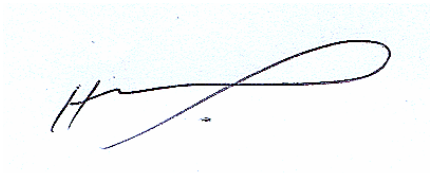
Nemko Test Report:	7750RUS1
Applicant:	Andrew Corporation 108 Rand Park Drive Garner, NC 27529 USA
Equipment Under Test: (E.U.T.)	ION-M17P
In Accordance With:	**CFR 47, Part 27, Subpart C** Miscellaneous Wireless Communication Services
Tested By:	Nemko USA, Inc. 802 N. Kealy Lewisville, TX 75057-3136

TESTED BY: _____ **DATE:** **25 September 2007**

David Light, Senior Wireless Engineer



APPROVED BY: _____ **DATE:** **25 September 2007**

Harry Ward, Verifier

Number of Pages: 34

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Section 1. Summary of Test Results

Manufacturer Andrew Corporation

Model No.: ION-M17P

Serial No.: 14

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 27, Subpart C.

☒	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".

NVLAP®
LAB CODE: 100426-0

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	27.50(d)	1640 Watts	Complies
Occupied Bandwidth	2.1049	Input/Output	Complies
Spurious Emissions at Antenna Terminals	27.53(g)	-13 dBm	Complies
Field Strength of Spurious Emissions	27.53(g)	-13 dBm E.I.R.P.	Complies
Frequency Stability	27.54	Must stay in band	NA

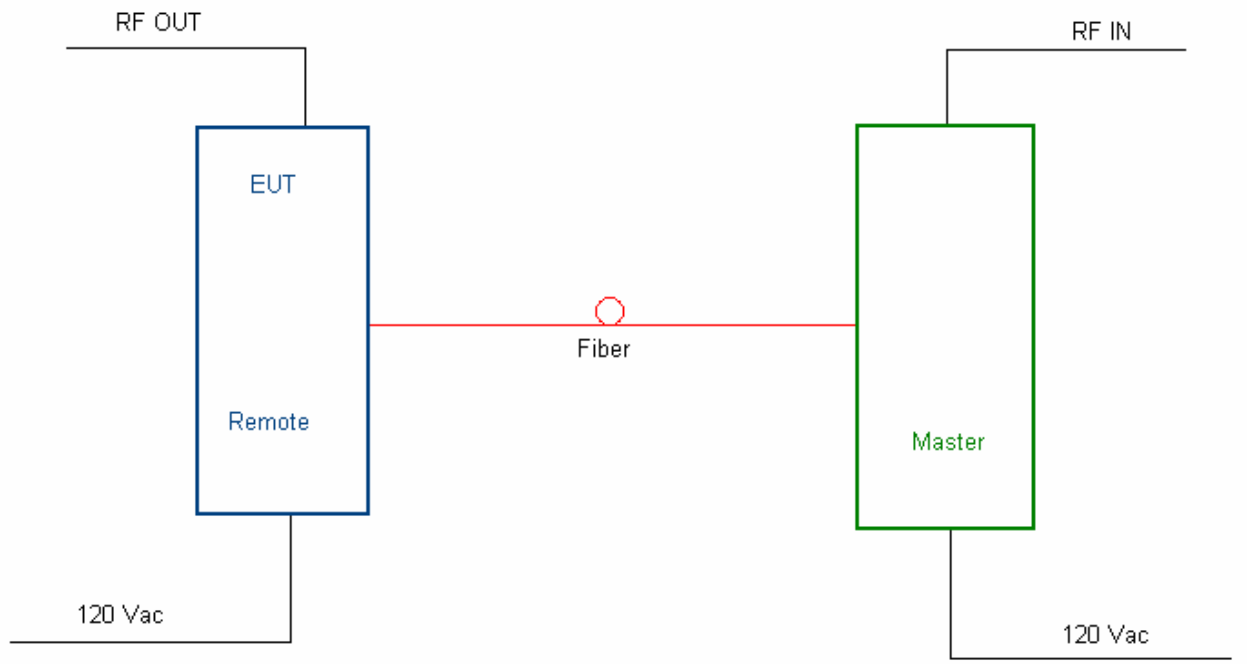
Section 2. General Equipment Specification

Supply Voltage Input:		120 Vac
Frequency Bands:	**Downlink:**	2110 to 2155 MHz
Frequency Bands:	**Uplink:**	NA
Type of Modulation and Designator:		**CDMA (F9W)** ☒ **GSM (GXW)** ☐ **NADC (DXW)** ☐ **W-CDMA (F9W)** ☒ **EDGE (G7W)** ☐
System Gain:		40 dB
Output Impedance:		50 ohms
RF Output (Rated):	**Uplink**	NA W NA dBm
RF Output (Rated):	**Downlink**	20 W 43 dBm
Frequency Translation:		**F1-F1** ☒ **F1-F2** ☐ **N/A** ☐
Band Selection:		**Software** ☐ **Duplexer** ☐ **Fullband** ☒

Description of EUT

Andrew ION-M17P is a multiband multi-operator remote unit with various extension units. It is used in conjunction with a master unit in the ION optical distribution system. This system transports multiple frequency bands simultaneously (850 MHz, 1900 MHz and 2100 MHz), providing a cost-efficient solution for distributing capacity from one or more base stations.

System Diagram



Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 27.50
TESTED BY: David Light	DATE: 25 September 2007

Test Results: Complies.

Measurement Data:

Direction	Frequency (MHz)	Modulation	RF Power (dBm)	RF Power (W)
Downlink Only	2111.25	CDMA	43.03	20.1
	2130.00	CDMA	42.90	19.5
	2153.75	CDMA	43.10	20.4
	2112.50	WCDMA	43.17	20.7
	2130.00	WCDMA	43.23	21.0
	2152.50	WCDMA	43.02	20.1

Equipment Used: 1604-1064-1082-1036

Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 °C

Relative Humidity: 48 %

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 25 September 2007

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1064-1604-10821036

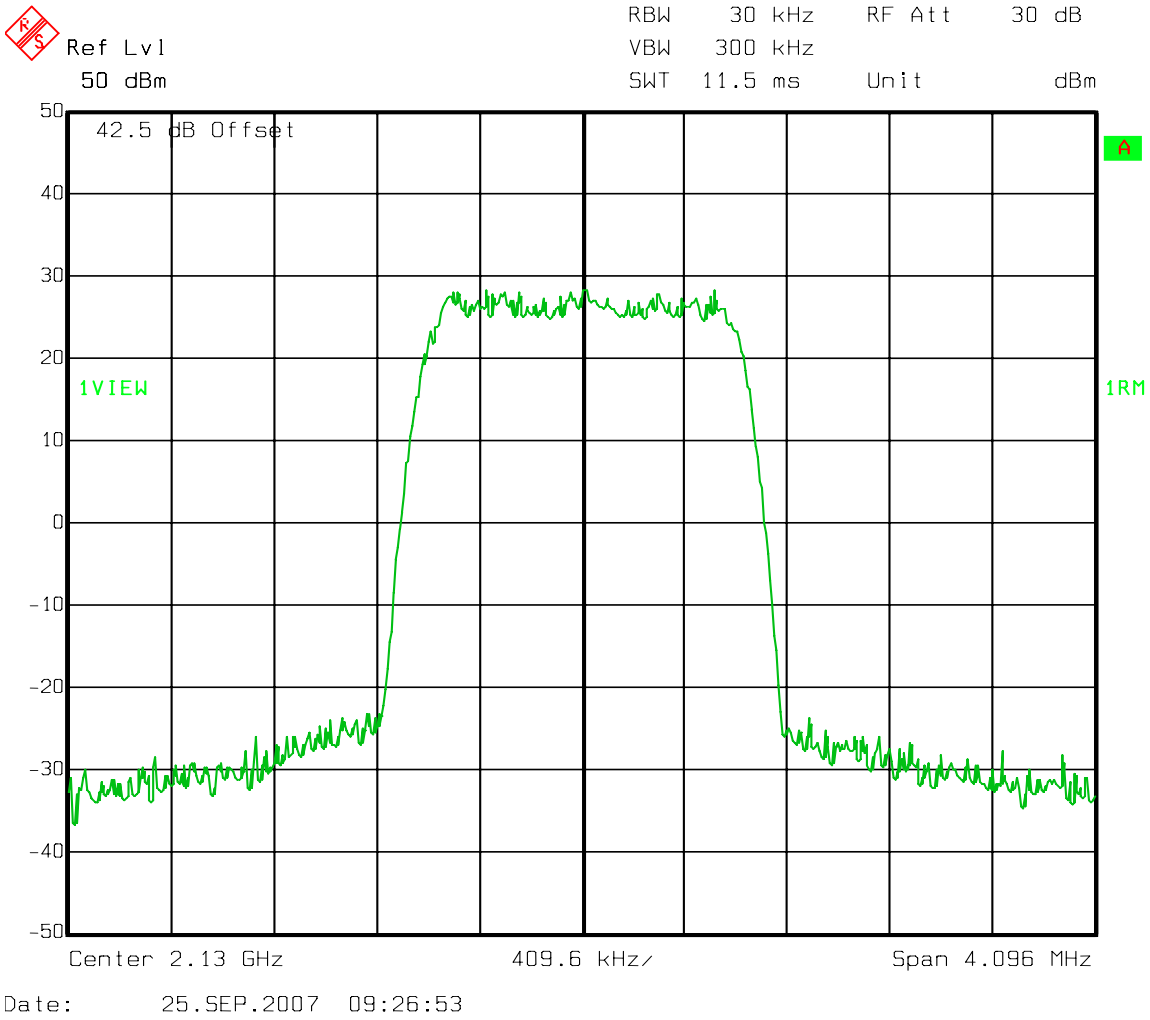
Measurement Uncertainty: $1X10^{-7}$ ppm

