WIFI 2,4GHz Template: Release August 08th, 2017

TEST REPORT

N°: 155636-721608-C **Version : 01**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.247**
Issued to	**SAGEMCOM BROADBAND SAS** 250 Route de l' Empereur 92500 – RUEIL MALMAISON FRANCE
Apparatus under test	
Product	**Home router**
Trade mark	**SAGEMCOM**
Manufacturer	**SAGEMCOM**
Model under test	**DCIWA384 UHD Alt US V2**
Serial number	**253764997**
FCC ID	**VW3DCIWA384-V2**
Test date	: May 25, 2018 to June 7, 2018
Test location	Fontenay Aux Roses & Ecuelles
Composition of document	97 pages
Document issued on	September 13, 2018

Written by :
Mathieu CERISIER
Tests operator

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15.745.984 €
33 avenue du General Leclerc
92260 FONTENAY AUX ROSES

Approved by :
Arnaud FAYETTE
Technical manager

PUBLICATION HISTORY

Version	Date	Author	Modification
01	June 22, 2018	Mathieu CERISIER	Creation of the document

SUMMARY

1. TEST PROGRAM

References

- **47 CFR Part 15.247**
- **KDB 558074 D01 DTS Meas Guidance v04**
- **KDB 662911 D01 Multiple Transmitter Output v02r01**
- **ANSI C63.10-2013**

Radio requirement:

Clause (47CFR Part 15.247) Test Description	Test result - Comments			
Occupied Bandwidth	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
6dB Bandwidth	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Duty Cycle	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Maximum Conducted Output Power	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Power Spectral Density	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Conducted Spurious Emission at the Band Edge	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Unwanted Emissions into Non-Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
AC Power Line Conducted Emission	☑ PASS	☐ FAIL	☐ NA(2)	☐ NP(1)
Unwanted Emissions into Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Receiver Radiated emissions	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program
(2): EUT not directly or indirectly connected to the AC Power Public Network

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

SAGEMCOM DCIWA384 UHD Alt US v2 **Serial Number: 253764997**

Front face

Back face

Rear face

DOKOCOM Power supply

Equipment Under Test

MOSO Power supply

NetBit Power supply

Equipment Under Test

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Ethernet cable	-	-	☐	☐	☐	-
Power supply cable	-	-	☐	☐	☐	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop computer	-	-	-
Power supply	MSA-Z3800IC12.0-48W-P		MOSO

Equipment information:

Type:	**WIFI**			
Frequency band:	2400MHz-2483.5MHz			
Standard:	☑ 802.11b	☑ 802.11g	☑ 802.11n HT20	☑ 802.11n HT40
Spectrum Modulation:	☑ DSSS		☑ OFDM	
Number of Channel:	11			
Spacing channel:	5MHz			
Channel bandwidth:	☑ 20MHz		☑ 40MHz	
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Antenna connector:	☑ Yes	☐ No	☐ Temporary for test	
Transmit chains:	☐ 1	☐ 2	☑ 3	☐ 4
Beam forming gain:	☐ Yes: XdB		☑ No	
Receiver chains	☐ 1	☐ 2	☑ 3	☐ 4
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Duty cycle:	☑ Continuous duty	☐ Intermittent duty	☐ 100% duty	
Operating temperature range:	Tmin:	☐ -20°C	☑ 0°C	☐ X°C
	Tnom:	20°C		
	Tmax:	☐ 35°C	☐ 55°C	☑ 45°C
Type of power source:	☑ AC power supply	☐ DC power supply	☐ Battery	
Operating voltage range:	Vnom:	☑ 120V/60Hz	☐ X Vdc	

Antenna Characteristic			
Antenna assembly	**Gain (dBi)**	**Frequency Band (MHz)**	**Impedance(Ω)**
1	-0.349	2412-2472	50
2	1.896	2412-2472	50
3	-1.155	2412-2472	50
Accumulated	5	2412-2472	50

Accumulated gain calculation		
Formula used for calculation	**KDB**	**Correlated**
Directional gain = 10 log[($10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20}$) 2 /NANT] dBi	KDB 662911 D01 v02r01	☑ Yes / ☐ No

CHANNEL PLAN	
802.11b / 802.11g / 802.11n HT20	
Channel	Frequency (MHz)
Cmin: 1	**2412**
2	2417
3	2422
4	2427
5	2432
Cmid: 6	**2437**
7	2442
8	2447
9	2452
10	2457
Cmax: 11	**2462**

CHANNEL PLAN	
802.11n HT40	
Channel	Frequency (MHz)
Cmin: 3	**2422**
4	2427
5	2432
Cmid: 6	**2437**
7	2442
8	2447
Cmax: 9	**2452**

DATA RATE		
802.11b		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
1	DBPSK	☑
2	DQPSK	☐
5.5	DQPSK	☐
11	CCK	☐

DATA RATE		
802.11g		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
6	BPSK	☑
9	BPSK	☐
12	QPSK	☐
18	QPSK	☐
24	16-QAM	☐
36	16-QAM	☐
48	64-QAM	☐
54	64-QAM	☐

DATA RATE									
802.11n HT20									
Available for EUT	MCS Index	Spatial streams	Modulation				Data Rate (Mbps)		Worst Case Modulation
							(GI = 800ns)	(GI = 400ns)	
☑	0	1	BPSK				6.5	7.2	☑
	1	1	QPSK				13	14.4	☐
	2	1	QPSK				19.5	21.7	☐
	3	1	16-QAM				26	28.9	☐
	4	1	16-QAM				39	43.3	☐
	5	1	64-QAM				52	57.8	☐
	6	1	64-QAM				58.5	65	☐
	7	1	64-QAM				65	72.2	☐
	32	1	BPSK	-	-	-	-	-	☐
☑	8	2	BPSK				13	14.4	☐
	9	2	QPSK				26	28.9	☐
	10	2	QPSK				39	43.3	☐
	11	2	16-QAM				52	57.8	☐
	12	2	16-QAM				78	86.7	☐
	13	2	64-QAM				104	115.6	☐
	14	2	64-QAM				117	130.3	☐
	15	2	64-QAM				130	144.4	☐
	33	2	16-QAM	QPSK	-	-	39	43.3	☐
	34	2	64-QAM	QPSK	-	-	52	57.8	☐
	35	2	64-QAM	16-QAM	-	-	65	72.2	☐
	36	2	16-QAM	QPSK	-	-	58.5	65	☐
	37	2	64-QAM	QPSK	-	-	78	86.7	☐
	38	2	64-QAM	16-QAM	-	-	97.5	108.3	☐
☑	16	3	BPSK				19.5	21.7	☑
	17	3	QPSK				39	43.3	☐
	18	3	QPSK				58.5	65	☐
	19	3	16-QAM				78	86.7	☐
	20	3	16-QAM				117	130	☐
	21	3	64-QAM				156	173.3	☐
	22	3	64-QAM				175.5	195	☐
	23	3	64-QAM				195	216.7	☐
	39	3	16-QAM	QPSK	QPSK	-	52	57.8	☐
	40	3	16-QAM	16-QAM	QPSK	-	65	72.2	☐
	41	3	64-QAM	QPSK	QPSK	-	65	72.2	☐
	42	3	64-QAM	16-QAM	QPSK	-	78	86.7	☐
	43	3	64-QAM	16-QAM	16-QAM	-	91	101.1	☐
	44	3	64-QAM	64-QAM	QPSK	-	91	101.1	☐
	45	3	64-QAM	64-QAM	16-QAM	-	104	115.6	☐
	46	3	16-QAM	QPSK	QPSK	-	78	86.7	☐
	47	3	16-QAM	16-QAM	QPSK	-	97.5	108.3	☐
	48	3	64-QAM	QPSK	QPSK	-	97.5	108.3	☐
	49	3	64-QAM	16-QAM	QPSK	-	117	130	☐
	50	3	64-QAM	16-QAM	16-QAM	-	136.5	151.7	☐
	51	3	64-QAM	64-QAM	QPSK	-	136.5	151.7	☐
	52	3	64-QAM	64-QAM	16-QAM	-	156	173.3	☐
☐	24	4	BPSK				26	28.9	☐
	25	4	QPSK				52	57.8	☐
	26	4	QPSK				78	86.7	☐
	27	4	16-QAM				104	115.6	☐
	28	4	16-QAM				156	173.3	☐
	29	4	64-QAM				208	231.1	☐
	30	4	64-QAM				234	260	☐
	31	4	64-QAM				260	288.9	☐
	53	4	16-QAM	QPSK	QPSK	QPSK	65	72.2	☐
	54	4	16-QAM	16-QAM	QPSK	QPSK	78	86.7	☐
	55	4	16-QAM	16-QAM	16-QAM	QPSK	91	101.1	☐
	56	4	64-QAM	QPSK	QPSK	QPSK	78	86.7	☐
	57	4	64-QAM	16-QAM	QPSK	QPSK	91	101.1	☐
	58	4	64-QAM	16-QAM	16-QAM	QPSK	104	115.6	☐
	59	4	64-QAM	16-QAM	16-QAM	16-QAM	117	130	☐
	60	4	64-QAM	QPSK	QPSK	QPSK	104	115.6	☐
	61	4	64-QAM	16-QAM	16-QAM	QPSK	117	130	☐
	62	4	64-QAM	16-QAM	16-QAM	16-QAM	130	144.4	☐
	63	4	64-QAM	64-QAM	64-QAM	QPSK	130	144.4	☐
	64	4	64-QAM	64-QAM	64-QAM	16-QAM	143	158.9	☐
	65	4	16-QAM	QPSK	QPSK	QPSK	97.5	108.3	☐
	66	4	16-QAM	16-QAM	QPSK	QPSK	117	130	☐
	67	4	16-QAM	16-QAM	16-QAM	QPSK	136.5	151.7	☐
	68	4	64-QAM	QPSK	QPSK	QPSK	117	130	☐
	69	4	64-QAM	16-QAM	QPSK	QPSK	136.5	151.7	☐
	70	4	64-QAM	16-QAM	16-QAM	QPSK	156	173.3	☐
	71	4	64-QAM	16-QAM	16-QAM	16-QAM	175.5	195	☐
	72	4	64-QAM	64-QAM	QPSK	QPSK	156	173.3	☐
	73	4	64-QAM	64-QAM	16-QAM	QPSK	175.5	195	☐
	74	4	64-QAM	64-QAM	16-QAM	16-QAM	195	216.7	☐
	75	4	64-QAM	64-QAM	64-QAM	QPSK	195	216.7	☐
	76	4	64-QAM	64-QAM	64-QAM	16-QAM	214.5	238.3	☐

DATA RATE									
802.11n HT40									
Available for EUT	MCS Index	Spatial streams	Modulation				Data Rate (Mbps)		Worst Case Modulation
							(GI = 800ns)	(GI = 400ns)	
	0	1	BPSK				13	15	☑
	1	1	QPSK				27	30	☐
	2	1	QPSK				40.5	45	☐
☑	3	1	16-QAM				54	60	☐
	4	1	16-QAM				81	90	☐
	5	1	64-QAM				108	120	☐
	6	1	64-QAM				121.5	135	☐
	7	1	64-QAM				135	150	☐
	32	1	BPSK	-	-	-	6.0	6.7	☐
	8	2	BPSK				27	30	☐
	9	2	QPSK				54	60	☐
	10	2	QPSK				81	90	☐
	11	2	16-QAM				108	120	☐
	12	2	16-QAM				162	180	☐
	13	2	64-QAM				216	240	☐
☑	14	2	64-QAM				243	270	☐
	15	2	64-QAM				270	300	☐
	33	2	16-QAM	QPSK	-	-	81	90.0	☐
	34	2	64-QAM	QPSK	-	-	108	120	☐
	35	2	64-QAM	16-QAM	-	-	135	150	☐
	36	2	16-QAM	QPSK	-	-	121.5	135	☐
	37	2	64-QAM	QPSK	-	-	162	180	☐
	38	2	64-QAM	16-QAM	-	-	202.5	225	☐
	16	3	BPSK				40.5	45	☑
	17	3	QPSK				81	90	☐
	18	3	QPSK				121.5	135	☐
	19	3	16-QAM				162	180	☐
	20	3	16-QAM				243	270	☐
	21	3	64-QAM				324	360	☐
	22	3	64-QAM				364.5	405	☐
	23	3	64-QAM				405	450	☐
	39	3	16-QAM	QPSK	QPSK	-	108	120	☐
	40	3	16-QAM	16-QAM	QPSK	-	135	150	☐
☑	41	3	64-QAM	QPSK	QPSK	-	135	150	☐
	42	3	64-QAM	16-QAM	QPSK	-	162	180	☐
	43	3	64-QAM	16-QAM	16-QAM	-	189	210	☐
	44	3	64-QAM	64-QAM	QPSK	-	189	210	☐
	45	3	64-QAM	64-QAM	16-QAM	-	216	240	☐
	46	3	16-QAM	QPSK	QPSK	-	162	180	☐
	47	3	16-QAM	16-QAM	QPSK	-	202.5	225	☐
	48	3	64-QAM	QPSK	QPSK	-	202.5	225	☐
	49	3	64-QAM	16-QAM	QPSK	-	243	270	☐
	50	3	64-QAM	16-QAM	16-QAM	-	283.5	315	☐
	51	3	64-QAM	64-QAM	QPSK	-	283.5	315	☐
	52	3	64-QAM	64-QAM	16-QAM	-	324	360	☐
	24	4	BPSK				54	60	☐
	25	4	QPSK				108	120	☐
	26	4	QPSK				162	180	☐
	27	4	16-QAM				216	240	☐
	28	4	16-QAM				324	360	☐
	29	4	64-QAM				432	480	☐
	30	4	64-QAM				486	540	☐
	31	4	64-QAM				540	600	☐
	53	4	16-QAM	QPSK	QPSK	QPSK	135	150	☐
	54	4	16-QAM	16-QAM	QPSK	QPSK	162	180	☐
	55	4	16-QAM	16-QAM	16-QAM	QPSK	189	210	☐
	56	4	64-QAM	QPSK	QPSK	QPSK	162	180	☐
	57	4	64-QAM	16-QAM	QPSK	QPSK	189	210	☐
	58	4	64-QAM	16-QAM	16-QAM	QPSK	216	240	☐
	59	4	64-QAM	16-QAM	16-QAM	16-QAM	243	270	☐
☐	60	4	64-QAM	QPSK	QPSK	QPSK	216	240	☐
	61	4	64-QAM	16-QAM	16-QAM	QPSK	243	270	☐
	62	4	64-QAM	16-QAM	16-QAM	16-QAM	270	300	☐
	63	4	64-QAM	64-QAM	64-QAM	QPSK	270	300	☐
	64	4	64-QAM	64-QAM	64-QAM	16-QAM	297	330	☐
	65	4	16-QAM	QPSK	QPSK	QPSK	202.5	225	☐
	66	4	16-QAM	16-QAM	QPSK	QPSK	243	270	☐
	67	4	16-QAM	16-QAM	16-QAM	QPSK	283.5	315	☐
	68	4	64-QAM	QPSK	QPSK	QPSK	243	270	☐
	69	4	64-QAM	16-QAM	QPSK	QPSK	283.5	315	☐
	70	4	64-QAM	16-QAM	16-QAM	QPSK	324	360	☐
	71	4	64-QAM	16-QAM	16-QAM	16-QAM	364.5	405	☐
	72	4	64-QAM	64-QAM	QPSK	QPSK	324	360	☐
	73	4	64-QAM	64-QAM	16-QAM	QPSK	364.5	405	☐
	74	4	64-QAM	64-QAM	16-QAM	16-QAM	405	450	☐
	75	4	64-QAM	64-QAM	64-QAM	QPSK	405	450	☐
	76	4	64-QAM	64-QAM	64-QAM	16-QAM	445.5	495	☐

