Tagg Docking Station
Conducted Test Report

FCC Part 15	
FCC ID:	**J9CFBC1**
Model:	**Tagg Docking Station**

STATEMENT OF CERTIFICATION

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the measurements of the sample's radio frequency interference emissions characteristics as of the dates and at the times of the test under the conditions herein specified.

Test performed by:	QUALCOMM Incorporated 5775 Morehouse Drive San Diego, CA 92121-1714
Report Prepared by:	QUALCOMM Incorporated 5775 Morehouse Drive San Diego, CA 92121-1714
Tests that required an OATS site were performed by CCS/UL.	

Table of Contents

1. Introduction and Purpose

This document provides the FCC test data for the Qualcomm Tagg FBC docking station. The tests included in this report are limited to all conducted tests required. The radiated tests were performed at UL/CCS in Fremont, CA. and are reported in a separate document.

2. Description of Device Under Test

The Tagg docking station when combined with the Tagg FTD – The Pet Tracker uses advanced GPS and cellular supported tracking technology, allowing people to see where their dog is. Or more importantly, where their dog isn't. While the technology behind Tagg is complex, the idea is quite simple. If a dog isn't where it's suppose to be, the owner gets notified, quickly via an email or text message. So now you'll always have the peace of mind of knowing where you dog is whenever, wherever.

You can check on your pet in three convenient ways:

- Using the Web app at your computer, you can see all of the information about your pet, including the Tagg Map, and all your account information.
- Using text messages on your phone, you can check on your pet's location and, if he's loose, get location updates while you're looking for him.
- Using the smart phone mobile web app, similar to using the Web app, you can get updates on your pet and view the Tagg Map.

The Tagg docking station device operates on the 902 – 928MHz ISM frequency band. The device uses Texas Instruments CC430 chip set.

The DUT is a pre-production sample.

3. Test Summary

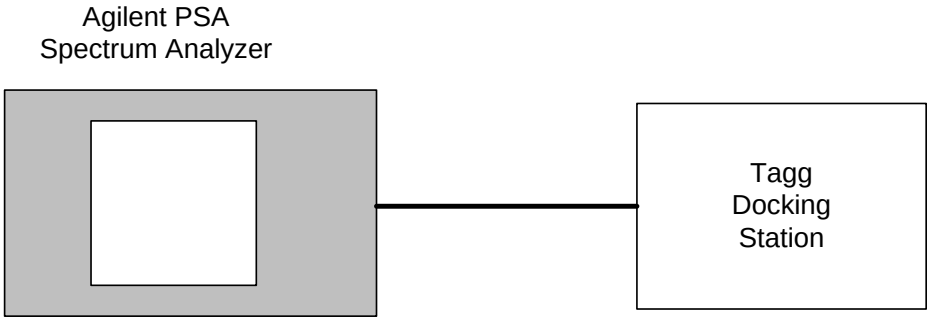
FCC/IC Rule	Description of Test	Result	Page
§15.247(b)	RF Power Output	**Complies**	3
§2.1049,15.247(a)(2)	Occupied Bandwidth	**Complies**	7
§15.247(d)	Block Edge Requirement	**Complies**	11
§15.247(d)	Coducted Spurious Emission at Antenna Terminals	**Complies**	14
§15.247(e)	Power Spectral Density	**Complies**	18
§1.1310, 2.1091	RF Exposure	**Complies**	See Exhibit 4
§2.1053, 15.247(d)	Field Strength of Spurious Radiation	**Complies**	See Exhibit 3
15.209	Conducted Emissions AC Power Line	**Complies**	24

4. RF Power Output Verification

FCC:	§ 15.247(b)
Limit:	The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.
DUT SN	FGO01OL

4.1 Measurement Procedures

As shown in the figure below, connect the Tagg Docking Station transmitter output to the Agilent PSA Spectrum Analyzer. Following the FCC's "Measurement of Digital Transmission Systems operating under Section 15.247, March 23, 2005" instructions, use the spectrum analyzer to measure the low, mid and high frequency channel's conducted power output in accordance with the Power Output Option 1. The relevant cable loss is measured for the specific frequencies under test and added as a correction factor for all the tests.



4.1.1 For Tagg Docking Station

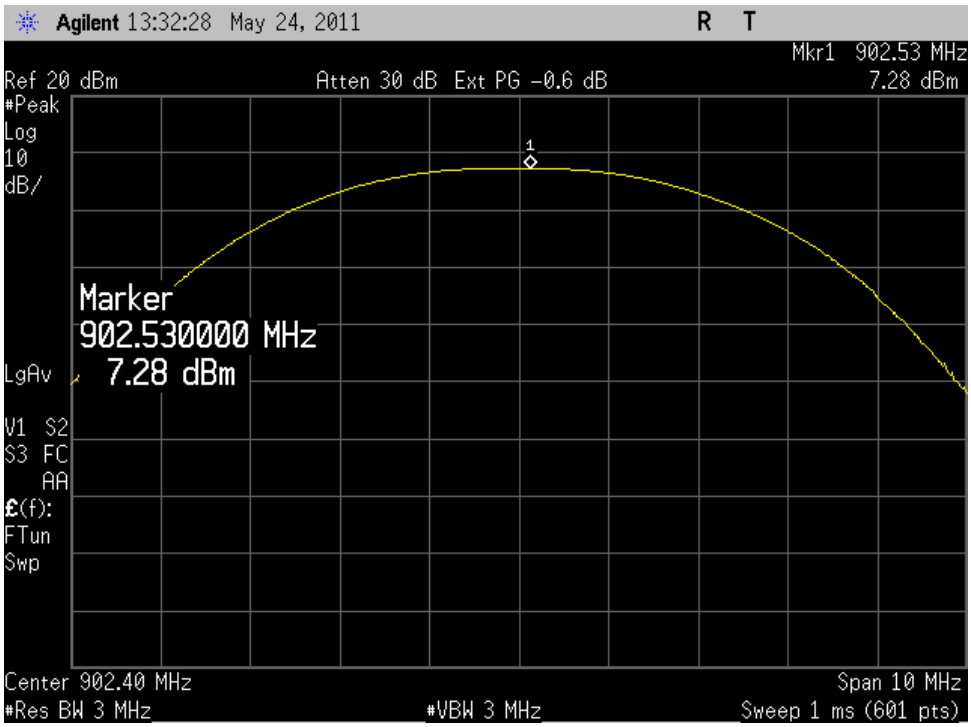
Measure the power at Ch 2, 65, and 128.

The system software was used to configure the Tagg Docking Station transmitter to run in continuous transmit mode, at maximum output power and modulated. The spectrum analyzer was set up with a resolution and video bandwidth of 3MHz, and a span of 10 MHz, with measurements from a peak detector presented in the chart below.

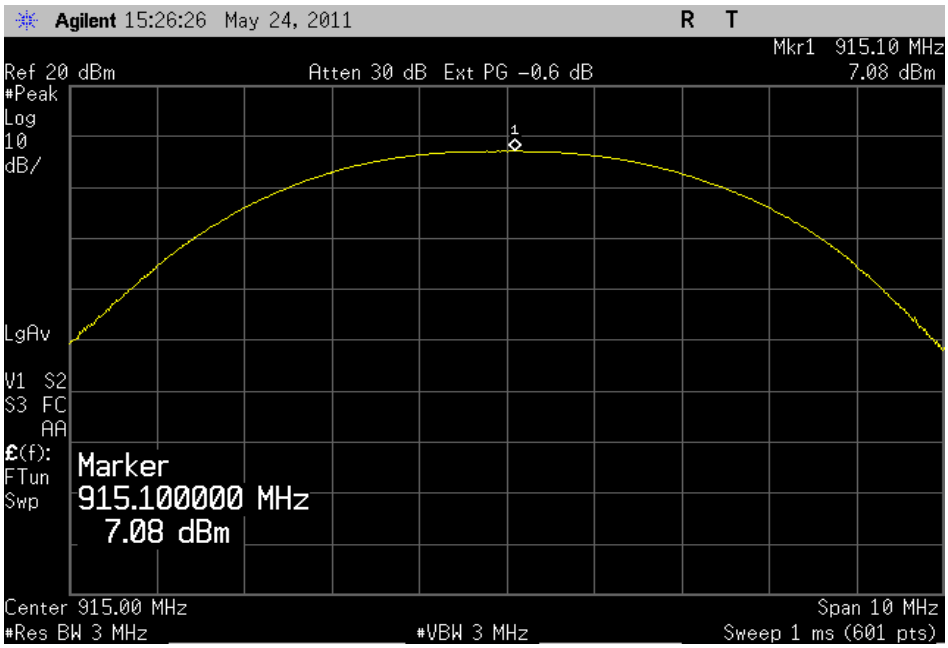
4.2 Test Results

CHANNEL	CENTER FREQ (MHz)	LIMIT (dBm)	MEASURED POWER (dBm)	MARGIN (dB)
2	902.4	30	7.28	22.72
65	915	30	7.08	22.92
128	927.6	30	6.95	23.05

