EXHIBIT 9

Section 2.1033 (b)(6) TEST REPORT

A report of measurements showing compliance with the pertinent FCC technical requirements. This report shall identify the test procedure used (e.g., specify the FCC test procedure, or industry test procedure that was used), the date the measurements were made, the location where the measurements were made, and the device that was tested (model and serial number, if available). The report shall include sample calculations showing how the measurement results were converted

Response

A test report is attached.

CERTIFICATION TEST REPORT OF FCC PART 15 SUBPART C 2.4GHz ISM

Applicant	Alcatel-Lucent, Inc.
FCC ID	AS5BBTRX-10A
Product Name	MetroCell Access Point Module
Model Name	9764 MCO Wi-Fi AP V1.0
Test Standard(s)	47 CFR FCC Part 15 Subpart C
Test Frequency Range	2400-2483.5 MHz
Test Date	June 25 – November 8, 2013
Submission Type	Original Equipment
Operating Mode(s)	Master of DTS Device
Test Report Number	2012-0268 FCC 2.4GHz
Test Laboratory	Global Product Compliance Laboratory 600-700 Mountain Avenue Room 5B-108 Murray Hill, New Jersey 07974-0636 USA

Note: The test results documented in this report refer exclusively to the test model/sample specified, under the conditions and modes of operation as described herein. This report shall not be reproduced, in whole or in part without the approval of Alcatel-Lucent Global Product Compliance Laboratory. This report must not be used by the recipient to claim product endorsement by NVLAP or any other agency of the U.S. Government.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

Company Name	Alcatel-Lucent, Inc.
FCC ID	AS5BBTRX-10A
Product Name	MetroCell Access Point Module
Model Name	9764 MCO Wi-Fi AP V1.0
Serial Number	LBALLU-RT124600209 (Conducted) LBALLU-RT131980172 (conducted) LBALLU-RT131380091 (Frequency Stability) LBALLU-RT131980174 (Radiated) LBALLU-RT131980277 (Radiated)
Part No	3BK60912AAAB ICS01 REV 04 (Medium Gain) 3BK60926AAAB ICS01 REV 04 (High Gain)
Test Standard(s)	47 CFR FCC Part 15 Subpart C, Section 15.247
Reference(s)	• FCC Part 15 Subpart C §15.247 • FCC KDB 558074, Guidelines for Performing Compliance Measurement on Digital Transmission Systems (DTS) Operating Under Part 15.247, v03r01, April 9, 2013. • FCC KDB 662911D01, Emissions Testing of Transmitters with Multiple Outputs in the Same Band, 5/28/2013, v03
Test Frequency Range	2400-2483.5 MHz
Date Tested	June 26 – November 8, 2013
Operating Mode(s)	Master of DTS Device
Test Laboratory	Global Product Compliance Laboratory Alcatel-Lucent USA, Inc 600-700 Mountain Avenue Room 5B-108 Murray Hill, New Jersey 07974-0636 USA

The above product has been evaluated and found to be in compliance with the Commission's Rules and Regulations set forth in the above standards. The data and the descriptions about the test setup, procedures and configuration presented in this report are accurate.

Note: Alcatel-Lucent Global Product Compliance Laboratory represents to the client that testing was done in accordance with standard procedures as applicable, and that reported test results are accurate within generally accepted commercial ranges of accuracy in accordance with the scope of our NVLAP

Accreditation. Alcatel-Lucent Global Product Compliance reports only apply to the specific samples tested. This report is the property of the client. This report shall not be reproduced except in full without the written approval of the Alcatel-Lucent Global Product Compliance Laboratory.

Alcatel-Lucent Global Product Compliance Laboratory is accredited with the US Department of Commerce National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 7 Code of Federal Regulations for offering test services for selected test methods in Electromagnetic Compatibility; Voluntary Control Council for Interference (VCCI), Japan; Australian Communications and Media Authority (ACMA). The laboratory is ISO 9001:2008 Certified.

2. SUMMARY OF TEST RESULTS

Applied Standards: 47 CFR FCC Part Subpart C Section 15.247		
Section	**Description of Tests**	**Results In Compliance**
4.4	**Occupied Bandwidth**	**Yes**
4.5	**Maximum Power Output**	**Yes**
4.6	**Peak Power Spectrum Density**	**Yes**
4.7	**Unwanted Out-of-Band Emissions in Non-Restricted Band Conducted**	**Yes**
4.8	**Unwanted Radiated Emissions**	**Yes**
4.9	**Frequency Stability**	**Yes**
4.10	**AC Power Line Conducted Emissions**	**Yes**

3. GENERAL INFORMATION

3.1. Product Descriptions

Table 3.1.1 Product Specifications

Specification Items	Description
Product Type	WiFi (2Tx, 2Rx)
Radio Type	Intentional Transceiver
Power Type	5.3VDC through the 20 pin interface connector between MetroCell Base Station and Wifi AP
IEEE Specifications	802.11b, 802.11g and 11n for 20MHz and 802.11n for 40MHz.
Modulation	DSSS and OFDM (BPSK, QPSK, 16QAM, 64QAM)
Data Rate (Mbps)	802.11b: 1Mpbs, 802.11g: 6Mbps and 802.11n: MCS0 for 1S and MCS8 for 2S
Operating Frequency Range	2400-2483.5 MHz
Channel Bandwidth	20/40MHz
Max Conducted Power	22dBm per chain and 25dBm total
Min Conducted Power	0dBm per chain and 3dBm total
Max EIRP Power	28 dBm per chain and 31 dBm total
Min EIRP Power	-2dBm per chain and 1dBm total
Operating Mode	Master
Software Version (Master)	WiNG5.x
Hardware Version (Master)	9764 MCO Wi-Fi AP V1.0
Antenna	Refer to Section 3.3

3.2. Accessories

An Alcatel-Lucent WiFi test board TSC2028, which provide power conversion from -48VDC to 5VDC, was used for all required conducted testing at antenna ports. The 9764 Alcatel-Lucent 9764 LightRadio™ PCS MCO, a FCC certified small base station, was used in the radiated testing. The MCO Wi-Fi AP is a plug-in module and is installed on the bottom of the 9764 MCO for high-density hotspots. The WiFi AP gets its DC power supply from its interface connector with the MCO in real operation. The MCO is unmodified and is commercially available per FCC requirement given in 2.1033(b)(8).

3.3.Antenna Information

There are two different types of antenna modules equipped for this AP product: high gain antenna module and medium-gain antenna module. Each antenna module consists of a 2.4GHz antenna and a 5GHz antenna. Each antenna has two built-in ports and two antenna elements where two antenna elements are connected to Tx/Rx Port 1 and Tx/Rx Port 2, respectively.

The information on antennas is provided below:

Table 3.3.1 Antena Data from Manufactuerer

Ant	Model Name	Antenna Type	Tx/Rx Port	Gain		Freq	
				2.4 GHz	5 GHz	2.4 GHz	5 GHz
1	EMM00024-AC3	Embedded, IFA Elements on PCBA	Tx/Rx 1/2	3.5dBi (typical) and 3.7dBi (Max)	5.5dBi (typical) and 6.1dBi (Max)	2.4-2.5 GHz	4.9-5.875 GHz
2	EMM00043-AC3	Embedded MIMO Antenna Module, Dual Slant Dipole	Tx/Rx 1/2	5.7dBi (typical) and 5.8dBi (Max)	6.9dBi (typical) and 7.9dBi (Max)	2.4-2.5 GHz	5.1-5.875 GHz

The gain and beamwidth at azimuth and elevation 0° and 90° were measured for both antenna modules above at Port 1 and Port 2, respectively. The 3D maximum antenna gains for each antenna at Port 1 and Port 2 were thus verified as below.

The above antennas #1 and #2 are referred as “Medium Gain Antenna” and “High Gain Antenna” in this report, respectively.

Table 3.3.2 Measured Antenna Data

Antenna	Model	Ant Input Impedance	Measured Max Gain (dBi)	
			Port 1	Port 2
1	EMM00024-AC3 (Low Gain)	50 Ω	2.4	4.67
2	EMM00043-AC3 (High Gain)	50 Ω	5.69	6.12

Both antennas were used to perform the test.

The antenna gains were measured in a 4m x 4m x 4m full anechoic chamber with a vector network analyzer at Laird Technologies, the vendor of the antenna. The full anechoic chamber has 23 probes, spaced at 15º in elevation, with an internal arch diameter of 2.4 meters.

4. REQUIRED MEASUREMENTS AND RESULTS

4.1. Regulatory Requirements

The tests in this report were performed for Digital Transmission Systems (DTS) Operating in the 2400 – 2483.5 MHz Bands in accordance with FCC CFR 47 Part 15 Subpart C, FCC KDB 558074, Guidelines for Performing Compliance Measurement on Digital Transmission Systems (DTS) Operating Under Part 15.247, v03r01, April 9, 2013 and FCC KDB 662911D01, Emissions Testing of Transmitters with Multiple Outputs in the Same Band, 5/28/2013, v02.

The FCC CFR 47 Section 15.247 specified the requirements for bandwidth, power output, power spectrum density and undesirable emissions in restricted and non-restricted spectrum:

I. Bandwidth Limits (FCC 15.247 (a)(2)).

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

II. Power Limit (FCC 15.247 (b)(3)(4)).

15.247(b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

15.247(b)(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

III. Power Spectrum Density (FCC 15.247(e))

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. The same method of determining the conducted output power shall be used to determine the power spectral density.

IV. Undesirable Emission Limits (FCC 15.247 (d))

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, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

V. Frequency Stability

The FCC CFR 47 Section 15.247 did not specify the requirement for frequency stability of the carrier. But Section 15.215(c) stated that:

> Intentional radiators operating under the alternative provisions to the general emission limits, as contained in 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

4.2. 2.4GHz Band Carrier Frequencies

Table 4.2.1 2.4GHz Frequency Channel Plan (FCC)

Channel No.	Freq (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

Table 4.2.2 2.4GHz Frequency Channels Used for FCC Testing

Channel No.	Freq (MHz)	Channel Bandwidth
1 (Low)	2412	20MHz
6 (Mid)	2437	
11 (High)	2462	
3 (1-5) (Low)	2422	40MHz
6 (4-8) (Mid)	2437	
9 (7-11) (High)	2452	

4.3. Test Configurations and Setup

All measurements were performed with the EUT transmitting at continuous transmission with at least 98% duty cycle at the maximum power control level.