2.2. RUNNING MODE

The EUT is set in the following modes during tests:
- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

Following commands with the specific test document “CR-20180405 - WIFI compliance test command of M384R-US-4L FCC 2.4GHz;docx” is used to set the product:

2.1. EQUIPMENT LABELLING

2.2. EQUIPMENT MODIFICATION

☑ None ☐ Modification:

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by	: Mathieu CERISIER
Date of test	: May 30, 2018
Ambient temperature	: 24 °C
Relative humidity	: 41 %

3.2. 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:
☐ RSS-Gen Issue 4 § 6.6
☑ ANSI C63.10 § 6.9.2

Photograph for Occupied bandwidth

3.1. LIMIT

None

3.2. 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	A5329676	2017/09	2018/09

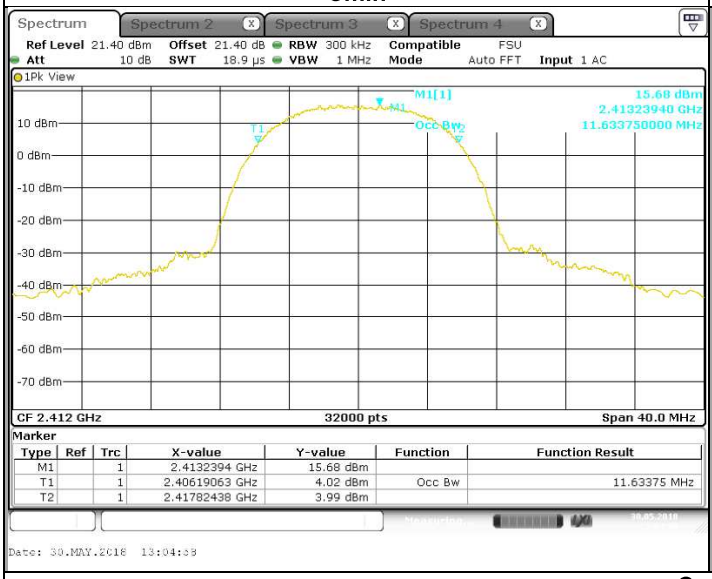
Note: In our quality system, the test equipment calibration due is more & less 2 months

3.3. RESULTS

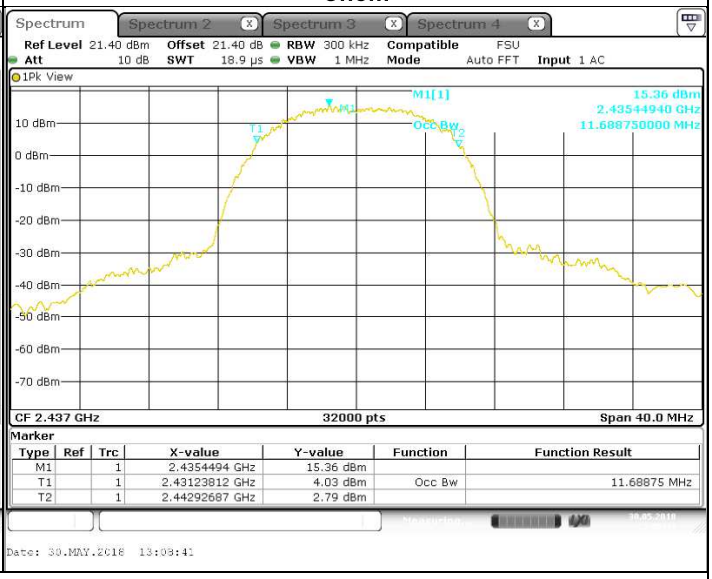
802.11b

Occupied Bandwidth

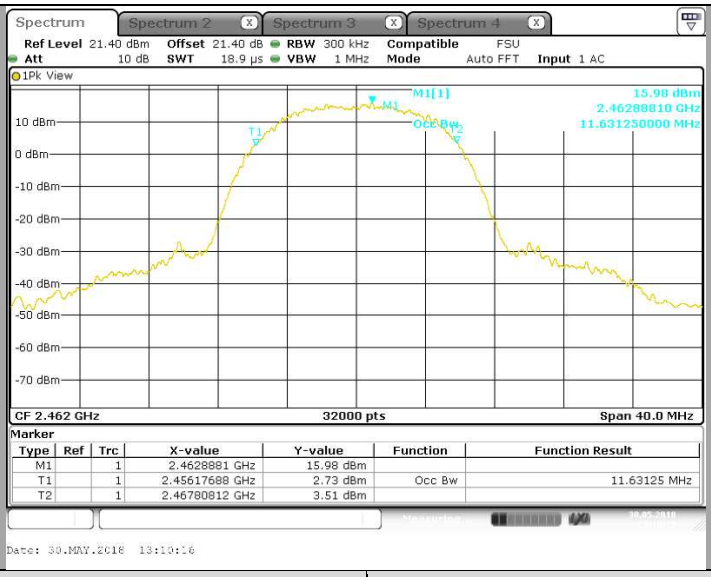
Cmin



Cnom



Cmax

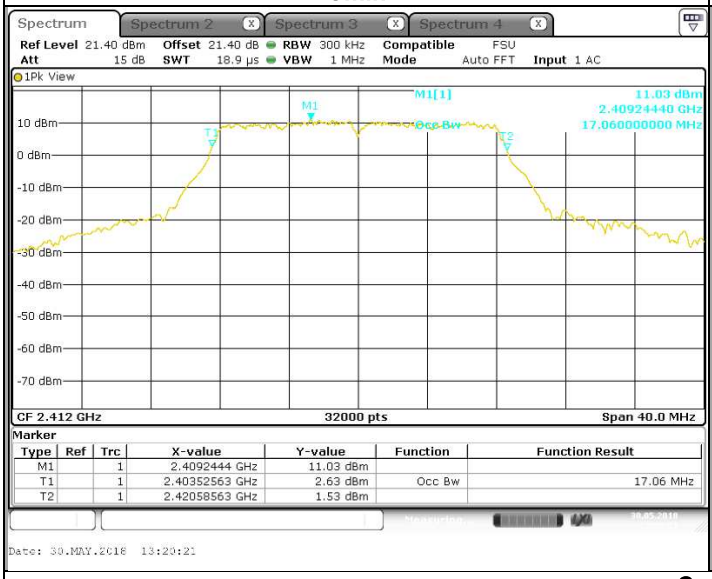


Channel	Occupied Bandwidth (MHz)
Cmin	11,63
Cnom	11,69
Cmax	11,63

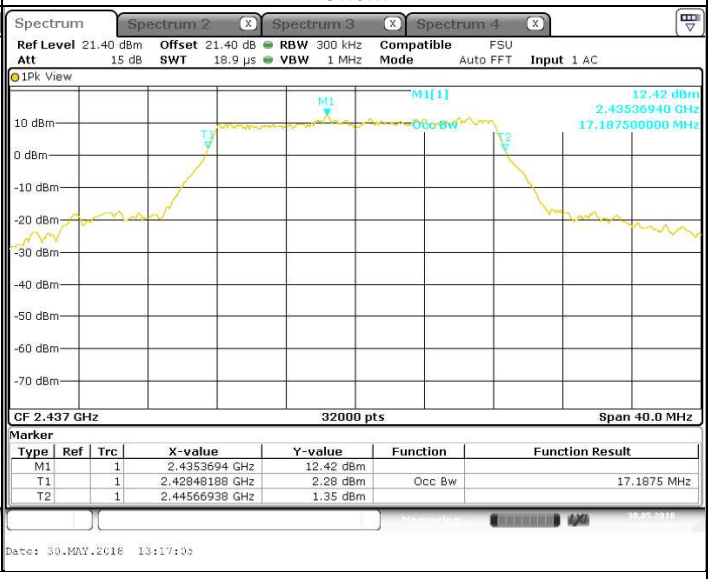
802.11g

Occupied Bandwidth

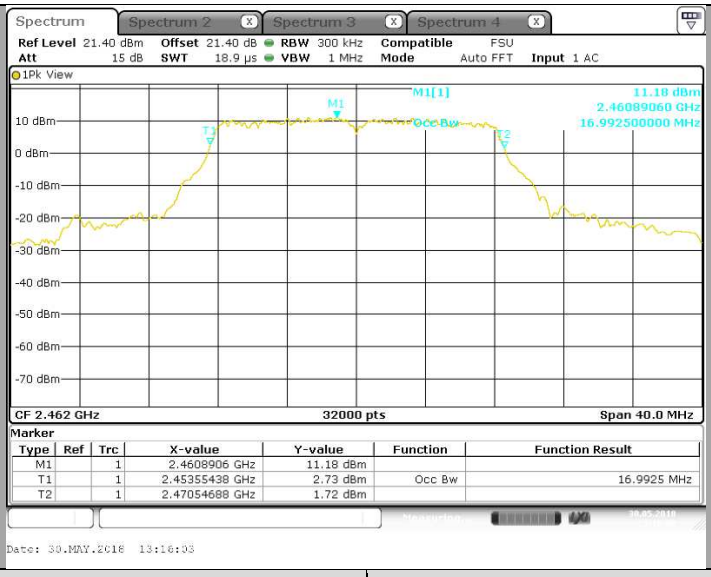
Cmin



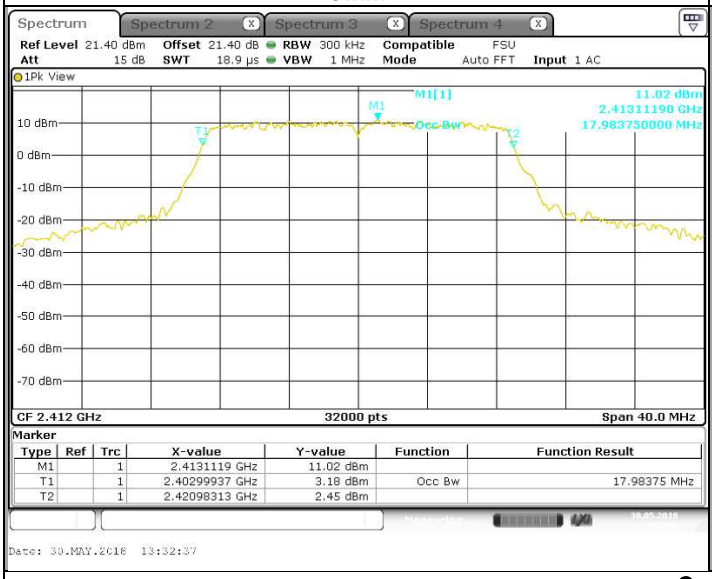
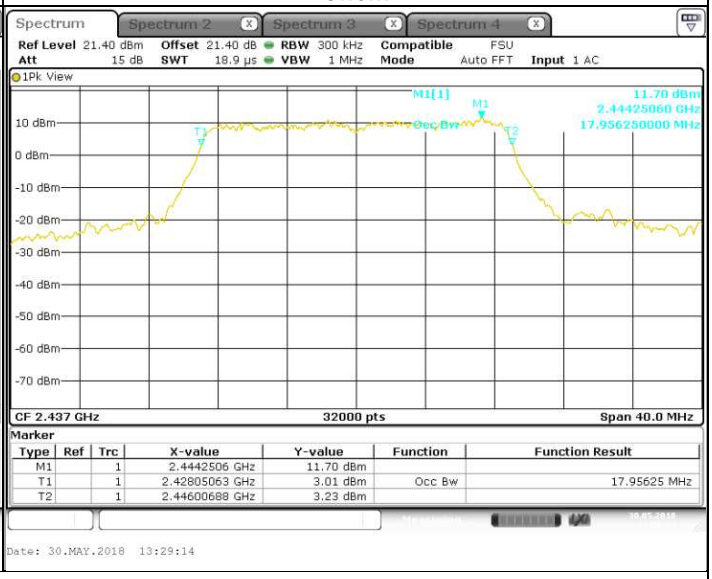
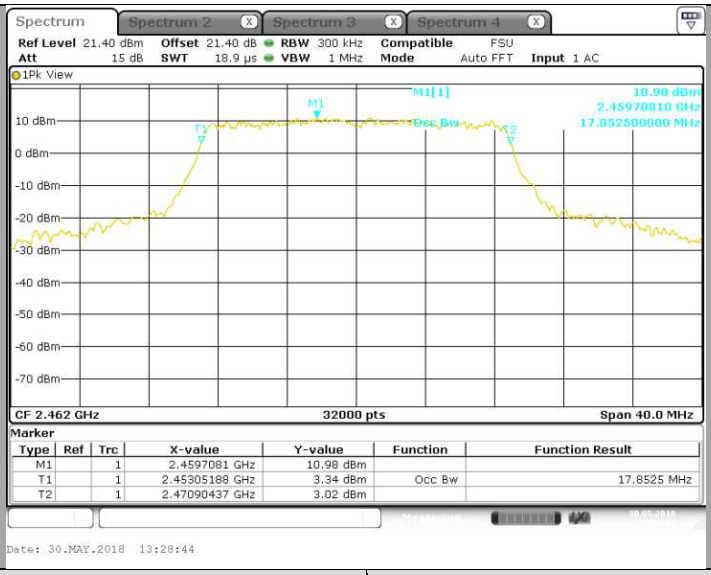
Cnom



