



Electromagnetic Compatibility Test Report

Test Report No: FRR 110118 Rev.2
Issued on: March 12, 2018

Product Name

**BLE Robot Board/RF
Module ESB6007D**

**Tested According to
FCC Subpart C §15.249, §2.1049, RSS 210 Issue 9**

Tests Performed for Robomow Ltd.

POB 1412, Pardesia 4281500 Israel
Tel: +972-926-6262

QualiTech EMC Laboratory

30 Hasivim Street, P.O.Box 7500
Petah-Tikva, 4951169, Israel
Tel: +972-3-926-6994
Fax: +972-3-928 7490



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Test Personnel



Tests Performed By: -----

Idan Zehavi Dmitri Babiev



Report Prepared By: -----
Bina Talkar



Report Approved By: -----
Rami Nataf
EMC Lab. Manager
QualiTech EMC Laboratory

Test Report details:

Test commencement date: 21.12.2017
Test completion date: 11.01.2018
Customer's Representative: Eli Levi
Issued on: 12.03.2018

Revision details:

Version	Date	Details/Reasons
Rev. 1	11.01.2018	-
Rev. 2	12.03.2018	Updated per TCB requirements.

Assessment Information:

This report contains an assessment of the EUT against Electromagnetic Compatibility based upon tests carried out on the samples submitted. The results contained in this report relate only to the items tested. Manufactured products will not necessarily give identical results due to production and measurement tolerances. QualiTech, EMC Lab does not assume responsibility for any conclusion and generalization drawn from the test results with regards to other specimens or samples of type of the equipment represented by test item.

The EUT was setup and exercised using the configuration, modes of operation and arrangements defined in this report only.

Modifications:

Modifications made to the EUT

None

Modifications made to the Test Standard

None

System Test Configuration

Justification:

In order to select worst-case host for full testing of limited modular approval certification, investigative fundamental emission from channel 20 (2442MHz) was performed. The results of the investigative fundamental emission appear in the table below.

*Unit name	2442MHz level (dBuv/m) @ 3 meter
RC306	86.957
RS630	91.427
RC Base station	93.771

Based on the above results, the Base Unit was selected as the worst case host for full testing.

Refer to customer's declarations below for description of the differences between the models. None of the differences affects the radio performance of the EUT.

*The models above represent all models mentioned in the manufacturer's declaration below.

Customer's declaration



Date: January 11, 2018

DECLARATION

I Hereby declare that

Model RC304, RC306, RC306p, RC312, RC312p, XR2 1000, XR2 1500, XR2 2000 are identical physically and mechanically. The models differ only by the battery capacity (2.4Ah vs 3Ah), by the DC motor type (brushless vs. brush) and by the shape and the color of the plastic cover.

The difference in the above listed hosts do not affect the radio modules in the devices. Please relate to them all (from a Radio point of view) as the same product.

Thank you,
Signature: 
Vadim Pilipenko
Product Manager
F. Robotics Acquisitions Ltd.



F Robotics Acquisitions Ltd.
Hatzabar St. Industrial Zone P.O.Box 1412 Pardesya, 42815 Israel T: 972-9-8901901 F: 972-9-8987934
E: info@robomow.co.il • www.robomow.eu



Date: January 11, 2018

DECLARATION

I Hereby declare that

Model RS612, RS612p, RS622, RS630, XR3 3000, XR3 4000, XR3 5000
are identical physically and mechanically. The models differ only by the
battery capacity (4.5Ah vs 6Ah) and by the shape and the color of the
plastic cover.

The difference in the above listed hosts do not affect the radio modules
in the devices. Please related to them all (from a Radio point of view) as
the same product.

Thank you,

Signature: 

Vadim Pilipenko

Product Manager

F. Robotics Acquisitions Ltd.

Summary of Compliance Status:

FCC Part 15, Subpart C Part 15.249 & RSS 210 issue 9 – Intentional Radiators

Test Spec. Clause	Test Case/Procedure	Remarks
FCC Part 15, Subpart C – Intentional Radiators, ANSI C63.10: 2013, RSS 210 Issue 9		
§2.1049, RSS GEN section 6.6,	Occupied Bandwidth	-
§15.249,§15.205 & §15.209& sRSS 210 section B.10	Field Strength of Fundamental & Harmonics & Restricted Bands& Outside of Frequency Bands	Pass
47 CFR §15.107/207, ICES-003 RSS-GEN section 8.8	Power Line Emissions measurements- Power Supply Model PWS0018B	Pass
47 CFR §15.203,RSS- Gen Issue 4	Antenna Connector Requirements	Pass



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1. General Description

1.1. Description of the EUT /test Item:

Product name:

FCC ID:2ABHE-RB-2

IC:23524-RB2

EUT Description:

BLE Robot Board P/N: ESB6007D is a Bluetooth Low Energy transceiver - SCR chip based module intended to enable robotic lawn mower communicating with external devices.

Frequency Range: 2402-2480 MHz

Antenna Details:2400-2500 MHz,Max = 0.5 dBi ,Chip Antenna,Medel:2450AT18B100

1.2. Worst Case Results:

In order to determine the worst-case emissions for all modes/data rates/tests and EUT's position(three axis- x,y,z), all modes/data rates and position were investigated for each required test to determine which produces the worst- case data and then full testing was performed in that mode/data rate and position,

2. Test Facility & Uncertainty of Measurement

2.1. Accreditation/ Registration reference:

- *A2LA Certificate Number: 1633.01*
- *FCC Registration Number: 102724*
- *Industry Canada File Number: IC4808A-1*
- *VCCI Member no.: 1798 (C3775, R-3404, G-620, T1630)*

2.2. Test Facility description

The tests were performed at the EMC Laboratory, QualiTech Division, ECI Telecom

Address: 30, Hasivim St., Petah Tikva, Israel.

Tel: 972-3-926-6994

3m Anechoic Chamber:

Two 3m-screened chambers are used in two configurations: the semi-anechoic chamber for Radiated Emission measurements and the full-anechoic chamber for Radiated Immunity tests.

Semi Anechoic Configuration:

Measurement distance	3m
Chamber dimensions	9.5m x 6.5m x 5.2m
Antenna height	1 - 4m
Shielding Effectiveness	Magnetic field ≥80dB at 15 kHz ≥90dB at 100 kHz Electric field >120dB from 1MHz to 1GHz >110dB from 1GHz to 10GHz
Absorbing material	Ferrite tiles on the walls and ceiling Emerson and Cuming absorbing material in selected positions on the walls
Normalized Site Attenuation measured at 5 positions	±3.9dB, 30MHz to 200MHz ±3dB, 200MHz to 1000MHz
Transmission Loss measured at 5 positions, at 1.5m height	±3dB, 1GHz to 18GHz

Full-Anechoic Configuration:

Measurement distance	3m
Chamber dimensions	7m x 4m x 3m
Antenna height	1.55m at Horizontal & Vertical polarizations
Shielding Effectiveness	Magnetic field ≥80dB at 15 kHz ≥90dB at 100 kHz Electric field >120dB from 1MHz to 1GHz >110dB from 1GHz to 10GHz
Absorbing material	Ferrite tiles on the walls and ceiling Emerson and Cuming absorbing material in selected positions on the walls and floor
Field Uniformity to EN61000-4-3	±3dB 80MHz to 18GHz

3. Measurements & Test Results:

3.1. Occupied Bandwidth

Reference document:	\$2.1049, RSS GEN sec 6.6		
Test Requirements:	The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.		
Measurement Standard	ANSI C63.10: 2013	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 1% to 3% of the 99% bandwidth		
Mode of operation:	Peak Detector Trace Mode : Max Hold		
Environment conditions:	Ambient Temperature: 23.2°C	Relative Humidity: 59.8%	Atmospheric Pressure: 1018hPa
Test Result:	See below		

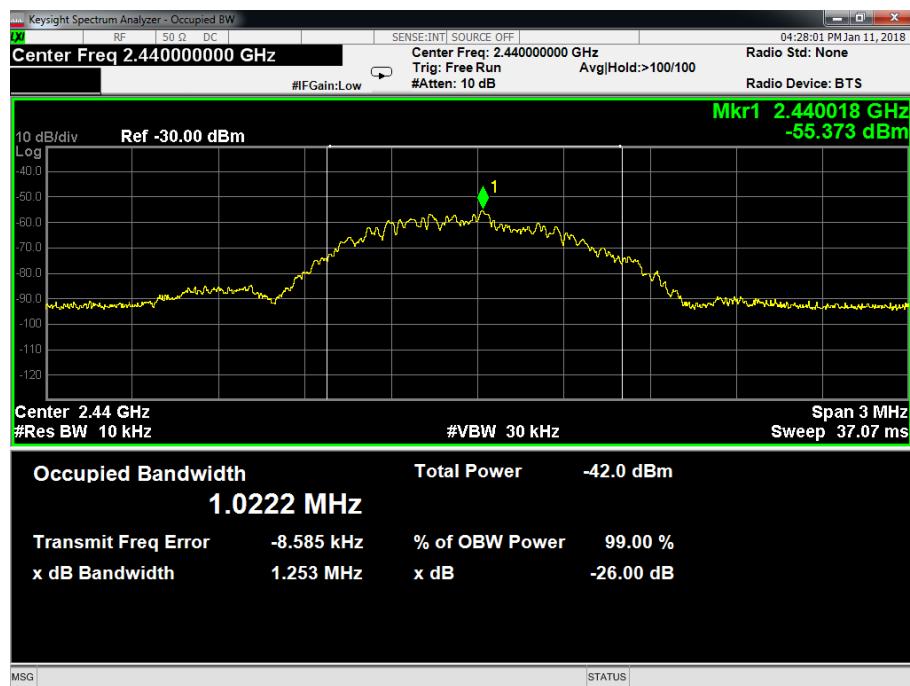
Test results:

Frequency, [MHz]	99% power BW, [MHz]	Lower Frequency, [MHz]	Middle Frequency, [MHz]	Higher Frequency, [MHz]	Limit
2402.00	1.048	2402.015	NA	NA	NA
2440.00	1.022	NA	2440.018	NA	
2480.00	1.074	NA	N.A	2480.015	

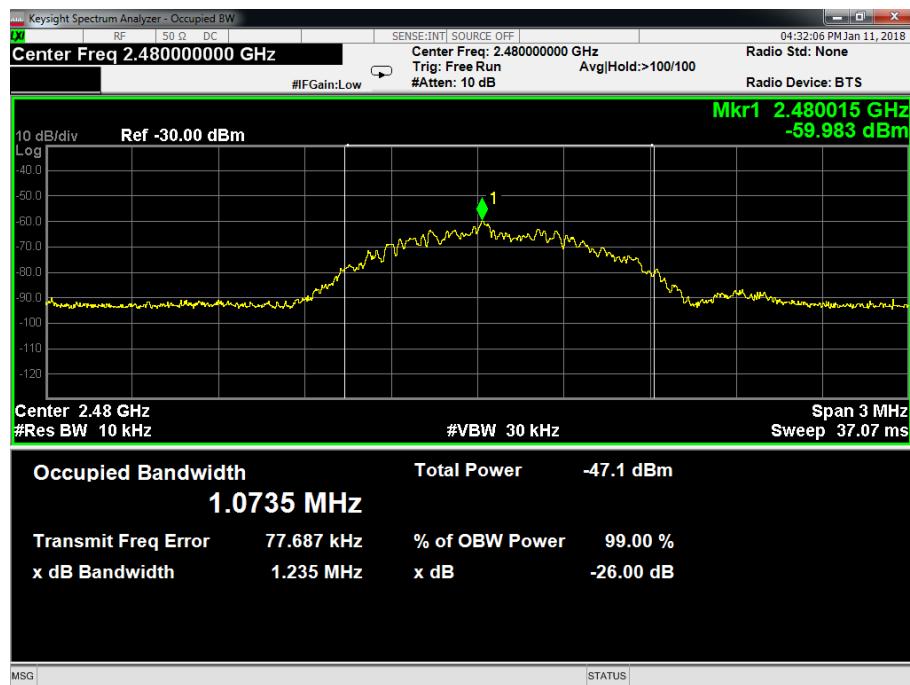
Plot 3.1.1 Occupied Channel Bandwidth test results, F = 2402 MHz