Temperature: 22 °C

Relative Humidity: 48 %

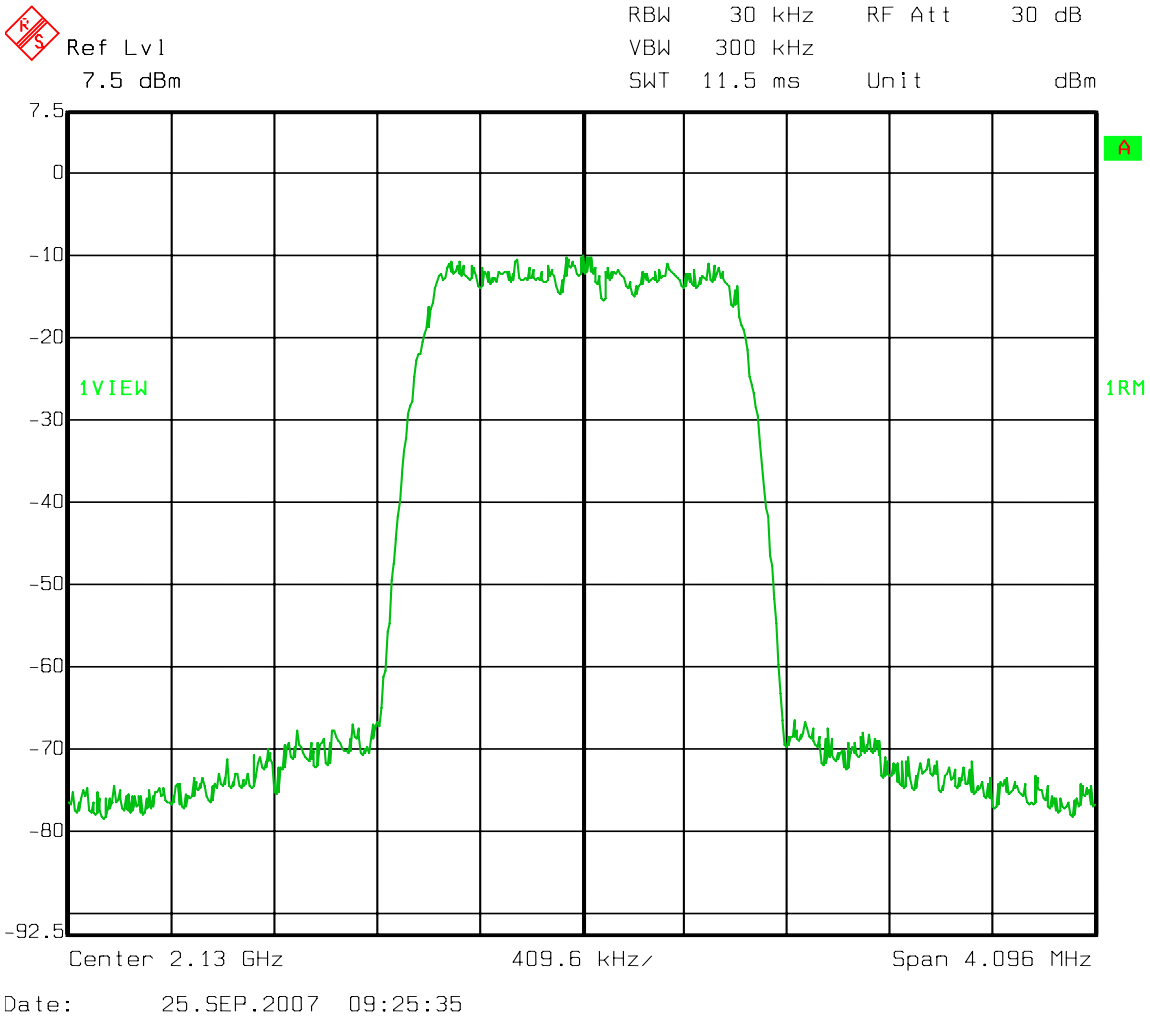
Test Data – Occupied Bandwidth

CDMA/EV-DO
OBW
OUTPUT



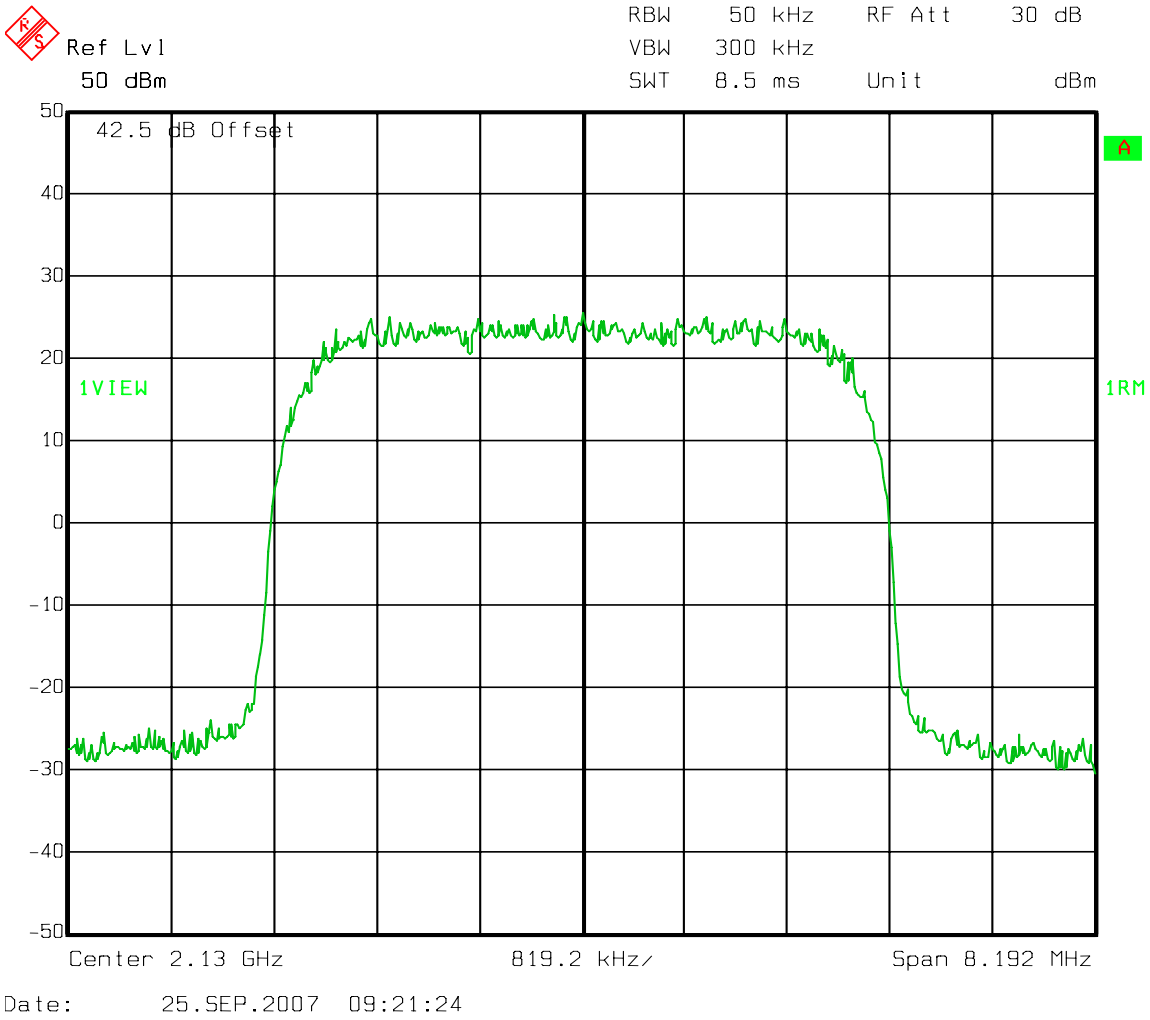
Test Data – Occupied Bandwidth

CDMA/EV-DO
OBW
INPUT



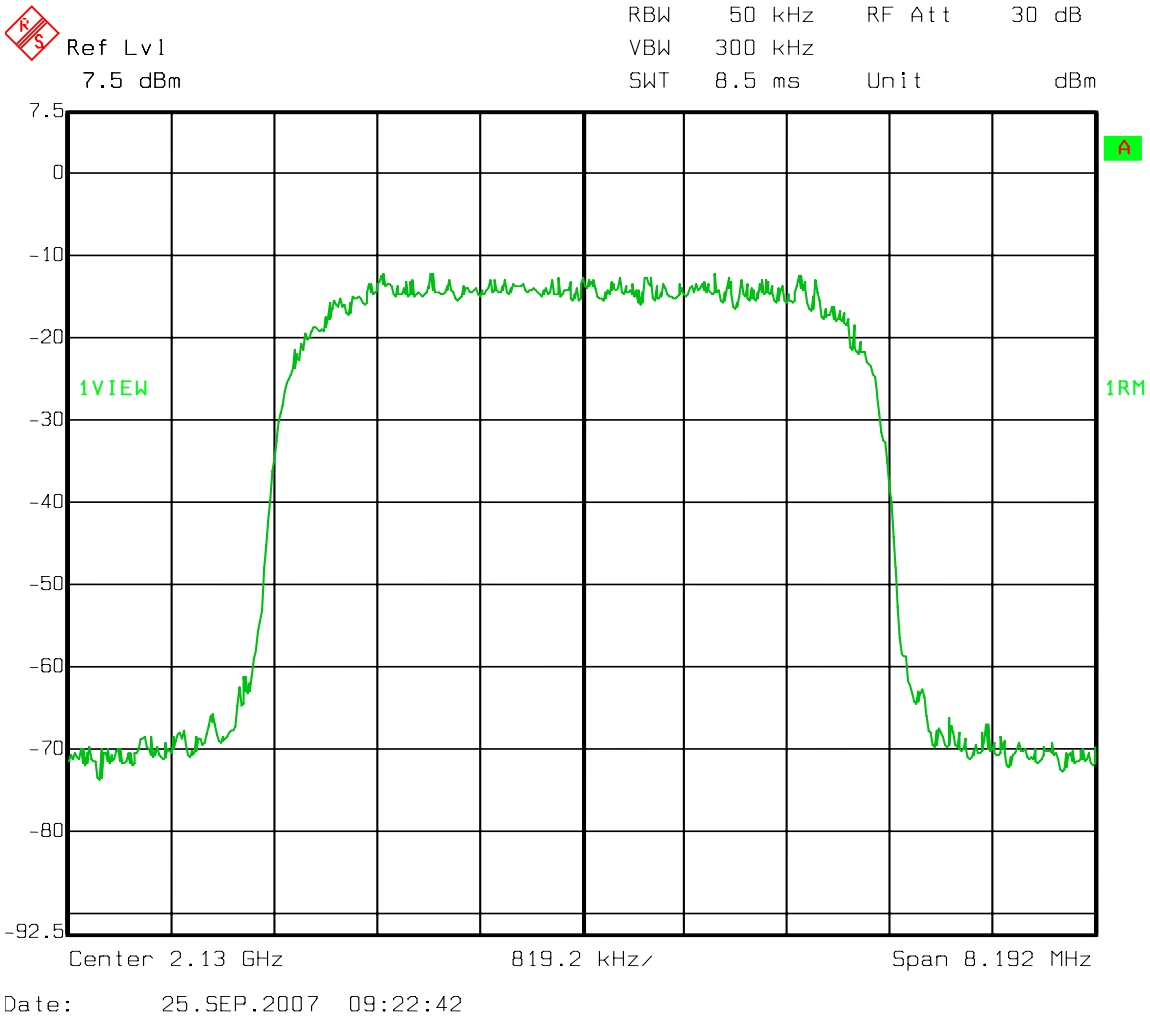
Test Data – Occupied Bandwidth

WCDMA/HSDPA
OBW
OUTPUT



