

Report on the FCC and IC Testing of the
Iridium Satellite LLC
Handset, Model: 9555N
AC Travel Charger, Model: ACTC1601
In accordance with FCC 47 CFR Part 15B,
Industry Canada RSS-GEN and ICES-003



Product Service

Choose certainty.
Add value.

Prepared for: Iridium Satellite LLC
1750 Tysons Boulevard
Suite 1400
McLean
VA 22101
United States

FCC ID: Q639555N
IC: 4629A-9555N

COMMERCIAL-IN-CONFIDENCE

Date: March 2018
Document Number: 75941426-03 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Natalie Bennett	28 March 2018	
Authorised Signatory	Matthew Russell	28 March 2018	

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, Industry Canada RSS-GEN 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	28 March 2018	

FCC Accreditation
90987 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: 2017, Industry Canada RSS-GEN: Issue 4, 2014 and ICES-003: 2016.

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Contents

1	Report Summary	2
1.1	Report Modification Record.....	2
1.2	Introduction.....	2
1.3	Brief Summary of Results	3
1.4	Declaration of Build Status.....	4
1.5	Product Information	5
1.6	Deviations from the Standard.....	5
1.7	EUT Modification Record	5
1.8	Test Location.....	5
2	Test Details	6
2.1	Conducted Disturbance at Mains Terminals.....	6
2.2	Radiated Disturbance.....	10
3	Measurement Uncertainty	14



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	28 March 2018

Table 1

1.2 Introduction

Applicant	Iridium Satellite LLC
Manufacturer	Iridium Satellite LLC
Model Number(s)	Handset: 9555N AC Travel Charger: ACTC1601
Serial Number(s)	Handset: #8 P0600-GR-139 (B00JCM) AC Travel Charger: N/A
Hardware Version(s)	9555N #8 (P0600-GR-139): Application Board: Rev G, Transceiver Board: Rev A P1638-CN-039 v0.3 REVG-BOOT0fa3/9555N5NRevA/02/RAW16
Software Version(s)	HT-10644-1I-HB-HUT9555NA-107-DEVSNAP FW: 10563_3-9580-DB17999
Number of Samples Tested	One of each
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2017 Industry Canada RSS-GEN: Issue 4, 2014 ICES-003: 2016
Order Number	47481
Date	15-January-2018
Date of Receipt of EUT	06-February-2018
Start of Test	20-March-2018
Finish of Test	20-March-2018
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, Industry Canada RSS-GEN and ICES-003 is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15B	RSS-GEN	ICES-003			
Configuration and Mode: Idle with GPS Receiver on						
2.1	15.107	8.8	6.1	Conducted Disturbance at Mains Terminals	Pass	ANSI C63.4
2.2	15.109	7.1	6.2	Radiated Disturbance	Pass	ANSI C63.4

