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## FCC PART 15B

### ANALOGUE SCANNING RECEIVER

### TEST REPORT

<b>Applicant</b>	<b>BRIDGECOM SYSTEMS, INC</b>
<b>Address</b>	<b>102 NE STATE ROUTE 92 HIGHWAY, SUITE C SMITHVILLE, MO 64089 USA</b>
<b>FCC ID:</b>	<b>SK4BCM-144</b>
<b>Model Number</b>	<b>BCM-144</b>
<b>Product Description</b>	VHF/2M MOBILE RADIO FOR AMATEUR USE
<b>Date Sample Received</b>	1/26/2017
<b>Final Test Date</b>	1/27/2017
<b>Tested By</b>	Tim Royer
<b>Approved By</b>	Cory Leverett
<b>Test Results</b>	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

Report Number	Version Number	Description	Issue Date
172UT17TestReport	Rev1	Initial Issue	01/31/2017
172UT17TestReport	Rev2	Updated antenna type and administrative updates	02/13/2017
172UT17TestReport	Rev3	Updated table of contents	02/14/2017

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL  
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

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## GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

## Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

## Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

**Timco Engineering Inc.**  
**849 NW State Road 45**  
**Newberry, FL 32669**



### Tested by:

Name and Title: Tim Royer, Project Manager/Testing Engineer

**Date: 1/27/2017**



### Reviewed and approved by:

Name and Title: Cory Leverett, Project Manager

**Date: 01/31/2017**

Applicant: BRIDGECOM SYSTEMS, INC  
FCC ID: SK4BCM-144  
Report: 172UT17TestReport\_Rev3

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## GENERAL INFORMATION

The test results relate only to the items tested.	
<b>EUT Description</b>	<b>VHF/2M MOBILE RADIO FOR AMATEUR USE</b>
<b>FCC ID</b>	<b>SK4BCM-144</b>
<b>Model Number</b>	<b>BCM-144</b>
<b>Range</b>	136.0 – 174.0 MHz
<b>Receiver Circuit Type</b>	Double-conversion Super-het receiver
<b>Lowest Internal Frequency</b>	19.2 MHz
<b>Antenna Connector</b>	Female SO239
<b>EUT Power Source</b>	<input type="checkbox"/> 110–120Vac/50– 60Hz
	<input checked="" type="checkbox"/> 12.6 VDC Nominal
	<input type="checkbox"/> Battery Operated Exclusively
<b>Test Item</b>	<input type="checkbox"/> Prototype
	<input type="checkbox"/> Pre-Production
	<input checked="" type="checkbox"/> Production
<b>Modifications required for Testing</b>	None

## REPORT SUMMARY

<b>Regulatory Standard</b>	CFR Title 47 FCC Rule part 15B § 15.109, 15.111, & 15.121
<b>Test Procedures</b>	FCC Part 15.31, 15.33, 15.35 ANSI C63.4 – 2014
<b>Operational Modes</b>	Stopped at the Lowest, middle, and highest frequency of tuning range. In addition scanning all frequencies of tuning range
<b>Test Frequencies</b>	Low: 136.0 MHz
	Middle: 154.0 MHz
	High: 174.0 MHz
	Scan: 136.0 – 174.0 MHz
<b>Setup</b>	The EUT's antenna terminals were connected to tuned dipole through a 50 $\Omega$ coaxial cable.
<b>Environmental Condition in the laboratory</b>	Temperature: 24-26°C Relative humidity: 50-65% Barometric Pressure: 30.01"
<b>Deviation from the standard/procedure</b>	No deviation

## RESULTS SUMMARY

Requirement	Test Result	Limit	Pass/Fail
15.109 Radiated Emissions	30.51 dBuV/m @ 215MHz	43.5 dBuV/m	Pass

## RADIATED SPURIOUS EMISSIONS

**Rule Part No.:** FCC Part 15 Subpart B

**Requirements:** FCC Part 15.109(a) Radiated Emission Limit

Class B Field Strength Limits @ 3 Meters	
Frequency (MHz)	Level (dBuV/m)
30 – 88	40.0
80 – 216	43.5
216 – 960	46.0
Above 960	54.0

FCC Part 15.109(f) Radiated Emission Limit

For a receiver which employs terminals for the connection of an external receiving antenna, the receiver shall be tested to demonstrate compliance with the provisions of this section with an antenna connected to the antenna terminals unless the antenna conducted power is measured as specified in §15.111(a).

**Procedure:** FCC Part 15.33(b)(3) Frequency range of radiated measurements

FCC Part 15.35(a) Measurement detector functions and bandwidths

ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz

§ 6.2 Operating conditions

§ 6.3 Arrangement of EUT

§ 8.3.1 Exploratory radiated emissions measurements

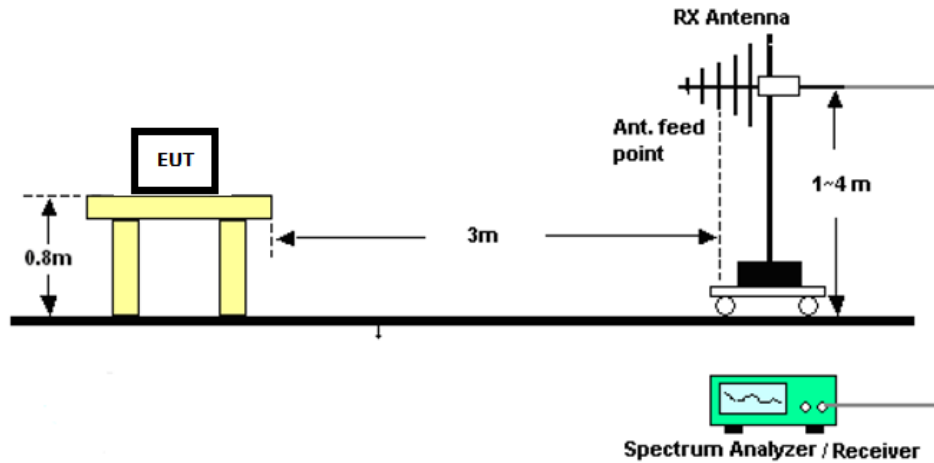
§ 8.3.2 Final radiated emission measurements

**Configuration:** The scanner receiver spurious emissions are to be measured when the receiver is in the scanning mode and repeated when the scanning is stopped, all while the antenna terminals are terminated into a non-radiating 50  $\Omega$  load.

