

FCC AND ISED CERTIFICATION TEST REPORT

Report No.: DDT-B22110106-2E12

Applicant	:	Hisense Commercial Display Co.,Ltd.
Address	:	No. 218, Qianwangang Road, Economy & Technology Development Zone, Qingdao, P.R. China
Equipment under Test	:	Wireless cast
Model No.	:	HT005E
Trade Mark	:	Hisense
FCC ID	:	2A9IW-HT005E
IC	:	27082-HT005E
Manufacturer	:	Hisense Commercial Display Co.,Ltd.
Address	:	No. 218, Qianwangang Road, Economy & Technology Development Zone, Qingdao, P.R. China

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

Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China

Tel: +86-22-58038033, E-mail: cdtd@ddt.com, <http://www.ddttest.com>



REPORT

Table of Contents

Test report declares.....	4
1. Summary of test results	6
2. General Test Information	7
2.1. Description of EUT	7
2.2. Accessories of EUT	8
2.3. Assistant equipment used for test	8
2.4. Block diagram of EUT configuration for test	8
2.5. Deviations of test standard	10
2.6. Test environment conditions	10
2.7. Test laboratory	10
2.8. Measurement uncertainty	11
3. Equipment Used During Test	12
4. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth	13
4.1. Block diagram of test setup	13
4.2. Limits	13
4.3. Test procedure	13
4.4. Test result	14
4.5. Original test data	16
5. Maximum Conducted Output Power	58
5.1. Block diagram of test setup	58
5.2. Limits	58
5.3. Test procedure	58
5.4. Test result	59
5.5. Original test data	63
6. Power Spectral Density	105
6.1. Block diagram of test setup	105
6.2. Limits	105
6.3. Test procedure	105
6.4. Test result	106
6.5. Original test data	108
7. Frequency Stability Measurement	129
7.1. Limit of Frequency Stability	129
7.2. Measuring Instruments	129
7.3. Test procedures	129
7.4. Test setup	129
7.5. Test result	130
8. Emissions in restricted frequency bands	138

8.1.	Block diagram of test setup.....	138
8.2.	Limit	139
8.3.	Test procedure	141
8.4.	Test result	142
9.	Band Edge Compliance	147
9.1.	Block diagram of test setup.....	147
9.2.	Limit	147
9.3.	Test procedure	147
9.4.	Test result	148
10.	Power Line Conducted Emission	201
10.1.	Block diagram of test setup.....	201
10.2.	Power Line Conducted Emission Limits (Class B)	201
10.3.	Test Procedure.....	201
10.4.	Test Result.....	202
11.	Antenna Requirements	204
11.1.	Limit	204
11.2.	Result.....	204
12.	Dynamic Frequency Selection	205
12.1.	Applicability of DFS requirements	205
12.2.	Limit	206
12.3.	Parameters of radar test waveforms.....	206
12.4.	Calibration of radar waveform.....	207
12.5.	Channel closing transmission time, channel move time and non-occupancy period	210
12.6.	Test setup	211
12.7.	Test result	211
13.	Test setup photograph	213
14.	Photos of the EUT	215

Test Report Declare

Applicant	:	Hisense Commercial Display Co.,Ltd.
Address	:	No. 218, Qianwangang Road, Economy & Technology Development Zone, Qingdao, P.R. China
Equipment under Test	:	Wireless cast
Model No	:	HT005E
Trade Mark	:	Hisense
Manufacturer	:	Hisense Commercial Display Co.,Ltd.
Address	:	No. 218, Qianwangang Road, Economy & Technology Development Zone, Qingdao, P.R. China

Test Standard Used: FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 2 February 2017.

Test procedure used: ANSI C63.10:2020, 789033 D02 General U-NII Test Procedures New Rules v02r01, 662911 D01 Multiple Transmitter Output v02r01, RSS-Gen Issue 5: Apr. 2018

We Declare:

The equipment described above is tested by Tianjin 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 Tianjin 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&ISED standards.

Report No:	DDT-B22110106-2E12		
Date of Receipt:	Nov. 02, 2022	Date of Test:	Nov. 02, 2022 ~ Nov. 22, 2022

Prepared By:

Sunny Zhang

Sunny Zhang/Engineer

Approved By:

Leon Li

Leon Li /RF Manager

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

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Nov. 22, 2022	

1. Summary of test results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Verdict
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e) RSS-247 Clause 6.2	Pass
Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
Frequency Stability Measurement	FCC 15.407 (g)	Pass
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass
Band Edge Compliance	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass
Power Line Conducted Emission	FCC 15.207 RSS-GEN Clause 8.8	Pass
Antenna requirement	FCC 15.203 RSS-GEN Clause 8.3	Pass
Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	Pass

2. General Test Information

2.1. Description of EUT

EUT* Name	: Wireless cast
Model Number	: HT005E
EUT function description	: Please reference user manual of this device
Power supply	: DC 5V by USB
Radio Technology	: IEEE 802.11a/n/ac
Operation frequency	: IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz,5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz,5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz,5755MHz-5795MHz IEEE 802.11ac HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5745MHz-5825MHz IEEE 802.11ac HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5755MHz-5795MHz IEEE 802.11ac HT80: 5210MHz, 5290MHz, 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: MCS0~MCS7 IEEE 802.11n HT40: MCS0~MCS7 IEEE 802.11ac VHT20: MCS0~MCS9 IEEE 802.11ac VHT40: MCS0~MCS9 IEEE 802.11ac VHT80: MCS0~MCS9
Antenna Type	: Chip antenna, maximum PK gain: 3.3 dBi
Serial Number	: N/A

Note1: EUT is the ab. of equipment under test.

Note2: The EUT contain wireless module of model RTL8821CS that supports 802.11a/b/g/n/ac function.

Note 3: EUT without DFS detection.

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Remark
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	Lenovo Beijing Co. Ltd.	ThinkPad	FCC/CE	TP00067A
Wireless LAN Access Point	ASUS	RT-AX82U	FCC ID: MSQ-RTAXJ300	LAIC4003599
AC/DC Adapter	N/A	EP-TA200	Input 100-240V~50/60Hz, Output 9V, 1.67A or 5V, 2A	SAMSUNG

2.4. Block diagram of EUT configuration for test



Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
	Ant1			
IEEE 802.11a	44	6	Low: CH36	5180
	44	6	Middle: CH40	5200
	44	6	High: CH48	5240
	44	6	Low: CH52	5260
	44	6	Middle: CH56	5280
	44	6	High: CH64	5320
	34	6	Low: CH149	5745
	34	6	Middle: CH157	5785
	34	6	High: CH165	5825
IEEE 802.11n HT20	44	MCS 8	Low: CH36	5180
	44	MCS 8	Middle: CH40	5200
	44	MCS 8	High: CH48	5240
	44	MCS 8	Low: CH52	5260
	44	MCS 8	Middle: CH56	5280
	44	MCS 8	High: CH64	5320
	34	MCS 8	Low: CH149	5745
	34	MCS 8	Middle: CH157	5785
	34	MCS 8	High: CH165	5825
IEEE 802.11n HT40	44	MCS 8	Low: CH38	5190
	44	MCS 8	Middle: CH46	5230
	44	MCS 8	High: CH54	5270
	44	MCS 8	Low: CH62	5310
	34	MCS 8	Middle: CH151	5755
	34	MCS 8	High: CH159	5795
IEEE 802.11ac HT20	44	MCS 0	Low: CH36	5180
	44	MCS 0	Middle: CH40	5200
	44	MCS 0	High: CH48	5240
	44	MCS 0	Low: CH52	5260
	44	MCS 0	Middle: CH56	5280
	44	MCS 0	High: CH64	5320
	34	MCS 0	Low: CH149	5745
	34	MCS 0	Middle: CH157	5785
	34	MCS 0	High: CH165	5825
IEEE 802.11ac HT40	44	MCS 0	Low: CH38	5190
	44	MCS 0	Middle: CH46	5230
	44	MCS 0	High: CH54	5270
	44	MCS 0	Low: CH62	5310
	34	MCS 0	Middle: CH151	5755
	34	MCS 0	High: CH159	5795
IEEE 802.11ac HT80	44	MCS 0	CH42	5210
	44	MCS 0	CH58	5290
	44	MCS 0	CH106	5530
	34	MCS 0	CH155	5775

Note1: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

Note2: Run a special test software "ADB.exe" provided by manufacturer to control EUT work in Continuous Tx mode, and select test channel, wireless mode and data rate.

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:	21-28℃
Humidity range:	20-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Tianjin Dongdian Testing Service Co., Ltd.

Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area,
Tianjin, China.

Tel: +86-22-58038033, <http://www.ddttest.com>, Email: ddt@dgddt.com

NVLAP (National Voluntary Laboratory Accreditation Program) CODE: 500036-0

CNAS (China National Accreditation Service for Conformity Assessment) CODE: L13402

FCC Designation Number: CN5004; FCC Test Firm Registration Number: 368676

ISED (Innovation, Science and Economic Development Canada) Company Number: 27768

Conformity Assessment Body Identifier: CN0125

VCCI Facility Registration Number: C-20089, T-20093, R-20125, G-20122

2.8. Measurement uncertainty

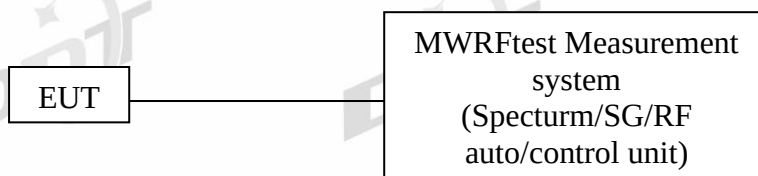
Test Item	Uncertainty
Bandwidth	0.14%
Peak Output Power (Conducted) (Spectrum Analyzer)	0.12 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	0.32 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.51 dB
Power Spectral Density	0.12 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	0.32 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	3.4×10^{-8} (Conducted method)
Conducted Spurious Emissions	0.12 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$);
	0.32 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
	0.52 dB ($8 \text{ GHz} \leq f < 22 \text{ GHz}$)
Uncertainty for Radio Frequency (RBW < 20 kHz)	3×10^{-7}
Temperature	$\pm 2^{\circ}\text{C}$
Humidity	$\pm 1\%$
Uncertainty for Radiation Emission Test (30 MHz - 1 GHz)	2.72 dB (Antenna Polarize: V)
	2.72 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission Test (1 GHz - 40 GHz)	2.74 dB (1 - 6 GHz)
	2.72 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	3.40 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 (MWRFTest system)					
Microwave Signal Generator	R&S	SMF100A	101396	2022/05/26	1 Year
MXG Vector Signal Generator	Keysight	N5182A	MY50143288	2022/03/07	1 Year
EMI Test Receiver	R&S	ESU26	100243	2022/03/03	1 Year
Wideband Radio Communication Tester	R&S	CMW500	158800	2022/06/11	1 Year
Power Sensor	KEYSIGHT	U2021XA	MY59150007	2022/03/23	1 Year
DC Power Supply	inSTEK	PSP-2010	EN122317	2022/02/12	1 Year
Test Software	MWRFTest	MTS8310	V03	N/A	N/A
Radiated Emission -10m EMI Chamber					
Broadband Horn Antenna	TESEQ	BHA 9118	31754	2022/10/12	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	2022/05/06	1 Year
Active Loop Antenna	R&S	HFH2-Z2	100269	2022/05/08	1 Year
Low noise amplifier	MITEQ	TPA0118-36	0914	2022/02/16	1 Year
EMI Test Receiver	R&S	ESCI	101024	2022/03/03	1 Year
EMI Test Receiver	R&S	ESCI	101030	2022/03/29	1 Year
EMI Test Receiver	R&S	ESU26	100244	2022/03/03	1 Year
Bilog Antenna	TESEQ	CBL6112D	29068	2022/10/12	2 Year
Bilog Antenna	TESEQ	CBL6112D	29069	2022/10/12	2 Year
Amplifier	Sonoma	310N	300913	2022/02/15	1 Year
Amplifier	Sonoma	310N	300914	2022/02/15	1 Year
Ant Mast	Innco	MA4000	N/A	N/A	N/A
Ant Mast	Innco	MA4000	N/A	N/A	N/A
Mast Controller	Innco	CO2000	N/A	N/A	N/A
Mast Controller	Innco	CO2000	N/A	N/A	N/A
RF Selector 4CH	TOYO	NS4904N	Selector1	N/A	N/A
RF Selector 4CH	TOYO	NS4904N	Selector2	N/A	N/A
Test software	TOYO	EP5/RSE	Ver 1.9.1	N/A	N/A
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test					
Test Receiver	R&S	ESCI	101397	2022/03/03	1 Year
LISN	R&S	ENV216	101122	2022/03/31	1 Year
Test software	TOYO	EP5/CE	V 5.4.40	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/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150 - 5250
	26 dB Bandwidth	5250 - 5350
	26 dB Bandwidth	For FCC: 5470 - 5725 For IC: 5470 - 5600 5650 - 5725
	Minimum 500 kHz 6 dB Bandwidth	5725 - 5850

4.3. Test procedure

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: 1% to 5% 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

99% OBW

Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5180	Ant1	16.602
a	5200	Ant1	16.590
a	5240	Ant1	16.593
a	5260	Ant1	16.587
a	5280	Ant1	16.614
a	5320	Ant1	16.608
a	5745	Ant1	16.605
a	5785	Ant1	16.602
a	5825	Ant1	16.575
n20	5180	Ant1	17.694
n20	5200	Ant1	17.691
n20	5240	Ant1	17.697
n20	5260	Ant1	17.679
n20	5280	Ant1	17.718
n20	5320	Ant1	17.718
n20	5745	Ant1	17.715
n20	5785	Ant1	17.706
n20	5825	Ant1	17.679
n40	5190	Ant1	36.312
n40	5230	Ant1	36.300
n40	5270	Ant1	36.318
n40	5310	Ant1	36.360
n40	5755	Ant1	36.318
n40	5795	Ant1	36.312
ac20	5180	Ant1	17.718
ac20	5200	Ant1	17.706
ac20	5240	Ant1	17.718
ac20	5260	Ant1	17.700
ac20	5280	Ant1	17.736
ac20	5320	Ant1	17.733
ac20	5745	Ant1	17.733
ac20	5785	Ant1	17.724
ac20	5825	Ant1	17.694
ac40	5190	Ant1	36.294
ac40	5230	Ant1	36.288
ac40	5270	Ant1	36.312
ac40	5310	Ant1	36.330
ac40	5755	Ant1	36.306
ac40	5795	Ant1	36.312
ac80	5210	Ant1	75.636
ac80	5290	Ant1	75.672
ac80	5775	Ant1	75.588

26 dB Bandwidth

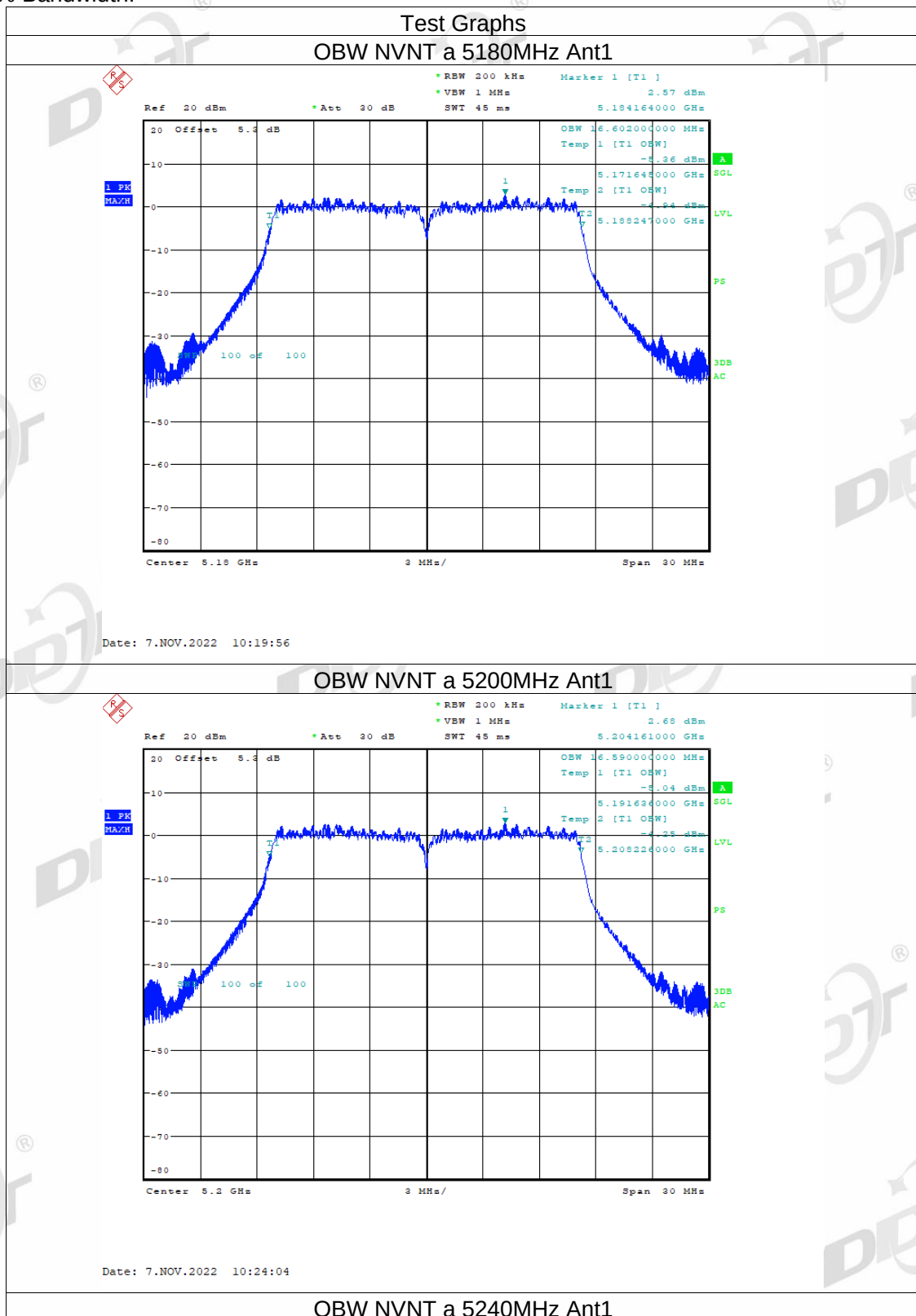
Mode	Frequency (MHz)	Antenna	26 dB Bandwidth (MHz)	Limit 26 dB Bandwidth (MHz)	Verdict
a	5180	Ant1	21.000	-	-
a	5200	Ant1	21.012	-	-
a	5240	Ant1	21.108	-	-
a	5260	Ant1	20.991	-	-
a	5280	Ant1	21.126	-	-
a	5320	Ant1	21.057	-	-
n20	5180	Ant1	21.789	-	-
n20	5200	Ant1	21.738	-	-
n20	5240	Ant1	21.795	-	-
n20	5260	Ant1	21.732	-	-
n20	5280	Ant1	21.804	-	-
n20	5320	Ant1	21.879	-	-
n40	5190	Ant1	41.640	-	-
n40	5230	Ant1	41.736	-	-
n40	5270	Ant1	41.634	-	-
n40	5310	Ant1	41.694	-	-
ac20	5180	Ant1	21.801	-	-
ac20	5200	Ant1	21.756	-	-
ac20	5240	Ant1	21.735	-	-
ac20	5260	Ant1	21.765	-	-
ac20	5280	Ant1	21.780	-	-
ac20	5320	Ant1	21.858	-	-
ac40	5190	Ant1	41.712	-	-
ac40	5230	Ant1	41.628	-	-
ac40	5270	Ant1	41.670	-	-
ac40	5310	Ant1	41.664	-	-
ac80	5210	Ant1	80.412	-	-
ac80	5290	Ant1	80.568	-	-

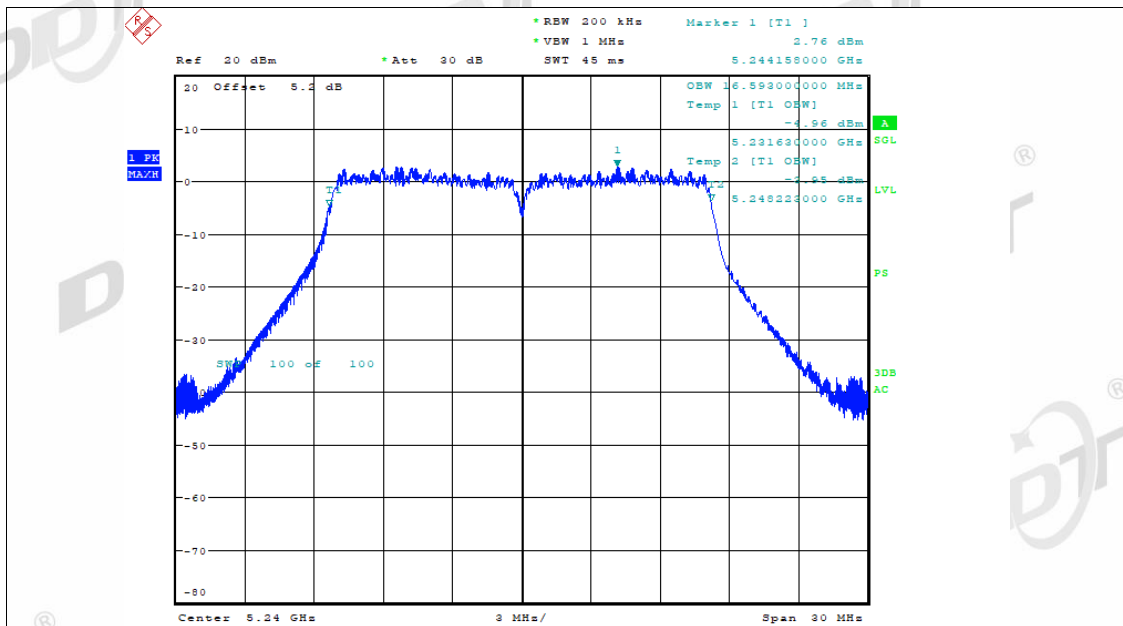
6 dB Bandwidth

Mode	Frequency (MHz)	Antenna	6 dB Bandwidth (MHz)	Limit 6 dB Bandwidth (MHz)	Verdict
a	5745	Ant1	16.536	≥ 0.5	Pass
a	5785	Ant1	16.536	≥ 0.5	Pass
a	5825	Ant1	16.521	≥ 0.5	Pass
n20	5745	Ant1	17.625	≥ 0.5	Pass
n20	5785	Ant1	17.604	≥ 0.5	Pass
n20	5825	Ant1	17.607	≥ 0.5	Pass
n40	5755	Ant1	36.366	≥ 0.5	Pass
n40	5795	Ant1	36.366	≥ 0.5	Pass
ac20	5745	Ant1	17.622	≥ 0.5	Pass
ac20	5785	Ant1	17.604	≥ 0.5	Pass
ac20	5825	Ant1	17.601	≥ 0.5	Pass
ac40	5755	Ant1	36.390	≥ 0.5	Pass
ac40	5795	Ant1	36.378	≥ 0.5	Pass
ac80	5775	Ant1	76.068	≥ 0.5	Pass

4.5. Original test data

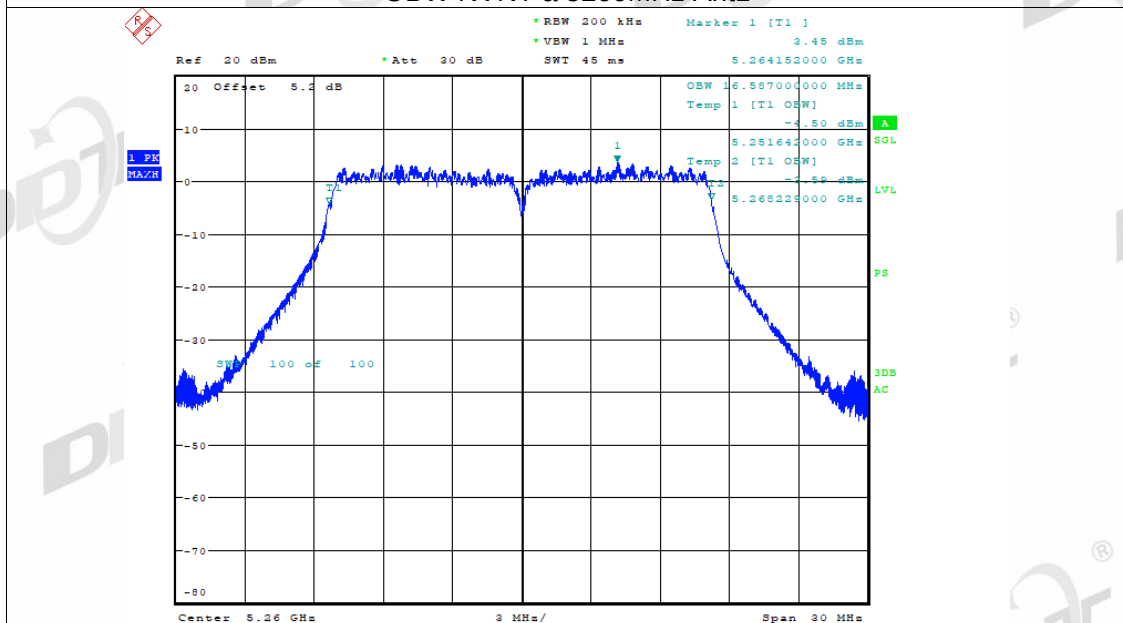
99% Bandwidth:





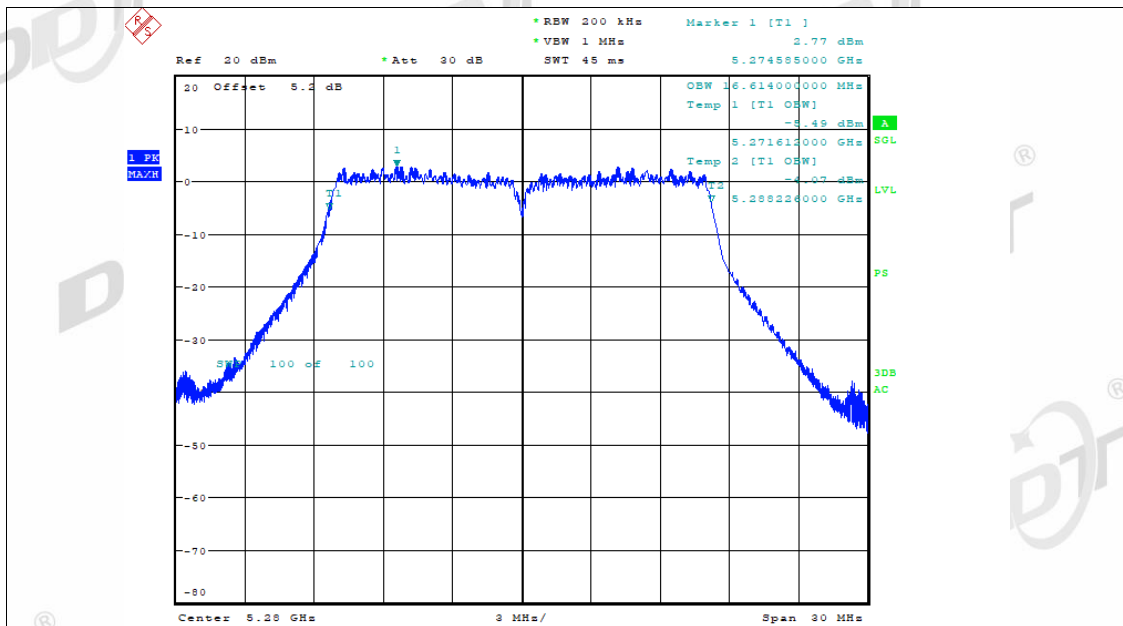
Date: 7.NOV.2022 10:27:53

OBW NVNT a 5260MHz Ant1



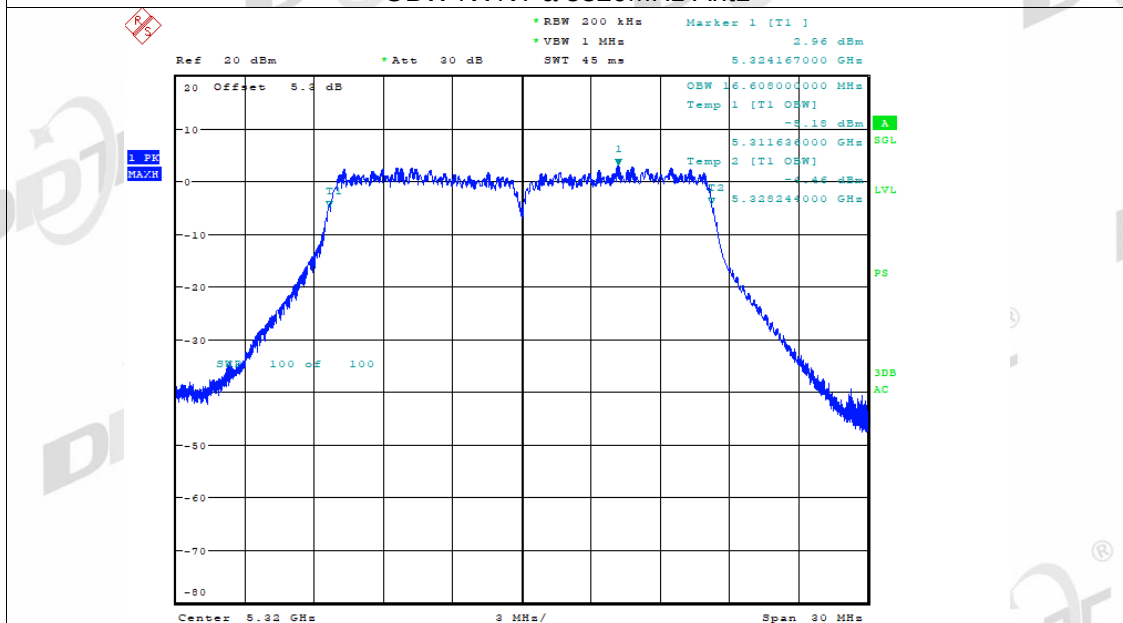
Date: 7.NOV.2022 10:32:41

OBW NVNT a 5280MHz Ant1



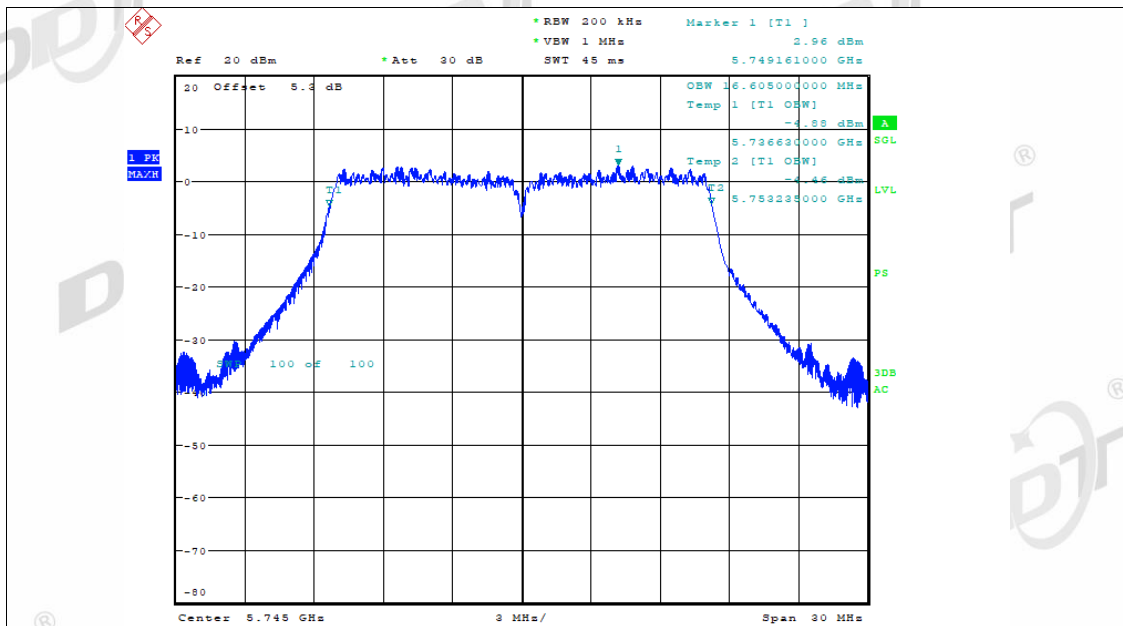
Date: 7.NOV.2022 10:37:12

OBW NVNT a 5320MHz Ant1



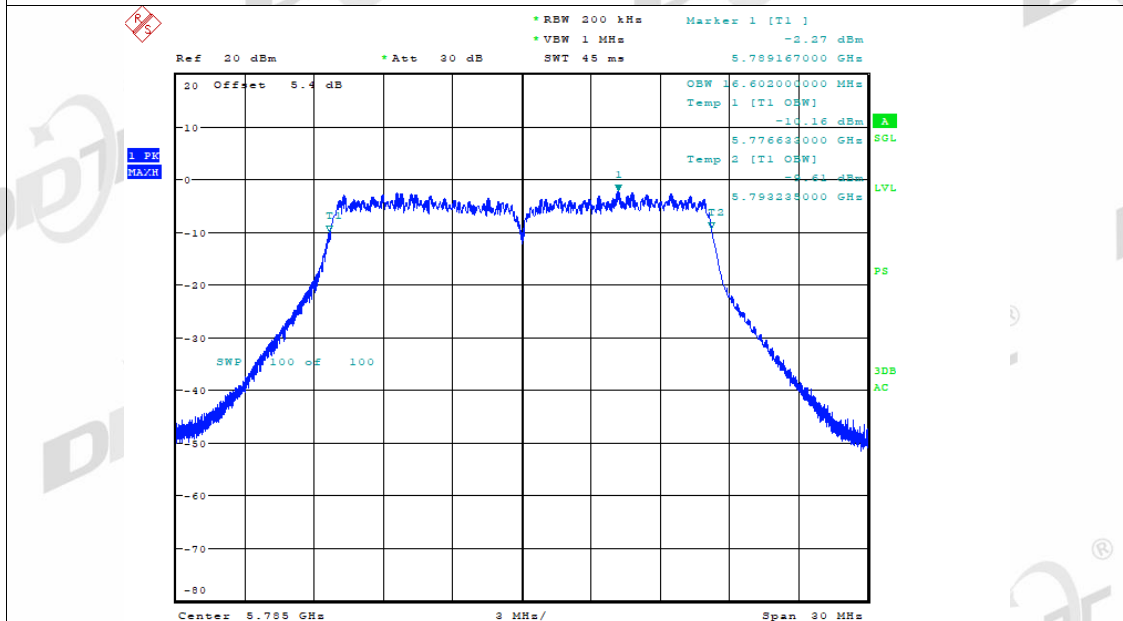
Date: 7.NOV.2022 10:41:14

OBW NVNT a 5745MHz Ant1



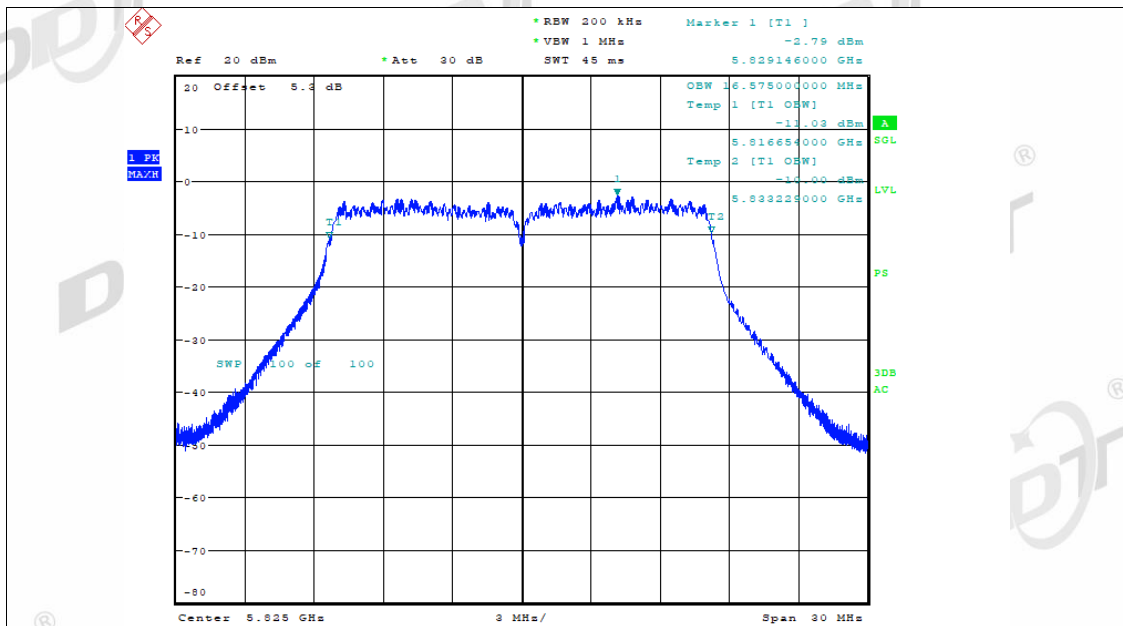
Date: 7.NOV.2022 10:49:07

OBW NVNT a 5785MHz Ant1



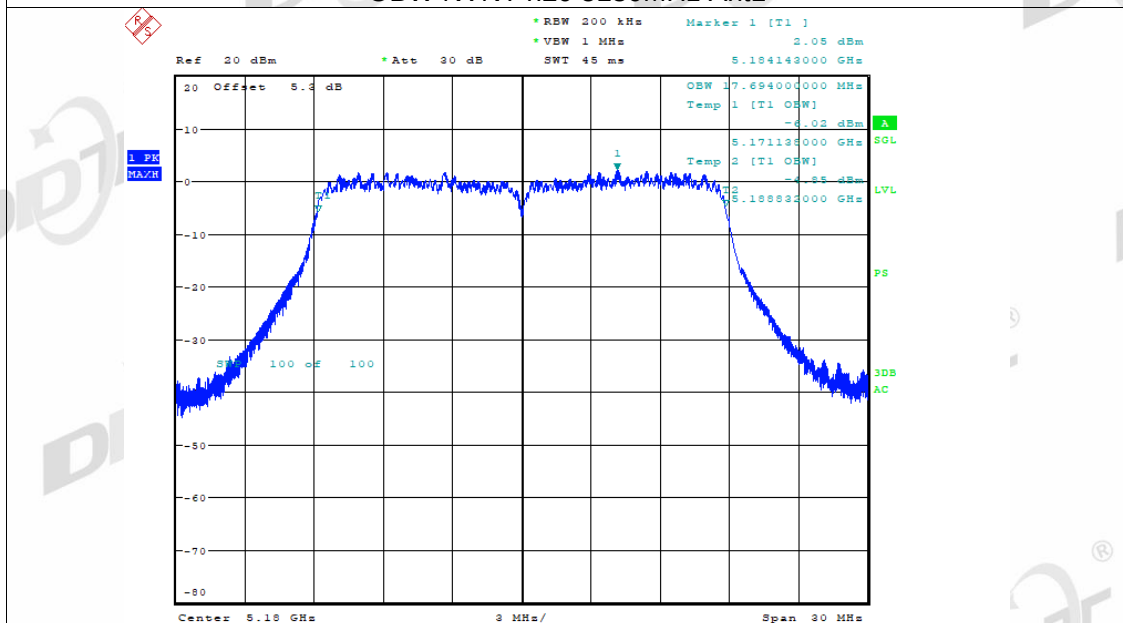
Date: 7.NOV.2022 10:53:43

OBW NVNT a 5825MHz Ant1



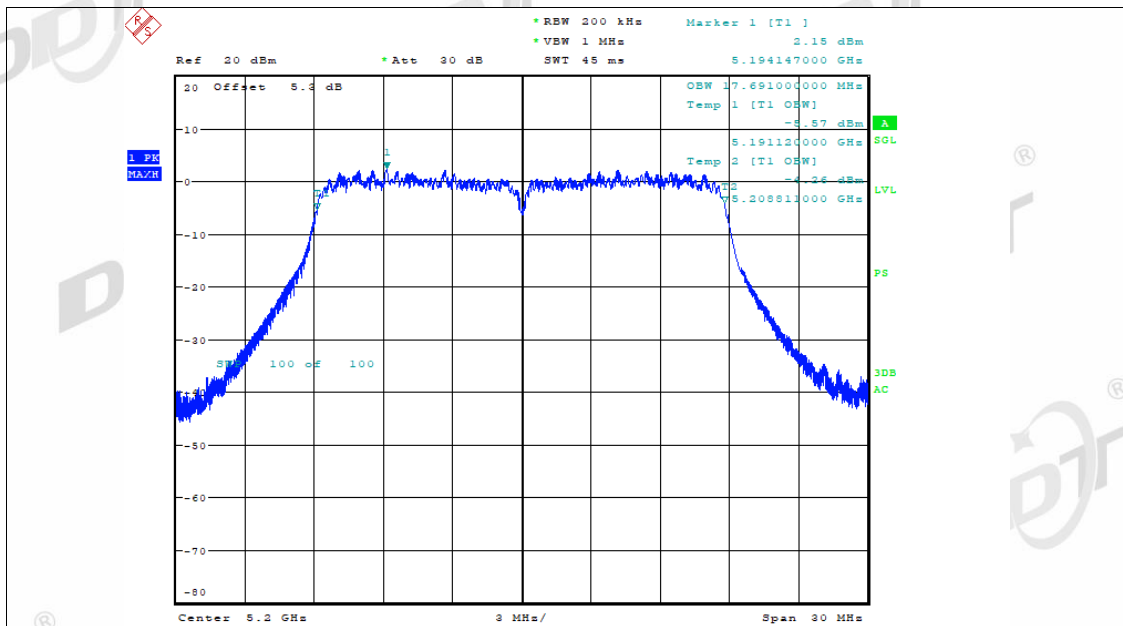
Date: 7.NOV.2022 10:57:27

OBW NVNT n20 5180MHz Ant1



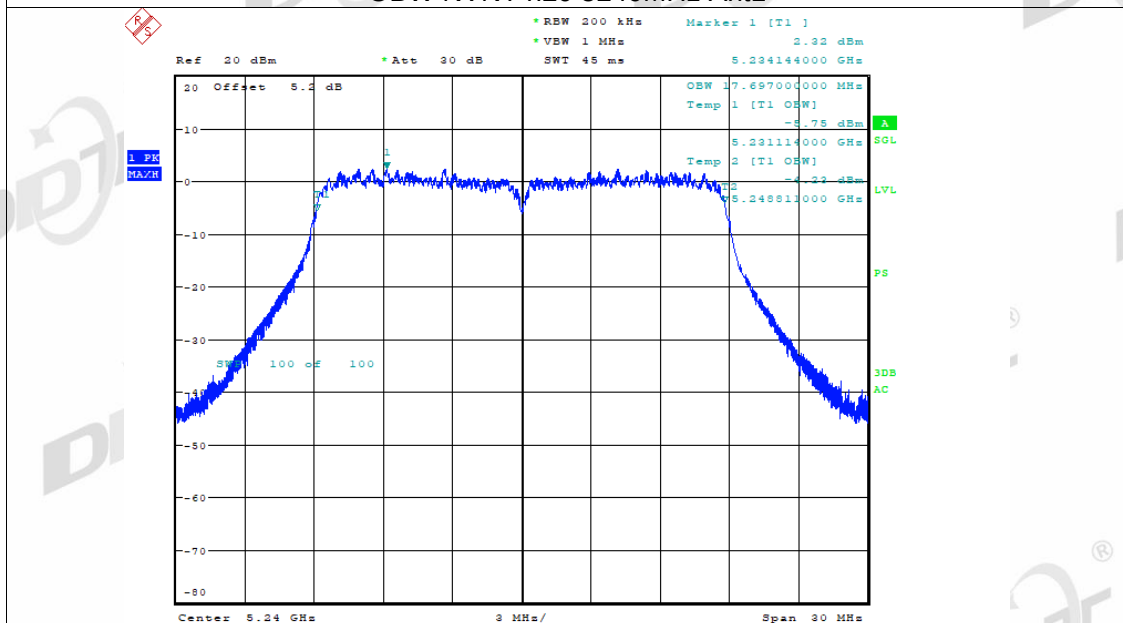
Date: 7.NOV.2022 11:06:05

OBW NVNT n20 5200MHz Ant1



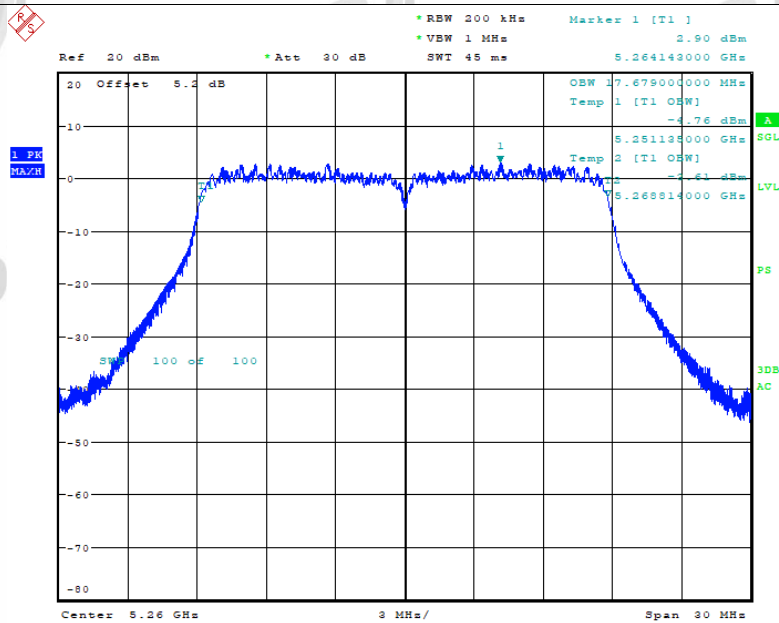
Date: 7.NOV.2022 11:09:25

OBW NVNT n20 5240MHz Ant1



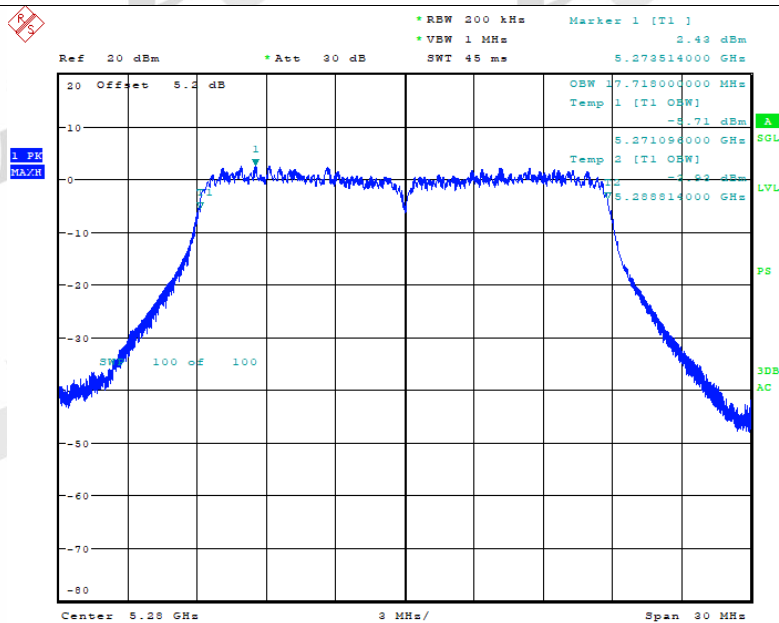
Date: 7.NOV.2022 11:13:13

OBW NVNT n20 5260MHz Ant1



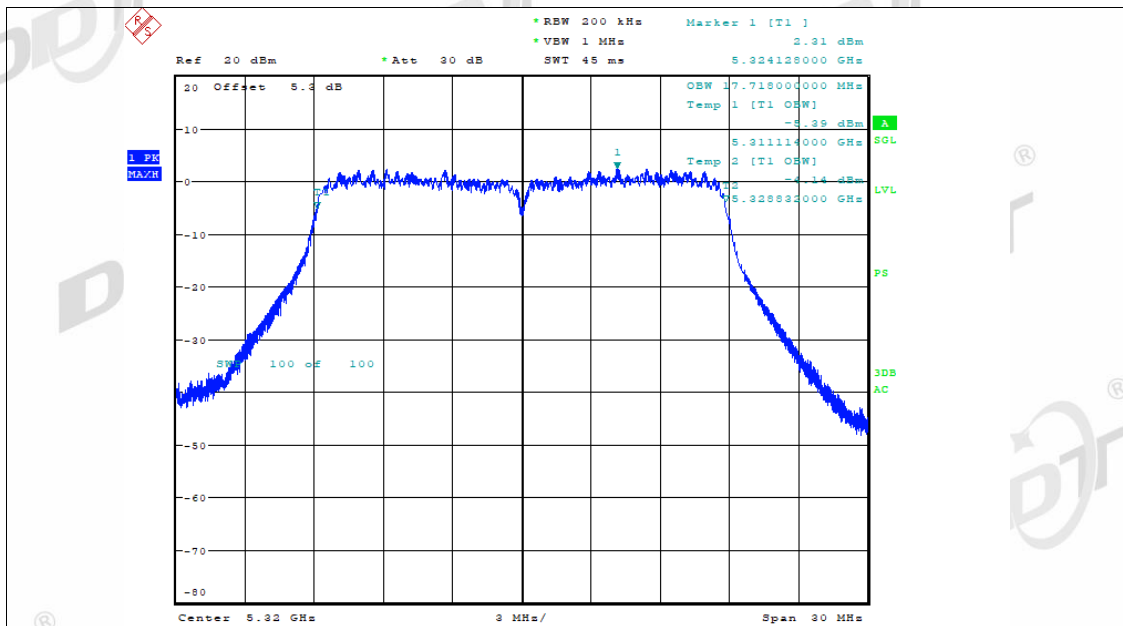
Date: 7.NOV.2022 11:16:51

OBW NVNT n20 5280MHz Ant1



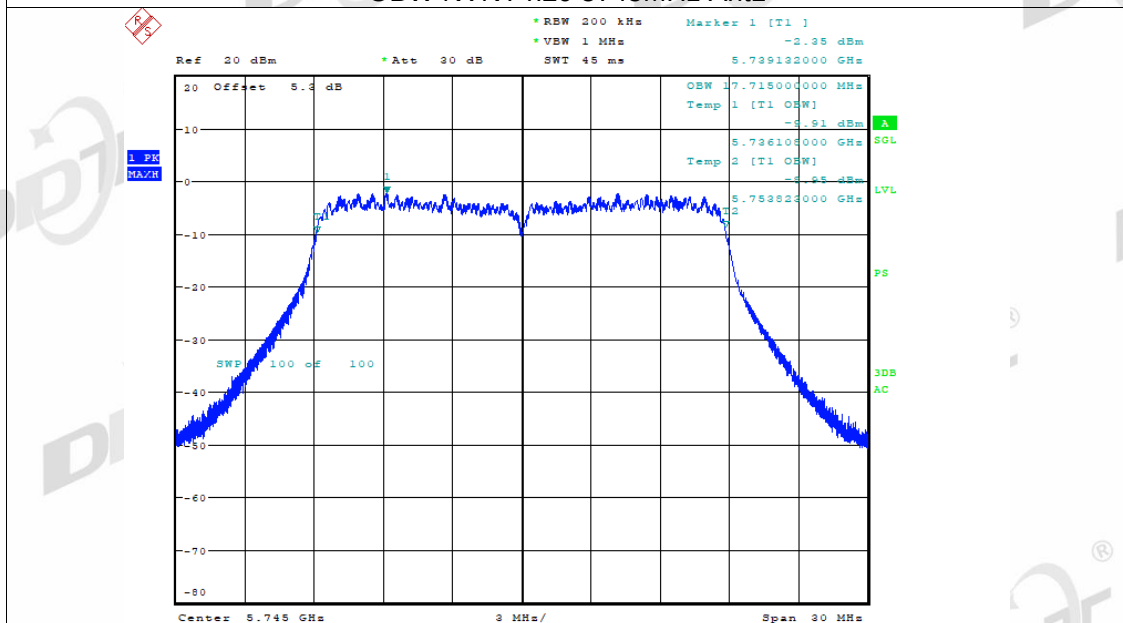
Date: 7.NOV.2022 11:20:53

OBW NVNT n20 5320MHz Ant1



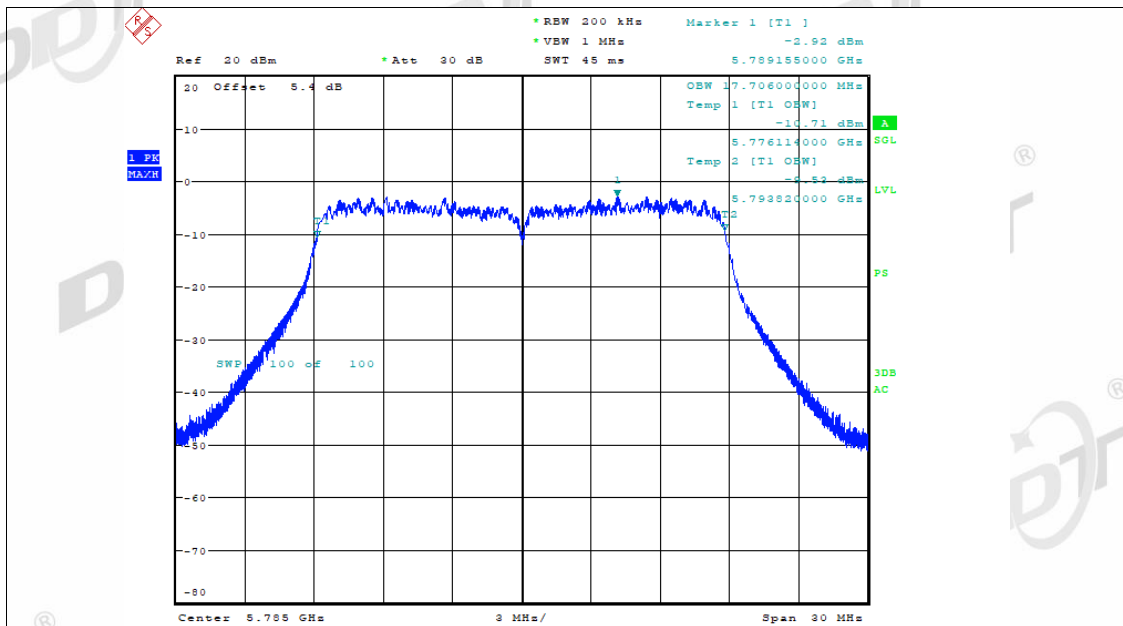
Date: 7.NOV.2022 11:24:38

OBW NVNT n20 5745MHz Ant1



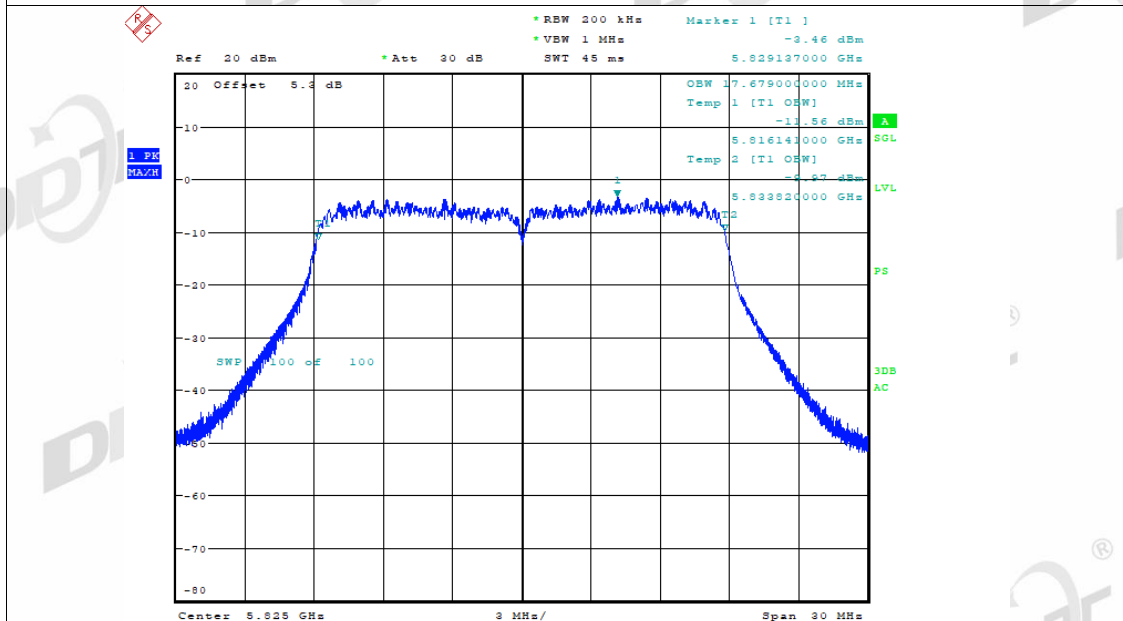
Date: 7.NOV.2022 11:29:38

OBW NVNT n20 5785MHz Ant1



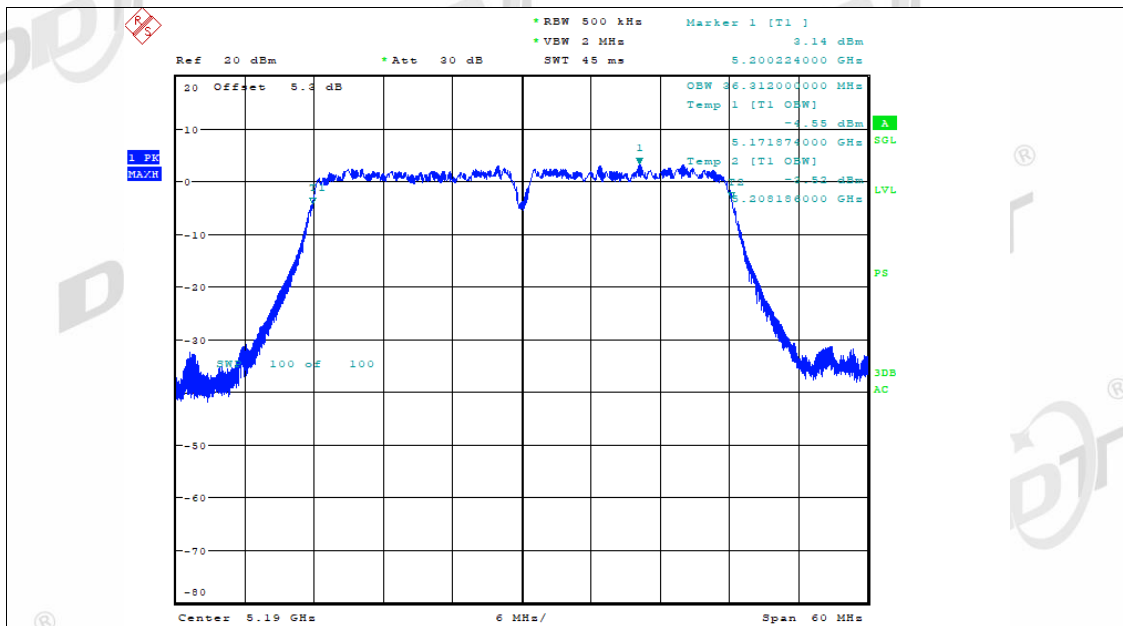
Date: 7.NOV.2022 11:38:19

OBW NVNT n20 5825MHz Ant1



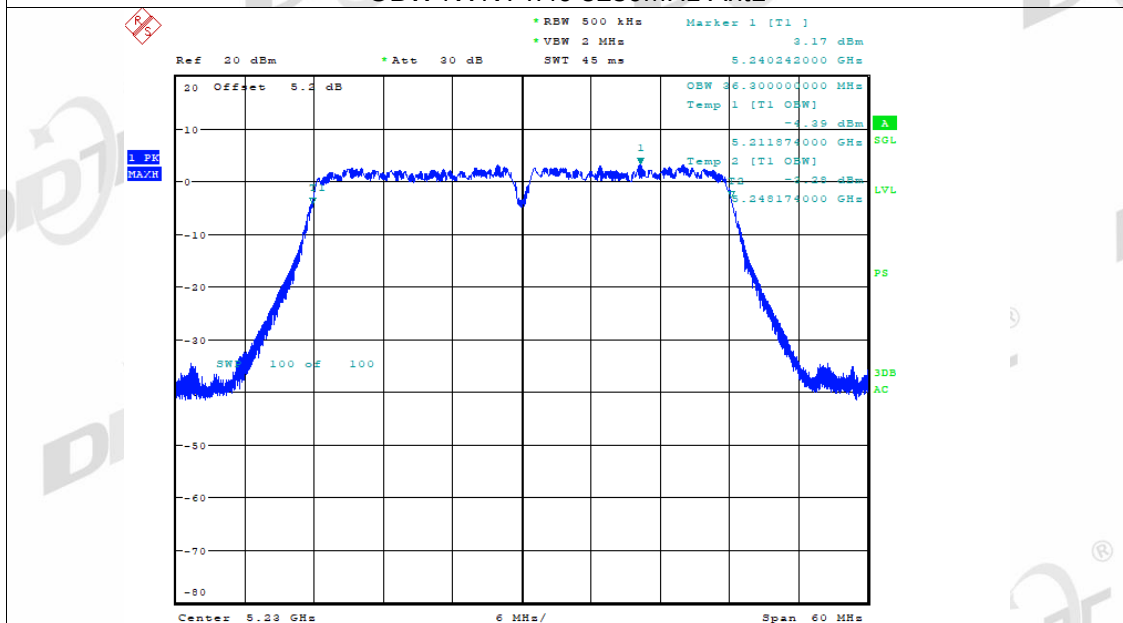
Date: 7.NOV.2022 11:41:23

OBW NVNT n40 5190MHz Ant1



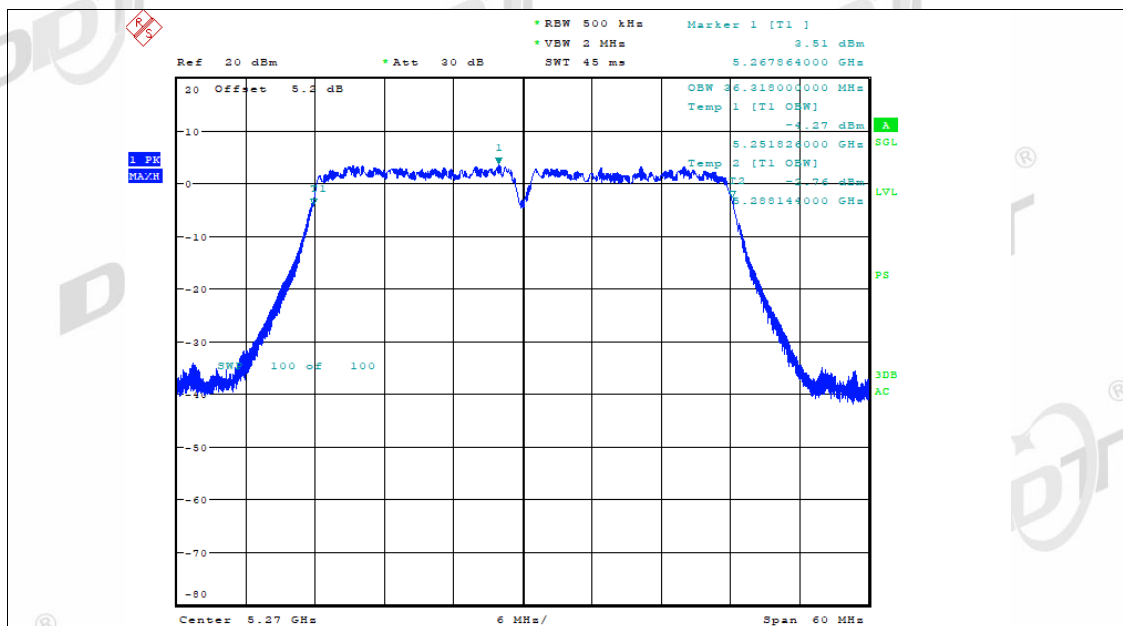
Date: 7.NOV.2022 13:59:05

OBW NVNT n40 5230MHz Ant1



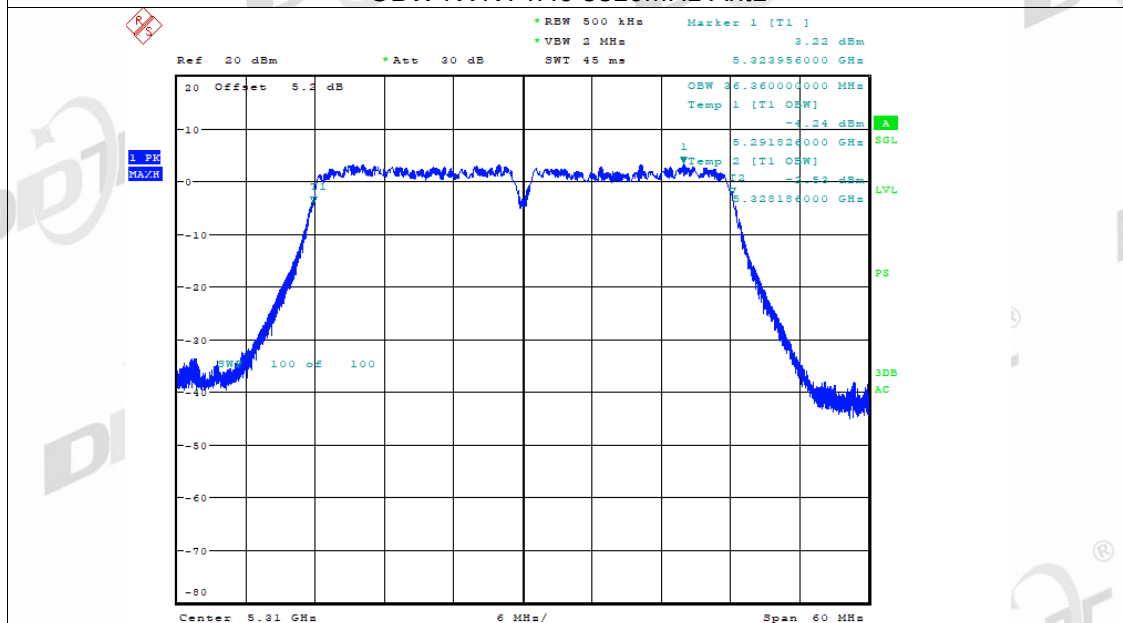
Date: 7.NOV.2022 14:04:20

OBW NVNT n40 5270MHz Ant1



