

	Test Report Serial No.:	130613-T1230-E-150	Report Issue Date:	6/17/2013	
	Measurement Date(s):	May 22-June 13, 2013	Report Revision No.:	Revision 1.1	
	FCC Rule Part(s):	47 CFR §2; §15.231	FCC Test Firm Reg. No.:	Accredited	
	IC Standard(s):	RSS-210 RSS-Gen	IC Test Site No.:	IC 3874A-1	
					Test Lab Certificate No. 2470.01

Compliance Test Report		RF MEASUREMENT REPORT	FCC & IC
Test Lab Information	Name	CELLTECH LABS INCORPORATED	
	Address	21-364 Lougheed Road, Kelowna, British Columbia V1X 7R8 Canada	
Test Lab Registration No.(s)	FCC	Accredited (ISO 17025 - A2LA Test Lab Certificate No. 2470.01)	
	IC	3874A-1	
Applicant Information	Name	Brehon Agrisystems Inc.	
	Address	102-2750 Faithfull Ave., Saskatoon, SK, S7K 6M6	
Standard(s) & Procedure(s)	FCC	47 CFR Part 2; 15.231, 15B	
	IC	RSS-210 Issue 8; RSS-Gen Issue 3	
	ANSI	C63.4-2003	
Device Classification(s)	FCC	Part 15 Periodic Operational Devices (DSC)	
	IC	Low-power Licence-exempt Momentarily Operated Devices (Category 1)	
Application Type	FCC/IC	New Certification	
Device Identifier(s)	FCC ID:	2AAEG-GFRC418	
	IC:	11133A-GFRC418	
Device Under Test (DUT)	Remote control momentarily operated transmitter.		
Device Model(s) Tested	GFRC418		
<p>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 Part 2 and Rule Part 15.231; Industry Canada RSS-210, RSS-Gen; and ANSI C63.4-2003.</p> <p>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.</p>			
Test Report Approved By	 <b>Glen Westwell</b>		<b>6/17/2013</b> <b>Celltech Labs Inc.</b>

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### 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 Industry Canada under File Number IC 3874A-1. Celltech test site is listed with the FCC as an accredited test facility.

### 4.0 GENERAL INFORMATION

#### 4.1 DUT Description & Specifications

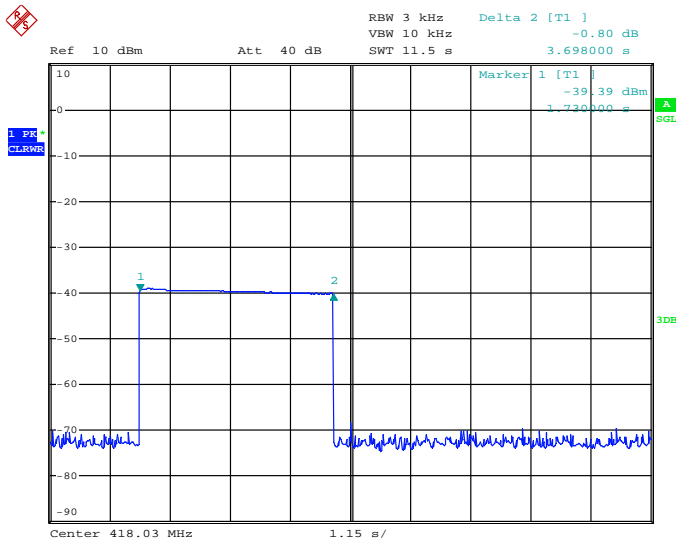
Device Type	Remote control 418 MHz transmitter	
Device Model(s)	G Force Remote Control	
Test Sample Serial No.	T/A Sample - Identical Prototype	
Device Identifier(s)	FCC ID: Ind. Can.:	2AAEG-GFRC418 11133A-GFRC418
Transmit Frequency Range	418 MHz	
No. of Channels	1	
Measured Field Strength	78.4dBuV/m@3m	
Modulation	OOK	
Antenna	Integral, Omni directional Whip.	
TX Duty Cycle	85.3% on time (-1.3dB correction)	
Emission Designator	55K6L1D	
DUT Power Source	9 VDC Battery, DC Cell.	
Type of Equipment	Mobile Licensed Non-Broadcast Station Transmitter (TNB)	
Deviation(s) from standard/procedure	None	
Modification of DUT	None	
Applicable Standards	FCC Part 15.231, IC RSS-210	