All signal types, modulation types and bandwidth modes were evaluated for both conducted and radiated testing:

Table 4.3.1 Configurations and Power Levels Tested For 2.4GHz 20MHz Carrier Bandwidth

Mode	Modulation	Data Rate (Mbps)	N_{ss}	Power Setting for Medium Gain Antenna (dBm)	Power Setting for High Gain Antenna (dBm)
.11b - 1Tx	OFDM/CDD	1	1	21 (2412, 2462), 19 (mid)	21 (2412), 20(mid), 18(2462)
.11g - 2Tx	OFDM/CDD	6	1	18 (2412), 22 (mid), 14 (2462)	18(2412), 22(mid), 13(2462)
HT20-2Tx-1S	OFDM/CDD	MCS0	1		16(2412), 22(mid), 13(2462)
HT20-2Tx-2S	OFDM/SM	MCS8	2		

Table 4.3.2 Configurations and Power Levels Tested For 2.4GHz 40MHz Carrier Bandwidth

Mode	Modulation	Data Rate (Mbps)	N_{ss}	Power Setting for Medium Gain Antenna (dBm)	Power Setting for High Gain Antenna (dBm)
HT40-2Tx-1S	OFDM/CDD	MCS0	1	15(2422), 18(mid), 14(2452)	13(2422), 20(mid), 12(2452)
HT40-2Tx-2S	OFDM/SM	MCS8	2	15(2422), 19(mid), 14(2452)	13(2422), 19(mid), 12(2452)

For the cases where the power setting is same for both medium gain antenna and high gain antenna, the conducted testing with the high gain antenna was evaluated only which gives the worst case.

The test setup diagrams are given below.

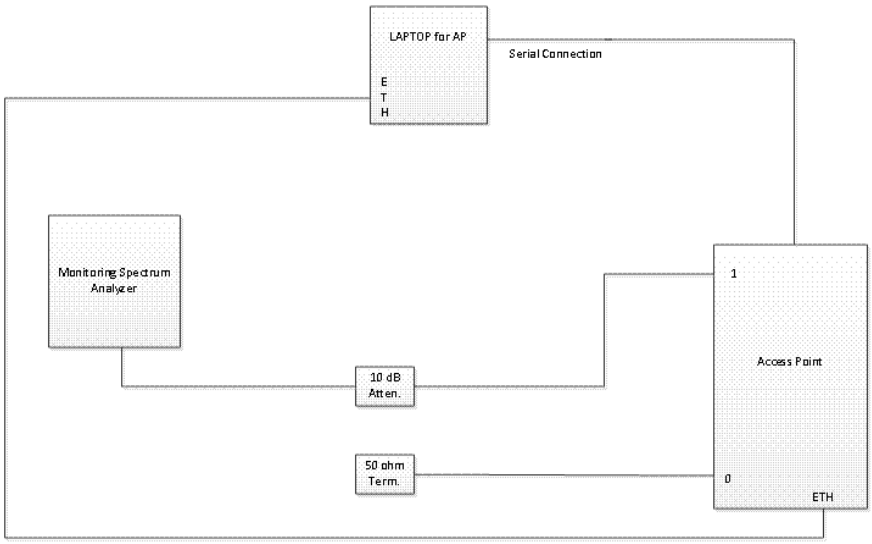

Figure 4.3.1 Setup Diagram of Conducted Test

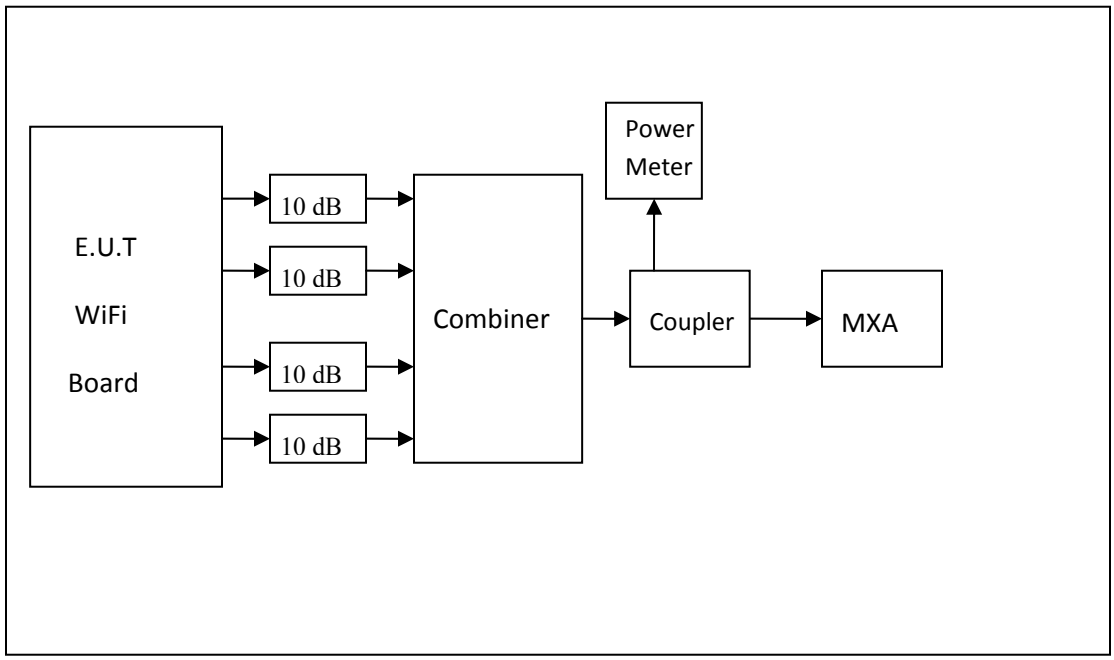

Figure 4.3.2 The Setup Diagram of Frequency Stability Test (Only WiFi Board Is Installed Inside the Chamber)

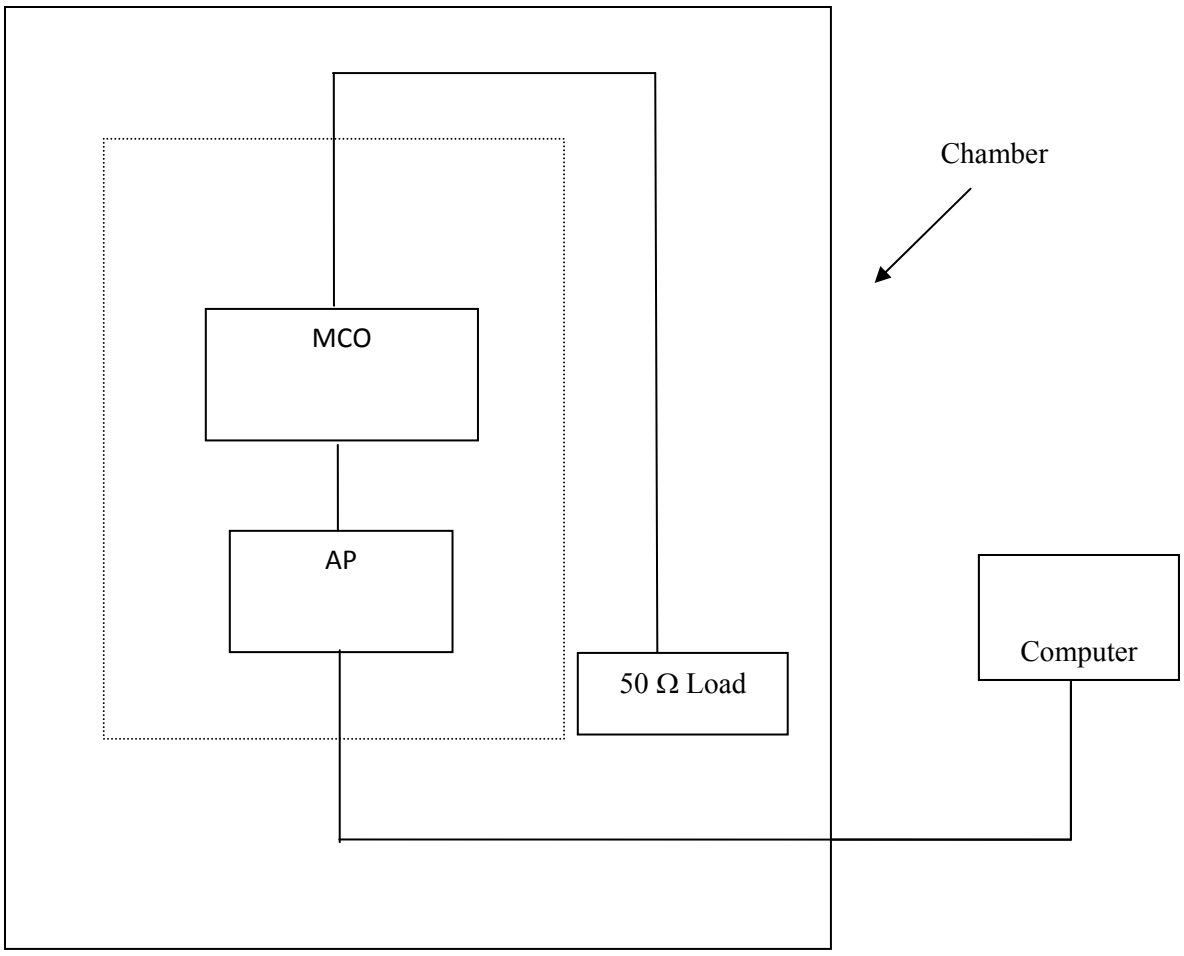

Figure 4.3.3 Setup Diagram of Radiated Test

4.4. MEASUREMENT REQUIRED: OCCUPIED BANDWIDTH – FCC SECTION 15.247 (a)(2)

The 6dB DTS bandwidth was measured at the both antenna ports with the configurations and power levels given in Tables 4.3.1 and 4.3.2 for all channels listed in Table 4.2.2. The measurement follows the procedures given in KDB 558074. The automatic bandwidth measurement function of the spectrum analyzer, the X dB bandwidth mode, was utilized with X set to 6 dB, where the resolution bandwidth (RBW) is set to 100kHz and the video bandwidth (VBW) is set to 300kHz, and the peak detector with maximum hold and auto sweep was used. The power setting at each channel for the medium gain antenna is equal to or slightly higher than that for the high gain antenna. The power setting for the medium gain antenna was used for this testing.

The limit is minimum 500kHz.

The 6dB DTS bandwidth measured was in the range of 10.14-17.78 MHz for 20MHz carriers and 36.15-36.45 MHz for 40MHz carriers. The measured results are tabluated below, where 802.11b is enabled for Port 2 only. The two plots which have the smallest emissions bandwidth at two ports are provided below.