Plot 3.1.2 Occupied Channel Bandwidth test results, F = 2440 MHz



Plot 3.1.3 Occupied Channel Bandwidth test results, F = 2480 MHz



3.2. Field Strength of Fundamental & Harmonics & Restricted Bands & Outside of Frequency Bands

Reference document:	47 CFR §15.249 (a)(c)(d), 47 CFR §15.205(a), RSS 210 section B.10		
Test Requirements:	the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following, in addition emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation		
	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics & (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24.0-24.25 GHz	250	2500
	-All other emission limits per § 15.209		
Measurement Standard	ANSI C63.10: 2013		
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	RBW: 1GHz <120kHz, VBW: 300kHz 1GHz >1MHz, VBW: 3MHz		
Environment conditions:	Ambient Temperature: 23.3°C	Relative Humidity: 41%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	-	

Limit:

Frequency Range, MHz	Limit	
	Field strength of fundamental , Strength@3m, dB μ V/m	Field strength of harmonics Strength@3m, dB μ V/m
902-928 MHz	93.98	53.98
2400-2483.5 MHz	93.98	53.98
5725-5875 MHz	93.98	53.98
24.0-24.25 GHz	107.96	67.96
-All other emission limits per § 15.209		

Test Result: RC Base Station, CBS01 – worst case - 120Vac

Frequency [MHz]	Antenna POL	Emission Type	Pk Detector dB μ V/m	AV Detector dB μ V/m	Pk Limit Detector dB μ V/m	AV Limit dB μ V/m	*Pk Marge	**AV Marge	Antenn a Position [cm]	Turn-table Azimuth [°]	Pass/ Fail	
Fc - 2402												
2402	V	fundamental	91.86	-	-	93.98	-	-2.12	180	176	Pass	
197.280	H	Harmonics	52.230	46.230	74.000	54.000	-21.770	-7.770	150	50	Pass	
189.800	H	Harmonics	51.340	46.150	74.000	54.000	-22.660	-7.850	155	56	Pass	
2389.71	H	Restricted Bands	46.054	33.810	74.000	54.000	-27.946	-	20.190	152	53	Pass
Fc - 2442												
2442	H	fundamental	93.77	-	-	93.98	-	-0.21	245	10	Pass	
196.040	V	Harmonics	49.340	44.230	74.000	54.000	-24.660	-9.770	160	40	Pass	
197.730	H	Harmonics	52.540	46.450	74.000	54.000	-21.460	-7.550	172	37	Pass	
189.590	H	Harmonics	51.110	46.240	74.000	54.000	-22.890	-7.760	130	45	Pass	
Fc - 2480												
2480	V	fundamental	93.67	-	-	93.98	-	-0.31	127	28	Pass	
197.690	H	Harmonics	52.230	46.410	74.000	54.000	-21.770	-7.590	160	49	Pass	
189.580	H	Harmonics	50.940	40.970	74.000	54.000	-23.060	-	162	0	Pass	
2483.530	V	Restricted Bands	62.365	44.190	74.000	54.000	-11.635	-9.810	161	51	Pass	

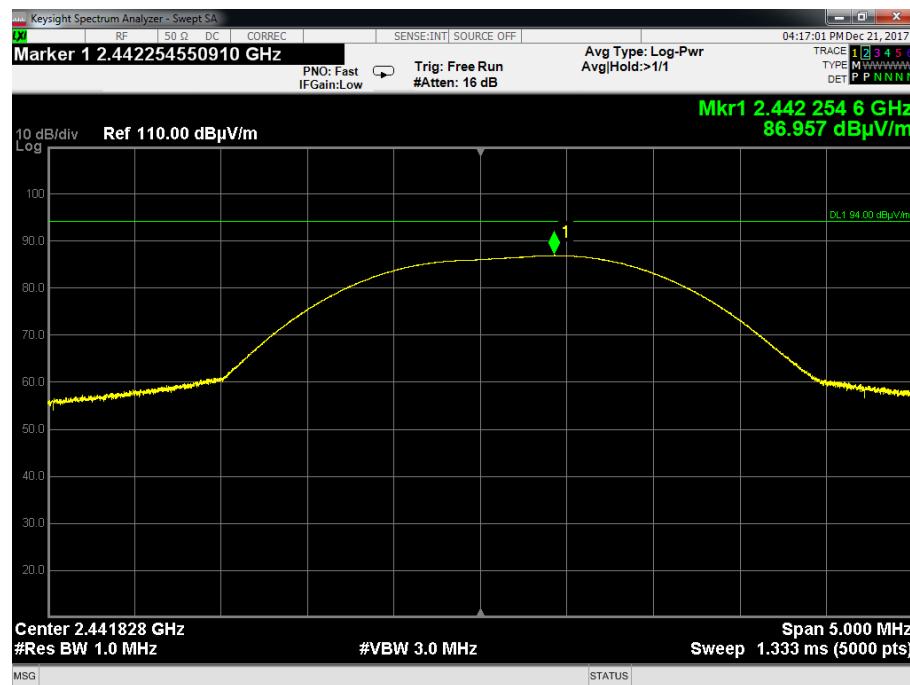
** Compared to AV Limit which is the worst case scenario

Worst case finding process

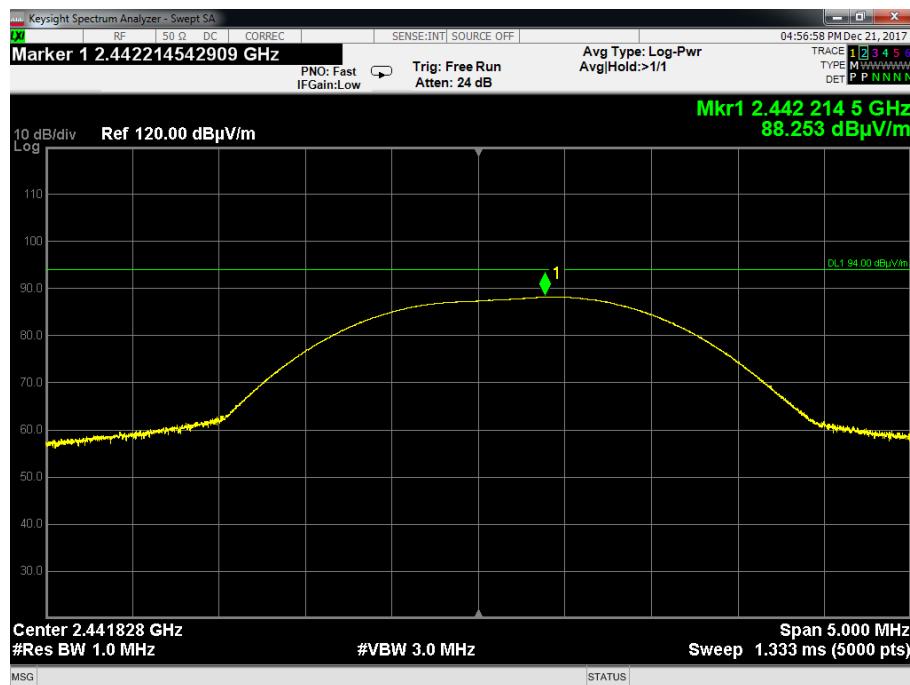
Plot 3.2.1: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Fc -2442- RC306



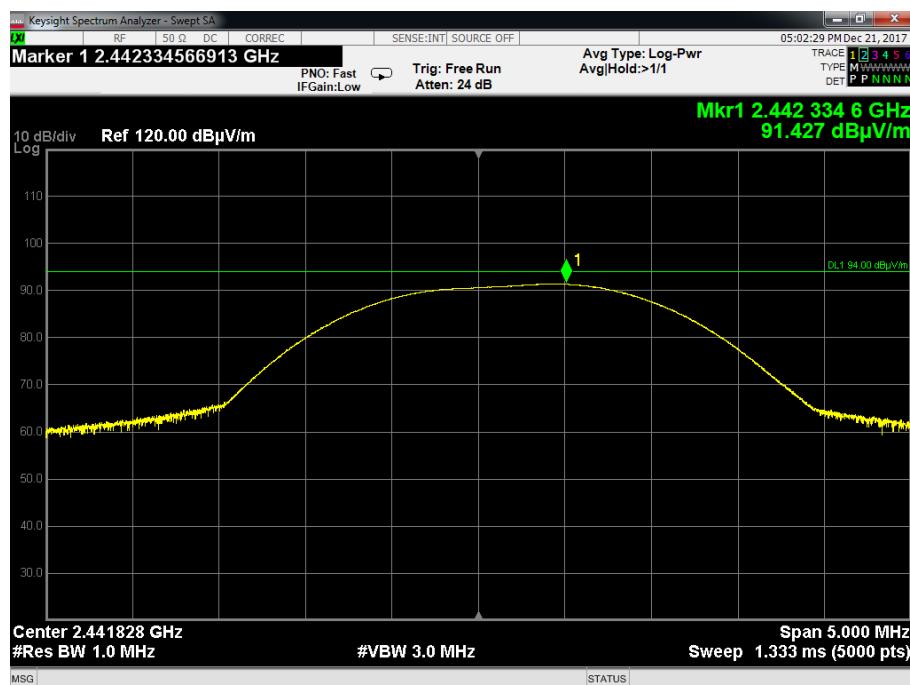
Plot 3.2.2: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Fc -2442- RC306



Plot 3.2.3: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Fc -2442- RS630



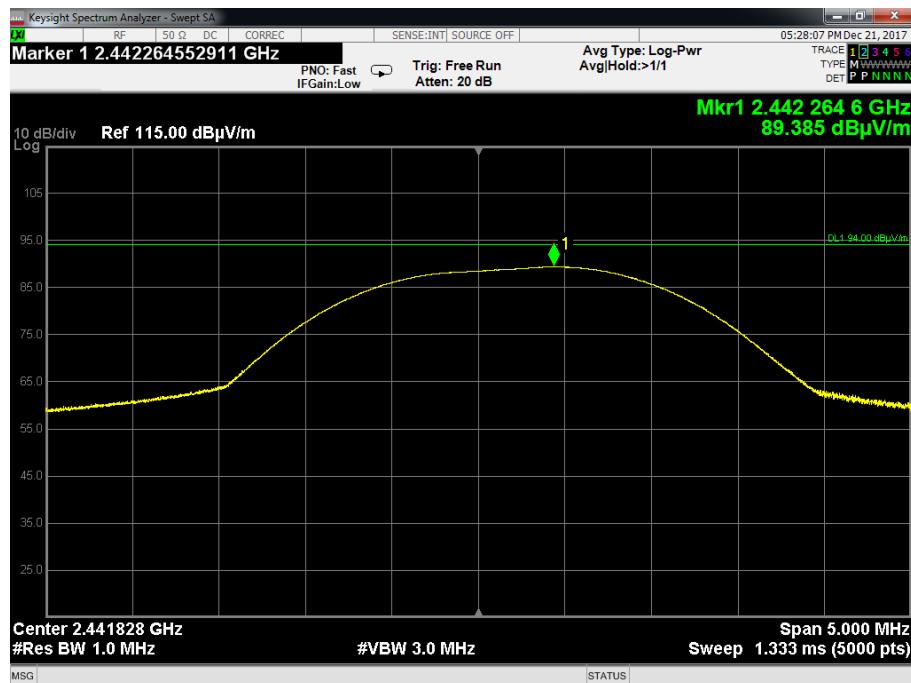
Plot 3.2.4: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Fc -2442- RS630



Plot 3.2.5: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Cannel 20- Fc -2442, RC Base Station, CBS01 – worst case

