Report No.: SEWM2209000168RG06 Rev.: 01 Page: 1 of 791

# **TEST REPORT**

Application No.:	SEWM2209000168RG
Applicant:	Xiaomi Communications Co., Ltd.
Address of Applicant:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer:	Xiaomi Communications Co., Ltd.
Address of Manufacturer:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
EUT Description:	Mobile Phone
Model No.:	22101320G
Trade Mark:	POCO
FCC ID:	2AFZZ1320G
Standards:	FCC 47 CFR Part 2, Subpart J
	FCC 47 CFR Part 15, Subpart E
Date of Receipt:	2022/09/29
Date of Test:	2022/10/01 to 2022/10/25
Date of Issue:	2022/10/26
Test Result :	PASS *

In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Sun anta

Panta Sun Wireless Laboratory Manager



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Report No.: SEWM2209000168RG06 Rev.: 01 2 of 791 Page:

#### Version 1

		<b>Revision Record</b>		
Version	Chapter	Date	Modifier	Remark
01		2022/10/26		Original

Prepared By	(Lves Cheng) / Test Engineer
Checked By	(Well Wei) / Reviewer



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2 Test Summary					Ĩ
Test Item	Band <sup>[1]</sup>	FCC rules No.	Test Requirements	Test Result	Result
Antenna Requirement		15.203/15.407(a)		Clause 4.1	PASS
	Band I	15.407(a)(1)			
26dB Emission Bandwidth	Band II- A	15.407(a)(2)	No limit.	Clause 4.5	Reporting only
	Band II- C	15.407(a)(2)			y
6dB Emission Bandwidth	Band III	15.407(e)	≥ 500 kHz.	Clause 4.6	PASS
	Band I				
	Band II-				
99% Occupied	А	KDB 789033	No limit.	Clause	Reporting
Bandwidth	Band II- C Band III	D02§ D		4.7	only
	Band I				
	Band II-				
Duty Ovala	А		Nie lizeit	Clause 4.3	Reporting only
Duty Cycle	Band II-		No limit.		
	С				-
	Band III				
	Band I	15.407(a)	< 250mW		
Maximum	Band II-				
Conducted	A	15.407(a)(2)	(2) <min{250mw,11dbm+10*lg(ebw)}< td=""><td>Clause</td><td>PASS</td></min{250mw,11dbm+10*lg(ebw)}<>	Clause	PASS
Output Power	Band II-			4.4	17,00
	C	45.407(.)(0)			
	Band III	15.407(a)(3)	< 1W		
	Band I	15.407(a)	<11dBm/MHz	-	
Maximum	Band II-	15 407(a)(2)		Clause	
Power Spectral	A Band II-		<11dBm/MHz	Clause 4.8	PASS
Density	C				
	Band III	15.407(a)(3)	<30dBm/500KHz	-	
			F<1GHz:		
			§15.209/§7.2.5 limit (QP).		
		15.209	F≥1GHz & out-restricted:		PASS
	Band I	15.407(b)	<-27dBm/MHz PK e.i.r.p. (exl. 5.15-		
Unwanted		10.407(0)	5.35 GHz).		
Emissions that			F≥1GHz & in-restricted:		
fall Out of the			§15.209/§7.2.5 limit (AV&PK).	Clause	
Restricted			F<1GHz:	4.9	
Bands	Band II-		§15.209/§7.2.5 limit (QP).		
(Radiated)		15.407(b) 15.209	F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.25-		PASS
	А	13.407(0) 13.209	5.35 GHz).		FAOO
			F≥1GHz & in-restricted:		
			§15.209/§7.2.5 limit (AV&PK).		
	Band II-	15.407(b) 15.209	F<1GHz:	1	PASS

#### Test Summary 2



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I			Report No.: SEWM Rev.: 01 Page: 4 of 79		168RG06
	С		§15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.47- 5.725 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).		
	Band III	15.407(b) 15.209	F<1GHz: §15.209/§7.2.5 limit (QP) F≥1GHz &out-restricted:(QP) a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges; b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges; c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges. F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK).		PASS
Unwanted Emissions in the Restricted Bands (Radiated)	Band I Band II- A Band II- C Band III	15.209		Clause 4.10	PASS
AC Power Line Conducted Emissions	Band I Band II- A Band II- C Band III	15.207		Clause 4.2	PASS
Dynamic Frequency Selection	Band II- A Band II- C	15.407	Channel Move Time:10 Seconds	Clause 4.11	PASS
Frequency Stability	Band I Band II- A Band II- C Band III	15.407(g)	Manufacturers of U-NII devices are 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	N/A	N/A



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 5 of 791

# Contents

1	Versior	٦2			
2	Test S	ummary3			
3	Genera	al Information6			
	3.1	Details of Client			
	3.2	Test Location			
	3.3	Test Facility6			
	3.4	General Description of EUT7			
	3.5	Test Environment and Mode10			
	3.6	Description of Support Units			
	3.7	Worst-case configuration and mode10			
4	Test re	sults and Measurement Data11			
	4.1	Antenna Requirement11			
	4.2	AC Power Line Conducted Emissions			
	4.3	Duty Cycle17			
	4.4	Conducted Output Power			
	4.5	26dB Emission Bandwidth19			
	4.6	6dB Emission Bandwidth20			
	4.7	99% Occupied Bandwidth21			
	4.8	Power Spectral Density			
	4.9	Radiated Spurious Emissions			
	4.10	Restricted bands around fundamental frequency			
	4.11	Dynamic Frequency Selection			
	4.	11.1 DFS Overview			
	4.	11.2 DFS Detection Thresholds			
	4.	11.3 RADAR TEST WAVEFORMS			
	4.	11.4 Response Requirements			
5	Measu	rement Uncertainty (95% confidence levels, k=2)			
6					
7	Photographs - Setup Photos				



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 6 of 791

# **3** General Information

# 3.1 Details of Client

Applicant:	Xiaomi Communications Co., Ltd.	
Address of Applicant:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing China, 100085	
Manufacturer:	Xiaomi Communications Co., Ltd.	
Address of Manufacturer:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085	

## 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.	
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzho Area, China (Jiangsu) Pilot Free Trade Zone	
Post code:	215000	
Test engineer:	Lves Cheng, King-p Li	

# 3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

#### Innovation, Science and Economic Development Canada

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

#### • FCC –Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Report No.: SEWM2209000168RG06 Rev.: 01 Page: 7 of 791

#### EUT Description: Mobile Phone 22101320G Model No .: Trade Mark: POCO Hardware Version: P2 Software Version: **MIUI 14** 869168060047466 **RF** Conducted 869168060047474 IMEI: 869168060034183 **RSE & AC power line** 869168060034191 20 MHz channel bandwidth 802.11a: 802.11n: 20 MHz / 40 MHz channel bandwidth WLAN Mode Supported: 802.11ac: 20 MHz / 40 MHz / 80 MHz / 160 MHz channel bandwidth 20 MHz / 40 MHz / 80 MHz / 160 MHz channel bandwidth 802.11ax: 5150MHz to 5250MHz 5250MHz to 5350MHz Operation Frequency: 5470MHz to 5725MHz 5725MHz to 5850MHz 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) Modulation Type: 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) OFDM/OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 802.11ax: 1024QAM) 20MHz: 802.11a/n(HT20)/ac(VHT20)/ax(HE20) 40MHz: 802.11n(HT40)/ac(VHT40)/ax(HE40) **Channel Spacing:** 80MHz: 802.11ac(VHT80)/ax(HE80) 160MHz: 802.11ac(VHT160)/ax(HE160) Antenna Type: **PIFA Antenna** 5150MHz to 5250MHz: 2.0dBi(Ant7); -0.62dBi(Ant8); 5250MHz to 5350MHz: 0.5dBi(Ant7); -0.05dBi(Ant8); 5470MHz to 5725MHz: -1.0dBi(Ant7); 1.15dBi(Ant8); 5725MHz to 5850MHz: -0.3dBi(Ant7); -0.42dBi(Ant8); Antenna Gain: Note: The antenna gain are derived from the gain information report provided by the manufacturer. SISO SISO 802.11a/n/ac/ax STBC: 802.11n/ac/ax: 2Tx & 2Rx Smart System: TXBF: 802.11n/ac/ax: 2Tx & 2Rx Diversity CDD: 802.11a: 2Tx & 2Rx

# 3.4 General Description of EUT



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 8 of 791

DFS Function:	Master		
	Slave with radar detection		
RF Cable:	2db		
Remark:	•		

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#### Remark:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

Frequency Range of Operation Operating Frequency Range (in each Band)	Number of Measurement Frequencies Required	Location of Measurement Frequency in Band of Operation
1 MHz or less	1	centre
1 MHz to 10 MHz	2	1 near high end, 1 near low end
Greater than 10 MHz	3	1 near high end, 1 near centre

For UNII Band I:				
Mode	Channel	Frequency(MHz)		
	The Lowest channel	5180		
IEEE 802.11a/n/ac/ax 20MHz	The Middle channel	5200		
	The Highest channel	5240		
	The Lowest channel	5190		
IEEE 802.11n/ac/ax 40MHz	The Highest channel	5230		
IEEE 802.11ac/ax 80MHz	The Middle channel	5210		

For UNII Band II-A:				
Mode	Channel	Frequency(MHz)		
	The Lowest channel	5260		
IEEE 802.11a/n/ac/ax 20MHz	The Middle channel	5280		
	The Highest channel	5320		
	The Lowest channel	5270		
IEEE 802.11n/ac/ax 40MHz	The Highest channel	5310		
IEEE 802.11ac/ax 80MHz	The Middle channel	5290		
IEEE 802.11ax 160MHz	The Middle channel	5250		



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Report No.: SEWM2209000168RG06 Rev.: 01 9 of 791 Page:

For UNII Band II-C:				
Mode	Channel	Frequency(MHz)		
	The Lowest channel	5500		
IEEE 802.11a/n/ac/ax 20MHz	The Middle channel	5580		
	The Highest channel	5700		
	The Lowest channel	5510		
IEEE 802.11n/ac/ax 40MHz	The Middle channel	5550		
	The Highest channel	5670		
IEEE 802.11ac/ax 80MHz	The Lowest channel	5530		
	The Highest channel	5610		
IEEE 802.11ax 160MHz	The Middle channel	5570		

For UNII Band III:					
Mode	Channel	Frequency(MHz)			
	The Lowest channel	5745			
IEEE 802.11a/n/ac/ax 20MHz	The Middle channel	5785			
	The Highest channel	5825			
	The Lowest channel	5755			
IEEE 802.11n/ac/ax 40MHz	The Highest channel	5795			
IEEE 802.11ac/ax 80MHz	The Middle channel	5775			

Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz)
Straddla Channal	138#	5690	144	5720
Straddle Channel	142*	5710		

Note:

1. The above Frequency and Channel in "\*" were 802.11n HT40, 802.11ac VHT40 and ax(HE40).

The above Frequency and Channel in "#"were 802.11ac VHT80 and ax(HE80). 2.



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 10 of 791

# Environment Parameter 101.0 kPa Selected Values During Tests Relative Humidity 44-46 % RH Ambient Value Temperature(°C) Voltage(V) NTNV 22~23 3.87 Remark: NV: Normal Voltage NT: Normal Temperature

## 3.5 Test Environment and Mode

## 3.6 Description of Support Units

The EUT has been tested as an independent unit.

## 3.7 Worst-case configuration and mode

Low data rate was used to test on antenna port conducted tests and radiated spurious emissions since it has the highest maximum power. Following are the worst-case data rates set for test:

Modulation Type	SISO - Data Rate	CDD/MIMO - Data Rate
802.11a	6 Mbps	12 Mbps
802.11n (HT 20)	MCS0 (6.5 Mbps)	MCS0 (13 Mbps)
802.11n (HT 40)	MCS0 (13.5 Mbps)	MCS0 (27 Mbps)
802.11ac (VHT 20)	MCS0 (6.5 Mbps)	MCS0 (13 Mbps)
802.11ac (VHT 40)	MCS0 (13.5 Mbps)	MCS0 (27 Mbps)
802.11ac (VHT 80)	MCS0 (29.3 Mbps)	MCS0 (58.5 Mbps)
802.11ac (VHT 160)	MCS0 (58.5 Mbps)	MCS0 (117 Mbps)
802.11ax (HE 20)	MCS0 (8 Mbps)	MCS0 (16 Mbps)
802.11ax (HE 40)	MCS0 (16 Mbps)	MCS0 (32 Mbps)
802.11ax (HE 80)	MCS0 (34 Mbps)	MCS0 (68 Mbps)
802.11ax (HE 160)	MCS0 (68 Mbps)	MCS0 (136 Mbps)



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 11 of 791

# 4 Test results and Measurement Data

# 4.1 Antenna Requirement

Standard requirement:47 CFR Part 15 Section 15.203The antenna is PIFA antenna and no consideration of replacement. The best case gain of the antenna is<br/>5150MHz to 5250MHz: 2.0dBi(Ant7); -0.62dBi(Ant8);<br/>5250MHz to 5350MHz: 0.5dBi(Ant7); -0.05dBi(Ant8);<br/>5470MHz to 5725MHz: -1.0dBi(Ant7); 1.15dBi(Ant8);<br/>5725MHz to 5850MHz: -0.3dBi(Ant7); -0.42dBi(Ant8);\*<br/>\*Note:The antenna gain are derived from the gain information report provided by the manufacturer.<br/>Remark:<br/>As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability.

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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 12 of 791

#### Cyclic Delay Diversity (CDD) System:

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

If all antennas have the same gain,  $G_{ANT}$ , Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices, *Array Gain* = 10 log(N<sub>ANT</sub>/N<sub>SS</sub> =1) dB.
- For power measurements on IEEE 802.11 devices: Array Gain = 0 dB (i.e., no array gain) for N<sub>ANT</sub> ≤ 4; Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N<sub>ANT</sub>; Array Gain = 5 log(N<sub>ANT</sub>/N<sub>SS</sub>=1) dB or 3 dB, whichever is less, for 20-MHz channel widths with N<sub>ANT</sub> ≥ 5.

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi

- If transmit signals are correlated, then
   Directional gain = 10 log[(10<sup>G1/20</sup> + 10<sup>G2/20</sup> + ... + 10<sup>GN/20</sup>)<sup>2</sup> /N<sub>ANT</sub>] dBi [Note the "20"s in the denominator of
   each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]
- If all transmit signals are completely uncorrelated, then Directional gain = 10 log[(10<sup>G1/10</sup> + 10<sup>G2/10</sup> + ... + 10<sup>GN/10</sup>)/N<sub>ANT</sub>] dBi

#### The Power and PSD limit should be modified if the directional gain of eut is over 6dbi.

The EUT supports CDD System. Unequal antenna gain:

	Transmit signals are completely uncorrelated							
Operation Frequency	ANT Gain1 (dBi)	ANT Gain2 (dBi)	Directional gain For Power (dBi)	Directional gain For PSD (dBi)	Power Limit Reduction (dBm)	PSD Limit Reduction (dBm)		
5150MHz to 5250MHz	2	-0.62	0.88	3.80	0	0		
5250MHz to 5350MHz	0.5	-0.05	0.23	3.24	0	0		
5470MHz to 5725MHz	-1	1.15	0.21	3.15	0	0		
5725MHz to 5850MHz	-0.3	-0.42	-0.36	2.65	0	0		

5150MHz to 5250MHz:

Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 5250MHz to 5350MHz: Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 5470MHz to 5725MHz: Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 5725MHz to 5850MHz: Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0 PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0



 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 13 of 791

## 4.2 AC Power Line Conducted Emissions

SG

Test Requirement:	47 CFR Part 15 Section 15.407(b)				
Test Method:	ANSI C63.10: 2013 Section 6.2				
Test Frequency Range:	150kHz to 30MHz				
Receiver Setup:	RBW = 9kHz, VBW = 30kHz				
Limit:		Limit (d	BuV)		
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the log	arithm of the frequency.			
Test Procedure:	<ul> <li>room.</li> <li>2) The EUT was connected Impedance Stabilizati impedance. The power connected to a second plane in the same ware multiple socket outlet single LISN provided</li> <li>3) The tabletop EUT ware ground reference plane placed on the horizor</li> <li>4) The test was perform of the EUT shall be 0 vertical ground reference plane. The unit under test and be mounted on top of the EUT shall be the EUT and association</li> <li>5) In order to find the mare equipment and all of the end of the second secon</li></ul>	disturbance voltage test was cted to AC power source throu ion Network) which provides a er cables of all other units of the d LISN 2, which was bonded by as the LISN 1 for the unit be strip was used to connect mut the rating of the LISN was not s placed upon a non-metallic ne. And for floor-standing arrant tal ground reference plane, ed with a vertical ground refe .4 m from the vertical ground refe .4 m from the vertical ground ence plane was bonded to the LISN 1 was placed 0.8 m from bonded to a ground reference plane. This bonds of the LISN 1 and the E ted equipment was at least 0. aximum emission, the relative the interface cables must be on conducted measurement.	ugh a LISN 1 (Line a $50\Omega/50\mu$ H + $5\Omega$ linear the EUT were to the ground reference eing measured. A ultiple power cables to a ot exceeded. table 0.8m above the angement, the EUT was rence plane. The rear reference plane. The horizontal ground m the boundary of the olane for LISNs is distance was EUT. All other units of .8 m from the LISN 2. e positions of		



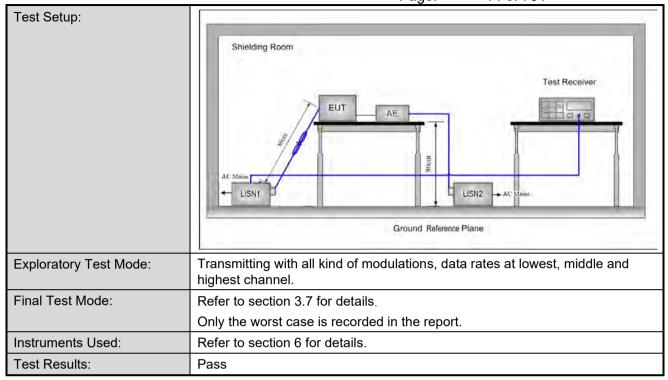
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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 14 of 791





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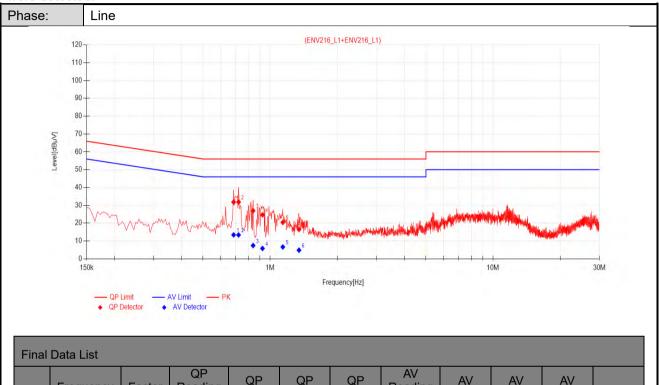
 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 15 of 791

#### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



	NO.	Frequency [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
	1	0.6855	10.57	21.28	31.85	56.00	24.15	2.89	13.46	46.00	32.54	PASS
	2	0.7215	10.56	21.31	31.87	56.00	24.13	2.85	13.41	46.00	32.59	PASS
	3	0.8385	10.54	16.43	26.97	56.00	29.03	-3.07	7.47	46.00	38.53	PASS
	4	0.9240	10.57	14.12	24.69	56.00	31.31	-4.72	5.85	46.00	40.15	PASS
	5	1.1400	10.69	9.78	20.47	56.00	35.53	-4.01	6.68	46.00	39.32	PASS
	6	1.3470	10.78	5.75	16.53	56.00	39.47	-5.91	4.87	46.00	41.13	PASS
F	Remar	k:										

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Value =Reading[dBµV] + Factor(Lisn factor[dB] + cable loss[dB]).

