

TEST REPORT
of the accredited test laboratory**TÜV Nr.: INE-AT/FG-17/117**

Applicant: StreamUnlimited Engineering GmbH
High Tech Campus Vienna
Gutheil-Schoder-Gasse 10
A-1100 Vienna

Tested Product: STREAM770 Bluetooth / BLE / WIFI streaming module
Test report for 5 GHz WiFi part only

FCC-ID: 2AJYB-S770

IC-ID: 20504-S770

Manufacturer: See applicant

Output power / field strength: 15,49 mW cond. **power supply:** 5 VDC

Frequency range: 5180 - 5825 MHz with gaps **Channel separation:** 20 MHz

Standard: FCC: 47 CFR Part 15 (October 1, 2015 edition)
RSS-247 Issue 1, May 2015; including modifications and clarifications in CB Notice 2015-07

Testing Laboratory,
Inspection Body,
Certification Body,
Calibration Laboratory,
Verifizierungsstelle**Notified Body 0408**
IC 2932K-1**Non-executive**
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1230 Vienna/Austria**Branch Offices:**
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Court / - Number:
Vienna / FN 288476 f**Bank Details:**
IBAN
AT1312000529490010
BIC BKAUATWW**IBAN**
AT1531000001040932
BIC RZBAATWW**VAT** ATU63240488
DVR 3002476**TUV Austria Services GmbH**
Test laboratory for EMC

Supervisor of EMC laboratory:

Ing. Wilhelm Seier

19.06.2017

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checked by:

Ing. Michael Emminger

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The results of this test report only refer to the provided equipment.

LIST OF MEASUREMENTS

The complete list of measurements called for in 47 CFR 15 and RSS-247 is given below.

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TEST OBJECT DATA

General EUT Description

This Bluetooth / BLE / WIFI module is using either 2.4 GHz frequencies or 5 GHz (WIFI only). This test report is only for the 5 GHz WIFI part. See additional test reports:

INE-AT/FG-17/114 for Bluetooth

INE-AT/FG-17/115 for BLE and

INE-AT/FG-17/116 for 2,4 GHz WIFI measurement results.

2.1033 (c) Technical description

2.1033 (4) Type of emission:

802.11 standards – Channel bandwidths 20 MHz or 40 MHz (aggregation of 2 non-overlapping 20 MHz OFDM channels) – Channel spacing 20 / 40 MHz respectively.

2.1033 (5) Frequency range:

5180 till 5240 MHz; 5260 till 5320 MHz; 5500 till 5700 MHz and 5745 till 5825 MHz (channel center frequencies) in 20 MHz steps resulting in 24 Channels of 20 MHz bandwidth
5190 till 5230 MHz; 5270 till 5310 MHz; 5510 till 5670 MHz and 5755 till 5795 MHz (channel center frequencies) in 40 MHz steps resulting in 11 Channels of 40 MHz bandwidth

2.1033 (6) Power range and Controls: The maximum peak output power is 15,49 mW and there is no power regulation.

2.1033 (7) Maximum output power rating: 15,49 mW.

2.1033 (8) DC Voltage and Current: 5 V DC

maximum current consumption: 300 mA)

RSS-135 This standard does not apply to:

- 1.1.(a) a receiver that scans radio frequencies for the purpose of enabling its associated transmitter to avoid transmitting in an occupied frequency but which does not have the capability of decoding the message (e.g. converting it to audio voice) contained in the radio signal

Antennas used for all radiated measurements: 'Tyco Electronics Corporation Part Number: 1513472-5'

Tests were performed March 13th till May 10th 2017.

Number of channels and channel spacing

§ 2.1033

Conducted Measurement

Rated output power: 15,49 mW

There are 24 Channels used starting at 5170 till 5825 MHz (with gaps) each separated by 20 MHz channel spacing with a maximum bandwidth of 20 MHz.

Two channels spaced by 20 MHz can be used simultaneously to give a RF-Bandwidth of 40 MHz, resulting in 11 different channels with 40 MHz bandwidth and center frequencies of 5180 till 5795 MHz each separated by 40 MHz channel spacing.

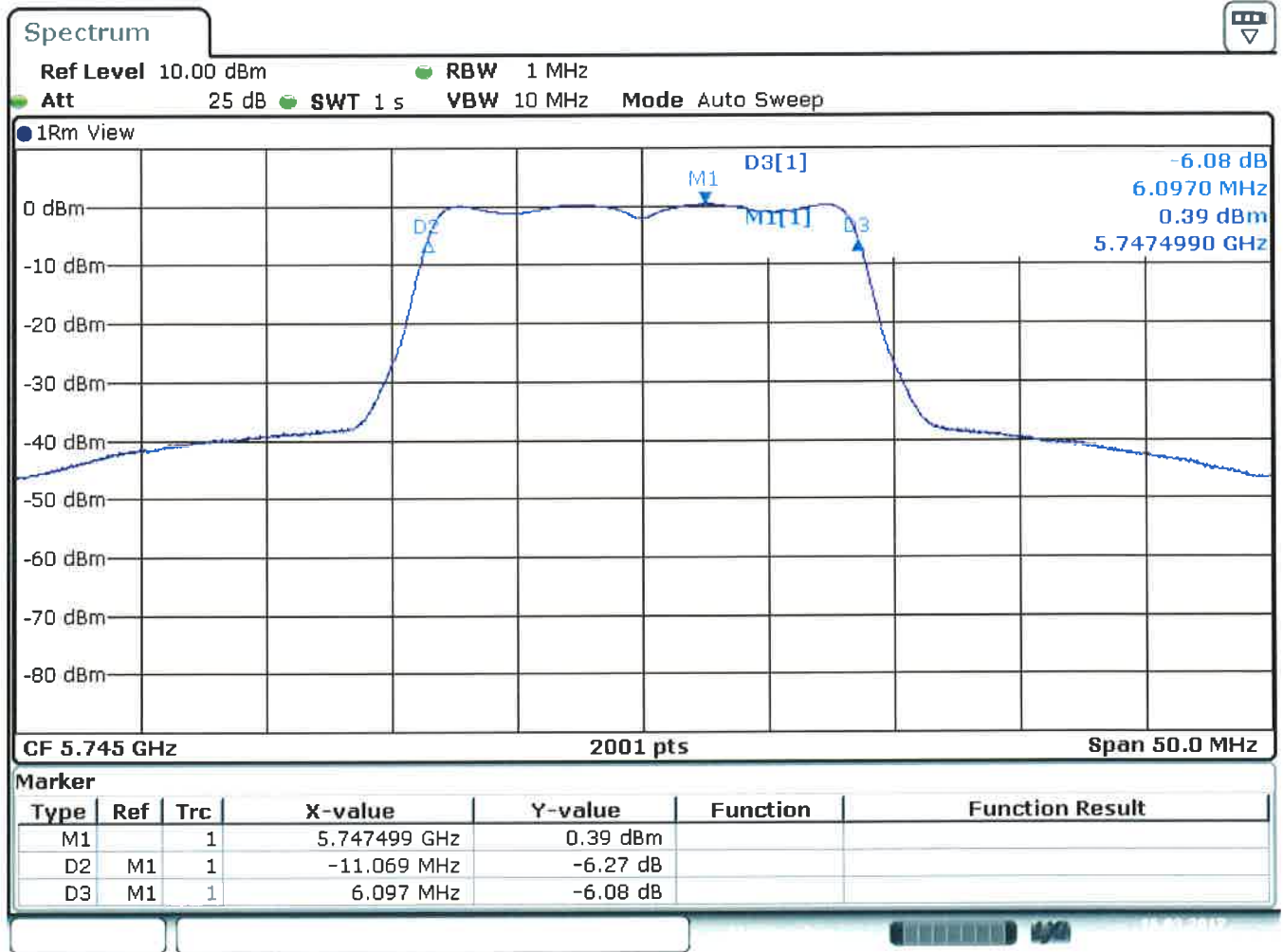
Test Equipment used: N/A

6dB Bandwidth

§ 15.407(e)
6.2.4 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 149 (5745 MHz center frequency)



Date: 16.MAR.2017 14:08:43

6dB Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407(e) – 6.2.4 (1)