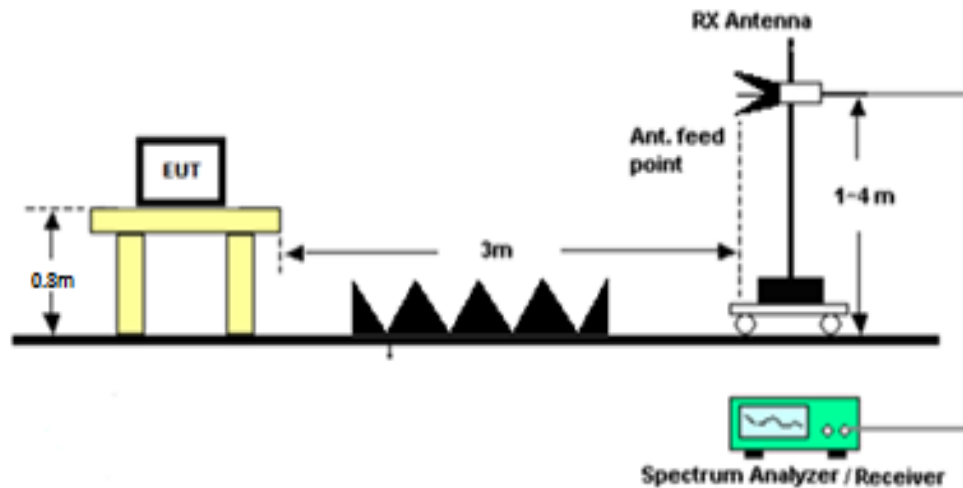
## RADIATED SPURIOUS EMISSIONS

Setup:

Emissions 30 – 1000 MHz



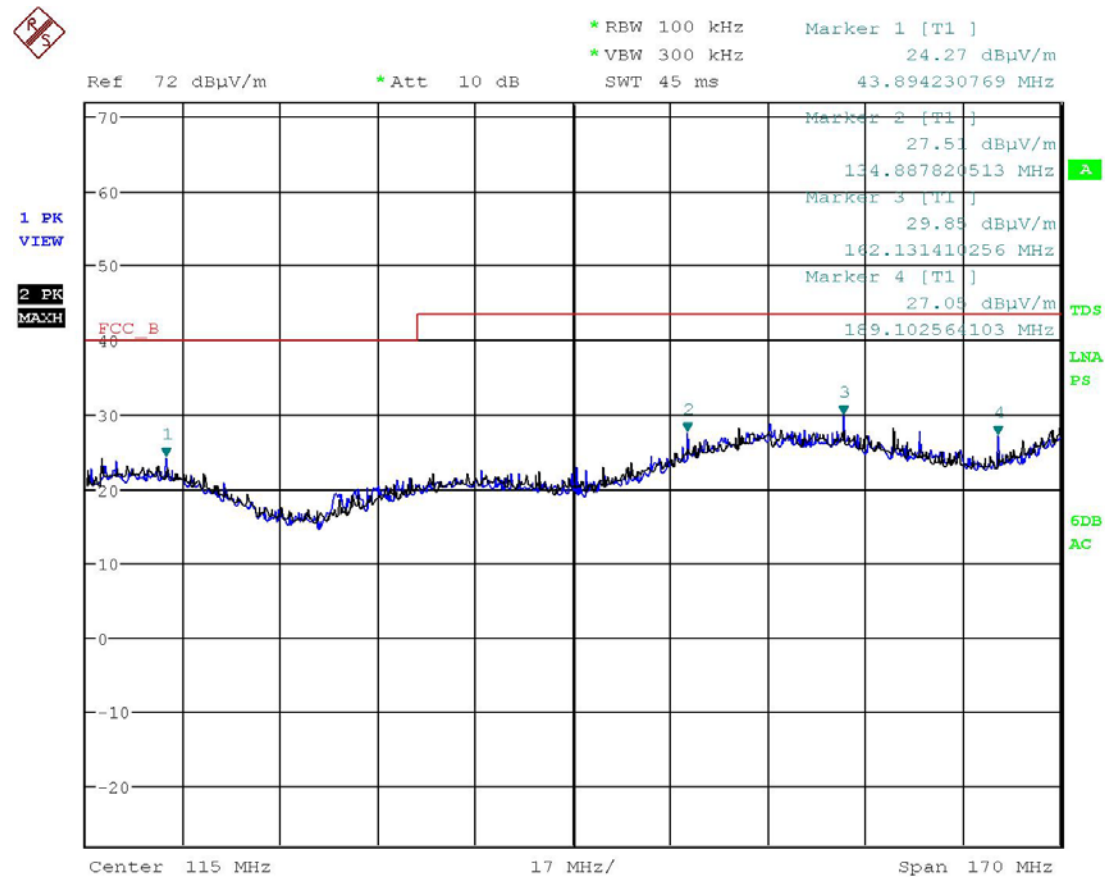
Emissions above 1 GHz



## RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band 30 – 200 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 15:58:32

Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

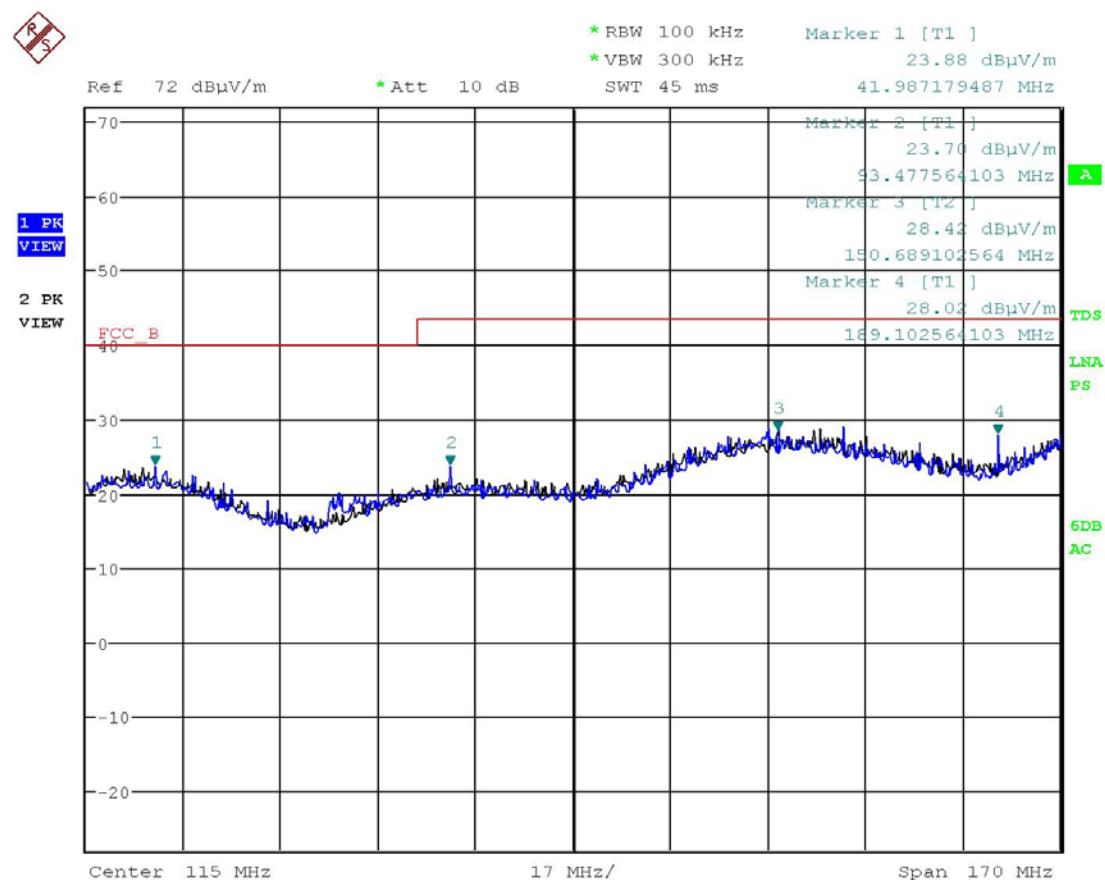
Results Meets Requirements



## RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band 30 – 200 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 15:55:59

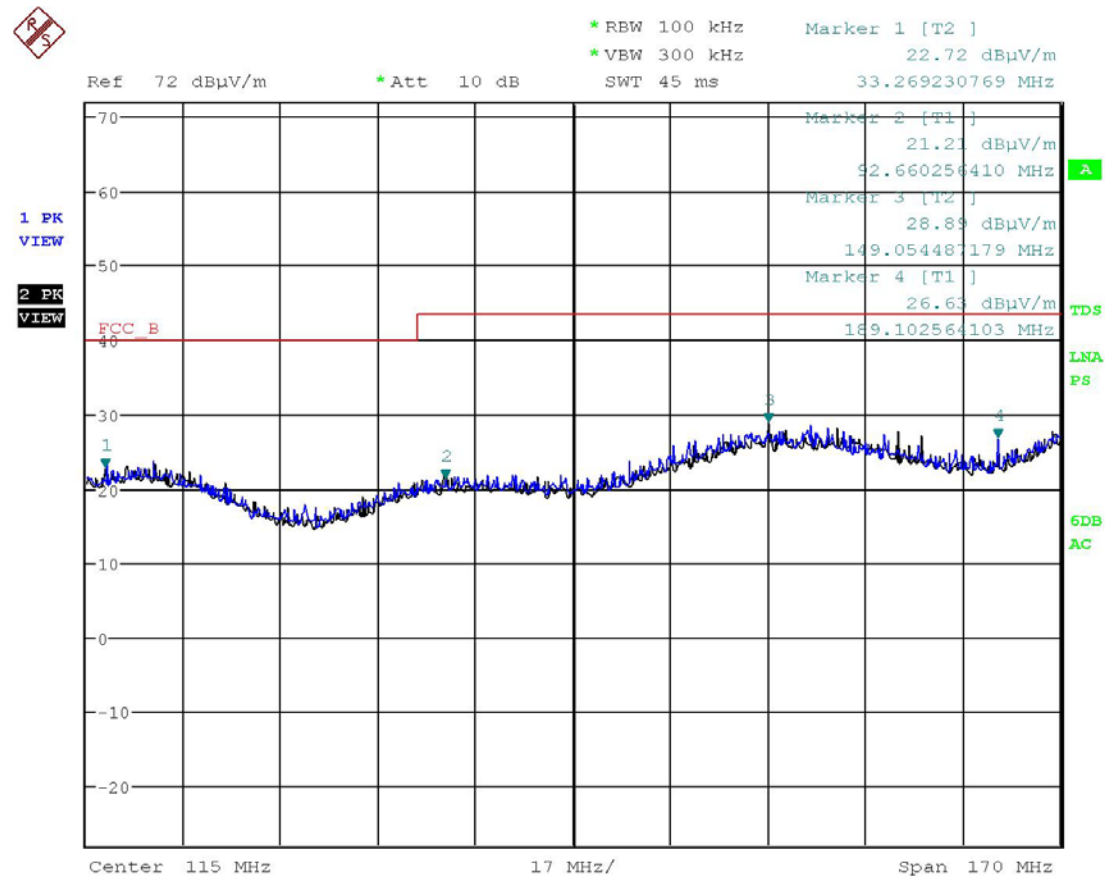
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band 30 – 200 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 15:51:57

