DEKRA Certification, Inc.
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

DEKRA

ACCREDITED
Test Lab
Cert 2764.01

FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test report No:
2581ERM.005A3

Test report

USA FCC Part 15.407 (U-NII), 15.209
CANADA RSS-210, RSS-Gen
Unlicensed National Information Infrastructure Devices. General technical requirements.
Licence-Exempt Radio Apparatus (All Frequency Bands): Category I Equipment. General Requirements and Information for the Certification of Radio Apparatus.

Identification of item tested	Automotive Infotainment System
Trademark	Mercedes-Benz
Model and /or type reference	NTG7RSU
Other identification of the product	FCC ID: T8GNTG7RSU IC: 6434A-NTG7RSU HW Version: C0 SW Version: E13.205
Features	Bluetooth, WLAN
Manufacturer	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY
Test method requested, standard	USA FCC Part 15.407 10-1-18 Edition: Unlicensed National Information Infrastructure Devices. General technical requirements. USA FCC Part 15.209 10-1-18 Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). 789033 D02 General UNII Test Procedures New Rules v02r01 KDB 662911 D01 Multiple Transmitter Output v02r01: Emissions Testing of Transmitters with Multiple Outputs in the Same Band Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	01-27-2020
Report template No	FDT08_21

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

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

DEKRA Certification Inc. 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 Certification at the time of performance of the test.

DEKRA Certification Inc. 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.

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 Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

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

Frequency (MHz)	U(k=2)	Units
0,009 - 30	2.69	dB
30-180	3.82	dB
180-1000	2.61	dB
1000-18000	2.92	dB
18000-40000	2.15	dB

Data provided by the client

Automotive Rear Seat Unit (RSU) for installation in cars. Features: BT, WLAN, Display interface, interface to Head Unit.

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 Nº	Description	Model	Serial Nº	Date of reception
2581/03	NTG7RSU USA Unit	NTG7 RSU	HBM411K4001000	10/22/2019

1. Sample S/01 has undergone following test(s): All conducted tests indicated in appendix B & C.

Sample S/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
2581/04	NTG7RSU USA Unit	NTG7 RSU	HBM411K4001002	10/22/2019

1. Sample S/02 has undergone following test(s): All radiated tests indicated in appendix B & C.

Sample S/01 & S/02 is composed of the following accessories:

Control Nº	Description	Model	Serial Nº	Date of reception
2581/16	Harness	--	--	10/22/2019
2581/17	Ethernet Cable	--	--	10/22/2019
2581/18	USB/Ethernet Adapter	UE300	218C420000396	10/22/2019
2581/19	USB Cable	--	--	10/22/2019
2581/20	Fakra to SMA Connector	--	--	10/22/2019
2581/5	Harness	--	--	10/22/2019
2581/6	Ethernet Cable	--	--	10/22/2019
2581/7	USB/Ethernet Adapter	UE300	218C420002210	10/22/2019
2581/8	USB Cable	--	--	10/22/2019
2581/9	Fakra to SMA Connector	--	--	10/22/2019
2581/23	BT/WLAN Antenna	--	--	10/22/2019

Test sample description

Ports……. :	Port name and description	Cable			
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)
	Car Connector	>3m(x1)	☒	☐	☐
	BT/WLAN-Antenna	tbd	☒	☒	☐
	USB Connector - ***not used by customer***		☐	☐	☐
	Display Connector (Video IN / OUT)	>3m(x1	☒	☒	☐
	HDBase-T	>3m(x1)	☐	☐	☐
			☐	☐	☐

Supplementary information to the ports……. :							
Rated power supply..... :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 12V Car battery / attenuator (9,5-15,5V normal operation)					
	☐	DC:					
Rated Power ..... :	9,5-15,5V normal operation						
Clock frequencies ..... :	see schematics						
Other parameters..... :	See Technical Description						
Software version ..... :	D2						
Hardware version..... :	E13.205						
Dimensions in cm (W x H x D).... :	225 x 140 x 48 mm						
Mounting position..... :	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other: automotive RSU (Rear Seat Unit)					

Modules/parts .....:	Module/parts of test item	Type	Manufacturer
	n/a	-	
Accessories (not part of the test item).....:	Description	Type	Manufacturer
	RSU-Testbench including NTG7 HU	-	HBAS
	Cable harness		HBAS
	Two RSU Displays		Phanasonic
	BT/WLAN-Antenna		Hirschmann
Documents as provided by the applicant .....:	Description	File name	Issue date
	Technical Description		

Copy of marking plate:

Identification of the client

HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	09-12-2019
Date (finish)	10-02-2019

Document history

Report number	Date	Description
2581ERM.005	12-12-2019	First release
2581ERM.005A1	01-13-2020	Second release
2581ERM.005A2	01-23-2020	Third Release
2581ERM.005A3	01-27-2020	Fourth release

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 2581ERM.005A2 related with the same samples, in the next clauses and sub-clauses:

Clauses/ Sub-Clauses	Modification	Justification
Title Page & Data Provided by the client	Modified the features supported by the DUT	Documentation Error
Title page	Included the KDB reference number	Requested by the reviewer
Test results setup B.2&C.3/Maximum Output Power	Included the KDB reference number and description	Requested by the reviewer
Appendix B & C/Undesirable Radiated Emissions	Removed the Co-location statement	Documentation Error. Co-location report was provided as a separate report.
Appendix B & C/All test cases	Removed test results for MIMO a mode	Documentation Error

This modification test report cancels and replaces the test report 2581ERM.005A2

Environmental conditions

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

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semi-anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

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

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Divya Adusumilli, Bhagyashree Chaudhary, Koji Nishimoto and Poojita Bhattu.

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH / RSS-247 (WIFI 5GHz) 5.15 GHz -5.25 GHz Band					
Report Section	**FCC Spec Clause**	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
B.1	§ 15.403 (i) KDB 789033 D02	RSS 247 6.2.1	26dB Emission Bandwidth & Occupied Bandwidth	P	N/A
B.2	§ 15.407 (a) (1) (4) KDB 662911 D01 E (1)	RSS 247 6.2.1.1	Power Limits. Maximum Output Power	P	N/A
B.3	§ 15.407 (a) (1) (5)	RSS-247 6.2.1.1	Maximum Power Spectral Density	P	N/A
B.4	§ 15.407 (b) (1)	RSS-247 6.2.1.2	Band-edge radiated emissions compliance (Transmitter)	P	N/A
-	§ 15.407 (b)(6) § 15.207	RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/A	N/A
B.5	§ 15.407 (b)(1)(6)(7) § 15.209 § 15.205	RSS-247 6.2.1.2 RSS-Gen 8.9 & 8.10	Undesirable radiated emissions (Transmitter)	P	N/A
--	§ 15.407 (g)	RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

The test set-up was made in accordance to the general provisions of ANSI C63.10: 2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated 12/14/2017

1) The compliance is checked through a description of how this requirement is met that is provided by the applicant.

FCC PART 15 PARAGRAPH / RSS-247 (WIFI 5GHz) 5.725 GHz -5.85 GHz Band					
Report Section	**FCC Spec Clause**	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
C.1	§ 15.403 (i) KDB 789033 D02	RSS 247 6.2.4	26dB Emission Bandwidth & Occupied Bandwidth	P	N/A
C.2	§ 15.407 (e)	RSS 247 6.2.4.1	6 dB Emission	P	N/A
C.3	§ 15.407 (a)(3)(4) KDB 662911 D01 E (1)	RSS 247 6.2.4.1	Power Limits. Maximum Output Power	P	N/A
C.4	§ 15.407 (a)(3)(5)	RSS-247 6.2.4.1	Maximum Power Spectral Density	P	N/A
C.5	§ 15.407 (b)(4)	RSS-247 6.2.4.2	Band-edge radiated emissions compliance (Transmitter)	P	N/A
-	§ 15.407 (b)(6) § 15.207	RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/A	N/A
C.6	§ 15.407 (b)(4)(6)(7) § 15.209 § 15.205	RSS-247 6.2.4.2 RSS-Gen 8.9 & 8.10	Undesirable radiated emissions (Transmitter)	P	N/A
--	§ 15.407 (g)	RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

The test set-up was made in accordance to the general provisions of ANSI C63.10: 2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated 12/14/2017

1) Acc. To FCC, Manufacturers of UNII devices are responsible for frequency stability compliance.

FCC PART 15 PARAGRAPH / RSS-247 (WIFI 5GHz) Common Requirements for all bands					
Report Section	**FCC Spec Clause**	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
--	§ 15.407 (c)	--	Transmission in case of absence of information to transmit, or operational failure.	N/M	Refer 1

Supplementary information and remarks:

1) The compliance is checked through a description of how this requirement is met that is provided by the applicant.

List of equipment used during the test

Conducted Measurements

Test system Rohde & Schwarz TS 8997:

CONTROL NUMBER	DESCRIPTION	LAST CALIBRATION	NEXT CALIBRATION
1039	Signal analyzer Rohde & Schwarz FSV40	2018/10	2020/10
1009	RF generator Rohde & Schwarz SMB100A	2019/08	2021/08
1042	RF generator Rohde & Schwarz SMBV100A	2018/01	2021/01
101	Climatic chamber Espec	2019/01	2020/01

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	LAST CALIBRATION	NEXT CALIBRATION
1179	Semi anechoic Absorber Lined Chamber Frankonia SAC 3 plus “L”	N/A	N/A
1064	BiconicalLog antenna ETS LINDGREN 3142E	2017/03	2020/03
1057	Double-ridge Waveguide Horn antenna 1-18 GHz	2017/03	2020/03
1056	Double-ridge Waveguide Horn antenna 18-40 GHz	2017/03	2020/03
1014	Spectrum analyzer Rohde & Schwarz FSV40	2019/04	2021/04
0980	RF pre-amplifier 30 MHz-6 GHz Bonn Elektronik BLMA 0360-01N	2019/08	2021/05
0981	RF pre-amplifier 1-18 GHz Bonn Elektronik BLMA 0118-2A	2018/10	2021/05
1015, 1017, 1019, 1020	Rohde & Schwarz EMC32 software	N/A	N/A

Appendix A: DUT Description

DUT Description

The following information is provided by the client

Information	Description
Equipment type	WIFI 5GHz
Antenna Specification	Equipment with only one antenna
Operating Frequency Range	5150 - 5250 MHz / 5725- 5850 MHz
Nominal Channel Bandwidth	20 MHz/40MHz/80MHz
RF Output Power	14 dBm
Antenna type	Dedicated antenna (single)
Antenna gain	Chip 1(SISO): +4.5 dBi Chip 2(SISO): +4.5 dBi Chip1(MIMO): +4.5 dBi Chip2(MIMO): +4.5 dBi
Supply Voltage	13.5 Vdc
Modulation:	OFDM (QPSK, BPSK,16QAM,64QAM,256QAM)
Transmit Data Rate:	IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20/HT40: 0-7 -SISO 8-15- MIMO IEEE 802.11ac VHT20: (0-8)-SISO (0x2-8x2)- MIMO IEEE 802.11ac VHT40-/VHT80: (0-9)-SISO (0x2-9x2)- MIMO
Geo-location capability	No

Appendix B: Test results
5.15 GHz – 5.25 GHz Band

Appendix B Content

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION
TC#01(1) **(a mode)**	Power supply (V): $V_{nominal}$ = 13.5 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO): Lowest range: 5180 MHz Middle channel: 5200 MHz Highest range: 5240 MHz
TC#02(1) **(n mode)**	Power supply (V): $V_{nominal}$ = 13.5 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO, Port 1 & 2 Chip 1 MIMO, Port 3 & 4 Chip 2 MIMO): Lowest channel: 5180 MHz Middle channel: 5200 MHz Highest channel: 5240 MHz Channel Bandwidth: 40 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO, Port 1 & 2 Chip 1 MIMO, Port 3 & 4 Chip 2 MIMO): Lowest channel: 5190 MHz Highest channel: 5230 MHz

TEST CONDITIONS	DESCRIPTION
TC#03(1) **(ac mode)**	Power supply (V): $V_{nominal}$ = 13.5 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO, Port 1 & 2 Chip 1 MIMO, Port 3 & 4 Chip 2 MIMO): Lowest channel: 5180 MHz Middle channel: 5200 MHz Highest channel: 5240 MHz Channel Bandwidth: 40 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO, Port 1 & 2 Chip 1 MIMO, Port 3 & 4 Chip 2 MIMO): Lowest channel: 5190 MHz Highest channel: 5230 MHz Channel Bandwidth: 80 MHz Test Frequencies for Conducted/Radiated tests (Port 2 Chip 1 SISO, Port 4 Chip 2 SISO, Port 1 & 2 Chip 1 MIMO, Port 3 & 4 Chip 2 MIMO): Lowest channel: 5210

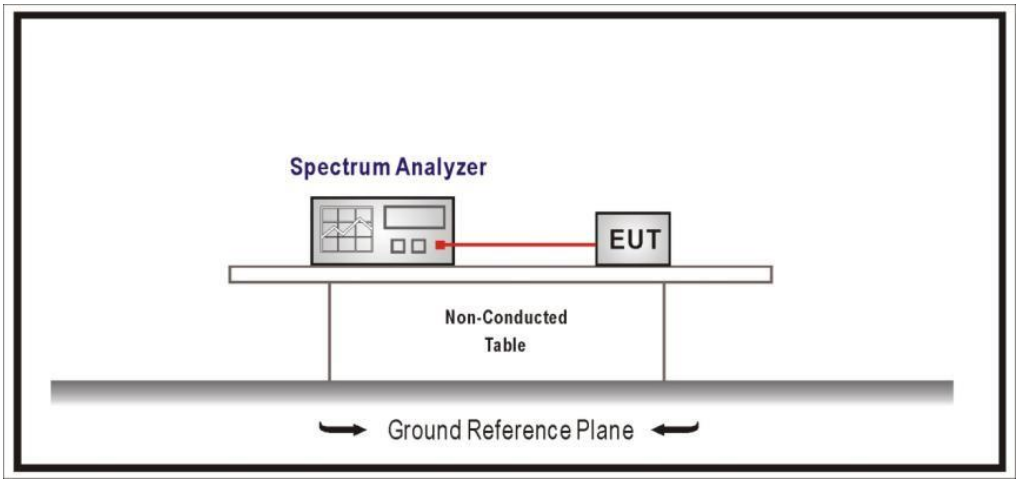
Note (1): For spurious emissions for OFDM modes 802.11a(WLAN1 & WLAN0) for SISO, 802.11n40(WLAN1 & WLAN0) for SISO, 802.11ac80(WLAN1 & WLAN 0) for SISO and 802.11n20(WLAN1 & WLAN0) for MIMO, 802.11n40(WLAN1 & WLAN0) for MIMO and 802.11ac80(WLAN1 & WLAN 0) for MIMO a preliminary scan was performed to determine the worst case.
The data rates 6Mbps for 802.11 a mode, MCS0 for 802.11n20/n40(SISO), MCS8 for 802.11n20/n40(MIMO) and MCS 0 for 802.11ac20/ac40/ac80(SISO&MIMO) were selected based on preliminary testing that identified those rates corresponding to the worst cases.

TEST B.1: 26DB EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

LIMITS:	Product standard:	Part 15 Subpart C §15.403 and RSS-247
	Test standard:	Part 15 Subpart C §15.403 and RSS-247 6.2.1

No requirements requested

TEST SETUP:	



TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 **(a mode Chip 1 SISO)**
TEST RESULTS:	PASS

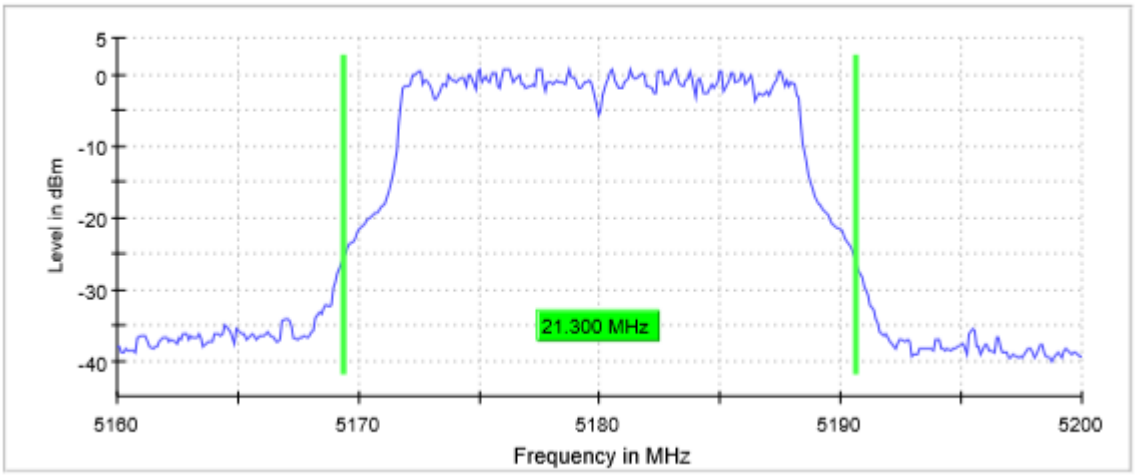
Port 2

Bandwidth: 20 MHz

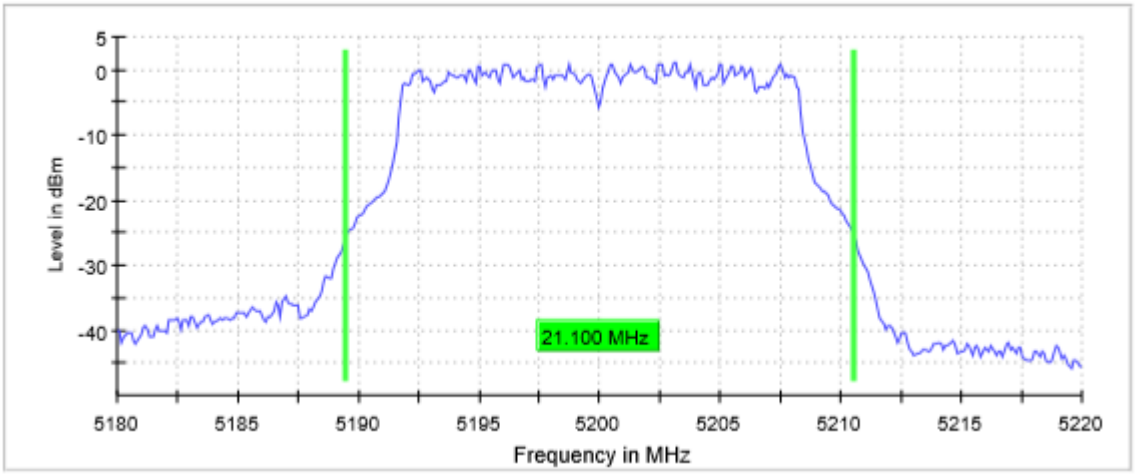
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.300	21.100	21.000
Occupied bandwidth (MHz)	16.500	16.600	16.500
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