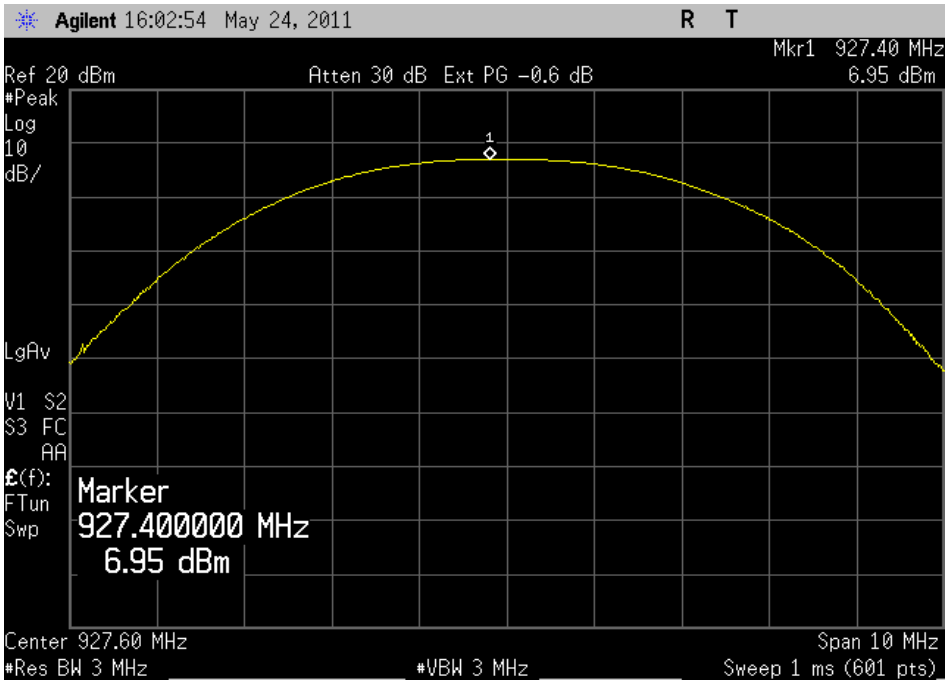
4.3 Plots



Plot 4.3 - 1 (Ch2)



Plot 4.3 - 2 (Ch65)



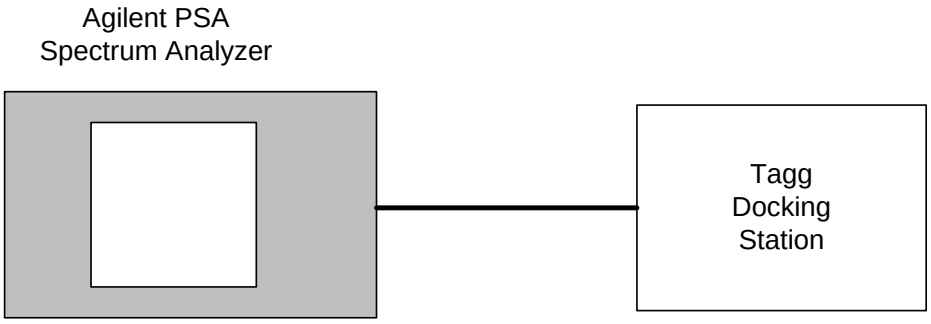
Plot 4.3 - 3 (Ch128)

5. Occupied Bandwidth

FCC:	§15.247(a)(2)
Limit:	The minimum 6 dB bandwidth shall be at least 500 kHz.
DUT SN	FGO01OL

5.1 Test Procedures

As shown in the figure below, connect the Tagg Docking Station transmitter output to the Agilent PSA Spectrum Analyzer. Following the FCC's "Measurement of Digital Transmission Systems operating under Section 15.247, March 23, 2005" instructions, use the spectrum analyzer to measure the low, mid and high frequency channel's 6 dB bandwidth. The resolution and video bandwidth for the spectrum analyzer is set to 100 kHz. The relevant cable loss is measured for the specific frequencies under test and added as a correction factor for all the tests.



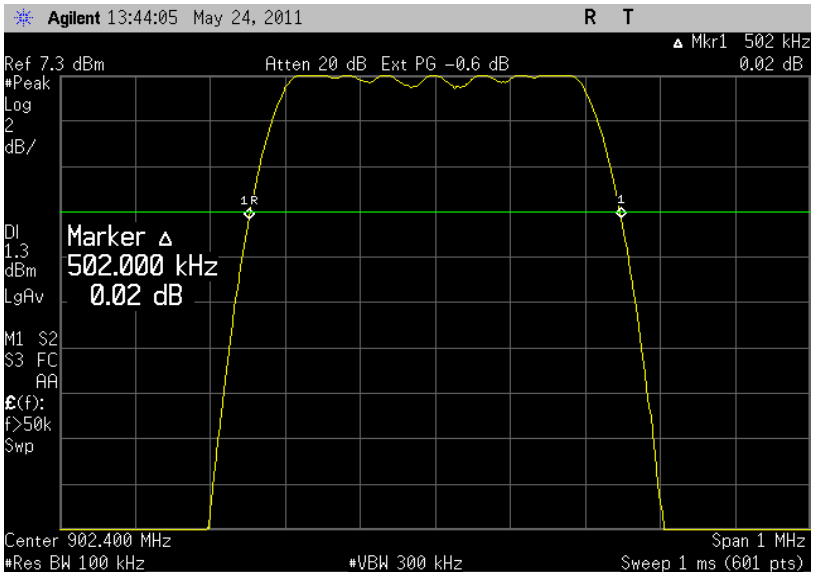
5.2 Test Results

The occupied bandwidth was measured at low, mid and high channels in each band. The results are shown below in the table below.

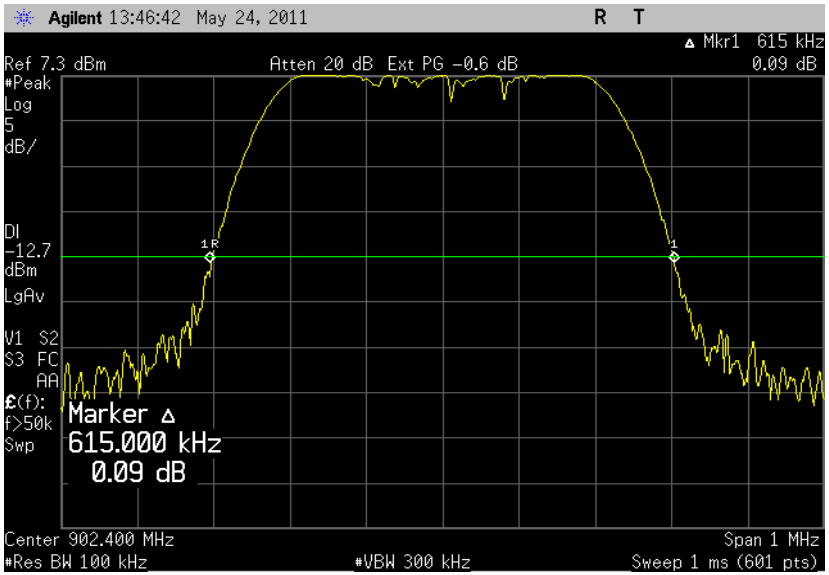
Channel	Center Freq. (GHz)	Measured -6 dBc Occ. BW (kHz)	Minimum -6 dBc Limit (kHz)	Measured -20 dBc Occ. BW (kHz)
2	902.4	502	500	615
65	915	502	500	615
128	927.6	502	500	617

5.3 Plots

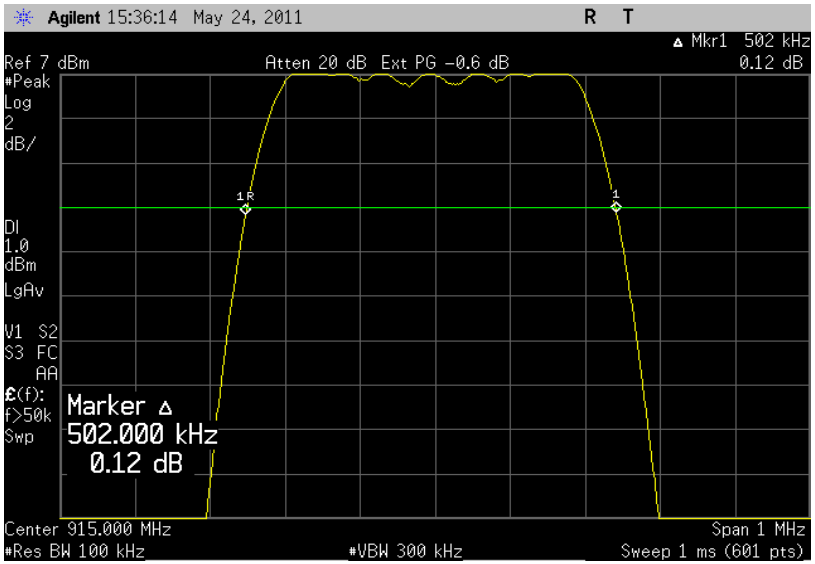
Plot 5.3 - 1 (Ch2, 6dB bandwidth)



