



Product Service

**Choose certainty.
Add value.**

Report On

Limited FCC Testing of the
Controlant ehf. CO 11.01 Transceiver
In accordance with FCC CFR 47 Part 15C

COMMERCIAL-IN-CONFIDENCE

FCC ID: 2AD9RCO1101

Document 75929314 Report 02 Issue 2

June 2015



Product Service

TÜV SÜD Product Service, Octagon House, Concorde Way, Segensworth North,
Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuv-sud.co.uk

COMMERCIAL-IN-CONFIDENCE

REPORT ON

Limited FCC Testing of the
Controlant ehf. CO 11.01 Transceiver
In accordance with FCC CFR 47 Part 15C

Document 75929314 Report 02 Issue 2

June 2015

PREPARED FOR

Controlant ehf.
Grensásvegi
Reykjavik
108
Iceland

PREPARED BY

Natalie Bennett
Senior Administrator, Project Support

APPROVED BY

Simon Bennett
Authorised Signatory

DATED

26 June 2015

This report has been up-issued to Issue 2 to correct the FCC ID and remove results for 2PSK modulation

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. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

N Rousell





CONTENTS

Section	Page No
1	REPORT SUMMARY 3
1.1	Introduction 4
1.2	Brief Summary of Results 5
1.3	Declaration of Build Status 6
1.4	Product Information 7
1.5	Test Conditions 7
1.6	Deviations from the Standard 7
1.7	Modification Record 7
2	TEST DETAILS 8
2.1	Frequency Hopping Systems - 20 dB Bandwidth and Channel Separation 9
2.2	Frequency Hopping Systems - Channel Dwell Time and Number of Hopping Channels 14
2.3	Maximum Peak Conducted Output Power 19
2.4	EIRP Peak Power 21
2.5	Spurious and Band Edge Emissions 25
3	TEST EQUIPMENT USED 39
3.1	Test Equipment Used 40
3.2	Measurement Uncertainty 42
4	ACCREDITATION, DISCLAIMERS AND COPYRIGHT 43
4.1	Accreditation, Disclaimers and Copyright 44



Product Service

SECTION 1

REPORT SUMMARY

Limited FCC Testing of the
Controlant ehf. CO 11.01 Transceiver
In accordance with FCC CFR 47 Part 15C



1.1 INTRODUCTION

The information contained in this report is intended to show the verification of Limited FCC Testing of the Controlant ehf. CO 11.01 Transceiver to the requirements of FCC CFR 47 Part 15C.

Objective	To perform Limited FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Controlant ehf.
Model Number(s)	CO 11.01 Transceiver
Serial Number(s)	CMS 0100087E
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15C (2014)
Incoming Release Date	Declaration of Build Status 29 January 2015
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	Quotation Acceptance Form 30 January 2015
Start of Test	11 February 2015
Finish of Test	16 March 2015
Name of Engineer(s)	G Lawler N Rousell J Hurley
Related Document(s)	ANSI C63.10: 2009



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15C is shown below.

Section	Spec Clause	Test Description	Result	Comments/Base Standard
Transmit				
2.1	15.247 (a)(1)	Frequency Hopping Systems - 20 dB Bandwidth and Channel Separation	Pass	
2.2	15.247 (a)(1)(iii)	Frequency Hopping Systems - Channel Dwell Time and Number of Hopping Channels	Pass	
2.3	15.247 (b)(3)	Maximum Peak Conducted Output Power	Pass	
2.4	15.247 (b)(4)	EIRP Peak Power	Pass	
2.5	15.247 (d)	Spurious and Band Edge Emissions	Pass	



Product Service

1.3 DECLARATION OF BUILD STATUS

MAIN EUT			
MANUFACTURING DESCRIPTION	CO 11.01 Transceiver		
MANUFACTURER	Controlant		
TYPE	Transceiver		
PART NUMBER	CO 11.01		
SERIAL NUMBER			
HARDWARE VERSION	1.0		
SOFTWARE VERSION	1.0.0		
TRANSMITTER FREQUENCY OPERATING RANGE (MHz)	2G: GSM850, GSM900, DCS1800 & PCS1900. 3G: WCDMA850, WCDMA900, WCDMS1900 & WCDMA2100. SRD: 868MHz & 915MHz.		
RECEIVER FREQUENCY OPERATING RANGE (MHz)	2G: GSM850, GSM900, DCS1800 & PCS1900. 3G: WCDMA850, WCDMA900, WCDMS1900 & WCDMA2100. SRD: 868MHz & 915MHz.		
COUNTRY OF ORIGIN	Iceland		
INTERMEDIATE FREQUENCIES			
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)			
MODULATION TYPES: (i.e. GMSK, QPSK)	GMSK		
HIGHEST INTERNALLY GENERATED FREQUENCY	26MHz crystal		
OUTPUT POWER (W or dBm)	2G: less than 33dBm peak (conducted at module output) 3G: less than 24dBm average (conducted at module output)		
FCC ID	R17HE910		
INDUSTRY CANADA ID	5131a-HE910		
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The Controlant Monitoring System is a cloud based temperature monitoring and tracking system. It is used in various applications where measurements of environmental variables (temperature, humidity) are required.		
BATTERY/POWER SUPPLY			
MANUFACTURING DESCRIPTION	LP953450-PCM-LD		
MANUFACTURER	EEMB Co., Ltd.		
TYPE	Polymer Li-ion		
PART NUMBER	LP953450-PCM-LD		
VOLTAGE	3.7V		
COUNTRY OF ORIGIN	China		
MODULES (if applicable)			
MANUFACTURING DESCRIPTION	HE910-DG		
MANUFACTURER	Telit		
TYPE	HE910		
POWER			
FCC ID	RI7HE910		
COUNTRY OF ORIGIN	Italy		
INDUSTRY CANADA ID	5131a-HE910		
EMISSION DESIGNATOR			
DHSS/FHSS/COMBINED OR OTHER			
ANCILLARIES (if applicable)			
MANUFACTURING DESCRIPTION			
MANUFACTURER			
TYPE			
PART NUMBER			
SERIAL NUMBER			
COUNTRY OF ORIGIN			

Signature
Date

Declaration of Build Status Serial Number

Gisli Kristjánsson
29th of January 2015



Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Controlant ehf. CO 11.01 Transceiver. 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 3.7 V DC supply.

FCC Measurement Facility Registration Number
90987 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 Testing of the
Controlant ehf. CO 11.01 Transceiver
In accordance with FCC CFR 47 Part 15C



Product Service

2.1 FREQUENCY HOPPING SYSTEMS - 20 dB BANDWIDTH AND CHANNEL SEPARATION**2.1.1 Specification Reference**

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)

