

6. 6dB EMISSION BANDWIDTH

6.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : January 22, 2018
Ambient temperature : 26 °C
Relative humidity : 44 %

6.2. TEST SETUP

- The Equipment Under Test is installed:

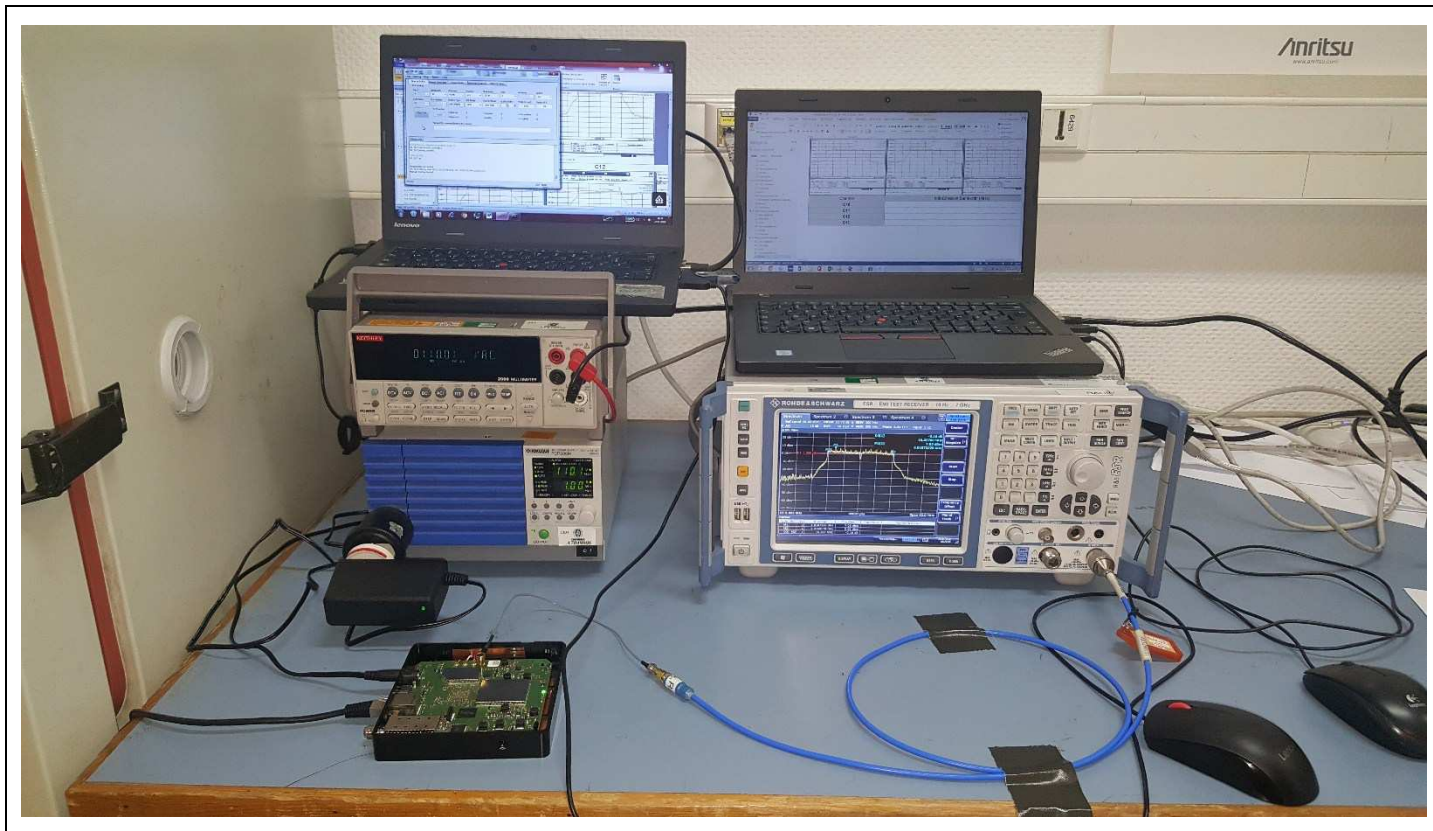
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- KDB 789033 D02 General UNII Test Procedures New Rules v01r02 § C2



Photograph for 6dB emission bandwidth



6.3. LIMIT

The 6dB bandwidth shall be at least 500kHz

6.4. TEST EQUIPMENT LIST

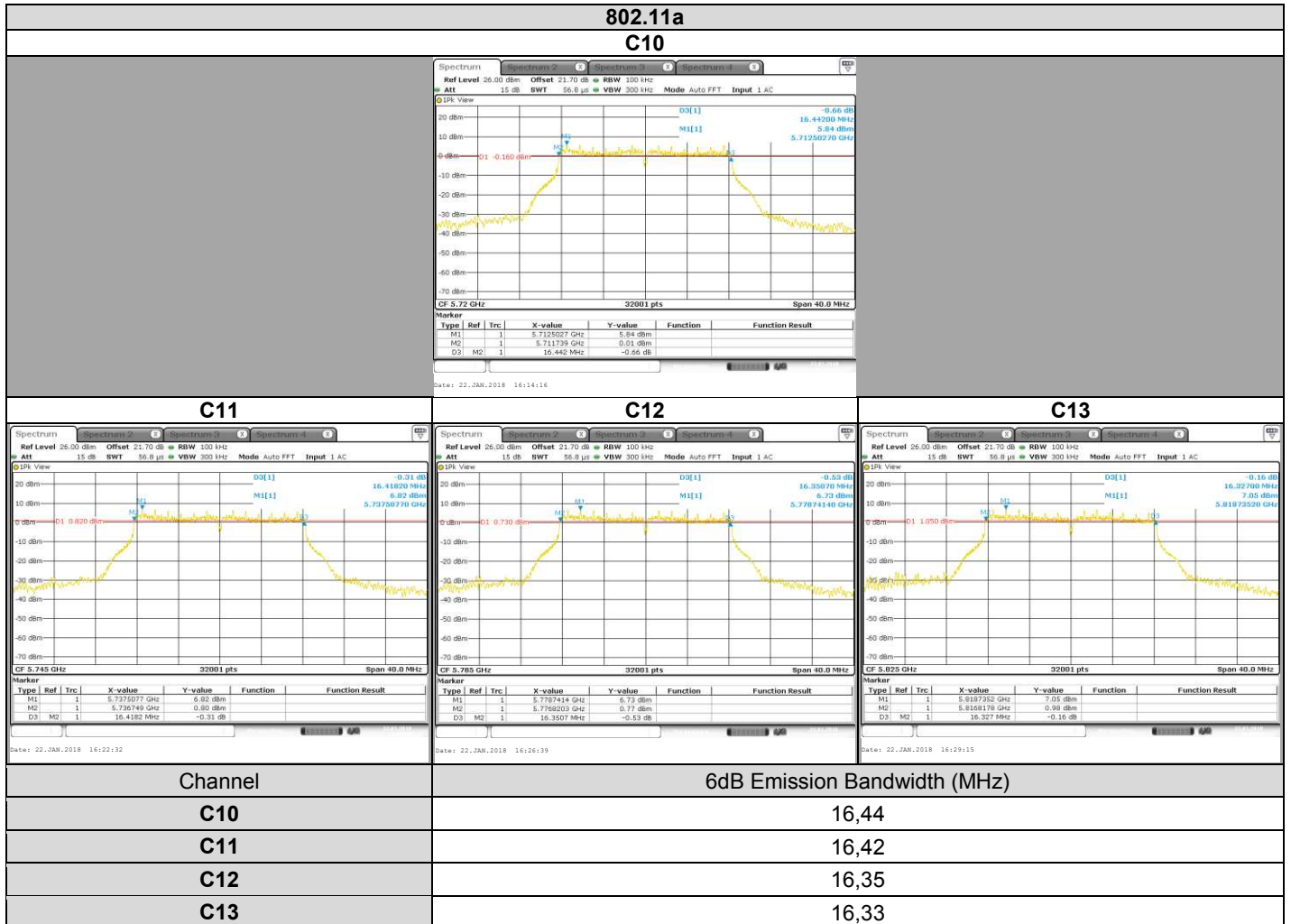
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2017/09	2018/09
Multi-meter	KEITHLEY	2000	A1242090	2016/06	2018/06
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2017/09	2018/09

Note: In our quality system, the test equipment calibration due is more & less 2 months



L C I E

6.5. RESULTS



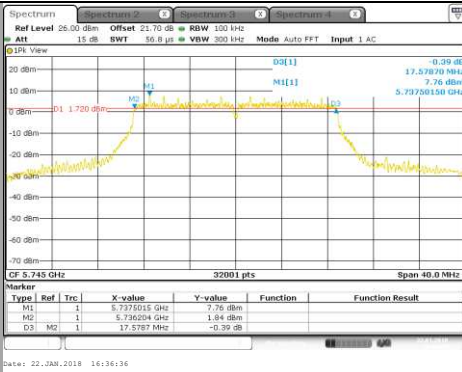


L C I E

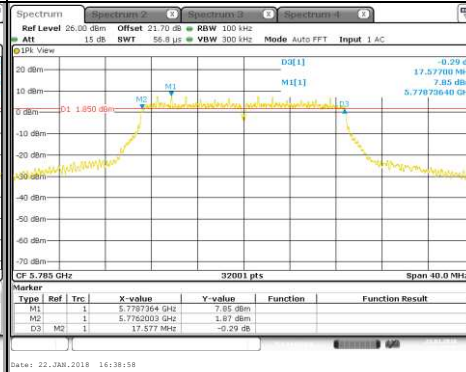
802.11n HT20/ac VHT20
C10



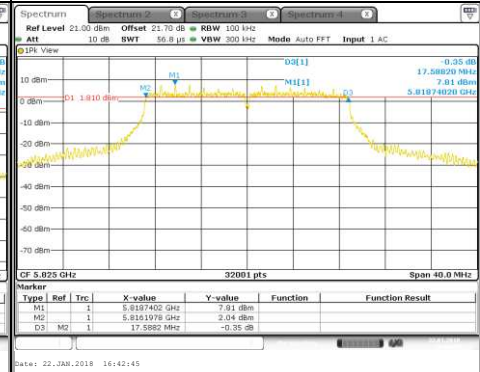
C11



C12



C13



Channel

6dB Emission Bandwidth (MHz)

C10

17,59

C11

17,58

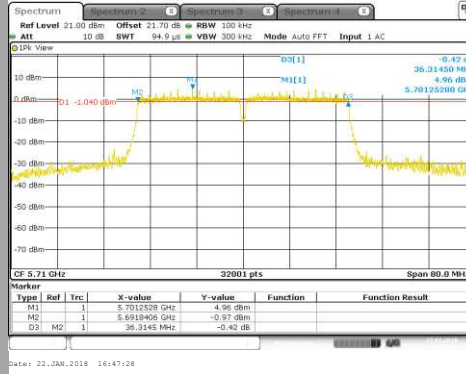
C12

17,58

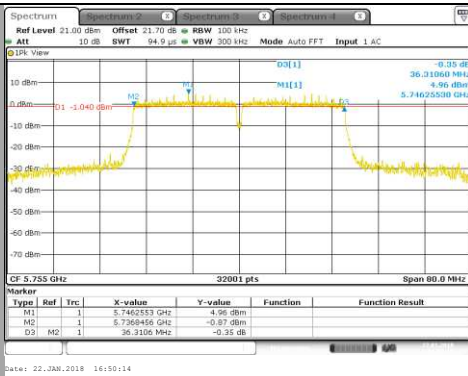
C13

17,59

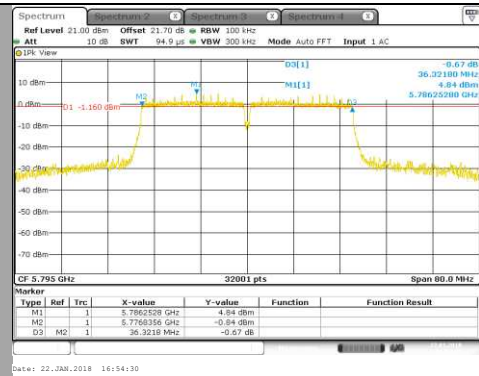
802.11n HT40/ac VHT40
C21



C22



C23

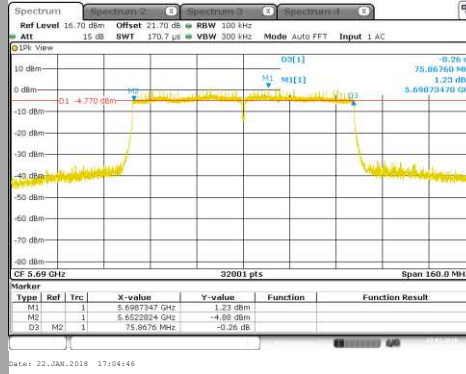


Channel	6dB Emission Bandwidth (MHz)
C21	36,31
C22	36,31
C23	36,32

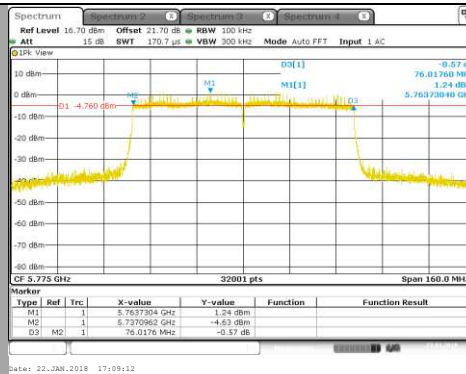


L C I E

**802.11ac VHT80
C28**



C29



Channel	6dB Emission Bandwidth (MHz)
C28	75,87
C29	76,02

6.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **SAGEMCOM DCIW387 ATN**, SN: **61751000063**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.407** limits.

7. DUTY CYCLE

7.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : January 22, 2018
Ambient temperature : 26 °C
Relative humidity : 44 %

7.2. TEST SETUP

- The Equipment Under Test is installed:

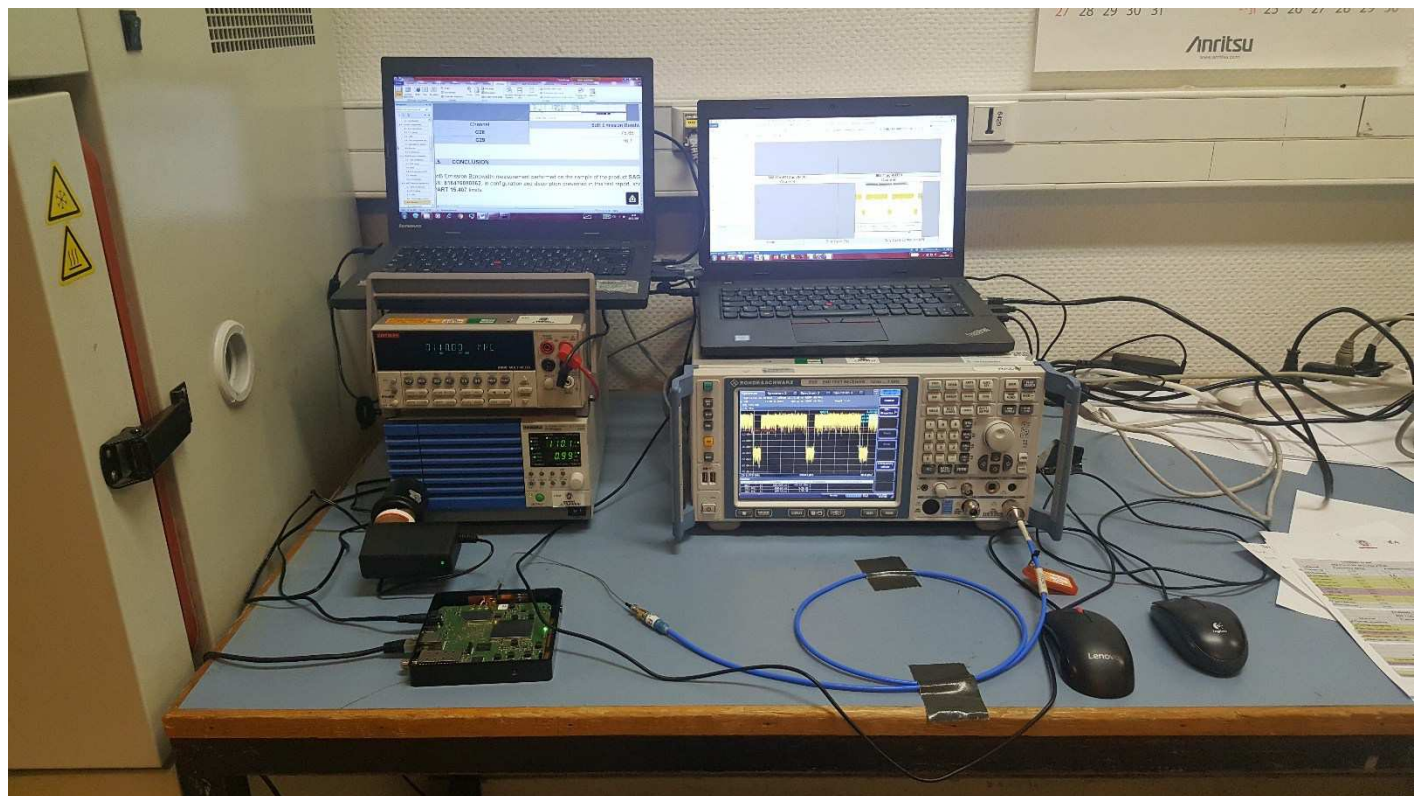
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- KDB 789033 D02 General UNII Test Procedures New Rules v01r02 § B2 b)



Photograph for Duty Cycle



7.3. LIMIT

None

7.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2017/09	2018/09
Multi-meter	KEITHLEY	2000	A1242090	2016/06	2018/06
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2017/09	2018/09

Note: In our quality system, the test equipment calibration due is more & less 2 months



L C I E

7.5. RESULTS

802.11a Channel	802.11n HT20/ac VHT20 Channel																																																									
<p>802.11a Channel</p> <p>Ref Level 31.70 dBm Offset 21.70 dB RBW 40 MHz</p> <p>Att 20 dB SWT 3 ms VBW 40 MHz Input 1 AC</p> <p>SGL TRG:VID</p> <p>IPK Clw</p> <p>D3[1] 11.09 dB</p> <p>M1[1] 2.065625 ms</p> <p>D2[1] -30.90 dBm</p> <p>D3[1] -30.90 dBm</p> <p>TRG -5.300 dBm</p> <p>CF 5.18 GHz 32001 pts 300.0 μs/</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>-503.3438 μs</td> <td>-30.90 dBm</td> <td></td> <td></td> </tr> <tr> <td>D2</td> <td>M1</td> <td>1</td> <td>2.065625 ms</td> <td>-1.83 dB</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>2.0839062 ms</td> <td>11.09 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 22.JAN.2018 17:44:10</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		-503.3438 μ s	-30.90 dBm			D2	M1	1	2.065625 ms	-1.83 dB			D3	M1	1	2.0839062 ms	11.09 dB			<p>802.11n HT20/ac VHT20 Channel</p> <p>Ref Level 31.70 dBm Offset 21.70 dB RBW 40 MHz</p> <p>Att 20 dB SWT 1 ms VBW 40 MHz Input 1 AC</p> <p>SGL TRG:VID</p> <p>IPK Clw</p> <p>D3[1] 19.84 dB</p> <p>M1[1] 539.0625 μs</p> <p>D2[1] -38.52 dBm</p> <p>D3[1] -38.52 dBm</p> <p>TRG -5.300 dBm</p> <p>CF 5.18 GHz 32001 pts 100.0 μs/</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>-152.4063 μs</td> <td>-38.52 dBm</td> <td></td> <td></td> </tr> <tr> <td>D2</td> <td>M1</td> <td>1</td> <td>521.7188 μs</td> <td>4.14 dB</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>539.0625 μs</td> <td>19.84 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 22.JAN.2018 17:38:02</p>		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		-152.4063 μ s	-38.52 dBm			D2	M1	1	521.7188 μ s	4.14 dB			D3	M1	1	539.0625 μ s	19.84 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																																				
M1	1		-503.3438 μ s	-30.90 dBm																																																						
D2	M1	1	2.065625 ms	-1.83 dB																																																						
D3	M1	1	2.0839062 ms	11.09 dB																																																						
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																																				
M1	1		-152.4063 μ s	-38.52 dBm																																																						
D2	M1	1	521.7188 μ s	4.14 dB																																																						
D3	M1	1	539.0625 μ s	19.84 dB																																																						
<p>802.11n HT40/ac VHT40 Channel</p> <p>Ref Level 31.70 dBm Offset 21.70 dB RBW 40 MHz</p> <p>Att 20 dB SWT 700 μs VBW 40 MHz Input 1 AC</p> <p>SGL TRG:VID</p> <p>IPK Clw</p> <p>D3[1] 16.34 dB</p> <p>M1[1] 294.6125 μs</p> <p>D2[1] -30.73 dBm</p> <p>D3[1] -30.73 dBm</p> <p>TRG -12.300 dBm</p> <p>CF 5.19 GHz 32001 pts 70.0 μs/</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>96.95 μs</td> <td>-39.77 dBm</td> <td></td> <td></td> </tr> <tr> <td>D2</td> <td>M1</td> <td>1</td> <td>276.6531 μs</td> <td>-1.55 dB</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>294.6125 μs</td> <td>16.34 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 22.JAN.2018 17:33:35</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		96.95 μ s	-39.77 dBm			D2	M1	1	276.6531 μ s	-1.55 dB			D3	M1	1	294.6125 μ s	16.34 dB			<p>802.11ac VHT80 Channel</p> <p>Ref Level 31.70 dBm Offset 21.70 dB RBW 40 MHz</p> <p>Att 20 dB SWT 410 μs VBW 40 MHz Input 1 AC</p> <p>SGL TRG:VID</p> <p>IPK Clw</p> <p>D3[1] 10.15 dB</p> <p>M1[1] 178.8494 μs</p> <p>D2[1] -40.53 dBm</p> <p>D3[1] -40.53 dBm</p> <p>TRG -13.300 dBm</p> <p>CF 5.21 GHz 32001 pts 41.0 μs/</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>-178.965 μs</td> <td>-40.53 dBm</td> <td></td> <td></td> </tr> <tr> <td>D2</td> <td>M1</td> <td>1</td> <td>160.6044 μs</td> <td>5.75 dB</td> <td></td> <td></td> </tr> <tr> <td>D3</td> <td>M1</td> <td>1</td> <td>178.8494 μs</td> <td>10.15 dB</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 22.JAN.2018 17:48:35</p>		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		-178.965 μ s	-40.53 dBm			D2	M1	1	160.6044 μ s	5.75 dB			D3	M1	1	178.8494 μ s	10.15 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																																				
M1	1		96.95 μ s	-39.77 dBm																																																						
D2	M1	1	276.6531 μ s	-1.55 dB																																																						
D3	M1	1	294.6125 μ s	16.34 dB																																																						
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																																				
M1	1		-178.965 μ s	-40.53 dBm																																																						
D2	M1	1	160.6044 μ s	5.75 dB																																																						
D3	M1	1	178.8494 μ s	10.15 dB																																																						
<p>Mode</p> <p>802.11a</p> <p>802.11n HT20/ac VHT20</p> <p>802.11n HT40/ac VHT40</p> <p>802.11ac VHT80</p>	<p>Duty Cycle (%)</p> <p>99,16</p> <p>96,78</p> <p>93,90</p> <p>89,79</p>	<p>Duty Cycle Correction (dB)</p> <p>0.073</p> <p>0.284</p> <p>0.547</p> <p>0.935</p>																																																								

7.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **SAGEMCOM DCIW387 ATN**, SN: **617510000063**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.407** limits.