Test Data – Occupied Bandwidth

WCDMA/HSDPA
OBW
INPUT



Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 27.53
TESTED BY: David Light	DATE: 25 Sept 2007

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1054-1055-1058-1082-1036

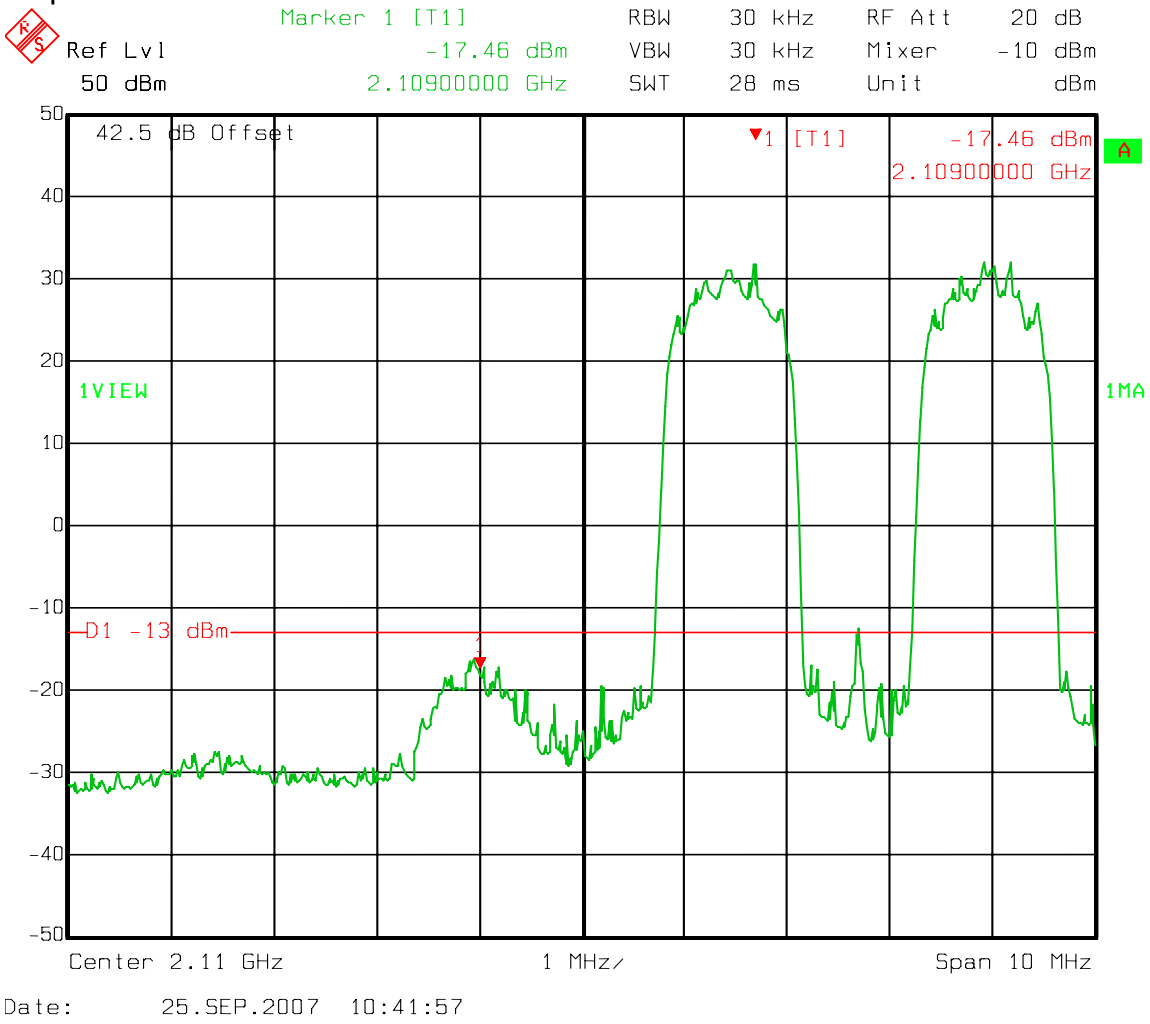
Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 °C

