

FCC and Industry Canada Testing of the
BCF Technology Ltd
Scanner Duo-Scan: Go Plus, Model: DSGC02
In accordance with FCC 47 CFR Part 15B and
ICES-003



Product Service

Choose certainty.
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Prepared for: BCF Technology Ltd
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UNITED KINGDOM

FCC ID: 2AL6R-DSGC02
IC: 22758-DSGC01

COMMERCIAL-IN-CONFIDENCE

Date: October 2017
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RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Natalie Bennett	16 October 2017	
Authorised Signatory	Andy Lawson	16 October 2017	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Graeme Lawler	16 October 2017	

FCC Accreditation
UK0010 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15B: 2016 and ICES-003: 2016 for the tests detailed in section 1.3.

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	18 September 2017
2	To amend the Industry Canada ID number.	16 October 2017

Table 1

1.2 Introduction

Applicant	BCF Technology Ltd
Manufacturer	BCF Technology Ltd
Model Number(s)	DSGC02
Serial Number(s)	Not Serialised (75940062-TSR0001)
Hardware Version(s)	PBA-PP520_REV_B
Software Version(s)	b04616d47050f71e21b3b62eb02eb13f26e4ff20 (CE/FCC test SW)
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2016 ICES-003: 2016
Order Number	33986
Date	01-August-2017
Date of Receipt of EUT	21-August-2017
Start of Test	05-September-2017
Finish of Test	05-September-2017
Name of Engineer(s)	Graeme Lawler
Related Document(s)	ANSI C63.4: 2014



Product Service

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15B and ICES-003 is shown below.

Section	Specification Clause		Test Description	Result	Comments/Base Standard
	Part 15B	ICES-003			
Configuration: Idle					
2.1	15.109	6.2	Radiated Emissions	Pass	ANSI C63.4

Table 2



1.4 Declaration of Build Status

MAIN EUT	
MANUFACTURING DESCRIPTION	Swine Ultrasound Scanner
MANUFACTURER	BCF Technology Ltd
MODEL NAME/NUMBER	Duo-Scan:Go Plus - DSGC02
PART NUMBER	DSG-SCANNER-C PLUS
SERIAL NUMBER	DSGC0200002
HARDWARE VERSION	PBA-PP520_REV_B
SOFTWARE VERSION	b04616d47050f71e21b3b62eb02eb13f26e4ff20 (CE/FCC test SW)
TRANSMITTER FREQUENCY OPERATING RANGE (MHz)	2412MHz-2462MHz, 5150MHz-5250MHz
RECEIVER FREQUENCY OPERATING RANGE (MHz)	2412MHz-2462MHz, 5150MHz-5250MHz
COUNTRY OF ORIGIN	United Kingdom
INTERMEDIATE FREQUENCIES	N/A
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	G1D
MODULATION TYPES: (i.e. GMSK, QPSK)	BPSK
HIGHEST INTERNALLY GENERATED FREQUENCY	180MHz
OUTPUT POWER (W or dBm)	18 dBm
FCC ID	FCC ID: 2AL6R-DSGC02
INDUSTRY CANADA ID	IC: 22758-DSGC01
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The product is a Swine Ultrasound Scanner used in the veterinary industry for scanning pigs, sheep or goats. The product contains a Texas Instruments pre-approved 2.4 GHz and 5 GHz WLAN module which is FCC and Industry Canada certified and this is used to communicate to a commercial smart phone or tablet. The scanner is a compact handheld unit with a built in ultrasound probe and uses certified Li-ion batteries.
BATTERY/POWER SUPPLY	
MANUFACTURING DESCRIPTION	Lithium ion rechargeable battery pack - 3.7V/1800mAh
MANUFACTURER	Shenzhen BAK Technology Co.,Ltd
TYPE	Lithium ion rechargeable battery pack
PART NUMBER	103450AR2-1S-3M
VOLTAGE	3.7V (Nominal)
COUNTRY OF ORIGIN	China
MODULES (if applicable)	
MANUFACTURING DESCRIPTION	WiLink™ 8 industrial dual band, 2x2 MIMO Wi-Fi®, Bluetooth® & BLE module
MANUFACTURER	TI
TYPE	WL1837MOD
POWER	18 dBm
FCC ID	FCC ID: Z64-WL18DBMOD
COUNTRY OF ORIGIN	USA
INDUSTRY CANADA ID	IC: 4511-WL18DBMOD
EMISSION DESIGNATOR	G1D
DHSS/FHSS/COMBINED OR OTHER	OFDM: MCS0
ANCILLARIES (if applicable)	
MANUFACTURING DESCRIPTION	
MANUFACTURER	
TYPE	
PART NUMBER	
SERIAL NUMBER	
COUNTRY OF ORIGIN	

I hereby declare that the information supplied is correct and complete.

