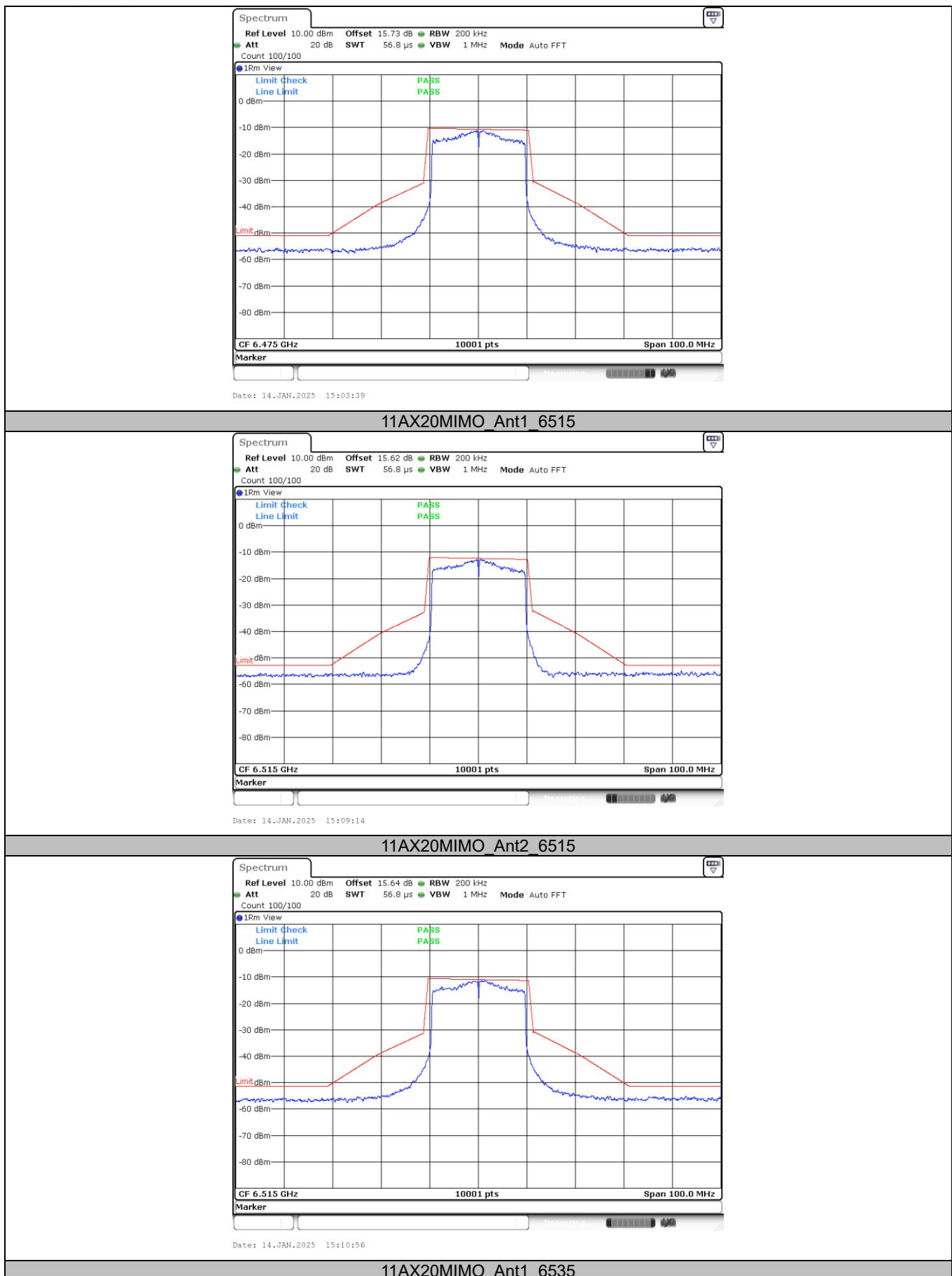


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

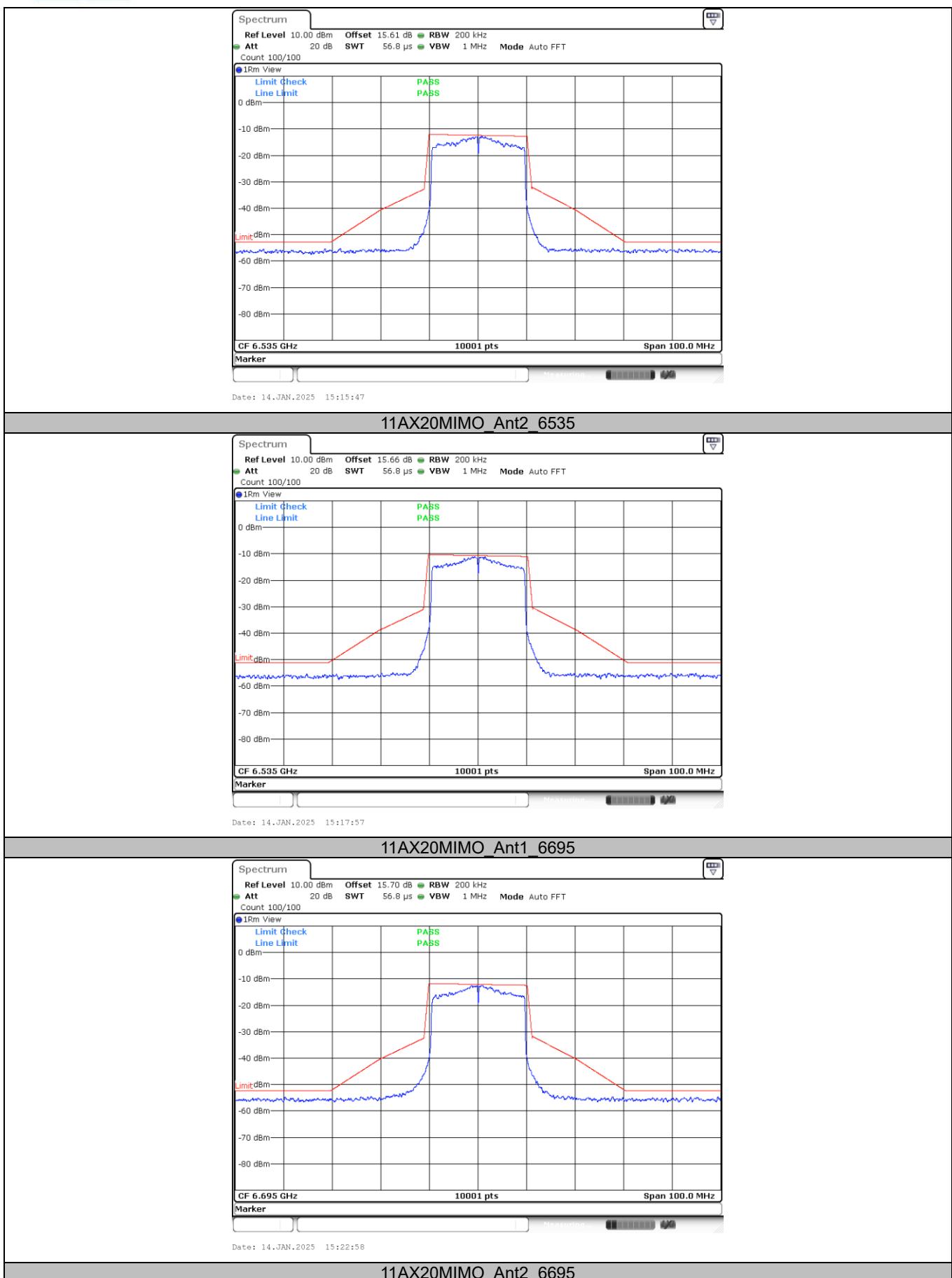


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

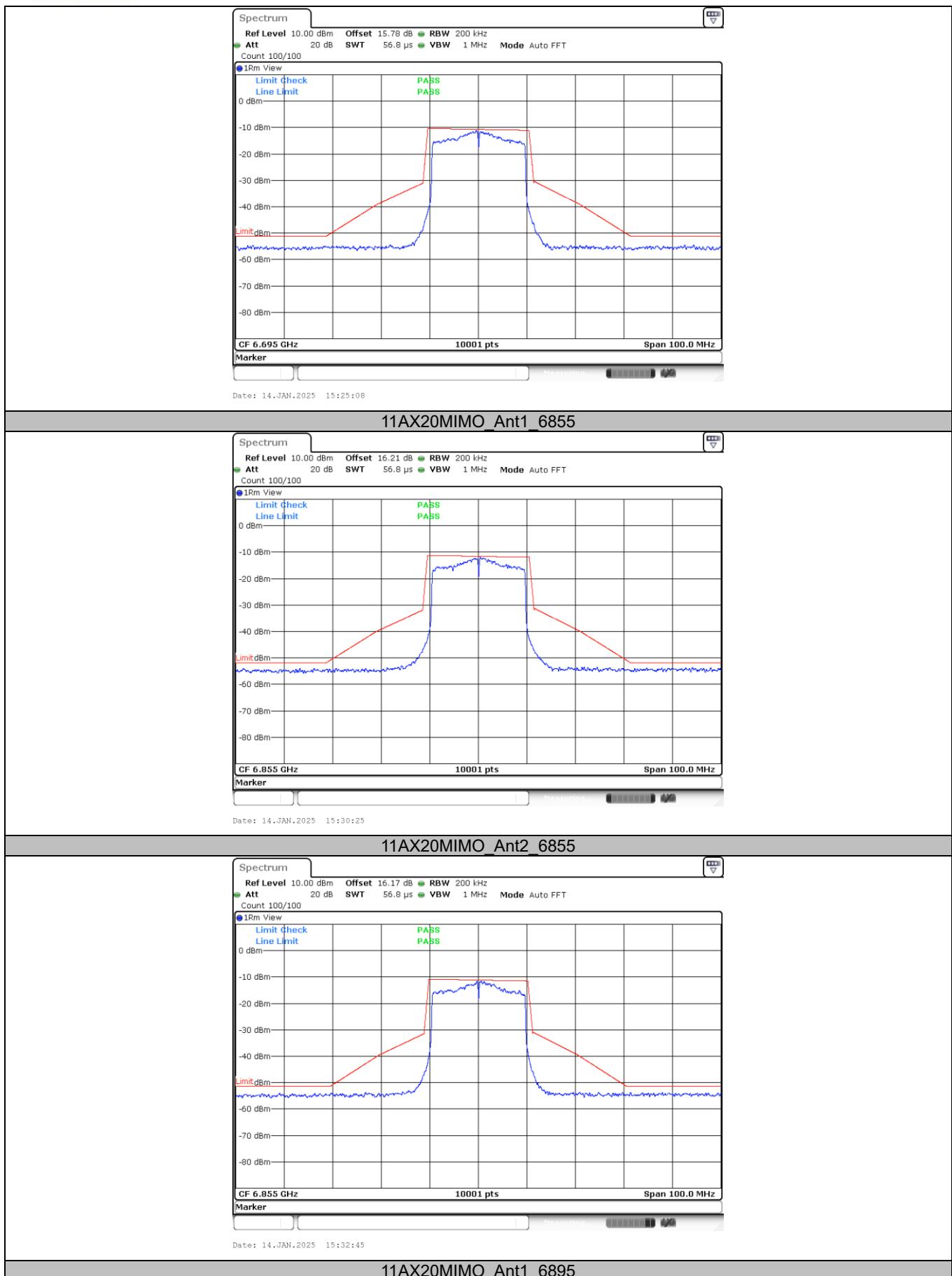


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

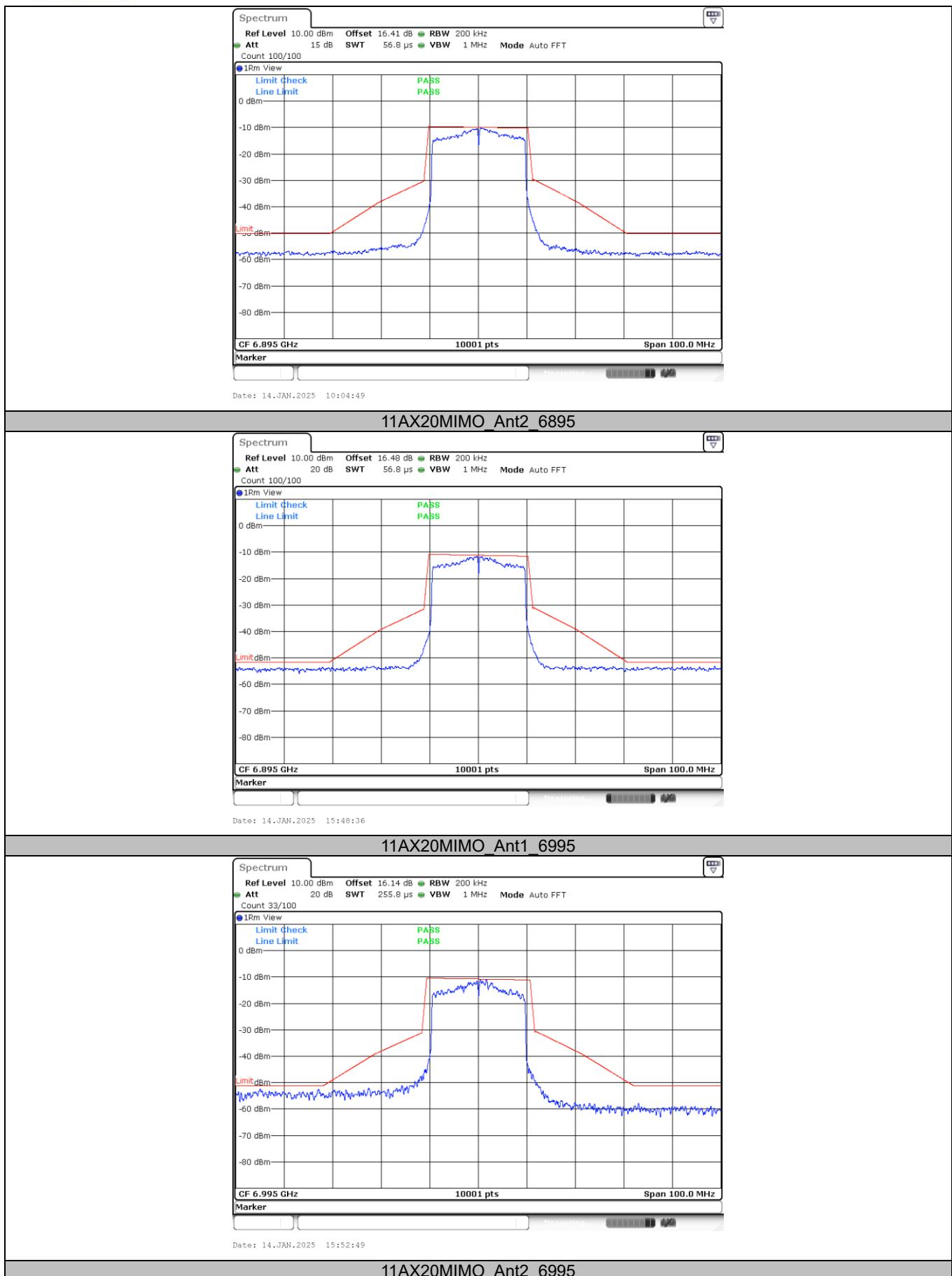


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnca.gov.cn

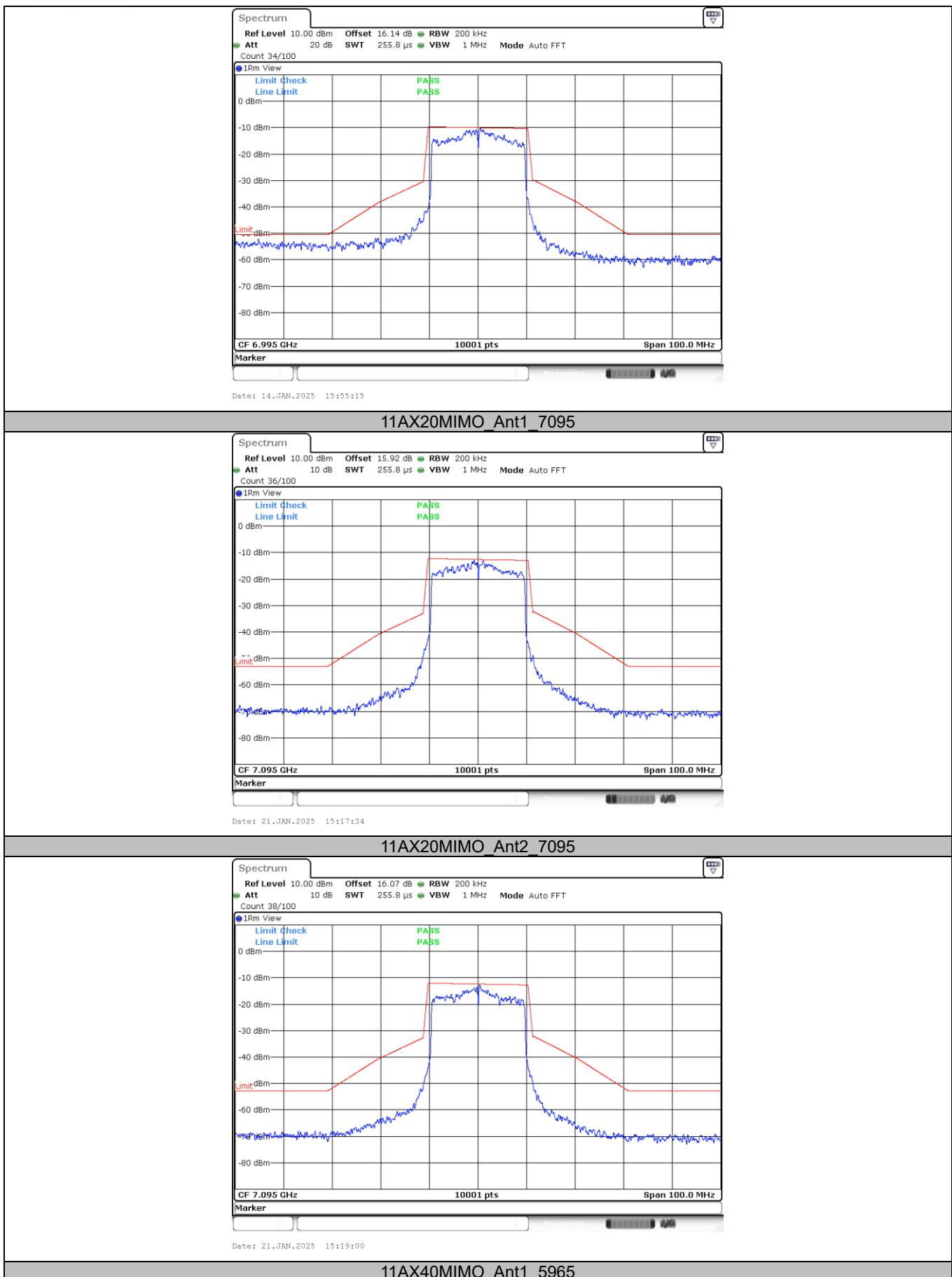