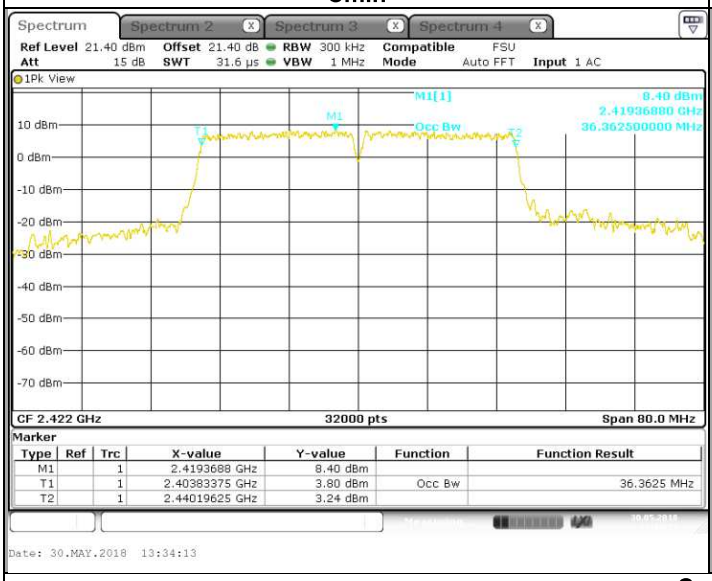
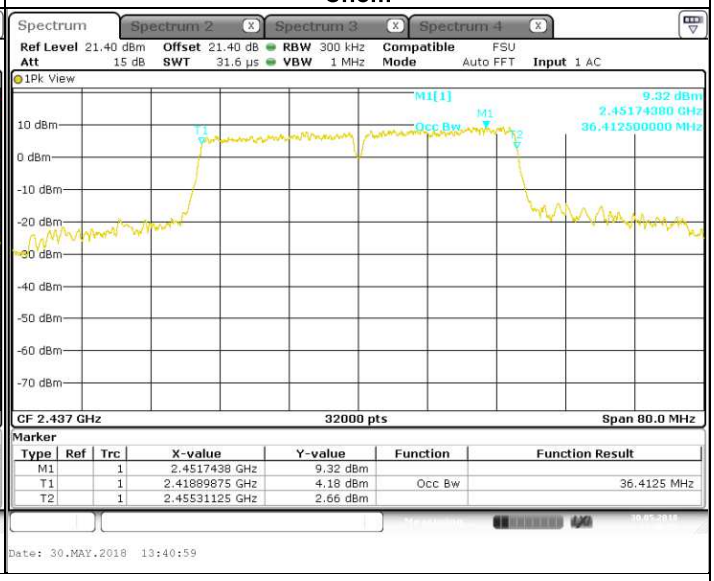
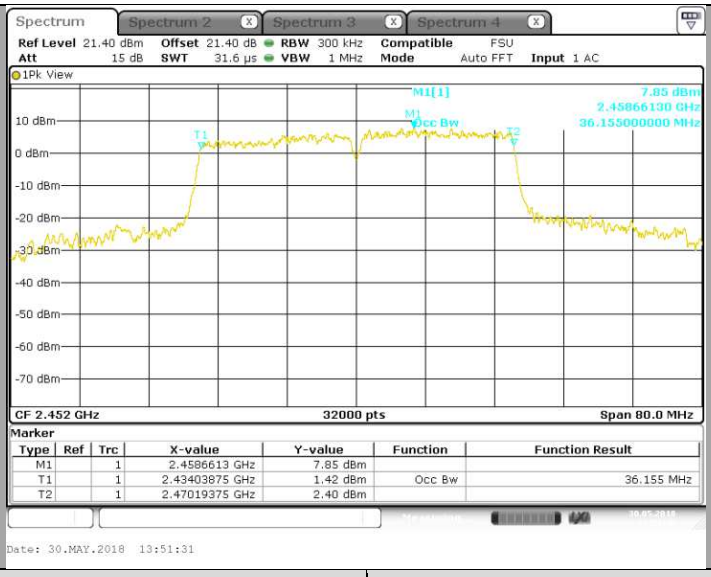
Cmax



Channel	Occupied Bandwidth (MHz)
Cmin	17,06
Cnom	17,19
Cmax	16,99

802.11n HT20	
Occupied Bandwidth	
Cmin	Cnom
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	17,98
Cnom	17,96
Cmax	17,85

802.11n HT40	
Occupied Bandwidth	
Cmin	Cnom
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	36,36
Cnom	36,41
Cmax	36,16

3.1. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **SAGEMCOM DCIWA384 UHD Alt US V2**, SN: **253764997**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

4. 6DB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

Test performed by	: Mathieu CERISIER
Date of test	: May 30, 2018
Ambient temperature	: 24 °C
Relative humidity	: 41 %

4.2. 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 558074 D01 DTS Meas Guidance v04 § 8.1
☐ KDB 558074 D01 DTS Meas Guidance v04 § 8.2

Photograph for 6dB emission bandwidth

4.3. LIMIT

The 6dB bandwidth shall be at least 500kHz

4.4. 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	A5329676	2017/09	2018/09

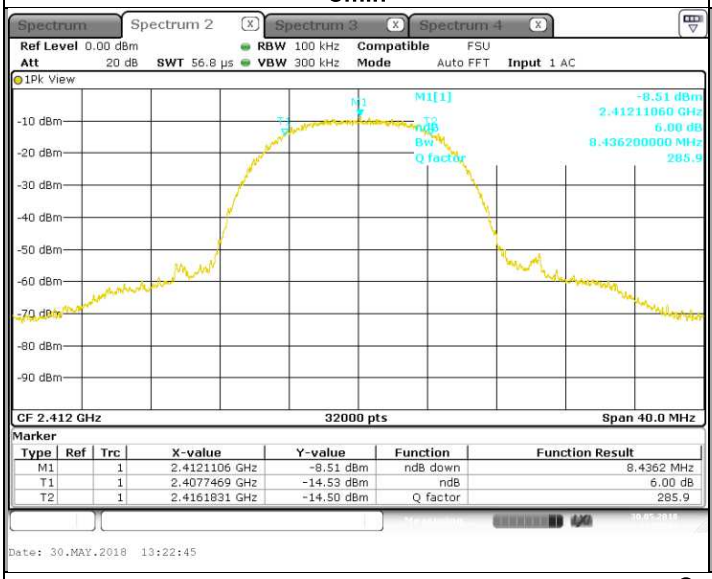
Note: In our quality system, the test equipment calibration due is more & less 2 months

4.5. RESULTS

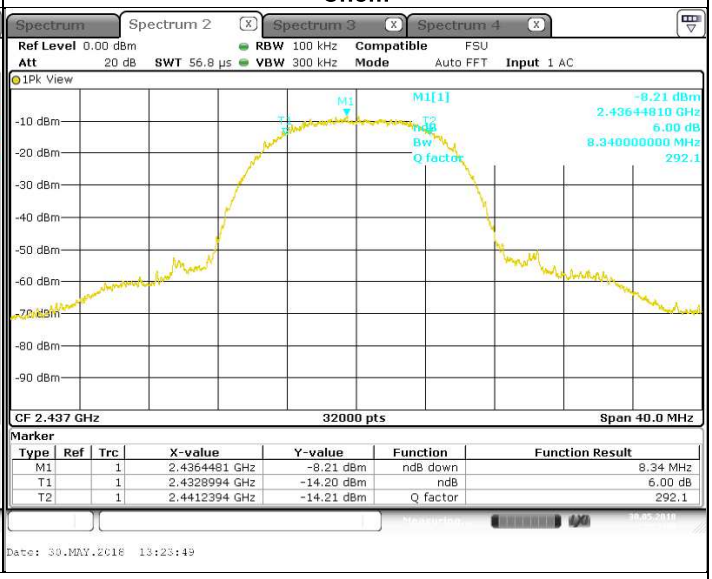
802.11b

6dB Emission Bandwidth

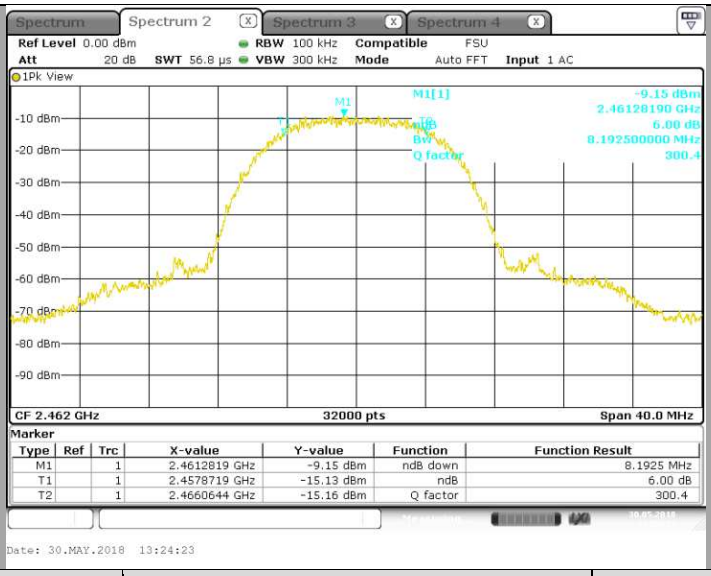
Cmin



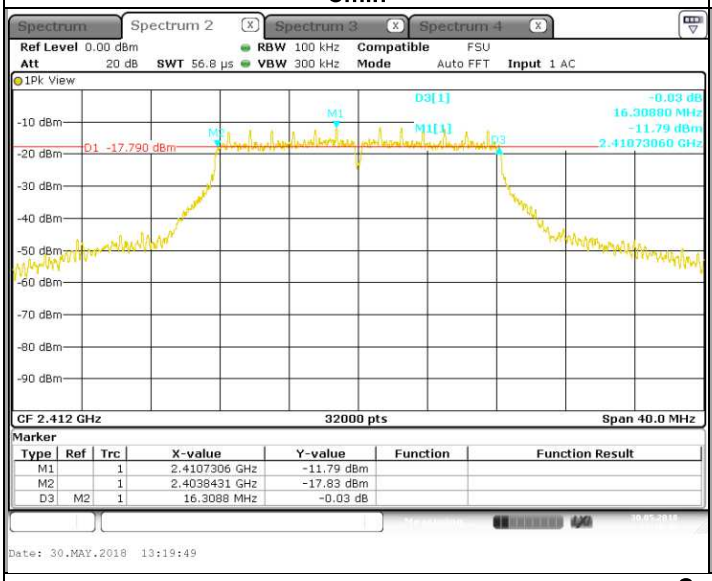
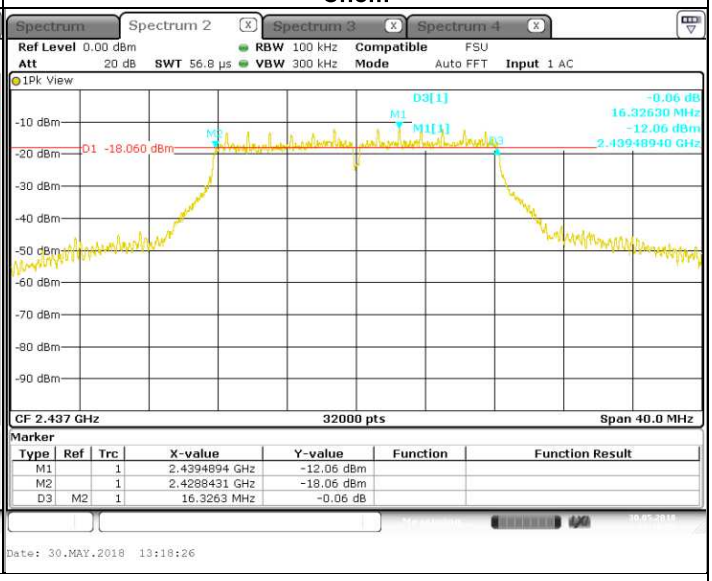
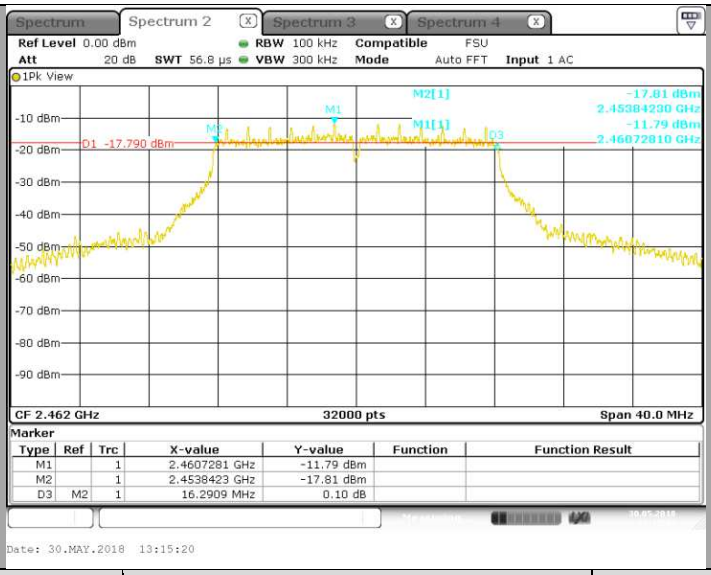
Cnom



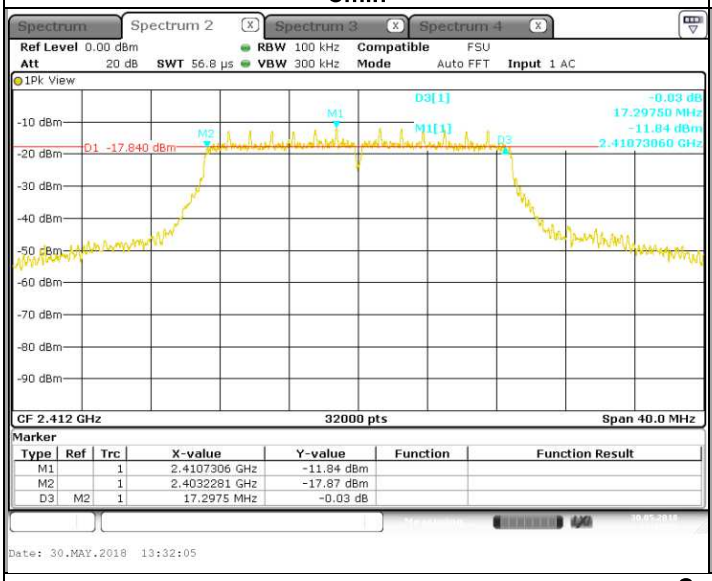
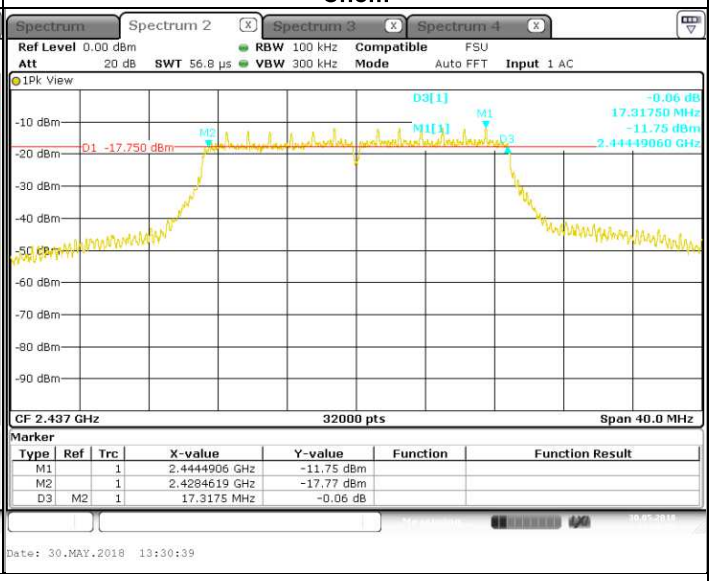
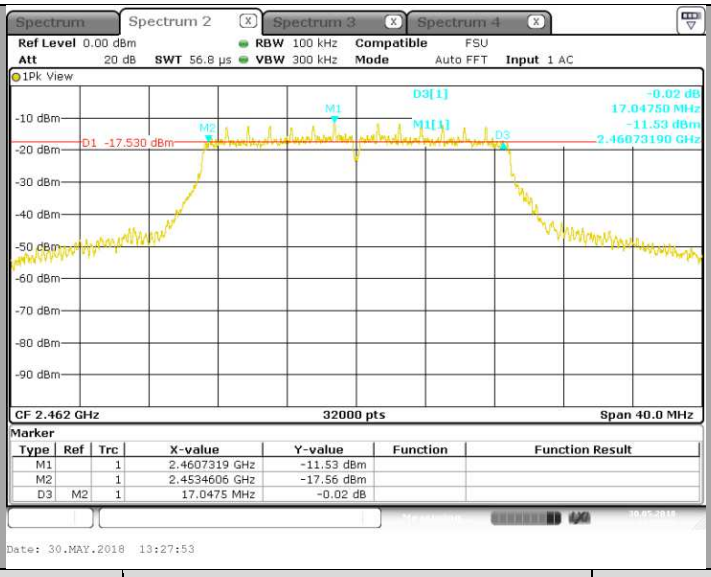
Cmax



