Report On

Limited FCC and Industry Canada Testing of the
Toumaz UK Ltd Telran TDK
In accordance with FCC CFR 47 Part 15C
and Industry Canada RSS-210

COMMERCIAL-IN-CONFIDENCE

FCC IDs: RF Module: ZT9-TZ207011V2 , USB Dongle: ZT9-TZ207021V2
IC IDs: RF Module: 9809A-TZ207011V2 , USB Dongle: 9809A-TZ207021V2

Document 75914477 Report 03 Issue 2 October 2011

Product Service

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REPORT ON

Limited FCC and Industry Canada Testing of the
Toumaz UK Ltd Telran TDK
In accordance with FCC CFR 47 Part 15C
and Industry Canada RSS-210

Document 75914477 Report 03 Issue 2

October 2011

PREPARED FOR

Toumaz UK Ltd
Building 3
115 Milton Park
Abingdon
Oxfordshire
OX14 4RZ

PREPARED BY

Natalie Bennett
Senior Administrator

APPROVED BY

Mark Jenkins
Authorised Signatory

DATED 14 October 2011

This report has been up issued to Issue 2 to include additional testing.

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 CFR 47 Part 15C and Industry Canada RSS-210. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

R Henley G Lawler B Airs

UKAS TESTING 0141

Product Service

CONTENTS

Product Service

SECTION 1

REPORT SUMMARY

Limited FCC and Industry Canada Testing of the
Toumaz UK Ltd Telran TDK
In accordance with FCC CFR 47 Part 15C and Industry Canada RSS-210

Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Limited FCC and Industry Canada Testing of the Toumaz UK Ltd Telran TDK to the requirements of FCC CFR 47 Part 15C and Industry Canada RSS-210.

Objective	To perform Limited FCC and 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	Toumaz UK Ltd
Model Number(s)	Telran RF Module: TZ207011 Telran USB Dongle: TZ207021
Serial Number(s)	DD 21 30 14 84 915 DD 21 90 A4 B4 915
Number of Samples Tested	2
Test Specification/Issue/Date	FCC CFR 47 Part 15C: 2010 Industry Canada RSS-210: 2010
Incoming Release Date	Application Form 17 July 2011
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	4408 24 June 2011
Start of Test	31 July 2011
Finish of Test	12 October 2011
Name of Engineer(s)	R Henley G Lawler B Airs
Related Document(s)	ANSI C63.10: 2009

Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15C and Industry Canada RSS-210 is shown below.

Section	Spec Clause	Test Description	Result	Comments/Base Standard
USB Dongle				
2.1	15.207	AC Line Conducted Emissions	Pass	
2.2	15.249 (a) and A2.9	Field Strength of Fundamental	Pass	
2.3	15.249 (a)(d), 15.209 and A2.9	Field Strength of Spurious Emissions	Pass	
2.4	ANSI C63.10, 6.9.1	Occupied Bandwidth Testing	Pass	
Radio Transceiver Module				
2.2	15.249 (a) and A2.9	Field Strength of Fundamental	Pass	
2.3	15.249 (a)(d), 15.209 and A2.9	Field Strength of Spurious Emissions	Pass	
2.4	ANSI C63.10, 6.9.1	Occupied Bandwidth Testing	Pass	

Product Service

1.3 APPLICATION FORM

APPLICANT'S DETAILS			
COMPANY NAME :	Toumaz UK Ltd.		
ADDRESS :	Building 3 115 Milton Park Abingdon, OX14 4RZ		
NAME FOR CONTACT PURPOSES : Chris Nunn			
TELEPHONE NO: 01235 438 950	FAX NO:	01325 438970	
		E-MAIL:	chris.nunn@toumaz.com

EQUIPMENT INFORMATION

Equipment designator:
Model name/number Telran RF Module: TZ207011 Identification number TZ207011

Supply Voltage:
[✓] DC (external) State DC voltage 1.08 → 1.5 V and DC current 10 mA
[✓] DC (internal) State DC voltage 1.5 V and Battery type LR44

Frequency characteristics:
Frequency range 903 MHz to 928 MHz Channel spacing 200 kHz (if channelized)
Designated test frequencies:
Bottom: 903.2 MHz Middle: 915 MHz Top: 927.8 MHz

Power characteristics:
Maximum transmitter power 0.1 mW Minimum transmitter power (if variable) …… W
[✓] Intermittent transmission State duty cycle Variable (max 25%)
If intermittent, can transmitter be set to continuous transmit test mode? Y/~~N~~

Antenna characteristics:
[✓] Temporary antenna connector State impedance ……50 ohm
[✓] Integral antenna State gain ……0 dBi

Modulation characteristics:
[✓] Frequency Details: 50 kHz devn
Can the transmitter operate un-modulated? Y/~~N~~
ITU Class of emission: FXD

Extreme conditions:
Maximum temperature 0 ºC Minimum temperature 70 ºC
Maximum supply voltage 1.5 V Minimum supply voltage 1.08 V

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

Signature : Held on file at TÜV SÜD Product Service Ltd

Name : Chris Nunn

Position held : Senior Design Engineer

Date : 17 July 2011

TÜV SÜD Product Service Ltd formally certifies that the manufacturer's declaration as typed out in this report, is a true and accurate record of the original received from the applicant.

Product Service

APPLICANT'S DETAILS			
COMPANY NAME :	Toumaz UK Ltd.		
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NAME FOR CONTACT PURPOSES : Chris Nunn			
TELEPHONE NO: 01235 438 950	FAX NO:	01325 438970	
		E-MAIL:	chris.nunn@toumaz.com

EQUIPMENT INFORMATION

Equipment designator:
Model name/number: Telran USB Dongle: TZ207021 Identification number: TZ207021

Supply Voltage:
[✓] DC (external) State DC voltage 5 V and DC current <100 mA
[ ] DC (internal) State DC voltage ..... V and Battery type .....

Frequency characteristics:
Frequency range: 903 MHz to 928 MHz Channel spacing: 200 kHz (if channelized)

Designated test frequencies:
Bottom: 903.2 MHz Middle: 915 MHz Top: 927.8 MHz

Power characteristics:
Maximum transmitter power: 0.1 mW Minimum transmitter power (if variable): …… W
[✓] Intermittent transmission State duty cycle: Variable (max 25%)
If intermittent, can transmitter be set to continuous transmit test mode? Y/~~N~~

Antenna characteristics:
[✓] Integral antenna State gain ……0 dBi

Modulation characteristics:
[✓] Frequency Details: 50 kHz devn
Can the transmitter operate un-modulated? Y/~~N~~
ITU Class of emission: FXD

Extreme conditions:

Maximum temperature: 0 ºC Minimum temperature: 70 ºC
Maximum supply voltage: 5.25 V Minimum supply voltage: 4.4 V

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

Signature : Held on file at TÜV SÜD Product Service Ltd

Name : Chris Nunn

Position held : Senior Design Engineer

Date : 17 July 2011

TÜV SÜD Product Service Ltd formally certifies that the manufacturer's declaration as typed out in this report, is a true and accurate record of the original received from the applicant.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Toumaz UK Ltd Telran TDK. 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 an external DC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

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

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan 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
Toumaz UK Ltd Telran TDK
In accordance with FCC CFR 47 Part 15C and Industry Canada RSS-210

Product Service

2.1 AC LINE CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15B, Clause 15.207

2.1.2 Equipment Under Test and Modification State

Telran USB Dongle: TZ207021, S/N: DD 21 90 A4 B4 915 - Modification State 0
using Dell Anatel Laptop Model: PP08L P/N: G1653 A01

2.1.3 Date of Test

12 October 2011

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 EUT is set up on a test table 800mm above a horizontal ground plane. A vertical ground plane is also required and is placed 400mm from the EUT. Where a EUT is floor standing it will be stood on but insulated from the ground plane by up to 12mm.

The EUT is powered through a Line Impedance Stabilisation Network (LISN) which is bonded to the ground plane. The EUT is located so that the distance between the EUT and the LISN is no less than 800mm. Where possible the cable between the mains input of the EUT and the LISN is 1m. Where this is not possible the cable is non inductively bundled with the bundle not exceeding 400mm in length.

A preliminary profile of the Conducted Emissions is obtained over the frequency range 150kHz to 30MHz. Any points of interest are noted for formal measurements.

During formal measurements, the measuring receiver is tuned to the emission of interest where Quasi – Peak and Average measurements are performed in a 9kHz Video and Resolution Bandwidth.

2.1.6 Environmental Conditions

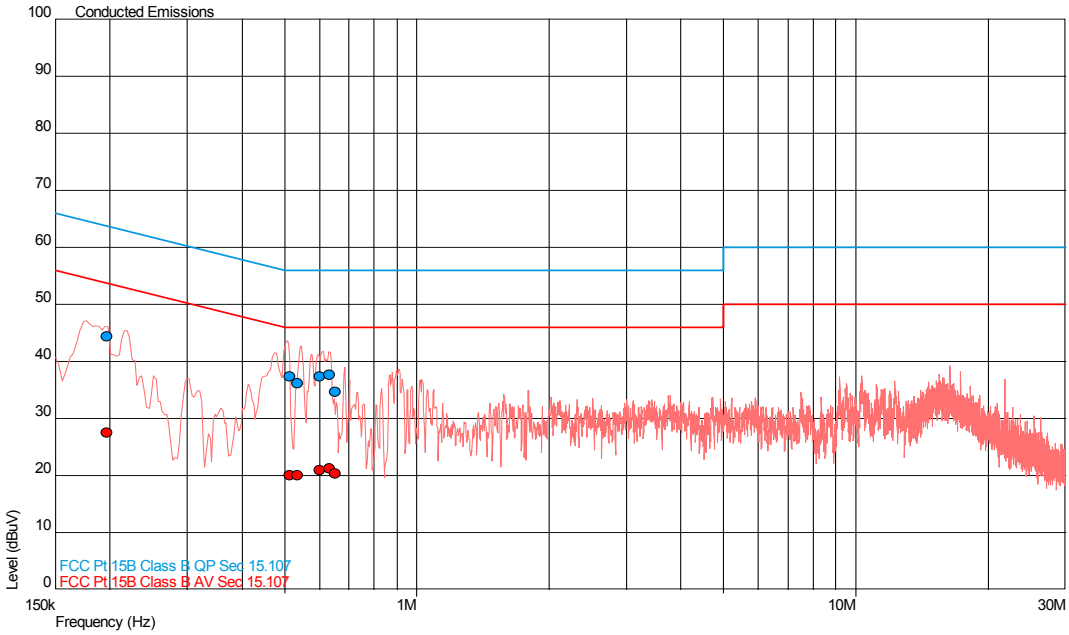
Ambient Temperature	20.7°C
Relative Humidity	57.0%

