TECHNICAL REPORT

Report No:	FCC 1709051-03
File reference No:	2017-09-16
Applicant:	GLORY STAR TECHNICS (SHENZHEN) CO., LTD.
Product:	15.6' Advertising Displayer
Model No:	NEB156-01
Trademark:	N/A
Test Standards:	FCC Part 15 Subpart E, Paragraph 15.407
Test result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10,FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: September 16, 2017

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

Test Report Conclusion

Content

1.0 **General Details**

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Room 512-519,5/F., East Tower,Building 4, Anhua Industrial Zone, Futian District,Shenzhen, Guangdong China

Telephone: (755) 83448688

Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: GLORY STAR TECHNICS (SHENZHEN) CO., LTD.

Address: 4/Floor,west block,Longzhu Road,Xin WuCun Industry Building,NanShan District,ShenZhen

Telephone: (755)-26001808-305

Fax: (755)-26002933

1.3 Description of EUT

Product: 15.6' Advertising Displayer

Manufacturer: GLORY STAR TECHNICS (SHENZHEN) CO., LTD.

Address: 4/Floor,west block,Longzhu Road,Xin WuCun Industry Building,NanShan District,ShenZhen

Brand Name: N/A

Additional Brand Name: N/A

Model Number: NEB156-01

Additional Model Number: N/A

Type of Modulation	IEEE 802.11a/n (HT20/HT40) : OFDM(64QAM, 16QAM, QPSK, BPSK); IEEE 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Frequency	Band 1: 5180MHz-5240MHz; Band 4: 5745MHz-5805MHz
Channel Separation	802.11a/802.11n20:20MHz, 802.11n40:40MHz, 802.11ac : 80MHz
Air Data Rate	IEEE 802.11a : 54, 48,36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n/HT20: mcs0: 6.5Mbps,mcs1:13Mbps,mcs2:19.5Mbps,mcs3:26Mbps, mcs4:39Mbps,mcs5:52Mbps,mcs6:58.5Mbps,mcs7:65Mbps IEEE 802.11n/HT40: mcs0:15Mbps,mcs1:30Mbps,mcs2:45Mbps,mcs3:60Mbps, mcs4:90Mbps,mcs5:120Mbps,mcs6:135Mbps,mcs7:150Mbps IEEE 802.11ac: Up to 433.3Mbps
Antenna:	Integral antennas used.

Antenna Gain:	Maximum 3.0dBi
Test Mode:	During testing, EUT was set to 100% duty cycle. 6Mbps air data rate was the worst case for 802.11a mode; mcs0 air data rate was the worst case for 802.11n mode; 23.9Mbps air data rate was the worst case for 802.11ac mode.
Frequency Selection	By software
Input Voltage:	DC12V
Power Adapter	Model: LYD1205000UA; Input: 100-240V, 50/60Hz, 1.6A; Output: 12V, 5A

Each Channel Operation Frequency

Band 1					
802.11a / 11n HT20 / 802.11ac VHT20		802.11n HT40 / 802.11acVHT40		802.11ac VHT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190 MHz	42	5210 MHz
40	5200 MHz	46	5230 MHz		
44	5220 MHz				
48	5240 MHz				
Band 4					
802.11a / 11n HT20 / 802.11ac VHT20		802.11n HT40 / 802.11acVHT40		802.11ac VHT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	151	5755 MHz	155	5775 MHz
153	5765 MHz	159	5795 MHz		
157	5785 MHz				
161	5805 MHz				

The selected test channels as follows:

Band 1					
802.11a / 11nHT20 / 802.11acVHT20		802.11n HT40 / 802.11acVHT40		802.11ac VHT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190 MHz	42	5210 MHz
40	5200 MHz	46	5230 MHz		
48	5240 MHz				
Band 4					
802.11a / 11nHT20 / 802.11acVHT20		802.11n HT40 / 802.11acVHT40		802.11ac VHT80	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	151	5755 MHz	155	5775 MHz
153	5765 MHz	159	5795 MHz		
161	5805 MHz				

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2017-06-25 to 2017-07-05

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by Terry Tang

Print Name: Terry Tang

2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2016-08-22	2017-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2016-08-22	2017-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2016-08-22	2017-08-21
Ultra Broadband ANT	R&S	HL562	100157	2016-08-23	2017-08-22
ESDV Test Receiver	R&S	ESDV	100008	2016-08-22	2017-08-21
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2016-08-22	2017-08-21
System Controller	CT	SC100	-	--	--
Printer	EPSON	PHOTO EX3	CFNH234850	--	--
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2016-08-23	2017-08-22
ESPI Test Receiver	R&S	ESI26	838786/013	2016-08-22	2017-08-21
3m OATS	--	--	N/A	2016-08-24	2017-08-23
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2016-08-24	2017-08-23
Horn Antenna	R&S	BBHA 9120D	9120D-631	2016-08-24	2017-08-23
Power meter	Anritsu	ML2487A	6K00003613	2016-08-22	2017-08-21
Power sensor	Anritsu	MA2491A	32263	2016-08-22	2017-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2016-08-23	2017-08-21
LISN	AFJ	LS16C	10010947251	2016-08-22	2017-08-21
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2016-08-23	2017-08-22
9*6*6 Anechoic	--	--	N/A	2016-08-24	2017-08-23
EMI Test Receiver	RS	ESCS30	100139	2016-08-22	2017-08-21
RF Cable	SCHWARZBECK	--	--	2016-08-23	2017-08-22
Pre-Amplifier	HP	8447D	2727A05017	2016-08-05	2017-08-04
Pre-Amplifier	EM	EM30265	--	2016-08-05	2017-08-04

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.407	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart E Paragraph 15.407 (b1/4/5/6/7), Part 15.205 and Part 15.209	Undesirable Emission and Restrict band	PASS	Complies
FCC Part 15, Paragraph 15.407 (a1/2/3)	Peak Transmit Power	PASS	Complies
FCC Part 15, Paragraph 15.407 (a)(6)	Peak Power Excursion	PASS	Complies
FCC Part 15, Paragraph 15.407 (a/1/2/3)	Peak Power Spectral Density	PASS	Complies
FCC Part 15, Paragraph 15.407(g)	Frequency Stability	PASS	Complies

3.2 Test Standards

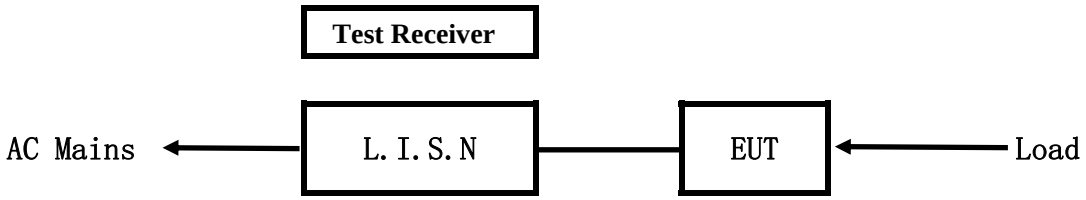
FCC Part 15 Subpart & Subpart E, Paragraph 15.407, ANSI C63.10 :2013 and ANSI C63.4 :2014
789033 D02 General UNII Test Procedures New Rules v01r04

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

5. Power Line Conducted Emission Test

5.1 Schematics of the test



EUT: Equipment Under Test

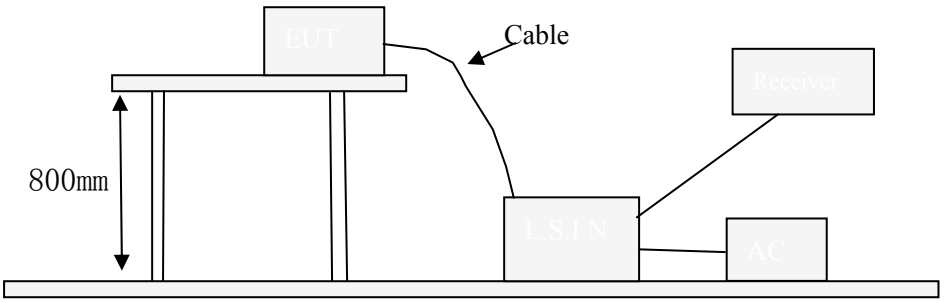
5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10–2013.

The Frequency spectrum From 0.15MHz to 30MHz was investigated.

The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10–2013.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
15.6' Advertising Displayer	GLORY STAR TECHNICS (SHENZHEN) CO., LTD.	NEB156-01	2AACS-NEB156-01

B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	LIANYUNDA	LYD1205000UA	100-240V, 50/60Hz, 1.6A; Output: 12V, 5A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

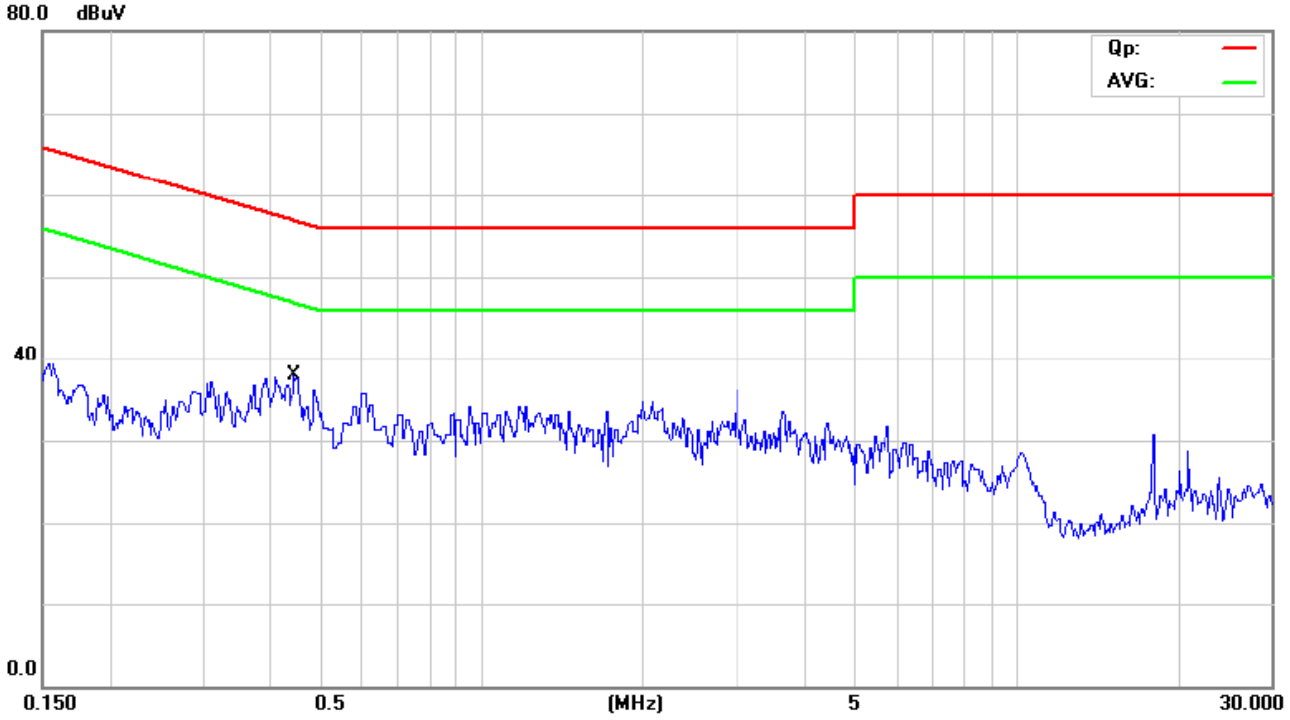
Temperature: 26℃ Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping WIFI Transmitting 120VAC 60Hz

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4400	25.31	10.20	35.51	57.06	-21.55	QP	
2	*	0.4400	23.71	10.20	33.91	47.06	-13.15	AVG	

B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

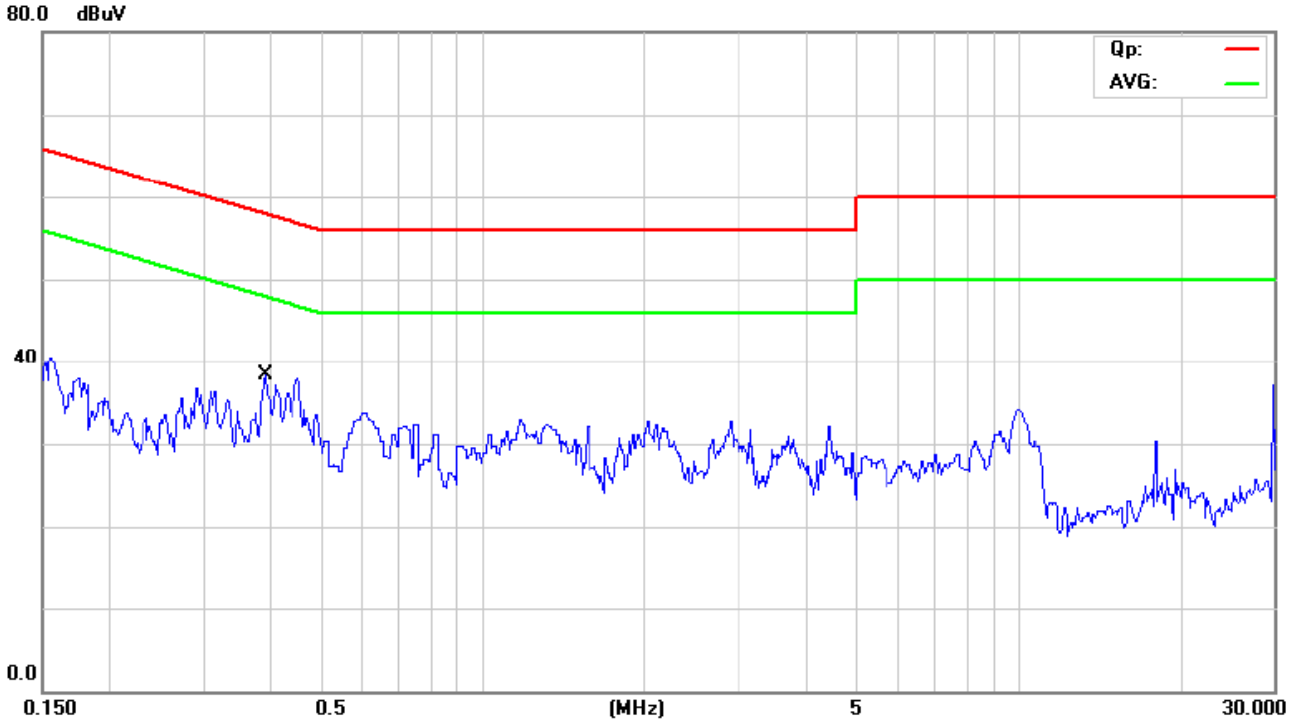
Temperature: 26℃ Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping WIFI Transmitting 120VAC 60Hz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3901	27.00	10.14	37.14	58.06	-20.92	QP	
2	*	0.3901	24.90	10.14	35.04	48.06	-13.02	AVG	

6 Undesirable Emission and Restrict band

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.

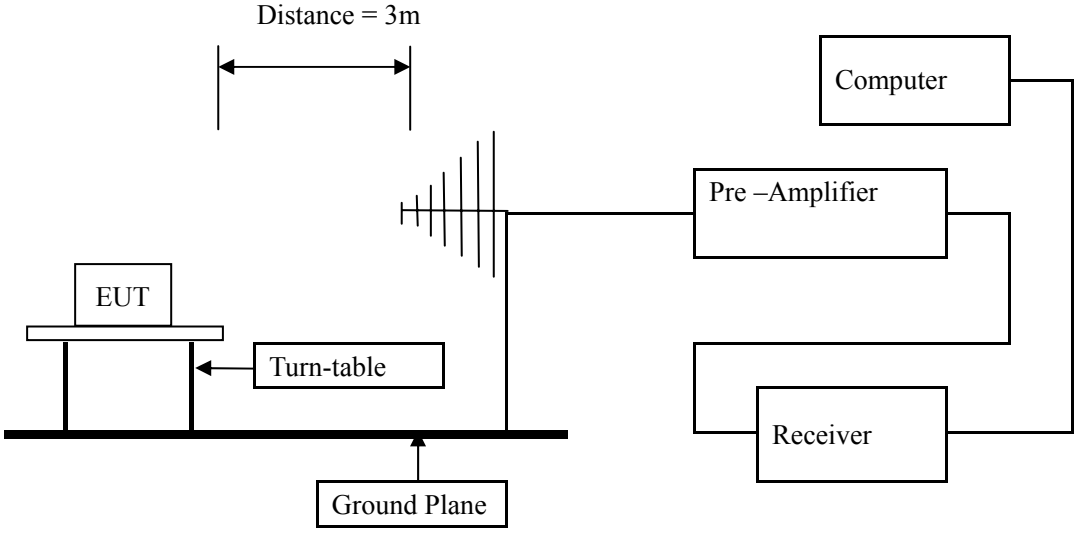
(3) The frequency spectrum from 30 MHz to 40 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz, VBW=3MHz and PK detector.
Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup



6.2 Configuration of The EUT
Same as section 5.3 of this report

6.3 EUT Operating Condition
Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz

(2) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27dBm/MHz.

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

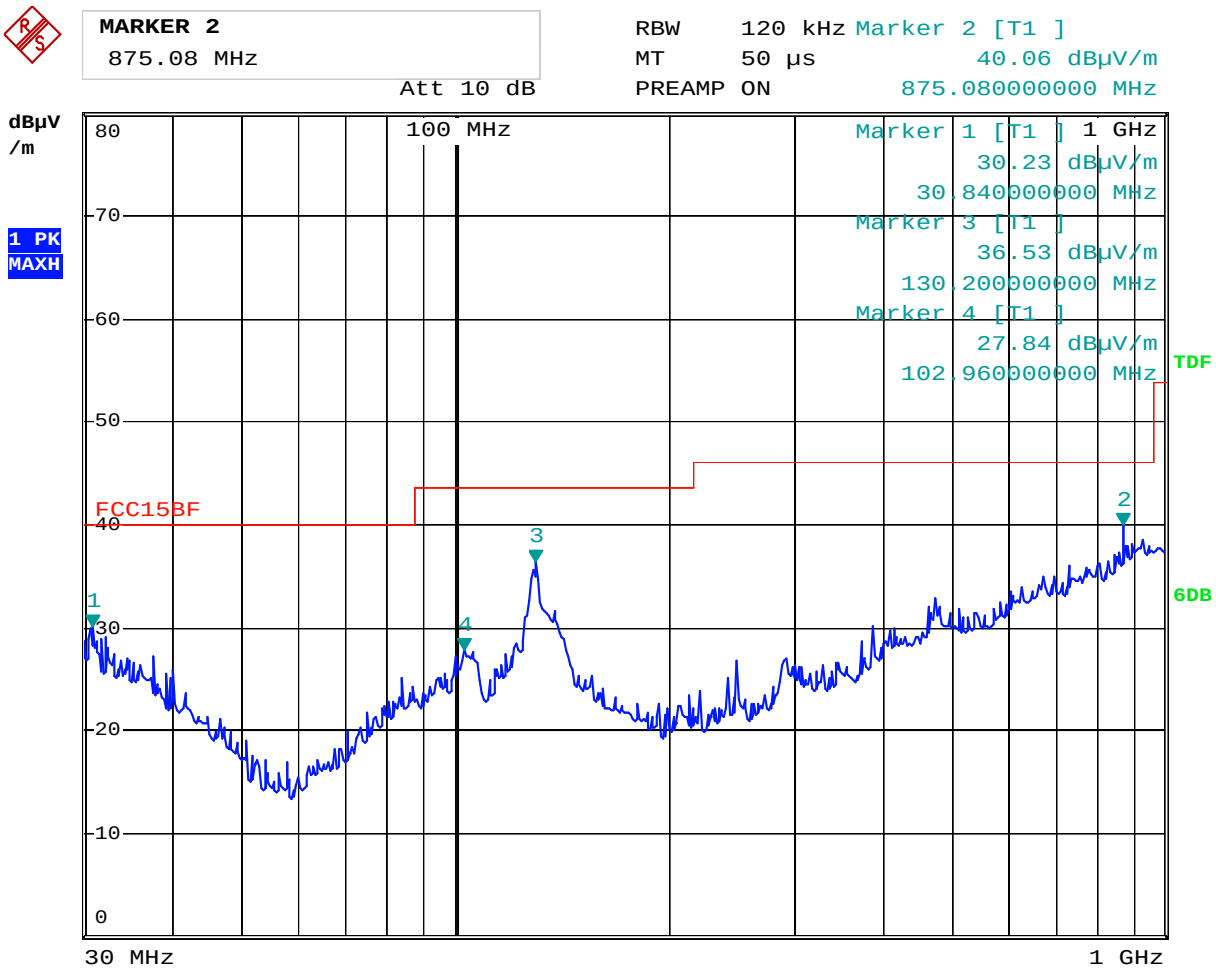
EUT set Condition: **Keeping WIFI Transmitting**

Results: **Pass**

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
875.080	40.06	H	46.00
30.840	30.23	H	40.00
130.200	36.53	H	43.50
102.960	27.84	H	43.50
924.800	39.57	V	46.00
33.560	28.94	V	40.00
129.880	37.03	V	43.50
108.480	36.49	V	43.50

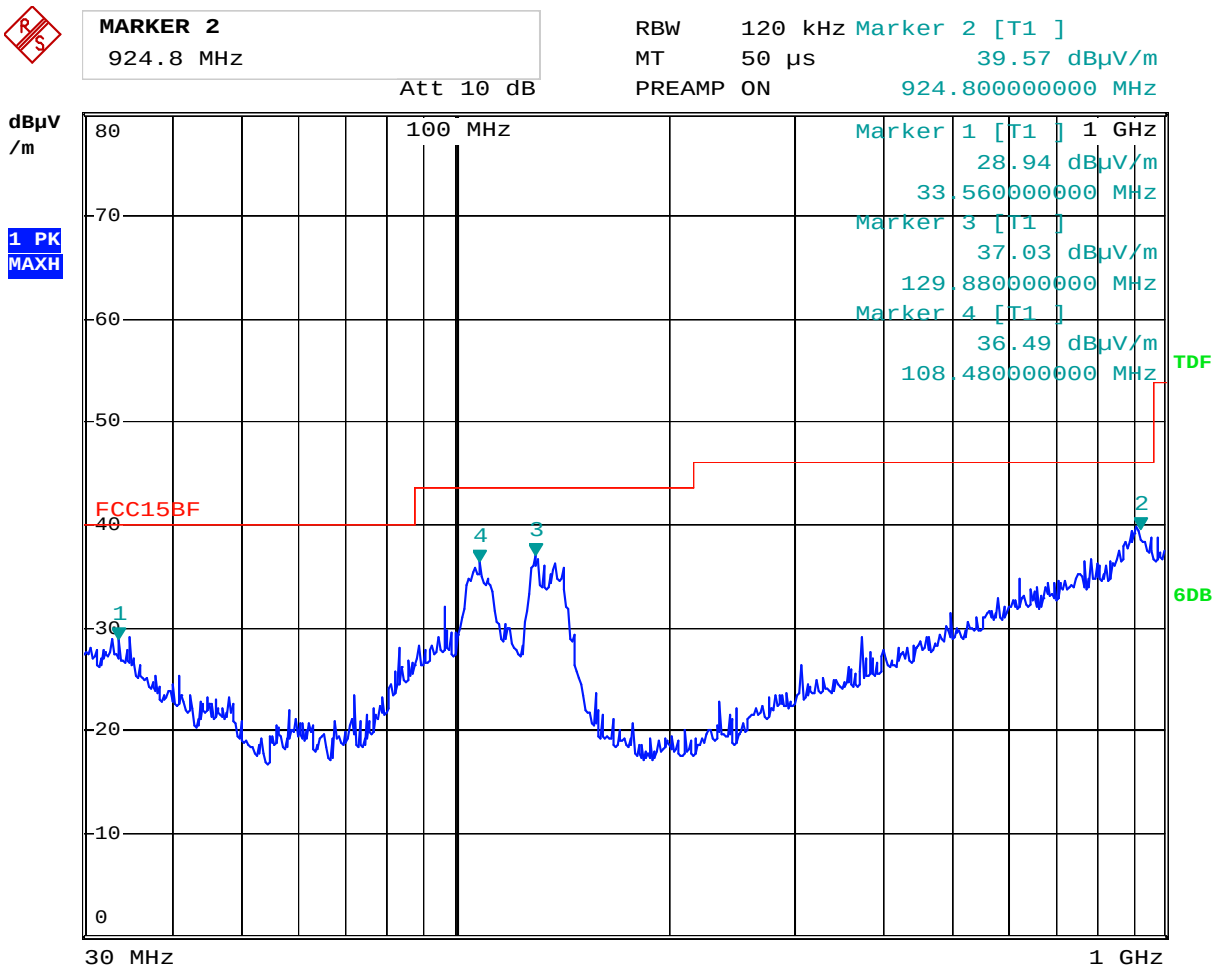
Test Figure:

H



Test Figure:

V



Operation Mode: Keeping Transmitting under CH36 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5180.00	86.51（PK）	H	Fundamental Frequency
5180.00	85.01（PK）	V	
10360	--	H	74(Peak)/ 54(AV)
15540	--	V	74(Peak)/ 54(AV)
20720	--	H/V	74(Peak)/ 54(AV)
25900	--	H/V	74(Peak)/ 54(AV)
31080	--	H/V	74(Peak)/ 54(AV)
36260	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

Operation Mode: Keeping Transmitting under CH40 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5200.00	86.02（PK）	H	Fundamental Frequency
5200.00	85.26（PK）	V	
10400	--	H	74(Peak)/ 54(AV)
15600	--	V	74(Peak)/ 54(AV)
20800	--	H/V	74(Peak)/ 54(AV)
26000	--	H/V	74(Peak)/ 54(AV)
31200	--	H/V	74(Peak)/ 54(AV)
36400	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

Operation Mode: Keeping Transmitting under CH48 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5240.00	83.69（PK）	H	Fundamental Frequency
5240.00	84.63（PK）	V	
10480	--	H	74(Peak)/ 54(AV)
15720	--	V	74(Peak)/ 54(AV)
20960	--	H/V	74(Peak)/ 54(AV)
26200	--	H/V	74(Peak)/ 54(AV)
31440	--	H/V	74(Peak)/ 54(AV)
36680	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

Operation Mode: Keeping Transmitting under CH149 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5745.00	85.11（PK）	H	Fundamental Frequency
5745.00	85.66（PK）	V	
11490	--	H	74(Peak)/ 54(AV)
17235	--	V	74(Peak)/ 54(AV)
22980	--	H/V	74(Peak)/ 54(AV)
28725	--	H/V	74(Peak)/ 54(AV)
34470	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

Operation Mode: Keeping Transmitting under CH153 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5765.00	84.11（PK）	H	Fundamental Frequency
5765.00	85.02（PK）	V	
11530	--	H	74(Peak)/ 54(AV)
17295	--	V	74(Peak)/ 54(AV)
23060	--	H/V	74(Peak)/ 54(AV)
28825	--	H/V	74(Peak)/ 54(AV)
34590	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

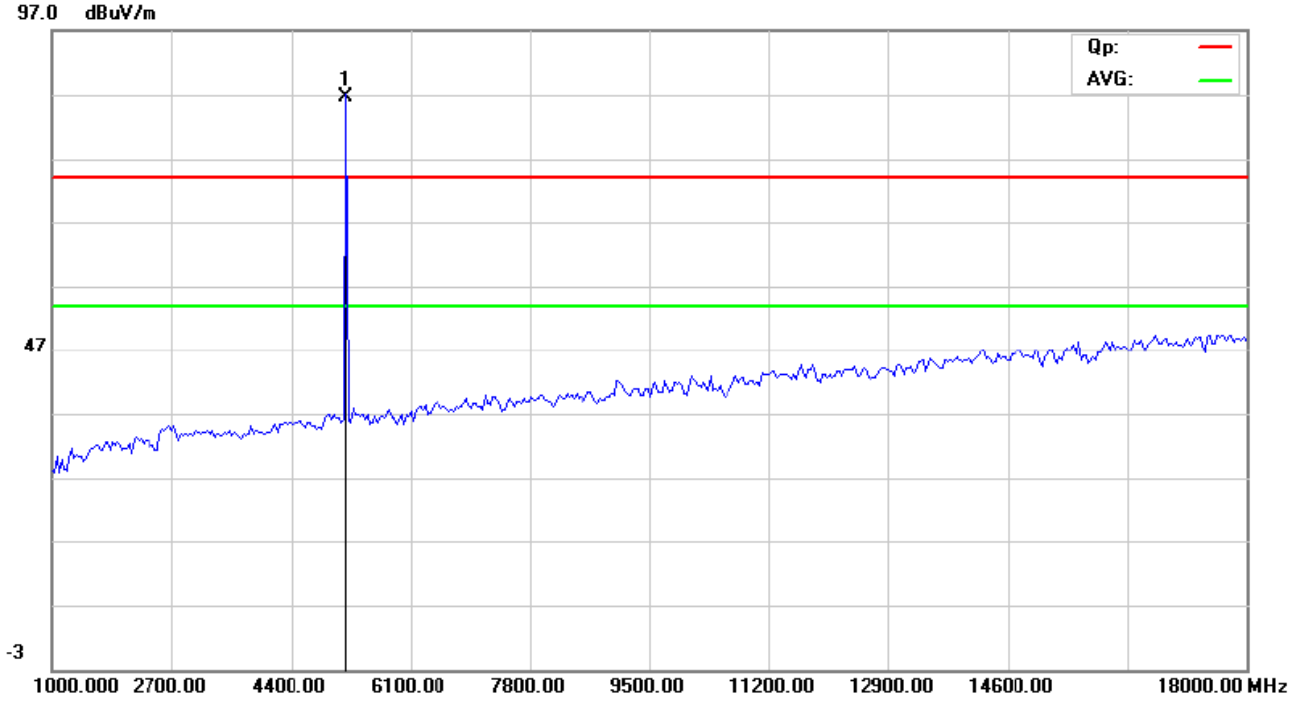
Operation Mode: Keeping Transmitting under CH161 for 11a

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5805.00	85.20（PK）	H	Fundamental Frequency
5805.00	84.69（PK）	V	
11610	--	H	74(Peak)/ 54(AV)
17415	--	V	74(Peak)/ 54(AV)
23220	--	H/V	74(Peak)/ 54(AV)
29025	--	H/V	74(Peak)/ 54(AV)
34830	--	H/V	74(Peak)/ 54(AV)

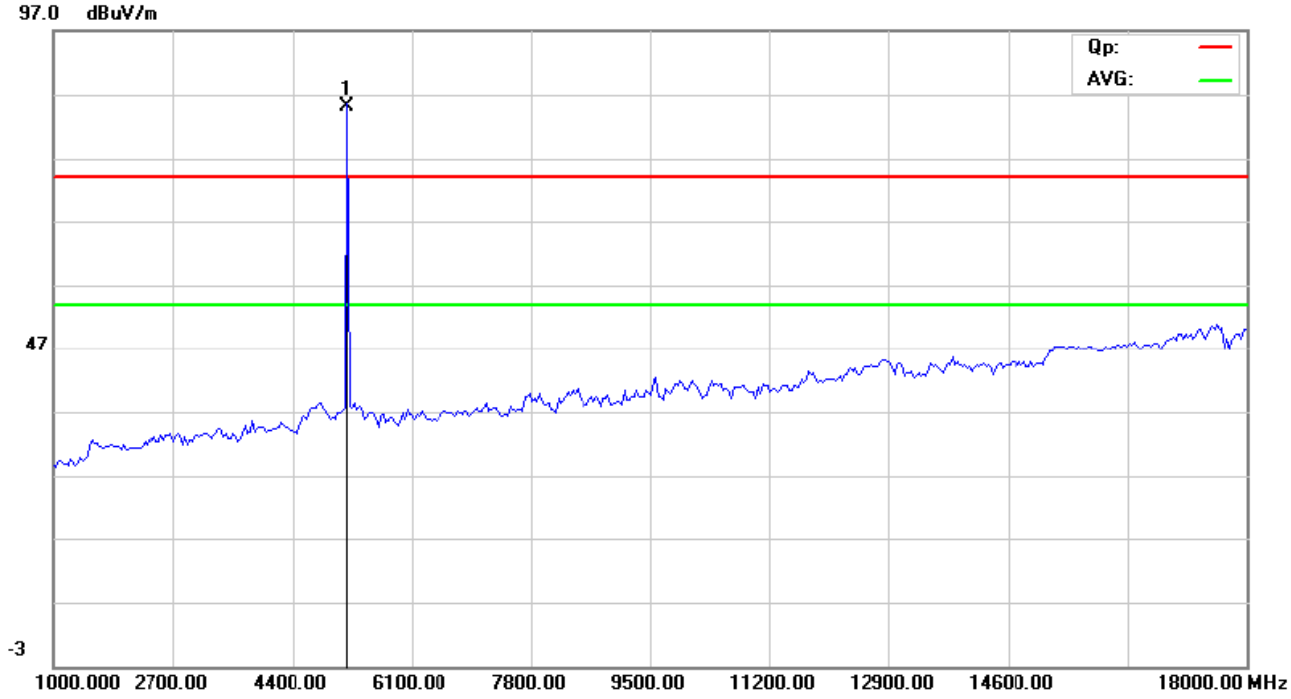
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11a mode 6Mbps

Please refer to the following test plots for details:

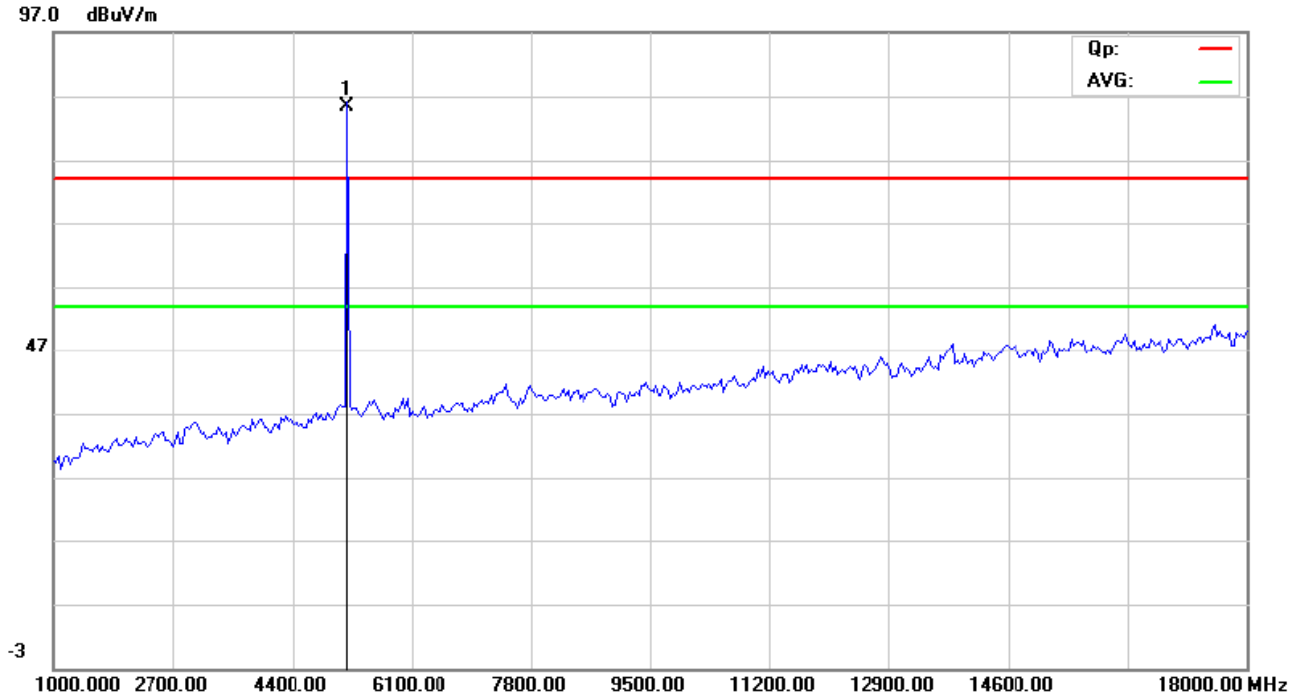
CH36 for 11a at 6Mbps: Horizontal



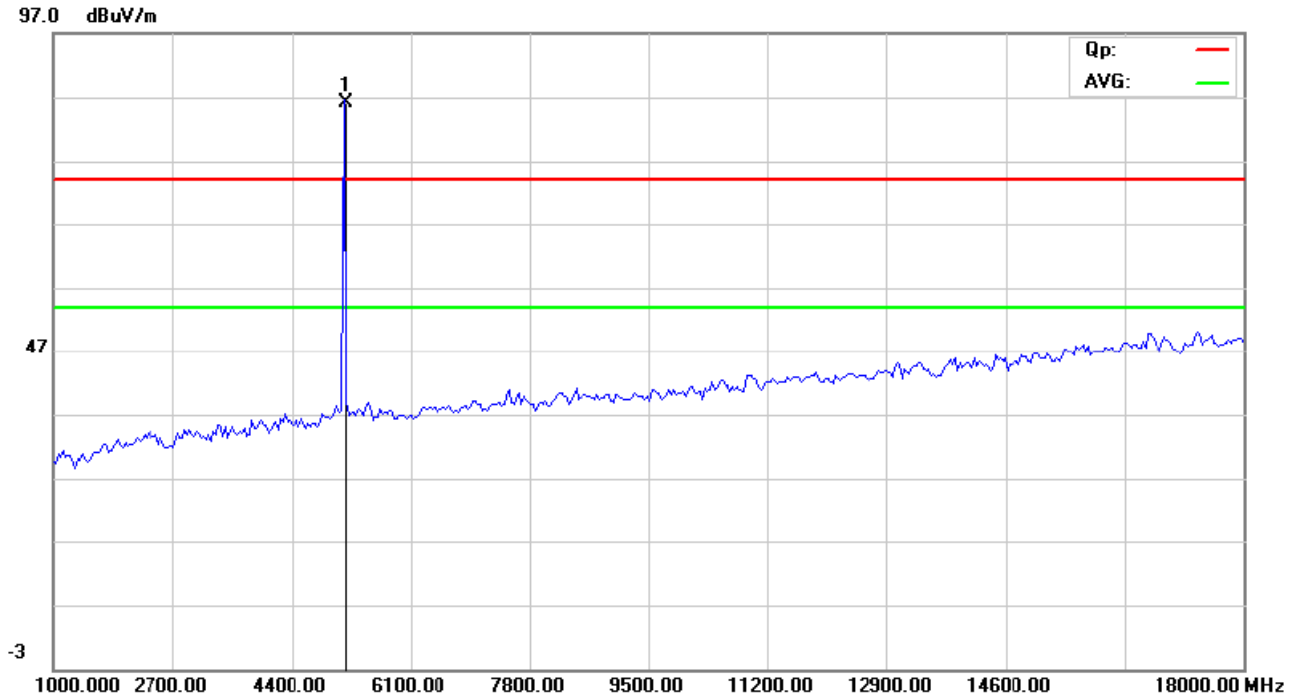
CH36 for 11a at 6Mbps: Vertical



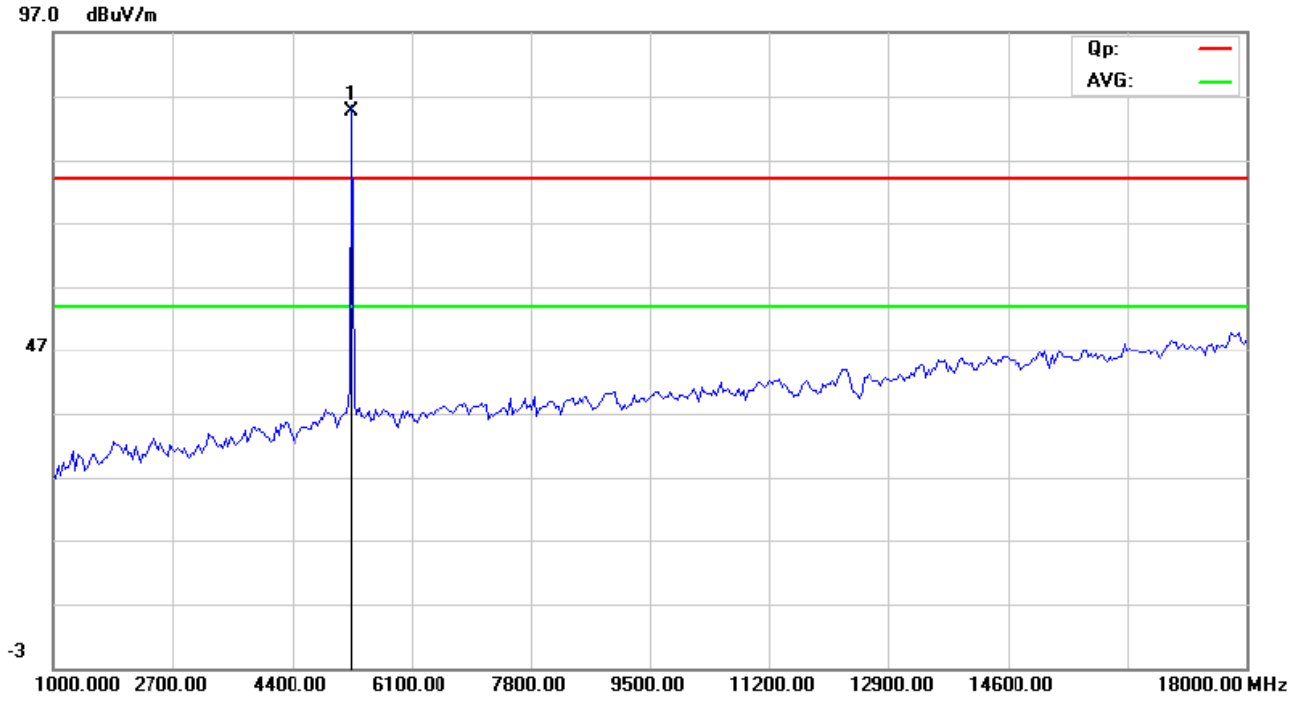
CH40 for 11a at 6Mbps: Vertical



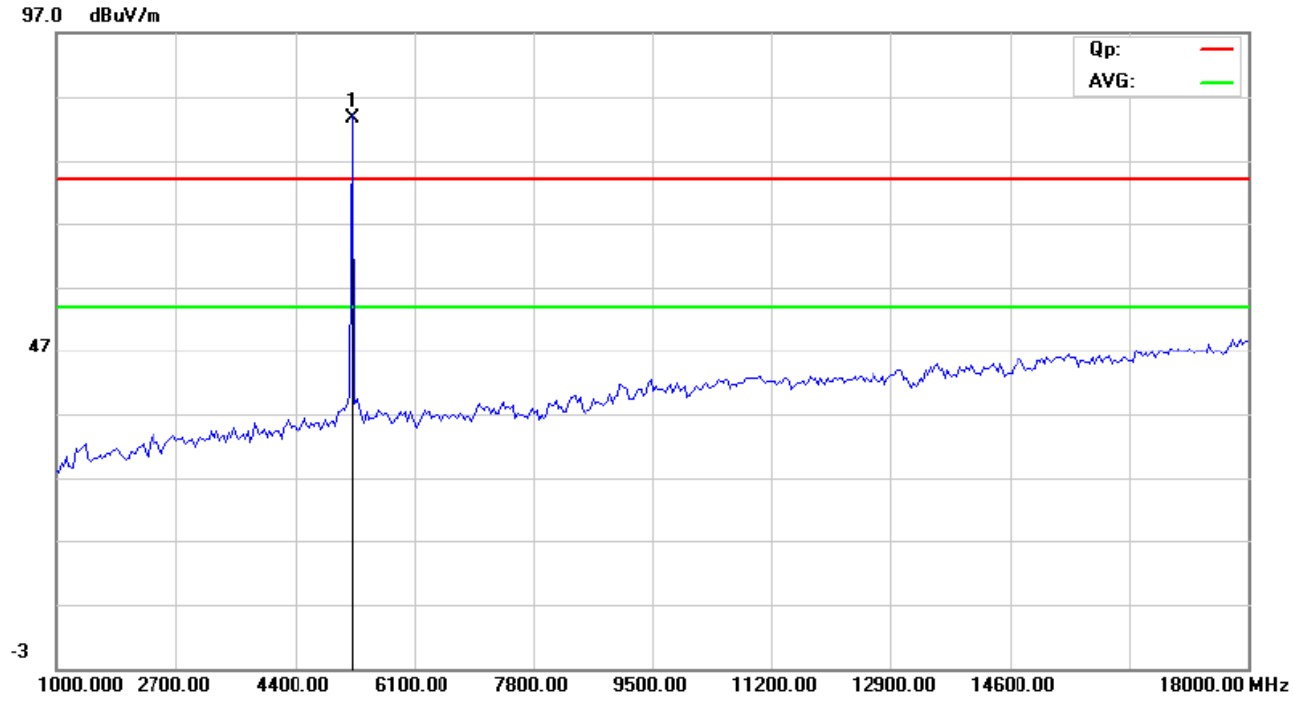
CH40 for 11a at 6Mbps: Horizontal



CH48 for 11a at 6Mbps: Vertical

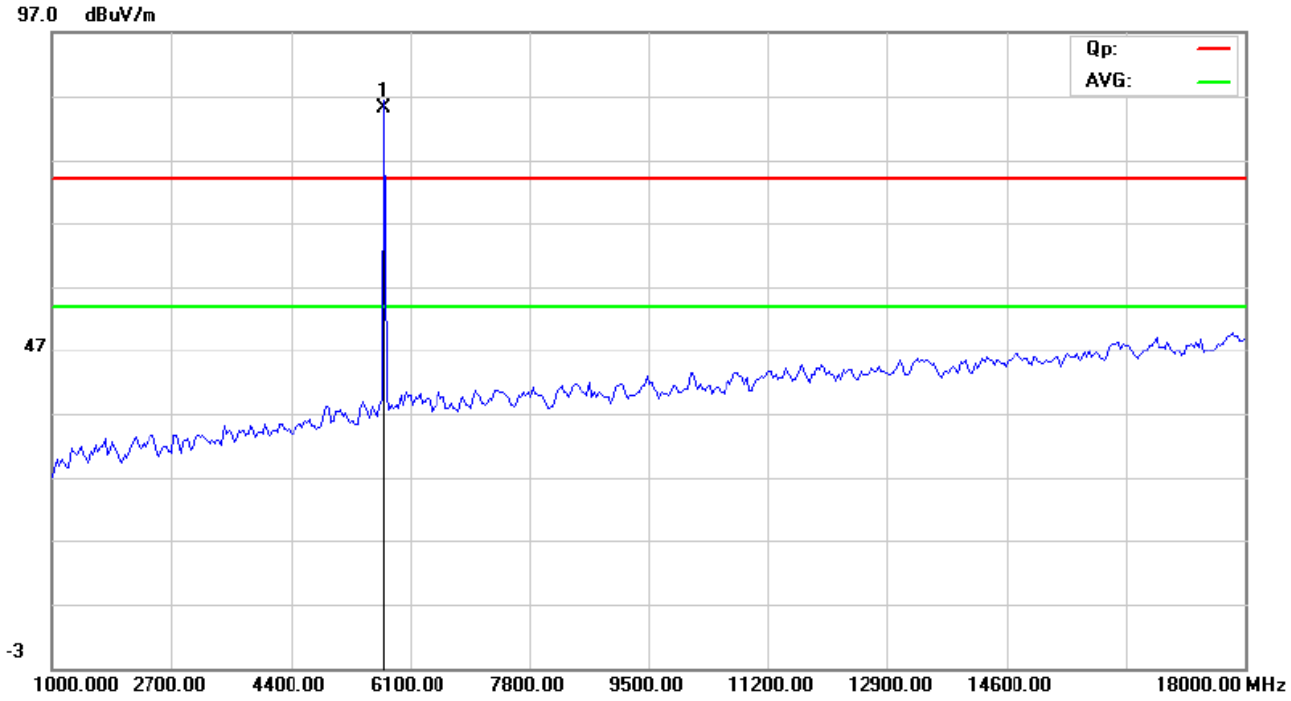


CH48 for 11a at 6Mbps: Horizontal

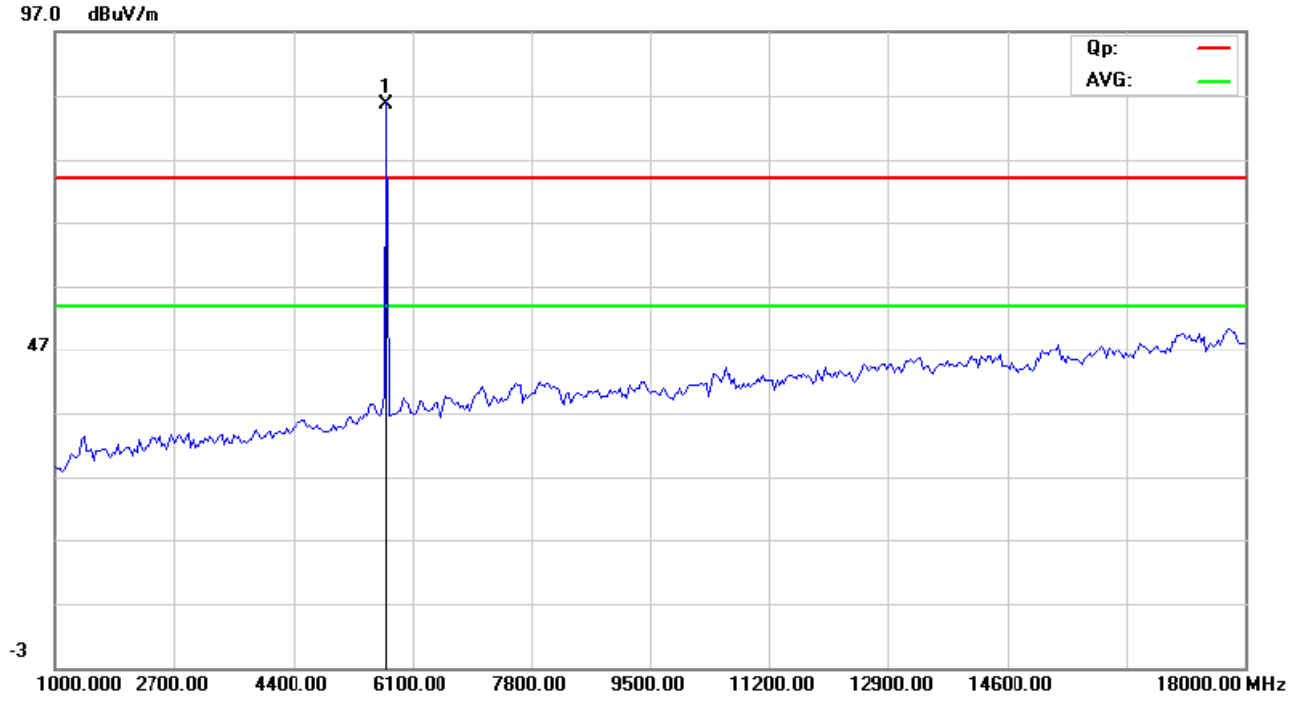


Please refer to the following test plots for details:

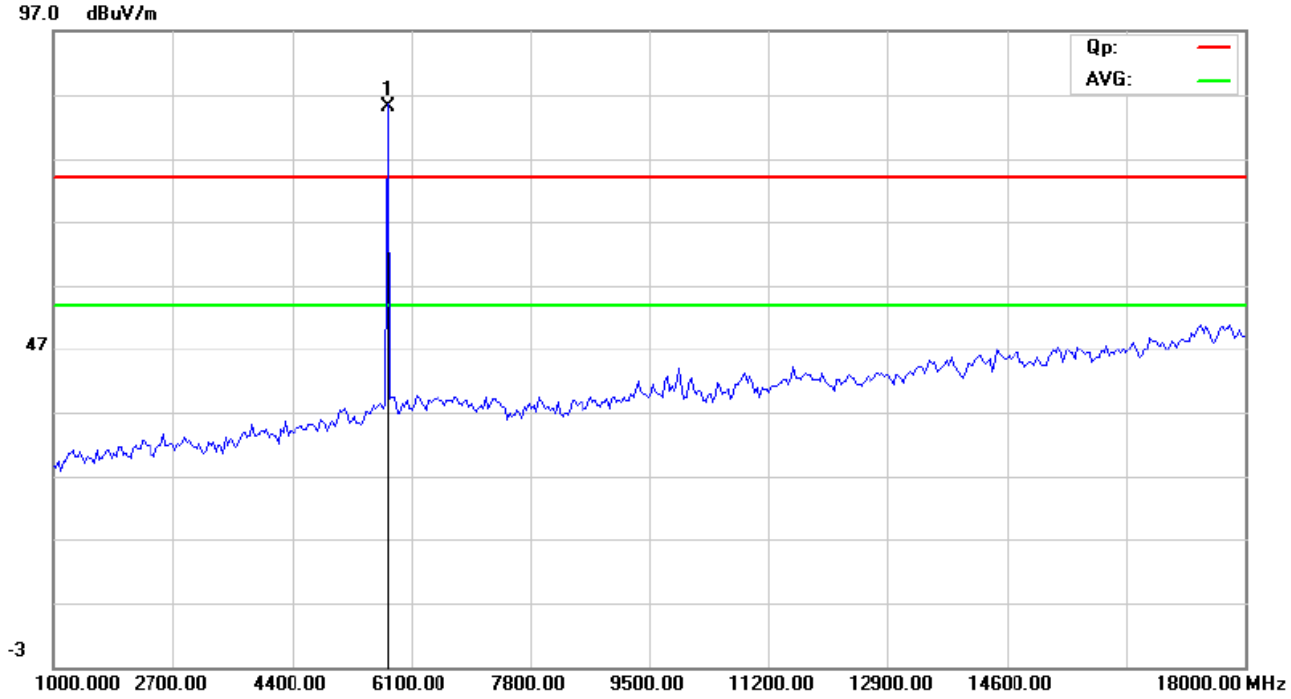
CH149 for 11a at 6Mbps: Horizontal



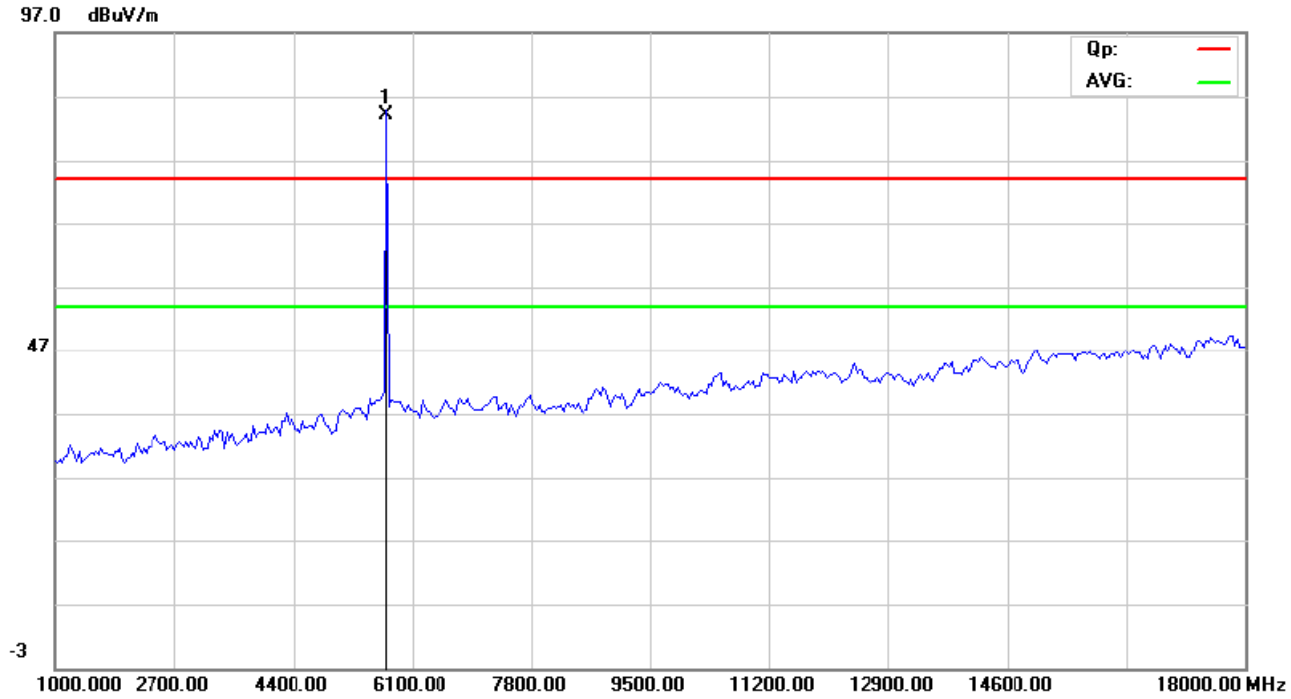
CH149 for 11a at 6Mbps: Vertical



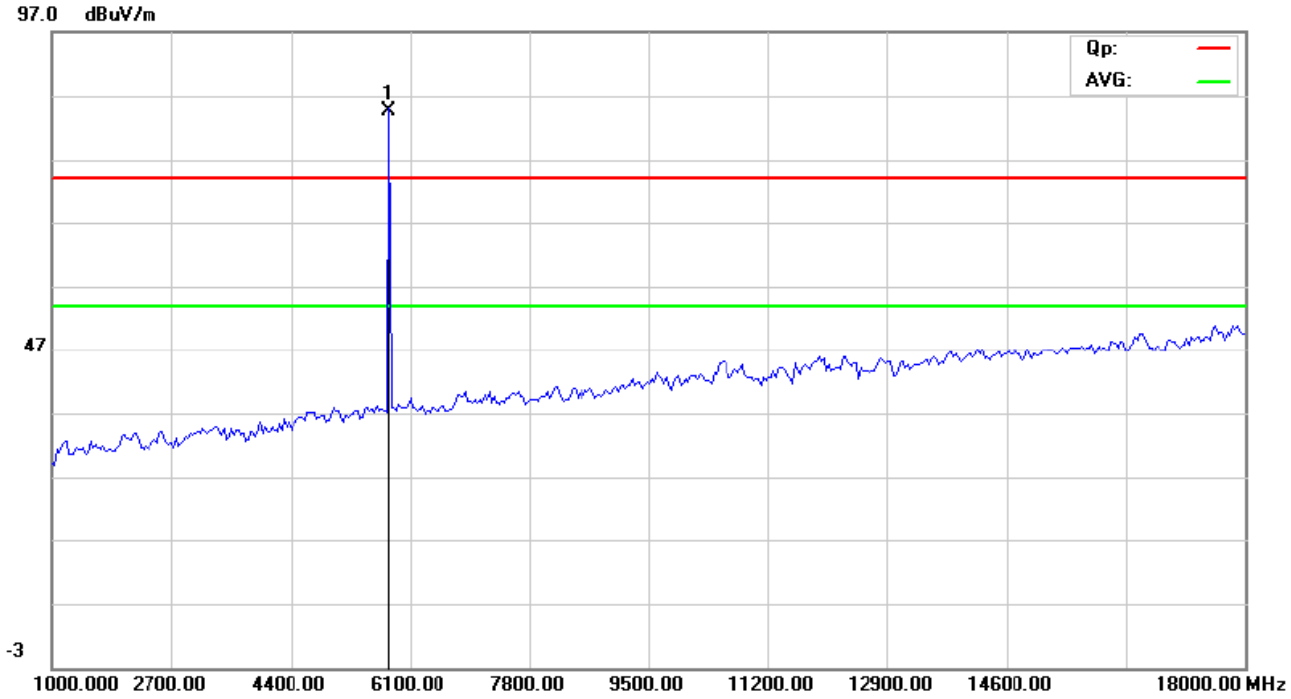
CH153 for 11a at 6Mbps: Vertical



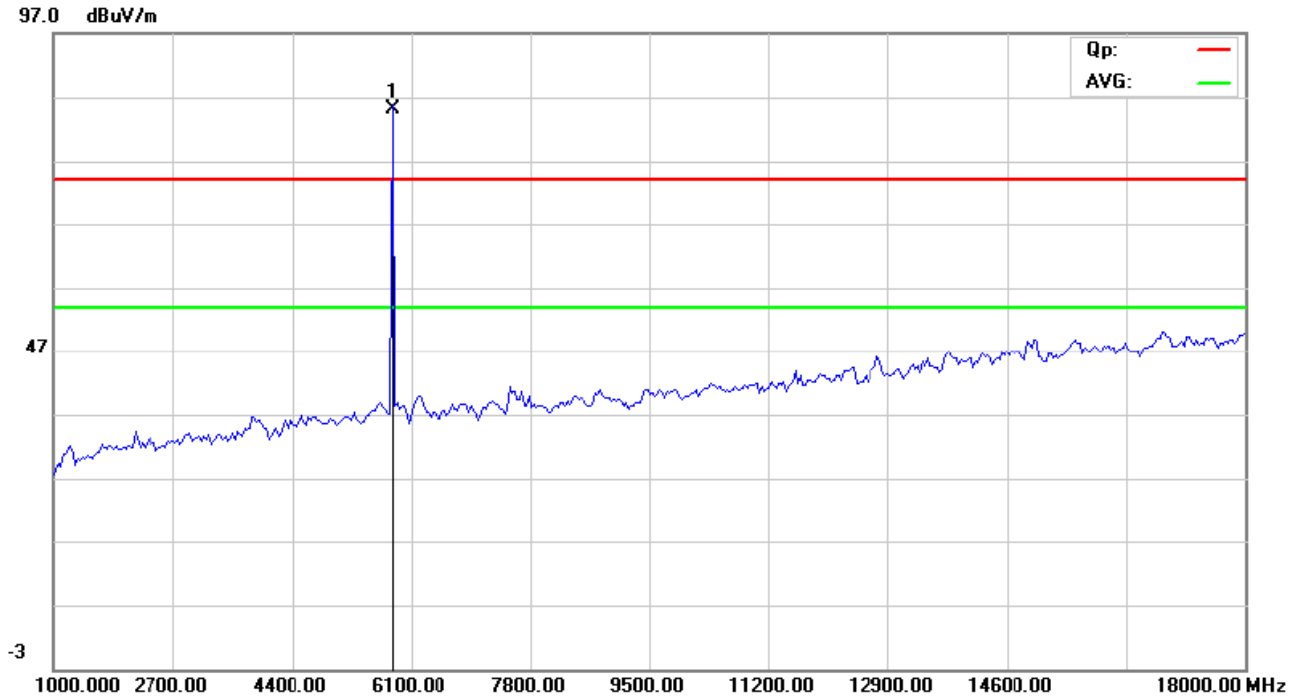
CH153 for 11a at 6Mbps: Horizontal



CH161 for 11a at 6Mbps: Vertical



CH161 for 11a at 6Mbps: Horizontal



Note: 1.For radiated Emissions from 18-40GHz, it is only the floor noise.