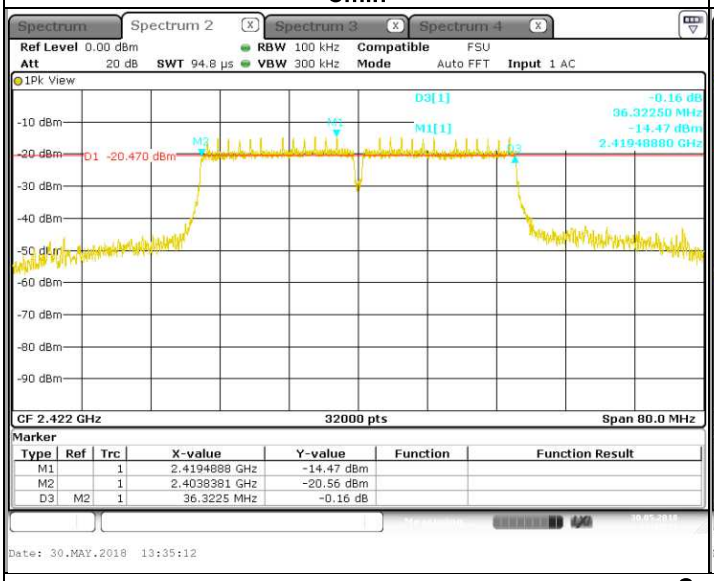
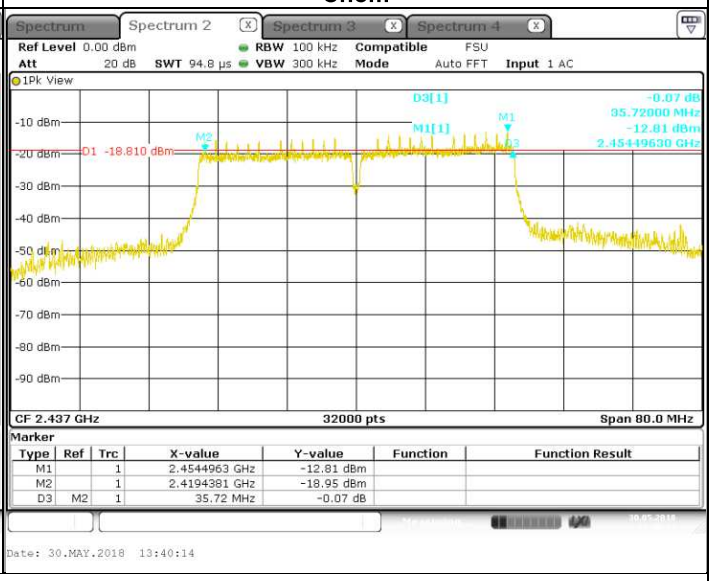
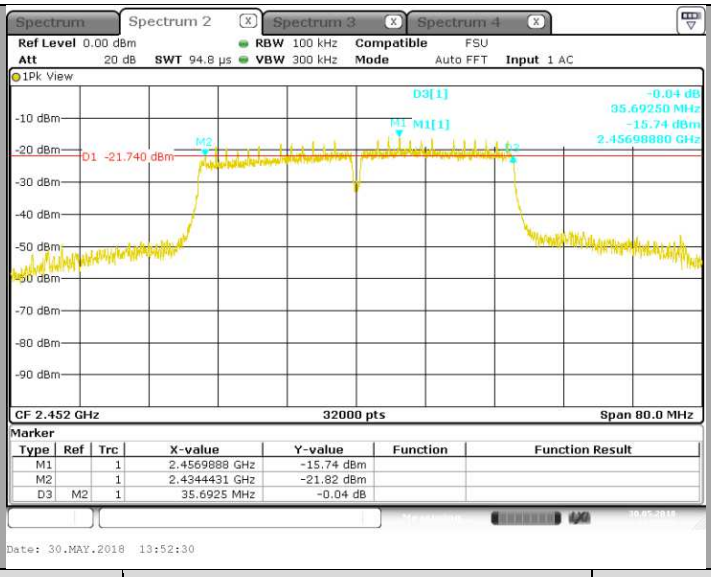
Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	8,44	Minimum 0.5
Cnom	8,34	Minimum 0.5
Cmax	8,19	Minimum 0.5

802.11g		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	16,31	Minimum 0.5
Cnom	16,32	Minimum 0.5
Cmax	16,29	Minimum 0.5

802.11n HT20		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	17,3	Minimum 0.5
Cnom	17,32	Minimum 0.5
Cmax	17,05	Minimum 0.5

802.11n HT40		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	36,32	Minimum 0.5
Cnom	35,72	Minimum 0.5
Cmax	35,69	Minimum 0.5

4.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **SAGEMCOM DCIWA384 UHD Alt US V2**, SN: **253764997**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

5. DUTY CYCLE

5.1. TEST CONDITIONS

Test performed by	: Mathieu CERISIER
Date of test	: May 30, 2018
Ambient temperature	: 24 °C
Relative humidity	: 41 %

5.2. 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 558074 D01 DTS Meas Guidance v04 § 6.0 b)

Photograph for Duty Cycle

5.3. LIMIT

None

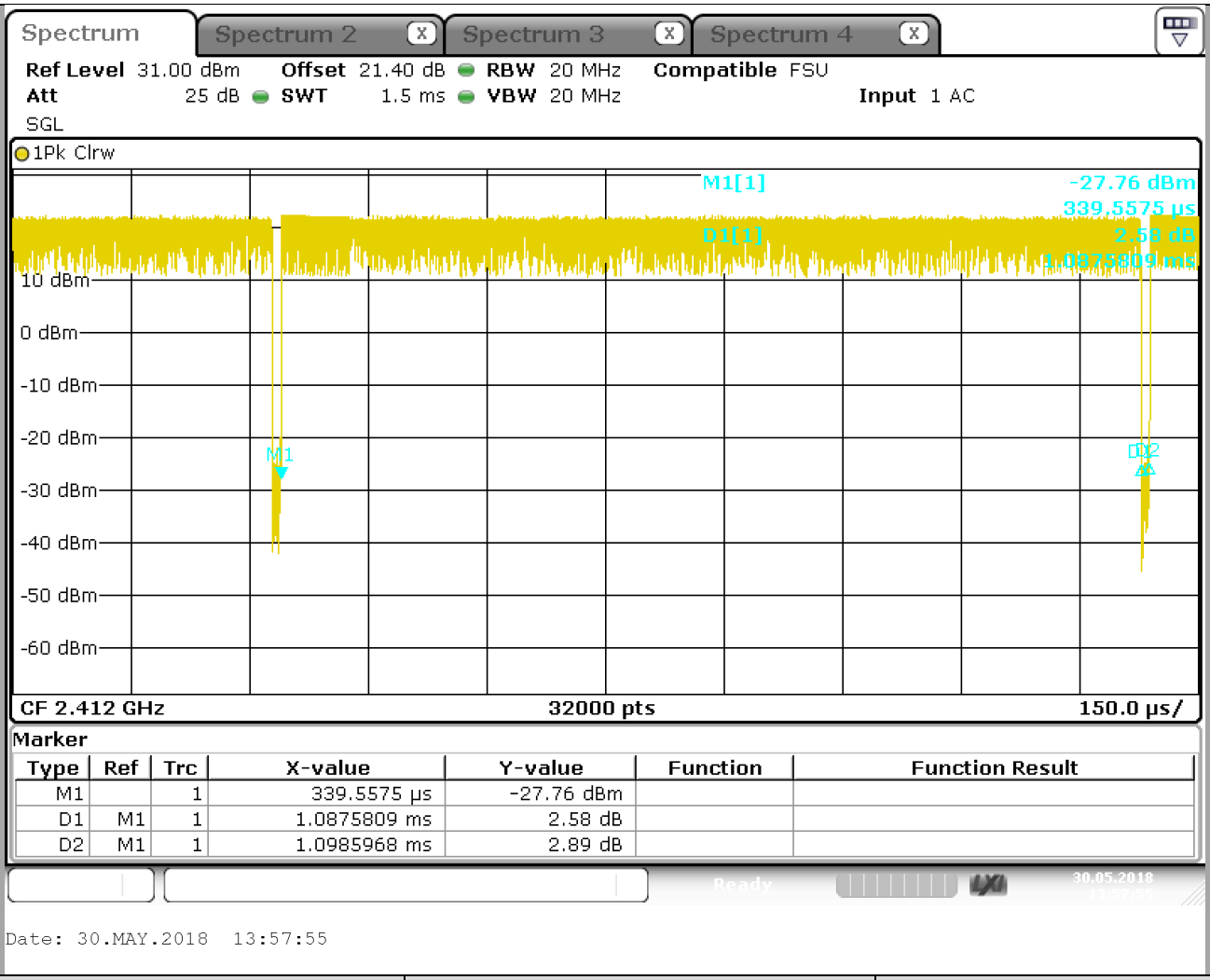
5.4. TEST EQUIPMENT LIST

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	A5329676	2017/09	2018/09

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

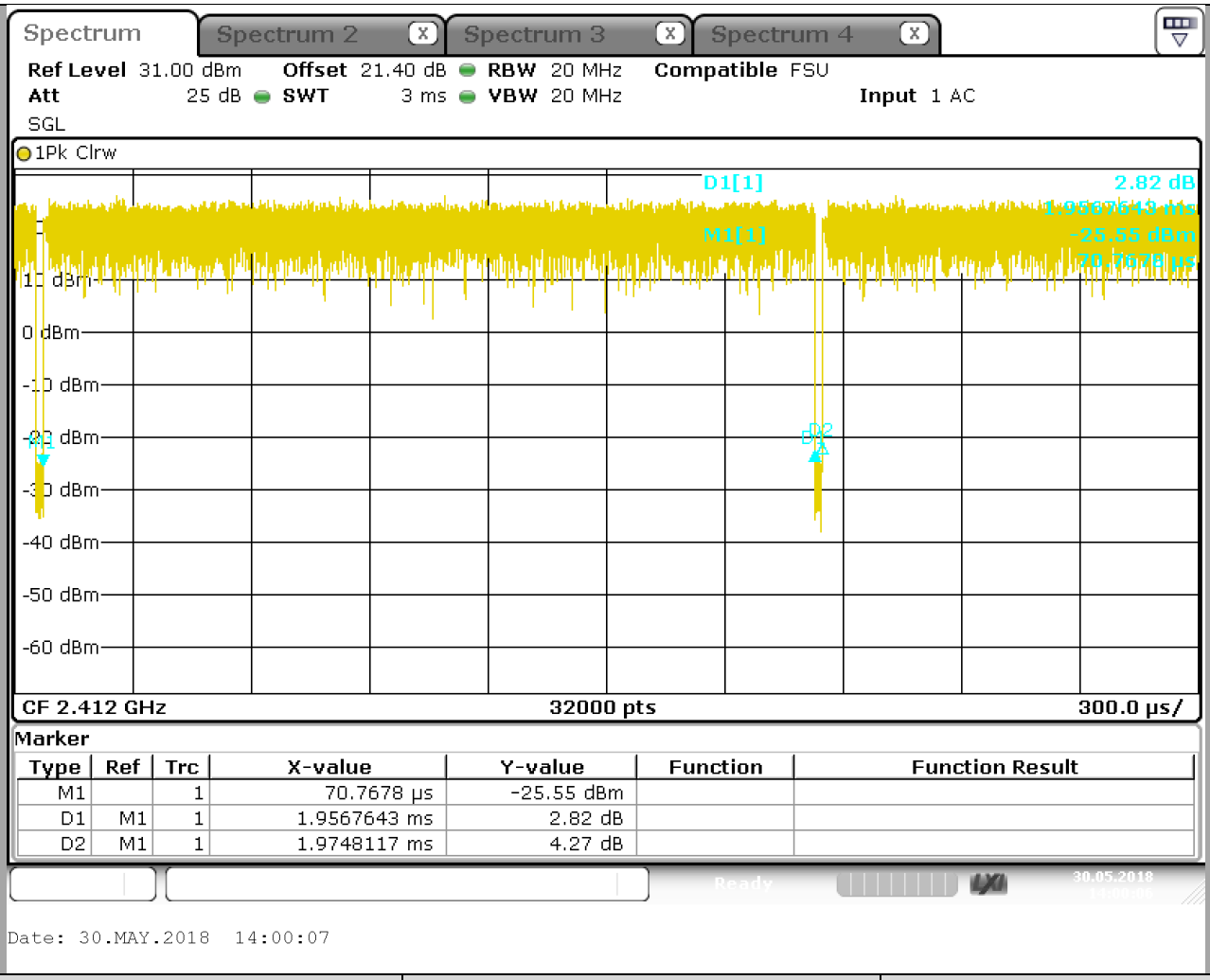
5.5. RESULTS

802.11b
Duty Cycle
Cmin



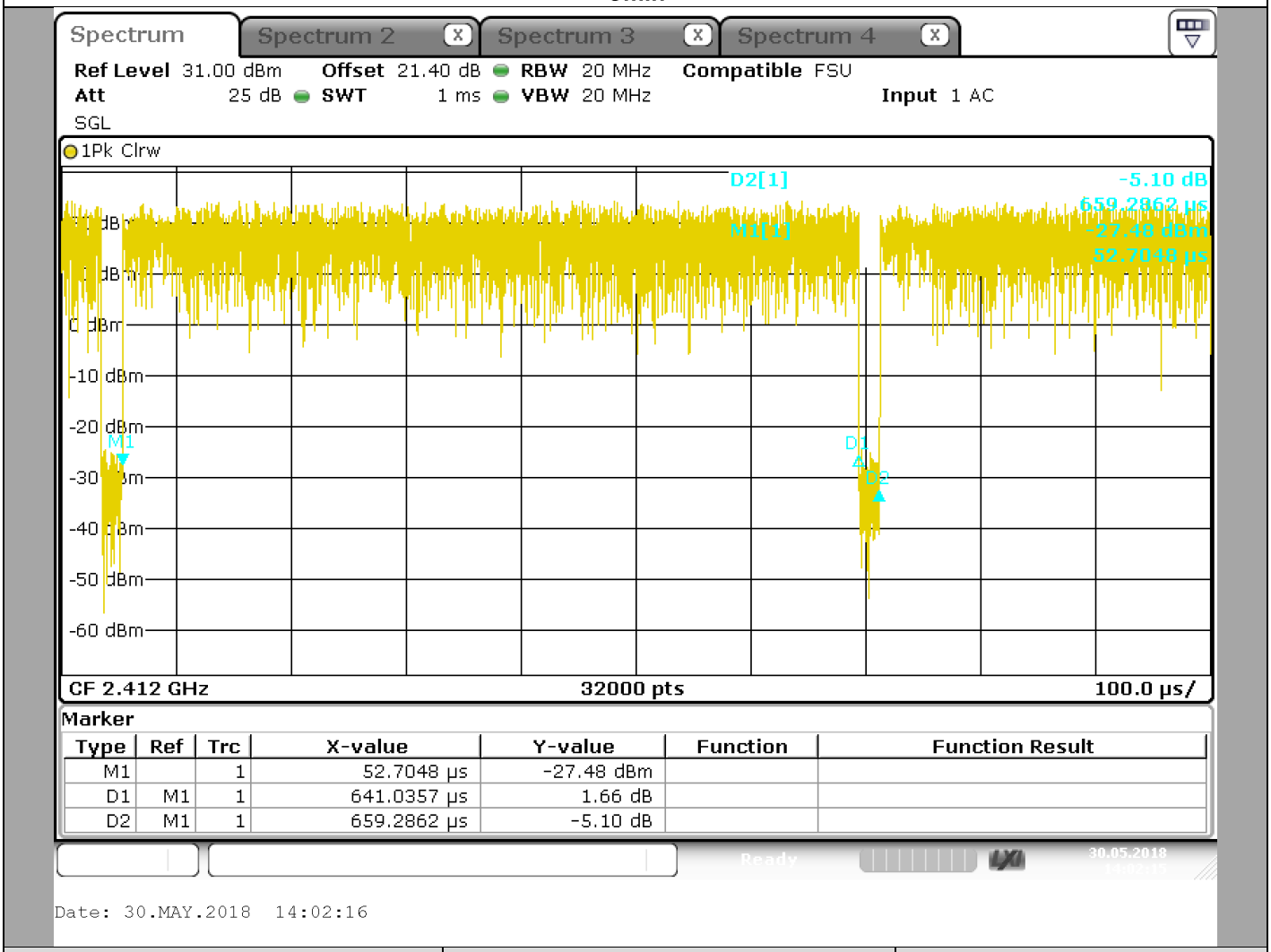
Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	99	0,09