Product Service

2.1.7 Test Results

USB Dongle

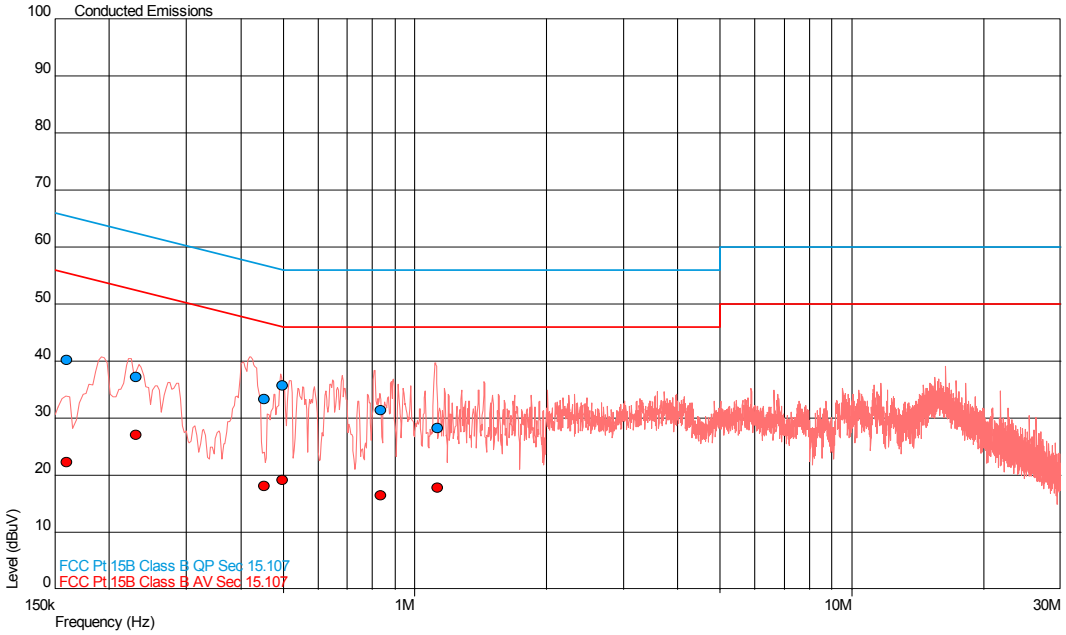
Live Line



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.197	44.4	63.7	-19.3	27.5	53.7	-26.2
0.515	37.4	56.0	-18.6	20.0	46.0	-26.0
0.534	36.2	56.0	-19.8	20.0	46.0	-26.0
0.600	37.4	56.0	-18.6	20.9	46.0	-25.1
0.634	37.6	56.0	-18.4	21.2	46.0	-24.8
0.652	34.8	56.0	-21.2	20.4	46.0	-25.6

Product Service

Neutral Line



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.160	40.2	65.5	-25.3	22.3	55.5	0.160
0.230	37.2	62.4	-25.2	27.1	52.4	0.230
0.452	33.4	56.8	-23.4	18.2	46.8	0.452
0.497	35.8	56.0	-20.2	19.2	46.0	0.497
0.835	31.4	56.0	-24.6	16.4	46.0	0.835
1.126	28.4	56.0	-27.6	17.9	46.0	1.126

2.2 FIELD STRENGTH OF FUNDAMENTAL

2.2.1 Specification Reference

FCC CFR 47 Part 15C and Industry Canada RSS-210, Clause 15.249 (a) and A2.9

2.2.2 Equipment Under Test and Modification State

Telran RF Module: TZ207011, S/N: DD 21 30 14 84 915 - Modification State 0
Telran USB Dongle: TZ207021, S/N: DD 21 90 A4 B4 915 - Modification State 0

2.2.3 Date of Test

27 July 2011 & 31 July 2011

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 EUT is placed on a test table 800mm above the ground plane.

During formal measurement the spectrum analyser is tuned to the frequency of the fundamental. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum level occurs. Once the point of maximum emission has been determined the emission is measured.

2.2.6 Environmental Conditions

Ambient Temperature	18.9 - 20.3°C
Relative Humidity	54.0 - 63.0%

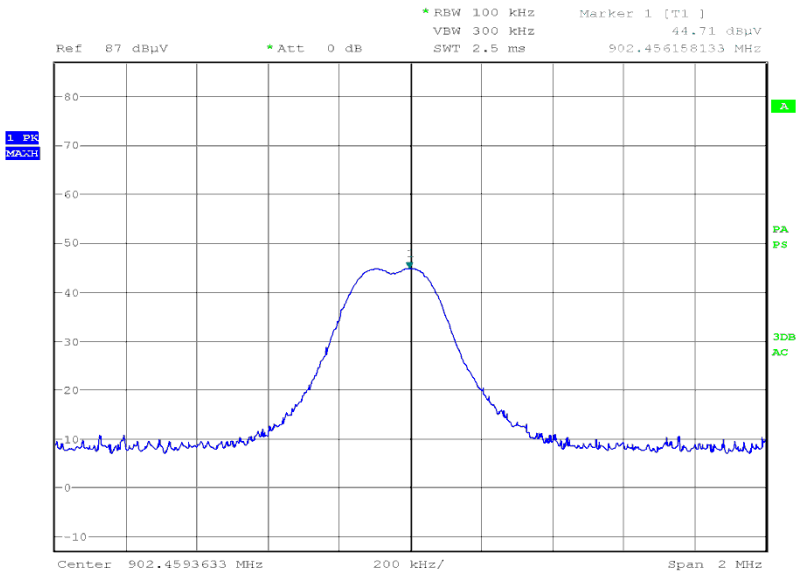
Product Service

2.2.7 Test Results

Radio Transceiver Module

903.2 MHz

Fundamental



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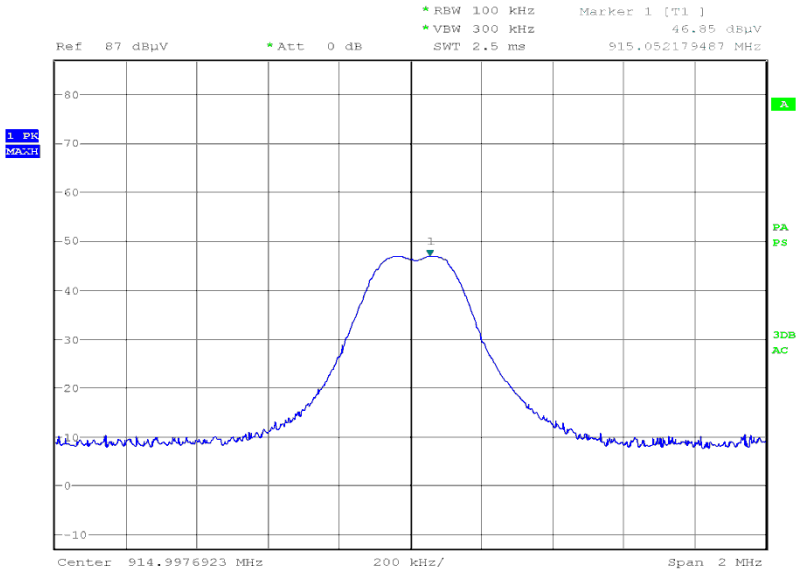
Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
902.460	68.8	94.0

915.0 MHz

Fundamental



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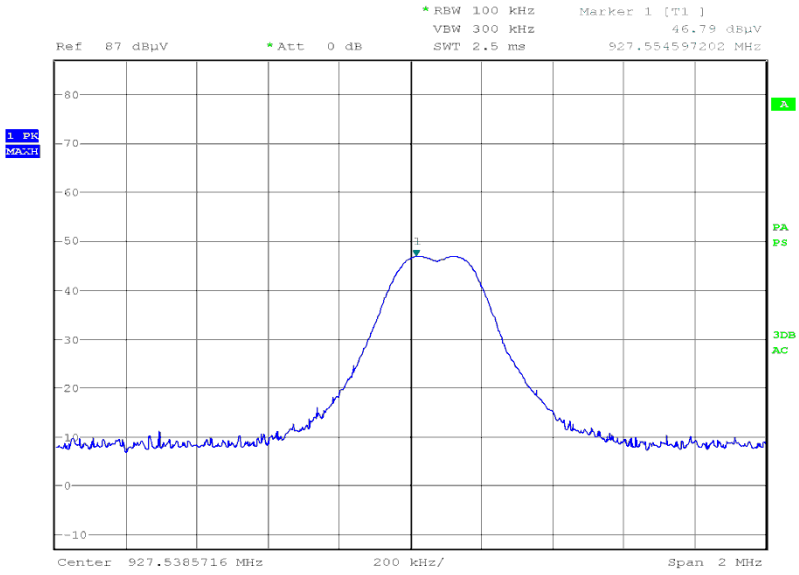
Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
915.055	71.0	94.0

927.8 MHz

Fundamental



Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
927.557	70.9	94.0

Limit Clause 15.249 (a) and A2.9

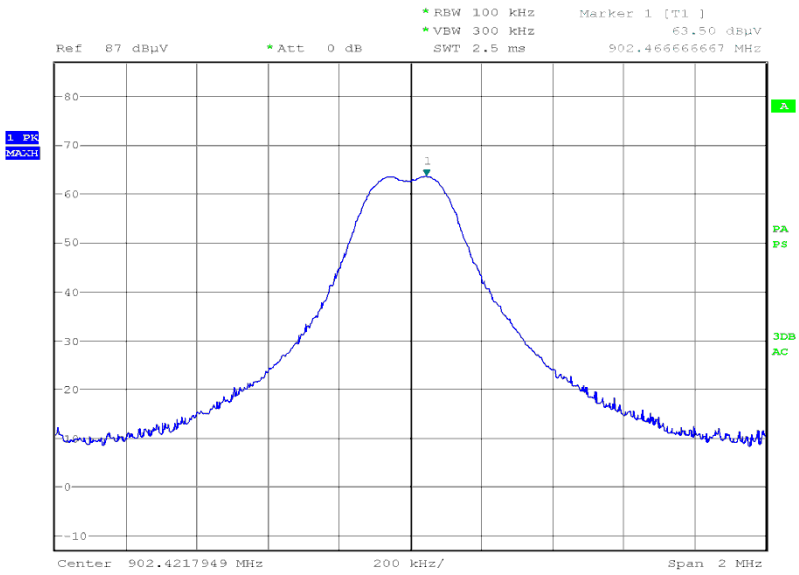
Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)
902 to 928	50
2400 to 2483.5	50
5725 to 5875	50
24000 to 24250	250