2. 802.11a/11nH20/11nH40/11ac VHT80 all have been tested ,only 802.11a is the worst case.

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 36 (5180MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	45.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-49.3		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]=45.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=45.9-95.2= -49.3dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 36 (5180MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	44.1 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.1		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 44.1 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=44.1-95.2= -51.1dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 48 (5240MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	45.0 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-50.2		
Polarity	Horizontal			

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 45.0 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=45.0-95.2= -50.2dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 48 (5240MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	43.6 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.6		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.6dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.6-95.2= -51.6dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 149 (5745MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	43.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.3		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.9-95.2= -51.3 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 149 (5745MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	42.6 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.6		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.6 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.6-95.2= -52.6dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 161 (5805MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	43.3 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.9		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.3 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.3-95.2= -51.9dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 161 (5805MHz)-11a
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	41.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-53.3		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 41.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=41.9-95.2= -53.3dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 36 (5180MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	44.5 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-50.7		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 44.5 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=44.5-95.2= -50.7dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 36 (5180MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	42.5 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.7		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.5 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.5-95.2= -52.7dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 48 (5240MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	46.1 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-49.1		
Polarity	Horizontal			

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 46.1 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=46.1-95.2= -49.1dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 48 (5240MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	42.1 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-53.1		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.1dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.1-95.2= -53.1 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 149 (5745MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	42.0 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.7		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.0 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.0-95.2= -53.2 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 149 (5745MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	43.2 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.0		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.2 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.2-95.2= -52.0 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 161 (5805MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	42.7 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.5		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.7 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.7-95.2= -52.5 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 161 (5805MHz)-11n/HT20
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	40.1 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-55.1		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.1 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.1-95.2= -55.1 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 38 (5190MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	42.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.3		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.9-95.2= -52.3 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 38 (5190MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	43.3 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.9		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.3 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.3-95.2= -51.9dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 46 (5230MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	42.6(PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.6		
Polarity	Horizontal			

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.6 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.6-95.2= -52.6 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 46 (5230MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5350	PK (dBμV/m)	40.3 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-54.9		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.3 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.3-95.2= -54.9dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 151 (5755MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	41.2 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-54.0		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 41.2 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=41.2 -95.2= -54.0 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 151 (5755MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	40.6 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-54.6		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.6 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.6-95.2= -54.6dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 159 (5795MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	40.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-54.3		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.9-95.2= -54.3 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 159 (5795MHz)-11n/HT40
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	39.6 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-55.6		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 39.6 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=39.6-95.2= -55.6 dBm
2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 42 (5210MHz)-11ac/VHT80
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	43.5 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-51.7		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 43.5 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=43.5-95.2= -51.7 dBm
2. RBW=1MHz, VBW=3MHz

3.5150 MHz and 5350MHz all have been tested , only worse case 5150MHz is reported

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 42 (5210MHz)-11ac/VHT80
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	40.8 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.5		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.8 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.8-95.2= -54.4 dBm
2. RBW=1MHz, VBW=3MHz

3.5150 MHz and 5350MHz all have been tested , only worse case 5150MHz is reported

Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 155 (5775MHz)-11ac/VHT80
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	42.9 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-52.3		
Polarity	Horizontal		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 42.9 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=42.9-95.2= -52.3 dBm
2. RBW=1MHz, VBW=3MHz

3.5725 MHz and 5850MHz all have been tested , only worse case 5850MHz is reported

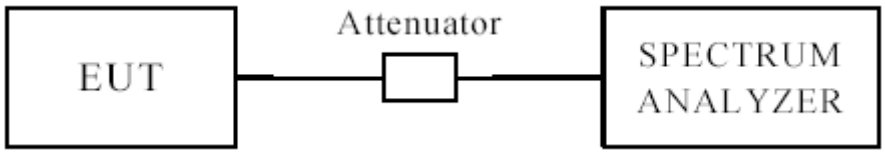
Restricted band Measurement				
EUT	15.6' Advertising Displayer		Test Mode:	Channel 157 (5775MHz)-11ac/VHT80
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5850	PK (dBμV/m)	40.3 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-54.9		
Polarity	Vertical		--	--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:
EIRP[dBm] = E[dBμV/m] - 95.2
For Example, if E[dBμV/m]= 40.3 dBμV/m,
EIRP[dBm] = E[dBμV/m] - 95.2=40.3-95.2= -54.9 dBm
2. RBW=1MHz, VBW=3MHz

3.5725 MHz and 5850MHz all have been tested , only worse case 5850MHz is reported

7.0 Emission Bandwidth

7.1 Test Setup



7.3 Test Procedure for Emission Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set VBW> RBW
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

7.4 Test Procedure for Minimum Bandwidth for the Band 5725-5850MHz

1. Set RBW = 100 kHz.
2. Set VBW≥ 3 × RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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 6 dB relative to the maximum level measured in the fundamental emission.

7.5 Test Procedure for 99% Bandwidth

1. Set center frequency to the nominal EUT channel center frequency
2. Set span = 1.5 times to 5.0 times OBW
3. Set RBW= 1% TO 5% of the OBW
4. Set VBW≥ 3 × RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Other, peak detection and max mode (until trace stabilizes) shall be used.
6. Use the 99% power bandwidth function of the instrument

7.6 Test Result

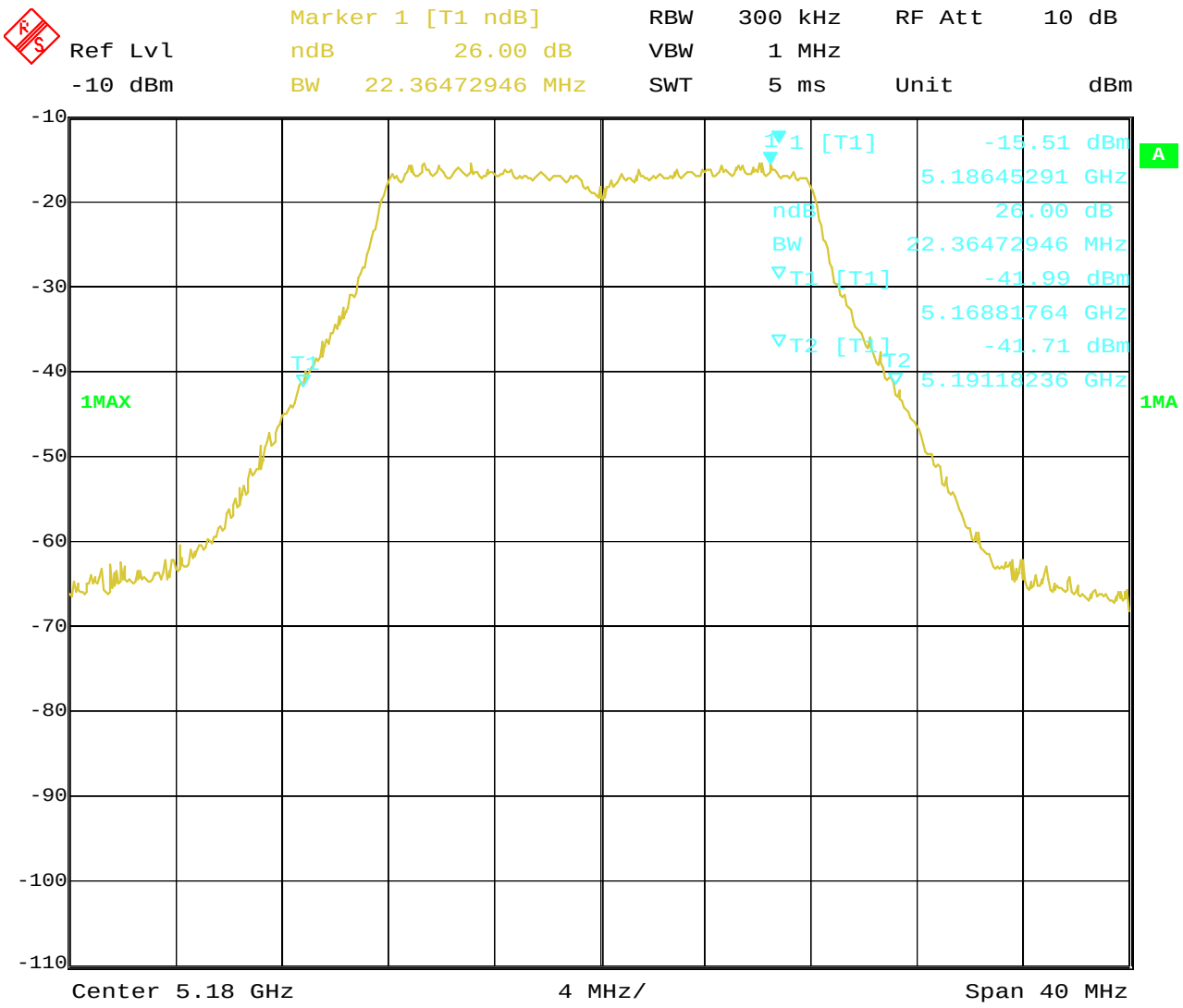
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11a	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
36	5180	6	22.36	--	Pass
40	5200	6	22.12	--	Pass
48	5240	6	22.28	--	Pass
99% Bandwidth					
36	5180	6	17.31	--	Pass
40	5200	6	17.23	--	Pass
48	5240	6	17.23	--	Pass

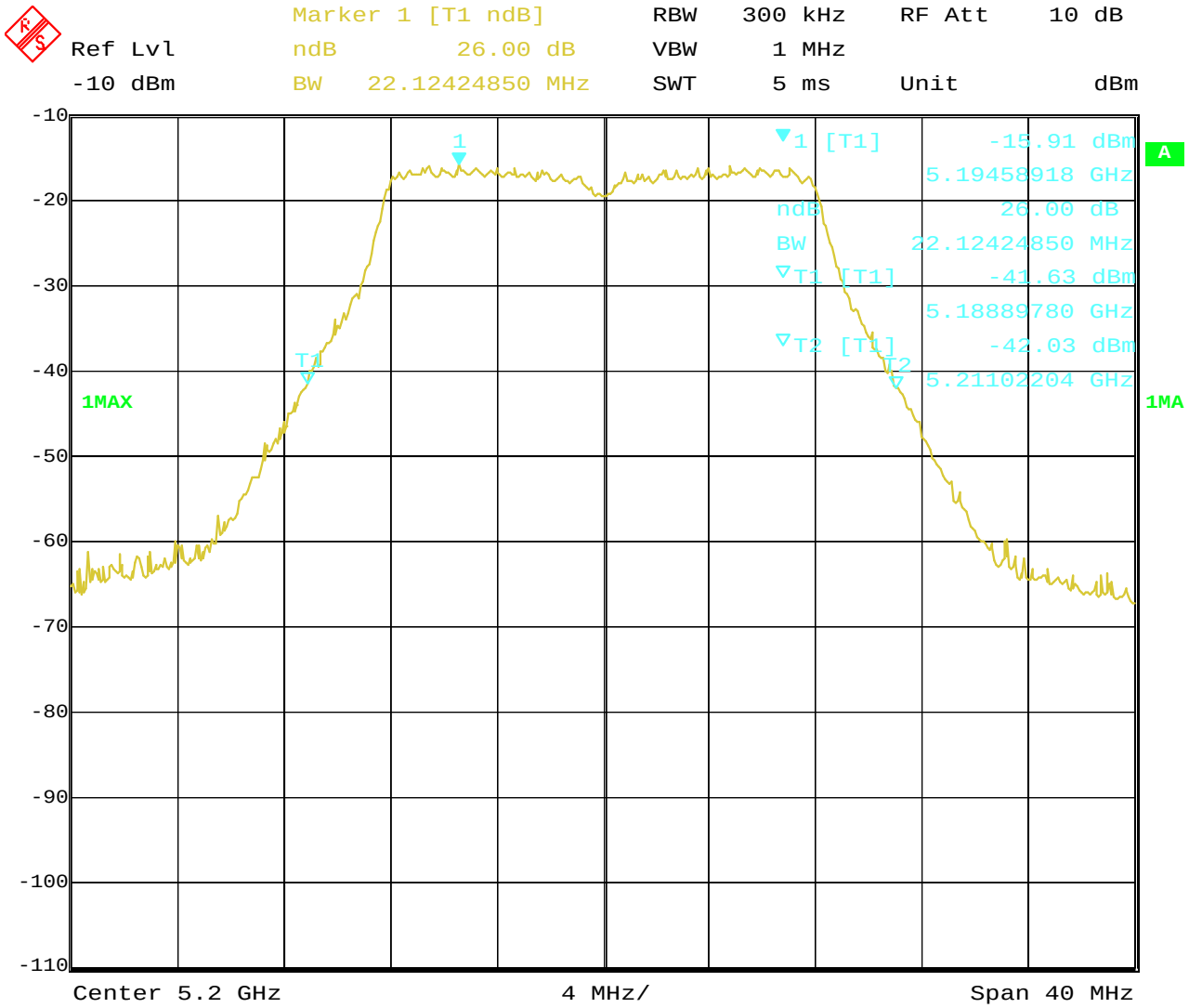
Test Figure:

26dB Bandwidth

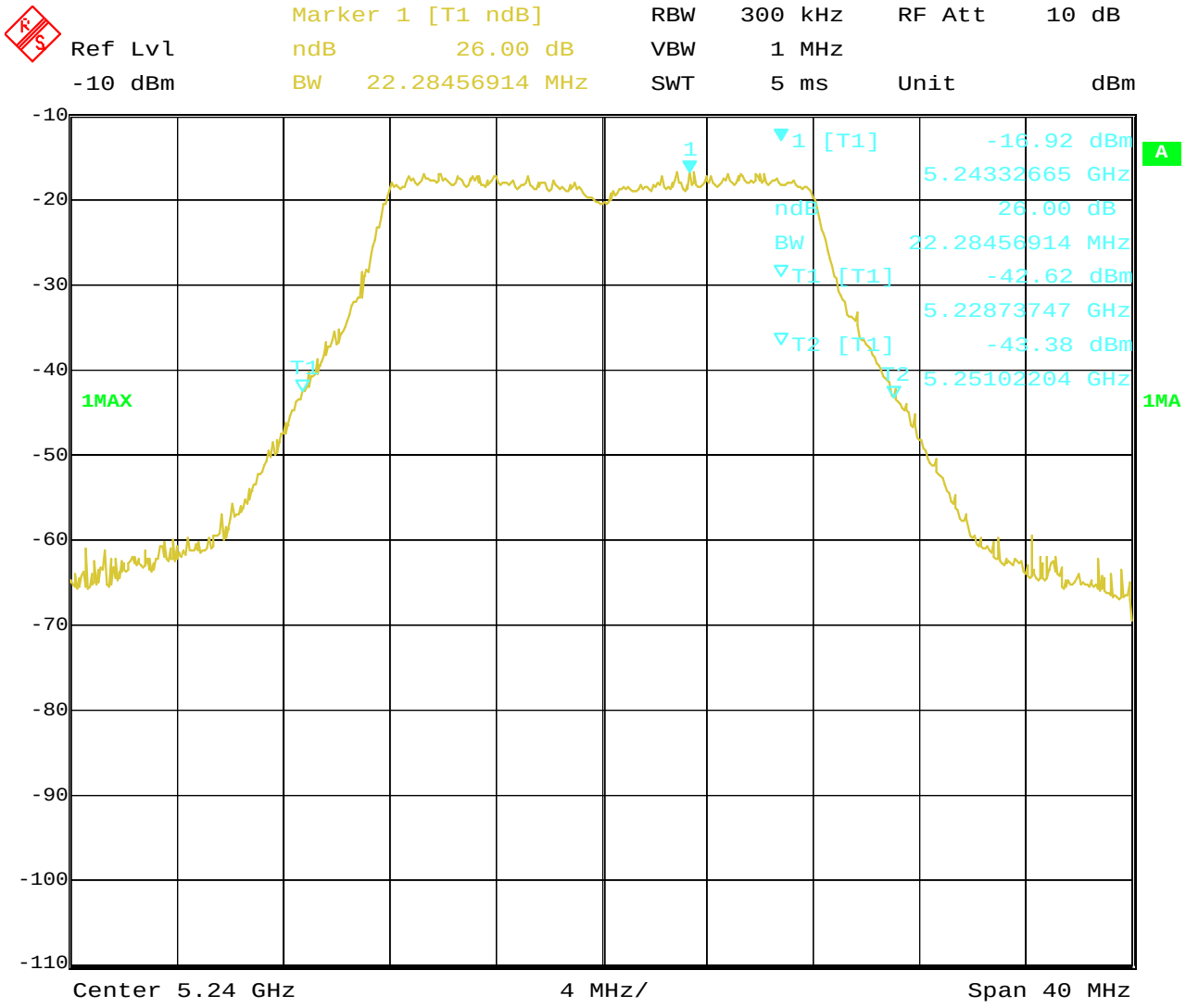
Channel 36



Channel 40



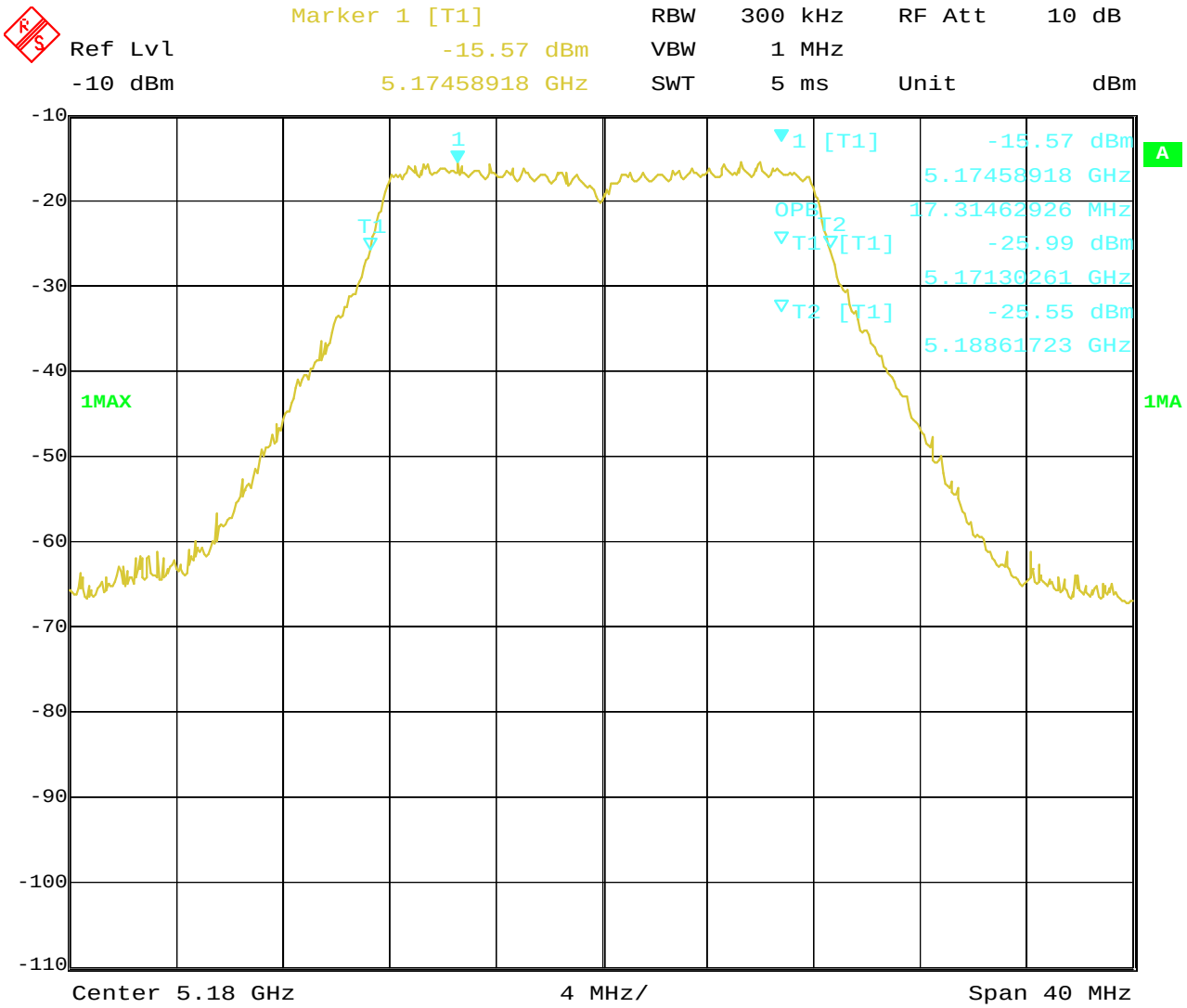
Channel 48



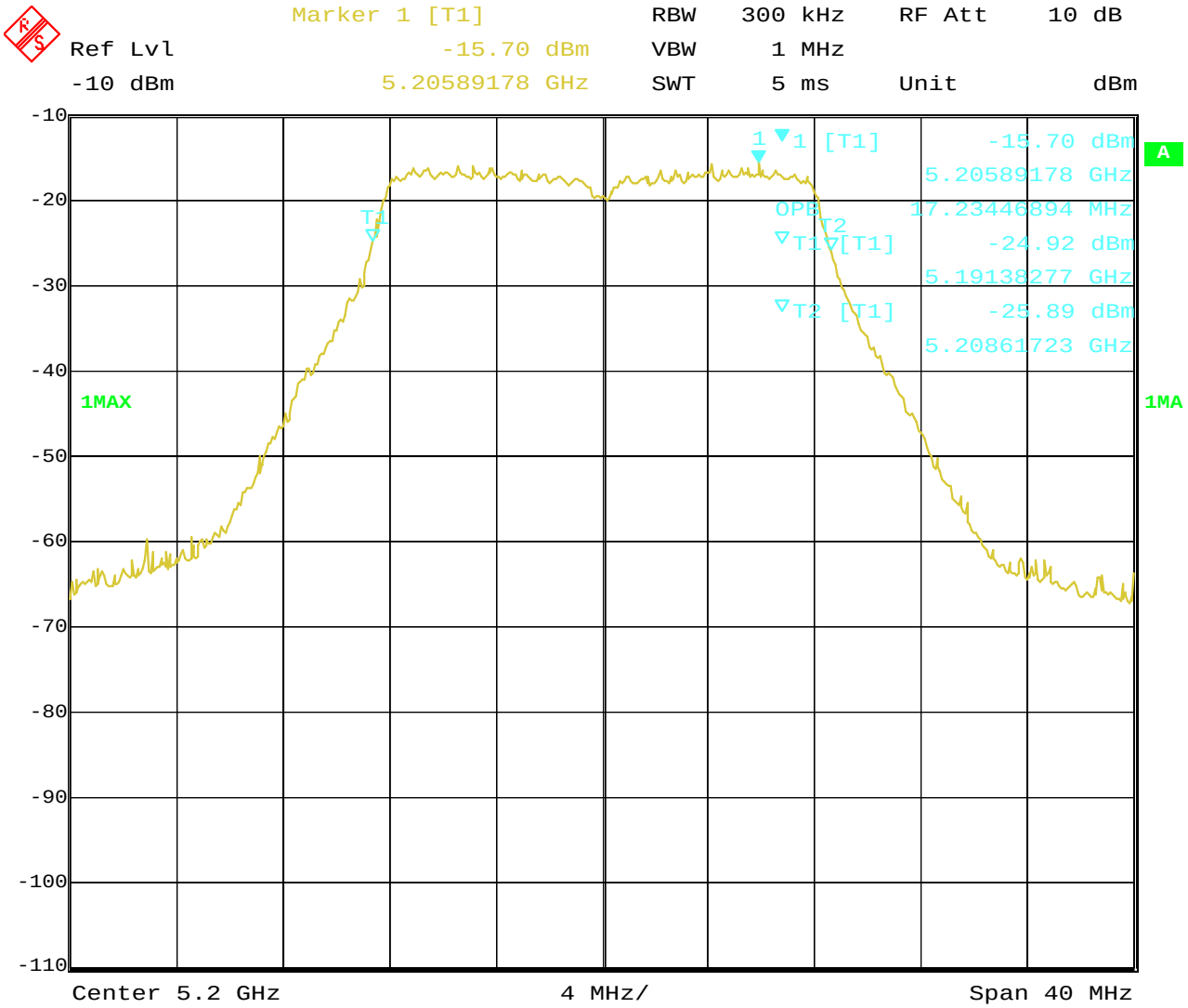
Test Figure:

99% Bandwidth

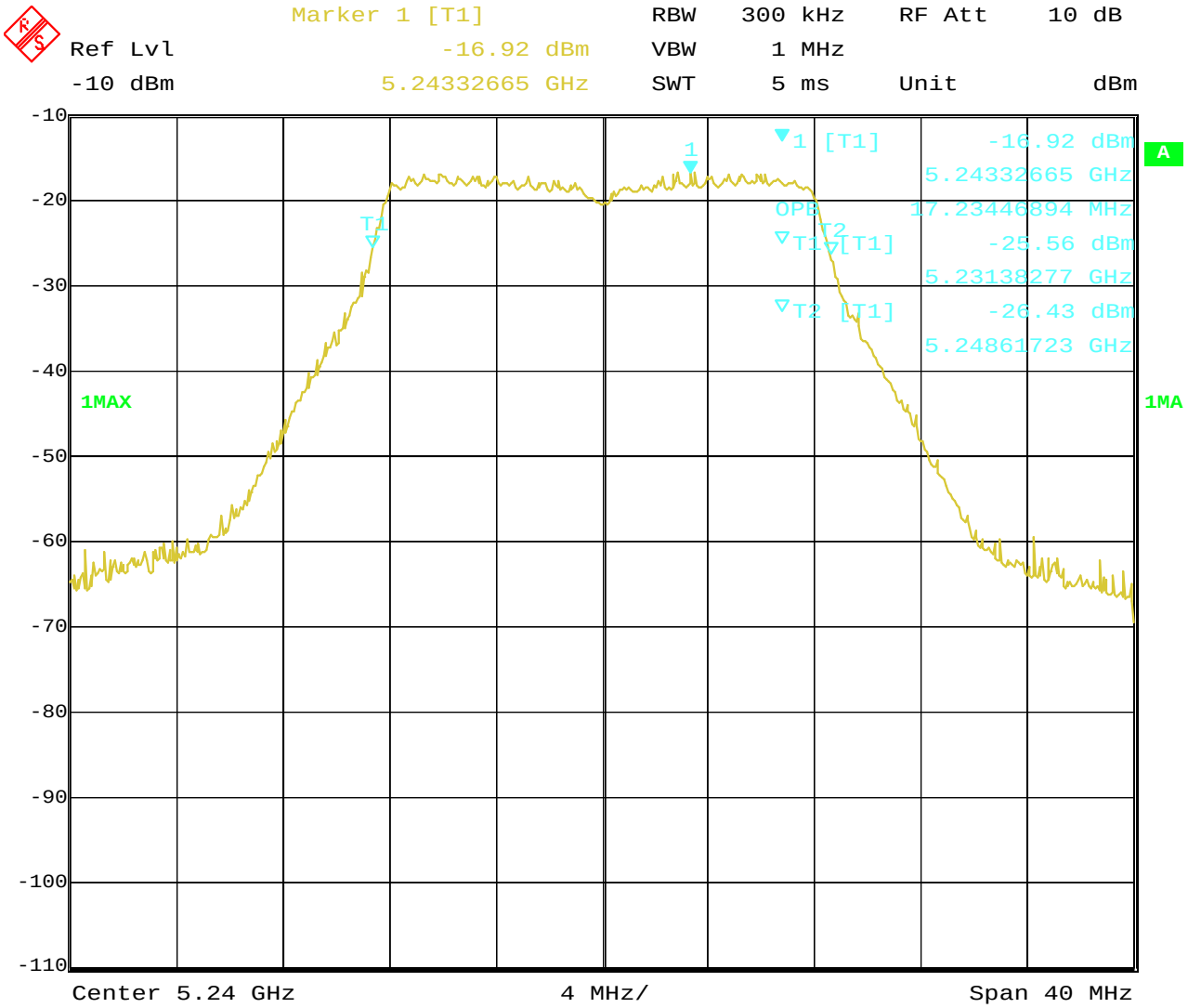
Channel 36



Channel 40



Channel 48



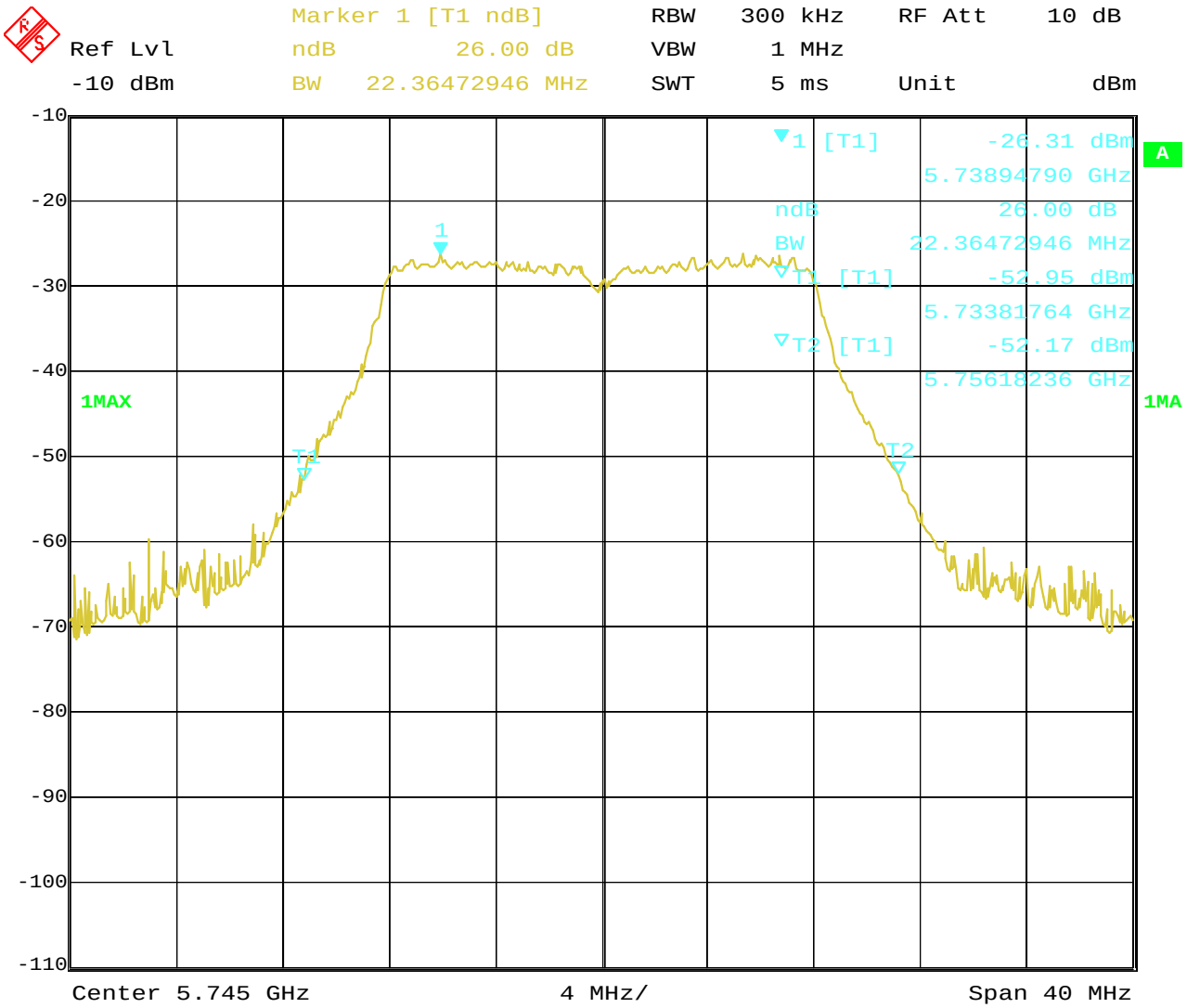
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11a	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
149	5745	6	22.36	--	Pass
153	5765	6	21.96	--	Pass
161	5805	6	22.61	--	Pass
6dB Bandwidth					
149	5745	6	16.35	0.5	Pass
153	5765	6	16.35	0.5	Pass
161	5805	6	16.35	0.5	Pass
99% Bandwidth					
149	5745	6	17.23	--	Pass
153	5765	6	17.07	--	Pass
161	5805	6	17.39	--	Pass

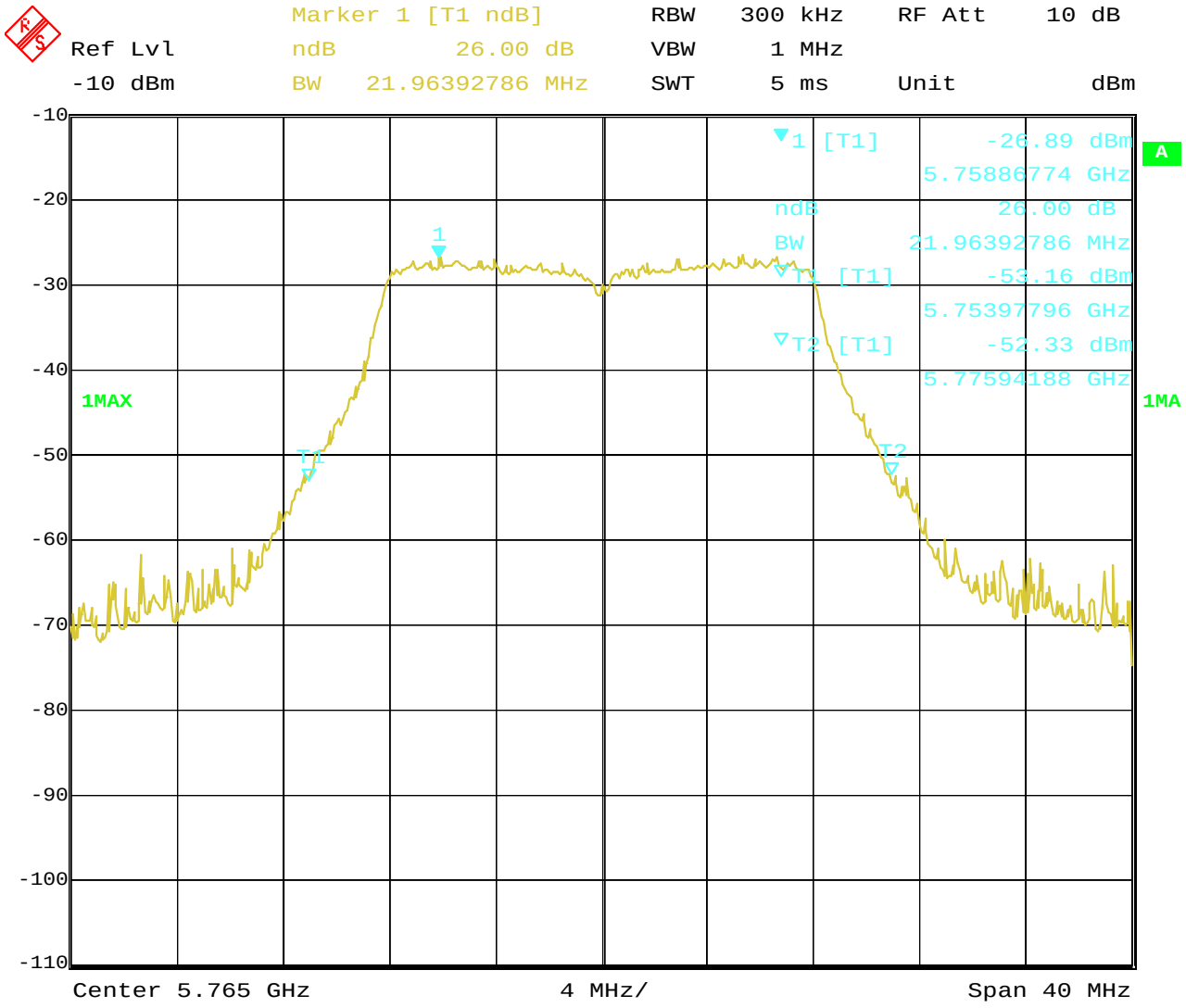
Test Figure:

26dB Bandwidth

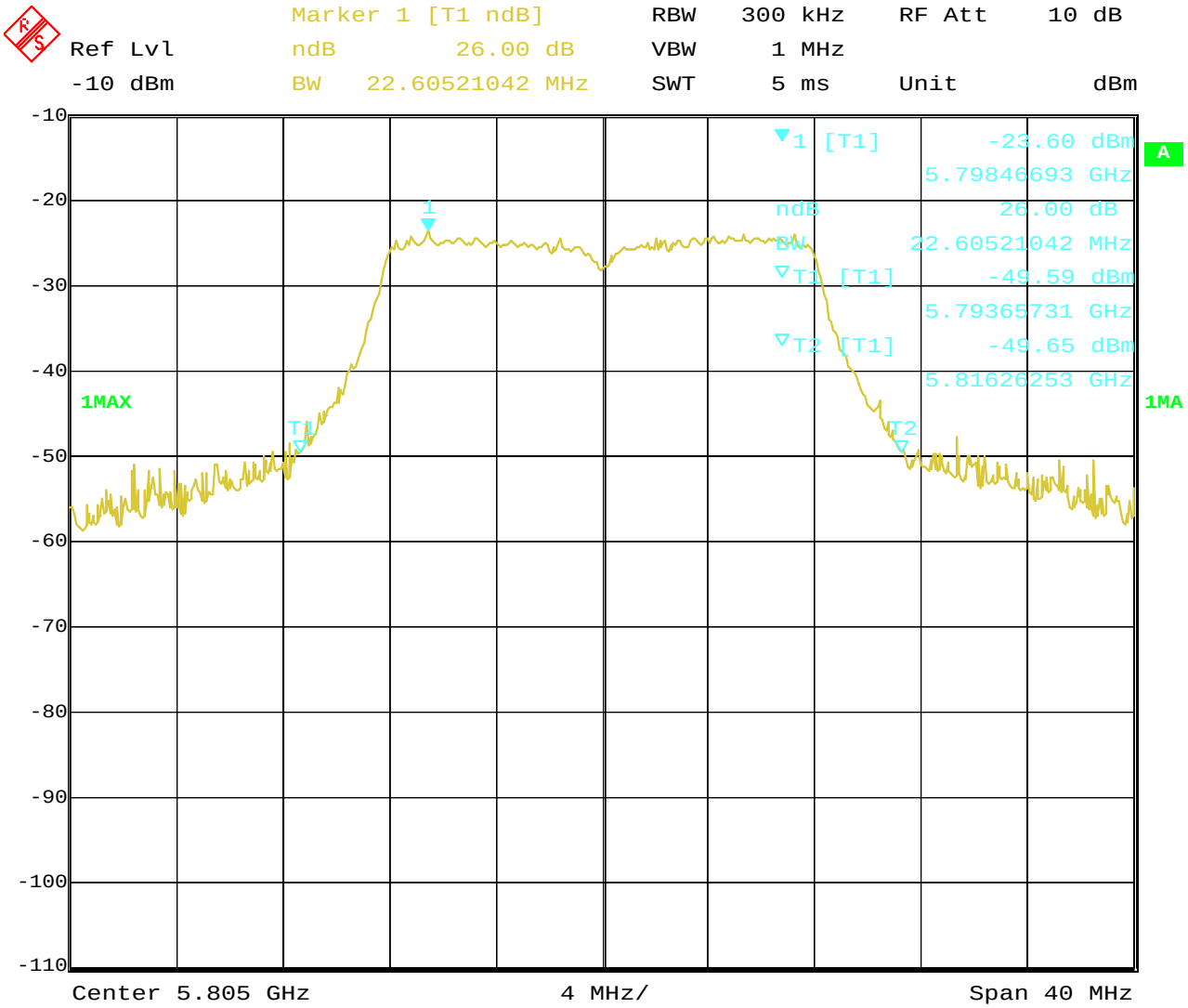
Channel 149



Channel 153



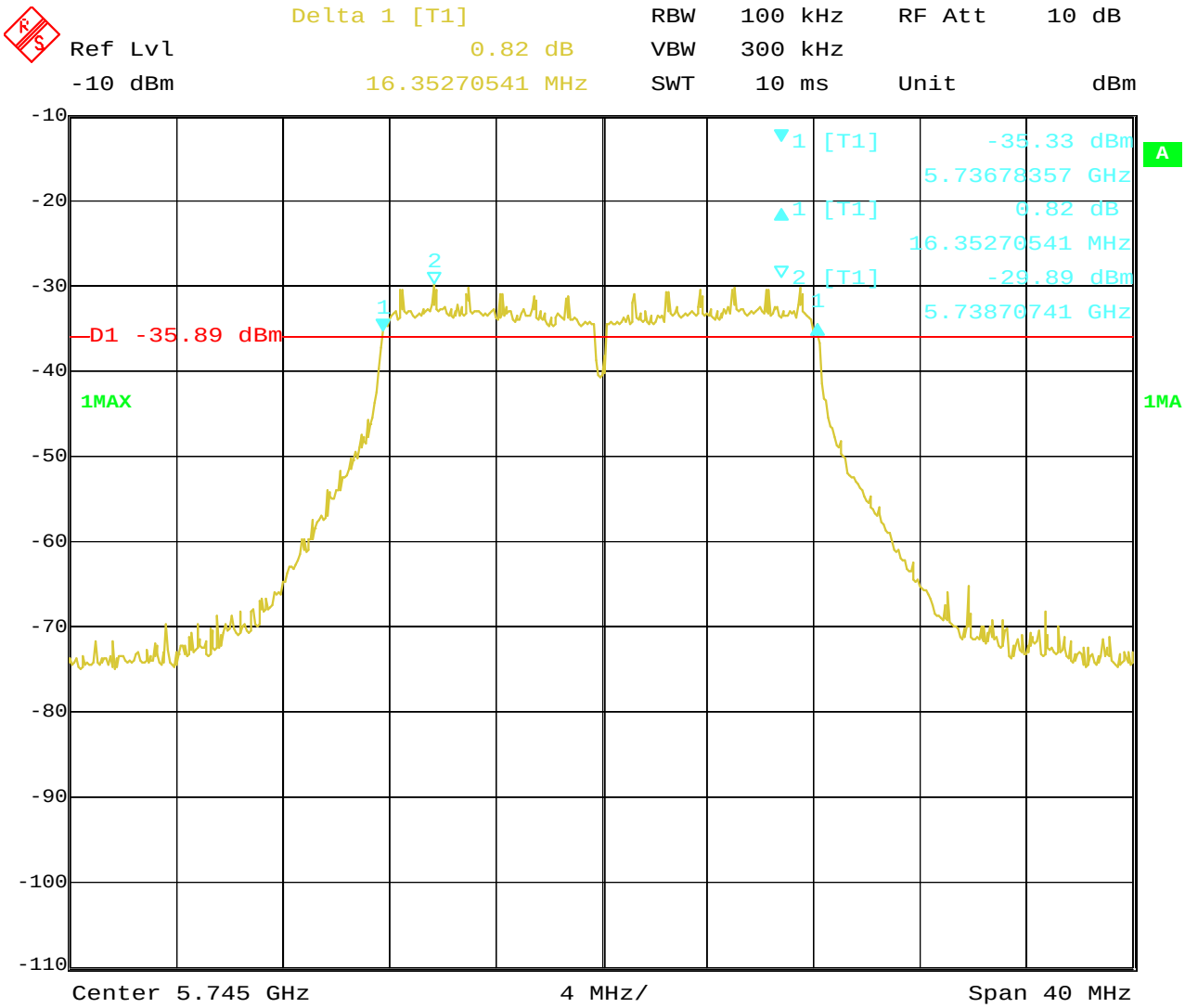
Channel 161



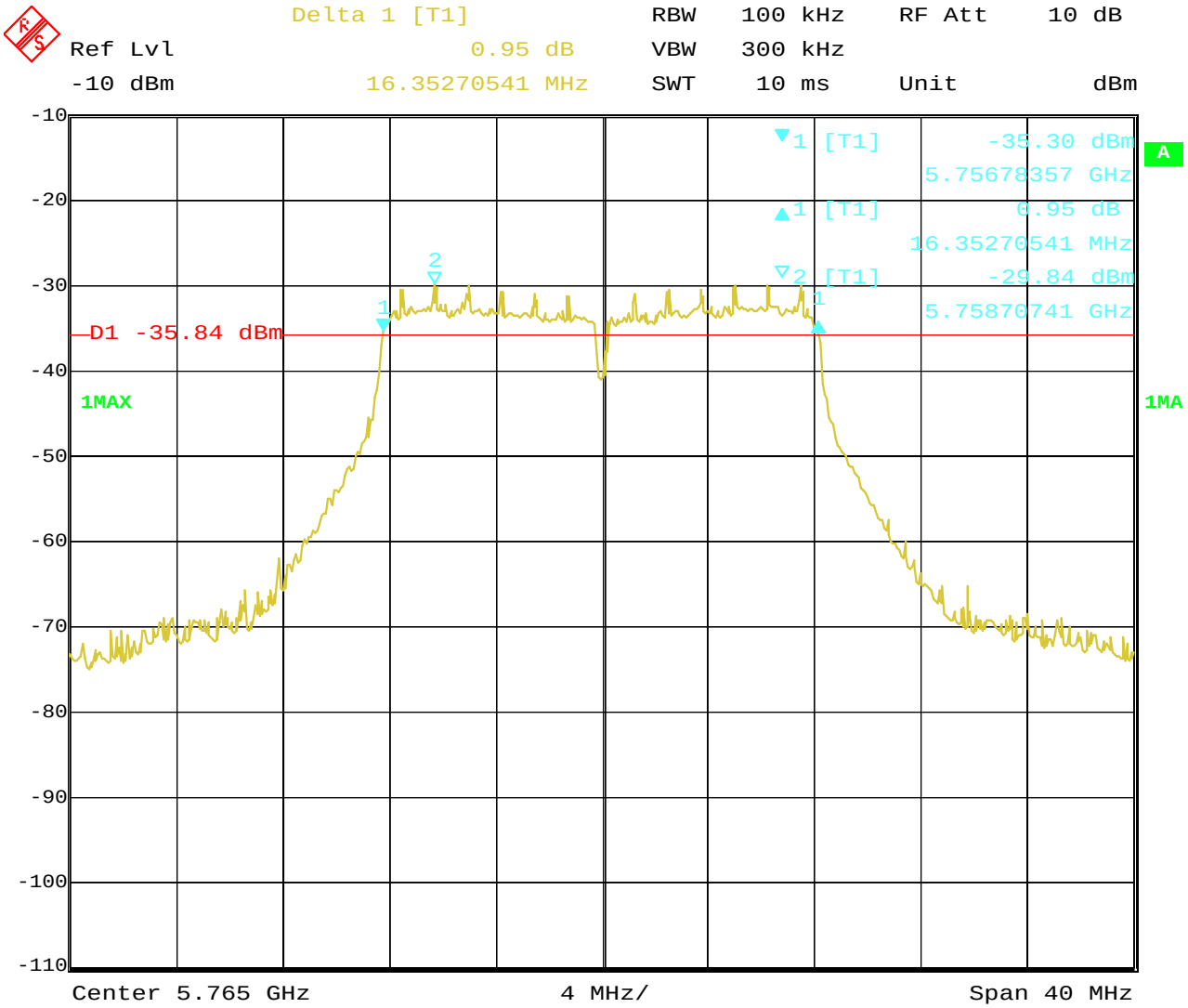
Test Figure:

