www.nemko.com

Test Report:	89969-1TRFWL
Applicant:	Dekolink Wireless Ltd 16 Bazel St, Qiryat-Arieh, Petah-Tikva, 49510 Israel
Apparatus:	MW-CMR-PCS-SMR-2580
FCC ID:	OIWMCSRPCSSMR2580
In Accordance With:	FCC Part 90, Boosters Private Land Mobile Radio Services
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	Roman Kuleba, Wireless Specialist
Date:	October 23, 2007
Total Number of Pages:	36

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 90. Conducted measurements were performed in accordance with ANSI TIA-603-B-2002. Radiated tests were conducted is accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed: MW-CMR-PCS-SMR-2580

Specification: FCC Part 90 Private Land Mobile Radio Services

Compliance Status: Complies

Exclusions: None

Non-compliances: None

Report Release History: Original Release

Author: Heng Lin, EMC/Wireless Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

TABLE OF CONTENTS

Section 1: Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

iDEN Dual Band Repeater MW-CMR-PCS-SMR-2580

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	Deko 25819	0709D9142

The first samples were received on: October 3rd, 2007

1.3 Theory of Operation

Compact Repeater Deko25819 is a multi-band (WPCS and iDEN) repeater. It functions as a grouped -repeater: Tri-band repeater within the Wide PCS (WPCS) band (1800-1900 MHz), and dual-band repeater within the iDEN band (800-900 MHz).

This Channel-Selective RF Compact Repeater amplifies signals bi-directionally between base stations and mobile handsets, in cellular and other wireless systems. It is suitable for GSM, TDMA, CDMA, Edge, 1xEVDO communication standards in the WPCS band. This Repeater is also a dual-band Repeater that serves the iDEN frequency range within the 800-900 MHz bands.

1.4 Technical Specifications of the EUT

Manufacturer:	Dekolink Wireless Ltd.	
Operating Frequency:	Uplink: 800 MHz Band: 900 MHz Band:	 806-824 MHz 896-901 MHz
	Downlink: 800 MHz Band: 900 MHz Band:	 851-869 MHz 935-940 MHz
Emission Designator:	G7W	
Rated Power:	Uplink: Downlink:	+22 ±1 dBm +22 ±1 dBm
Measured Power: (Max. Peak Output Power)	Uplink: Downlink:	29.58 dBm (0.908 W) 30.74 dBm (1.186 W)
Modulation:	iDEN	
Power Source:	110 – 240 VAC	

Section 2: Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 2 Subpart J, Equipment Authorization Procedures
FCC Part 90 Private Land Mobile Radio Services
FCC 2-11-04/EAB/RF Amplifier, Booster, and Repeater Reminder Sheet

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 ºC
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Electro-Magnetic Interference Test Chamber 3m	TDK	SAC-3	FA002047	May 19/08
Biconical	Sunol	BC2	FA002078	July 25/08
Log Periodic Antenna	Sunol	LP5	FA002077	July 25/08
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Oct. 24/07
RF Power Meter	Agilent	N1911A	FA001946	Jan. 23/08
RF Power Sensor	Agilent	N1922A	FA001947	Jan. 23/08
3 Way Splitter/Combiner	Mini Circuits	15542 ZA3PD-4	FA001156	COU
Fixed Attenuators 10 dB	Narda	768-10	—	COU
Signal Generator	Rohde & Schwarz	SMIQ 03E	FA001269	Aug. 13/08
Signal Generator	Rohde & Schwarz	SMIQ 06B	FA001878	Sept. 04/08
Spectrum Analyzer	Rohde & Schwarz	FSP	FA001920	March 19/08
Horn Antenna #1	EMCO	3115	FA000649	Feb. 26/08
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	Aug. 21/08
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	Aug. 21/08
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	Aug. 21/08

COU – Calibrate on Use
NCR – No Calibration Required

Section 3: Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4: Results Summary

This section contains the following:

FCC Part 90: Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N	No: not applicable / not relevant.
Y	Yes: Mandatory i.e. the apparatus shall conform to these tests.
N/T	Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 90: Test Results

Clause	Test Method	Test Description	Required	Result
90.205	2.1046	Output power	YES	PASS
90.210	2.1051	Conducted spurious emissions	YES	PASS
90.210	2.1053	Radiated spurious emissions	YES	PASS
90.213	2.1055	Frequency stability	YES	PASS
90.214	—	Transient Behavior	N	N/A
90.219	—	Use of boosters	YES	PASS
2-11-04/EAB/RF	2.1049	Occupied bandwidth	YES	PASS
2-11-04/EAB/RF	—	Out of band rejection	YES	PASS

Notes:

Appendix A: Test Results

Clause 90.205 Output Power

Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized for new stations authorized after August 16, 1995 is as follows in FCC Part 90.205(a) through (r).

Test Conditions:

Sample Number:	1	**Temperature:**	26.4 °C
Date:	October 5, 2007	**Humidity:**	44.8 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

Test Results: See Attached Tables.

Additional Observations:

The output power was measured by using a Peak Detector with a 10MHz RBW/VBW.

DownLink - 18MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
852.0	30.73	1.183
860.0	30.74	1.186
868.0	30.58	1.143

UpLink - 18MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
807.0	29.15	0.822
815.0	29.52	0.895
823.0	29.28	0.847

DownLink – 7MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
862.0	30.58	1.143
865.5	30.37	1.089
869.0	30.57	1.140

UpLink – 7MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
807.0	29.28	0.847
815.0	29.58	0.908
823.0	29.47	0.885

DownLink - 5MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
936.0	30.27	1.064
937.5	30.52	1.127
939.0	30.15	1.035

UpLink - 5MHz Filter:

Freq. (MHz)	PTX (dBm)	PTX (W)
897.0	29.03	0.800
898.5	29.03	0.800
900.0	29.00	0.800

Maximum Measured Power – DownLink: 30.74 dBm (1.186 W)
Maximum Measured Power – UpLink: 29.58 dBm (0.908 W)

The measured power is at the 1dB compression point for a single carrier.

Clause 90.210 Conducted Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	**Temperature:**	25.6 °C
Date:	October 5-12, 2007	**Humidity:**	45.5 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

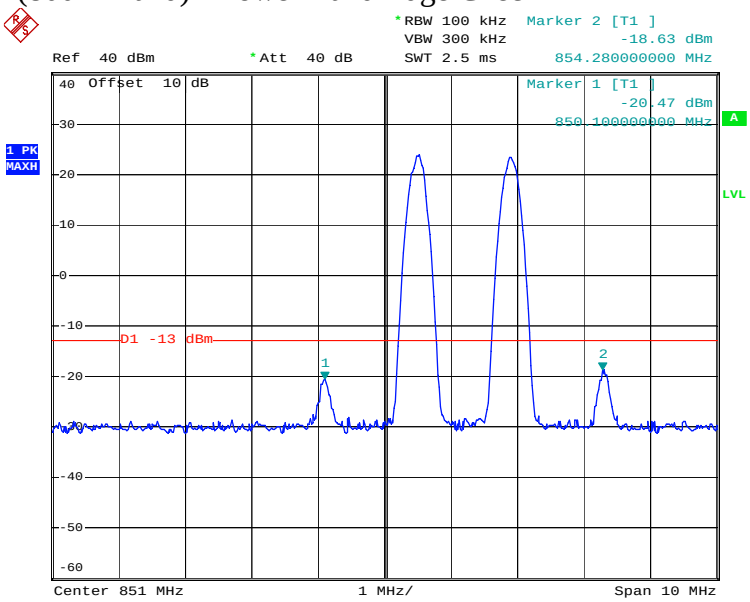
Test Results: See Attached Plots.

Additional Observations:

Conducted emissions were performed on a low, middle and high channel for each modulation. Only the worst case has been included.