Product Service

USB Dongle

903.2 MHz

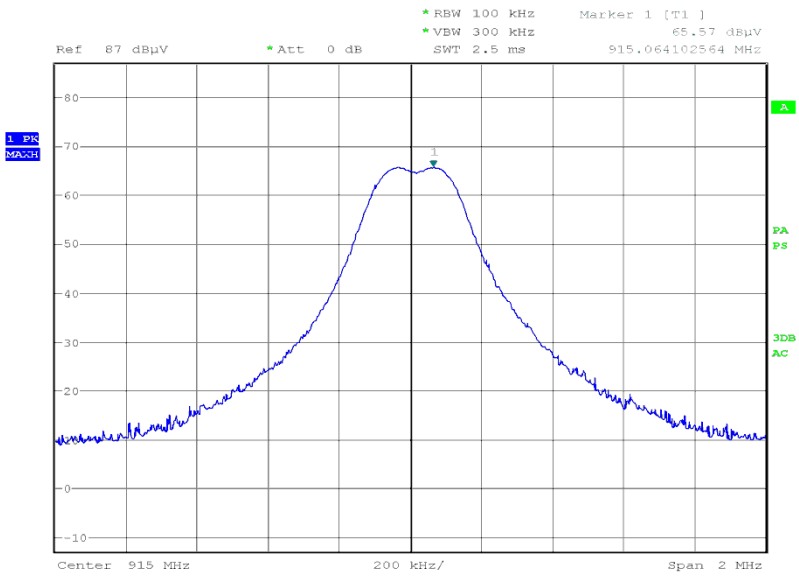
Fundamental



Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
902.405	79.3	94.0

915.0 MHz

Fundamental



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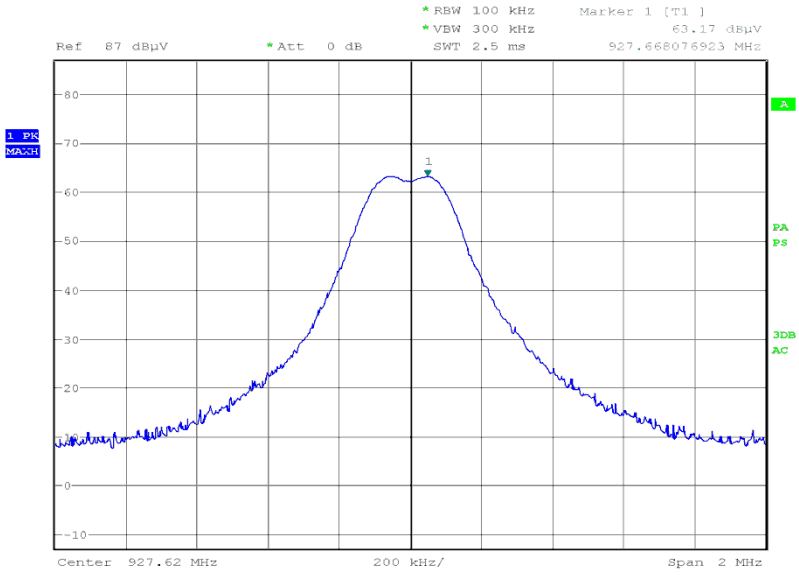
Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
915.017	81.2	94.0

927.8 MHz

Fundamental



Frequency (MHz)	Result (dBµv/m)	Limit (dBµv/m)
927.568	82.0	94.0

Limit Clause 15.249 (a) and A2.9

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)
902 to 928	50
2400 to 2483.5	50
5725 to 5875	50
24000 to 24250	250

2.3 FIELD STRENGTH OF SPURIOUS EMISSIONS

2.3.1 Specification Reference

FCC CFR 47 Part 15C and Industry Canada RSS-210, Clause 15.249 (a)(d), 15.209 and A2.9

2.3.2 Equipment Under Test and Modification State

Telran RF Module: TZ207011, S/N: DD 21 30 14 84 915 - Modification State 0
Telran USB Dongle: TZ207021, S/N: DD 21 90 A4 B4 915 - Modification State 0

2.3.3 Date of Test

31 July 2011

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

A preliminary profile of the Spurious Radiated Emissions is obtained up to the 10th harmonic of the EUT's fundamental frequency. For frequencies from 30MHz to 18GHz the EUT is placed on a test table 800mm above the ground plane. For frequencies above 18GHz, the EUT height is increased by 200mm to a height of 1000mm. This is to ensure the beam width of the measuring antenna gives sufficient vertical coverage of the EUT.

During characterisation the turntable azimuth is adjusted from 0 to 360 degrees with the measuring antenna in one polarity. It is then repeated for the other polarity. Any frequencies of interest are noted for formal measuring later. The distance from the measuring antenna to the boundary of the EUT is 3m. Above 18GHz this distance may be reduced to 1m.

During formal measurement the spectrum analyser is tuned to the frequency of the emission. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum emission level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum emission level occurs. Once the point of maximum emission has been determined the emission is measured. Emissions in the 30MHz to 1GHz range are measured using a CISPR Quasi – Peak detector function in a 120kHz bandwidth. Emissions in the range 1GHz to 40GHz require Peak and Average measurements. The Peak measurements are made using a peak detector with 1MHz Resolution and Video bandwidths. The average measurements employ a peak detector with a Resolution bandwidth of 1MHz and a Video bandwidth of 10Hz. If measurements are made at a 1m measuring distance, then 10dB is added to the specification limit.

2.3.6 Environmental Conditions

Ambient Temperature	18.9 - 20.3°C
Relative Humidity	54.0 - 63.0%

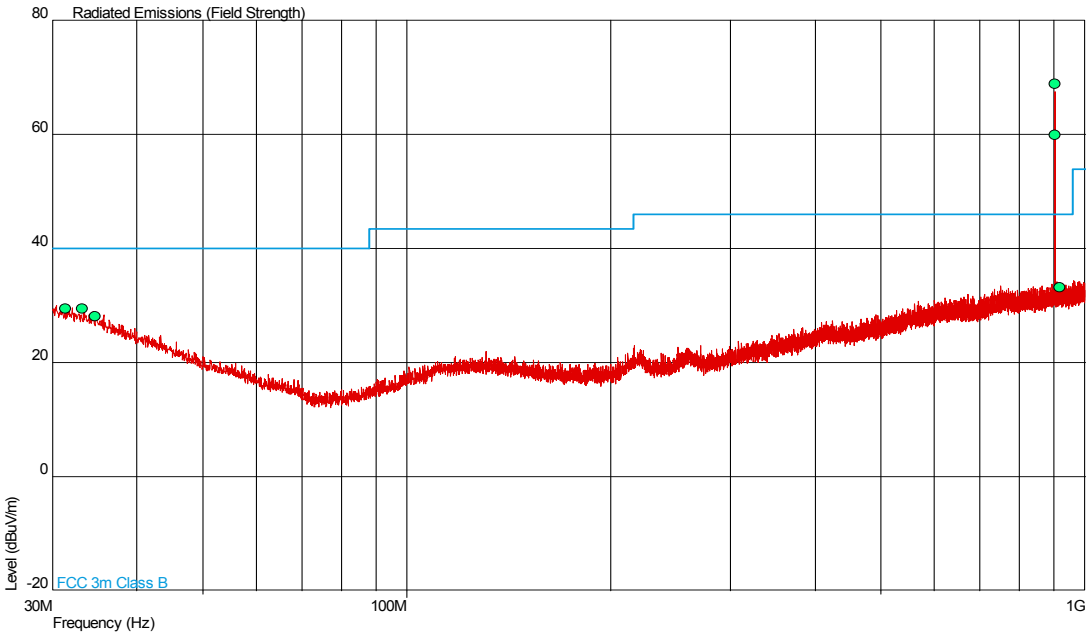
Product Service

2.3.7 Test Results

Radio Transceiver Module

903.2 MHz

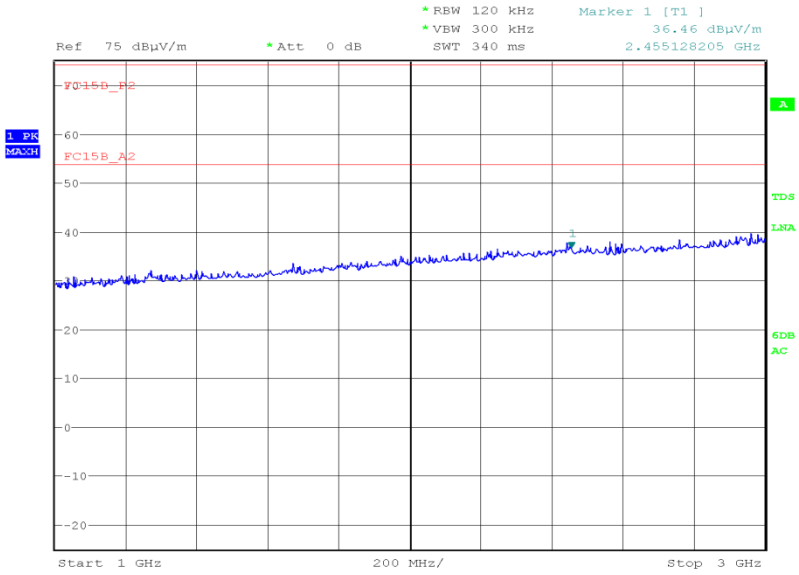
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
31.401	29.6	30.2	40.0	100	-10.4	69.8	360	1.00	Horizontal
33.237	29.5	29.9	40.0	100	-10.5	70.1	235	1.00	Vertical
34.713	28.2	25.7	40.0	100	-11.8	74.3	294	1.00	Vertical
917.403	33.3	46.2	46.0	200	-12.7	-153.8	095	1.00	Vertical

Product Service

1 GHz to 3 GHz



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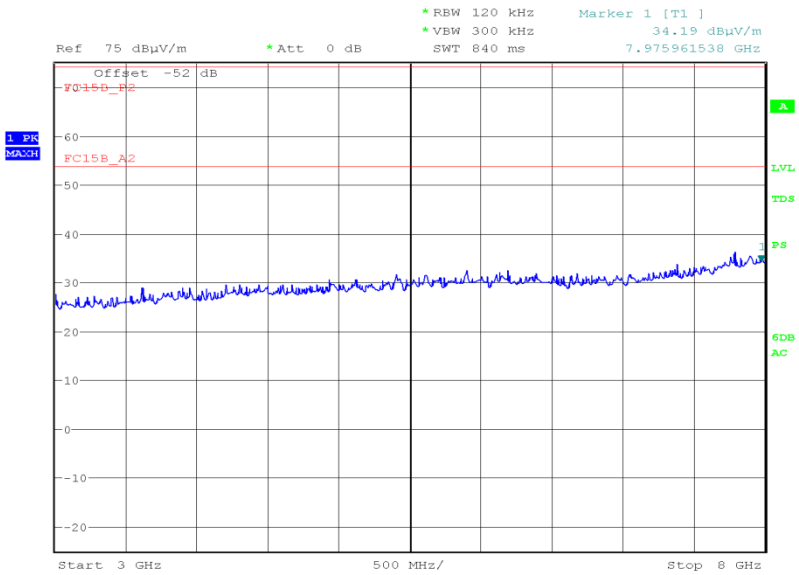
3 GHz to 8 GHz