Table 2



1.4 Declaration of Build Status

MAIN EUT			
MANUFACTURING DESCRIPTION	9555N Satellite Phone		
MANUFACTURER	Iridium		
MODEL NAME/NUMBER	Iridium 9555		
PART NUMBER	IRID0115N		
SERIAL NUMBER	#8 (B00JCM/P0600-GR-139), #9 (B05TNY/P0600-GR-165), #11 (B05V24/P0600-GR-168), #12 (B05UM3/P0600-GR-169)		
HARDWARE VERSION	Application Board: Rev G (#8), Rev J (#9, #11, #12) Transceiver Board: Rev A P1638-CN-039 v0.3 HW: REVG-BOOT0fa3/95555NRevA/02/RAW16		
SOFTWARE VERSION	HT-10644-1I-HB-HUT9555A-107-DEVSnap FW: 10563_3-9580-DB17999		
PSU VOLTAGE/FREQUENCY/CURRENT	Vout=5.9V/Iout=800mA, Vin=100~240VAC (50~60Hz) Iin=160~80mA		
HIGHEST INTERNALLY GENERATED / USED FREQUENCY	3254.6MHz		
FCC ID (if applicable)	Q639555N		
INDUSTRY CANADA ID (if applicable)	4629A-9555N		
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Satellite phone for use with the Iridium satellite network.		
COUNTRY OF ORIGIN	UK/Thailand		
RF CHARACTERISTICS (if applicable)			
TRANSMITTER FREQUENCY OPERATING RANGE (MHz)	1616 - 1626MHz		
RECEIVER FREQUENCY OPERATING RANGE (MHz)	1616 - 1626.5MHz		
INTERMEDIATE FREQUENCIES	200kHz, 400kHz, 600kHz, 800kHz, 16.8MHz, 26MHz		
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	41K7Q7W		
MODULATION TYPES: (i.e. GMSK, QPSK)	DE-QPSK/DE-BPSK		
OUTPUT POWER (W or dBm)	5.888W nominal, 6.607W max (37.7dBm +/- 0.5dB)		
SEPARATE BATTERY/POWER SUPPLY (if applicable)			
MANUFACTURING DESCRIPTION	Iridium 9555N Battery Pack		
MANUFACTURER	Iridium/Palladium Energy		
TYPE			
PART NUMBER	BAT21601		
PSU VOLTAGE/FREQUENCY/CURRENT	3.7V nominal, 4.2V charging		
COUNTRY OF ORIGIN	Assembled in China (Cells manufactured in Japan)		
MODULES (if applicable)			
MANUFACTURING DESCRIPTION	AC Travel Charger	Auto Charger	External Antenna
MANUFACTURER	Iridium/Friwo	Iridium/Friwo	Iridium/MAXTENA
TYPE	ACTC1601 (FW8002/06/08)	AUT1601	MXTENA1401-TNC
POWER	Vin=100~240VAC (50~60Hz) Iin=160~80mA Vout=5.9V/Iout=800mA,	Vin=12VDC Vout=6V/Iout=800mA,	
FCC ID			
INDUSTRY CANADA ID			
EMISSION DESIGNATOR			
DHSS/FHSS/COMBINED OR OTHER			
COUNTRY OF ORIGIN			
ANCILLARIES (if applicable)			
MANUFACTURING DESCRIPTION	Headset	Holster	USB data cable
MANUFACTURER	Iridium	Iridium	Iridium
TYPE			
PART NUMBER	HFHS0601	HOL0801	USBC1101
SERIAL NUMBER			
COUNTRY OF ORIGIN			

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

Name: Jonathan Jones Position held: Principal Engineer
 Date: 22/03/2018



1.5 Product Information

1.5.1 Technical Description

Satellite phone for operation with the Iridium satellite network.

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
Handset: Serial Number: #8 P0600-GR-139 (B00JCM)			
0	As supplied by the customer	Not Applicable	Not Applicable
AC Travel Charger: Serial Number: N/A			
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 and Mode: Idle with GPS Receiver on		
Radiated Disturbance	Graeme Lawler	UKAS
Conducted Disturbance at Mains Terminals	Graeme Lawler	UKAS

Table 4

Office Address:

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



2 Test Details

2.1 Conducted Disturbance at Mains Terminals

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.107
Industry Canada RSS-GEN, Clause 8.8
ICES-003, Clause 6.1

2.1.2 Equipment Under Test and Modification State

Handset: 9555N, S/N: #8 P0600-GR-139 (B00JCM) - Modification State 0
AC Travel Charger: ACTC1601, S/N: N/A - Modification State 0

2.1.3 Date of Test

20-March-2018

2.1.4 Test Method

The test was performed in accordance ANSI C63.4, Clause 7.

2.1.5 Environmental Conditions

Ambient Temperature	18.5 °C
Relative Humidity	26.0 %



2.1.6 Test Results

Results for Configuration and Mode: Idle with GPS Receiver on.