Frequency range 5725 – 5850 MHz	6 dB Bandwidth at least 500 kHz
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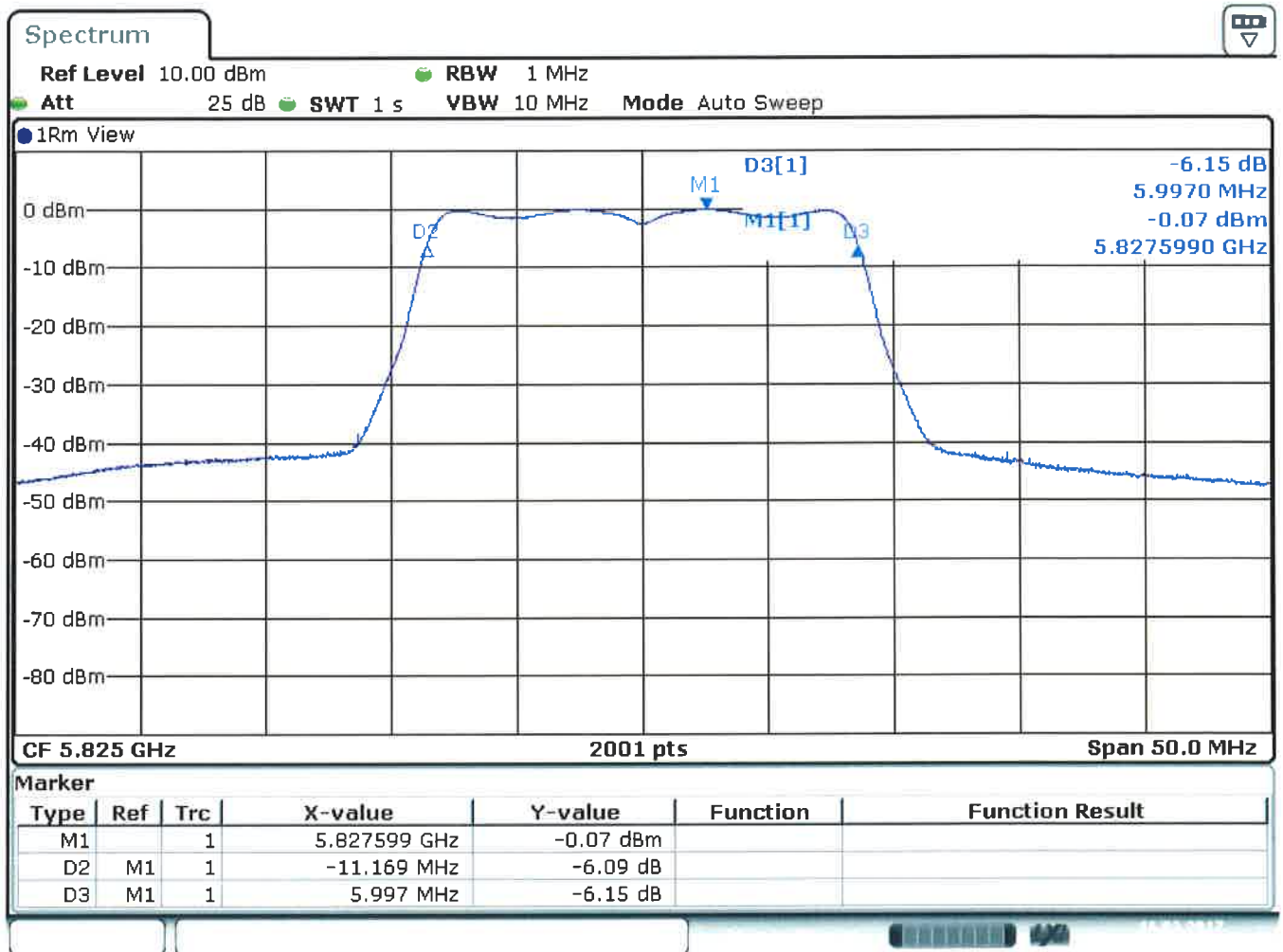
Test Equipment used: EMV-205

6dB Bandwidth

§ 15.407(e)
6.2.4 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 165 (5825 MHz center frequency)



Date: 16.MAR.2017 14:12:33

6dB Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407(e) – 6.2.4 (1)

Frequency range 5725 – 5850 MHz	6 dB Bandwidth at least 500 kHz
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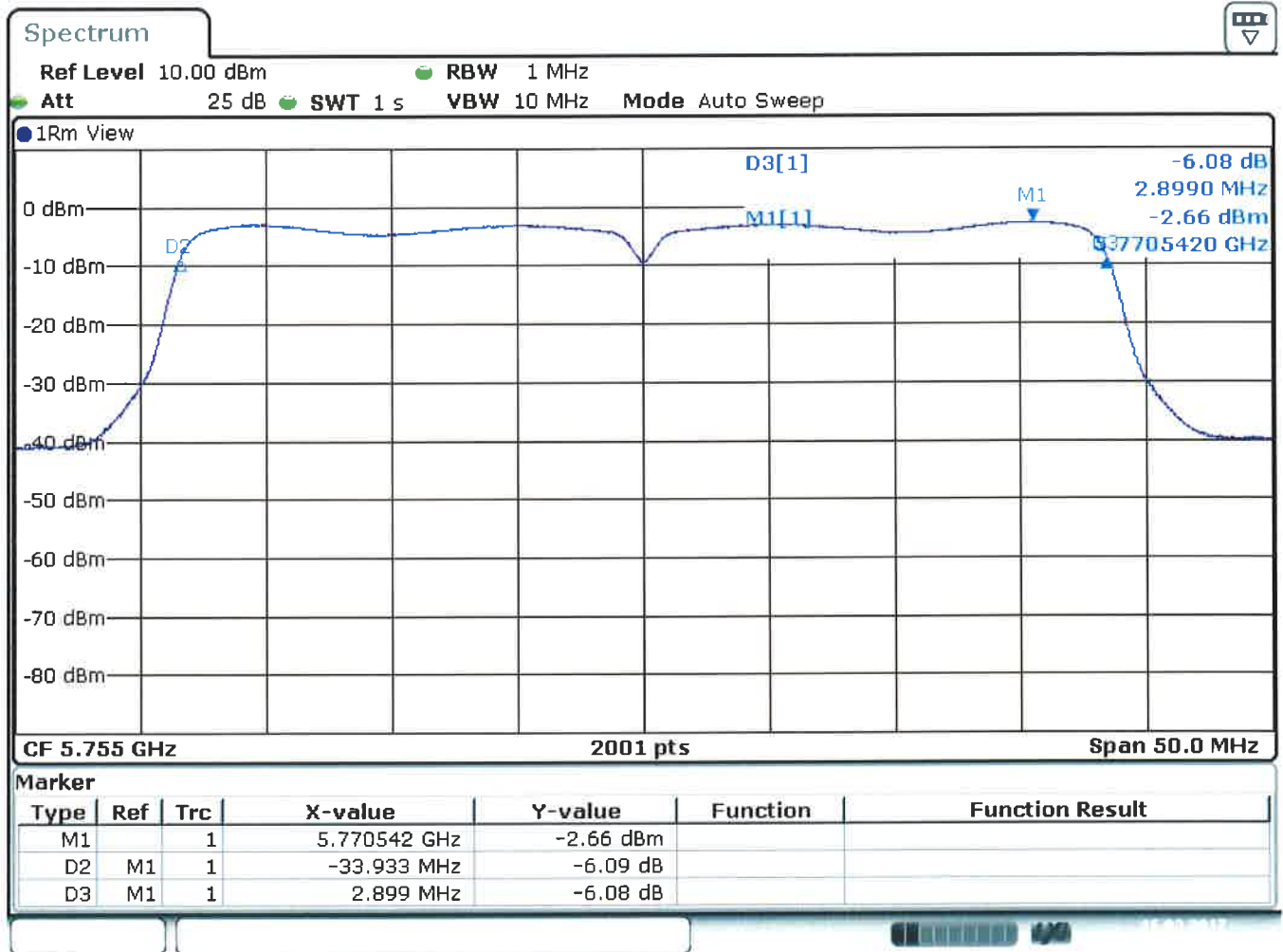
Test Equipment used: EMV-205