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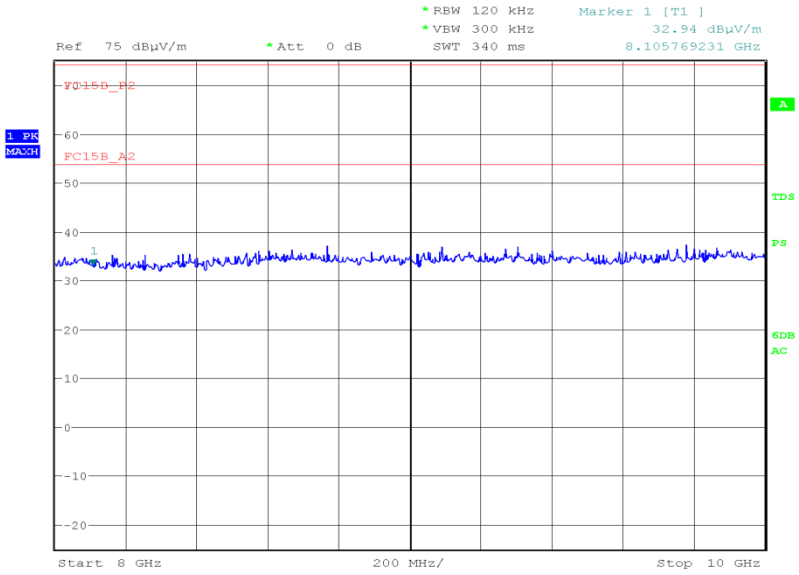
Product Service

8 GHz to 10 GHz



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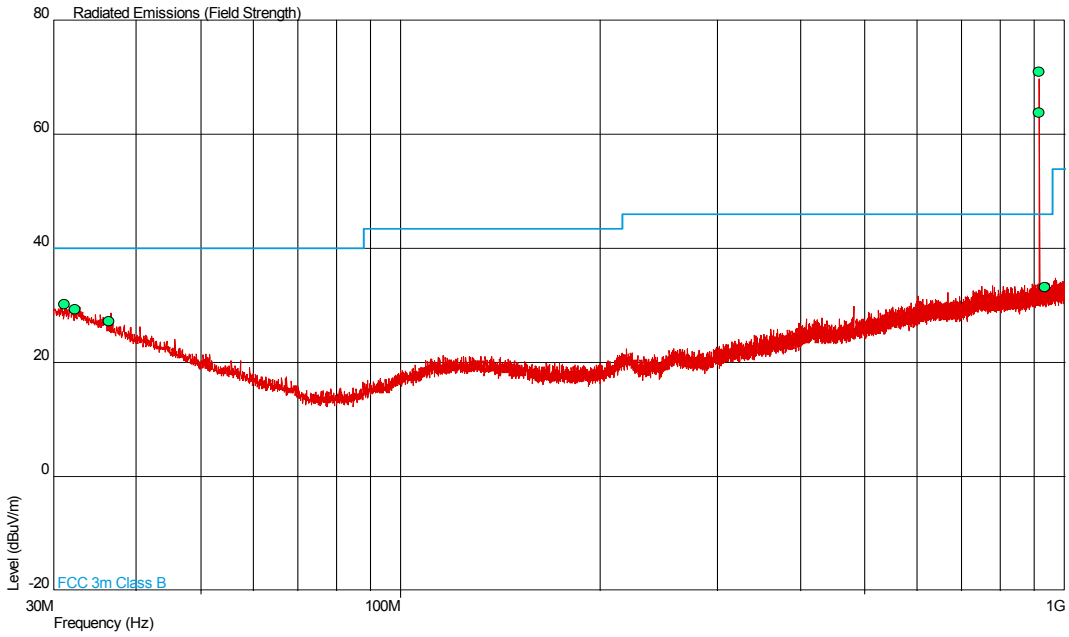
Product Service

915.0 MHz

30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
31.207	30.2	32.4	40.0	100	-9.8	67.6	108	1.00	Horizontal
32.347	29.3	29.2	40.0	100	-10.7	70.8	147	2.53	Vertical
36.392	27.3	23.2	40.0	100	-12.7	76.8	255	1.00	Vertical
932.886	33.2	45.7	46.0	200	-12.8	154.3	024	1.00	Vertical

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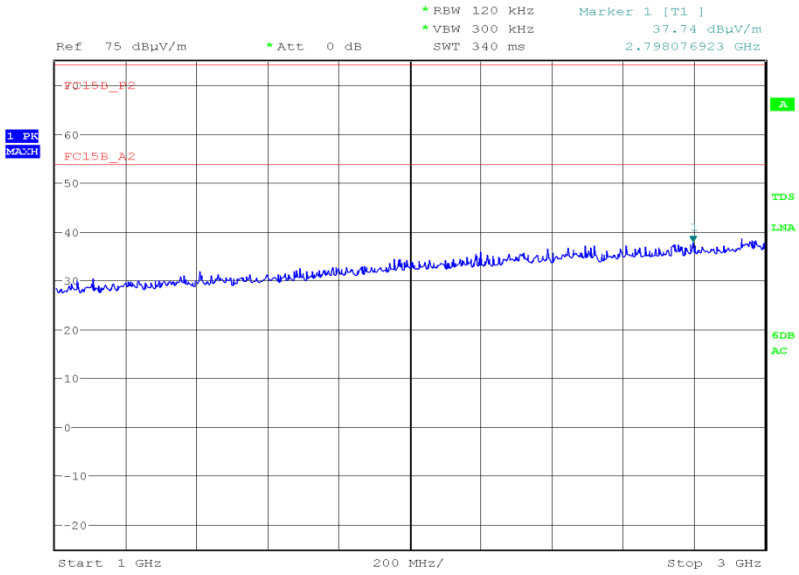
1 GHz to 3 GHz



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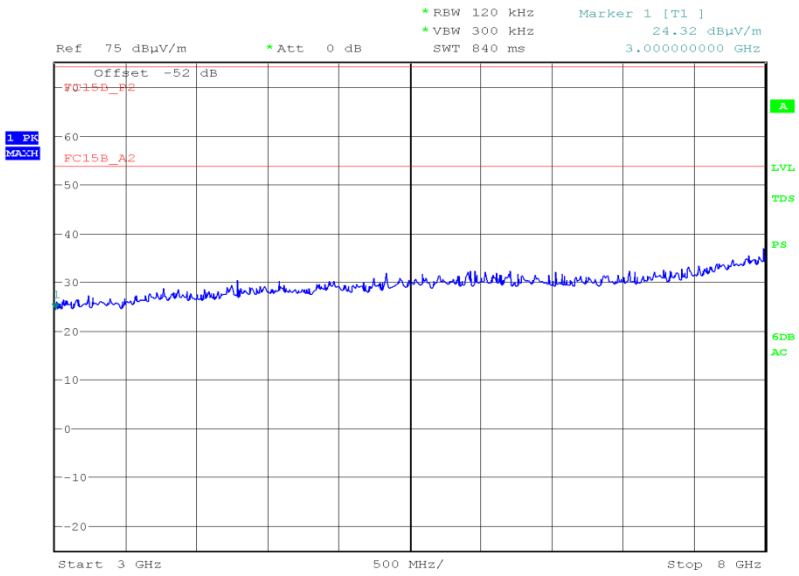
3 GHz to 8 GHz



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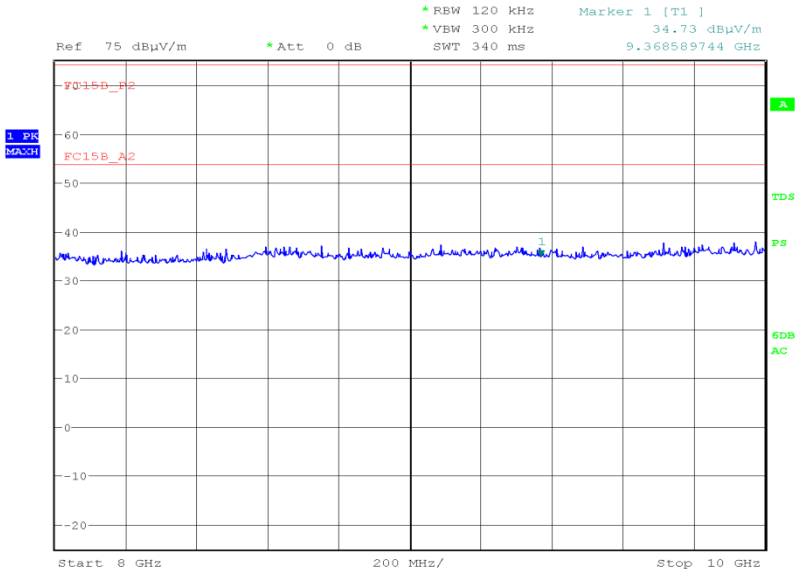
Product Service

8 GHz to 10 GHz



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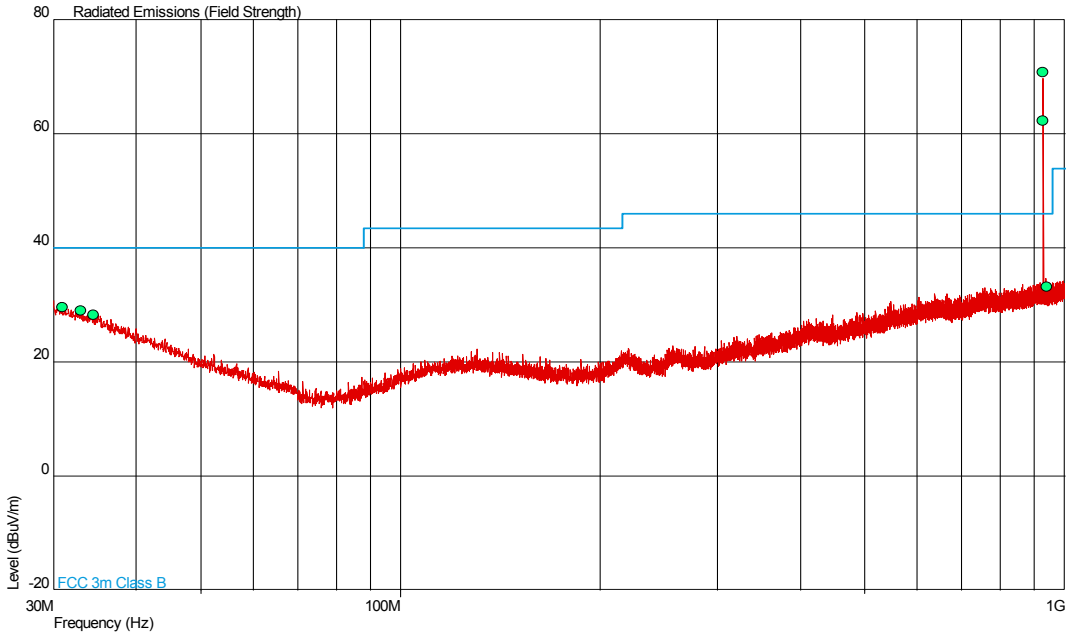
Product Service

