

6. 6dB EMISSION BANDWIDTH

6.1. TEST CONDITIONS

Test performed by : Mathieu CERISIER
Date of test : December 19, 2016
Ambient temperature : 25 °C
Relative humidity : 42 %

6.1. TEST SETUP

- The Equipment Under Test is installed:

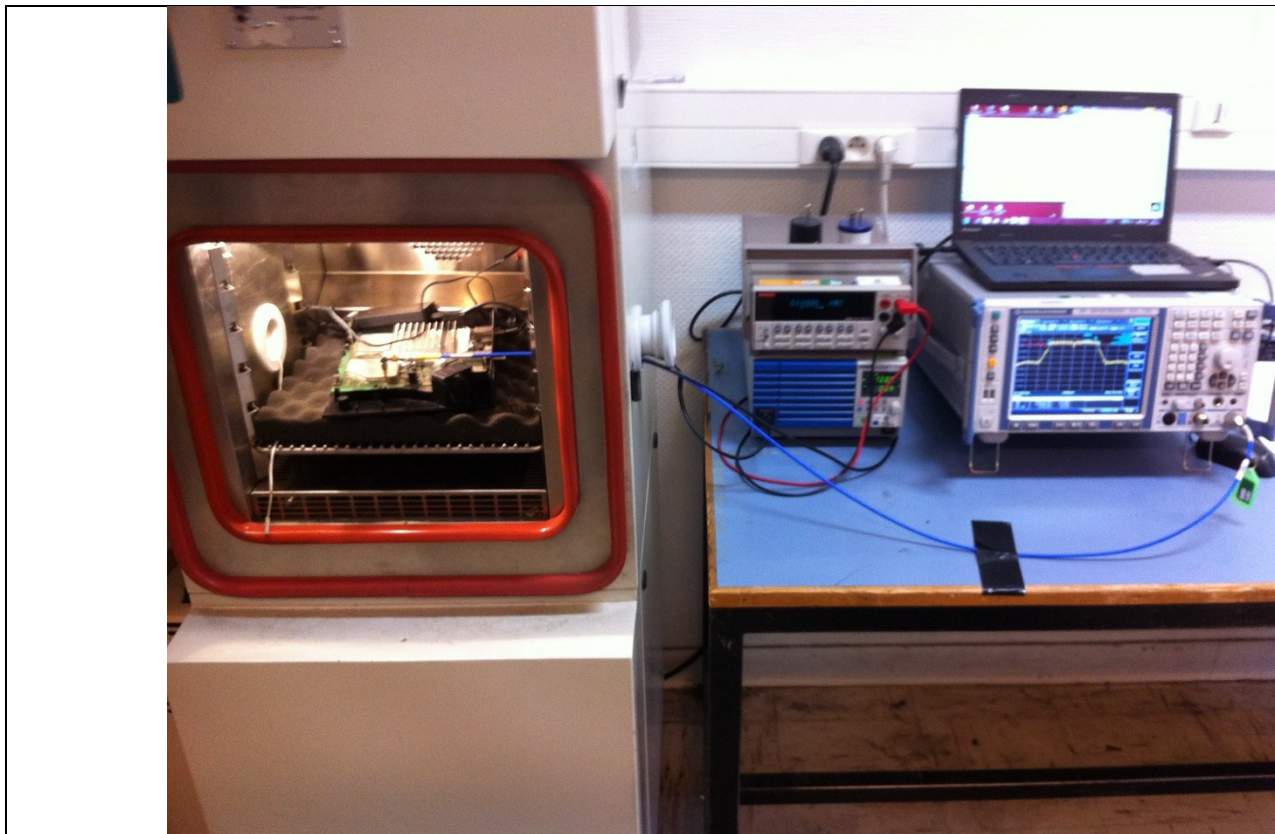
- ☐ On a table
- ☐ In an anechoic chamber
- ☒ In climatic chamber

- 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



6.2. LIMIT

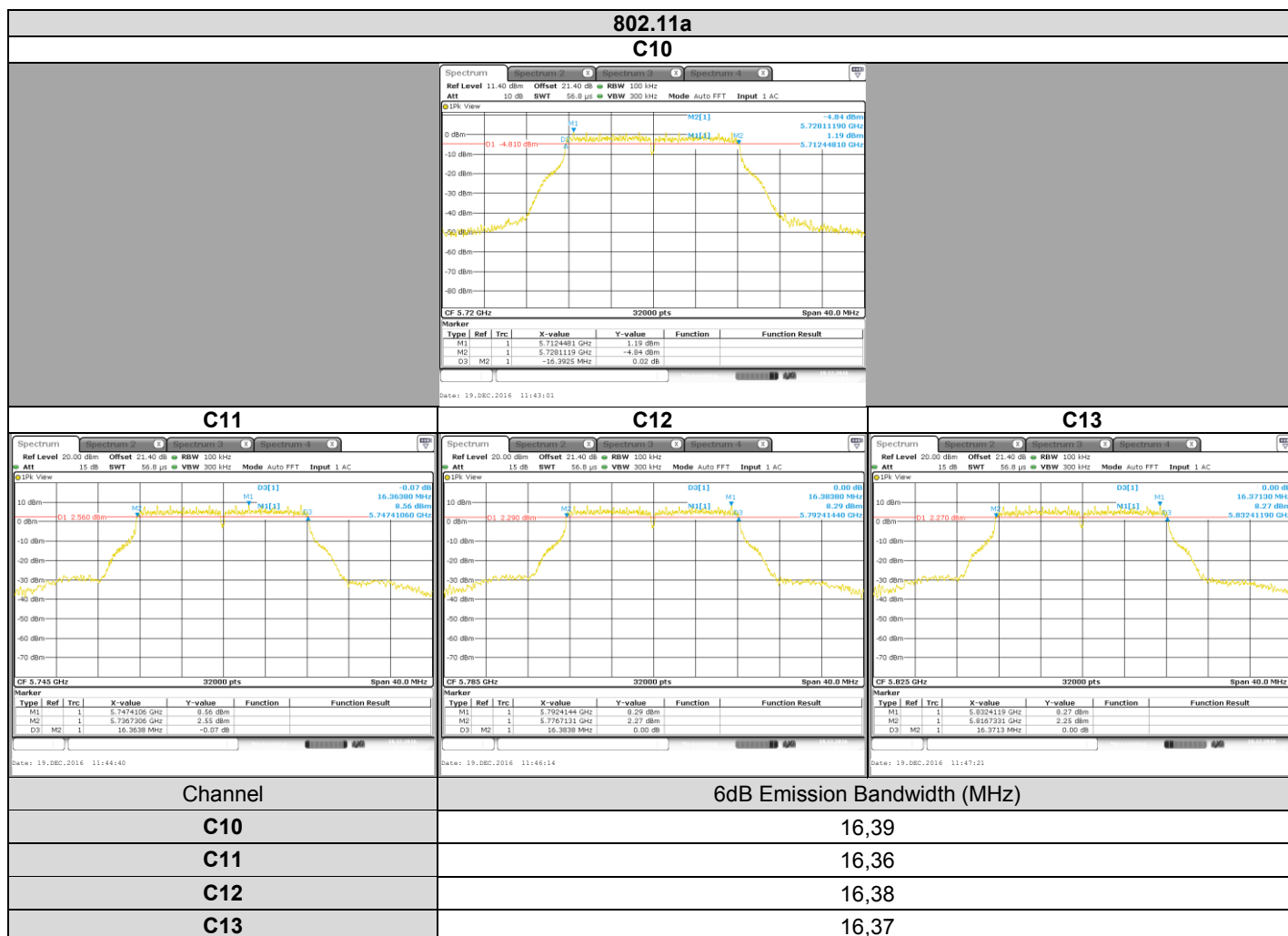
The 6dB bandwidth shall be at least 500kHz

6.3. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Calibration date	Calibration due
Multi-meter	KEITHLEY	2000	A1242090	2015/06	2017/06
Programmable AC/DC power supply	-; KIKUSUI	PCR500M	A7040079	Verified with calibrated multimeter	Verified with calibrated multimeter
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/09	2017/09
RF cable & 20 dB attenuator	Télédyné	920-0202-048	A5329676	2016/09	2017/09

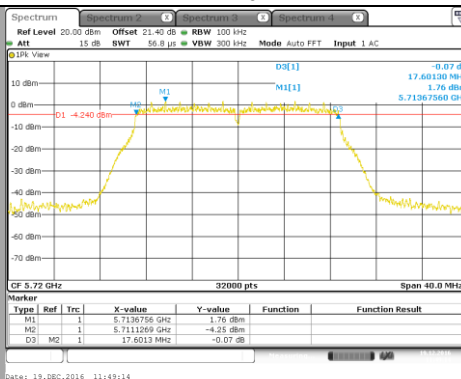
Note: In our quality system, the test equipment calibration due is more & less 2 months

6.4. RESULTS

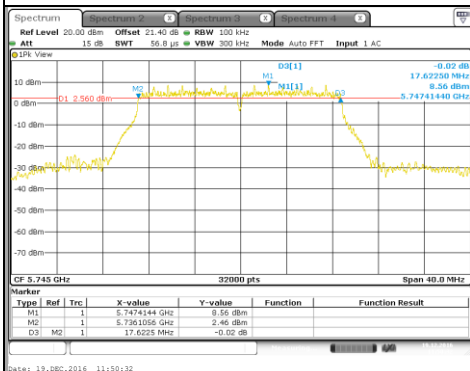


802.11n HT20/ac VHT20

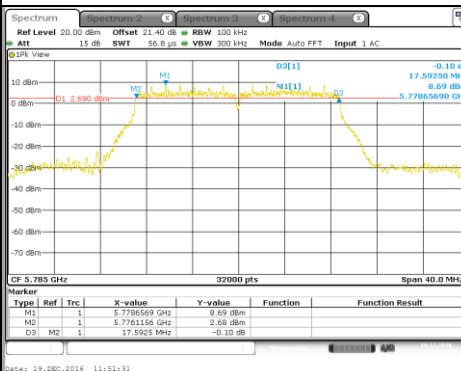
C10



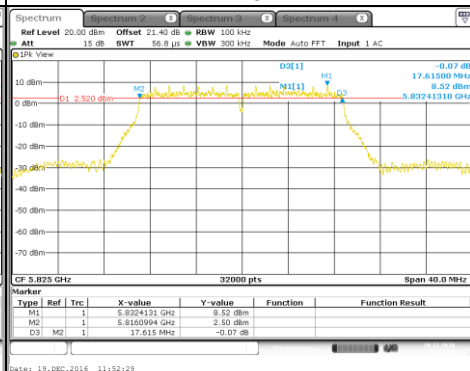
C11



C12



C13



Channel

6dB Emission Bandwidth (MHz)

C10

17,6

C11

17,62

C12

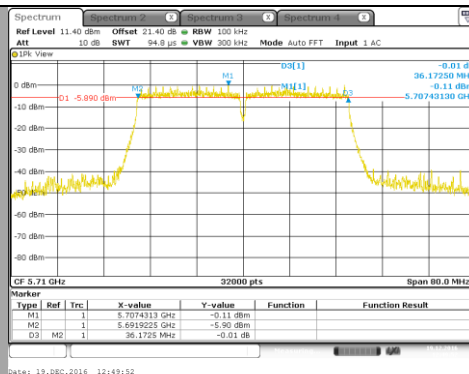
17,59

C13

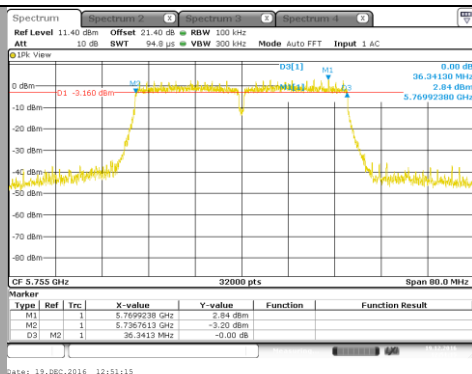
17,62

802.11n HT40/ac VHT40

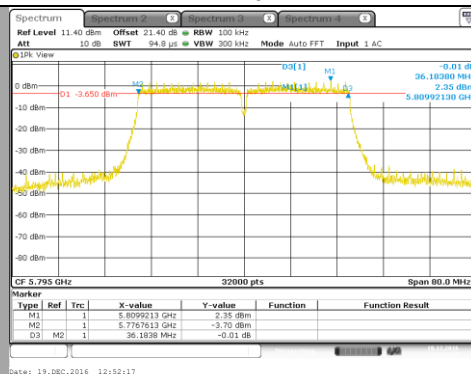
C21



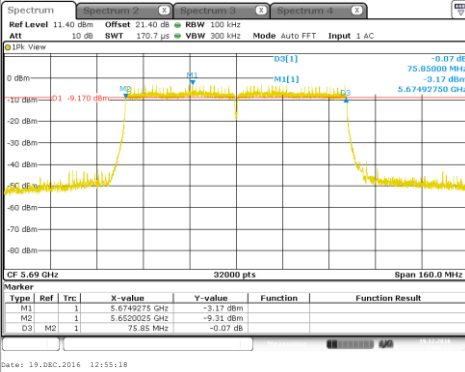
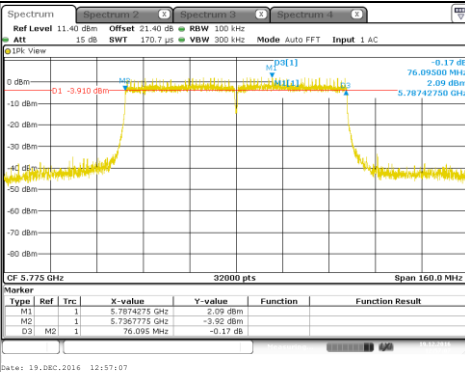
C22



C23



Channel	6dB Emission Bandwidth (MHz)
C21	36,17
C22	36,34
C23	36,18

802.11ac VHT80	
C28	
	
C29	
	
Channel	6dB Emission Bandwidth (MHz)
C28	75,85
C29	76,1

6.5. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **SAGEMCOM MiniBox (253697290)**, SN: **616476080862**, 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 : Mathieu CERISIER
Date of test : December 19, 2016
Ambient temperature : 25 °C
Relative humidity : 42 %

7.2. TEST SETUP

- The Equipment Under Test is installed:

- ☐ On a table
- ☐ In an anechoic chamber
- ☒ In climatic 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

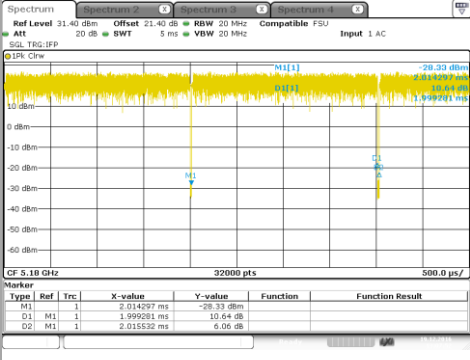
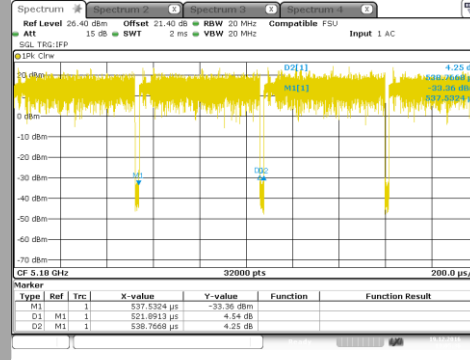
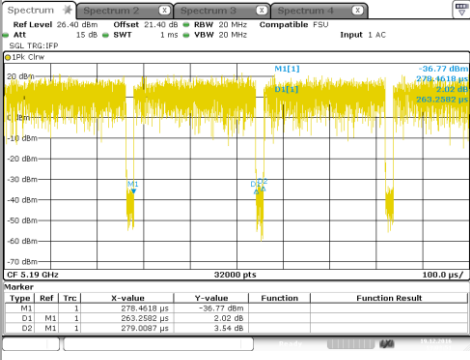
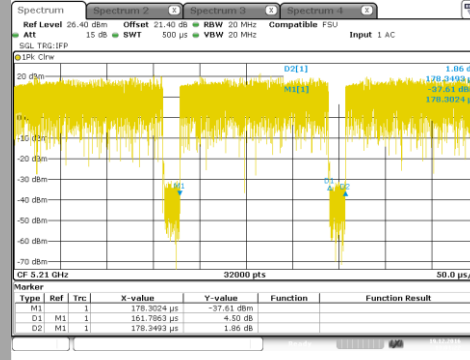
None

7.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Calibration date	Calibration due
Multi-meter	KEITHLEY	2000	A1242090	2015/06	2017/06
Programmable AC/DC power supply	-; KIKUSUI	PCR500M	A7040079	Verified with calibrated multimeter	Verified with calibrated multimeter
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/09	2017/09
RF cable & 20 dB attenuator	Télédyné	920-0202-048	A5329676	2016/09	2017/09

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

7.5. RESULTS

802.11a C1		802.11n HT20/ac VHT20 C1	
			
802.11n HT40/ac VHT40 C14		802.11ac VHT80 C24	
			
Mode	Duty Cycle (%)		
802.11a	99,2		0.035
802.11n HT20/ac VHT20	96,9		0.137
802.11n HT40/ac VHT40	94,4		0.250
802.11ac VHT80	90,7		0.424

7.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **SAGEMCOM MiniBox (253697290)**, SN: **616476080862**, 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 : Mathieu CERISIER
Date of test : January 2, 2017 to January 6, 2017
Ambient temperature : 23 °C
Relative humidity : 45 %

8.2. TEST SETUP

- The Equipment Under Test is installed:

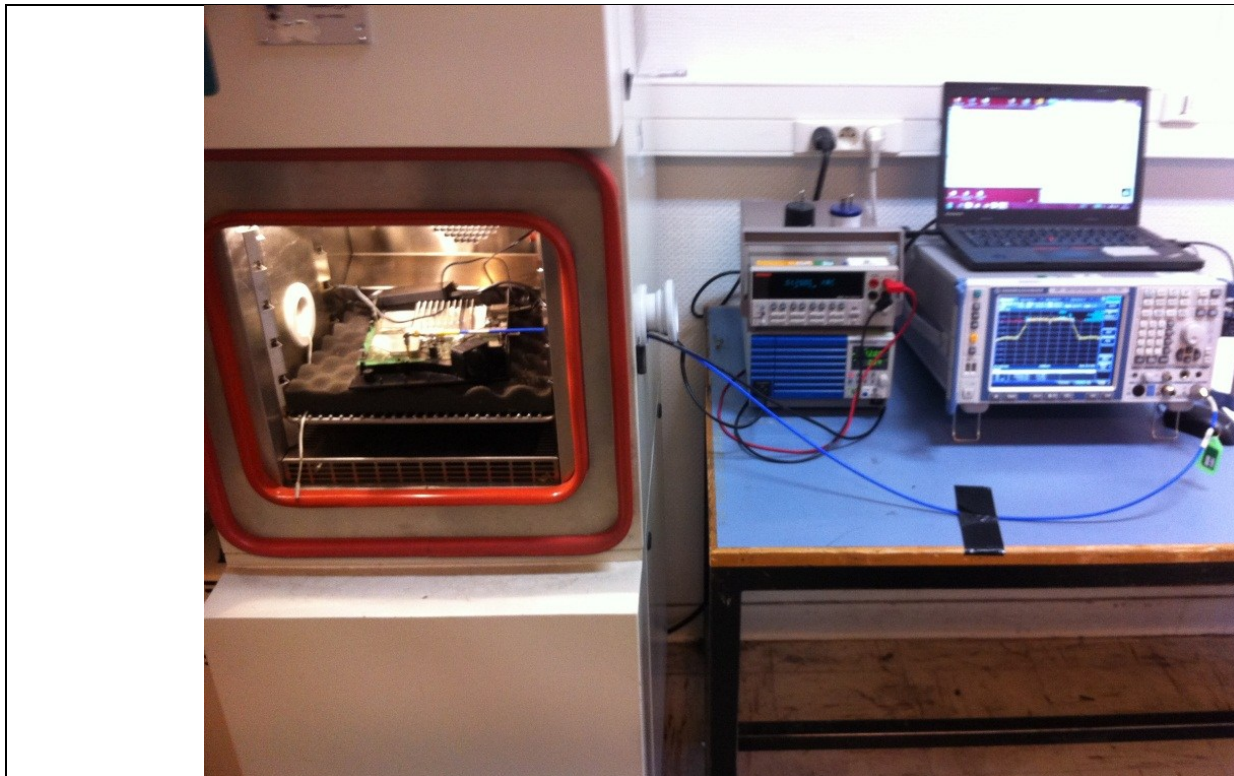
- ☐ On a table
- ☐ In an anechoic chamber
- ☒ In climatic chamber

