: 2305 - 2360 LMX E

30 C



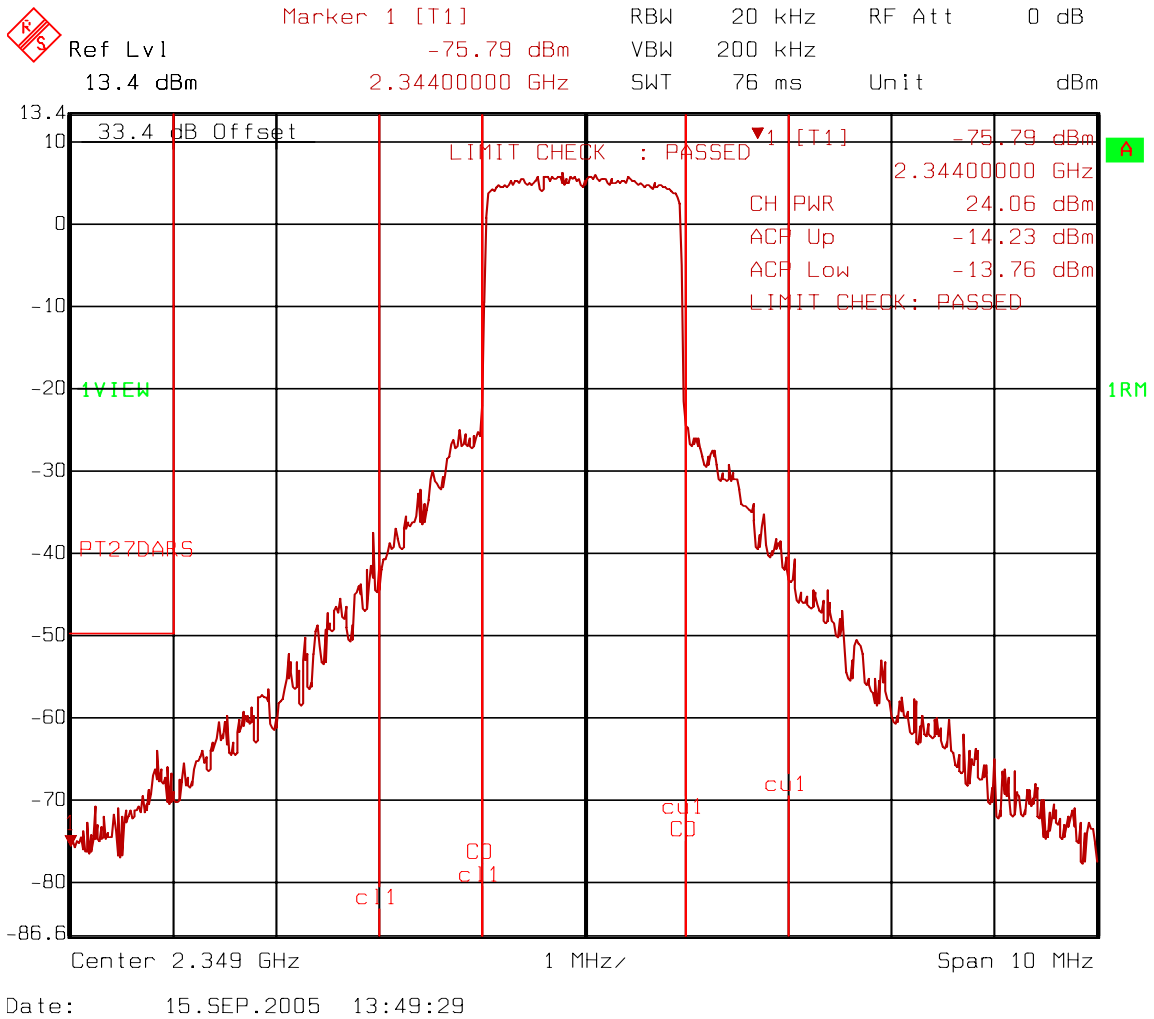
EQUIPMENT: 2305 - 2360 LMX E

10 C



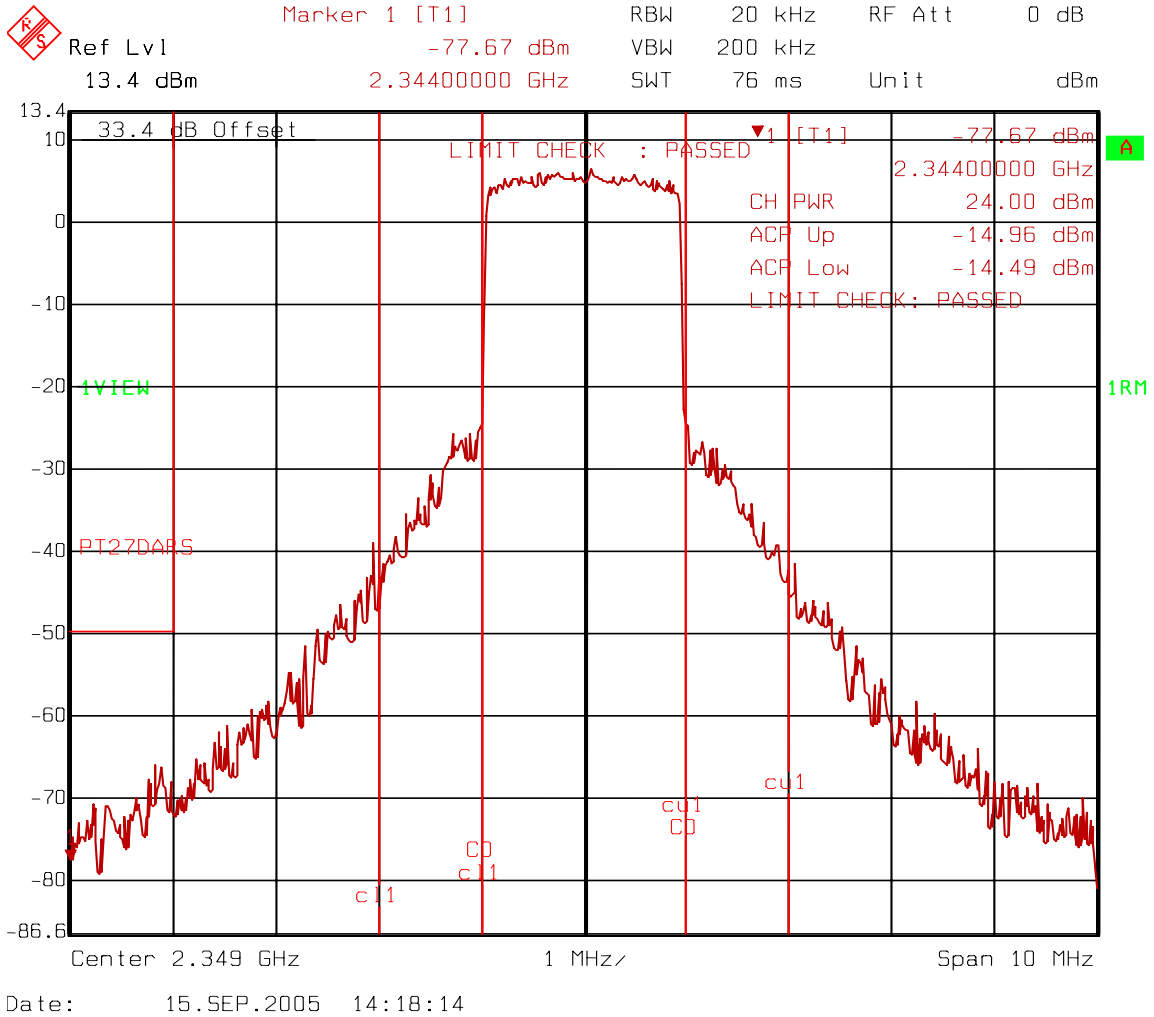
EQUIPMENT: 2305 - 2360 LMX E

0 C



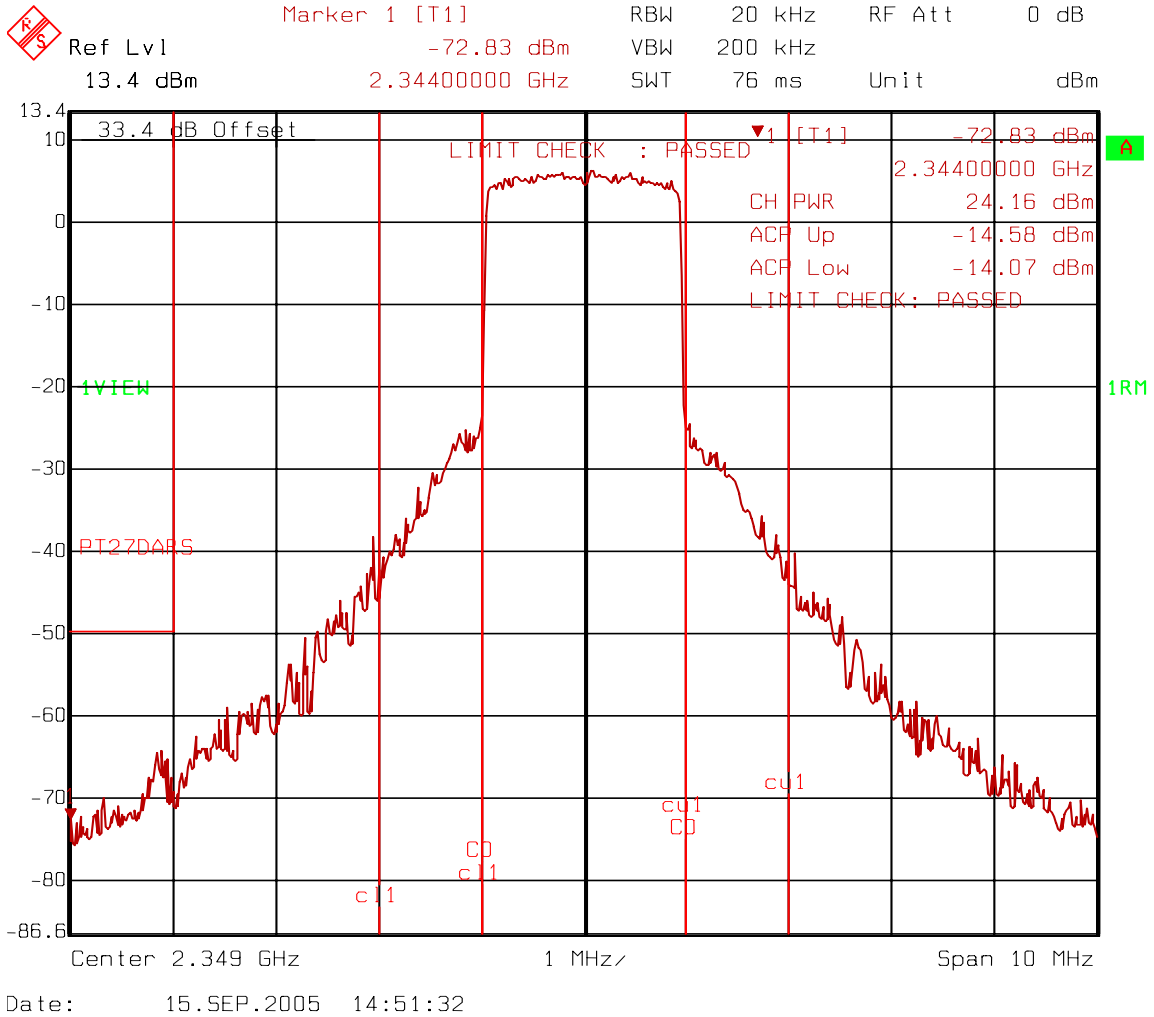
EQUIPMENT: 2305 - 2360 LMX E

-10 C



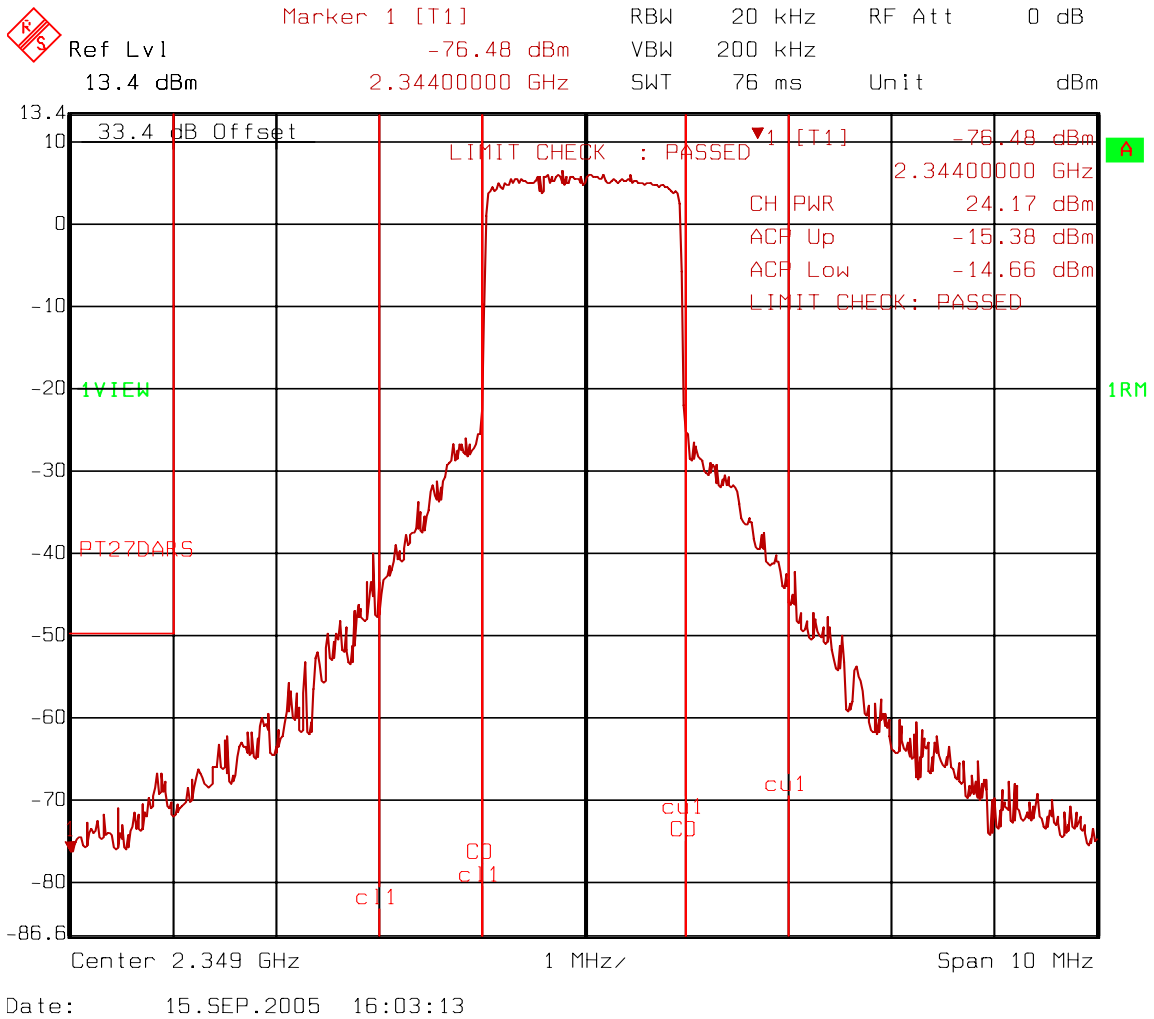
EQUIPMENT: 2305 - 2360 LMX E

-20 C



EQUIPMENT: 2305 - 2360 LMX E

-30 C



EQUIPMENT: 2305 – 2360 LMX E

Section 8. Test Equipment List

Nemko ID	Description	Manufacturer	Serial Number	Calibration Date	Calibration Due