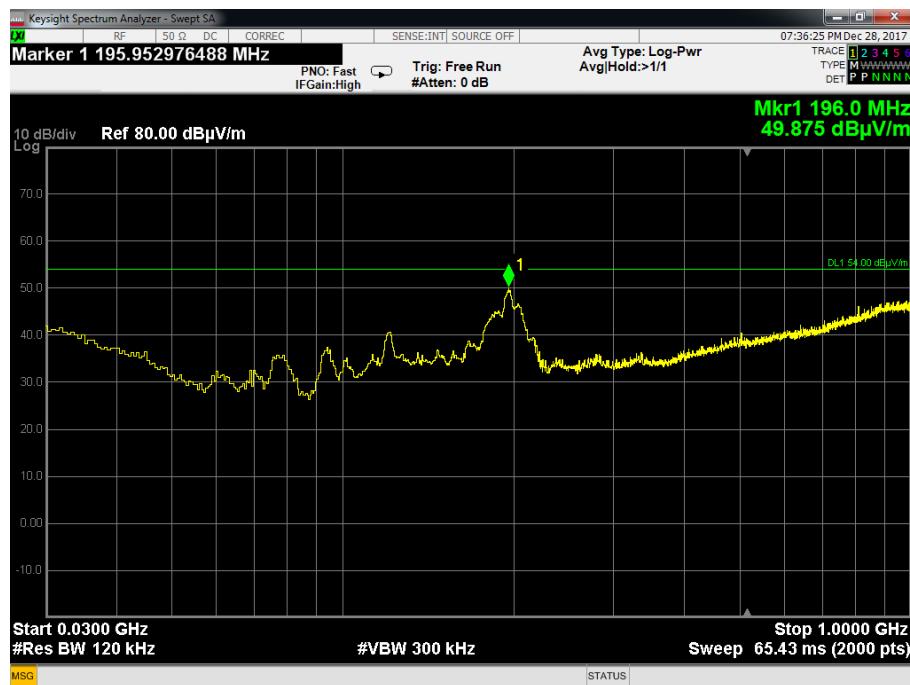


Plot 3.2.6: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Cannel 20 - Fc -2442, RC Base Station, CBS01 – worst case,

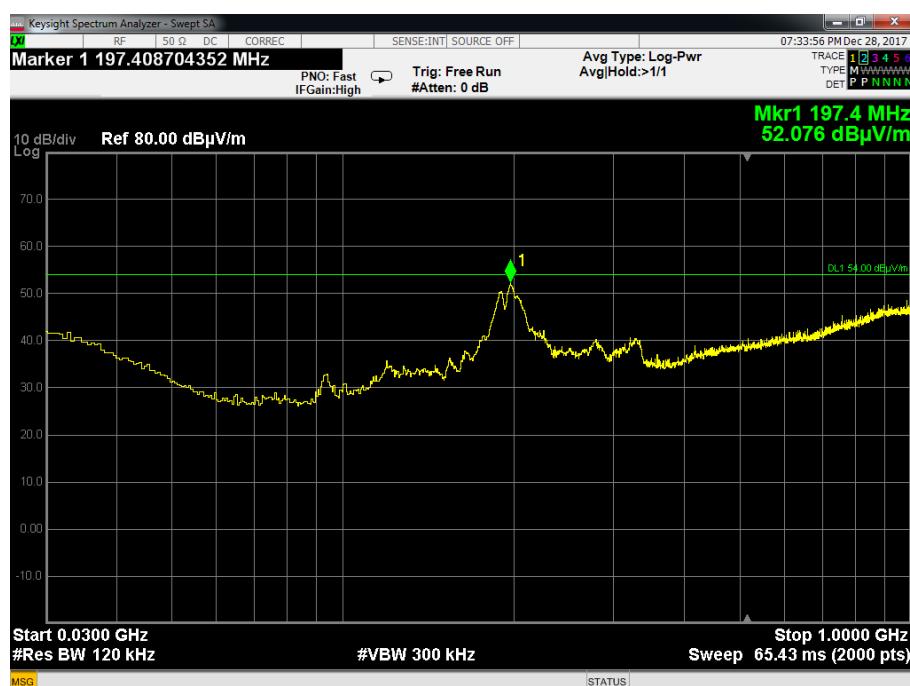


Full testing on worst case unit

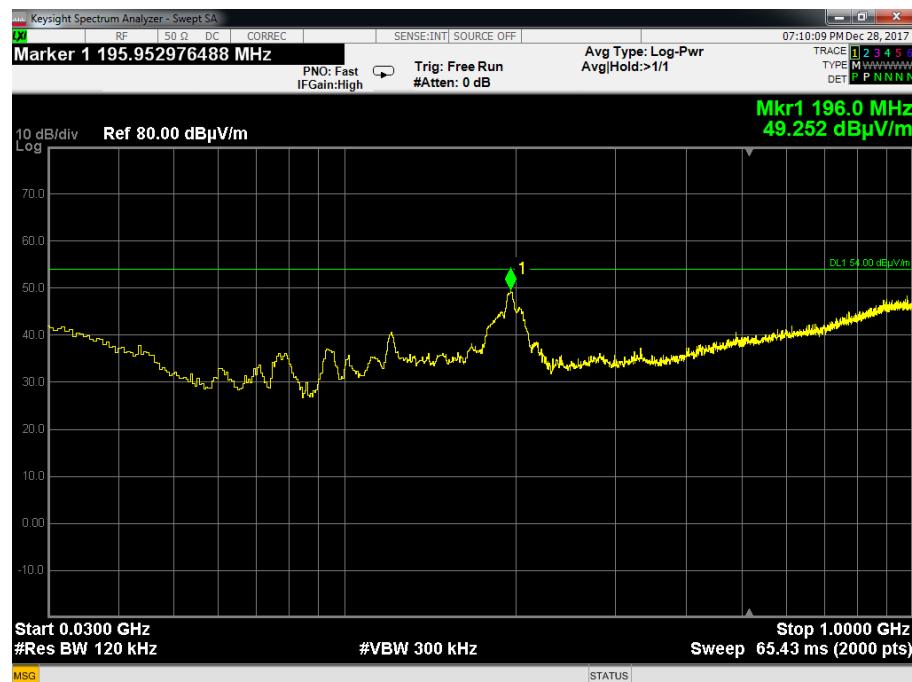
Plot 3.2.7: Radiated Emissions test, Vertical Polarization, Tx Modulated, 30MHz-1GHz
Channel 0- Fc -2402, RC Base Station, CBS01- input power 120vac



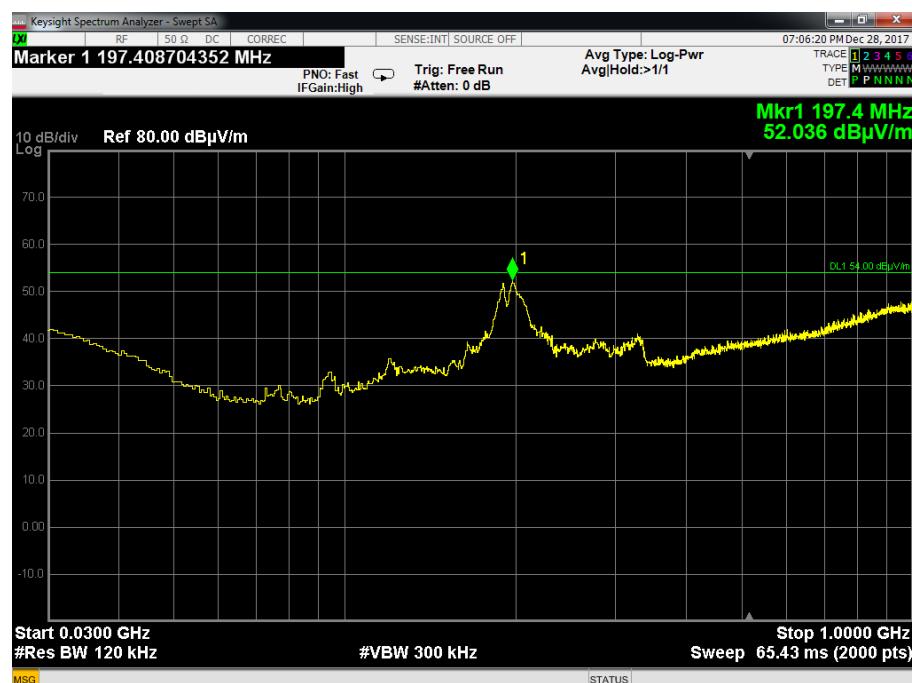
Plot 3.2.8: Radiated Emissions test, Horizontal Polarization, Tx Modulated, 30MHz-1GHz
, Channel 0- Fc -2402, RC Base Station, CBS01



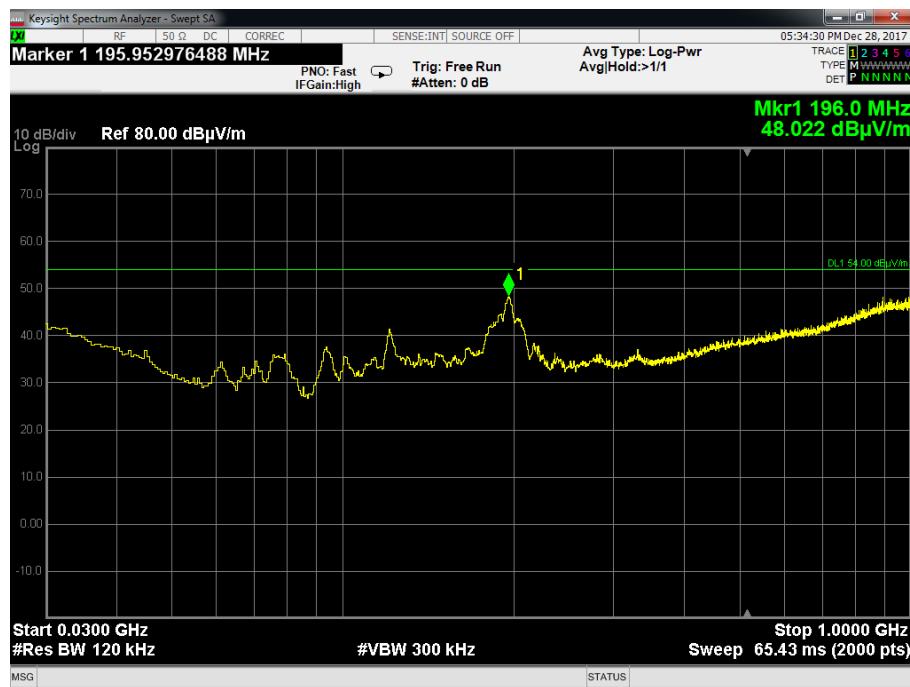
**Plot 3.2.9: Radiated Emissions test, Vertical Polarization, Tx Modulated, 30MHz-1GHz
 Cannel 20- Fc -2442, RC Base Station, CBS01**



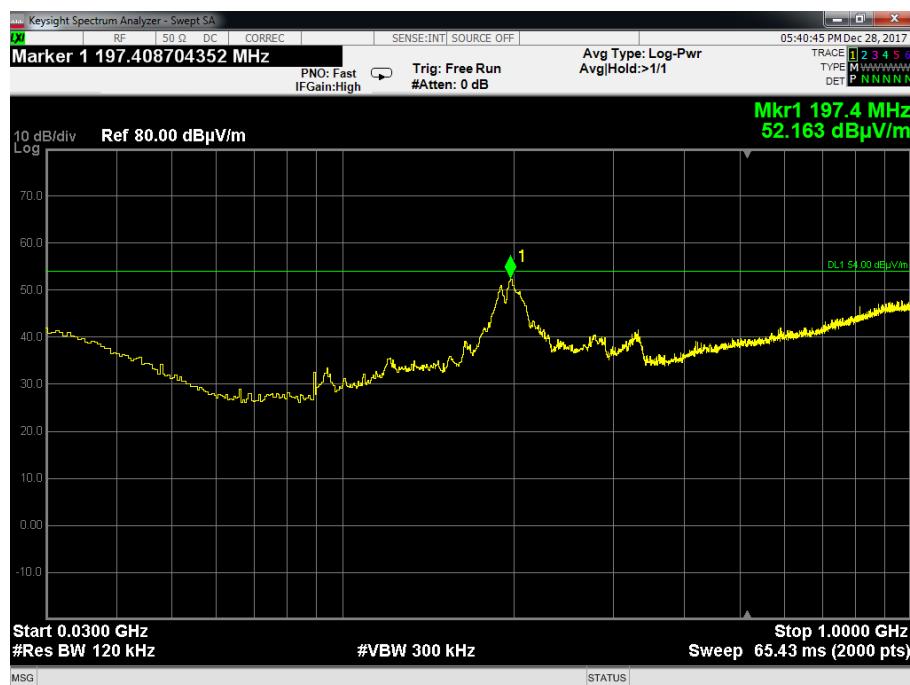
**Plot 3.2.10: Radiated Emissions test, Horizontal Polarization, Tx Modulated, 30MHz-1GHz
 Cannel 20- Fc -2442, RC Base Station, CBS01**