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

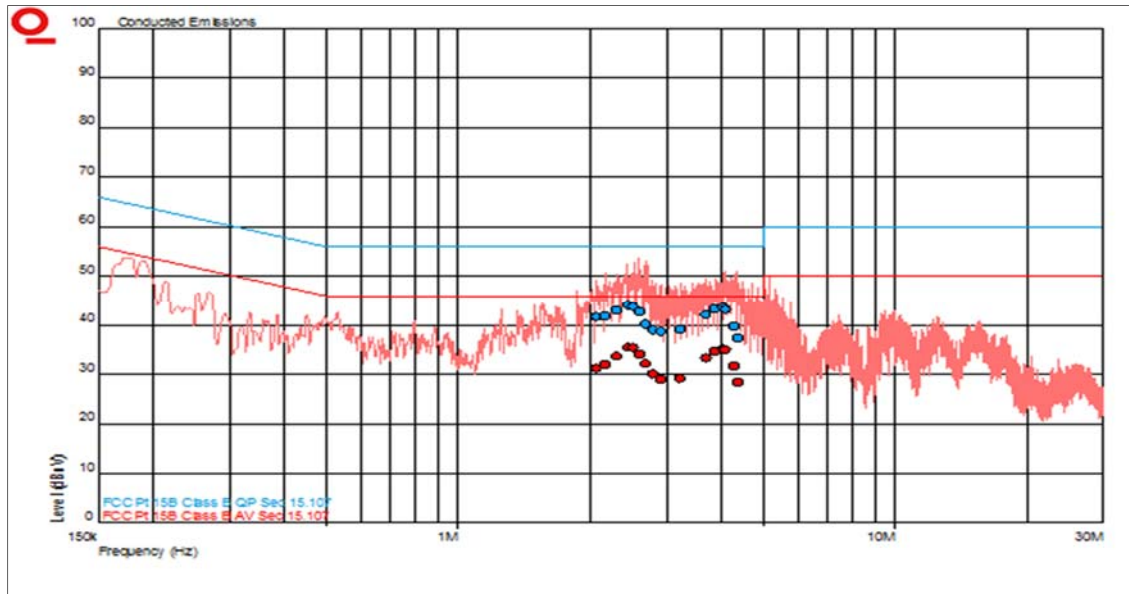


Figure 1 - Graphical Results - AC Mains Neutral

Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
2.078	41.6	56.0	-14.4	31.3	46.0	-14.7
2.165	41.9	56.0	-14.1	32.1	46.0	-13.9
2.305	43.0	56.0	-13.0	33.7	46.0	-12.3
2.447	44.0	56.0	-12.0	35.5	46.0	-10.5
2.511	43.8	56.0	-12.2	35.4	46.0	-10.6
2.606	42.7	56.0	-13.3	34.1	46.0	-11.9
2.683	40.2	56.0	-15.8	32.2	46.0	-13.8
2.802	39.0	56.0	-17.0	30.1	46.0	-15.9
2.914	38.7	56.0	-17.3	29.0	46.0	-17.0
3.229	39.2	56.0	-16.8	29.1	46.0	-16.9
3.690	42.1	56.0	-13.9	33.3	46.0	-12.7
3.874	43.3	56.0	-12.7	34.7	46.0	-11.3
4.059	43.7	56.0	-12.3	35.2	46.0	-10.8
4.093	43.2	56.0	-12.8	35.1	46.0	-10.9
4.286	39.7	56.0	-16.3	31.7	46.0	-14.3
4.361	37.4	56.0	-18.6	28.4	46.0	-17.6