- 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

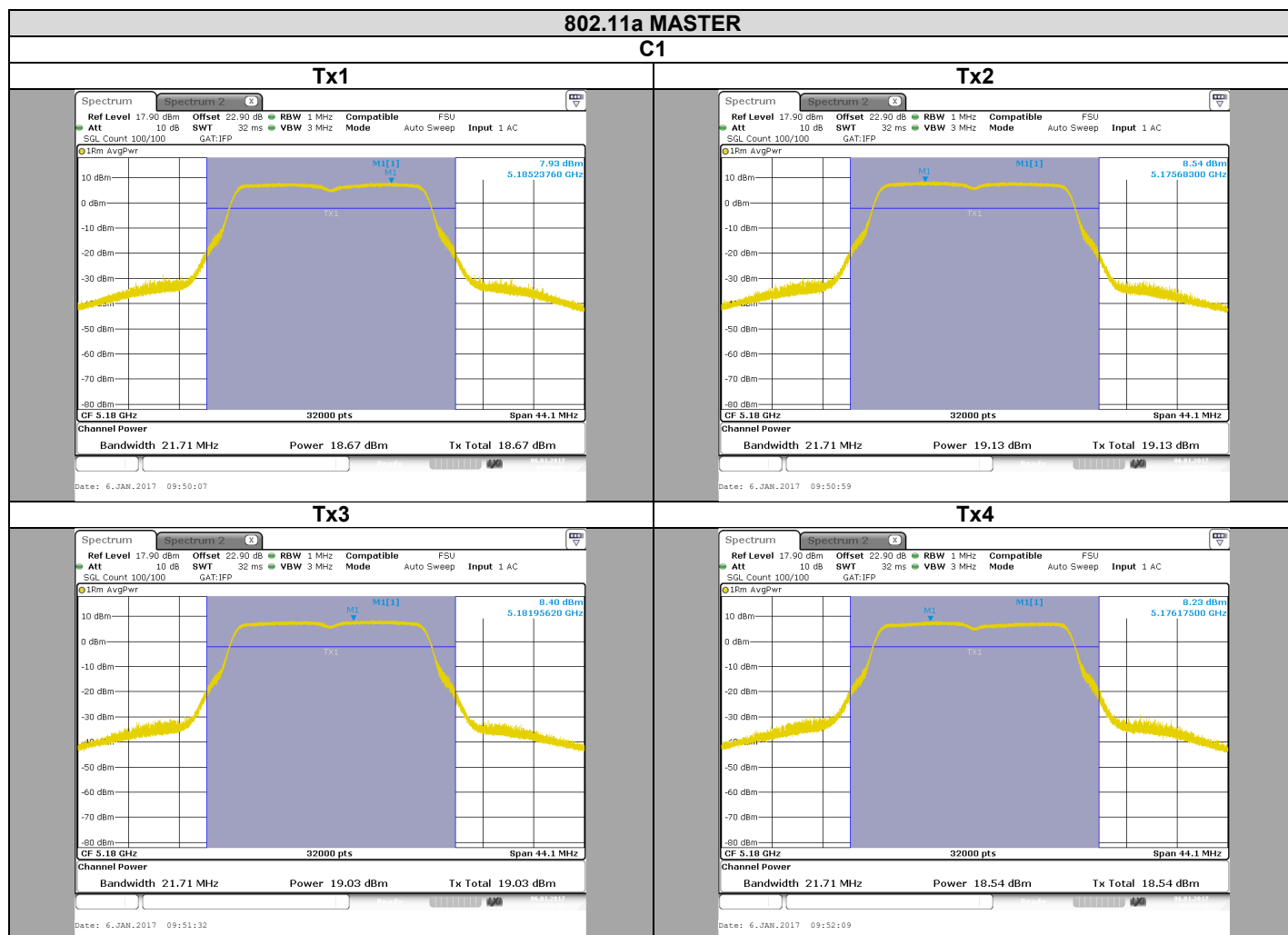


8.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Calibration date	Calibration due
Multi-meter	KEITHLEY	2000	A1242090	2015/06	2017/06
Programmable AC/DC power supply	-; KIKUSUI	PCR500M	A7040079	Verified with calibrated multimeter	Verified with calibrated multimeter
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/09	2017/09
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329676	2016/09	2017/09