Relative Humidity: 48 %

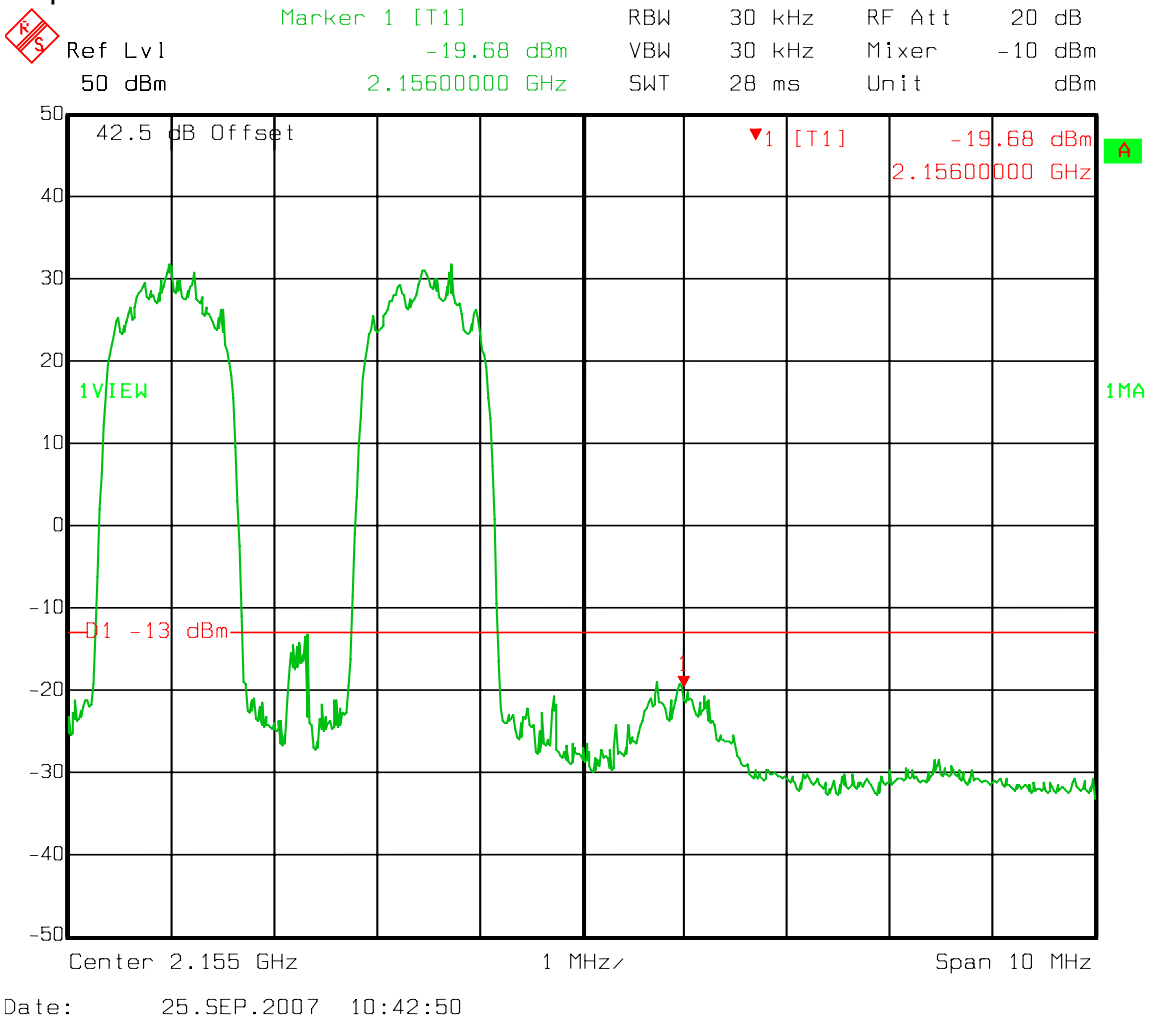
Test Data – Spurious Emissions at Antenna Terminals

CDMA/EV-DO
LOW BANDEDGE INTERMOD
2 10 watt carriers at 2111.5 and 2114 MHz
IM product at 2109 MHz



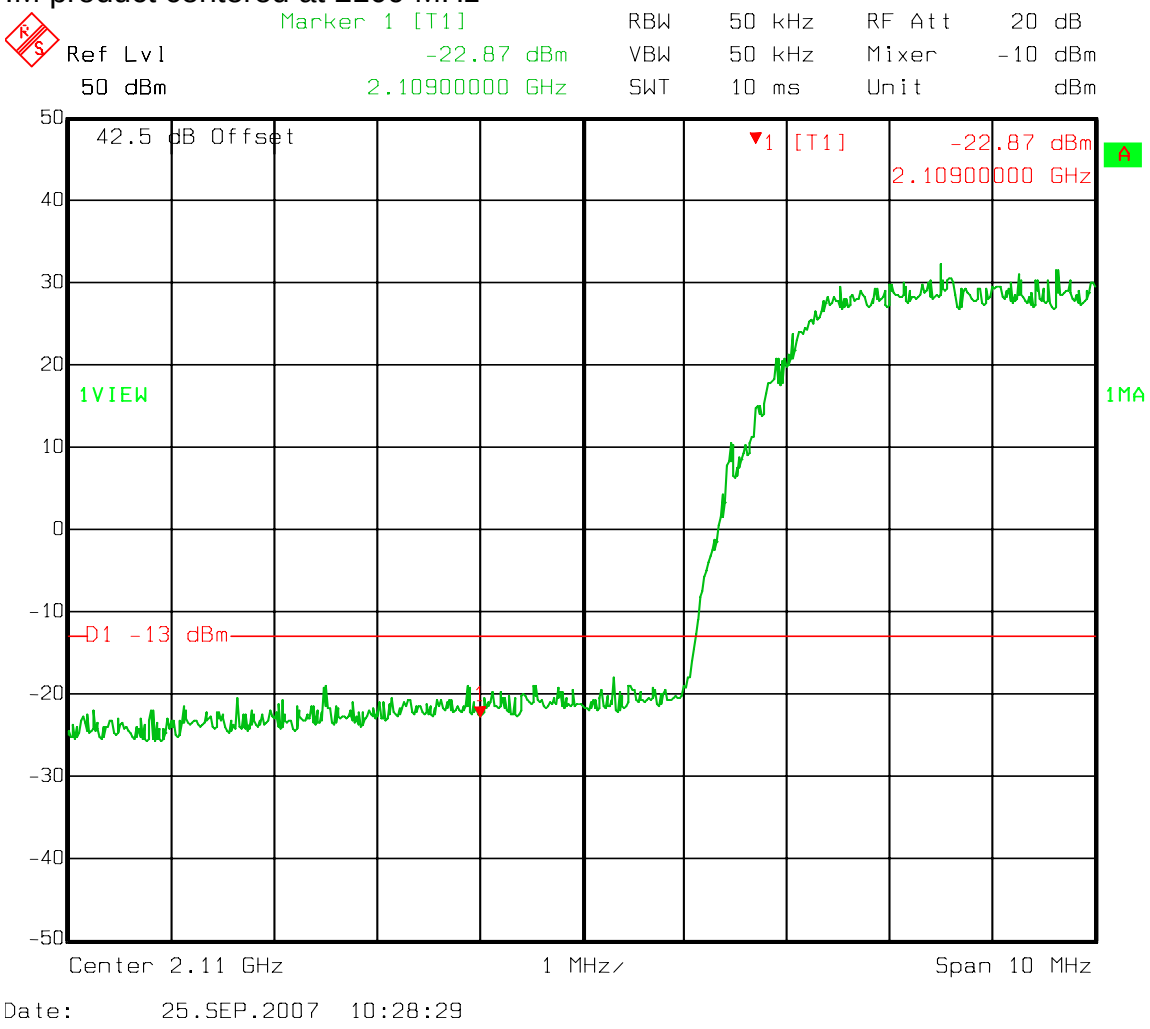
Test Data – Spurious Emissions at Antenna Terminals

CDMA/EV-DO
HIGH BAND EDGE
2 10 watt carriers at 2151 and 2153.5 MHz
IM product at 2156 MHz



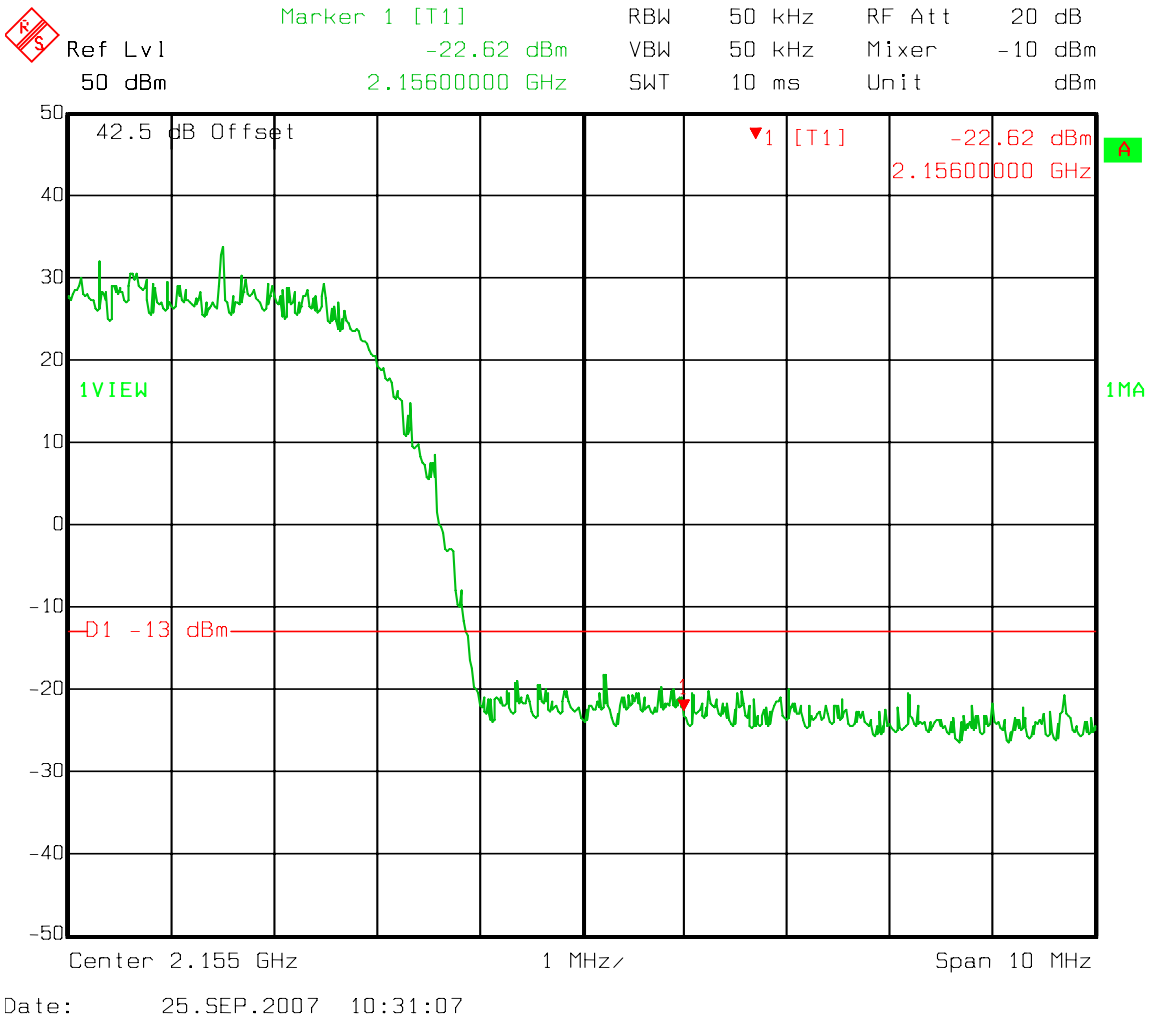
Test Data – Spurious Emissions at Antenna Terminals