Applicant:	Brehon Agrisystems Inc.	FCC ID:	2AAEG-GFRC418	IC:	11133A-GFRC418	
DUT Model:	GFRC418	DUT Type:	Radio Remote Control	Tx Freq.:	418 MHz	
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## 5.0 DEVICE OPERATION

Item	Description	Yes	No
1	Does this device transmit a signal that is only used to control another device?	X	
2	Does this device send data with this control signal?		X
3	Does this device send data? Data is, things like: temperature, wind direction, fluid amount, rate of flow, etc.		X
4	Does this device transmit continuously or automatically?		X
5	*If manually operated does this device stop transmitting within 5 seconds of releasing the button?	X	
6	If automatically operated does it deactivate 5 seconds after activation?	N/A	
7	Does it transmit at regular predetermined intervals?		X
8	Does it poll or send supervisory information? If 'Yes', does it do a system integrity check? How often?		X
9	Is this a fire, security, or safety of life device? If 'Yes' does the device stop transmitting after the alarm condition is satisfied?		X
10	Duty cycle: Maximum on time? If 'Yes' on-time in 100mS? If other please specify here. On time = 85.8mS / 100mS	X	
11	Modulation technique: Please specify the modulation of the test sample, FM or AFSK, or FSK, or On-Off Keying, or others?	OOK	

\*Transmitter manual de-activation plot.  
The device deactivates immediately upon release.  
Marker 2 = transmitter release event.



Date: 22.MAY.2013 19:52:08

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	IC Standard(s):	RSS-210 RSS-Gen	IC Test Site No.:	IC 3874A-1	
					Test Lab Certificate No. 2470.01

## 6.0 FIELD STRENGTH OF THE FUNDAMENTAL AND SPURIOUS EMISSIONS

### 6.1 References

<b>Normative Reference Standard</b>	FCC CFR 47 §15.231; §15.209; IC RSS-210 Issue 8
<b>Procedure Reference</b>	ANSI C63.4:2003

### 6.2 Limits

#### TX Emission Limits (FCC §15.231)


Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)
40.66–40.70	2,250	225
70–130	1,250	125
130–174	1,250 to 3,750	125 to 375
174–260	3,750	375
260–470	3,750 to 12,500	375 to 1,250
Above 470	12,500	1,250
<sup>1</sup> Linear interpolations		

#### TX Emission Limits (IC RSS-210 A1.1.1)

Fundamental Frequency (MHz), excluding restricted band frequencies of RSS-Gen	Field Strength of the Fundamental (microvolts/meter)	Field Strength of Unwanted Emissions (microvolts/meter)
40.66–40.70	See Section A2.7	
70–130	1,250	125
130–174	1,250 to 3,750	125 to 375
174–260	3,750	375
260–470	3,750 to 12,500	375 to 1,250
Above 470	12,500	1,250
<sup>1</sup> Linear interpolations		

### 6.3 Environmental conditions


<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

Applicant:	Brehon Agrisystems Inc.		FCC ID:	2AAEG-GFRC418	IC:	11133A-GFRC418	
DUT Model:	GFRC418	DUT Type:	Radio Remote Control		Tx Freq.:	418 MHz	
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	IC Standard(s):	RSS-210    RSS-Gen	IC Test Site No.:	IC 3874A-1	
					Test Lab Certificate No. 2470.01