6dB Bandwidth

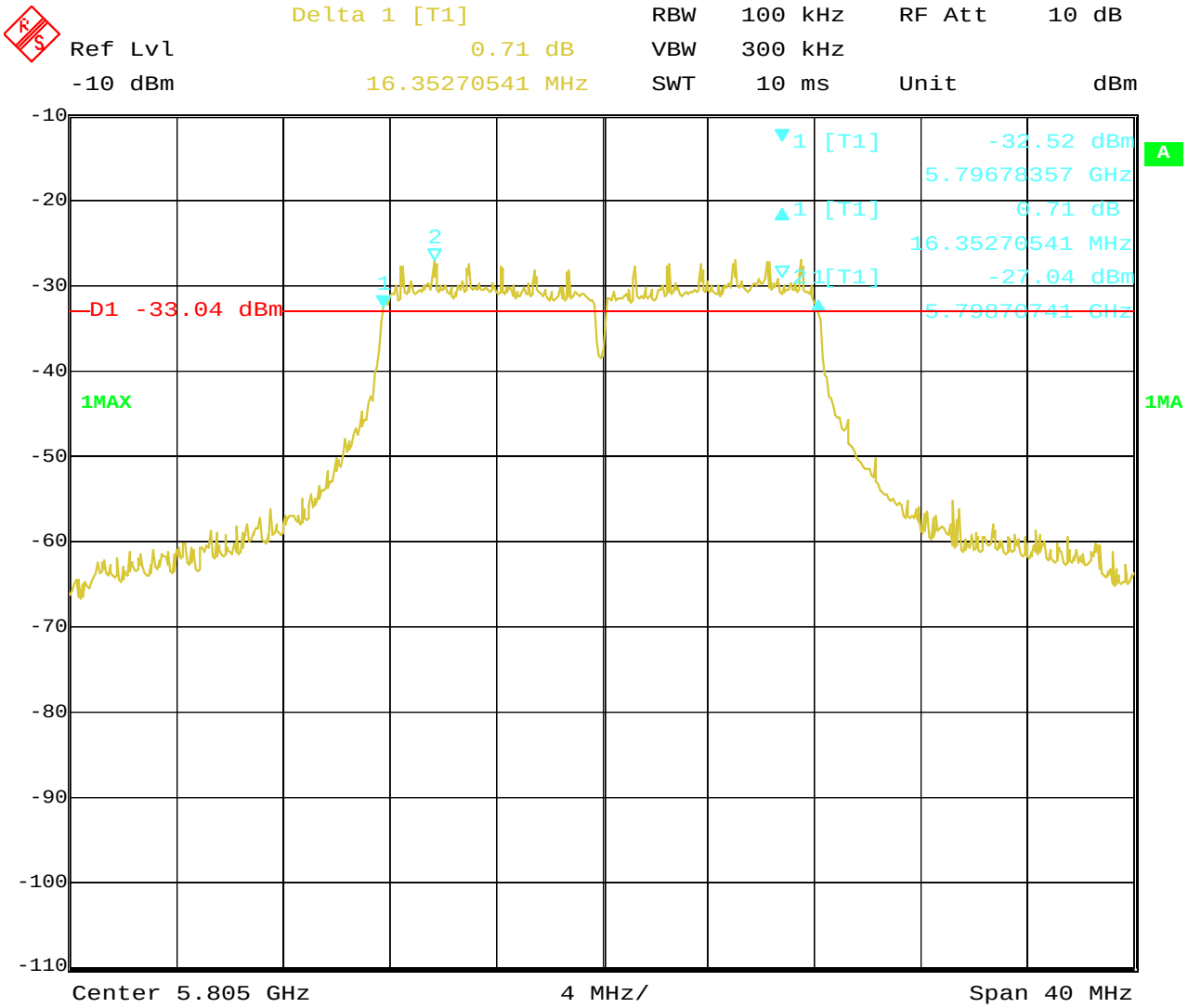
Channel 149



Channel 153



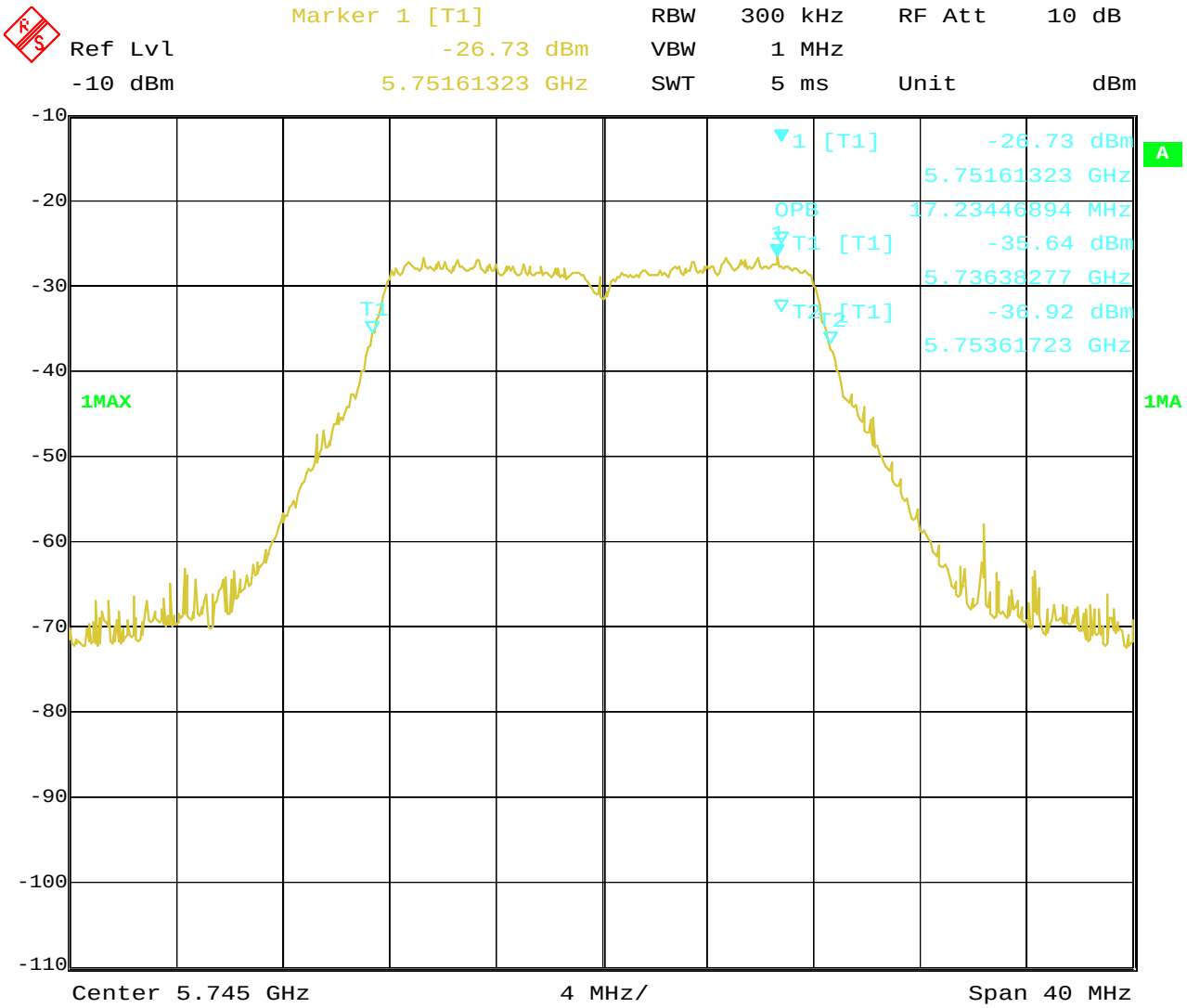
Channel 161



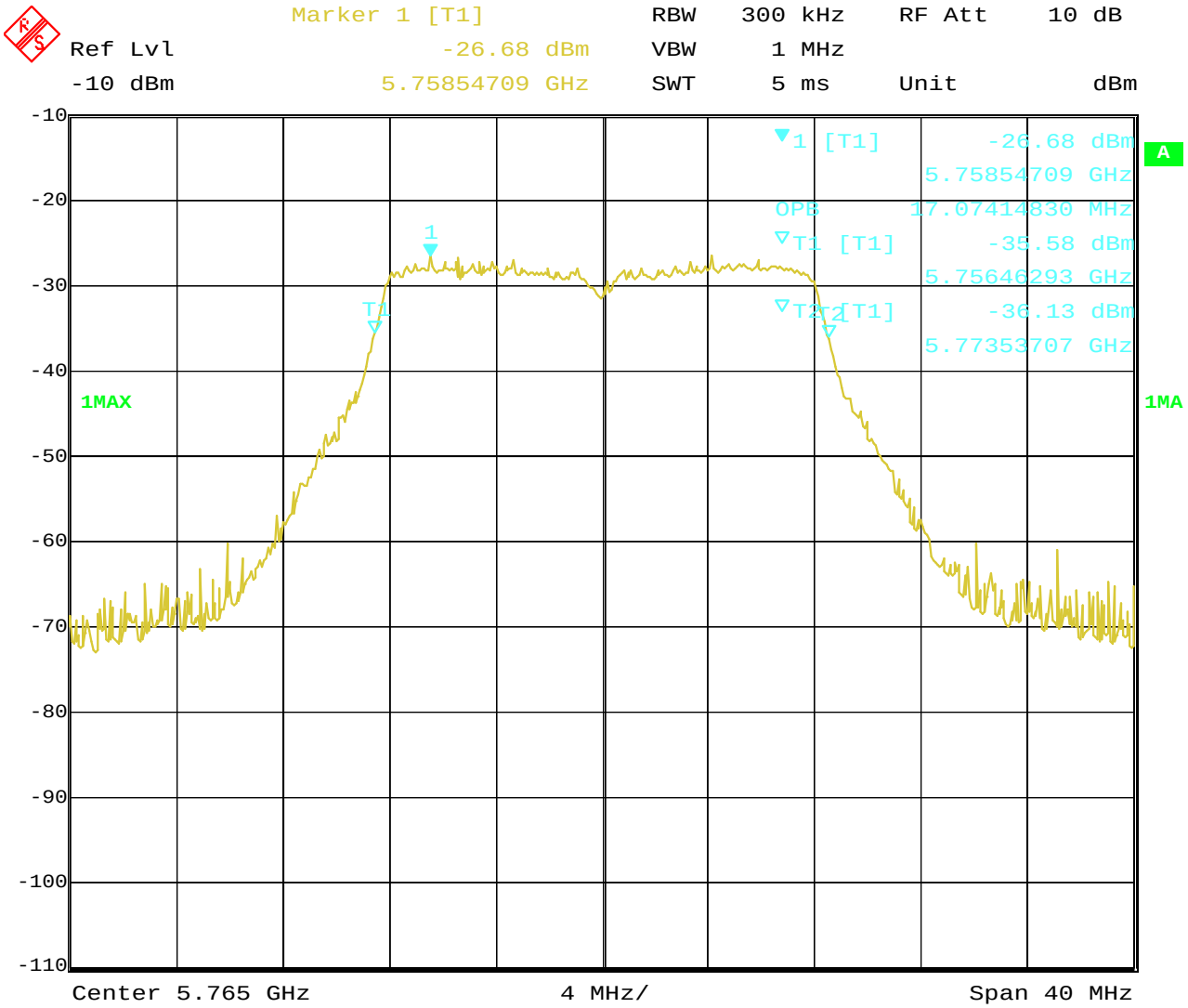
Test Figure:

99% Bandwidth

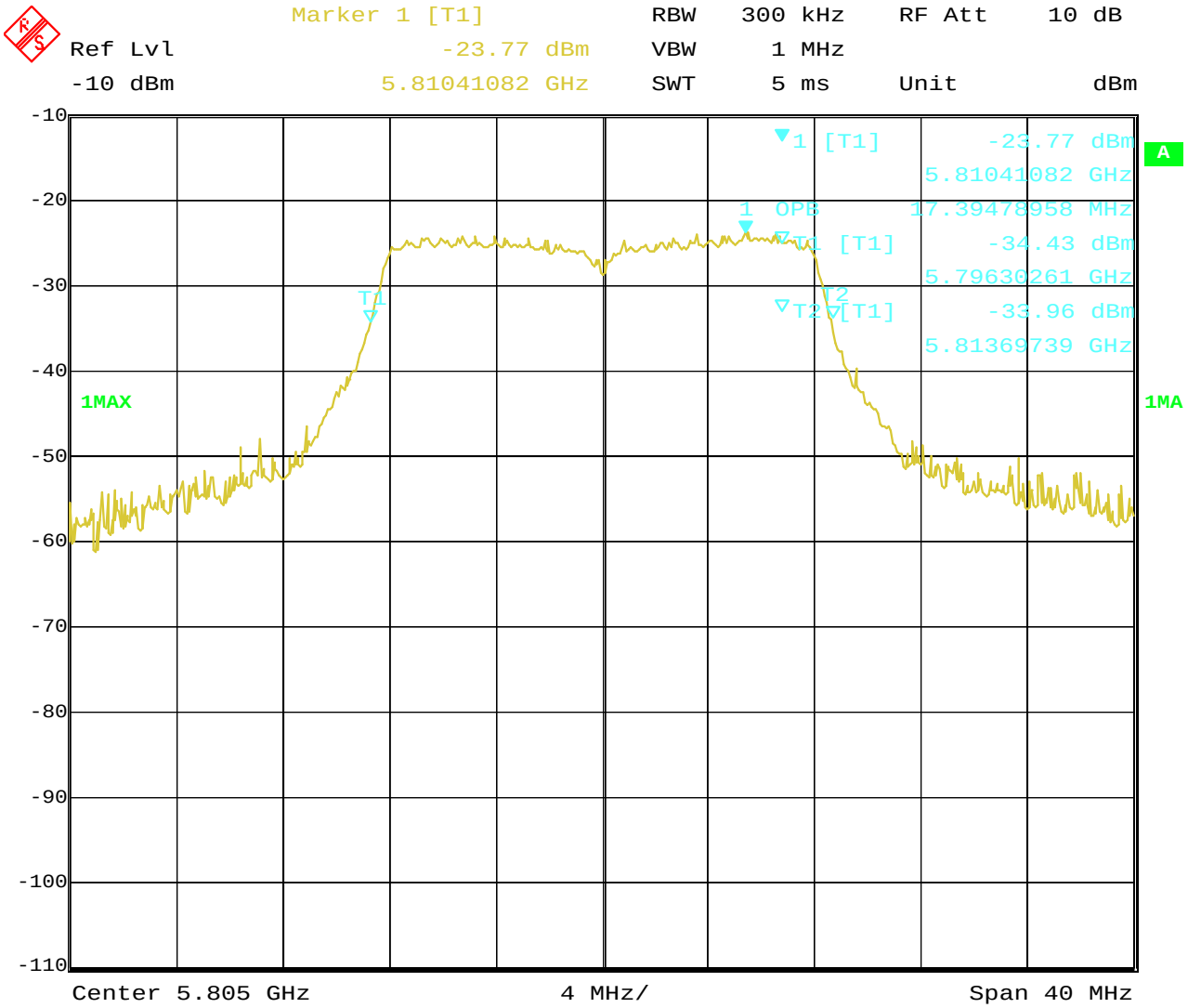
Channel 149



Channel 153



Channel 161



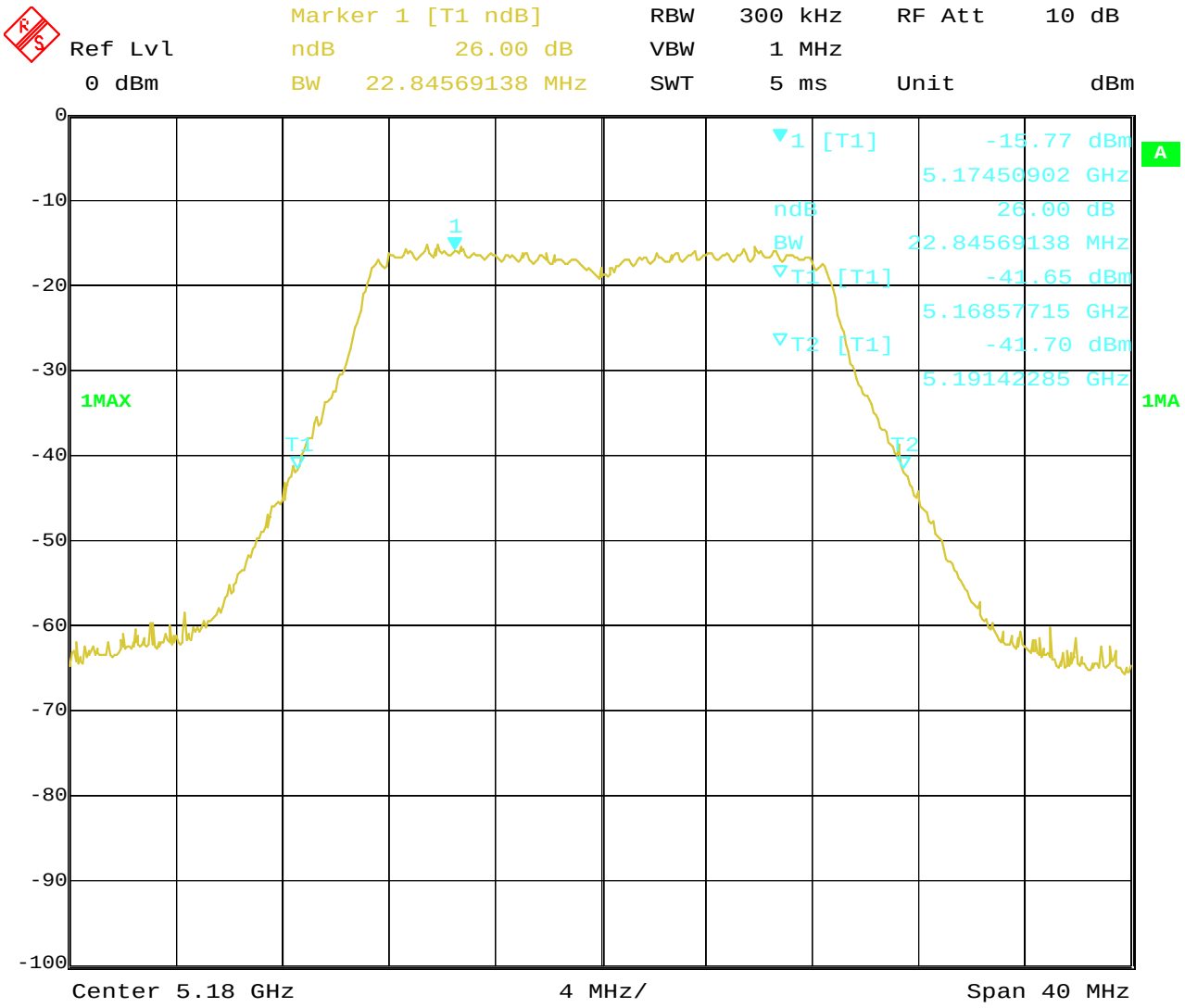
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
36	5180	mcs0	22.85	--	Pass
40	5200	mcs0	22.20	--	Pass
48	5240	mcs0	22.44	--	Pass
99% Bandwidth					
36	5180	mcs0	18.20	--	Pass
40	5200	mcs0	18.12	--	Pass
48	5240	mcs0	18.12	--	Pass

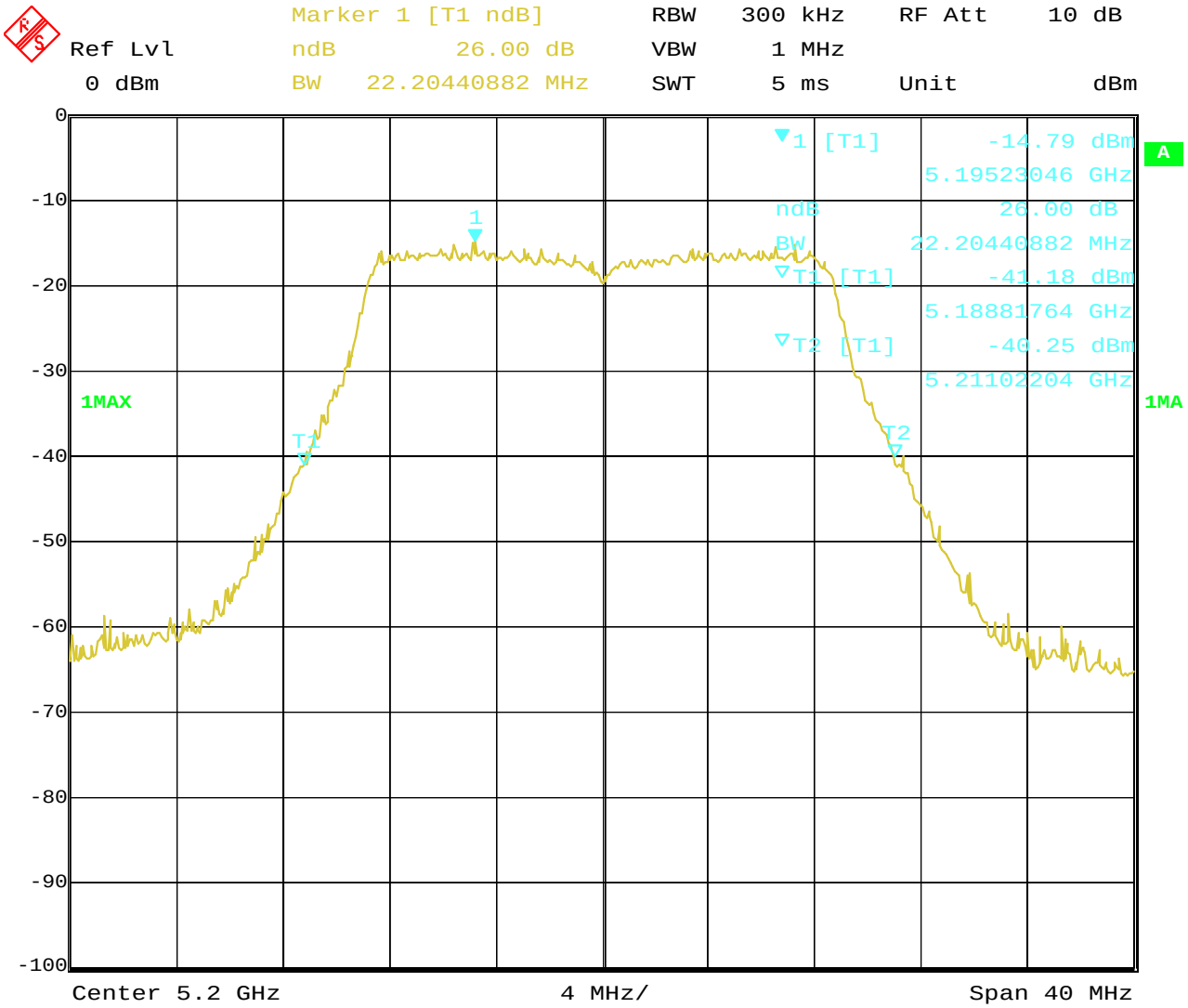
Test Configure

26dB Bandwidth

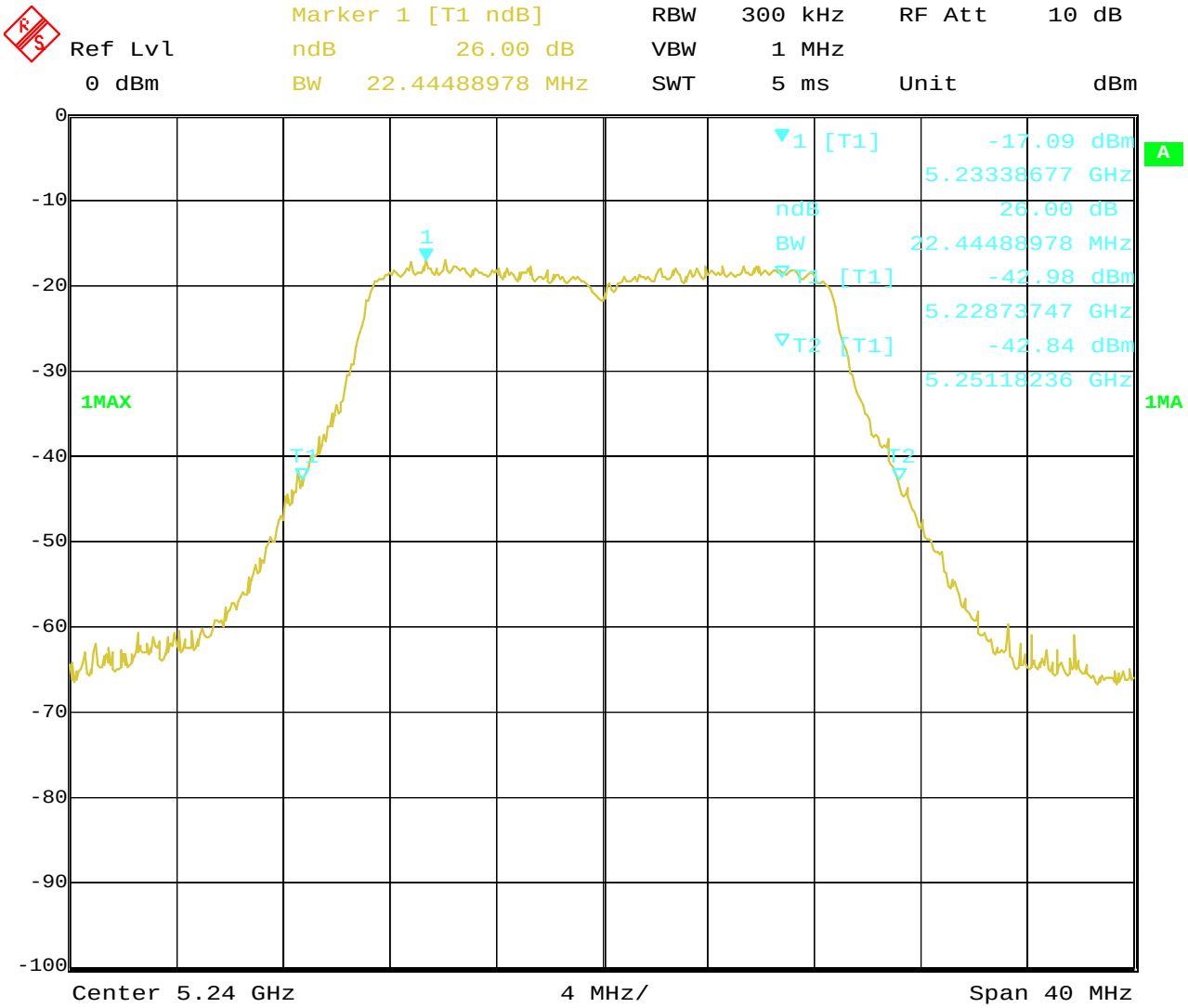
Channel 36



Channel 40



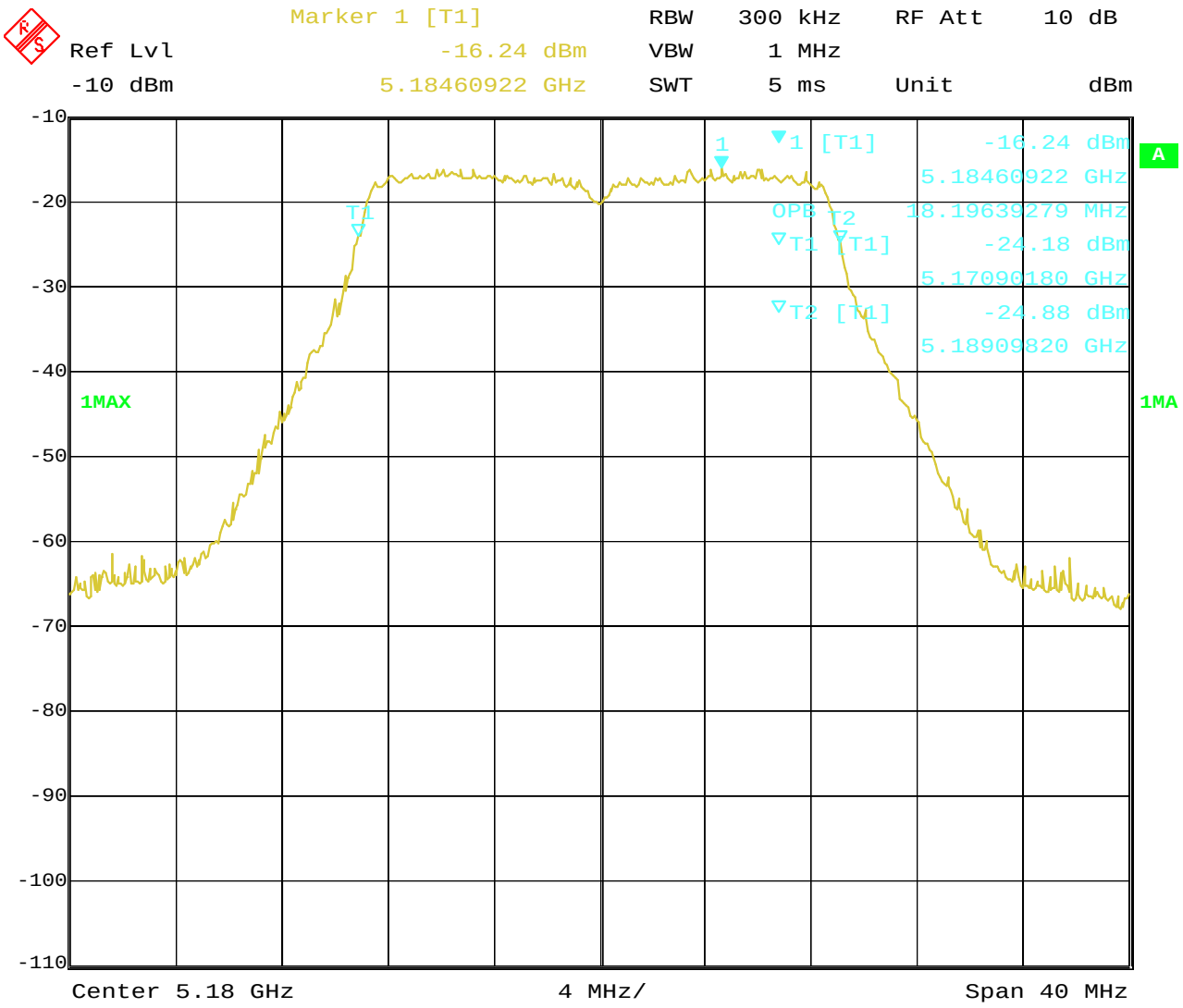
Channel 48



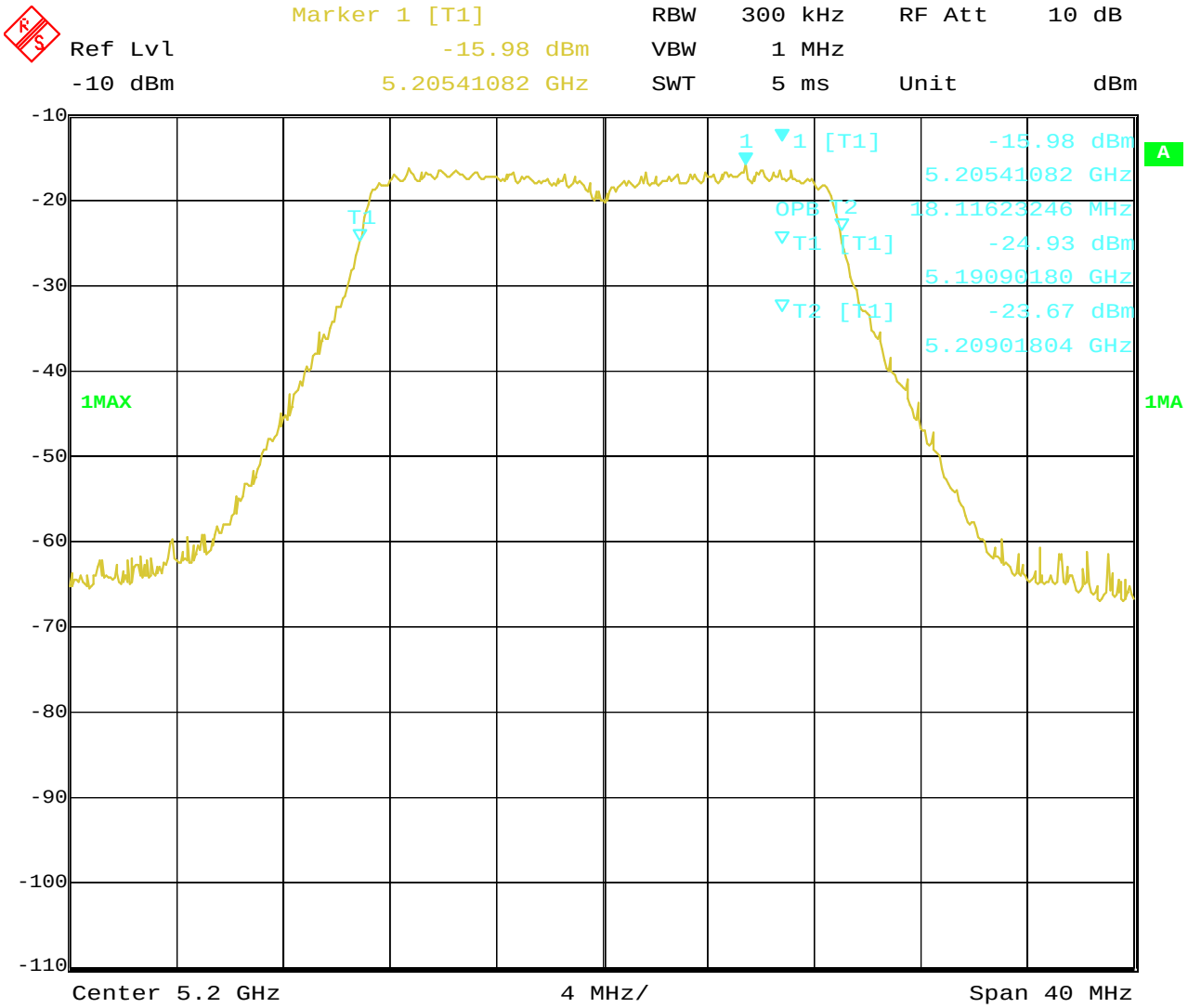
Test Configure

99% Bandwidth

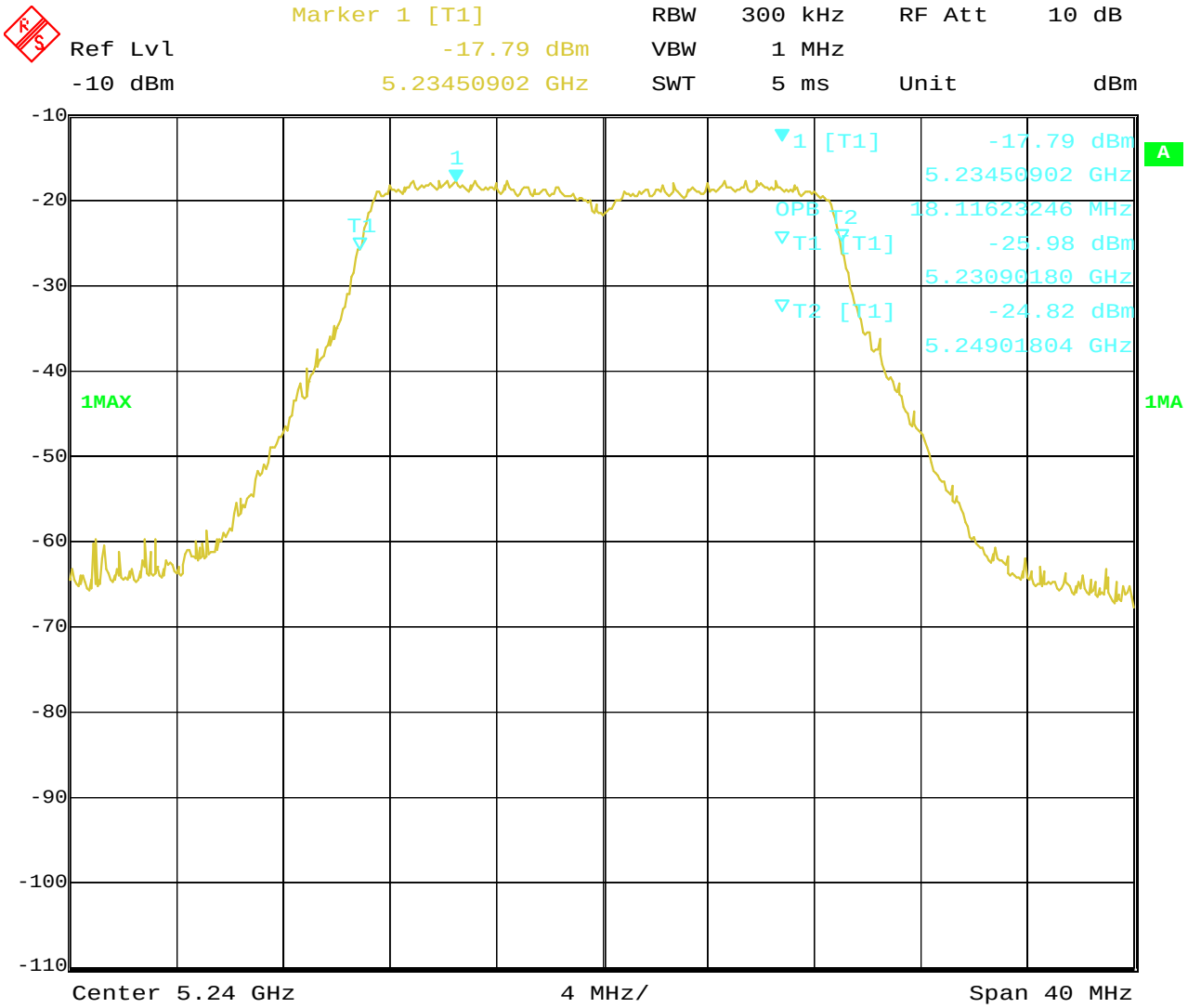
Channel 36



Channel 40



Channel 48



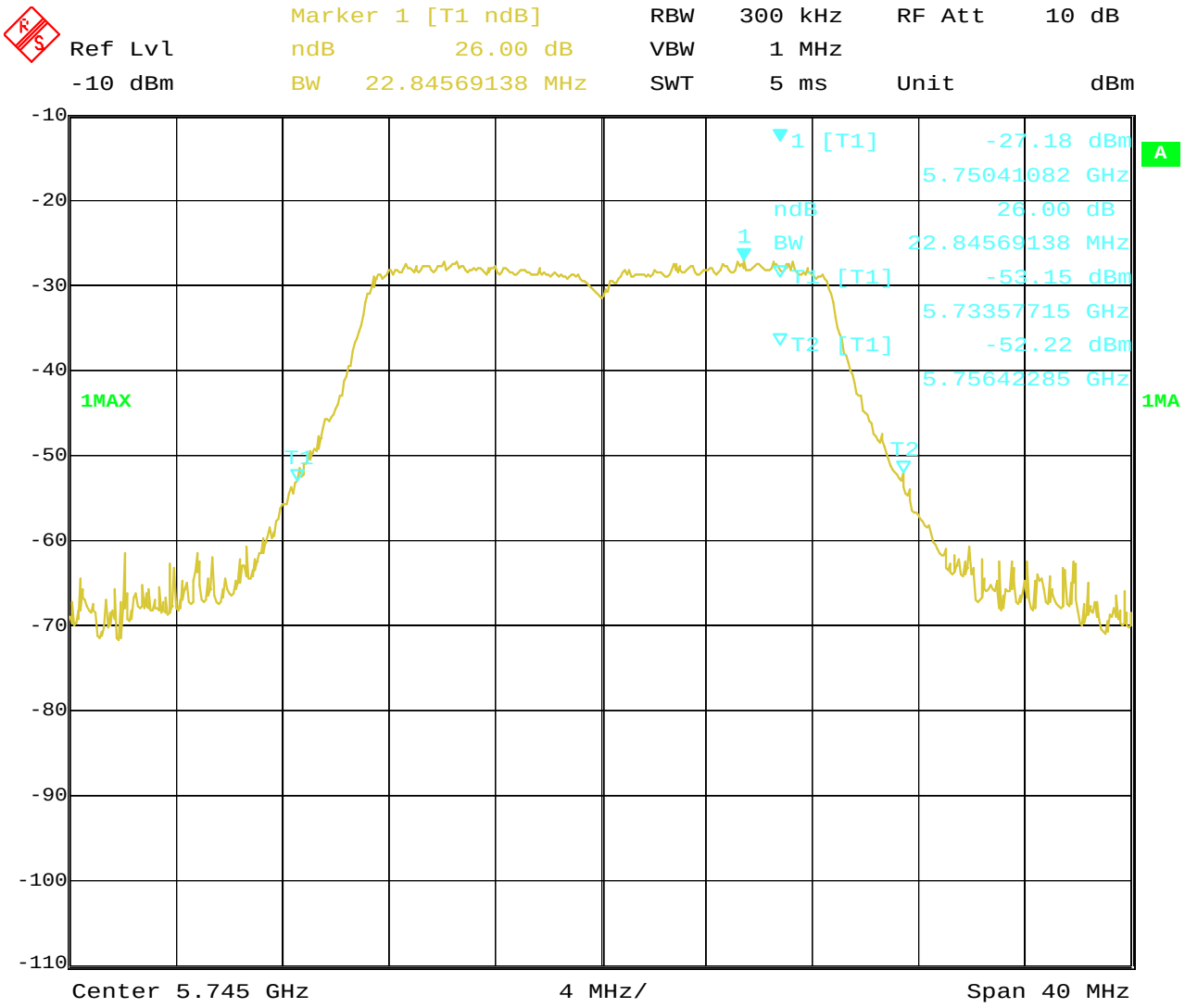
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
149	5745	6	22.85	--	Pass
153	5765	6	23.01	--	Pass
161	5805	6	22.93	--	Pass
6dB Bandwidth					
149	5745	6	17.56	0.5	Pass
153	5765	6	17.52	0.5	Pass
161	5805	6	17.56	0.5	Pass
99% Bandwidth					
149	5745	6	18.20	--	Pass
153	5765	6	18.12	--	Pass
161	5805	6	18.28	--	Pass