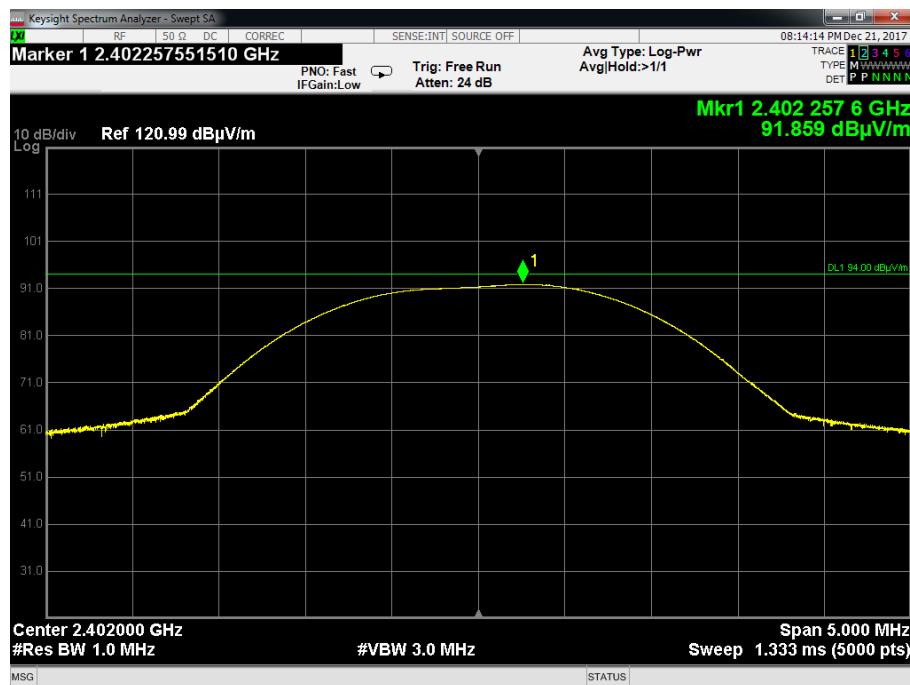
Plot 3.2.11: Radiated Emissions test, Vertical Polarization, Tx Modulated, 30MHz-1GHz , Cannel 39- Fc -2480, RC Base Station, CBS01



Plot 3.2.12: Radiated Emissions test, Horizontal Polarization, Tx Modulated, 30MHz-1GHz , Cannel 39- Fc -2480, RC Base Station, CBS01



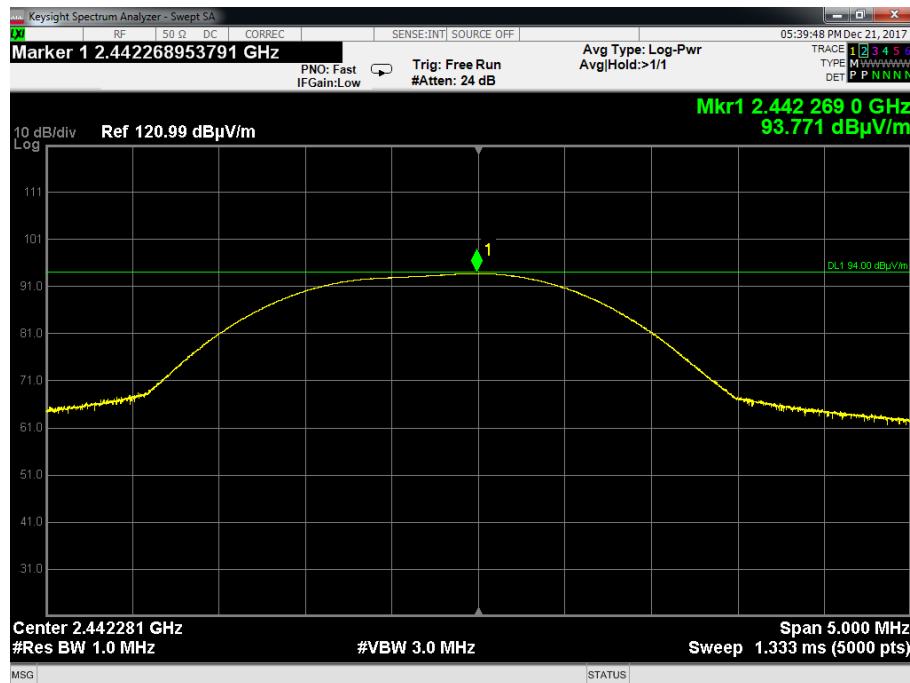
Plot 3.2.13: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Cannel 0- Fc -2402, RC Base Station, CBS01 – worst case



Plot 3.2.14: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Cannel 0- Fc -2402, RC Base Station, CBS01 – worst case



Plot 3.2.15: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Cannel 20- Fc -2442, RC Base Station, CBS01 – worst case



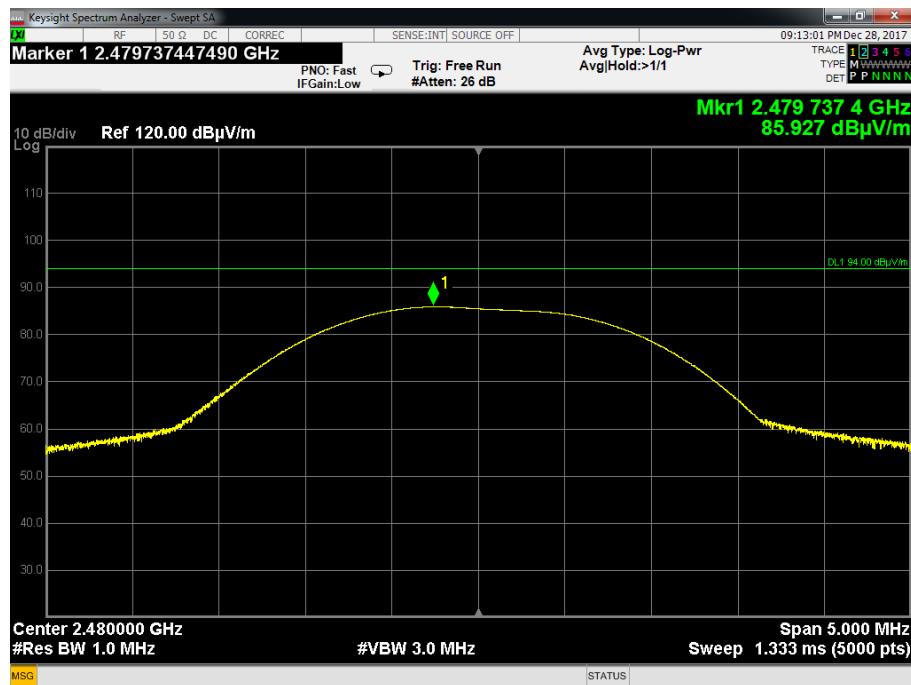
Plot 3.2.16: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Cannel 20 - Fc -2442, RC Base Station, CBS01 – worst case,



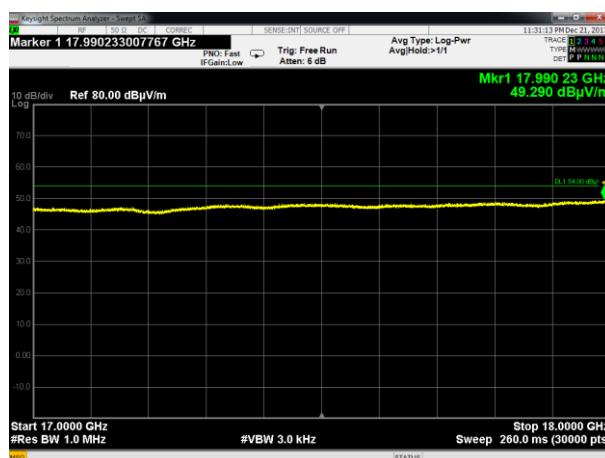
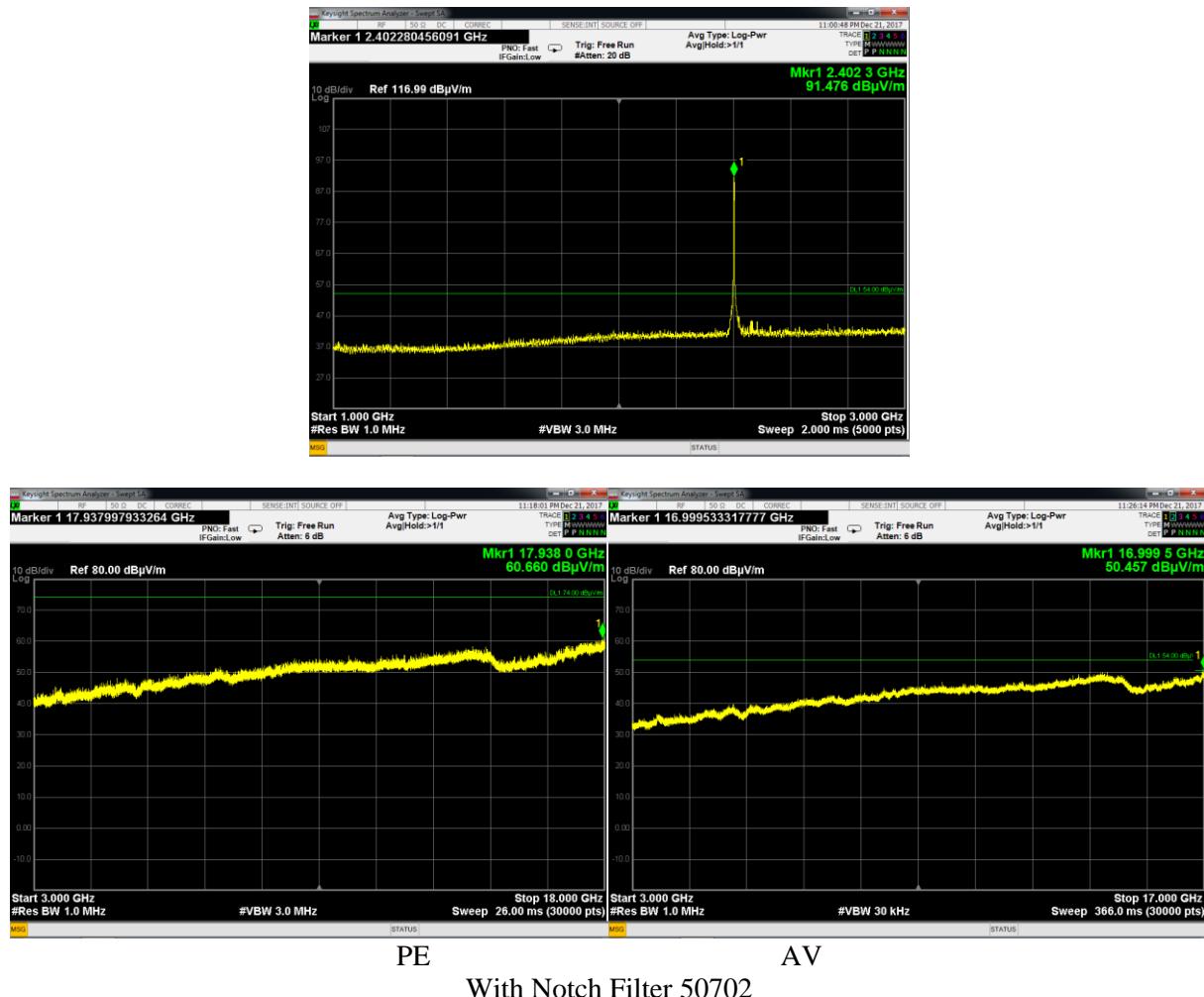
Plot 3.2.17: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of fundamental, Cannel 39- Fc -2480, RC Base Station, CBS01 – worst case



Plot 3.2.18: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of fundamental, Cannel 39- Fc -2480, RC Base Station, CBS01 – worst case