Table 5

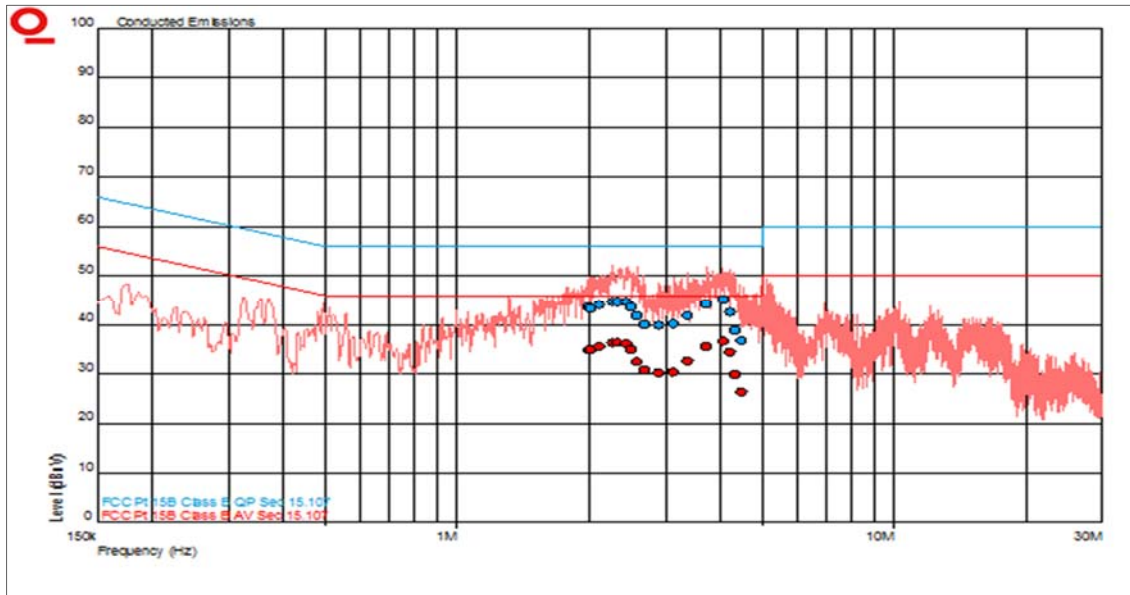


Figure 2 - Graphical Results - AC Mains Live

Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
1.996	43.6	56.0	-12.4	34.9	46.0	-11.1
2.022	43.4	56.0	-12.6	34.9	46.0	-11.1
2.120	44.2	56.0	-11.8	35.7	46.0	-10.3
2.271	44.7	56.0	-11.3	36.4	46.0	-9.6
2.325	44.7	56.0	-11.3	36.4	46.0	-9.6
2.436	44.7	56.0	-11.3	36.2	46.0	-9.8
2.500	43.7	56.0	-12.3	35.0	46.0	-11.0
2.584	41.9	56.0	-14.1	32.4	46.0	-13.6
2.680	40.1	56.0	-15.9	30.8	46.0	-15.2
2.901	40.0	56.0	-16.0	30.3	46.0	-15.7
3.127	40.2	56.0	-15.8	30.4	46.0	-15.6
3.383	41.8	56.0	-14.2	32.6	46.0	-13.4
3.714	44.3	56.0	-11.7	35.7	46.0	-10.3
4.078	45.1	56.0	-10.9	36.7	46.0	-9.3
4.221	42.7	56.0	-13.3	34.3	46.0	-11.7
4.334	38.9	56.0	-17.1	29.9	46.0	-16.1
4.492	36.8	56.0	-19.2	26.3	46.0	-19.7

Table 6



2.1.7 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
Transient Limiter	Hewlett Packard	11947A	15	12	30-May-2018
LISN (1 Phase)	Chase	MN 2050	336	12	07-Apr-2018
Screened Room (5)	Rainford	Rainford	1545	36	09-Jun-2018
Hygromer	Rotronic	A1	2138	12	21-Feb-2019
Digital Multimeter	Iso-tech	IDM-101	2895	12	20-Jul-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Nov-2018

Table 7



2.2 Radiated Disturbance

2.2.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109
Industry Canada RSS-GEN, Clause 7.1
ICES-003, Clause 6.2

2.2.2 Equipment Under Test and Modification State

Handset: 9555N, S/N: #8 P0600-GR-139 (B00JCM) - Modification State 0
AC Travel Charger ACTC1601, S/N: N/A - Modification State 0

2.2.3 Date of Test

20-March-2018

2.2.4 Test Method

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

2.2.5 Environmental Conditions

Ambient Temperature	18.5 °C
Relative Humidity	26.0 %

2.2.6 Test Results

Results for Configuration and Mode: Idle with GPS Receiver on.