3. Margin = Limit[dBµV] – Value[dBµV]



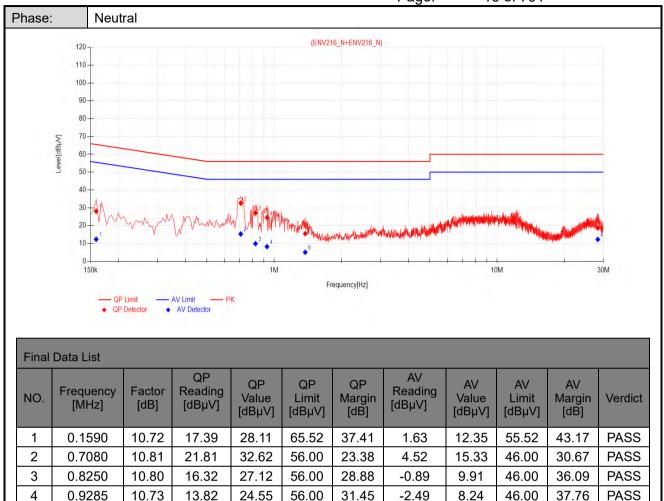
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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 16 of 791



6 Remark:

5

1.3785

28.3335

1. The following Quasi-Peak and Average measurements were performed on the EUT:

56.00

60.00

40.46

41.29

15.54

18.71

2. Value =Reading[dB $\mu$ V] + Factor(Lisn factor[dB] + cable loss[dB]).

4.77

8.25

3. Margin = Limit[dBµV] – Value[dBµV]

10.77

10.46



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-5.69

1.83

5.08

12.29

46.00

50.00

40.92

37.71

PASS

PASS

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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 17 of 791

# 4.3 Duty Cycle

The detailed test data see: Appendix



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 18 of 791

#### Test Requirement: 47 CFR Part 15 Section 15.407(a) ANSI C63.10 :2013 Section11.9.2.3 Test Method: Test Setup: 0 wor probe 0 E.U.T Ground Reference Plane \* Test with power meter (Detector function: Average) Test Instruments: Refer to section 6 for details. Exploratory Test Mode: Transmitting with all kind of modulations, data rates Final Test Mode: Refer to section 3.7 for details. Limit: **Frequency Band** Limit 5150-5250MHz Not exceed 250mW(24dBm) The lesser of 250mW(24dBm) or 11+ 10logB 5250-5350MHz The lesser of 250mW(24dBm) or 11+ 10logB 5470-5725MHz 5725-5850MHz Not exceed 1W(30dBm) \*Where B is the 26dB emission bandwidth in MHz Test Results: Pass The detailed test data see: Appendix

## 4.4 Conducted Output Power



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> Report No.: SEWM2209000168RG06 Rev.: 01 19 of 791 Page:

# 4.5 26dB Emission Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a), KDB 789033 D02& C			
Test Method:	ANSI C63.10: 2013 Section 11.8 Option 2			
Test Setup:	PC   Sector Analyzer    FF Control Unit FF Control			
Instruments Used:	Refer to section 6 for details.			
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates			
Final Test Mode:	Refer to section 3.7 for details.			
Limit:	No restriction limits			
Test Results:	Pass			
The detailed test data see: A	ppendix			



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 20 of 791

# Test Requirement: 47 CFR Part 15 Section 15.407(e) Test Method: ANSI C63.10: 2013 Section 11.8 Option 2 Test Setup: SGS Test system Vector Sector Analyzer Sector Analyzer

4.6 6dB Emission Bandwidth

	PC Spectrum Analyzer O O O O Tester Ff Control Unit Control Unit C				
Test Instruments:	Refer to section 6 for details.				
Exploratory Test Mode:	Transmitting with all kind of m	nodulations, data rates			
Final Test Mode:	Refer to section 3.7 for details	S.			
Limit:	Frequency Band	Limit			
	5725-5850MHz	At lease 500kHz			
Test Results:	Pass				
The detailed test data see: A	The detailed test data see: Appendix				



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 Rev.:
 01

 Page:
 21 of 791

#### Test Requirement: KDB 789033 D02§ D Test Method: ANSI C63.10: 2013 Section 6.9.3 Test Setup: SGS Test system 0 PC Communication -Cont ol Unit 0 0 0 m E.U.T Analog Signal Gen DC Power 00000 l **Ground Reference Plane** Instruments Used: Refer to section 6 for details. Exploratory Test Mode: Transmitting with all kind of modulations, data rates Final Test Mode: Refer to section 3.7 for details, Limit: No restriction limits Test Results: Pass The detailed test data see: Appendix

### 4.7 99% Occupied Bandwidth



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 22 of 791

Test Requirement:	47 CFR Part 15 Sec	47 CFR Part 15 Section 15.407(a)					
Test Method:	ANSI C63.10: 2013	Section 11.10.2					
	KDB 789033 D02 v02r01, Section F.						
Test Setup:		SGS       Test system         Ettor Stand Generator         Spectrum Analyzer         Spectrum Analyzer         FF Control Unit         FF Control Unit         Spectrum Communication         D C Power         L         Struct Stand Generator         Spectrum Analyzer         D C Power         L         Struct Stand Generator         Spectrum Analyzer         D C Power         Sector         Sector					
Instruments Used:	Refer to section 6 for	or details.					
Exploratory Test Mode:	Transmitting with all	kind of modulations, data rates					
Final Test Mode:	Refer to section 3.7	for details.					
Limit:	Frequency Band	Limit					
	5150-5250MHz	The power spectral density less than 11dBm/1MHz					
	5250-5350MHz	The power spectral density less than 11dBm/1MHz					
	5470-5725MHz	The power spectral density less than 11dBm/1MHz					
	5725-5850MHz	The power spectral density less than <30dBm/500KHz					
Test Results:	Pass						
The detailed test data see:	Appendix						

# 4.8 Power Spectral Density



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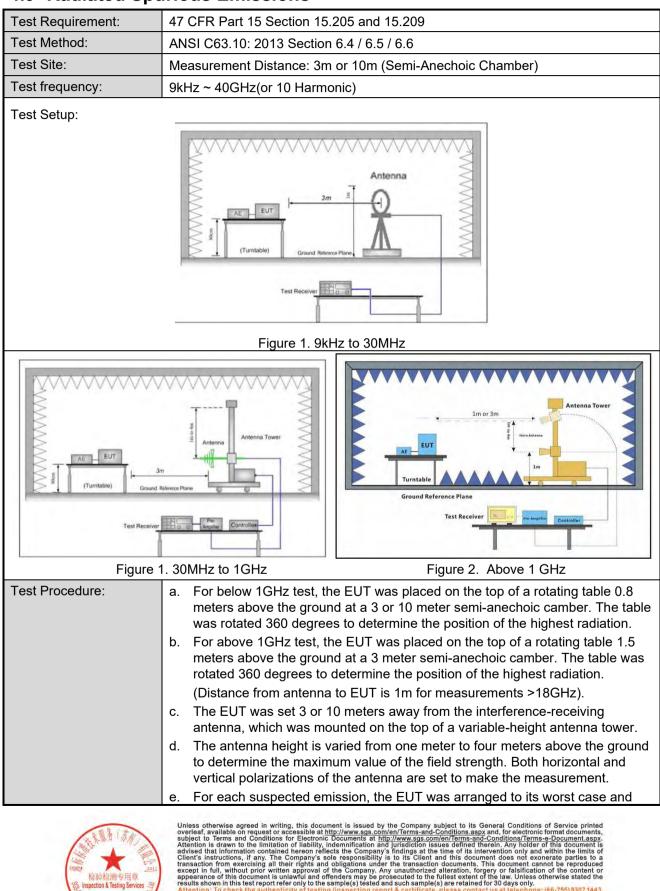
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Report No.: SEWM2209000168RG06 Rev.: 01 Page: 23 of 791

## 4.9 Radiated Spurious Emissions



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 24 of 791

	Page: 24 of 791
	<ul><li>then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li><li>f. The test-receiver system was set to Peak Detect Function and Specified</li></ul>
	Bandwidth with Maximum Hold Mode.
	g. Test the EUT in the outermost channels.
	<ul> <li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.</li> </ul>
	i. Repeat above procedures until all frequencies measured was complete.
	j. The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported
	K. The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed.
	<ol> <li>At a measurement distance of 1 meter the limit line was increased by 20*LOG(3/1) = 9.54 dB.</li> </ol>
Test Configuration:	Measurements Below 1000MHz
	• RBW = 120 kHz
	• VBW = 300 kHz
	• Detector = Peak
	<ul> <li>Trace mode = max hold</li> </ul>
	Peak Measurements Above 1000 MHz
	• RBW = 1 MHz
	• VBW ≥ 3 MHz
	• Detector = Peak
	<ul> <li>Sweep time = auto</li> </ul>
	<ul> <li>Trace mode = max hold</li> </ul>
	Average Measurements Above 1000MHz
	• RBW = 1 MHz
	• VBW ≥ [3 *RBW]
	<ul> <li>Detector = RMS (power averaging), if span / (# of points in sweep) ≤ (RBW / 2).</li> <li>Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.</li> </ul>
	<ul> <li>Sweep time = auto</li> </ul>
	<ul> <li>Perform a trace average of at least 100 traces.</li> </ul>
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
Final Test Mode:	Refer to section 3.7 for details.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass
The detailed test data see	: Appendix



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Report No.: SEWM2209000168RG06 Rev.: 01 25 of 791 Page:

## 4.10Restricted bands around fundamental frequency

Test Requirement:				
Test Method:	ANSI C63.10: 2013 Section			
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)			
Limit:	Frequency	Limit (dBuV/m)	Remark	
	30MHz-88MHz	40.0	Quasi-peak	
	88MHz-216MHz	43.5	Quasi-peak	
	216MHz-960MHz	46.0	Quasi-peak	
	960MHz-1GHz	54.0	Quasi-peak	
	Above 1GHz	54.0	Average Value	
	Above IGHZ	74.0	Peak Value	

#### Test Setup:

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Test Setup:	
	Antenna Tower Im or 3m F Hun Assess Antenna Tower Turntable Ground Reference Plane Test Receiver Freewood Controller
Test Procedure:	<ul> <li>a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> </ul>
	<ul> <li>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> </ul>
	<ul> <li>g. Test the EUT in the outermost channels.</li> <li>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.</li> </ul>



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Report No.: SEWM2209000168RG06 Rev.: 01 26 of 791 Page:

	Page: 20 01 79 1				
	i. Repeat above procedures until all frequencies measured was complete.				
Test Configuration:	Measurements Below 1000MHz				
	• RBW = 120 kHz				
	• VBW = 300 kHz				
	• Detector = Peak				
	<ul> <li>Trace mode = max hold</li> </ul>				
	Peak Measurements Above 1000 MHz				
	• RBW = 1 MHz				
	• VBW ≥ 3 MHz				
	• Detector = Peak				
	• Sweep time = auto				
	Trace mode = max hold				
	Average Measurements Above 1000MHz				
	• RBW = 1 MHz				
	• VBW ≥ [3 *RBW]				
	<ul> <li>Detector = RMS (power averaging), if span / (# of points in sweep) ≤ (RBW / 2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.</li> </ul>				
	Sweep time = auto				
	<ul> <li>Perform a trace average of at least 100 traces.</li> </ul>				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.				
Final Test Mode:	Refer to section 3.7 for details.				
Instruments Used:	Refer to section 6 for details.				
Test Results:	Pass				
The detailed test data see	The detailed test data see: Appendix				



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Report No.: SEWM2209000168RG06 Rev.: 01 27 of 791 Page:

## **4.11Dynamic Frequency Selection**

### 4.11.1 DFS Overview

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	<b>Operational Mode</b>				
	Master	Client Without Radar Detection	Client With Radar Detection		
Non-Occupancy Period	Yes	Not required	Yes		
DFS Detection Threshold	Yes	Not required	Yes		
Channel Availability Check Time	Yes	Not required	Not required		
U-NII Detection Bandwidth	Yes	Not required	Yes		

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode				
	Master Device or Client	<b>Client Without</b>			
	with Radar Detection	<b>Radar Detection</b>			
DFS Detection Threshold	Yes	Not required			
Channel Closing Transmission Time	Yes	Yes			
Channel Move Time	Yes	Yes			
U-NII Detection Bandwidth	Yes	Not required Client Without Radar Detection			
Additional requirements for devices with	Master Device or Client with				
multiple bandwidth modes	<b>Radar Detection</b>				
U-NII Detection Bandwidth and Statistical	All BW modes must be tested	Not required			
Performance Check					
Channel Move Time and Channel Closing	Test using widest BW mode	Test using the widest			
Transmission Time	available	BW mode available for			
		the link			
All other tests	Any single BW mode Not required				
<b>Note:</b> Frequencies selected for statistical performance check (Section 7.8.4) should include several					
frequencies within the radar detection bandwidth and frequencies near the edge of the radar					
detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the					
bonded 20 MHz channels and the channel center frequency.					



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 28 of 791

#### 4.11.2 DFS Detection Thresholds

 
 Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value			
	(See Notes 1, 2, and 3)			
$EIRP \ge 200 milliwatt$	-64 dBm			
EIRP < 200 milliwatt and	-62 dBm			
power spectral density < 10 dBm/MHz				
EIRP < 200 milliwatt that do not meet the power spectral density	-64 dBm			
requirement				
Note 1: This is the level at the input of the receiver assuming a 0 dE	i receive antenna.			
Note 2: Throughout these test procedures an additional 1 dB has been	en added to the amplitude of the			
test transmission waveforms to account for variations in measurement equipment. This will ensure that				
the test signal is at or above the detection threshold level to trigger a DFS response.				
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication				
662911 D01.				

#### 4.11.3 RADAR TEST WAVEFORMS

#### Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	.1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A	$\operatorname{Roundup}\left\{ \begin{pmatrix} \frac{1}{360} \end{pmatrix}, \\ \begin{pmatrix} \frac{19 \cdot 10^{6}}{\operatorname{PRI}_{\mu \operatorname{sec}}} \end{pmatrix} \right\}$	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
ggregate	(Radar Types 1-	4)		80%	120

**Note 1:** Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 29 of 791

Pulse Repetition Frequency Number	a - Pulse Repetition Intervals Valu Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

# The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful			
		Detections	Detection			
1	35	29	82.9%			
2	30	18	60%			
2			90%			
3	30	27				
4 50 44 88%						
Aggregate $(82.9\% + 60\% + 90\% + 88\%)/4 = 80.2\%$						



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 30 of 791

Table 6 – Long Pulse Radar Test waveform							
Radar	Pulse	Chirp	PRI	Number	Number	Minimum	Minimum
Type	Width	Width	(µsec)	of Pulses	of Bursts	Percentage of	Number of
	(µsec)	(MHz)		per Burst		Successful	Trials
						Detection	
5	50-100	5-20	1000-	1-3	8-20	80%	30
			2000				

#### Table 6 – Long Pulse Radar Test Waveform

Radar	Pulse	PRI	Pulses	Hopping	Hopping	Minimum	Minimum
Type	Width	(µsec)	per	Rate	Sequence	Percentage of	Number of
	(µsec)		Hop	(kHz)	Length	Successful	Trials
			-		(msec)	Detection	
6	1	333	9	0.333	300	70%	30

#### 4.11.4 Response Requirements

#### **Table 4: DFS Response Requirement Values**

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
	See Note 1.
Channel Closing Transmission Time	200 milliseconds + an
	aggregate of 60
	milliseconds over remaining
	10 second period.
	See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-
	NII 99% transmission
	power bandwidth. See Note
	3.