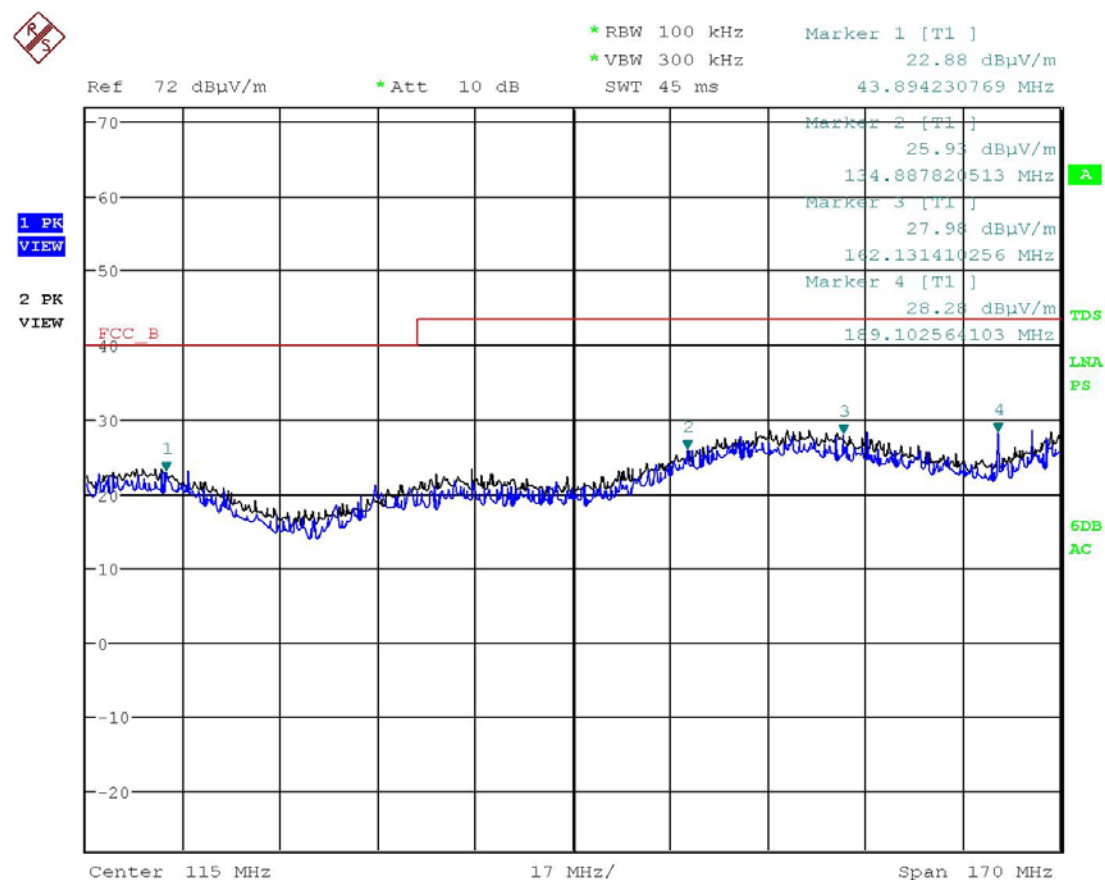
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 30 – 200 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 16:24:20

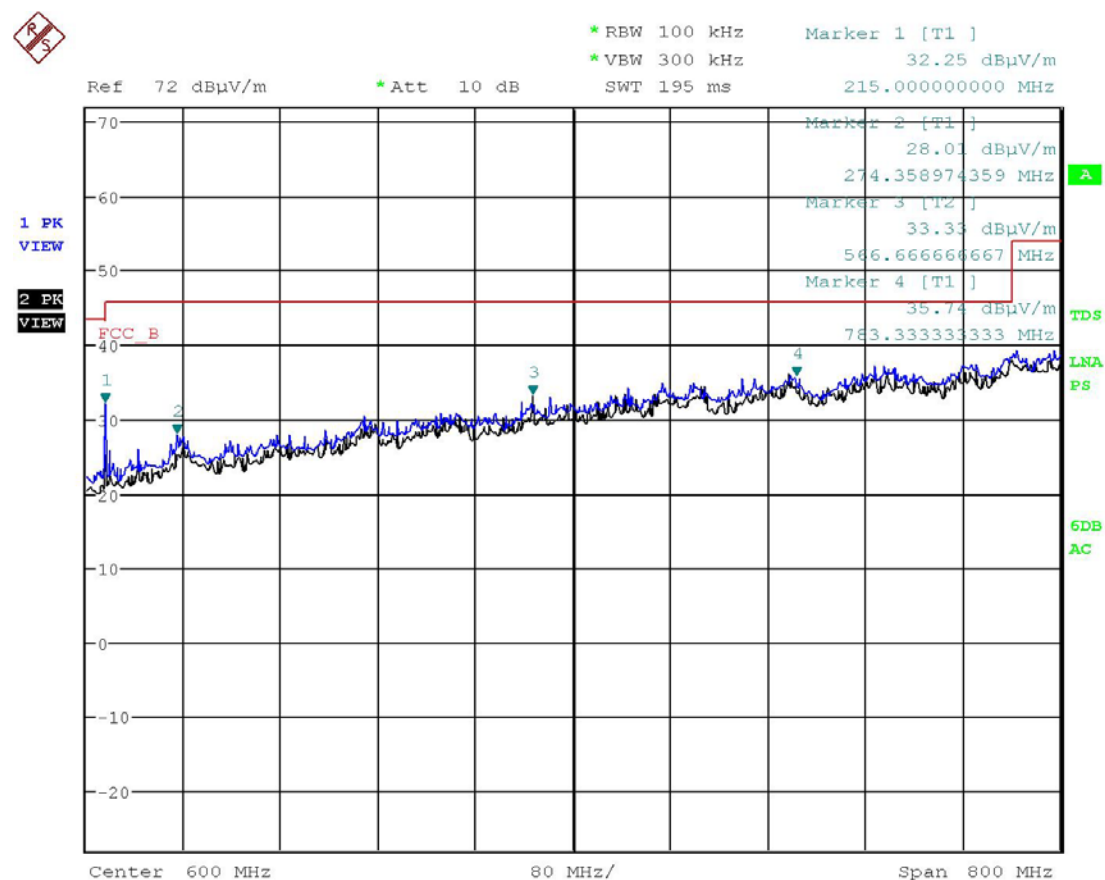
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band 200 - 1000 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 14:53:38