Table 4.4.1 6dB Bandwidth for 20MHz Carrier Medium Gain Antenna

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /Port (dBm)	Port 1 (MHz)	Port 2 (MHz)
2412	.11b - 1Tx	DSSS	1	21		10.15
	.11g - 2Tx	OFDM/CDD	6	18	16.42	16.44
	HT20-2Tx-1S	OFDM/CDD	MCS0	18	17.60	17.62
	HT20-2Tx-2S	OFDM/SM	MCS8	18	17.78	17.76
2437	.11b - 1Tx	DSSS	1	19		10.14
	.11g - 2Tx	OFDM/CDD	6	22	16.37	16.43
	HT20-2Tx-1S	OFDM/CDD	MCS0	22	17.62	17.58
	HT20-2Tx-2S	OFDM/SM	MCS8	22	17.72	17.72
2462	.11b - 1Tx	DSSS	1	21		10.16
	.11g - 2Tx	OFDM/CDD	6	14	16.43	16.41
	HT20-2Tx-1S	OFDM/CDD	MCS0	14	17.62	17.62
	HT20-2Tx-2S	OFDM/SM	MCS8	14	17.69	17.70

Table 4.4.2 6dB DTS Bandwidth for 40MHz Carrier Medium Gain Antenna

Ch No (Pri, Sec)/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /port (dBm)	Port 1 (MHz)	Port 2 (MHz)
2422	HT40-2Tx-1S	OFDM/CDD	MCS0	15	36.35	36.41
	HT40-2Tx-2S	OFDM/SM	MCS8	15	36.16	36.35
2437	HT40-2Tx-1S	OFDM/CDD	MCS0	18	36.40	36.41
	HT40-2Tx-2S	OFDM/SM	MCS8	19	36.45	36.43
2452	HT40-2Tx-1S	OFDM/CDD	MCS0	14	36.15	36.36
	HT40-2Tx-2S	OFDM/SM	MCS8	14	36.36	36.15

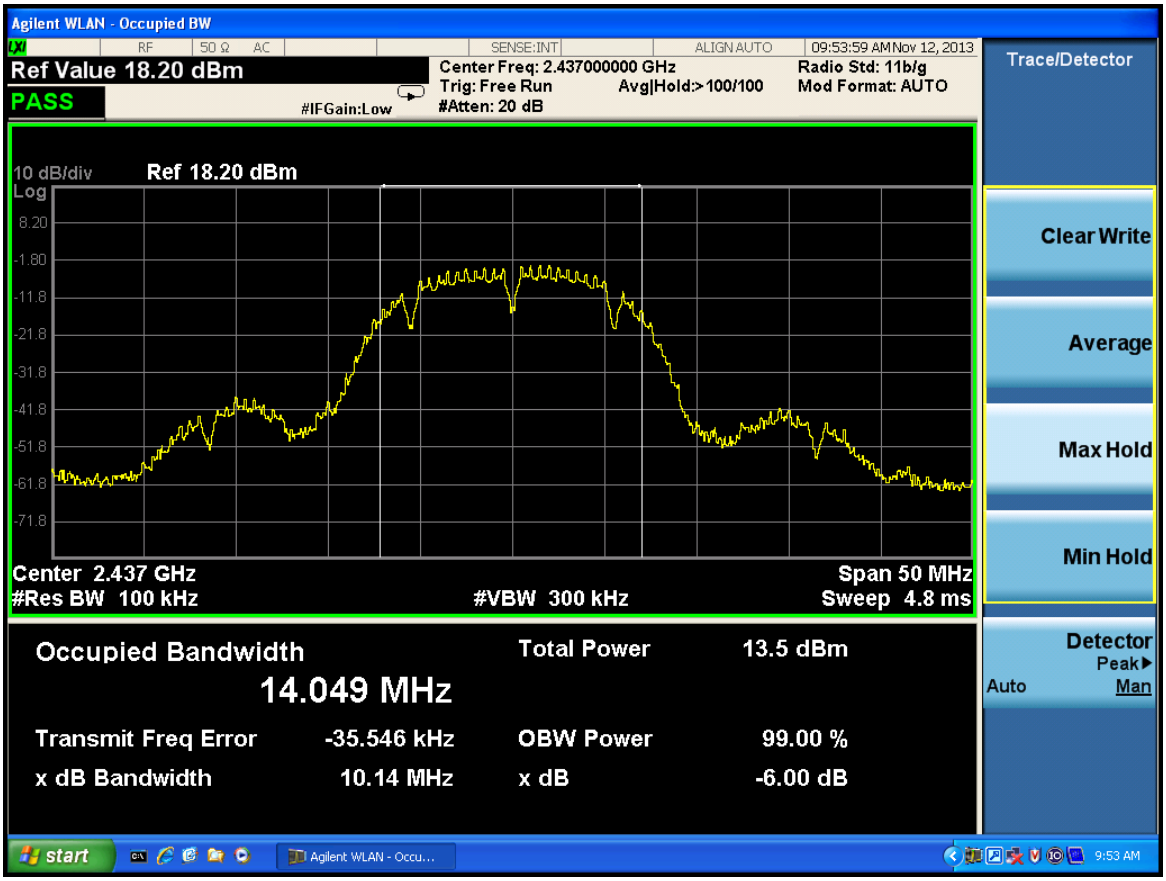

Figure 4.4.1 The Minimum 6dB DTS Bandwidth Measured (10.14MHz) for 802.11b (20 MHz-1TX) Carrier at Ch 2437MHz, 19dBm, DSSS, 1 Mbps, Port 2.

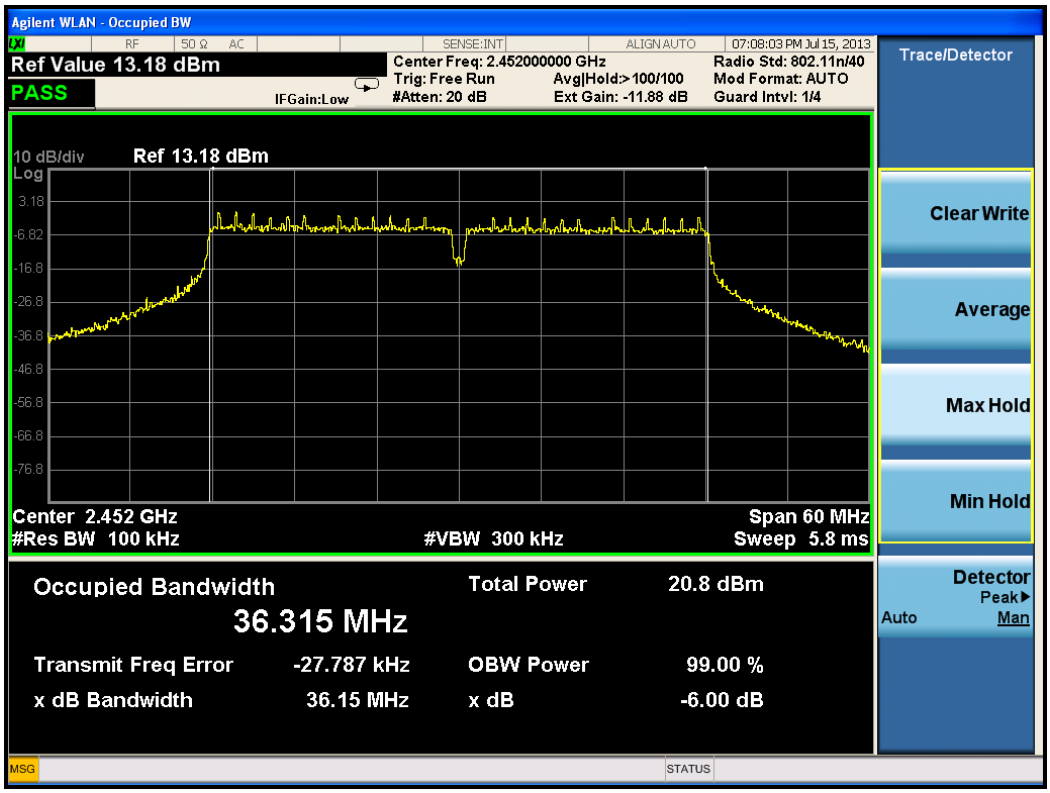

Figure 4.4.2 The Minimum 6dB DTS Bandwidth Measured (36.15MHz) for 802.11n (40MHz-2Tx-1S) Carrier at Ch 2452MHz, 14dBm OFDM/CDD, MCS0, Port 1.

Results:

The minimum 6dB DTS bandwidths of the EUT measured at its antenna transmitting terminals across the 2.4GHz band for all operation modes are greater than 500kHz. The results and measurements are in full compliance with the Rules of the Commission.

4.5. MEASUREMENT REQUIRED: MAXIMUM POWER OUTPUT – FCC SECTION 15.247 (b)(3)(4)

The maximum output power was measured at the both antenna ports with the configurations and power levels given in Tables 4.3.1 and 4.3.2 for all channels listed in Table 4.2.2. The measurement follows the procedures given in KDB 558074.

The limit is 1W (30dBm) total or 0.5W (27dBm) per port with antenna gain less than 6dBi. The maximum conducted output power shall be reduced by the amount in dB that the antenna gain exceeds 6 dBi.

For multiple antennas with equal transmit power but unequal gains, per KDB 662911 D01 v02, the directional antenna gain of uncorrelated signals is equal to

$$\text{Directional Gain} = 10\log\left[\frac{10^{\frac{G1}{10}}+10^{\frac{G2}{10}}+\cdots+10^{\frac{GN}{10}}}{N_{ANT}}\right] dBi, \qquad \text{and}$$

the direntional antenna gain of correlated signals is equal to

$$\text{Directional Gain} = 10\log\left[\frac{\left(10^{G_1/20}+10^{G_2/20}+\ldots..+10^{G_N/20}\right)^2}{N_{ANT}}\right] dBi,$$

where G_1, G_2 ..., G_N are antenna gains.

For the spatial mulplexing (SM) trasnmissions of 802.11n MCS8-15, the EUT operates with two uncorrelated spatial data streams on two transmitting ports. Therefore the Array Gain 10 *log* (N_{ANT}/N_{SS}) = 0 in calculating the directional antenna gain.

For Cyclic Delay Diversity (CDD) transmissions, per KDB 662911 D01 v02 for 802.11 devices, the directional antenna gain may be calculated by using either of the following methods:

i. Directional Gain = Max{ G_1, G_2 ..., G_N} + Array Gain
   a. For power measurements, Array Gain = 0 if $N_{ANT} \leq 4$;
   b. For power sepctrum density (PSD) measurement, Array Gain = 10 *log* (N_{ANT}/N_{SS}) dB, where N_{ss} is number of spatial streams and N_{ss} = 1 was suggested by the FCC for calculating the worst directional gain.

ii. Calculate the directional gain by using the formula for correlated signals provided above.

For the power limit, the directional antenna gain for CDD set equal to the gain of the antenna having the highest gain and the directional antenna gain for SM was calculated by using the equation above for uncorrelated signals. The calculated limits for the combined maximum transmitting power and PSD are tabulated below.

