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Report On

Limited FCC and Industry Canada Testing of the
MiX Telematics Magix Pico Base Station
In accordance with FCC 47 CFR Part 15C, Industry Canada RSS-247
and Industry Canada RSS-GEN

COMMERCIAL-IN-CONFIDENCE

FCC ID: 2AFMS-PBS9
IC: 20545-PBS9

Document 75932793 Report 01 Issue 2 **January 2016**

Product Service

TÜV SÜD Product Service, Octagon House, Concorde Way, Segensworth North,
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COMMERCIAL-IN-CONFIDENCE

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MiX Telematics Magix Pico Base Station
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Document 75932793 Report 01 Issue 2

January 2016

PREPARED FOR

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PREPARED BY

Natalie Bennett
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APPROVED BY

Matthew Russell
Authorised Signatory

DATED 19 January 2016

This report has been up-issued to Issue 2 to correct the manufacturer's name.

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 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

UKAS TESTING 0141

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Product Service

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Product Service

SECTION 1

REPORT SUMMARY

Limited FCC and Industry Canada Testing of the
MiX Telematics Magix Pico Base Station
In accordance with FCC 47 CFR Part 15C and Industry Canada RSS-247

1.1 INTRODUCTION

The information contained in this report is intended to show the verification of Limited FCC and Industry Canada Testing of the MiX Telematics Magix Pico Base Station to the requirements of FCC 47 CFR Part 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN.

Objective	To perform Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	MiX Telematics
Model Number(s)	Magix Pico Base Station
Serial Number(s)	0964TE000051
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15C (2014) Industry Canada RSS-247 (Issue 1, 2015) Industry Canada RSS-GEN (Issue 4, 2014)
Incoming Release Date	Application Form 10 December 2015
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	P0084401 25 November 2015
Start of Test	7 December 2015
Finish of Test	8 December 2015
Name of Engineer(s)	G Lawler
Related Document(s)	ANSI C63.10: 2013

Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15C	RSS-247	RSS-GEN			
Transmit						
2.1	15.247 (b)(4)	5.4(1)	-	Peak EIRP	Pass	
2.2	15.247 (d), 15.205 and 15.209	5.5	-	Spurious Radiated Emissions	Pass	
Transmit - Static Mode						
2.3	15.205	-	8.10	Restricted Band Edges	Pass	
2.4	15.247 (d)	5.5	-	Authorised Band Edges	Pass	
Transmit - Hopping Mode						
2.3	15.205	-	8.10	Restricted Band Edges	Pass	
2.4	15.247 (d)	5.5	-	Authorised Band Edges	Pass	

Product Service

1.3 APPLICATION FORM

EQUIPMENT DESCRIPTION	
Model Name/Number	Magix Pico Base Station
Part Number	440FT0964
Hardware Version	Build State V4 (PCB 440AWZ950-V2A – BOM 440PLZ950-V6B)
Software Version	V1-12
FCC ID (if applicable)	2AFMS-PBS9
Industry Canada ID (if applicable)	20545-PBS9
Technical Description (Please provide a brief description of the intended use of the equipment)	The Pico Base Station (PBS) is required as part of the Magix Asset Positioning System (MAPS) solution for the US market and has been designed to enable an FM OBC to act as a Base Station for the MAPS network providing two way communication with the GPS enabled Beame mobile devices.

POWER SOURCE			
☐ AC mains		State voltage	
AC supply frequency	(Hz)		
VAC			
Max Current			
Hz			
☐ Single phase		☐ Three phase	
And / Or			
☒ External DC supply			
Nominal voltage		12 V	Max Current 0.1 A
Extreme upper voltage		40V V	
Extreme lower voltage		8 V	
Battery			
☐ Nickel Cadmium		☐ Lead acid (Vehicle regulated)	
☐ Alkaline		☐ Leclanche	
☐ Lithium		☐ Other Details :	
Volts nominal.			
End point voltage as quoted by equipment manufacturer		V	

FREQUENCY INFORMATION				
Frequency Range	902 to928	MHz		
Channel Spacing (where applicable)				
Receiver Frequency Range (if different)	902 to928	MHz		
Channel Spacing (if different)				
Test Frequencies*	Bottom	902.2	MHz	Channel Number (if applicable)
	Middle	915.0	MHz	Channel Number (if applicable)
	Top	927.8	MHz	Channel Number (if applicable)
Intermediate Frequencies			MHz	
Highest Internally Generated Frequency :			MHz	

Product Service

POWER CHARACTERISTICS				
Maximum TX power	0.1	W		
Minimum TX power		W (if variable)		
Is transmitter intended for :				
Continuous duty			☐ Yes	☐ No
Intermittent duty			☐ Yes	☐ No
If intermittent state DUTY CYCLE				
Transmitter ON		seconds		
Transmitter OFF		seconds		

ANTENNA CHARACTERISTICS				
☐	Antenna connector		State impedance	Ohm
☐	Temporary antenna connector		State impedance	Ohm
☐	Integral antenna	Type	State impedance	dBi
☐	External antenna	Type	State impedance	dBi

MODULATION CHARACTERISTICS			
☐	Amplitude	☒	Frequency
☐	Phase	☐	Other (please provide details):
Can the transmitter operate un-modulated?		☐ Yes	☐ No

CLASS OF EMISSION USED	
ITU designation or Class of Emission:	
1	44K0F1D
(if applicable) 2	
(if applicable) 3	
If more than three classes of emission, list separately:	

BATTERY POWER SUPPLY	
Model name/number	Identification/Part number
Manufacturer	Country of Origin

ANCILLARIES (If applicable)	
Model name/number	Identification/Part number
Manufacturer	Country of Origin

EXTREME CONDITIONS					
Extreme test voltages (Max)	40	V	Extreme test voltages (Mix)	8	V
Nominal DC Voltage	12	V	DC Maximum Current	0.1	A
Maximum temperature	+ 85	°C	Minimum temperature	-20	°C

I hereby declare that I am entitled to sign on behalf of the applicant and that the information supplied is correct and complete.

Name: S R Dawes

Position held: Engineering Manager Date: 10th December 2015

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a MiX Telematics Magix Pico Base Station. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 12 V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

Industry Canada Company Address Code
IC2932B-1 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

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

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.

Product Service

SECTION 2

TEST DETAILS

Limited FCC and Industry Canada Testing of the
MiX Telematics Magix Pico Base Station
In accordance with FCC 47 CFR Part 15C and Industry Canada RSS-247

2.1 PEAK EIRP

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (b)(4)
Industry Canada RSS-247, Clause 5.4(4)

2.1.2 Equipment Under Test and Modification State

Magix Pico Base Station S/N: 0964TE000051 - Modification State 0

2.1.3 Date of Test

7 December 2015

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

The test was performed in accordance with ANSI TIA-603-D, Clause 2.2.17.2

Remarks

The plots on the following pages are for illustration purposes only. The final measured result is obtained after a substitution procedure.