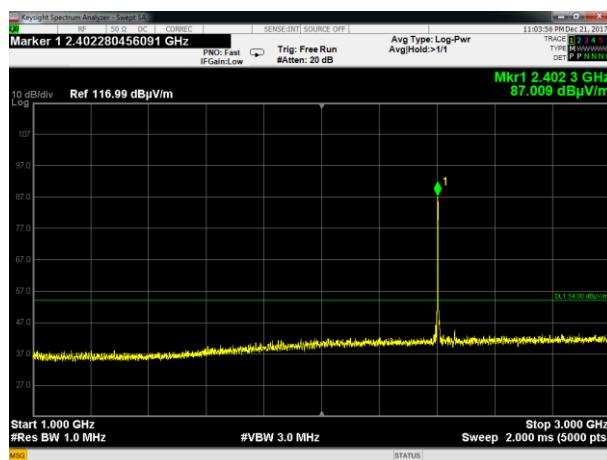


Plot 3.2.19: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 0 - Fc -2402, RC Base Station, CBS01 – worst case, 1GHz -18GHz



With Notch Filter 50702

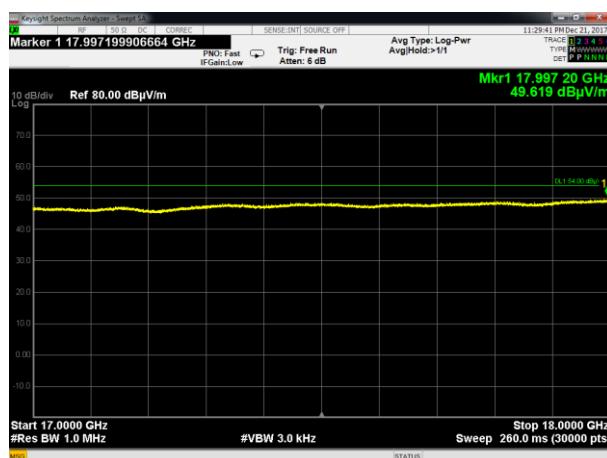
Plot 3.2.20: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 0 - Fc -2402, RC Base Station, CBS01 – worst case, 1GHz -18GHz



PE

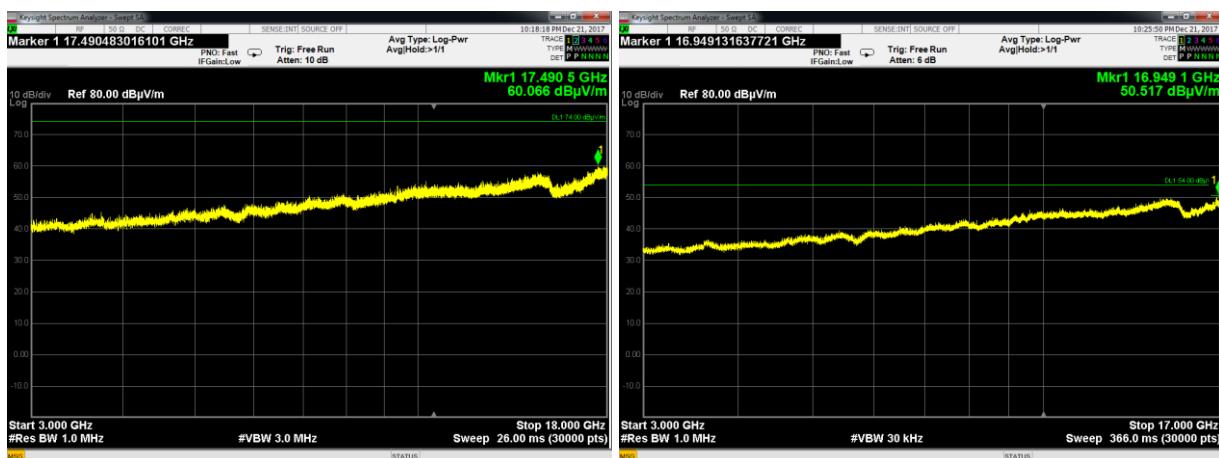
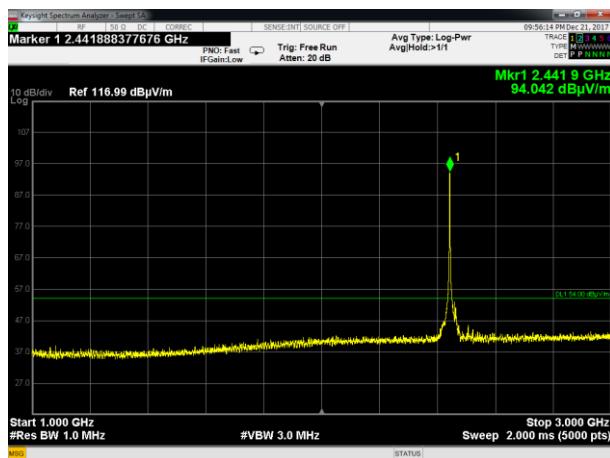
AV

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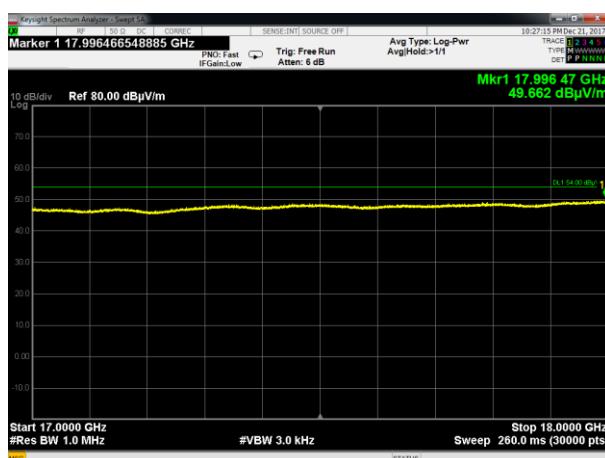


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Plot 3.2.21: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 20 - Fc -2442, RC Base Station, CBS01 – worst case, 1GHz -18GHz

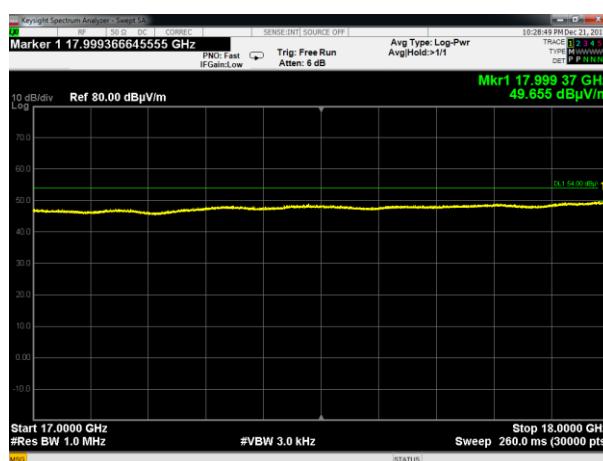
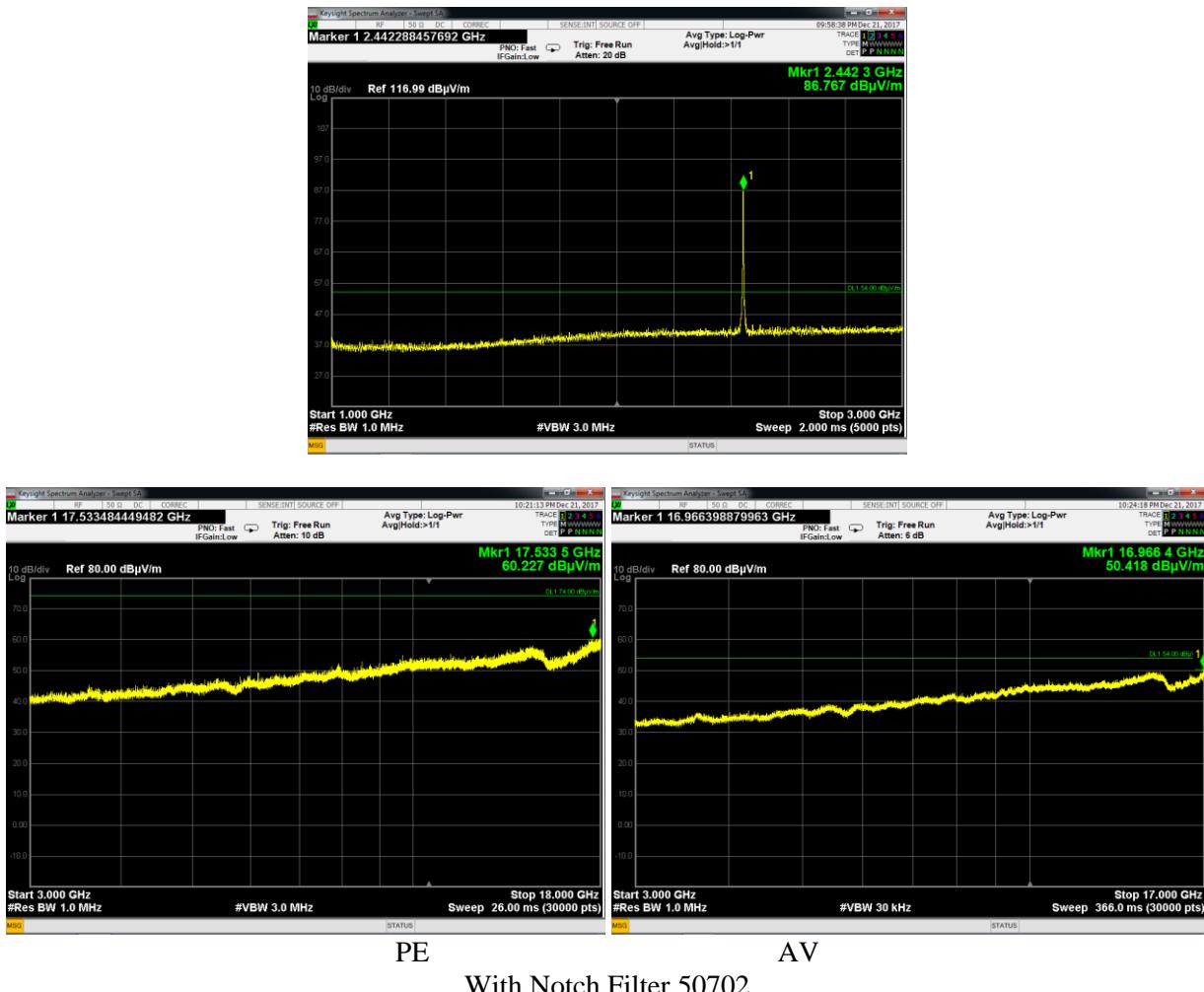


