INTRODUCTION:

Application for Original Equipment Certification under FCC ID: AS5BBTRX-22 for Alcatel-Lucent Remote Radio Head (RRH) 4x30W Base Station, Operating in the Miscellaneous Wireless Communications Services, 1930-1995 MHz, with LTE Technology.

In accordance with Parts 2 and 24 of the Commission's Rules and Regulations, we are submitting data to show compliance with the requirements of the Commission for the certification of the Alcatel-Lucent B25 RRH 4X30, henceforth RRH 4x30, under FCC ID AS5BBTRX-22, for operation in the domestic PCS A, D, B, E, F, C and G bands (1930-1995 MHz), i.e., E-UTRAN band 25, with Long Term Evolution (LTE) technology.

The RRH 4x30 has four antenna ports. The RRH 4x30 supports 2x60W MIMO with 2 transmit and 2 receive streams or 4x30W MIMO with 4 transmit and 4 receive streams. The maximum output power of the 2x60 or 4x30 configurations is 120 watts or 50.8dBm per unit. The RRH 4X30 was powered by a DC power supply with -48VDC.

The RRH 4x30 consists of a Control Unit board (CU), Power Amplifier Board (PA), Power Module and RF Filter.

TEST REPORT

SUB-EXHIBIT 11.1

MEASUREMENT PER SECTION 2.1033 (C) (14) OF THE RULES

SECTION 2.1033 (c) (14)

The data required by Section 2.1046 through 2.1057, inclusive, measured in accordance with the procedures set out in Section 2.1041.

RESPONSE:

The following pages include the data required for the **AS5BBTRX-22**, measured in accordance with the procedures set out in Section 2. 1033(c)(14) of the Rules.

Each required measurement and its corresponding exhibit number are:

Sub-Exhibit 11.2	Section 2.1046 24.232(d)	RF Power Output - See Sub-Exhibit 4 Peak-to-Average ratio (PAR)
Sub-Exhibit 11.3	Section 2.1047	Modulation Characteristics
Sub-Exhibit 11.4	Section 2.1049 24.238 (b)	(a) Emissions Bandwidth (b) Occupied Bandwidth/Band Edge spurious Emissions
Sub-Exhibit 11.5	Section 2.1051 24.238 (a)	Spurious Emissions at Antenna Terminals
Sub-Exhibit 11.6	Section 2.1053 24.238	Field Strength of Spurious Radiation
Sub-Exhibit 11.7	Section 2.1055	Measurement of Frequency Stability
Sub-Exhibit 11.8	Section 2.947 (d)	Test Instruments Used for Test – See Test Report

Sub-Exhibit 11.2

FCC Section 2.1046
RF Power output

Refer to **Sub-Exhibit 11.4** Occupied Bandwidth Measurements. During that measurement RF Output was continuously monitored.

Sub-Exhibit 11.3

FCC Section 2.1047
Modulation Characteristics
&
Measurement of Peak-to-Average ratio (PAR)

Section 2.1047
Modulation Characteristics

The modulation techniques used are explained in the submission as part section 2.1033 (c) (13). The RF signal at the antenna port was demodulated and verified for correctness of modulation signal used before each test was performed. The attached plots of graphs show the modulation components: In phase (I) and Quadrature (Q) components.

(1) Quadrature Phase Shift Keying (QPSK) modulation scheme uses 2 bits are transmitted simultaneously (one per channel) and a symbol can be represented by 2 bits. Therefore there are $2^2 = 4$ states (Binary 00 to 11). The theoretical bandwidth is 2bits/second/Hz.

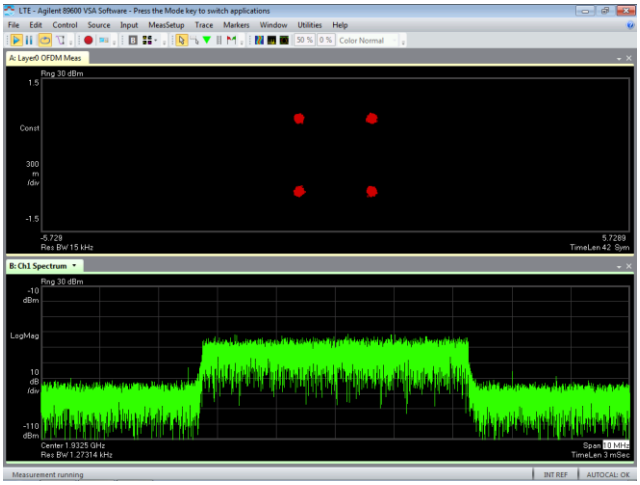
(2) 16 Quadrature amplitude modulation (QAM): In 16QAM, there are 16-states. There are four I values and four Q values, therefore 4 bits are available for represent a symbol. Therefore there are $2^4 = 16$ states (Binary 0000 to 1111). The theoretical bandwidth is 4bits/second/Hz.

(3) 64 Quadrature amplitude modulation (QAM): 64QAM is similar to 16QAM, there will be 64 states and 6 bits are available to represent a symbol.

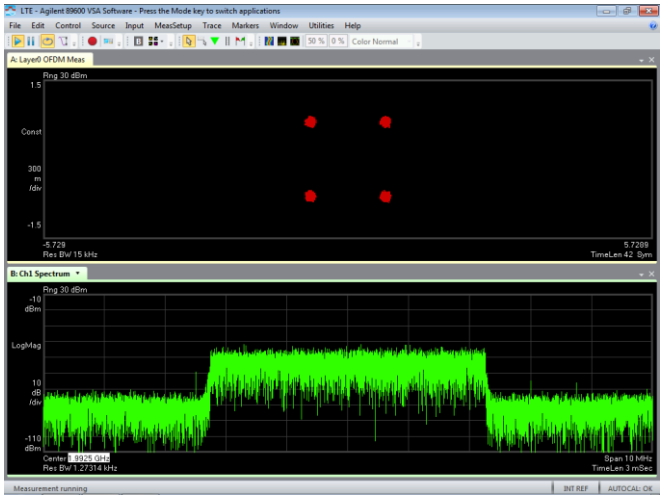
Measurement of Peak-to-Average ratio (PAR)

The peak-to-average (PAR) has been verified per KDB 971168 procedures for the peak-to-averages ratio at 0.1% probability. The PAR does not exceed 13 dB.

QPSK (5 MHz BW)
1932.5 MHz - 30 watts
1992.5 MHz – 60 Watts

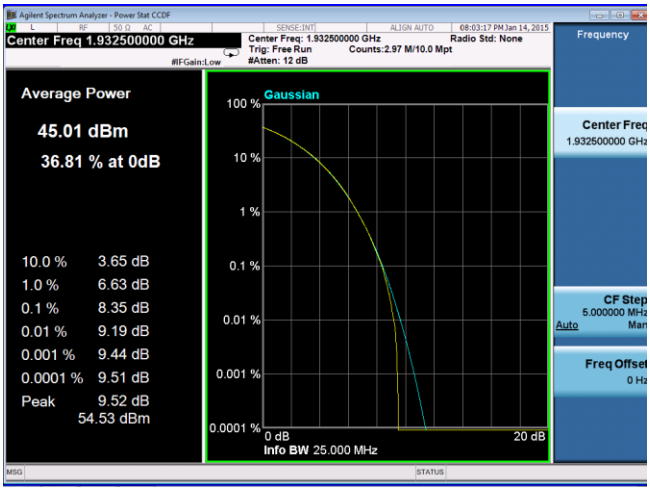


B25 RRH 4X30
FCC Part 24
Block: A (1930-1935 MHz)
PWR: 30W (4x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

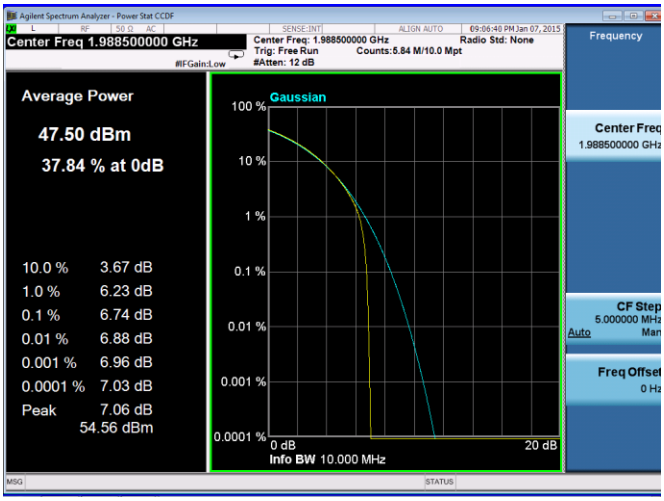


B25 RRH 4X30
FCC Part 24
Block: G (1990-1995 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

Peak to Average
QPSK (5 MHz BW)
1932.5 MHz - 30 watts
1988.5 MHz – 60 Watts

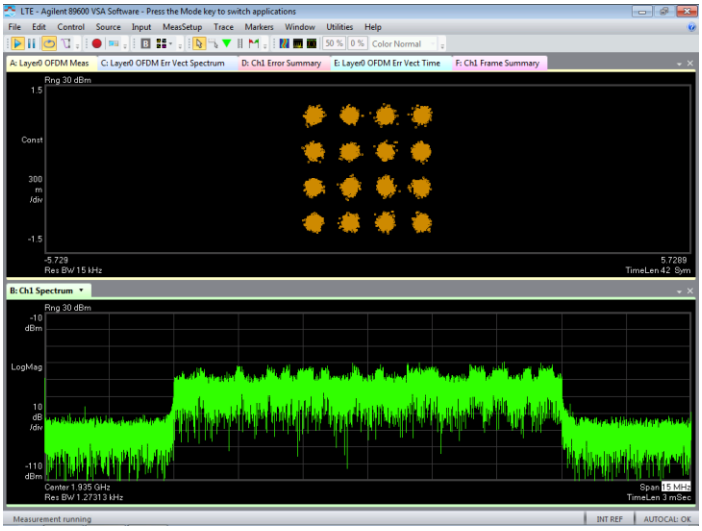


B25 RRH 4X30
FCC Part 24
Block: A (1930-1935 MHz)
PWR: 30W (4x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

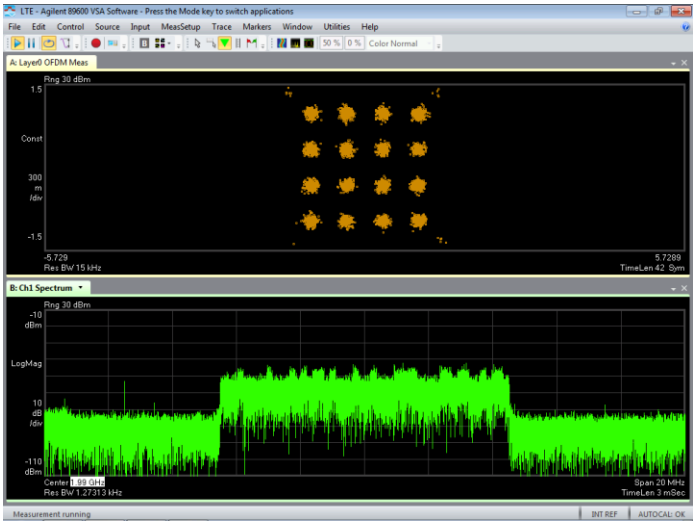


B25 RRH 4X30
FCC Part 24
Block: C2 (1985-1990 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

16QAM (10 MHz BW)
1935 MHz - 60 watts
1990 MHz – 30 Watts

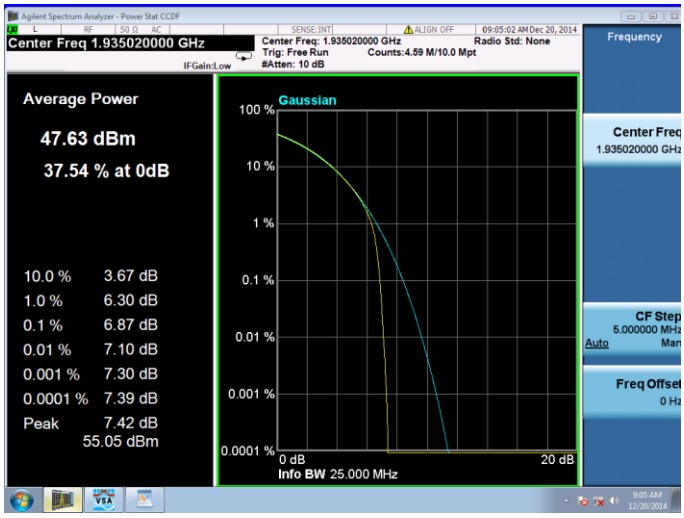


B25 RRH 4X30
FCC Part 24
Block: A (1930-1940 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

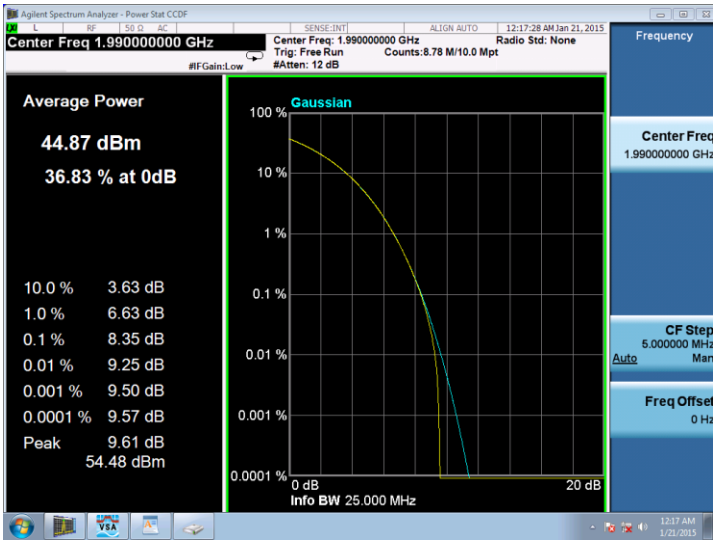


B25 RRH 4X30
FCC Part 24
Block: C2+G (1985-1995 MHz)
PWR: 30W (4x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

Peak to Average
16QAM (10 MHz BW)
1935 MHz - 60 watts
1990 MHz – 30 Watts

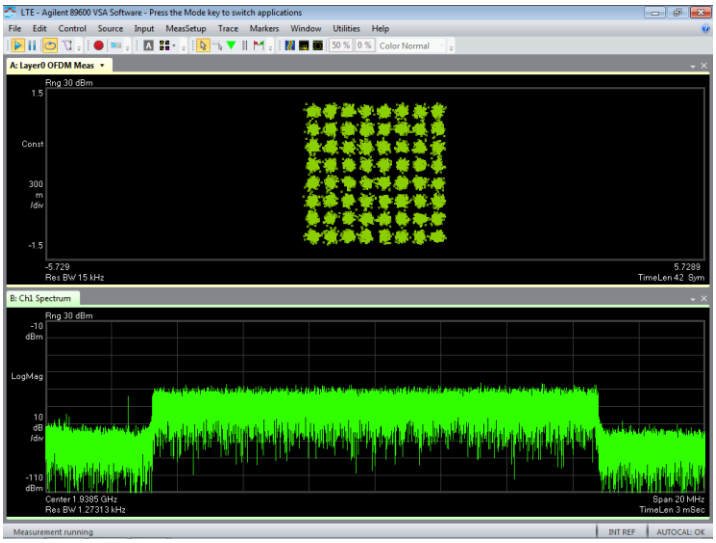


B25 RRH 4X30
FCC Part 24
Block: A (1930-1940 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

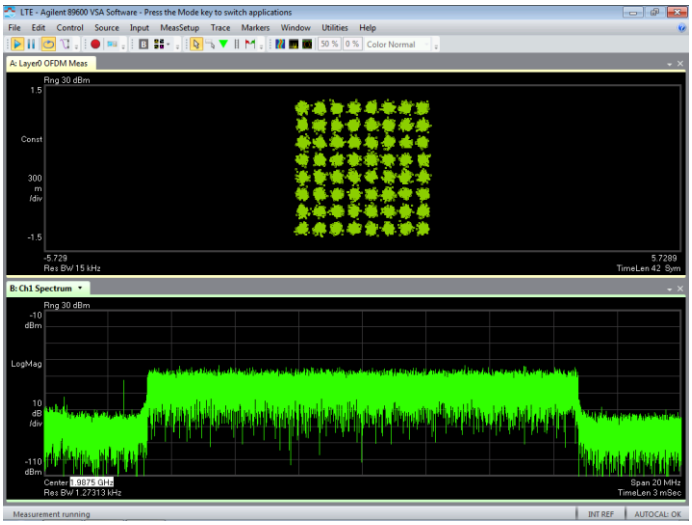


B25 RRH 4X30
FCC Part 24
Block: C2+G (1985-1995 MHz)
PWR: 30W (2x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

64QAM (15 MHz BW)
1937.5 MHz - 30 watts
1987.5 MHz – 60 Watts

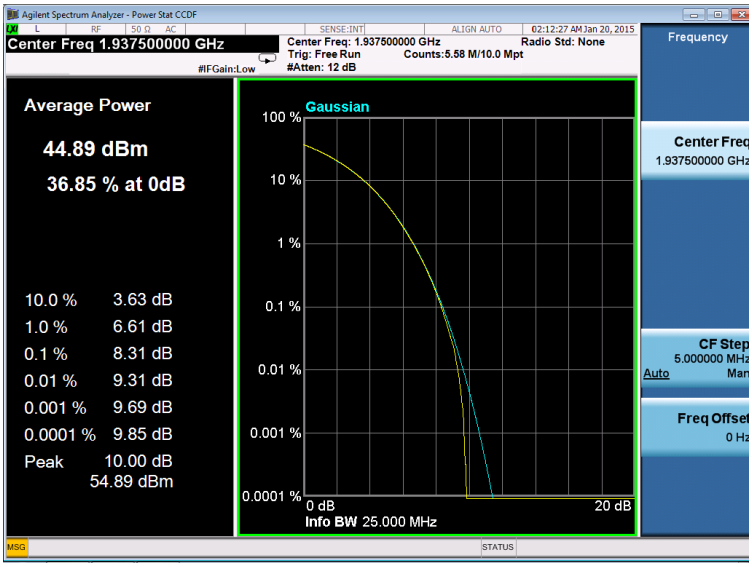


B25 RRH 4X30
FCC Part 24
Block: A (1930-1945 MHz)
PWR: 30W (4x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

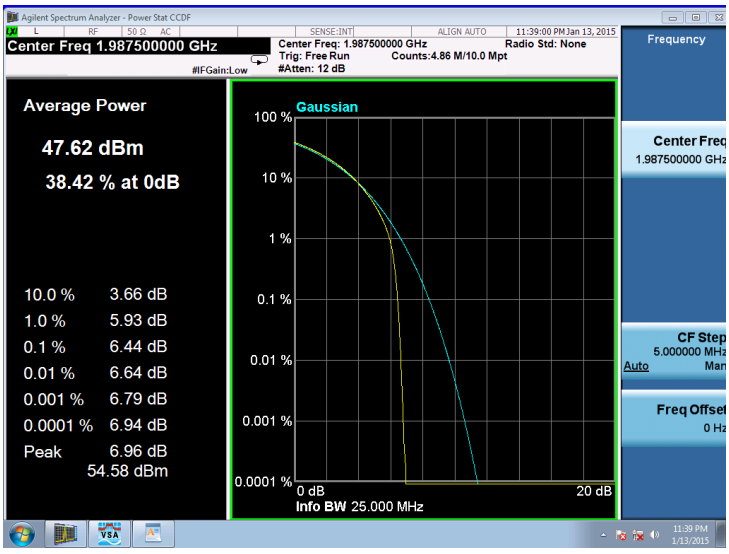


B25 RRH 4X30
FCC Part 24
Block: C+G (1980-1995 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

Peak to Average
64QAM (15 MHz BW)
1937.5 MHz - 30 watts
1987.5 MHz – 60 Watts



B25 RRH 4X30
FCC Part 24
Block: A (1930-1945 MHz)
PWR: 30 (4x30W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG



B25 RRH 4X30
FCC Part 24
Block: C+G (1980-1995 MHz)
PWR: 60W (2x60W MIMO)
FCCID: AS5BBTRX-22
TEST ENGINEER: SEG

Sub-Exhibit 11.4

FCC Section 2.1049

(a) Emissions Bandwidth Measurement
(b) Occupied Bandwidth Measurement showing spurious Emissions **close to Block edges.**

Emissions Bandwidth Measurement

FCC approved two (2) measurement methods for Emissions Bandwidth.

