DECLARATION OF COMPLIANCE | FCC PART 22H, 24E & 27 | IC RSS-132 ,RSS-133 & RSS-139

Test Lab Information	**Name**	**CELLTECH LABS INC.**			
	Address	21-364 Lougheed Road, Kelowna B.C. V1X 7R8 Canada			
Test Lab Accreditation	**A2LA**	ISO/IEC 17025:2005 (Test Lab Certificate No. 2470.01)			
Test Site Registration No.	**IC**	3874A-1			
Applicant Information	**Name**	**XPLORE TECHNOLOGIES CORPORATION**			
	Address	14000 Summit Drive, Suite 900, Austin, Texas, 78728 USA			
Standard(s)/Procedure(s)	**FCC**	47 CFR Part 2	47 CFR Part 22H	47 CFR Part 24E	47 CFR Part 27
	IC	RSS-Gen Issue 3	RSS-132 Issue 2	RSS-133 Issue 5	RSS-139 Issue 2
	ANSI	TIA/EIA-603-C-2004			
Application Type(s)	**FCC/IC**	Class II Permissive Change			
Description of Change(s)	**FCC/IC**	**Add Xplore iX104C5 Host Tablet PC and SkyCross High Gain Antenna P/N: 25.90A14.001**			
Device Identifier(s)	**FCC ID:**	Q2GGOBI3K-XPL			
	IC:	4596A-GOBI3KXPL			
Date(s) of Measurements	February 18 - March 11, 2011				
Device Under Test (DUT)	GPRS/EDGE/CDMA/WCDMA/HSPA WWAN Module				
Device Under Test Model	GOBI3000				
Device Under Test Serial No.	IMEI 012412000101751				
Host PC Configuration	Rugged Tablet PC				
Host PC Model	iX104C5				
Host PC Serial No.	N4 (Identical Prototype)				
WWAN Transmitter Frequency Range(s)	**850**	824.2 - 848.8 MHz (GPRS/EDGE)	**1900**	1850.2 - 1909.8 MHz (GPRS/EDGE)	
	850	826.4 - 846.6 MHz (WCDMA/HSPA)	**1900**	1852.4 - 1907.5 MHz (WCDMA/HSPA)	
	850	824.70 - 848.31 MHz (CDMA/EV-DO)	**1900**	1851.25 - 1908.75 MHz (CDMA/EV-DO)	
	1700	1712.4 - 1752.6 MHz (WCDMA/HSPA)			
Max. Duty Cycle(s) Tested	GPRS: 25% (2 Uplink Slots - Class 10)	WCDMA: 100%	CDMA: 100%		
Antenna Type(s) Tested	SkyCross High Gain Antenna	P/N: 25.90A14.001	Gain Specification: -3 dBi		
Power Source(s) Tested	Lithium-ion Battery	7.4V, 7600mAh	Model: iX104		
Co-located WLAN	802.11a/b/g/n WLAN Mini-PCI Card	Model: 622ANHMW	Supports co-transmission with WWAN		
	FCC ID: Q2GI6200-XPL	IC: 4596A-I6200XPL	Grantee: Xplore Technologies		
Co-located Bluetooth	Class 2 Bluetooth	Model: BCM92070MD_REF	Supports co-transmission with WWAN		
	FCC ID: QDS-BRCM1043	IC: 4324A-BRCM1043	Grantee: Broadcom Corporation		

This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR Rule Parts 2, 22H, 24E and 27; Industry Canada RSS-Gen Issue 3, RSS-132 Issue 2, RSS-133 Issue 5 and RSS-139 Issue 2; and ANSI TIA/EIA-603-C-2004.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

The results and statements contained in this report pertain only to the device(s) evaluated.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.

Test Report Approved By	Sean Johnston	**Sean Johnston**	**Lab Manager**	**Celltech Labs Inc.**

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FIGURES

PHOTOGRAPHS

TEST SUMMARY

Appendix	Test Description	Procedure Reference	FCC Limit Reference	IC Limit Reference	Result
A	Effective Radiated Power	ANSI/TIA/EIA-603-C	§22.913	IC RSS-132 Issue 2	Pass
	Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	§24.232(c)	IC RSS-133 Issue 5	Pass
	Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	§27.50	IC RSS-139 Issue 2	Pass
B	Radiated Transmitter Spurious Emissions	ANSI/TIA/EIA-603-C	§22.917 (a)	IC RSS-132 Issue 2	Pass
		ANSI/TIA/EIA-603-C	§24.238 (a)	IC RSS-133 Issue 5	Pass
		ANSI/TIA/EIA-603-C	§27.53	IC RSS-139 Issue 2	Pass

REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	1st Release	Jonathan Hughes	February 03, 2012