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

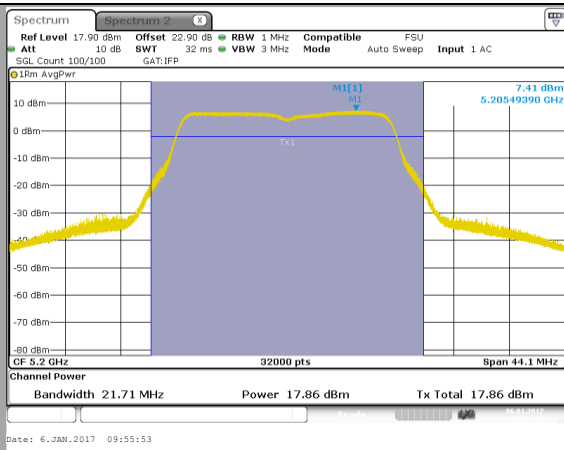
8.5. RESULTS



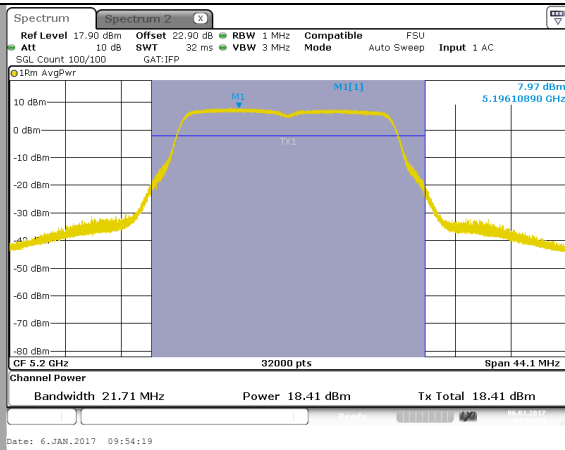
802.11a MASTER

C2

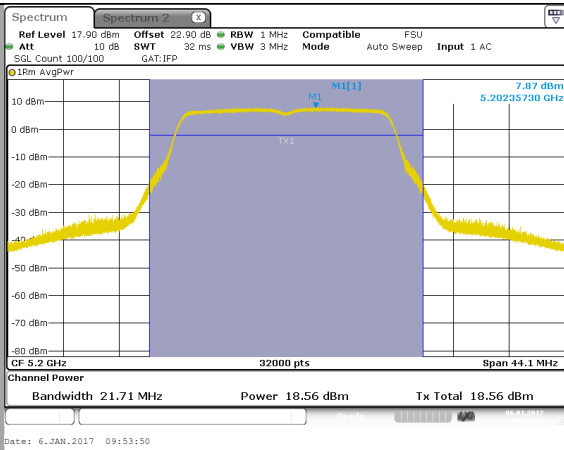
Tx1



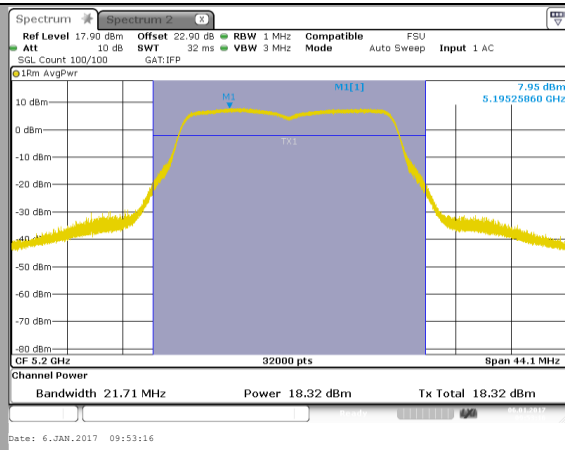
Tx2



Tx3



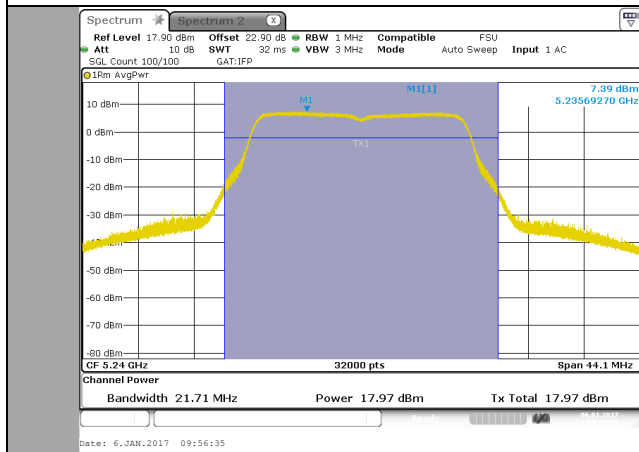
Tx4



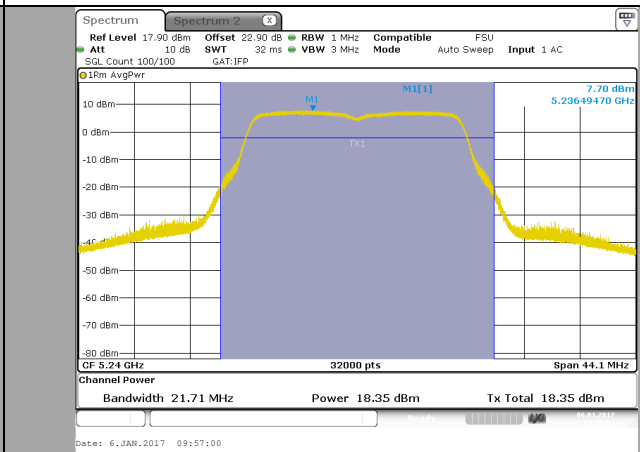
802.11a MASTER

C3

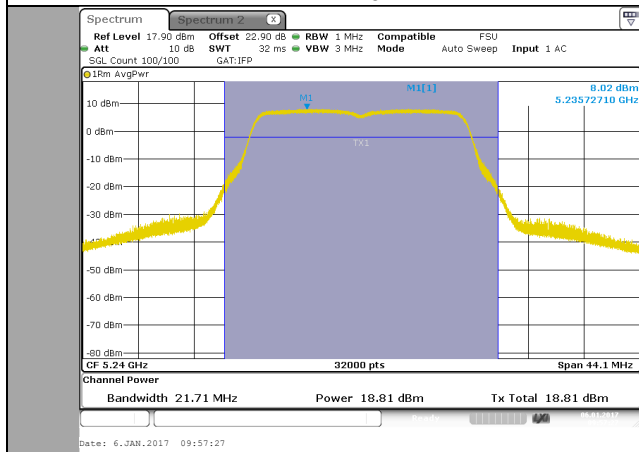
Tx1



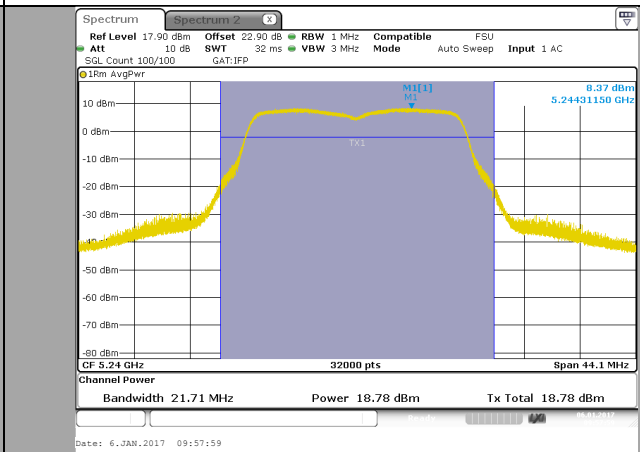
Tx2



Tx3



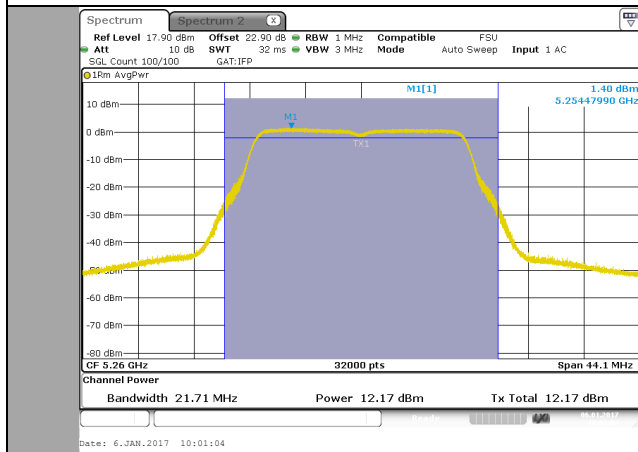
Tx4



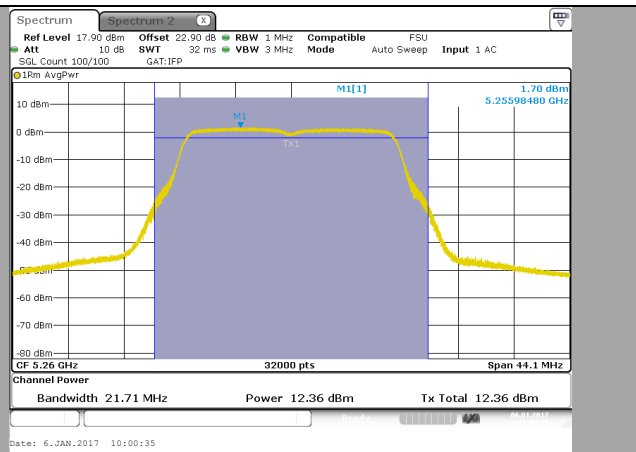
802.11a MASTER

C4

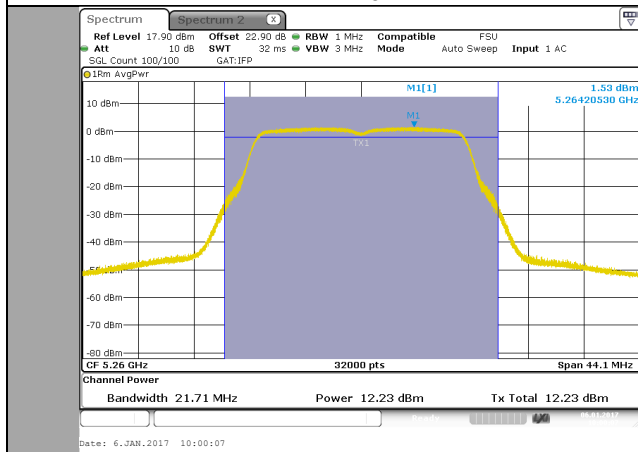
Tx1



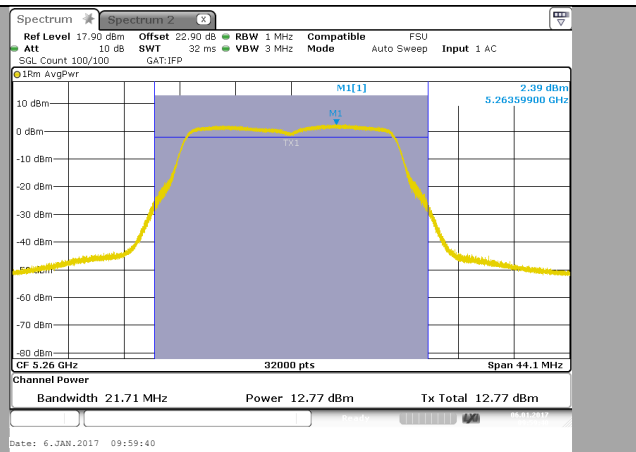
Tx2



Tx3



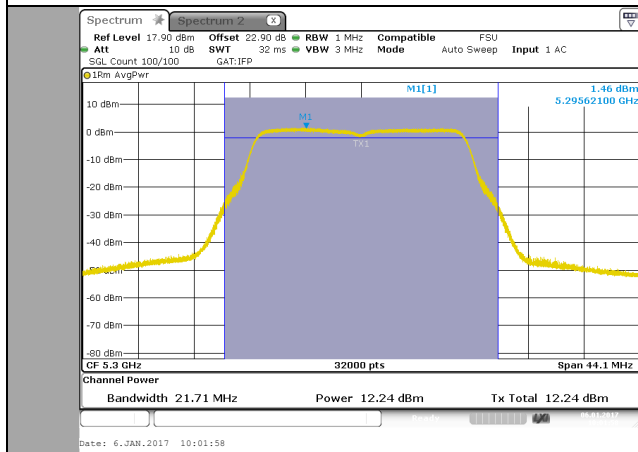
Tx4



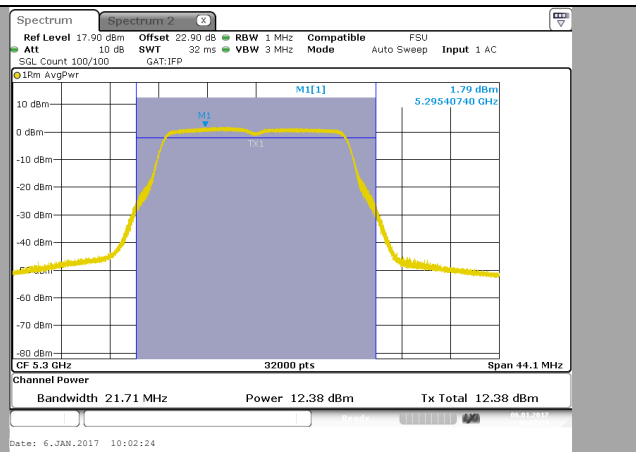
802.11a MASTER

C5

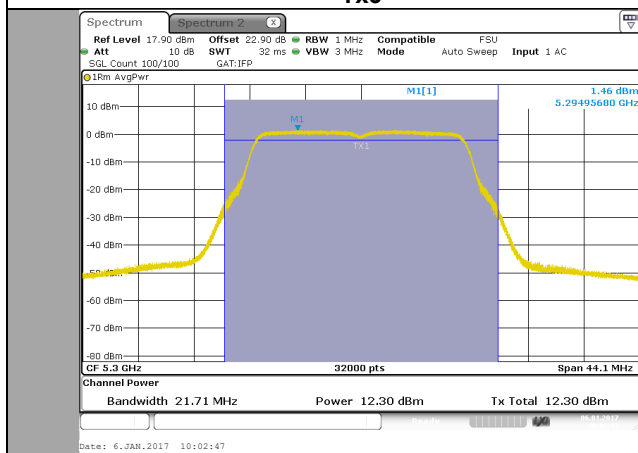
Tx1



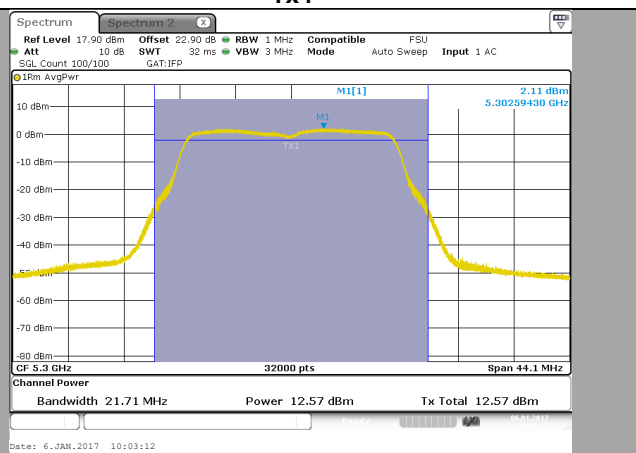
Tx2



Tx3



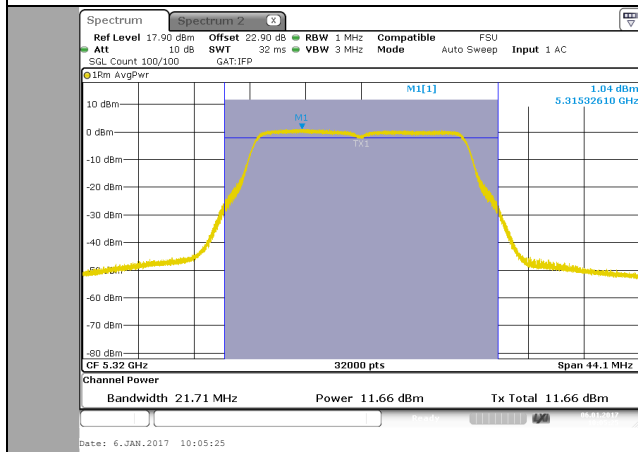
Tx4



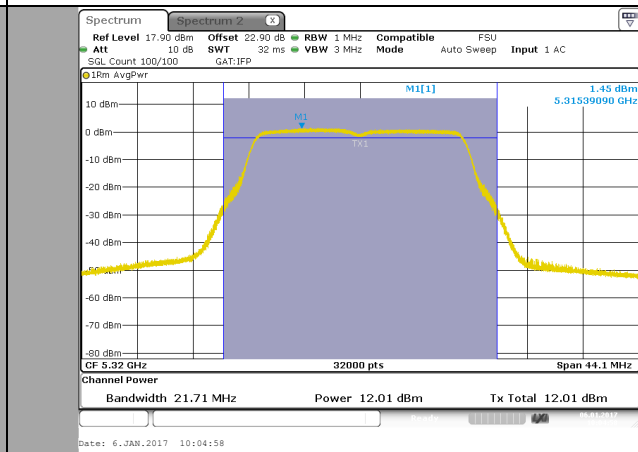
802.11a MASTER

C6

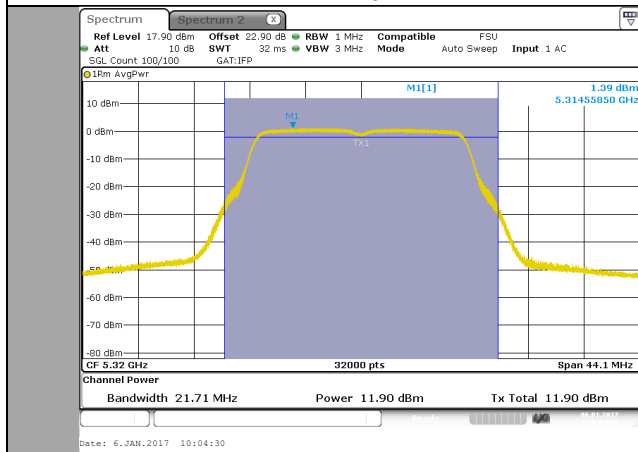
Tx1



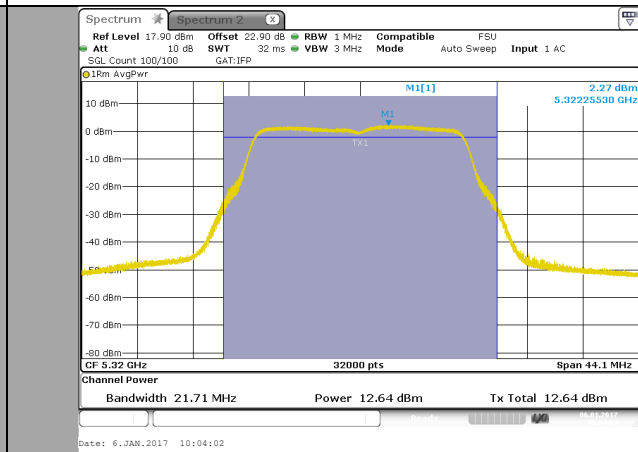
Tx2



Tx3



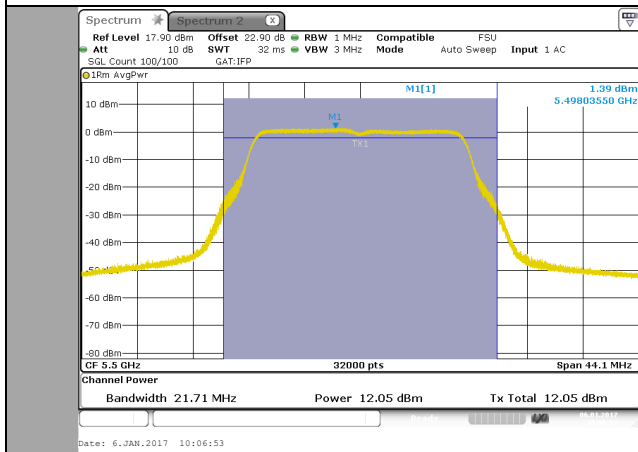
Tx4



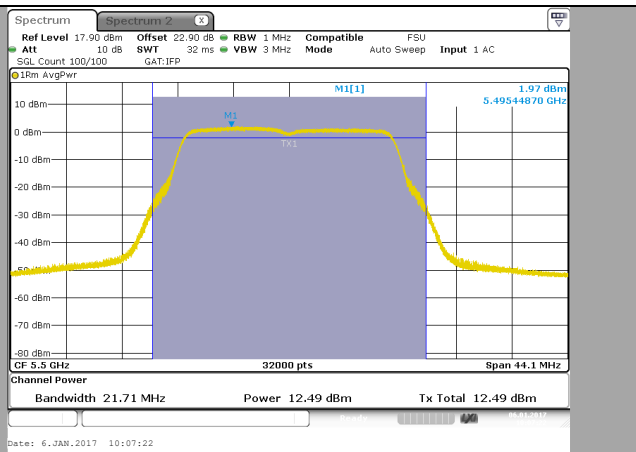
802.11a MASTER

C7

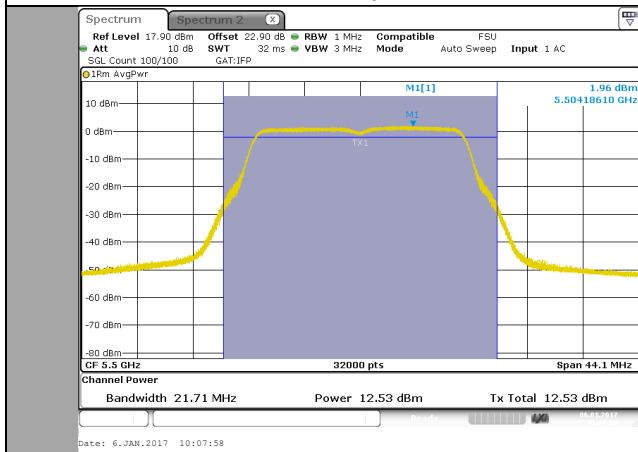
Tx1



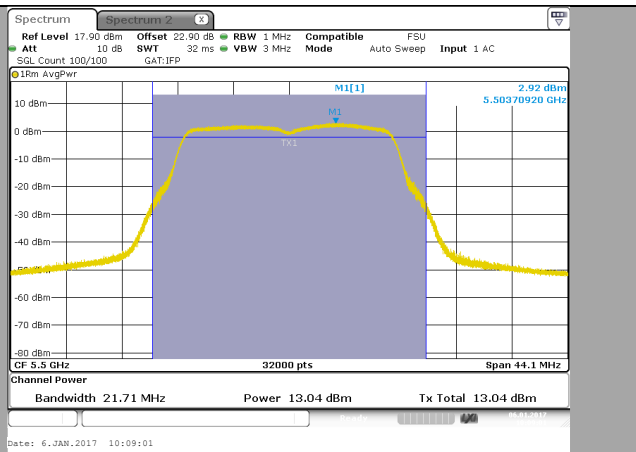
Tx2



Tx3



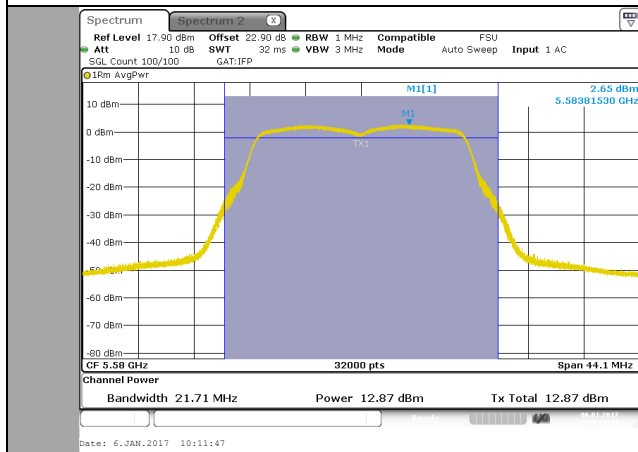
Tx4



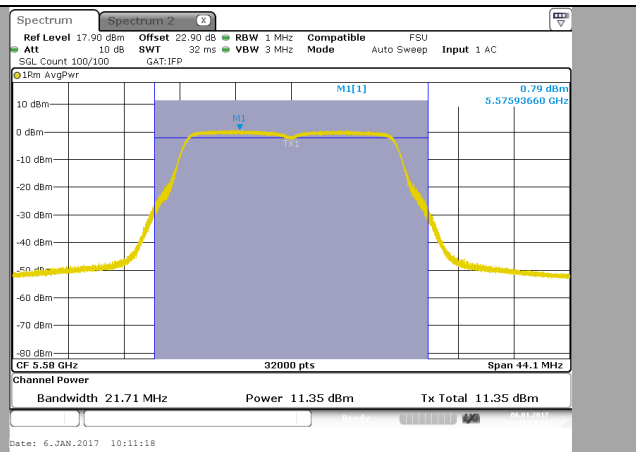
802.11a MASTER

C8

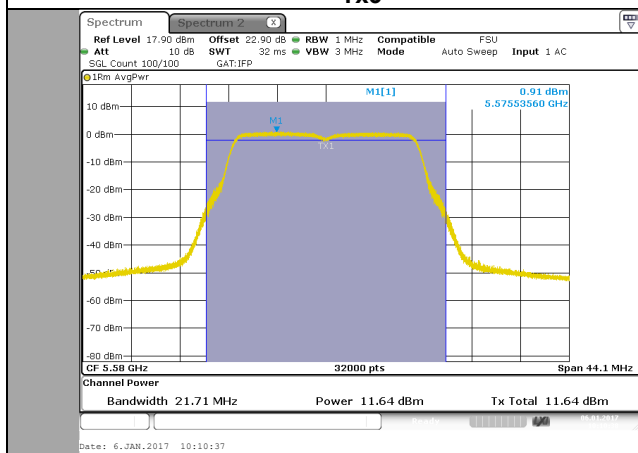
Tx1



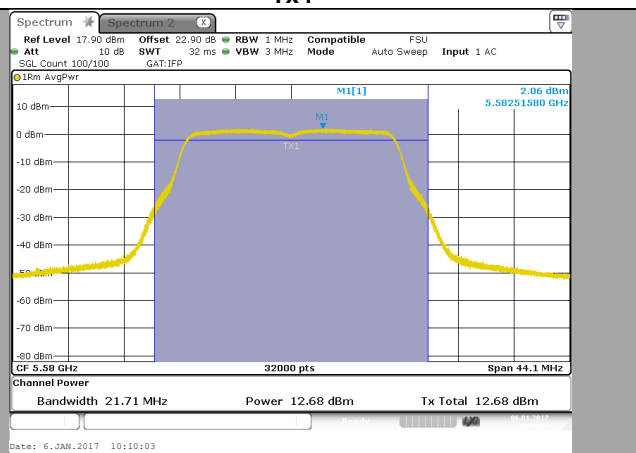
Tx2



Tx3



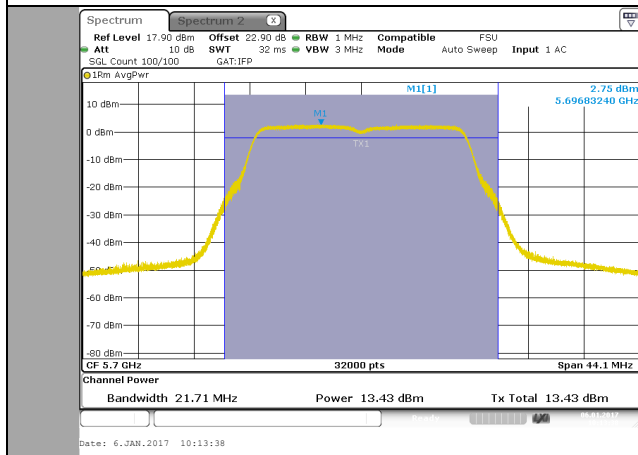
Tx4



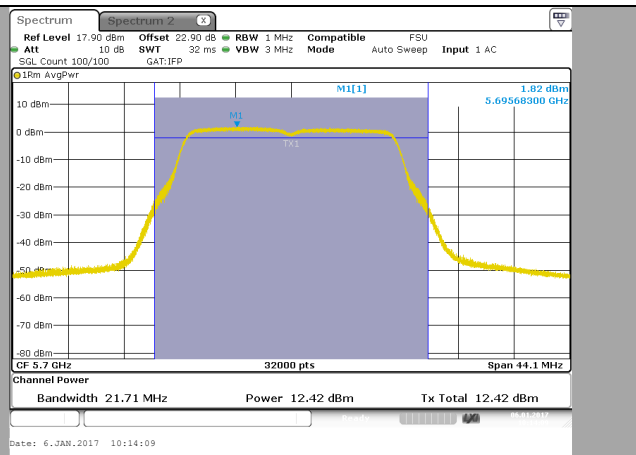
802.11a MASTER

C9

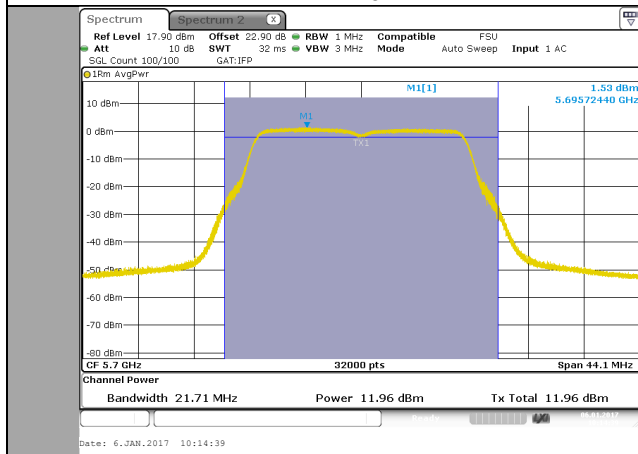
Tx1



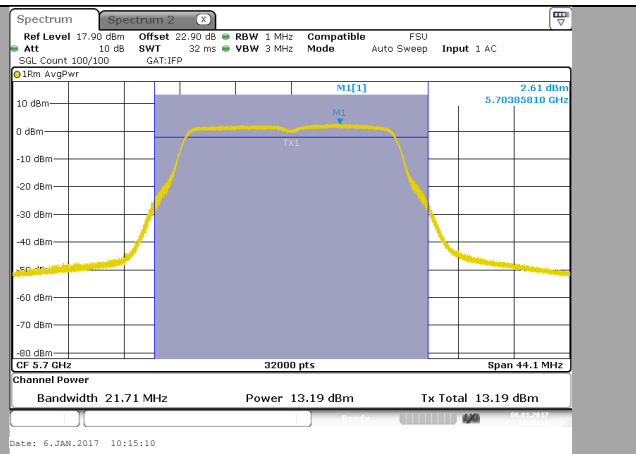
Tx2



Tx3



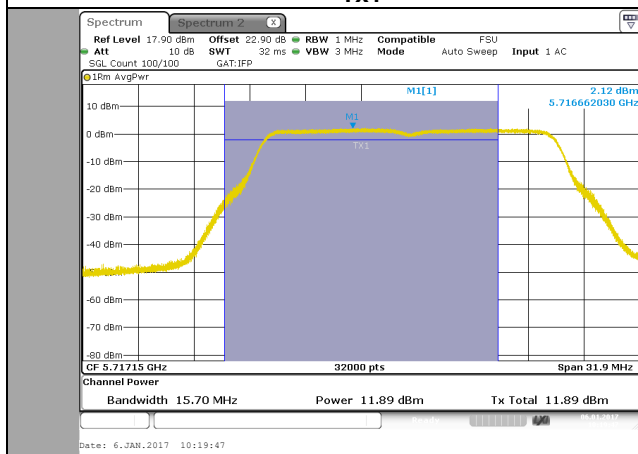
Tx4



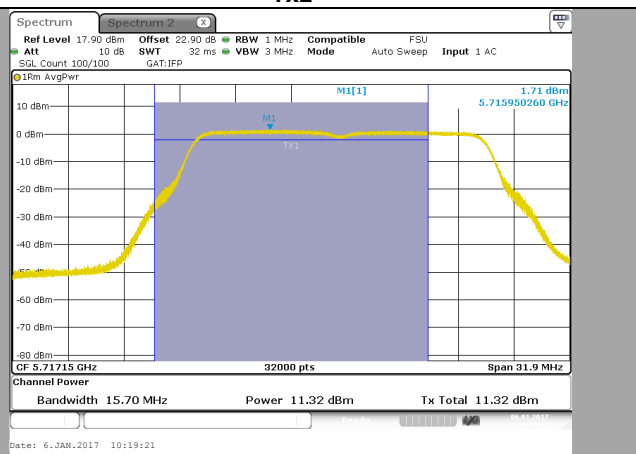
802.11a MASTER

C10 Straddle 5470MHz-5725MHz

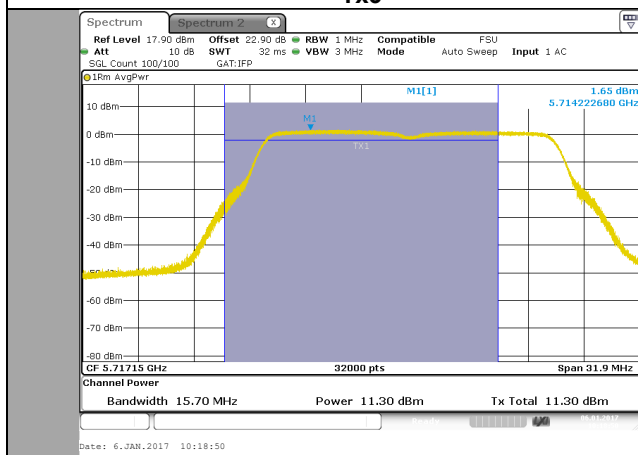
Tx1



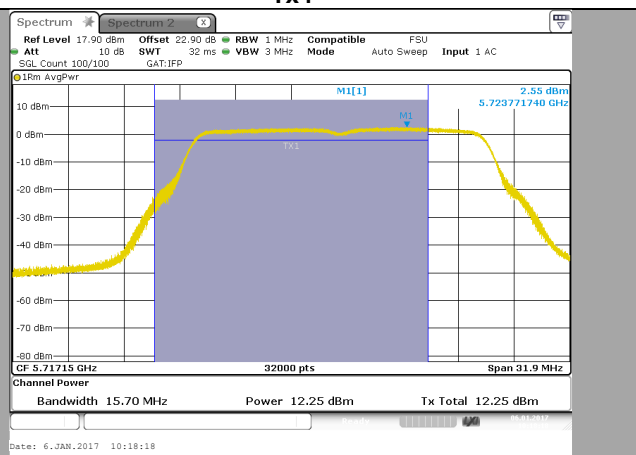
Tx2



Tx3



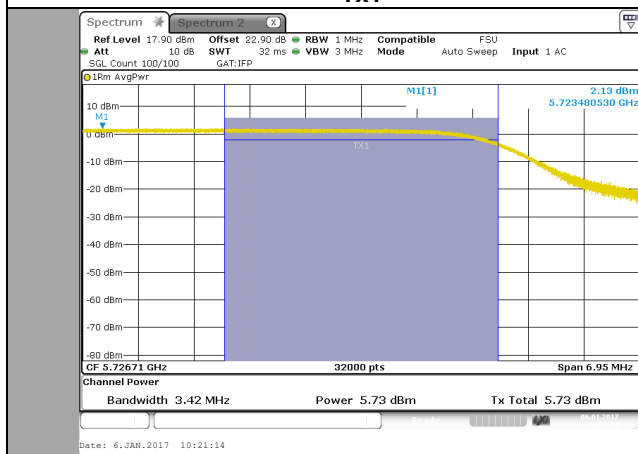
Tx4



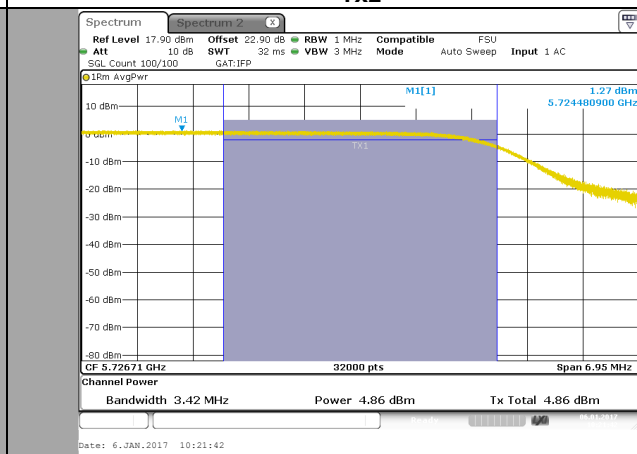
802.11a MASTER

C10 Straddle 5725MHz-5850MHz Maximum Conducted power (RBW = 1MHz)