(A) 99% Power Bandwidth.
(B) 26dB Bandwidth

The 26dB bandwidth method was used to measure the bandwidth at different modulations and highest is recorded. The modulations used are:

1. QPSK
2. 16 QAM
3. 64 QAM

The Highest measured 99% Power Bandwidth was used for Emissions type designation. The measured bandwidth was 4.70 MHz for a 5 MHz Bandwidth carrier, 9.32 MHz for a 10 MHz Bandwidth carrier and 14.26 MHz for a 15 MHz Bandwidth carrier.
Therefore, Emission designators are: 4M70F9W for 5 MHz Bandwidth, 9M32F9W for 10 MHz Bandwidth, and 14M26F9W for 15 MHz Bandwidth.

MEASUREMENT OF EMISSIONS BANDWIDTH
26dB BANDWIDTH

(b) **MEASUREMENT OF EMISSIONS BANDWIDTH**

The occupied bandwidth of the Long Term Evolution (LTE) is measured using a Rohde & Schwarz ESU Spectrum Analyzer/Receiver. The emissions bandwidth is specified in FCC Part 24.238.

The measurements were made on a "**B25 RRH 4X30"** for 5 MHz, 10 MHz and 15 MHz bandwidths in the following modulations:

1. QPSK
2. 16 QAM
3. 64 QAM

Results:
The worst case plots are provided for following bandwidths: 5 MHz, 10 MHz and 15 MHz

The worst case measured 26dB emissions bandwidth is:

Nominal BW	Maximum BW Measured (MHz)
15 MHz 30 Watts	14.26 MHz
10 MHz 30 Watts	9.32 MHz
5 MHz 30 Watts	4.70 MHz

Channel Lists

5 MHz	10 MHZ	15 MHz
50 (1932.50)	100 (1935.0)	170 (1937.50)
250 (1942.50)	200 (1940.0)	570 (1958.50)
350 (1947.50)	500 (1955.0)	770 (1968.50)
450 (1952.50)	600 (1960.0)	1050 (1982.50)
650 (1962.50)	770 (1968.50)	1150 (1987.50)
750 (1967.50)	1070 (1983.50)	
850 (1972.50)	1170 (1990)	
950 (1977.50)		
1150 (1987.50)		
1250 (1992.50)		

5 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

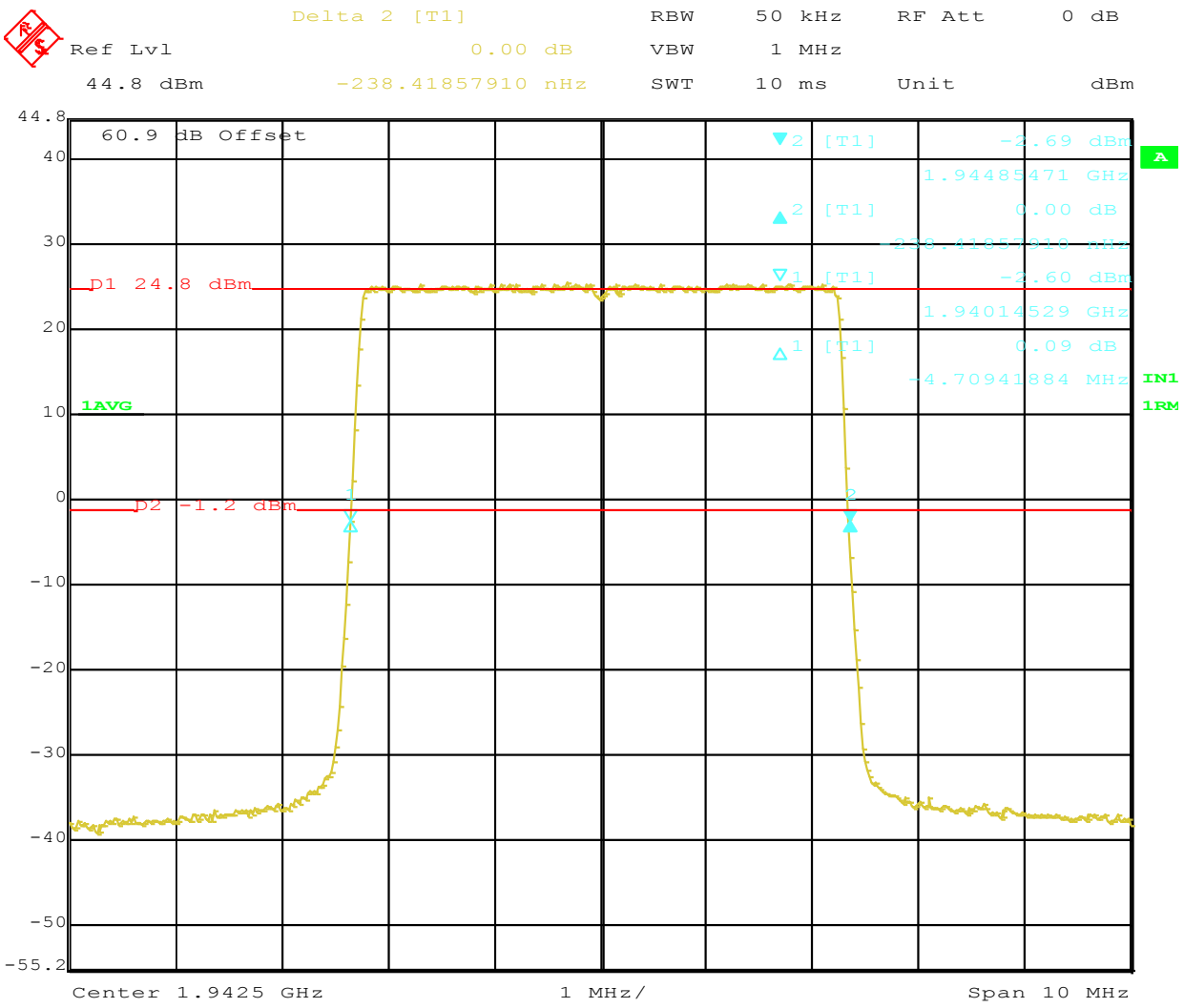
Block: A

Channel: 250

5 MHz Bandwidth (1940-1945 MHz)

4x30 watts (MIMO)

(26dB Bandwidth)



Title: 26dB BANDWIDTH; TEST ENGINEER: JY
Comment A: RRH 4X30 B25; 1942.5 MHz; 5 MHz BW.
Date: 14.JAN.2015 08:14:17

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

10 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

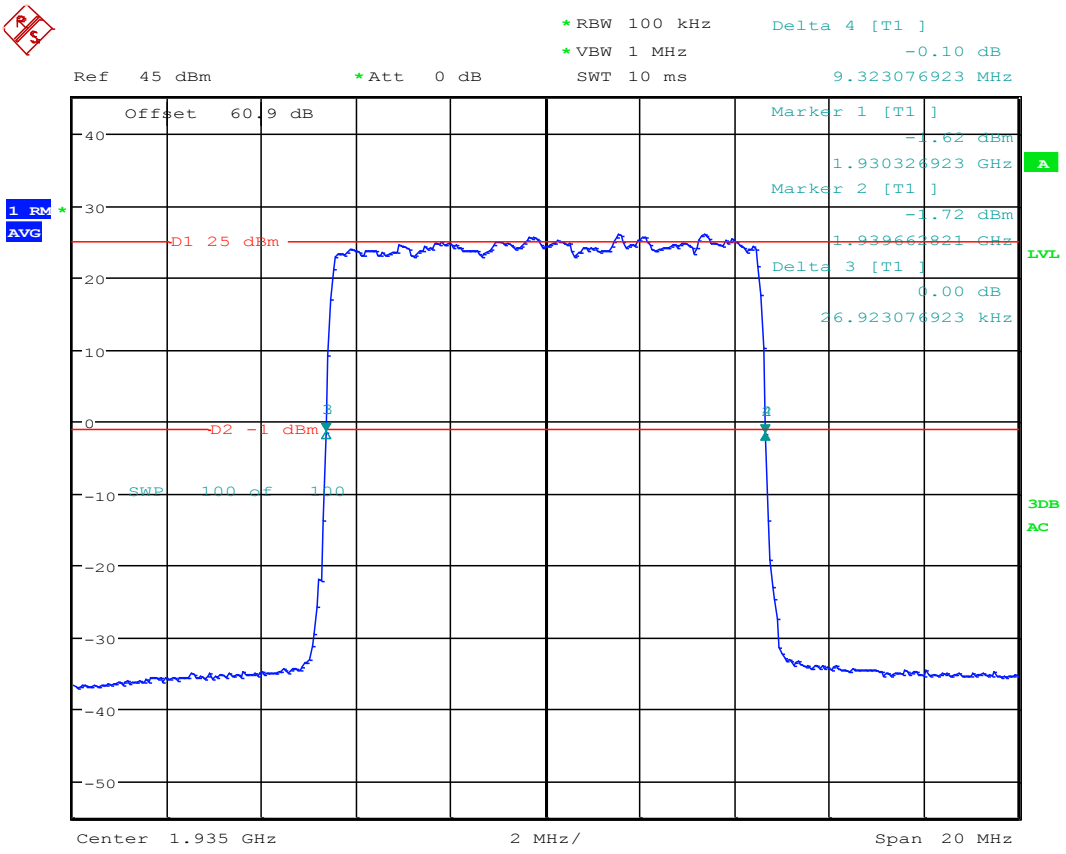
Block: A

Channel: 100

10 MHz Bandwidth (1930-1940 MHz)

4x30 watts (MIMO)

(26dB Bandwidth)



26dB BANDWIDTH: TEST ENGINEER: JY

RRH 4X30 B25; BLK:A+B; 1935 MHz; 10 MHz BW

Date: 19.DEC.2014 18:47:24

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

10 MHz BANDWIDTH DATA
2x60W MIMO CONFIGURATION

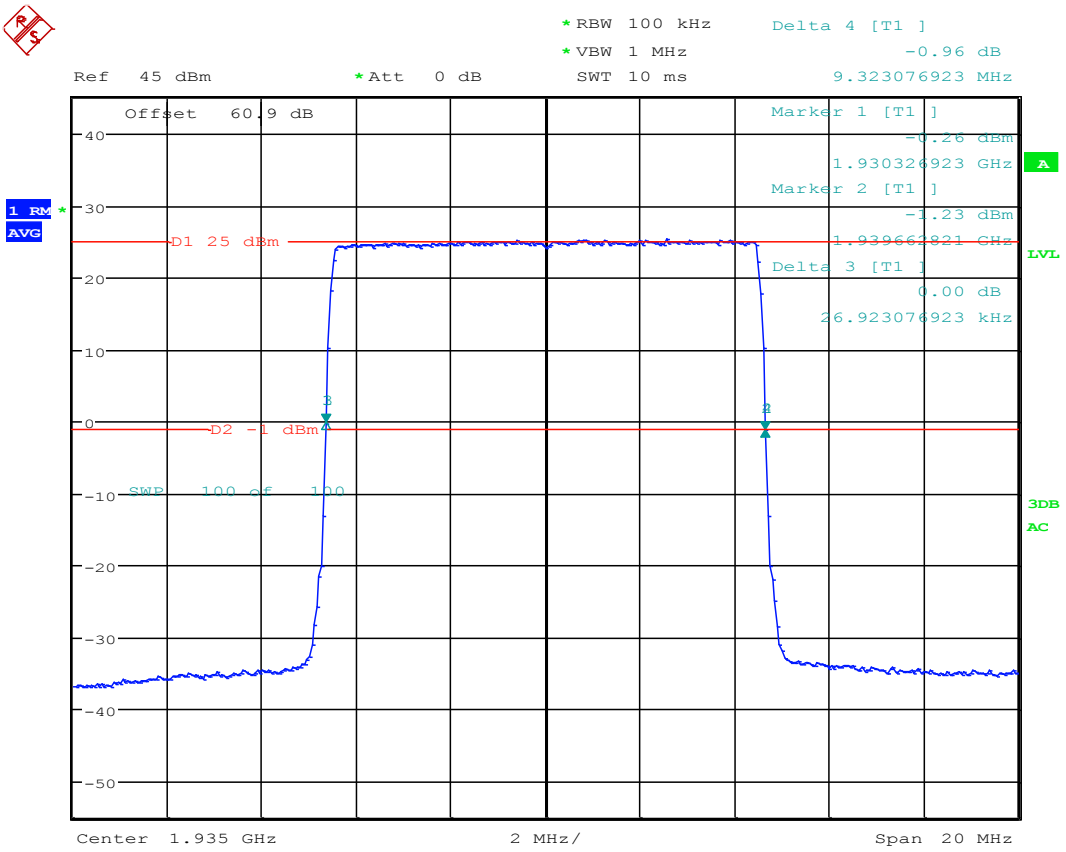
Block: A

Channel: 100

10 MHz Bandwidth (1930-1940 MHz)

2x60 watts (MIMO)

(26dB Power Bandwidth)



26dB BANDWIDTH: TEST ENGINEER: JY

RRH 4X30 B25; BLK:A+B; 1935 MHz; 10 MHz BW

Date: 19.DEC.2014 19:22:28

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

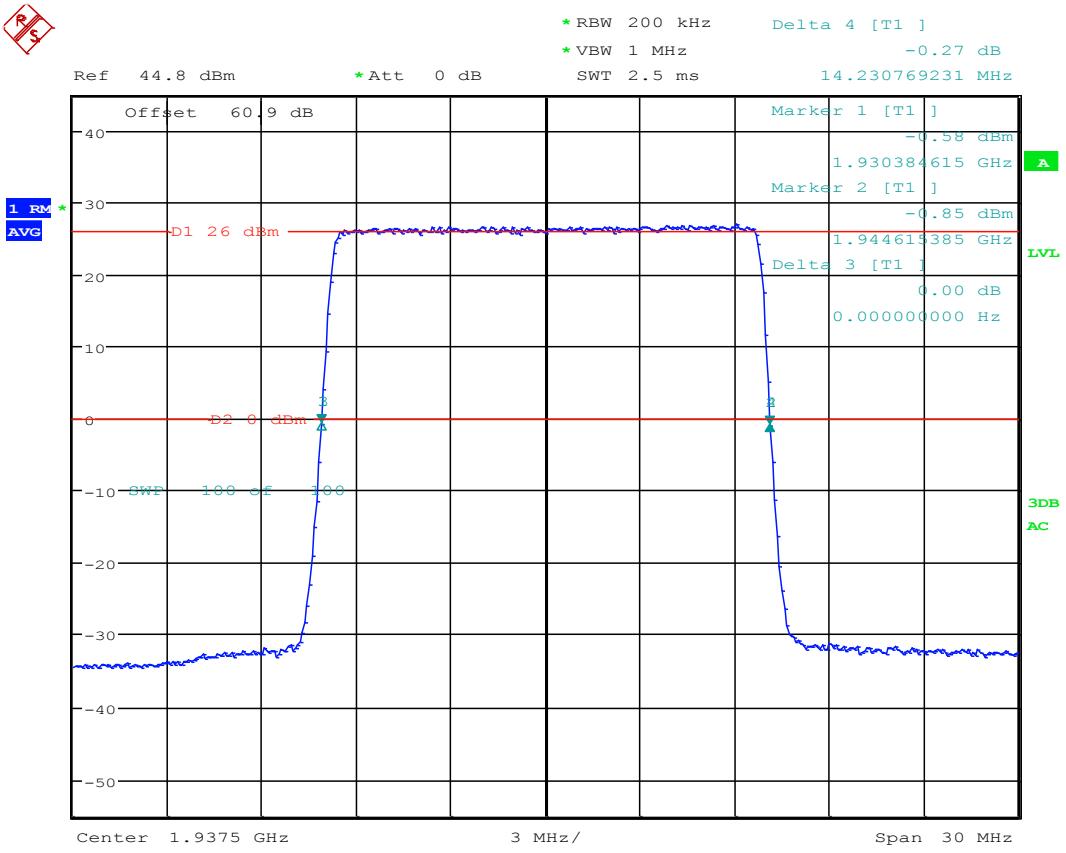
Block: A

Channel: 170

15 MHz Bandwidth (1930 -1945 MHz)

4x30 watts (MIMO)

(26dB Bandwidth)



26 dB BANDWIDTH: TEST ENGINEER: JY

RRH 4X30 B25; 1937.5 MHz; 15 MHz BW

Date: 19.JAN.2015 14:18:01

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz BANDWIDTH DATA
2x60W MIMO CONFIGURATION

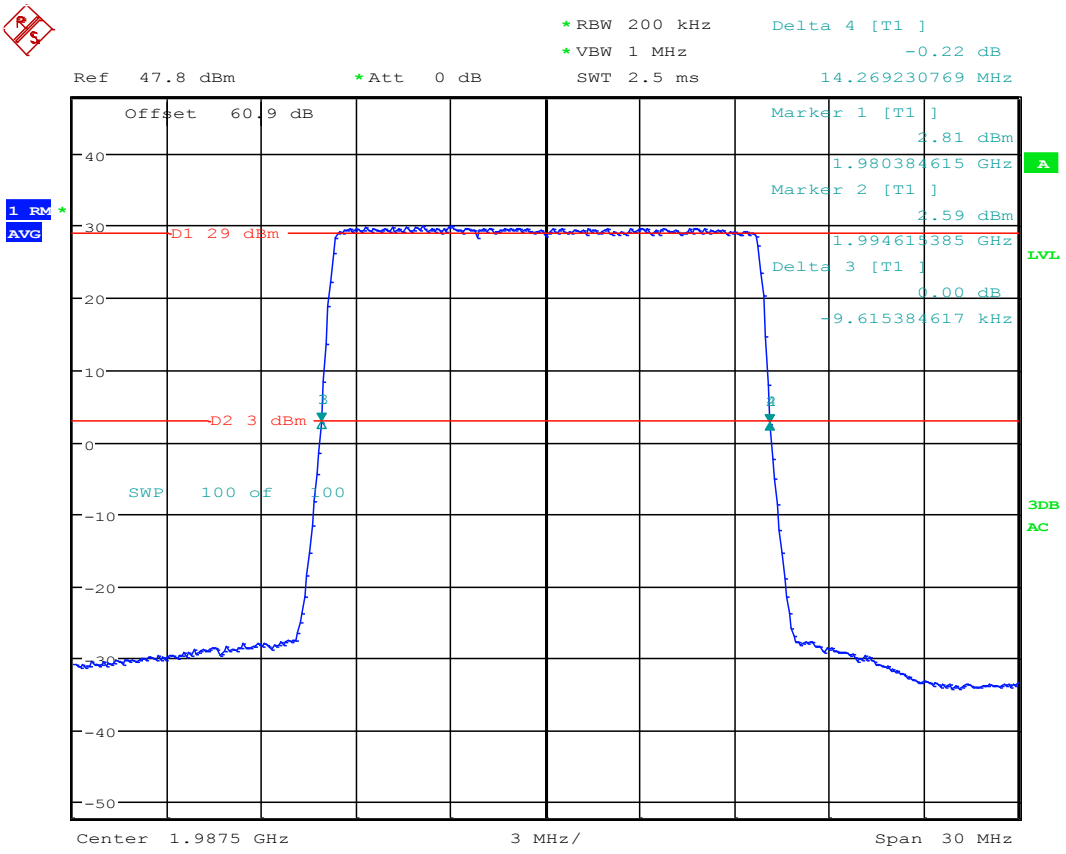
Block: C1+C2+G

Channel: 1150

15 MHz Bandwidth (1980 -1995 MHz)

2x60 watts (MIMO)

(26dB Power Bandwidth)



26 dB BANDWIDTH: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 19.JAN.2015 09:14:21

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

MEASUREMENT OF SPECTRUM MASK/OCCUPIED BANDWIDTH (1MHz ADJACENT TO CHANNEL EDGE)

Section 24.238 (b)

MEASUREMENT OF SPECTRUM MASK
OCCUPIED BANDWIDTH

The Spectrum mask close to the center of the carrier frequency (Occupied bandwidth) of the Long Term Evolution (LTE) was measured using a Rohde & Schwarz ESI Spectrum Analyzer/Receiver. The RF power level was measured using RF power meter as shown in the test setup in Figure A. The RF output from the LTE EAC port to spectrum analyzer was reduced (to an amplitude usable by the spectrum analyzer) by using calibrated attenuator(s) and RF directional coupler. This combined attenuation was offset on the display and the signal for single carrier was adjusted to the corrected RF power level using 50 kHz resolution bandwidth for 5 MHz, 100 kHz for 10 MHz, and 200 kHz for 15 MHz wide transmit signals respectively. While adjusting the corrected RF power level in the spectrum analyzer, the attenuator and resolution BW of spectrum analyzer were considered.