Test Report Prepared By	Preparation Date	QA Review By	Review Date
Sean Johnston	February 02, 2012	Jonathan Hughes	February 02, 2012

1.0 SCOPE

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Xplore Technologies Corporation GOBI3000 WWAN Mini-PCI Express Card FCC ID: Q2GGOBI3K-XPL installed in Xplore iX104C5 Rugged Tablet PC with Skycross High Gain Antenna. The measurement results were applied against the applicable EMC requirements and limits outlined in the technical rules and regulations set forth in the Federal Communication's Commission Code of Federal Regulations Title 47 Parts 2, 22 Subpart H, 24 Subpart E and 27 Subpart L; and Industry Canada Radio Standards Specification RSS-Gen Issue 3, RSS-132 Issue 2, RSS-133 Issue 5 and RSS-139 Issue 2.

2.0 REFERENCES

2.1 Normative References

ANSI/ISO 17025:2005	General Requirements for competence of testing and calibration laboratories
IEEE/ANSI C63.4:2003	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
IEEE/ANSI C95.1:2005	American National Standard Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields
ANSI/TIA/EIA-603-C:2004	Land Mobile FM or PM Communication Equipment Measurement and Performance Standards
CFR Title 47 Part 2:2010	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR Title 47 Part 22:2010	Code of Federal Regulations Title 47: Telecommunication Part 22: Public Mobile Services
CFR Title 47 Part 24:2010	Code of Federal Regulations Title 47: Telecommunication Part 24: Personal Communication Services
CFR Title 47 Part 27:2010	Code of Federal Regulations Title 47: Telecommunication Part 27: Miscellaneous Wireless Communications Services
IC Spectrum Management & Telecommunications Policy	Radio Standards Specification RSS-132 Issue 2 - 800 MHz Cellular Telephones Employing New Technologies RSS-133 Issue 5 - 2 GHz Personal Communication Services RSS-139 Issue 2 – Advanced Wireless Services Equipment Operating in the Bands 1710 - 1755 MHz and 2110 - 2155 MHz RSS-Gen Issue 3 - General Requirements and Information for the Certification of Radiocommunication Equipment

3.0 FACILITIES AND ACCREDITATIONS

The facilities used in collecting the test results outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site conforms to the requirements set forth in ANSI C63.4 and is filed and listed with the FCC as an accredited test facility and Industry Canada under File Number IC 3874A-1.

4.0 GENERAL INFORMATION

4.1 Applicant Information

Applicant Name	**XPLORE TECHNOLOGIES CORPORATION**
Address	14000 Summit Drive, Suite 900
	Austin, Texas 78728
	United States

4.2 DUT Description

Host PC Type	Rugged Tablet PC	**Model**	iX104C5	**Serial No.**	N4
Transmitter Tested	WWAN Module	**Model**	GOBI3000	**FCC ID:**	Q2GGOBI3K-XPL
Transmitter Mode(s)	GPRS/EDGE/CDMA/WCDMA/HSPA				
Transmitter Serial No.	IMEI 012412000101751				
Power Source Tested	Lithium-ion Battery		7.4V, 7600mAh		Model: iX104
Antenna Tested	SkyCross High Gain Antenna		P/N: 25.90A14.001		Gain Spec.: -3 dBi

4.3 Rule Part(s) & Classification(s)

Rule Part(s) Applied	**FCC**	47 CFR §2; §22(H), §24(E), §27			
	IC	RSS-Gen Issue 3	RSS-132 Issue 2	RSS-133 Issue 5	RSS-139 Issue 2

4.4 Mode(s) of Operation Tested

4.4.1 Dual-Band CDMA/EV-DO

Measurements were made with the DUT set to the low, mid and high channel in each band and in 3 orthogonal DUT positions.

4.4.1.1 Cellular CDMA/EV-DO

Transmitter Frequency Range	824.70 - 848.31 MHz		
Transmitter Test Channels	Ch. 1013 (824.70 MHz) - Low	Ch. 384 (836.52 MHz) - Mid	Ch. 777 (848.31 MHz) - High
Software Power Gain Settings	Set by communications test set for “all ups” RC3 (SO55)		

4.4.1.2 Cellular WCDMA/HSDPA/HSUPA (Band V)

Transmitter Frequency Range	826.4 - 846.6 MHz		
Transmitter Test Channels	Ch. 4132 (826.4 MHz) - Low	Ch. 4182 (836.4 MHz) - Mid	Ch. 4233 (846.6 MHz) - High
Software Power Gain Settings	Set by communications test set for “all ups” Set Test mode 1 loop back with a 12.2kbps Reference measurement channel (RMC) Bc = 8, Bd =15 (3GPP default) Set and send continuously up power control commands, TPC = ALL 1’s		