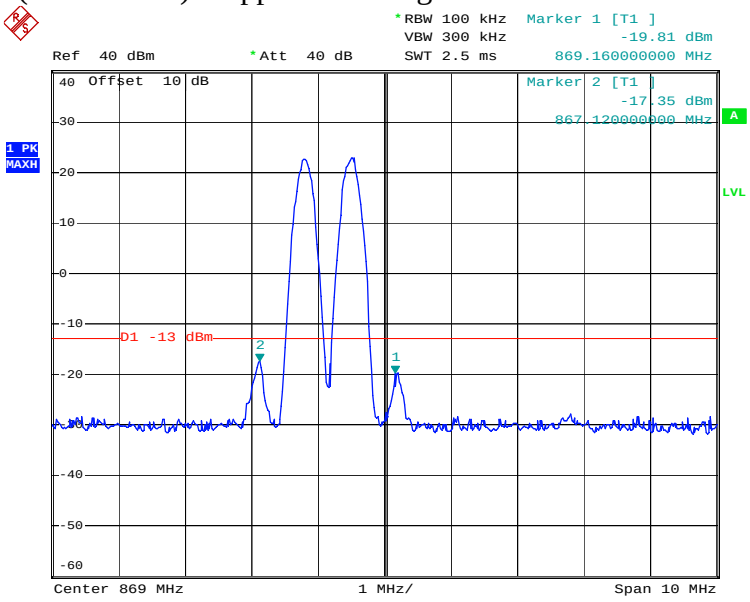
3rd Order IM Products

Down-link - (800M Band) - Lower Band Edge Check



Date: 10.OCT.2007 16:56:43

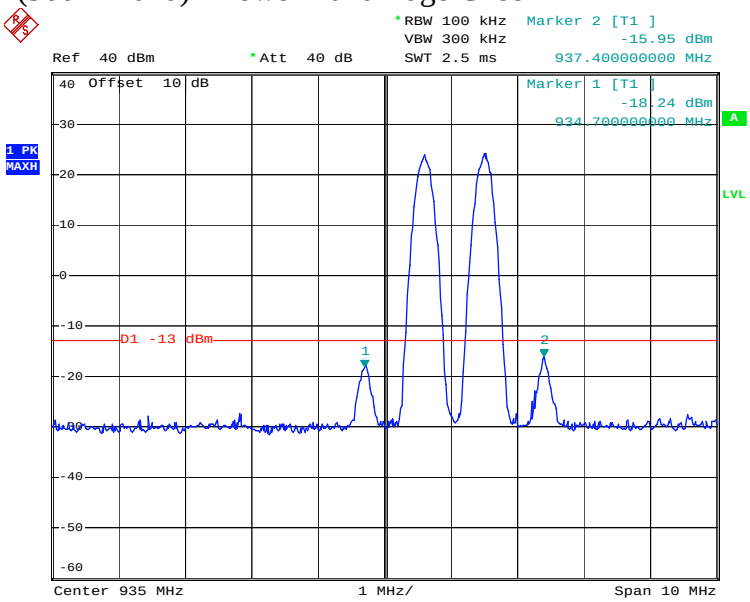
Down-link - (800M Band) - Upper Band Edge Check



Date: 10.OCT.2007 16:52:32

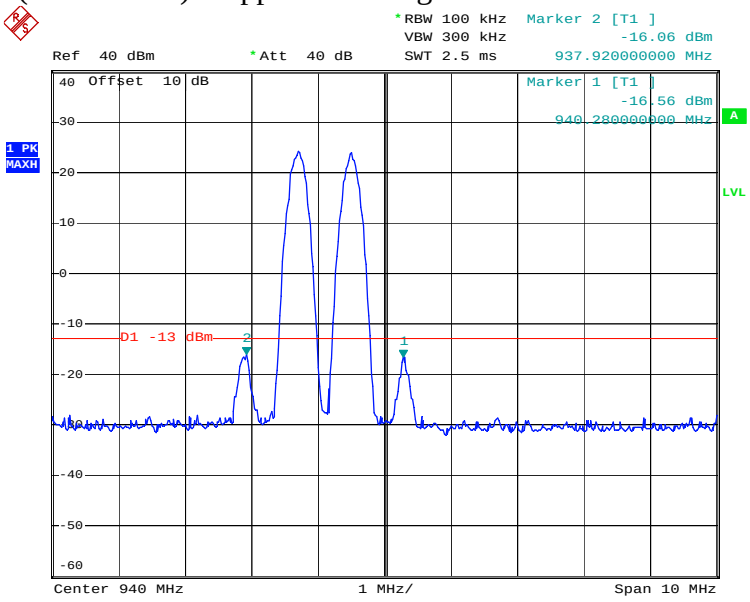
3rd Order IM Products

Down-link - (900M Band) - Lower Band Edge Check



Date: 10.OCT.2007 16:58:44

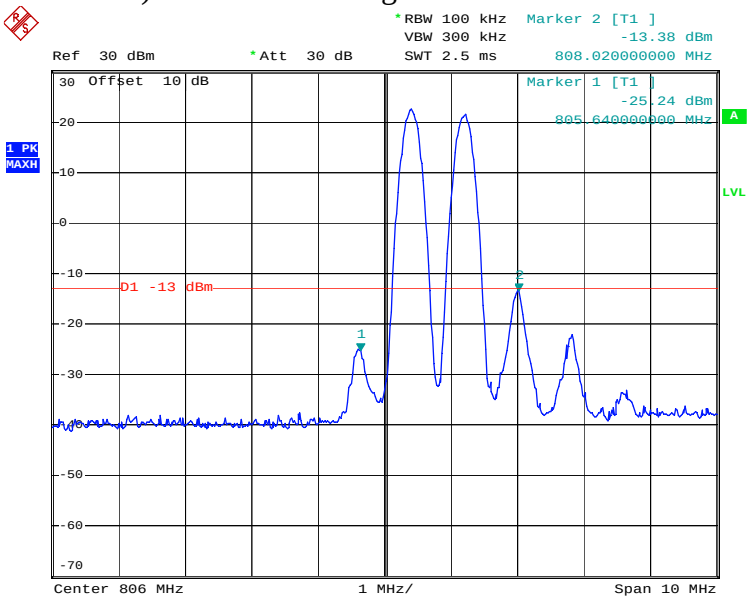
Down-link - (900M Band) - Upper Band Edge Check



Date: 10.OCT.2007 17:00:38

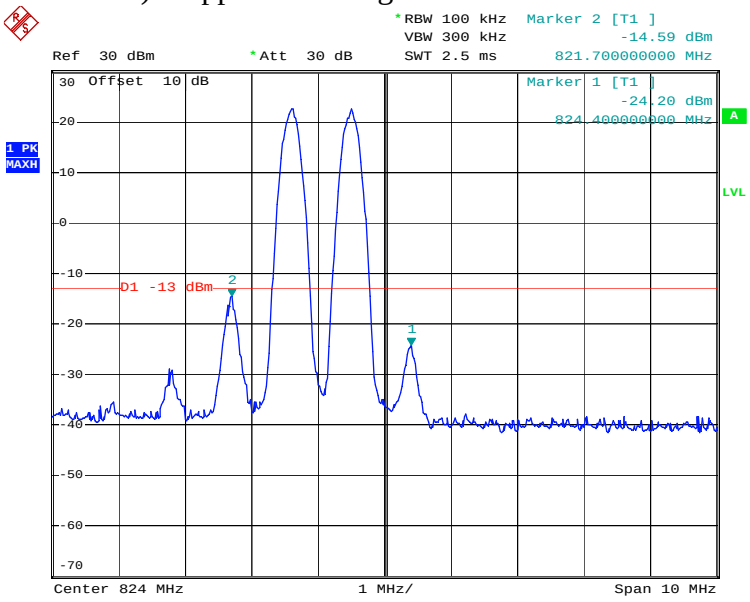
3rd Order IM Products

Up-link - (800M Band) - Lower Band Edge Check



Date: 10.OCT.2007 17:44:20

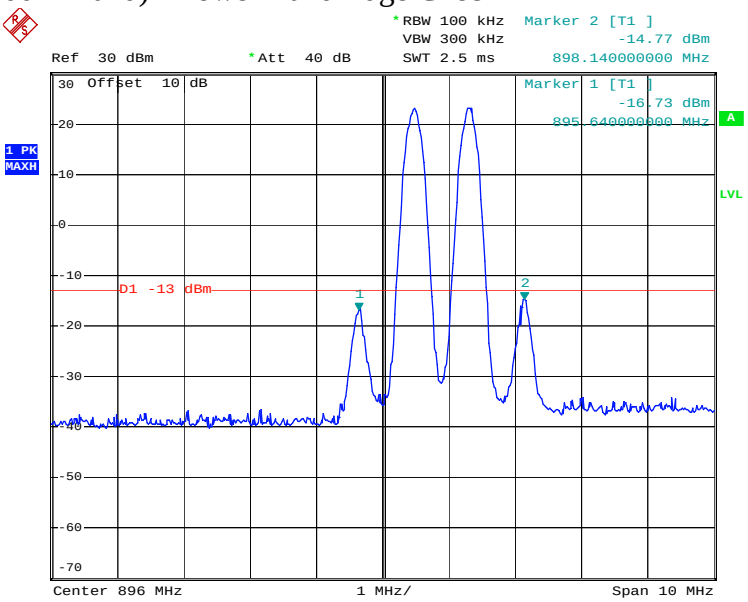
Up-link - (800M Band) - Upper Band Edge Check