**Note 1:** *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. **Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

The detailed test data see: Appendix



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 31 of 791

# 5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty		
1	Total RF power, conducted	±0.54dB		
2	RF power density, conducted	±1.03dB		
3	Spurious emissions, conducted	±0.54dB		
4	Radio Frequency	±1.0 %		
5	Duty Cycle	±0.37%		
6	Occupied Bandwidth	±1.0 %		
7	Conduction Emission	± 2.90dB (150kHz to 30MHz)		
		± 3.13dB (9k -30MHz)		
8	Dedicted Emission	± 4.80dB (30M -1GHz)		
0		er density, conducted±1.03dBemissions, conducted±0.54dBadio Frequency±1.0 %Duty Cycle±0.37%cupied Bandwidth±1.0 %nduction Emission±2.90dB (150kHz to 30MHz)± 3.13dB (9k -30MHz)		
		± 4.80dB (Above 18GHz)		

Remark:

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The U<sub>lab</sub> (lab Uncertainty) is less than U<sub>cispr/ETSI</sub> (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 32 of 791

# 6 Equipment List

SG

RF Test Equipment									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
Shielding Room	Brilliant-emc	N/A	SUWI-04-01-06	2021/05/08	2024/05/07				
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2022/02/16	2023/02/15				
Signal Analyzer	ROHDE&SCHWARZ	FSV3030	SUWI-01-02-02	2022/05/17	2023/05/16				
Measurement Software	Tonscend	JS1120-3 Test System V3.1.55	SUWI-02-09-09	NCR	NCR				
DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	2022/02/15	2023/02/14				
Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2022/05/28	2023/05/27				
Power meter	Anritsu	ML2495A	SUWI-01-31-01	2021/12/04	2022/12/03				
Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	2021/12/04	2022/12/03				
Temperature Chamber	ESPEC	SU-242	SUWI-01-13-01	2022/02/15	2023/02/14				
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-05	2022/02/14	2023/02/13				
MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	2022/02/14	2023/02/13				
Router	ASUS	GT- AXE11000(FCC ID MSQ- RTAXJF00)	SUWI-03-14-02	NCR	NCR				

CE Test System									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
Shielding Room	Brilliant-emc	N/A	SUWI-04-03-01	2021/05/08	2024/05/07				
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-01	2022/02/16	2023/02/15				
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-02	2022/02/16	2023/02/15				
Measurement Software	Tonscend	JS32-CE V4.0.0.2	SUWI-02-09-05	NCR	NCR				
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/02/16	2023/02/15				
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-06	2022/02/16	2023/02/15				



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 33 of 791

RSE Test System								
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date (yyyy/mm/dd)	Cal Due Date (yyyy/mm/dd)			
Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	2021/05/08	2024/05/07			
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2022/02/16	2023/02/15			
Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2022/05/28	2023/05/27			
Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-05	2021/12/04	2022/12/03			
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/02/19	2023/02/18			
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	VULB 9163	SUWI-01-11-01	2021/05/16	2023/05/15			
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	2021/05/16	2023/05/15			
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9170	SUWI-01-11-03	2021/05/14	2023/05/13			
Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	2022/02/14	2023/02/13			
Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	2022/02/14	2023/02/13			
Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	2022/02/19	2023/02/18			
Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	2021/06/10	2023/06/09			
Measurement Software	Tonscend	JS32-RSE V4.0.0.1	SUWI-02-09-06	NCR	NCR			



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 Report No.:
 SEWM2209000168RG06

 Rev.:
 01

 Page:
 34 of 791

# 7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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Report No.: SEWM2209000168RG06 Rev.: 01 Page: 35 of 791

# Appendix



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Report No.: SEWM2209000168RG06 Rev.: 01 36 of 791 Page:

**Emission Bandwidth** 

**Test Result** 

SG

TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
	Ant7	5180	19.08	5170.32	5189.40		
	Ant8	5180	19.08	5170.44	5189.52		
	Ant7	5220	19.00	5210.44	5229.44		
	Ant8	5220	18.96	5210.44	5229.40		
	Ant7	5240	18.92	5230.40	5249.32		
	Ant8	5240	26.52	5229.36	5255.88		
	Ant7	5260	18.92	5250.40	5269.32		
	Ant8	5260	26.52	5249.68	5276.20		
	Ant7	5300	18.88	5290.44	5309.32		
	Ant8	5300	18.80	5290.60	5309.40		
	Ant7	5320	19.28	5310.40	5329.68		
	Ant8	5320	29.92	5306.84	5336.76		
	Ant7	5500	19.16	5490.40	5509.56		
	Ant8	5500	18.80	5490.56	5509.36		
	Ant7	5580	18.72	5570.52	5589.24		
11a-CDD	Ant8	5580	21.00	5569.20	5590.20		
	Ant7	5700	19.00	5690.36	5709.36		
	Ant8	5700	21.32	5689.44	5710.76		
	Ant7	5720	19.16	5710.28	5729.44		
	Ant8	5720	18.92	5710.52	5729.44		
	Ant7	5720 UNII-2C	14.72	5710.28	5725		
	Ant8	5720 UNII-2C	14.48	5710.52	5725		
	Ant7	5720 UNII-3	4.44	5725	5729.44		
	Ant8	5720 UNII-3	4.44	5725	5729.44		
	Ant7	5745	19.04	5735.36	5754.40		
	Ant8	5745	18.88	5735.52	5754.40		
	Ant7	5785	19.12	5775.24	5794.36		
	Ant8	5785	18.88	5775.56	5794.44		
	Ant7	5825	19.16	5815.32	5834.48		
	Ant8	5825	18.80	5815.56	5834.36		
	Ant7	5180	20.48	5170.00	5190.48		
	Ant8	5180	24.36	5168.80	5193.16		
	Ant7	5220	20.16	5209.84	5230.00		
	Ant8	5220	20.80	5209.60	5230.40		
	Ant7	5240	20.28	5229.88	5250.16		
	Ant8	5240	20.12	5229.92	5250.04		
	Ant7	5260	20.44	5249.56	5270.00		
	Ant8	5260	20.20	5249.88	5270.08		
	Ant7	5300	20.60	5289.60	5310.20		
	Ant8	5300	20.24	5289.80	5310.04		
	Ant7	5320	20.08	5309.96	5330.04		
11n20MIMO	Ant8	5320	20.00	5309.72	5330.20		
	Anto Ant7	5500	20.48	5489.60	5510.04		
	Ant7 Ant8	5500	20.28	5489.80	5510.04		
	Ant7	5580	20.64	5569.84	5590.48		
	Ant8	5580	21.80	5569.52	5591.32		
	Ant7	5700	20.60	5689.80	5710.40		
		5700	20.80	5689.72	5710.40		
	Ant8	5700	20.72	5709.80	5710.44		
	Ant7	5720	20.64	5709.80	5730.44 5730.12		
	Ant8						
	Ant7	5720_UNII-2C	15.2	5709.80	5725		
	Ant8	5720_UNII-2C	15.52	5709.48	5725		



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				Report N	lo.: SEWM	2209000168	BRG06
				Rev.:	01		
				Page:	37 of 79	01	
	Ant7	5720 UNII-3	5.44	5725	5730.44		
-	Ant7 Ant8	5720_0NII-3	5.12	5725	5730.44		
-	Anto Ant7	5745	20.80	5734.68	5755.48		
-	Ant7 Ant8	5745	20.80	5734.88	5755.12		
-	Anto Ant7	5785	20.24	5774.24	5796.48		
-	Ant7 Ant8	5785	22.24 20.12	5775.04	5795.16		
-	Anto Ant7	5825	22.68	5814.36	5837.04		
-	Ant7 Ant8	5825	22.00	5813.24	5839.36		
	Anto Ant7	5190	39.84	5170.08	5209.92		
-	Ant8	5190	46.48	5170.00	5216.80		
-	Ant7	5230	39.36	5210.32	5249.68		
-	Ant8	5230	48.64	5209.92	5258.56		
-	Ant7	5270	40.08	5250.00	5290.08		
-	Ant8	5270	39.92	5250.08	5290.00		
-	Ant7	5310	39.68	5290.16	5329.84		
-	Ant8	5310	39.60	5290.32	5329.92		
-	Ant7	5510	39.52	5490.16	5529.68		
	Ant7 Ant8	5510	39.52	5490.10	5529.06		
	Anto Ant7	5550	39.36	5530.24	5569.60		
-	Ant8	5550	39.60	5530.24	5569.84		
11n40MIMO	Anto Ant7	5670	39.84	5650.08	5689.92		
-	Ant7 Ant8	5670	39.76	5650.08	5689.84		
-	Anto Ant7	5710	40.08	5690.00	5730.08		
-	Ant7 Ant8	5710	40.08	5688.24	5729.68		
-	Anto Ant7	5710 UNII-2C	35	5690.00	5725		
-	Ant7 Ant8	5710_0NII-2C	36.76	5688.24	5725		
-	Ant7	5710_0NII-2C	5.08	5066.24	5730.08		
-	Ant7 Ant8	5710 UNII-3	4.68	5725	5729.68		
	Anto Ant7	5755	39.92	5735.00	5774.92		
-	Ant8	5755	39.60	5735.16	5774.76		
-	Ant7	5795	39.76	5775.00	5814.76		
	Ant8	5795	39.36	5775.32	5814.68		
	Ant7	5180	20.72	5169.72	5190.44		
-	Ant8	5180	20.48	5169.56	5190.04		
	Ant7	5220	20.40	5209.88	5230.48		
	Ant8	5220	23.84	5209.56	5233.40		
	Ant7	5240	20.60	5209.30	5250.32		
	Ant8	5240	20.00	5229.68	5250.32		
	Ant7	5260	20.44	5249.60	5270.12		
11ac20MIMO	Ant8	5260	19.96	5250.08	5270.12		
	Ant7	5300	20.56	5289.84	5310.40		
	Ant8	5300	26.36	5289.76	5316.12		
	Anto Ant7	5320	20.30	5309.92	5330.08		
	Ant7 Ant8	5320	20.08	5309.92	5330.00		
	Anto Ant7	5500	20.52	5489.88	5510.40		
	Ant7 Ant8	5500	20.52	5489.56	5510.40		
	Ant7	5580	20.60	5569.80	5590.40		
	Ant8	5580	21.80	5568.64	5590.44		
	Ant7	5700	20.24	5689.84	5710.08		
	Ant8	5700	20.68	5689.40	5710.08		
-	Ant7	5720	20.52	5709.56	5730.08		
-	Ant8	5720	20.32	5709.72	5730.16		
-	Ant7	5720 UNII-2C	15.44	5709.56	5725		
-	Ant8	5720 UNII-2C	15.28	5709.30	5725		
-	Ant7	5720 UNII-3	5.08	5725	5730.08		
ŀ	Ant7 Ant8	5720 UNII-3	5.16	5725	5730.16		
ŀ	Anto Ant7	5745	20.60	5734.56	5755.16		
		5145	20.00	5754.50	5755.10		



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1				Report N	lo.: SEWM	2200000169	RCOG
				•		2203000100	
				Rev.:	01		
				Page:	38 of 79	91	
	Ant8	5745	20.44	5734.72	5755.16		
	Ant7	5785	20.76	5774.92	5795.68		
	Ant8	5785	20.44	5774.68	5795.12		
	Ant7	5825	20.92	5814.64	5835.56		
	Ant8	5825	28.32	5812.76	5841.08		
	Ant7	5190	40.08	5169.76	5209.84		
	Ant8	5190	44.72	5170.32	5215.04		
	Ant7	5230	39.76	5210.24	5250.00		
Ļ	Ant8	5230	39.84	5209.92	5249.76		
_	Ant7	5270	40.00	5250.00	5290.00		
Ļ	Ant8	5270	40.16	5249.76	5289.92		
_	Ant7	5310	39.84	5290.24	5330.08		
_	Ant8	5310	39.44	5290.32	5329.76		
_	Ant7	5510	39.92	5490.00	5529.92		
_	Ant8	5510	41.04	5489.84	5530.88		
_	Ant7	5550	40.00	5529.92	5569.92		
11ac40MIMO	Ant8	5550	39.36	5530.32	5569.68		
	Ant7	5670	40.08	5649.76	5689.84		
_	Ant8	5670	40.40	5649.44	5689.84		
Ļ	Ant7	5710	39.68	5690.08	5729.76		
Ļ	Ant8	5710	41.84	5689.20	5731.04		
Ļ	Ant7	5710_UNII-2C	34.92	5690.08	5725		
_	Ant8	5710_UNII-2C	35.8	5689.20	5725		
_	Ant7	5710_UNII-3	4.76	5725	5729.76		
_	Ant8	5710_UNII-3	6.04	5725	5731.04		
_	Ant7	5755	39.84	5735.08	5774.92		
_	Ant8	5755	39.44	5735.24	5774.68		
_	Ant7	5795	40.16	5774.84	5815.00		
	Ant8	5795	40.16	5774.68	5814.84		
_	Ant7	5210	81.60	5169.52	5251.12		
_	Ant8	5210	81.28	5169.68	5250.96		
_	Ant7	5290	81.44	5249.52	5330.96		
_	Ant8	5290	89.60	5243.60	5333.20		
_	Ant7	5530	81.60	5488.88	5570.48		
_	Ant8	5530	81.60	5489.20	5570.80		
_	Ant7	5610	81.76	5569.04	5650.80		
11ac80MIMO	Ant8	5610	85.12	5567.44	5652.56		
-	Ant7	5690	82.24	5648.56 5649.04	5730.80		
	Ant8	5690	81.60 76.44		5730.64		
-	Ant7	5690_UNII-2C		5648.56	5725 5725		
F	Ant8	5690_UNII-2C 5690_UNII-3	<u>75.96</u> 5.8	5649.04 5725	5730.80		
ŀ	Ant7 Ant8	5690_UNII-3	5.64	5725	5730.60		
F	Anto Ant7	5775	82.72	5733.88	5730.64		
F	Ant7 Ant8	5775	81.44	5734.04	5815.48		
	Anto Ant7	5250	164.80	5168.08	5332.88		
11ac160MIMO	Ant7 Ant8	5250	164.80	5168.40	5333.20		
	Ant7	5570	164.48	5487.12	5651.60		
	Ant8	5570	164.16	5487.76	5651.92		
	Ant7	5180	21.08	5169.40	5190.48		
	Ant8	5180	22.28	5169.56	5191.84		
F	Ant7	5220	20.76	5209.60	5230.36		
11ax20MIMO	Ant8	5220	20.60	5209.64	5230.24		
		5240	21.16	5229.40	5250.24		
	AUL/				02.00.00		
	Ant7 Ant8						
	Ant7 Ant8 Ant7	5240 5260	21.00 20.80	5229.48 5249.68	5250.48 5270.48		



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				Rev.:	01		
				Page:	39 of 7	91	
	Ant7	5300	21.12	5289.44	5310.56		
	Ant8	5300	21.00	5289.48	5310.48		
	Anto Ant7	5320	20.84	5309.48	5330.32		
	Ant8	5320	21.08	5309.40	5330.48		
	Ant7	5500	20.96	5489.44	5510.40		
	Ant8	5500	20.72	5489.56	5510.28		
	Ant7	5580	20.96	5569.48	5590.44		
	Ant8	5580	20.84	5569.52	5590.36		
	Ant7	5700	21.12	5689.44	5710.56		
	Ant8	5700	21.28	5689.20	5710.48		
	Ant7	5720	21.00	5709.48	5730.48		
	Ant8	5720	20.96	5709.52	5730.48		
	Ant7	5720 UNII-2C	15.52	5709.48	5725		
	Ant8	5720 UNII-2C	15.48	5709.52	5725		
	Ant7	5720 UNII-3	5.48	5725	5730.48		
	Ant8	5720 UNII-3	5.48	5725	5730.48		
	Ant7	5745	21.08	5734.44	5755.52		
	Ant8	5745	20.92	5734.48	5755.40		
	Ant7	5785	20.84	5774.52	5795.36		
	Ant8	5785	21.04	5774.40	5795.44		
	Ant7	5825	20.92	5814.56	5835.48		
	Ant8	5825	20.92	5814.52	5835.44		
	Ant7	5190	40.16	5169.92	5210.08		
	Ant8	5190	40.16	5169.84	5210.00		
	Ant7	5230	40.64	5209.76	5250.40		
	Ant8	5230	40.48	5209.52	5250.00		
	Ant7	5270	40.16	5249.92	5290.08		
	Ant8	5270	40.32	5249.84	5290.16		
	Ant7	5310	40.48	5289.84	5330.32		
	Ant8	5310	40.08	5289.92	5330.00		
	Ant7	5510	40.56	5489.44	5530.00		
	Ant8	5510	40.48	5489.76	5530.24		
	Ant7	5550	40.96	5529.44	5570.40		
11ax40MIMO	Ant8	5550	40.40	5529.84	5570.24		
	Ant7	5670	40.16	5649.92	5690.08		
	Ant8	5670	41.28	5649.60	5690.88		
	Ant7	5710	40.08	5689.92	5730.00		
	Ant8	5710	48.16	5681.92	5730.08		
	Ant7	5710_UNII-2C	35.08	5689.92	5725		
	Ant8	5710_UNII-2C	43.08	5681.92	5725		
	Ant7	5710_UNII-3	5	5725	5730.00		
	Ant8	5710_UNII-3	5.08	5725	5730.08		
	Ant7	5755	40.16	5734.92	5775.08		
	Ant8	5755	40.40	5734.76	5775.16		
	Ant7	5795	40.24	5774.76	5815.00		
	Ant8	5795	40.32	5774.84	5815.16		
	Ant7	5210	82.24	5169.04	5251.28		
	Ant8	5210	82.24	5169.20	5251.44		
	Ant7	5290	81.92	5249.20	5331.12		
	Ant8	5290	82.24	5248.88	5331.12		
	Ant7	5530	81.92	5488.88	5570.80		
11ax80MIMO	Ant8	5530	83.04	5487.92	5570.96		
	Ant7	5610	82.56	5568.40	5650.96		
	Ant8	5610 5690	81.92	5569.04 5649.04	5650.96		
	Ant7 Ant8	5690	81.60 82.24	5649.04	5730.64 5730.80		
	Anto Ant7	5690 UNII-2C	75.96	5649.04	5730.80		
	AIIU	0090_0INII-20	10.90	5049.04	5725		



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				Report No.: SEWM2209000168RG06				
				Rev.:	01			
				Page:	40 of 79	91		
	Ant8	5690_UNII-2C	76.44	5648.56	5725			
	Ant7	5690_UNII-3	5.64	5725	5730.64			
	Ant8	5690_UNII-3	5.8	5725	5730.80			
	Ant7	5775	82.56	5733.56	5816.12			
	Ant8	5775	84.48	5732.76	5817.24			
	Ant7	5250	165.12	5168.08	5333.20			
11ax160MIMO	Ant8	5250	164.80	5168.08	5332.88			
	Ant7	5570	165.12	5486.80	5651.92			
	Ant8	5570	165.76	5486.80	5652.56			



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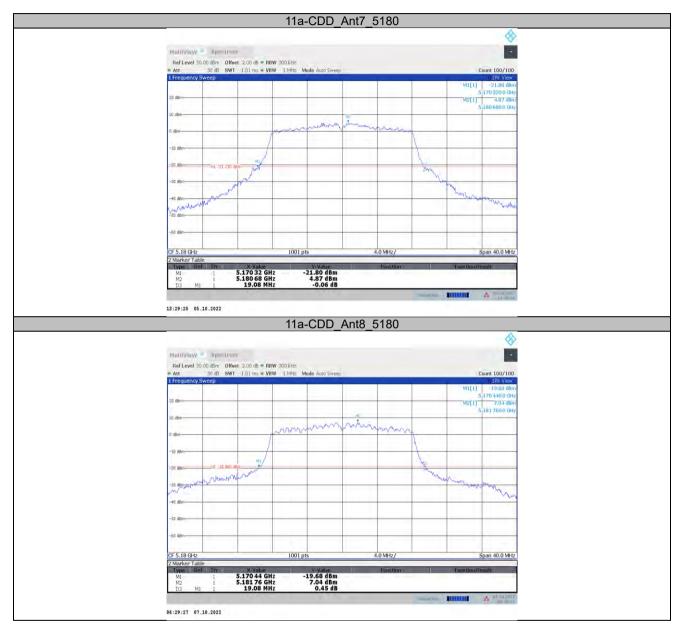
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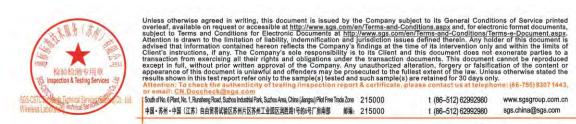
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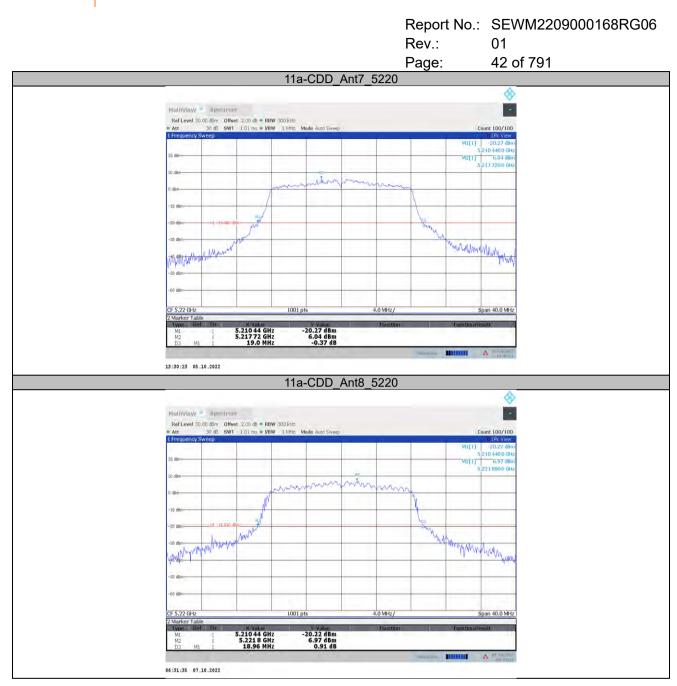
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#### **Test Graphs**