2.1.6 Environmental Conditions

Ambient Temperature	19.7°C
Relative Humidity	46.0%

Product Service

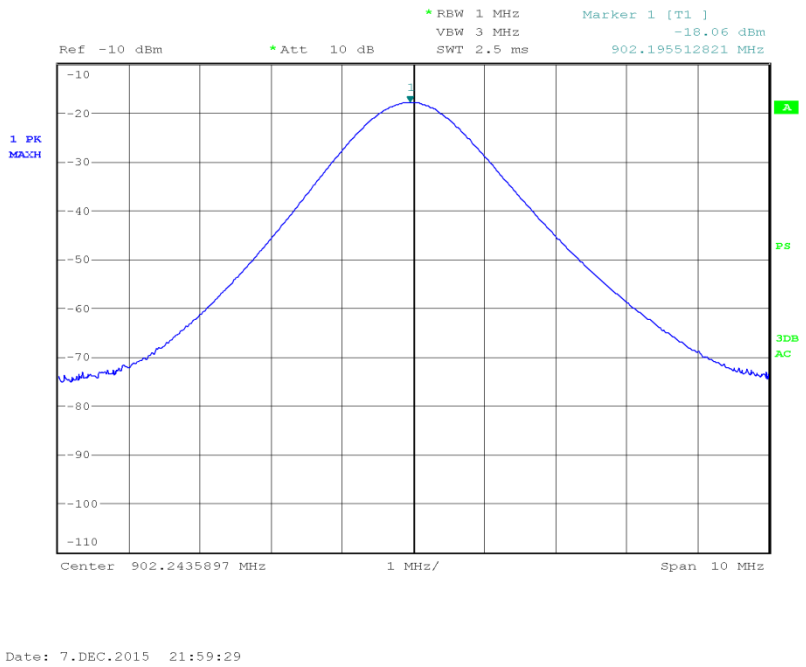
2.1.7 Test Results

12 V DC Supply

Transmit, EIRP Peak Power Results

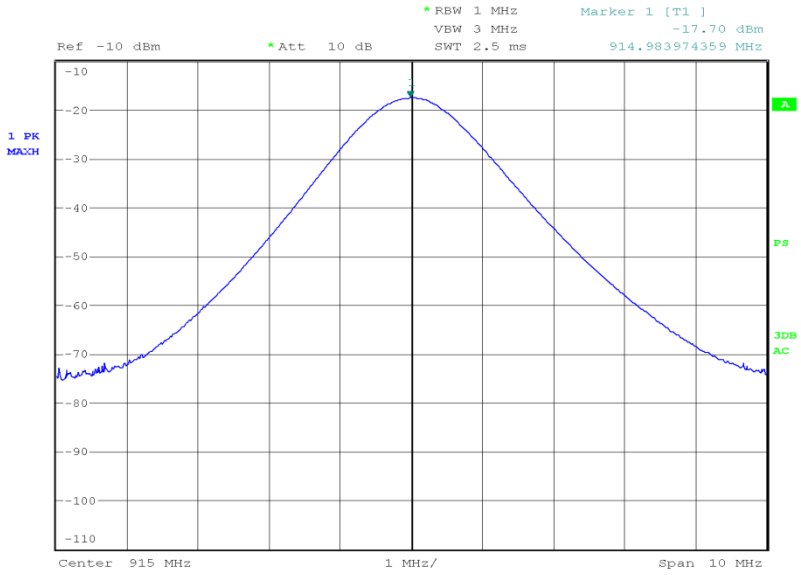
902.2 MHz		915.0 MHz		927.8 MHz	
dBm	mW	dBm	mW	dBm	mW
16.85	48.42	16.57	45.39	17.09	51.17

Transmit, 902.2 MHz, EIRP Peak Power Plot



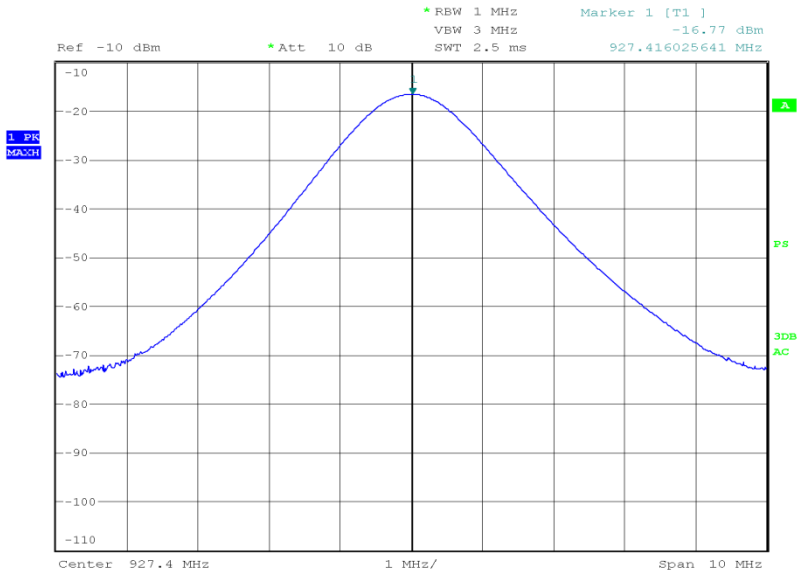
Product Service

Transmit, 915.0 MHz, EIRP Peak Power Plot



Date: 7.DEC.2015 22:12:18

Transmit, 927.8 MHz, EIRP Peak Power Plot



Date: 7.DEC.2015 22:16:45

Product Service

FCC 47 CFR Part 15, Limit Clause 15.247 (b)(4)

36.0 dBm or 4000 mW

Industry Canada RSS-247, Limit Clause, 5.4(1)

For FHSs operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels; the maximum peak conducted output power shall not exceed 0.25 W and the e.i.r.p. shall not exceed 1 W if the hopset uses less than 50 hopping channels..

2.2 SPURIOUS RADIATED EMISSIONS

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d), 15.205 and 15.209
Industry Canada RSS-247, Clause 5.5

2.2.2 Equipment Under Test and Modification State

Magix Pico Base Station S/N: 0964TE000051 - Modification State 0

2.2.3 Date of Test

8 December 2015

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.6.