Date: 10.OCT.2007 17:39:58

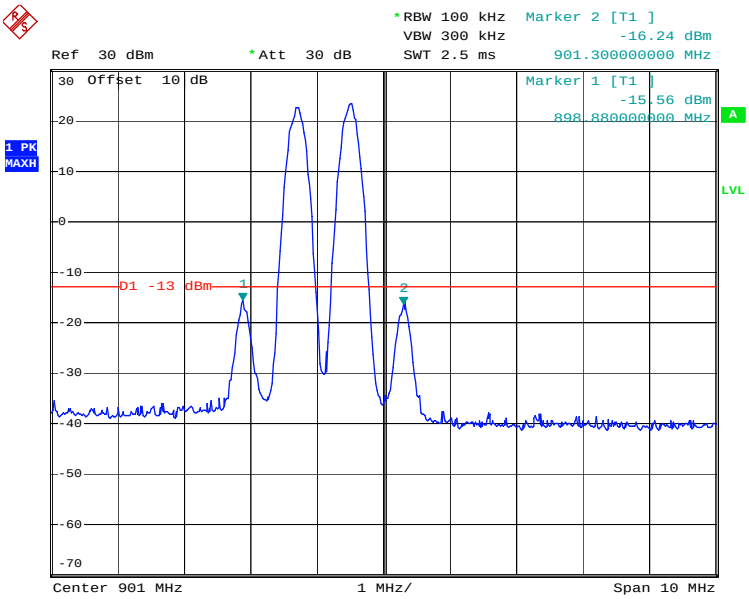
3rd Order IM Product

Up-link - (900M Band) - Lower Band Edge Check



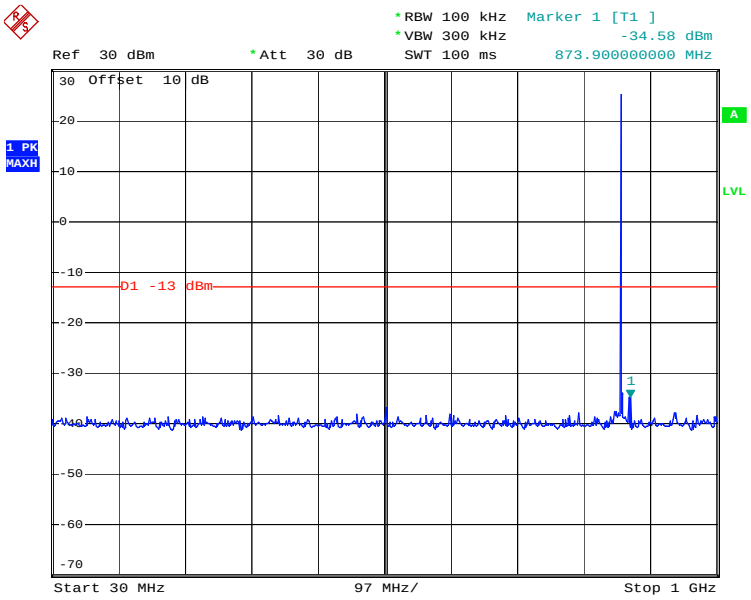
Date: 12.OCT.2007 17:20:15

Up-link - (900M Band) - Upper Band Edge Check

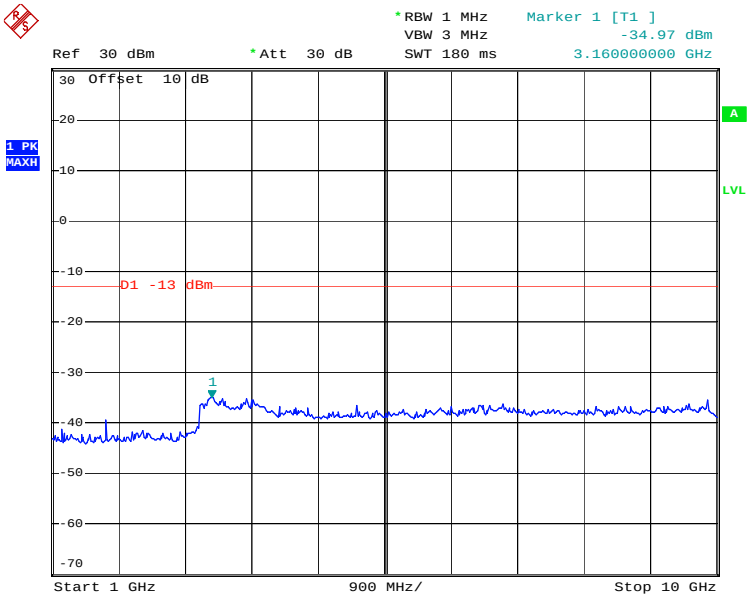


Date: 10.OCT.2007 17:37:10

Conducted Spurious Emission
Down-link, Filter: 18 MHz (Mid Channel)

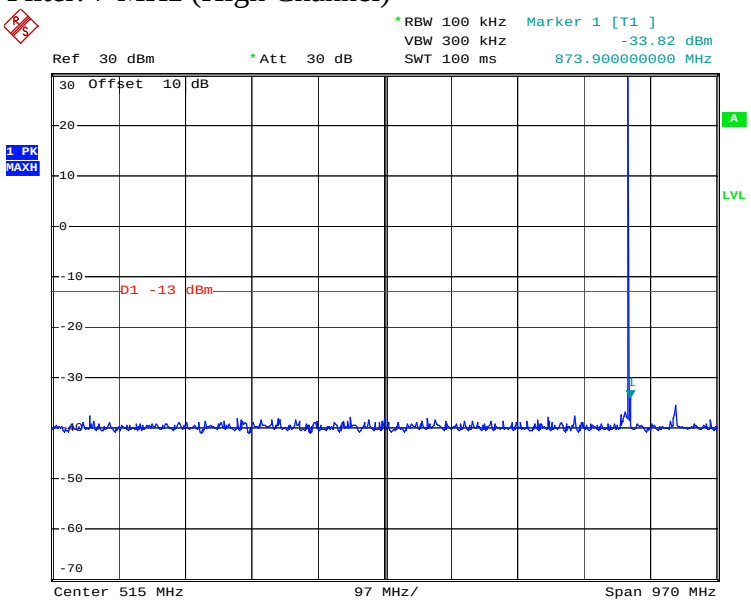


Date: 5.OCT.2007 16:54:36

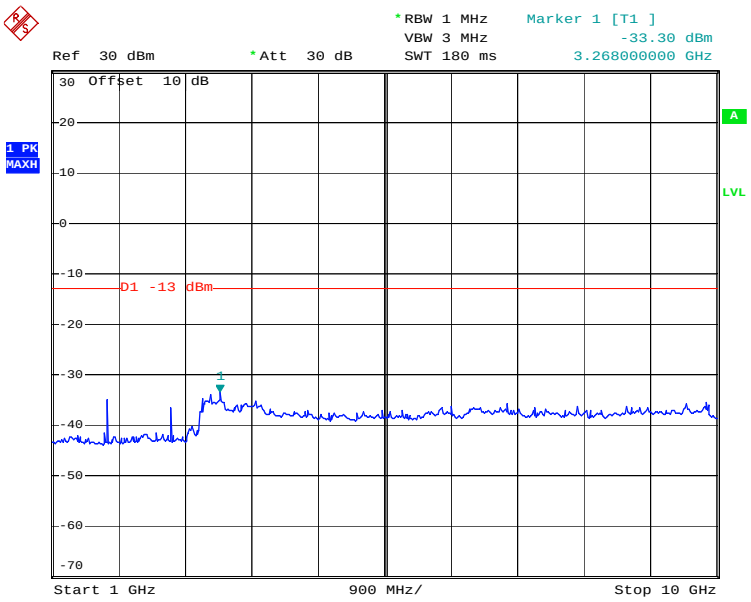


Date: 5.OCT.2007 16:55:24

Down-link, Filter: 7 MHz (High Channel)