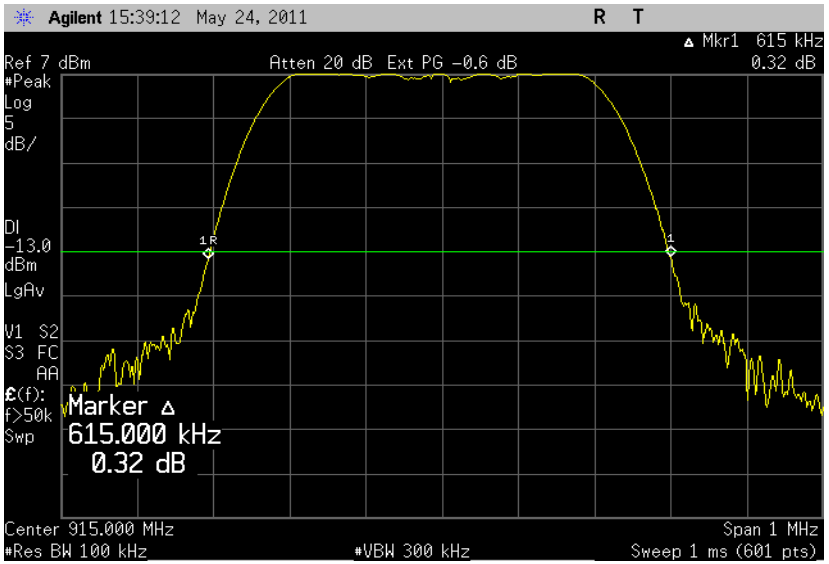
Plot 5.3 - 2 (Ch2, 20 dB bandwidth, information only)



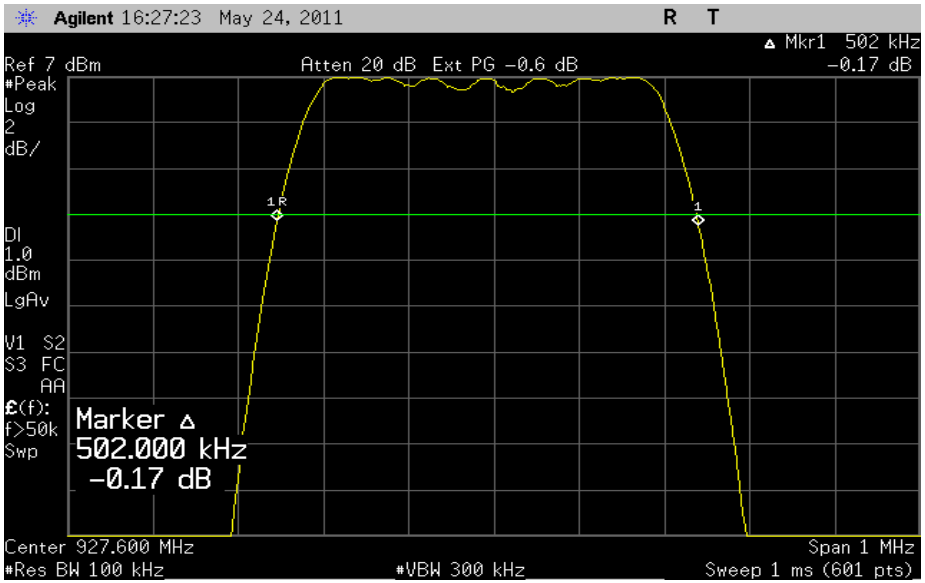
Plot 5.3 - 3 (Ch65, 6dB bandwidth)



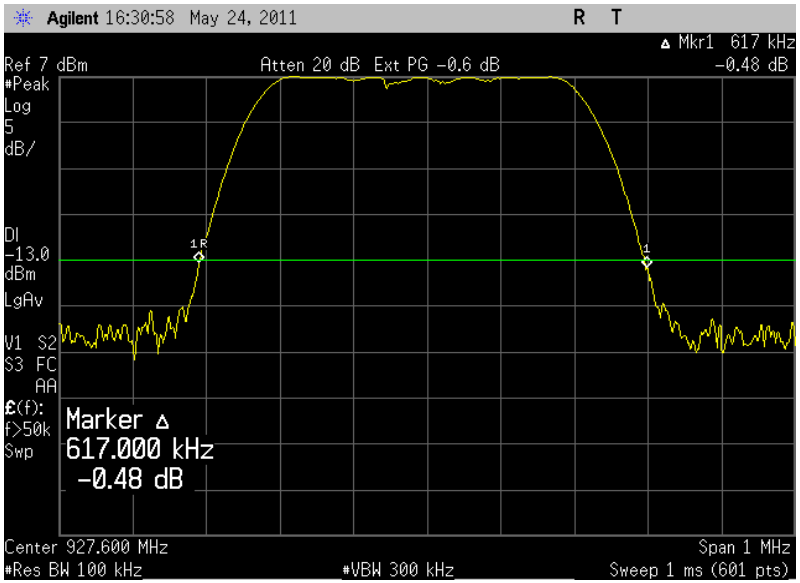
Plot 5.3 - 4 (Ch65, 20dB bandwidth, information only)



Plot 5.3-5 (Ch128, 6dB bandwidth)



Plot 5.3 - 6 (Ch128, 20dB bandwidth, information only)

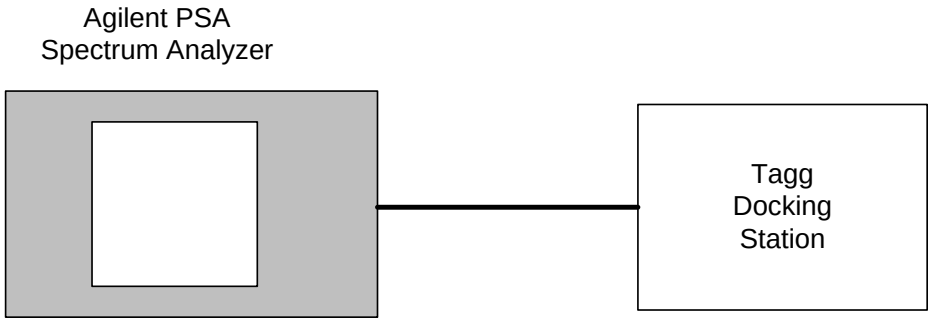


6. Band Edge Compliance

FCC:	§15.247(d)
Limit:	-20 dB below the fundamental emission level
DUT SN	FGO01OL

6.1 Test Procedures

As the figure below indicates, the Tagg Docking Station was connected to the Agilent PSA Spectrum Analyzer through a calibrated coaxial cable. FCC 15.247(d) requires a measurement of spurious emission levels to be at least 20 dB lower than the fundamental emission level, in particular at the Band Edges where the intentional radiator operates. The following plots demonstrate compliance of the intentional at the 902 - 928 MHz Band Edges. The EUT was operated in continuous transmit mode and continuous modulation. The EUT was operated at channel 2 for the investigation of the lower Band Edge and at channel 128, for the investigation of the upper Band Edge.