2.2.6 Environmental Conditions

Ambient Temperature	19.7°C
Relative Humidity	46.0%

Product Service

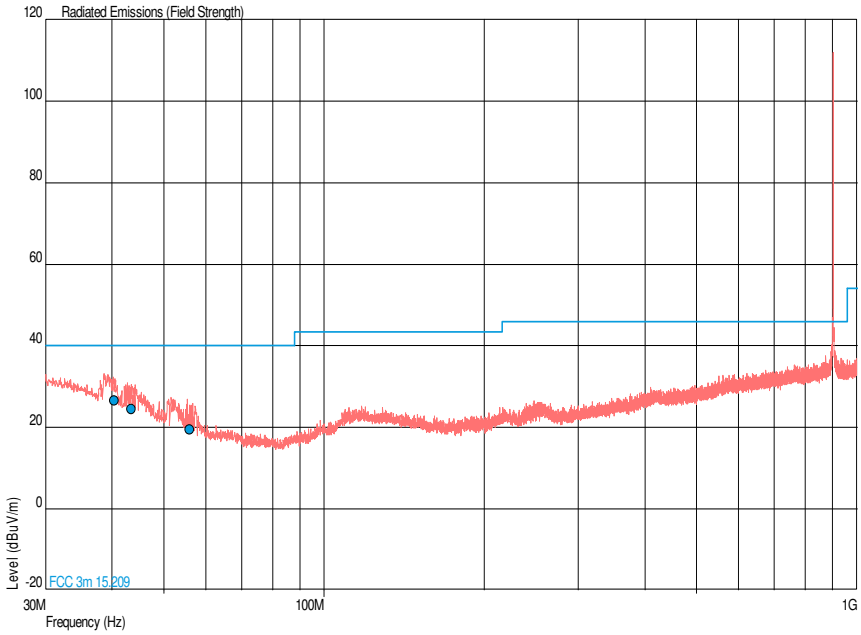
2.2.7 Test Results

12 V DC Supply

Transmit, 902.2 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
40.327	26.5	-13.5	21.1	-78.9	13	1.12	Vertical
43.436	24.5	-15.5	16.8	-83.2	351	1.00	Vertical
55.959	19.5	-20.5	9.4	-90.6	50	1.00	Vertical

Transmit, 902.2 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

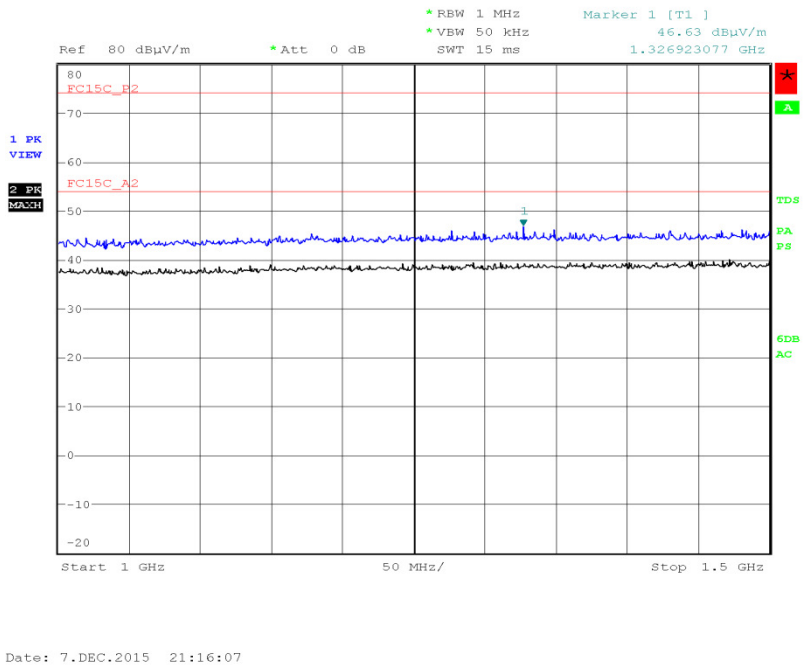


Transmit, 902.2 MHz, 1 GHz to 10 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
3608.865	52.20	49.83	407.38	310.10	325	1.02	Vertical
5413.199	55.77	53.63	614.47	480.27	308	1.45	Vertical
8119.962	51.43	47.24	372.82	230.14	304	1.96	Vertical

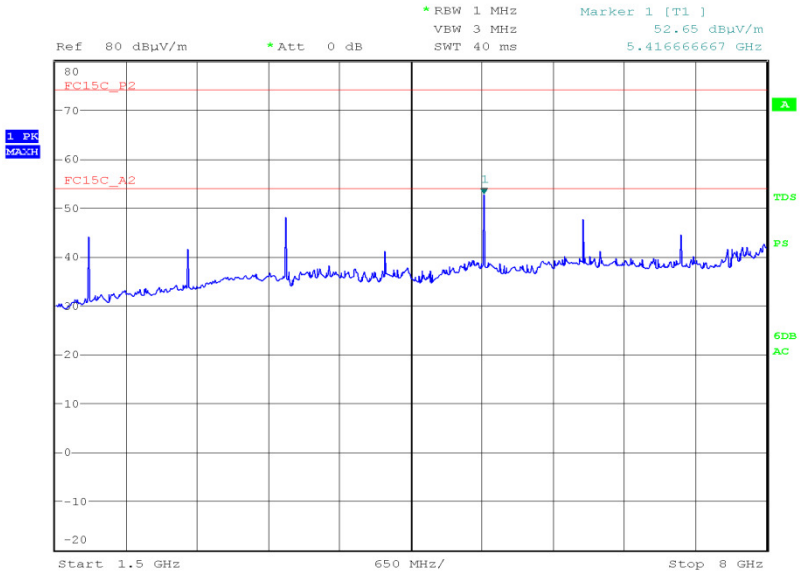
No other emissions were detected within 10 dB of the limit.

Transmit, 902.2 MHz, 1 GHz to 1.5 GHz, Spurious Radiated Emissions Plot



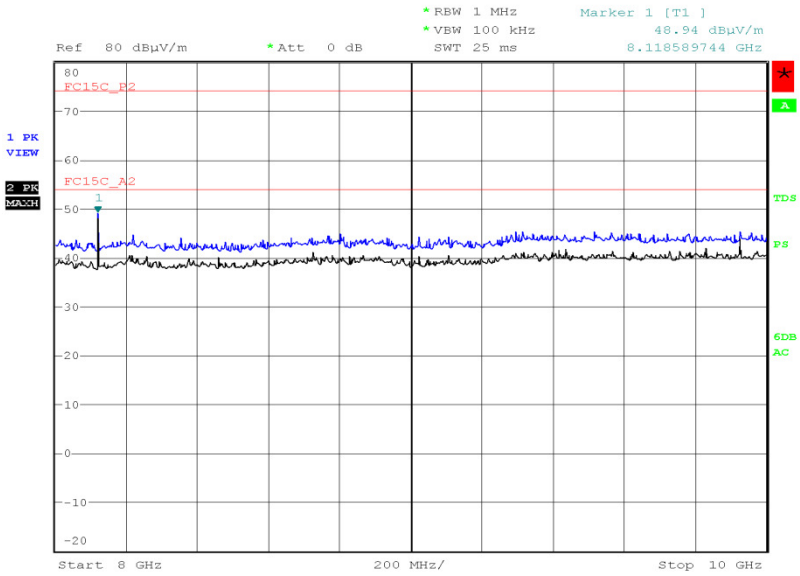
Product Service

Transmit, 902.2 MHz, 1.5 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 7.DEC.2015 17:46:06