PE AV
With Notch Filter 50702



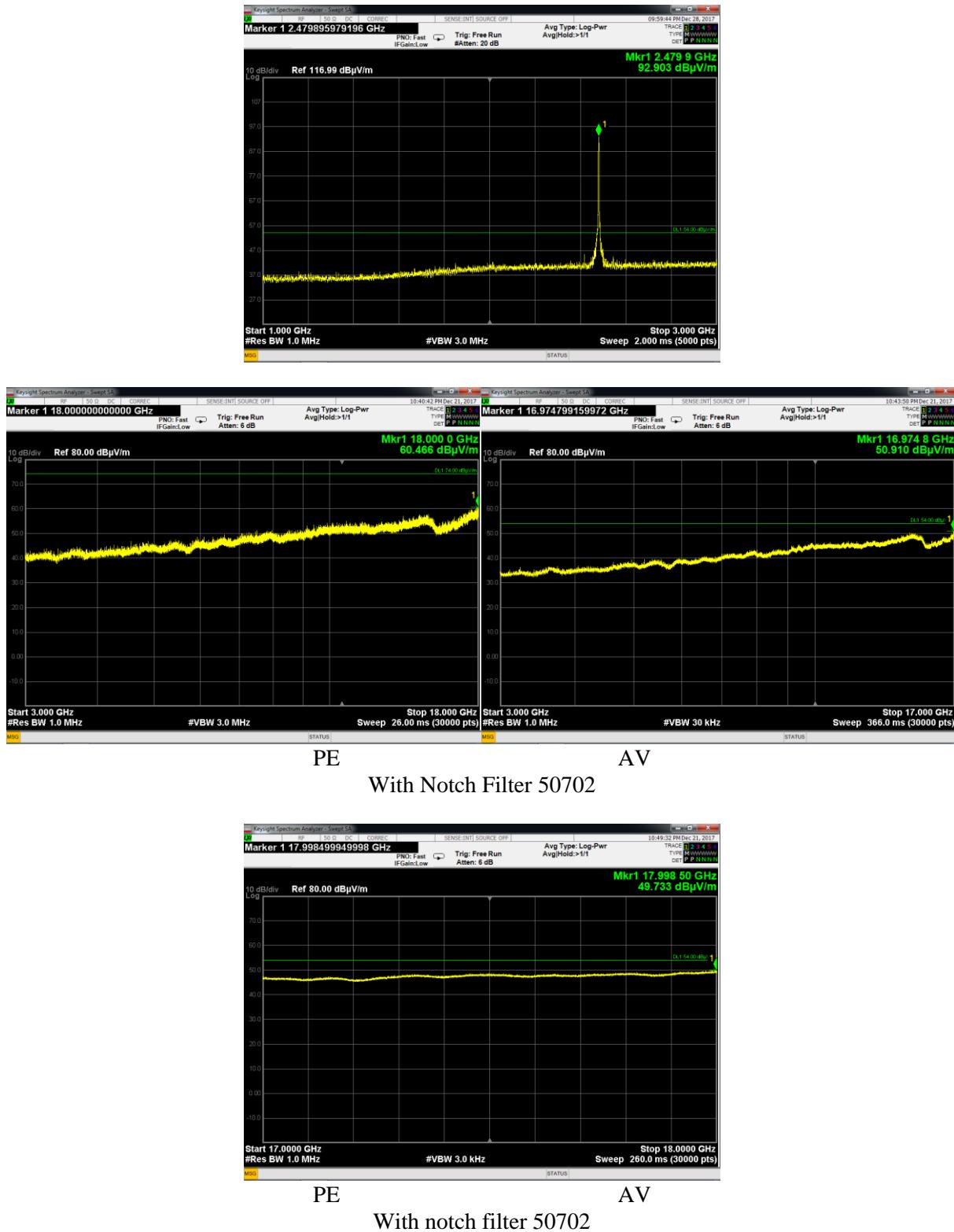
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Plot 3.2.22: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 20 - Fc -2442, RC Base Station, CBS01 – worst case, 1GHz -18GHz

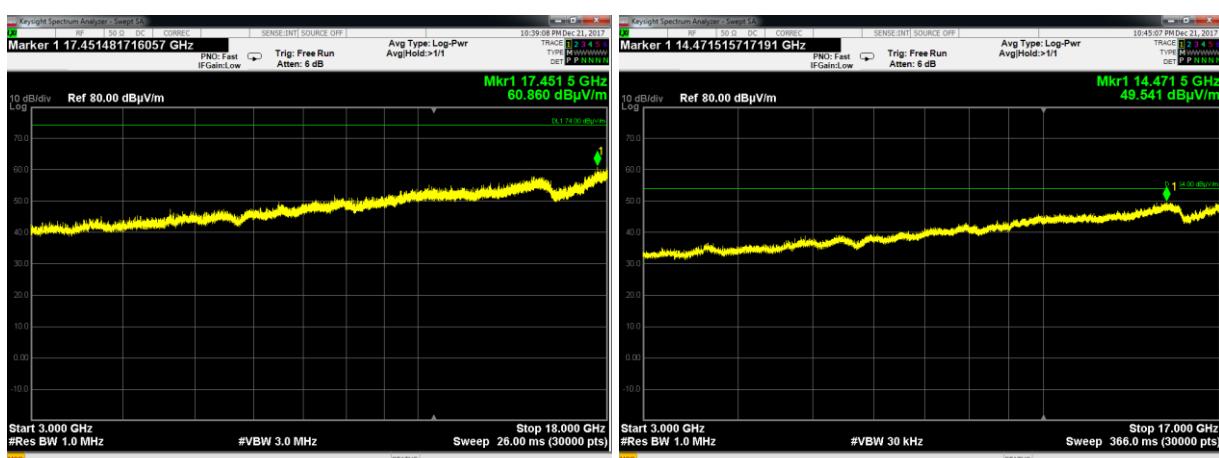
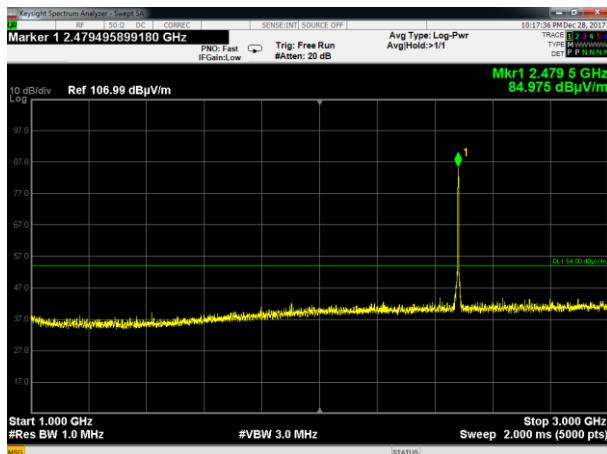


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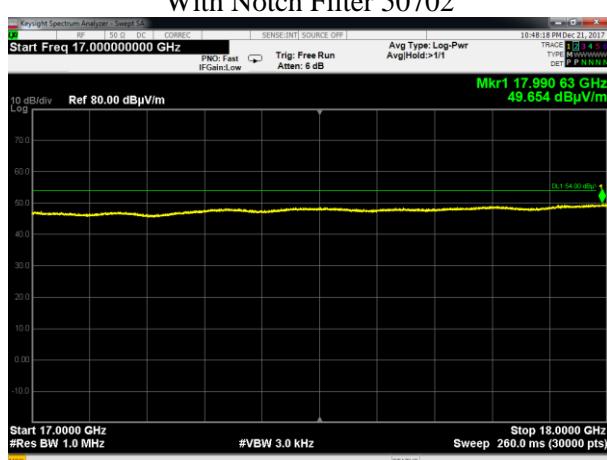
Plot 3.2.23: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 39- Fc -2480, RC Base Station, CBS01 – worst case, 1GHz -18GHz



Plot 3.2.24: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 39- Fc -2480, RC Base Station, CBS01 – worst case, 1GHz -18GHz

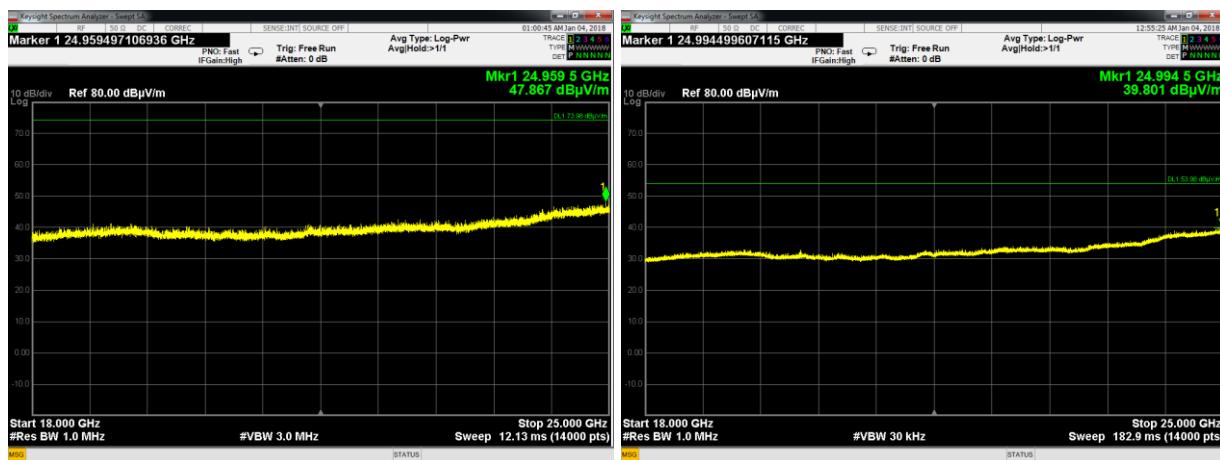


PE AV
With Notch Filter 50702

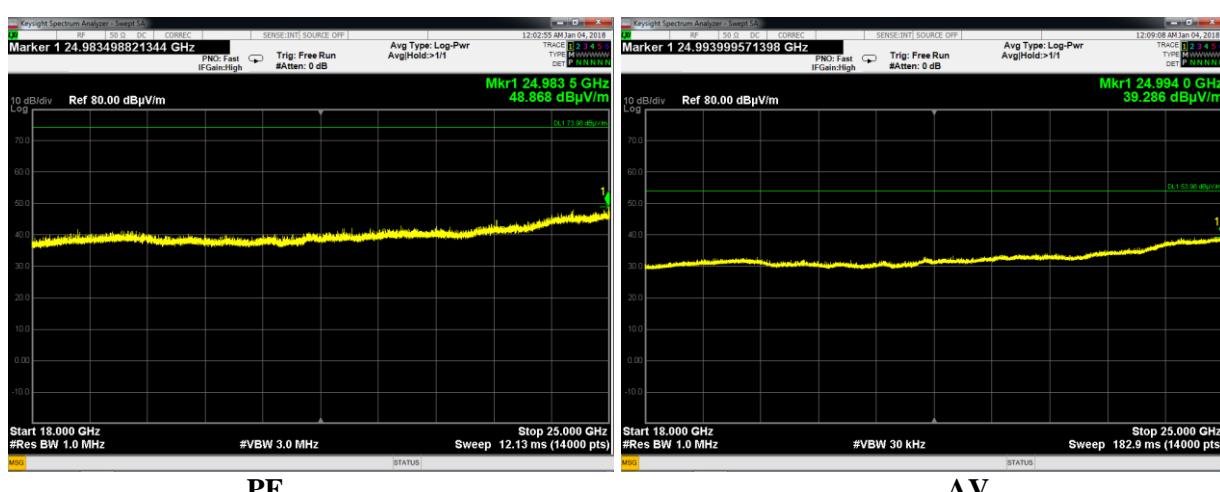


With Notch Filter 50702

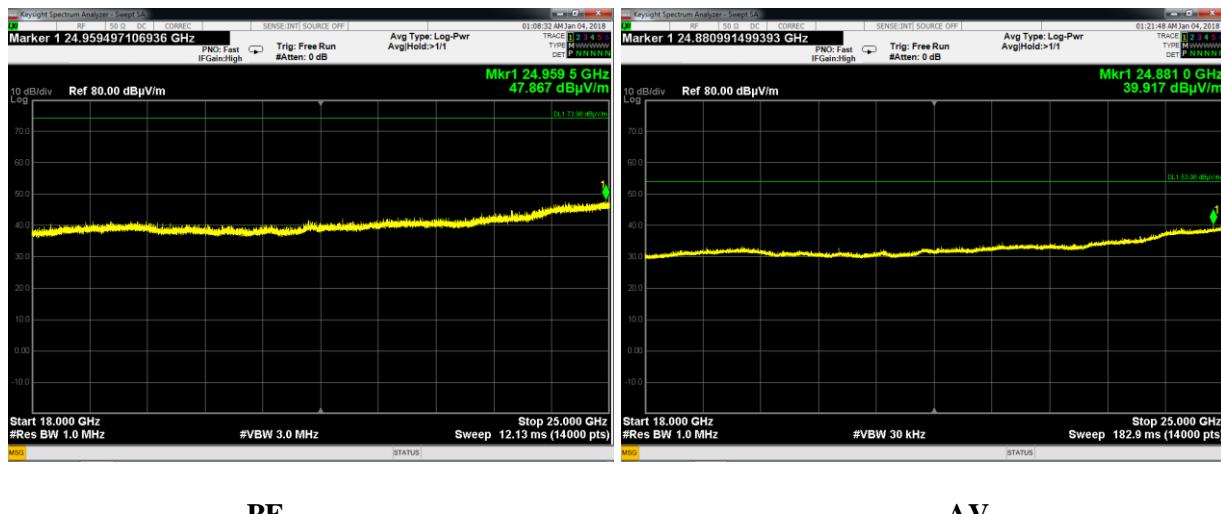
Plot 3.2.25: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 0 - Fc -2402, RC Base Station, CBS01, 18GHz -25GHz



Plot 3.2.26: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 0 - Fc -2402, RC Base Station, CBS01, 18GHz -25GHz