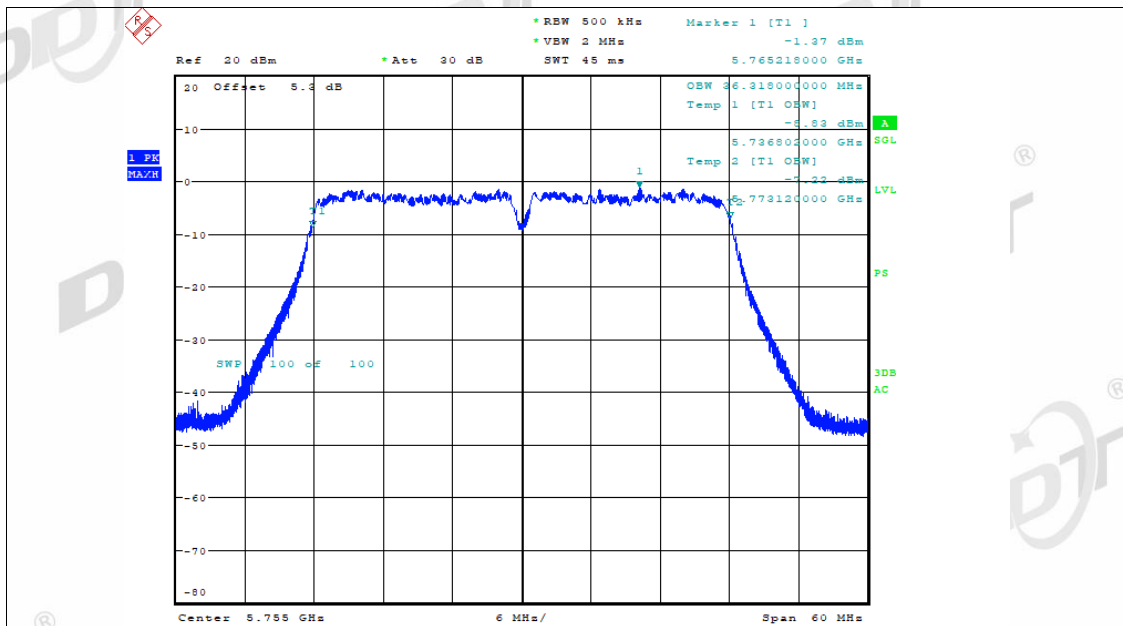
Date: 7.NOV.2022 14:14:13

OBW NVNT n40 5310MHz Ant1



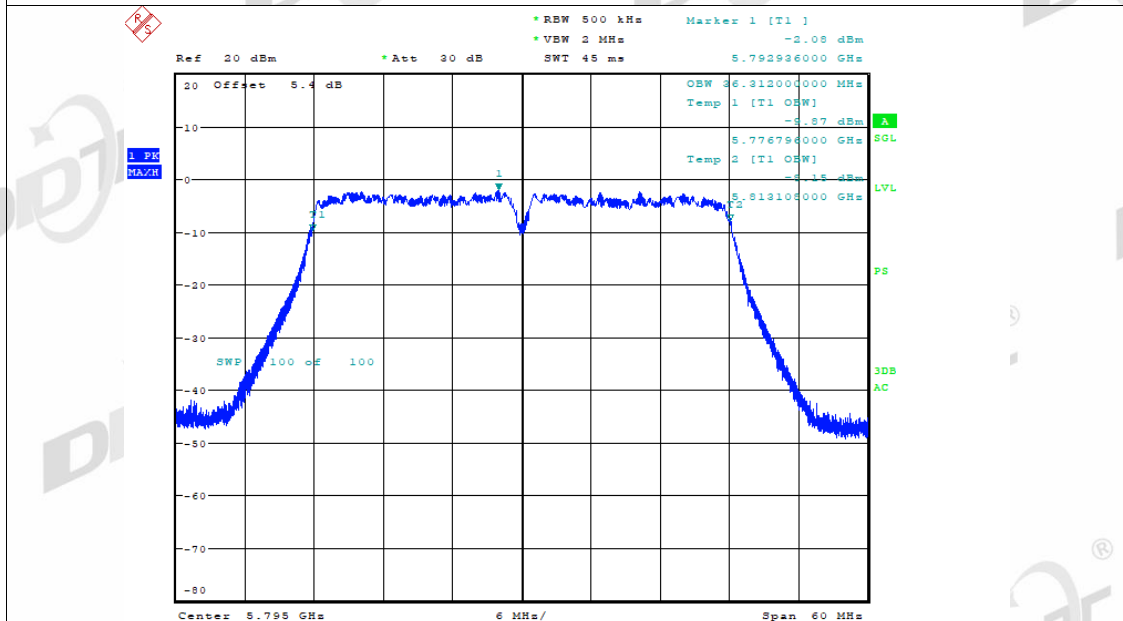
Date: 7.NOV.2022 14:19:00

OBW NVNT n40 5755MHz Ant1



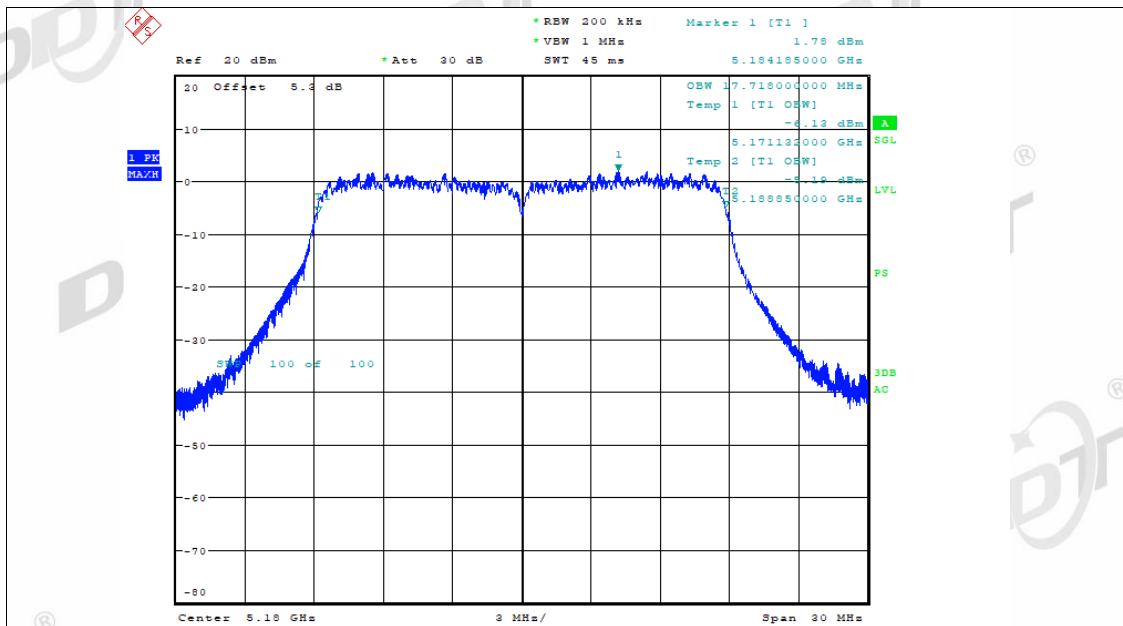
Date: 7.NOV.2022 13:48:01

OBW NVNT n40 5795MHz Ant1



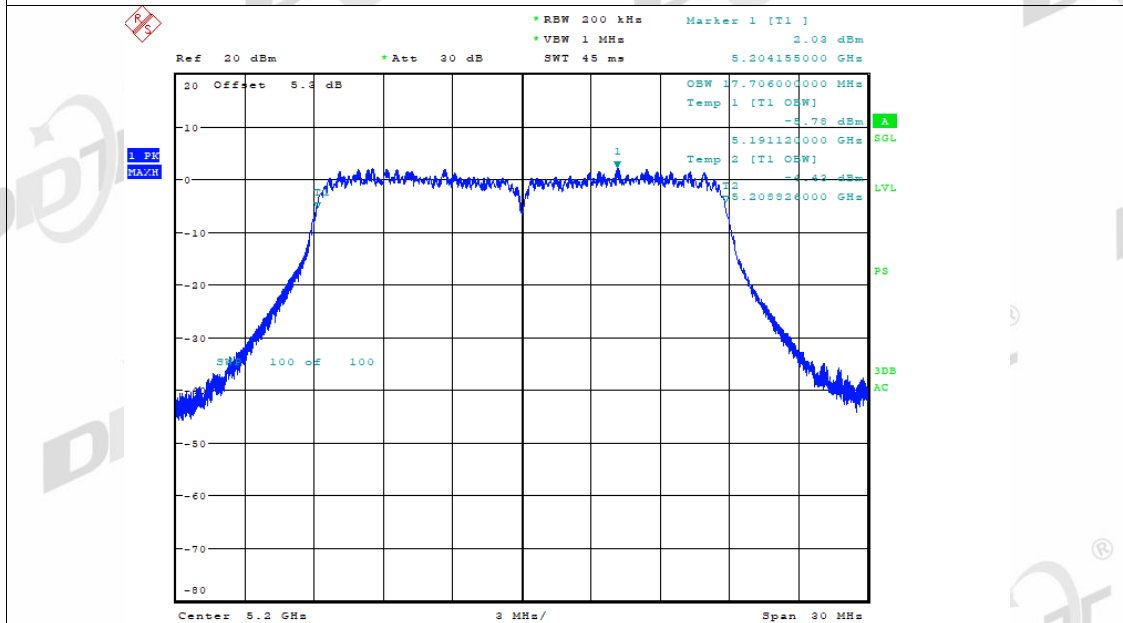
Date: 7.NOV.2022 13:53:15

OBW NVNT ac20 5180MHz Ant1



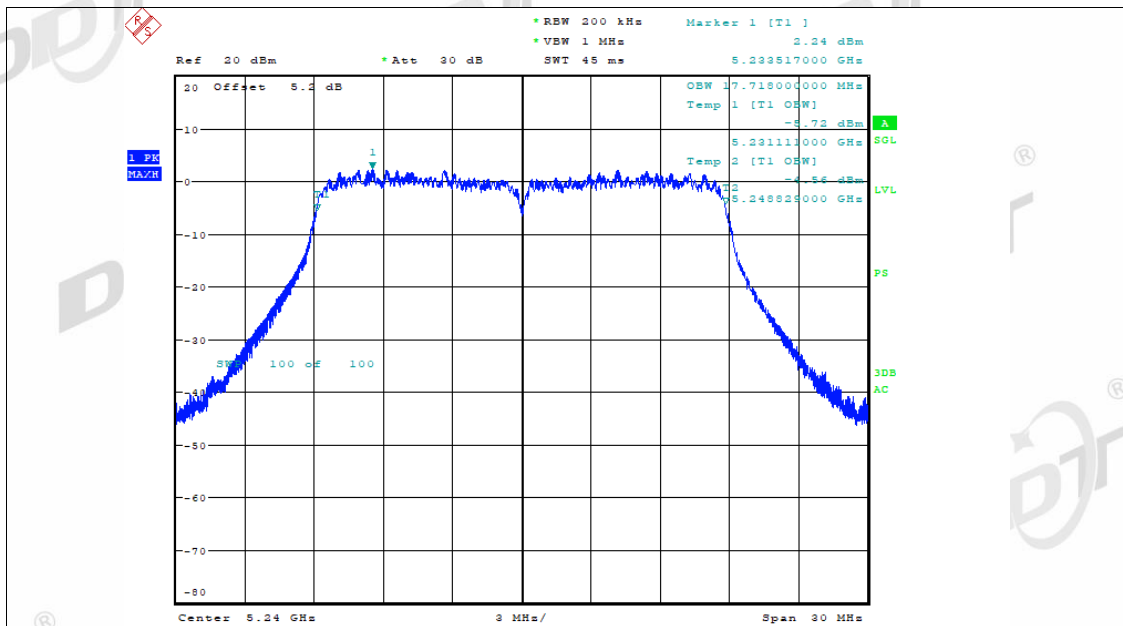
Date: 7.NOV.2022 11:47:17

OBW NVNT ac20 5200MHz Ant1



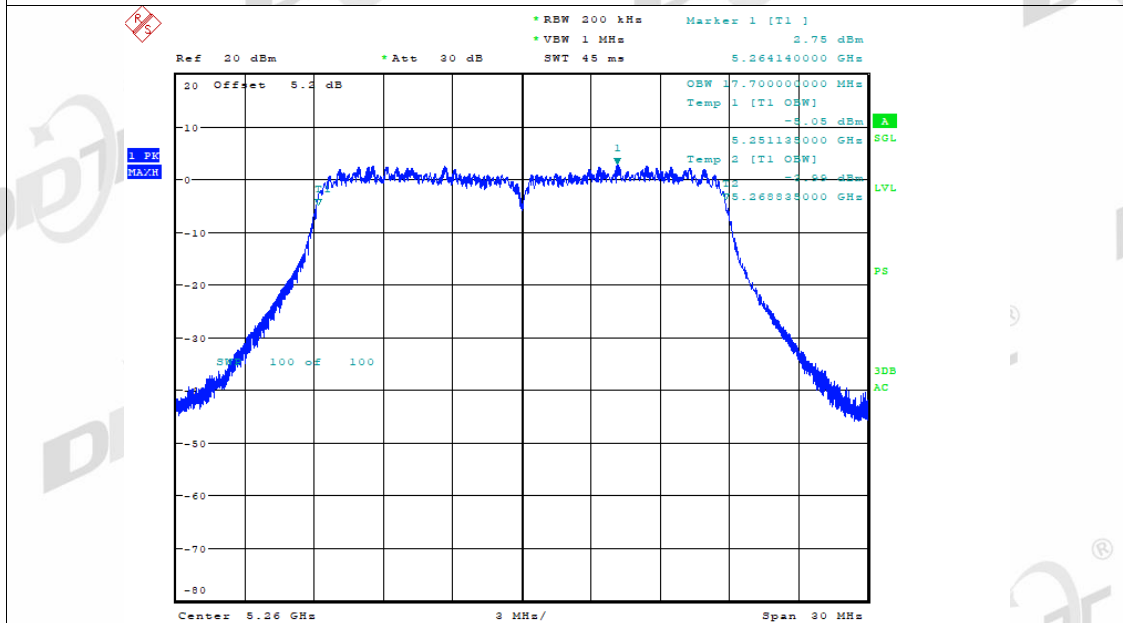
Date: 7.NOV.2022 11:51:12

OBW NVNT ac20 5240MHz Ant1



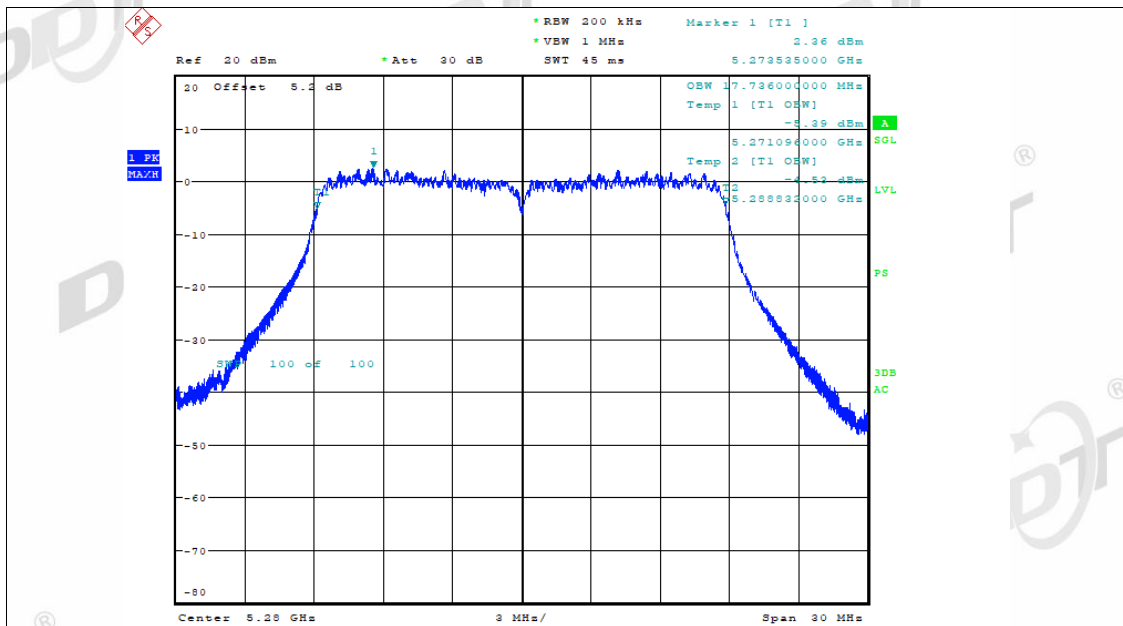
Date: 7.NOV.2022 11:54:23

OBW NVNT ac20 5260MHz Ant1

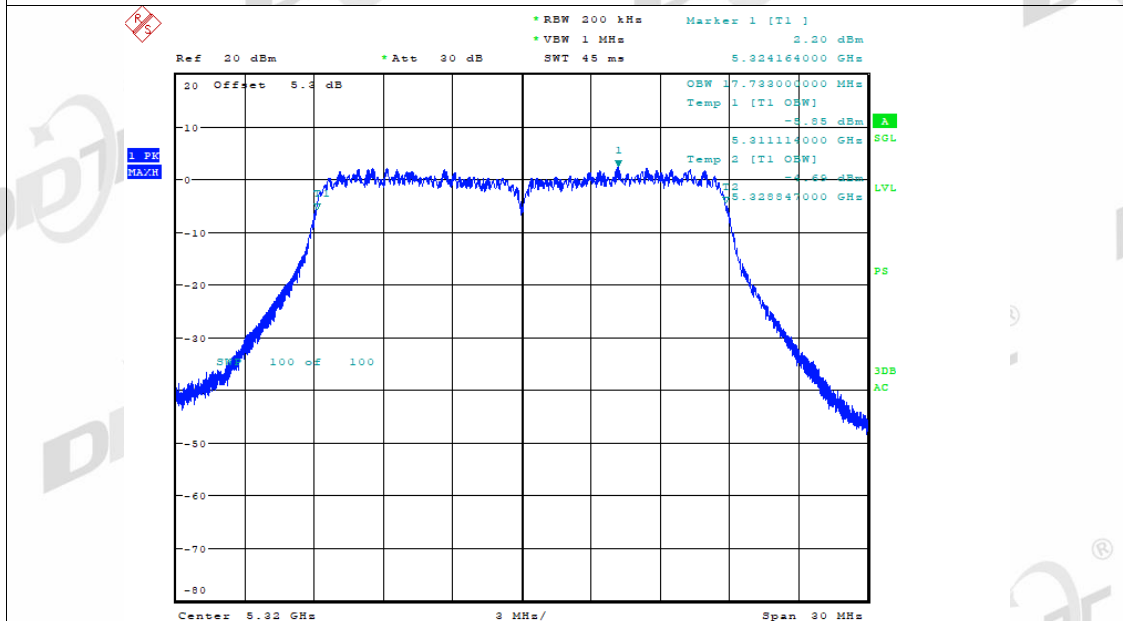


Date: 7.NOV.2022 11:58:19

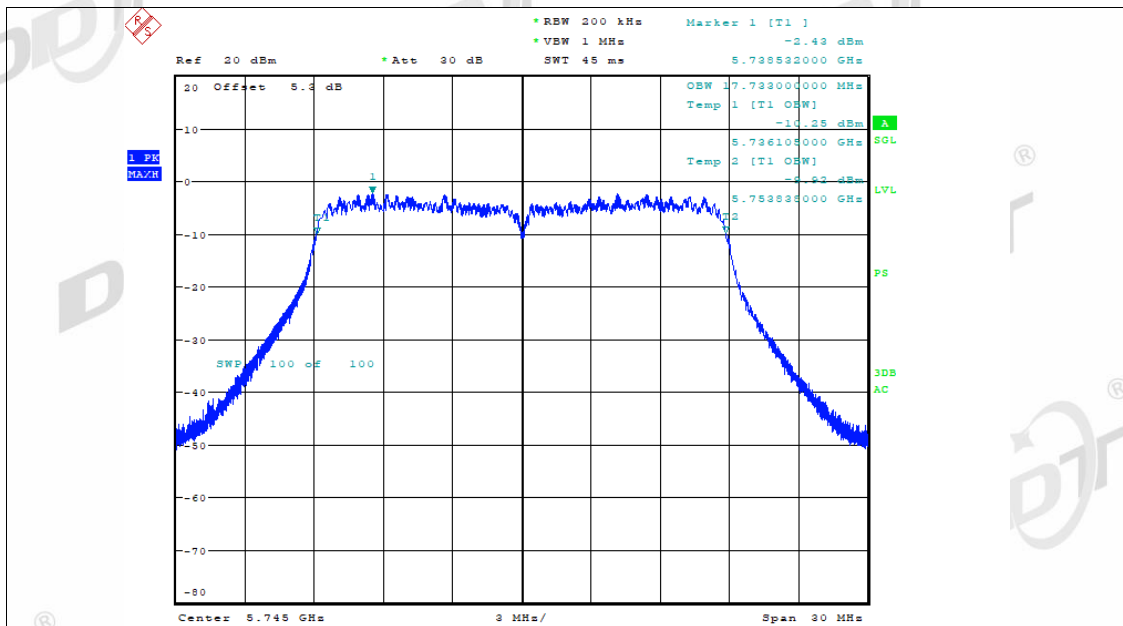
OBW NVNT ac20 5280MHz Ant1



OBW NVNT ac20 5320MHz Ant1

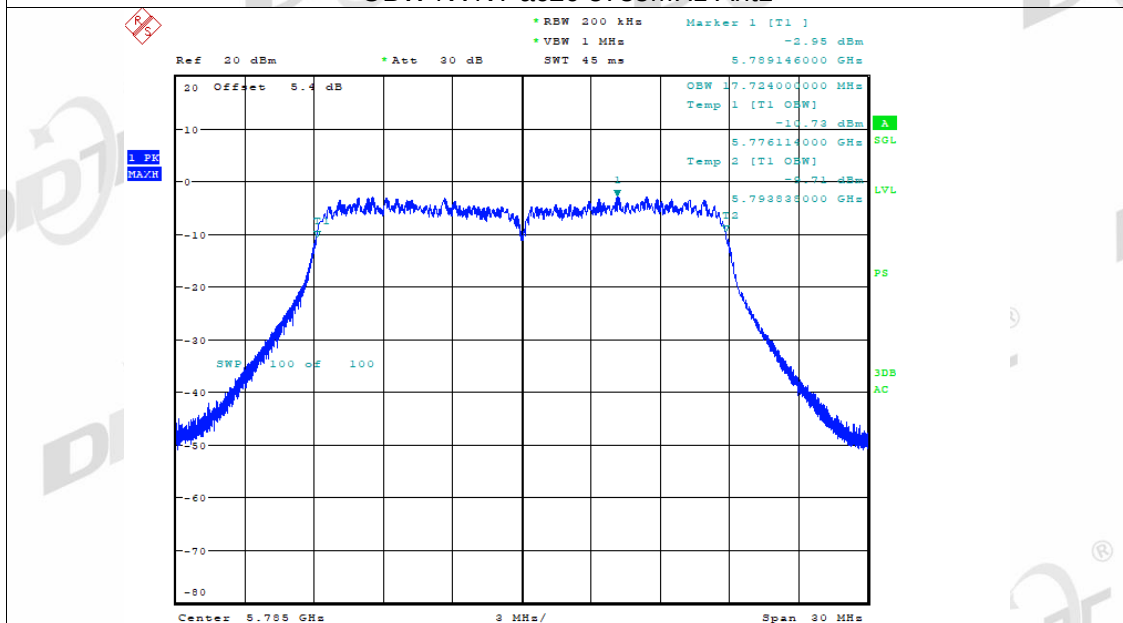


OBW NVNT ac20 5745MHz Ant1



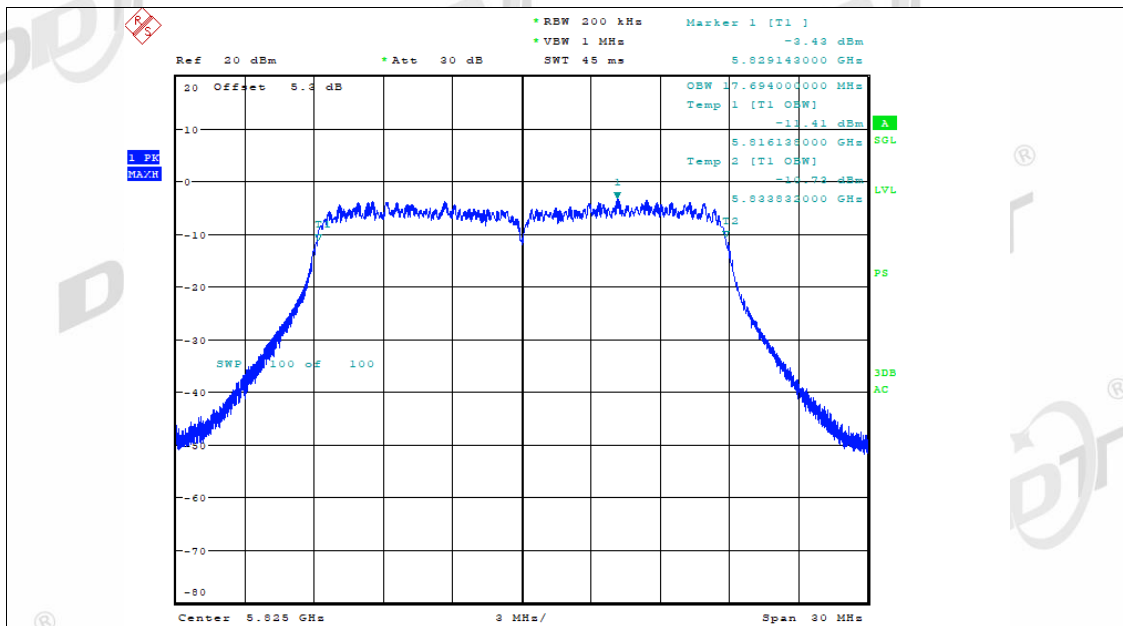
Date: 7.NOV.2022 13:15:55

OBW NVNT ac20 5785MHz Ant1



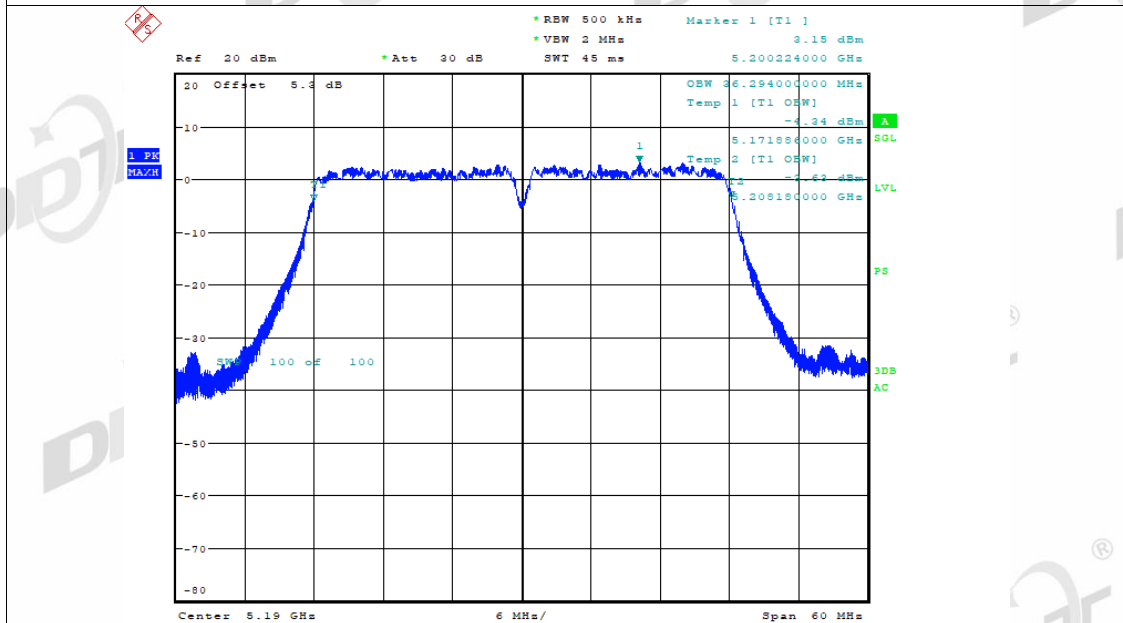
Date: 7.NOV.2022 13:20:41

OBW NVNT ac20 5825MHz Ant1



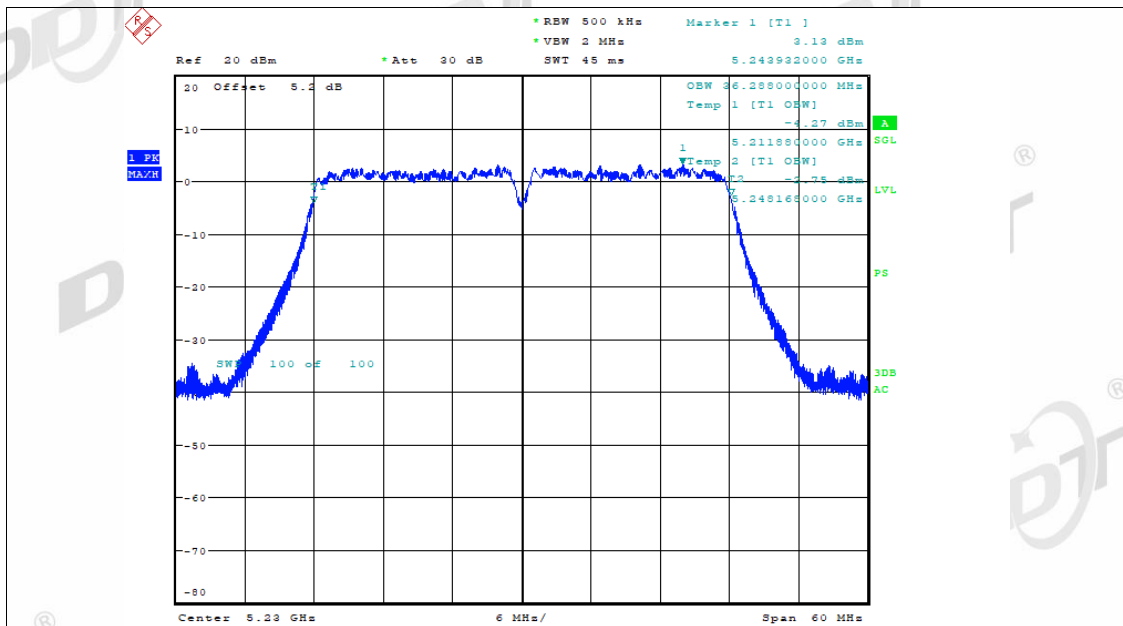
Date: 7.NOV.2022 13:30:13

OBW NVNT ac40 5190MHz Ant1



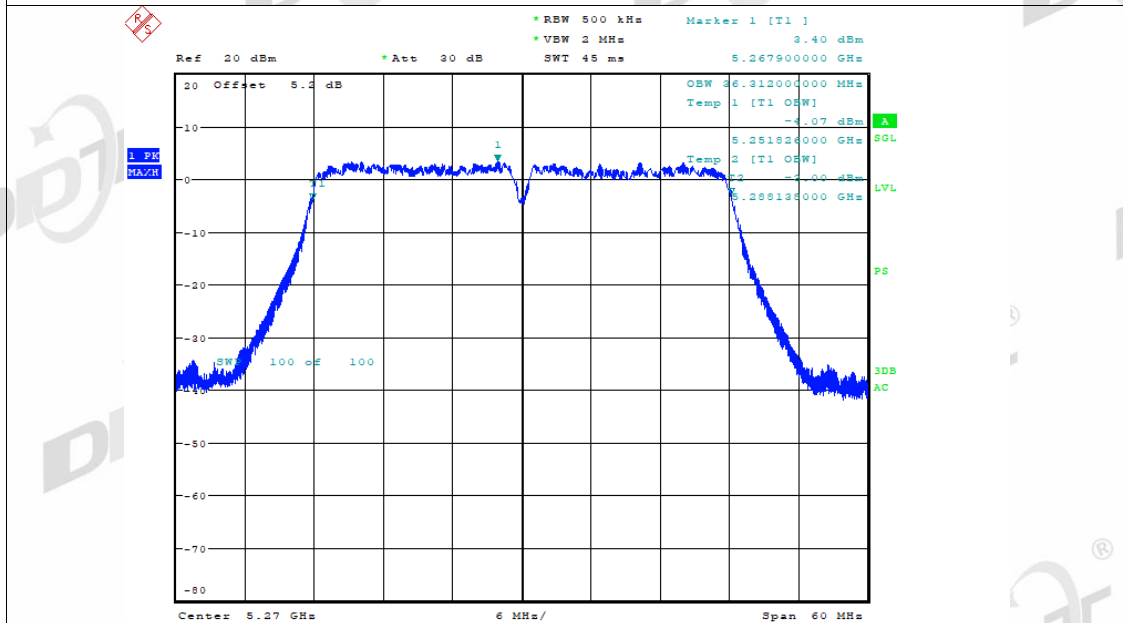
Date: 7.NOV.2022 14:29:12

OBW NVNT ac40 5230MHz Ant1



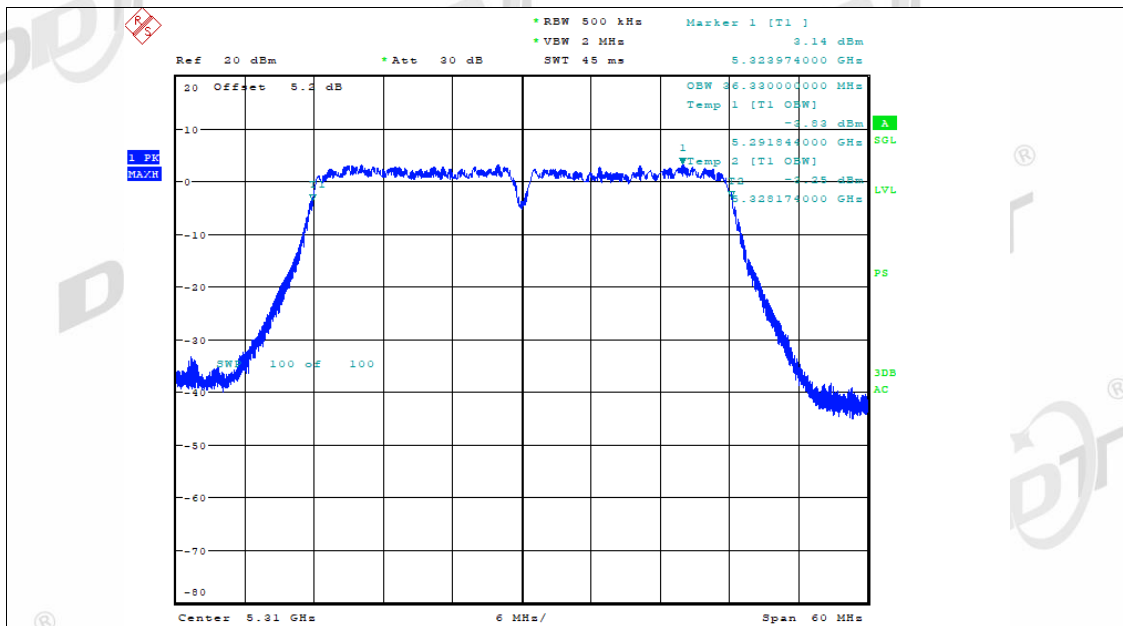
Date: 7.NOV.2022 14:40:14

OBW NVNT ac40 5270MHz Ant1



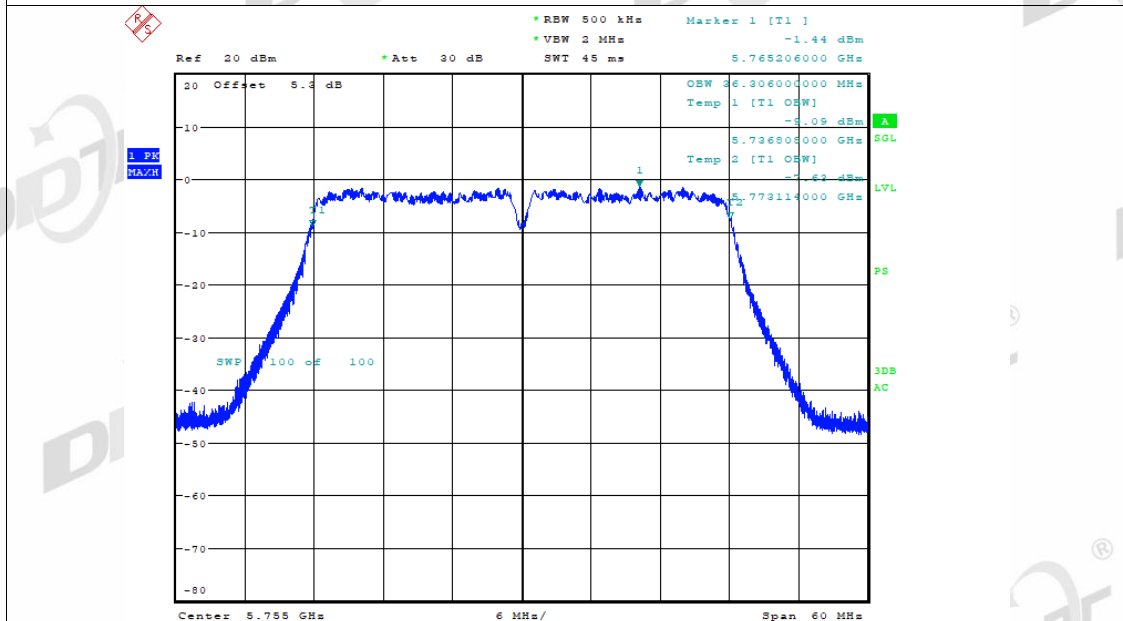
Date: 7.NOV.2022 14:49:08

OBW NVNT ac40 5310MHz Ant1



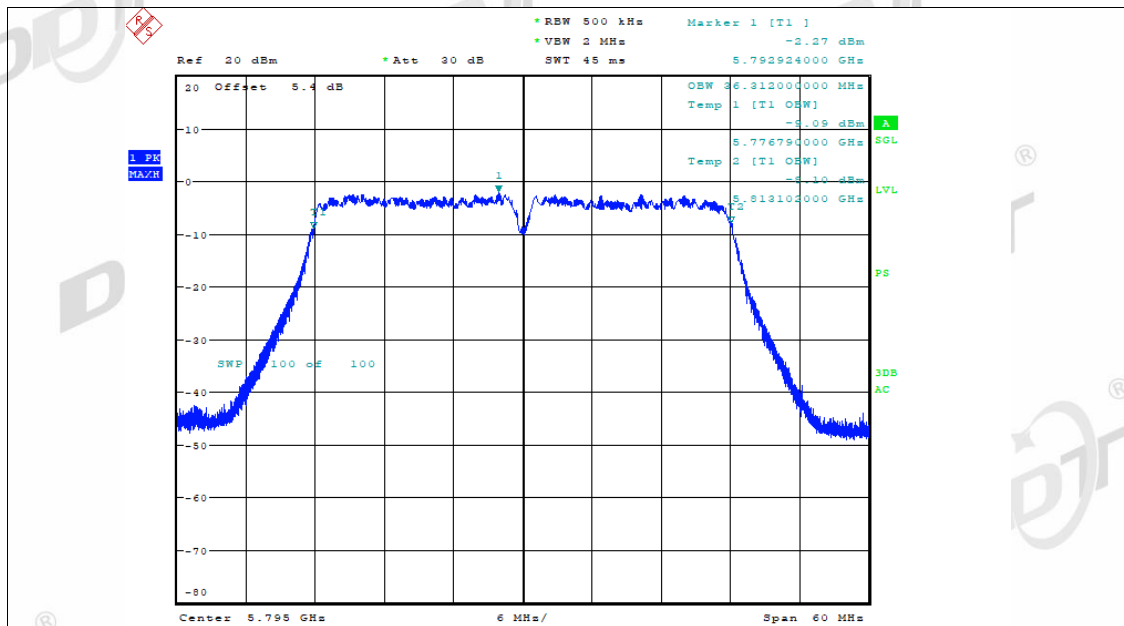
Date: 7.NOV.2022 14:53:21

OBW NVNT ac40 5755MHz Ant1



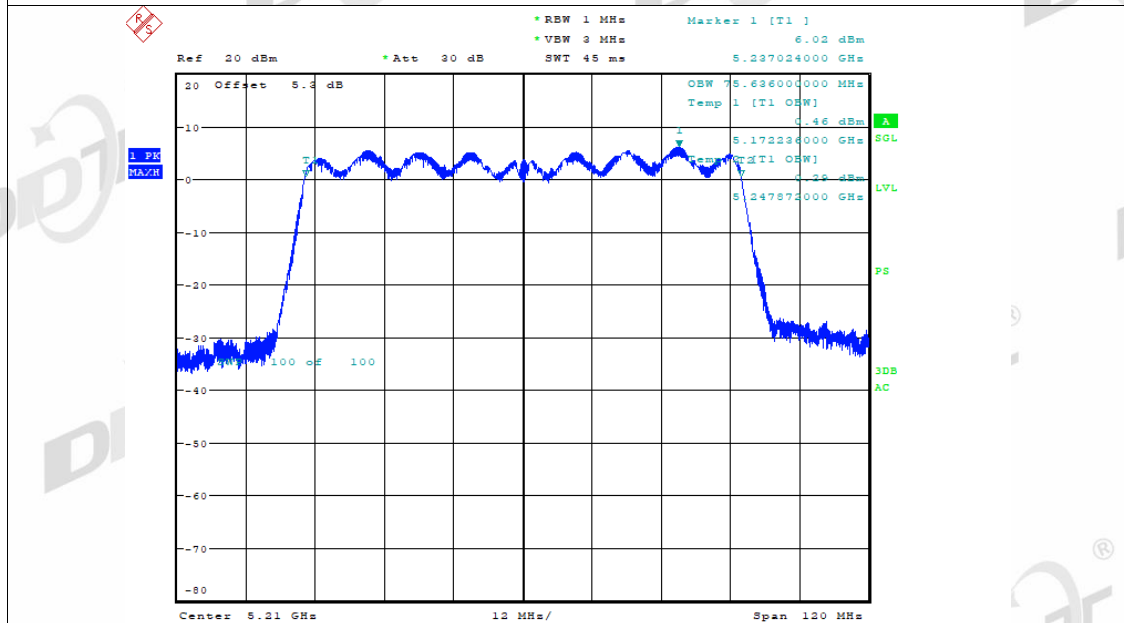
Date: 7.NOV.2022 14:57:34

OBW NVNT ac40 5795MHz Ant1



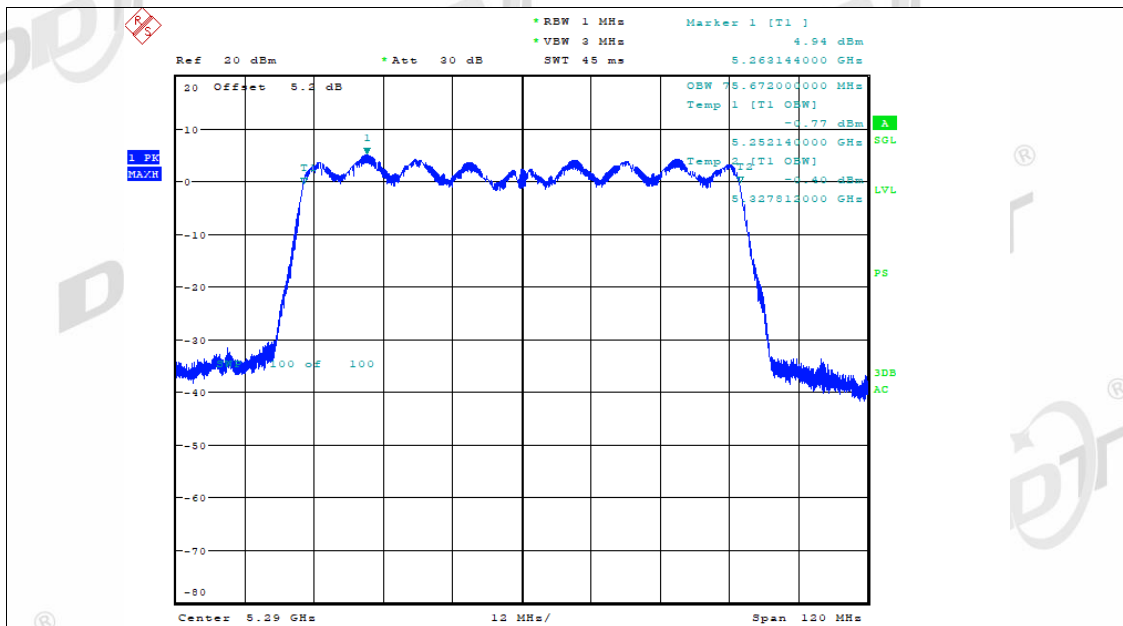
Date: 7.NOV.2022 15:02:00