6dB Bandwidth

§ 15.407(e)
6.2.4 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 149-153 (5755 MHz center frequency)



Date: 16.MAR.2017 13:59:32

6dB Bandwidth: 36,832 MHz

LIMIT SUBCLAUSE 15.407(e) – 6.2.4 (1)

Frequency range 5725 – 5850 MHz	6 dB Bandwidth at least 500 kHz
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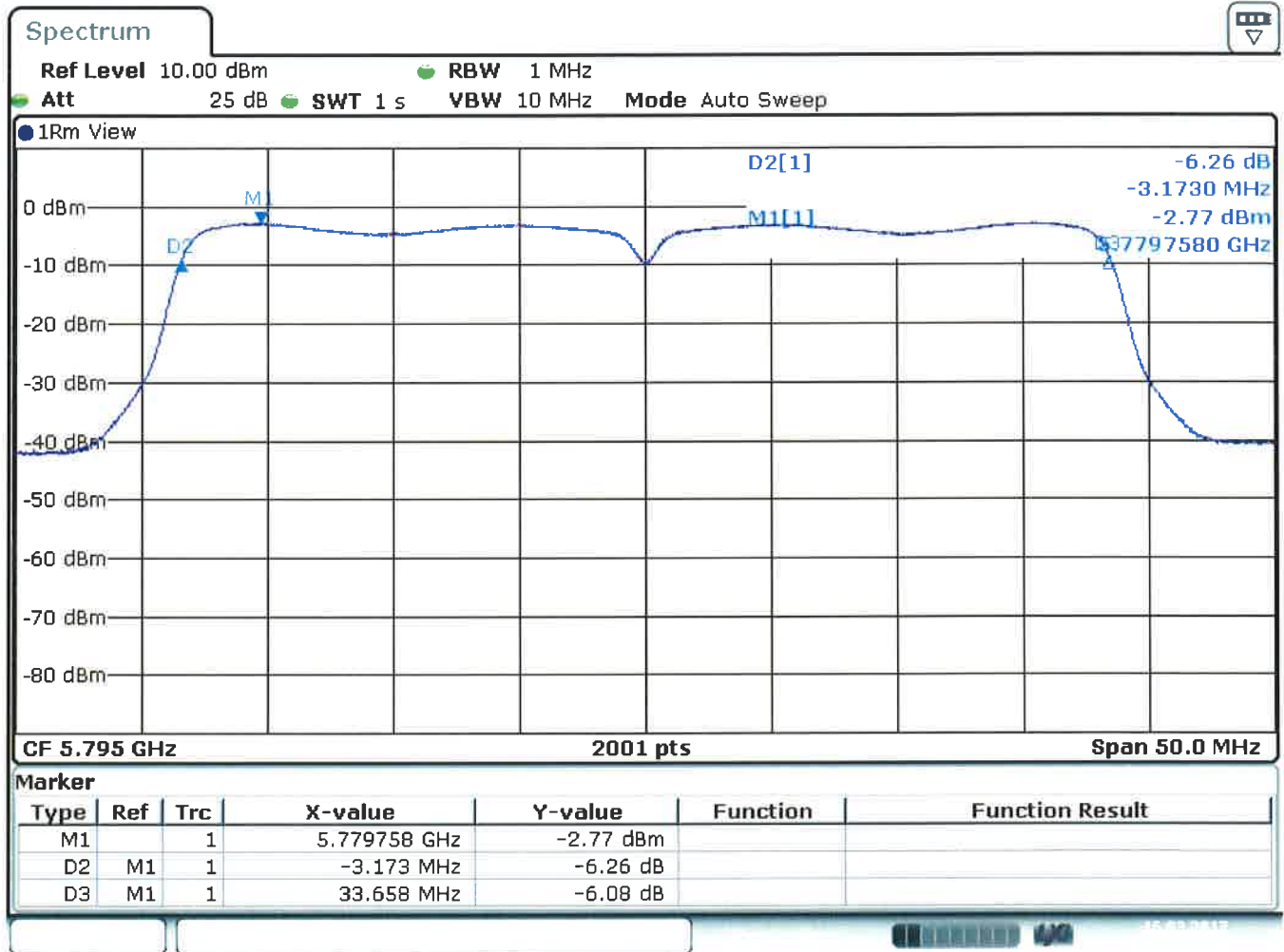
Test Equipment used: EMV-205

6dB Bandwidth

**§ 15.407(e)
6.2.4 (1)**

Conducted Measurement

Rated output power: 15,49 mW Channel 157-161 (5795 MHz center frequency)



Date: 16.MAR.2017 13:54:13

6dB Bandwidth: 36,831 MHz

LIMIT SUBCLAUSE 15.407(e) – 6.2.4 (1)

Frequency range 5725 – 5850 MHz	6 dB Bandwidth at least 500 kHz
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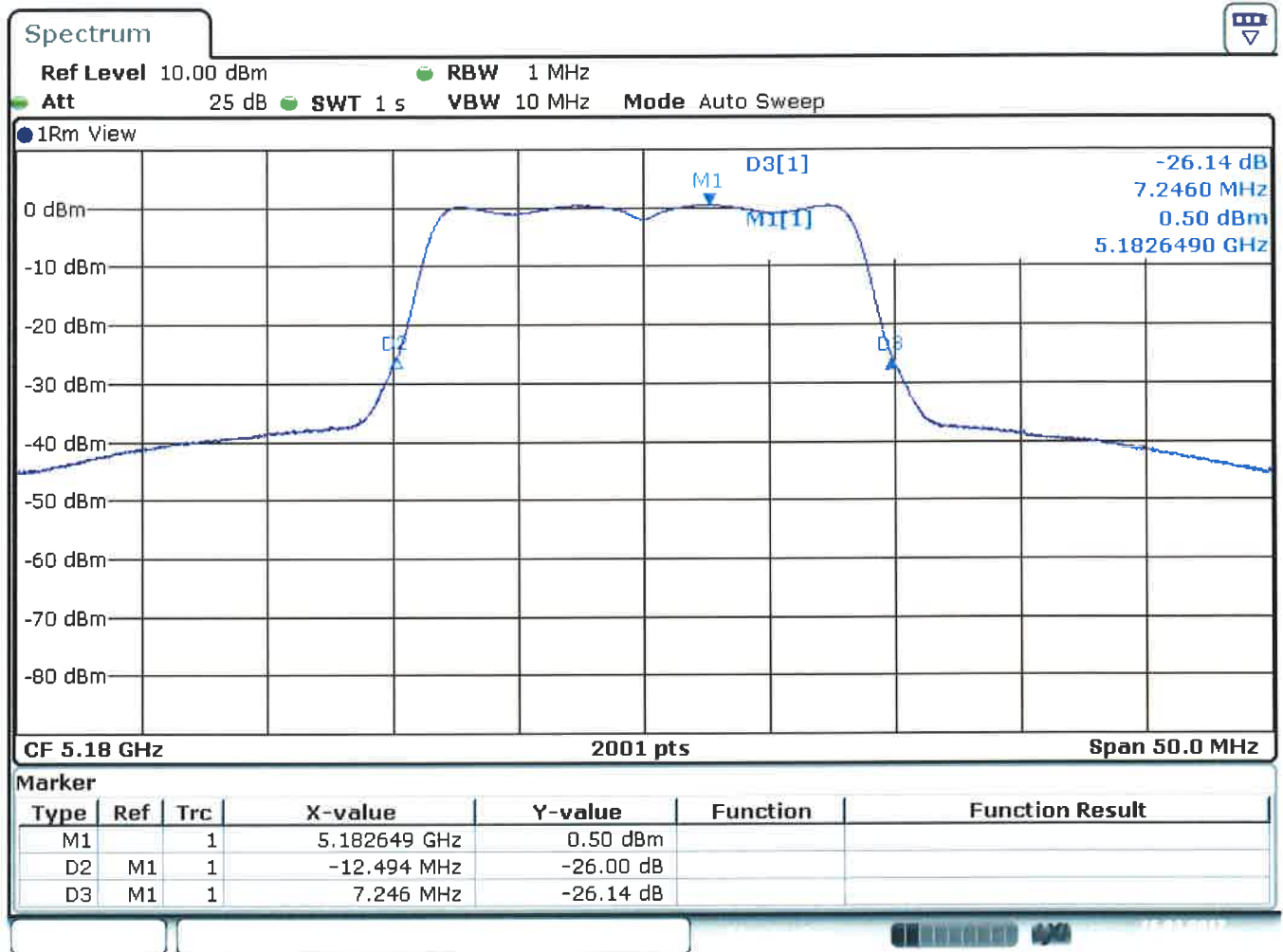
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 36 (5180 MHz center frequency)



