

FCC CERTIFICATION TEST REPORT

FOR

Applicant	:	FIBRAIN sp. zo. o.
Address	:	Poland, Zaczernie 190F, 36-062
Equipment under Test	:	GPON ONT
Model No.	:	HL-4GQVS
Trade Mark	:	HALNy Networks
FCC ID	:	2AWIZHL4GQVS
Manufacturer	:	Unionman Technology Co., LTD
Address	:	No.5 Huitai Road, Huinan High-Tech Industrial Park, Huizhou City, Guangdong, China.

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park,
Dongguan City, Guangdong Province, China, 523808

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REPORT

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Test Report Declare

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Address	:	No.5 Huitai Road, Huinan High-Tech Industrial Park, Huizhou City, Guangdong, China.

Test Standard Used: FCC Rules and Regulations Part 15 Subpart C.

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, 662911 D01 Multiple Transmitter Output v02r01

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	DDT-R20052115-1E2		
Date of Receipt:	May 26, 2020	Date of Test:	May 26, 2020 ~ Aug. 08, 2020

Prepared By:

Talent Zhang

Talent Zhang/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Aug. 08, 2020	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Results
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e)	PASS
Maximum Conducted Output Power	FCC 15.407 (a)	PASS
Power Spectral Density	FCC 15.407 (a)	PASS
Frequency Stability Measurement	FCC 15.407 (g)	PASS
Emissions in restricted frequency bands	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
Band Edge Compliance	FCC 15.407 (b) FCC 15.209 FCC 15.205	PASS
Power Line Conducted Emission	FCC 15.207	PASS
Antenna requirement	FCC 15.203	PASS

2. General Test Information

2.1. Description of EUT

EUT* Name	: GPON ONT
Model Number	: HL-4GQVS
EUT function description	: Please reference user manual of this device
Power supply	: DC 12V/1A from external AC Adapter
Radio Technology	: IEEE 802.11a/n/ac
FCC Operation frequency	: IEEE 802.11a: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5755MHz-5795MHz IEEE 802.11ac HT20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11ac HT40: 5190MHz-5230MHz, 5755MHz-5795MHz IEEE 802.11ac HT80: 5210MHz, 5775MHz
Modulation	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Transmitter rate	: IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 14.4, 28.9, 43.3, 57.8, 86.7, 115.6, 130.0, 144.4 Mbps IEEE 802.11n HT40: 30, 60, 90, 120, 180, 240, 270, 300 Mbps IEEE 802.11ac HT20: 14.4, 28.8, 43.4, 57.8, 86.6, 115.6, 130, 144.4, 173.4 Mbps IEEE 802.11ac HT40: 30, 60, 90, 120, 180, 240, 270, 300, 360, 400 Mbps IEEE 802.11ac HT80: 65, 130, 195, 260, 390, 520, 585, 650, 780, 866.6 Mbps
Antenna Type	: Antenna 1: PCB antenna, maximum PK gain: 3.0 dBi Antenna 2: PCB antenna, maximum PK gain: 3.0 dBi Antenna 3: PCB antenna, maximum PK gain: 3.0 dBi Antenna 4: PCB antenna, maximum PK gain: 3.0 dBi
Sample Type	: Series production

Note: EUT is the ab. of equipment under test.

Antenna information					
	Ant1 gain	Ant2 gain	Ant3 gain	Ant4 gain	MIMO
IEEE 802.11a	3	3	3	3	/
IEEE 802.11n HT20	3	3	3	3	9
IEEE 802.11n HT40	3	3	3	3	9
IEEE 802.11n AC HT20	3	3	3	3	9
IEEE 802.11n AC HT40	3	3	3	3	9
IEEE 802.11n AC HT80	3	3	3	3	9

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Remark
Adapter	N/A	EUSA+12120-1000	N/A	Input: 100-240~, 50/60Hz, 0.5A; Output: 12V/1A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	Lenovo Beijing Co. Ltd.	ThinkPad	FCC/CE	TP00015A

2.4. Block diagram of EUT configuration for test



Run a special test software “QATool_Dbg.exe” provided by manufacturer to control EUT work in Continuous Tx mode, and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11a	13	6	Low: CH36	5180
	13	6	Middle: CH40	5200
	13	6	High: CH48	5240
	13	6	Low: CH149	5745
	13	6	Middle: CH157	5785
	13	6	High: CH165	5825
IEEE 802.11n HT20	19	MCS 0	Low: CH36	5180
	19	MCS 0	Middle: CH40	5200
	19	MCS 0	High: CH48	5240
	19	MCS 0	Low: CH149	5745
	19	MCS 0	Middle: CH157	5785
	19	MCS 0	High: CH165	5825
IEEE 802.11n HT40	10	MCS 0	Low: CH38	5190
	10	MCS 0	Middle: CH46	5230
	10	MCS 0	Middle: CH151	5755
	10	MCS 0	High: CH159	5795
IEEE 802.11ac HT20	14	MCS 0	Low: CH36	5180
	18	MCS 0	Middle: CH40	5200
	18	MCS 0	High: CH48	5240
	18	MCS 0	Low: CH149	5745
	18	MCS 0	Middle: CH157	5785
	18	MCS 0	High: CH165	5825

IEEE 802.11ac HT40	11	MCS 0	Low: CH38	5190
	11	MCS 0	Middle: CH46	5230
	11	MCS 0	Middle: CH151	5755
	11	MCS 0	High: CH159	5795
IEEE 802.11ac HT80	0E	MCS 0	CH42	5210
	0E	MCS 0	CH155	5775
Note 1: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.				
Note 2: Antenna1, 2, 3, 4 power level set is same.				

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method) 5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.40 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$) 1.66 dB ($8 \text{ GHz} \leq f < 22 \text{ GHz}$)
Uncertainty for radio frequency (RBW<20kHz)	3×10^{-8}
Temperature	0.4°C
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V) 4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10 dB (1-6 GHz) 4.40 dB (6 GHz-18 GHz) 3.54 dB (18 GHz-26 GHz) 4.30 dB (26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

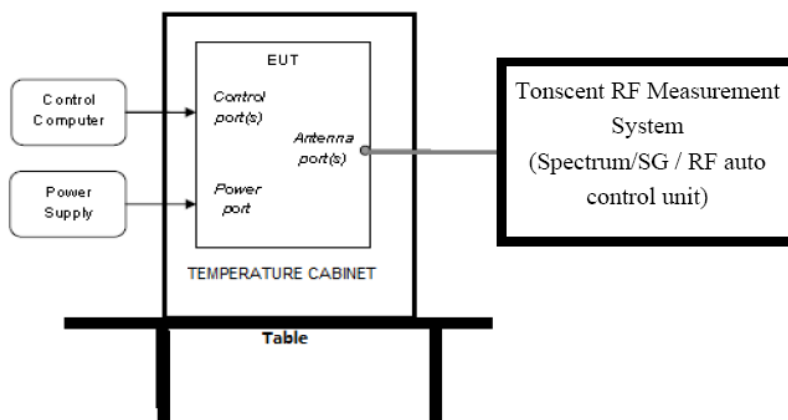
3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 29, 2019	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 29, 2019	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Jul. 01, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 29, 2019	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2019	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 15, 2019	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 29, 2019	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 29, 2019	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 29, 2019	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 01, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year

Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test					
EMI Test Receiver	R&S	ESU8	100316	Sep. 29, 2019	1 Year
LISN 1	R&S	ENV216	101109	Sep. 29, 2019	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 29, 2019	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 29, 2019	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150-5250
	26 dB Bandwidth	5250-5350
	26 dB Bandwidth	5470-5725
	Minimum 500kHz 6dB Bandwidth	5725-5850

4.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: approximately 1% of the emission bandwidth.
VBW	For 6 dB Bandwidth: VBW=300 kHz For 26 dB Bandwidth: >3 RBW
Trace	Max hold
Sweep	Auto couple

(2) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB and 6 dB relative to the maximum level measured in the fundamental emission.

4.4. Test result

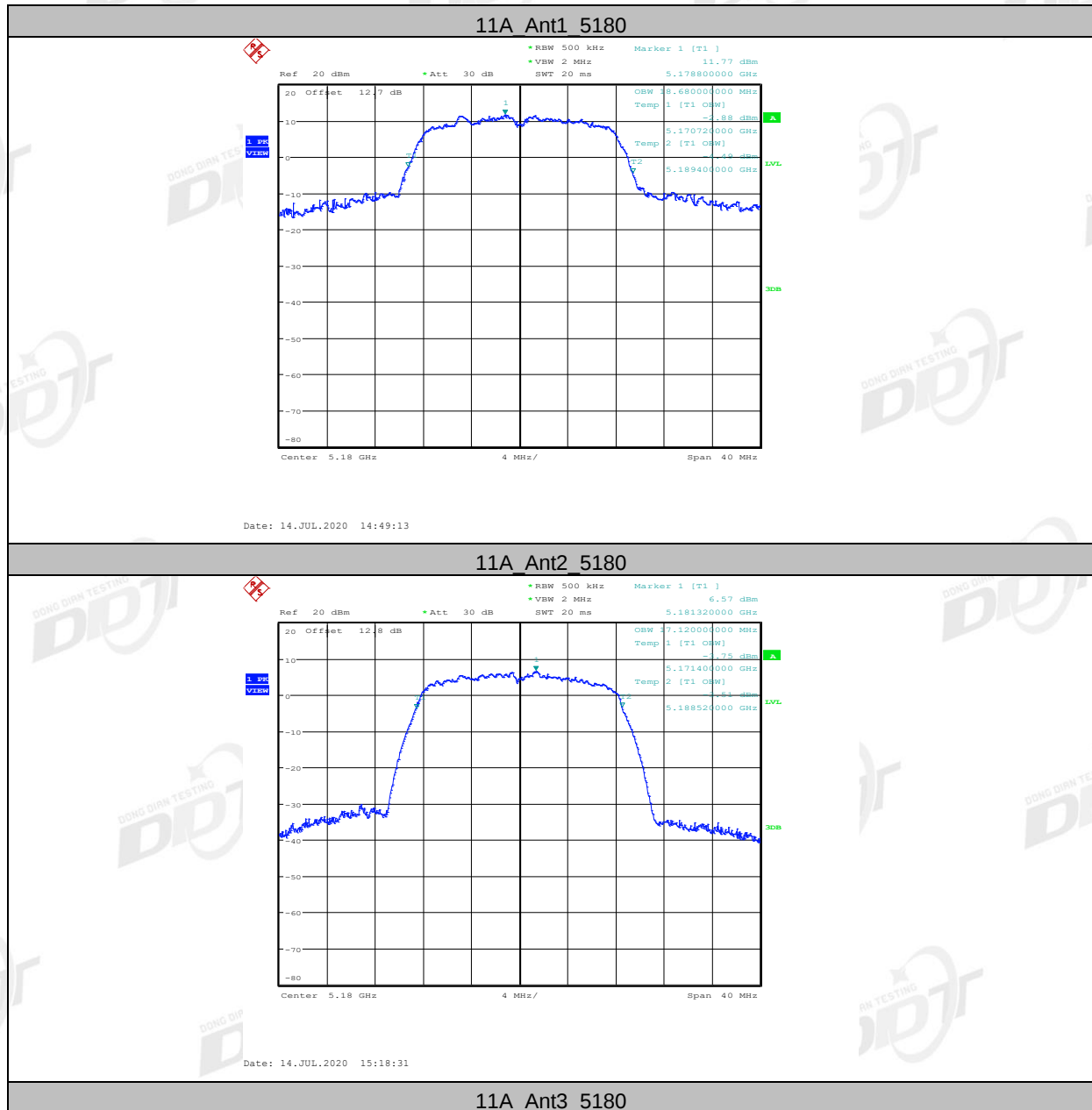
Test Mode	Antenna	Channel	99% BW(MHz)	EBW(MHz)	Limit (MHz)	Verdict
11A	ANT1	5180	18.68	20.000	---	Pass
11A	ANT2	5180	17.12	19.920	---	Pass
11A	ANT3	5180	17.28	20.160	---	Pass
11A	ANT4	5180	17.16	20.080	---	Pass
11A	ANT1	5200	17.32	19.920	---	Pass
11A	ANT2	5200	17.12	19.920	---	Pass
11A	ANT3	5200	17.32	20.120	---	Pass
11A	ANT4	5200	16.92	19.880	---	Pass
11A	ANT1	5240	17.28	20.040	---	Pass
11A	ANT2	5240	17.08	19.840	---	Pass
11A	ANT3	5240	17.28	20.120	---	Pass
11A	ANT4	5240	16.96	19.880	---	Pass
11A	ANT1	5745	18.64	15.200	0.5	Pass
11A	ANT2	5745	17.08	15.200	0.5	Pass
11A	ANT3	5745	17.24	15.240	0.5	Pass
11A	ANT4	5745	16.96	15.200	0.5	Pass
11A	ANT1	5785	17.32	15.240	0.5	Pass
11A	ANT2	5785	17.04	15.240	0.5	Pass
11A	ANT3	5785	17.24	15.240	0.5	Pass
11A	ANT4	5785	16.96	15.200	0.5	Pass
11A	ANT1	5825	17.32	15.200	0.5	Pass
11A	ANT2	5825	17.08	15.200	0.5	Pass
11A	ANT3	5825	17.28	15.240	0.5	Pass
11A	ANT4	5825	16.96	15.200	0.5	Pass
11N20MIMO	ANT1	5180	18.72	20.400	---	Pass
11N20MIMO	ANT2	5180	17.8	20.200	---	Pass
11N20MIMO	ANT3	5180	17.88	20.400	---	Pass
11N20MIMO	ANT4	5180	18.56	20.960	---	Pass
11N20MIMO	ANT1	5200	18.04	20.320	---	Pass
11N20MIMO	ANT2	5200	17.88	20.360	---	Pass
11N20MIMO	ANT3	5200	17.92	20.400	---	Pass
11N20MIMO	ANT4	5200	18.16	20.560	---	Pass
11N20MIMO	ANT1	5240	18.16	20.320	---	Pass
11N20MIMO	ANT2	5240	17.92	21.080	---	Pass
11N20MIMO	ANT3	5240	18.6	20.720	---	Pass
11N20MIMO	ANT4	5240	18.16	20.520	---	Pass

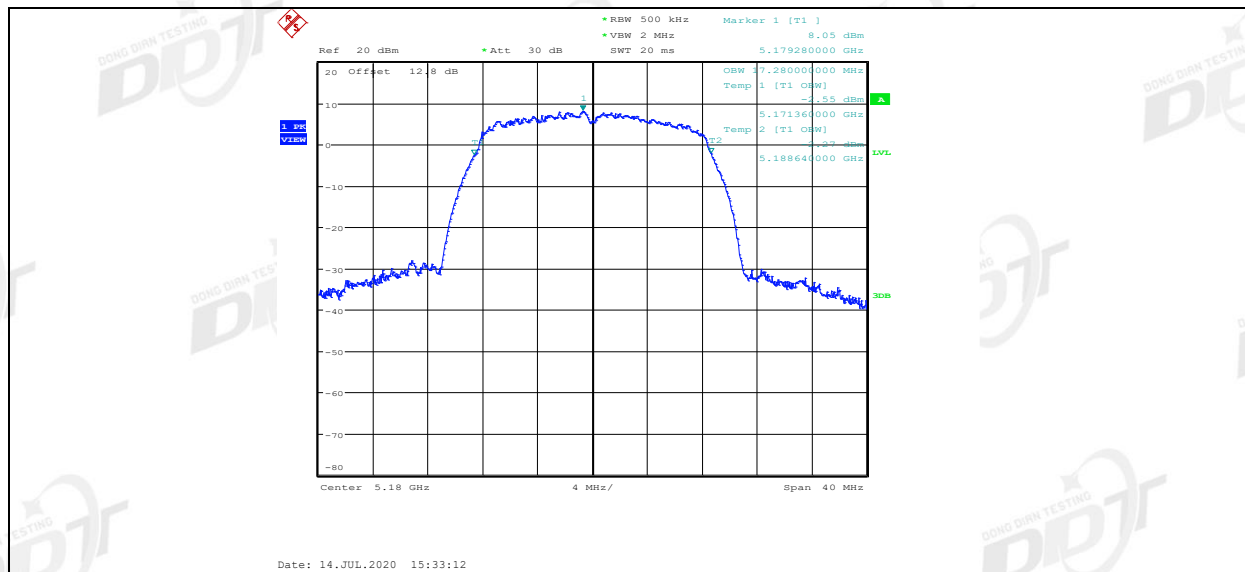
11N20MIMO	ANT1	5745	18.2	15.800	0.5	Pass
11N20MIMO	ANT2	5745	17.88	15.800	0.5	Pass
11N20MIMO	ANT3	5745	17.92	16.360	0.5	Pass
11N20MIMO	ANT4	5745	18.12	15.800	0.5	Pass
11N20MIMO	ANT1	5785	18.16	15.200	0.5	Pass
11N20MIMO	ANT2	5785	17.92	15.800	0.5	Pass
11N20MIMO	ANT3	5785	17.92	16.360	0.5	Pass
11N20MIMO	ANT4	5785	18.12	15.240	0.5	Pass
11N20MIMO	ANT1	5825	18.12	15.240	0.5	Pass
11N20MIMO	ANT2	5825	17.88	16.360	0.5	Pass
11N20MIMO	ANT3	5825	17.92	15.800	0.5	Pass
11N20MIMO	ANT4	5825	18.16	15.240	0.5	Pass
11N40MIMO	ANT1	5190	36.64	41.280	---	Pass
11N40MIMO	ANT2	5190	36.4	40.720	---	Pass
11N40MIMO	ANT3	5190	36.16	40.400	---	Pass
11N40MIMO	ANT4	5190	36.08	40.000	---	Pass
11N40MIMO	ANT1	5230	36.64	41.360	---	Pass
11N40MIMO	ANT2	5230	36.48	40.720	---	Pass
11N40MIMO	ANT3	5230	36.16	40.320	---	Pass
11N40MIMO	ANT4	5230	36.24	40.160	---	Pass
11N40MIMO	ANT1	5755	36.64	35.280	0.5	Pass
11N40MIMO	ANT2	5755	36.32	35.200	0.5	Pass
11N40MIMO	ANT3	5755	36.08	35.200	0.5	Pass
11N40MIMO	ANT4	5755	36.32	35.280	0.5	Pass
11N40MIMO	ANT1	5795	36.48	35.280	0.5	Pass
11N40MIMO	ANT2	5795	36.32	35.280	0.5	Pass
11N40MIMO	ANT3	5795	36.08	35.280	0.5	Pass
11N40MIMO	ANT4	5795	36.24	35.200	0.5	Pass
11AC20MIMO	ANT1	5180	18.12	20.320	---	Pass
11AC20MIMO	ANT2	5180	17.84	20.280	---	Pass
11AC20MIMO	ANT3	5180	17.88	20.360	---	Pass
11AC20MIMO	ANT4	5180	18.24	22.160	---	Pass
11AC20MIMO	ANT1	5200	18.12	20.360	---	Pass
11AC20MIMO	ANT2	5200	17.84	20.280	---	Pass
11AC20MIMO	ANT3	5200	17.96	20.400	---	Pass
11AC20MIMO	ANT4	5200	18.16	20.640	---	Pass
11AC20MIMO	ANT1	5240	18.24	20.960	---	Pass
11AC20MIMO	ANT2	5240	18.12	27.920	---	Pass
11AC20MIMO	ANT3	5240	19.4	20.440	---	Pass

11AC20MIMO	ANT4	5240	18.08	20.360	---	Pass
11AC20MIMO	ANT1	5745	18.12	15.200	0.5	Pass
11AC20MIMO	ANT2	5745	17.88	15.800	0.5	Pass
11AC20MIMO	ANT3	5745	17.88	16.360	0.5	Pass
11AC20MIMO	ANT4	5745	18.08	15.800	0.5	Pass
11AC20MIMO	ANT1	5785	18.12	15.200	0.5	Pass
11AC20MIMO	ANT2	5785	17.92	15.840	0.5	Pass
11AC20MIMO	ANT3	5785	17.92	16.360	0.5	Pass
11AC20MIMO	ANT4	5785	18.12	15.200	0.5	Pass
11AC20MIMO	ANT1	5825	18.12	15.200	0.5	Pass
11AC20MIMO	ANT2	5825	17.84	16.040	0.5	Pass
11AC20MIMO	ANT3	5825	17.92	16.360	0.5	Pass
11AC20MIMO	ANT4	5825	18.12	15.800	0.5	Pass
11AC40MIMO	ANT1	5190	36.56	41.440	---	Pass
11AC40MIMO	ANT2	5190	36.56	40.400	---	Pass
11AC40MIMO	ANT3	5190	36.24	40.880	---	Pass
11AC40MIMO	ANT4	5190	36.16	40.080	---	Pass
11AC40MIMO	ANT1	5230	36.64	41.440	---	Pass
11AC40MIMO	ANT2	5230	36.56	40.560	---	Pass
11AC40MIMO	ANT3	5230	36.24	40.480	---	Pass
11AC40MIMO	ANT4	5230	36.24	39.920	---	Pass
11AC40MIMO	ANT1	5755	36.64	35.440	0.5	Pass
11AC40MIMO	ANT2	5755	36.4	35.280	0.5	Pass
11AC40MIMO	ANT3	5755	36.08	35.280	0.5	Pass
11AC40MIMO	ANT4	5755	36.32	35.280	0.5	Pass
11AC40MIMO	ANT1	5795	36.48	35.280	0.5	Pass
11AC40MIMO	ANT2	5795	36.48	35.280	0.5	Pass
11AC40MIMO	ANT3	5795	36.16	35.280	0.5	Pass
11AC40MIMO	ANT4	5795	36.24	35.280	0.5	Pass
11AC80MIMO	ANT1	5210	76.32	80.960	---	Pass
11AC80MIMO	ANT2	5210	75.52	81.280	---	Pass
11AC80MIMO	ANT3	5210	75.52	80.960	---	Pass
11AC80MIMO	ANT4	5210	74.72	80.640	---	Pass
11AC80MIMO	ANT1	5775	76	75.520	0.5	Pass
11AC80MIMO	ANT2	5775	75.04	75.520	0.5	Pass
11AC80MIMO	ANT3	5775	75.36	72.960	0.5	Pass
11AC80MIMO	ANT4	5775	75.52	75.520	0.5	Pass

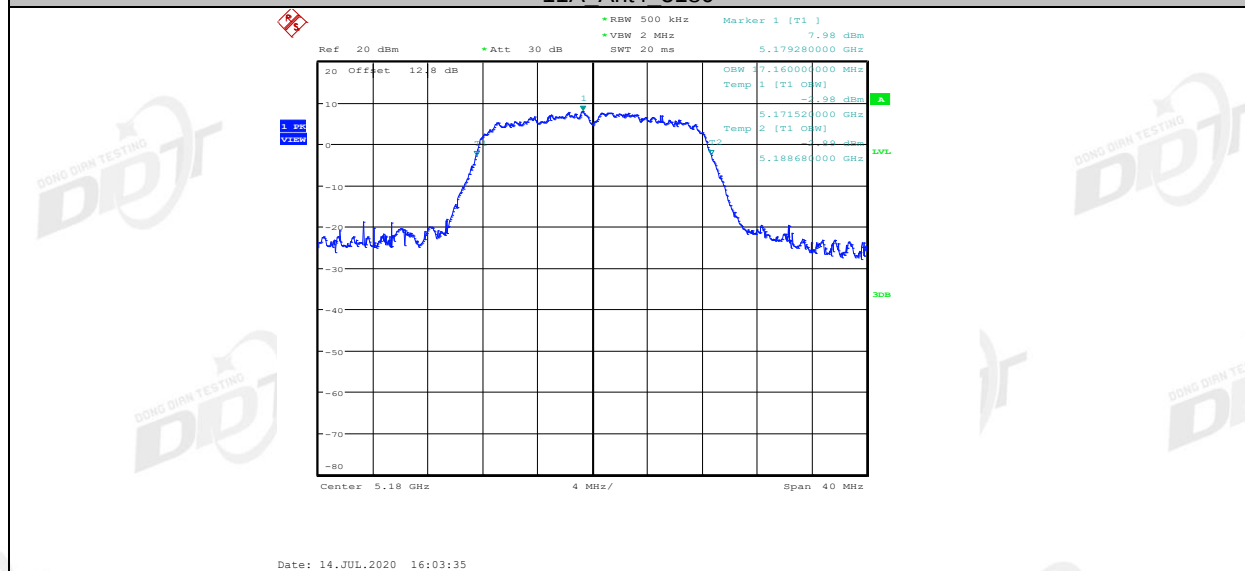
4.5. Original test data

99% Bandwidth:

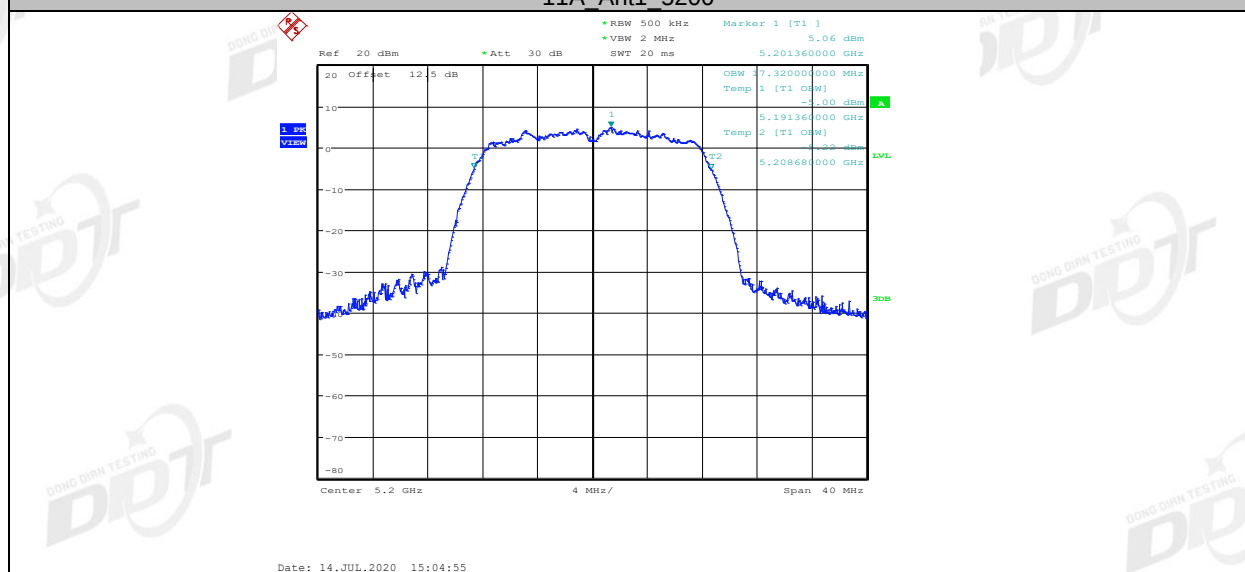




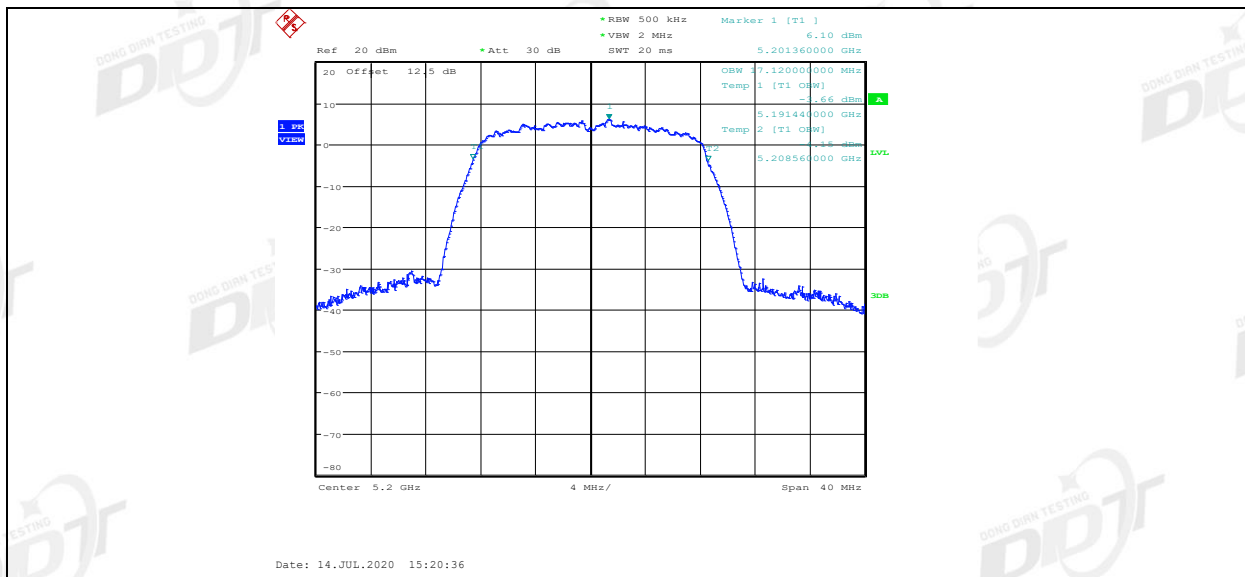
11A Ant4 5180



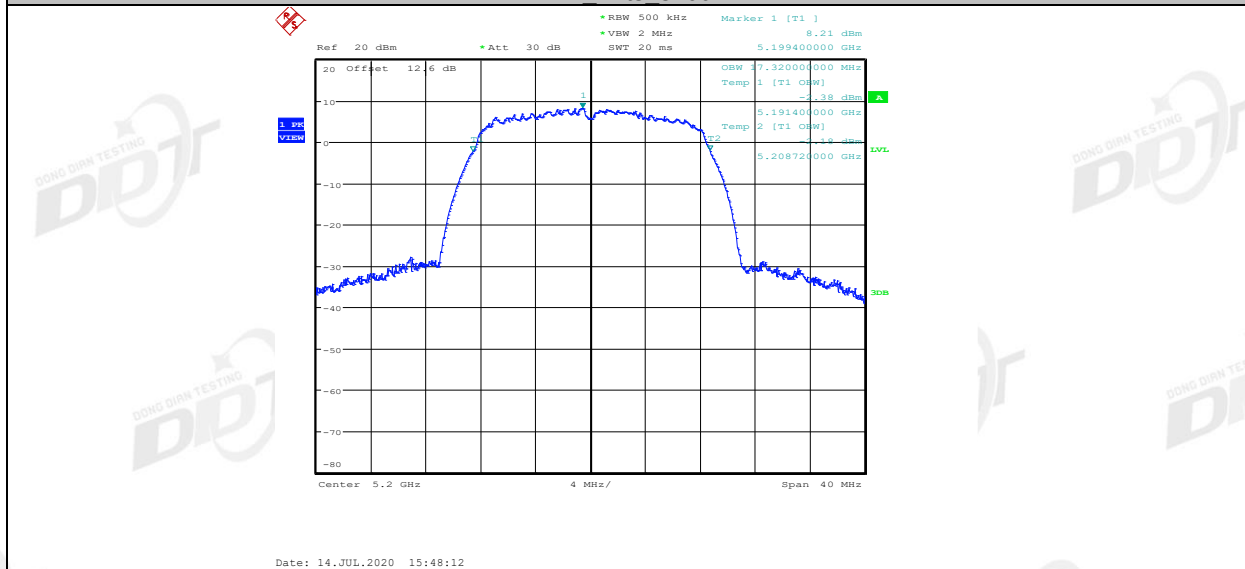
11A Ant1 5200



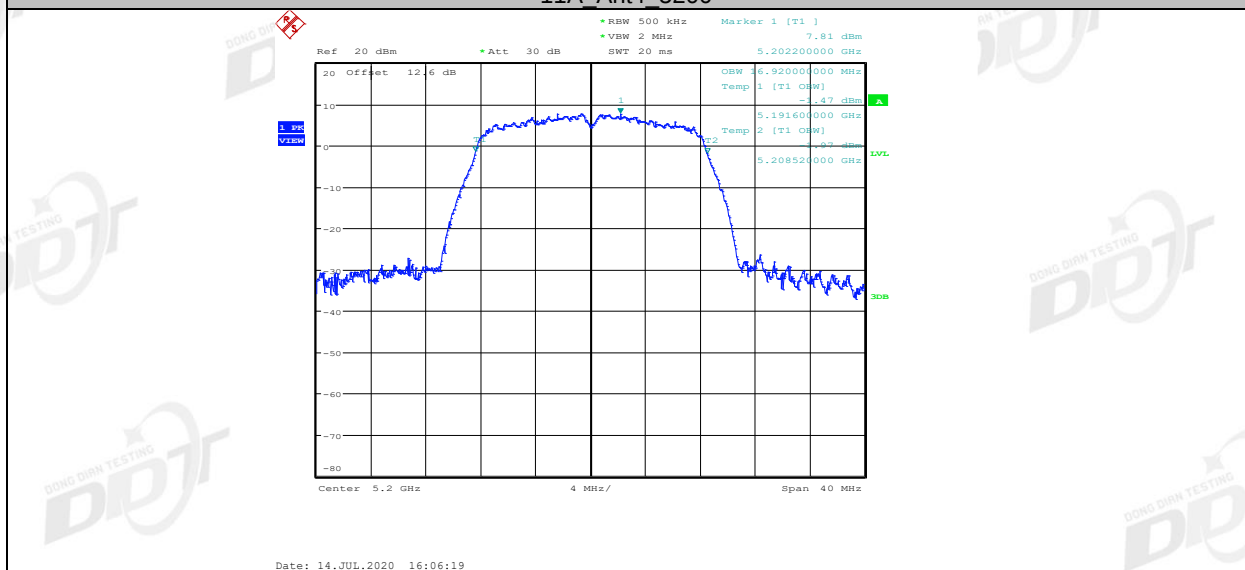
11A Ant2 5200



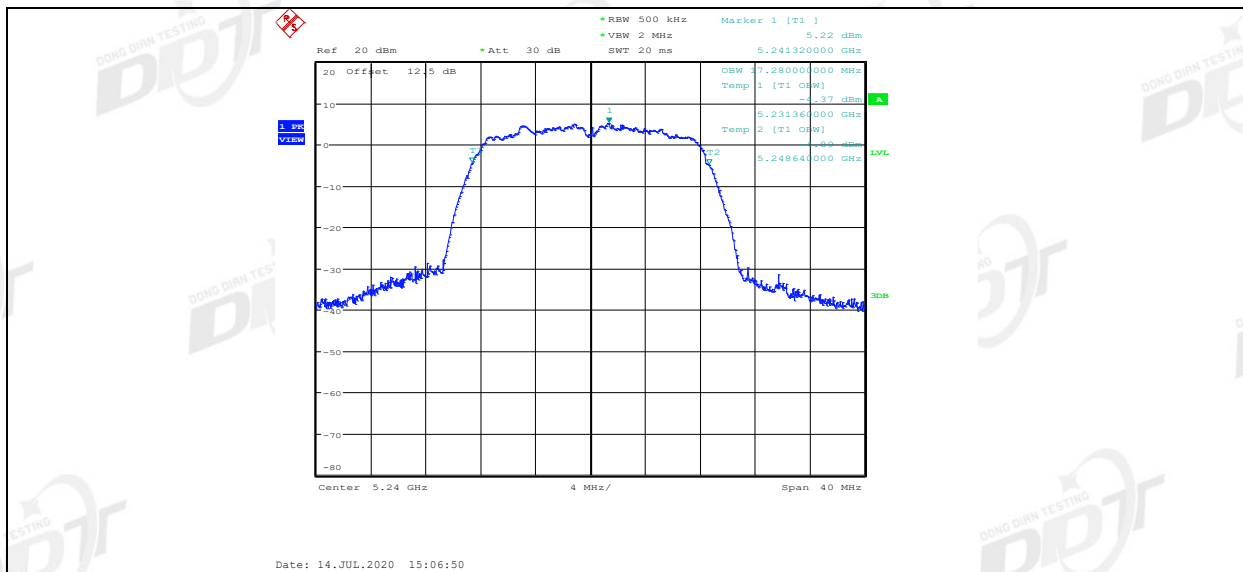
11A Ant3 5200



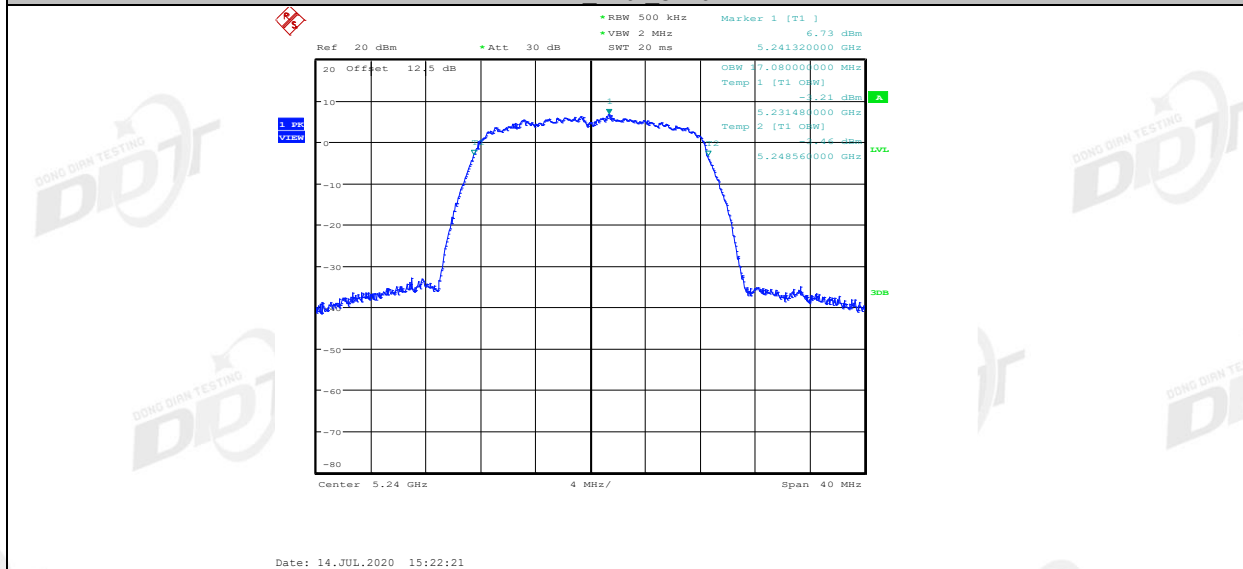
11A Ant4 5200



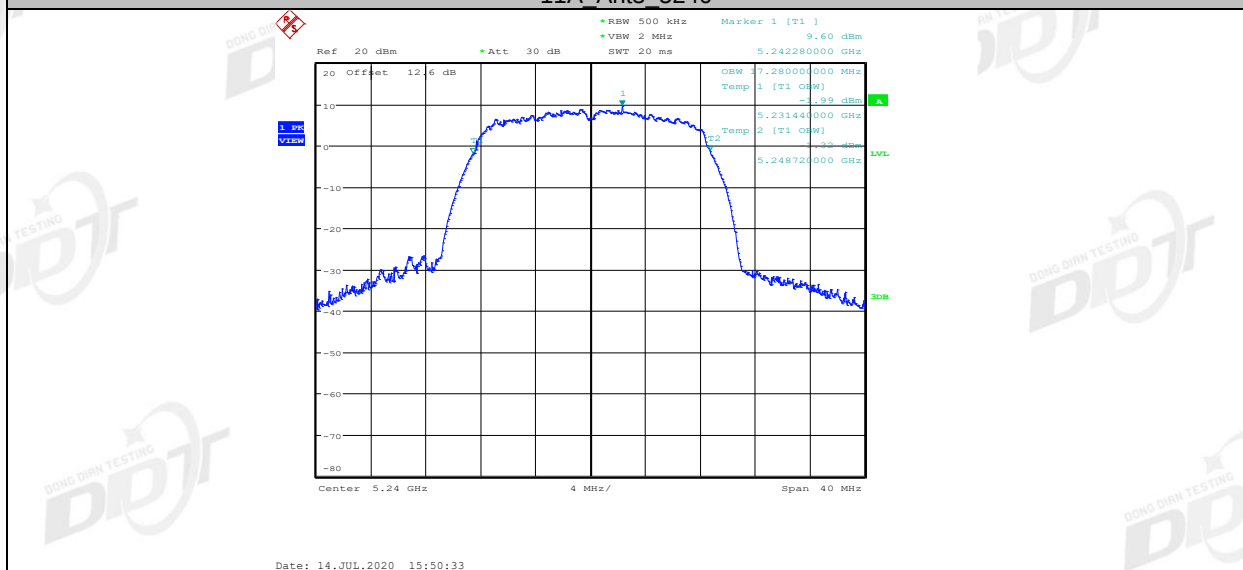
11A Ant1 5240



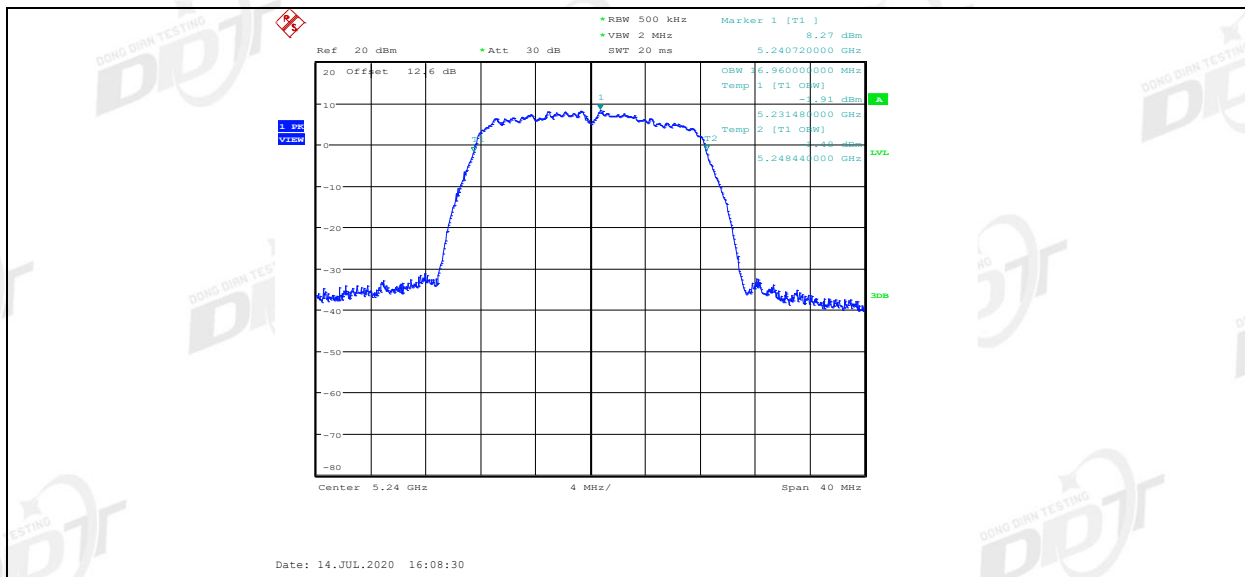
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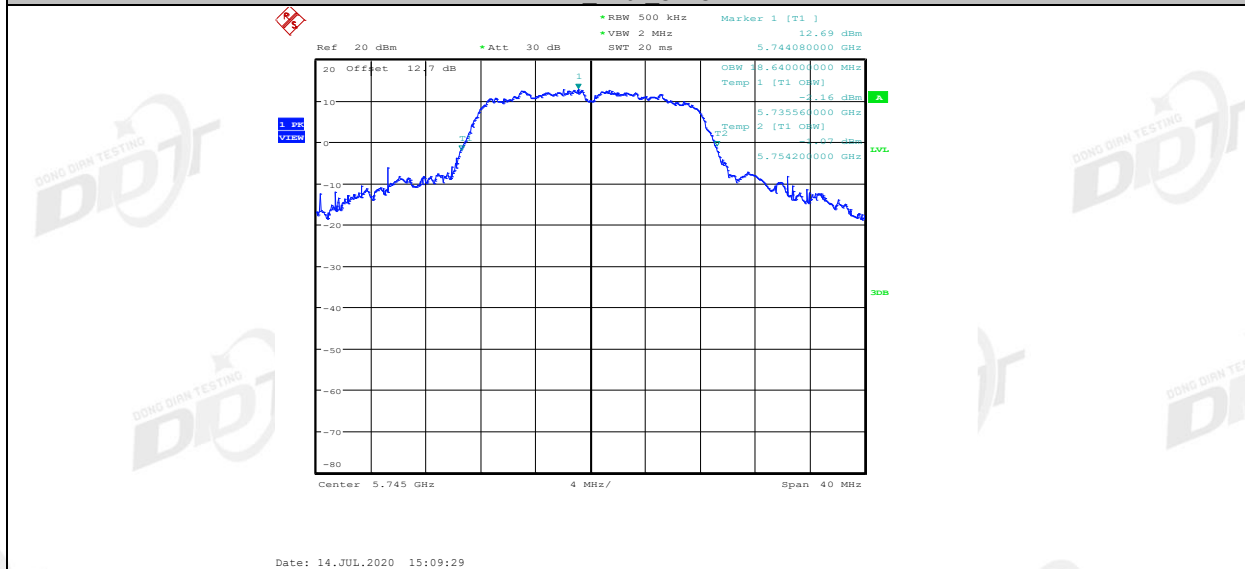
11A Ant3 5240



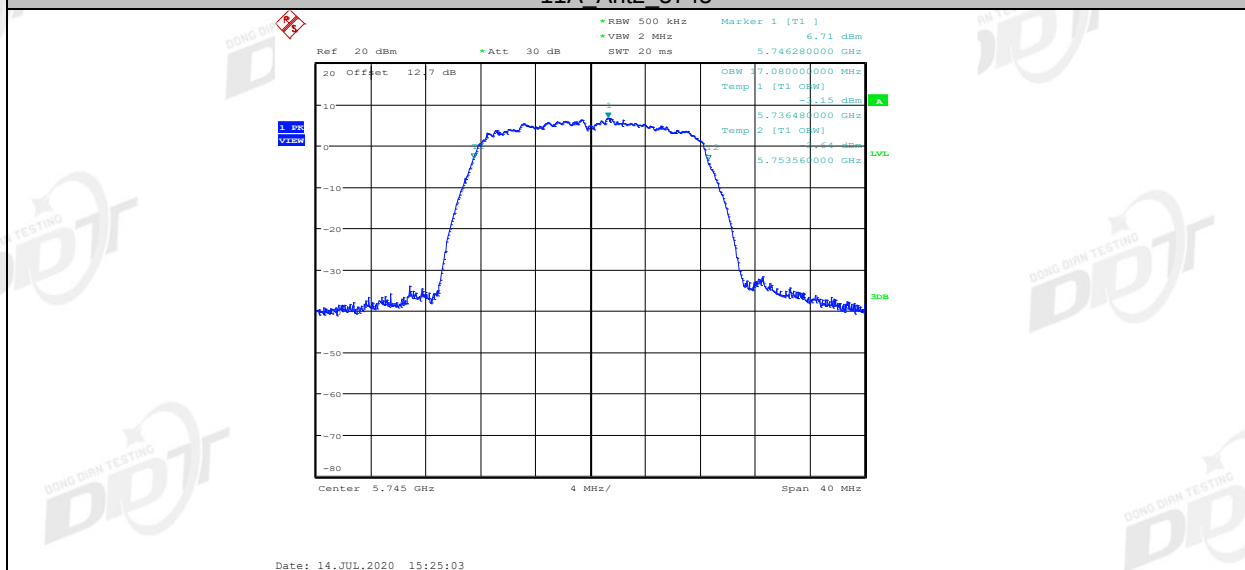
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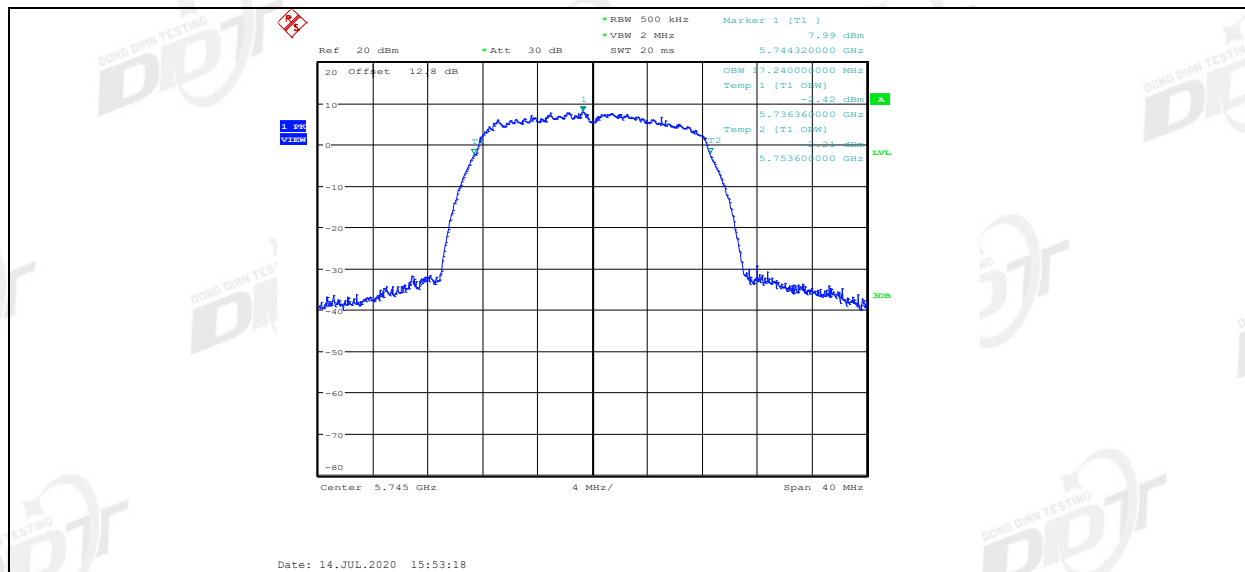
11A Ant1 5745



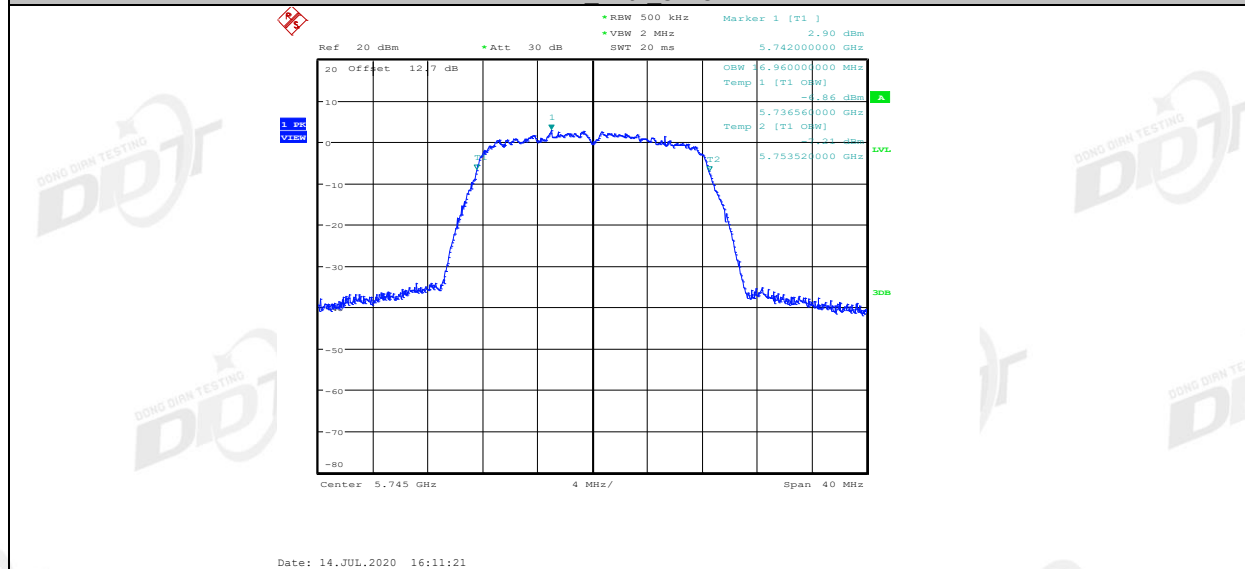
11A Ant2 5745



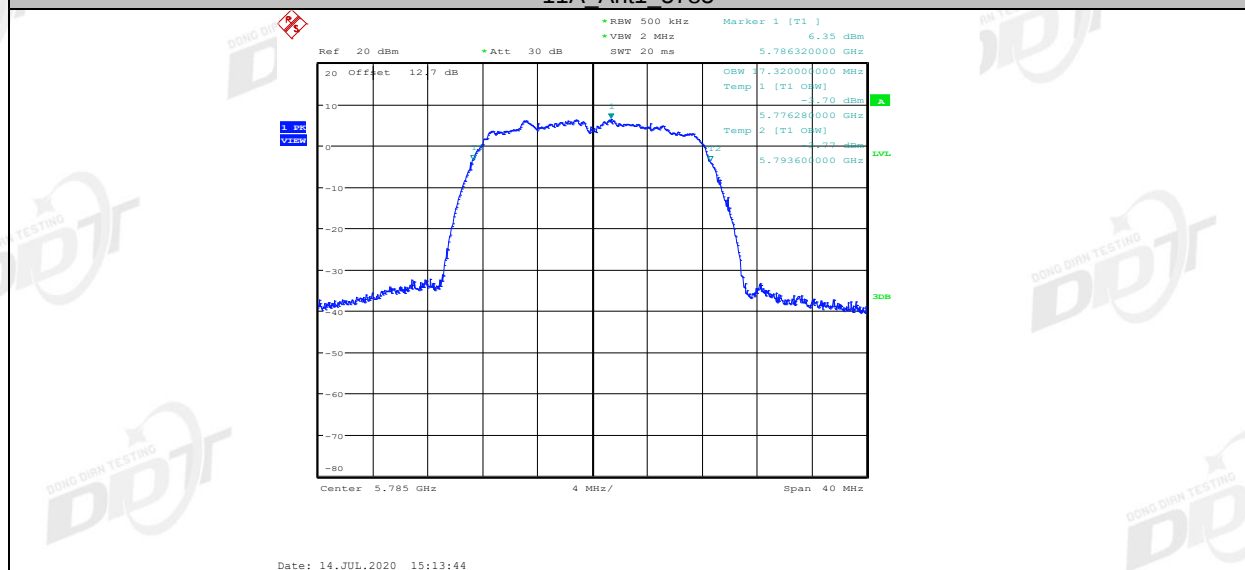
11A Ant3 5745



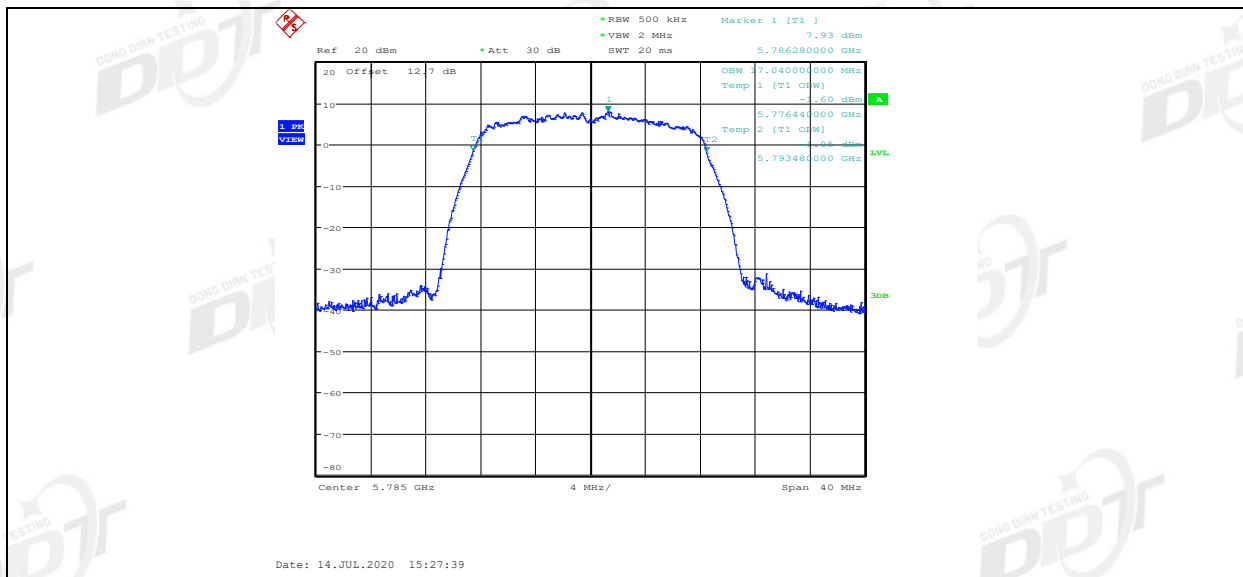
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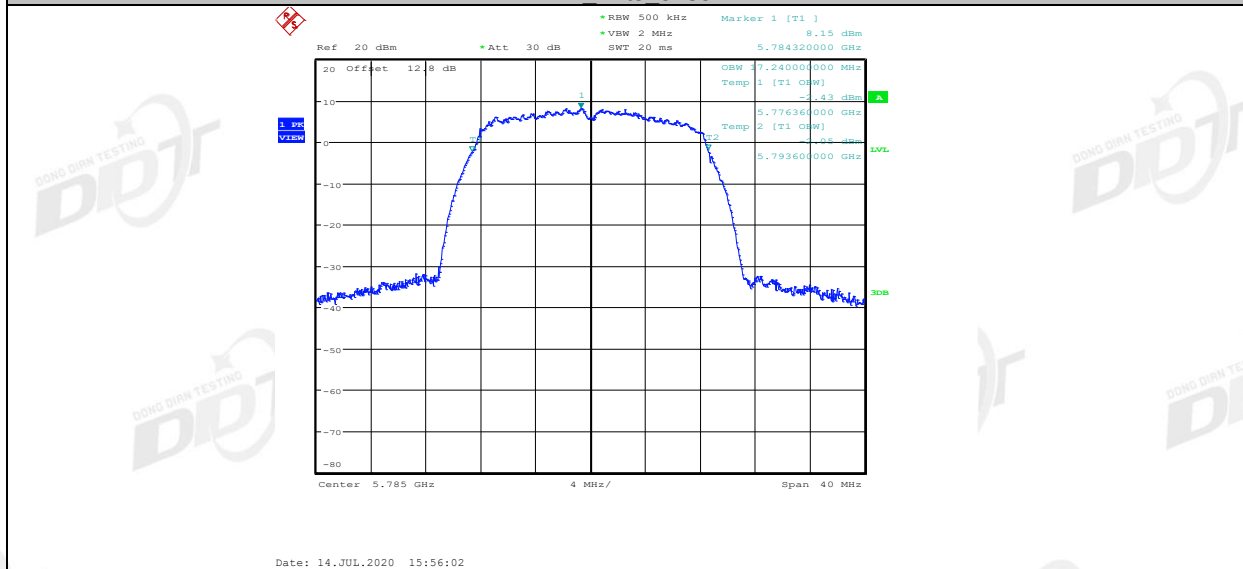
11A Ant1 5785



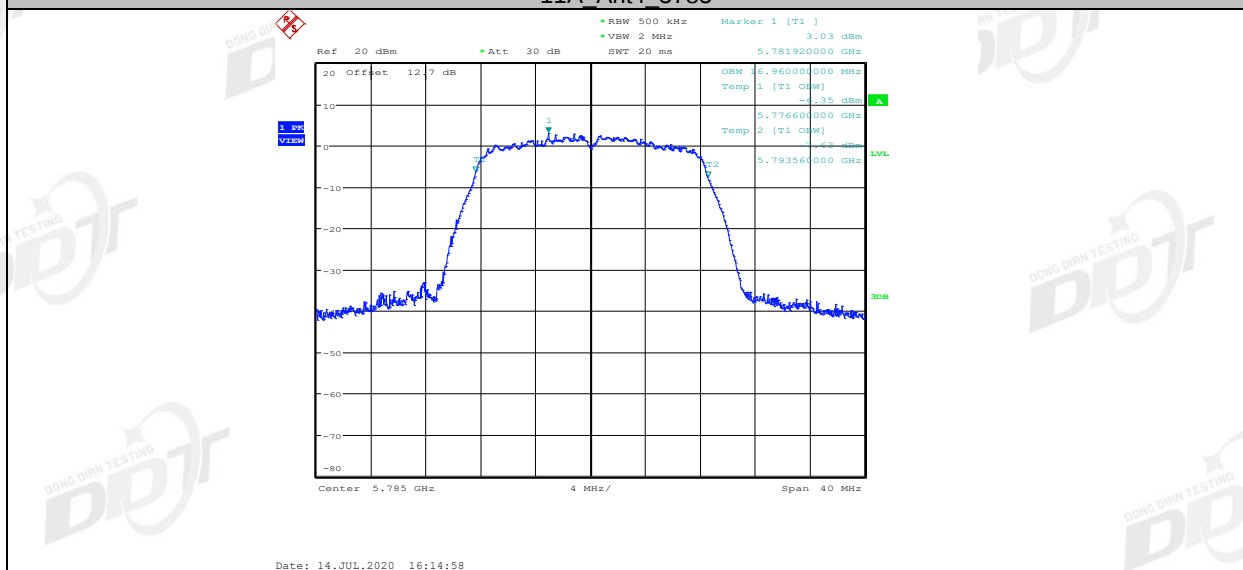
11A Ant2 5785



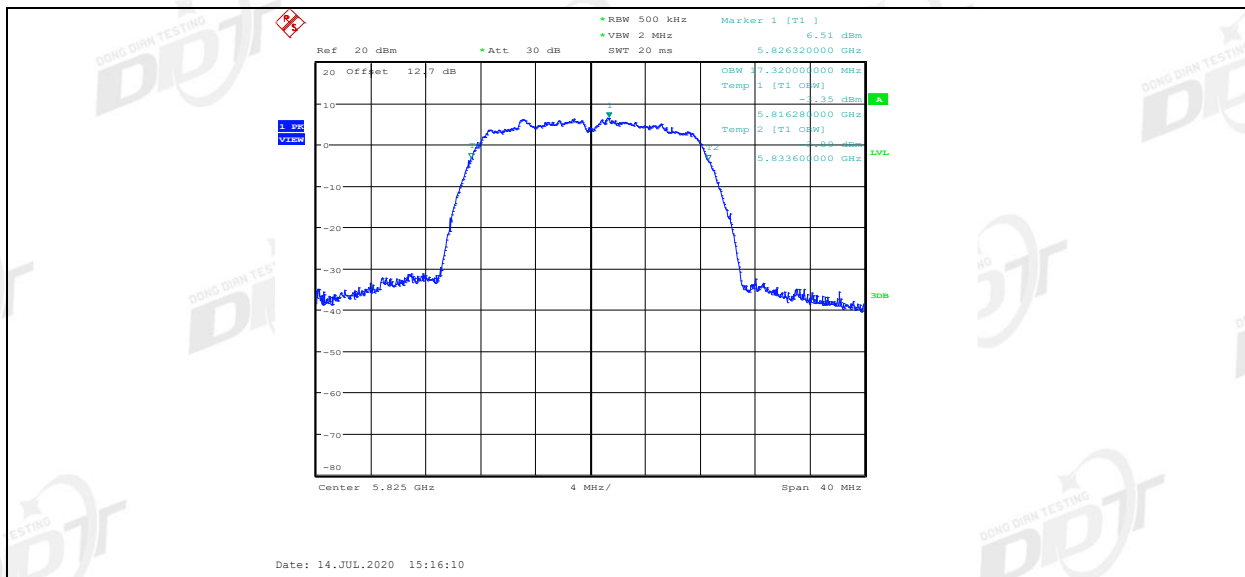
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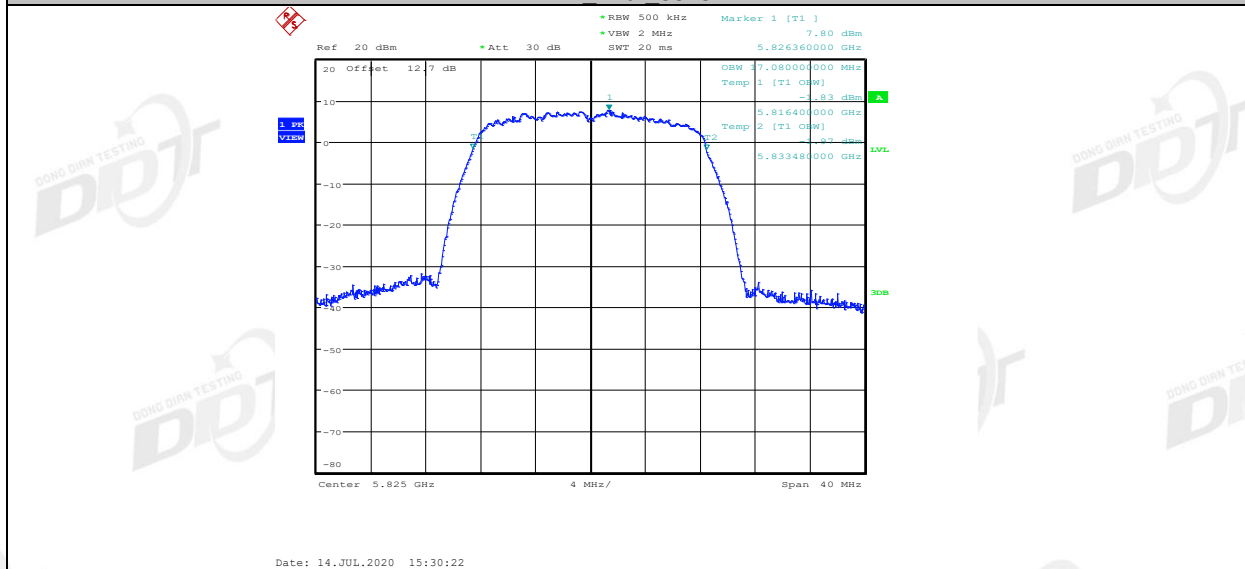
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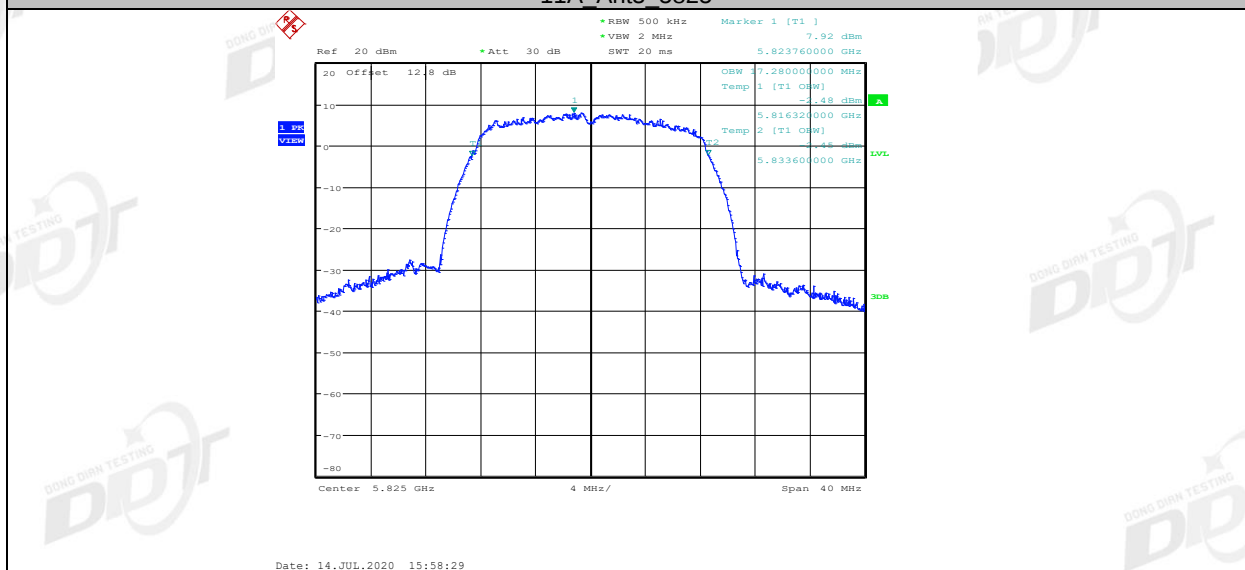
11A Ant1 5825



