



ISED LISTED
REGISTRATION NUMBER
4621A-2,4621A-4

Test report No:
NIE: 56944RRF.004

Test report

USA FCC Part 15.407, 15.209

CANADA RSS-247, RSS-Gen

Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements.

Radiated emission limits; general requirements.

Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.

General Requirements and Information for the Certification of Radio Apparatus.

Identification of item tested	27-inch iMac with Retina 5K display
Trademark	Apple
Model and /or type reference	A2115
Other identification of the product	FCC ID: BCGA2115 IC: 579C-A2115
Features	IEEE 802.11a/b/g/n/ac radio and Bluetooth radio
Applicant	Apple INC, One Apple Park Way, Cupertino, California 95014, USA
Test method requested, standard	USA FCC Part 15.407 10-1-17 Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. Band U-NII-3 (5725 MHz – 5850 MHz). USA FCC Part 15.209 10-1-17 Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017. Guidance for Emission Testing of Transmitters with Multiple Outputs in the Same Band 662911 D01 Multiple Transmitter Output v02r01 dated 10/31/2013 ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

Summary	IN COMPLIANCE
Approved by (name / position & signature)	A. Llamas p.a. RF Lab. Manager
Date of issue	2019-03-05
Report template No	FDT08_21

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification is a FCC-recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test report.

DEKRA Testing and Certification is a laboratory with a measurement site in compliance with the requirements of RSS 212, Issue 1 (Provisional) and has been added to the list of filed sites of the Canadian Certification and Engineering Bureau. Reference File Number: ISED 4621A-2 and ISED 4621A-4.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification at the time of performance of the test.

DEKRA Testing and Certification is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification internal document PODT000.

Data provided by the client

iMac desktop computer with IEEE 802.11 a/b/g/n/ac radio and Bluetooth radio.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: the client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
56944/06	iMac with Retina 5K display	A2115	C02WW002K1R4	2018-08-16

Auxiliary elements used with the sample S/01

Control N°	Description	Model	Serial N°	Date of reception
56943/03	Keyboard	A1243	---	2018-04-09
56943/05	Power Cable	---	---	2018-04-09
56943/07	Mouse	A1152	---	2018-04-09
56943/09	USB-C to VGA converter	A1620	---	2018-04-09
56943/11	USB to thunderbolt	A1790	---	2018-04-09
56943/13	Earphones	---	---	2018-04-09

1. Sample S/01 has undergone the following test(s):

Band-edge emissions compliance (Transmitter) indicated in Appendixes B, C, D and E. It was determined as the worst case.

Sample S/02 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
56944/05	iMac with Retina 5K display	A2115	C02WW01EKFGK	2018-08-16

Auxiliary elements used with the sample S/02

Control N°	Description	Model	Serial N°	Date of reception
56943/04	Keyboard	A1243	---	2018-04-09
56943/06	Power Cable	---	---	2018-04-09
56943/08	Mouse	A1152	---	2018-04-09
56943/10	USB-C to VGA converter	A1620	---	2018-04-09
56943/12	USB to thunderbolt	A1790	---	2018-04-09
56943/14	Earphones	---	---	2018-04-09

1. Sample S/02 has undergone the following test(s):

Emission limitations radiated (Transmitter) indicated in Appendixes B, C, D and E. It was determined as the worst case.

Sample S/03 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
56944/14	iMac with Retina 5K display	A2115	C02X300EKFDN	2018-09-03

Auxiliary elements used with the sample S/03

Control N°	Description	Model	Serial N°	Date of reception
56943/04	Keyboard	A1243	---	2018-04-09
56944/13	Power Cable	---	---	2018-04-09
56943/08	Mouse	A1152	---	2018-04-09

1. Sample S/03 has undergone the following test(s):

All conducted tests indicated in Appendixes A, B, C, D and E except for mode TxBF.

Sample S/04 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
56944/12	iMac with Retina 5K display	A2115	C02X300SKFDQ	2018-09-03

Auxiliary elements used with the sample S/04

Control N°	Description	Model	Serial N°	Date of reception
56943/03	Keyboard	A1243	---	2018-04-09
56943/05	Power Cable	---	---	2018-04-09
56943/07	Mouse	A1152	---	2018-04-09

1. Sample S/04 has undergone the following test(s):

All conducted tests for TxBF mode indicated in Appendixes A, B, C, D and E.

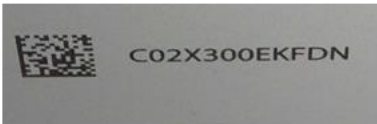
Test sample description

Ports..... :	Port name and description	Cable		
		Specified length [m]	Attached during test	Shielded
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

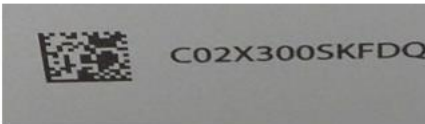
Supplementary information to the ports..... : :							
Rated power supply .. :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☒	AC: 120 / 60 Hz	☒	☐	☐	☒	☒
	☐	AC:	☐	☐	☐	☐	☐
	☐	DC:					
☐	DC:						
Rated Power							
Clock frequencies..... :							
Other parameters							
Software version	18A334						
Hardware version	EVT						
Dimensions in cm (W x H x D)	65cm wide, 51.65cm high, 20.3cm deep						
Mounting position	☒	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					
Modules/parts..... :	Module/parts of test item		Type			Manufacturer	
Accessories (not part of the test item)	Description		Type			Manufacturer	
	Keyboard		A1243			Apple	
	Power Cable		---			Apple	
	Mouse		A1152			Apple	
	USB-C to VGA converter		A1620			Apple	
	USB to thunderbolt		A1790			Apple	
	Earphones		---			Apple	

Documents as provided by the applicant..... :	Description	File name	Issue date

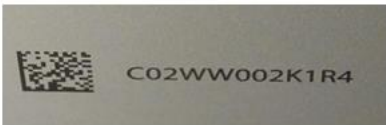
Copy of marking plate:



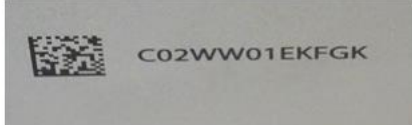
C02X300EKFDN



C02X300SKFDQ



C02WW002K1R4



C02WW01EKFGK

Identification of the client

Apple INC
One Apple Park Way, Cupertino, California 95014, USA

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2018-08-18
Date (finish)	2019-01-25

Document history

Report number	Date	Description
56944RRF.004	2019-03-05	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 35 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω

Remarks and comments

The tests have been performed by the technical personnel: Ignacio Cabra, Jose Alberto Aranda, Francisco José Alcaide, Jaime Barranquero, Juan Carlos Fuentes, Miguel Angel Torres.

Used instrumentation:

Radiated Measurements

		Last Cal. date	Cal. due date
1.	Semianechoic Absorber Lined Chamber ETS FACT3 200STP	N.A.	N.A.
2.	Semianechoic Absorber Lined Chamber ETS FACT3 200STP	N.A.	N.A.
3.	Multi Device Controller EMCO 2090	N.A.	N.A.
4.	Positioning Controller INNCO CO3000	N.A.	N.A.
5.	BiconicalLog antenna ETS LINDGREN 3142E	2017/09	2020/09
6.	BiconicalLog antenna ETS LINDGREN 3142E	2018/07	2021/07
7.	Double-ridge Guide Horn antenna 1-18 GHz SCHWARZBECK BBHA 9120 D	2016/11	2019/11
8.	Double-ridge Guide Horn antenna 1-18 GHz SCHWARZBECK BBHA 9120 D	2018/06	2021/06
9.	Broadband Horn antenna 18-40 GHz SCHWARZBECK BBHA 9170	2017/04	2020/04
10.	Broadband Horn antenna 18-40 GHz SCHWARZBECK BBHA 9170	2018/07	2021/07
11.	EMI Test Receiver R&S ESR7	2018/10	2020/10
12.	EMI Test Receiver R&S ESR7	2018/10	2020/10
13.	Spectrum analyser Rohde & Schwarz FSV40	2018/02	2020/02
14.	Spectrum analyser Rohde & Schwarz FSV40	2017/07	2019/07
15.	RF pre-amplifier 30MHz-6 GHz Bonn Elektronik BLNA 0360-01N	2018/07	2019/07
16.	RF pre-amplifier 10MHz-6 GHz Bonn Elektronik BLNA 0160-01N	2017/09	2019/03
17.	RF pre-amplifier 1-18 GHz Bonn Elektronik BLMA 0118-1M	2018/03	2019/03
18.	RF pre-amplifier 1-18 GHz Bonn Elektronik BLMA 0118-3A	2018/03	2019/03
19.	RF pre-amplifier 18-40 GHz Bonn Elektronik BLMA 1840-1M	2018/03	2019/03
20.	RF pre-amplifier 18-40 GHz NARDA JS44-18004000-33-8P	2018/02	2019/02
21.	RF High Pass Filter 3-18 GHz WAINWRIGHT INSTRUMENTS WHK 3.0/18G-10SS	2017/04	2019/04
22.	RF High Pass Filter 3-18 GHz TEMSTRON ST-3GA2833-HS	2018/09	2019/09
23.	RF Low Pass Filter DC-1GHz WAINWRIGHT INSTRUMENTS WLK1000-6SS	2018/06	2020/06
24.	RF High Pass Filter 18-26.5 GHz MicroWave Circuits H18G26G1	2017/04	2019/04
25.	HIGH PASS FILTER 26-40 GHz TEMSTRON/TEMWELL ST-26G-40G-665KHF	2018/11	2020/11
26.	AC Power Supply Elgar CS-AC35(351SL)	2016/05	2019/05
27.	AC Power Supply California Instruments 5001iM-400	2018/11	2020/11

Conducted Measurements

		Last Cal. date	Cal. due date
1.	Spectrum analyser Rohde & Schwarz FSV40	2017/07	2019/07
2.	AC Power Supply Elgar CS-AC35(351SL)	2016/05	2019/05
3.	Spectrum analyser Rohde & Schwarz FSW50	2018/02	2020/02
4.	EMI Test Receiver R&S ESR7	2018/10	2020/10
5.	3 Ports directional coupler 0.5-18GHz AAMCS-UDS-0.5G-18G-10dB-SF	2019/01	2020/01
6.	3 Ports directional coupler 0.5-18GHz AAMCS-UDS-0.5G-18G-10dB-SF	2019/01	2020/01
7.	3 Ports directional coupler 0.5-18GHz AAMCS-UDS-0.5G-18G-10dB-SF	2019/01	2020/01
8.	Power Divider Advantech P215	2018/05	2019/05
9.	Power Divider Advantech P215	2018/05	2019/05

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

A. Common requirements for all bands

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		Verdict	Remark
RSS-Gen 6.6 / RSS-247 6.2.	Transmitter 99% Occupied Bandwidth	P	
FCC 15.403 (i)	Transmitter 26 dB Emission Bandwidth (EBW)	P	
FCC 15.35 (c) / RSS-Gen 6.10	Duty Cycle	P	
FCC 15.407 (g) / RSS-Gen 6.11	Transmitter Frequency Stability (Temperature & Voltage Variation)	N/M	See (4)
<u>Supplementary information and remarks:</u> (1) There are two manufacturer of the WiFi/Bluetooth radio modules, manufacturer 1 and manufacturer 2. (2) The WiFi/Bluetooth radio modules have the same mechanical outline (i.e. the same packaging dimension and pin layout), use the same on-board antenna matching circuit, have an identical antenna structure and are built to conform to the same specification and to operate within the same tolerances. (3) Preliminary testing was performed on the two manufacturers to determine the worst case. (4) The manufacturer is responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.			

B. 5.15 GHz – 5.25 GHz Band

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		Verdict	Remark
FCC 15.407 (a) (1) (iv)	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.1.1	Transmitter Maximum Equivalent Isotropically Radiated Power EIRP	P	
FCC 15.407 (a) (1) (iv)	Transmitter Maximum Power Spectral Density	P	
RSS-247 6.2.1.1	Transmitter EIRP Spectral Density	P	
FCC 15.407 (b) (1) / RSS-247 6.2.1.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (b) (1) (6) / RSS-247 6.2.1.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (h) (1) / RSS-247 6.2.1.1	Transmitter Power Control	N/A	
<u>Supplementary information and remarks:</u> (1) There are two manufacturer of the WiFi/Bluetooth radio modules, manufacturer 1 and manufacturer 2. (2) The WiFi/Bluetooth radio modules have the same mechanical outline (i.e. the same packaging dimension and pin layout), use the same on-board antenna matching circuit, have an identical antenna structure and are built to conform to the same specification and to operate within the same tolerances. (3) Preliminary testing was performed on the two manufacturers to determine the worst case.			

C. 5.25 GHz – 5.35 GHz Band

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		Verdict	Remark
FCC 15.407 (a) (2) / RSS-247 6.2.2.1 (a)	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.2.1 (b)	Transmitter Maximum Equivalent Isotropically Radiated Power EIRP	P	
FCC 15.407 (a) (2) / RSS-247 6.2.2.1 (a)	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b) (2) / RSS-247 6.2.2.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (b) (2) (6) / RSS-247 6.2.2.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (h) (1) / RSS-247 6.2.2.1	Transmitter Power Control	P	
<u>Supplementary information and remarks:</u> (1) There are two manufacturer of the WiFi/Bluetooth radio modules, manufacturer 1 and manufacturer 2. (2) The WiFi/Bluetooth radio modules have the same mechanical outline (i.e. the same packaging dimension and pin layout), use the same on-board antenna matching circuit, have an identical antenna structure and are built to conform to the same specification and to operate within the same tolerances. (3) Preliminary testing was performed on the two manufacturers to determine the worst case.			

D. 5.47 GHz – 5.725 GHz Band

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		Verdict	Remark
FCC 15.407 (a) (2) / RSS-247 6.2.3.1	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.3.1	Transmitter Maximum Equivalent Isotropically Radiated Power	P	
FCC 15.407 (a) (2) / RSS-247 6.2.3.1	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b) (3) / RSS-247 6.2.3.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (b) (3) (6) / RSS-247 6.2.3.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (h) (1) / RSS-247 6.2.3.1	Transmitter Power Control	P	
<u>Supplementary information and remarks:</u>			
(1) There are two manufacturer of the WiFi/Bluetooth radio modules, manufacturer 1 and manufacturer 2.			
(2) The WiFi/Bluetooth radio modules have the same mechanical outline (i.e. the same packaging dimension and pin layout), use the same on-board antenna matching circuit, have an identical antenna structure and are built to conform to the same specification and to operate within the same tolerances.			
(3) Preliminary testing was performed on the two manufacturers to determine the worst case.			

E. 5.725 GHz – 5.85 GHz Band

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		Verdict	Remark
FCC Part 15.407 (a) (3) / RSS-247 6.2.4.1	Transmitter Maximum conducted Output Power	P	
FCC 15.407 (e) / RSS-247 Clause 6.2.4.1	6 dB bandwidth.	P	
FCC 15.407 (a) (3) / RSS-247 Clause 6.2.4.1	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b) (4) / RSS-247 6.2.4.2	Transmitter Band Edge Radiated Emissions	P	
FCC FCC 15.407 (b) (4) (6) / RSS-247 6.2.4.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.40 (h) (1) / RSS-247 6.2.4.1	Transmitter Power Control	N/A	
<u>Supplementary information and remarks:</u>			
(1) There are two manufacturer of the WiFi/Bluetooth radio modules, manufacturer 1 and manufacturer 2.			
(2) The WiFi/Bluetooth radio modules have the same mechanical outline (i.e. the same packaging dimension and pin layout), use the same on-board antenna matching circuit, have an identical antenna structure and are built to conform to the same specification and to operate within the same tolerances.			
(3) Preliminary testing was performed on the two manufacturers to determine the worst case.			

Appendix A: Test Common requirements for all bands

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Section 15.35 Subclause (c) / RSS-Gen 6.10. Transmitter Duty Cycle	16
RSS-Gen 6.6 / RSS-247 6.2. Transmitter 99% Occupied Bandwidth	25
Section 15.407 Subclause 15.403(i) Transmitter 26 dB Emission Bandwidth (EBW)	42

Section 15.35 Subclause (c) / RSS-Gen 6.10. Transmitter Duty Cycle.

SPECIFICATION

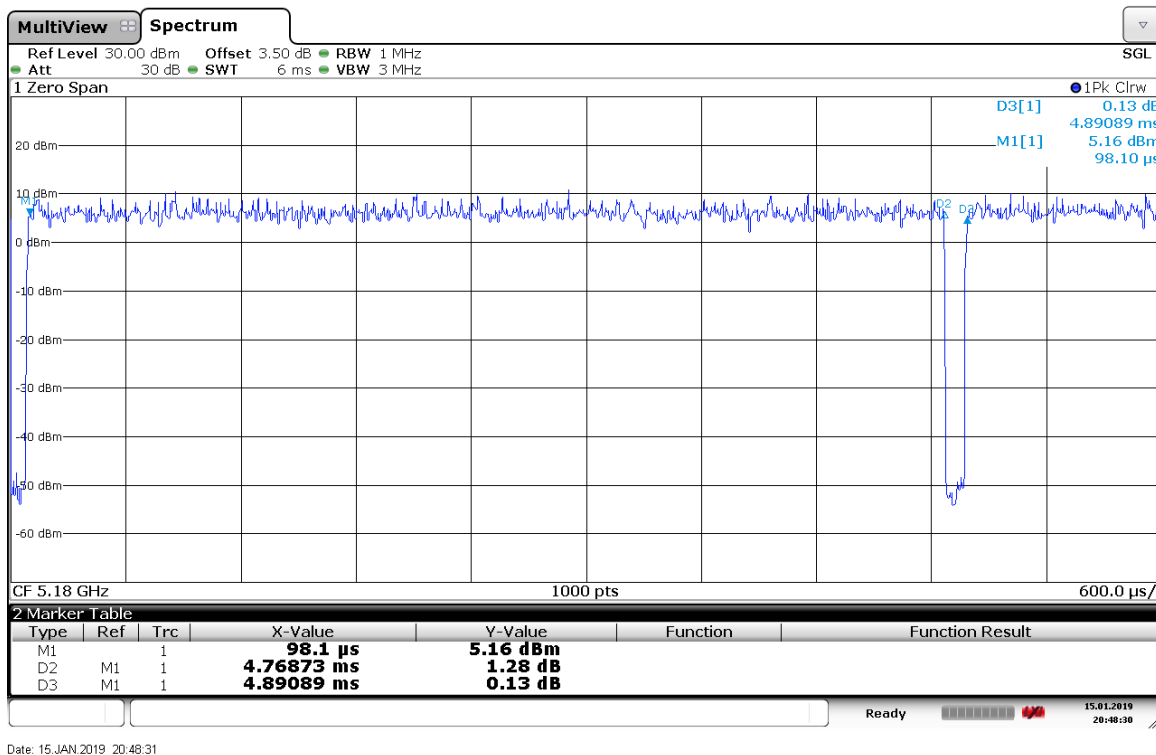
When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

RESULTS:

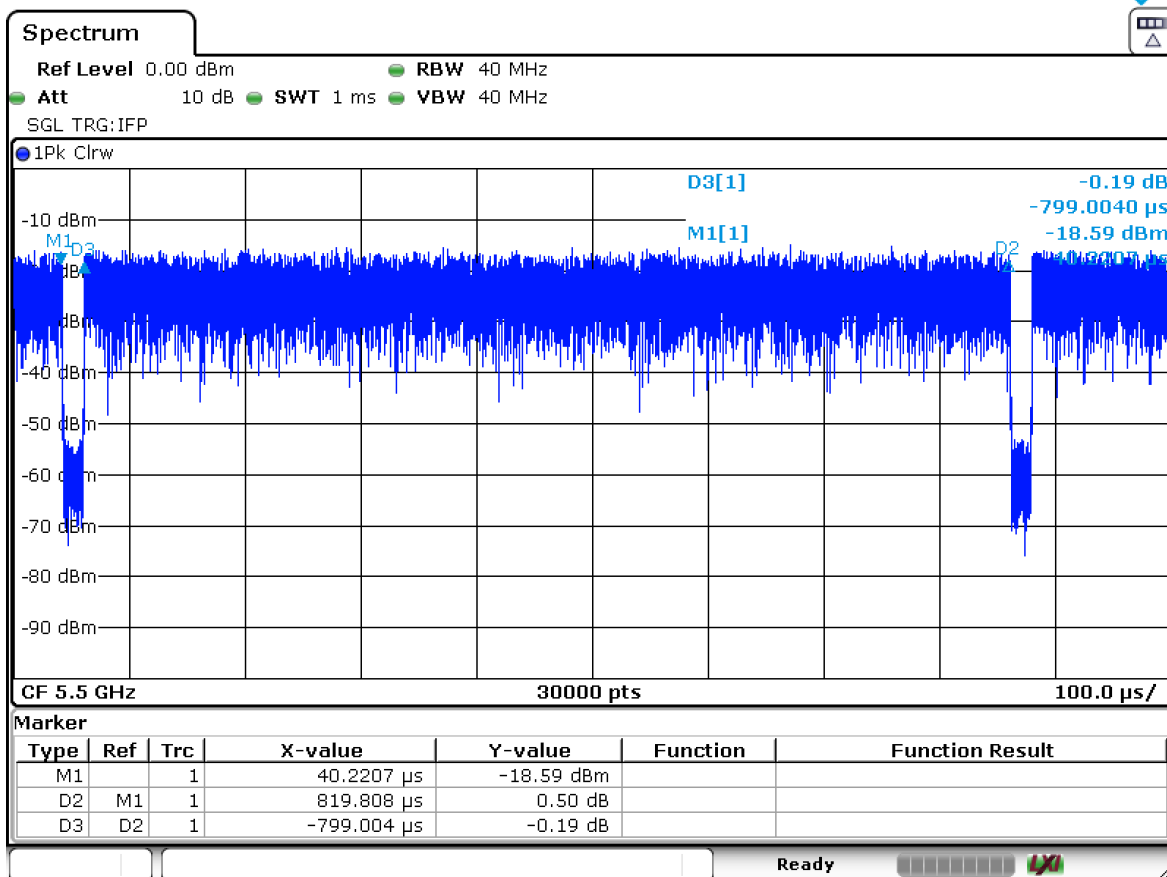
The results below are for data rates with a duty cycle less than 98%. The results for all rest of modes having a value > 98%.

