



Nemko Test Report: 28187RUS1

Applicant: Andrew Corporation
620 N. Greenfield Parkway
Garner, NC 27529
USA

**Equipment Under Test:
(E.U.T.)** MR8518

FCC Identifier: BCR-MR8518F

In Accordance With: **CFR 47, Part 22, Subpart H**
Cellular Band Repeaters

Tested By: Nemko USA, Inc.
802 N. Kealy
Lewisville, TX 75057-3136

TESTED BY:

David Light, Senior Wireless Engineer

DATE: 27 April 2009

APPROVED BY:

Tom Tidwell, Telecom Direct

DATE: 29 April 2009

Number of Pages: 63

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EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

Section 1. Summary of Test Results

Manufacturer Andrew Corporation

Model No.: MR8518

Serial No.: 10

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 CFR 47, Part 22, Subpart H.



New Submission



Production Unit



Class II Permissive Change



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.

See " Summary of Test Data".



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EQUIPMENT: MR8518PROJECT NO.: 28187RUS1**Summary Of Test Data**

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	22.913(a)	500W ERP	Complies
Occupied Bandwidth	Not defined	Input/Output	Complies
Spurious Emissions at Antenna Terminals	22.917	-13 dBm	Complies
Field Strength of Spurious Emissions	22.917	-13 dBm E.I.R.P.	Complies
Frequency Stability	22.355	1.5 ppm	NA

Footnotes:

Frequency stability was not tested since there is no frequency translation in this device.

EQUIPMENT: MR8518

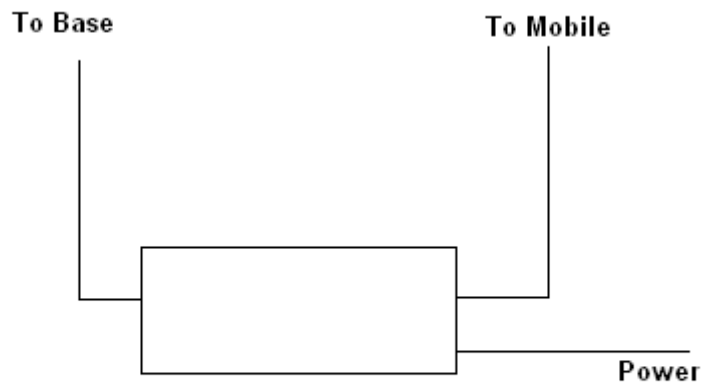
PROJECT NO.: 28187RUS1

Section 2. General Equipment Specification

Supply Voltage Input:		120 Vac			
Frequency Range:	Downlink:	869-894 MHz			
Frequency Range:	Uplink:	824-849 Mhz			
Type of Modulation and Designator:		CDMA W-CDMA (F9W) ☒	GSM (GXW) ☒	TDMA (DXW) ☒	EDGE (G7W) ☒
Output Impedance:		50 ohms			
RF Output (Rated):	Downlink:	0.158 W 22 dBm			
	Uplink:	0.158 W 22 dBm			
Frequency Translation:		F1-F1 ☒	F1-F2 ☐	N/A ☐	
Band Selection:		Software ☒	Duplexer Change ☐	Fullband Coverage ☐	

Description of EUT

The miniRepeaters are bi-directional amplifiers used to enhance signals between a mobile and a base station in a wireless network. They have been designed to increase signal strength in small and medium sized areas such as offices, shops, basements and manufacturing facilities. The amplifier is programmable across the 850 MHz cellular band using a 10 MHz and 1.8 MHz filter.

System Diagram

EQUIPMENT: MR8518**PROJECT NO.: 28187RUS1**

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 22.913
TESTED BY: David Light	DATE: 24 April 2009

Test Results: Complies.**Test Data:**

Direction	Modulation	Composite Power (dBm)	RF Power (W)
Downlink	CDMA	22	0.158
	GSM	22	0.158
	EDGE	22	0.158
	WCDMA	22	0.158
	TDMA	22	0.158
Uplink	CDMA	22	0.158
	GSM	22	0.158
	EDGE	22	0.158
	WCDMA	22	0.158
	TDMA	22	0.158
	Analog	22	0.158

Equipment Used: 1767-1470-1469-1082**Measurement Uncertainty:** +/- 1.7 dB**Temperature:** 22 °C**Relative Humidity:** 48 %

EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 24 April 2009

Test Results: Complies.**Test Data:** See attached plot(s).**Equipment Used:** 1767-1470-1469-1082**Measurement Uncertainty:** 1X10⁻⁷ Ppm**Temperature:** 22 °C**Relative Humidity:** 48 %

EQUIPMENT: MR8518

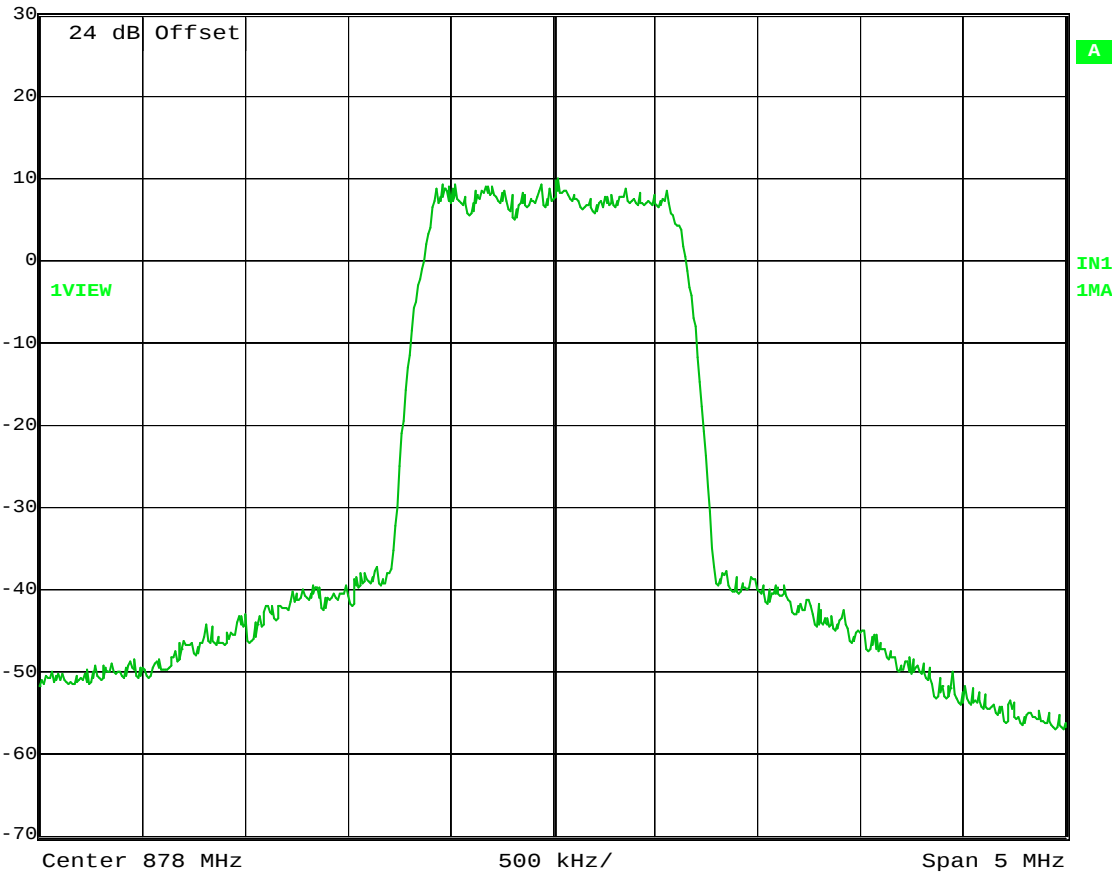
PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Downlink
CDMA – Output



Ref Lvl	RBW	30 kHz	RF Att	20 dB
30 dBm	VBW	30 kHz	Mixer	-10 dBm
	SWT	14 ms	Unit	dBm



Date: 24.APR.2009 11:31:50

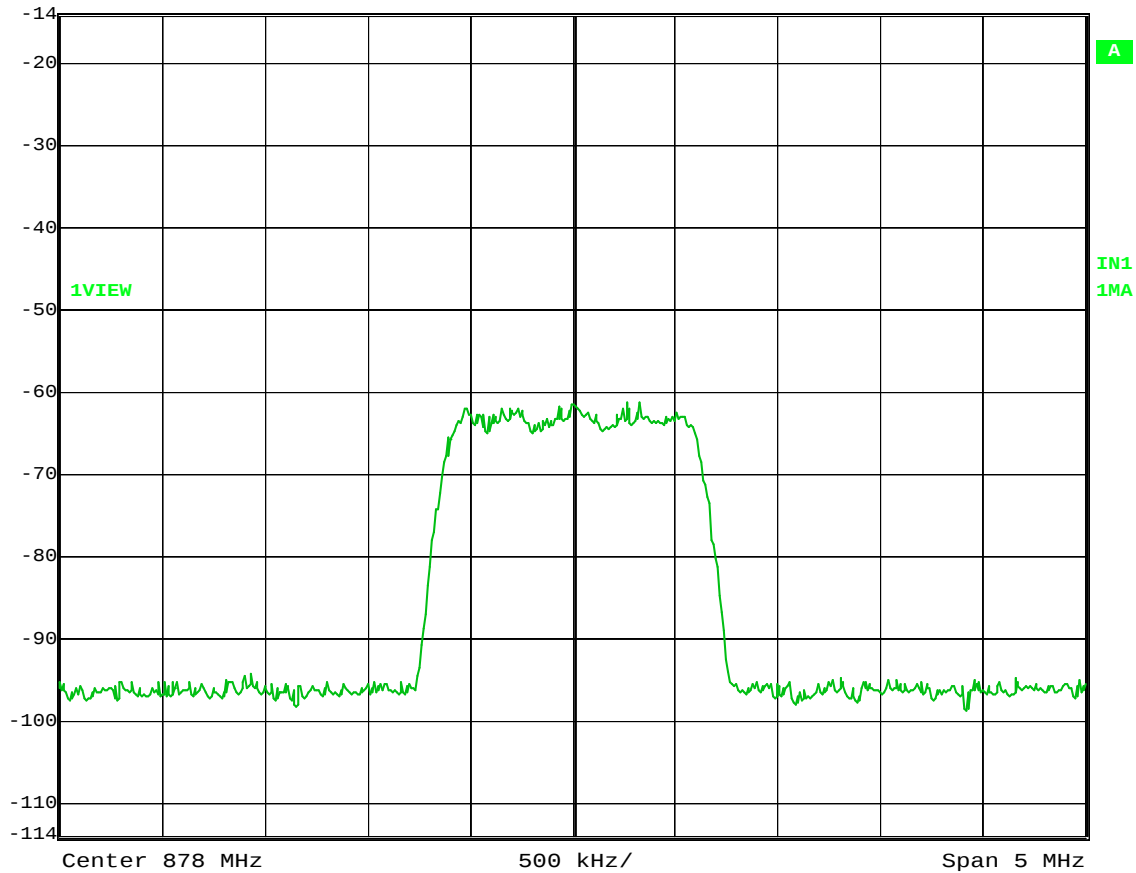
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Downlink
CDMA – InputRef Lvl
-14 dBm

RBW	30 kHz	RF Att	10 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



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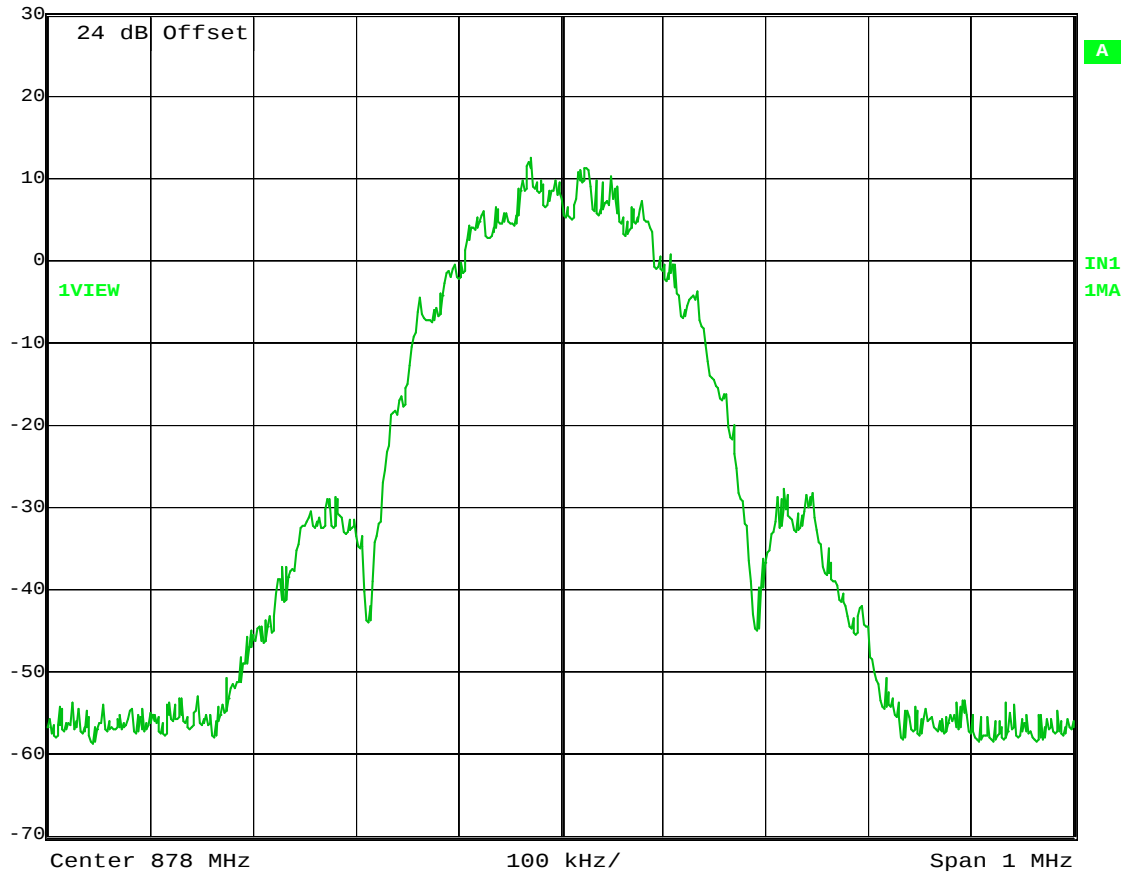
EQUIPMENT: MR8518

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Test Data – Occupied Bandwidth

Downlink
EDGE – Output

Ref	RBW	3 kHz	RF Att	20 dB
30 dBm	VBW	3 kHz	Mixer	-10 dBm
	SWT	280 ms	Unit	dBm



Date: 24.APR.2009 12:00:20

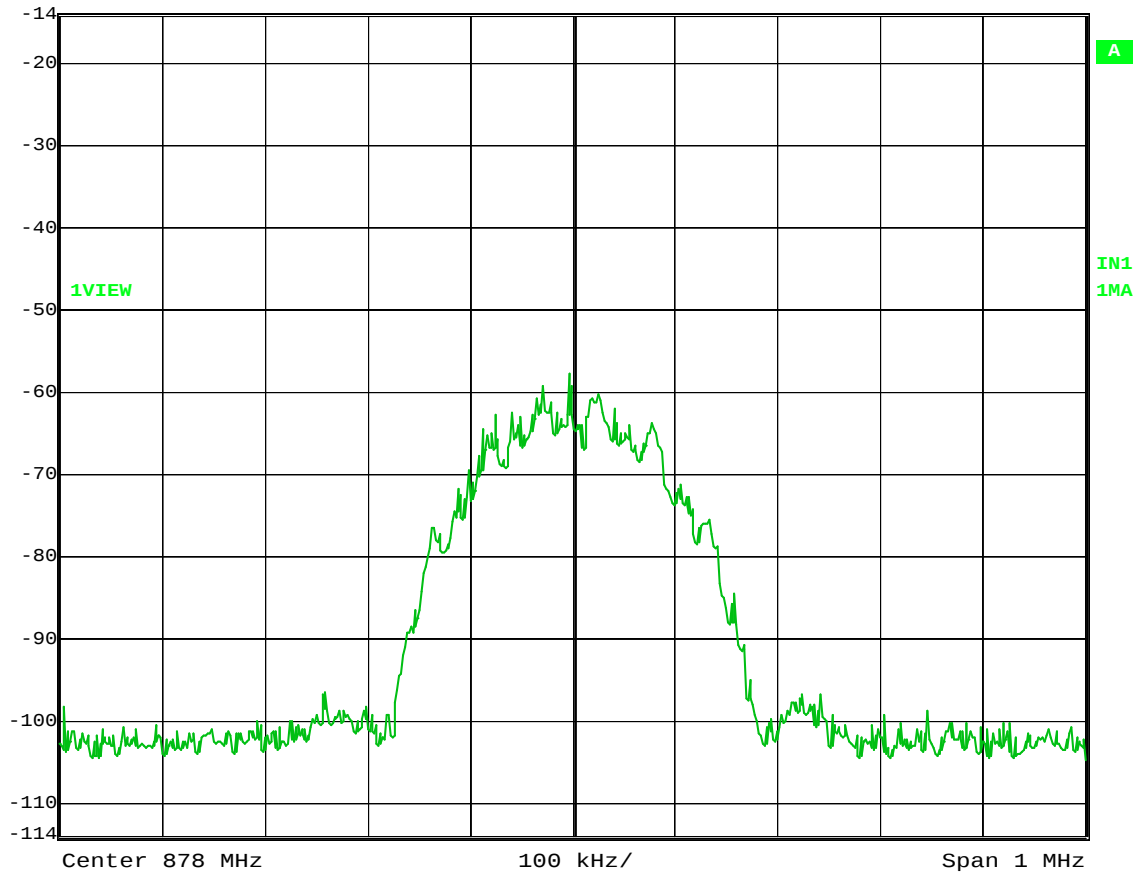
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Downlink
EDGE – InputRef Lvl
-14 dBm