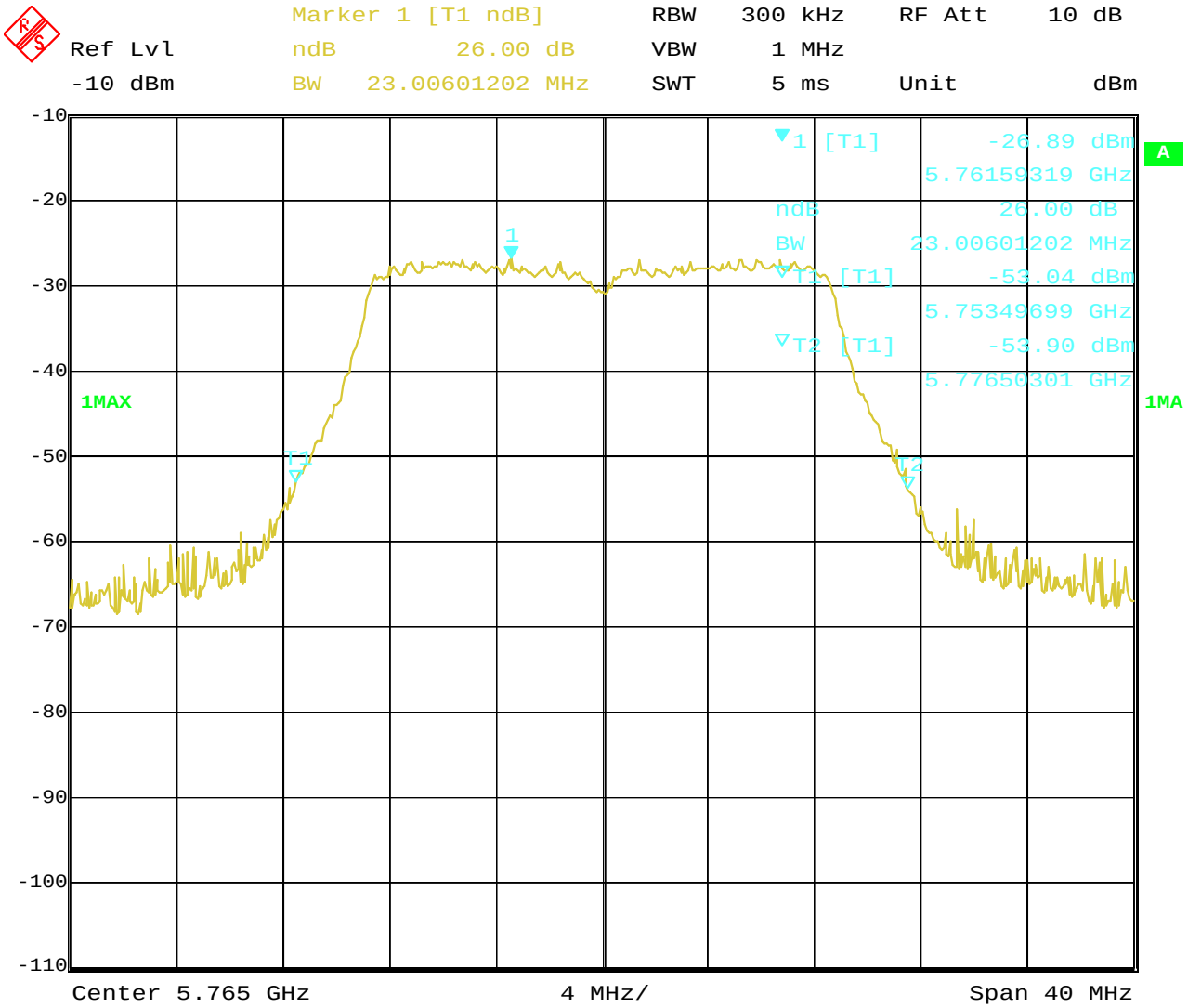
Test Configure

26dB Bandwidth

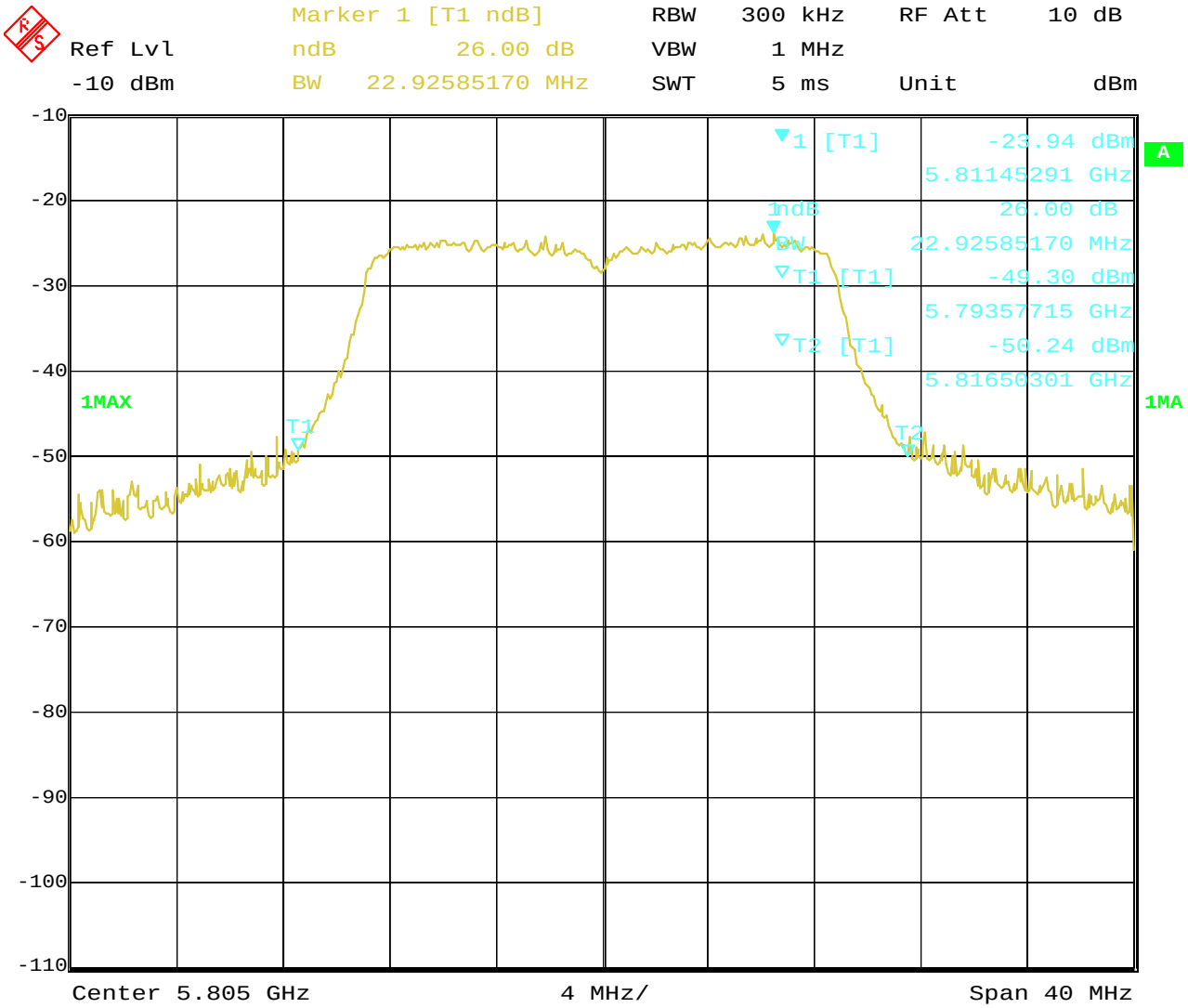
Channel 149



Channel 153



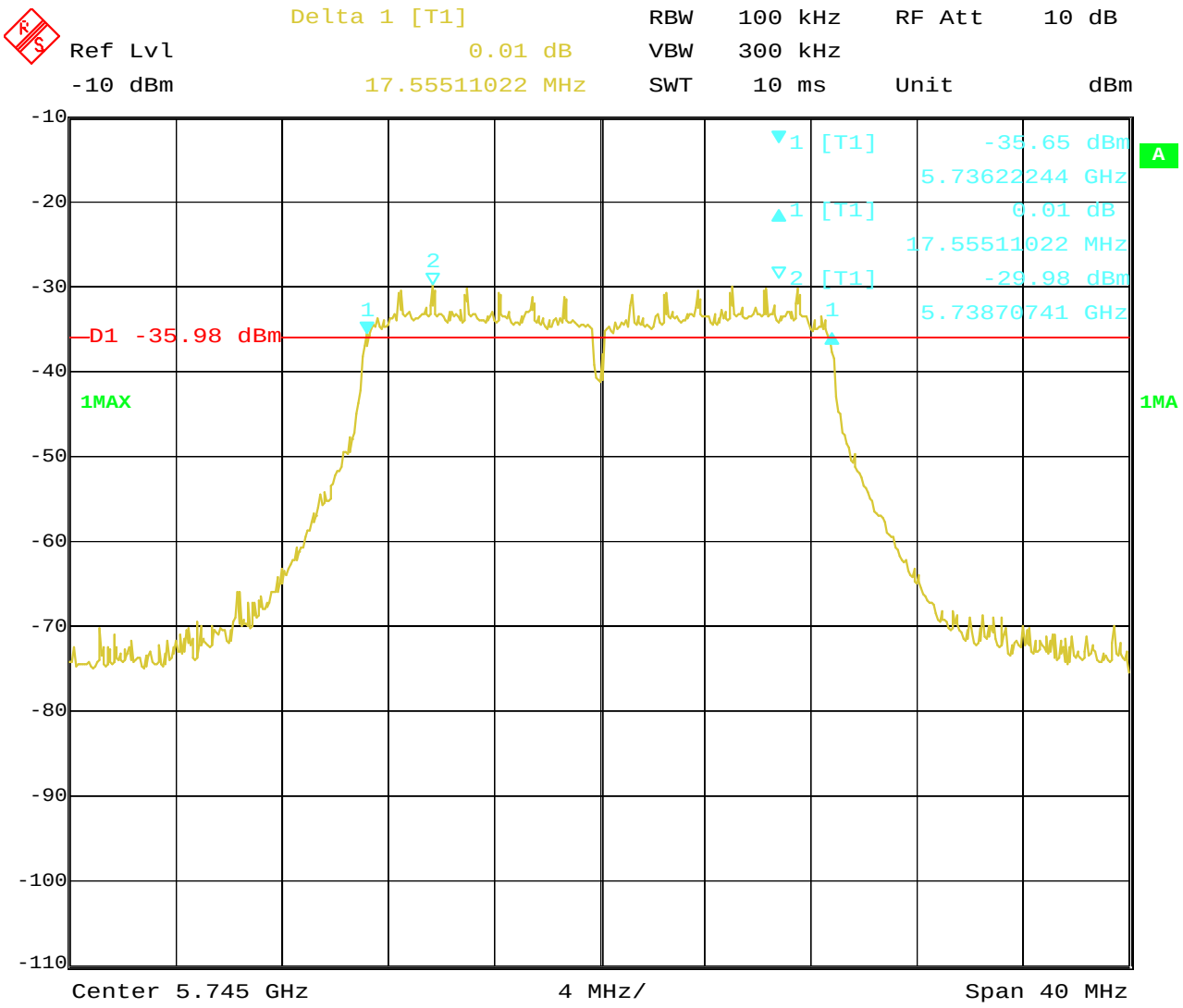
Channel 161



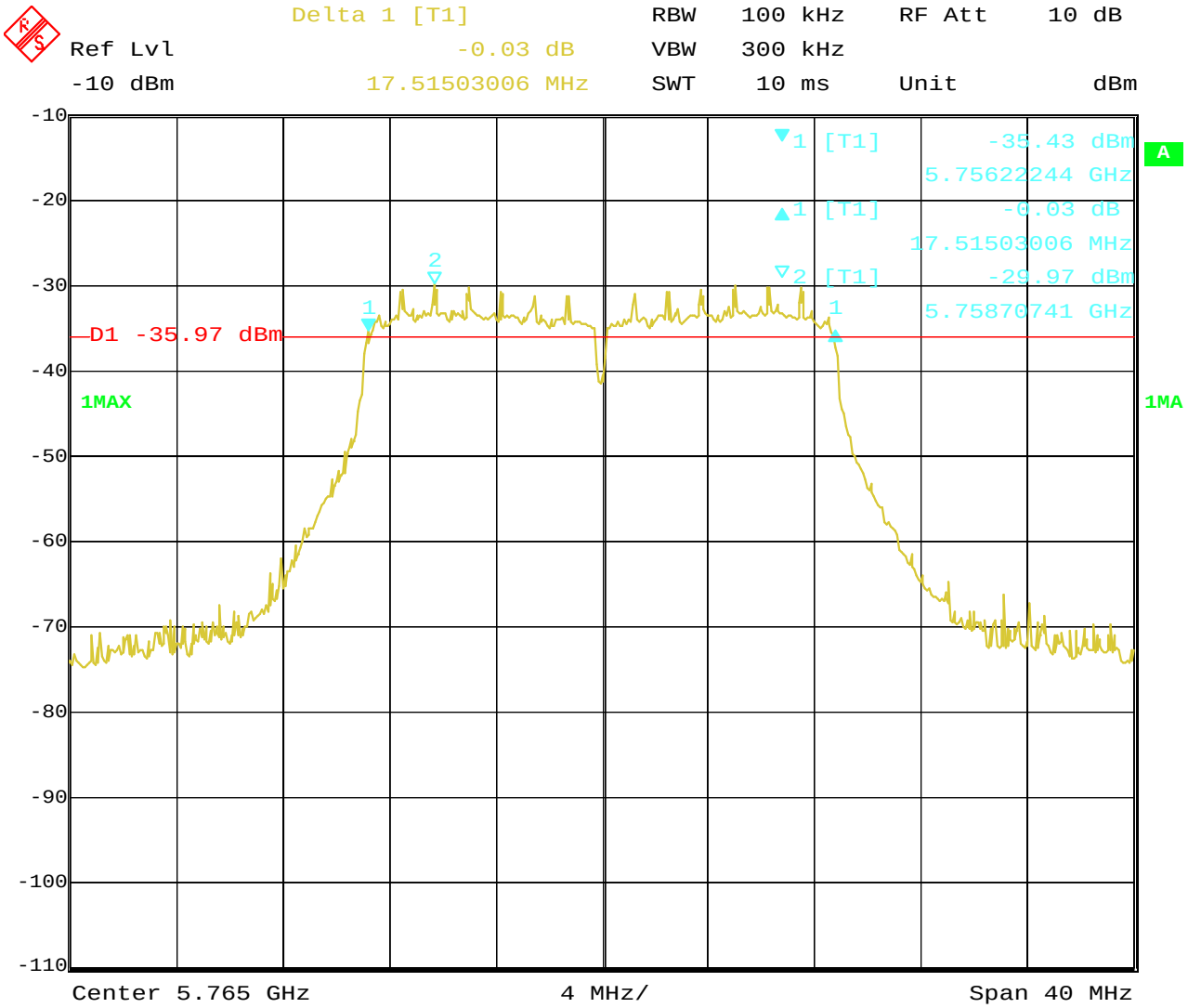
Test Configure

6dB Bandwidth

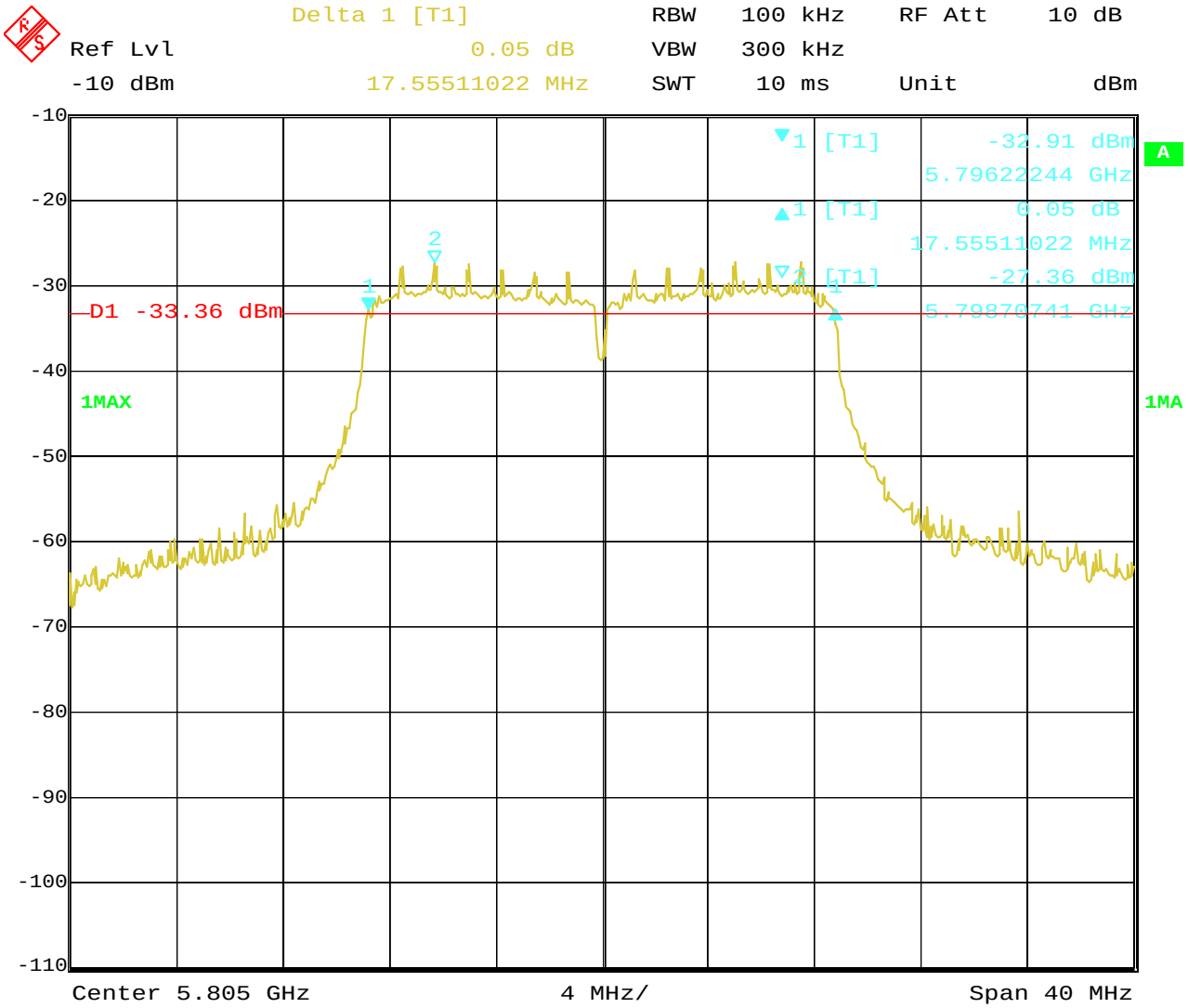
Channel 149



Channel 153



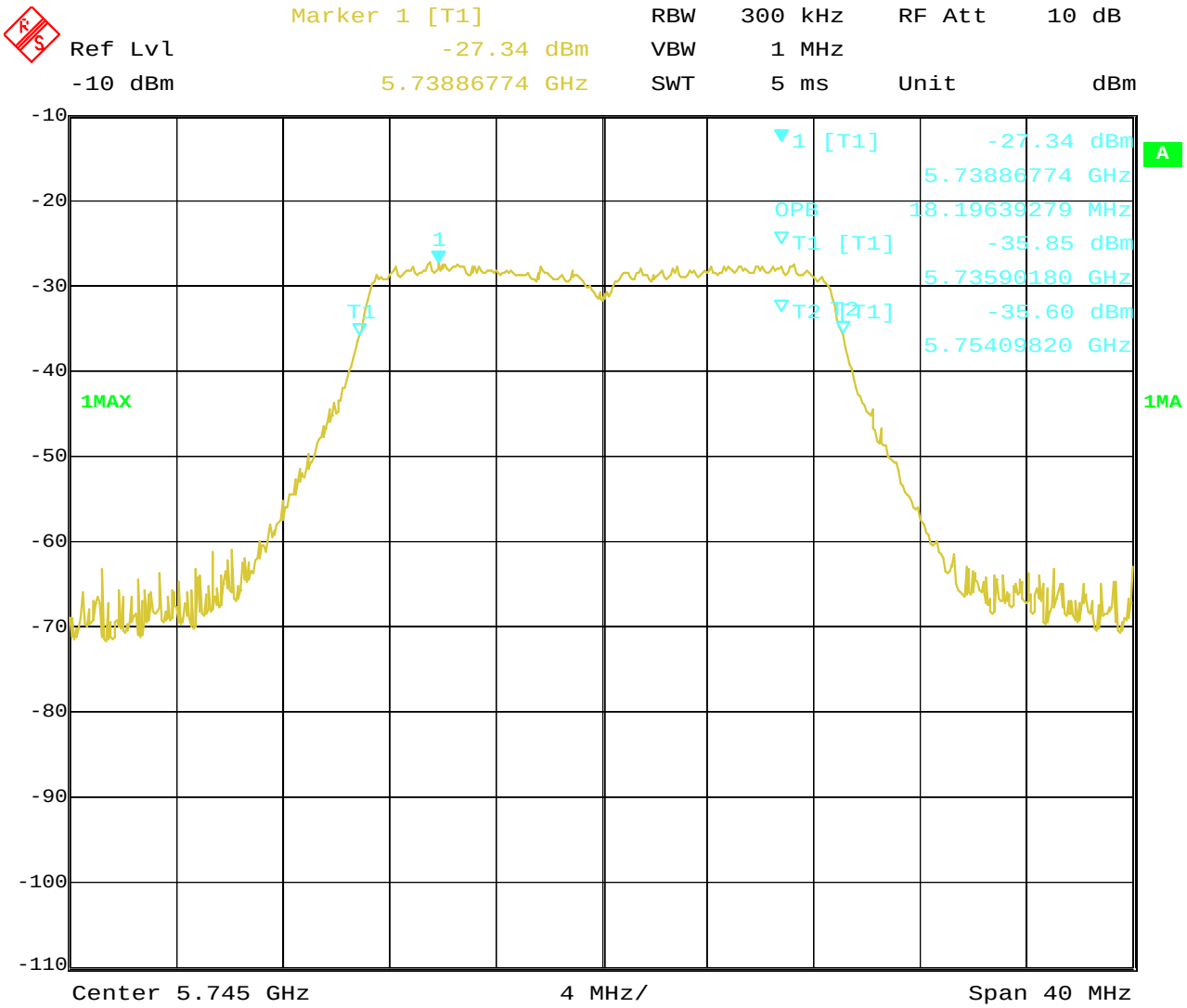
Channel 161



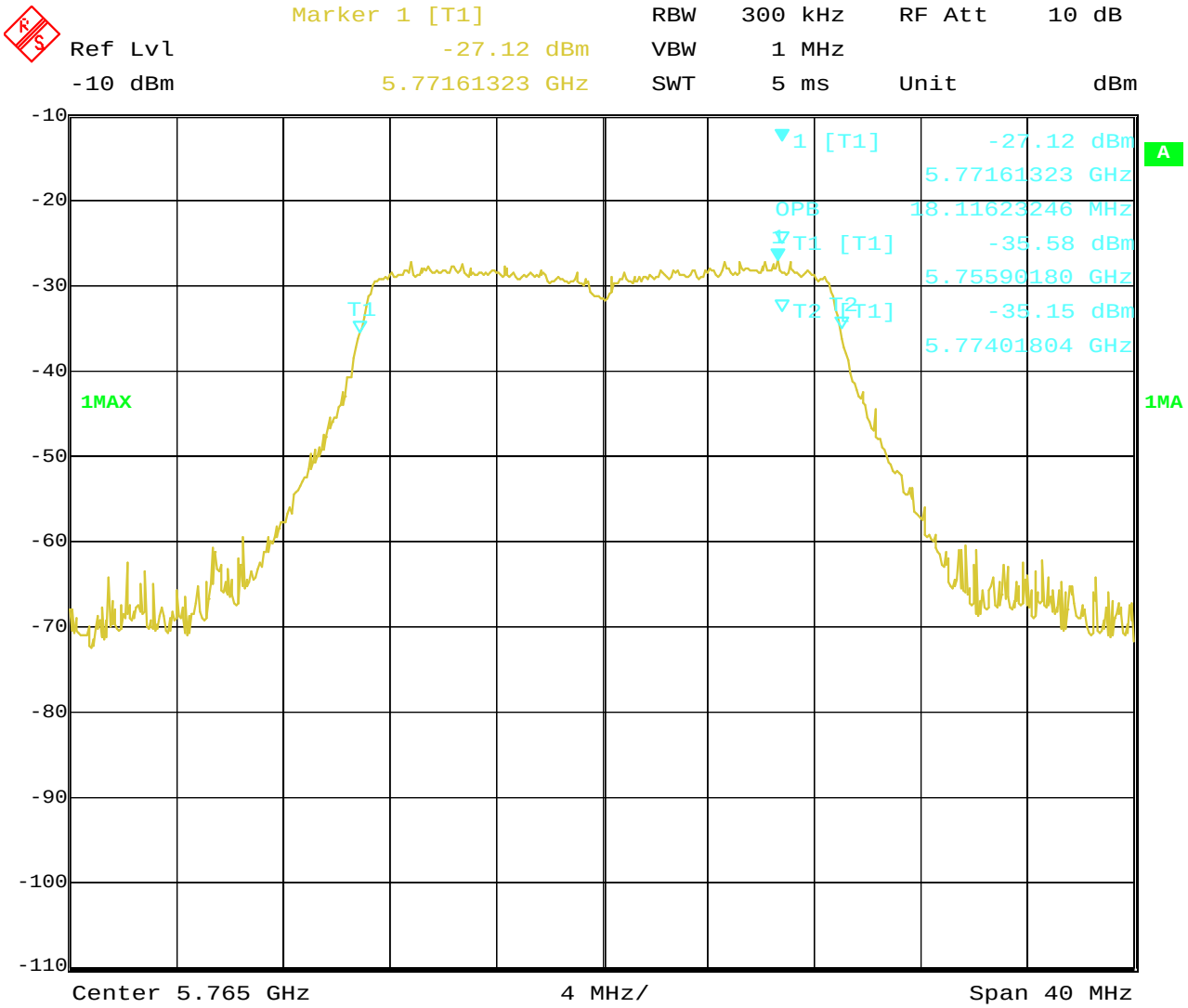
Test Configure

99% Bandwidth

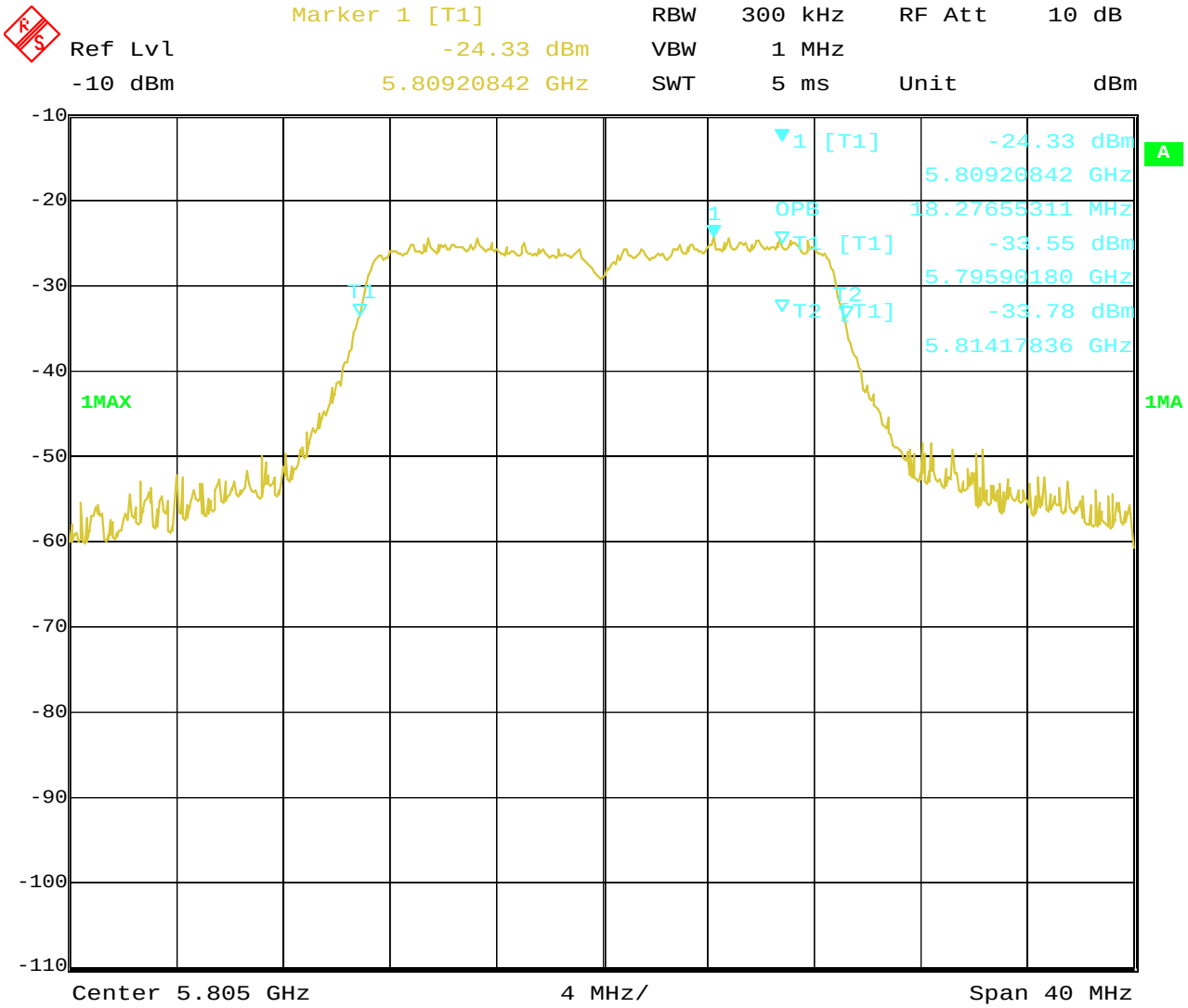
Channel 149



Channel 153



Channel 161



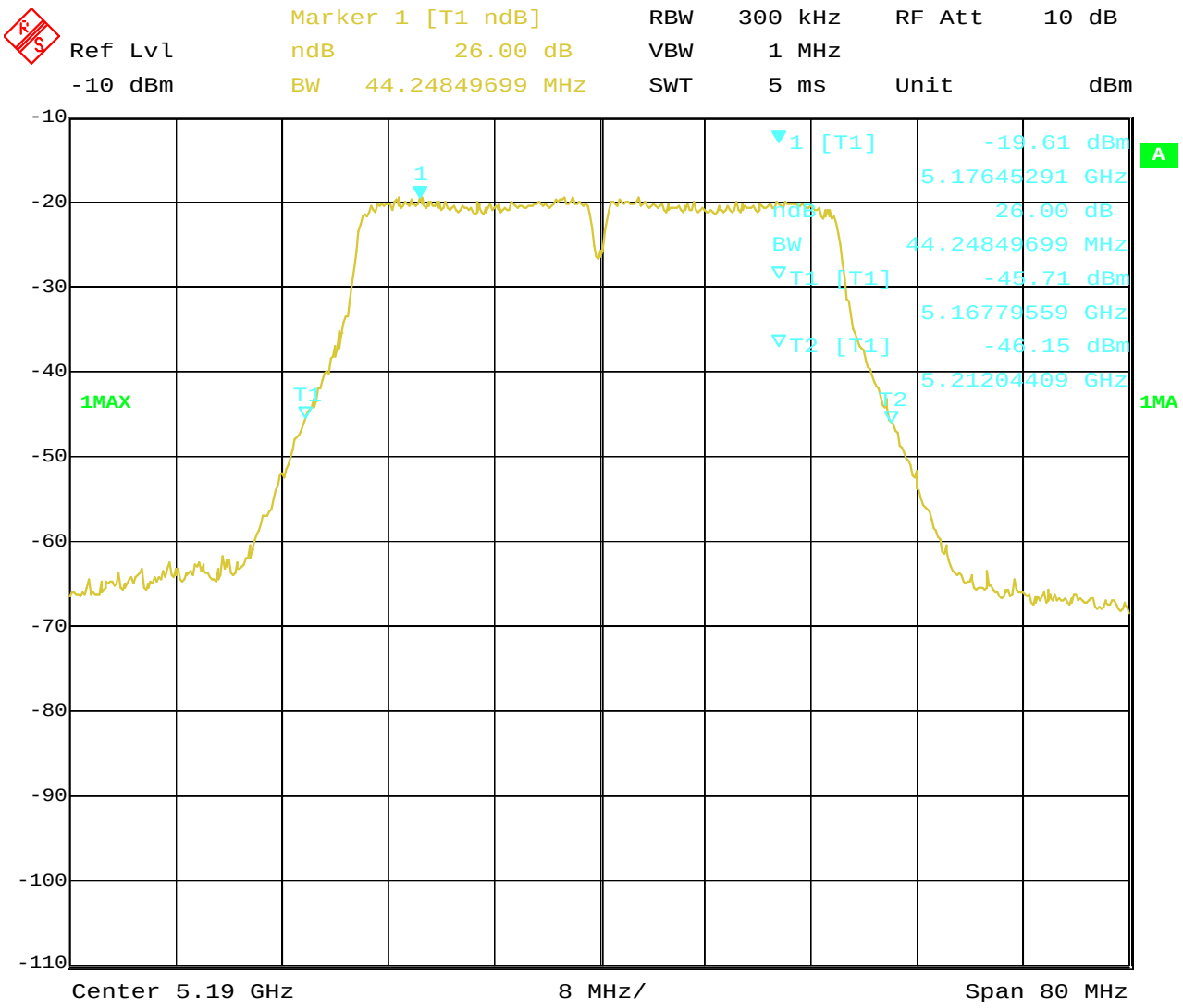
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
38	5190	mcs0	44.25	--	Pass
46	5230	mcs0	44.09	--	Pass
99% Bandwidth					
38	5190	mcs0	36.39	--	Pass
46	5230	mcs0	36.39	--	Pass

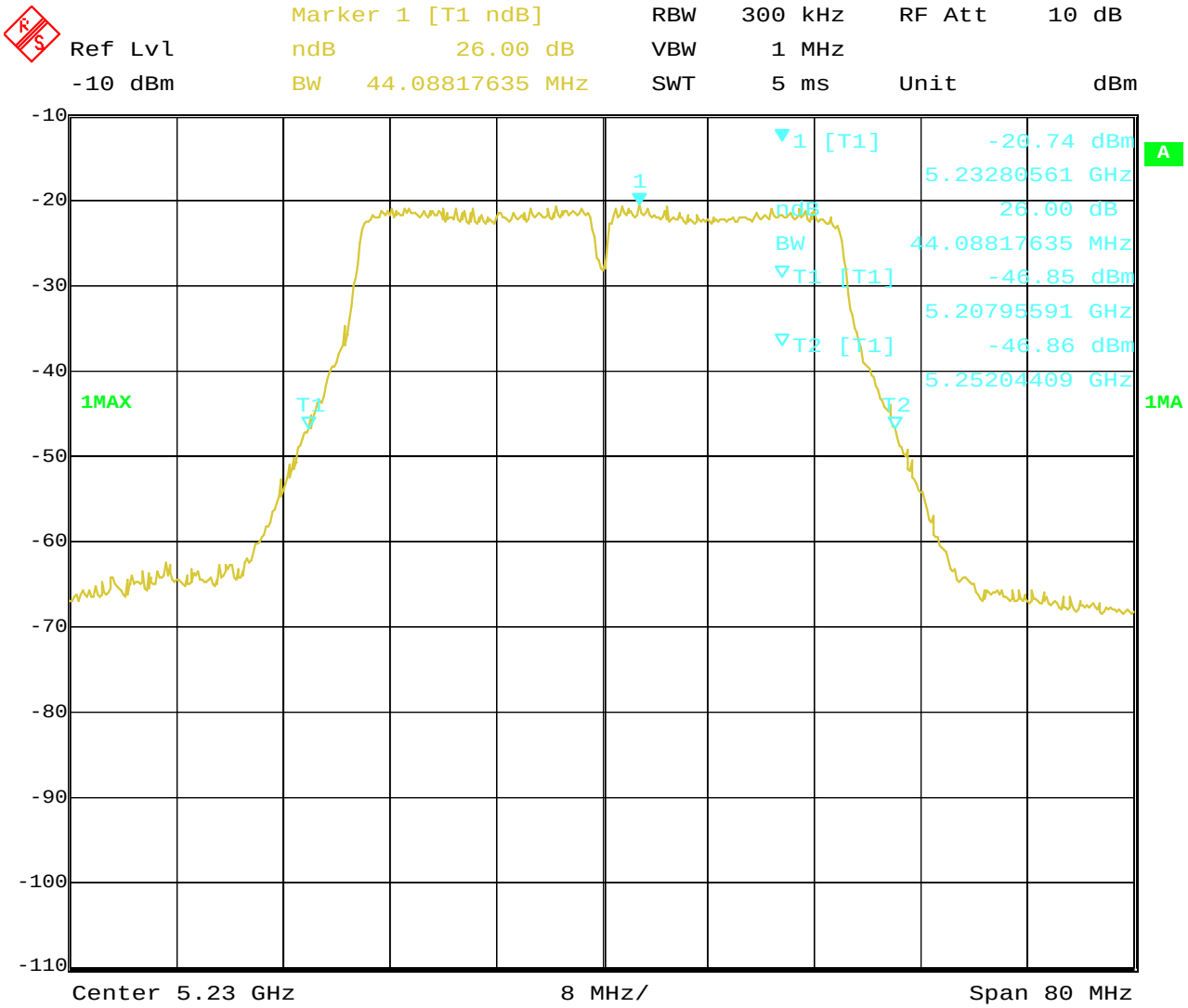
Test Configure

26dB Bandwidth

Channel 38



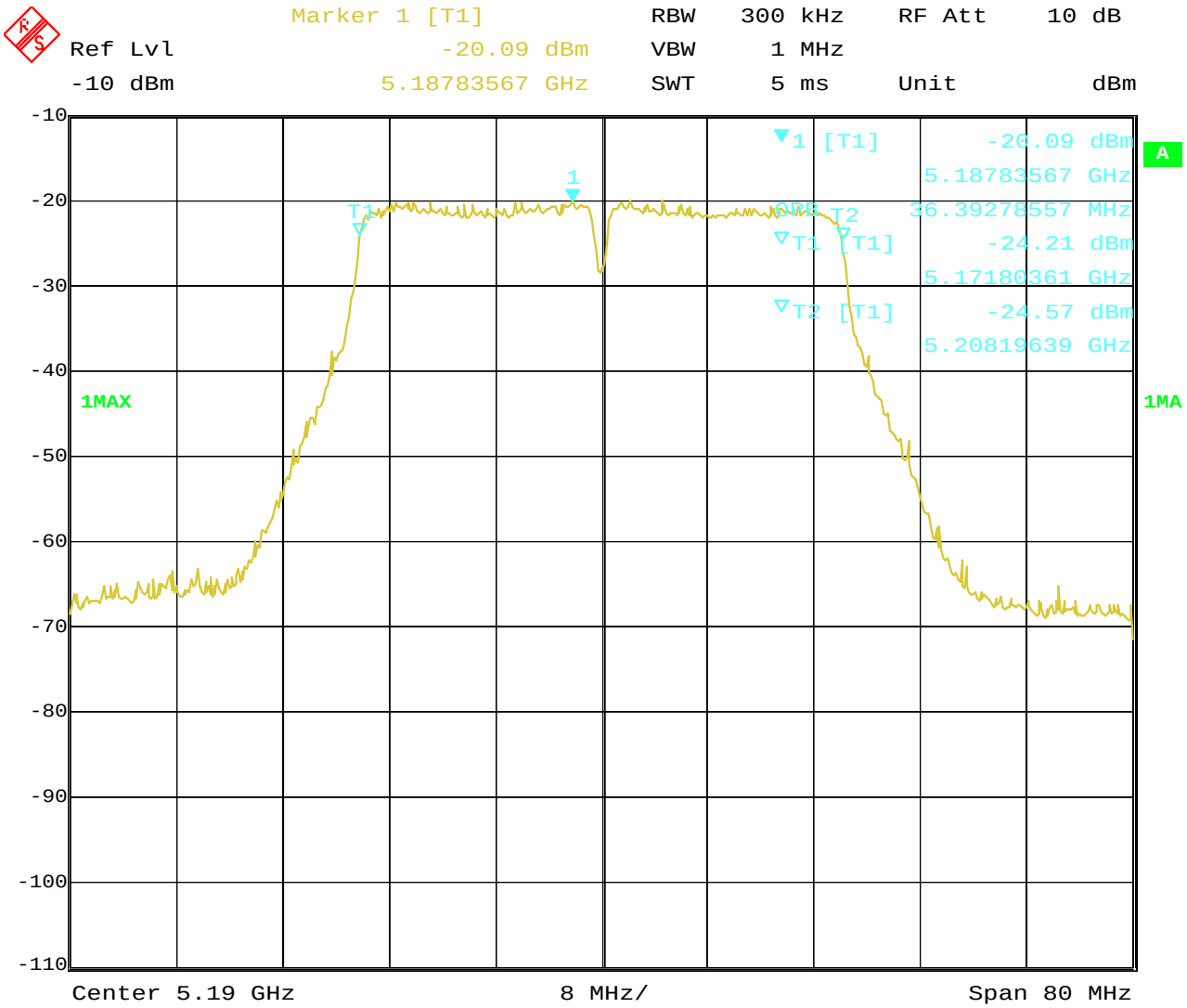
Channel 46



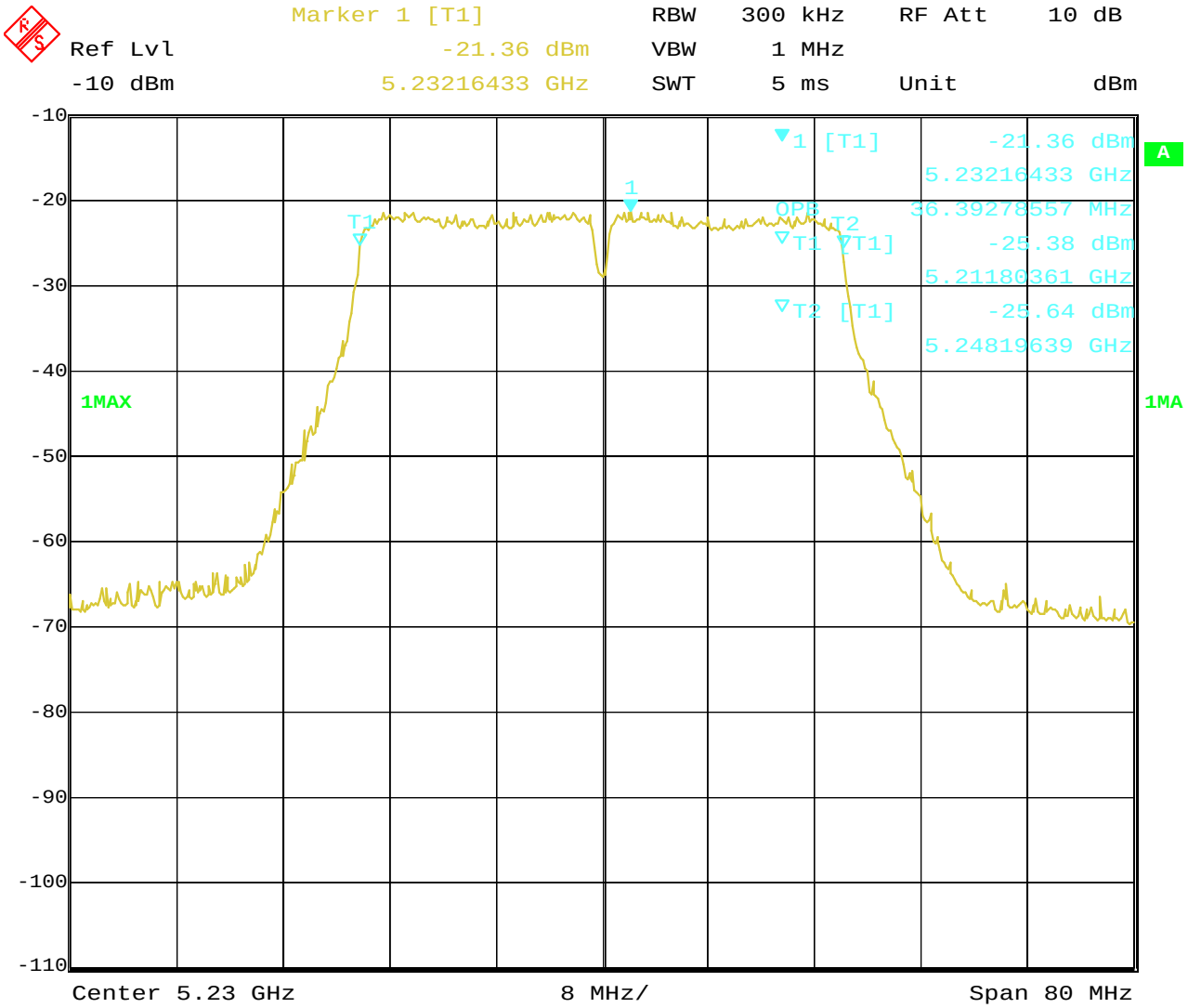
Test Configure

99% Bandwidth

Channel 38



Channel 46



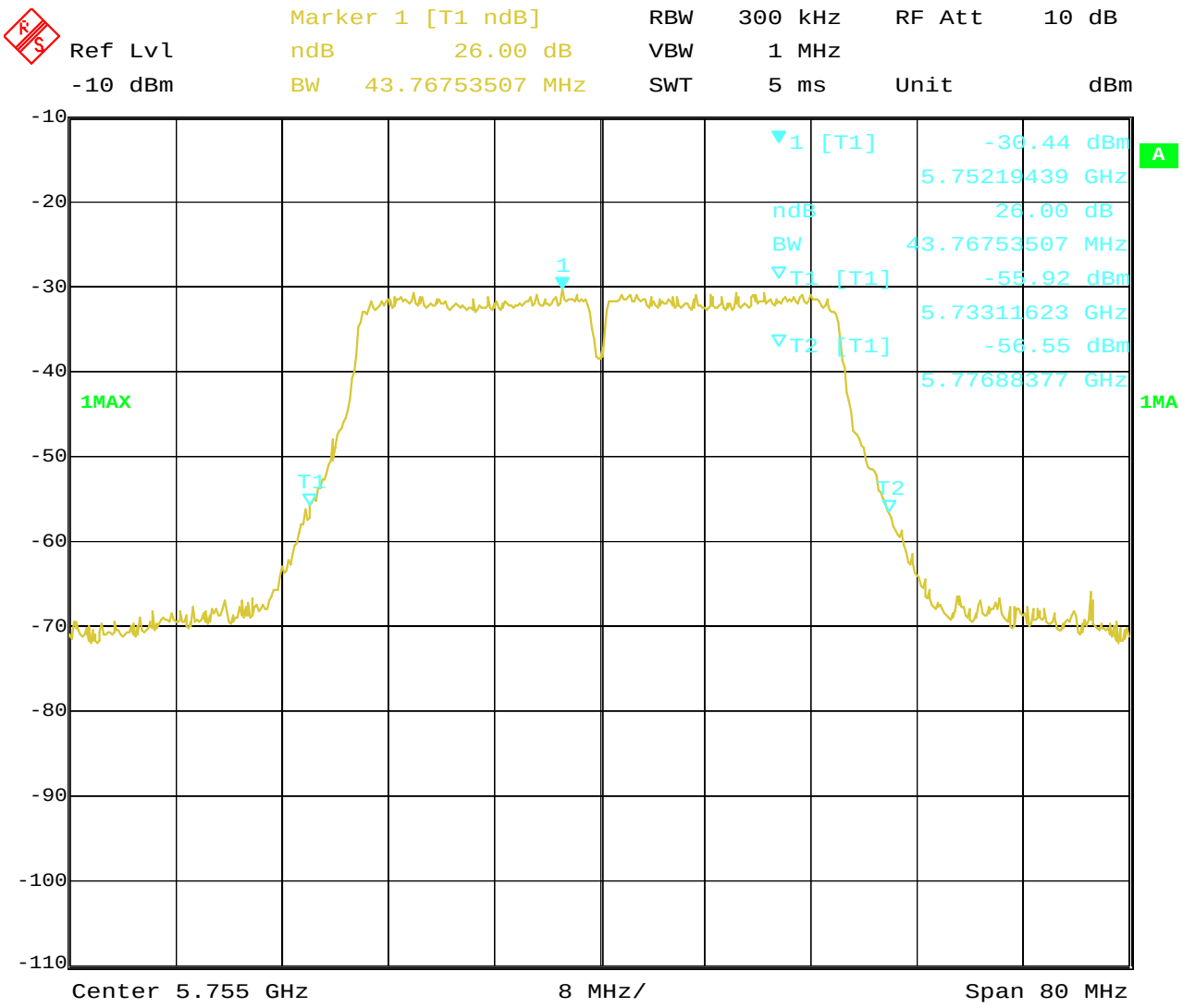
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
151	5755	mcs0	43.77	--	Pass
159	5795	mcs0	43.93	--	Pass
6dB Bandwidth					
151	5755	mcs0	36.07	0.5	Pass
159	5795	mcs0	35.91	0.5	Pass
99% Bandwidth					
151	5755	mcs0	36.39	--	Pass
159	5795	mcs0	36.55	--	Pass

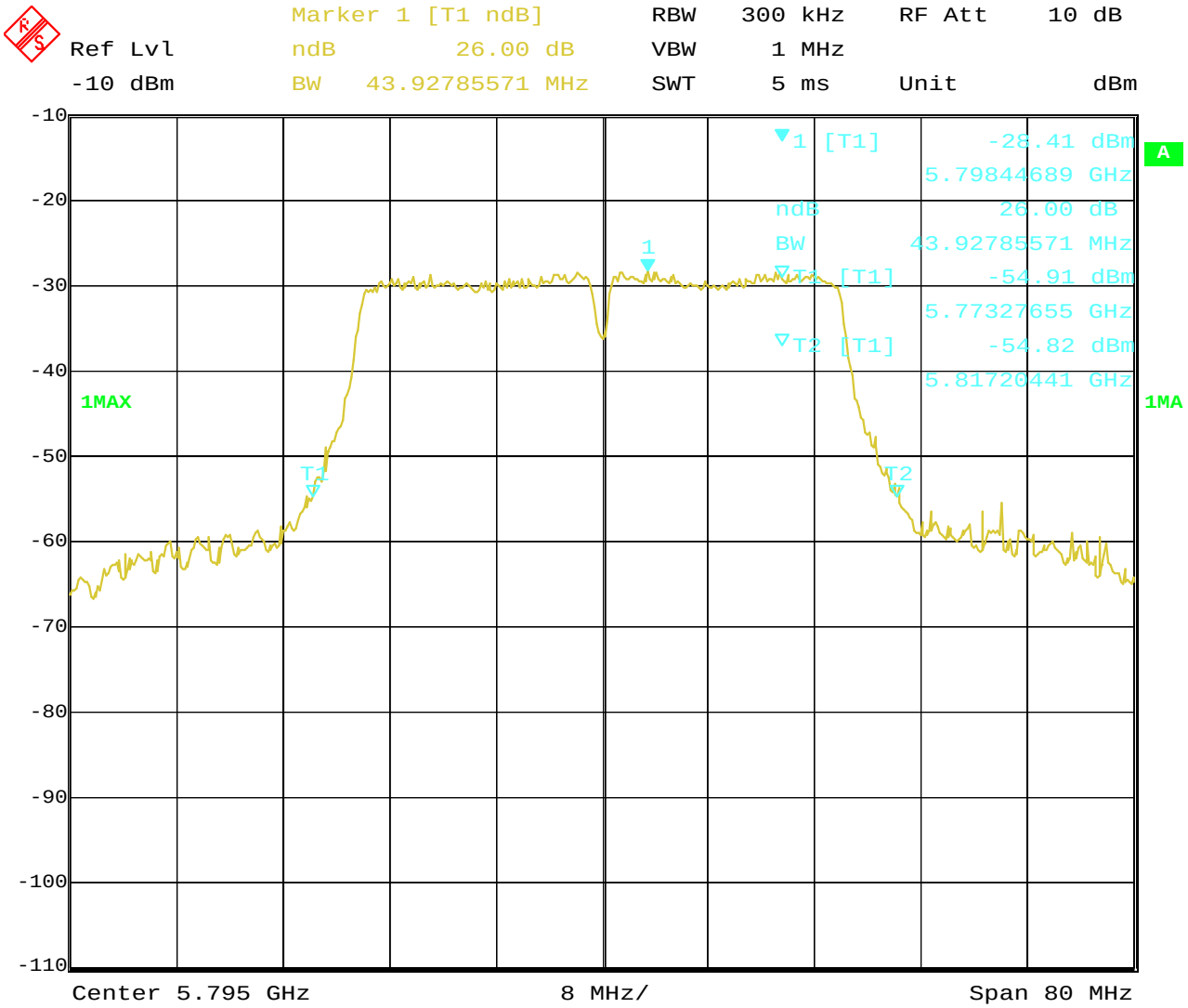
Test Configure

26dB Bandwidth

Channel 151



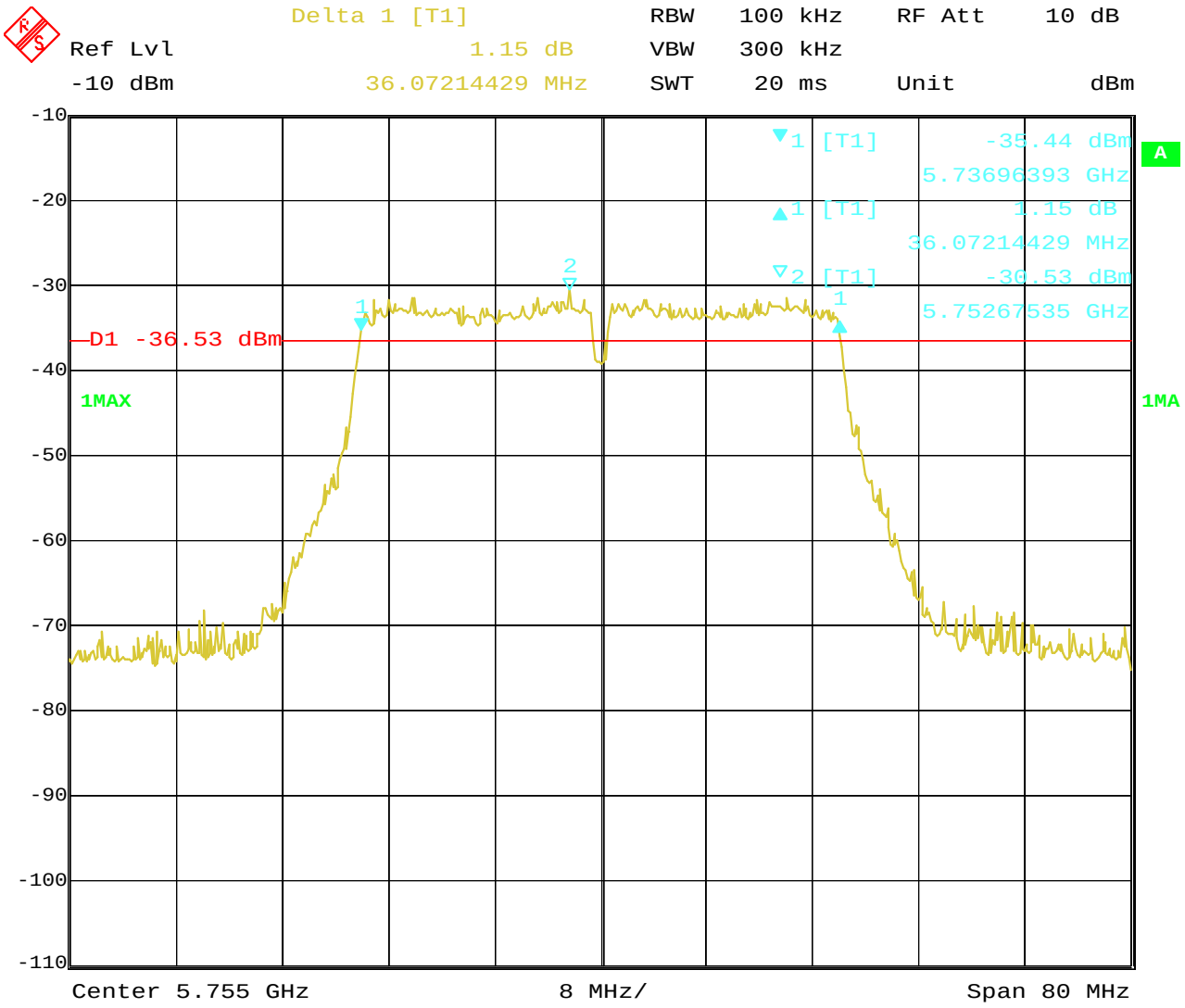
Channel 159



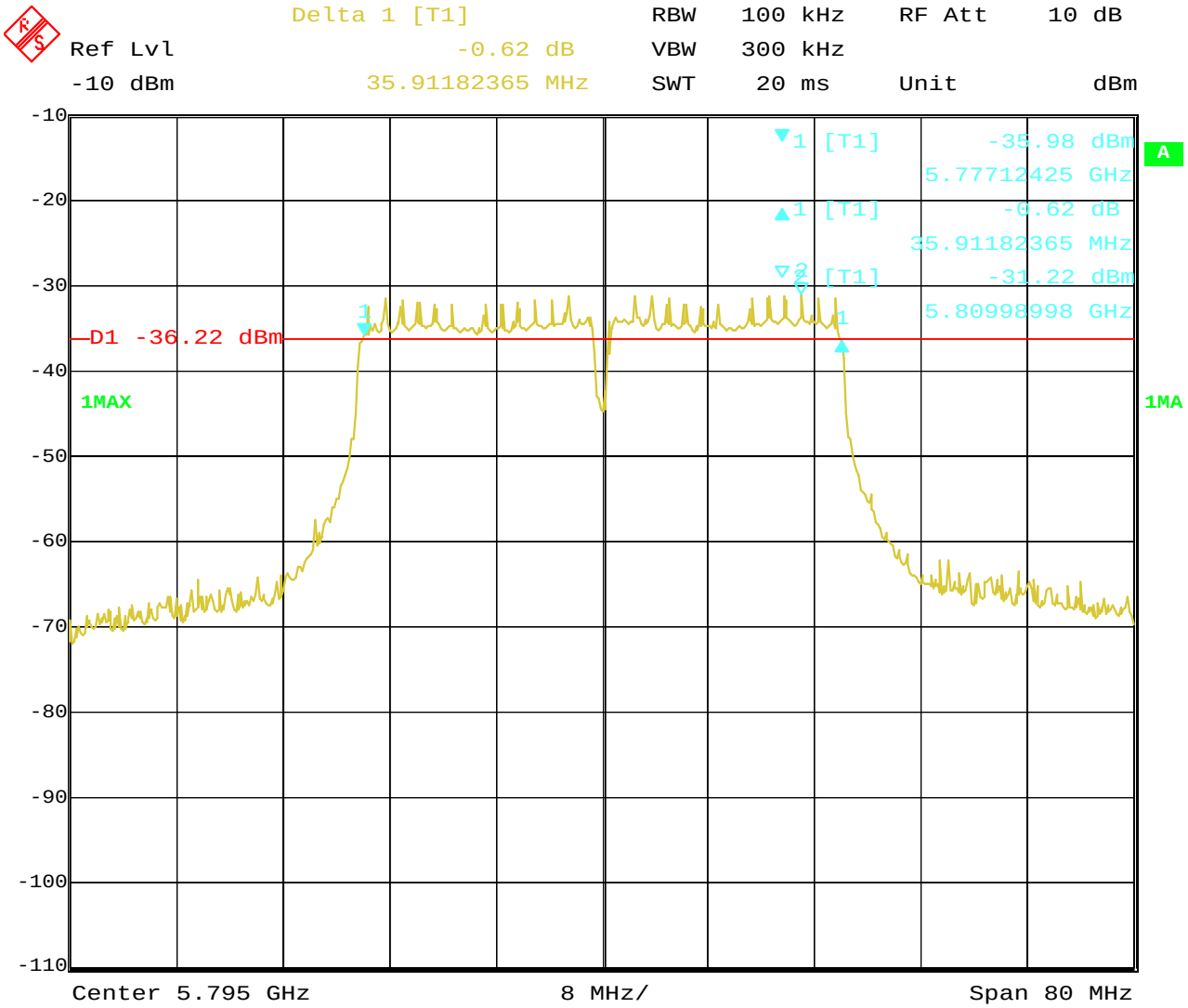
Test Configure

6dB Bandwidth

Channel 151



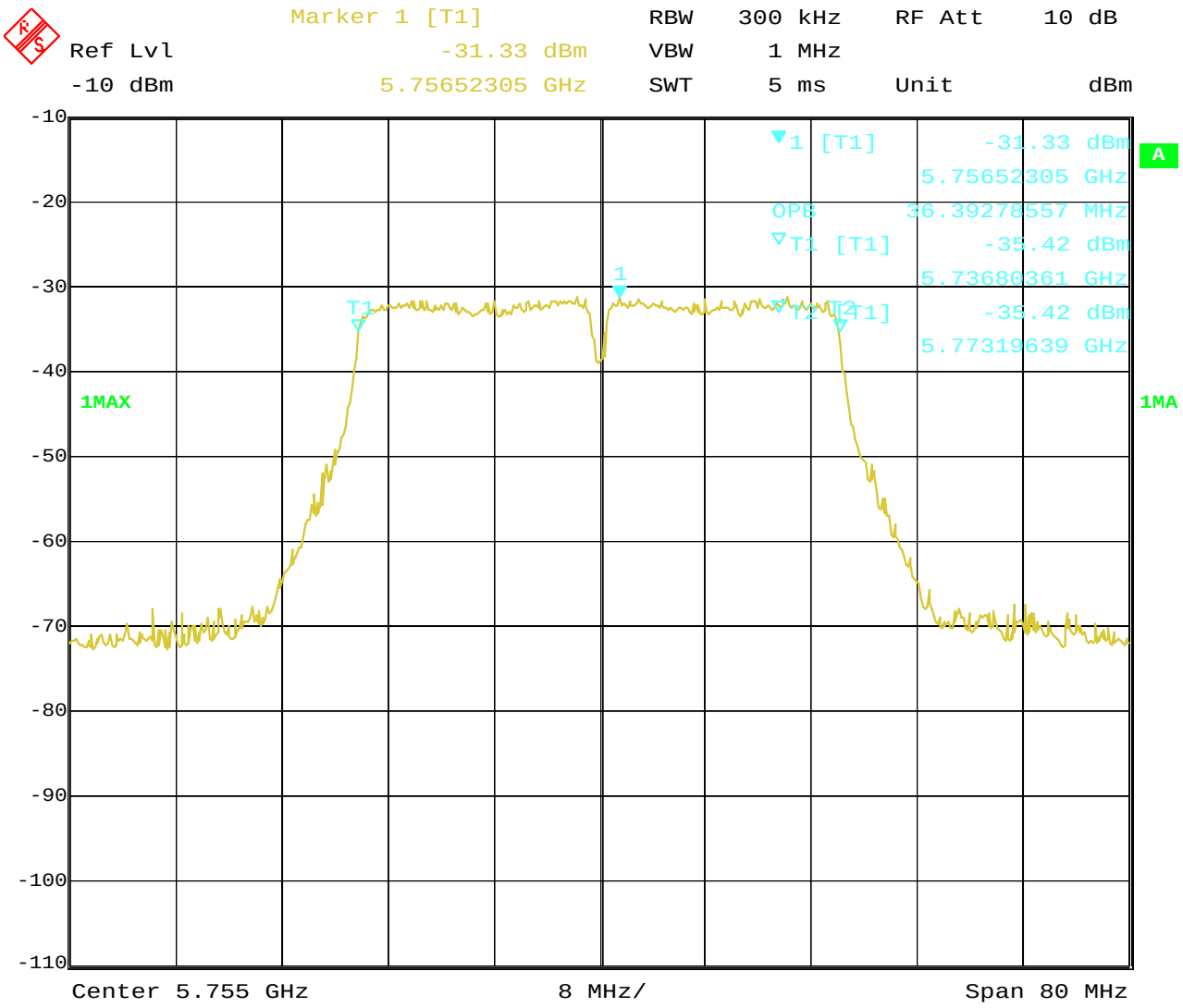
Channel 159



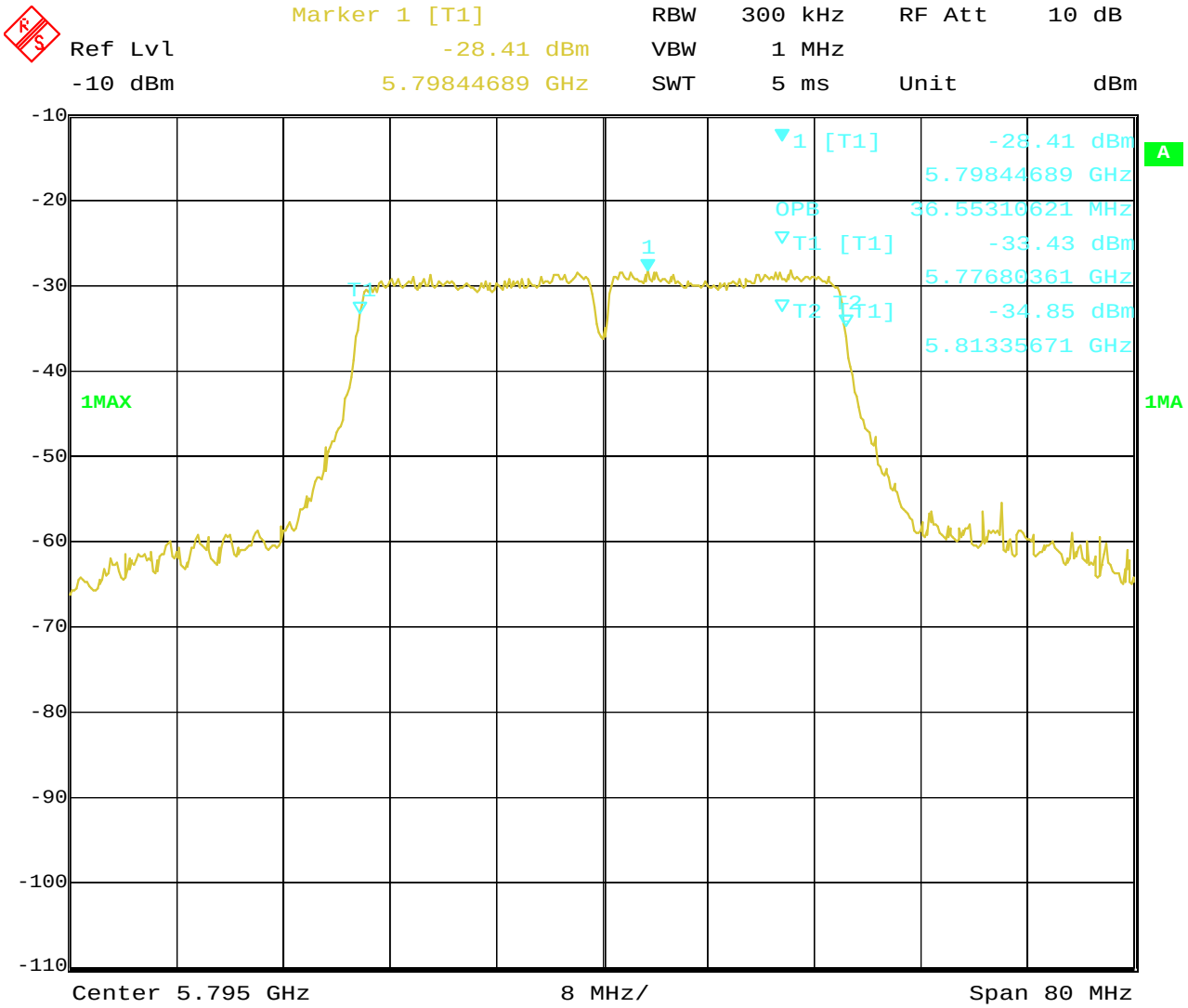
Test Configure

99% Bandwidth

Channel 151



Channel 159



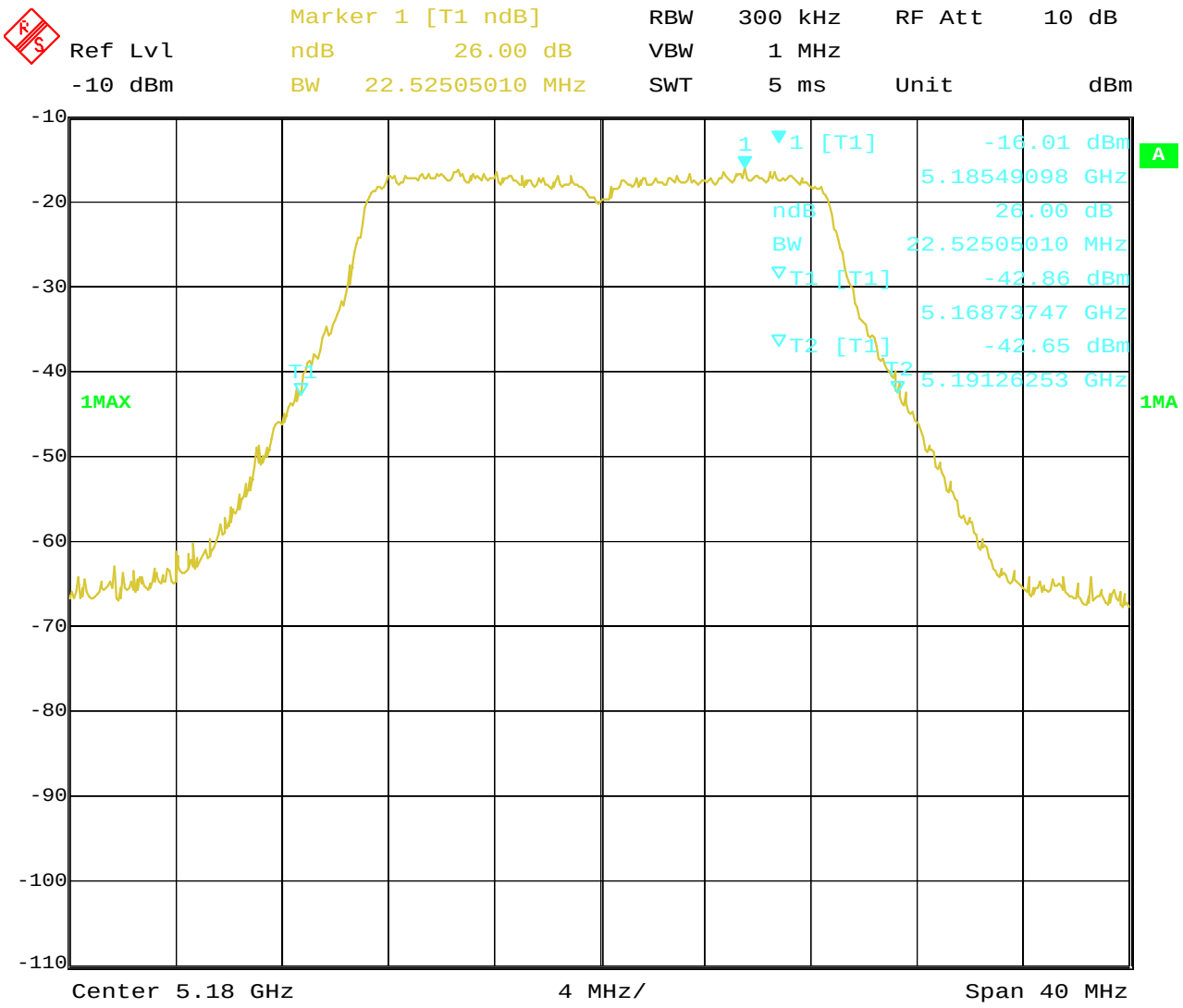
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
36	5180	mcs0	22.53	--	Pass
40	5200	mcs0	22.77	--	Pass
48	5240	mcs0	22.77	--	Pass
99% Bandwidth					
36	5180	mcs0	18.12	--	Pass
40	5200	mcs0	18.12	--	Pass
48	5240	mcs0	18.12	--	Pass