Mode	Pulse Duration (us)	Period (us)	Duty Cycle correction (dB)
802.11 / 20 MHz / MIMO / TxBF Mode 2x2	4768.730	4890.890	0.11
802.11 / 20 MHz / MIMO / SDM Mode 3x3	799.004	819.808	0.11
802.11 / 20 MHz / MIMO / TxBF Mode 3x3	3827.790	3948.950	0.14
802.11 / 40 MHz / SISO	1118.754	1144.031	0.10
802.11 / 40 MHz / MIMO / CCD Mode 2x2	1121.454	1144.681	0.09
802.11 / 40 MHz / MIMO / SDM Mode 2x2	582.9828	602.563	0.14
802.11 / 40 MHz / MIMO / TxBF Mode 2x2	5021.020	5171.170	0.13
802.11 / 40 MHz / MIMO / SDM Mode 3x3	411.1500	432.251	0.22
802.11 / 40 MHz / MIMO / TxBF Mode 3x3	4569.570	4709.710	0.13
802.11 / 80 MHz / SISO	543.661	562.948	0.15
802.11 / 80 MHz / MIMO / CDD Mode 2x2	541.1547	561.4287	0.16
802.11 / 80 MHz / MIMO / SDM Mode 2x2	293.930	314.404	0.29
802.11 / 80 MHz / MIMO / TxBF Mode 2x2	5267.270	5405.410	0.11
802.11 / 80 MHz / MIMO / CDD Mode 3x3	540.175	562.782	0.18
802.11 / 80 MHz / MIMO / SDM Mode 3x3	219.797	239.281	0.37
802.11 / 80 MHz / MIMO / TxBF Mode 3x3	5063.060	5207.200	0.12

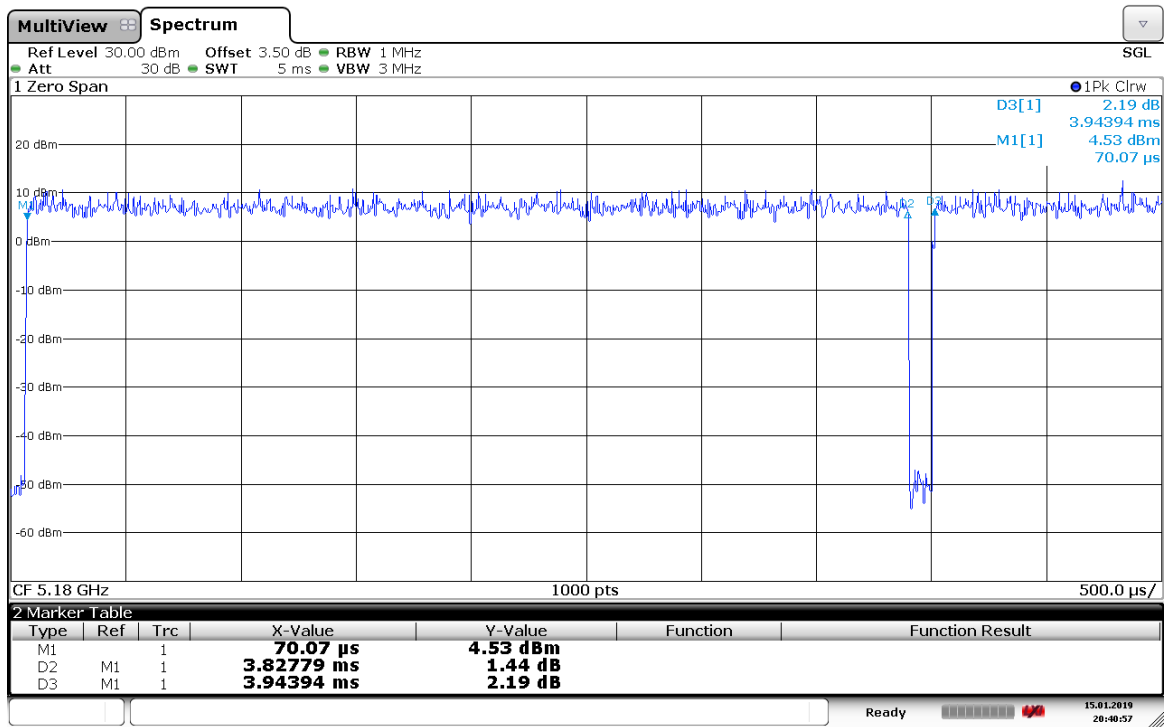
802.11 / 20 MHz / MIMO / TxBF Mode 2x2



802.11 / 20 MHz / MIMO / SDM Mode 3x3

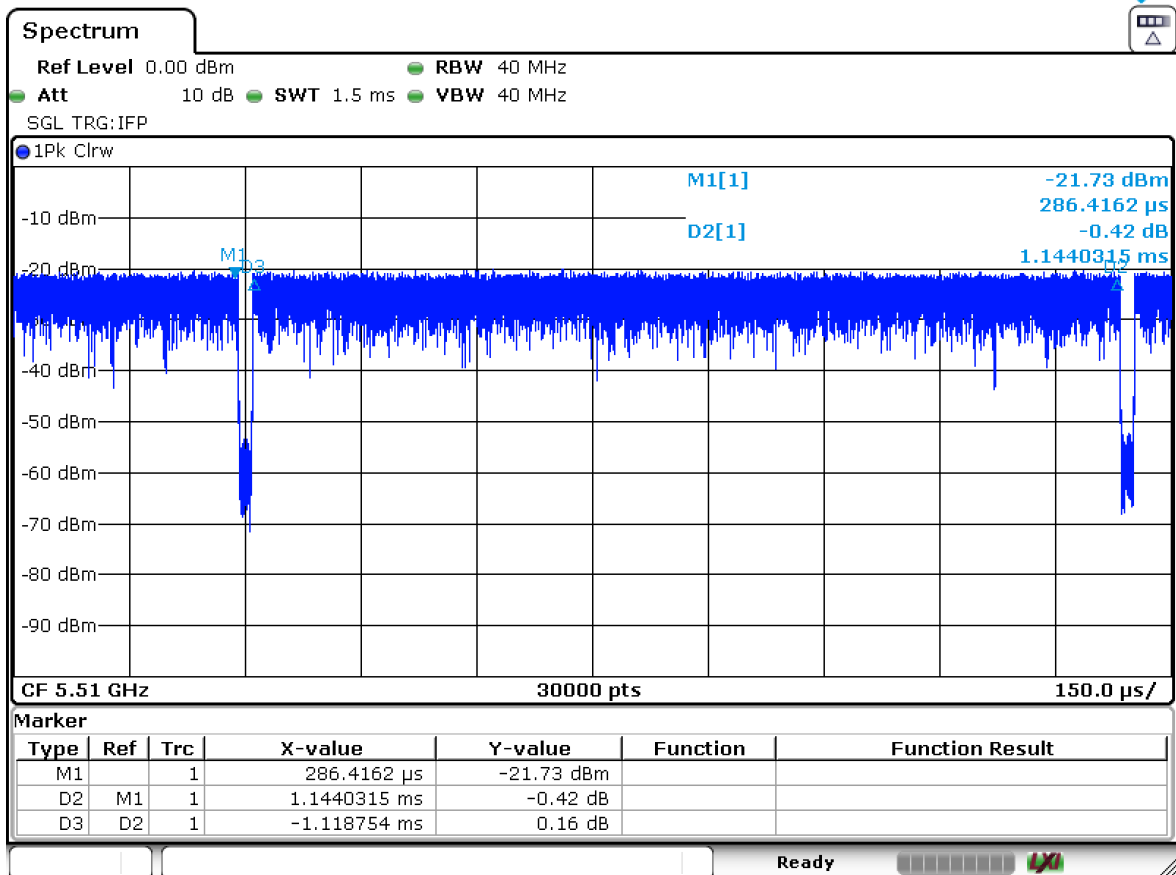


802.11 / 20 MHz / MIMO / TxBF Mode 3x3

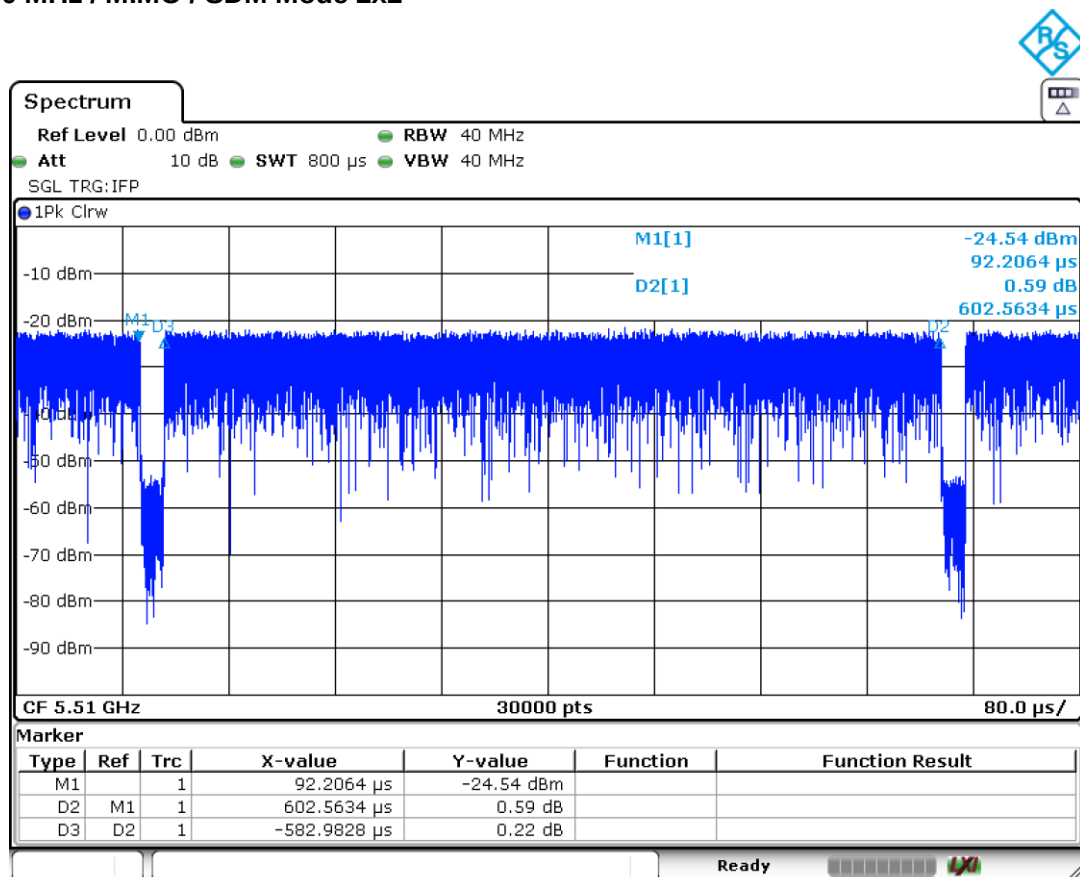


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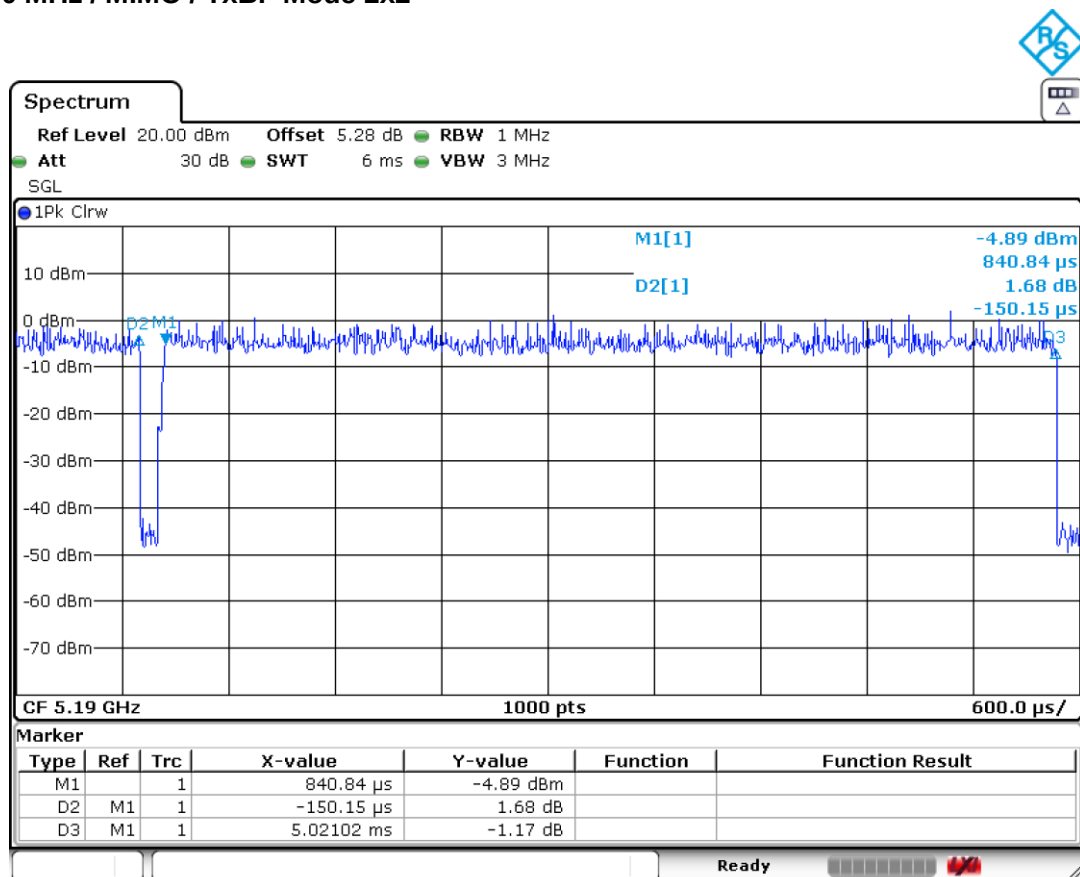
802.11 / 40 MHz / SISO