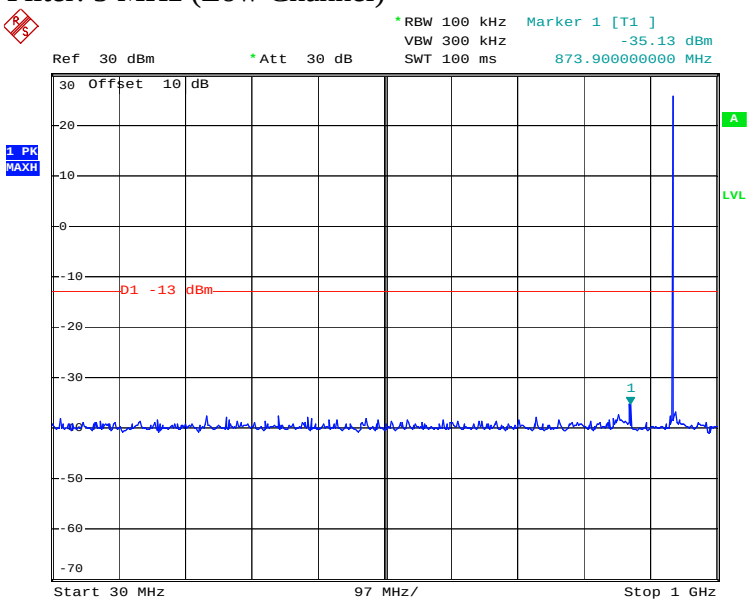


Date: 5.OCT.2007 16:59:56

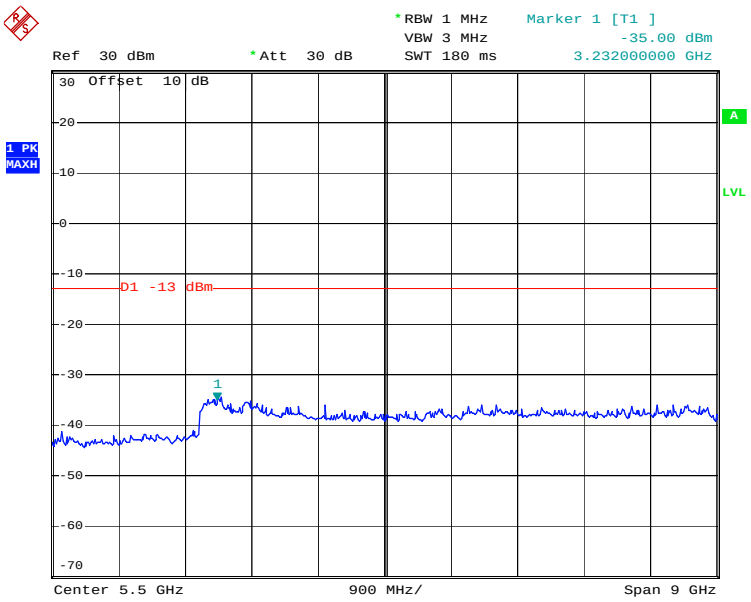


Date: 5.OCT.2007 17:01:02

Down-link, Filter: 5 MHz (Low Channel)

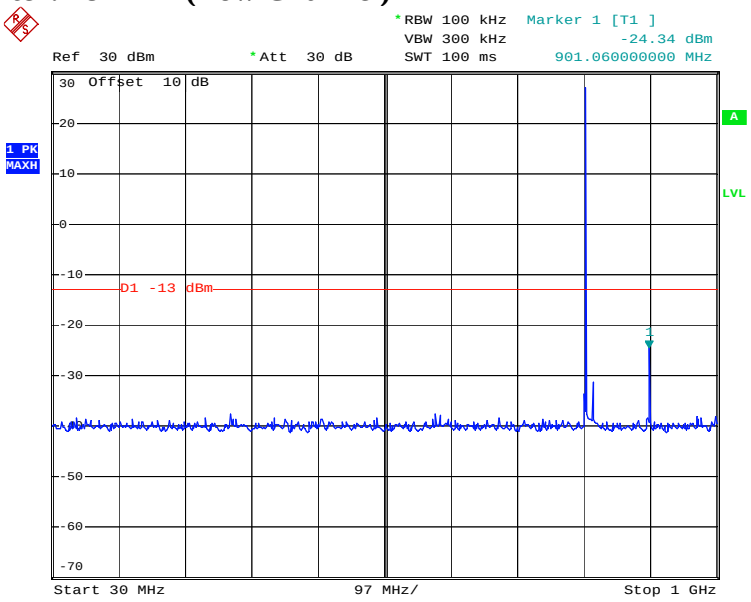


Date: 5.OCT.2007 16:57:37

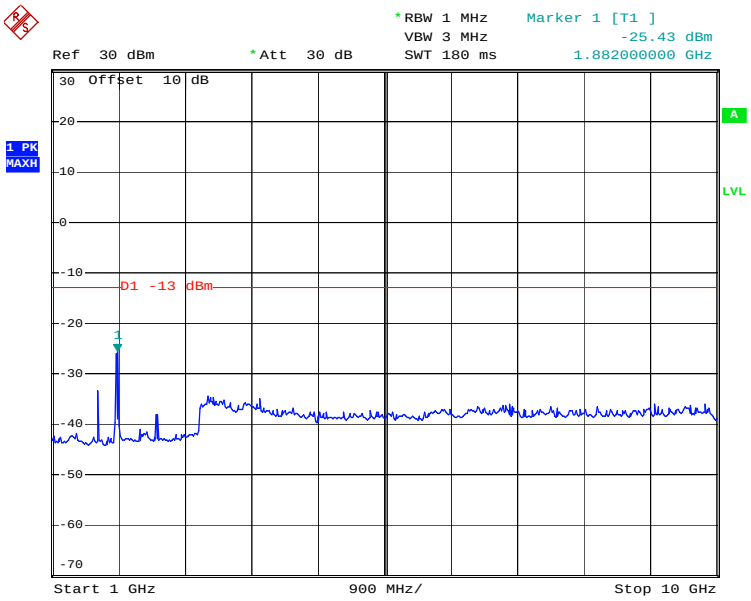


Date: 5.OCT.2007 16:56:39

Up-link, Filter: 18 MHz (Low Channel)

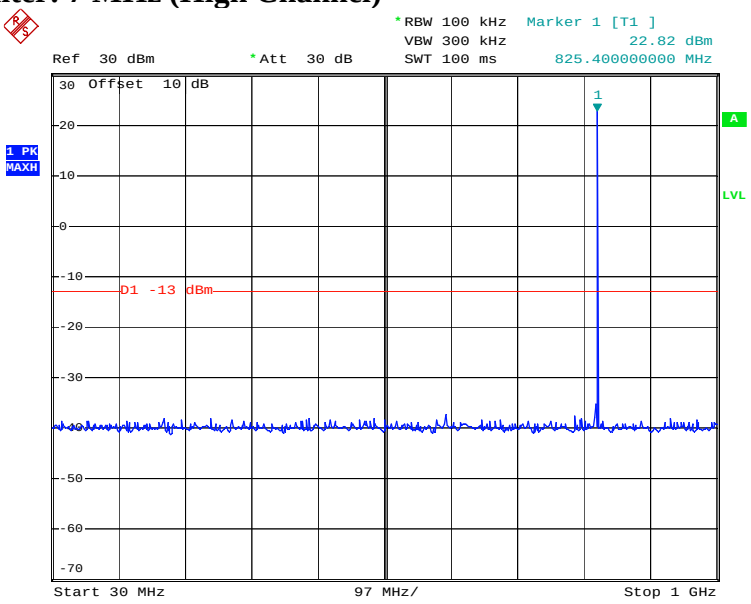


Date: 5.OCT.2007 17:11:26

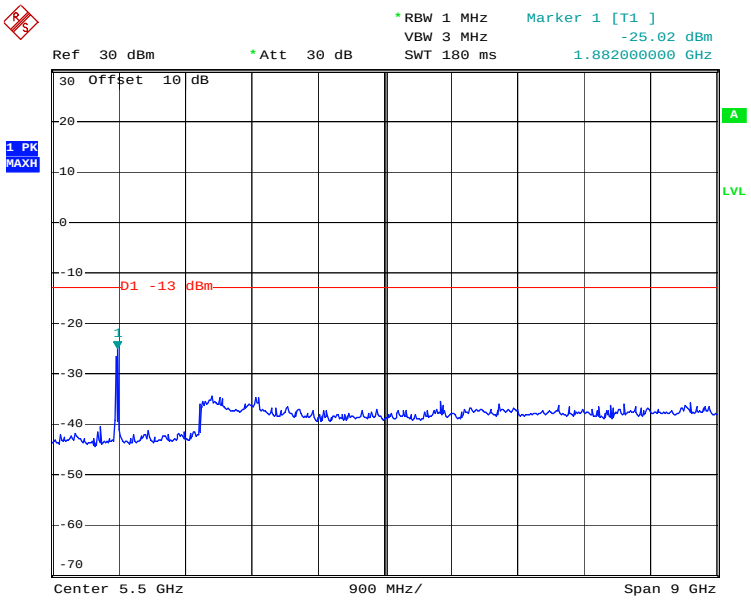


Date: 5.OCT.2007 17:12:11

Up-link, Filter: 7 MHz (High Channel)