927.8 MHz

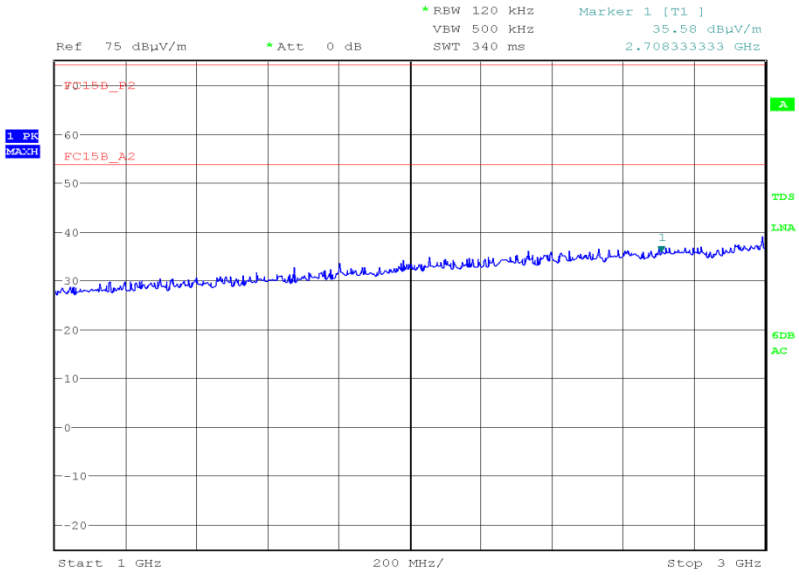
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
30.985	29.7	30.5	40.0	100	-10.3	69.5	176	1.00	Vertical
32.963	29.0	28.2	40.0	100	-11.0	71.8	019	1.03	Horizontal
34.514	28.3	26.0	40.0	100	-11.7	74.0	154	3.26	Vertical
939.383	33.2	45.7	46.0	200	-12.8	154.3	312	1.00	Vertical

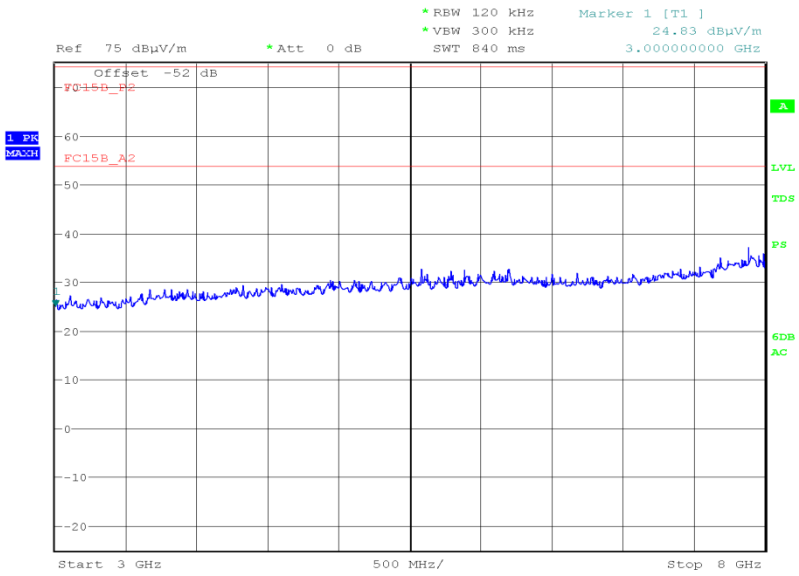
Product Service

1 GHz to 3 GHz



Date: 31.JUL.2011 10:59:53

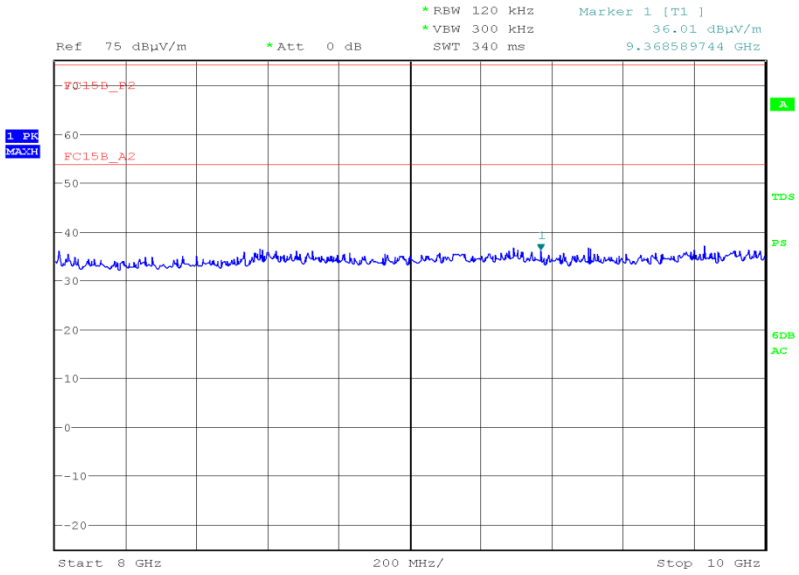
3 GHz to 8 GHz



Date: 31.JUL.2011 11:49:34

Product Service

8 GHz to 10 GHz



Date: 31.JUL.2011 12:08:24

Limit Clause

15.249 (a) and A2.9

Fundamental Frequency (MHz)	Field Strength of Harmonics (microvolts/meter)
902 to 928	500
2400 to 2483.5	500
5725 to 5875	500
24000 to 24250	2500

15.249 (d), 15.209

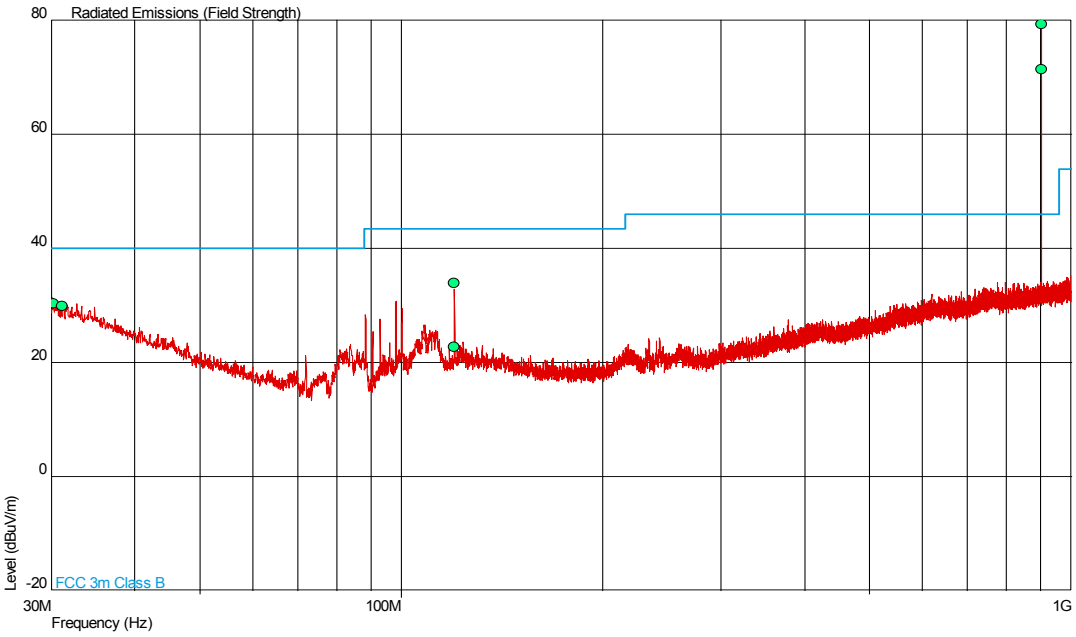
Frequency (MHz)	Field Strength (microvolts/meter)
0.009 to 0.490	2400/F (kHz)
0.490 to 1.705	24000/F (kHz)
1.705 to 30.0	30
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Product Service

USB Dongle

903.2 MHz

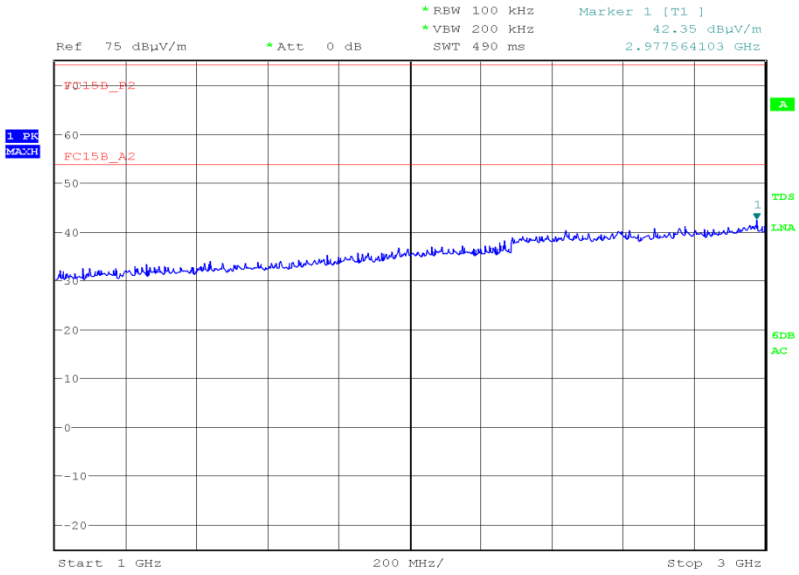
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
30.277	30.4	33.1	40.0	100	-9.6	66.9	360	1.00	Horizontal
31.145	30.0	31.6	40.0	100	-10.0	68.4	001	1.00	Horizontal
120.010	22.8	13.8	43.5	150	-20.7	86.2	050	1.00	Horizontal
120.020	33.9	49.5	43.5	150	-9.6	150.5	337	1.00	Vertical