Table 4.5.1. Maximum Total Transmitting Power and PSD Limits at Antenna Ports for 2.4GHz Medium Gain Antennas

Mode	Modulation	Data Rate (Mbps)	N_{ss}	Directional Gain for Spectral Density (dBi)	Directional Gain for Total Power (dBi)	Total SD (dBm/3kHz)	Total Power (dBm)
.11b - 1Tx	DSSS	1	1	4.67	4.67	8.00	30
.11g - 2Tx	OFDM/CDD	6	1	6.62	4.67	7.38	30
HT20-2Tx-1S	OFDM/CDD	MCS0	1	6.62	4.67	7.38	30
HT20-2Tx-2S	OFDM/SM	MCS8	2	3.68	3.68	8.00	30
HT40-2Tx-1S	OFDM/CDD	MCS0	1	6.62	4.67	7.38	30
HT40-2Tx-2S	OFDM/SM	MCS8	2	3.68	3.68	8.00	30

Table 4.5.2. Maximum Total Transmitting Power and PSD Limits at Antenna Ports for 2.4GHz High Gain Antennas

Mode	Modulation	Data Rate (Mbps)	N_{ss}	Directional Gain for Spectral Density (dBi)	Directional Gain for Total Power (dBi)	Total SD (dBm/3kHz)	Total Power (dBm)
.11b - 1Tx	DSSS	1	1	6.12	6.12	7.88	29.88
.11g - 2Tx	OFDM/CDD	6	1	8.92	6.12	5.08	29.88
HT20-2Tx-1S	OFDM/CDD	MCS0	1	8.92	6.12	5.08	29.88
HT20-2Tx-2S	OFDM/SM	MCS8	2	5.91	5.91	8.00	30.00
HT40-2Tx-1S	OFDM/CDD	MCS0	1	8.92	6.12	5.08	29.88
HT40-2Tx-2S	OFDM/SM	MCS8	2	5.91	5.91	8.00	30.00

Per KDB 558074 guidance, the Maximum Peak Conducted Output Power will be measured with Peak detector and Maximum Hold with DTS Bandwidth (6dB BW). The Maximum Conducted Average Output Power will be measured with Average Detector and with EBW (26dB BW, Emission Band Width). FCC Section 15.247(b)(3) permits the maximum (average) conducted output power to be measured as an alternative to the maximum peak conducted output power for demonstrating compliance to the limit.

In this testing, the maximum conducted average output power was measured and reported. The output power was first verified by a Power Meter and then measured by a spectrum analyzer. The RBW and VBW were set to 1MHz and 3MHz, respectively. The RMS detector and trace average were used.

The output power was calculated by integrating the spectrum across the EBW of the carrier using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. The total combined output power is calculated by summing the measured output power in mW from all antenna ports.

For the EUT equipped with medium gain antenna, the maximum total output peak conducted power measured among all operation modes supported was 23.96dBm for 20MHz carriers and 21.57Bm for 40MHz carriers. For the EUT equipped with high gain antenna, the maximum total output peak conducted power measured among all operation modes supported was 23.96dBm for 20MHz carriers and 22.97Bm for 40MHz carriers. Therefore, the maximum total output average conducted power measured are below the FCC required maximum limits for both high gain antenna and medium gain antenna.

The measurement results and four typical plots which have maximum ouput power among them for both 20MHz carrier and 40MHz carrier are provided here.

Table 4.5.3 Maximum Mean Combined RF Power Output at Antenna Ports for 2.4GHz 20MHz Carrier for Medium Gain Antenna

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /Port (dBm)	Total Power Limit (dBm)	Total Power (dBm)
2412	.11b - 1Tx	DSSS	1	21	30	20.02
	.11g - 2Tx	OFDM/CDD	6	18	30	20.74
	HT20-2Tx-1S	OFDM/CDD	MCS0	18	30	20.68
	HT20-2Tx-2S	OFDM/SM	MCS8	18	30	20.57
2437	.11b - 1Tx	DSSS	1	19	30	17.92
	.11g - 2Tx	OFDM/CDD	6	22	30	23.96
	HT20-2Tx-1S	OFDM/CDD	MCS0	22	30	23.91
	HT20-2Tx-2S	OFDM/SM	MCS8	22	30	23.69
2462	.11b - 1Tx	DSSS	1	21	30	20.54
	.11g - 2Tx	OFDM/CDD	6	14	30	17.04
	HT20-2Tx-1S	OFDM/CDD	MCS0	14	30	16.94
	HT20-2Tx-2S	OFDM/SM	MCS8	14	30	16.68

Table 4.5.4 Maximum Mean Combined RF Power Output at Antenna Ports for 2.4GHz 40MHz Carrier for Medium Gain Antenna

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /Port (dBm)	Total Power Limit (dBm)	Total Power (dBm)
2422	HT40-2Tx-1S	OFDM/CDD	MCS0	15	30	18.31
	HT40-2Tx-2S	OFDM/SM	MCS8	15	30	18.04
2437	HT40-2Tx-1S	OFDM/CDD	MCS0	18	30	20.92
	HT40-2Tx-2S	OFDM/SM	MCS8	19	30	21.57
2452	HT40-2Tx-1S	OFDM/CDD	MCS0	14	30	16.09
	HT40-2Tx-2S	OFDM/SM	MCS8	14	30	15.92

Table 4.5.5 Maximum Mean Combined RF Power Output at Antenna Ports for 2.4GHz 20MHz Carrier for High Gain Antenna

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /Port (dBm)	Total Power Limit (dBm)	Total Power (dBm)
2412	.11b - 1Tx	DSSS	1	21	29.88	20.02
	.11g - 2Tx	OFDM/CDD	6	18	29.88	20.74
	HT20-2Tx-1S	OFDM/CDD	MCS0	15	29.88	17.52
	HT20-2Tx-2S	OFDM/SM	MCS8	16	30.00	18.81
2437	.11b - 1Tx	DSSS	1	20	29.88	18.71
	.11g - 2Tx	OFDM/CDD	6	22	29.88	23.96
	HT20-2Tx-1S	OFDM/CDD	MCS0	22	29.88	23.91
	HT20-2Tx-2S	OFDM/SM	MCS8	22	30.00	23.69
2462	.11b - 1Tx	DSSS	1	18	29.88	18.18
	.11g - 2Tx	OFDM/CDD	6	13	29.88	15.89
	HT20-2Tx-1S	OFDM/CDD	MCS0	13	29.88	15.80
	HT20-2Tx-2S	OFDM/SM	MCS8	13	30.00	15.77

Table 4.5.6 Maximum Mean Combined RF Power Output at Antenna Ports for 2.4GHz 40MHz Carrier for High Gain Antenna

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power /Port (dBm)	Total Power Limit (dBm)	Total Power (dBm)
2422	HT40-2Tx-1S	OFDM/CDD	MCS0	13	29.88	15.83
	HT40-2Tx-2S	OFDM/SM	MCS8	13	30.00	16.66
2437	HT40-2Tx-1S	OFDM/CDD	MCS0	20	29.88	22.97
	HT40-2Tx-2S	OFDM/SM	MCS8	19	30.00	21.71
2452	HT40-2Tx-1S	OFDM/CDD	MCS0	12	29.88	14.51
	HT40-2Tx-2S	OFDM/SM	MCS8	12	30.00	14.25

Figure 4.5.1 The Mean Output Power Measured for 802.11g (20MHz-2Tx) Carrier at Channel 2437MHz, 22dBm (Medium or High Gain Antenna), OFDM/CDD, 6Mbps, Port 1.

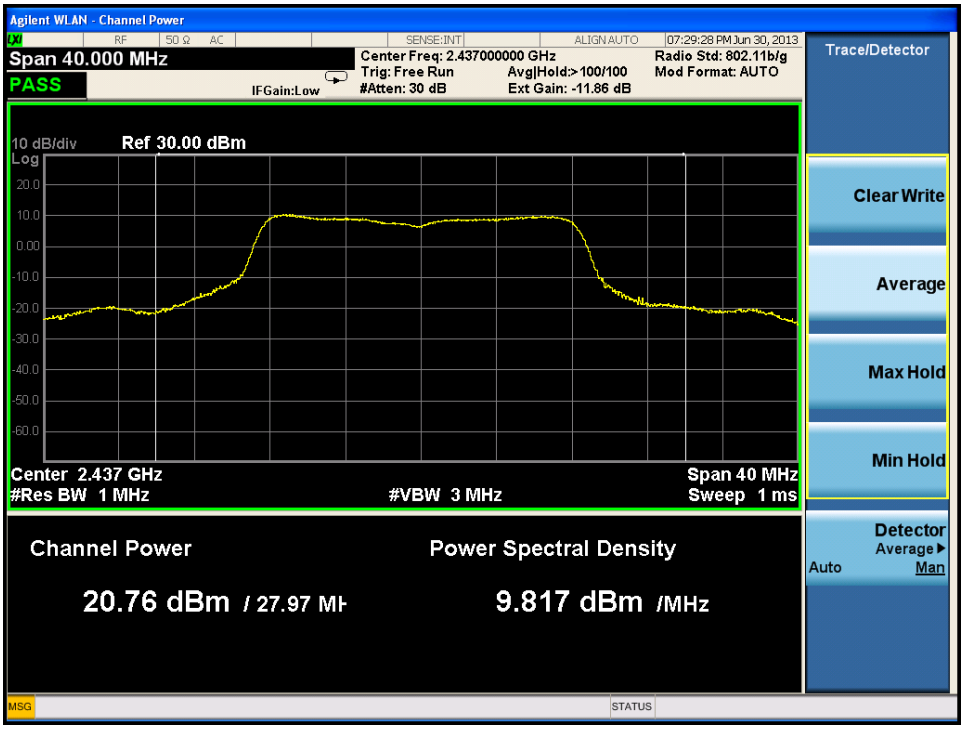

Figure 4.5.2 The Mean Output Power Measured for 802.11g (20MHz-2Tx) Carrier at Channel 2437MHz, 22dBm (Medium or High Gain Antenna), OFDM/CDD, 6Mbps, Port 2.

Figure 4.5.3 The Mean Output Power Measured for 802.11n (40MHz-2Tx-1S) Carrier at Channel 2437MHz, 20dBm (High Gain Antenna), OFDM/CDD, MCS0, Port 1.

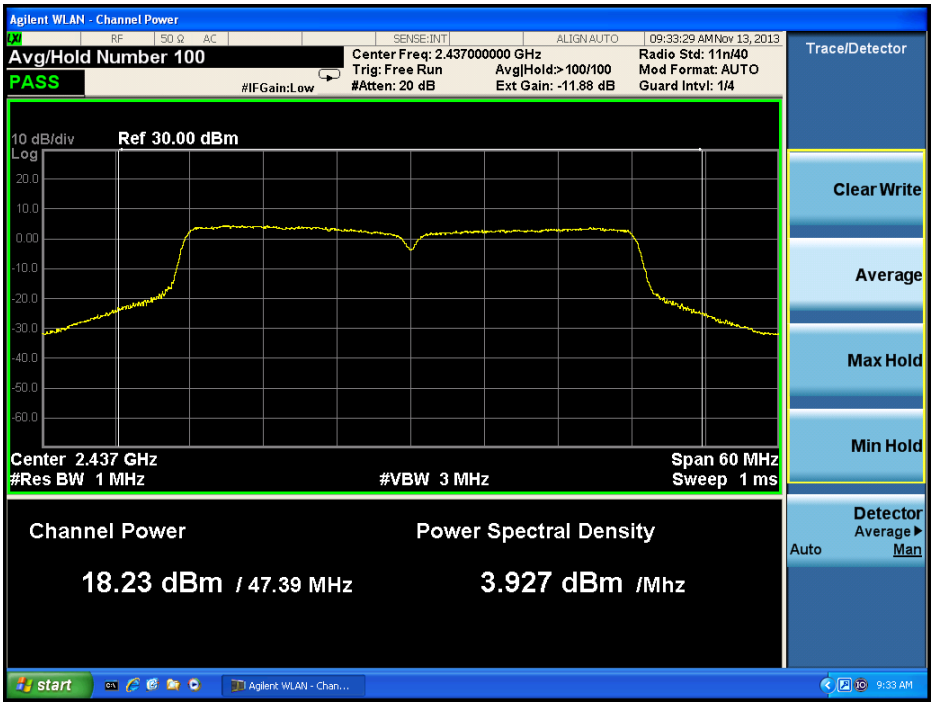

Figure 4.5.4 The Mean Output Power Measured for 802.11n (40MHz-2Tx-1S) Carrier at Channel 2437MHz, 19dBm (High Gain Antenna), OFDM/CDD, MCS0, Port 2.