The measurements were made on a "**B25 RRH 4x30"**.

The reference line on the spectrum analyzer display corresponds to level measured by the RF power meter. Occupied Bandwidth plots were made at antenna terminals for an output of both 60 Watts (47.8 dBm)/carrier and 30 Watts (44.8 dBm)/carrier.

The carrier frequencies and blocks measured were provided at the bottom of each plot. The output signals at the antenna terminal were plotted for each frequency/block. The B25 4x30 RRHs are capable of operating in the band of 1930 MHz to 1995 MHz (Blocks A, D, B, E, F, C and G). The Base station presently tested was configured to operate at 5, 10 and 15 MHz Bandwidths, respectively. The carrier frequencies, Blocks and bandwidth evaluated for a single carrier were listed in the Table below, where the carrier frequencies at the lowest and highest available channel in each block were chosen. The tests were performed for QPSK, 16QAM and 64QAM modulations.

Block edge requirements:

FCC Section 24.238(b): Based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Pursuant to FCC KDB 662911 D01 and D02 for MIMO mode of operations, the FCC limit of -13 dBm shall be 3 dB more stringent for two antennas and 6dB for four antennas. Therefore the limits for all channel edge and out of band spurious emissions shall be -16dBm for 2x60W configuration and -19dBm for 4x30W configuration, respectively.

One emission plot is submitted for each 5MHz carrier, 10MHz carrier and 15MHz carrier, respectively, which has the least margin among all PCS channels with QPSK, 16QAM or 64QAM modulations evaluated.

Results:

The measurement results demonstrate the full compliance with the Rules of the Commission at **FCC Part 24.238 (b)**

The FCC requirements are tabulated in the following table, where MIMO requirement/margin is not included.

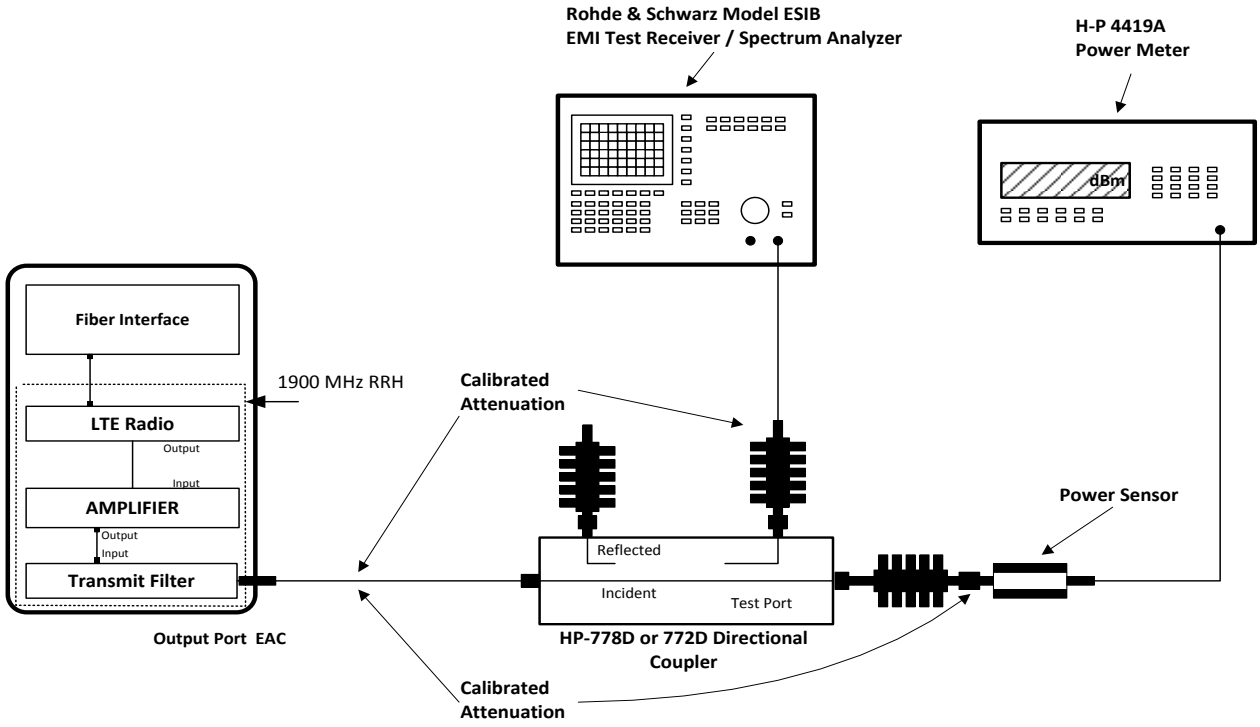
FCC Part 24.238 Transmitter Unwanted Emission Limits

Frequency	**Required Minimum Attenuation below the Mean Carrier Power P**	**Minimum Resolution Bandwidth of Spectrum Analyzer**
1MHz Bands Immediately Outside the Transmitting Frequency Band	(43 + P dBW) dBc	50 kHz for 5MHz carrier 100 kHz for 10 MHz carrier 200 kHz for 15 MHz carrier
Outside the above Frequency Range	(43 + P dBW) dBc	1 MHz

The list of carriers tested is provided below:

5 MHz	10 MHZ	15 MHz
50 (1932.50)	100 (1935.0)	170 (1937.50)
250 (1942.50)	200 (1940.0)	570 (1958.50)
350 (1947.50)	500 (1955.0)	770 (1968.50)
450 (1952.50)	600 (1960.0)	1050 (1982.50)
650 (1962.50)	770 (1968.50)	1150 (1987.50)
750 (1967.50)	1070 (1983.50)	
850 (1972.50)	1170 (1990)	
950 (1977.50)		
1150 (1987.50)		
1250 (1992.50)		

Figure A. TEST CONFIGURATION FOR SPECTRUM MASK (OCCUPIED BANDWIDTH)



All components are calibrated over the frequency range of interest

5 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

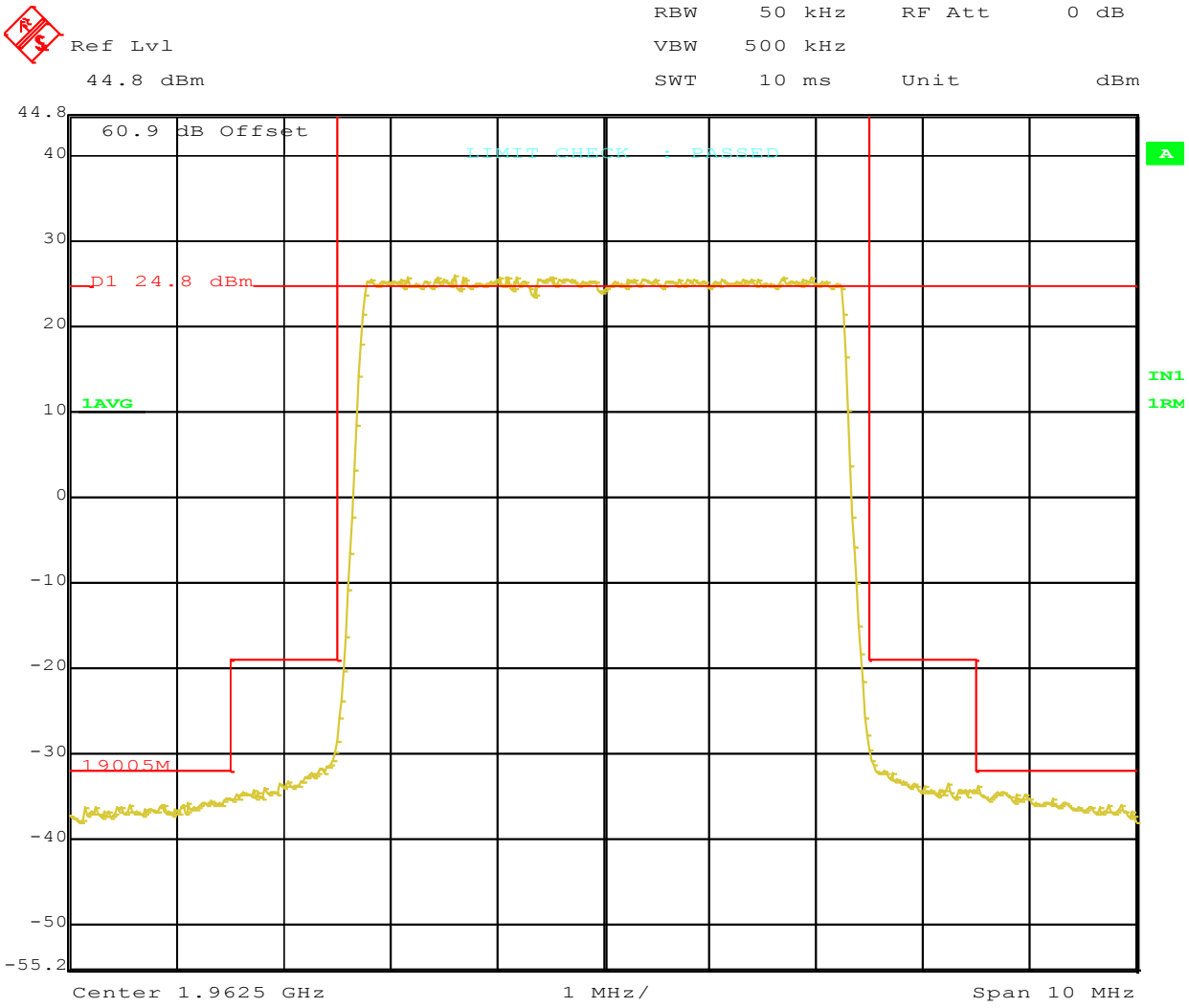
Block: B

Channel 650

5 MHz Bandwidth (1960-1965 MHz)

4x30 watts (MIMO)

SPECTRUM MASK/OCCUPIED BANDWIDTH



Title: OCCUPIED BANDWIDTH; TEST ENGINEER: SEG
Comment A: RRH 4X30 B25; 1962.5 MHz; 5 MHz BW.
Date: 15.JAN.2015 05:52:00

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

10 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

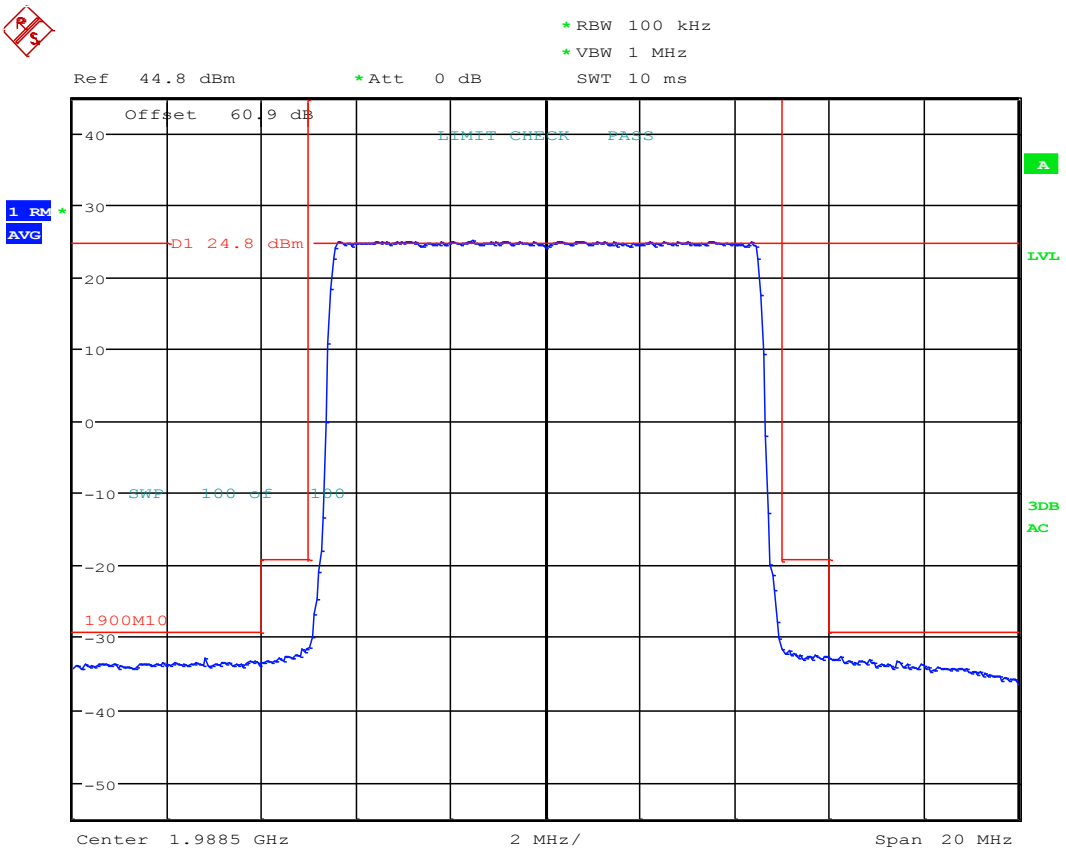
Block: G

Channel 1170

10 MHz Bandwidth (1983.5 -1993.5 MHz)

4x30 watts (MIMO)

SPECTRUM MASK/OCCUPIED BANDWIDTH



OCCUPIED BANDWIDTH: TEST ENGINEER: SEG

RRH 4X30 B25; 1988.5 MHz; 10 MHz BW

Date: 6.JAN.2015 15:42:18

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

10 MHz BANDWIDTH DATA
2x60W MIMO CONFIGURATION

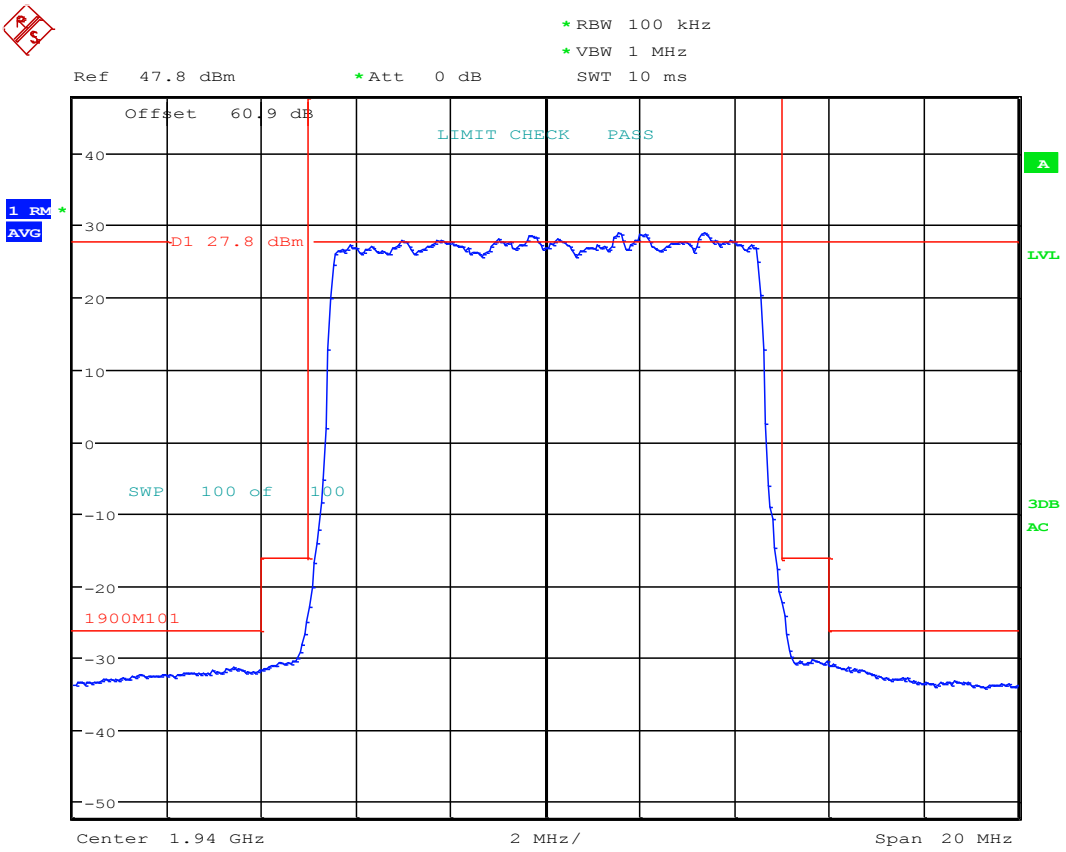
Block: A

Channel 200

10 MHz Bandwidth (1935-1945 MHz)

2x60 watts (MIMO)

SPECTRUM MASK/OCCUPIED BANDWIDTH



OCCUPIED BANDWIDTH: TEST ENGINEER: JY

RRH 2X60 B25; 1940 MHz; 10 MHz BW

Date: 19.DEC.2014 21:51:03

Carrier Power: 60 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz OCCUPIED BANDWIDTH DATA
4x30W MIMO CONFIGURATION

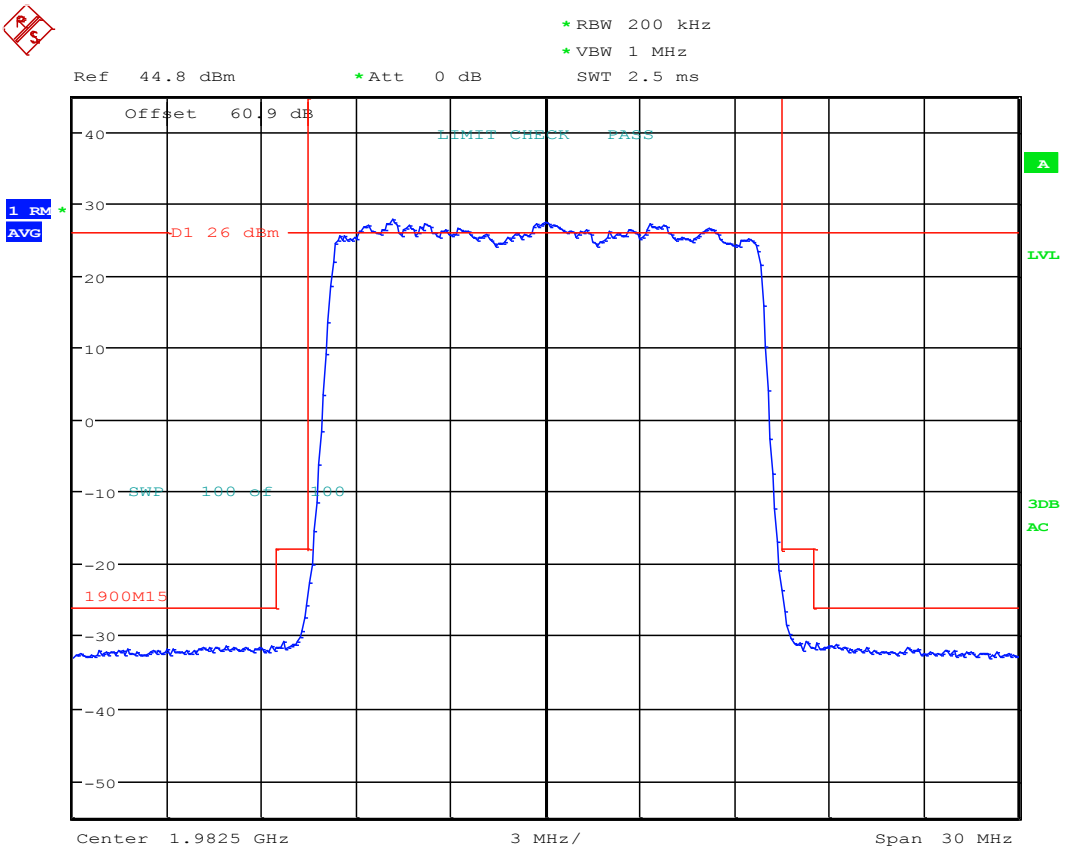
Block: C1+C2

Channel 1050

15 MHz Bandwidth (1975 -1990MHz)

4x30 watts (MIMO)