		Model Number			
1484	Cable 2.0-18.0 Ghz	Storm	N/A	08/26/04	02/26/06
		PR90-010-072			
1485	Cable 2.0-18.0 Ghz	Storm	N/A	08/02/04	02/26/06
		PR90-010-216			
993	Horn antenna	A. H. Systems	XXX	08/01/05	08/01/07
		SAS-200/571			
1480	Bilog Antenna	Schaffner-Chase	2572	CalNotReq	N/A
		CBL6111C			
1081	CABLE 2m	Astrolab	N/A	CBU	NA
		32027-2-29094-72TC			
1472	20db Attenuator DC 18 Ghz	Omni Spectra	NONE	CBU	N/A
		20600-20db			
1055	DUAL DIRECTIONAL COUPLER	NARDA	73393	Cal Not Req	N/A
		3022			
1471	10 db Attenuator DC 18 Ghz	MCL Inc.	NONE	CBU	N/A
		BW-S10W2 10db-2WDC			
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ	830844/006	03/22/04	03/23/06
		FSEK30			
1464	Spectrum analyzer	Hewlett Packard	3551A04428	01/14/05	01/15/07
		8563E			
283	Environmental Chamber with controller # 1189006	ENVIROTRONICS	129010083	04/22/03	04/21/04
		SH27 & 2030-22844			
1629	CABLE, 6 ft	MEGAPHASE	N/A	CBU	N/A
		10311 1GVT4			
1081	CABLE 2m	Astrolab	N/A	CBU	N/A
		32027-2-29094-72TC			
619	THERMOMETER	FLUKE	4520028	09/16/04	09/16/05
		51			
2076	Cable	Nemko	None	04/28/06	04/28/06
		None			
1561	Attenuator 10db	Midwest Microwave	NONE	CBU	N/A
		392-10			
1562	Attenuator 10db	Midwest Microwave	NONE	CBU	N/A
		392-11			

EQUIPMENT: 2305 – 2360 LMX E

Section 9. Test Details

EQUIPMENT: 2305 – 2360 LMX E

NAME OF TEST: RF Power Output

PARA. NO.: 2.1046

Method Of Measurement:

Antenna Conducted:

The rms power at antenna terminals is measured using a Power Meter. Power output is measured with the maximum rated rf output level.