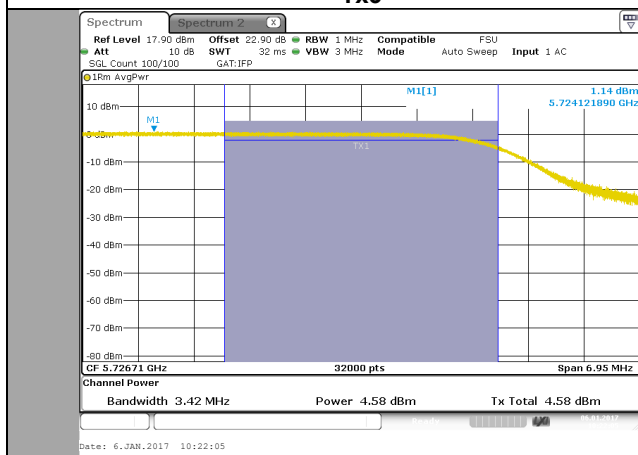
Tx1



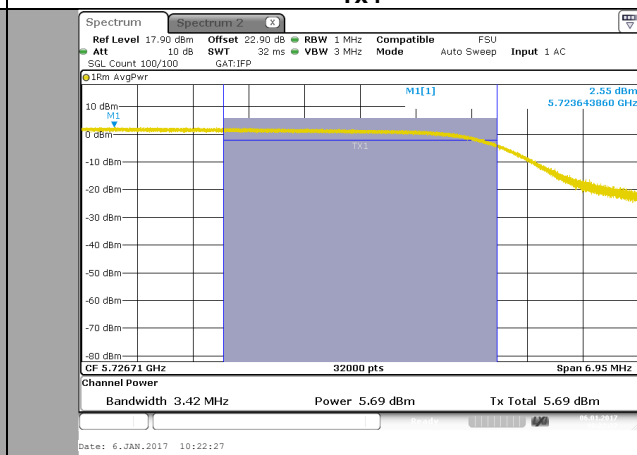
Tx2



Tx3



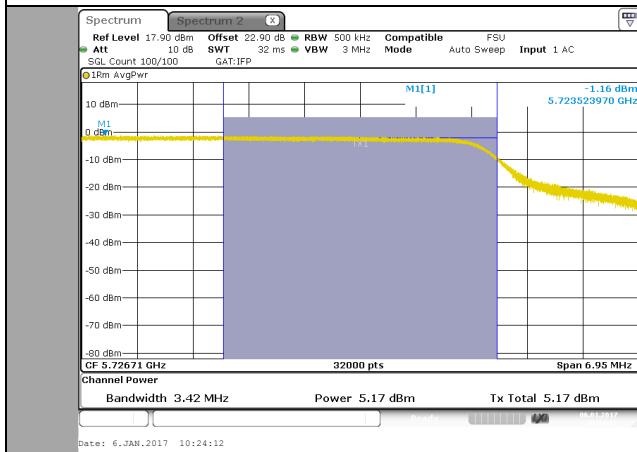
Tx4



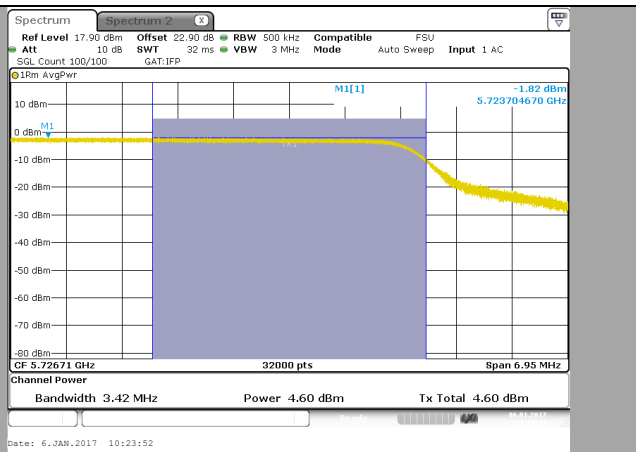
802.11a MASTER

C10 Straddle 5725MHz-5850MHz Power Spectral Density (RBW = 500kHz)

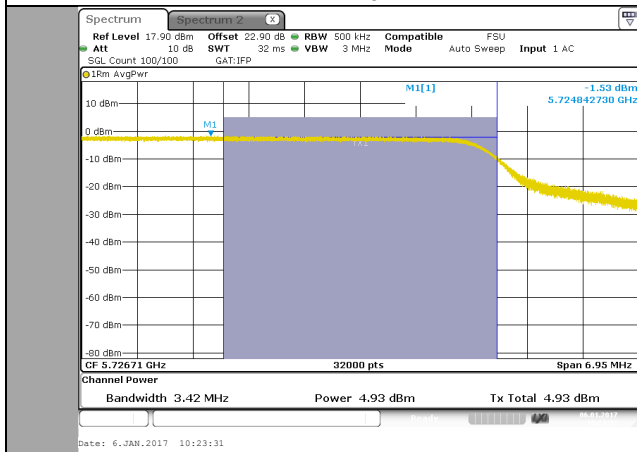
Tx1



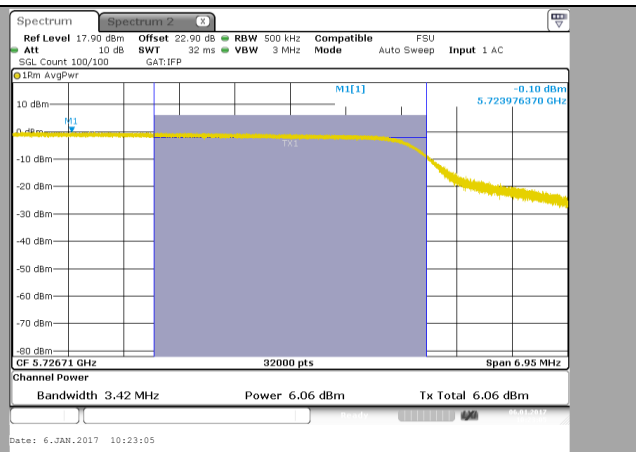
Tx2

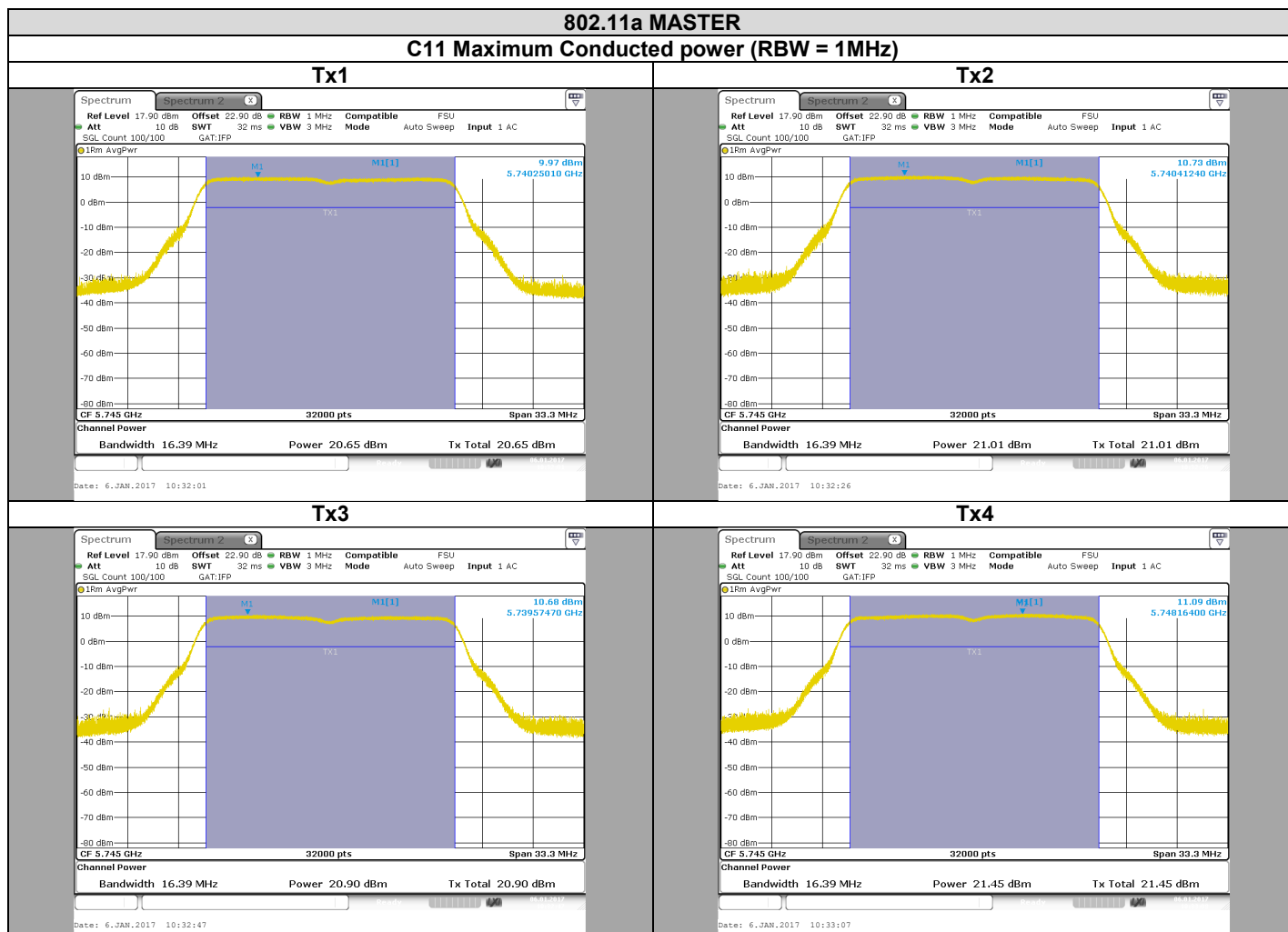


Tx3



Tx4

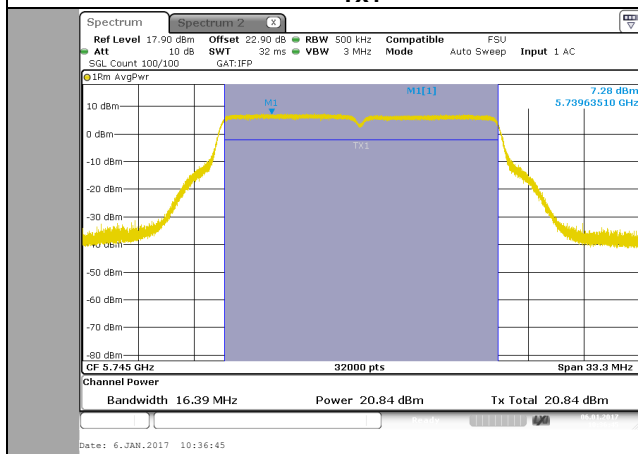




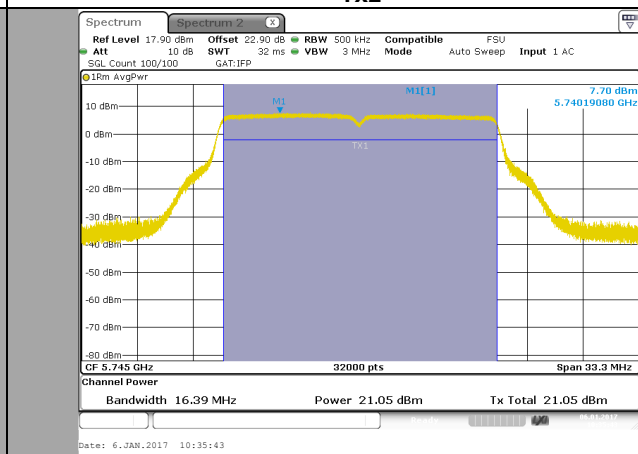
802.11a MASTER

C11 Power Spectral Density (RBW = 500kHz)

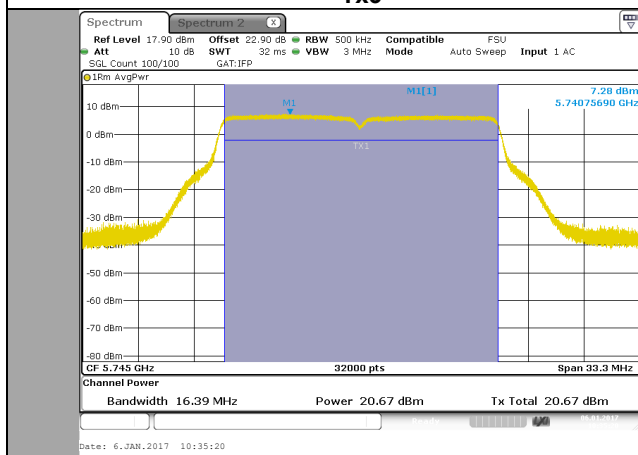
Tx1



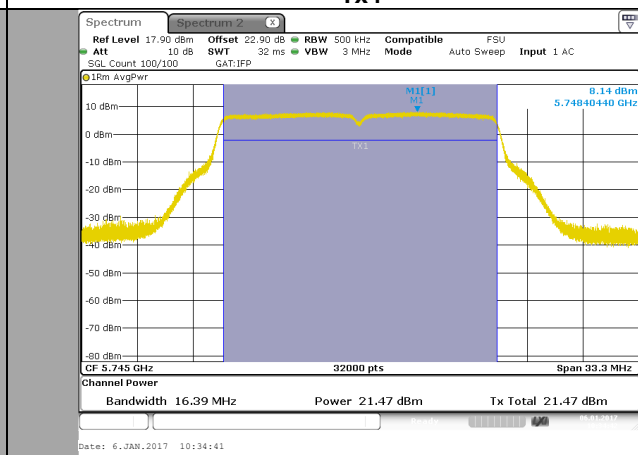
Tx2

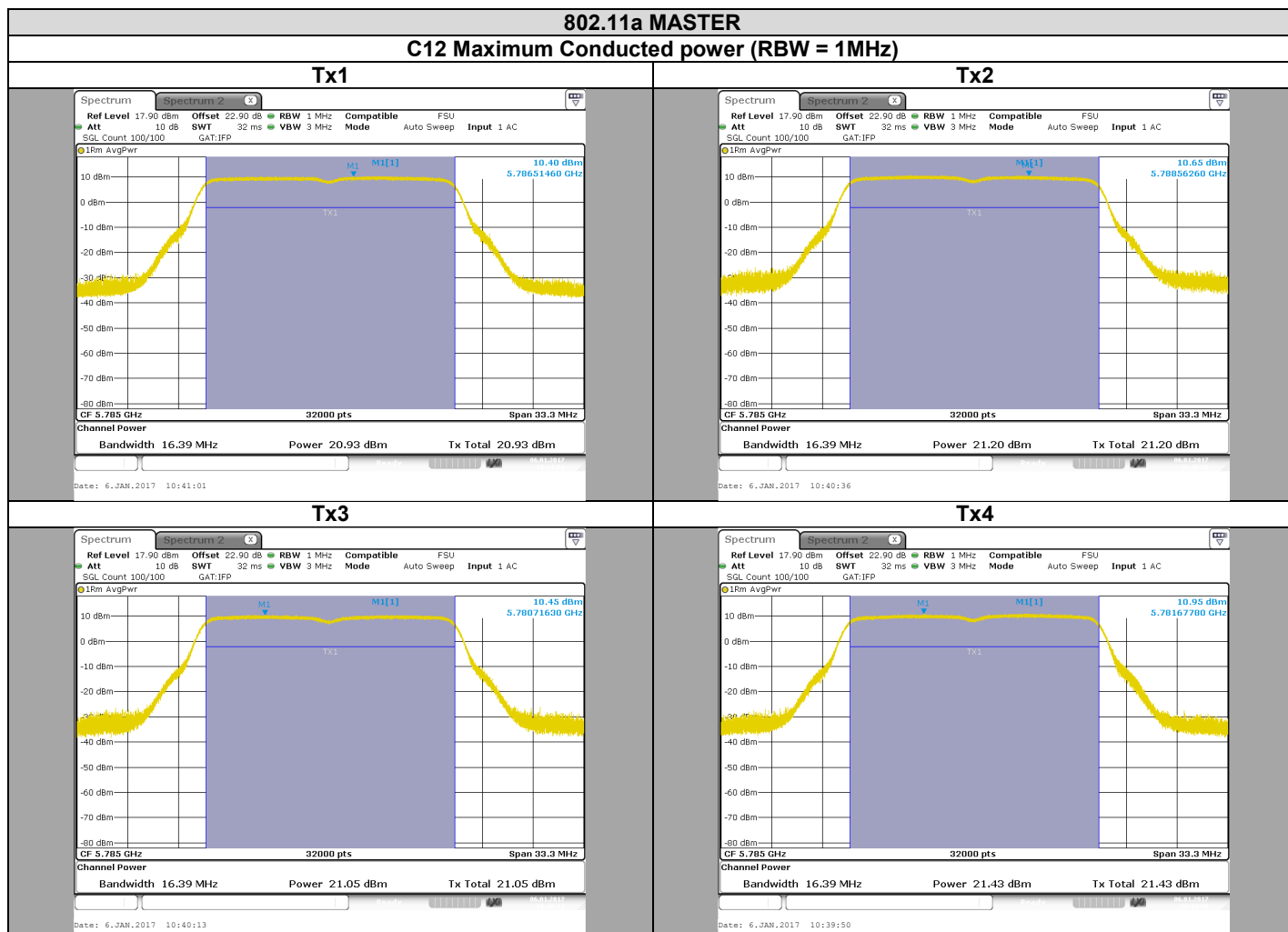


Tx3



Tx4

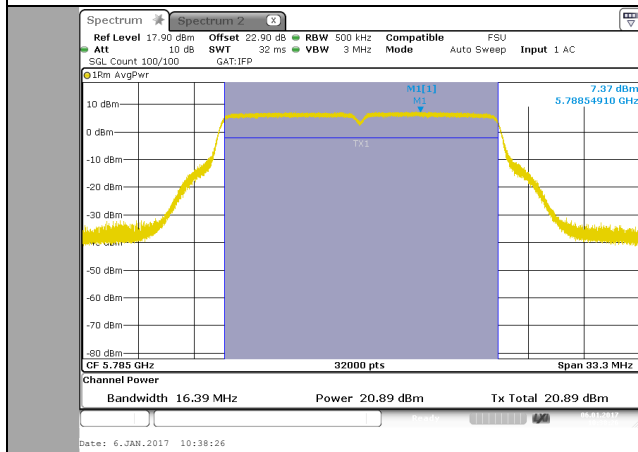




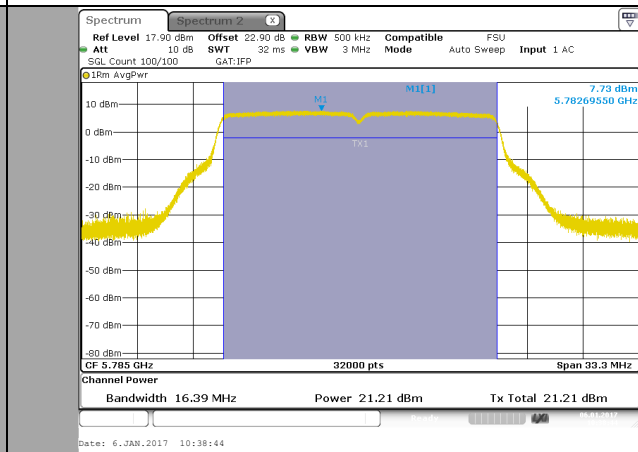
802.11a MASTER

C12 Power Spectral Density (RBW = 500kHz)