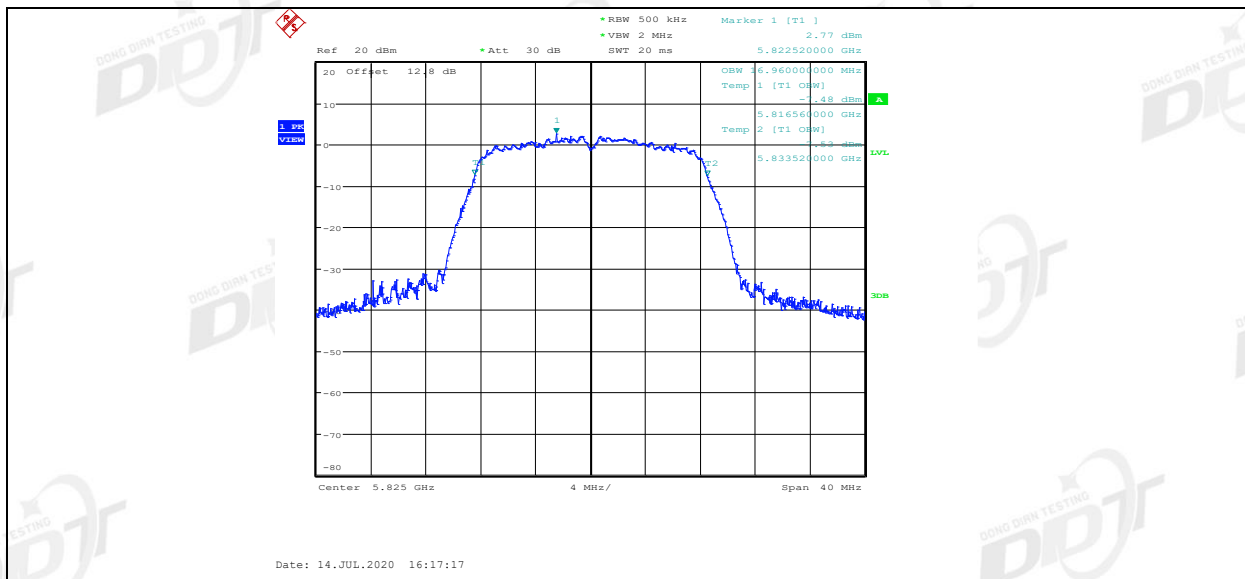
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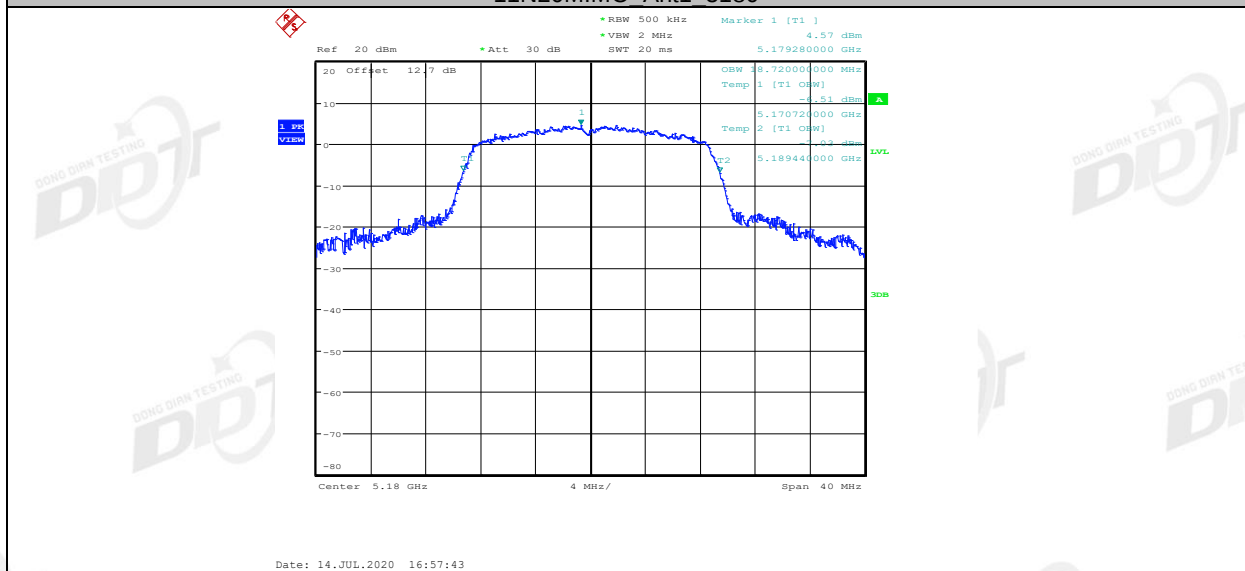
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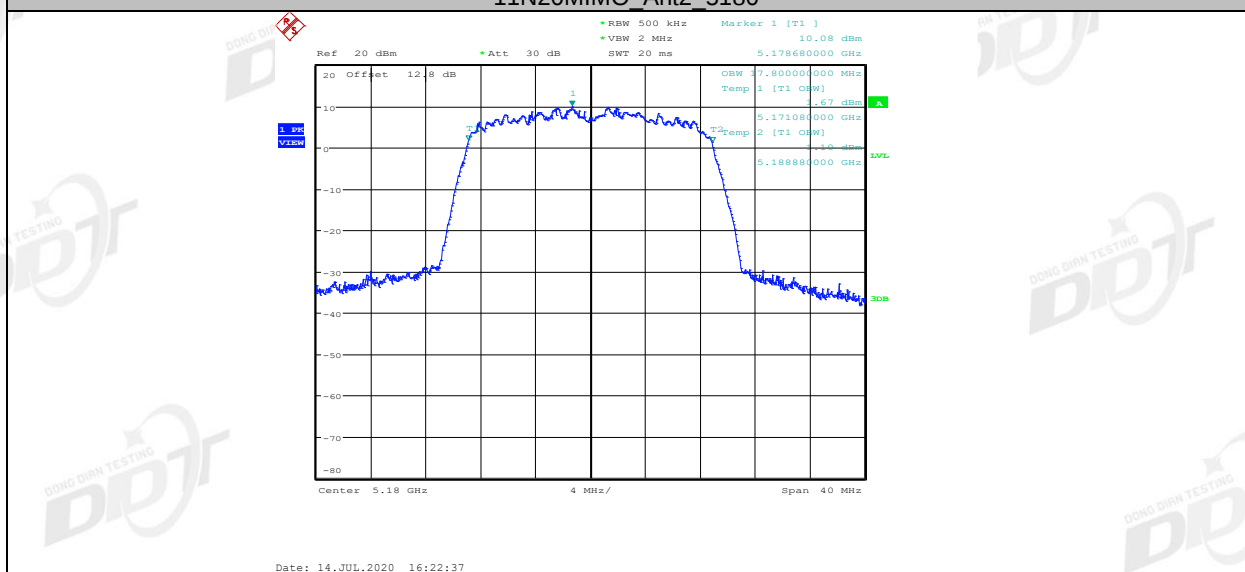
11A Ant4 5825



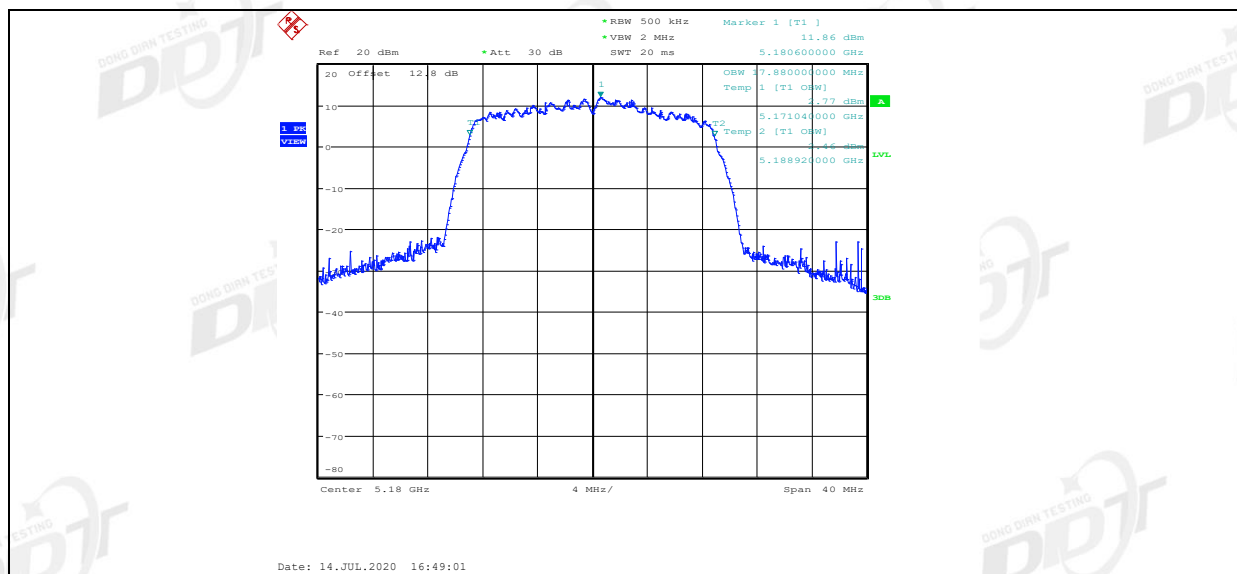
11N20MIMO_Ant1_5180



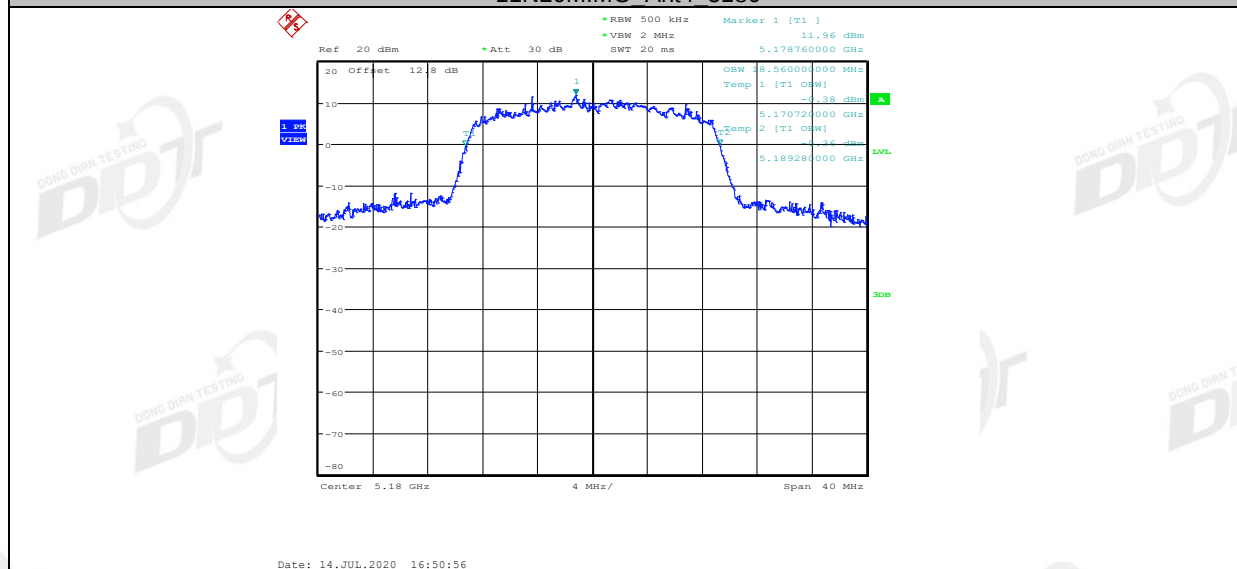
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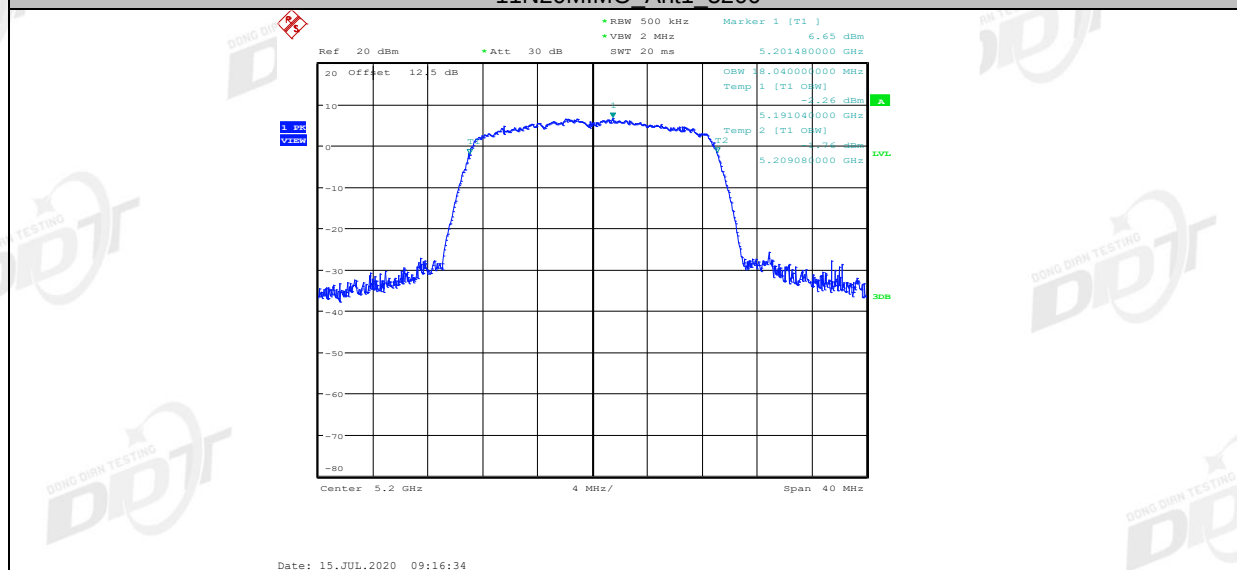
11N20MIMO_Ant3_5180



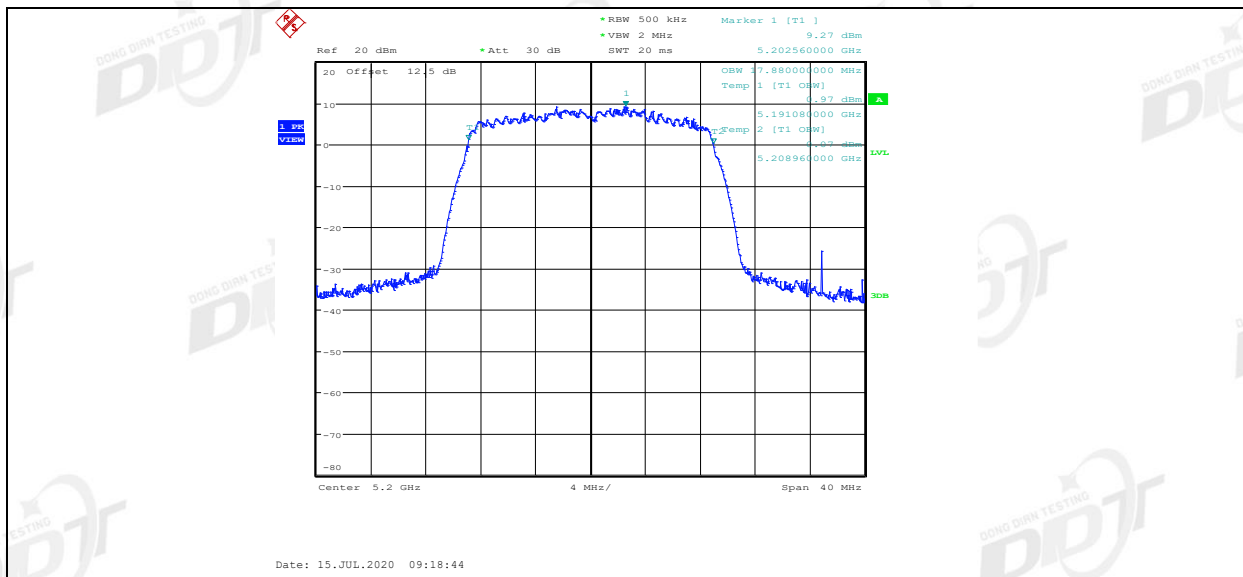
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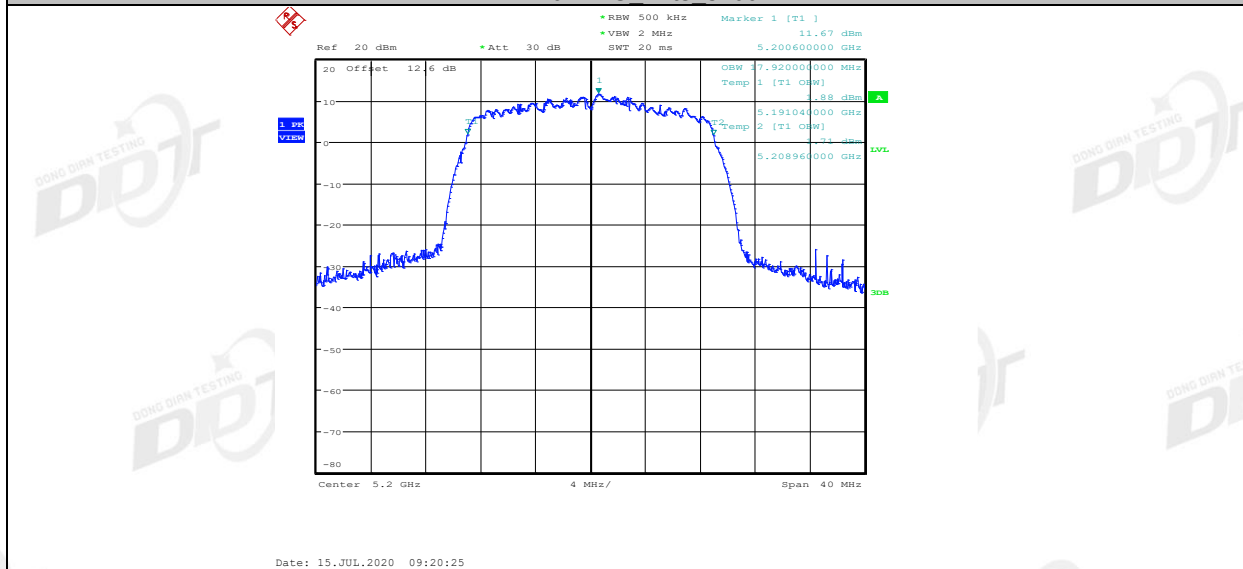
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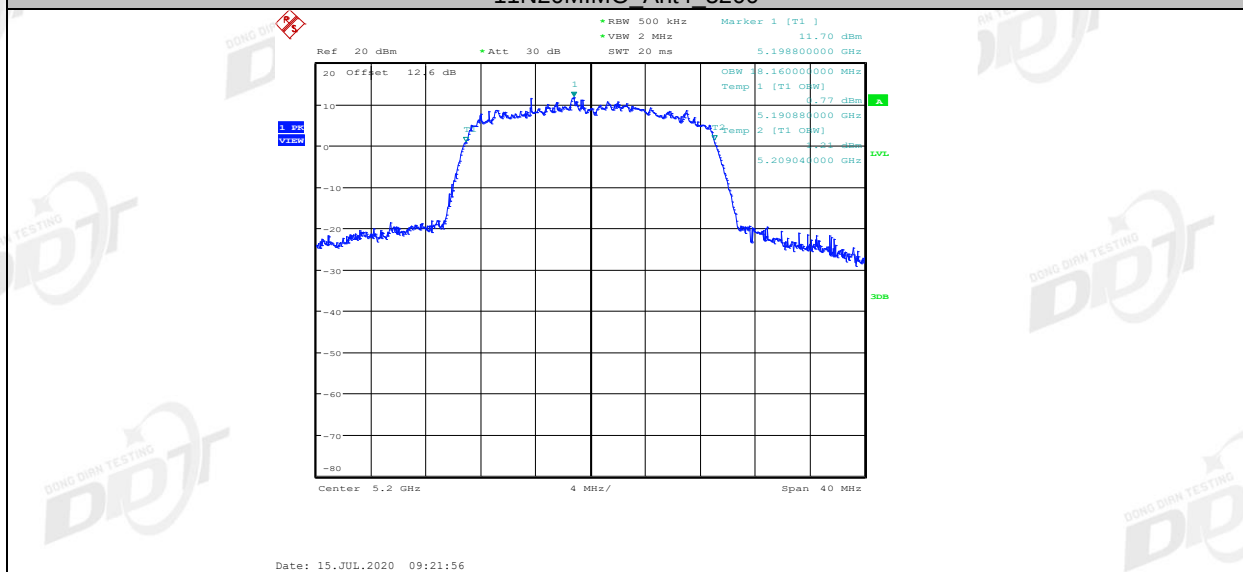
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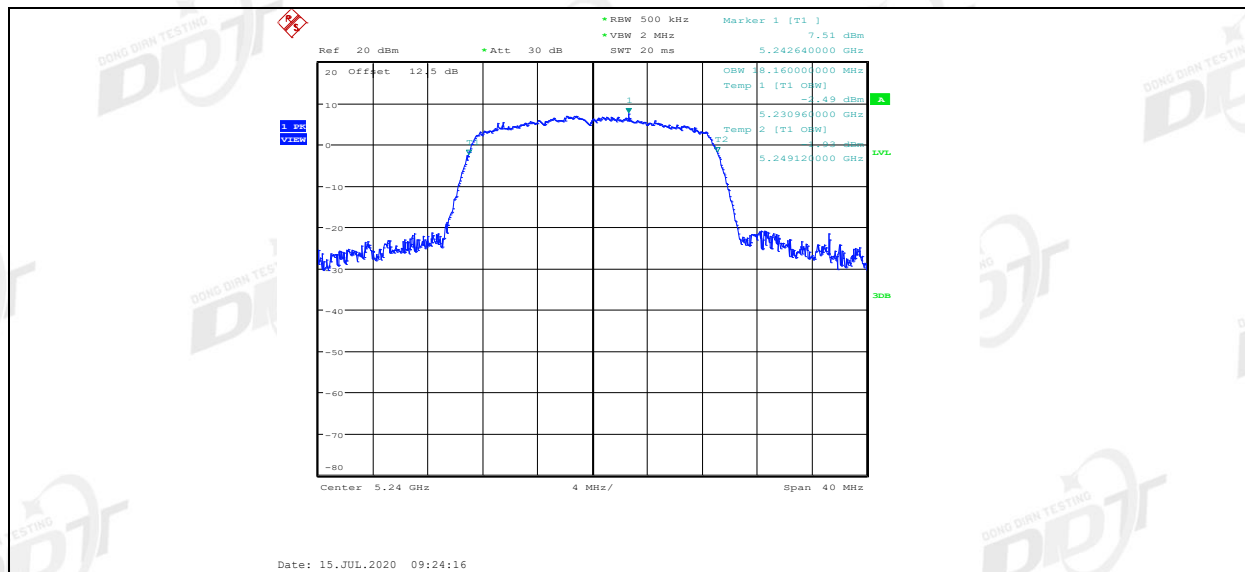
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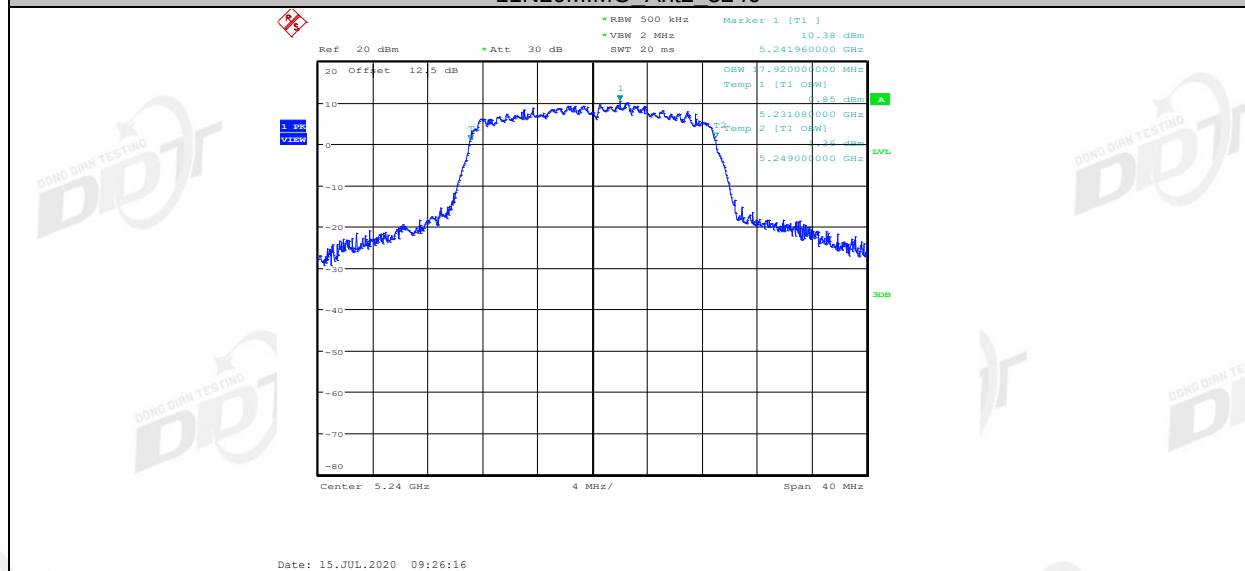
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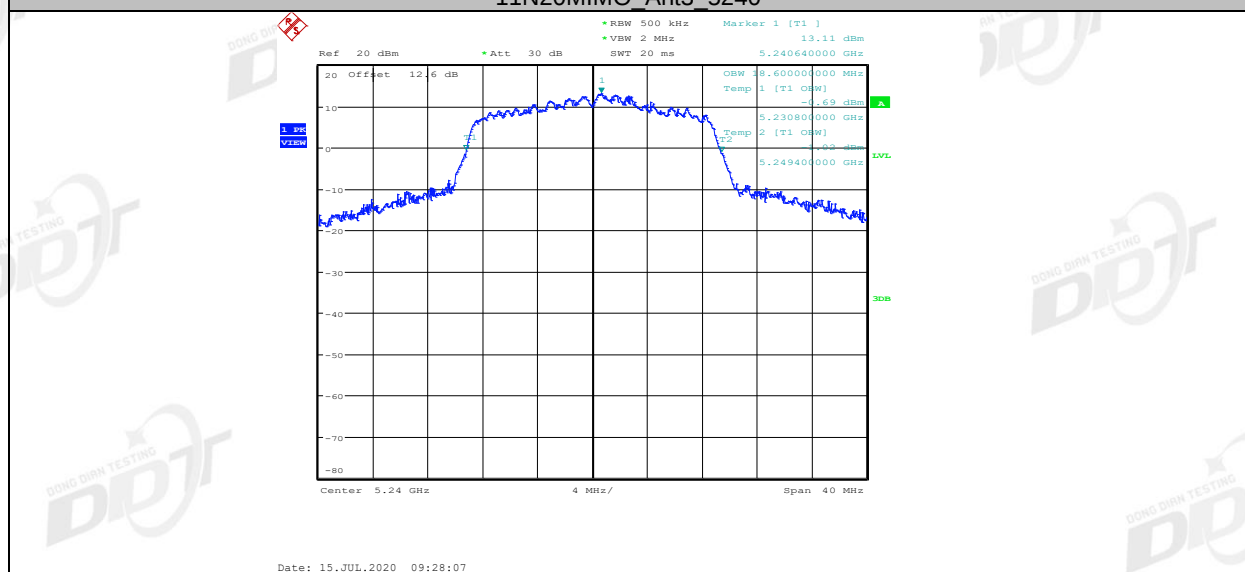
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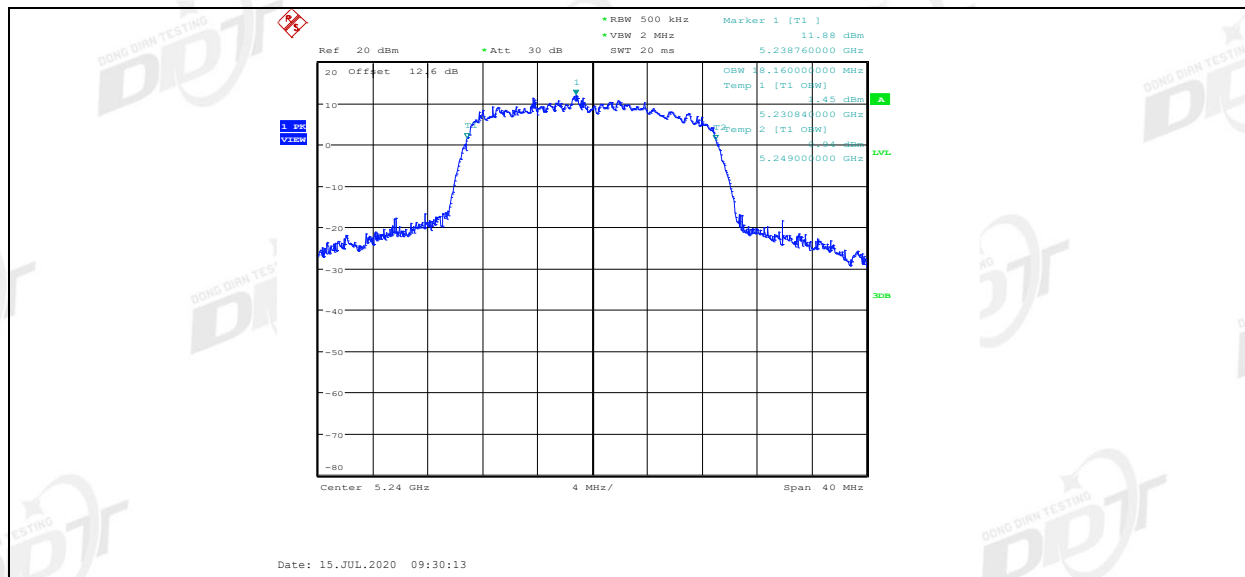
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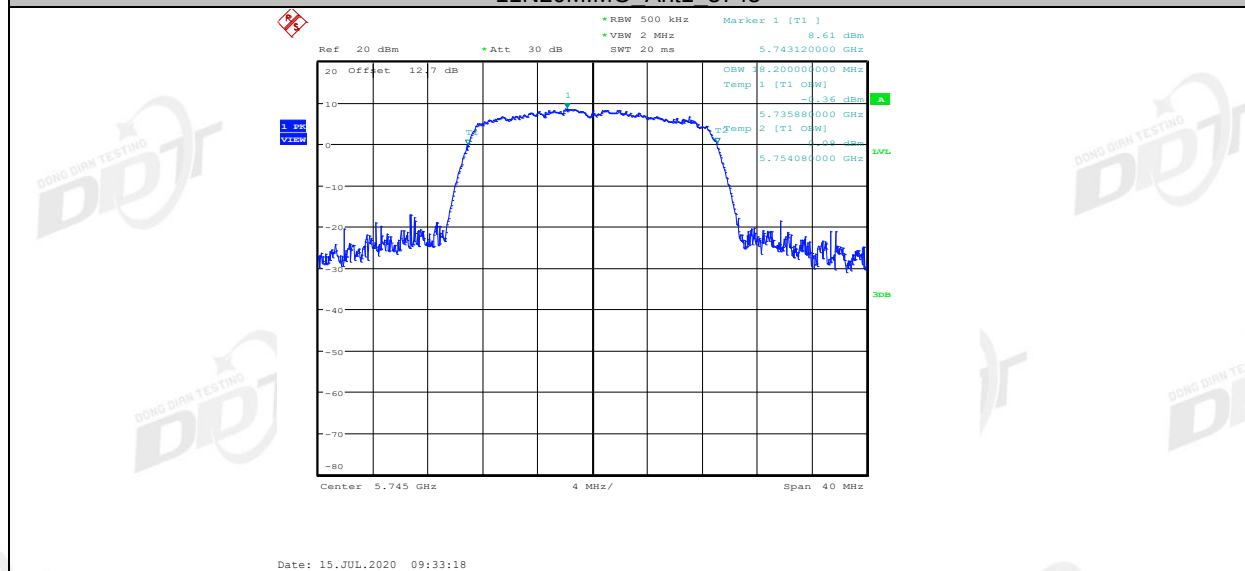
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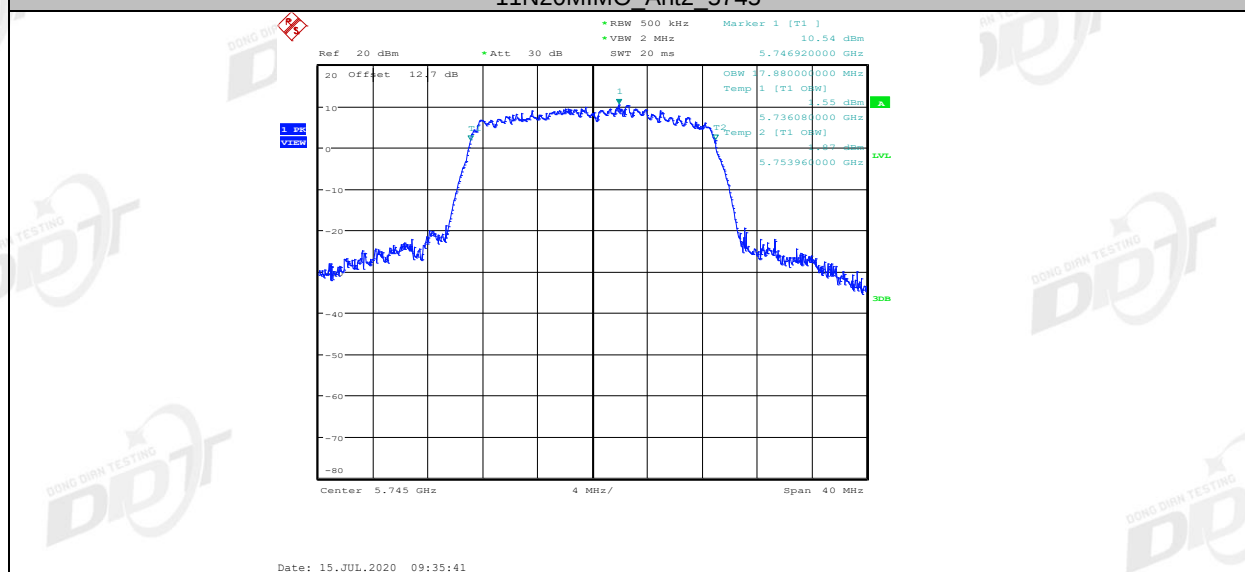
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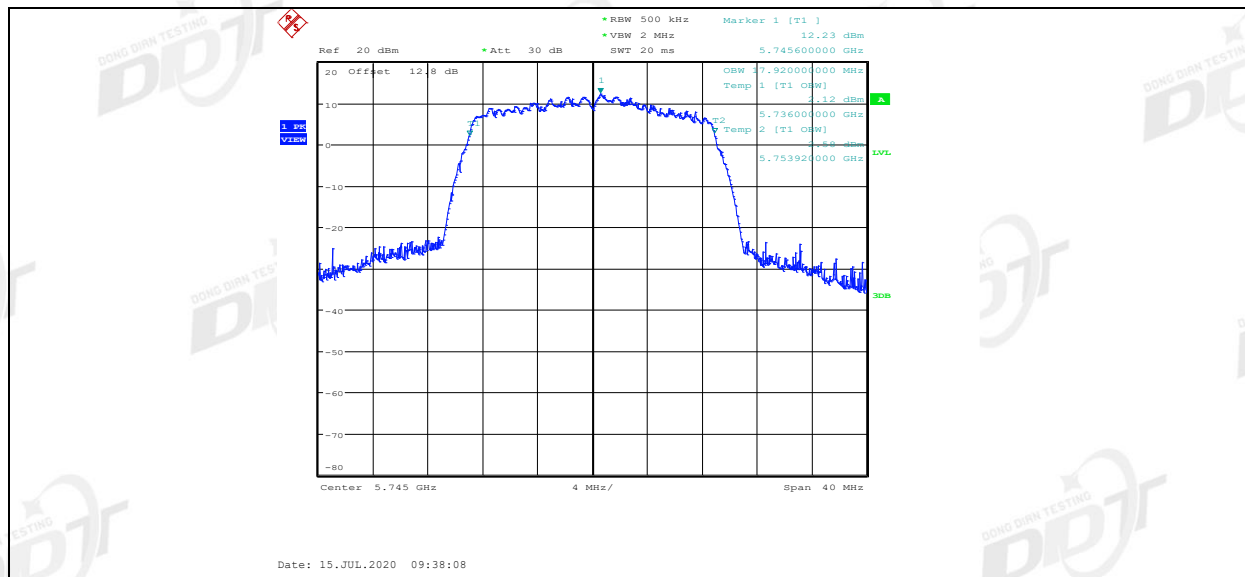
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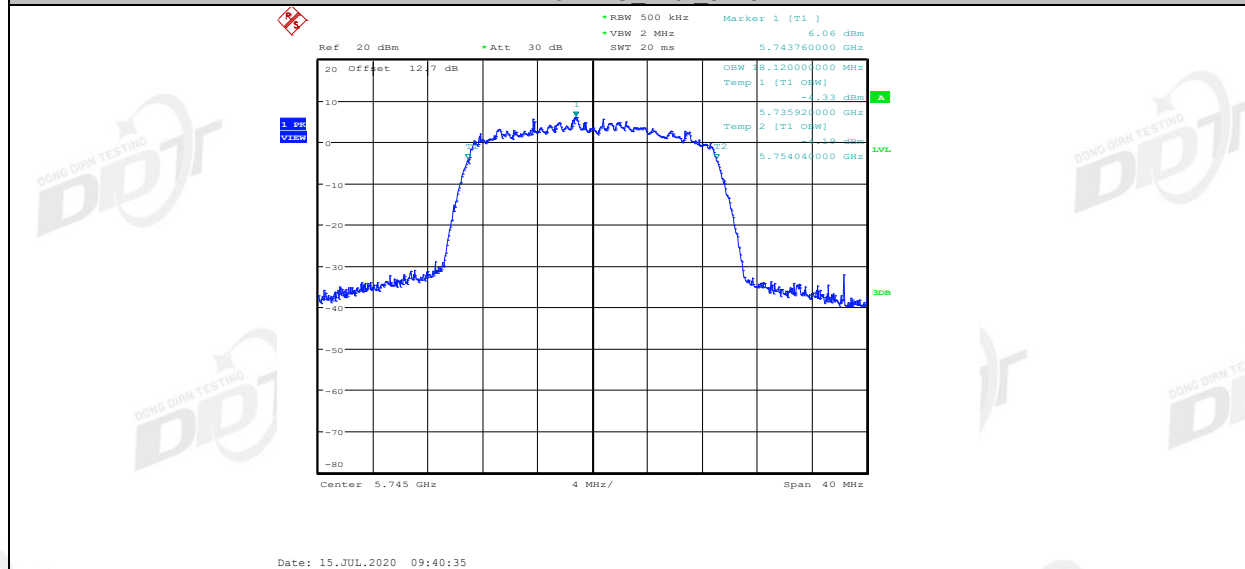
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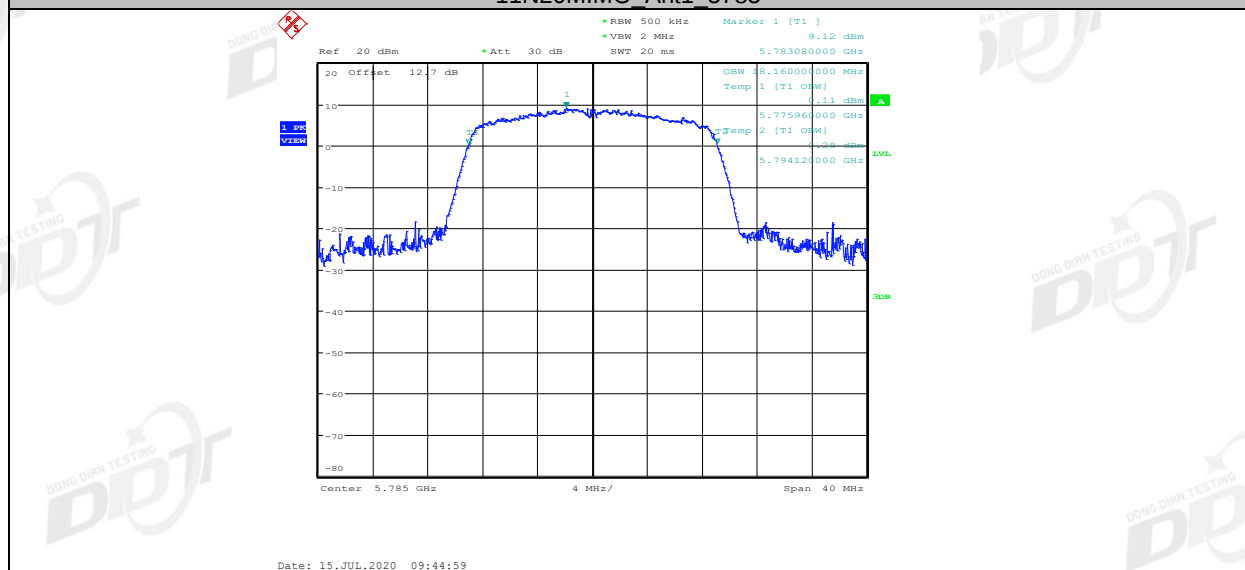
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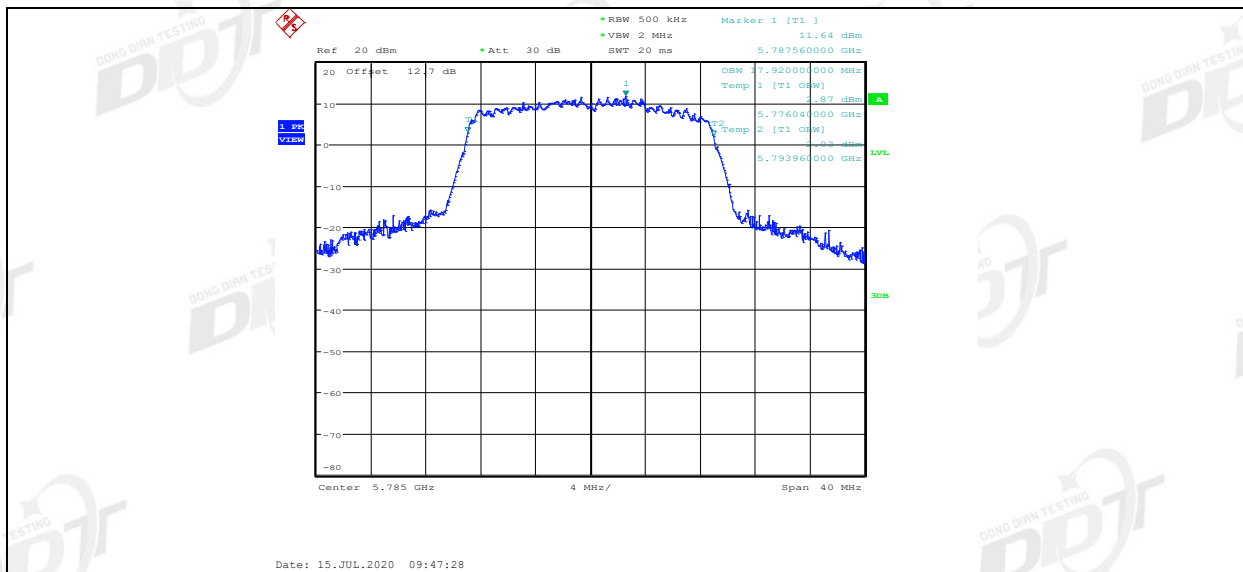
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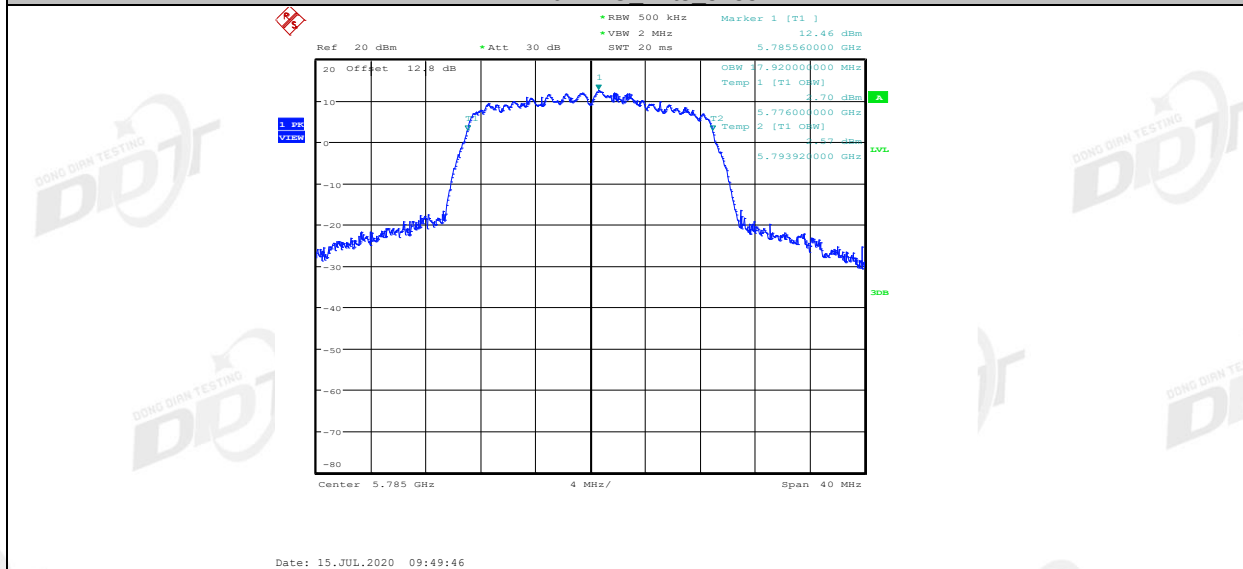
11N20MIMO_Ant1_5785



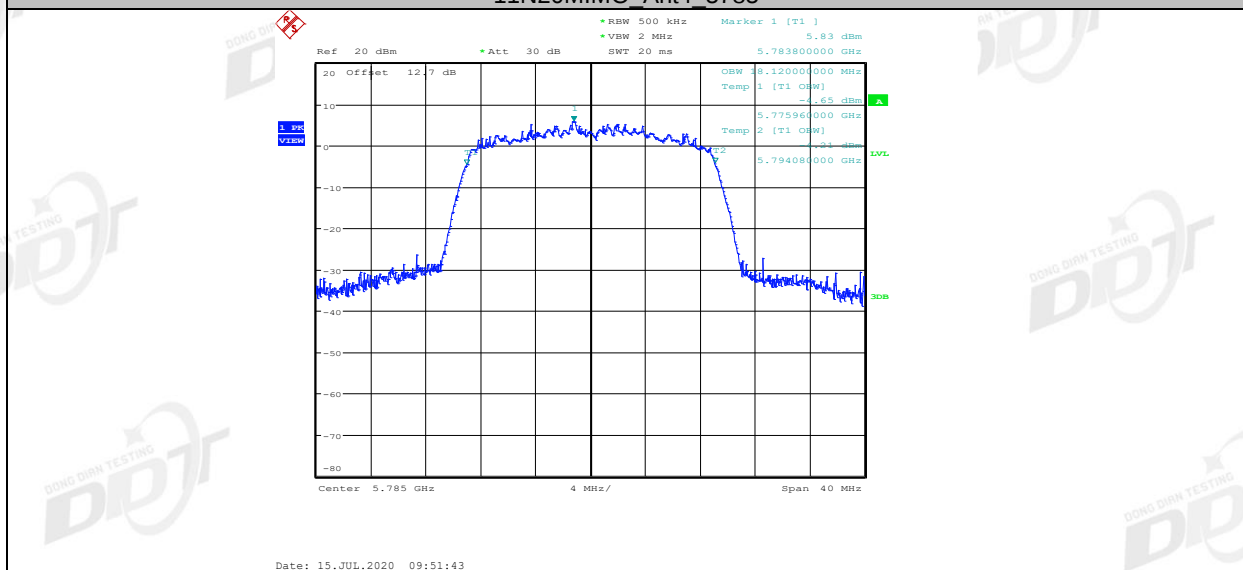
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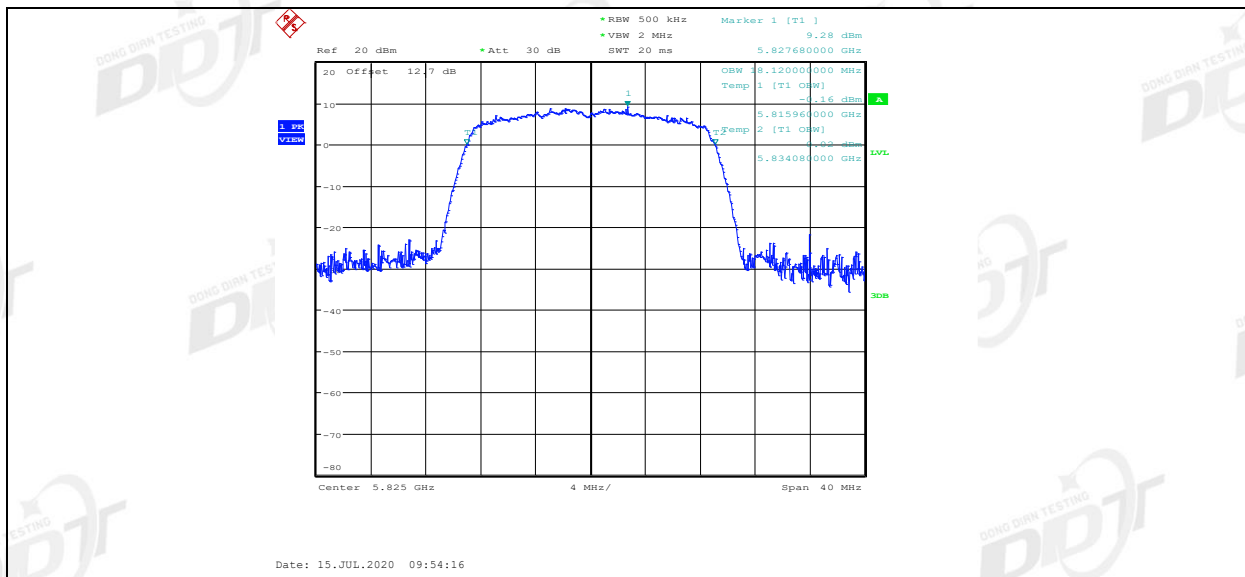
11N20MIMO Ant3 5785



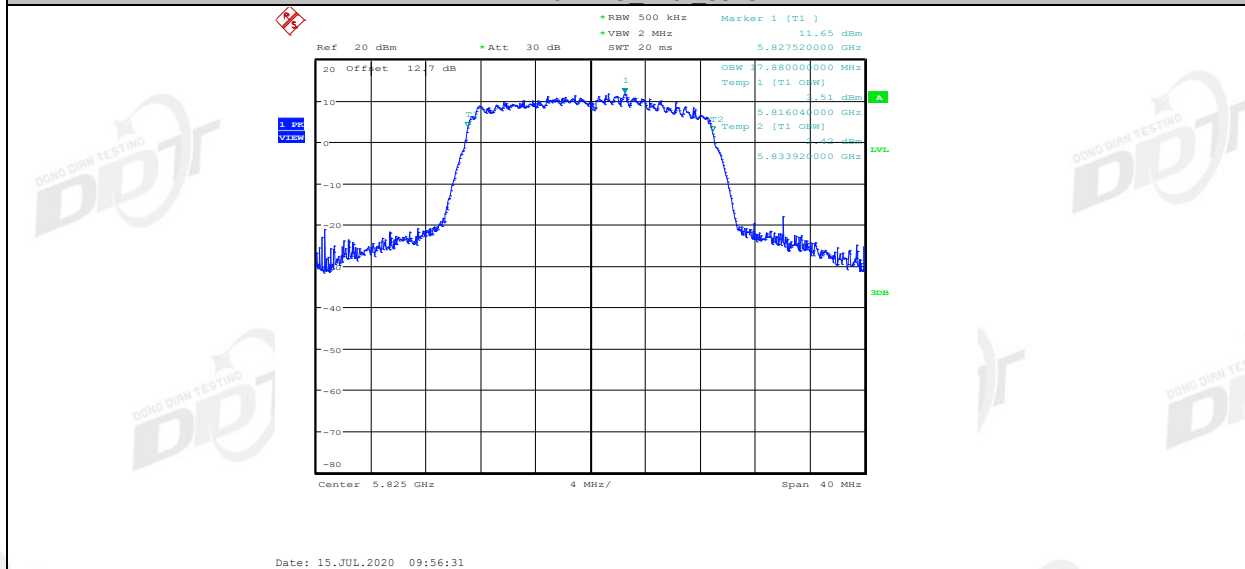
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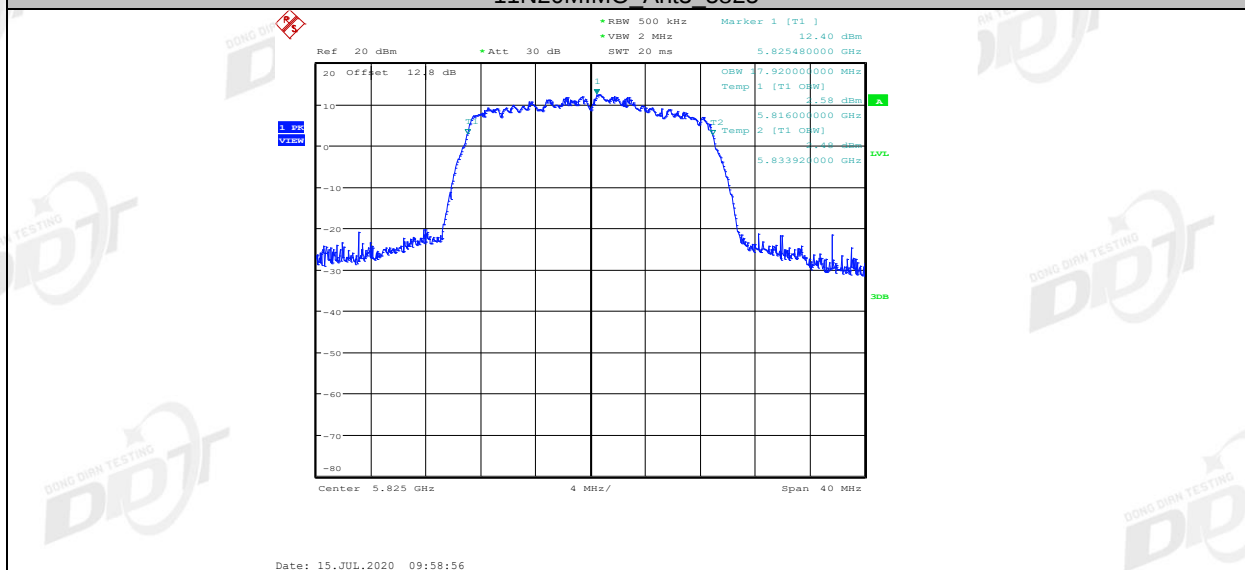
11N20MIMO Ant1 5825



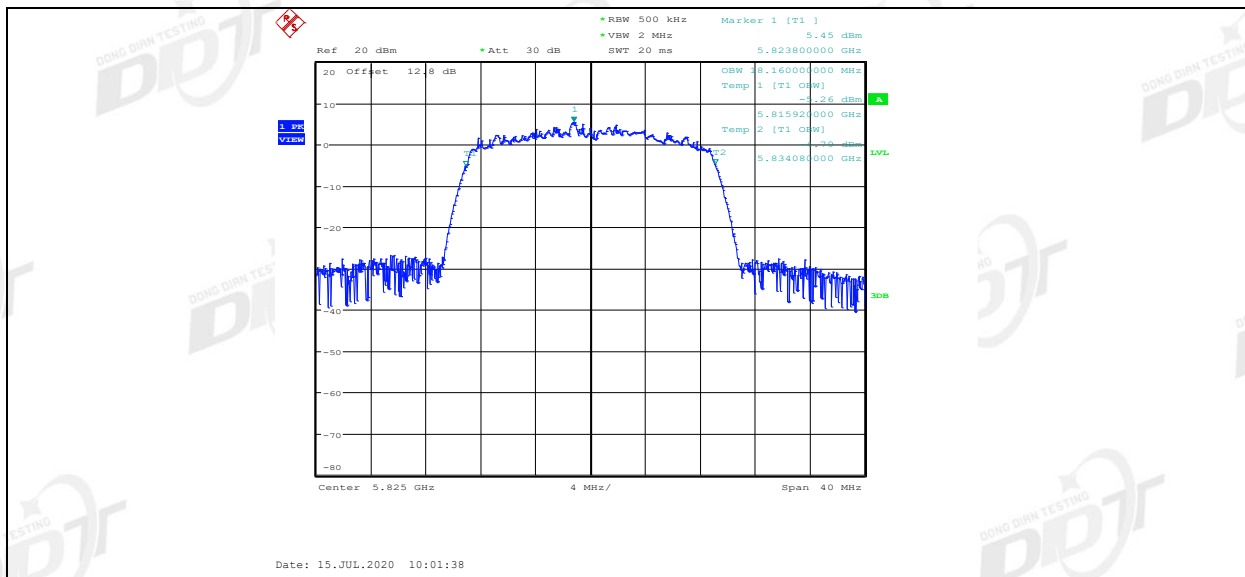
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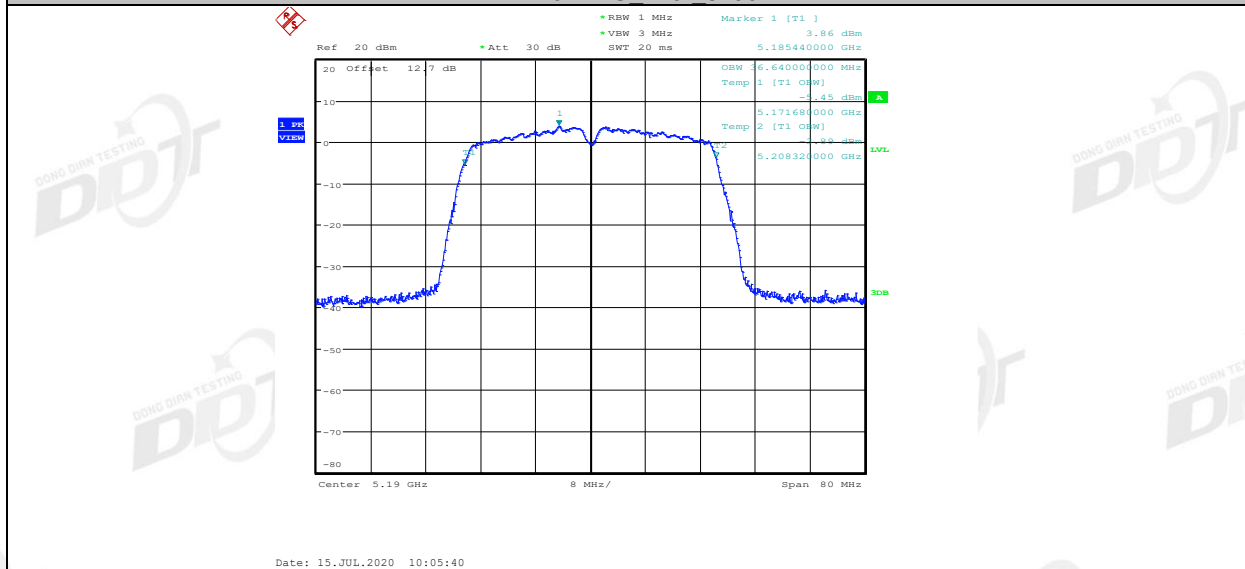
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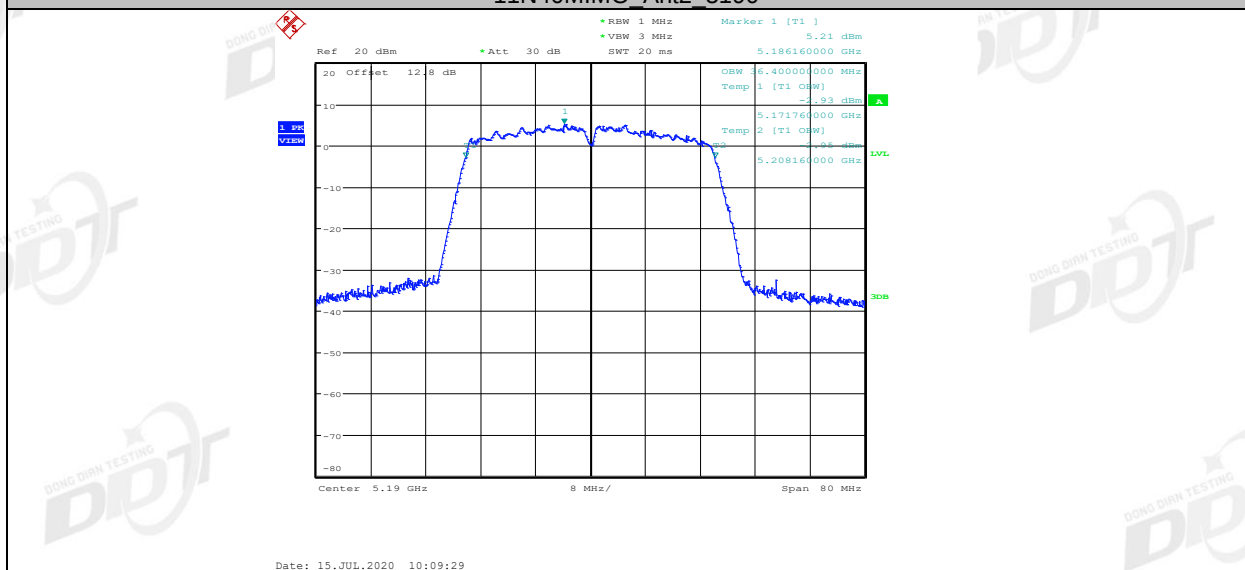
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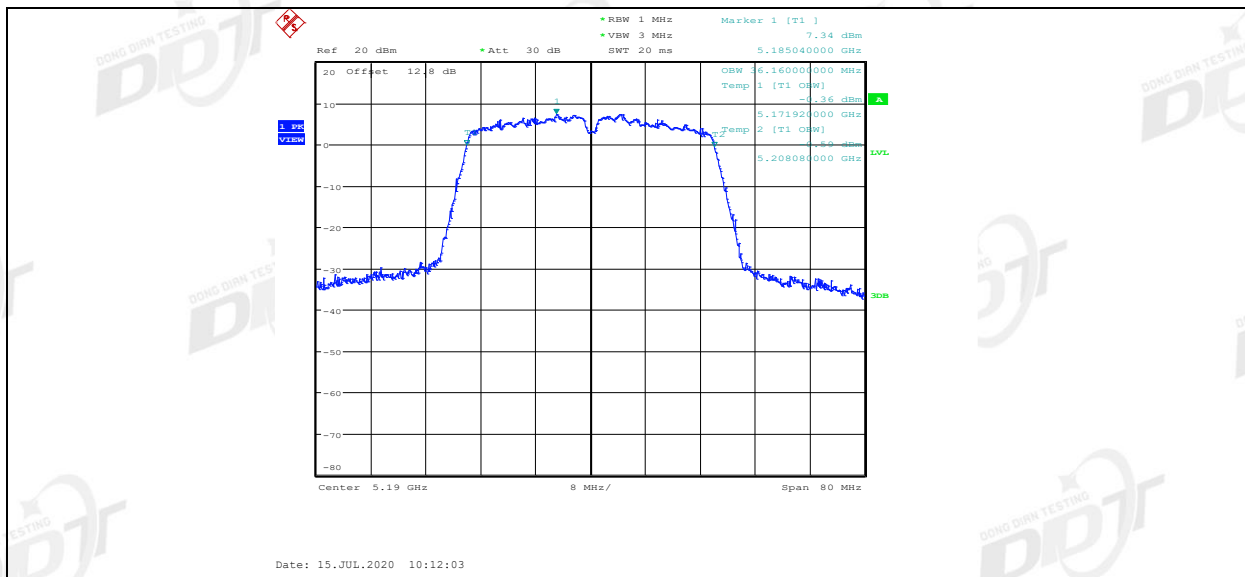
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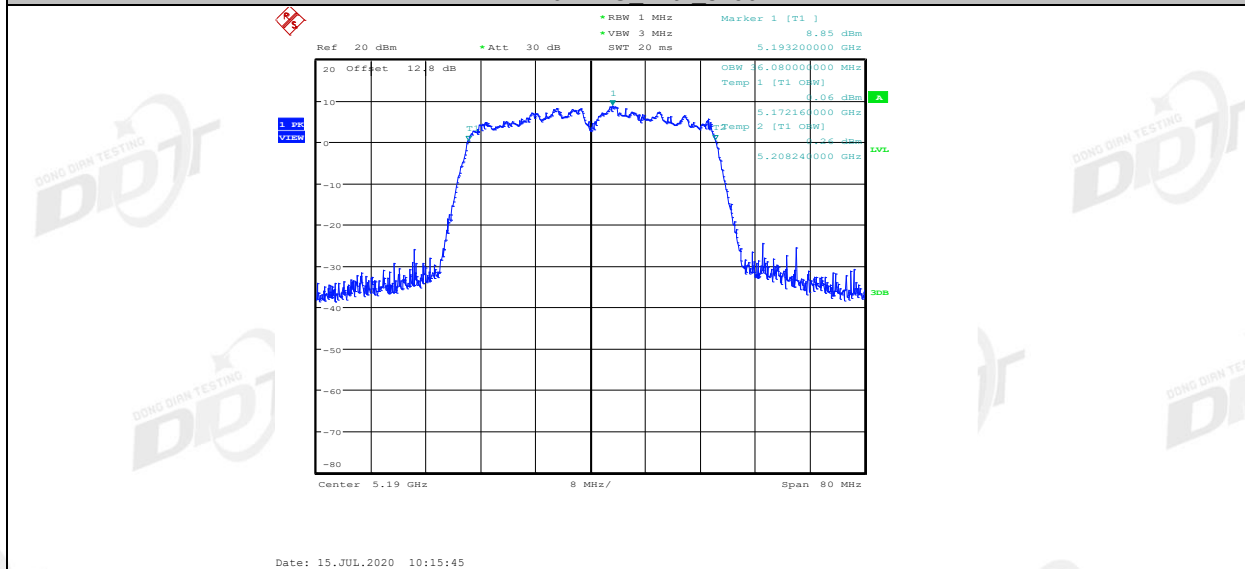
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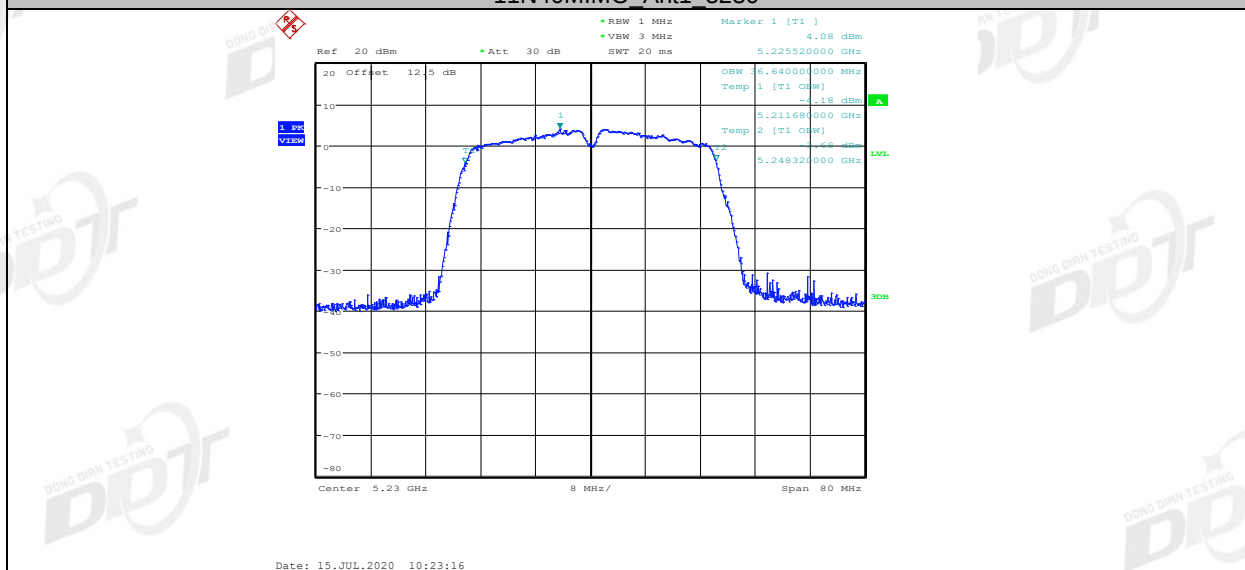
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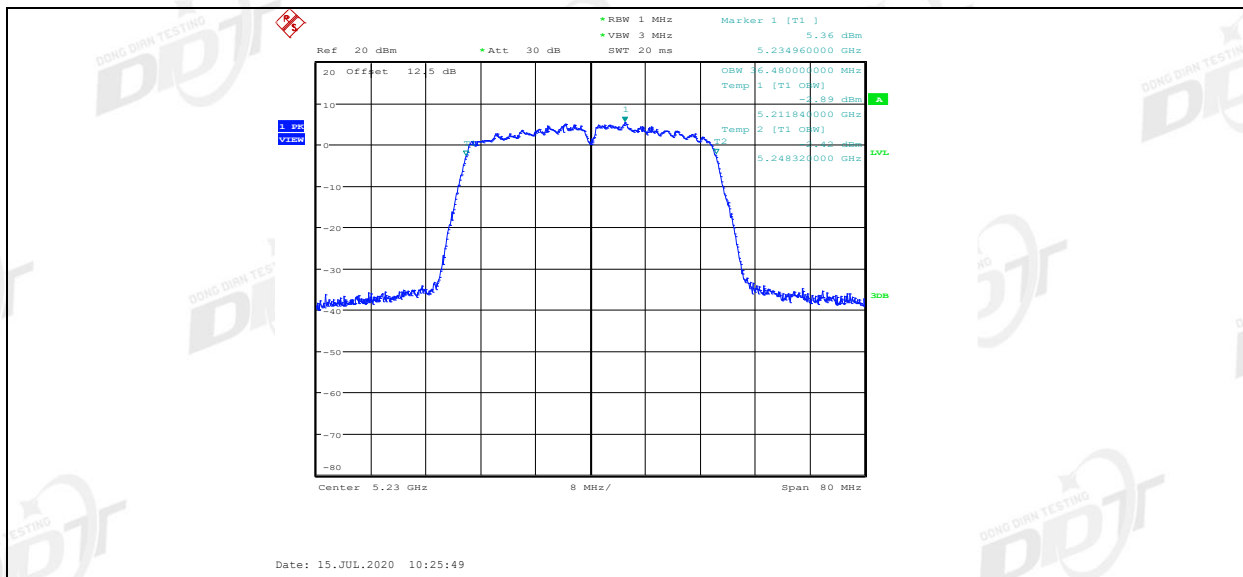
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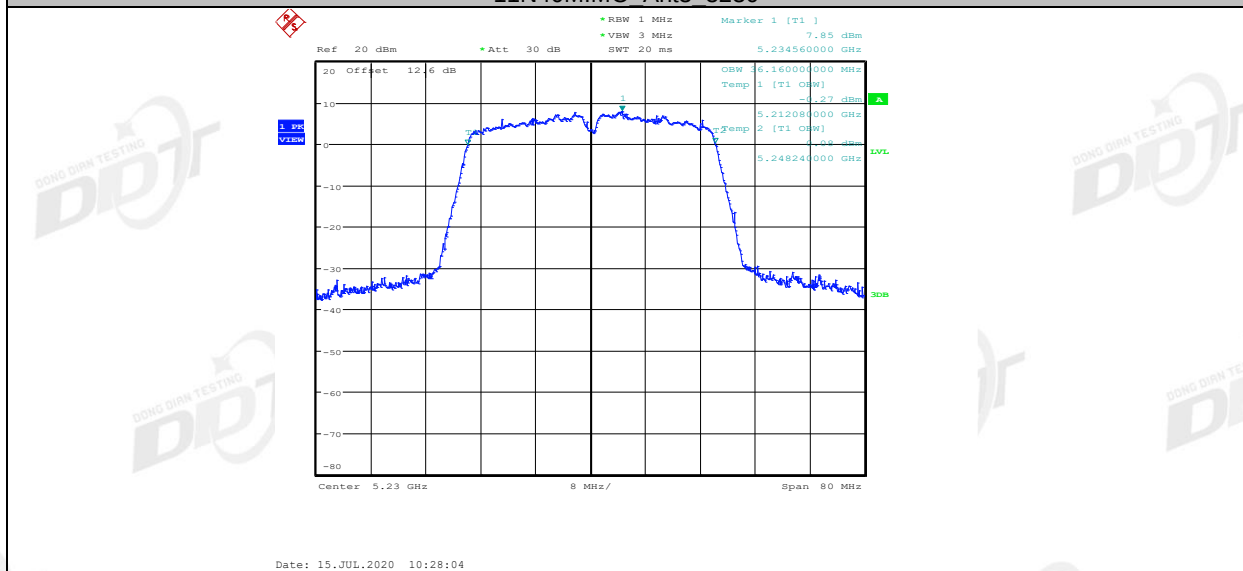
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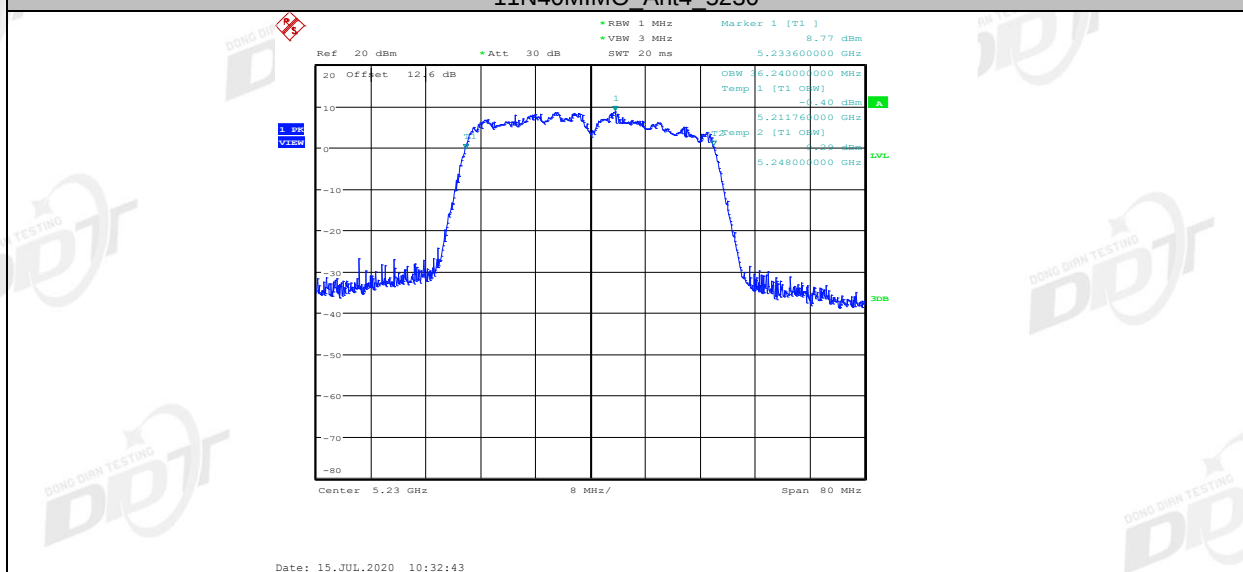
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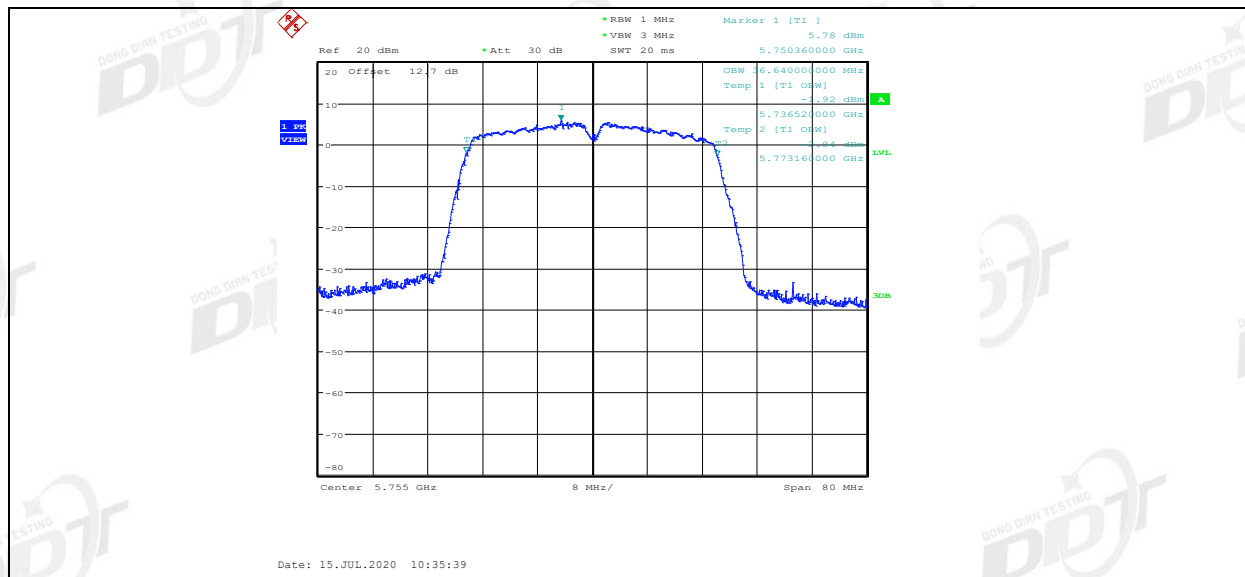
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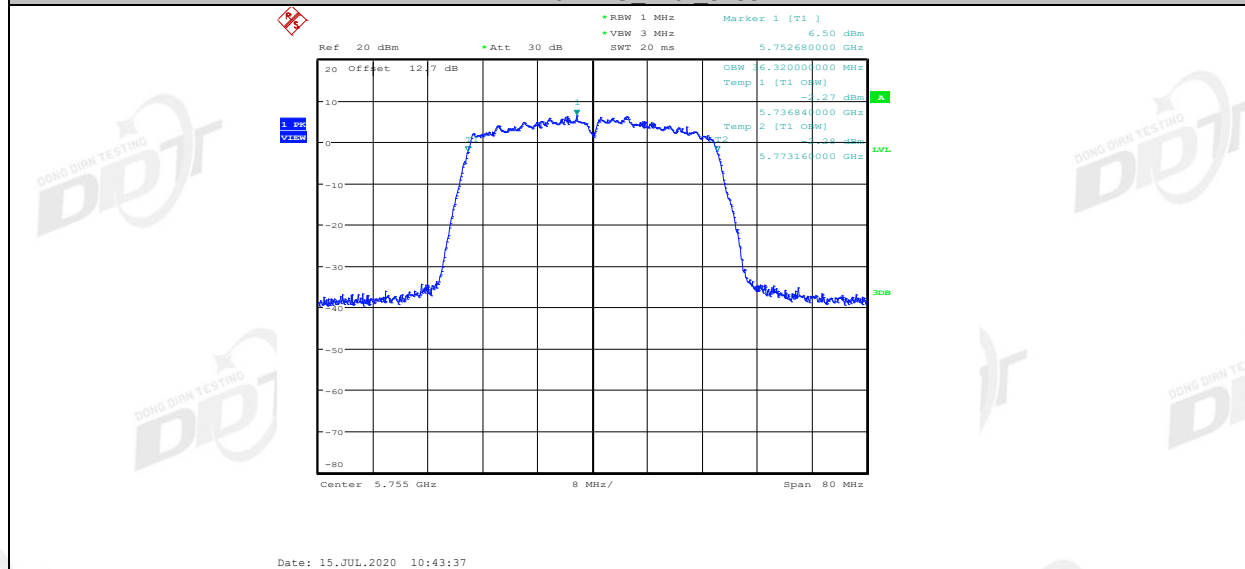
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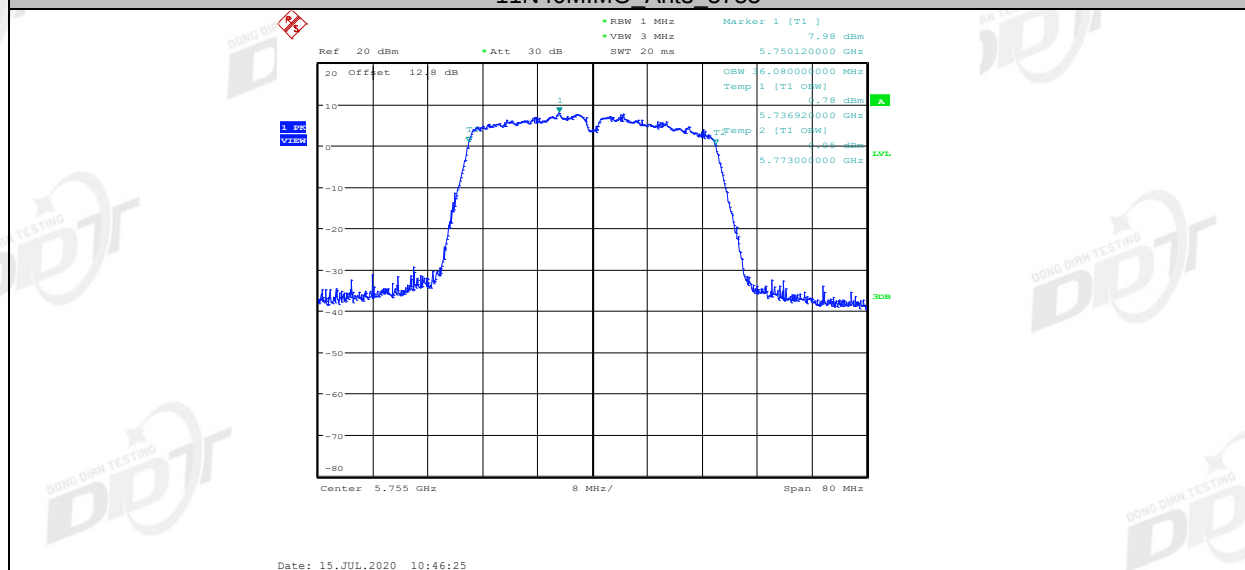
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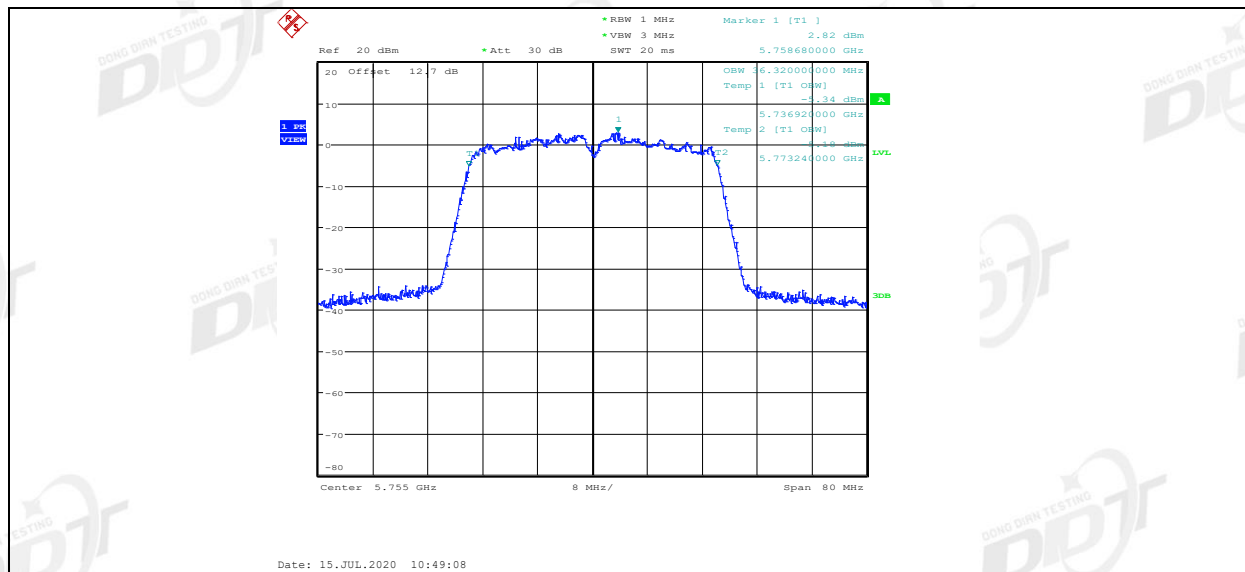
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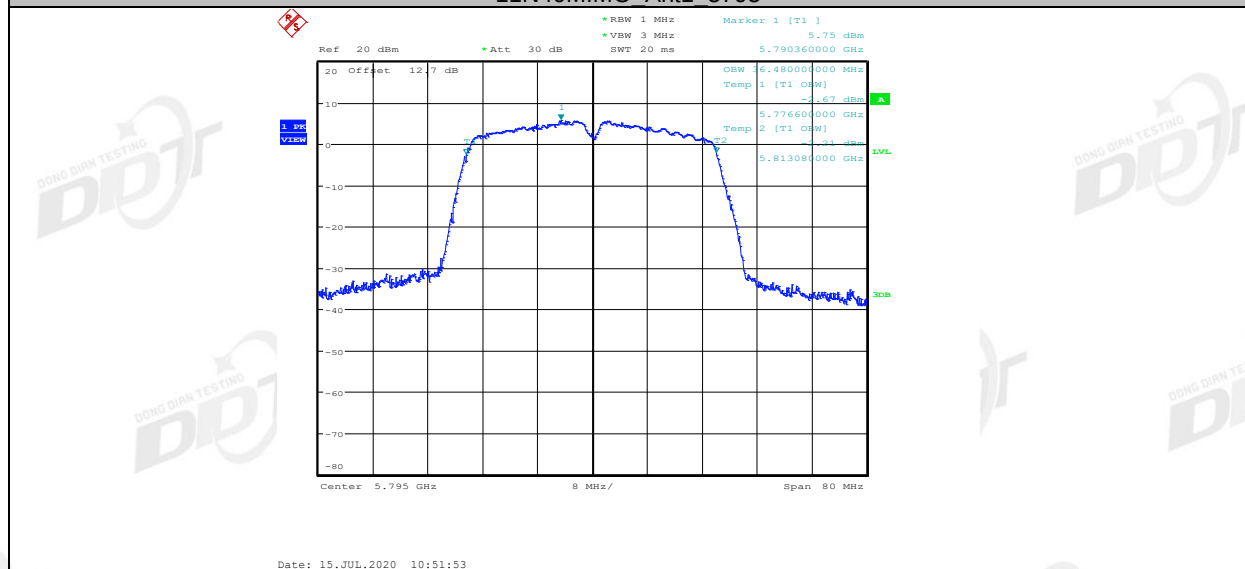
11N40MIMO Ant3 5755