WCDMA/HSDPA
LOW BANDEDGE INTERMOD
WCDMA
2 10 watt carriers at 2114 and 2119 MHz
IM product centered at 2109 MHz



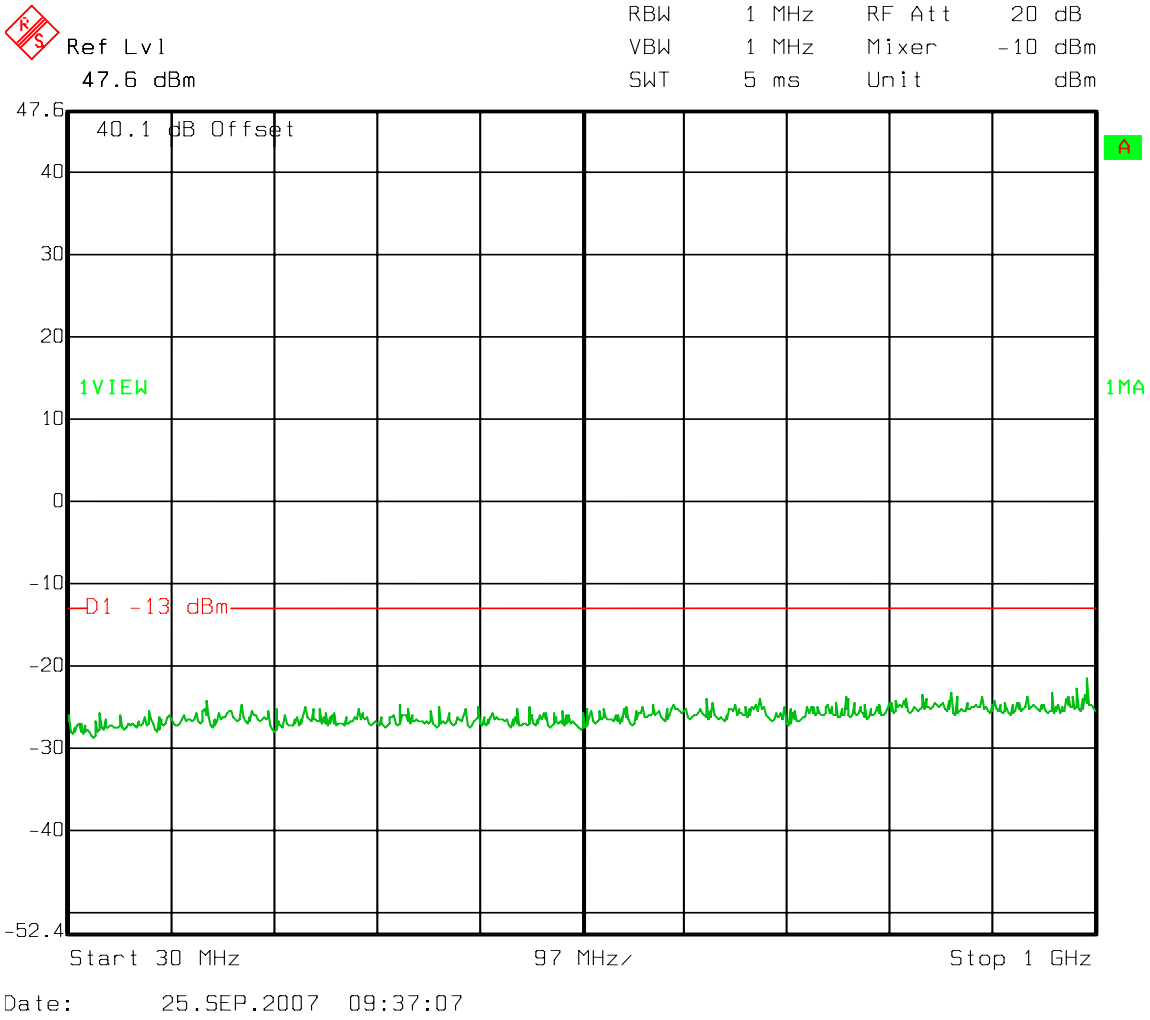
Test Data – Spurious Emissions at Antenna Terminals

WCDMA/HSDPA
HIGH BAND EDGE
2 10 watt carriers at 2151 and 2146 MHz
IM Product at 2156 MHz



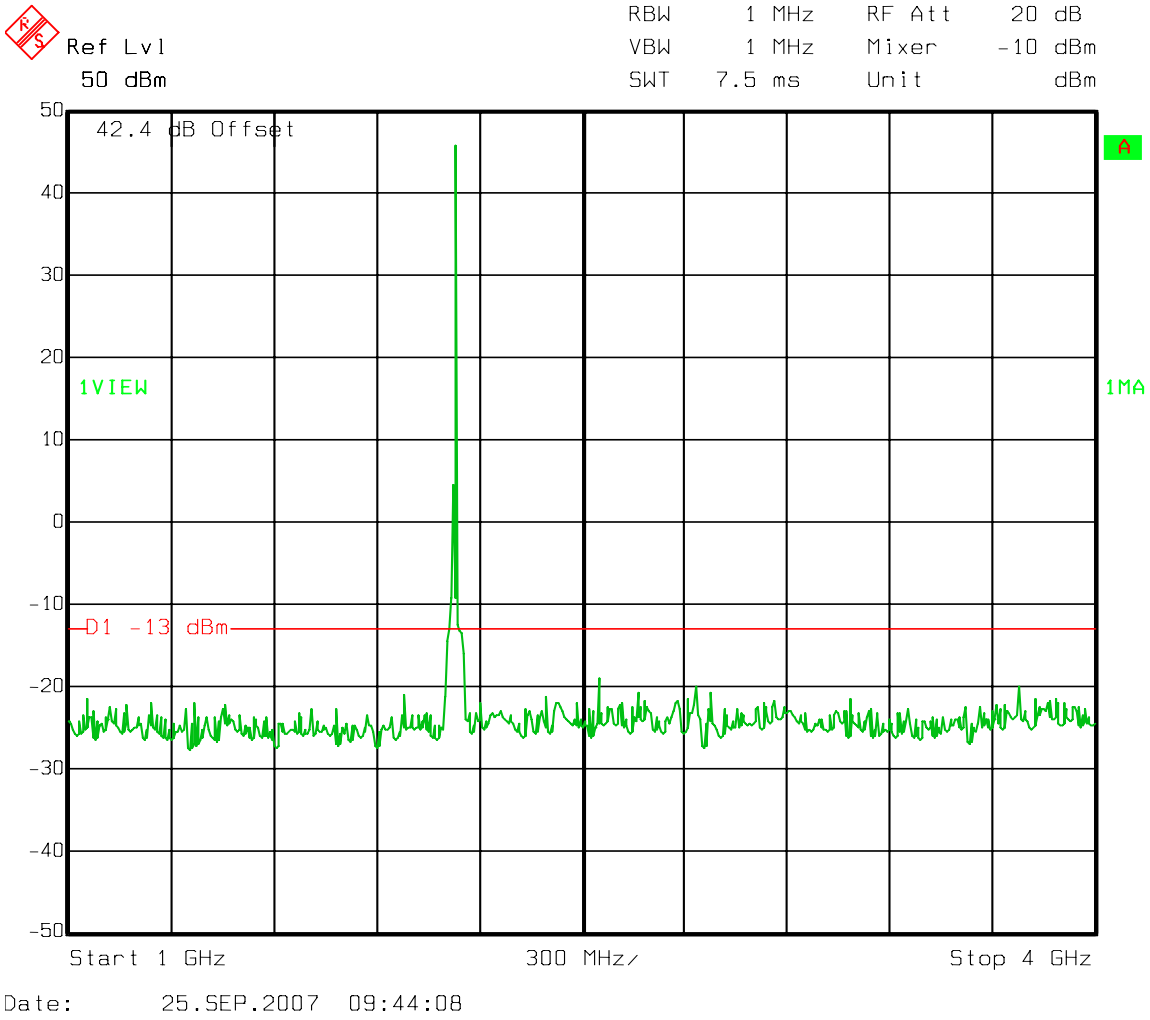
Test Data – Spurious Emissions at Antenna Terminals