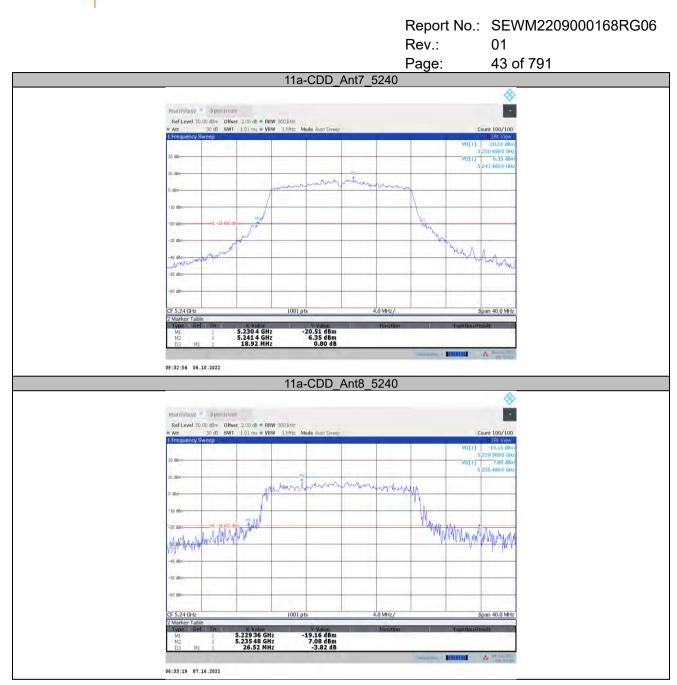




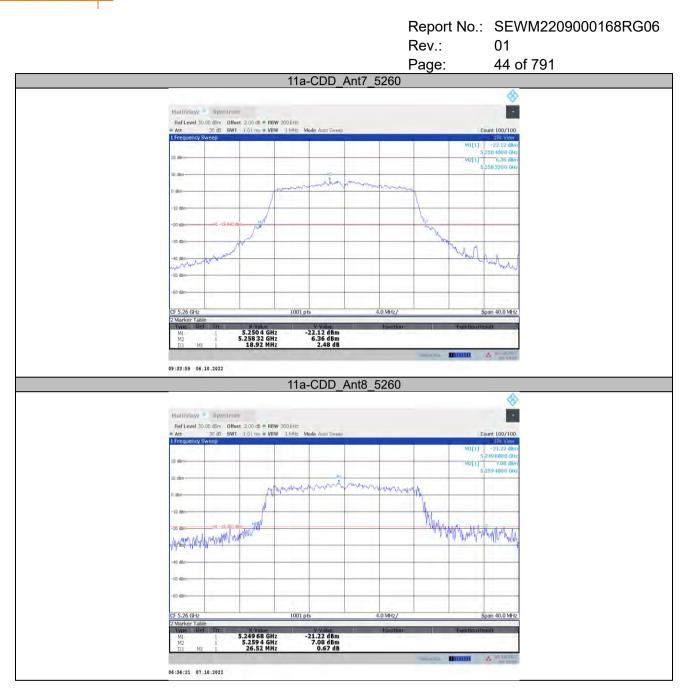
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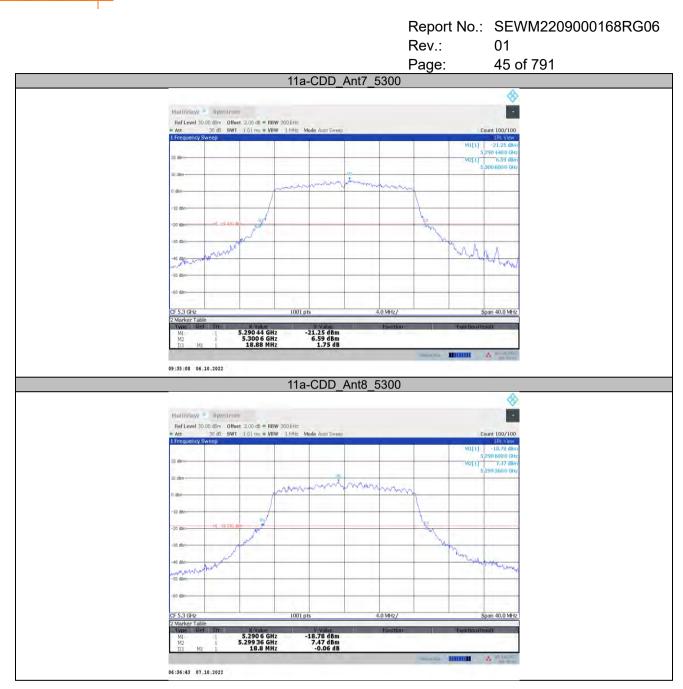




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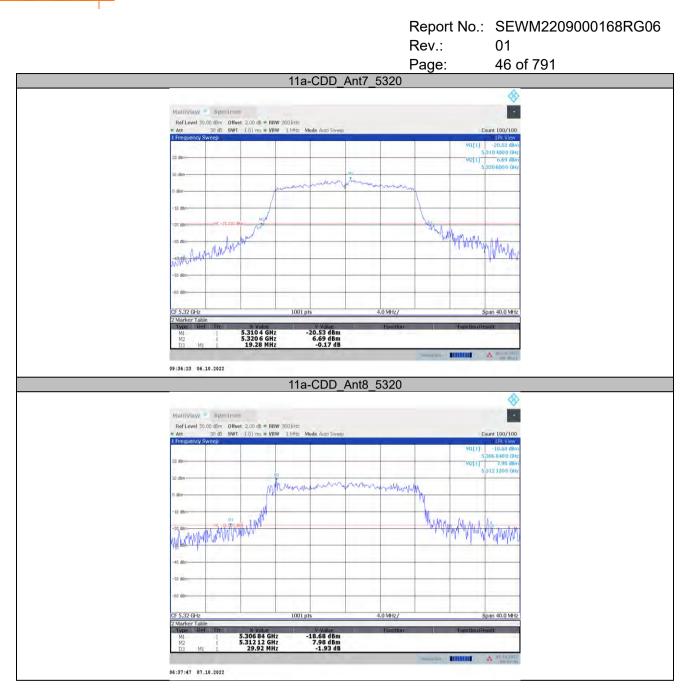




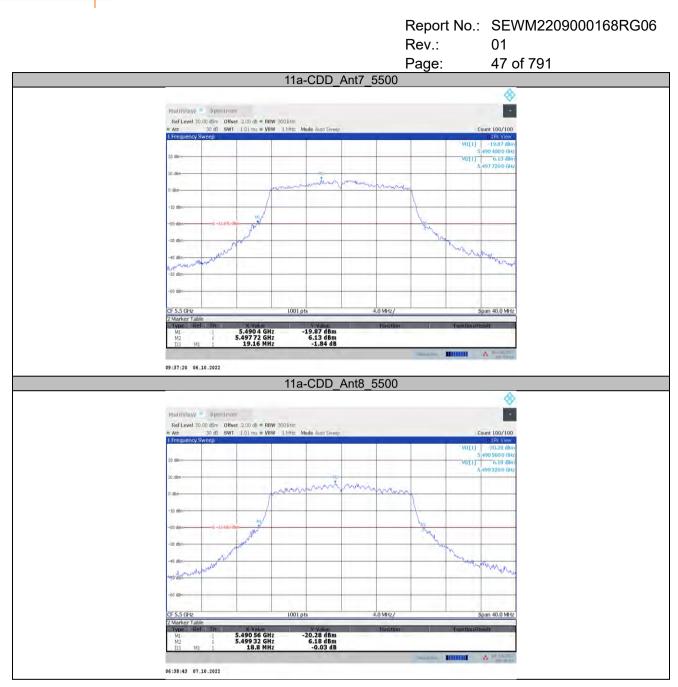
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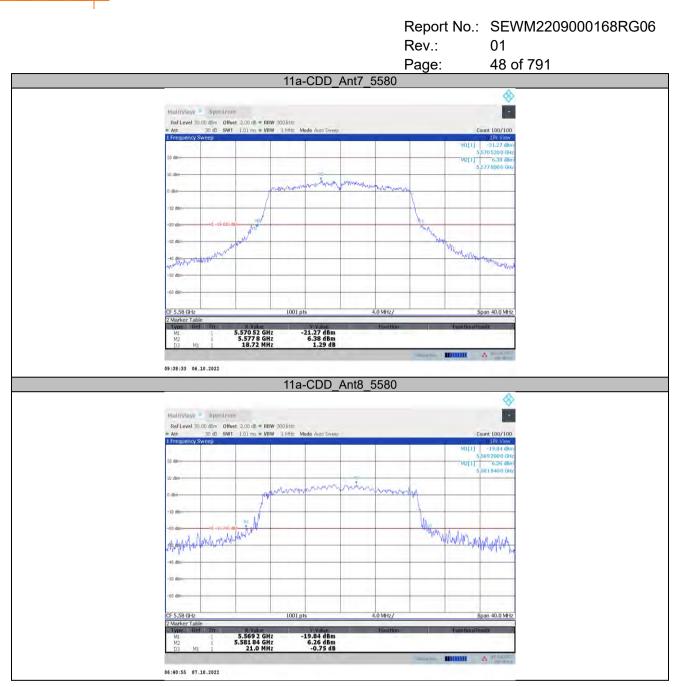




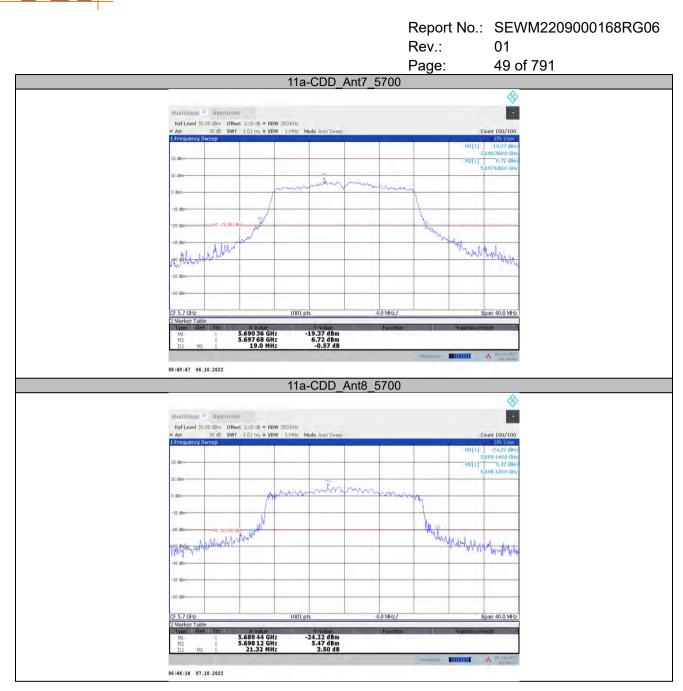
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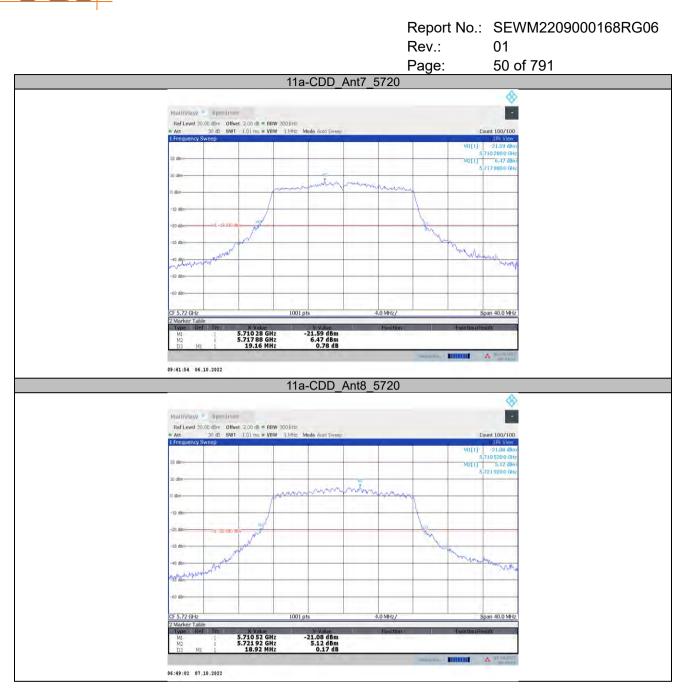
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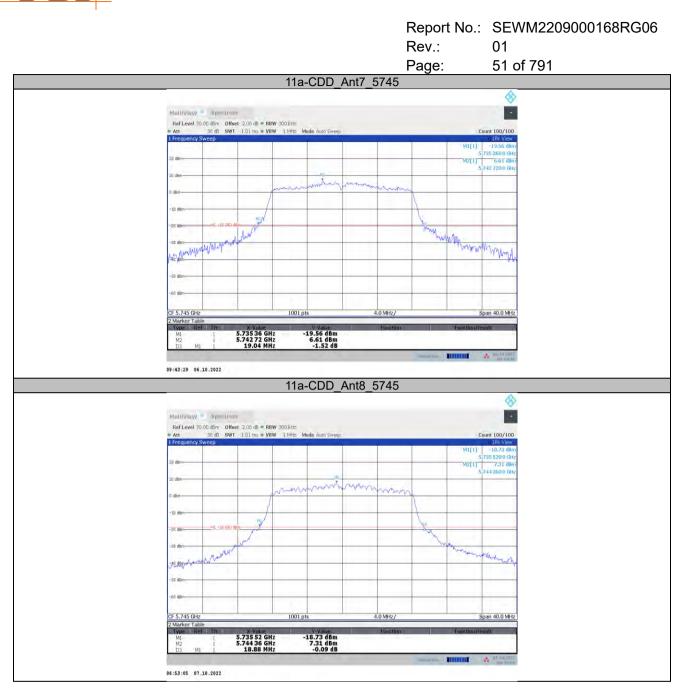




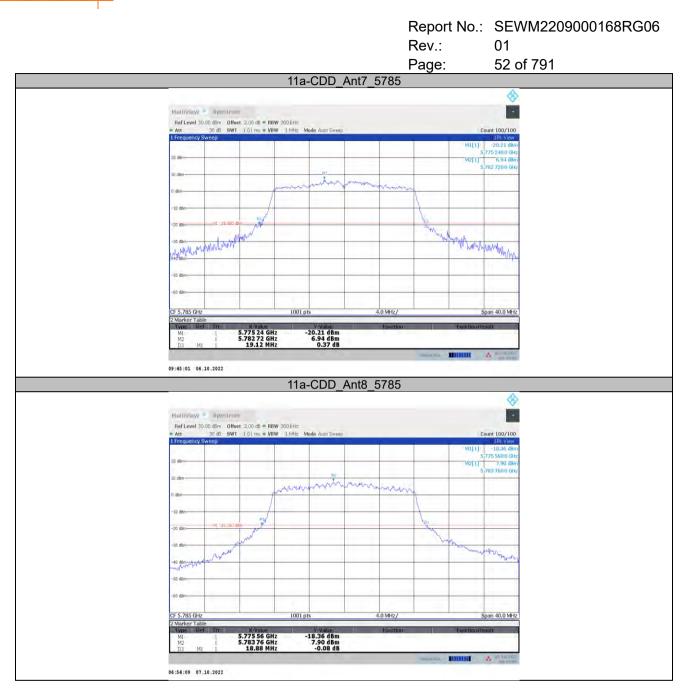
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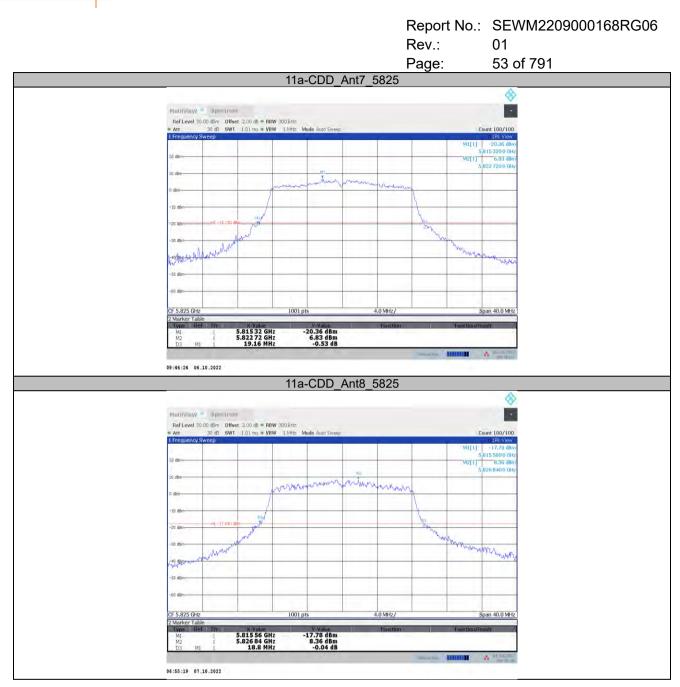