RBW	3 kHz	RF Att	10 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



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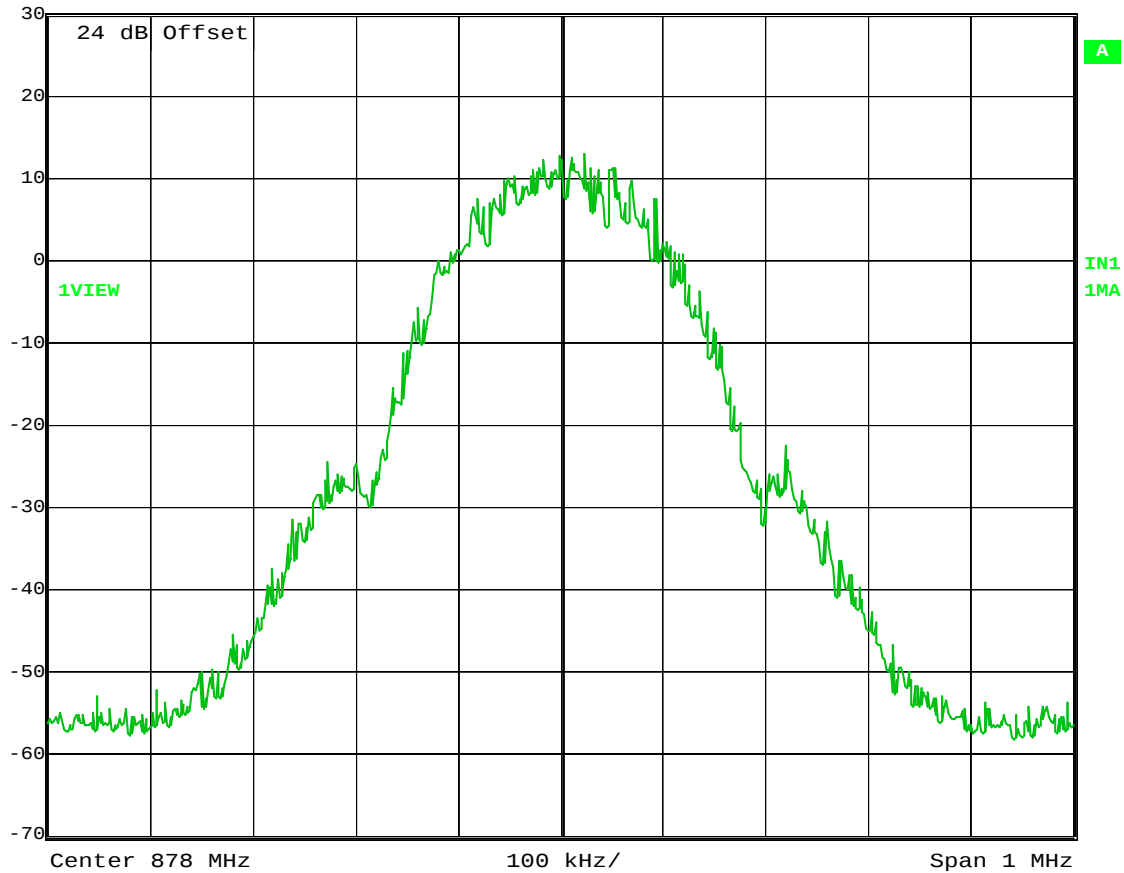
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Downlink
GSM – OutputRef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



Date: 24.APR.2009 11:55:02

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

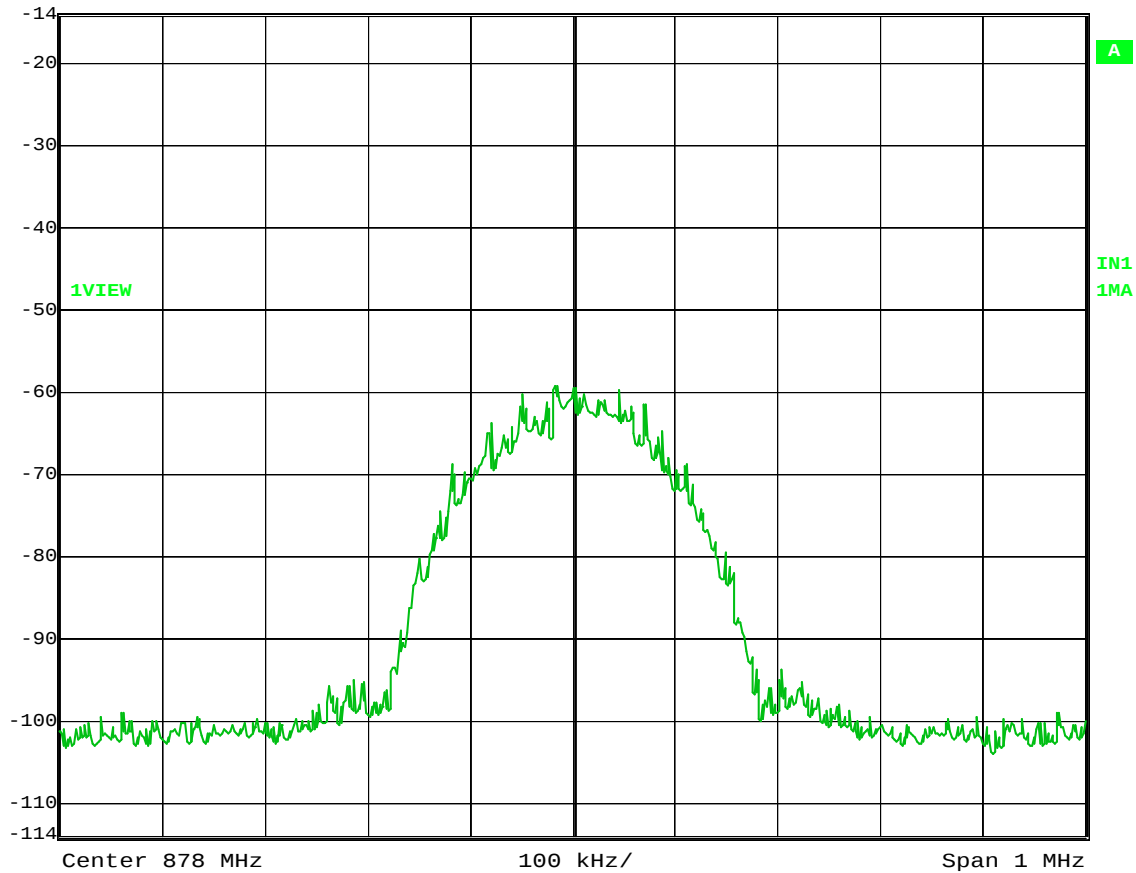
Test Data – Occupied Bandwidth

Downlink
GSM – Input

Rf

-14 dBm

RBW	3 kHz	RF Att	10 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



Date: 24.APR.2009 11:55:57

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

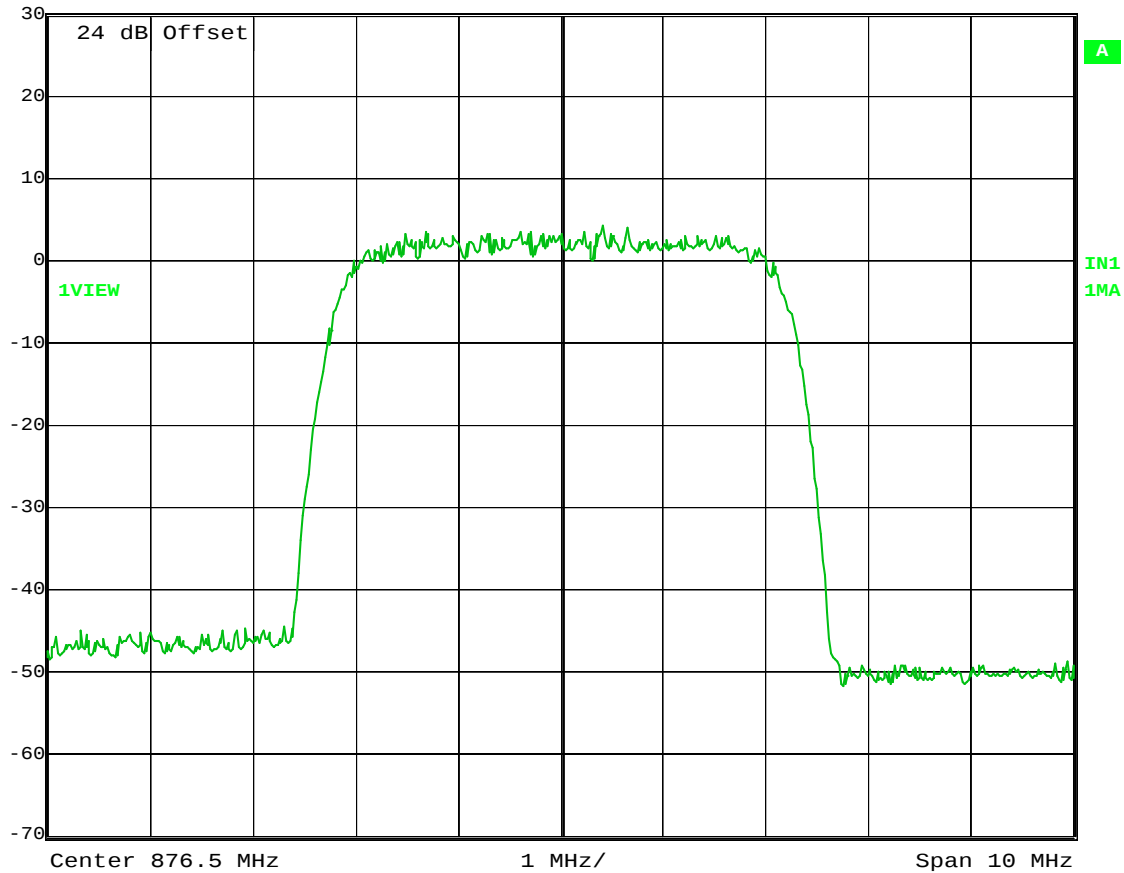
Test Data – Occupied Bandwidth

Downlink

W-CDMA - Output

Ref Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	10 ms	Unit	dBm



Date: 24.APR.2009 11:23:51

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

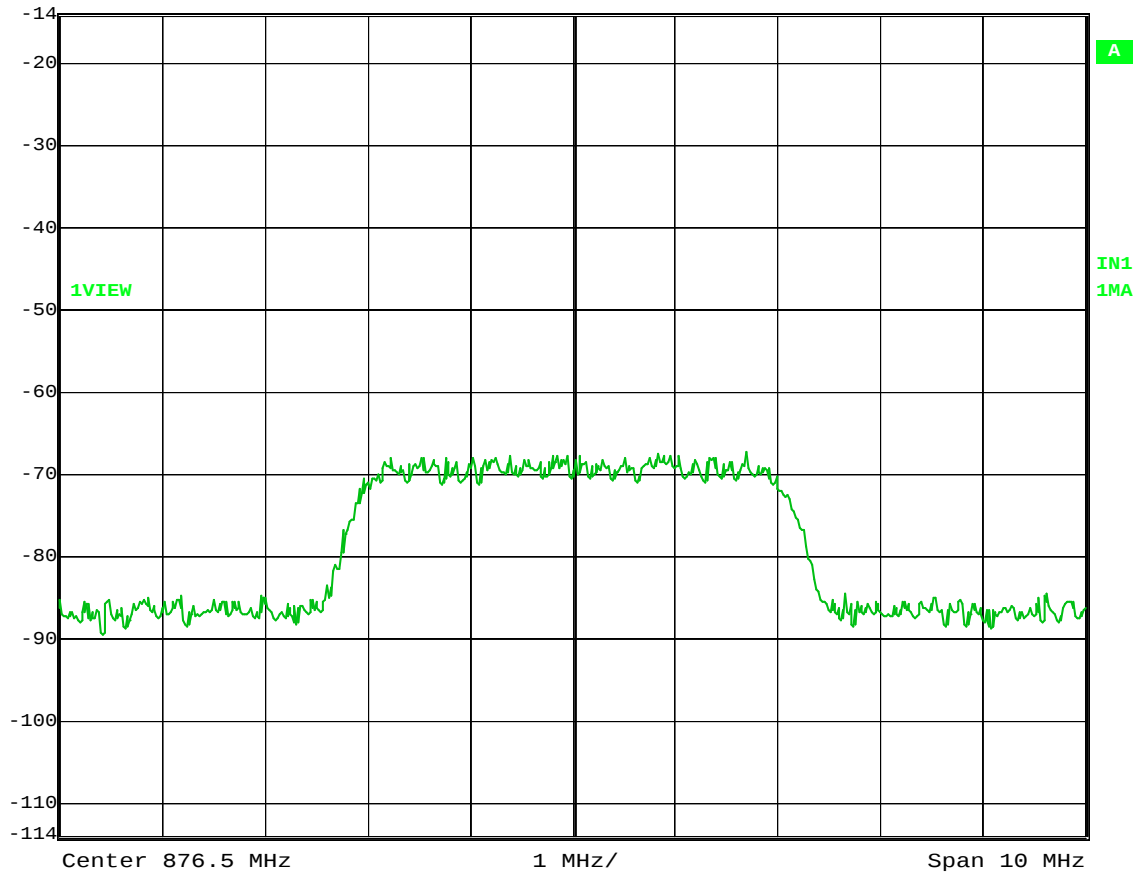
Test Data – Occupied Bandwidth

Downlink

W-CDMA - Input

Ref Lvl
-14 dBm

RBW	50 kHz	RF Att	10 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	10 ms	Unit	dBm



Date: 24.APR.2009 11:24:38

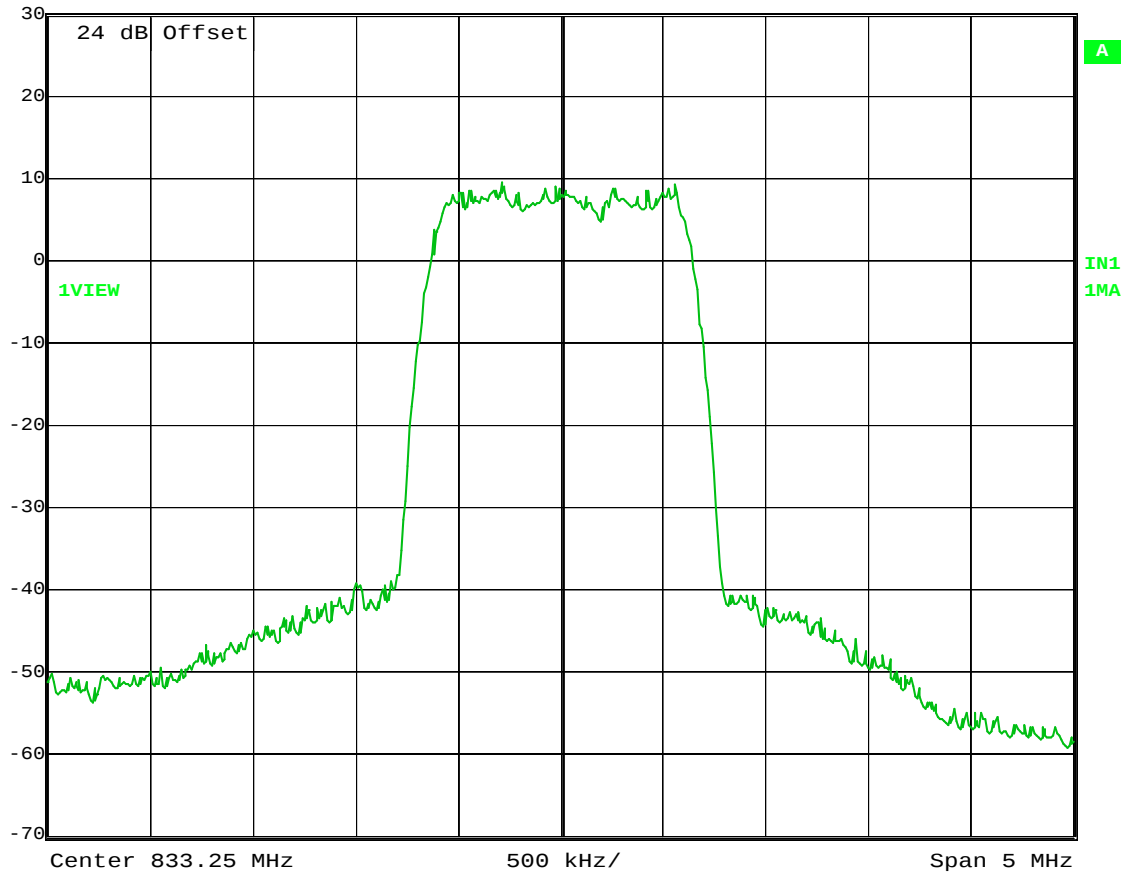
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Uplink
CDMA – OutputRef Lvl
30 dBm

RBW	30 kHz	RF Att	20 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



Date: 24.APR.2009 11:39:22

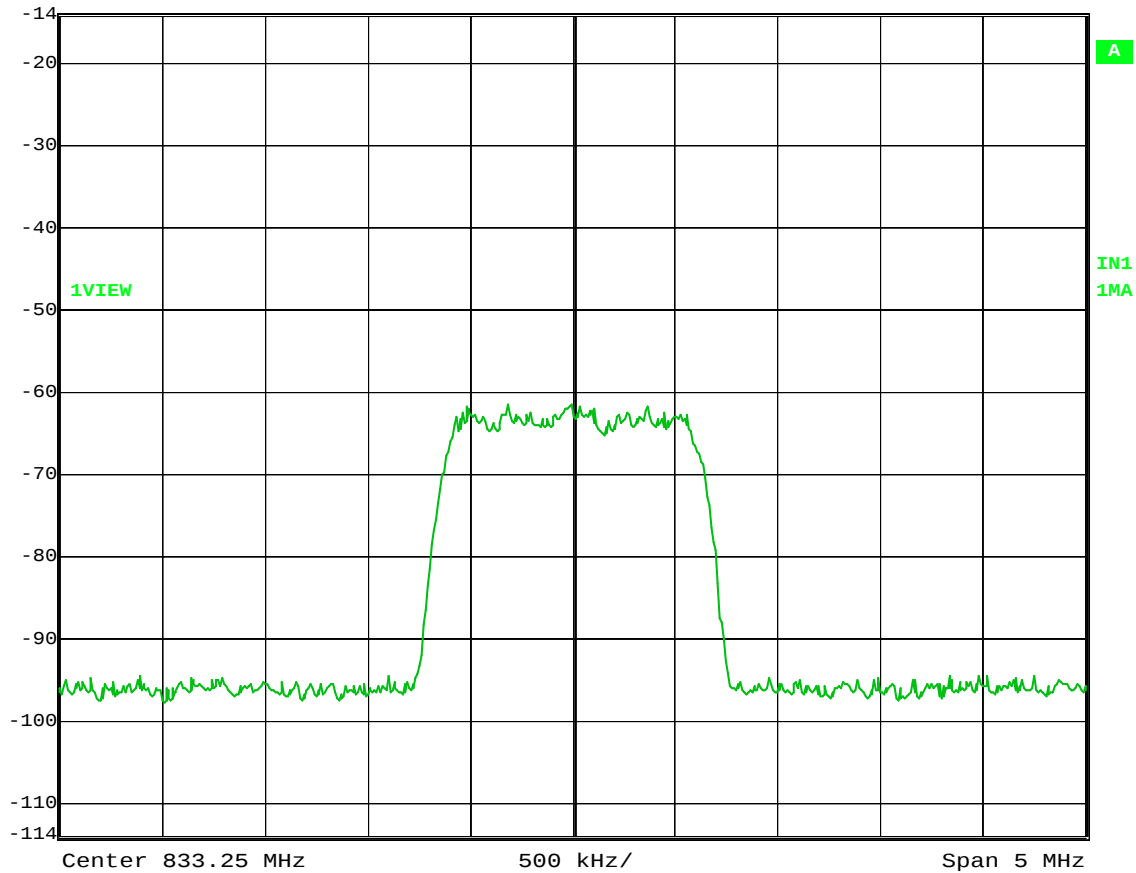
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Uplink
CDMA – InputRef Lvl
-14 dBm