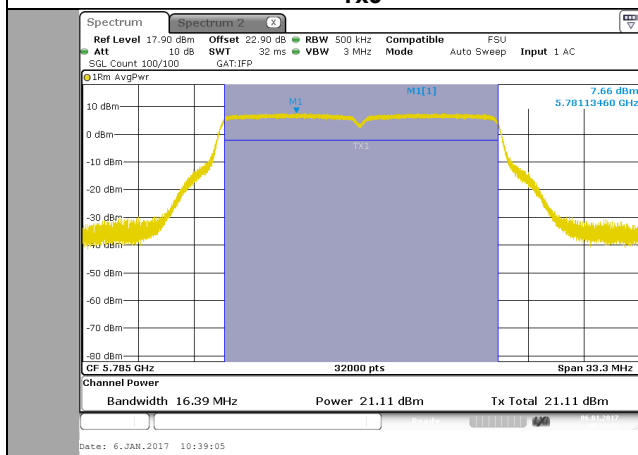
Tx1



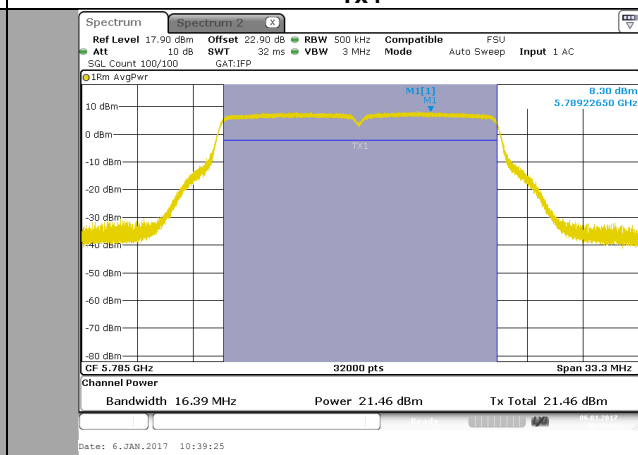
Tx2

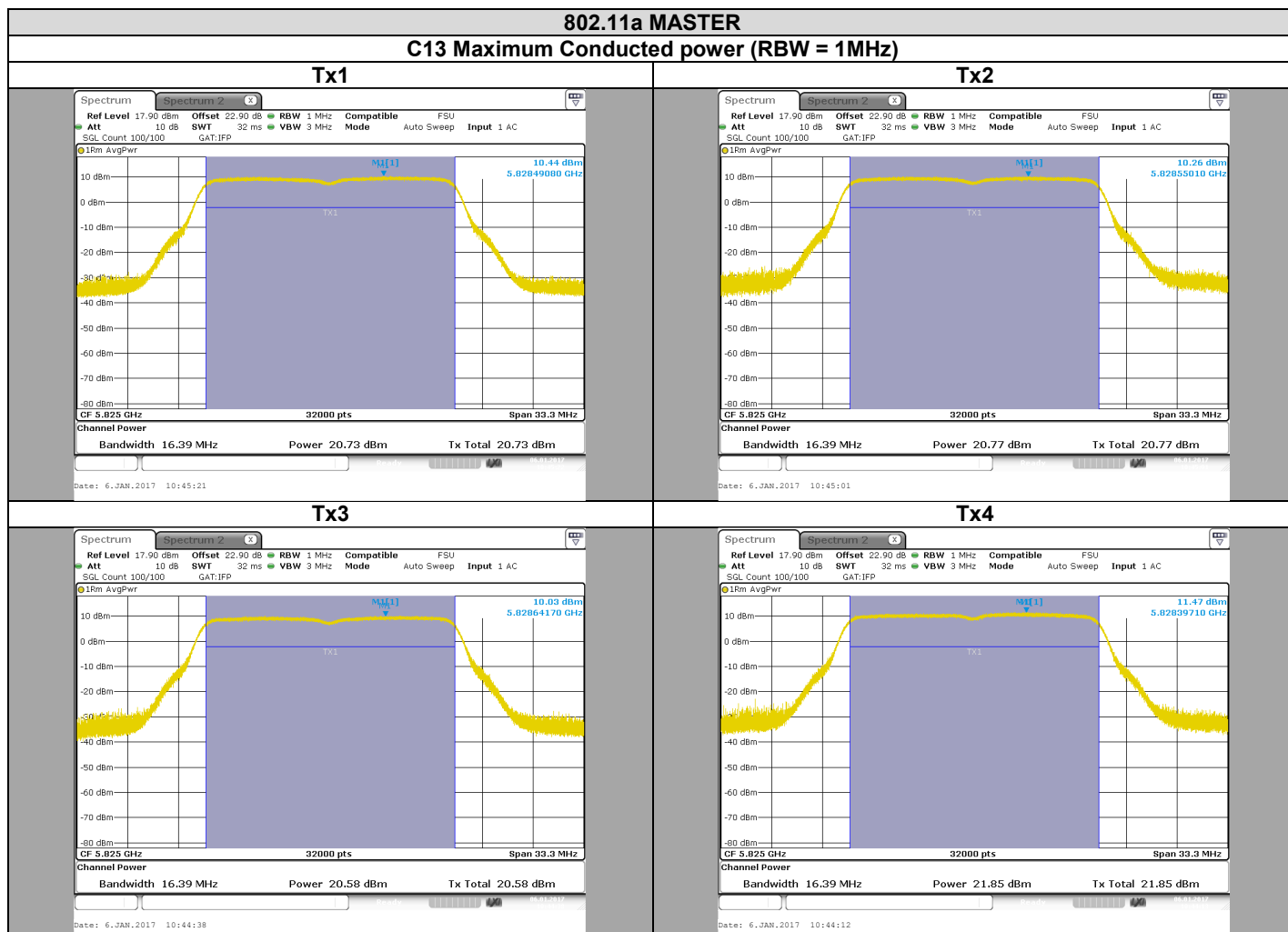


Tx3



Tx4

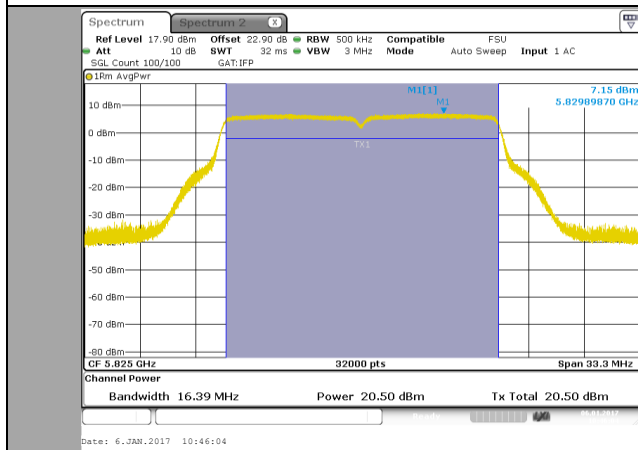




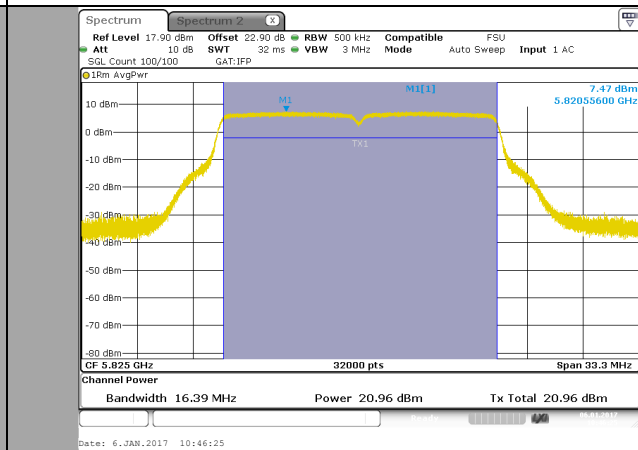
802.11a MASTER

C13 Power Spectral Density (RBW = 500kHz)