CDMA/EV-DO
SPURS



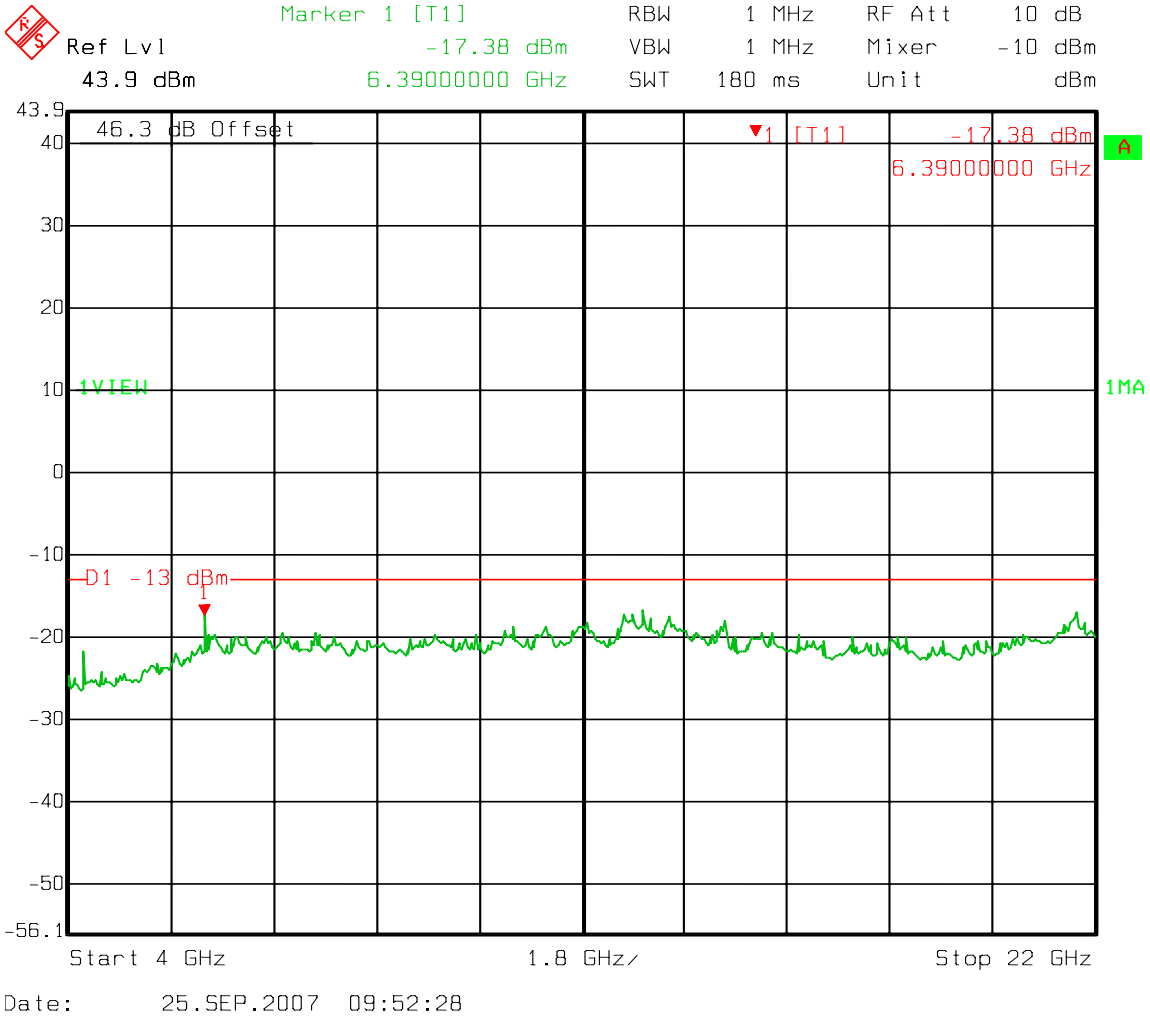
Test Data – Spurious Emissions at Antenna Terminals

CDMA/EV-DO
SPURS



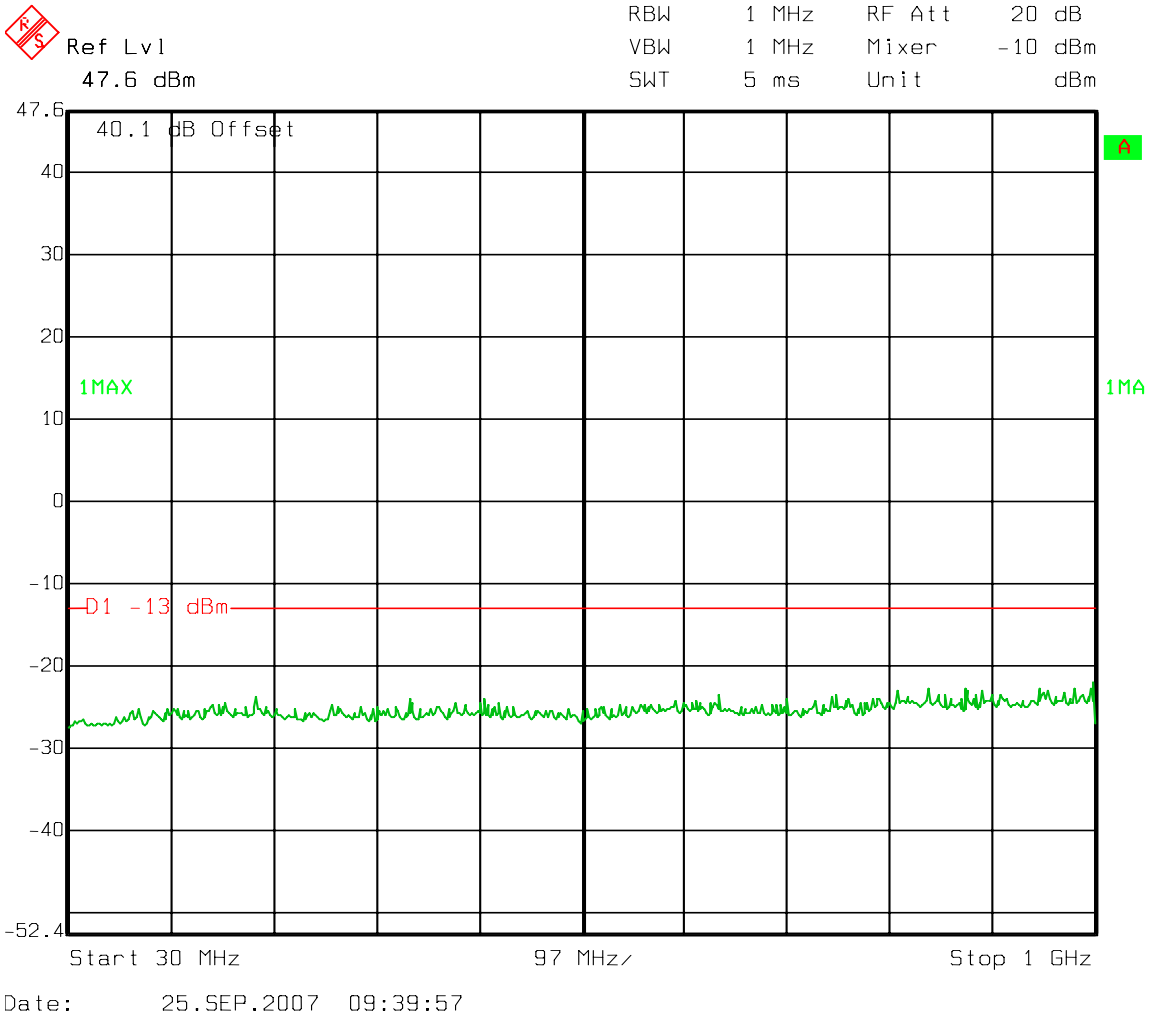
Test Data – Spurious Emissions at Antenna Terminals