RBW	30 kHz	RF Att	10 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



Date: 24.APR.2009 11:40:14

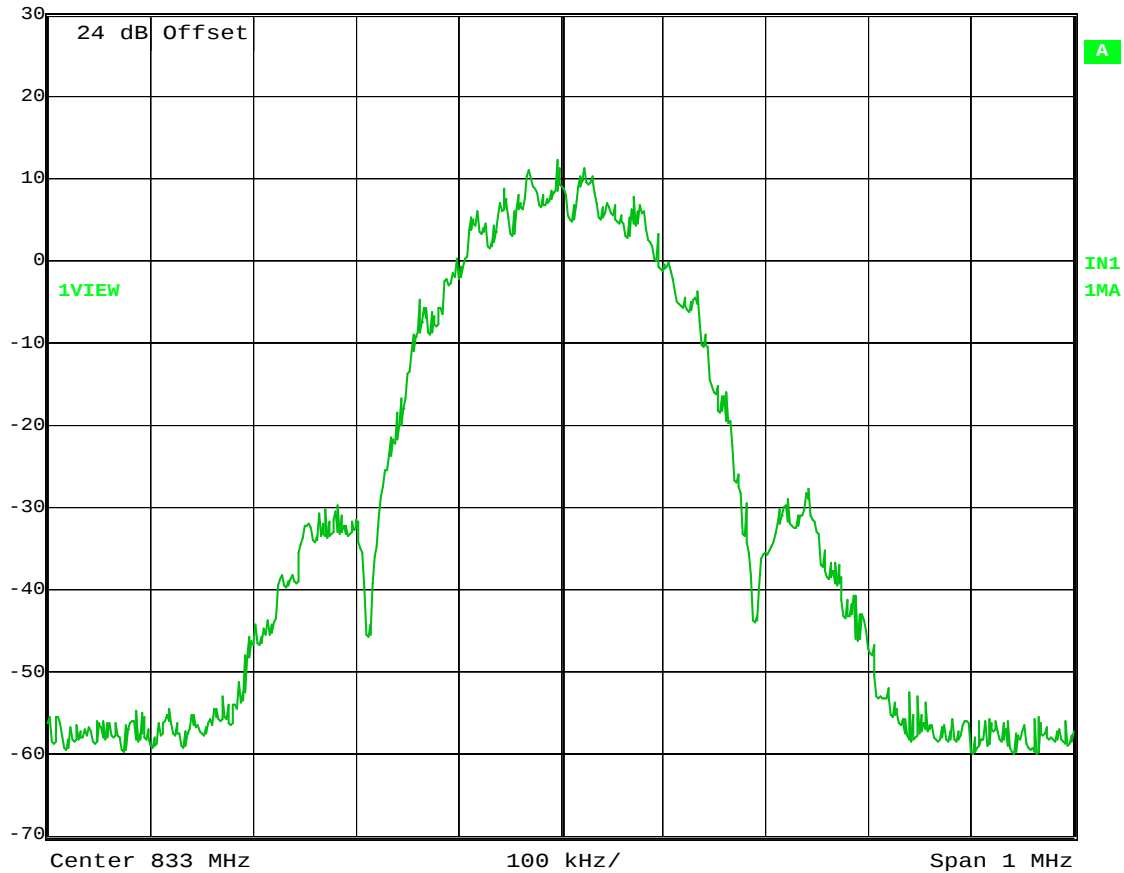
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Uplink
EDGE – Output

Ref	RBW	3 kHz	RF Att	20 dB
30 dBm	VBW	3 kHz	Mixer	-10 dBm
	SWT	280 ms	Unit	dBm



Date: 24.APR.2009 12:04:54

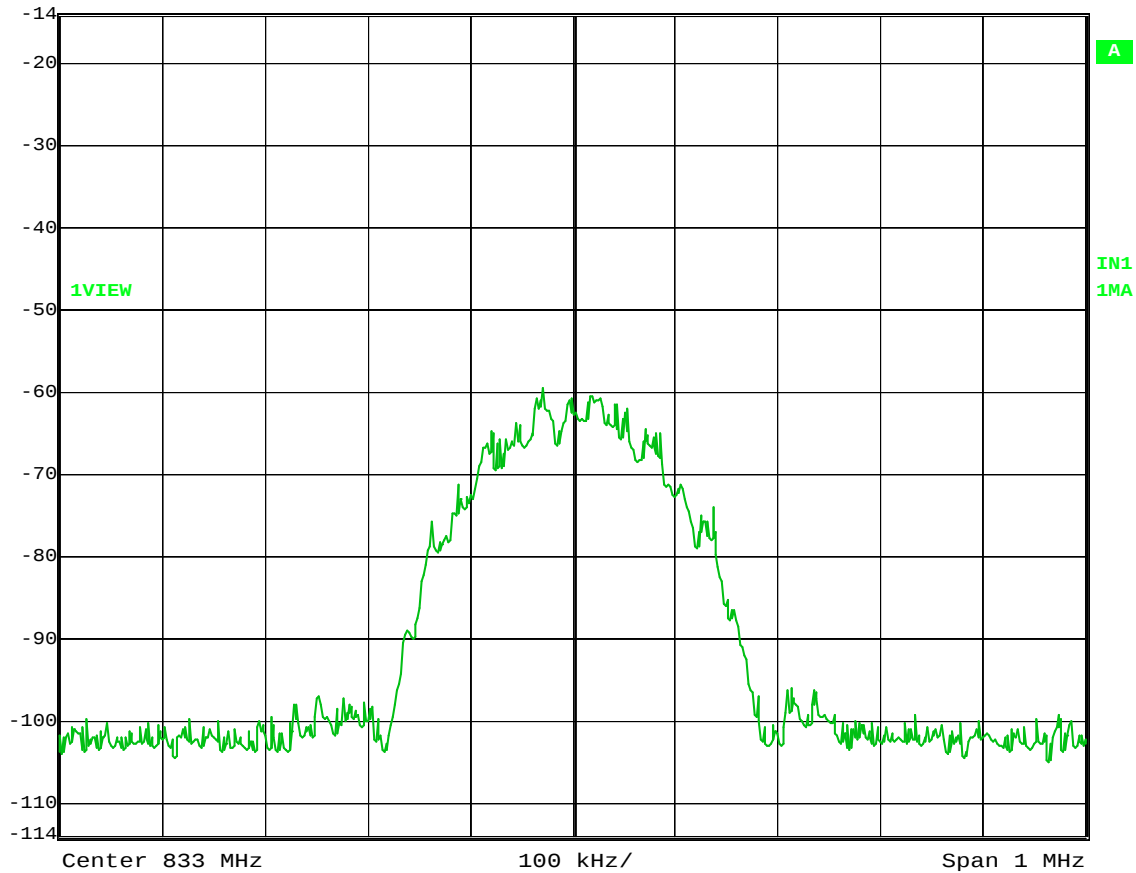
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Uplink
EDGE – InputRef Lvl
-14 dBm

RBW	3 kHz	RF Att	10 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



Date: 24.APR.2009 12:05:41

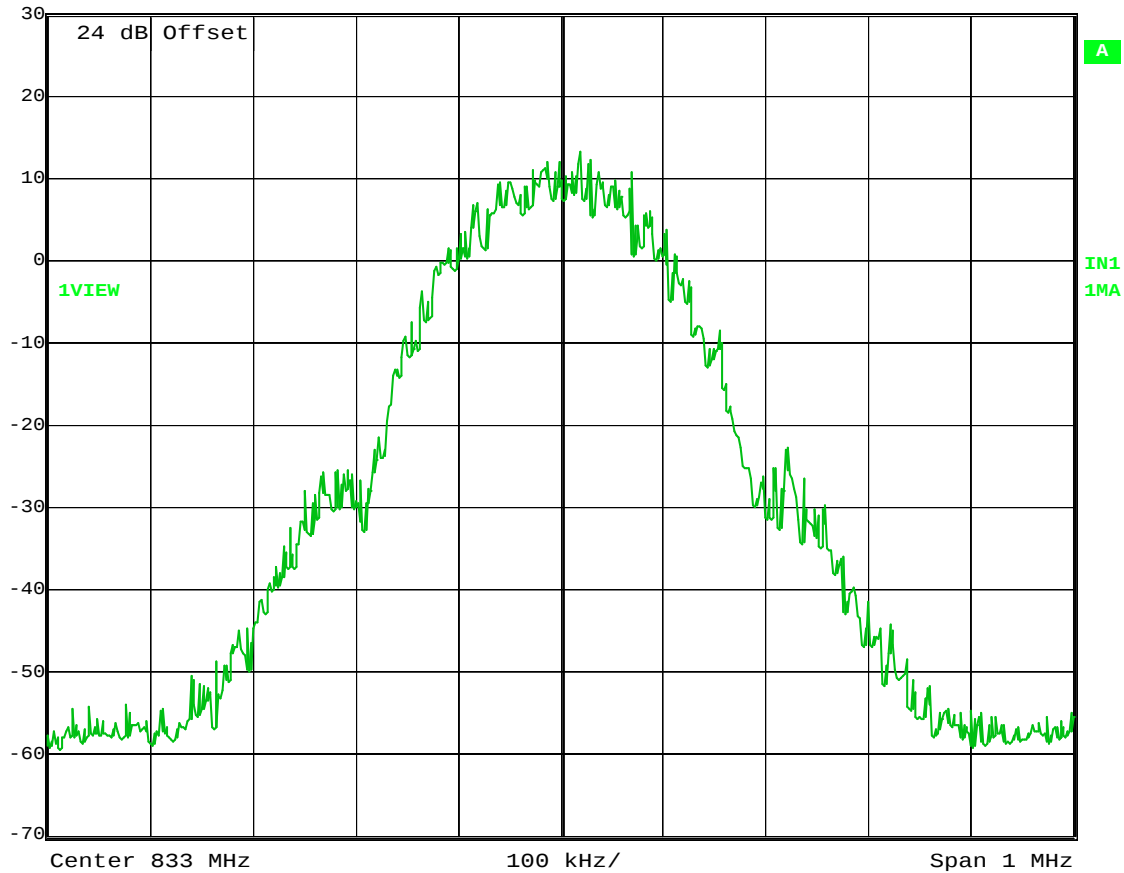
EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Occupied Bandwidth

Uplink
GSM – OutputRef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



Date: 24.APR.2009 11:49:54

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

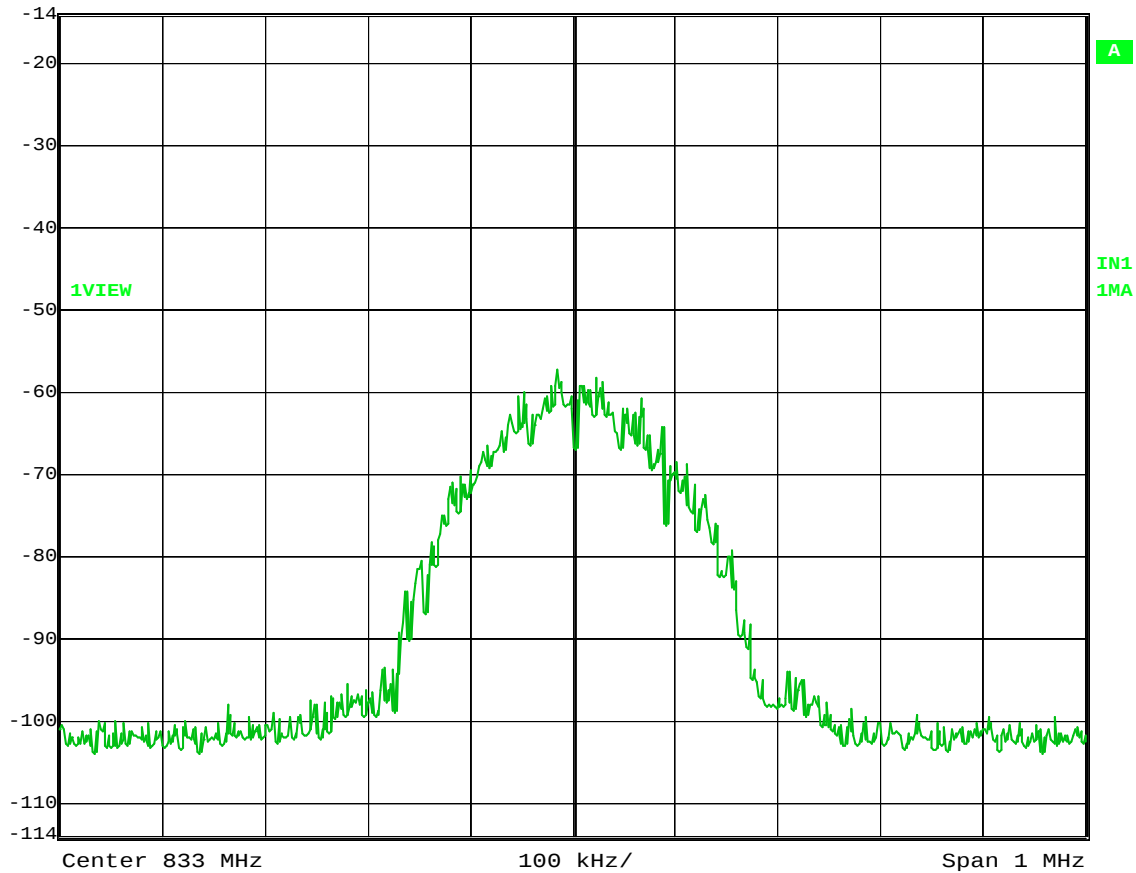
Test Data – Occupied Bandwidth

Uplink
GSM – Input

Rf

-14 dBm

RBW	3 kHz	RF Att	10 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	280 ms	Unit	dBm



Date: 24.APR.2009 11:50:40

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

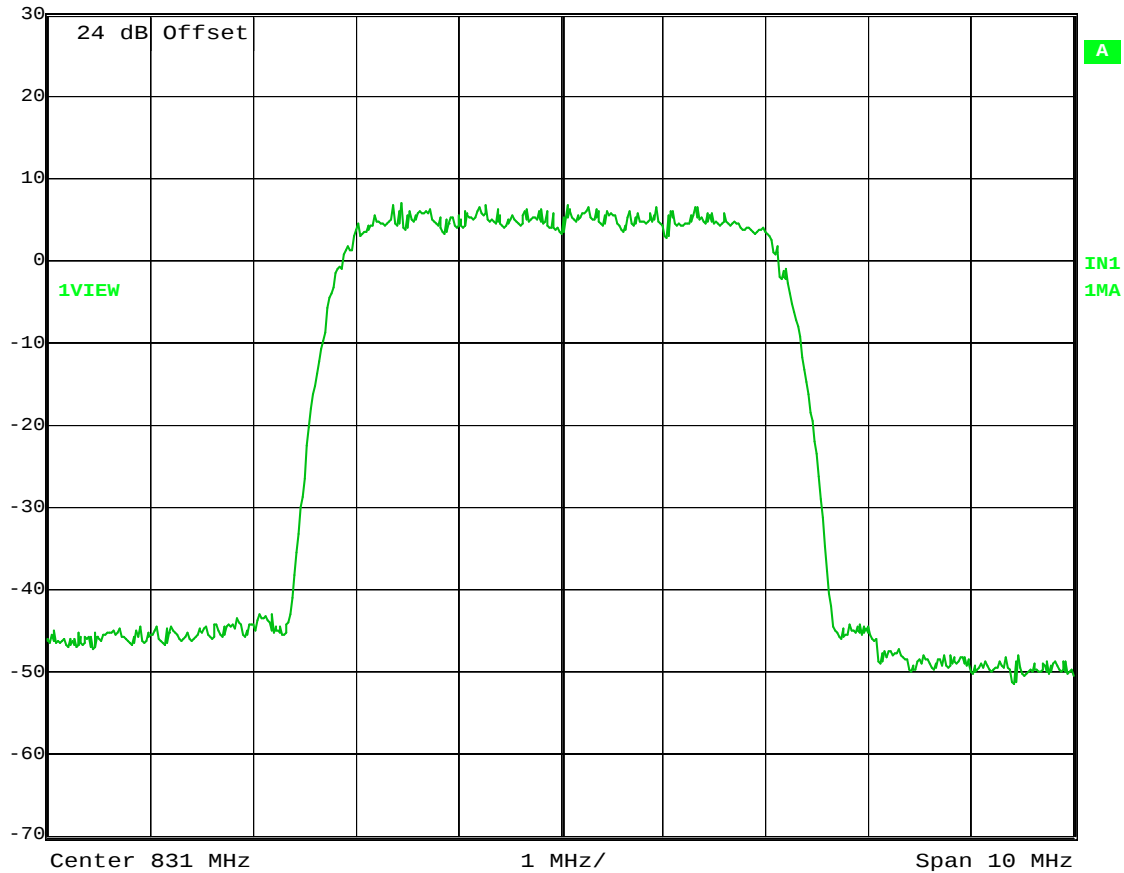
Test Data – Occupied Bandwidth

Uplink

W-CDMA - Output

Ref Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	10 ms	Unit	dBm



Date: 24.APR.2009 11:17:33

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

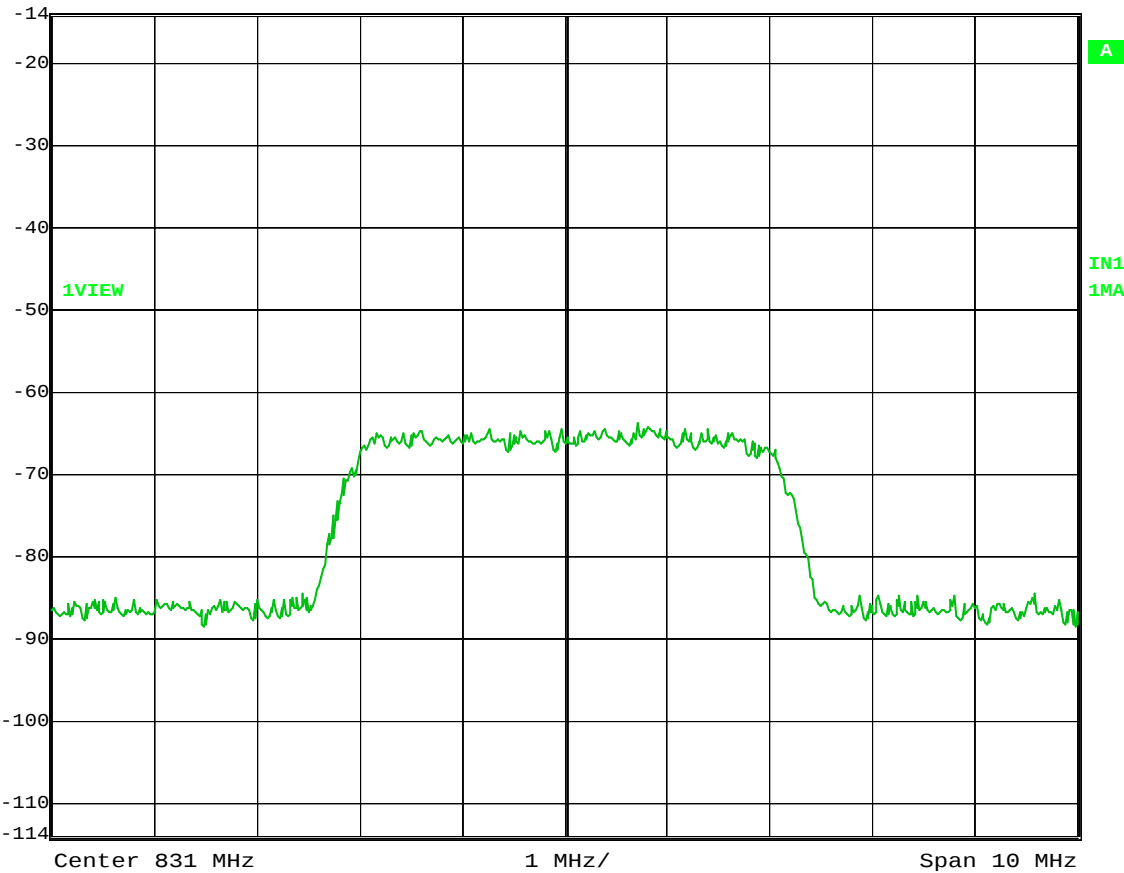
Test Data – Occupied Bandwidth

Uplink
W-CDMA - Input



Ref Lvl
-14 dBm

RBW	50 kHz	RF Att	10 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	10 ms	Unit	dBm