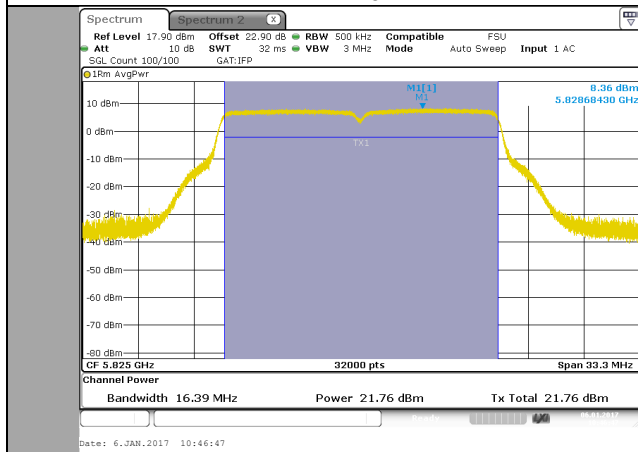
Tx1



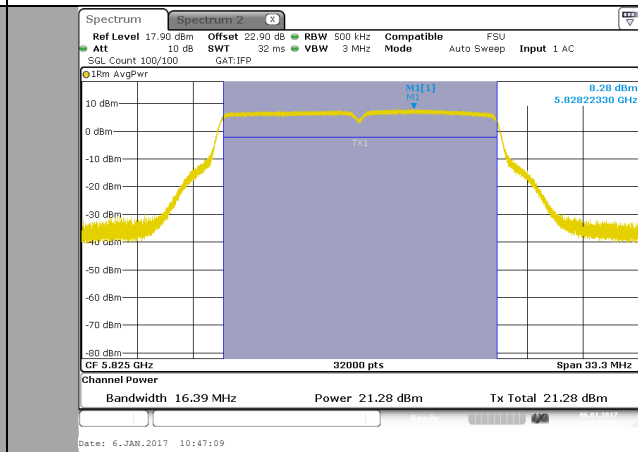
Tx2



Tx3



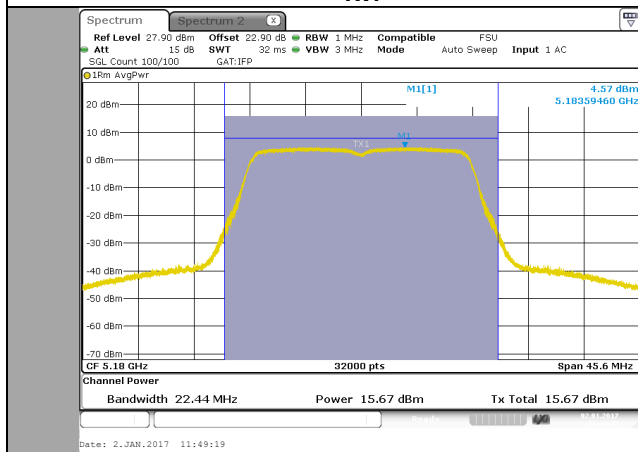
Tx4



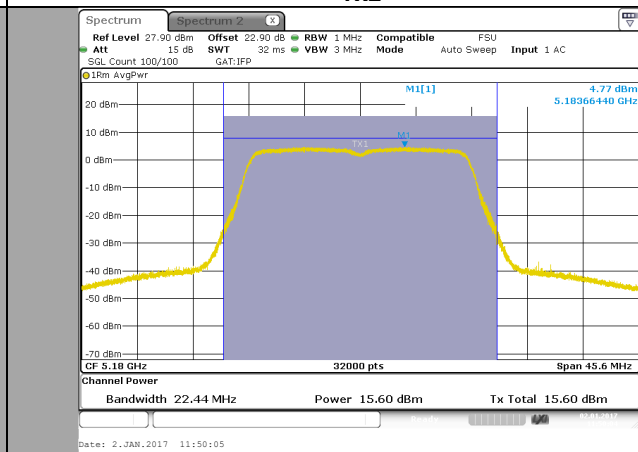
802.11n HT20/ac VHT20 MASTER

C1

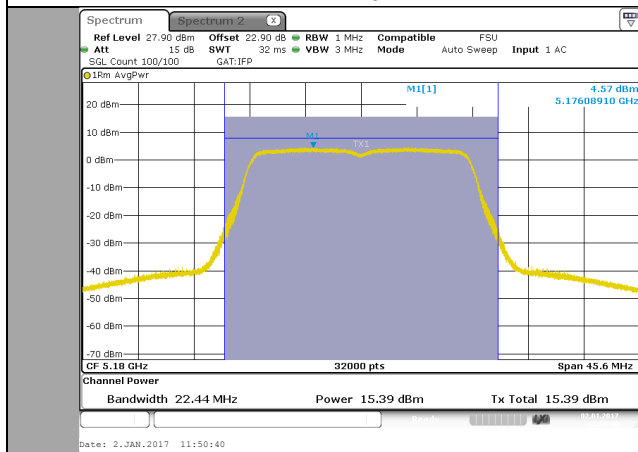
Tx1



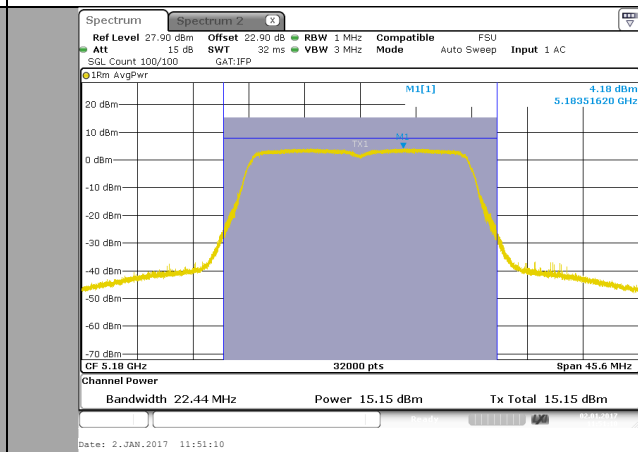
Tx2



Tx3



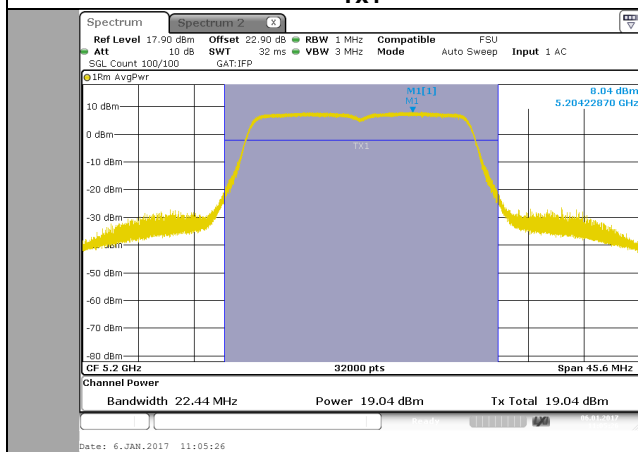
Tx4



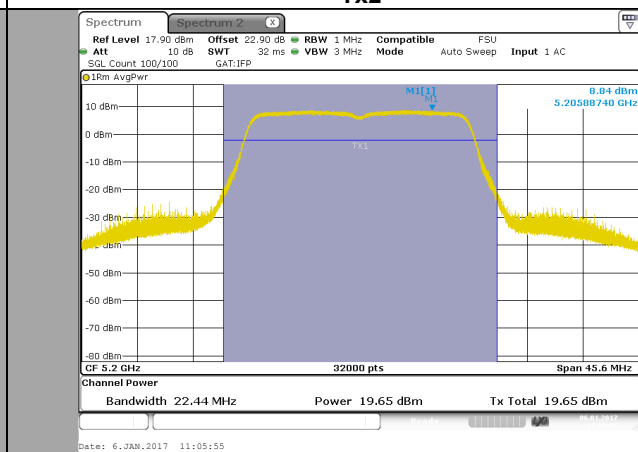
802.11n HT20/ac VHT20 MASTER

C2

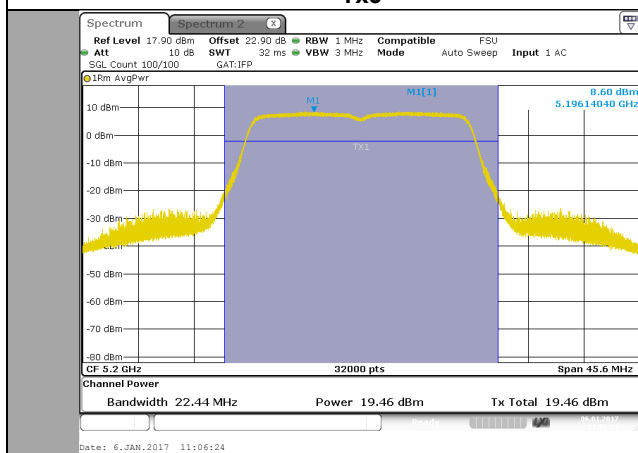
Tx1



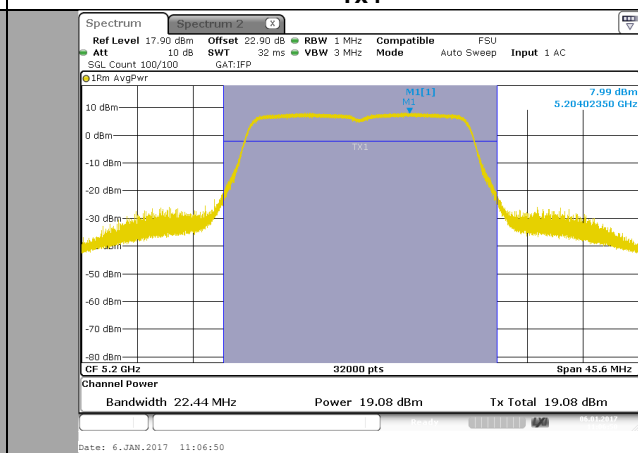
Tx2



Tx3



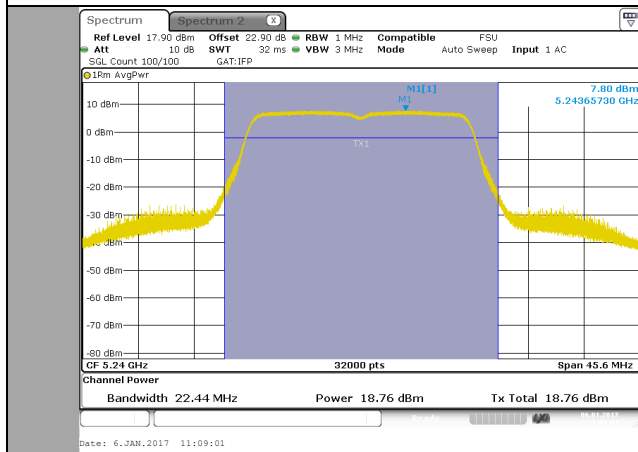
Tx4



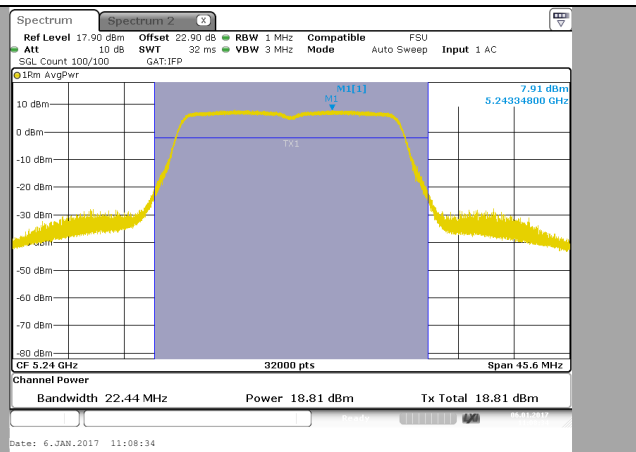
802.11n HT20/ac VHT20 MASTER

C3

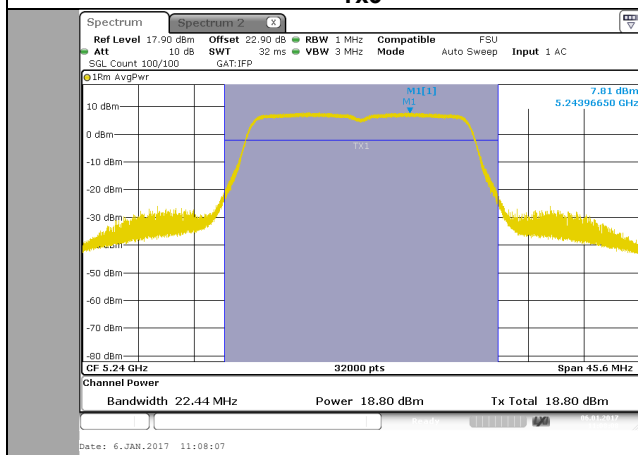
Tx1



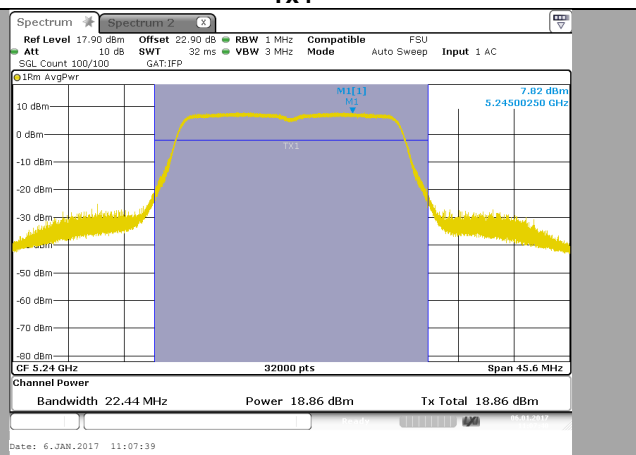
Tx2



Tx3



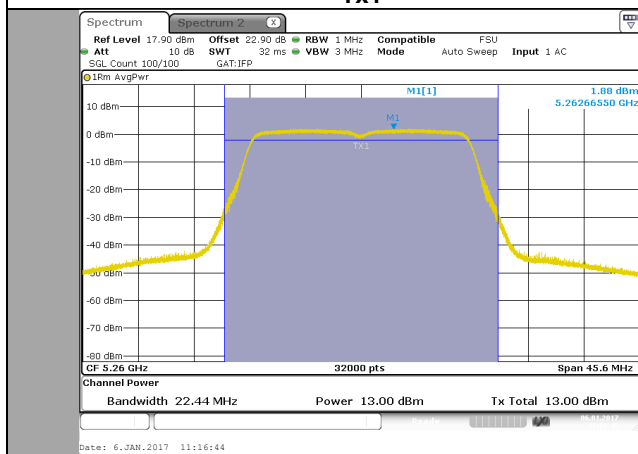
Tx4



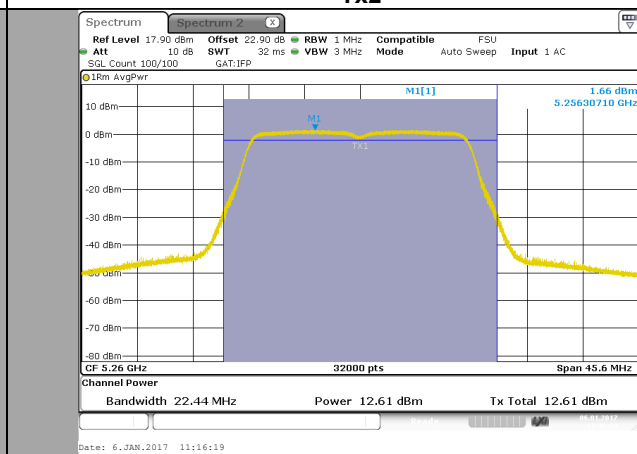
802.11n HT20/ac VHT20 MASTER

C4

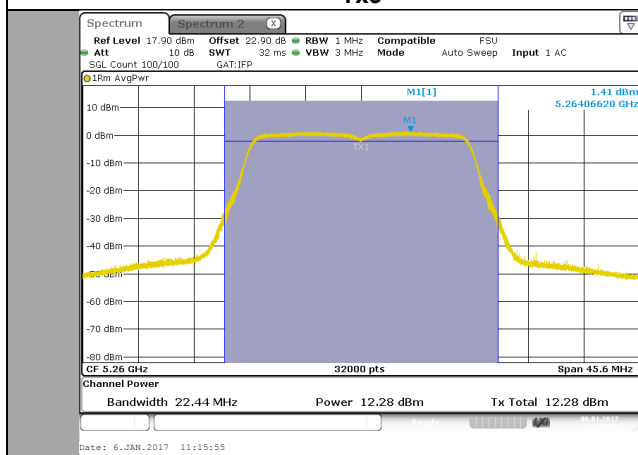
Tx1



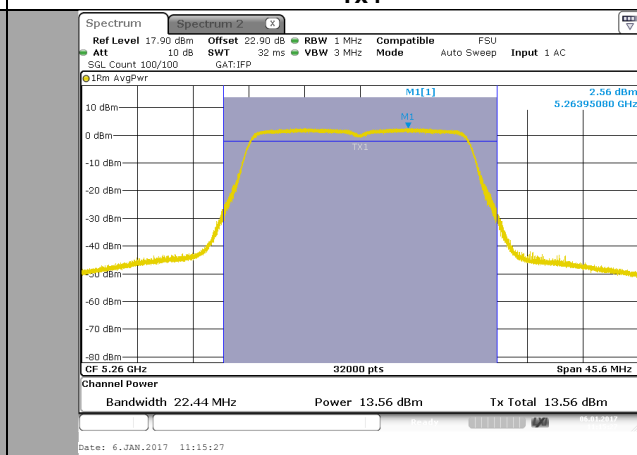
Tx2



Tx3



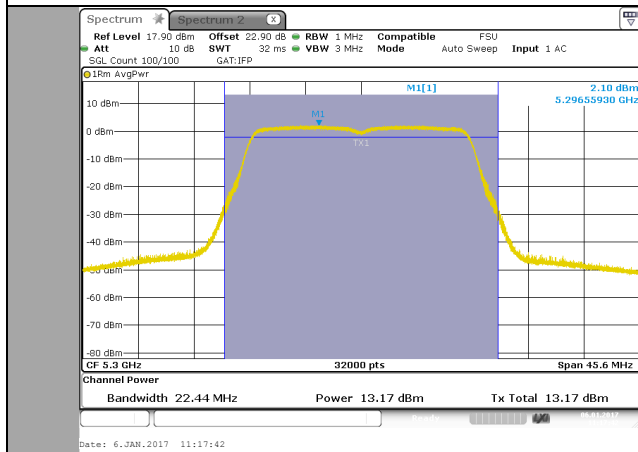
Tx4



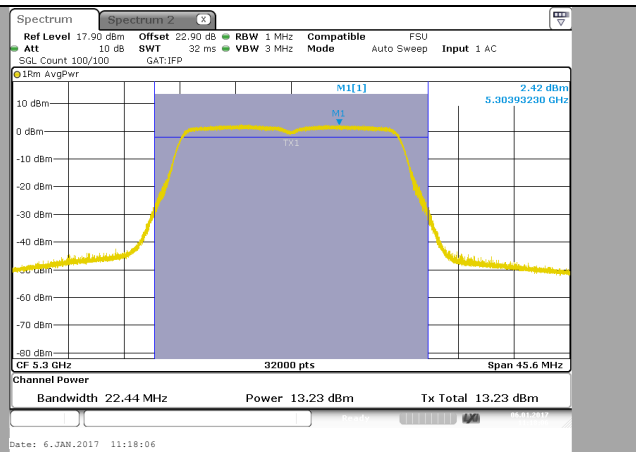
802.11n HT20/ac VHT20 MASTER

C5

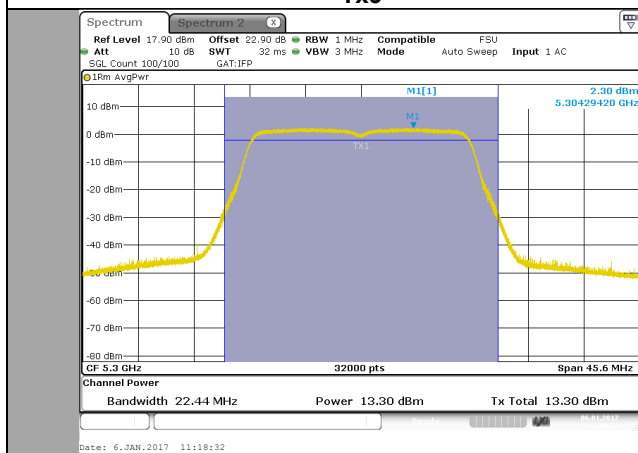
Tx1



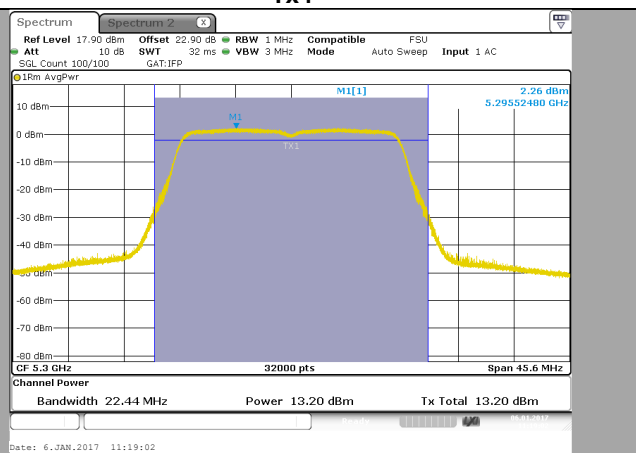
Tx2



Tx3



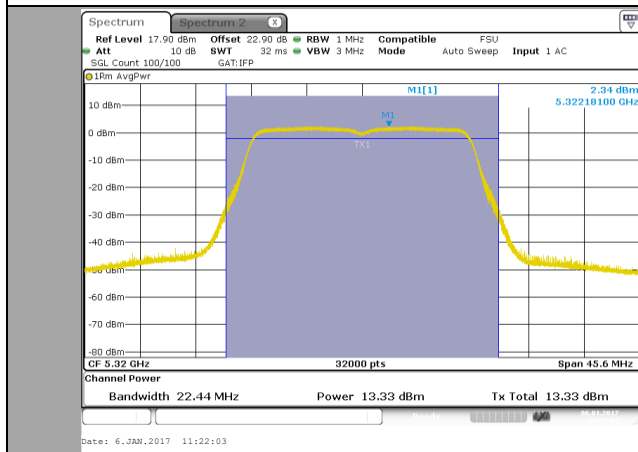
Tx4



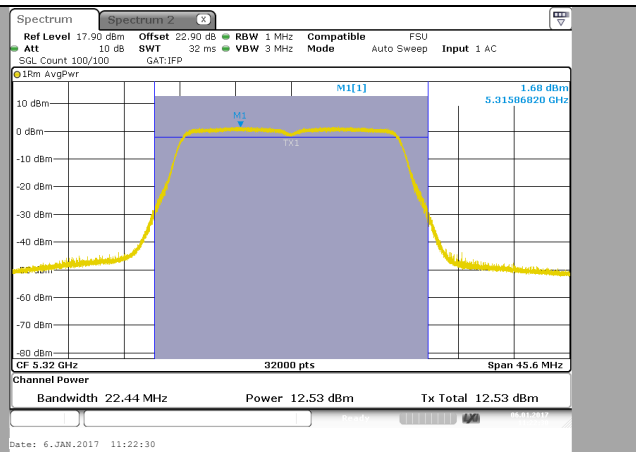
802.11n HT20/ac VHT20 MASTER

C6

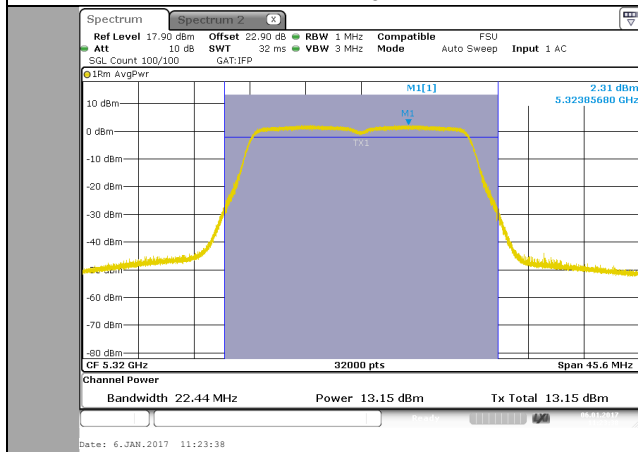
Tx1



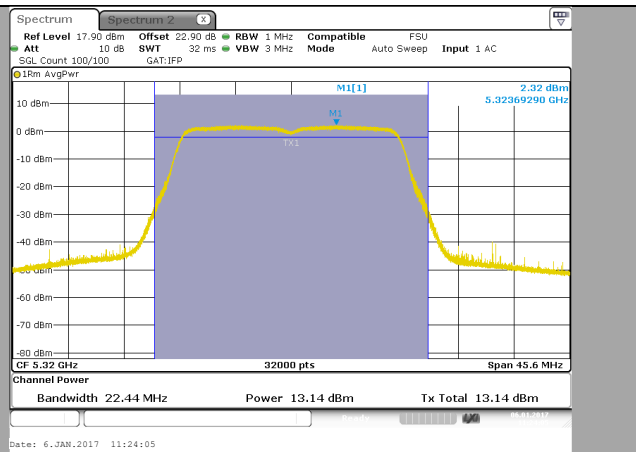
Tx2



Tx3



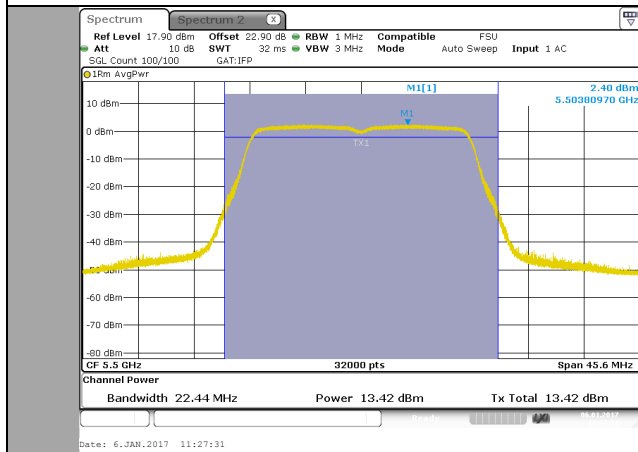
Tx4



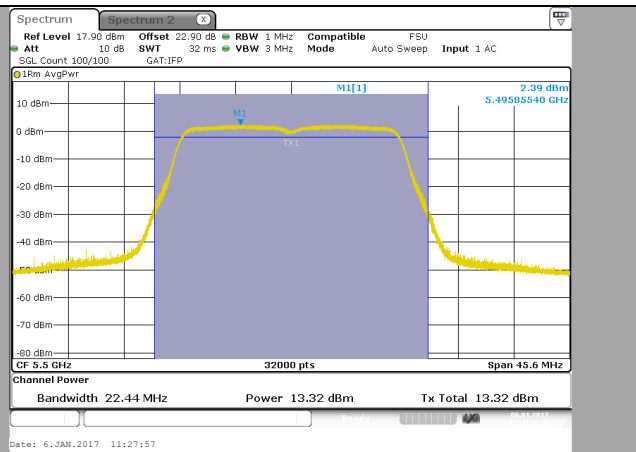
802.11n HT20/ac VHT20 MASTER

C7

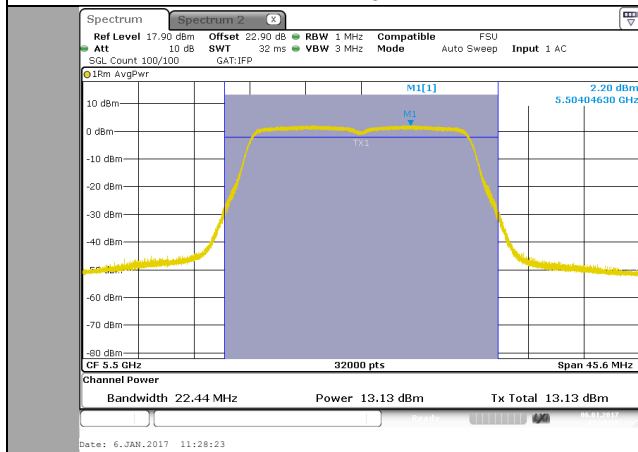
Tx1



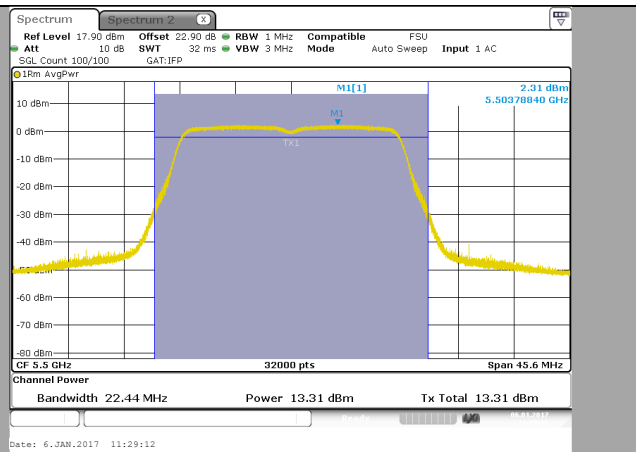
Tx2



Tx3



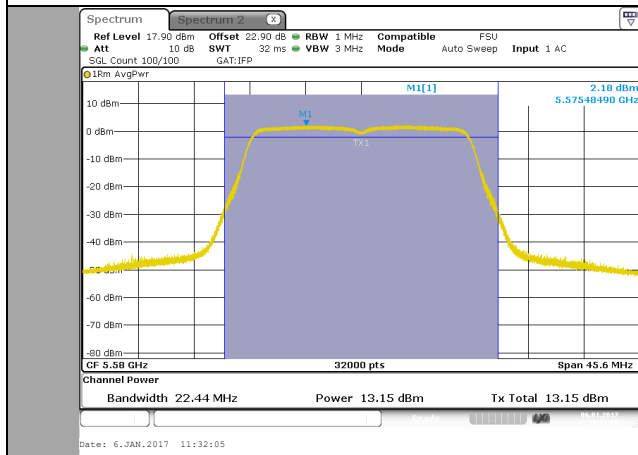
Tx4



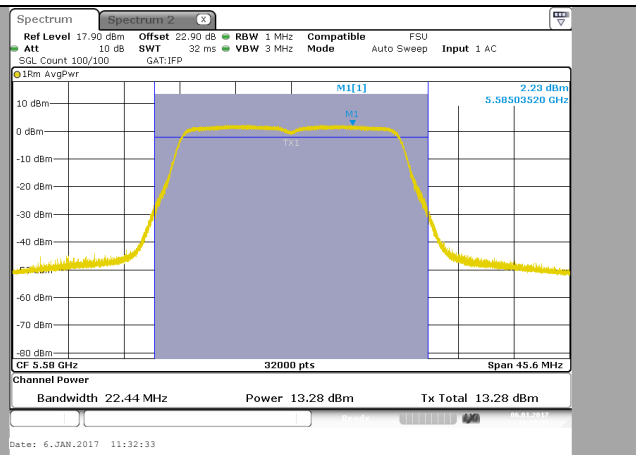
802.11n HT20/ac VHT20 MASTER

C8

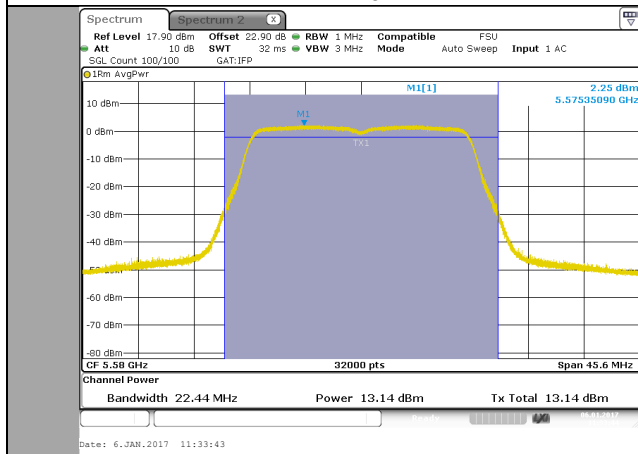