CDMA/EV-DO
SPURS



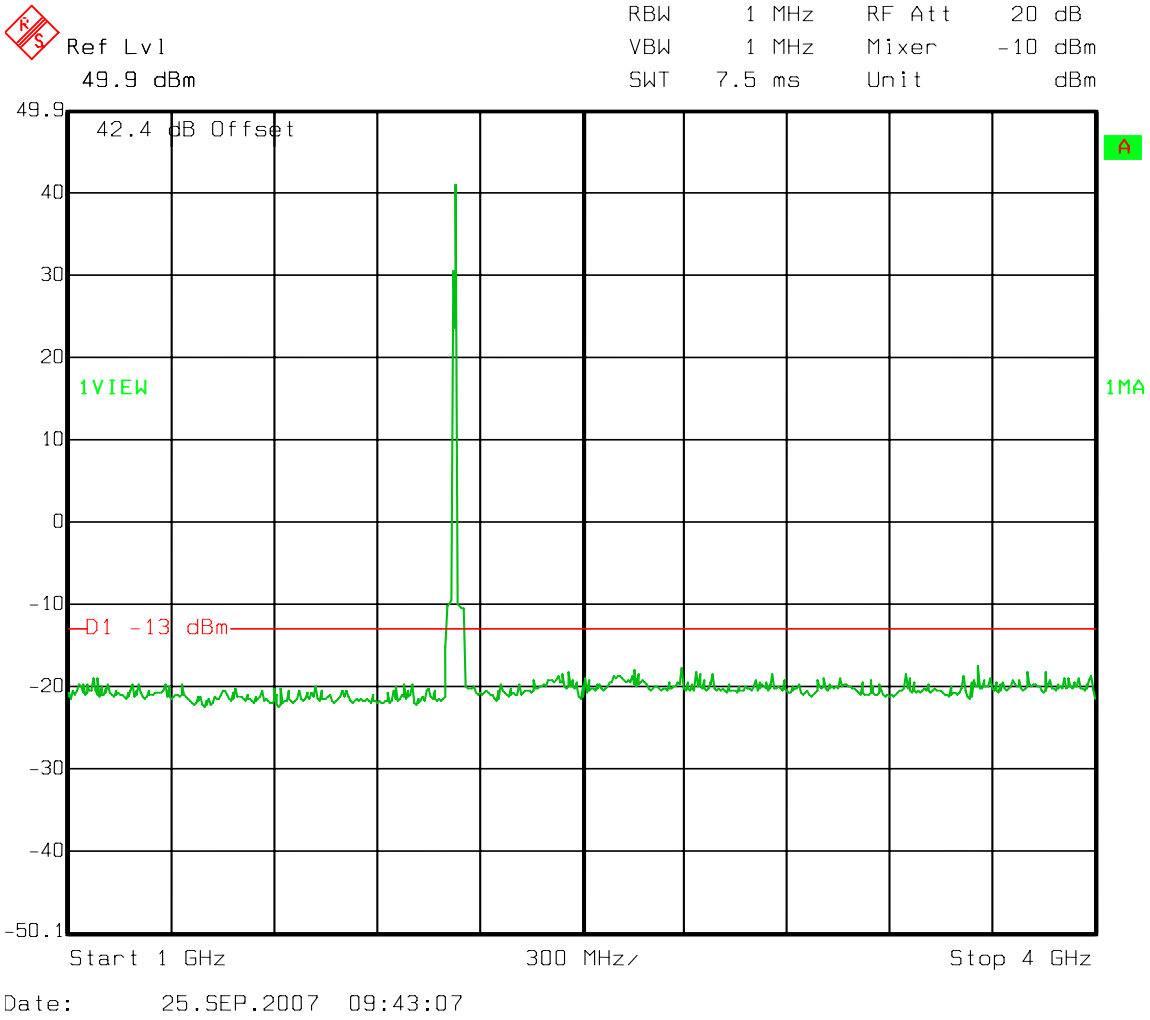
Test Data – Spurious Emissions at Antenna Terminals

WCDMA/HSDPA
SPURS



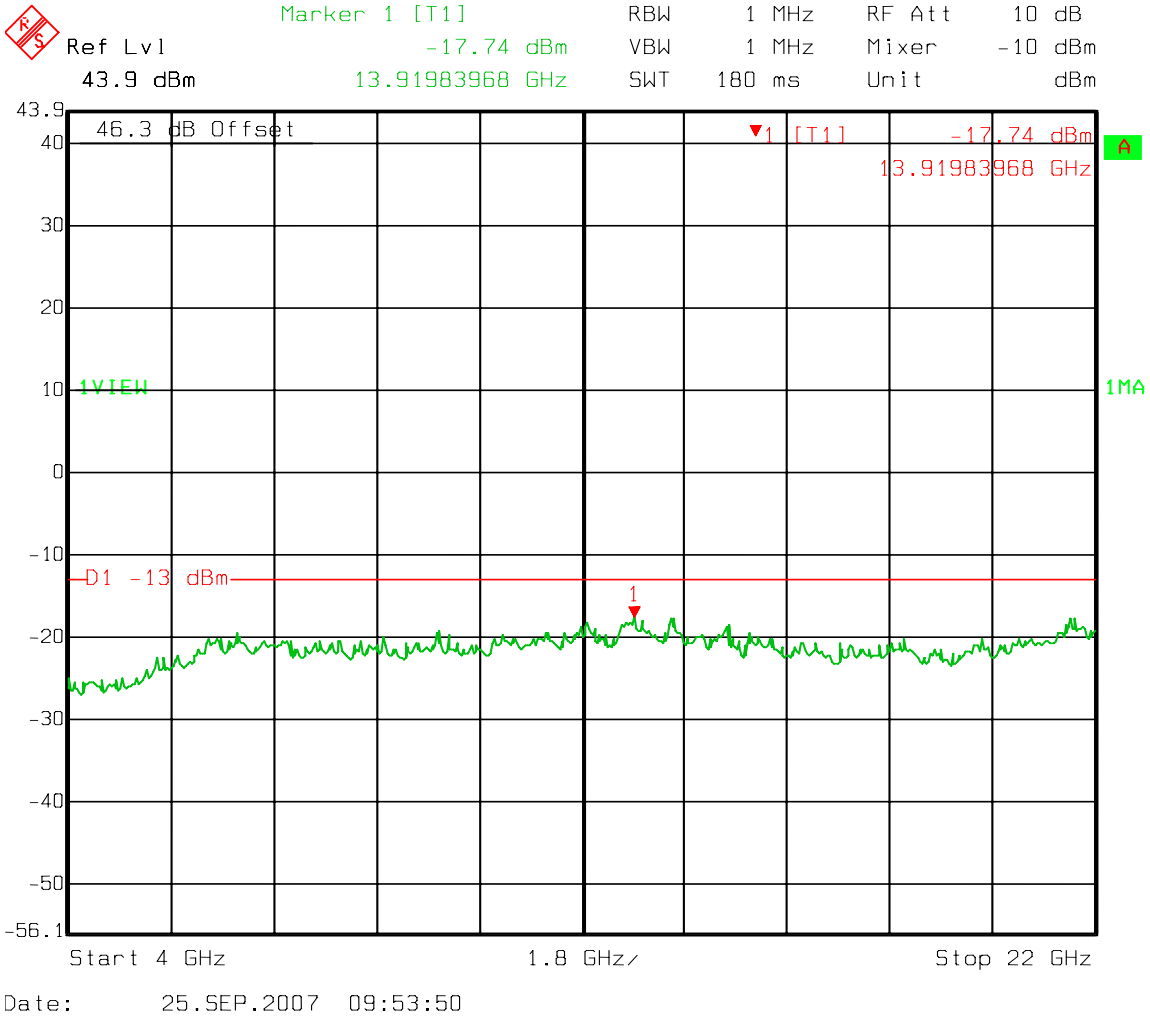
Test Data – Spurious Emissions at Antenna Terminals

WCDMA/HSDPA
SPURS



Test Data – Spurious Emissions at Antenna Terminals

WCDMA/HSDPA
SPURS



Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 27.53
TESTED BY: David Light	DATE: 25 September 2007

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.

Equipment Used: 1464-1484-1485-1016-791-759-760-993

Measurement Uncertainty: +/-1.7 dB

Temperature: 22 °C

Relative Humidity: 48 %

RBW=VBW=100 kHz below 1000 MHz
RBW=VBW=1 MHz above 1000 MHz
Peak detector

Section 7. Test Equipment List

Nemko	Description	Manufacturer Model Number	Serial Number	Calibration Dat	Calibration Du
103	SPECTRUM	ROHDE & SCHWARZ FSEK3	830844/006	05/26/06	05/26/08
108	CABLE	Astrola 32027-2-29094-72TC	N/	CBU	N/
160	ATTENUATOR	NARDA 776B-	NON	N/	N/
106	ATTENUATOR	NARDA 776B-	NON	CBU	N/
146	Spectrum analyzer	Hewlett Packard 8563	3551A04428	01/24/07	01/24/09
148	Cabl	Stor PR90-010-072	N/	05/02/07	05/01/08
148	Cabl	Stor PR90-010-216	N/	05/02/07	05/01/08
101	Pre-	HEWLETT PACKARD 8449	2749A00159	05/01/07	04/30/08
99	Horn antenna	A.H. Systems SAS-200/571	XXX	08/31/07	08/31/09
79	PREAMP, 25dB	Nemko USA, Inc. LNA2	39	05/01/07	04/30/08
75	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	55	03/30/07	03/29/08
76	Antenna biconical	Electro Metrics MFC-25	47	01/19/07	01/19/08
1054	DUAL DIRECTIONAL COUPLER	NARDA 3020A	34366	CBU	N/A
1055	DUAL DIRECTIONAL COUPLER	NARDA 3022	73393	CBU	N/A
1058	DUAL DIRECTIONAL COUPLER	HEWLETT PACKARD 11692D	1212A03366	CBU	N/A

ANNEX A - TEST DETAILS

NAME OF TEST: RF Power Output	**PARA. NO.: 2.1046**

Minimum Standard: Para. No.27.53(d)(1). The power of each fixed or base station transmitting in the 2110-2155 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, is limited to a peak equivalent isotropically radiated power (EIRP) of 3280 watts. The power of each fixed or base station transmitting in the 2110-2155 MHz band from any other location is limited to a peak EIRP of 1640 watts. A licensee operating a base or fixed station utilizing a power of more than 1640 watts EIRP must coordinate such operations in advance with all Government and non-Government satellite entities in the 2025-2110 MHz band. Operations above 1640 watts EIRP must also be coordinated in advance with the following licensees within 120 kilometers (75 miles) of the base or fixed station: all Broadband Radio Service (BRS) licensees authorized under Part 27 in the 2155-2160 MHz band and all AWS licensees in the 2110-2155 MHz band.