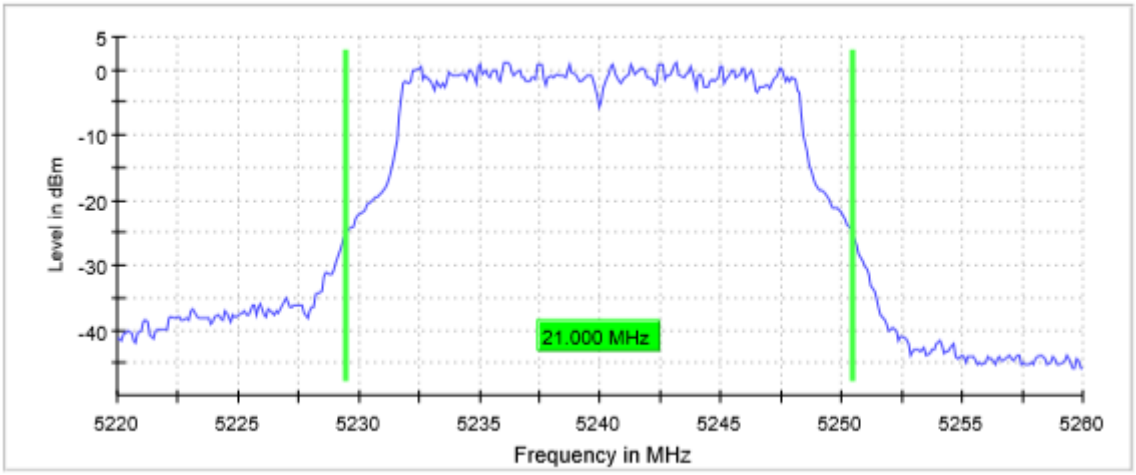
Lowest Channel



Middle Channel



Highest Channel



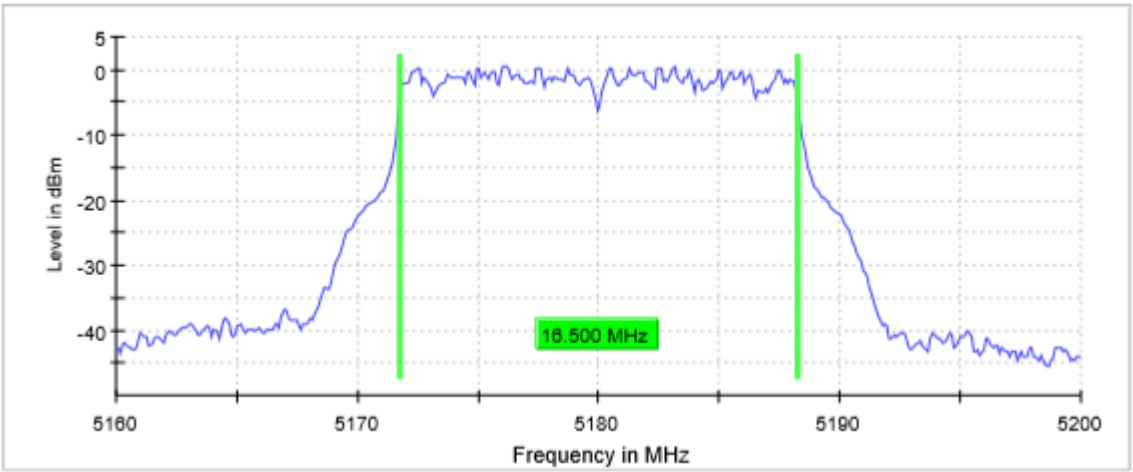
TEST RESULTS (Cont.):	

Measurement

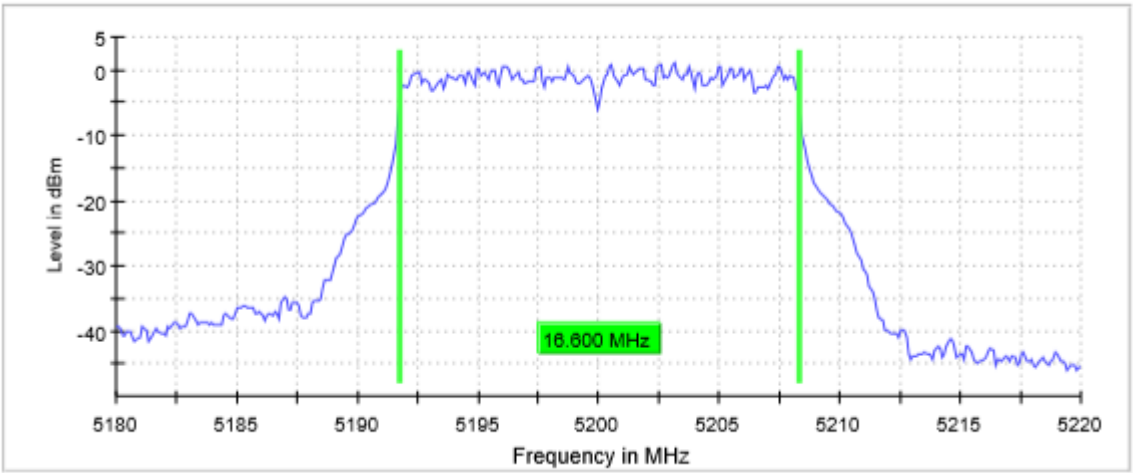
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	10.000 dBm	10.000 dBm
Attenuation	40.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	26 / max. 150	22 / max. 150	29 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.05 dB	0.28 dB	0.30 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

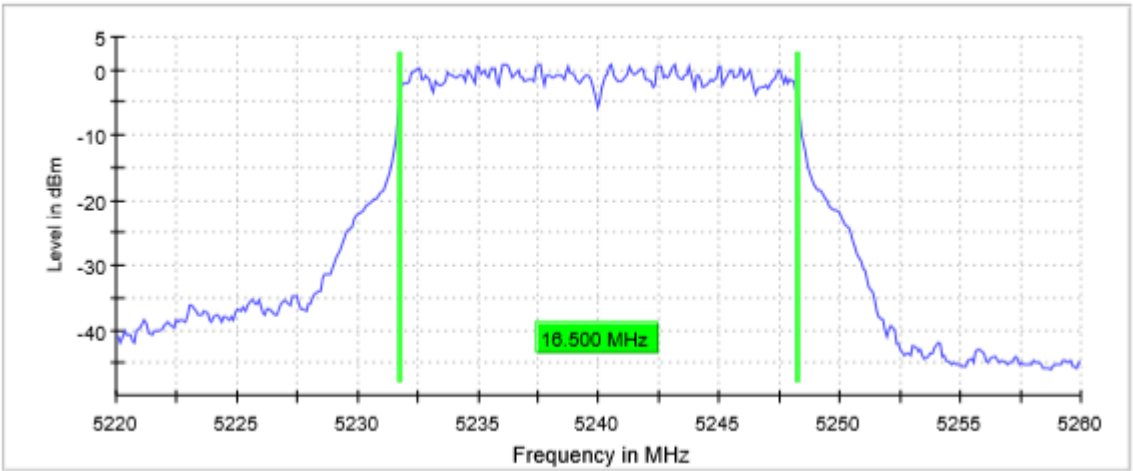
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	200	200	200
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	27 / max. 150	38 / max. 150	22 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.06 dB	0.00 dB	0.06 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 **(a mode Chip 2 SISO)**
TEST RESULTS:	PASS

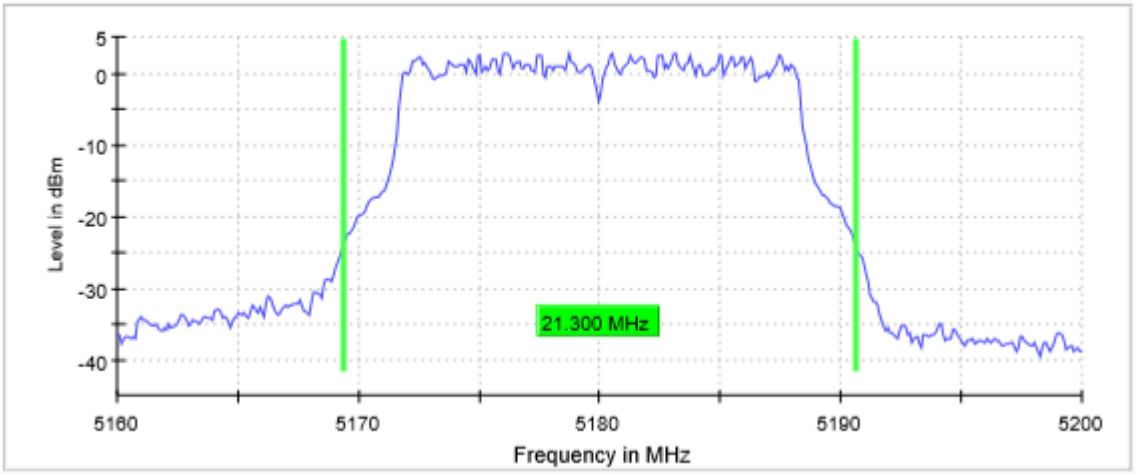
Port 4

Bandwidth: 20 MHz

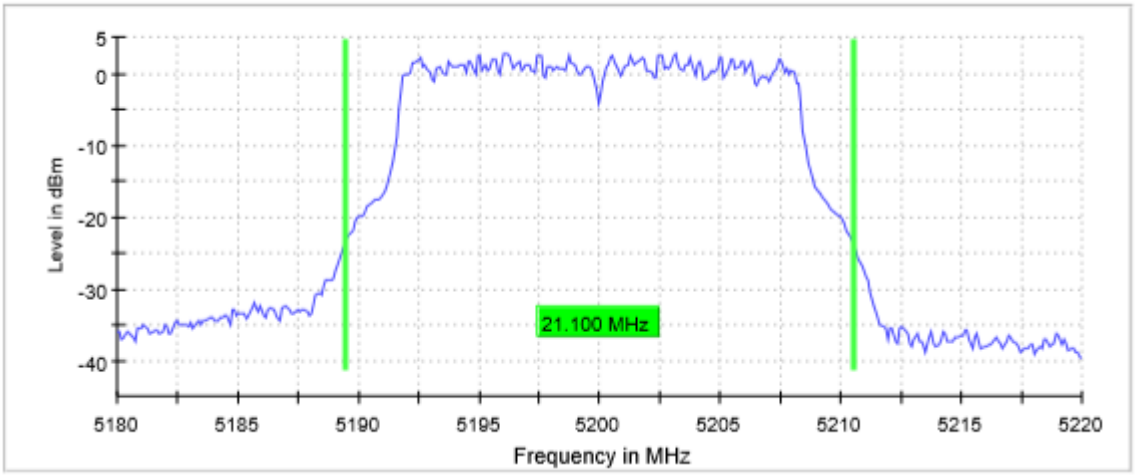
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.300	21.100	21.200
Occupied bandwidth (MHz)	16.600	16.600	16.500
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

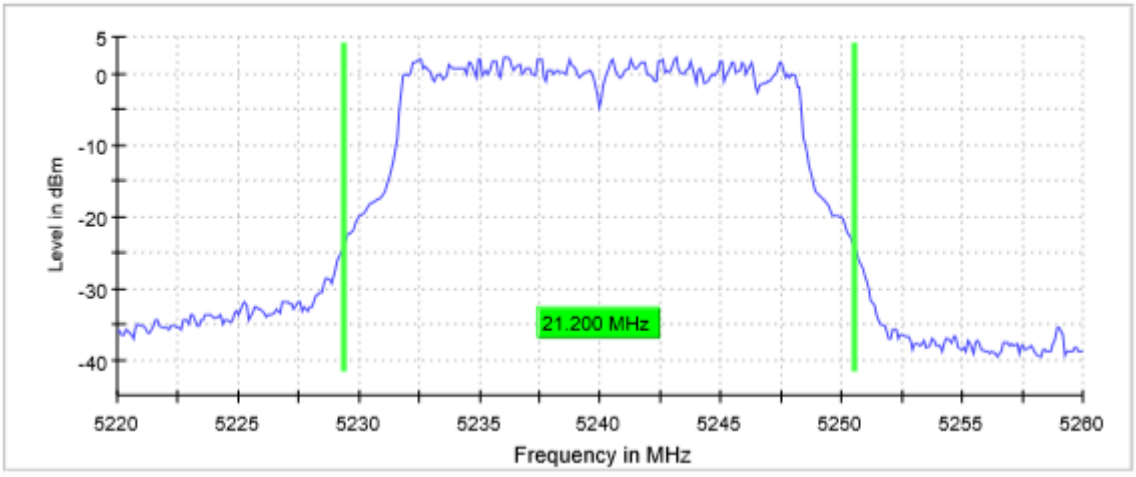
Lowest Channel



Middle Channel



Highest Channel



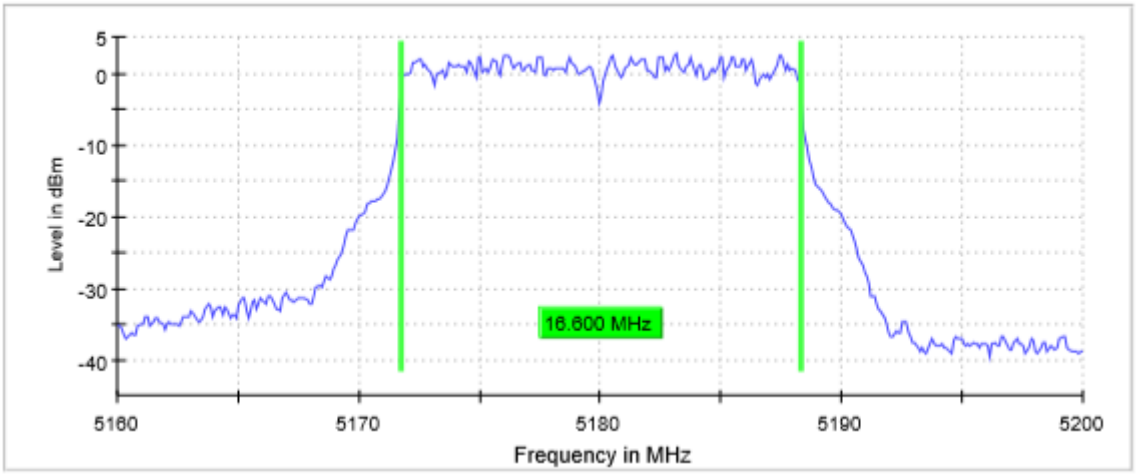
TEST RESULTS (Cont.):	

Measurement

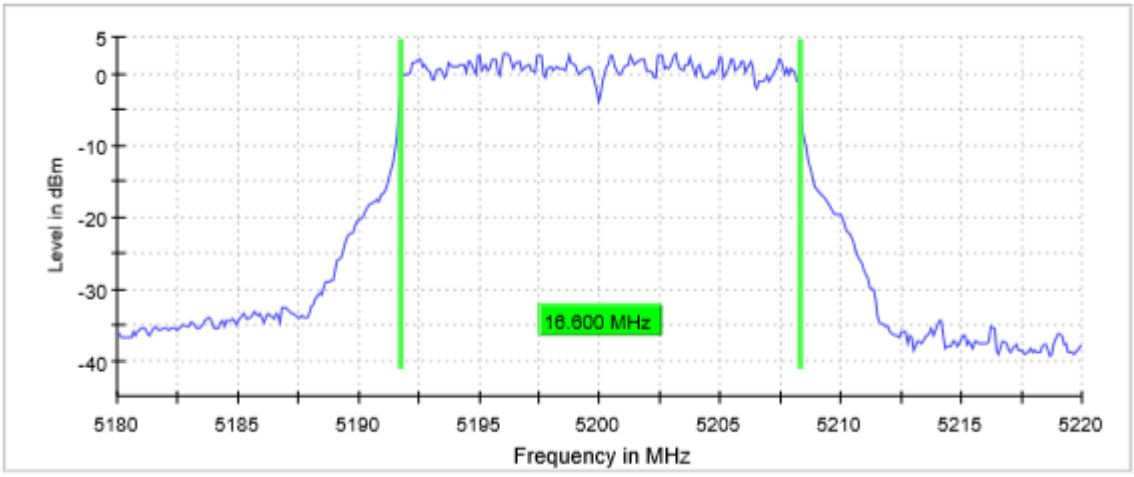
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	25 / max. 150	23 / max. 150	26 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.01 dB	0.06 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

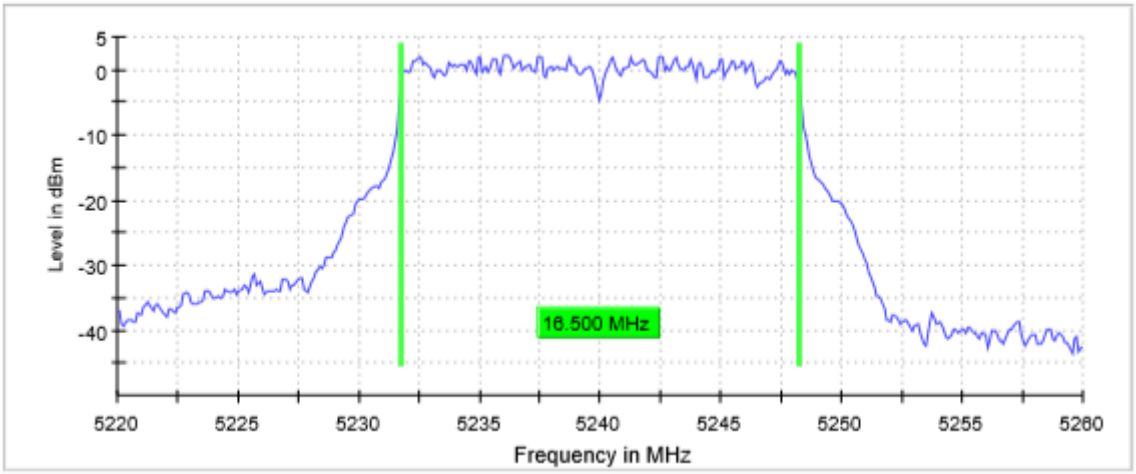
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	30 / max. 150	22 / max. 150	19 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.18 dB	0.11 dB	0.03 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n20 mode Chip 1 SISO)**
TEST RESULTS:	PASS