802.11g
Duty Cycle
Cmin



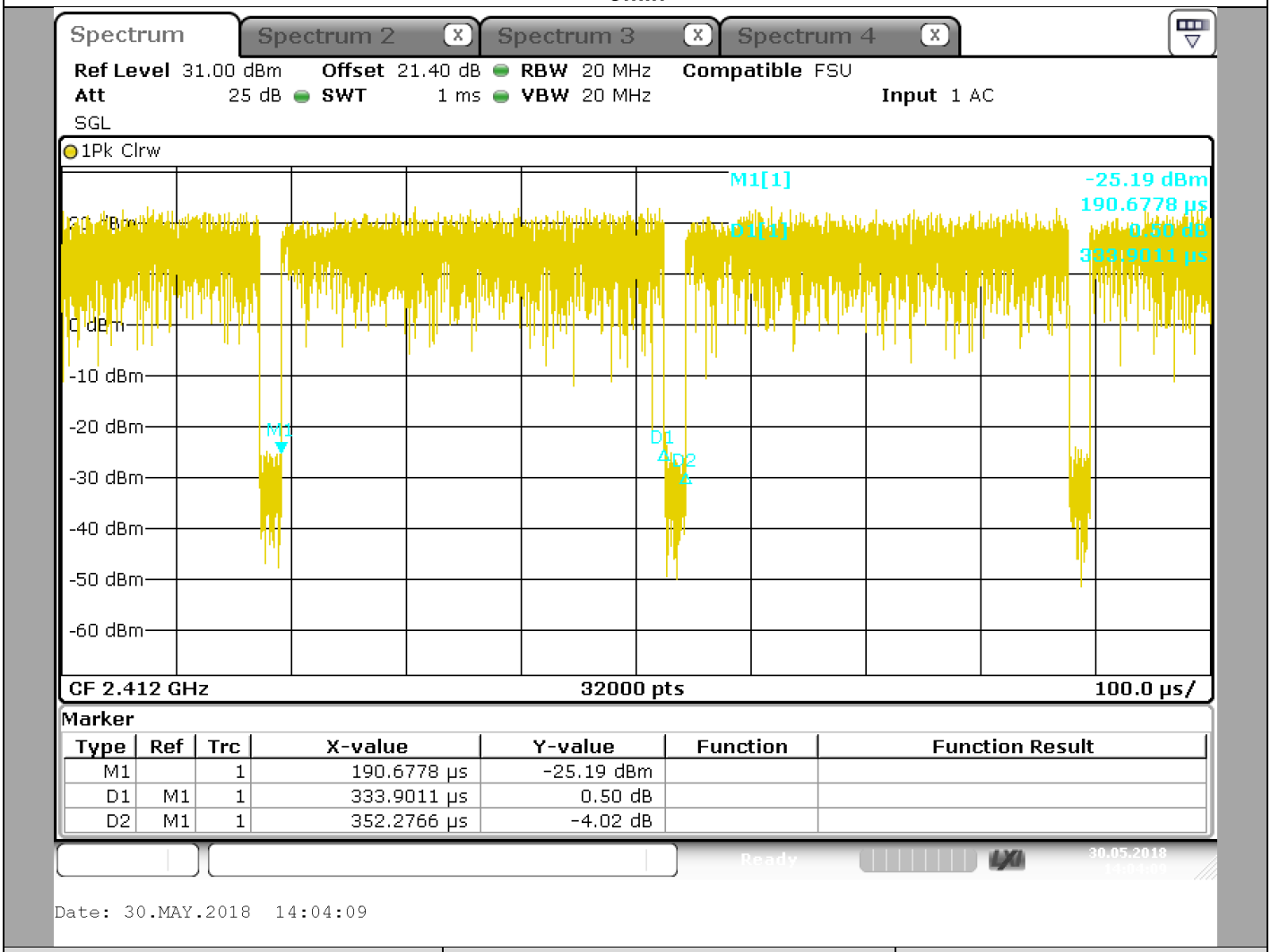
Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	99	0,08

802.11n HT20
Duty Cycle
Cmin



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	97,2	0,24

802.11n HT40
Duty Cycle
Cmin



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	94,8	0,47

5.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **SAGEMCOM DCIWA384 UHD Alt US V2,** SN: **253764997**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1. TEST CONDITIONS

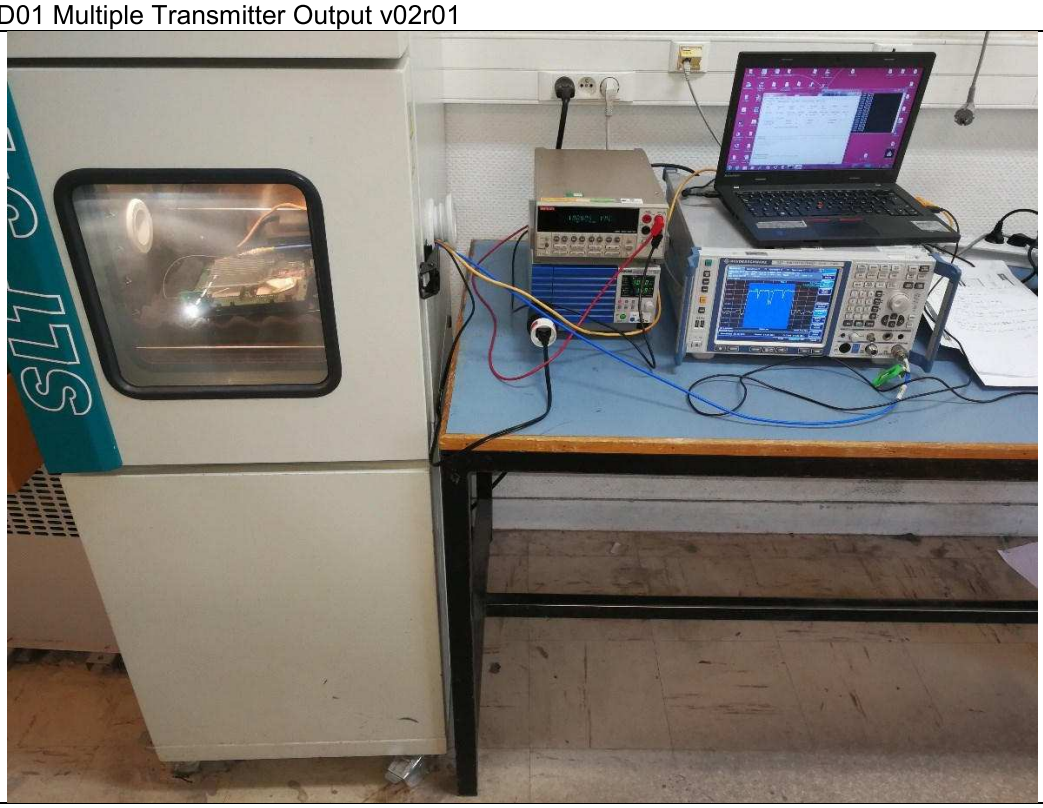
Test performed by	: Mathieu CERISIER
Date of test	: May 30, 2018
Ambient temperature	: 24 °C
Relative humidity	: 41 %

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 558074 D01 DTS Meas Guidance v04 § 9.2.2.2 (Method AVGSA-1)
☐ KDB 558074 D01 DTS Meas Guidance v04 § 9.2.2.4 (Method AVGSA-2)
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



Photograph for Maximum Conducted Output Power

6.3. LIMIT

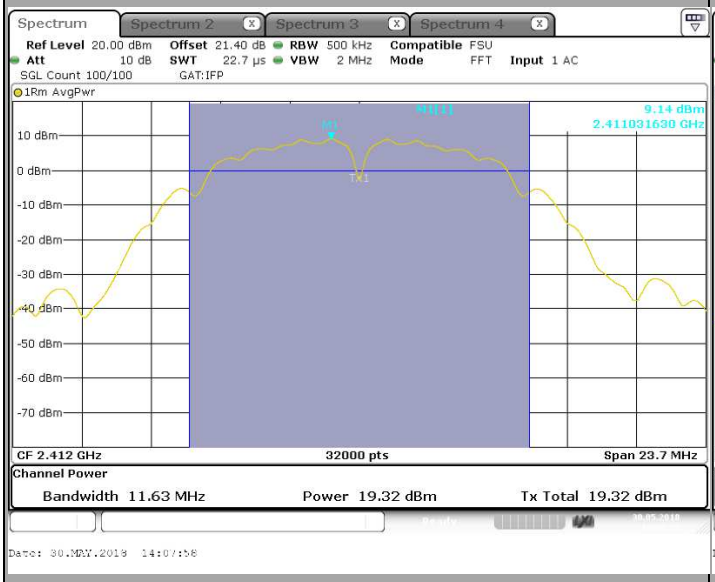
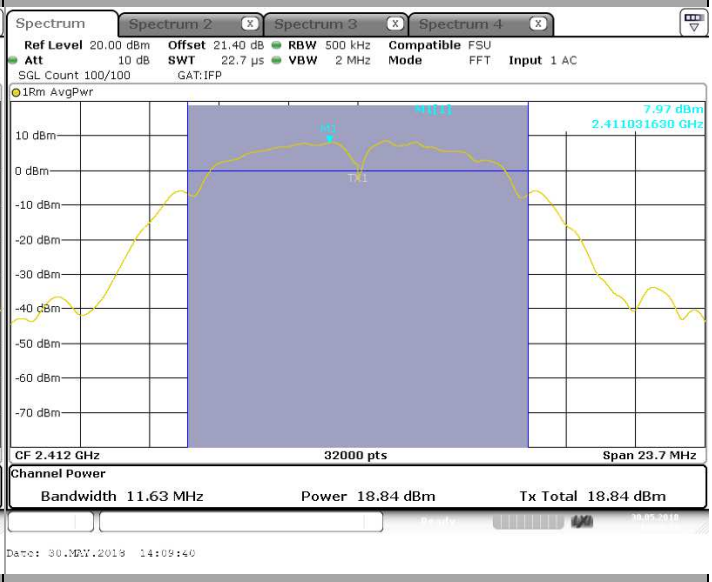
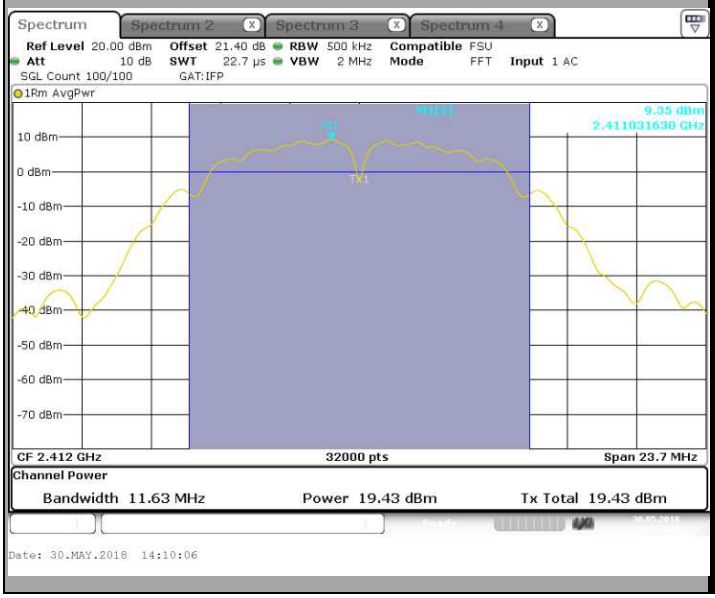
Maximum Conducted Output power:
2400MHz-2483.5MHz: Shall not exceed 30dBm
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

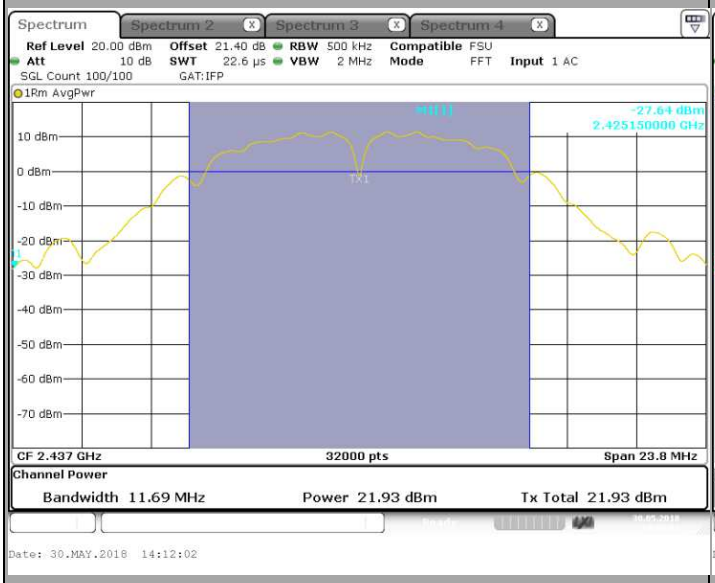
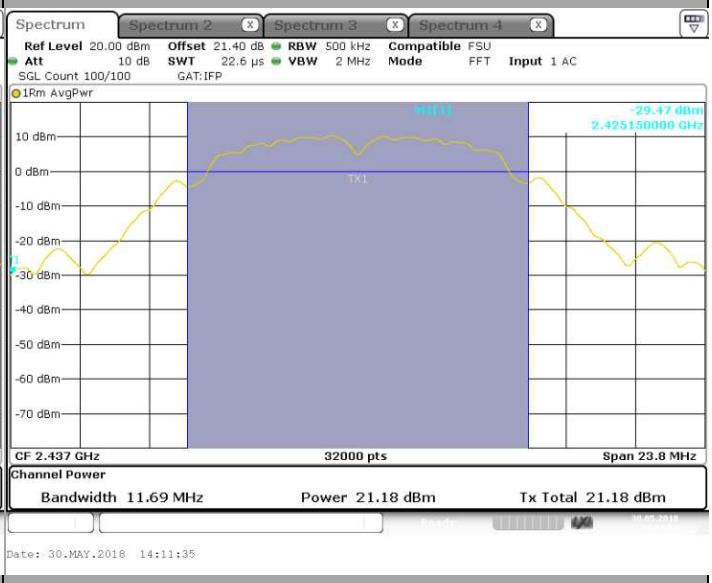
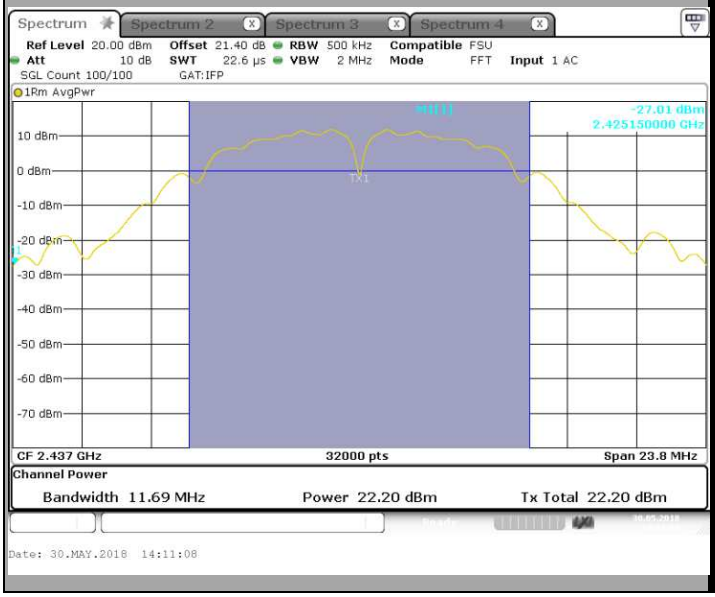
6.4. TEST EQUIPMENT LIST