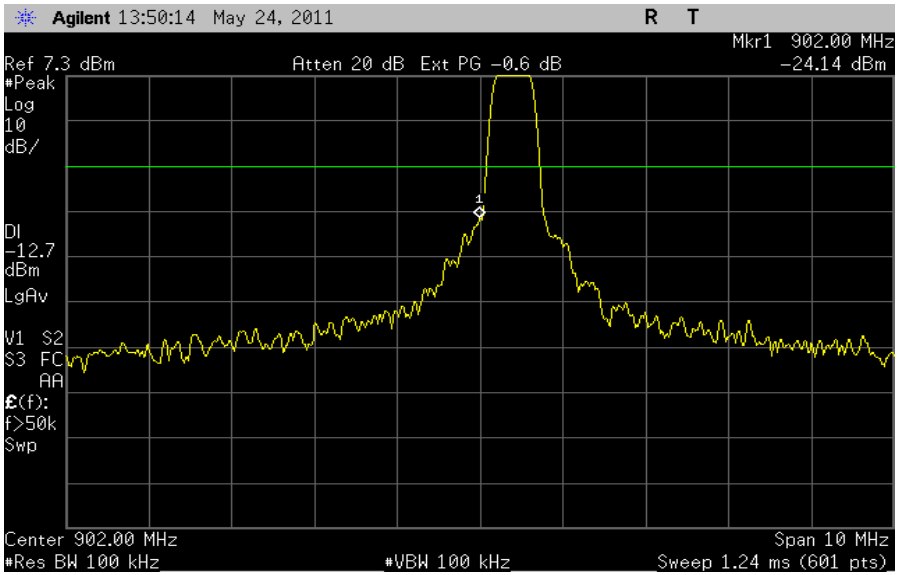
6.2 Test Results

The test was conducted at block edges in each band

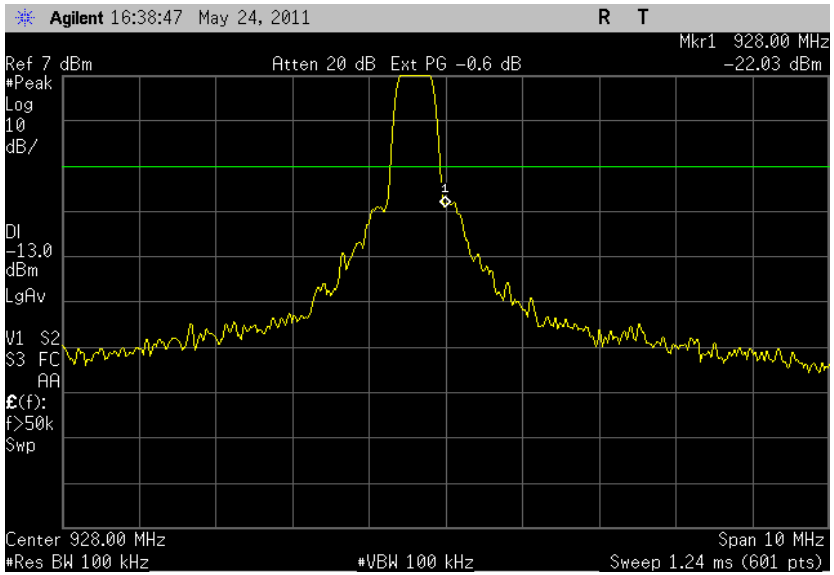
Frequency (MHz)	Channel Tested	Corresponding Plot number	Test Result
902.4	**2**	Plot 6.2 - 1	Complies
927.6	**128**	Plot 6.2 - 2	Complies

6.3 Plots

Plot 6.3 -1 (Ch2 Band Edge)



Plot 6.3-2 (Ch127 Band Edge)

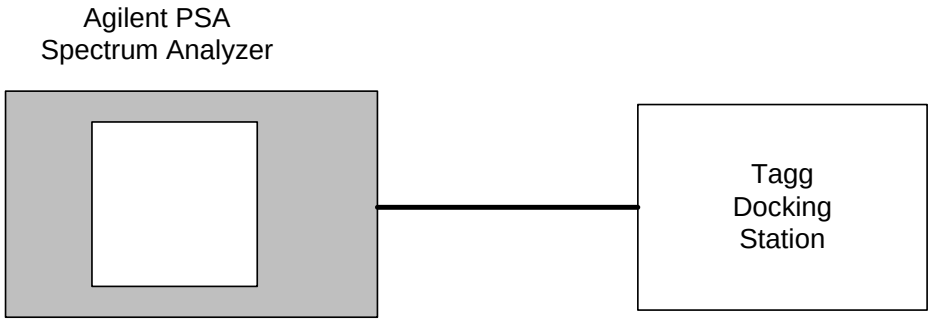


7. Conducted Spurious Emission at Antenna Terminals

FCC:	§15.247(d)
Limit:	-13dBm
DUT SN	FGO01OL

7.1 Test Procedure

As the figure below indicates, the Tagg Docking Station was connected to the Agilent PSA Spectrum Analyzer through a calibrated coaxial cable and directional coupler. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. The EUT was operated in continuous transmit mode and continuous modulation.



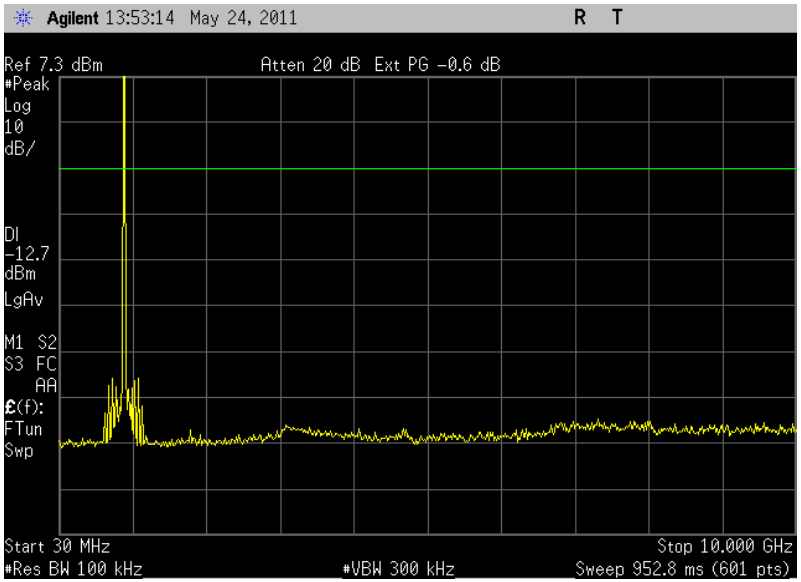
7.2 Test Result

The test was conducted at low, mid and high channels.

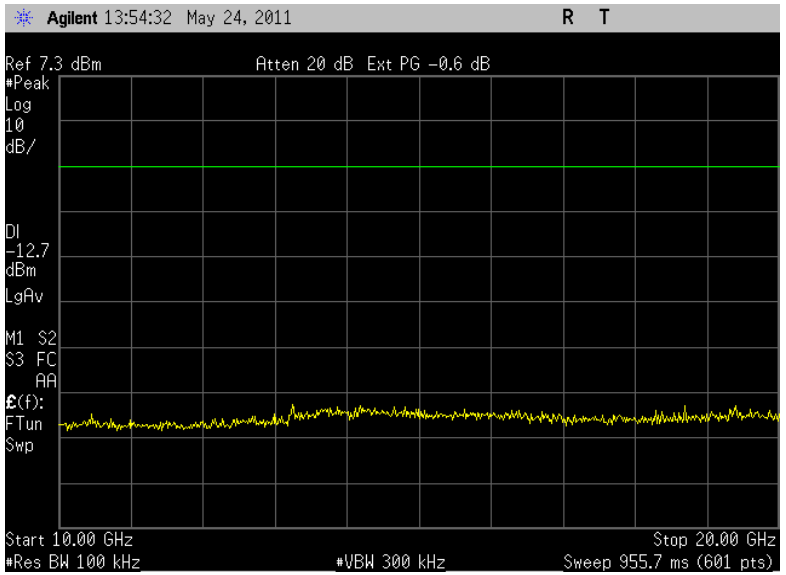
Frequency (MHz)	Channel Tested	Corresponding Plot number	Test Result
0 ~ 20 GHz	**2**	Plot 7.3 – 1,2	Complies
0 ~ 20 GHz	**65**	Plot 7.3 – 3,4	Complies
0 ~ 20 GHz	**128**	Plot 7.3 – 5,6	Complies

7.3 Plots

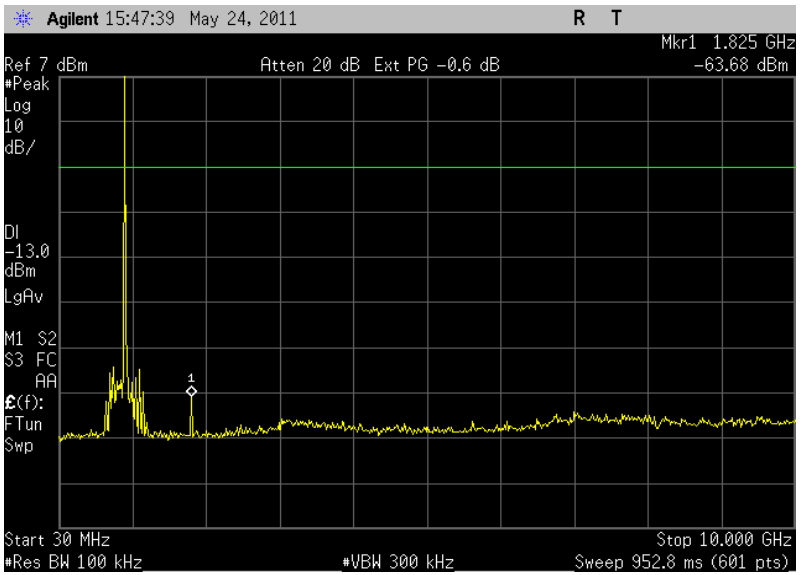
Plot 7.3 -1 (Ch2)