Date: 24.APR.2009 11:18:25

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals PARA. NO.: 22.917

TESTED BY: David Light

DATE: 24 April 2009

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1767-1470-1469-1082

Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 °C

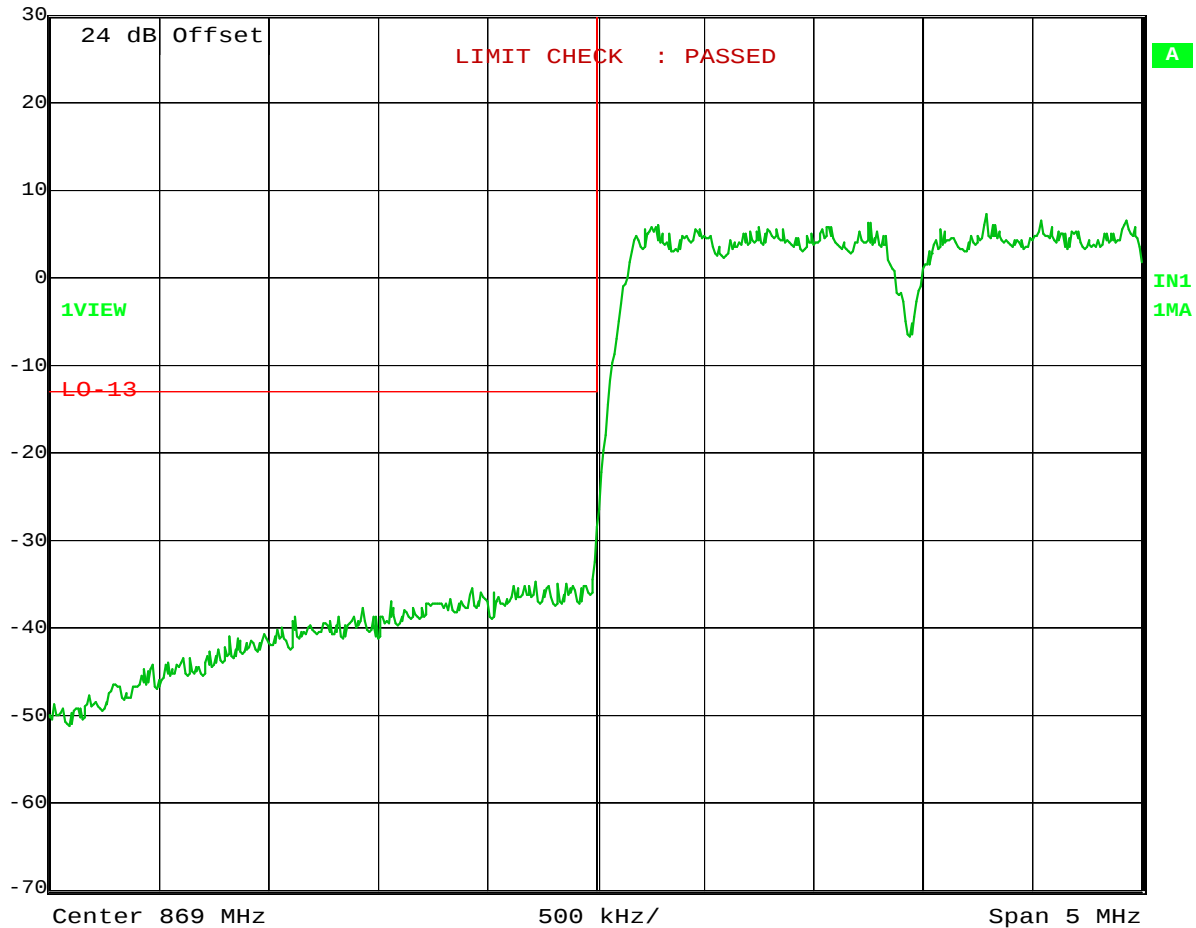
Relative Humidity: 35 %

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Lower Bandedge Intermodulation
CDMARef Lvl
30 dBm

RBW	30 kHz	RF Att	20 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



Date: 24.APR.2009 11:29:36

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Upper Bandedge Intermodulation
CDMARef Lvl
30 dBm

RBW	30 kHz	RF Att	20 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



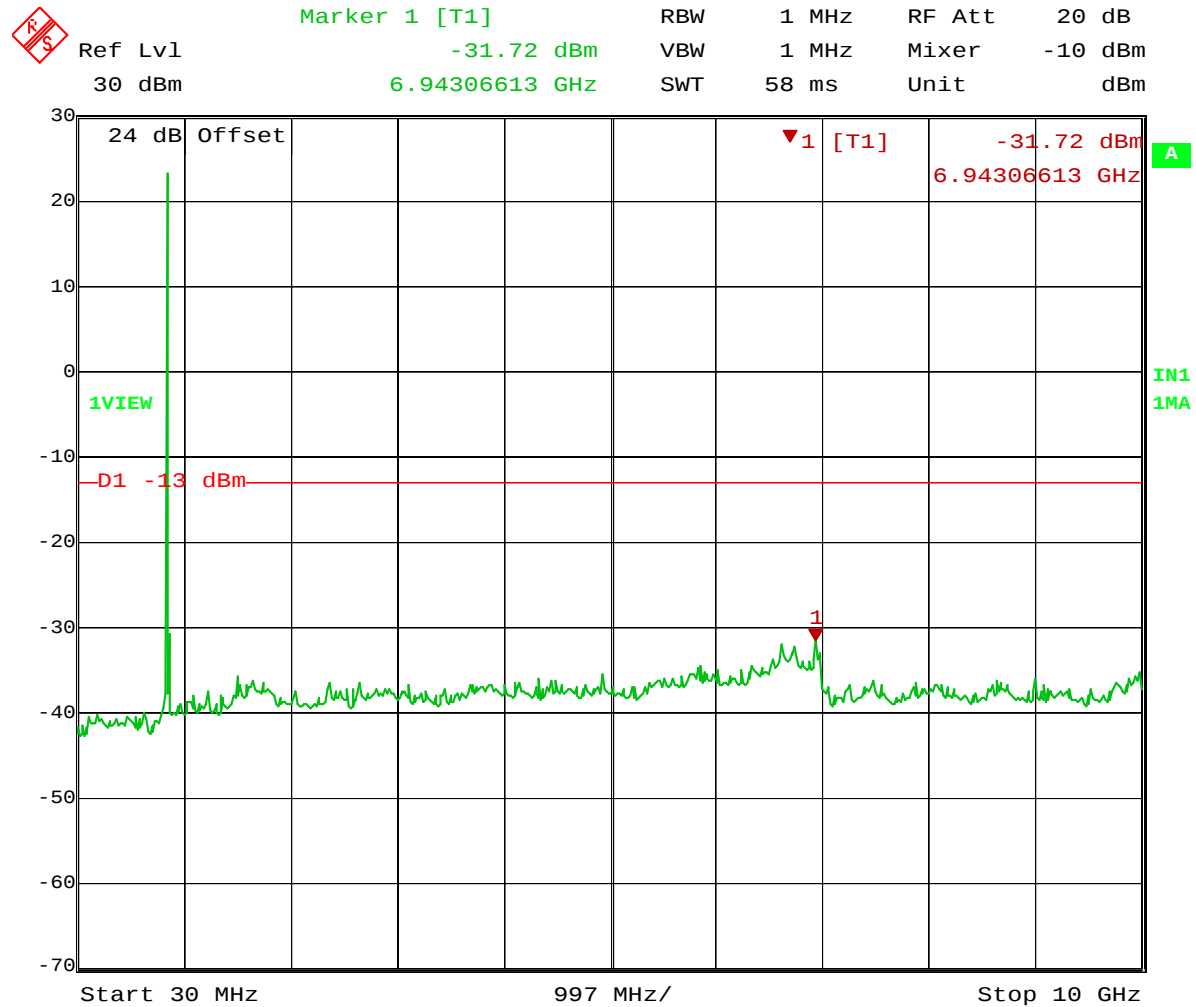
Date: 24.APR.2009 12:32:56

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – CDMA - Downlink



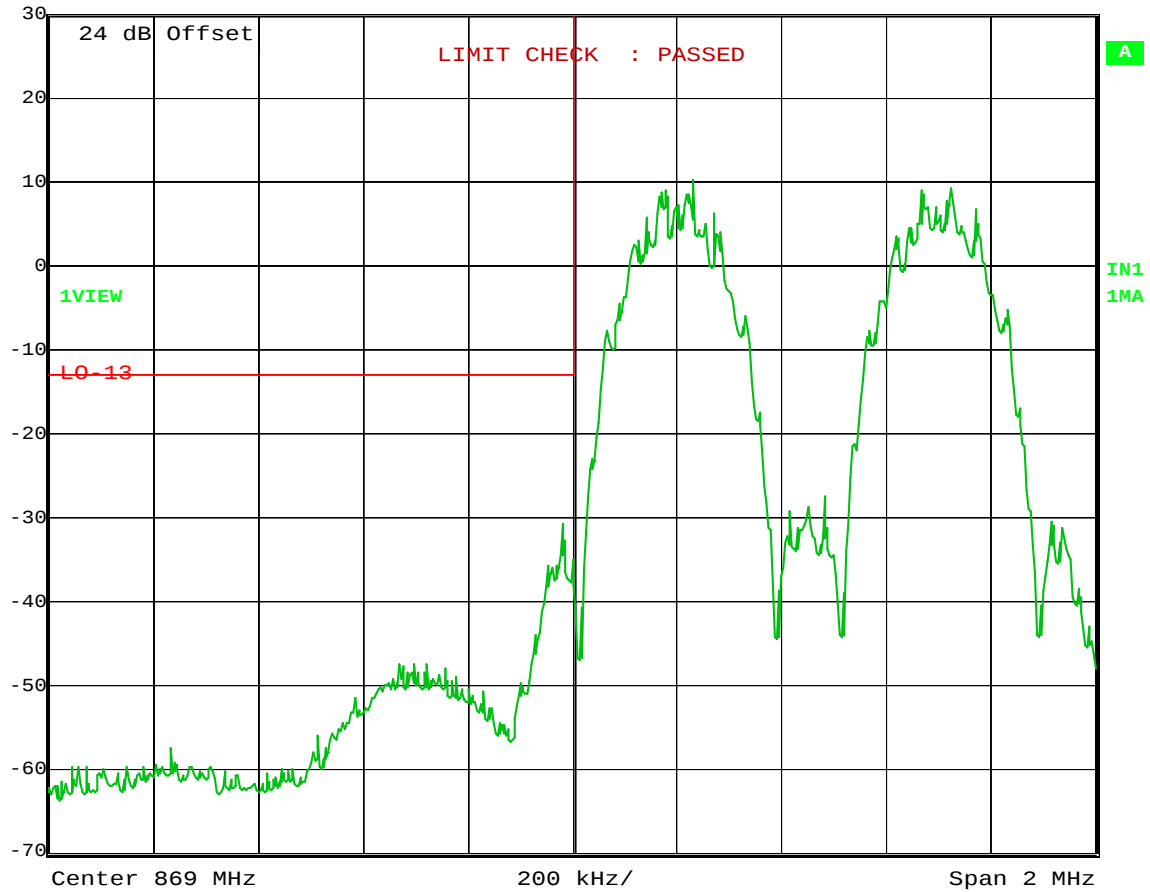
Date: 24.APR.2009 11:31:12

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Lower Bandedge Intermodulation
EDGERef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



Date: 24.APR.2009 11:58:46

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
EDGE



Ref Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



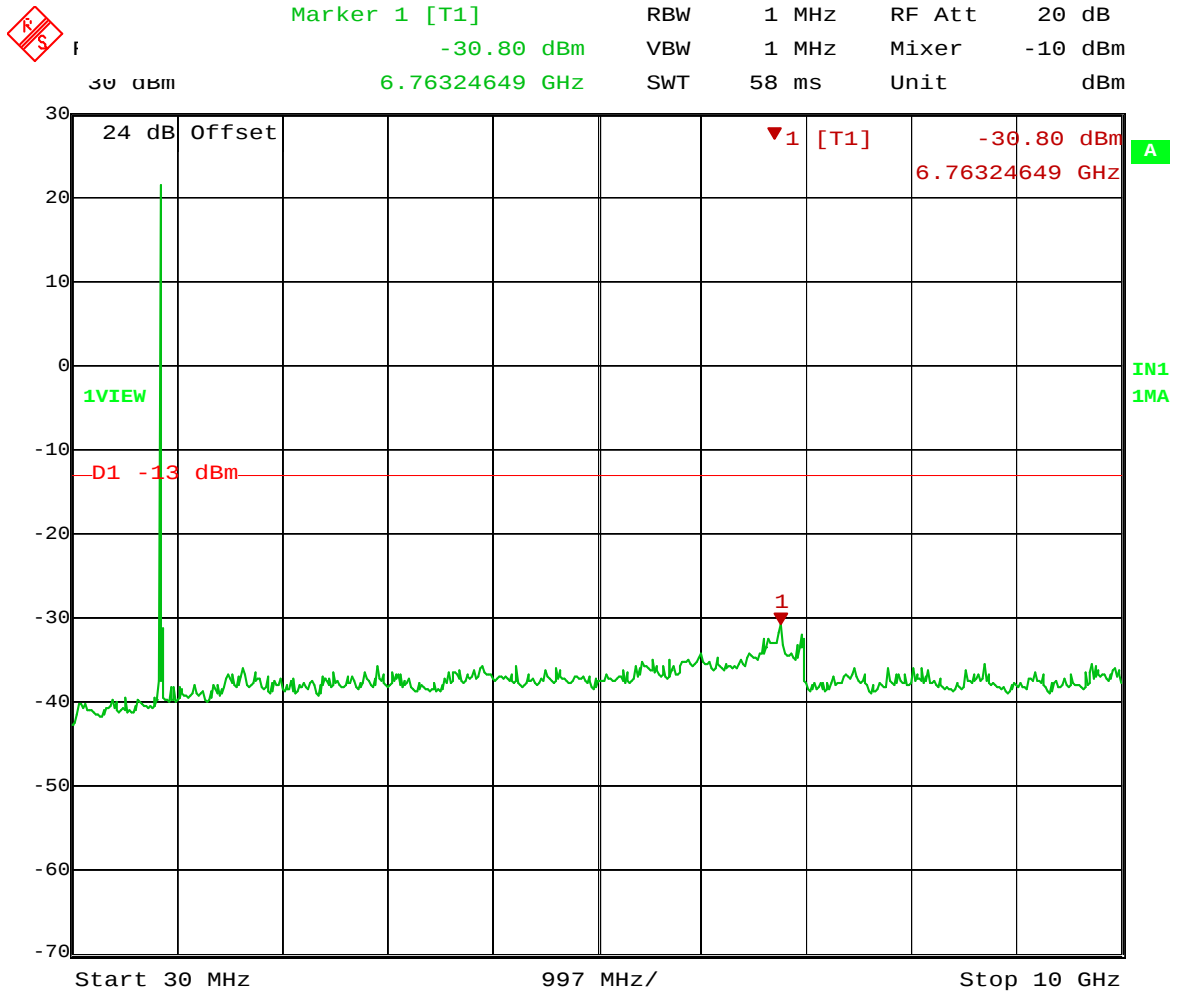
Date: 24.APR.2009 12:28:36

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – EDGE – Downlink



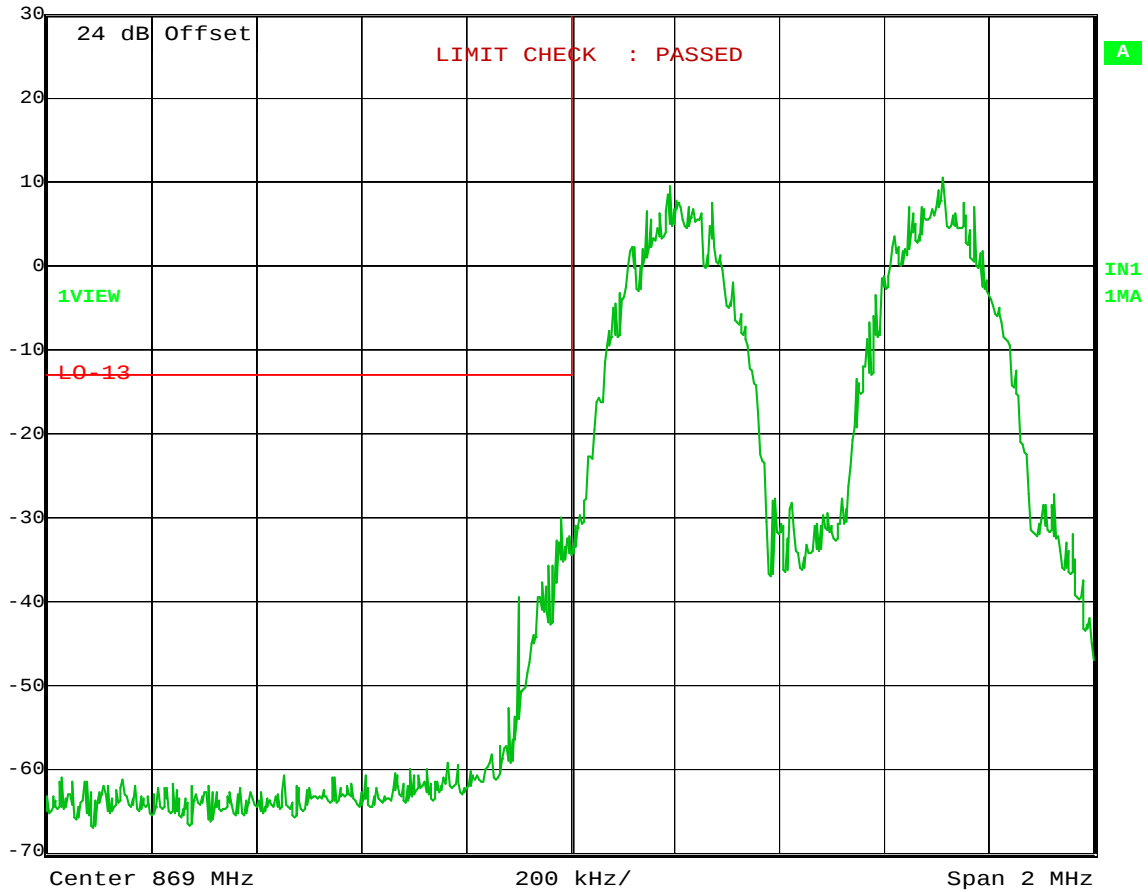
Date: 24.APR.2009 11:59:49

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Lower Bandedge Intermodulation
GSMRef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