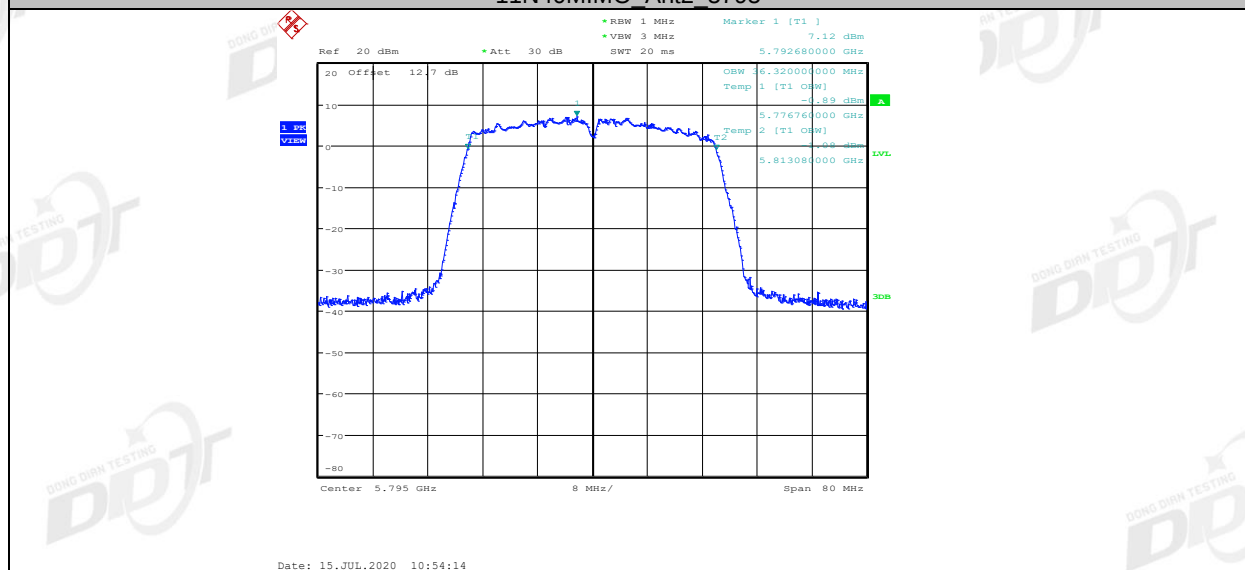
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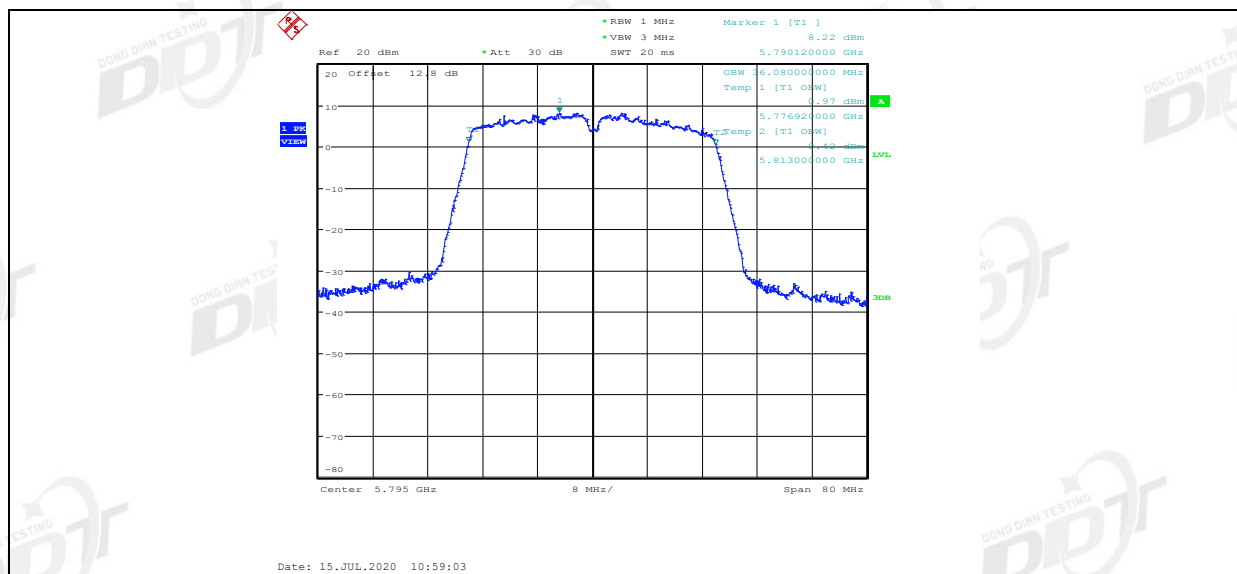
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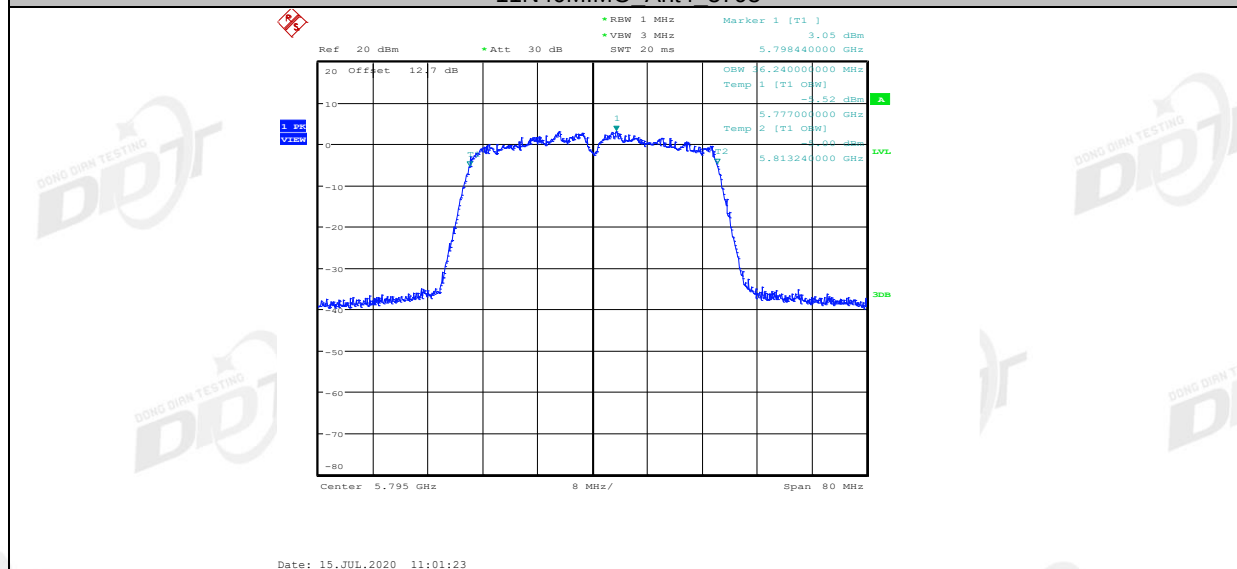
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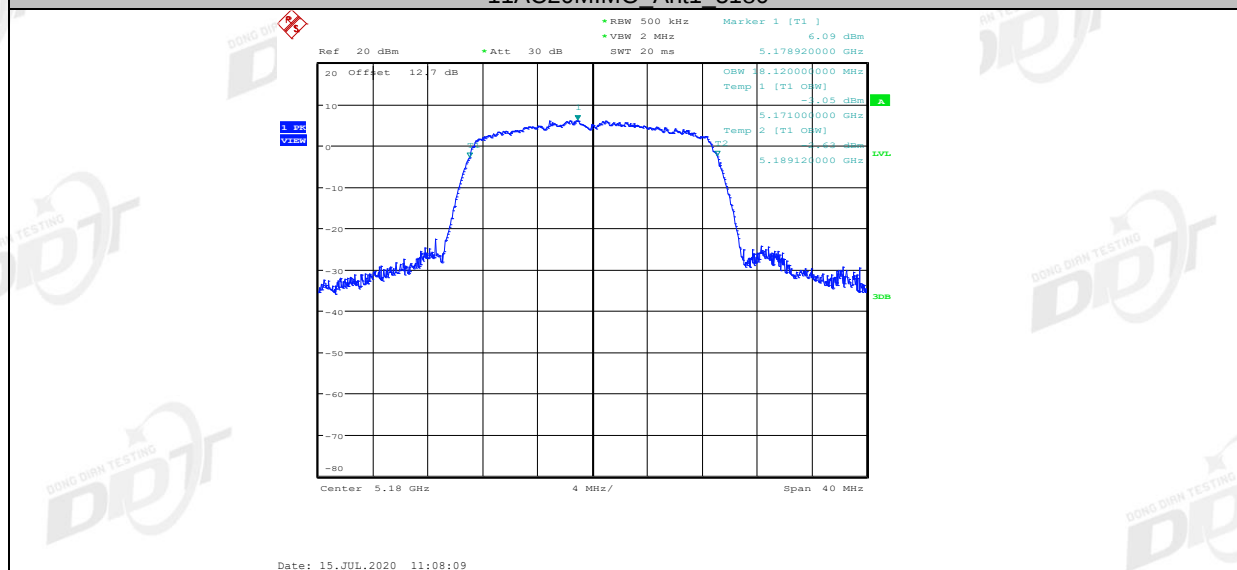
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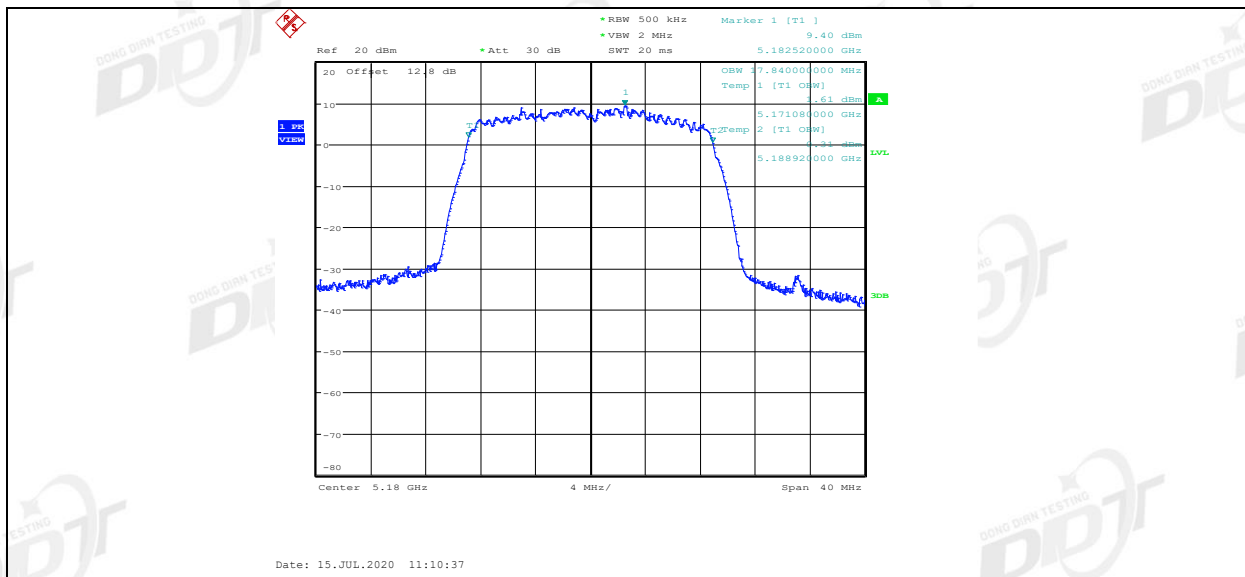
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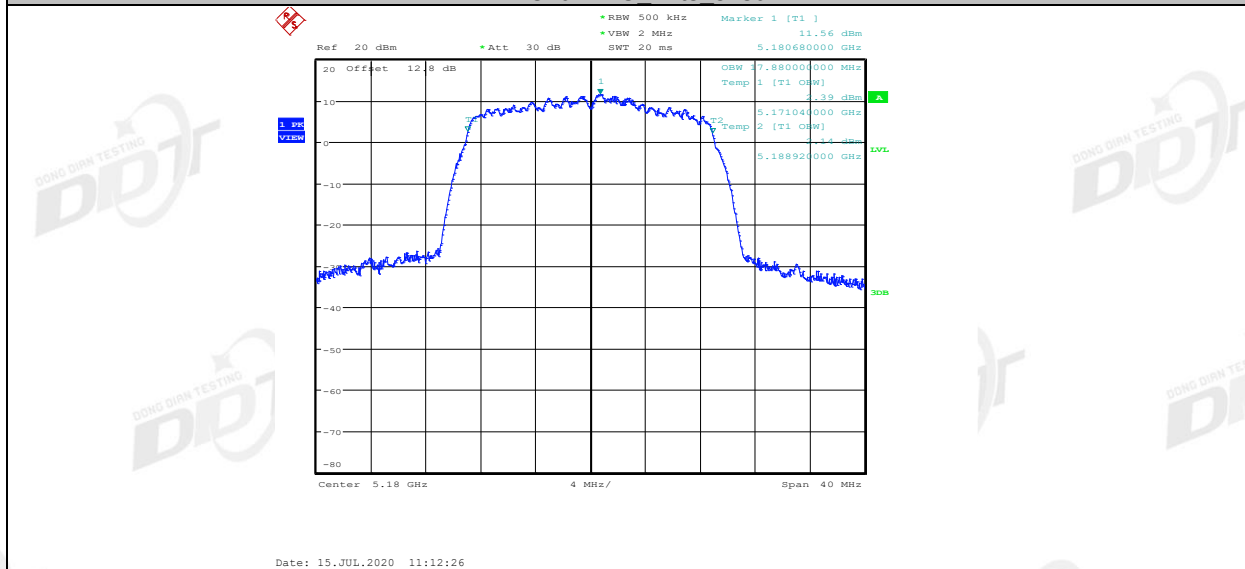
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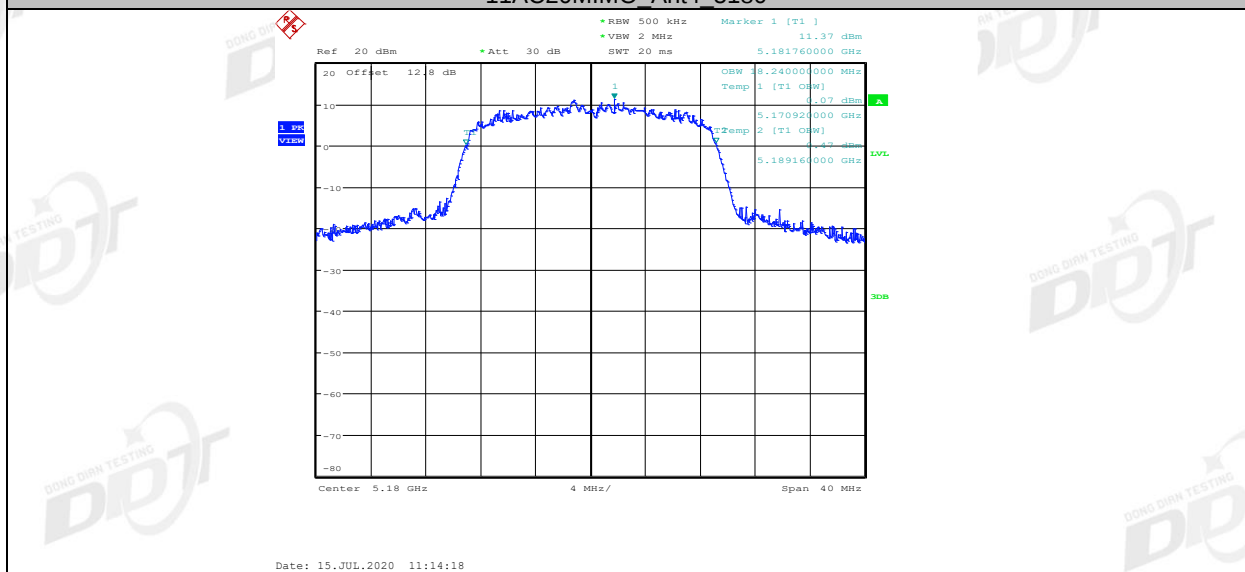
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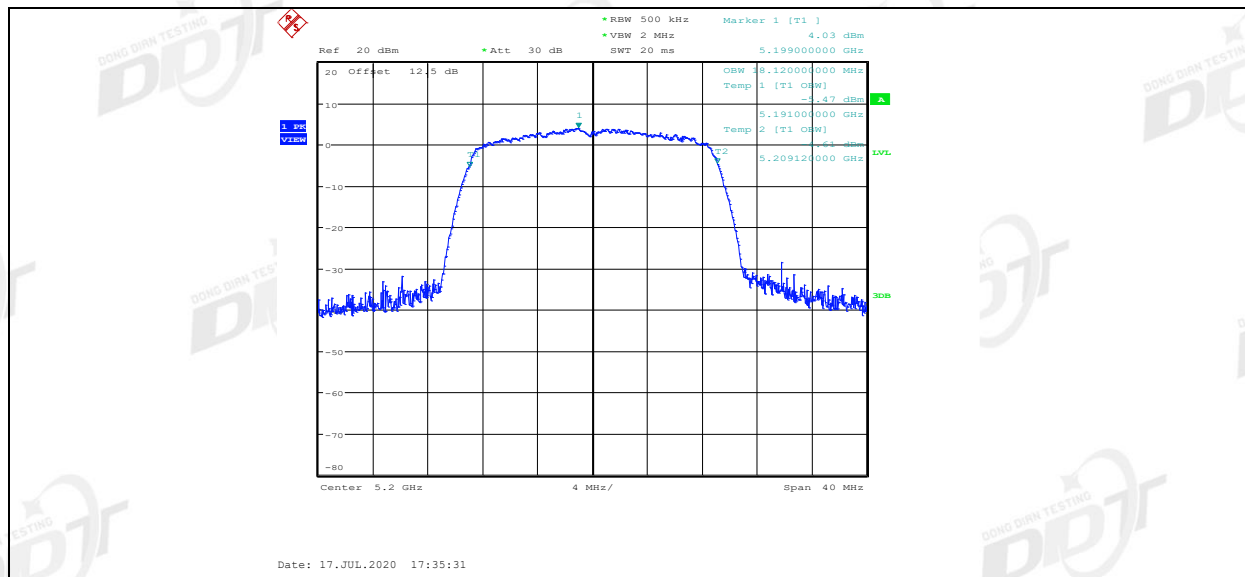
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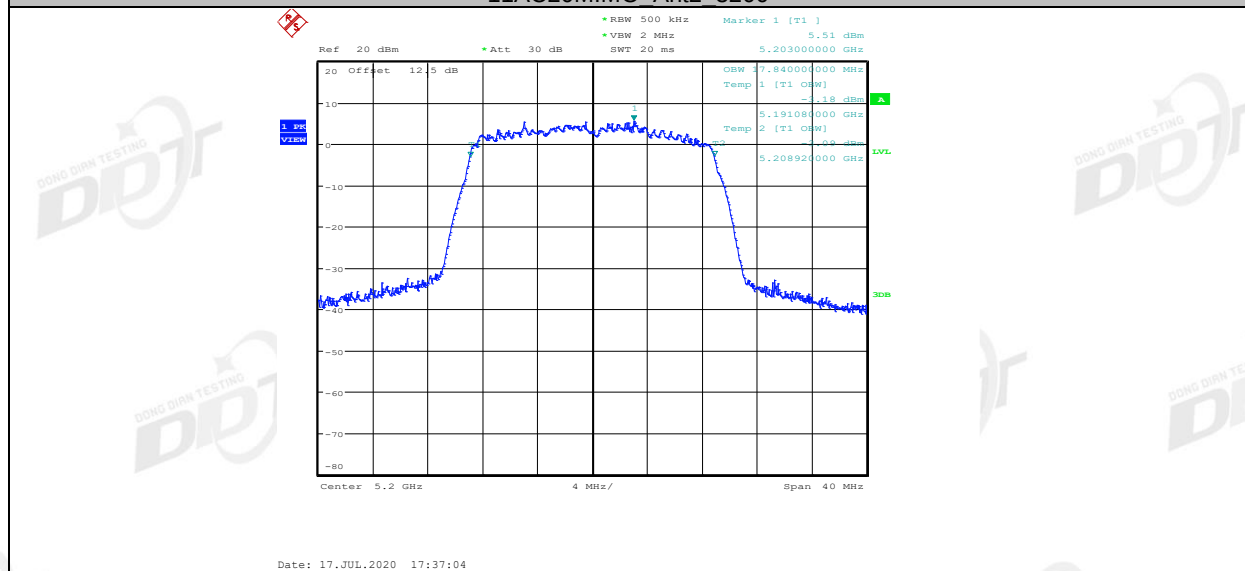
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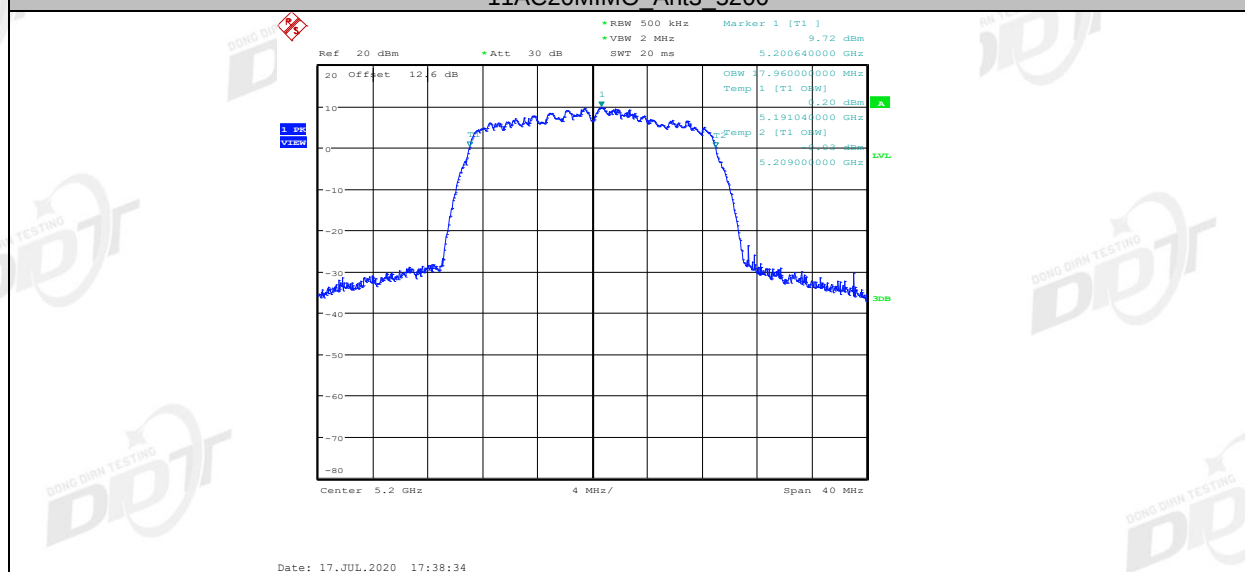
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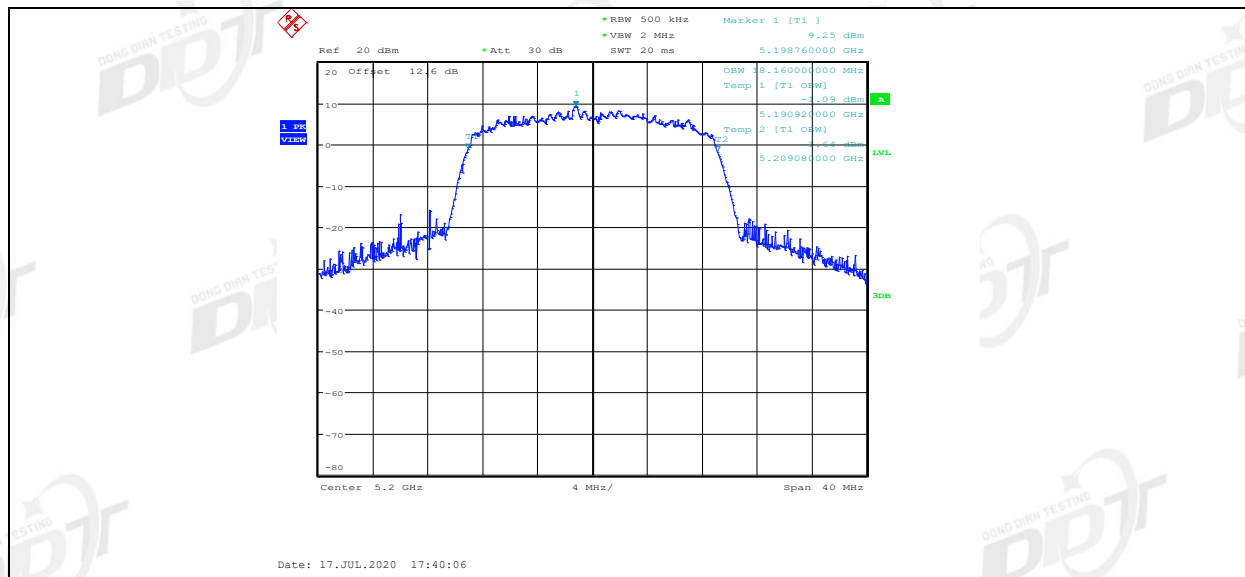
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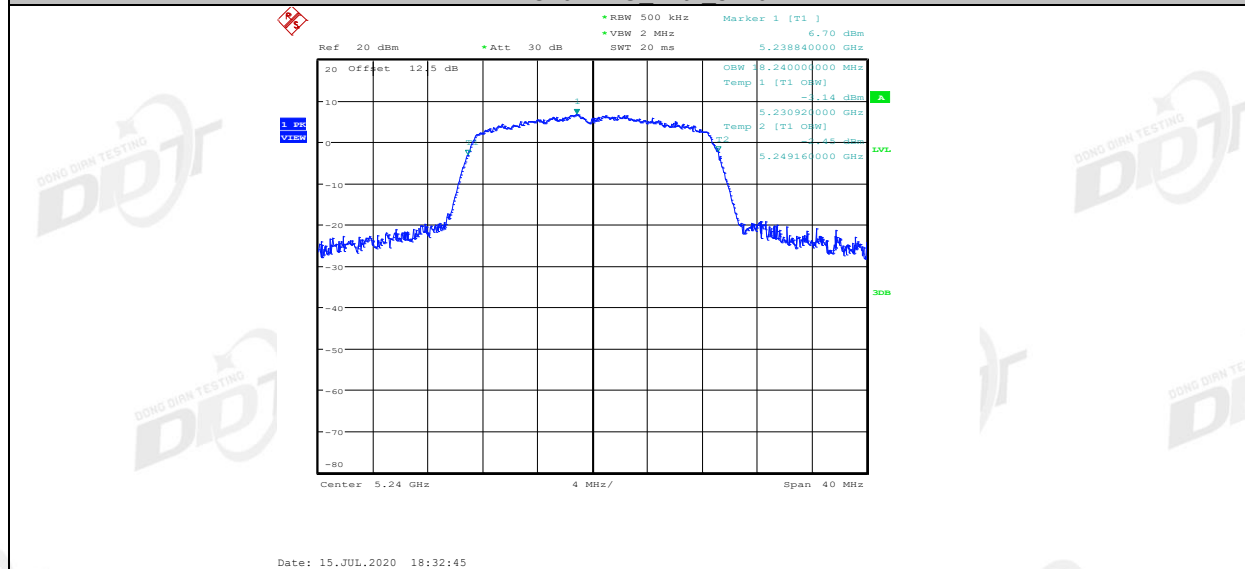
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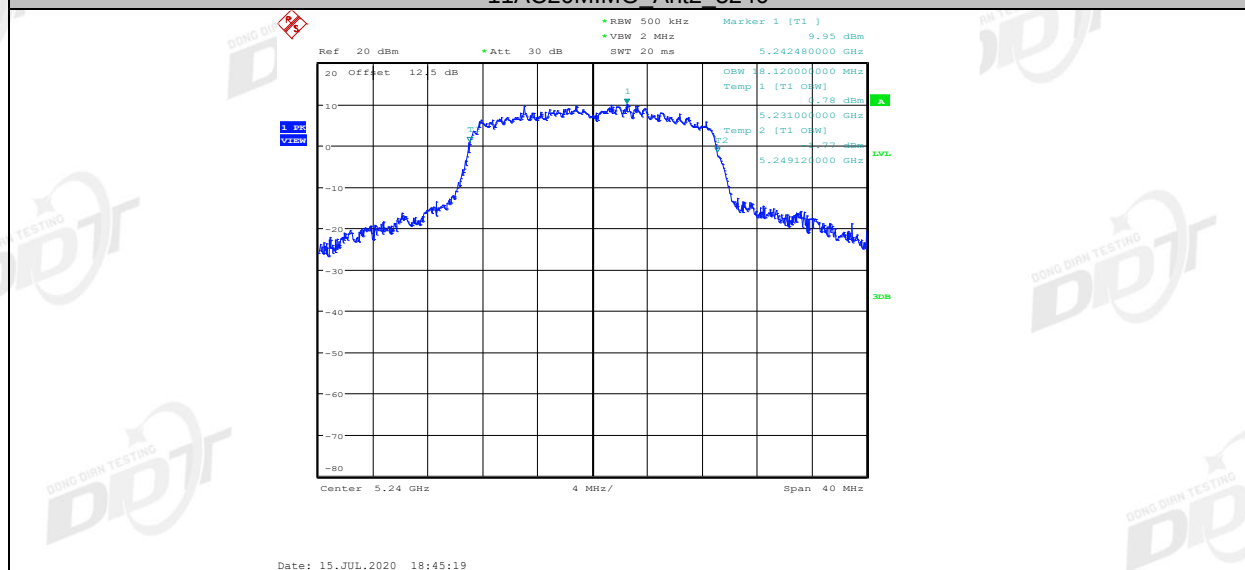
11AC20MIMO_Ant4_5200



11AC20MIMO_Ant1_5240



11AC20MIMO_Ant2_5240



11AC20MIMO_Ant3_5240

[illegible]

Date: 15.JUL.2020 18:49:19

Ref 20 dBm *Att 30 dB SWT 20 ms Marker 1 [T1] 8.83 dBm

*RBW 500 kHz *VBW 2 MHz

20 Offset 12.7 dB

10

0

-10

-20

-30

-40

-50

-60

-70

-80

1

Temp

5.742000000 MHz

1 [T1 CW]

-36.4 dBm

5.735920000 MHz

2 [T1 CW]

-34.4 dBm

5.754040000 MHz

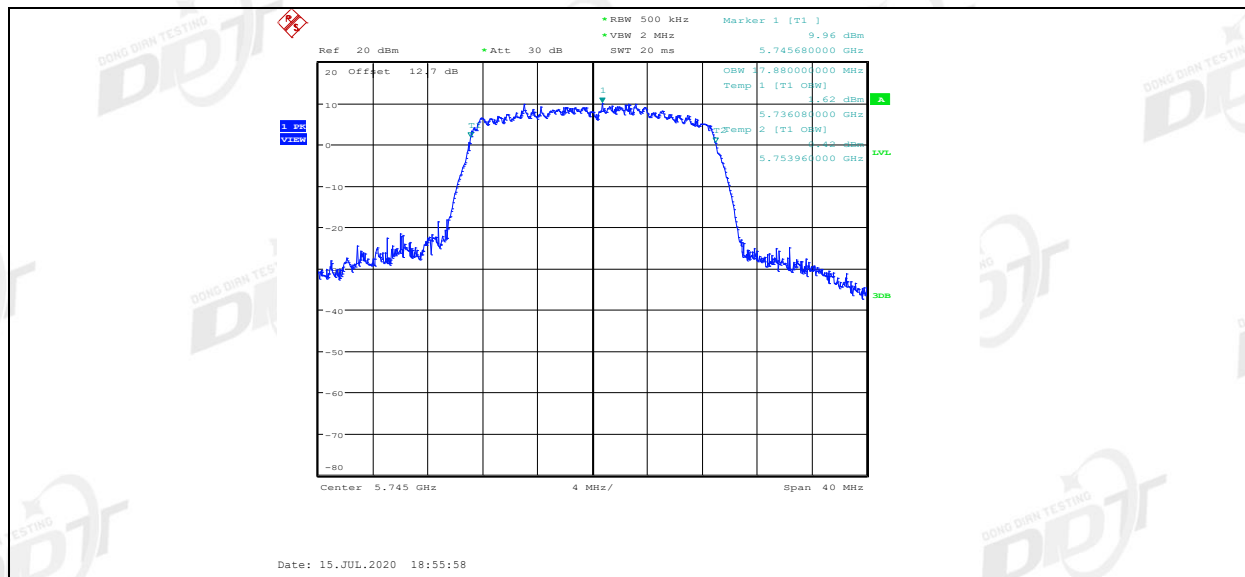
1. dB

VBW

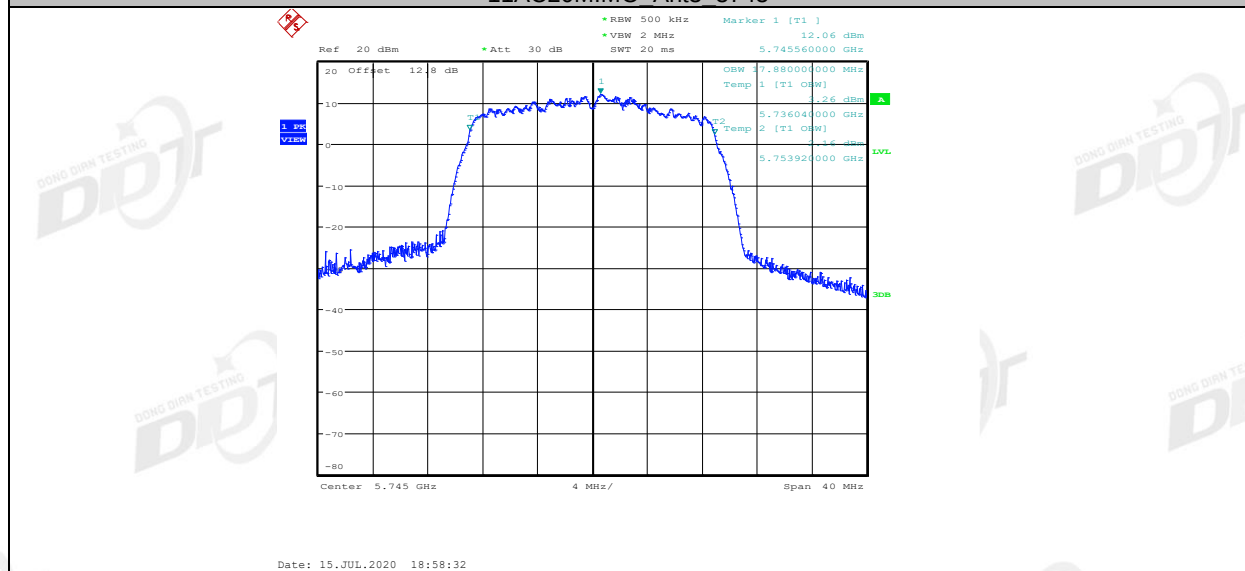
Center 5.745 GHz 4 MHz/ Span 40 MHz

Date: 15.JUL.2020 18:53:22

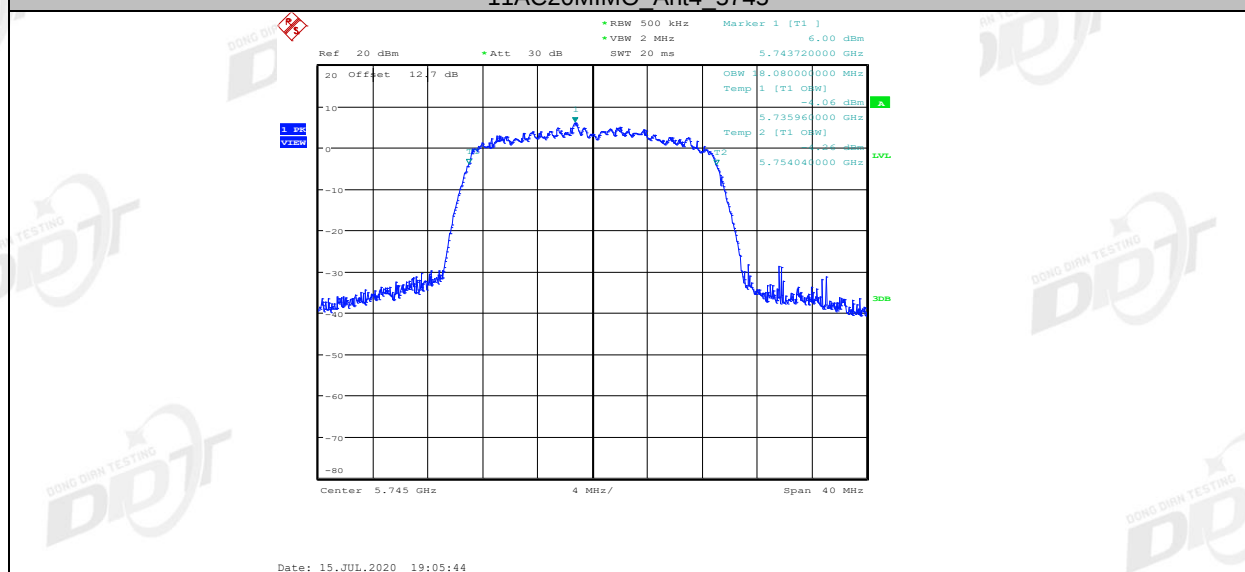
11AC20MIMO Ant2 5745



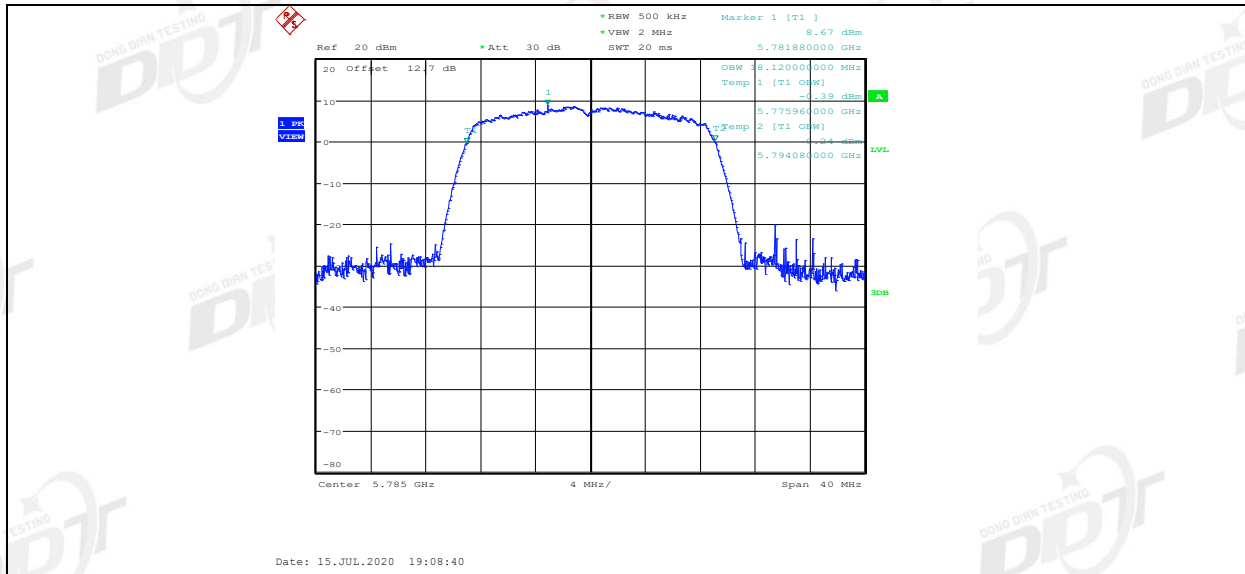
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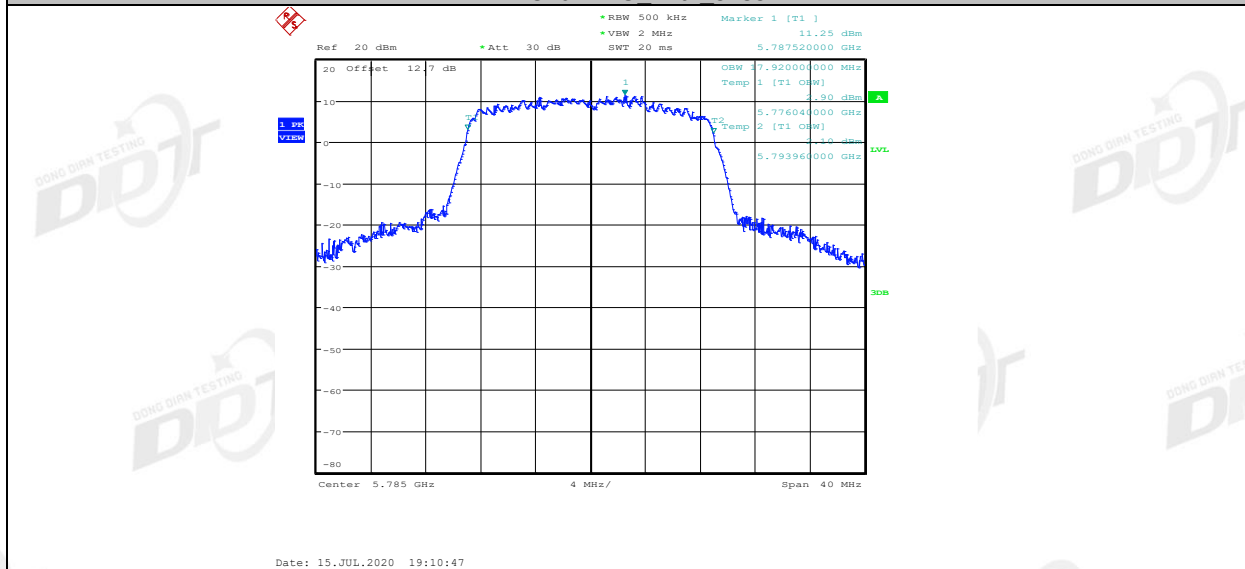
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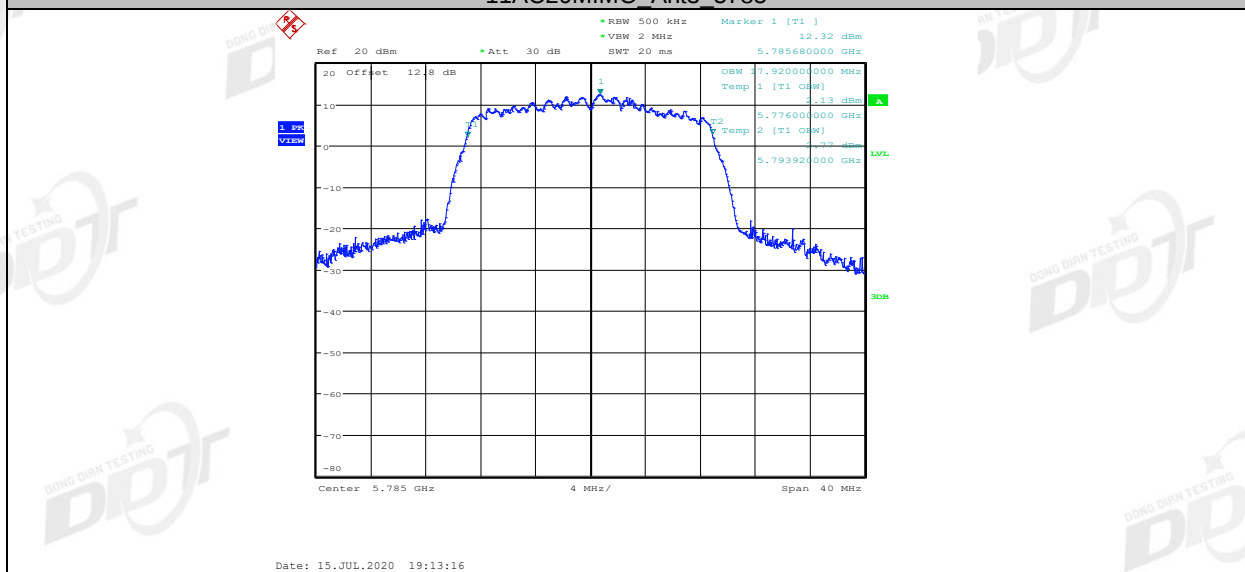
11AC20MIMO_Ant1_5785