8. MAXIMUM CONDUCTED OUTPUT POWER, MAXIMUM POWER SPECTRAL DENSITY, MAXIMUM EIRP, MAXIMUM EIRP SPECTRAL DENSITY

8.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : January 23, 2018
Ambient temperature : 27 °C
Relative humidity : 41 %

8.2. TEST SETUP

- The Equipment Under Test is installed:

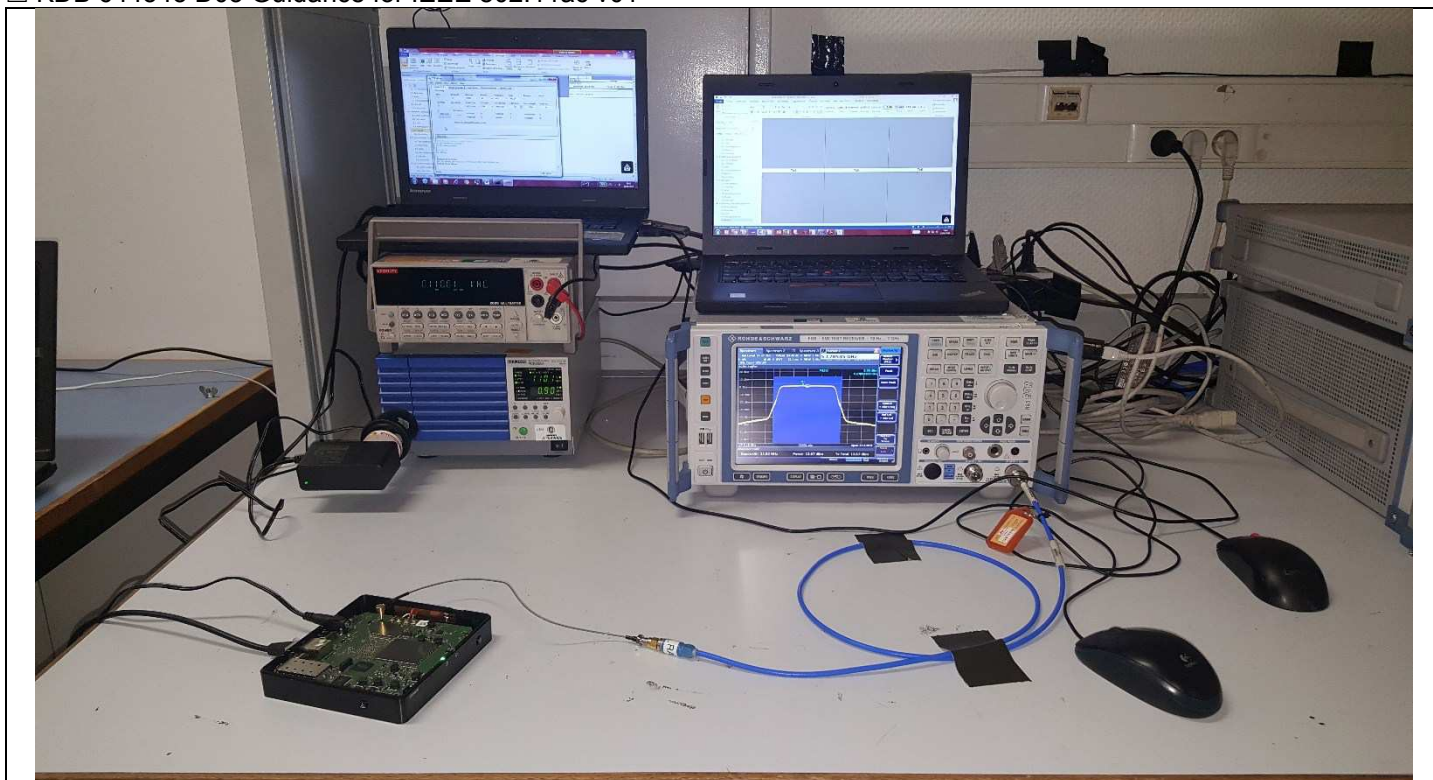
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- KDB 789033 D02 General UNII Test Procedures New Rules v01r02 § E2 b) (Method SA-1) & F
- KDB 789033 D02 General UNII Test Procedures New Rules v01r02 § E2 c) (Method SA-2) & F
- KDB 662911 D01 Multiple Transmitter Output v02r01
- KDB 644545 D03 Guidance for IEEE 802.11ac v01



Photograph for Maximum Conducted Output Power



8.3. LIMIT

FCC Part 15.407

Maximum Conducted Output power:

5150MHz-5250MHz: Shall not exceed 30dBm for Indoor Access Point devices & 24dBm for Client devices

5250MHz-5350MHz: Shall not exceed 24dBm or $11\text{dBm} + 10 \cdot \log(-26\text{dB Bandwidth (MHz)})$

5470MHz-5725MHz: Shall not exceed 24dBm or $11\text{dBm} + 10 \cdot \log(-26\text{dB Bandwidth (MHz)})$

5725MHz-5850MHz: Shall not exceed 30dBm

Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

Maximum Power Spectral Density:

5150MHz-5250MHz: Shall not exceed 17dBm/MHz for Indoor Access Point & 11dBm/MHz for Client devices

5250MHz-5350MHz: Shall not exceed 11dBm/MHz

5470MHz-5725MHz: Shall not exceed 11dBm/MHz

5725MHz-5850MHz: Shall not exceed 30dBm/500kHz

Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi



8.4. TEST EQUIPMENT LIST

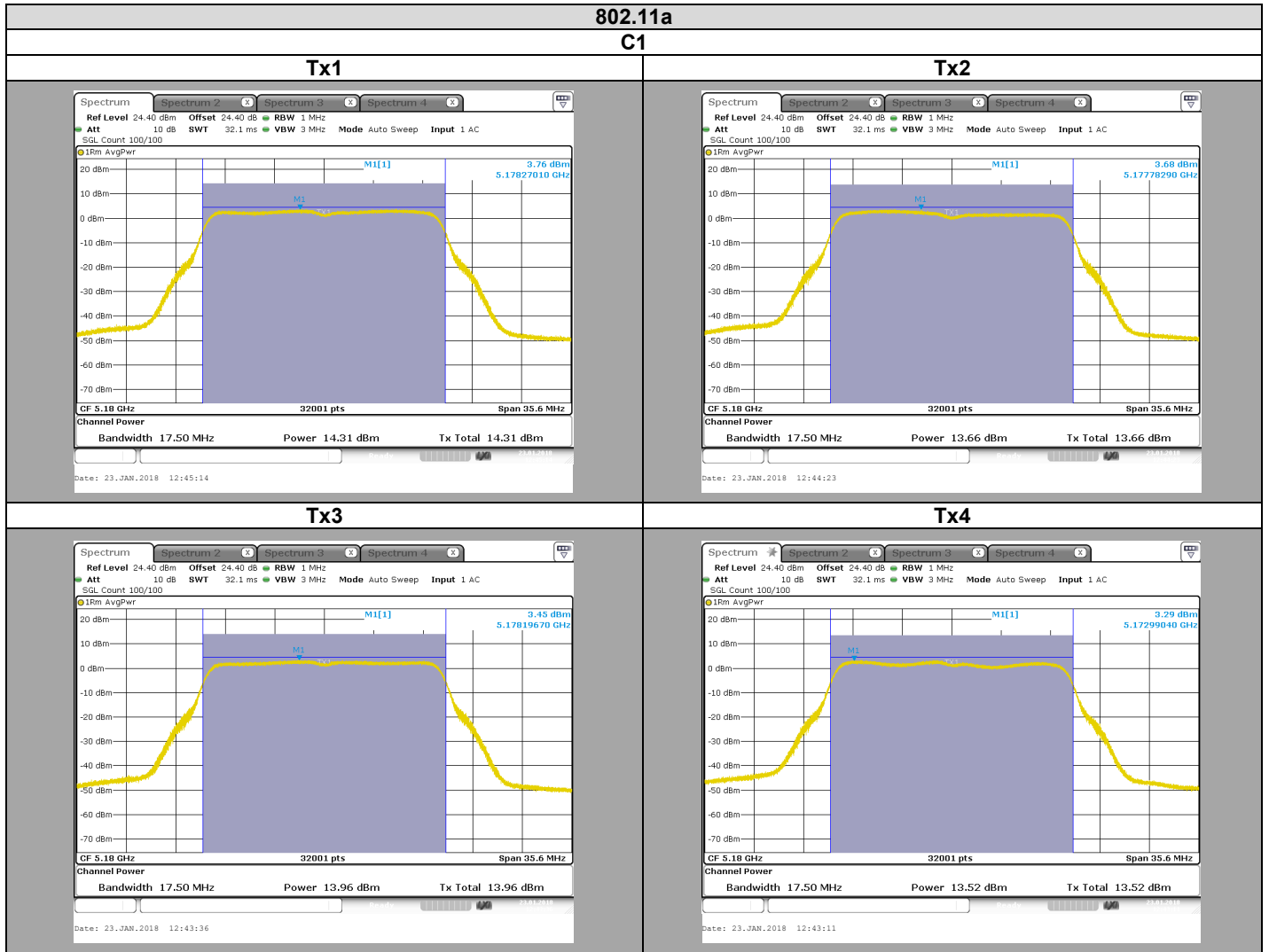
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2017/09	2018/09
Multi-meter	KEITHLEY	2000	A1242090	2016/06	2018/06
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329661	2017/09	2018/09

Note: In our quality system, the test equipment calibration due is more & less 2 months