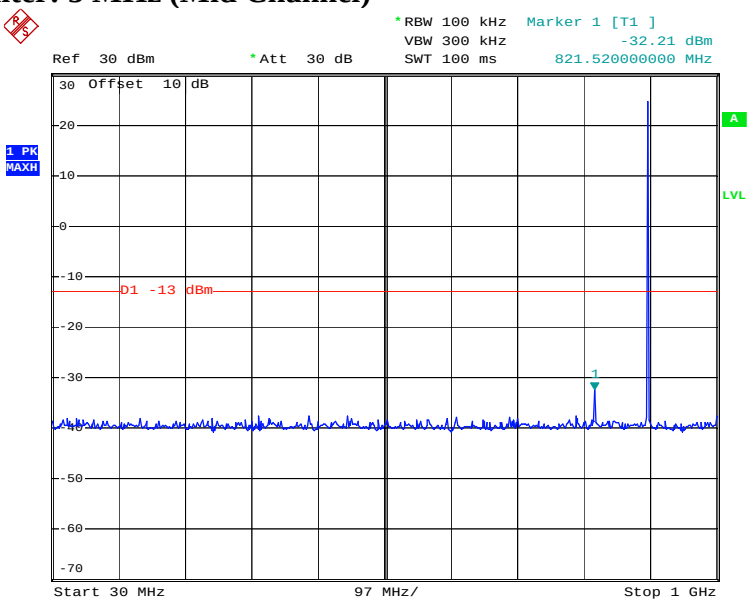


Date: 5.OCT.2007 17:03:53

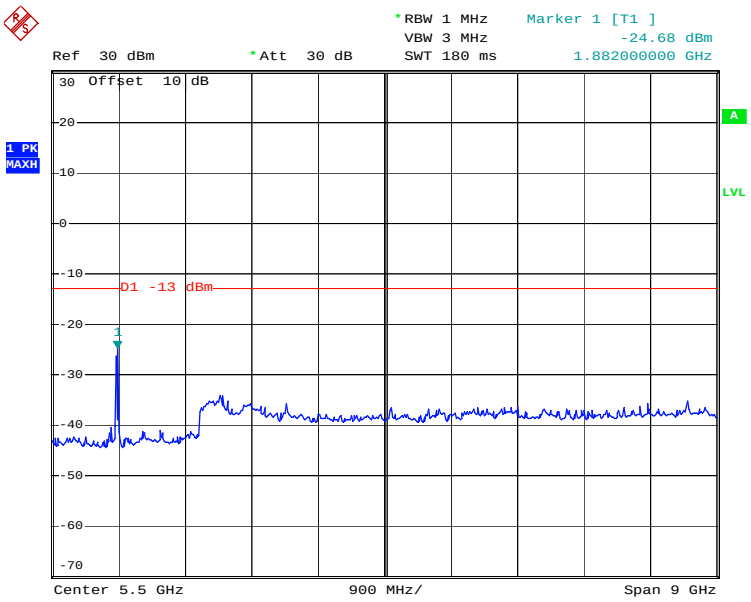


Date: 5.OCT.2007 17:04:48

Up-link, Filter: 5 MHz (Mid Channel)



Date: 5.OCT.2007 17:06:52



Date: 5.OCT.2007 17:05:40

Clause 90.210 Radiated Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	**Temperature:**	26.4 °C
Date:	October 5, 2007	**Humidity:**	44.8 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

Test Results:

No emissions were found within 20 dB below the limit.

Additional Observations:

The Spectrum was searched from 30MHz to the 10^{th} Harmonic.

All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz at a distance of 3 meters.

Clause 90.213 Frequency Stability

a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following Table.
Minimum Frequency Stability in parts per million (ppm):

Frequency range (MHz)	Fixed and base stations	Mobile stations - Over 2 watts output power	Mobile stations - 2 watts or less output power
Below 25	100	100	200
25-50	20	20	50
72-76	5	---	50
150-174	50	5	50
216-220	1.0	---	1.0
220-222	0.1	1.5	1.5
421-512	2.5	5	5
806-809	1.0	1.5	1.5
809-824	1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	0.1	1.5	1.5
902-928	2.5	2.5	2.5
929-930	1.5	---	---
935-940	0.1	1.5	1.5
1427-1435	300	300	300
Above 2450	---	---	---

Test Conditions:

Sample Number:	1	**Temperature:**	26.4 °C
Date:	October 5, 2007	**Humidity:**	44.8 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

Test Results: Complies.

Additional Observations:

The tested repeater uses the same LO for down- and up-frequency conversion in the signal-processing chain; therefore the transmitted signal is identical in frequency to the received signal. This was verified by measuring the transmitted (output) signal frequency with a frequency counter that was phase-locked to a signal generator used to generate input RF signal. Measured frequency deviation was 0 Hz and the DUT was deemed to comply with frequency stability requirement.

Clause 2-11-04/EAB/RF Occupied Bandwidth

Using an RBW of 300Hz or 1% of the emission bandwidth, The spectral shape of the output should look similar to the input for all modulations.

Test Conditions:

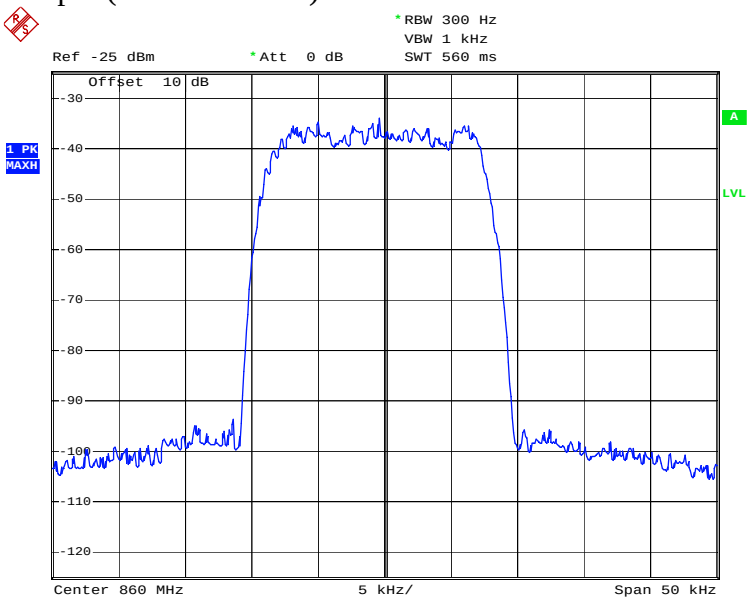
Sample Number:	1	**Temperature:**	26.8 °C
Date:	October 4, 2007	**Humidity:**	44.4 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

Test Results: See Attached Plots.

Additional Observations:

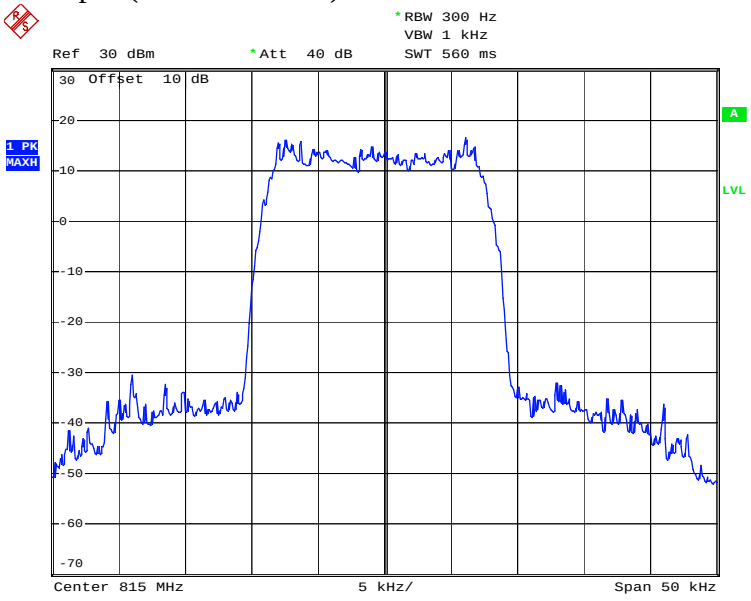
Input and output signals were compared to verify that there was no any degradation to the signal due to amplification and conversion in the DUT.

Down Link – Input (Filter: 18 MHz)



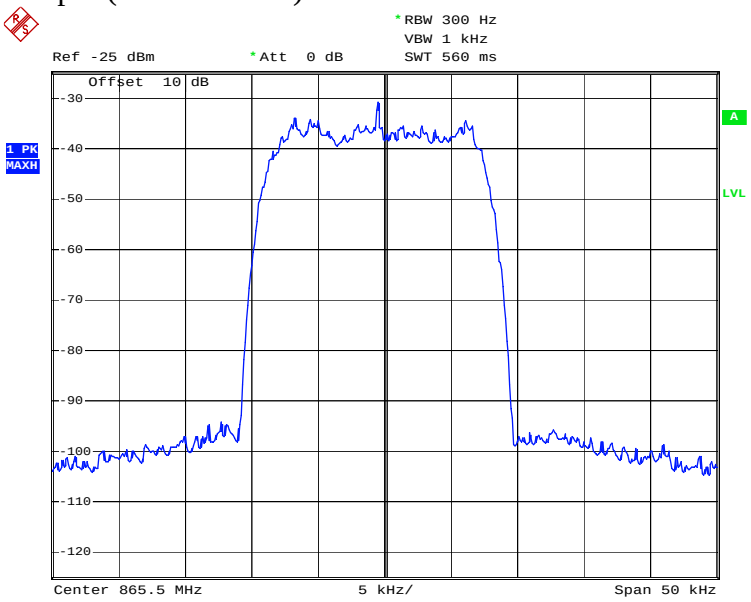
Date: 4.OCT.2007 13:56:32

Down Link – Output (Filter: 18 MHz)