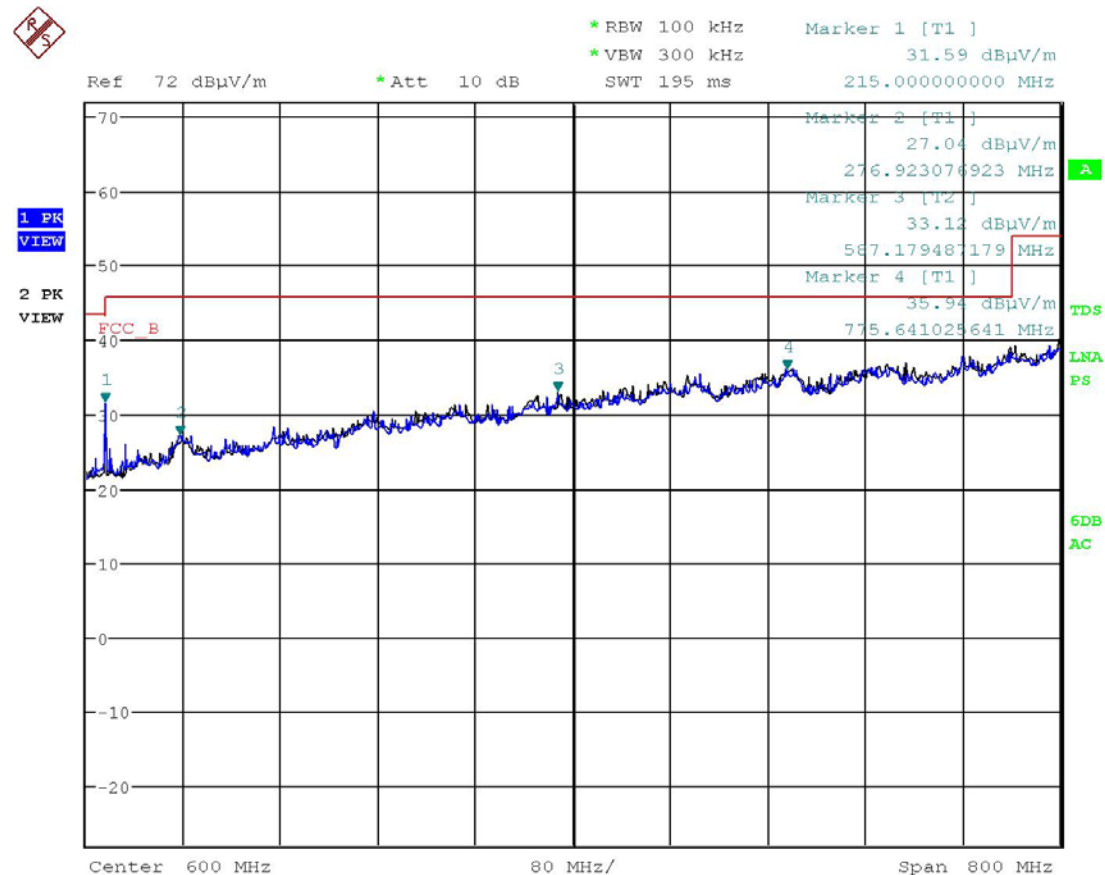
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band 200 - 1000 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 14:58:48

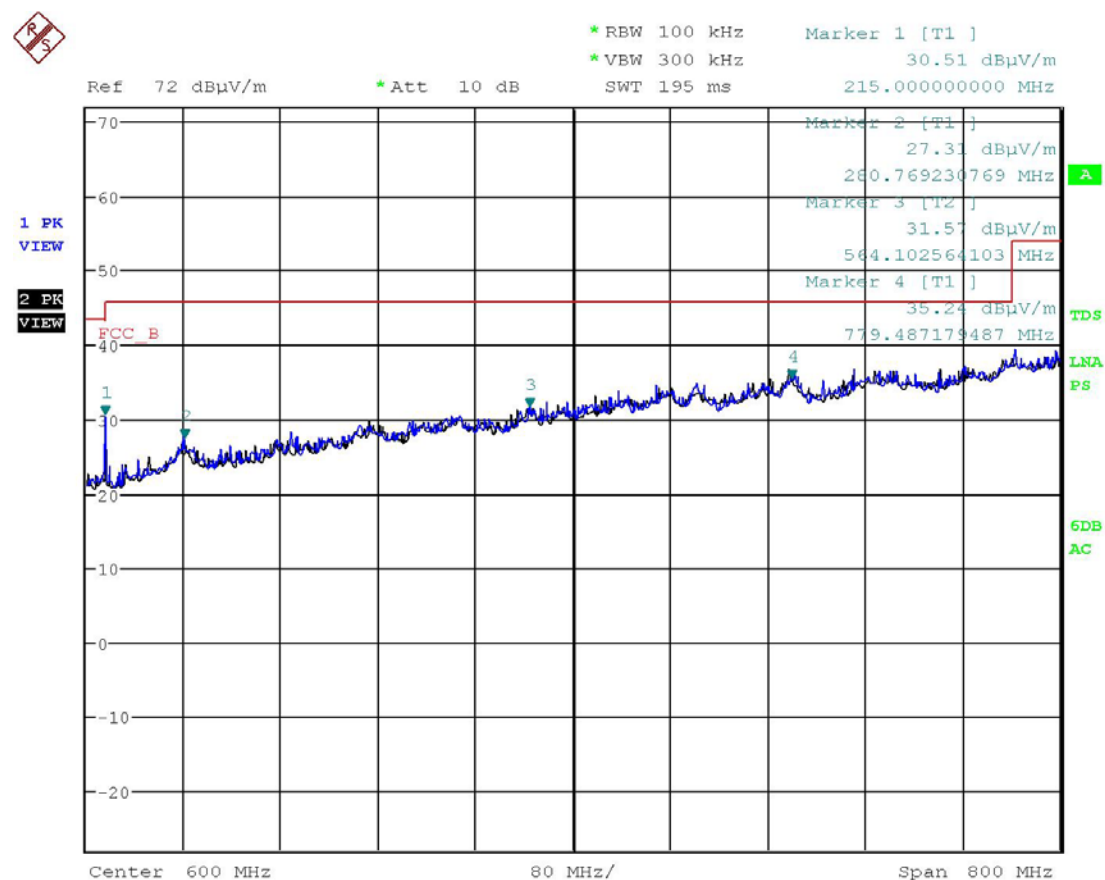
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band 200 - 1000 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 15:09:47