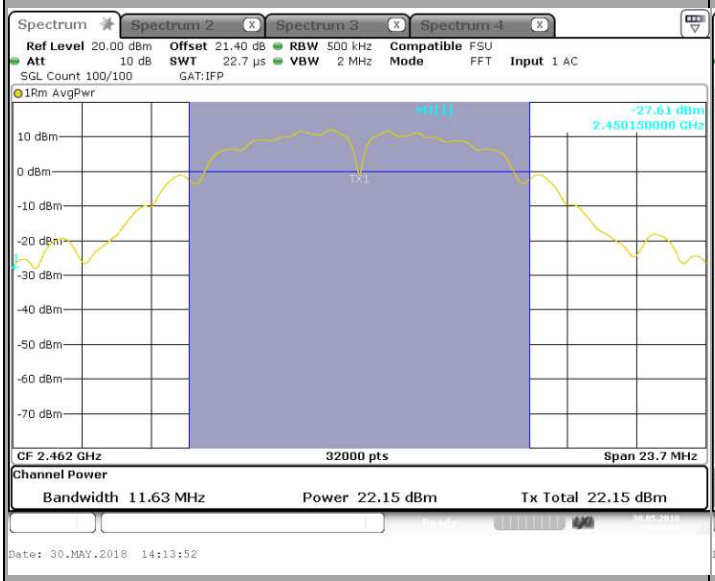
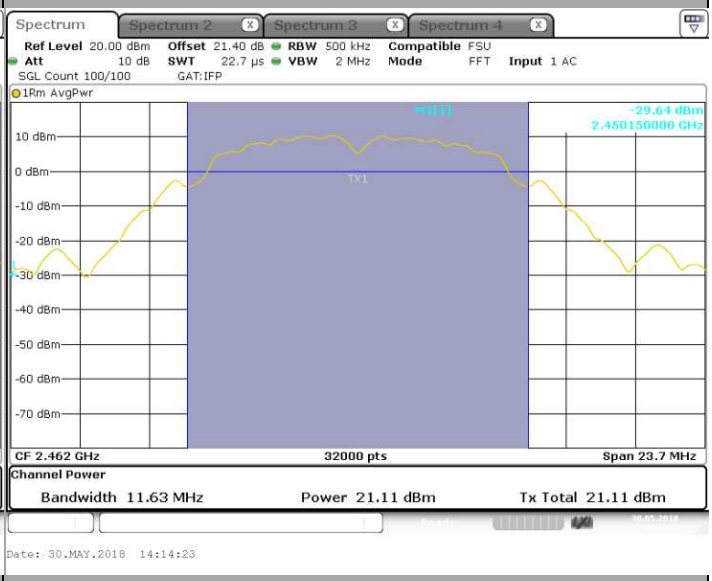
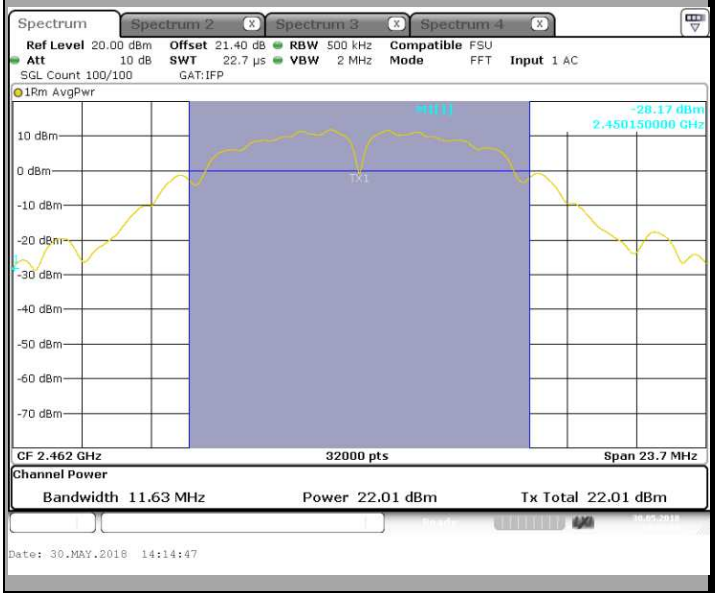
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2017/09	2018/09
Multi-meter	KEITHLEY	2000	A1242090	2016/06	2018/06
Programmable AC/DC power supply	KIKUSUI	PCR500M	A7040079	2016/06	2018/06
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329676	2017/09	2018/09

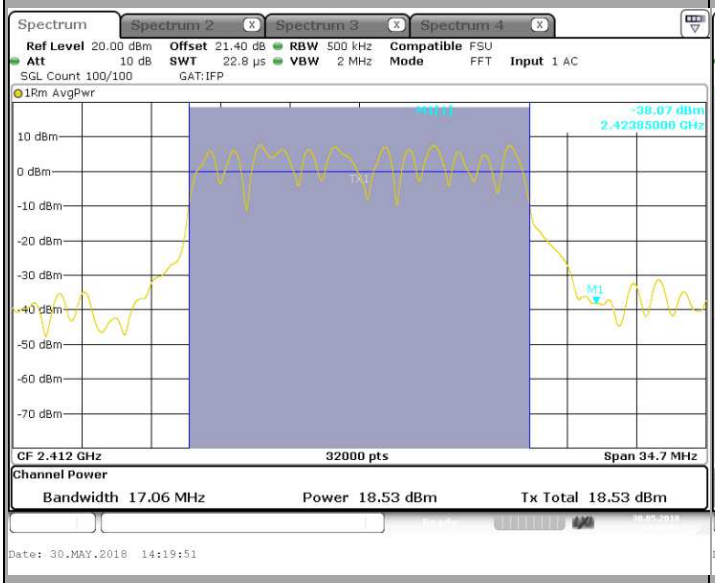
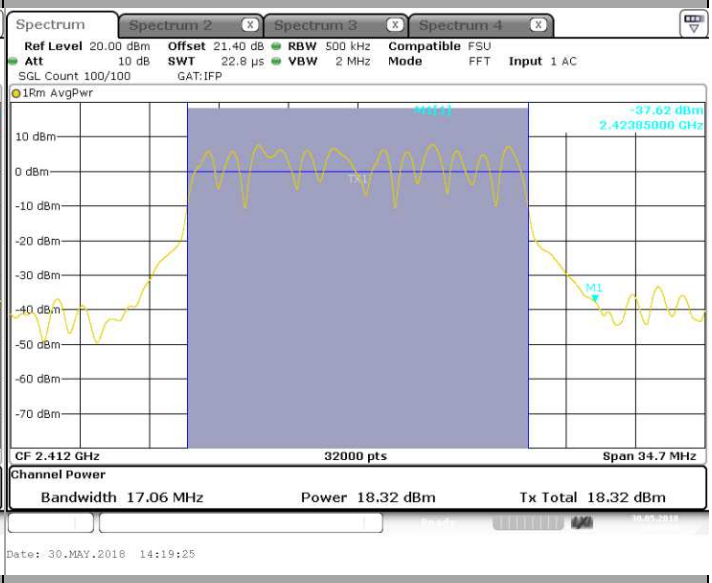
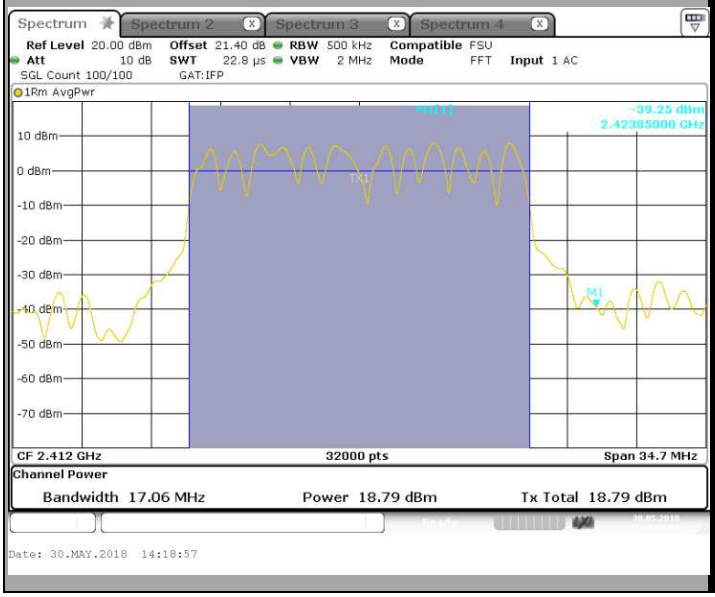
Note: In our quality system, the test equipment calibration due is more & less 2 months

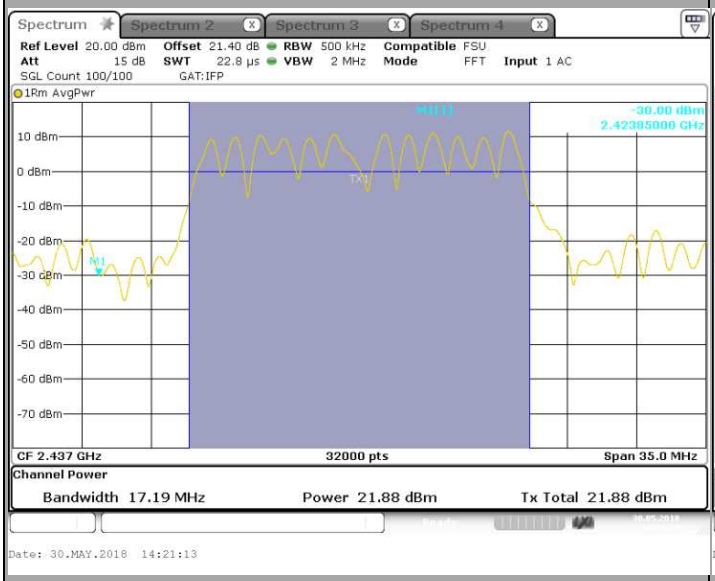
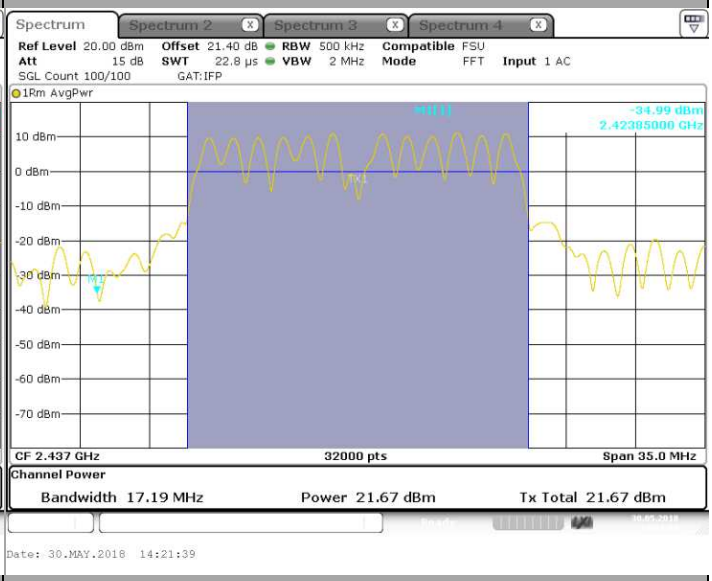
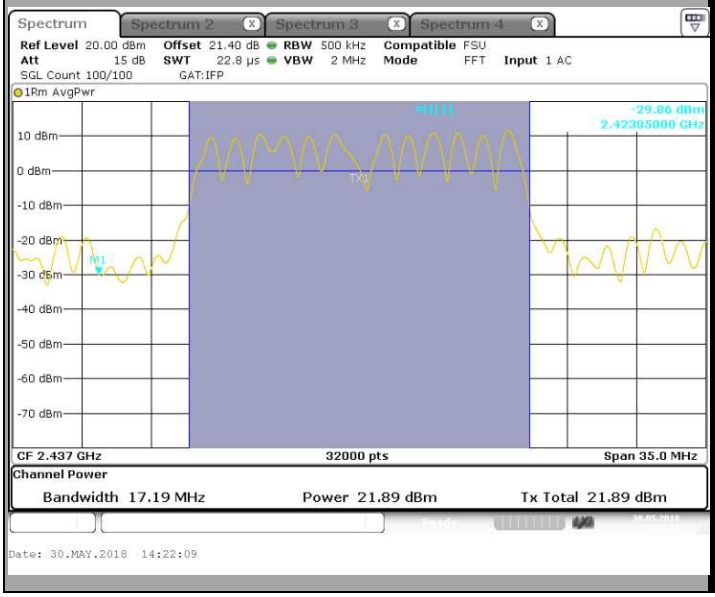
6.5. RESULTS