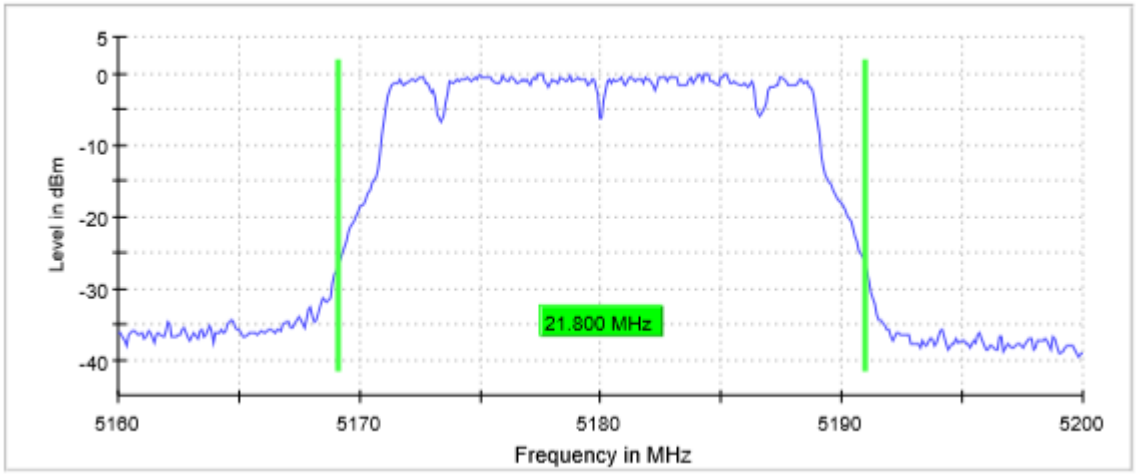
Port 2

Bandwidth: 20 MHz

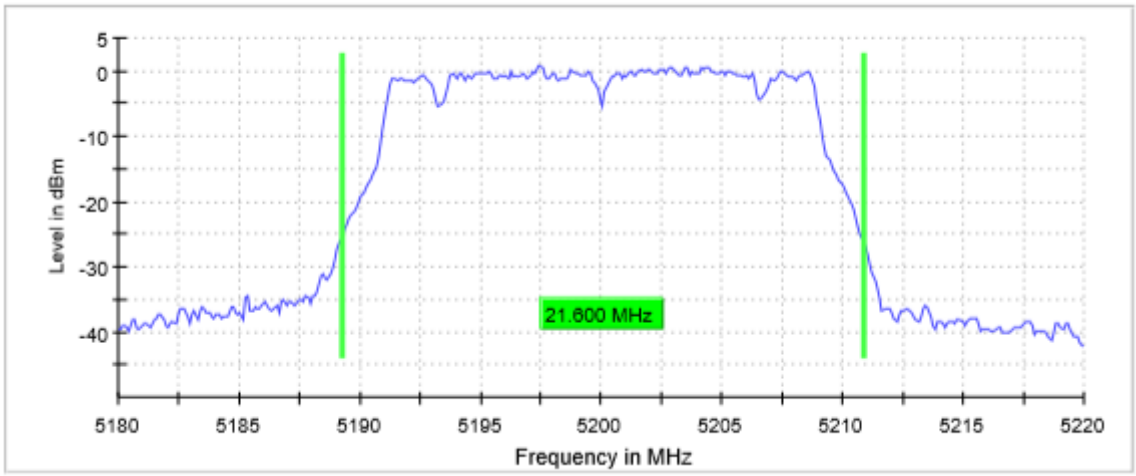
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.800	21.600	21.500
Occupied bandwidth (MHz)	17.900	17.900	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

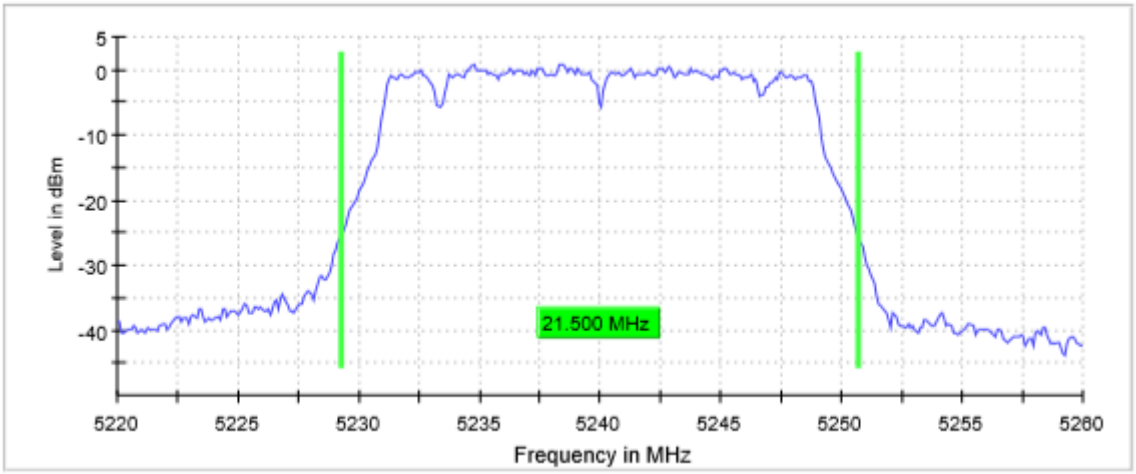
Lowest Channel



Middle Channel



Highest Channel



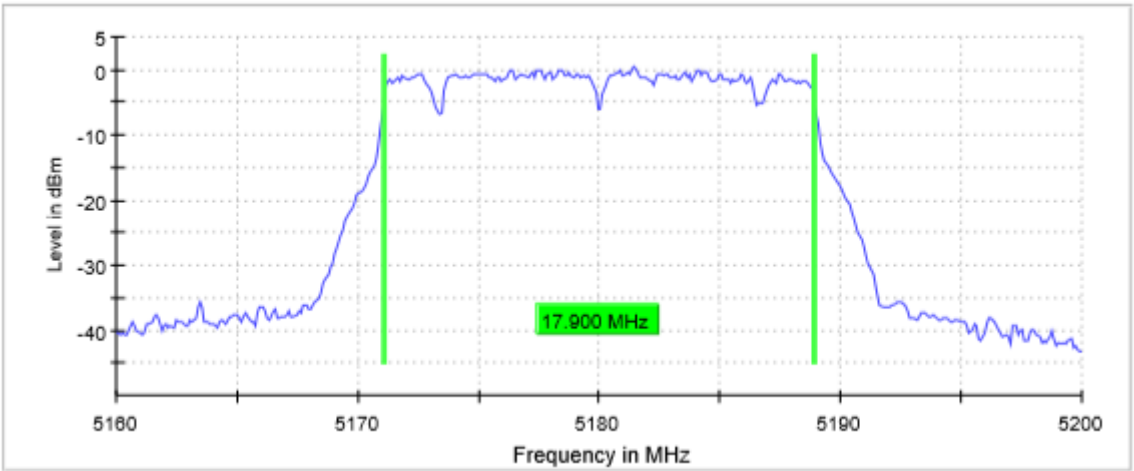
TEST RESULTS (Cont.):	

Measurement

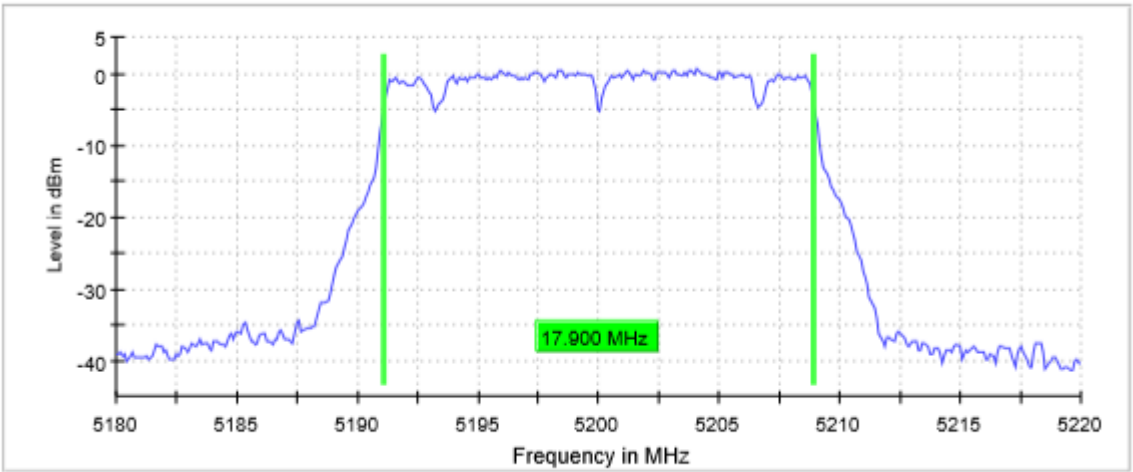
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	10.000 dBm	10.000 dBm
Attenuation	40.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	100 / max. 150	99 / max. 150	79 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.29 dB	0.00 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

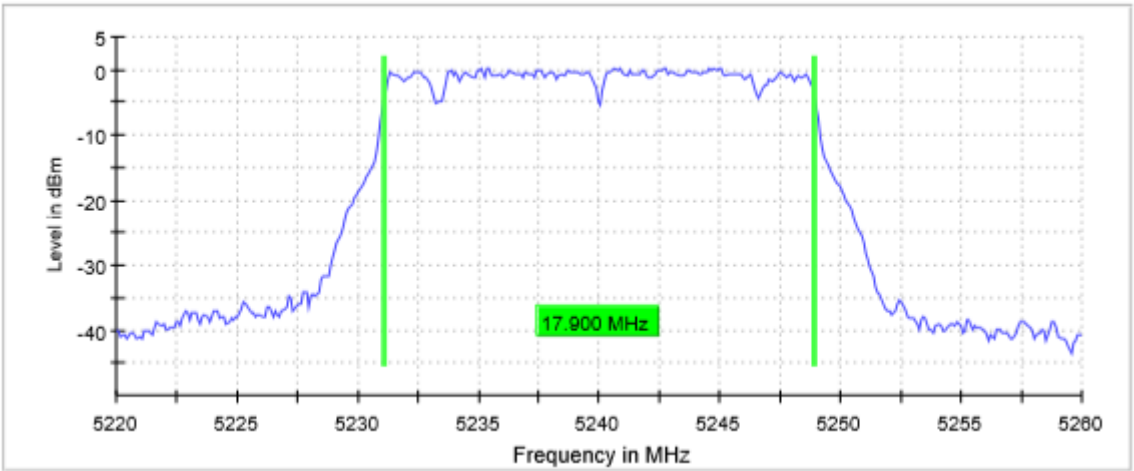
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	72 / max. 150	134 / max. 150	81 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n20 mode Chip 2 SISO)**
TEST RESULTS:	PASS

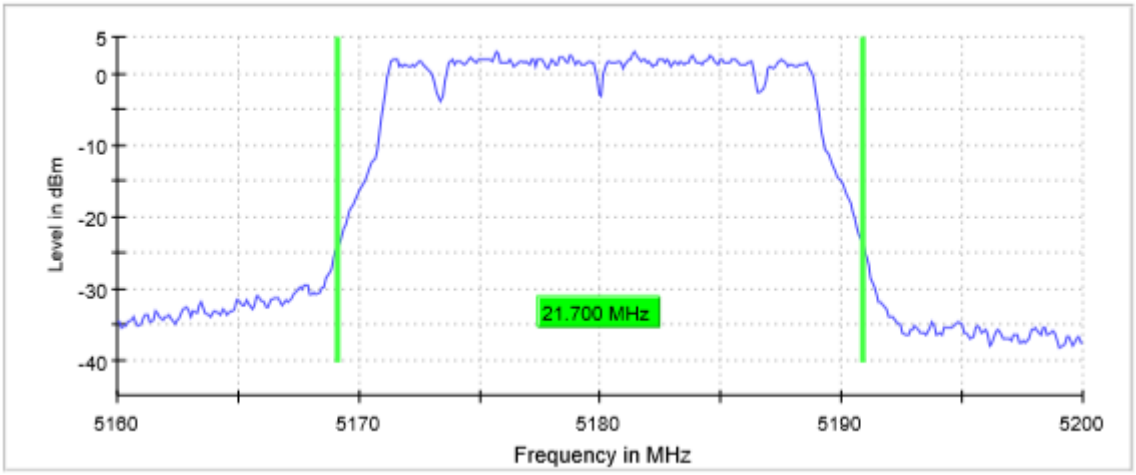
Port 4

Bandwidth: 20 MHz

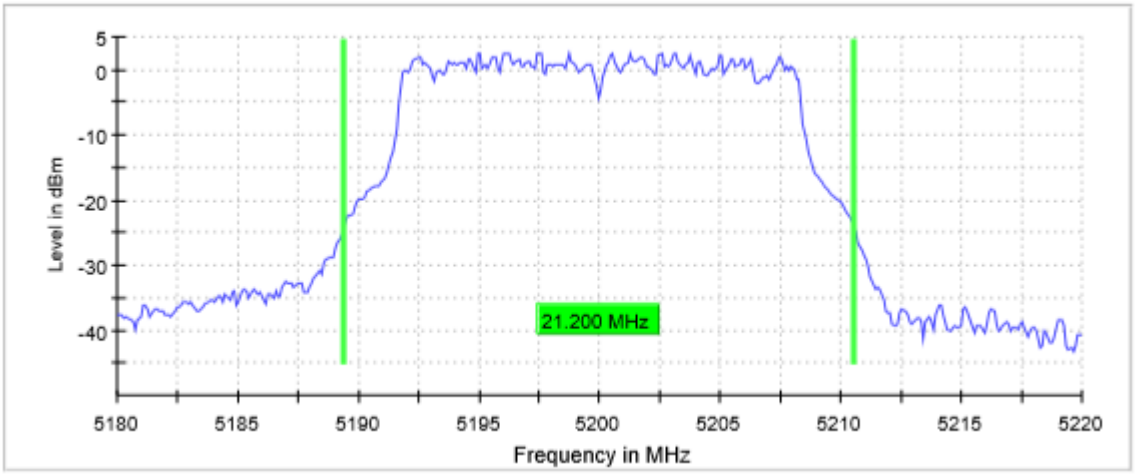
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.700	21.200	21.100
Occupied bandwidth (MHz)	17.900	16.500	16.600
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

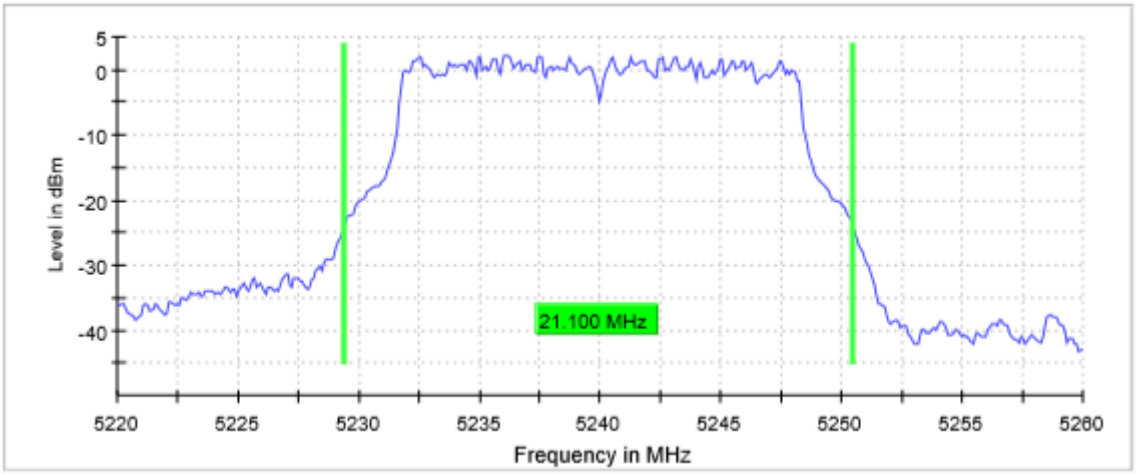
Lowest Channel



Middle Channel



Highest Channel



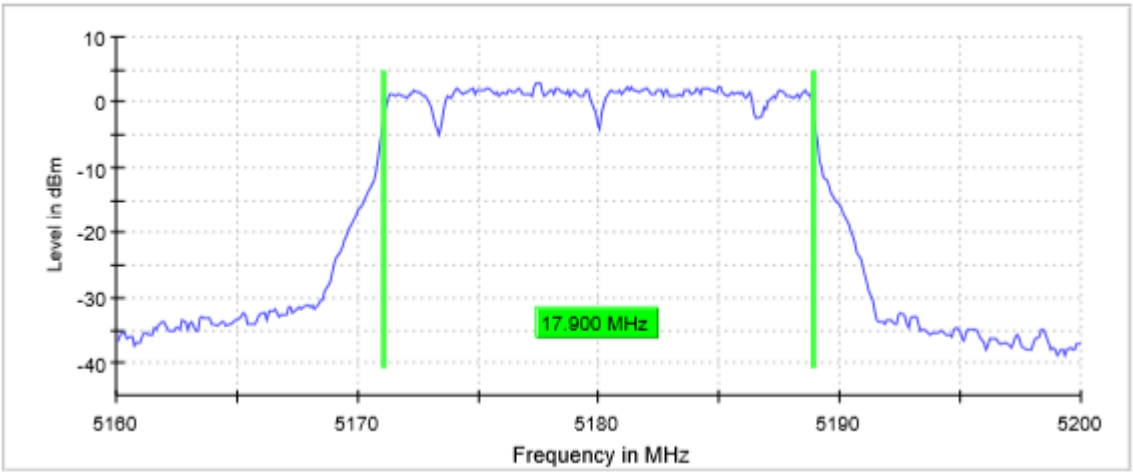
TEST RESULTS (Cont.):	