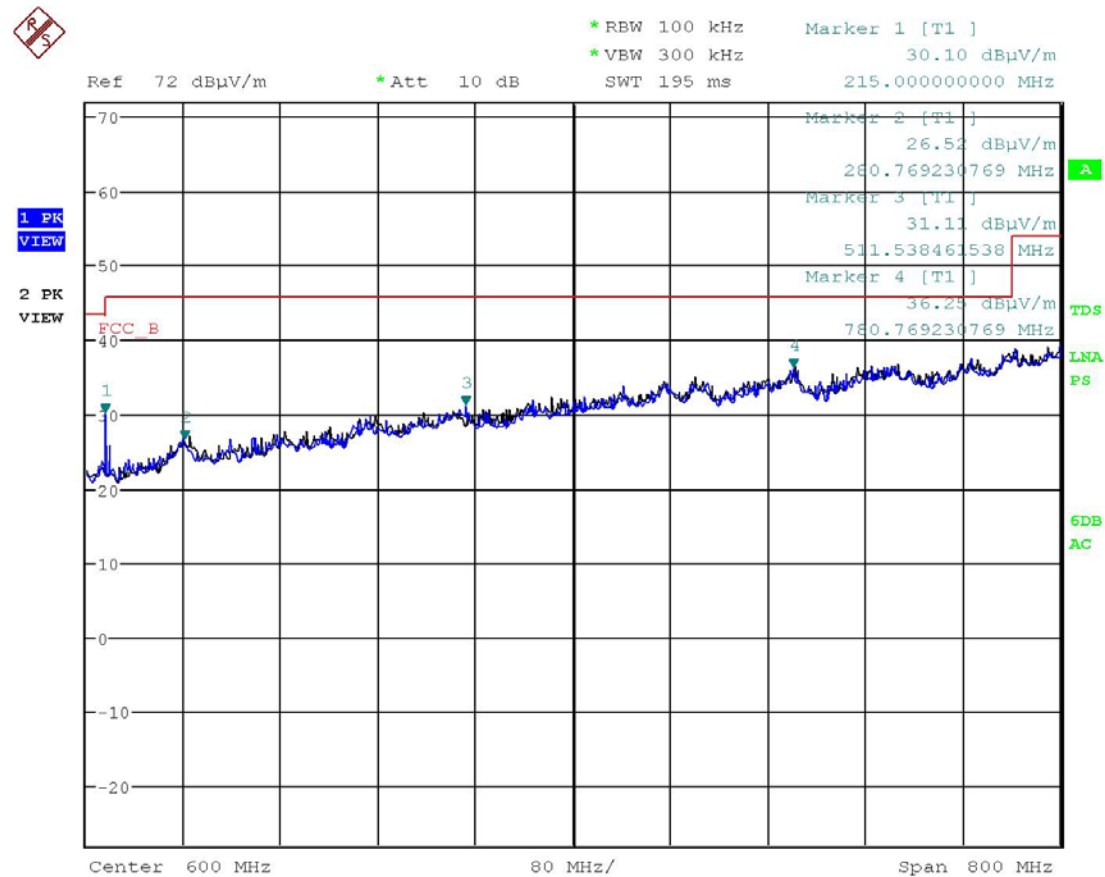
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 200 - 1000 MHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 15:12:11

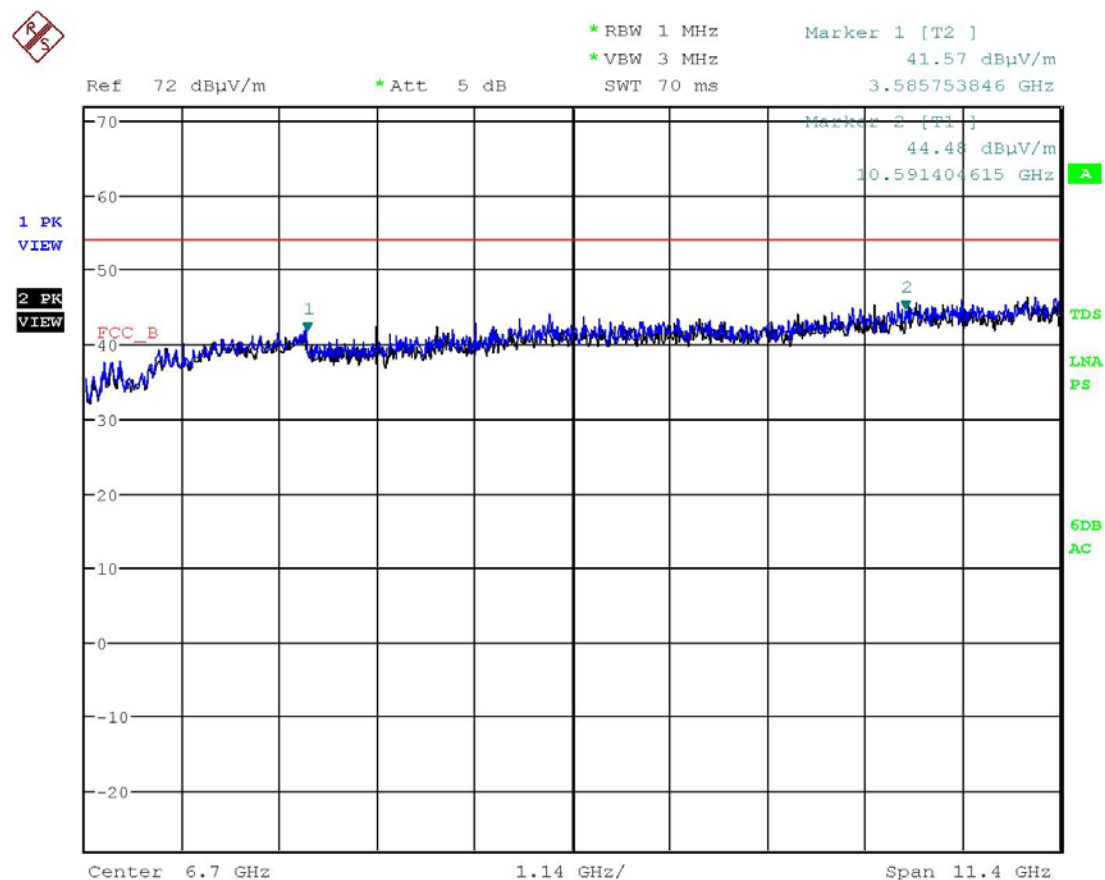
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band 1 -12.4 GHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 16:43:36

Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

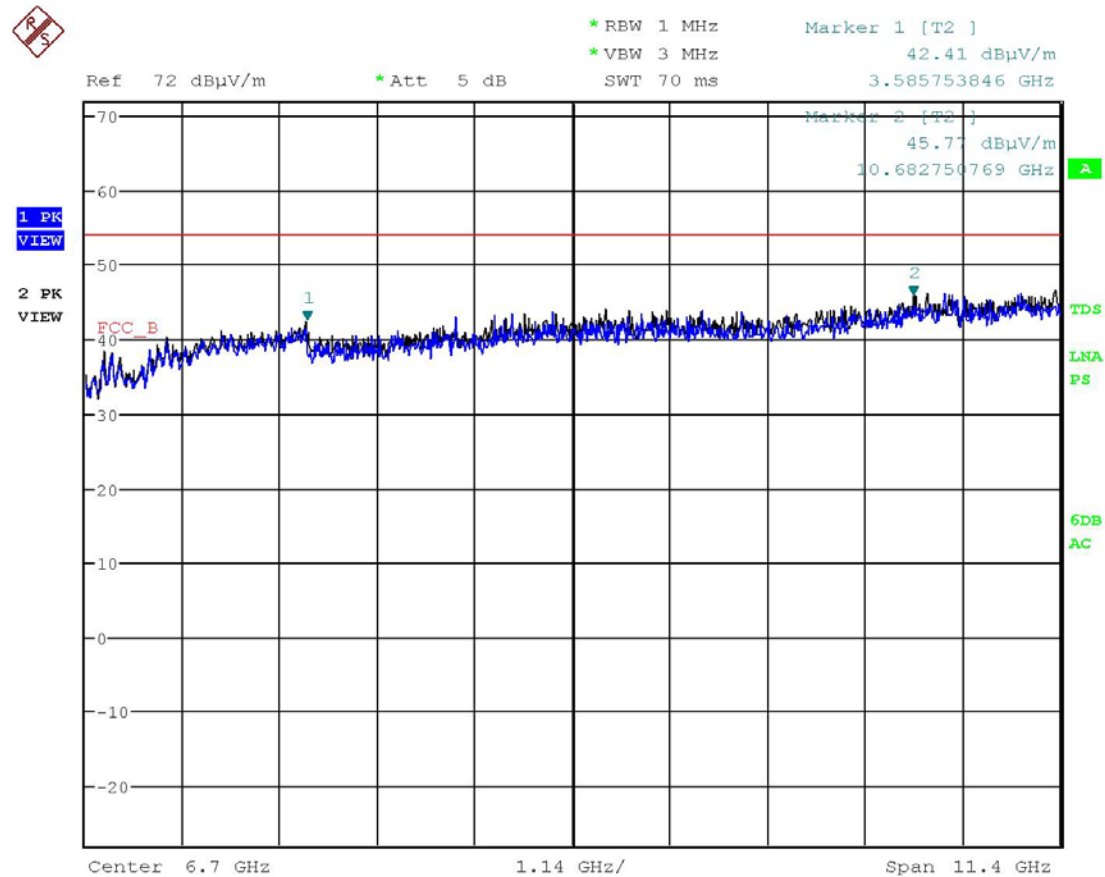
Results Meets Requirements



## RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band 1 -12.4 GHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 16:41:41

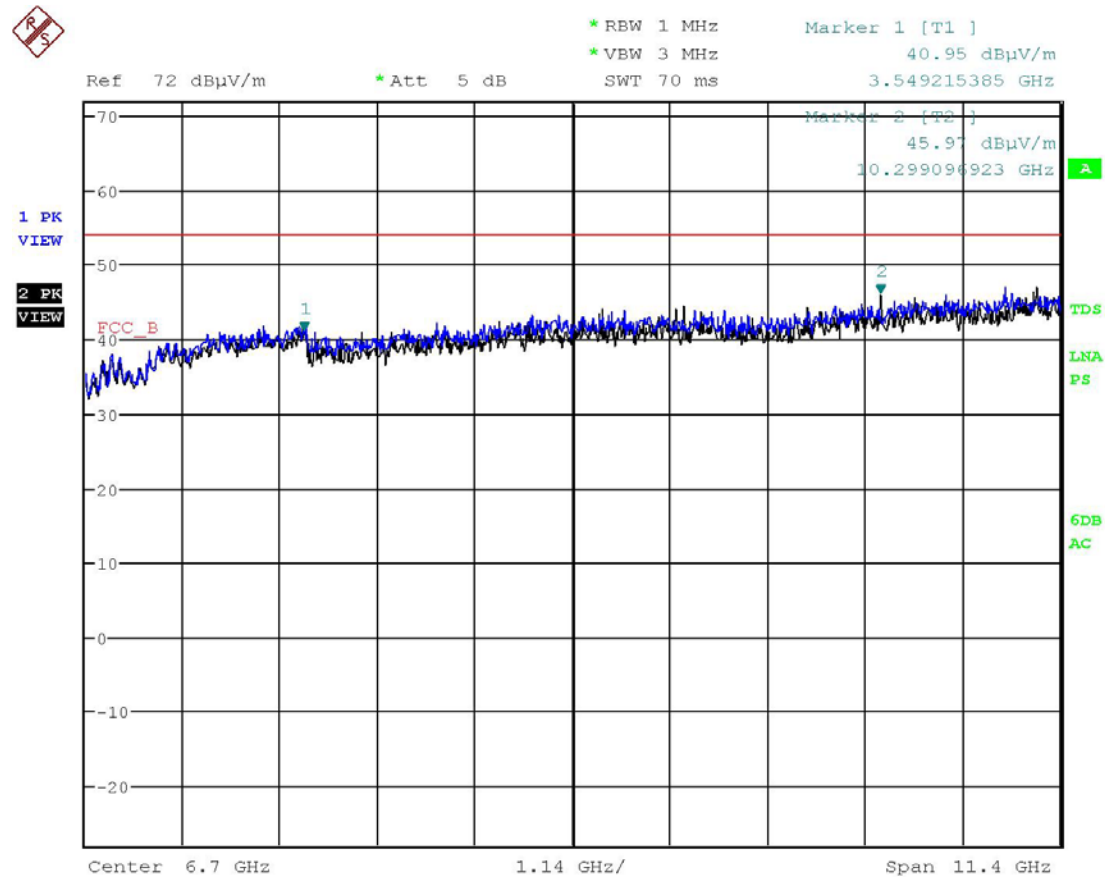
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band 1 -12.4 GHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 16:40:20