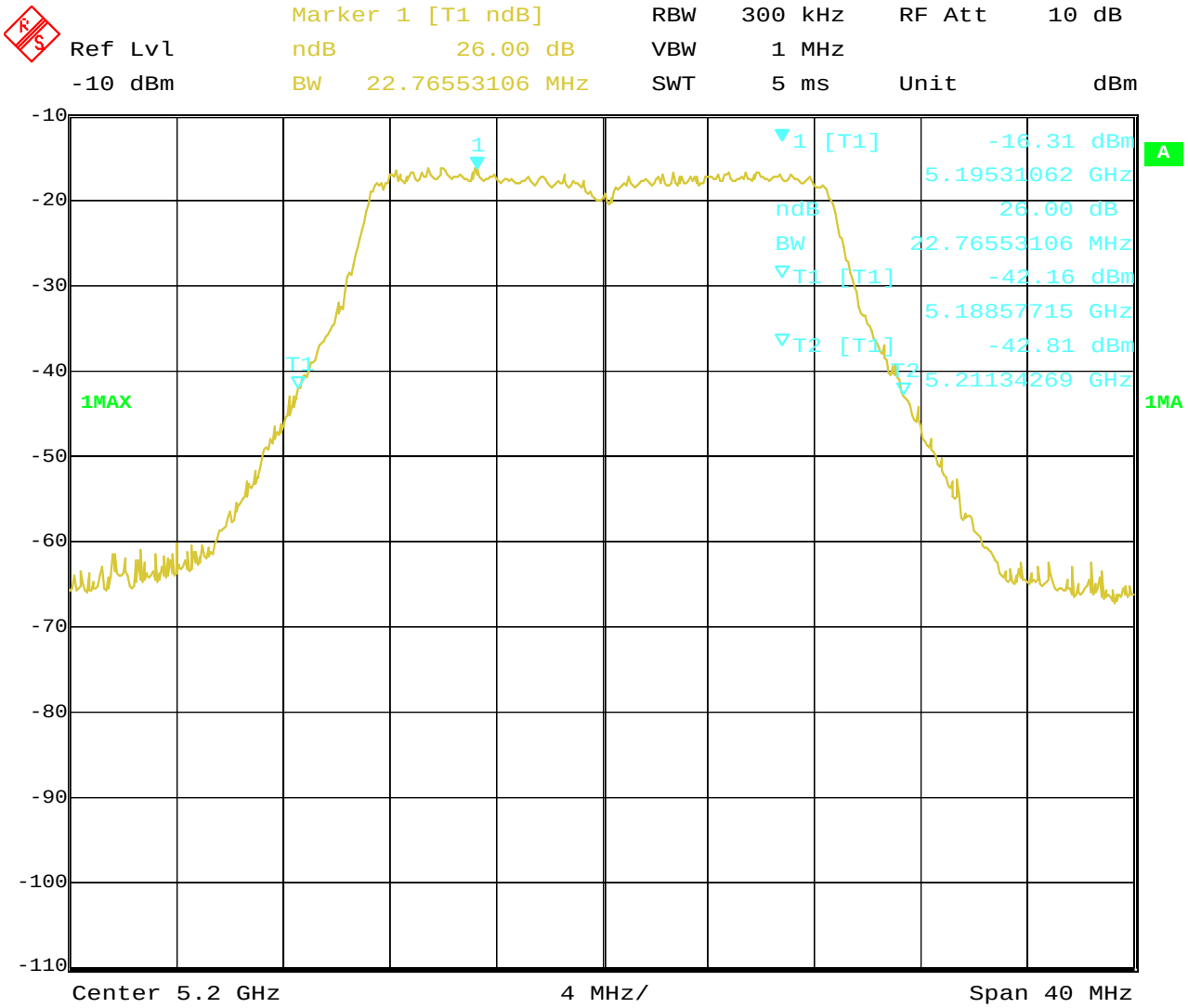
Test Configure

26dB Bandwidth

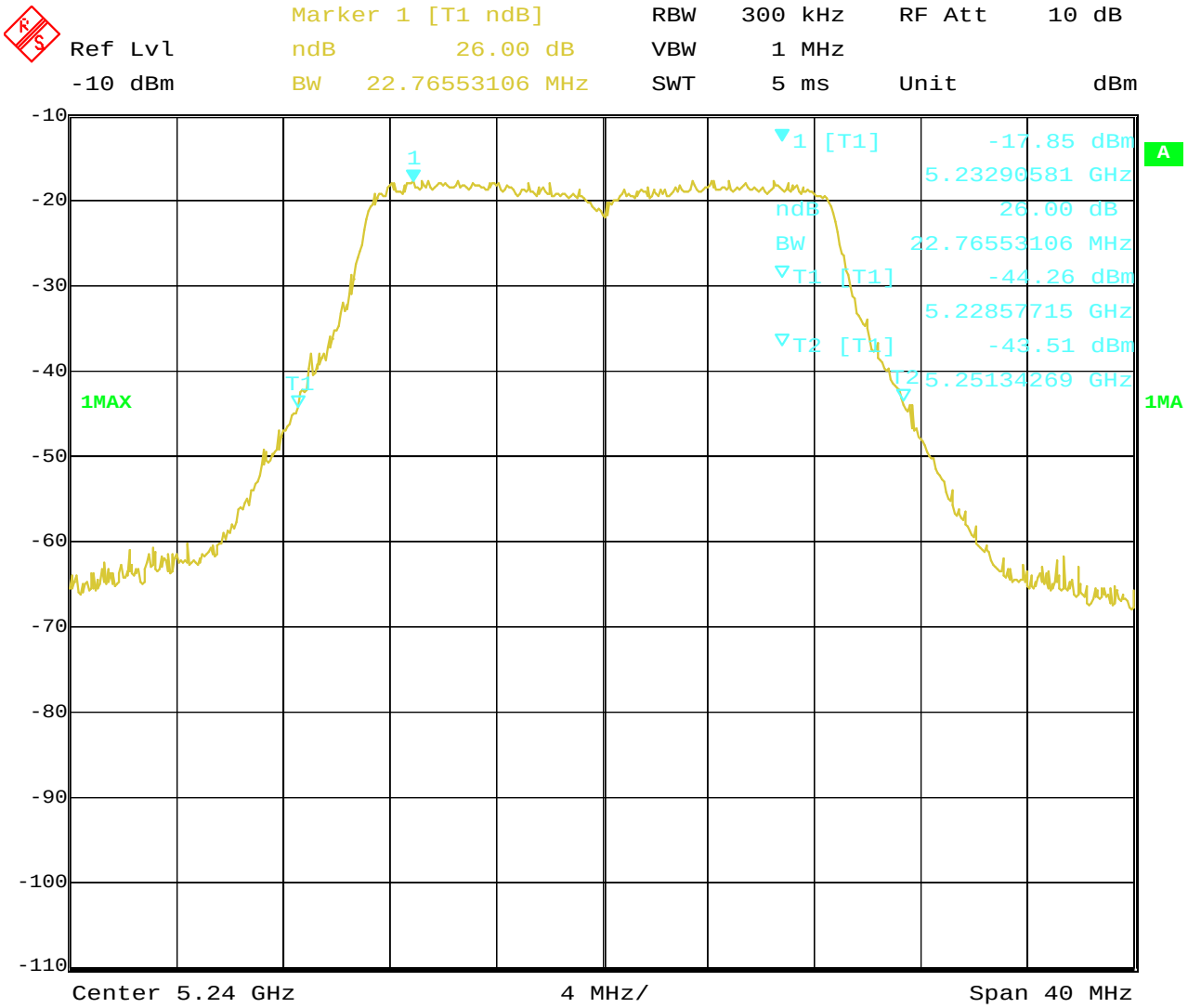
Channel 36



Channel 40



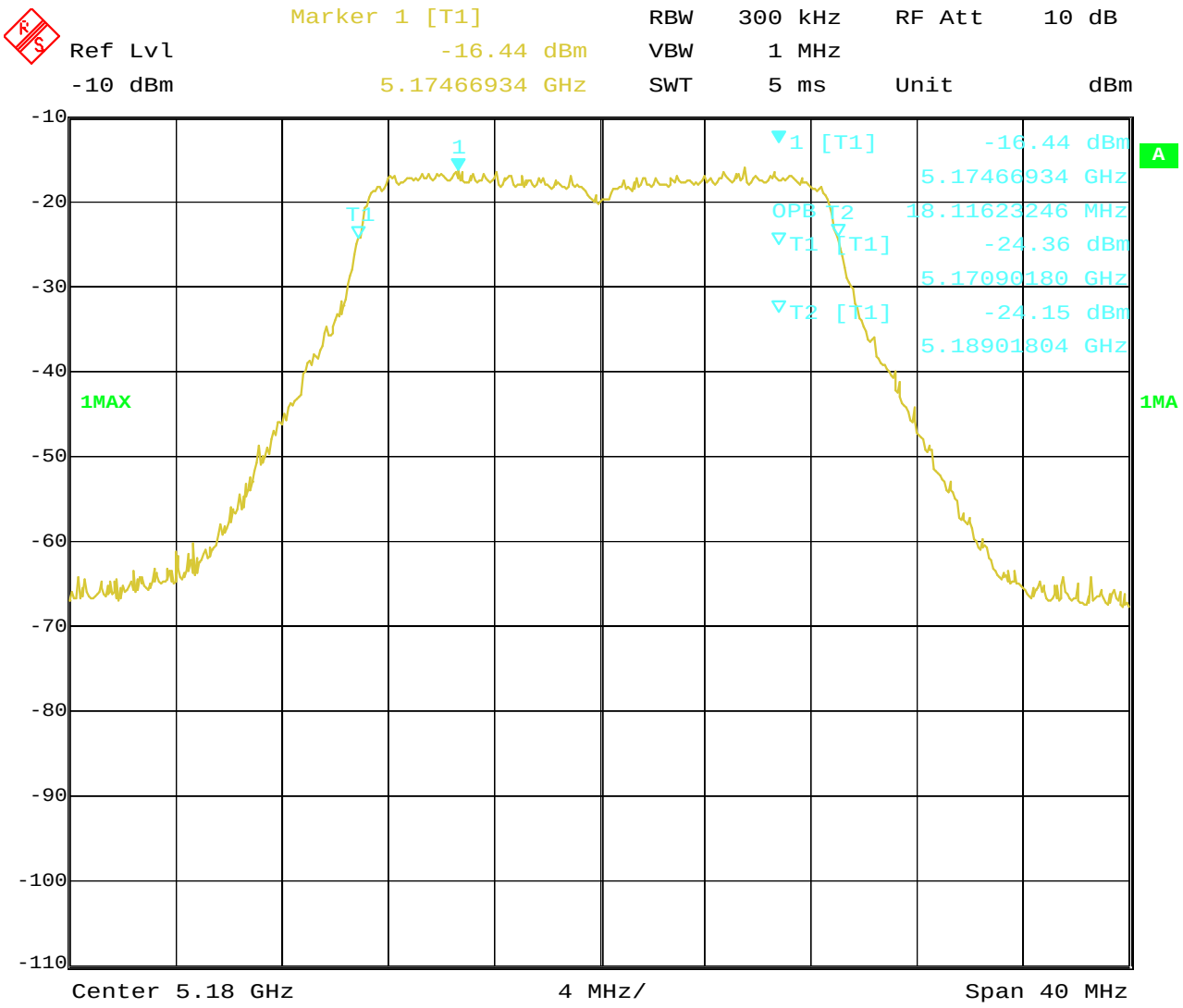
Channel 48



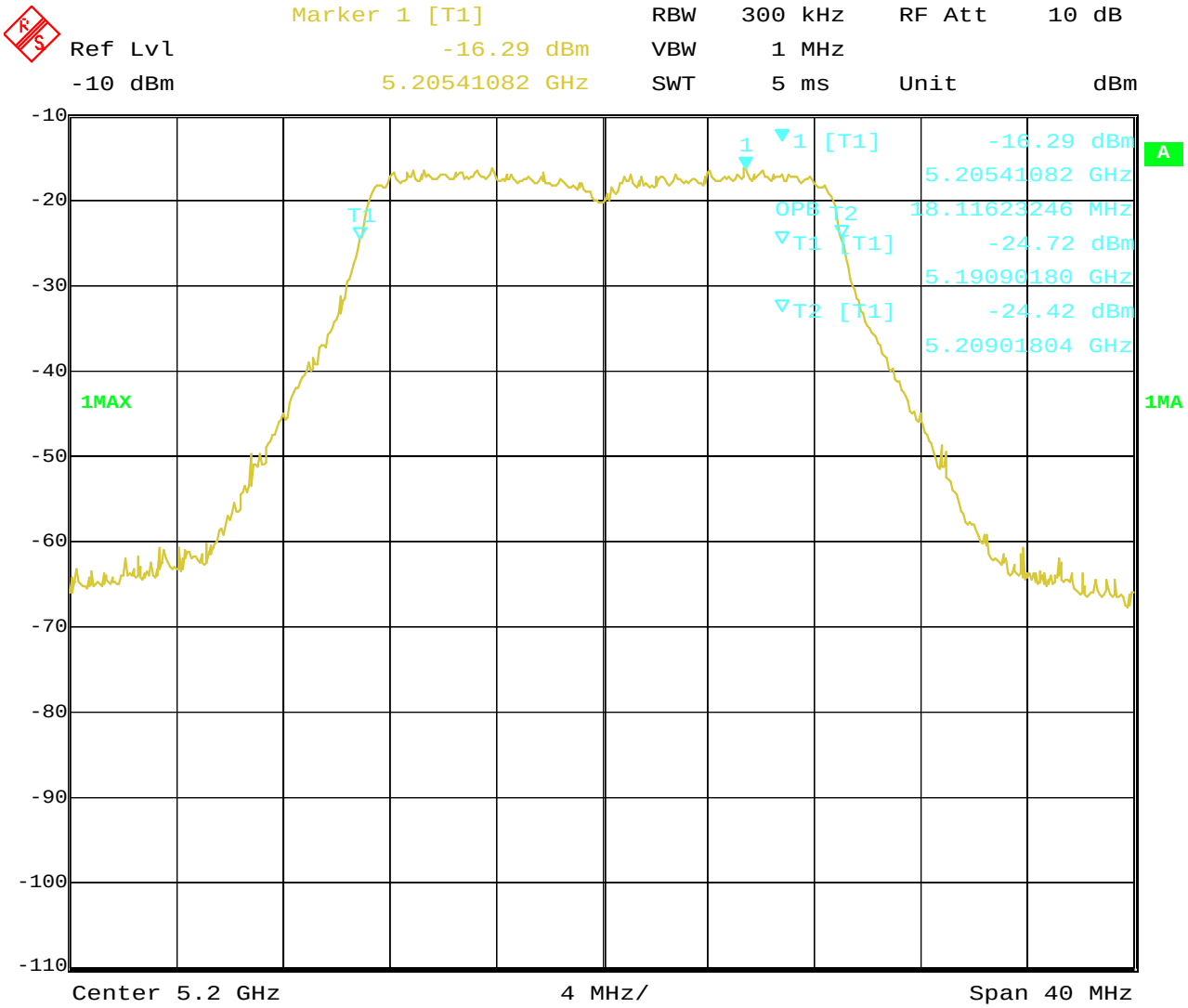
Test Configure

99% Bandwidth

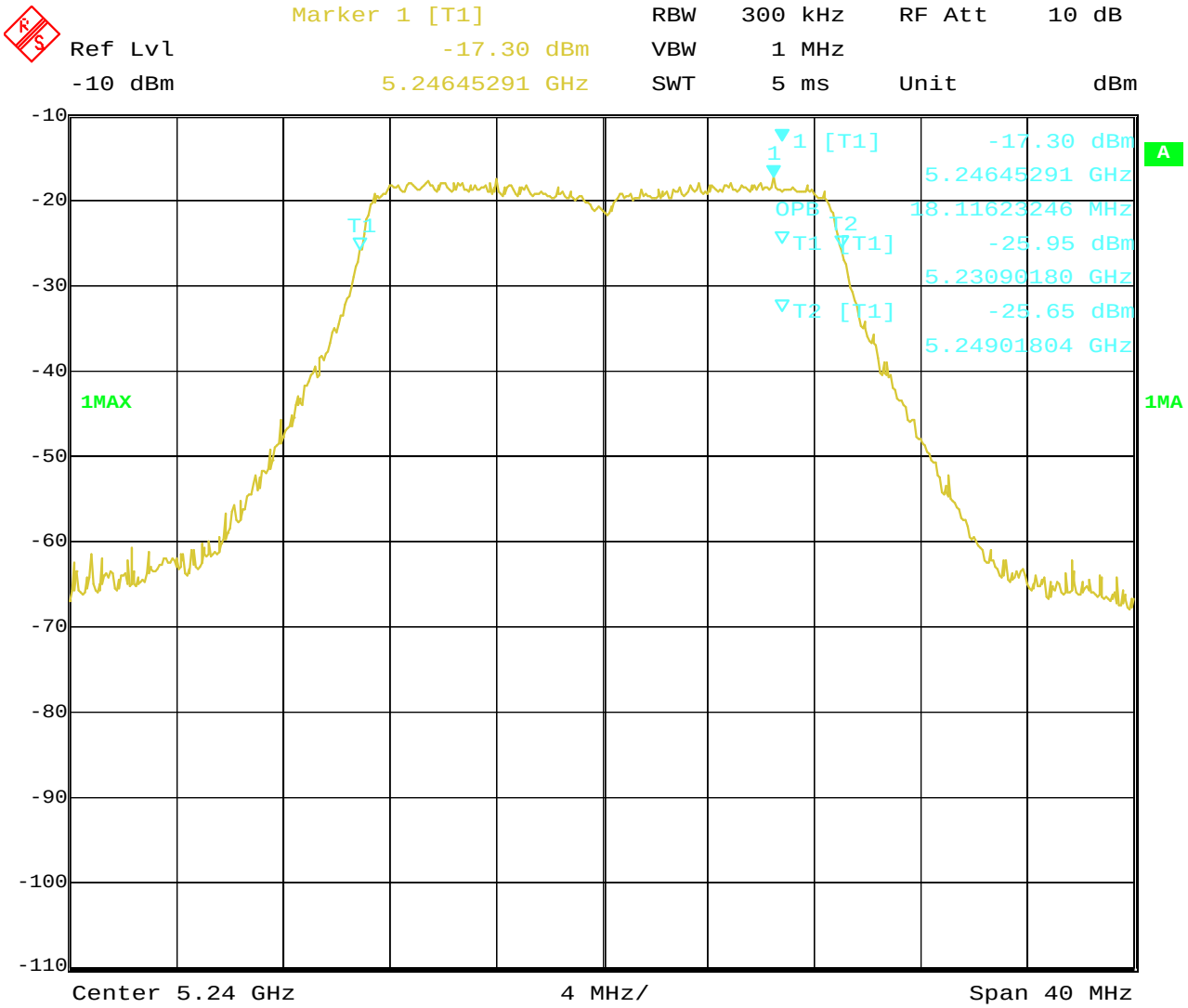
Channel 36



Channel 40



Channel 48



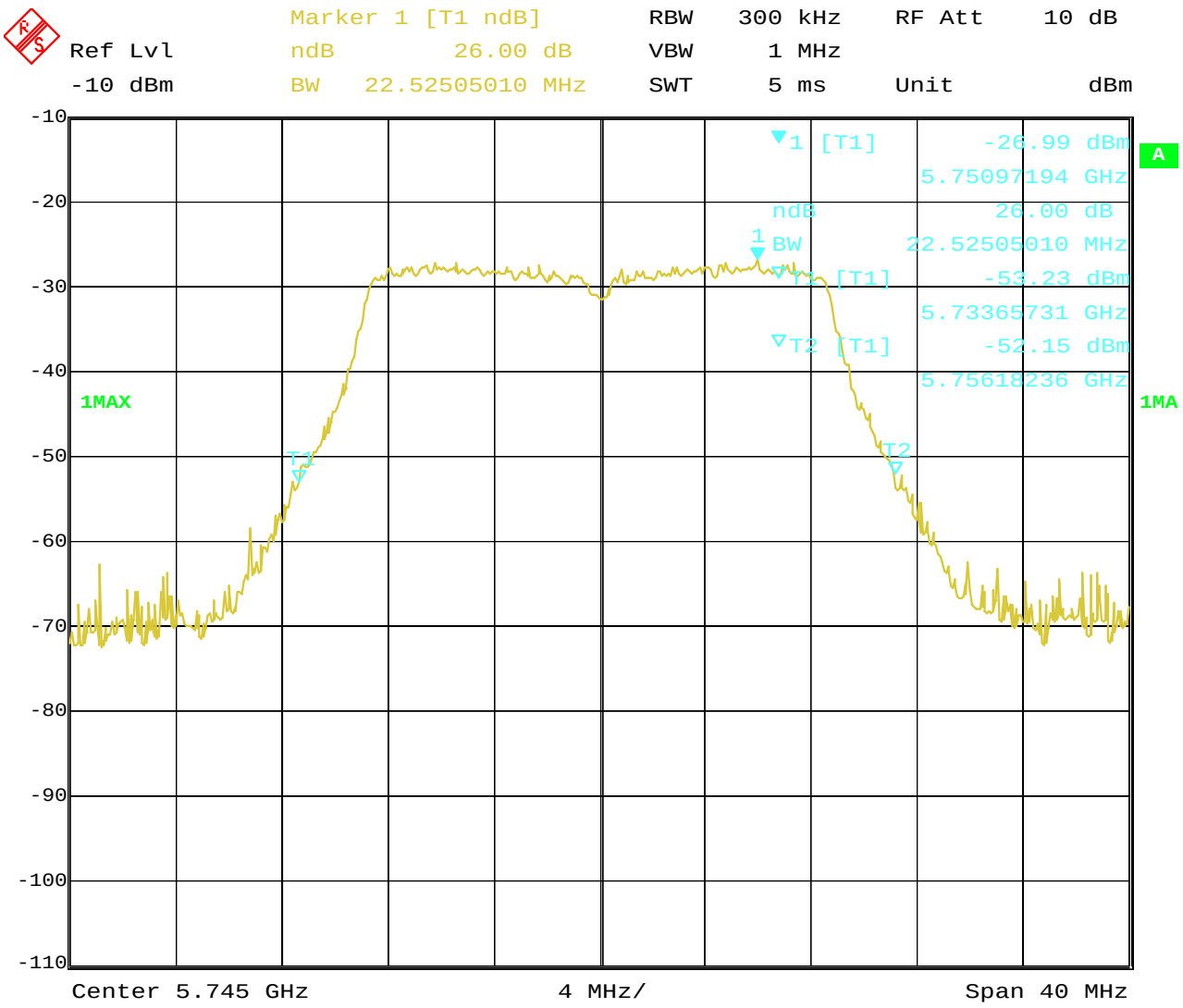
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
149	5745	6	22.53	--	Pass
153	5765	6	22.77	--	Pass
161	5805	6	23.33	--	Pass
6dB Bandwidth					
149	5745	6	17.56	0.5	Pass
153	5765	6	17.56	0.5	Pass
161	5805	6	17.56	0.5	Pass
99% Bandwidth					
149	5745	6	18.12	--	Pass
153	5765	6	18.20	--	Pass
161	5805	6	18.28	--	Pass

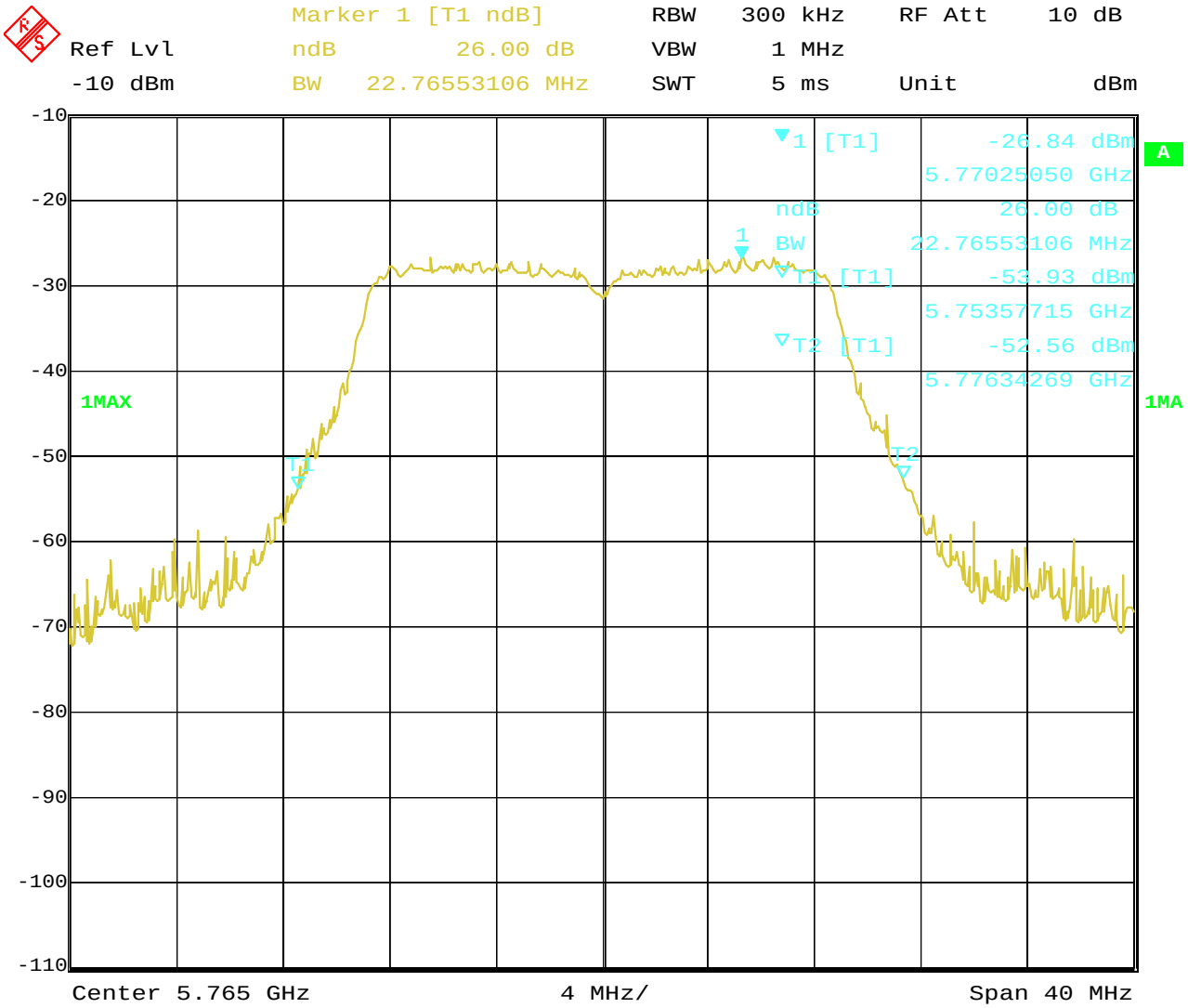
Test Configure

26dB Bandwidth

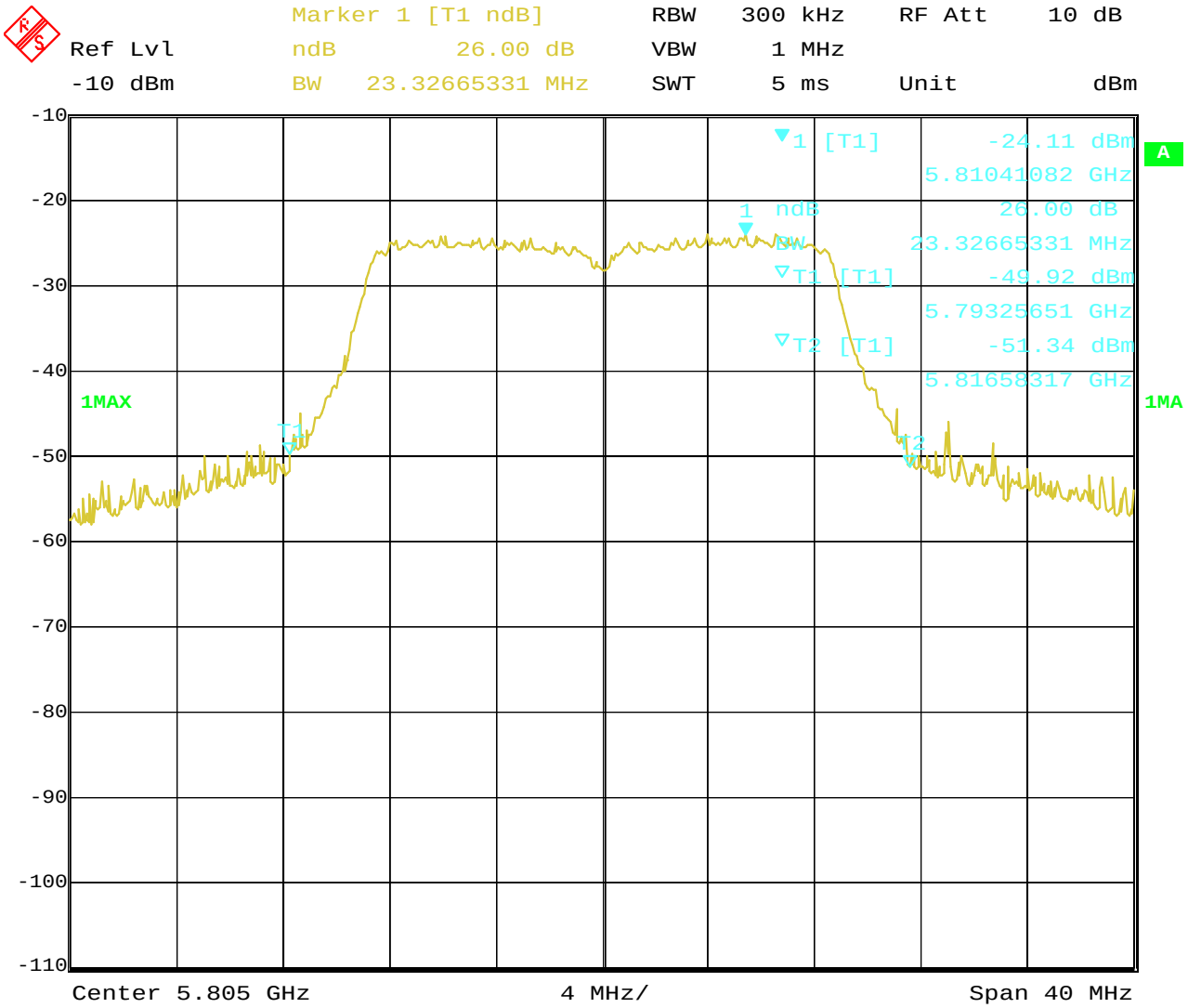
Channel 149



Channel 153



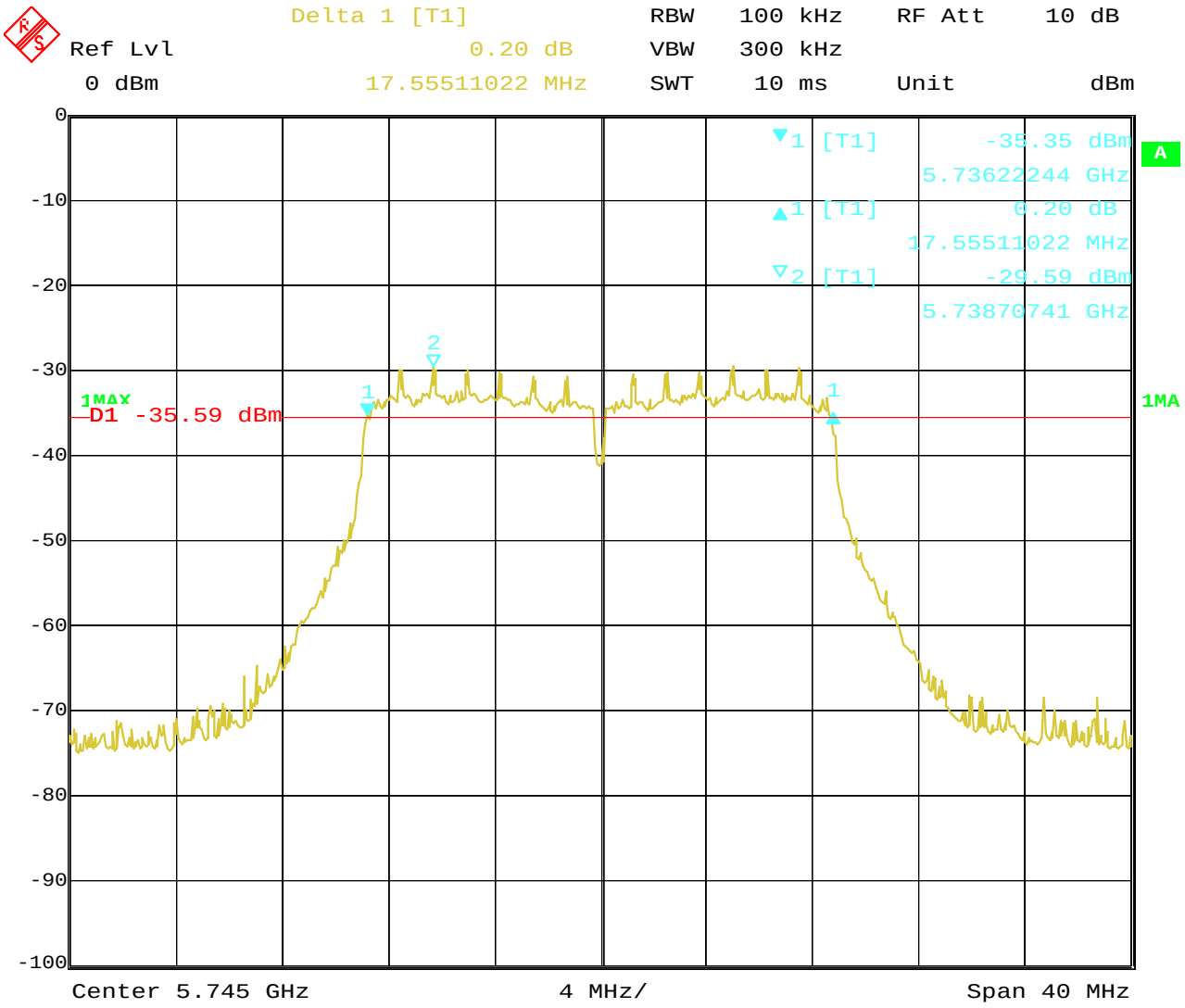
Channel 161



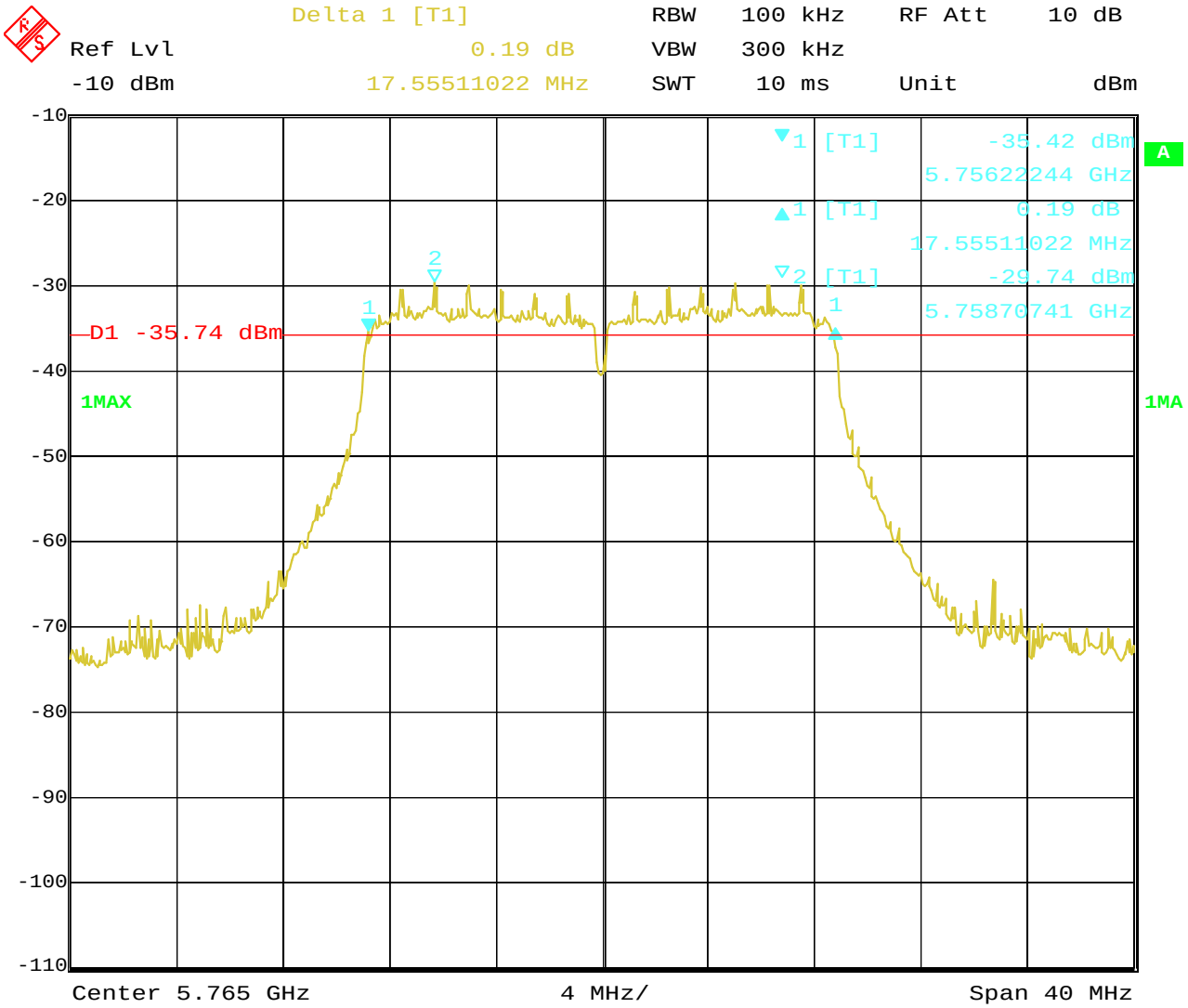
Test Configure

6dB Bandwidth

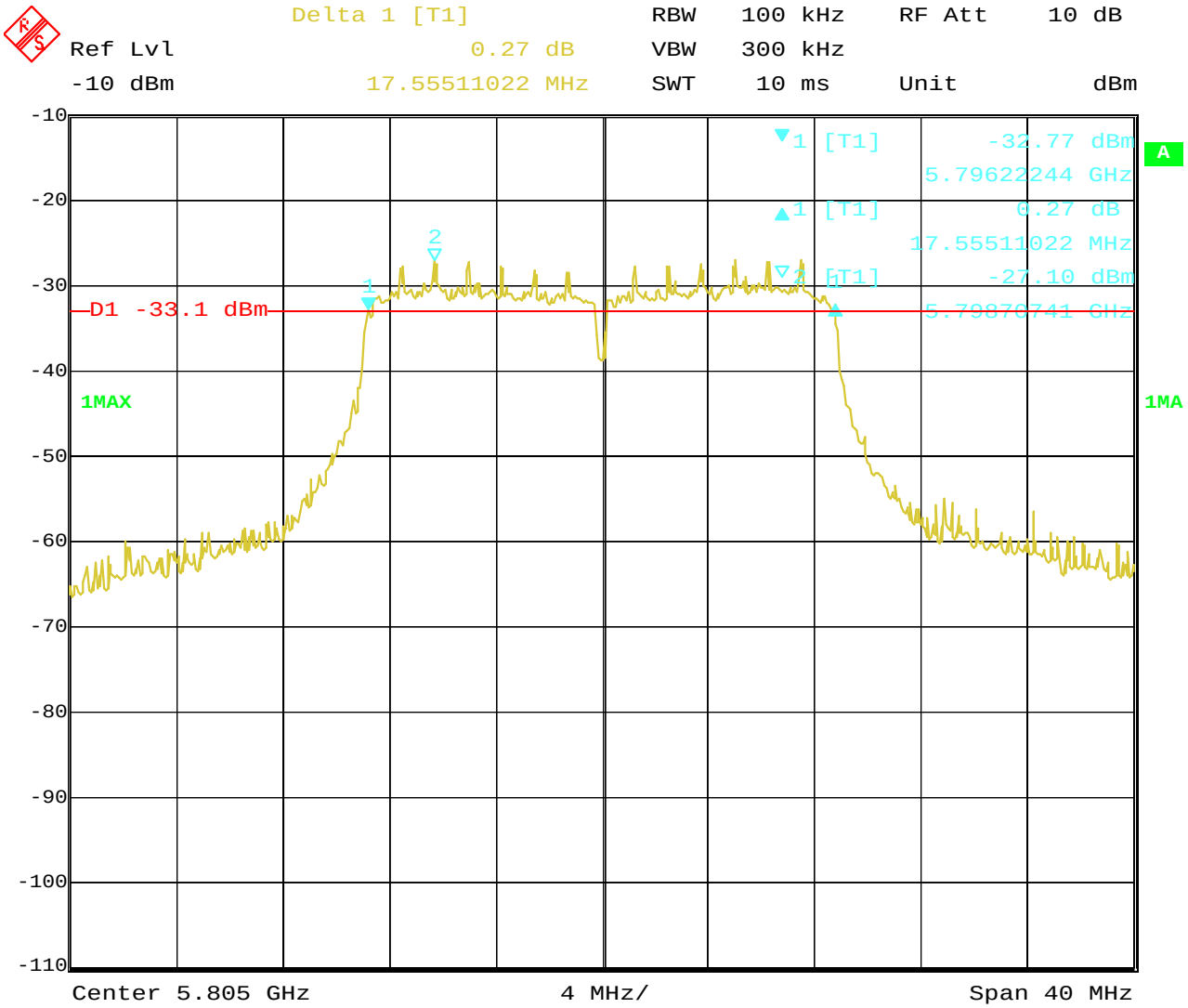
Channel 149



Channel 153



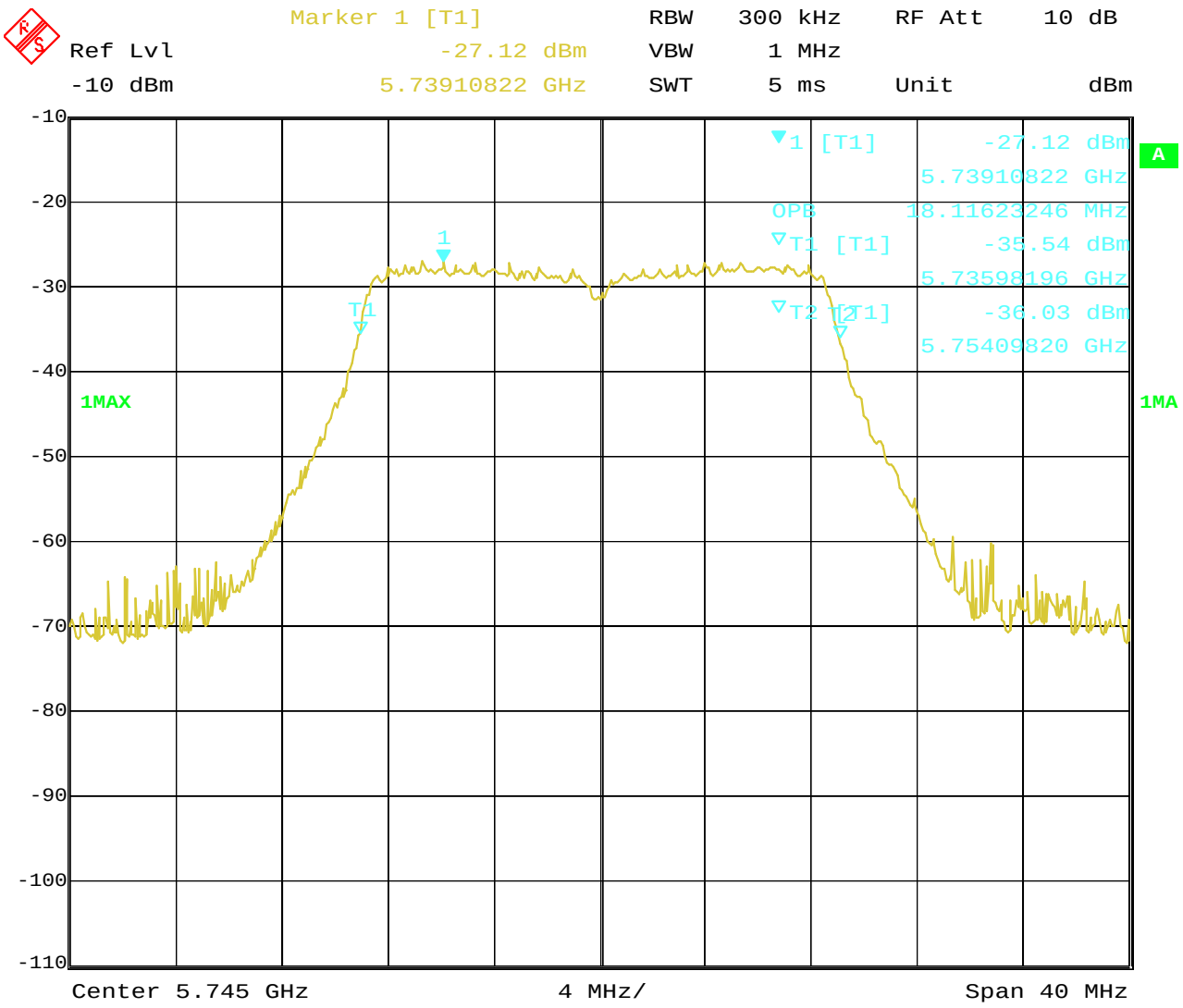
Channel 161



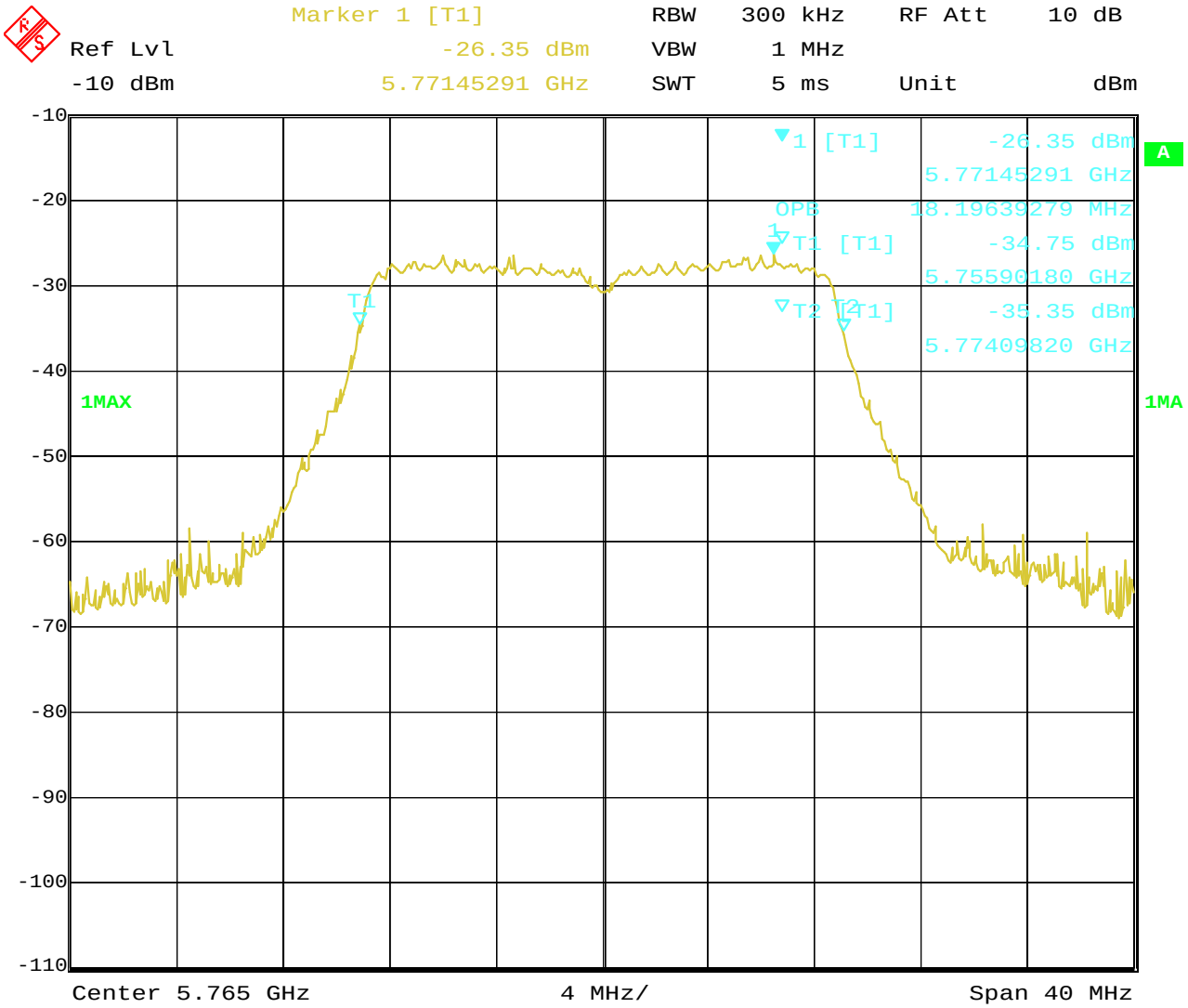
Test Configure

99% Bandwidth

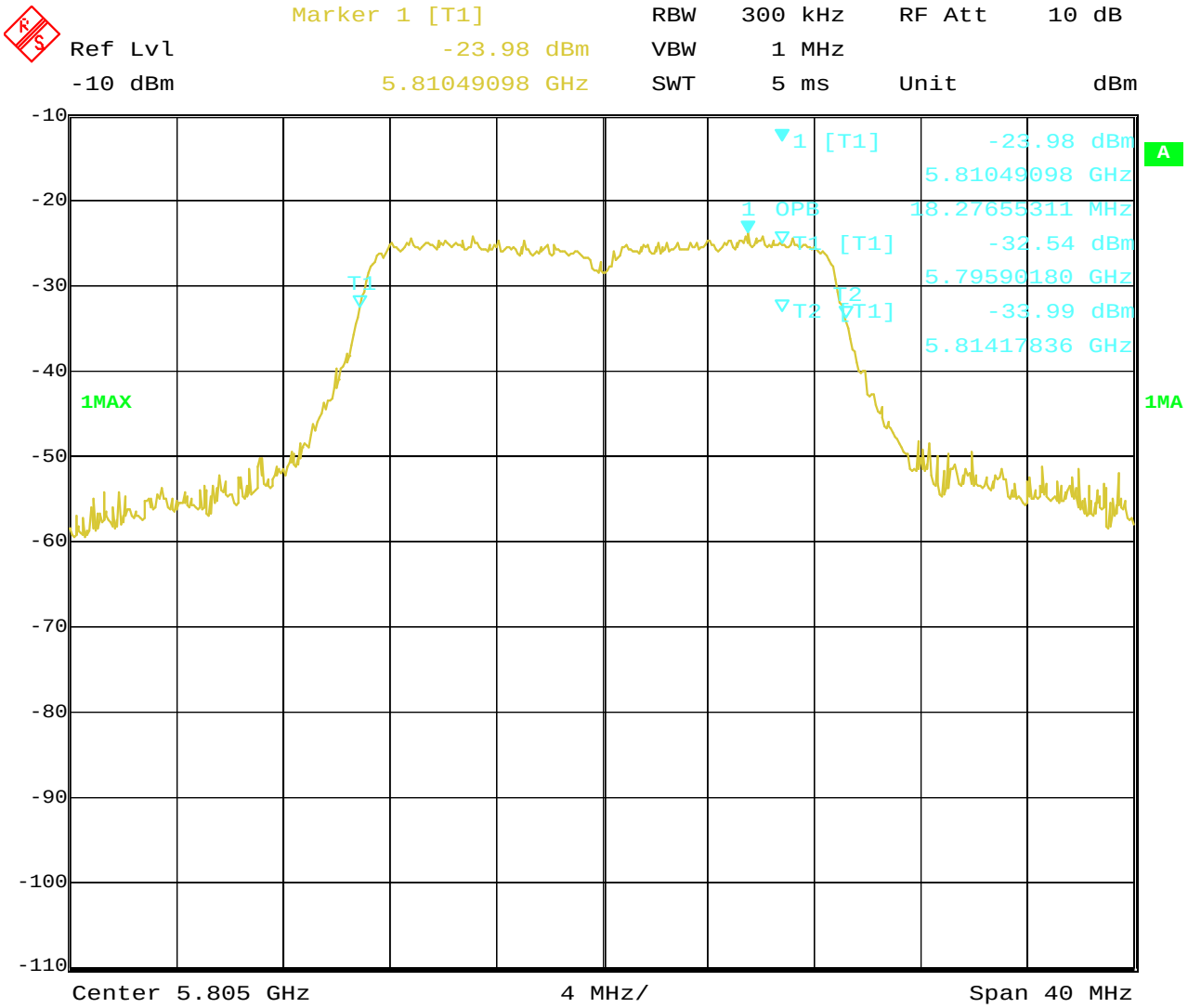
Channel 149



Channel 153



Channel 161



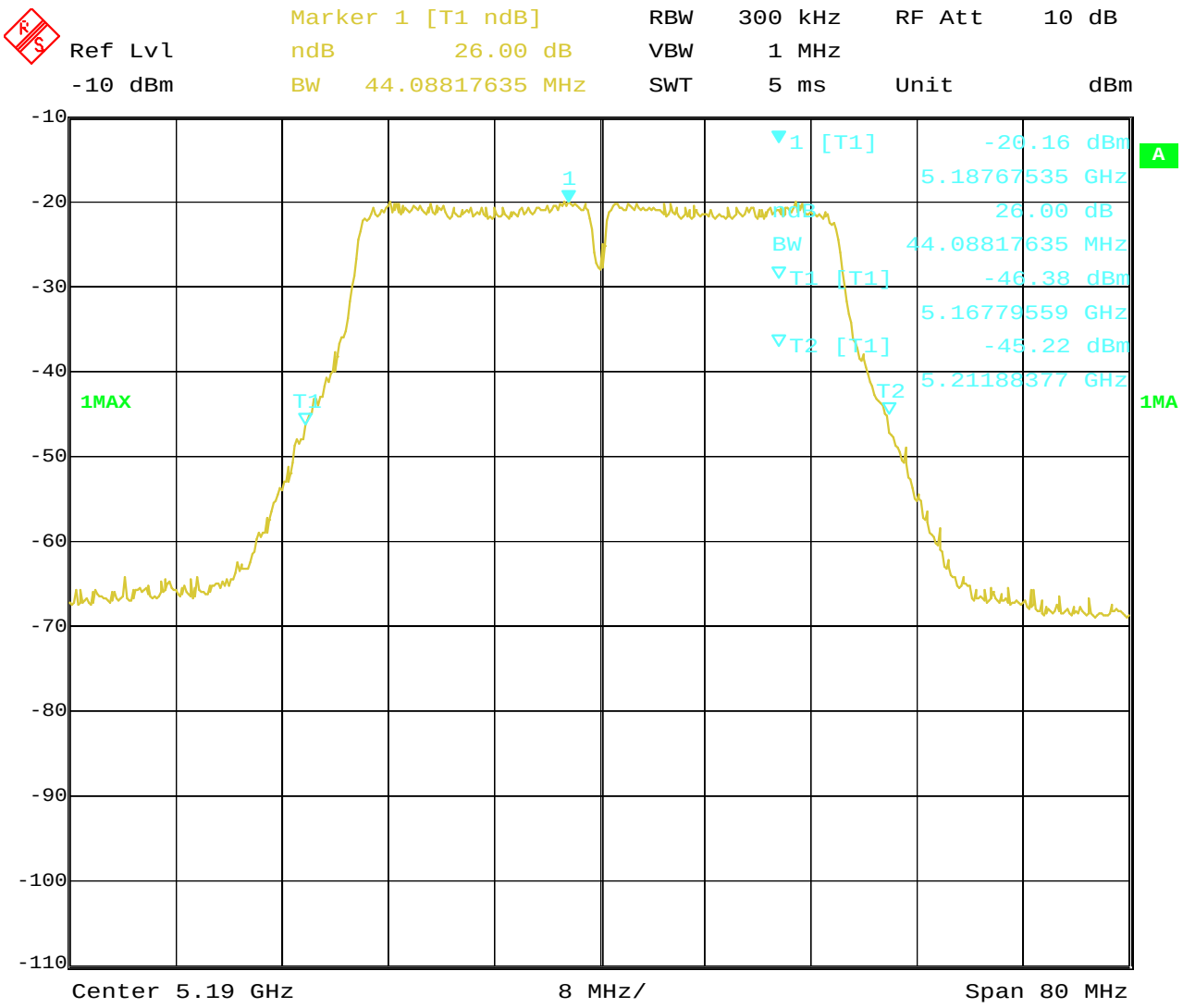
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
38	5190	mcs0	44.09	--	Pass
46	5230	mcs0	44.93	--	Pass
99% Bandwidth					
38	5190	mcs0	36.39	--	Pass
46	5230	mcs0	36.39	--	Pass