Date: 16.MAR.2017 14:16:41

26dB Bandwidth: 19,74 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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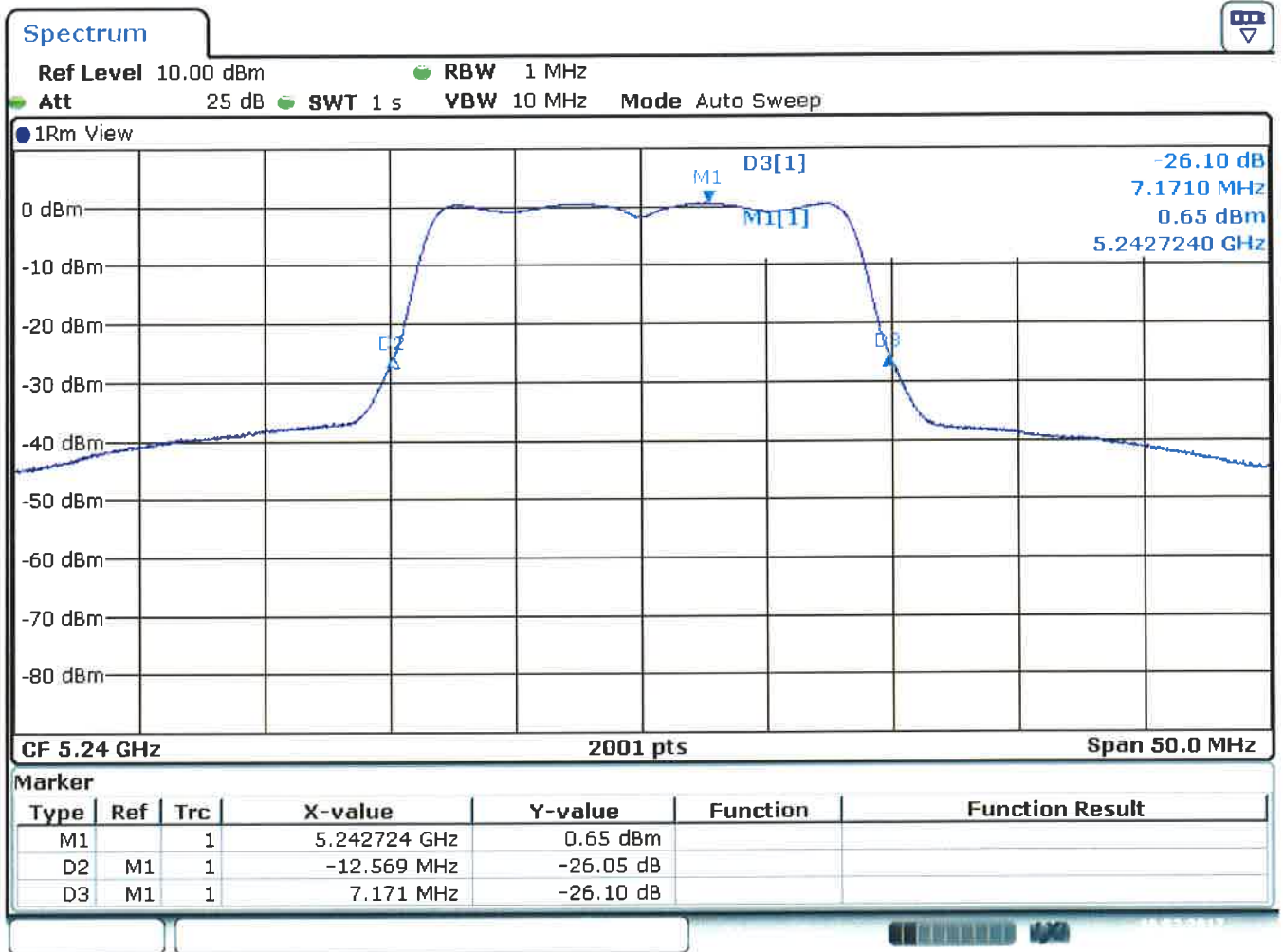
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 48 (5240 MHz center frequency)



Date: 16.MAR.2017 14:20:00

26dB Bandwidth: 19,74 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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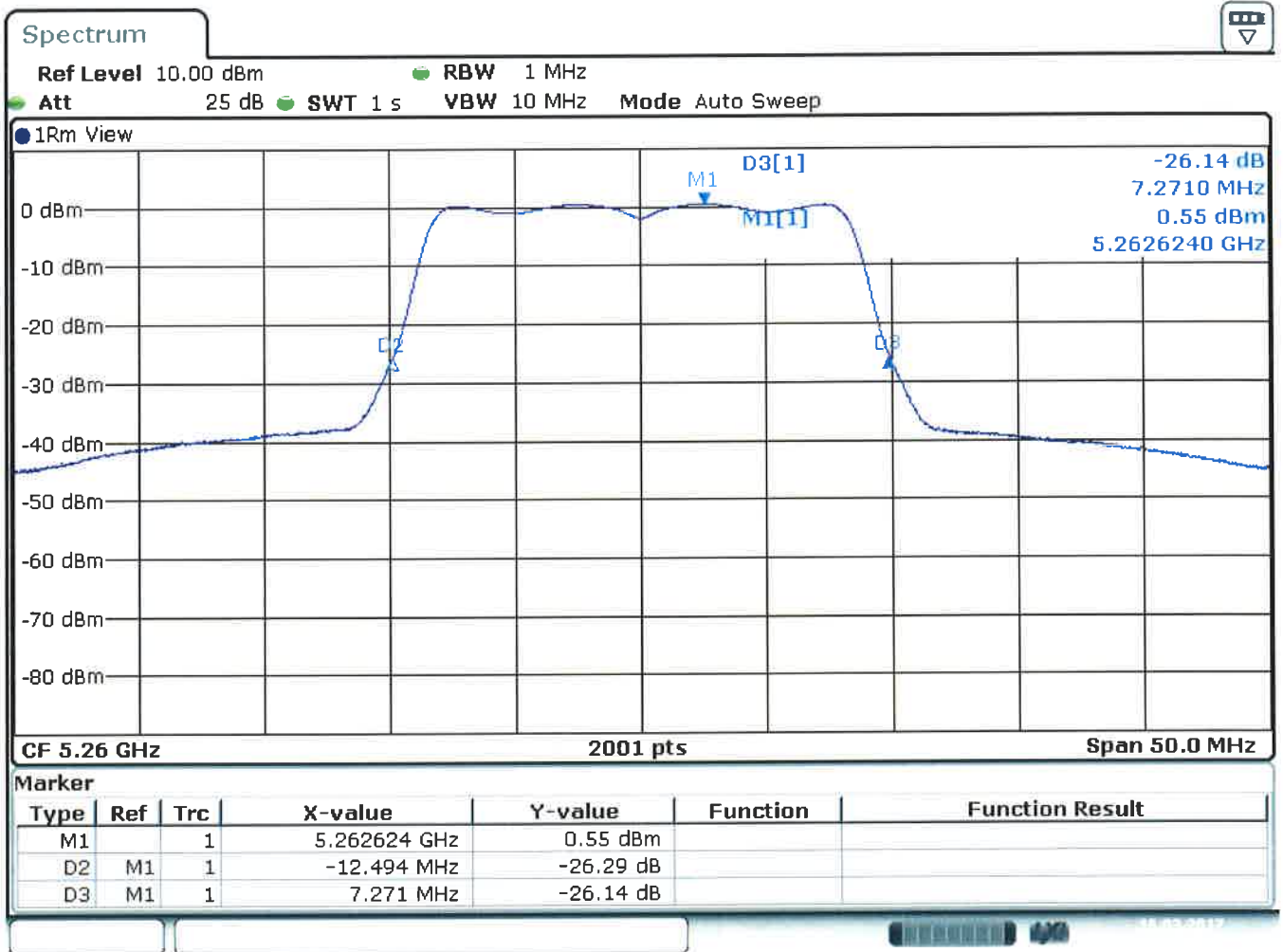
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 52 (5260 MHz center frequency)