Transmit, 902.2 MHz, 8 GHz to 10 GHz, Spurious Radiated Emissions Plot



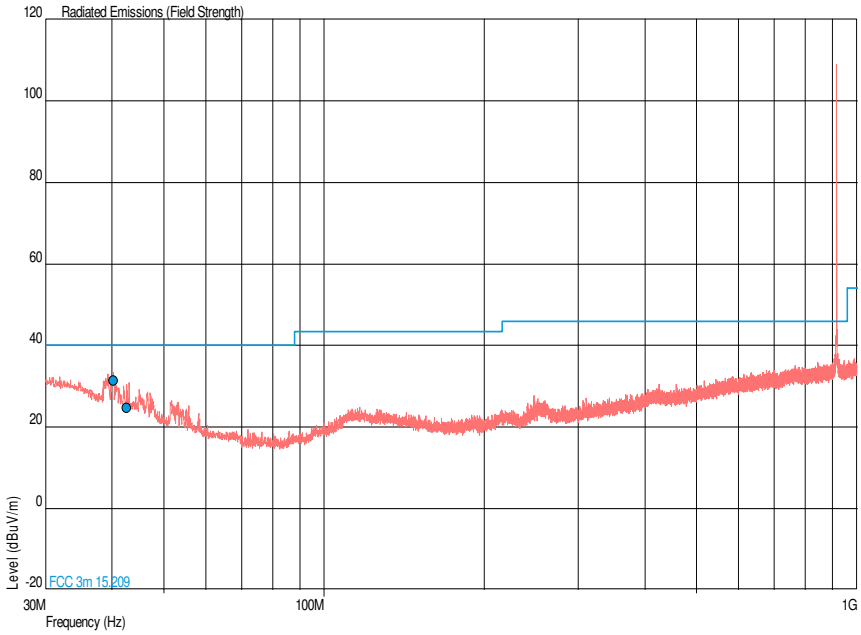
Date: 7.DEC.2015 20:53:33

Product Service

Transmit, 915.0 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
40.248	31.3	-8.7	36.7	-63.3	19	1.00	Vertical
42.572	24.6	-15.4	17.0	-83.0	36	1.00	Vertical

Transmit, 915.0 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot



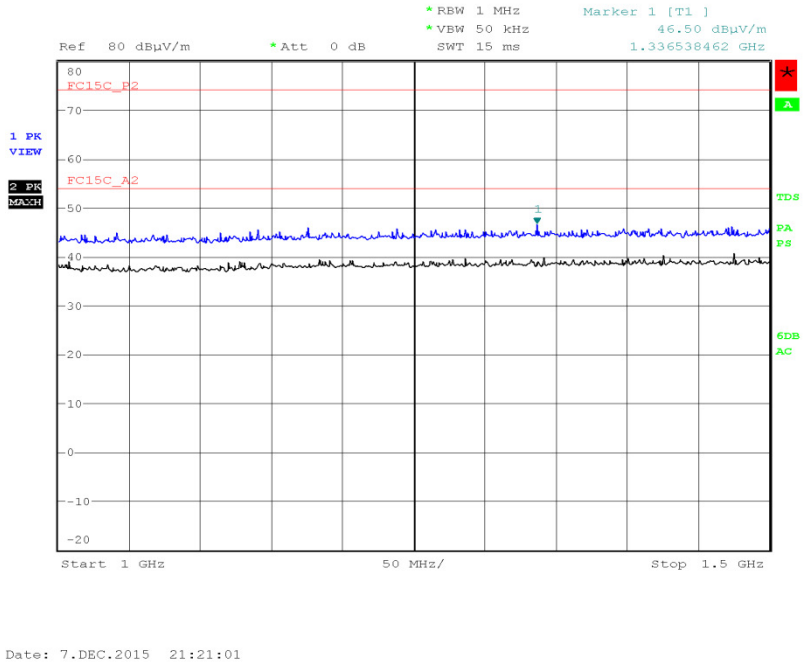
Product Service

Transmit, 915.0 MHz, 1 GHz to 10 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
3659.848	50.76	48.05	345.14	252.64	146	1.00	Vertical
7319.964	51.25	46.06	365.17	200.91	181	1.35	Horizontal

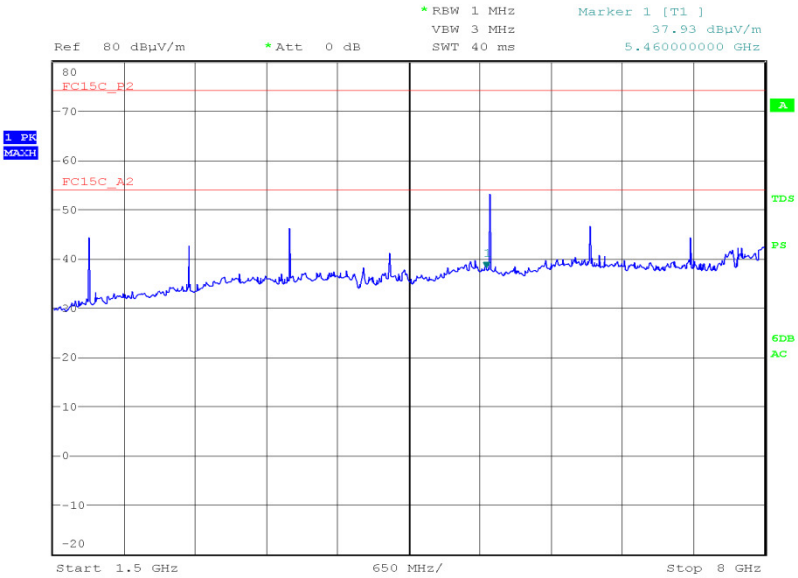
No other emissions were detected within 10 dB of the limit.