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

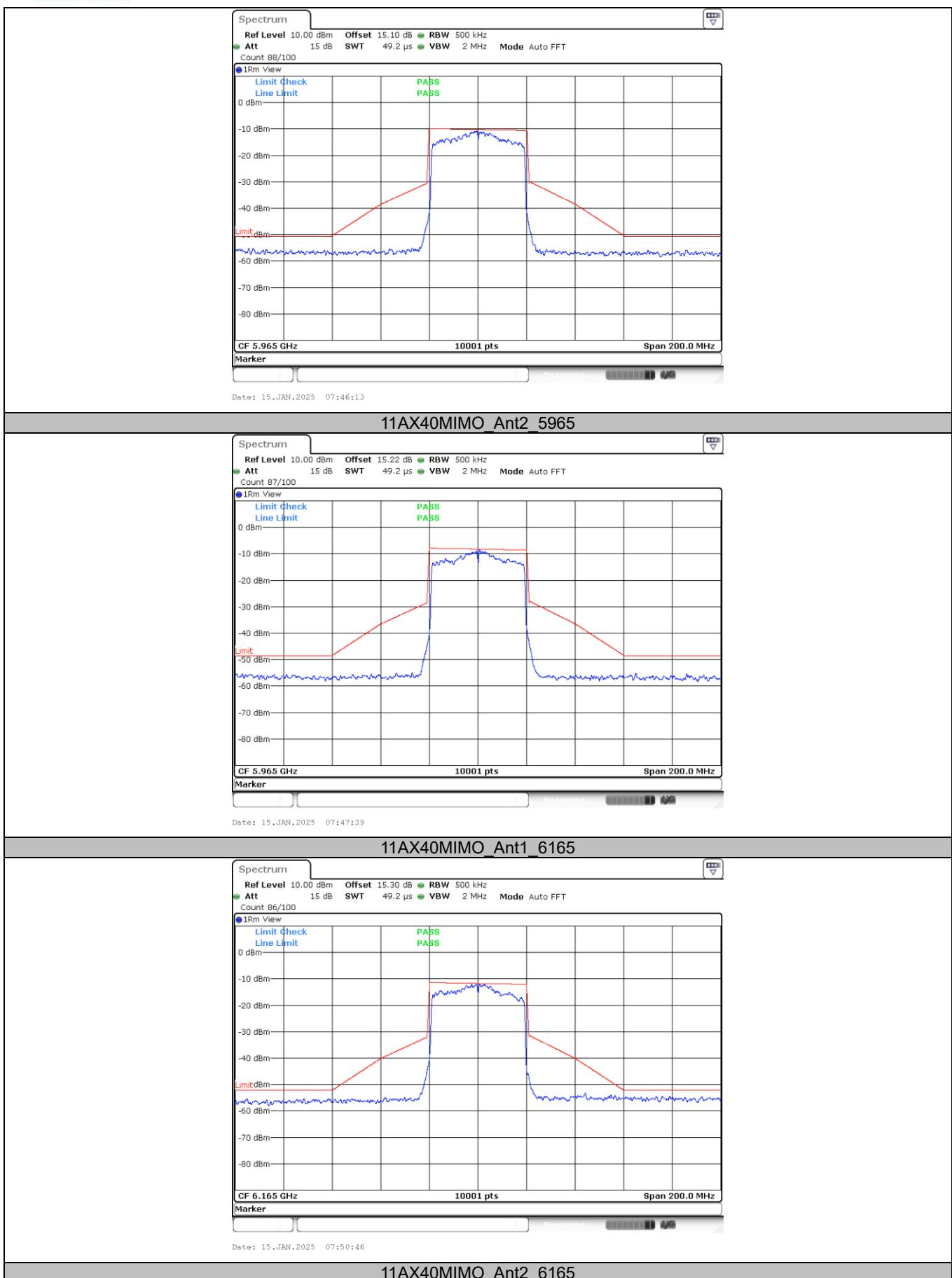


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

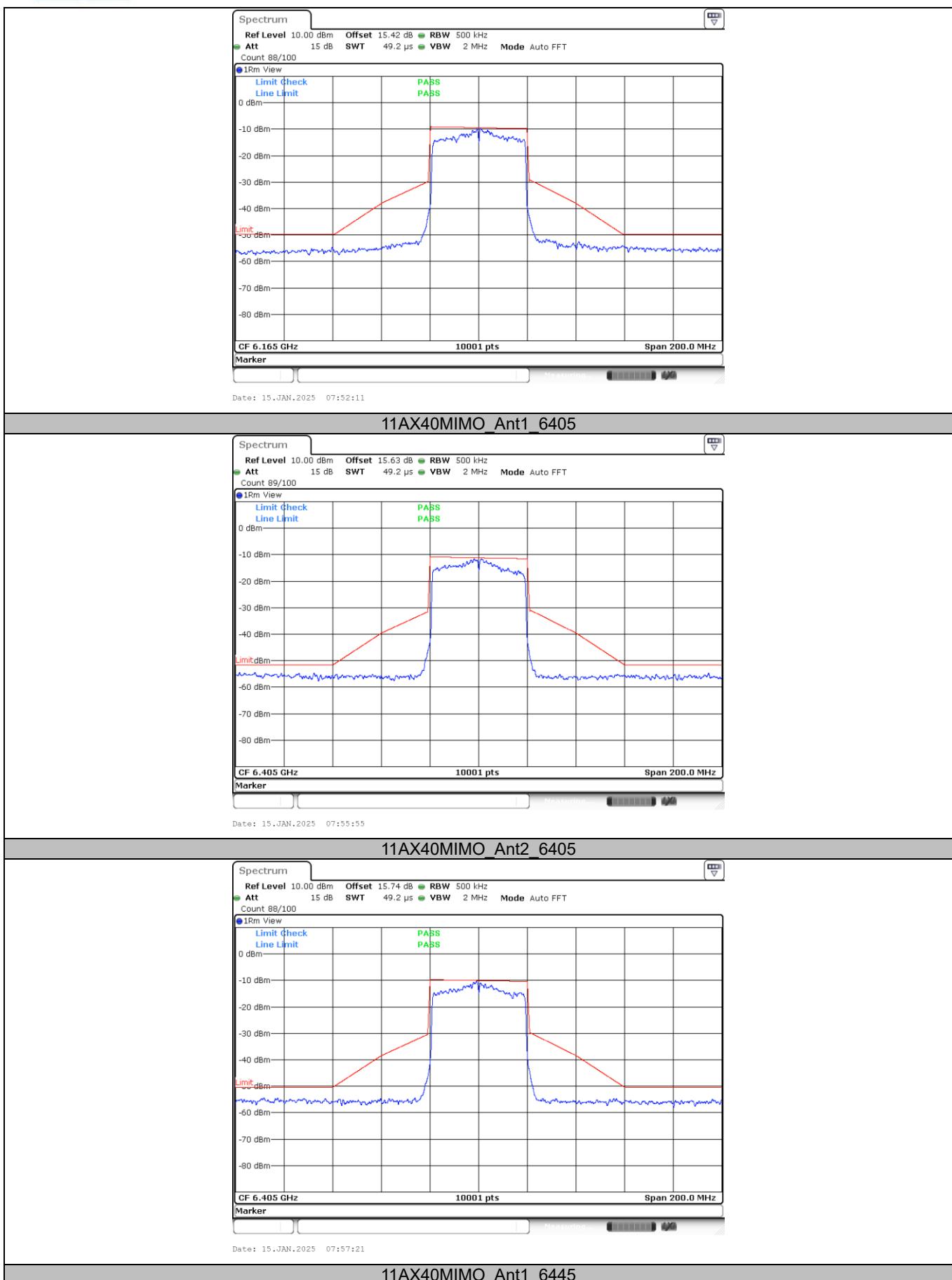


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

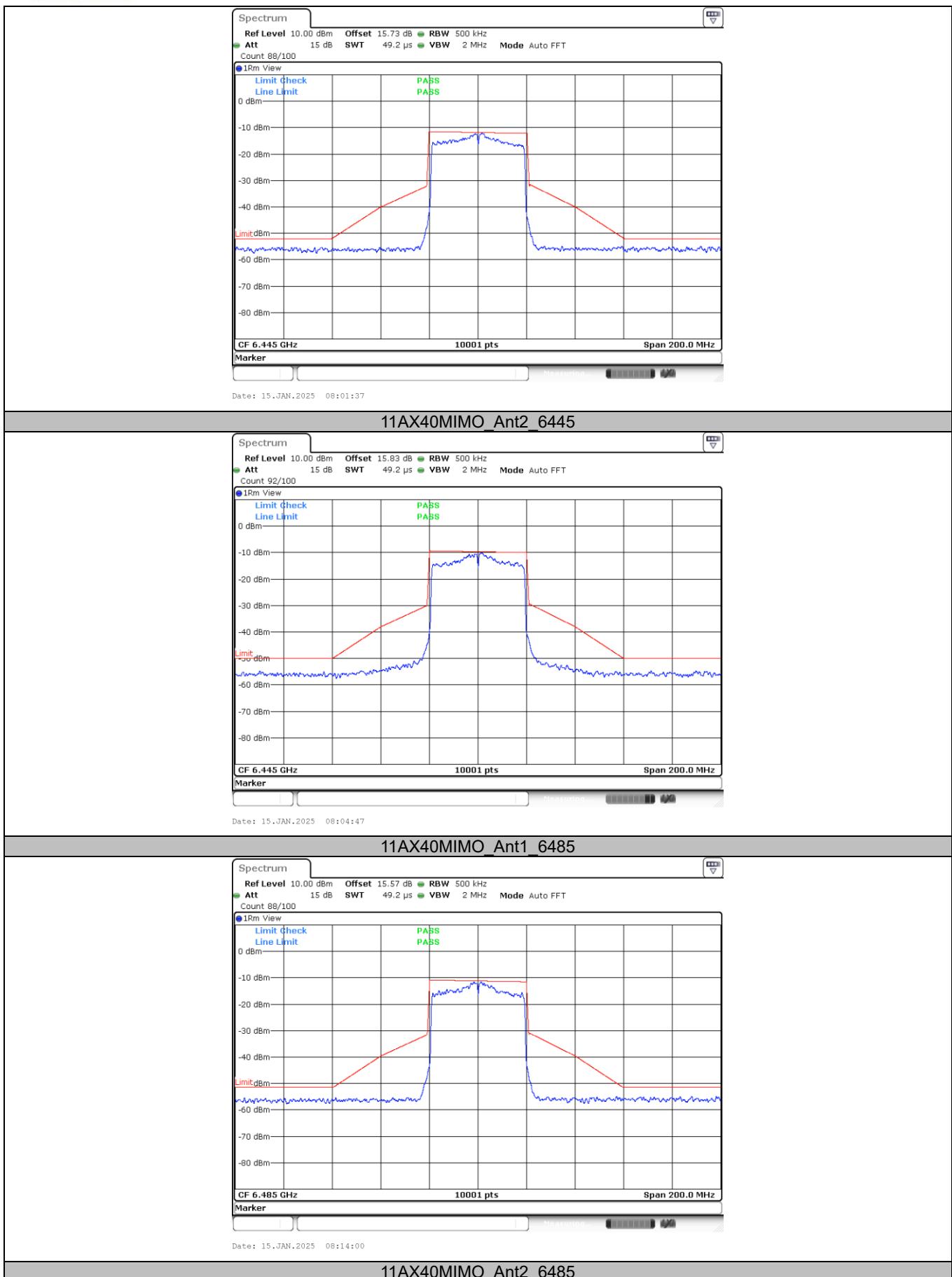


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

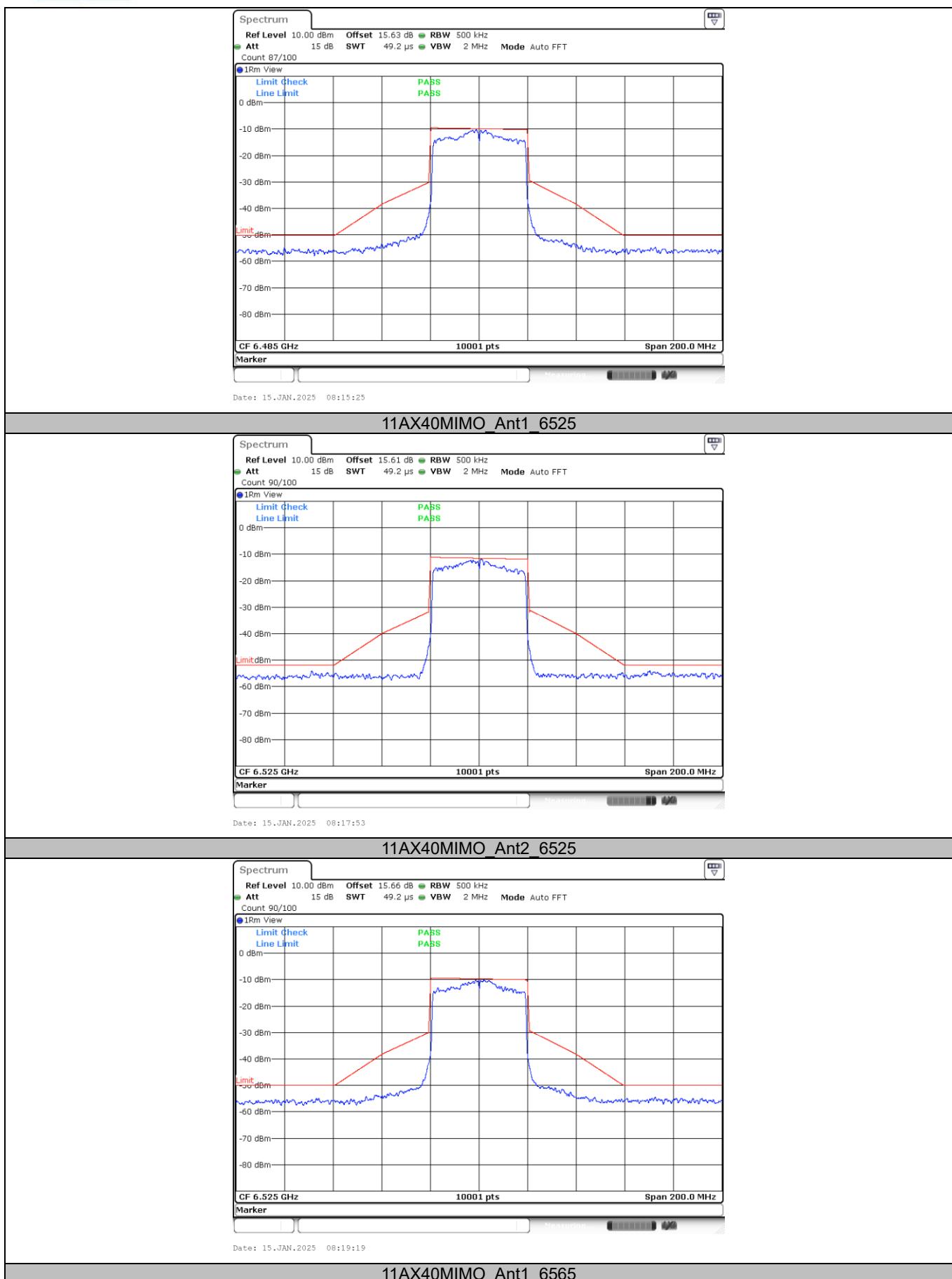


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

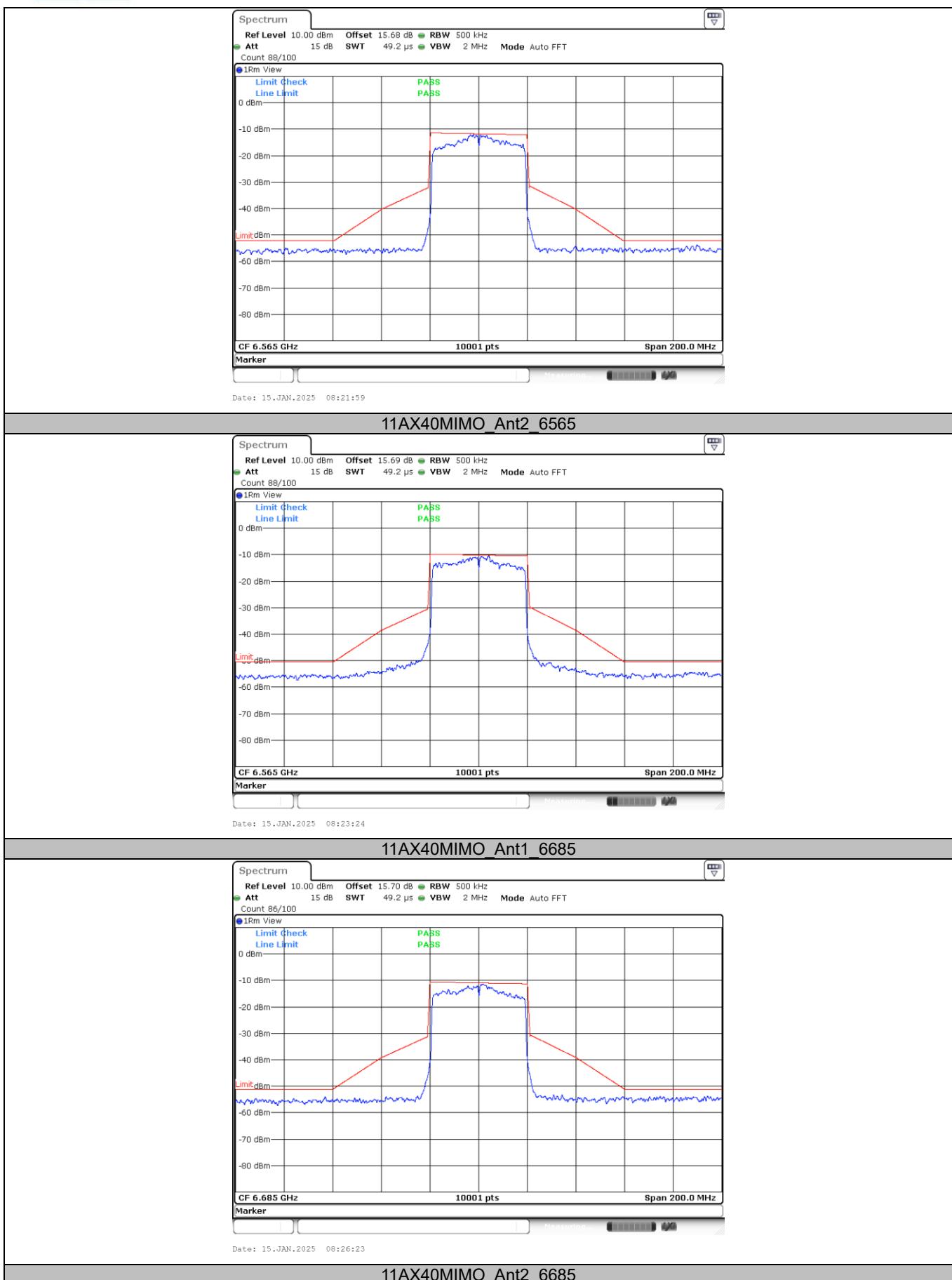