4.4.1.3 Cellular GSM/GPRS/EDGE

Transmitter Frequency Range	824.2 - 848.8 MHz		
Transmitter Test Channels	Ch. 128 (824.2 MHz) - Low	Ch. 190 (836.6 MHz) - Mid	Ch. 251 (848.8 MHz) - High
Software Power Gain Settings	Set by communications test set for GPRS power class 5		

4.4.1.4 PCS CDMA/EV-DO

Transmitter Frequency Range	1851.25 - 1908.75 MHz		
Transmitter Test Channels	Ch. 25 (1851.25 MHz) - Low	Ch. 600 (1880.00 MHz) - Mid	Ch. 1175 (1908.75 MHz) - High
Software Power Gain Settings	Set by communications test set for “all ups” RC3 (SO55)		

4.4.1.5 PCS WCDMA/HSDPA/HSUPA (Band II)

Transmitter Frequency Range	1852.4 - 1907.6 MHz		
Transmitter Test Channels	Ch. 9262 (1852.4 MHz) - Low	Ch. 9400 (1880.0 MHz) - Mid	Ch. 9538 (1907.6 MHz) - High
Software Power Gain Settings	Set by communications test set for "all ups" Set Test mode 1 loop back with a 12.2kbps Reference measurement channel (RMC) Bc = 8, Bd =15 (3GPP default) Set and send continuously up power control commands, TPC = ALL 1's		

4.4.1.6 AWS WCDMA/HSDPA/HSUPA (Band IV)

Transmitter Frequency Range	1712.4 – 1752.6 MHz		
Transmitter Test Channels	Ch. 1312 (1712.4 MHz) - Low	Ch. 1413 (1732.4 MHz) - Mid	Ch. 1513 (1752.6 MHz) - High
Software Power Gain Settings	Set by communications test set for "all ups" Set Test mode 1 loop back with a 12.2kbps Reference measurement channel (RMC) Bc = 8, Bd =15 (3GPP default) Set and send continuously up power control commands, TPC = ALL 1's		

4.4.1.7 PCS GSM/GPRS/EDGE

Transmitter Frequency Range	1850.2 - 1909.8 MHz		
Transmitter Test Channels	Ch. 512 (1850.2 MHz) - Low	Ch. 661 (1880.0 MHz) - Mid	Ch. 810 (1909.8 MHz) - High
Software Power Gain Settings	Set by communications test set for GPRS power class 0		

5.0 PASS/FAIL CRITERIA

Unless otherwise noted in the Appendices, the pass/fail criteria is the limit set forth in the reference standards. The DUT is considered to have passed the requirements if the data collected during the described measurement procedure is no greater than the specified limits as defined. The pass/fail statements made in this report only apply to the unit tested.

Appendix A - Effective Radiated Power / Effective Isotropic Radiated Power Measurement

A.1 REFERENCES

Normative Reference Standard	FCC CFR 47 §22.913 (a)(2), FCC CFR 47 §24.232 (c), FCC CFR 47 §27.50
Procedure Reference	ANSI/TIA/EIA-603-C

A.2 LIMITS

A.2.1 FCC CFR 47

FCC CFR 47 §22.913 (a)(2)	*Maximum ERP. ……. The ERP of mobile transmitters and auxiliary transmitters must not exceed 7 Watts.*
FCC CFR 47 §24.232 (c)	*Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.*
FCC CFR 47 §27.50	*Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to a peak EIRP of 1 watt.*

A.3 ENVIRONMENTAL CONDITIONS

Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

A.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	CAL DUE
00072	EMCO	2075	Mini-mast	n/a
00073	EMCO	2080	Turn Table	n/a
00071	EMCO	2090	Multi-Device Controller	n/a
00015	HP	E4408B	Spectrum Analyzer	03May12
00050	Chase	CBL-6111A	Bilog Antenna	03May13
00034	ETS	3115	Double Ridged Guide Horn	29Apr13
00035	ETS	3115	Double Ridged Guide Horn	29Apr13
00051	HP	8566B	Spectrum Analyzer RF Section	03May12
00049	HP	85650A	Quasi-peak Adapter	06May12
00047	HP	85685A	RF Preselector	05May12
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	30Apr12
00114	Amplifier Research	DC7154	Directional Coupler (0.8-4.2 GHz)	n/a
00078	Pasternack	PE2214-20	Directional Coupler (1-18 GHz)	n/a
00106	Amplifier Research	5S1G4	Power Amplifier (5W, 800MHz-4.2GHz)	n/a
00041	Amplifier Research	10W1000C	Power Amplifier (0.5 - 1 GHz)	n/a
00007	Gigatronics	8652A	Power Meter	04May12
00014	Gigatronics	80701A	Power Sensor	04May12
80012	Agilent	8960A	Radio Communications Test Set	24Sep11

A.5 MEASUREMENT EQUIPMENT SETUP

MEASUREMENT EQUIPMENT CONNECTIONS

For the field strength measurements, the measurement equipment was connected as shown in B.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are as follows. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated.