Measurement

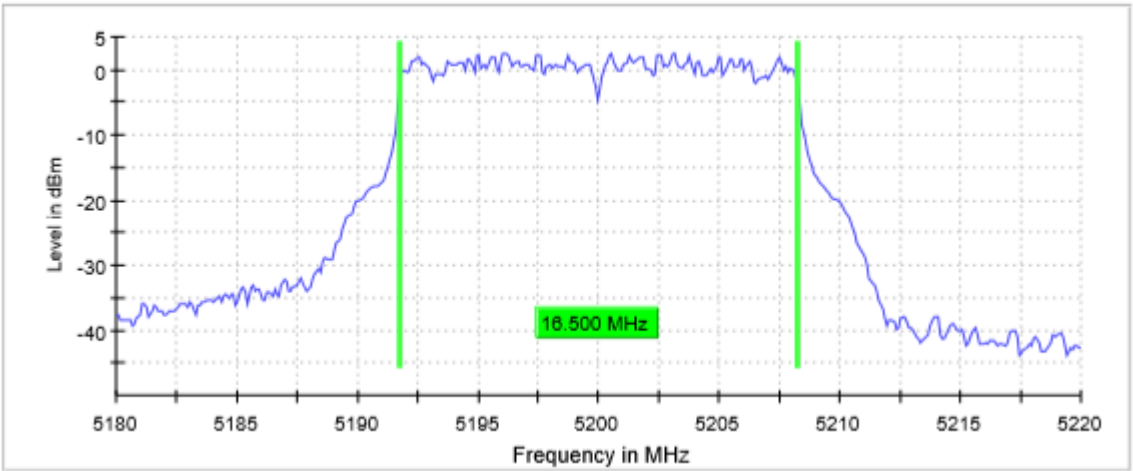
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	10.000 dBm	10.000 dBm
Attenuation	40.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	126 / max. 150	26 / max. 150	24 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.10 dB	0.06 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

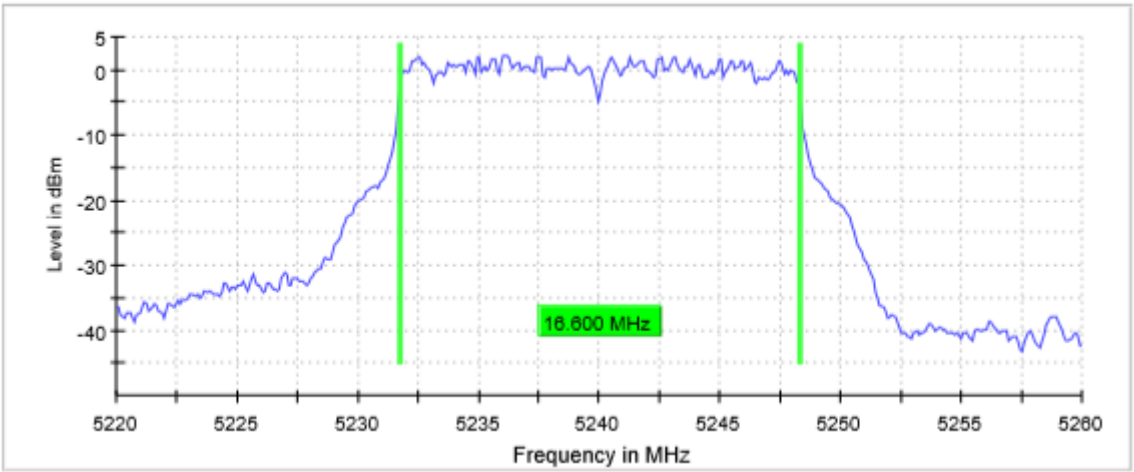
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	106 / max. 150	24 / max. 150	26 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.06 dB	0.02 dB	0.17 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n20 mode Chip 1 MIMO)**
TEST RESULTS:	PASS

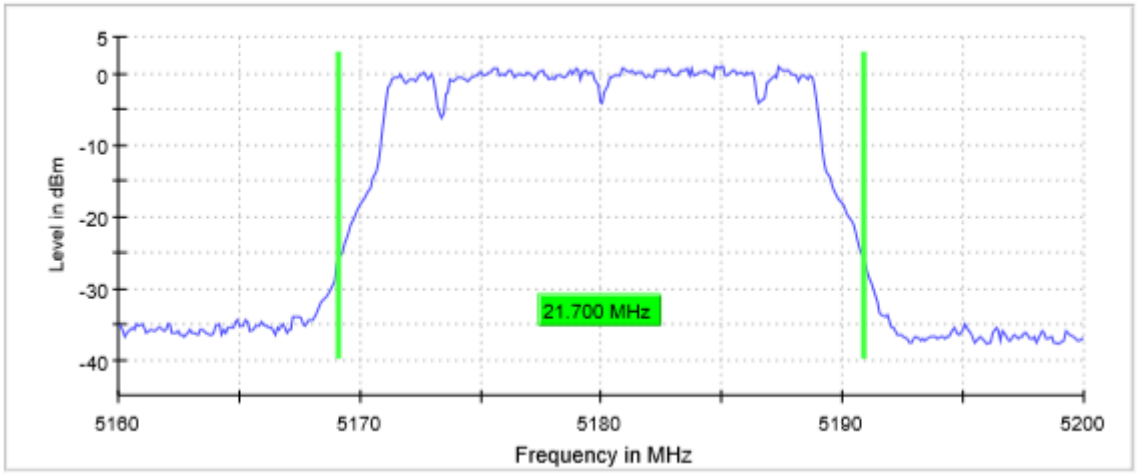
Port 1 & 2

Bandwidth: 20 MHz

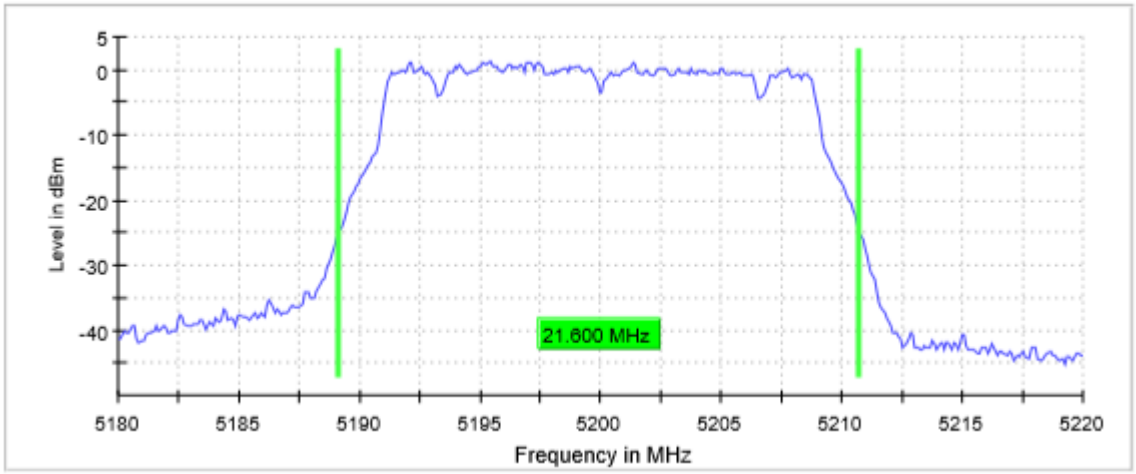
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.700	21.600	21.500
Occupied bandwidth (MHz)	17.900	17.900	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

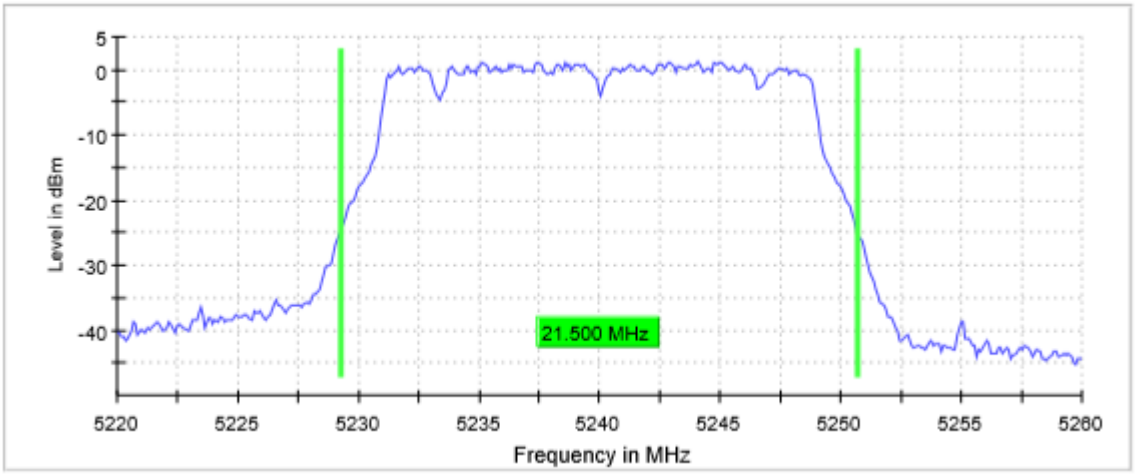
Lowest Channel



Middle Channel



Highest Channel



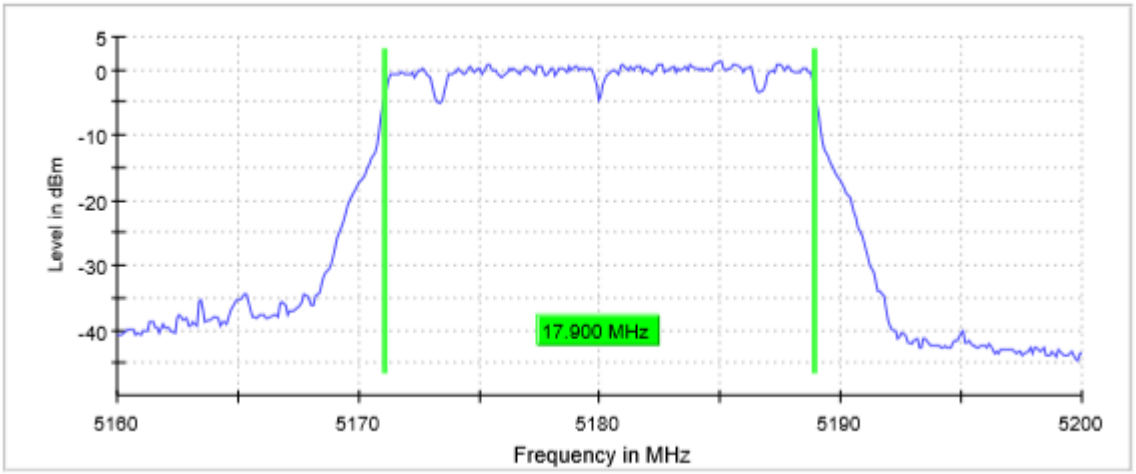
TEST RESULTS (Cont.):

Measurement

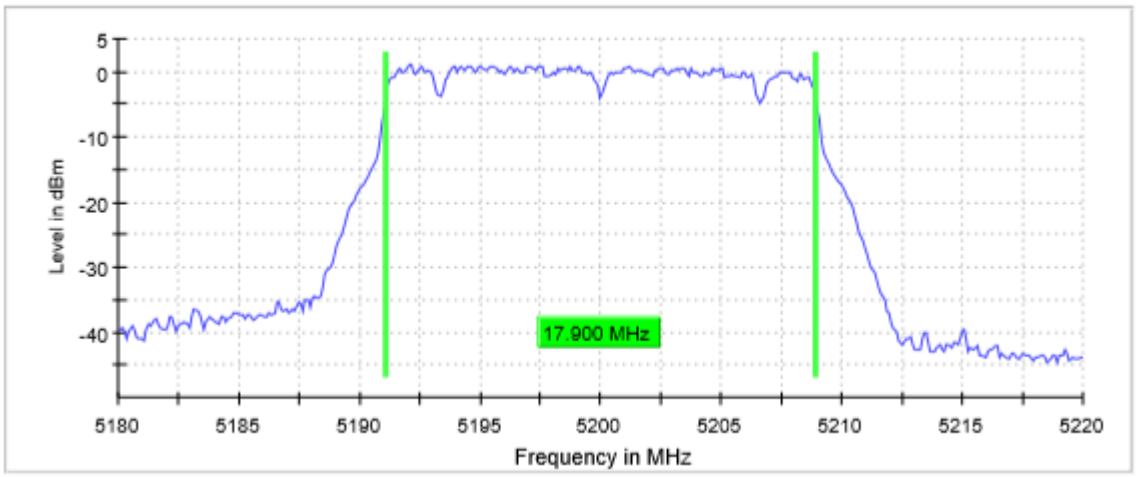
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	0.000 dBm	0.000 dBm
Attenuation	30.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	76 / max. 150	97 / max. 150	103 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.01 dB	0.05 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

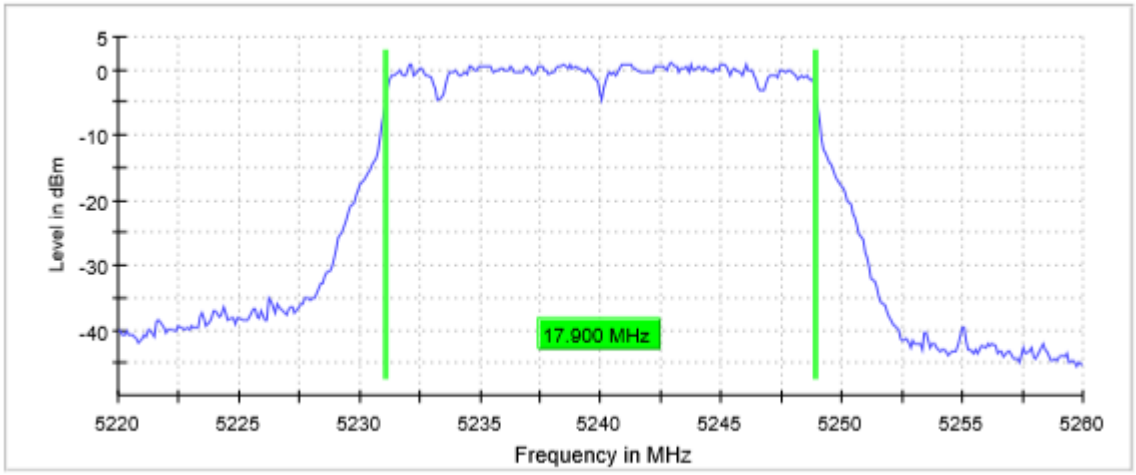
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	0.000 dBm	00.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	104 / max. 150	118 / max. 150	79 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.01 dB	0.00 dB	0.09 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n20 mode Chip 2 MIMO)**
TEST RESULTS:	PASS

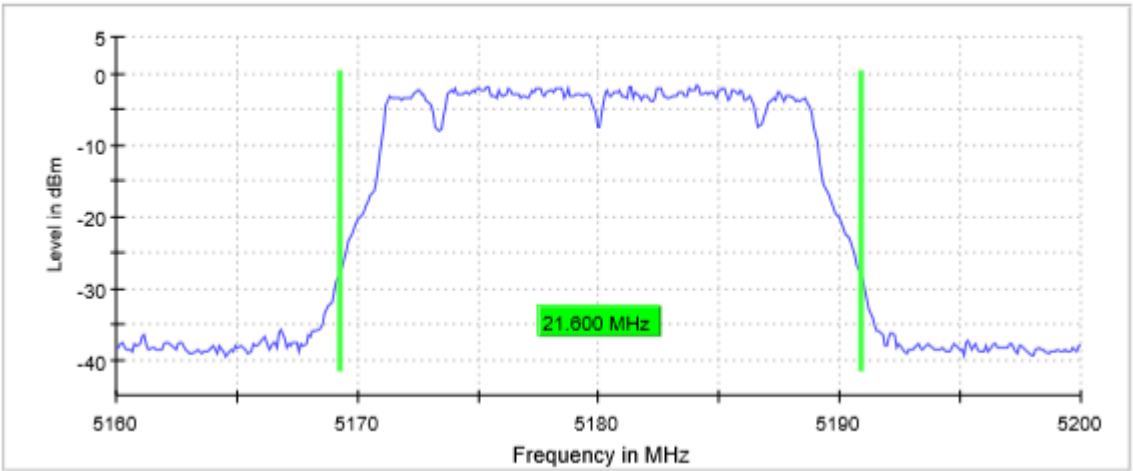
Port 3 & 4

Bandwidth: 20 MHz

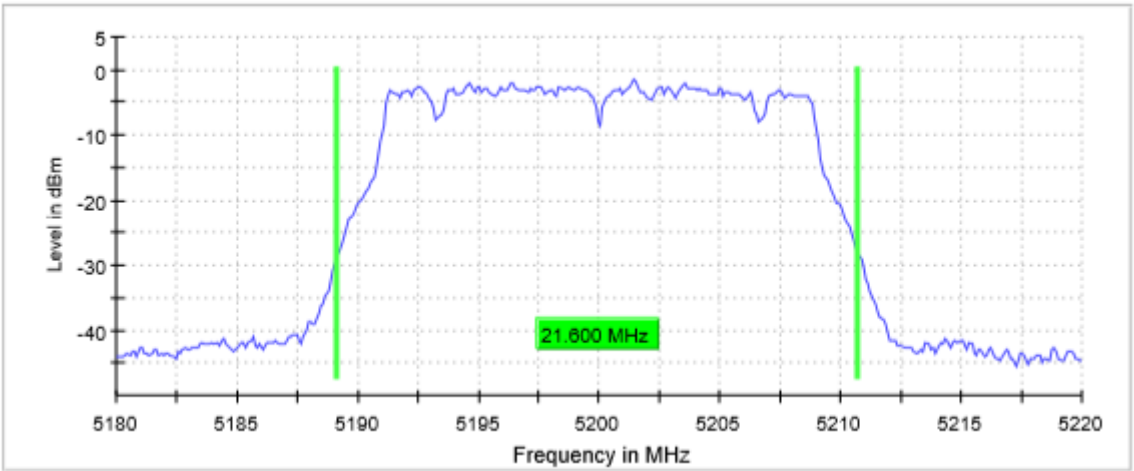
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.600	21.600	21.600
Occupied bandwidth (MHz)	17.900	17.900	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