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

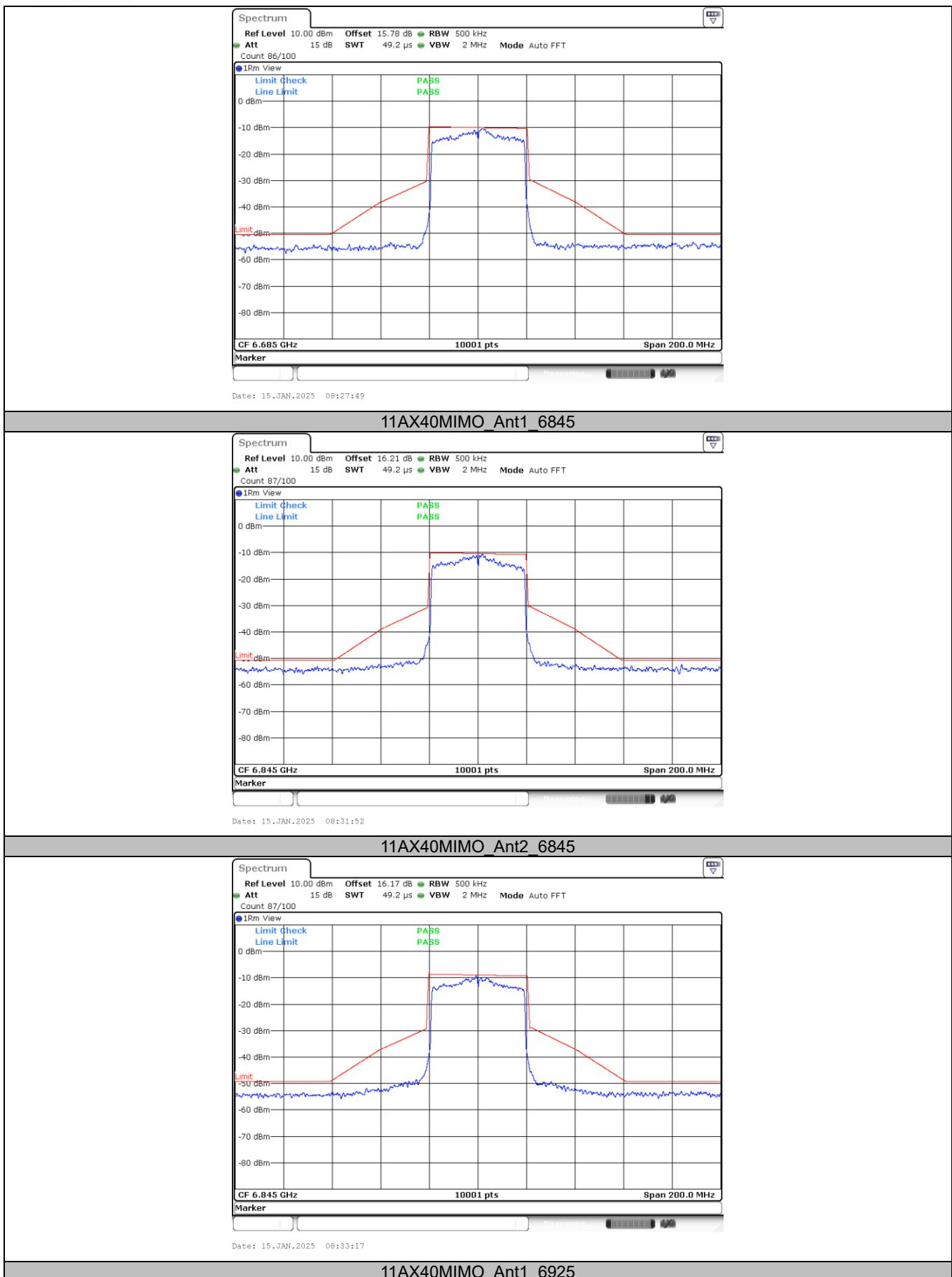


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

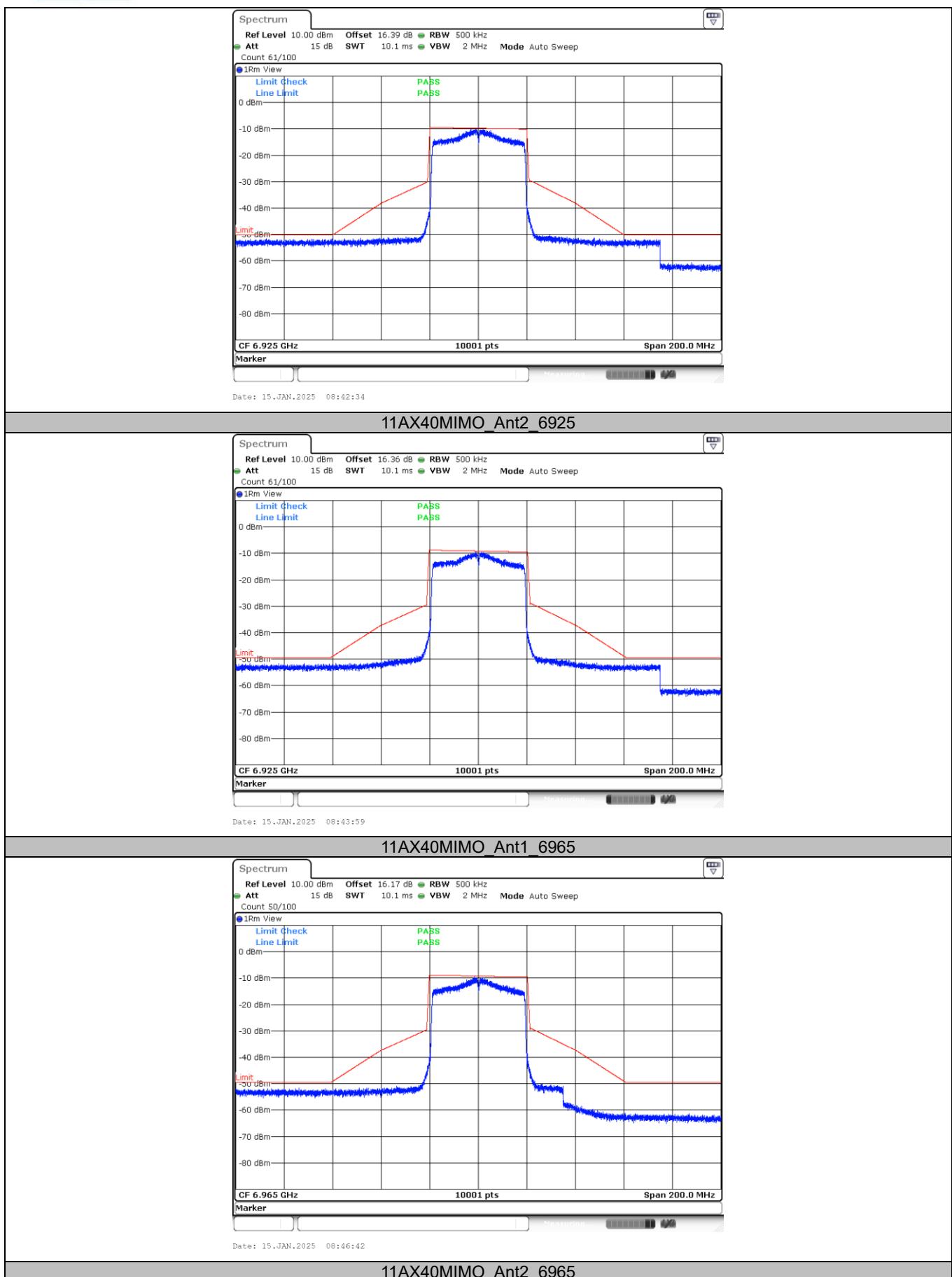


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

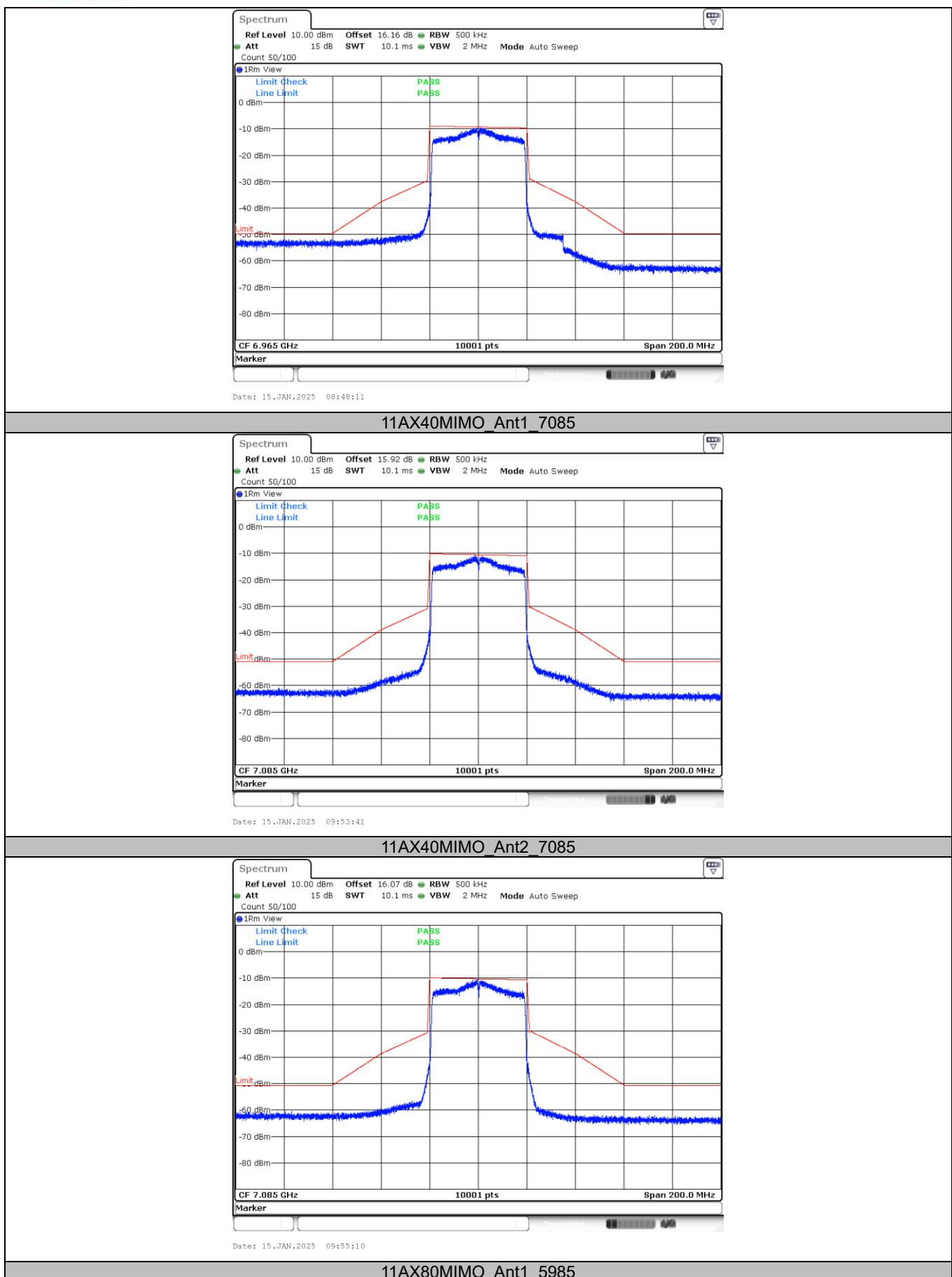


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

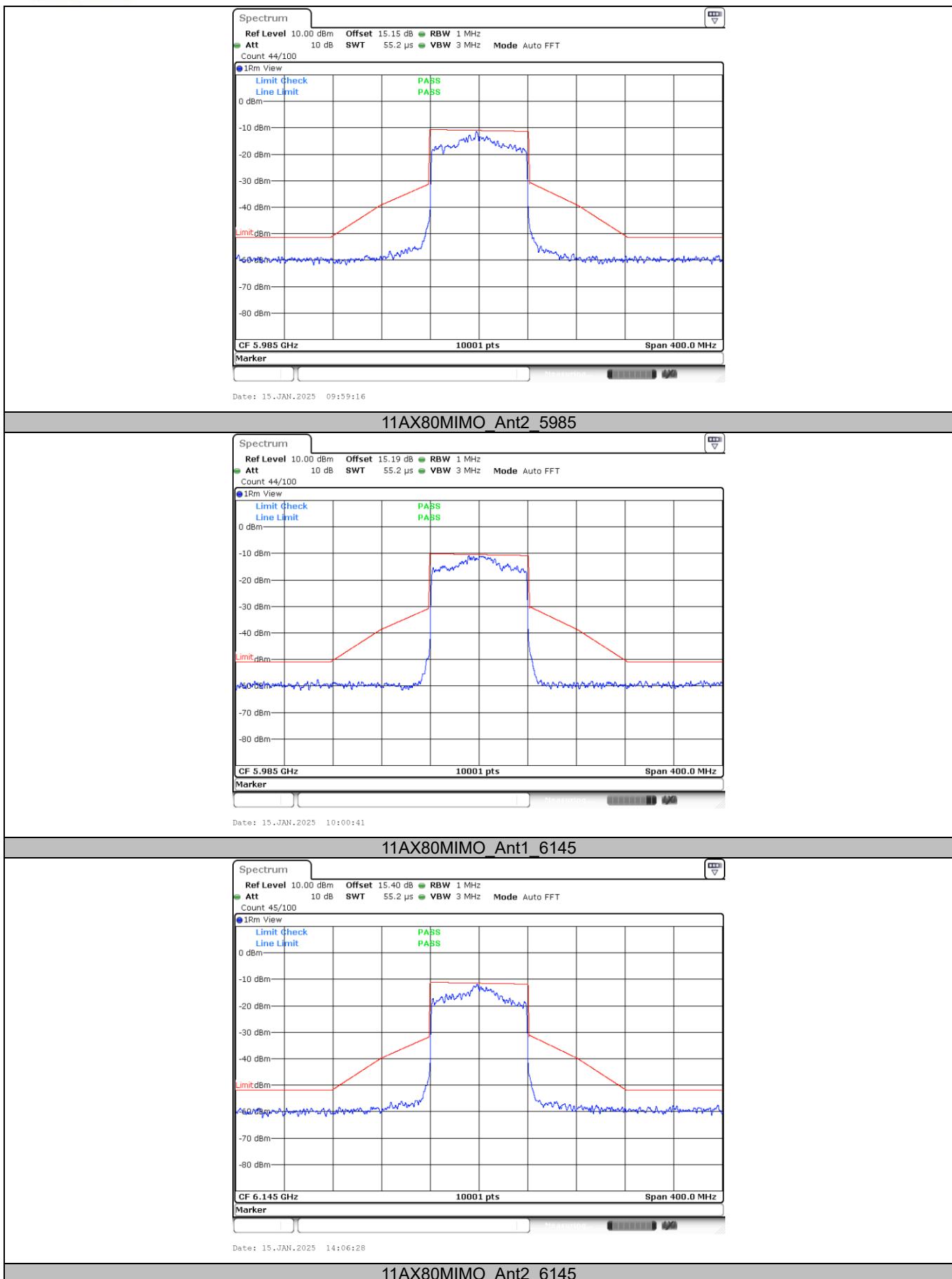


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [vz.cnca.cn](http://www.cnca.cn)