Name: Fabrizio Gaudenzi
 Date: 12/09/2017

Position held: Lead Design Engineer



1.5 Product Information

1.5.1 Technical Description

The product is a Swine Ultrasound Scanner used in the veterinary industry for scanning pigs, sheep or goats. The product contains a Texas Instruments pre-approved 2.4 GHz and 5 GHz WLAN module which is FCC and Industry Canada certified and this is used to communicate to a commercial smart phone or tablet.

The scanner is a compact handheld unit with a built-in ultrasound probe and uses certified Li-ion batteries.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Serial Number: Not Serialised (75940062-TSR0001)			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3

1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration: Idle		
Radiated Emissions	Graeme Lawler	UKAS

Table 4

Office Address:

Octagon House
Concorde Way
Segensworth North
Fareham
Hampshire
PO15 5RL
United Kingdom



2 Test Details

2.1 Radiated Emissions

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109
 ICES-003, Clause 6.2

2.1.2 Equipment Under Test and Modification State

DSGC02, S/N: Not Serialised (75940062-TSR0001) - Modification State 0

2.1.3 Date of Test

05-September-2017

2.1.4 Test Method

The test was performed in accordance with ANSI C63.4, clause 8.

2.1.5 Environmental Conditions

Ambient Temperature 20.7 °C
 Relative Humidity 66.0 %

2.1.6 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.109

Frequency of Emission (MHz)	Field Strength (µV/m)
30 to 88	100.0
88 to 216	150.0
216 to 960	200.0
Above 960	500.0

ICES-003, Limit Clause 6.2

Frequency of Emission (MHz)	Quasi-Peak (dBµV/m)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 to 1000	54.0

Frequency of Emission (MHz)	Field Strength (dBµV/m)	
	Linear Average Detector	Peak Detector
Above 1000	54.0	74.0



2.1.7 Test Results

Configuration and Mode: Idle

Highest frequency generated or used within the EUT: 5250 MHz
 Upper frequency test limit: 30 GHz