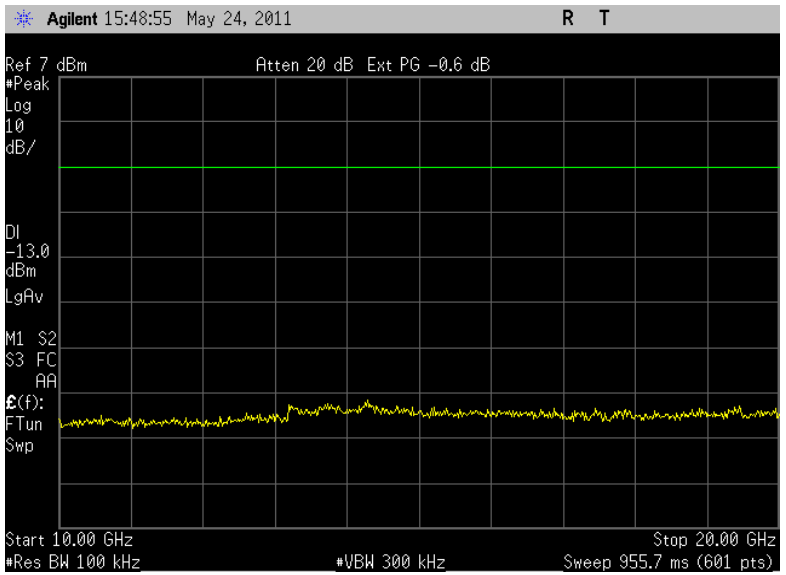
Plot 7.3-2 (Ch2)

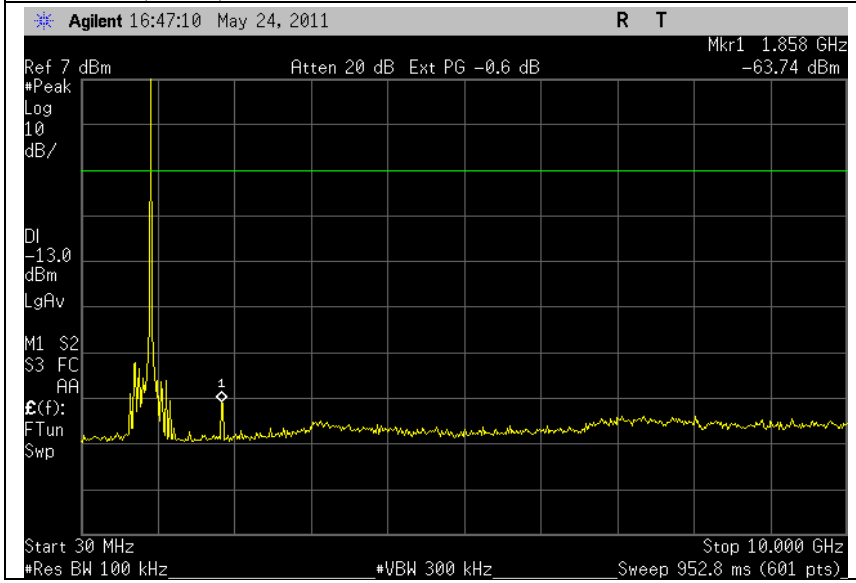
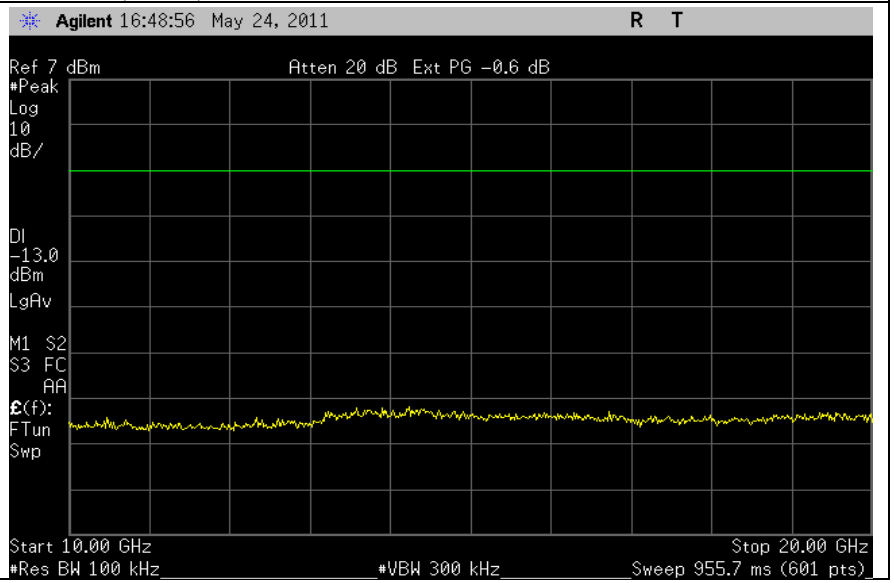


Plot 7.3-3 (Ch65)



Plot 7.3-4 (Ch65)



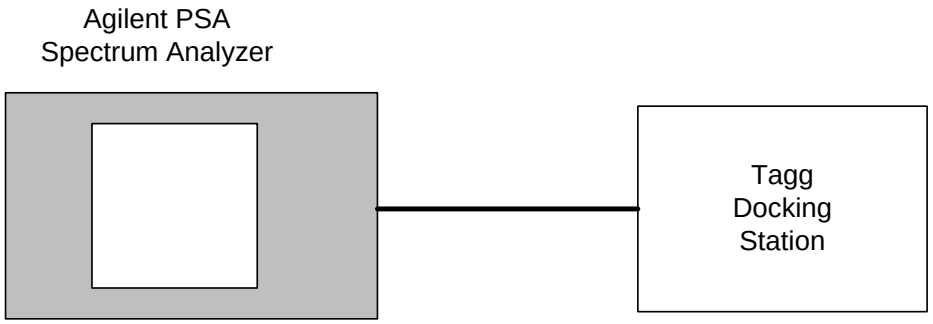
Plot 7.3 -5 (Ch128)	Plot 7.3-6 (Ch128)
	

8. Power Spectral Density

FCC:	§15.247(e)
Limit:	8dBm in any 3kHz frequency band
DUT SN	FGO01OL

8.1 Test Procedure

As the figure below indicates, the Tagg Docking Station was connected to the Agilent PSA Spectrum Analyzer through a calibrated coaxial cable and directional coupler. The output power was was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.



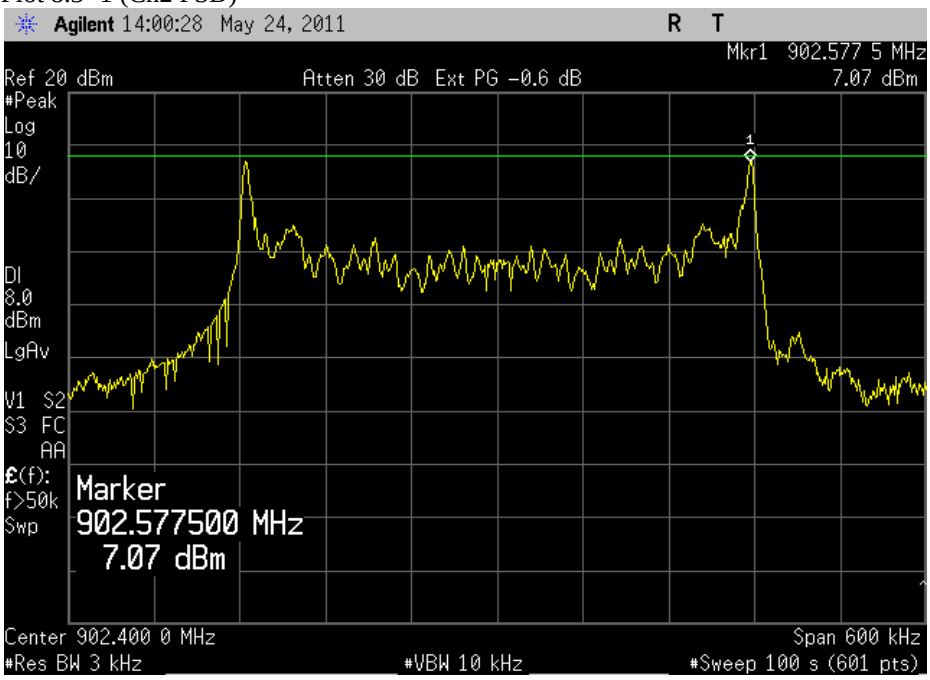
8.2 Test Results

The test was conducted at low, mid and high channels.