2.1.2 Equipment Under Test and Modification State

CO 11.01 Transceiver S/N: CMS 0100087E - Modification State 0

2.1.3 Date of Test

19 February 2015 & 16 March 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 C63.10, Clause 6.9.1 and 7.7.2.

2.1.6 Environmental Conditions

Ambient Temperature	21.7 - 22.0°C
Relative Humidity	31.2 - 33.6%



Product Service

2.1.7 Test Results

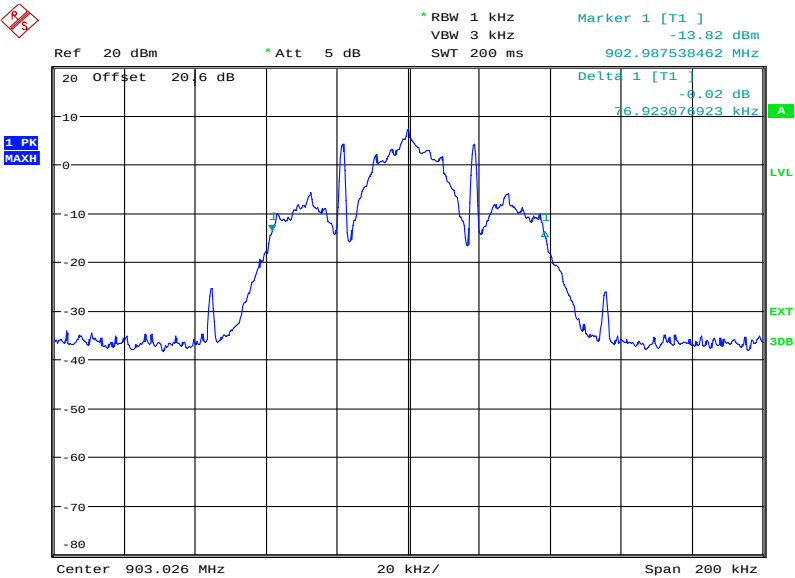
3.7 V DC Supply

20 dB Bandwidth

903 MHz

Modulation	20 dB Bandwidth (kHz)
GFSK	76.923

GFSK



Date: 16.MAR.2015 14:39:24

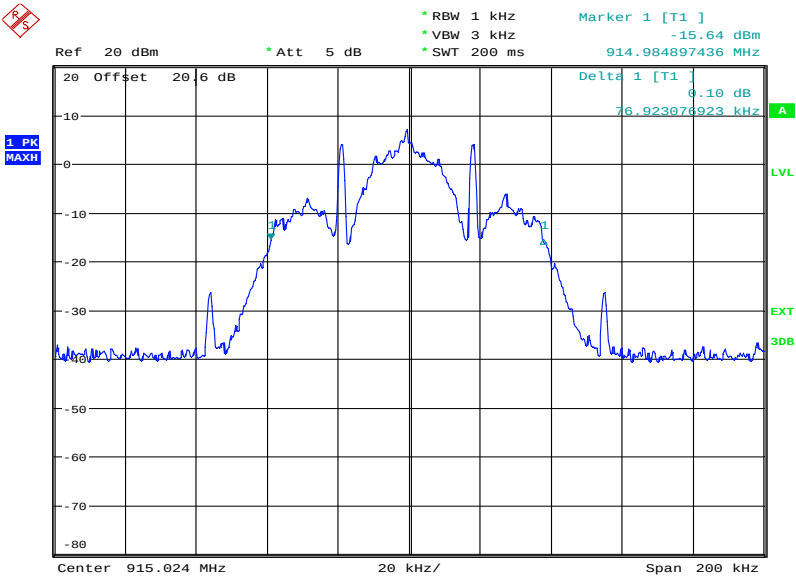


Product Service

915 MHz

Modulation	20 dB Bandwidth (kHz)
GFSK	76.923

GFSK



Date: 16.MAR.2015 14:44:49

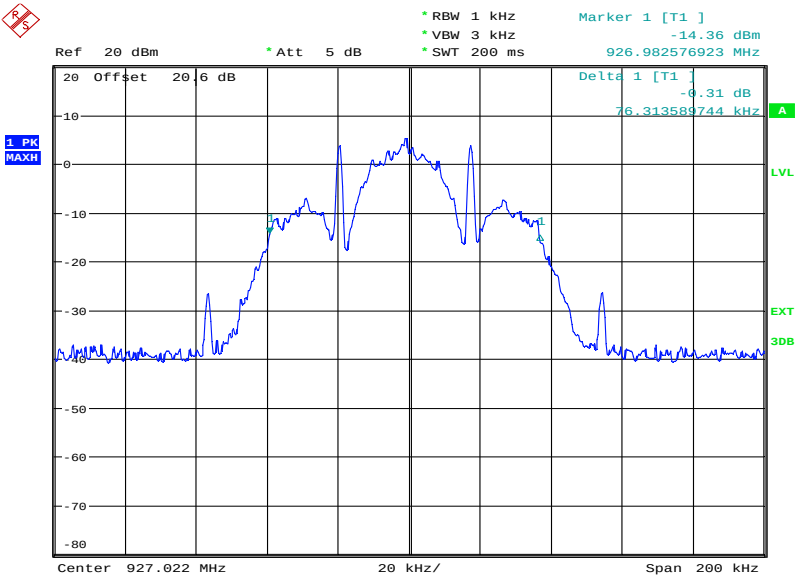


Product Service

927 MHz

Modulation	20 dB Bandwidth (kHz)
GFSK	76.314

GFSK



Date: 16.MAR.2015 14:48:00

Limit Clause

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

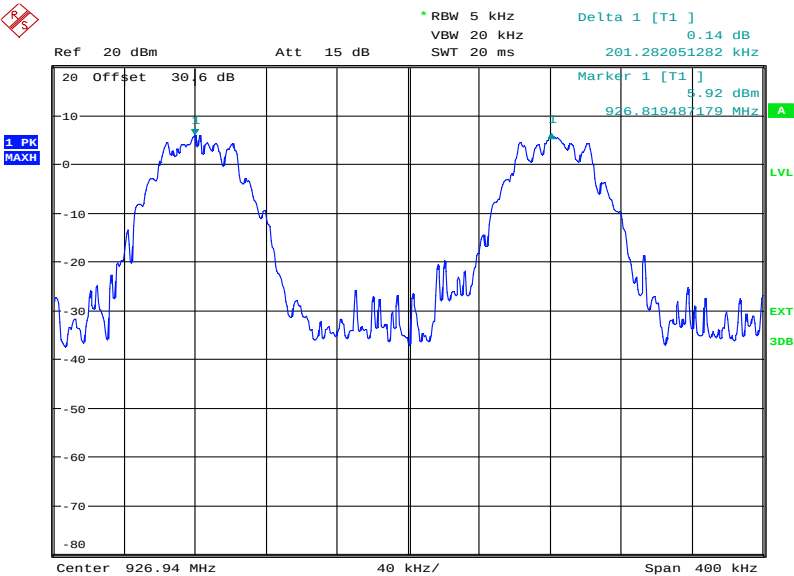


Product Service

Channel Separation

Modulation	Channel Separation (MHz)
GFSK	0.201282

GFSK



Date: 19.FEB.2015 11:52:57

Limit Clause

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.



Product Service

2.2 FREQUENCY HOPPING SYSTEMS - CHANNEL DWELL TIME AND NUMBER OF HOPPING CHANNELS

2.2.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)(i)