L C I E

8.5. RESULTS



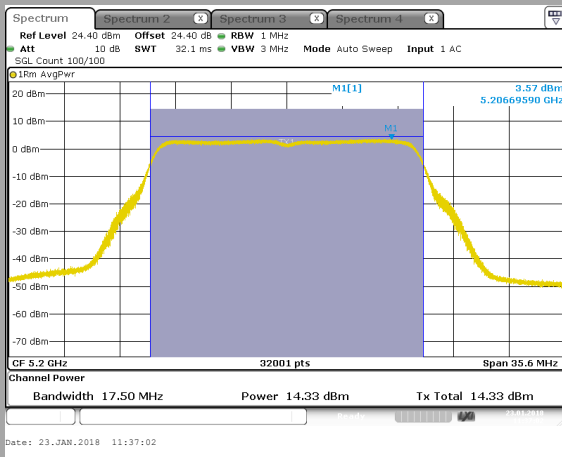


L C I E

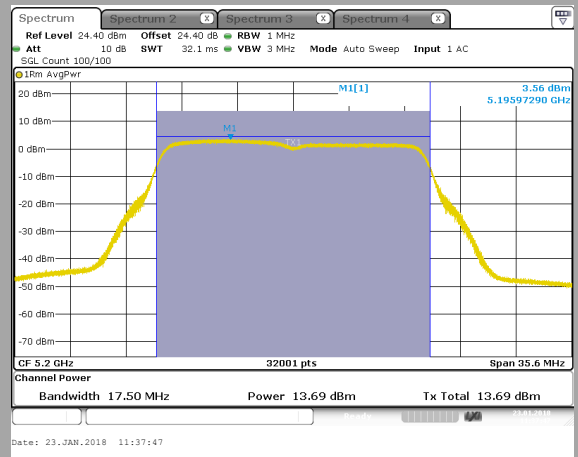
802.11a

C2

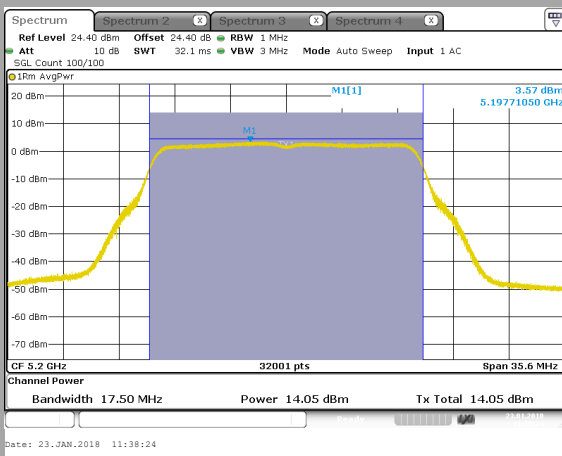
Tx1



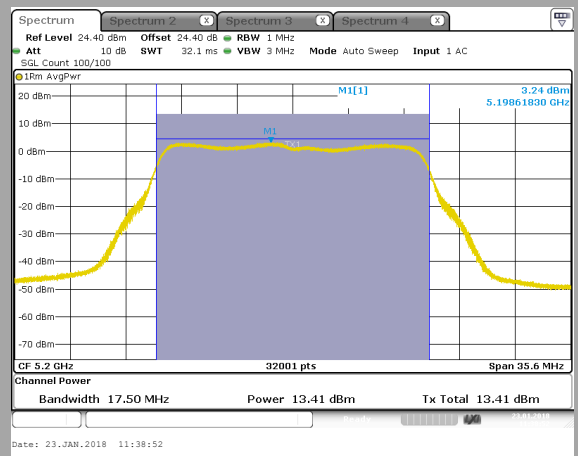
Tx2



Tx3



Tx4



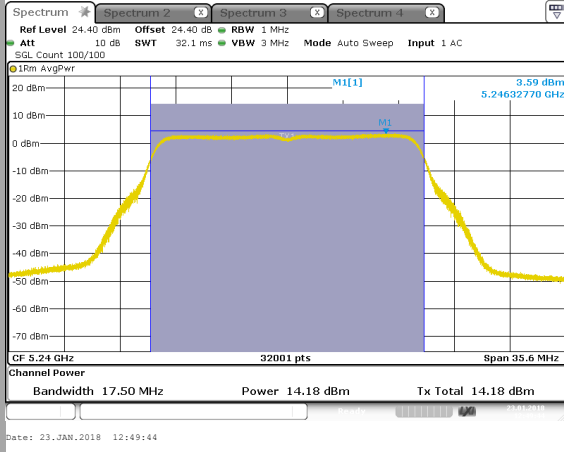


L C I E

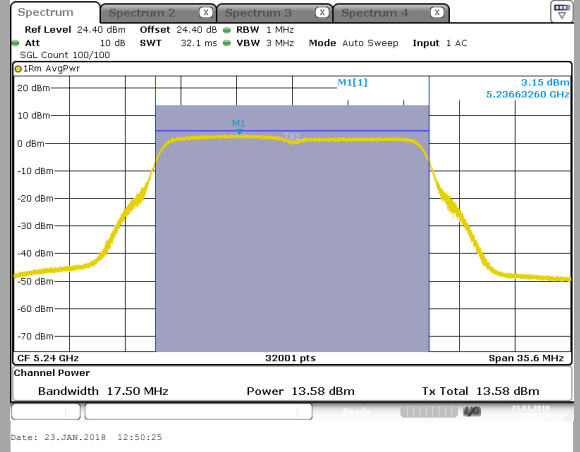
802.11a

C3

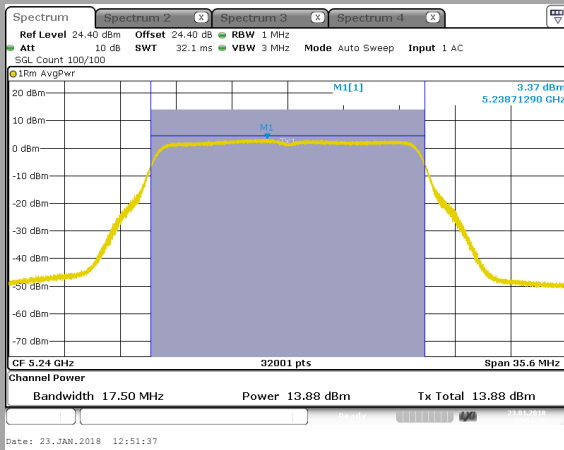
Tx1



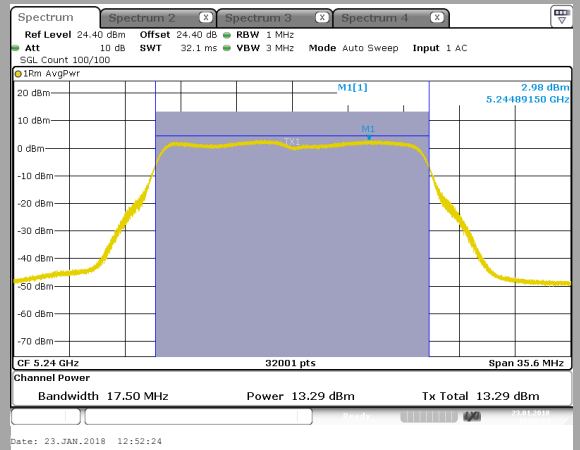
Tx2



Tx3



Tx4

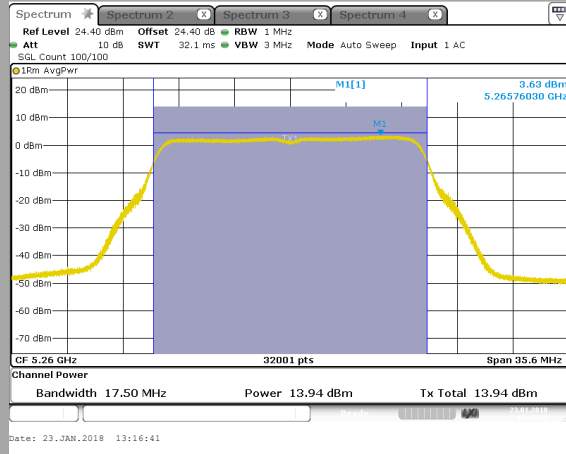




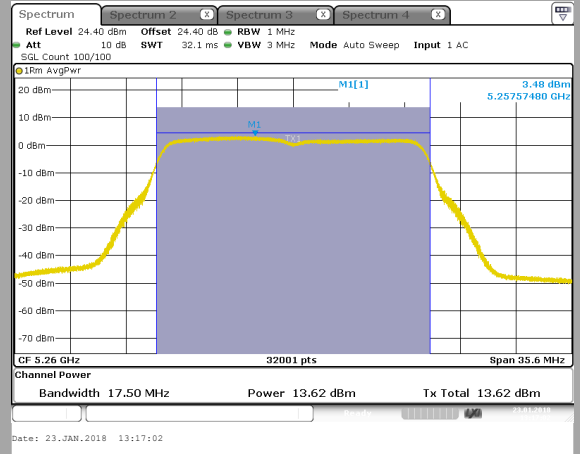
L C I E

802.11a
C4

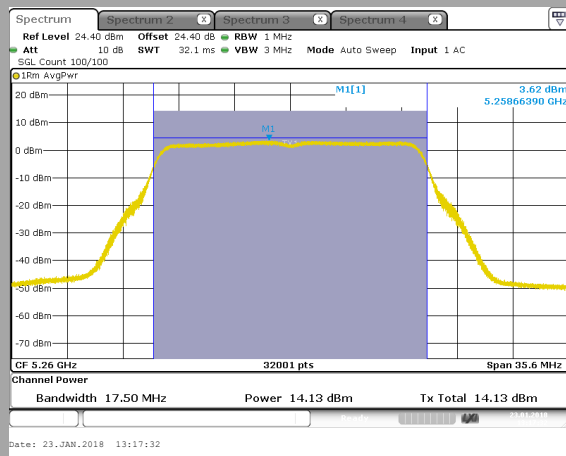
Tx1



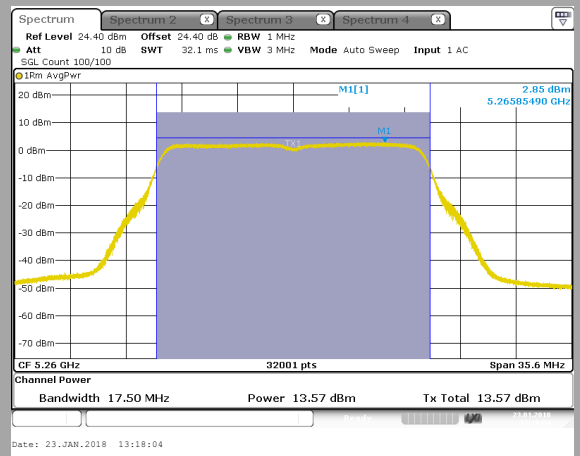
Tx2



Tx3



Tx4



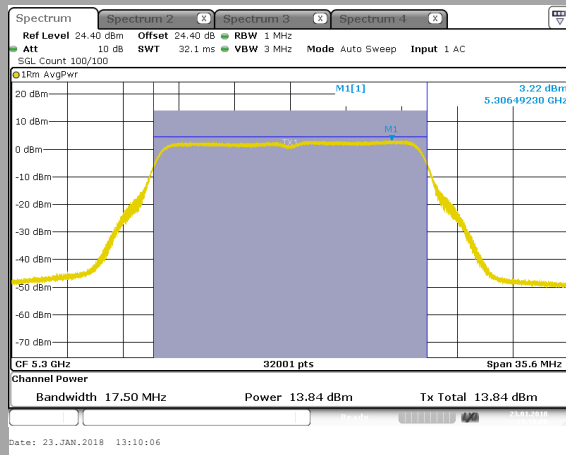


L C I E

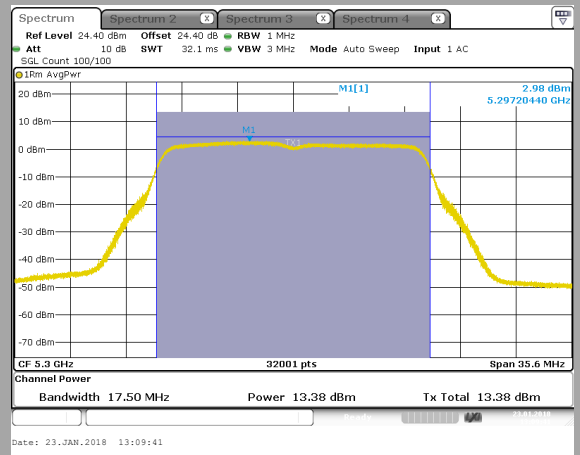
802.11a

C5

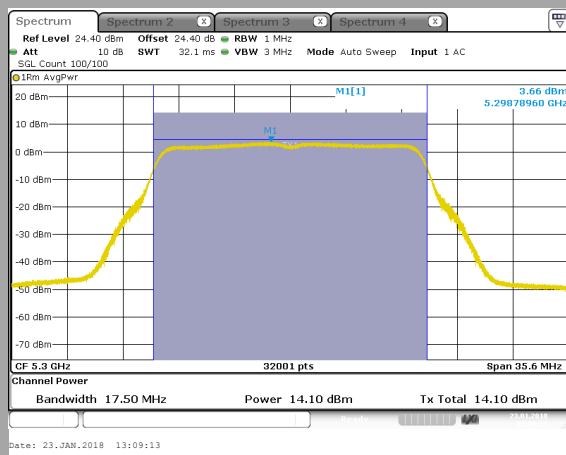
Tx1



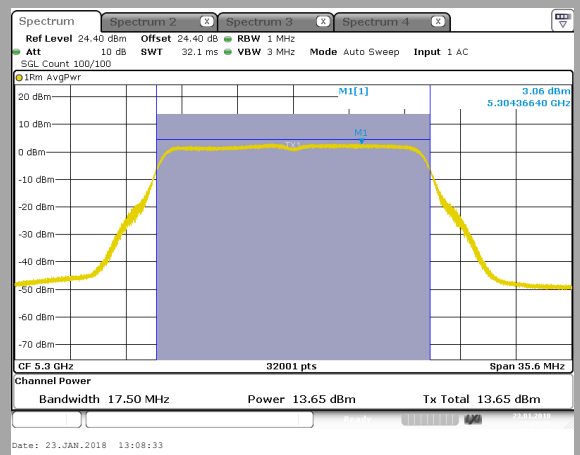
Tx2



Tx3



Tx4



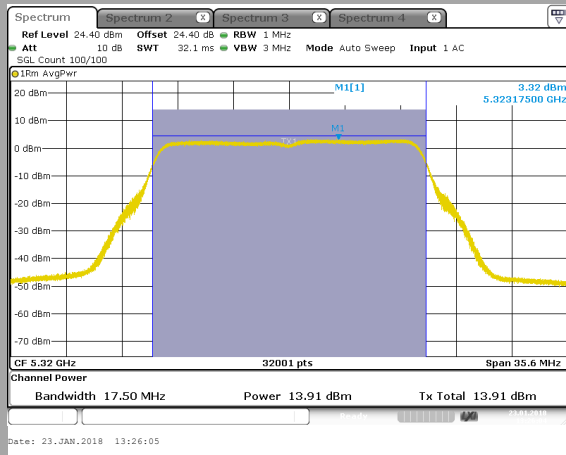


L C I E

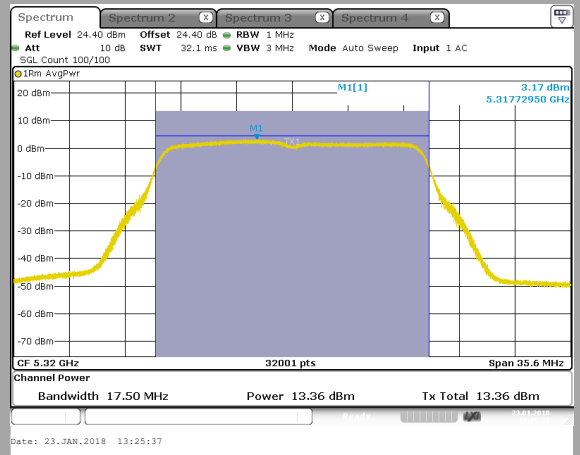
802.11a

C6

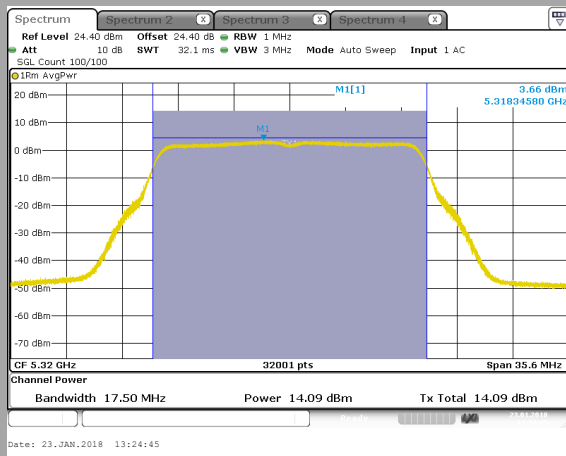
Tx1



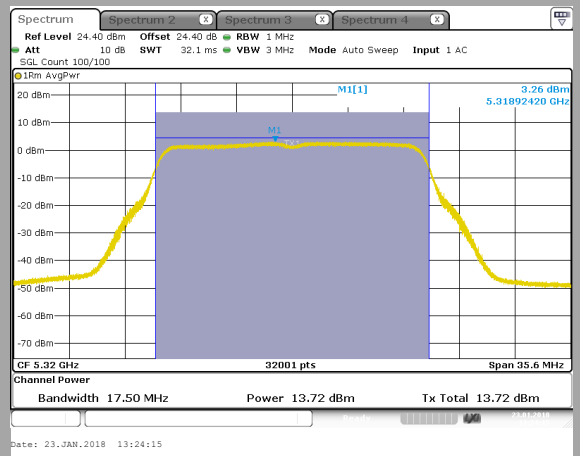
Tx2



Tx3



Tx4



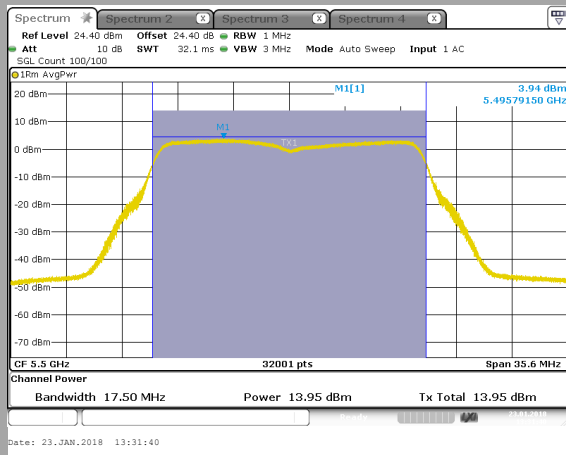


L C I E

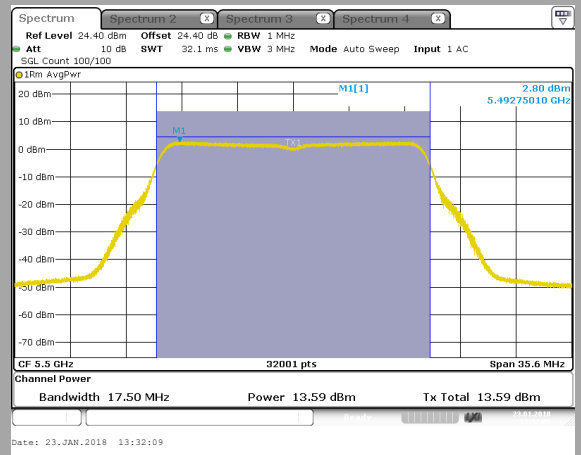
802.11a

C7

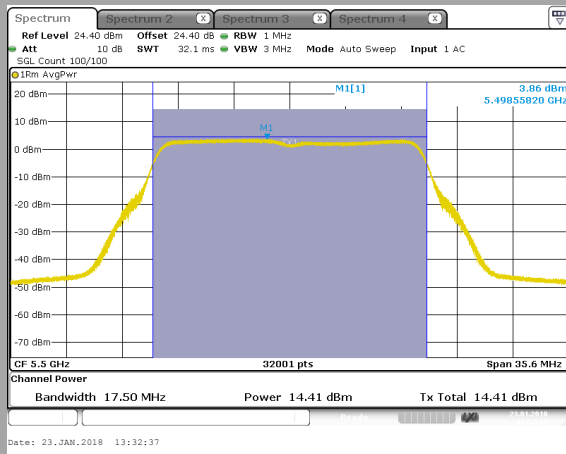
Tx1



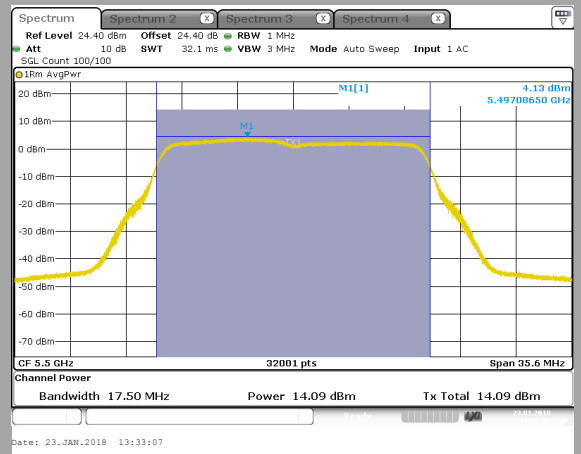
Tx2



Tx3



Tx4



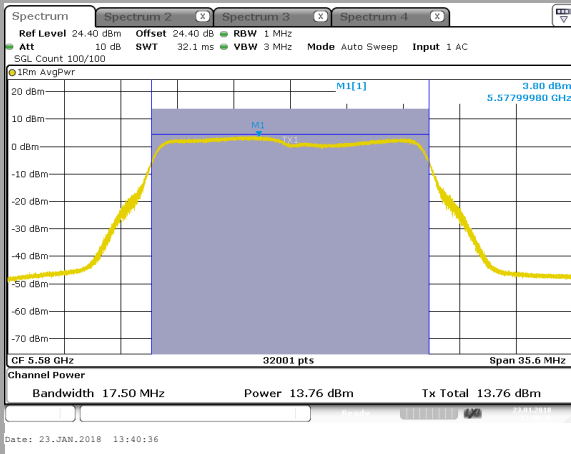


L C I E

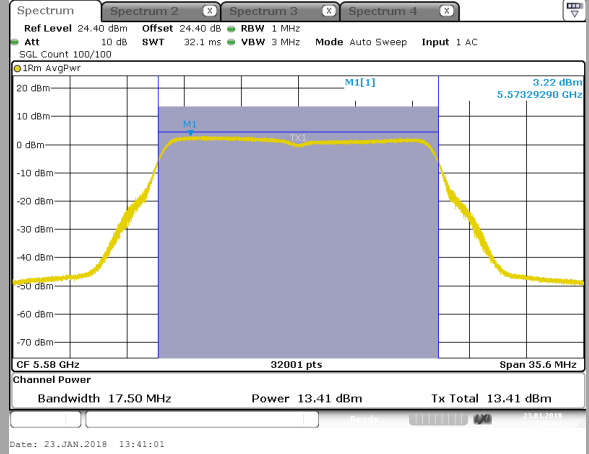