Tx1



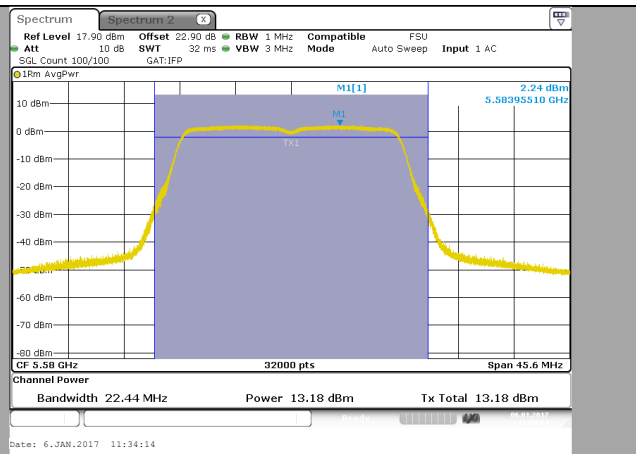
Tx2



Tx3



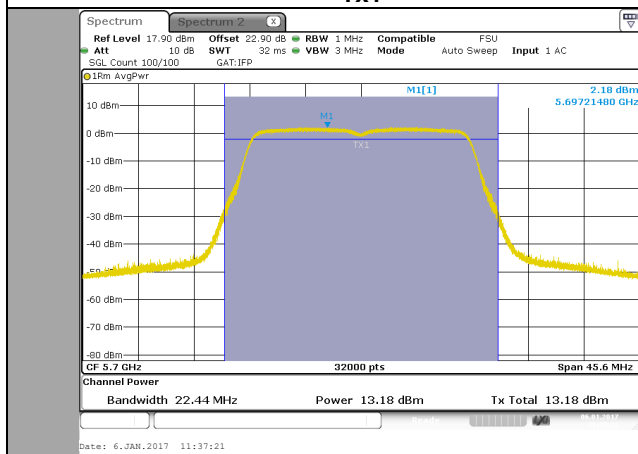
Tx4



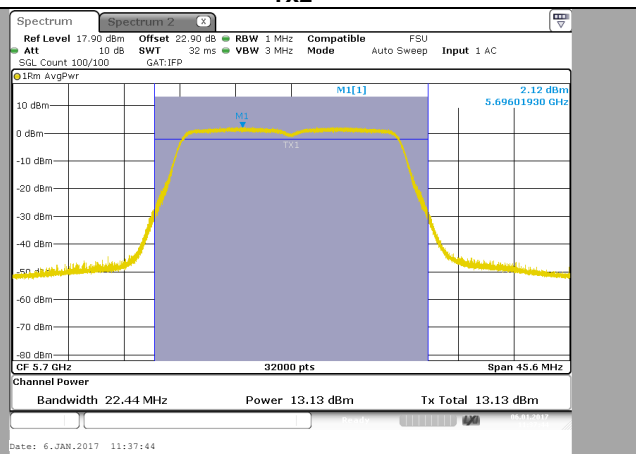
802.11n HT20/ac VHT20 MASTER

C9

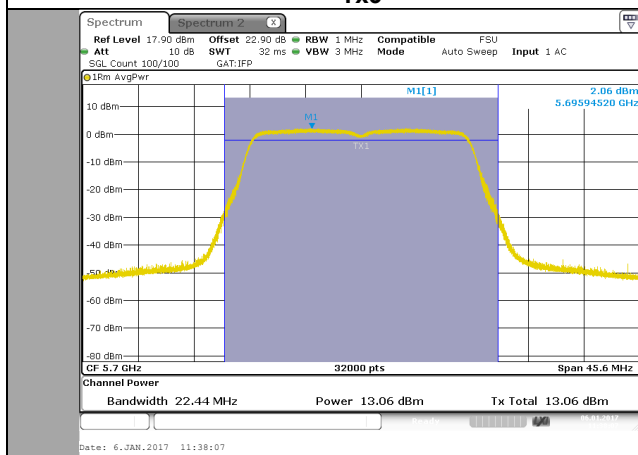
Tx1



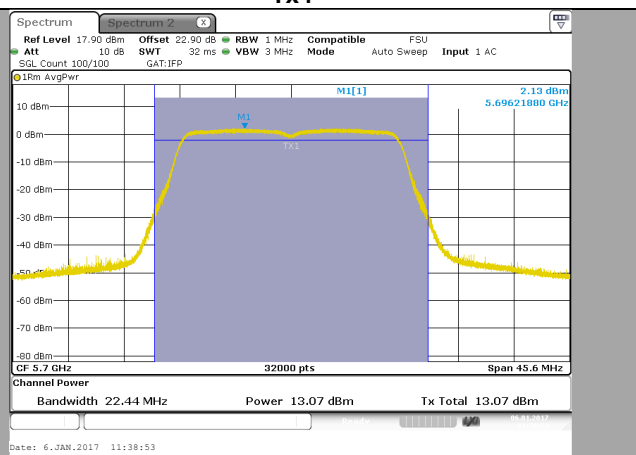
Tx2



Tx3

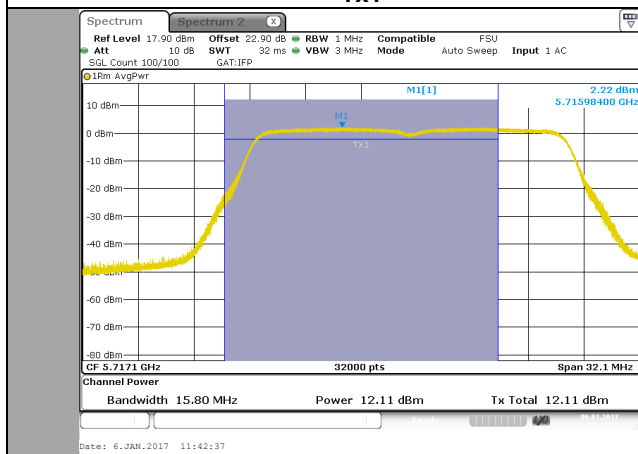


Tx4

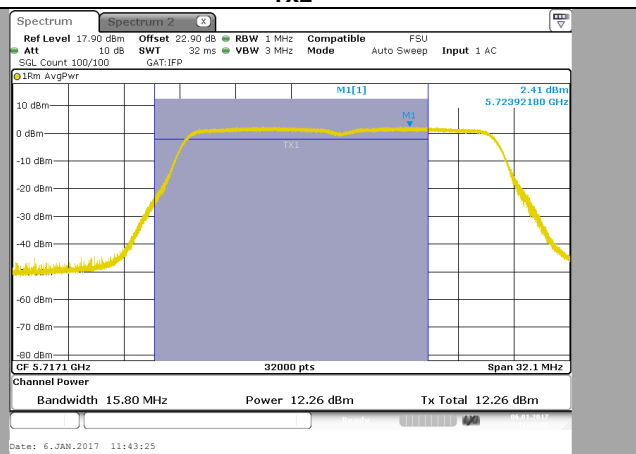


**802.11n HT20/ac VHT20 MASTER
C10 Straddle 5470MHz-5725MHz**

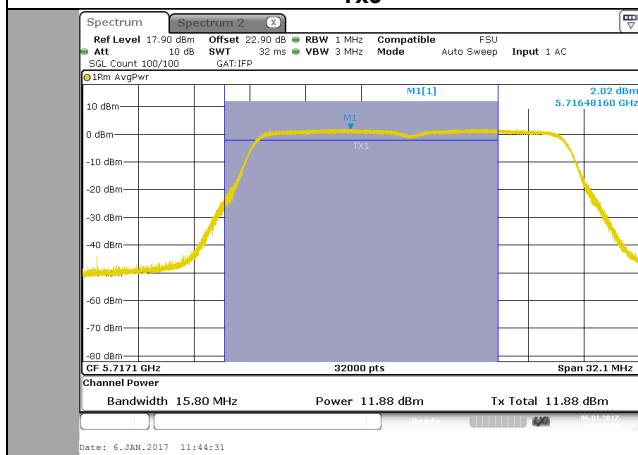
Tx1



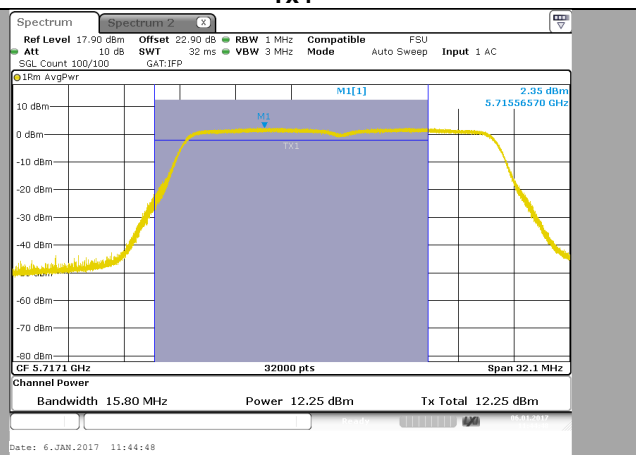
Tx2



Tx3



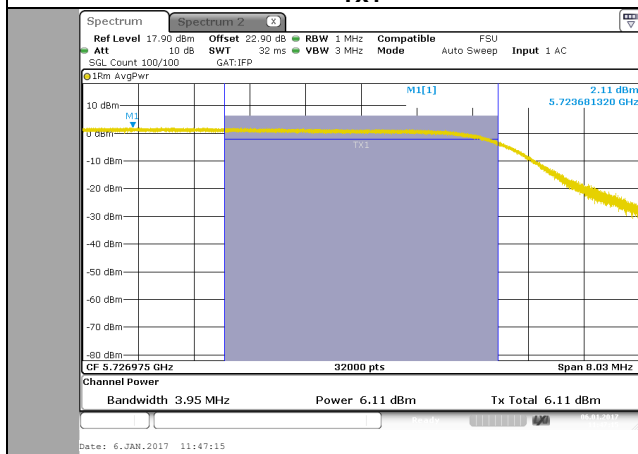
Tx4



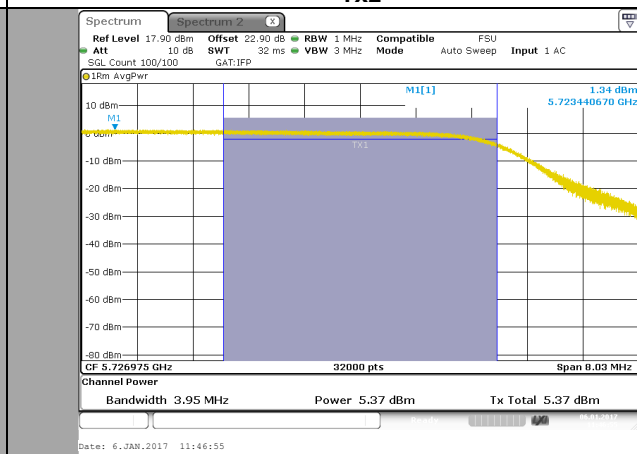
802.11n HT20/ac VHT20 MASTER

C10 Straddle 5725MHz-5850MHz Maximum Conducted power (RBW = 1MHz)

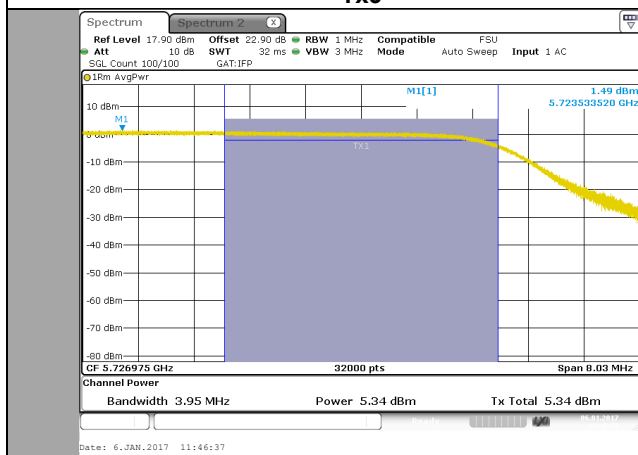
Tx1



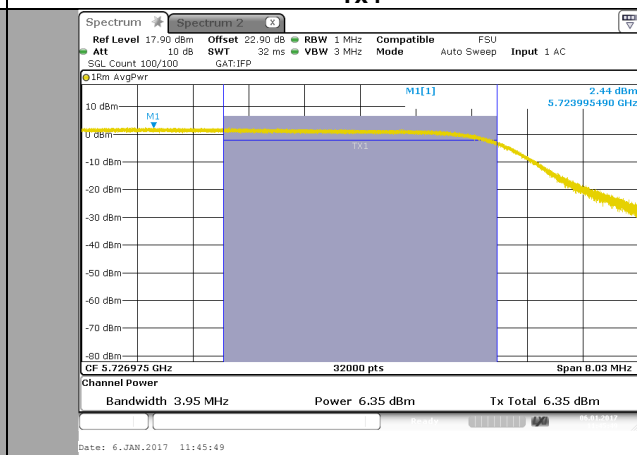
Tx2



Tx3



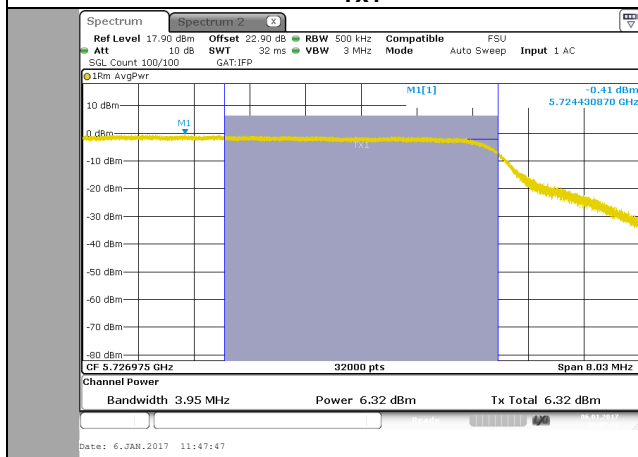
Tx4



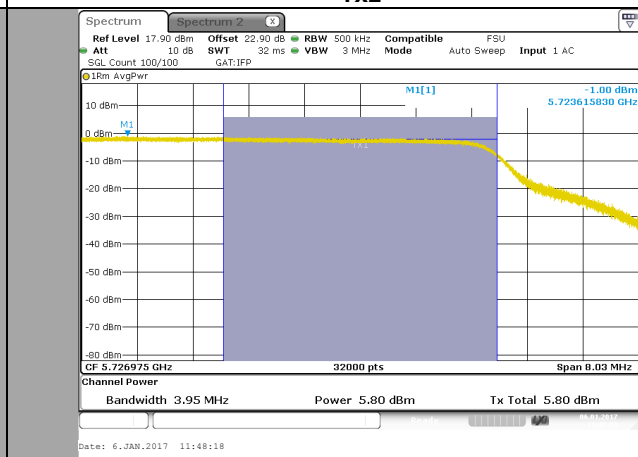
802.11n HT20/ac VHT20 MASTER

C10 Straddle 5725MHz-5850MHz Power Spectral Density (RBW = 500kHz)

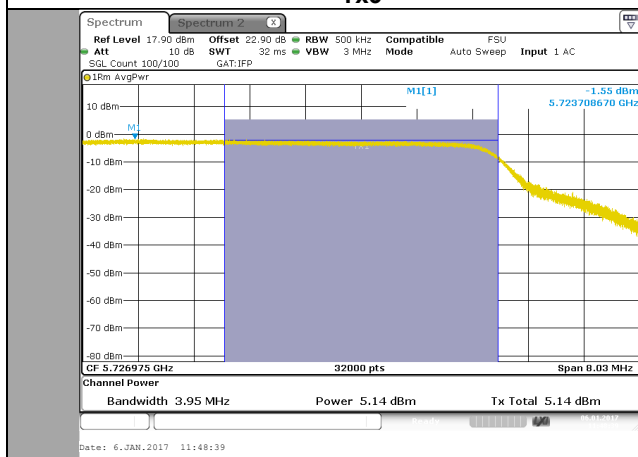
Tx1



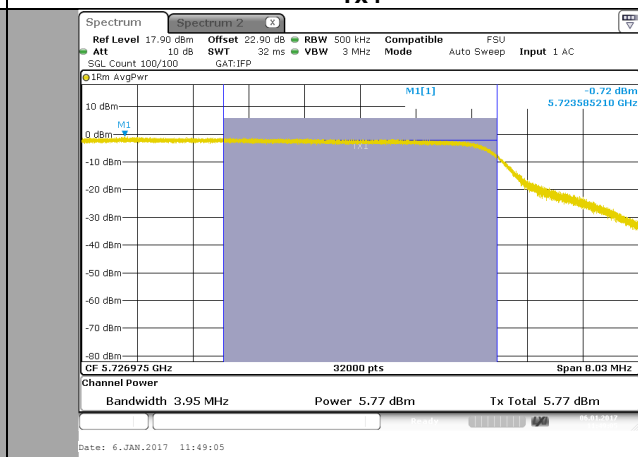
Tx2



Tx3

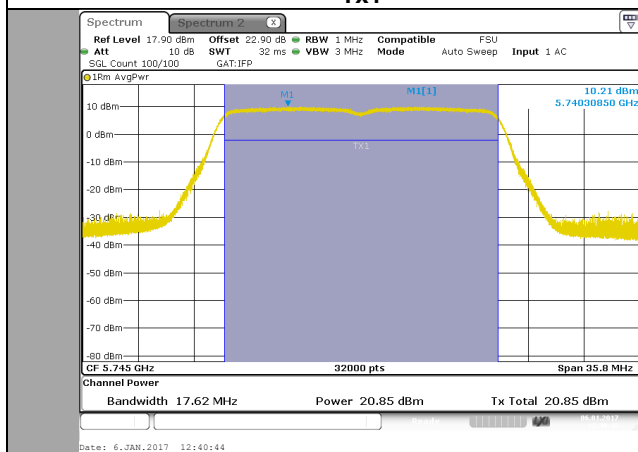


Tx4

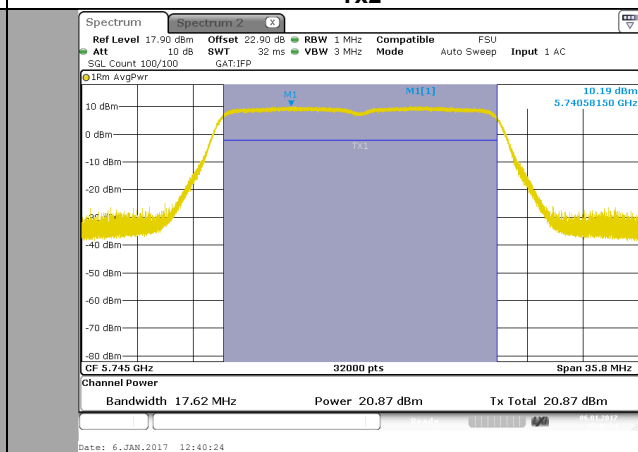


802.11n HT20/ac VHT20 MASTER
C11 Maximum Conducted power (RBW = 1MHz)

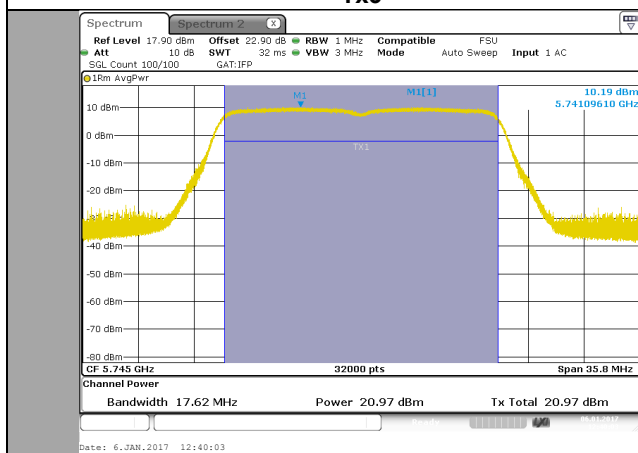
Tx1



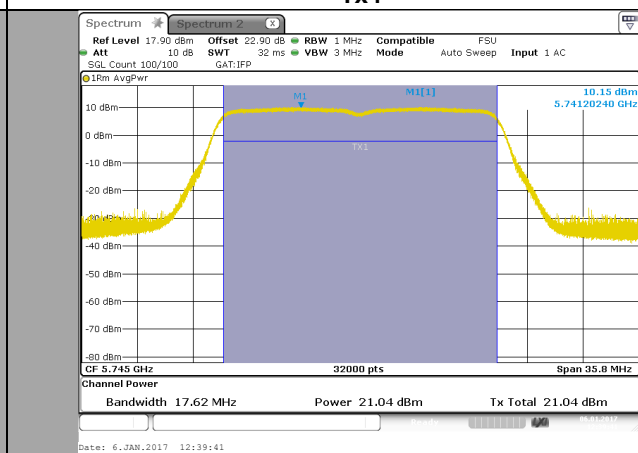
Tx2



Tx3

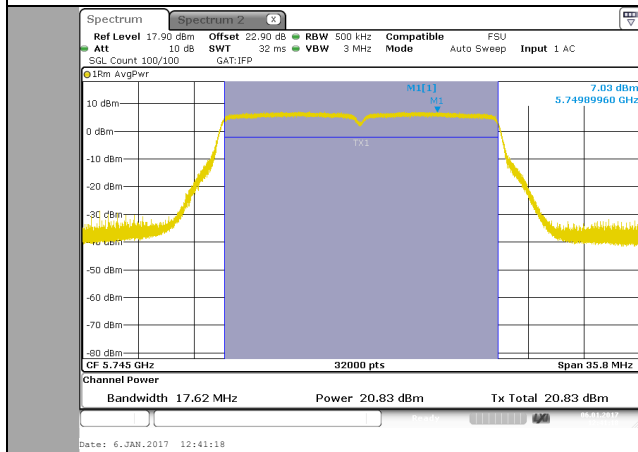


Tx4

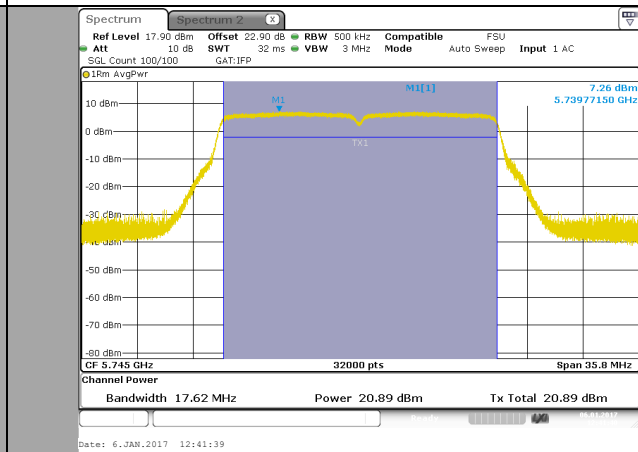


802.11n HT20/ac VHT20 MASTER
C11 Power Spectral Density (RBW = 500kHz)

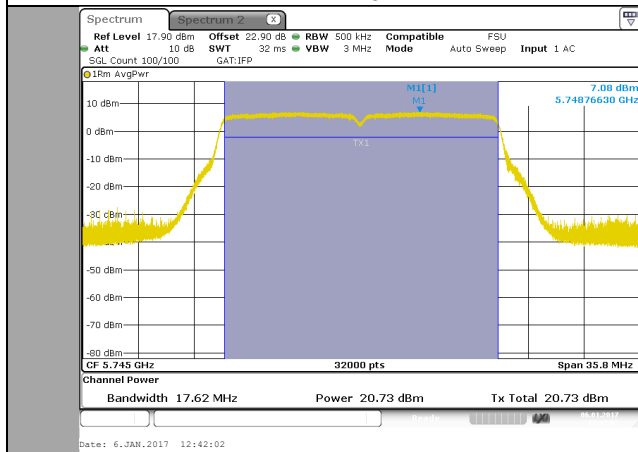
Tx1



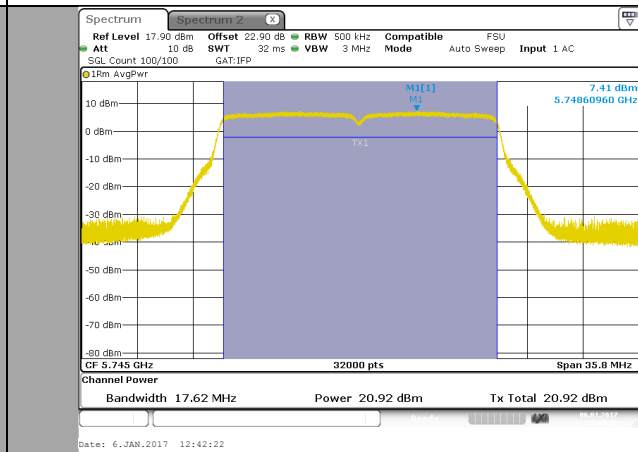
Tx2



Tx3

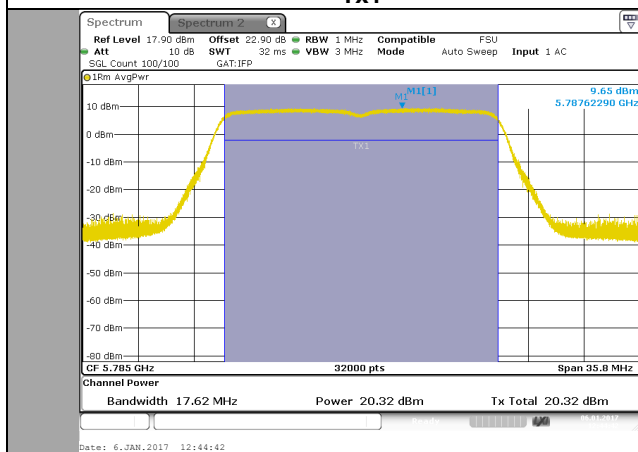


Tx4

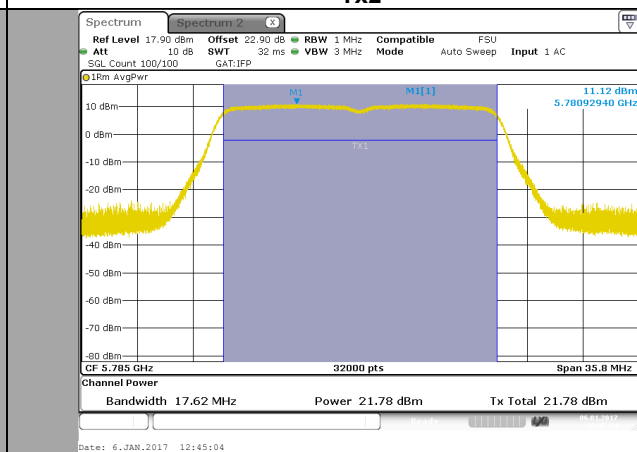


802.11n HT20/ac VHT20 MASTER
C12 Maximum Conducted power (RBW = 1MHz)