Frequency Range	RX Antenna	TX Antenna
30 MHz – 0.8GHz	Bilog	Dipole
0.8 GHz - 18 GHz	ETS 3115 Horn	ETS 3115 Horn

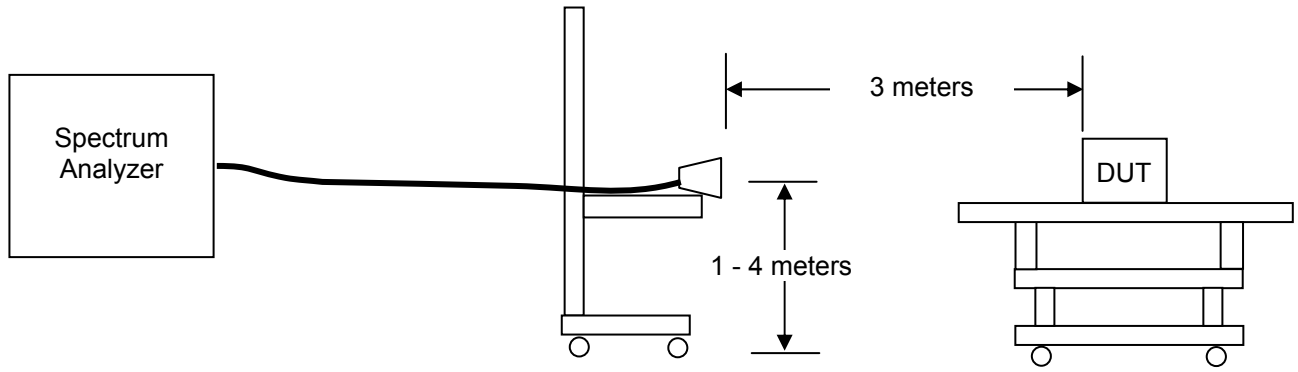
MEASUREMENT EQUIPMENT SETTINGS

For measuring the radiated field strength of the fundamental, the spectrum analyzer was set to the following settings:

Mode	RBW	VBW	Detector
	MHz	MHz	
Cellular	1	3	Peak
PCS	1	3	Peak

A.6 SETUP DRAWING

Figure A.6-1 - Setup Drawing



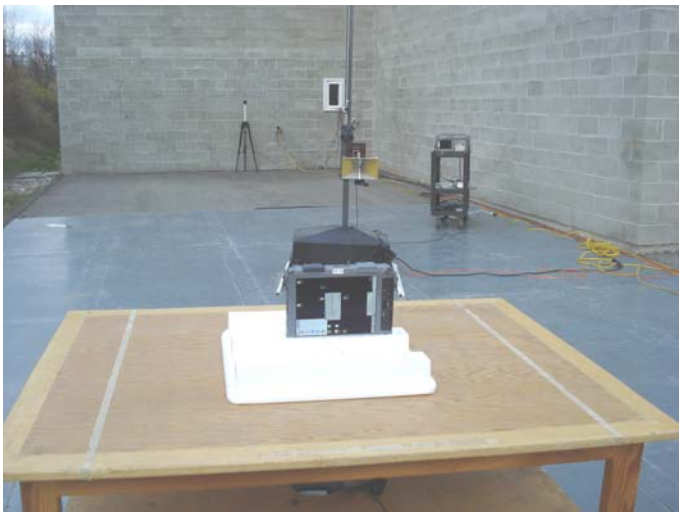
A.7 DUT OPERATING DESCRIPTION

Measurements were made for the low, mid and high channels for both the cellular and PCS bands at maximum power level as described in Section 4.4.