Results:

The maximum combined mean RF power outputs of the EUT at its antenna transmitting terminals across the 2.4GHz for all operation modes are 23.96dBm (249mW, 20MHz bandwidth) and 22.97dBm (198mW, 40MHz bandwidth) for both medium and high gain antenna, respectively. They are all below FCC required limits and are in full compliance with the Rules of the Commission.

4.6. MEASUREMENT REQUIRED: PEAK POWER SPECTRUM DENSITY – FCC SECTION 15.247 (e)

The peak power spectrum density (PPSD) measures the maximum value of the time average of the PSD measured during a period of continuous transmission.

The PPSD must be less than 8 dBm in any 3 kHz band segment within the DTS bandwidth during any time interval of continuous transmission. The peak conducted PSD shall be reduced by the amount in dB that the antenna gain exceeds 6 dBi.

Per KDB 558074 guidance, the same method as used to determine the conducted output power shall be used to determine the power spectral density (*i.e.,* if maximum peak conducted output power was measured then the peak PSD procedure shall be used and if maximum conducted output power was measured then the average PSD procedure shall be used).

The PSD was measured at the antenna terminal with the configurations and power levels given in Tables 4.3.1 and 4.3.2 for all channels listed in Table 4.2.2. The measurement follows the procedures given in KDB 558074.

For the PSD limit, the directional antenna gain for CDD was calculated by using the equation given in Section 4.5 for correlated signals and the directional antenna gain for SM was calculated by using the equation given in Section 4.5 for uncorrelated signals.

The PSD was measured by a spectrum analyzer. The RBW and VBW were set to 3kHz and 9kHz, respectively. The RMS detector and trace average were used. The maximum PSD can be found by using the peak search function on the instrument to find the peak of the spectrum. Since the power spectrum density measured is well below the limit, the total combined PSD is calculated by summing the measured output power spectrum density in mW/3kHz at the port 2 measured with 3dB to account for the two ports.

For the EUT with medium gain antenna operation, the total maximum PSD measured among all operation modes supported was -9.87 dBm/3kHz for 20MHz carriers and -12.22 dBm/kHz for 40MHz carriers. They are all well below the FCC required limits. The power setting for the EUT with medium gain antennas is equal or higher than that for the EUT with high gain antennas and the limits for the EUT with high gain antennas is lower than that for the EUT with medium gain antennas. Since the total maximum PSD measured for the power setting of the EUT with medium gain antennas is also below the limits for the high gain antennas, the maximum PSD of the EUT with high gain antenna will be in compliance with the FCC limits.

The measurement results are given below. The PPSD plot which have the smalles margin among both 20MHz carriers and 40MHz carriers is provided in Figures 4.6.1 and 4.6.2.

Table 4.6.1 PPSD Measured at Antenna Ports for 2.4GHz 20MHz Carrier

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power Setting /Port (dBm)		Total PPSD Limit (dBm/3kHz)		Max. Total PPSD (dBm/3kHz)
				LG	HG	LG	HG	LG
2412	.11b - 1Tx	DSSS	1	21	21	8.00	7.88	-9.87
	.11g - 2Tx	OFDM/CDD	6	18	18	7.38	5.08	-14.24
	HT20-2Tx-1S	OFDM/CDD	MCS0	18	15	7.38	5.08	-14.55
	HT20-2Tx-2S	OFDM/SM	MCS8	18	16	8.00	8.00	-14.35
2437	.11b - 1Tx	DSSS	1	19	20	8.00	7.88	-13.54
	.11g - 2Tx	OFDM/CDD	6	22	22	7.38	5.08	-13.71
	HT20-2Tx-1S	OFDM/CDD	MCS0	22	22	7.38	5.08	-10.66
	HT20-2Tx-2S	OFDM/SM	MCS8	22	22	8.00	8.00	-10.57
2462	.11b - 1Tx	DSSS	1	21	18	8.00	7.88	-10.24
	.11g - 2Tx	OFDM/CDD	6	14	13	7.38	5.08	-13.24
	HT20-2Tx-1S	OFDM/CDD	MCS0	14	13	7.38	5.08	-17.40
	HT20-2Tx-2S	OFDM/SM	MCS8	14	13	8.00	8.00	-17.25

Table 4.6.2 PPSD Measured at Antenna Port for 2.4GHz 40MHz Carrier

Ch No/ Freq (MHz)	Mode	Modulation	Data Rate (Mbps)	Power Setting /Port (dBm)		Total PPSD Limit (dBm/3kHz)		Max. Total PPSD (dBm/3kHz)
				LG	HG	LG	HG	LG
2422	HT40-2Tx-1S	OFDM/CDD	MCS0	15	13	7.38	5.08	-19.65
	HT40-2Tx-2S	OFDM/SM	MCS8	15	13	8.00	8.00	-12.22
2437	HT40-2Tx-1S	OFDM/CDD	MCS0	18	20	7.38	5.08	-16.84
	HT40-2Tx-2S	OFDM/SM	MCS8	19	19	8.00	8.00	-15.49
2452	HT40-2Tx-1S	OFDM/CDD	MCS0	14	12	7.38	5.08	-20.99
	HT40-2Tx-2S	OFDM/SM	MCS8	14	12	8.00	8.00	-21.16

Figure 4.6.1 The PPSD Measured for 802.11b (20MHz-1Tx) Carrier at Channel 2412MHz, 21dBm (Medium Gain Antenna), DSSS, 1 Mbps, Port 2 (Total PPSD = -12.87dBm+3dB = -9.87dBm).

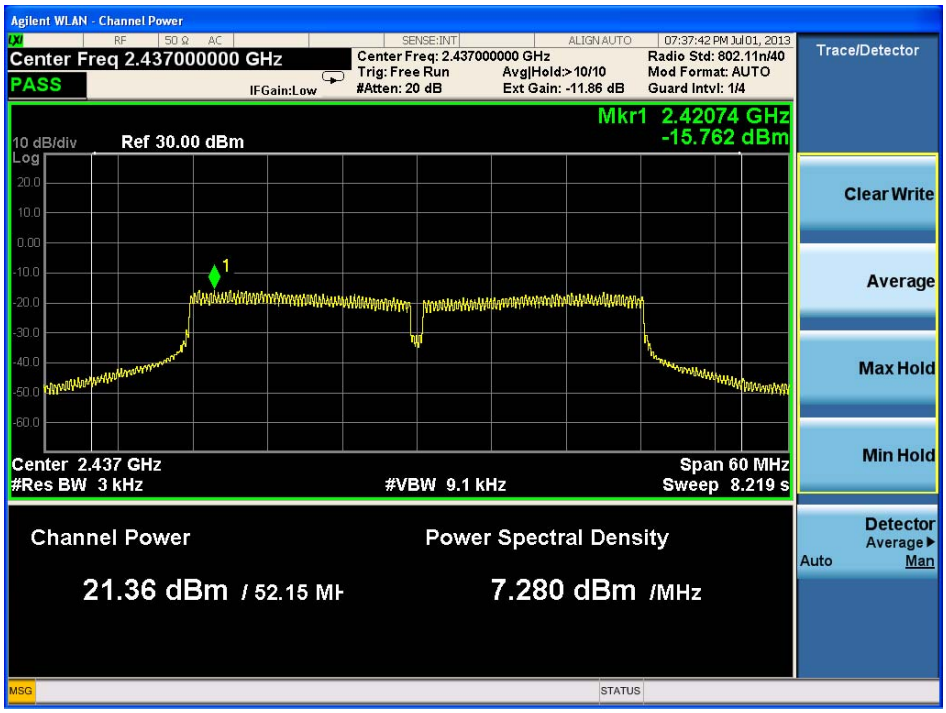

Figure 4.6.2 The PPSD Measured for 802.11n (40MHz-2Tx-1S) Carrier at Channel 2437MHz, 22dBm (Medium Gain Antenna), OFDM/CDD, MCS0, Port 2 (Total PPSD = -15.76dBm+3dB = -12.76dBm).

Results:

The maximum total PPSD of the EUT at its antenna transmitting terminals across the 2.4GHz band for all operation modes are all below FCC required limits and are in full compliance with the Rules of the Commission.

4.7. MEASUREMENT REQUIRED: UNWANTED OUT-OF-BAND EMISSIONS IN NON-RESTRICTED BAND CONDUCTED – FCC SECTION 15.247 (d)

Per FCC Section 15.247(d) (see Section 4.1), the out-of-band emissions in the non-restricted band must be 20dBc/100kHz below the maximum in-band peak PSD if the maximum peak conducted output power is used or 30dBc/100kHz below the maximum in-band average PSD if the maximum average conducted output power is used.

The out-of-band emissions were measured per the measurement procedures provided by KDB 558074 guidance.

The maximum in-band PSD was measured first as the reference level, where RBW = 100 kHz, VBW = 300 kHz, span = 1.5 x DTS channel bandwidth and RMS detector with average trace were used. The maximum in-band PSD was determined by the peak search function. Per KDB 558074 Section 11.2, the channel found to contain the maximum PSD level can be used to establish the reference level. Therefore, the channel which has the highest power setting for the same modulation was used to establish the reference level. Then the limit line is 30dB below the maximum in-band PSD value. The out-of-band emissions including the emissions near the band edges (2400MHz and 2483.5MHz) were measured with the same setting.

The out-of-band emissions were measured with the configurations and power levels given in Tables 4.3.1 and 4.3.2 for the lowest and highest available channels listed in Table 4.2.2. All the unwanted emissions are below the FCC required limits. The unwanted out-of-band emissions in non-restricted band not near the band edges in the frequency range from 30MHz to 27GHz were evaluated at the antenna Port 2 and all have more than 20dB margin. Therefore there is no need to report.

The out-of-band emissions near the band edges at 2400MHz and 2483.5MHz) were evaluated at both ports. The minimum margin is 4.4 dB for 20MHz carriers and 5.6dB for 40MHz carriers for both medium gain antenna and high gain antenna against -30dBc/100kHz limit line, respectively. The worst margin is near 2400MHz band edge. The plots of the band edge emissions at the channel 2412MHz on Port 1 with 20MHz-2Tx-1S and medium gain antenna are provided below, which has the minimum margin.