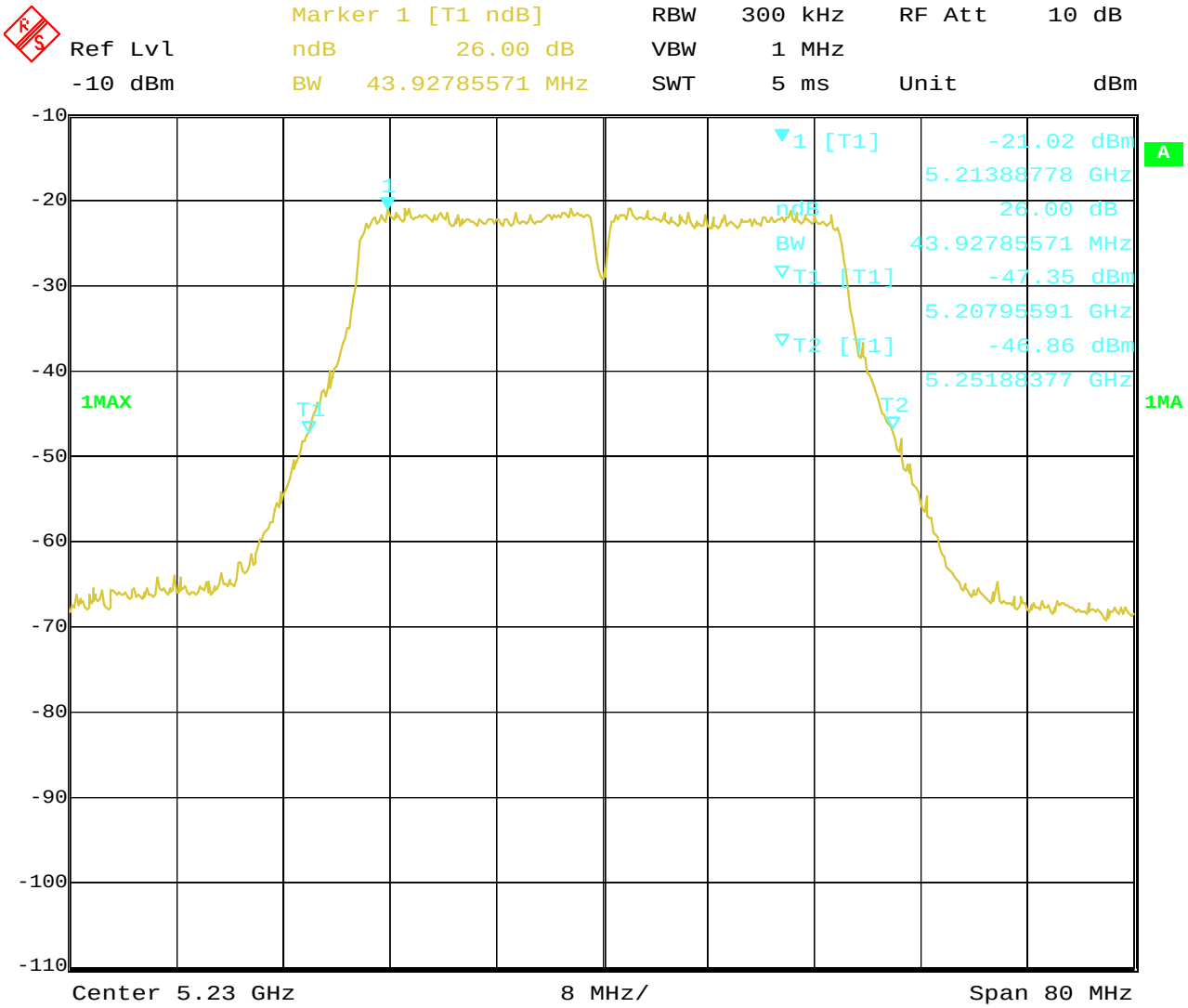
Test Configure

26dB Bandwidth

Channel 38



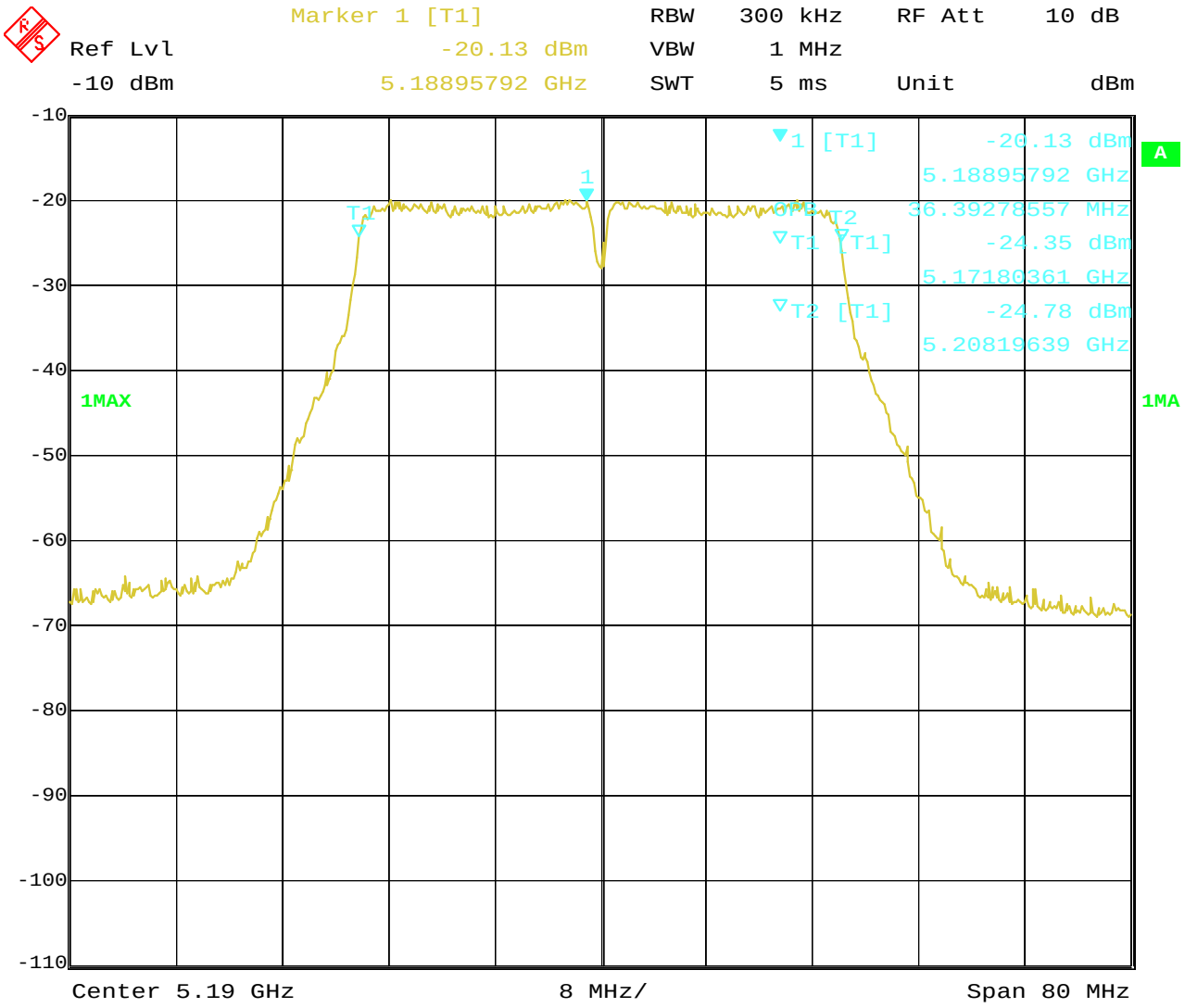
Channel 46



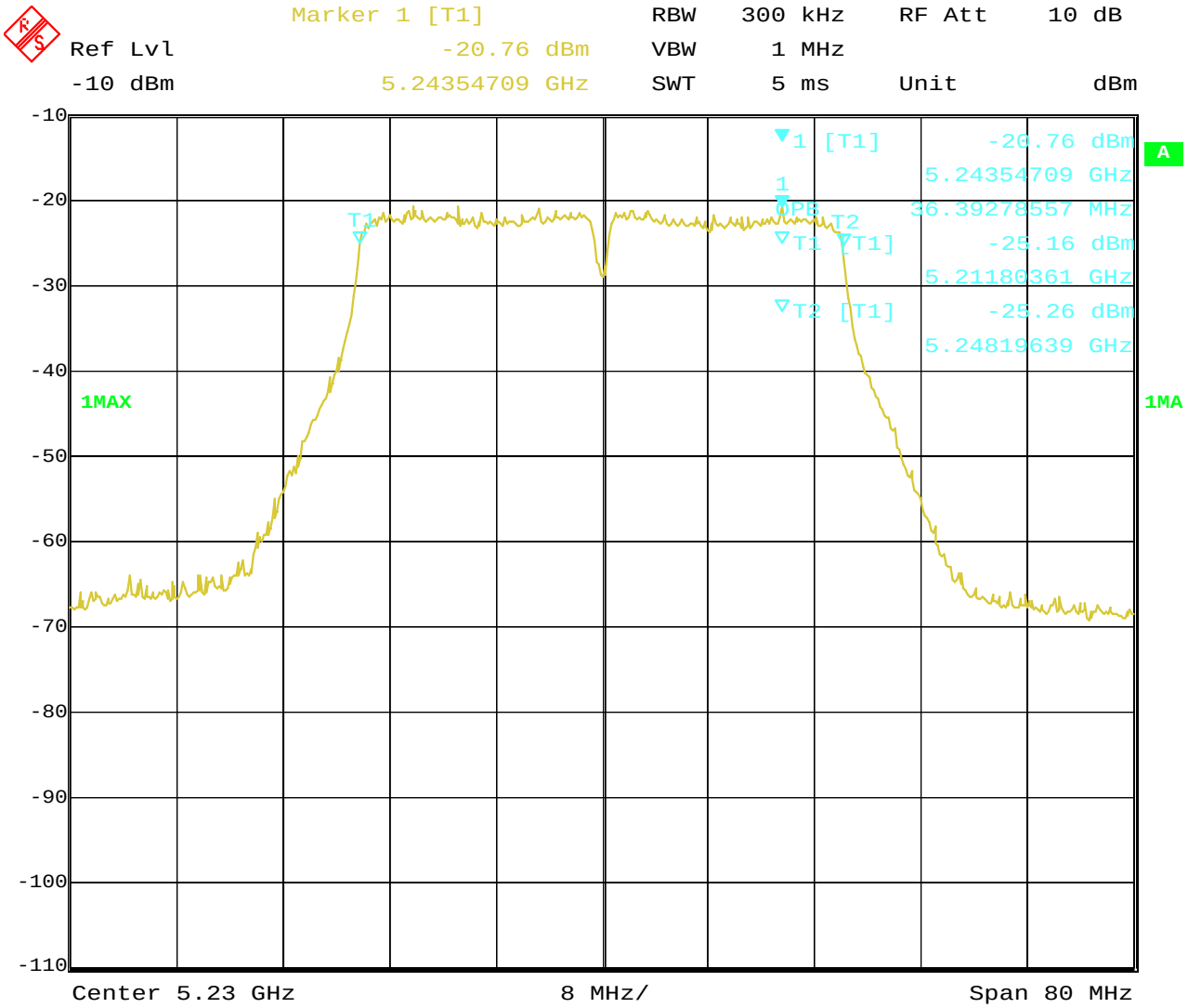
Test Configure

99% Bandwidth

Channel 38



Channel 46



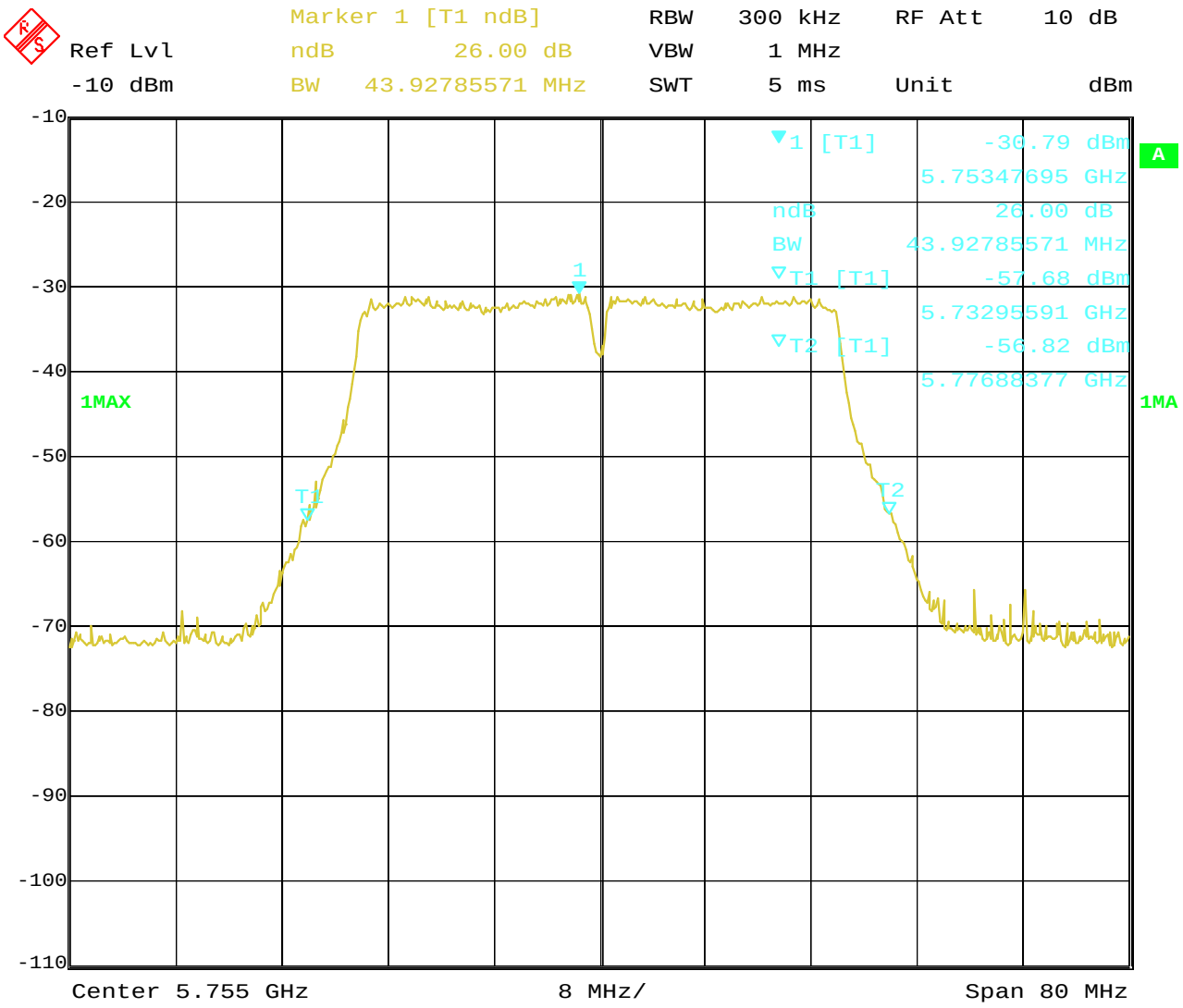
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
151	5755	mcs0	43.93	--	Pass
159	5795	mcs0	44.09	--	Pass
6dB Bandwidth					
151	5755	mcs0	36.15	0.5	Pass
159	5795	mcs0	36.39	0.5	Pass
99% Bandwidth					
151	5755	mcs0	36.39	--	Pass
159	5795	mcs0	36.55	--	Pass

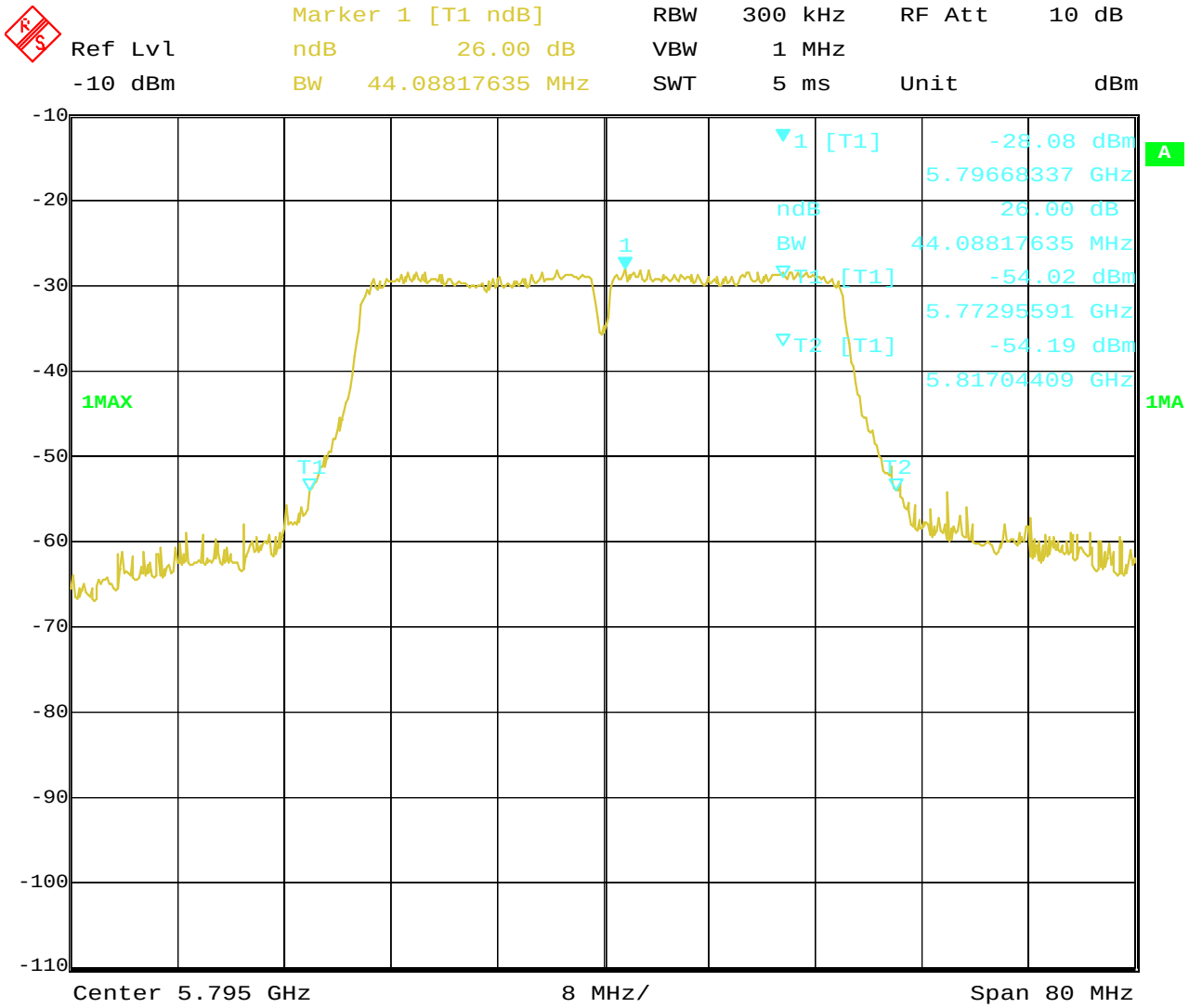
Test Configure

26dB Bandwidth

Channel 151



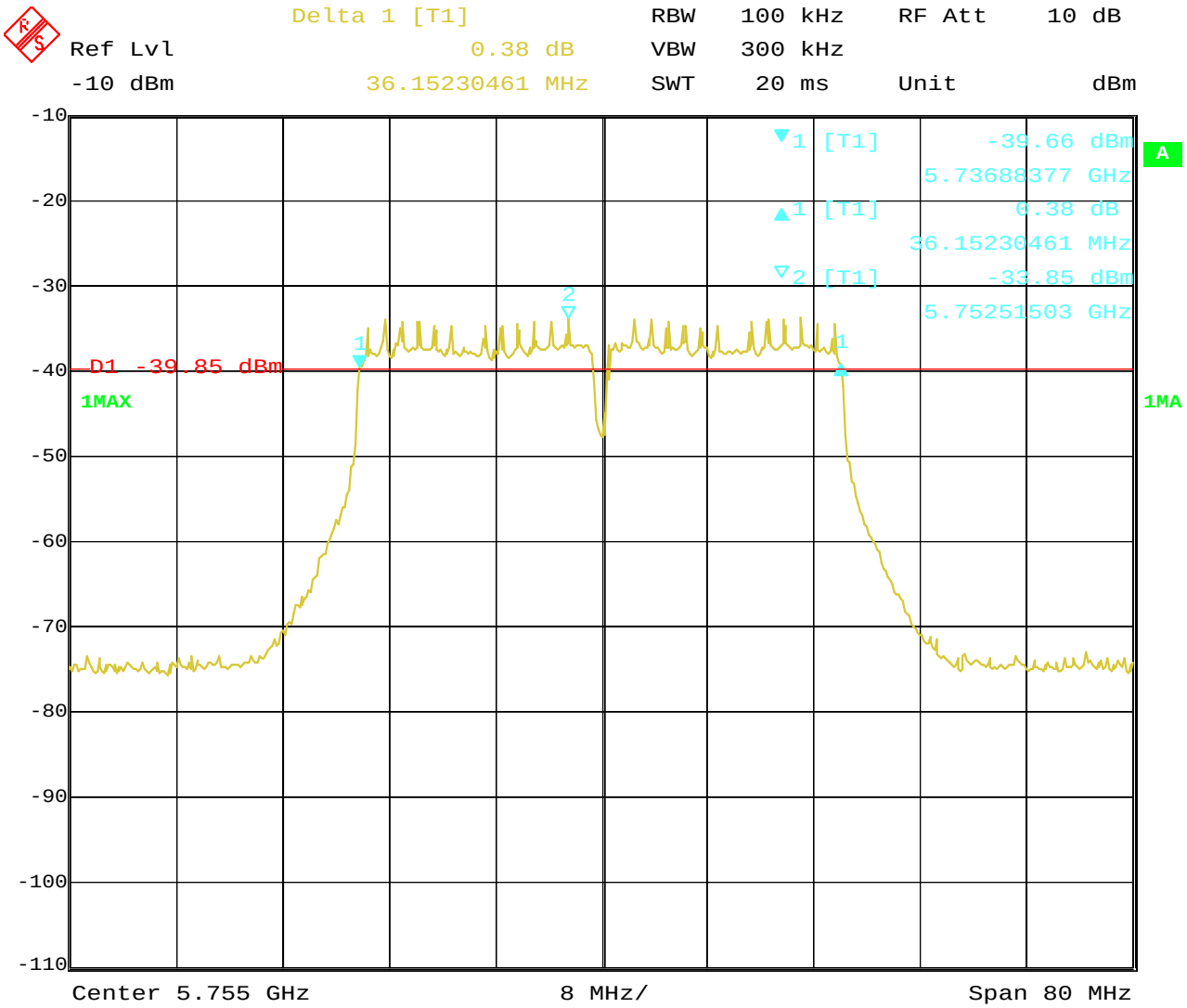
Channel 159



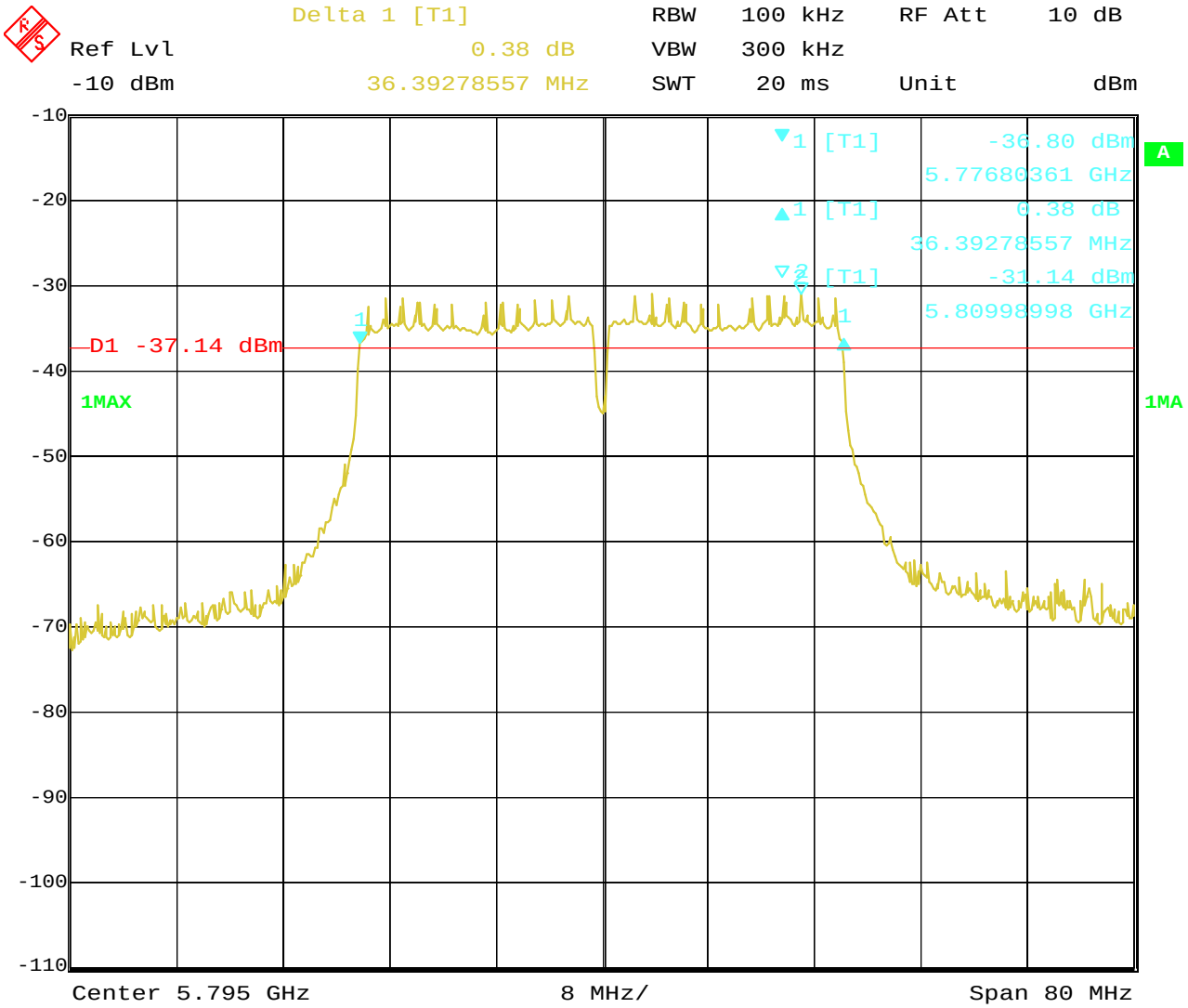
Test Configure

6dB Bandwidth

Channel 151



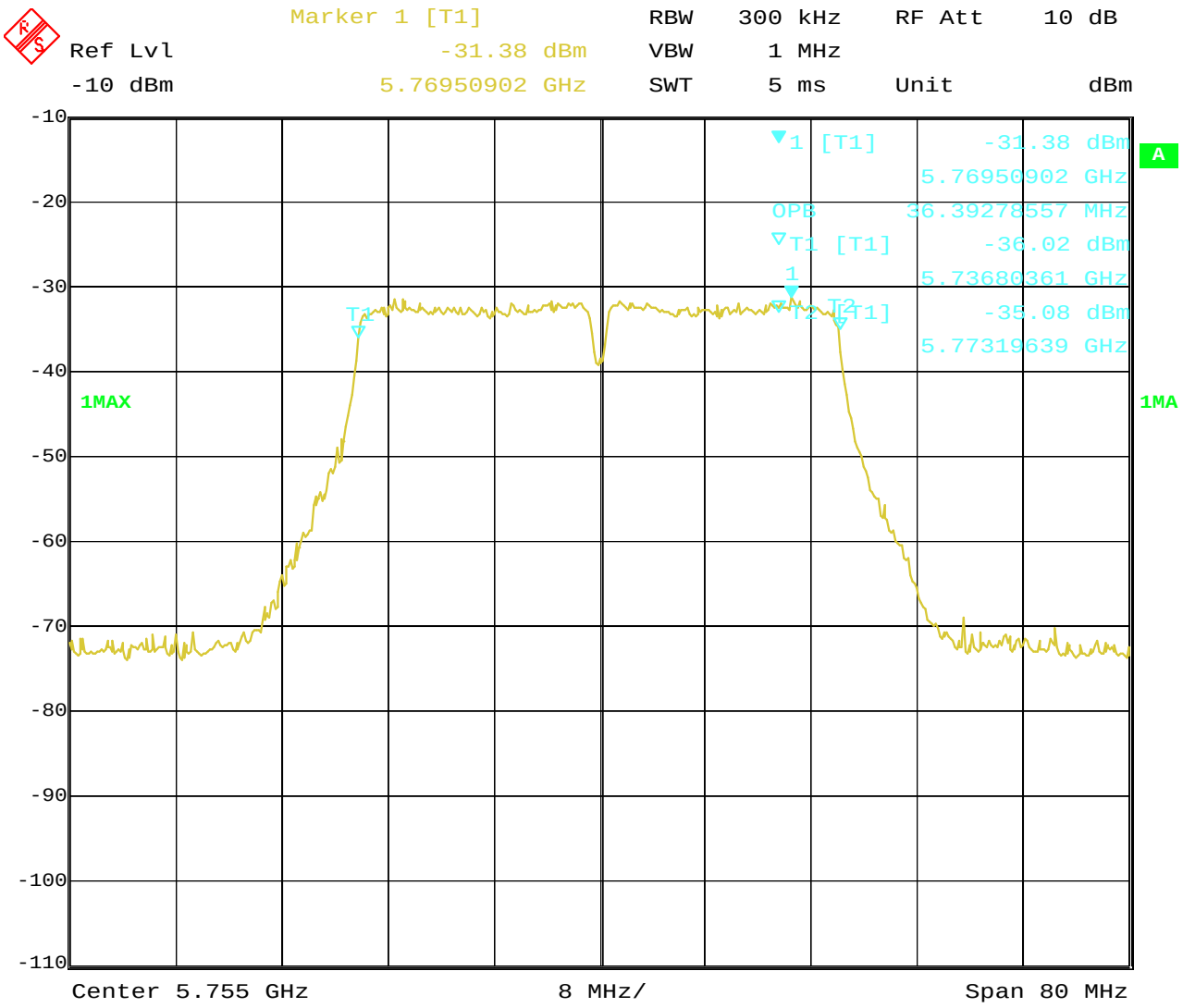
Channel 159



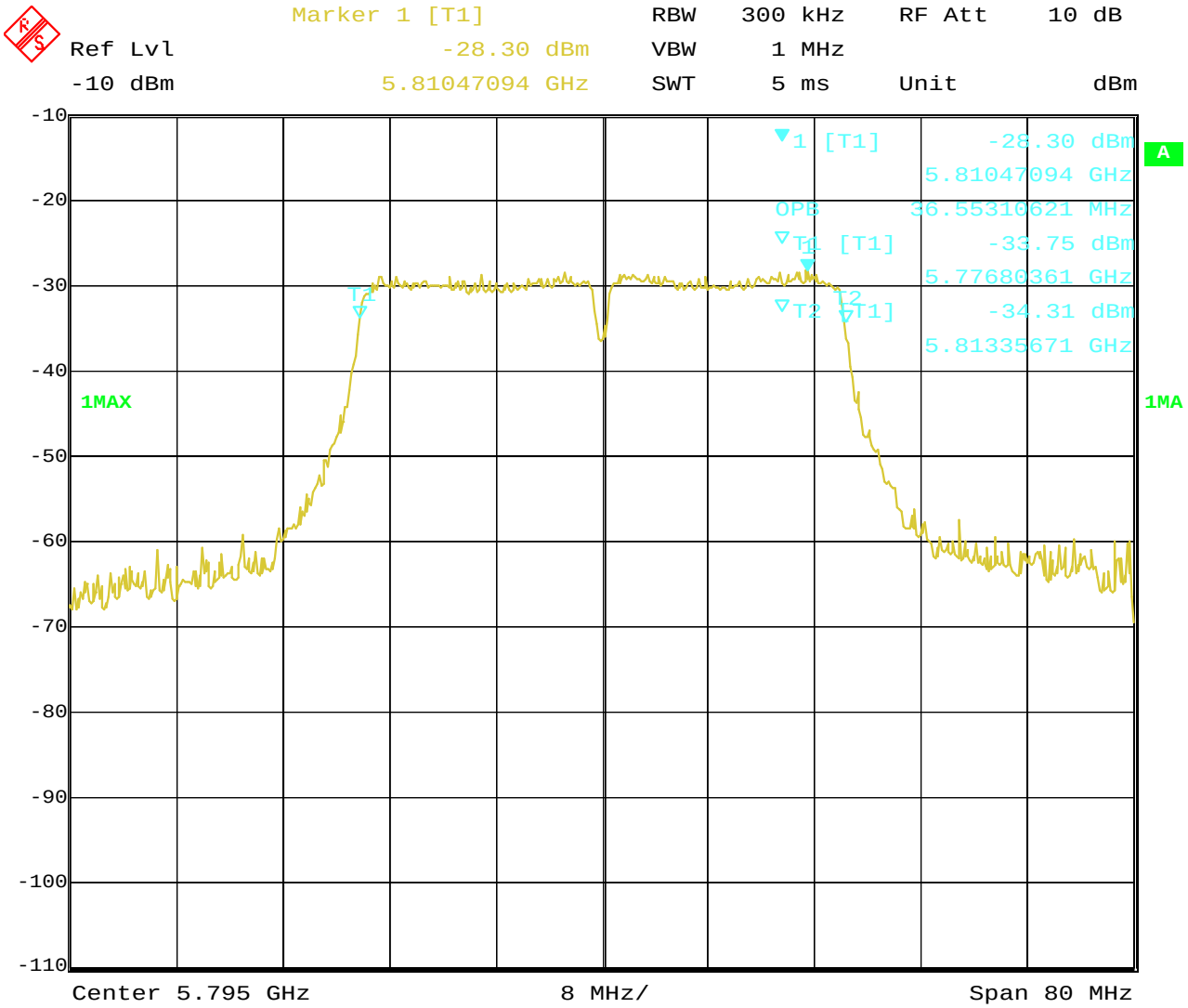
Test Configure

99% Bandwidth

Channel 151



Channel 159



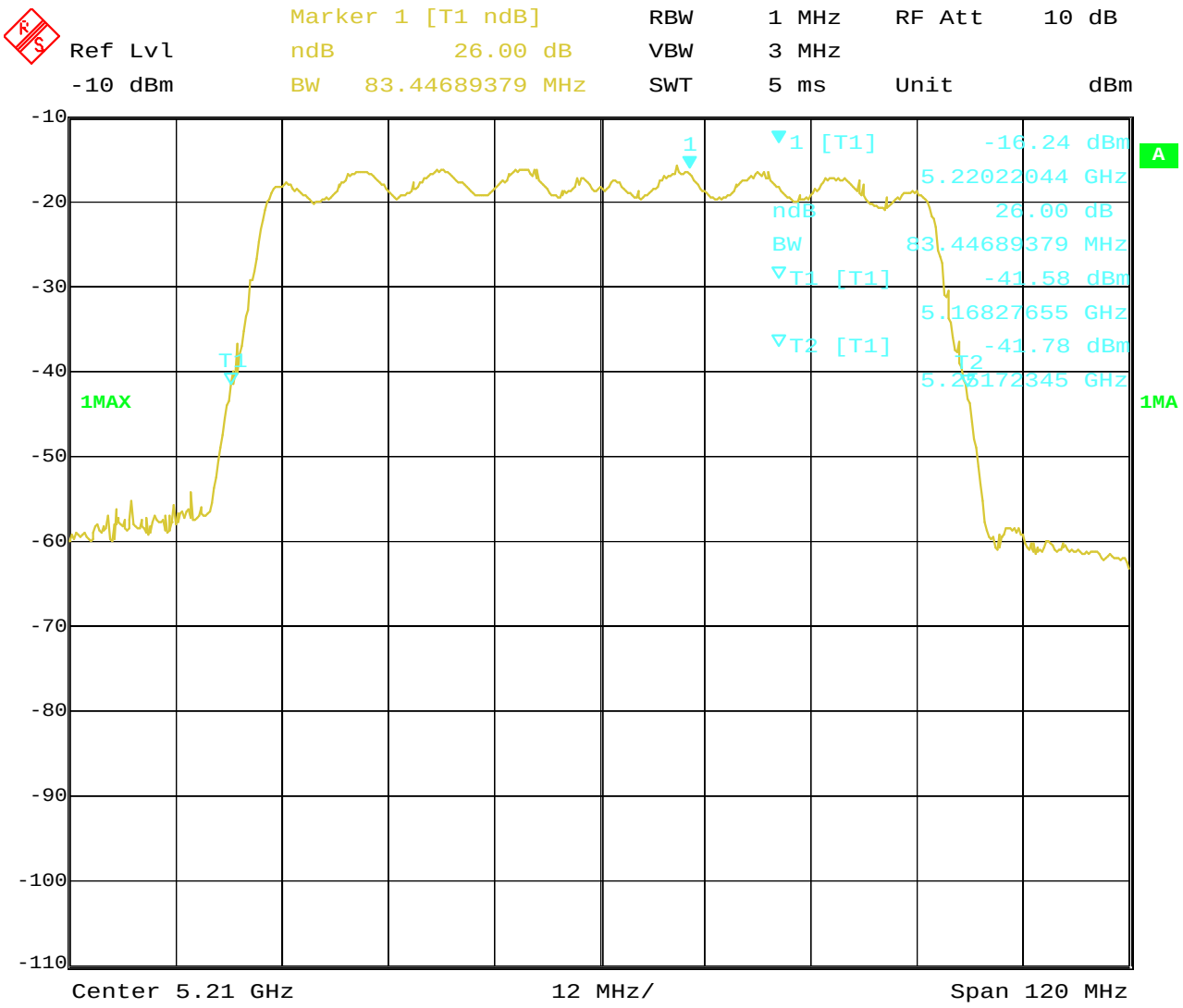
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT80	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
42	5210	23.9	83.45	--	Pass
99% Bandwidth					
42	5210	23.9	79.75	--	Pass

Test Configure

26dB Bandwidth

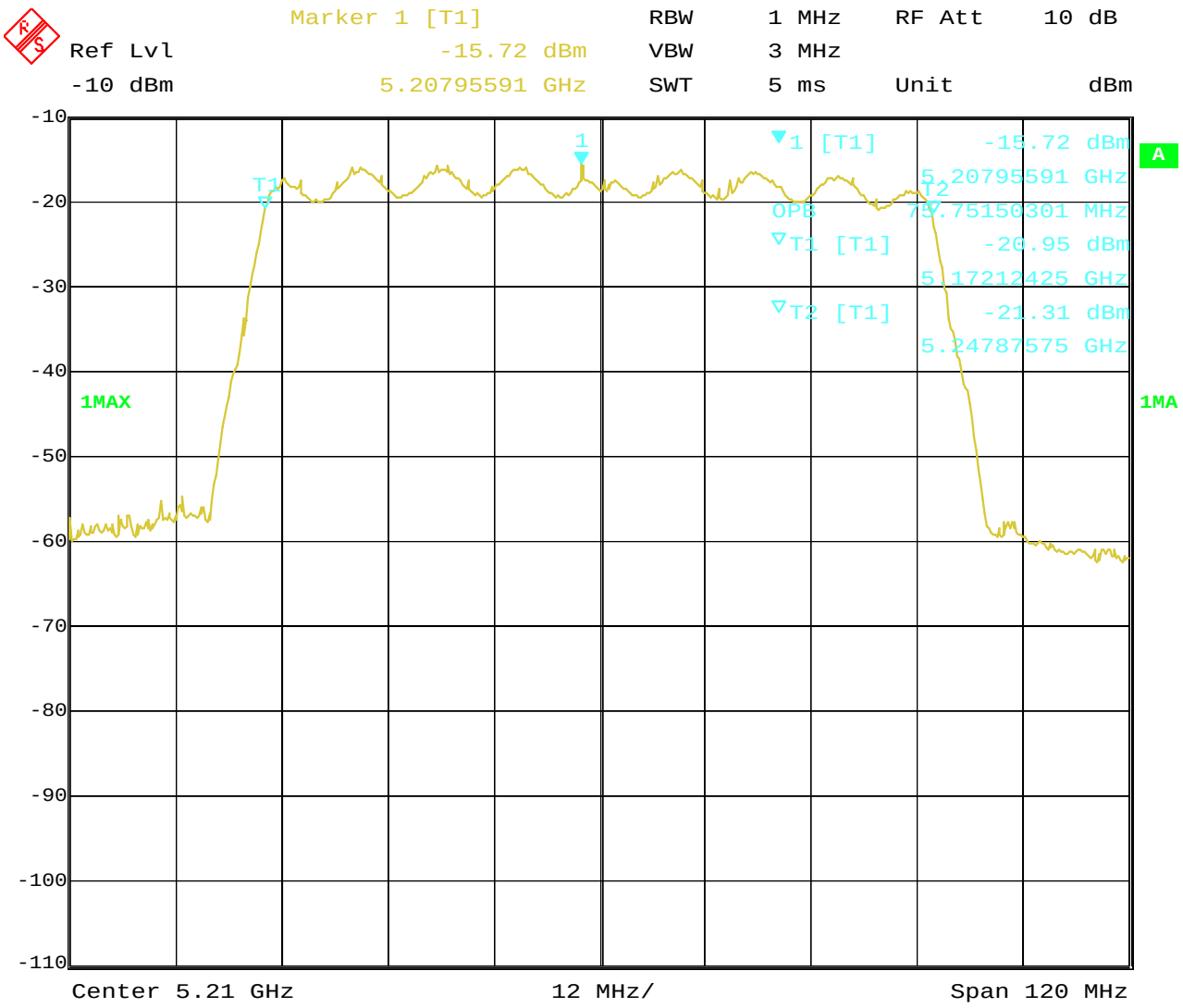
Channel 42



Test Configure

99% Bandwidth

Channel 42



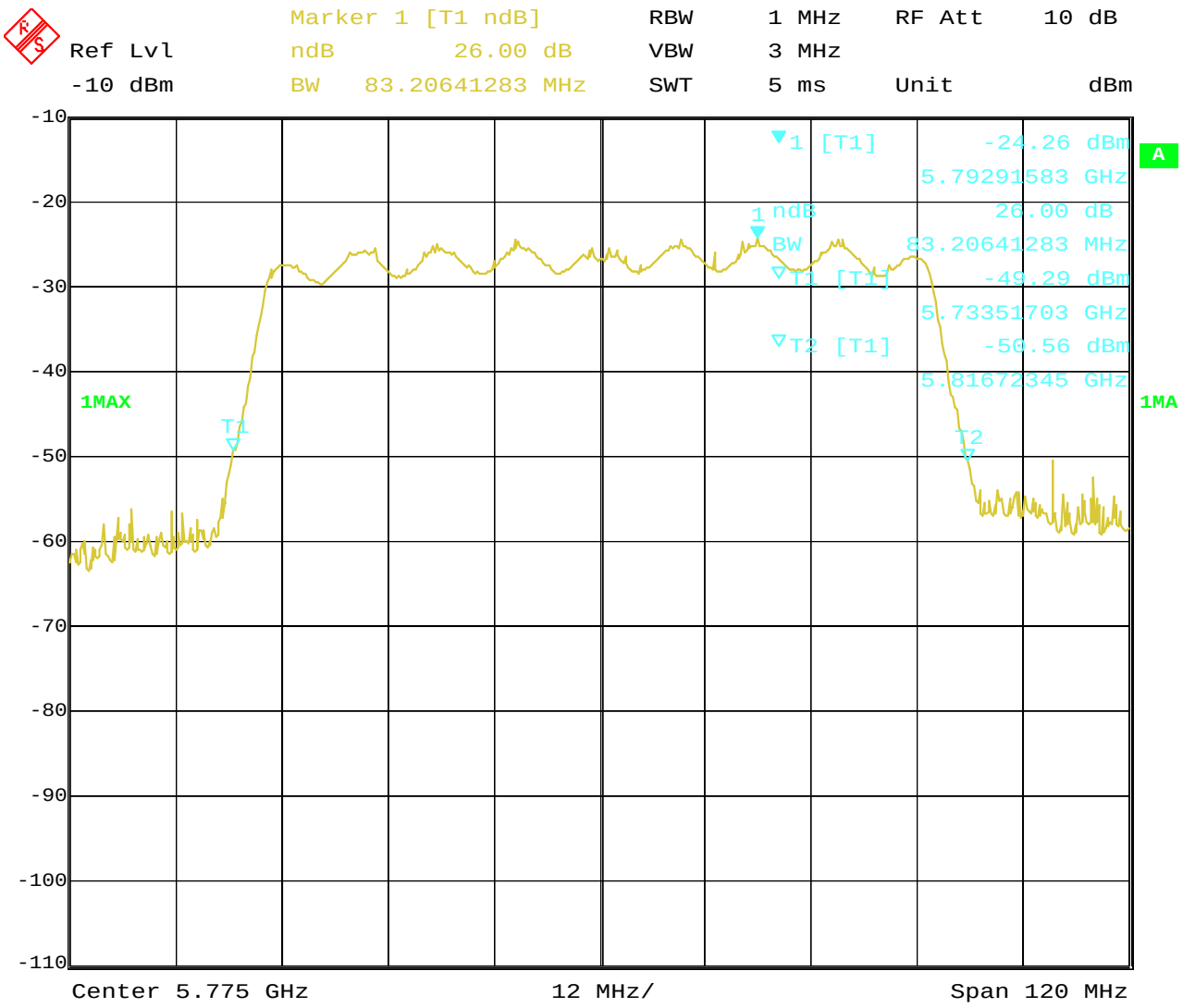
EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT80	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
155	5775	23.9	83.21	--	Pass
6dB Bandwidth					
155	5775	23.9	75.27	0.5	Pass
99% Bandwidth					
155	5775	23.9	75.75	--	Pass

Test Configure

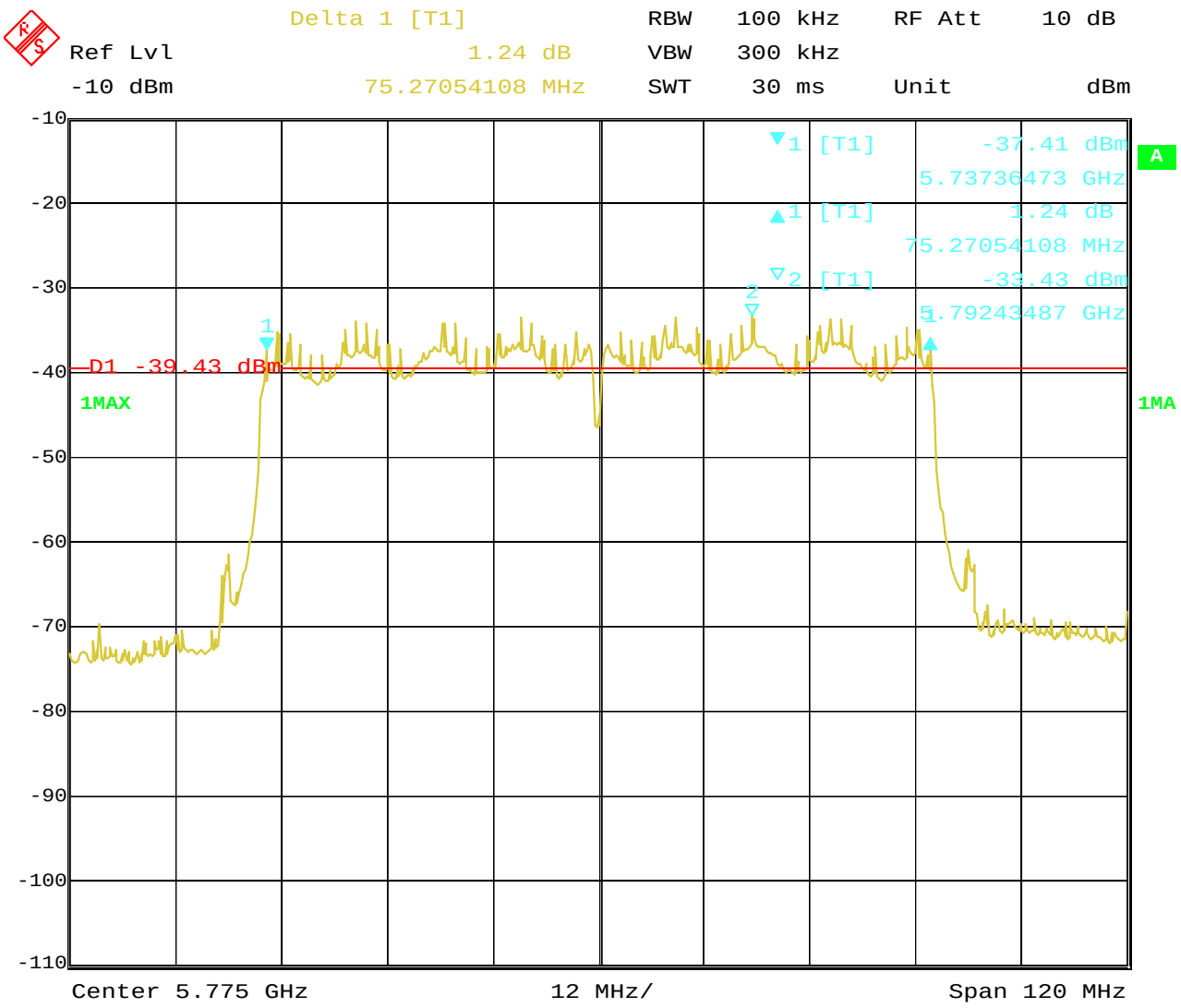
26dB Bandwidth

Channel 155



6dB Bandwidth

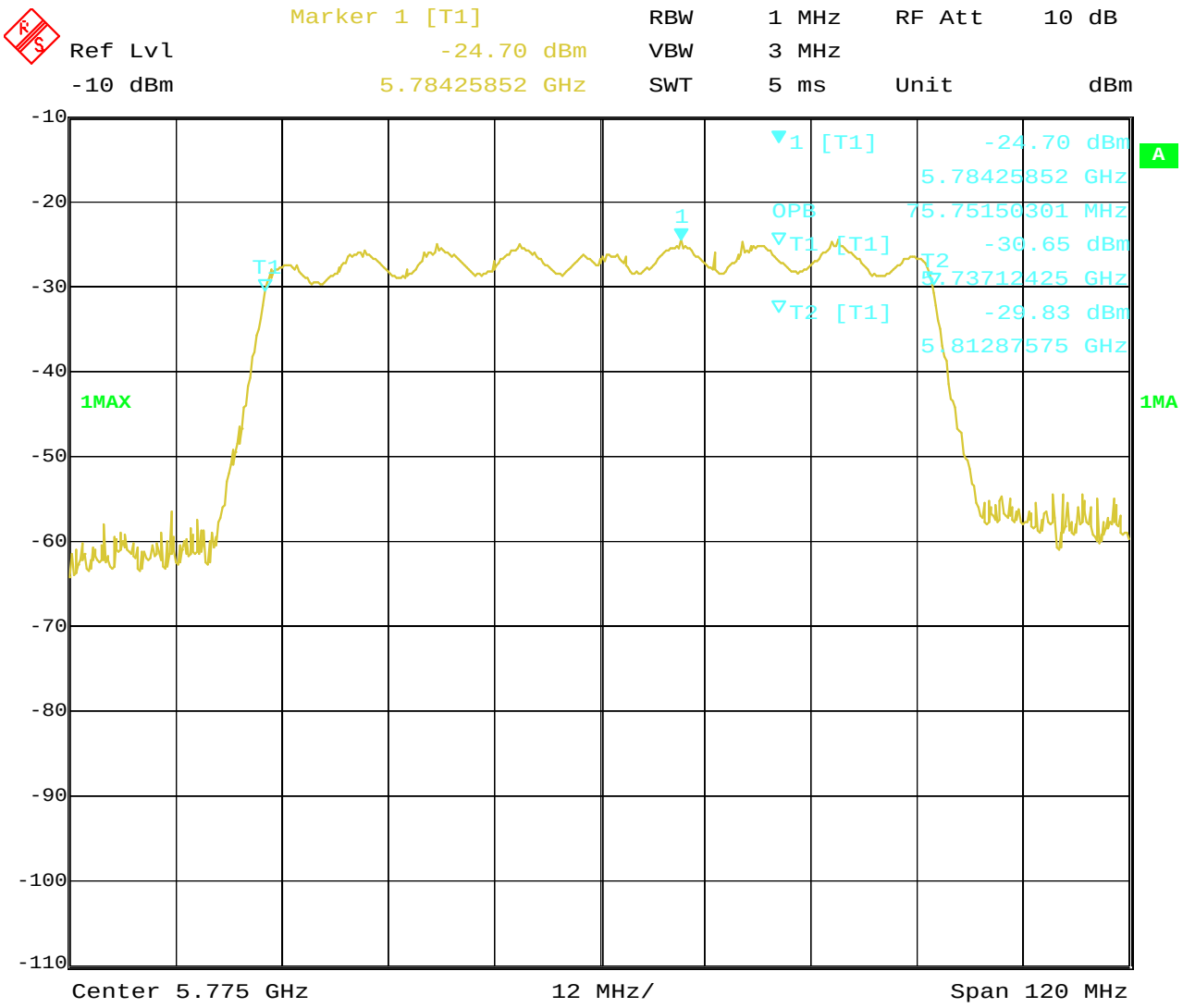
Channel 155



Test Configure

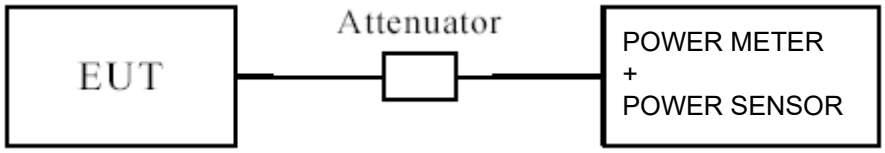
99% Bandwidth

Channel 155



8.0 Peak Transmit Power Measurement

8.1 Test Setup



8.2 Limits of Peak Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) ≦(Max. e.i.r.p 125mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	--		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	--		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	--		1 Watt (30 dBm)

Note: Where B is the 26dB emission bandwidth in MHz.