OBW NVNT ac80 5210MHz Ant1



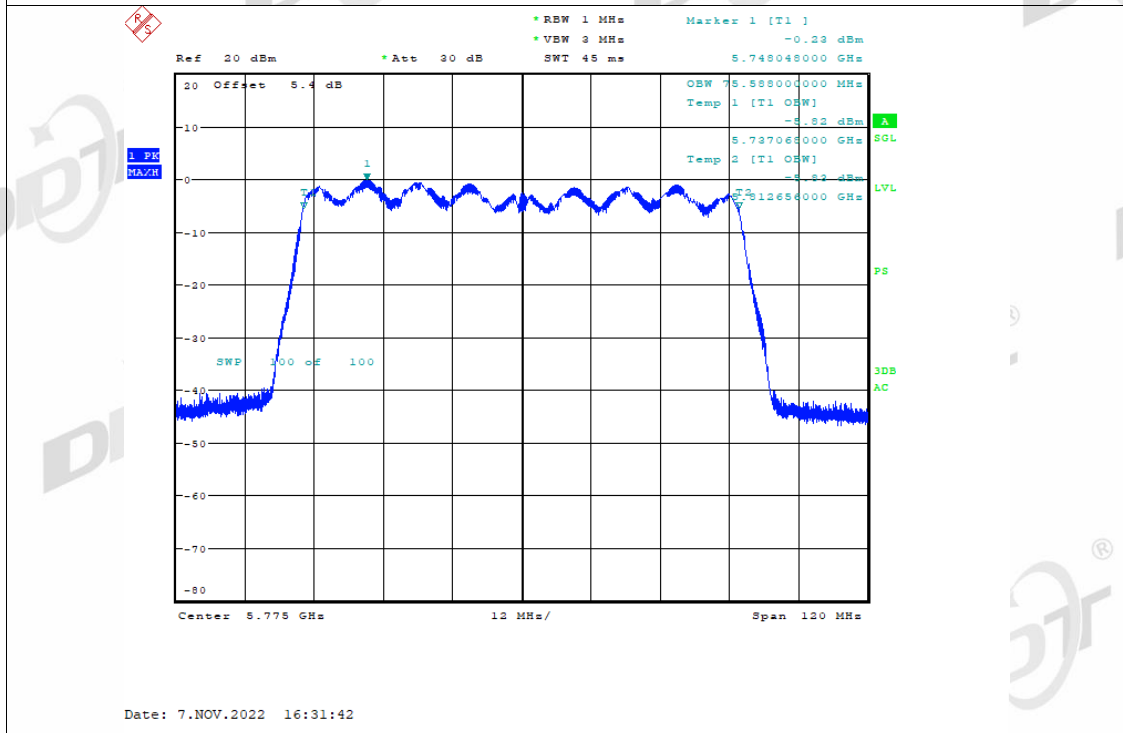
Date: 7.NOV.2022 16:16:46

OBW NVNT ac80 5290MHz Ant1



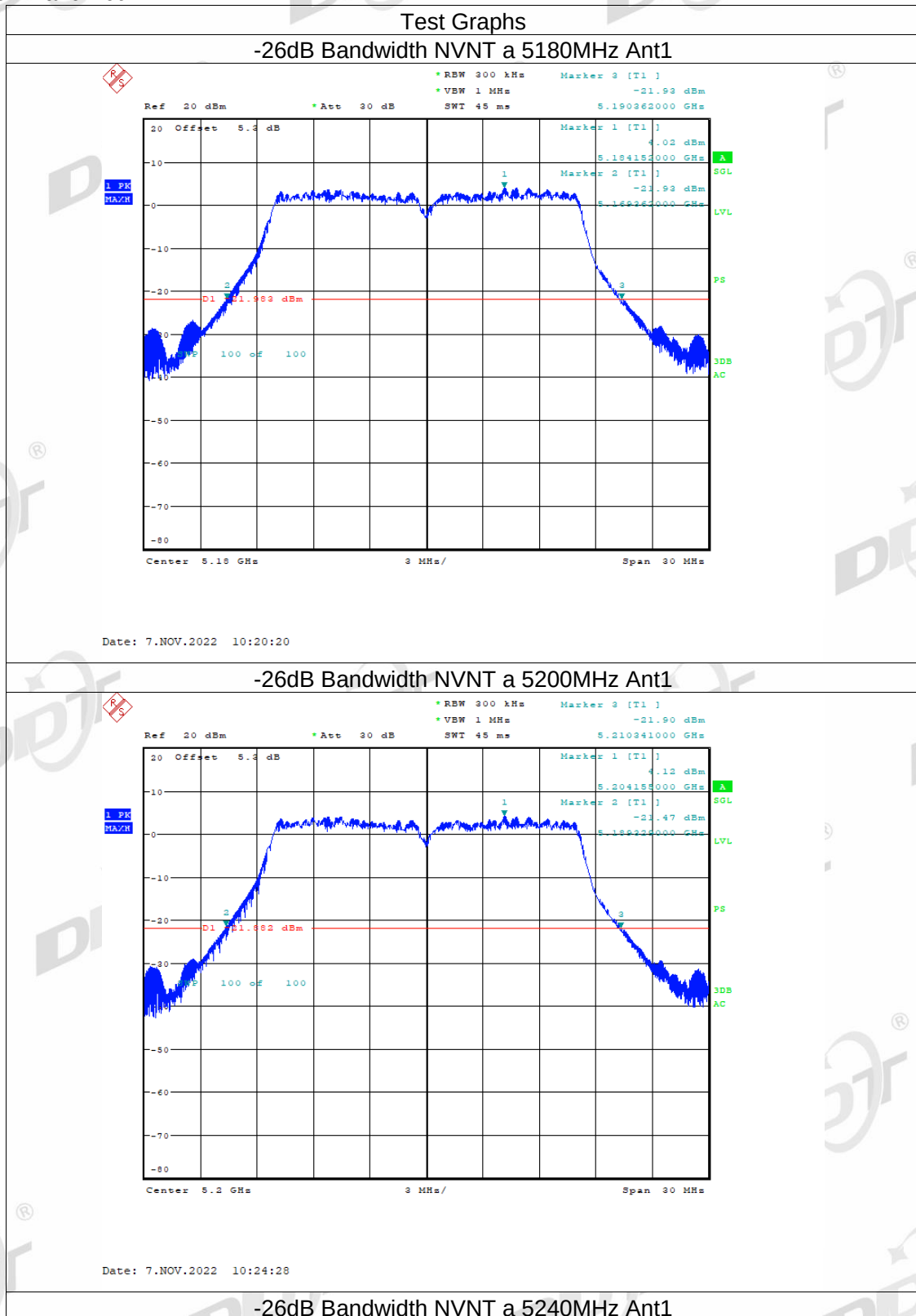
Date: 7.NOV.2022 16:24:42

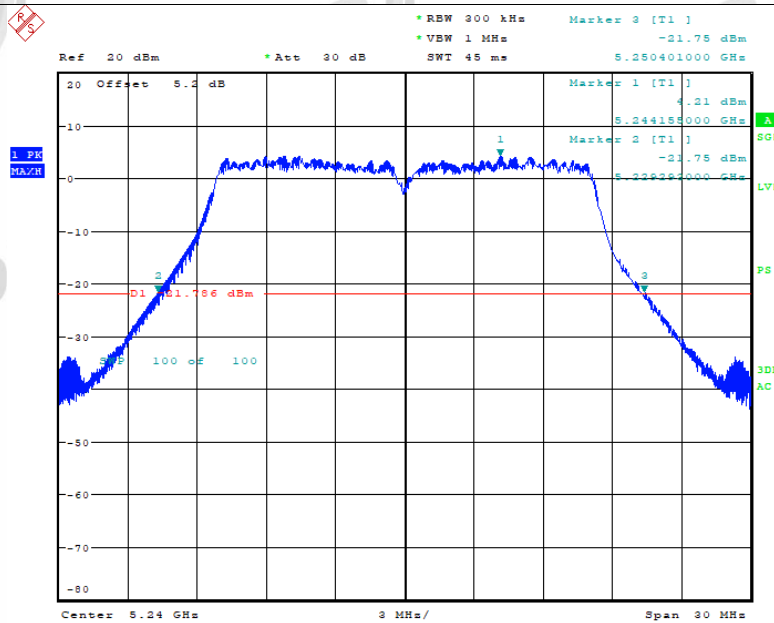
OBW NVNT ac80 5775MHz Ant1



Date: 7.NOV.2022 16:31:42

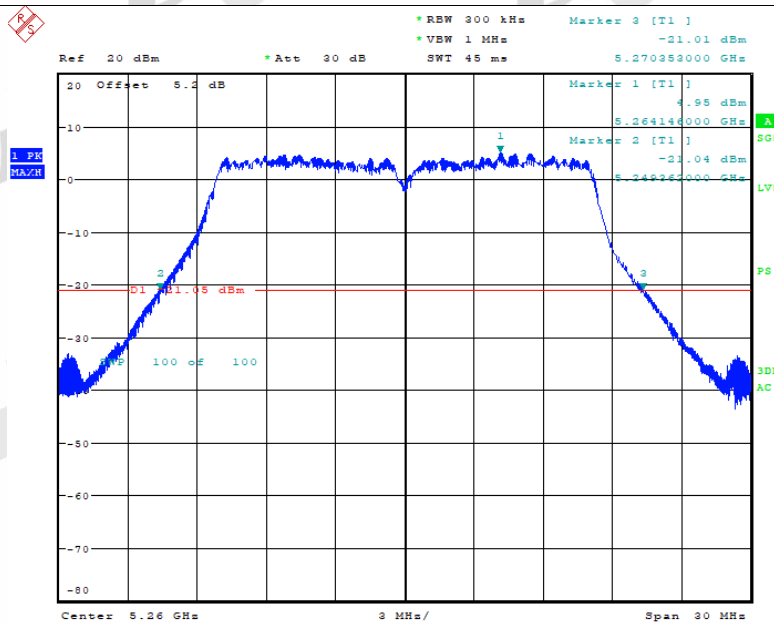
26dB Bandwidth





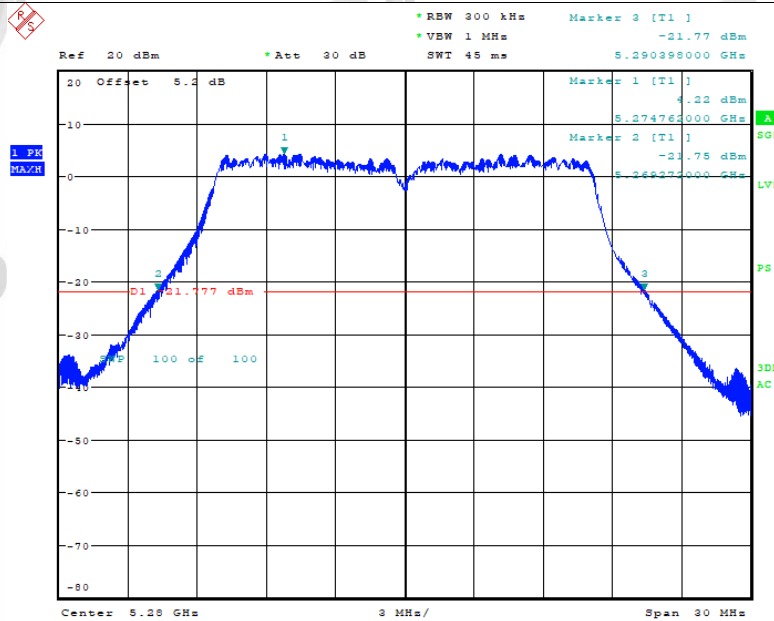
Date: 7.NOV.2022 10:28:18

-26dB Bandwidth NVNT a 5260MHz Ant1



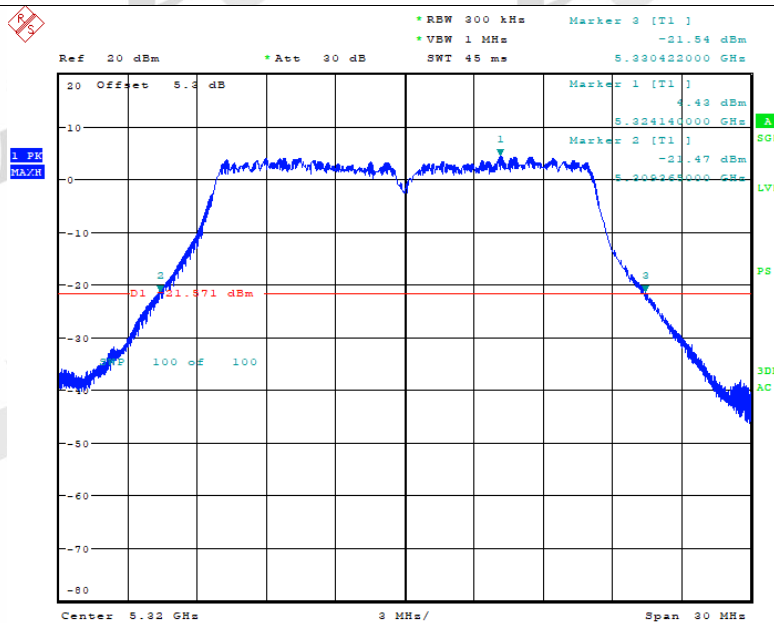
Date: 7.NOV.2022 10:33:06

-26dB Bandwidth NVNT a 5280MHz Ant1



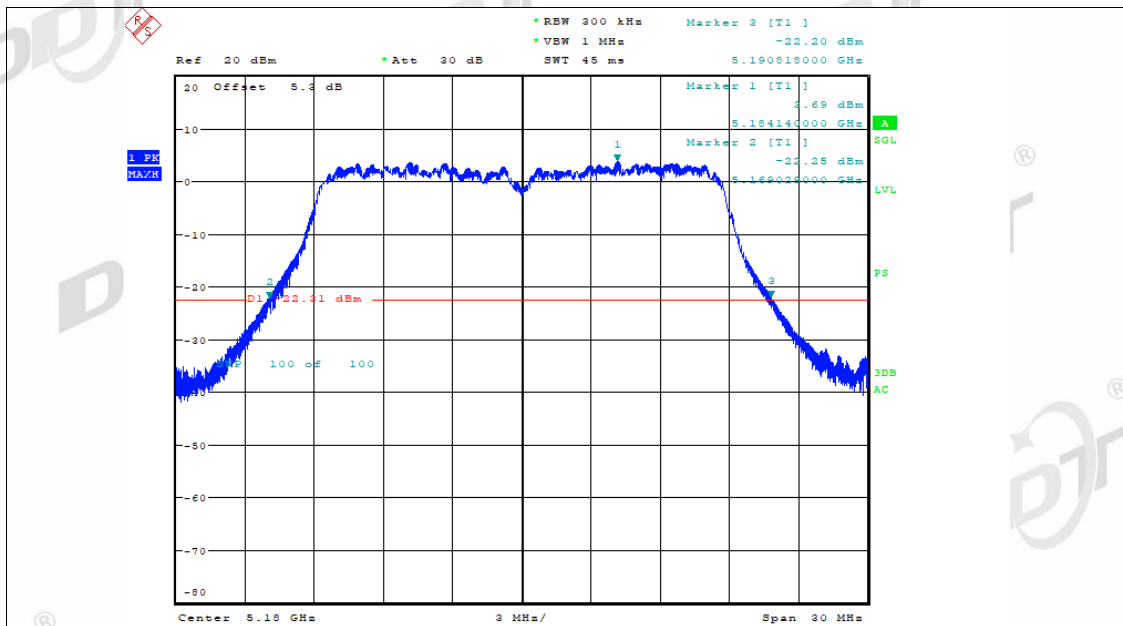
Date: 7.NOV.2022 10:37:37

-26dB Bandwidth NVNT a 5320MHz Ant1

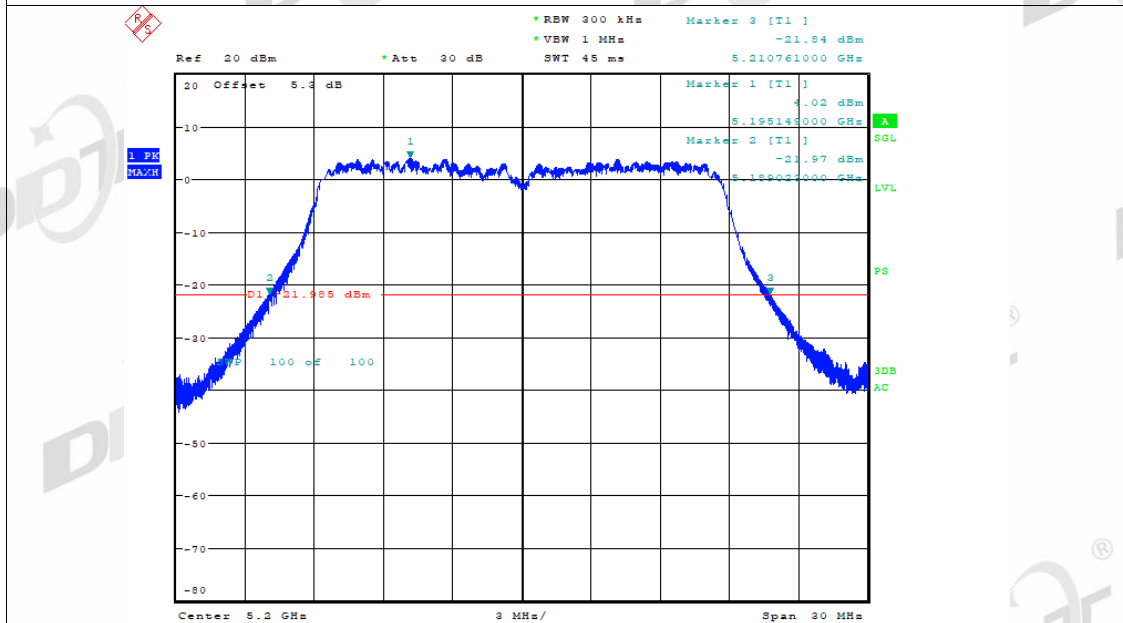


Date: 7.NOV.2022 10:41:39

-26dB Bandwidth NVNT n20 5180MHz Ant1

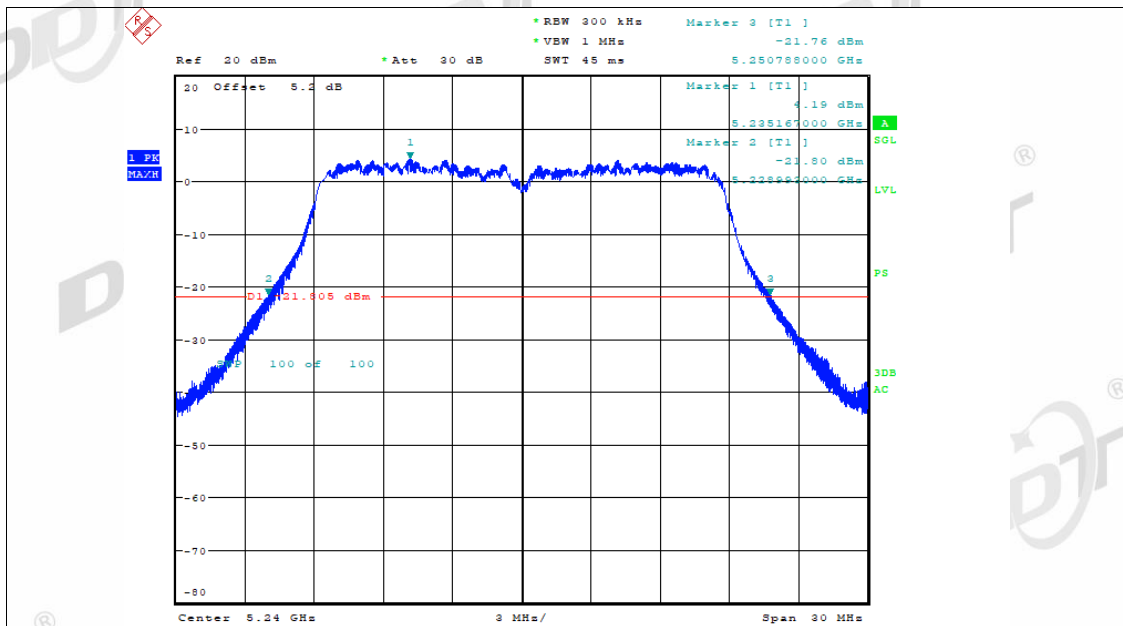


Date: 7.NOV.2022 11:06:32

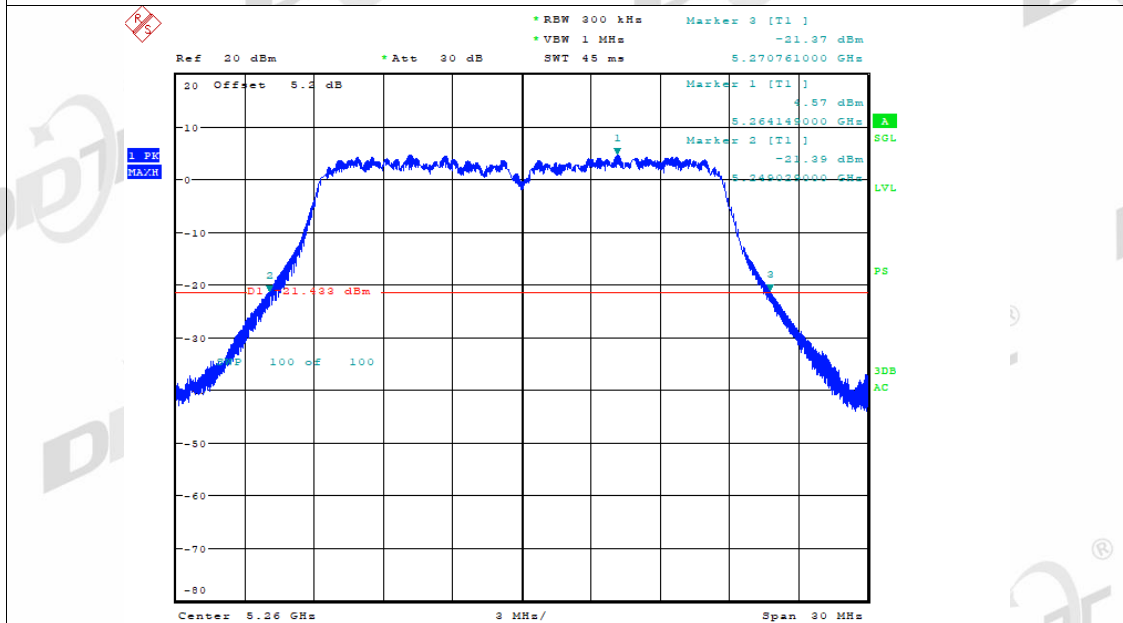
-26dB Bandwidth NVNT n20 5200MHz Ant1

Date: 7.NOV.2022 11:09:53

-26dB Bandwidth NVNT n20 5240MHz Ant1

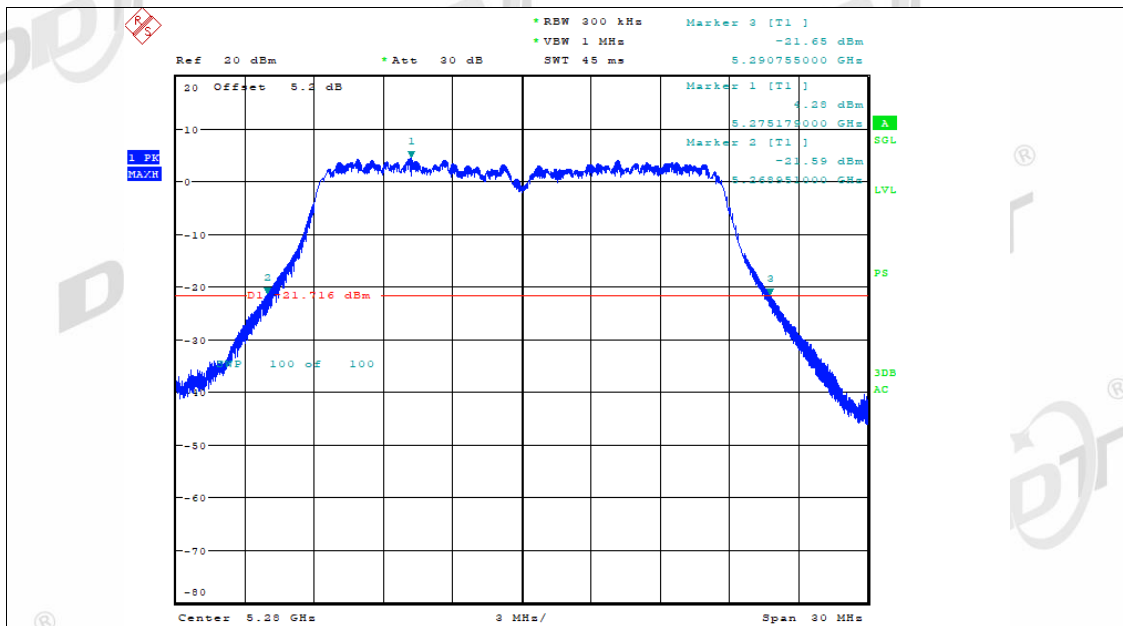


Date: 7.NOV.2022 11:13:41

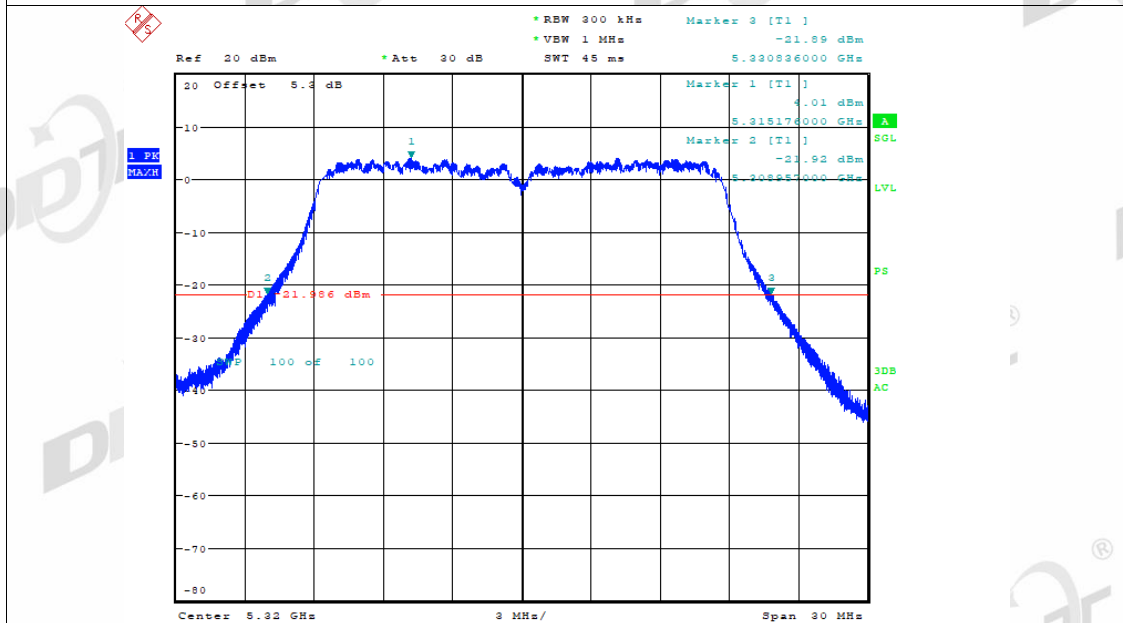
-26dB Bandwidth NVNT n20 5260MHz Ant1

Date: 7.NOV.2022 11:17:19

-26dB Bandwidth NVNT n20 5280MHz Ant1

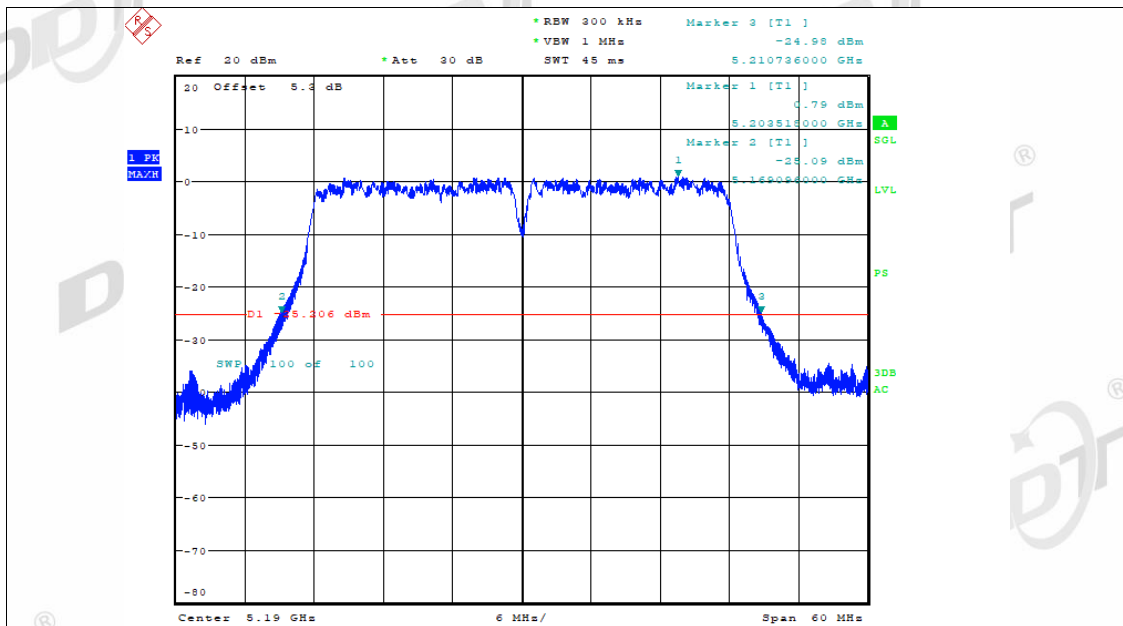


Date: 7.NOV.2022 11:21:21

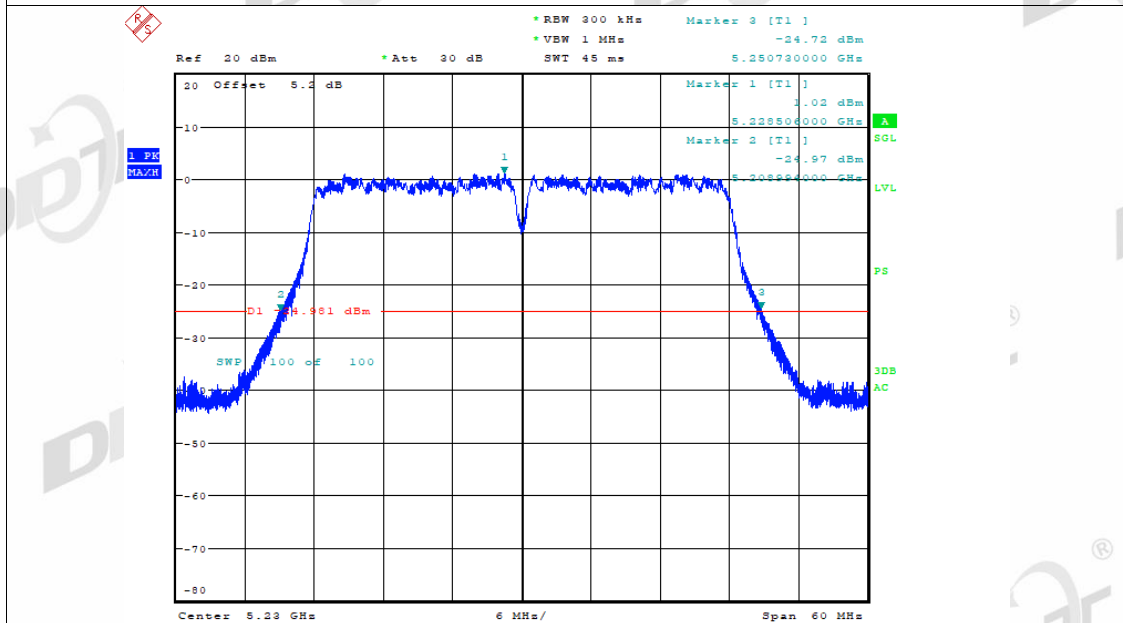
-26dB Bandwidth NVNT n20 5320MHz Ant1

Date: 7.NOV.2022 11:25:07

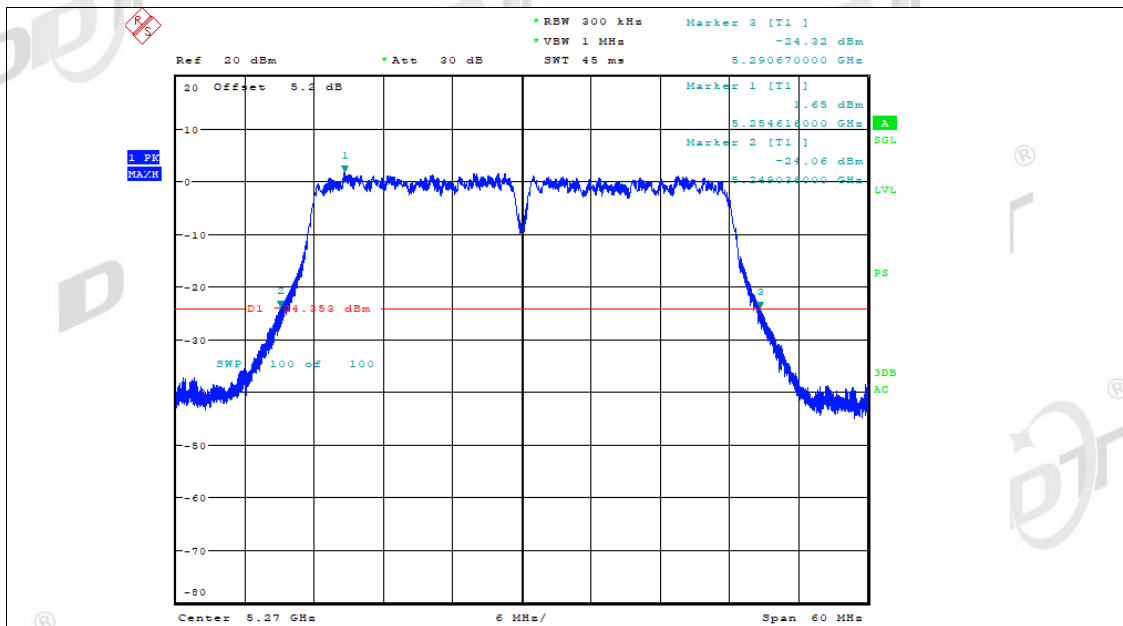
-26dB Bandwidth NVNT n40 5190MHz Ant1



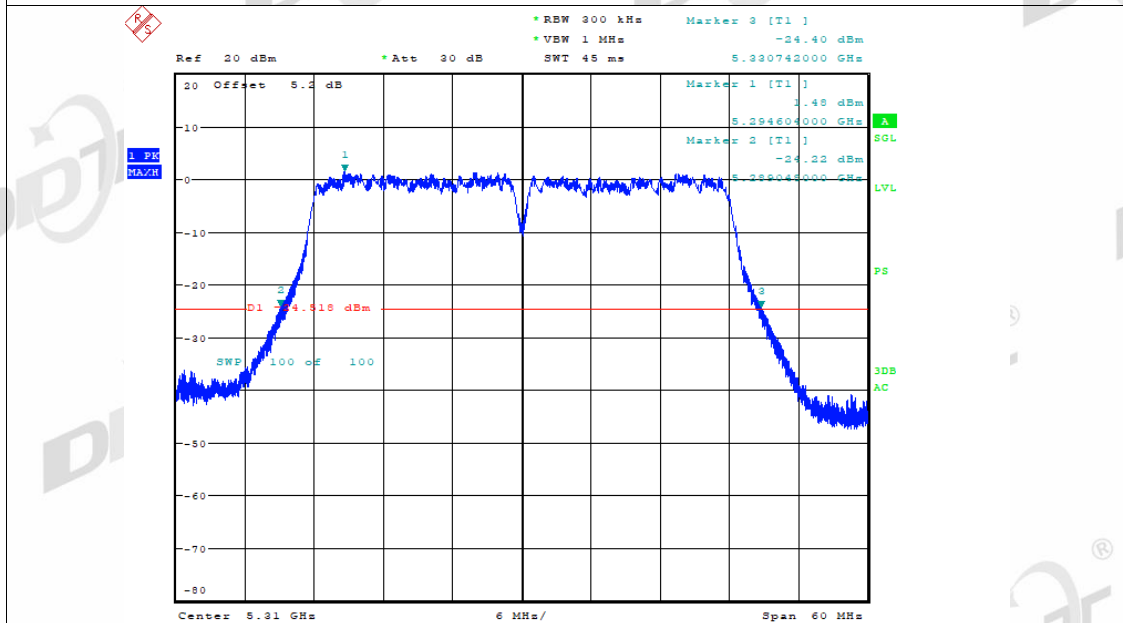
-26dB Bandwidth NVNT n40 5230MHz Ant1



-26dB Bandwidth NVNT n40 5270MHz Ant1

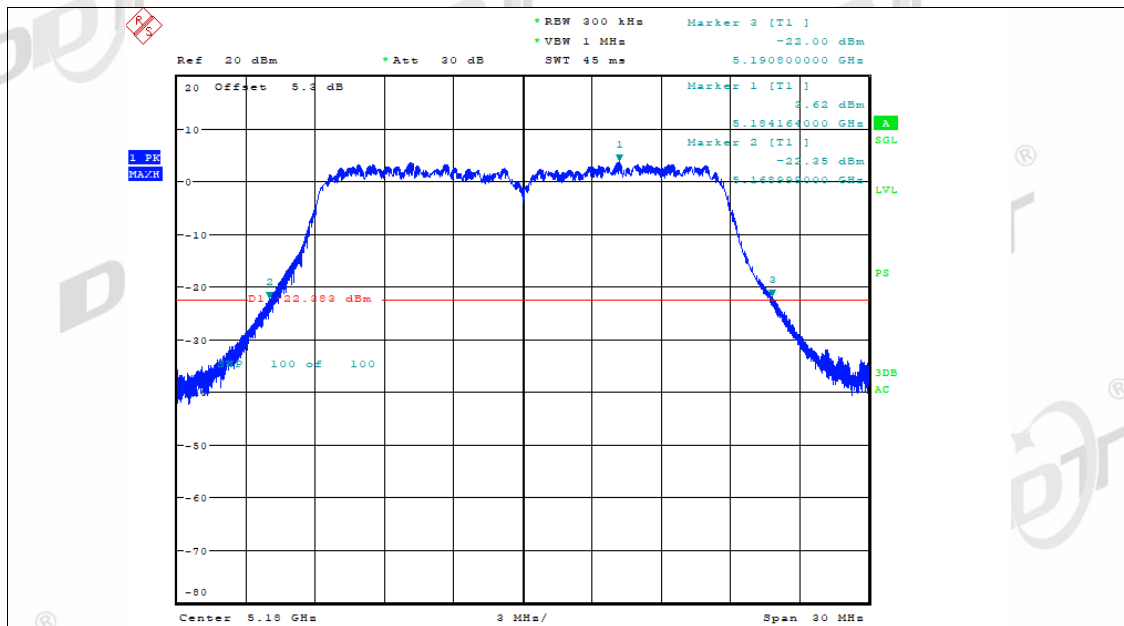


Date: 7.NOV.2022 14:14:36

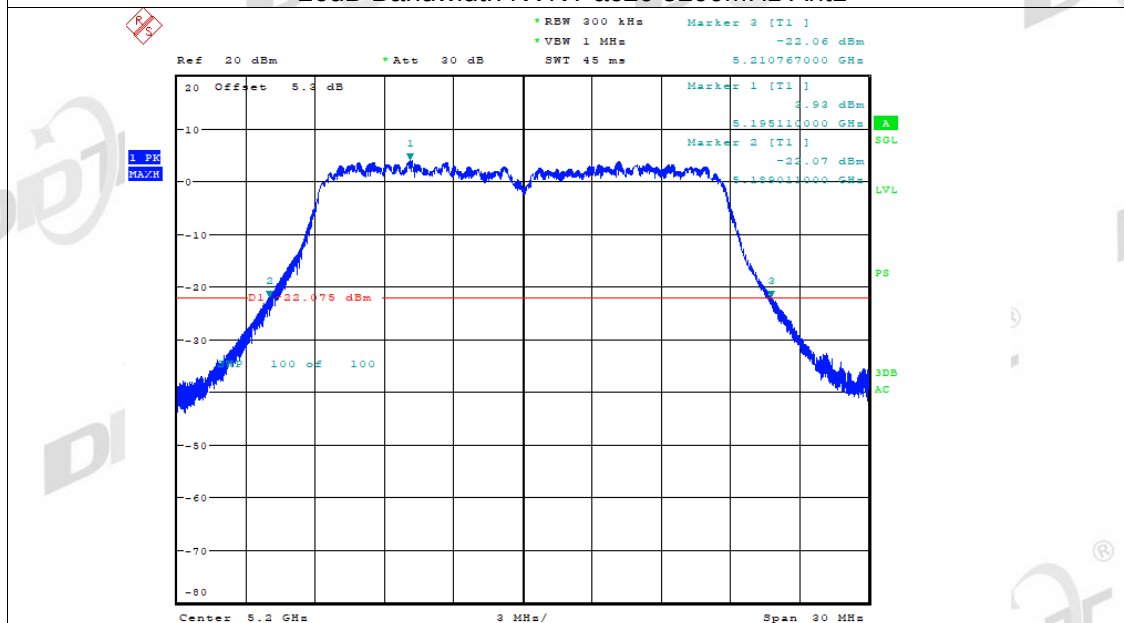
-26dB Bandwidth NVNT n40 5310MHz Ant1