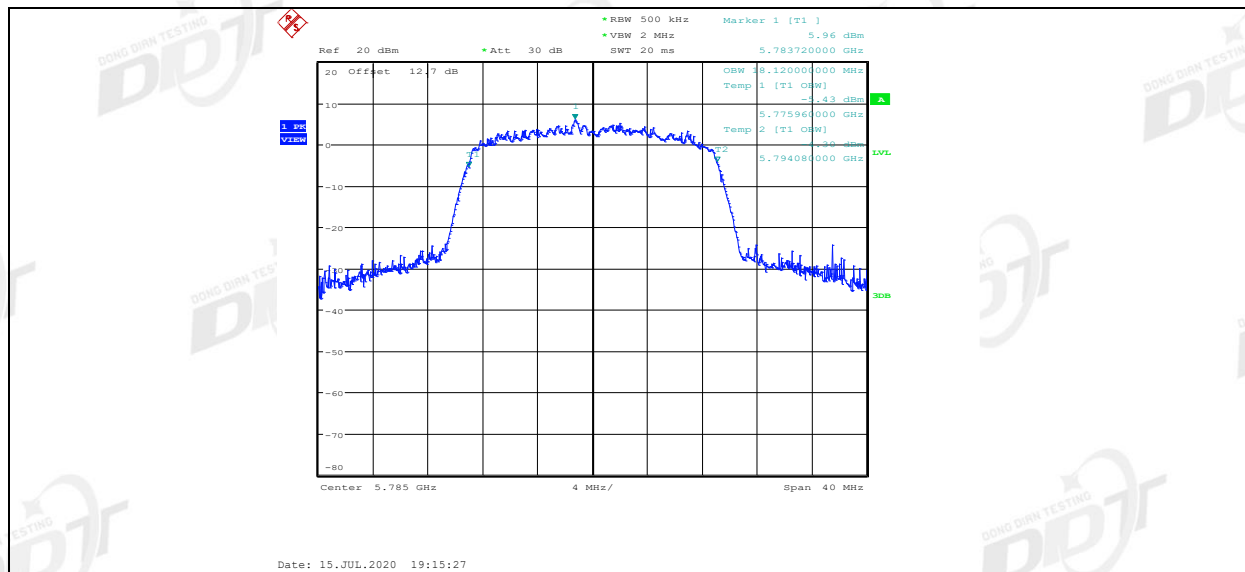
11AC20MIMO_Ant2_5785



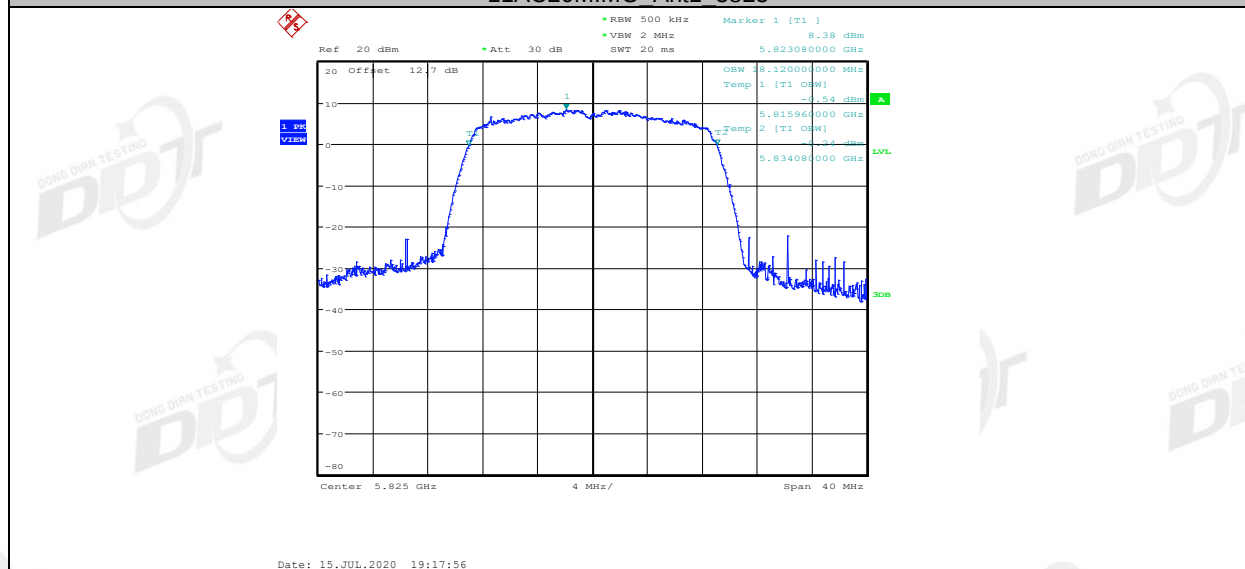
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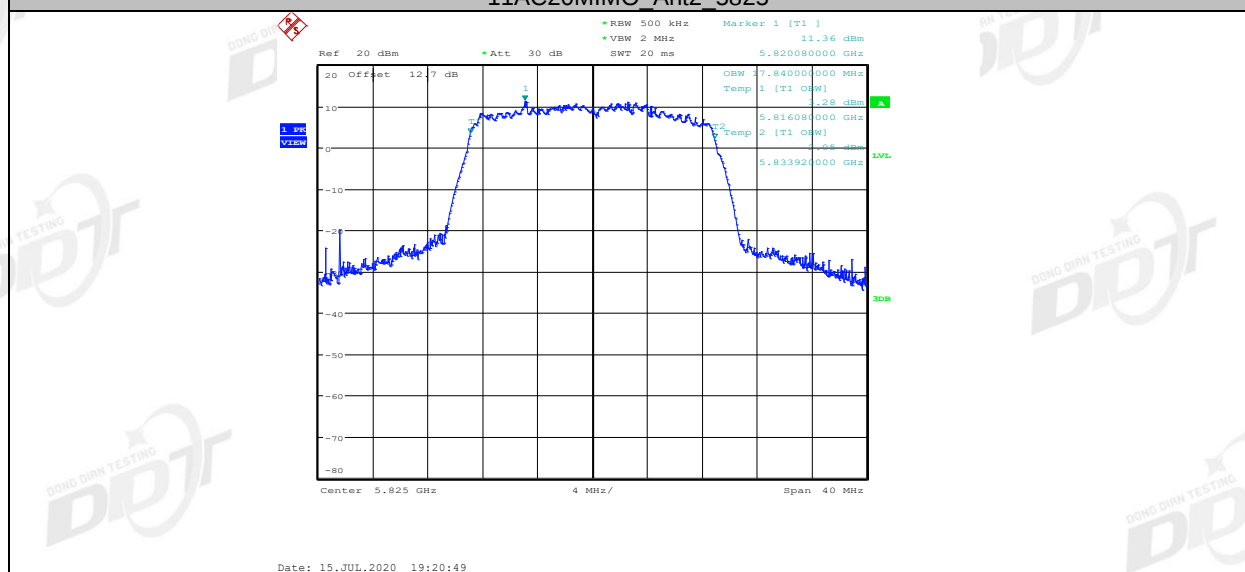
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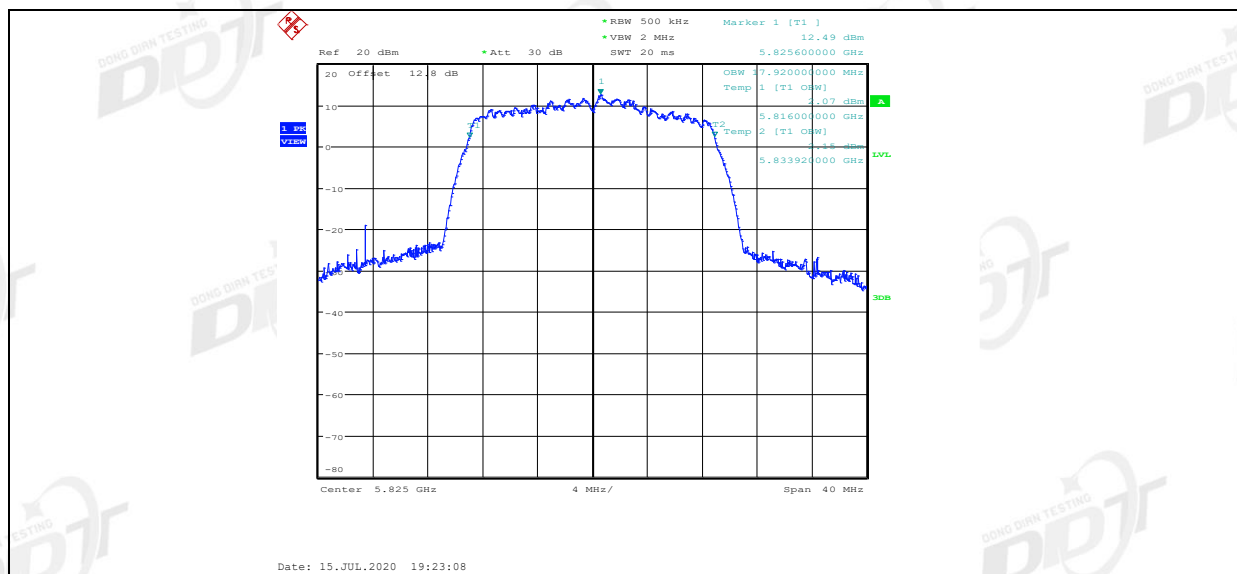
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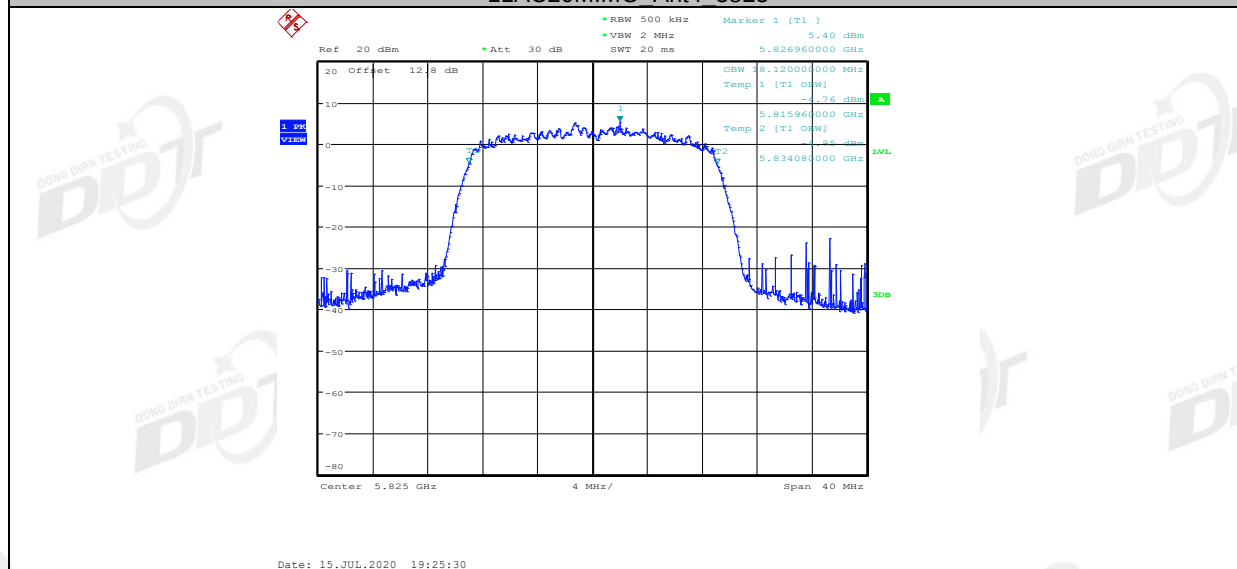
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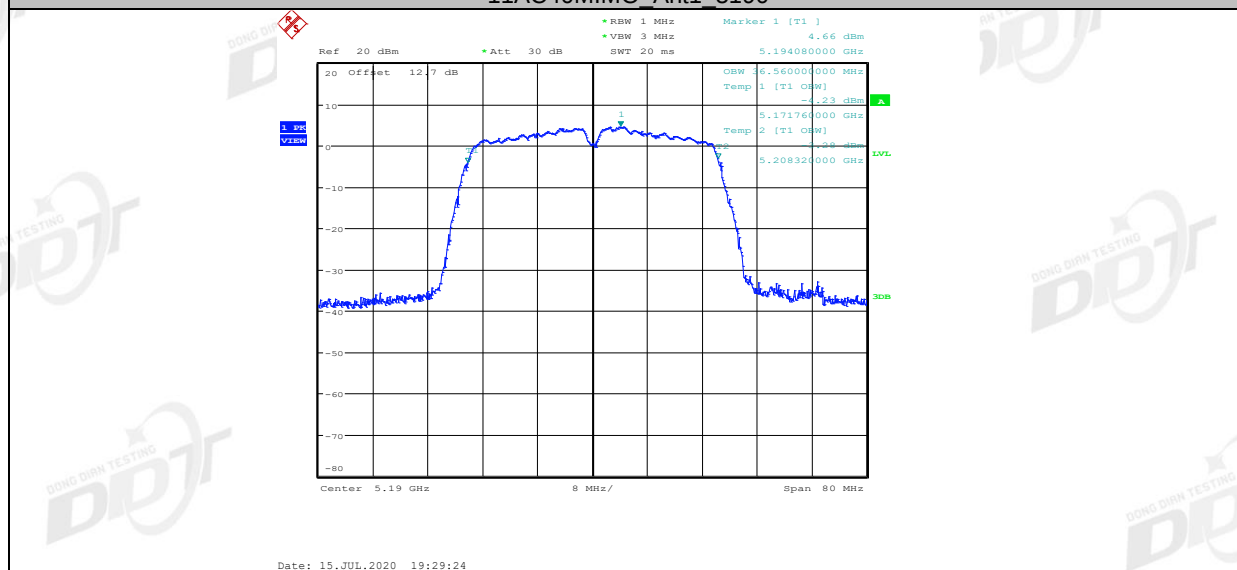
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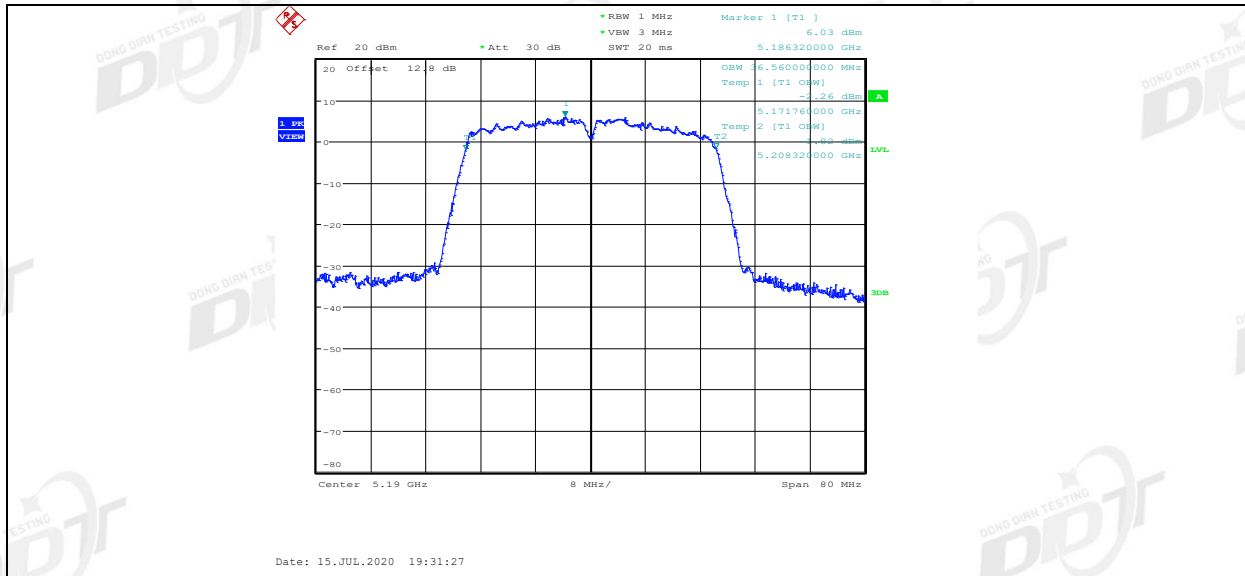
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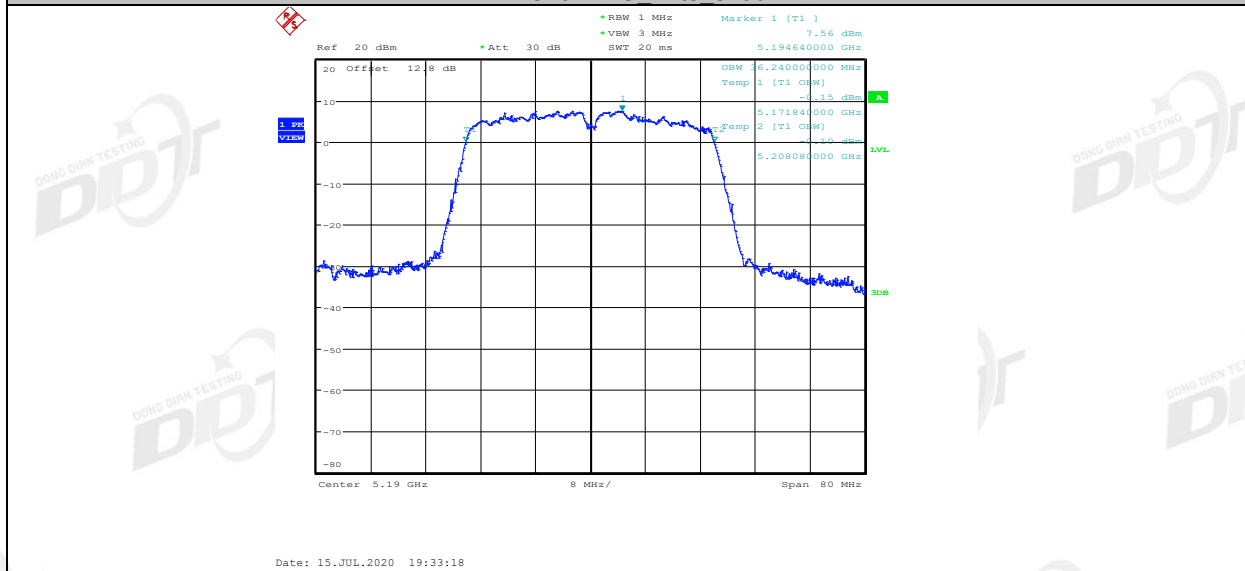
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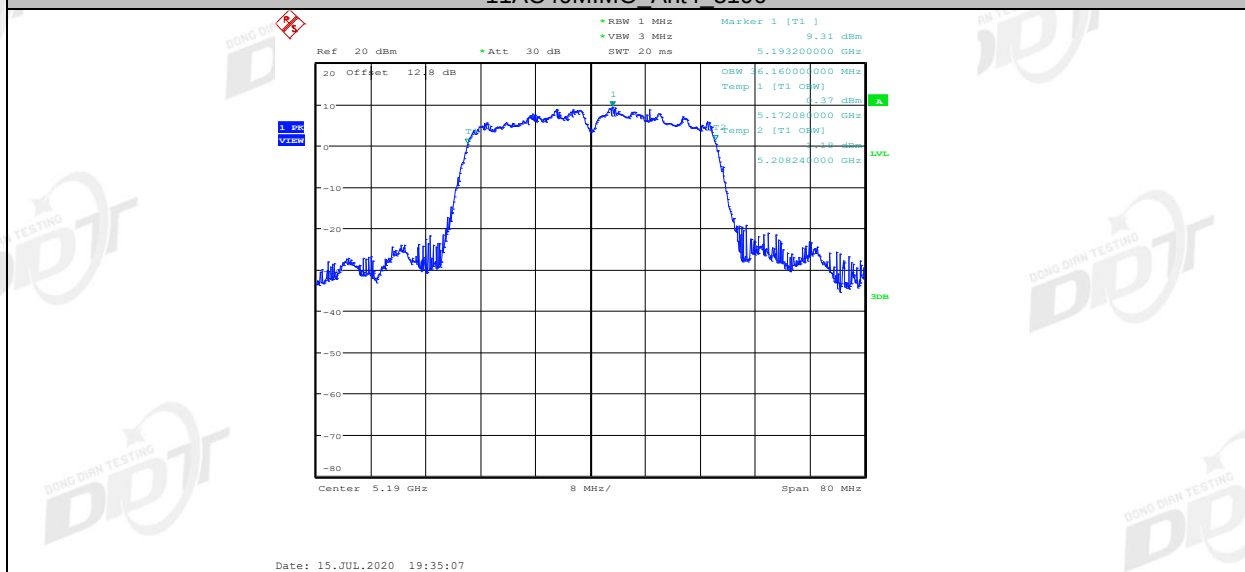
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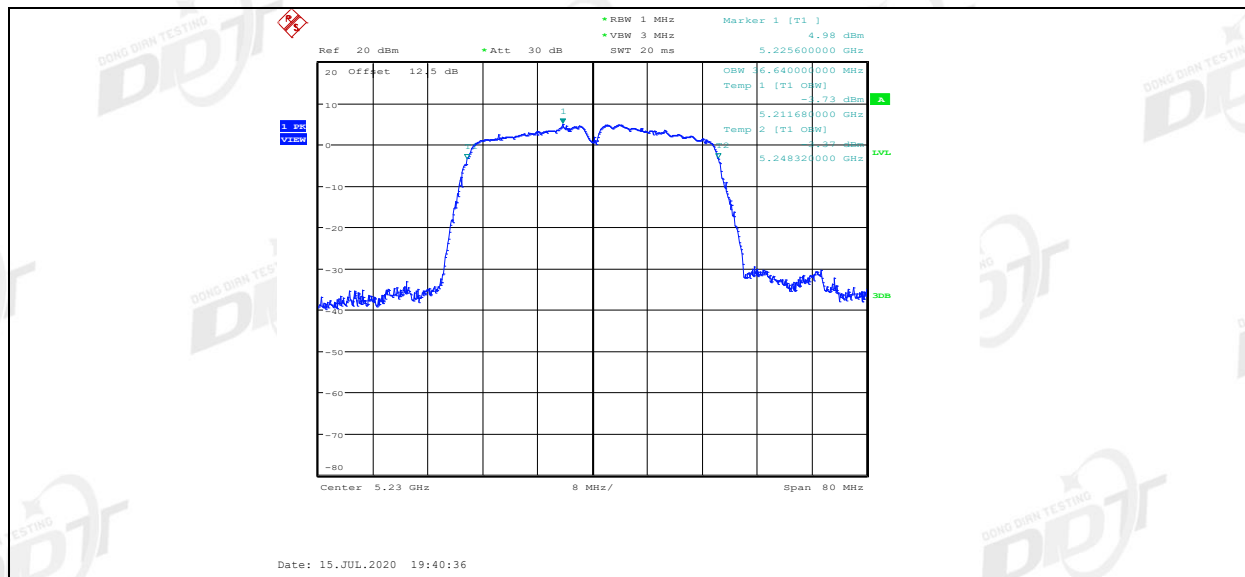
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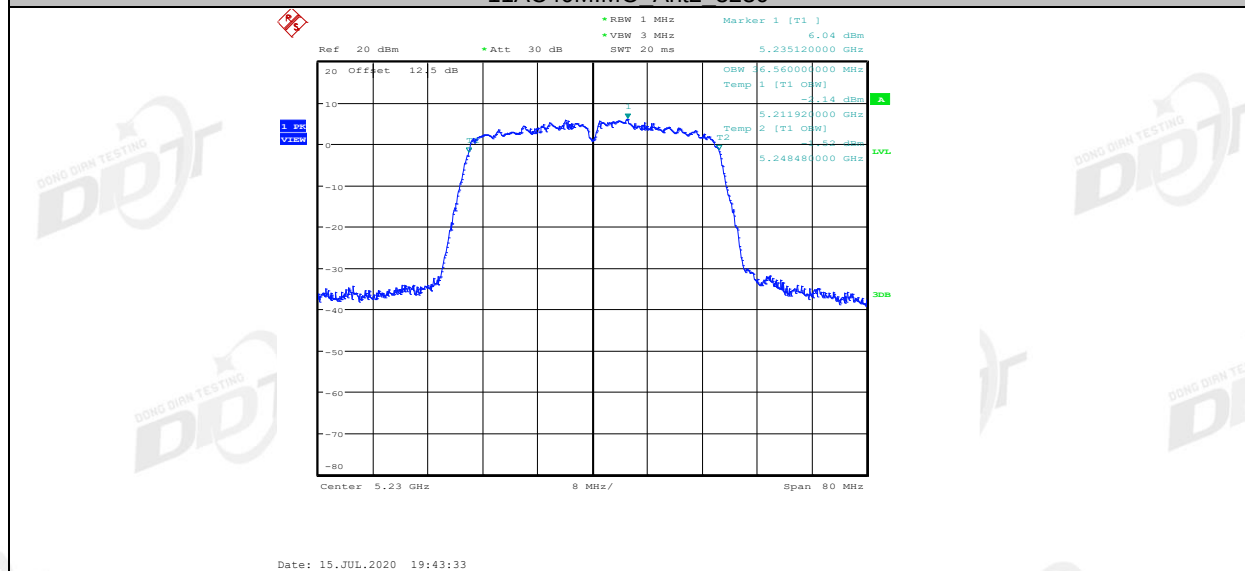
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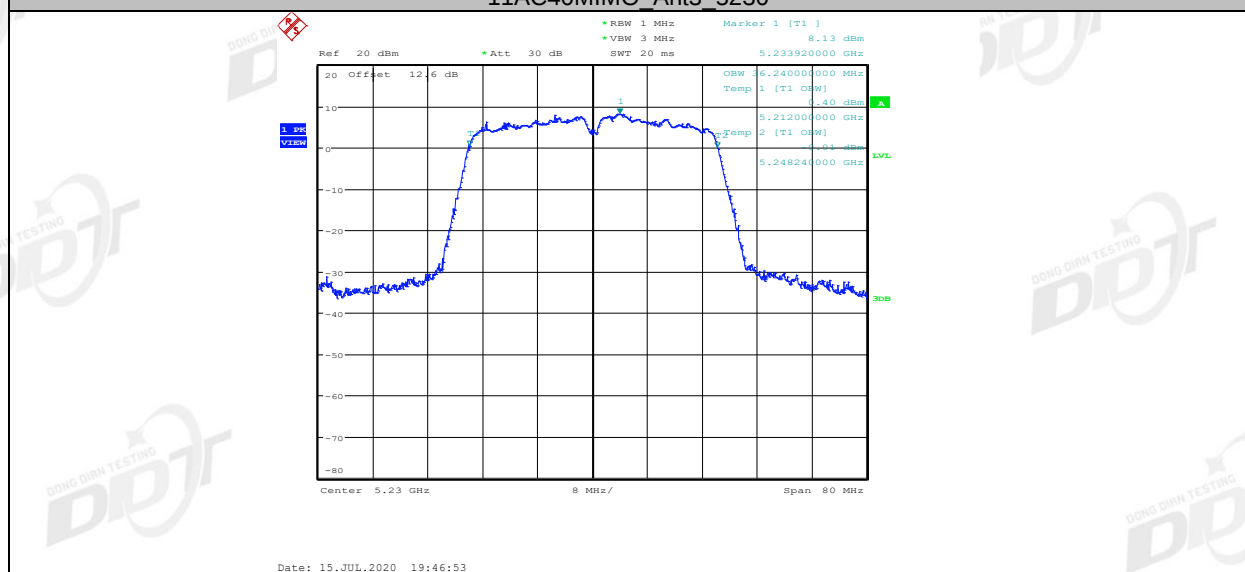
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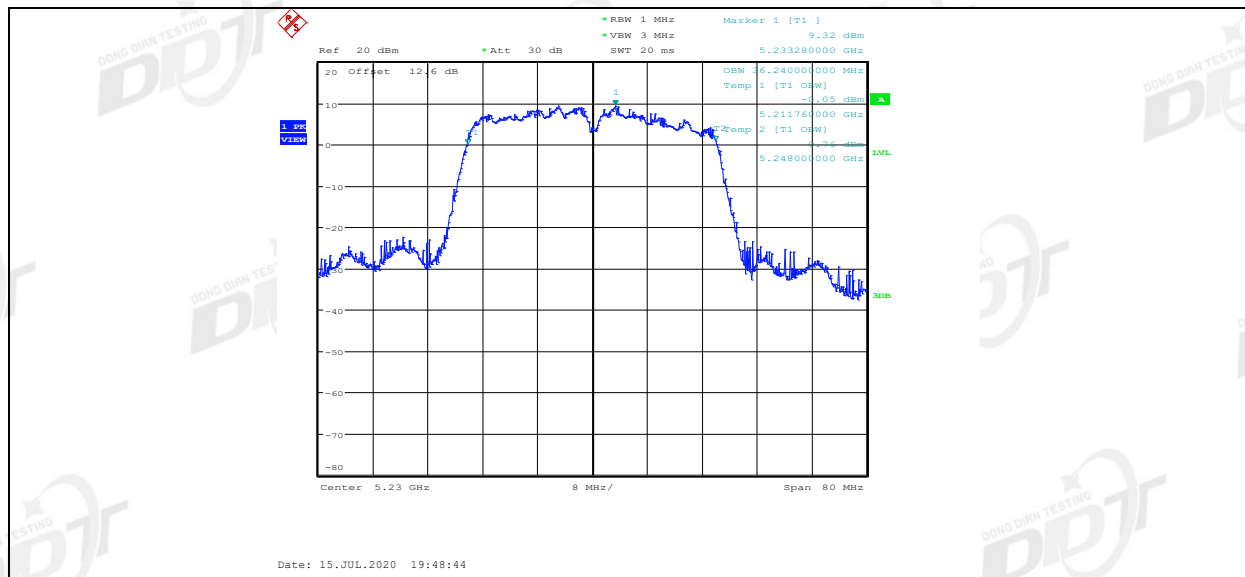
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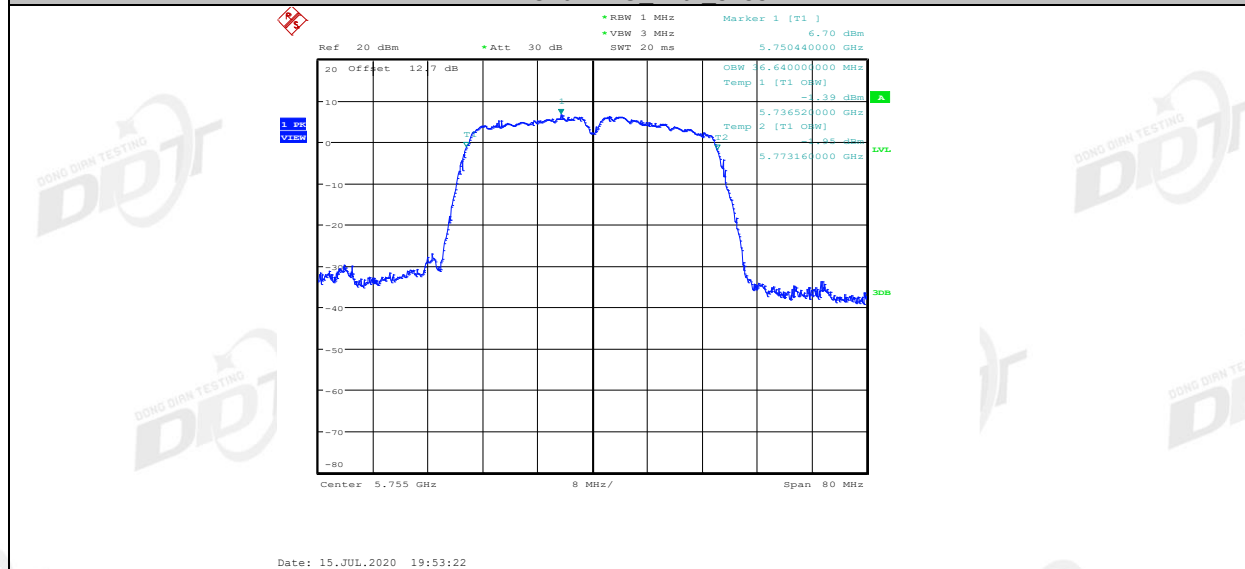
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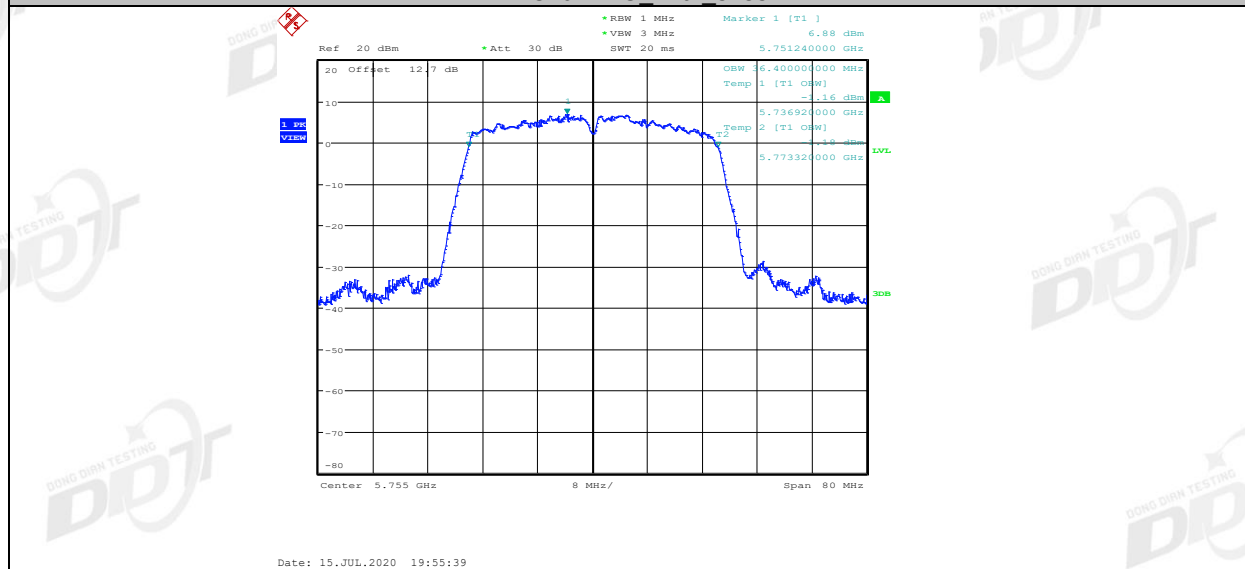
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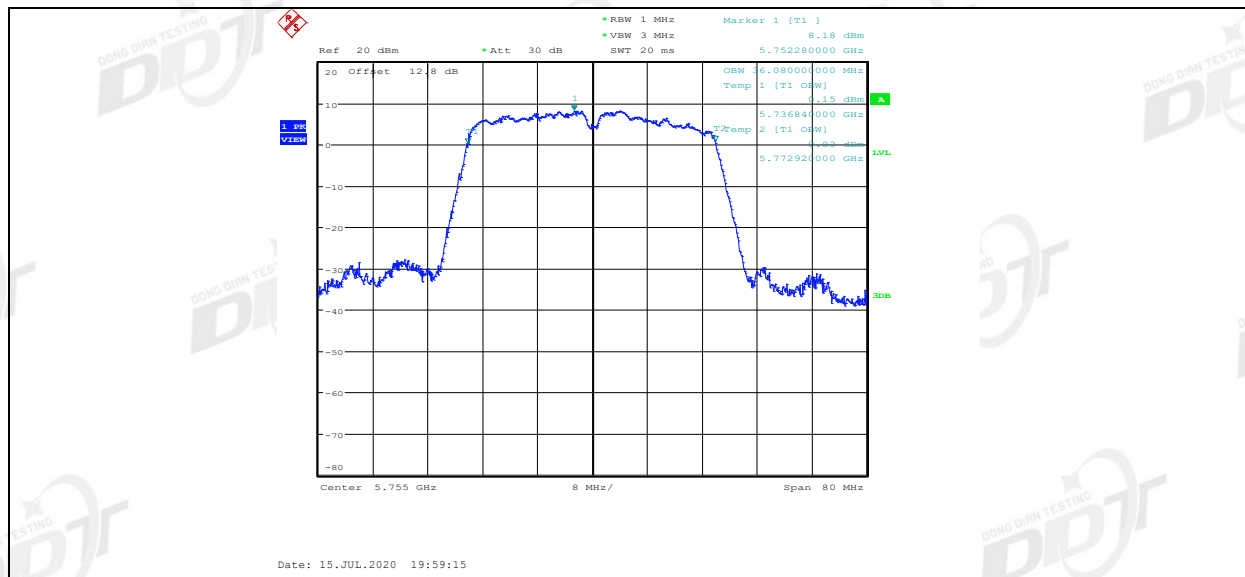
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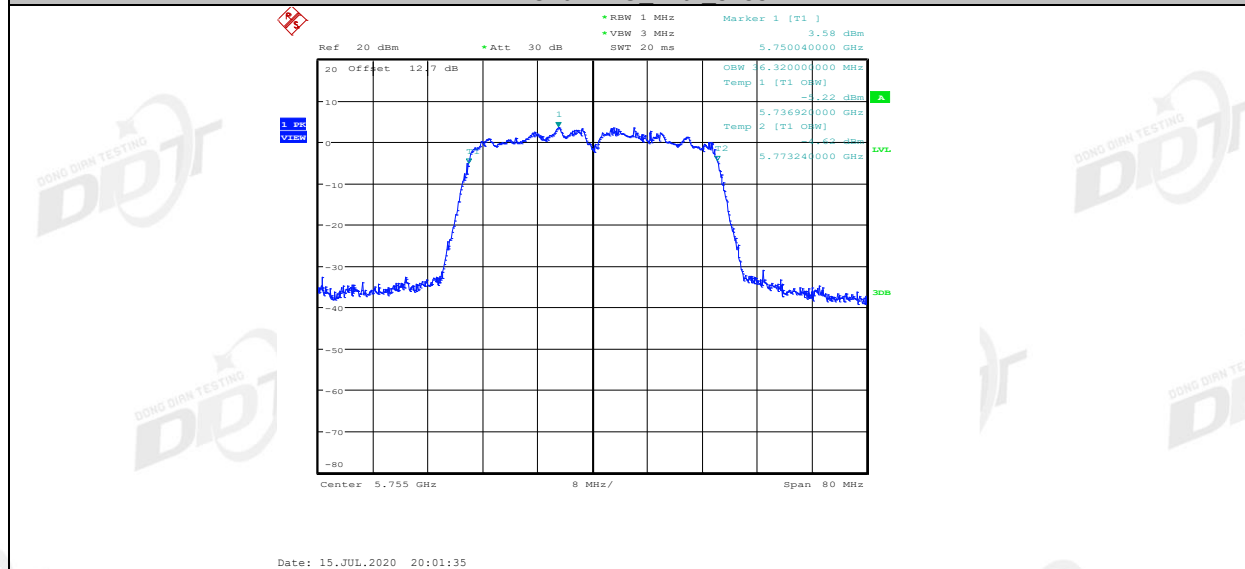
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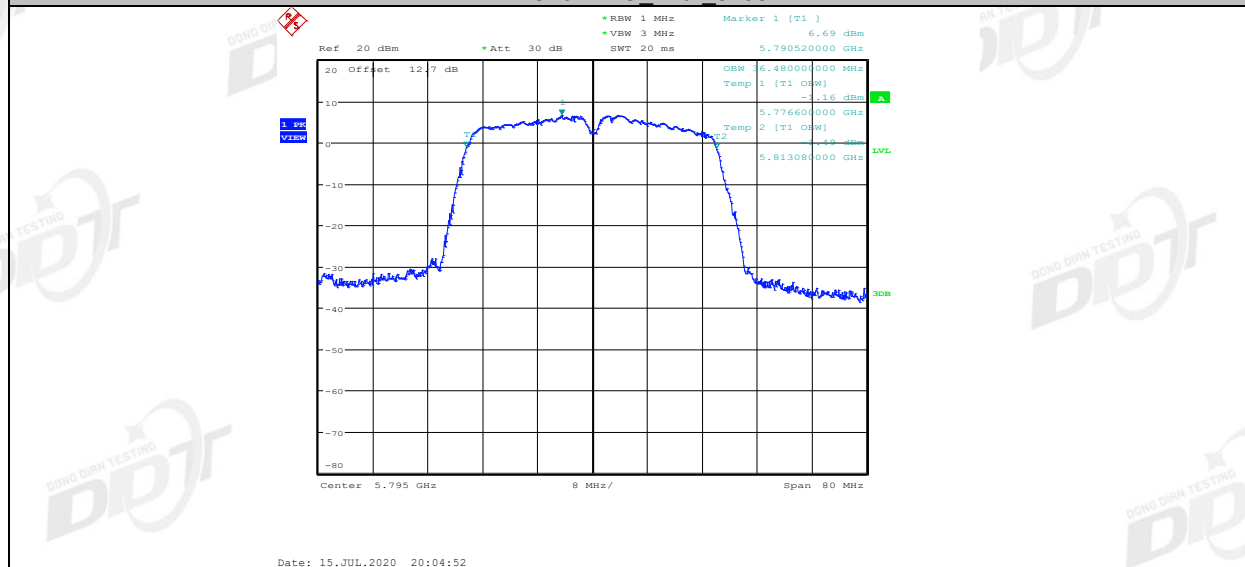
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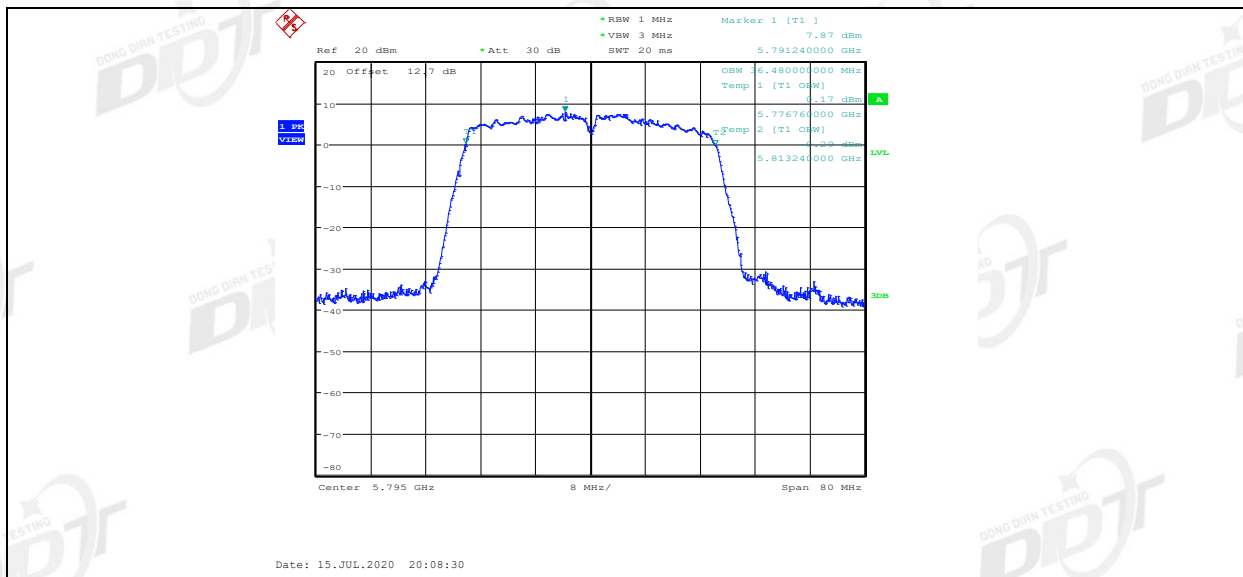
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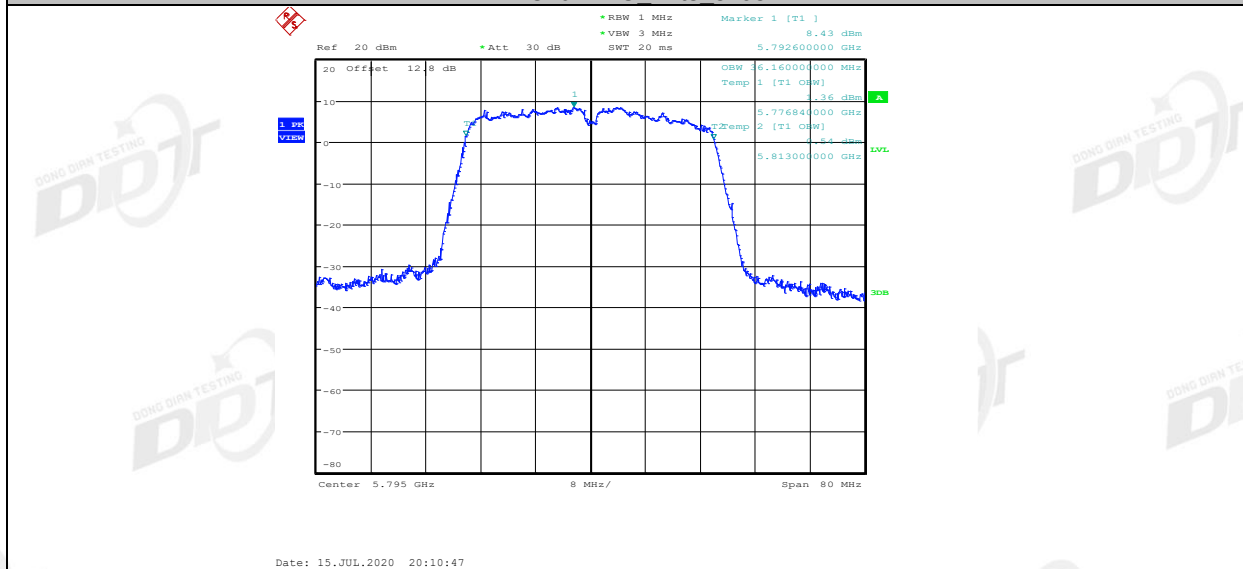
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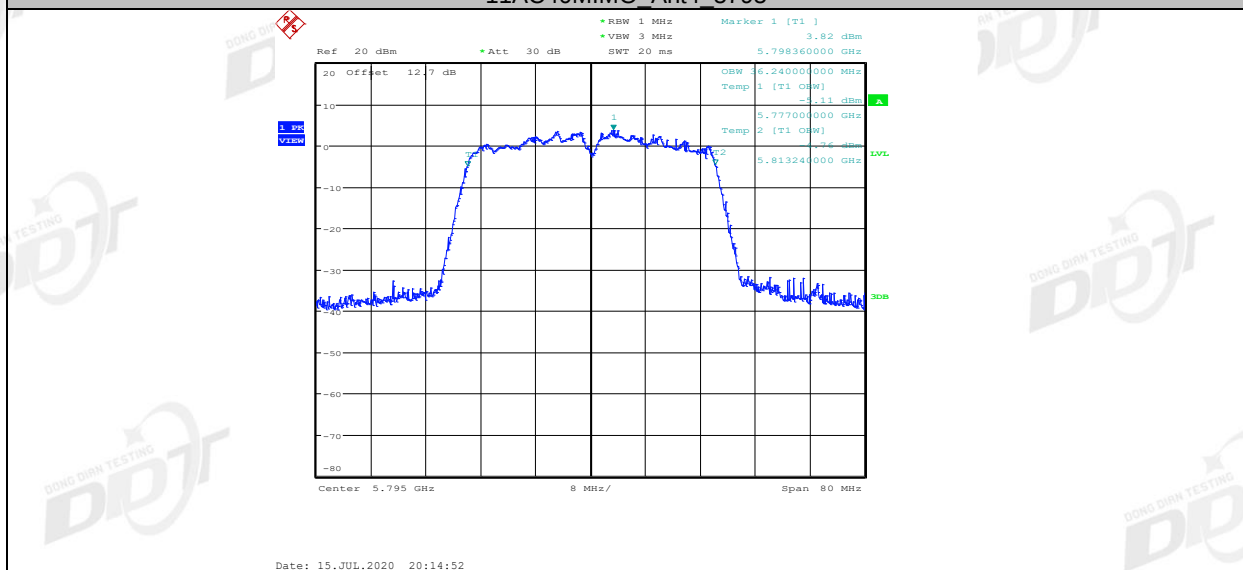
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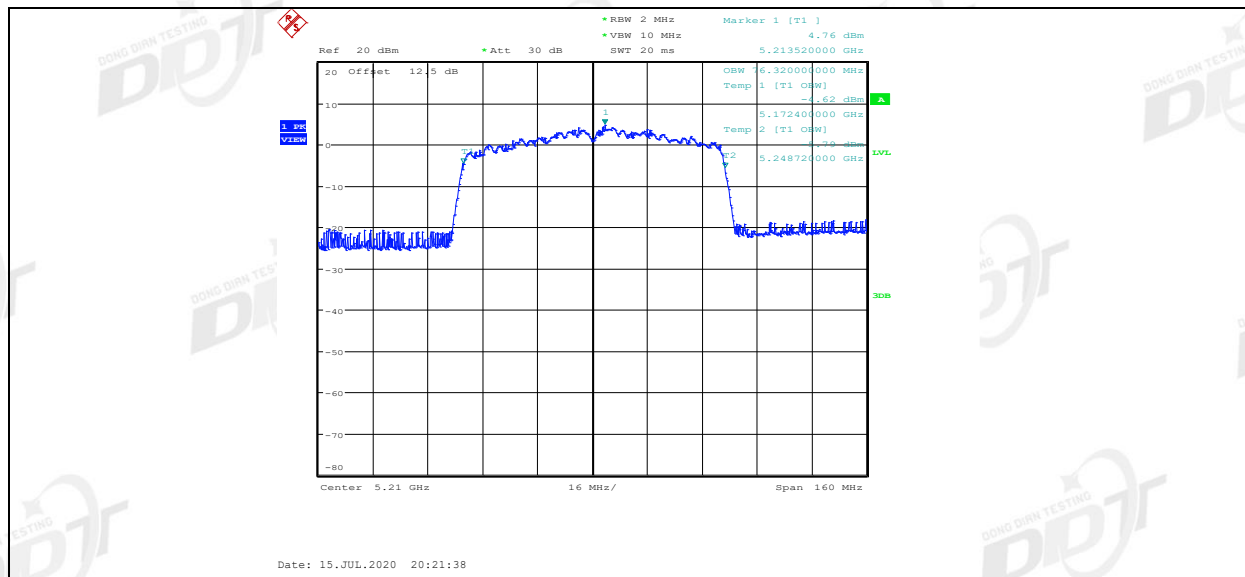
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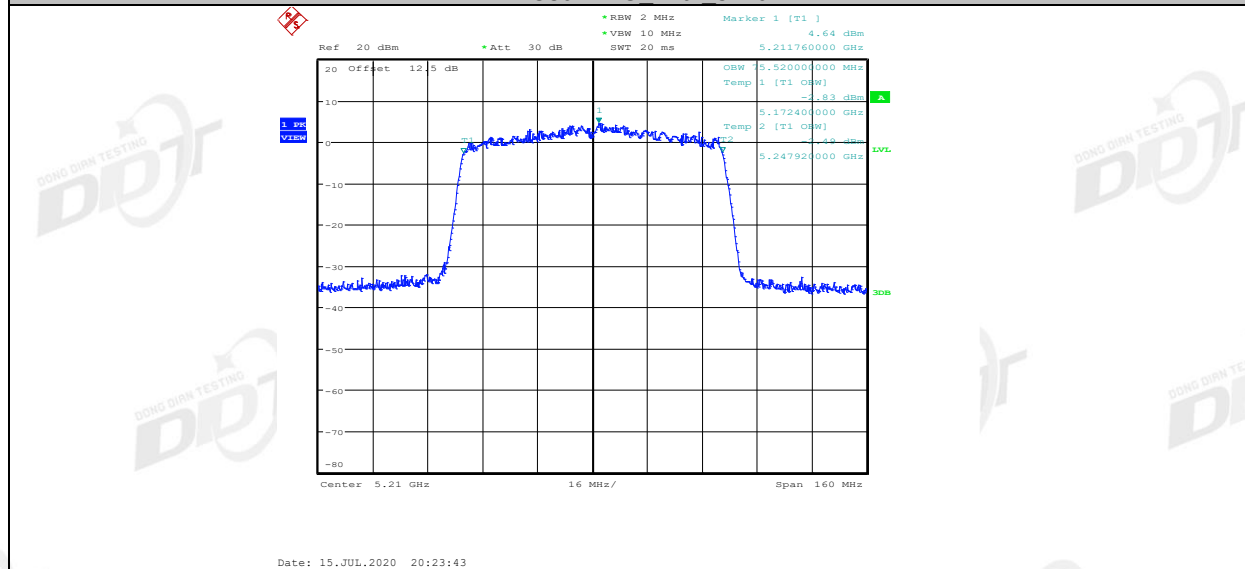
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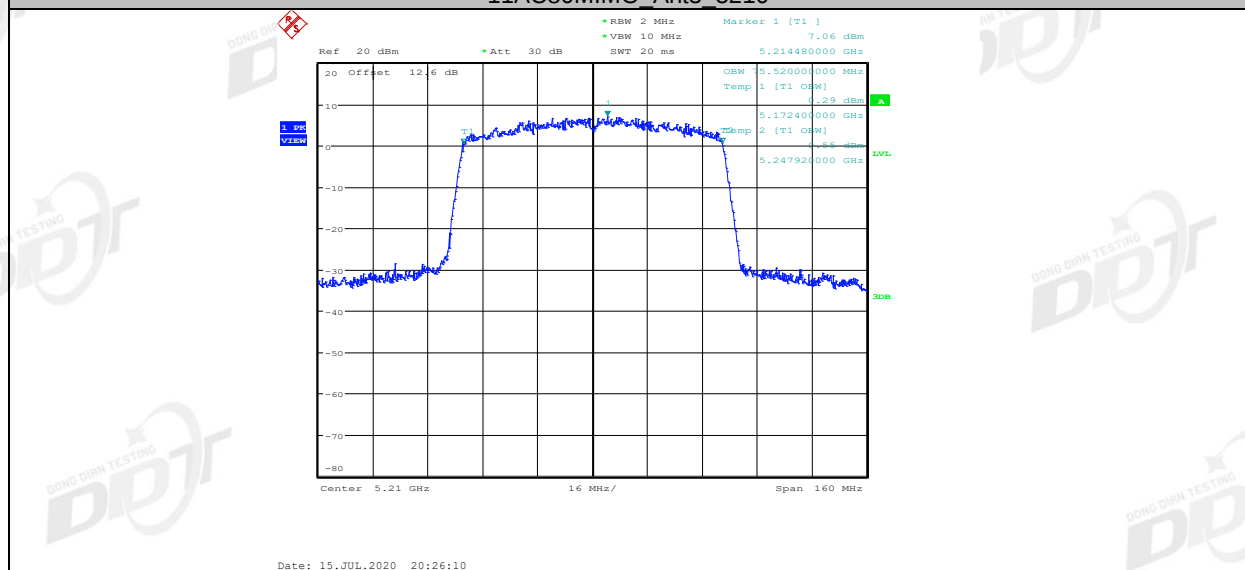
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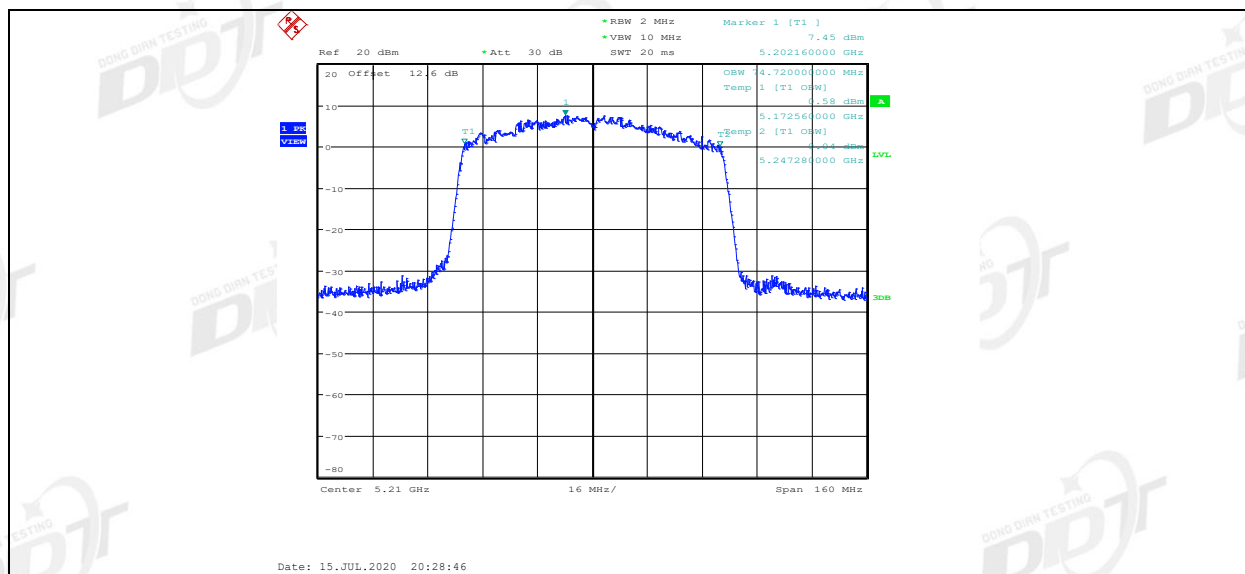
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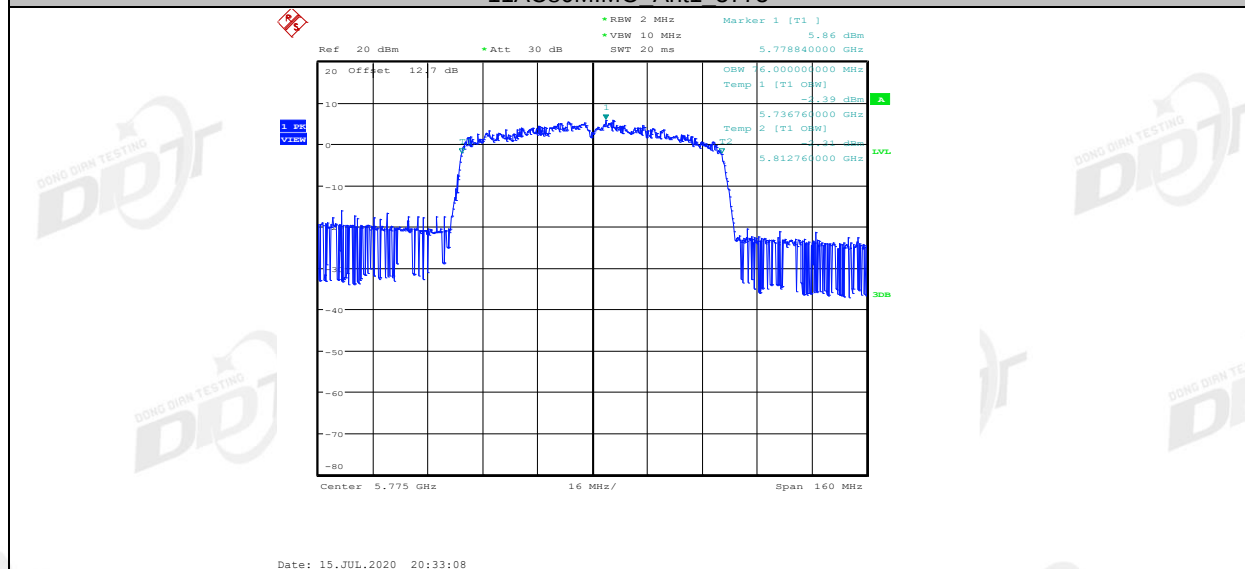
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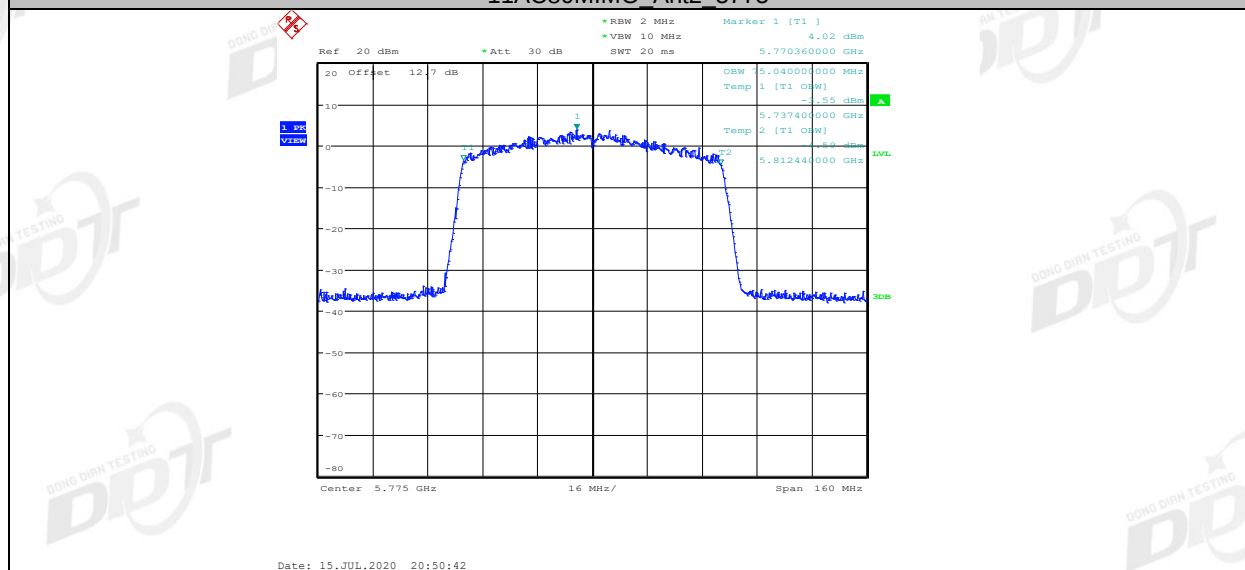
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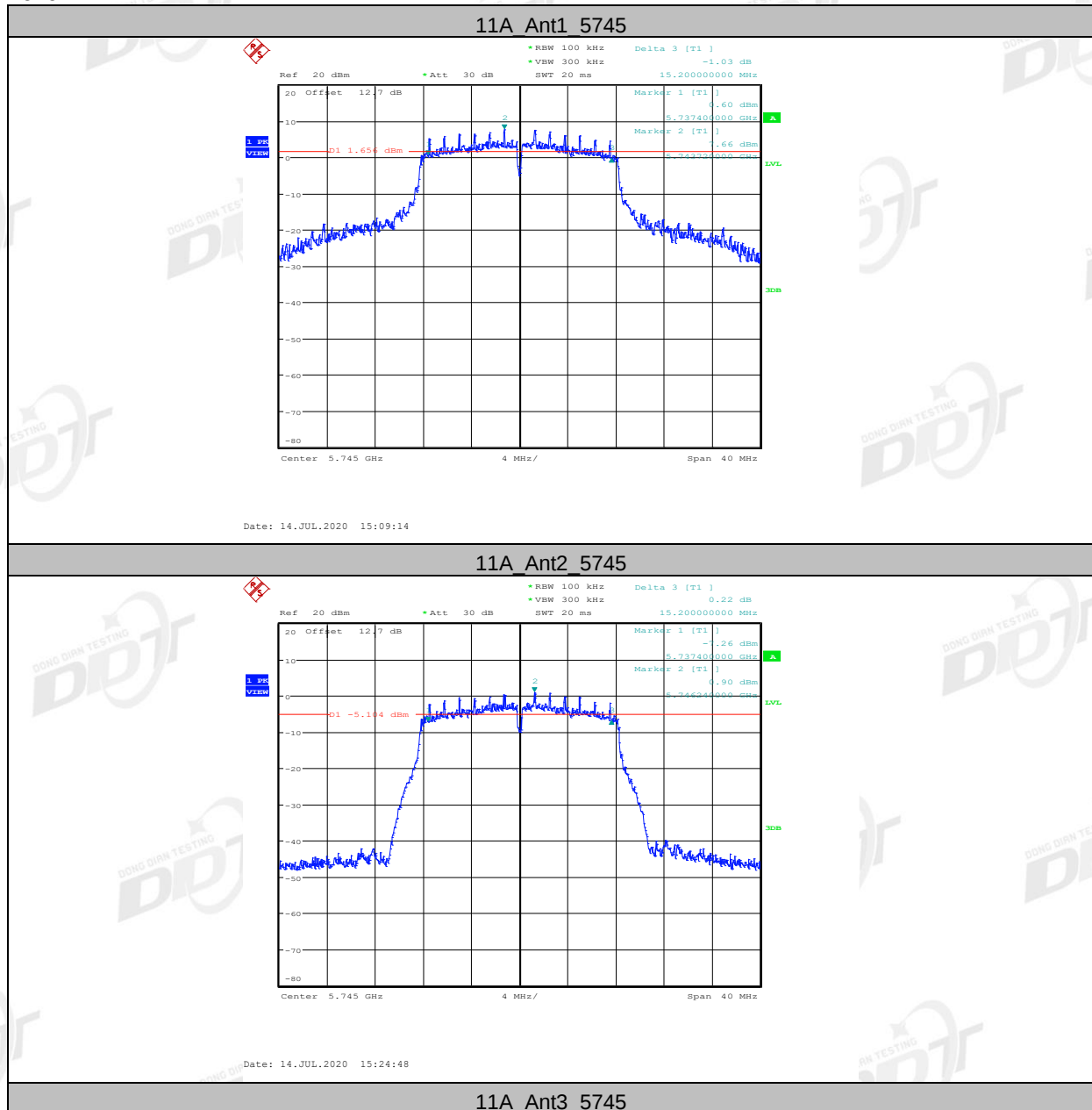
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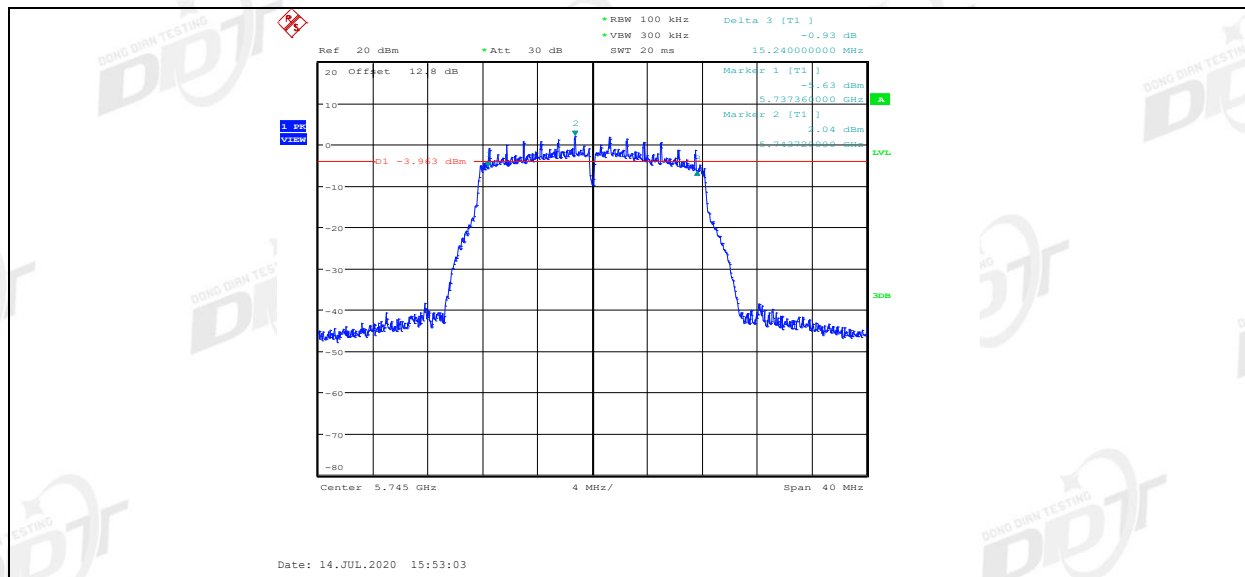


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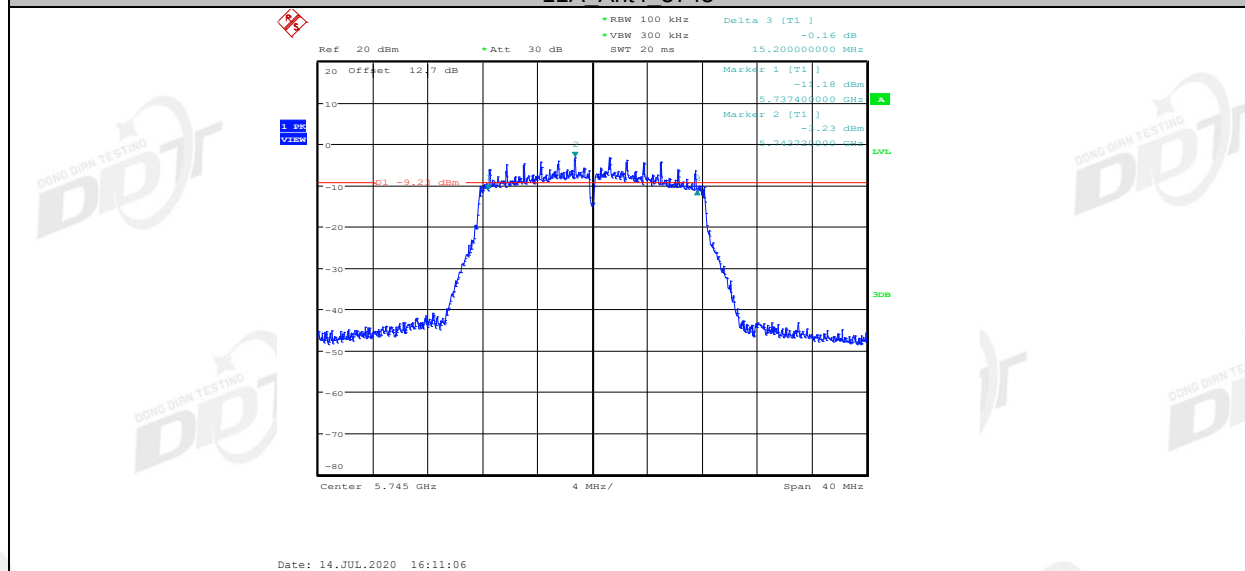


6 dB EBW:

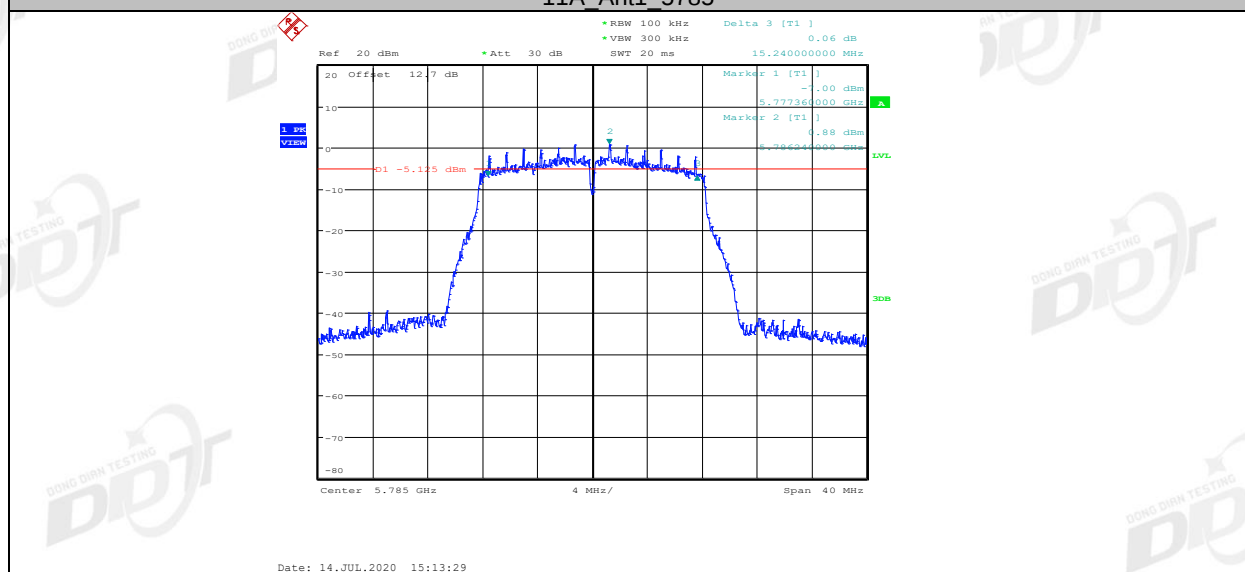




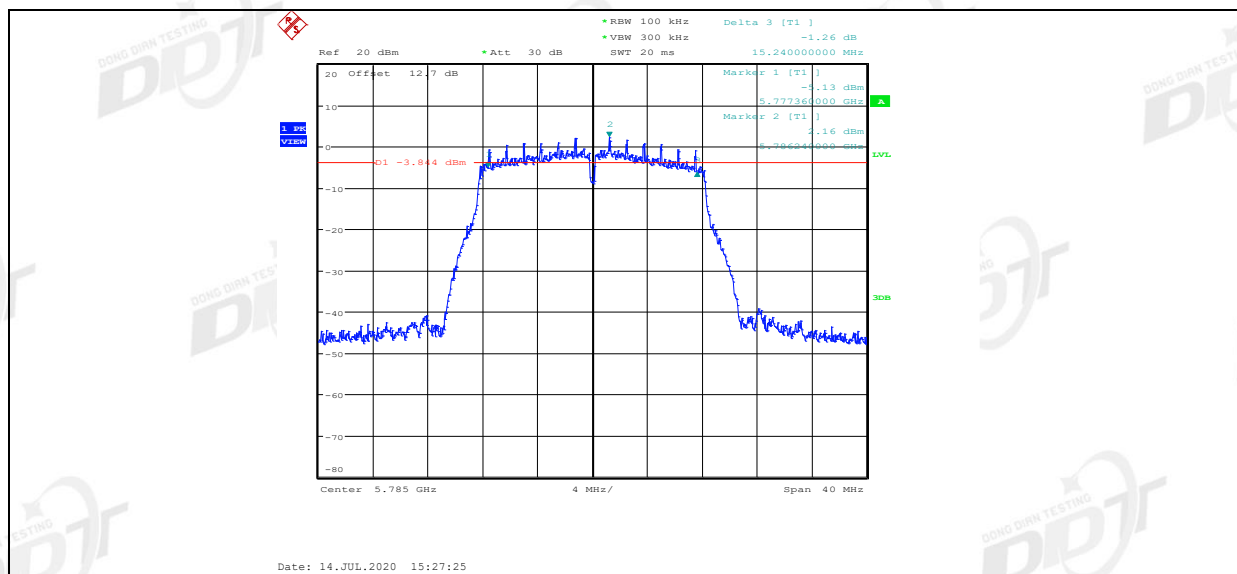
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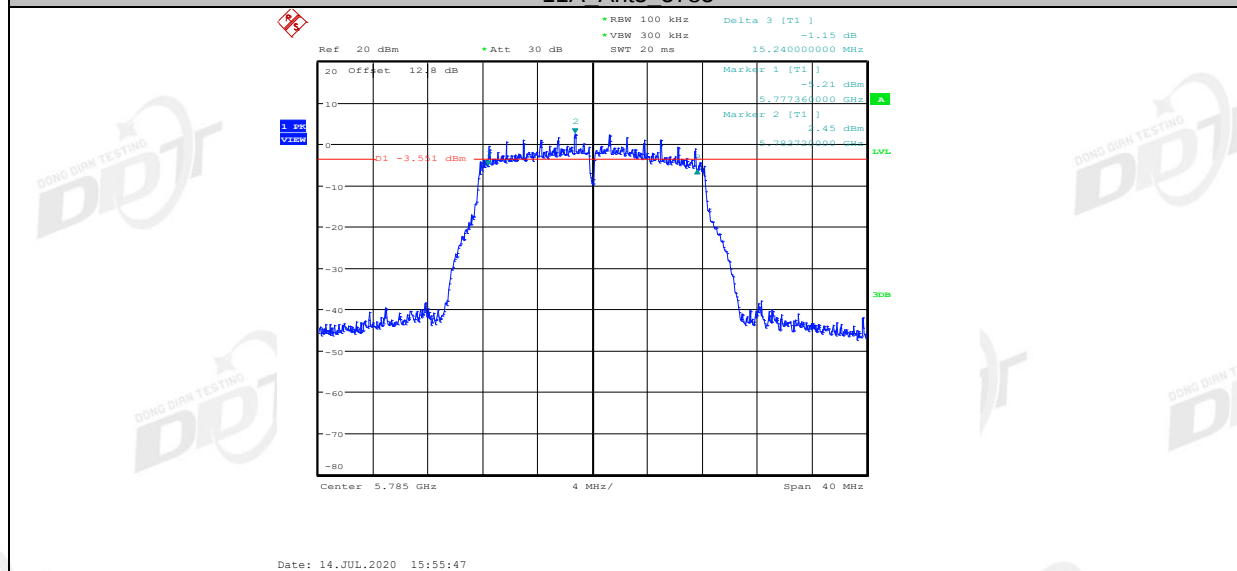
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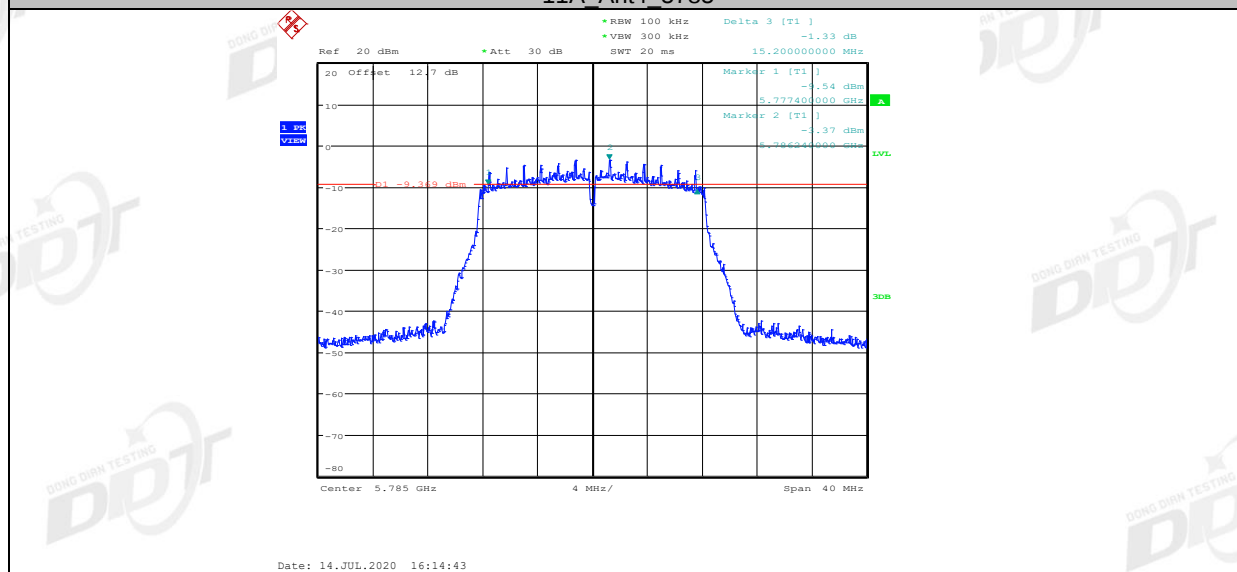
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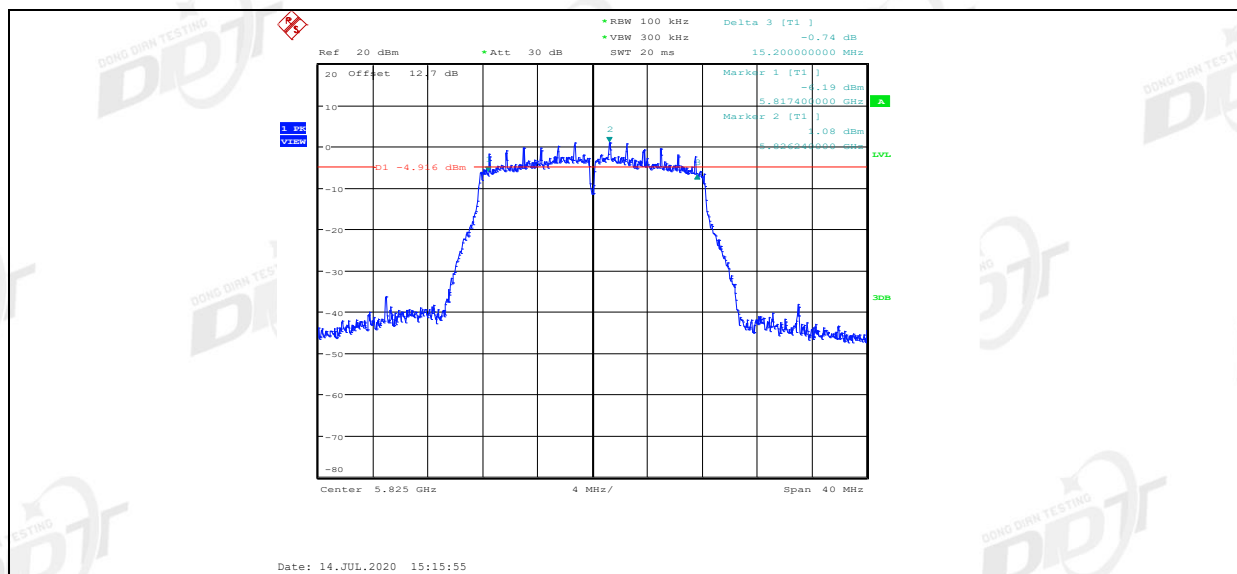
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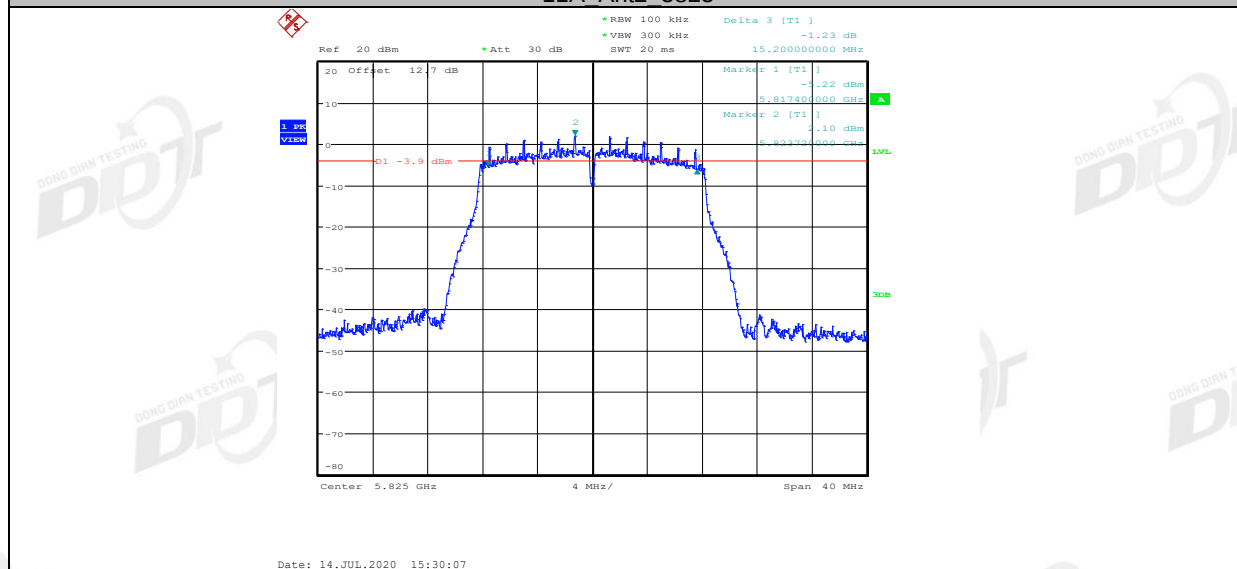
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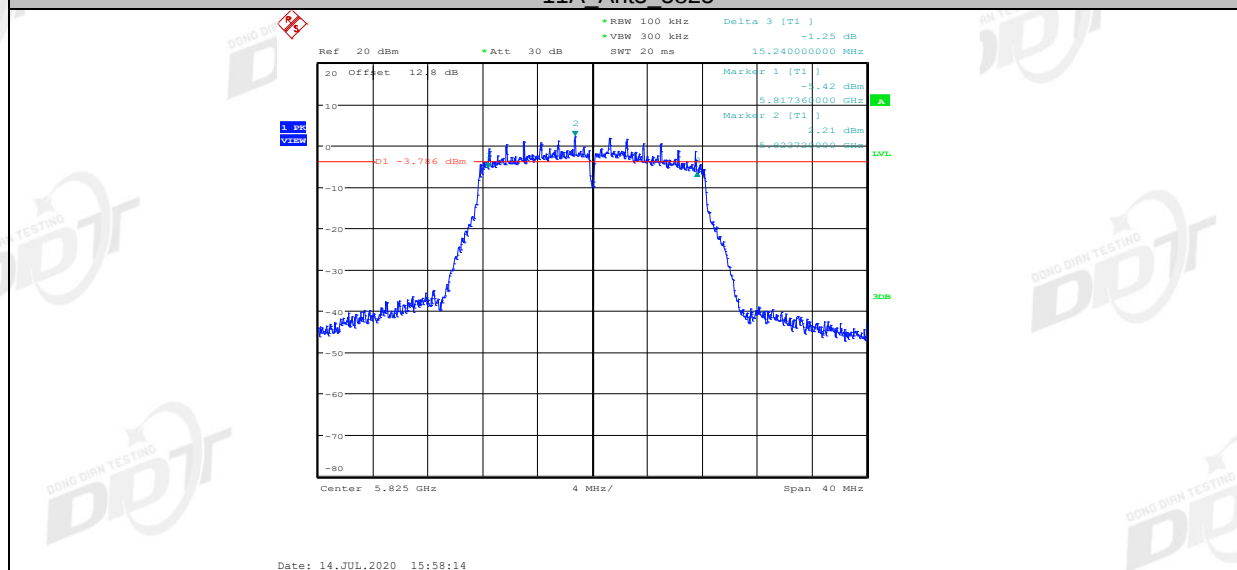
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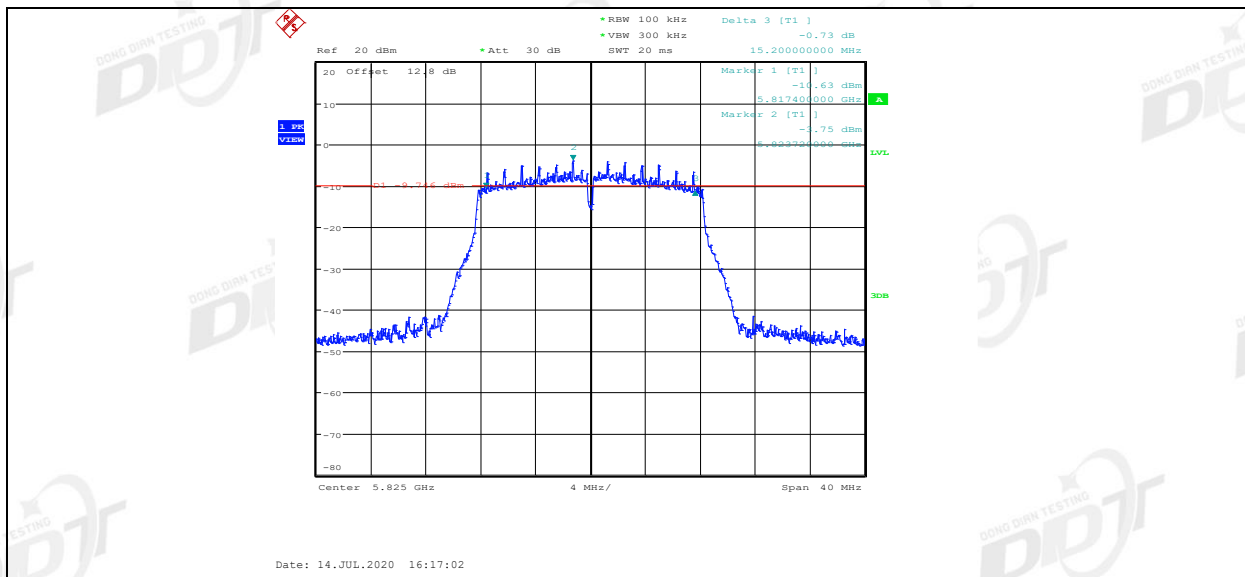
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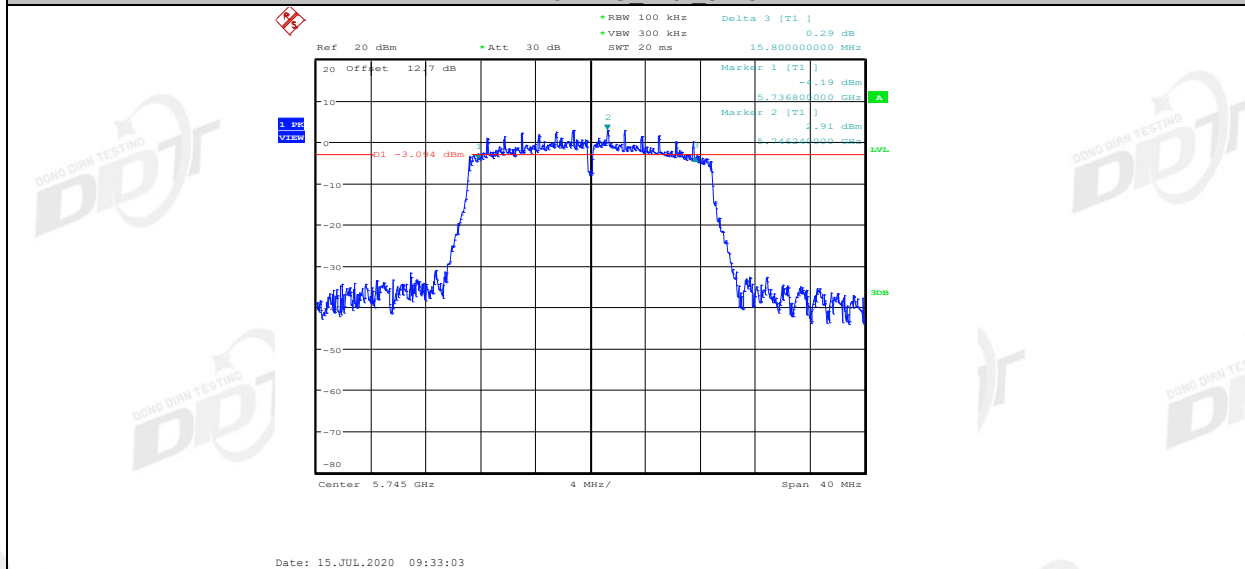
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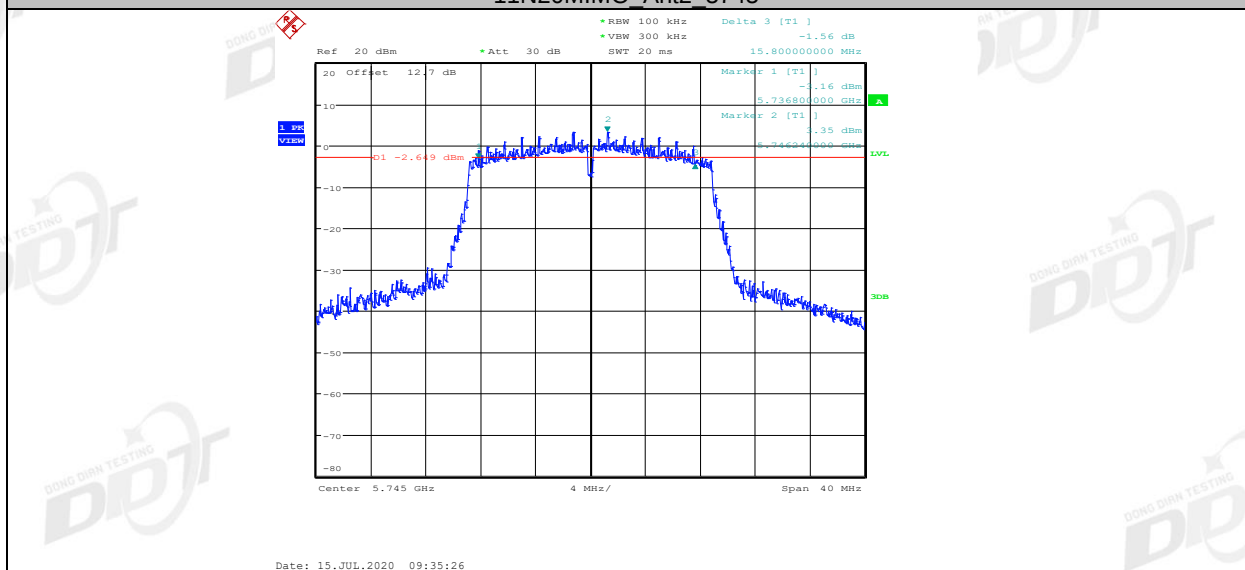
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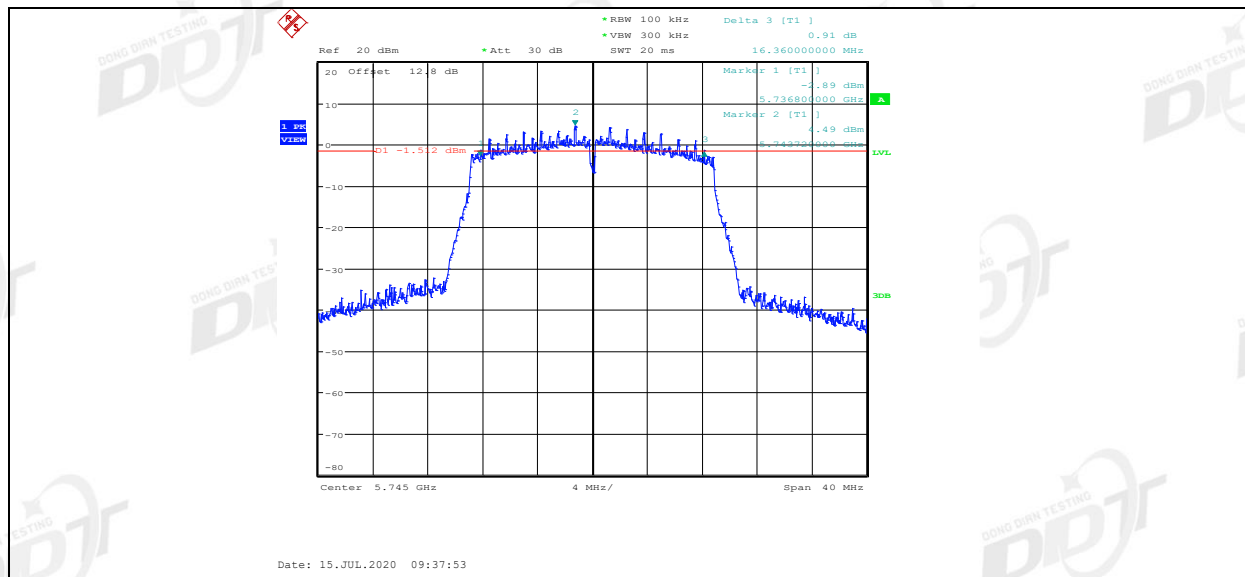
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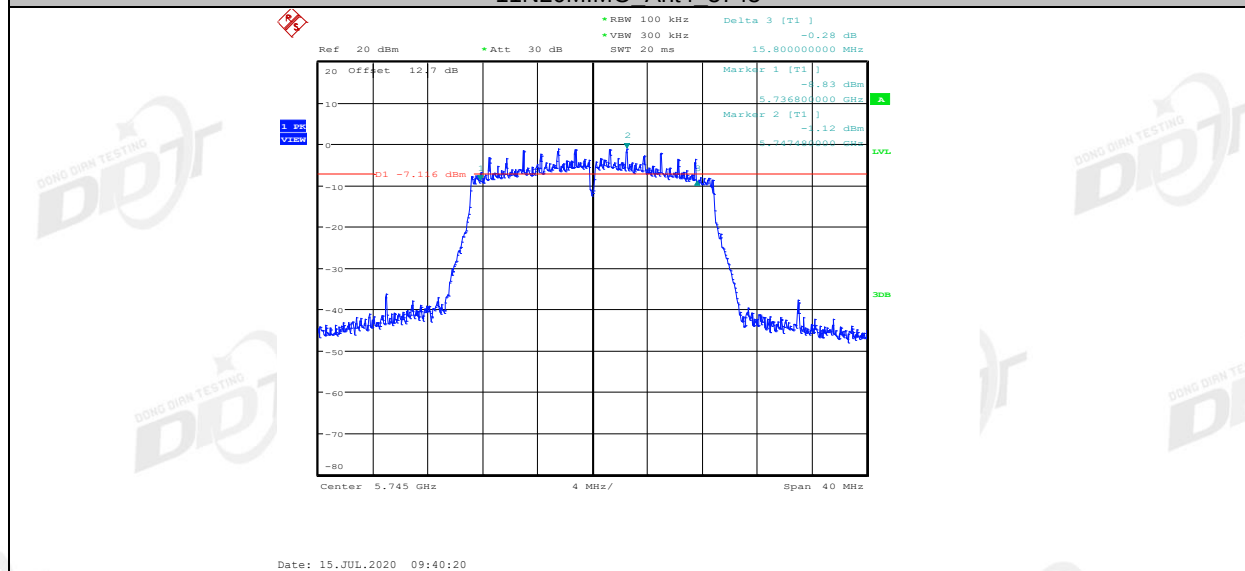
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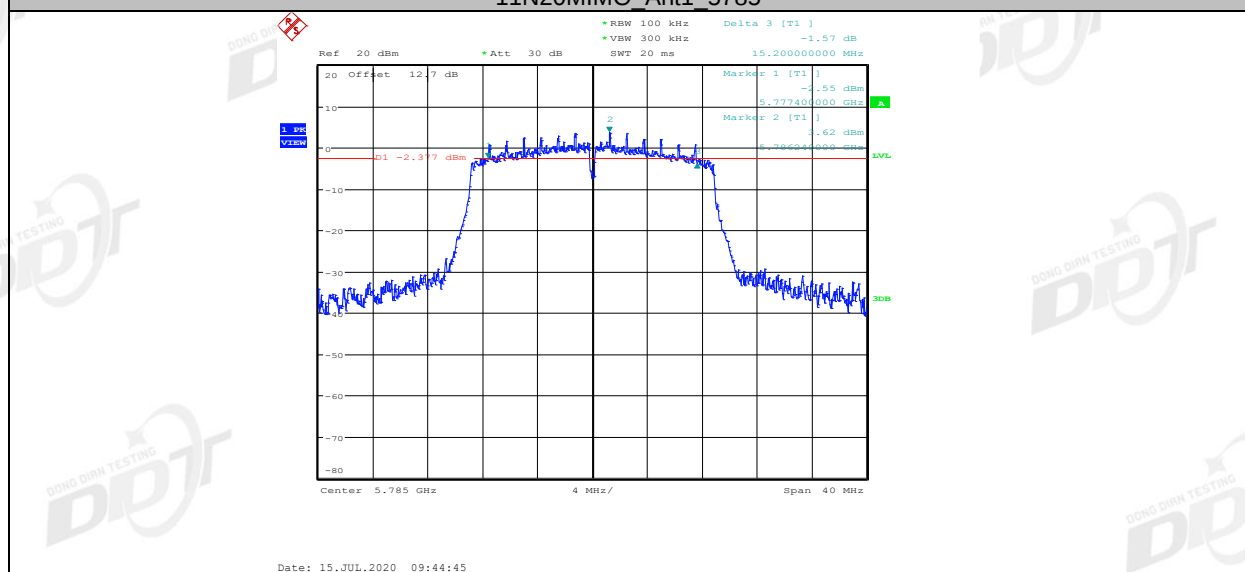
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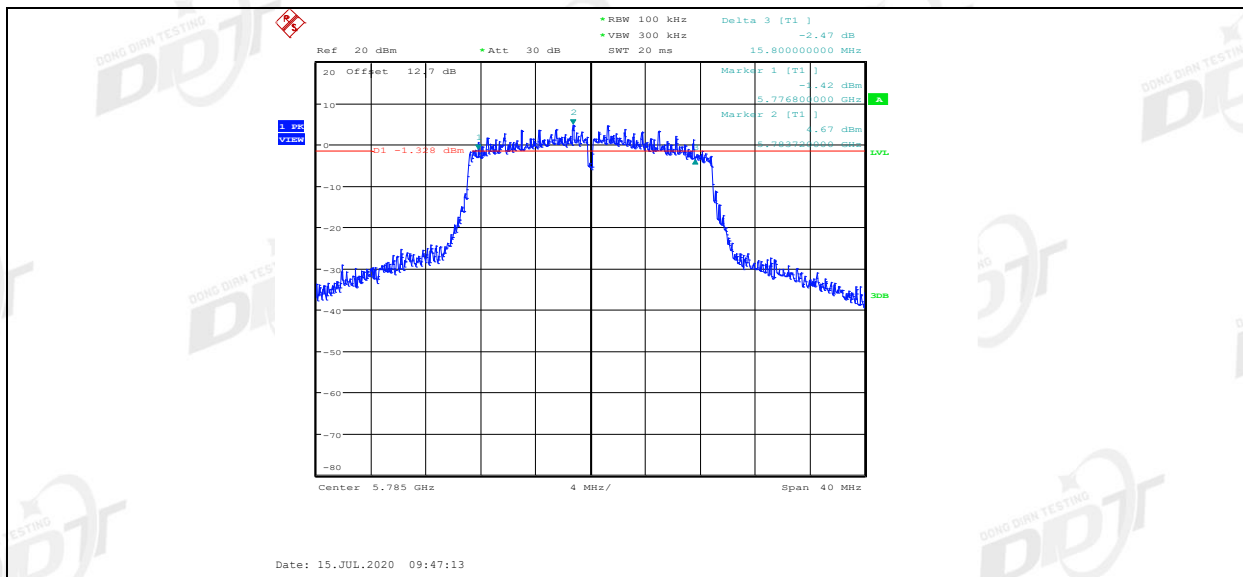
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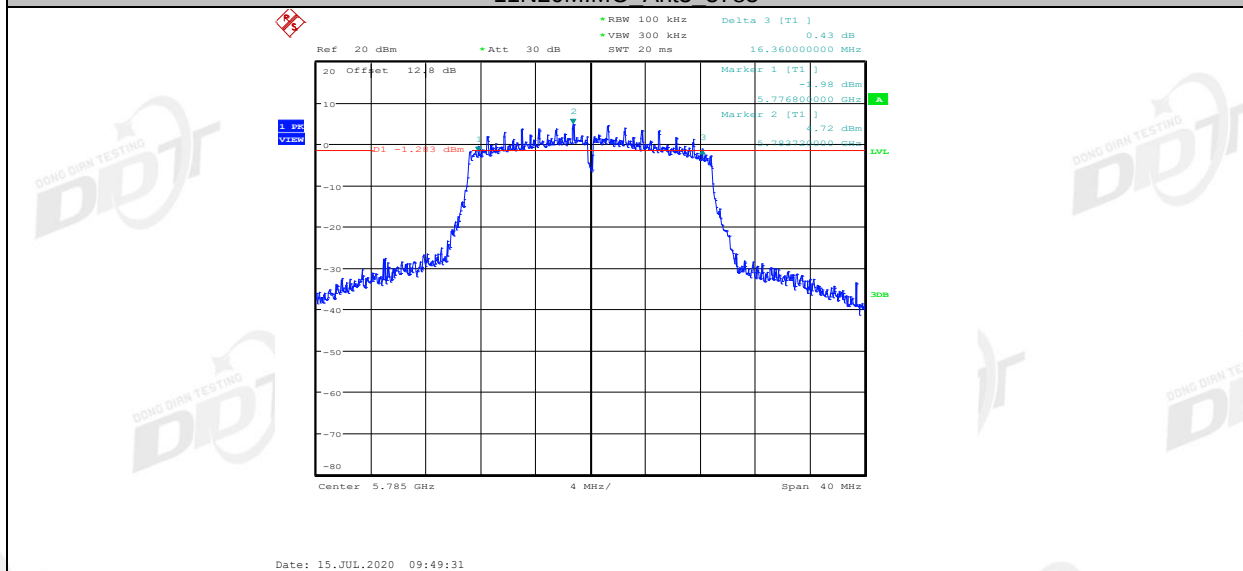
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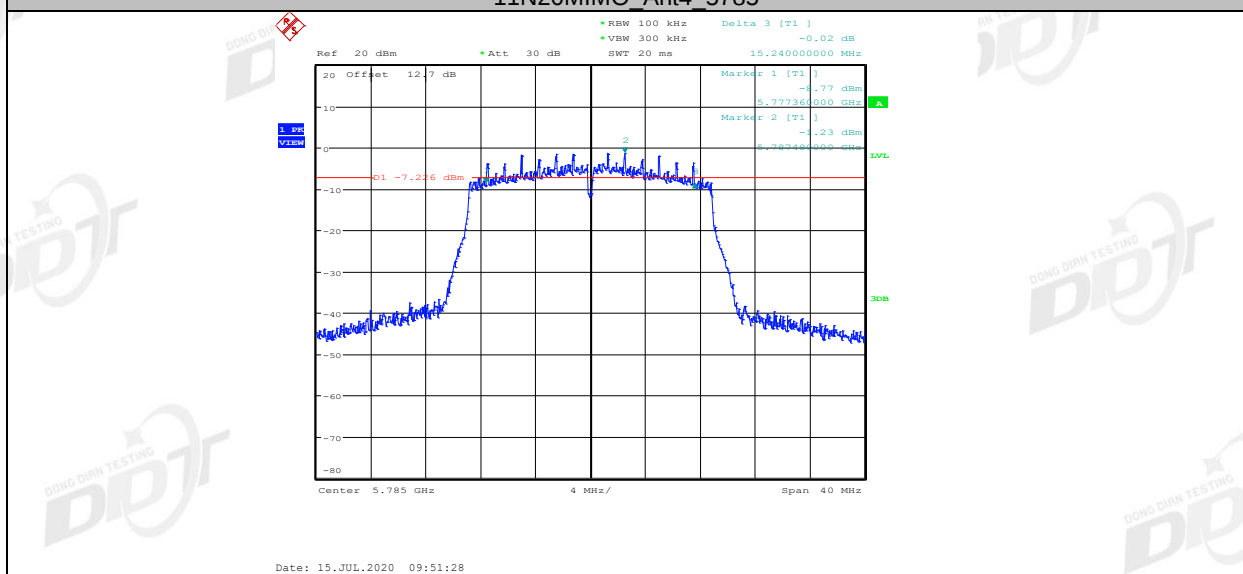
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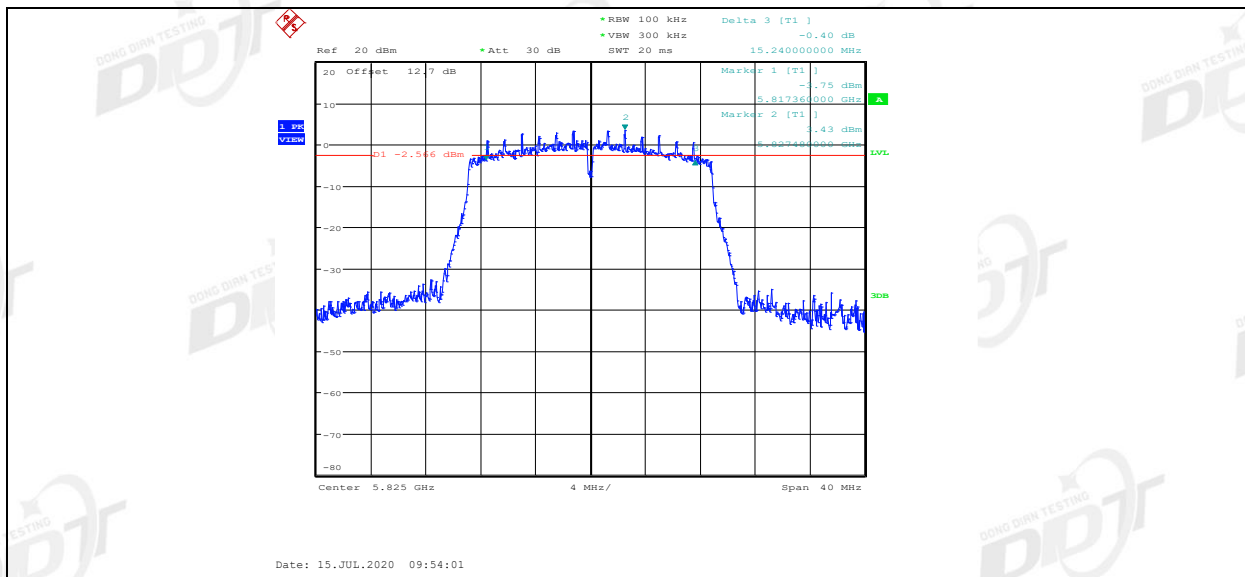
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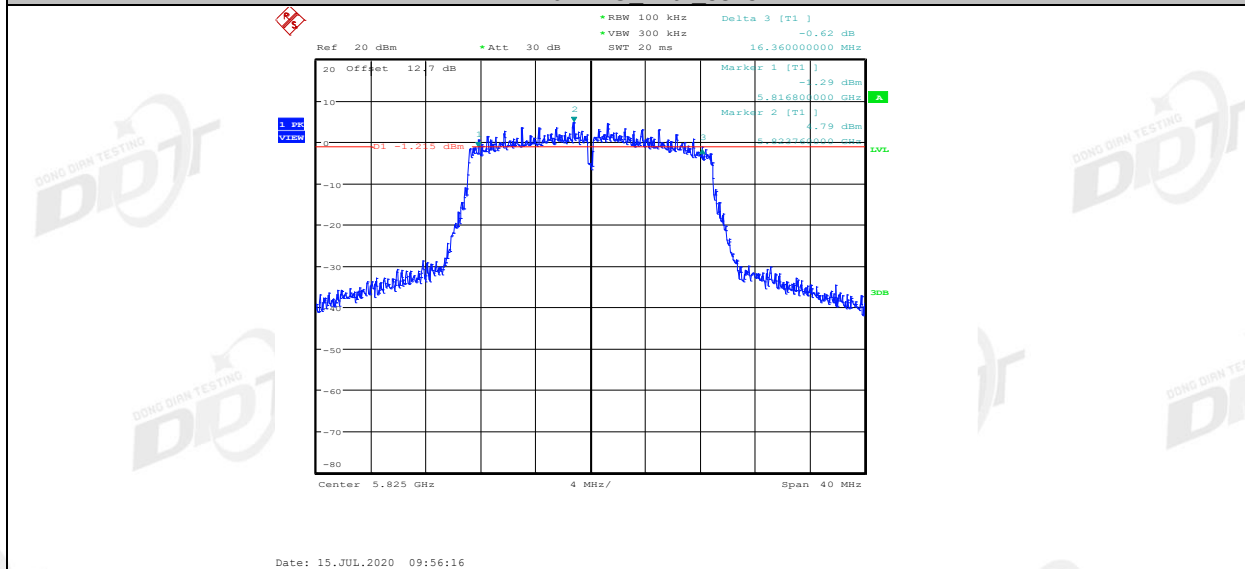
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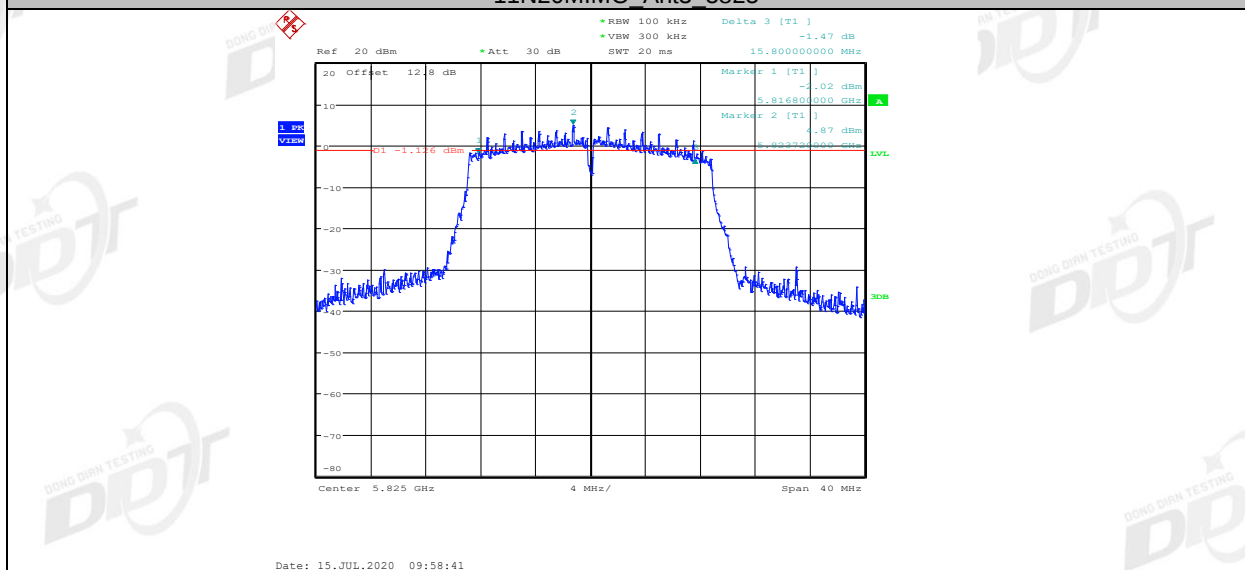
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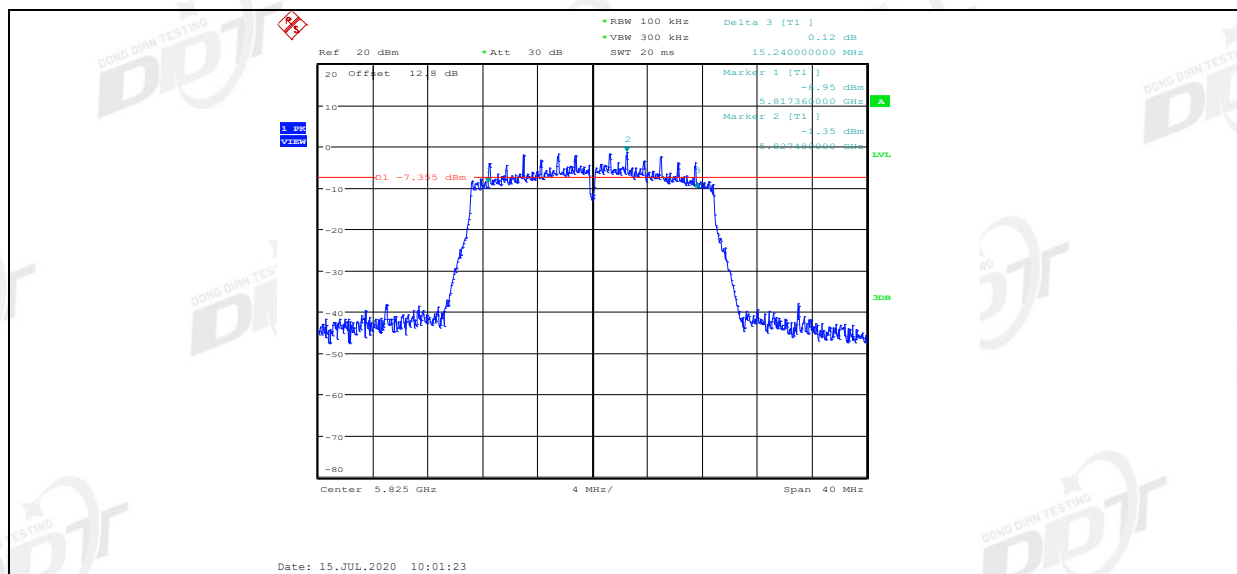
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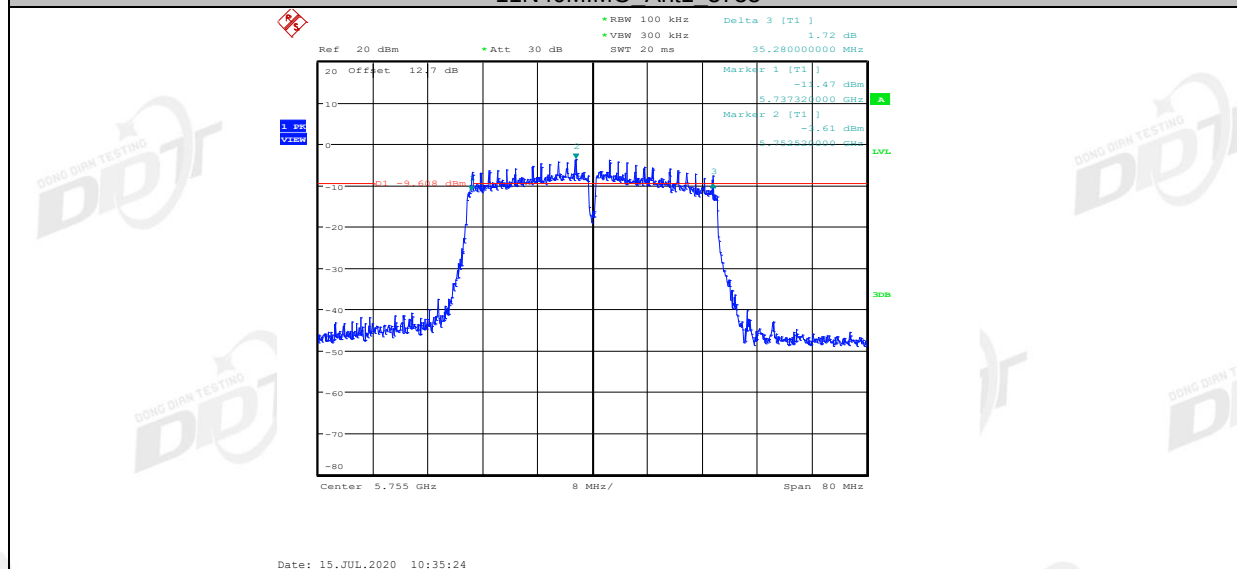
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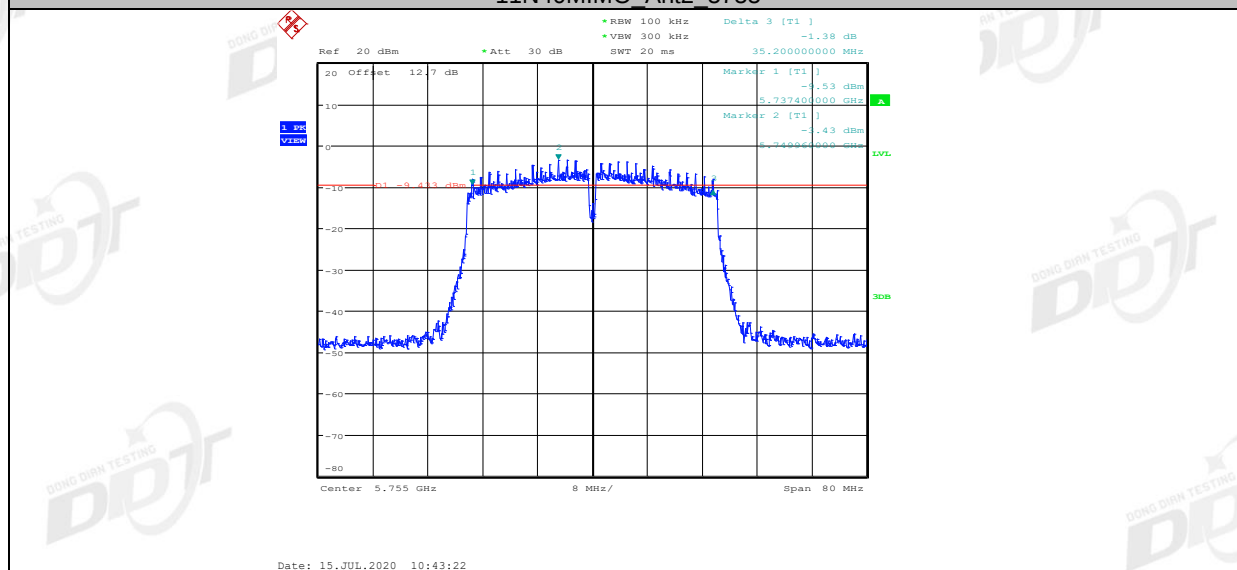
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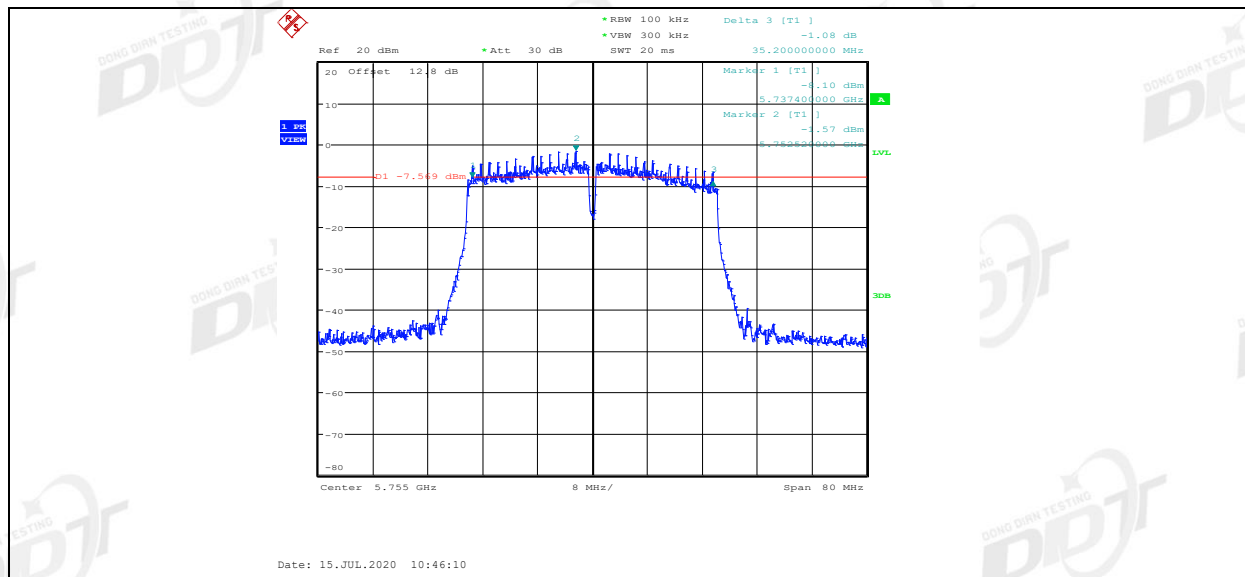
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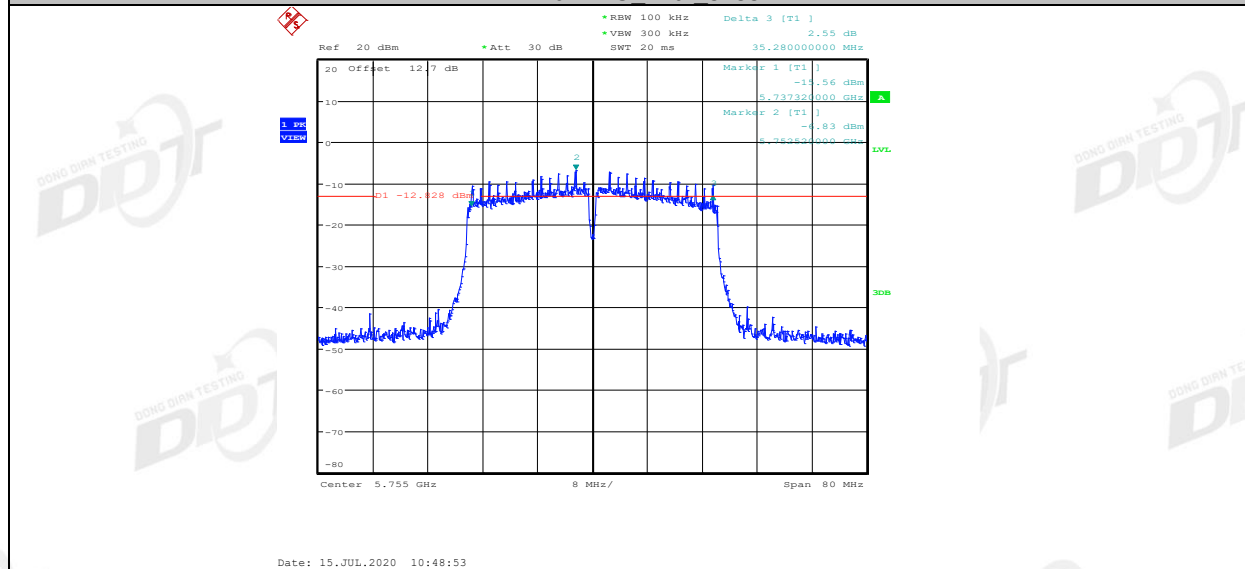
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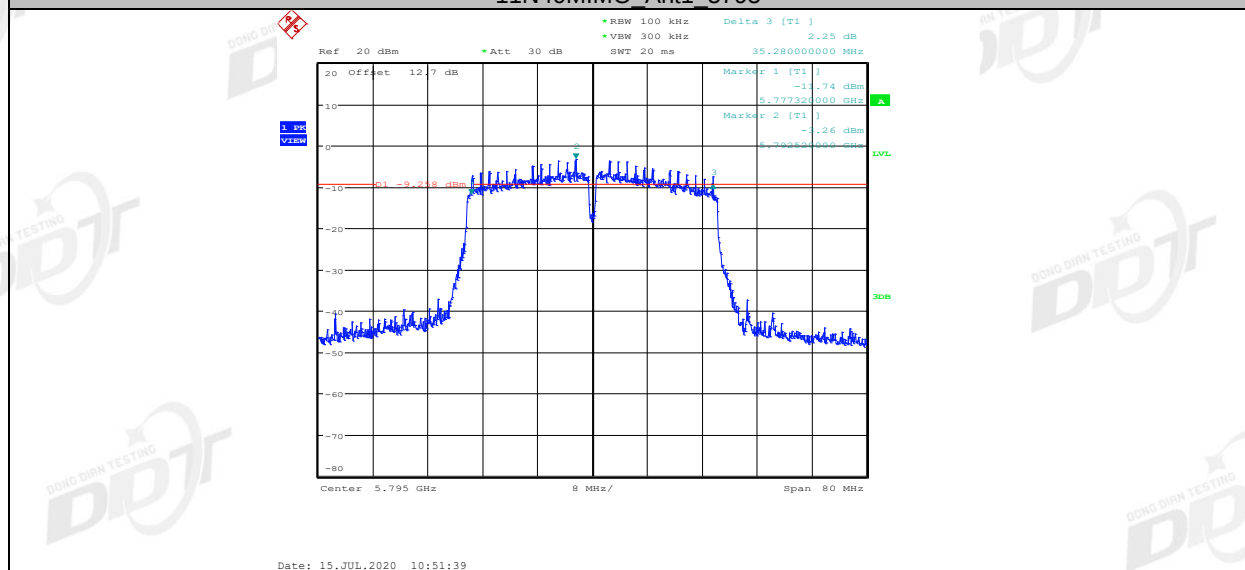
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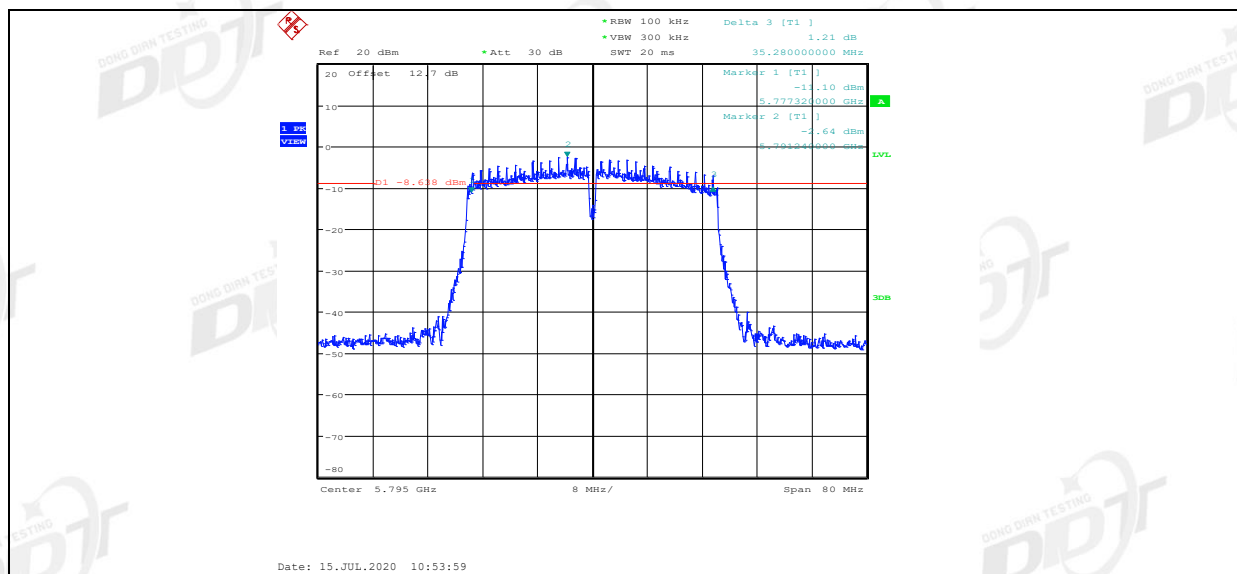
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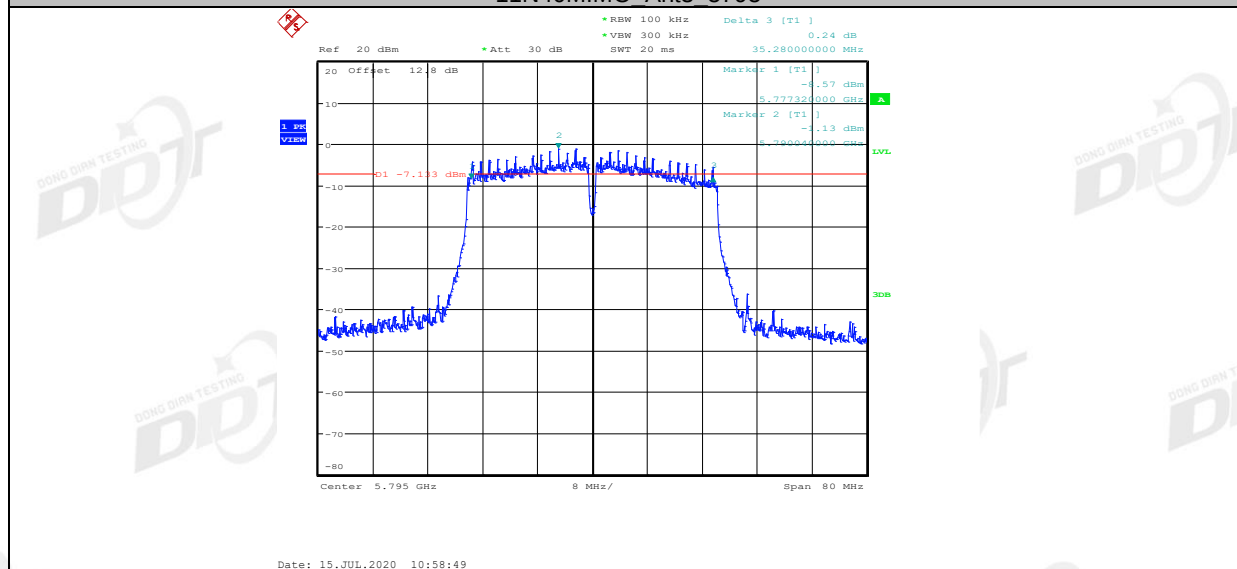
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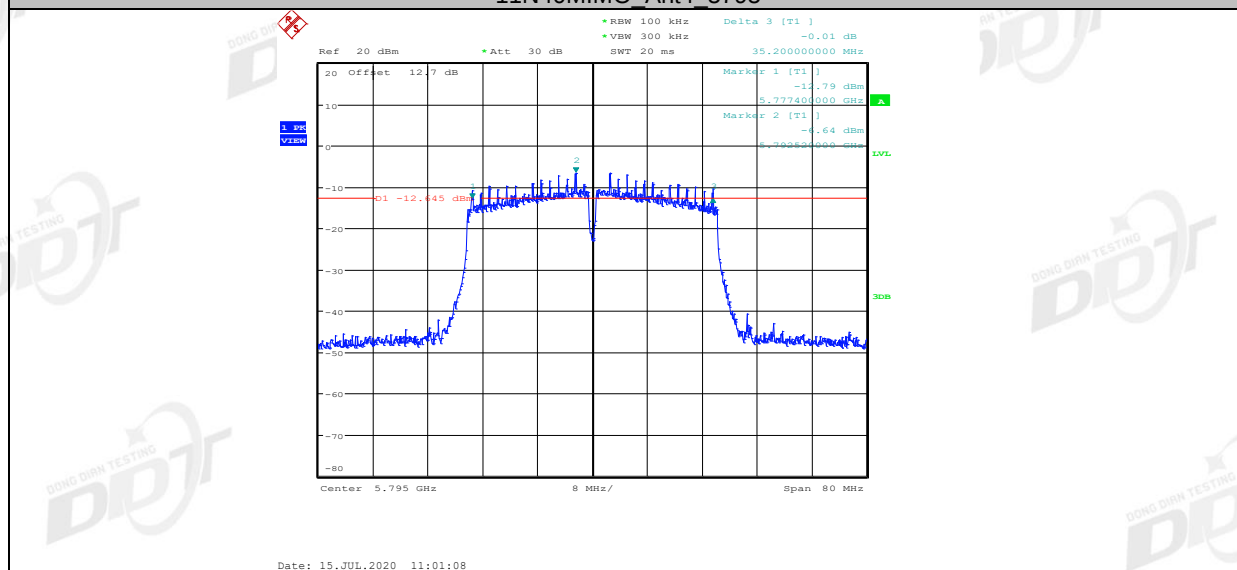
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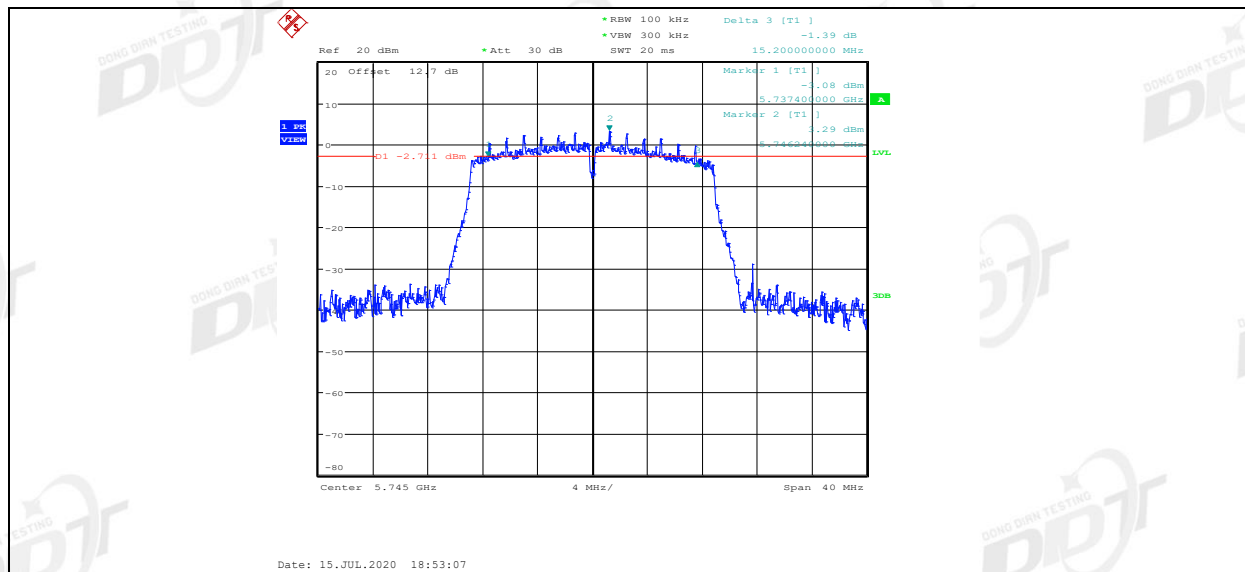
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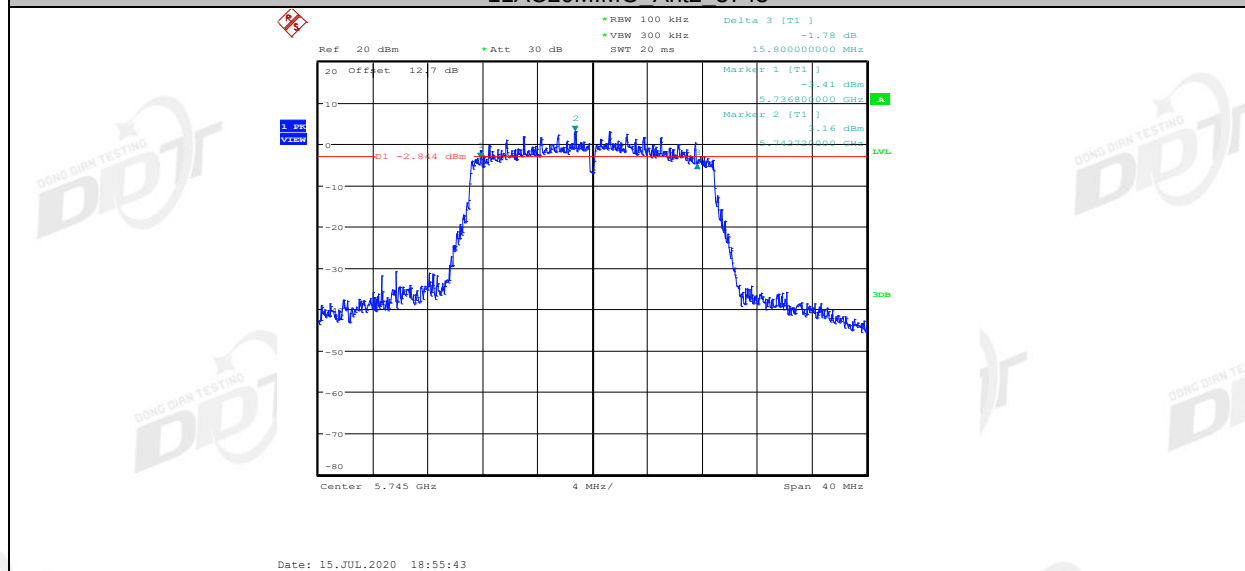
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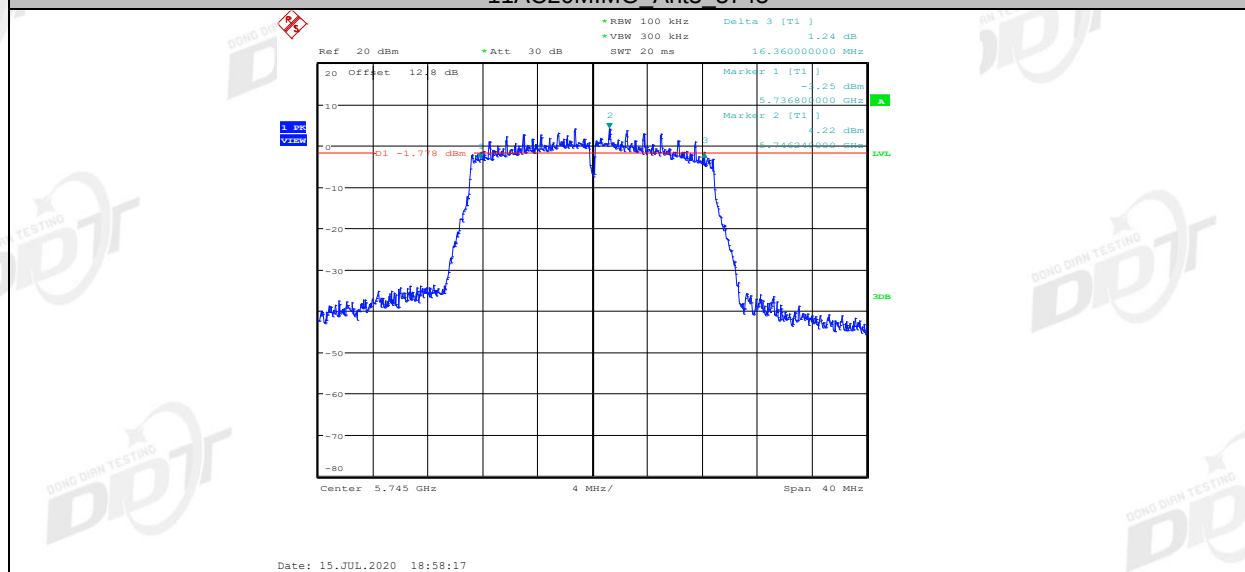
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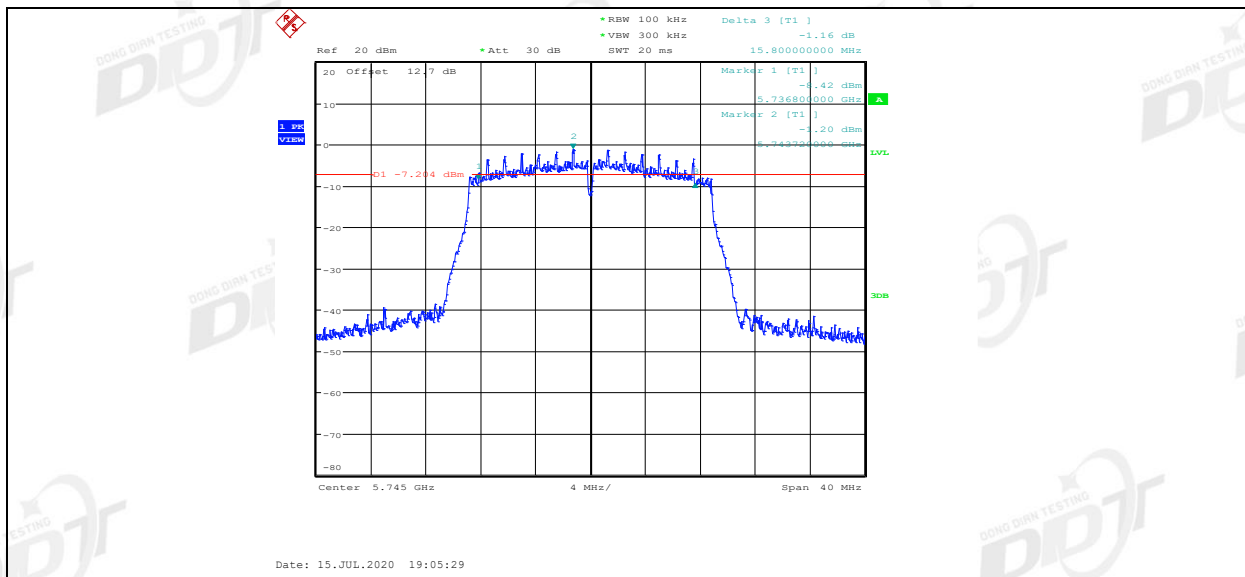
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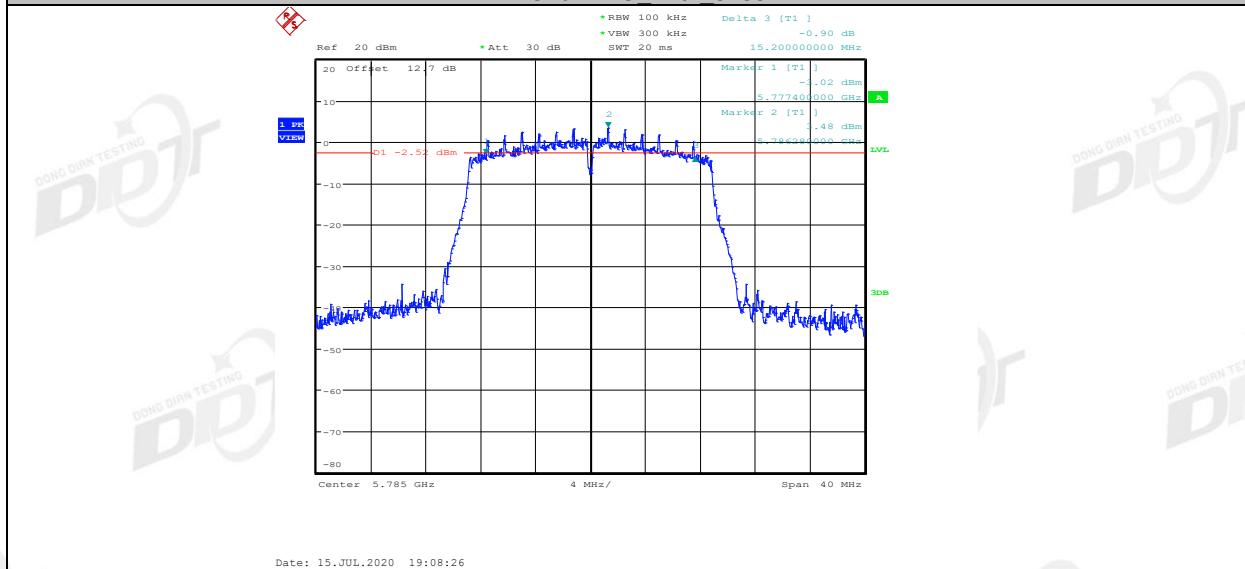
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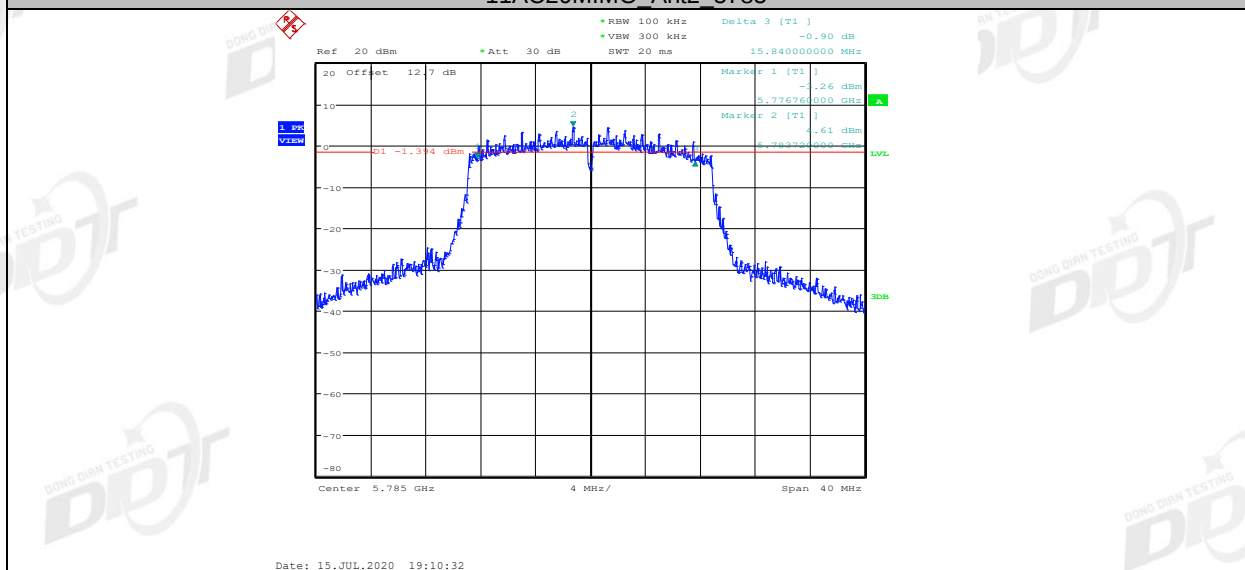
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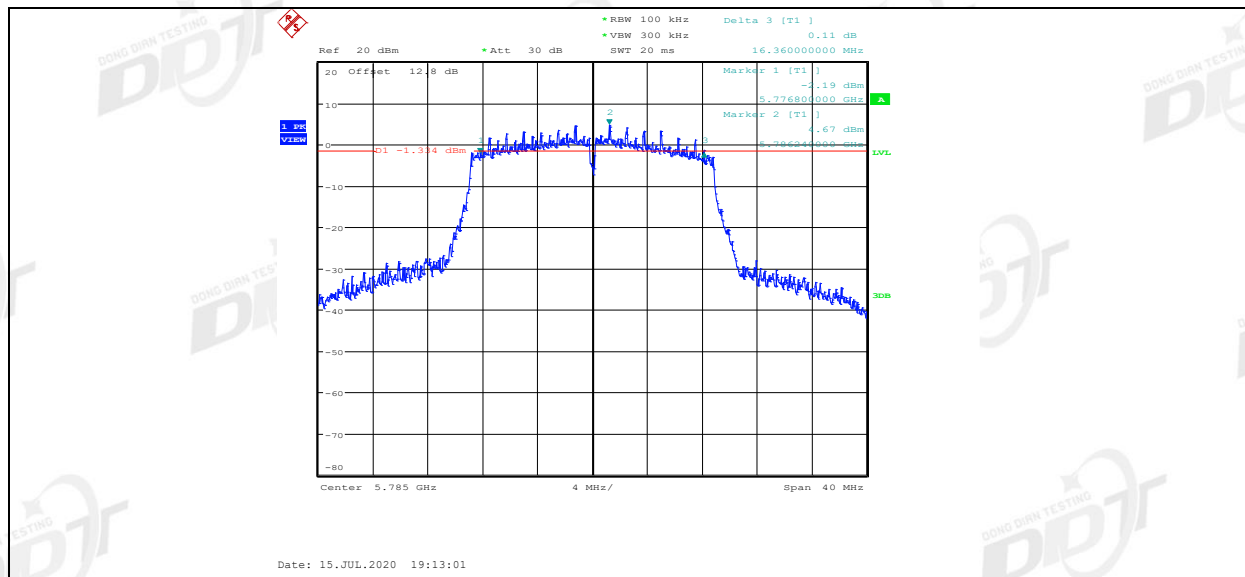
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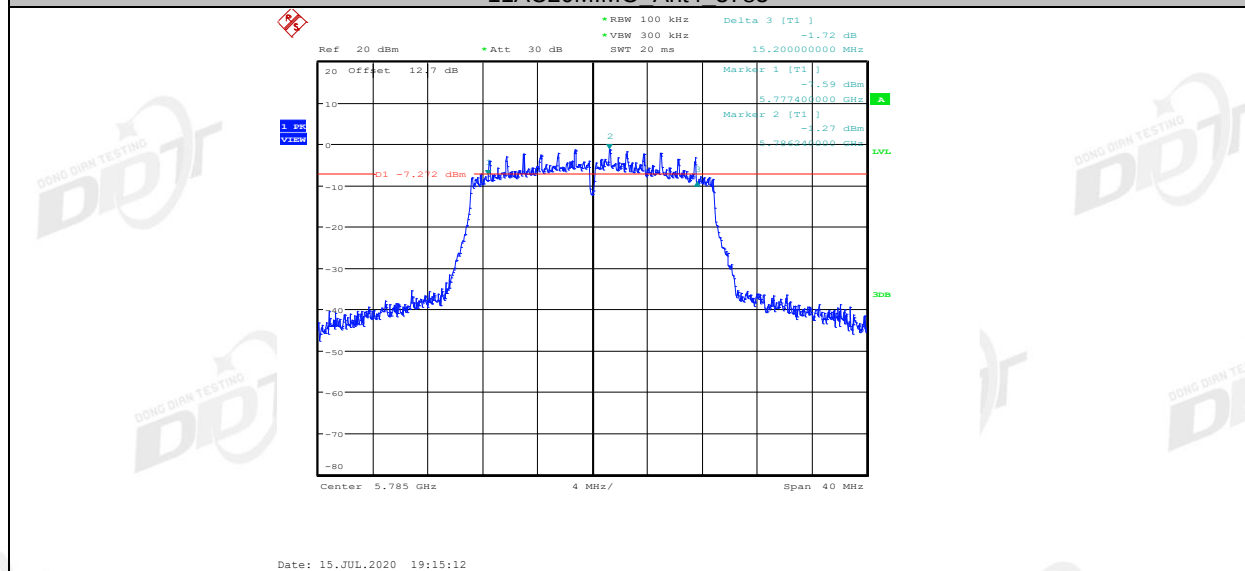
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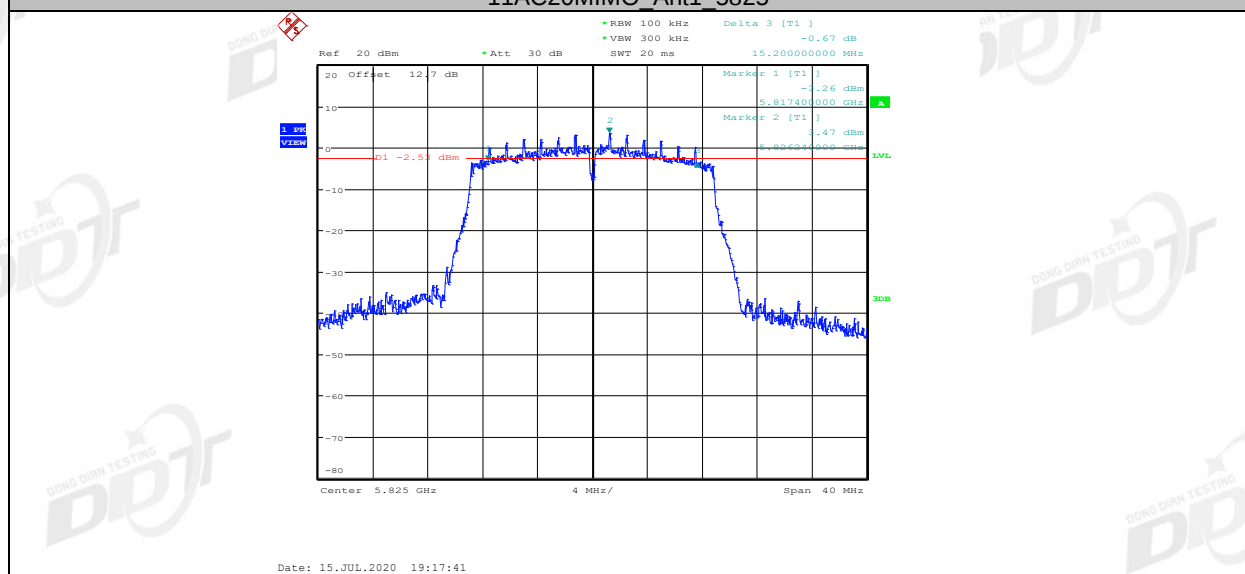
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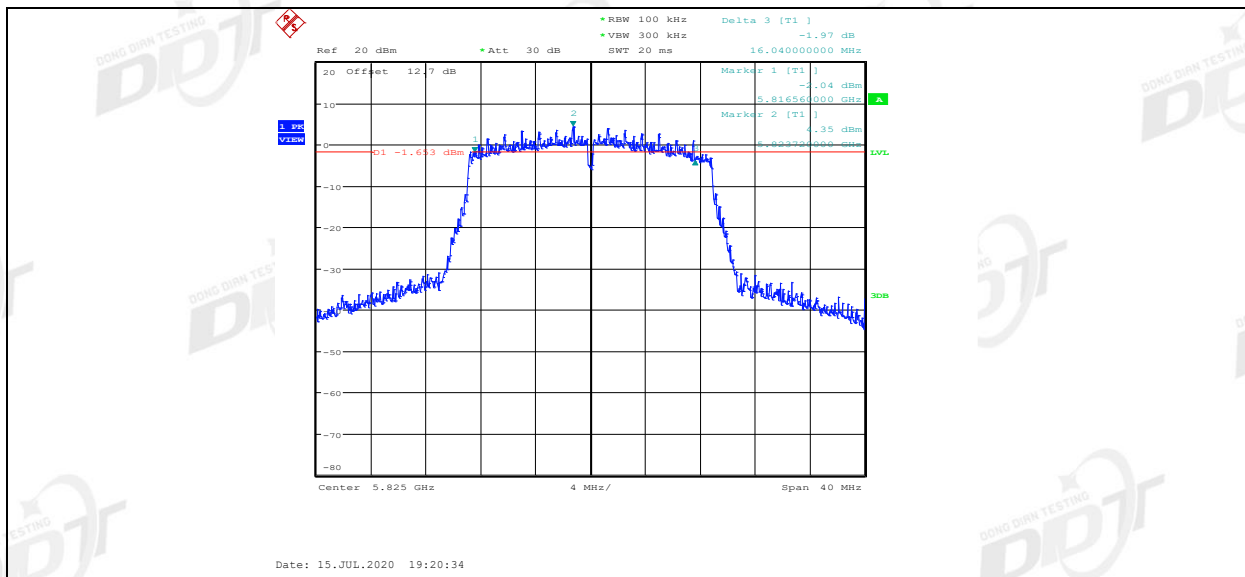
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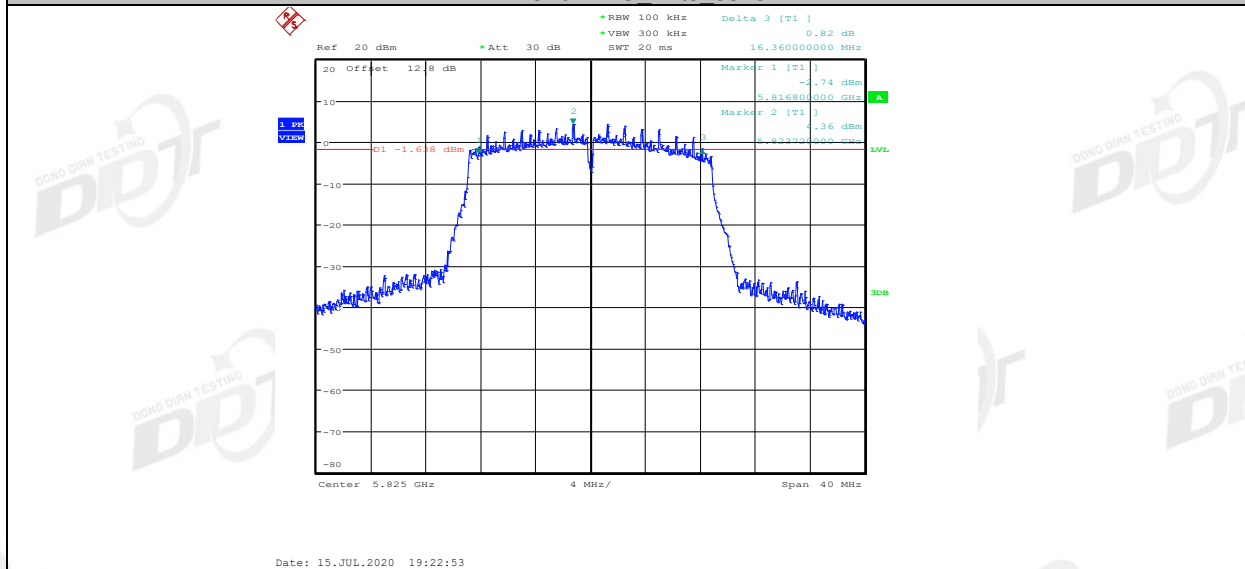
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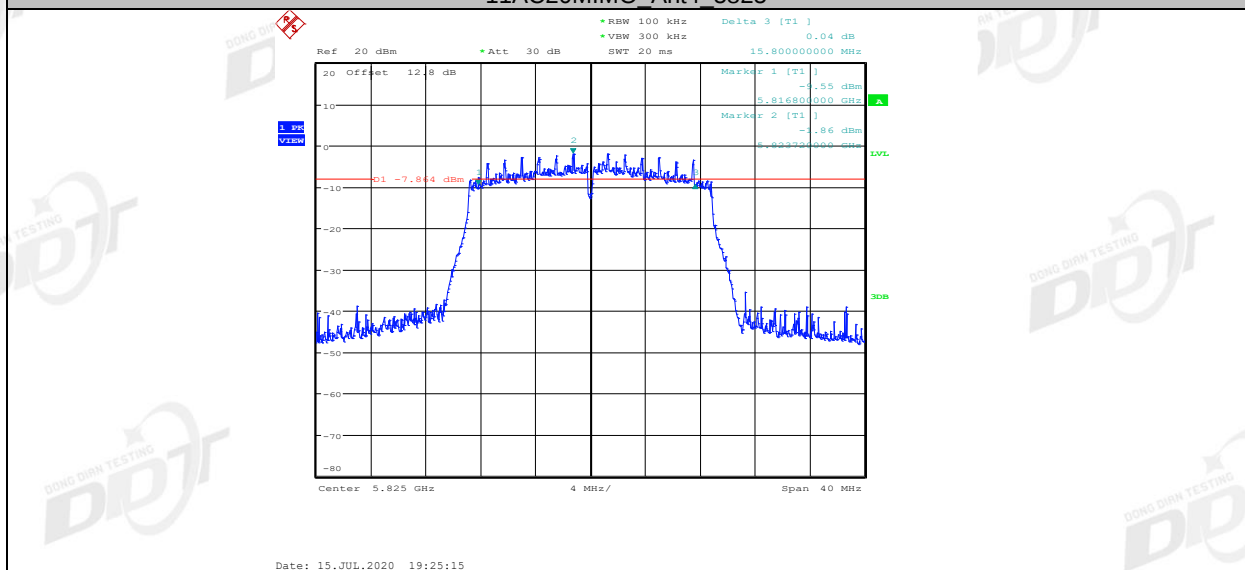
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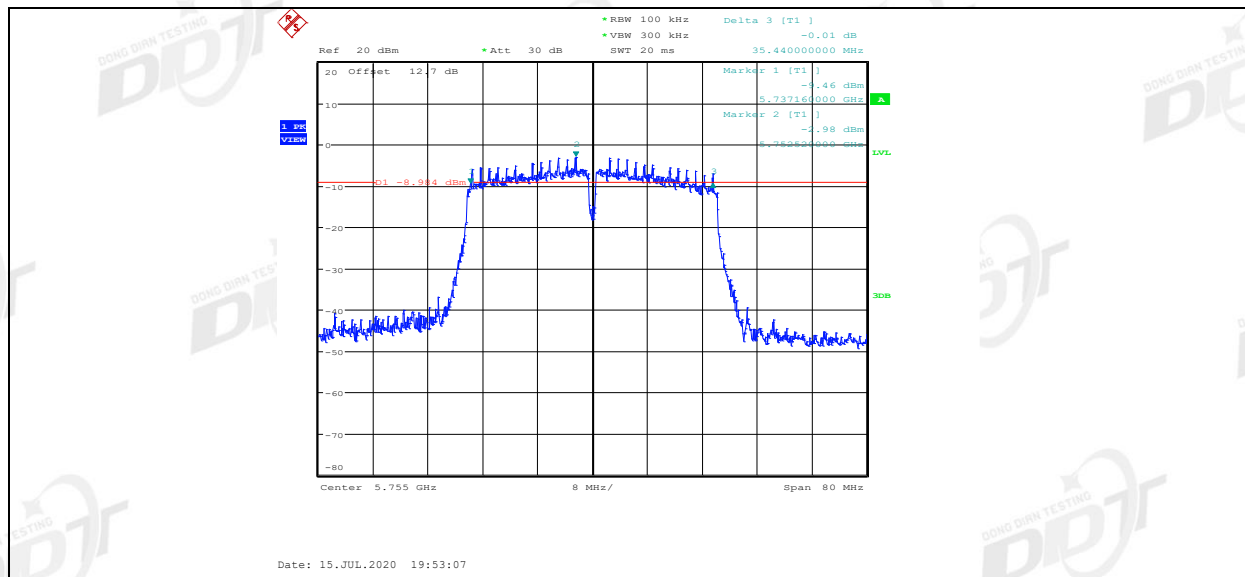
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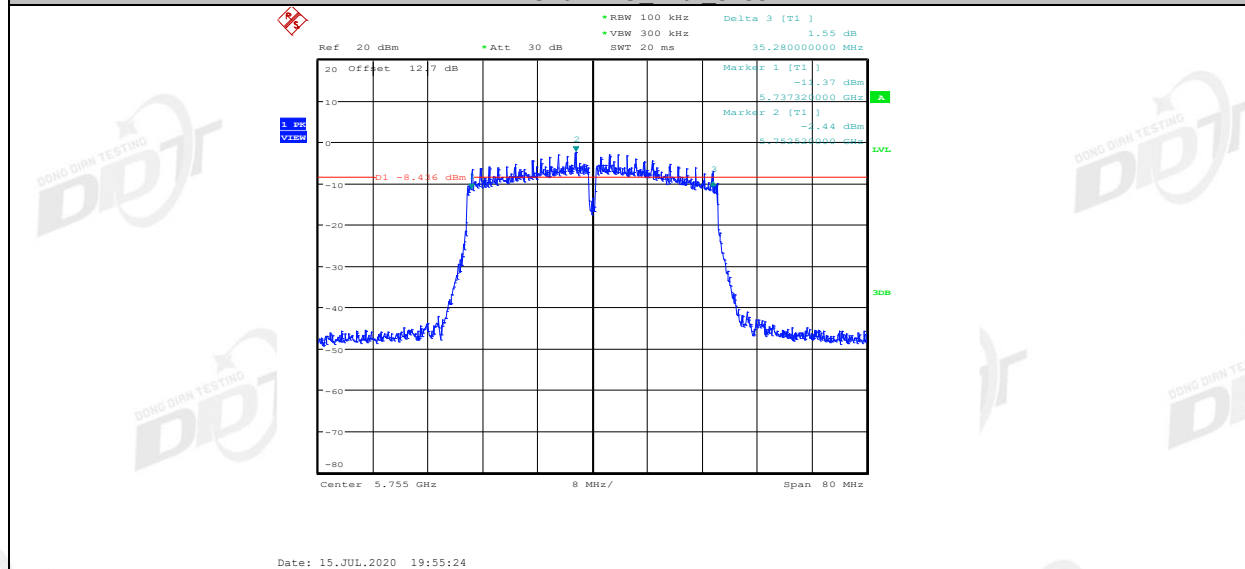
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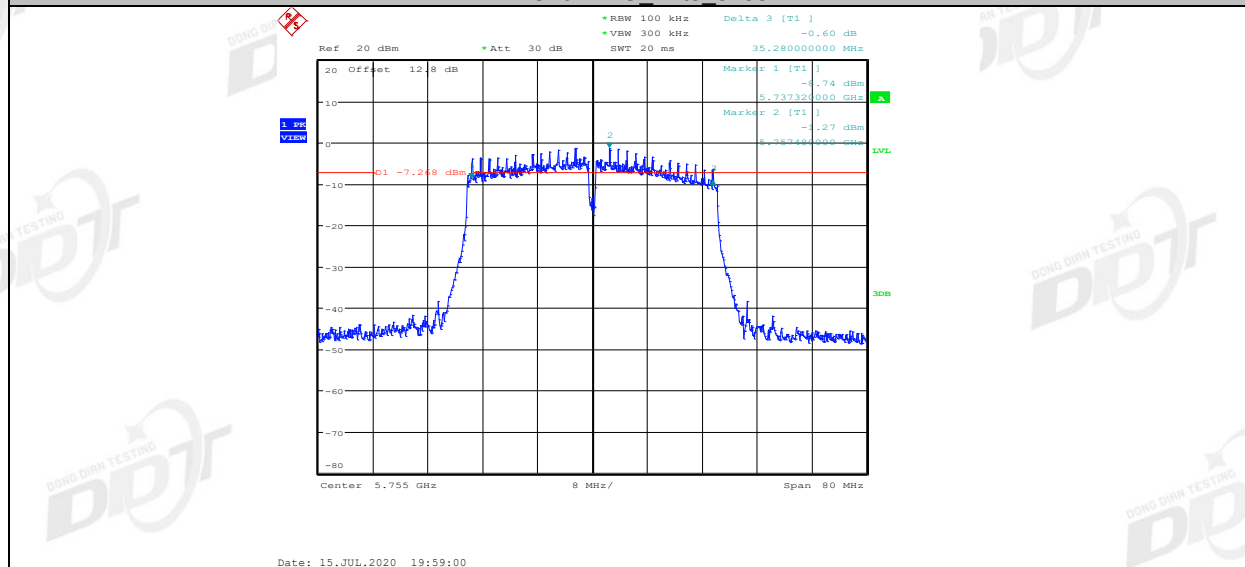
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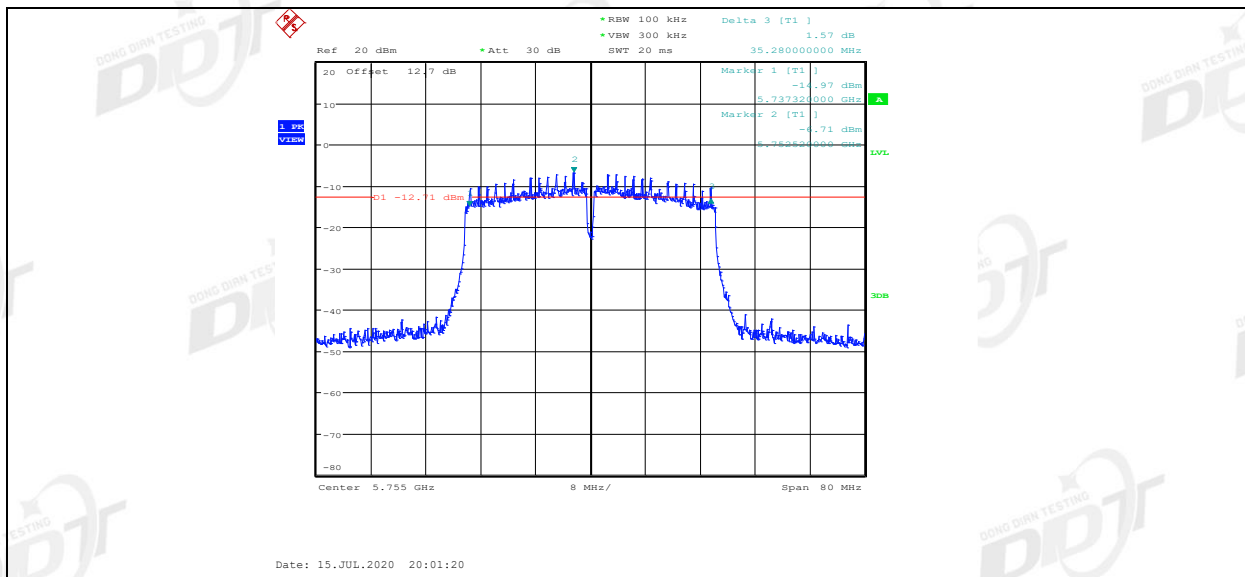
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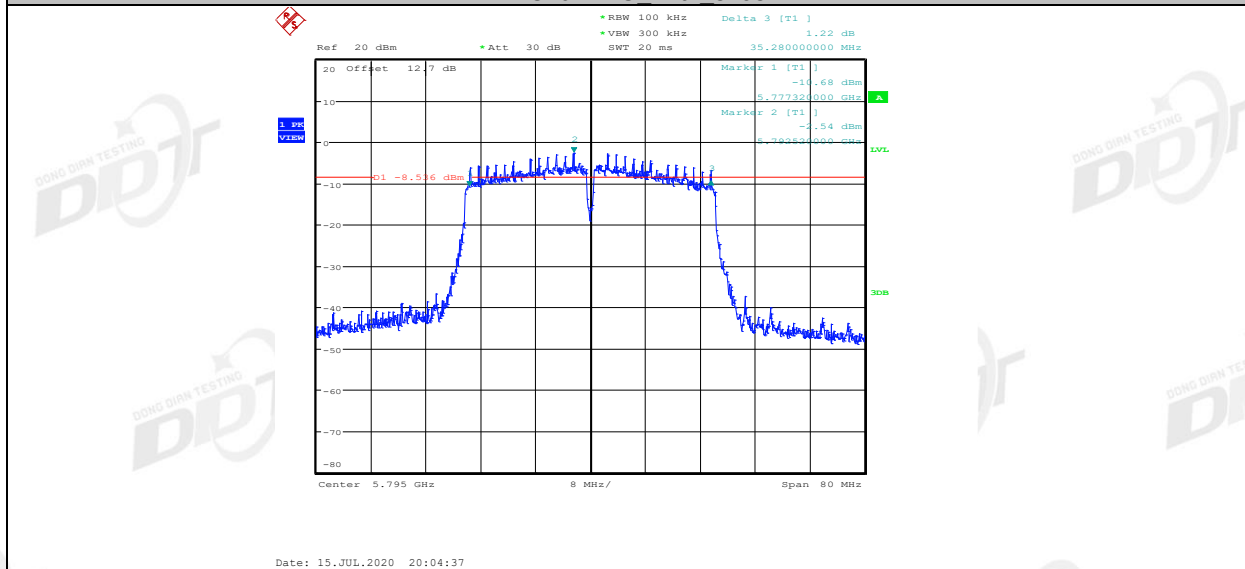
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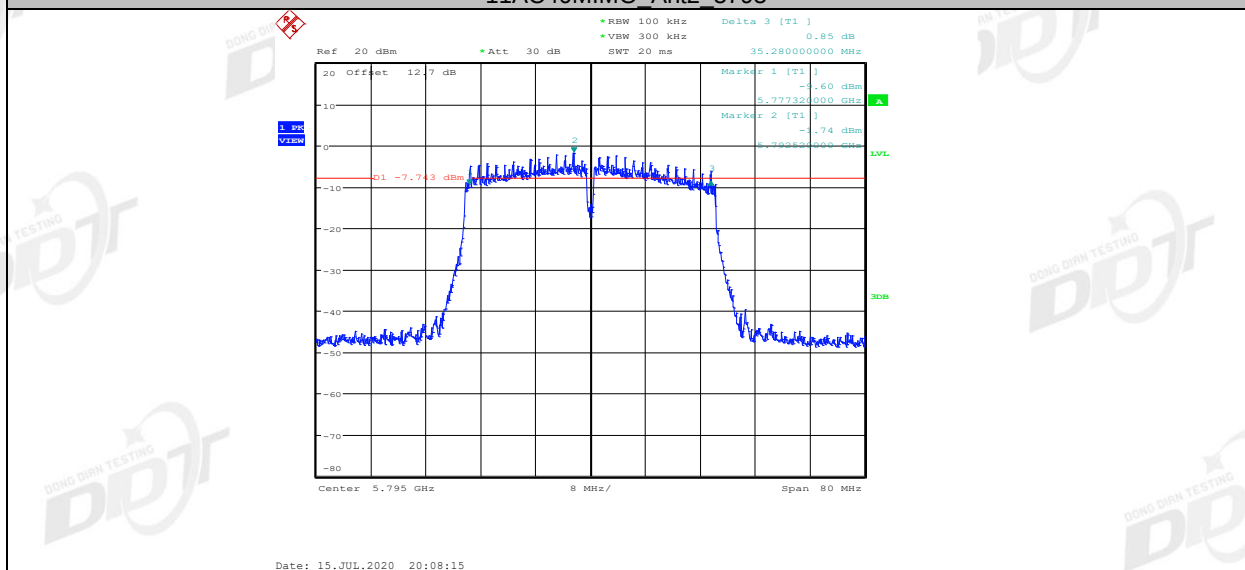
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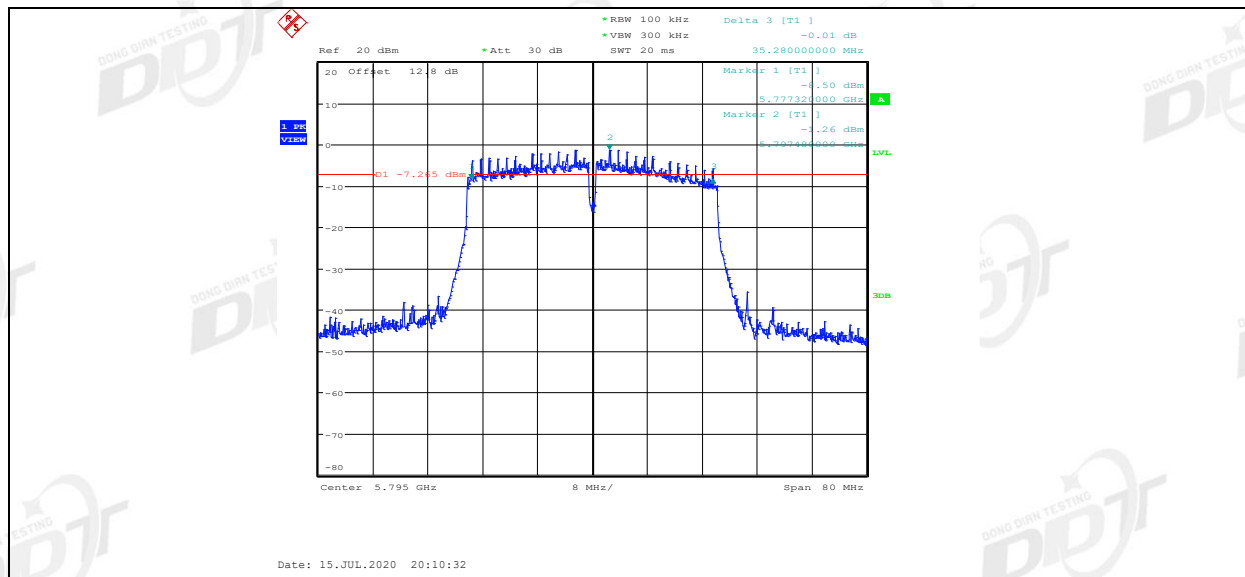
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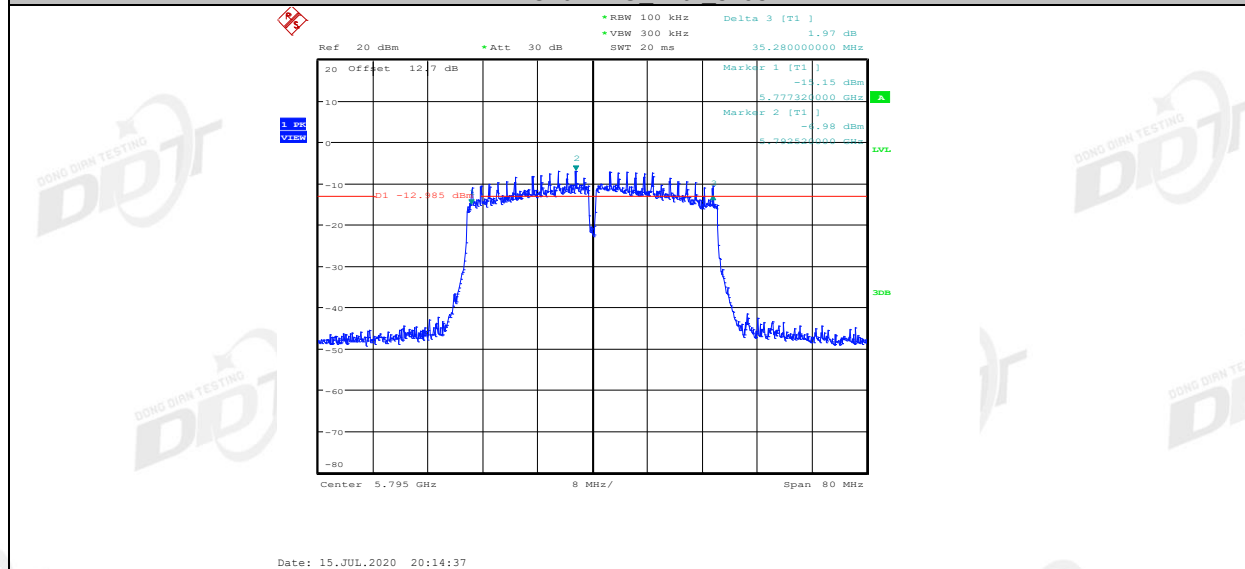
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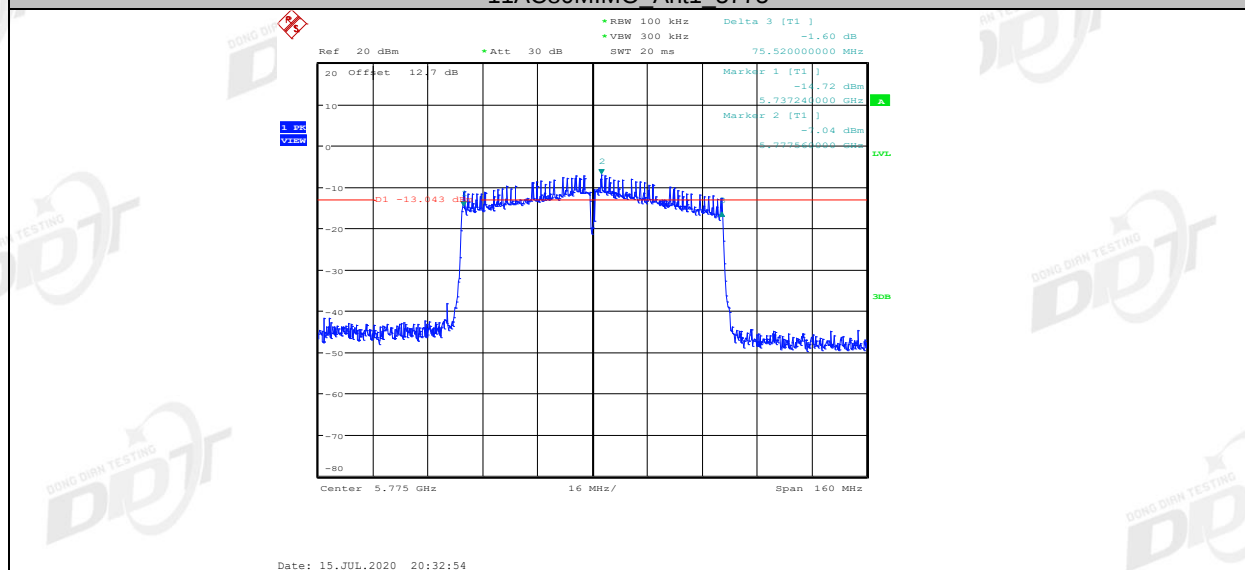
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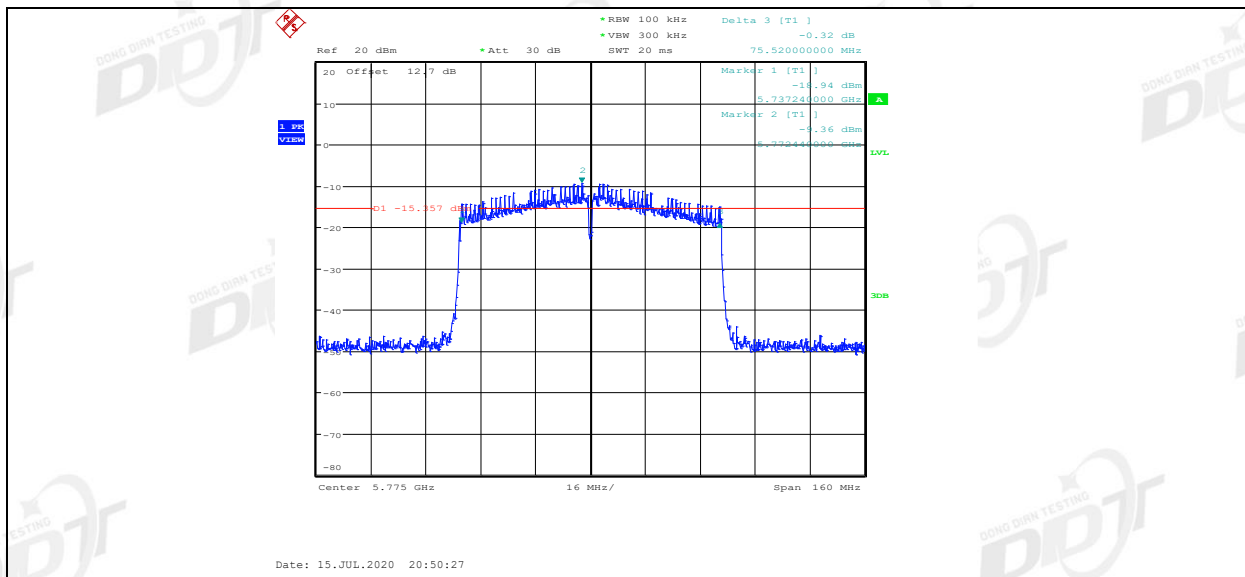
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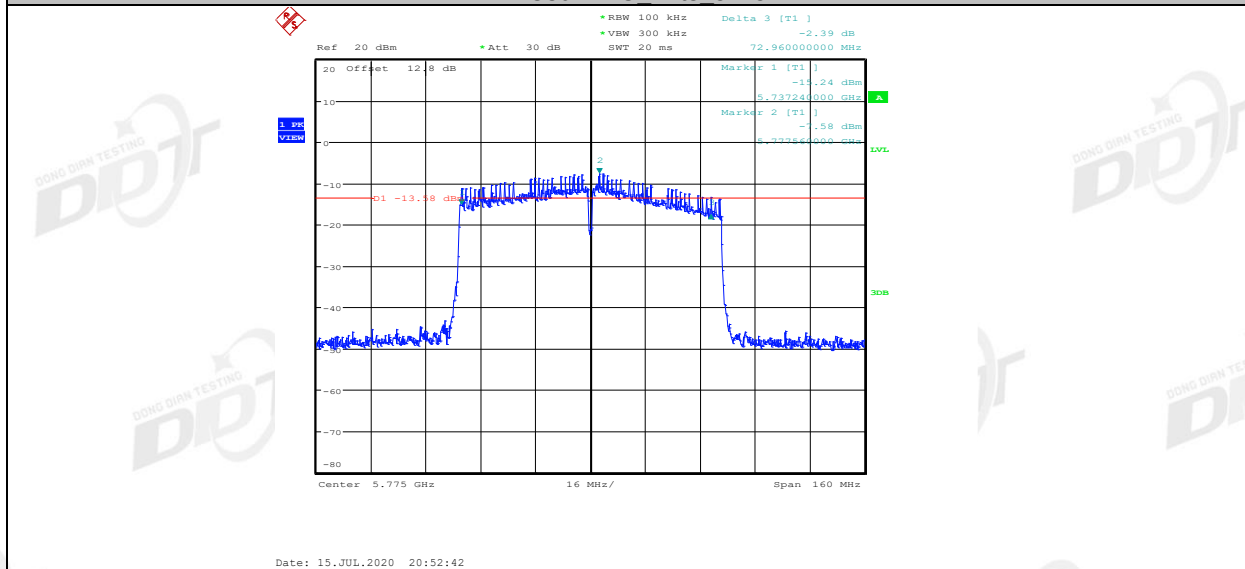
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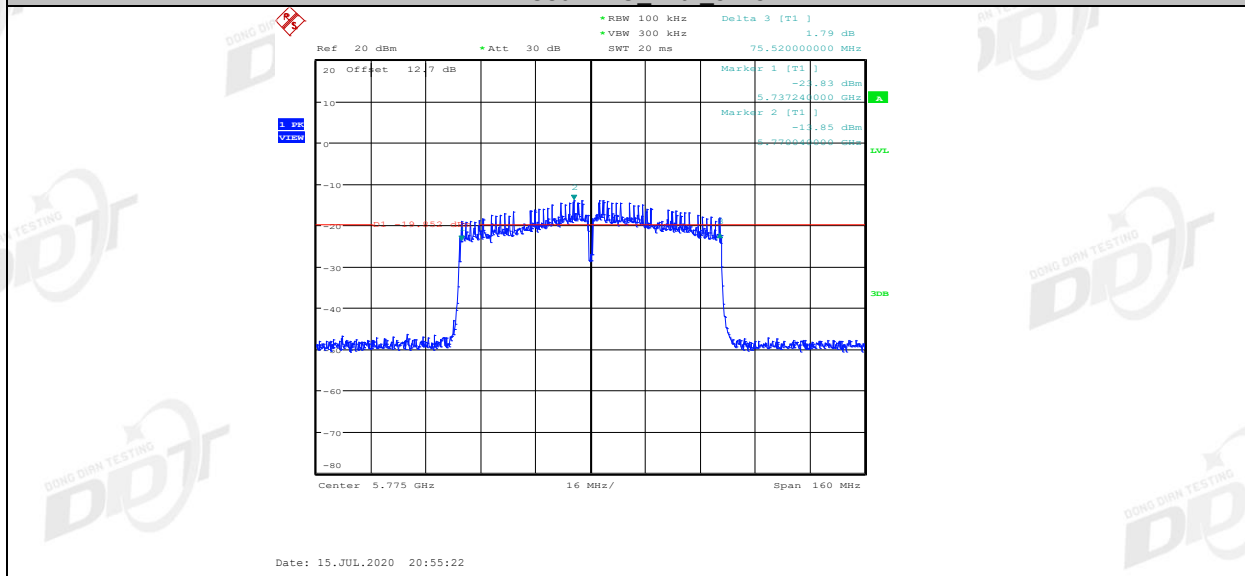
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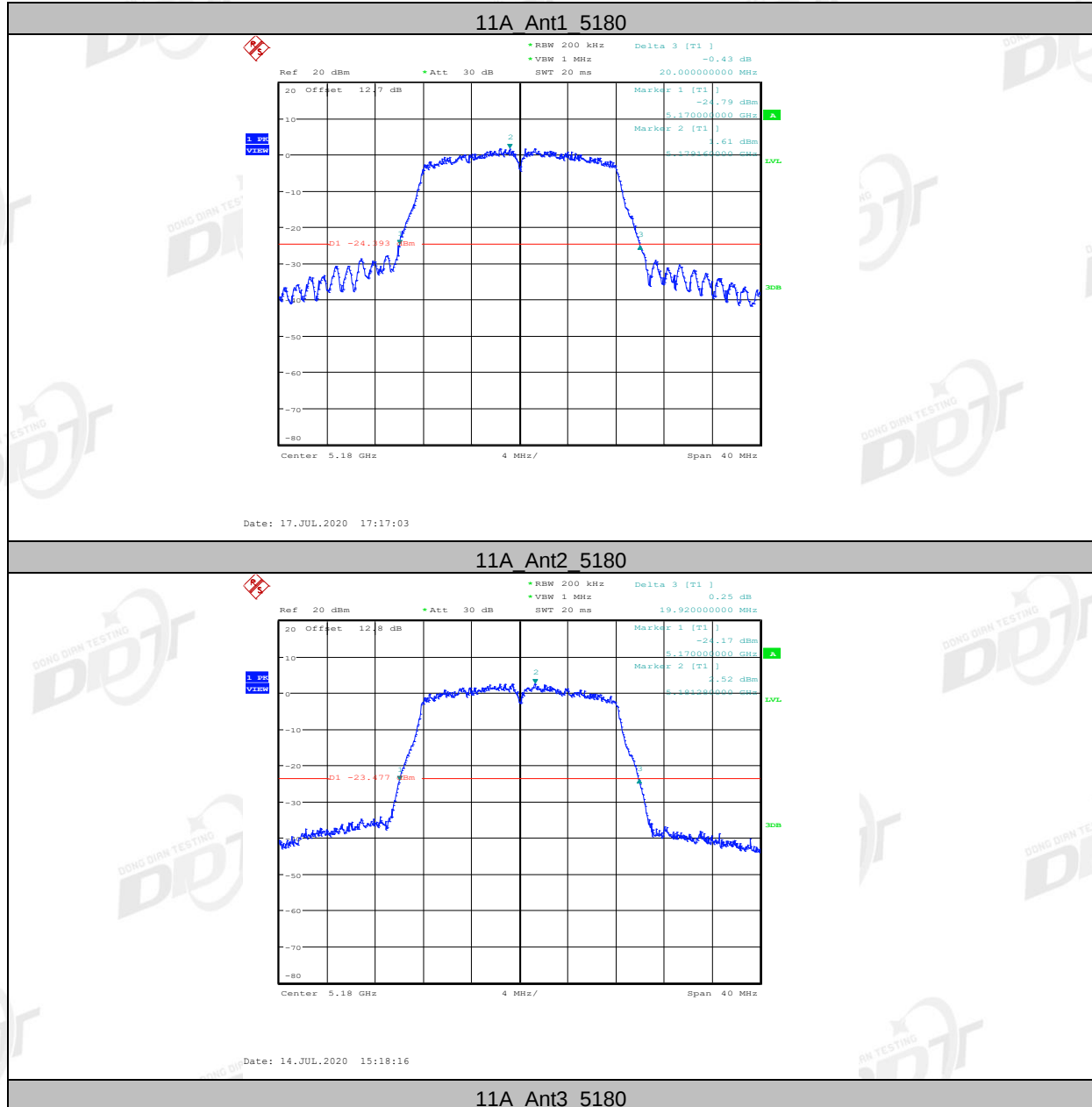
11AC80MIMO Ant3 5775