E.I.R.P.:

Peak EIRP is calculated based on the following:

RMS rf Output Power at antenna terminals: +28 dBm (nominal)

Peak to Average Ratio of rf waveform: 6 dB

Antenna gain (nominal): 5 dBi

Peak EIRP is:

+28 dBm + 6 dB + 5 dBi = +39 dBm (8 watts)

EQUIPMENT: 2305 – 2360 LMX E

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 2.1049

Method Of Measurement:

Adjacent Band Emissions:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1% of the fundamental bandwidth of the transmitted carrier. A carrier is has a bandwidth of 500 kHz, thus the minimum resolution bandwidth used is 5 kHz.

Out-of-Band Emissions:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1 MHz.

The limits are expressed as attenuation below carrier level thus the relative ACP function of the spectrum analyzer is used to show compliance.

The appropriate emission limit is applied to the output waveform to verify compliance.

EQUIPMENT: 2305 – 2360 LMX E

NAME OF TEST: Spurious Emission at Antenna Terminals	PARA. NO.: 2.1051
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Antenna Conducted:

Method Of Measurement:

Adjacent Band Emissions:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1% of the fundamental bandwidth of the transmitted carrier. A carrier is has a bandwidth of 500 kHz, thus the minimum resolution bandwidth used is 5 kHz.

Out-of-Band Emissions:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1 MHz.

The limits are expressed as attenuation below carrier level thus the relative ACP function of the spectrum analyzer is used to show compliance.

The appropriate emission limit is applied to the output waveform to verify compliance.

EQUIPMENT: 2305 – 2360 LMX E

NAME OF TEST: Field Strength of Spurious Radiation	PARA. NO.: 2.1053
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The antenna is detachable from the transmitter, thus it is removed and replaced with a 50 ohm load.

Emissions are measured up to the 10th harmonic of the highest transmit frequency that the transmitter is capable of producing.

E. I.R.P.:

If the antenna is detachable from the circuit then the antenna is replaced with a 50 ohm load for this test.. The EIRP is measured using the substitution antenna method of measurement as described in EIA/TIA 603B. The field strength of the emission is measured using a RBW setting on the spectrum analyzer greater than the 20 dB bandwidth of the transmitted waveform. The EUT is then replaced with an antenna with known gain relative to either a dipole or an isotropic radiator. A signal generator is used to feed the substitution antenna until the previously measured field strength level is obtained. The level of signal needed to drive the substitution antenna to obtain the previously measured field strength is the eirp.

EQUIPMENT: 2305 – 2360 LMX E

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NAME OF TEST: Frequency Stability	2.1055
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Method Of Measurement:

Frequency Stability With Voltage Variation:

The E.U.T. is placed in an environmental chamber and allowed to stabilize at +20 degrees Celsius for at least 15 minutes. The spectrum is plotted to determine if the fundamental frequency remains within the specified limits in the authorized band. The procedure is repeated at 85 STV, 100% S.T.V. and 115% S.T.V. with the temperature at 20 degrees Celsius.

Frequency Stability With Temperature Variation:

The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the spectrum is plotted at each temperature.

EQUIPMENT:

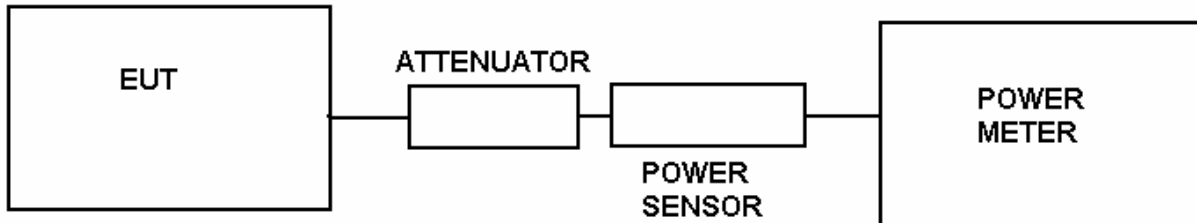
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Section 10. Test Diagrams