802.11a

C8

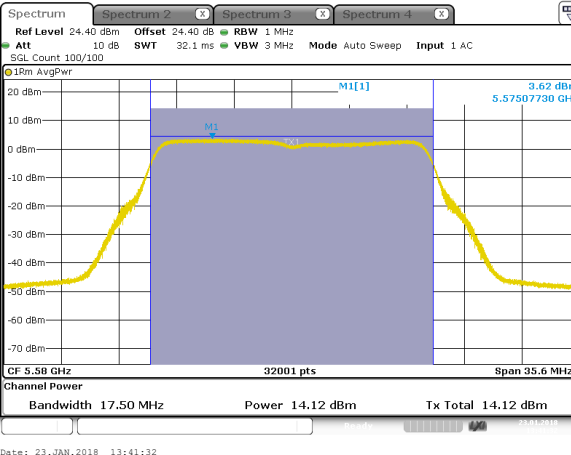
Tx1



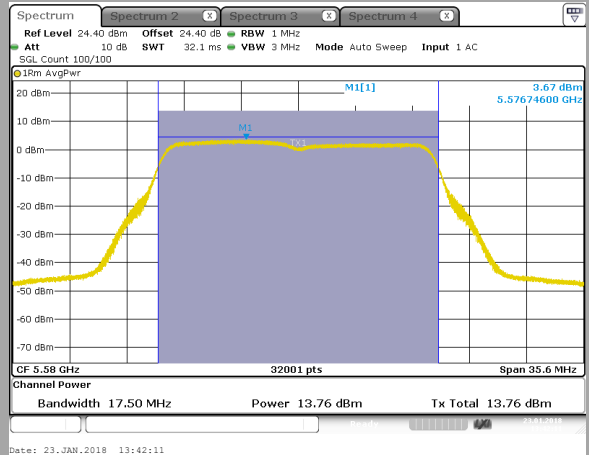
Tx2



Tx3



Tx4



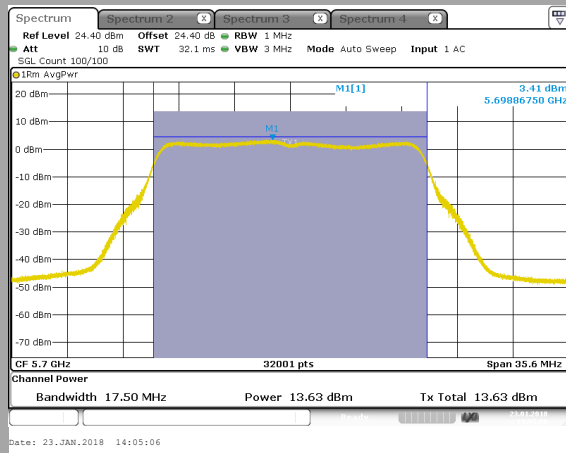


L C I E

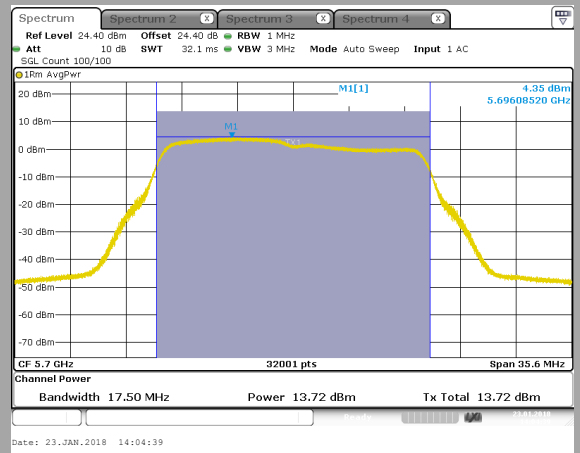
802.11a

C9

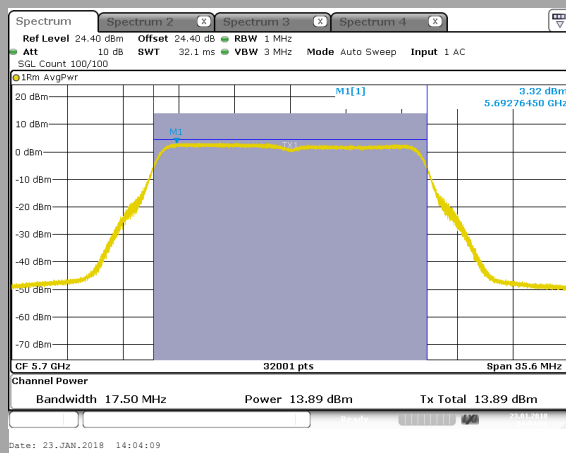
Tx1



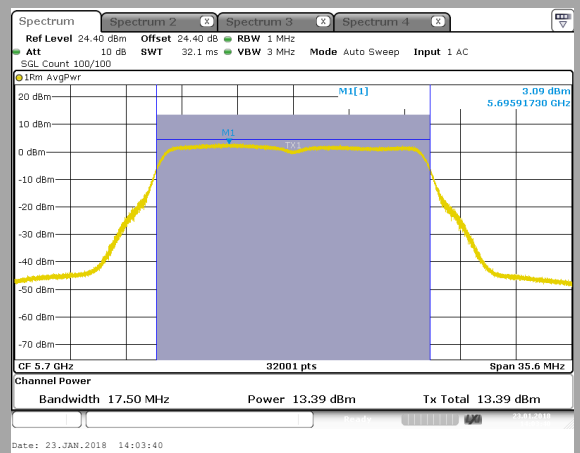
Tx2



Tx3



Tx4



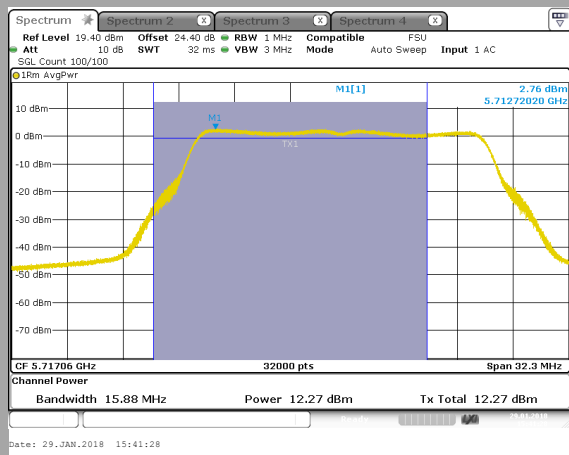


L C I E

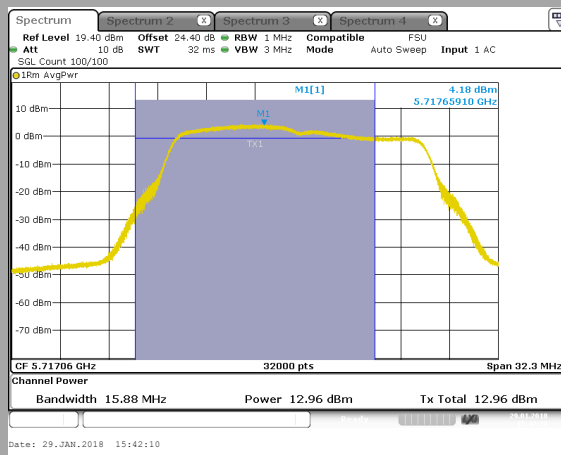
802.11a

C10

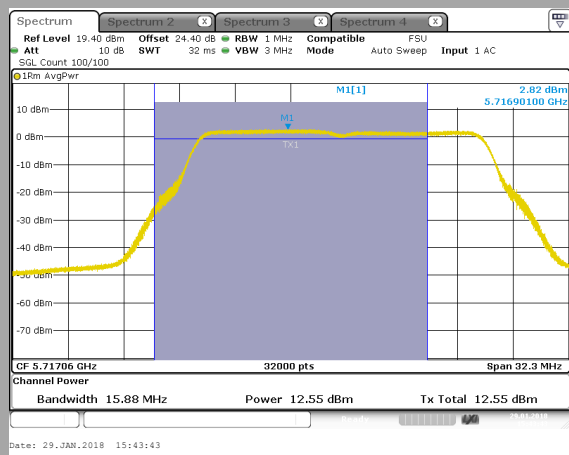
Tx1



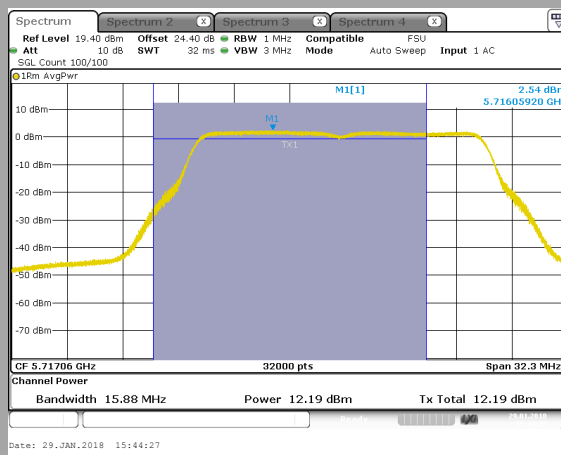
Tx2



Tx3



Tx4



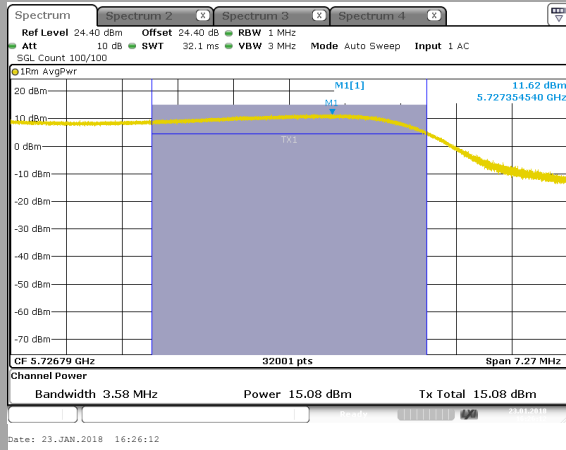


L C I E

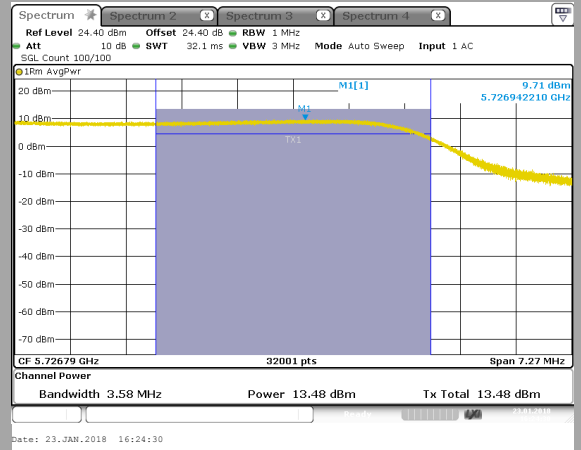
802.11a

C10 Straddle 5725MHz-5850MHz

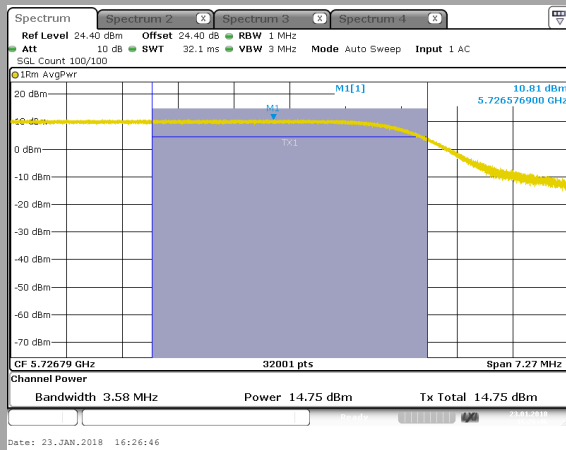
Tx1



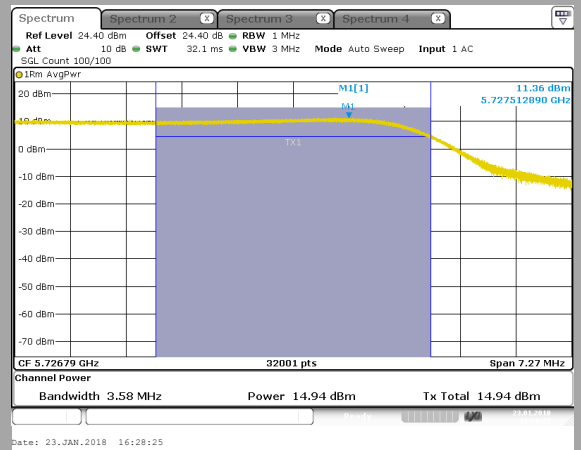
Tx2



Tx3



Tx4



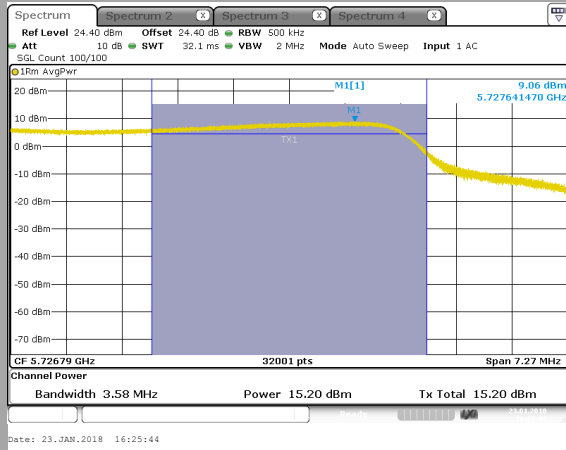


L C I E

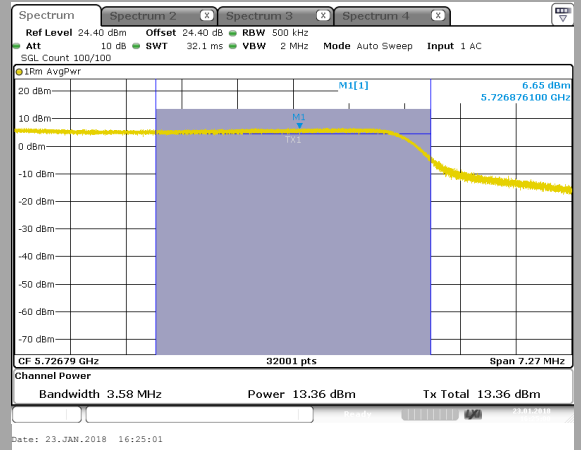
802.11a

C10 Straddle 5725MHz-5850MHz

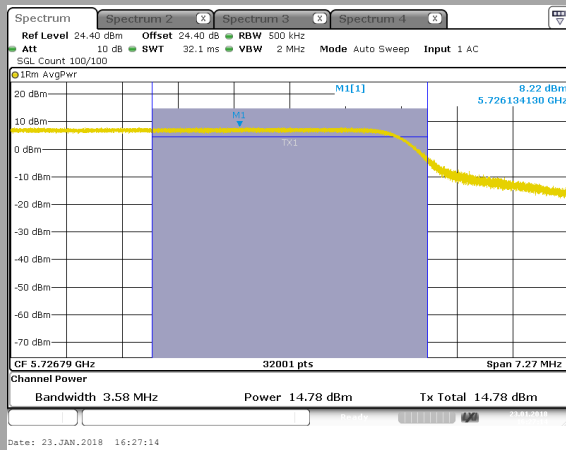
Tx1



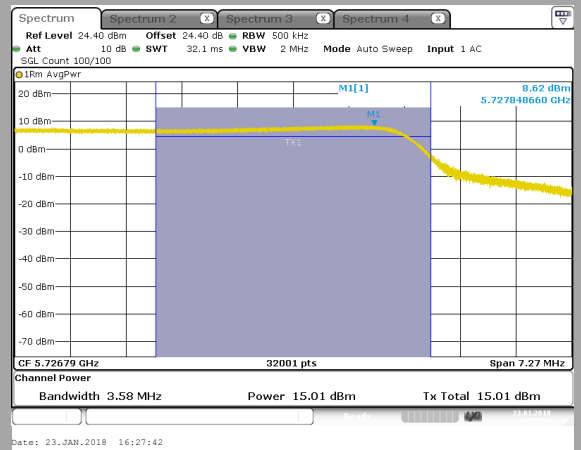
Tx2



Tx3



Tx4

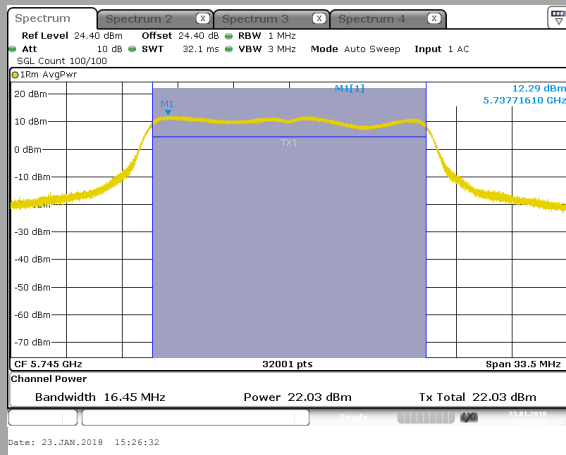




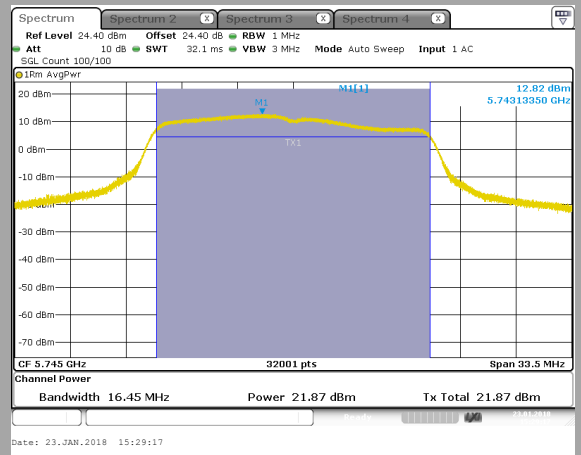
L C I E

802.11a
C11

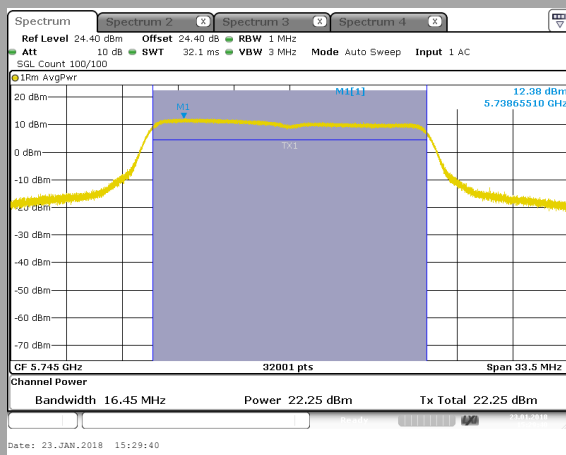
Tx1



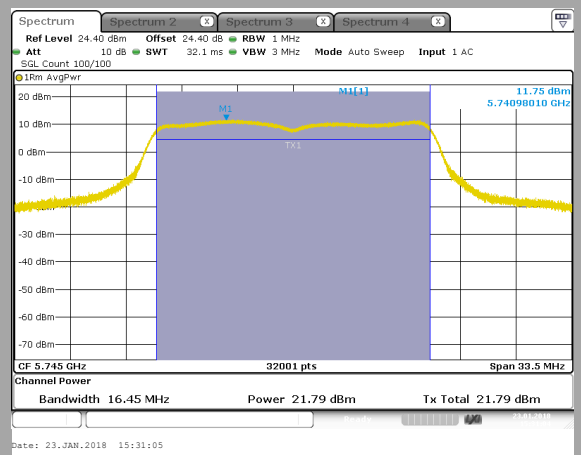
Tx2



Tx3



Tx4

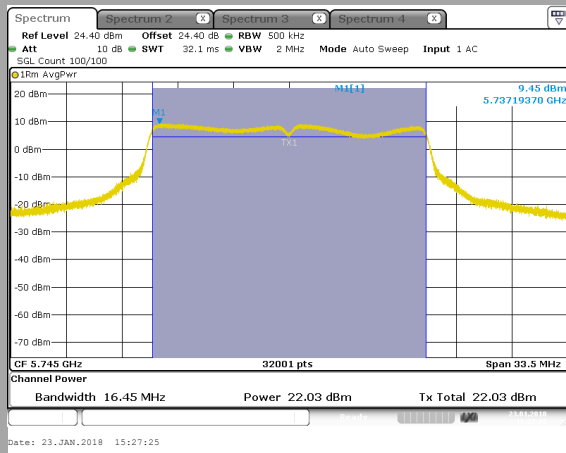




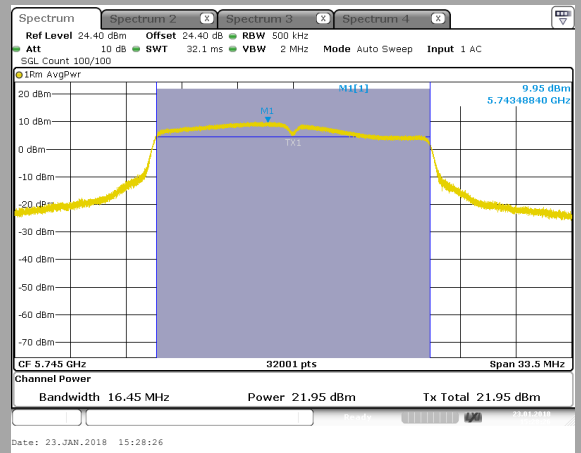
L C I E

802.11a
C11

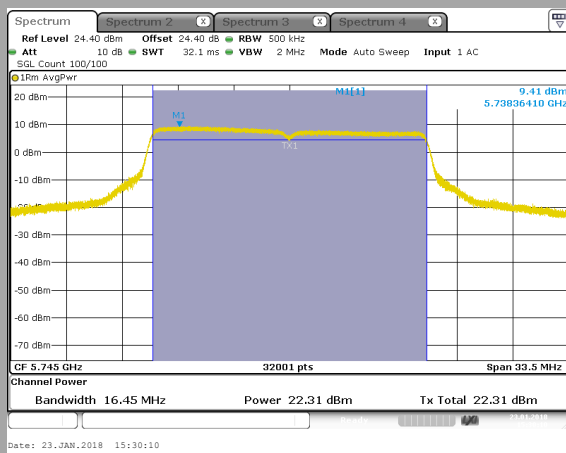