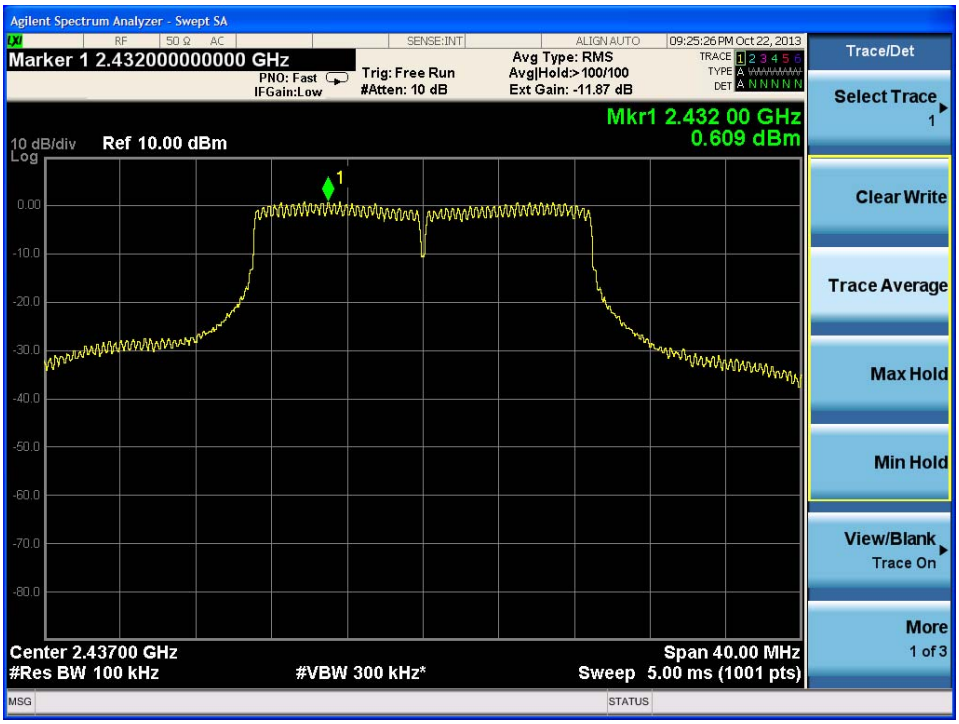

Figure 4.8.1 The Reference Level Measured for 802.11n (20MHz-2Tx-1S) Carrier at Channel 2437MHz, 22dBm (High Gain and Medium Gain Antenna), OFDM/CDD, MCS0, Port 1.

Figure 4.8.2 The Unwanted Emissions near 2400MHz Band Edge with Minimum Margin Measured for 802.11n (20MHz-2Tx-1S) Carrier at Channel 2412MHz, 18dBm (Medium Gain Antenna), OFDM/CDD, MCS0, Port 1.

Results:

The out-of-band emissions in the non-restricted band of the EUT at its antenna transmitting terminal for all operation modes are below the FCC required limits for both high gain and medium gain antennas and are in full compliance with the Rules of the Commission.

4.8. MEASUREMENT REQUIRED: UNWANTED RADIATED EMISSIONS – FCC SECTION 15.247 (d)

The FCC requirements specified in 15.247(d) are provided in Section 4.1(IV), where FCC states that the attenuation of unwanted emissions below the general emission limits in 15.209(a) is not required and the radiated emissions must be in compliance with the general field strength limits set forth in 15.209(a) in the restricted bands 15.205(a, b, c).

The spurious emissions in 15.205 (a) restricted bands must meet 15.209 (a) limits which are given in Table 4.8.1. The restricted bands of operation given in 15.205(a) are provided in Table 4.8.2.

Table 4.8.1. FCC 15.209 Radiated Emissions Limits

Frequency (MHz)	Field Stength at 3m (dB uV/m)		RBW (kHz)	Detector
	FCC 15.109 Class B	FCC 15.209		
10 - 30		49.5	9	QP
30 - 88	40	40	120	QP
88 - 216	43.5	43.5		
216 - 230	46	46		
230 - 960	46	46		
960 - 1000	54	54		
1000 - 3000	54	54	1000	Ave.
	74	74		Peak
> 3000 - 5 f_c	54	74	1000	Ave.
	74	74		Peak
5 f_c - 10 f_c / 40GHz		54	1000	Ave.
		74		Peak

Table 4.8.2 FCC 15.205 Restricted Bands of Operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

Since the 9764 MCO Wi-Fi AP module is an optional component attached to a 9764 MCO Outdoor in public places for high-density hotspots, both 9764 MCO Wi-Fi AP (EUT) and the MCO were evaluated together for radiated emissions. The 9764 Wi-Fi AP was installed on the bottom of the Alcatel-Lucent 1900 LTE -48VDC Metro Cell Metro Dock (Gigabit Ethernet) which represents the worst case scenario for radiated emissions in real deployment. The Metro Cell is transmitting a 5MHz LTE carrier at A Block Ch50 1932.5MHz. The EUT with antennas equipped transmits at both ports in the 2.4GHz band with the configurations and power levels for high gain antenna given in Tables 4.3.1 and 4.3.2 for all lower and upper edge channels listed in Table 4.2.2. When measuring the emission limits, the nominal carrier frequency was adjusted as close to the upper and lower frequency block edges as the design of the equipment permits. The lowest oscillator frequency in the AP is 25MHz. The emissions were investigated from 25MHz to 40GHz per FCC Sections 15.205 and 15.209. The recommendations of ANSI C63.4–2009 were followed for EUT testing setup and cabling. The measurement guidance given in KDB 558074 was followed.

The test setup diagram is given in Section 4.3.

The radiated spurious emissions were measured with both 2.4GHz ISM and 5.8 GHz UNII-3 carriers transmitting simultaneously. In each band (5.8GHz UNII-3 or 2.4GHz ISM), two carriers were transmitting in MIMO (Multiple Input Multiple Output). The compliance for the restricted bands near the transmitting band was closely examined with the carriers placed near to that band edge as well. The radiated emissions measured in the restricted bands for all operation modes and carrier bandwidths with maximum high gain power levels were all below 15.209 limits. The worse cases from the high gain antennas measurement were remeasured with the maximum median gain power level and median gain antennas as well and their emissions were all below 15.209 limits. The worst case plot, where the minimum margin from MCO Wi-Fi AP operating in 2.4GHz ISM is 0.85dB at 2.485GHz, is provided in Figure 4.8.1.

The FCC 15.109 Class B limits are identical to the 15.209 limits between 30MHz and 30GHz. Therefore, the MCO Wi-Fi AP is in compliance with both 15.247 (d) requirements for intentional radiators and the 15.109 Class B requirements for unintentional radiators.

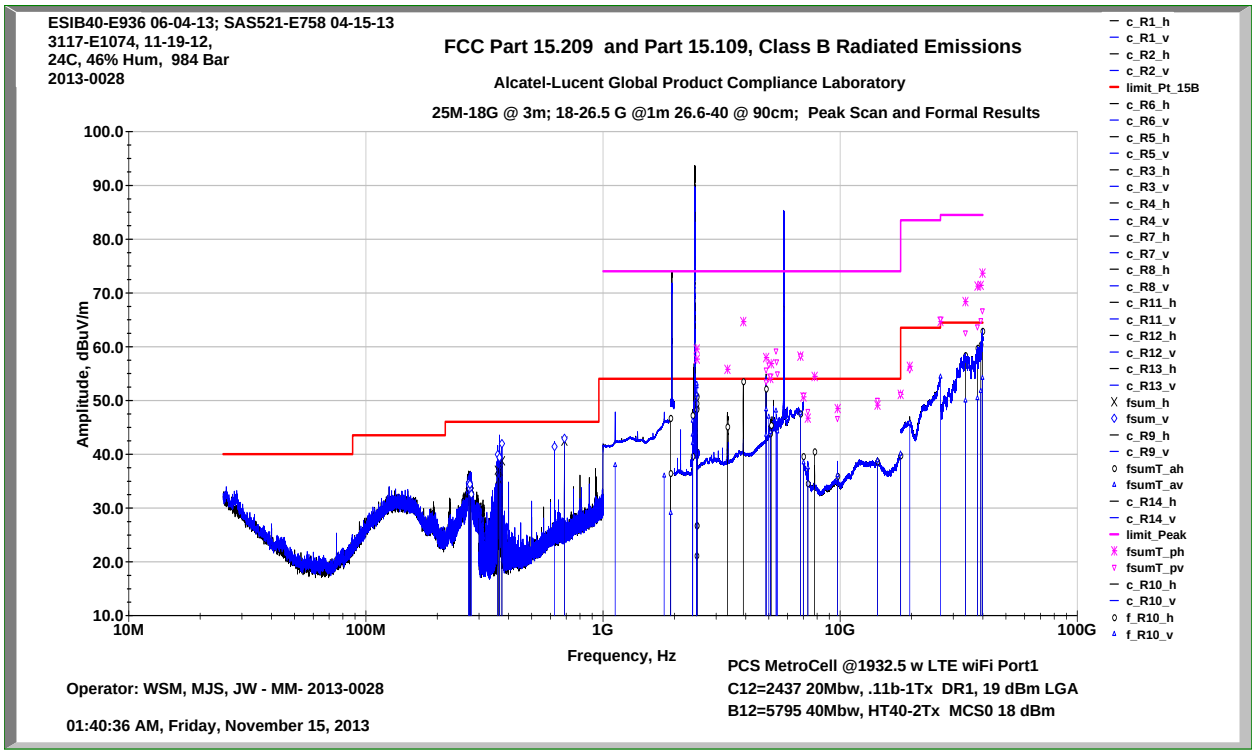

Figure 4.8.1 The Radiated Emissions Measured with Peak and Quasi-Peak/Average Values from 25MHz to 40GHz for 802.11b (20MHz-1Tx) Carrier at Channel 6/2437MHz, 19dBm, Median Gain Antennas, 1Mbps, against FCC Part 15.209 and 15.109 Class B Limits.

Results:

The spurious radiated emissions of MCO Wi-Fi AP in 2.4GHz ISM operation for all operation modes and carrier bandwidths are below FCC 15.209 limits and FCC 15.109 Class B limits and in full compliance with the Rules of the Commission.

.

4.9. MEASUREMENT REQUIRED: FREQUENCY STABILITY– FCC SECTION 15.215 (c)

This test evaluates the frequency difference between the actual transmit carrier frequency and the specified transmit frequency assignment.

The FCC requirement on the frequency stability is given in Section 4.1. The IEEE 802.11n-2009 Section 20.3.21.4 specified the transmitter center frequency tolerance shall be ± 25 ppm maximum for the 2.4 GHz band. The different transmit chain center frequencies (LO) and each transmit chain symbol clock frequency shall all be derived from the same reference oscillator.