SPECTRUM MASK/OCCUPIED BANDWIDTH



OCCUPIED BANDWIDTH: TEST ENGINEER: JY

RRH 4X30 B25; 1982.5 MHz; 15 MHz BW

Date: 13.JAN.2015 07:55:19

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz OCCUPIED BANDWIDTH DATA
2x60W MIMO CONFIGURATION

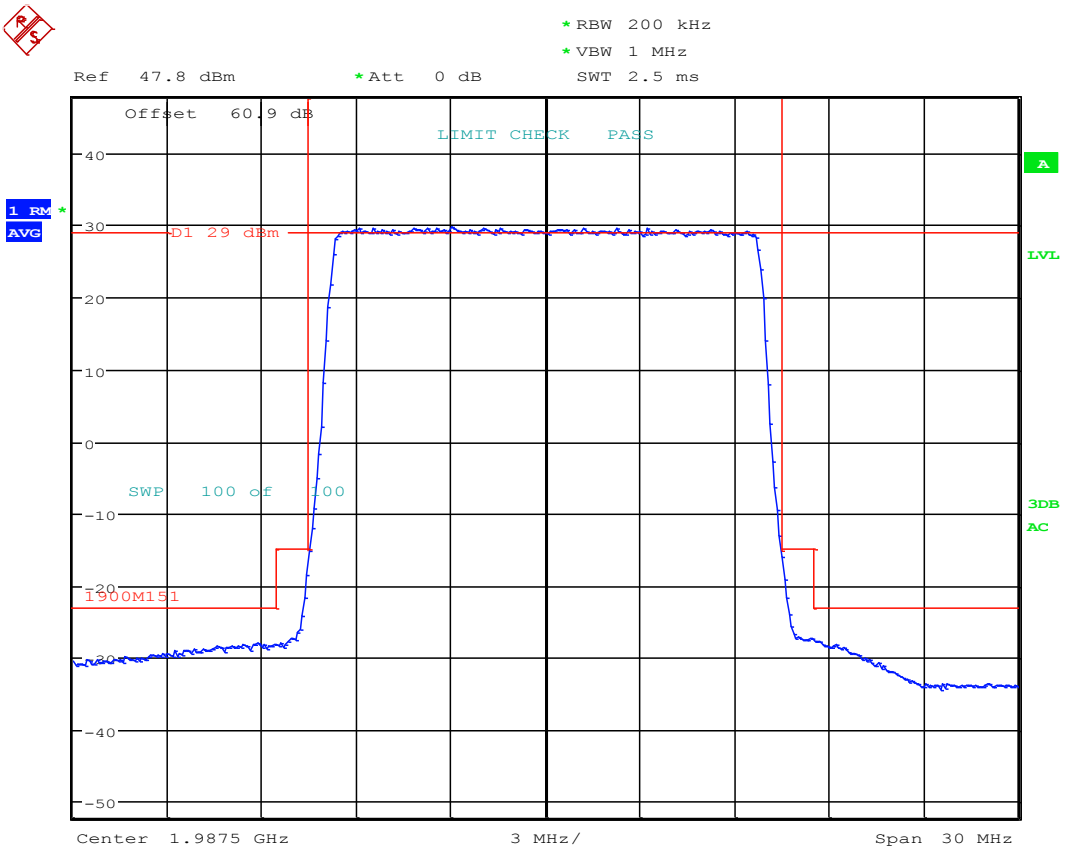
Block: C1+C2+G

Channel 1150

15 MHz Bandwidth (1980 -1995MHz)

2x60 watts (MIMO)

SPECTRUM MASK/OCCUPIED BANDWIDTH



OCCUPIED BANDWIDTH: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 10:17:07

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

Sub-Exhibit 11.5

FCC Section 2.1051 and 24.238 (a)
Spurious Emissions at Antenna Transmit Terminals

MEASUREMENT OF
SPURIOUS EMISSIONS
AT TRANSMIT ANTENNA PORT
FCC 24.238 (a)

Spurious Emissions at Transmit Antenna Terminals

Spurious Emissions at the transmit-antenna terminals were investigated over the frequency range of 10 kHz to the 20 GHz. The test setup is as described in Figure B. Measurements were made using a Rohde & Schwarz ESU (10 kHz to 40 GHz) EMI Test receiver. The RF output from the transmitter was reduced (to an amplitude usable by the receivers) using calibrated attenuators. The RF power level was continuously monitored via RF Power Meter as shown in the test setup in Figure B. The required emission limitation is specified in 24.238(a). Measurements were made at 60W per carrier for 10 MHz and 15 MHz Bandwidths, and at 30 Watts per carrier for 5MHz, 10 MHz and 15 MHz bandwidths at antenna terminals. The measured spurious emission levels were plotted for the frequency range 10 kHz to 20 GHz. The measurements were made using following receiver parameters:

Frequency Range	Resolution Bandwidth
10 kHz to 30 MHz	10 kHz
30 MHz to 1 GHz	100 kHz
1 GHz to 20 GHz	1 MHz

The list of carriers tested is provided below:

	10 MHZ	15 MHz
50 (1932.50)	100 (1935.0)	170 (1937.50)
250 (1942.50)	200 (1940.0)	570 (1958.50)
350 (1947.50)	500 (1955.0)	770 (1968.50)
450 (1952.50)	600 (1960.0)	1050 (1982.50)
650 (1962.50)	770 (1968.50)	1150 (1987.50)
750 (1967.50)	1070 (1983.50)	
850 (1972.50)	1170 (1990)	
950 (1977.50)		
1150 (1987.50)		
1250 (1992.50)		

FCC Section 24.238)(a) Based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

Pursuant to FCC KDB 662911 D01 and D02 for MIMO mode of operations, the FCC limit of -13dBm shall be 3dB more stringent for two antennas and 6dB for four antennas. Therefore the out of band spurious emissions limits shall be -16dBm for 2x60W configuration and -19dBm for 4x30W configuration, respectively.

The tests were performed for 5 MHz, 10 MHz, and 15 MHz bandwidths with the following modulations:

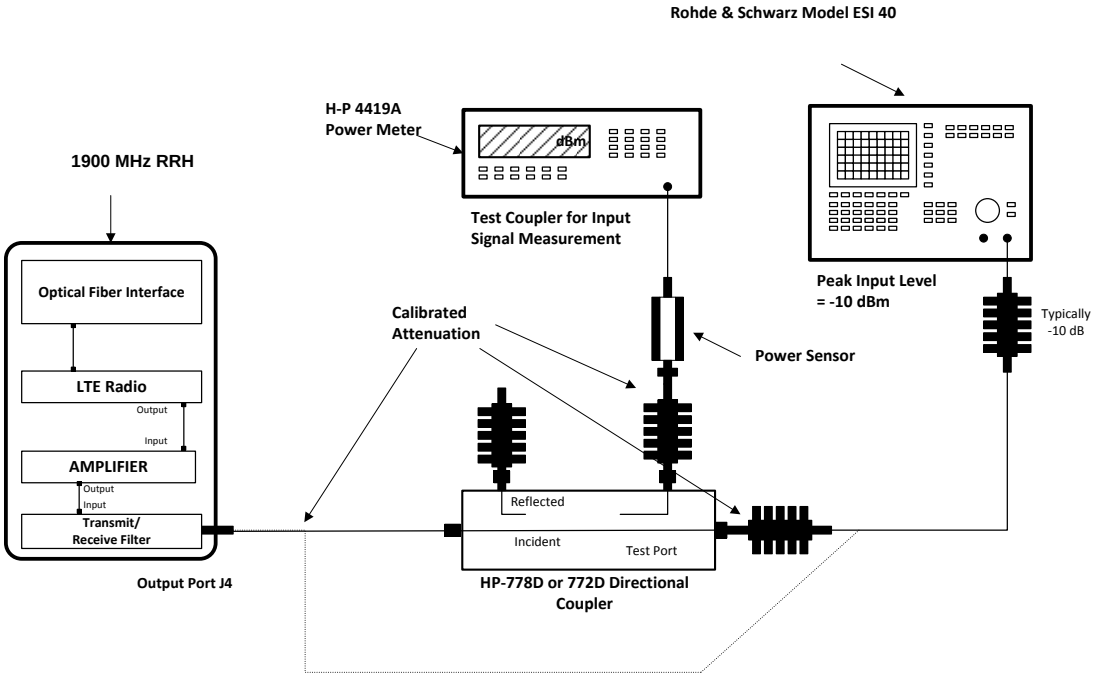
A. QPSK
B. 16 QAM
C. 64 QAM

RESULTS:

The worst case plots are provided for following bandwidths: 5 MHz, 10 MHz and 15 MHz
The magnitude of spurious emissions is within the specification limits of FCC Part 24.238 (a).

Measurement uncertainty:
9 kHz to 20 MHz: Frequency = 10 Hz, Amplitude = 0.5 dB
20 MHz to 1 GHz: Frequency = 100Hz, Amplitude = 0.5 dB
1 GHz to 10 GHz: Frequency = 10 kHz, Amplitude = 0.5 dB

Figure B. TEST CONFIGURATION FOR CONDUCTED SPURIOUS

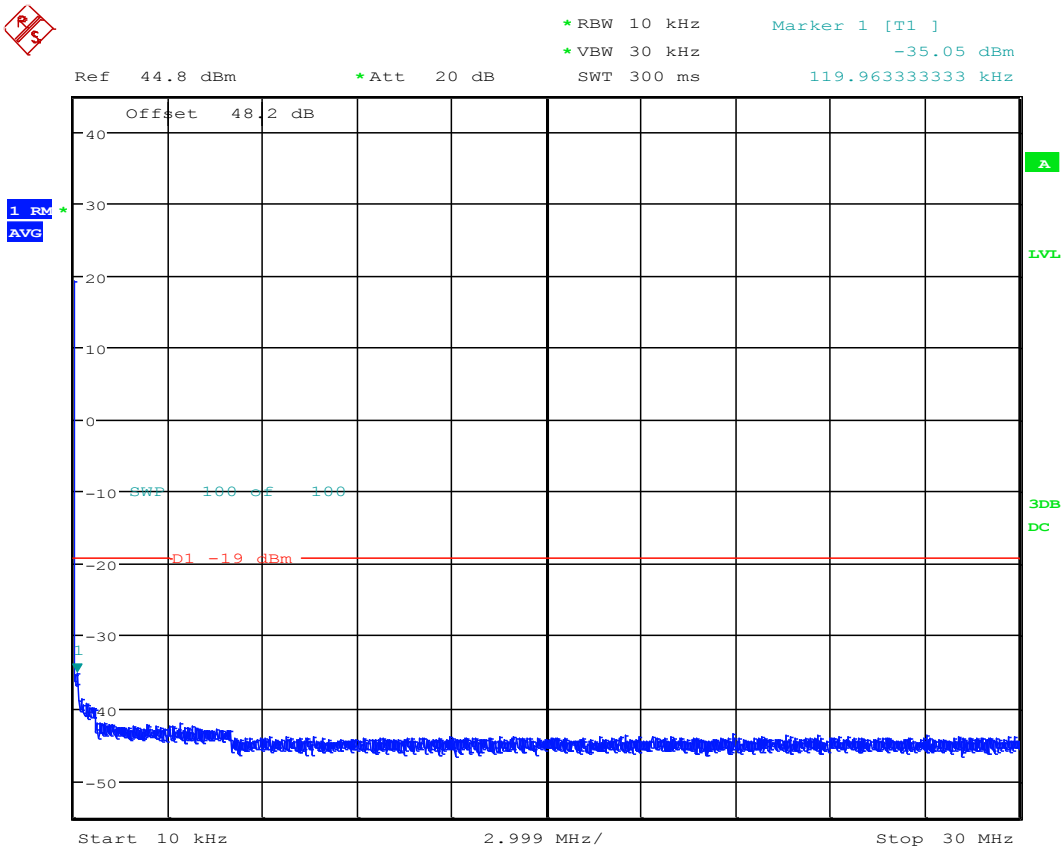


5 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

Transmit Port
Antenna Conducted Spurious Emissions

Block: G
Channel: 1250
5 MHz Bandwidth (1990 - 1995 MHz)

4x30 watts (MIMO)
64QAM Modulations



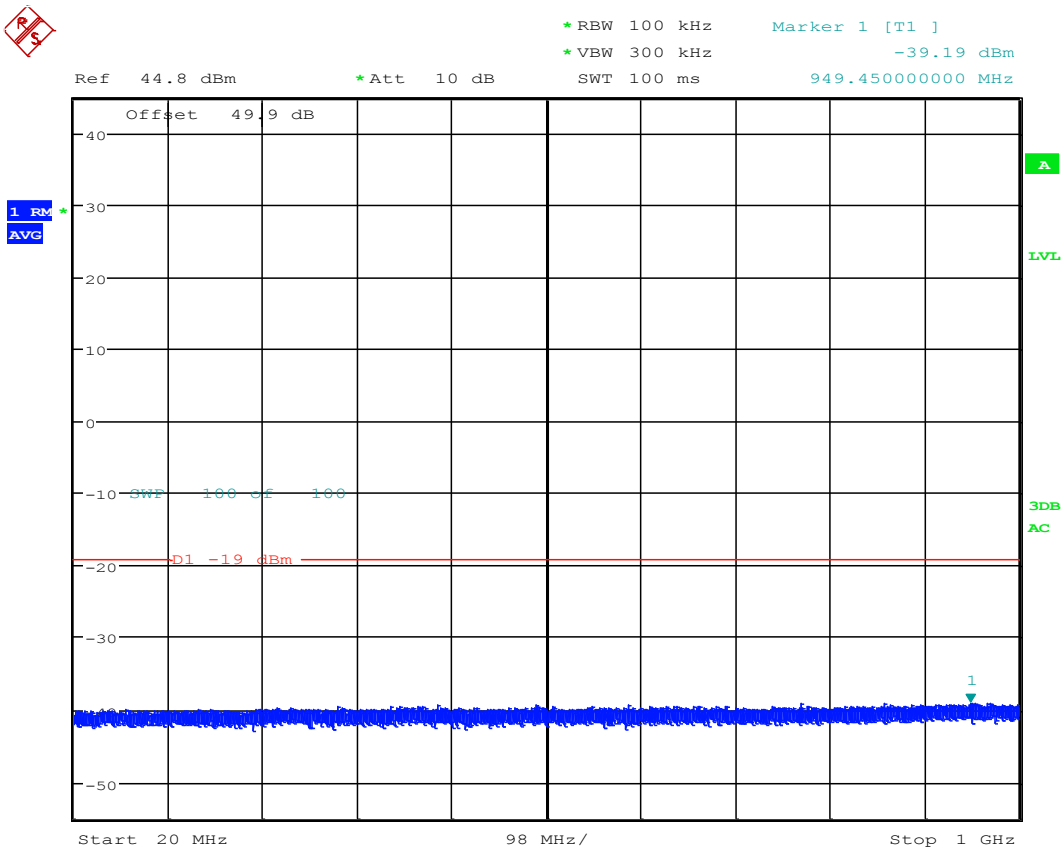
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1992.5 MHz; 5 MHz BW

Date: 15.JAN.2015 21:51:58

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



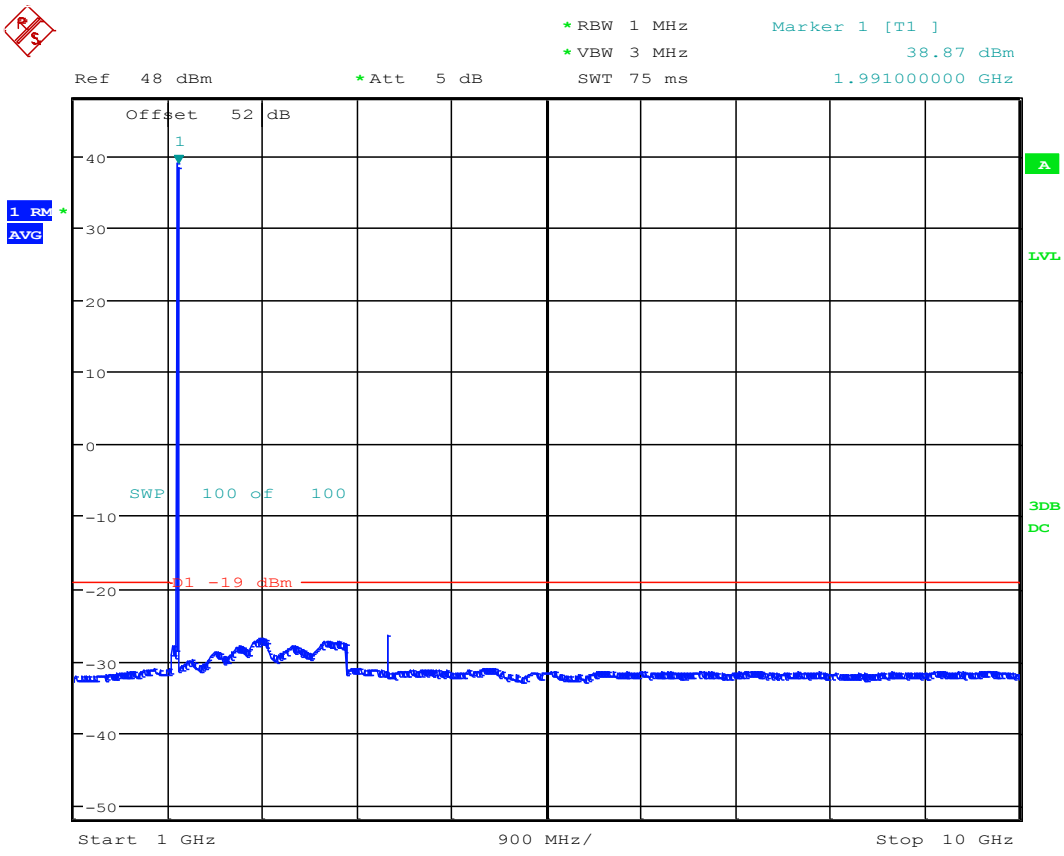
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1992.5 MHz; 5 MHz BW

Date: 15.JAN.2015 21:52:46

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



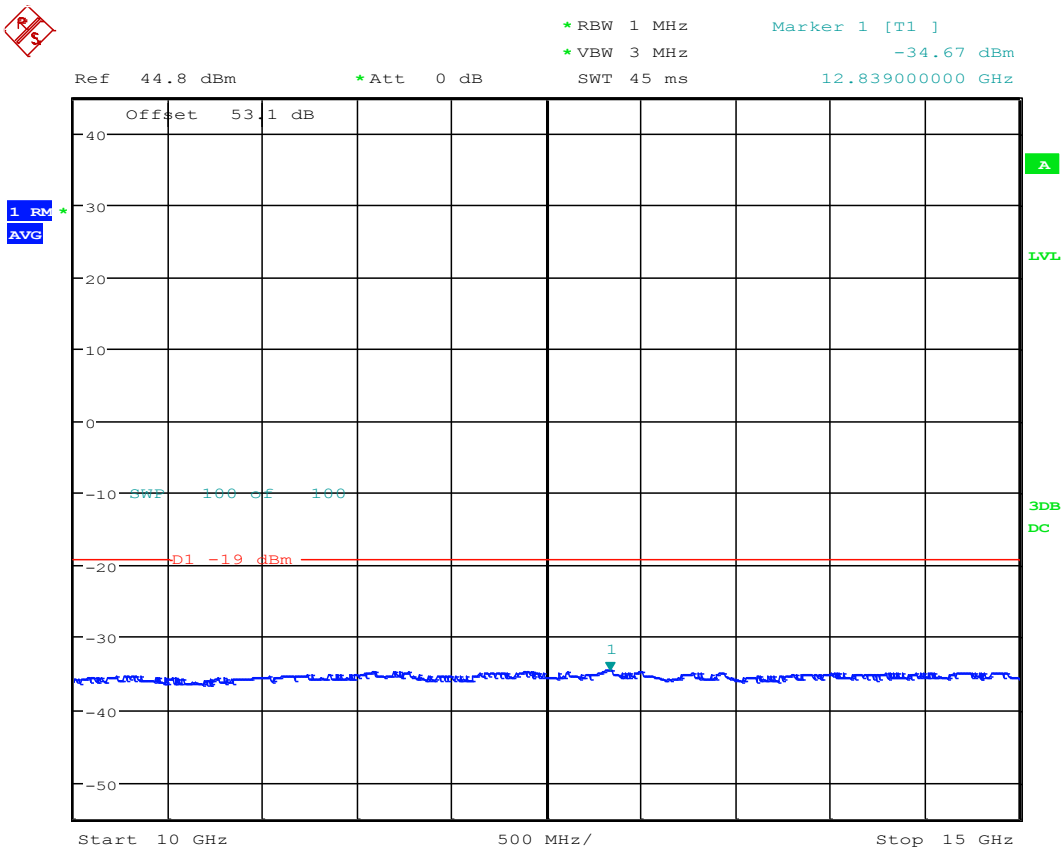
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1992.5 MHz; 5 MHz BW