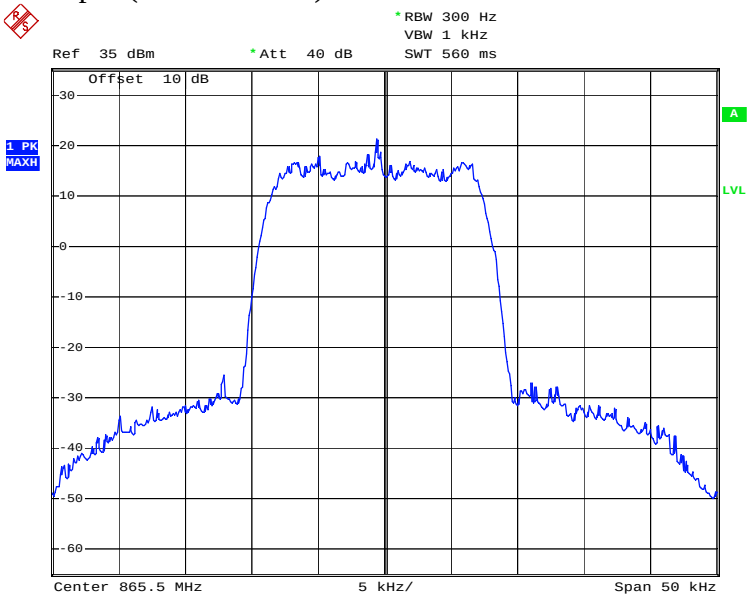
Date: 4.OCT.2007 14:37:46

Down Link – Input (Filter: 7 MHz)



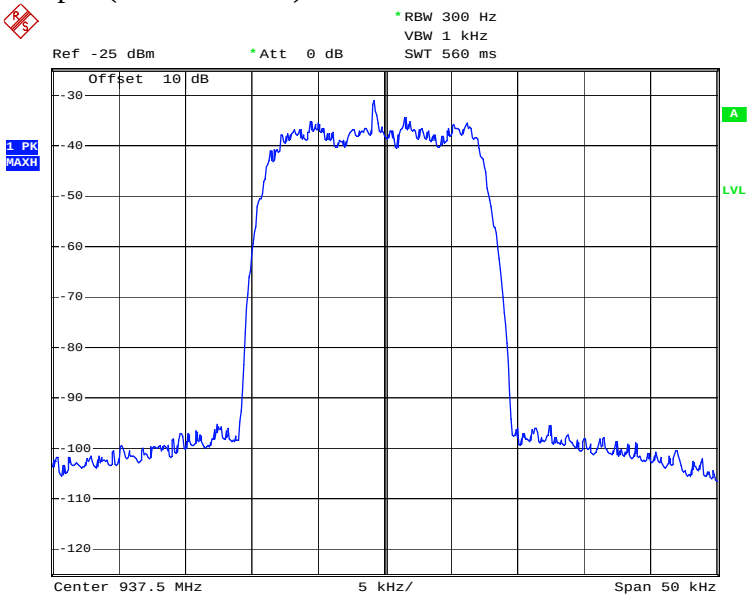
Date: 4.OCT.2007 13:55:07

Down Link – Output (Filter: 7 MHz)



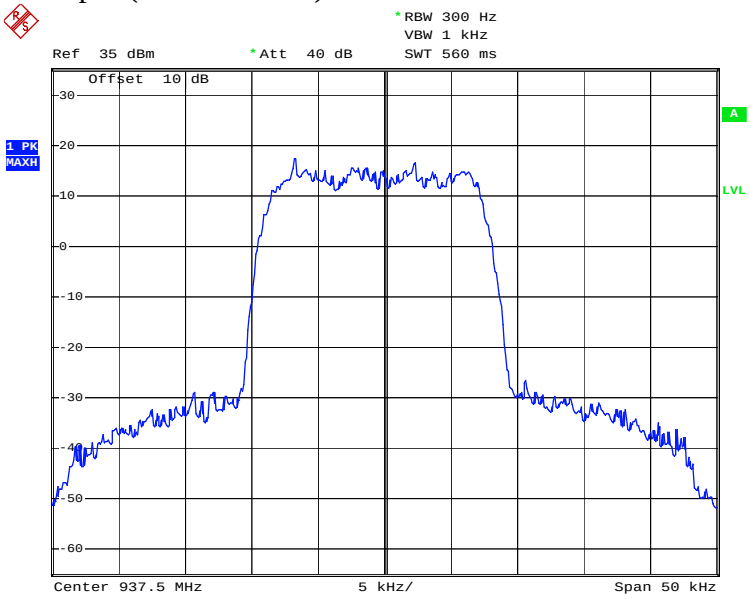
Date: 4.OCT.2007 13:51:09

Down Link – Input (Filter: 5 MHz)



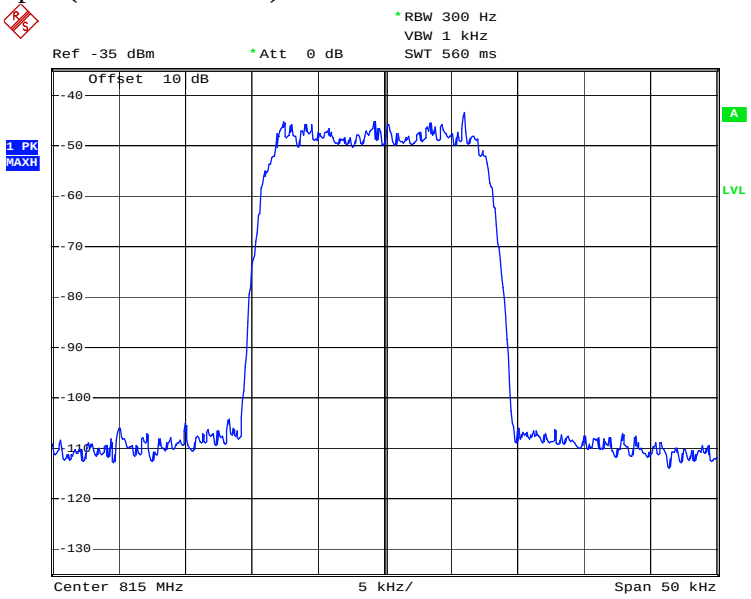
Date: 4.OCT.2007 13:55:49

Down Link – Output (Filter: 5 MHz)



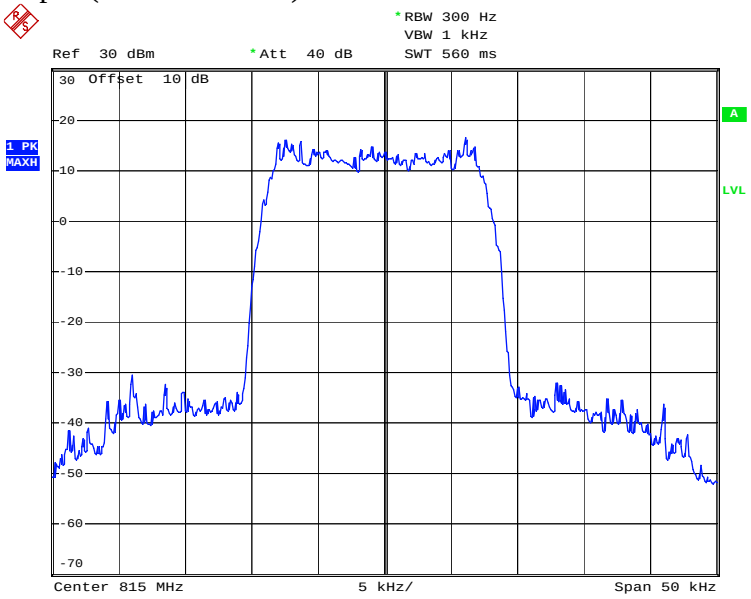
Date: 4.OCT.2007 13:43:58

Up Link – Input (Filter: 18 MHz)



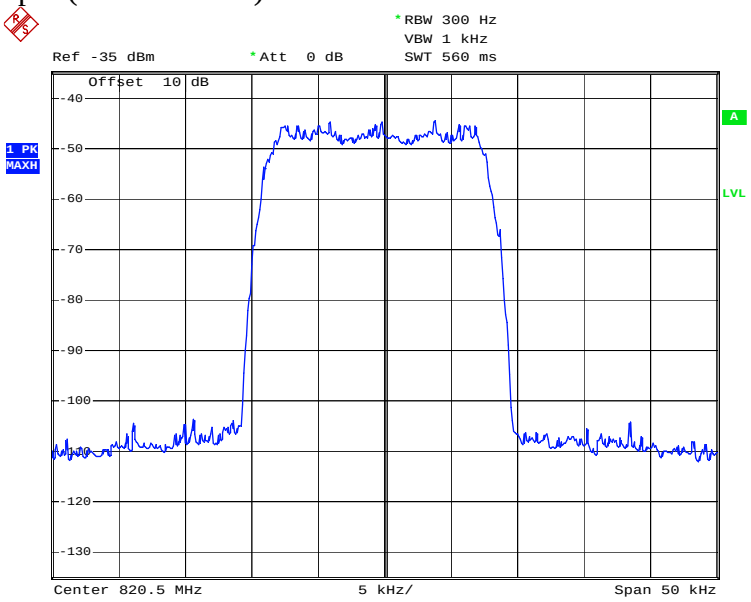
Date: 4.OCT.2007 14:30:28

Up Link – Output (Filter: 18 MHz)