Method Of Measurement:

Detachable Antenna:
The channel power integrated across the carrier's bandwidth at antenna terminals is measured using a spectrum analyzer. 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 an isotropic radiator. 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 eirp is the signal level fed to the reference antenna corrected for gain referenced to an isotropic radiator.

NAME OF TEST: Occupied Bandwidth **PARA. NO.: 2.1049**

Minimum Standard: 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= 50 kHz
Span: 10 MHz
Sweep: Auto

NAME OF TEST: Spurious Emission at Antenna Terminals PARA. NO.: 27.53

Minimum Standard: Para. No.27.53(g) For operations in the 1710-1755 MHz and 2110-2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.

Method Of Measurement:

Spectrum analyzer settings:

CDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 30 kHz (< 1MHz from Band Edge)
VBW: ≥ 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: ≥ RBW
Sweep: Auto
Video Avg: Disabled

TDMA

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

W-CDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 50 kHz (< 1MHz from Band Edge)
VBW: ≥ RBW
Sweep: Auto
Video Avg: 6 Sweeps

To demonstrate compliance at band edges the frequency of the input signal is set to the lowest and highest assigned channel and the center frequency of the spectrum analyzer is set to the upper and lower edges of the appropriate frequency block.

NAME OF TEST: Field Strength of Spurious Radiation PARA. NO.: 27.53

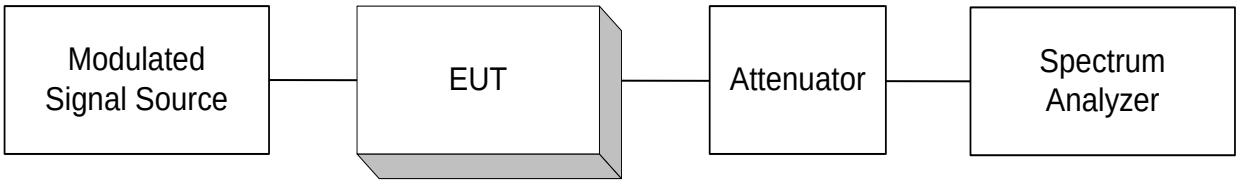
Minimum Standard: Para. No.27.53(g) For operations in the 1710-1755 MHz and 2110-2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.

Method of Measurement TIA/EIA-603-1992

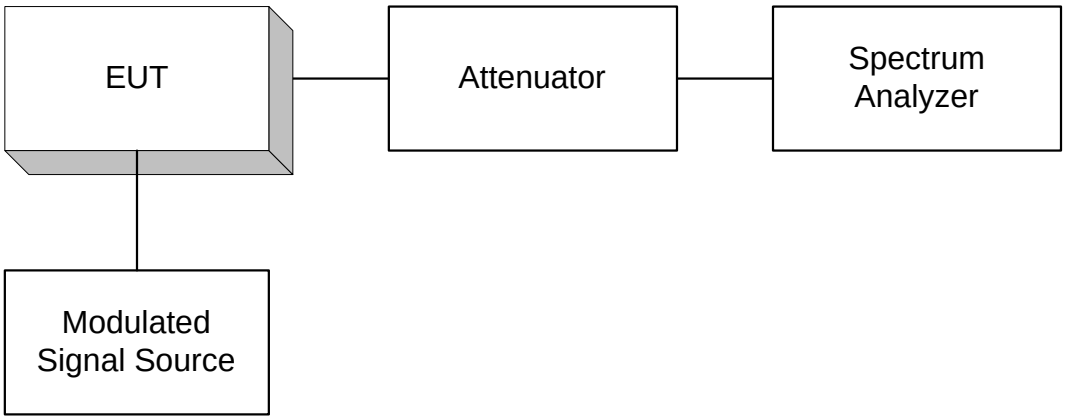
The antenna substitution method is used to determine the equivalent radiated power at spurious frequencies. The spurious emissions are measured at a distance of 3 meters. The EUT is then replaced with a reference substitution antenna with a known gain referenced to an isotropic radiator. This antenna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

ANNEX B - TEST DIAGRAMS

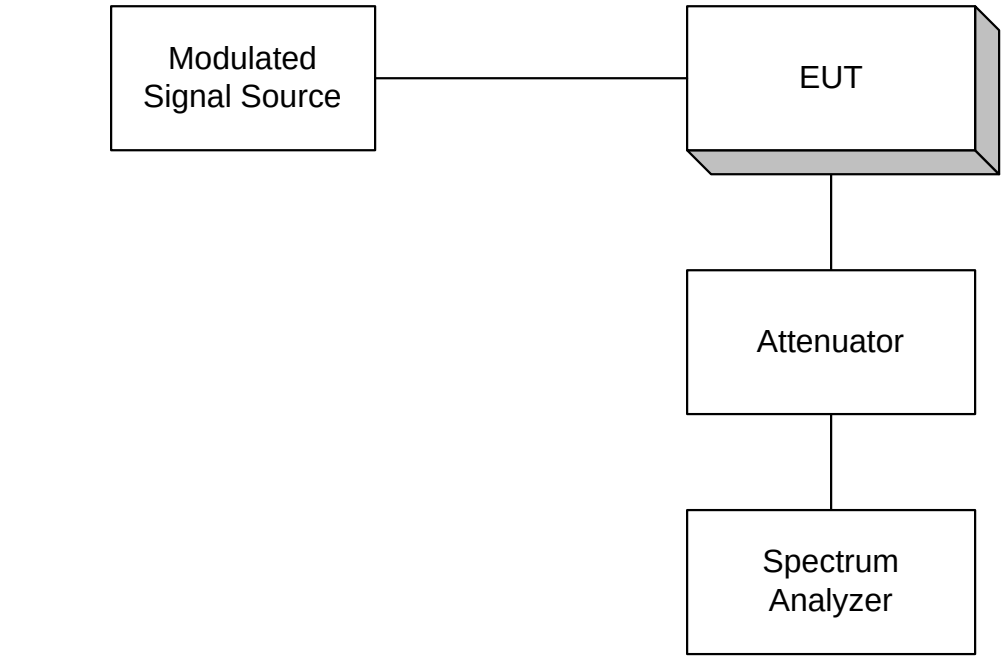
Para. No. 2.985 - R.F. Power Output

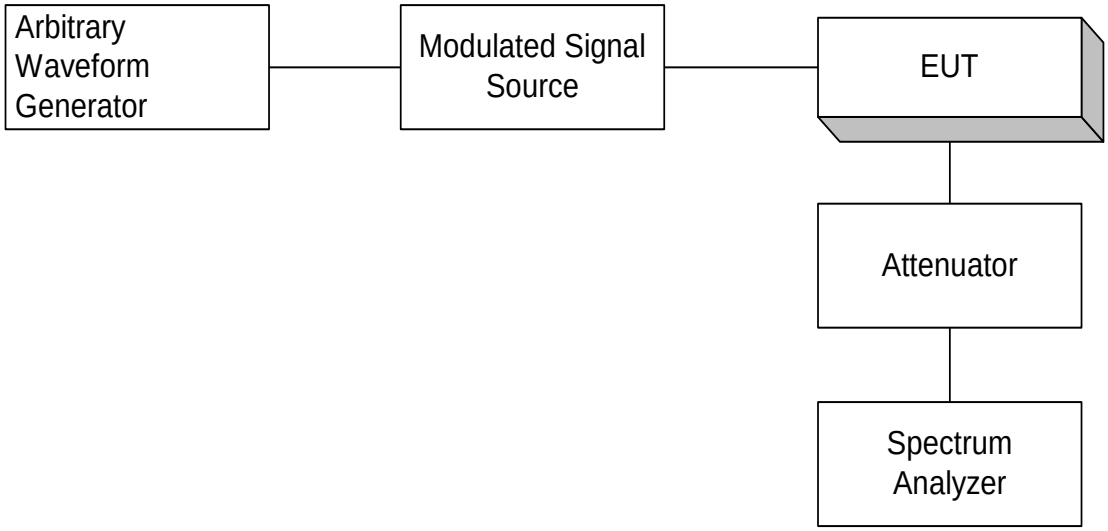


Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 Spurious Emissions at Antenna Terminals





Para. No. 2.993 - Field Strength of Spurious Radiation