Date: 15.JAN.2015 21:54:27

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



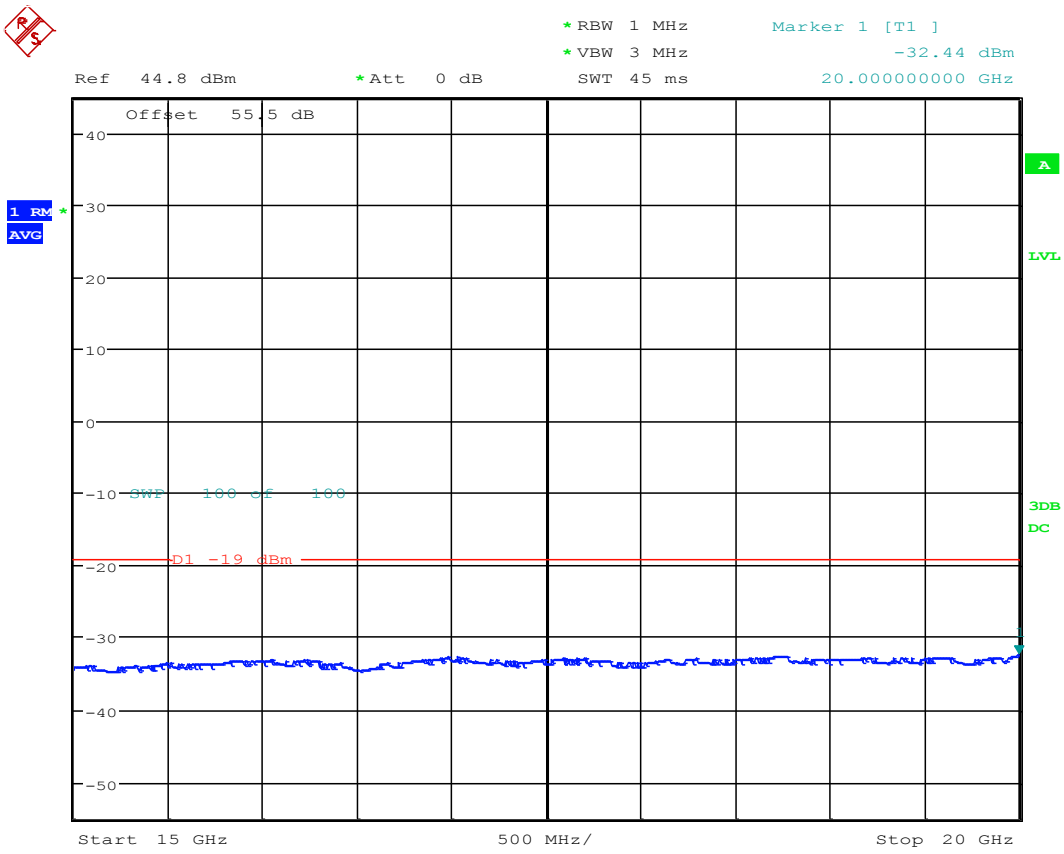
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1992.5 MHz; 5 MHz BW

Date: 15.JAN.2015 21:55:17

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1992.5 MHz; 5 MHz BW

Date: 15.JAN.2015 21:57:05

Carrier Power: 30 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

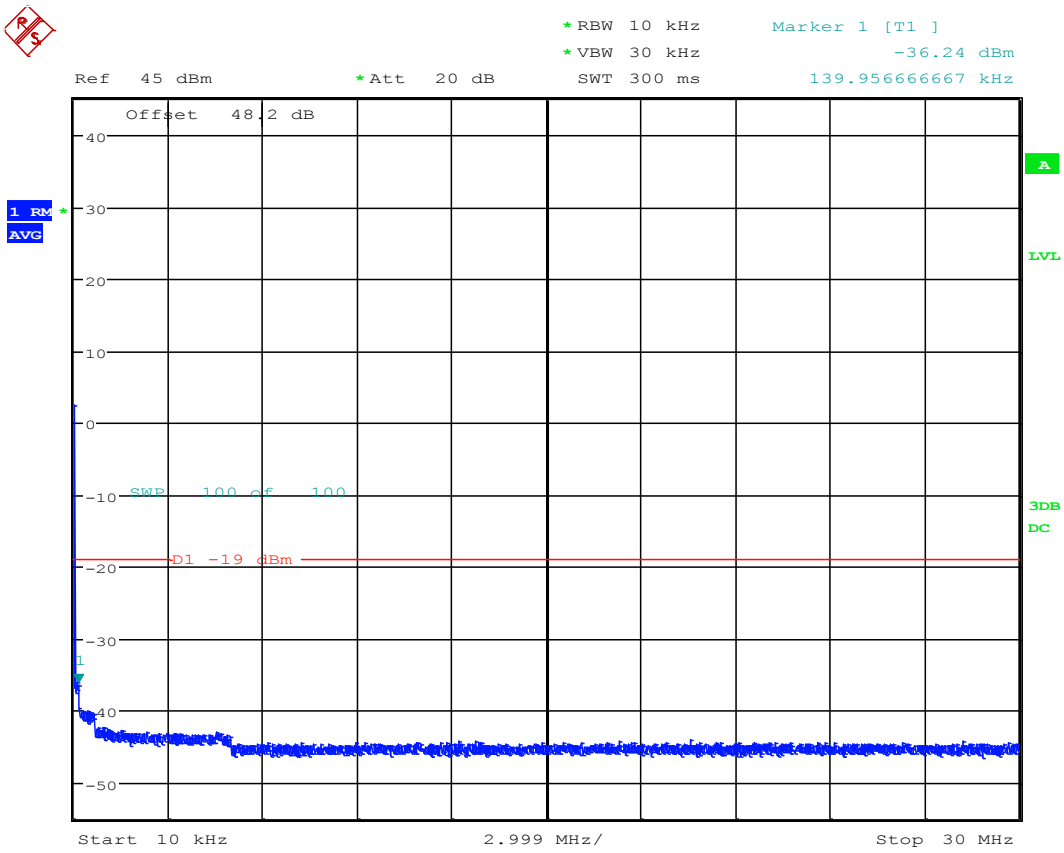
KMW Filter, Port #1

10 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

Transmit Port
Antenna Conducted Spurious Emissions

Block: B
Channel: 500
10 MHz Bandwidth (1950 - 1960 MHz)

4x30 watts (MIMO)
16QAM Modulations



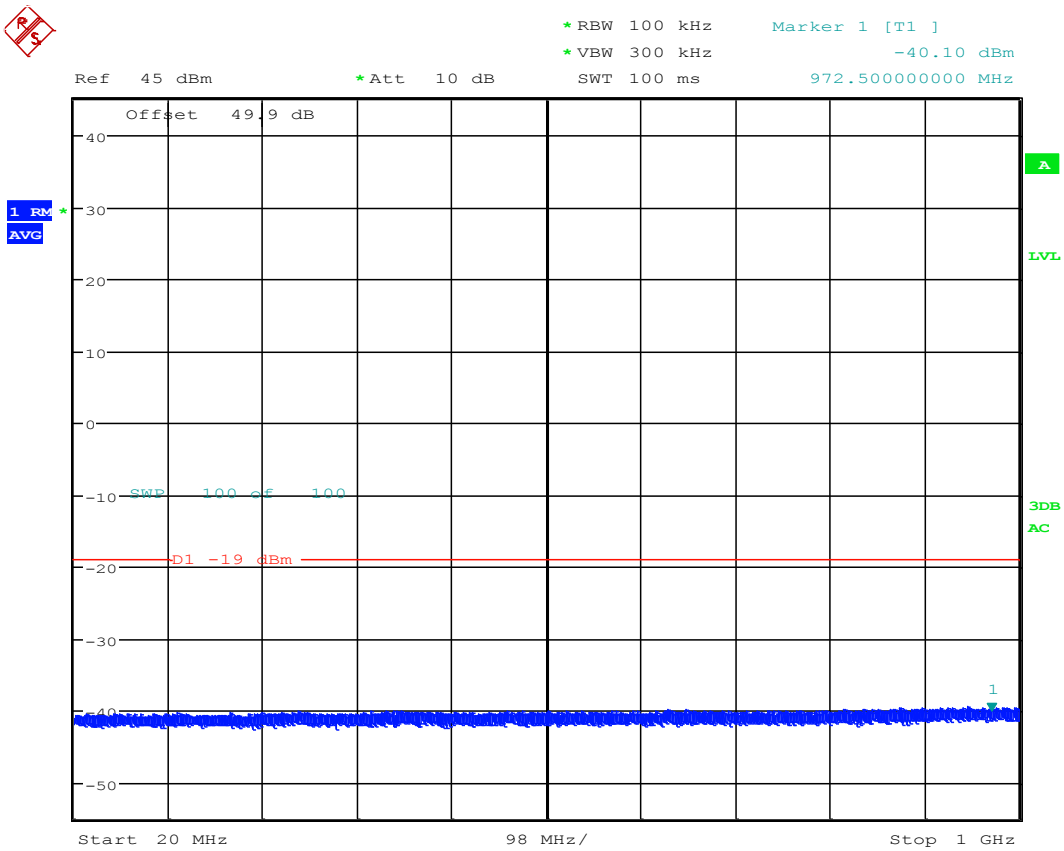
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1955 MHz; 10 MHz BW

Date: 22.DEC.2014 13:52:30

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



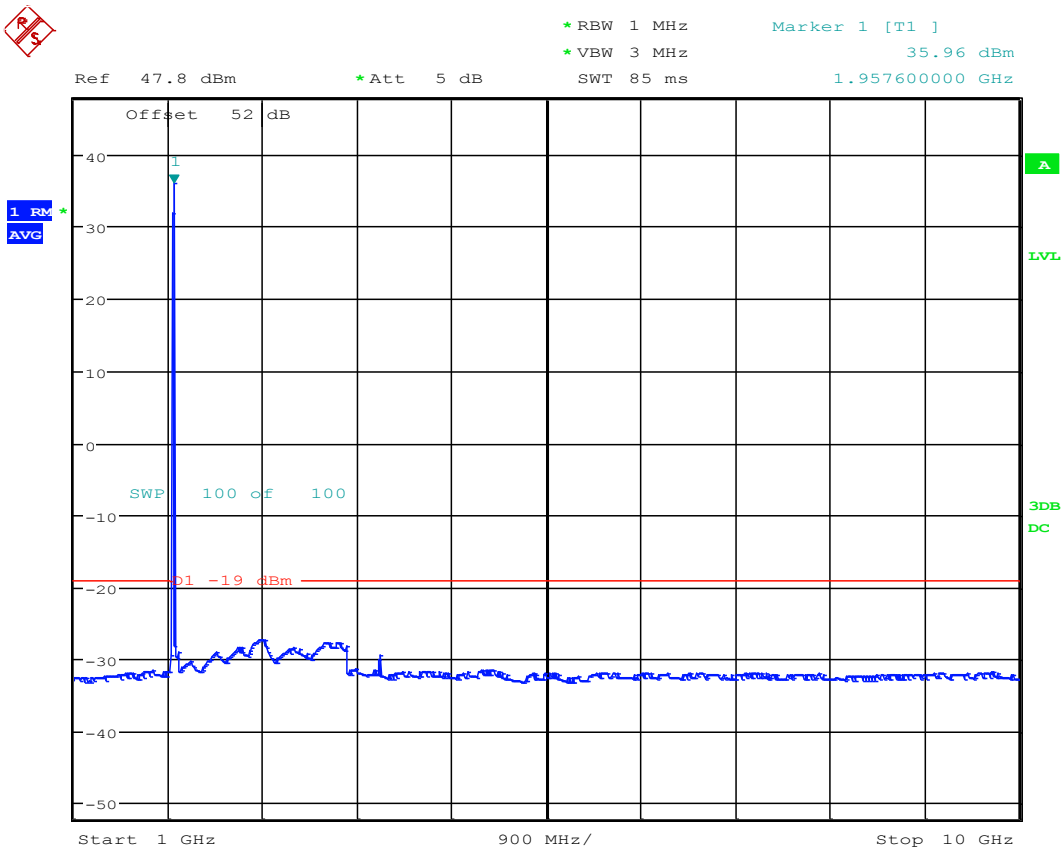
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1955 MHz; 10 MHz BW

Date: 22.DEC.2014 13:55:23

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



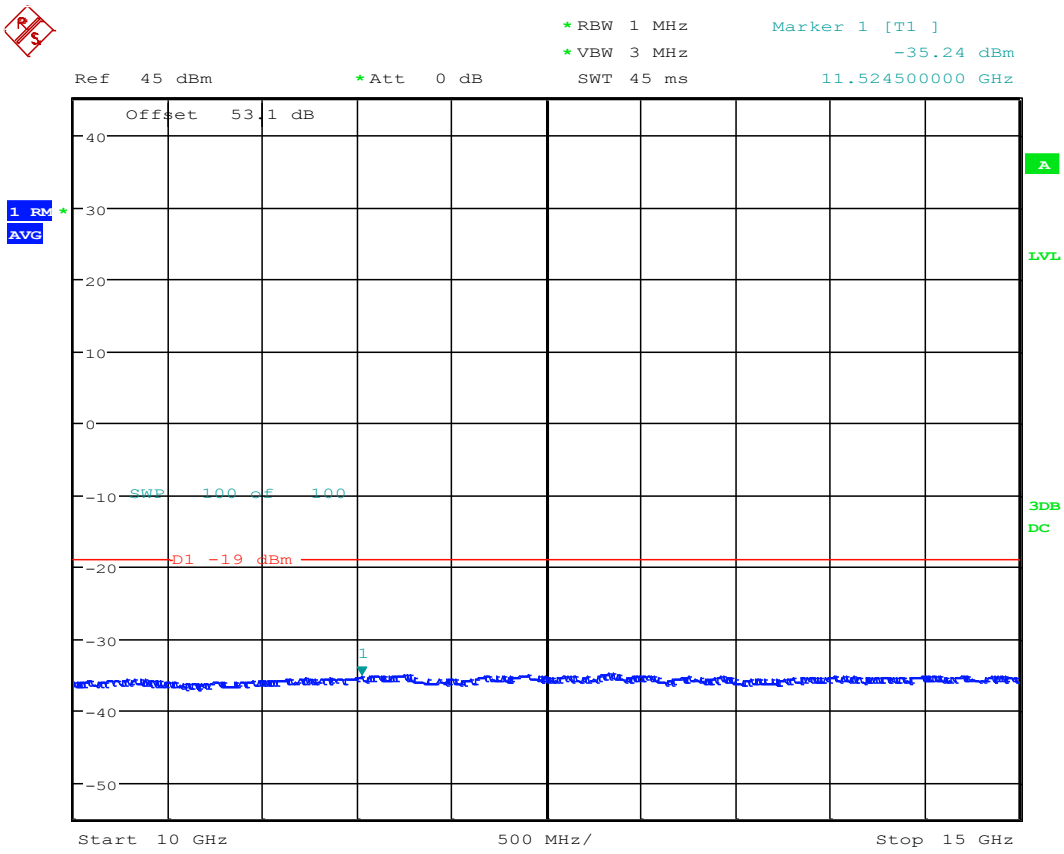
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1955 MHz; 10 MHz BW

Date: 22.DEC.2014 13:58:26

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



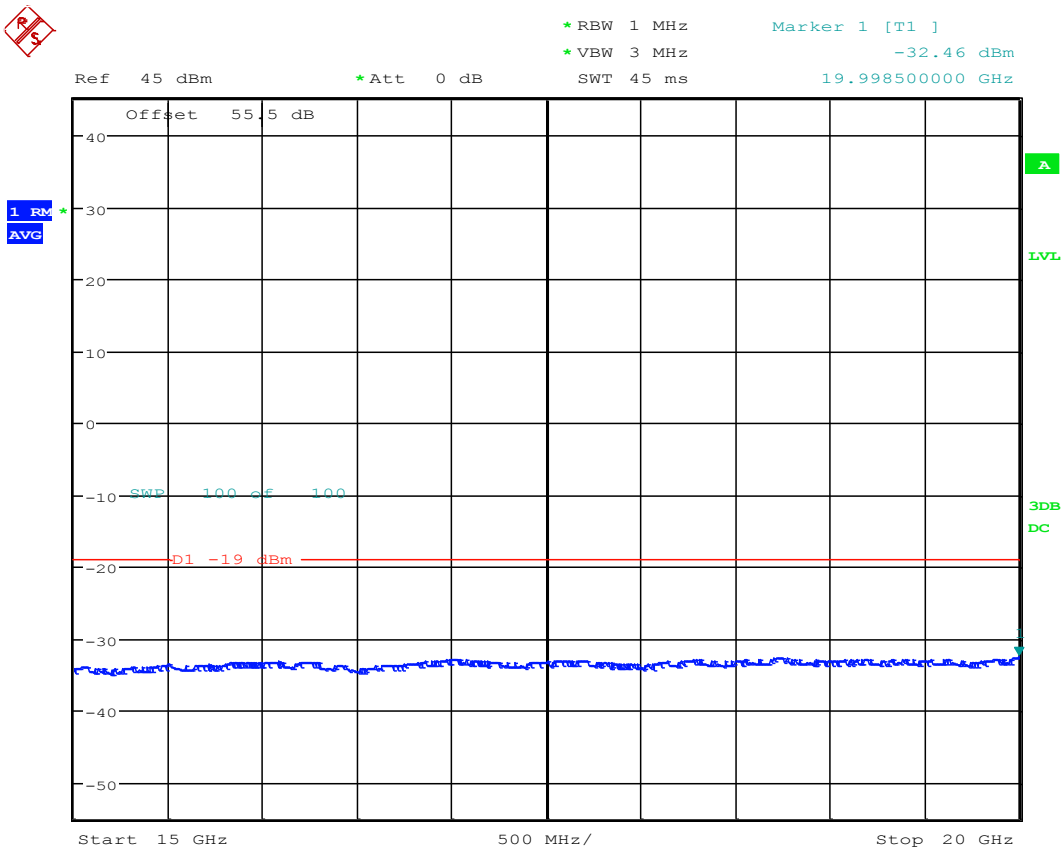
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1955 MHz; 10 MHz BW