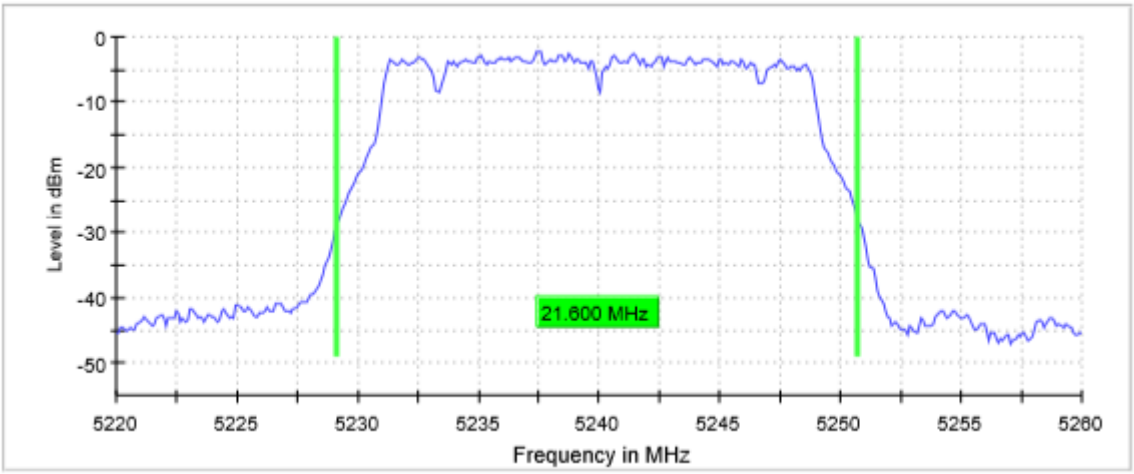
Lowest Channel



Middle Channel



Highest Channel



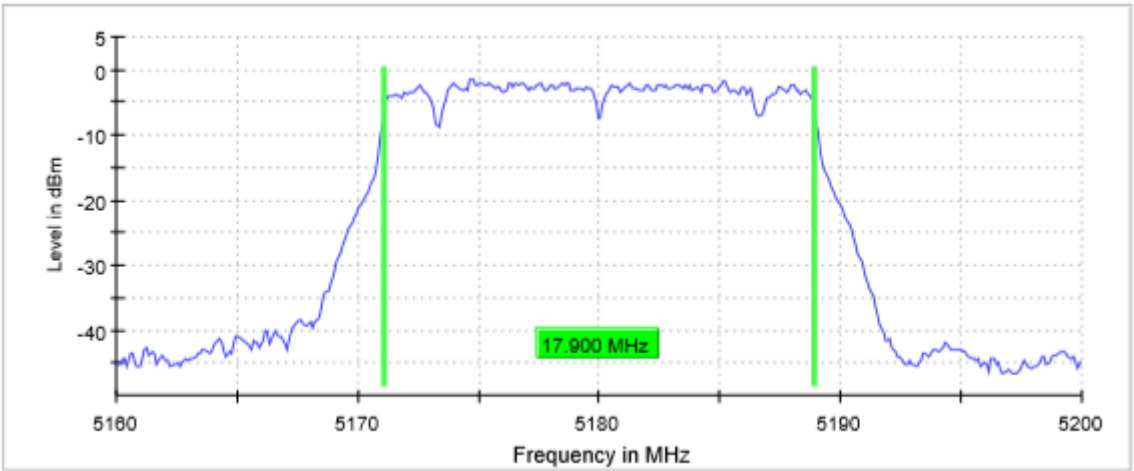
TEST RESULTS (Cont.):

Measurement

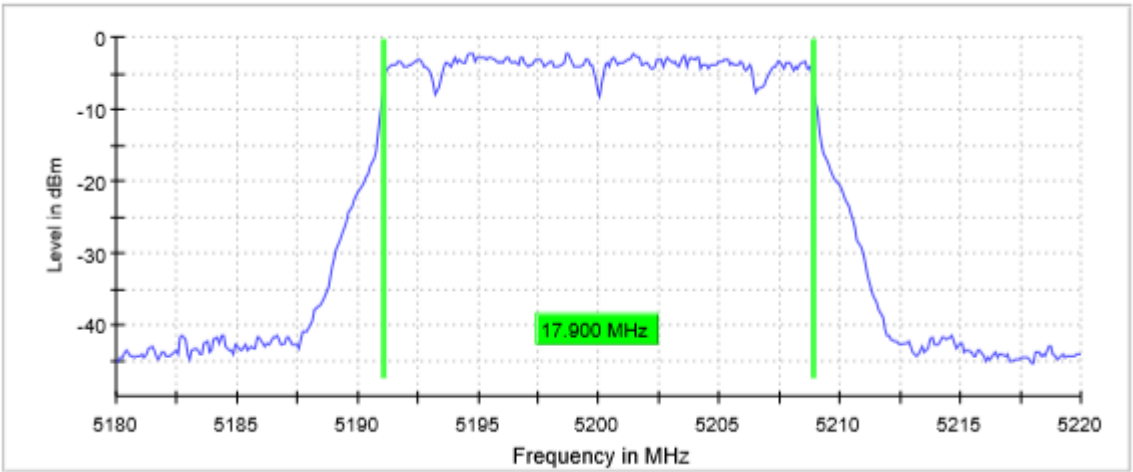
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	0.000 dBm	0.000 dBm
Attenuation	30.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	92 / max. 150	82 / max. 150	91 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.04 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

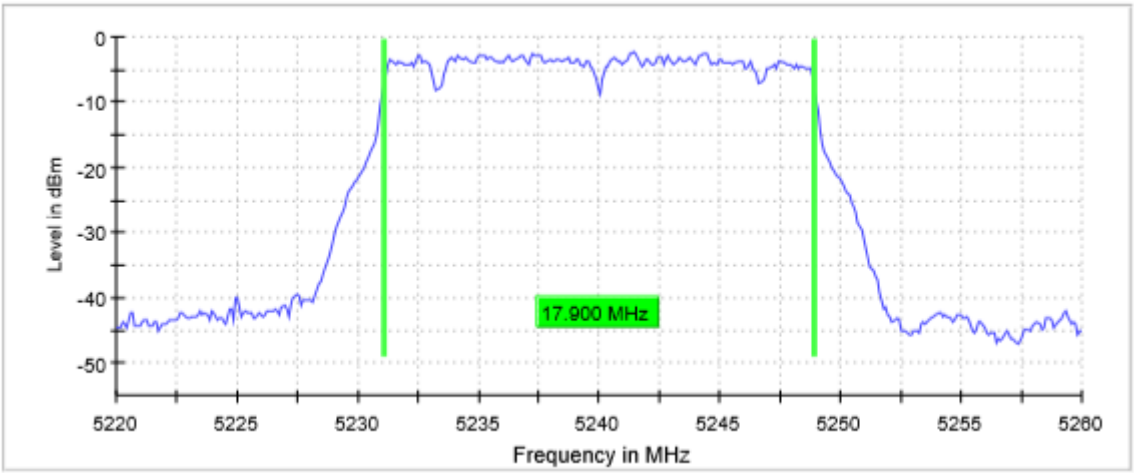
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	128 / max. 150	101 / max. 150	76 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.24 dB	0.26 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02**(n40 mode Chip 1 SISO)**
TEST RESULTS:	PASS

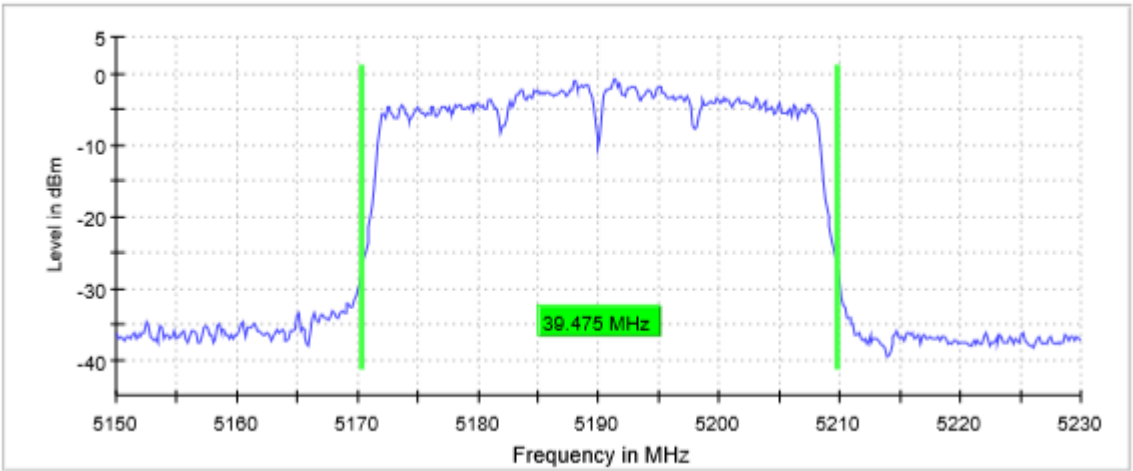
Port 2

Bandwidth: 40 MHz

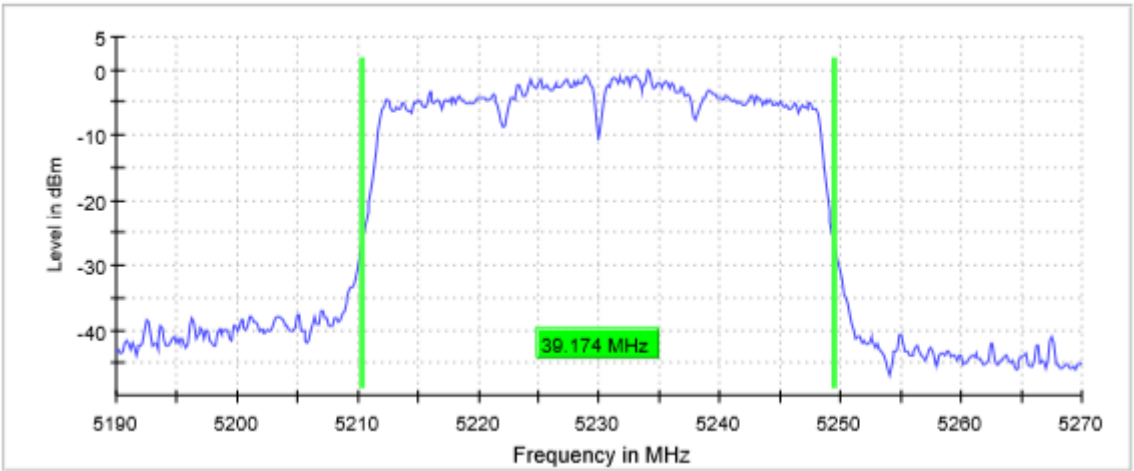
	Lowest frequency 5190 MHz	Highest frequency 5230 MHz
26dB Bandwidth (MHz)	39.475	39.174
Occupied bandwidth (MHz)	36.250	36.250
Measurement uncertainty (kHz)	<± 8.33	

TEST RESULTS (Cont.):	26 dB BANDWIDTH

Lowest Channel



Highest Channel



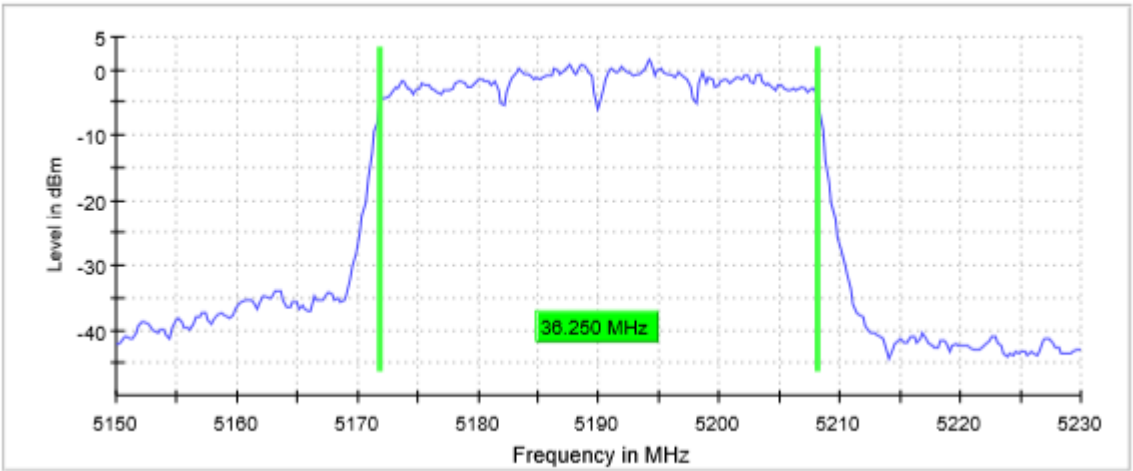
TEST RESULTS (Cont.):	

Measurement

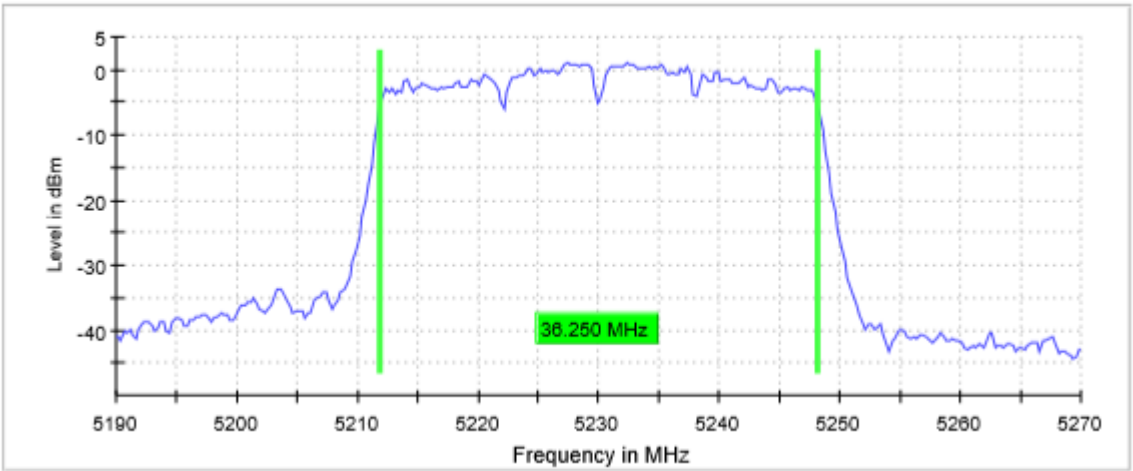
Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	300.000 KHz	300.000 KHz
VBW	1.000 MHz	1.000 MHz
SweepPoints	533	533
Sweeptime	31.621 µs	31.621 µs
Reference Level	20.000 dBm	10.000 dBm
Attenuation	40.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	86 / max. 150	89 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.01 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

Lowest Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 KHz	500.000 KHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	320	320
Sweeptime	18.906 µs	18.906 µs
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	77 / max. 150	102 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.09 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n40 mode Chip 2 SISO)**
TEST RESULTS:	PASS

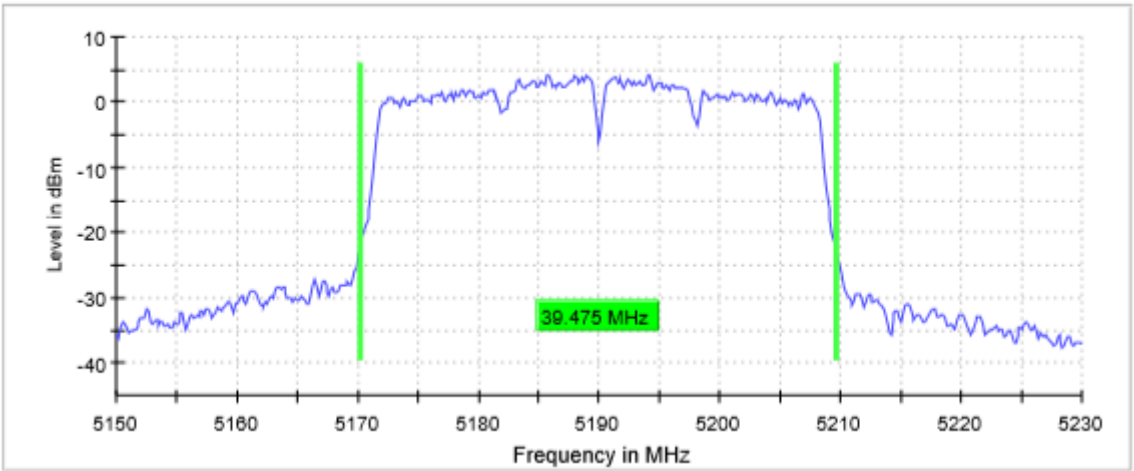
Port 4

Bandwidth: 40 MHz

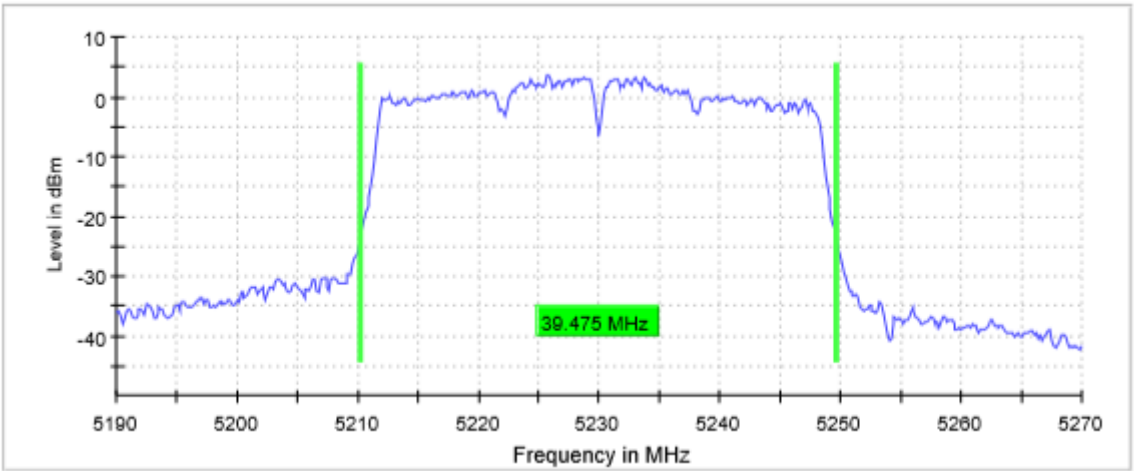
	Lowest frequency 5190 MHz	Highest frequency 5230 MHz
26dB Bandwidth (MHz)	39.475	39.475
Occupied bandwidth (MHz)	36.250	36.250
Measurement uncertainty (kHz)	<± 8.33	