Date: 16.MAR.2017 14:26:27

26dB Bandwidth: 19,765 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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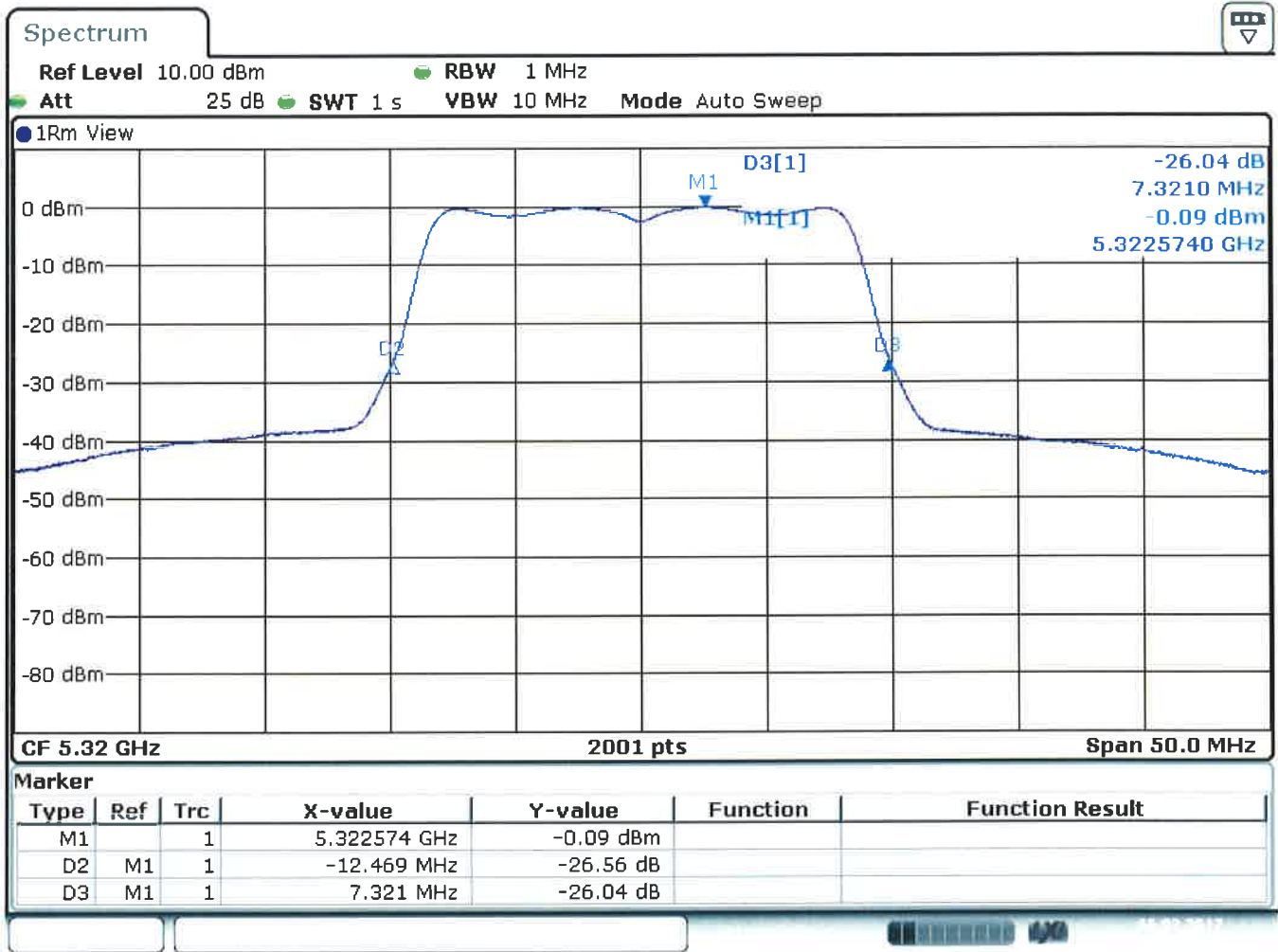
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 64 (5320 MHz center frequency)



Date: 16.MAR.2017 14:29:56

26dB Bandwidth: 19,79 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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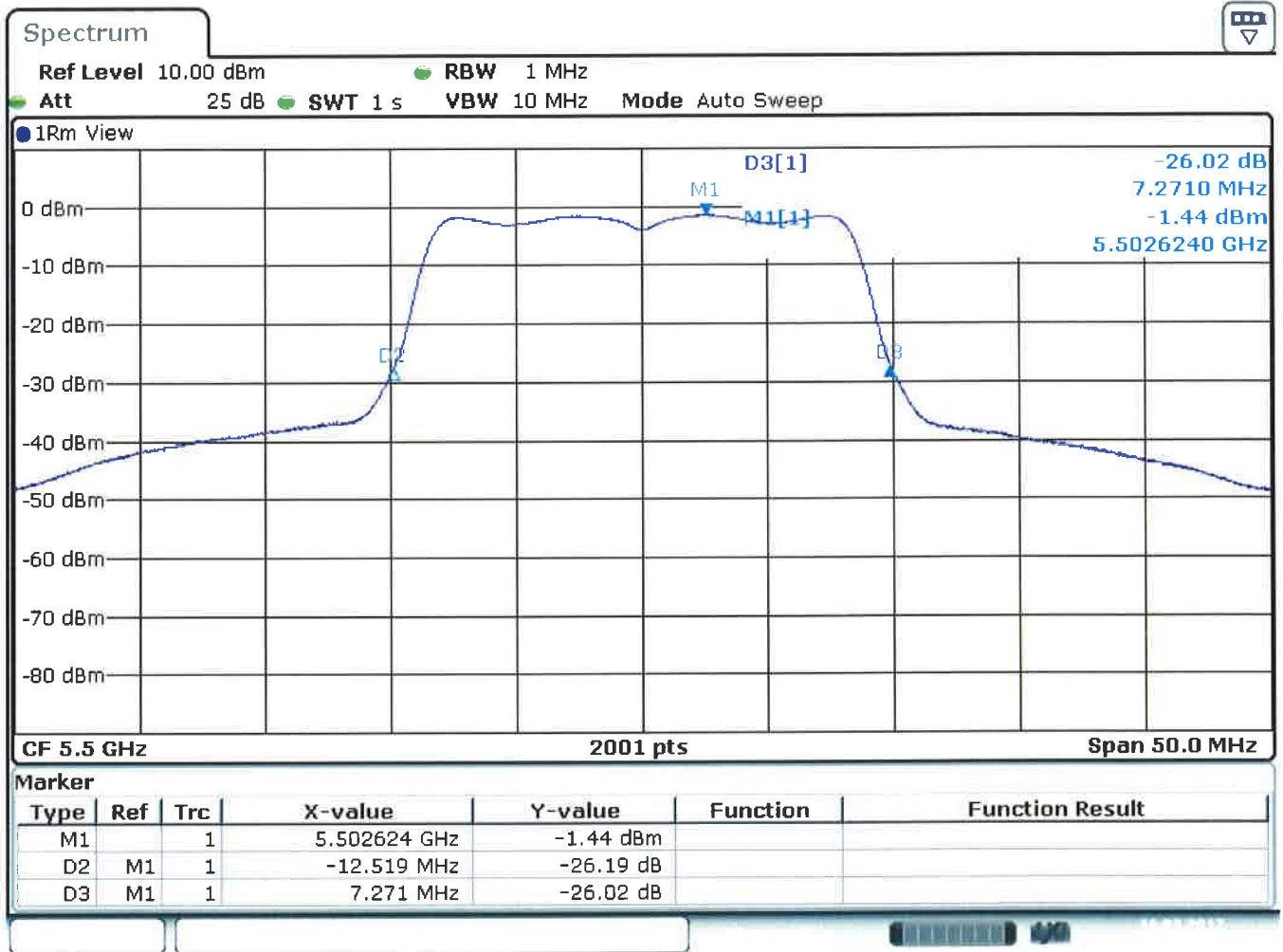
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 100 (5500 MHz center frequency)