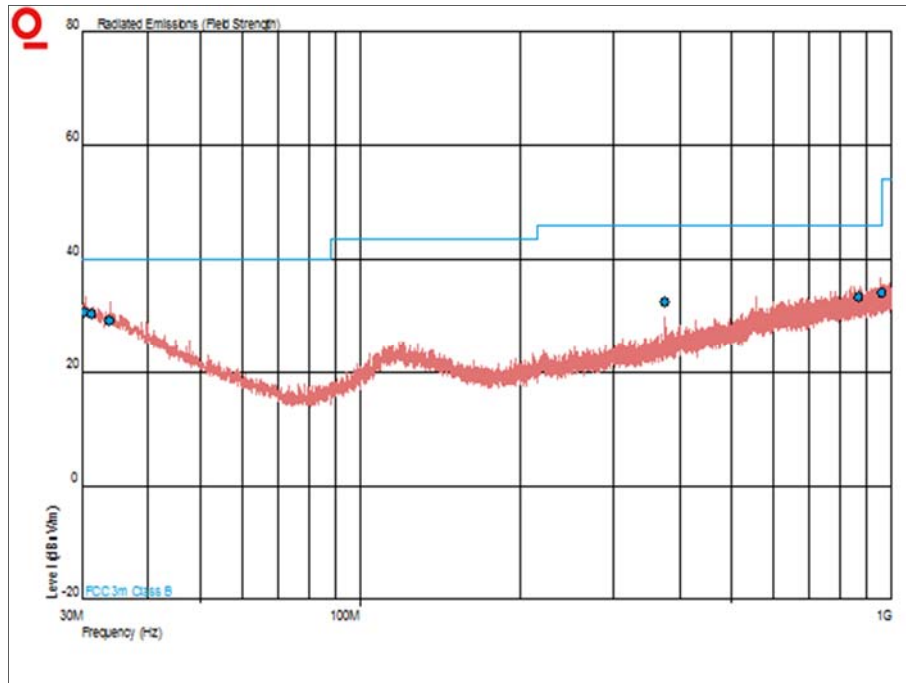


Figure 1 - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
30.359	30.7	40.0	-9.3	42	1.00	Horizontal
31.330	30.4	40.0	-9.6	360	1.00	Horizontal
33.822	29.2	40.0	-10.8	84	1.00	Horizontal
374.999	32.5	46.0	-13.5	299	1.00	Horizontal
867.698	33.3	46.0	-12.7	0	1.00	Horizontal
960.000	34.1	46.0	-11.9	360	1.00	Horizontal