2.2.2 Equipment Under Test and Modification State

CO 11.01 Transceiver S/N: CMS 0100087E - Modification State 0

2.2.3 Date of Test

18 February 2015, 3 March 2015 & 16 March 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 7.7.3 and 7.7.4.

2.2.6 Environmental Conditions

Ambient Temperature	19.7°C
Relative Humidity	35.3%



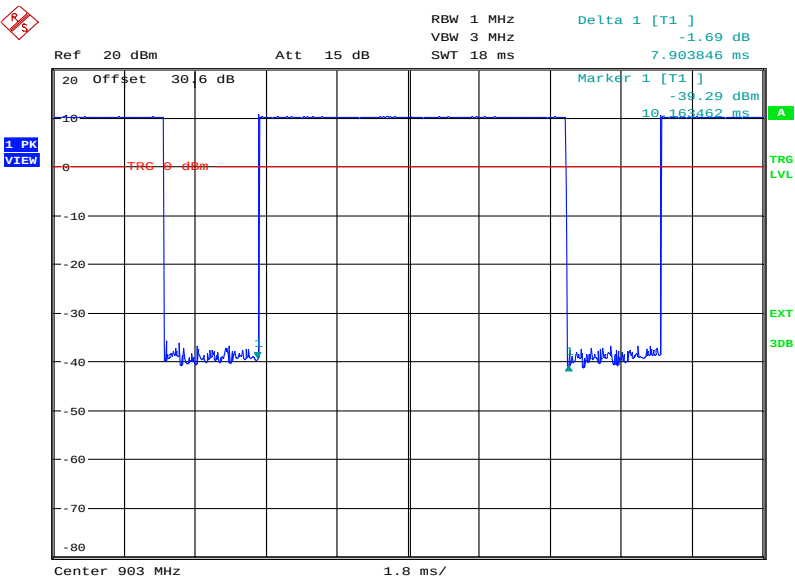
Product Service

2.2.7 Test Results

Channel Dwell Time

GFSK

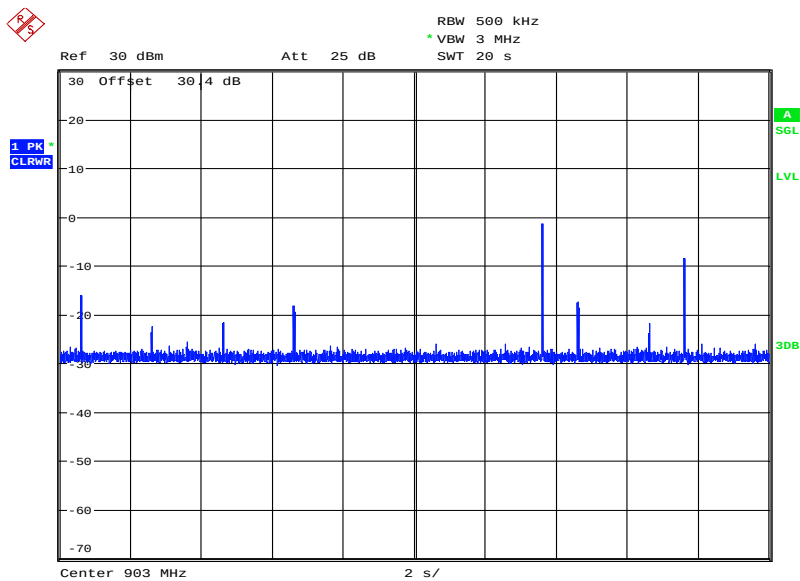
Dwell Time (ms)	Number of Transmissions	Average Occupancy Time (ms)
7.90	1	7.90



Date: 18.FEB.2015 14:05:28



Product Service



Date: 3.MAR.2015 13:19:53

Limit

<0.4 seconds within 20 second period.

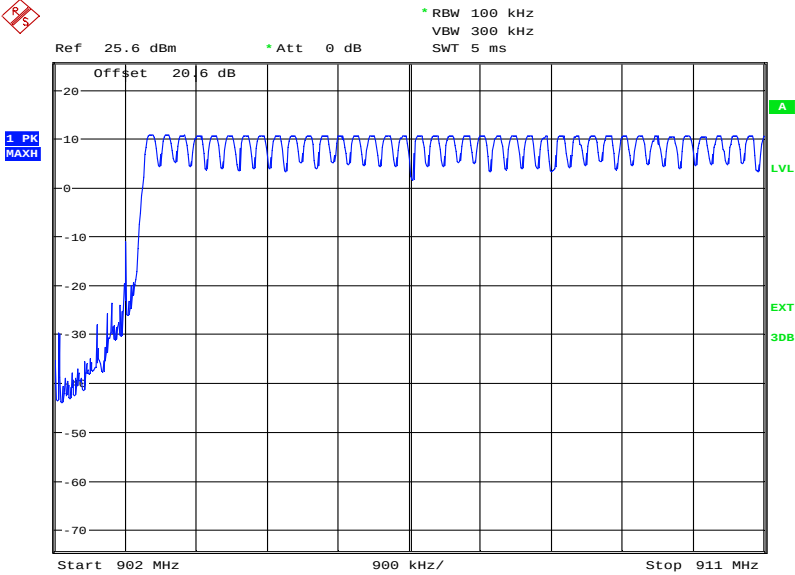


Product Service

Number of Hopping Channels

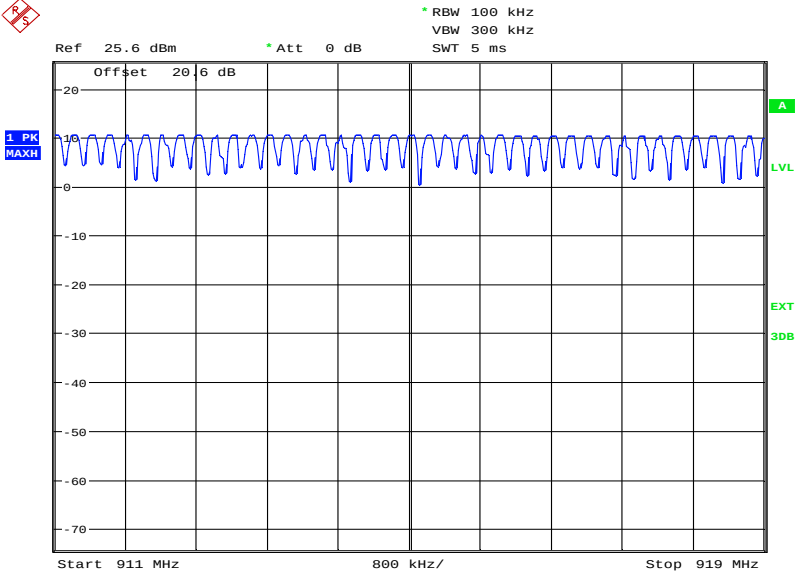
The number of hopping channels is: 121

902 MHz to 911 MHz



Date: 16.MAR.2015 15:44:58

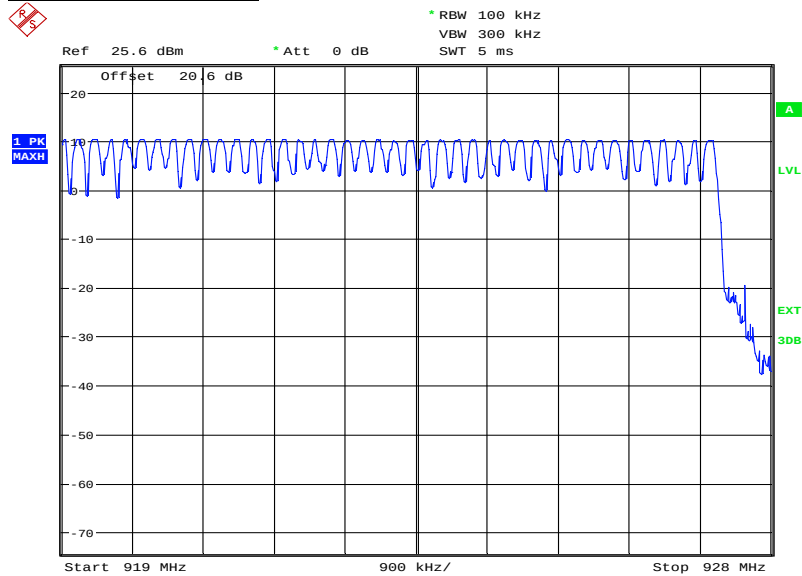
911 MHz to 919 MHz



Date: 16.MAR.2015 15:56:53



Product Service

919 MHz to 928 MHz

Date: 16.MAR.2015 16:03:41

Limit ≥ 50 channels



Product Service

2.3 MAXIMUM PEAK CONDUCTED OUTPUT POWER**2.3.1 Specification Reference**

FCC CFR 47 Part 15C, Clause 15.247 (b)(2)

2.3.2 Equipment Under Test and Modification State

CO 11.01 Transceiver S/N: CMS 0100087E - Modification State 0

2.3.3 Date of Test

16 February 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 6.10.1.

2.3.6 Environmental Conditions

Ambient Temperature	23.6°C
Relative Humidity	33.4%



2.3.7 Test Results

3.7 V DC Supply

Maximum Peak Conducted Output Power					
dBm			mW		
903 MHz	915 MHz	927 MHz	903 MHz	915 MHz	927 MHz
12.87	12.64	12.73	19.364	18.365	18.749

Limit Clause

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

902 to 928 MHz	≥ 50 hopping channels	1W
	< 50 hopping channels	0.25 W



Product Service

2.4 EIRP PEAK POWER**2.4.1 Specification Reference**

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

2.4.2 Equipment Under Test and Modification State

CO 11.01 Transceiver S/N: CMS 0100087E - Modification State 0

2.4.3 Date of Test

15 February 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 6.10.1 and the Radiated Emission general requirements detailed in Clause 6.3.