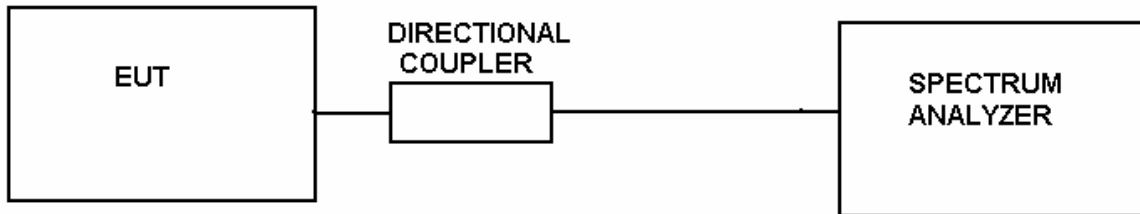
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Para. No. 2.1046 - R.F. Power Output



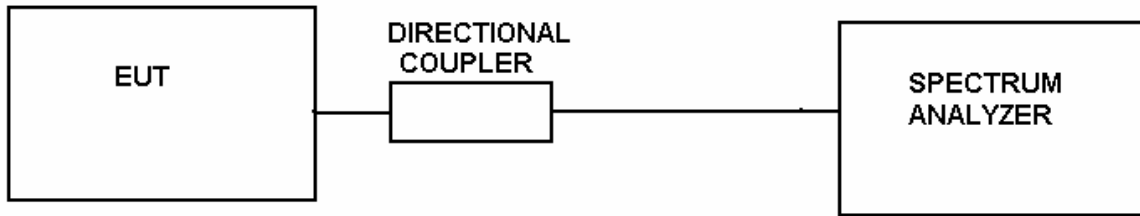
Para. No. 2.1049 - Occupied Bandwidth



EQUIPMENT:

FCC ID: _____

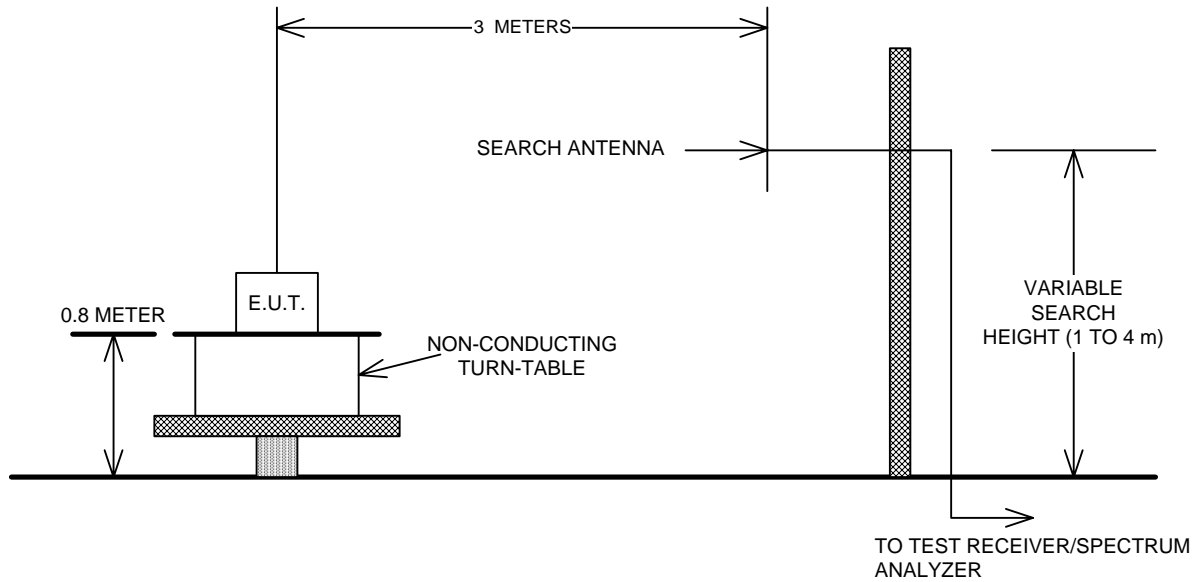
Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



EQUIPMENT:

FCC ID:

Para. No. 2.1053 - Field Strength of Radiation



Para. No. 2.1055 - Frequency Stability