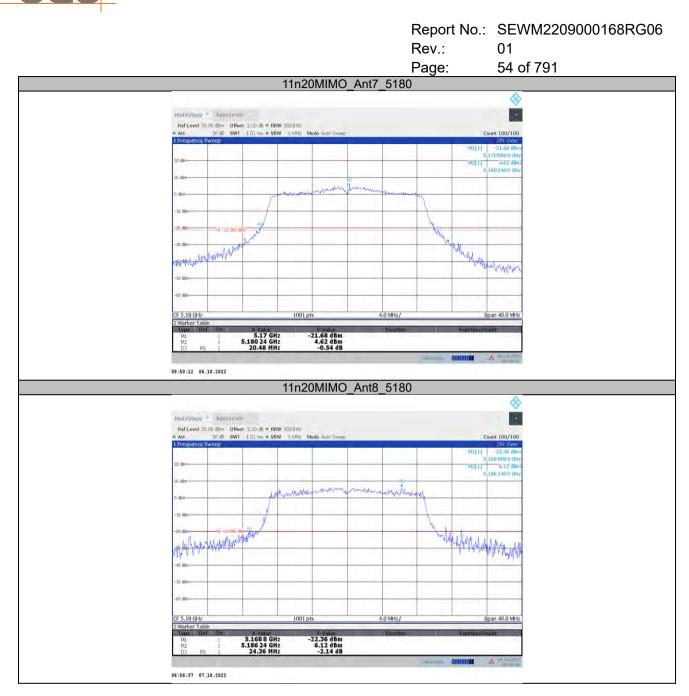


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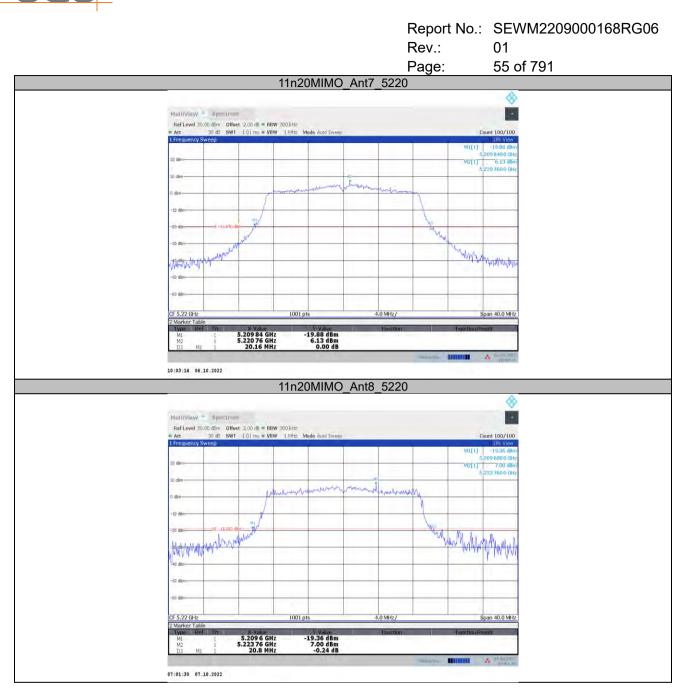
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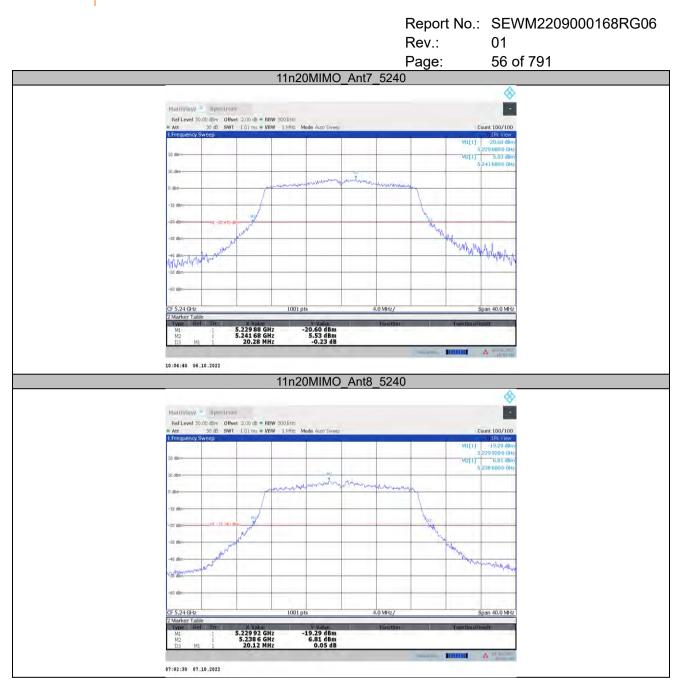




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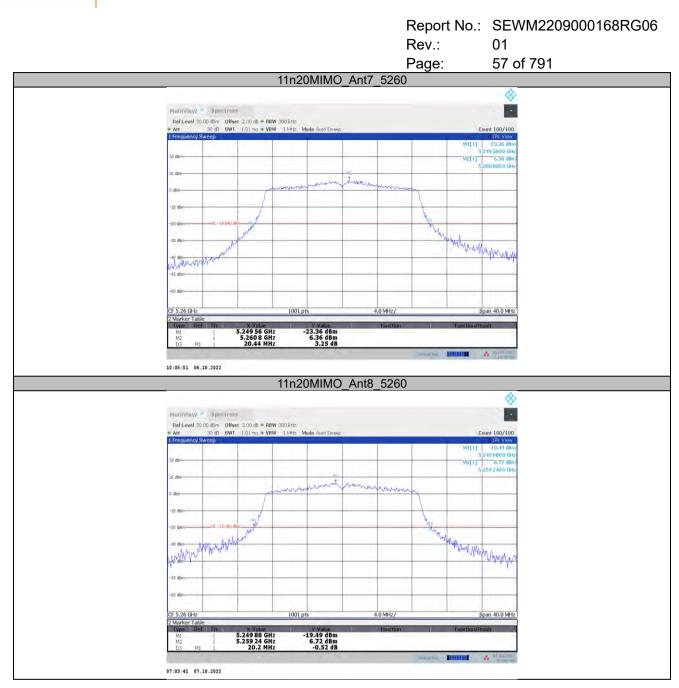




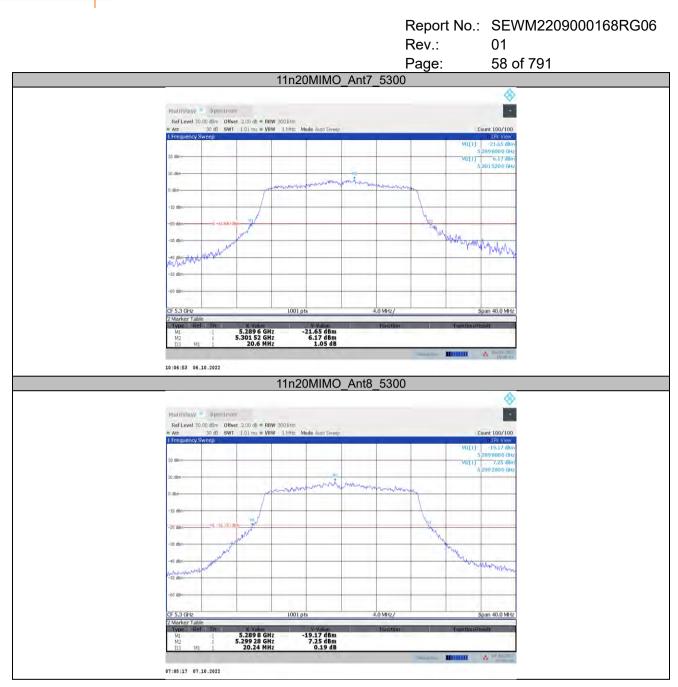
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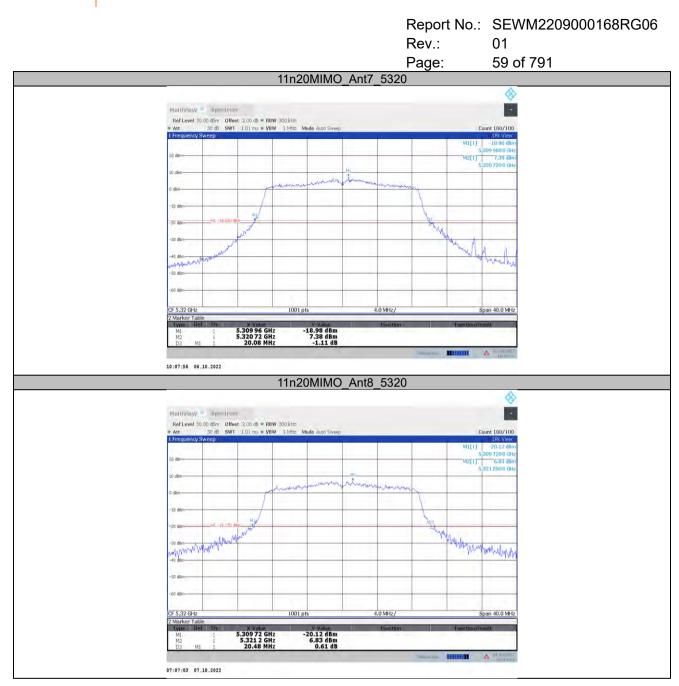


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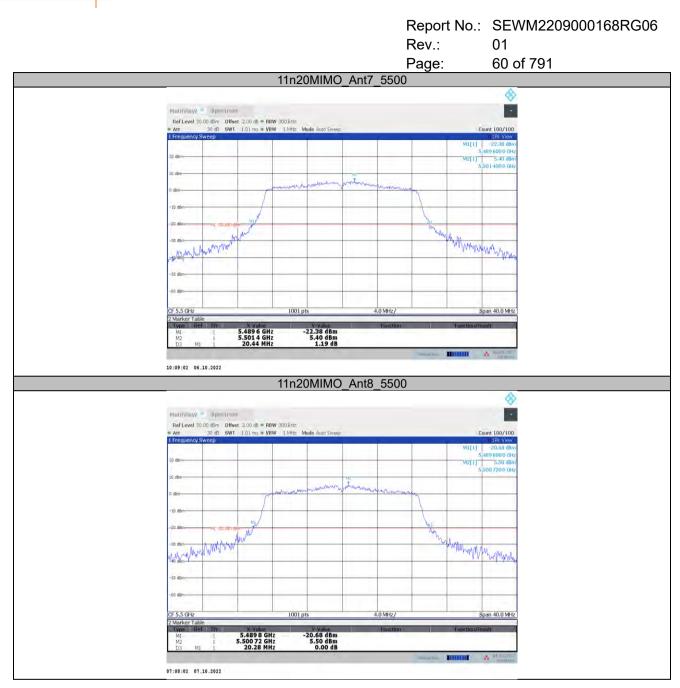
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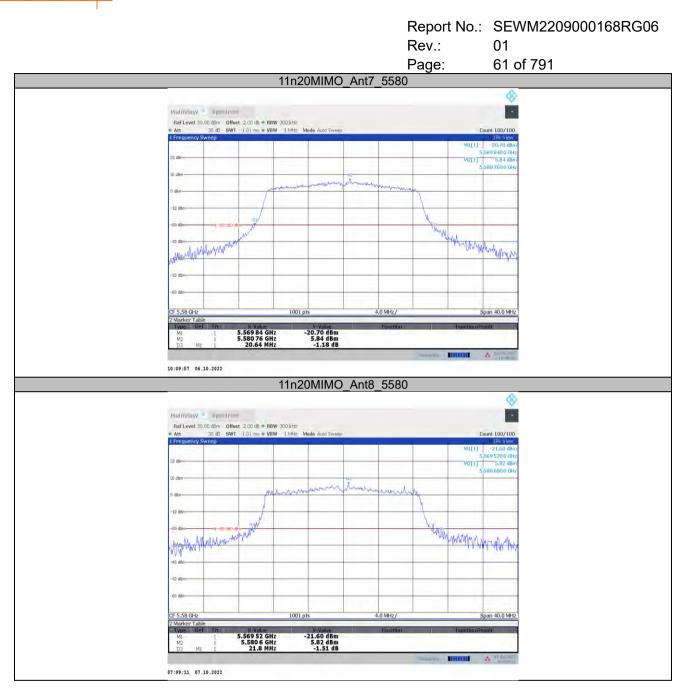




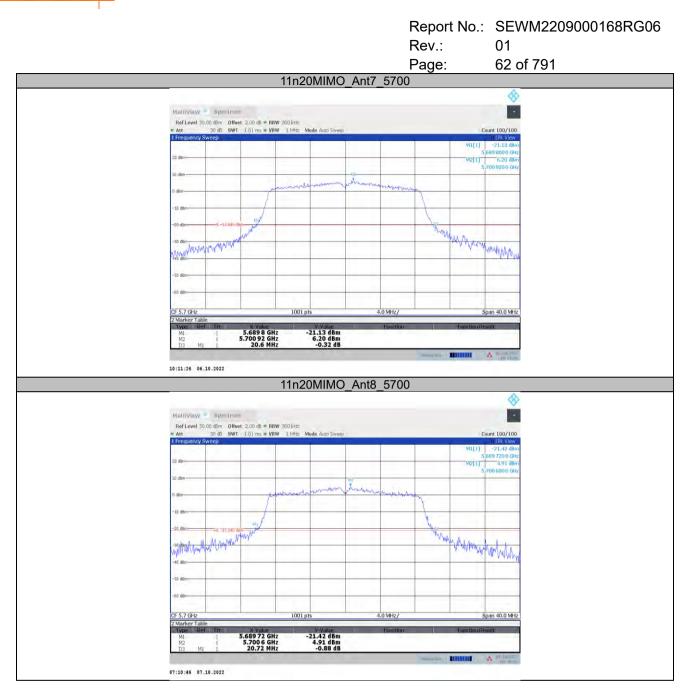
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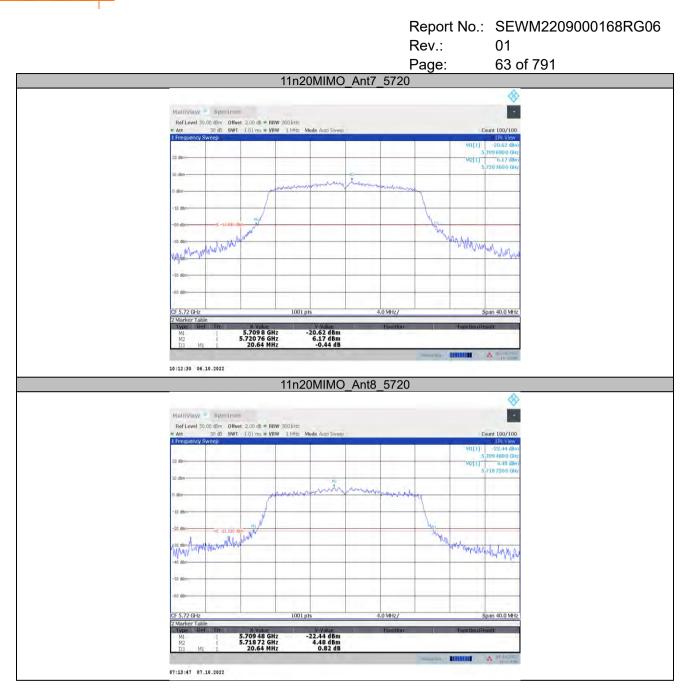




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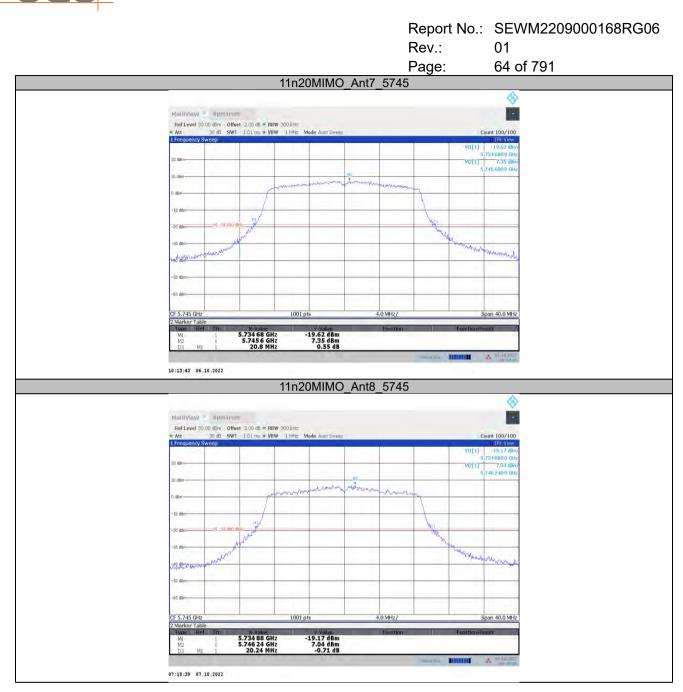


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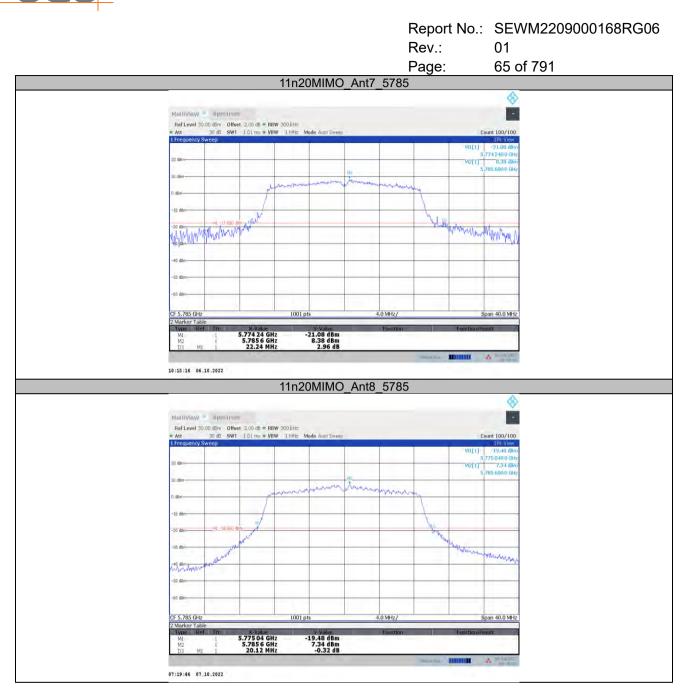




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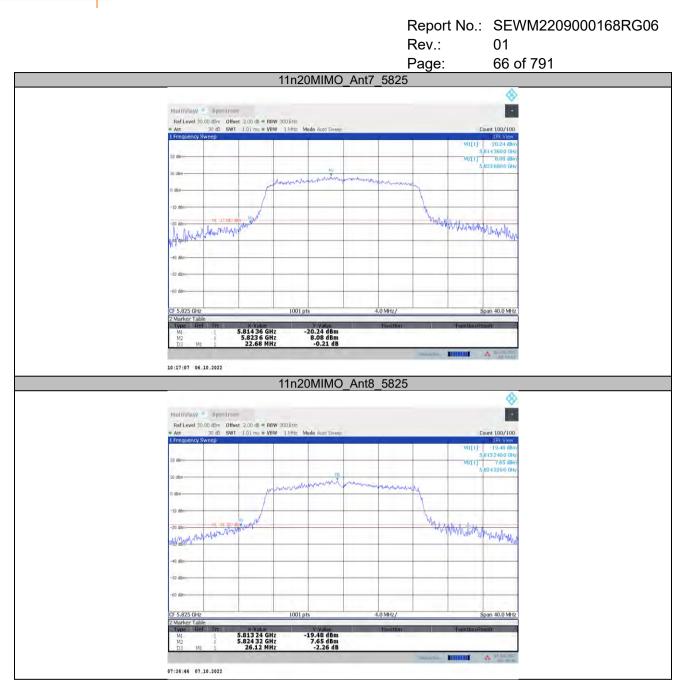


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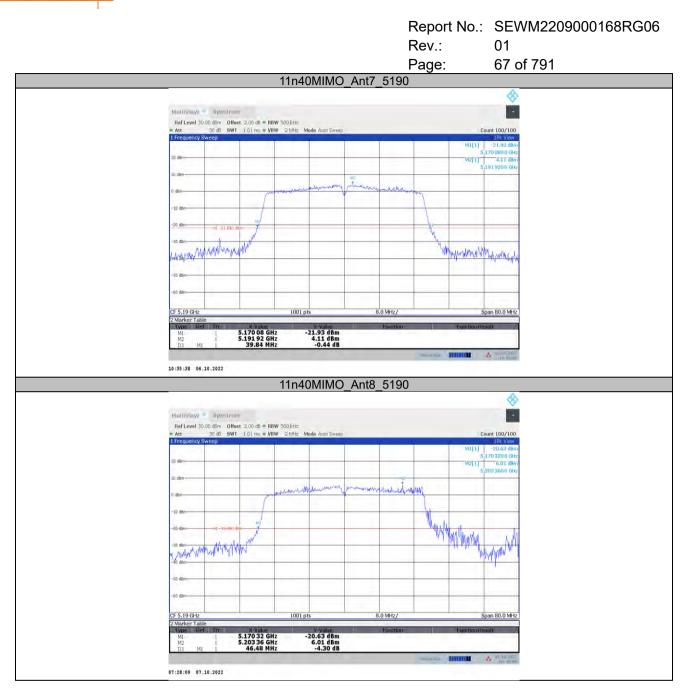