Date: 16.MAR.2017 14:35:01

26dB Bandwidth: 19,79 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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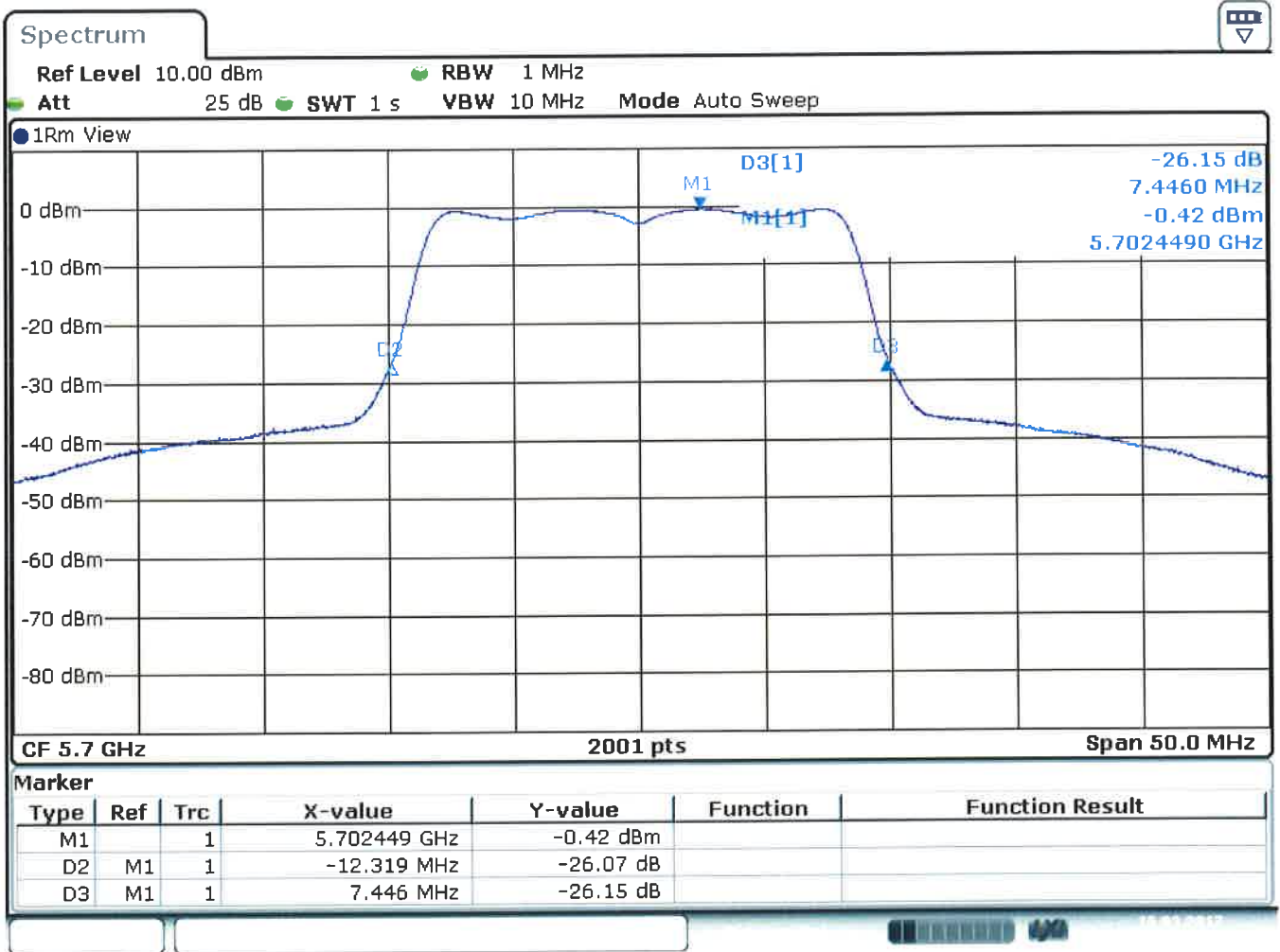
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 140 (5700 MHz center frequency)



Date: 16.MAR.2017 14:36:25

26dB Bandwidth: 19,765 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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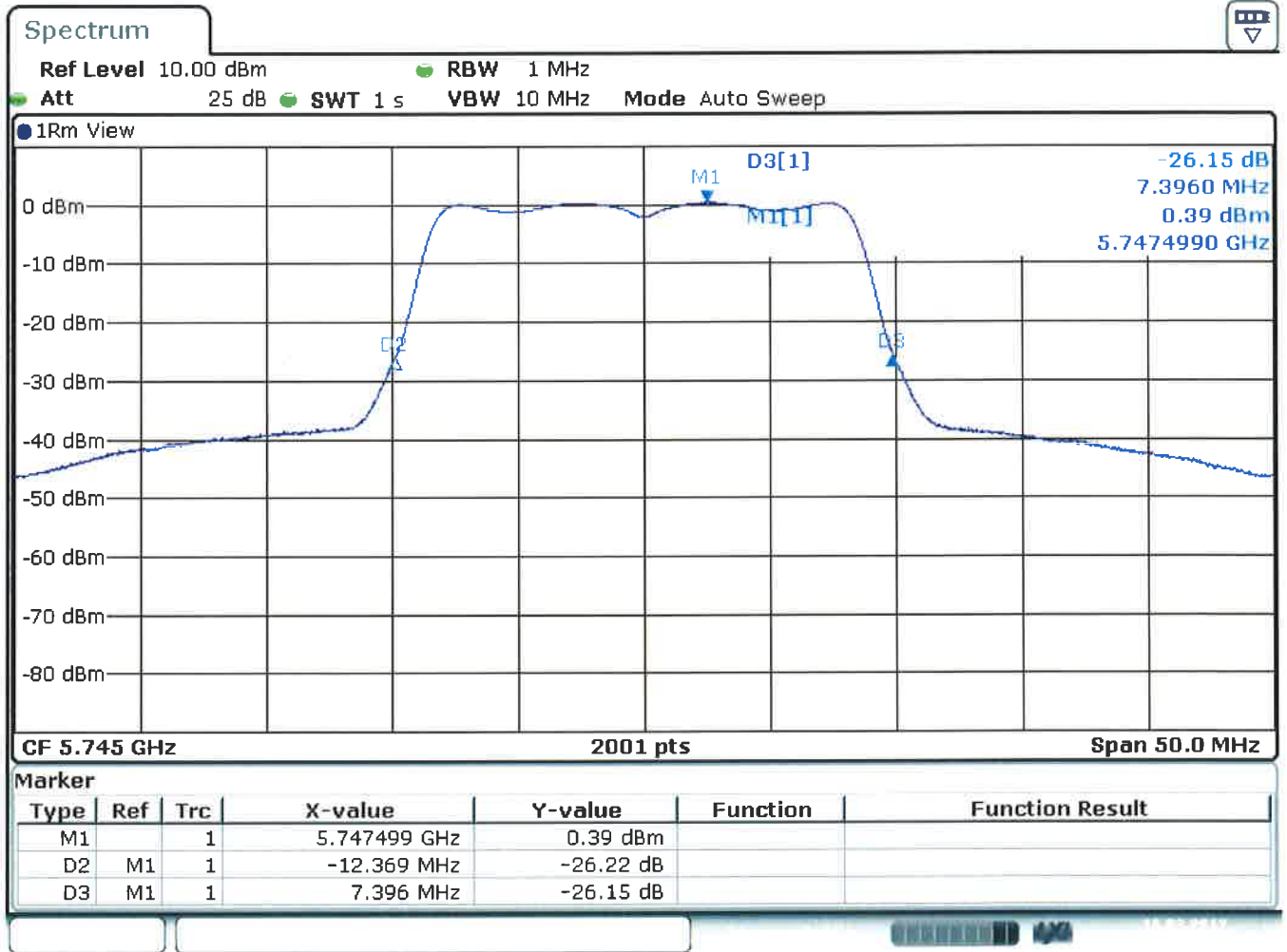
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 149 (5745 MHz center frequency)