Date: 7.NOV.2022 14:19:24

-26dB Bandwidth NVNT ac20 5180MHz Ant1

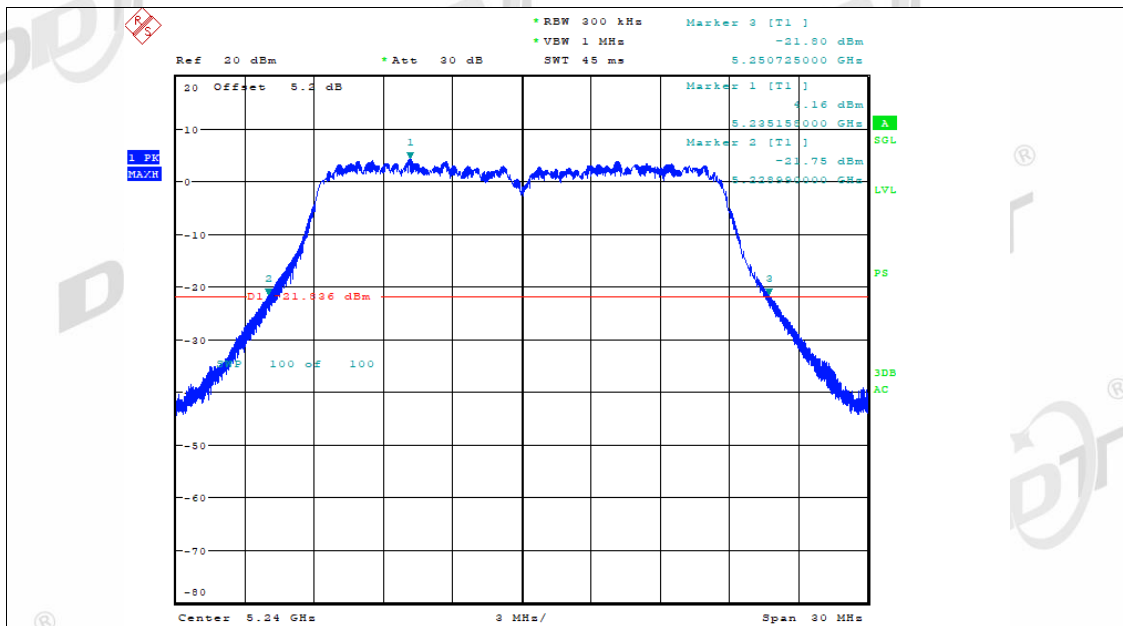


Date: 7.NOV.2022 11:47:42

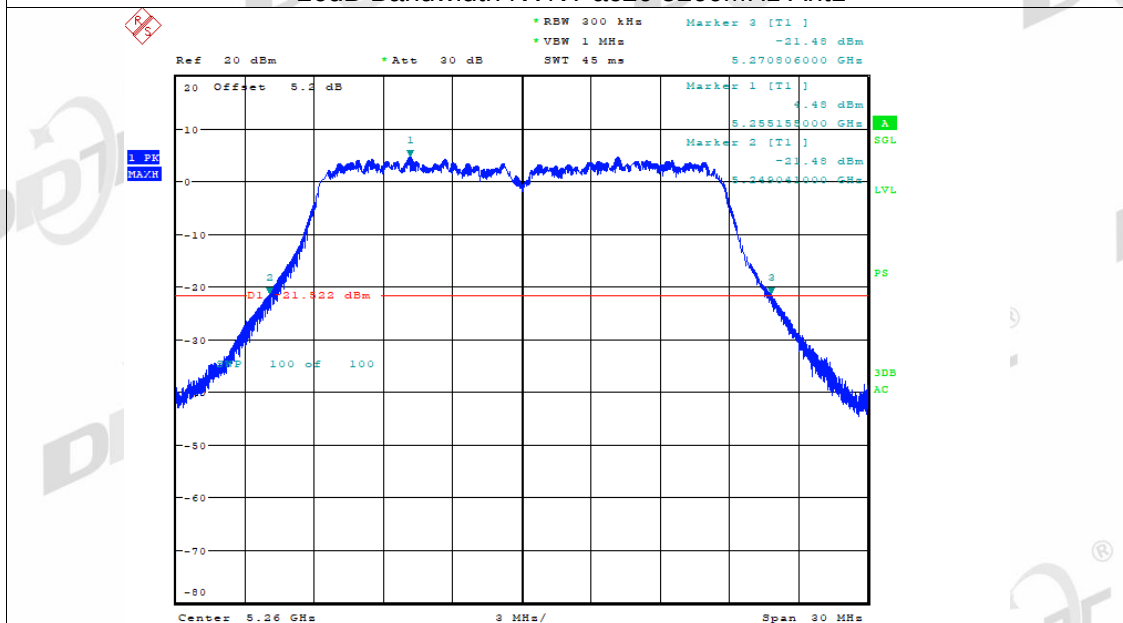
-26dB Bandwidth NVNT ac20 5200MHz Ant1

Date: 7.NOV.2022 11:51:37

-26dB Bandwidth NVNT ac20 5240MHz Ant1

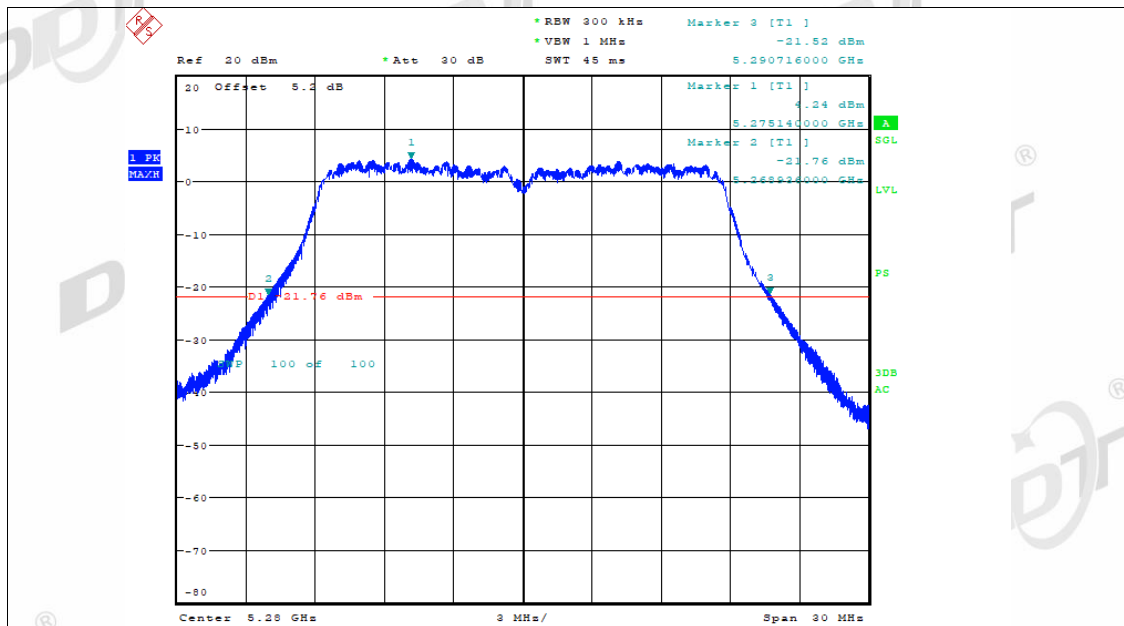


Date: 7.NOV.2022 11:54:49

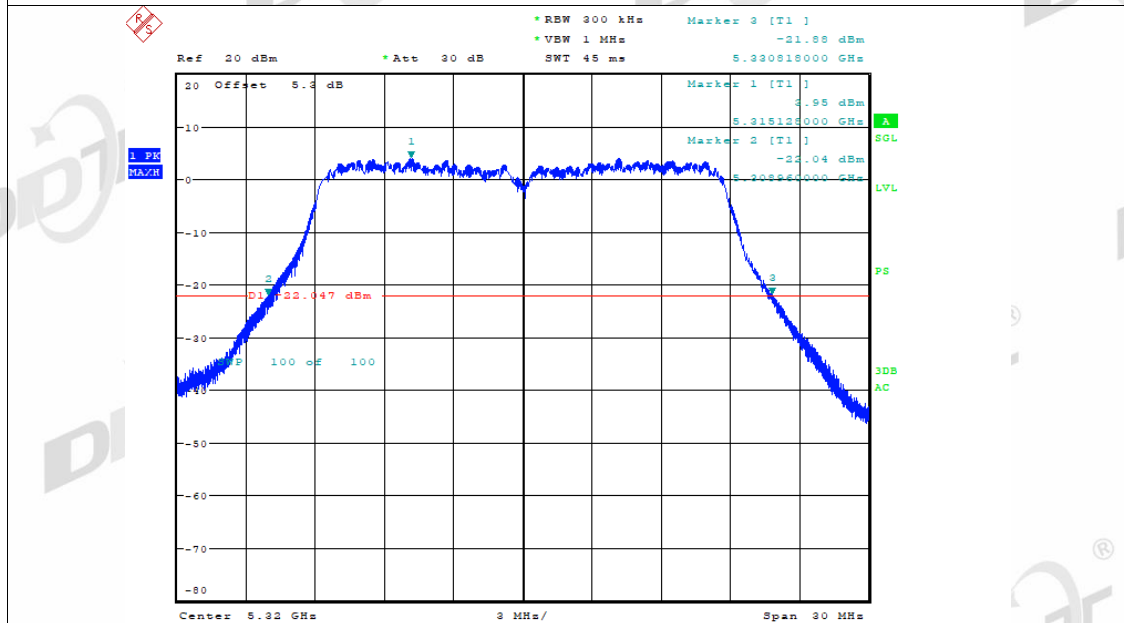
-26dB Bandwidth NVNT ac20 5260MHz Ant1

Date: 7.NOV.2022 11:58:44

-26dB Bandwidth NVNT ac20 5280MHz Ant1

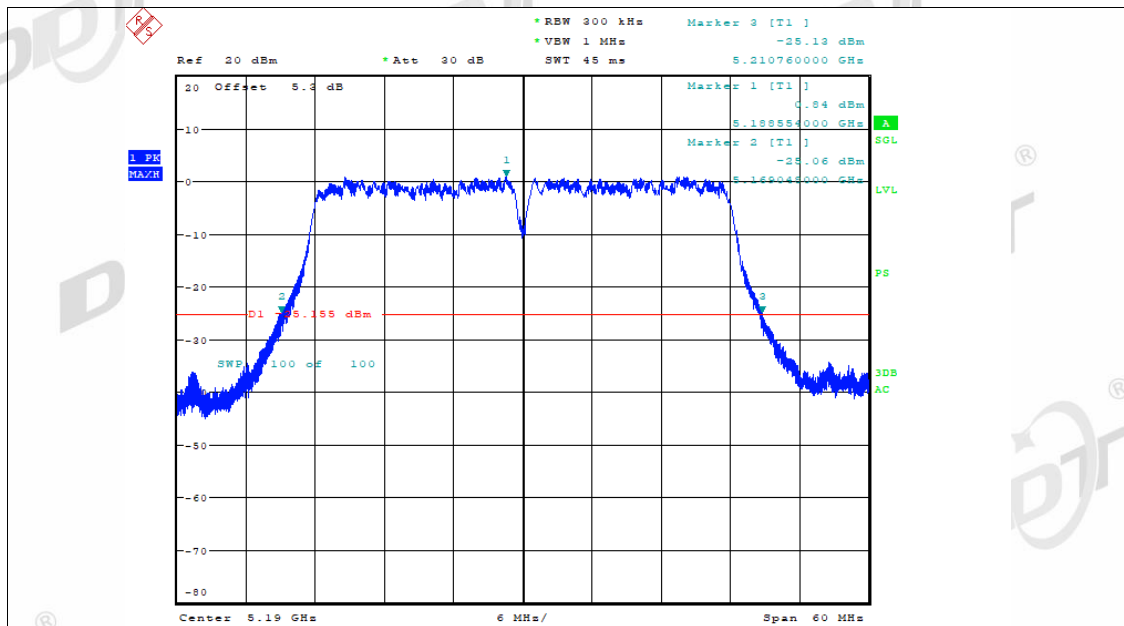


Date: 7.NOV.2022 12:04:11

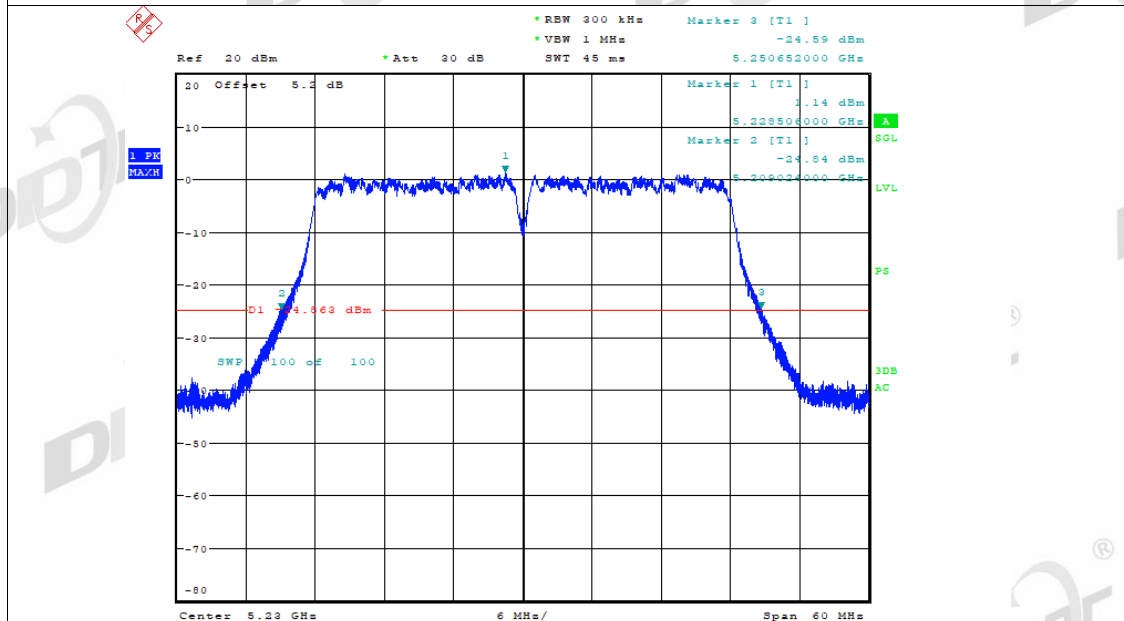
-26dB Bandwidth NVNT ac20 5320MHz Ant1

Date: 7.NOV.2022 12:08:03

-26dB Bandwidth NVNT ac40 5190MHz Ant1

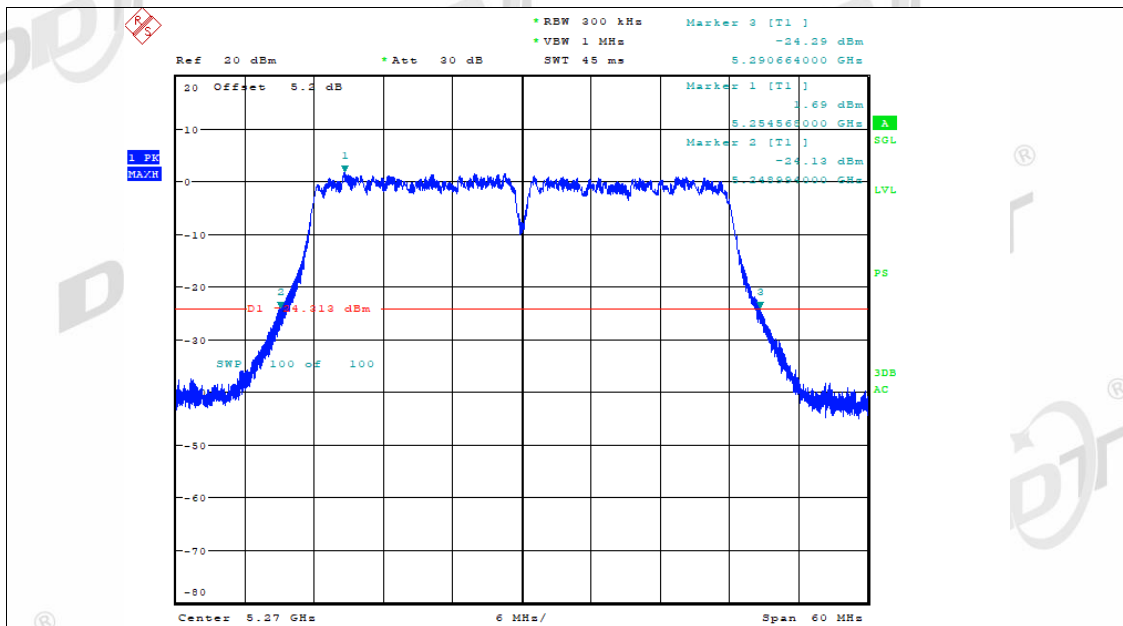


Date: 7.NOV.2022 14:29:36

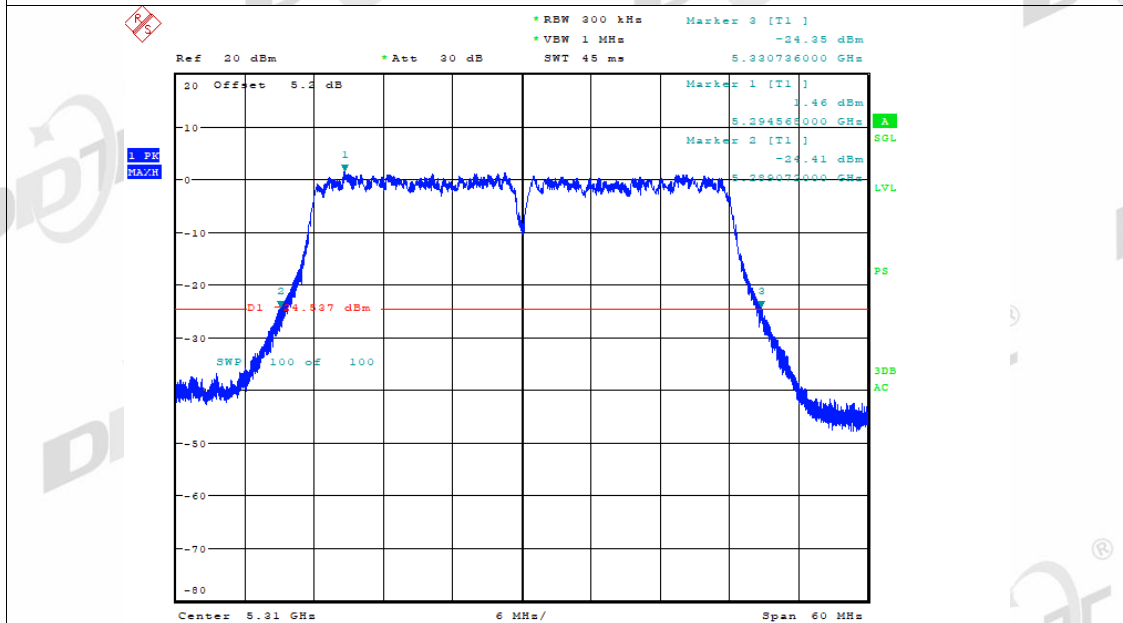
-26dB Bandwidth NVNT ac40 5230MHz Ant1

Date: 7.NOV.2022 14:40:39

-26dB Bandwidth NVNT ac40 5270MHz Ant1

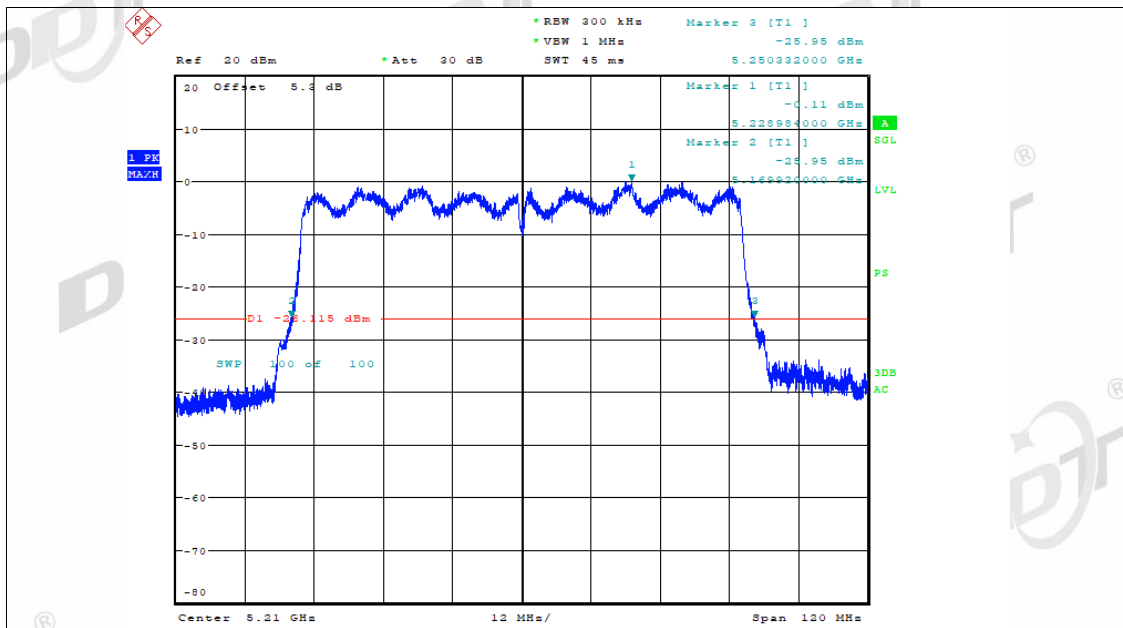


Date: 7.NOV.2022 14:49:32

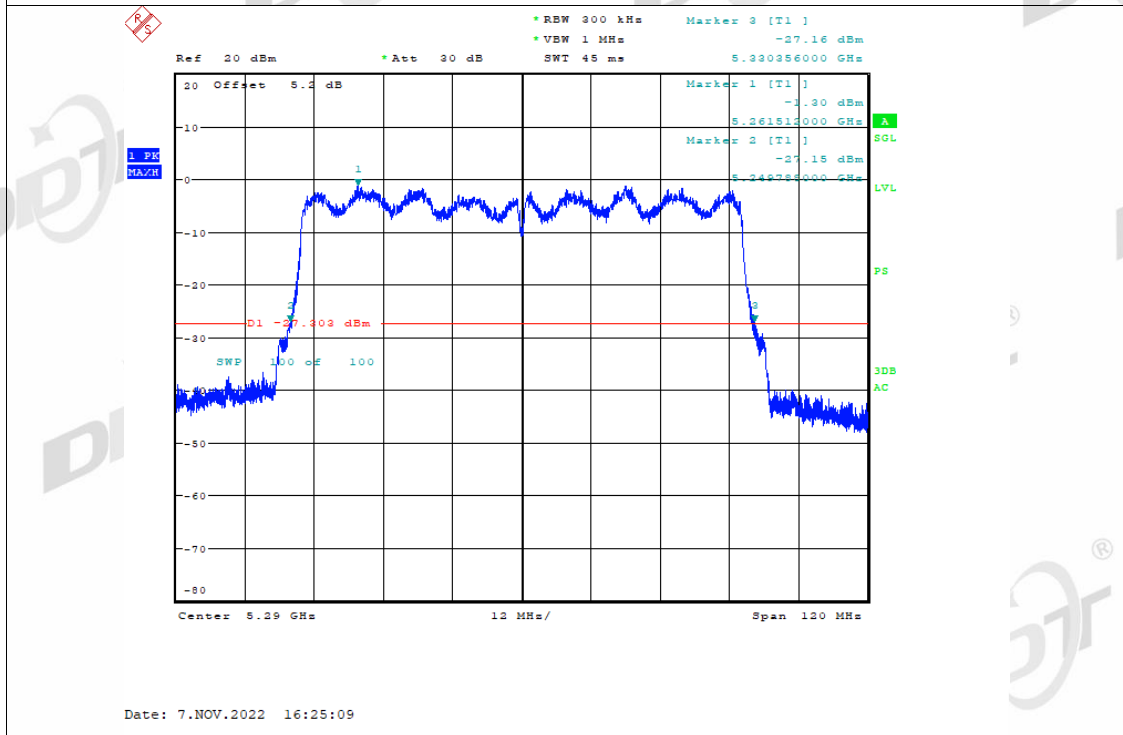
-26dB Bandwidth NVNT ac40 5310MHz Ant1

Date: 7.NOV.2022 14:53:46

-26dB Bandwidth NVNT ac80 5210MHz Ant1

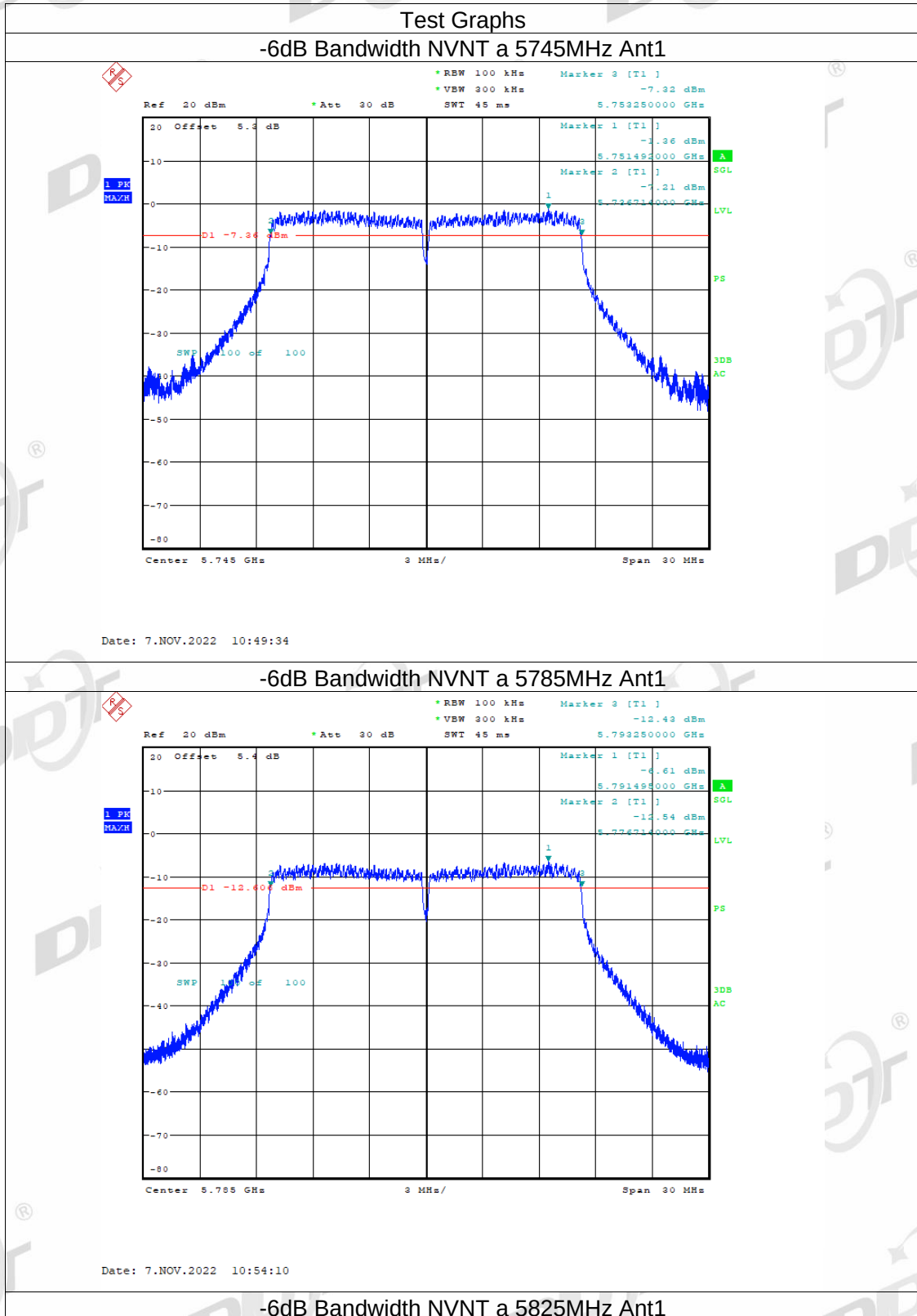


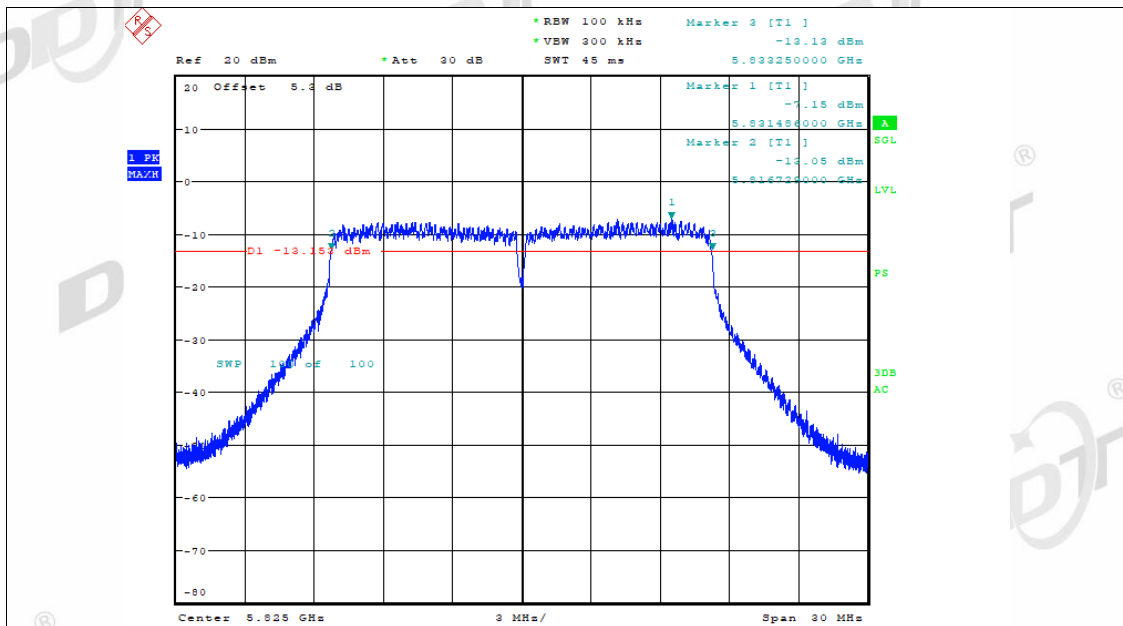
Date: 7.NOV.2022 16:17:13

-26dB Bandwidth NVNT ac80 5290MHz Ant1

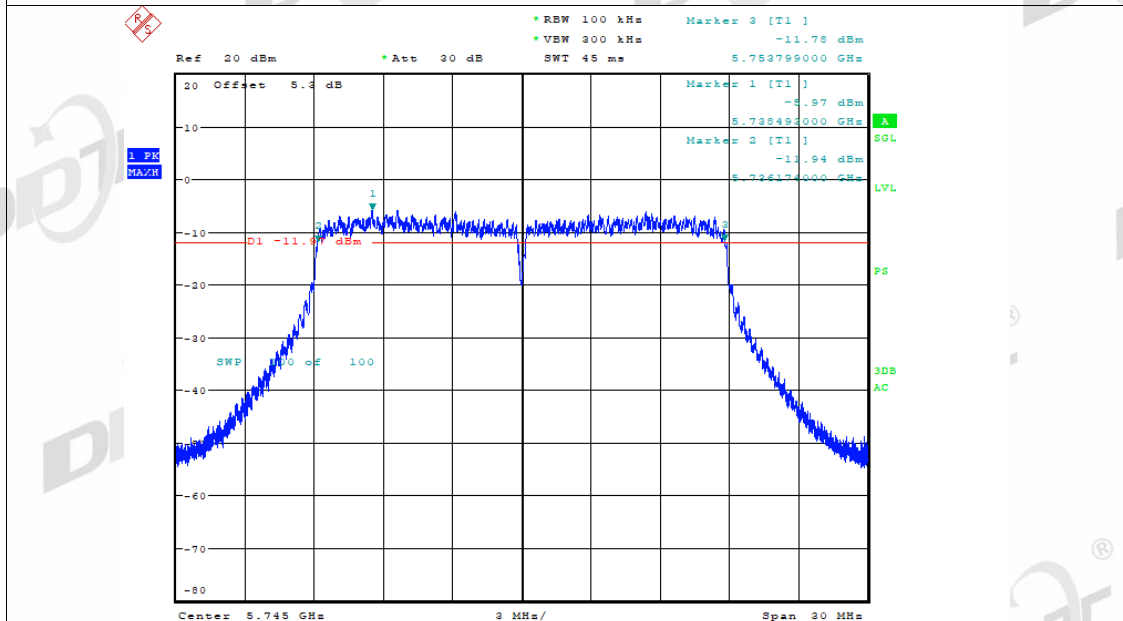
Date: 7.NOV.2022 16:25:09

6 dB Bandwidth



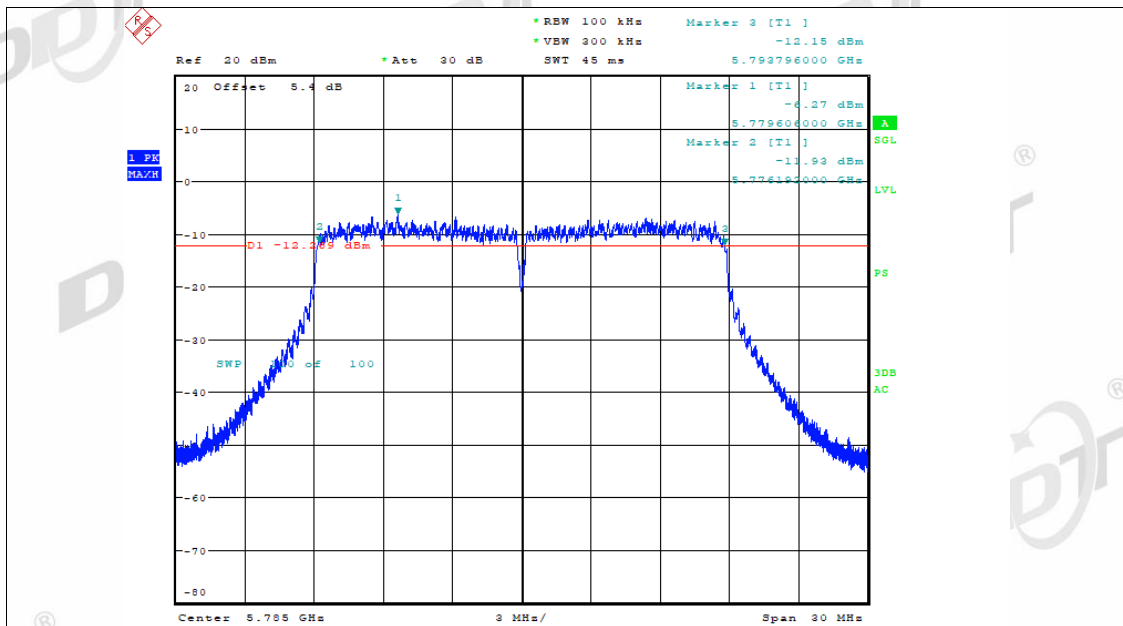


Date: 7.NOV.2022 10:57:54

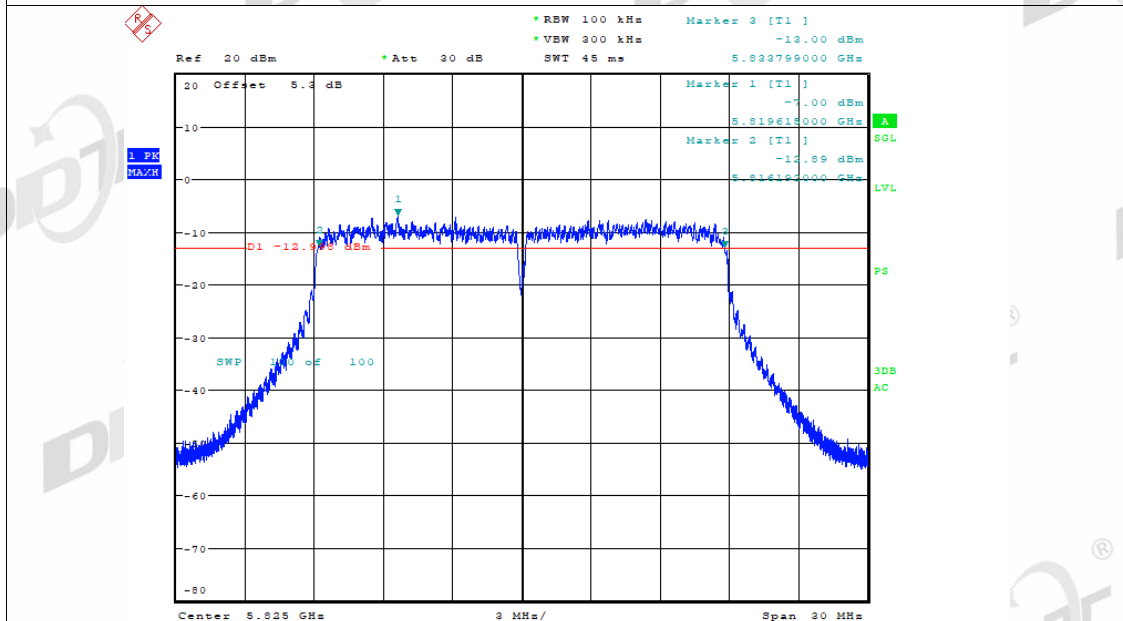
-6dB Bandwidth NVNT n20 5745MHz Ant1

Date: 7.NOV.2022 11:30:08

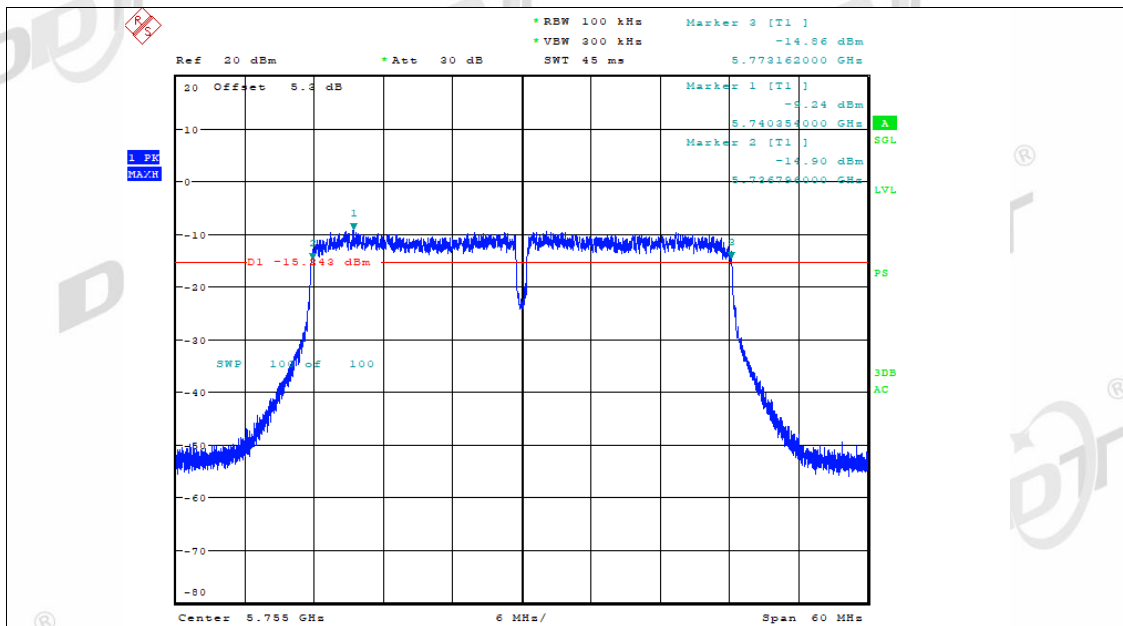
-6dB Bandwidth NVNT n20 5785MHz Ant1



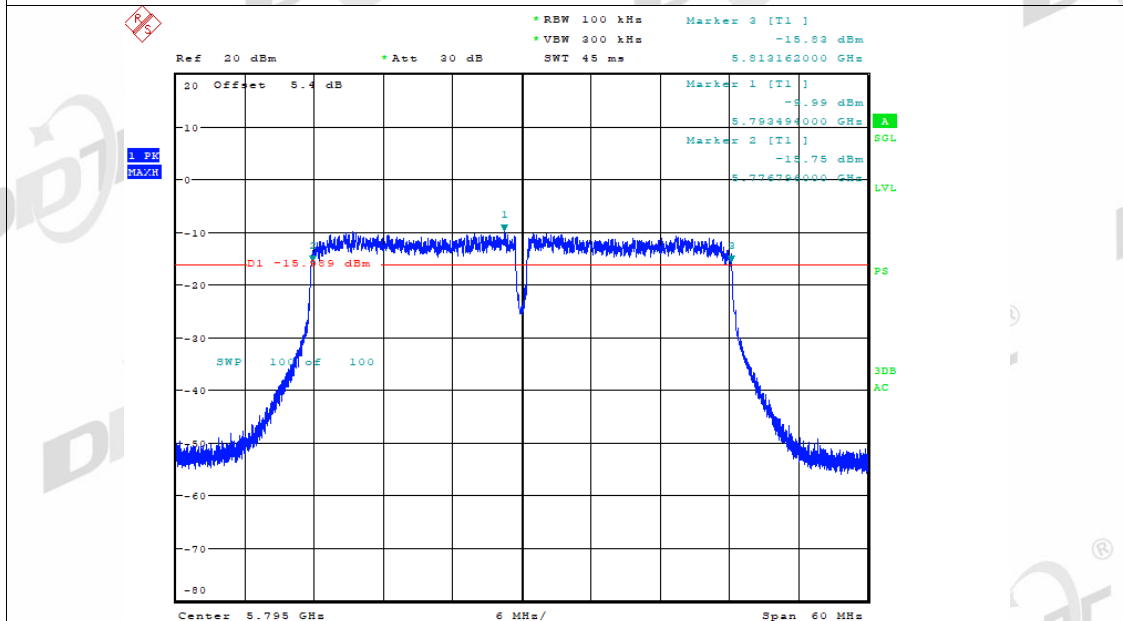
-6dB Bandwidth NVNT n20 5825MHz Ant1



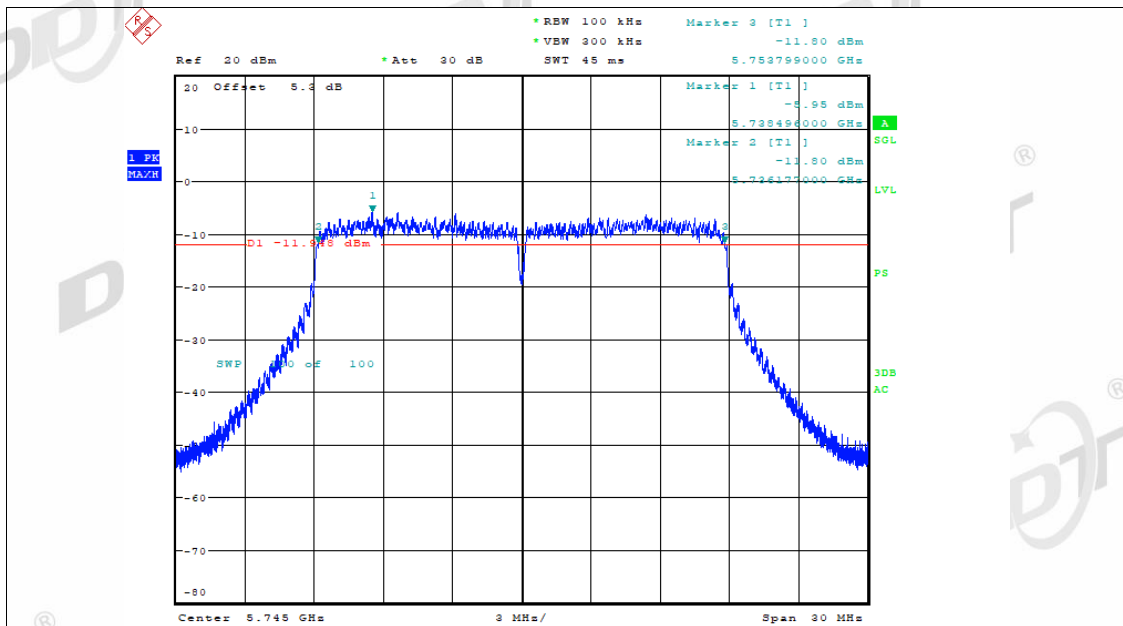