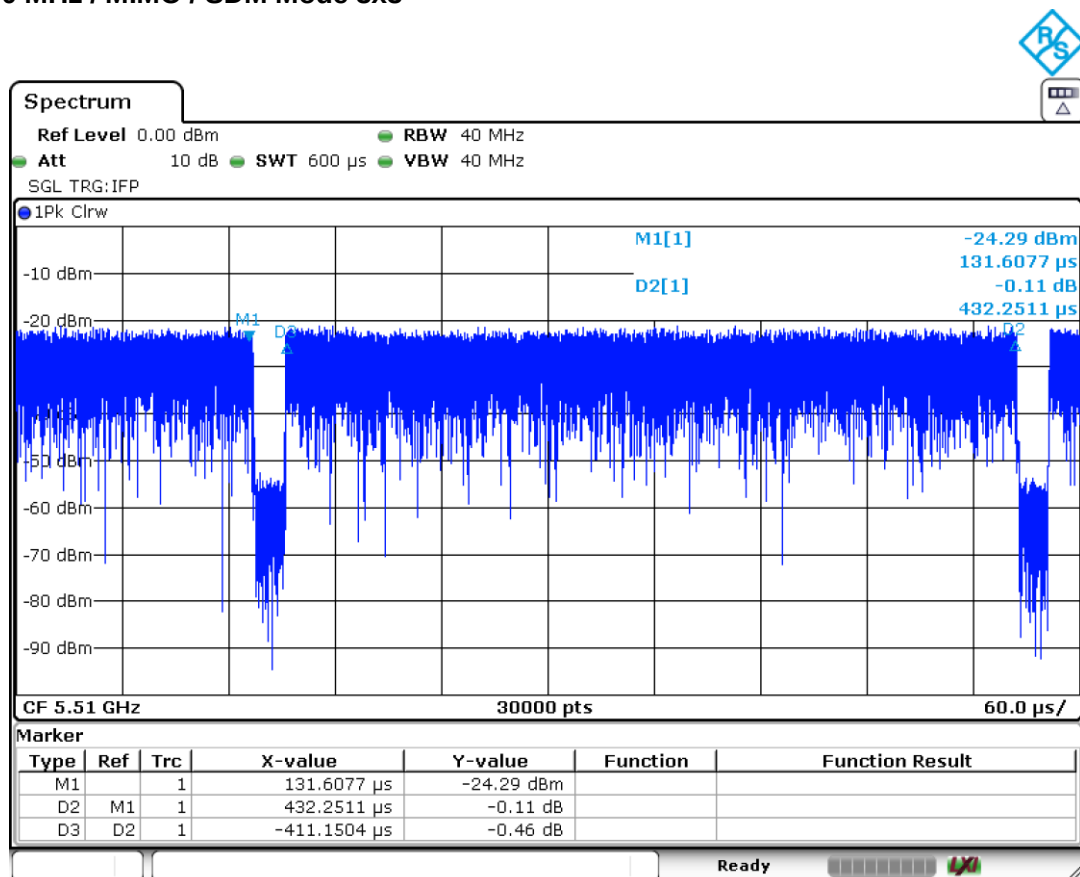
802.11 / 40 MHz / MIMO / SDM Mode 2x2



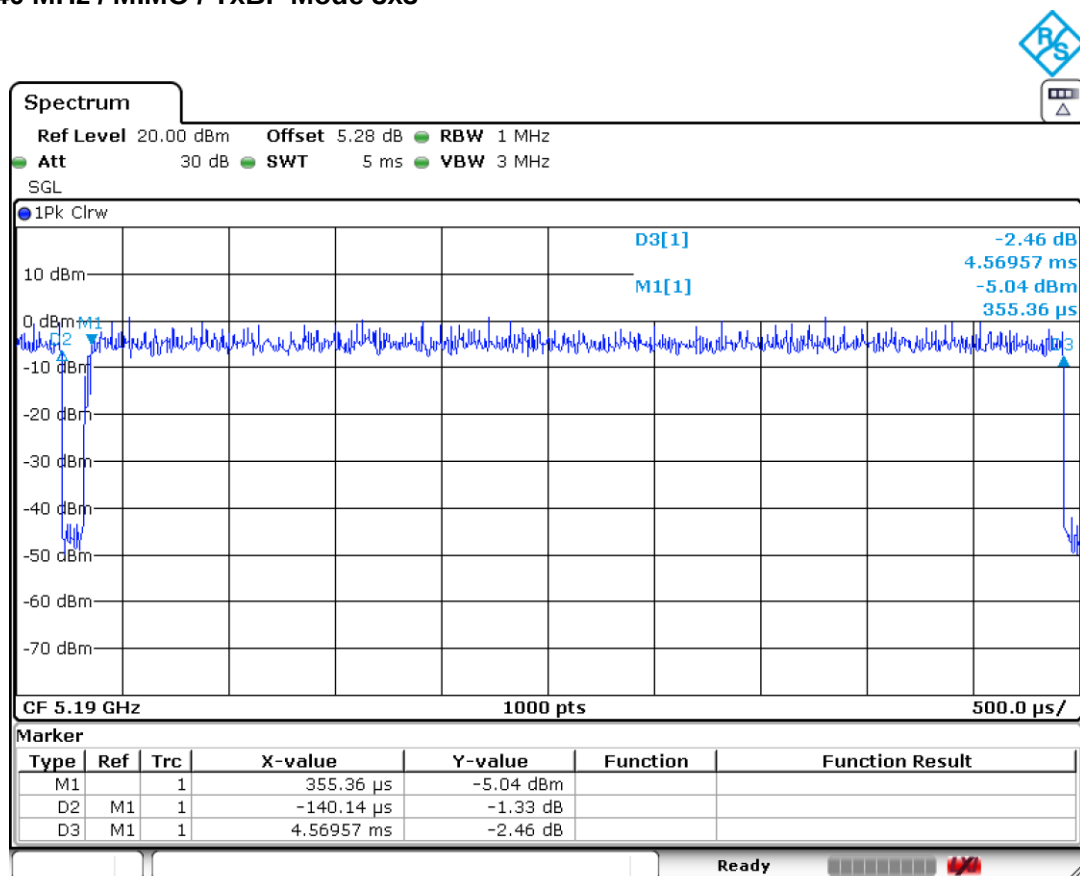
802.11 / 40 MHz / MIMO / TxBF Mode 2x2



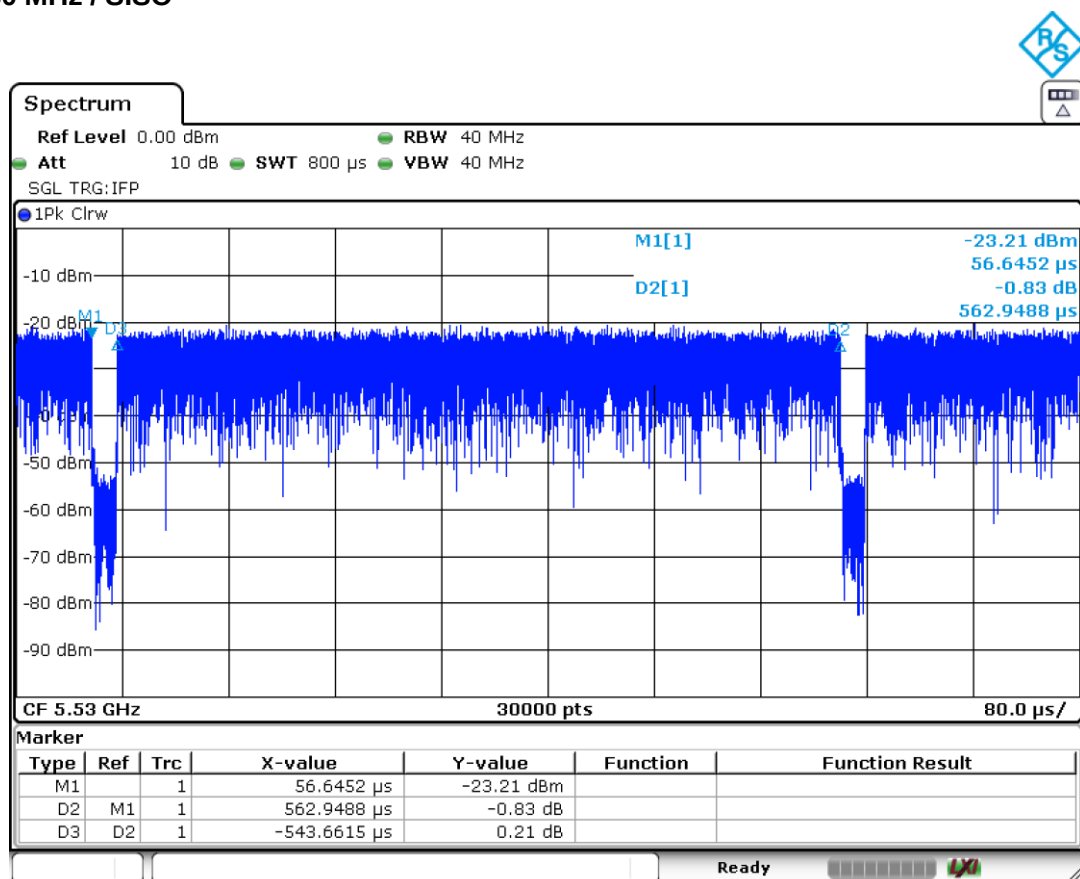
802.11 / 40 MHz / MIMO / SDM Mode 3x3



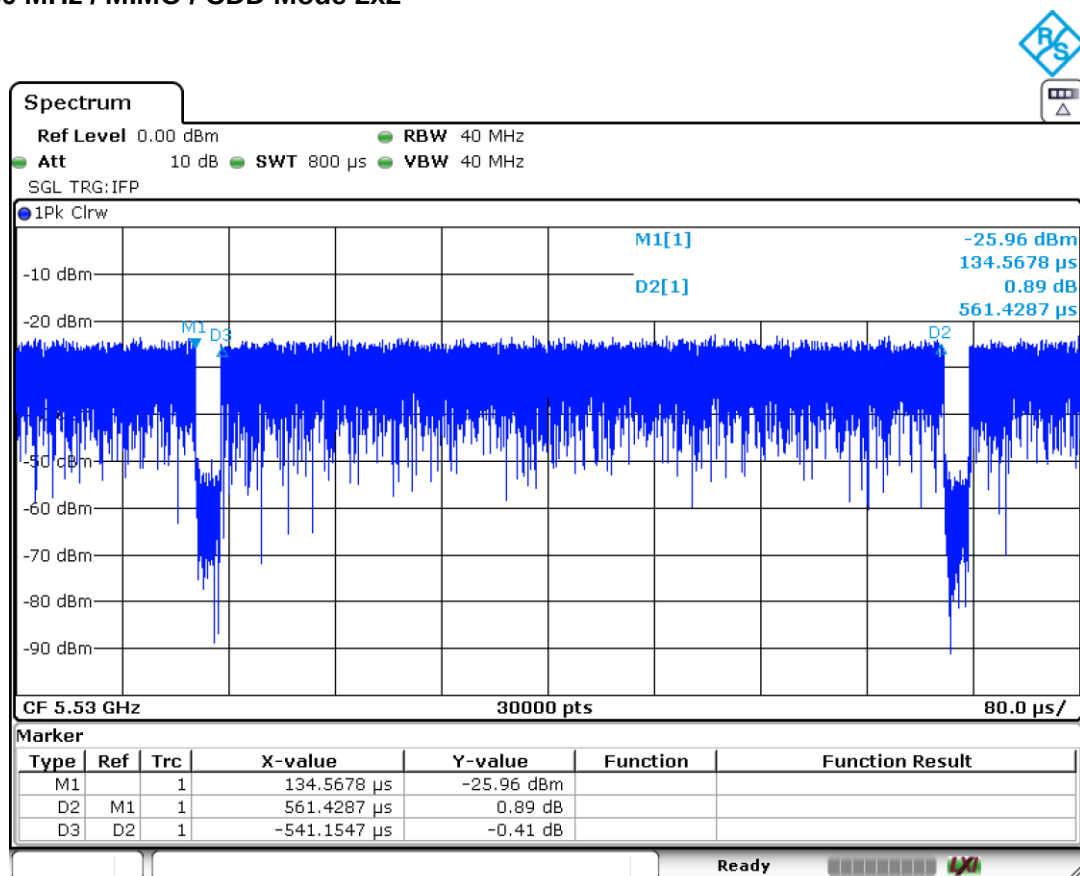
802.11 / 40 MHz / MIMO / TxBF Mode 3x3



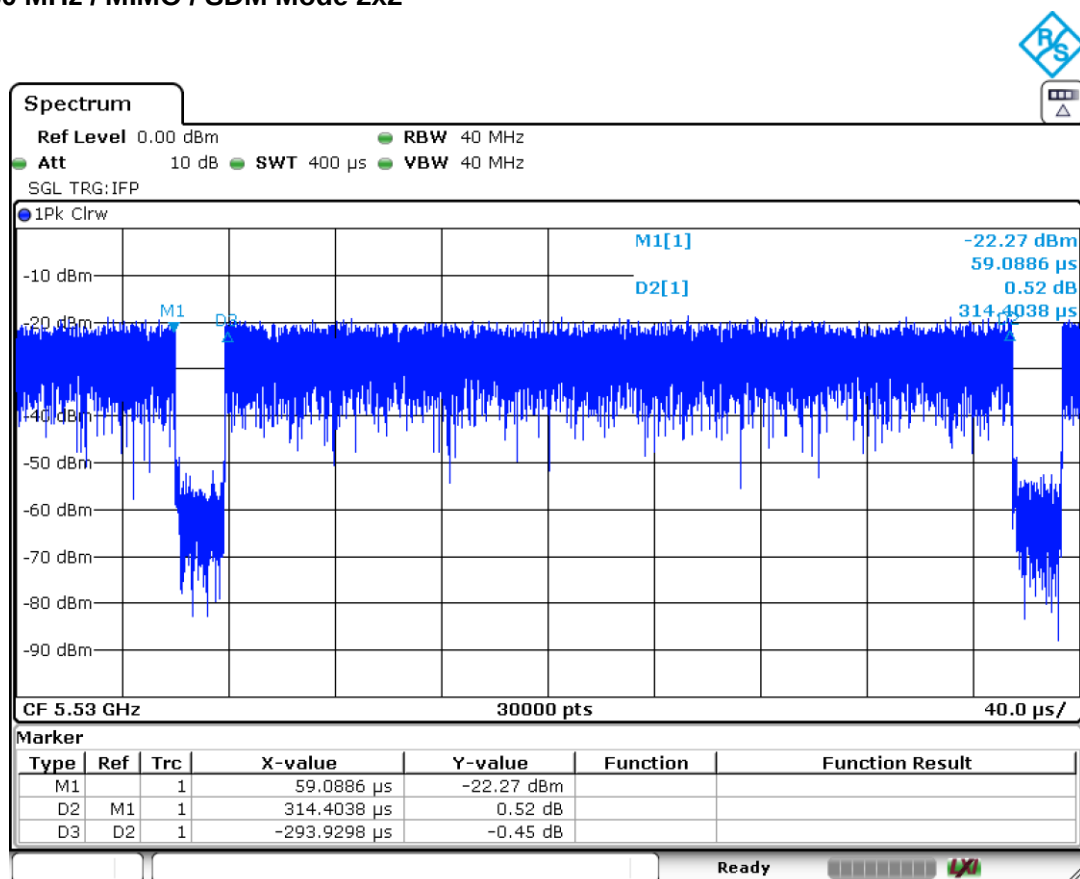
802.11 / 80 MHz / SISO



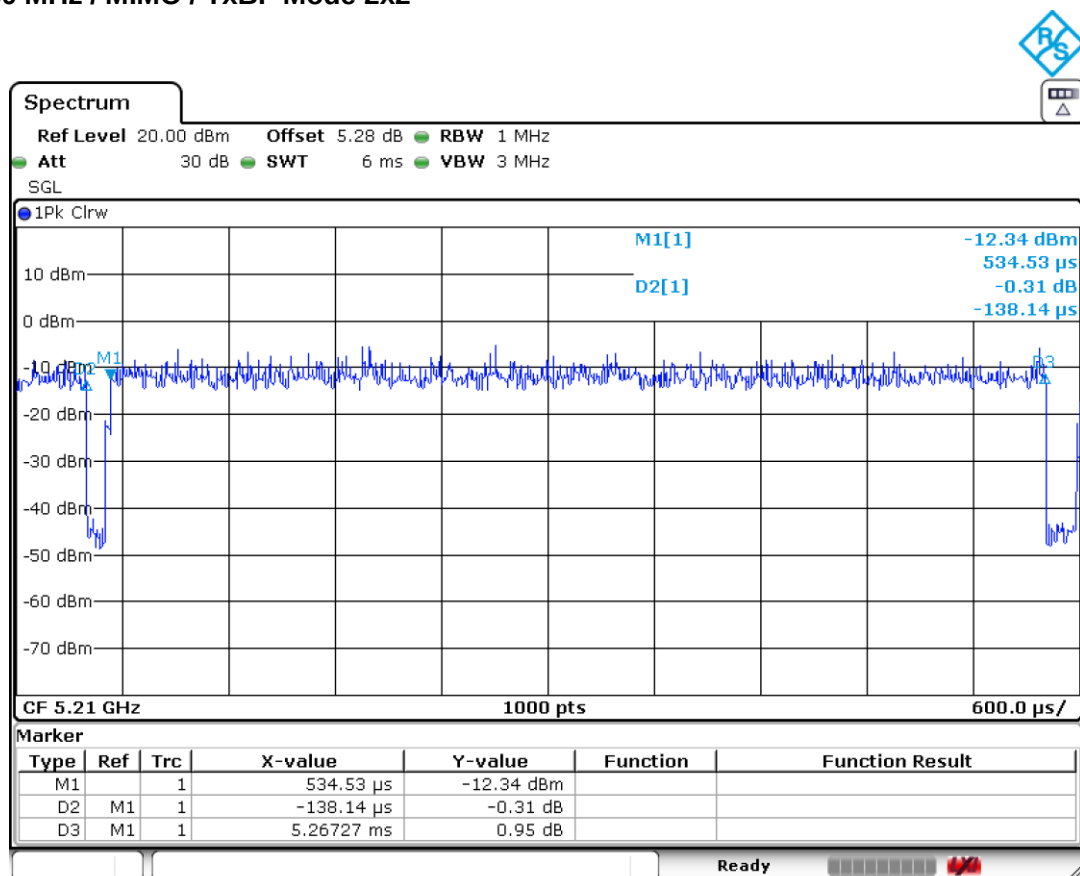
802.11 / 80 MHz / MIMO / CDD Mode 2x2



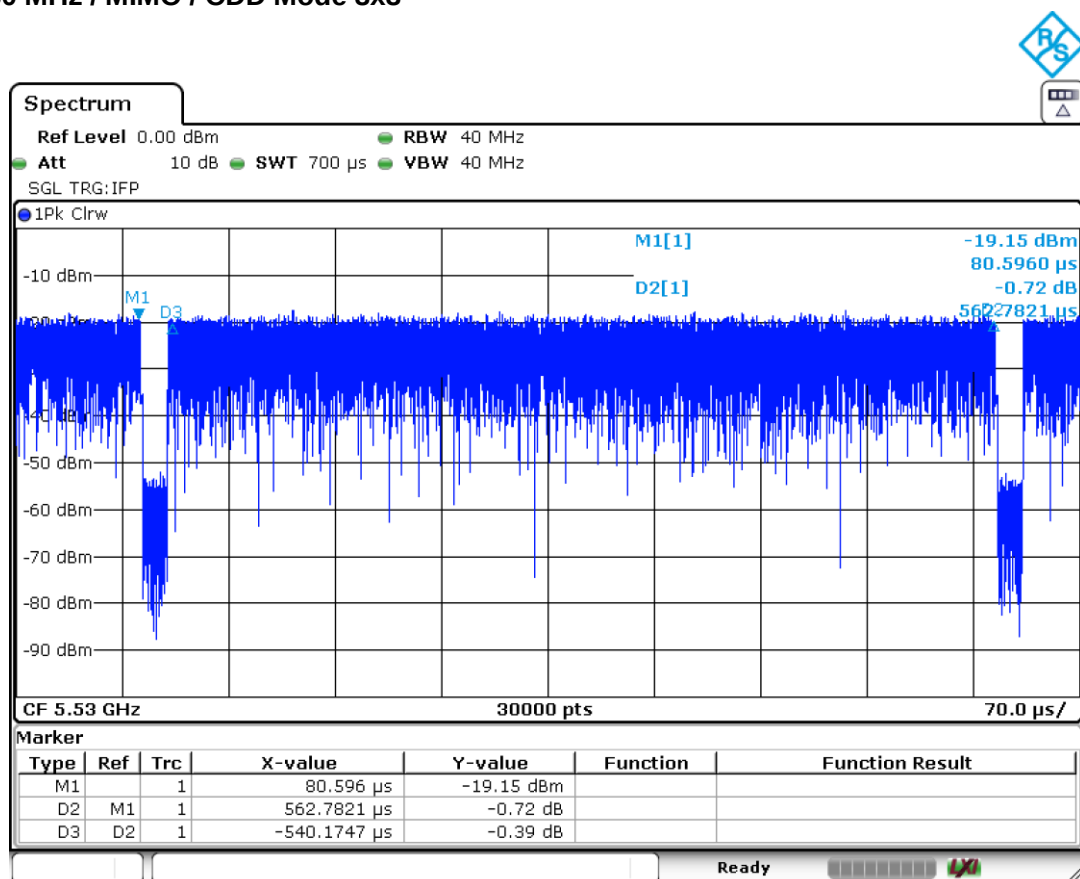
802.11 / 80 MHz / MIMO / SDM Mode 2x2



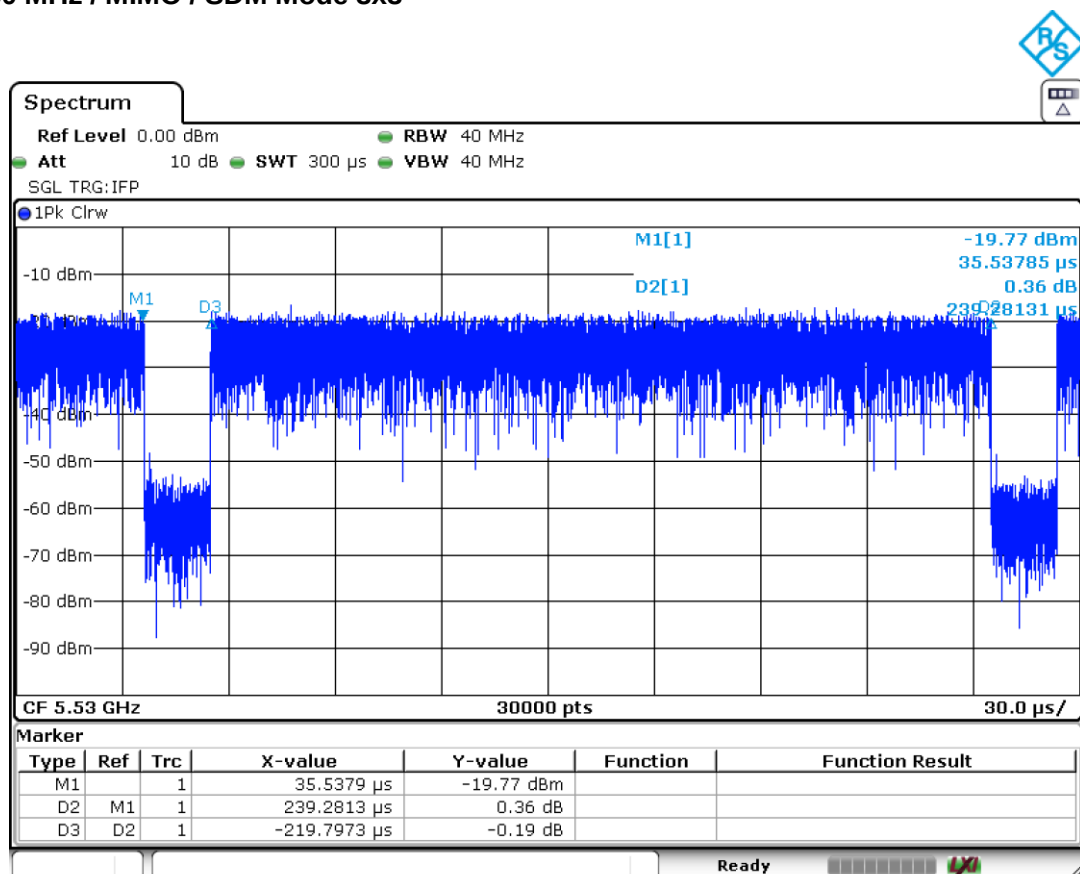
802.11 / 80 MHz / MIMO / TxBF Mode 2x2



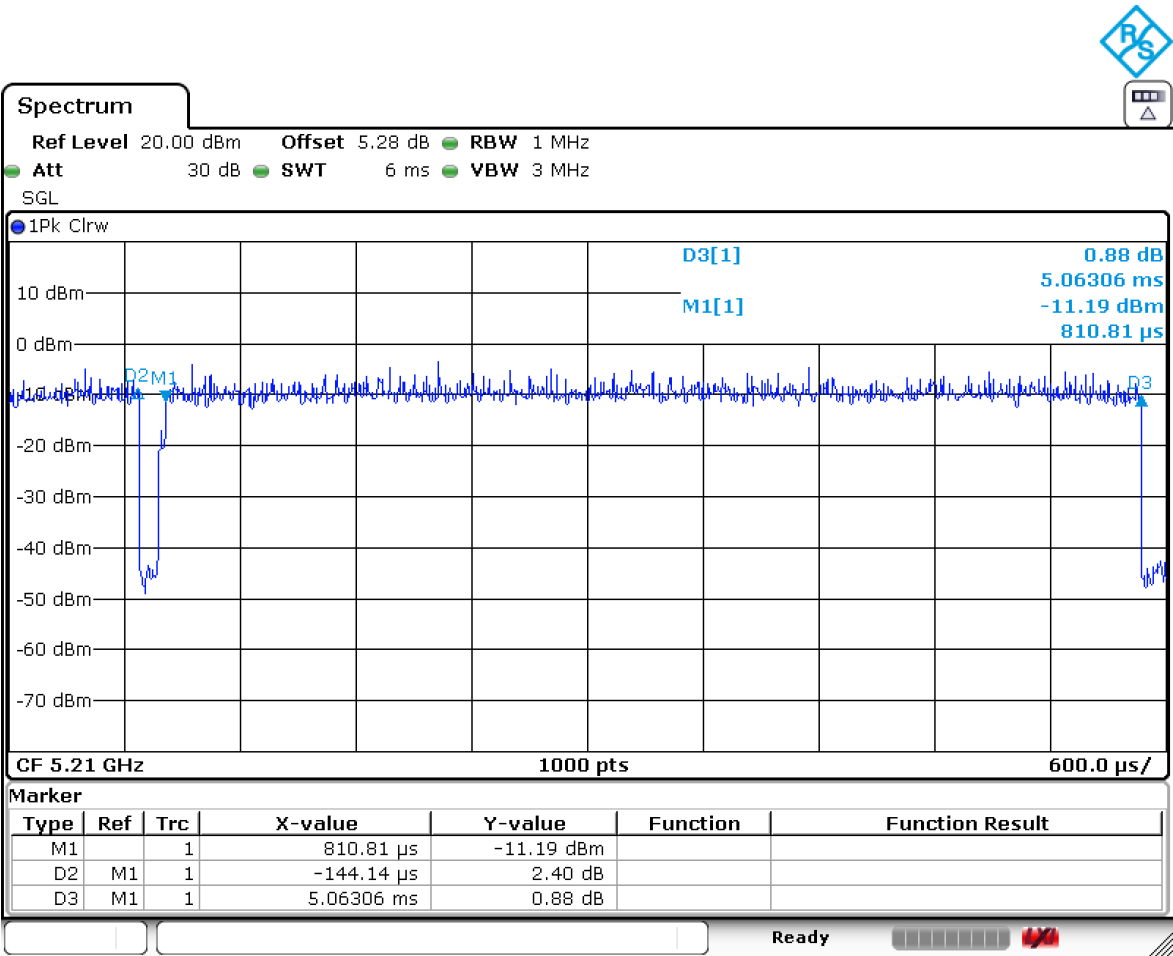
802.11 / 80 MHz / MIMO / CDD Mode 3x3



802.11 / 80 MHz / MIMO / SDM Mode 3x3



802.11 / 80 MHz / MIMO / TxBF Mode 3x3



RSS-Gen 6.6 / RSS-247 6.2. Transmitter 99% Occupied Bandwidth

The client supplied U.FL RF cables with the EUT in order to perform conducted measurements. The measured additional path loss was included in any path loss calculations.