The frequency stability testing was conducted on the MCO Wi-Fi AP Outdoor. It receives its +5.3VDC power from its interface with MCO. The design tolerance of 5.3VDC voltage supply is ±3%.

The WiFi AP was installed in an environmental chamber. The test setup diagram is given in Section 4.3. The Wi-Fi AP transmits a 20dBm carrier at Channel 6, 2437MHz, 802.11n, HT40-2Tx-1S, MCS3, 16QAM. The stability of the output frequency of the WiFi AP was measured (10 samples average) at one antenna transmitting port: 1) from –35 °C to +55 °C in 10 °C steps at the rated supply voltage; and 2) at 97% and 103% of the nominal supply voltage per design specification. The 97% of 5.3 VAC is 5.14 V and 103% is 5.46 V. The carrier frequency at 2437 MHz was measured at the antenna terminal at each temperature and each supply voltage by an Agilent MXA. In addition, the transmit power was monitored by the power meter to ensure proper performance throughout the test interval. At each temperature and each supply voltage, the EUT was given sufficient time for its thermal stabilization. The testing was performed during the period of October 14 ~ 16, 2013.

The frequency derivations (Δf) at the antenna port from the carrier frequency at +20°C and rated voltage at each temperature and supply voltage are summarized in the following tables.

Table 4.9.1 The Frequency Stability of WiFi AP

Stabilized Temp. (°C)	Δf 97% V_{norm} (ppm)	Δf 100% V_{norm} (ppm)	Δf 103% V_{norm} (ppm)
55	-0.25	-0.27	-0.27
45	-0.19	-0.18	-0.18
35	-0.04	-0.05	-0.06
25	0.00	0.00	0.01
15	0.06	0.06	0.07
5	0.10	0.09	0.09
-5	0.07	0.09	0.10
-15	0.06	0.09	0.05
-25	0.03	0.08	0.09
-35	0.04	0.04	0.04

Results:

The maximum frequency drifts at the antenna terminal of the MCO WiFi AP at the 2437MHz due to temperature and supply voltage changes are below ±25ppm IEEE requirement. The Alcatel-Lucent MCO WiFi AP demonstrated full compliance with the Rules of the Commission.

4.10. MEASUREMENT REQUIRED: AC POWER LINE CONDUCTED LIMITS – FCC SECTION 15.207

FCC 15.207(c) states that measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

The limits are given in Table 4.10.1.

Table 4.10.1. FCC 15.207 AC Power line Conducted Emissions Limits

Frequency (MHz)	15.207 (dBµV)		15.107 Class B (dBµV)		RBW
	Quasi-Peak	Average	Quasi-Peak	Average	
0.15 – 0.5	66 – 56*	56 – 46*	66 – 56*	56 – 46*	9 kHz
0.5 – 5.0	56	46	56	46	
5.0 – 30.0	60	50	60	50	

*Decreases with the logarithm of the frequency.

The 9764 MCO Wi-Fi AP module gets its DC power from 9764 MCO Outdoor. The 9764 MCO Outdoor can be AC powered. Therefore, an AC PCS LTE MCO Outdoor (Metro Dock) was used as the host unit for this testing. The AC power line conducted emissions of 9764 MCO Outdoor were evaluated with MCO Wi-Fi AP attached. Both 9764 MCO Outdoor and MCO Wi-Fi AP were transmitting at their maximum full power for the worst case scenario.

The PCS Metro Cell Metro Dock is transmitting 2x1W, 5MHz LTE carriers at B Block on both ports. The MCO Wi-Fi AP with antennas equipped transmits at both ports with a 2437MHz (20MHz bandwidth, 11g-2Tx, 6Mpbs) carrier at 22dBm and a 5765MHz (HT20-2Tx-1S, MCS8) carrier at 18dBm in MIMO. The recommendations of ANSI C63.4–2009 were followed for EUT testing setup and cabling.

The test setup photo is given in Exhibit 10.

The conducted emissions were measured at both AC power leads. The AC power line conducted emissions measured in the frequency spectrum 150kHz to 30MHz were all below 15.207 limits with a minimum margin of 11.2dB at 504kHz. The plots are provided in Figures 4.10.1 – 4.10.4.

The FCC 15.107 Class B limits are identical to the 15.207 limits. Therefore, the 9764 PCS MCO Outdoor Metro Dock with Wi-Fi AP is in compliance with 15.207 requirements for intentional radiators and the 15.107 Class B requirements for unintentional radiators.

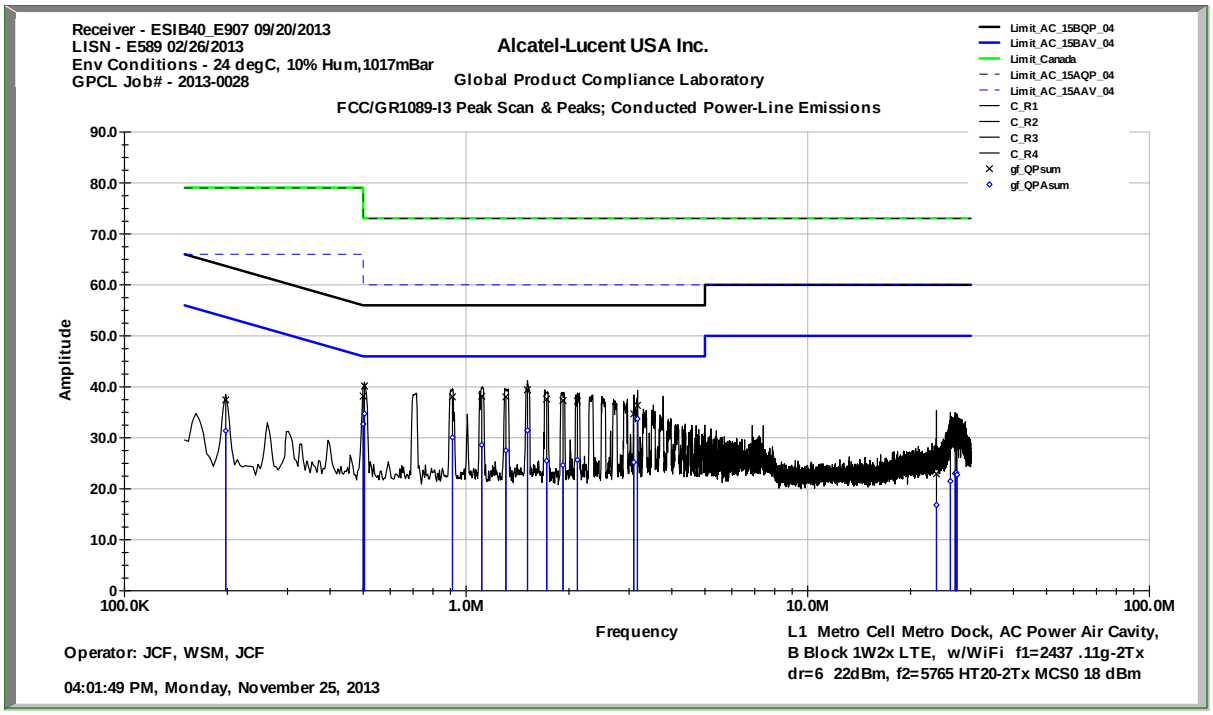

Figure 4.10.1 The Pre-Scan of Conducted Emissions on AC Power Line L1 Lead with Peak Detector.

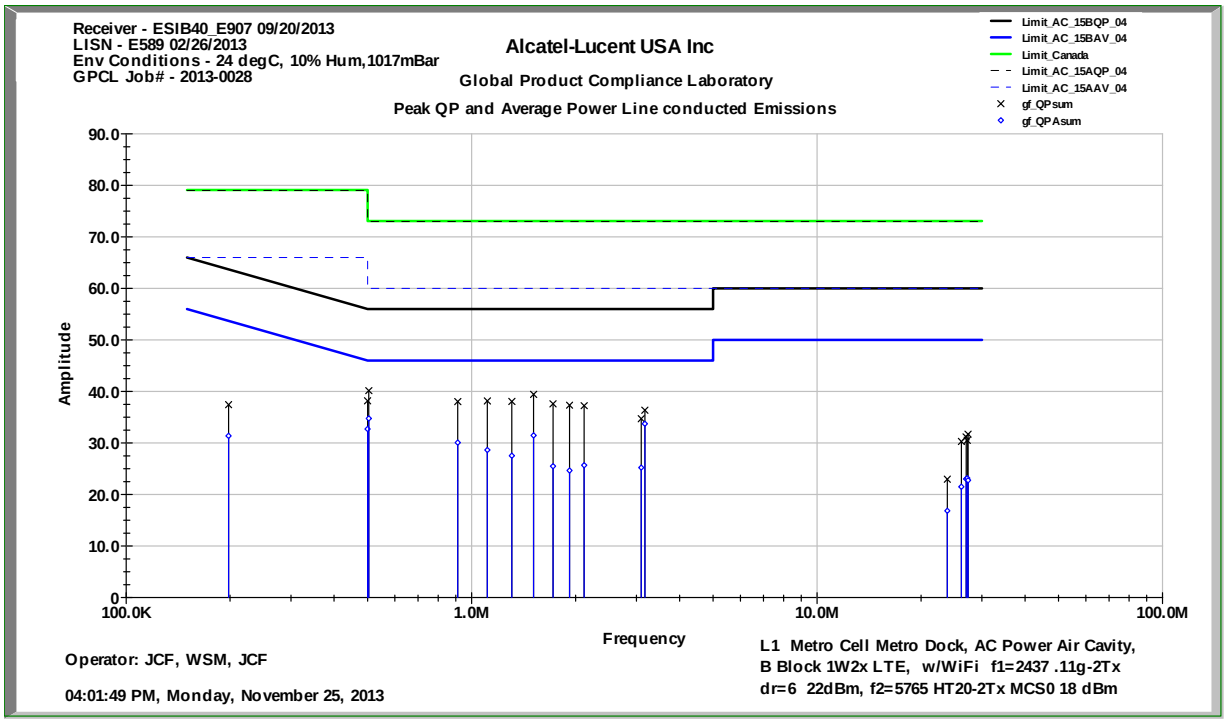

Figure 4.10.2 The Formal-Scan of Conducted Emissions on AC Power Line L1 Lead with Quisi-Peak and Average Detectors.