-6dB Bandwidth NVNT n40 5755MHz Ant1



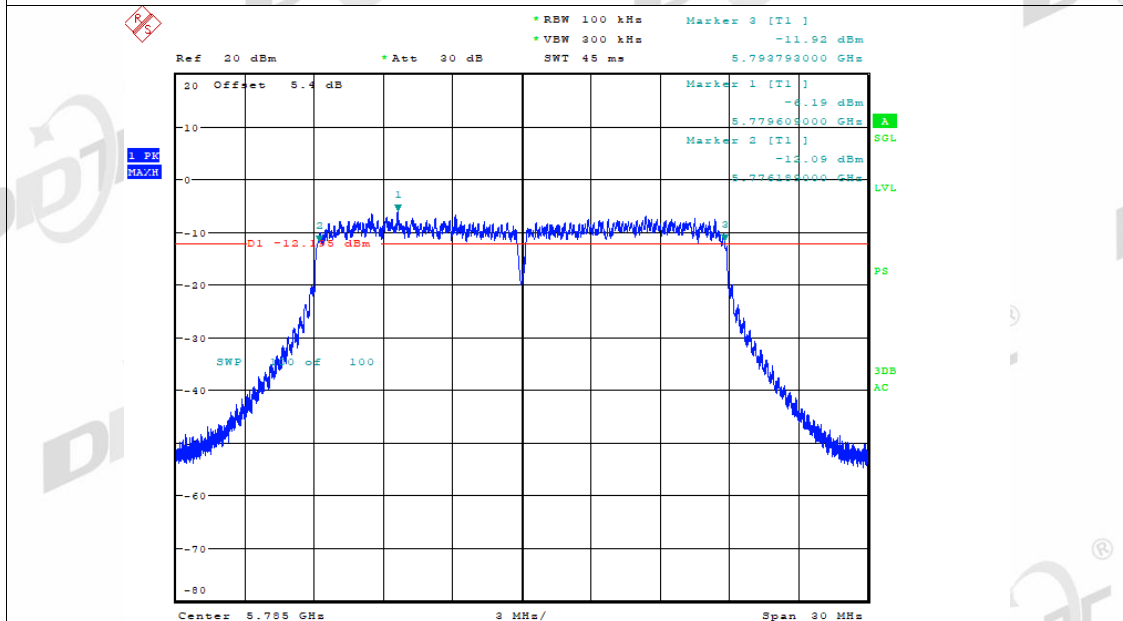
-6dB Bandwidth NVNT n40 5795MHz Ant1



-6dB Bandwidth NVNT ac20 5745MHz Ant1

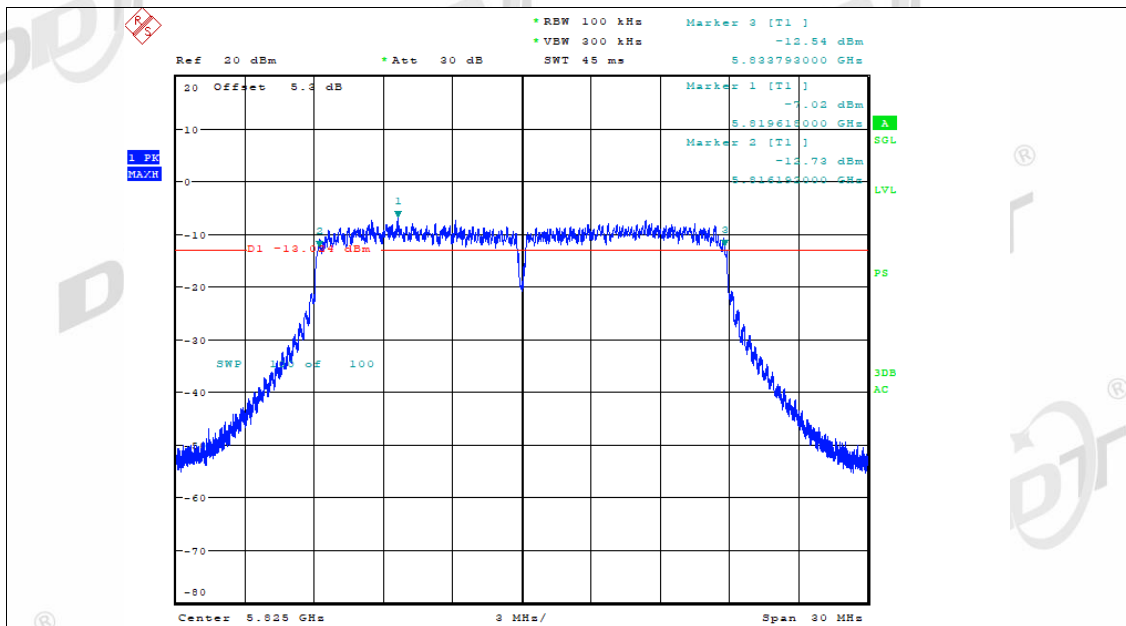


Date: 7.NOV.2022 13:16:22

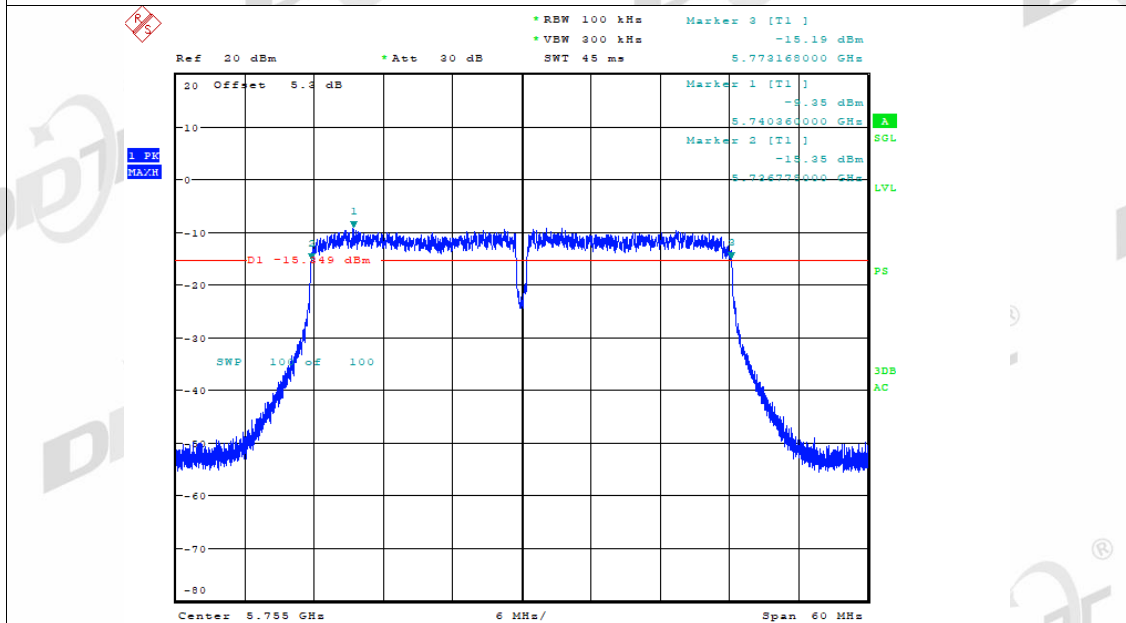
-6dB Bandwidth NVNT ac20 5785MHz Ant1

Date: 7.NOV.2022 13:21:08

-6dB Bandwidth NVNT ac20 5825MHz Ant1

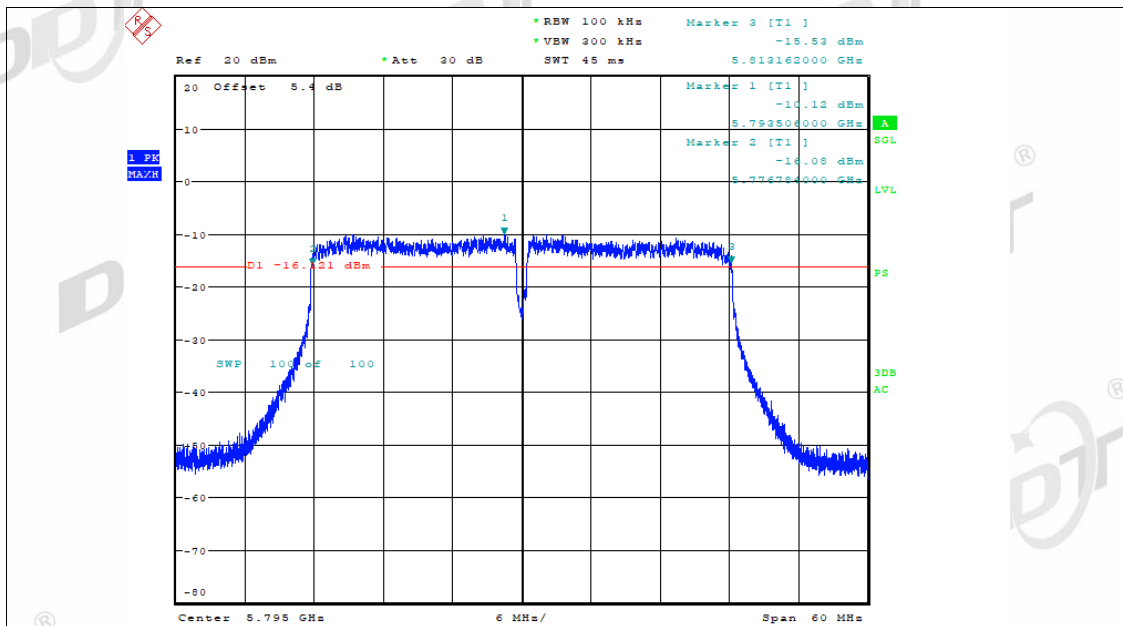


Date: 7.NOV.2022 13:30:41

-6dB Bandwidth NVNT ac40 5755MHz Ant1

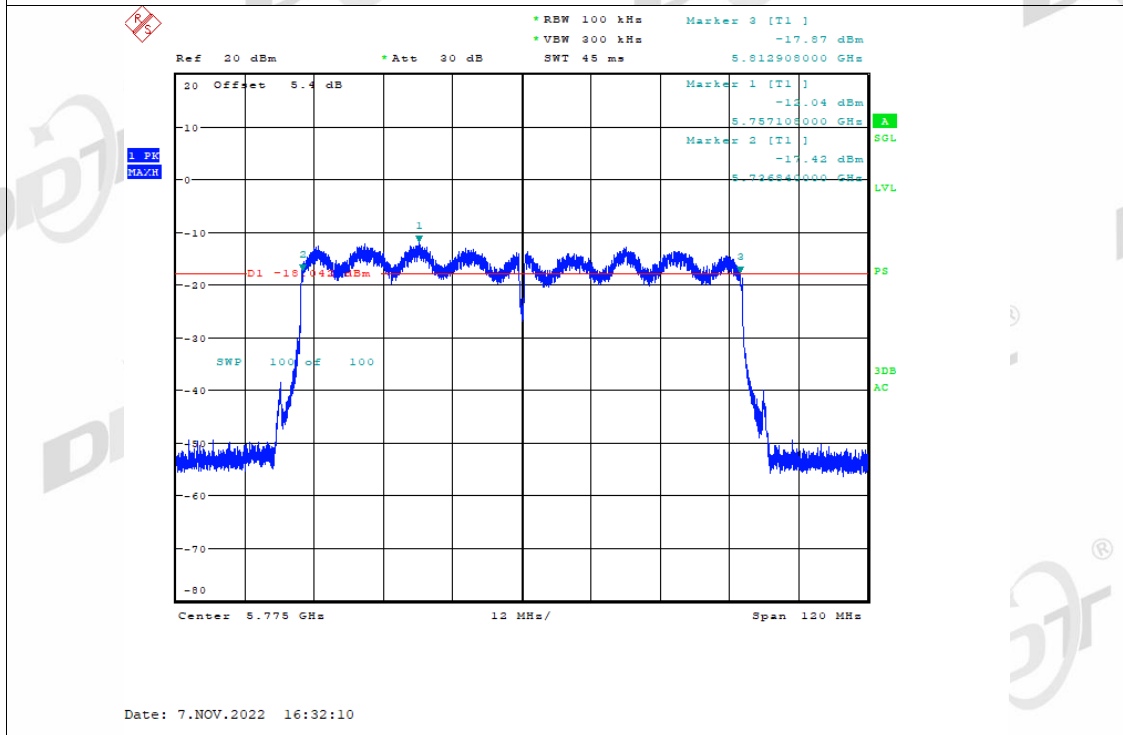
Date: 7.NOV.2022 14:58:00

-6dB Bandwidth NVNT ac40 5795MHz Ant1



Date: 7.NOV.2022 15:02:26

-6dB Bandwidth NVNT ac80 5775MHz Ant1



Date: 7.NOV.2022 16:32:10

5. Maximum Conducted 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 FCC client devices: 250 mW (24 dBm)	5150-5250
	For RSS: e.i.r.p. power: not exceed 200 mW (23 dBm) or $10 + 10 \log_{10} B$	
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	
	For RSS: For conducted output power: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	5250-5350
	For RSS: e.i.r.p. power: not exceed 1.0 W (30 dBm) or $17 + 10 \log_{10} B$	
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	
	For RSS: For conducted output power: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	For FCC: 5470 - 5725 For IC: 5470 - 5600 5650 - 5725
	For RSS: e.i.r.p. power: not exceed 1.0 W (30 dBm) or $17 + 10 \log_{10} B$	
1 Watt (30 dBm)		5725-5850
Note 1: For FCC: B=26 bandwidth; For ISDE: B=99% bandwidth.		

5.3. Test procedure

- (1) Connect each EUT's antenna output to spectrum analyser by RF cable and attenuator
- (2) According ANSI C63.10:2020 clause 12.4.2.4 Method SA-2.
- (3) Add each antenna port's results to get the total output power of EUT.