Measurements were performed on the SISO modes for testing

- 802.11a: 6 Mbit/s / SISO on Core 2
- 802.11n HT20: MCS0 / SISO on Core 2
- 802.11n HT40: MCS0 / SISO on Core 2
- 802.11ac VHT80: MCS0x1 / SISO on Core 2

Mode : 802.11a - 20MHz – SISO – CORE 2

	Occ. BW (MHz)	Measurement uncertainty (KHz)
channel 36 (5180 MHz)	18	<±40.04
channel 40 (5200 MHz)	18.06	
channel 48 (5240 MHz)	18.06	
channel 52 (5260 MHz)	18.78	
channel 56 (5280 MHz)	18.84	
channel 64 (5320 MHz)	18.06	
channel 100 (5500 MHz)	18	
channel 116 (5580 MHz)	19.44	
channel 140 (5700 MHz)	18	
channel 144 (5720 MHz)	18.60	
channel 149 (5745 MHz)	19.68	
channel 157 (5785 MHz)	19.92	
channel 165 (5825 MHz)	20.16	

Mode : 802.11n HT20 - 20MHz – SISO – CORE 2

	Occ. BW (MHz)	Measurement uncertainty (KHz)
channel 36 (5180 MHz)	19.02	<±40.04
channel 40 (5200 MHz)	19.02	
channel 48 (5240 MHz)	19.02	
channel 52 (5260 MHz)	19.44	
channel 56 (5280 MHz)	19.68	
channel 64 (5320 MHz)	19.08	
channel 100 (5500 MHz)	18.96	
channel 116 (5580 MHz)	21.78	
channel 140 (5700 MHz)	18.96	
channel 144 (5720 MHz)	19.74	
channel 149 (5745 MHz)	22.38	
channel 157 (5785 MHz)	21.36	
channel 165 (5825 MHz)	21.12	

Mode : 802.11n HT40 - 40MHz – SISO – CORE 2

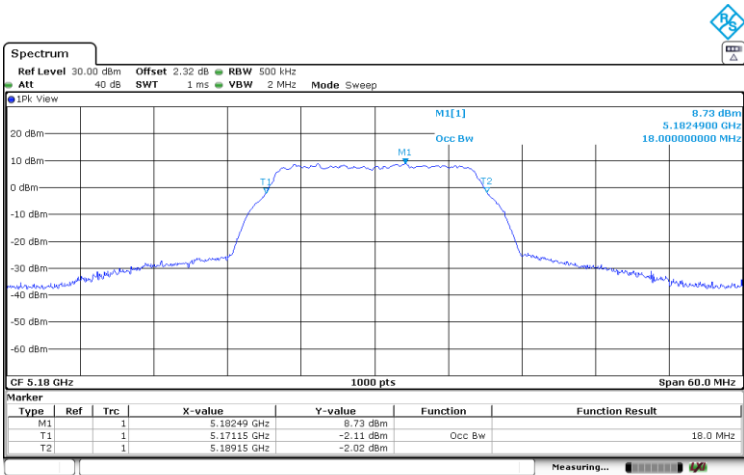
	Occ. BW (MHz)	Measurement uncertainty (KHz)
channel 38 (5190 MHz)	36.93	<±70.07
channel 46 (5230 MHz)	36.96	
channel 54 (5270 MHz)	37.20	
channel 62 (5310 MHz)	37.08	
channel 102 (5510 MHz)	36.96	
channel 110 (5550 MHz)	50.16	
channel 134 (5670 MHz)	37.08	
channel 142 (5710 MHz)	45.48	
channel 151 (5755 MHz)	40.56	
channel 159 (5795 MHz)	39.60	

Mode : 802.11ac VHT80 - 80MHz – SISO – CORE 2

	Occ. BW (MHz)	Measurement uncertainty (KHz)
channel 42 (5210 MHz)	76.60	<±110.11
channel 58 (5290 MHz)	76.60	
channel 106 (5530 MHz)	76.40	
channel 138 (5690 MHz)	77.80	
channel 155 (5775 MHz)	76.80	

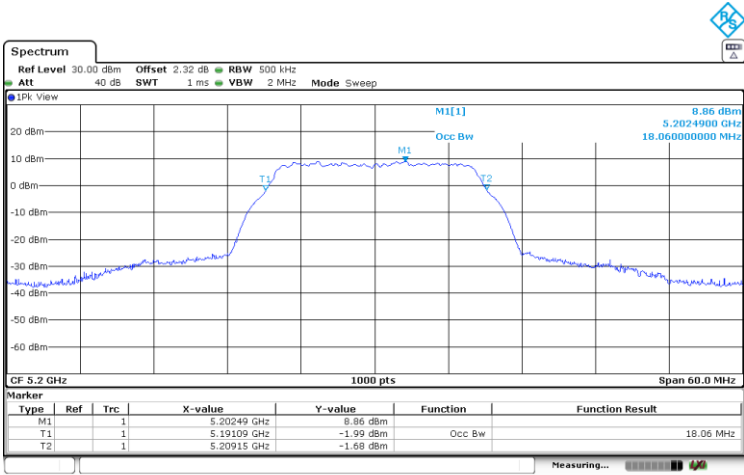
Mode : 802.11a - 20MHz – SISO – CORE 2

channel 36 (5180 MHz)



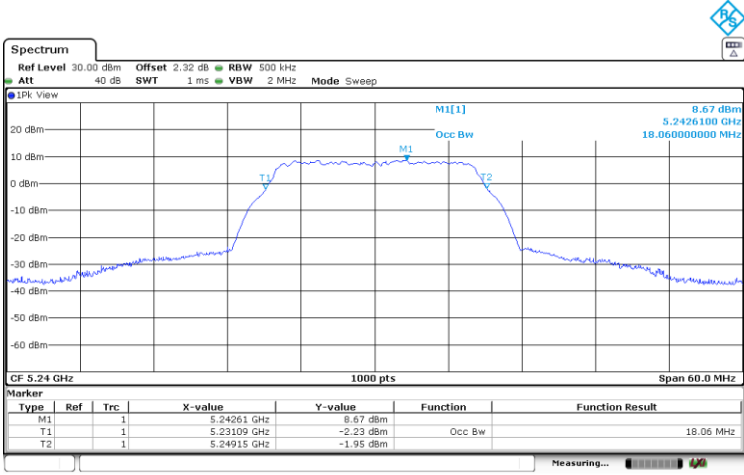
CORE 2

channel 40 (5200 MHz)



CORE 2

channel 48 (5240 MHz)



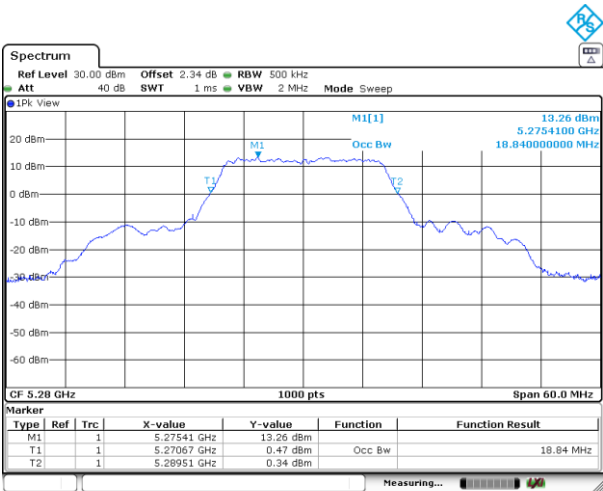
CORE 2

channel 52 (5260 MHz)



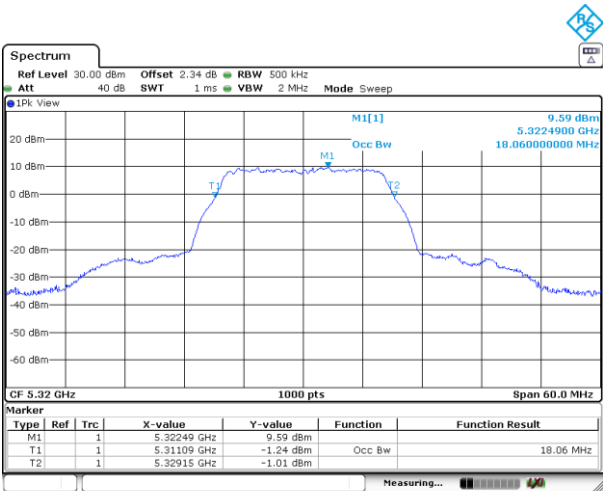
CORE 2

channel 56 (5280 MHz)



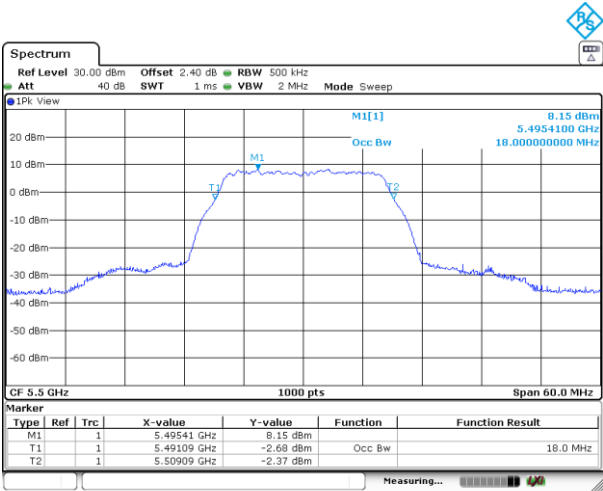
CORE 2

channel 64 (5320 MHz)



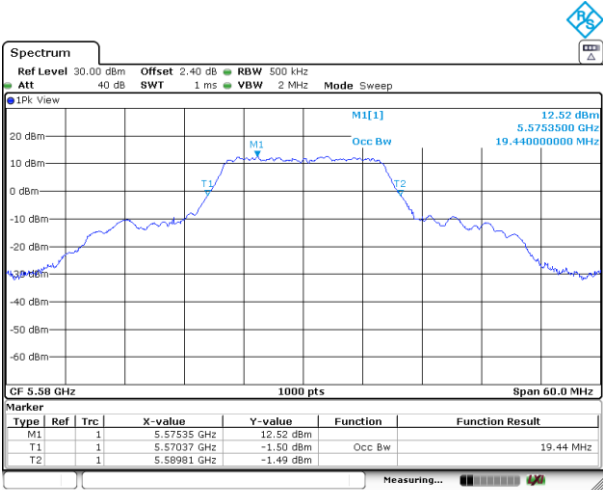
CORE 2

channel 100 (5500 MHz)



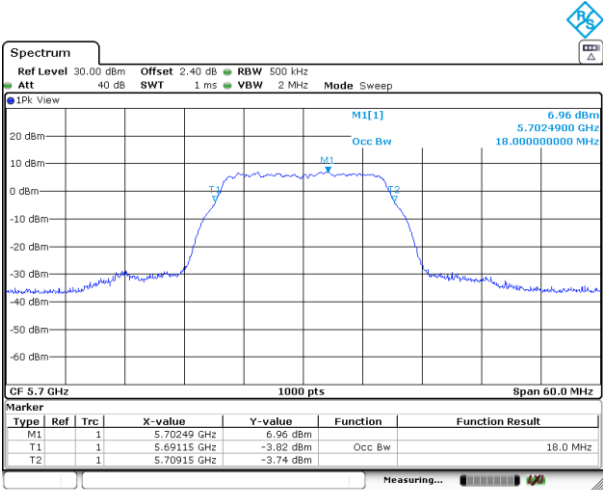
CORE 2

channel 116 (5580 MHz)



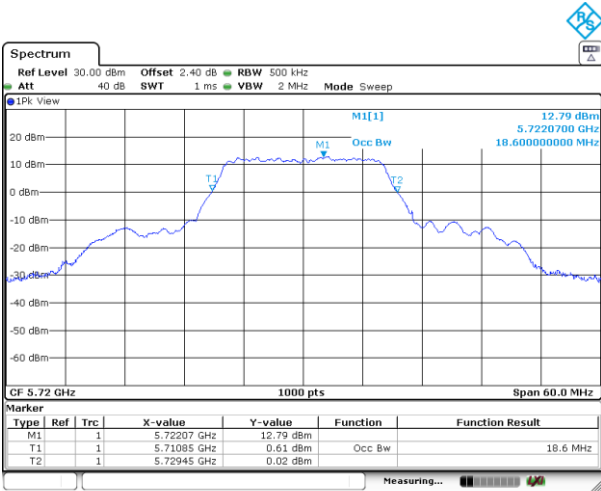
CORE 2

channel 140 (5700 MHz)



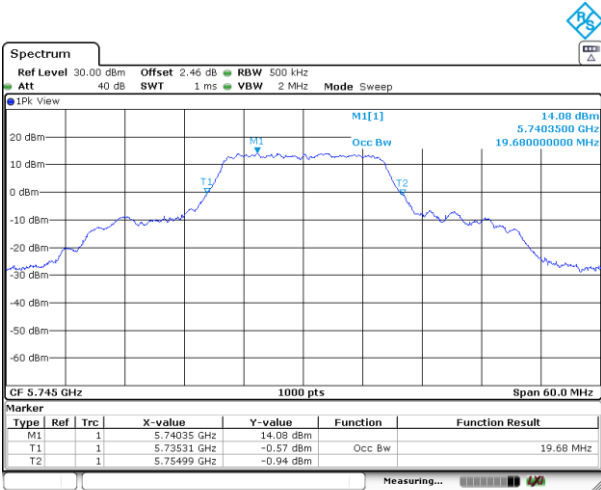
CORE 2

channel 144 (5720 MHz)



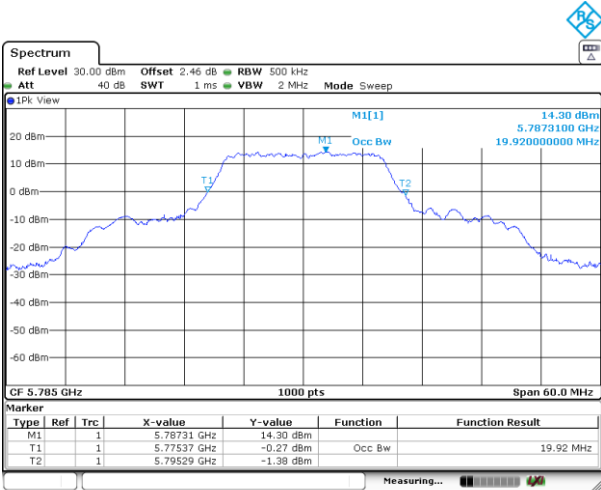
CORE 2

channel 149 (5745 MHz)



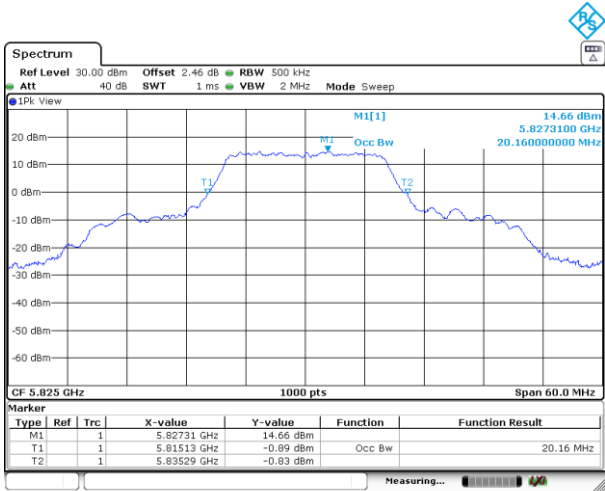
CORE 2

channel 157 (5785 MHz)



CORE 2

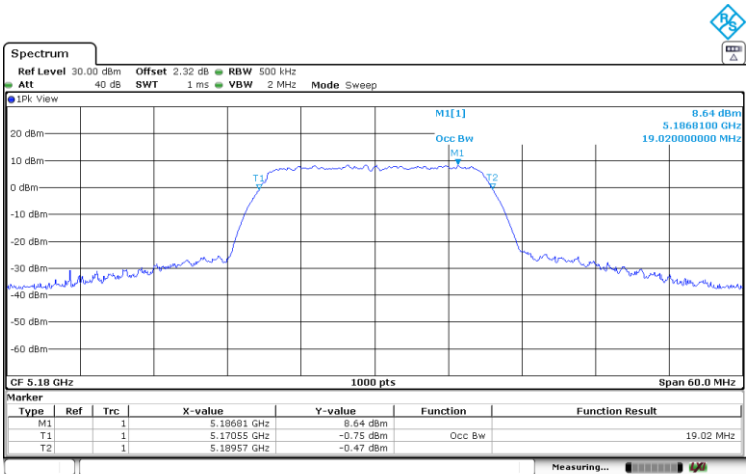
channel 165 (5825 MHz)



CORE 2

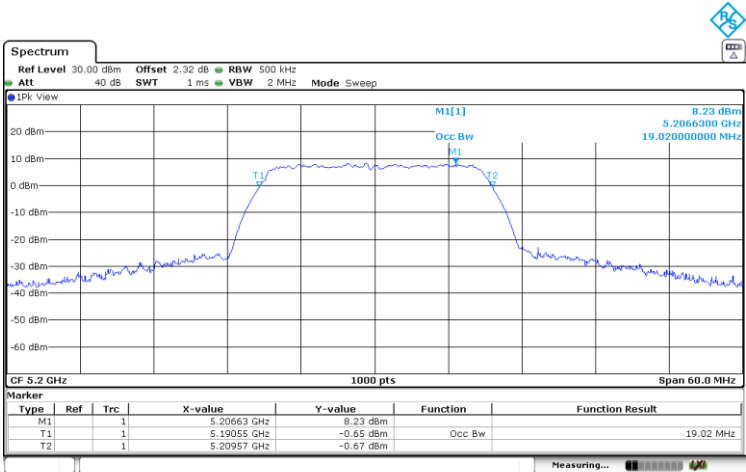
Mode : 802.11n HT20 - 20MHz – SISO – CORE 2

channel 36 (5180 MHz)