Tx1



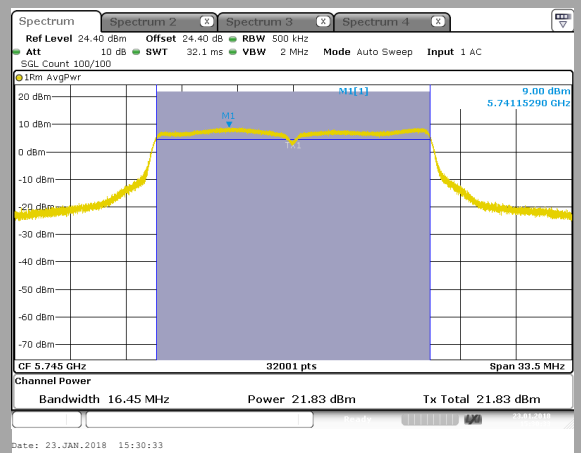
Tx2



Tx3



Tx4

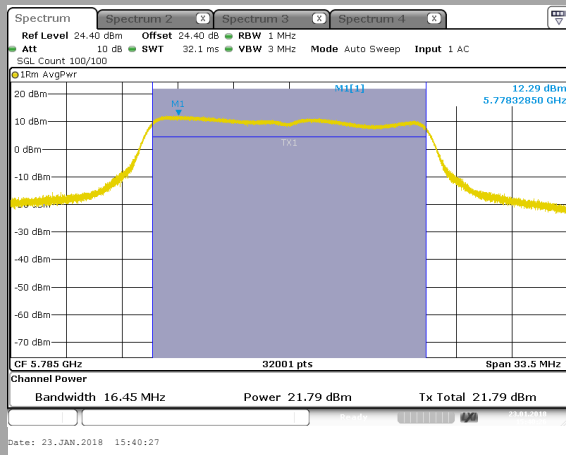




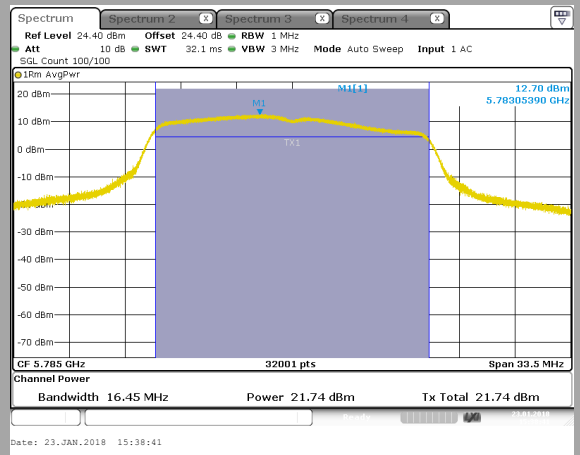
L C I E

802.11a
C12

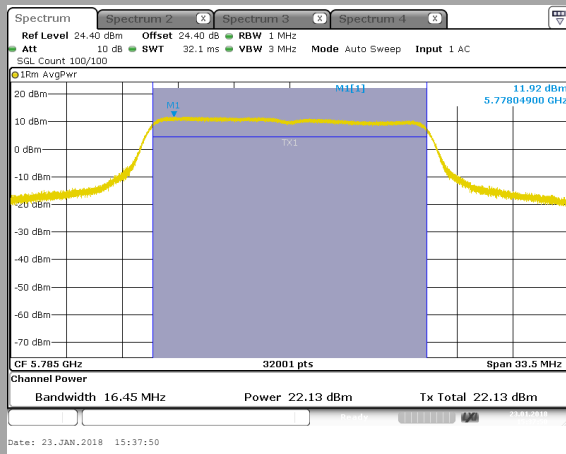
Tx1



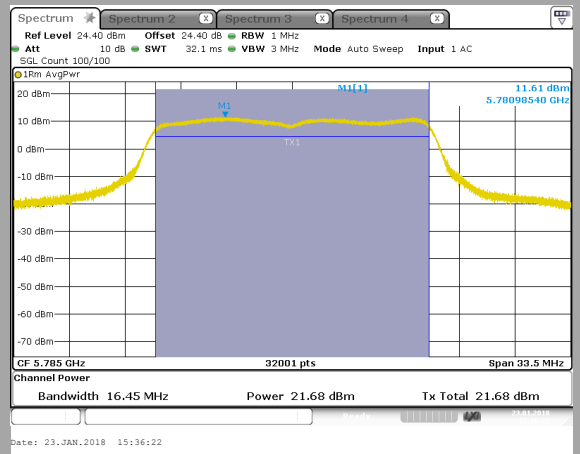
Tx2



Tx3



Tx4

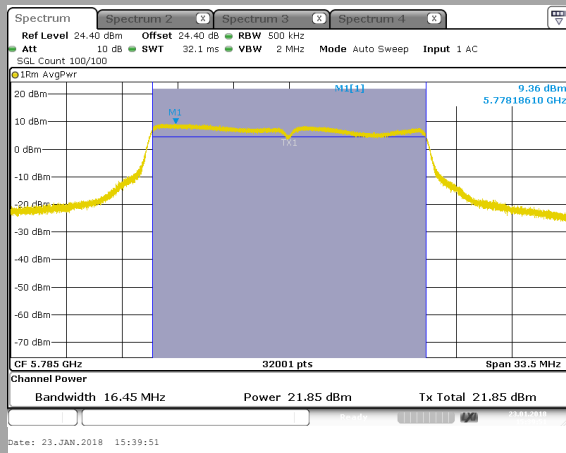




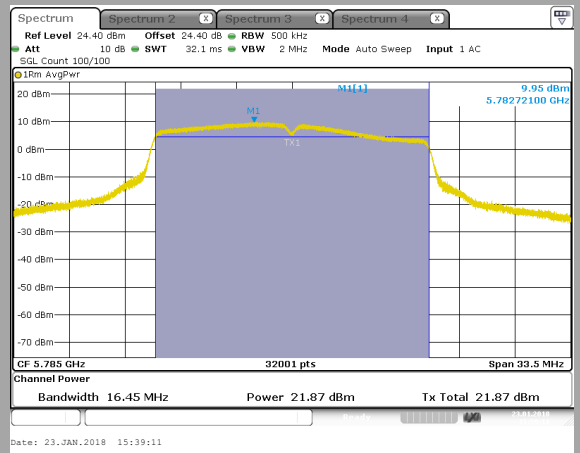
L C I E

802.11a
C12

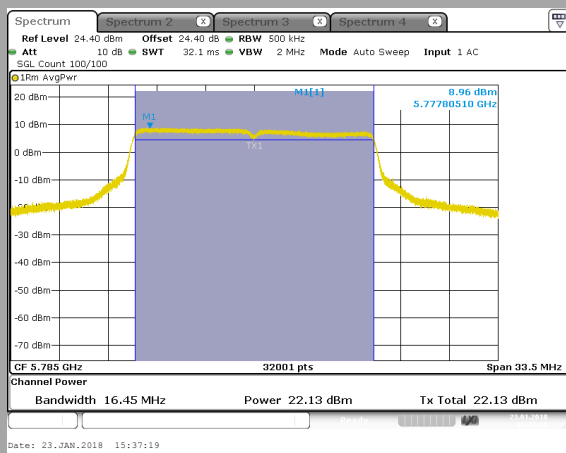
Tx1



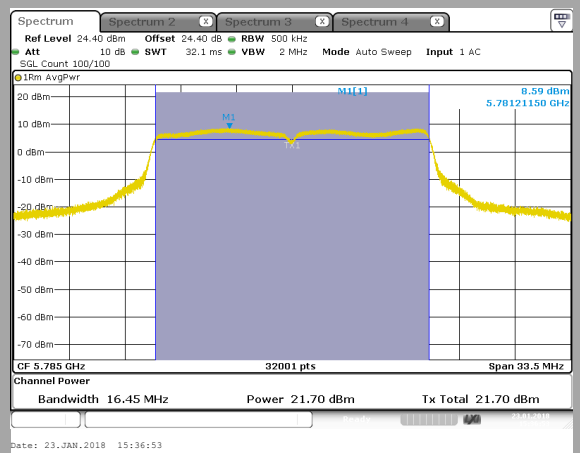
Tx2



Tx3



Tx4

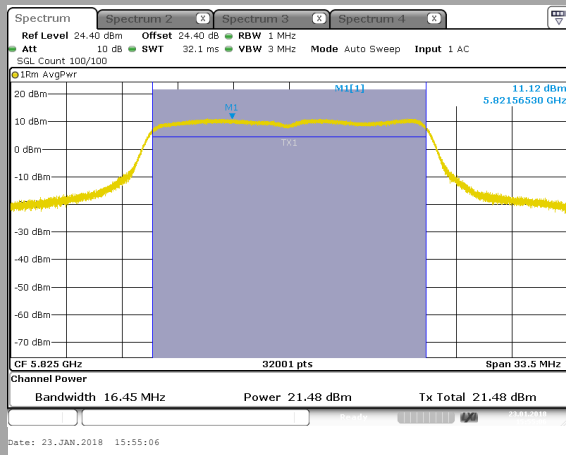




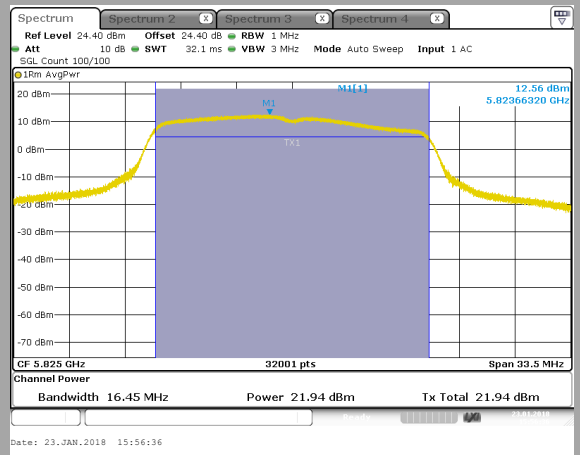
L C I E

802.11a
C13

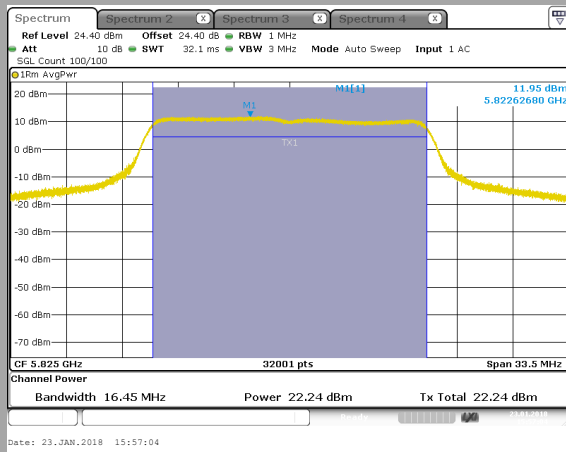
Tx1



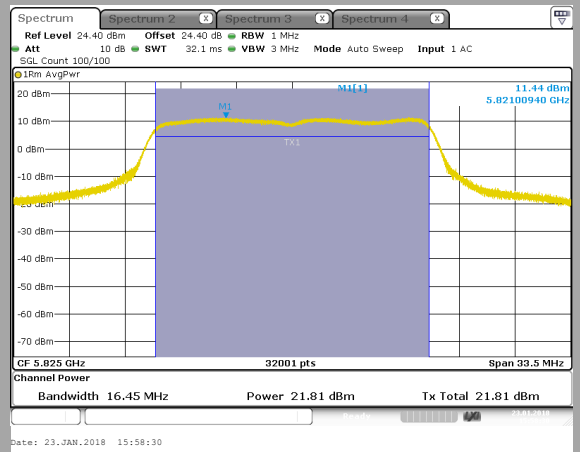
Tx2



Tx3



Tx4

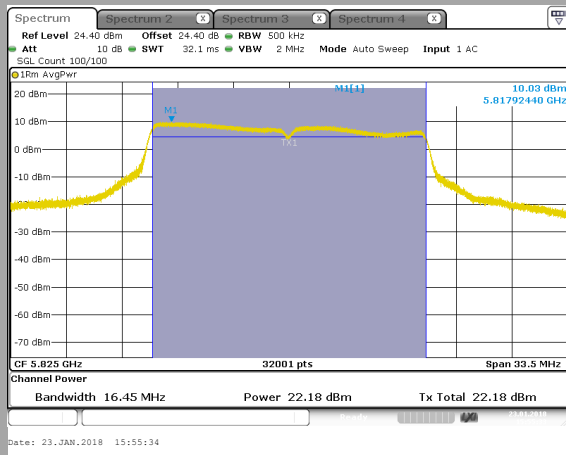




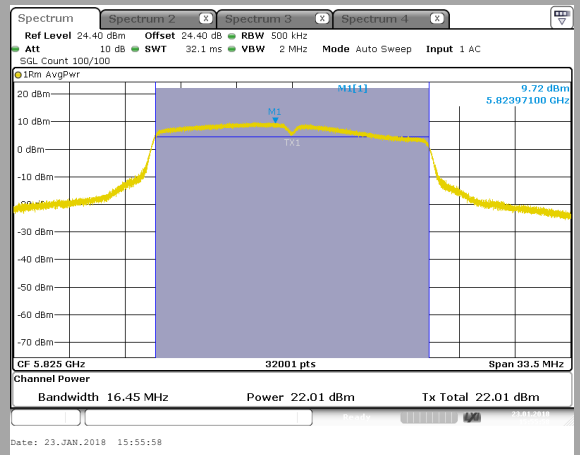
L C I E

802.11a
C13

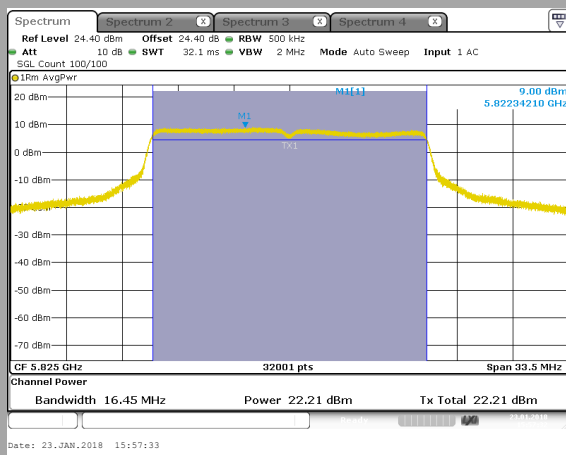
Tx1



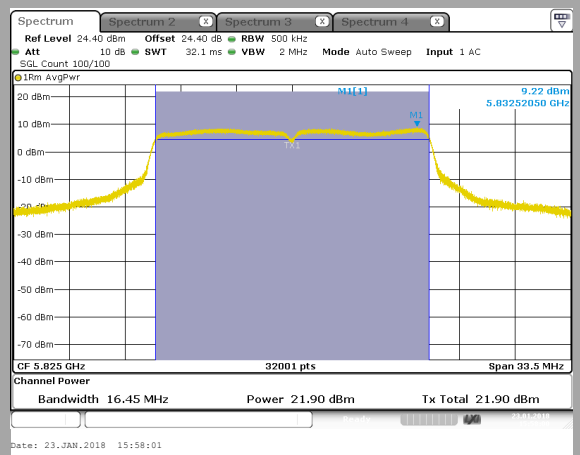
Tx2



Tx3



Tx4



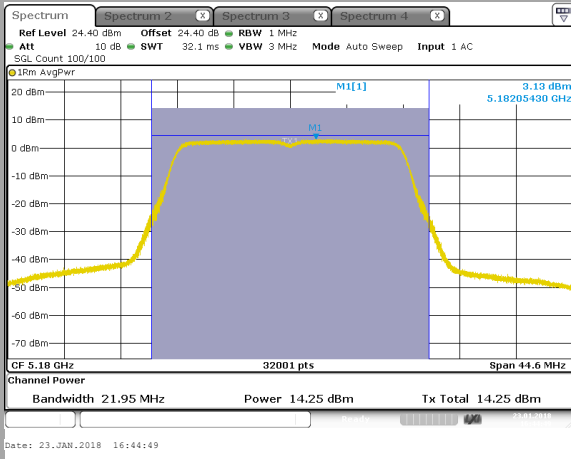


L C I E

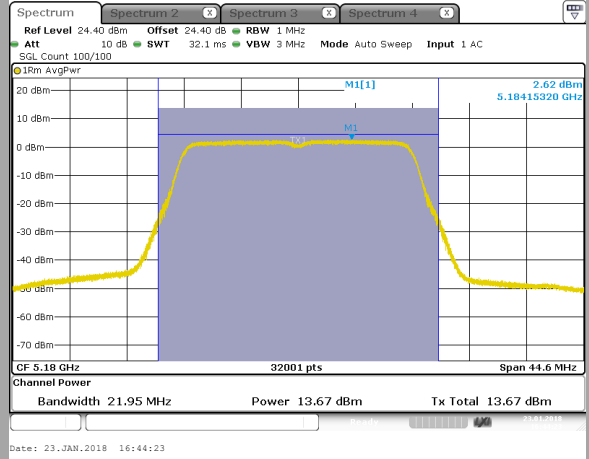
802.11n HT20/ac VHT20

C1

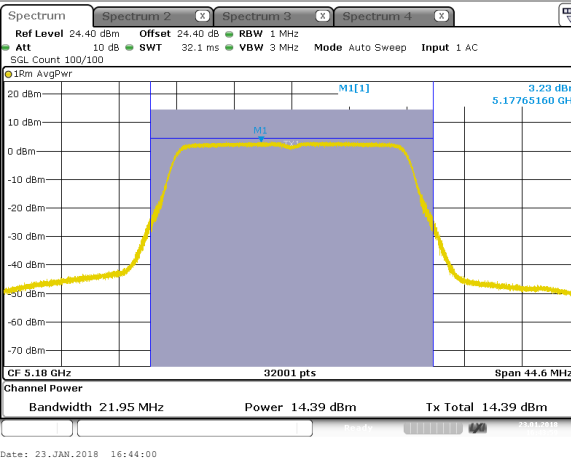
Tx1



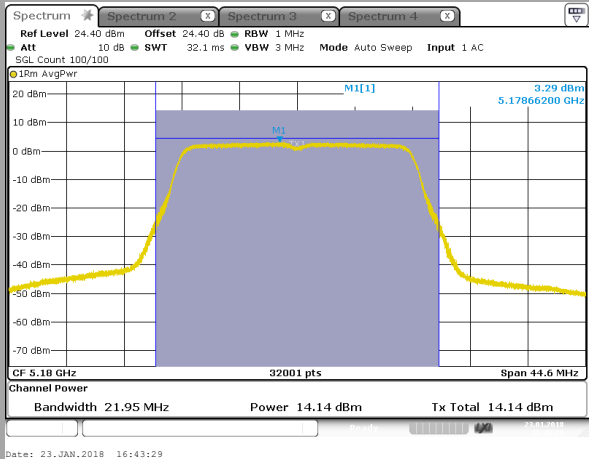
Tx2



Tx3



Tx4



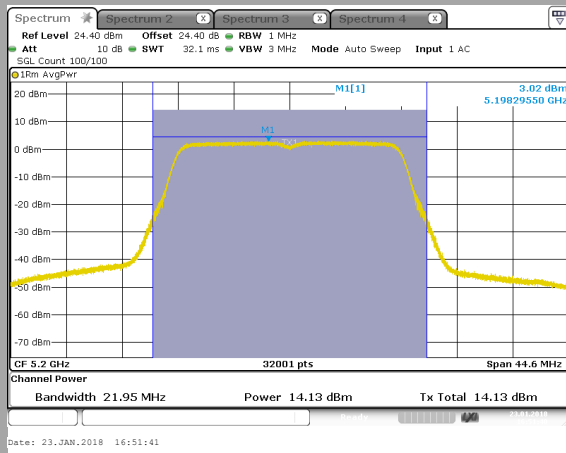


L C I E

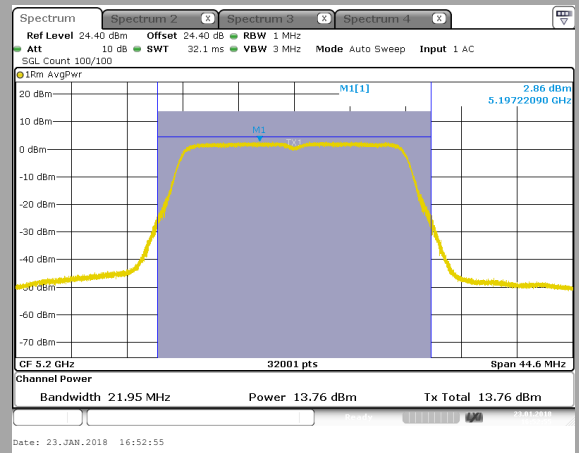
802.11n HT20/ac VHT20

C2

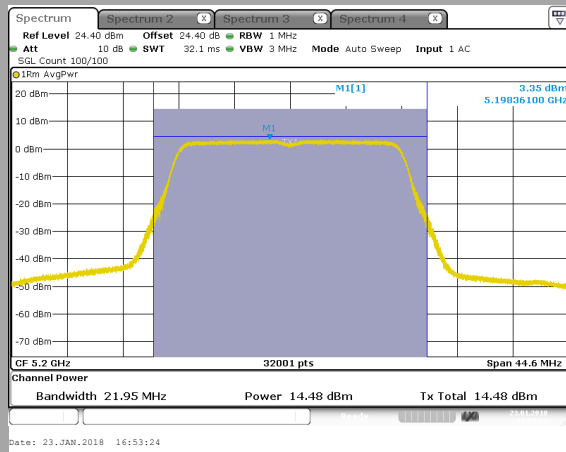
Tx1



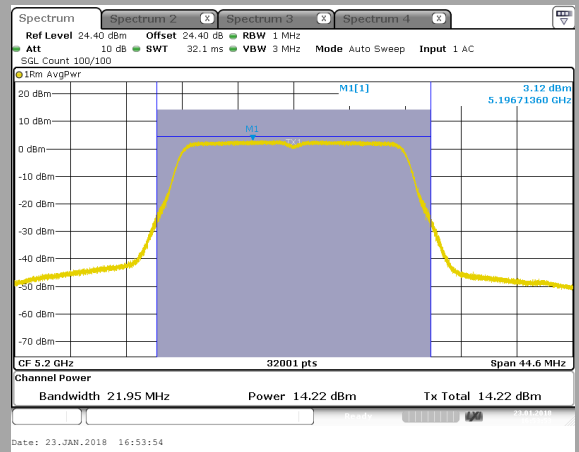
Tx2