Transmit, 915.0 MHz, 1 GHz to 1.5 GHz, Spurious Radiated Emissions Plot



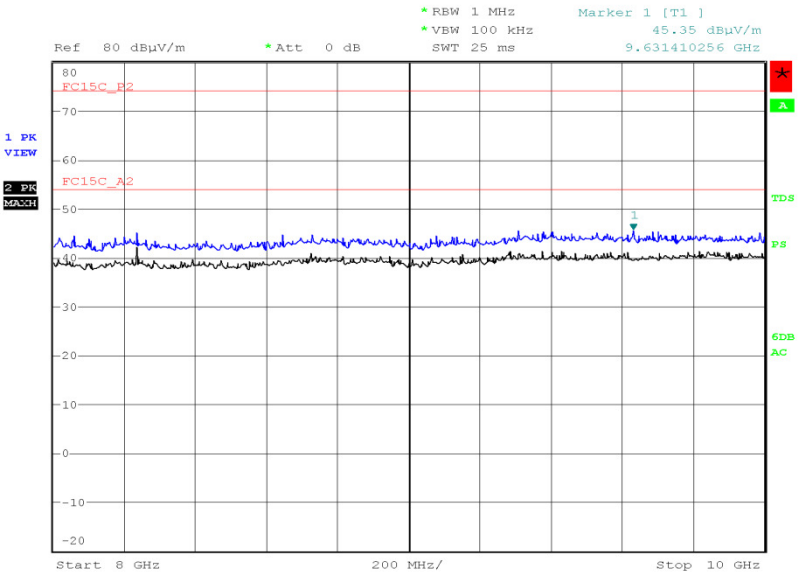
Product Service

Transmit, 915.0 MHz, 1.5 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 7.DEC.2015 17:53:28

Transmit, 915.0 MHz, 8 GHz to 10 GHz, Spurious Radiated Emissions Plot



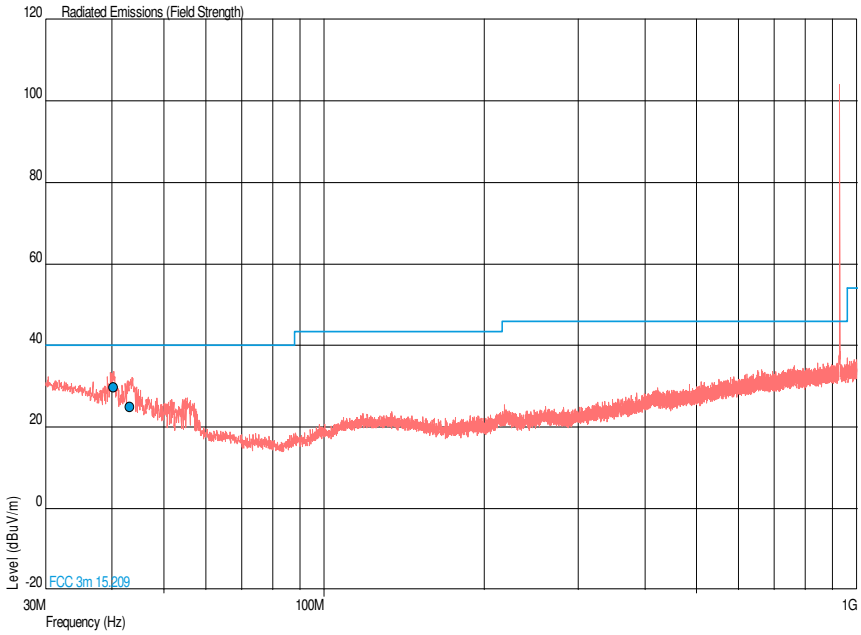
Date: 7.DEC.2015 20:49:27

Product Service

Transmit, 927.8 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
40.255	29.6	-10.4	30.2	-69.8	332	1.00	Vertical
43.226	24.9	-15.1	17.6	-82.4	55	1.00	Vertical

Transmit, 927.8 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot



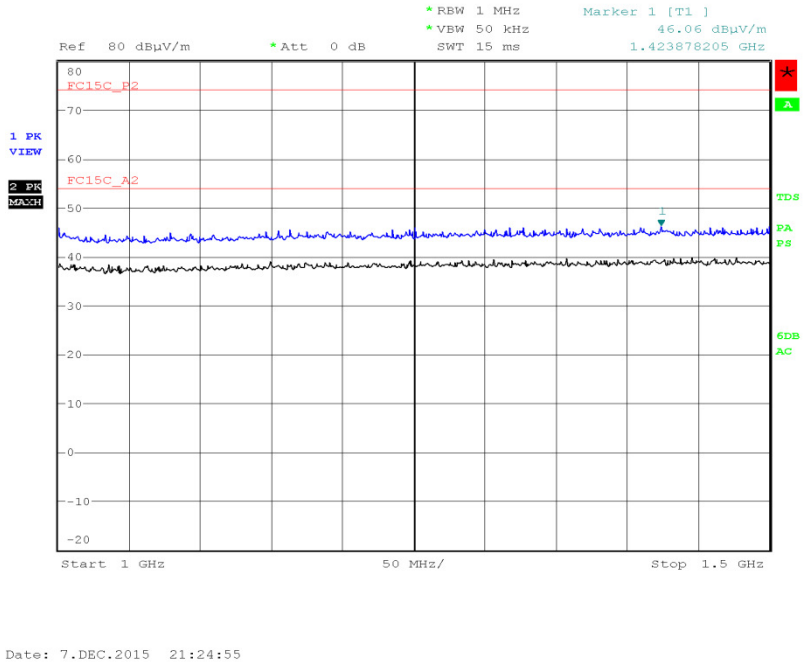
Product Service

Transmit, 927.8 MHz, 1 GHz to 10 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
7427.827	52.85	48.40	439.04	263.03	304	2.05	Vertical

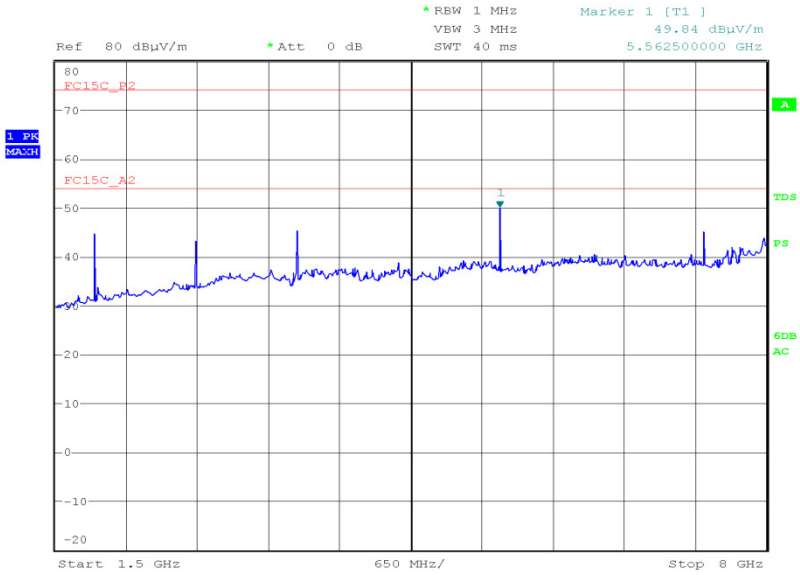
No other emissions were detected within 10 dB of the limit.