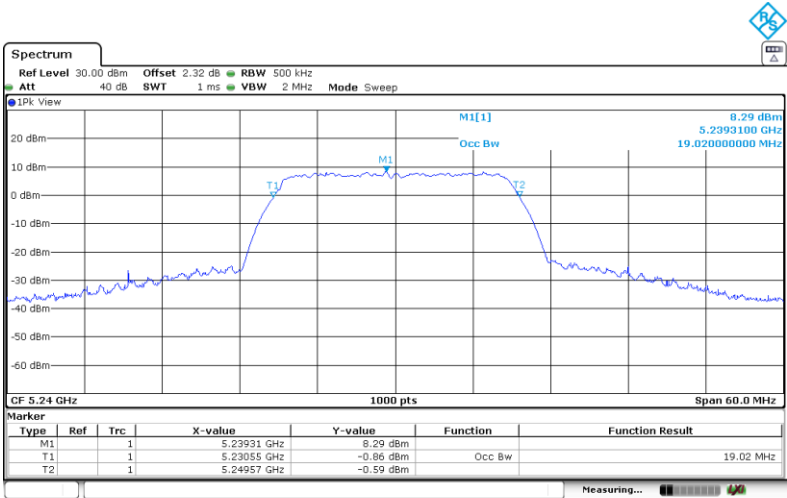
CORE 2

channel 40 (5200 MHz)



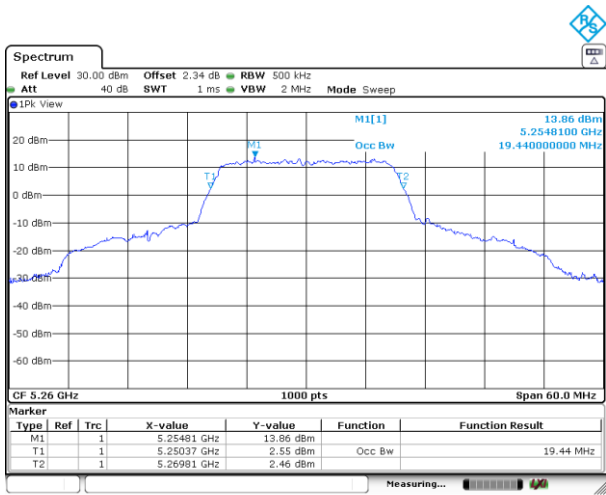
CORE 2

channel 48 (5240 MHz)



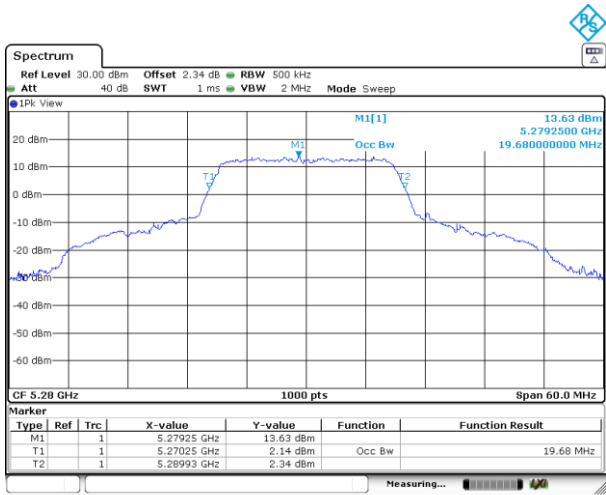
CORE 2

channel 52 (5260 MHz)



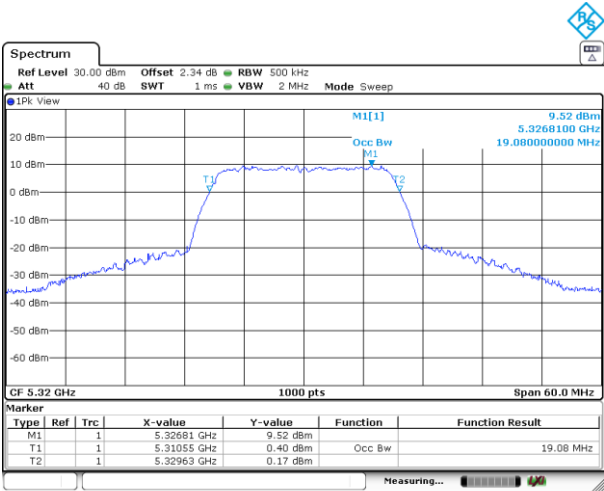
CORE 2

channel 56 (5280 MHz)



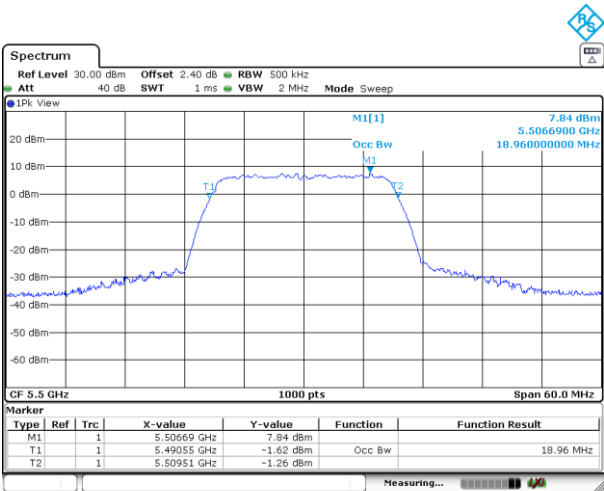
CORE 2

channel 64 (5320 MHz)



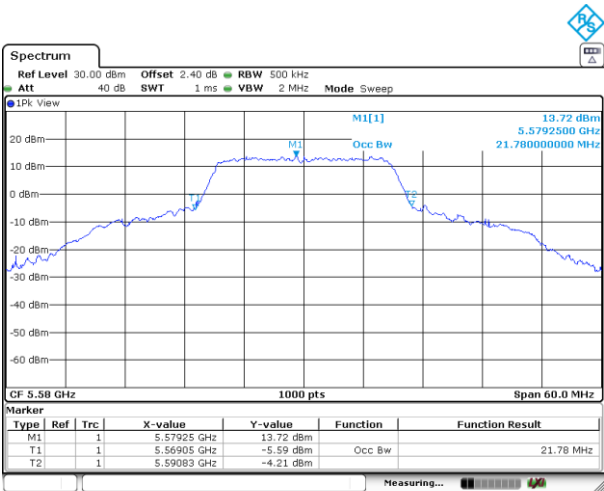
CORE 2

channel 100 (5500 MHz)



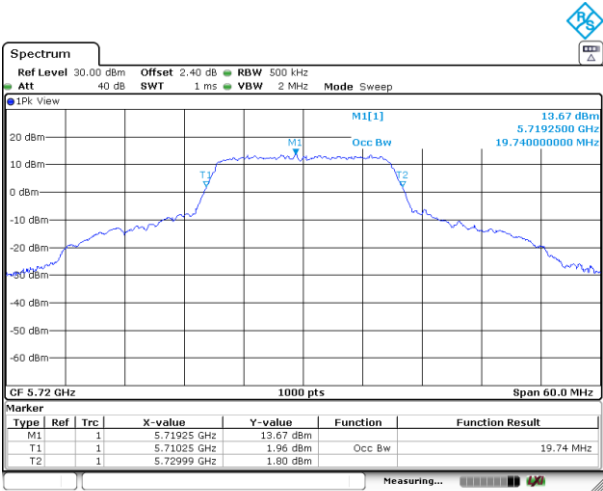
CORE 2

channel 116 (5580 MHz)



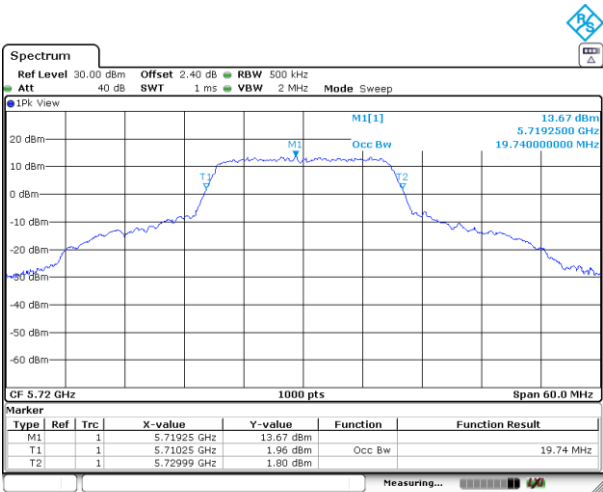
CORE 2

channel 140 (5700 MHz)



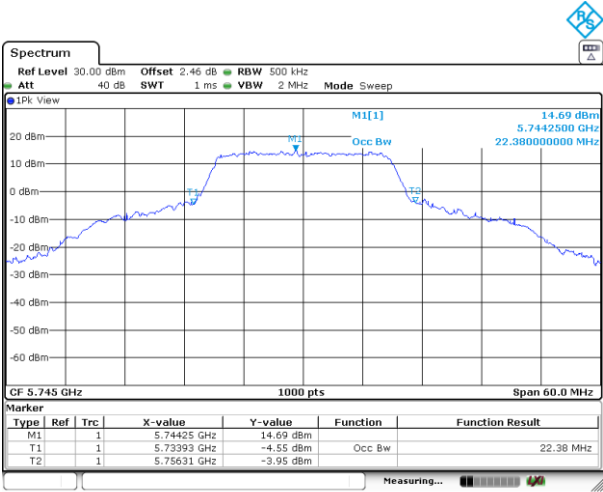
CORE 2

channel 144 (5720 MHz)



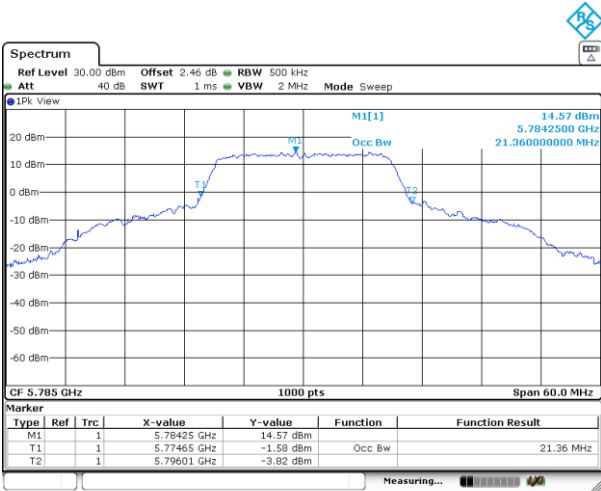
CORE 2

channel 149 (5745 MHz)



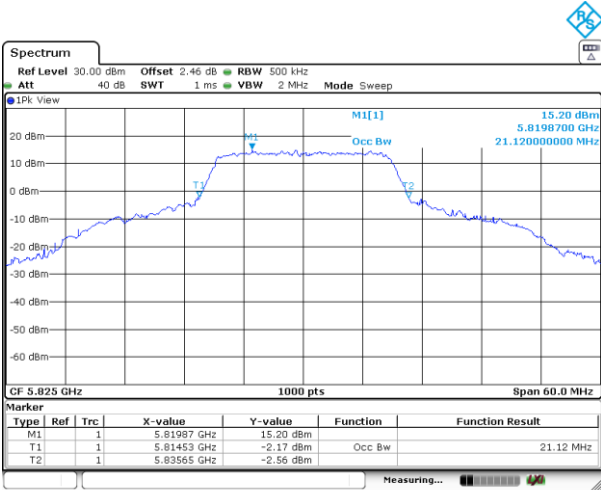
CORE 2

channel 157 (5785 MHz)



CORE 2

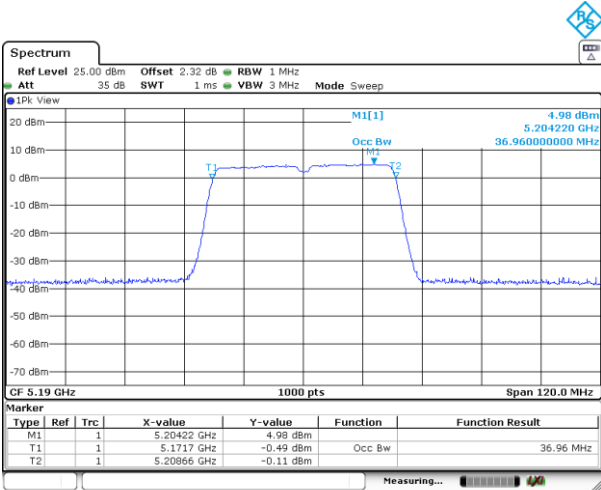
channel 165 (5825 MHz)



CORE 2

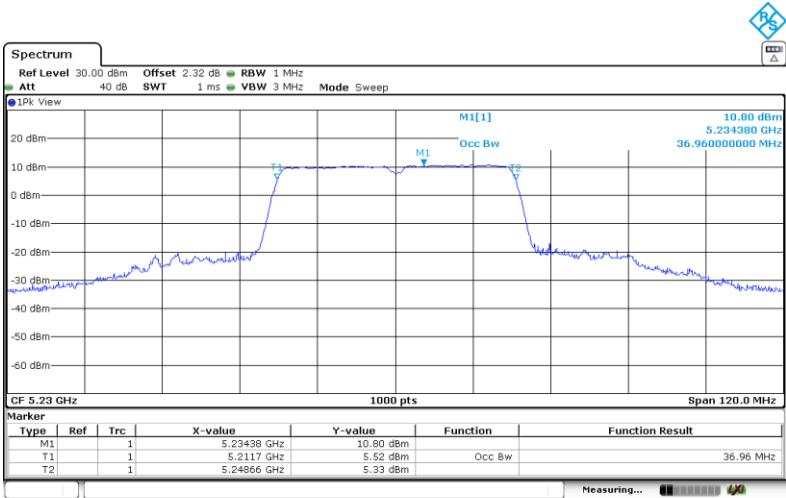
Mode : 802.11n HT40 - 40MHz – SISO – CORE 2

channel 38 (5190 MHz)



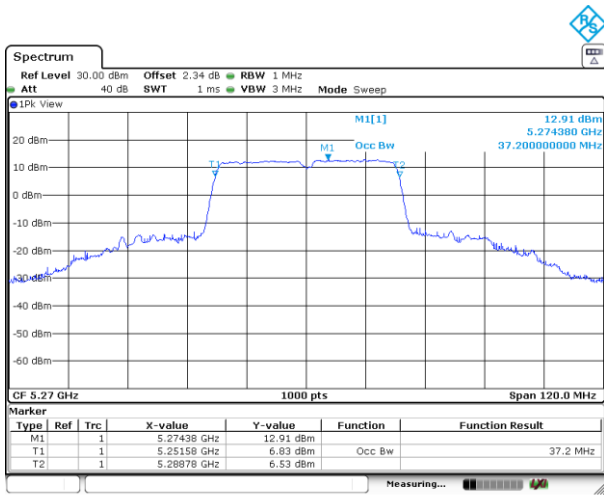
CORE 2

channel 46 (5230 MHz)



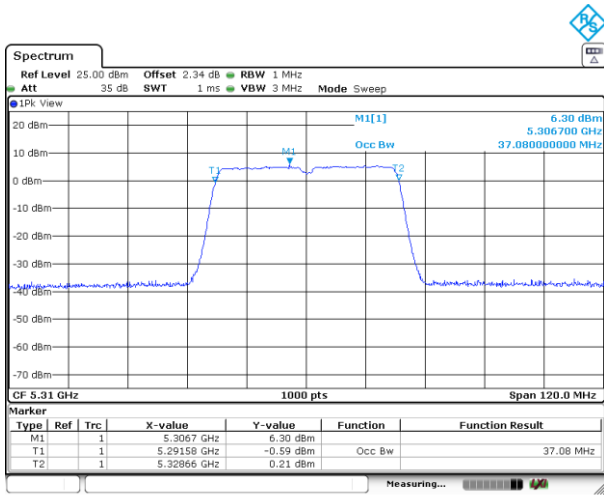
CORE 2

channel 54 (5270 MHz)



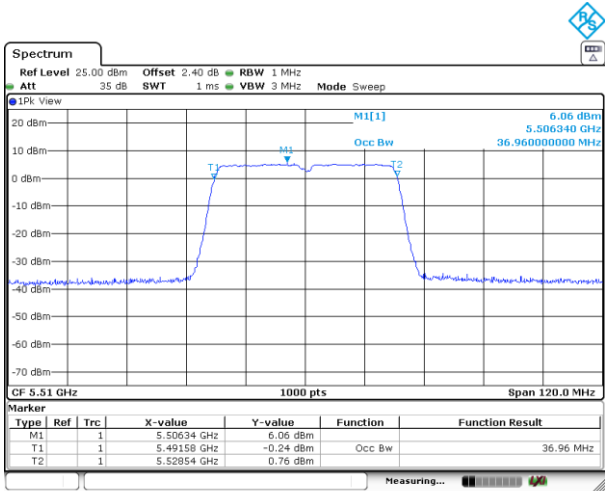
CORE 2

channel 62 (5310 MHz)



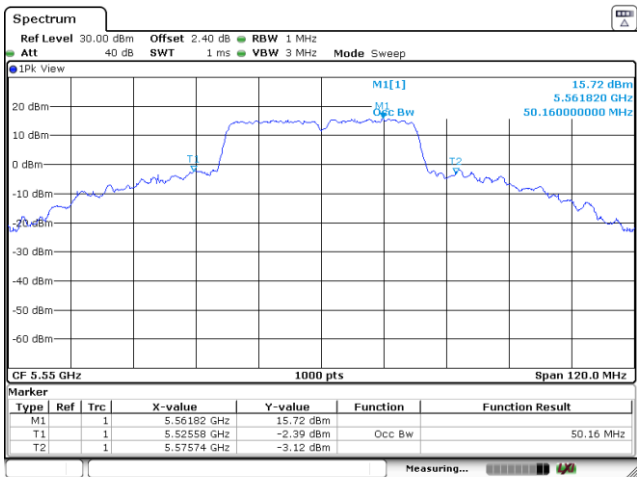
CORE 2

channel 102 (5510 MHz)



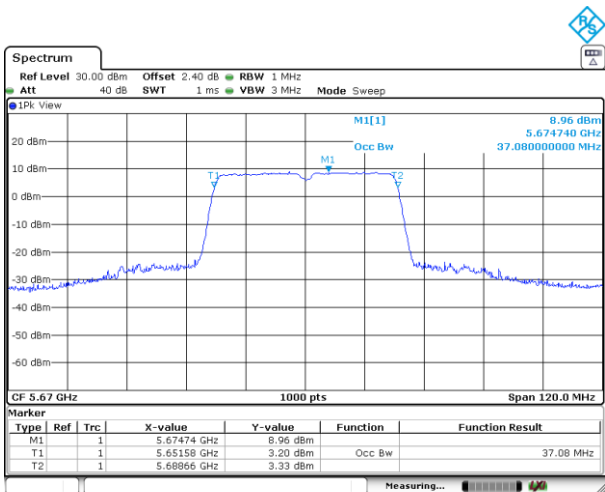
CORE 2

channel 110 (5550 MHz)



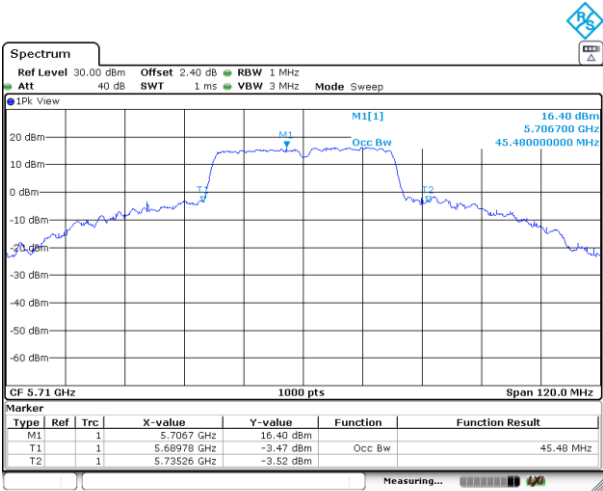
CORE 2

channel 134 (5670 MHz)



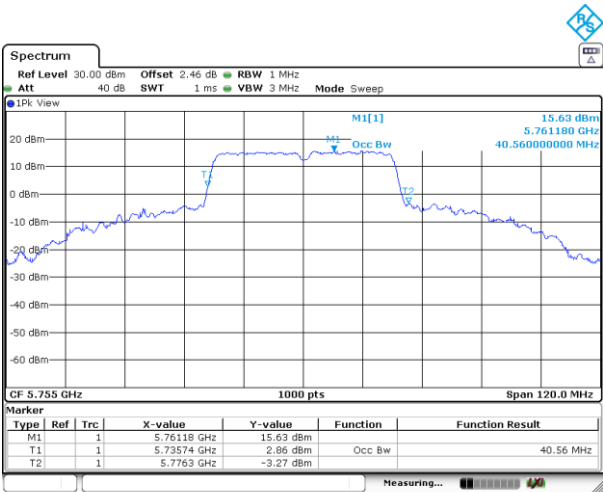
CORE 2

channel 142 (5710 MHz)