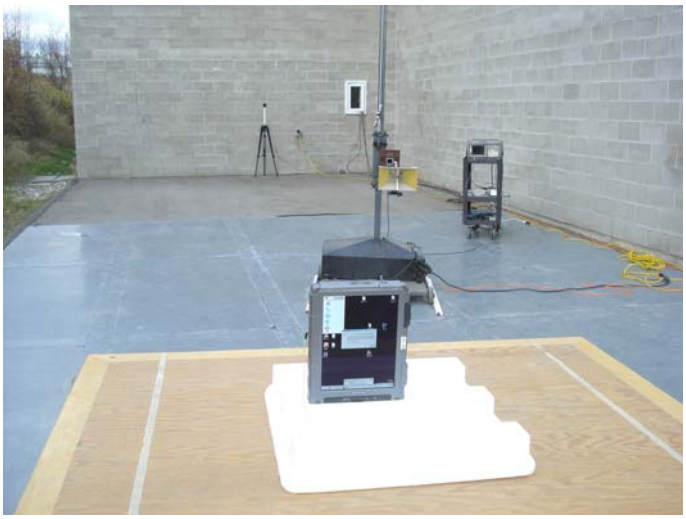
A.8 SETUP PHOTOGRAPHS

Photograph A.8-1 – DUT Position A

Photograph A.8-2 – DUT Position B



Photograph A.8-3 – DUT Position C



A.1 Test Results

A.1.1 Carrier Levels

A.1.1.1 Cellular Band Carrier Levels – CDMA 1xRTT

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	ERP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
824.70	88.40	19.3	1.55	V	0.12	20.85	38	17.15	Pass
824.70	94.30	23.2	1.45	H	0.29	24.65	38	13.35	Pass
836.52	91.40	19.8	1.95	V	0.15	21.75	38	16.25	Pass
836.52	94.80	23.9	1.65	H	0.36	25.55	38	12.45	Pass
848.31	90.40	19.5	2.35	V	0.15	21.85	38	16.15	Pass
848.31	96.10	24.3	2.15	H	0.44	26.45	38	11.55	Pass

A.1.1.2 Cellular Band Carrier Levels – WCDMA

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	ERP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
826.4	89.40	19.20	1.55	V	0.12	20.75	38	17.25	Pass
826.4	94.30	23.40	1.45	H	0.31	24.85	38	13.15	Pass
836.4	91.20	20.10	1.95	V	0.16	22.05	38	15.95	Pass
836.4	95.30	25.30	1.65	H	0.50	26.95	38	11.05	Pass
846.6	92.30	21.10	2.35	V	0.22	23.45	38	14.55	Pass
846.6	96.80	26.00	2.15	H	0.65	28.15	38	9.85	Pass

A.1.1.3 Cellular Band Carrier Levels – GPRS

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	ERP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
824.2	94.50	23.50	1.55	V	0.32	25.05	38	12.95	Pass
824.2	102.00	30.50	1.45	H	1.57	31.95	38	6.05	Pass
836.6	94.31	23.90	1.95	V	0.38	25.85	38	12.15	Pass
836.6	105.20	33.20	1.65	H	3.05	34.85	38	3.15	Pass
848.8	96.30	24.20	2.35	V	0.45	26.55	38	11.45	Pass
848.8	104.20	32.10	2.15	H	2.66	34.25	38	3.75	Pass

Notes:
All 3 orthogonal DUT positions investigated. Worst case DUT Position A summarized in table.
Formulae:
ERP Level = Substitute Level + Antenna Gain
Margin (dB) = Limit – Level

A. Test Results Cont…

A.1.1 Carrier Levels

A.1.1.1 PCS Band Carrier Levels – CDMA 1xRTT

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	EIRP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
1851.25	92.1	16.1	8.80	V	0.31	24.90	33	8.10	Pass
1851.25	88.5	13.2	8.60	H	0.15	21.80	33	11.20	Pass
1880.00	92.3	16.3	8.85	V	0.33	25.15	33	7.85	Pass
1880.00	88.2	13.2	8.55	H	0.15	21.75	33	11.25	Pass
1908.75	88.1	13.5	8.90	V	0.17	22.40	33	10.60	Pass
1908.75	84.3	10.7	8.50	H	0.08	19.20	33	13.80	Pass

A.1.1.2 PCS Band Carrier Levels – WCDMA

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	EIRP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
1852.4	91.50	16.50	8.80	V	0.34	25.30	33	7.70	Pass
1852.4	90.20	13.60	8.60	H	0.17	22.20	33	10.80	Pass
1880.0	91.80	16.30	8.85	V	0.33	25.15	33	7.85	Pass
1880.0	89.30	14.10	8.55	H	0.18	22.65	33	10.35	Pass
1907.6	90.40	15.30	8.90	V	0.26	24.20	33	8.80	Pass
1907.6	88.30	13.00	8.50	H	0.14	21.50	33	11.50	Pass

A.1.1.3 PCS Band Carrier Levels – GPRS

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	EIRP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
1850.2	97.2	22.3	8.80	V	1.29	31.10	33	1.90	Pass
1850.2	93.9	19.8	8.60	H	0.69	28.40	33	4.60	Pass
1880.0	97.5	22.3	8.85	V	1.30	31.15	33	1.85	Pass
1880.0	94	19.2	8.55	H	0.60	27.75	33	5.25	Pass
1909.8	96.2	21.4	8.90	V	1.07	30.30	33	2.70	Pass
1909.8	93.1	18.1	8.50	H	0.46	26.60	33	6.40	Pass