Transmit, 927.8 MHz, 1 GHz to 1.5 GHz, Spurious Radiated Emissions Plot



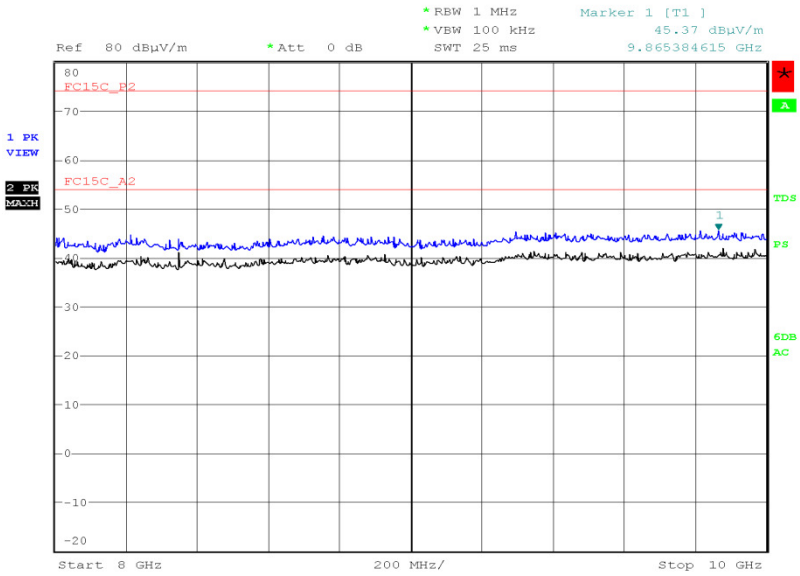
Product Service

Transmit, 927.8 MHz, 1.5 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 7.DEC.2015 17:43:49

Transmit, 927.8 MHz, 8 GHz to 10 GHz, Spurious Radiated Emissions Plot



Date: 7.DEC.2015 20:45:11

Product Service

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

Emissions outside the restricted bands shall be at least 20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength			Measurement Distance (m)
	(µV/m)	Average (dBµV/m)	Peak (dBµV/m)	
30-88	100	40.0	60.0	3
88-216	150	43.5	63.5	3
216-960	200	46.0	66.0	3
Above 960	500	54.0	74.0	3

Industry Canada RSS-247, Limit Clause, 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

2.3 RESTRICTED BAND EDGES

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
Industry Canada RSS-GEN, Clause 8.10

2.3.2 Equipment Under Test and Modification State

Magix Pico Base Station S/N: 0964TE000051 - Modification State 0

2.3.3 Date of Test

8 December 2015

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.10.5

2.3.6 Environmental Conditions

Ambient Temperature	19.7°C
Relative Humidity	46.0%

Product Service

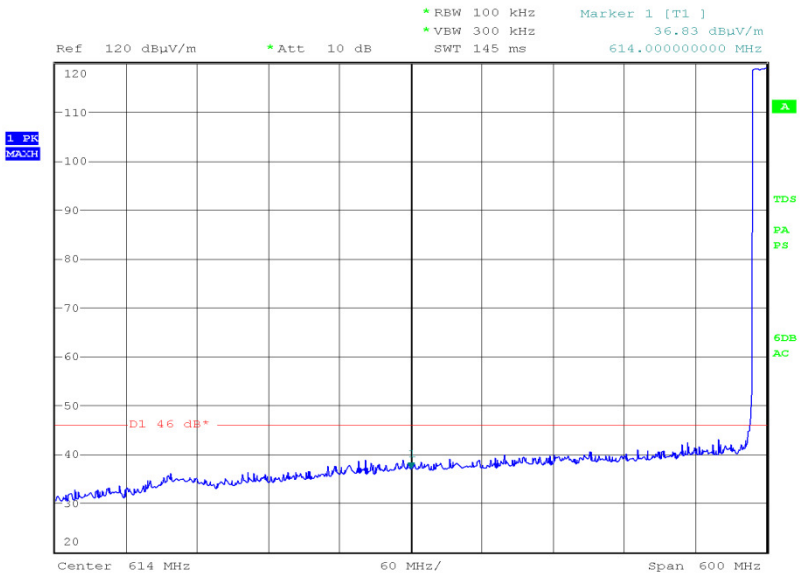
2.3.7 Test Results

12 V DC Supply

Transmit - Hopping Mode, Restricted Band Edges Results

902.2 MHz	927.8 MHz
Measured Frequency 614 MHz	Measured Frequency 960 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
38.63	42.46

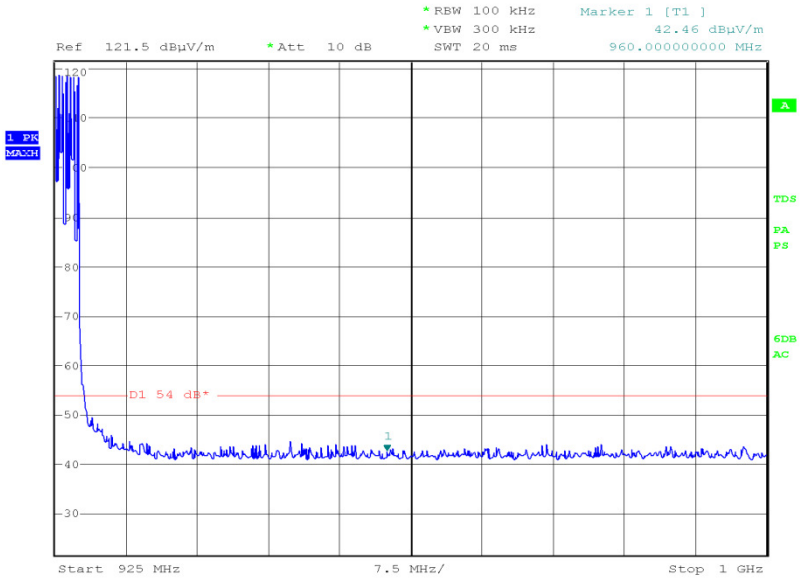
Transmit - Hopping Mode, 902.2 MHz, Measured Frequency 614 MHz, Final Peak, Restricted Band Edges Plot



Date: 7.DEC.2015 23:32:02

Product Service

Transmit - Hopping Mode, 927.8 MHz, Measured Frequency 960 MHz, Final Peak, Restricted Band Edges Plot