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Highest frequency generated or used within the EUT: 3254.6MHz
Which necessitates an upper frequency test limit of: 17 GHz



Frequency Range of Test: 30 MHz to 1 GHz

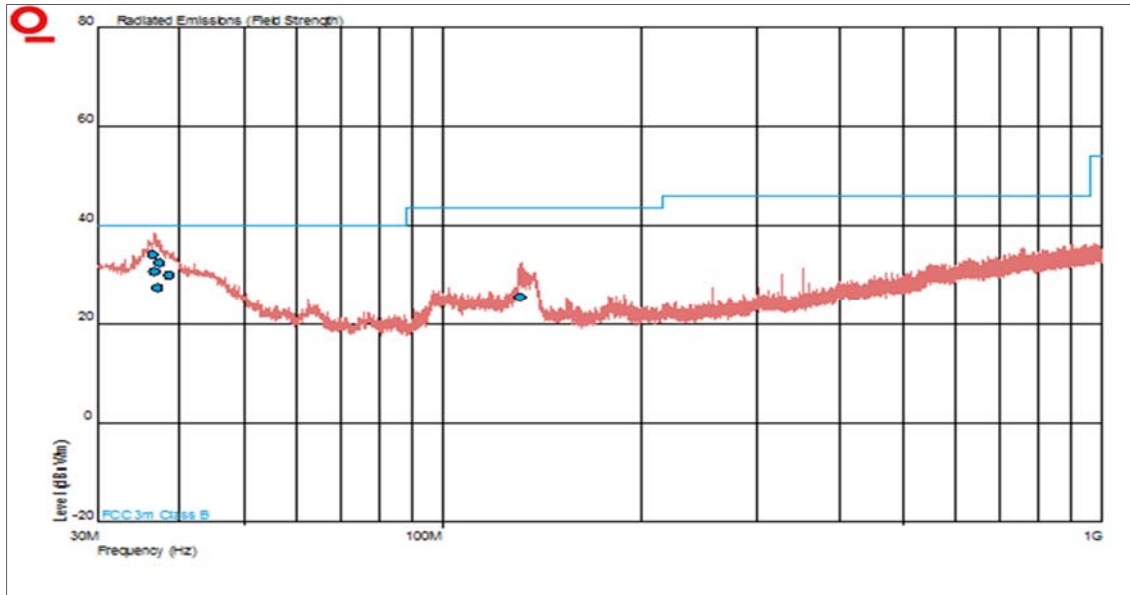


Figure 3 - Graphical Results - Horizontal and Vertical Polarity

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
36.384	34.1	40.0	-5.9	0	2.96	Vertical
36.602	30.7	40.0	-9.3	360	4.00	Horizontal
37.043	27.4	40.0	-12.6	258	3.38	Horizontal
37.218	32.4	40.0	-7.6	10	2.75	Vertical
38.470	29.9	40.0	-10.1	315	1.00	Vertical
131.315	25.4	43.5	-18.1	110	1.00	Vertical