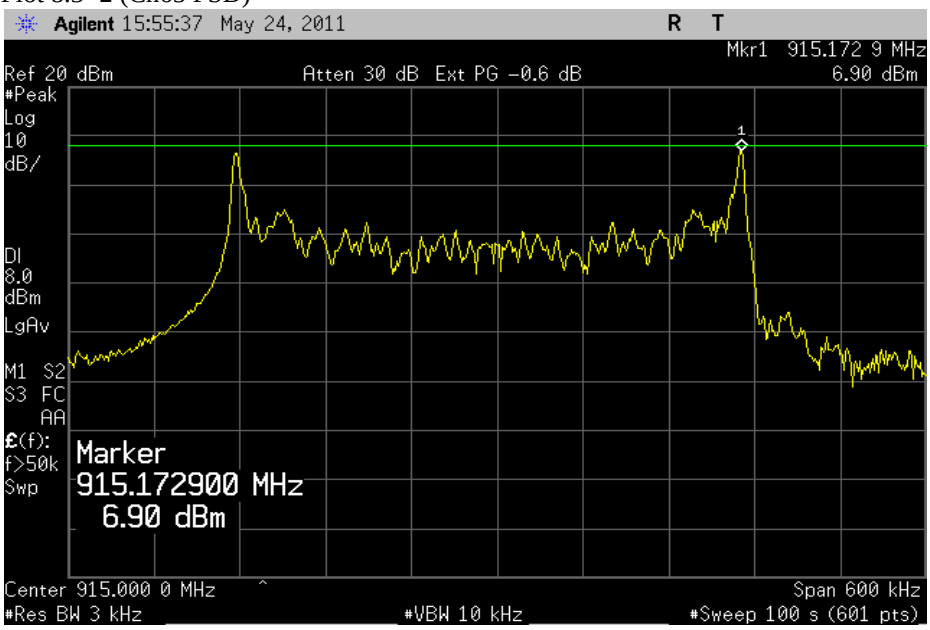
Channel	Center Freq. (GHz)	PSD (dBm)	Limit (dBm)	Margin (dBm)
2	902.4	7.07	8	0.93
65	915	6.90	8	1.10
128	927.6	6.80	8	1.20

8.3 Plots

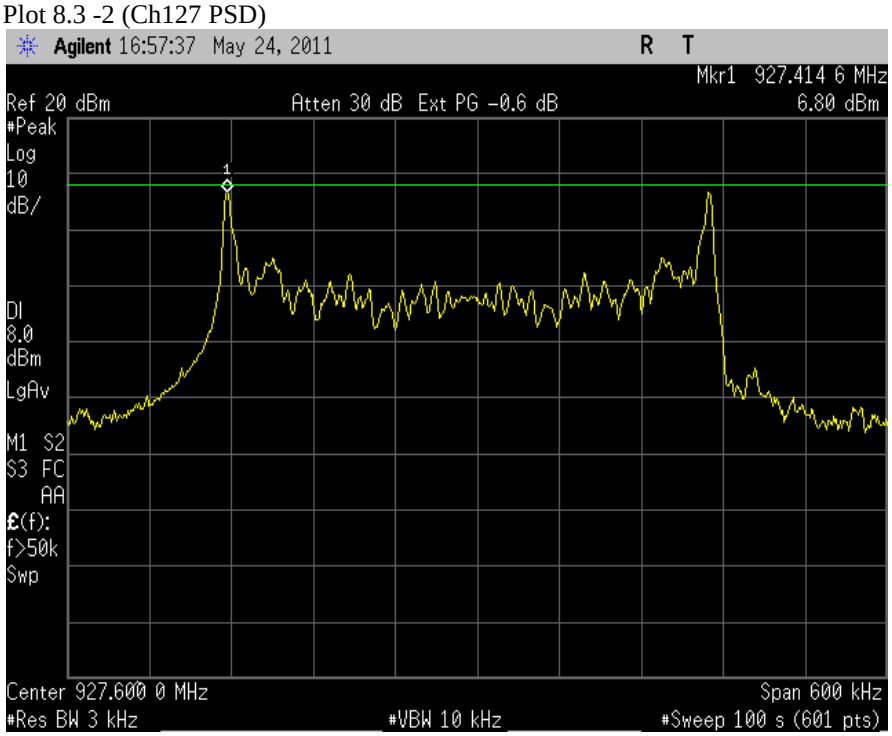
Plot 8.3 -1 (Ch2 PSD)



Plot 8.3 -2 (Ch65 PSD)



Plot 8.3 -2 (Ch127 PSD)

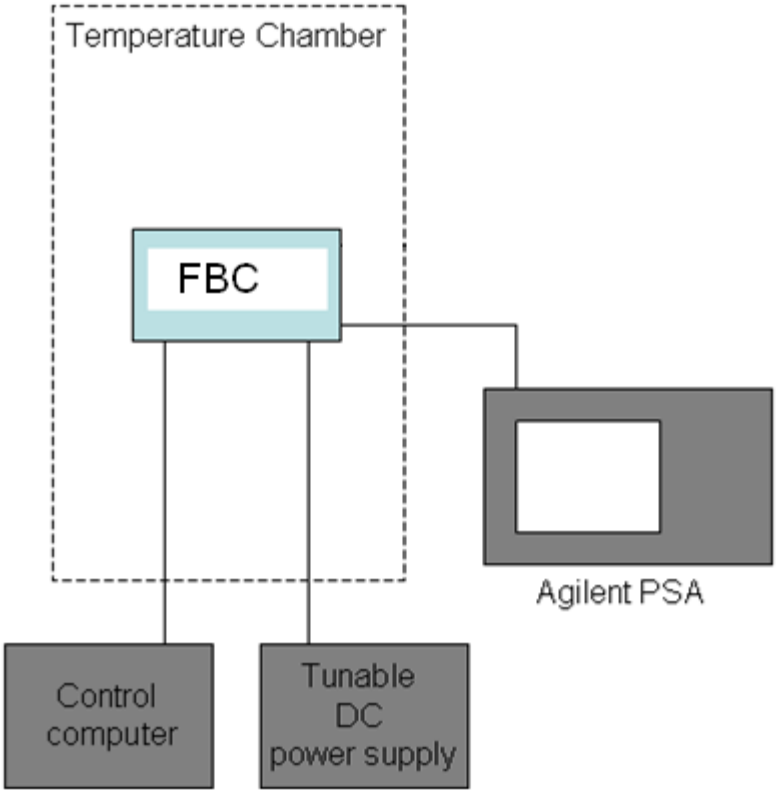


9. Frequency Stability

FCC:	§2.1055, 22.355, 24.235
Limit:	Stay within 902 -928MHz band
DUT SN	FGO01OL

1. Test Procedure

As the test setup indicates, placed the Tagg Docking Station inside the temperature chamber. Measured the transmitting frequency error at 20 degrees C with DC voltage varying from 4.6 volts to 5.5 volts, and then set the temperature to -30 degrees C and allow it to stabilize. After 1 hour soak time, take the measurement on transmitting frequency error at -30 degrees in the same manner. As an incremental of 10 degrees C, repeat the same process until +60 degrees C is completed.

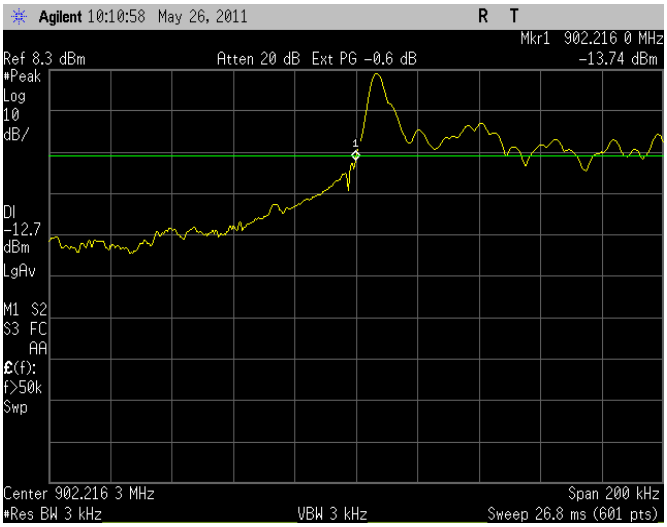


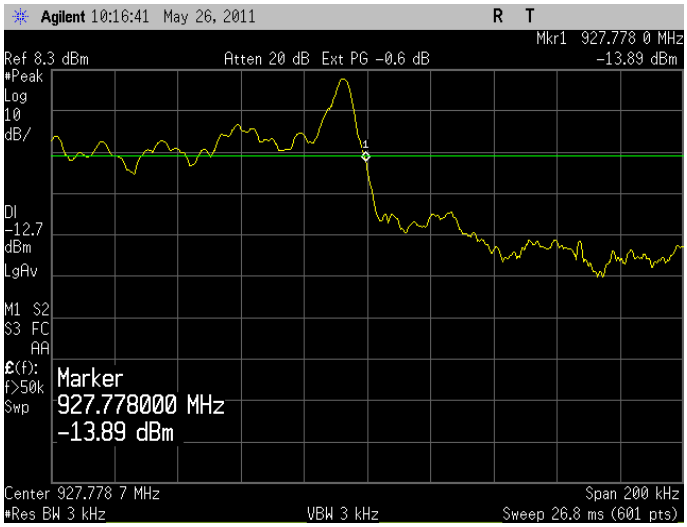
2. Test Results

3. The test was conducted at mid channel in the frequency band. Ref freq.:915.000860MHz

Operation Mode:	Beacon transmit mode	**Channel:**	65
Tx Frequency:	915MHz	**Voltage:**	5.0v (4.6v ~ 5.5v)
Limit:	±179,000Hz derive from band edge plots shown below		