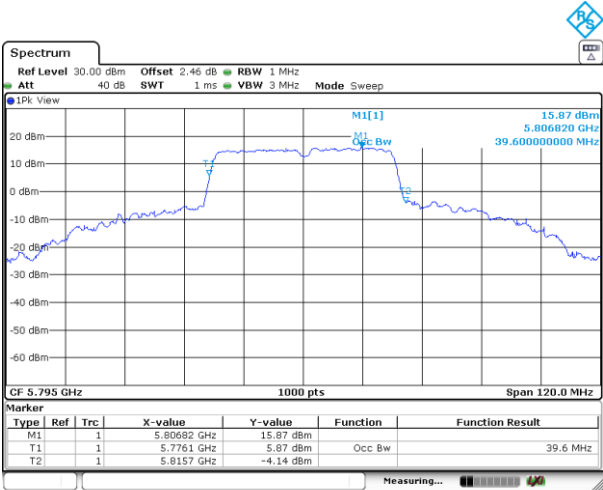
CORE 2

channel 151 (5755 MHz)



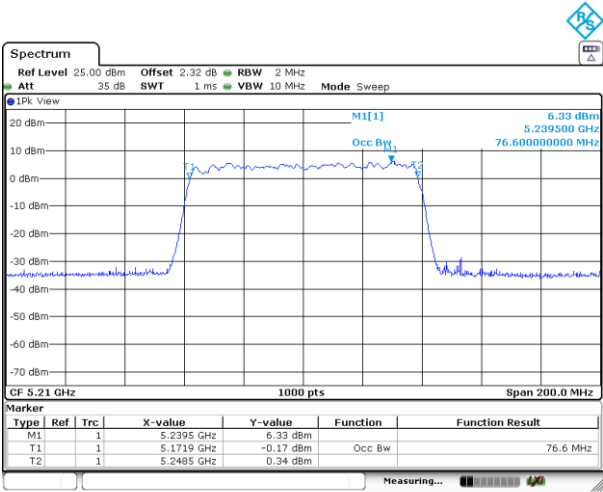
CORE 2

channel 159 (5795 MHz)



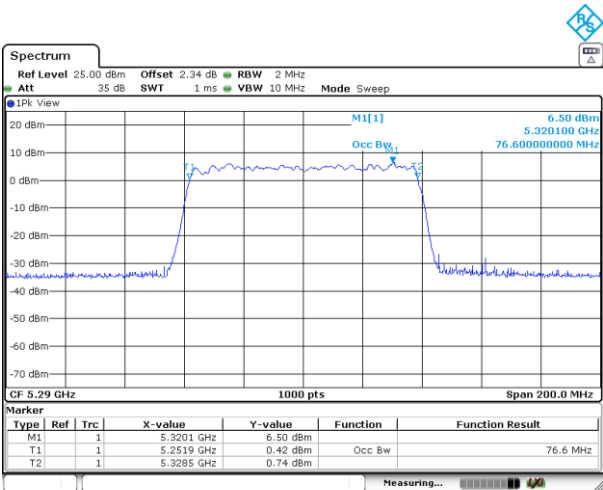
CORE 2

Mode : 802.11ac VHT80 - 80MHz – SISO – CORE 2
channel 42 (5210 MHz)



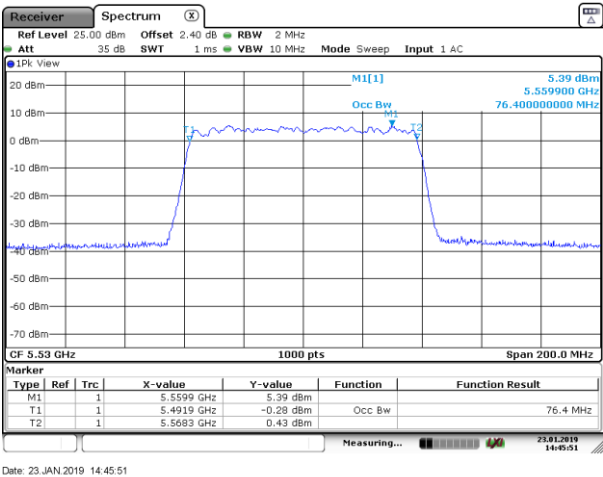
CORE 2

channel 58 (5290 MHz)



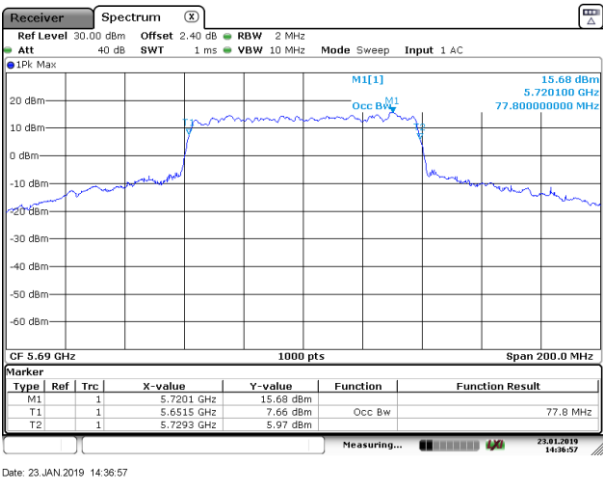
CORE 2

channel 106 (5530 MHz)



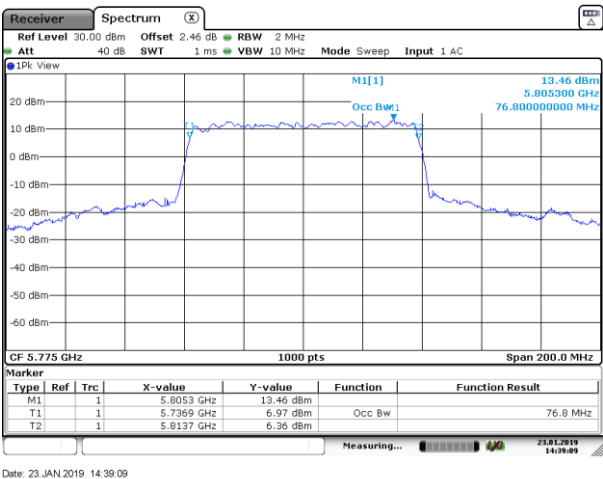
CORE 2

channel 138 (5690 MHz)



CORE 2

channel 155 (5775 MHz)



CORE 2

Section 15.407 Subclause 15.403(i) Transmitter 26 dB Emission Bandwidth (EBW)

RESULTS:

The 26 dB emission Bandwidth was measured using the method according to point C) 1) of 789033 D02 General UNII Test Procedures New Rules v02r01.

The client supplied U.FL RF cables with the EUT in order to perform conducted measurements. The measured additional path loss was included in any path loss calculations.

The following modes and data rates were selected based on preliminary testing that identified those corresponding to the worst cases:

- 802.11a: 6 Mbit/s / SISO on Core 2
- 802.11n HT20: MCS0 / SISO on Core 2
- 802.11n HT40: MCS0 / SISO on Core 2
- 802.11ac VHT80: MCS0x1 / SISO on Core 2
- 802.11n HT20: MCS0 / MIMO / 2Tx CDD on Core 1 & Core 2
- 802.11n HT40: MCS0 / MIMO / 2Tx CDD on Core 1 & Core 2
- 802.11ac VHT80: MCS0x1 / MIMO / 2Tx CDD on Core 1 & Core 2
- 802.11n HT20: MCS8 / MIMO / 2Tx SDM on Core 1 & Core 2
- 802.11n HT40: MCS8 / MIMO / 2Tx SDM on Core 1 & Core 2
- 802.11ac VHT80: MCS0x2 / MIMO / 2Tx SDM on Core 1 & Core 2
- 802.11ac VHT20: MCS0x1 / MIMO / 2Tx TxBF on Core 1 & Core 2
- 802.11ac VHT40: MCS0x1 / MIMO / 2Tx TxBF on Core 1 & Core 2
- 802.11ac VHT80: MCS0x1 / MIMO / 2Tx TxBF on Core 1 & Core 2

- 802.11n HT20: MCS0 / MIMO / 3Tx CDD on Core 0 & Core 1 & Core 2
- 802.11n HT40: MCS0 / MIMO / 3Tx CDD on Core 0 & Core 1 & Core 2
- 802.11ac VHT80: MCS0x1 / MIMO / 3Tx CDD on Core 0 & Core 1 & Core 2

- 802.11n HT20: MCS16 / MIMO / 3Tx SDM on Core 0 & Core 1 & Core 2
- 802.11n HT40: MCS16 / MIMO / 3Tx SDM on Core 0 & Core 1 & Core 2
- 802.11ac VHT80: MCS0x3 / MIMO / 3Tx SDM on Core 0 & Core 1 & Core 2
- 802.11ac VHT20: MCS0x1 / MIMO / 3Tx TxBF on Core 0 & Core 1 & Core 2
- 802.11ac VHT40: MCS0x1 / MIMO / 3Tx TxBF on Core 0 & Core 1 & Core 2
- 802.11ac VHT80: MCS0x1 / MIMO / 3Tx TxBF on Core 0 & Core 1 & Core 2

Mode : 802.11a - 20MHz – SISO – CORE 2

	26dB Emission Bandwidth (MHz)	Measurement uncertainty (KHz)
channel 36 (5180 MHz)	22.278	<±40.04
channel 40 (5200 MHz)	37.809	
channel 48 (5240 MHz)	38.048	
channel 52 (5260 MHz)	37.804	
channel 56 (5280 MHz)	37.854	
channel 64 (5320 MHz)	22.200	
channel 100 (5500 MHz)	22.140	
channel 116 (5580 MHz)	38.460	
channel 140 (5700 MHz)	22.260	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	36.690	
channel 144 (5720 MHz) U-NII-2C	22.850	
channel 149 (5745 MHz)	38.520	
channel 157 (5785 MHz)	39.140	
channel 165 (5825 MHz)	39.520	

Mode : 802.11n HT20 - 20MHz – SISO – CORE 2

	26dB Emission Bandwidth (MHz)	Measurement uncertainty (KHz)
channel 36 (5180 MHz)	22.560	<±40.04
channel 40 (5200 MHz)	29.280	
channel 48 (5240 MHz)	30.320	
channel 52 (5260 MHz)	29.280	
channel 56 (5280 MHz)	31.420	
channel 64 (5320 MHz)	22.560	
channel 100 (5500 MHz)	22.560	
channel 116 (5580 MHz)	36.840	
channel 140 (5700 MHz)	22.500	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	29.510	
channel 144 (5720 MHz) U-NII-2C Band	19.370	
channel 149 (5745 MHz)	34.08	
channel 157 (5785 MHz)	37.82	
channel 165 (5825 MHz)	39.94	

Mode : 802.11n HT40 - 40MHz – SISO – CORE 2

	26dB Emission Bandwidth (MHz)	Measurement uncertainty (KHz)
channel 38 (5190 MHz)	41.310	<±70.07
channel 46 (5230 MHz)	50.020	
channel 54 (5270 MHz)	49.960	
channel 62 (5310 MHz)	41.050	
channel 102 (5510 MHz)	41.110	
channel 110 (5500 MHz)	90.359	
channel 118 (5590 MHz)	88.970	
channel 134 (5670 MHz)	41.400	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	86.360	
channel 142 (5710 MHz) U-NII-2C Band	56.310	
channel 151 (5755 MHz)	87.240	
channel 159 (5795 MHz)	87.150	

Mode : 802.11ac VHT80 - 80MHz – SISO – CORE 2

	26dB Emission Bandwidth (MHz)	Measurement uncertainty (KHz)
channel 42 (5210 MHz)	83.700	<±110.11
channel 58 (5290 MHz)	84.300	
channel 106 (5530 MHz)	84	
channel 122 (5610 MHz)	84.400	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	148.200	
channel 138 (5690 MHz) U-NII-2C Band	107	
channel 155 (5775 MHz)	84	

Mode : 802.11n HT20 – CDD – 20MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 36 (5180 MHz)	22.593	22.108	<±40.04
channel 40 (5200 MHz)	23.620	22.375	
channel 48 (5240 MHz)	22.744	22.403	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 52 (5260 MHz)	23.089	22.393	<±40.04
channel 56 (5280 MHz)	22.904	22.198	
channel 64 (5320 MHz)	22.859	22.347	
channel 100 (5500 MHz)	22.528	22.213	
channel 116 (5580 MHz)	22.593	22.404	
channel 140 (5700 MHz)	22.494	22.142	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	23.034	22.215	
channel 144 (5720 MHz) U-NII-2C Band	16.198	15.899	
channel 149 (5745 MHz)	41.345	31.333	
channel 157 (5785 MHz)	41.420	36.154	
channel 165 (5825 MHz)	41.070	35.602	

Mode : 802.11n HT40 – CDD – 40MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 38 (5190 MHz)	40.960	41.010	<±70.07
channel 46 (5230 MHz)	41.310	41.030	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 54 (5270 MHz)	41.350	41.040	<±70.07
channel 62 (5310 MHz)	41.250	41	
channel 102 (5510 MHz)	41.300	40.990	
channel 110 (5500 MHz)	47.226	74.303	
channel 118 (5590 MHz)	48.867	70.504	
channel 134 (5670 MHz)	41.430	41.220	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	74.560	56.448	
channel 142 (5710 MHz) U-NII-2C Band	52.470	40.060	
channel 151 (5755 MHz)	74.971	70.59	
channel 159 (5795 MHz)	74.330	70.38	

Mode : 802.11ac VHT80 – CDD – 80MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 42 (5210 MHz)	84.190	84.040	<±110.11

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 58 (5290 MHz)	84.370	83.970	<±110.11
channel 106 (5530 MHz)	84.260	83.550	
channel 122 (5610 MHz)	84.060	83.900	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	145.950	121.135	
channel 138 (5690 MHz) U-NII-2C Band	105.290	92.120	
channel 155 (5775 MHz)	84.410	83.900	

Mode : 802.11n HT20 – SDM – 20MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 36 (5180 MHz)	22.353	22.244	<±40.04
channel 40 (5200 MHz)	22.929	22.139	
channel 48 (5240 MHz)	22.523	22.148	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 52 (5260 MHz)	22.523	22.148	<±40.04
channel 56 (5280 MHz)	22.614	22.213	
channel 64 (5320 MHz)	22.408	21.862	
channel 100 (5500 MHz)	22.348	22.123	
channel 116 (5580 MHz)	22.468	24.707	
channel 140 (5700 MHz)	22.318	22.068	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	22.704	22.193	
channel 144 (5720 MHz) U-NII-2C Band	16.237	15.966	
channel 149 (5745 MHz)	38.327	35.110	
channel 157 (5785 MHz)	38.486	35.450	
channel 165 (5825 MHz)	35.763	37.021	

Mode : 802.11n HT40 – SDM – 40MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 38 (5190 MHz)	41.590	41.09	<±70.07
channel 46 (5230 MHz)	46.522	56.680	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 54 (5270 MHz)	41.400	56.520	<±70.07
channel 62 (5310 MHz)	41.470	41.040	
channel 102 (5510 MHz)	41.400	40.910	
channel 110 (5500 MHz)	49.319	90.391	
channel 118 (5590 MHz)	53.600	86.870	
channel 134 (5670 MHz)	41.490	40.910	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	76.990	86.038	
channel 142 (5710 MHz) U-NII-2C Band	53.100	56.850	
channel 151 (5755 MHz)	76.420	86.490	
channel 159 (5795 MHz)	61.120	87.700	

Mode : 802.11ac VHT80 – SDM – 80MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 42 (5210 MHz)	83.620	83.700	<±110.11

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 58 (5290 MHz)	84.320	84.130	<±110.11
channel 106 (5530 MHz)	83.420	83.790	
channel 122 (5610 MHz)	83.070	98.435	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	116.010	142.692	
channel 138 (5690 MHz) U-NII-2C Band	92.040	92.035	
channel 155 (5775 MHz)	97.748	83.880	

Mode : 802.11n HT20 – TxBF – 20MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 36 (5180 MHz)	21.804	21.060	<±40.04
channel 40 (5200 MHz)	22.812	21.100	
channel 48 (5240 MHz)	21.660	21.108	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 52 (5260 MHz)	21.558	21.228	<±40.04
channel 56 (5280 MHz)	21.540	21.168	
channel 64 (5320 MHz)	21.504	21.144	
channel 100 (5500 MHz)	21.612	21.156	
channel 116 (5580 MHz)	21.612	21.864	
channel 140 (5700 MHz)	21.612	21.144	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	21.912	21.240	
channel 144 (5720 MHz) U-NII-2C Band	15.936	15.552	
channel 149 (5745 MHz)	41.168	37.028	
channel 157 (5785 MHz)	38.716	36.712	
channel 165 (5825 MHz)	39.096	36.792	

Mode : 802.11n HT40 – TxBF – 40MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 38 (5190 MHz)	40.992	40.728	<±70.07
channel 46 (5230 MHz)	71.232	50.808	

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 54 (5270 MHz)	56.400	54.744	<±70.07
channel 62 (5310 MHz)	41.040	40.656	
channel 102 (5510 MHz)	40.992	40.656	
channel 110 (5500 MHz)	60.408	60.024	
channel 118 (5590 MHz)	61.080	71.880	
channel 134 (5670 MHz)	41.088	40.584	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	86.640	78.648	
channel 142 (5710 MHz) U-NII-2C Band	58.164	51.564	
channel 151 (5755 MHz)	96.120	79.632	
channel 159 (5795 MHz)	91.512	80.976	

Mode : 802.11ac VHT80 – TxBF – 80MHz – MIMO 2x2

5.15GHz – 5.25GHz CORE 1 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 1	CORE 2	
channel 42 (5210 MHz)	83.840	83.760	<±110.11

5.25GHz – 5.85GHz CORE 0 & CORE 2

	26dB Emission Bandwidth (MHz)		Measurement uncertainty (KHz)
	CORE 0	CORE 2	
channel 58 (5290 MHz)	83.920	83.800	<±110.11
channel 106 (5530 MHz)	83.880	83.560	
channel 122 (5610 MHz)	83.360	83.360	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	113.480	147.982	
channel 138 (5690 MHz) U-NII-2C Band	86.940	94.220	
channel 155 (5775 MHz)	83.760	84.040	

Mode : 802.11n HT20 – CDD – 20MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 36 (5180 MHz)	22.507	22.038	22.028	<±40.04
channel 40 (5200 MHz)	22.484	22.183	22.052	
channel 48 (5240 MHz)	22.643	22.124	22.064	
channel 52 (5260 MHz)	22.499	22.158	22.052	
channel 56 (5280 MHz)	22.649	22.058	22.078	
channel 64 (5320 MHz)	22.513	22.062	22.108	
channel 100 (5500 MHz)	22.523	22.102	22.239	
channel 116 (5580 MHz)	22.599	22.195	22.118	
channel 140 (5700 MHz)	22.496	21.967	21.987	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	22.485	22.117	21.990	
channel 144 (5720 MHz) U-NII-2C Band	16.155	15.895	15.999	
channel 149 (5745 MHz)	41.558	36.305	33.220	
channel 157 (5785 MHz)	41.406	36.179	38	
channel 165 (5825 MHz)	39.781	32.013	38.200	

Mode : 802.11n HT40 – CDD – 40MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 38 (5190 MHz)	41.340	41.090	40.790	<±40.04
channel 46 (5230 MHz)	41.190	41.070	40.820	
channel 54 (5270 MHz)	41.330	41.240	40.810	
channel 62 (5310 MHz)	41.230	41.210	40.740	
channel 102 (5510 MHz)	41.410	41.040	40.900	
channel 110 (5500 MHz)	41.536	41.400	41.160	
channel 118 (5590 MHz)	41.350	41.170	40.740	
channel 134 (5670 MHz)	41.400	41.140	40.910	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	41.210	43.600	40.860	
channel 142 (5710 MHz) U-NII-2C Band	35.530	35.651	35.291	
channel 151 (5755 MHz)	74.790	74.650	69.990	
channel 159 (5795 MHz)	74.100	73.400	70.270	

Mode : 802.11ac VHT80 – CDD – 80MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 42 (5210 MHz)	84.390	84.090	83.530	<±110.11
channel 58 (5290 MHz)	84.360	84.190	83.630	
channel 106 (5530 MHz)	84.700	84.350	83.340	
channel 122 (5610 MHz)	84.170	83.790	83.290	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	109.040	108.34	93.450	
channel 138 (5690 MHz) U-NII-2C Band	89.380	90.380	76.410	
channel 155 (5775 MHz)	84.420	84.220	83.550	