TEST RESULTS (Cont.):	26 dB BANDWIDTH

Lowest Channel



Highest Channel



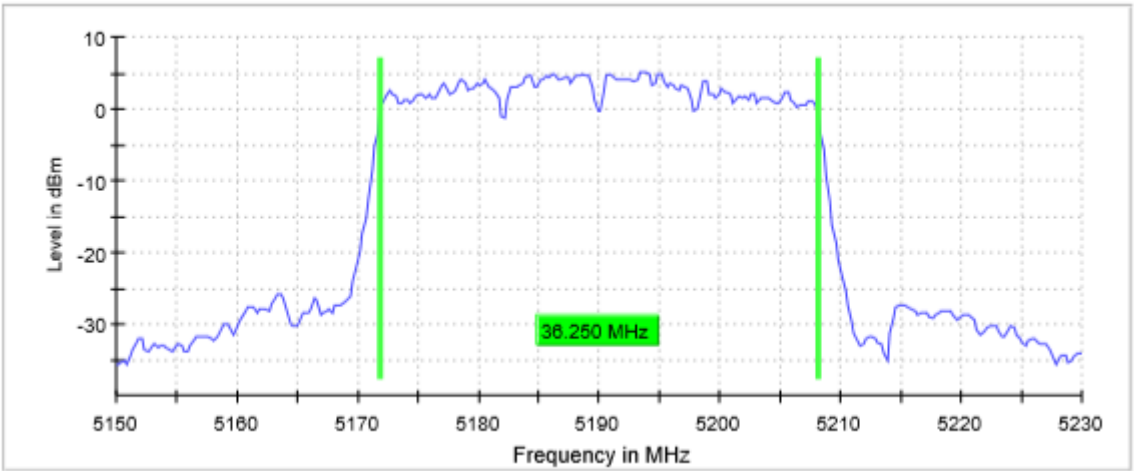
TEST RESULTS (Cont.):	

Measurement

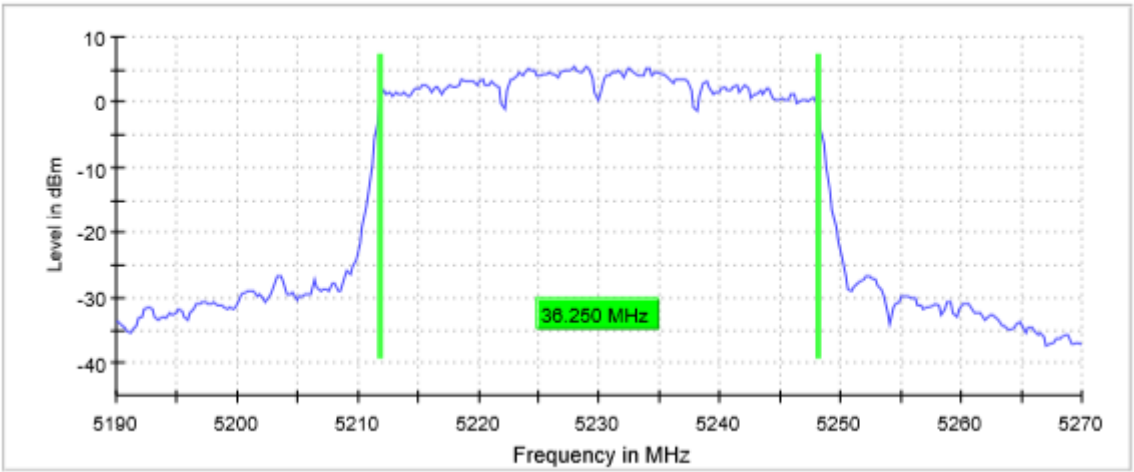
Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	300.000 KHz	300.000 KHz
VBW	1.000 MHz	1.000 MHz
SweepPoints	533	533
Sweeptime	31.621 µs	31.621 µs
Reference Level	10.000 dBm	00.000 dBm
Attenuation	25.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	124 / max. 150	113 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

Lowest Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 KHz	500.000 KHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	320	320
Sweeptime	18.906 µs	18.906 µs
Reference Level	00.000 dBm	00.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	45 / max. 150	117 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.08 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n40 mode Chip 1 MIMO)**
TEST RESULTS:	PASS

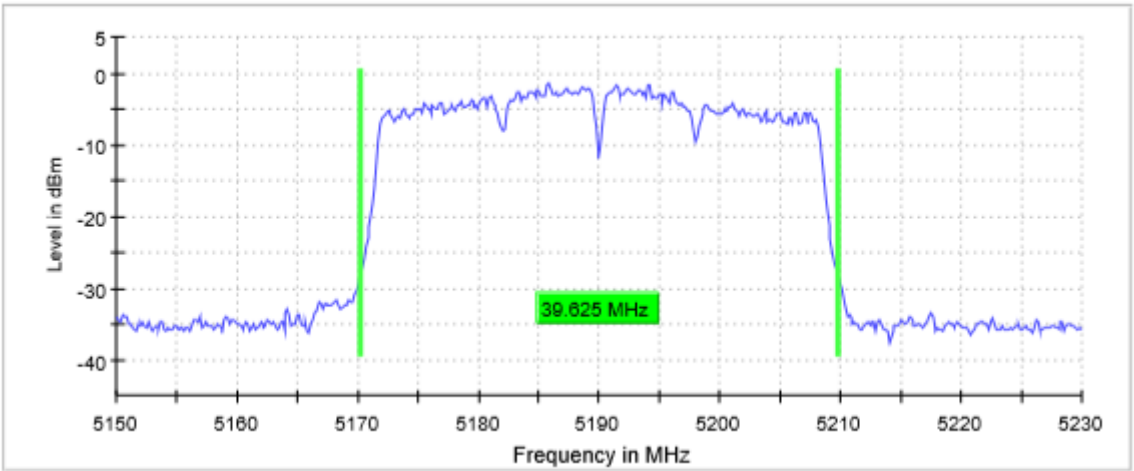
Port 1 & 2

Bandwidth: 20 MHz

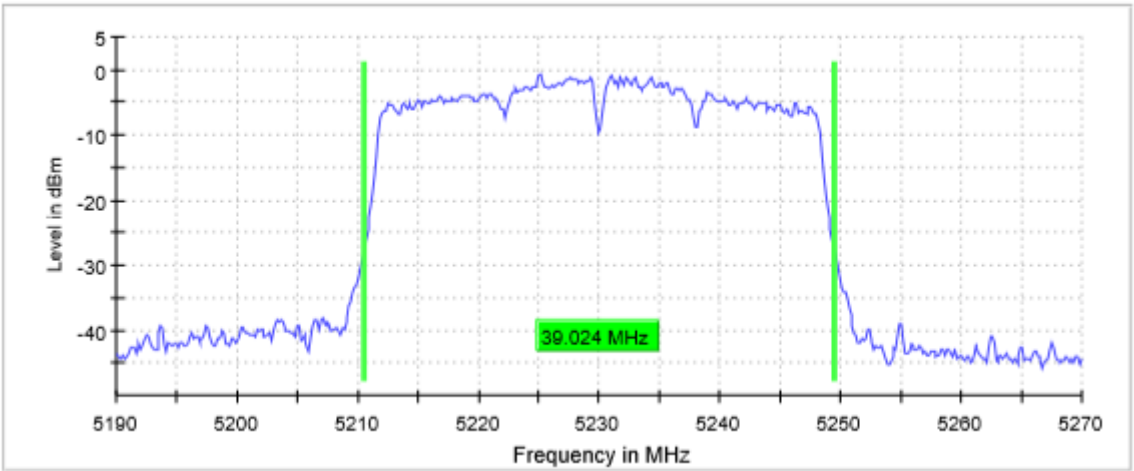
	Lowest frequency 5190 MHz	Highest frequency 5230 MHz
26dB Bandwidth (MHz)	39.625	39.024
Occupied bandwidth (MHz)	36.250	36.250
Measurement uncertainty (kHz)	<± 8.33	

TEST RESULTS (Cont.):	26 dB BANDWIDTH

Lowest Channel



Highest Channel



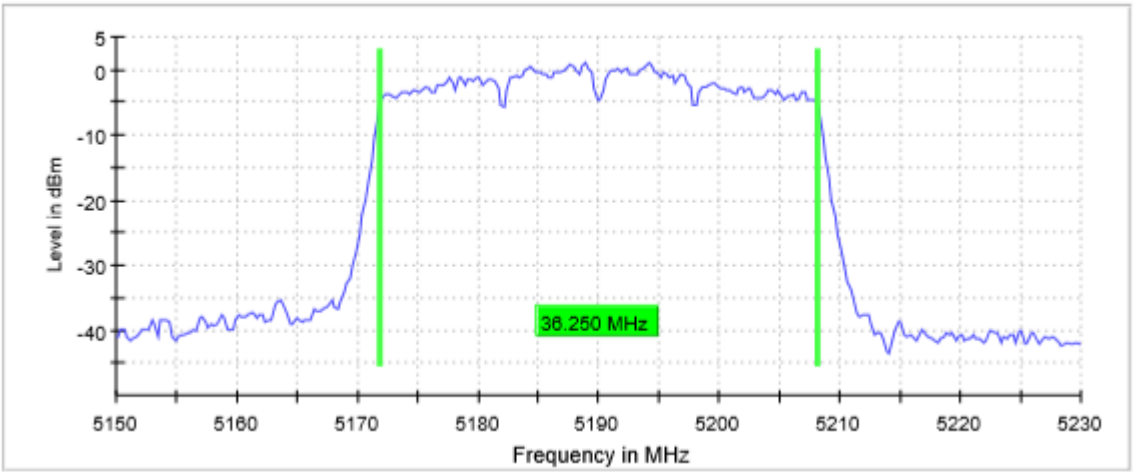
TEST RESULTS (Cont.):

Measurement

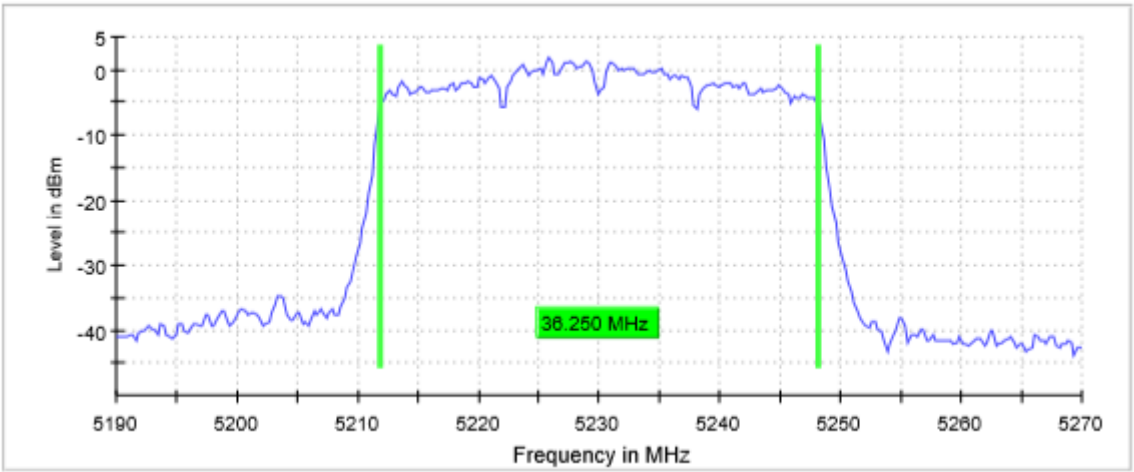
Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	300.000 KHz	300.000 KHz
VBW	1.000 MHz	1.000 MHz
SweepPoints	533	533
Sweeptime	31.621 µs	31.621 µs
Reference Level	10.000 dBm	00.000 dBm
Attenuation	30.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	80 / max. 150	88 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.01 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

Lowest Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 KHz	500.000 KHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	320	320
Sweeptime	18.906 µs	18.906 µs
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	83 / max. 150	101 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 **(n40 mode Chip 2 MIMO)**
TEST RESULTS:	PASS

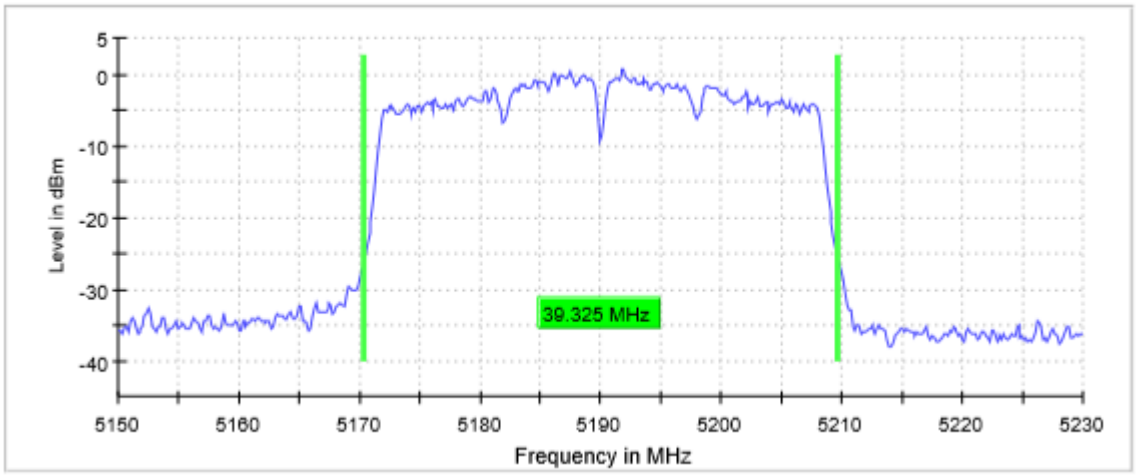
Port 3 & 4

Bandwidth: 40 MHz

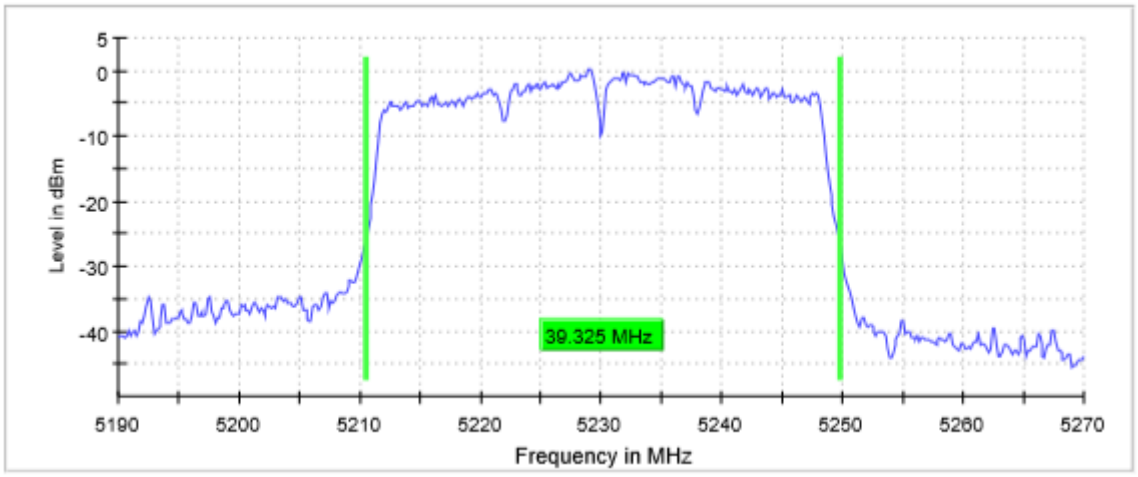
	Lowest frequency 5190 MHz	Highest frequency 5230 MHz
26dB Bandwidth (MHz)	39.325	39.325
Occupied bandwidth (MHz)	36.250	36.250
Measurement uncertainty (kHz)	<± 8.33	

TEST RESULTS (Cont.):	26 dB BANDWIDTH

Lowest Channel



Highest Channel



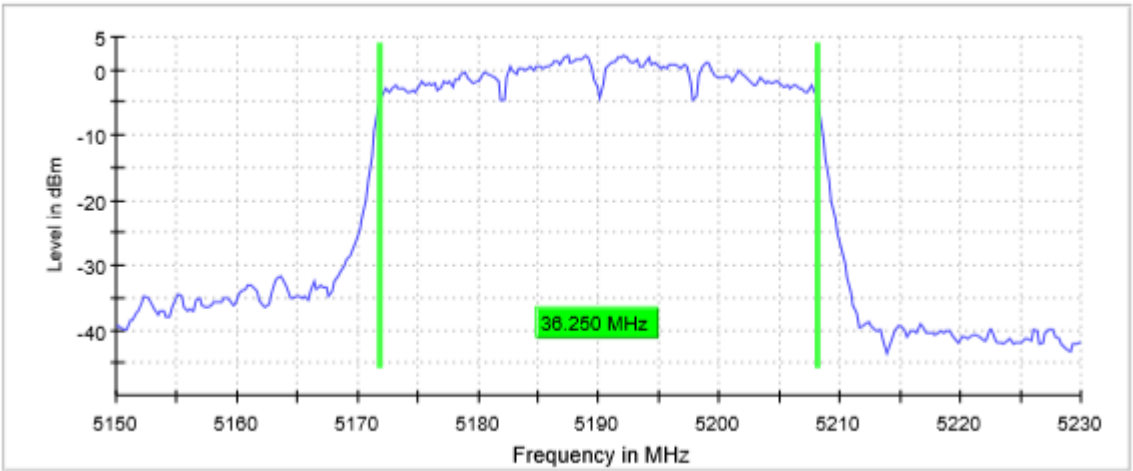
TEST RESULTS (Cont.):	

Measurement

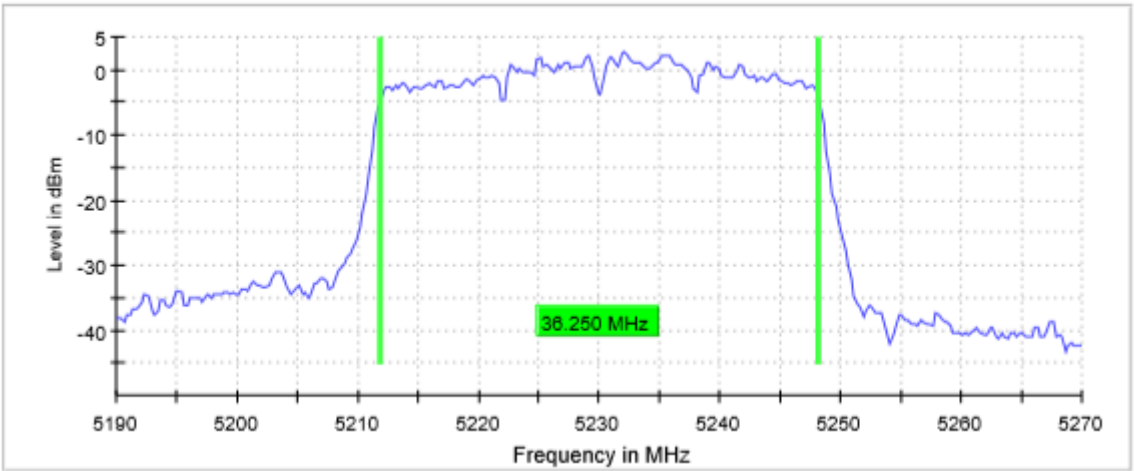
Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	40.000 MHz
RBW	300.000 KHz	300.000 KHz
VBW	1.000 MHz	1.000 MHz
SweepPoints	533	533
Sweeptime	31.621 µs	31.621 µs
Reference Level	10.000 dBm	0.000 dBm
Attenuation	30.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	Off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	96 / max. 150	132 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.29 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