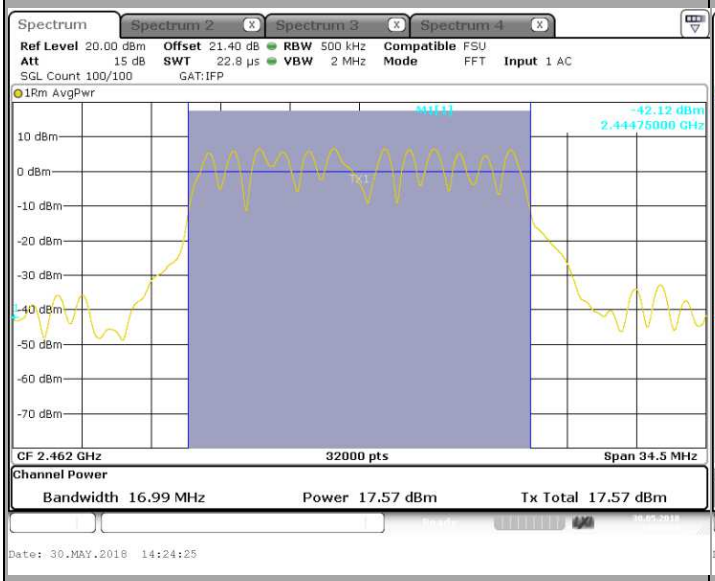
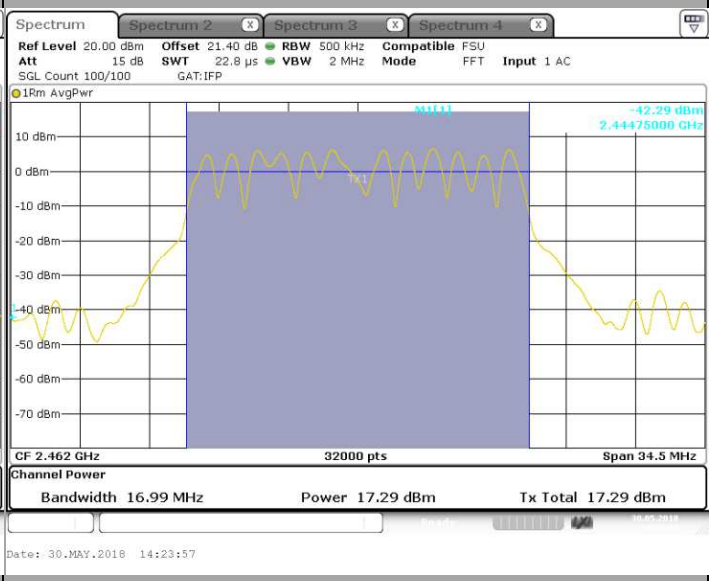
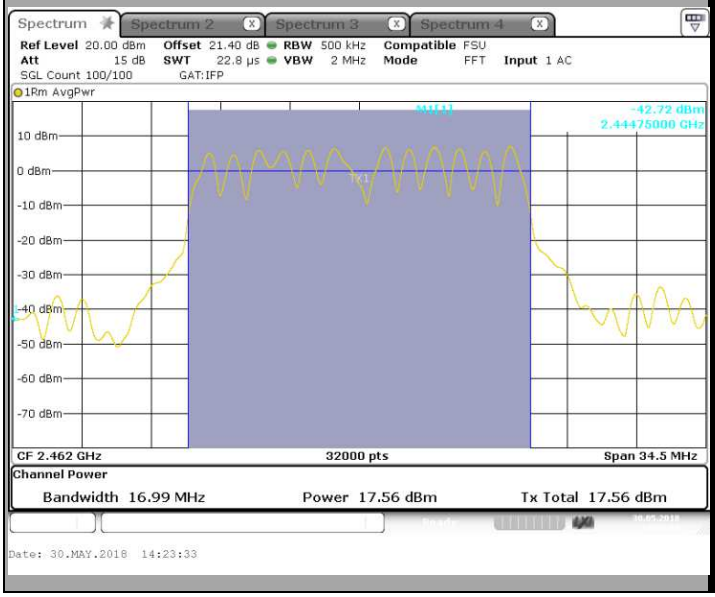
802.11b	
Cmin	
Tx1	Tx2
	
Tx3	Tx4
	

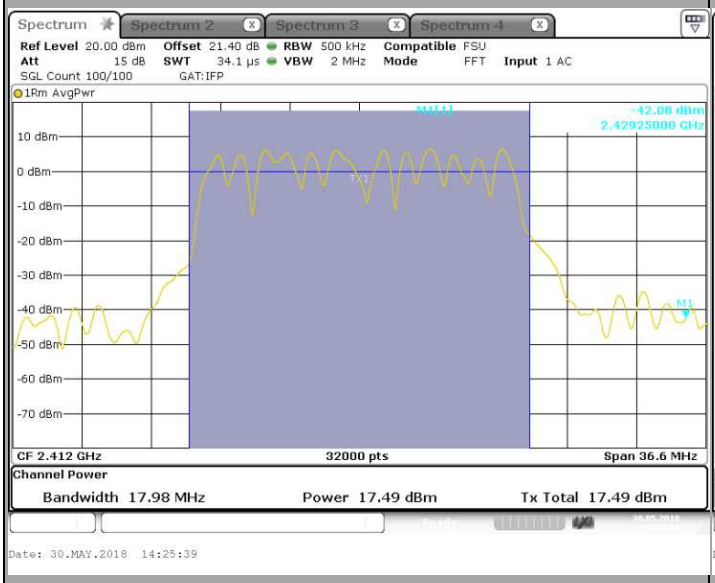
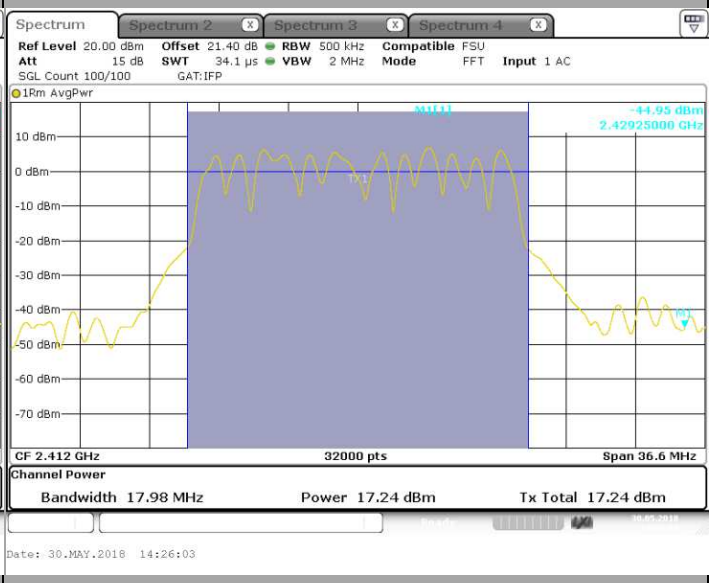
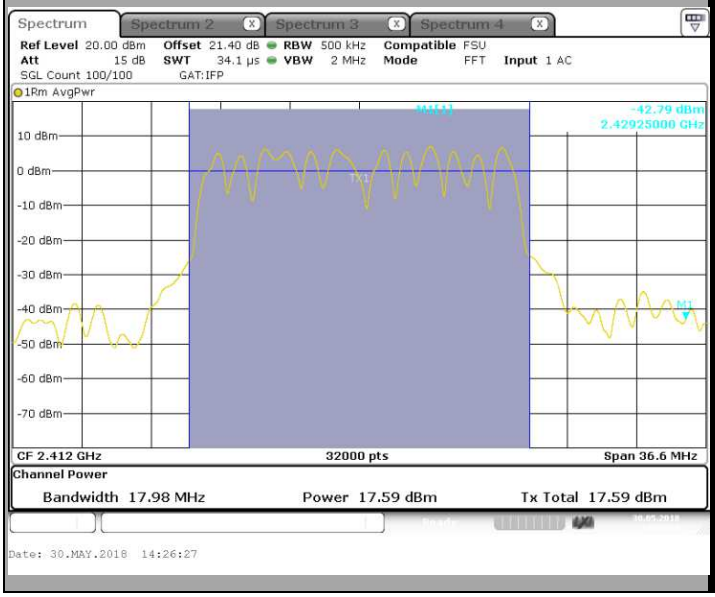
802.11b	
Cnom	
Tx1	Tx2
	
Tx3	Tx4
	

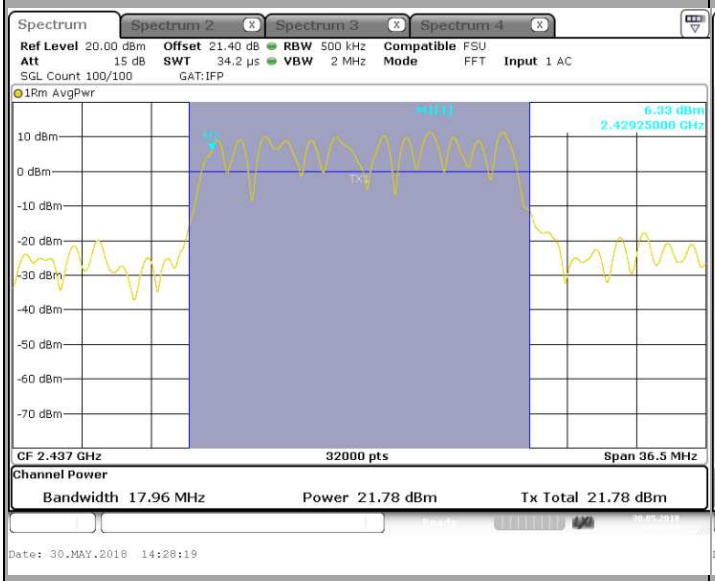
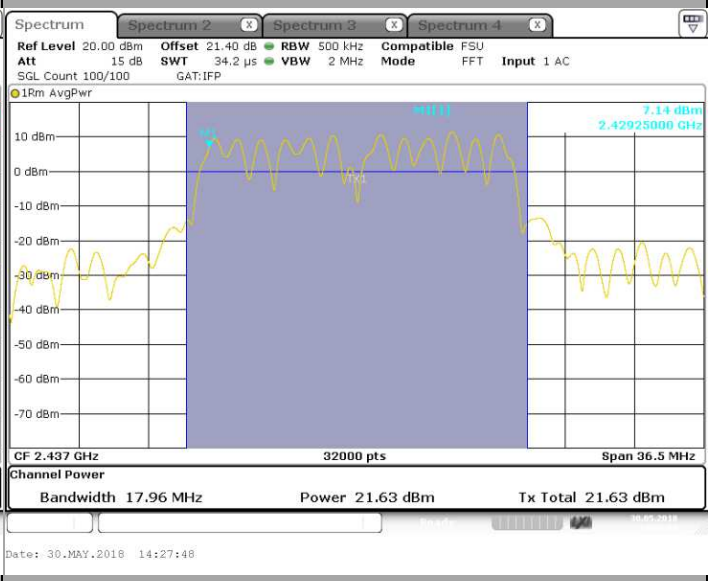
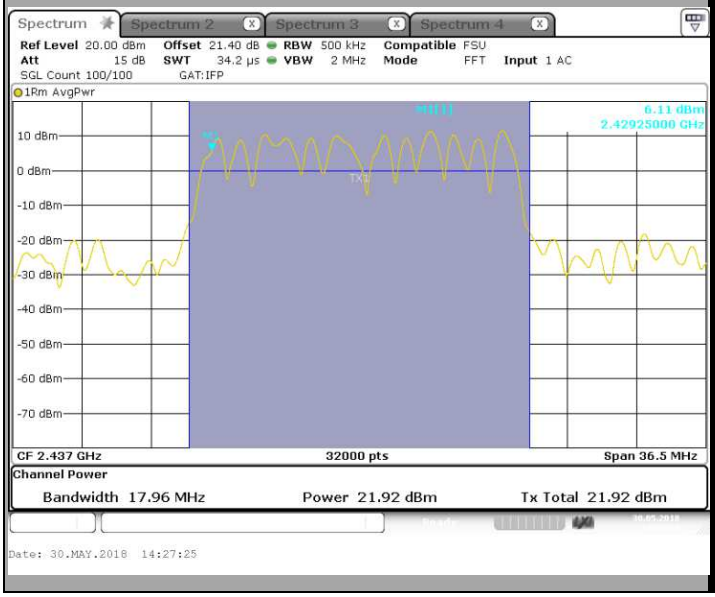
802.11b	
Cmax	
Tx1	Tx2
	
Tx3	Tx4
	

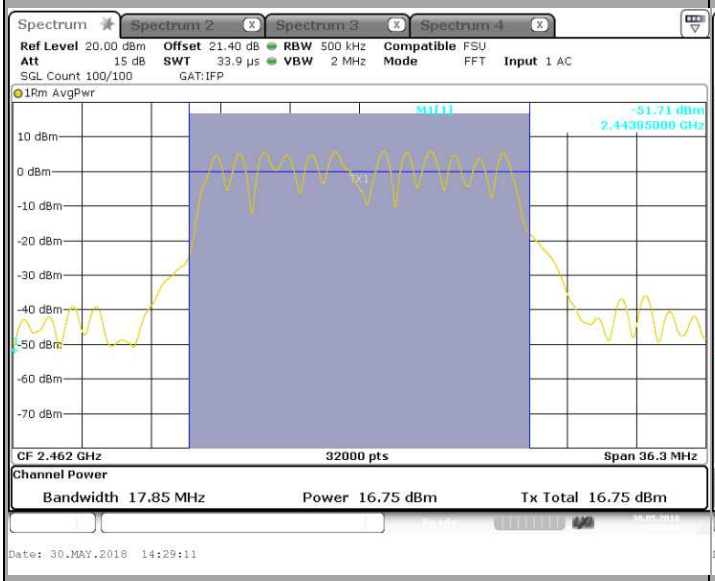
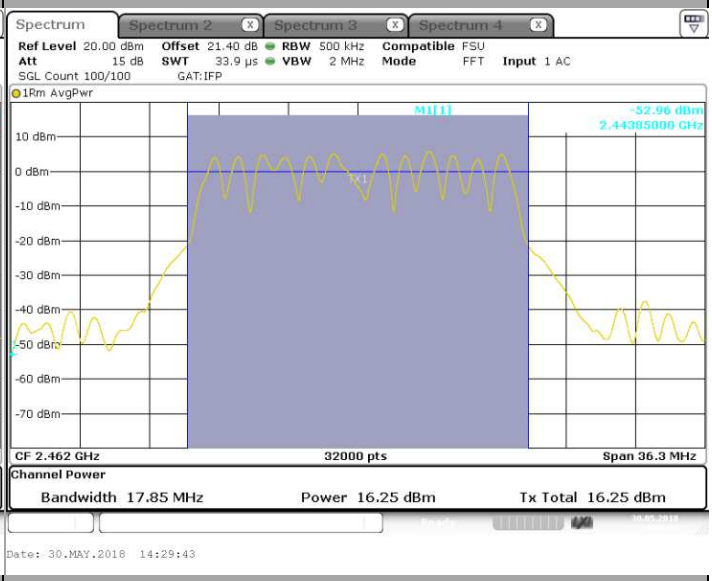
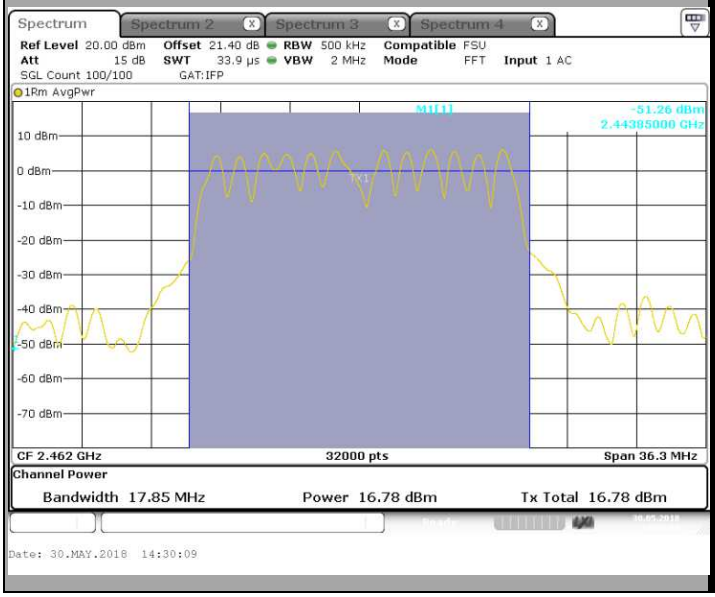
802.11g	
Cmin	
Tx1	Tx2
	