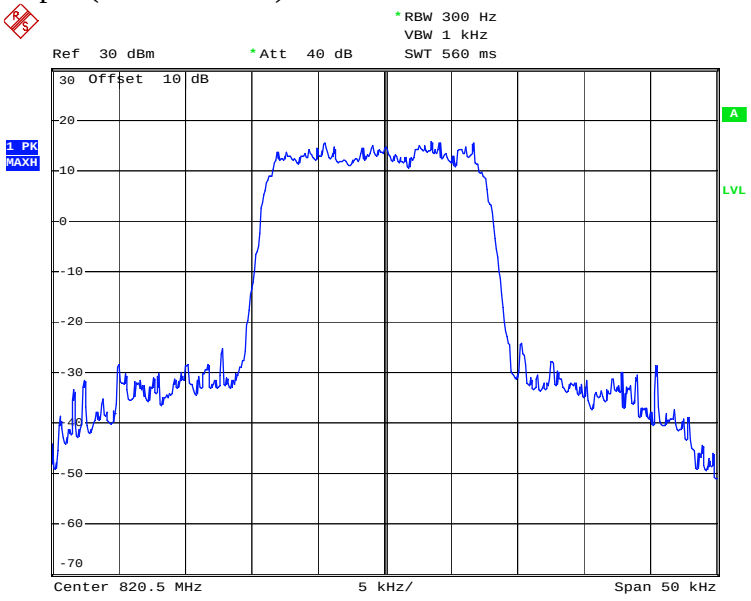
Date: 4.OCT.2007 14:37:46

Up Link – Input (Filter: 7 MHz)



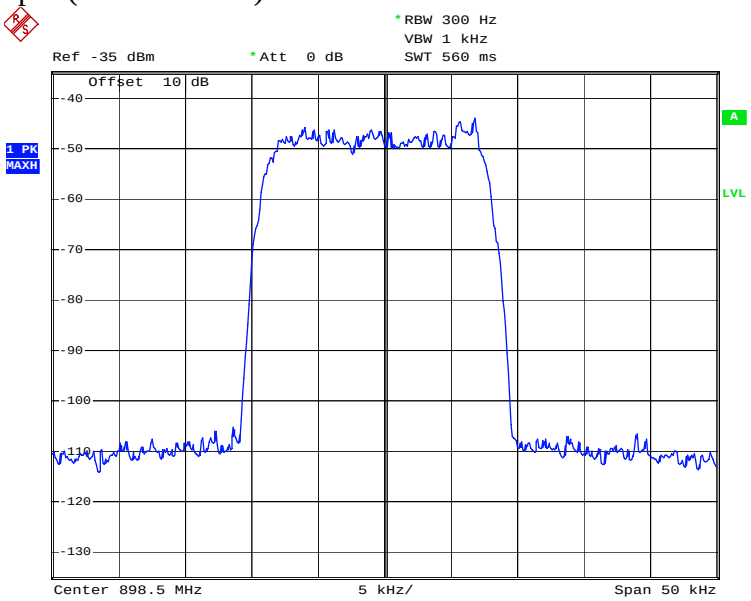
Date: 4.OCT.2007 14:29:00

Up Link – Output (Filter: 7 MHz)



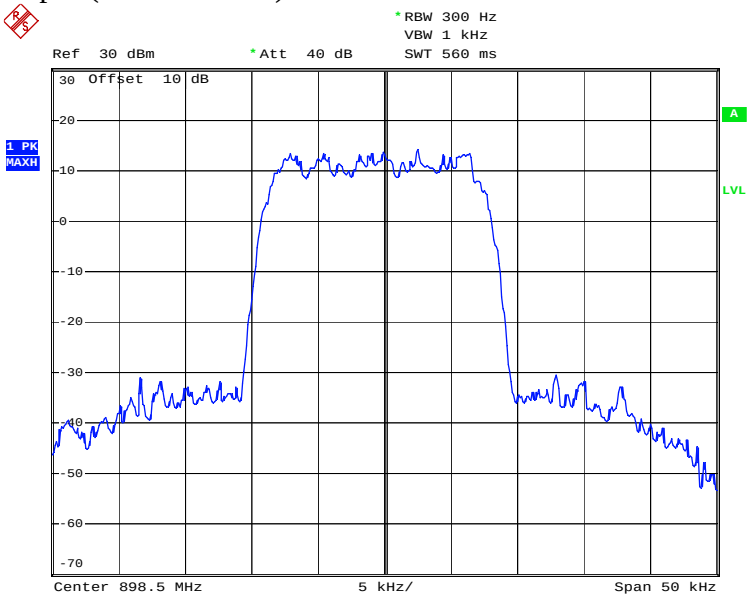
Date: 4.OCT.2007 14:39:12

Up Link – Input (Filter: 5 MHz)



Date: 4.OCT.2007 14:29:50

Up Link – Output (Filter: 5 MHz)



Date: 4.OCT.2007 14:39:52

Clause 2-11-04/EAB/RF Out of Band Rejection

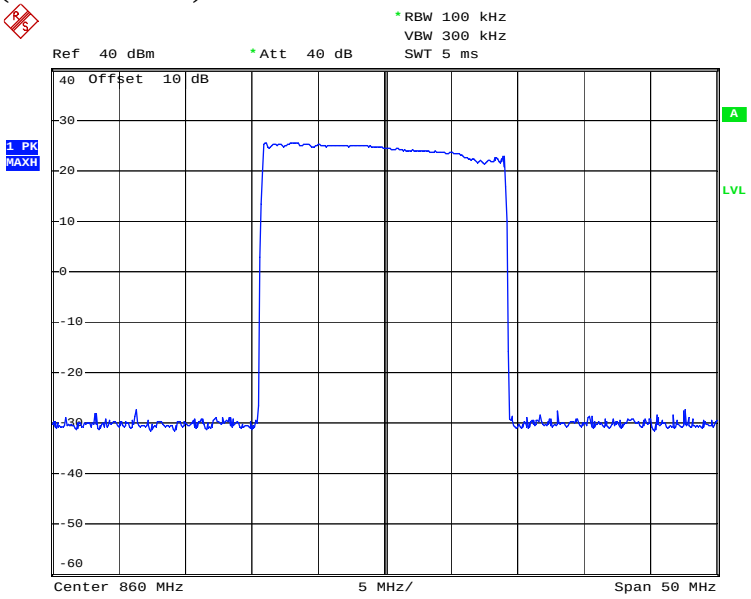
Plots showing the filter frequency response.

Test Conditions:

Sample Number:	1	**Temperature:**	26.8 °C
Date:	October 4, 2007	**Humidity:**	44.4 %
Modification State:	0	**Tester:**	Heng Lin
		Laboratory:	Ottawa

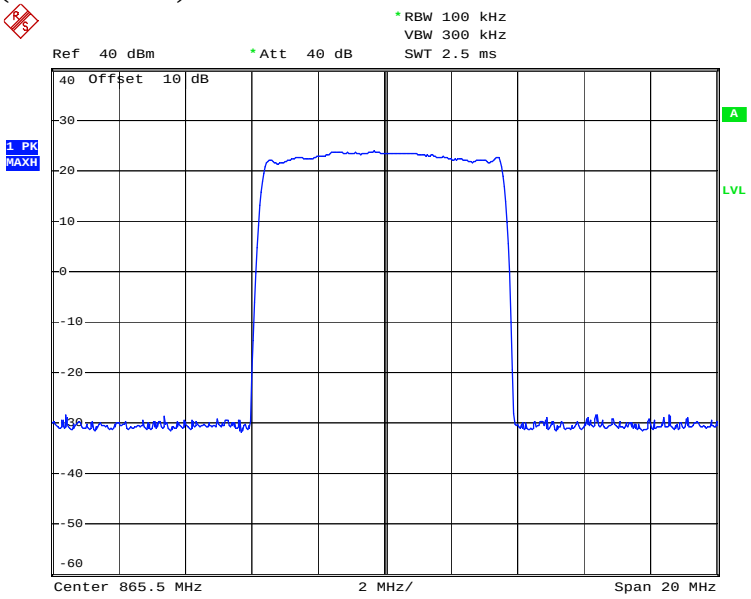
Test Results: See Attached Plots.