Date: 22.DEC.2014 13:59:14

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1955 MHz; 10 MHz BW

Date: 22.DEC.2014 14:00:11

Carrier Power: 30 W; 16QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

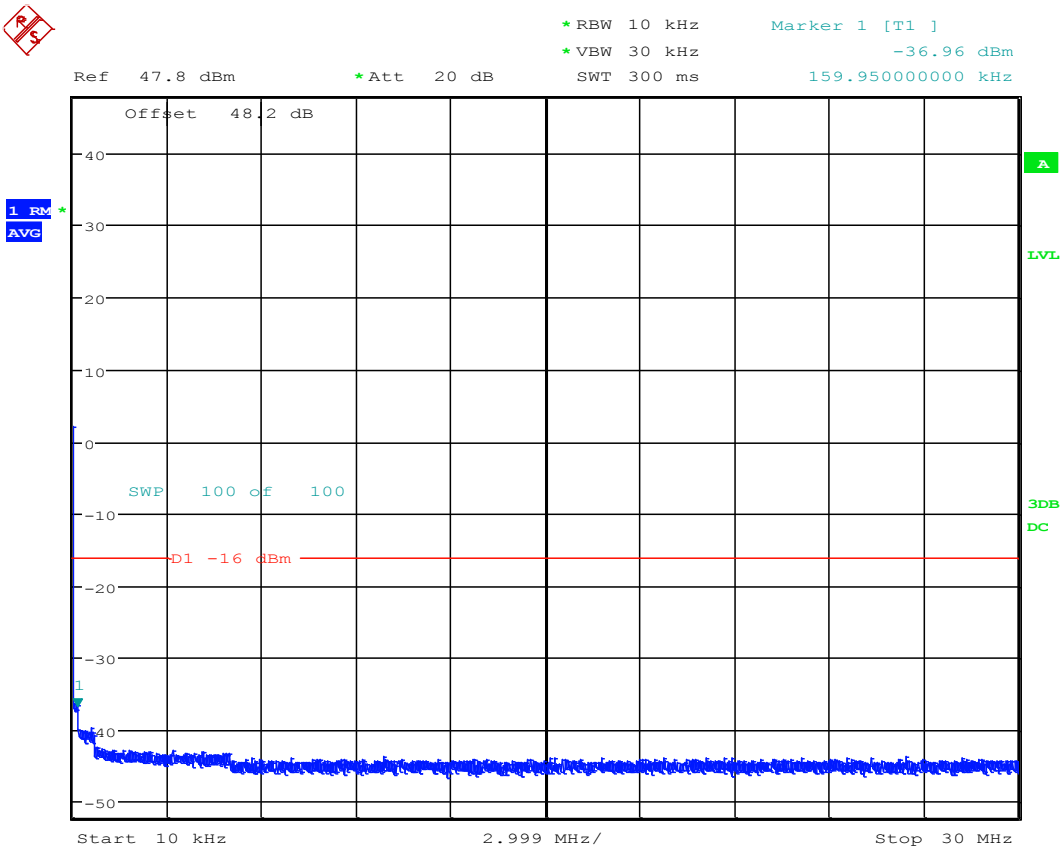
KMW Filter, Port #1

10 MHz BANDWIDTH DATA
2x60W MIMO CONFIGURATION

Transmit Port
Antenna Conducted Spurious Emissions

Block: C1+C2
Channel: 1070
10 MHz Bandwidth (1978.5 – 1988.5 MHz)

2x60 watts (MIMO)
QPSK Modulations



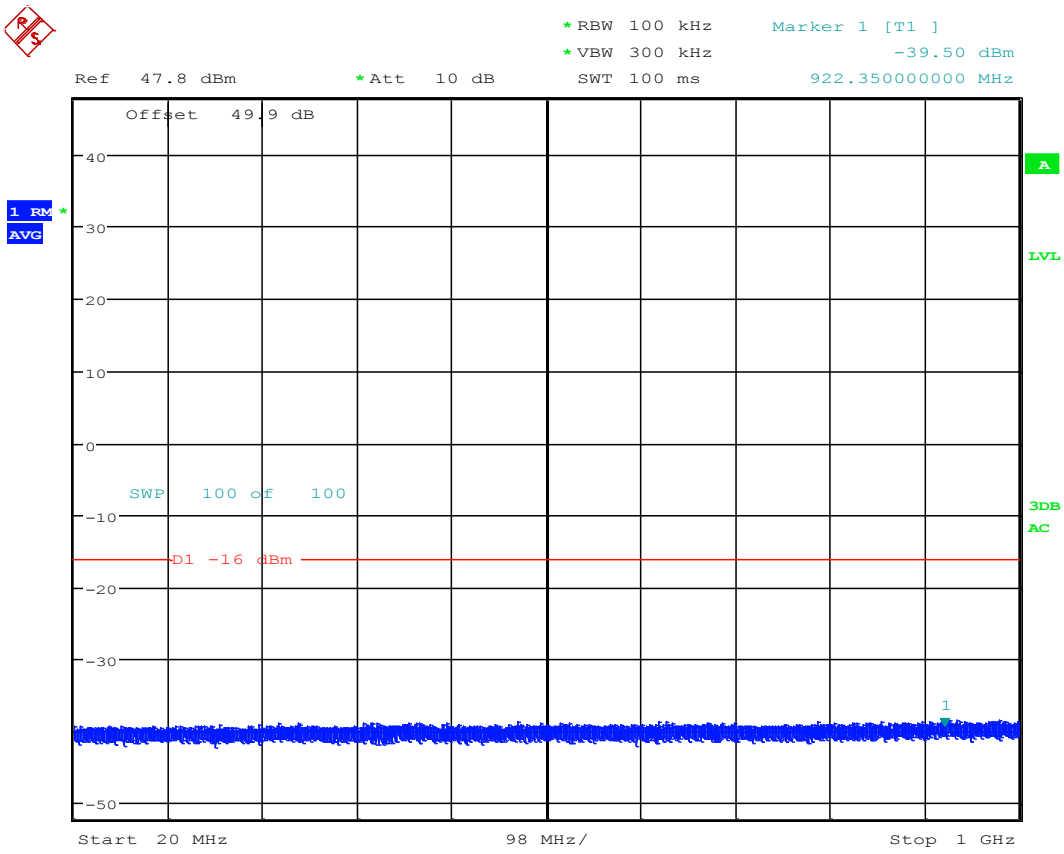
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1983.5 MHz; 10 MHz BW

Date: 5.JAN.2015 11:38:41

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



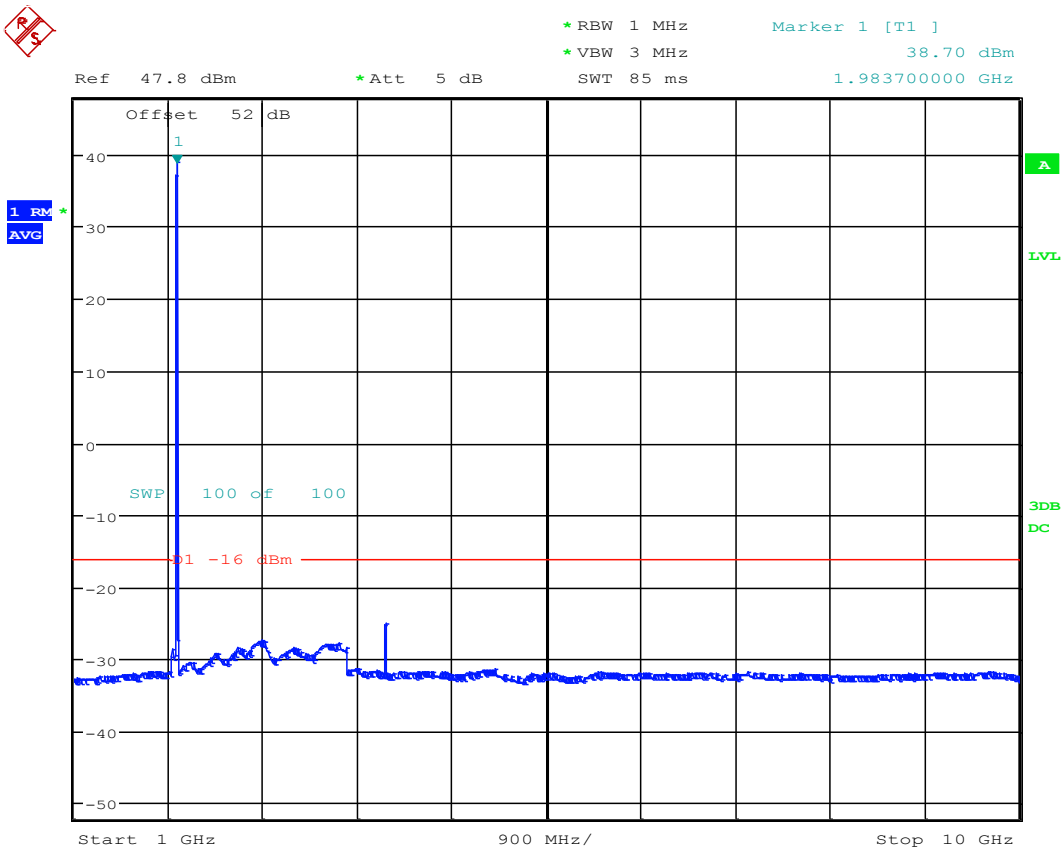
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1983.5 MHz; 10 MHz BW

Date: 5.JAN.2015 11:37:34

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



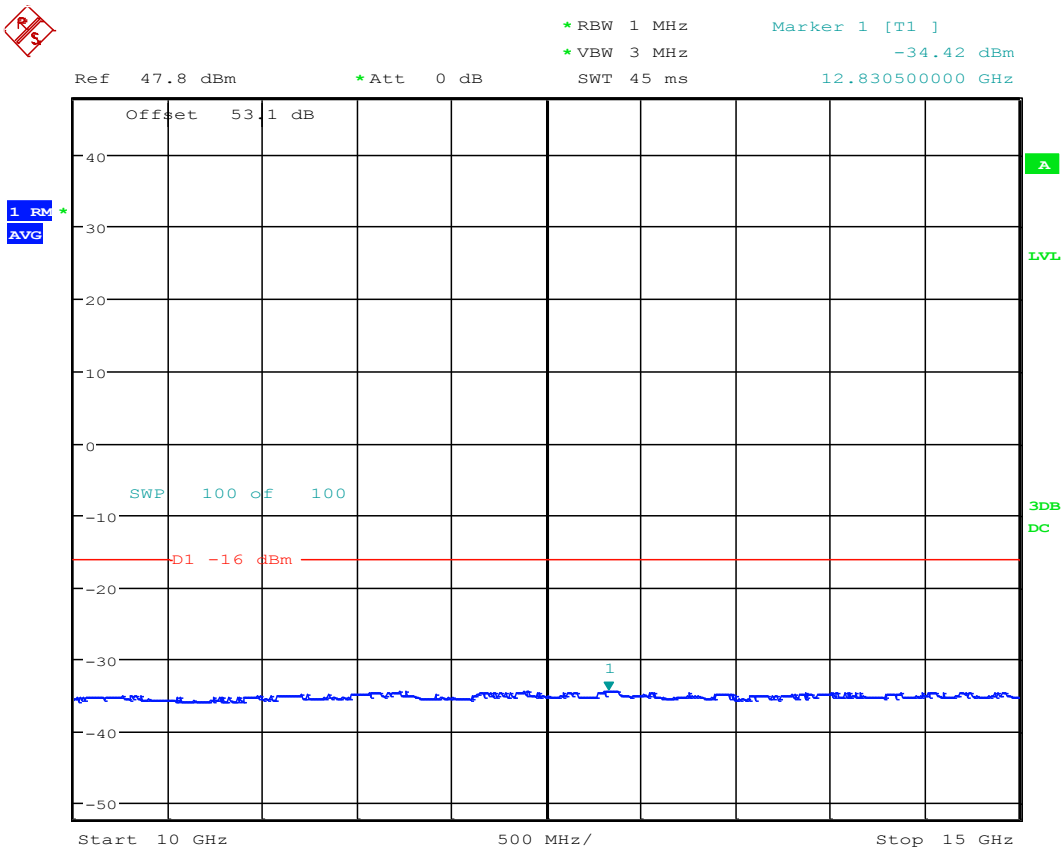
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1983.5 MHz; 10 MHz BW

Date: 5.JAN.2015 11:40:28

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



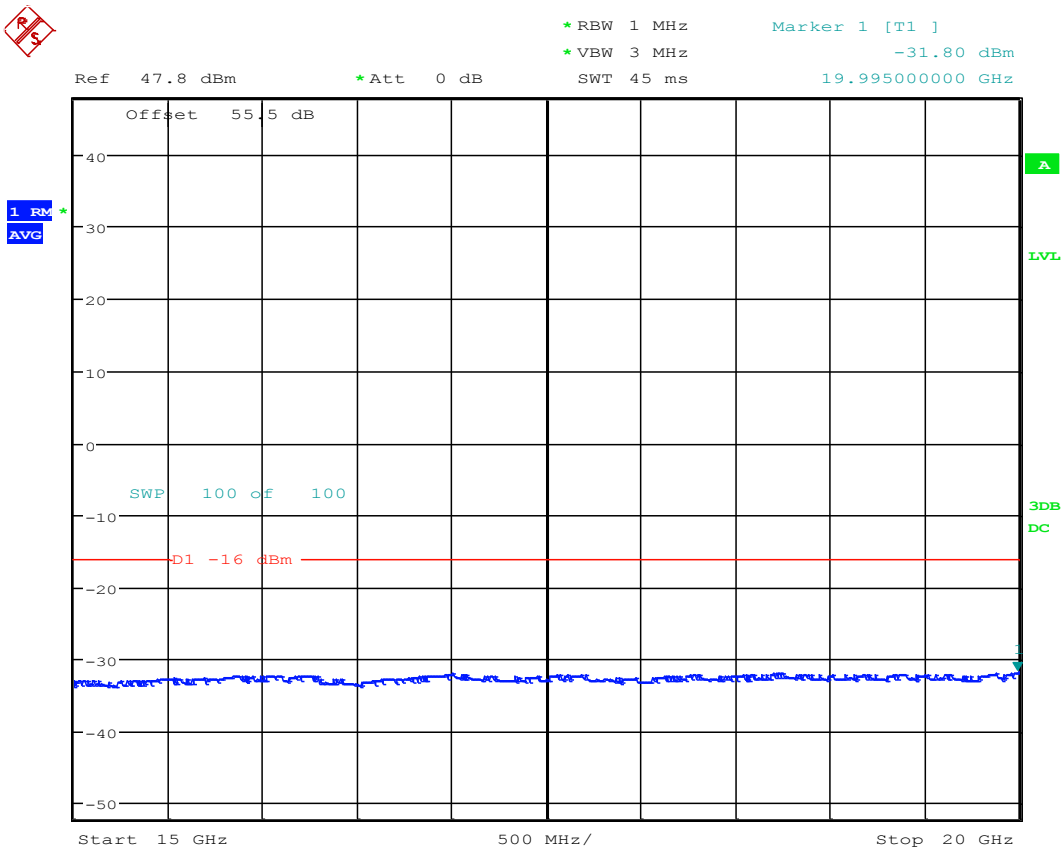
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1983.5 MHz; 10 MHz BW

Date: 5.JAN.2015 11:41:15

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1983.5 MHz; 10 MHz BW

Date: 5.JAN.2015 11:42:01

Carrier Power: 60 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz BANDWIDTH DATA
4x30W MIMO CONFIGURATION

Transmit Port
Antenna Conducted Spurious Emissions

Block: A
Channel: 170
15 MHz Bandwidth (1930 - 1945 MHz)

4x30 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

Block: B
Channel: 570
15 MHz Bandwidth (1950 - 1965 MHz)

4x30 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

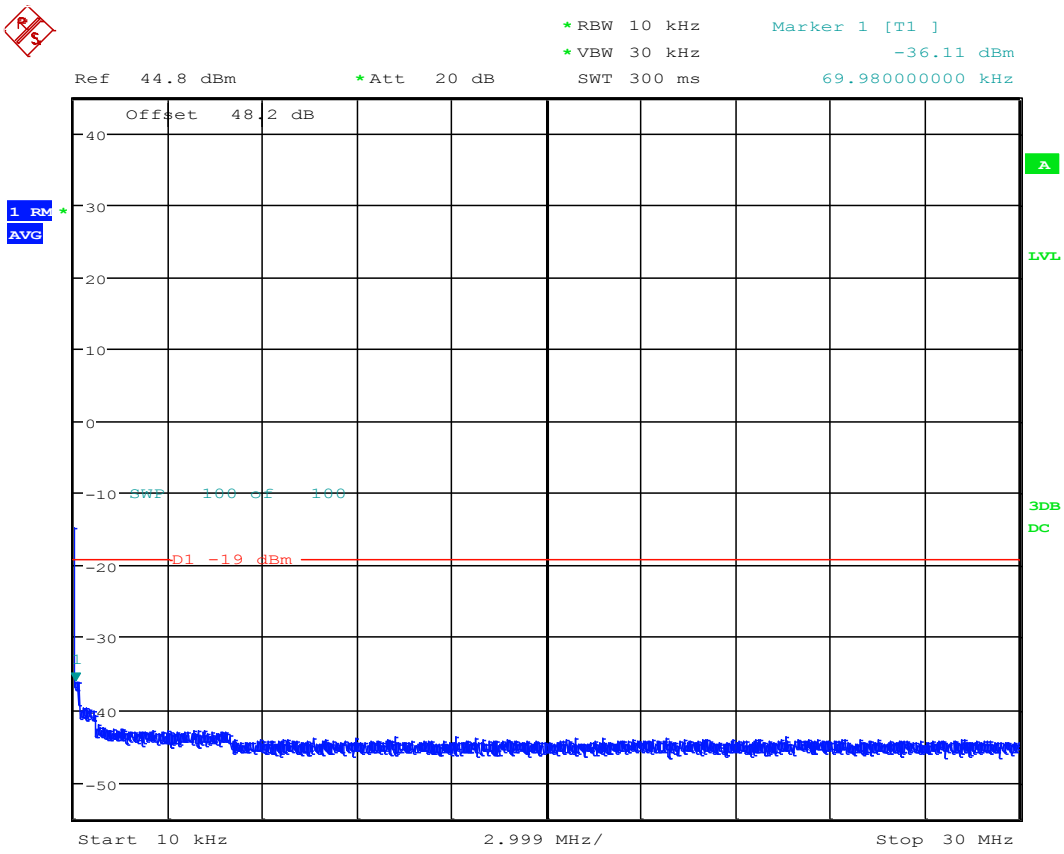
Block: B+E+F
Channel: 770
15 MHz Bandwidth (1960 - 1975 MHz)

4x30 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

Block: C1+C2+G
Channel: 1150
15 MHz Bandwidth (1980 - 1995 MHz)

4x30 watts (MIMO)
QPSK Modulations



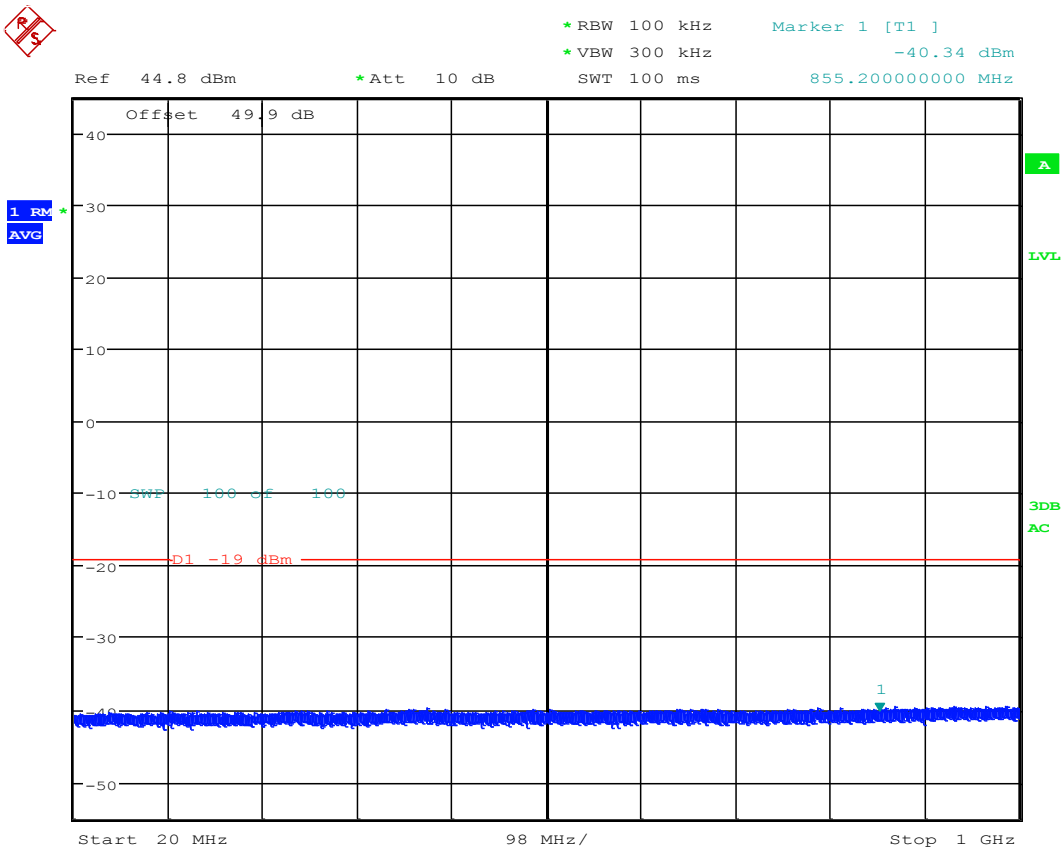
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:16:21