2.4.6 Environmental Conditions

Ambient Temperature	20.8°C
Relative Humidity	30.0%

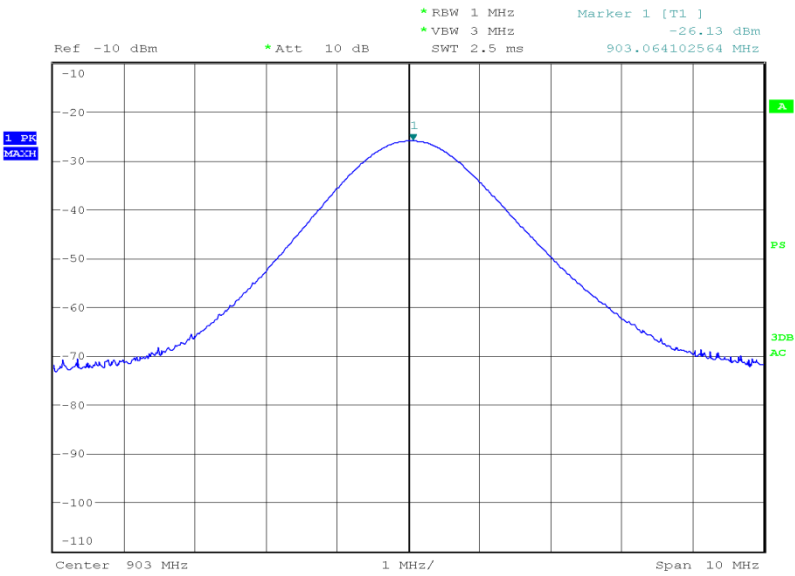


Product Service

2.4.7 Test Results

903 MHz

EIRP (dBm)	EIRP (mW)
7.11	5.14



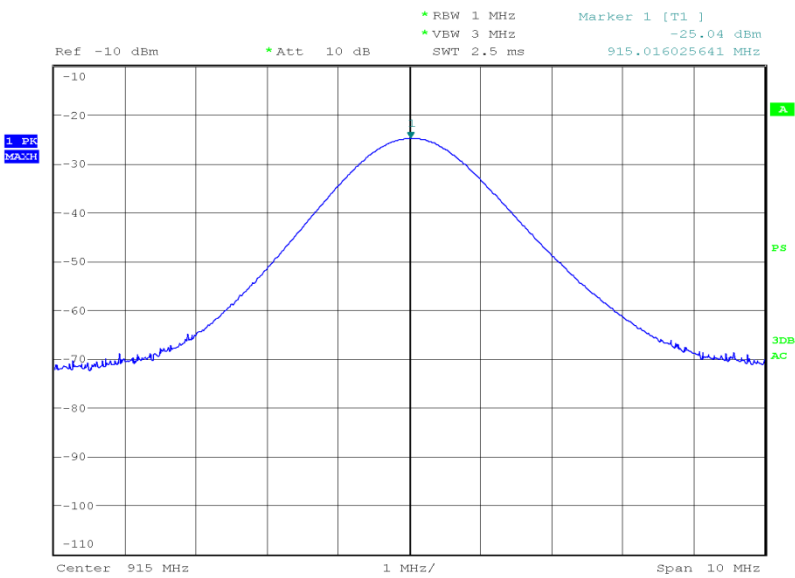
Date: 15.FEB.2015 11:58:39



Product Service

915 MHz

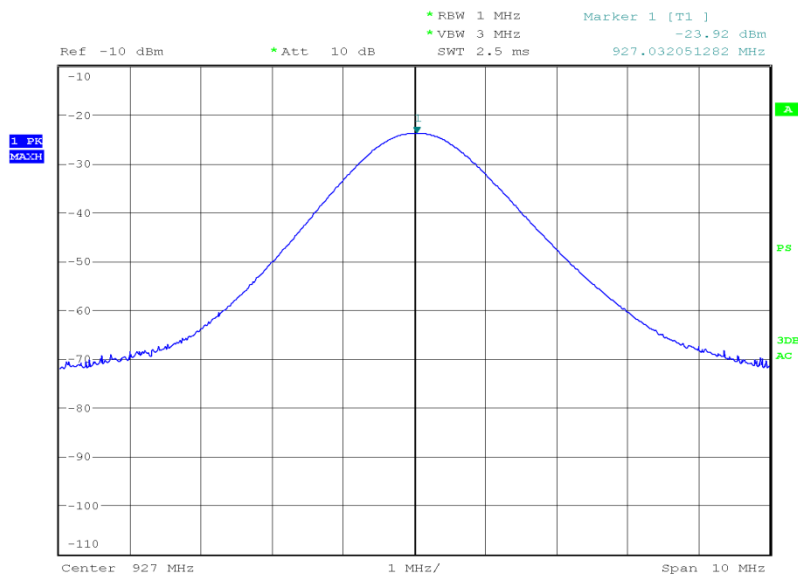
EIRP (dBm)	EIRP (mW)
8.04	6.37



Date: 15.FEB.2015 11:49:04

927 MHz

EIRP (dBm)	EIRP (mW)
9.26	8.43



Date: 15.FEB.2015 12:06:56

Limit

EIRP (dBm)	EIRP (mW)
36.0	4000



Product Service

2.5 SPURIOUS AND BAND EDGE EMISSIONS**2.5.1 Specification Reference**

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

2.5.2 Equipment Under Test and Modification State

CO 11.01 Transceiver S/N: CMS 0100087E - Modification State 0

2.5.3 Date of Test

16 February 2015 & 3 March 2015

2.5.4 Test Equipment Used

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

2.5.5 Test Procedure

The test was performed in accordance with ANSI C63.10, Clauses 6.3, 6.5, 6.6, 6.9.2 and 7.7.9.

2.5.6 Environmental Conditions

Ambient Temperature	20.1 - 21.2°C
Relative Humidity	24.0 - 32.0%



2.5.7 Test Results

3.7 V DC Supply

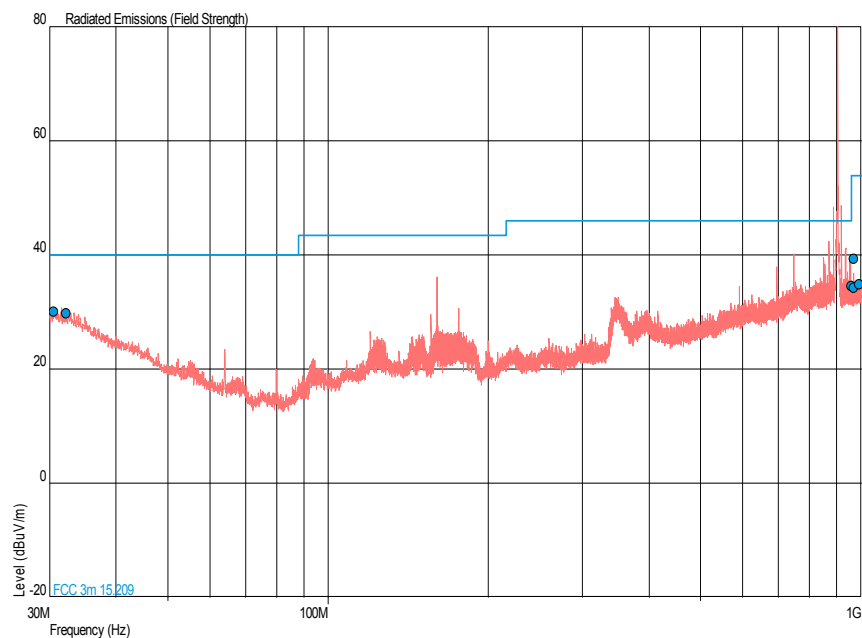
Spurious Radiated Emissions

903 MHz

30 MHz to 1 GHz

Frequency (MHz)	QP Level (dB μ V/m)	QP Margin (dB μ V/m)	QP Level (μ V/m)	QP Margin (μ V/m)	Angle (Deg)	Height (m)	Polarity
30.587	30.1	32.0	-9.9	-68.0	246	1.00	Horizontal
32.194	29.7	30.5	-10.3	-69.5	316	1.00	Horizontal
960.000	34.5	53.1	-11.5	-146.9	182	1.00	Horizontal
967.035	39.3	92.3	-14.7	-408.7	130	1.00	Horizontal
968.393	34.3	51.9	-19.7	-449.1	360	1.00	Vertical
992.769	34.8	55.0	-19.2	-446.0	340	1.00	Horizontal