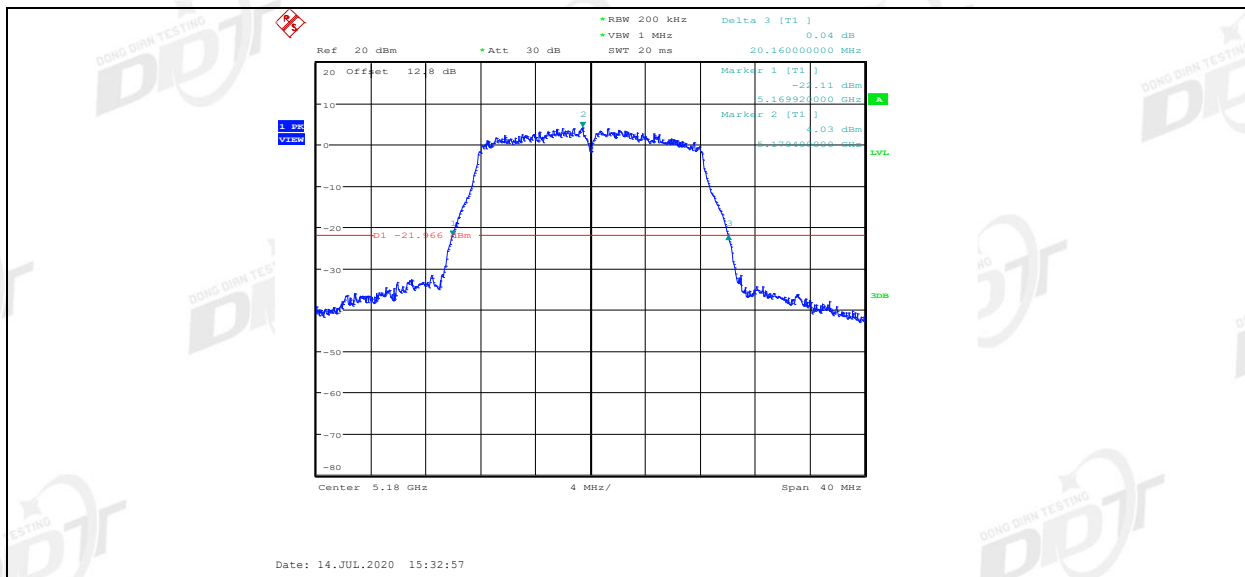


11AC80MIMO Ant4 5775

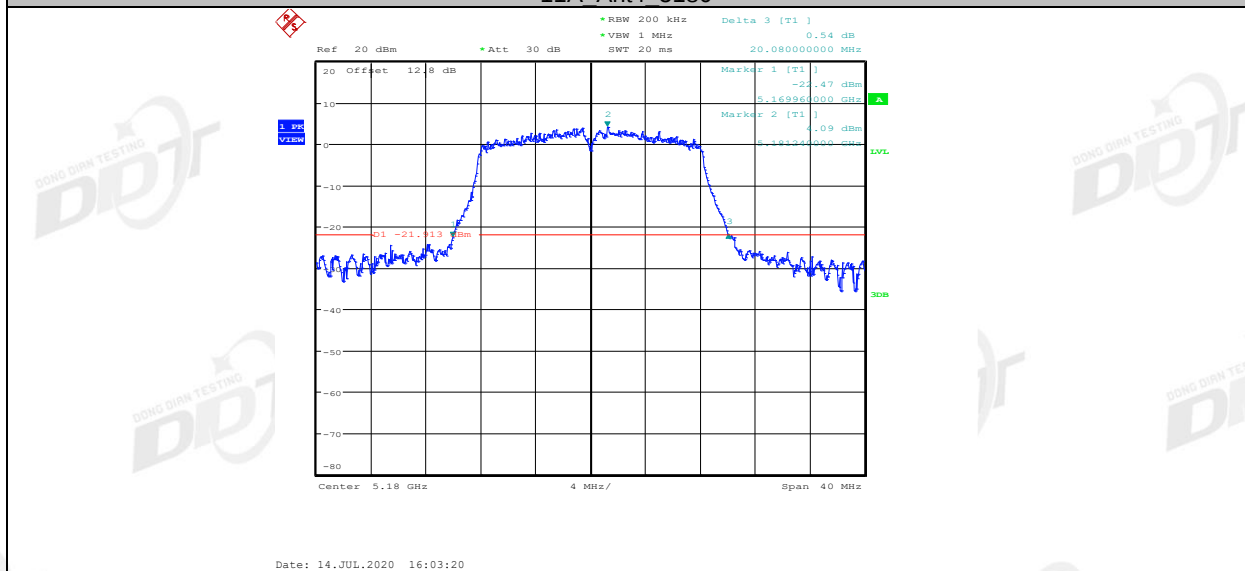


26 dB EBW:

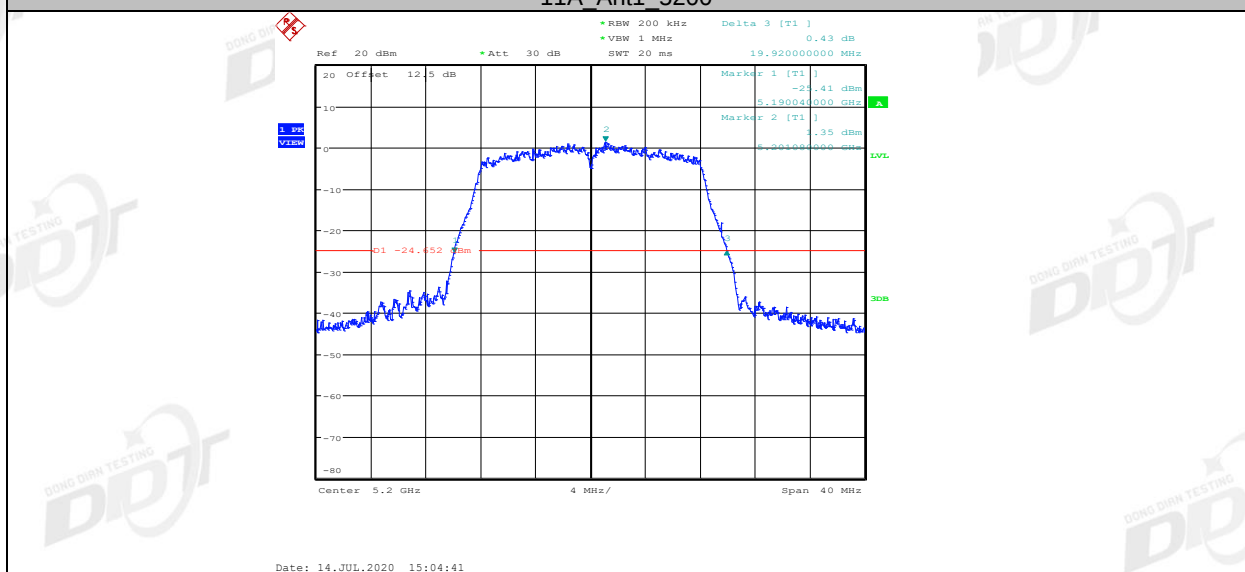




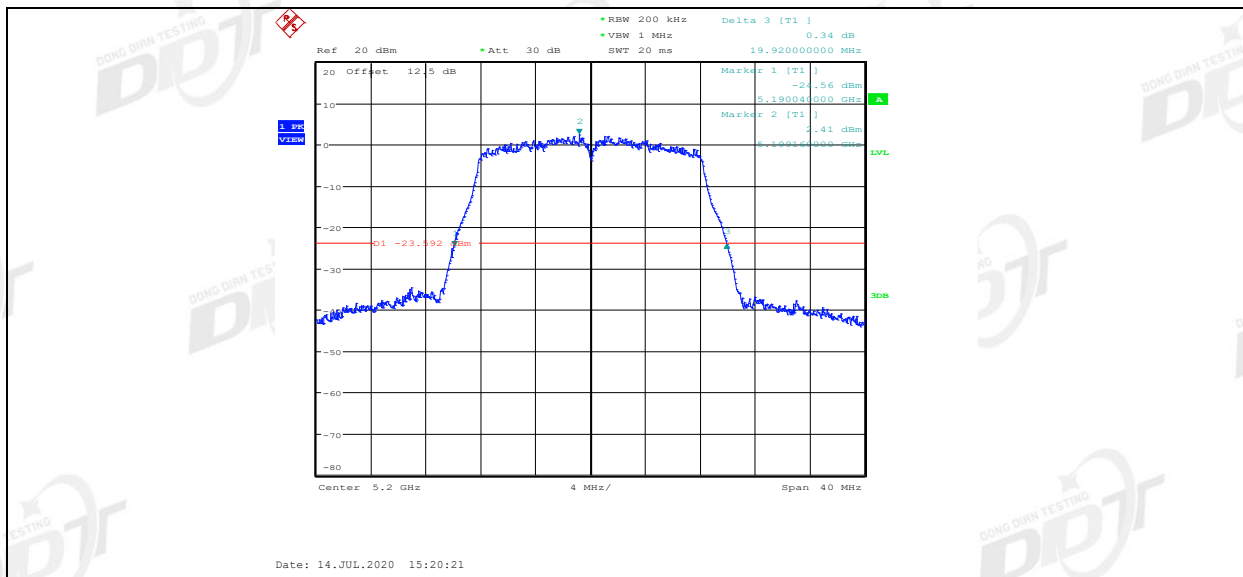
11A Ant4 5180



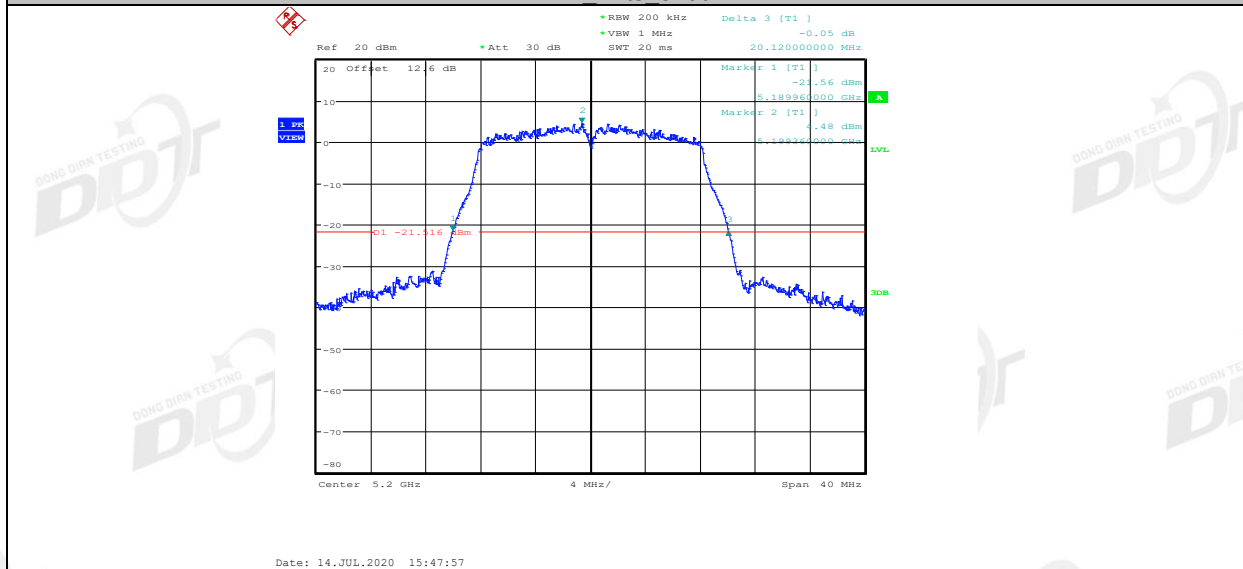
11A Ant1 5200



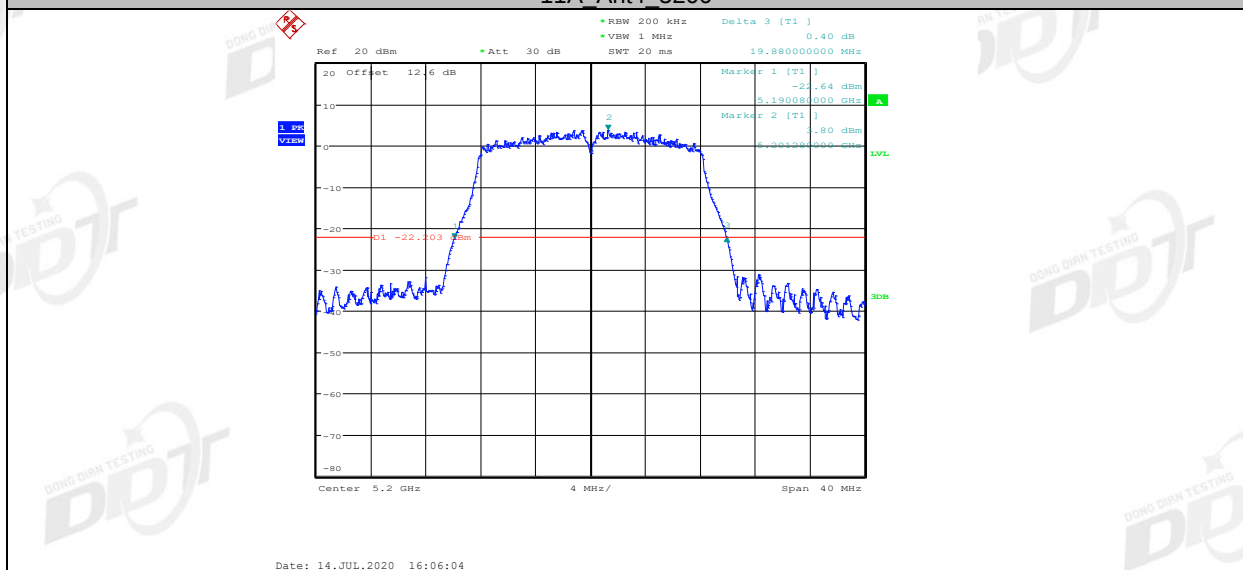
11A Ant2 5200



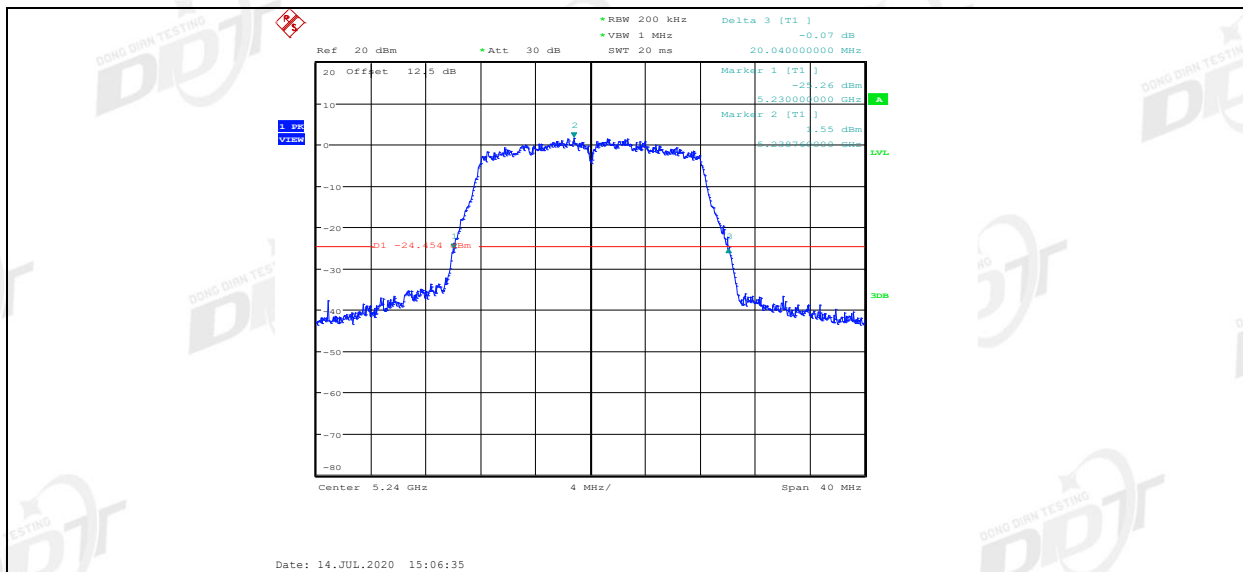
11A Ant3 5200



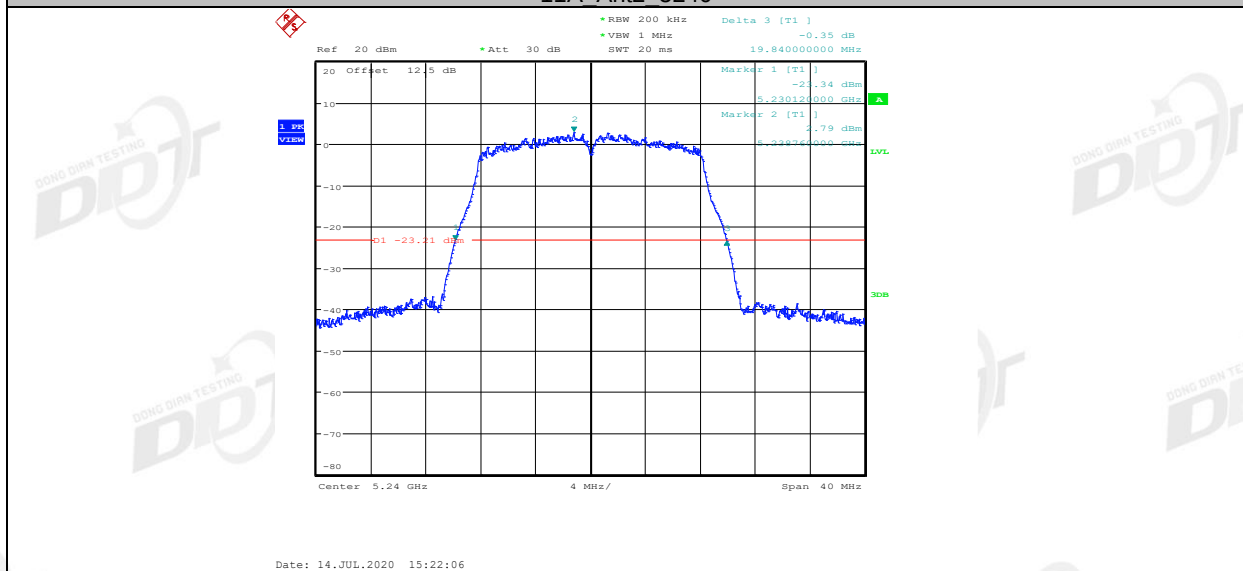
11A Ant4 5200



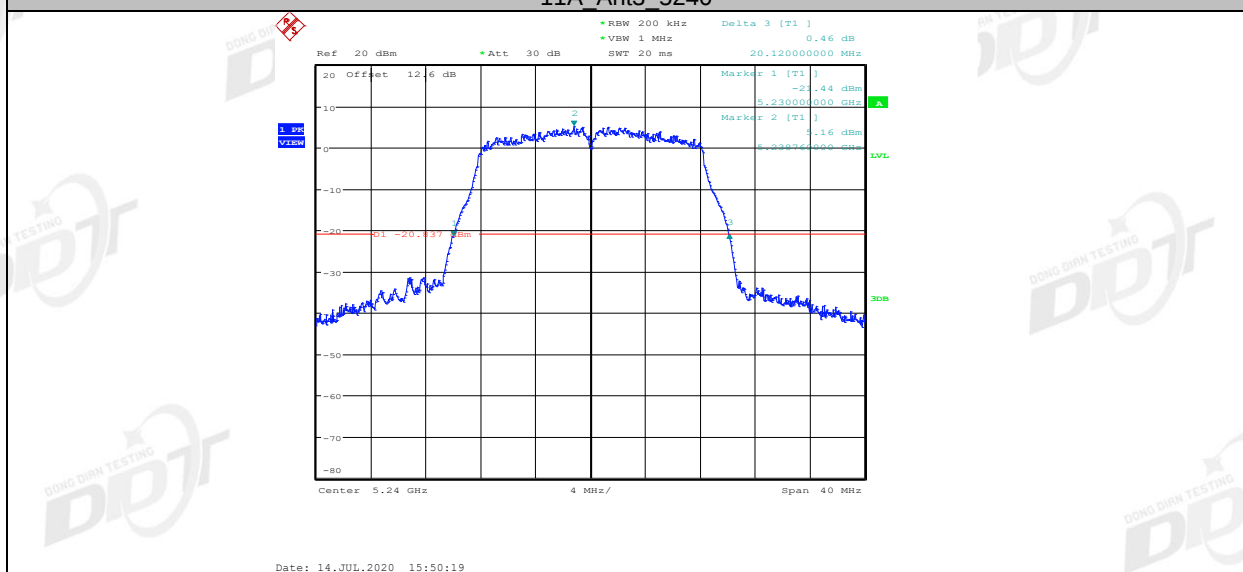
11A Ant1 5240



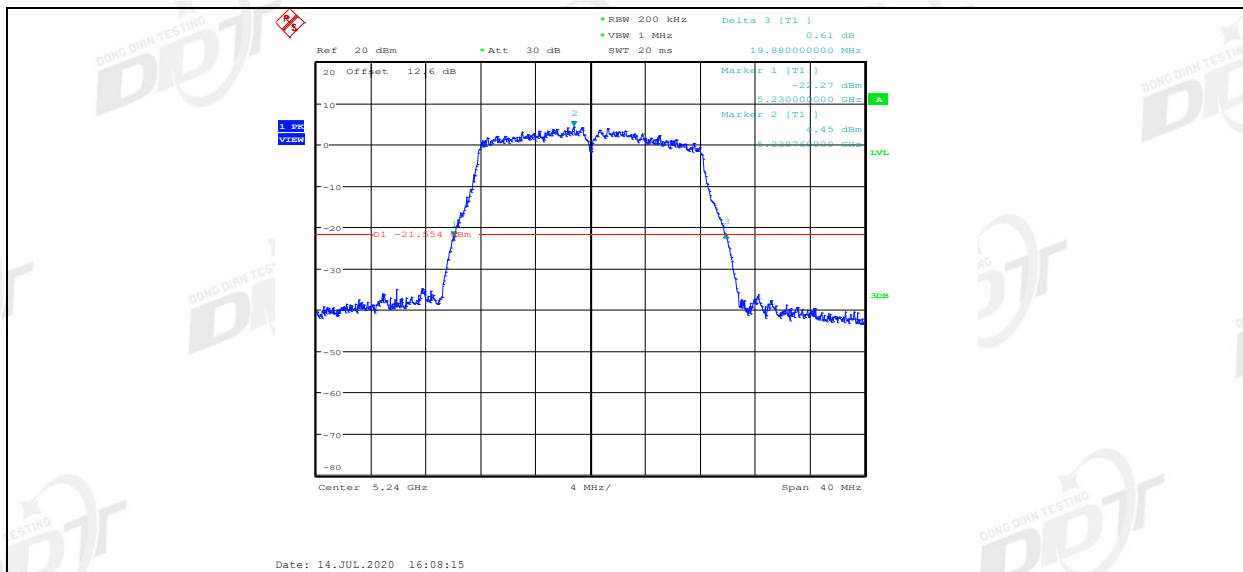
11A Ant2 5240



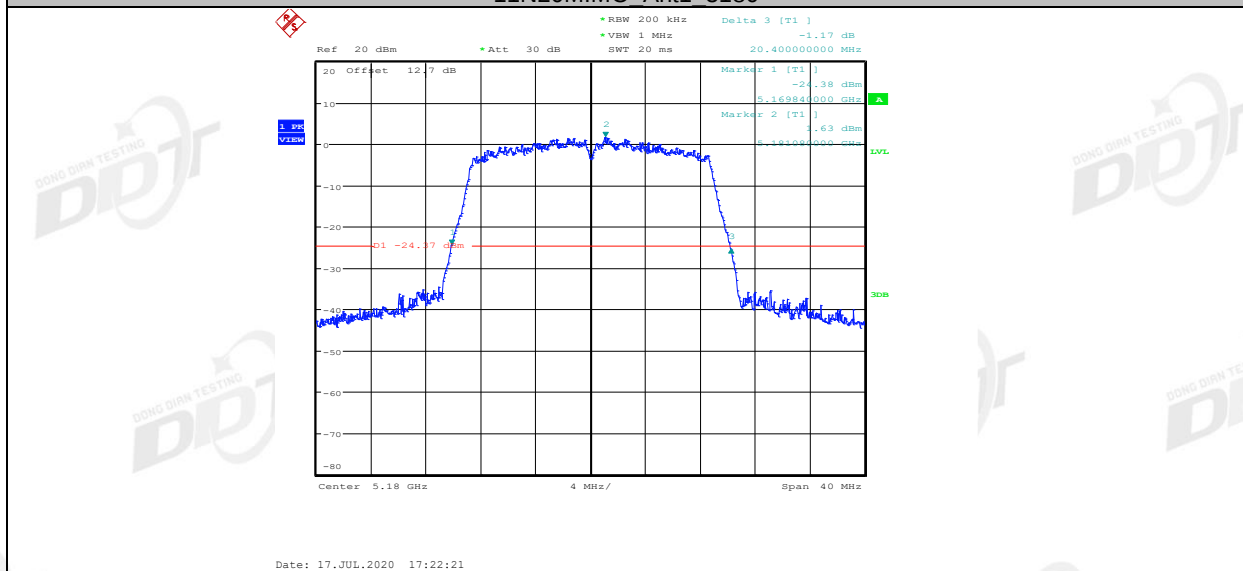
11A Ant3 5240



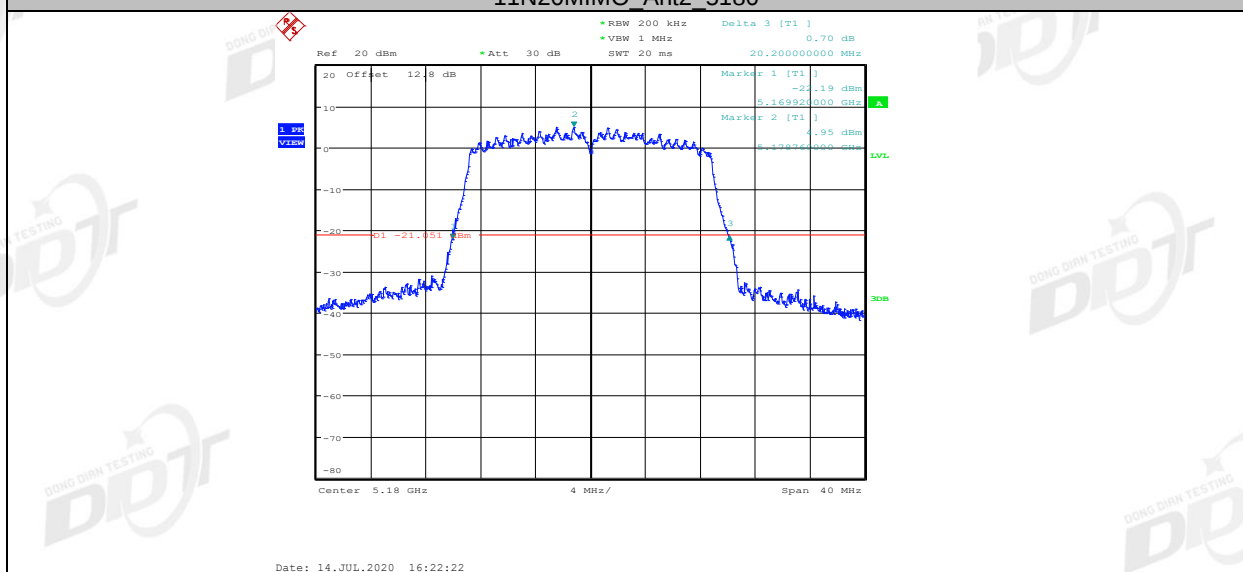
11A Ant4 5240



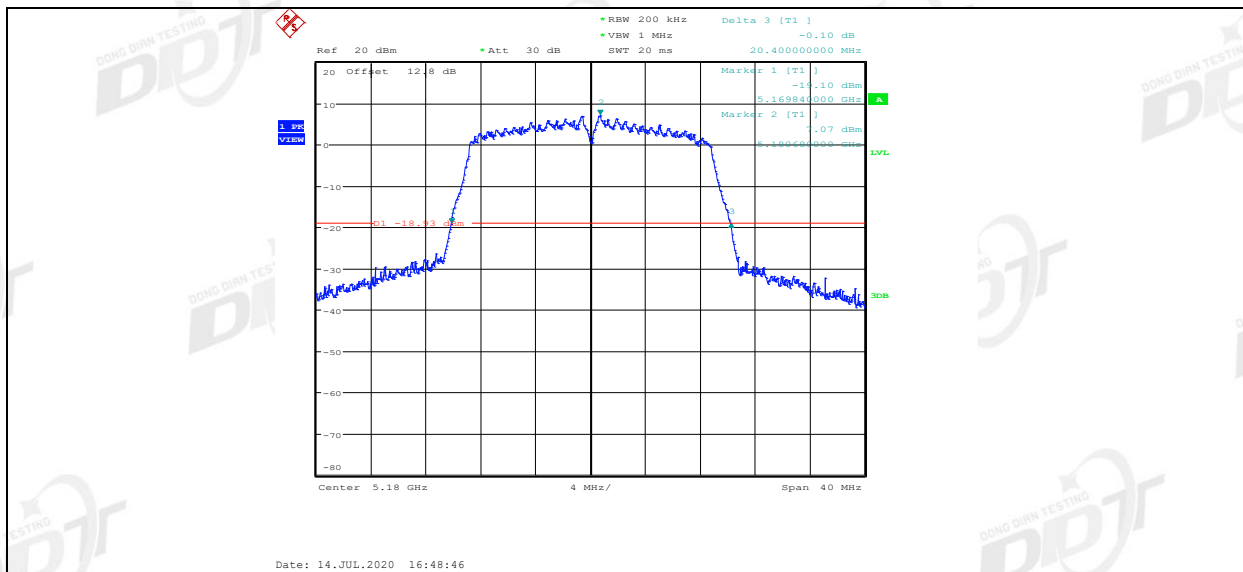
11N20MIMO_Ant1_5180



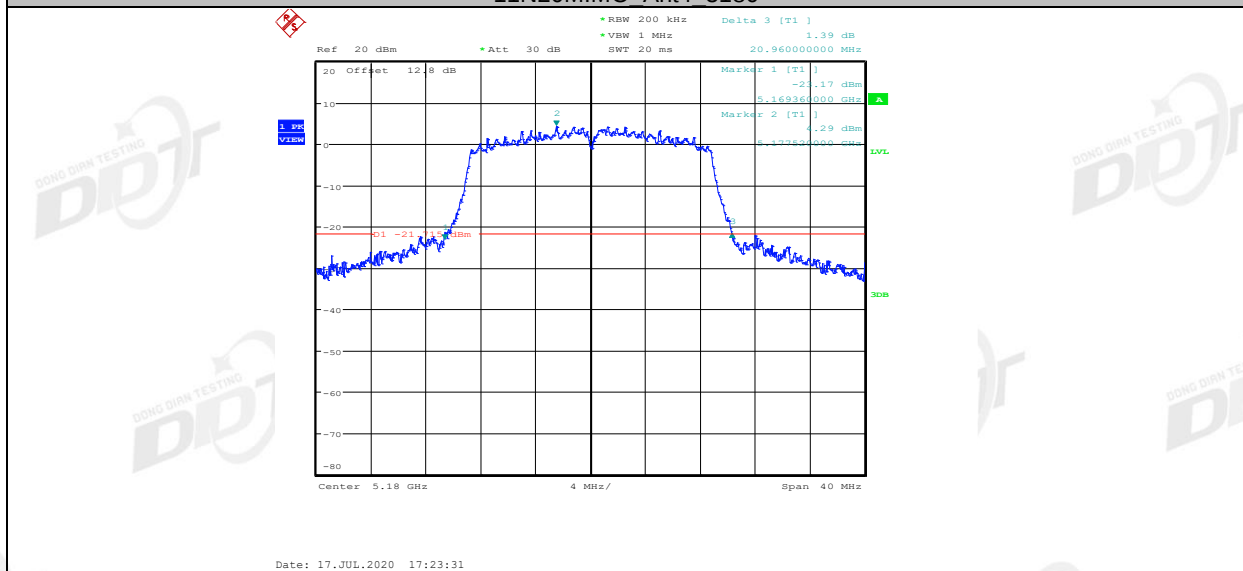
11N20MIMO_Ant2_5180



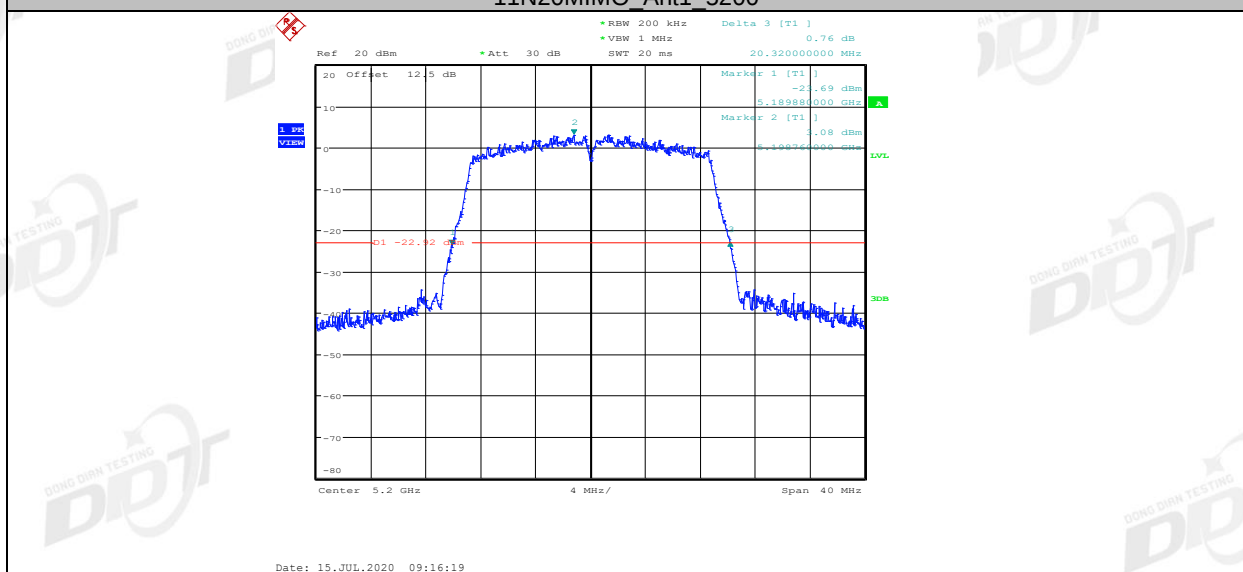
11N20MIMO_Ant3_5180



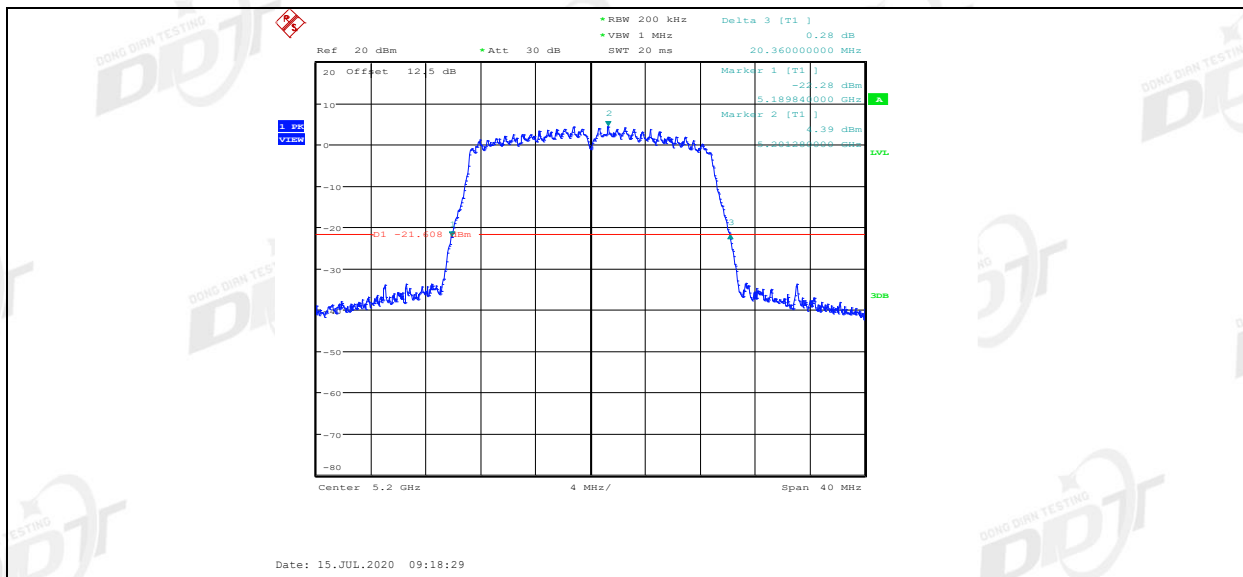
11N20MIMO Ant4 5180



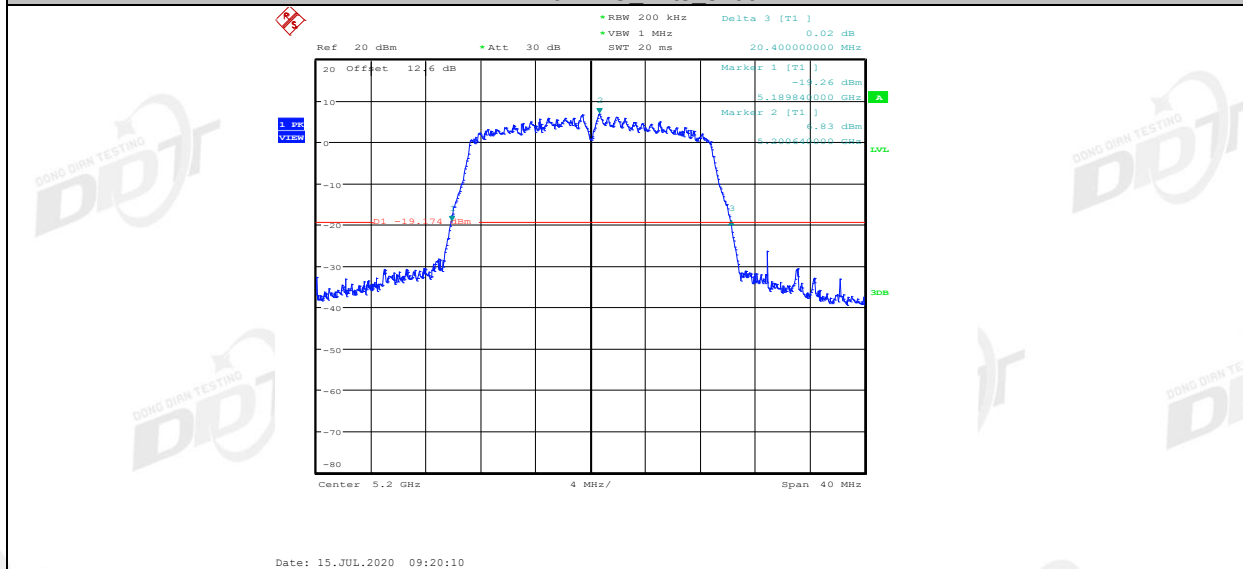
11N20MIMO Ant1 5200



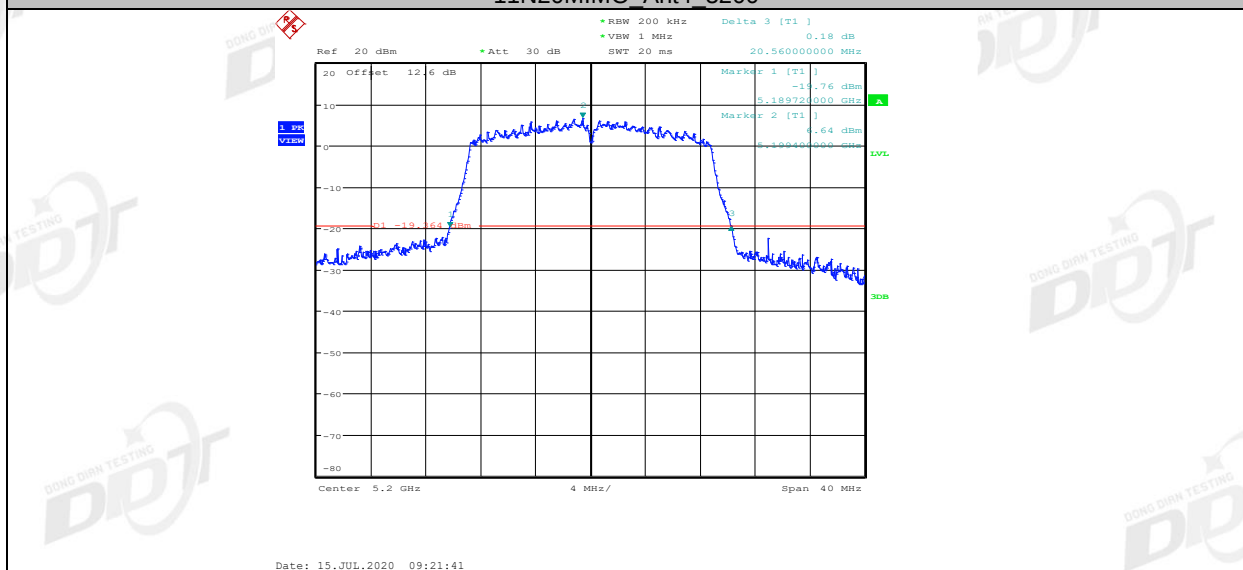
11N20MIMO Ant2 5200



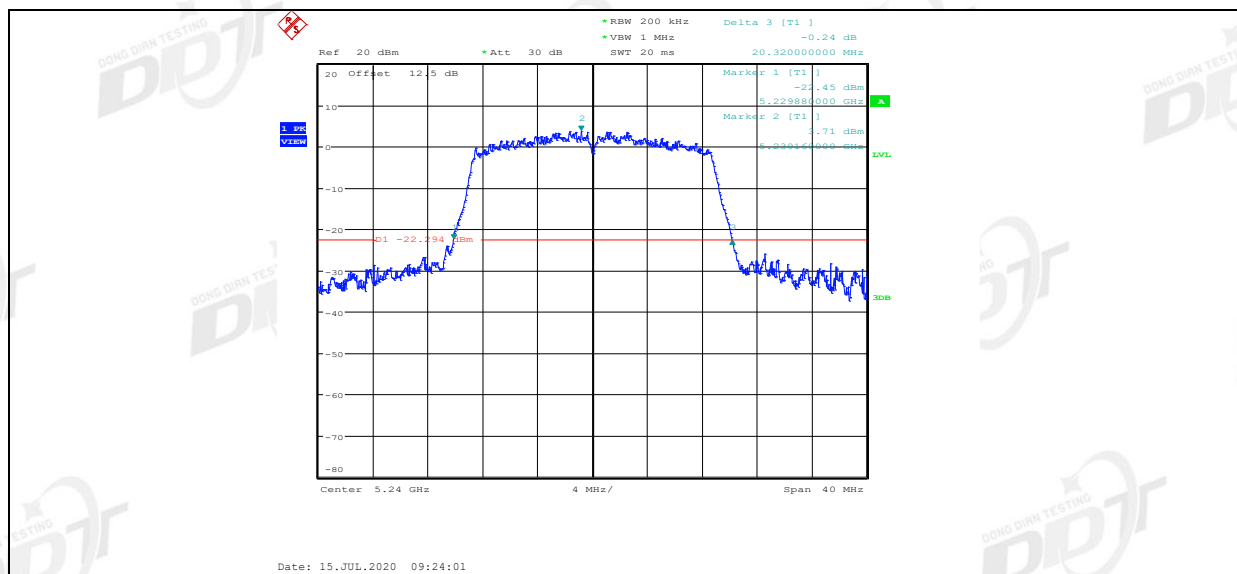
11N20MIMO Ant3 5200



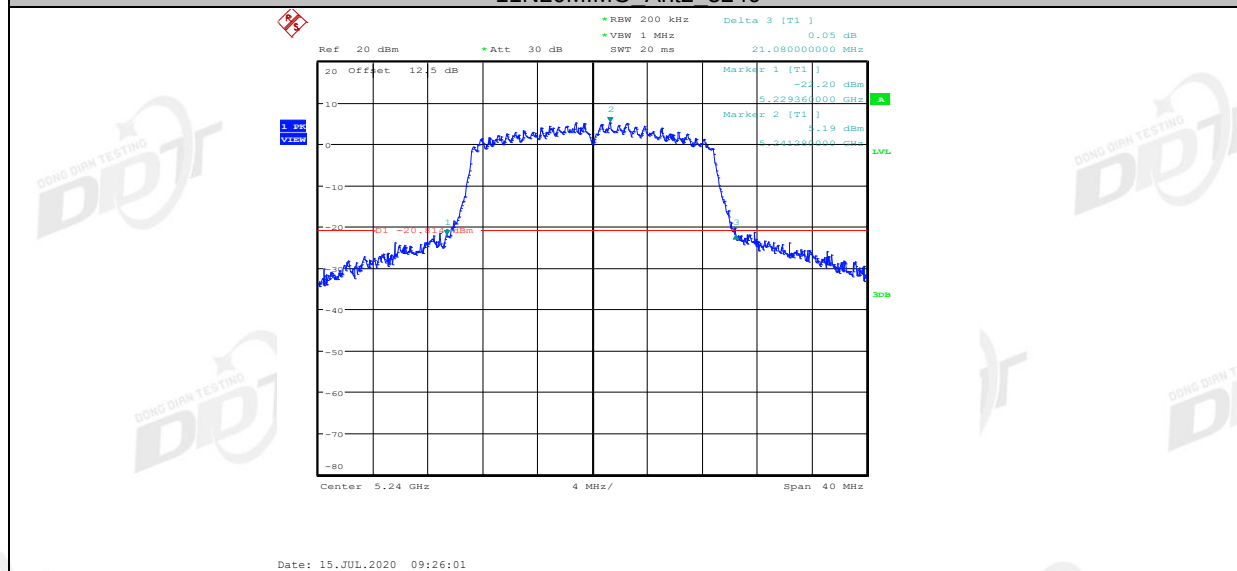
11N20MIMO Ant4 5200



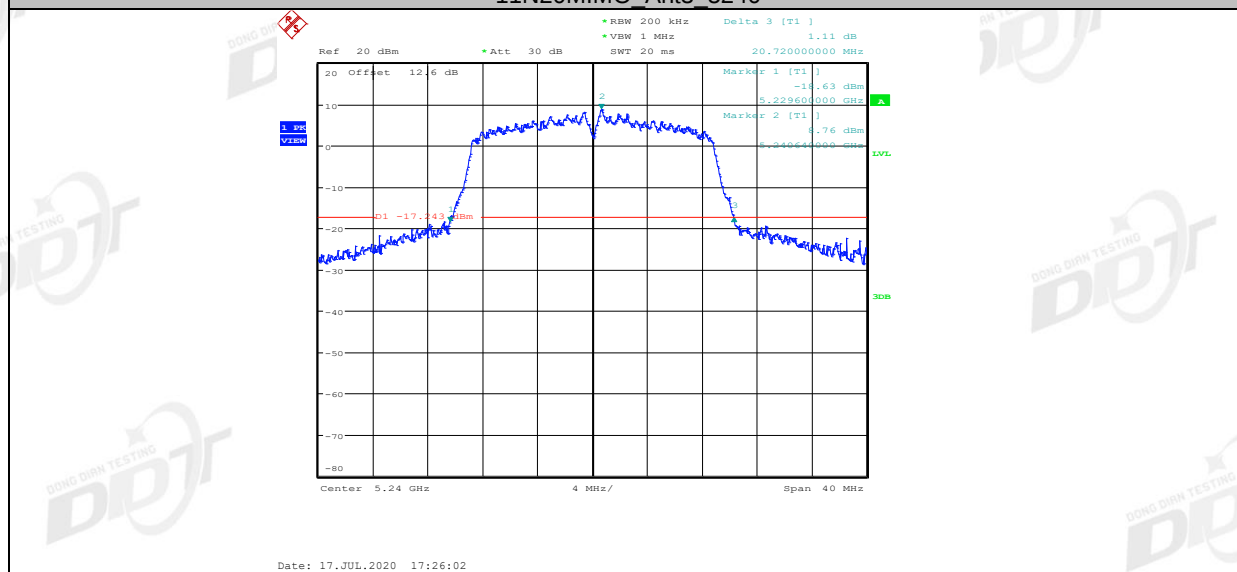
11N20MIMO Ant1 5240



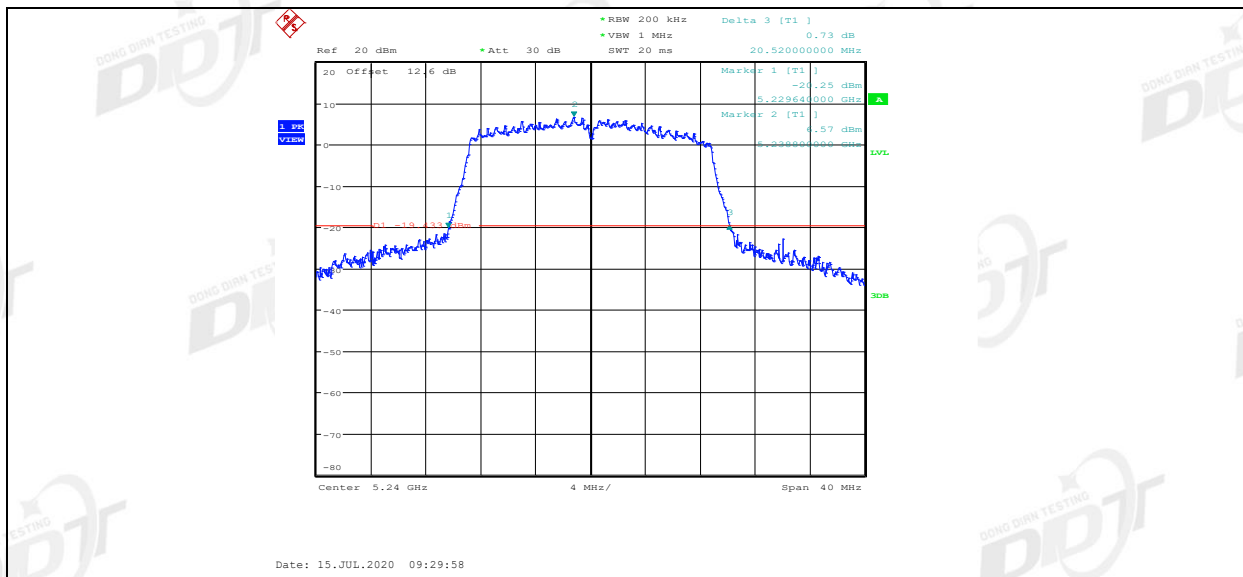
11N20MIMO_Ant2_5240



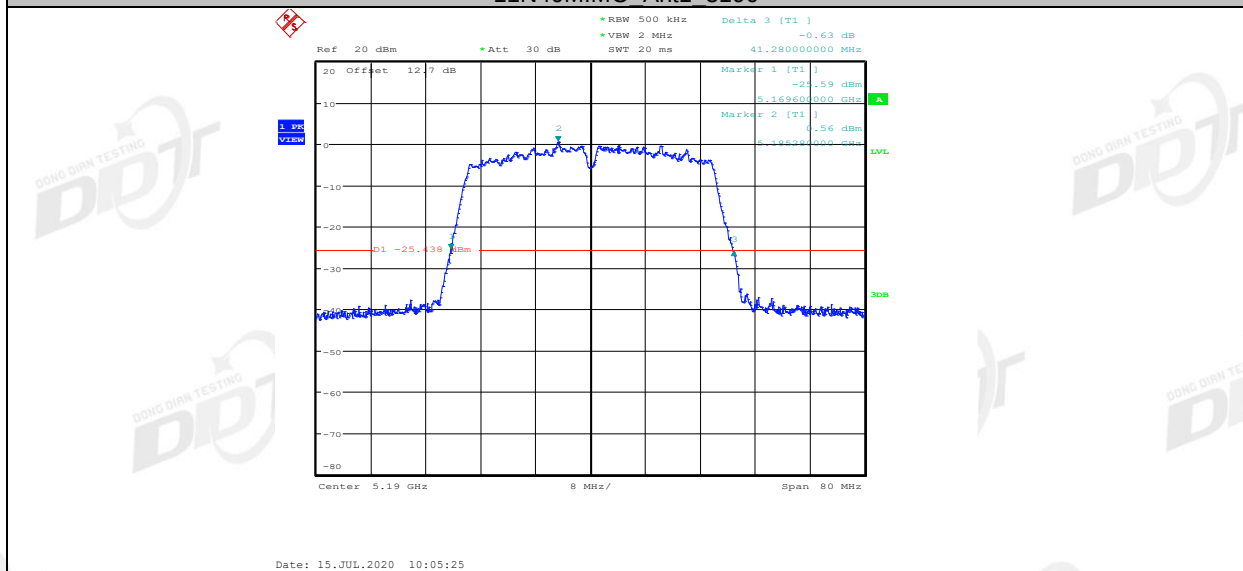
11N20MIMO_Ant3_5240



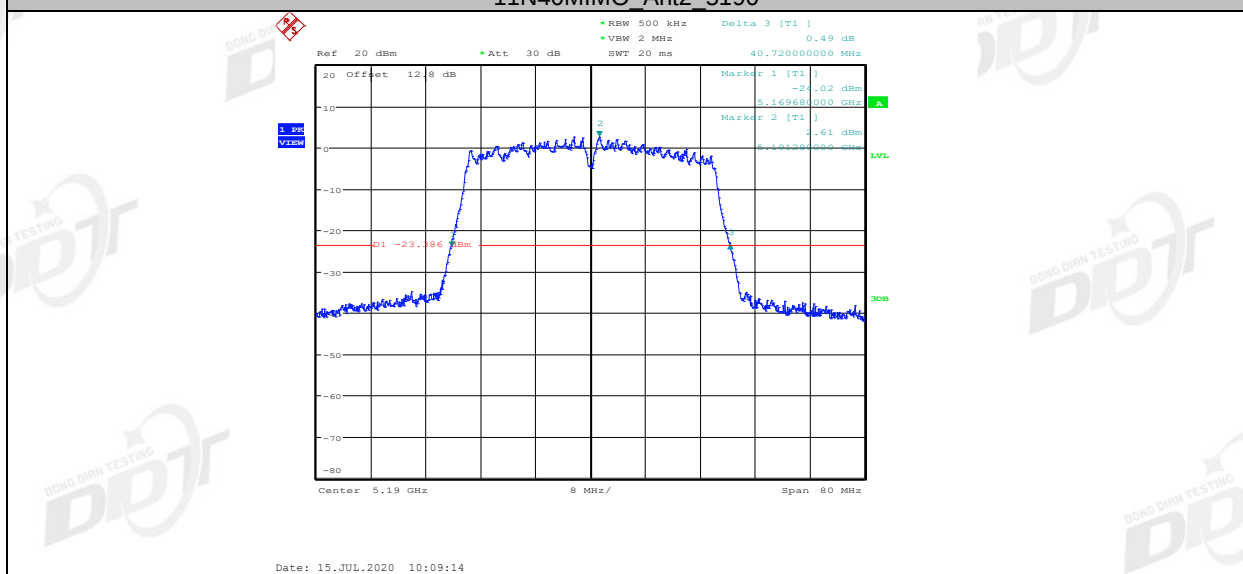
11N20MIMO_Ant4_5240



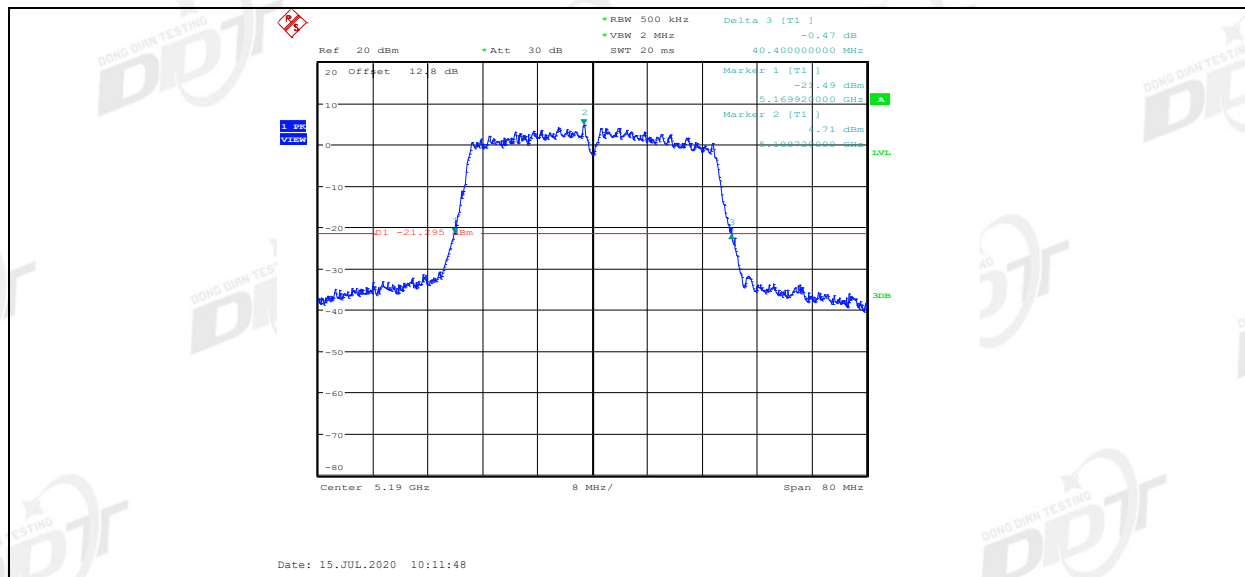
11N40MIMO_Ant1_5190



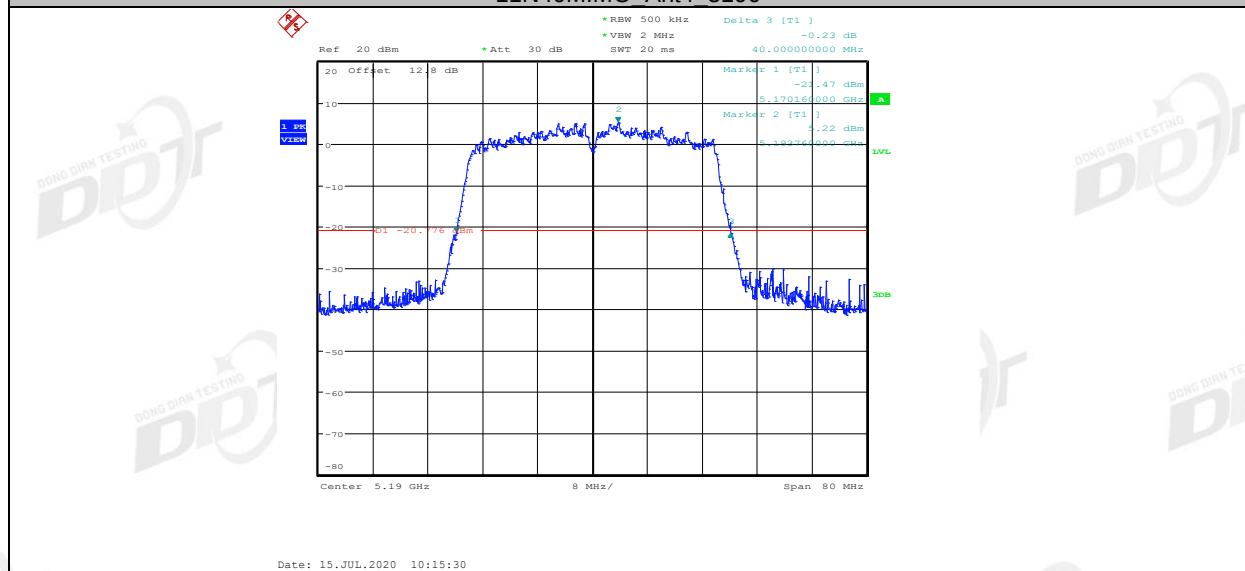
11N40MIMO_Ant2_5190



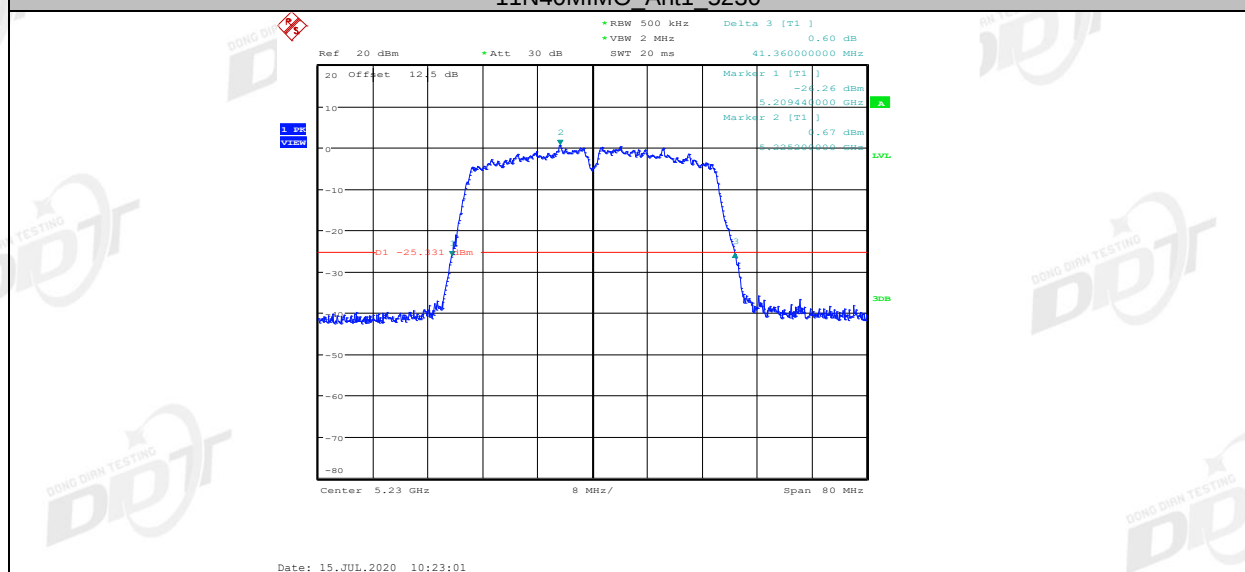
11N40MIMO_Ant3_5190



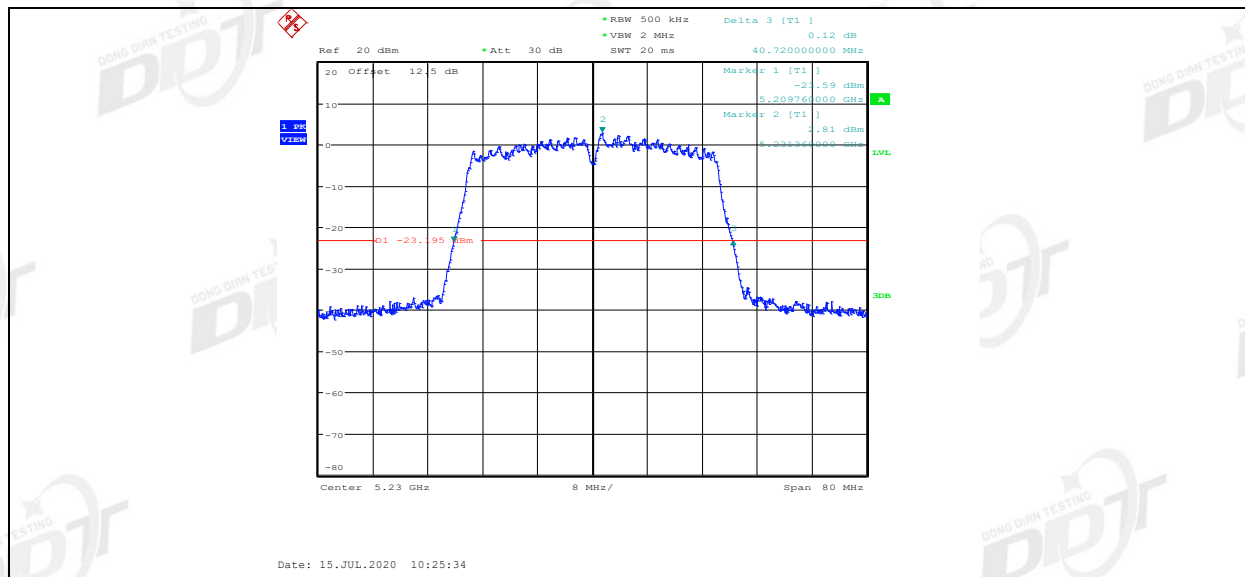
11N40MIMO Ant4 5190



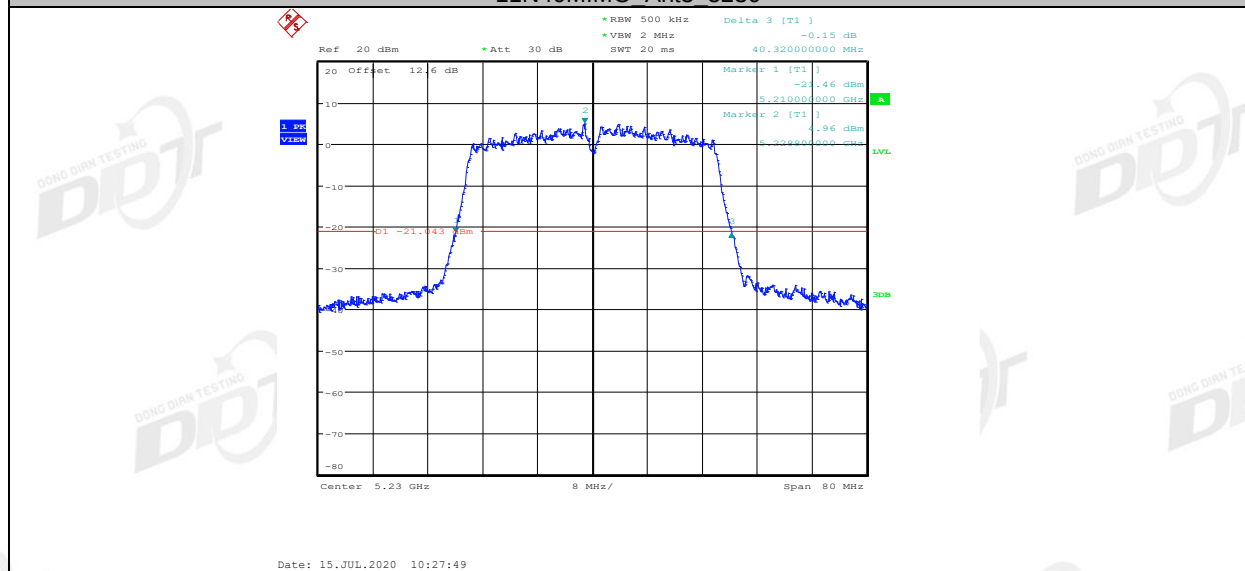
11N40MIMO Ant1 5230



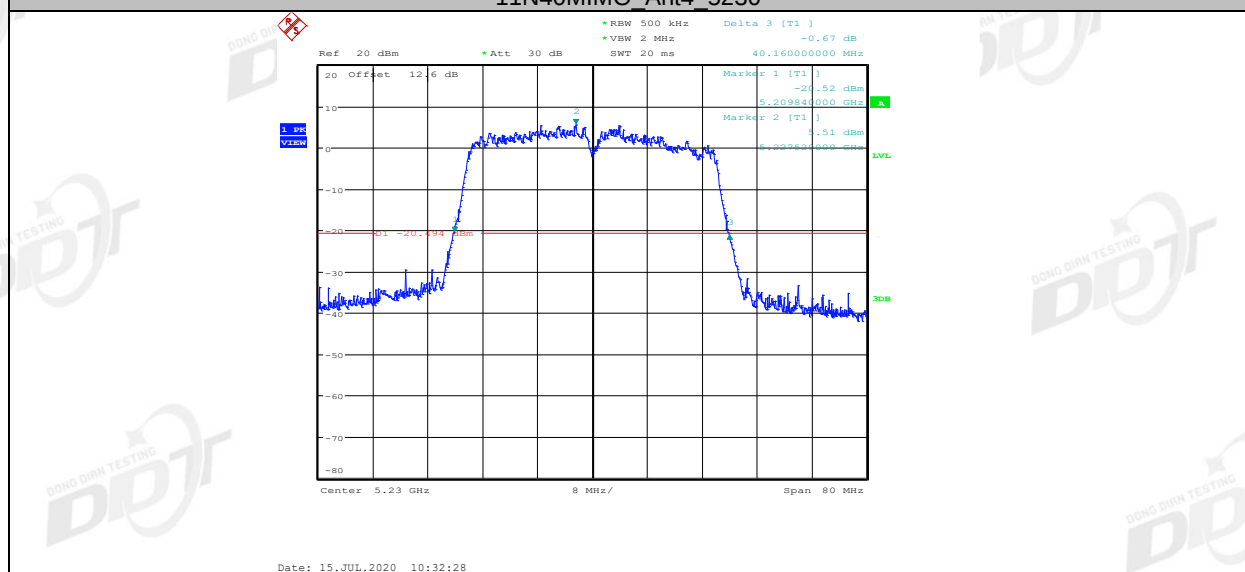
11N40MIMO Ant2 5230



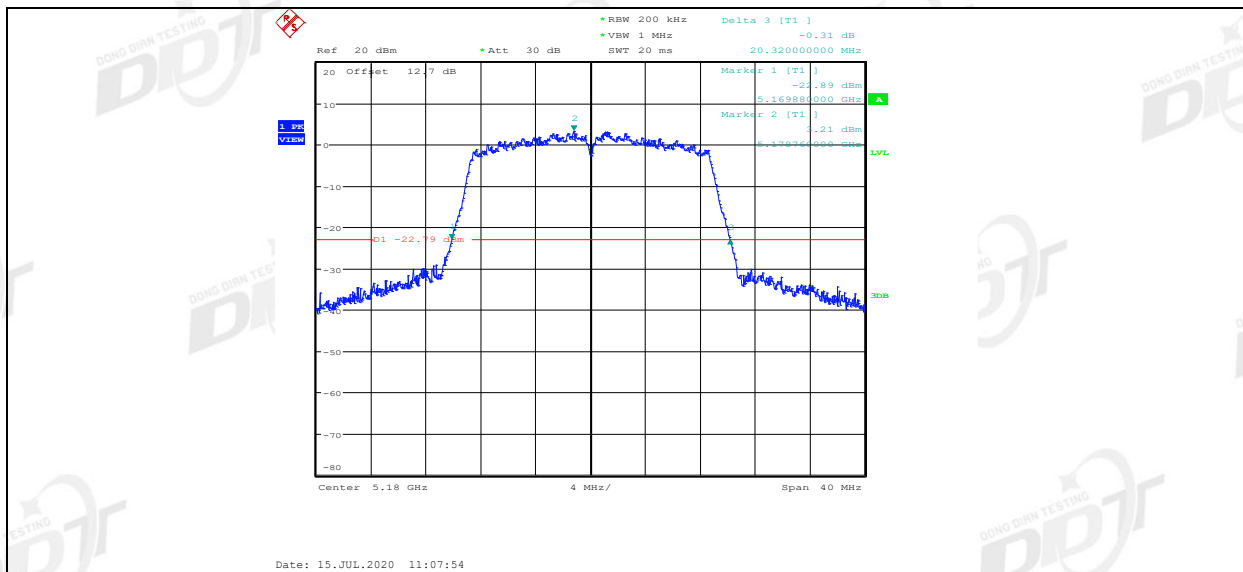
11N40MIMO_Ant3_5230



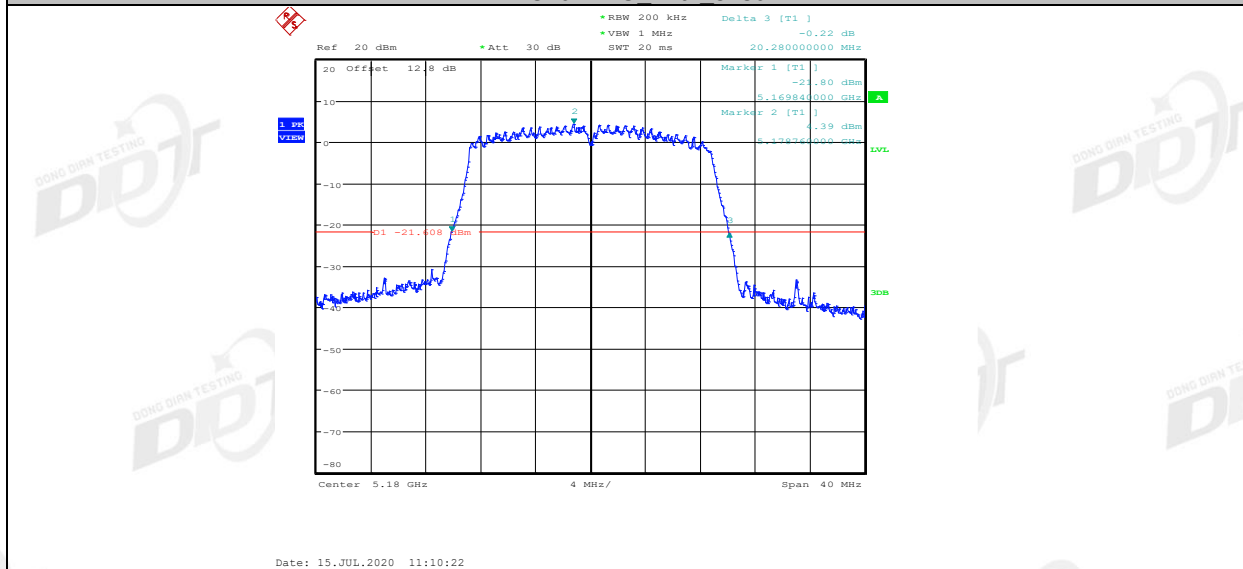
11N40MIMO_Ant4_5230



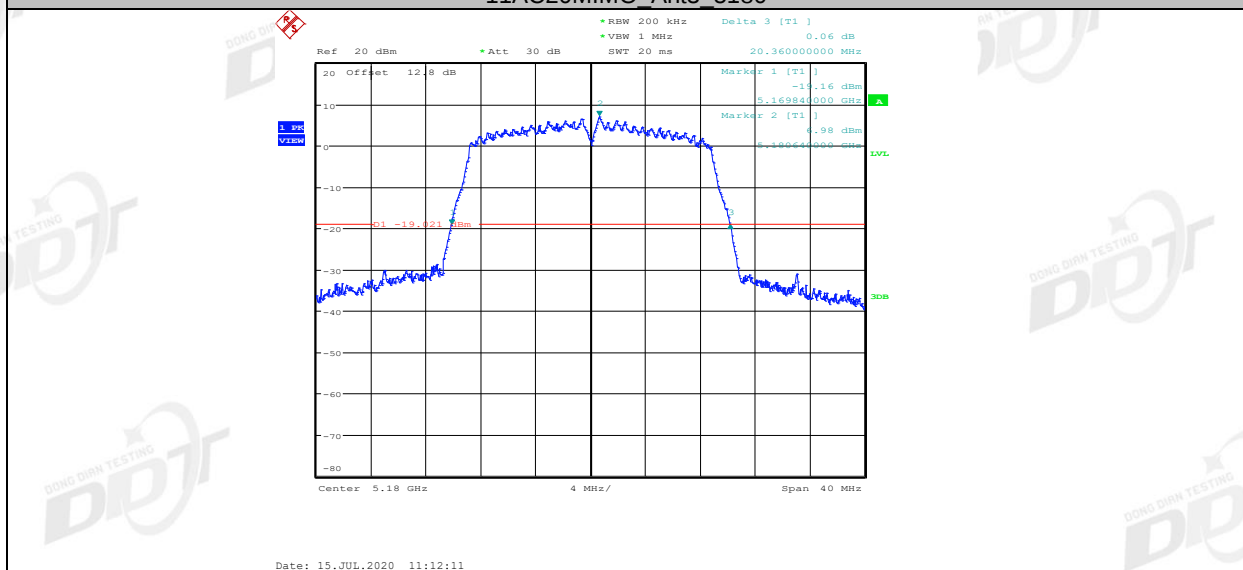
11AC20MIMO_Ant1_5180



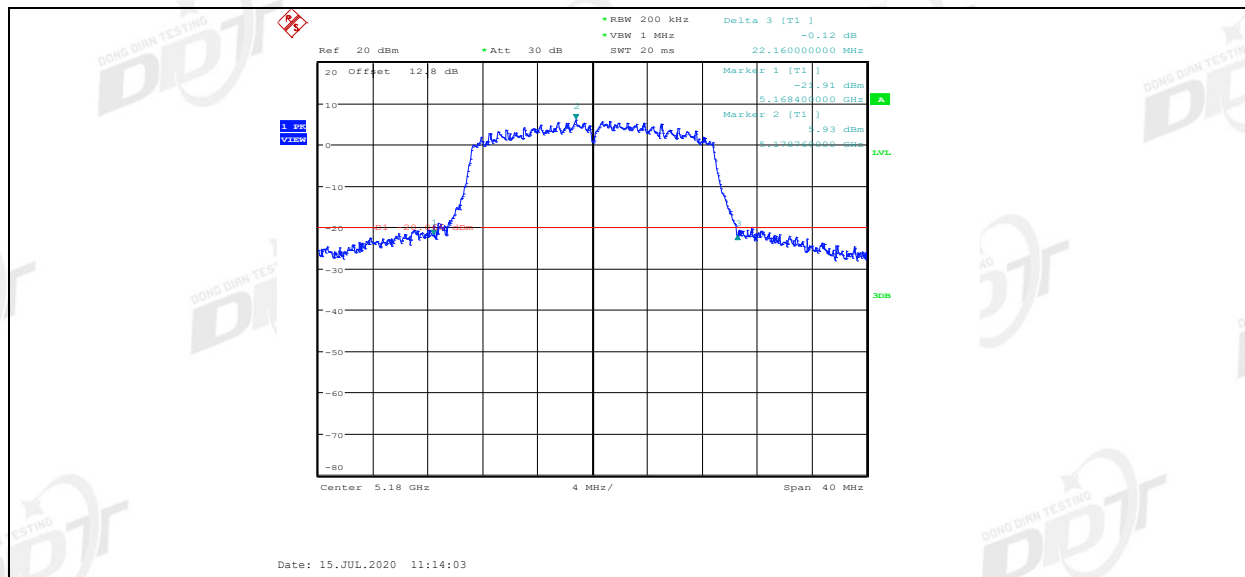
11AC20MIMO_Ant2_5180



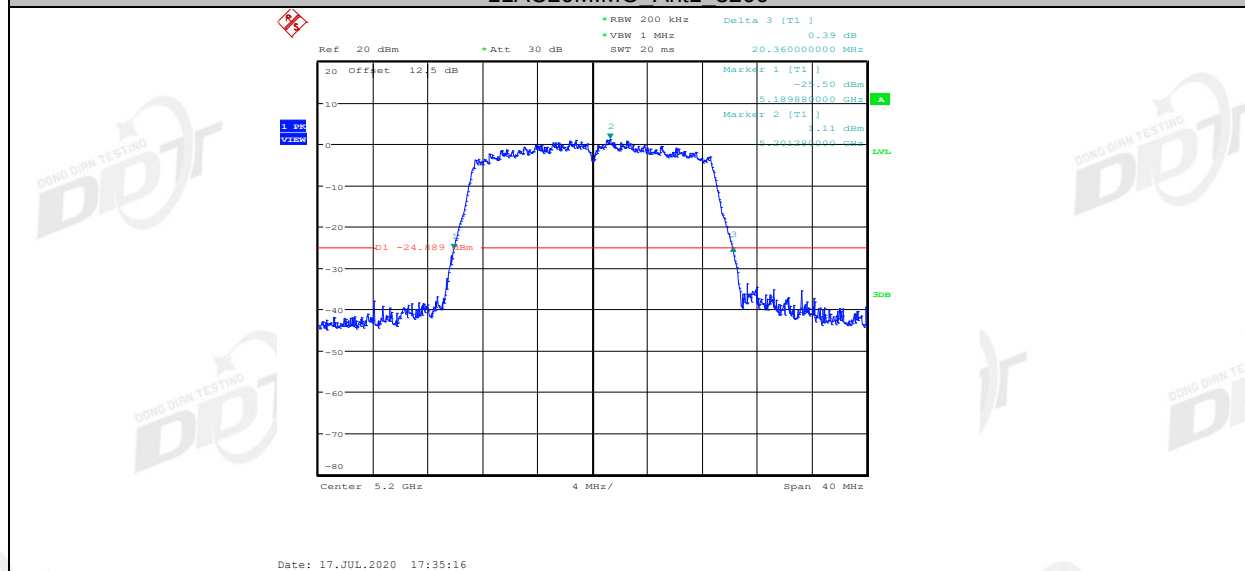
11AC20MIMO_Ant3_5180



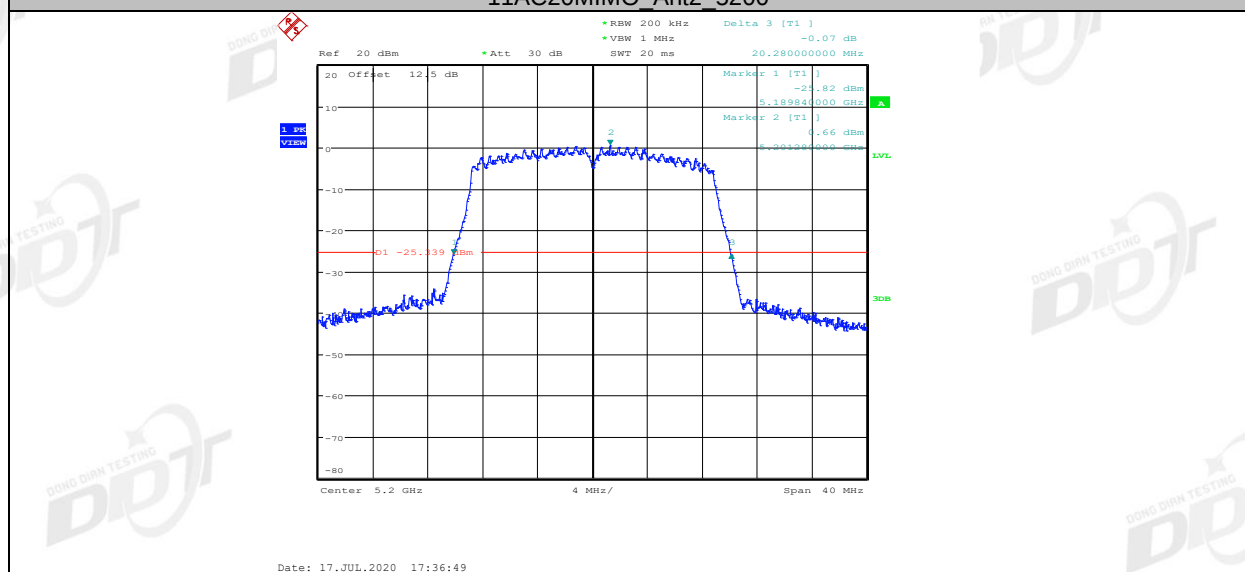
11AC20MIMO_Ant4_5180



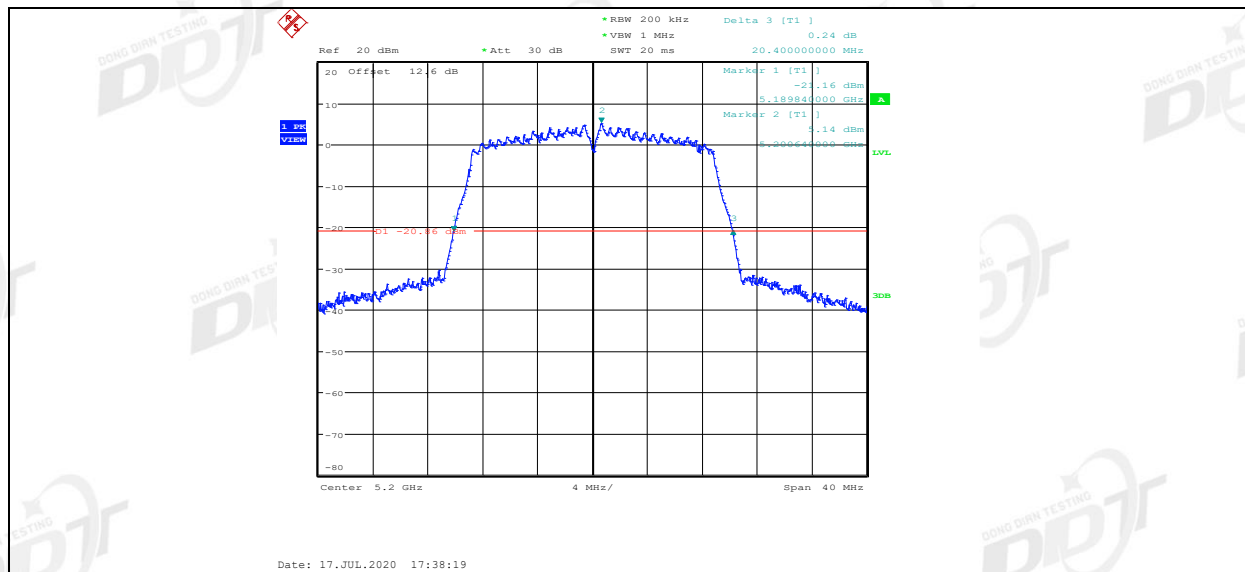
11AC20MIMO_Ant1_5200



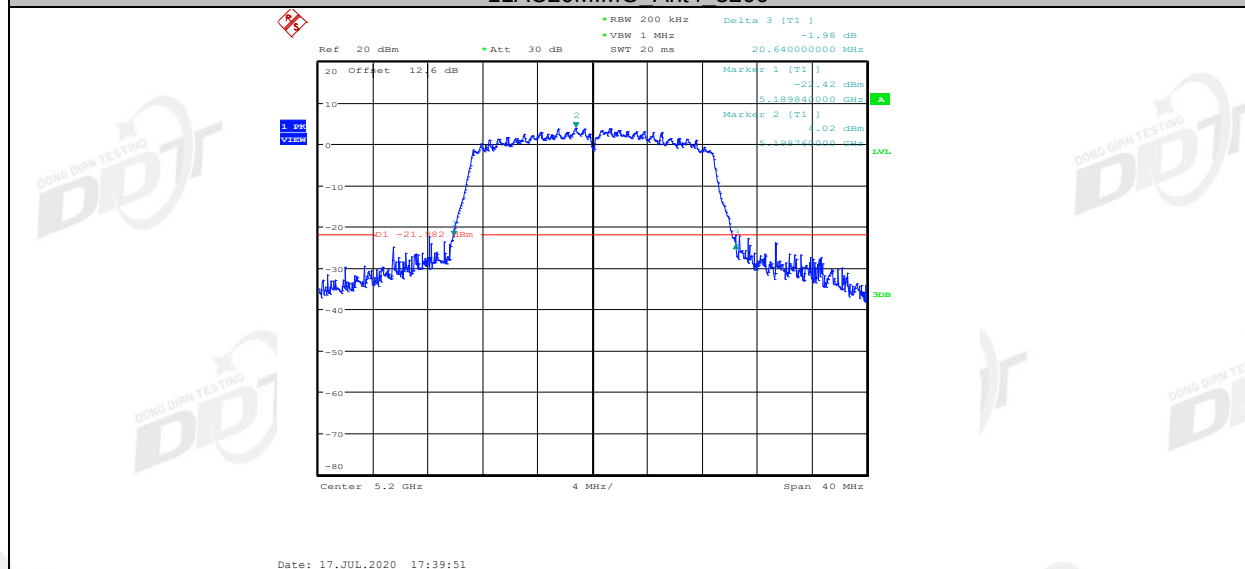
11AC20MIMO_Ant2_5200



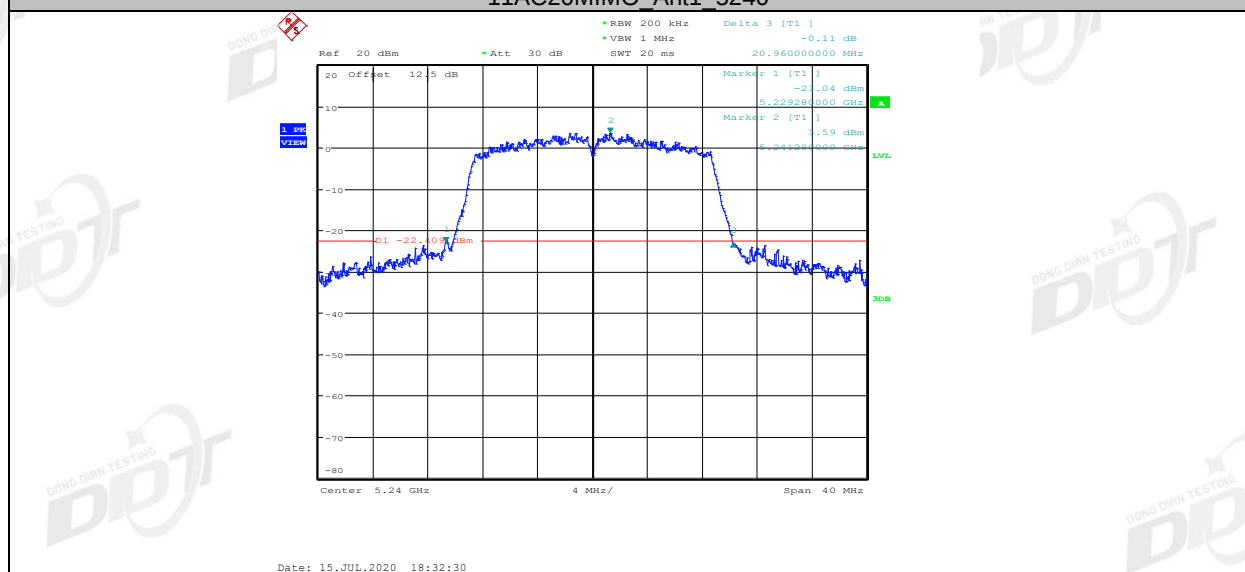
11AC20MIMO_Ant3_5200



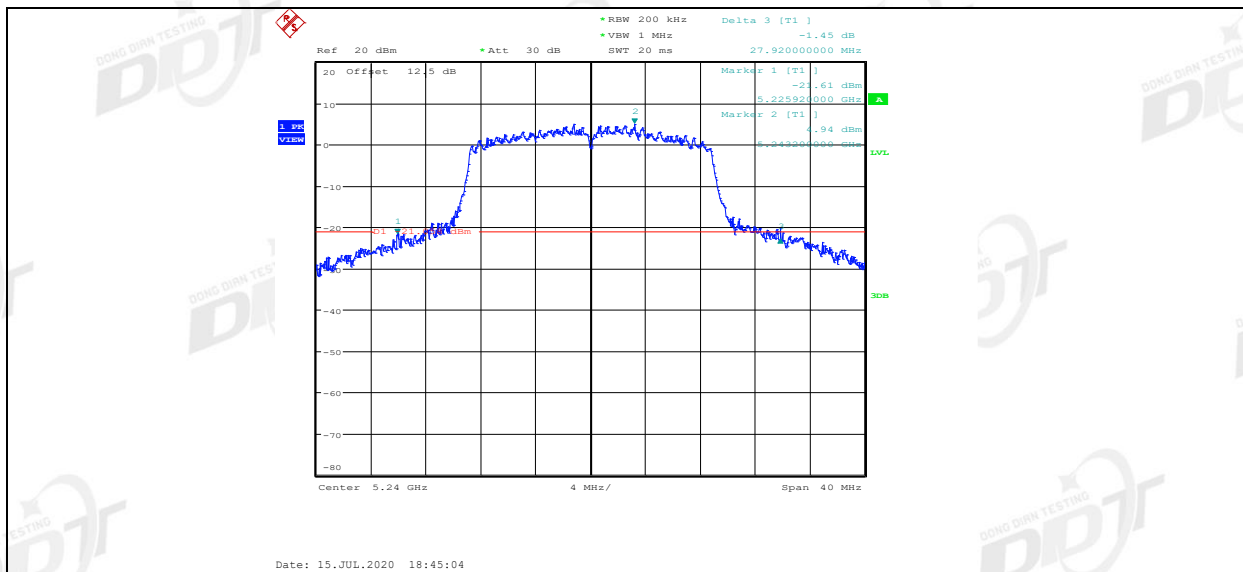
11AC20MIMO_Ant4_5200



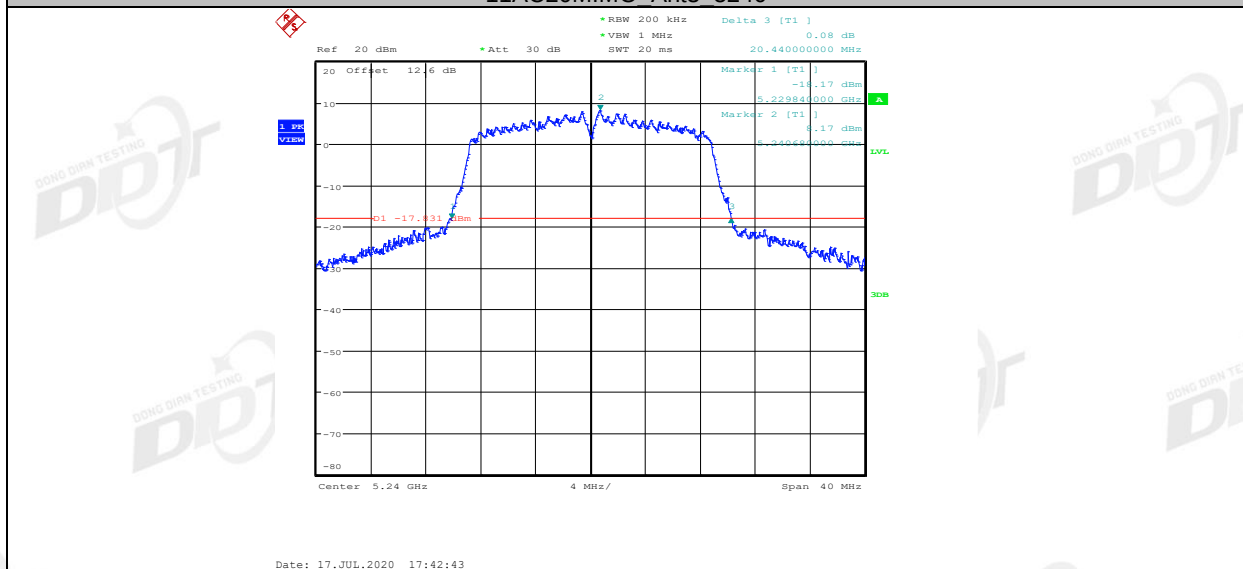
11AC20MIMO_Ant1_5240



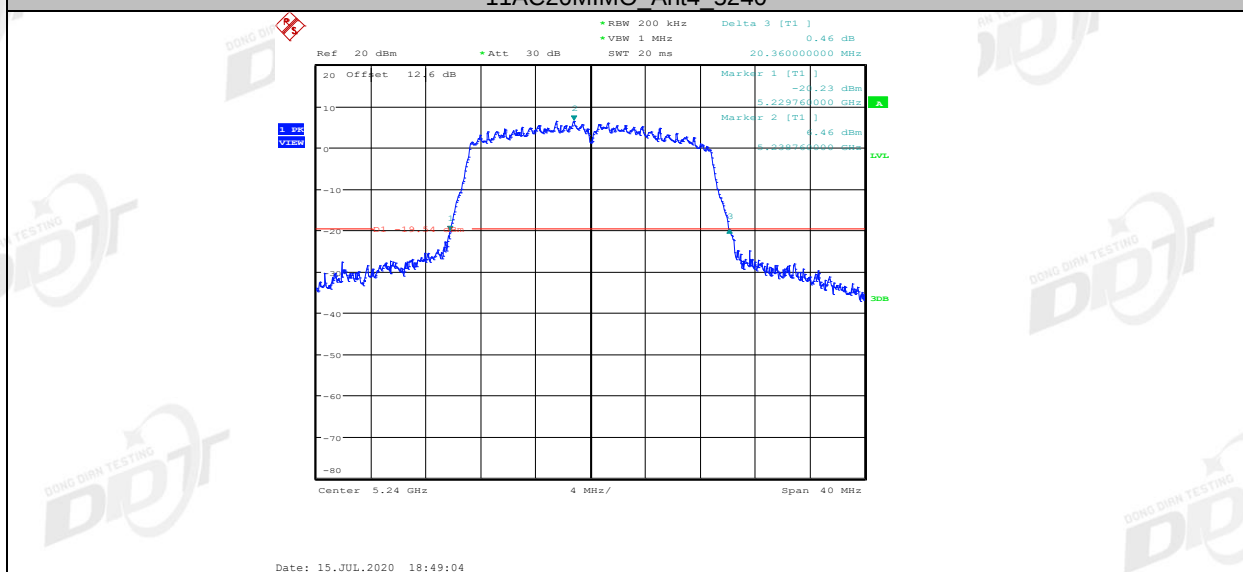
11AC20MIMO_Ant2_5240



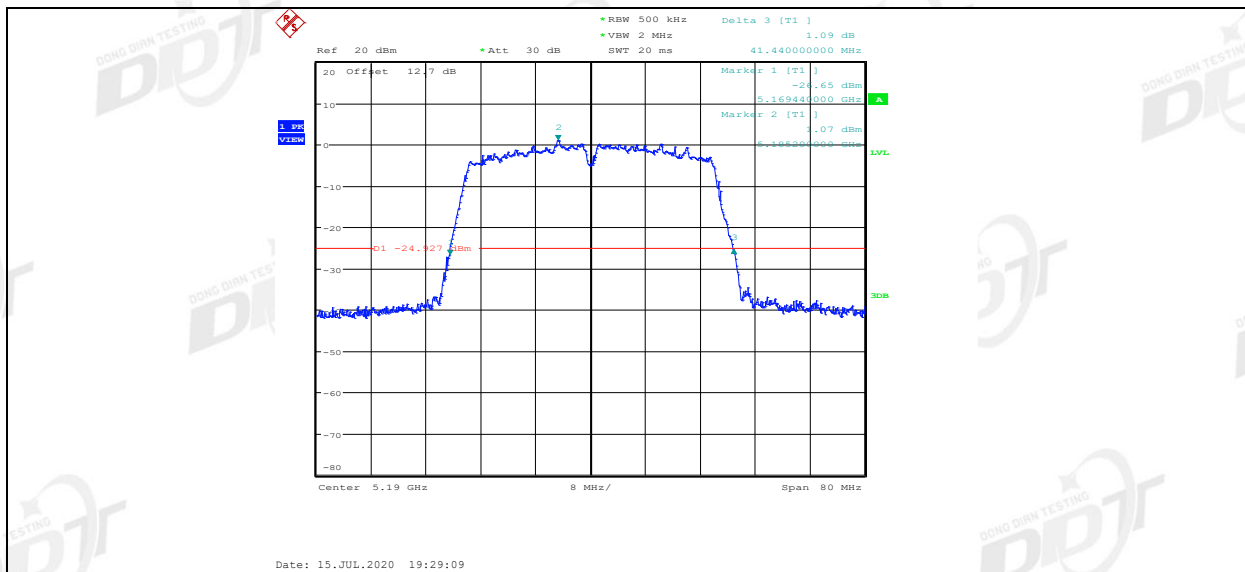
11AC20MIMO_Ant3_5240



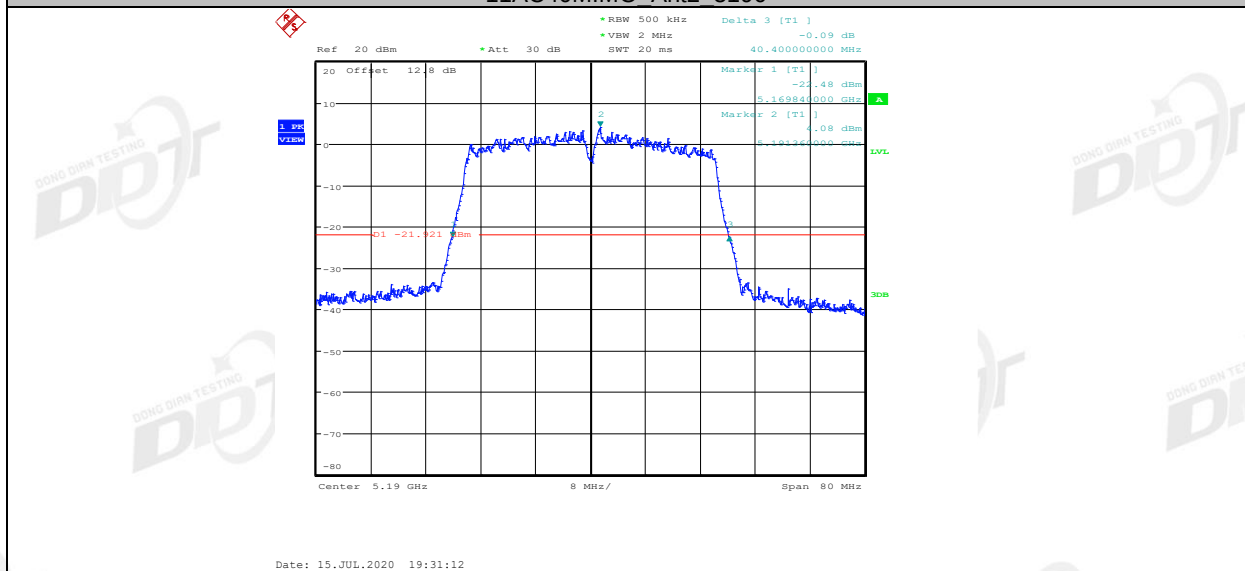
11AC20MIMO_Ant4_5240



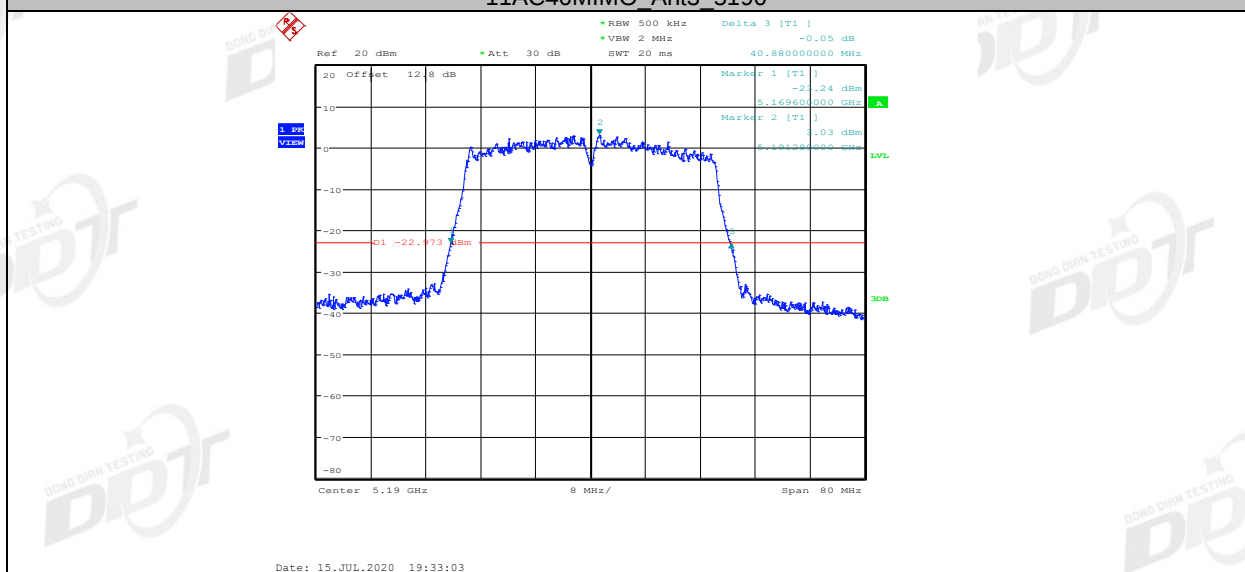
11AC40MIMO_Ant1_5190



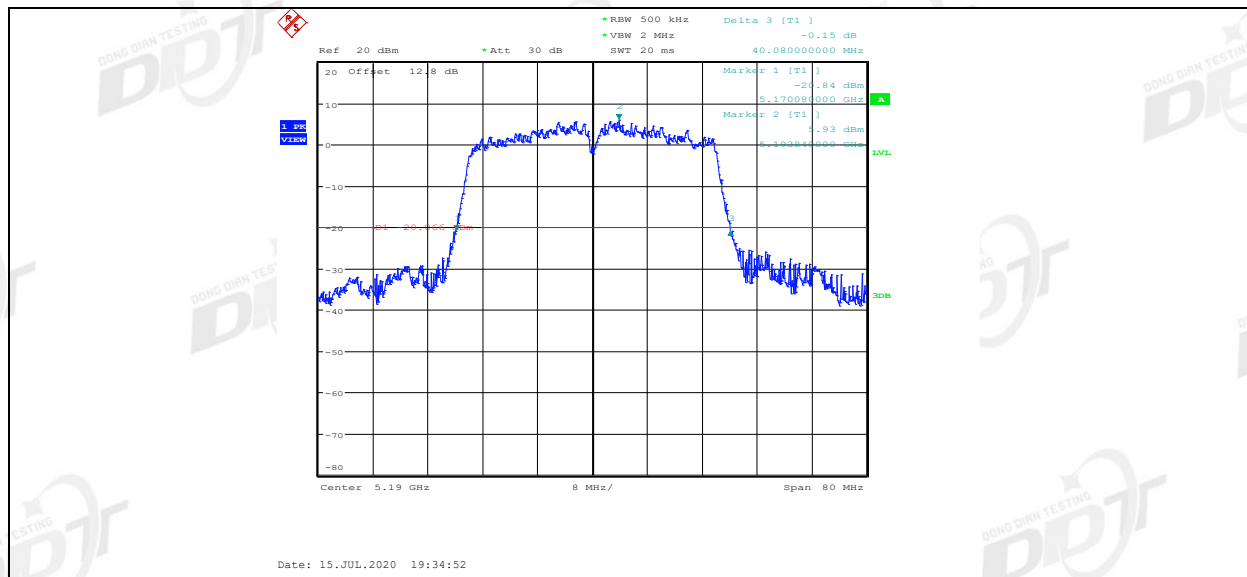
11AC40MIMO_Ant2_5190



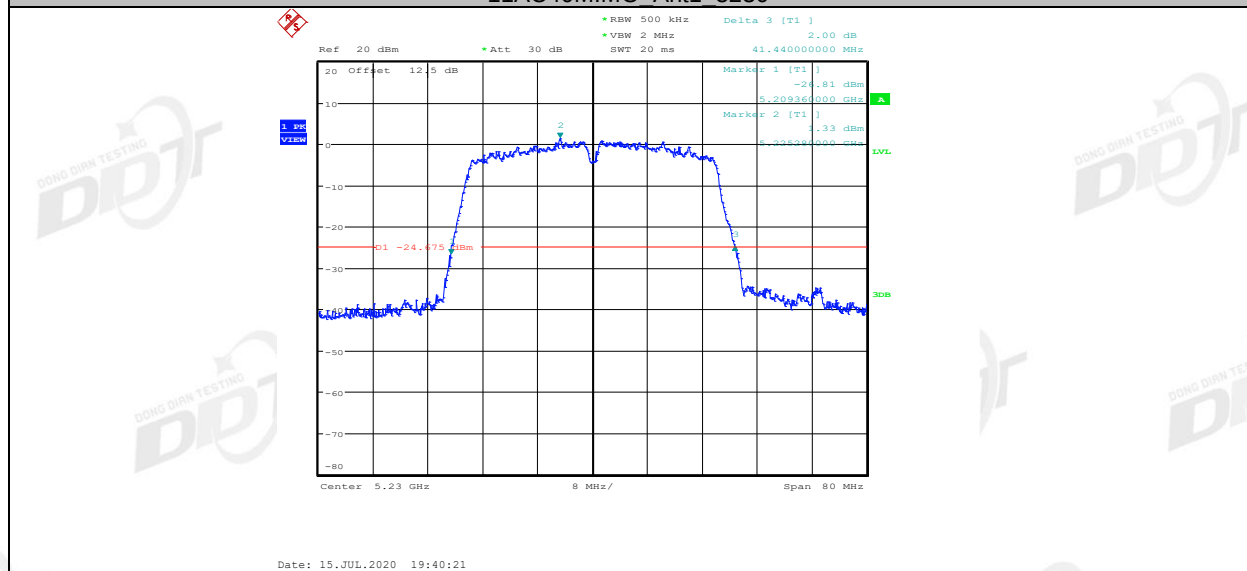
11AC40MIMO_Ant3_5190



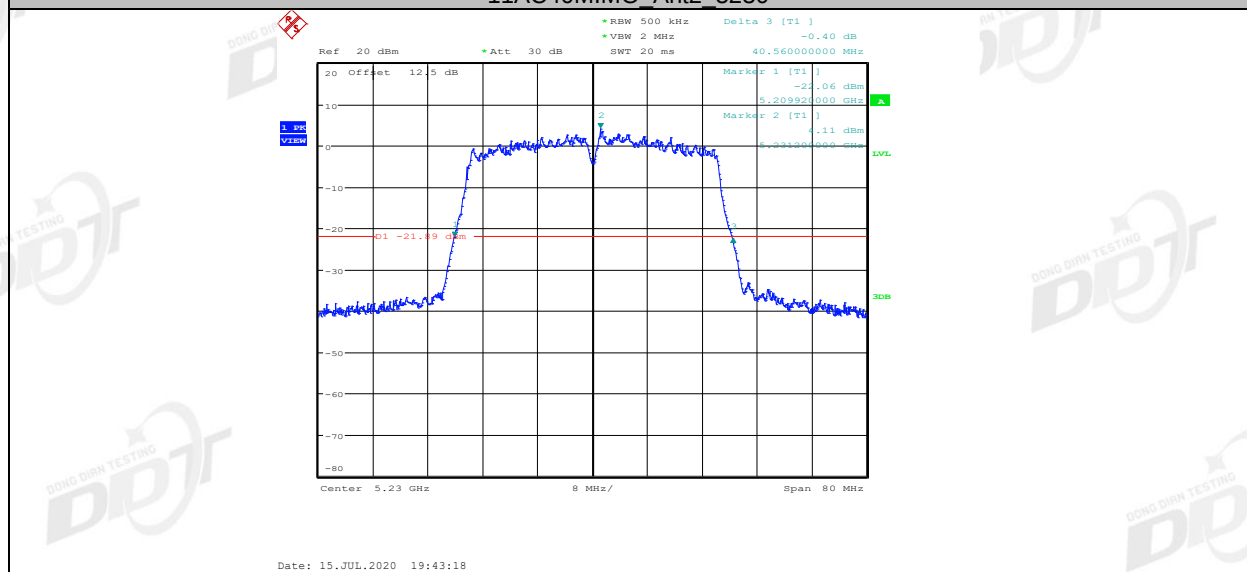
11AC40MIMO_Ant4_5190



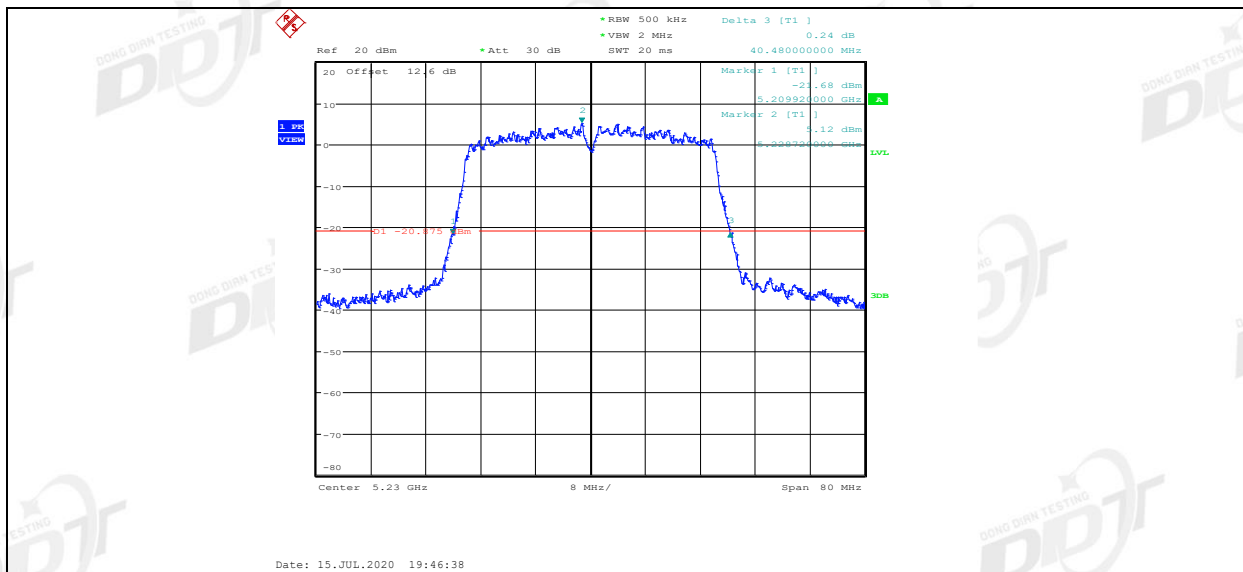
11AC40MIMO_Ant1_5230



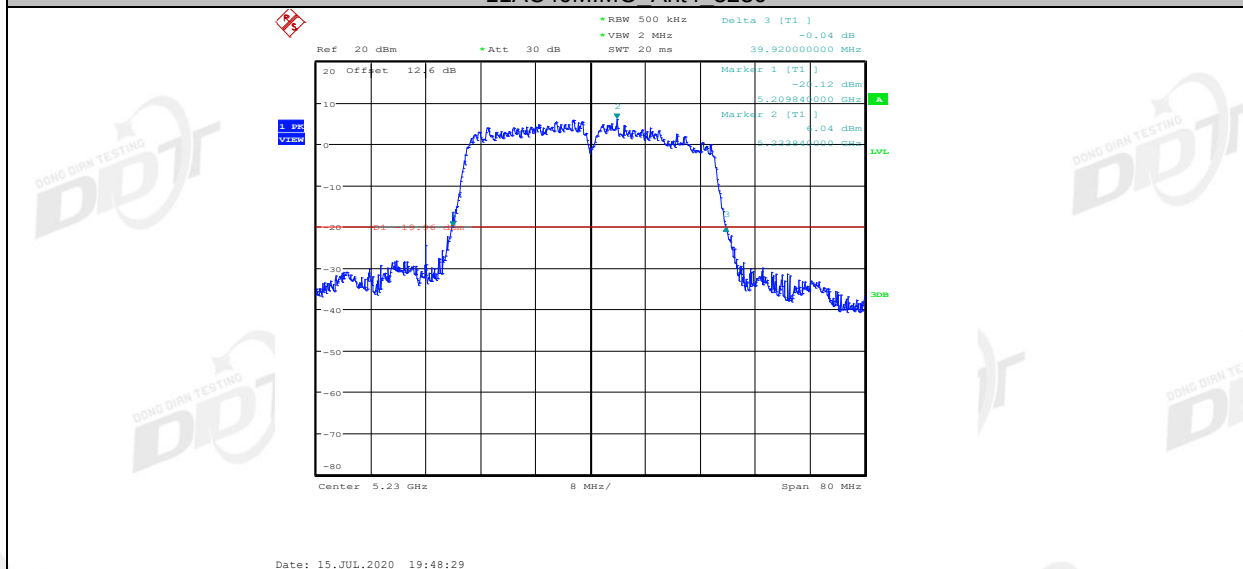
11AC40MIMO_Ant2_5230



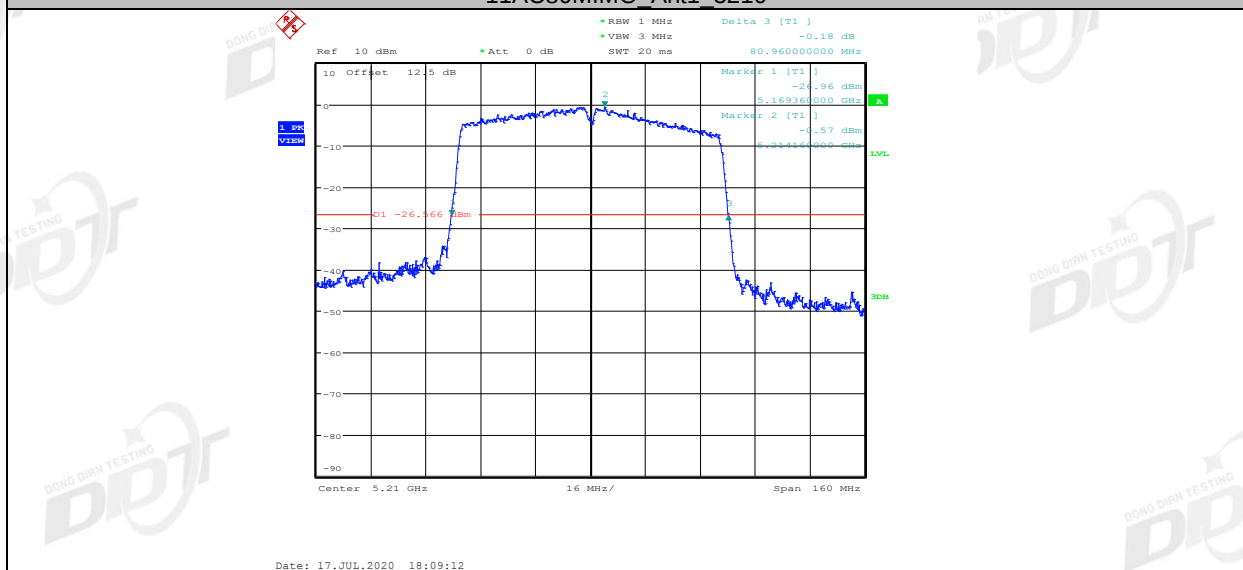
11AC40MIMO_Ant3_5230



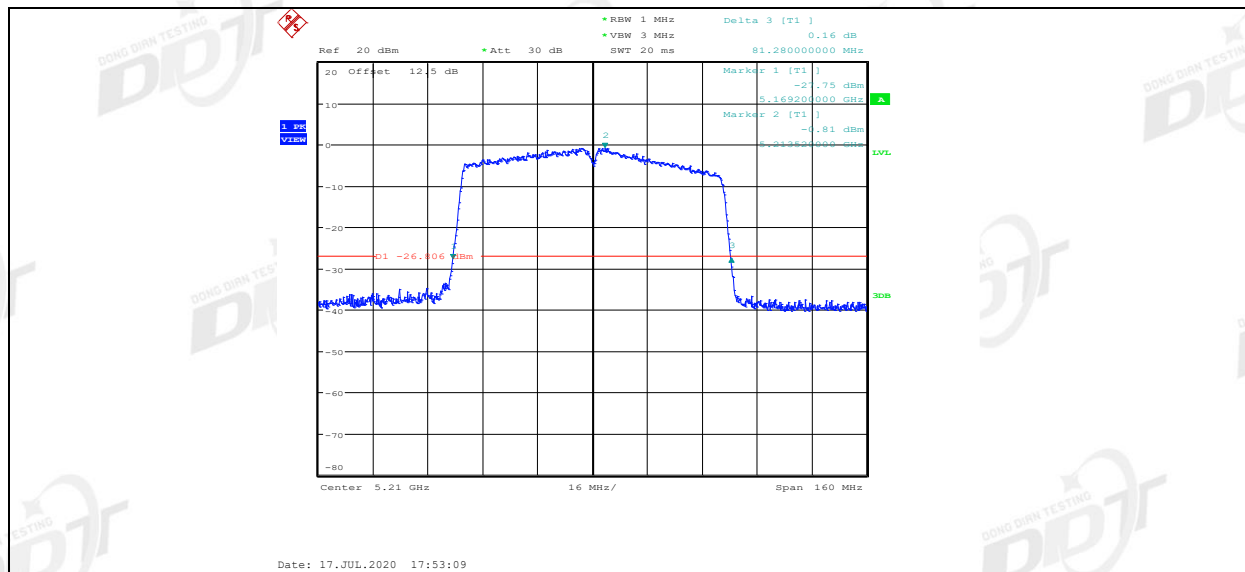
11AC40MIMO_Ant4_5230



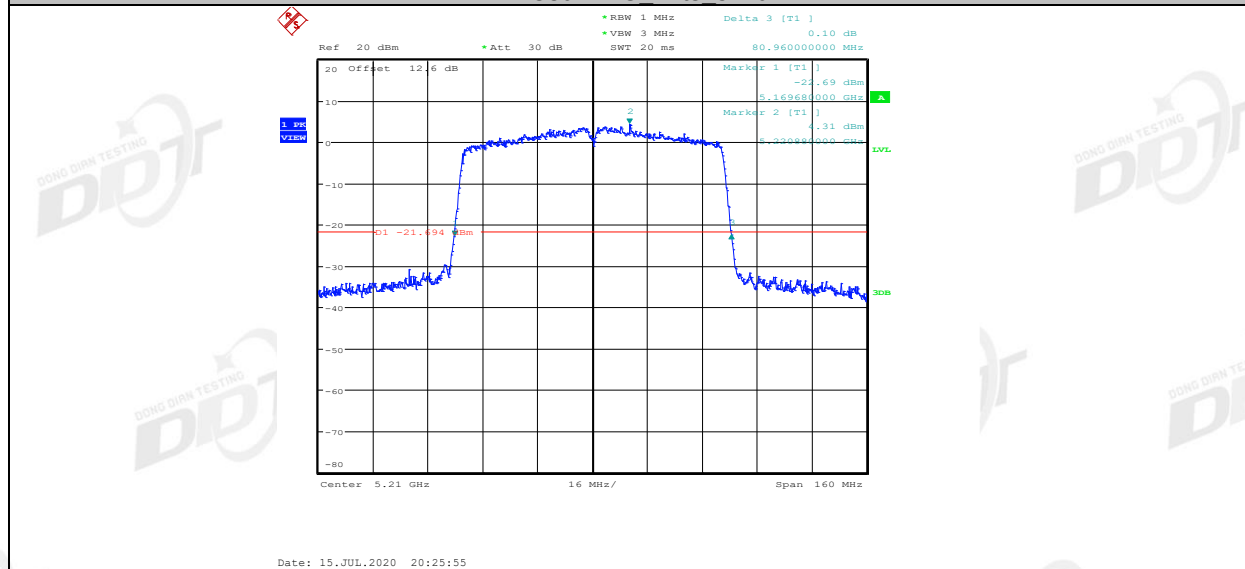
11AC80MIMO_Ant1_5210



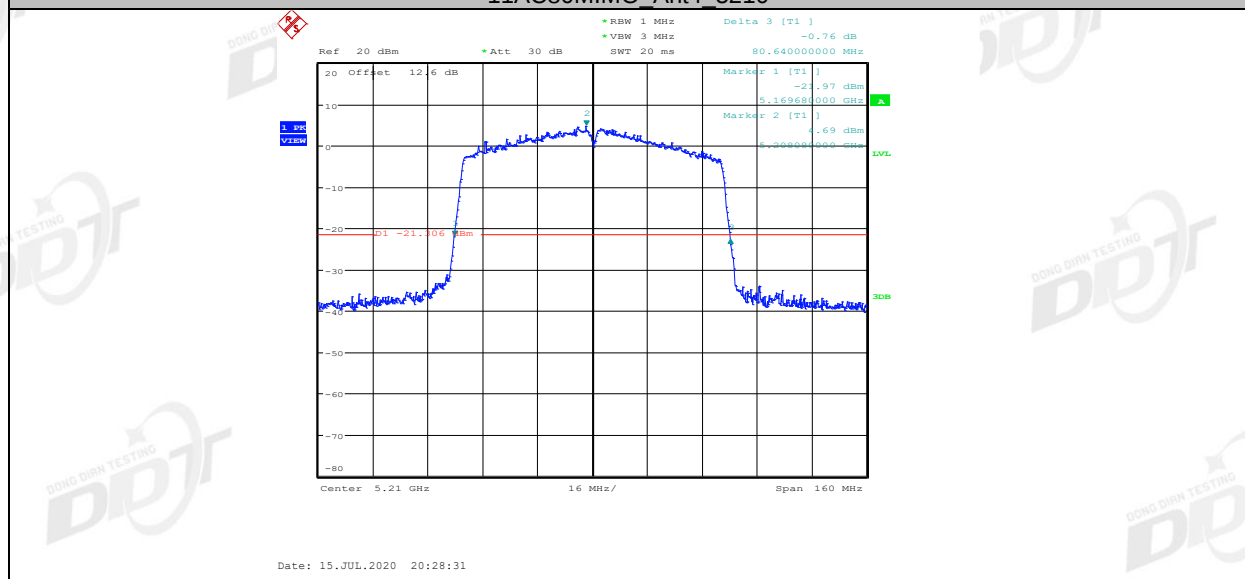
11AC80MIMO_Ant2_5210



11AC80MIMO Ant3 5210



11AC80MIMO Ant4 5210



5. Maximum Output Power

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	For an indoor access point operating in the band: 1W (30 dBm)	5150-5250
	250 mW (24 dBm) or $11 + 10 \log_{10} B$	5250-5350
	250 mW (24 dBm) or $11 + 10 \log_{10} B$	5470-5725
	1 Watt (30 dBm)	5725-5850

Note 1: B=26 bandwidth;

5.3. Test procedure

- (1) Connect each EUT's antenna output to power sensor by RF cable and attenuator
- (2) Add each antenna port's results to get the total output power of EUT.

5.4. Test result

(5150-5250)

Test Mode	Ant	Test Channel	Output Power (dBm)	Limit (dBm)
11A	ANT1	5180	9.74	30
11A	ANT2	5180	10.22	30
11A	ANT3	5180	13.33	30
11A	ANT4	5180	13.20	30
11A	ANT1	5200	9.60	30
11A	ANT2	5200	10.11	30
11A	ANT3	5200	14.01	30
11A	ANT4	5200	13.39	30
11A	ANT1	5240	10.10	30
11A	ANT2	5240	10.39	30
11A	ANT3	5240	14.45	30
11A	ANT4	5240	13.56	30
11N20MIMO	ANT1	5180	9.95	30
11N20MIMO	ANT2	5180	10.06	30
11N20MIMO	ANT3	5180	13.62	30

11N20MIMO	ANT4	5180	13.65	30
11N20MIMO	total	5180	18.2	30
11N20MIMO	ANT1	5200	12.05	30
11N20MIMO	ANT2	5200	12.28	30
11N20MIMO	ANT3	5200	15.48	30
11N20MIMO	ANT4	5200	16.00	30
11N20MIMO	total	5200	20.3	30
11N20MIMO	ANT1	5240	12.49	30
11N20MIMO	ANT2	5240	12.75	30
11N20MIMO	ANT3	5240	16.20	30
11N20MIMO	ANT4	5240	16.23	30
11N20MIMO	total	5240	20.8	30
11N40MIMO	ANT1	5190	7.98	30
11N40MIMO	ANT2	5190	8.18	30
11N40MIMO	ANT3	5190	12.05	30
11N40MIMO	ANT4	5190	12.08	30
11N40MIMO	total	5190	16.5	30
11N40MIMO	ANT1	5230	8.16	30
11N40MIMO	ANT2	5230	8.32	30
11N40MIMO	ANT3	5230	12.37	30
11N40MIMO	ANT4	5230	12.52	30
11N40MIMO	total	5230	16.9	30
11AC20MIMO	ANT1	5180	11.73	30
11AC20MIMO	ANT2	5180	11.96	30
11AC20MIMO	ANT3	5180	15.27	30
11AC20MIMO	ANT4	5180	15.24	30
11AC20MIMO	total	5180	19.9	30
11AC20MIMO	ANT1	5200	9.52	30
11AC20MIMO	ANT2	5200	8.62	30
11AC20MIMO	ANT3	5200	13.79	30
11AC20MIMO	ANT4	5200	13.71	30
11AC20MIMO	total	5200	18.0	30
11AC20MIMO	ANT1	5240	12.04	30
11AC20MIMO	ANT2	5240	12.43	30
11AC20MIMO	ANT3	5240	16.02	30
11AC20MIMO	ANT4	5240	15.71	30
11AC20MIMO	total	5240	20.4	30
11AC40MIMO	ANT1	5190	8.41	30
11AC40MIMO	ANT2	5190	8.73	30

11AC40MIMO	ANT3	5190	12.32	30
11AC40MIMO	ANT4	5190	12.54	30
11AC40MIMO	total	5190	16.9	30
11AC40MIMO	ANT1	5230	8.75	30
11AC40MIMO	ANT2	5230	8.82	30
11AC40MIMO	ANT3	5230	12.63	30
11AC40MIMO	ANT4	5230	12.84	30
11AC40MIMO	total	5230	17.2	30
11AC80MIMO	ANT1	5210	6.91	30
11AC80MIMO	ANT2	5210	7.15	30
11AC80MIMO	ANT3	5210	11.35	30
11AC80MIMO	ANT4	5210	11.37	30
11AC80MIMO	total	5210	15.7	30

(5725-5850)

Test Mode	Ant	Test Channel	Output Power (dBm)	Limit (dBm)
11A	ANT1	5745	11.11	30
11A	ANT2	5745	10.59	30
11A	ANT3	5745	13.39	30
11A	ANT4	5745	8.14	30
11A	ANT1	5785	10.95	30
11A	ANT2	5785	11.61	30
11A	ANT3	5785	13.47	30
11A	ANT4	5785	7.79	30
11A	ANT1	5825	11.56	30
11A	ANT2	5825	11.50	30
11A	ANT3	5825	13.51	30
11A	ANT4	5825	7.55	30
11N20MIMO	ANT1	5745	14.17	30
11N20MIMO	ANT2	5745	13.06	30
11N20MIMO	ANT3	5745	15.95	30
11N20MIMO	ANT4	5745	10.38	30
11N20MIMO	total	5745	19.9	30
11N20MIMO	ANT1	5785	14.01	30
11N20MIMO	ANT2	5785	14.06	30
11N20MIMO	ANT3	5785	16.05	30
11N20MIMO	ANT4	5785	9.94	30
11N20MIMO	total	5785	20.0	30

11N20MIMO	ANT1	5825	14.33	30
11N20MIMO	ANT2	5825	14.01	30
11N20MIMO	ANT3	5825	16.11	30
11N20MIMO	ANT4	5825	10.09	30
11N20MIMO	total	5825	20.1	30
11N40MIMO	ANT1	5755	9.56	30
11N40MIMO	ANT2	5755	9.10	30
11N40MIMO	ANT3	5755	12.39	30
11N40MIMO	ANT4	5755	6.67	30
11N40MIMO	total	5755	15.9	30
11N40MIMO	ANT1	5795	9.46	30
11N40MIMO	ANT2	5795	9.97	30
11N40MIMO	ANT3	5795	12.37	30