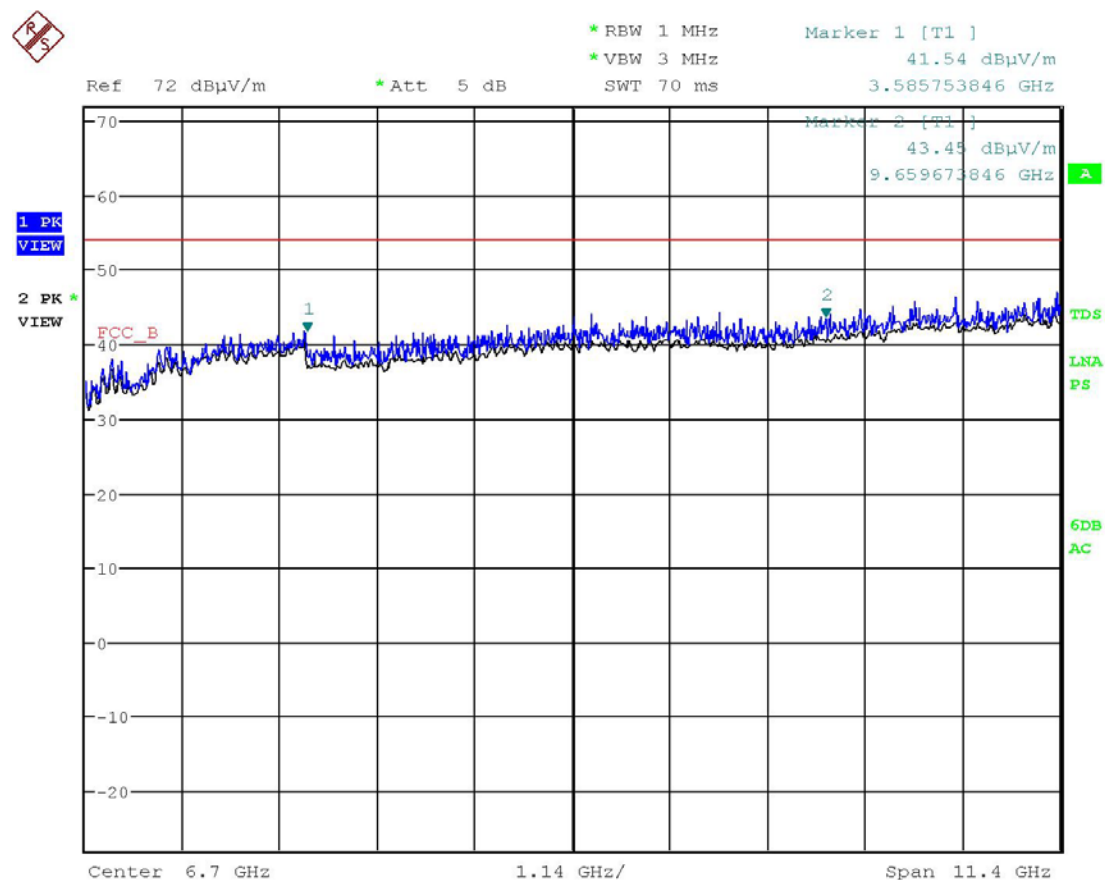
Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

Results Meets Requirements

## RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 1 -12.4 GHz Peak Field Strength Plot

### 3 Meter Field Strength Plot



Date: 27.JAN.2017 16:38:20

Ant Polarity: T1 (Blue)=Vertical, T2 (Black)=Horizontal

### Results Meets Requirements

## TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
DC Power Supply	HP	6286A	1744A03842	N/A	N/A
Antenna: Biconical 1096 Chamber	Eaton	94455-1	1096	07/14/15	07/14/17
Antenna: Log-Periodic 1122	Electro-Metrics	LPA-25	1122	07/14/15	07/14/17
CHAMBER	Panashield	3M	N/A	04/25/16	12/31/17
Antenna: Double-Ridged Horn/ETS Horn 2	ETS-Lindgren Chamber	3117	00041534	02/25/15	02/25/17
Software: Field Strength Program	Timco	N/A	Version 4.0	N/A	N/A
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
Coaxial Cable - Chamber 3 cable set (Primary)	Micro-Coax	Chamber 3 cable set (Primary)	KMKM-0244-01; KMKM-0670-00; KFKF-0198-01	08/09/16	08/09/18
Bore-sight Antenna Positioning Tower	Sunol Sciences	TLT2	N/A	N/A	N/A
Pre-amp	RF-LAMBDA	RLNA00M45GA	N/A	01/04/16	01/04/18

### \*EMI RECEIVER SOFTWARE VERSION

The receiver firmware used was version 4.43 Service Pack 3

## END OF TEST REPORT