30 MHz to 1 GHz



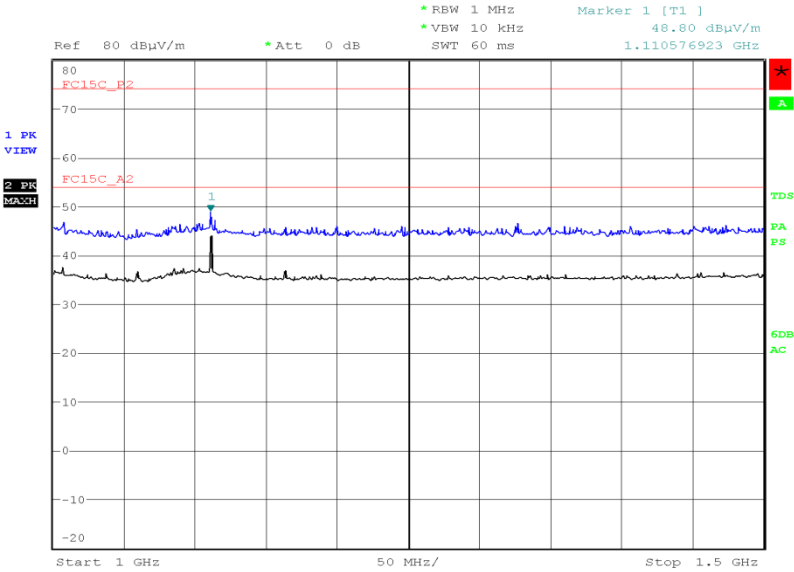


Product Service

1 GHz to 25 GHz

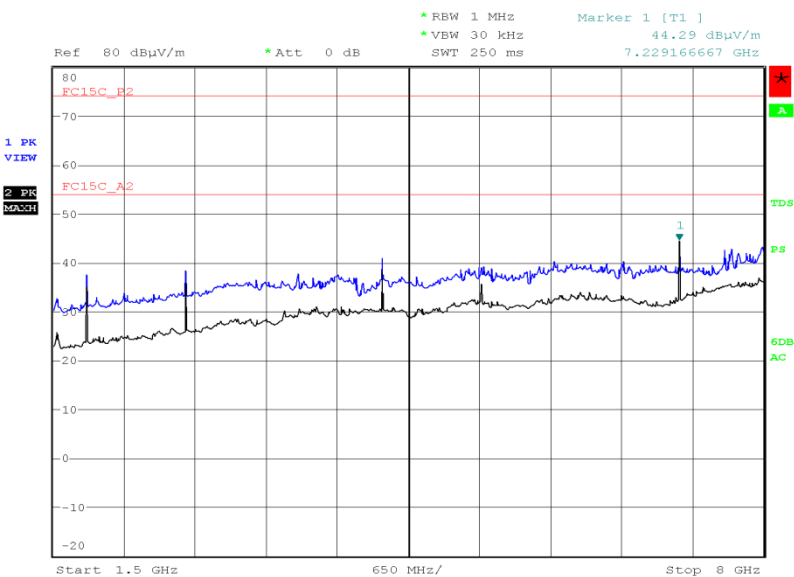
Frequency (GHz)	Antenna Polarisation	Antenna Height (cm)	EUT Arc (degrees)	Final Peak (dBµV/m)	Final Average (dBµV/m)
8.127	Horizontal	115	030	51.38	47.73
9.032	Horizontal	100	077	56.64	53.90

1 GHz to 1.5 GHz



Date: 16.FEB.2015 18:42:25

1.5 GHz to 8 GHz

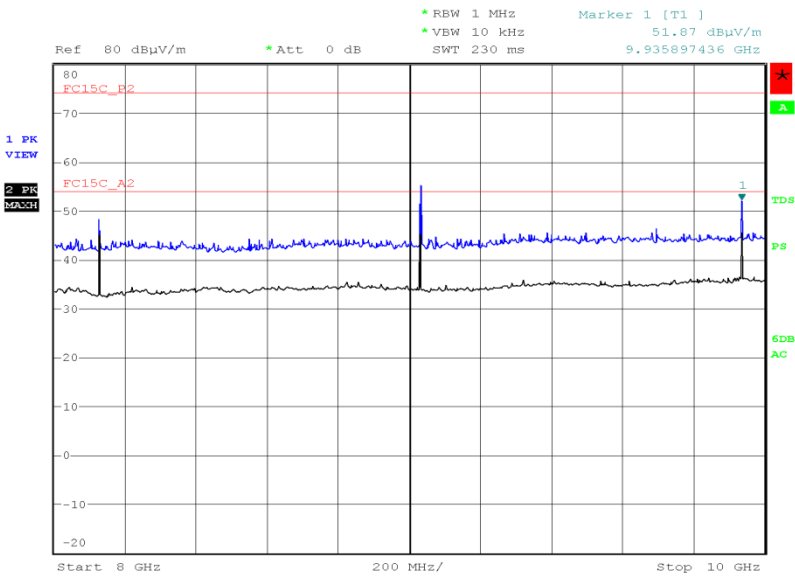


Date: 16.FEB.2015 19:54:30



Product Service

8 GHz to 10 GHz



Date: 16.FEB.2015 20:04:27



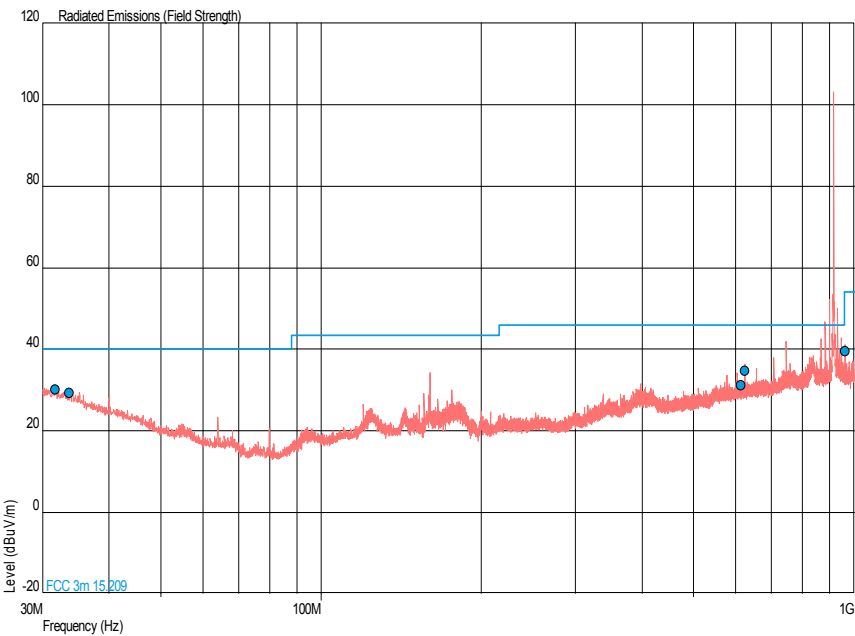
Product Service

915 MHz

30 MHz to 1 GHz

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
31.725	30.0	-10.0	31.6	-68.4	277	1.00	Vertical
33.734	29.1	-10.9	28.5	-71.5	181	1.00	Vertical
614.000	31.1	-14.9	35.9	-164.1	17	1.00	Vertical
624.040	34.7	-11.3	54.3	-145.7	251	1.00	Vertical
963.074	39.4	-14.6	93.3	-407.7	75	1.00	Horizontal