Mode : 802.11n HT20 – SDM – 20MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 36 (5180 MHz)	22.389	21.863	22.068	<±40.04
channel 40 (5200 MHz)	22.337	21.973	22.222	
channel 48 (5240 MHz)	22.254	22.003	22.128	
channel 52 (5260 MHz)	22.303	21.972	22.163	
channel 56 (5280 MHz)	22.328	21.992	22.263	
channel 64 (5320 MHz)	22.308	22.068	22.098	
channel 100 (5500 MHz)	22.283	21.987	22.232	
channel 116 (5580 MHz)	22.269	21.928	22.179	
channel 140 (5700 MHz)	22.268	21.853	21.908	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	22.358	21.913	22.213	
channel 144 (5720 MHz) U-NII-2C Band	16.187	15.855	15.981	
channel 149 (5745 MHz)	40.787	35.987	44.070	
channel 157 (5785 MHz)	40.803	35.874	37.432	
channel 165 (5825 MHz)	40.557	34.269	37.649	

Mode : 802.11n HT40 – SDM – 40MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 38 (5190 MHz)	41.330	40.700	40.690	<±70.07
channel 46 (5230 MHz)	41.290	40.790	40.560	
channel 54 (5270 MHz)	41.500	40.670	40.570	
channel 62 (5310 MHz)	41.060	40.670	41.410	
channel 102 (5510 MHz)	41.320	40.610	40.820	
channel 110 (5500 MHz)	41.651	41.250	61.517	
channel 118 (5590 MHz)	41.670	41.140	50.220	
channel 134 (5670 MHz)	41.350	40.590	40.710	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	62.830	47.170	41.590	
channel 142 (5710 MHz) U-NII-2C Band	43.700	36.860	35.510	
channel 151 (5755 MHz)	82.760	72.590	77.410	
channel 159 (5795 MHz)	77.380	70.690	77.430	

Mode : 802.11ac VHT80 – SDM – 80MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 42 (5210 MHz)	83.581	83.154	83.564	<±110.11
channel 58 (5290 MHz)	83.420	83.360	82.990	
channel 106 (5530 MHz)	83.929	83.420	83.760	
channel 122 (5610 MHz)	83.433	83.040	83.430	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	116.240	108.306	89.974	
channel 138 (5690 MHz) U-NII-2C Band	89.096	89.150	76.999	
channel 155 (5775 MHz)	83.580	83.440	83.130	

Mode : 802.11n HT20 – TxBF – 20MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 36 (5180 MHz)	21.564	21.516	21.480	<±40.04
channel 40 (5200 MHz)	21.544	21.484	21.532	
channel 48 (5240 MHz)	21.624	21.636	21.588	
channel 52 (5260 MHz)	21.592	21.532	21.628	
channel 56 (5280 MHz)	21.560	21.428	21.548	
channel 64 (5320 MHz)	21.408	21.492	21.480	
channel 100 (5500 MHz)	21.564	21.360	21.480	
channel 116 (5580 MHz)	21.288	21.456	21.396	
channel 140 (5700 MHz)	21.504	21.336	21.420	
channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands	21.468	21.432	21.504	
channel 144 (5720 MHz) U-NII-2C Band	15.710	15.686	15.566	
channel 149 (5745 MHz)	42.420	36.3360	35.184	
channel 157 (5785 MHz)	41.144	38.336	38.868	
channel 165 (5825 MHz)	41.412	38.256	40.524	

Mode : 802.11n HT40 – TxBF – 40MHz – MIMO 3x3

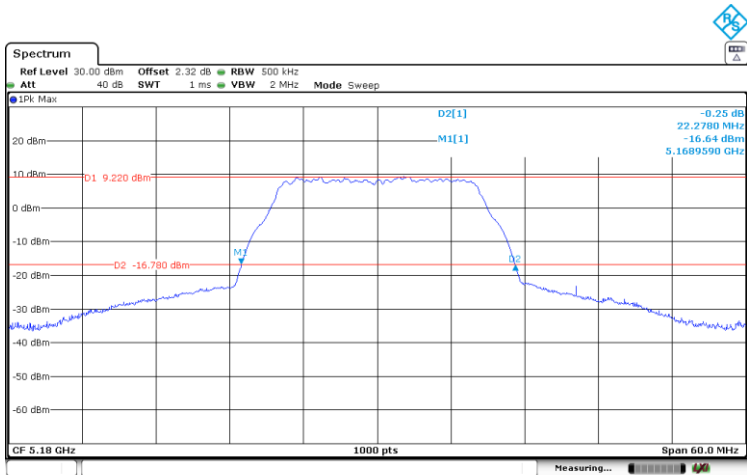
	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 38 (5190 MHz)	41.136	40.704	40.968	<±70.07
channel 46 (5230 MHz)	40.968	50.424	40.776	
channel 54 (5270 MHz)	41.040	40.944	40.896	
channel 62 (5310 MHz)	41.160	40.896	41.016	
channel 102 (5510 MHz)	40.872	40.944	40.848	
channel 110 (5500 MHz)	41.208	41.112	52.728	
channel 118 (5590 MHz)	41.016	40.968	51.552	
channel 134 (5670 MHz)	41.112	40.968	40.896	
channel 142 (5710 MHz) U-NII-2C and U-NII-3 Bands	62.928	56.604	48.312	
channel 142 (5710 MHz) U-NII-2C Band	43.944	41.892	37.572	
channel 151 (5755 MHz)	94.896	94.560	79.296	
channel 159 (5795 MHz)	97.344	83.088	90.384	

Mode : 802.11ac VHT80 – TxBF – 80MHz – MIMO 3x3

	26dB Emission Bandwidth (MHz)			Measurement uncertainty (KHz)
	CORE 0	CORE 1	CORE 2	
channel 42 (5210 MHz)	83.520	83.240	83.640	<±110.11
channel 58 (5290 MHz)	83.800	83.640	84.480	
channel 106 (5530 MHz)	84.040	83.400	83.720	
channel 122 (5610 MHz)	83.960	83	84.560	
channel 138 (5690 MHz) U-NII-2C and U-NII-3 Bands	87.960	85.600	93.680	
channel 138 (5690 MHz) U-NII-2C Band	77.180	76.580	76.900	
channel 155 (5775 MHz)	86.720	82.920	83.600	

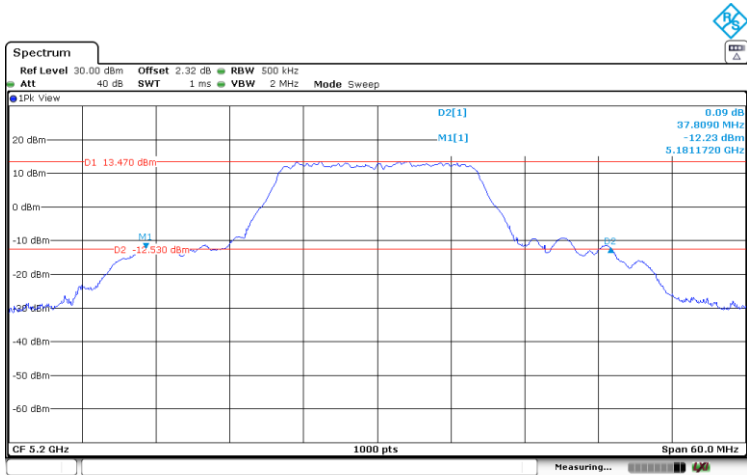
Mode : 802.11a - 20MHz – SISO – CORE 2

channel 36 (5180 MHz)



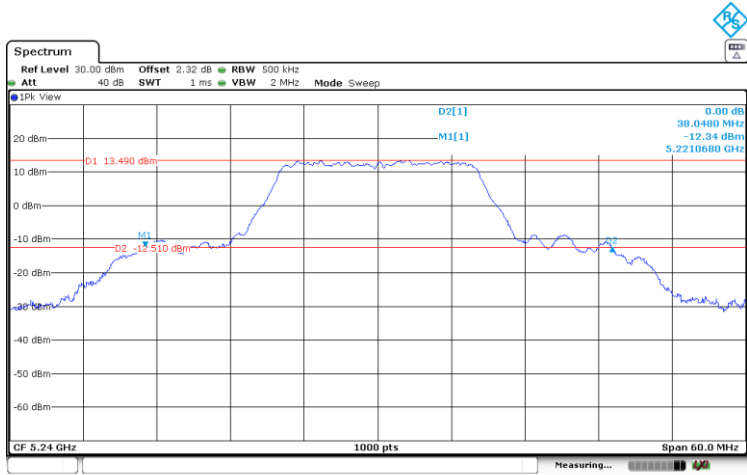
CORE 2

channel 40 (5200 MHz)



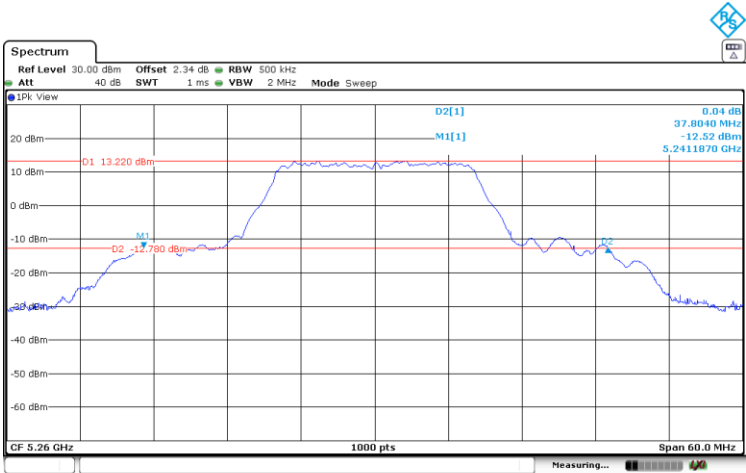
CORE 2

channel 48 (5240 MHz)



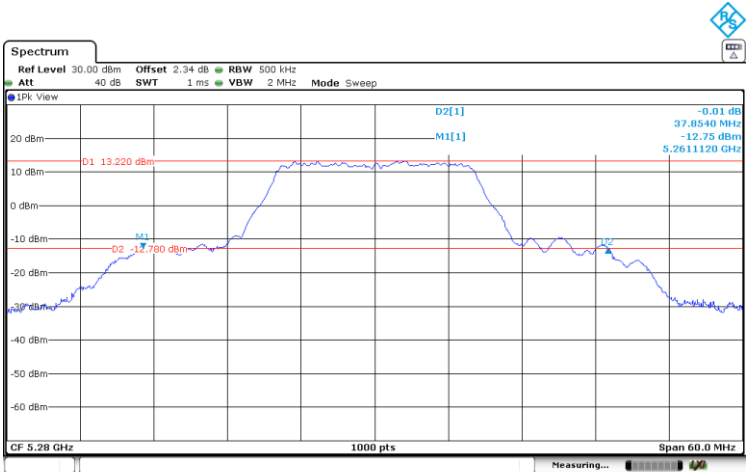
CORE 2

channel 52 (5260 MHz)



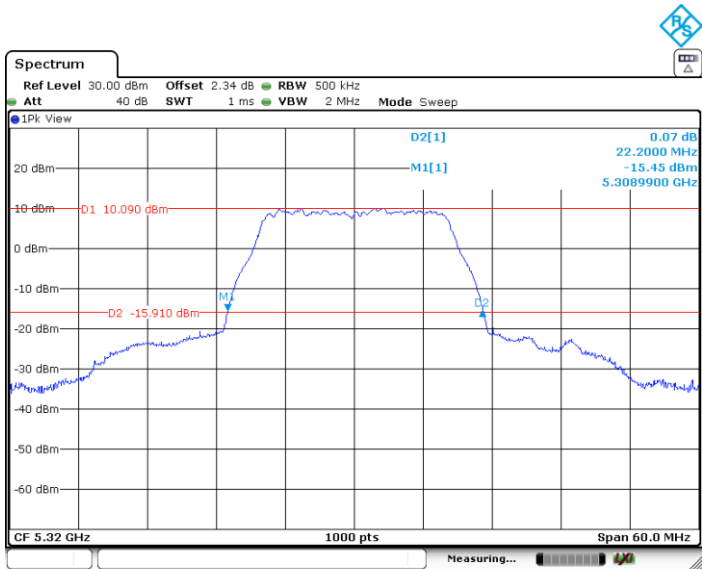
CORE 2

channel 56 (5280 MHz)



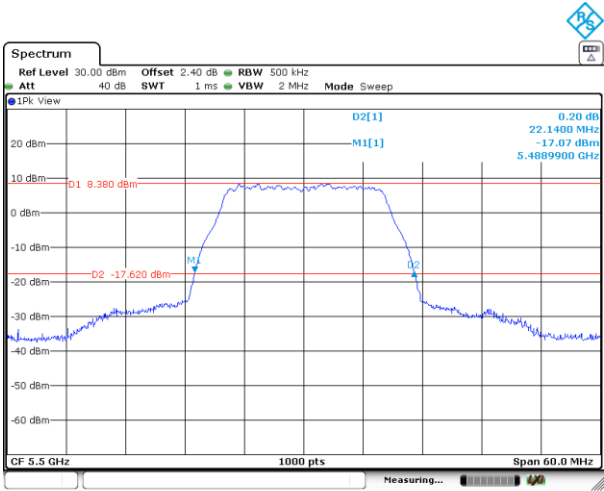
CORE 2

channel 64 (5320 MHz)



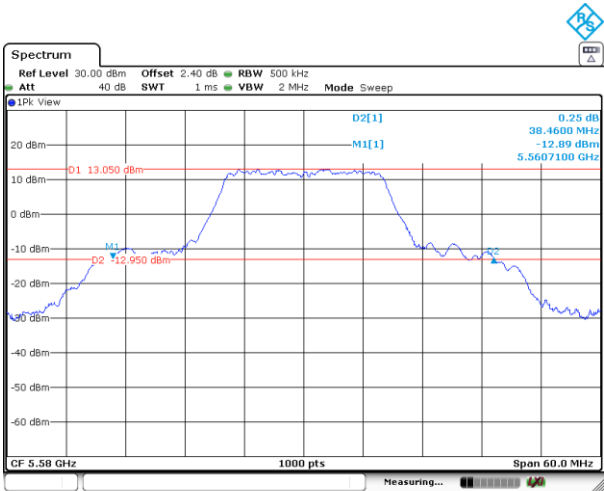
CORE 2

channel 100 (5500 MHz)



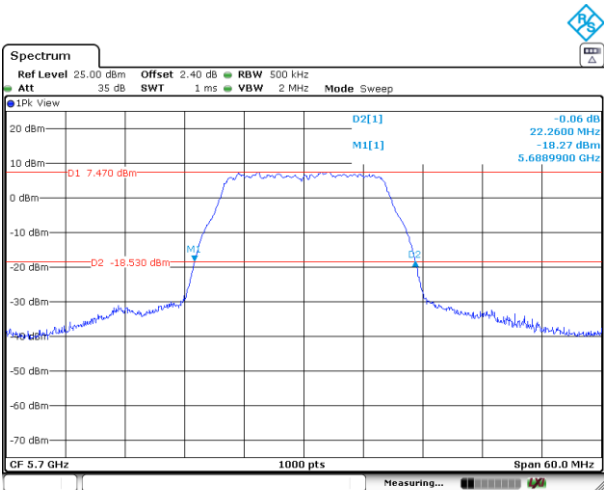
CORE 2

channel 116 (5580 MHz)



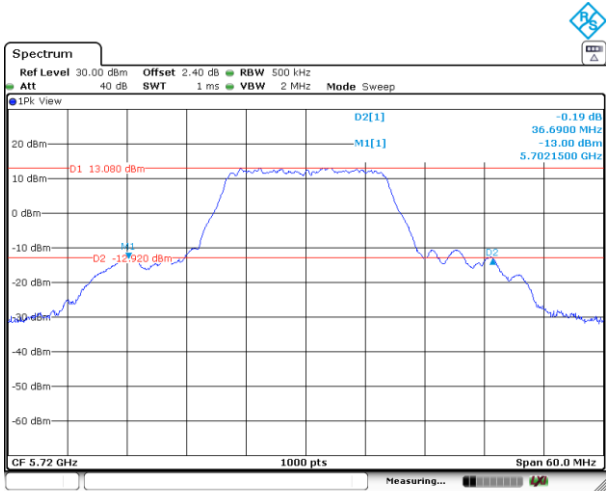
CORE 2

channel 140 (5700 MHz)



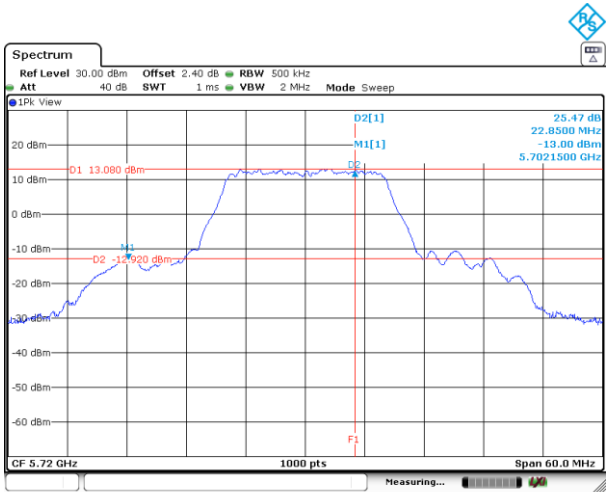
CORE 2

channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands



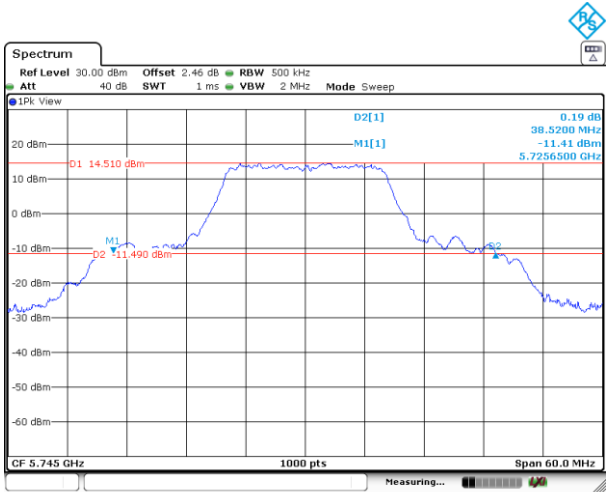
CORE 2

channel 144 (5720 MHz) U-NII-2C Band



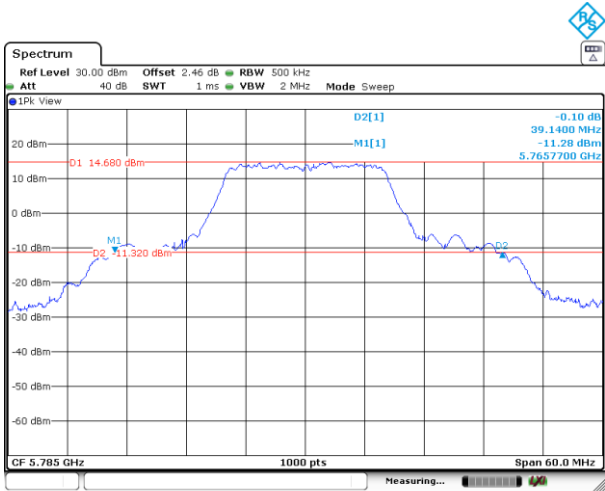
CORE 2

channel 149 (5745 MHz)



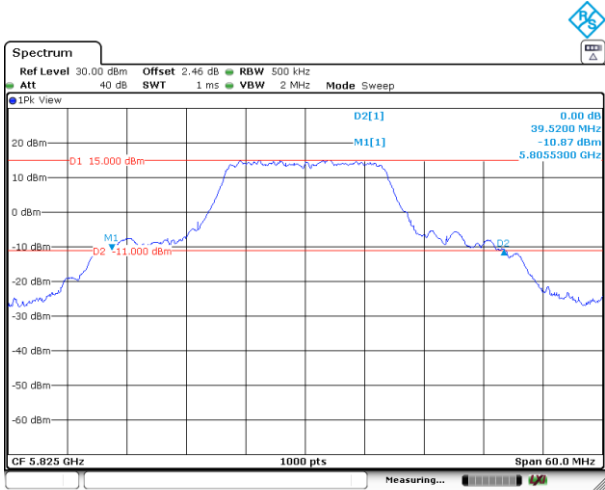
CORE 2

channel 157 (5785 MHz)