A. Test Results Cont…

A.1.1 Carrier Levels

A.1.1.1 AWS Band Carrier Levels - WCDMA

Frequency	Measured Level	Substitute Level	Antenna Gain	Pol.	EIRP		Limit	Margin	Pass/Fail
(MHz)	(dBuV)	(dBm)	(dBi)	(V/H)	Watts	dBm			
1712.4	92.20	16.60	8.40	V	0.32	25.00	33	8.00	Pass
1712.4	89.00	13.60	8.20	H	0.15	21.80	33	11.20	Pass
1732.4	91.70	16.50	8.40	V	0.31	24.90	33	8.10	Pass
1732.4	89.30	13.90	8.20	H	0.16	22.10	33	10.90	Pass
1752.6	90.80	15.20	8.40	V	0.23	23.60	33	9.40	Pass
1752.6	88.10	13.00	8.20	H	0.13	21.20	33	11.80	Pass

Notes:
All 3 orthogonal DUT positions investigated. Worst case DUT Position C summarized in table.
Formulae:
ERP Level = Substitute Level + Antenna Gain
Margin (dB) = Limit – Level

A.9 PASS/FAIL

In reference to the results outlined in A.1, the DUT passes the requirements as stated in the reference standards.

A.10 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.

Sean Johnston
Lab Manager
Celltech Labs Inc.

March 11, 2011
Date

Appendix B - Radiated Spurious Emissions Measurement

B.1 REFERENCES

Normative Reference Standard	FCC CFR 47 §22.917(a), FCC CFR 47 §24.238(a), FCC CFR 47 §27.53
Procedure Reference	ANSI/TIA/EIA-603-C

B.2 LIMITS

B.2.1 FCC CFR 47

FCC CFR 47 §22.917, §24.238, §27.53	(a) *Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.*

B.3 ENVIRONMENTAL CONDITIONS

Temperature	25 +/- 5 ºC
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

B.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	CAL DUE
00072	EMCO	2075	Mini-mast	n/a
00073	EMCO	2080	Turn Table	n/a
00071	EMCO	2090	Multi-Device Controller	n/a
00015	HP	E4408B	Spectrum Analyzer	03May12
00050	Chase	CBL-6111A	Bilog Antenna	03May13
00034	ETS	3115	Double Ridged Guide Horn	29Apr13
00035	ETS	3115	Double Ridged Guide Horn	29Apr13
00051	HP	8566B	Spectrum Analyzer RF Section	03May12
00049	HP	85650A	Quasi-peak Adapter	06May12
00047	HP	85685A	RF Preselector	05May12
00048	Gore	65474	Microwave Cable	n/a
00115	Miteq	J54-00102600-35-5A	LNA	n/a*
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	30Apr12
00114	Amplifier Research	DC7154	Directional Coupler (0.8-4.2 GHz)	n/a
00078	Pasternack	PE2214-20	Directional Coupler (1-18 GHz)	n/a
00106	Amplifier Research	5S1G4	Power Amplifier (5W, 800MHz-4.2GHz)	n/a
00041	Amplifier Research	10W1000C	Power Amplifier (0.5 - 1 GHz)	n/a
00043	Microwave Circuits	H02G18G1	High Pass Filter	n/a*
00044	Microwave Circuits	H1G318G1	High Pass Filter	n/a*
00007	Gigatronics	8652A	Power Meter	04May12
00014	Gigatronics	80701A	Power Sensor	04May12
80012	Agilent	8960A	Radio Communications Test Set	24Sep11

* verified before use

B.5 MEASUREMENT EQUIPMENT SETUP

MEASUREMENT EQUIPMENT CONNECTIONS

For the field strength measurements, the measurement equipment was connected as shown in C.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are shown below. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated.

Frequency Range	RX Antenna	TX Antenna
0.8 GHz - 18 GHz	ETS 3115 Horn	ETS 3115 Horn