Date: 24.APR.2009 11:53:22

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

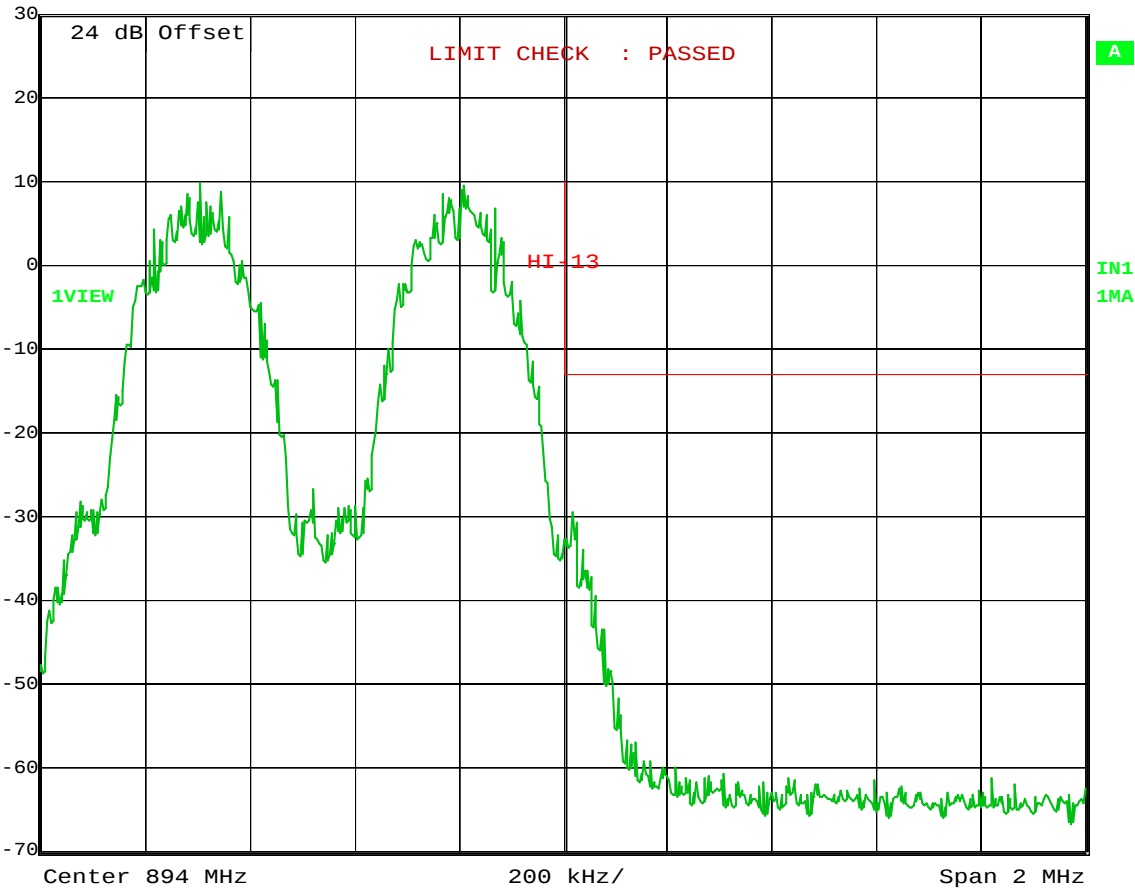
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
GSM



Ref Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



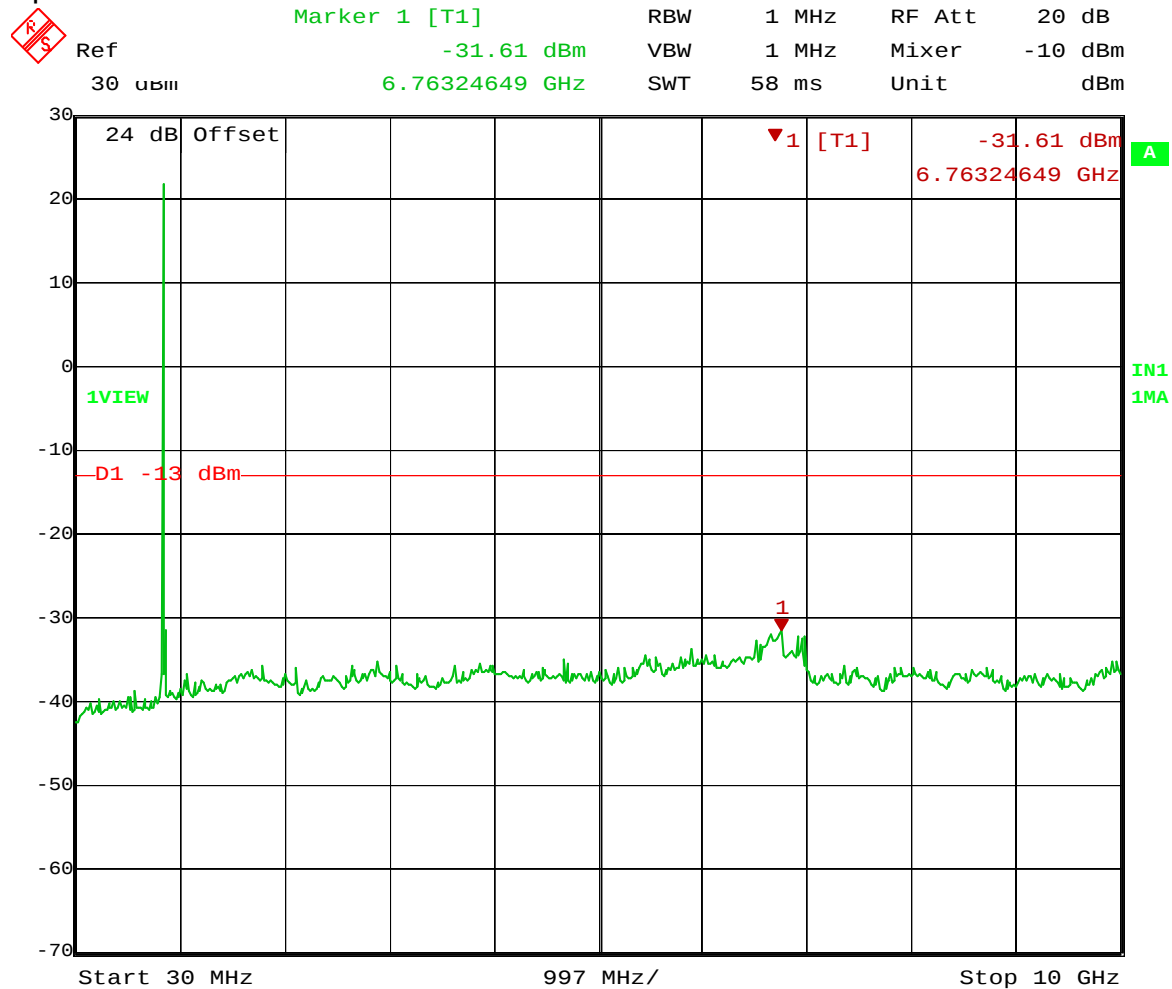
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – GSM – Downlink



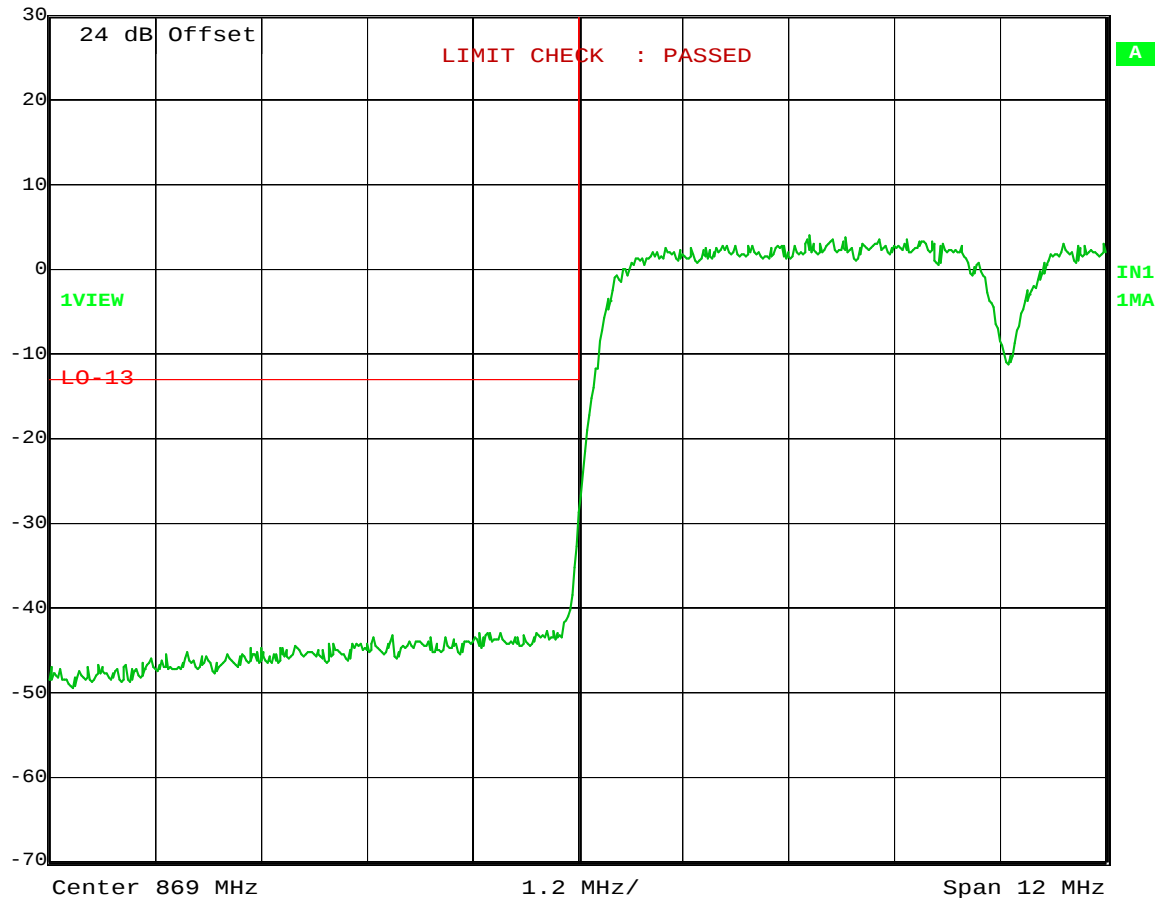
Date: 24.APR.2009 11:54:24

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Lower Bandedge Intermodulation
W-CDMARef Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	12 ms	Unit	dBm



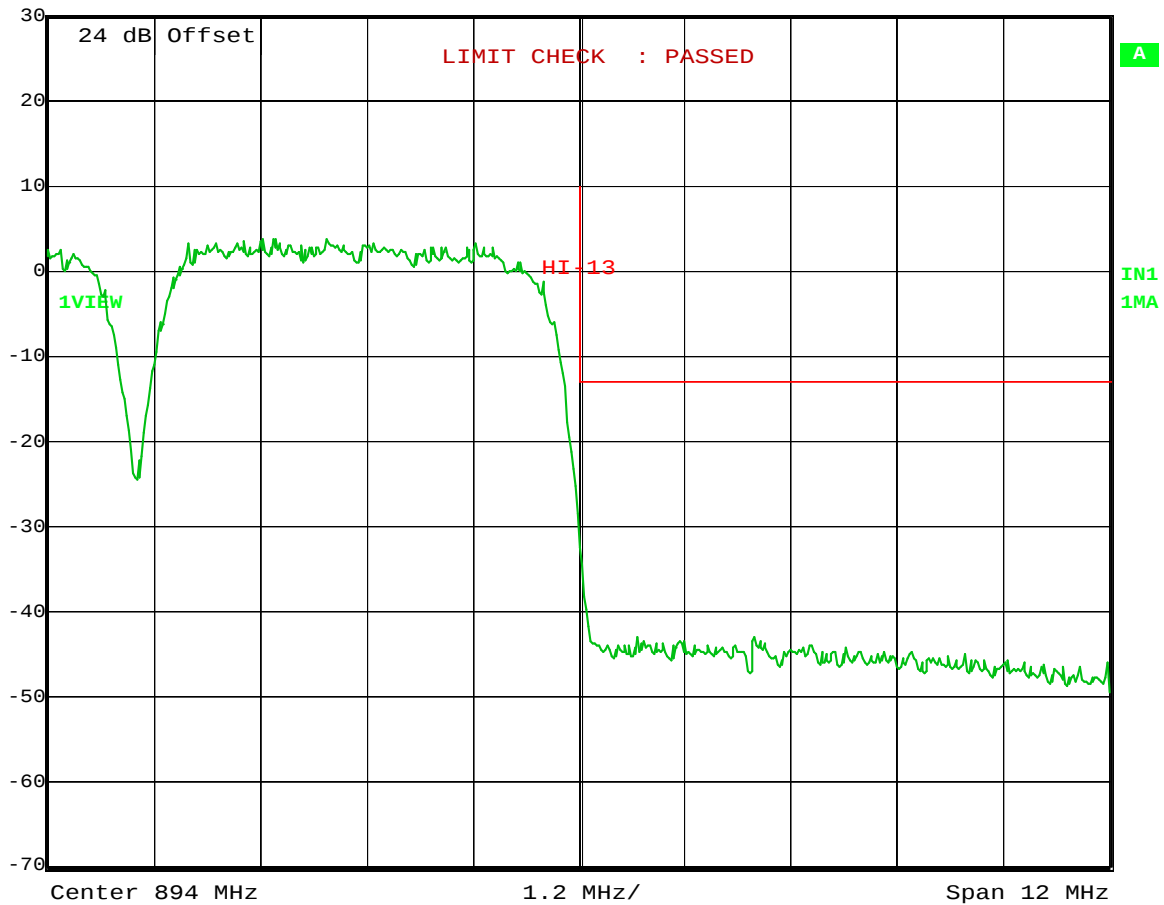
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsDownlink - Upper Bandedge Intermodulation
W-CDMARef Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	12 ms	Unit	dBm



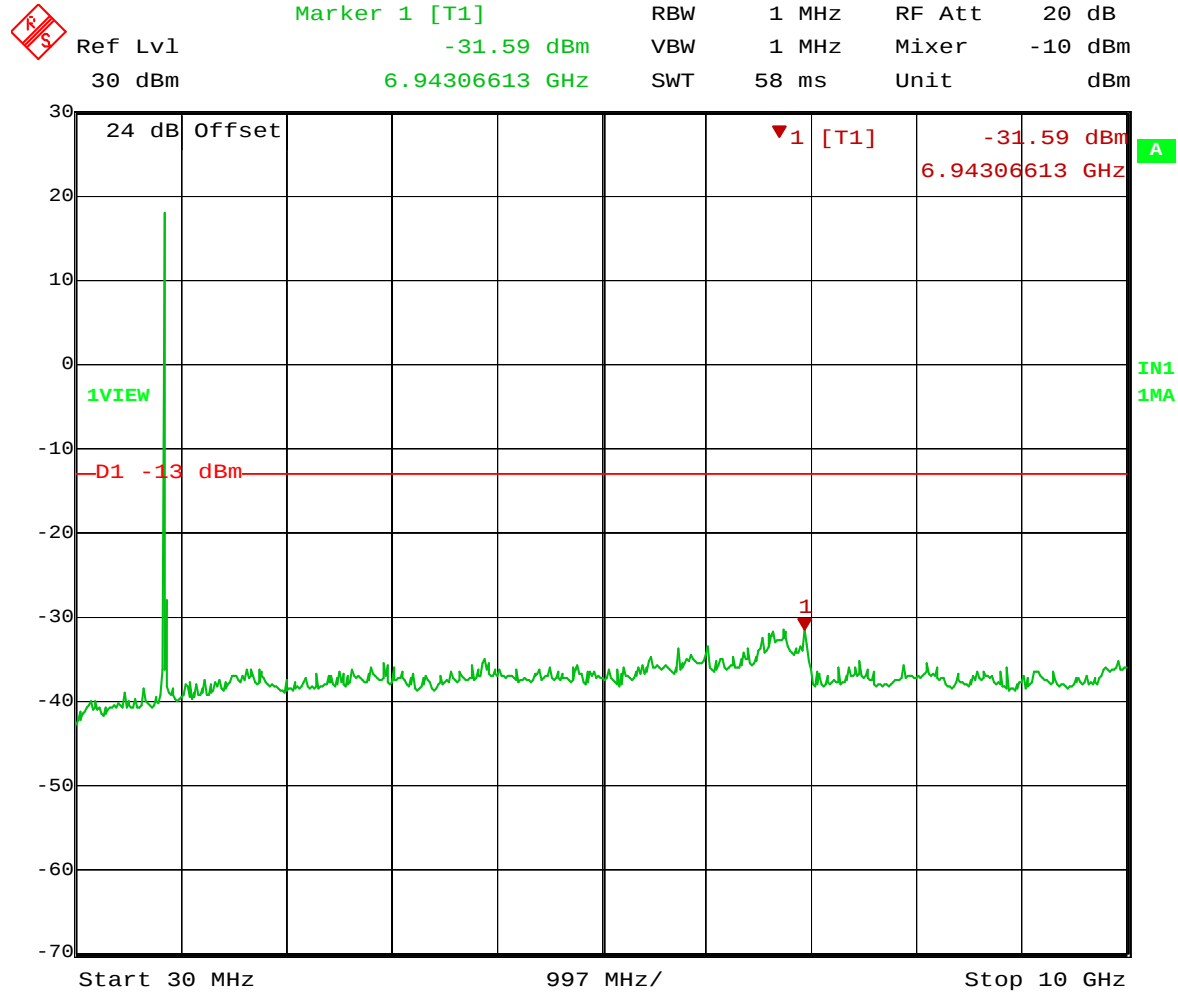
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – W-CDMA - Downlink