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



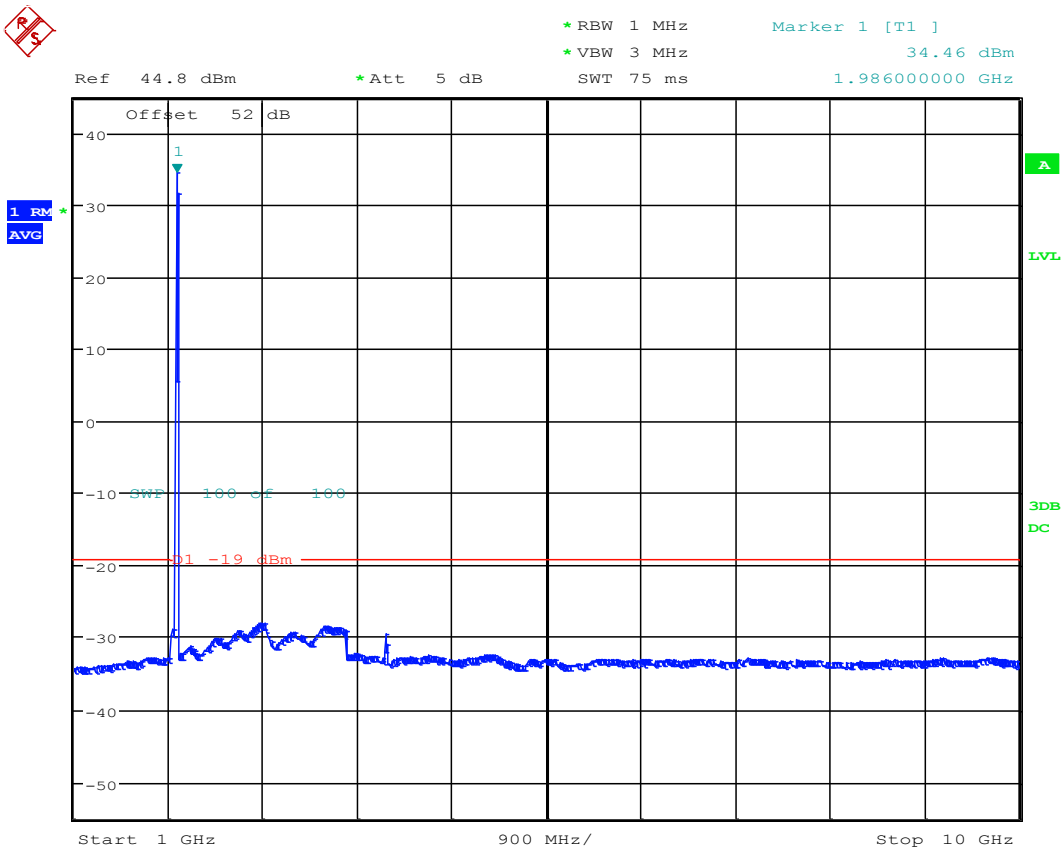
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:18:12

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



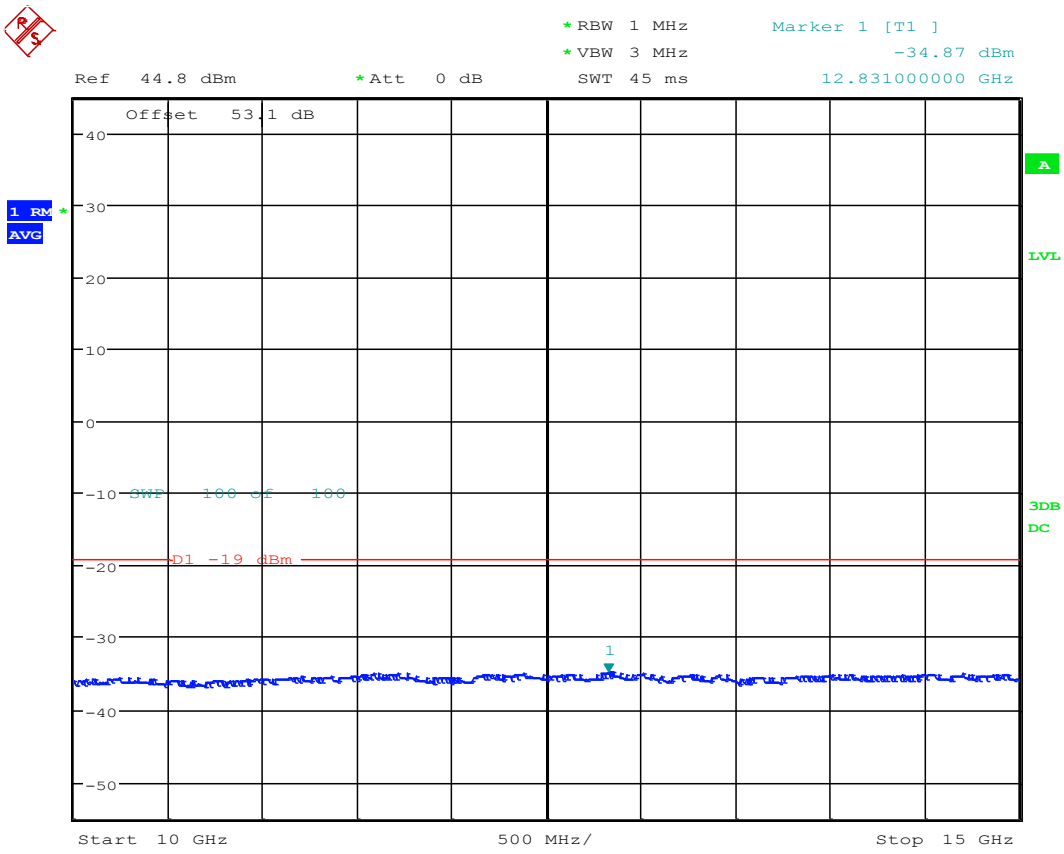
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:19:17

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



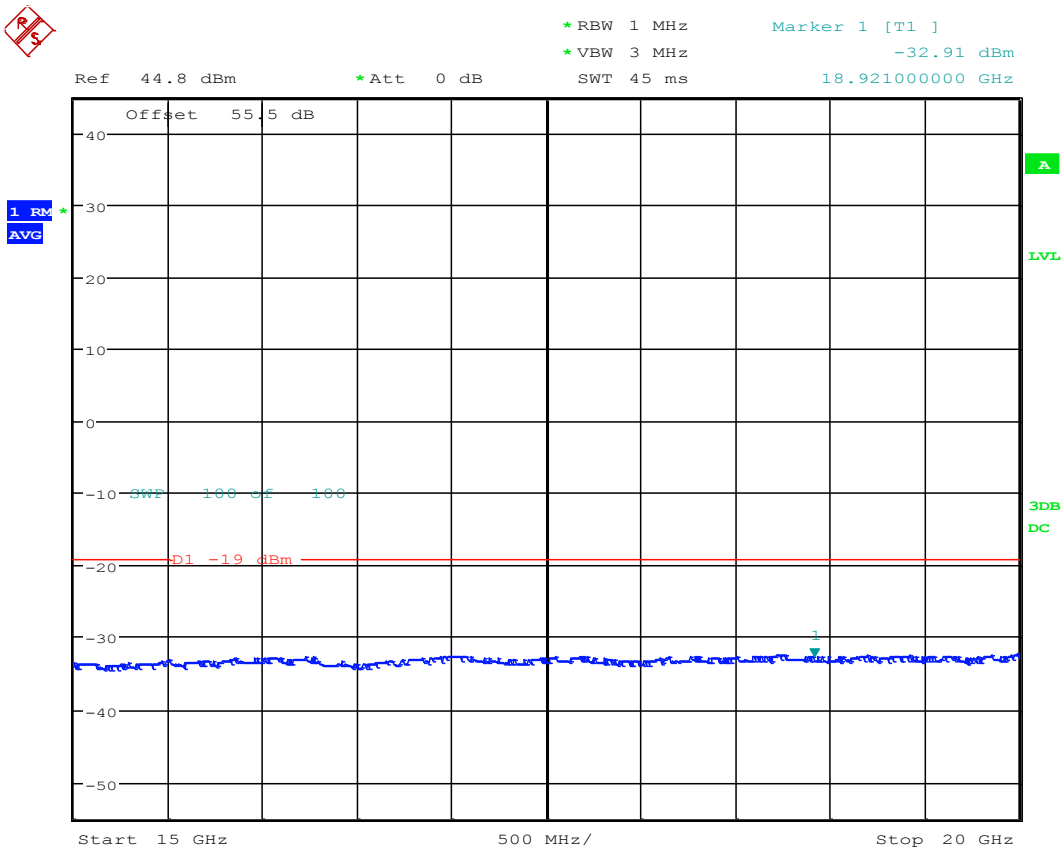
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:20:03

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 4X30 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:20:53

Carrier Power: 30 W; QPSK Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

15 MHz BANDWIDTH DATA
2x60W MIMO CONFIGURATION

Transmit Port
Antenna Conducted Spurious Emissions

Block: A
Channel: 170
15 MHz Bandwidth (1930 - 1945 MHz)

2x60 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

Block: B
Channel: 570
15 MHz Bandwidth (1950 - 1965 MHz)

2x30 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

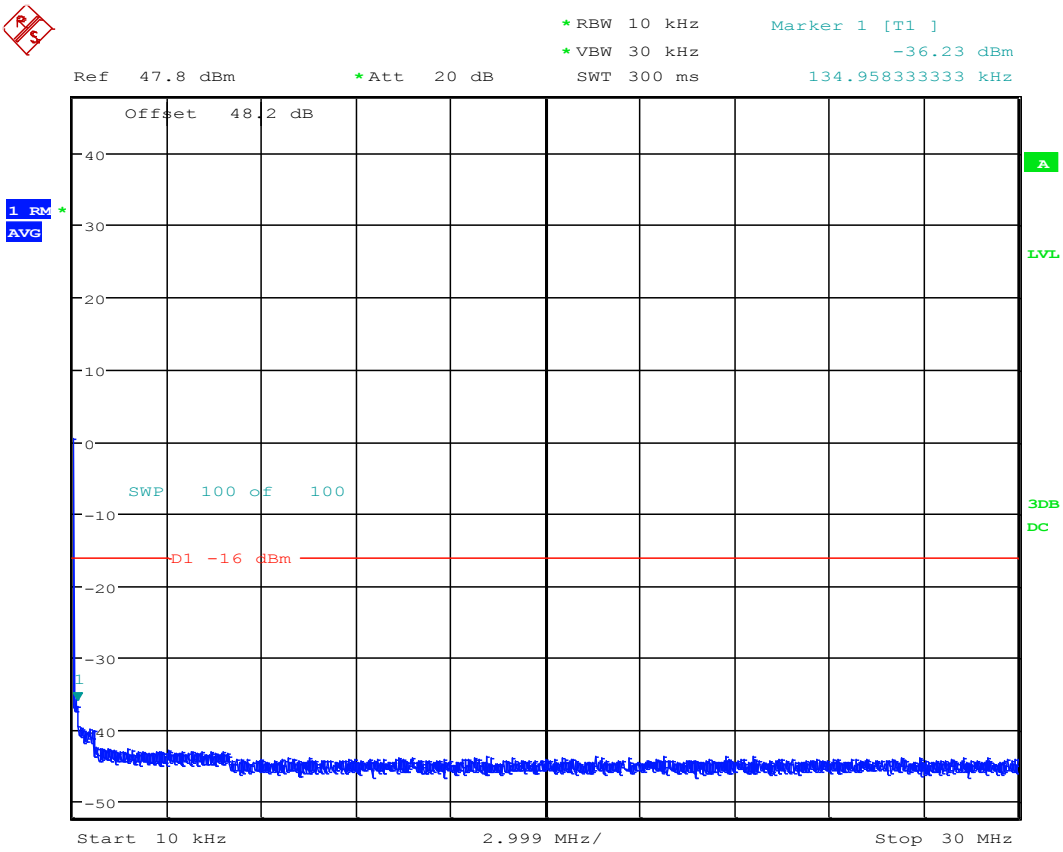
Block: B+E+F
Channel: 770
15 MHz Bandwidth (1960 - 1975 MHz)

2x60 watts (MIMO)
QPSK, 16QAM & 64QAM Modulations

Transmit Port
Antenna Conducted Spurious Emissions

Block: C1+C2+G
Channel: 1150
15 MHz Bandwidth (1980 - 1995 MHz)

2x60 watts (MIMO)
64QAM Modulations



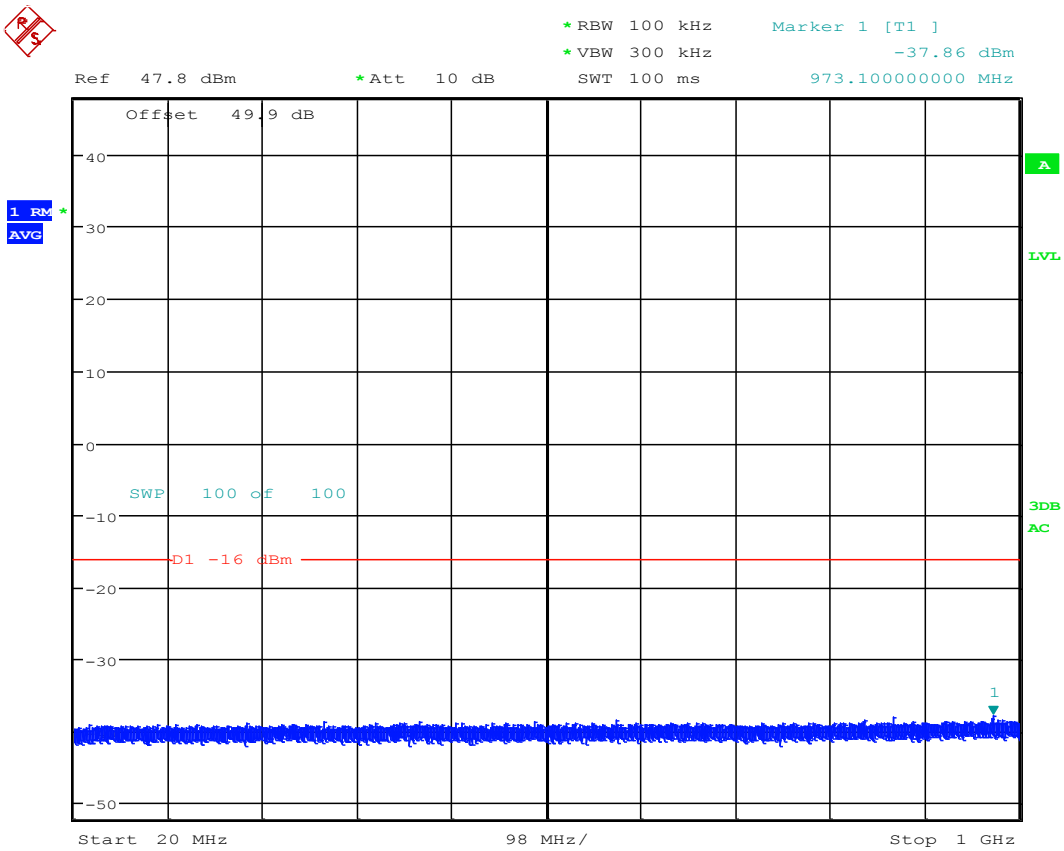
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:04:17

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



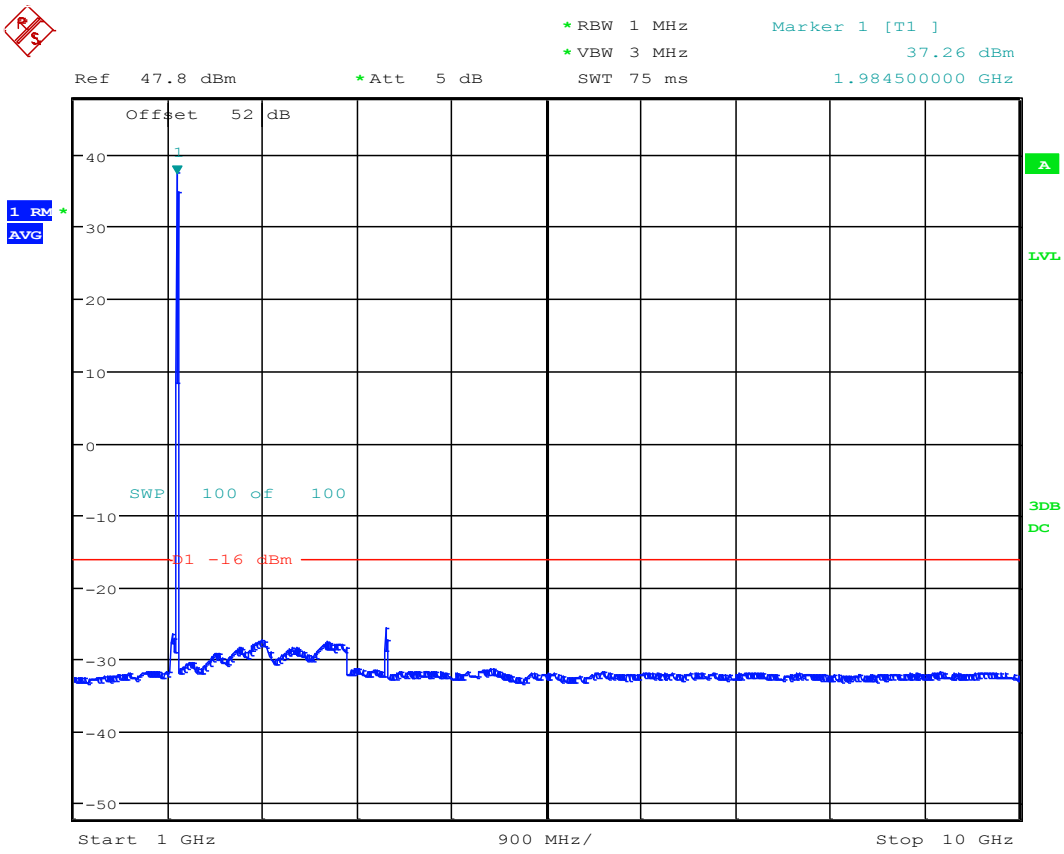
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:05:02