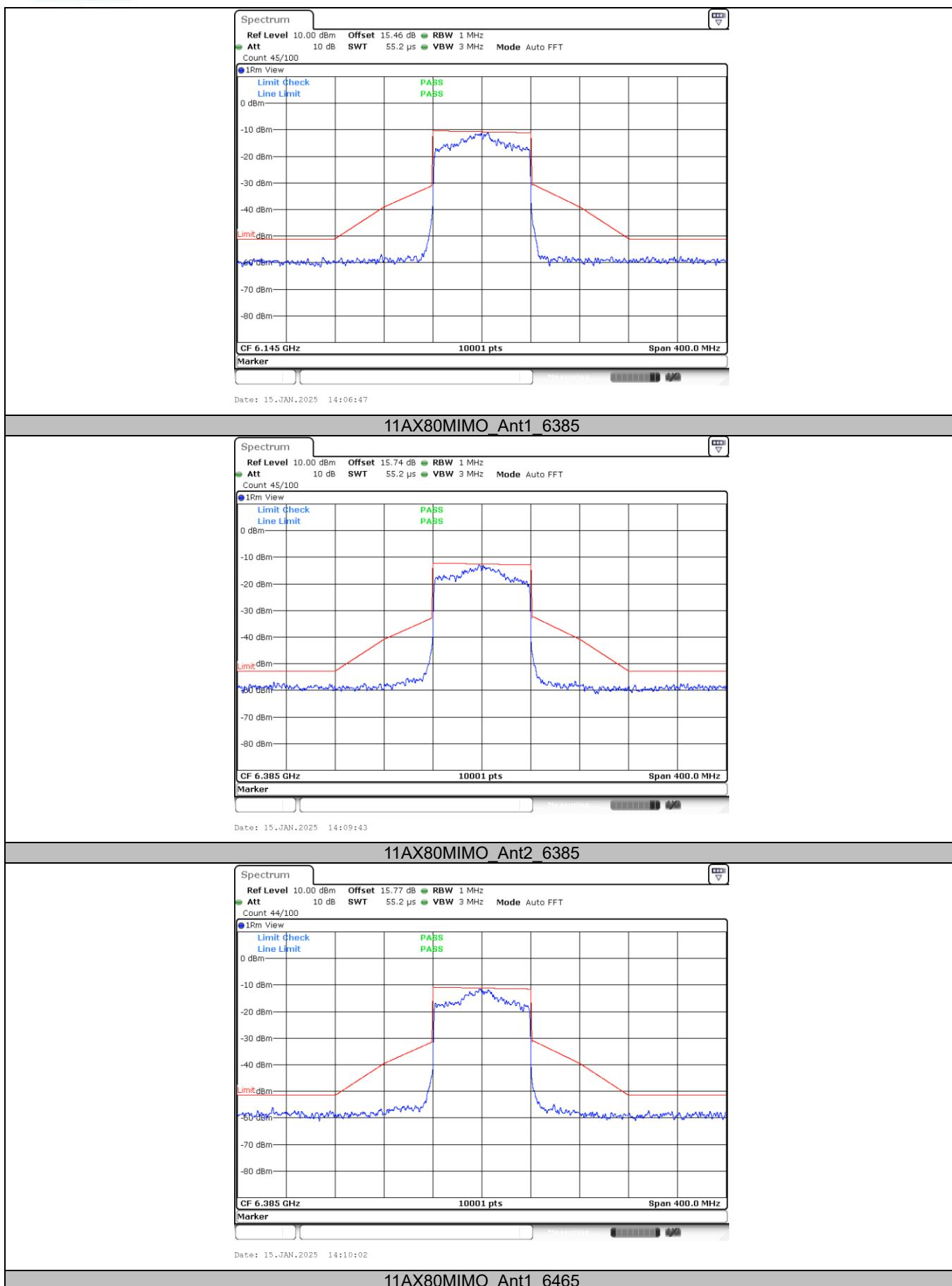


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

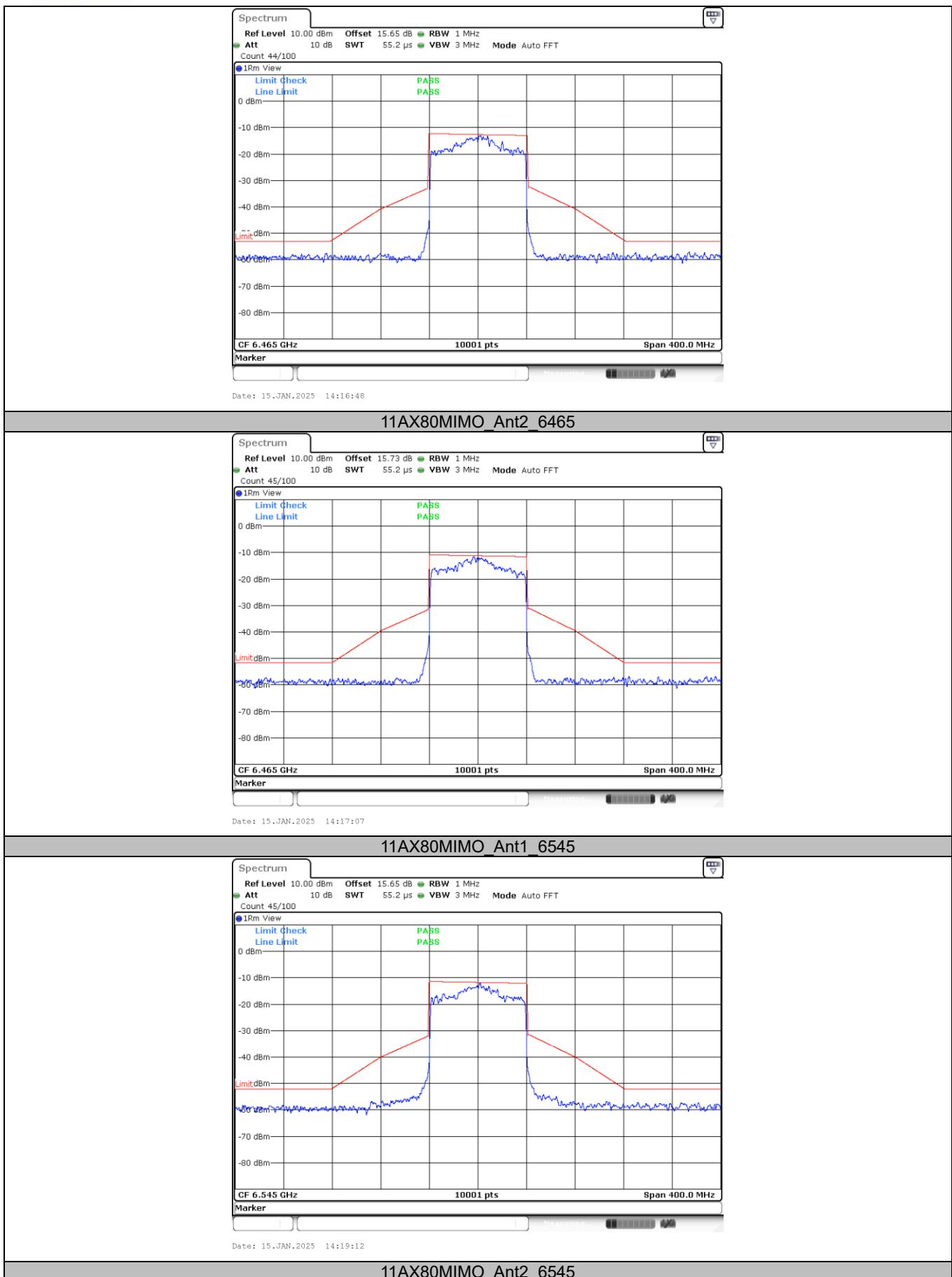


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

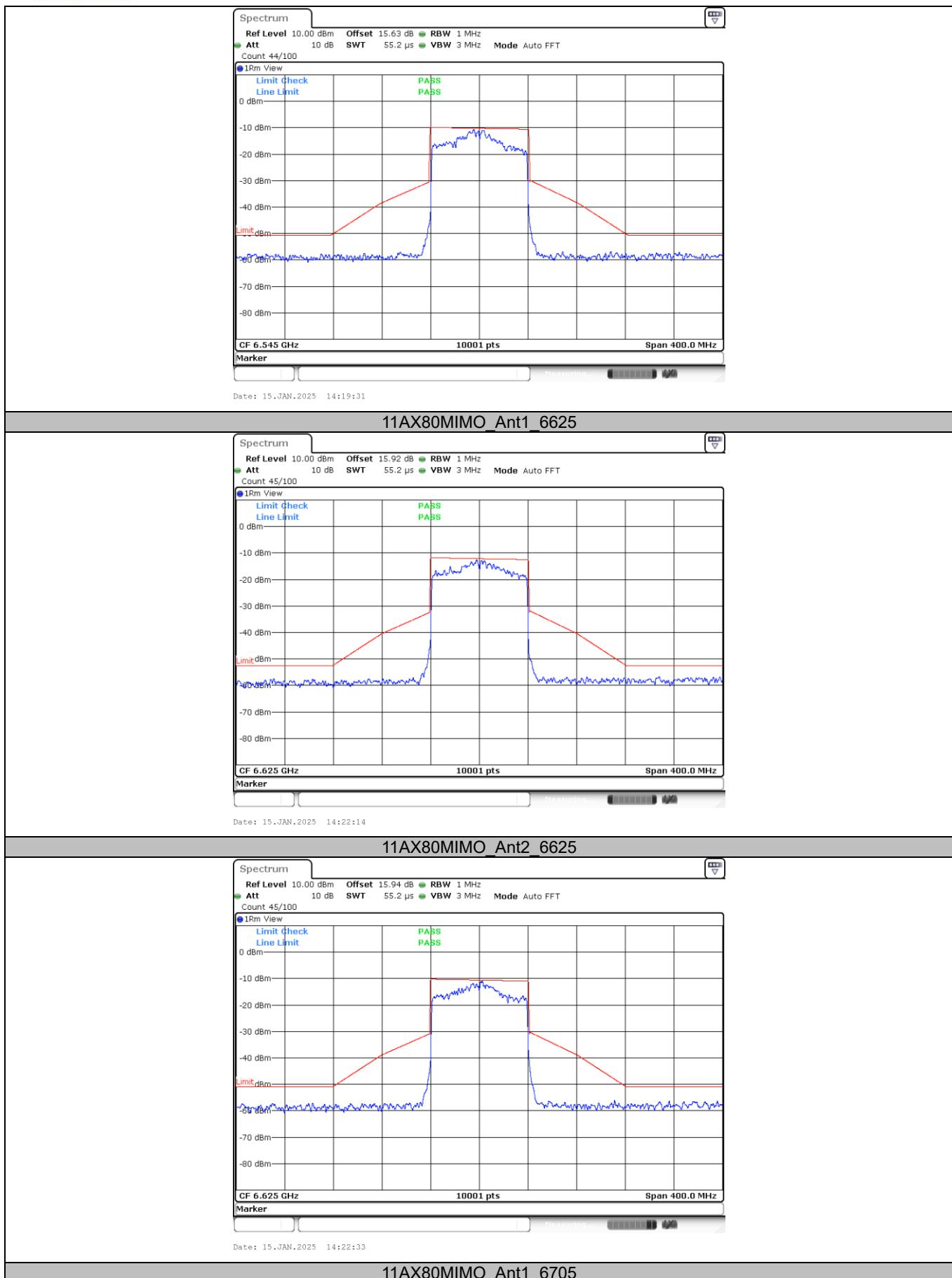


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

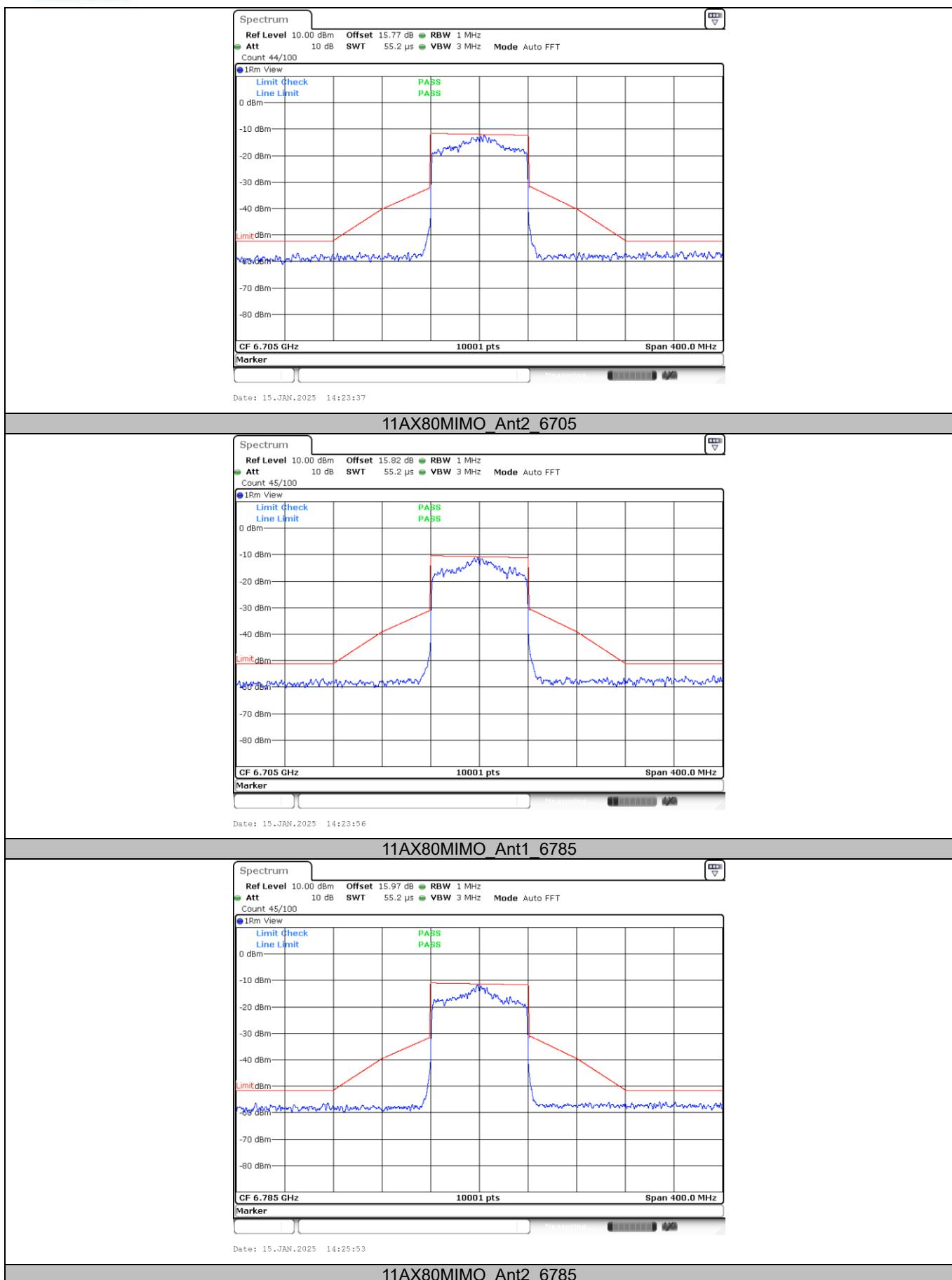


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

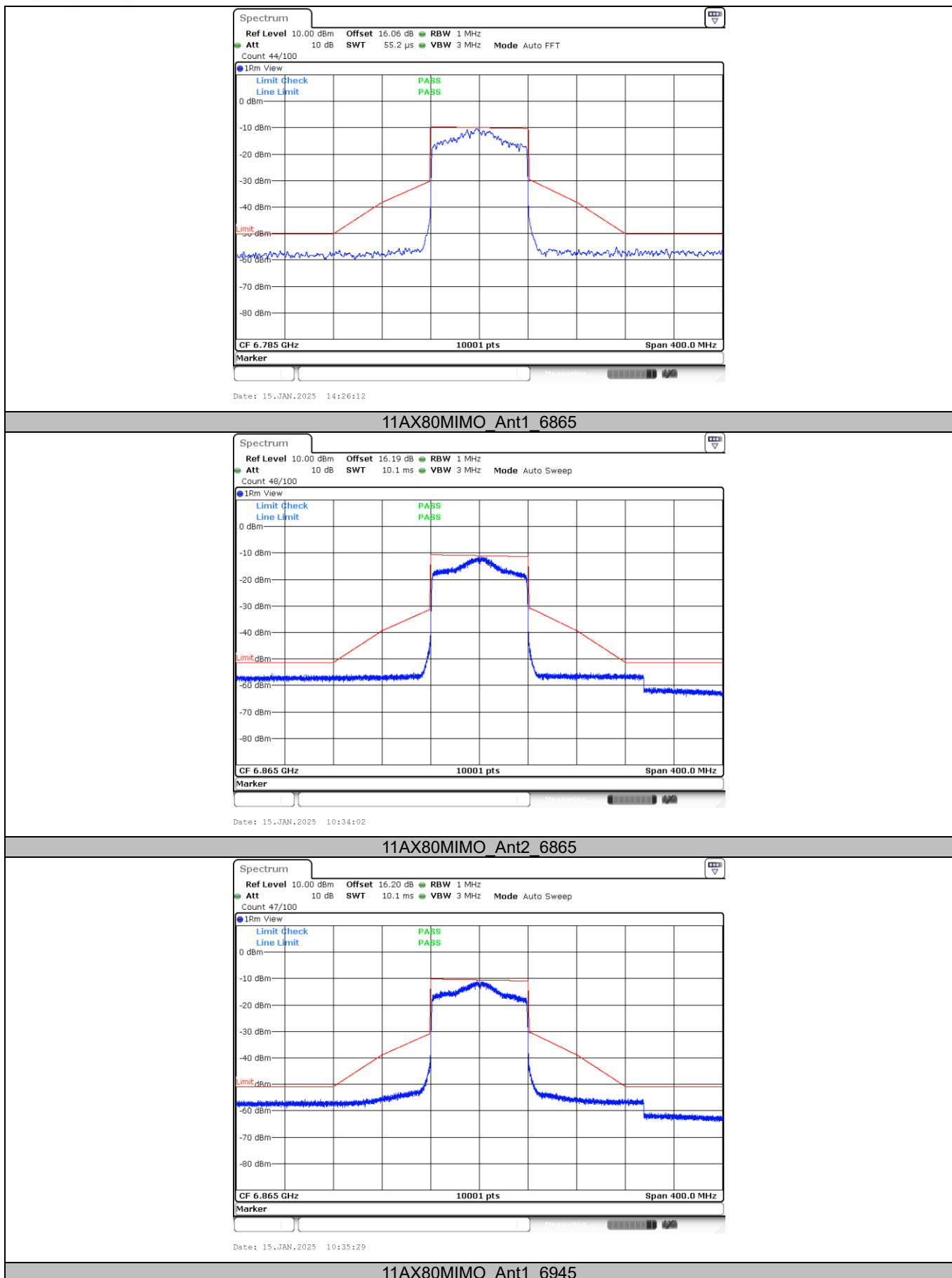


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [vZ.cnca.cn](http://www.cnca.cn)