30 MHz to 1 GHz



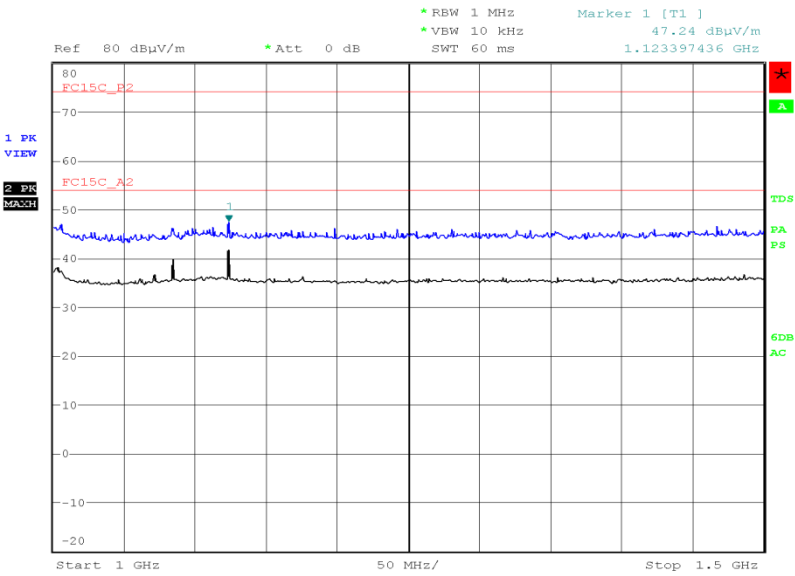


Product Service

1 GHz to 25 GHz

Frequency (GHz)	Antenna Polarisation	Antenna Height (cm)	EUT Arc (degrees)	Final Peak (dBµV/m)	Final Average (dBµV/m)
7.320	Vertical	110	328	51.60	48.56
8.235	Horizontal	100	057	54.32	51.65
9.150	Horizontal	127	069	57.16	53.95

1 GHz to 1.5 GHz

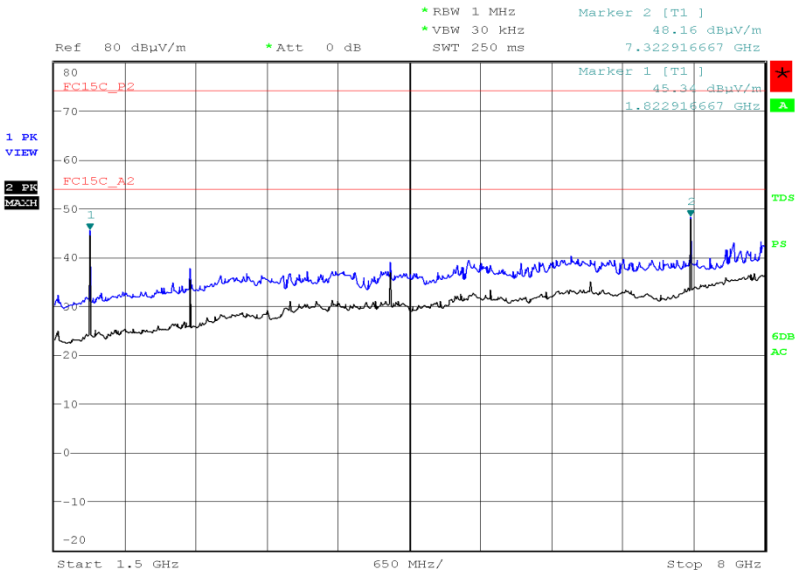


Date: 16.FEB.2015 18:51:55



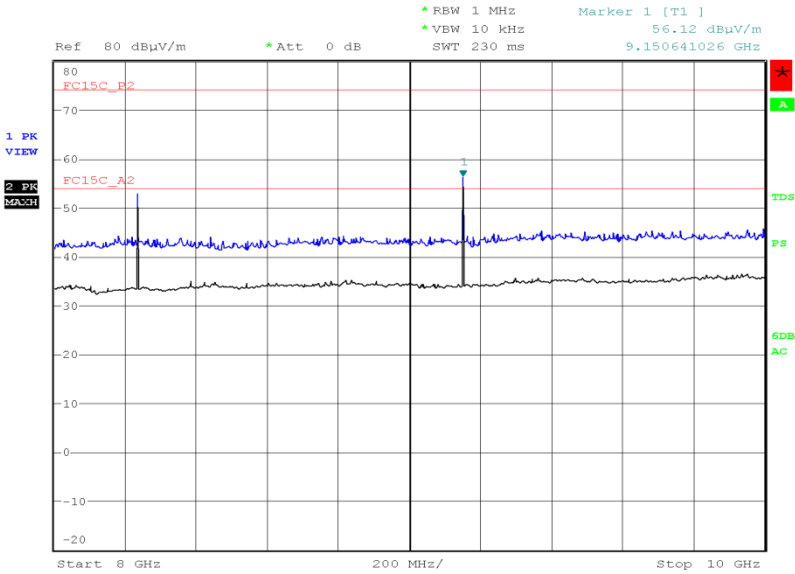
Product Service

1.5 GHz to 8 GHz



Date: 16.FEB.2015 19:33:40

8 GHz to 10 GHz



Date: 16.FEB.2015 20:23:24



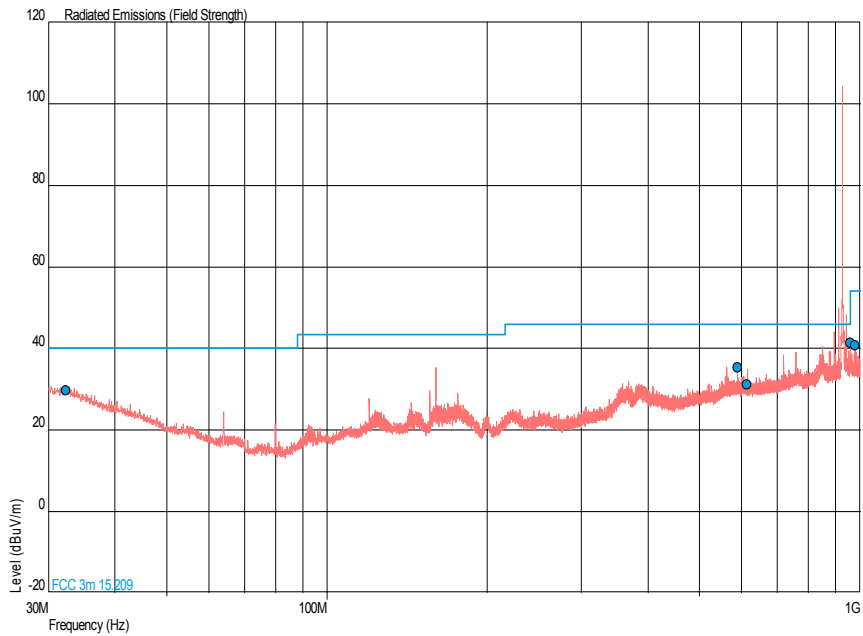
Product Service

927 MHz

30 MHz to 1 GHz

Frequency (MHz)	QP Level (dBμV/m)	QP Margin (dBμV/m)	QP Level (μV/m)	QP Margin (μV/m)	Angle (Deg)	Height (m)	Polarity
32.396	29.7	-10.3	30.5	-69.5	347	1.00	Horizontal
589.027	35.3	-10.7	58.2	-141.8	0	2.54	Vertical
614.000	31.2	-14.8	36.3	-163.7	360	1.00	Vertical
959.047	41.2	-4.8	114.8	-85.2	317	1.20	Vertical
979.019	40.7	-13.3	108.4	-392.6	316	1.00	Vertical