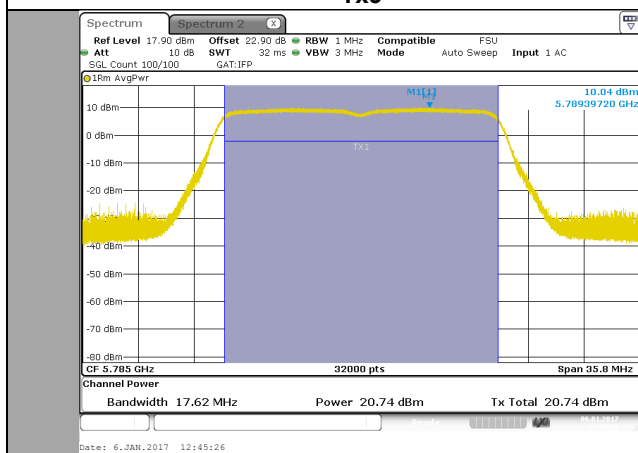
Tx1



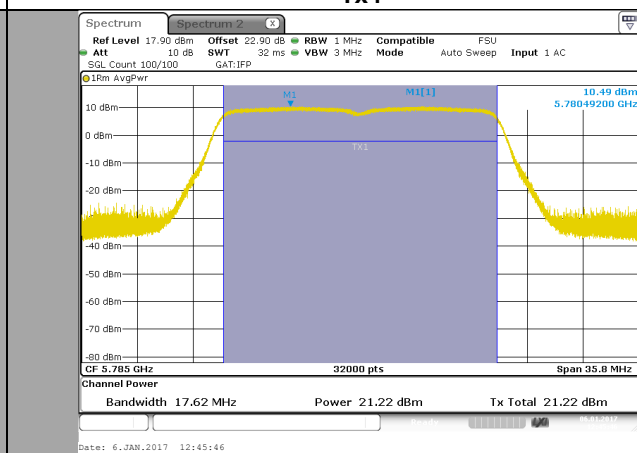
Tx2



Tx3

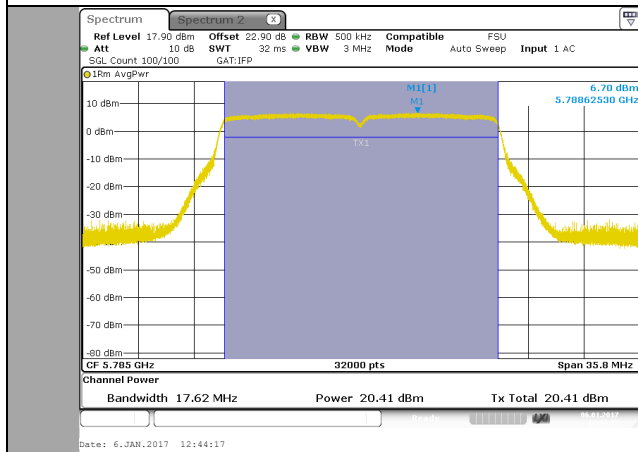


Tx4

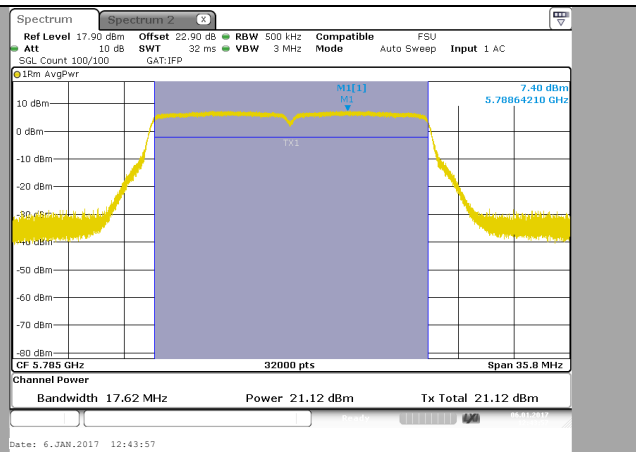


802.11n HT20/ac VHT20 MASTER
C12 Power Spectral Density (RBW = 500kHz)

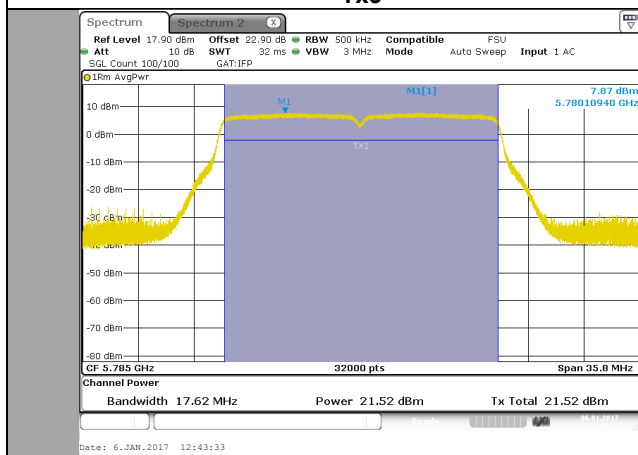
Tx1



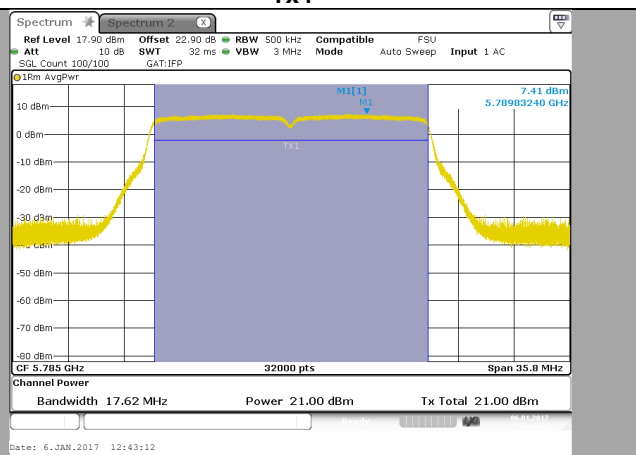
Tx2



Tx3

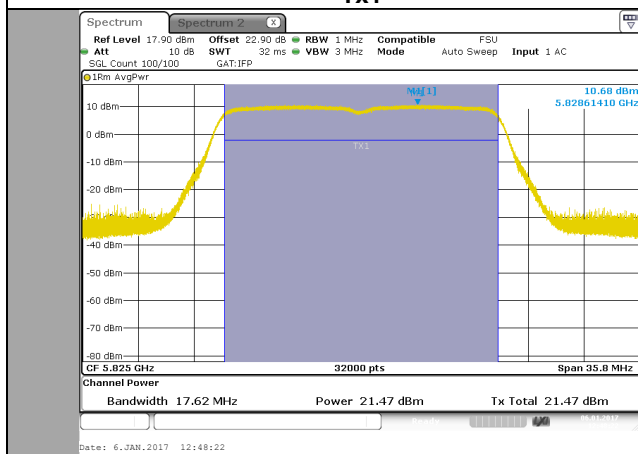


Tx4

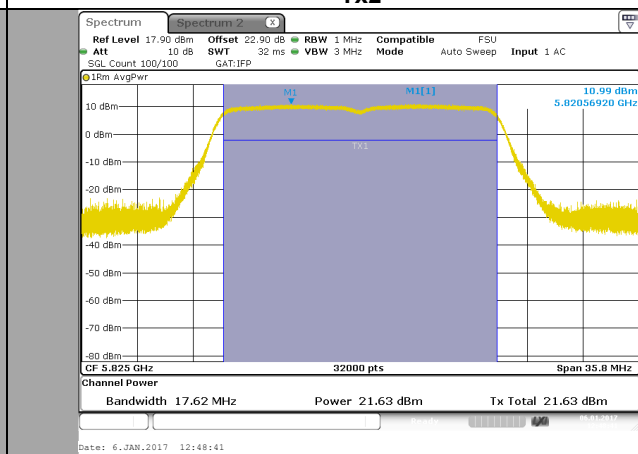


802.11n HT20/ac VHT20 MASTER
C13 Maximum Conducted power (RBW = 1MHz)

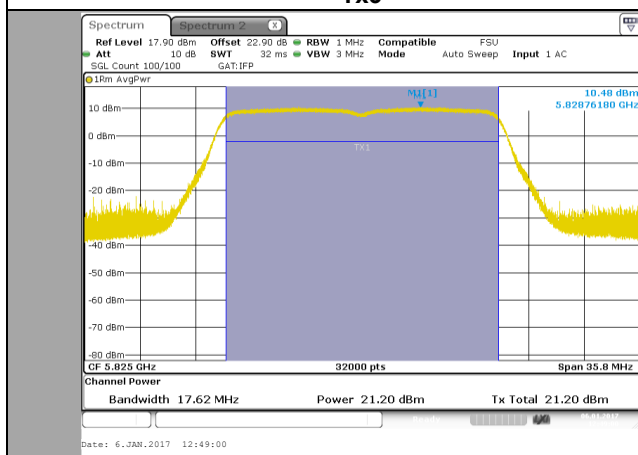
Tx1



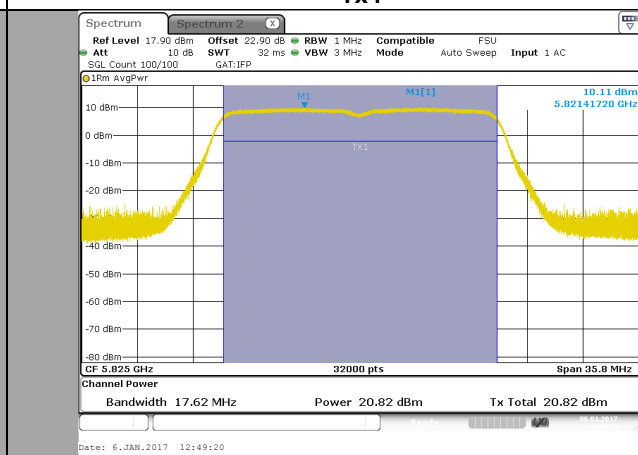
Tx2



Tx3

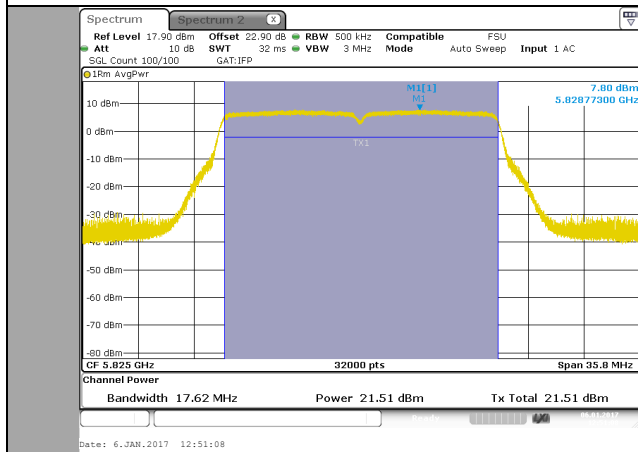


Tx4

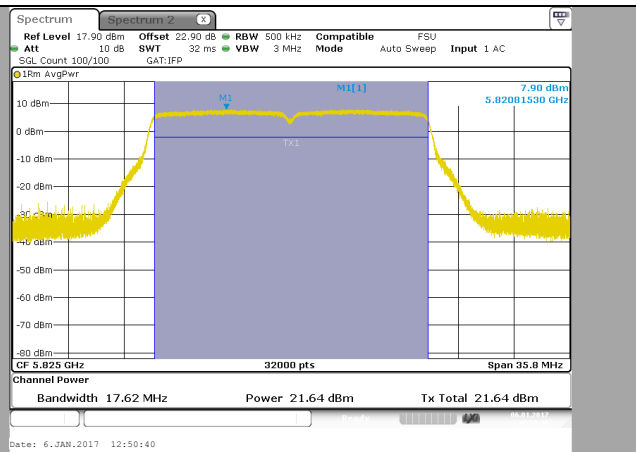


802.11n HT20/ac VHT20 MASTER
C13 Power Spectral Density (RBW = 500kHz)

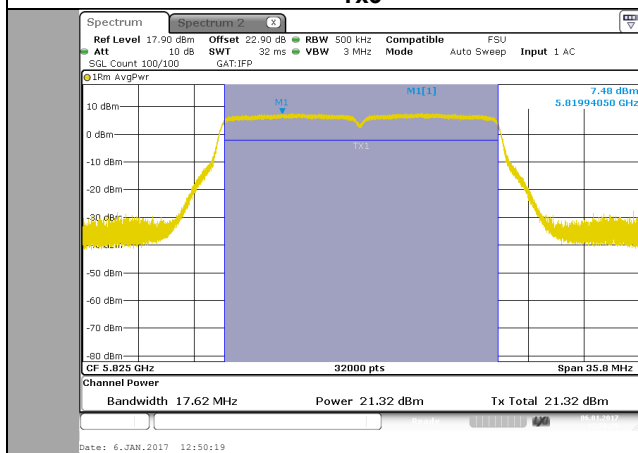
Tx1



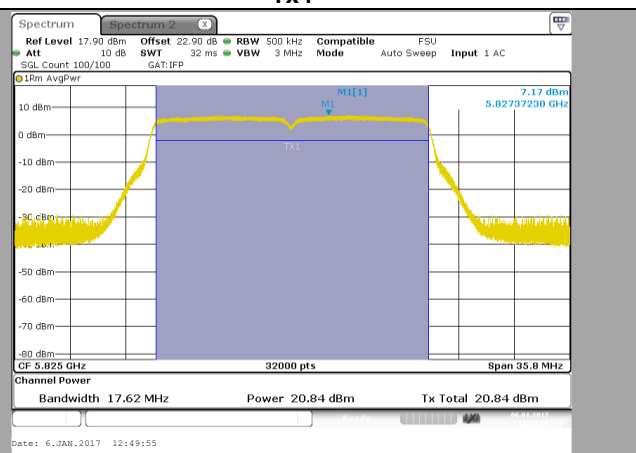
Tx2



Tx3



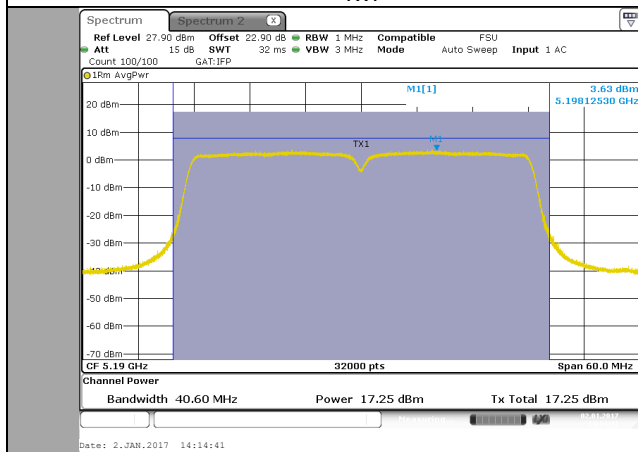
Tx4



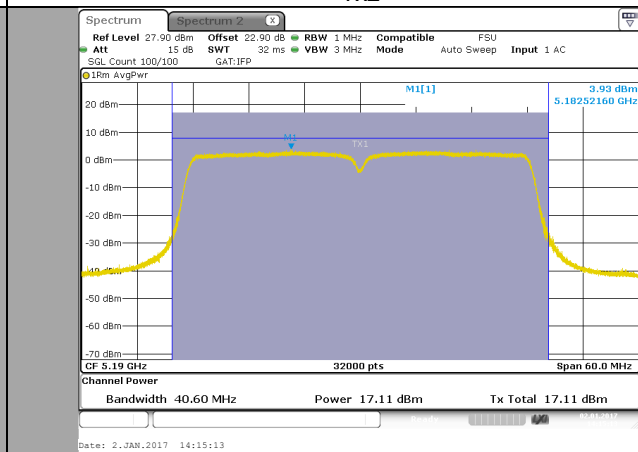
802.11n HT40/ac VHT40 MASTER

C14

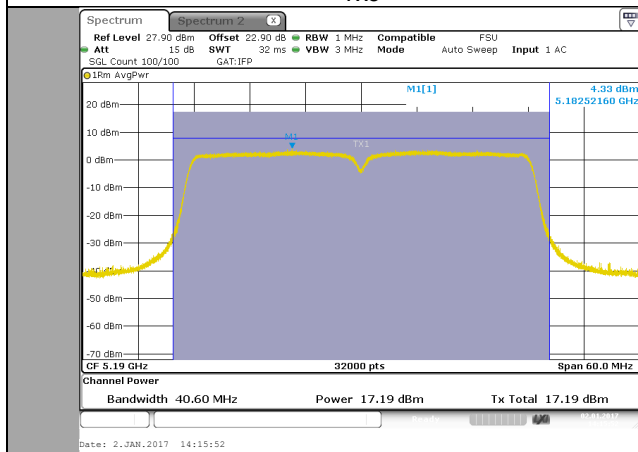
Tx1



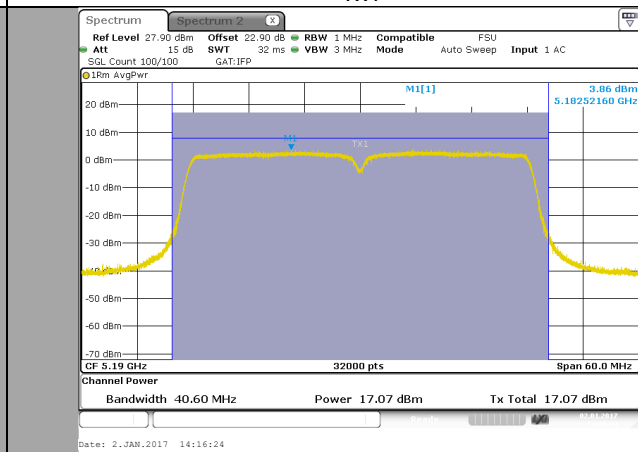
Tx2



Tx3



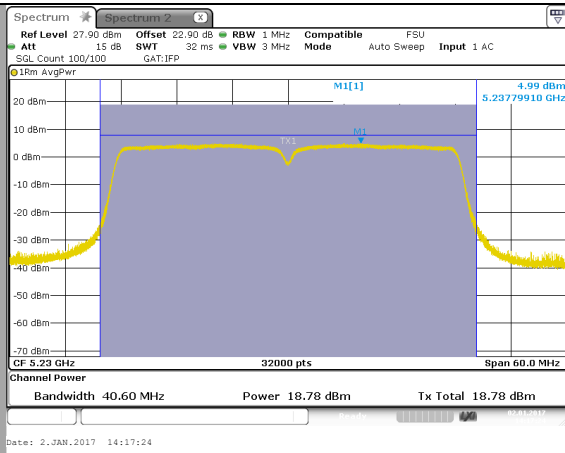
Tx4



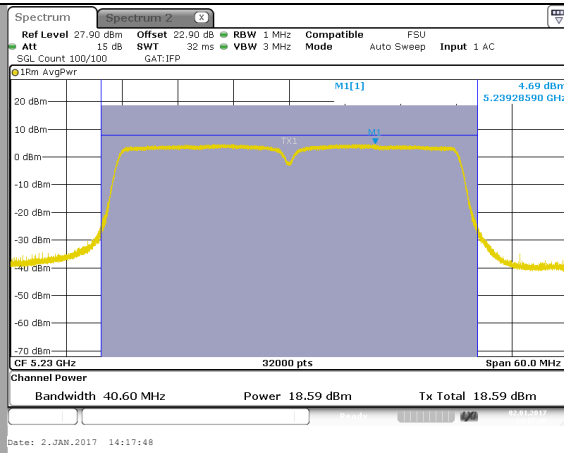
802.11n HT40/ac VHT40 MASTER

C15

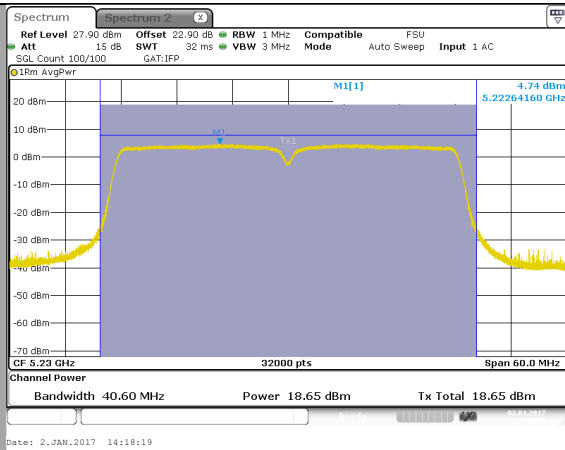
Tx1



Tx2



Tx3



Tx4