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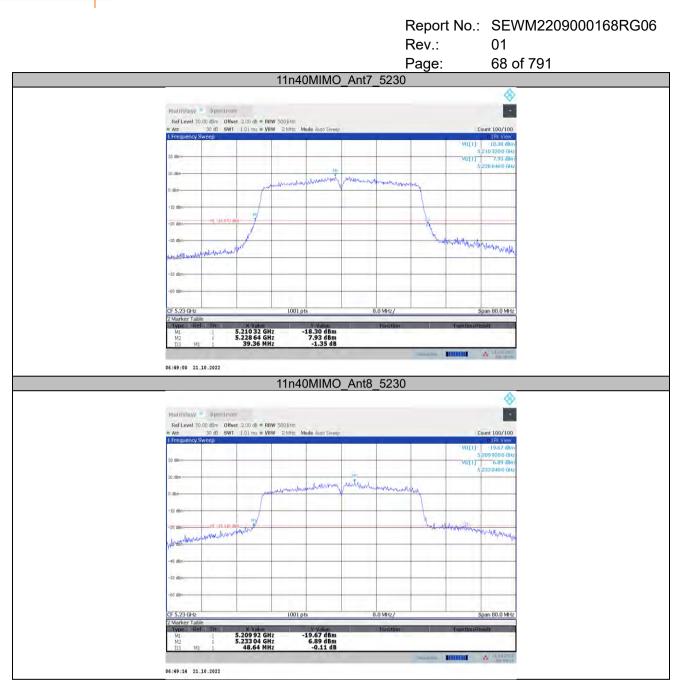


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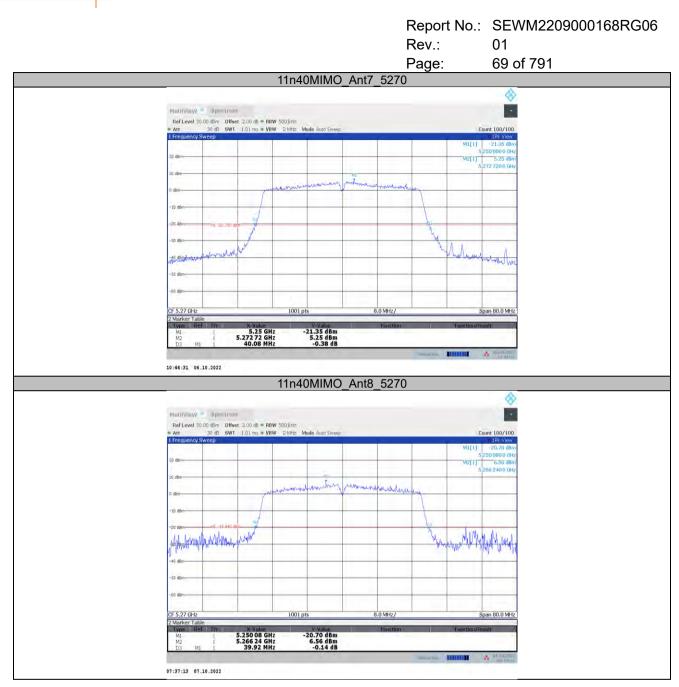
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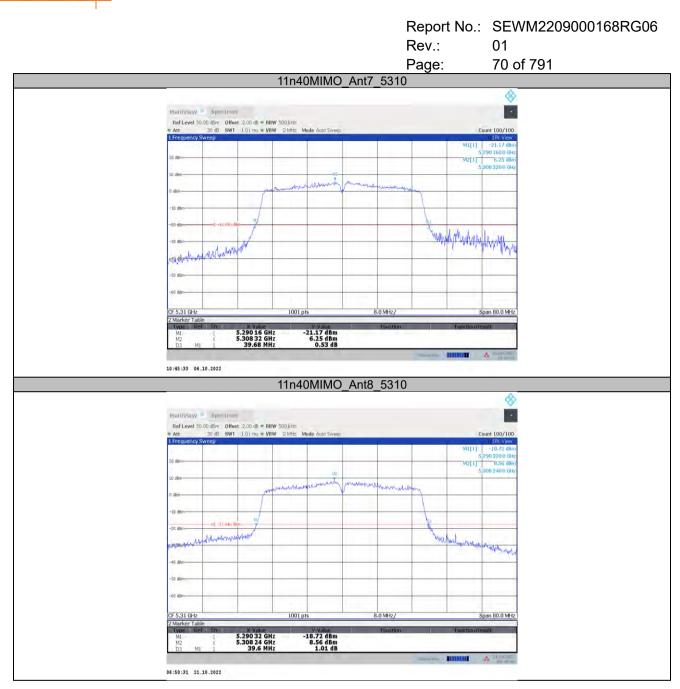




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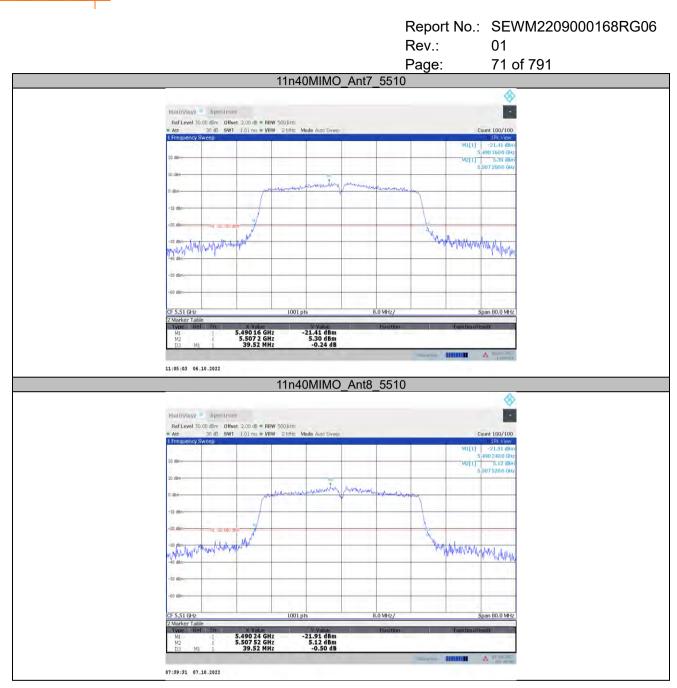


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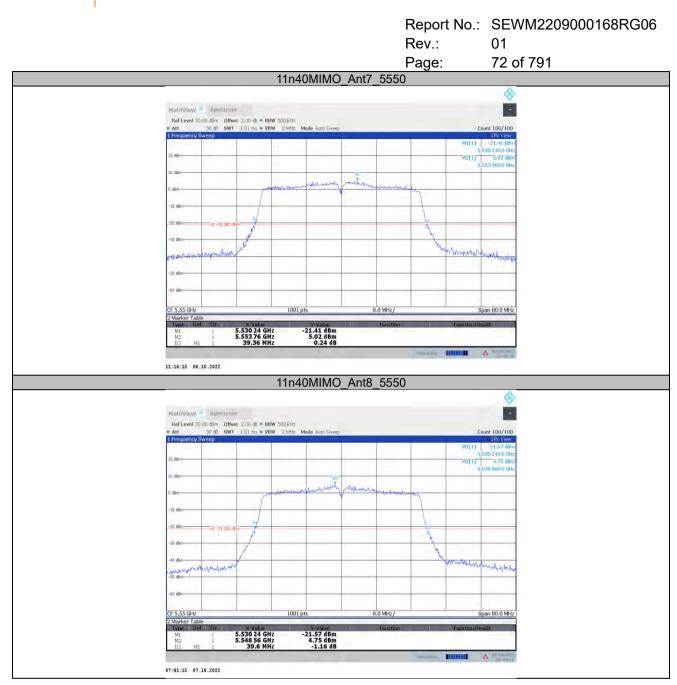


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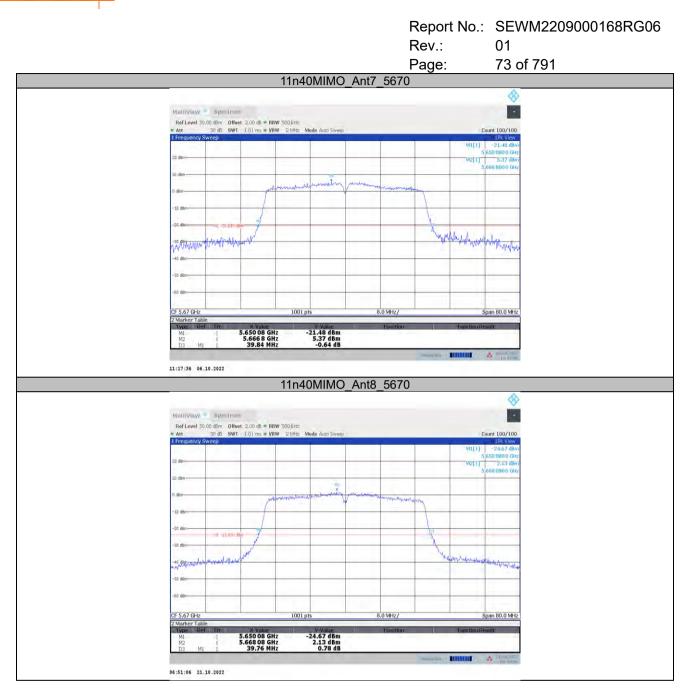




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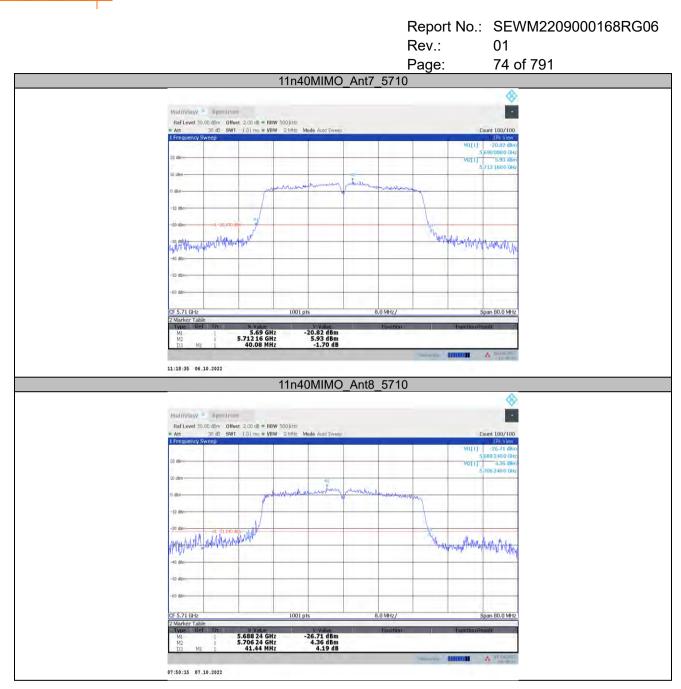




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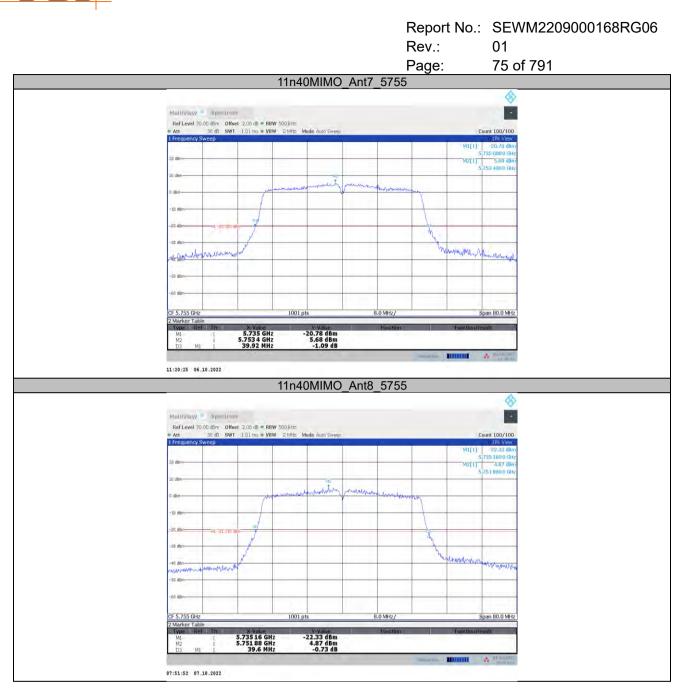
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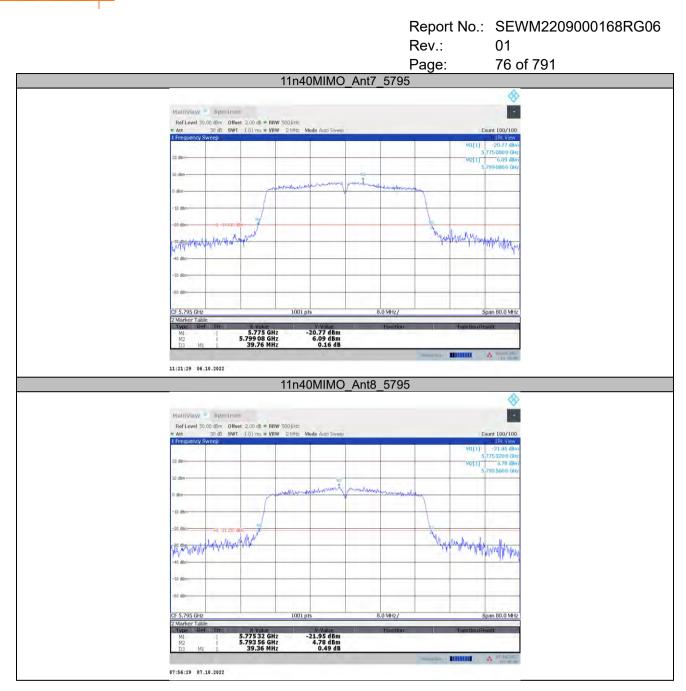
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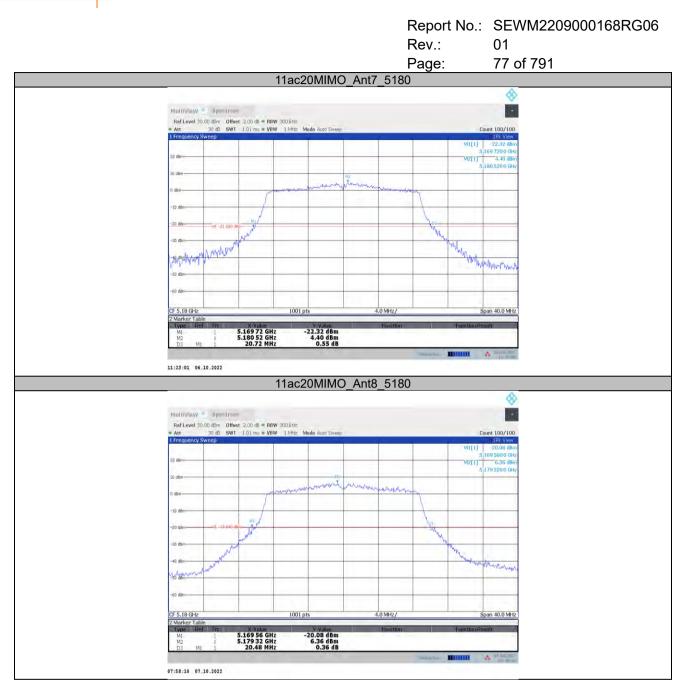
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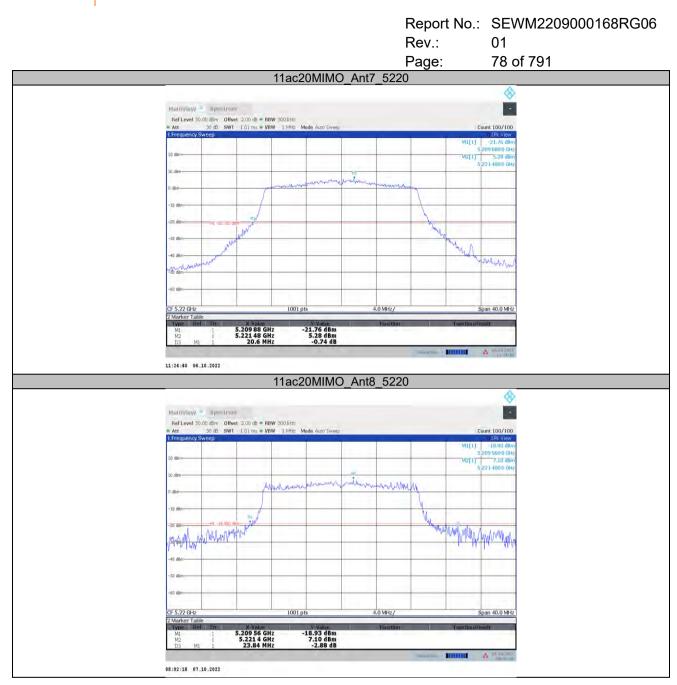






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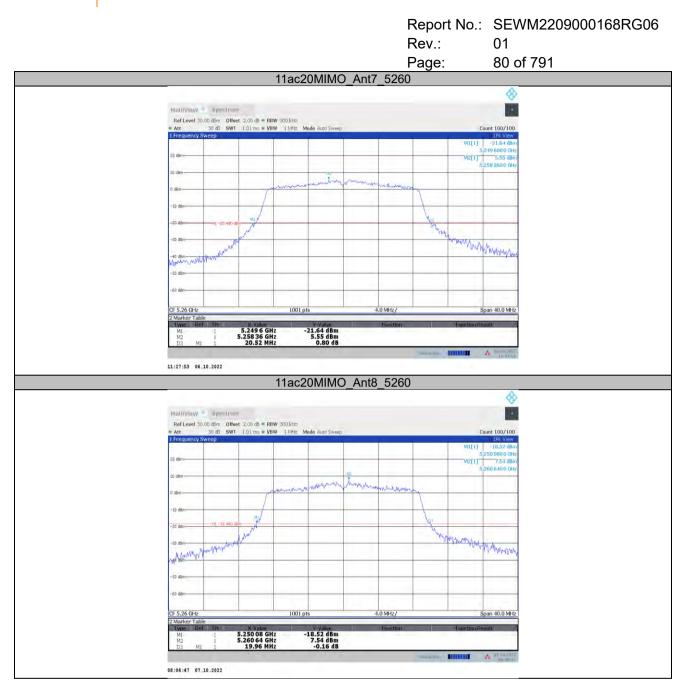
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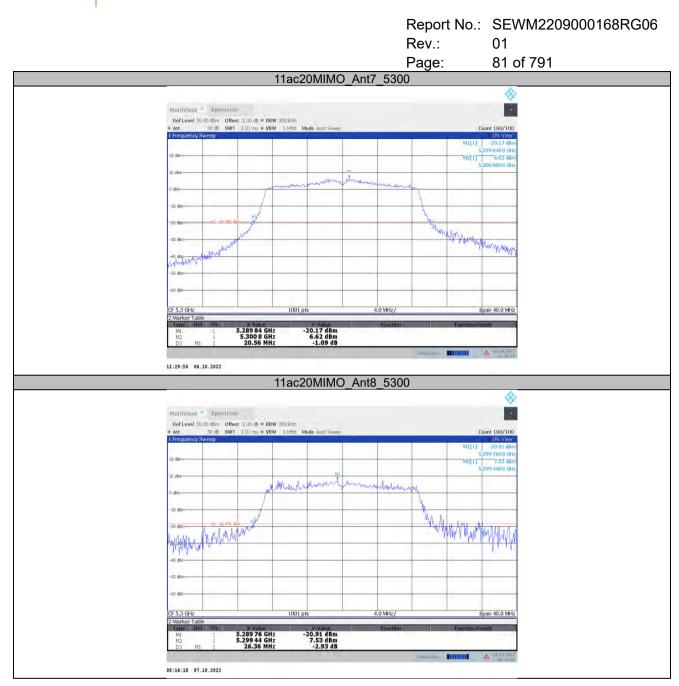