Temperature (°C)	**Deviation of Carrier (Hz)**			**Specification (Hz)**	
	4.6V	**5V**	**5.5V**	**Lower limit**	**Upper limit**
-30	-350	-310	-340	-179000	179000
-20	720	490	610	-179000	179000
-10	-1930	-1910	-1920	-179000	179000
0	2290	2280	2300	-179000	179000
10	-1623	-1632	-1598	-179000	179000
20	218	118	168	-179000	179000
30	2170	2150	2160	-179000	179000
40	-480	-500	-490	-179000	179000
50	990	960	970	-179000	179000
60	1110	1110	1120	-179000	179000





10. Conducted Emissions

FCC:	§15.207
Limit:	Shown on plots and tables
DUT SN	FGO01MW

10.1 Overview

Job/project Title: FBC
Test Data Source: \\fuelcell\voodoo\EMC Lab and Test Data\2011\11027 FBC FCC
Completion Date: 05/18/11
EUT Name/CFG: FBC SW4
PN: 10-CA010-P1 X1
SN: FG001MW
Temperature: 24 °C
Relative Humidity: 57%
Barometric Pressure: 754mm
Project Engineer: Bob Scodellaro
Test Engineer/Tech: Peter Pereira

10.2 Test Equipment

10. 1 Test Equipment for Conducted Emission

Manufacturer	Model No.	Serial No.	Description	Cal Due Date
Rohde & Schwarz	ESPC	845296/020	EMI Test Receiver 9 kHz to 2.9 GHz	01/28/12
Gore	N-Type	4	Gore Cable 4, bulkhead to LISN 1	06/01/11
Gore	N-Type	5	Gore Cable 5, bulkhead to LISN 2	06/01/11
Gore	N-Type	7	Gore Cable 7	06/01/11
Fischer	FCC-LISN-50-50	1008	LISN 10 kHz - 100MHz	10/10/11
Fischer	FCC-LISN-50-50	1005	LISN 10 kHz - 100MHz	10/10/11
Narda	771-10	64	Attenuator, 10 dB DC to 3 GHz	06/16/11
Narda	771-10	63	Attenuator, 10 dB DC to 3 GHz	06/24/11

10.3 Test Setup Photos

Figure 10. 1 Conducted Emission Test Setup

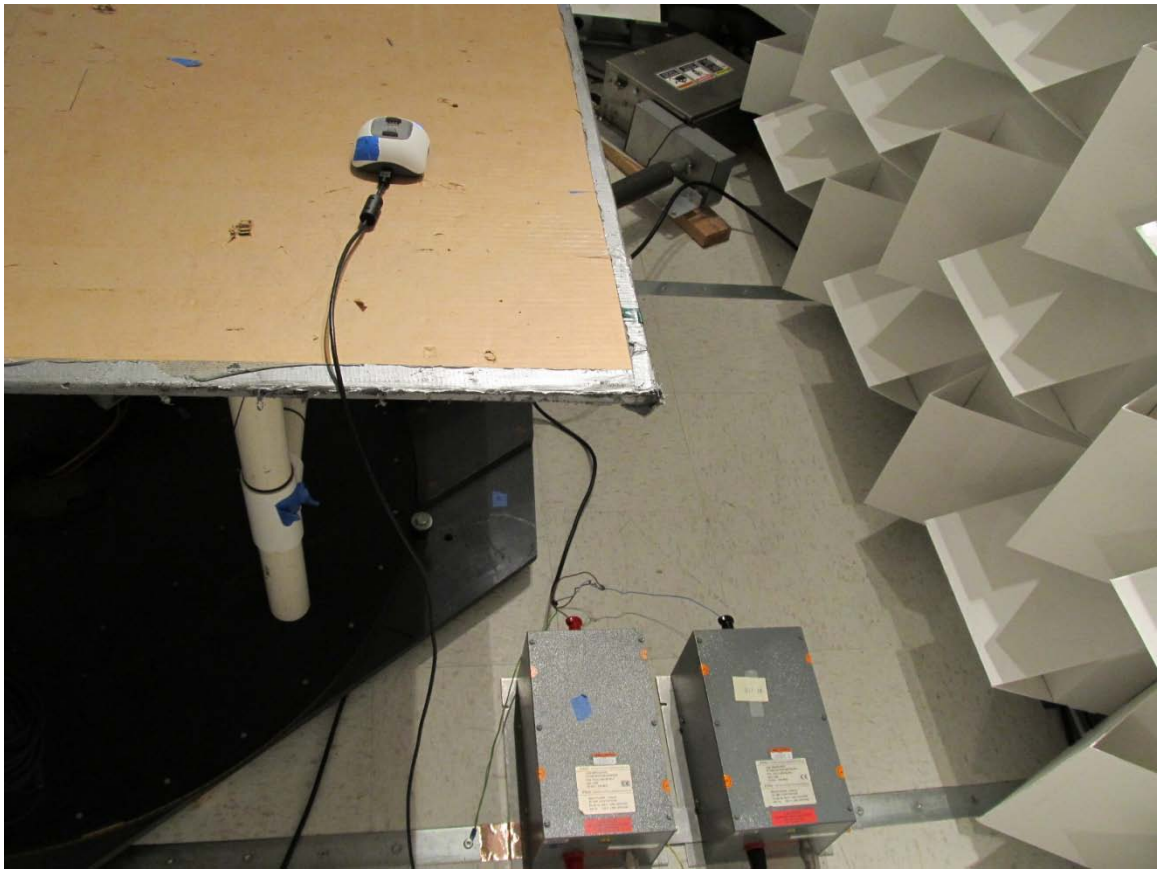
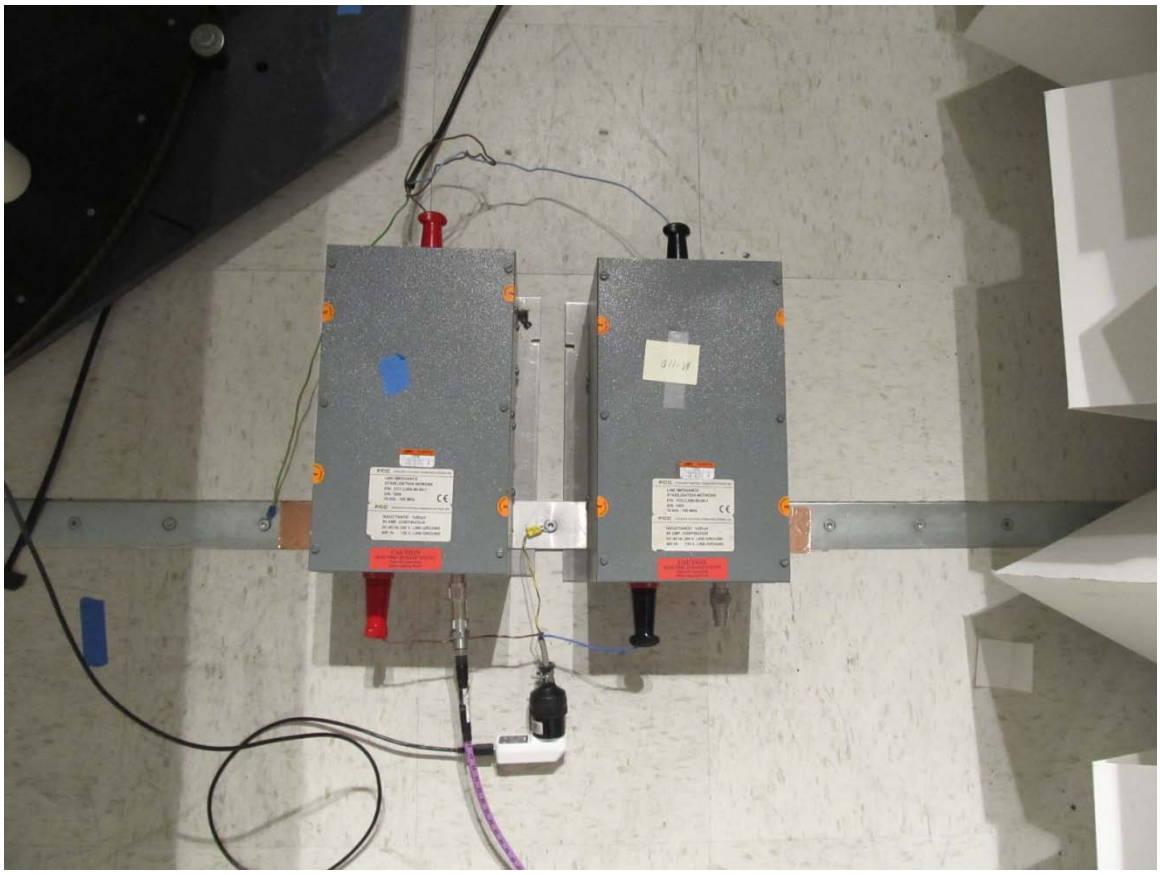