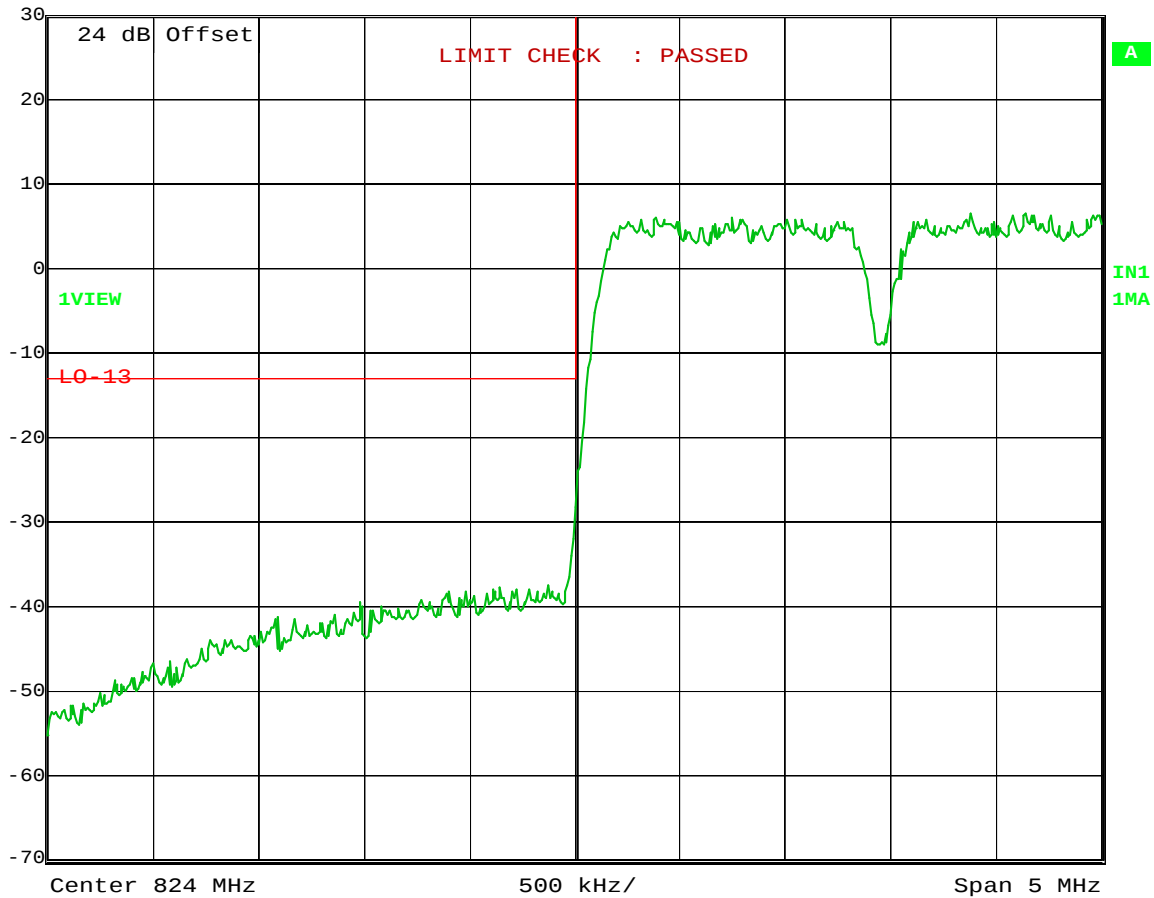
Date: 24.APR.2009 11:23:20

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Lower Bandedge Intermodulation
CDMARef Lvl
30 dBm

RBW	30 kHz	RF Att	20 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



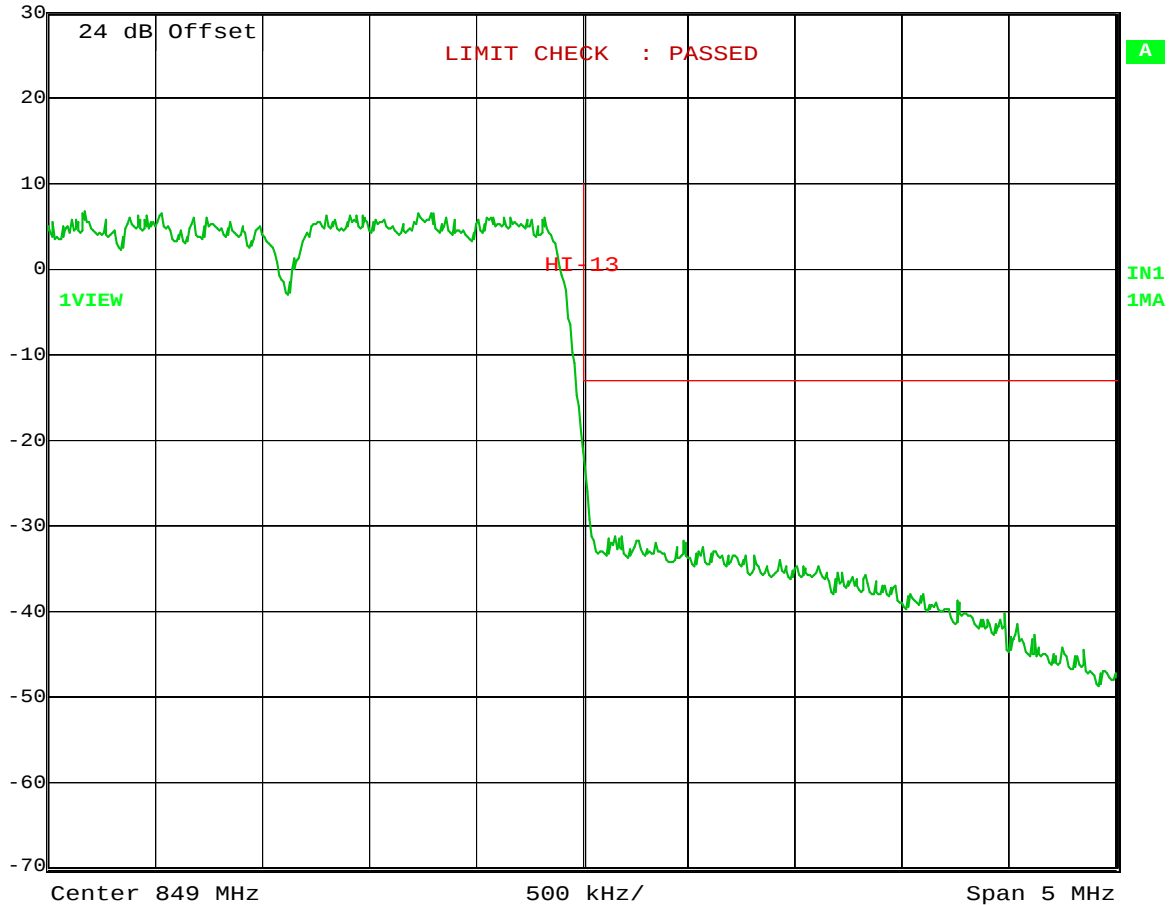
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Upper Bandedge Intermodulation
CDMARef Lvl
30 dBm

RBW	30 kHz	RF Att	20 dB
VBW	30 kHz	Mixer	-10 dBm
SWT	14 ms	Unit	dBm



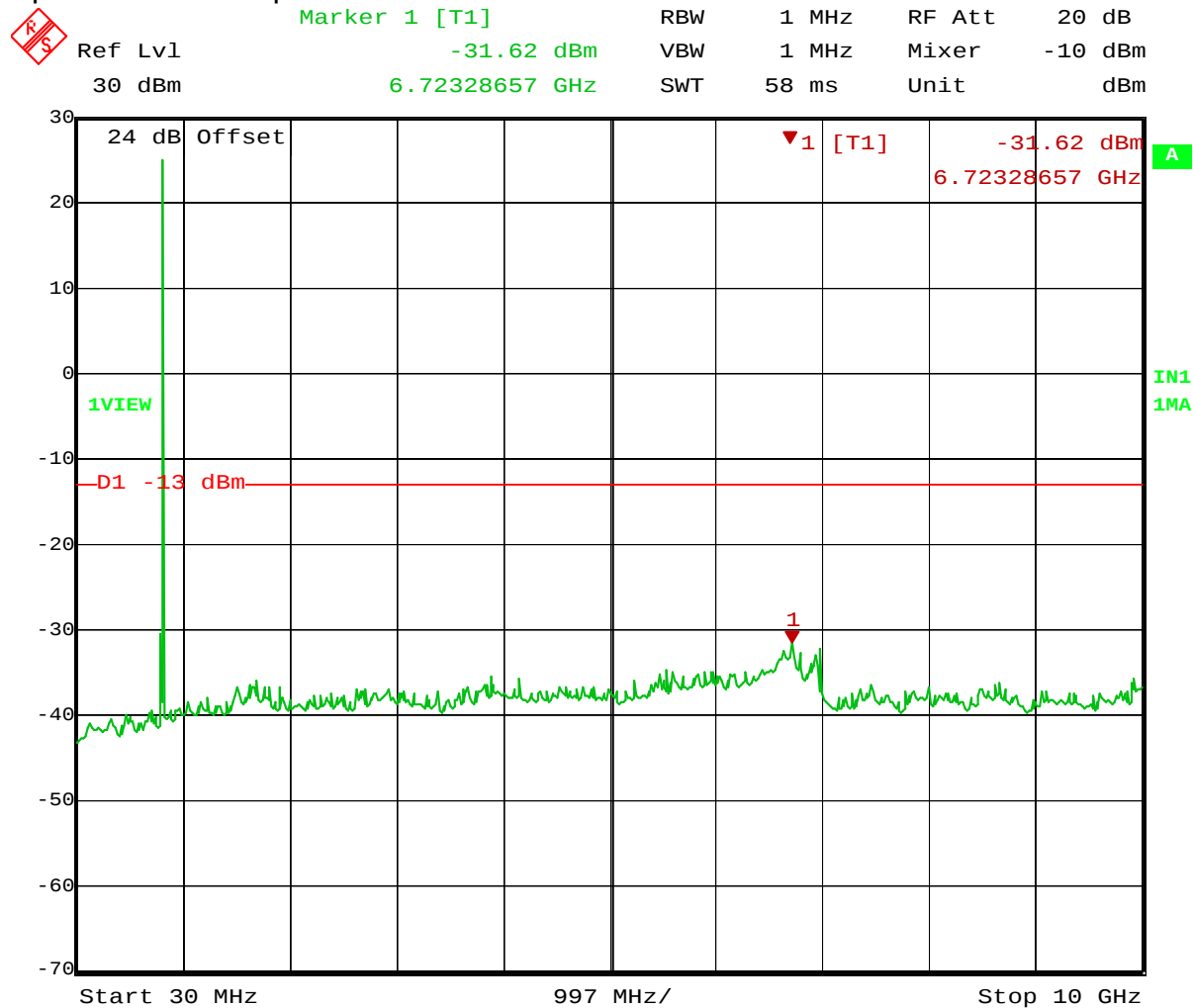
Date: 24.APR.2009 12:19:46

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – CDMA - Uplink



Date: 24.APR.2009 11:38:52

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Lower Bandedge Intermodulation
EDGERef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



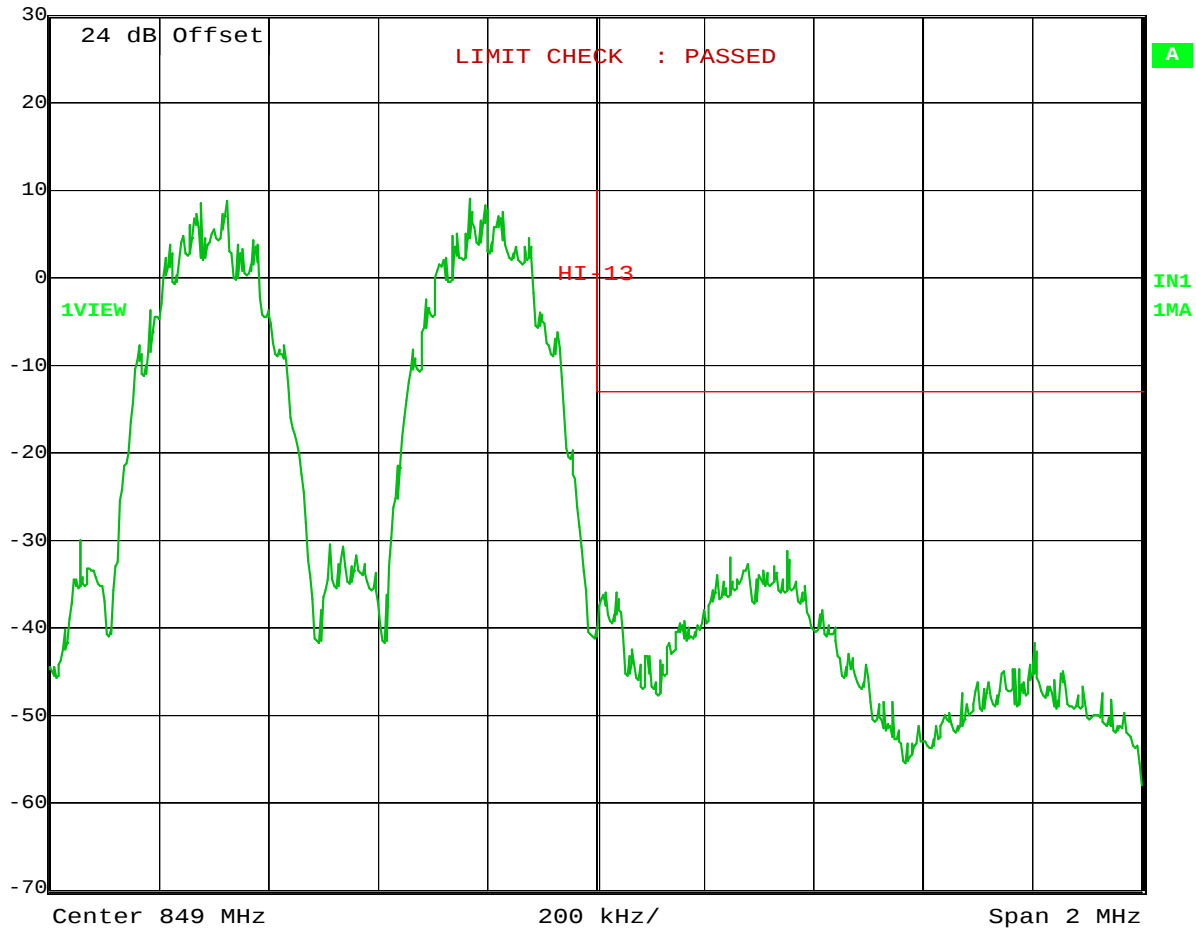
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Upper Bandedge Intermodulation
EDGERef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



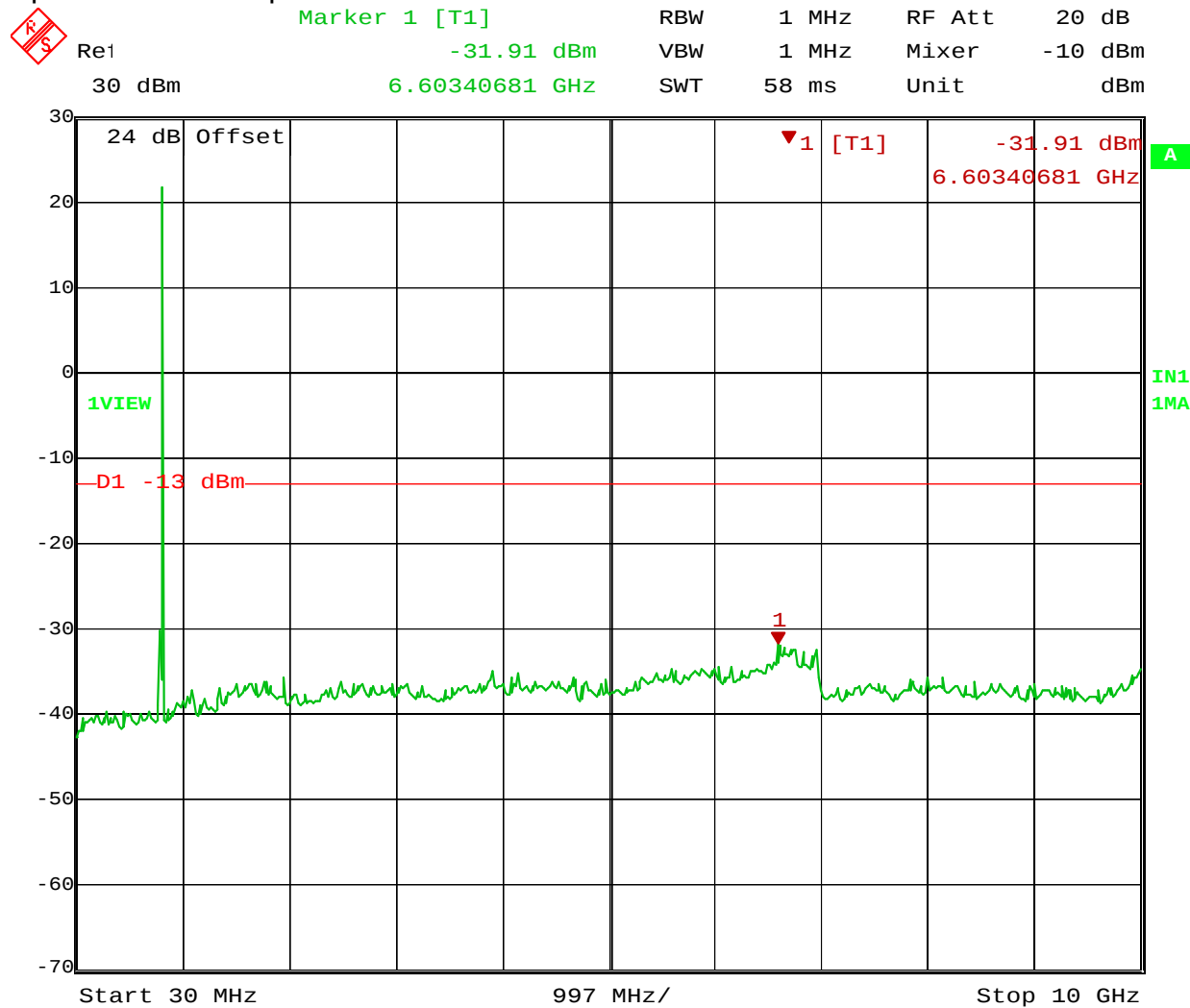
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – EDGE – Uplink



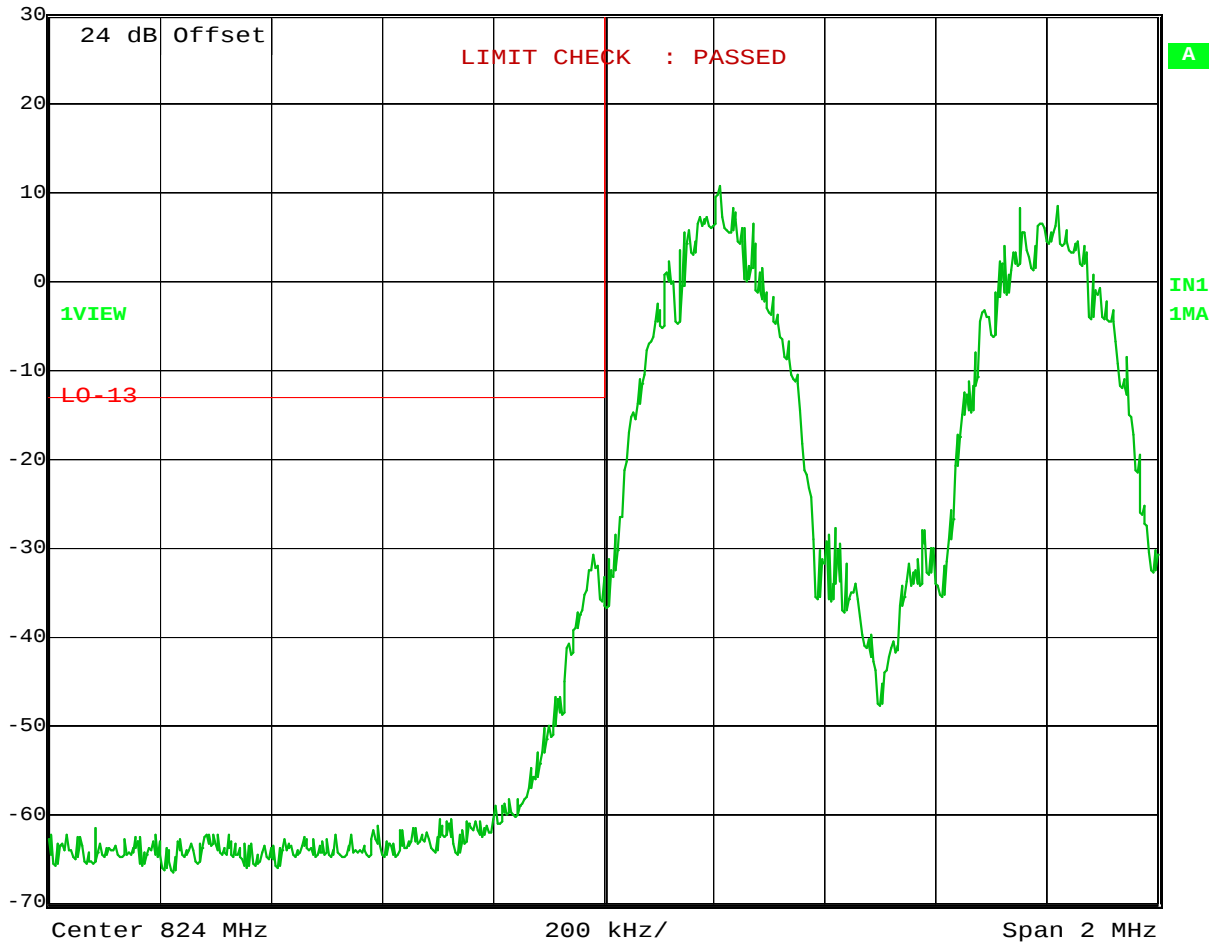
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EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Lower Bandedge Intermodulation
GSMRef Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