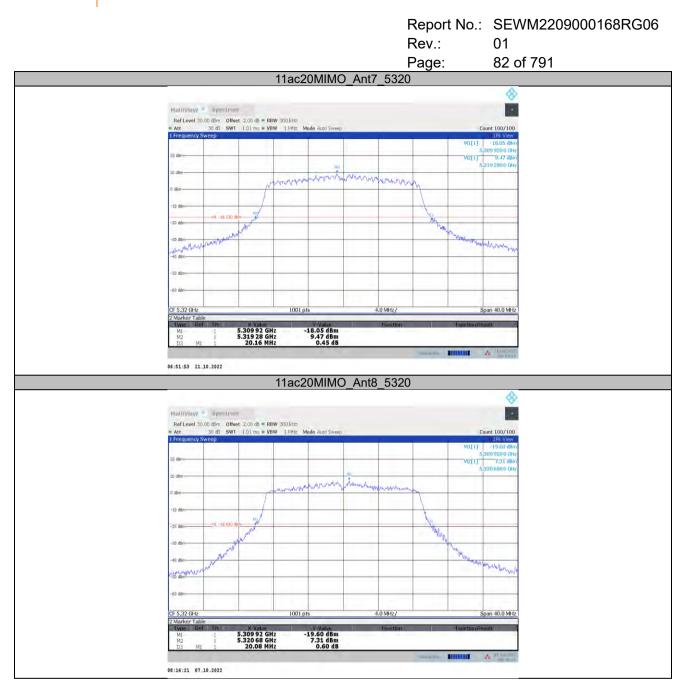
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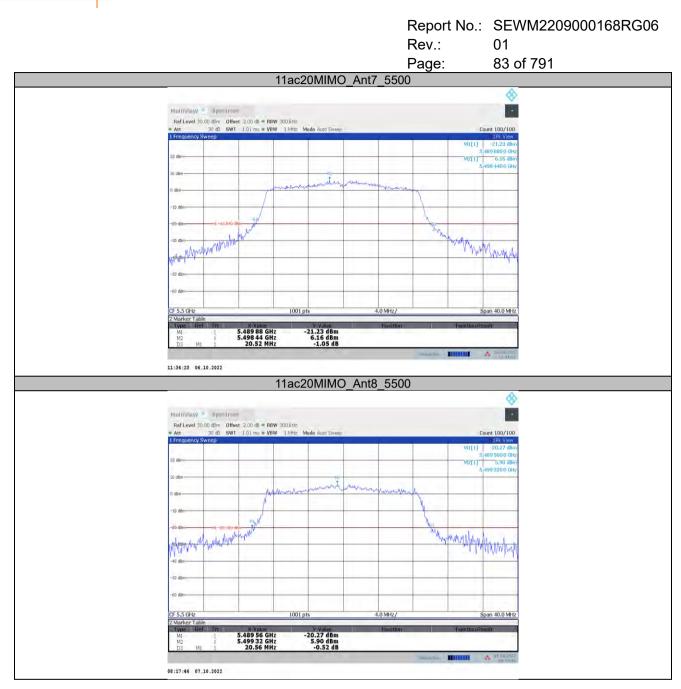
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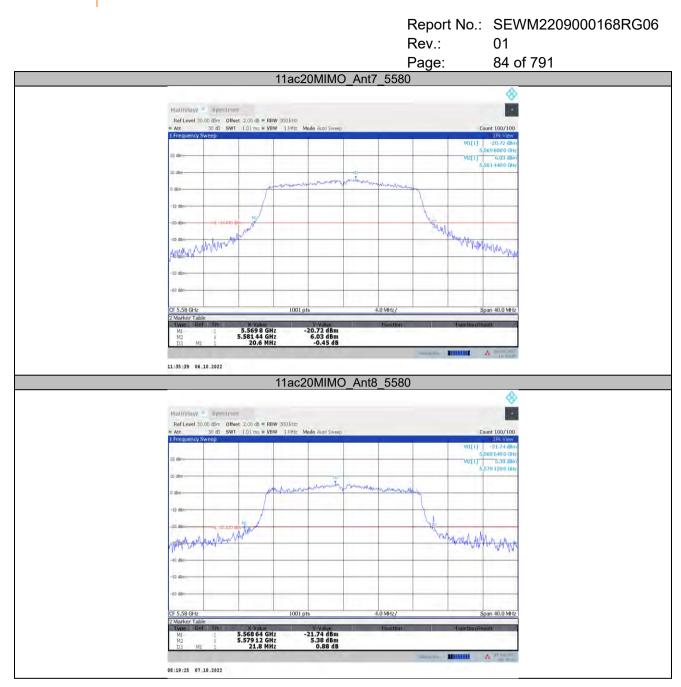










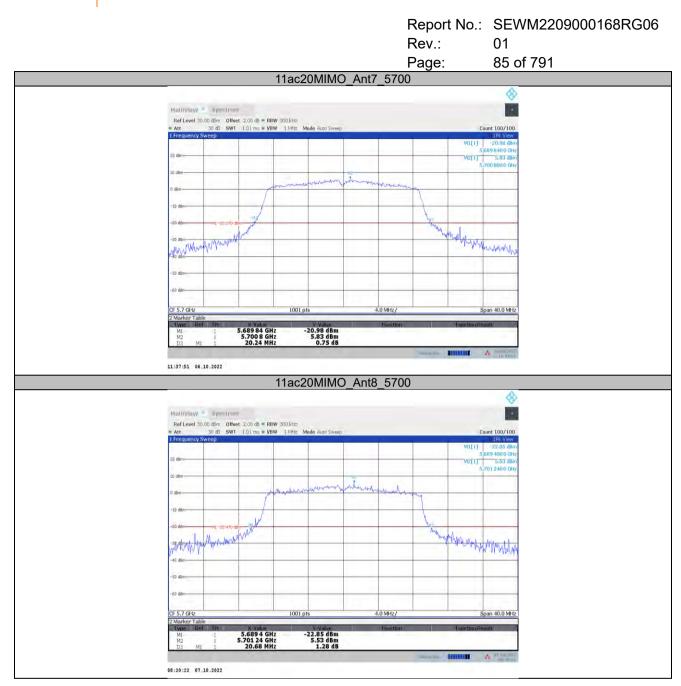




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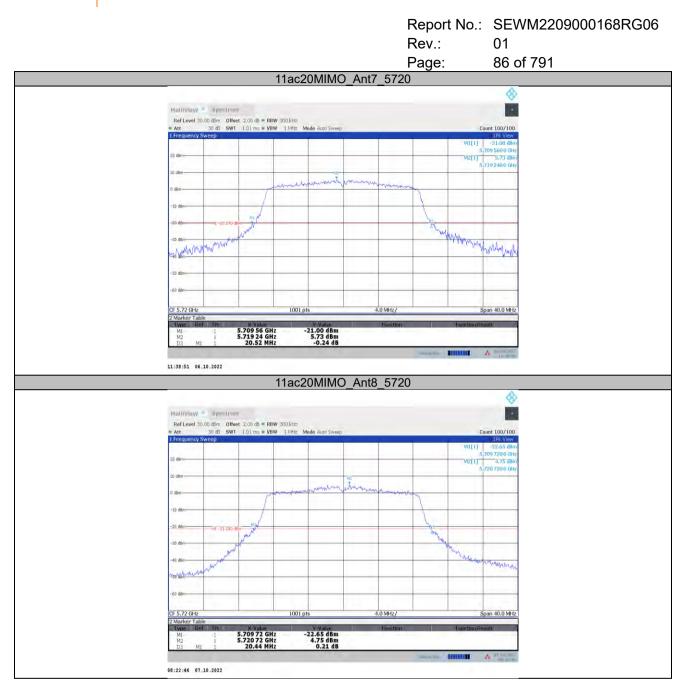


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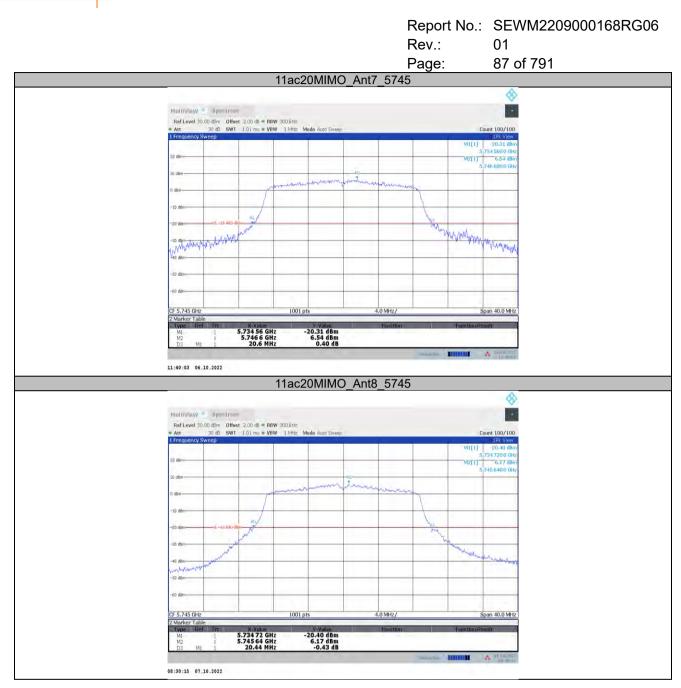




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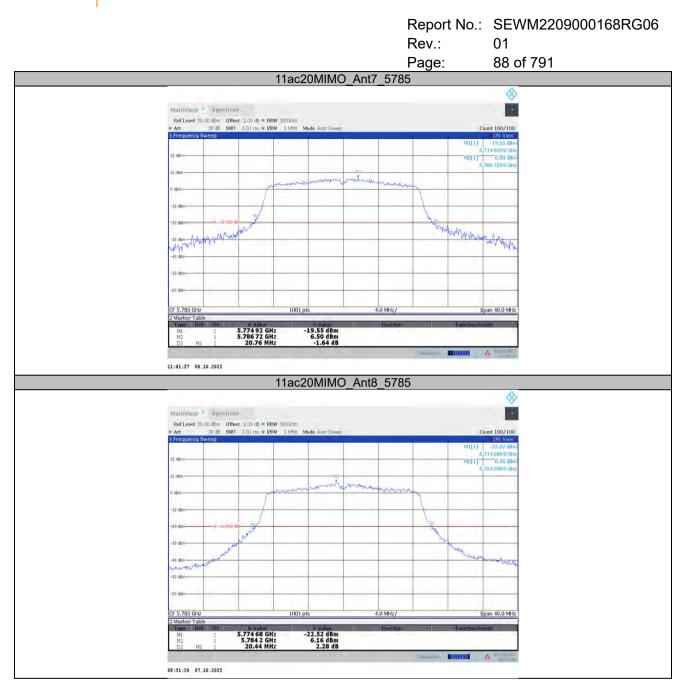
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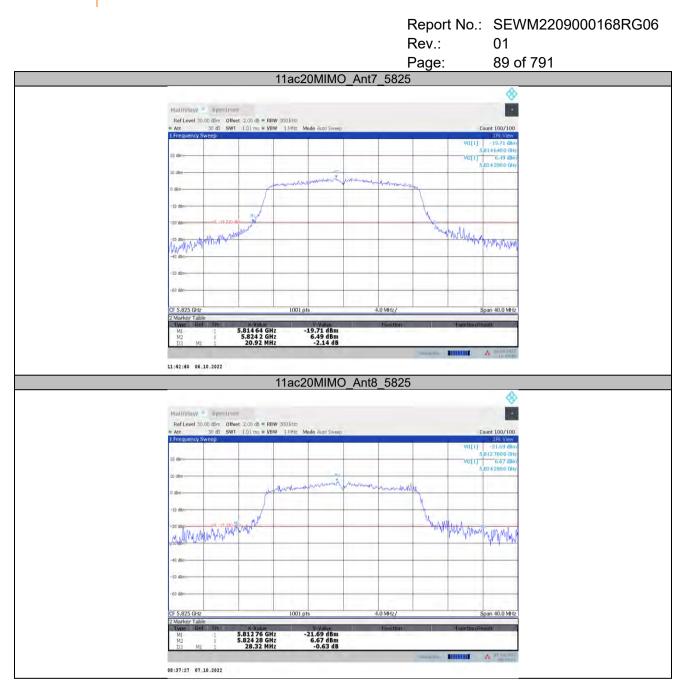




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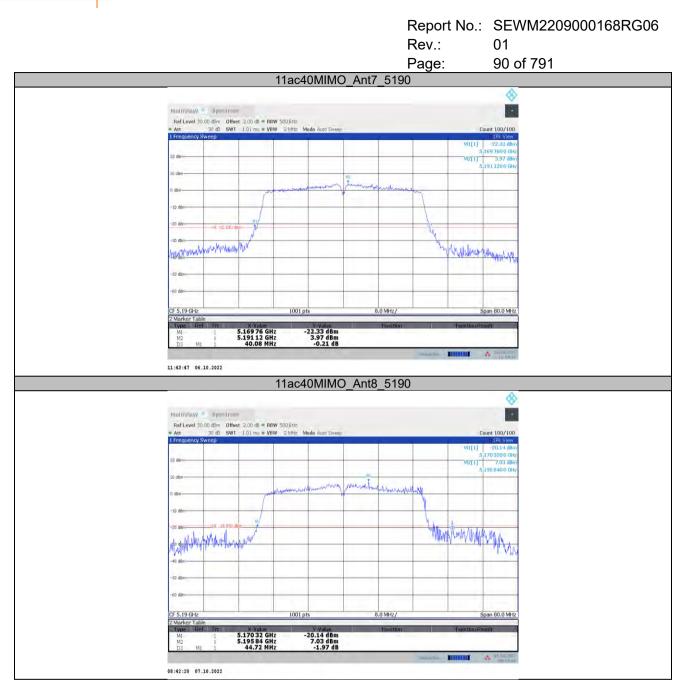


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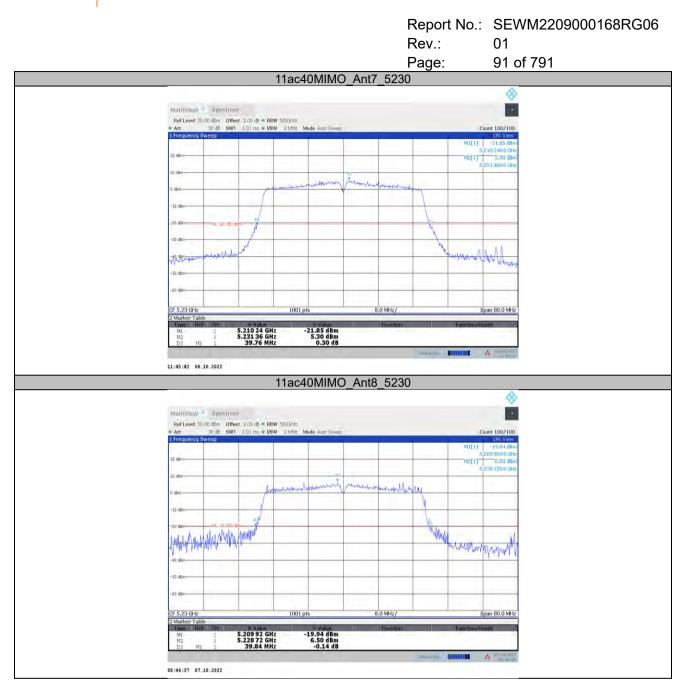


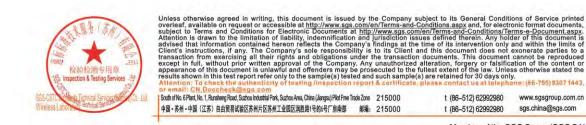
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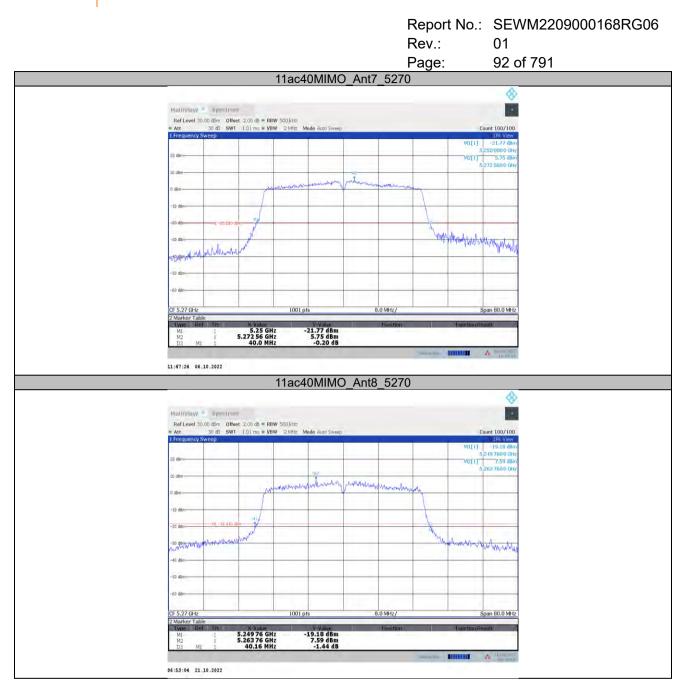