## 6.4 Equipment list

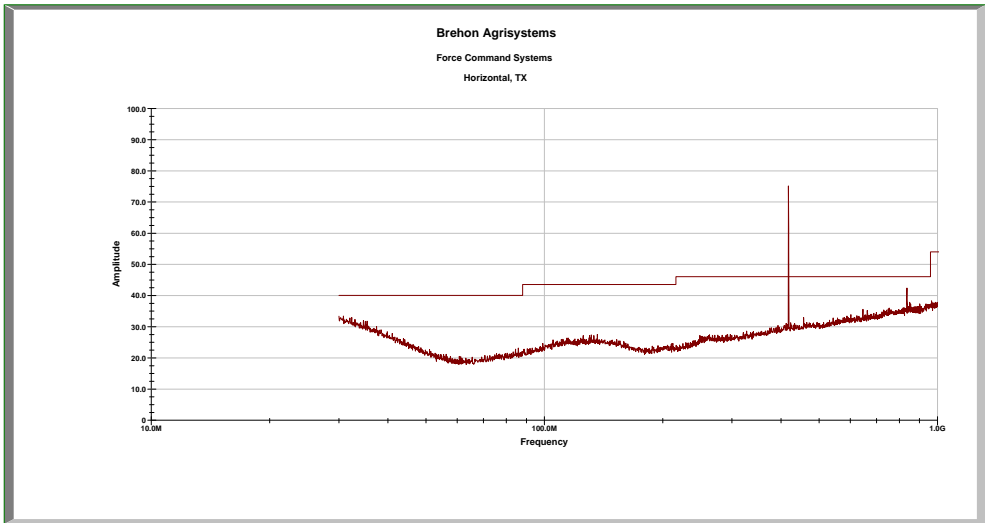
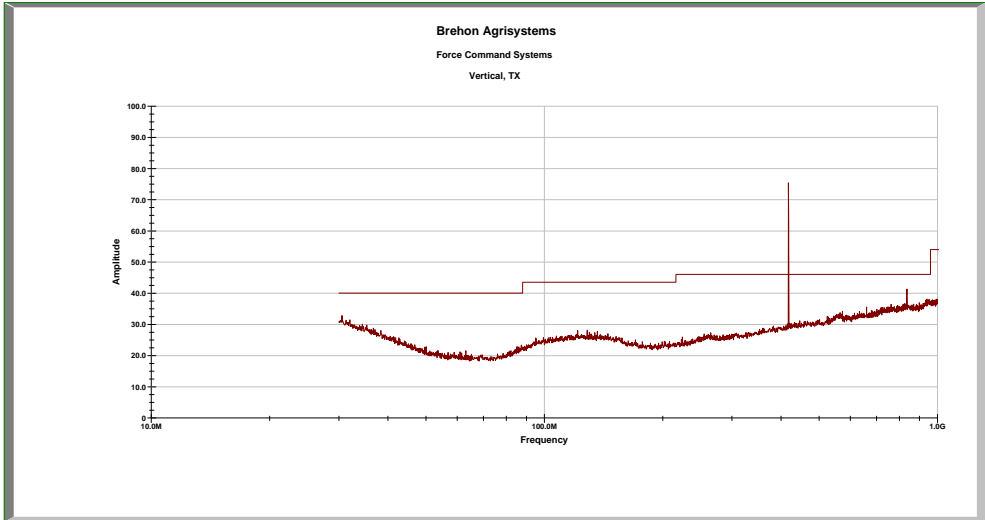
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	CAL DUE
00051	HP	8566B	Spectrum Analyzer RF Section	10 May14
00049	HP	85650A	Quasi-peak Adapter	10 May14
00047	HP	85685A	RF Preselector	10 May14
00072	EMCO	2075	Mini-mast	n/a
00073	EMCO	2080	Turn Table	n/a
00071	EMCO	2090	Multi-Device Controller	n/a
00030	Miteq	JS4-00102600	Microwave system amplifier	COU
00241	R&S	FSU40	Spectrum Analyzer	09Apr15
00050	Chase	CBL-6111A	Bilog Antenna	03 May14
00034	ETS	3115	Double Ridged Guide Horn	06 Dec 14



Applicant:	Brehon Agrisystems Inc.	FCC ID:	2AAEG-GFRC418	IC:	11133A-GFRC418	
DUT Model:	GFRC418	DUT Type:	Radio Remote Control	Tx Freq.:	418 MHz	
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Radiated Emissions Scan, 30 MHz-1GHz



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	IC Standard(s):	RSS-210    RSS-Gen	IC Test Site No.:	IC 3874A-1	
					Test Lab Certificate No. 2470.01

### Fundamental Emission


Emission Frequency	Ant. Pol.	Maximized Level	Cable Loss	Duty Cycle Factor	Field Strength	Limit	Margin Peak	Result
[MHz]		[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dB]	
418.0	V	71.8	6.6	1.3	77.1	80.3	3.2	Pass
418.0	H	46.9	6.6	1.3	52.2	80.3	28.1	Pass