Tx3



Tx4



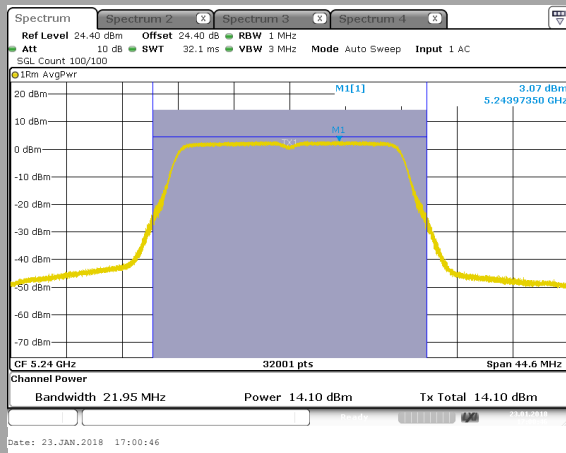


L C I E

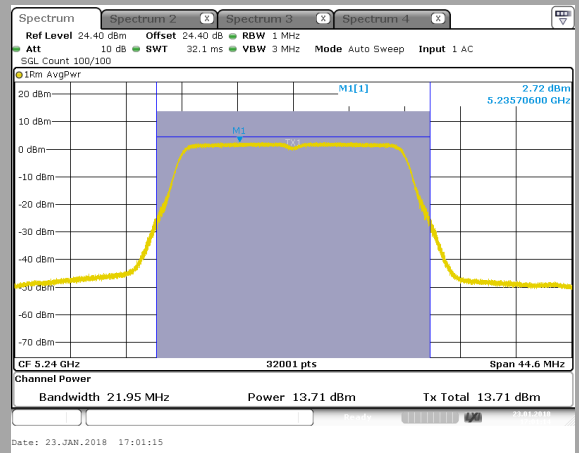
802.11n HT20/ac VHT20

C3

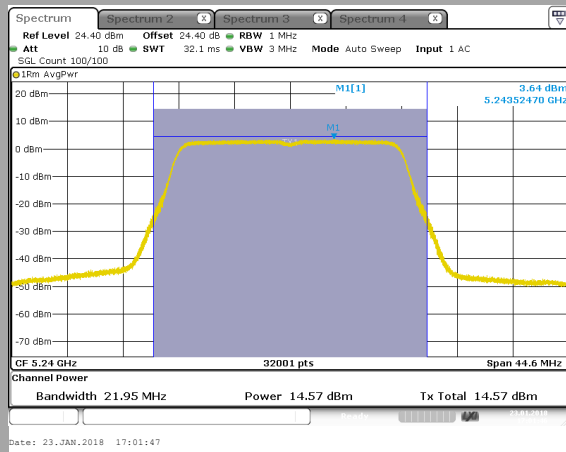
Tx1



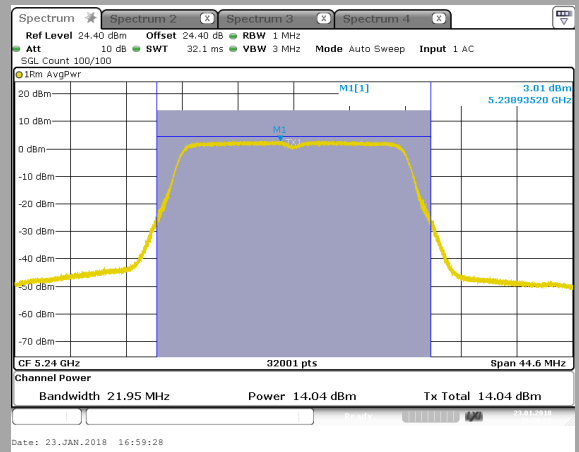
Tx2



Tx3



Tx4



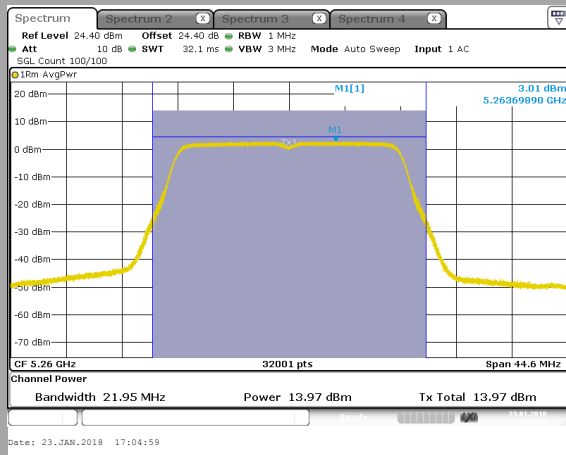


L C I E

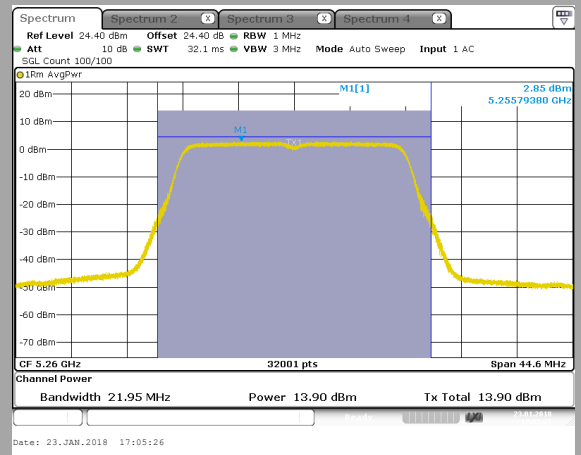
802.11n HT20/ac VHT20

C4

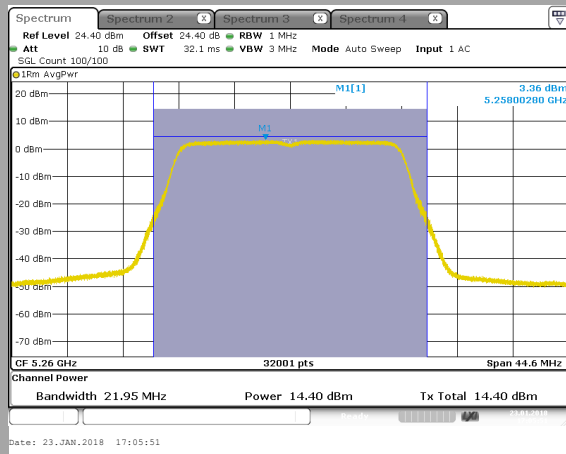
Tx1



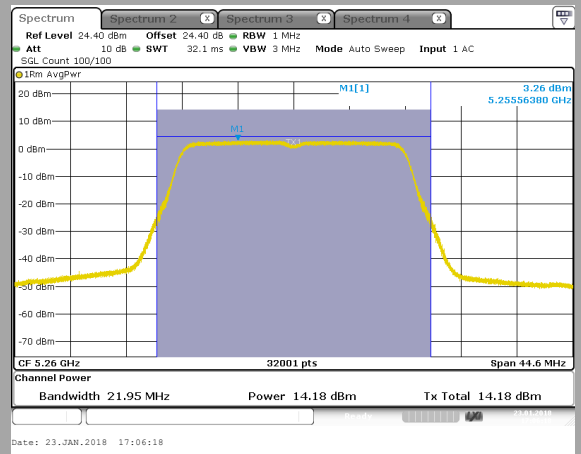
Tx2



Tx3



Tx4



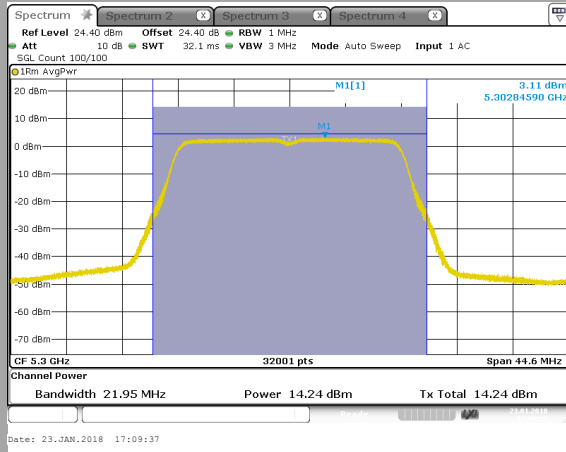


L C I E

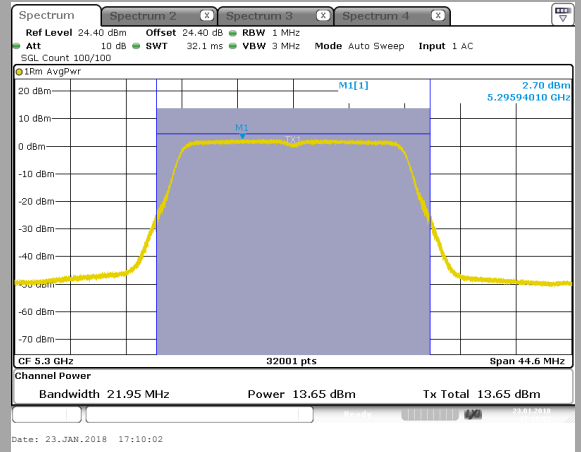
802.11n HT20/ac VHT20

C5

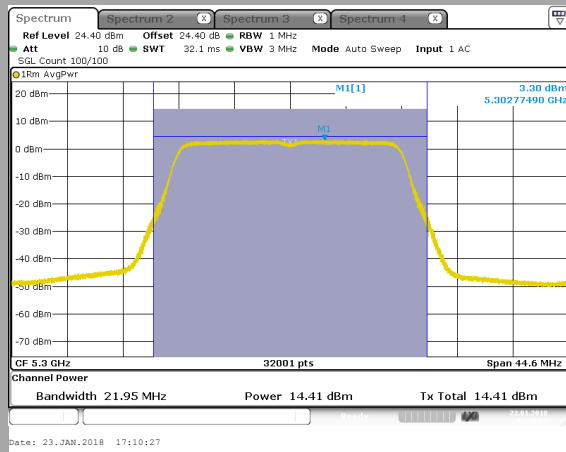
Tx1



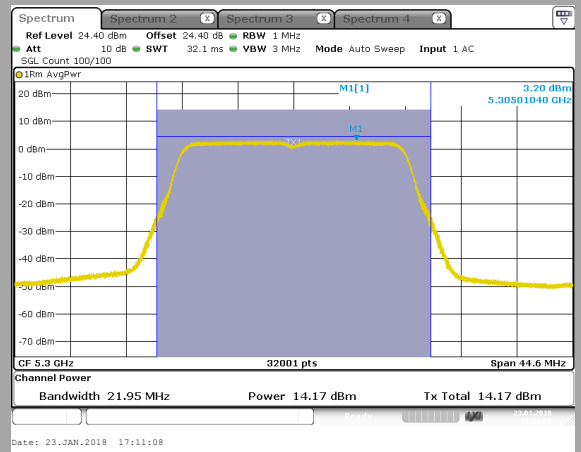
Tx2



Tx3



Tx4



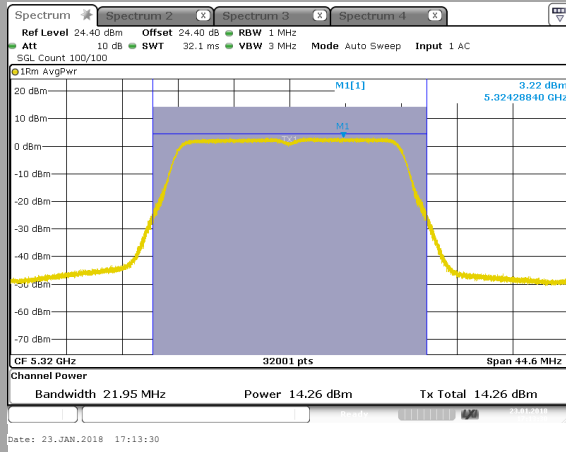


L C I E

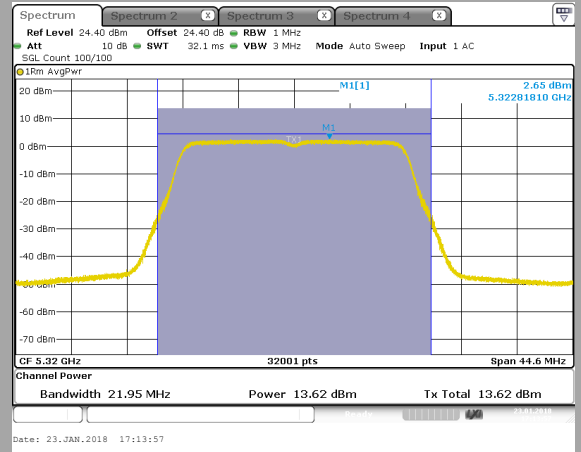
802.11n HT20/ac VHT20

C6

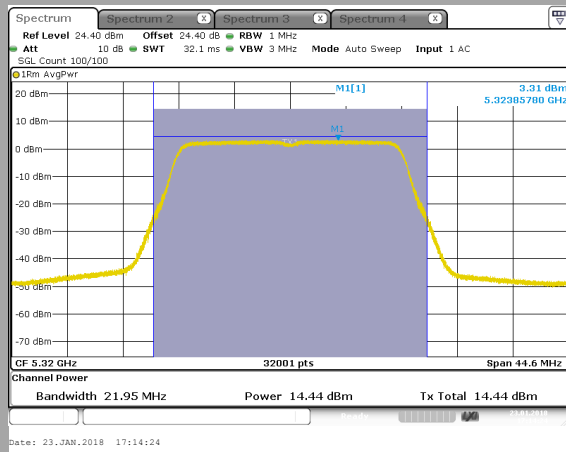
Tx1



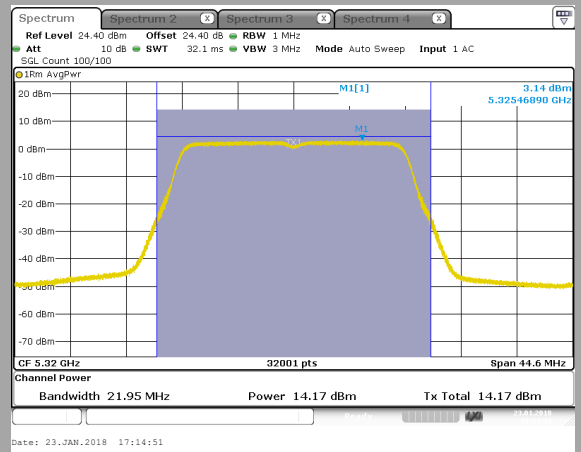
Tx2



Tx3



Tx4



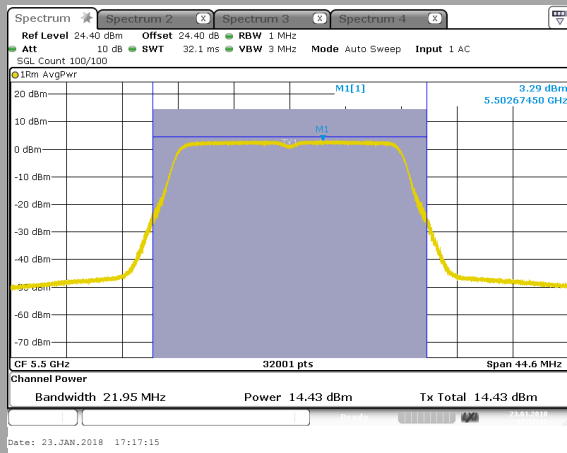


L C I E

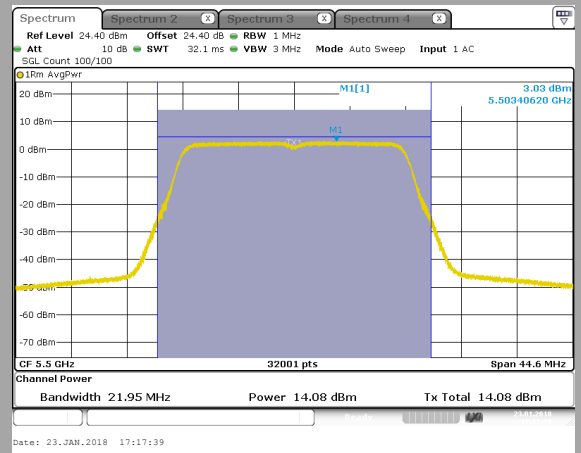
802.11n HT20/ac VHT20

C7

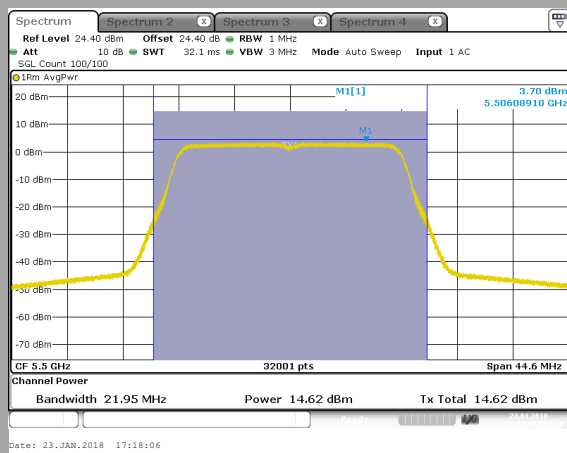
Tx1



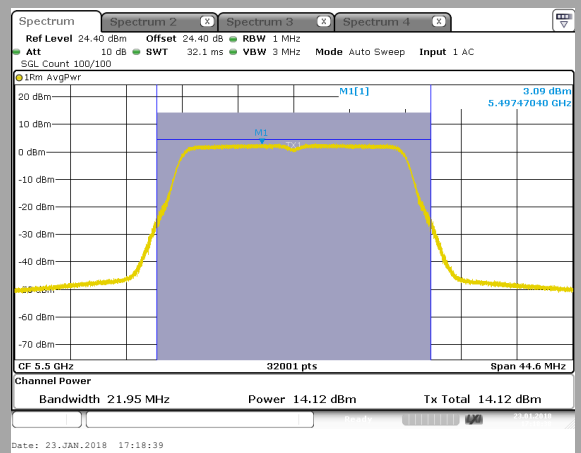
Tx2



Tx3



Tx4



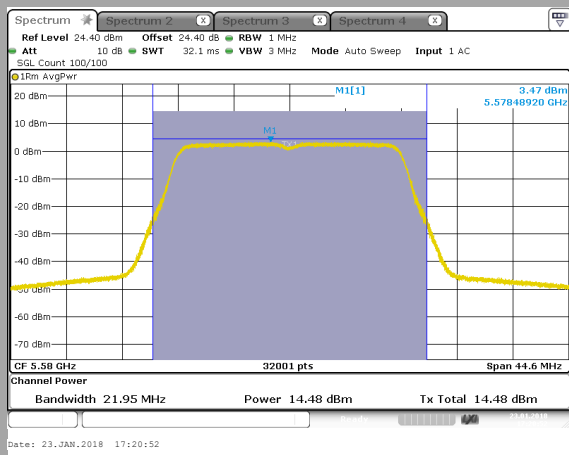


L C I E

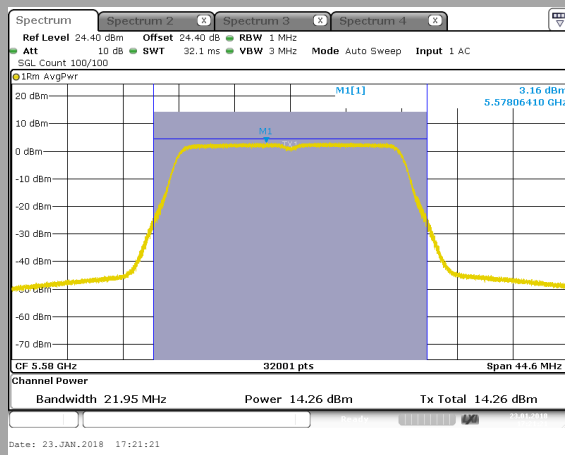
802.11n HT20/ac VHT20

C8

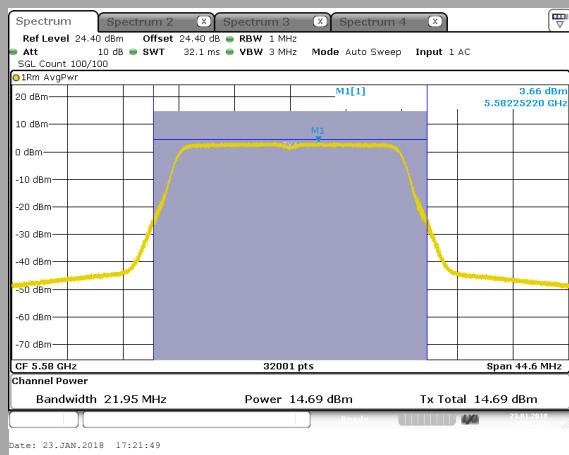
Tx1



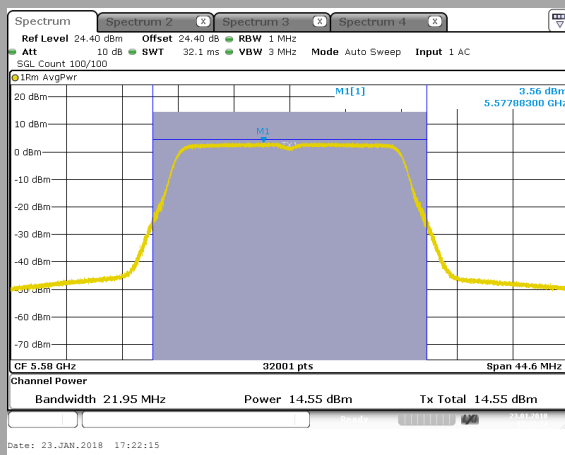
Tx2



Tx3



Tx4