CORE 2

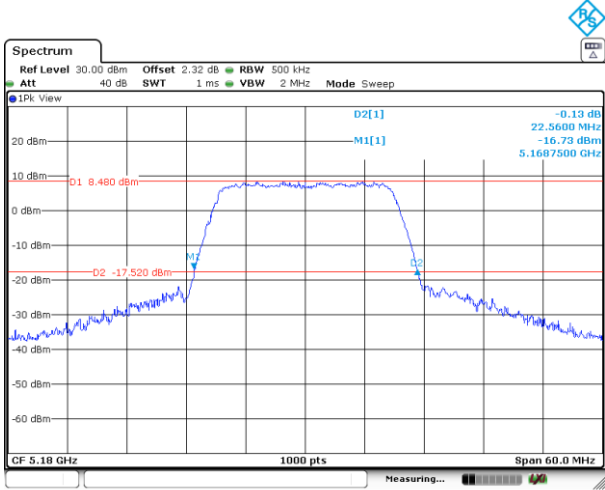
channel 165 (5825 MHz)



CORE 2

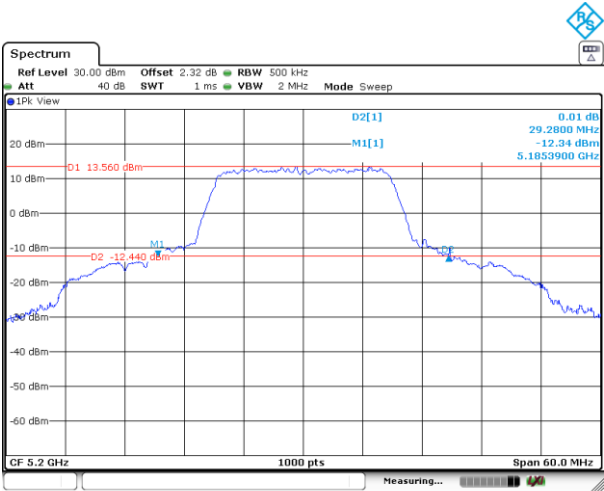
Mode : 802.11n HT20 - 20MHz – SISO – CORE 2

channel 36 (5180 MHz)



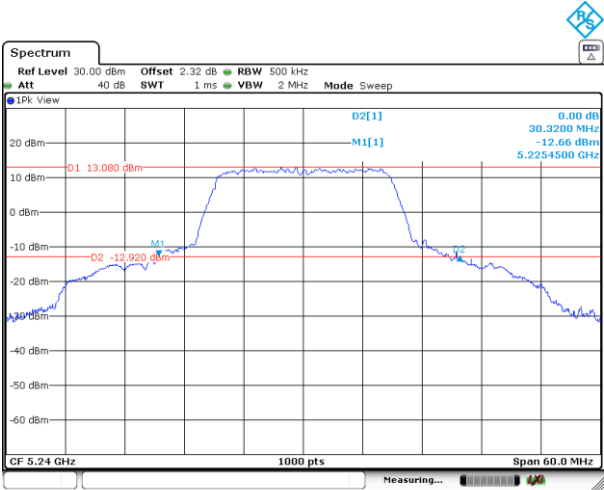
CORE 2

channel 40 (5200 MHz)



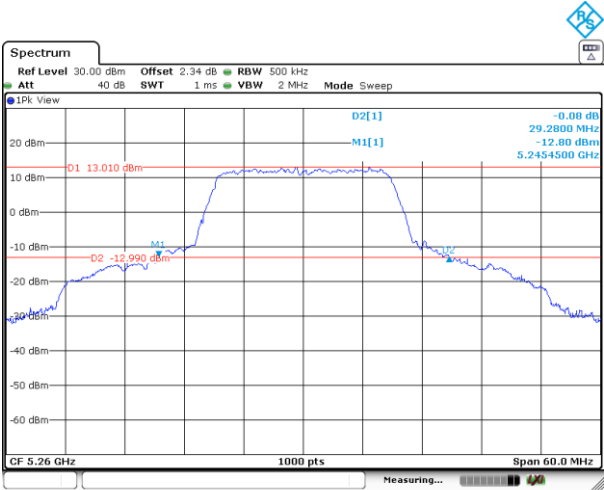
CORE 2

channel 48 (5240 MHz)



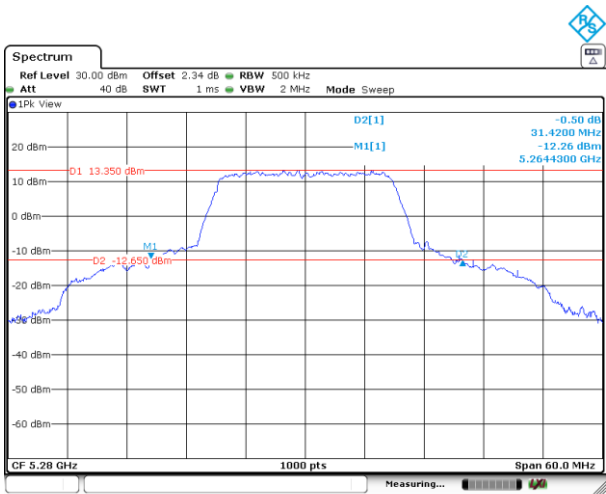
CORE 2

channel 52 (5260 MHz)



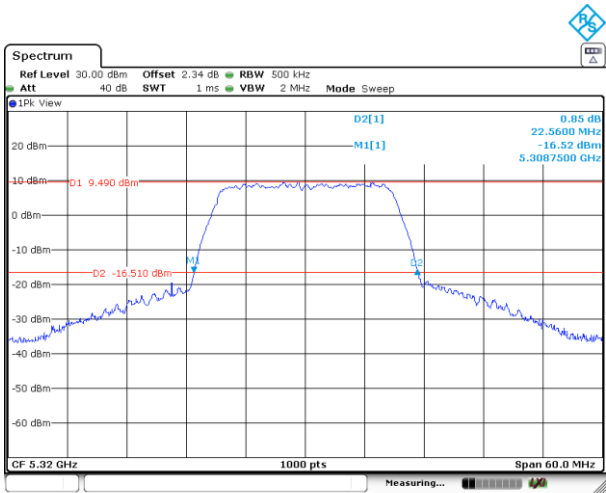
CORE 2

channel 56 (5280 MHz)



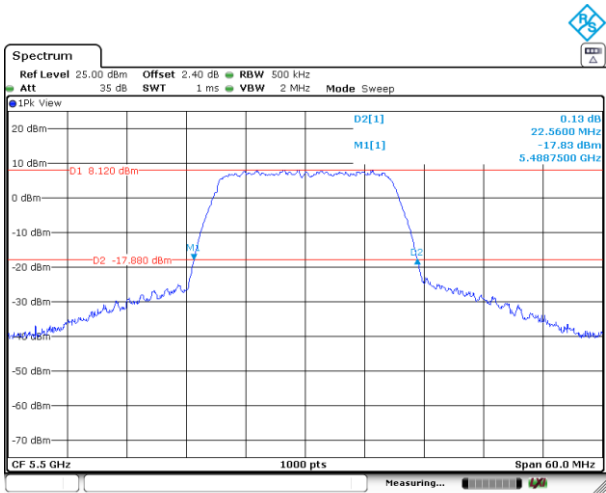
CORE 2

channel 64 (5320 MHz)



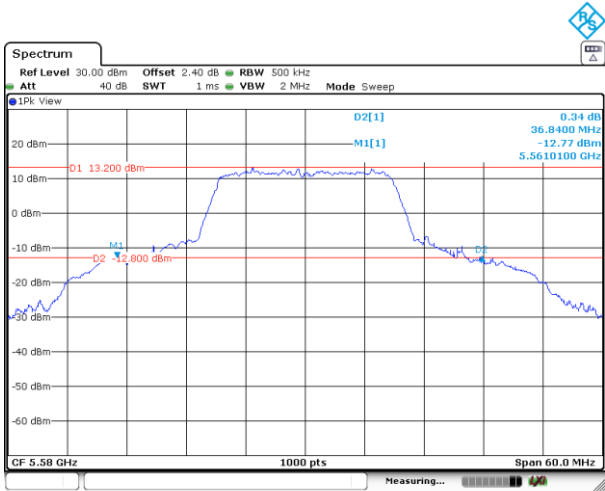
CORE 2

channel 100 (5500 MHz)



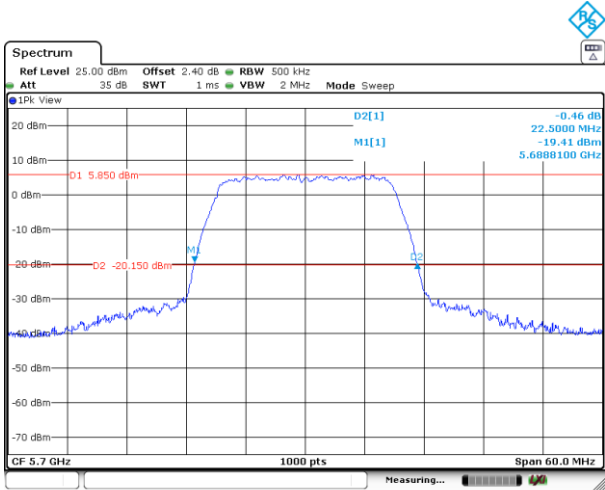
CORE 2

channel 116 (5580 MHz)



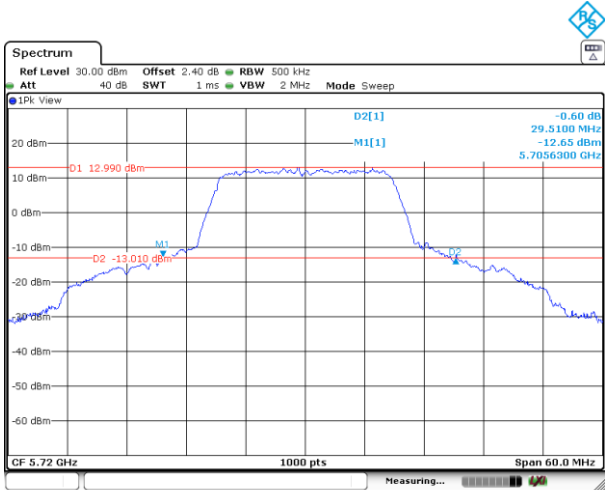
CORE 2

channel 140 (5700 MHz)



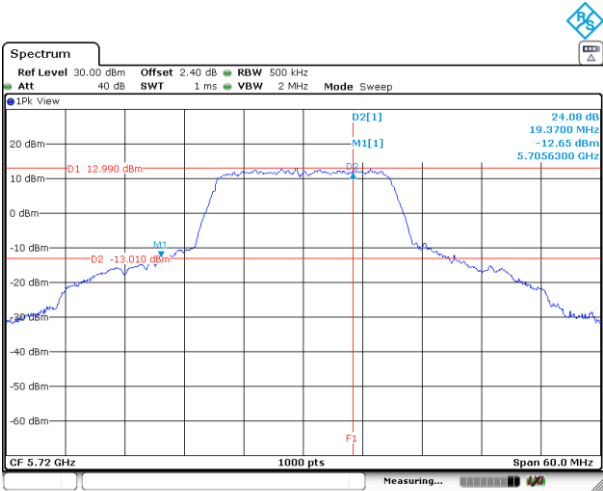
CORE 2

channel 144 (5720 MHz) U-NII-2C and U-NII-3 Bands



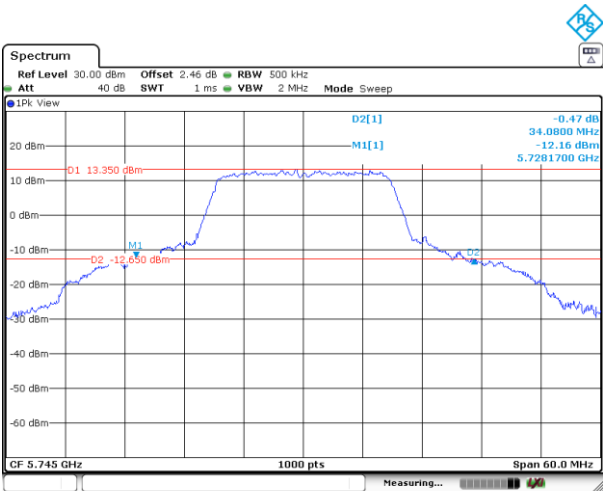
CORE 2

channel 144 (5720 MHz) U-NII-2C Band



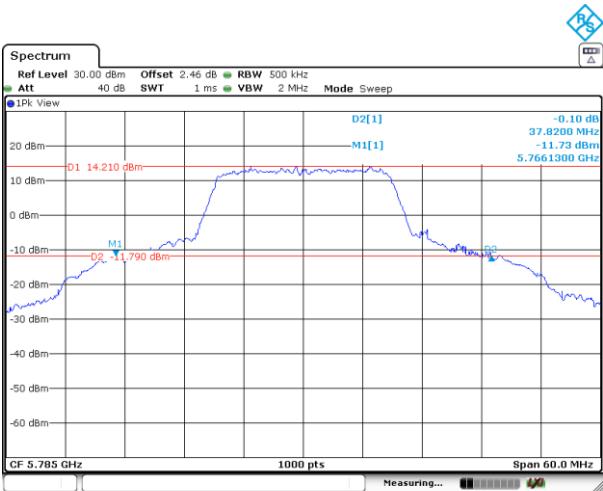
CORE 2

channel 149 (5745 MHz)



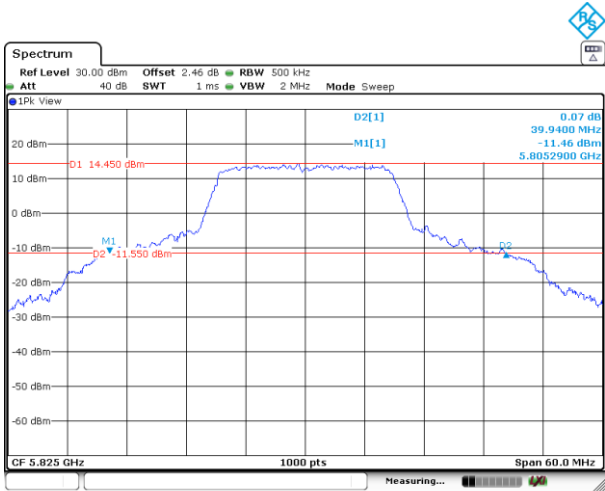
CORE 2

channel 157 (5785 MHz)



CORE 2

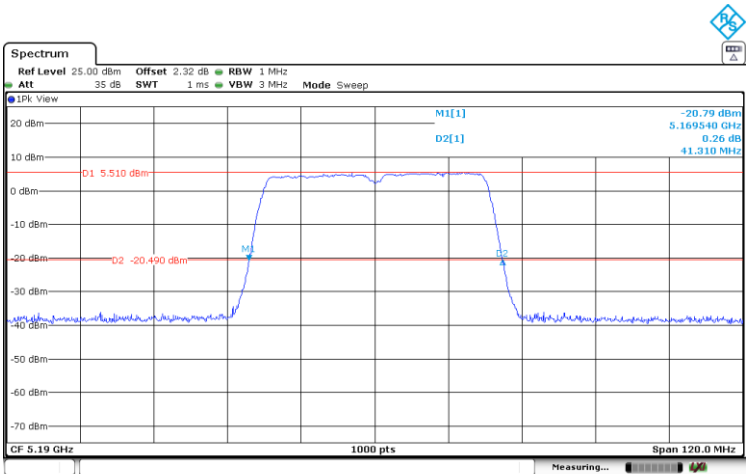
channel 165 (5825 MHz)



CORE 2

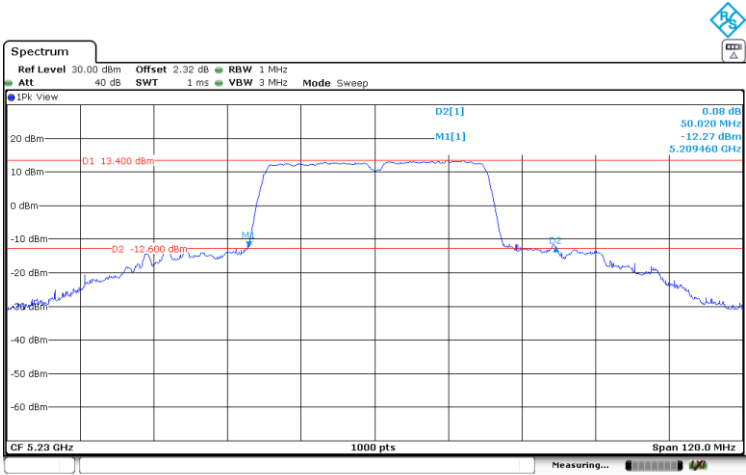
Mode : 802.11n HT40 - 40MHz – SISO – CORE 2

channel 38 (5190 MHz)



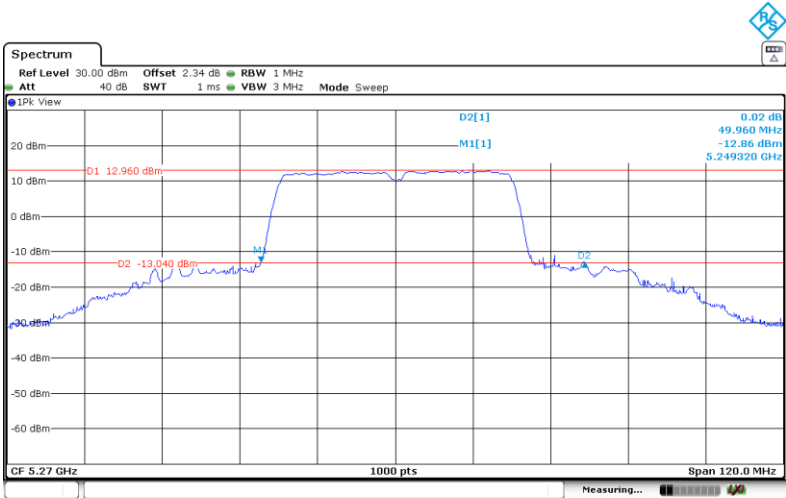
CORE 2

channel 46 (5230 MHz)



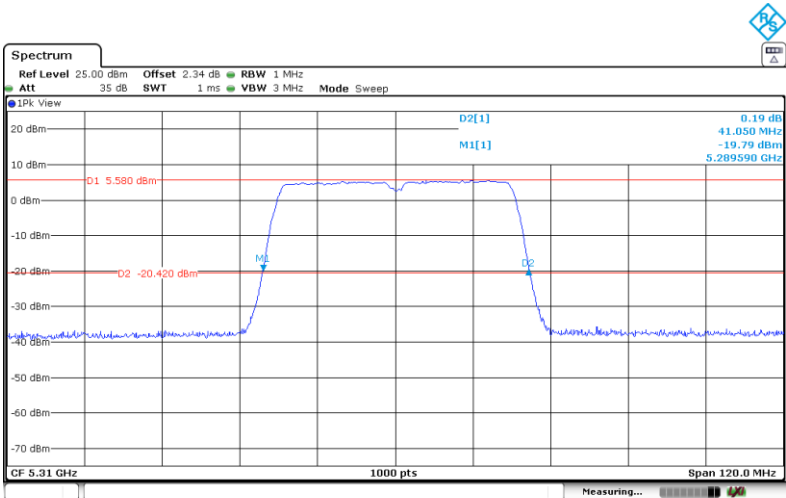
CORE 2

channel 54 (5270 MHz)



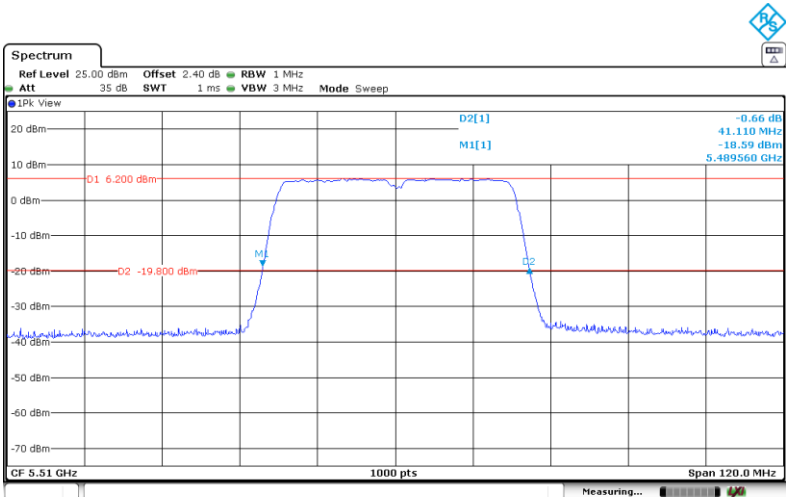
CORE 2

channel 62 (5310 MHz)



CORE 2

channel 102 (5510 MHz)



CORE 2