### Spurious Emissions

Emission Frequency	Ant. Pol.	Maximized Level	Cable Loss	Ant. Factor	Duty Cycle Factor	Field Strength	Limit	Margin	Result
[MHz]		[dBuV]	[dB]	[dB]	[-dB]	[dBuV]	[dBuV]	[dB]	
836.2	V	12.66	5.7	23.5	1.3	40.56	60.3	19.74	Pass
836.2	H	12.8	5.7	23.5	1.3	40.7	60.3	19.6	Pass
1254.2	V	9.82	14.7	25.5	1.3	48.72	60.3	11.58	Pass
1254.2	H	11.69	14.7	25.5	1.3	50.59	60.3	9.71	Pass
*1677.2	V	12.43	16.0	25.6	1.3	52.73	54.0	1.27	Pass
*1677.2	H	11.44	16.0	25.6	1.3	51.74	54.0	2.26	Pass
2090.2	V	15.5	17.6	27.4	1.3	59.2	60.3	1.1	Pass
2090.2	H	13.3	17.6	27.4	1.3	57.0	60.3	3.3	Pass
2508.2	V	7.6	18.2	28.5	1.3	53.0	60.3	7.3	Pass
2508.2	H	7.1	18.2	28.5	1.3	52.5	60.3	7.8	Pass
2926.2	V	5.7	20.2	29.6	1.3	54.2	60.3	6.1	Pass
2926.2	H	5.4	20.2	29.6	1.3	53.9	60.3	6.4	Pass

\* denotes restricted band.

- Emissions were searched from the lowest frequency generated to the 10<sup>th</sup> harmonic of the fundamental frequency.
- The DUT was characterized on 3 orthogonal axis. Worst case emissions are reported.
- Data reported was captured using a peak detector.
- The device was tested with fully charged DC cells.

Applicant:	Brehon Agrisystems Inc.		FCC ID:	2AAEG-GFRC418	IC:	11133A-GFRC418	
DUT Model:	GFRC418	DUT Type:	Radio Remote Control		Tx Freq.:	418 MHz	
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## 7.0 CALCULATION OF DUTY CYCLE