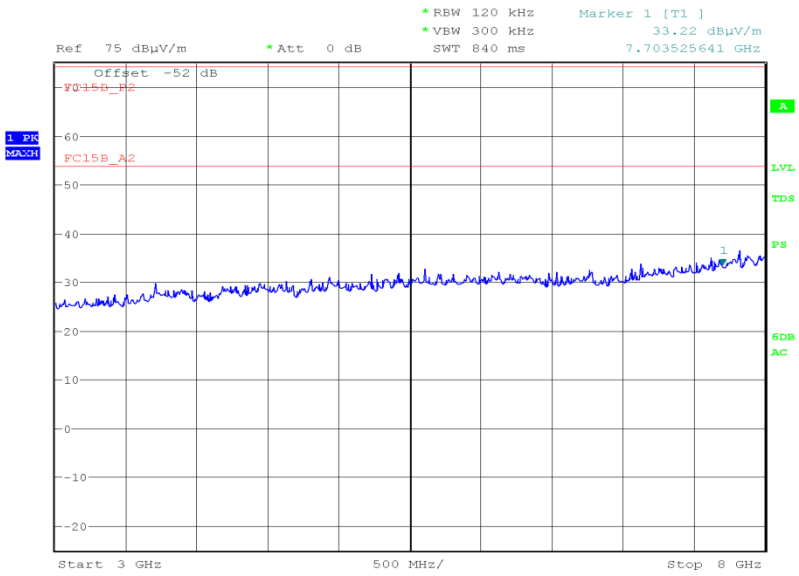
Product Service

1 GHz to 3 GHz



Date: 27.JUL.2011 20:46:21

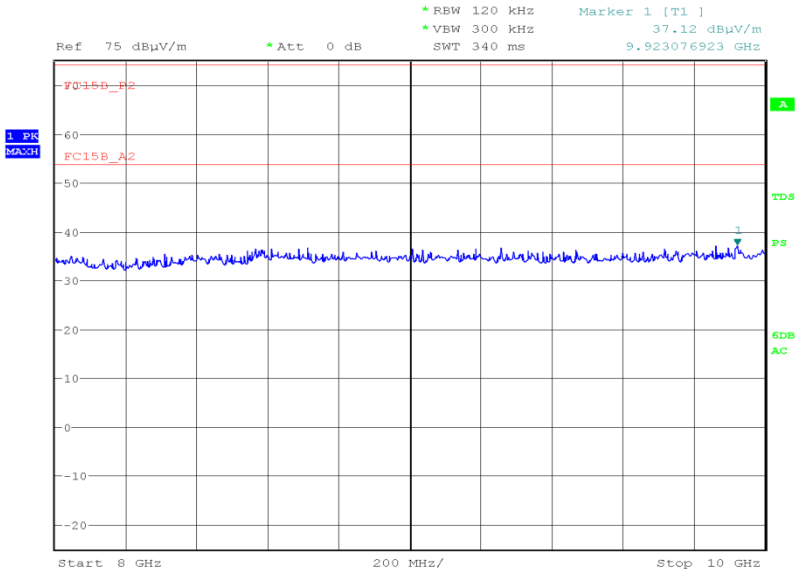
3 GHz to 8 GHz



Date: 27.JUL.2011 21:18:02

Product Service

8 GHz to 10 GHz

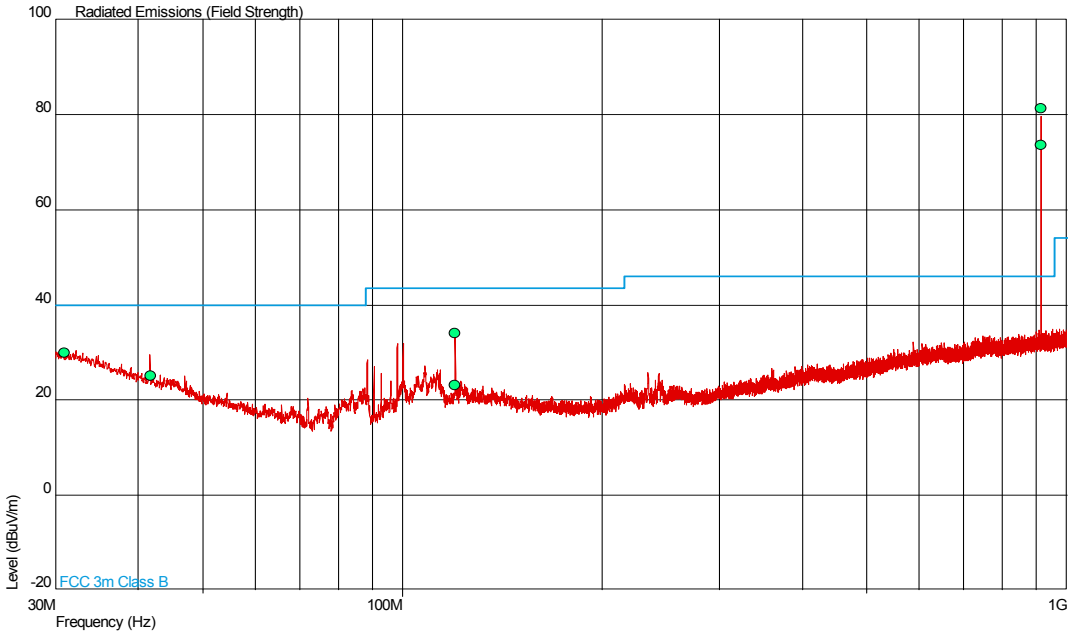


Date: 27.JUL.2011 21:50:12

Product Service

915.0 MHz

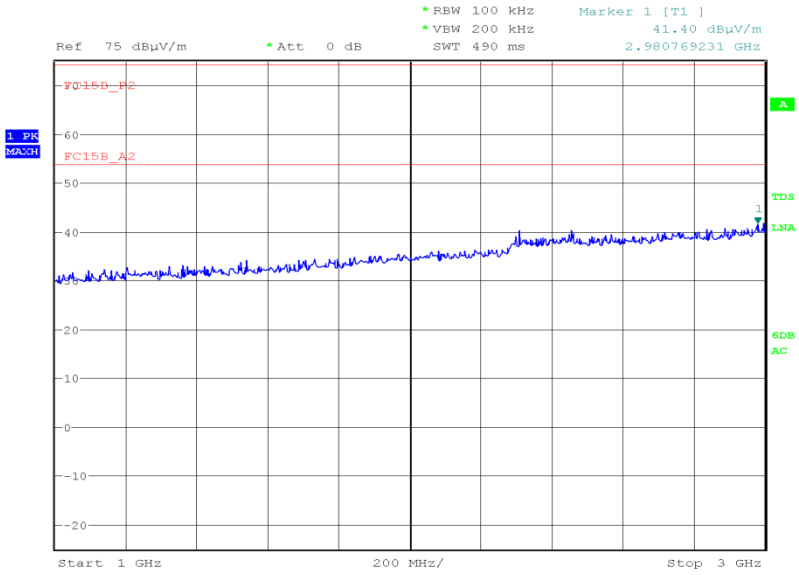
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
30.944	30.0	31.6	40.0	100	-10.0	68.4	071	1.00	Vertical
41.780	25.1	18.0	40.0	100	-14.9	82.0	226	1.00	Vertical
120.009	23.1	14.3	43.5	150	-20.4	85.7	083	1.00	Horizontal
120.017	33.9	49.5	43.5	150	-9.6	150.5	024	1.00	Vertical