Date: 7.DEC.2015 23:30:49

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

Industry Canada RSS-GEN, Limit Clause 8.10

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

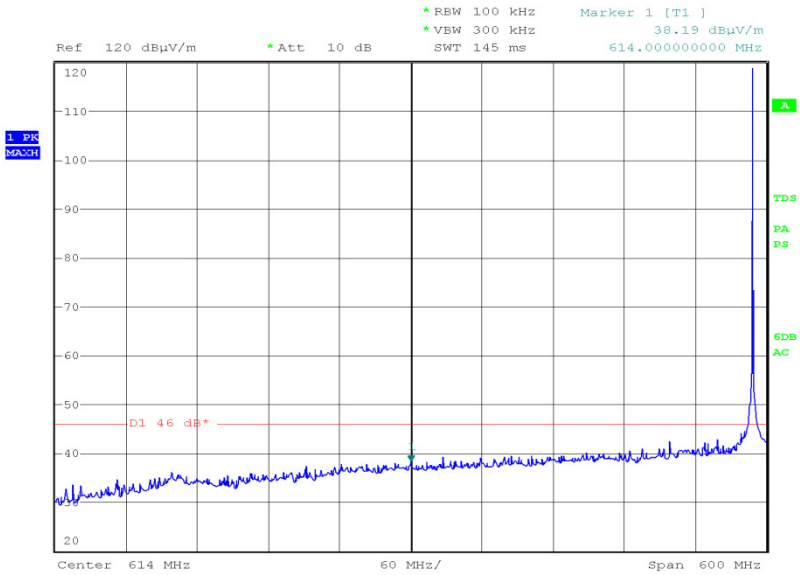
Product Service

12 V DC Supply

Transmit - Static Mode, Restricted Band Edges Results

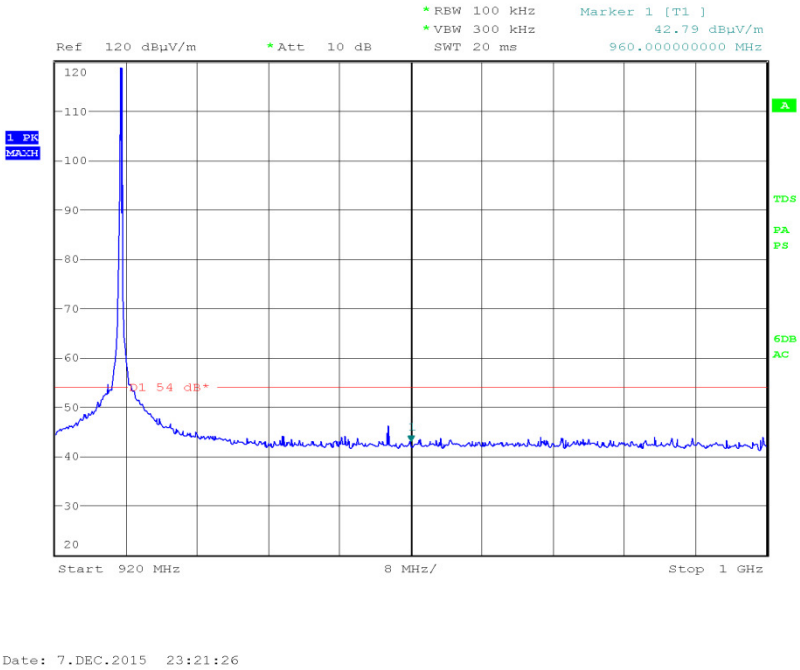
902.2 MHz	927.8 MHz
Measured Frequency 614 MHz	Measured Frequency 960 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
38.19	42.79

Transmit - Static Mode, 902.2 MHz, Measured Frequency 614 MHz, Final Peak, Restricted Band Edges Plot



Date: 7.DEC.2015 22:57:29

Transmit - Static Mode, 927.8 MHz, Measured Frequency 960 MHz, Final Peak, Restricted Band Edges Plot



FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

Industry Canada RSS-GEN, Limit Clause 8.10

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

2.4 AUTHORISED BAND EDGES

2.4.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d)
Industry Canada RSS-247, Clause 5.5

2.4.2 Equipment Under Test and Modification State

Magix Pico Base Station S/N: 0964TE000051 - Modification State 0

2.4.3 Date of Test

8 December 2015

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.10.4

2.4.6 Environmental Conditions

Ambient Temperature	19.7°C
Relative Humidity	46.0%

Product Service

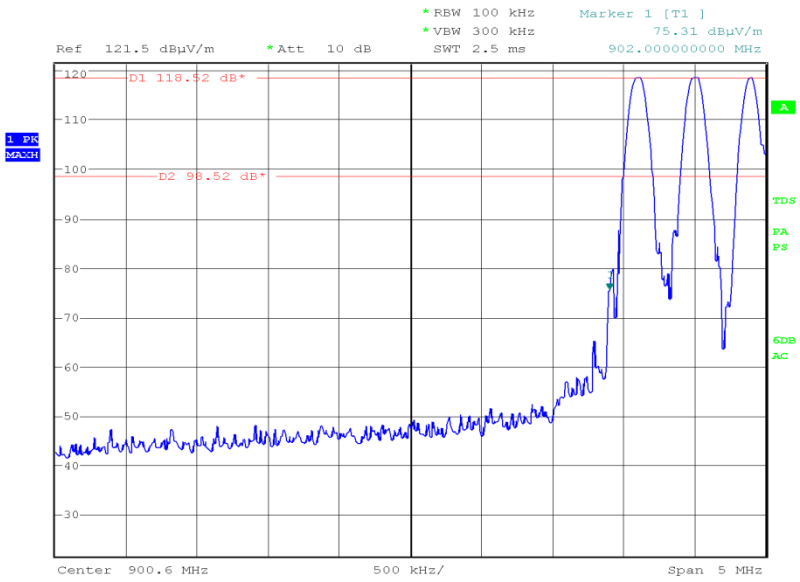
2.4.7 Test Results

12 V DC Supply

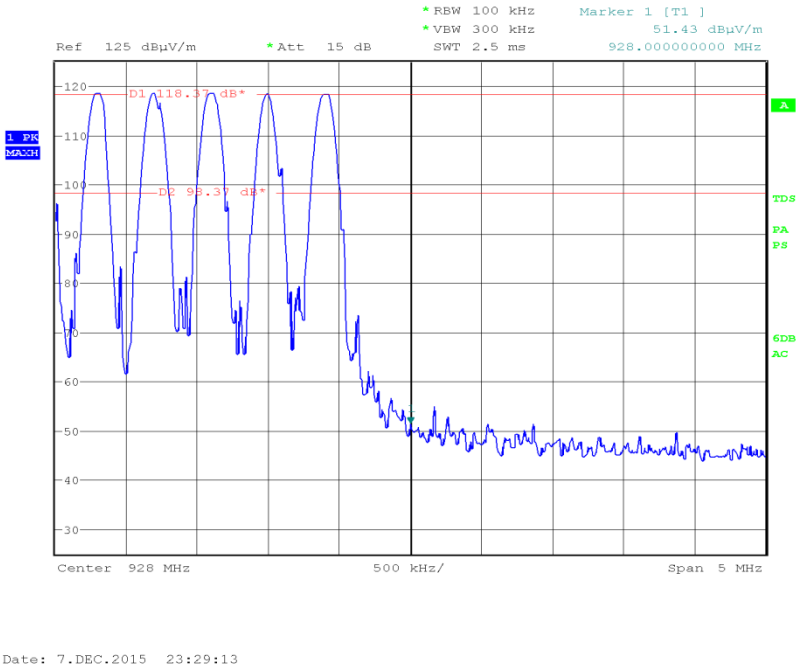
Transmit - Hopping Mode, Authorised Band Edges Results