Pulse width = 28.6mSec

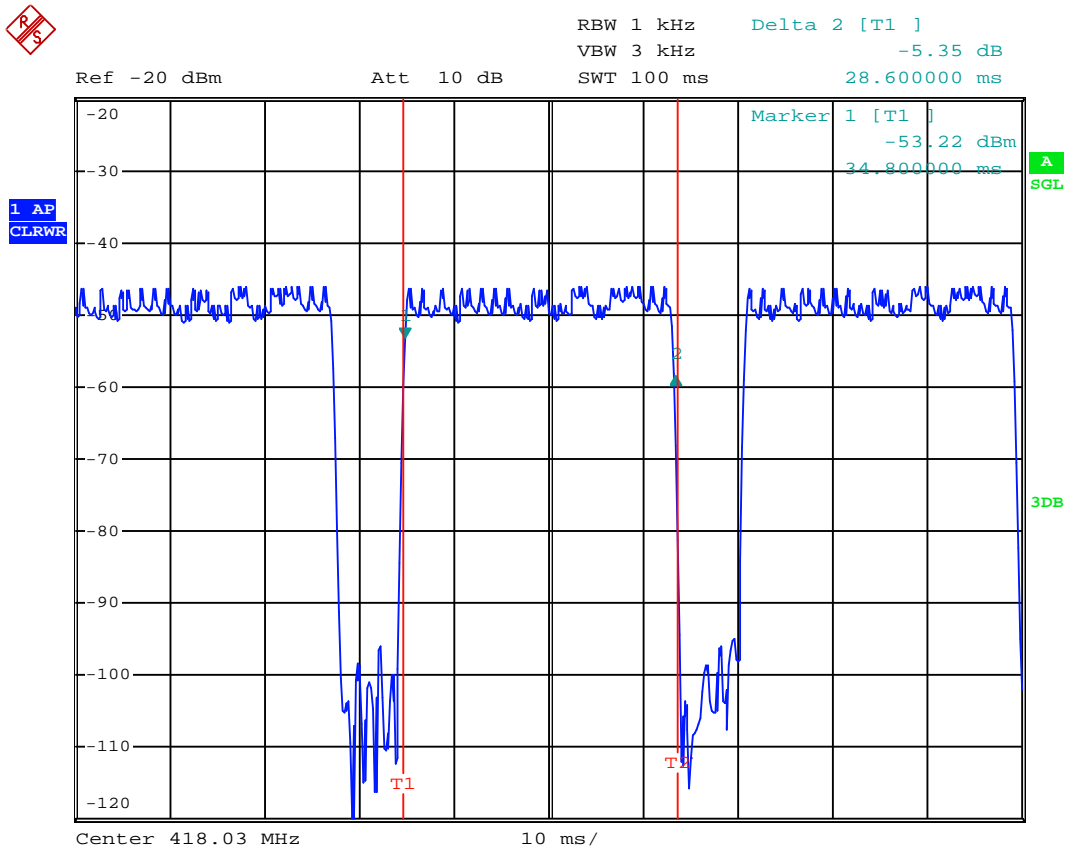
Number of pulses / 100mSec period = 3

Total on Time/Period = 3x28.6mSec = 85.8mSec.

Duty Cycle Correction Factor (dB) = 20Log (On Time/Period)

20Log (85.8/100) = -1.3dB

Therefore Duty Cycle Correction Factor = -1.3dB



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<b>Normative Reference Standard</b>	FCC CFR 47 §15.231(c); IC RSS-210 Issue 8
<b>Procedure Reference</b>	ANSI C63.4

FCC §15.231(c)	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20dB down from the modulated carrier.
IC RSS-210 A1.1.3	For the purpose of Section A1.1, the 99% bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency.

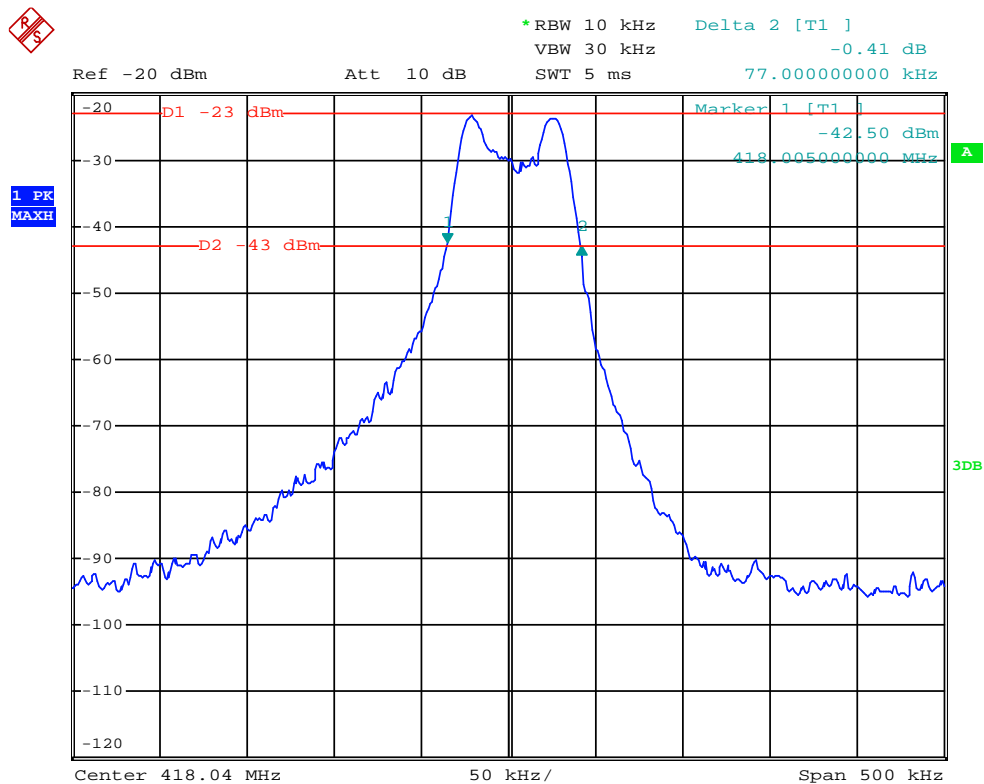
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

## 8.4 Setup drawing

A block diagram showing a DUT (Device Under Test) on the left and a Spectrum Analyzer on the right. A horizontal line connects the output of the DUT to the input of the Spectrum Analyzer.

8.5 Test Data:

20dB Occupied Bandwidth		
TX Frequency	Measured 20dB bandwidth	Limit 20dB bandwidth
418MHz	77.0 kHz	1.045 MHz



Date: 22.MAY.2013 20:11:47



## 9.0 SETUP PHOTOGRAPHS