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



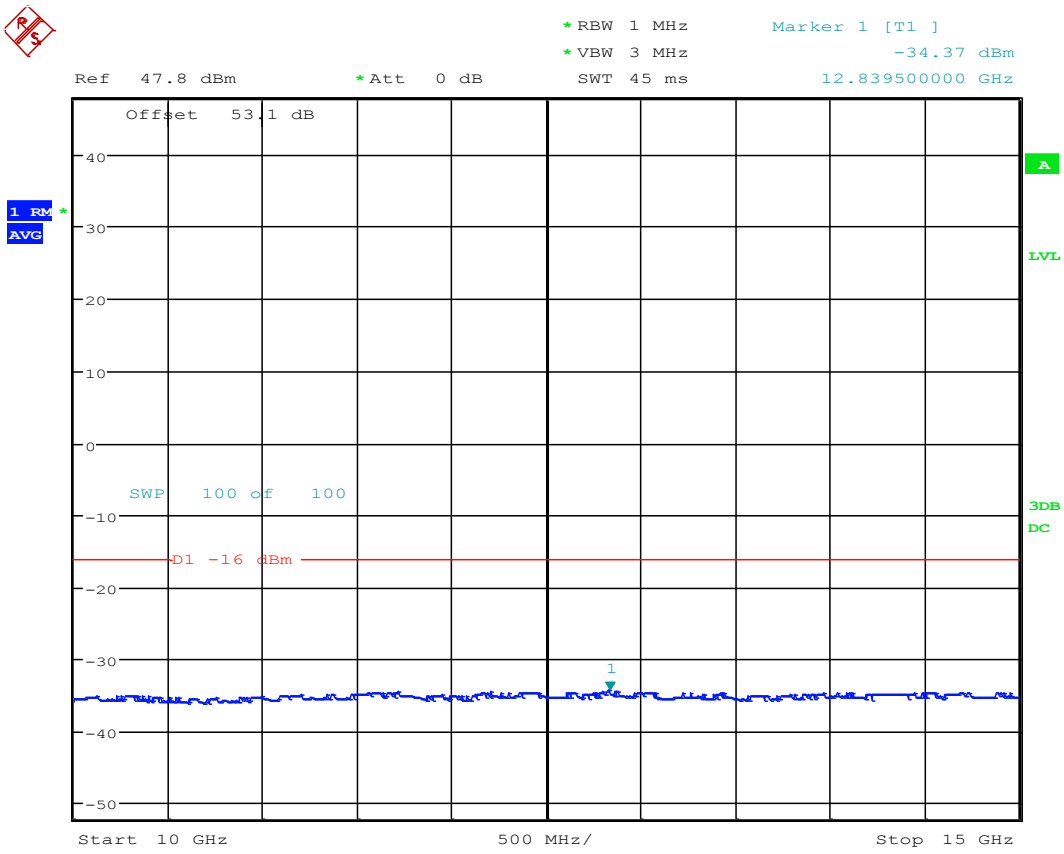
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:06:34

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



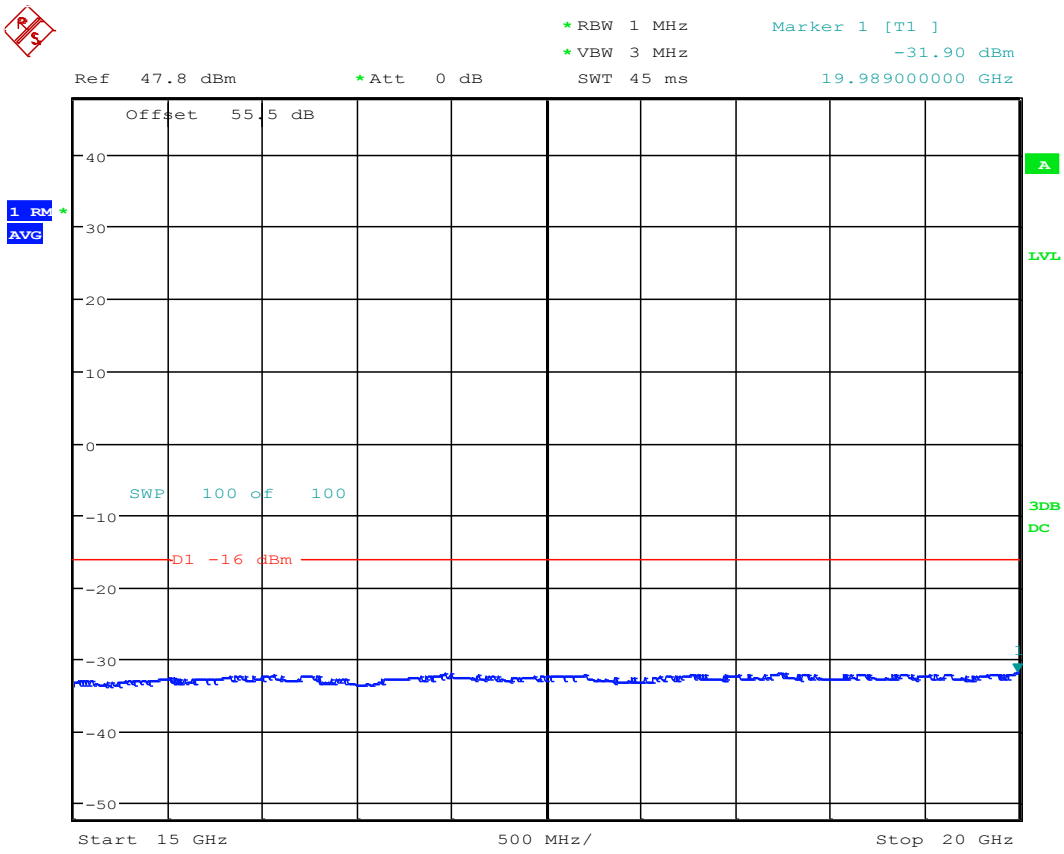
TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:07:14

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1



TX SPURIOUS EMISSIONS: TEST ENGINEER: JY

RRH 2X60 B25; 1987.5 MHz; 15 MHz BW

Date: 13.JAN.2015 11:08:11

Carrier Power: 60 W; 64QAM Modulation; FCC Part 24; FCCID: AS5BBTRX-22

KMW Filter, Port #1

Sub-Exhibit 11.6

FIELD STRENGTH OF SPURIOUS RADIATION

SECTION 2.1053 and 24.238 (a)

SECTION 2.1053

FIELD STRENGTH OF SPURIOUS RADIATION

Field strength measurements of radiated spurious emissions were made at 3 m semi anechoic room of Global Product Compliance Laboratory of Alcatel-Lucent Murray Hill. A complete description and full measurement data for the site is on file with the Commission (FCC Site Registration #353147).

The **"B25 RRH 4x30"** with FCCID: AS5BBTRX-22" was tested with an RF output of 30 W at each **Antenna Interface Connector (AIC) for 4x30W configuration, and 60W each for 2x60W configuration.** The radiated emissions tests were performed with the B25 4x30 RRH operating with 5 MHz and 15 MHz bandwidths in the frequency blocks listed for Antenna terminal Conducted spurious emissions measurement. All tests were performed with the RRH operating in QPSK and 64QAM modulations, respectively. During testing, the RRH AICs were terminated with 50 ohm loads. The spectrum from 10 MHz to the 10th harmonic (20 GHz) of the carrier was searched for spurious radiation. Measurements were made according to ANSI C63.4.

All emissions more than 20 dB below the specification limit were considered not reportable (Section 2.1057(c)).

The calculated emission levels were found by:

Measured level (dBμV) + Cable Loss (dB) + Antenna Factor (dB) = Field Strength (dBμV/m)

Section 2.1053 contains the requirements for the levels of spurious radiation as a function of frequency.

FCC Section 24.238(a): the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB or -13dBm. Pursuant to FCC OET RULESKDB 662911 D01 and D02 for two antenna MIMO mode of operations, the FCC limit of -13dBm shall be 3dB more stringent for two antenns and 6dB more stringent for four antennas., Therefore all channel edge and out of band spurious emissions limits shall be -16dBm for 2x60W configuration and -19dBm for 4x30W configuration.

The reference level for the un-modulated carriers is calculated as the field produced by an ideal isotropic antenna excited by the transmitter output power according to the following relation taken from Recommendation ITU-R, SM.329-11, "*Unwanted emissions in the spurious domain*" January 2011.

$E= [(30*P)^{1/2}]/R$

$20 \log (E*10^6) – (46 + 10 \log P) = 79.2$ dB μV/meter
E = Field Intensity in Volts/meter
P = Transmitted Power in Watts
R = Distance from the ideal isotropic antenna in meters = 3 m

RESULTS:
For this particular test, the field strength of any spurious radiation is required to be less than 79.2dBμV/meter. Reportable measurements are equal to or greater than 59.2dBμV/meter. Over the spectrum investigated, 10 MHz to 10th of the carrier (20 GHz), no reportable spurious emissions were detected. This demonstrates that the **"B25 RRH 4X30**" the subject of this application, complies with Sections 2.1053, 24.238 (a) and 2.1057 of the Rules.

Sub-Exhibit 11.7

MEASUREMENT OF FREQUENCY STABILITY

Frequency Stability Testing was evaluated on the B25 RRH 4X30 with carrier frequency at 1962.5MHz. The testing was performed from 01/12/2015 through 01/13/2015 on the 1900 RRH4x30-B25P3A, in the T-16 Thermal chamber of the GPCL test facility located in Bldg 4, Room 4-280, Murray Hill, NJ. The stability of the output frequency of the PCS RRH was measured at its antenna transmitting terminal port1) from –30 ºC to +50ºC in 10ºC steps at the rated supply voltage; and 2) at 85% and 115% of the nominal supply voltage, per Section 2.1055. The system level Frequency Stability testing of the UUT yielded results in compliance with the Rules of the Commission.

Frequency Stability performance was verified by measuring Frequency Tolerance at EAC using an MXA Signal Analyzer. Frequency Tolerance is a measurement of the difference between the actual transmit frequency and the assigned frequency (1962.5MHz).

Frequency Block Tested: *B25 RRH 4X30 (CF =1962.5MHz)*

1. (a)Set the power supply to nominal Voltage. (b) Record the frequency at ~25°C. (c)Raise EUT operating temperature to 50°C. (d)Record the frequency difference. (e) Repeat step (d) at each 10°C step down to -30°C. Result will be 10 readings and take temperature readings to establish thermal stability at each point.

Baseline Measurement at +25°C

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.693
0.5	1.276
1.0	0.984
1.5	1.655
2.0	0.959
2.5	1.110
3.0	1.567
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +50°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.382
0.5	1.794
1.0	0.864
1.5	1.131
2.0	1.422
2.5	0.533
3.0	0.826
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +40°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.878
0.5	1.102
1.0	0.860
1.5	1.921
2.0	0.986
2.5	1.211
3.0	0.654
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +30°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.091
0.5	0.952
1.0	1.531
1.5	0.618
2.0	1.059
2.5	0.864
3.0	1.271
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.211
0.5	1.113
1.0	0.785
1.5	0.862
2.0	1.261
2.5	0.894
3.0	1.124
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +10°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.750
0.5	0.892
1.0	0.438
1.5	1.423
2.0	1.011
2.5	0.776
3.0	0.909
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at 0°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.032
0.5	0.721
1.0	0.946
1.5	0.862
2.0	0.971
2.5	1.211
3.0	0.716
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at -10°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.960
0.5	1.019
1.0	1.712
1.5	0.698
2.0	0.774
2.5	0.408
3.0	0.978
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at -20°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.032
0.5	0.611
1.0	0.512
1.5	0.807
2.0	1.322
2.5	0.895
3.0	1.184
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at -30°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.013
0.5	1.501
1.0	0.485
1.5	0.994
2.0	0.739
2.5	0.809
3.0	1.191
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Upon return to +25°C.

2. At ambient, vary voltage to +15% and -15% of nominal and record frequency difference. Result will be 12 readings for each voltage (nominal, ~+ 3%, ~+6%, ~+%9, ~+12%, +15%, and nominal, ~- 3%, ~-6%, ~-%9, ~-12%, -15%).

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.107
0.5	0.624
1.0	0.830
1.5	0.742
2.0	0.564
2.5	0.728
3.0	1.034
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 103% of Nominal Voltage, -49.44VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.006
0.5	0.931
1.0	0.817
1.5	0.702
2.0	0.563
2.5	1.241
3.0	0.807
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 106% of Nominal Voltage, -50.88VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.769
0.5	1.041
1.0	0.952
1.5	0.784
2.0	1.043
2.5	0.548
3.0	0.603
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 109% of Nominal Voltage, -52.32VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.284
0.5	0.365
1.0	0.879
1.5	1.005
2.0	0.951
2.5	0.834
3.0	0.678
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 112% of Nominal Voltage, -53.76VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.958
0.5	0.521
1.0	0.496
1.5	0.822
2.0	1.014
2.5	0.968
3.0	1.142
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 115% of Nominal Voltage, -55.20VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.973
0.5	0.497
1.0	0.868
1.5	1.019
2.0	0.752
2.5	1.034
3.0	1.012
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48.0VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.441
0.5	0.952
1.0	0.808
1.5	1.018
2.0	0.684
2.5	0.770
3.0	0.845
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -3% of Nominal Voltage, -46.56VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.789
0.5	0.585
1.0	0.702
1.5	1.028
2.0	1.101
2.5	0.603
3.0	0.945
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -6% of Nominal Voltage, -45.12VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.684
0.5	0.452
1.0	0.988
1.5	1.103
2.0	1.141
2.5	0.990
3.0	0.837
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

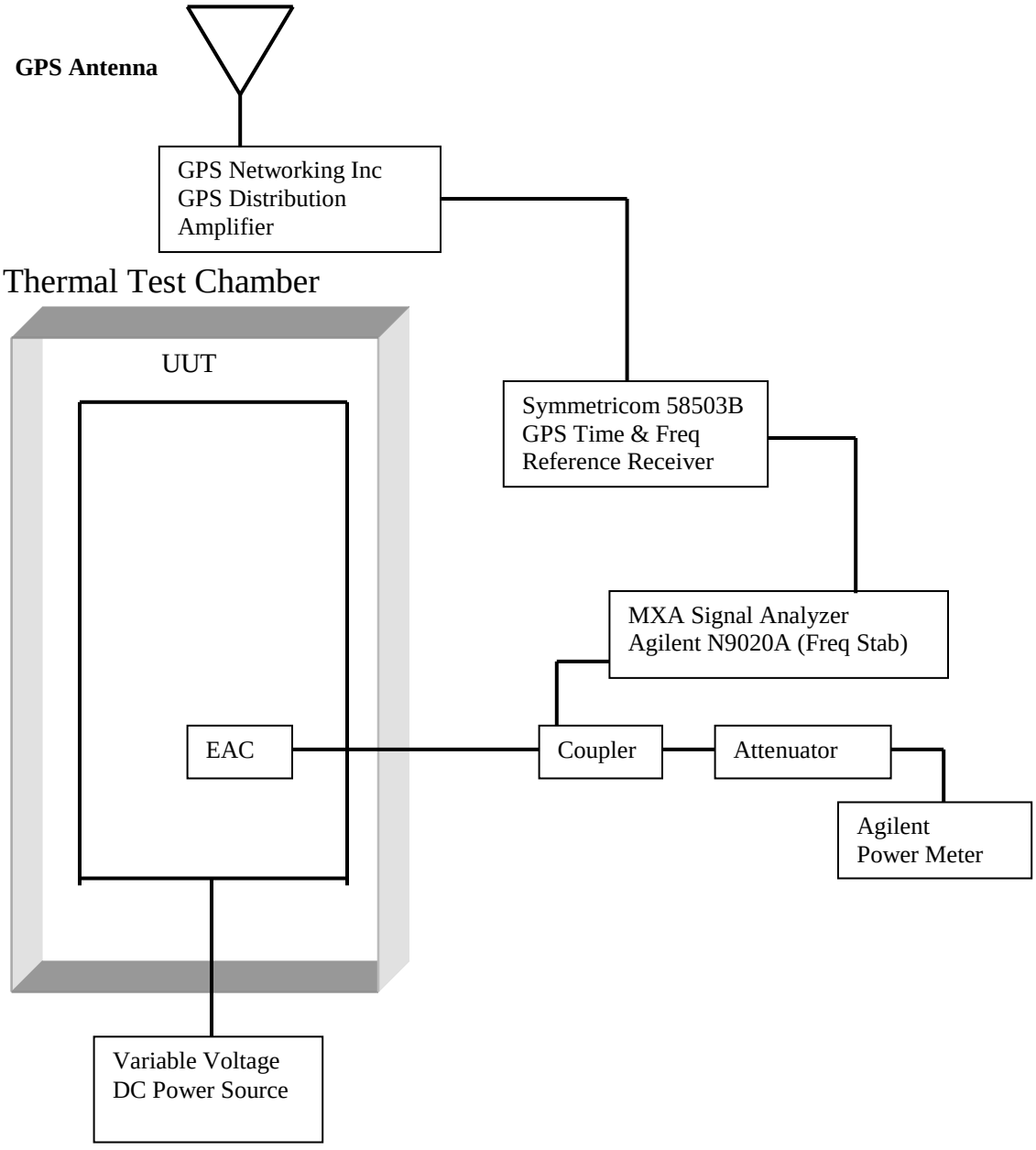
Transmit Frequency Deviation at +25°C at -9% of Nominal Voltage, -43.68VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.966
0.5	0.854
1.0	0.676
1.5	1.124
2.0	0.349
2.5	1.703
3.0	0.878
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -12% of Nominal Voltage, -42.24VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.640
0.5	1.012
1.0	0.871
1.5	0.914
2.0	1.031
2.5	0.849

3.0	0.957
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -15% of Nominal Voltage, -40.80VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	0.982
0.5	1.081
1.0	0.624
1.5	0.846
2.0	1.402
2.5	0.561
3.0	0.730
FCC SPECIFICATION	±1962.5 MHz (±0.05ppm) ±0.05ppm = ±98.125Hz
FCC RESULT	PASS

FIGURE 1: TEST SET-UP



Sub-Exhibit 11.8

Measurement Instrumentation and Antennas

All instrumentations, antennas and test Chamber used for the purpose of tests contained in the report were in calibration and calibrations are traceable to NIST

TEST INSTRUMENTATION

OCCUPIED BANDWIDTH/SPURIOUS EMISSIONS

Manufacturer	Model	Serial Number	Type	Description	GPCL ID	Last Cal	Interval	Status
Weinschel	48-30-33	AY8323	Attenuator	DC-18GHz 100 Watt	E961	N/A	N/A	Active
Hewlett Packard	8481A	US37290001	Power Sensor	10MHz-18GHz	E267	6/30/2014	12	Active
Hewlett Packard	778D	18655	Directional Coupler	Dual 0.1-2.0GHz 20dB	E1122	N/A	N/A	Active
Rohde & Schwarz	ESIB40	100121	Test Receiver	EMI 20Hz-40GHz -150 to +30dBm	E704	4/8/2014	24	Active
Rohde & Schwarz	ESU40	100246	Test Receiver	EMI 20Hz-40GHz -155 to +30dBm	E954	7/10/2014	24	Active
Hewlett Packard	437B	3110A03795	RF Power Meter		E206	6/17/2014	24	Active
Weinschel	47-10-34	BX8022	Attenuator	10dB, 50 Watt	E820	1/24/2014	24	Active
Weinschel	66-20-34	BW7319	Attenuator	20dB 150W DC-18GHz	E816	1/13/2014	24	Active
Agilent	N9020A	MY52091829	MXA Signal Analyzer	20Hz-26.5GHz Analyzer	Customer Equipment	7/21/2013	24	Active

SPURIOUS RADIATION

Manufacturer	Model	Serial Number	Type	Description	GPCL ID	Last Cal	Interval	Status
Agilent Technologies	8593E	4105A04615	Spectrum Analyzer	9 KHz-22 GHz	E508	7/26/2013	24	Active
Sonoma Instrument Co.	310N	185826	Amplifier	9KHz-1GHz	E512	1/24/2014	24	Active
A.H. Systems Inc.	SAS-521-2	410	Bilogical Antenna	25 - 2000 MHz	E602	10/22/2014	24	Active
Weinschel	2-6	BX3430	Attenuator	6 dB DC-18GHz 5 Watt	E887	3/5/2014	24	Active
Rohde & Schwarz	ESIB40	100119	Test Receiver	EMI (20Hz to 40 GHz)-150 +30dBM	E936	6/4/2013	24	Active
ETS Lindgren	3117	00135194	Horn Antenna	Double-Ridged Waveguide Horn 1-18 GHz	E1074	11/25/2014	24	Active
Trilithic	5HC2850/18050-1.8-KK	200113078	High Pass Filter	PCS 2.85GHz - 18.05GHz	E1116			Active
EMC Test Systems	3116	2539	Horn Antenna	Double Ridged Horn 18-40 GHz	E513	3/22/2013	24	Active
Agilent	8449B	3008A01740	Amplifier	Pre-Amplifier 1-26.5GHz	E1166	1/17/2014	24	Active

FREQUENCY STABILITY

Instrument Type	Serial Number	Vendor	Cal Due Date
MXA	MY52091035	AGILENT N9020A Signal Analyzer	10/30/2016
Power Meter	MY40511034	AGILENT E4419B	03/12/2015
Power Sensor	US39211924	AGILENT E9300A	09/17/2015
Multimeter	JP35001820	HP 971A	06/10/2015
Power Supply	10C4316B	TDK LAMBDA, MODEL GEN 60-250	N/A