Down-link (18 MHz Filter)



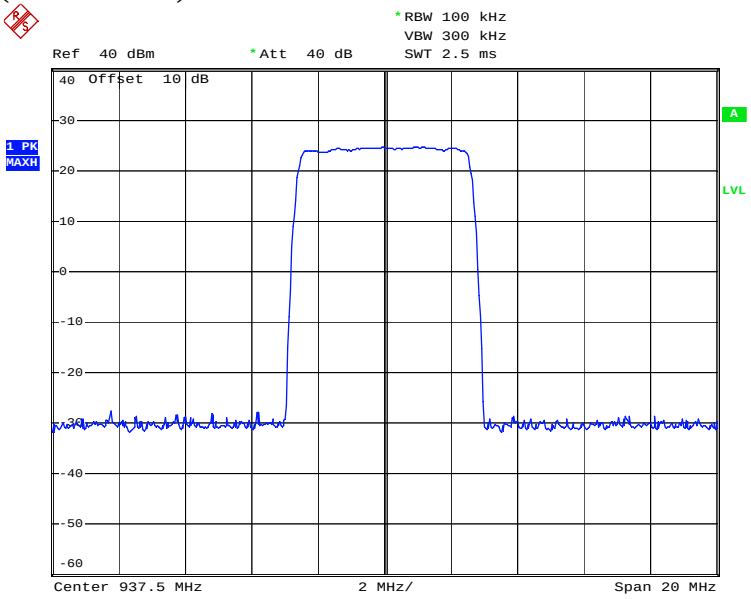
Date: 4.OCT.2007 11:52:23

Down-link (7 MHz Filter)



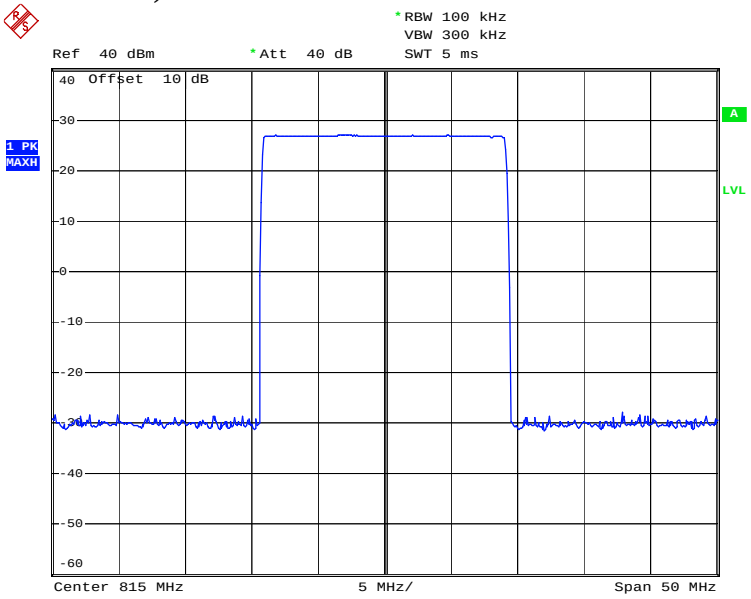
Date: 4.OCT.2007 11:51:15

Down-link (5 MHz Filter)



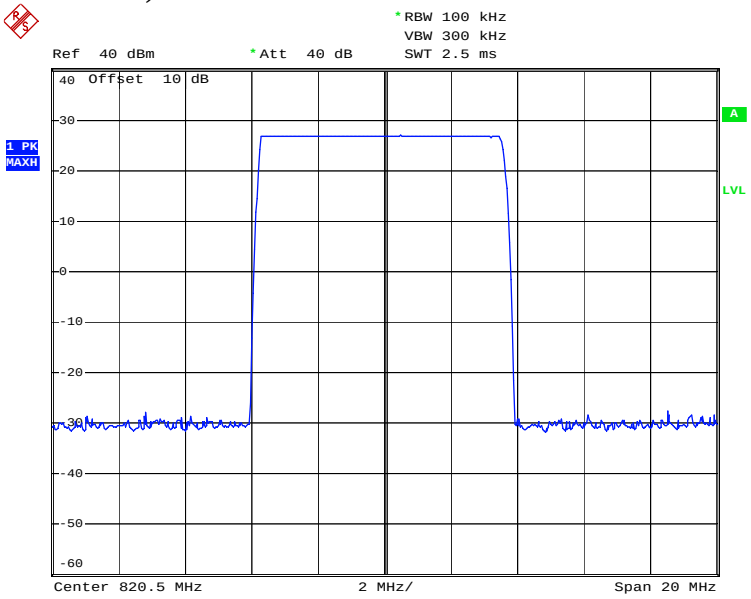
Date: 4.OCT.2007 12:05:09

Up-link (18 MHz Filter)



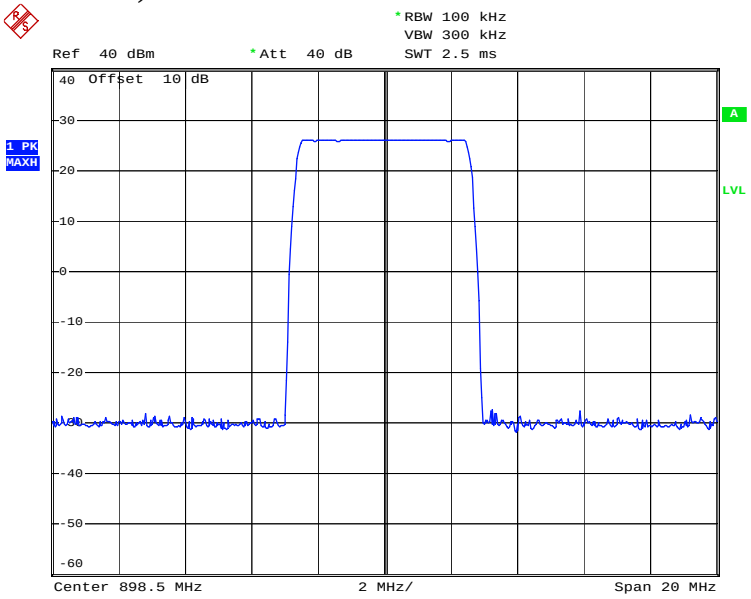
Date: 4.OCT.2007 11:59:28

Up-link (7 MHz Filter)



Date: 4.OCT.2007 11:58:01

Up-link (5 MHz Filter)



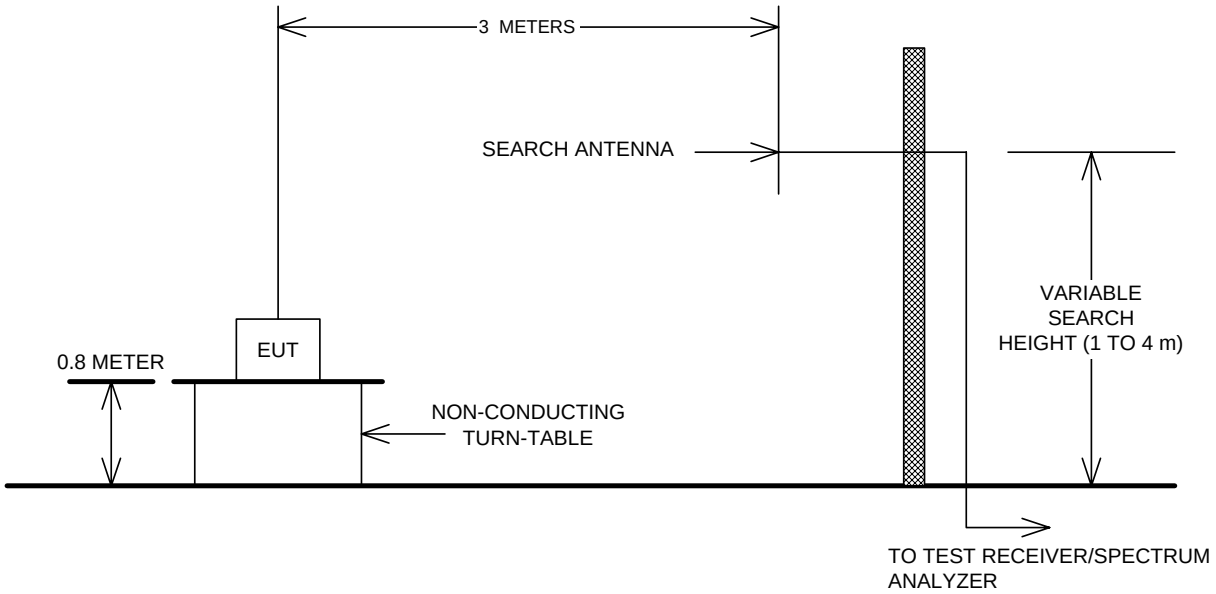
Date: 4.OCT.2007 11:57:01

Appendix B: Setup Photographs

Radiated Spurious Emissions Setup:

Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions, Output power, Occupied Bandwidth and Out of Band Rejection