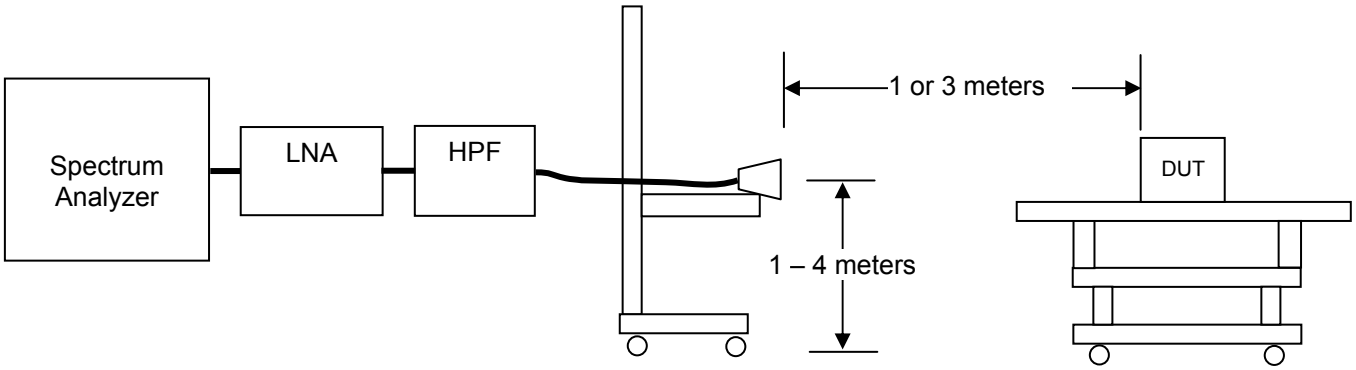
MEASUREMENT EQUIPMENT SETTINGS

For the spurious out-of-band emissions, the spectrum analyzer was set to the following settings:

Mode	RBW	VBW	Detector
	kHz	kHz	
Cellular < 1 GHz	100	300	Peak*
Cellular > 1 GHz	1000	3000	Peak*
PCS	1000	3000	Peak*

B.6 SETUP DRAWING

Figure B.6-1 - Setup Drawing



B.7 DUT OPERATING DESCRIPTION

Measurements were made for the low, mid and high channels transmitting in the cellular and PCS bands at maximum power level as described in Section 4.4.

B.8 TEST RESULTS

B.8.1 Spurious Emissions

B.8.1.1 Cellular Band Spurious Emissions – CDMA 1xRTT

Low Channel: 824.70 MHz
Measured output power: 24.65 dBm = 0.29 W, Limit: 43+10Log(W)= 37.6dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 1013								
1.649	NF	50.2	n/a				Pass	*
2.474	NF	NF	n/a				Pass	NF
3.299	NF	NF	n/a				Pass	NF

Mid Channel: 836.52 MHz
Measured output power: 25.55 dBm = 0.36 W, Limit: 43+10Log(W)= 38.6dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 384								
1.673	NF	53.2	n/a				Pass	*
2.509	NF	NF	n/a				Pass	NF
3.346	NF	NF	n/a				Pass	NF

High Channel: 848.31 MHz
Measured output power: 26.45 dBm = 0.44 W, Limit: 43+10Log(W)= 39.4dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 777								
1.697	NF	57.8	-54.3	9	-45.3	71.75	Pass	*
2.545	NF	NF	n/a				Pass	NF
3.393	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.9 TEST RESULTS

B.9.1 Spurious Emissions

B.9.1.1 Cellular Band Spurious Emissions – WCDMA

Low Channel: 826.4 MHz
Measured output power: 24.85 dBm = 0.31 W, Limit: 43+10Log(W)= 37.9dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 4132								
1.653	NF	NF	n/a				Pass	NF
2.479	NF	NF	n/a				Pass	NF
3.305	NF	NF	n/a				Pass	NF

Mid Channel: 836.4 MHz
Measured output power: 26.95 dBm = 0.50 W, Limit: 43+10Log(W)= 40.0dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 4182								
1.673	NF	NF	n/a				Pass	NF
2.509	NF	NF	n/a				Pass	NF
3.346	NF	NF	n/a				Pass	NF

High Channel: 846.6 MHz
Measured output power: 28.15 dBm = 0.65 W, Limit: 43+10Log(W)=41.1dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 4233								
1.693	52.1	56.4	-55.5	9	-46.5	74.7	Pass	*
2.540	NF	NF	n/a				Pass	NF
3.386	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.10 TEST RESULTS

B.10.1 Spurious Emissions

B.10.1.1 Cellular Band Spurious Emissions – GPRS

Low Channel: 824.2 MHz
Measured output power: 31.95 dBm = 1.57 W, Limit: 43+10Log(W)= 45.0dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH. 128								
1.648	57.4	59.2	-52.5	9	-43.2	75.15	Pass	*
2.472	50.1	52.2	n/a	9.9			Pass	*
3.296							Pass	NF
4.121							Pass	NF

Mid Channel: 836.6 MHz
Measured output power: 34.85 dBm = 3.05 W, Limit: 43+10Log(W)= 48.0dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH. 190								
1.673	58.7	62.3	-48.8	9	-39.8	74.8	Pass	*
2.509	56.6	57.6	-55.4	9.9	-45.5	80.45		*
3.346							Pass	NF
4.182							Pass	NF

High Channel: 848.8 MHz
Measured output power: 34.25 dBm = 2.66 W, Limit: 43+10Log(W)= 47.2dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH. 251								
1.697	53.5	57.5	-54.4	9	-45.4	79.65	Pass	*
2.545								NF
3.393								NF
4.242								NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.10.1.2 PCS Band Spurious Emissions CDMA 1xRTT