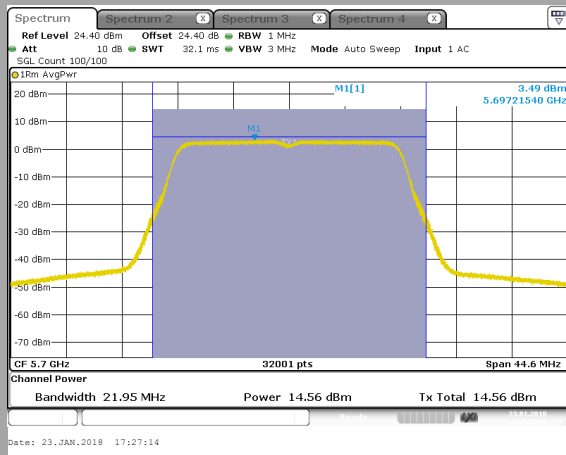


L C I E

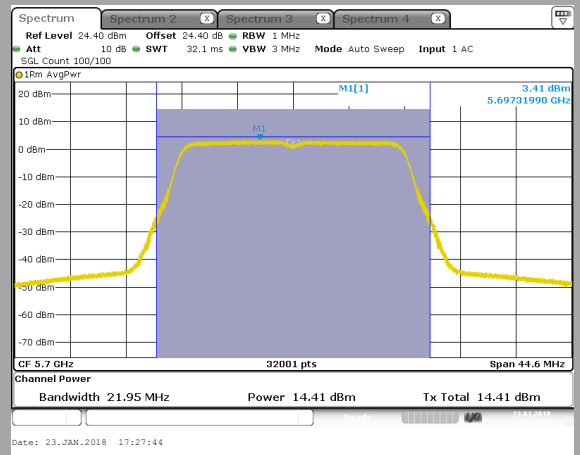
802.11n HT20/ac VHT20

C9

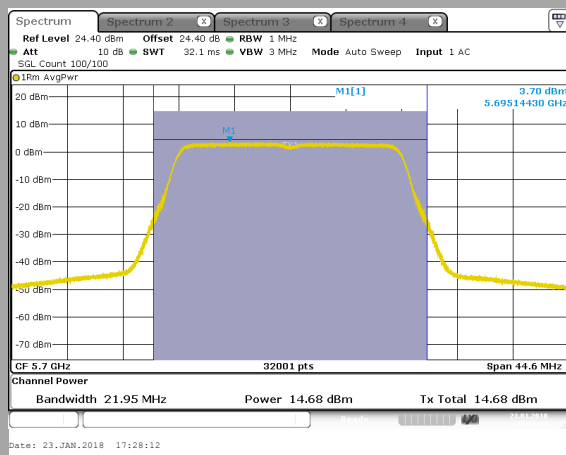
Tx1



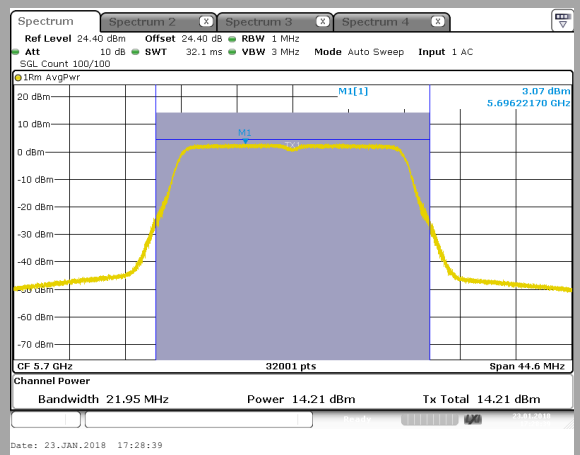
Tx2



Tx3



Tx4

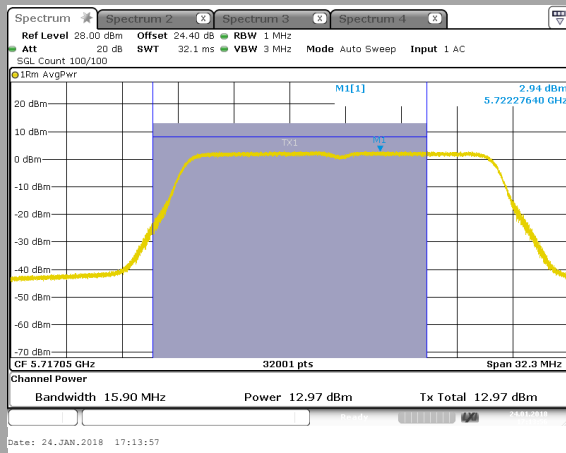




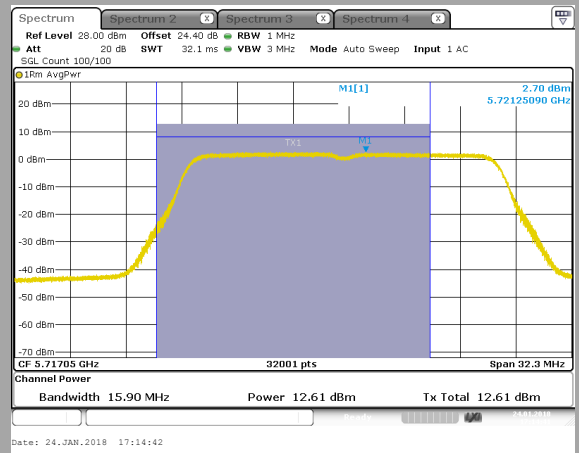
L C I E

802.11n HT20/ac VHT20
C10 Straddle 5470MHz-5725MHz

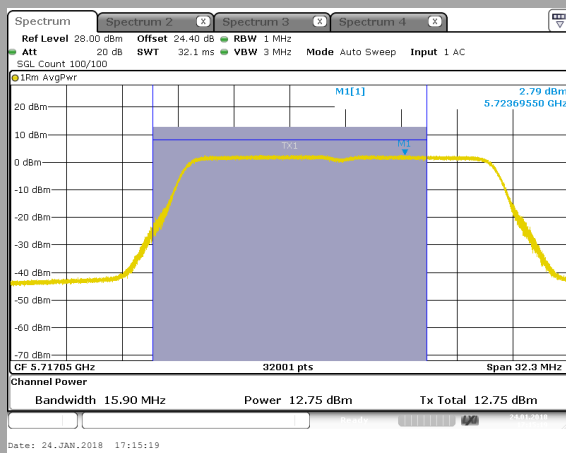
Tx1



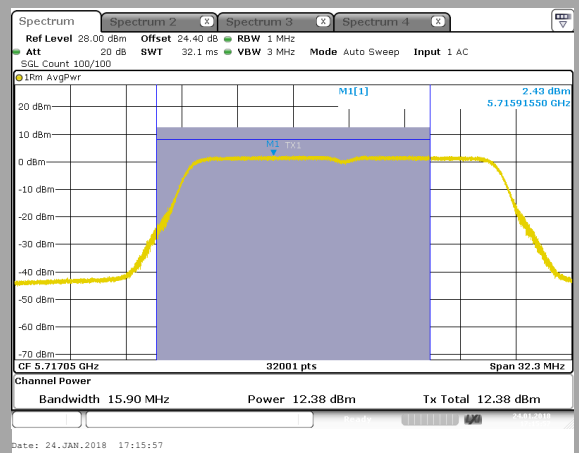
Tx2



Tx3



Tx4

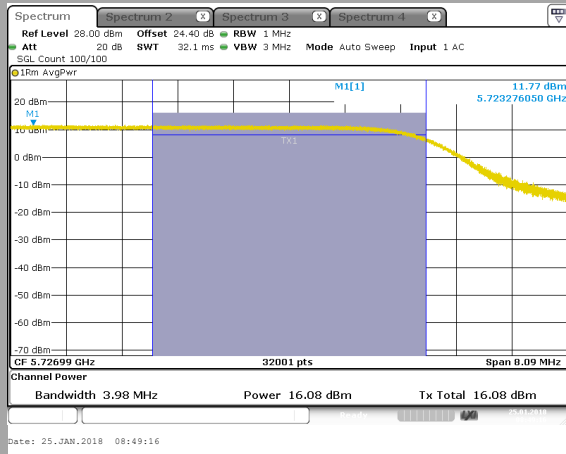




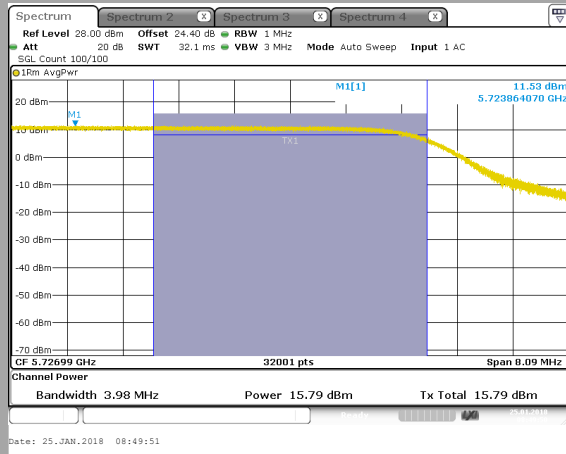
L C I E

802.11n HT20/ac VHT20
C10 Straddle 5725MHz-5850MHz

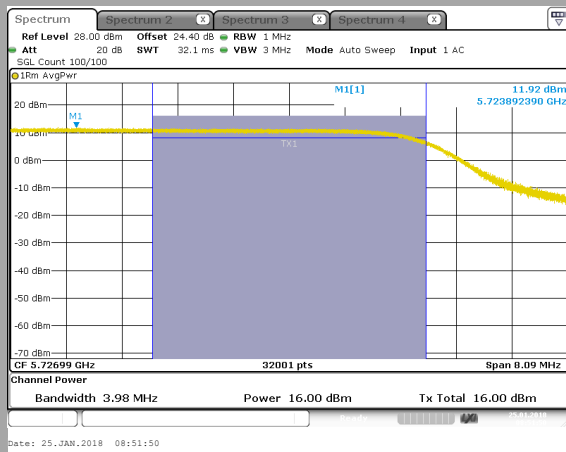
Tx1



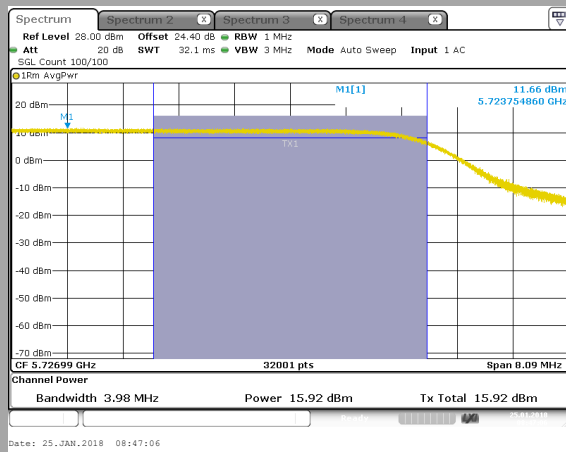
Tx2



Tx3



Tx4

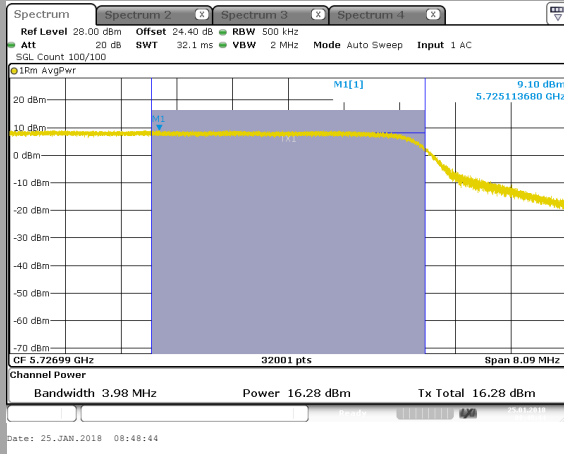




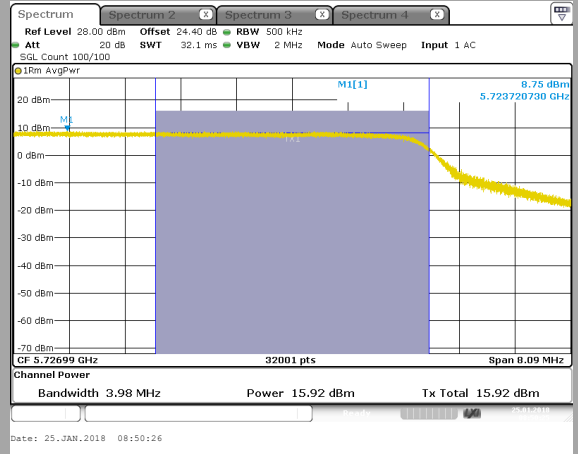
L C I E

802.11n HT20/ac VHT20
C10 Straddle 5725MHz-5850MHz

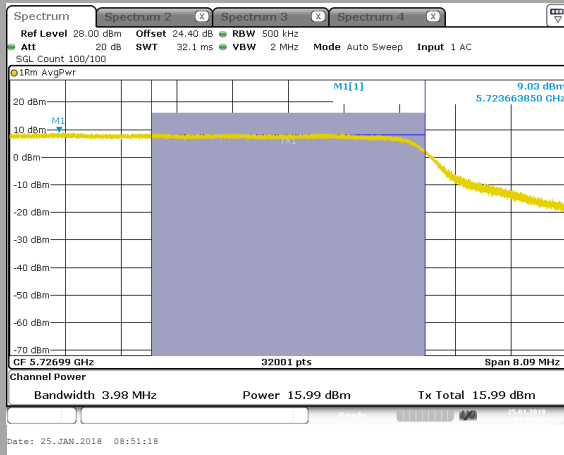
Tx1



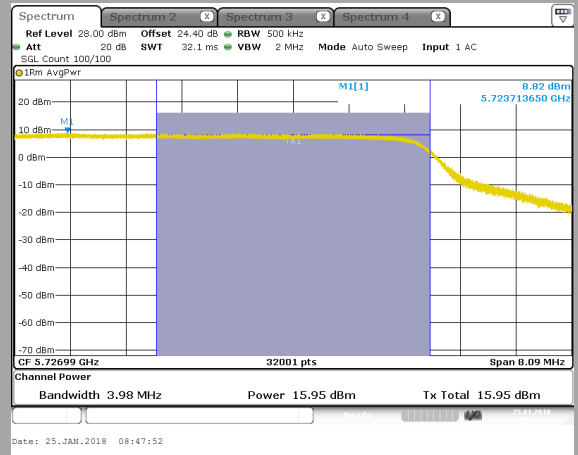
Tx2



Tx3



Tx4



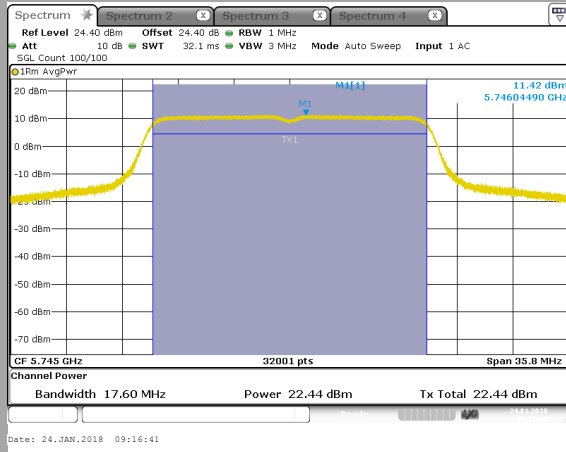


L C I E

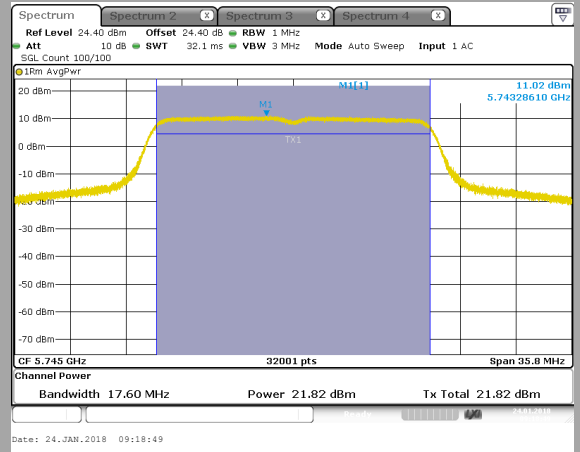
802.11n HT20/ac VHT20

C11

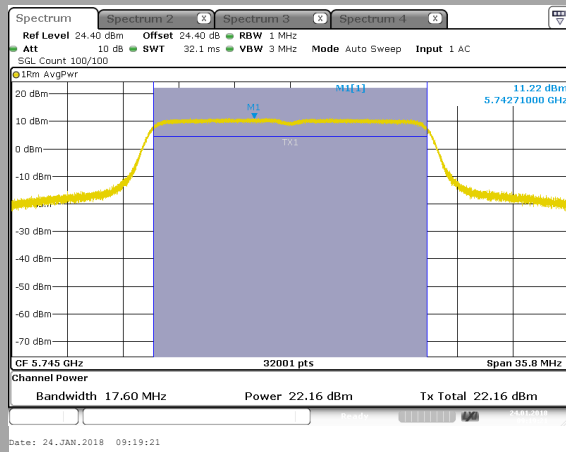
Tx1



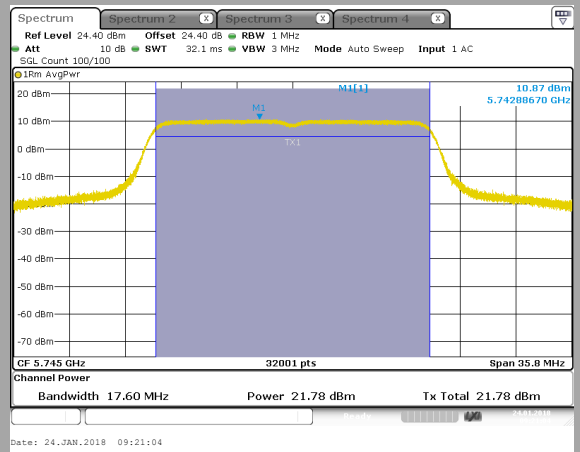
Tx2



Tx3



Tx4



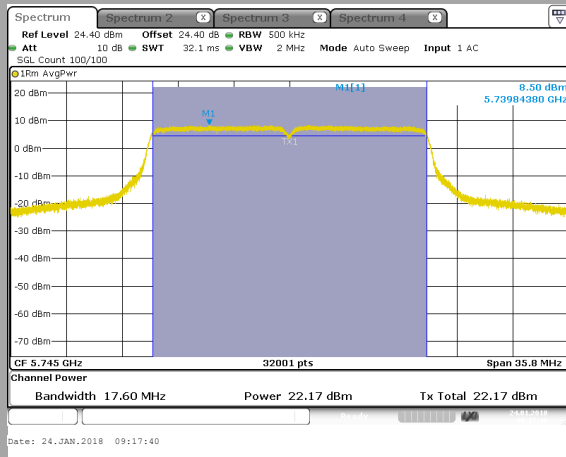


L C I E

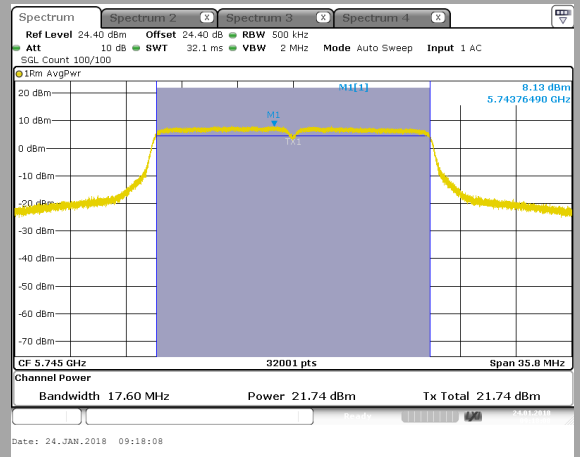
802.11n HT20/ac VHT20

C11

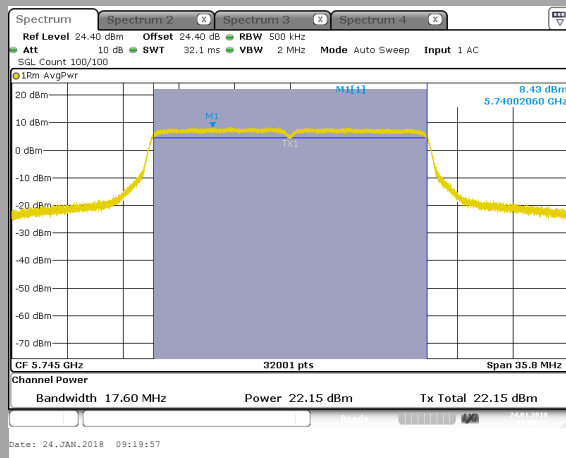
Tx1