Figure 10. 2 Conducted Emission EUT Setup

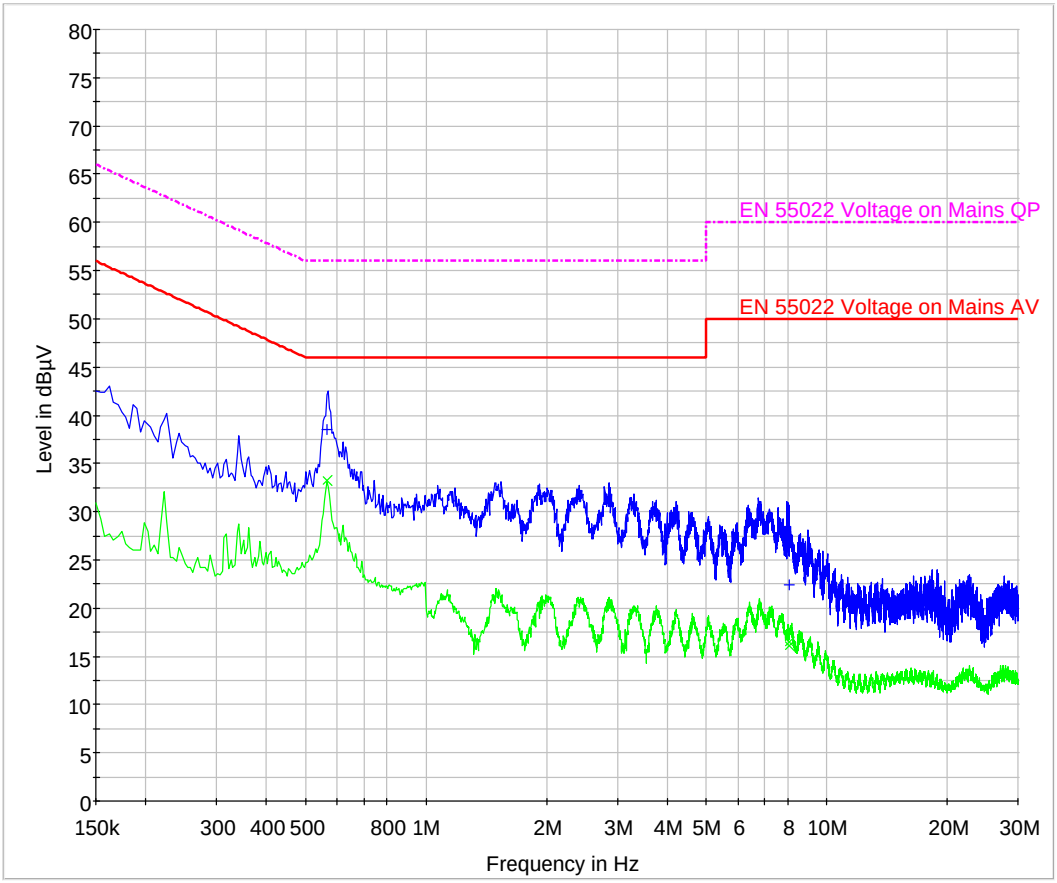


10.4 Test Data

10.4.1 Emission Data

Test setup: Live Line

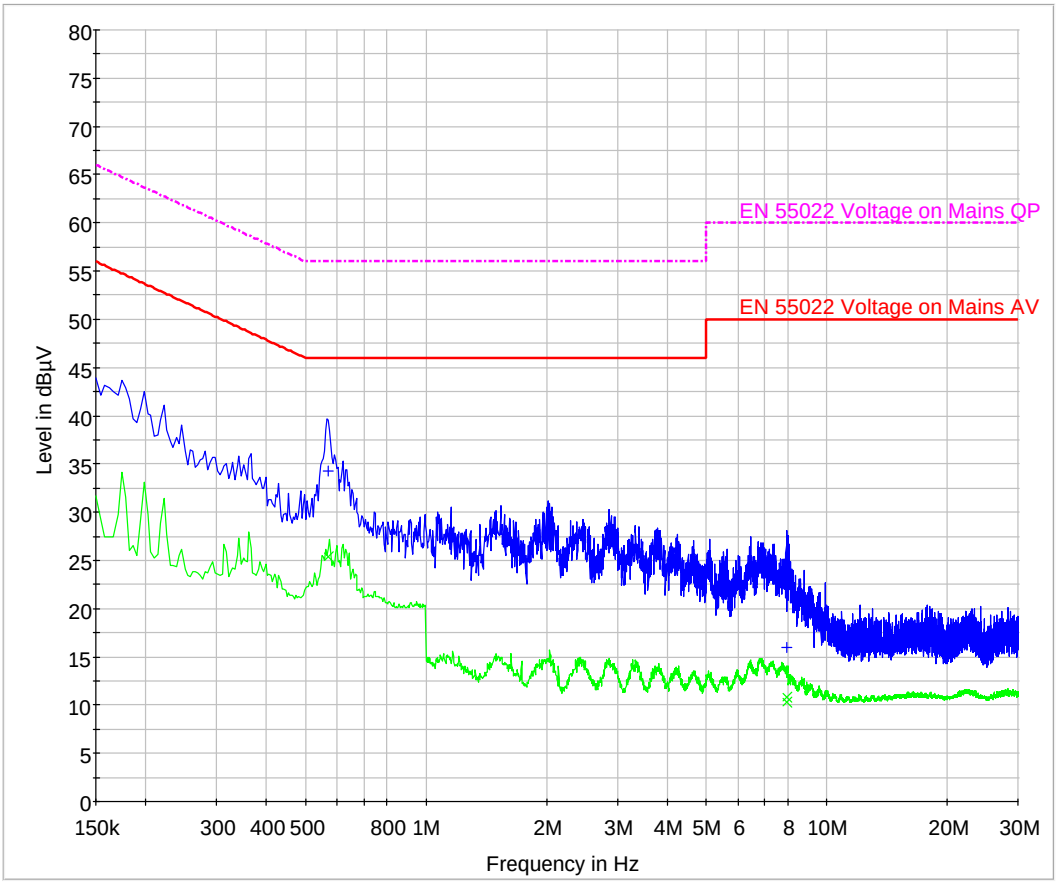
EUT setup: 5VAC to USB cable power adapter, SW4



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVE Level (dBuV)	AVE Limit (dBuV)	AVE Margin (dB)
0.566	38.5	56.00	17.50	33.2	46.00	12.80
8.062	22.4	60.00	37.60	16.5	50.00	33.50

Test setup: Return Line

EUT setup: 5VAC to USB cable power adapter, SW4



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVE Level (dBuV)	AVE Limit (dBuV)	AVE Margin (dB)
0.57	34.2	56.00	21.80	25.4	46.00	20.60
7.93	15.9	60.00	44.10	10.3	50.00	39.70

11. Test Equipment and Firmware

The following test equipments were used.

Model	Manufacturer	Description	S/N	Cal Date	Cal Due Date
E4440A PSA Series	Agilent	Spectrum Analyzer	K130220	8/25/2010	8/25/2011
Compaq 6910p	Hewlett Packard	Notebook Computer	P132198	N/R	N/R
Model 105	TestEquity	Temperature Chamber	K162535	10/26/2010	10/26/2011
Test Software	Texas Instrument	SmartRF Studio 7	Version 1.3.2	N/R	N/R