30 MHz to 1 GHz



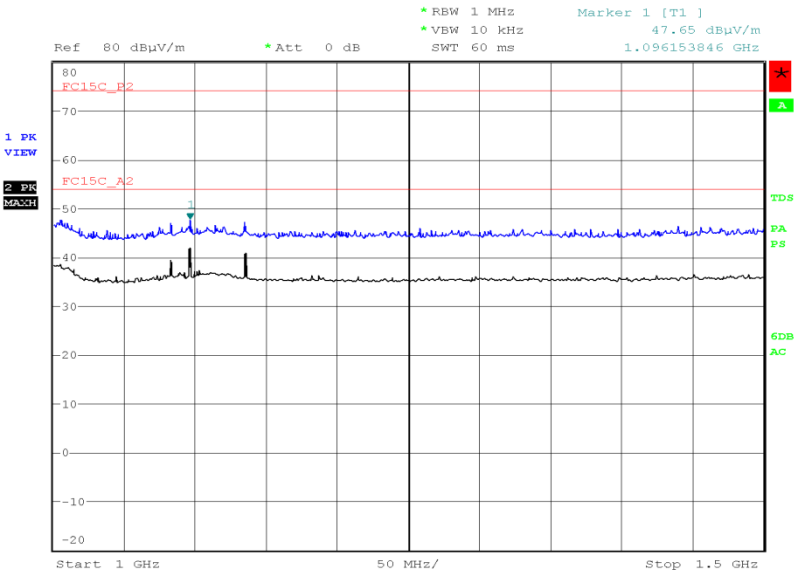


Product Service

1 GHz to 25 GHz

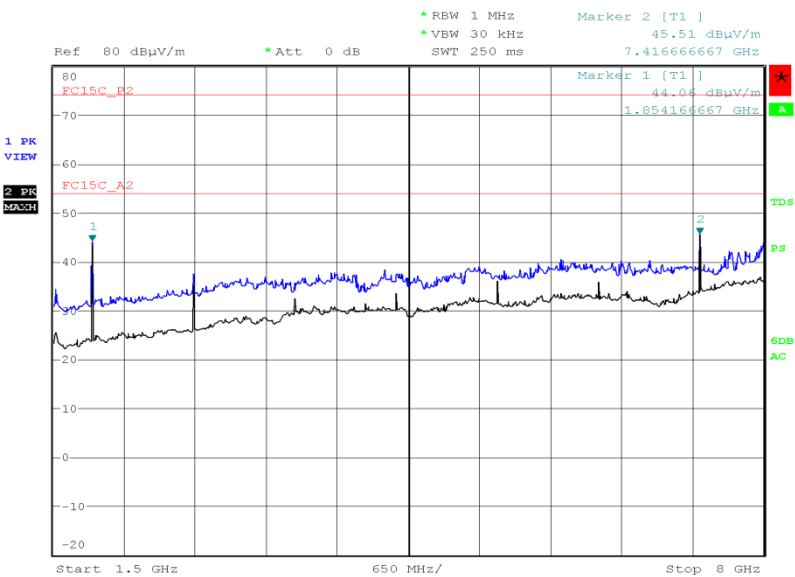
Frequency (GHz)	Antenna Polarisation	Antenna Height (cm)	EUT Arc (degrees)	Final Peak (dBµV/m)	Final Average (dBµV/m)
7.416	Vertical	100	132	51.60	48.16
8.343	Horizontal	100	36	55.44	53.06

1 GHz to 1.5 GHz



Date: 16.FEB.2015 19:02:05

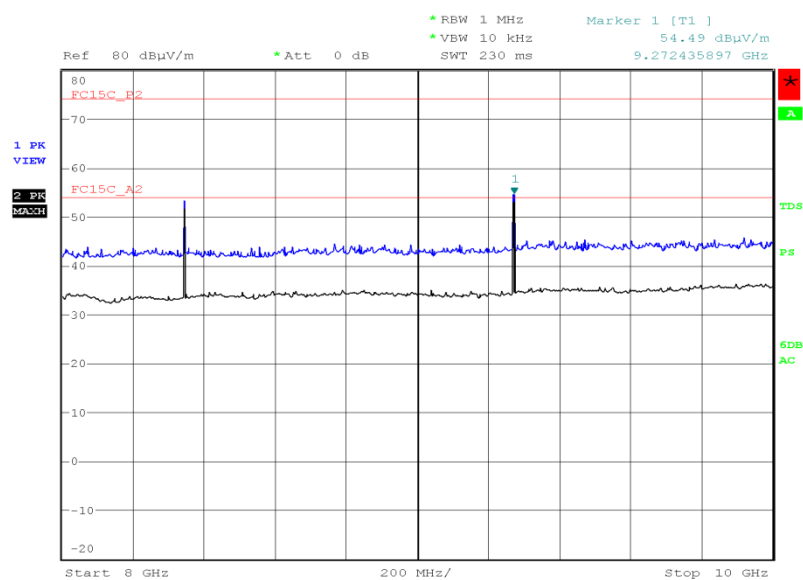
1.5 GHz to 8 GHz



Date: 16.FEB.2015 19:13:24



8 GHz to 10 GHz



Date: 16.FEB.2015 20:43:56

Limit

Frequency (MHz)	Field Strength			Measurement Distance (m)
	($\mu\text{V}/\text{m}$)	Average (dB $\mu\text{V}/\text{m}$)	Peak (dB $\mu\text{V}/\text{m}$)	
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

Radiated Emissions which fall only in the restricted bands as defined in 15.205 must also comply with the limits in the table above. The table above does not apply for Radiated Emissions which fall outside the restricted bands as defined in 15.205. These 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 transmitted complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuator required shall be 30 dB below the fundamental instead on 20 dB.

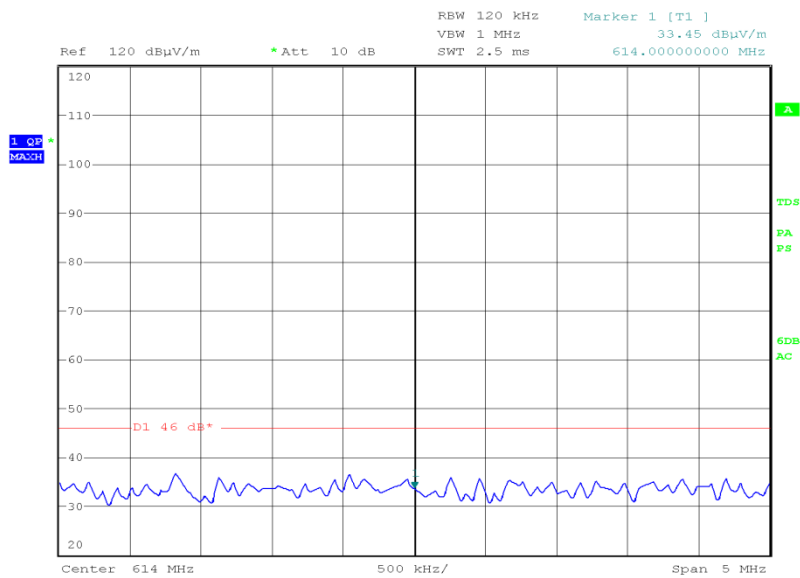


Product Service

Band Edge Emissions

Modulation: GFSK

Restricted Bands of Operation	
Frequency (MHz)	Final Peak (dBμV/m)
614.00	33.45
960.00	37.06