8.3 Test Procedure

The RF power output was measured with a Spectrum analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the average power was measured

8.4Test Results

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11a	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-6.27	24	Pass
40	5200	-6.60	24	Pass
48	5240	-7.69	24	Pass
149	5745	-17.37	30	Pass
153	5765	-17.12	30	Pass
161	5805	-14.46	30	Pass

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH36, CH40, CH48, CH149, CH153 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-6.37	24	Pass
40	5200	-6.78	24	Pass
48	5240	-7.99	24	Pass
149	5745	-17.52	30	Pass
153	5765	-17.13	30	Pass
161	5805	-14.34	30	Pass

Note: 1. At finial test to get the worst-case emission at mcs0 (6.5Mbps) for CH36, CH40, CH48, CH149, CH153 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
38	5190	-7.22	24	Pass
46	5230	-8.35	24	Pass
151	5755	-17.99	30	Pass
159	5795	-15.41	30	Pass

Note: 1. At finial test to get the worst-case emission at mcs0 (13.5Mbps) for CH38, CH46, CH151, CH159 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-6.35	24	Pass
40	5200	-6.78	24	Pass
48	5240	-7.87	24	Pass
149	5745	-17.42	30	Pass
153	5765	-17.26	30	Pass
161	5805	-14.61	30	Pass

Note: 1. At finial test to get the worst-case emission at mcs0 (6.5Mbps) for CH36, CH40, CH48, CH149, CH153 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
38	5190	-7.18	24	Pass
46	5230	-8.38	24	Pass
151	5755	-18.08	30	Pass
159	5795	-15.65	30	Pass

Note: 1. At finial test to get the worst-case emission at mcs0 (13.5Mbps) for CH38, CH46, CH151, CH159 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT80	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Frequency (MHz)	Average Power Output (dBm)	Limit (dBm)	Pass/ Fail
42	5210	-7.27	24	Pass
155	5775	-15.89	30	Pass

Note: 1. At finial test to get the worst-case emission at 23.9Mbps for CH42 and CH155

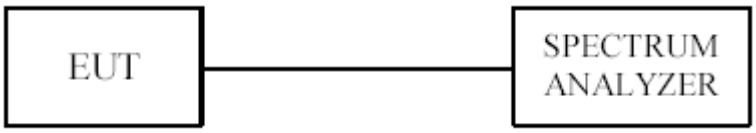
2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

9. Power Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/MHz
U-NII-2A	--		11dBm/MHz
U-NII-2C	--		11dBm/MHz
U-NII-3	--		30dBm/500kHz

9.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer
2. Set the RBW = 500kHz or 1MHz.
3. Set the VBW =2MHz or 3MHz.
4. Set the span to encompass the entire emissions bandwidth (EBW) of the signal
5. Detector = RMS
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.

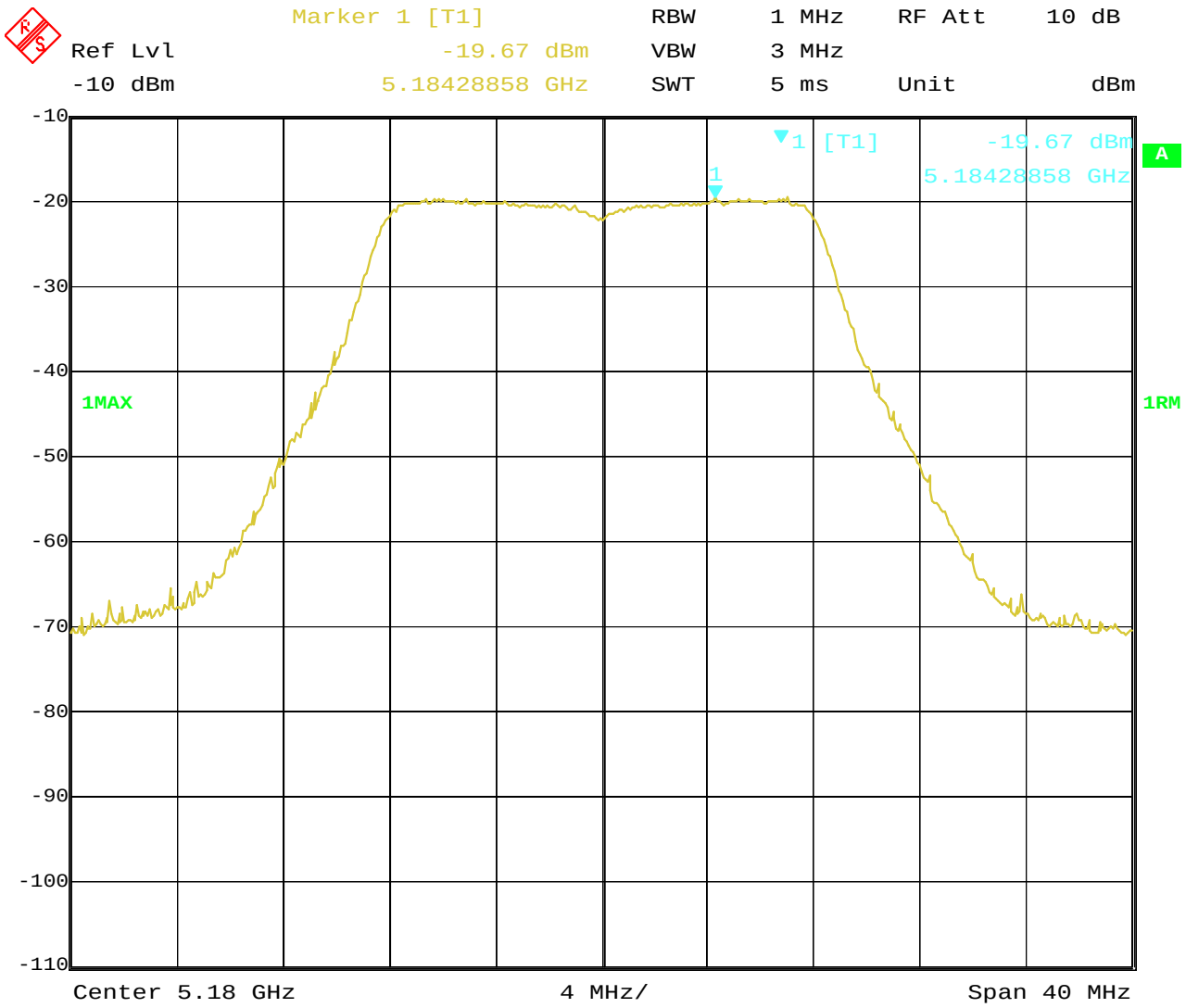
9.4Test Result

EUT	Advertising Displayer	Model	NEB156-01
Mode	802.11a 6Mbps	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

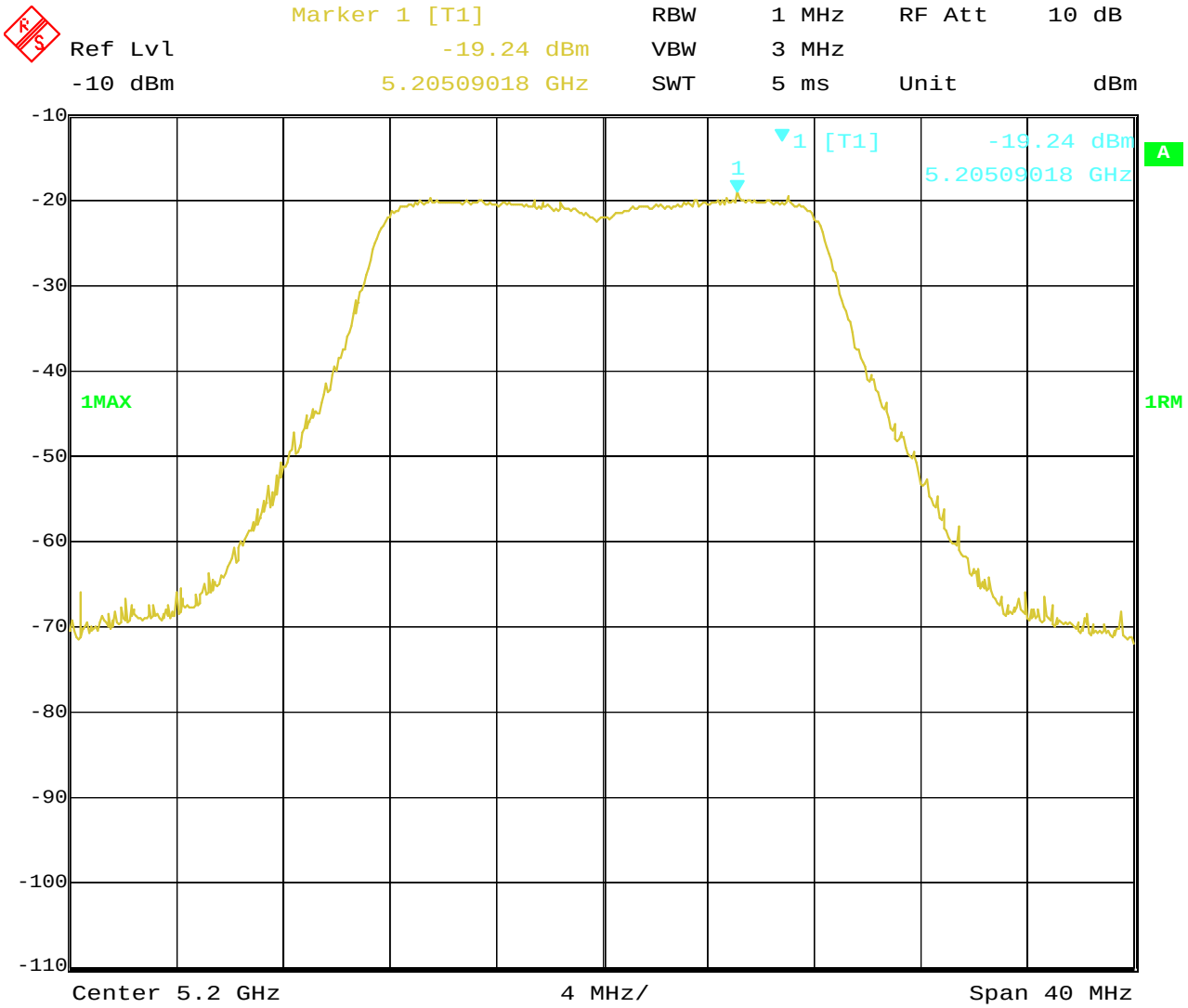
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-19.67	11	Pass
40	5200	-19.24	11	Pass
48	5240	-20.14	11	Pass
149	5745	-28.72	30	Pass
153	5765	-29.20	30	Pass
161	5805	-28.20	30	Pass

9.5 Plots of Power Spectral Density Measurement

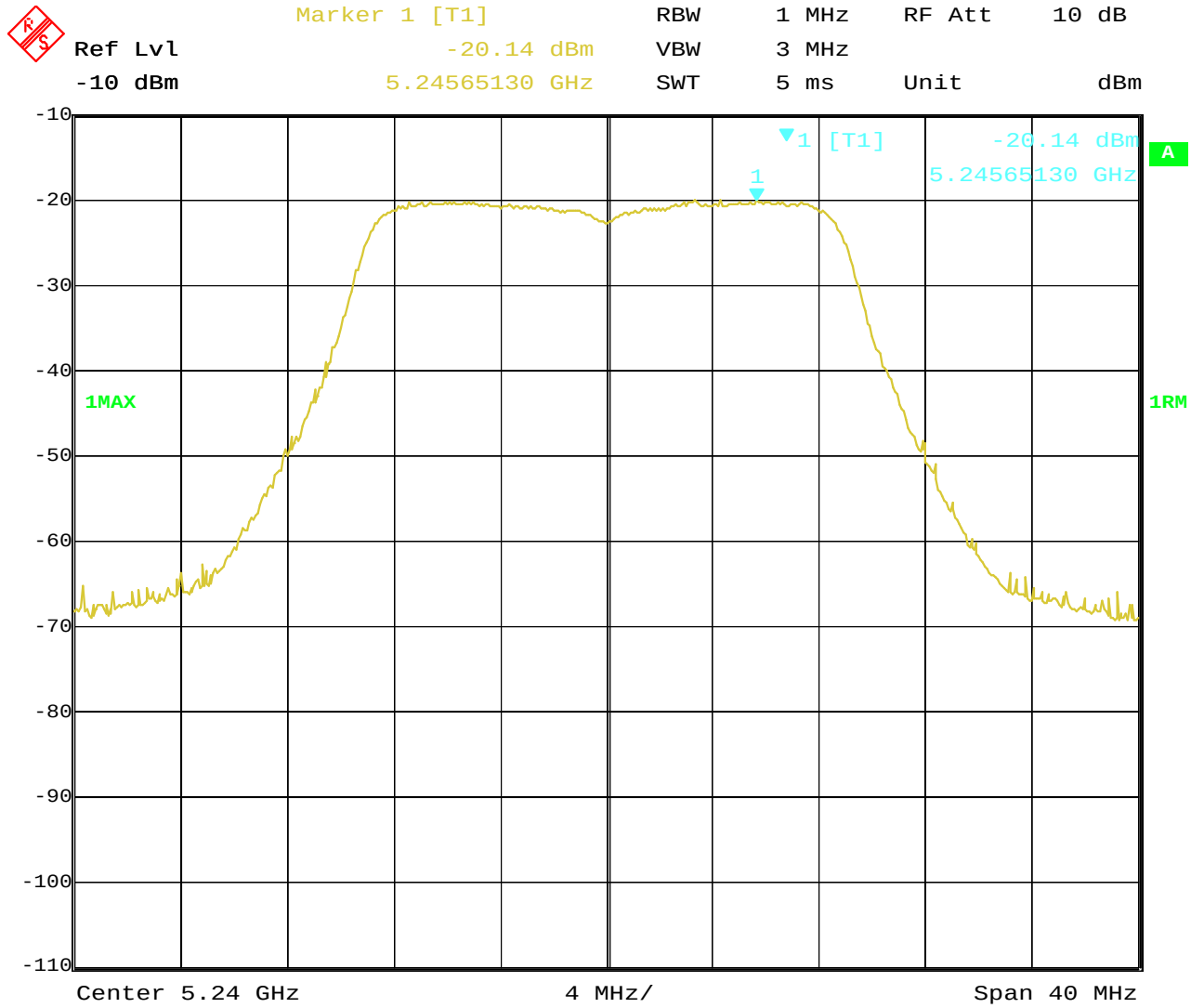
1.802.11a at 6Mbps of CH36



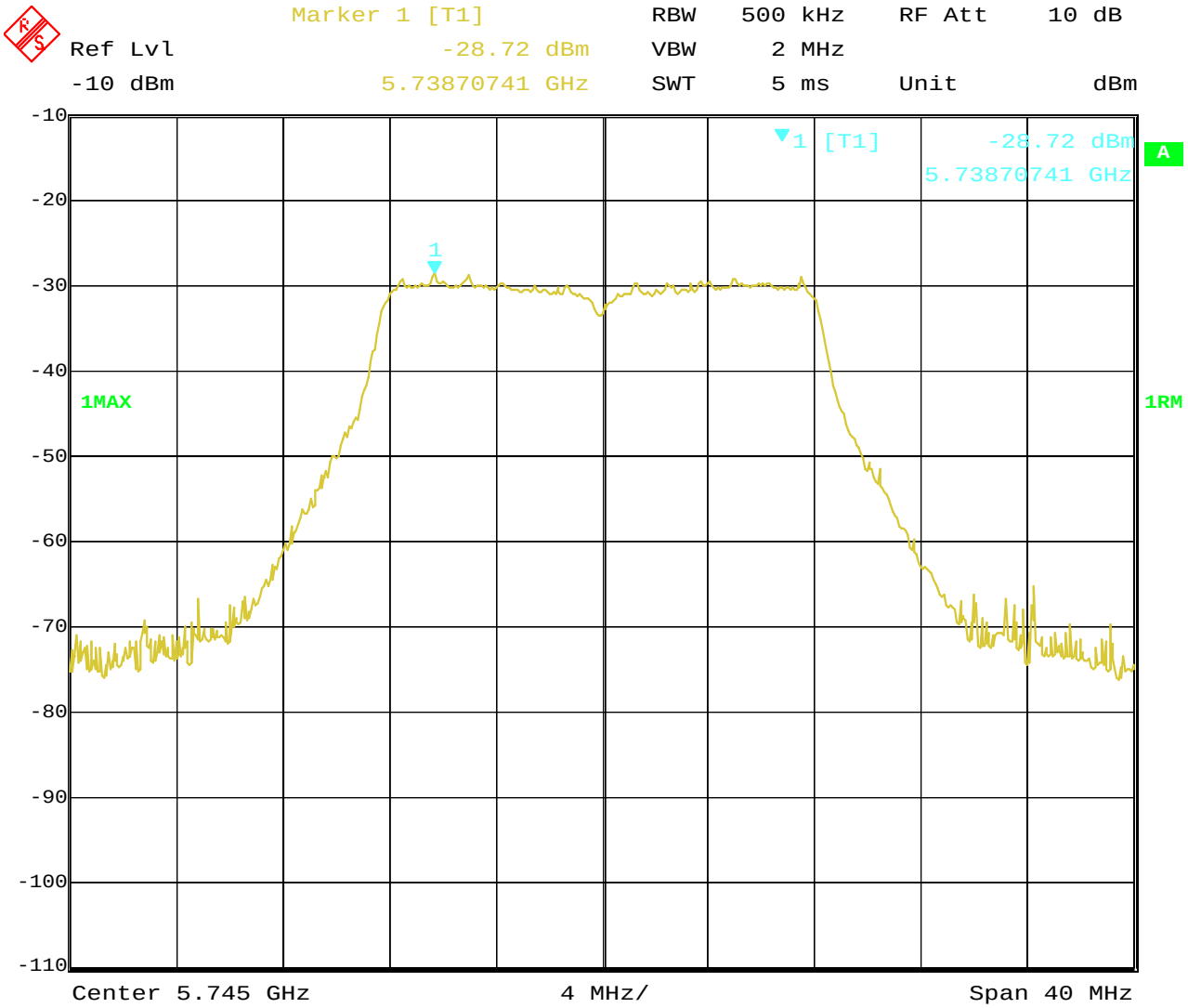
2.802.11a at 6Mbps of CH40



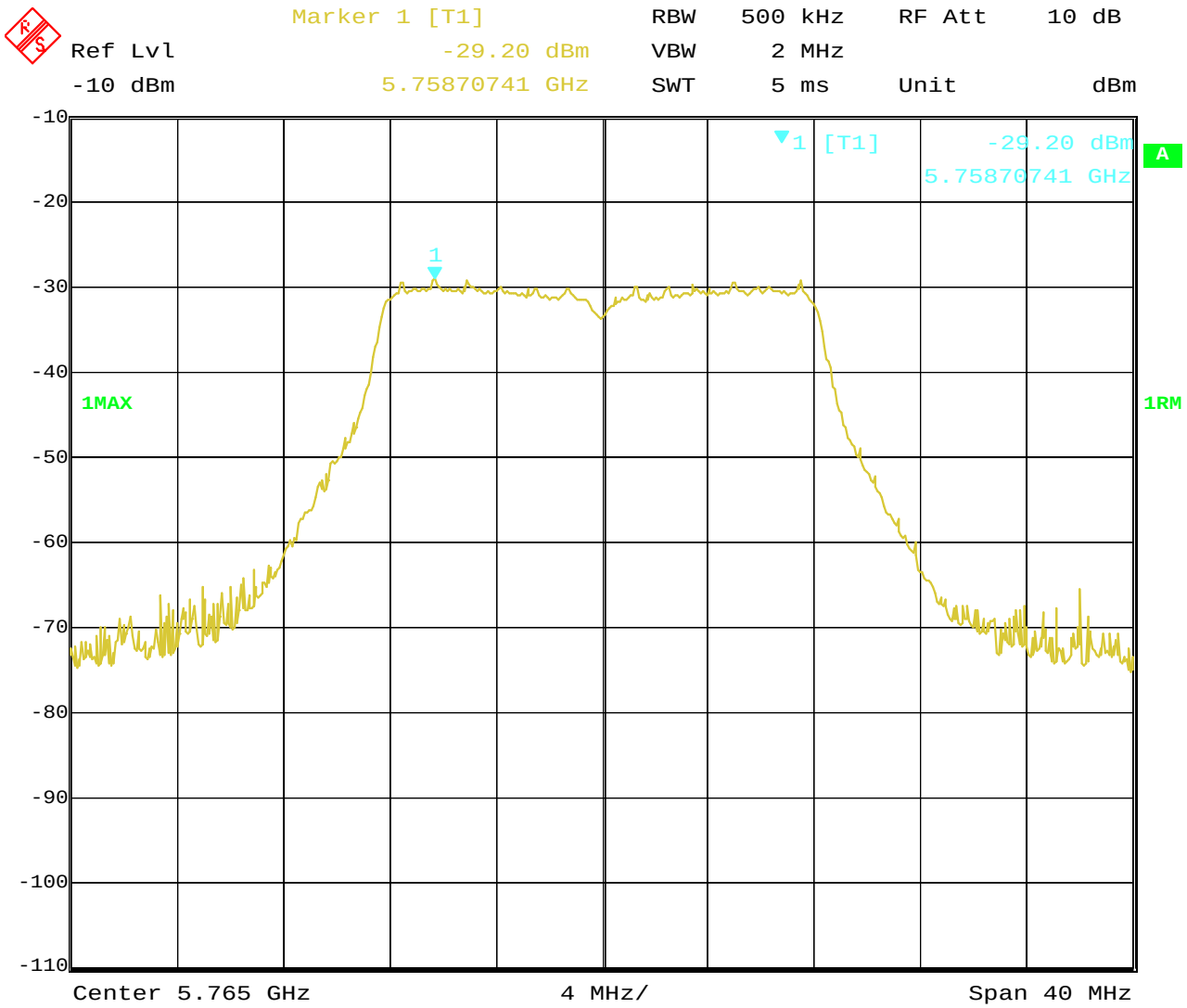
3.802.11a at 6Mbps of CH48



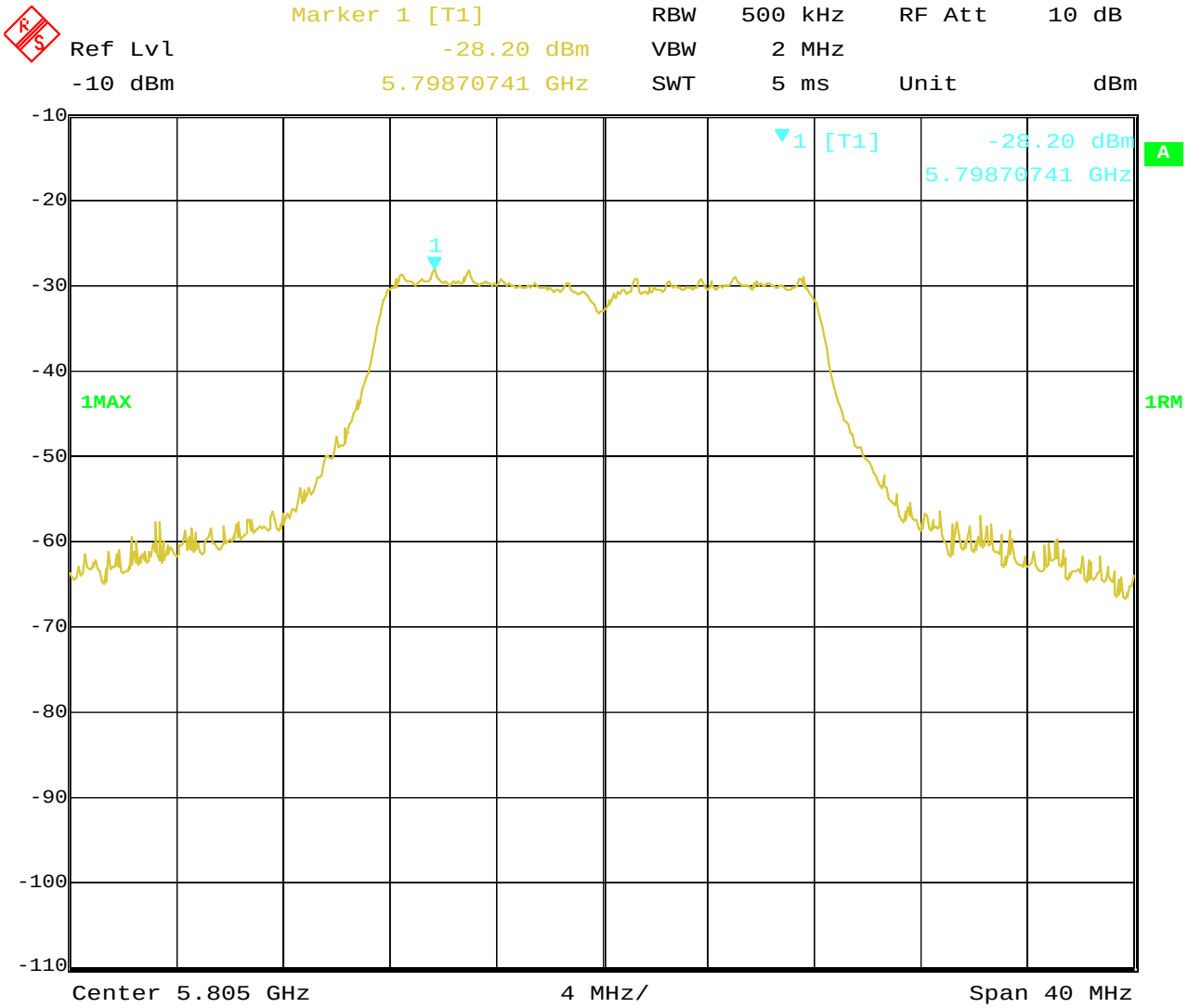
4.802.11a at 6Mbps of CH149



5.802.11a at 6Mbps of CH153



6.802.11a at 6Mbps of CH161

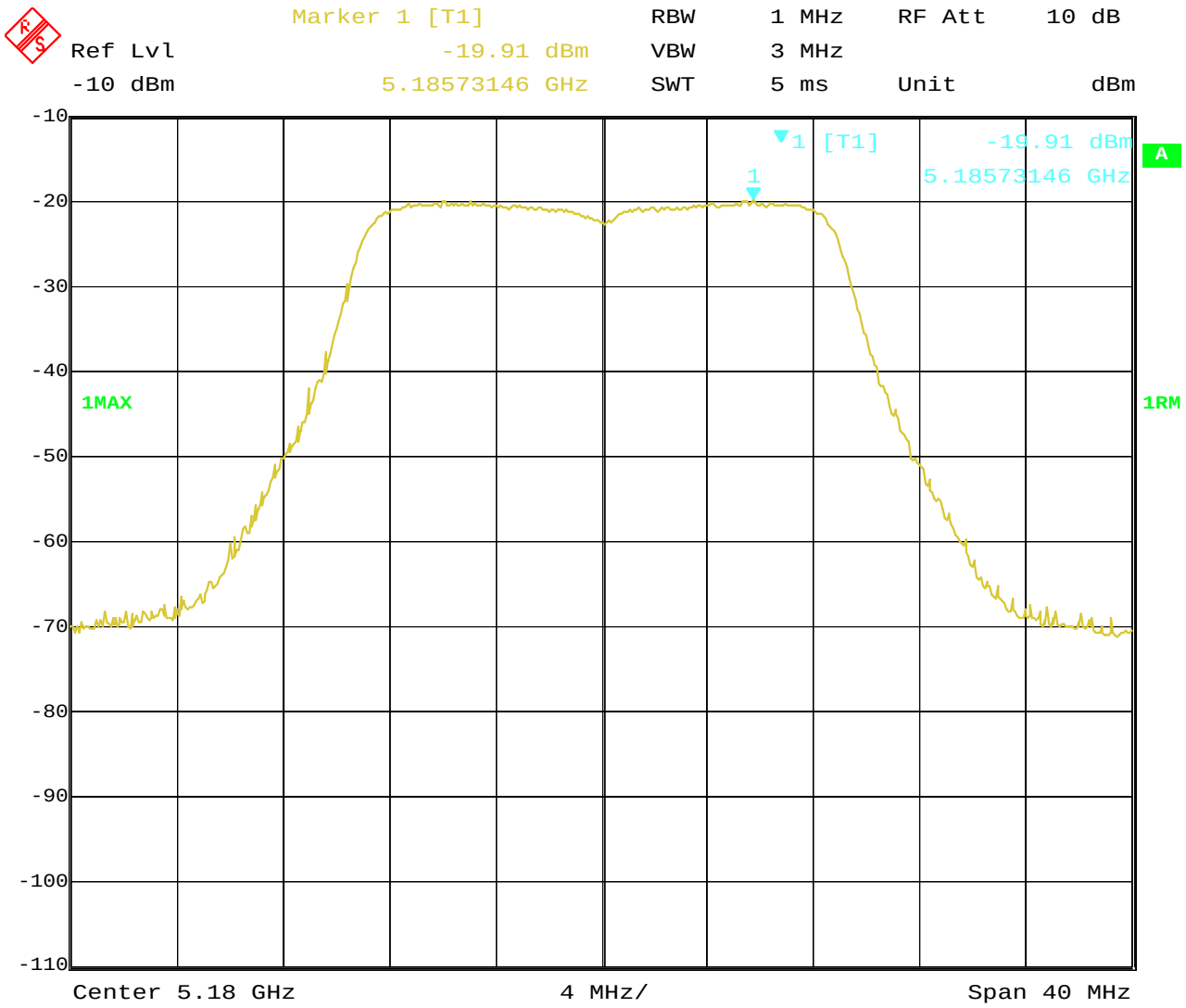


EUT	15. 6' Advertising Displayer	Model	NEB156-01
Mode	80 2.11n HT20 mcs0	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

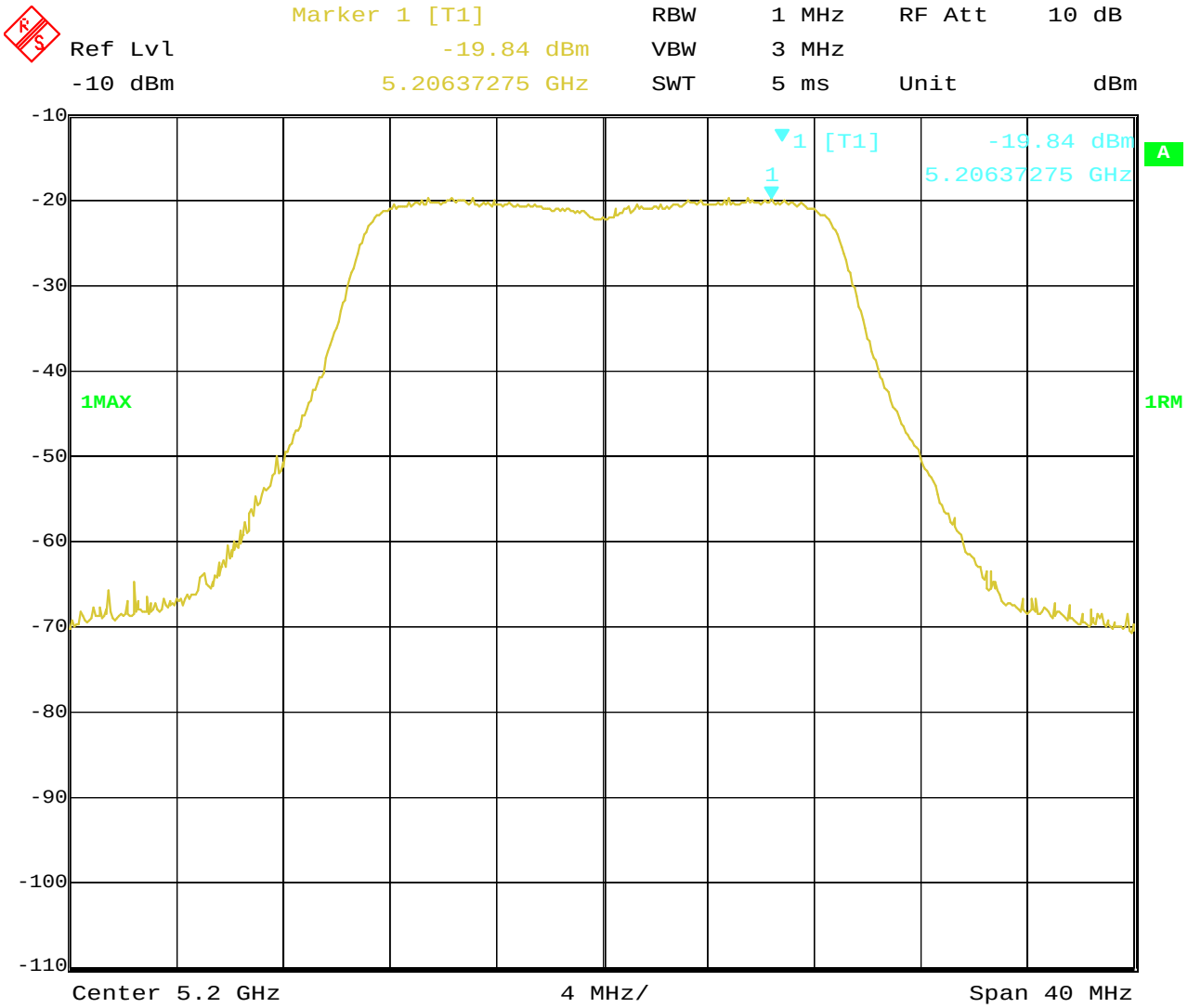
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
36	51 80	-19.91	11	Pass
40	52 00	-19.84	11	Pass
48	52 40	-20.09	11	Pass
149	57 45	-29.19	30	Pass
153	57 65	-29.32	30	Pass
161	58 05	-28.37	30	Pass

Test Plots

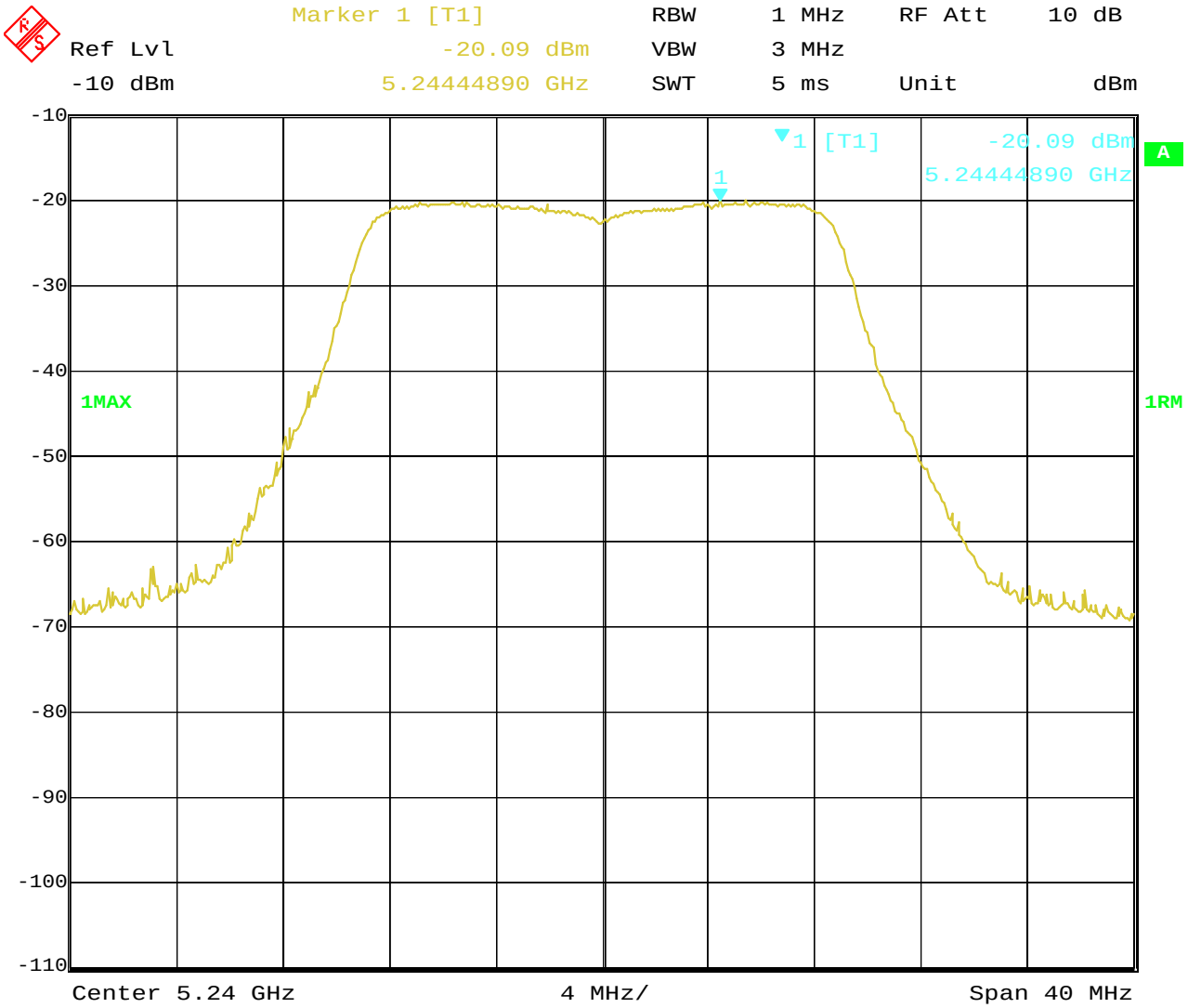
1.802.11n at mcs0 of CH36



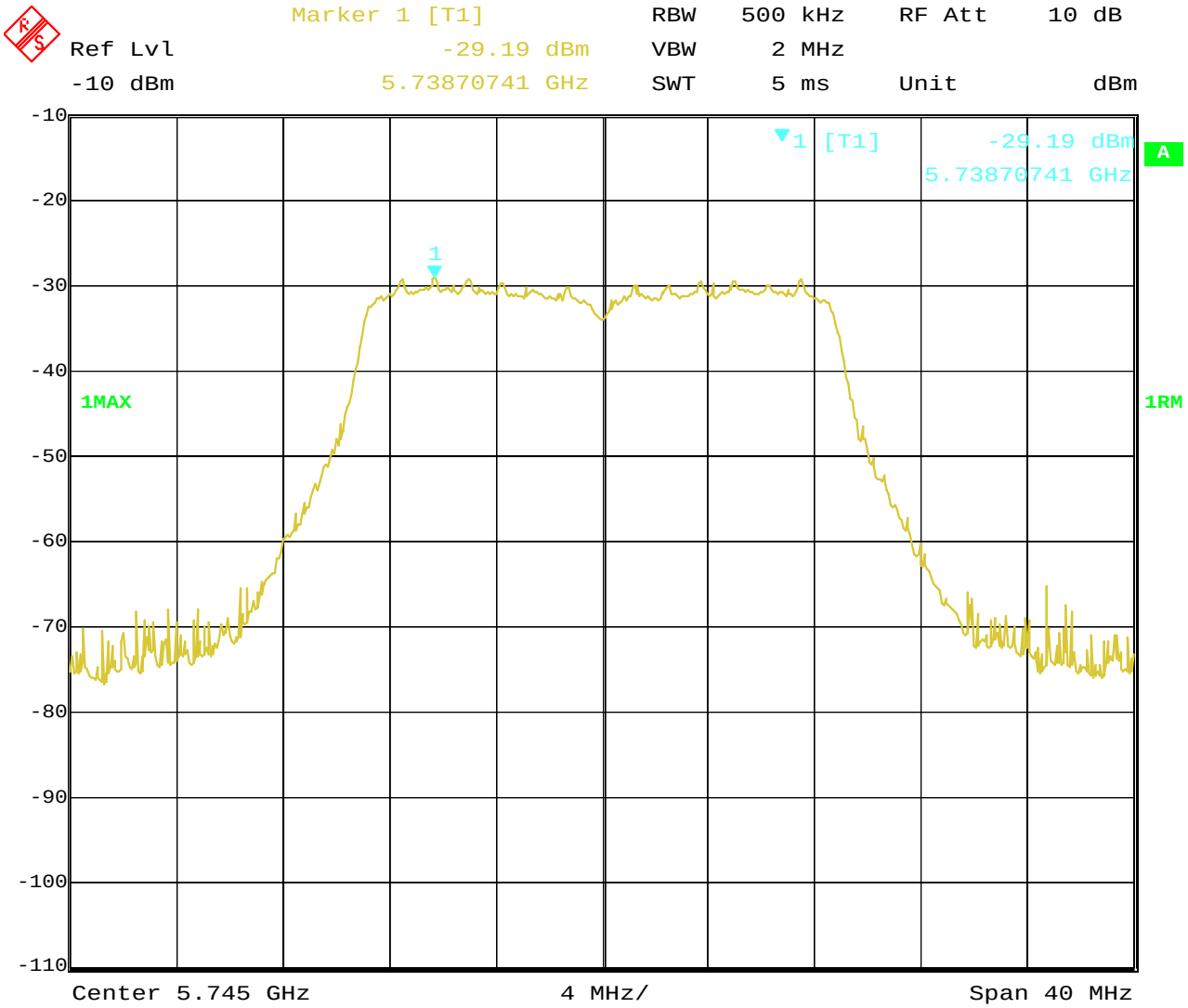
2.802.11n at mcs0 of CH40



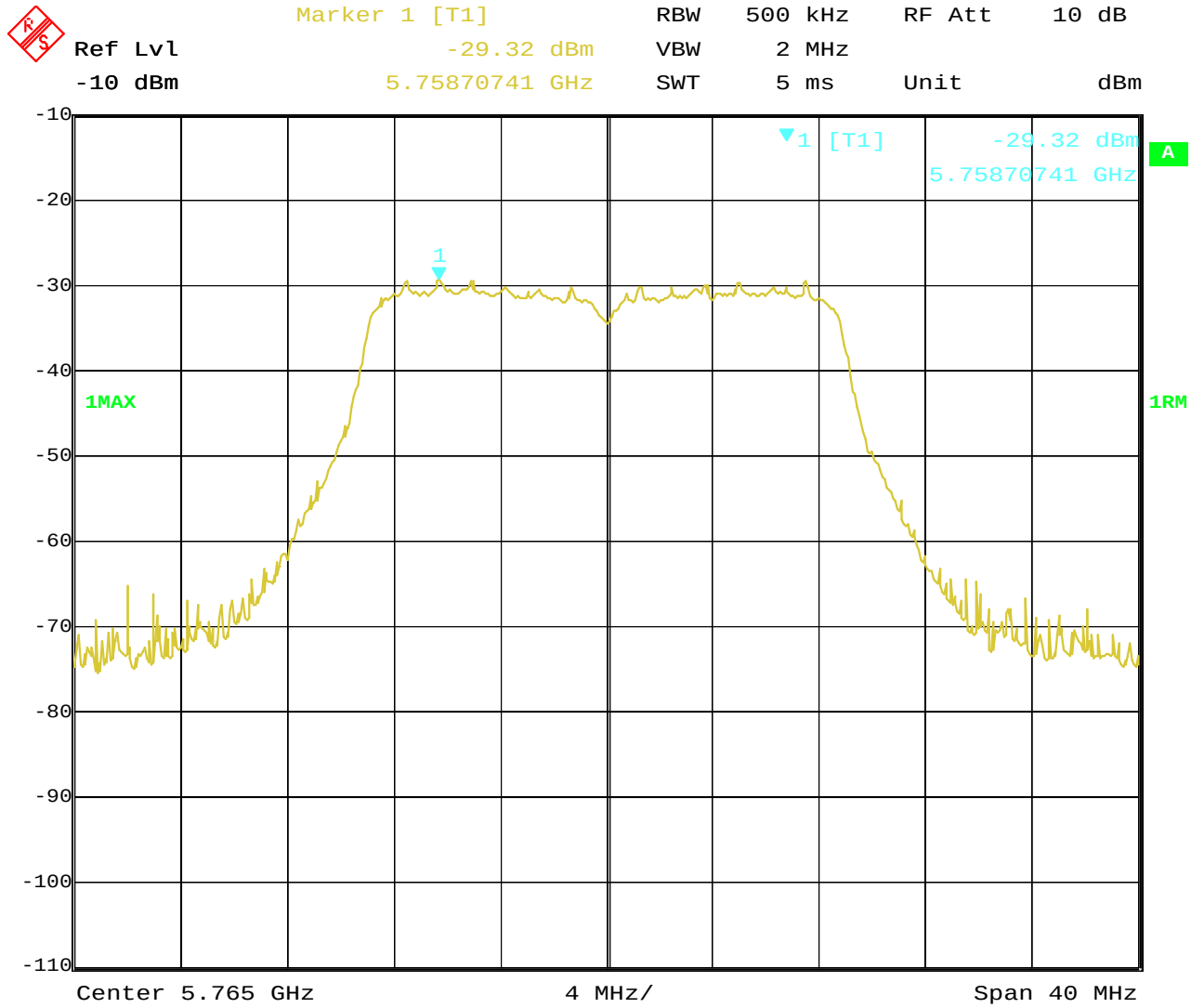
3.802.11n at mcs0 of CH48



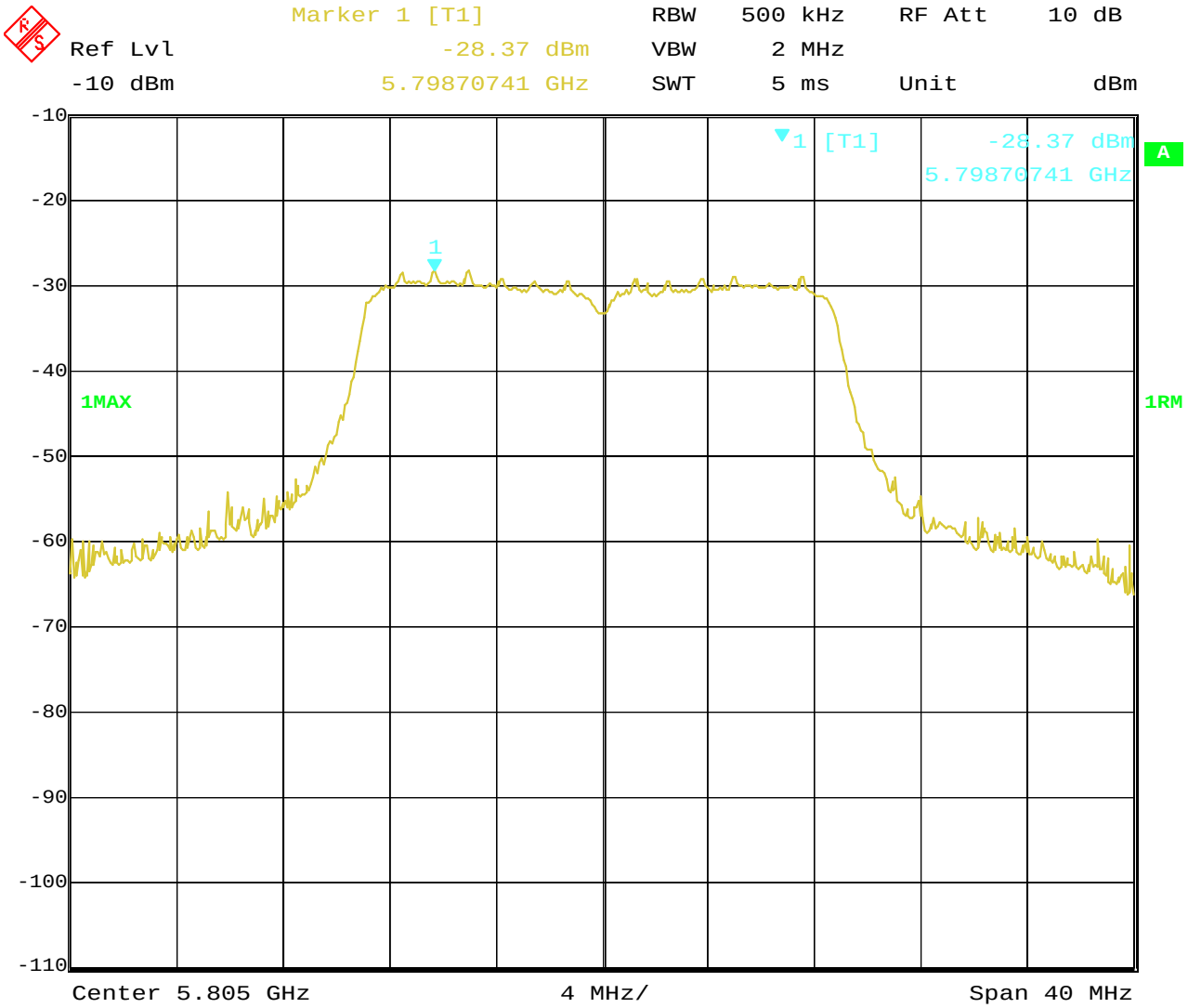
4.802.11n at mcs0 of CH149



5.802.11n at mcs0 of CH153



6.802.11n at mcs0 of CH161

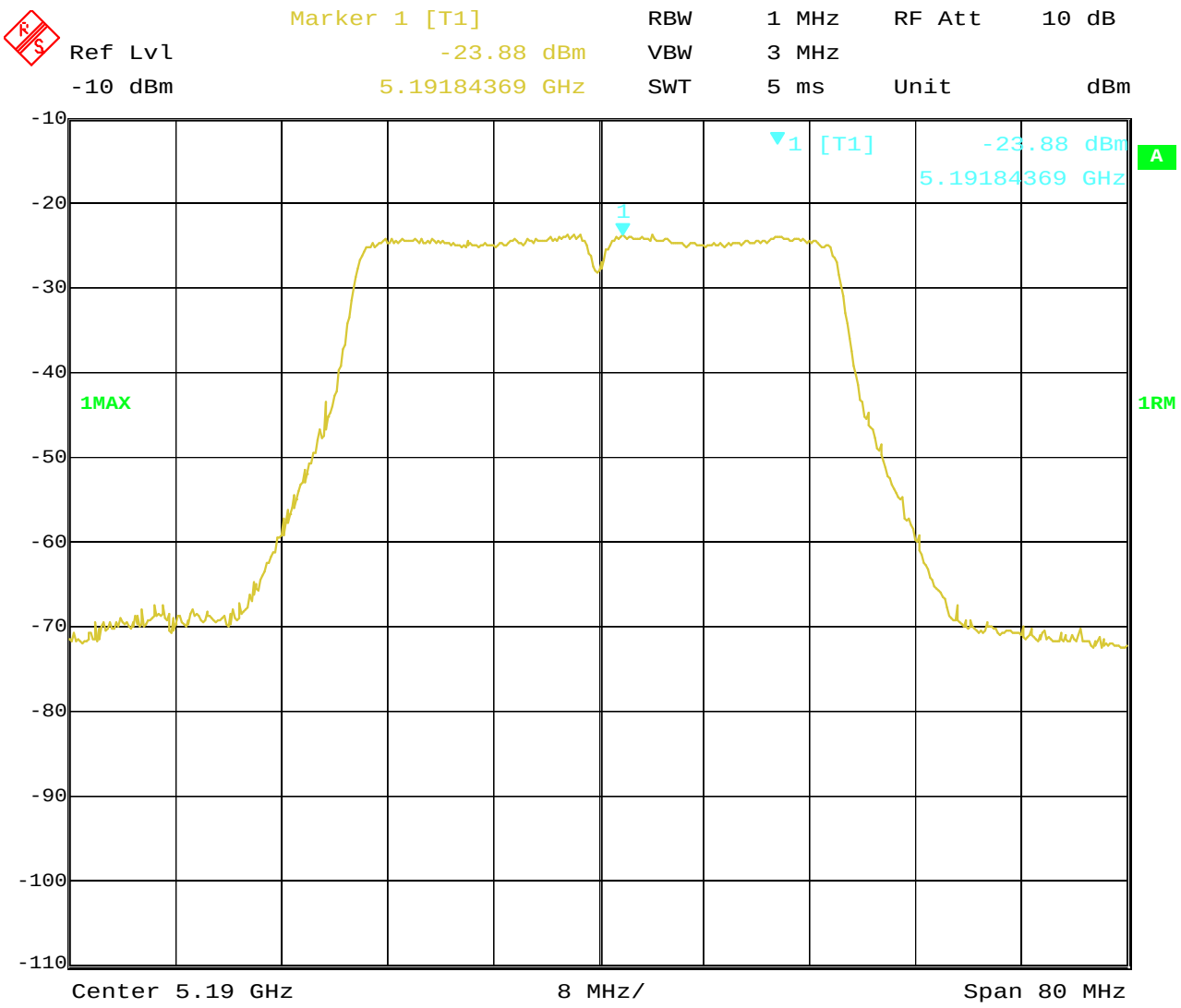


EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11n HT40 mcs0	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

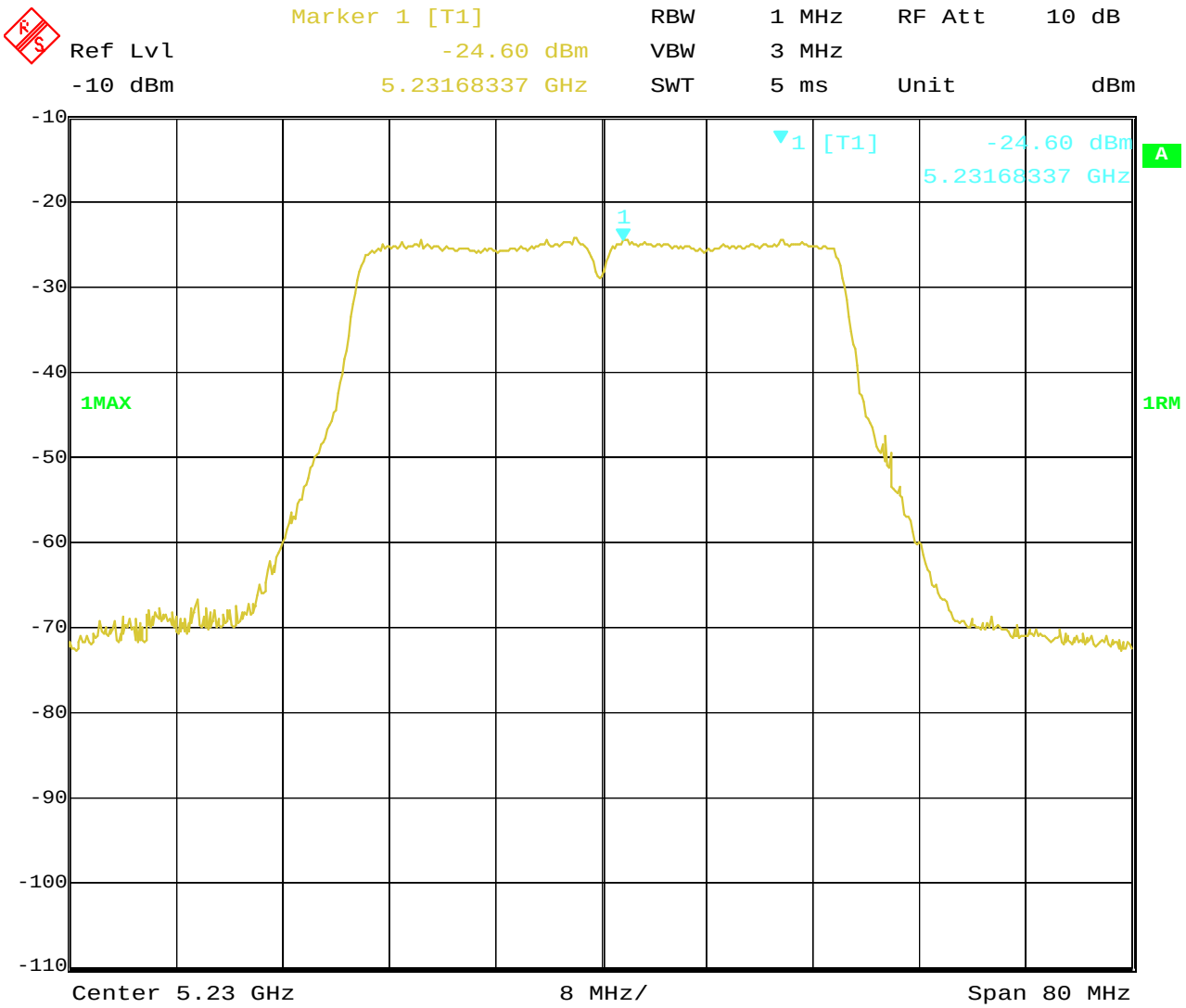
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
38	5190	-23.88	11	Pass
46	5230	-24.60	11	Pass
151	5755	-32.78	30	Pass
159	5795	-31.72	30	Pass