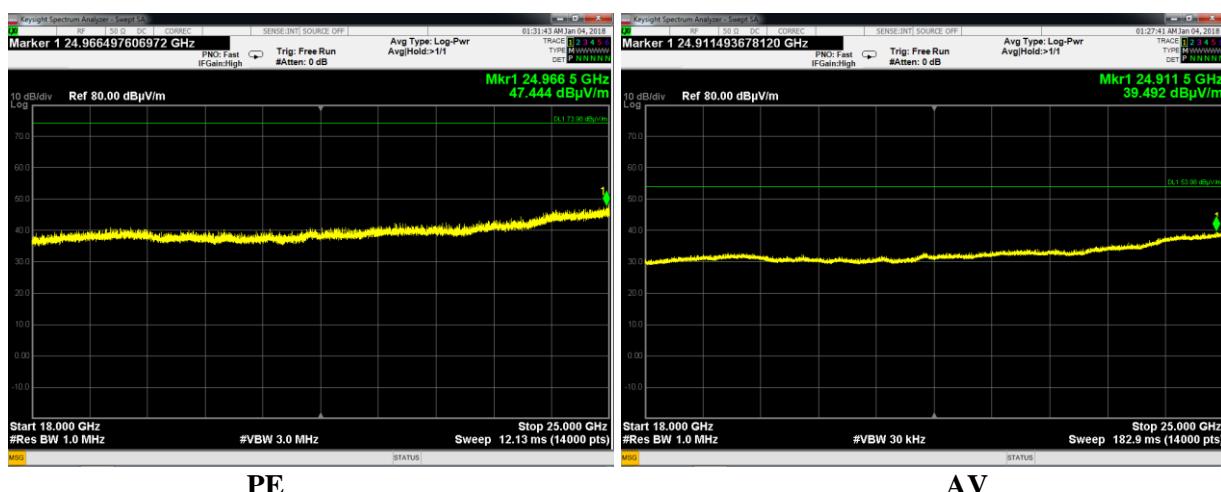
Plot 3.2.27: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 20 - Fc -2440, RC Base Station, CBS01, 18GHz -25GHz



PE

AV

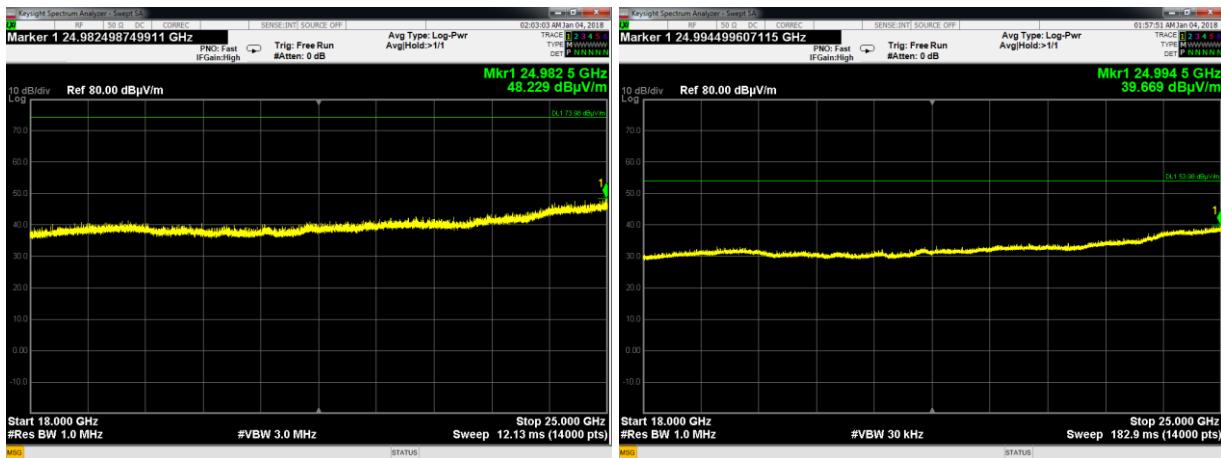
Plot 3.2.28: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 20 - Fc -2440, RC Base Station, CBS01, 18GHz -25GHz



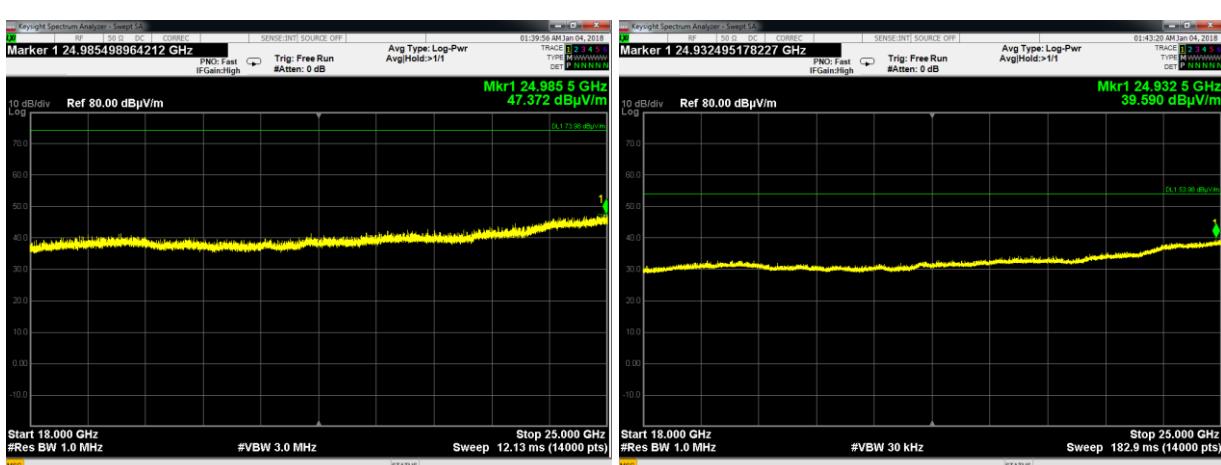
PE

AV

Plot 3.2.29: Radiated Emissions test, Vertical Polarization, Tx Modulated, Field strength of harmonics, Cannel 39- Fc -2480, RC Base Station, CBS01, 18GHz -25GHz

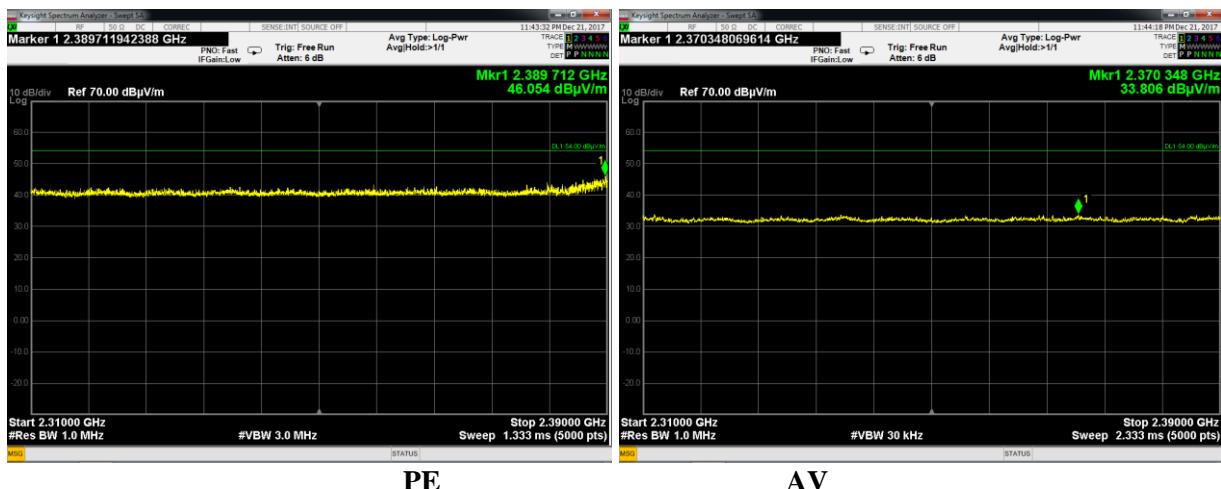


Plot 3.2.30: Radiated Emissions test, Horizontal Polarization, Tx Modulated, Field strength of harmonics, Cannel 39- Fc -2480, RC Base Station, CBS01, 18GHz -25GHz

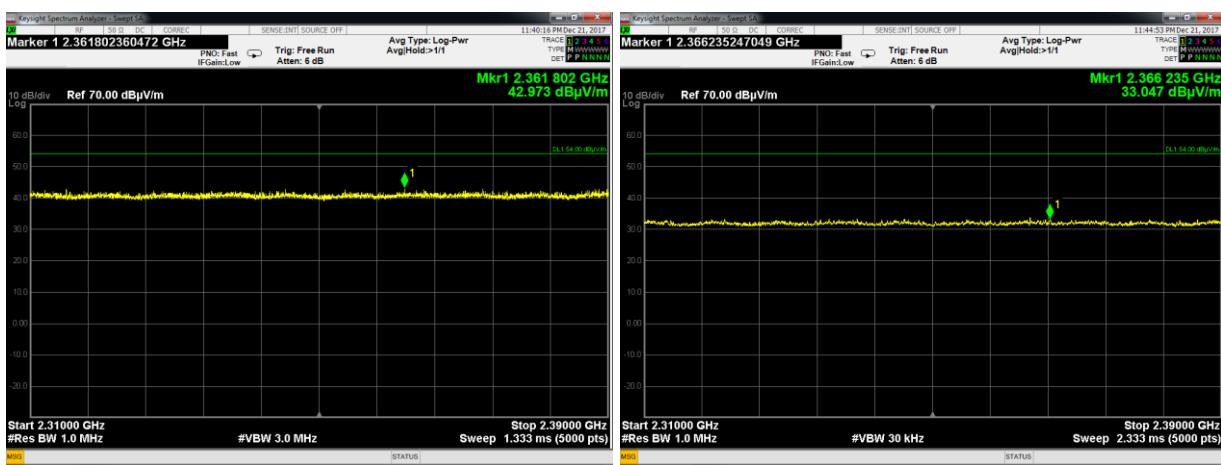


Restricted Bands according to §15.205(a) and § 15.209.

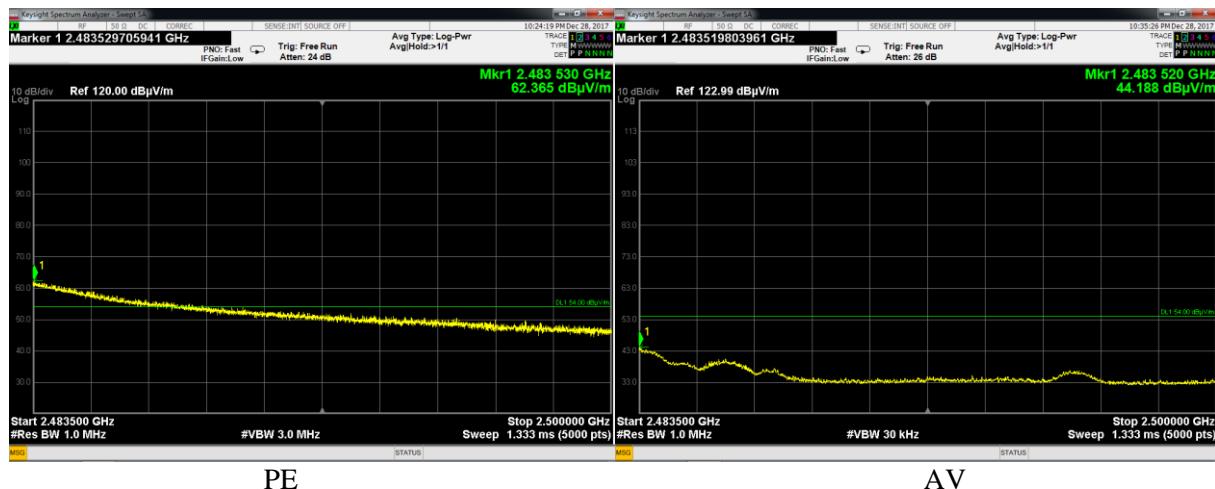
Plot 3.2.31: Radiated Emissions test, Vertical Polarization, Tx Modulated, 2310MHz-2390MHz, Channel 0 - Fc -2402, RC Base Station, CBS01 – worst case