Table 5 - 30 MHz to 1 GHz

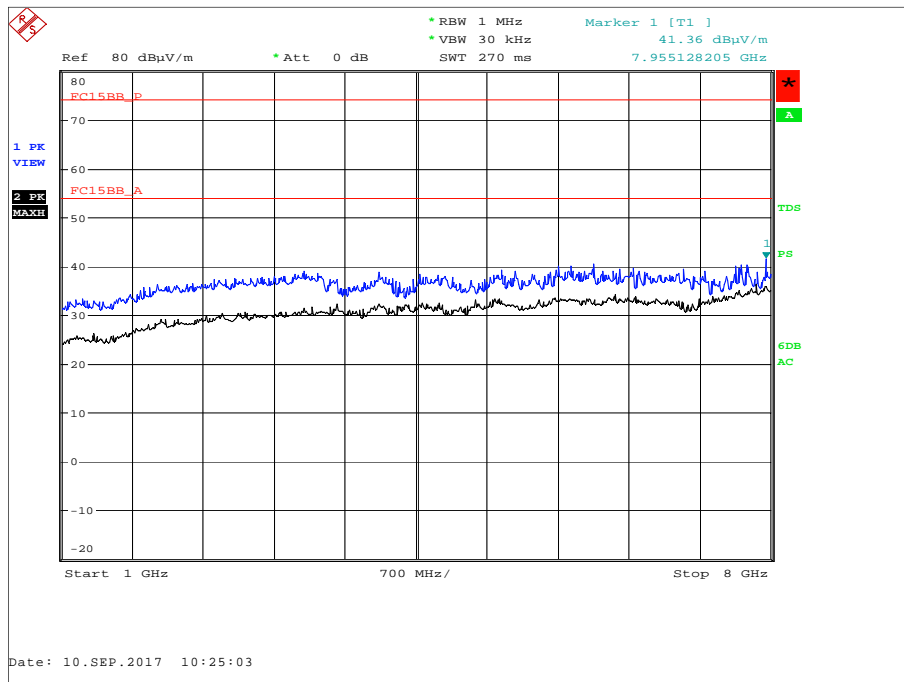


Figure 2 - 1 GHz to 8 GHz - Horizontal and Vertical

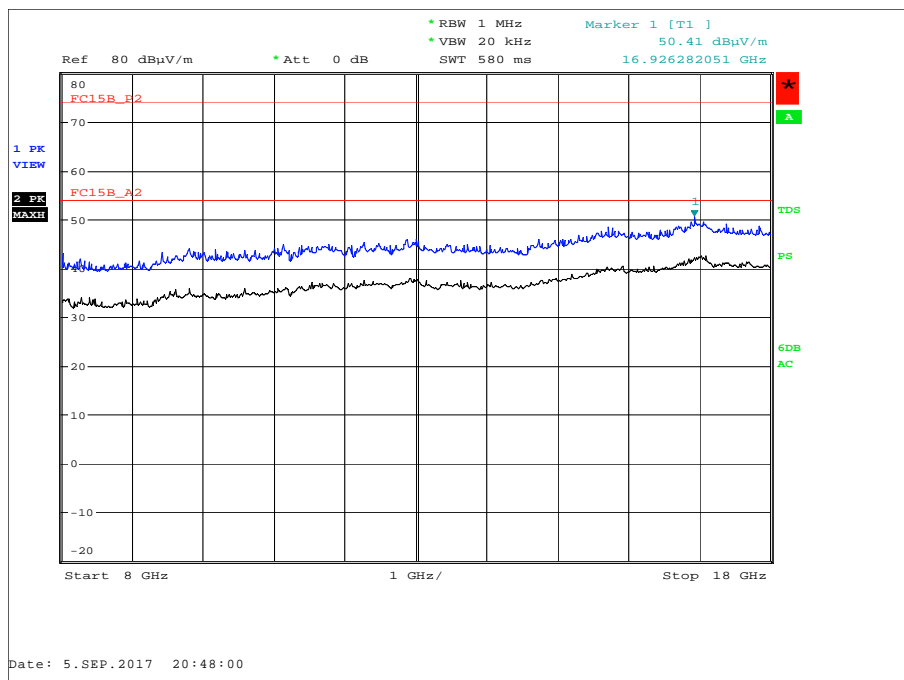


Figure 3 - 8 GHz to 18 GHz - Horizontal and Vertical

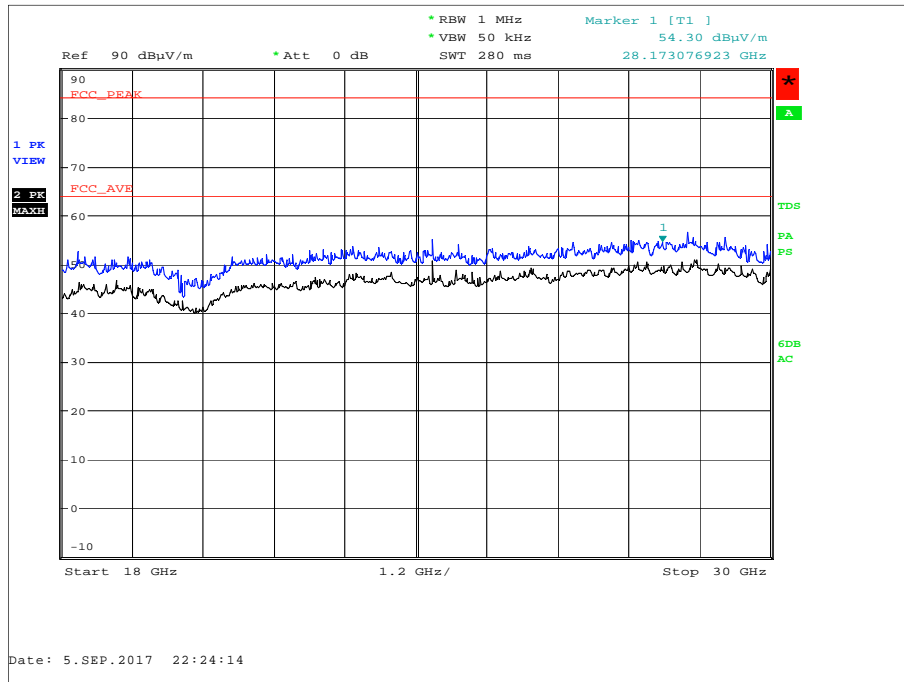


Figure 4 - 18 GHz to 30 GHz - Horizontal and Vertical

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dBμV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 6 - 1 GHz to 30 GHz

*No emissions were detected within 10 dB of the limit.



2.1.8 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Antenna 18-40GHz (Double Ridge Guide)	Link Microtek Ltd	AM180HA-K-TU2	230	24	12-Feb-2018
Antenna (Bilog)	Schaffner	CBL6143	287	24	18-Apr-2018
Antenna 18-40GHz (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	07-Dec-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	31-Jul-2018
18GHz - 40GHz Pre-Amplifier	Phase One	PSO4-0087	1534	12	23-Jan-2018
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	02-May-2018
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	05-May-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	matur GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	matur GmbH	NCD	3917	-	TU
Cable 1503 2M 2.92(P)m 2.92(P)m	Rhophase	KPS-1503A-2000-KPS	4293	12	23-Jan-2018
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	17-Oct-2017
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	04-May-2018
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	6	04-Nov-2017
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	17-Feb-2018

Table 7

TU - Traceability Unscheduled



3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB

Table 8