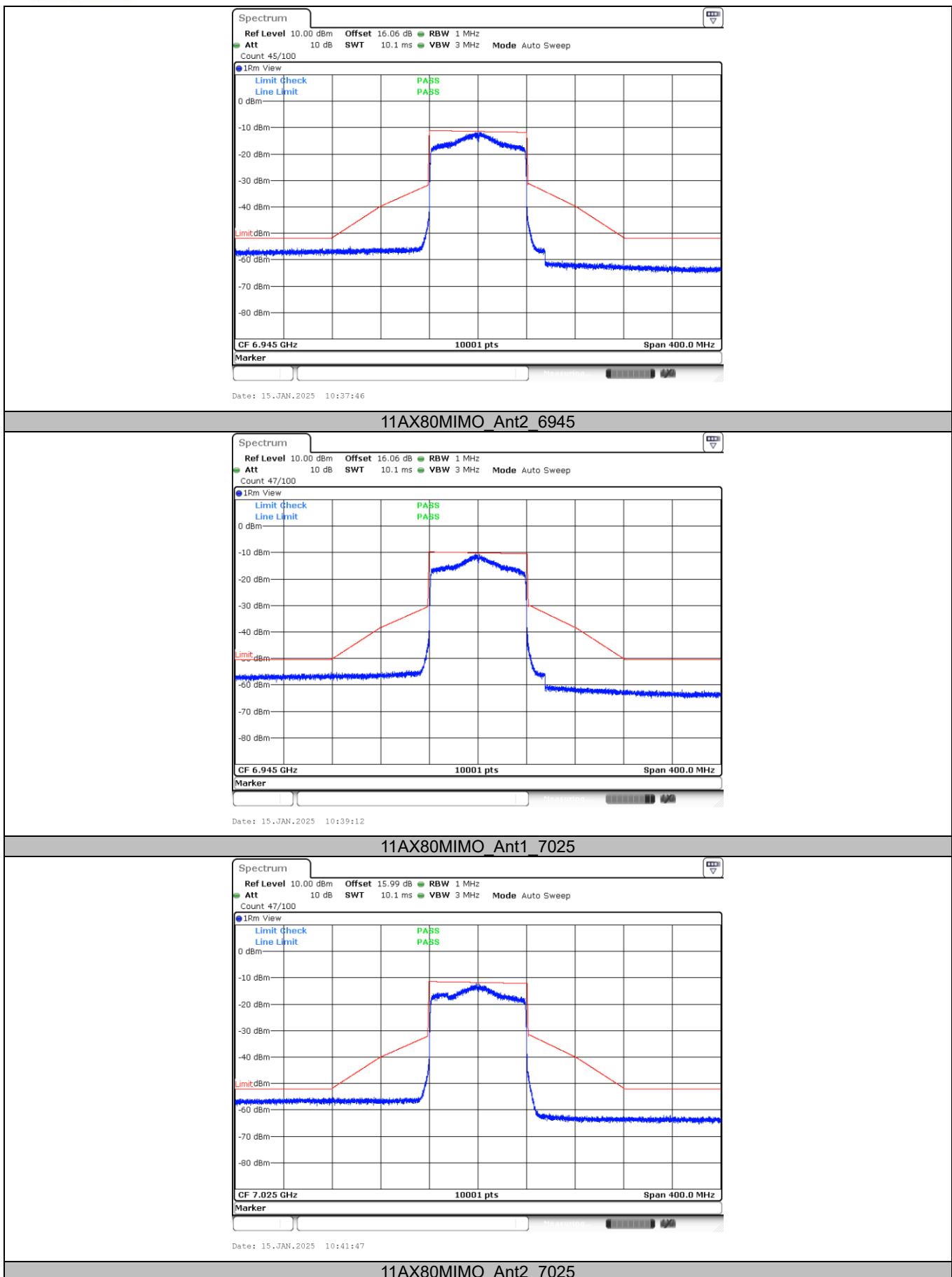


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

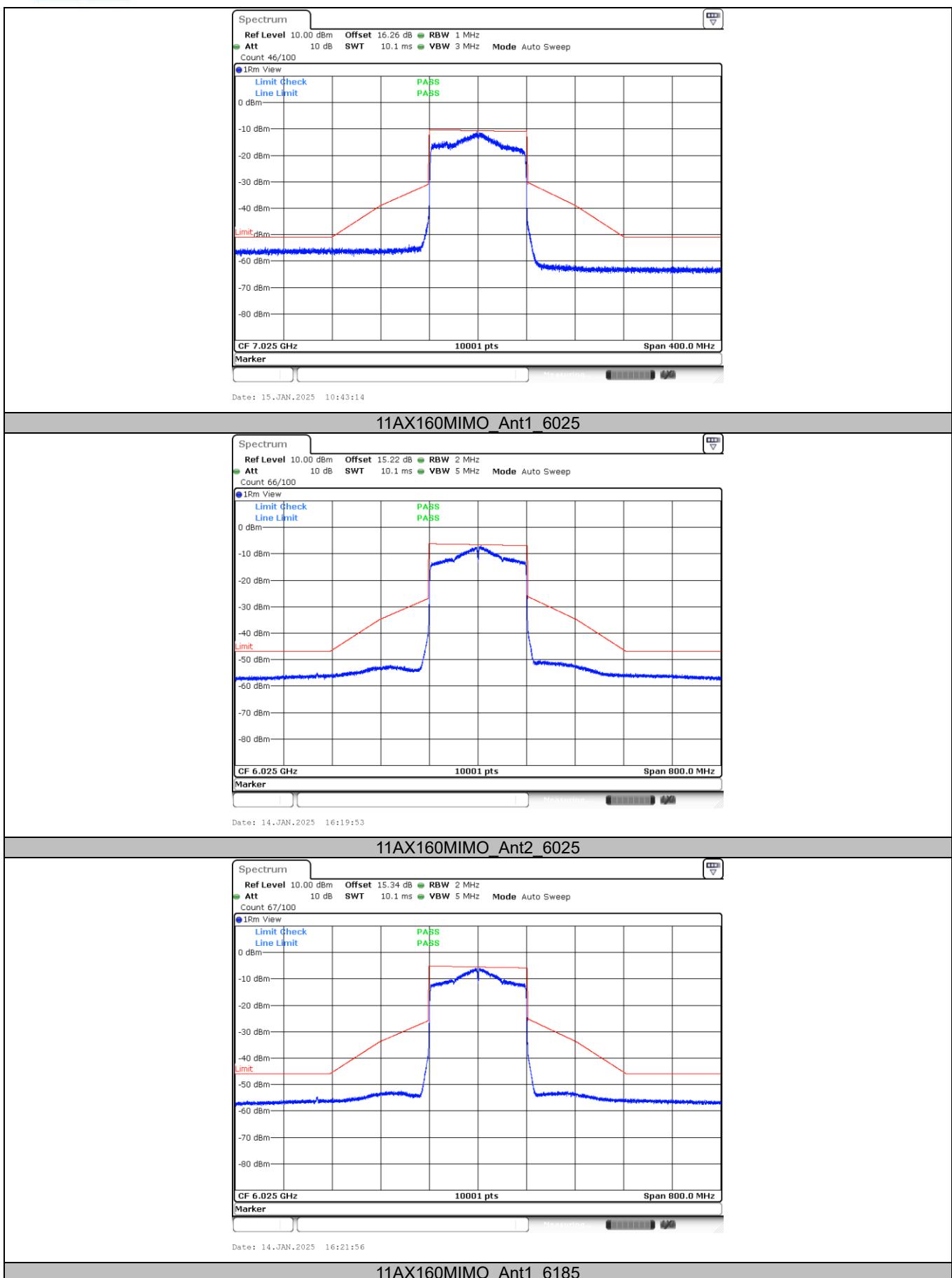


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnca.gov.cn

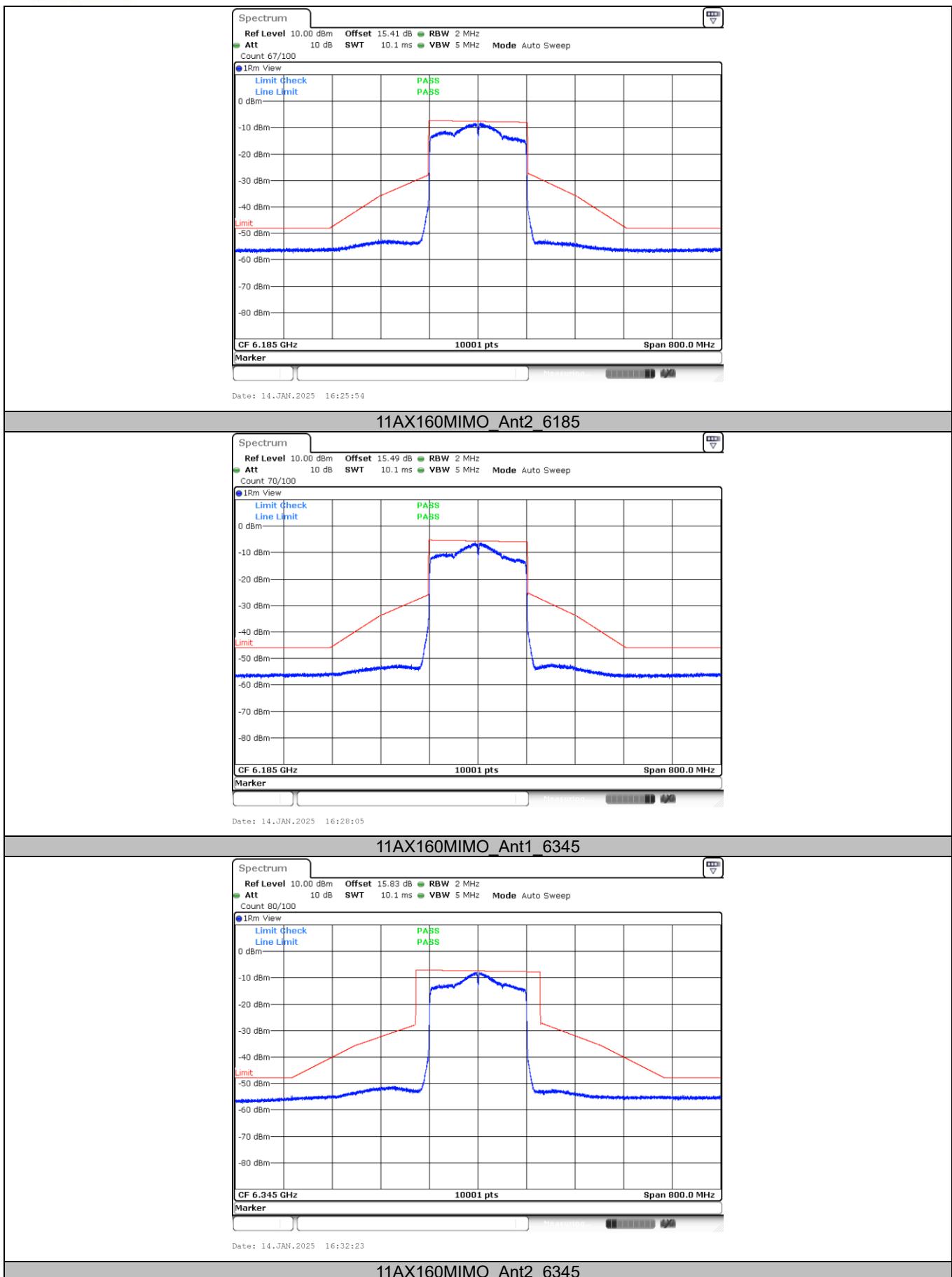


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

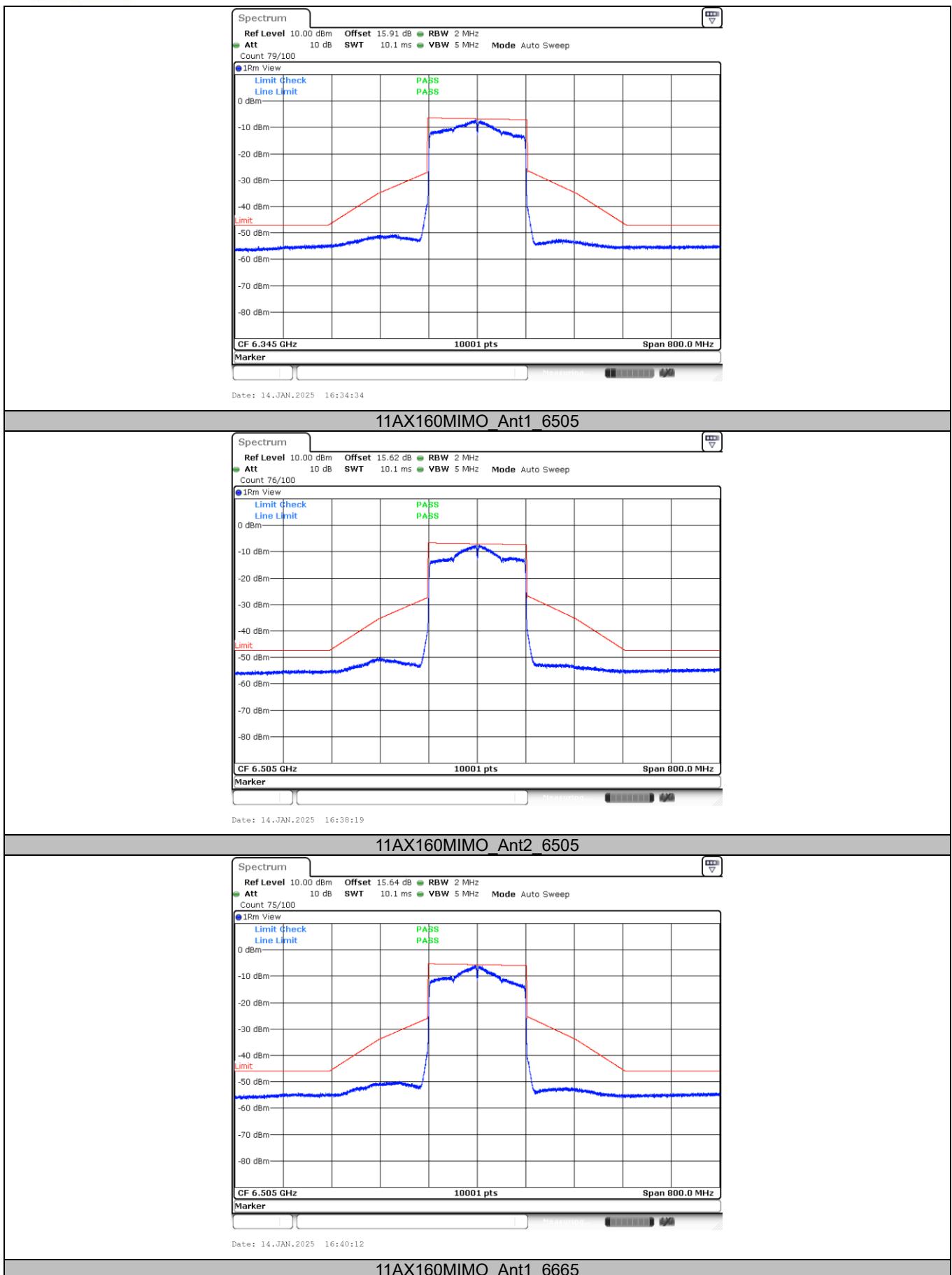


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [vz.cnca.cn](http://www.vz.cnca.cn)