5.4. Test result

Duty Cycle

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
a	5180	Ant1	100	0
a	5200	Ant1	100	0
a	5240	Ant1	100	0
a	5260	Ant1	100	0
a	5280	Ant1	100	0
a	5320	Ant1	100	0
a	5745	Ant1	100	0
a	5785	Ant1	100	0
a	5825	Ant1	100	0
n20	5180	Ant1	100	0
n20	5200	Ant1	100	0
n20	5240	Ant1	100	0
n20	5260	Ant1	100	0
n20	5280	Ant1	100	0
n20	5320	Ant1	100	0
n20	5745	Ant1	100	0
n20	5785	Ant1	100	0
n20	5825	Ant1	100	0
n40	5190	Ant1	100	0
n40	5230	Ant1	100	0
n40	5270	Ant1	100	0
n40	5310	Ant1	100	0
n40	5755	Ant1	100	0
n40	5795	Ant1	100	0
ac20	5180	Ant1	100	0
ac20	5200	Ant1	100	0
ac20	5240	Ant1	100	0
ac20	5260	Ant1	100	0
ac20	5280	Ant1	100	0
ac20	5320	Ant1	100	0
ac20	5745	Ant1	100	0
ac20	5785	Ant1	100	0
ac20	5825	Ant1	100	0
ac40	5190	Ant1	100	0
ac40	5230	Ant1	100	0
ac40	5270	Ant1	100	0
ac40	5310	Ant1	100	0
ac40	5755	Ant1	100	0
ac40	5795	Ant1	100	0
ac80	5210	Ant1	100	0
ac80	5290	Ant1	100	0
ac80	5775	Ant1	100	0

FCC Maximum Conducted Output Power

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	FCC Conducted Limit	Verdict
a	5180	Ant1	11.3	0	11.3	24	PASS
a	5200	Ant1	11.55	0	11.55	24	PASS
a	5240	Ant1	11.68	0	11.68	24	PASS
a	5260	Ant1	12.24	0	12.24	24	PASS
a	5280	Ant1	11.72	0	11.72	24	PASS
a	5320	Ant1	11.73	0	11.73	24	PASS
a	5745	Ant1	7.18	0	7.18	30	PASS
a	5785	Ant1	6.48	0	6.48	30	PASS
a	5825	Ant1	5.91	0	5.91	30	PASS
n20	5180	Ant1	11.15	0	11.15	24	PASS
n20	5200	Ant1	11.37	0	11.37	24	PASS
n20	5240	Ant1	11.51	0	11.51	24	PASS
n20	5260	Ant1	12.05	0	12.05	24	PASS
n20	5280	Ant1	11.58	0	11.58	24	PASS
n20	5320	Ant1	11.54	0	11.54	24	PASS
n20	5745	Ant1	6.89	0	6.89	30	PASS
n20	5785	Ant1	6.29	0	6.29	30	PASS
n20	5825	Ant1	5.64	0	5.64	30	PASS
n40	5190	Ant1	11.43	0	11.43	24	PASS
n40	5230	Ant1	11.62	0	11.62	24	PASS
n40	5270	Ant1	11.97	0	11.97	24	PASS
n40	5310	Ant1	11.82	0	11.82	24	PASS
n40	5755	Ant1	7.12	0	7.12	30	PASS
n40	5795	Ant1	6.32	0	6.32	30	PASS
ac20	5180	Ant1	11.03	0	11.03	24	PASS
ac20	5200	Ant1	11.26	0	11.26	24	PASS
ac20	5240	Ant1	11.39	0	11.39	24	PASS
ac20	5260	Ant1	11.89	0	11.89	24	PASS
ac20	5280	Ant1	11.41	0	11.41	24	PASS
ac20	5320	Ant1	11.4	0	11.4	24	PASS
ac20	5745	Ant1	6.81	0	6.81	30	PASS
ac20	5785	Ant1	6.29	0	6.29	30	PASS
ac20	5825	Ant1	5.64	0	5.64	30	PASS
ac40	5190	Ant1	11.43	0	11.43	24	PASS
ac40	5230	Ant1	11.57	0	11.57	24	PASS
ac40	5270	Ant1	11.94	0	11.94	24	PASS
ac40	5310	Ant1	11.74	0	11.74	24	PASS
ac40	5755	Ant1	7.02	0	7.02	30	PASS
ac40	5795	Ant1	6.22	0	6.22	30	PASS
ac80	5210	Ant1	12.53	0	12.53	24	PASS
ac80	5290	Ant1	11.15	0	11.15	24	PASS
ac80	5775	Ant1	5.99	0	5.99	30	PASS

ISED Maximum Conducted Output Power

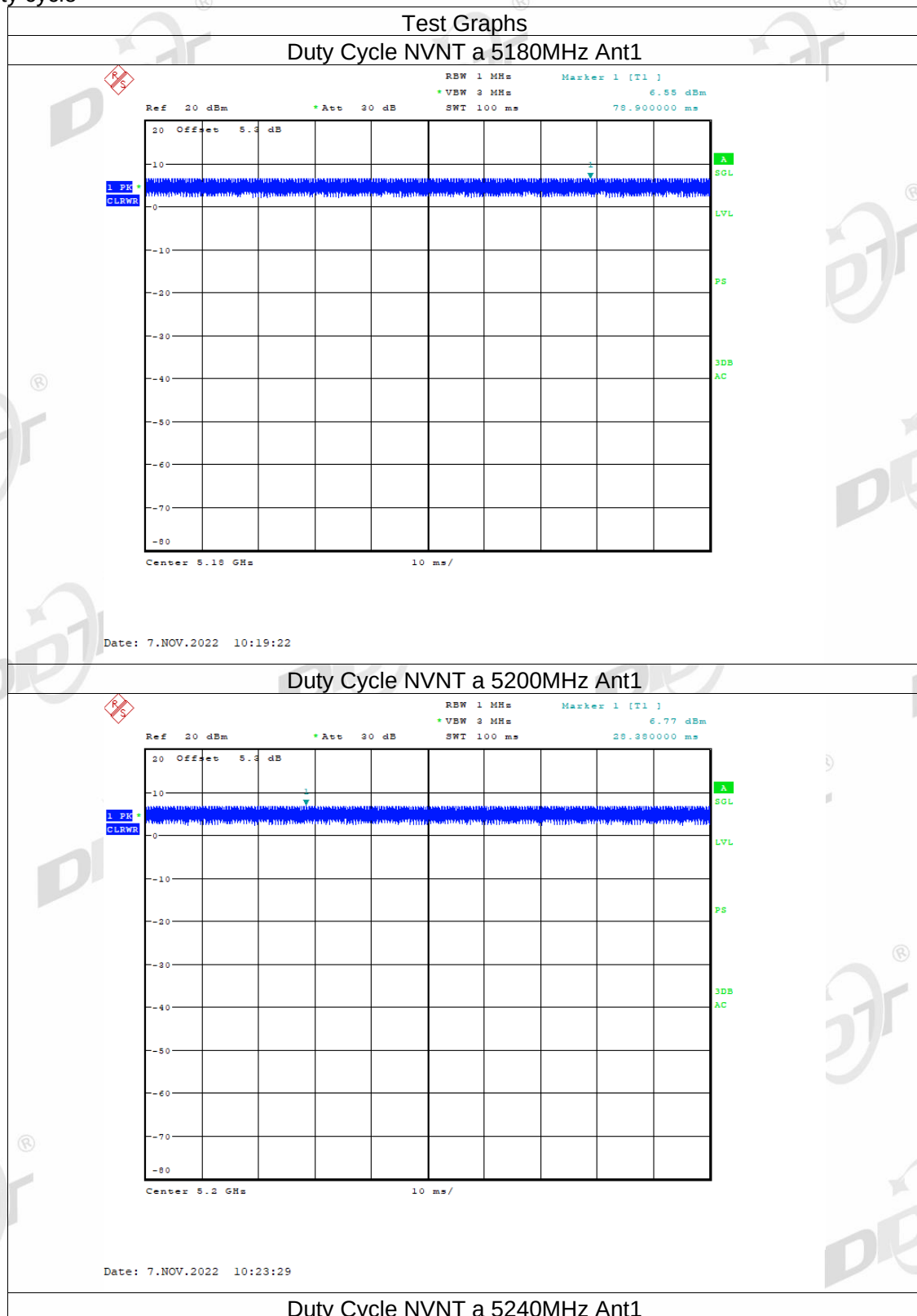
Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	ISED Limit (dBm)	Verdict
a	5180	Ant1	11.3	0	11.3	-	-
a	5200	Ant1	11.55	0	11.55	-	-
a	5240	Ant1	11.68	0	11.68	-	-
a	5260	Ant1	12.24	0	12.24	23.20	PASS
a	5280	Ant1	11.72	0	11.72	23.20	PASS
a	5320	Ant1	11.73	0	11.73	23.20	PASS
a	5745	Ant1	7.18	0	7.18	30.00	PASS
a	5785	Ant1	6.48	0	6.48	30.00	PASS
a	5825	Ant1	5.91	0	5.91	30.00	PASS
n20	5180	Ant1	11.15	0	11.15	-	-
n20	5200	Ant1	11.37	0	11.37	-	-
n20	5240	Ant1	11.51	0	11.51	-	-
n20	5260	Ant1	12.05	0	12.05	23.47	PASS
n20	5280	Ant1	11.58	0	11.58	23.48	PASS
n20	5320	Ant1	11.54	0	11.54	23.48	PASS
n20	5745	Ant1	6.89	0	6.89	30.00	PASS
n20	5785	Ant1	6.29	0	6.29	30.00	PASS
n20	5825	Ant1	5.64	0	5.64	30.00	PASS
n40	5190	Ant1	11.43	0	11.43	-	-
n40	5230	Ant1	11.62	0	11.62	-	-
n40	5270	Ant1	11.97	0	11.97	24.00	PASS
n40	5310	Ant1	11.82	0	11.82	24.00	PASS
n40	5755	Ant1	7.12	0	7.12	30.00	PASS
n40	5795	Ant1	6.32	0	6.32	30.00	PASS
ac20	5180	Ant1	11.03	0	11.03	-	-
ac20	5200	Ant1	11.26	0	11.26	-	-
ac20	5240	Ant1	11.39	0	11.39	-	-
ac20	5260	Ant1	11.89	0	11.89	23.48	PASS
ac20	5280	Ant1	11.41	0	11.41	23.49	PASS
ac20	5320	Ant1	11.4	0	11.4	23.49	PASS
ac20	5745	Ant1	6.81	0	6.81	30.00	PASS
ac20	5785	Ant1	6.29	0	6.29	30.00	PASS
ac20	5825	Ant1	5.64	0	5.64	30.00	PASS
ac40	5190	Ant1	11.43	0	11.43	-	-
ac40	5230	Ant1	11.57	0	11.57	-	-
ac40	5270	Ant1	11.94	0	11.94	24.00	PASS
ac40	5310	Ant1	11.74	0	11.74	24.00	PASS
ac40	5755	Ant1	7.02	0	7.02	30.00	PASS
ac40	5795	Ant1	6.22	0	6.22	30.00	PASS
ac80	5210	Ant1	12.53	0	12.53	-	-
ac80	5290	Ant1	11.15	0	11.15	24.00	PASS
ac80	5775	Ant1	5.99	0	5.99	30.00	PASS

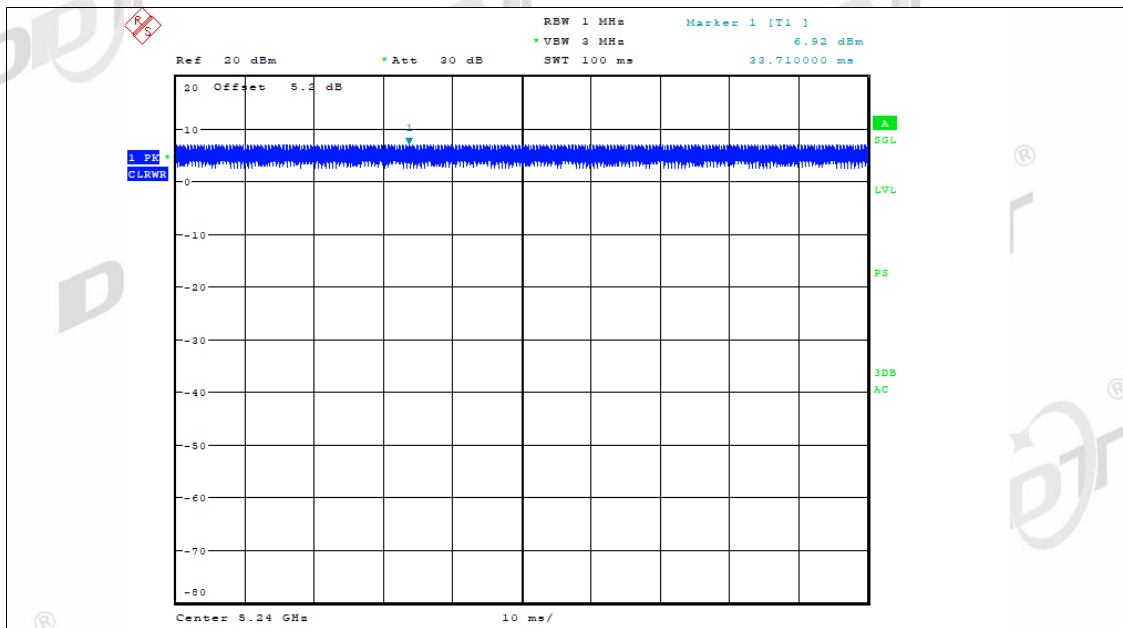
ISED EIRP

Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Ant Gain (dBi)	EIRP (dBm)	ISED EIRP LIMIT	Verdict
a	5180	Ant1	11.30	3.3	14.60	22.20	PASS
a	5200	Ant1	11.55	3.3	14.85	22.20	PASS
a	5240	Ant1	11.68	3.3	14.98	22.20	PASS
a	5260	Ant1	12.24	3.3	15.54	29.20	PASS
a	5280	Ant1	11.72	3.3	15.02	29.20	PASS
a	5320	Ant1	11.73	3.3	15.03	29.20	PASS
a	5745	Ant1	7.18	3.3	10.48	-	-
a	5785	Ant1	6.48	3.3	9.78	-	-
a	5825	Ant1	5.91	3.3	9.21	-	-
n20	5180	Ant1	11.15	3.3	14.45	22.48	PASS
n20	5200	Ant1	11.37	3.3	14.67	22.48	PASS
n20	5240	Ant1	11.51	3.3	14.81	22.48	PASS
n20	5260	Ant1	12.05	3.3	15.35	29.47	PASS
n20	5280	Ant1	11.58	3.3	14.88	29.48	PASS
n20	5320	Ant1	11.54	3.3	14.84	29.48	PASS
n20	5745	Ant1	6.89	3.3	10.19	-	-
n20	5785	Ant1	6.29	3.3	9.59	-	-
n20	5825	Ant1	5.64	3.3	8.94	-	-
n40	5190	Ant1	11.43	3.3	14.73	23.00	PASS
n40	5230	Ant1	11.62	3.3	14.92	23.00	PASS
n40	5270	Ant1	11.97	3.3	15.27	30.00	PASS
n40	5310	Ant1	11.82	3.3	15.12	30.00	PASS
n40	5755	Ant1	7.12	3.3	10.42	-	-
n40	5795	Ant1	6.32	3.3	9.62	-	-
ac20	5180	Ant1	11.03	3.3	14.33	22.48	PASS
ac20	5200	Ant1	11.26	3.3	14.56	22.48	PASS
ac20	5240	Ant1	11.39	3.3	14.69	22.48	PASS
ac20	5260	Ant1	11.89	3.3	15.19	29.48	PASS
ac20	5280	Ant1	11.41	3.3	14.71	29.49	PASS
ac20	5320	Ant1	11.40	3.3	14.70	29.49	PASS
ac20	5745	Ant1	6.81	3.3	10.11	-	-
ac20	5785	Ant1	6.29	3.3	9.59	-	-
ac20	5825	Ant1	5.64	3.3	8.94	-	-
ac40	5190	Ant1	11.43	3.3	14.73	23.00	PASS
ac40	5230	Ant1	11.57	3.3	14.87	23.00	PASS
ac40	5270	Ant1	11.94	3.3	15.24	30.00	PASS
ac40	5310	Ant1	11.74	3.3	15.04	30.00	PASS
ac40	5755	Ant1	7.02	3.3	10.32	-	-
ac40	5795	Ant1	6.22	3.3	9.52	-	-
ac80	5210	Ant1	12.53	3.3	15.83	23.00	PASS
ac80	5290	Ant1	11.15	3.3	14.45	30.00	PASS
ac80	5775	Ant1	5.99	3.3	9.29	-	-