Date: 16.MAR.2017 14:09:26

26dB Bandwidth: 19,765 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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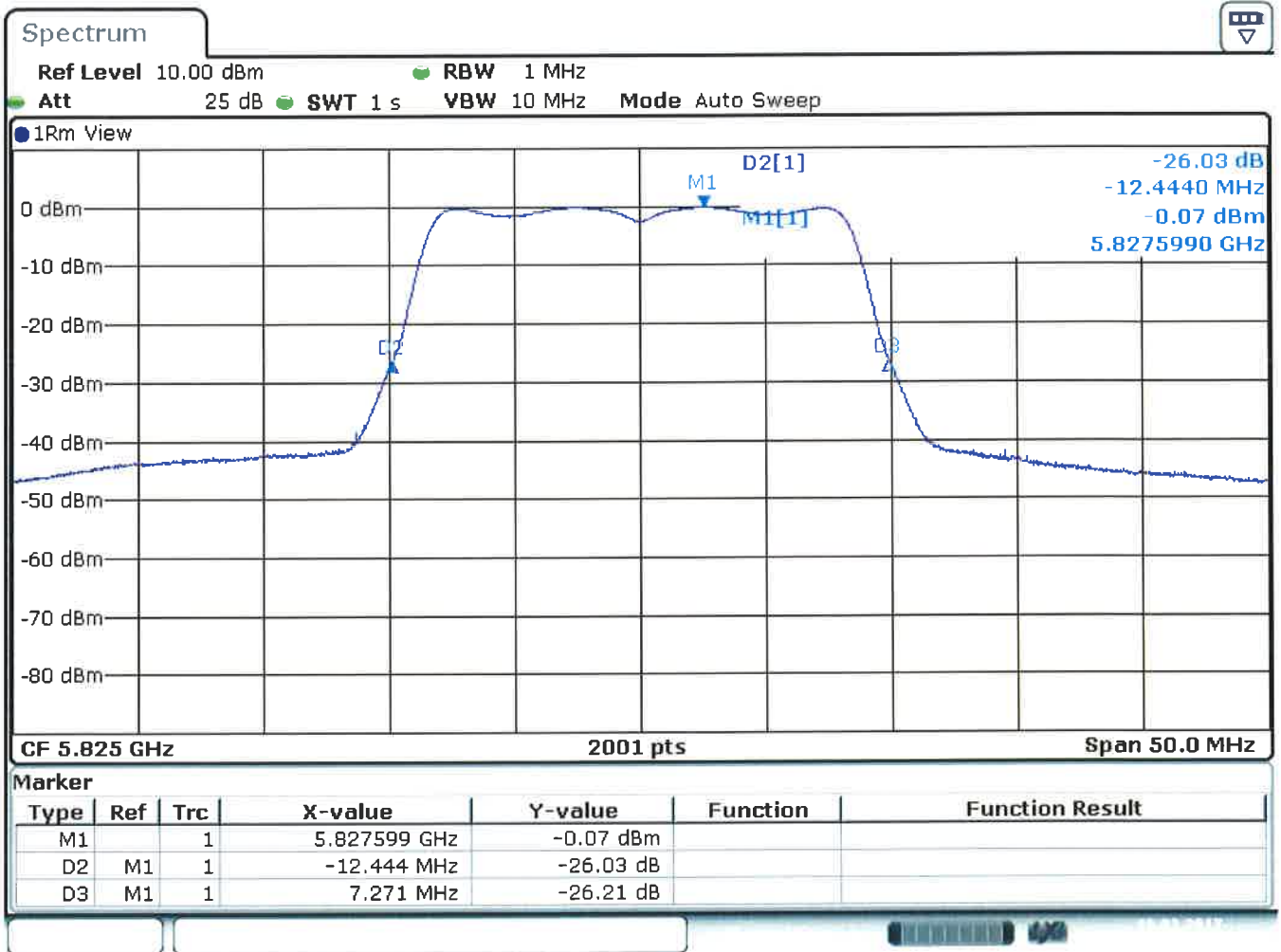
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 165 (5825 MHz center frequency)



Date: 16.MAR.2017 14:13:13

26dB Bandwidth: 19,715 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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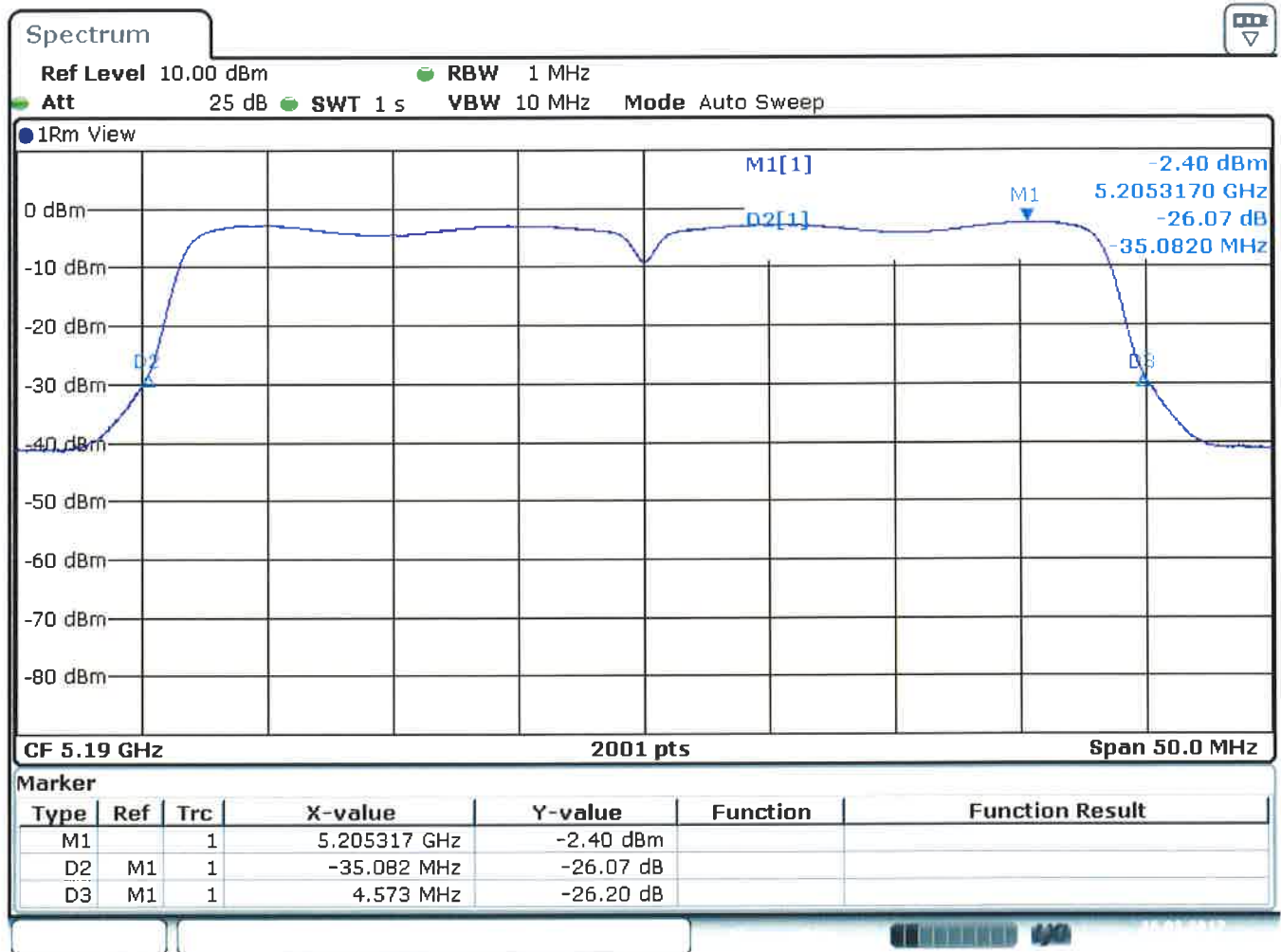
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 36-40 (5190 MHz center frequency)