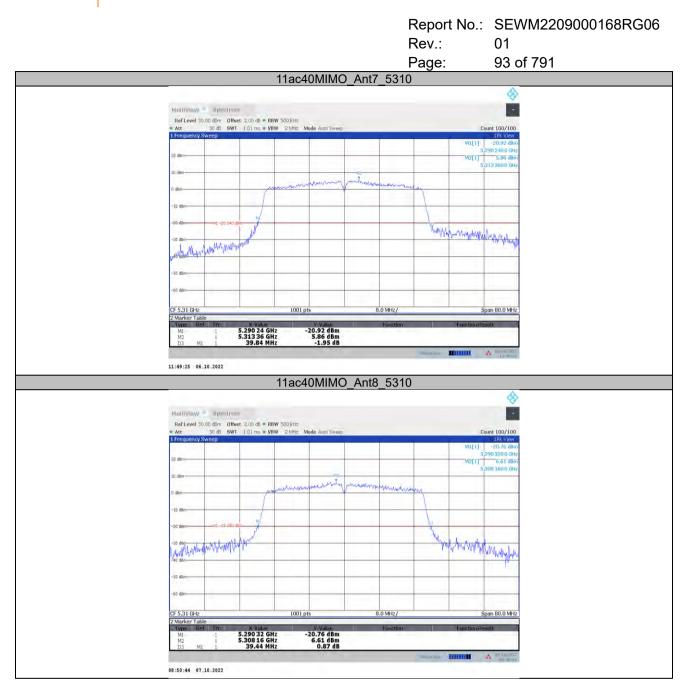
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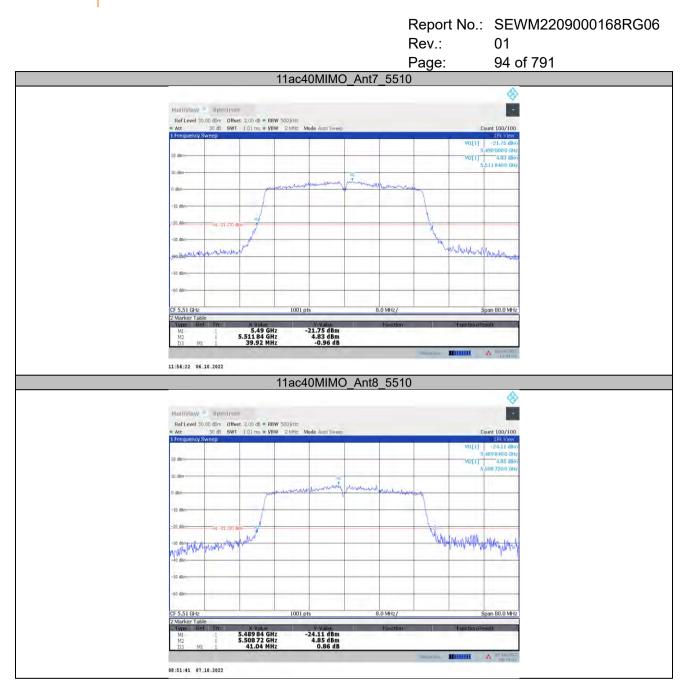


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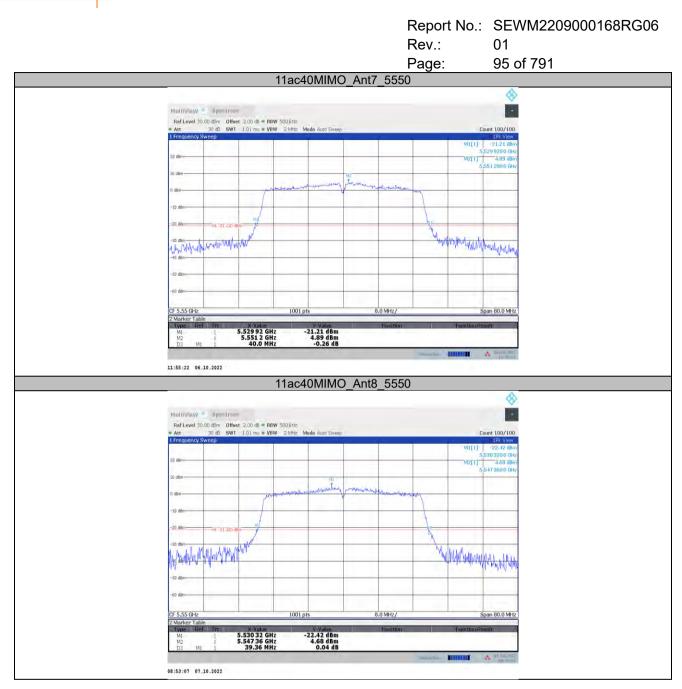




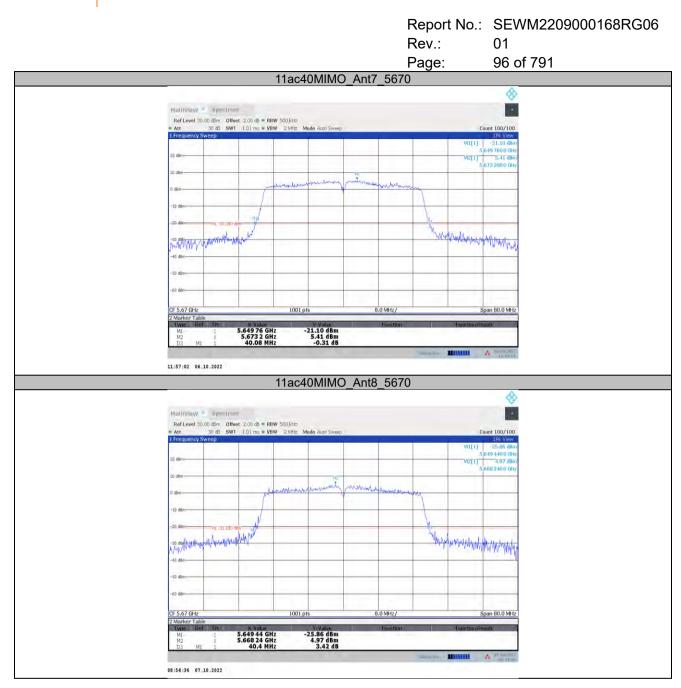
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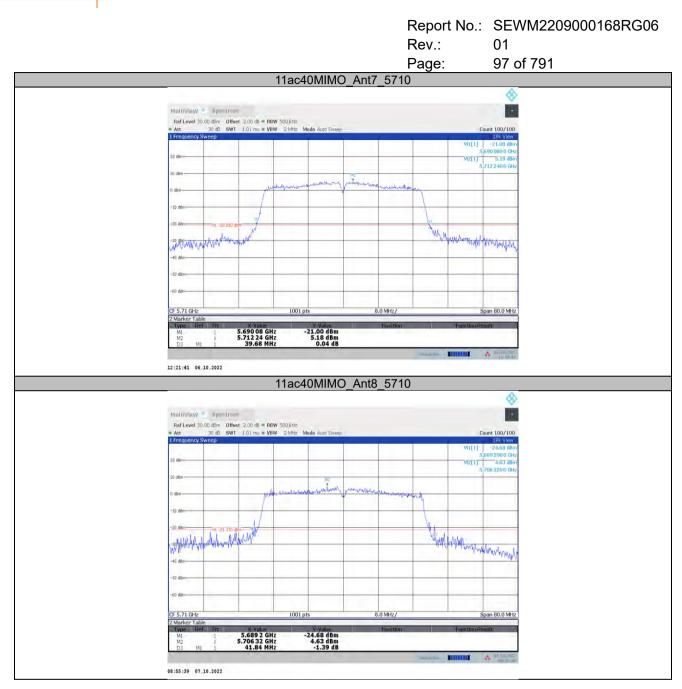






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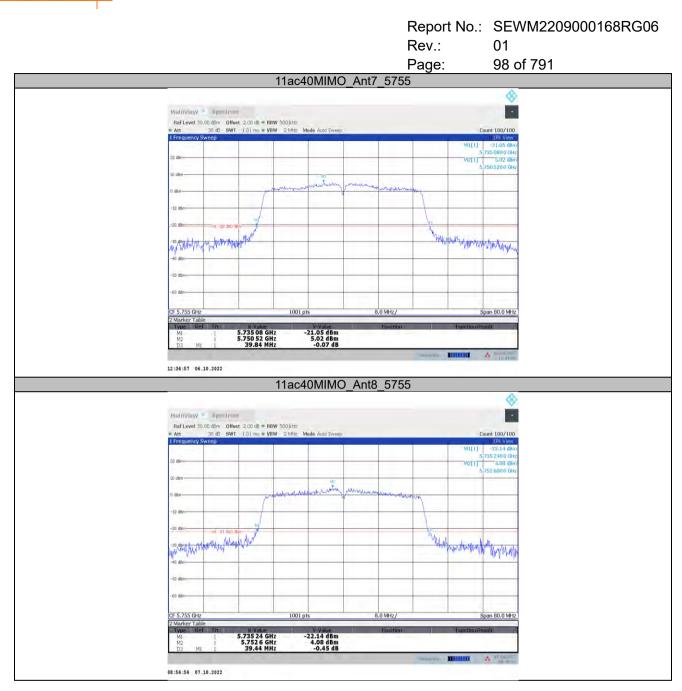




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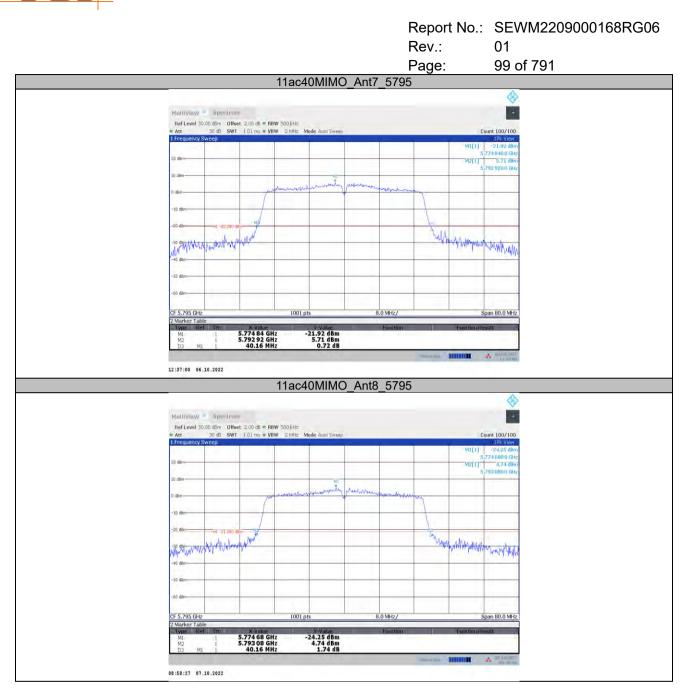
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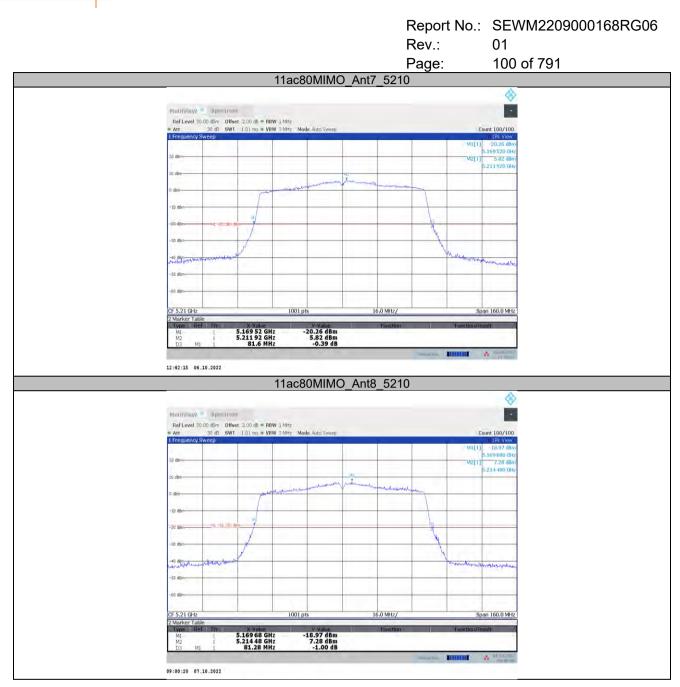


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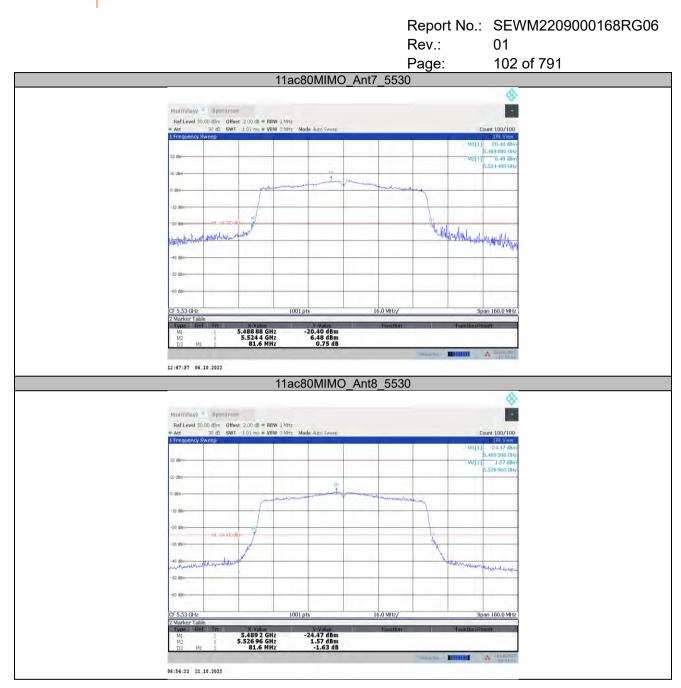
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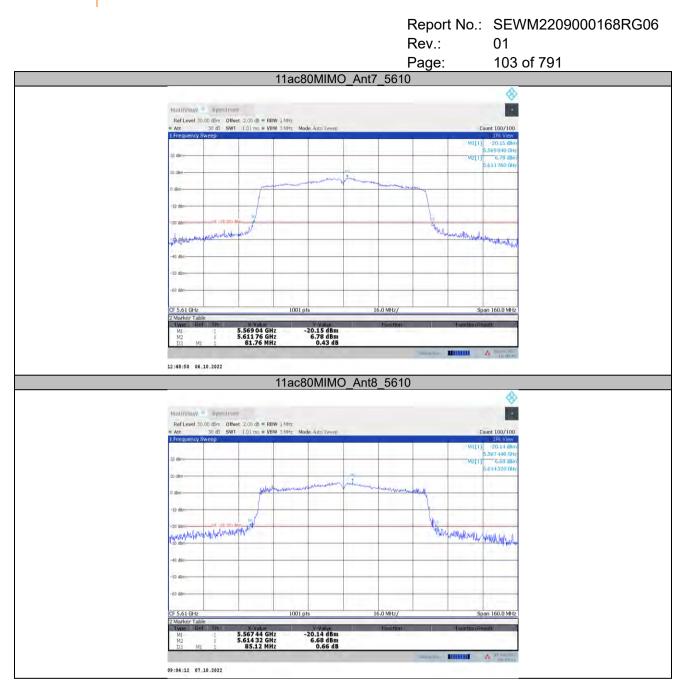


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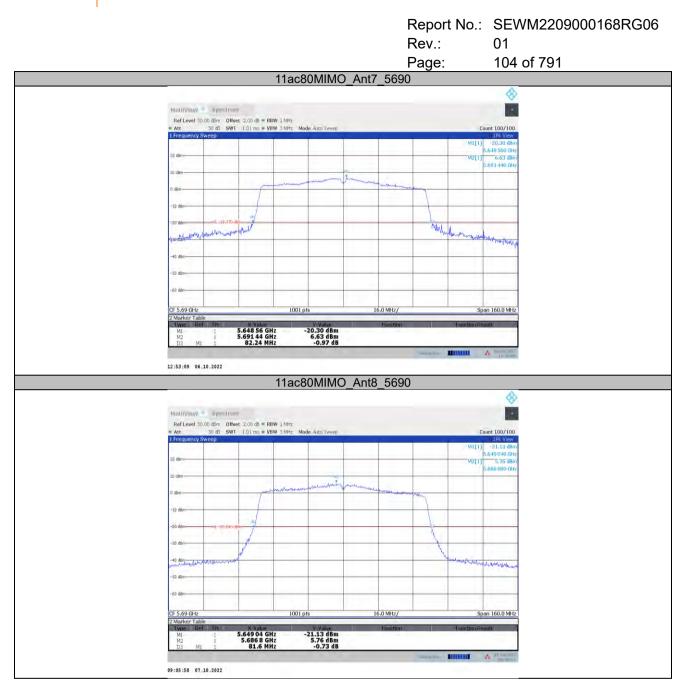


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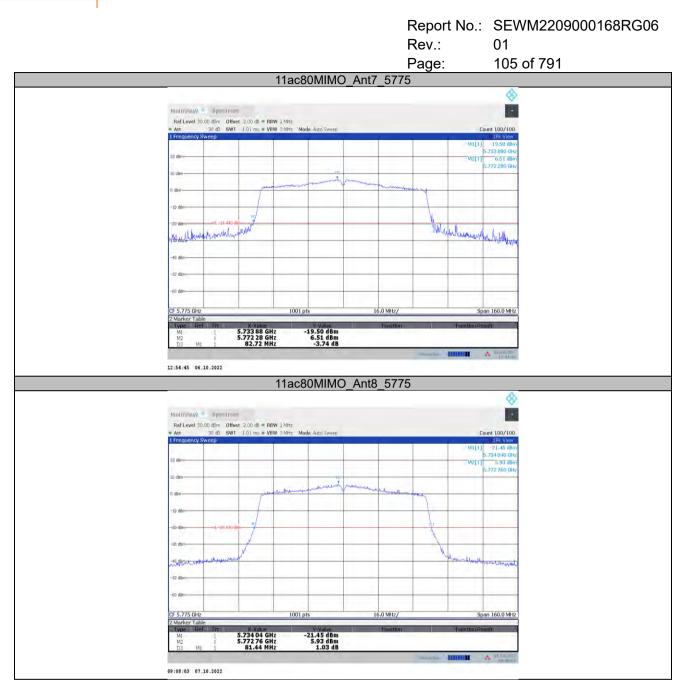
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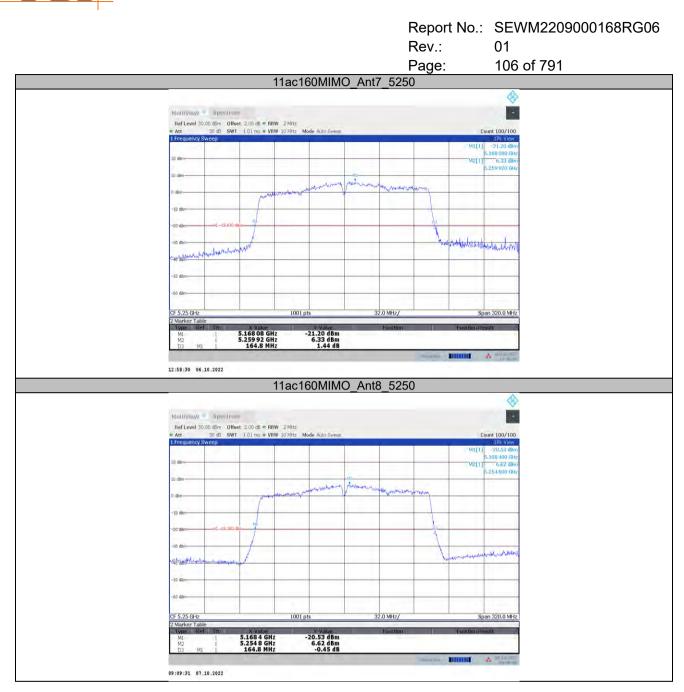




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