Test Plots

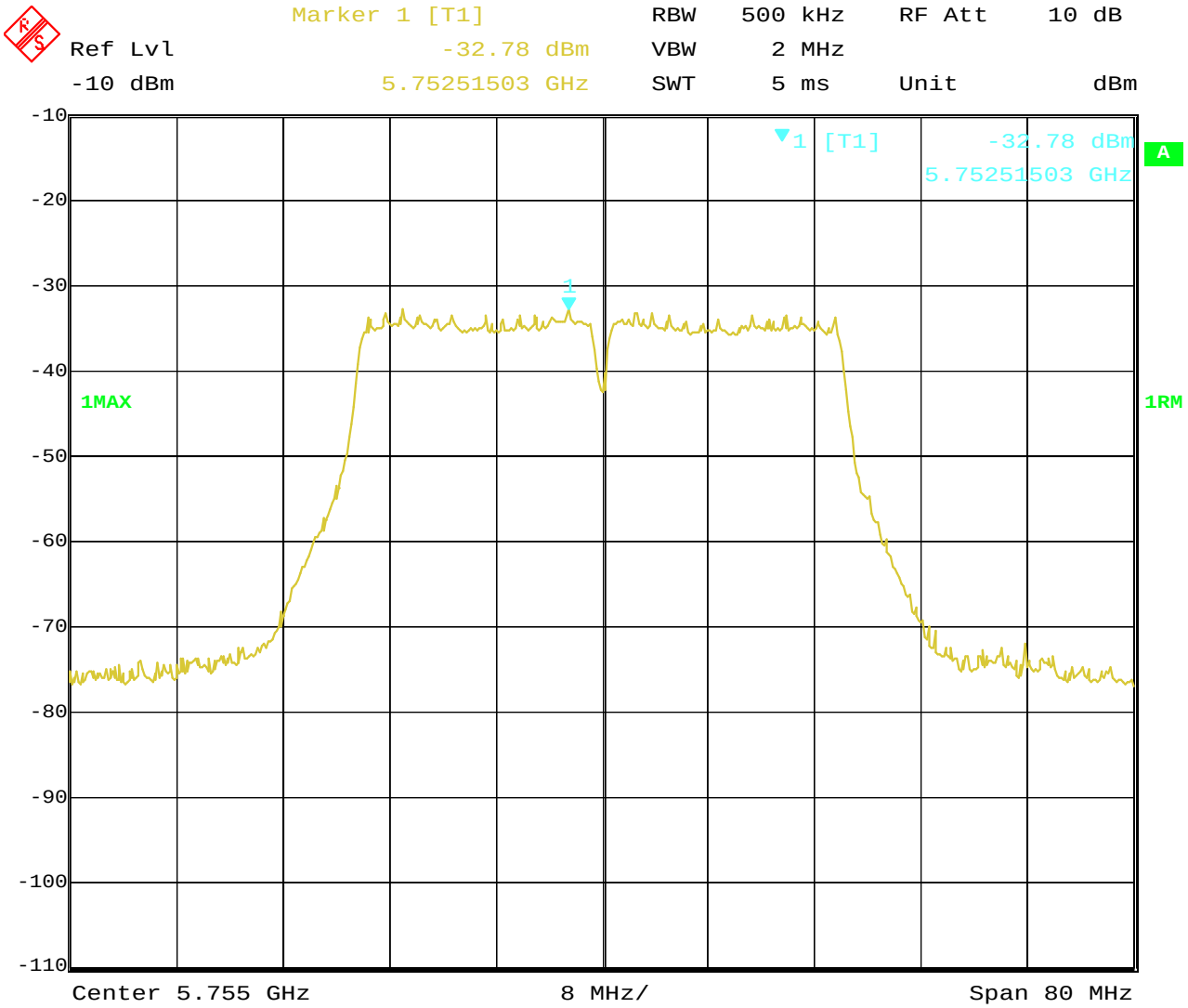
1.802.11n HT40 at mcs0 of CH38



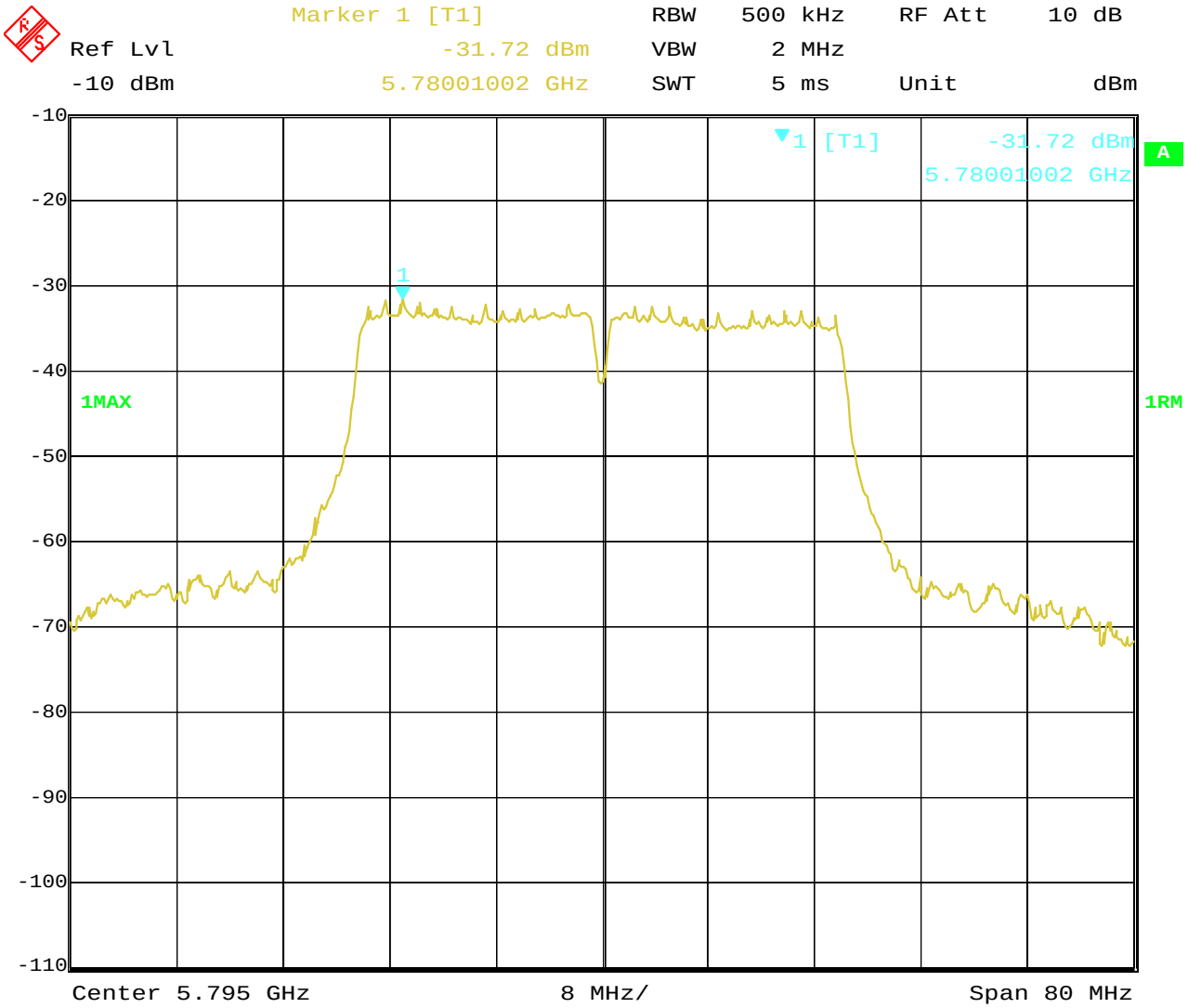
2.802.11n HT40 at mcs0 of CH46



3.802.11n HT40 at mcs0 of CH151



4.802.11n HT40 at mcs0 of CH159

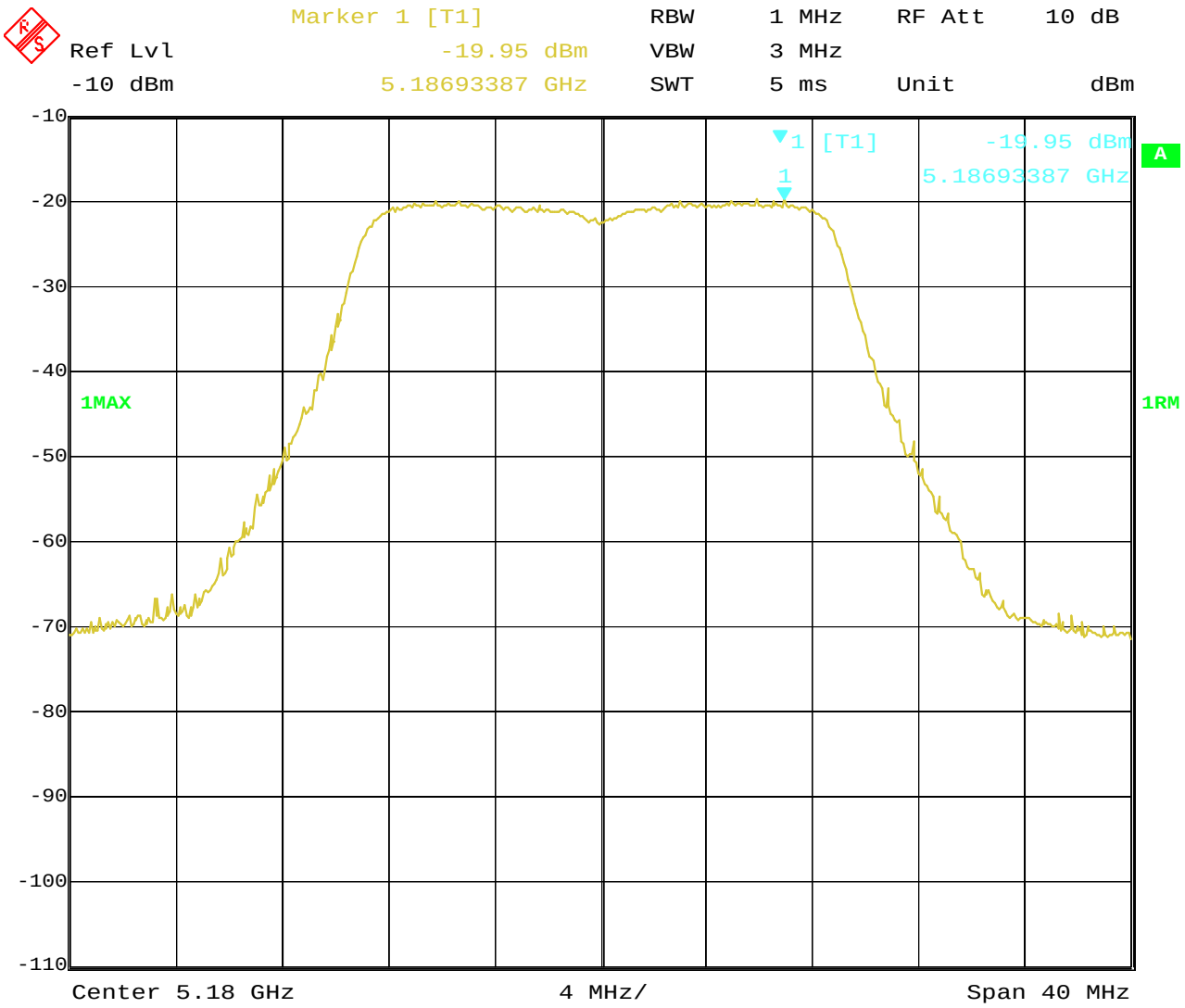


EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

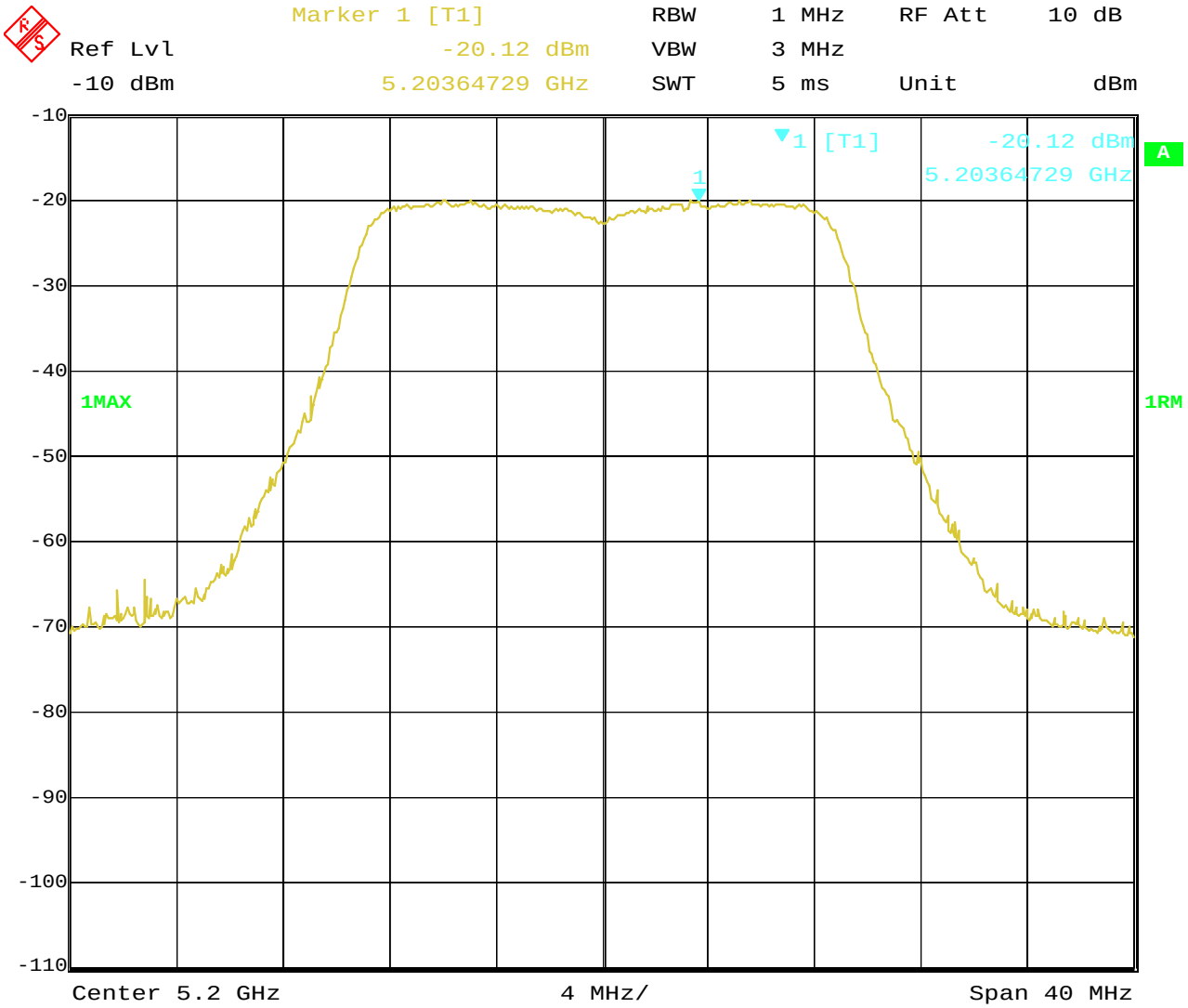
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-19.95	11	Pass
40	5200	-20.12	11	Pass
48	5240	-20.14	11	Pass
149	5745	-28.97	30	Pass
153	5765	-29.32	30	Pass
161	58 05	-28.53	30	Pass

Test Plots

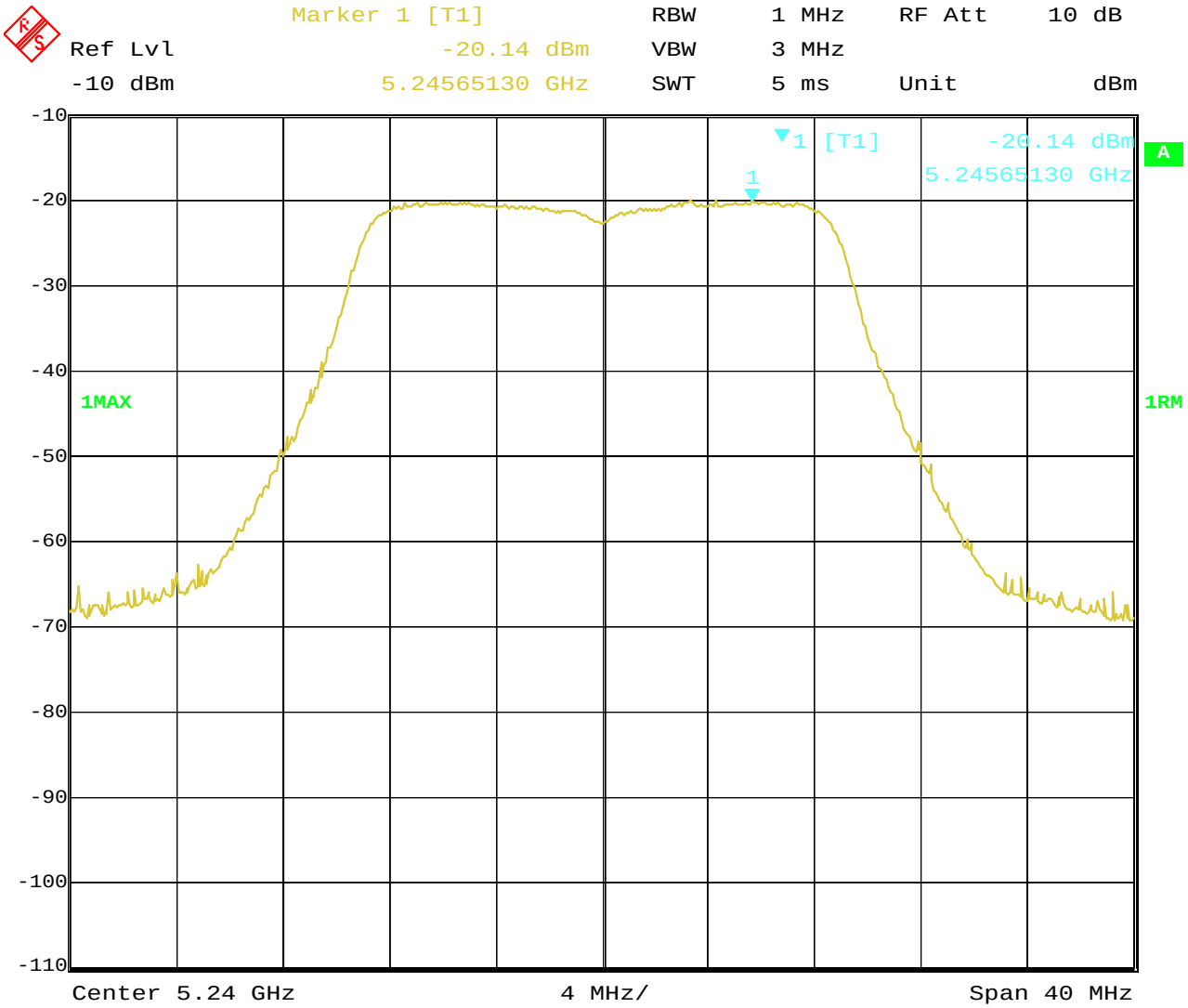
1.802.11ac at mcs0 of CH36



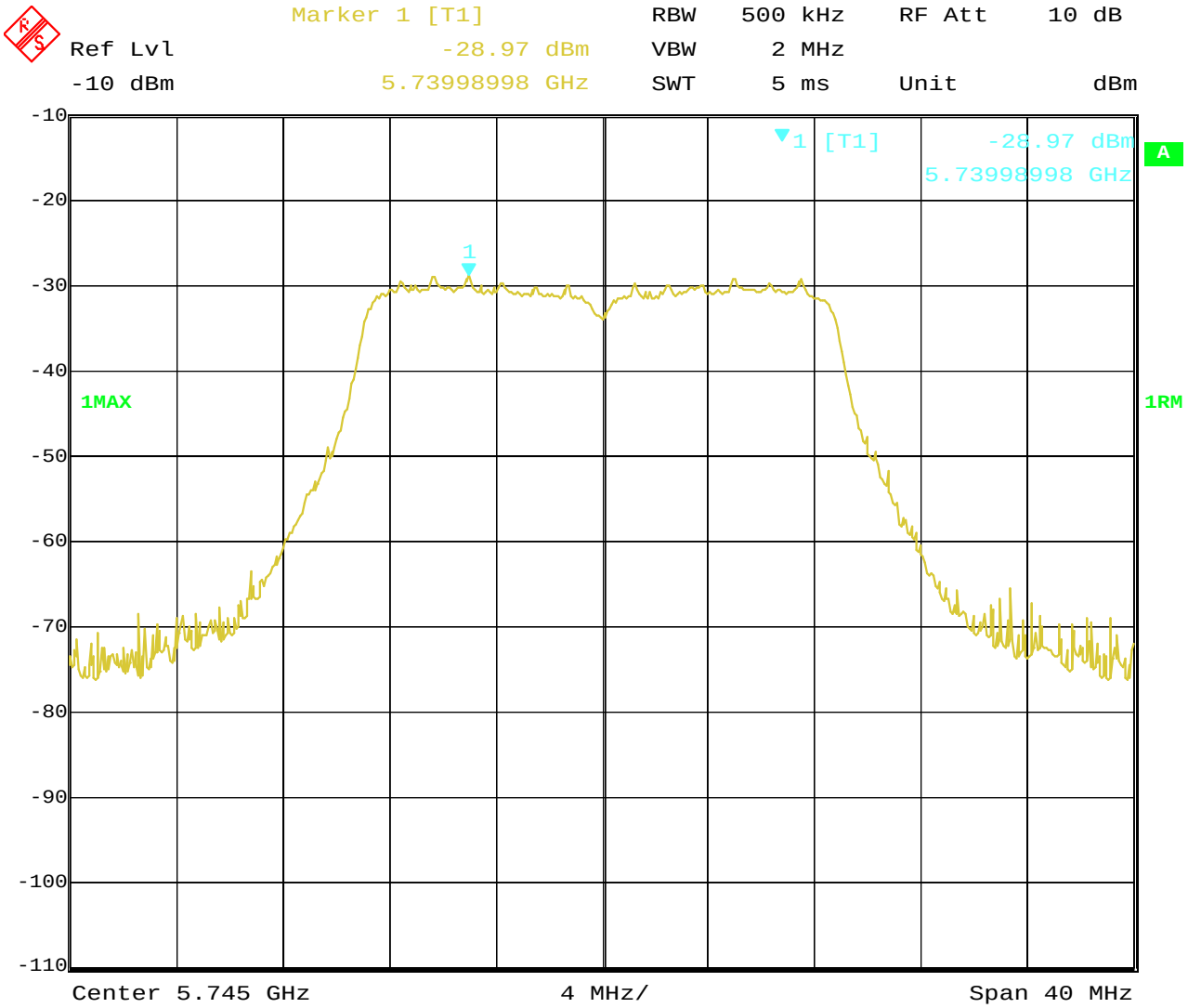
2.802.11ac at mcs0 of CH40



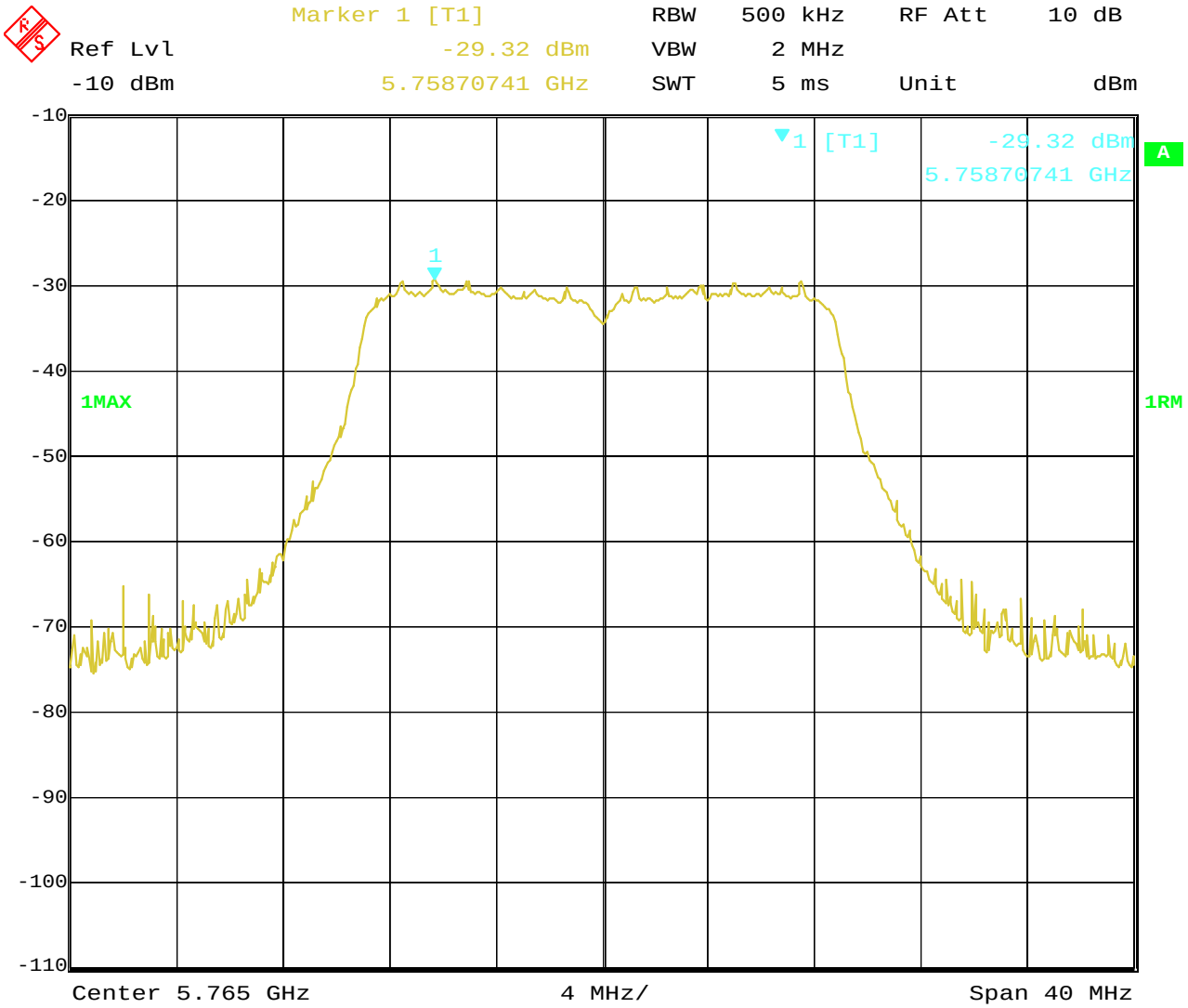
3.802.11ac at mcs0 of CH48



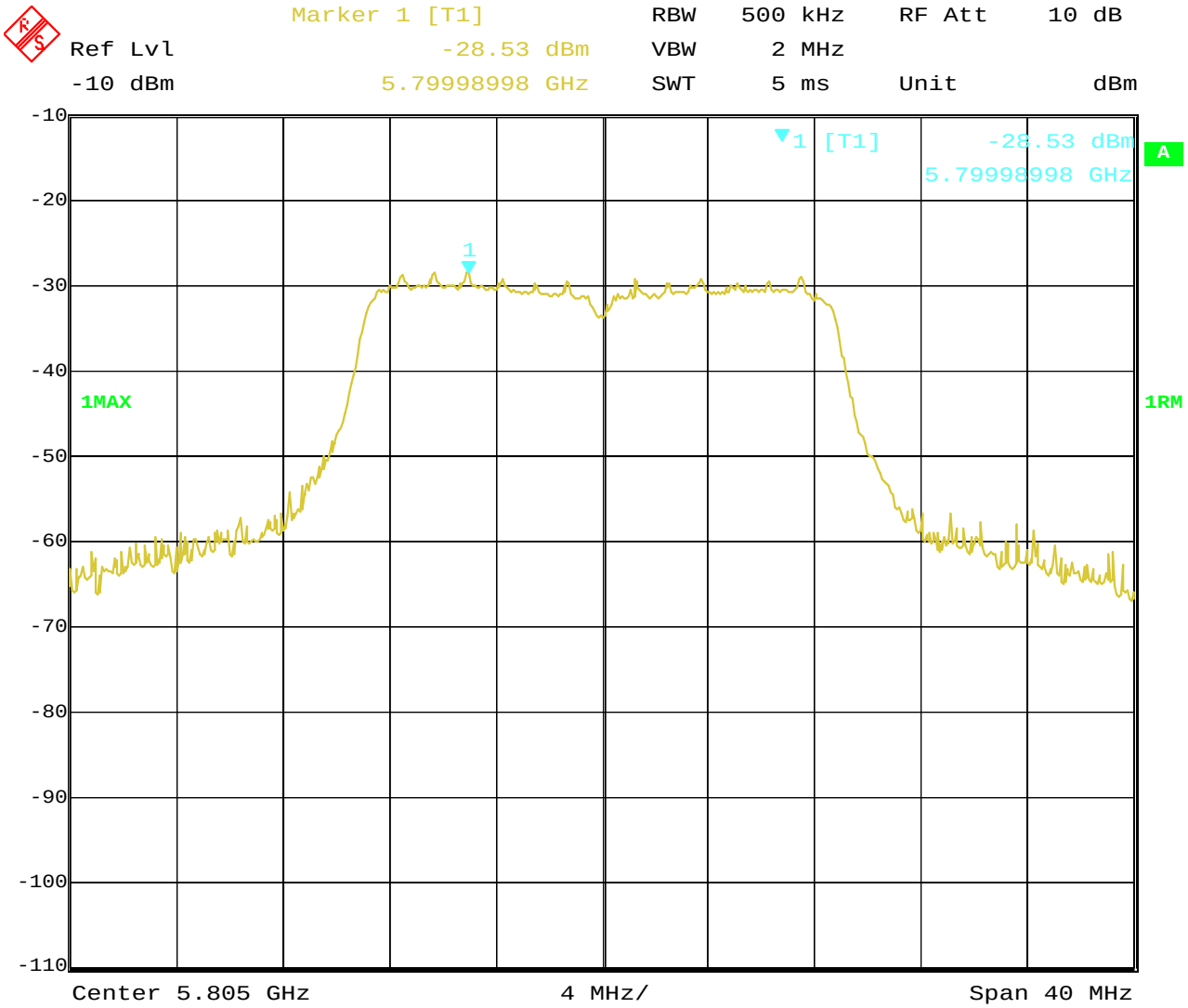
4.802.11ac at mcs0 of CH149



5.802.11ac at mcs0 of CH153



6.802.11ac at mcs0 of CH161

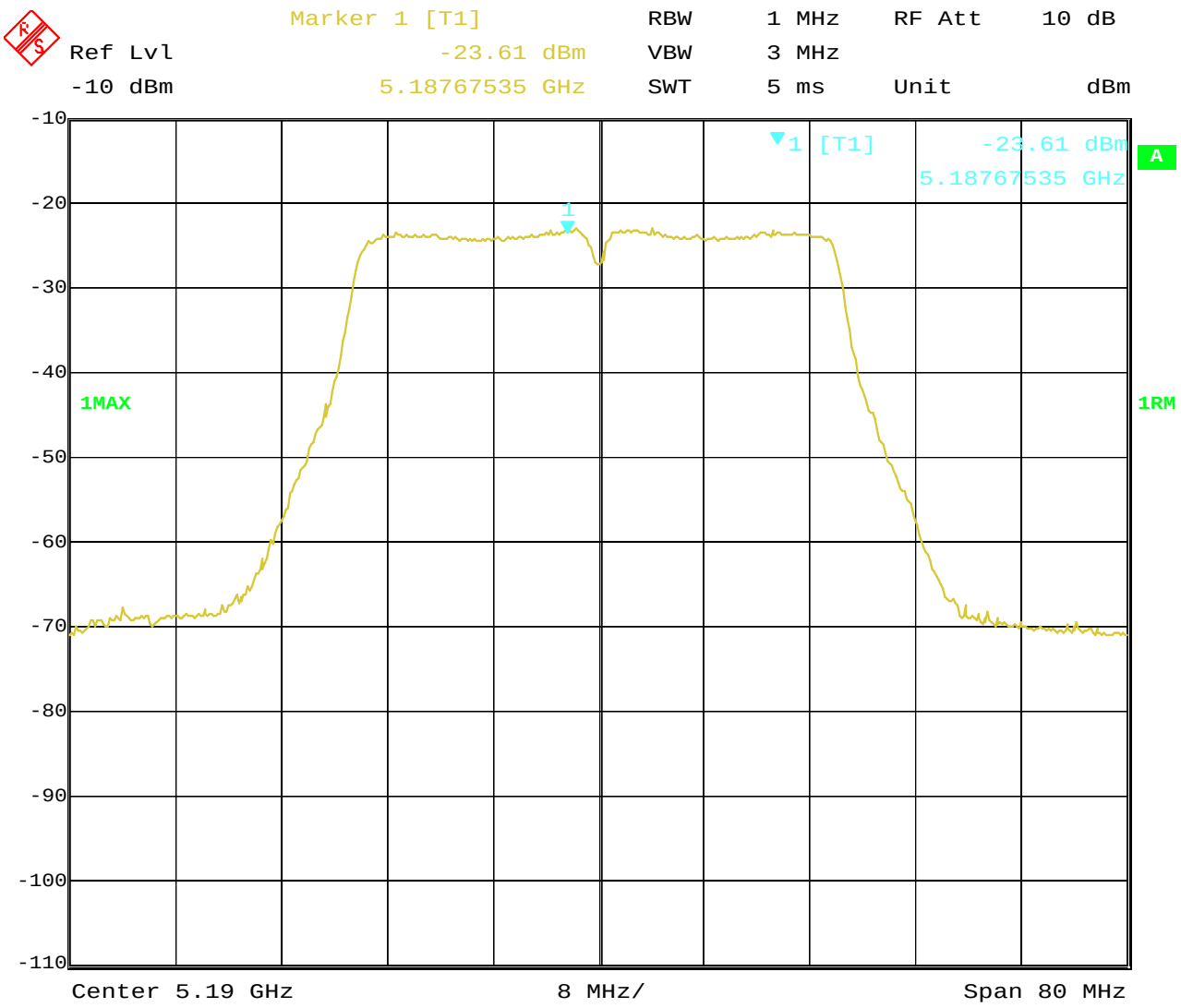


EUT	15. 6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

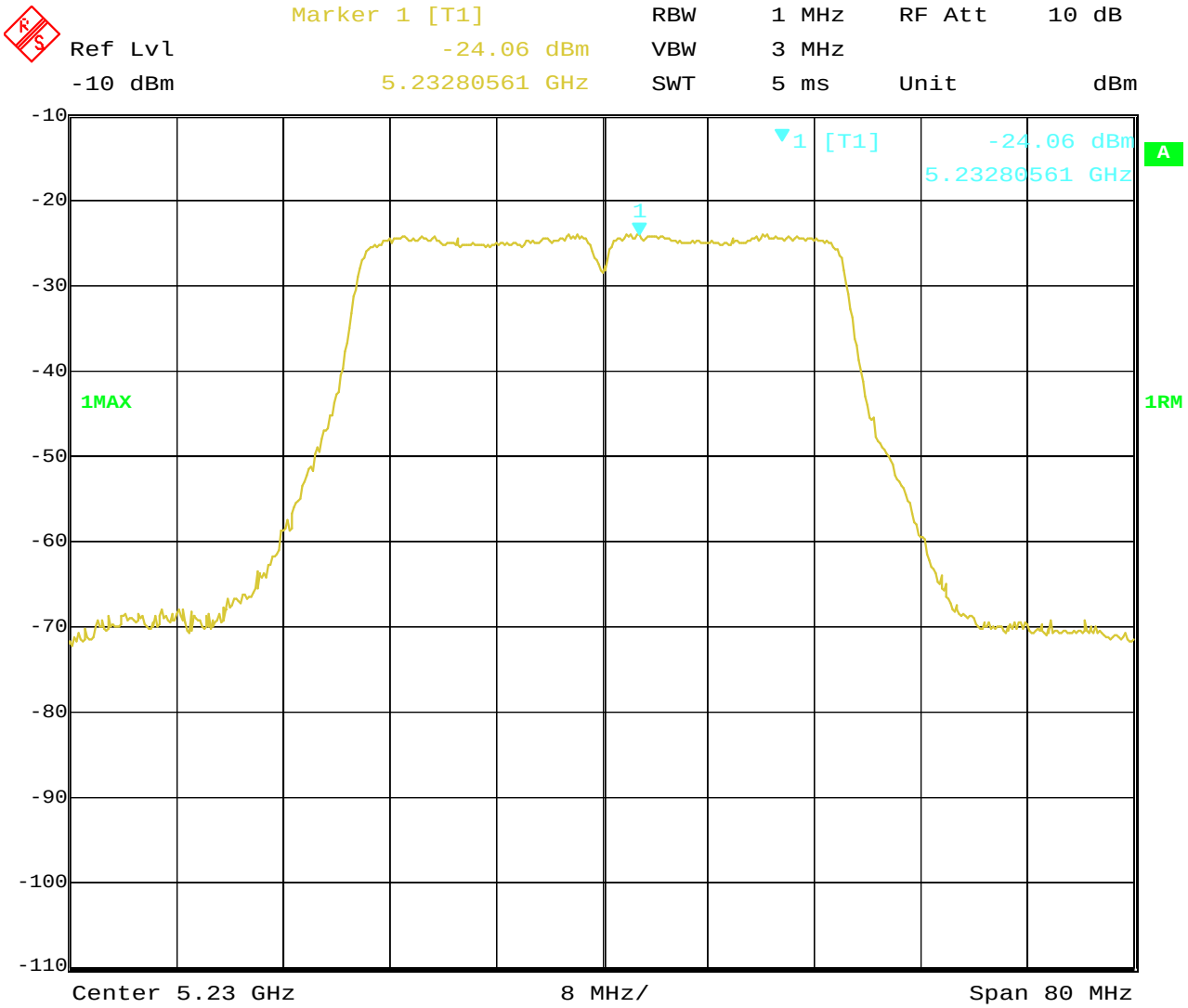
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
38	51 90	-23.61	11	Pass
46	52 30	-24.06	11	Pass
151	57 55	-33.00	30	Pass
159	57 95	-31.50	30	Pass

Test Plots

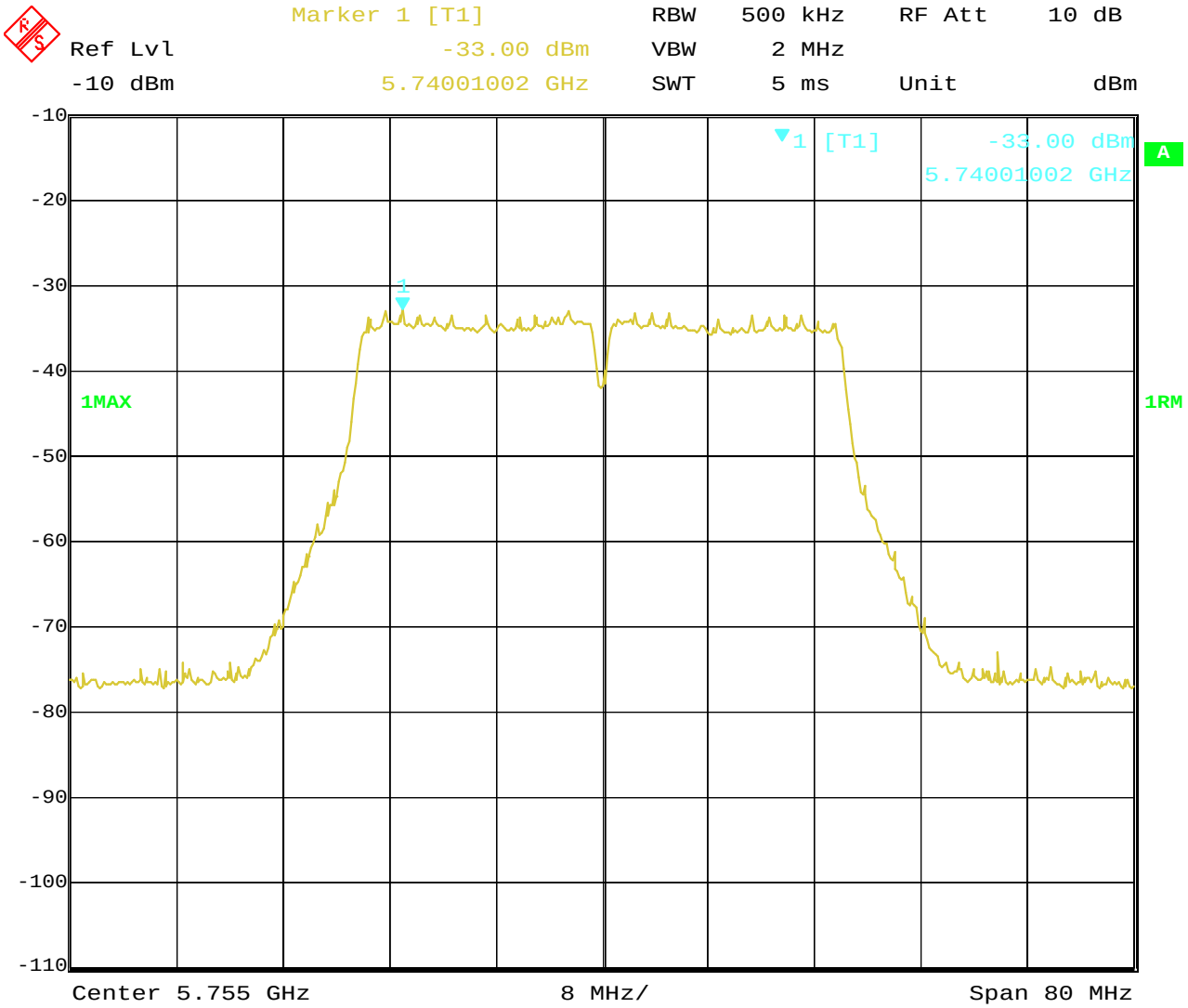
1.802.11ac VHT40 at mcs0 of CH38



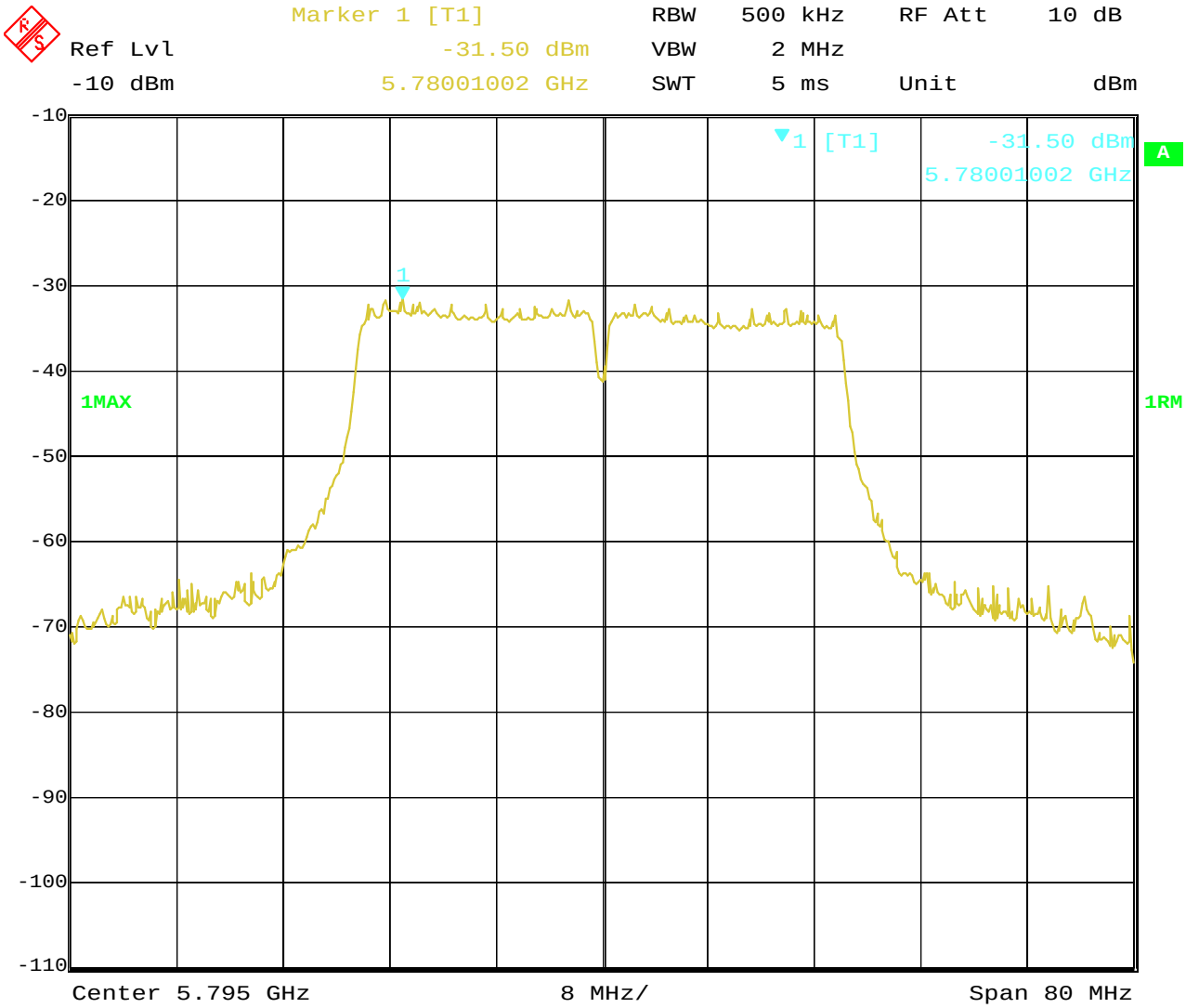
2.802.11ac VHT40 at mcs0 of CH46



3.802.11ac VHT40 at mcs0 of CH151



4.802.11ac VHT40 at mcs0 of CH159

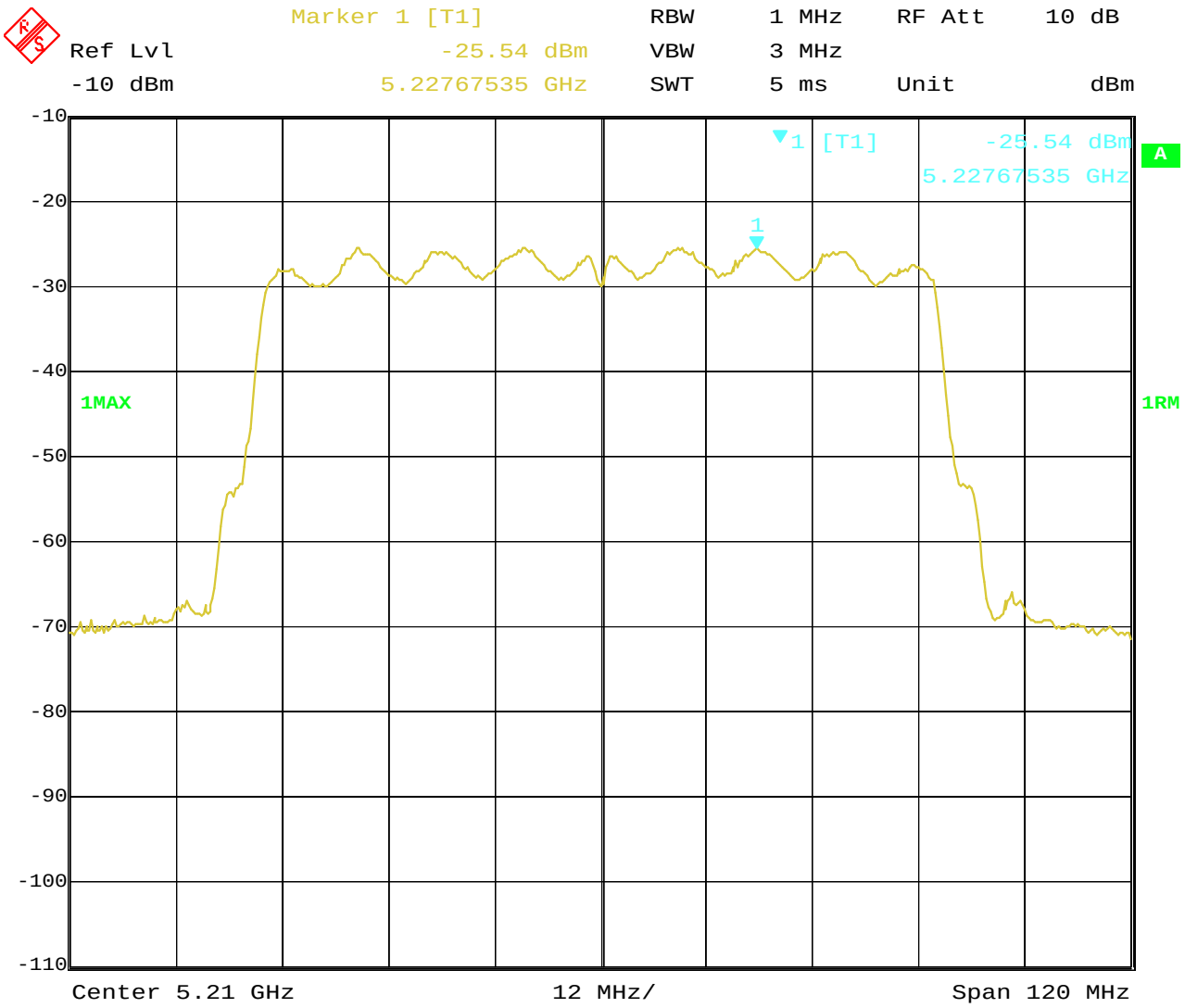


EUT	15.6' Advertising Displayer	Model	NEB156-01
Mode	802.11ac VHT80 23.9Mbps	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

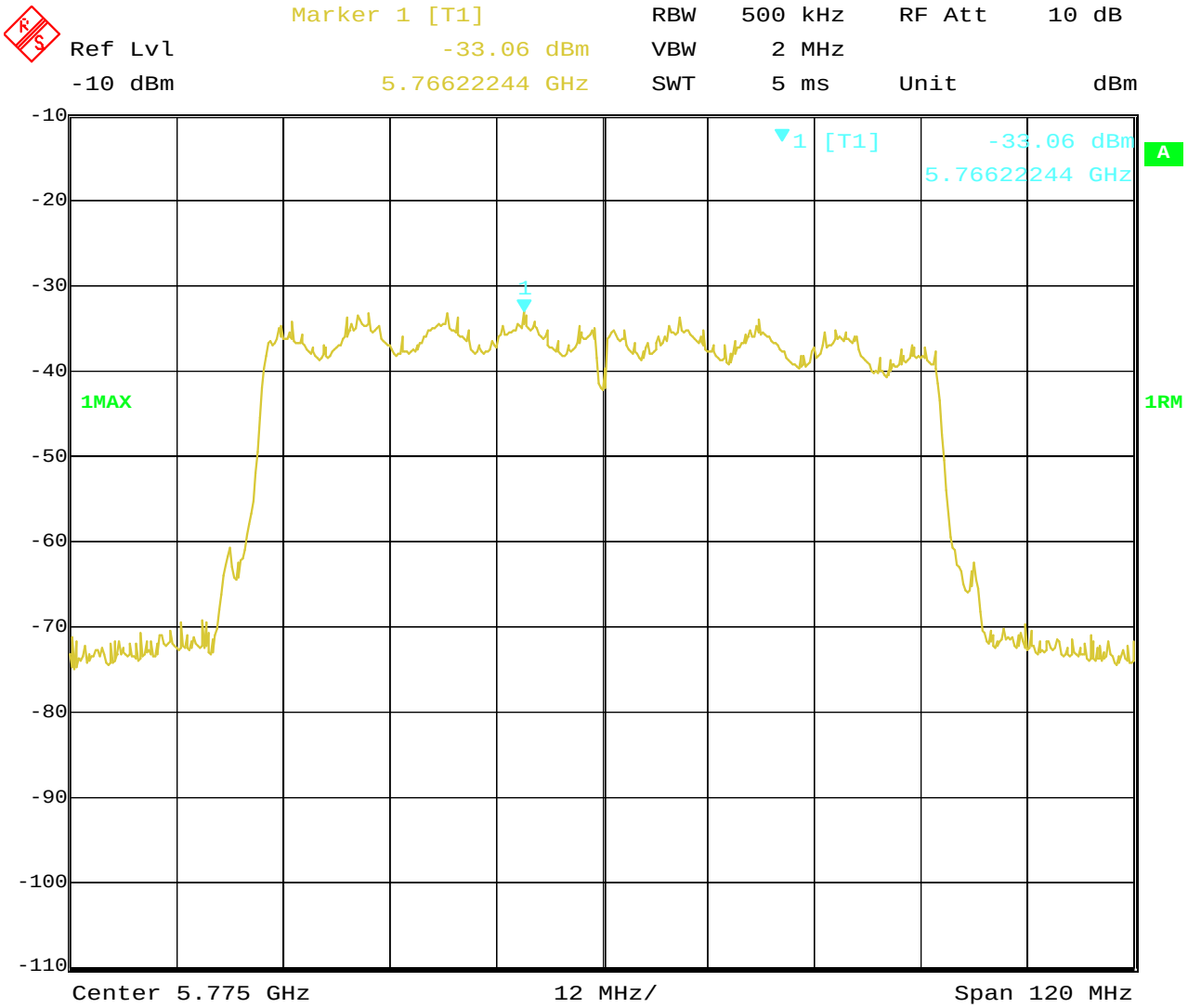
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
42	52 10	-25.54	11	Pass
155	5775	-33.06	30	Pass

Test Plots

1.802.11ac at 23.9Mbps of CH42



2.802.11ac at 23.9Mbps of CH155



10.0 Frequency Stability

10.1 Limits of Frequency Stability Measurement

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees

10.2 Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

11.3 Test Result

Channel 36 (5180MHz)

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
138V	5179.9853
120V	5179.9814
102V	5179.9876
Max. Deviation (MHz)	0.0186
Max. Deviation (ppm)	3.6

Rated working voltage: 120V~

Temperature vs. Frequency Stability

Temperature（℃）	Measurement Frequency (MHz)
-30	5179.9826
-20	5179.9799
-10	5179.9802
0	5179.9785
10	5179.9867
20	5179.9813
30	5179.9851
40	5179.9764
50	5179.9792
Max. Deviation (MHz)	0.0236
Max. Deviation (ppm)	4.6

Channel 149 (5745MHz)

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
138V	5744.9783
120V	5744.9809
102V	5744.9815
Max. Deviation (MHz)	0.0217
Max. Deviation (ppm)	3.8

Rated working voltage: 120V~

Temperature vs. Frequency Stability

Temperature（℃）	Measurement Frequency (MHz)
-30	5744.9746
-20	5744.9787
-10	5744.9793
0	5744.9766
10	5744.9741
20	5744.9775
30	5744.9801
40	5744.9798
50	5744.9812
Max. Deviation (MHz)	0.0259
Max. Deviation (ppm)	4.5

11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Integral antenna used. The maximum Gain of each antenna is 3.0 dBi for 5G band.

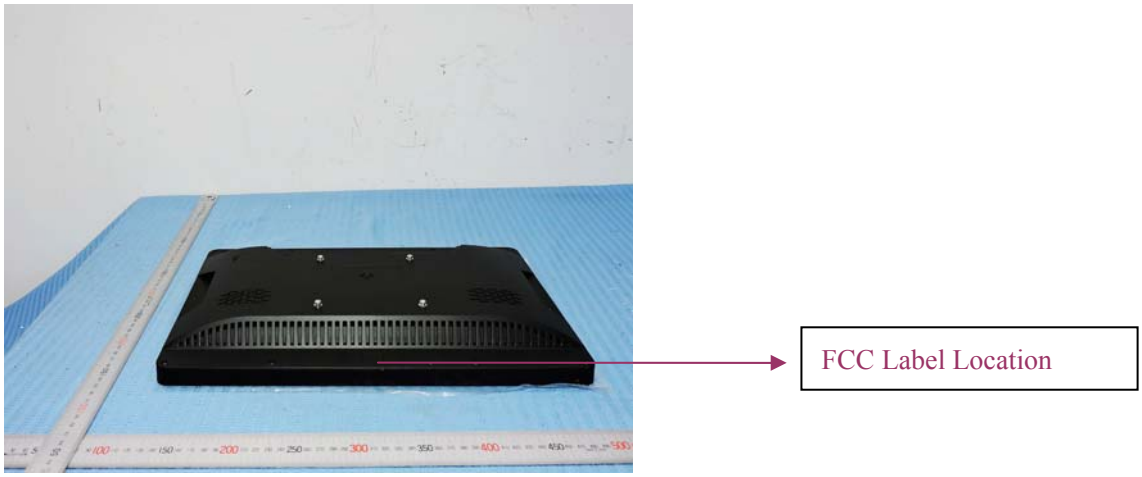
12.0 FCC Label

FCC ID: 2AACS-NEB156-01

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



13.0 Photo of testing

Conducted Emission Test Setup:

Radiated Emission Test Setup:

Photos of EUT

Please see test report FCC1709051-01

End of the report