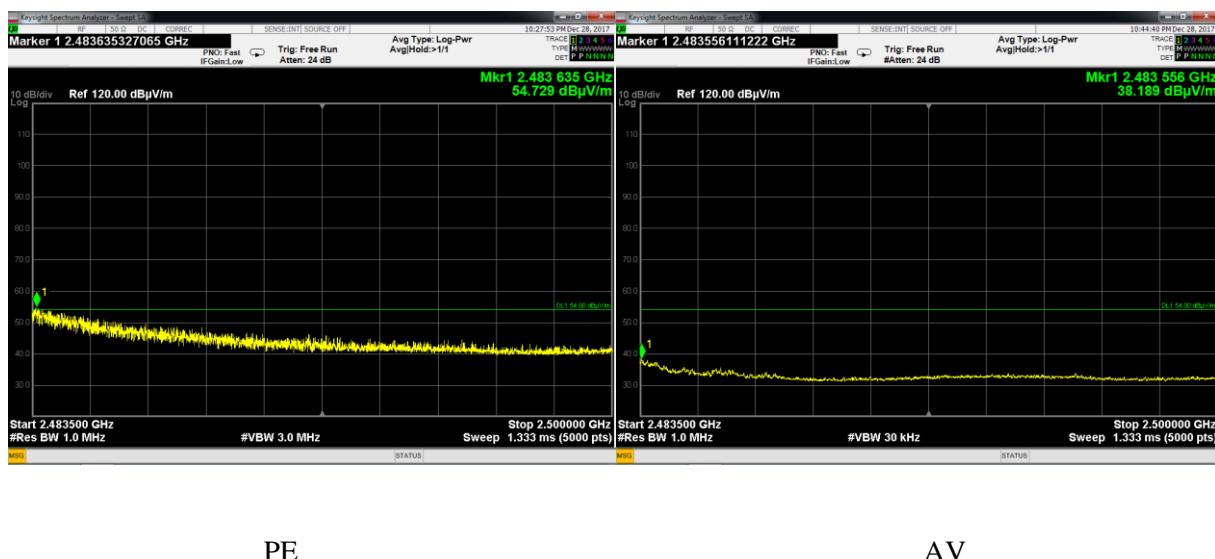
Plot 3.2.32: Radiated Emissions test, Horizontal Polarization, Tx Modulated, 2310MHz-2390MHz, Fc -2402



Plot 3.2.33: Radiated Emissions test, Vertical Polarization, Tx Modulated, 2483.5MHz-2500MHz, Cannel 39- Fc -2480, RC Base Station, CBS01 – worst case



Plot 3.2.34: Radiated Emissions test, Horizontal Polarization, Tx Modulated, 2483.5MHz-2500MHz, Fc -2480



3.3. Power Line Emissions measurements

Reference document:	47 CFR §15.207, RSS-GEN section 8.8			
Test Requirements:	<p>The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in §15.107.</p> <p>The emissions from an intentional radiator shall not exceed the field strength levels specified in §15.207.</p> <p>Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Sec.15.207.</p>			
Measurement Standard	ANSI C63.10: 2013			
Operating conditions:	Under normal test conditions			
Method of testing:	Conducted Emissions			
S.A. Settings:	f <30MHz: RBW: 9kHz, VBW:30kHz			
Radio device:	Idle			
Environment conditions:	Ambient Temperature: 23.2°C	Relative Humidity: 48.1%	Atmospheric Pressure: 1011.4 hPa	
Test Result:	See below			

Test Results: 110 VAC- Power Supply Model sPWS0018B

“Phase” Lead

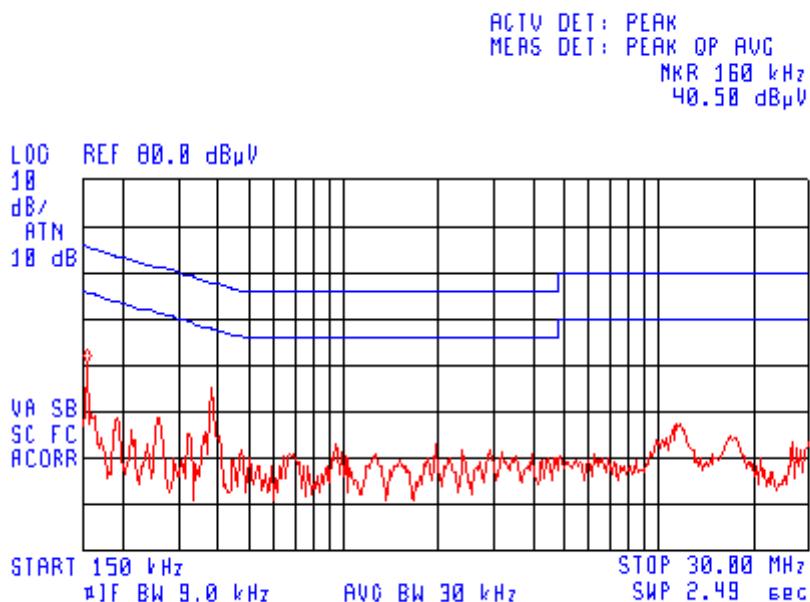
Frequency [MHz]	Measured Result [dB μ V]		Limit [dB μ V]		Margin [dB]		Pass/Fail
	QP	AVR	QP	AVR	QP	AVR	
0.4071	35.3	28.6	57.71	47.71	-22.41	-19.11	Pass
0.15	31.1	19.5	66.00	56.00	-34.90	-36.50	Pass

“Neutral” Lead

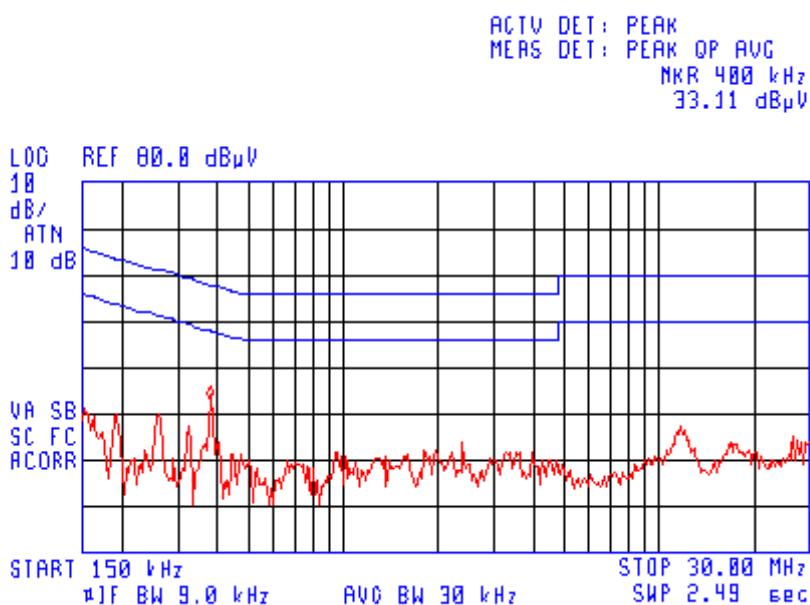
Frequency [MHz]	Measured Result [dB μ V]		Limit [dB μ V]		Margin [dB]		Pass/Fail
	QP	AVR	QP	AVR	QP	AVR	
0.407115	33.9	26.9	57.71	47.71	-23.81	-20.81	Pass

Measured at the Power supply 110VAC port

Plot 3.3.1: Phase Lead



Plot 3.3.2: Neutral Lead



3.4. Antenna Connector Requirements

Reference document:	47 CFR §15.203,RSS- Gen Issue 4	
Test Requirements:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with provisions of this section.	
Measurement Standard	ANSI C63.10: 2013	
Test Result:	The EUT had integral antenna.	Pass

4. Appendix

Appendix A: List of Measuring Equipment used:

Description	Manufacturer	Model	Serial No.	Last Cal	Cal Due
Dipole Antenna	AH. Systems Inc.	FCC-1	519	2/2/2015	2/2/2018
Dipole Antenna	AH. Systems Inc.	FCC-2	519	2/2/2015	2/2/2018
Dipole Antenna	AH. Systems Inc.	FCC-3	519	2/2/2015	2/2/2018
Dipole Antenna	AH. Systems Inc.	FCC-4	519	2/2/2015	2/2/2018
Oscilloscope	Keysight Technologies	DSOX1102G	CN57096496	3/6/2017	3/6/2018
Oscilloscope	Keysight Technologies	DSOX1102G	CN57126605	3/14/2017	3/14/2018
Oscilloscope	Keysight Technologies	DSOX1102G	126530	3/15/2017	3/15/2018
RF Filter Section (6.5GHz)	HP	85460A	3704A00366	4/9/2017	4/9/2018
EMI Receiver (6.5GHz)	HP	8546A	3710A00392	4/9/2017	4/9/2018
Low-Noise Amplifier 18GHz - 26.5 GHz	Spacek Labs	SL1018-56-5	17J29	9/29/2017	9/29/2018
Environmental Test Chamber	TENNEY ENGINEERING	TTRS	10.158-5	8/6/2017	8/6/2018
RF Filter Section (2.9GHz)	HP	85460A	3448A00282	6/15/2017	6/15/2018
EMI Receiver (2.9GHz)	HP	8546A	3617A00318	6/15/2017	6/15/2018
Spectrum Analyzer 9KHz-22GHz	Agilent/HP	8593EM	3536A00131	9/27/2017	9/27/2019
Signal Generator	Agilent	83732B	US37101834	10/17/2017	10/17/2018
Spectrum Analyzer (9KHz-3.6GHz)	Agilent	N9010A	MY50060093	9/27/2017	9/27/2018
EMC Analyzer	Agilent	E7405A	US41160436	9/27/2017	9/27/2018
Horn Antenna 15-40 GHz	Schwarzbeck	BBHA 9170	BBHA9170214	3/6/2015	3/6/2018
Isotropic Probe (10MHz-40GHz)	ETS-Lindgren	HI-6153	168752	11/19/2017	11/19/2018
E-Field Monitor	Amplifier Research	FM5004	22107	4/18/2017	4/18/2018
E-Field Probe (10KHz-1000MHz)	Amplifier Research	FP5000	22121	4/18/2017	4/18/2018
Biconical Antenna 20–200 MHz	Seibersdorf	PBA320	301	1/30/2017	1/30/2020
Biconical Antenna	Seibersdorf	PBA320	302	1/30/2017	1/30/2020
Log periodic Antenna 180MHz to 4GHz	Schwarzbeck	VUL9118-A	348	5/19/2016	5/19/2019
Log periodic Antenna 180MHz to 4GHz	Schwarzbeck	VUL9118-A	349	5/19/2016	5/19/2019
Log periodic Antenna 200MHz – 2GHz	Schwarzbeck	VUSLP 9111	9111184	5/19/2016	5/19/2019
Horn Antenna (for IMM) 1-18GHz	EMCO	3115	9602-4677	7/6/2016	7/6/2019
Horn Antenna (EMM) 1-18GHz	A.R.A	DRG-118/A	17188	8/15/2017	8/15/2018
PSG analog signal generator 250KHz-40GHz	Agilent	E8257D	MY49280547	3/20/2016	3/20/2018
Spectrum Analyzer 3Hz-44GHz	Agilent	E4446A	MY46180602	12/16/2016	12/16/2018
Low-Noise Amplifier 18GHz - 26.5GHz	MITEQ		45372	11/10/2016	11/10/2017
Highpass Filter, 1.2 , 15 GHz	WAINWRIGHT	WHK1.2/15G-10EF	3	1/14/2017	1/14/2018
Highpass Filter, 2.4 , 18 GHz	WAINWRIGHT	WHK2.4/18G-10EF	1	1/14/2017	1/14/2018
Highpass Filter, 7 , 18 GHz	WAINWRIGHT	WHKX7.0/18G-8SS	12	1/14/2015	1/14/2016

Appendix B: Accreditation Certificate



Accredited Laboratory

A2LA has accredited

QUALITECH

Petah-Tikva, Israel

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005
General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates
technical competence for a defined scope and the operation of a laboratory quality management system
(refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).



Presented this 28th day of June 2016.

A handwritten signature in blue ink that reads "Jim C. Bent".

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 1633.01
Valid to June 30, 2018

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

End of the Test Report