11N40MIMO	ANT4	5795	6.23	30
11N40MIMO	total	5795	16.0	30
11AC20MIMO	ANT1	5745	13.54	30
11AC20MIMO	ANT2	5745	12.49	30
11AC20MIMO	ANT3	5745	15.42	30
11AC20MIMO	ANT4	5745	10.18	30
11AC20MIMO	total	5745	19.3	30
11AC20MIMO	ANT1	5785	13.54	30
11AC20MIMO	ANT2	5785	13.53	30
11AC20MIMO	ANT3	5785	15.51	30
11AC20MIMO	ANT4	5785	9.71	30
11AC20MIMO	total	5785	19.5	30
11AC20MIMO	ANT1	5825	13.80	30
11AC20MIMO	ANT2	5825	13.65	30
11AC20MIMO	ANT3	5825	15.68	30
11AC20MIMO	ANT4	5825	9.62	30
11AC20MIMO	total	5825	19.7	30
11AC40MIMO	ANT1	5755	10.10	30
11AC40MIMO	ANT2	5755	9.58	30
11AC40MIMO	ANT3	5755	12.69	30
11AC40MIMO	ANT4	5755	7.14	30
11AC40MIMO	total	5755	16.3	30
11AC40MIMO	ANT1	5795	10.16	30
11AC40MIMO	ANT2	5795	10.24	30
11AC40MIMO	ANT3	5795	12.65	30
11AC40MIMO	ANT4	5795	6.72	30

11AC40MIMO	total	5795	16.4	30
11AC80MIMO	ANT1	5775	8.37	30
11AC80MIMO	ANT2	5775	5.62	30
11AC80MIMO	ANT3	5775	8.86	30
11AC80MIMO	ANT4	5775	2.41	30
11AC80MIMO	total	5775	13.0	30

6. Power Spectral Density

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	5470-5725
	30 dBm/500 kHz	5725-5850

6.3. Test procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.

Connect the UUT to the spectrum analyser and use the following settings:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

6.4. Test result**(5150-5250)**

Test Mode	Ant	Test Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11A	ANT1	5180	0.49	17	Pass
11A	ANT2	5180	2.07	17	Pass
11A	ANT3	5180	3.60	17	Pass
11A	ANT4	5180	3.59	17	Pass
11A	ANT1	5200	0.42	17	Pass
11A	ANT2	5200	8.13	17	Pass
11A	ANT3	5200	3.90	17	Pass
11A	ANT4	5200	3.36	17	Pass
11A	ANT1	5240	0.73	17	Pass
11A	ANT2	5240	2.13	17	Pass
11A	ANT3	5240	4.56	17	Pass
11A	ANT4	5240	3.68	17	Pass
11N20MIMO	ANT1	5180	1.02	14	Pass
11N20MIMO	ANT2	5180	2.64	14	Pass
11N20MIMO	ANT3	5180	4.37	14	Pass
11N20MIMO	ANT4	5180	4.24	14	Pass
11N20MIMO	total	5180	9.29	14	Pass
11N20MIMO	ANT1	5200	3.06	14	Pass
11N20MIMO	ANT2	5200	4.17	14	Pass
11N20MIMO	ANT3	5200	5.79	14	Pass
11N20MIMO	ANT4	5200	6.30	14	Pass
11N20MIMO	total	5200	11.04	14	Pass
11N20MIMO	ANT1	5240	3.38	14	Pass
11N20MIMO	ANT2	5240	5.23	14	Pass
11N20MIMO	ANT3	5240	7.40	14	Pass
11N20MIMO	ANT4	5240	6.31	14	Pass
11N20MIMO	total	5240	11.84	14	Pass
11N40MIMO	ANT1	5190	-3.32	14	Pass
11N40MIMO	ANT2	5190	-2.19	14	Pass
11N40MIMO	ANT3	5190	0.18	14	Pass
11N40MIMO	ANT4	5190	0.43	14	Pass
11N40MIMO	total	5190	5.07	14	Pass
11N40MIMO	ANT1	5230	-3.25	14	Pass
11N40MIMO	ANT2	5230	-2.02	14	Pass
11N40MIMO	ANT3	5230	0.26	14	Pass

11N40MIMO	ANT4	5230	0.38	14	Pass
11N40MIMO	total	5230	5.12	14	Pass
11AC20MIMO	ANT1	5180	2.86	14	Pass
11AC20MIMO	ANT2	5180	4.55	14	Pass
11AC20MIMO	ANT3	5180	5.91	14	Pass
11AC20MIMO	ANT4	5180	5.89	14	Pass
11AC20MIMO	total	5180	10.99	14	Pass
11AC20MIMO	ANT1	5200	0.94	14	Pass
11AC20MIMO	ANT2	5200	0.54	14	Pass
11AC20MIMO	ANT3	5200	4.16	14	Pass
11AC20MIMO	ANT4	5200	3.91	14	Pass
11AC20MIMO	total	5200	8.72	14	Pass
11AC20MIMO	ANT1	5240	3.61	14	Pass
11AC20MIMO	ANT2	5240	4.66	14	Pass
11AC20MIMO	ANT3	5240	7.40	14	Pass
11AC20MIMO	ANT4	5240	6.29	14	Pass
11AC20MIMO	total	5240	11.75	14	Pass
11AC40MIMO	ANT1	5190	-2.77	14	Pass
11AC40MIMO	ANT2	5190	-1.42	14	Pass
11AC40MIMO	ANT3	5190	0.46	14	Pass
11AC40MIMO	ANT4	5190	0.93	14	Pass
11AC40MIMO	total	5190	5.56	14	Pass
11AC40MIMO	ANT1	5230	-2.46	14	Pass
11AC40MIMO	ANT2	5230	-1.67	14	Pass
11AC40MIMO	ANT3	5230	0.57	14	Pass
11AC40MIMO	ANT4	5230	0.93	14	Pass
11AC40MIMO	total	5230	5.60	14	Pass
11AC80MIMO	ANT1	5210	-6.16	14	Pass
11AC80MIMO	ANT2	5210	-5.50	14	Pass
11AC80MIMO	ANT3	5210	-2.22	14	Pass
11AC80MIMO	ANT4	5210	-2.39	14	Pass
11AC80MIMO	total	5210	2.31	14	Pass

Note: If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Limit=17 - (9 - 6) =14(dBm/MHz)

(5725-5850)

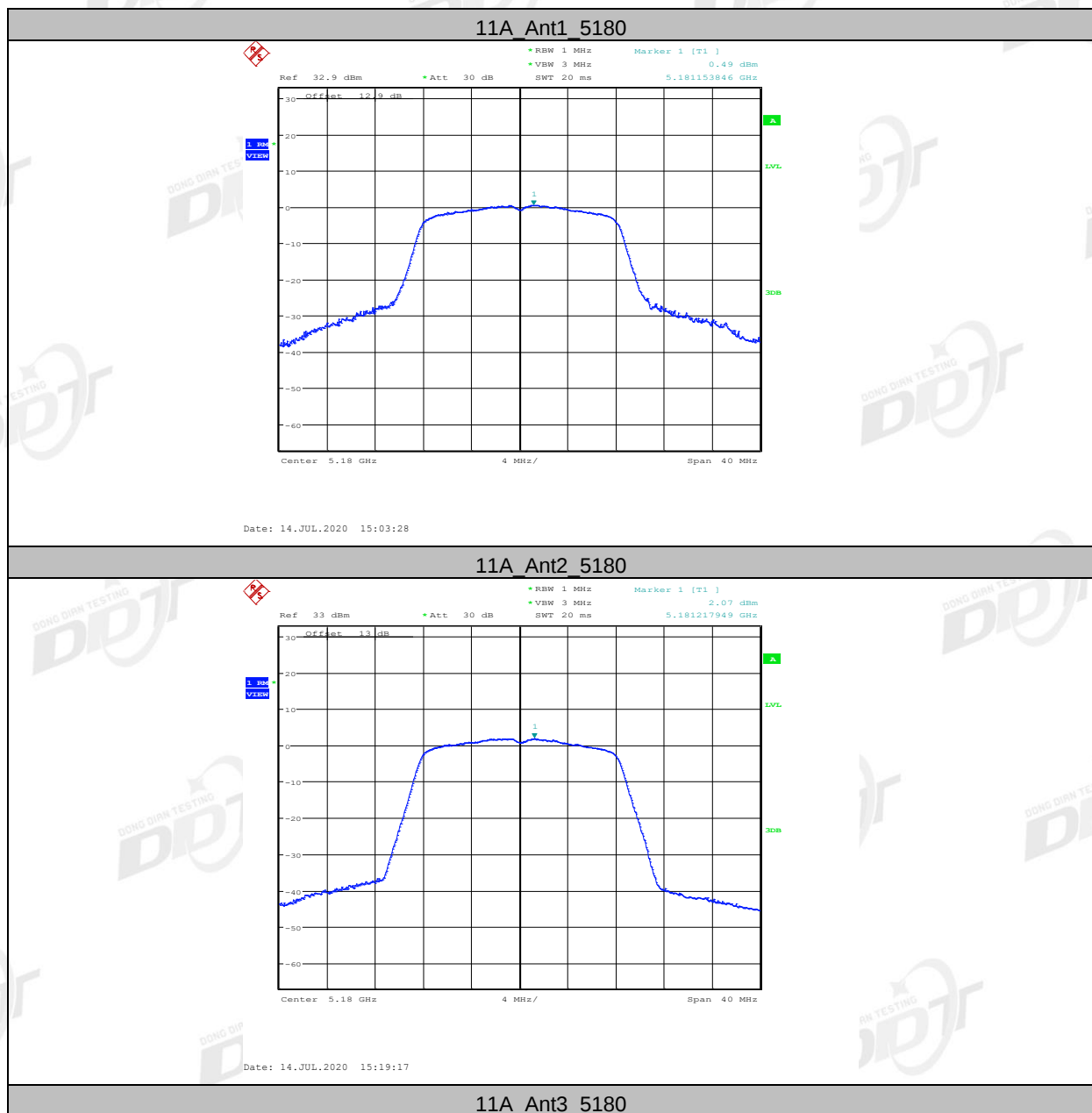
Test Mode	Test Channel	Ant	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Verdict
11A	ANT1	5745	-0.55	30	Pass
11A	ANT2	5745	0.03	30	Pass
11A	ANT3	5745	1.22	30	Pass
11A	ANT4	5745	-4.12	30	Pass
11A	ANT1	5785	0.09	30	Pass
11A	ANT2	5785	0.98	30	Pass
11A	ANT3	5785	1.38	30	Pass
11A	ANT4	5785	-4.38	30	Pass
11A	ANT1	5825	-0.47	30	Pass
11A	ANT2	5825	0.76	30	Pass
11A	ANT3	5825	1.16	30	Pass
11A	ANT4	5825	-4.97	30	Pass
11N20MIMO	ANT1	5745	2.75	27	Pass
11N20MIMO	ANT2	5745	3.24	27	Pass
11N20MIMO	ANT3	5745	3.79	27	Pass
11N20MIMO	ANT4	5745	-1.55	27	Pass
11N20MIMO	total	5745	8.50	27	Pass
11N20MIMO	ANT1	5785	3.27	27	Pass
11N20MIMO	ANT2	5785	4.84	27	Pass
11N20MIMO	ANT3	5785	4.40	27	Pass
11N20MIMO	ANT4	5785	-1.88	27	Pass
11N20MIMO	total	5785	9.33	27	Pass
11N20MIMO	ANT1	5825	3.02	27	Pass
11N20MIMO	ANT2	5825	5.59	27	Pass
11N20MIMO	ANT3	5825	4.13	27	Pass
11N20MIMO	ANT4	5825	-2.24	27	Pass
11N20MIMO	total	5825	9.45	27	Pass
11N40MIMO	ANT1	5755	-3.97	27	Pass
11N40MIMO	ANT2	5755	-3.01	27	Pass
11N40MIMO	ANT3	5755	-1.80	27	Pass
11N40MIMO	ANT4	5755	-7.26	27	Pass
11N40MIMO	total	5755	2.43	27	Pass
11N40MIMO	ANT1	5795	-3.04	27	Pass
11N40MIMO	ANT2	5795	-2.21	27	Pass
11N40MIMO	ANT3	5795	-1.40	27	Pass
11N40MIMO	ANT4	5795	-7.27	27	Pass

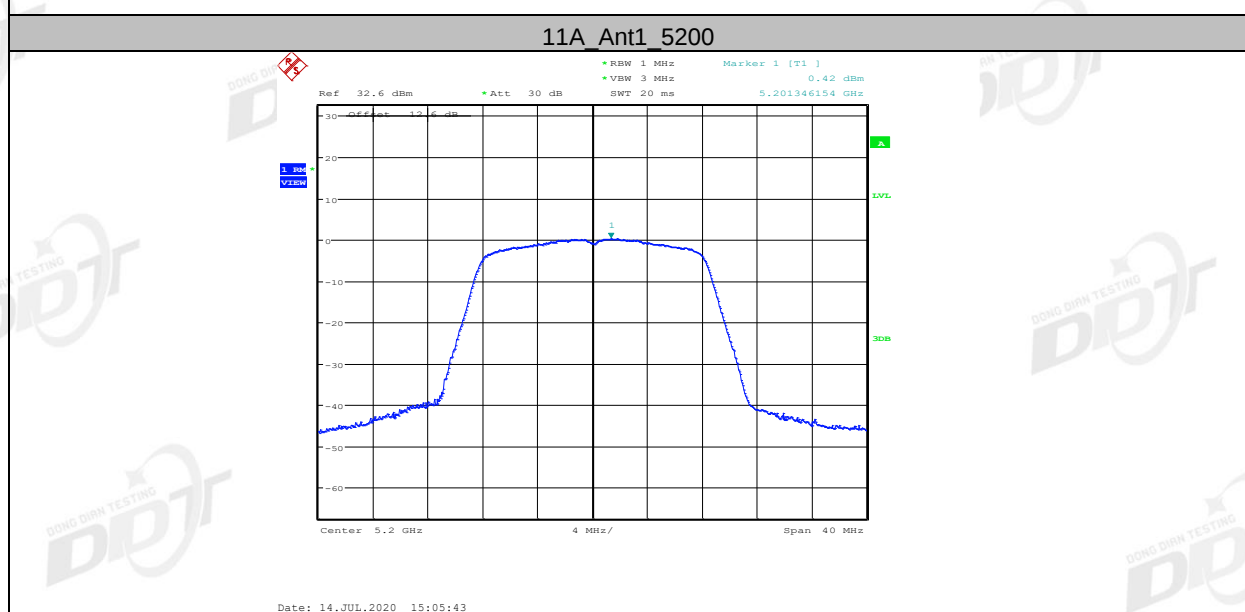
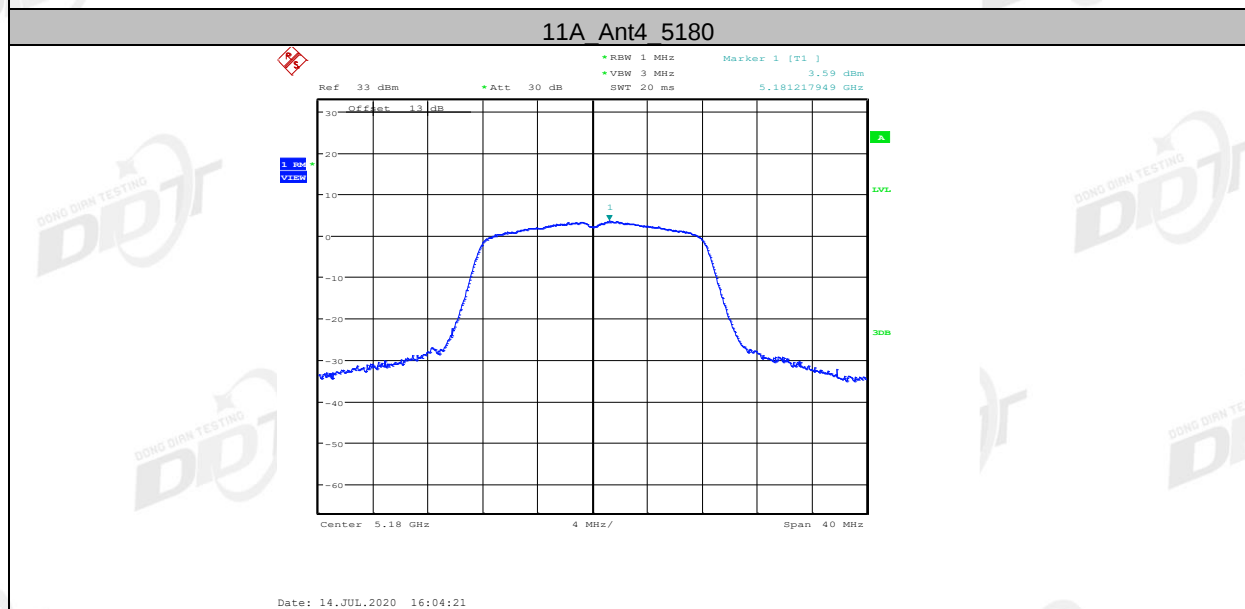
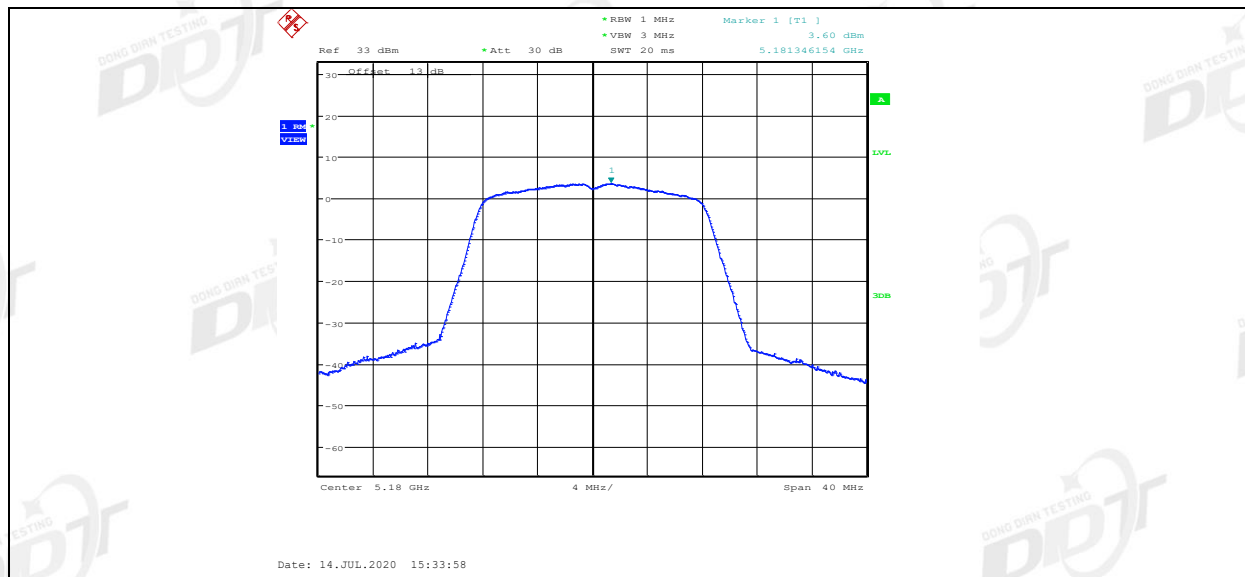
11N40MIMO	total	5795	3.03	27	Pass
11AC20MIMO	ANT1	5745	2.95	27	Pass
11AC20MIMO	ANT2	5745	2.91	27	Pass
11AC20MIMO	ANT3	5745	4.26	27	Pass
11AC20MIMO	ANT4	5745	-1.03	27	Pass
11AC20MIMO	total	5745	8.68	27	Pass
11AC20MIMO	ANT1	5785	3.53	27	Pass
11AC20MIMO	ANT2	5785	4.83	27	Pass
11AC20MIMO	ANT3	5785	4.72	27	Pass
11AC20MIMO	ANT4	5785	-1.25	27	Pass
11AC20MIMO	total	5785	9.55	27	Pass
11AC20MIMO	ANT1	5825	3.19	27	Pass
11AC20MIMO	ANT2	5825	4.58	27	Pass
11AC20MIMO	ANT3	5825	4.15	27	Pass
11AC20MIMO	ANT4	5825	-1.81	27	Pass
11AC20MIMO	total	5825	9.15	27	Pass
11AC40MIMO	ANT1	5755	-3.15	27	Pass
11AC40MIMO	ANT2	5755	-2.58	27	Pass
11AC40MIMO	ANT3	5755	-1.12	27	Pass
11AC40MIMO	ANT4	5755	-7.13	27	Pass
11AC40MIMO	total	5755	3.02	27	Pass
11AC40MIMO	ANT1	5795	-2.73	27	Pass
11AC40MIMO	ANT2	5795	-1.75	27	Pass
11AC40MIMO	ANT3	5795	-0.93	27	Pass
11AC40MIMO	ANT4	5795	-7.09	27	Pass
11AC40MIMO	total	5795	3.43	27	Pass
11AC80MIMO	ANT1	5775	-6.31	27	Pass
11AC80MIMO	ANT2	5775	-8.77	27	Pass
11AC80MIMO	ANT3	5775	-6.86	27	Pass
11AC80MIMO	ANT4	5775	-13.48	27	Pass
11AC80MIMO	total	5775	-2.09	27	Pass

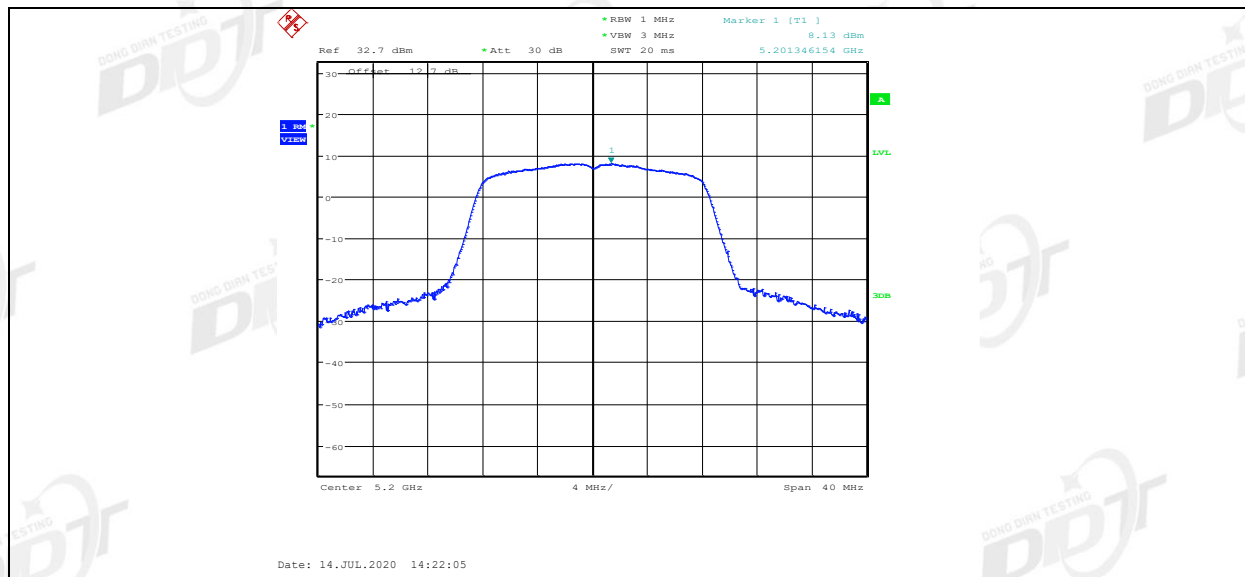
Note: If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Limit=30 - (9 - 6) =27(dBm/MHz)

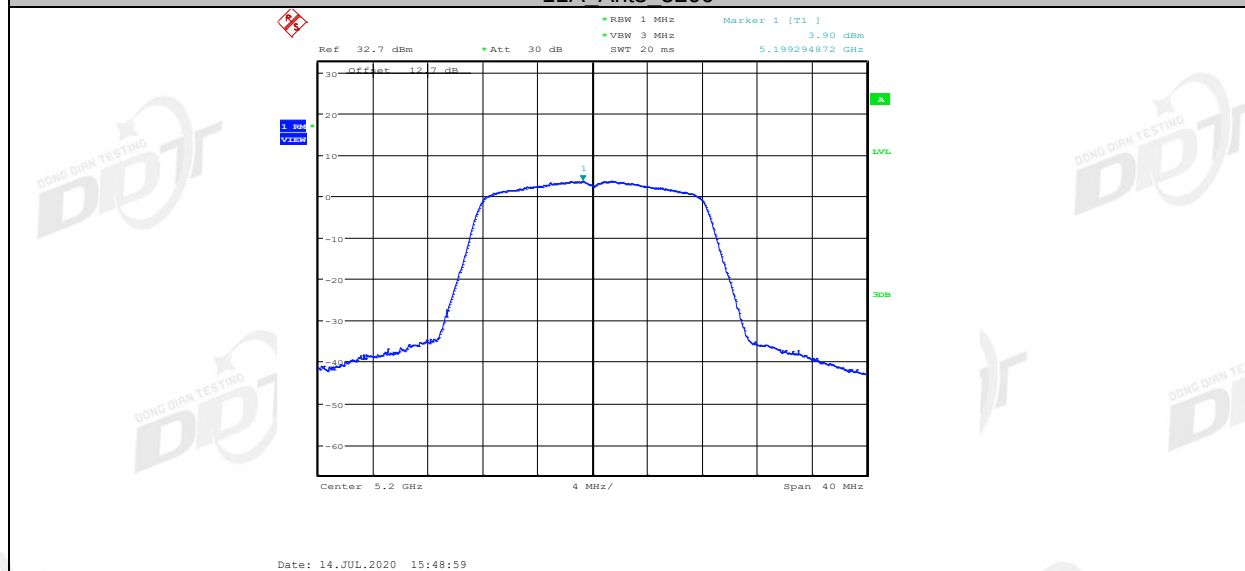
6.5. Original test data



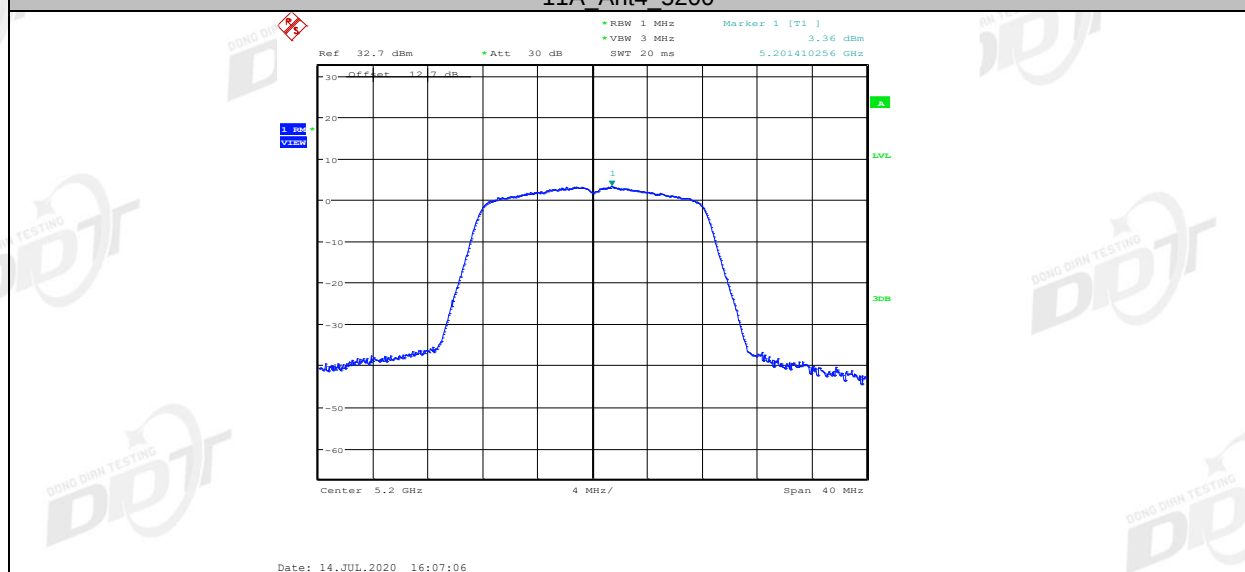




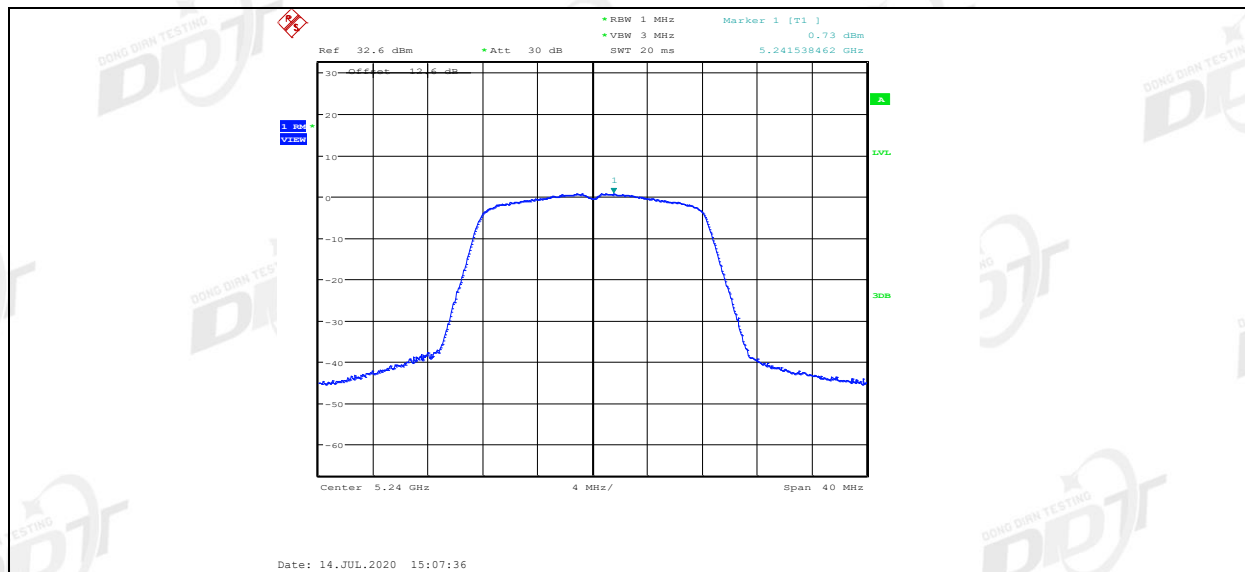
11A Ant3 5200



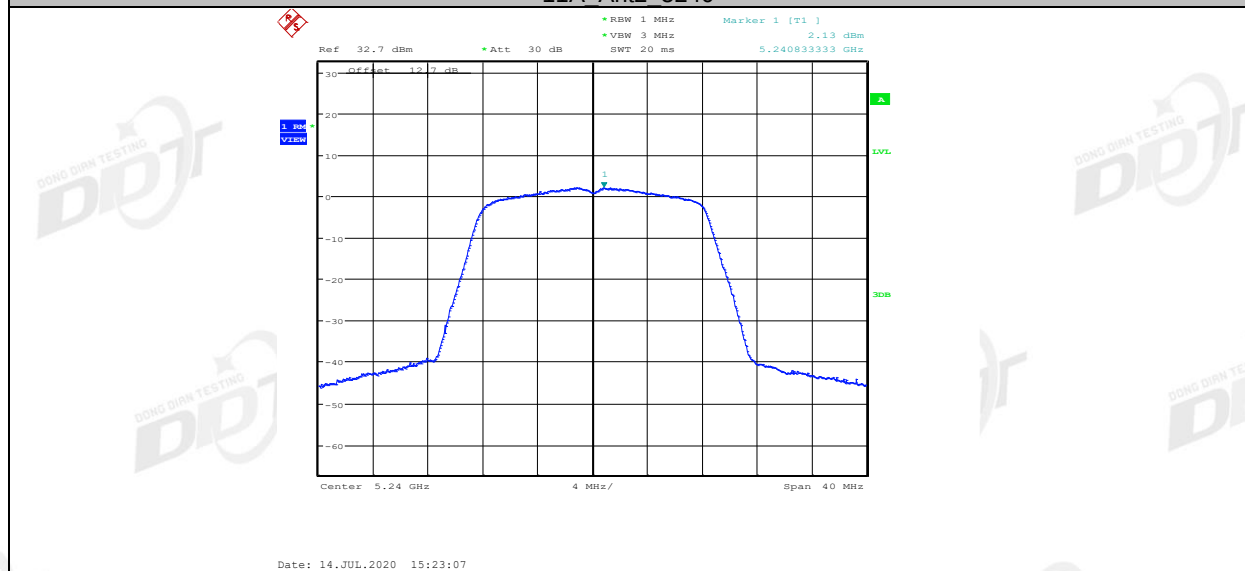
11A Ant4 5200



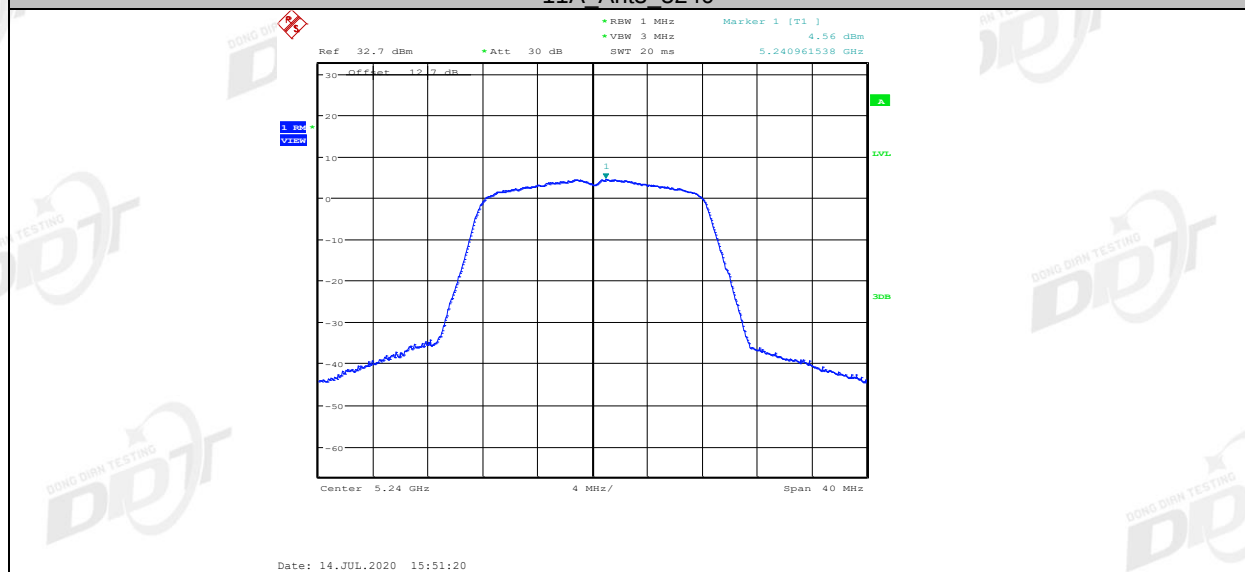
11A Ant1 5240



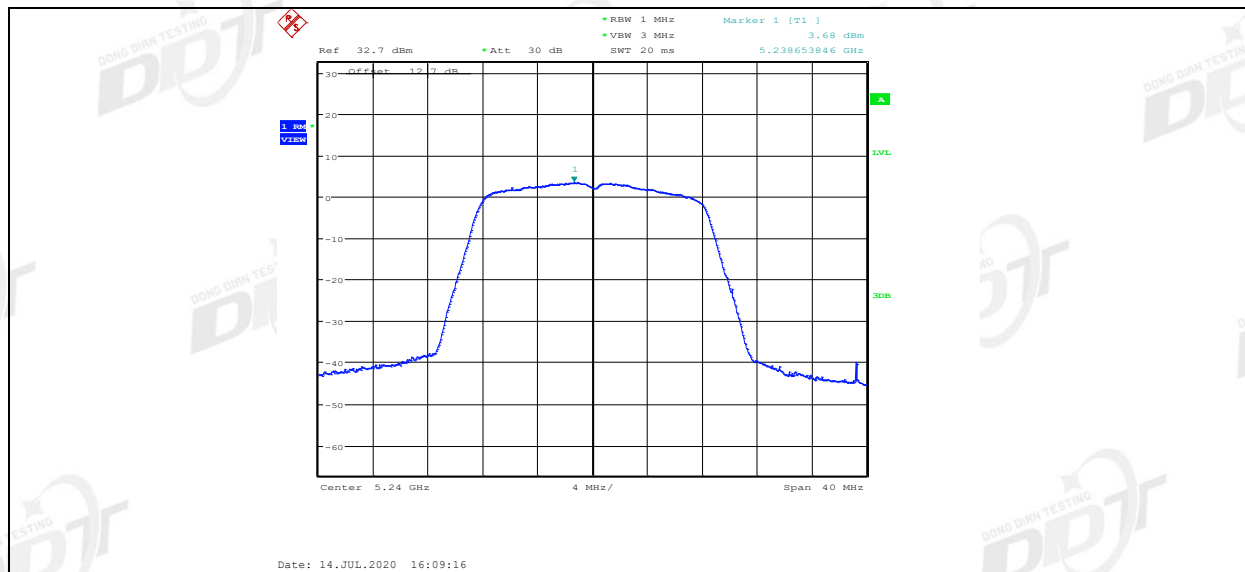
11A Ant2 5240



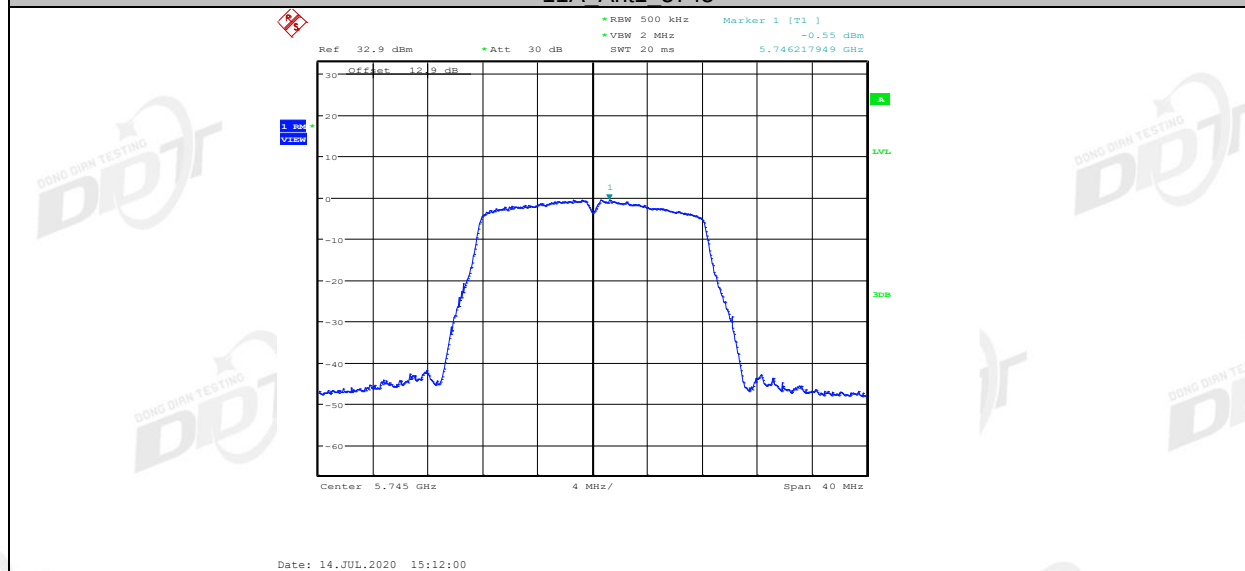
11A Ant3 5240



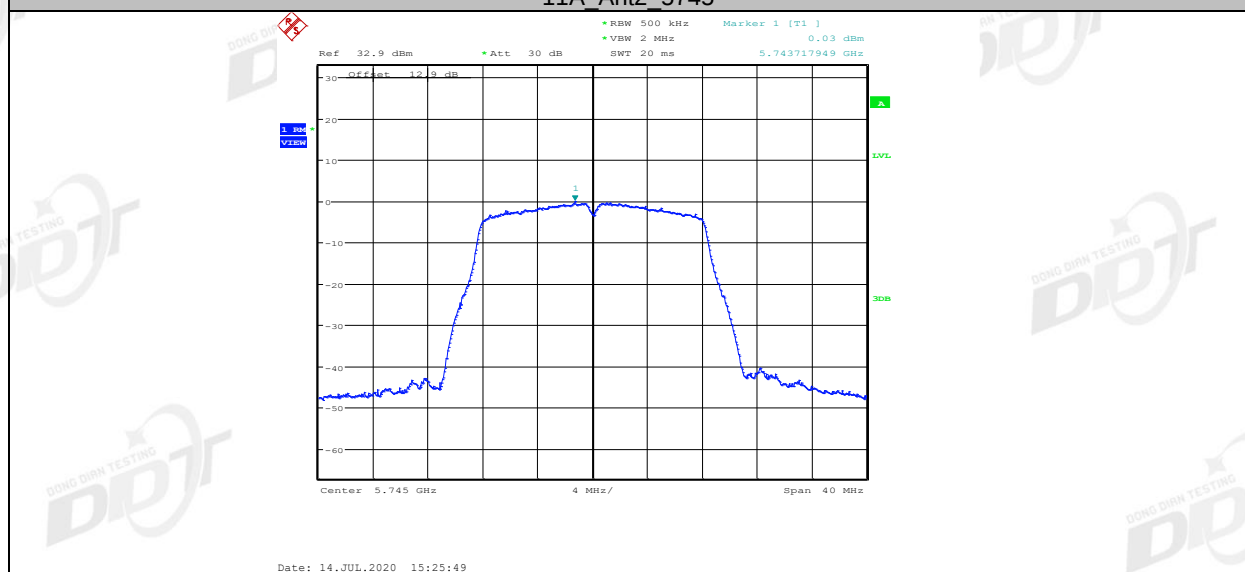
11A Ant4 5240



11A Ant1 5745



11A Ant2 5745



11A Ant3 5745