Table 8

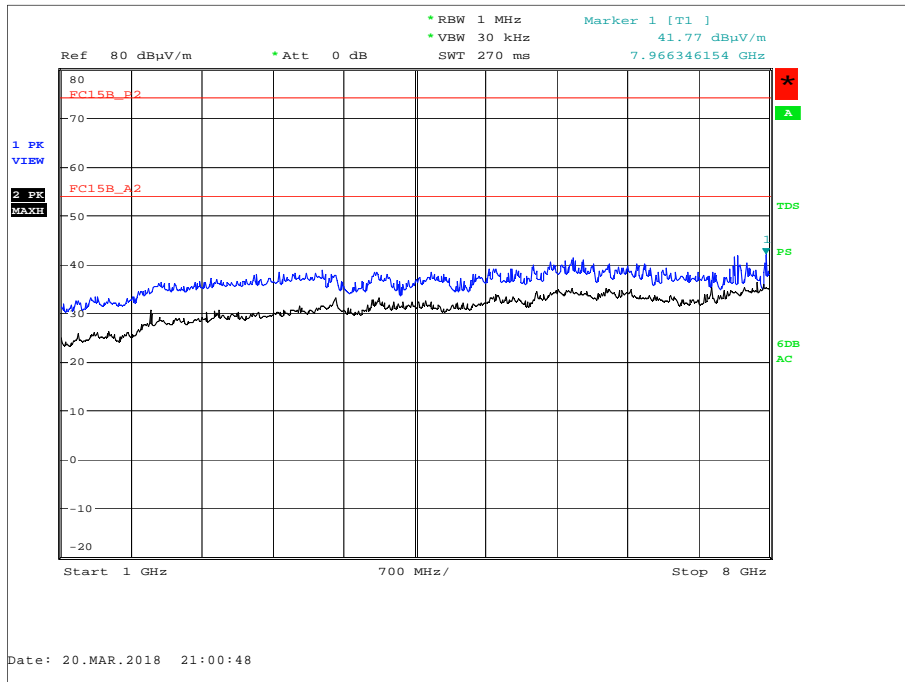


Figure 4 - Graphical Results - 1 GHz to 8 GHz - Combined Polarity

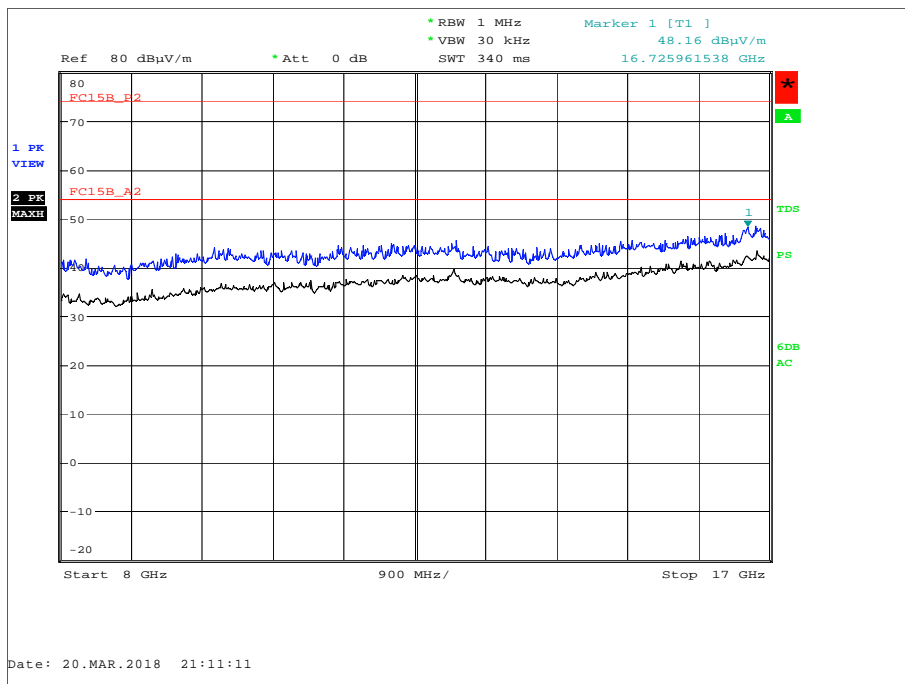


Figure 5 - Graphical Results - 8 GHz to 17 GHz - Combined Polarity

No emissions were detected within 10 dB of the limit.



2.2.7 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
Pre-Amplifier	Phase One	PS04-0086	1533	12	12-Jan-2019
Screened Room (5)	Rainford	Rainford	1545	36	09-Jun-2018
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygromer	Rotronic	A1	2138	12	21-Feb-2019
Digital Multimeter	Iso-tech	IDM-101	2895	12	20-Jul-2018
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	02-May-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Nov-2018
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	18-Oct-2018
Cable (Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4526	6	22-May-2018
Cable (Rx, SMAm-SMAm 0.5m)	Scott Cables	SLSL18-SMSM-00.50M	4528	6	15-Aug-2018
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	01-Mar-2019

Table 9

TU - Traceability Unscheduled



3 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Radiated Disturbance	30 MHz to 1 GHz, Bilog Antenna, ± 5.2 dB 1 GHz to 40 GHz, Horn Antenna, ± 6.3 dB
Conducted Disturbance at Mains Terminals	150 kHz to 30 MHz, LISN, ± 3.7 dB

Table 10