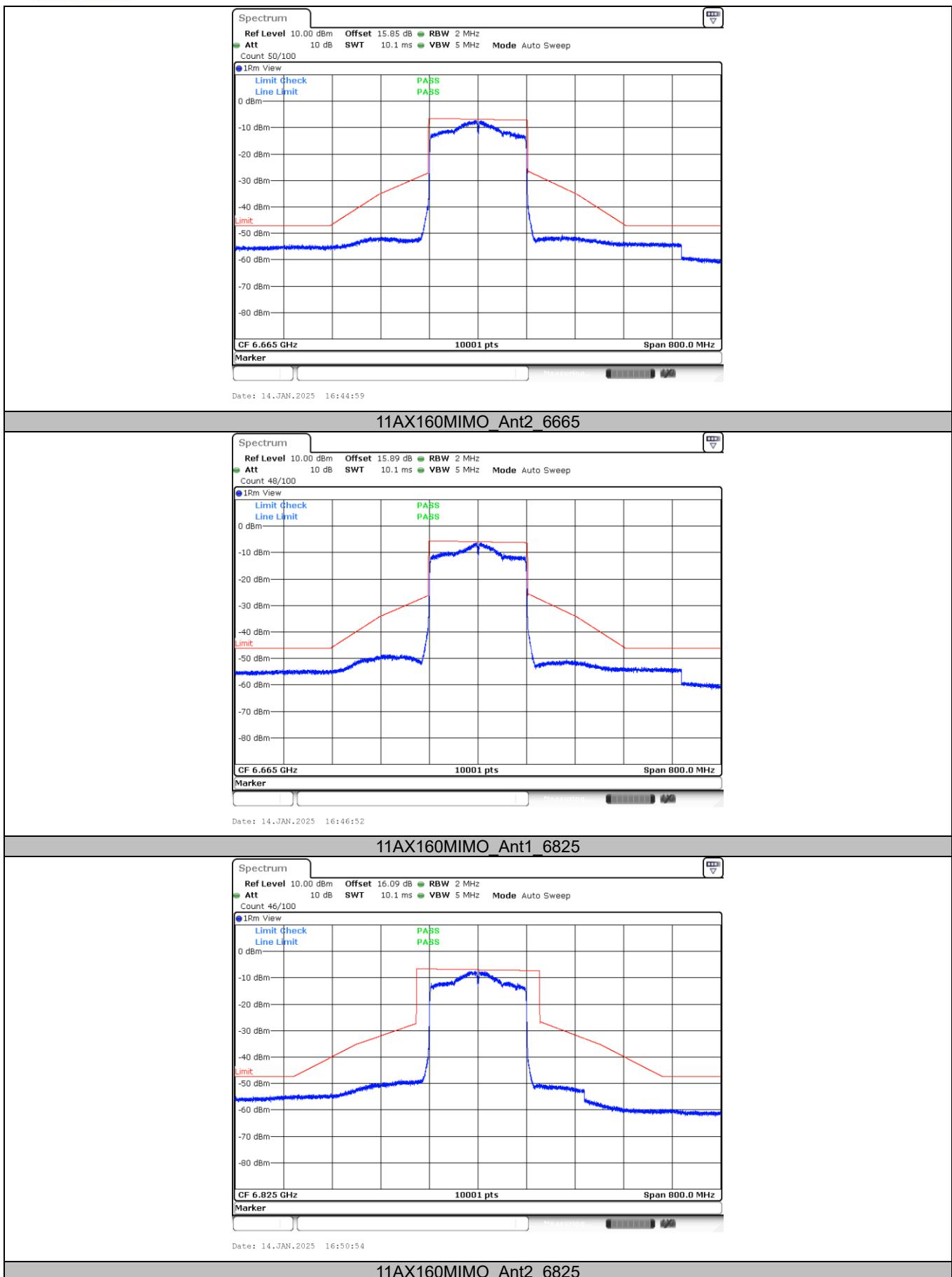


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn

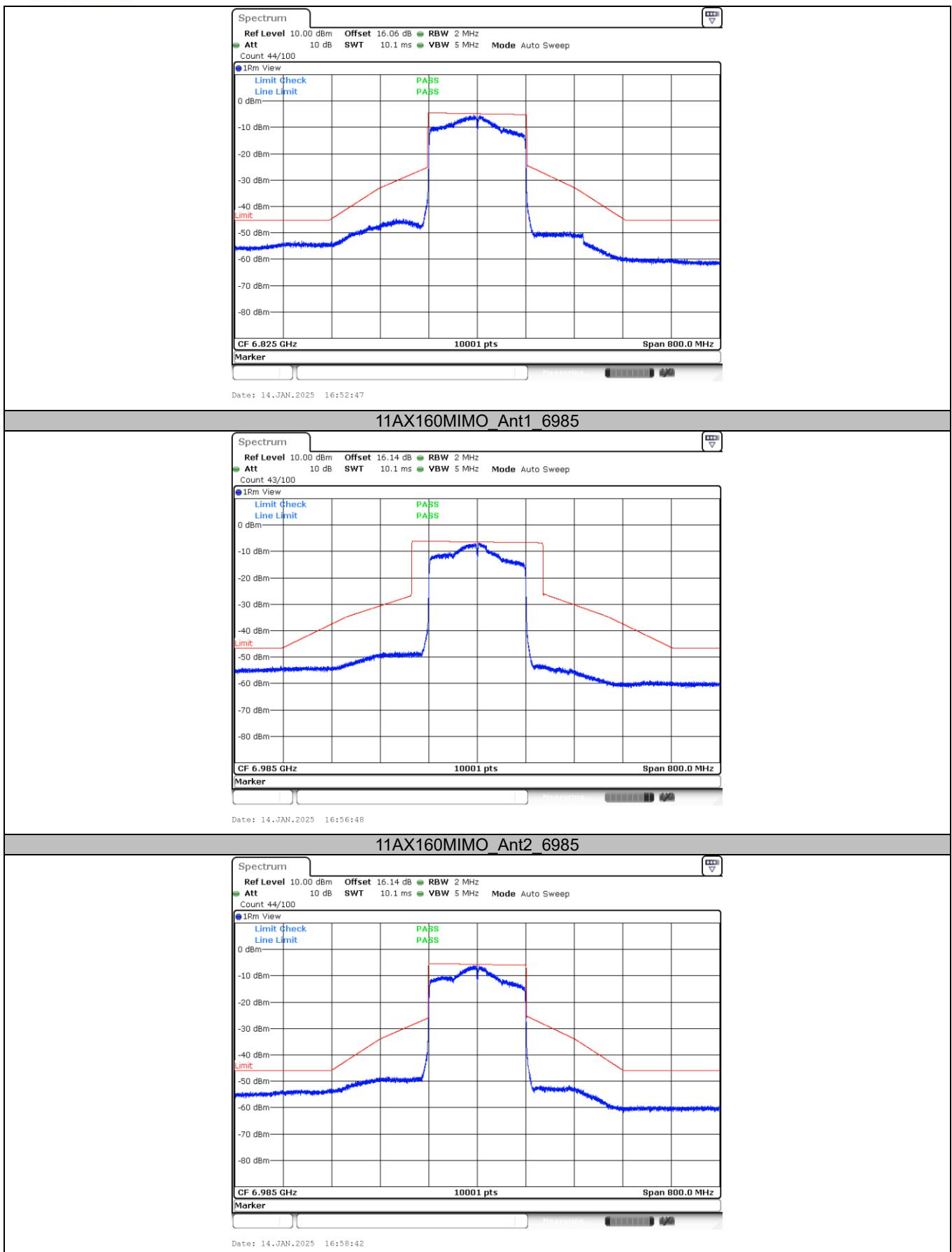


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn



CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn



3.10. Contention Based Protocol

Limit

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain. (See note).

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

Note: The EUT with a lowest gain is 0.94dBi. All power injected into EUT should be $-62+0.94=-61.06$ dBm.

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leq BW_{Inc}$	Once	Tune incumbent and EUT transmissions ($f_{c1}=f_{c2}$)
$BW_{Inc} < BW_{EUT} \leq 2BW_{Inc}$	Once	Incumbent transmission is contained within BW_{EUT}
$2BW_{Inc} < BW_{EUT} \leq 4BW_{Inc}$	Twice. Incumbent transmission is contained within BW_{EUT}	Incumbent transmission is located as closely as possible to the lower edge and upper edge, respectively, of the EUT channel
$BW_{EUT} > 4BW_{Inc}$	Three times	Incumbent transmission is located as closely as possible to the lower edge of the EUT channel, in the middle of EUT channel, and as closely as possible to the upper edge of the EUT channel

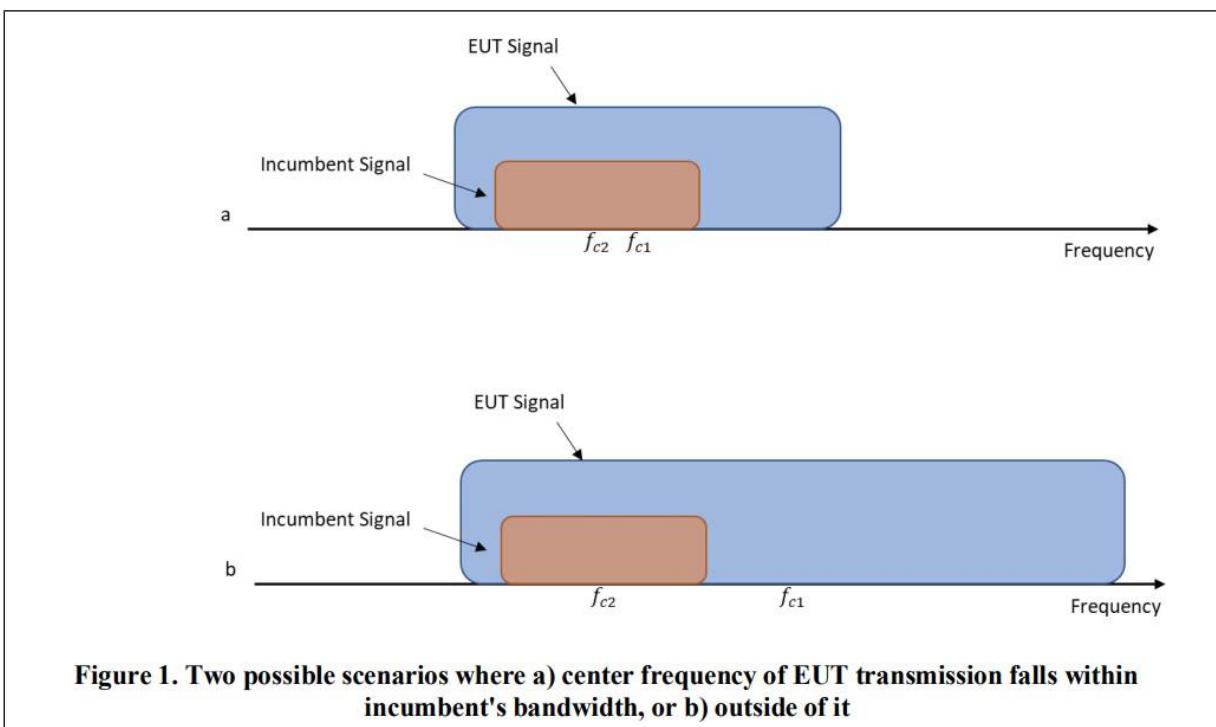
Where:

BW_{EUT} : Transmission bandwidth of EUT signal.

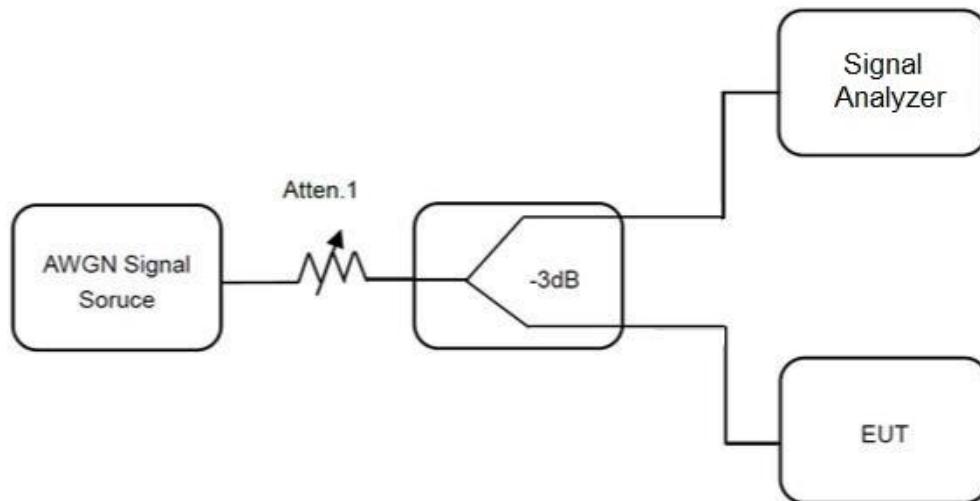
BW_{Inc} : Transmission bandwidth of the simulated incumbent signal (10 MHz wide AWGN signal).

f_{c1} : Center frequency of EUT transmission.

f_{c2} : Center frequency of simulated incumbent signal.



Test Configuration





Test Procedure

1. To ensure EUT reliably detects an incumbent signal in both scenarios shown in Figure 1, the detection threshold test may be repeated more than once with the incumbent signal (having center frequency fc_2) tuned to different center frequencies within the UT transmission bandwidth. The criteria specified in Table 1 determines how many times the detection threshold test must be performed
2. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
3. Monitor the signal analyzer to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
4. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
5. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 2, choose a different center frequency for the AWGN signal and repeat the process.
6. EUT was driven in MIMO mode, the interferer signal was injected to both chains to monitor the performance, while the interferer level is determined according to the lowest antenna gain among both antennas.

Test Mode

Please refer to the clause 2.4.

Support Unit used in test configuration and system

Equipment Information									
Name	Model			S/N		Manufacturer			
Notebook	ThinkPad T460s			/		Lenovo			
AP	GT-AXE11000 (FCC ID: MSQ-RTAXJF00)			N2IG0X401205YZW		ASUS			

Test Result

Test Mode	Channel	Interference Frequency [MHz]		Status	Detection Level [dBm]	Detection Limit [dBm]	Margin [dB]	Detection Rate [%]	Detection Rate Limit [%]	Verdict
11AX20MIMO	6415	Center	6415	OFF	-69.27	-62	9.01	90	90	PASS
		Center	6415	Minimal	-69.14	-62	---	0	---	---
		Center	6415	ON	-87	-62	---	---	---	---
	6435	Center	6435	OFF	-70.83	-62	10.57	100	90	PASS
		Center	6435	Minimal	-71.08	-62	---	30	---	---
		Center	6435	ON	-87	-62	---	---	---	---
	6535	Center	6535	OFF	-70.9	-62	10.64	100	90	PASS
		Center	6535	Minimal	-70.81	-62	---	0	---	---
		Center	6535	ON	-87	-62	---	---	---	---
	6895	Center	6895	OFF	-70.46	-62	10.20	90	90	PASS
		Center	6895	Minimal	-70.52	-62	---	70	---	---
		Center	6895	ON	-87	-62	---	---	---	---
11AX160MIMO	6345	Low	6271.039	OFF	-64.33	-62	3.27	100	90	PASS
		Low	6271.039	Minimal	-65.13	-62	---	10	---	---
		Low	6271.039	ON	-87	-62	---	---	---	---
		Center	6345	OFF	-71.14	-62	10.08	90	90	PASS
		Center	6345	Minimal	-71.28	-62	---	80	---	---
		Center	6345	ON	-87	-62	---	---	---	---
		High	6418.6414	Minimal	-64.23	-62	---	30	---	---
		High	6418.6414	ON	-91	-62	---	---	---	---
	6505	Low	6431.3586	OFF	-71.5	-62	10.44	90	90	PASS
		Low	6431.3586	Minimal	-71.6	-62	---	40	---	---
		Low	6431.3586	ON	-87	-62	---	---	---	---
		Center	6505	OFF	-72.04	-62	10.98	100	90	PASS

CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

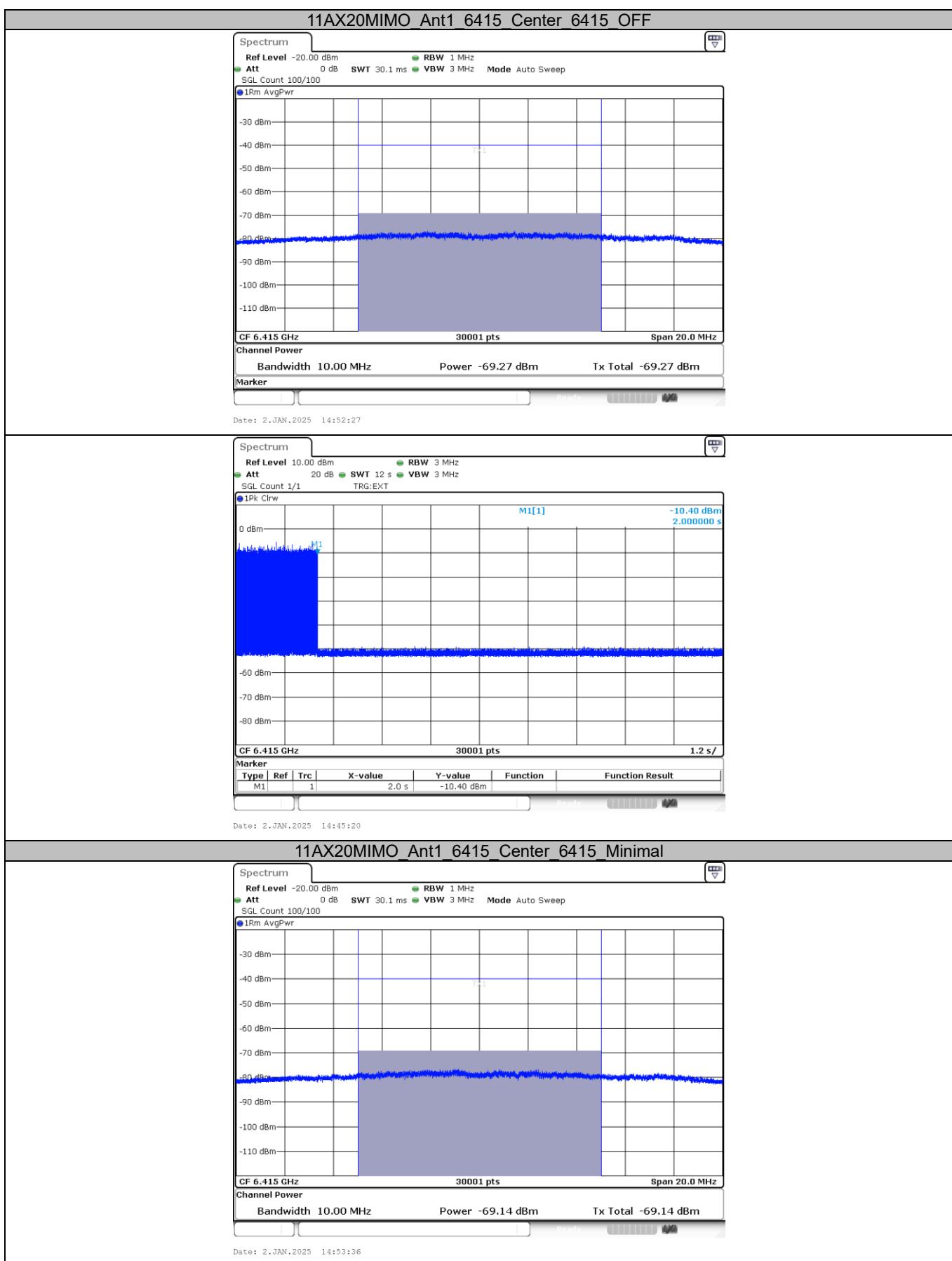
For anti-fake verification, please visit the official website of China Inspection And Testing

TRF No: CTC-TR-062_A1

Society : yz.cnca.cn



		Center	6505	Minimal	-72.07	-62	---	0	---	---
		Center	6505	ON	-91	-62	---	---	---	---
		High	6578.961	OFF	-67.91	-62	6.85	100	90	PASS
		High	6578.961	Minimal	-68.46	-62	---	60	---	---
		High	6578.961	ON	-91	-62	---	---	---	---
	6665	Low	6591.3586	Minimal	-65.45	-62	---	50	---	---
		Low	6591.3586	ON	-87	-62	---	---	---	---
		Center	6665	OFF	-71.49	-62	10.43	90	90	PASS
		Center	6665	Minimal	-71.53	-62	---	0	---	---
		Center	6665	ON	-87	-62	---	---	---	---
		High	6738.6414	Minimal	-65.41	-62	---	40	---	---
		High	6738.6414	ON	-91	-62	---	---	---	---
	6985	Low	6911.039	OFF	-70.64	-62	9.58	90	90	PASS
		Low	6911.039	Minimal	-70.73	-62	---	10	---	---
		Low	6911.039	ON	-91	-62	---	---	---	---
		Center	6985	OFF	-71.01	-62	9.95	90	90	PASS
		Center	6985	Minimal	-71.03	-62	---	80	---	---
		Center	6985	ON	-91	-62	---	---	---	---
		High	7057.3626	OFF	-66.93	-62	5.87	90	90	PASS
		High	7057.3626	Minimal	-67.73	-62	---	0	---	---
		High	7057.3626	ON	-91	-62	---	---	---	---

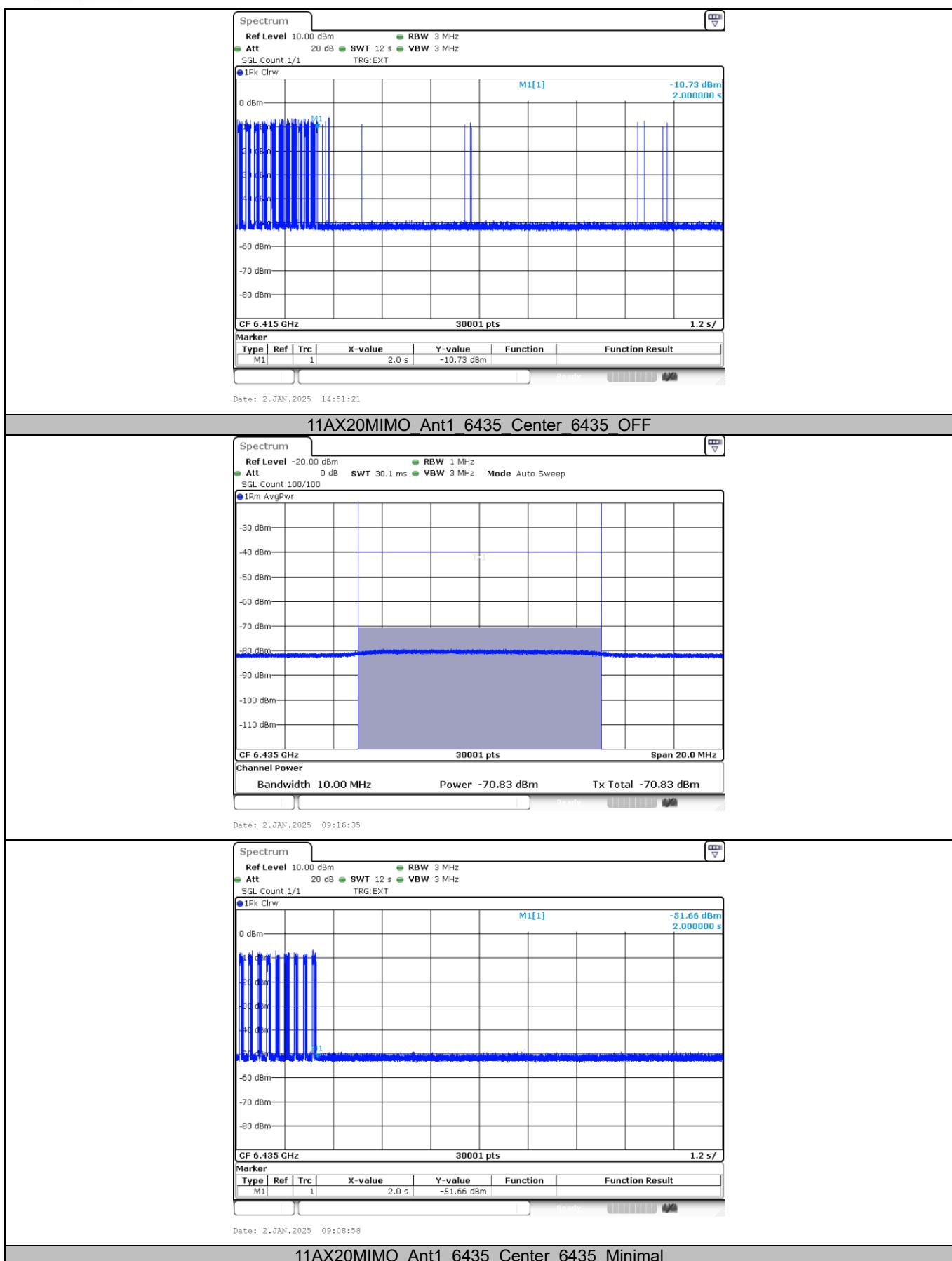


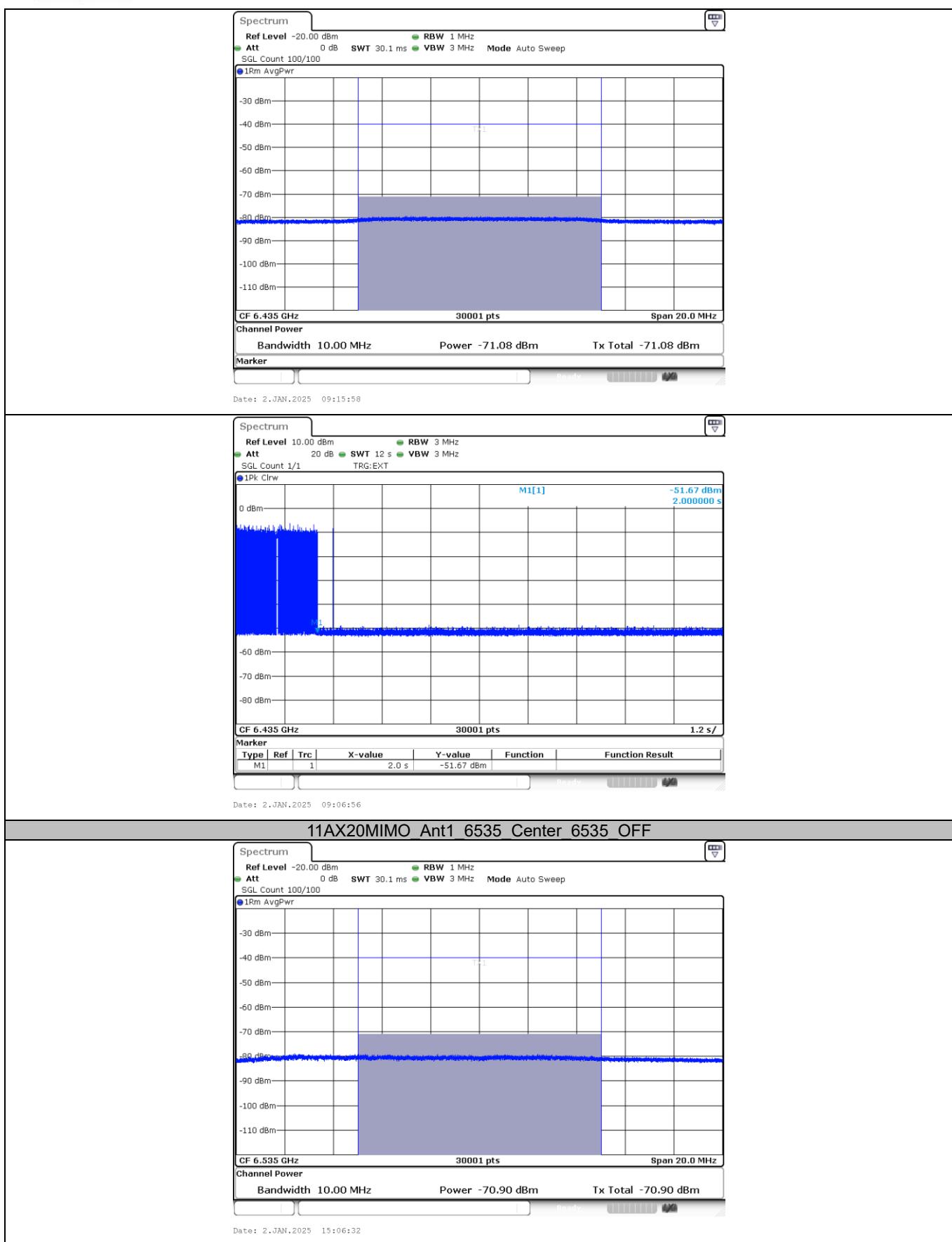
CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn



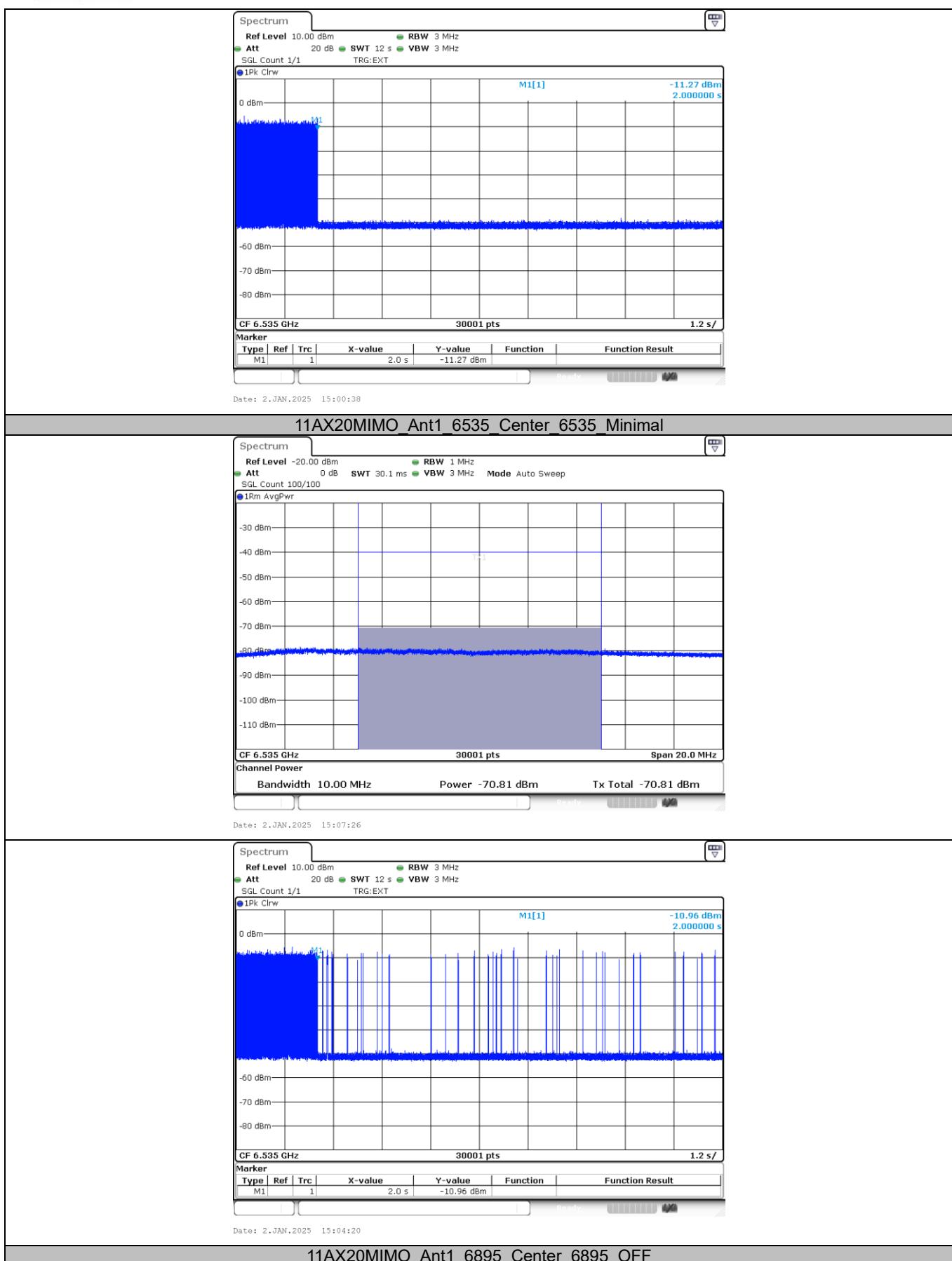


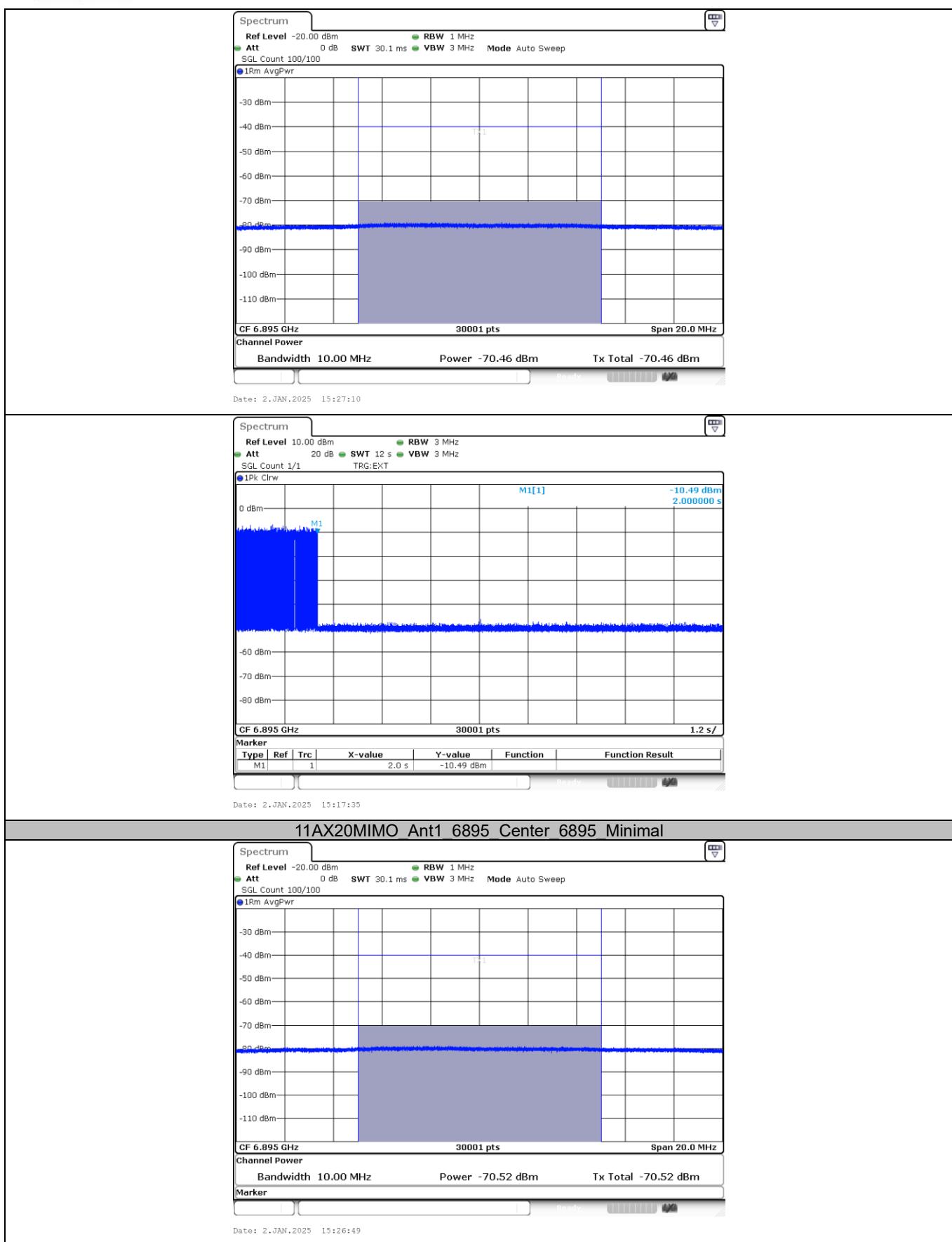
CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn



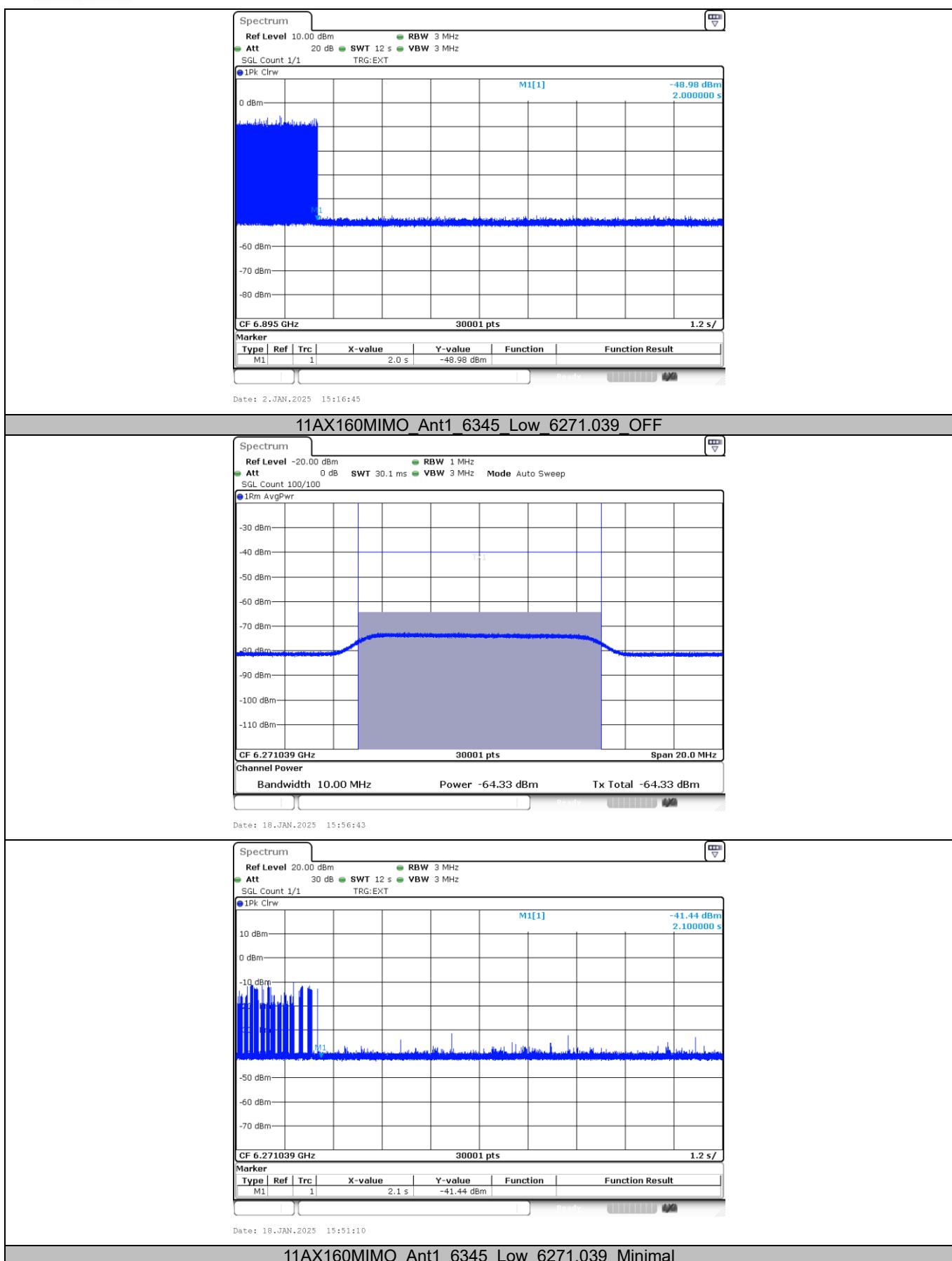


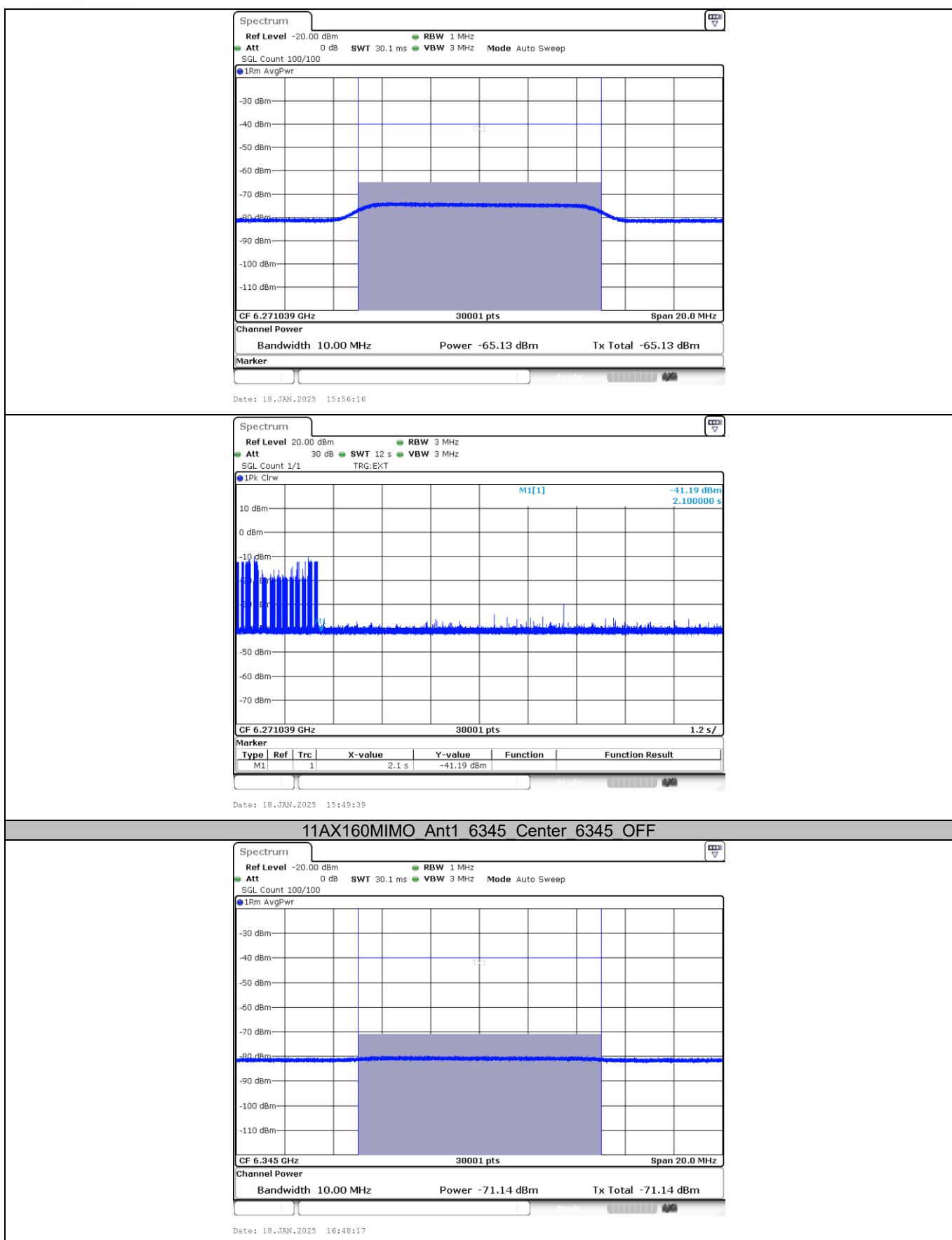
CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [vz.cnca.cn](http://www.cnca.cn)



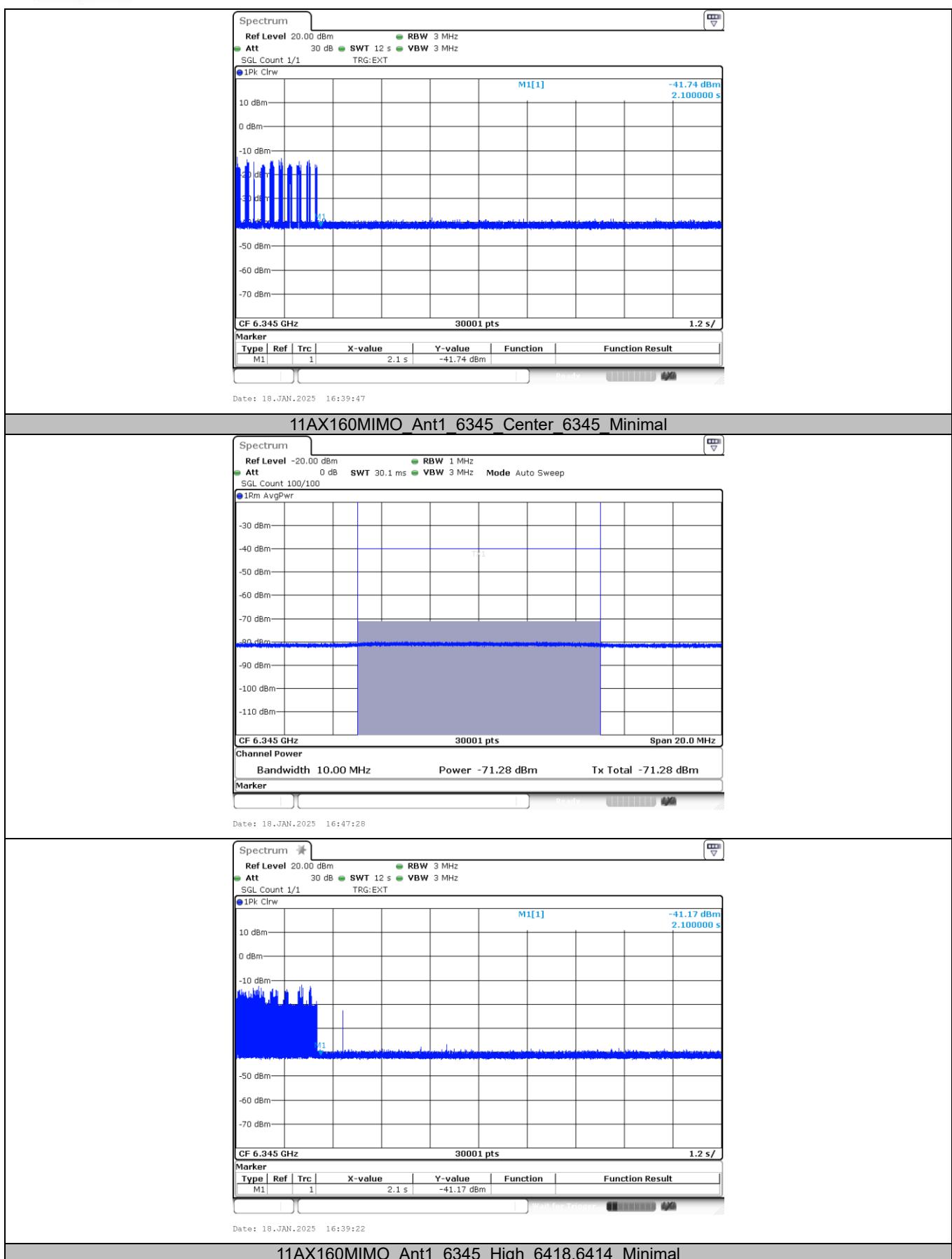


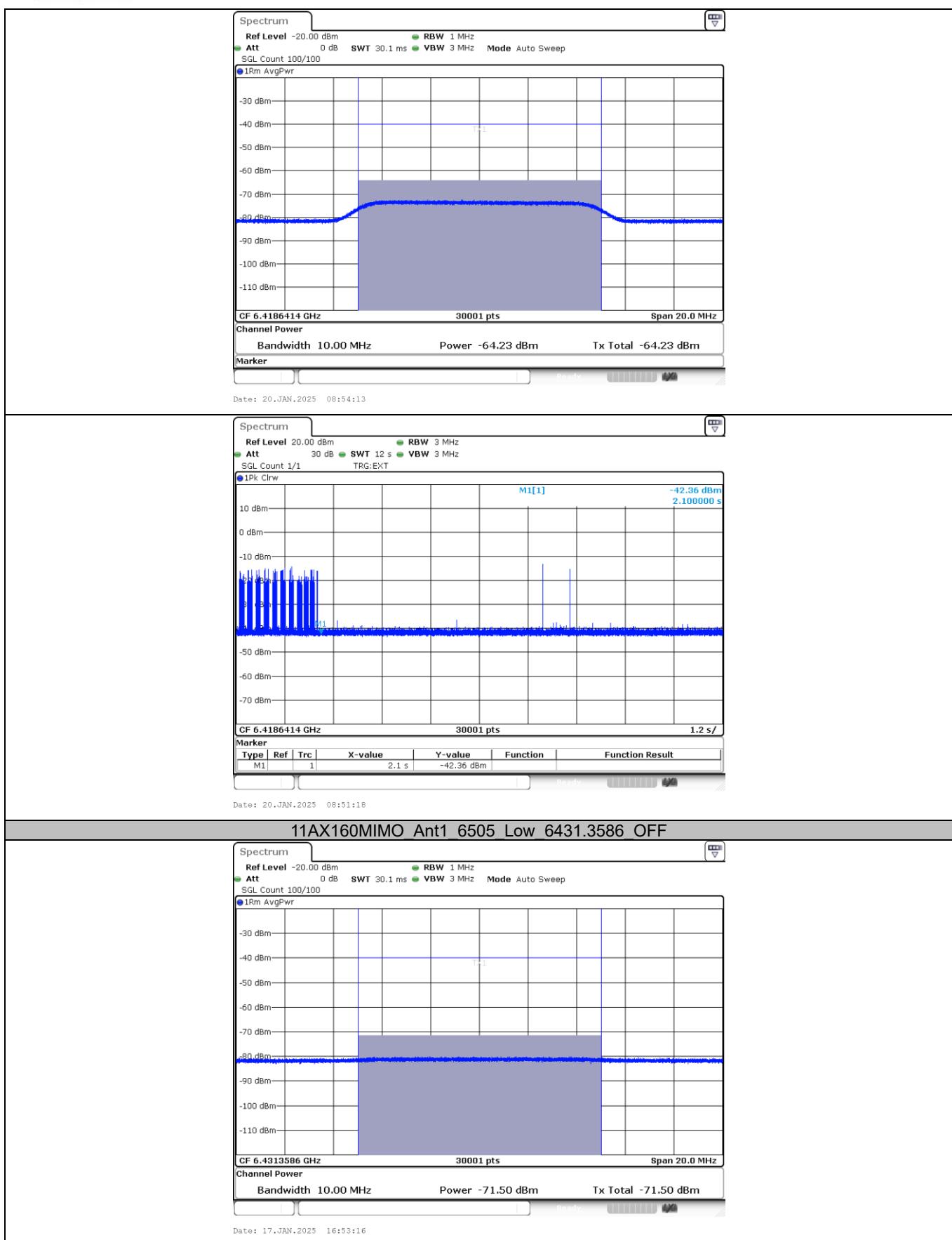
CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [vz.cnca.cn](http://www.cnca.cn)





CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel.: (86)755-27521059 Fax: (86)755-27521011 [Http://www.sz-ctc.org.cn](http://www.sz-ctc.org.cn)

TRF No: CTC-TR-150_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : www.cnta.org.cn