Date: 24.APR.2009 11:47:57

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

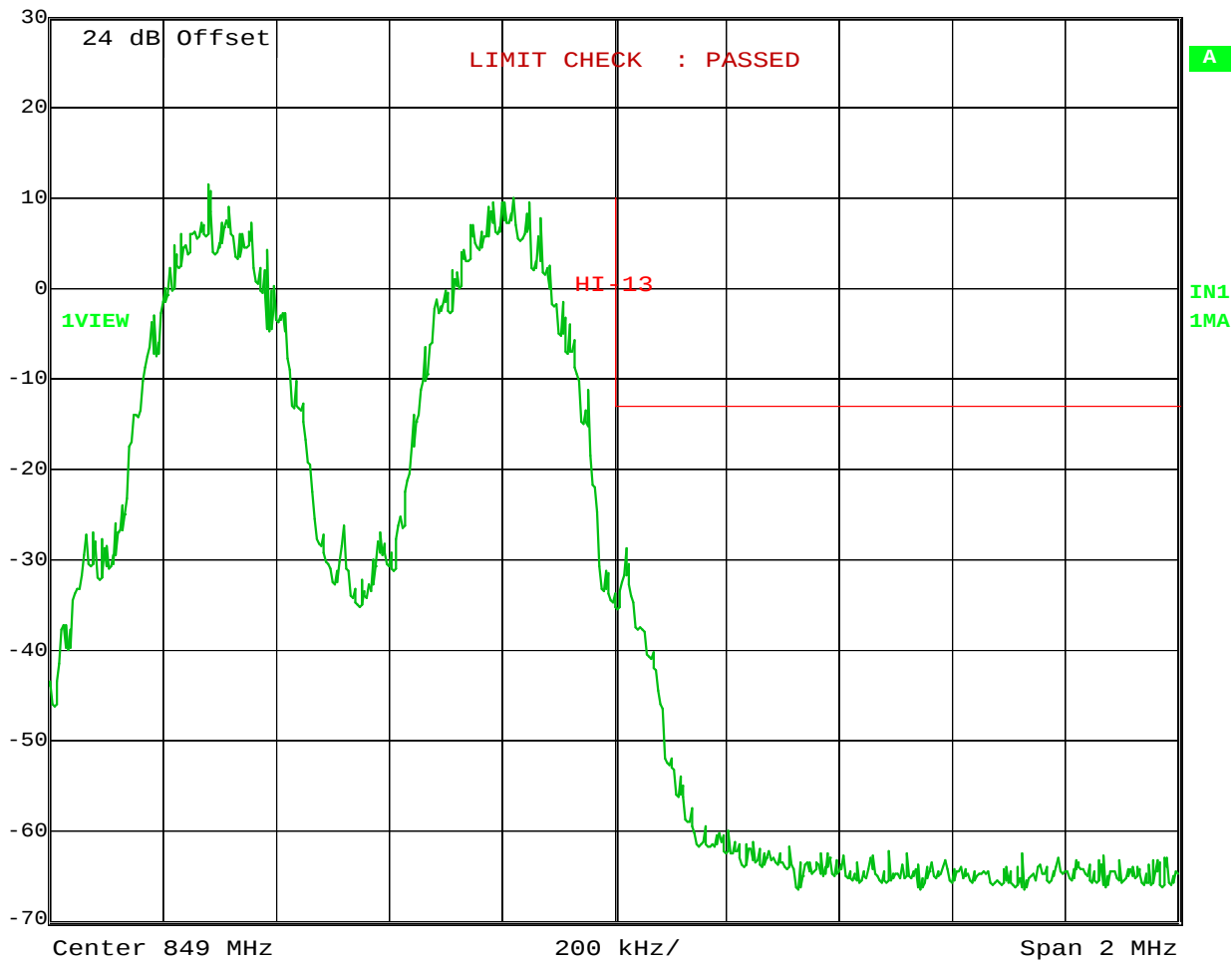
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Upper Bandedge Intermodulation

GSM

Ref Lvl
30 dBm

RBW	3 kHz	RF Att	20 dB
VBW	3 kHz	Mixer	-10 dBm
SWT	560 ms	Unit	dBm



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EQUIPMENT: MR8518

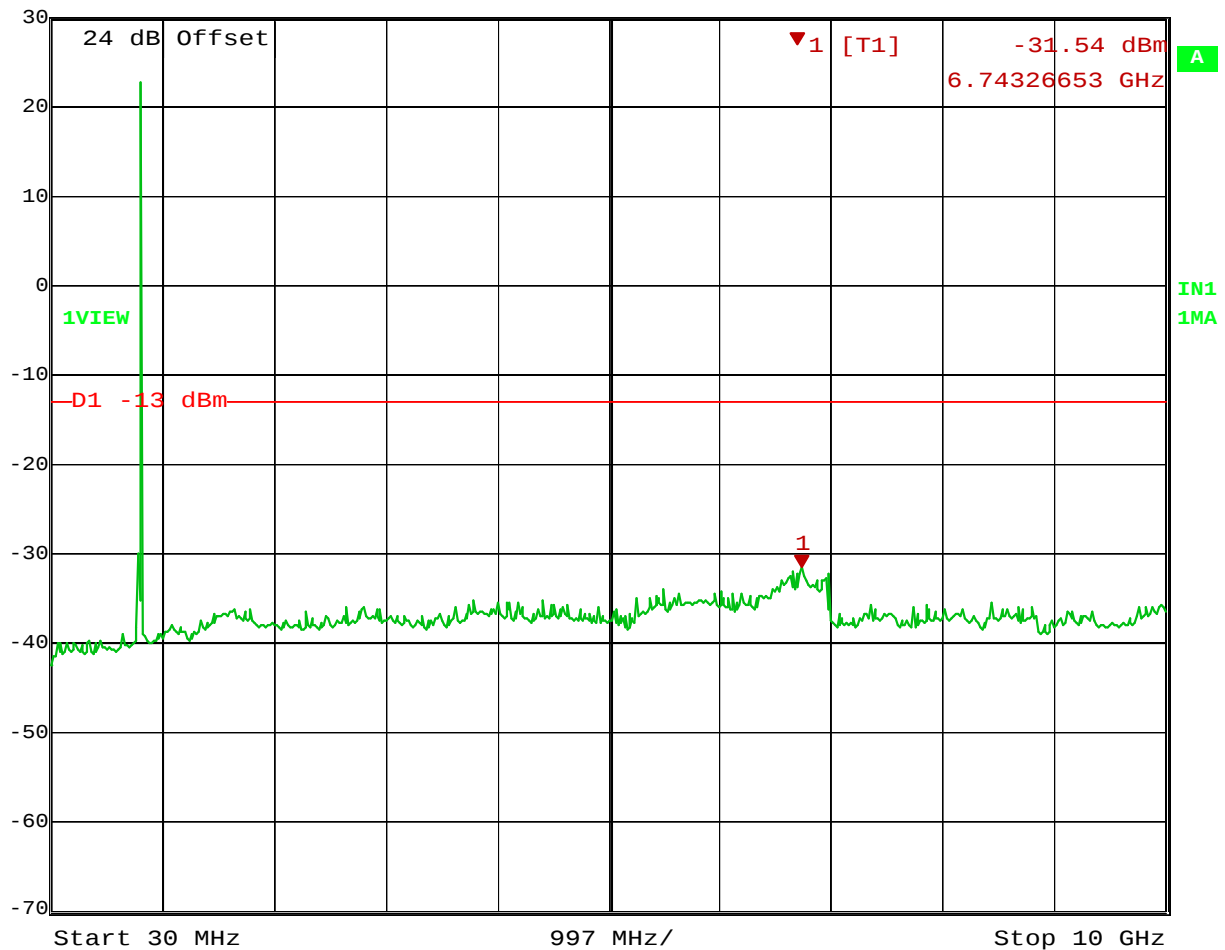
PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – GSM – Uplink



Marker 1 [T1] RBW 1 MHz RF Att 20 dB
Re1 -31.54 dBm VBW 1 MHz Mixer -10 dBm
30 dBm 6.74326653 GHz SWT 58 ms Unit dBm



Date: 24.APR.2009 11:49:21

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

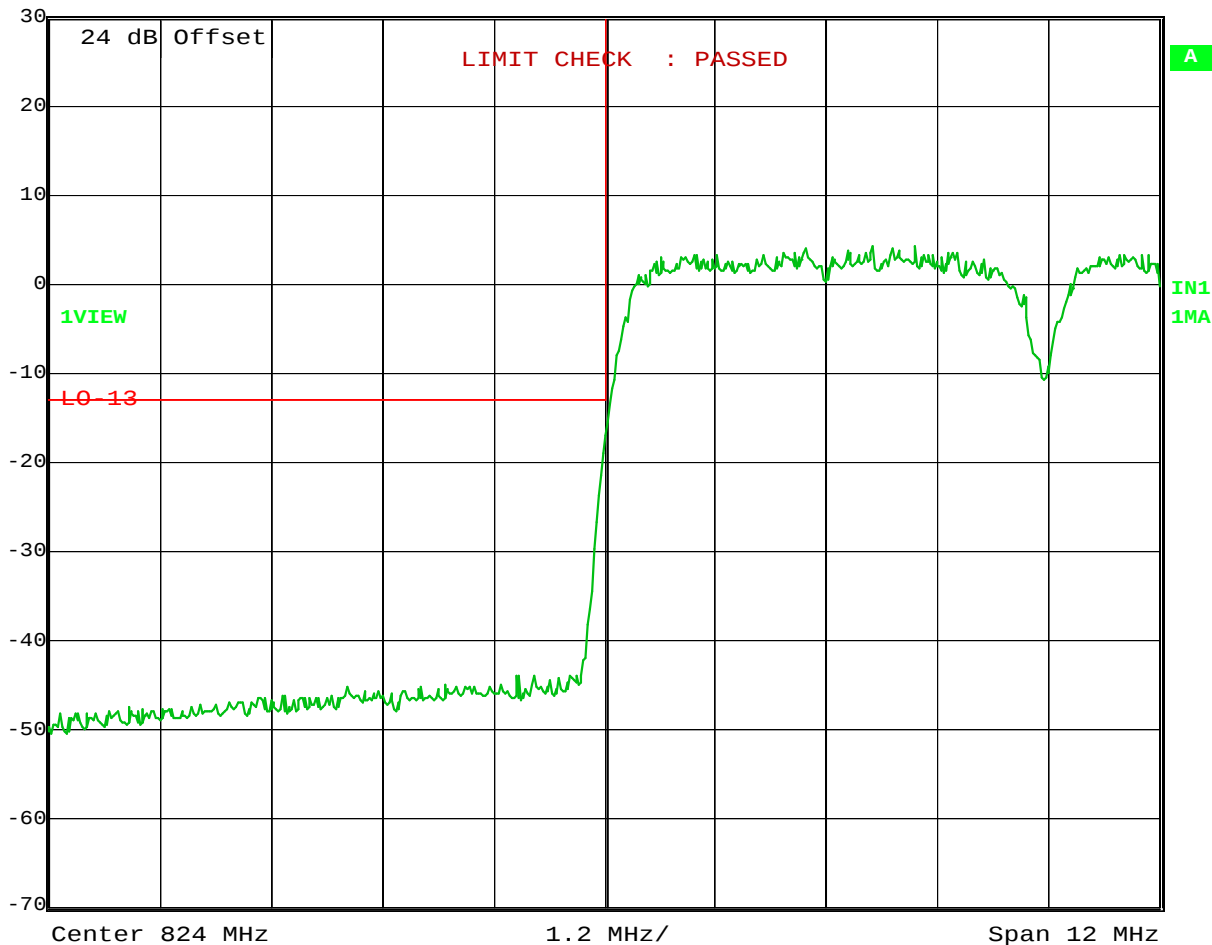
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Lower Bandedge Intermodulation

W-CDMA

Ref Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	12 ms	Unit	dBm



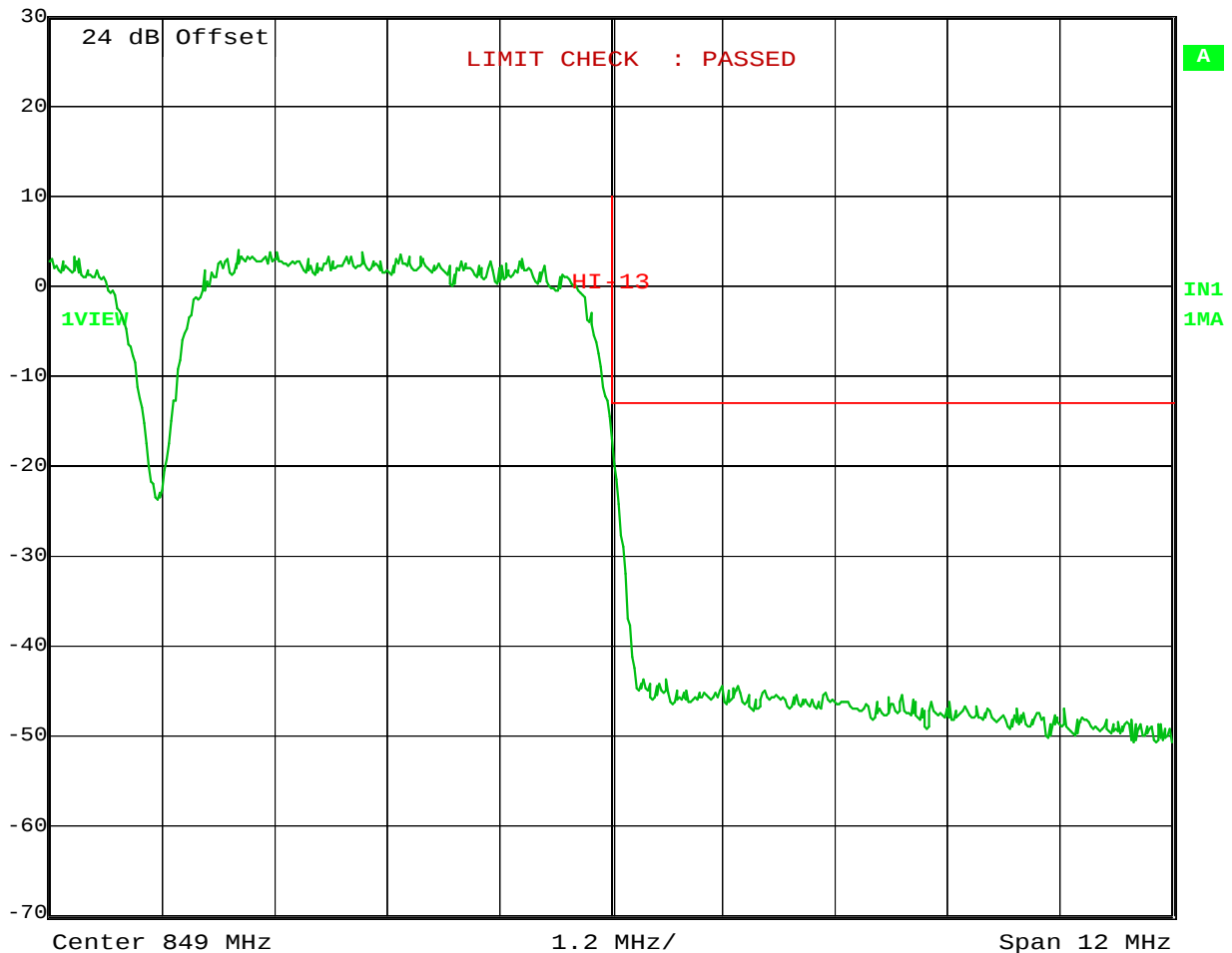
Date: 24.APR.2009 11:15:13

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna TerminalsUplink - Upper Bandedge Intermodulation
W-CDMARef Lvl
30 dBm