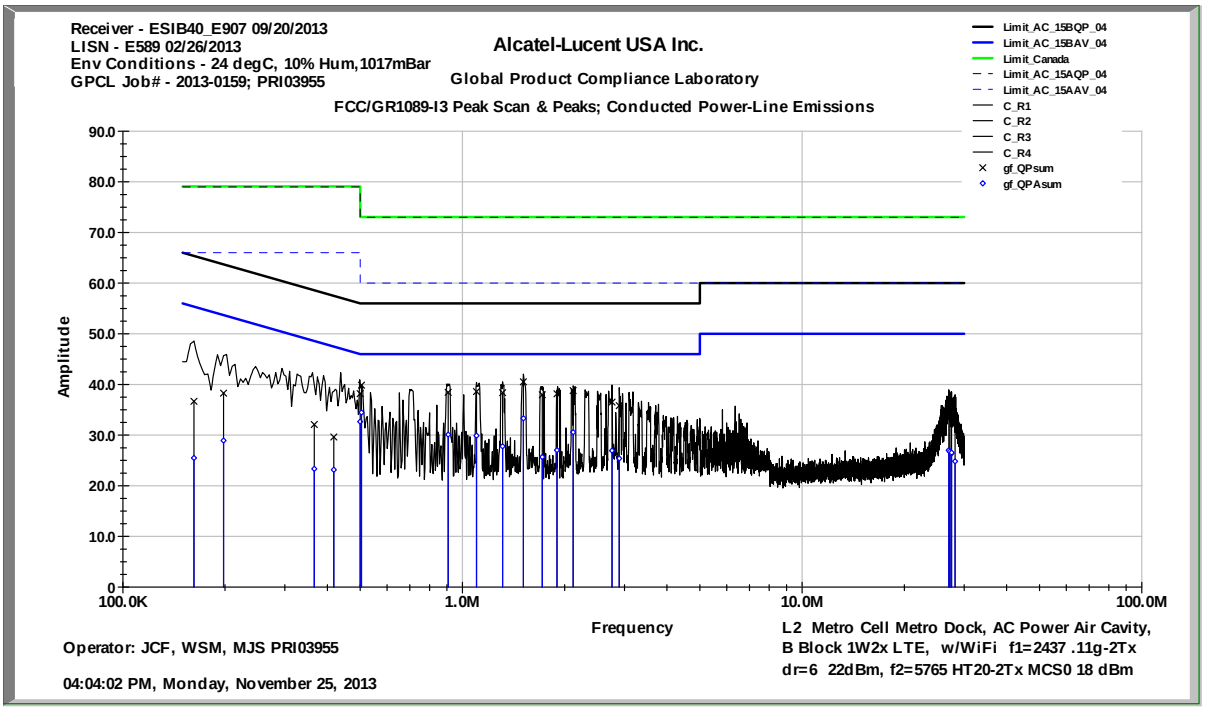

Figure 4.10.3 The Pre-Scan of Conducted Emissions on AC Power Line L2 Lead with Peak Detector.

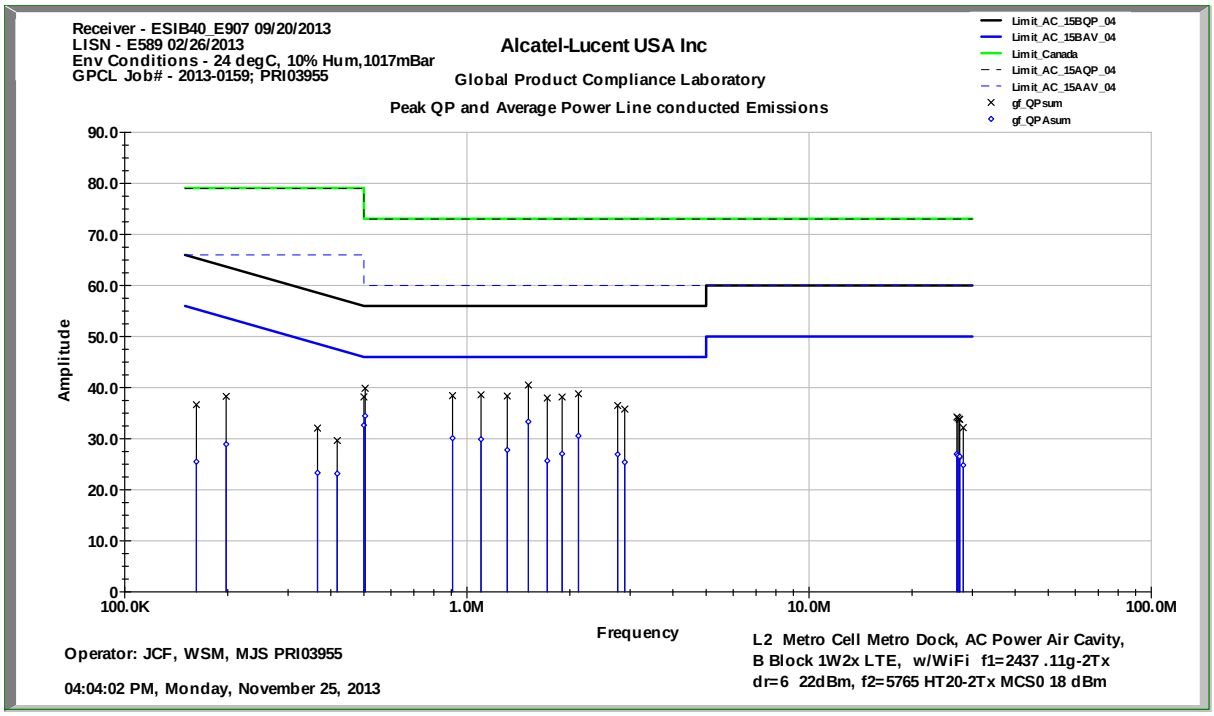

Figure 4.10.4 The Formal-Scan of Conducted Emissions on AC Power Line L2 Lead with Quisi-Peak and Average Detectors.

Results:

The AC power line conducted emissions of MCO Outdoor Metro Dock with Wi-Fi AP are below FCC 15.207 limits and FCC 15.107 Class B limits and in full compliance with the Rules of the Commission.

5. LIST OF TEST EQUIPMENT

Table 5.1 List of Test Equipment Used

Equipment	Manufacturer	Model	Serial #	Last Cal Date	Cal Cycle
MXA Signal Analyzer (20Hz-26.5GHz)	Agilent	N9020A	MY48011791	9/14/2012	15 mos
Power Supply (0-150V, 0-3.5A)	Kepco	JQE 0-150V 0-3.5A	H90565	N/A	N/A
10 dB Attenuator (DC – 18 GHz)	N/A-CCM	6193-10	2082	N/A	N/A
RF Power Meter	Hewlett Packard	437B	3110A03795	6/12/2013	12 mos
RF Power Meter	Agilent	N1912A-P	E949	1/2/2013	12 mos
Power Sensor (0.05-18 GHz Wideband)	Agilent	N1912A	E950	1/30/2013	12 mos
EMC Receiver / SA	Rohde & Schwarz	ESIB-40	E906 / 100101	6/4/2013	12 mos
Code Domain Analyzer	Agilent	E4440A PSA	E1055	5/9/2013	24 mos
6 dB Attenuator (DC-18GHz, 5 Watt)	Weinschel	2-6dB	E890	6/5/2013	12 mos
Preamplifier (1-26.5 GHz, 30dB)	Hewlett Packard	8449B	E377	7/26/2013	12 mos
Preamplifier (26.5-40 GHz, 30dB)	MiTek	JS4-26004000-27-10P	1814238	5/29/2013	12 mos
EMI Test Receiver (20Hz to 40 GHz)	Rohde & Schwarz	ESIB40	E936	6/4/2013	12 mos
Double-Ridged Horn (1-18 GHz)	ETS Lindgren	3117	E1074	11/19/2012	24 mos
Double-Ridged Horn (18-26.5 GHz)	ETS Lindgren	3116	E520	12/26/2012	24 mos
Standard Horn (26.5-40GHz)	A.H. Systems	SAS-200/573	82-11300580 E526	5/29/2013	24 mos
Bilogical Antenna (25-2000MHz)	A.H. Systems	SAS-521-2	E758	4/15/2013	24 mos
High Pass Filter (1.99-20GHz)	Trilithic	18050-1.8-KK	E989PCS HPF-12	5/15/2013	12 mos
High Pass Filter (2.85-18GHz)	Trilithic	5HC2850/18050-1.8-KK	E988/PCS-HPF-11	8/6/2013	12 mos
High Pass Filter 84300-80039	Hewlett Packard	HPF 8.2GHz	R9812-009	8/6/2013	12 mos
Low Pass Filter (10MHz-2GHz)	Trilithic	10LC1790-3-AA	E980PCS LPF-12	5/15/2013	12 mos
Directional Coupler	Hewlett	HP 772D	772D	5/15/2013	12 mos

(2-18GHz)	Packard				
6 dB Attenuator (DC-18GHz, 5W)	Weinschel		E890	6/5/2013	12 mos
10 dB Attenuator	JFW	50F-010	SG 1	N/A	N/A
MXA Signal Analyzer	Agilent	N9020A	MY51240055	11/7/2011	24 mos
Power Supply	EA Elektronik	EA-PS 87032-050 Z	H5611	N/A	N/A
Power Meter	Rohde& Schwarz	NRP-Z11	105056	8/9/12	36 mos
Directional Coupler	Narda	4244-10	08276	N/A	N/A
Power Combiner	Pulsar	PS4-09-254/3N	0924	N/A	N/A
2 Attenuators (10W, 10dB)	Radiall	R415.710.000	N/A	N/A	N/A
Attenuator (10dB)	Radiall	R412710000	9812	N/A	N/A
Attenuator (10dB)	Radiall	R412710000	9825	N/A	N/A
EMC Receiver / SA	Rohde & Schwarz	ESIB-40	E907 / 100101	9/20/2013	12 mos
LISN 50µH 0.25 µF	Solar Electronics	9348-50-R-24-BNC	E589/018809	2/26/2013	12 mos
Attenuator, Variable, DC-18 GHz	Hewlett Packard	HP 8494B	MY42140028	N/A	N/A
Attenuator, Variable, DC-18 GHz	Hewlett Packard	HP 8495B	MY42140034	N/A	N/A
Attenuator, Fixed, 25W	MCE/Weinschel	6530-6-34 LIM	BN3226	N/A	N/A
High Pass Filter	Solar Electronics	7801-10	SM1	N/A	N/A

6. FACILITIES AND ACCREDEIATION

All measurement facilities used to collect the measurement data under normal condition are located at 600-700 Mountain Avenue, Murray Hill, New Jersey 07974-0636 USA. The field strength measurements of radiated spurious emissions are made in a FCC and IC registered 10 meter semi-anechoic chamber AR8 (FCC Site Registration Number: 328881, IC Filing Number: 6933F-8). The sites were constructed and are continuously in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

All measurement facilities used to collect the frequency stability data are located at Lorenzstrasse 10, 70435 Stuttgart, Germany.

Alcatel-Lucent Global Product Compliance Laboratory is accredited with the US Department of Commerce National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 7 Code of Federal Regulations for offering test services for selected test methods in Electromagnetic Compatibility; Voluntary Control Council for Interference (VCCI), Japan; Australian Communications and Media Authority (ACMA). The laboratory is ISO 9001:2008 Certified.

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100275-0

Alcatel-Lucent, Global Product Compliance Lab
Murray Hill, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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

2012-10-01 through 2013-09-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)