Low Channel: 1851.25 MHz
Measured output power: 24.9 dBm = 0.31 W, Limit: 43+10Log(W)=37.9dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 25								
3.703	NF	NF	n/a				Pass	NF
5.553	NF	NF	n/a				Pass	NF
7.405	NF	NF	n/a				Pass	NF

Mid Channel: 1880.00 MHz
Measured output power: 25.15 dBm = 0.33 W, Limit: 43+10Log(W)= 38.2dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 600								
3.76	NF	NF	n/a				Pass	NF
5.64	NF	NF	n/a				Pass	NF
7.52	NF	NF	n/a				Pass	NF

High Channel: 1908.75 MHz
Measured output power: 22.4 dBm = 0.17 W, Limit: 43+10Log(W)= 35.3dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 1175								
3.818	NF	NF	n/a				Pass	NF
5.726	NF	NF	n/a				Pass	NF
7.635	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.10.1.3 PCS Band Spurious Emissions – WCDMA

Low Channel: 1852.4 MHz
Measured output power: 25.3 dBm = 0.34 W, Limit: 43+10Log(W)= 38.3dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 9262								
3.705	56.5	51.2	-56.3	9.8	-46.5	71.8	Pass	NF
5.557	NF	NF	n/a				Pass	NF
7.409	NF	NF	n/a				Pass	NF

Mid Channel: 1880.0 MHz
Measured output power: 25.15 dBm = 0.33 W, Limit: 43+10Log(W)=38.2 dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	DBc	Pass/Fail	Notes
CH 9400								
3.760	54.7	51.1	-54.5	9.8	-44.7	69.9	Pass	NF
5.640	NF	NF	n/a				Pass	NF
7.520	NF	NF	n/a				Pass	NF

High Channel: 1907.6 MHz
Measured output power: 24.2 dBm = 0.26 W, Limit: 43+10Log(W)= 37.1dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 9538								
3.815	55.9	49.9	-53.3	9.8	-43.5	67.7	Pass	NF
5.723	NF	NF	n/a				Pass	NF
7.630	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.10.1.4 PCS Band Spurious Emissions – GPRS

Low Channel: 1850.2 MHz
Measured output power: 31.1 dBm = 1.29 W, Limit: 43+10Log(W)= 44.1dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 512								
3.700	NF	NF	n/a				Pass	NF
5.551	NF	NF	n/a				Pass	NF
7.401	NF	NF	n/a				Pass	NF

Mid Channel: 1880.0 MHz
Measured output power: 31.15 dBm = 1.30 W, Limit: 43+10Log(W)= 44.1dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 661								
3.760	NF	NF	n/a				Pass	NF
5.640	NF	NF	n/a				Pass	NF
7.520	NF	NF	n/a				Pass	NF

High Channel: 1909.8 MHz
Measured output power: 30.3 dBm = 1.07 W, Limit: 43+10Log(W)= 43.3dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 810								
3.819	NF	NF	n/a				Pass	NF
5.729	NF	NF	n/a				Pass	NF
7.639	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.10.1.5 PCS Band Spurious Emissions – GPRS

Low Channel: 1712.4 MHz
Measured output power: 25.0 dBm = 0.32 W, Limit: 43+10Log(W)= 38.1dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 512								
3.700	NF	NF	n/a				Pass	NF
5.551	NF	NF	n/a				Pass	NF
7.401	NF	NF	n/a				Pass	NF

Mid Channel: 1732.4 MHz
Measured output power: 24.9 dBm = 0.31W, Limit: 43+10Log(W)= 37.9dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 661								
3.760	NF	NF	n/a				Pass	NF
5.640	NF	NF	n/a				Pass	NF
7.520	NF	NF	n/a				Pass	NF

High Channel: 1752.6 MHz
Measured output power: 23.6 dBm = 0.23 W, Limit: 43+10Log(W)= 36.6dBc

Frequency (GHz)	Measured Level V (dBuV)	Measured Level H (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	EIRP (dBm)	dBc	Pass/Fail	Notes
CH 810								
3.819	NF	NF	n/a				Pass	NF
5.729	NF	NF	n/a				Pass	NF
7.639	NF	NF	n/a				Pass	NF

- *Emission detected
- NF (Noise Floor)

The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier. All other emissions were at the noise floor and not reported.

B.11 PASS/FAIL

In reference to the results shown in C.8, the DUT passes the requirements as stated in the reference standards as follows:
1. FCC 22.917 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
2. FCC 24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
3. FCC 27.53 (g): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

B.12 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.

Sean Johnston
Lab Manager
Celltech Labs Inc.

March 11, 2011
Date

END OF DOCUMENT