Lowest Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.19000 GHz
Stop Frequency	5.23000 GHz	5.27000 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 KHz	500.000 KHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	320	320
Sweeptime	18.906 µs	18.906 µs
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	103 / max. 150	106 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 **(ac20 mode Chip 1 SISO)**
TEST RESULTS:	PASS

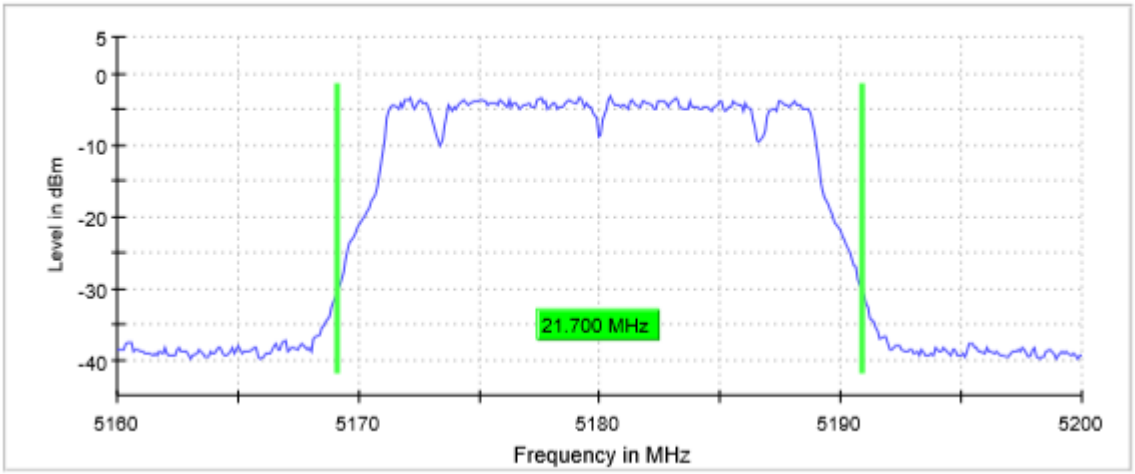
Port 2

Bandwidth: 20 MHz

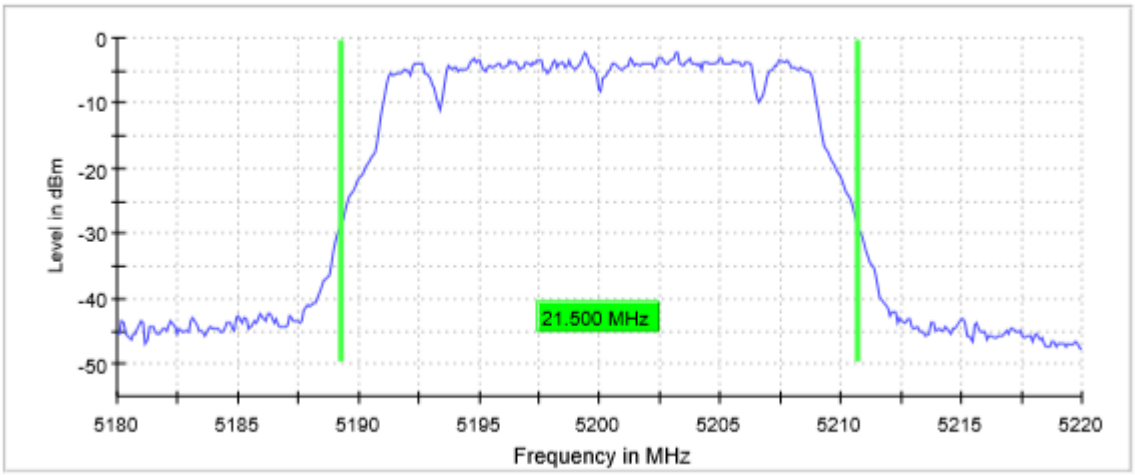
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.700	21.500	21.600
Occupied bandwidth (MHz)	17.900	17.800	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

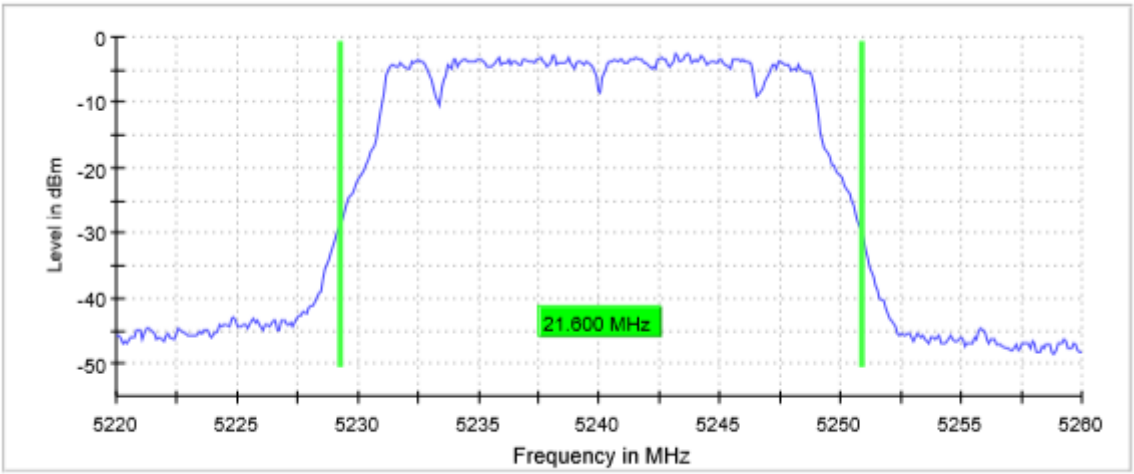
Lowest Channel



Middle Channel



Highest Channel



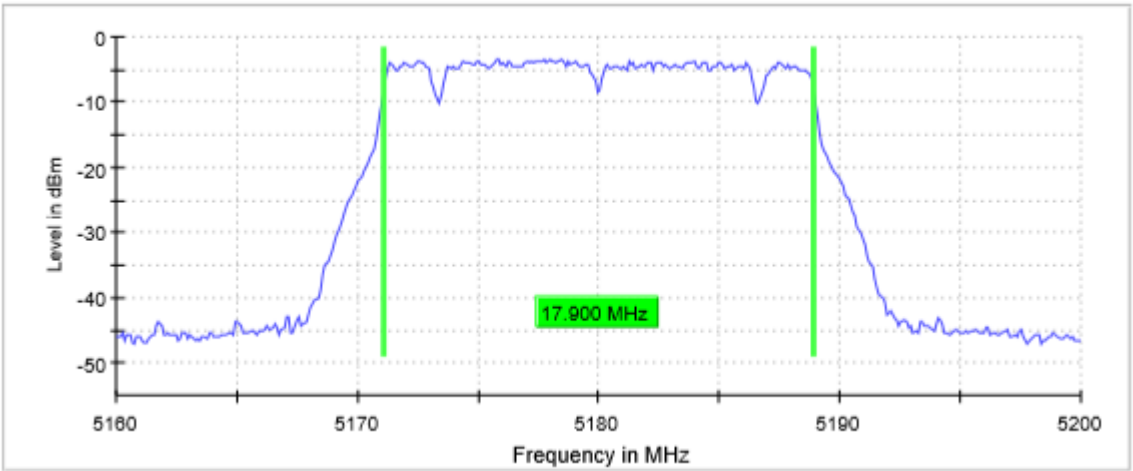
TEST RESULTS (Cont.):	

Measurement

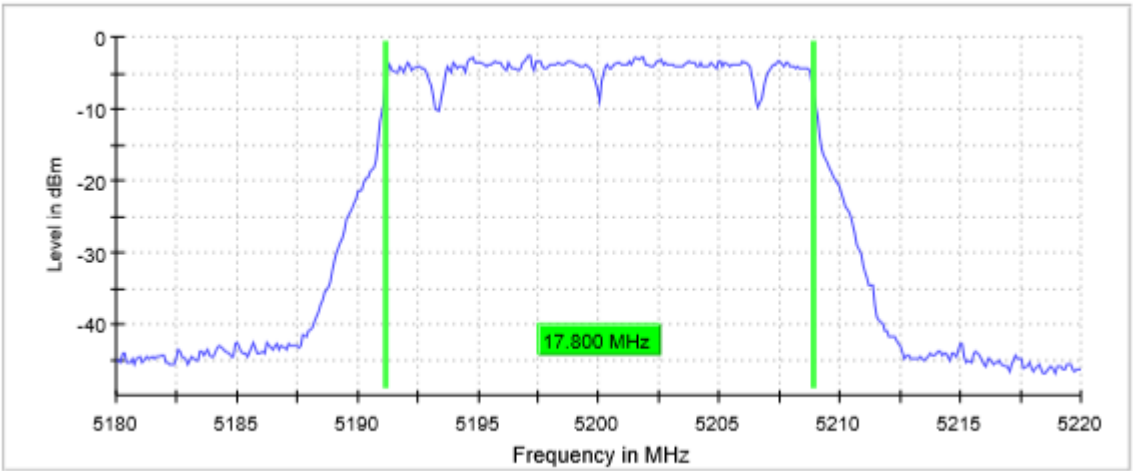
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	10.000 dBm	10.000 dBm
Attenuation	40.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	105 / max. 150	69 / max. 150	102 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.25 dB	0.00 dB	0.29 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

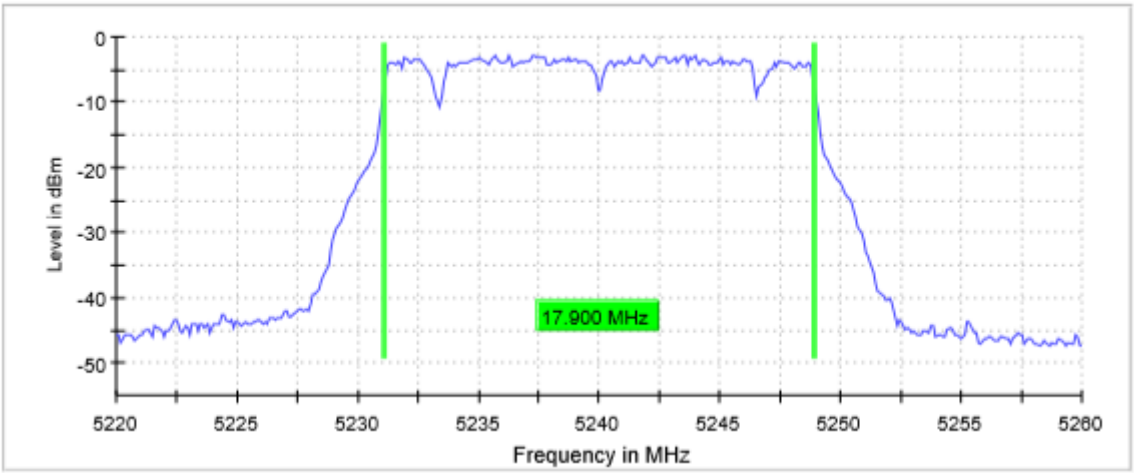
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	200	200	200
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	138 / max. 150	97 / max. 150	96 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.26 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 **(ac20 mode Chip 2 SISO)**
TEST RESULTS:	PASS

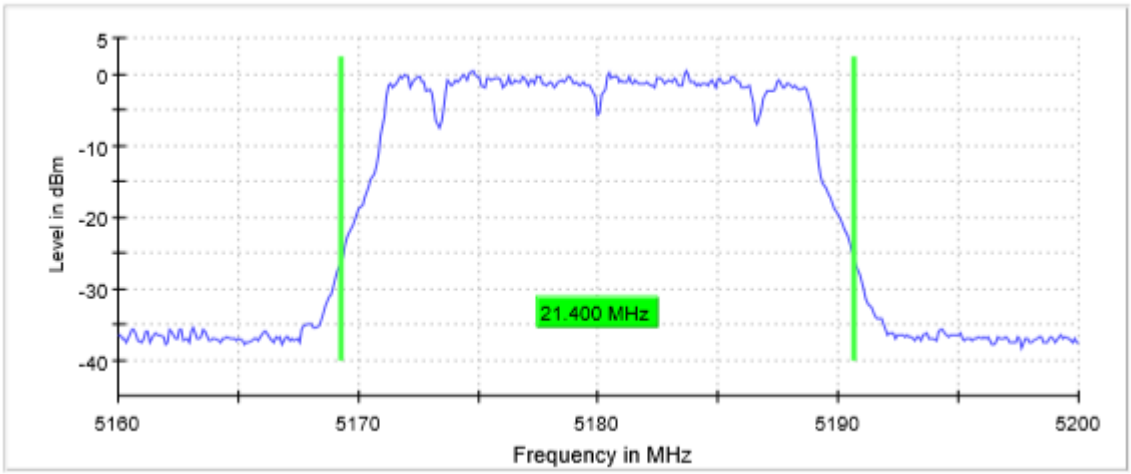
Port 4

Bandwidth: 20 MHz

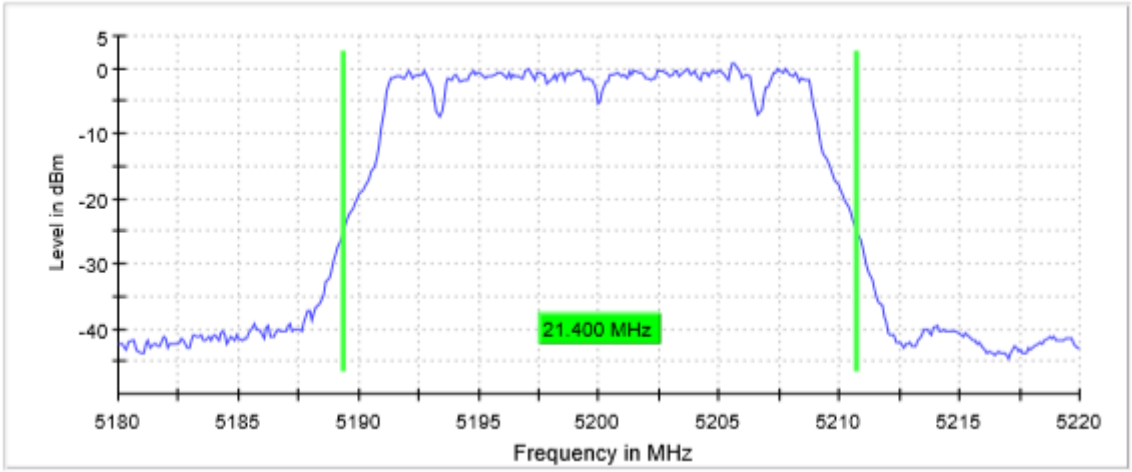
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.400	21.400	21.500
Occupied bandwidth (MHz)	17.900	17.900	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

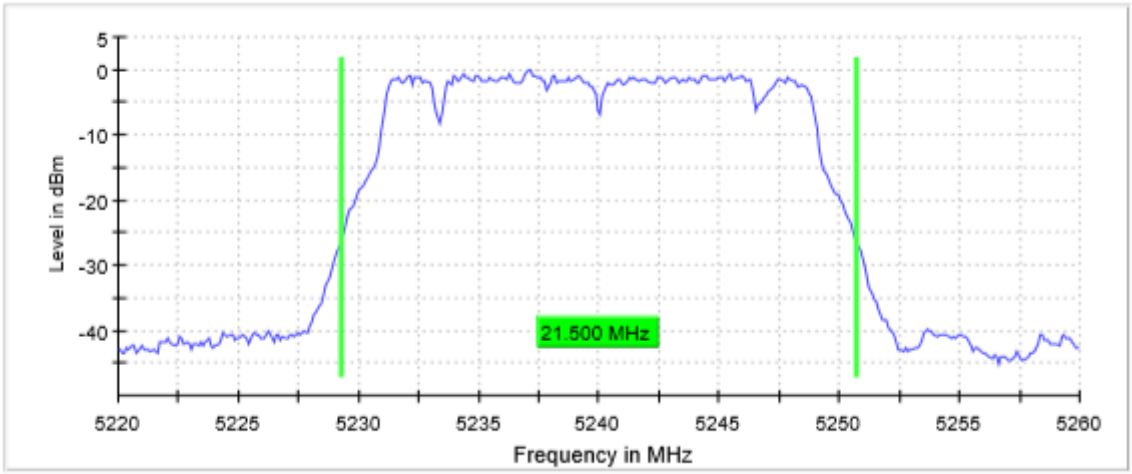
Lowest Channel



Middle Channel



Highest Channel



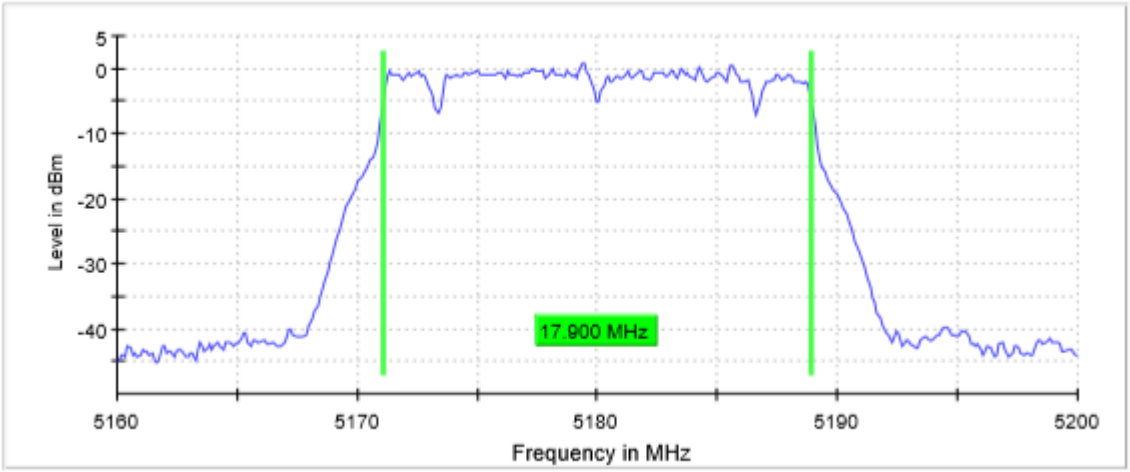
TEST RESULTS (Cont.):	