5.5. Original test data

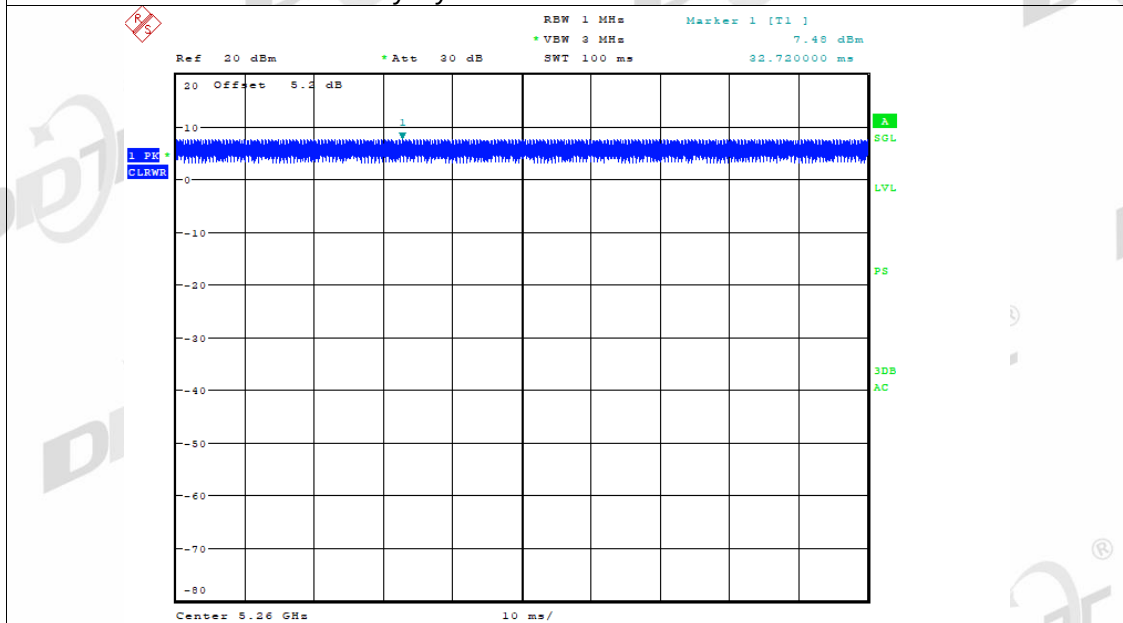
Duty cycle





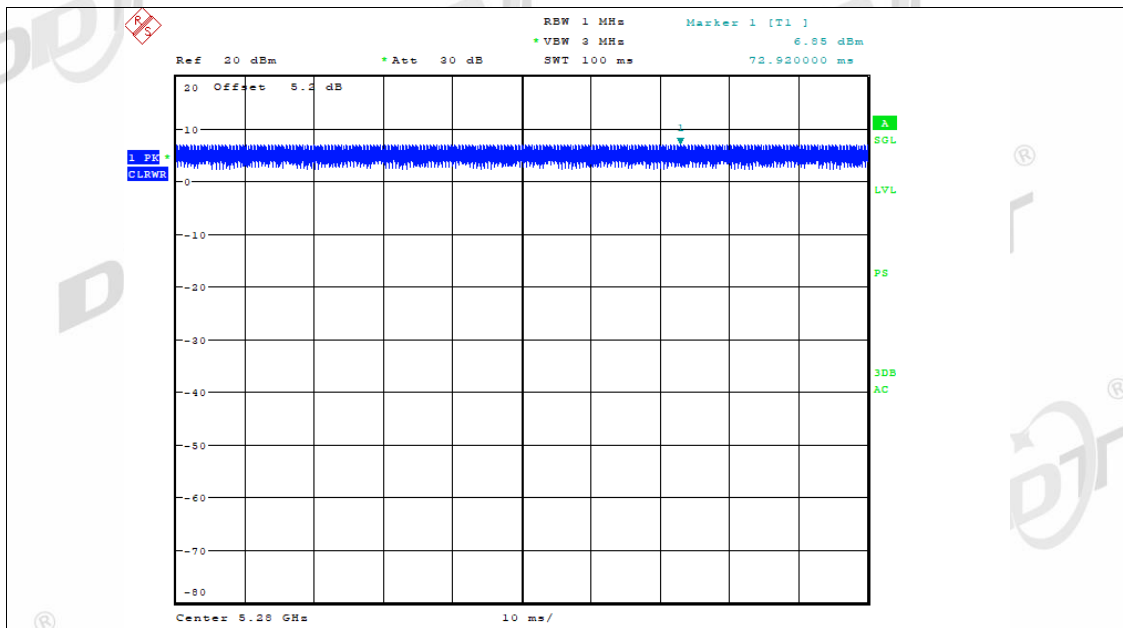
Date: 7.NOV.2022 10:27:18

Duty Cycle NVNT a 5260MHz Ant1



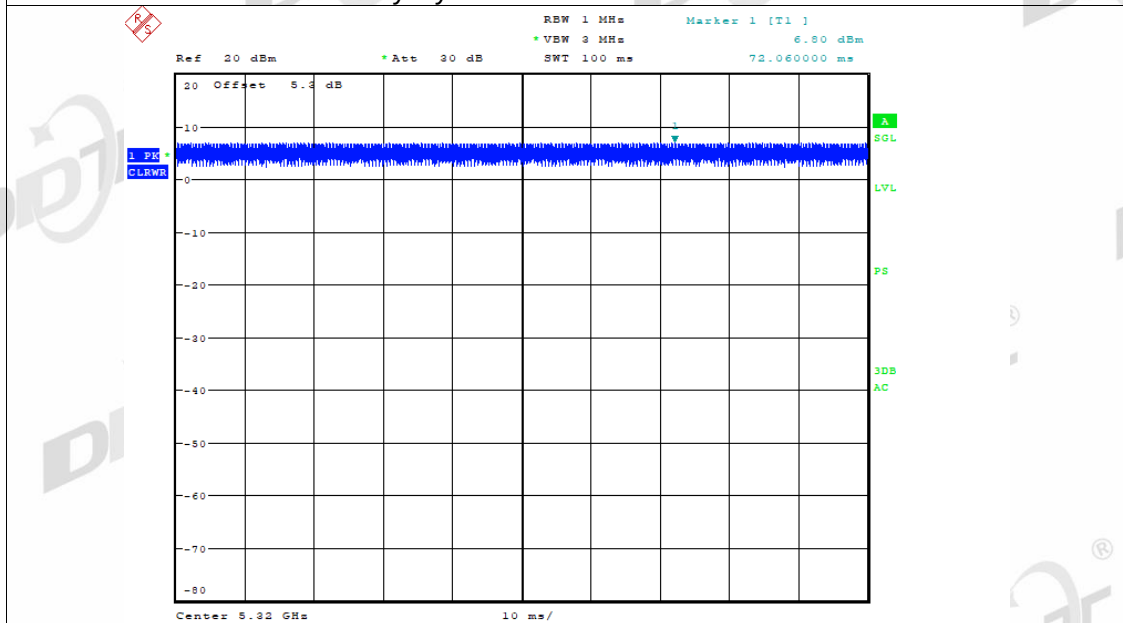
Date: 7.NOV.2022 10:32:06

Duty Cycle NVNT a 5280MHz Ant1



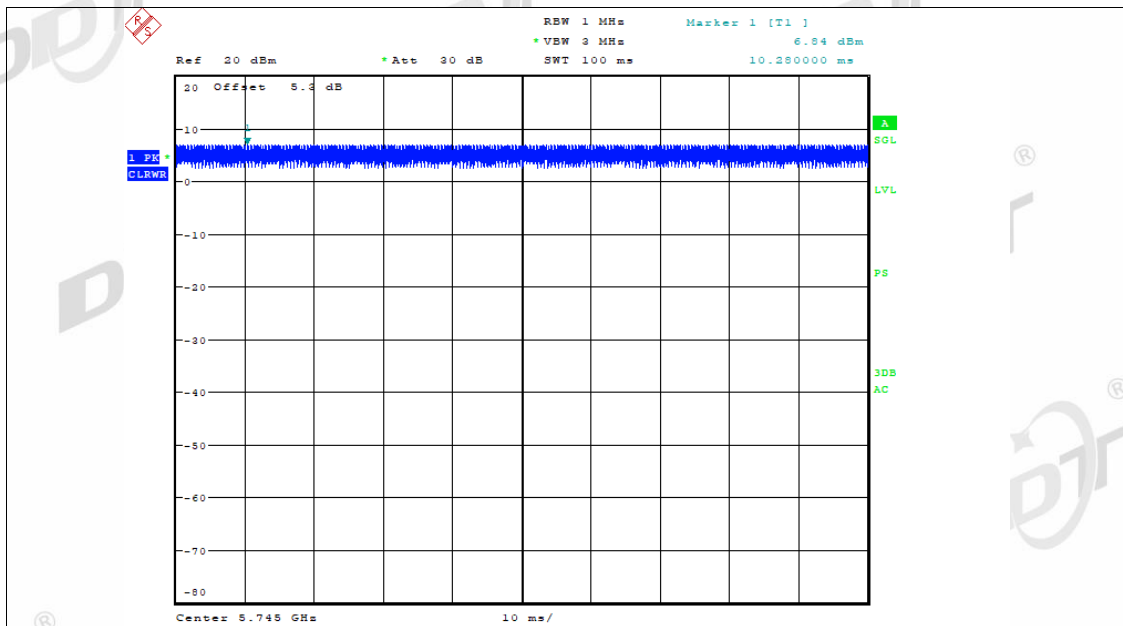
Date: 7.NOV.2022 10:36:36

Duty Cycle NVNT a 5320MHz Ant1

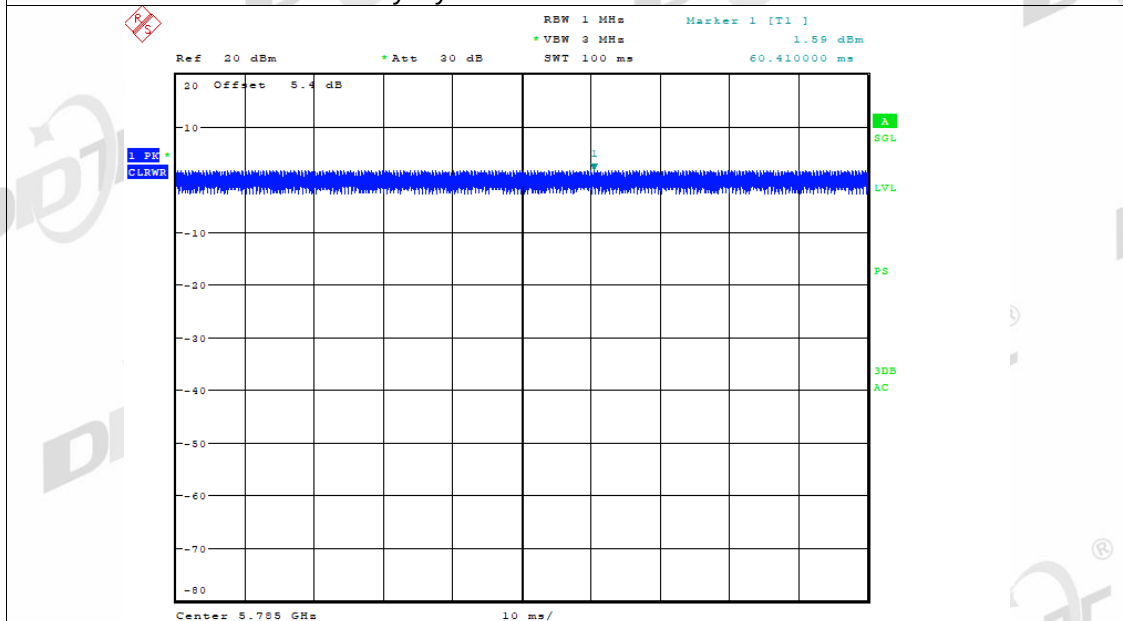


Date: 7.NOV.2022 10:40:38

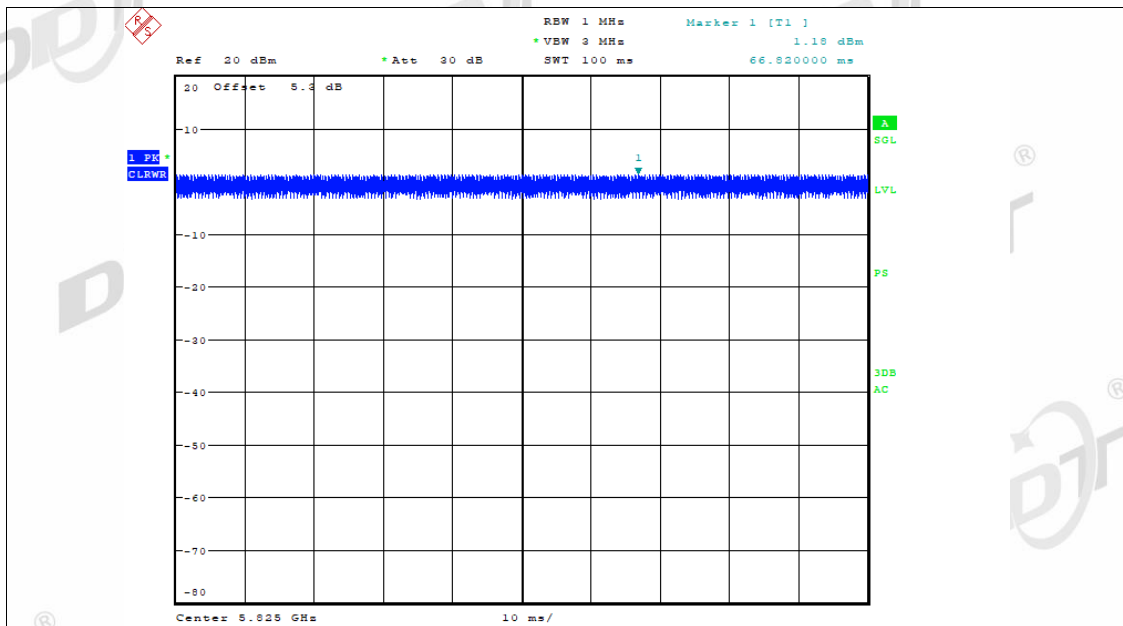
Duty Cycle NVNT a 5745MHz Ant1



Duty Cycle NVNT a 5785MHz Ant1

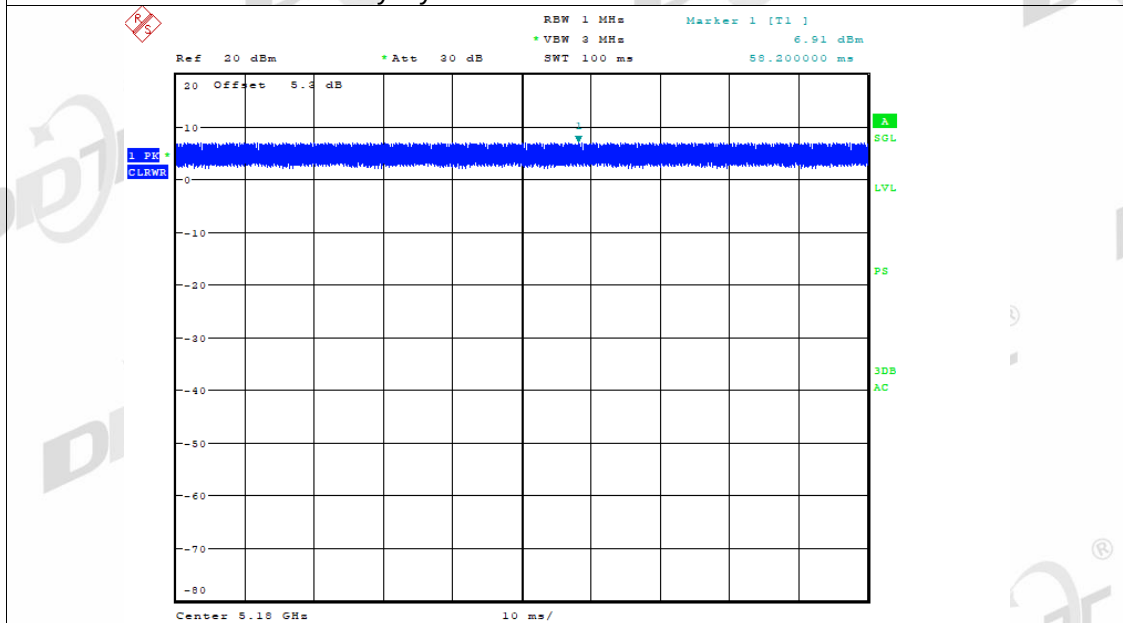


Duty Cycle NVNT a 5825MHz Ant1



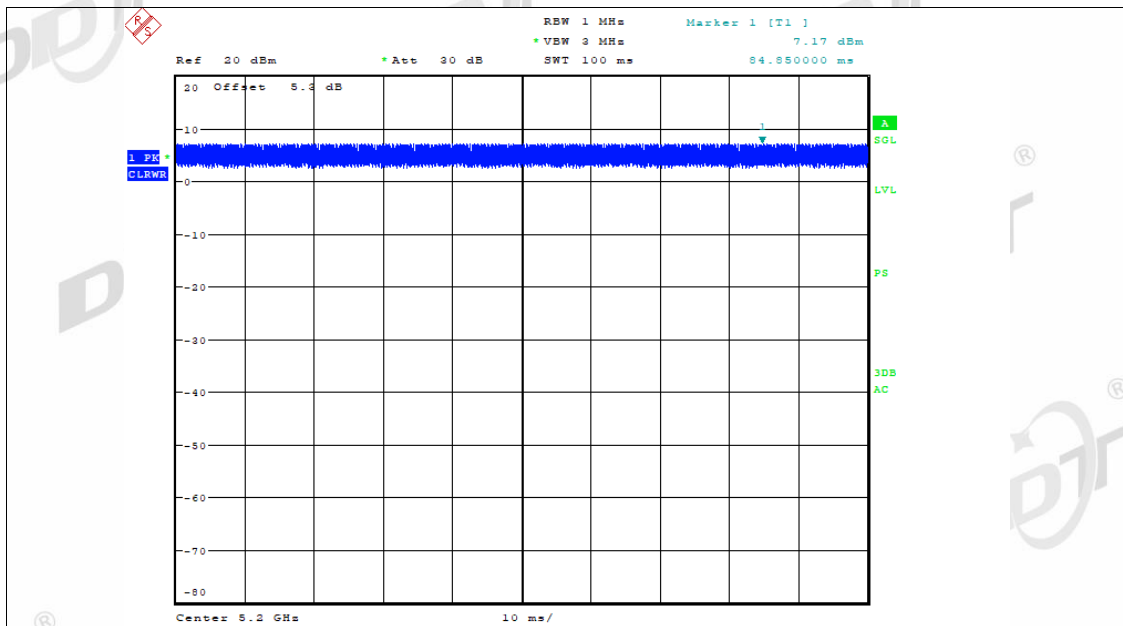
Date: 7.NOV.2022 10:56:48

Duty Cycle NVNT n20 5180MHz Ant1



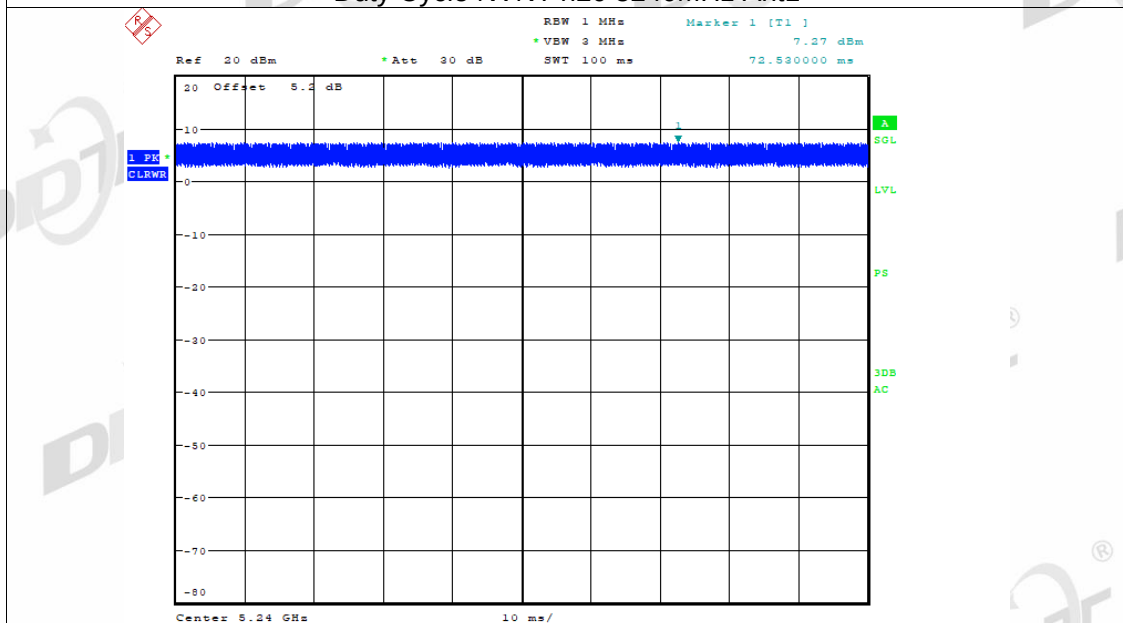
Date: 7.NOV.2022 11:05:26

Duty Cycle NVNT n20 5200MHz Ant1



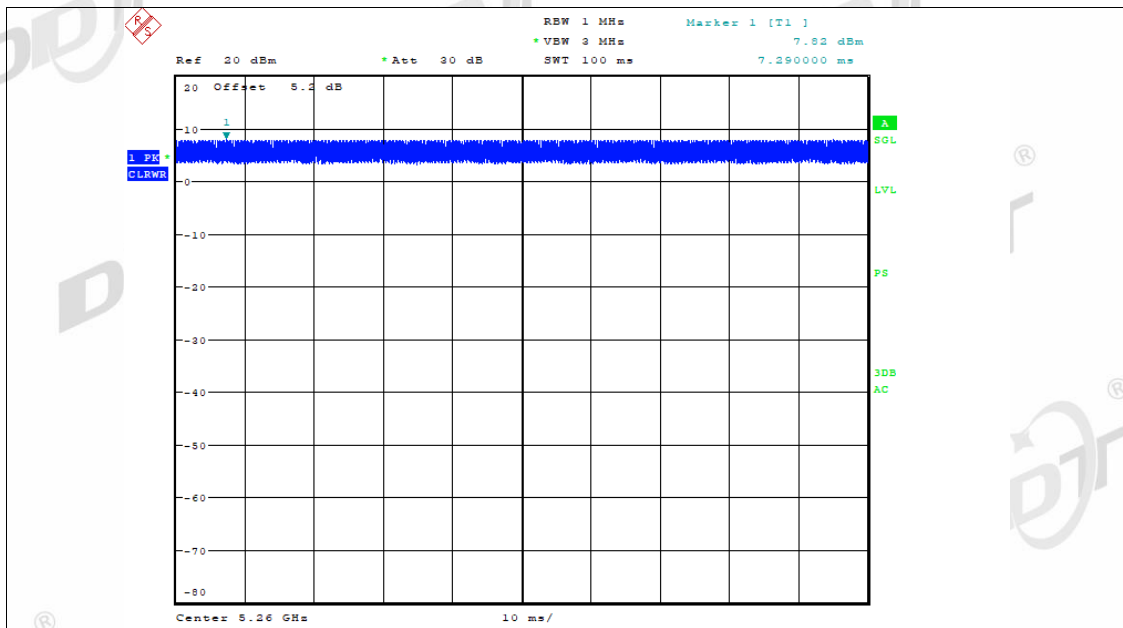
Date: 7.NOV.2022 11:08:45

Duty Cycle NVNT n20 5240MHz Ant1

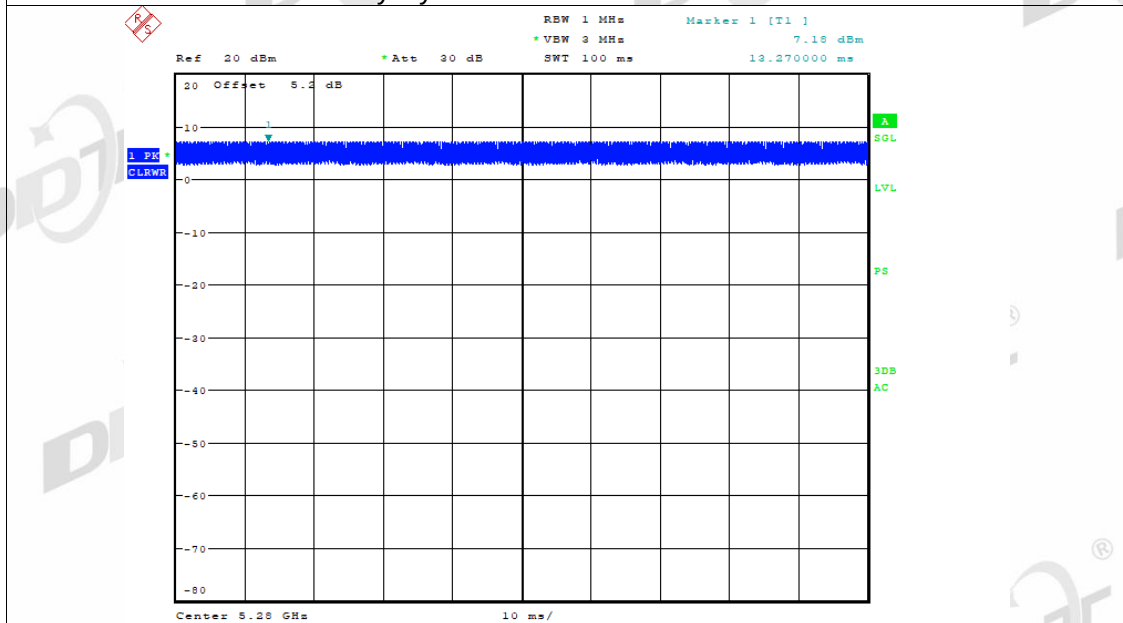


Date: 7.NOV.2022 11:12:31

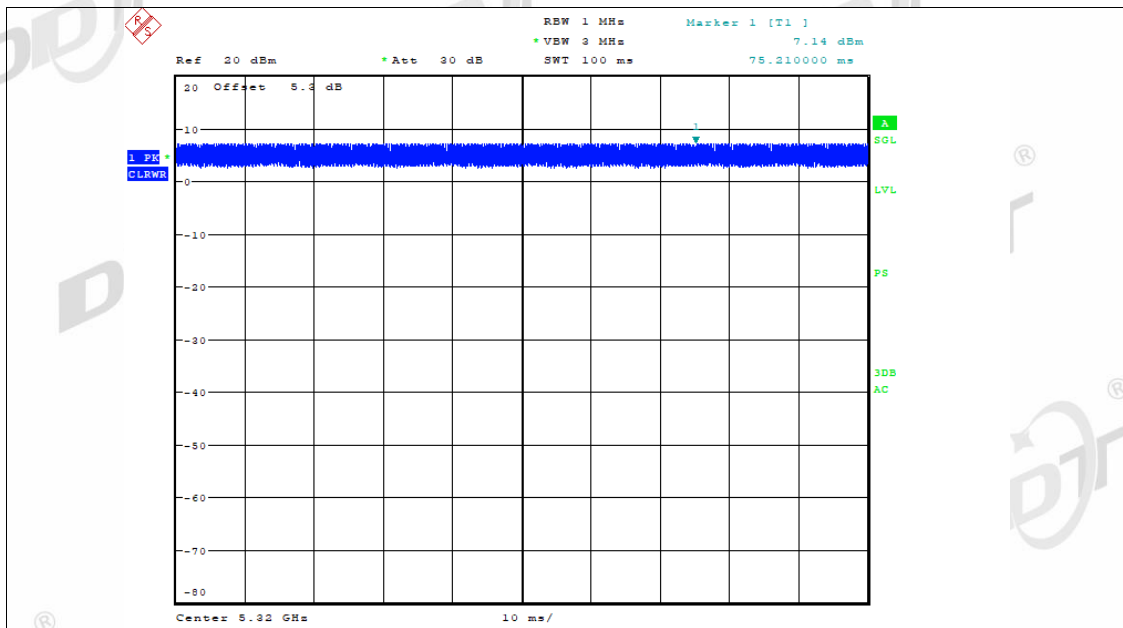
Duty Cycle NVNT n20 5260MHz Ant1



Duty Cycle NVNT n20 5280MHz Ant1

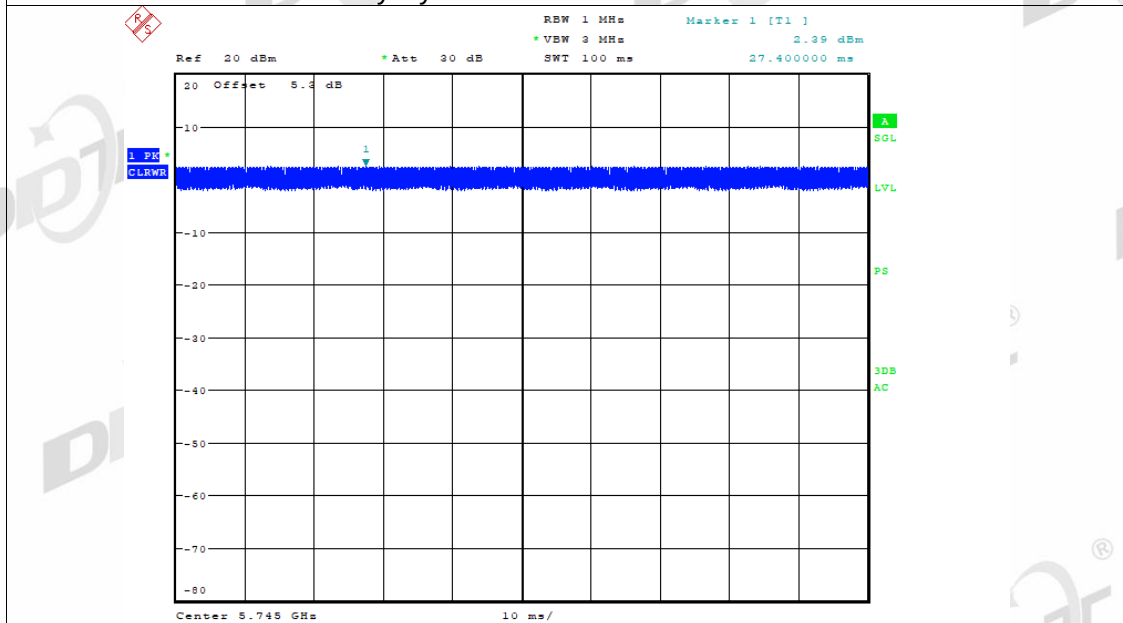


Duty Cycle NVNT n20 5320MHz Ant1



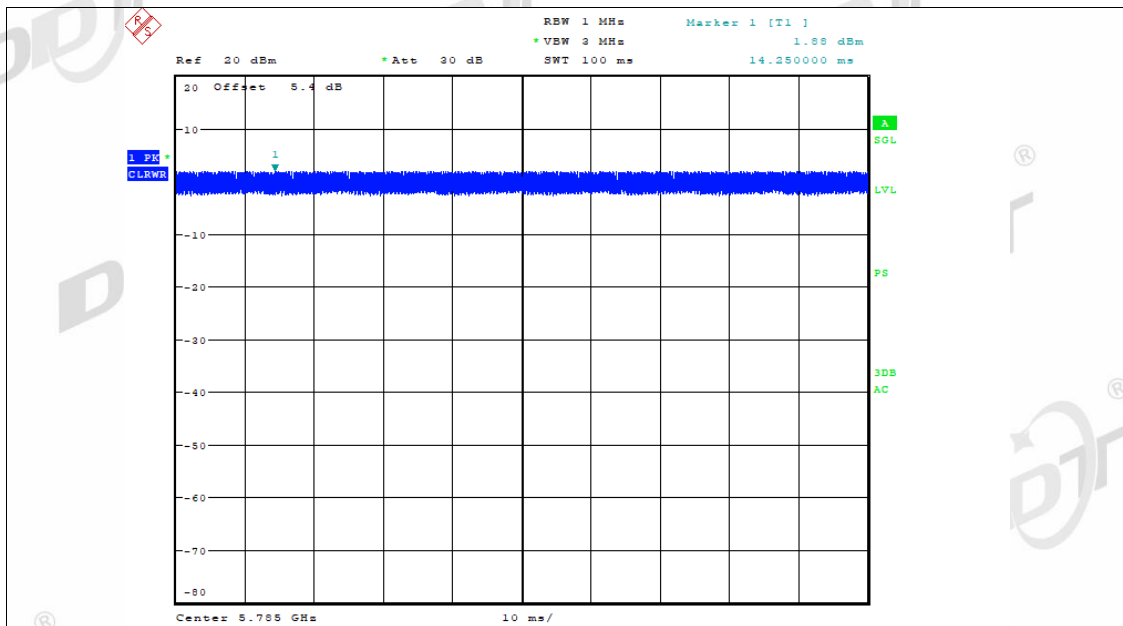
Date: 7.NOV.2022 11:23:55

Duty Cycle NVNT n20 5745MHz Ant1



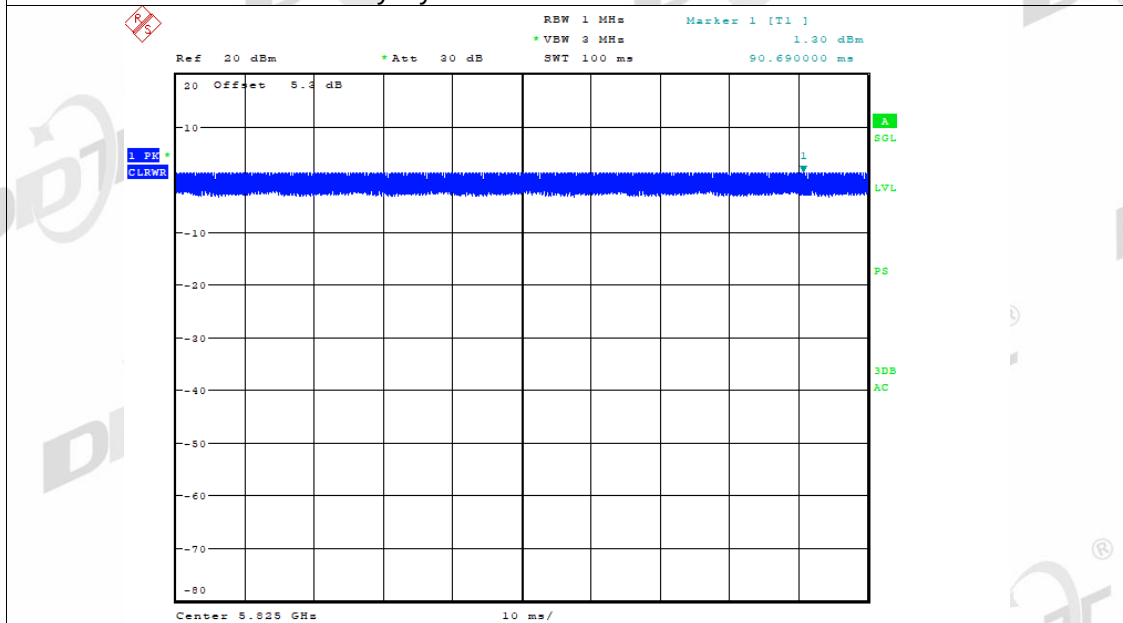
Date: 7.NOV.2022 11:28:53

Duty Cycle NVNT n20 5785MHz Ant1



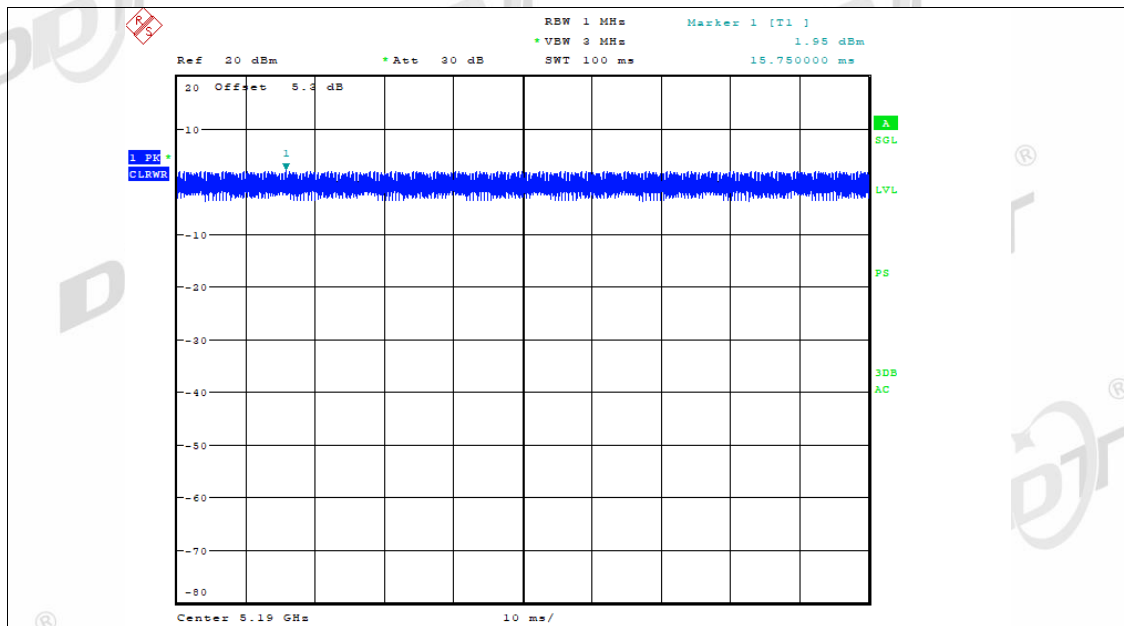
Date: 7.NOV.2022 11:37:46

Duty Cycle NVNT n20 5825MHz Ant1



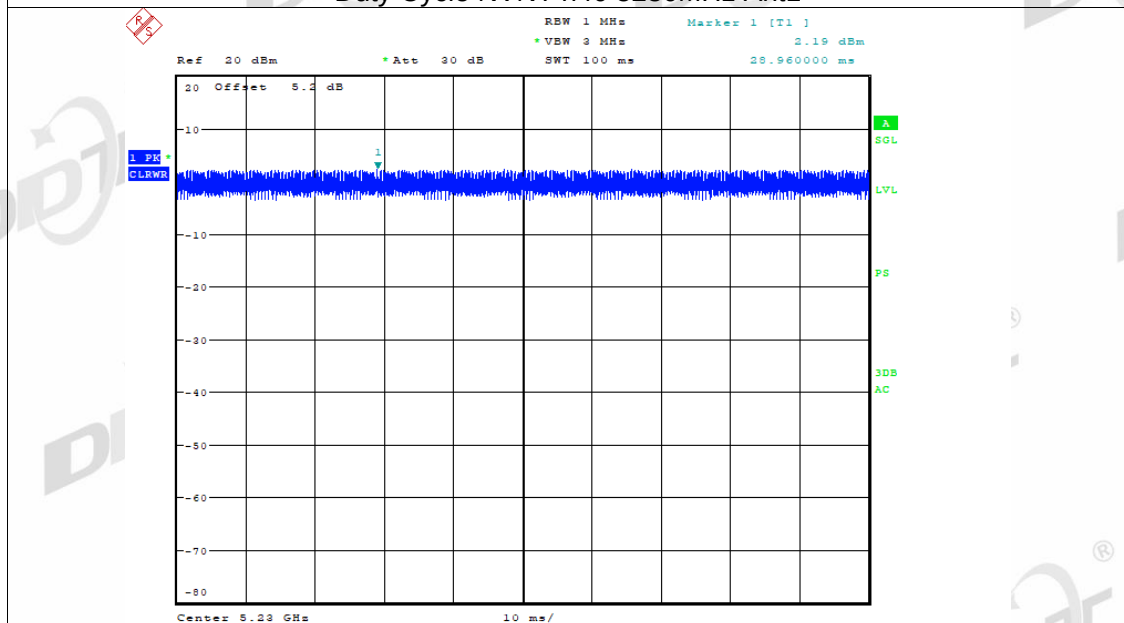
Date: 7.NOV.2022 11:40:48

Duty Cycle NVNT n40 5190MHz Ant1



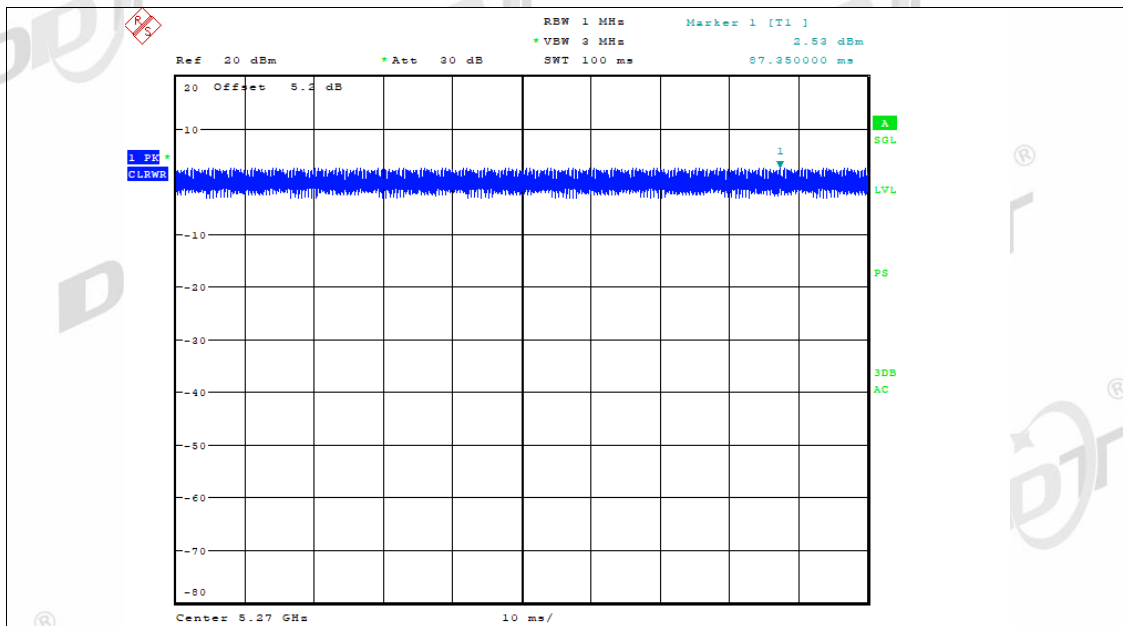
Date: 7.NOV.2022 13:58:24

Duty Cycle NVNT n40 5230MHz Ant1



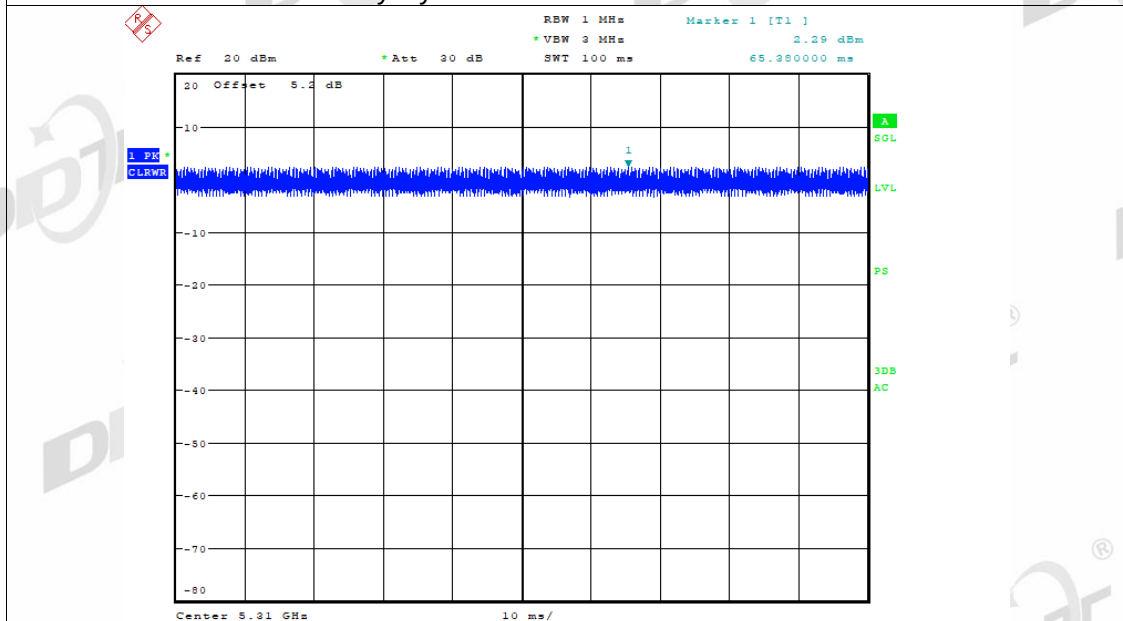
Date: 7.NOV.2022 14:03:35

Duty Cycle NVNT n40 5270MHz Ant1



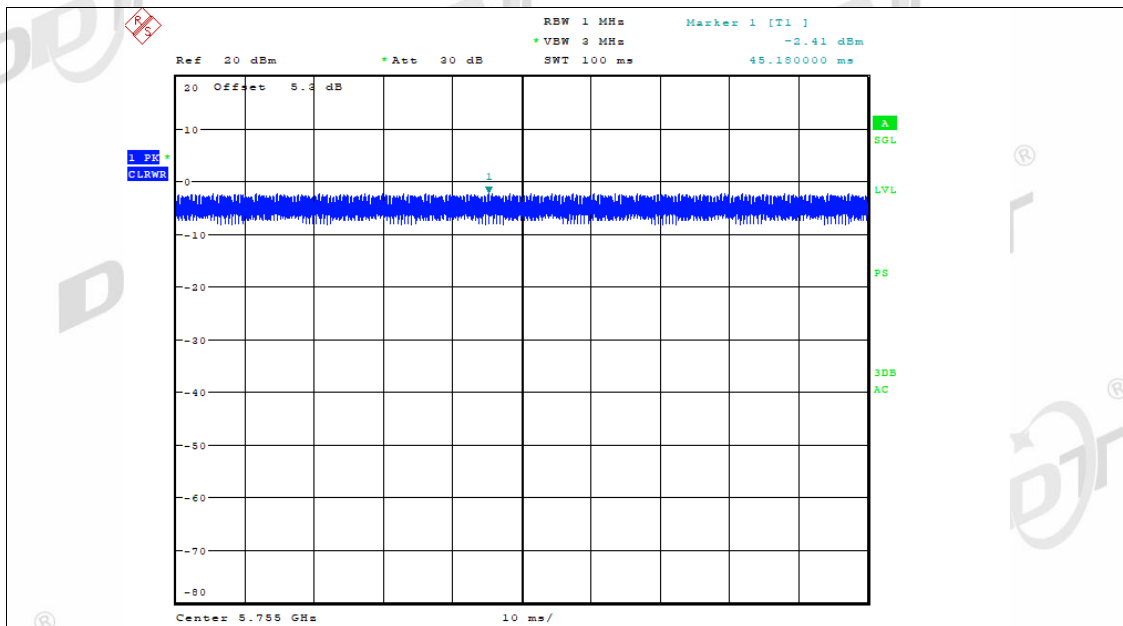
Date: 7.NOV.2022 14:13:40

Duty Cycle NVNT n40 5310MHz Ant1



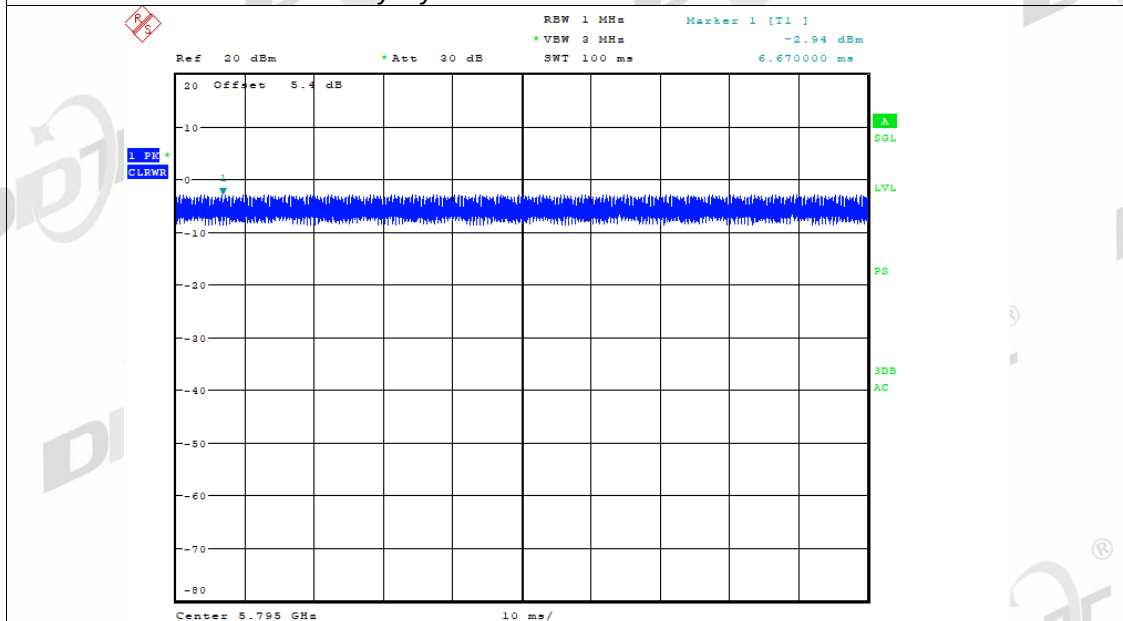
Date: 7.NOV.2022 14:18:27

Duty Cycle NVNT n40 5755MHz Ant1



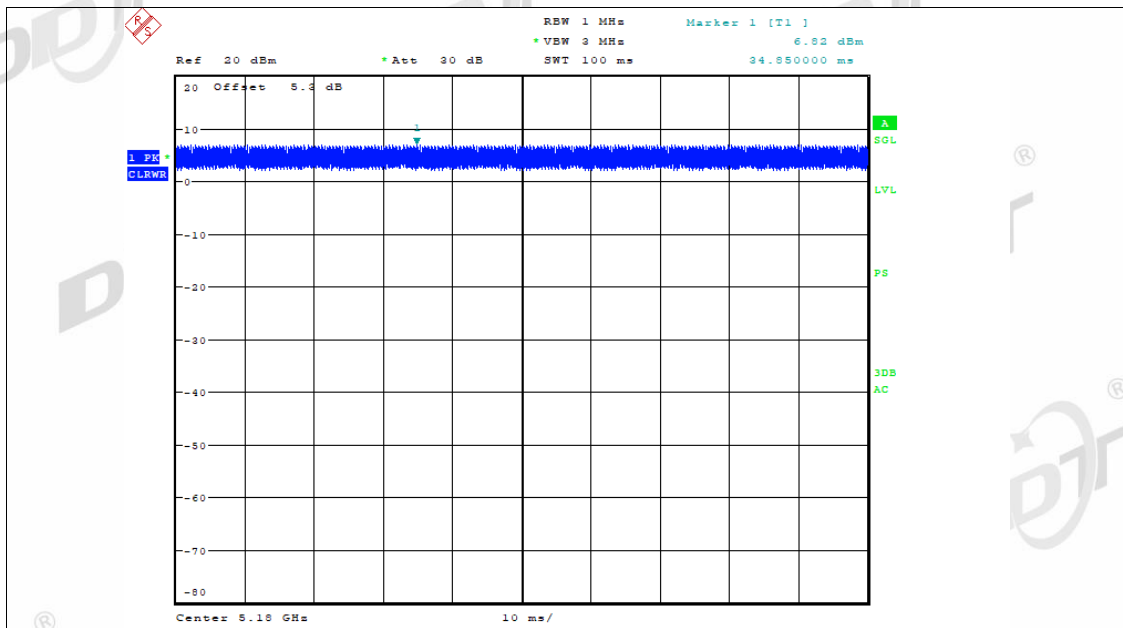
Date: 7.NOV.2022 13:47:21

Duty Cycle NVNT n40 5795MHz Ant1



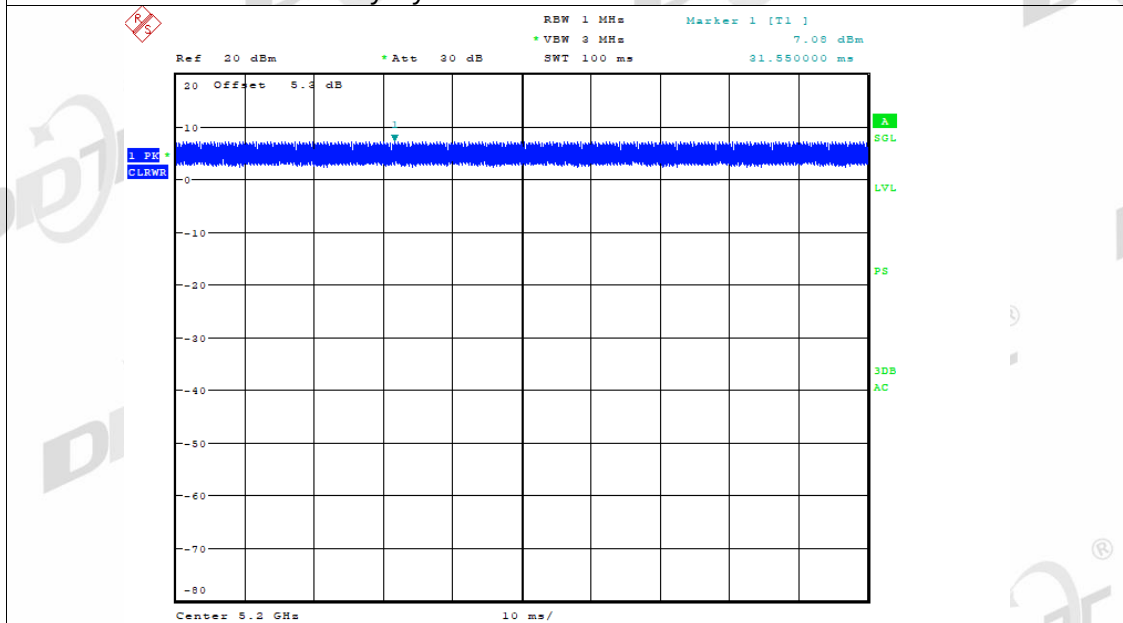
Date: 7.NOV.2022 13:52:31

Duty Cycle NVNT ac20 5180MHz Ant1



Date: 7.NOV.2022 11:46:43

Duty Cycle NVNT ac20 5200MHz Ant1



Date: 7.NOV.2022 11:50:37

Duty Cycle NVNT ac20 5240MHz Ant1