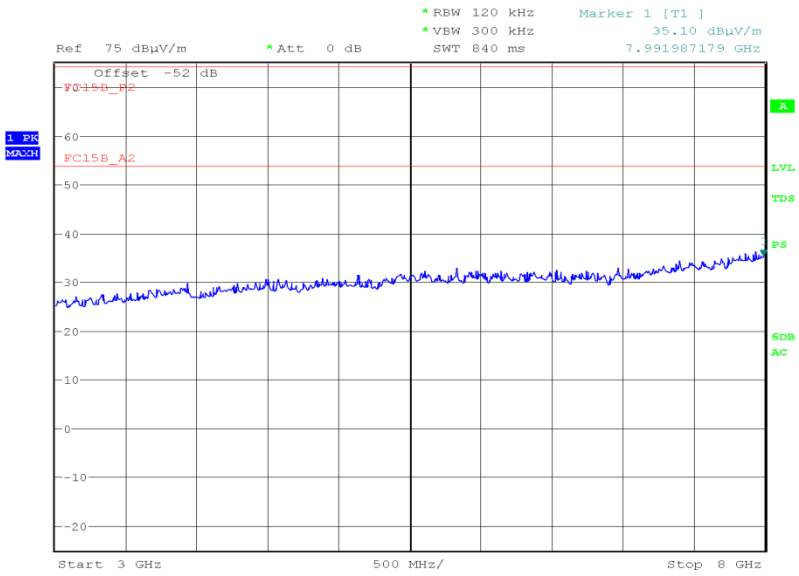
Product Service

1 GHz to 3 GHz



Date: 27.JUL.2011 20:41:58

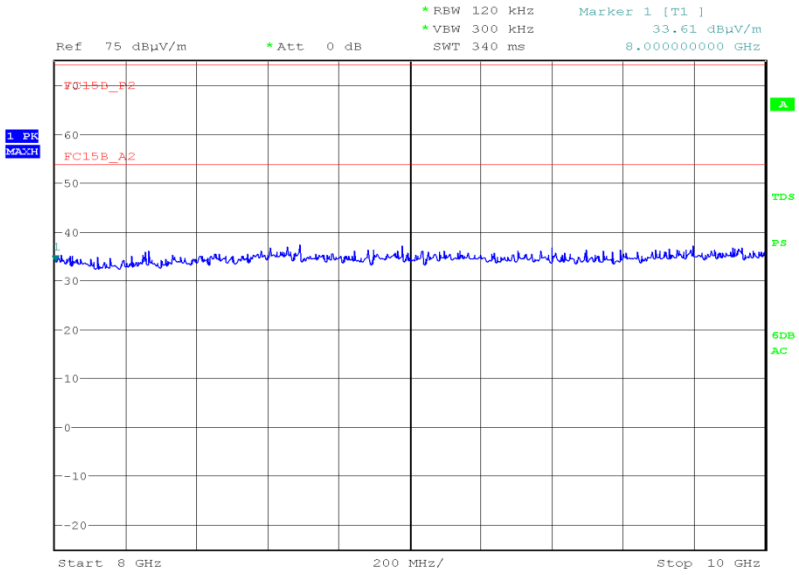
3 GHz to 8 GHz



Date: 27.JUL.2011 21:11:10

Product Service

8 GHz to 10 GHz

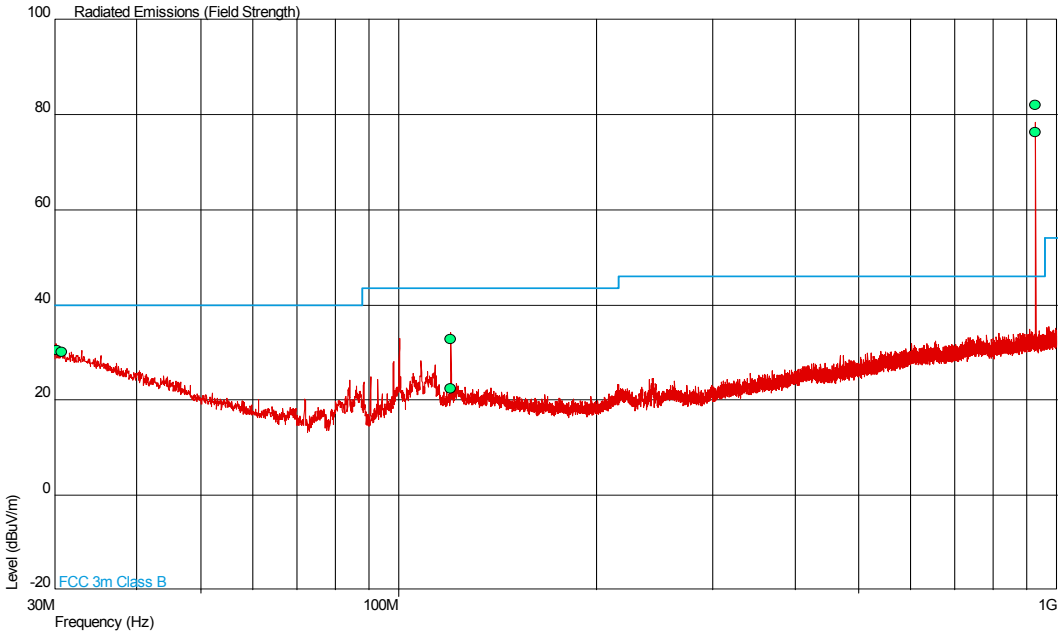


Date: 27.JUL.2011 21:43:06

Product Service

927.8 MHz

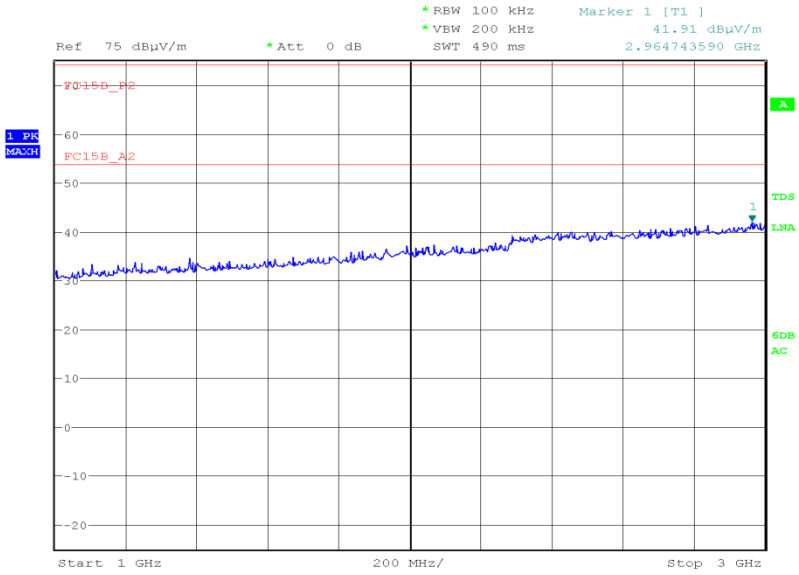
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (deg)	Height (m)	Polarity
30.271	30.5	33.5	40.0	100	-9.5	66.5	360	1.00	Vertical
30.769	30.1	32.0	40.0	100	-9.9	68.0	000	1.00	Vertical
120.004	22.4	13.2	43.5	150	-21.1	86.8	131	1.00	Horizontal
120.029	32.7	43.2	43.5	150	-10.8	156.8	360	1.00	Vertical

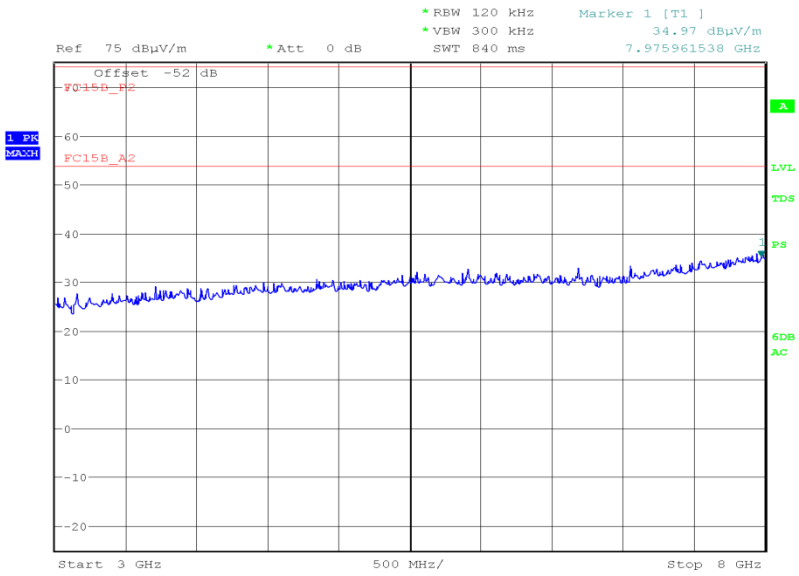
Product Service

1 GHz to 3 GHz



Date: 27.JUL.2011 20:35:29

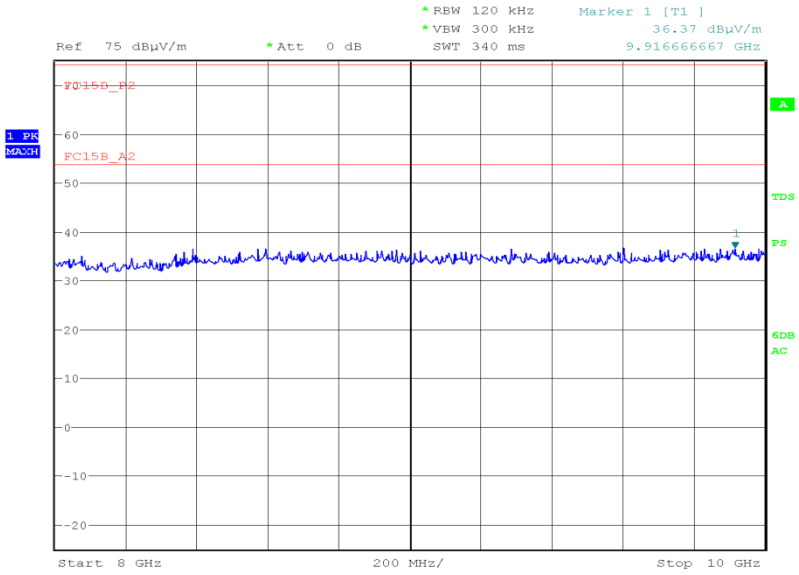
3 GHz to 8 GHz



Date: 27.JUL.2011 21:16:08

Product Service

8 GHz to 10 GHz



Date: 27.JUL.2011 21:44:40

Limit Clause

15.249 (a) and A2.9

Fundamental Frequency (MHz)	Field Strength of Harmonics (microvolts/meter)
902 to 928	500
2400 to 2483.5	500
5725 to 5875	500
24000 to 24250	2500

15.249 (d), 15.209

Frequency (MHz)	Field Strength (microvolts/meter)
0.009 to 0.490	2400/F (kHz)
0.490 to 1.705	24000/F (kHz)
1.705 to 30.0	30
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Product Service

2.4 OCCUPIED BANDWIDTH TESTING

2.4.1 Specification Reference

ANSI C63.10, Clause 6.9.1

2.4.2 Equipment Under Test and Modification State

Telran RF Module: TZ207011, S/N: DD 21 30 14 84 915 - Modification State 0
Telran USB Dongle: TZ207021, S/N: DD 21 90 A4 B4 915 - Modification State 0

2.4.3 Date of Test

12 September 2011 & 13 September 2011

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 applied in accordance with the test method requirements of FCC CFR 47 Part 15C and ANSI C63.10.

The EUT was transmitting at maximum power, at all data rates via a cable to the Spectrum Analyser. The Analyser settings were adjusted to display the resultant trace on screen. The peak point of the trace was measured and the markers positioned to give the -20dBc points of the displayed spectrum. The test was performed with an modulated carrier.

The plot of the following pages shows the resultant display from the Spectrum Analyser.