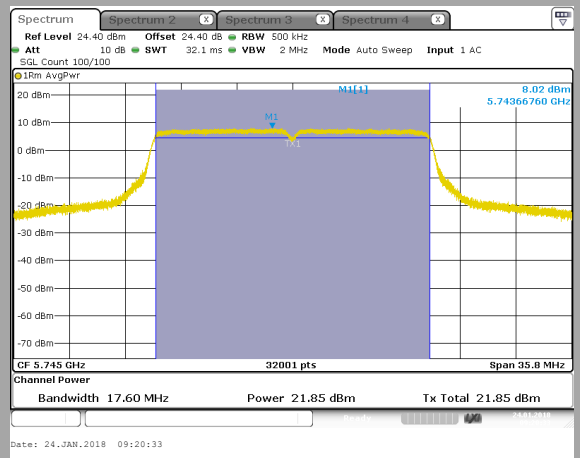
Tx2



Tx3



Tx4



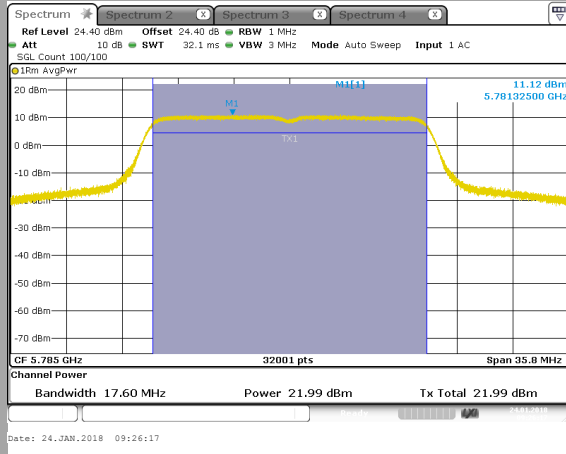


L C I E

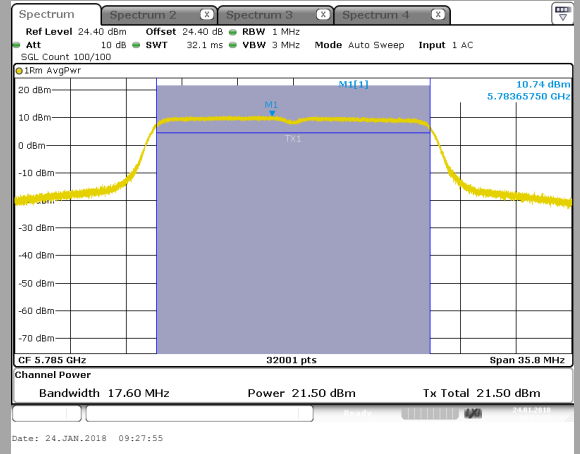
802.11n HT20/ac VHT20

C12

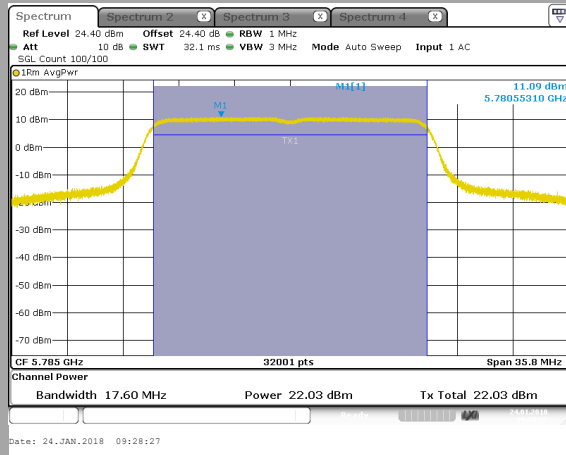
Tx1



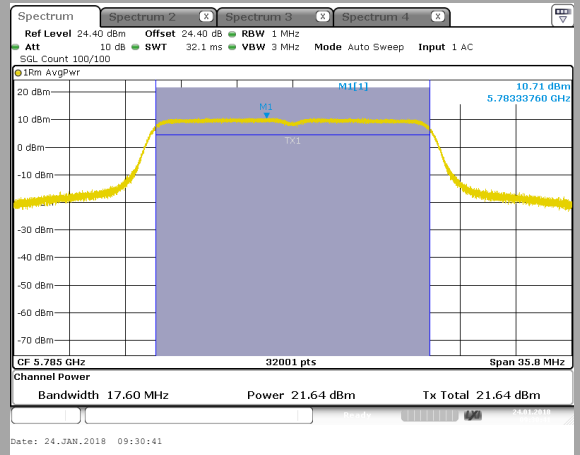
Tx2



Tx3



Tx4



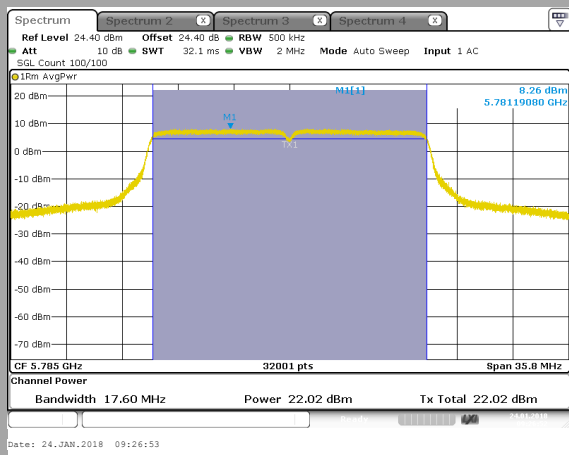


L C I E

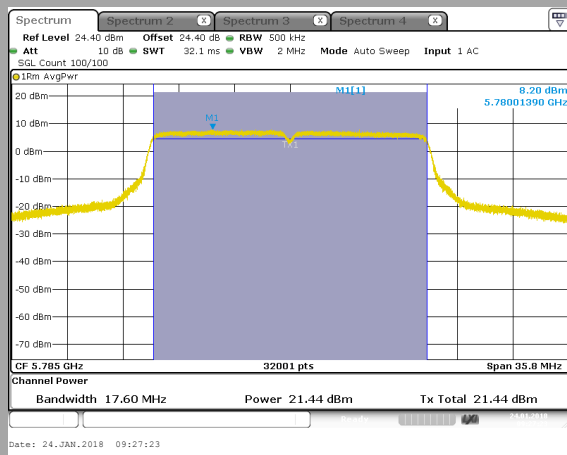
802.11n HT20/ac VHT20

C12

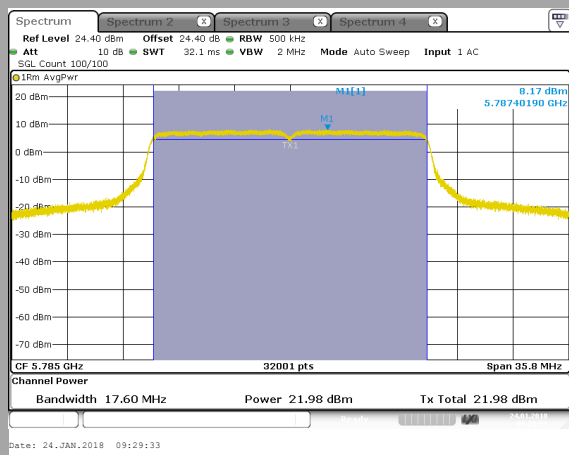
Tx1



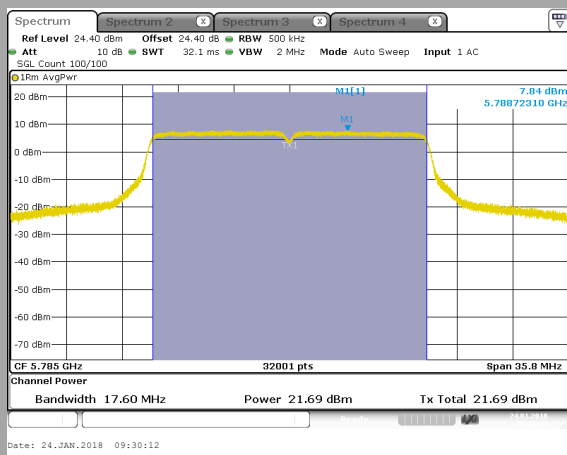
Tx2



Tx3



Tx4



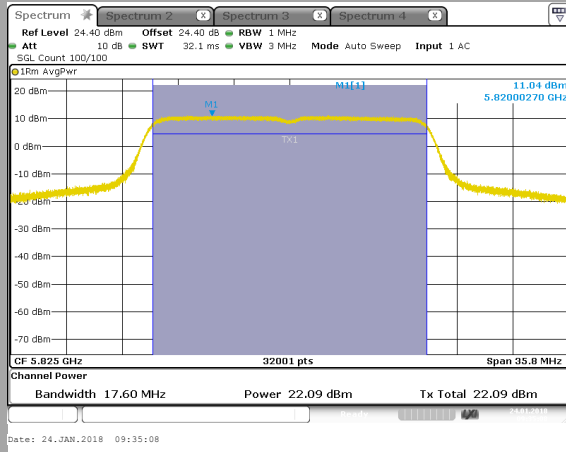


L C I E

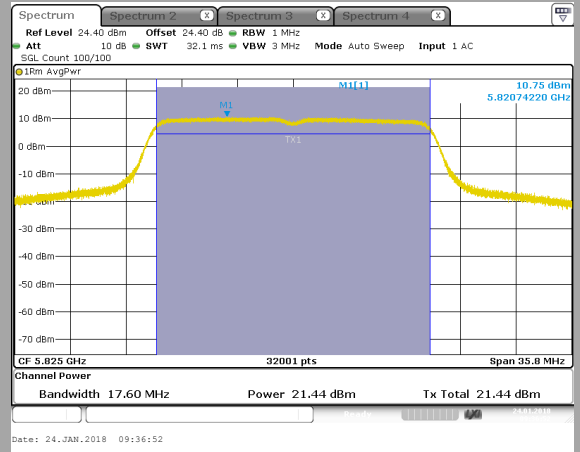
802.11n HT20/ac VHT20

C13

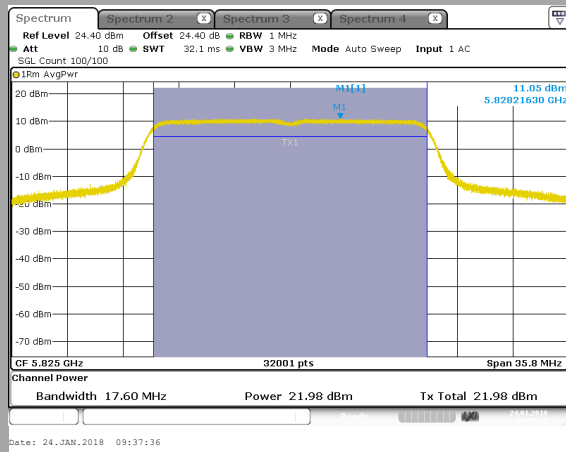
Tx1



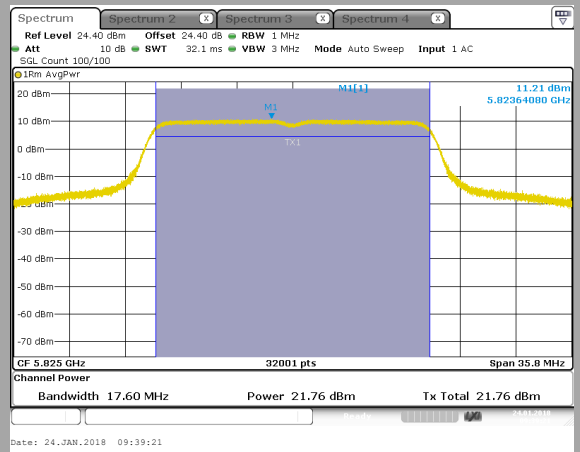
Tx2



Tx3



Tx4



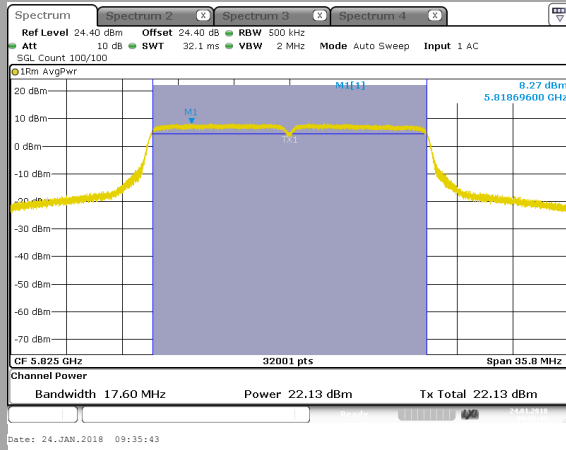


L C I E

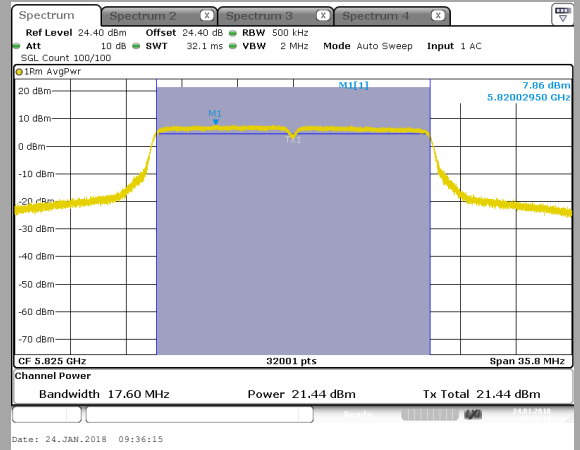
802.11n HT20/ac VHT20

C13

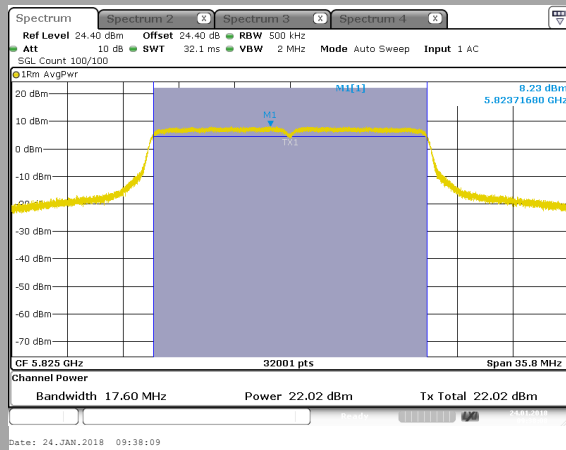
Tx1



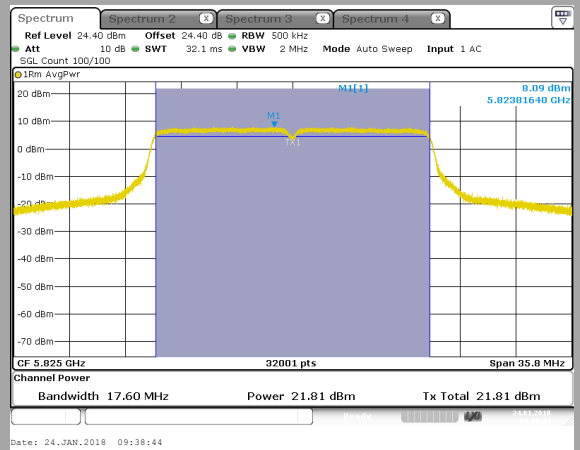
Tx2



Tx3



Tx4



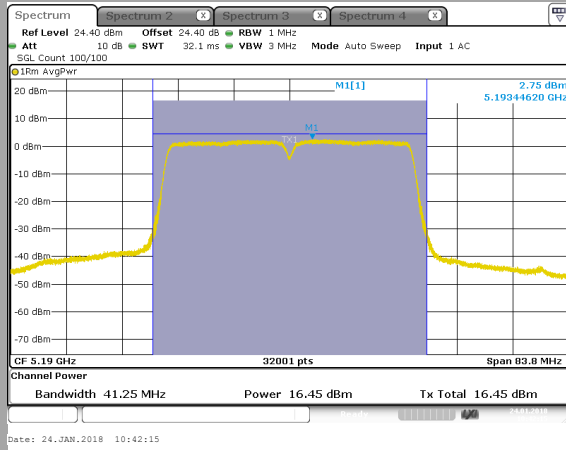


L C I E

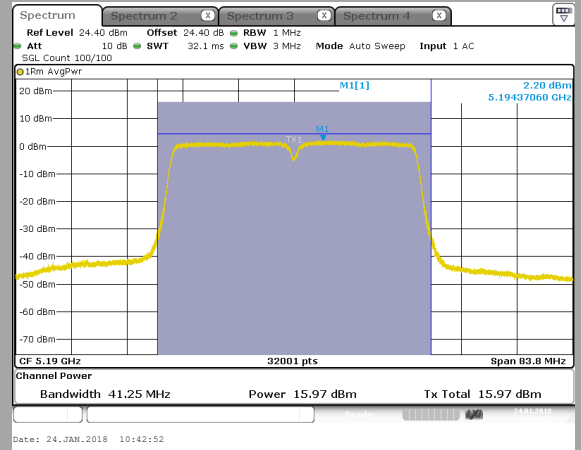
802.11n HT40/ac VHT40

C14

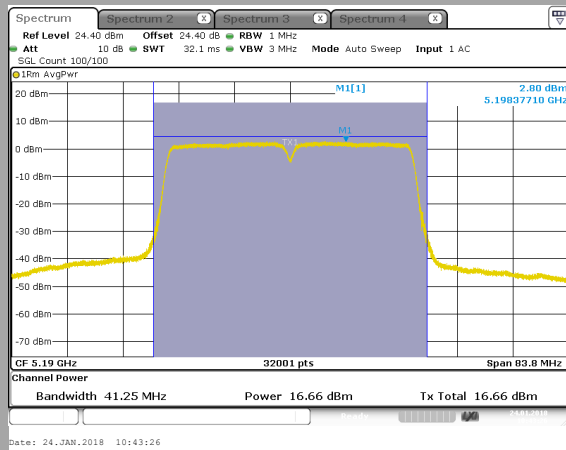
Tx1



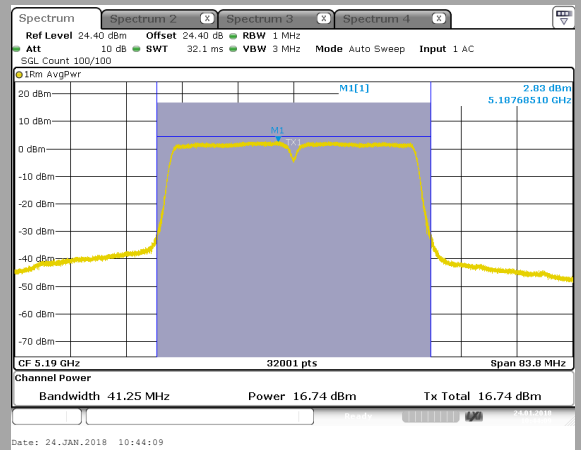
Tx2



Tx3



Tx4



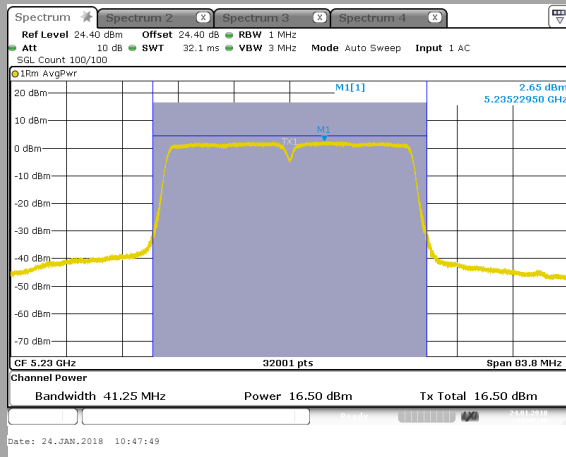


L C I E

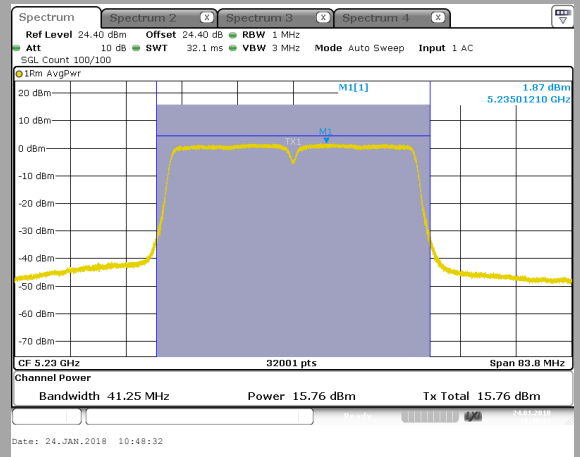
802.11n HT40/ac VHT40

C15

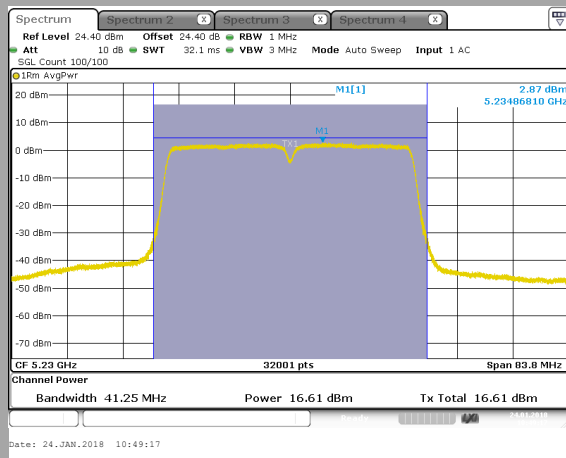
Tx1



Tx2



Tx3



Tx4