RBW	50 kHz	RF Att	20 dB
VBW	50 kHz	Mixer	-10 dBm
SWT	12 ms	Unit	dBm



Date: 24.APR.2009 12:24:10

EQUIPMENT: MR8518

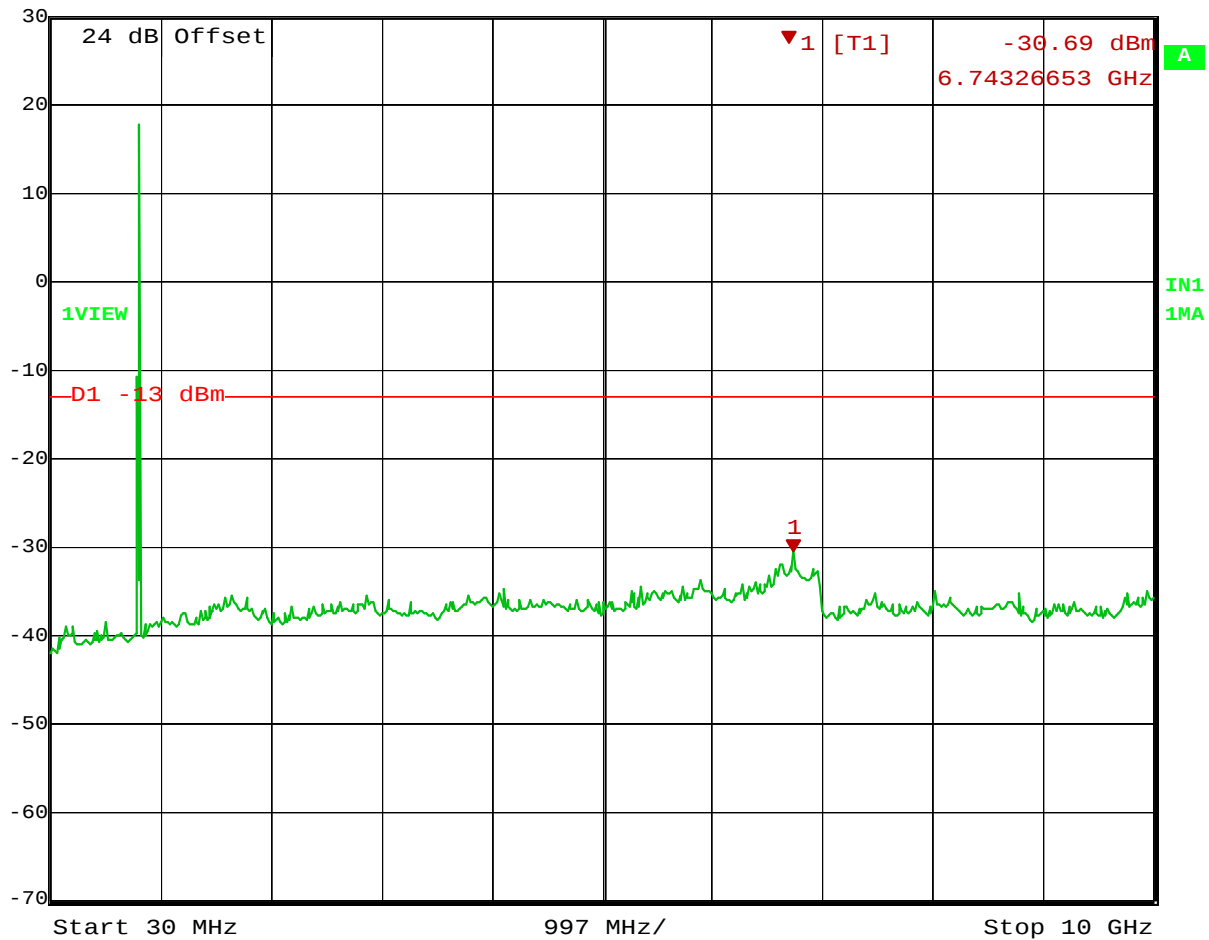
PROJECT NO.: 28187RUS1

Test Data – Spurious Emissions at Antenna Terminals

Spurs – W-CDMA - Uplink



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
30 dBm	-30.69 dBm	VBW	1 MHz	Mixer	-10 dBm
	6.74326653 GHz	SWT	58 ms	Unit	dBm



Date: 24.APR.2009 11:16:15

EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious	PARA. NO.: 22.917
TESTED BY: David Light	DATE: 24 April 2009

Test Results: Complies.**Test Data:** The spectrum was searched from 30 MHz to the tenth harmonic of the carrier. There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.**Analyzer Settings:** RBW = VBW = 1 MHz / Peak detector**Equipment Used:** 1767-1484-1485-1016-993-791-1763**Measurement Uncertainty:** +/-1.7 dB**Temperature:** 22 °C**Relative Humidity:** 48 %

EQUIPMENT: **MR8518**PROJECT NO.: **28187RUS1****Section 7. Test Equipment List**

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1767	IMI Test Receiver 20Hz - 26.5 GHz - 150 - +30 dBm LC	ROHDE & SCHWARZ ESIB26	837491/0002	09/20/07	09/20/09
1469	10 db Attenuator DC 18 Ghz	MCL Inc. BW-S10W2 10db-2WDC	NONE	CBU	N/A
1472	20db Attenuator DC 18 Ghz	Omni Spectra 20600-20db	NONE	CBU	N/A
1082	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	CBU	N/A
1484	Cable	Storm PR90-010-072	N/A	05/07/08	05/07/09
1485	Cable	Storm PR90-010-216	N/A	05/07/08	05/07/09
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	05/07/08	05/07/09
791	PREAMP, 25dB	Nemko USA, Inc. LNA25	398	05/07/08	05/07/09
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/31/07	08/31/09
1763	Bilog Antenna	Schaffner CBL 6111D	22926	11/04/08	11/04/09

ANNEX A - TEST DETAILS

EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
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Minimum Standard: Para. No. 22.913(a). The maximum effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 watts.

Method Of Measurement:

Detachable Antenna:

The peak power at antenna terminals is measured using an in-line peak power meter. Power output is measured with the maximum rated input level.

Integral Antenna:

The antenna substitution method is used to determine the equivalent radiated power at spurious frequencies. The spurious emissions are measured at a distance of 3 meters. The EUT is then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna is fed with a signal at the spurious frequency. The level of the signal is adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

EQUIPMENT: MR8518

PROJECT NO.: 28187RUS1

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 2.1049

Minimum Standard: Not defined (Input/Output)

Method Of Measurement:

CDMA

Spectrum analyzer settings:

RBW=VBW=30 kHz

Span: 5 MHz

Sweep: Auto

GSM / EDGE

RBW=VBW= 3 kHz

Span: 1 MHz

Sweep: Auto

TDMA

RBW=VBW= 1 kHz

Span: 1 MHz

Sweep: Auto

W-CDMA

RBW=VBW= 100 kHz

Span: 10 MHz

Sweep: Auto

EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

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

Para. No. 22.917(e). The mean power of emissions must be attenuated below the mean power of the unmodulated carrier on any frequency twice or more than twice the fundamental emission by at least $43 + 10 \log P$. This is equivalent to -13 dBm absolute power.

Method Of Measurement:

Spectrum analyzer settings:

CDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 30 kHz (< 1MHz from Band Edge)
VBW: $\geq$ RBW
Sweep: Auto
Video Avg: 6 Sweeps

GSM / EDGE

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)
VBW: $\geq$ RBW
Sweep: Auto
Video Avg: Disabled

TDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)
VBW: $\geq$ RBW
Sweep: Auto
Video Avg: Disabled

W-CDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 100 kHz (< 1MHz from Band Edge)
VBW: $\geq$ RBW
Sweep: Auto
Video Avg: 6 Sweeps

EQUIPMENT: MR8518PROJECT NO.: 28187RUS1

NAME OF TEST: Field Strength of Spurious Radiation	PARA. NO.: 2.1053
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Minimum Standard:

Para. No. 22.917(e). The mean power of emissions must be attenuated below the mean power of the unmodulated carrier on any frequency twice or more than twice the fundamental emission by at least $43 + 10 \log P$. This is equivalent to -13 dBm absolute power.

Method of Measurement

TIA/EIA-603-1992

The antenna substitution method is used to determine the equivalent radiated power at spurious frequencies. The spurious emissions are measured at a distance of 3 meters. The EUT is then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna is fed with a signal at the spurious frequency. The level of the signal is adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

EQUIPMENT: **MR8518***PROJECT NO.:* **28187RUS1**

NAME OF TEST: Frequency Stability**PARA. NO.: 2.1055****Minimum Standard:**

Para. No. 22.355. The transmitter carrier frequency shall remain within the tolerances given in Table C-1.

Table C-1

Freq. Range (MHz)	Base, fixed	Mobile > 3 W	Mobile ≤ 3 W
821 to 896	1.5	2.5	2.5

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 frequency counter and signal generator are phase locked with the same 10 MHz reference frequency by connecting the 10 MHz ref. out of the counter to the 10 MHz ref, in of the signal generator. With the voltage input to the E.U.T. set to 85% S.T.V., the frequency is measured in 30 second intervals for a period of 5 minutes. This procedure is repeated at 100% S.T.V. and 115% S.T.V.

Frequency Stability With Temperature Variation:

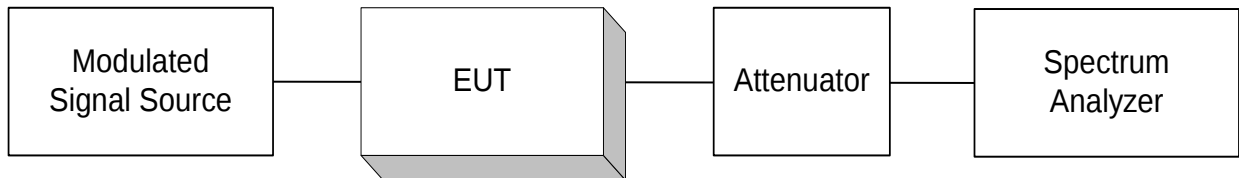
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

ANNEX B - TEST DIAGRAMS

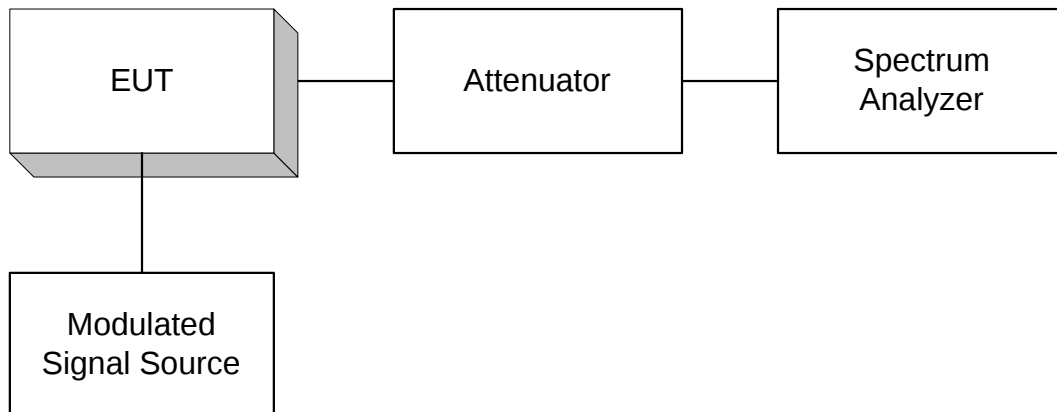
EQUIPMENT: **MR8518**

PROJECT NO.: **28187RUS1**

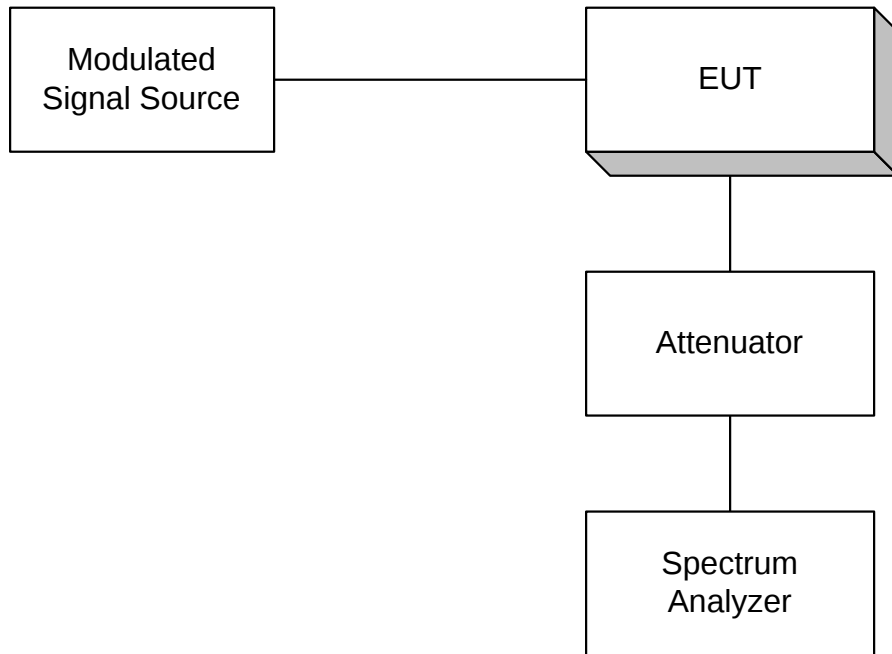
Para. No. 2.1046 - R.F. Power Output



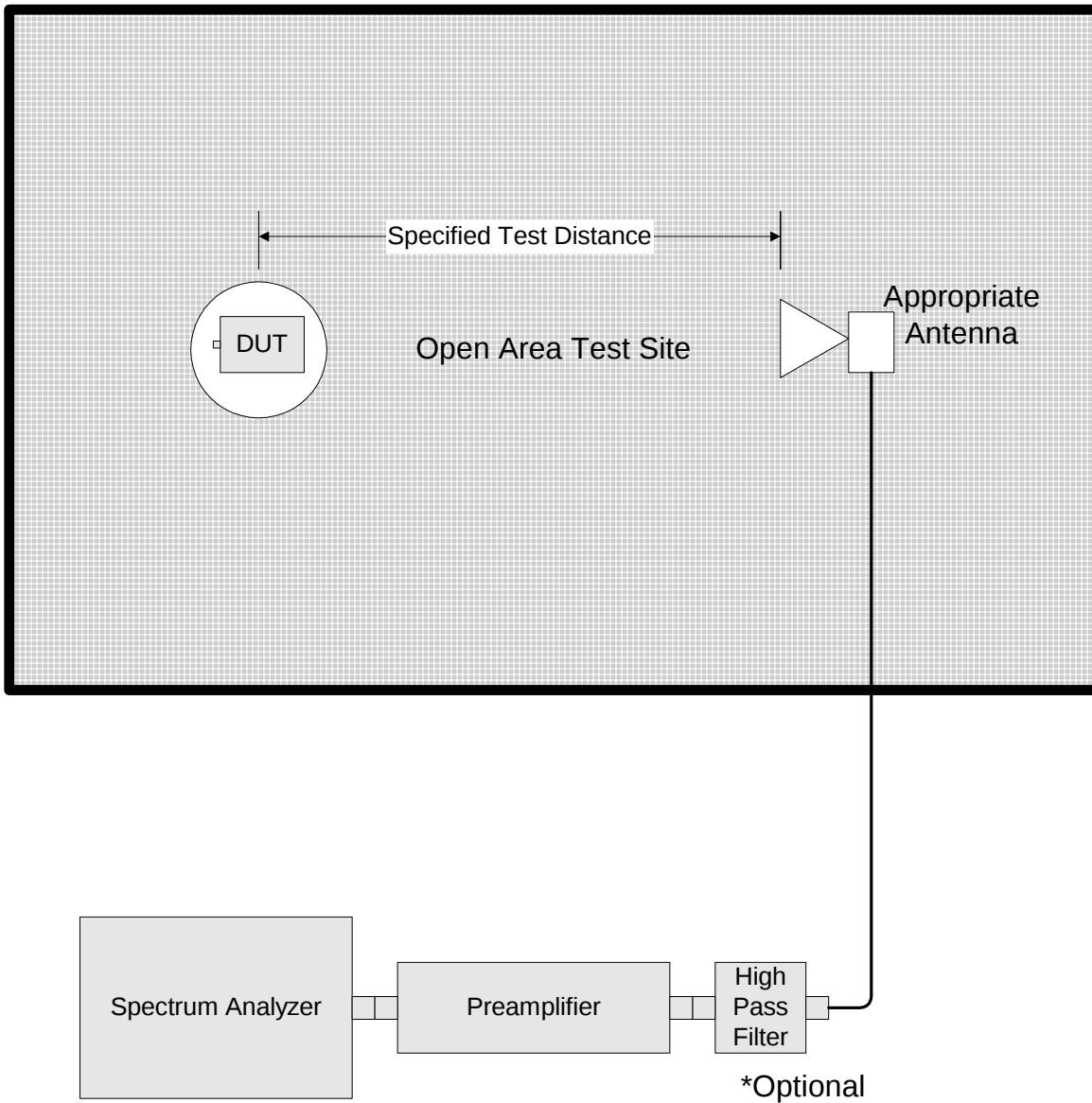
Para. No. 2.1049 - Occupied Bandwidth

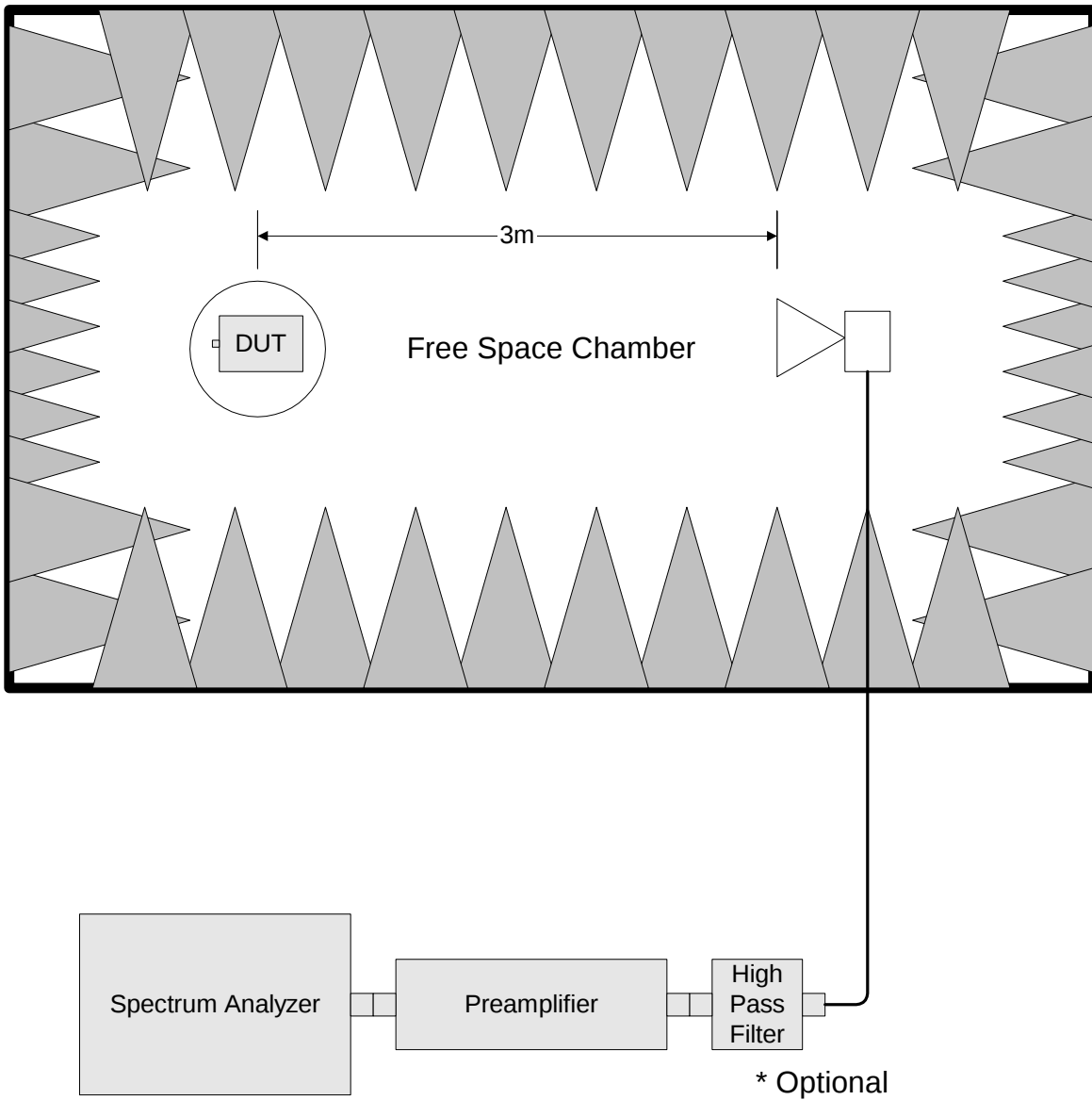


Para. No. 2.1051 Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Spurious Radiation





Para. No. 2.1055 - Frequency Stability