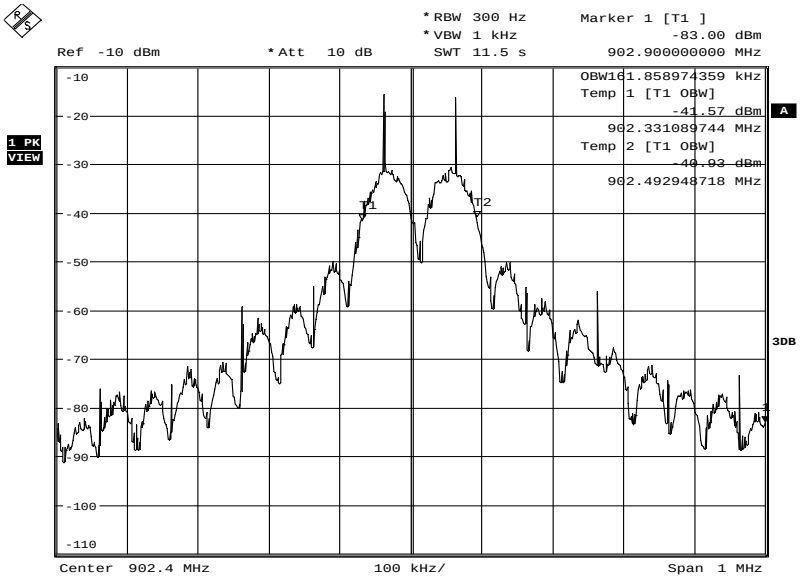
2.4.6 Environmental Conditions

Ambient Temperature	21.6 - 21.8°C
Relative Humidity	58.5 - 58.6%

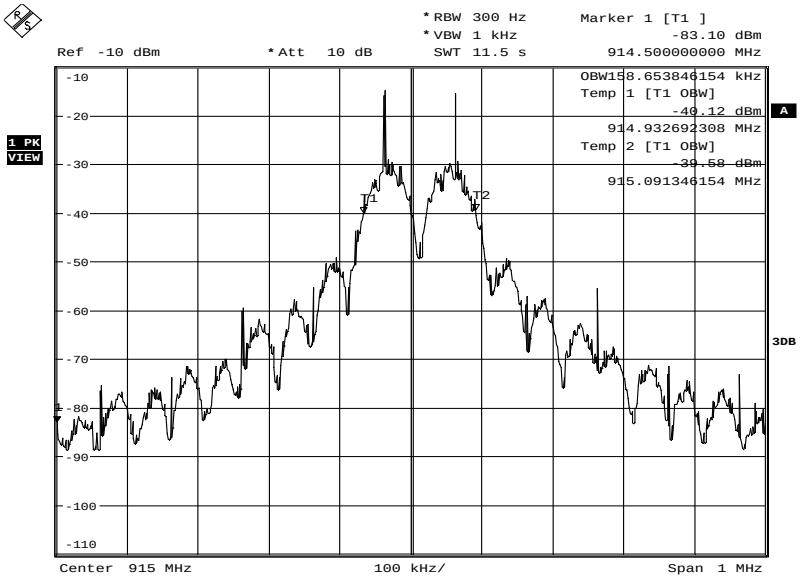
Product Service

2.4.7 Test Results

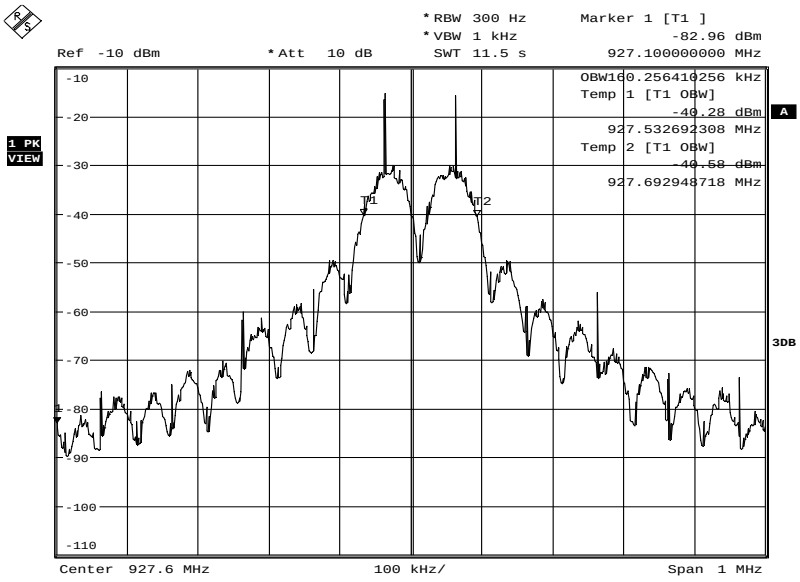
Radio Transceiver Module



Date: 12.SEP.2011 17:08:10



Date: 12.SEP.2011 17:00:12

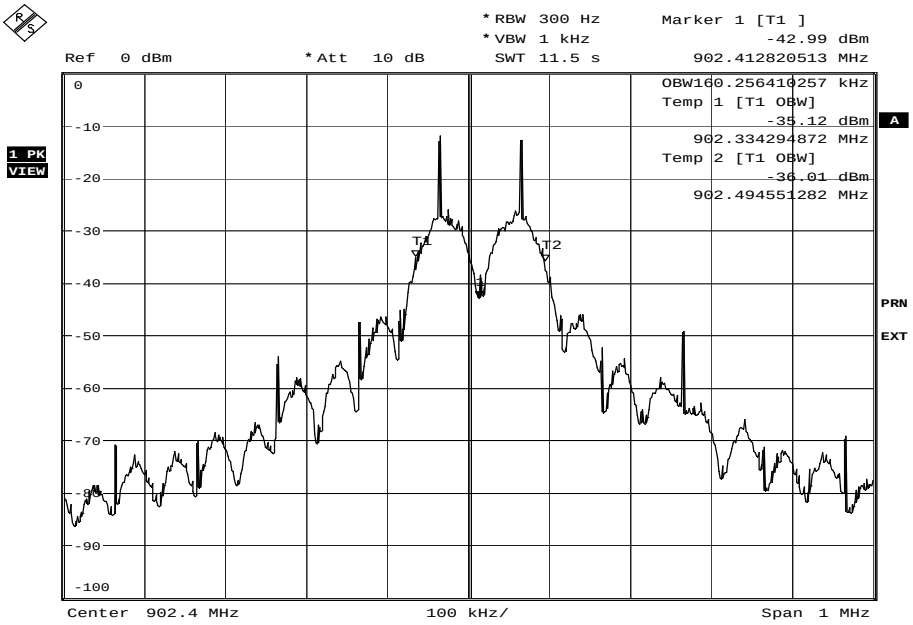


Date: 12.SEP.2011 17:15:20

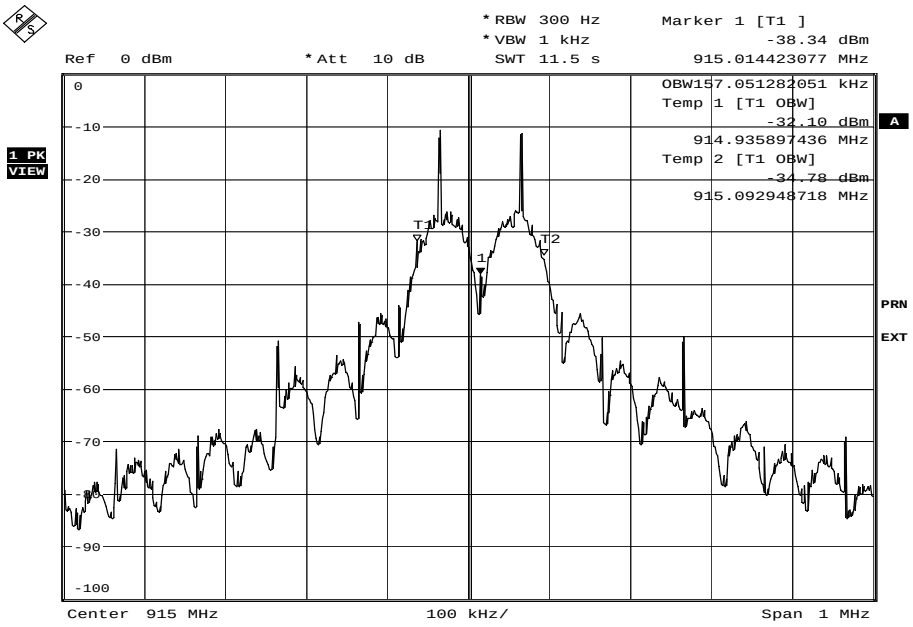
Frequency (MHz)	Occupied Bandwidth (kHz)
902.4	161.858974
915.0	158.653846
927.6	160.256410

Product Service

USB Dongle



Date: 5.SEP.2011 11:21:05



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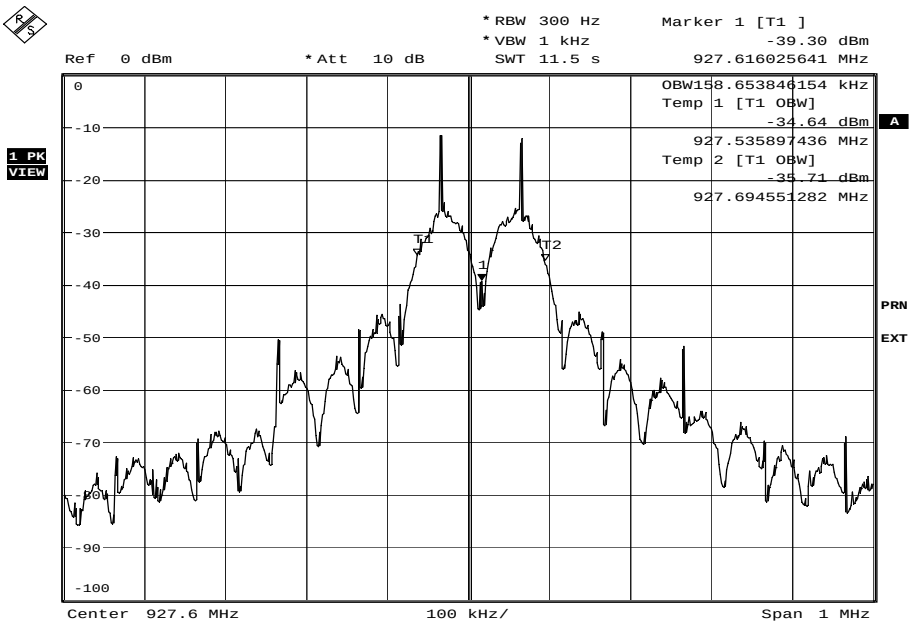

Frequency (MHz)	Occupied Bandwidth (kHz)
902.4	160.256410
915.0	157.051282
927.6	158.653846

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 - AC Line Conducted Emissions					
LISN (1 Phase)	Chase	MN 2050	336	12	23-Mar-2012
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Transient Limiter	Hewlett Packard	11947A	2378	12	22-Jun-2012
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
Section 2.2 and 2.3 – Field Strength of Fundamental and Field Strength of Spurious Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	12-Nov-2011
Antenna (Bilog)	Schaffner	CBL6143	287	24	19-Jan-2012
Pre-Amplifier	Phase One	PS04-0086	1533	12	15-Sep-2011
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Amplifier (1 - 8GHz)	Phase One	PS06-0060	3175	12	5-Jul-2012
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	9-Sep-2011
3 GHz High Pass Filter	K&L Microwave	11SH10-3000/X18000-O/O	3552	12	14-Apr-2012
'3.5mm' - '3.5mm' RF Cable (2m)	Rhophase	3PS-1803-2000-3PS	3703	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	12	10-Aug-2011
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Section 2.4 - Occupied Bandwidth Testing					
Dual programmable power supply	Thurlby	T-1000	418	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	13-Mar-2012
Multimeter	Iso-tech	IDM101	2424	12	5-Sep-2012
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	12-Nov-2011
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Signal Generator, 9kHz to 3GHz	Rohde & Schwarz	SMA 100A	3494	12	25-Jan-2012

TU – Traceability Unscheduled

Product Service

3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Field Strength of Fundamental	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Field Strength of Spurious Emissions	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Occupied Bandwidth Testing	± 16.74 kHz

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

UKAS TESTING 0141

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).