Tx3	Tx4
	

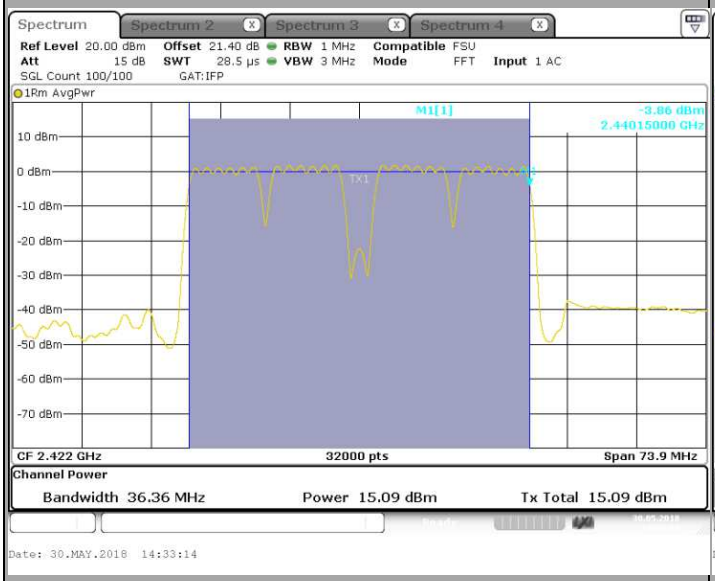
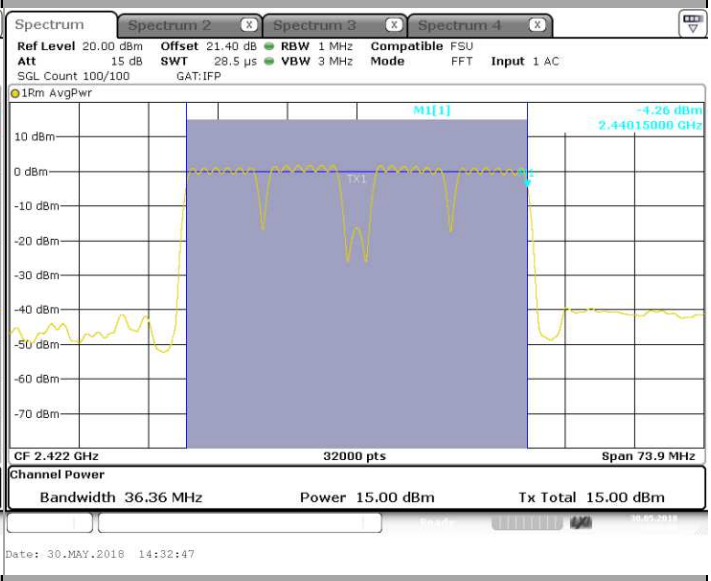
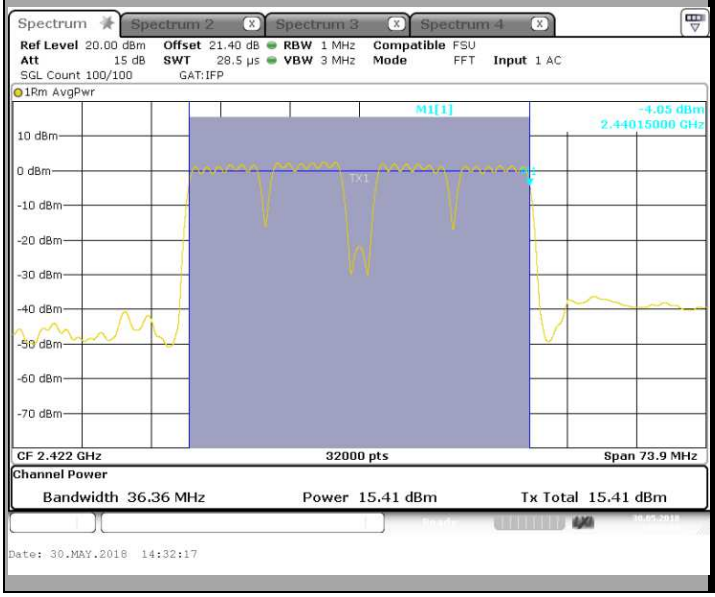
802.11g	
Cnom	
Tx1	Tx2
	
Tx3	Tx4
	

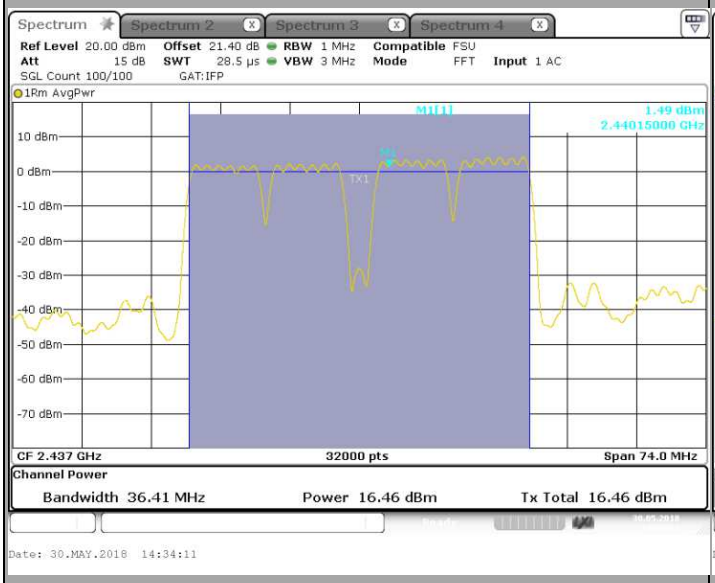
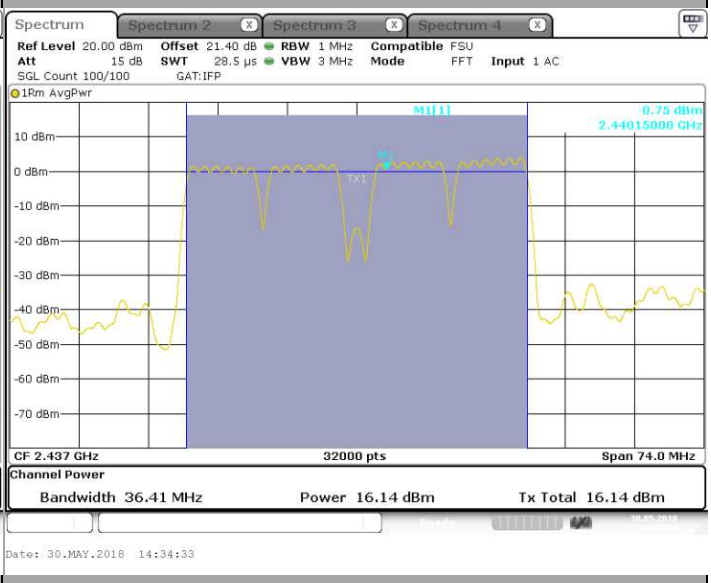
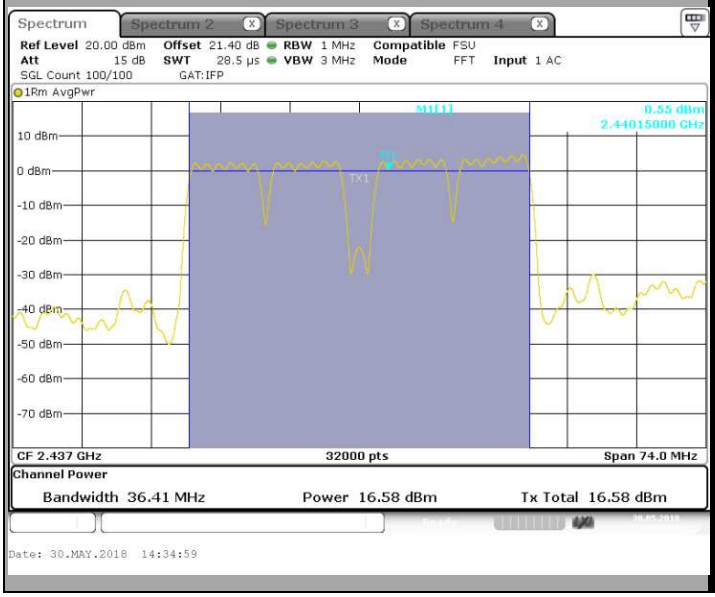
802.11g	
Cmax	
Tx1	Tx2
	
Tx3	Tx4
	

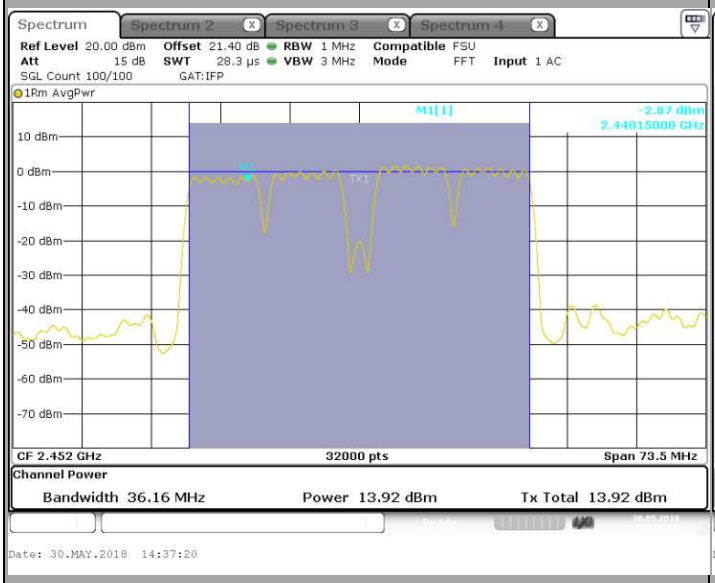
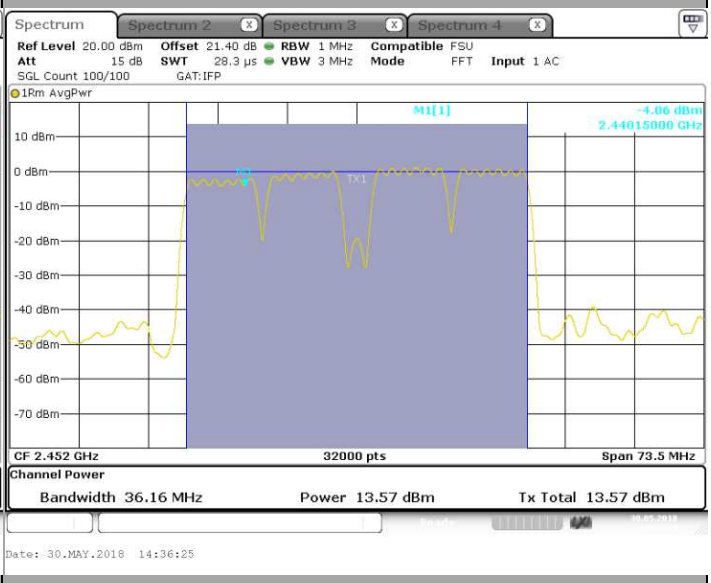
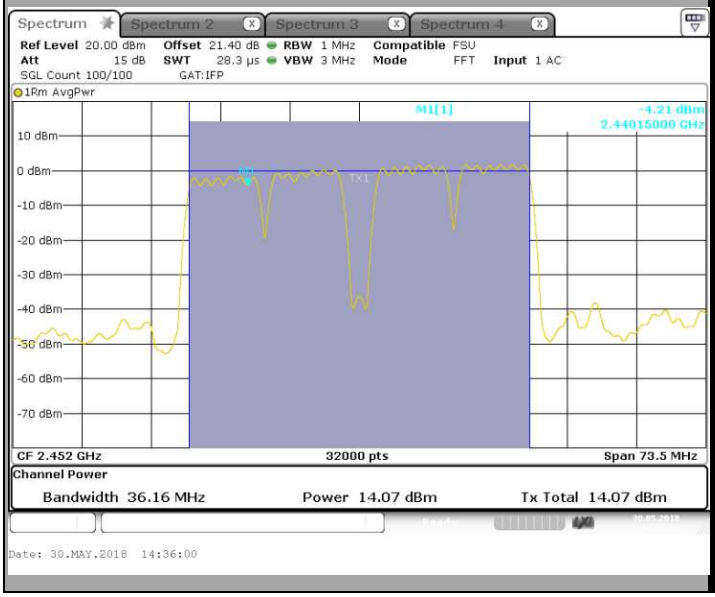
802.11n HT20	
Cmin	
Tx1	Tx2
	
Tx3	Tx4
	

802.11n HT20	
Cnom	
Tx1	Tx2
	
Tx3	Tx4
	

802.11n HT20	
Cmax	
Tx1	Tx2
	
Tx3	Tx4
	

802.11n HT40	
Cmin	
Tx1	Tx2
	
Tx3	Tx4
	

802.11n HT40	
Cnom	
Tx1	Tx2
	
Tx3	Tx4
	

802.11n HT40	
Cmax	
Tx1	Tx2
	
Tx3	Tx4
	

802.11b							
Channel	**Tx1 (dBm)**	**Tx2 (dBm)**	**Tx3 (dBm)**	**Tx4 (dBm)**	**Overall Antenna Gain (dBi)**	**Maximum Conducted Power (dBm)**	**Limit (dBm)**
Cmin	19,32	18,84	19,43		5	23,98	30
Cnom	21,93	21,18	22,2		5	26,56	30
Cmax	22,15	21,11	22,01		5	26,55	30

802.11g							
Channel	**Tx1 (dBm)**	**Tx2 (dBm)**	**Tx3 (dBm)**	**Tx4 (dBm)**	**Overall Antenna Gain (dBi)**	**Maximum Conducted Power (dBm)**	**Limit (dBm)**
Cmin	18,54	18,32	18,79		5	23,33	30
Cnom	21,88	21,67	21,89		5	26,59	30
Cmax	17,57	17,29	17,56		5	22,25	30

802.11n HT20							
Channel	**Tx1 (dBm)**	**Tx2 (dBm)**	**Tx3 (dBm)**	**Tx4 (dBm)**	**Overall Antenna Gain (dBi)**	**Maximum Conducted Power (dBm)**	**Limit (dBm)**
Cmin	17,49	17,24	17,59		5	22,21	30
Cnom	21,78	21,63	21,92		5	26,55	30
Cmax	16,75	16,25	16,78		5	21,37	30

802.11n HT40							
Channel	**Tx1 (dBm)**	**Tx2 (dBm)**	**Tx3 (dBm)**	**Tx4 (dBm)**	**Overall Antenna Gain (dBi)**	**Maximum Conducted Power (dBm)**	**Limit (dBm)**
Cmin	15,09	15	15,41		5	19,94	30
Cnom	16,46	16,14	16,58		5	21,17	30
Cmax	13,92	13,57	14,07		5	18,63	30

6.6. CONCLUSION

Maximum Conducted Output Power measurement performed on the sample of the product **SAGEMCOM DCIWA384 UHD Alt US V2**, SN: **253764997**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.