614.00 MHzFinal Peak

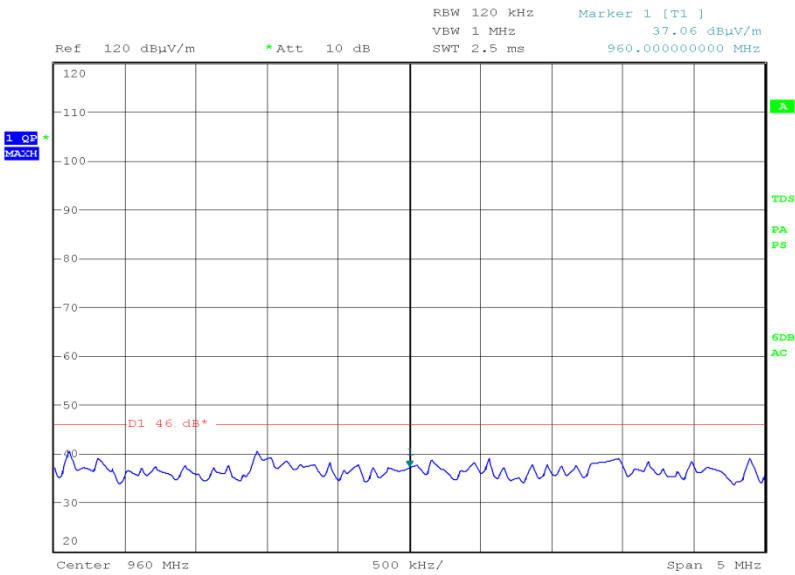
Date: 16.FEB.2015 22:22:23



Product Service

960.00 MHz

Final Peak



Date: 16.FEB.2015 22:02:06

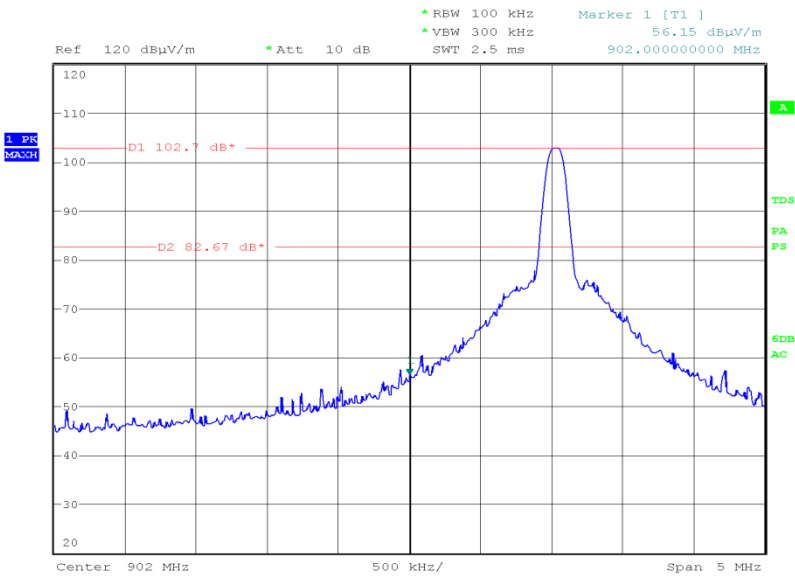


Product Service

Band Edge	
Frequency (MHz)	Final Peak (dBμV/m)
902.00	56.15
928.00	56.12

902.00 MHz

Final Peak



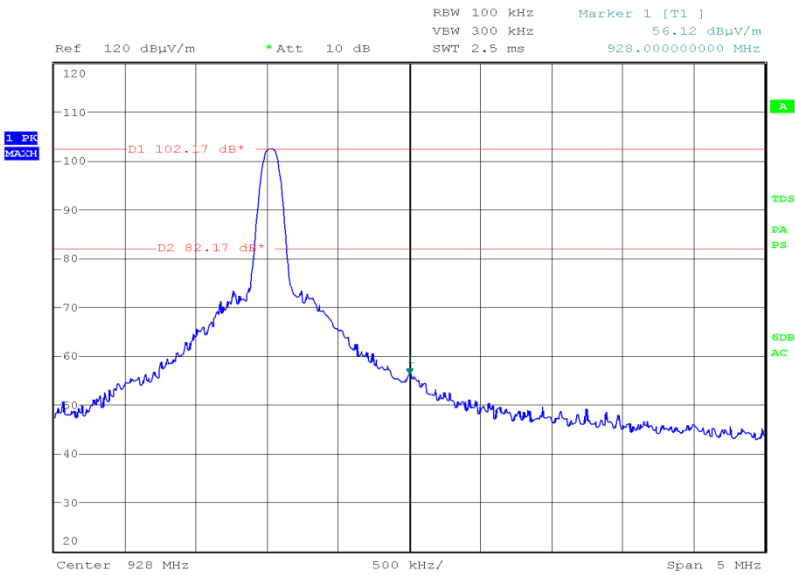
Date: 16.FEB.2015 22:24:45



Product Service

928.00 MHz

Final Peak



Date: 16.FEB.2015 21:59:33



Product Service

SECTION 3

TEST EQUIPMENT USED



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 - Frequency Hopping Systems - 20dB Bandwidth and Channel Separation					
30dB Attenuator	Narda	4772-30	463	-	TU
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	28-Jul-2015
Hygrometer	Rotronic	I-1000	3220	12	24-Jul-2015
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	6-Aug-2015
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	3-Sep-2015
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	24-Sep-2015
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	28-Jul-2015
Section 2.2 - Frequency Hopping Systems - Channel Dwell Time and Number of Hopping Channels					
30dB Attenuator	Narda	4772-30	463	-	TU
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	28-Jul-2015
Hygrometer	Rotronic	I-1000	3220	12	24-Jul-2015
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	6-Aug-2015
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	3-Sep-2015
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	24-Sep-2015
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	28-Jul-2015
Section 2.3 - Maximum Peak Conducted Output Power					
30dB Attenuator	Narda	4772-30	463	-	TU
Hygrometer	Rotronic	I-1000	3220	12	24-Jul-2015
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	3-Sep-2015
P-Series Power Meter	Agilent Technologies	N1911A	3981	12	22-Sep-2015
50 MHz-18 GHz Wideband Power Sensor	Agilent Technologies	N1921A	3983	12	22-Sep-2015
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	24-Sep-2015
Section 2.4 - EIRP Peak Power					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	2-May-2015
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	1002	12	19-Sep-2015
Screened Room (5)	Rainford	Rainford	1545	36	26-Jan-2018
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygrometer	Rotronic	A1	2138	12	3-Dec-2015
Multimeter	Iso-tech	IDM101	2417	12	26-Sep-2015
Antenna (Log Periodic)	Schaffner	UPA6108	3109	12	16-May-2015
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
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.5 - Spurious and Band Edge Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	2-May-2015
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
DC Power Supply	Hewlett Packard	6269B	742	-	TU
Pre-Amplifier	Phase One	PS04-0086	1533	12	23-Dec-2015
Screened Room (5)	Rainford	Rainford	1545	36	26-Jan-2018
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygrometer	Rotronic	A1	2138	12	3-Dec-2015
Multimeter	Iso-tech	IDM101	2417	12	26-Sep-2015
Filter	Daden Anthony Ass	MH-1500-7SS	2778	12	5-Feb-2016
Antenna (Bilog)	Chase	CBL6143	2904	24	10-Jun-2015
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	27-Oct-2015
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
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	1-Oct-2015
Suspended Substrate Highpass Filter	Advance Power Components	11SH10-3000/X18000-O/O	4411	12	21-Mar-2015
2m K-Type Cable (Rx)	Scott Cables	KPS-1501-2000-KPS	4527	6	29-Jul-2015
0.5m SMA Cable (Rx)	Scott Cables	SLSLL18-SMSM-00.50M	4528	6	29-Jul-2015

TU – Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Frequency Hopping Systems - 20dB Bandwidth and Channel Separation	± 1.87 kHz
Frequency Hopping Systems - Channel Dwell Time and Number of Hopping Channels	-
EIRP Peak Power	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Maximum Peak Conducted Output Power	± 0.70 dB
Spurious and Band Edge Emissions	Radiated: 30 MHz to 1 GHz: ± 5.1 dB Radiated: 1 GHz to 40 GHz: ± 6.3 dB



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

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).

This report must not be reproduced, except in its entirety, without the written permission of
TÜV SÜD Product Service

© 2015 TÜV SÜD Product Service