Measurement

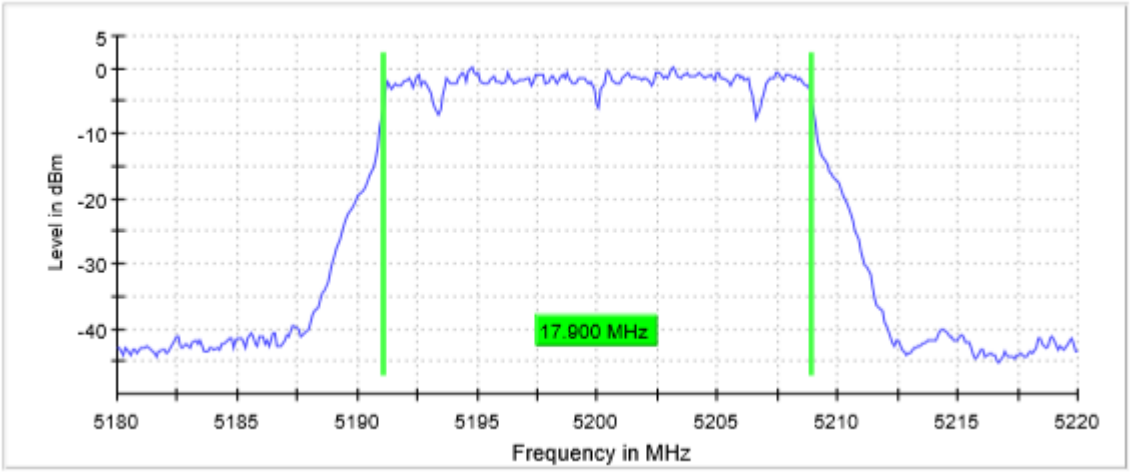
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	59 / max. 150	114 / max. 150	106 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.15 dB	0.07 dB	0.02 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

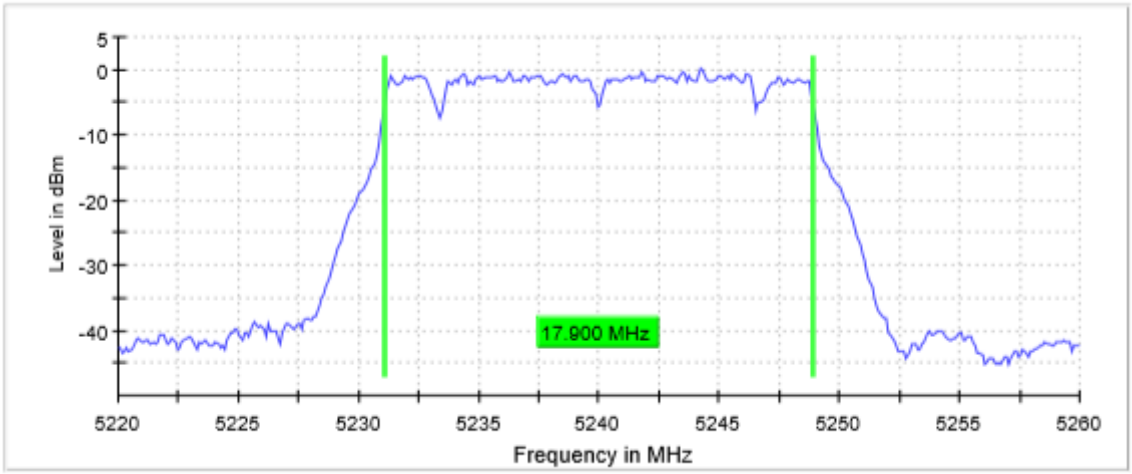
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	00.000 dBm	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	63 / max. 150	34 / max. 150	97 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 **(ac20 mode Chip 1 MIMO)**
TEST RESULTS:	PASS

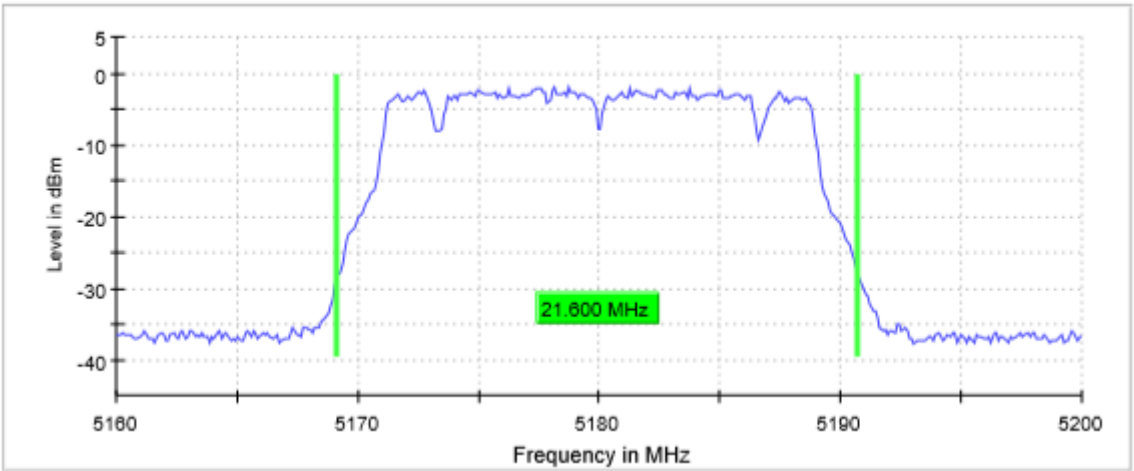
Port 1 & 2

Bandwidth: 20 MHz

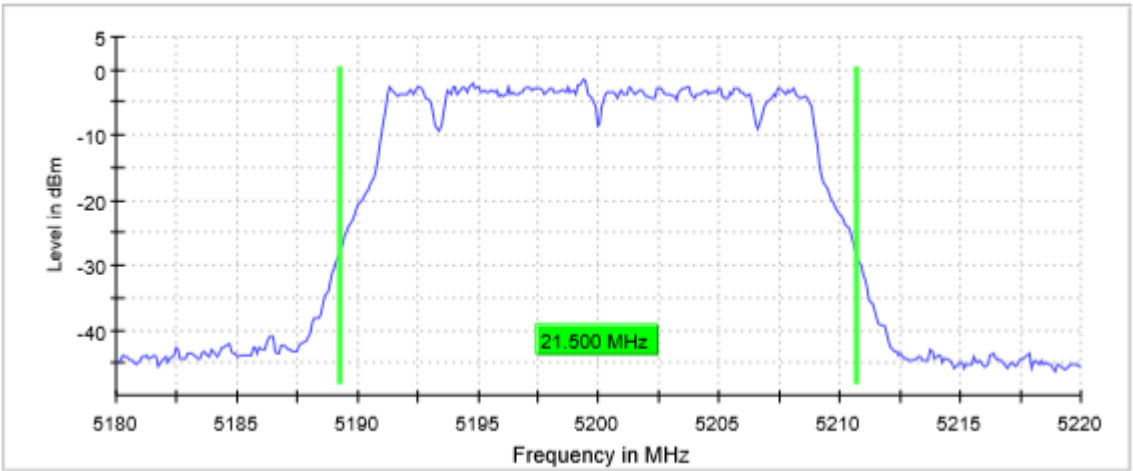
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.600	21.500	21.500
Occupied bandwidth (MHz)	17.900	17.900	17.800
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

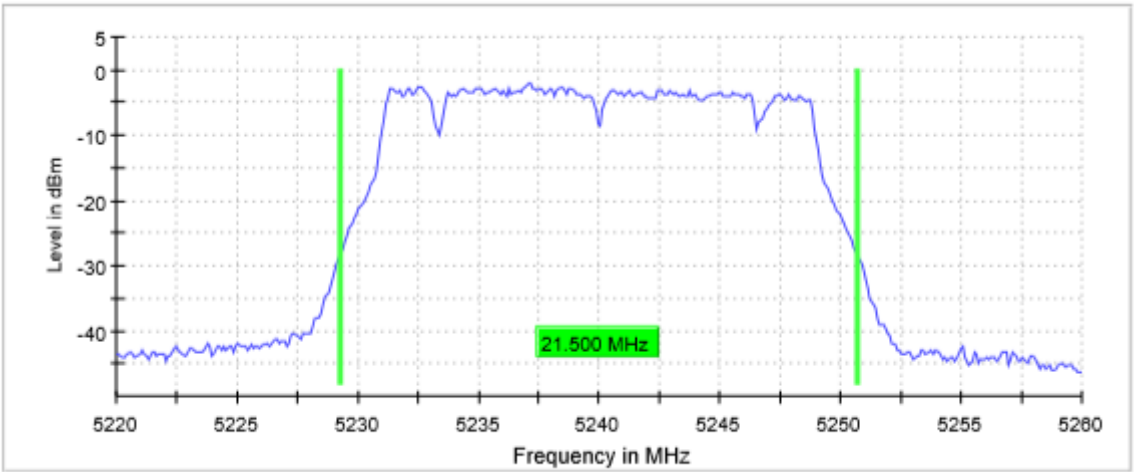
Lowest Channel



Middle Channel



Highest Channel



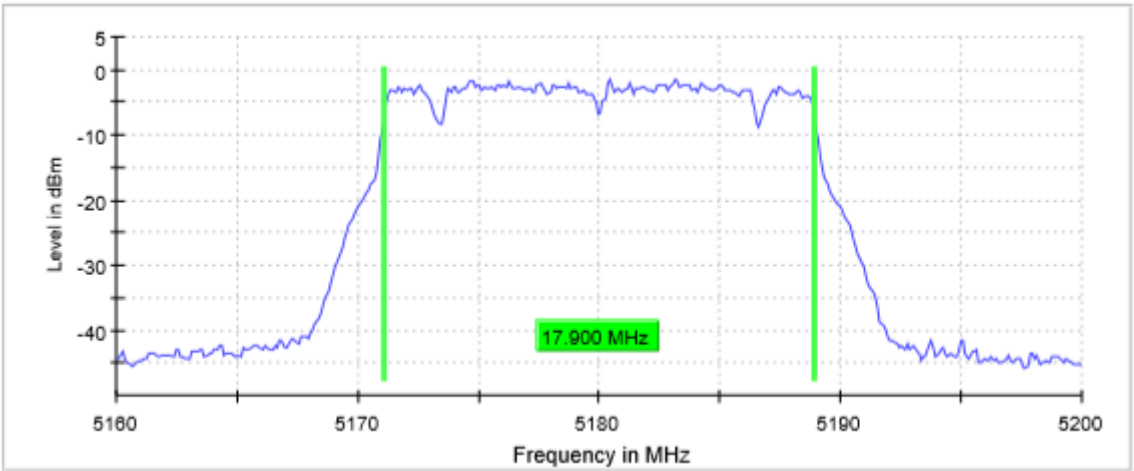
TEST RESULTS (Cont.):	

Measurement

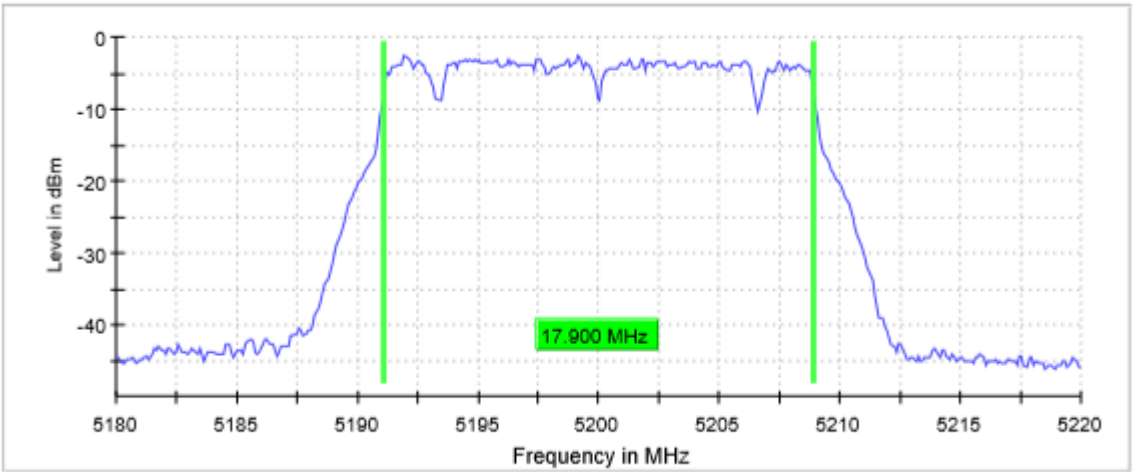
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	0.000 dBm	0.000 dBm
Attenuation	30.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	Off	off	Off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	129 / max. 150	66 / max. 150	120 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.03 dB	0.00 dB

TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH

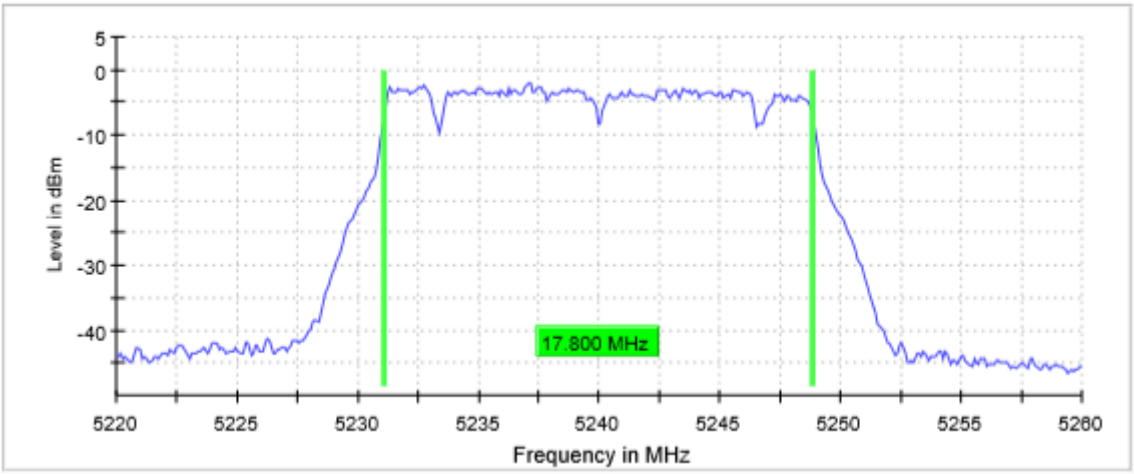
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	

Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 KHz	200.000 KHz	200.000 KHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	400	400	400
Sweeptime	28.477 µs	28.477 µs	28.477 µs
Reference Level	0.000 dBm	00.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	102 / max. 150	81 / max. 150	113 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.06 dB	0.02 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 **(ac20 mode Chip 2 MIMO)**
TEST RESULTS:	PASS

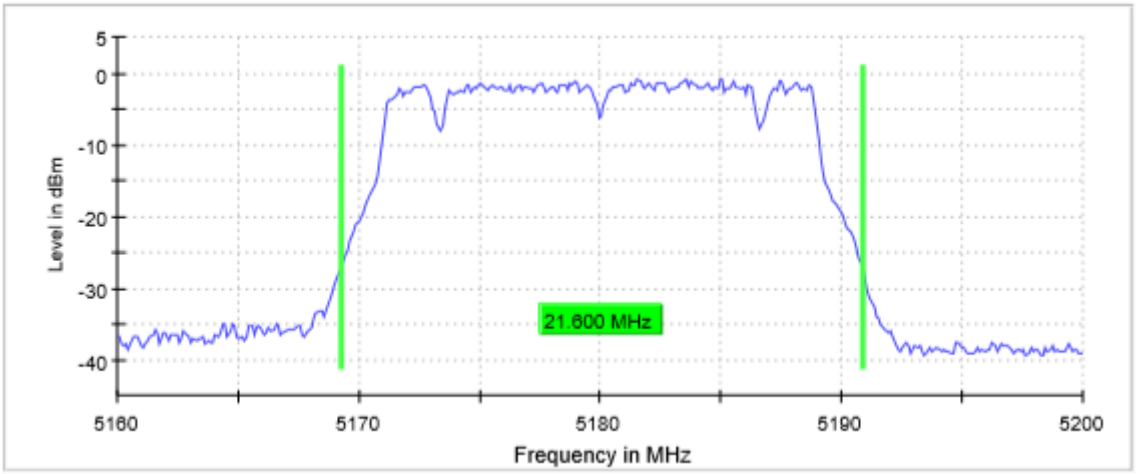
Port 3 & 4

Bandwidth: 20 MHz

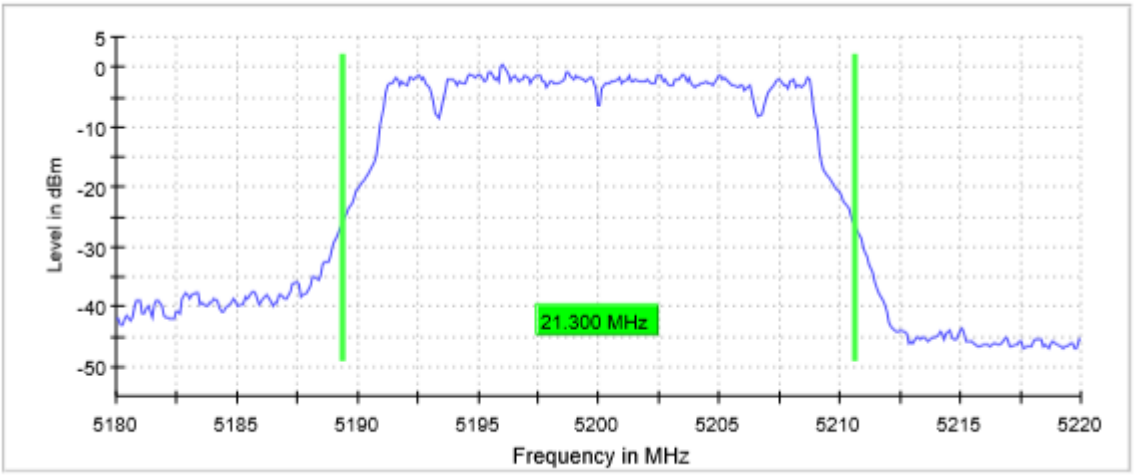
	Lowest frequency 5180 MHz	Middle frequency 5200 MHz	Highest frequency 5240 MHz
26dB Bandwidth (MHz)	21.600	21.300	21.400
Occupied bandwidth (MHz)	17.900	17.900	17.900
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.):	26 dB BANDWIDTH

Lowest Channel



Middle Channel



Highest Channel