902.2 MHz	927.8 MHz
Measured Frequency 902.00 MHz	Measured Frequency 928.00 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
75.31	51.43

Transmit - Hopping Mode, 902.2 MHz, Measured Frequency 902.00 MHz, Final Peak, Authorised Band Edges Plot



Transmit - Hopping Mode, 927.8 MHz, Measured Frequency 928.00 MHz, Final Peak, Authorised Band Edges Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

Industry Canada RSS-247, Limit Clause 5.5

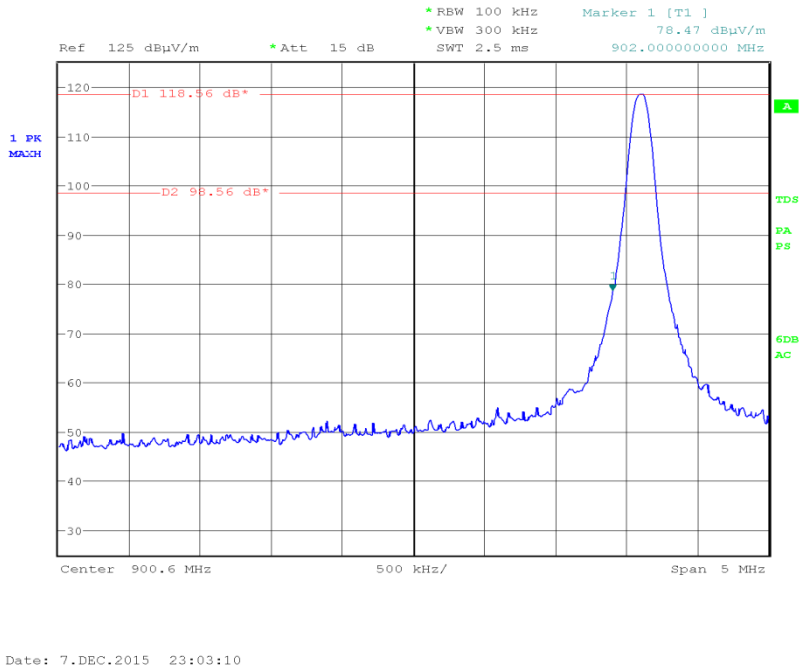
20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

12 V DC Supply

Transmit - Static Mode, Authorised Band Edges Results

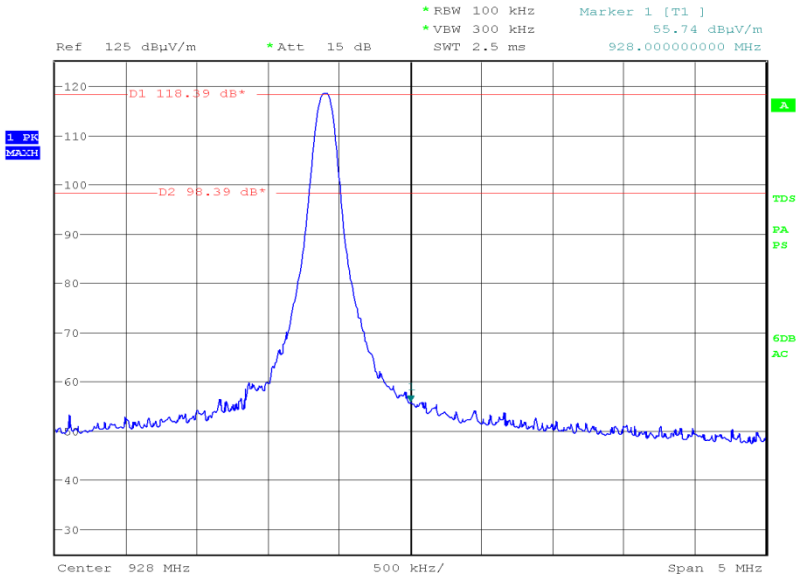
902.2 MHz	927.8 MHz
Measured Frequency 902.00 MHz	Measured Frequency 928.00 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
78.47	55.74

Transmit - Static Mode, 902.2 MHz, Measured Frequency 902.00 MHz, Final Peak, Authorised Band Edges Plot



Product Service

Transmit - Static Mode, 927.8 MHz, Measured Frequency 928.00 MHz, Final Peak, Authorised Band Edges Plot



Date: 7.DEC.2015 23:12:09

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

Industry Canada RSS-247, Limit Clause 5.5

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - Peak EIRP					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	29-Apr-2016
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Signal Generator	Rohde & Schwarz	SML01	1590	12	20-Apr-2016
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Log Periodic)	Schaffner	UPA6108	3109	12	29-Apr-2016
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Multimeter	Fluke	177	3833	12	16-Jun-2016
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	15-Apr-2016
2m K-Type Cable (Rx)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
Section 2.2- Spurious Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	29-Apr-2016
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Pre-Amplifier	Phase One	PS04-0086	1533	12	30-Jul-2016
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Filter	Daden Anthony Ass	MH-1500-7SS	2778	12	5-Feb-2016
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Multimeter	Fluke	177	3833	12	16-Jun-2016
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	6-Oct-2016
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	15-Apr-2016
Suspended Substrate Highpass Filter	Advance Power Components	11SH10-3000/X18000-O/O	4411	12	24-Mar-2016
2m K-Type Cable (Rx)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
0.5m SMA Cable (Rx)	Scott Cables	SLSLL18-SMSM-00.50M	4528	6	19-Feb-2016

Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.3- Restricted Band Edges					
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Multimeter	Fluke	177	3833	12	16-Jun-2016
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	15-Apr-2016
2m K-Type Cable (Rx)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
Section 2.4 - Authorised Band Edges					
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Multimeter	Fluke	177	3833	12	16-Jun-2016
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	15-Apr-2016
2m K-Type Cable (Rx)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU

TU – Traceability Unscheduled

Product Service

3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Peak EIRP	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Authorised Band Edges	Conducted: ± 3.08 dB Radiated: 30 MHz to 1 GHz: ± 5.1 dB Radiated: 1 GHz to 40 GHz: ± 6.3 dB
Restricted Band Edges	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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