Date: 16.MAR.2017 14:42:43

26dB Bandwidth: 39,655 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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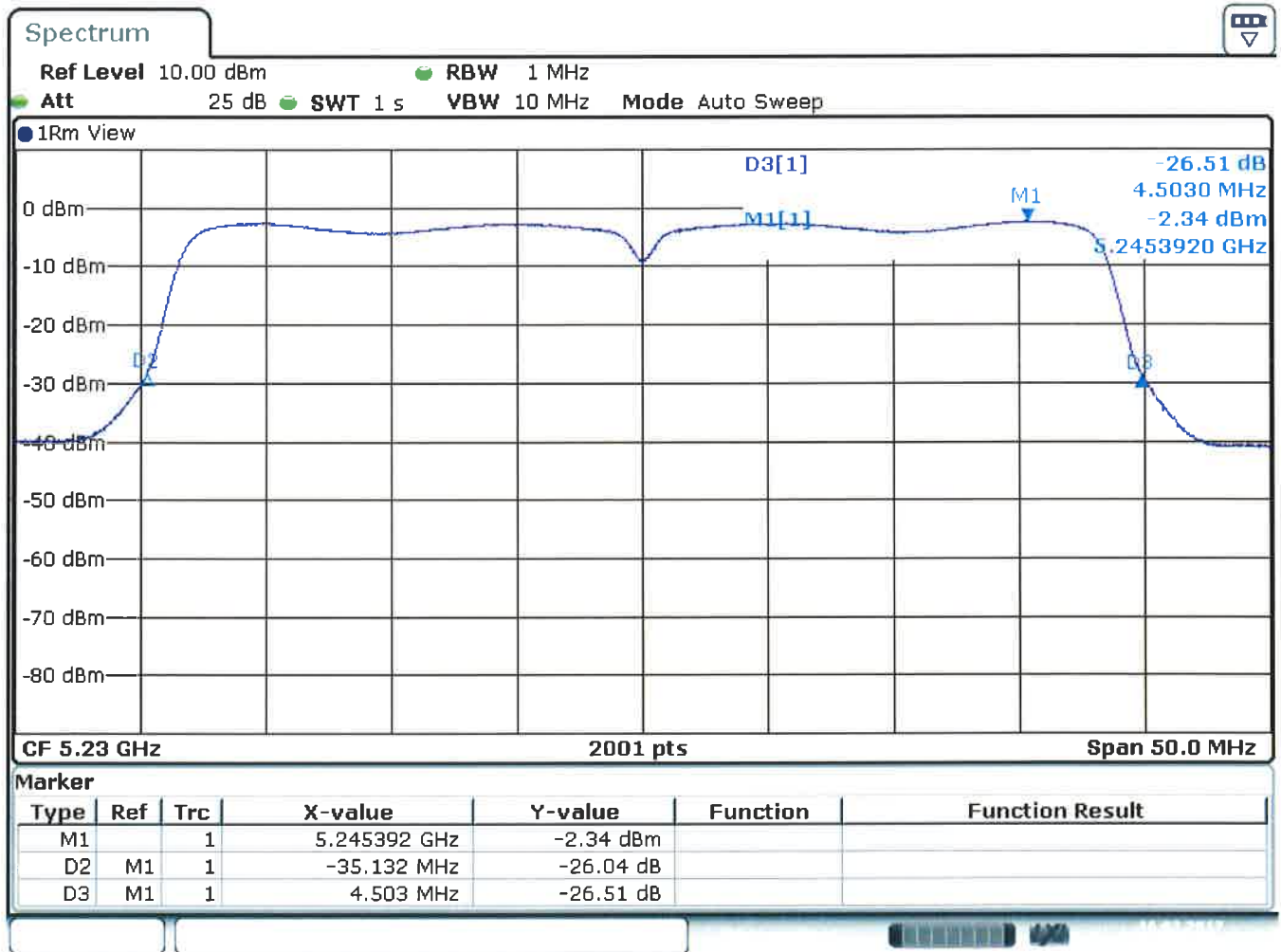
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 44-48 (5230 MHz center frequency)



Date: 16.MAR.2017 14:45:49

26dB Bandwidth: 39,635 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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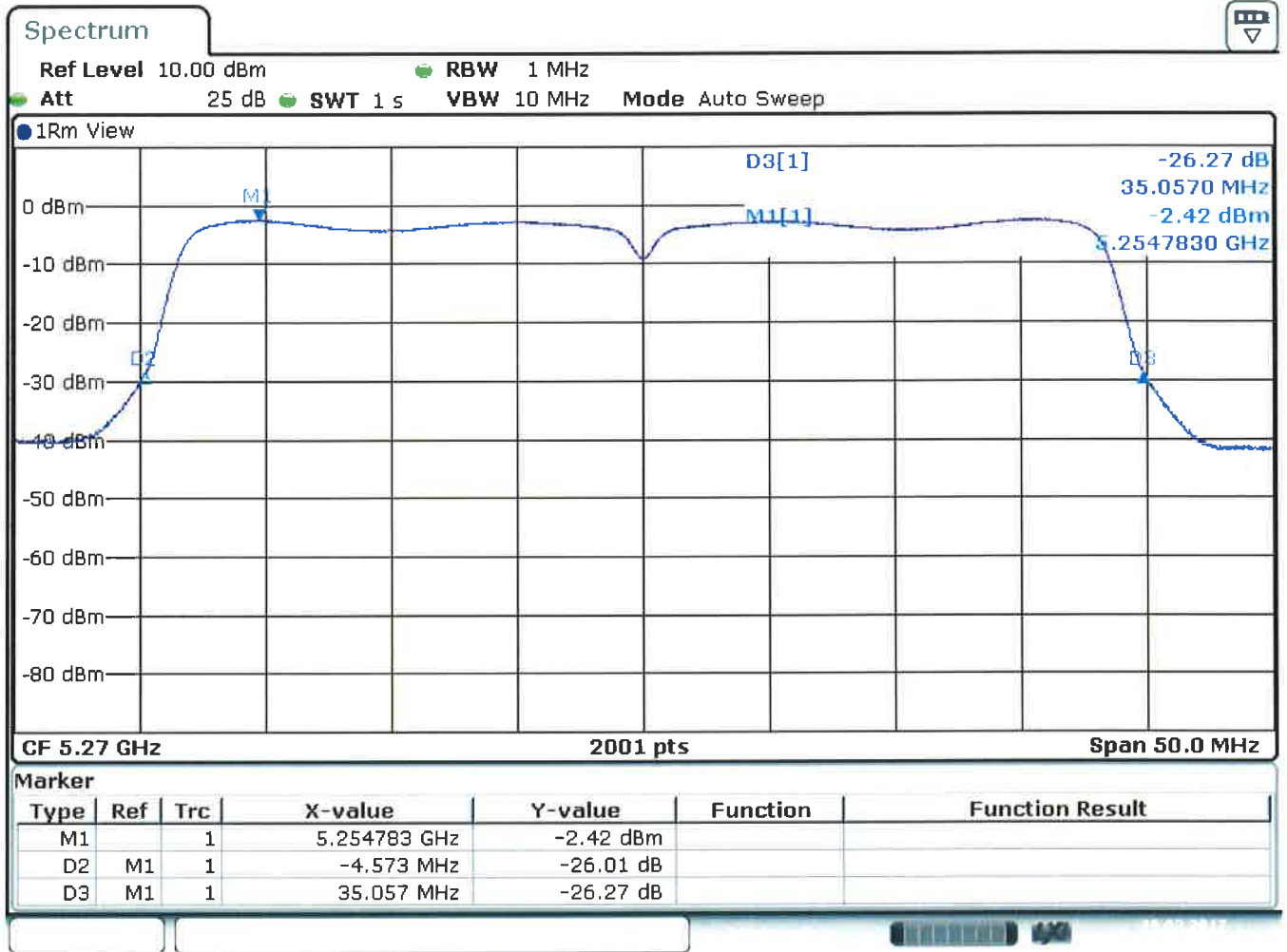
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 52-56 (5270 MHz center frequency)



Date: 16.MAR.2017 14:50:40

26dB Bandwidth: 39,63 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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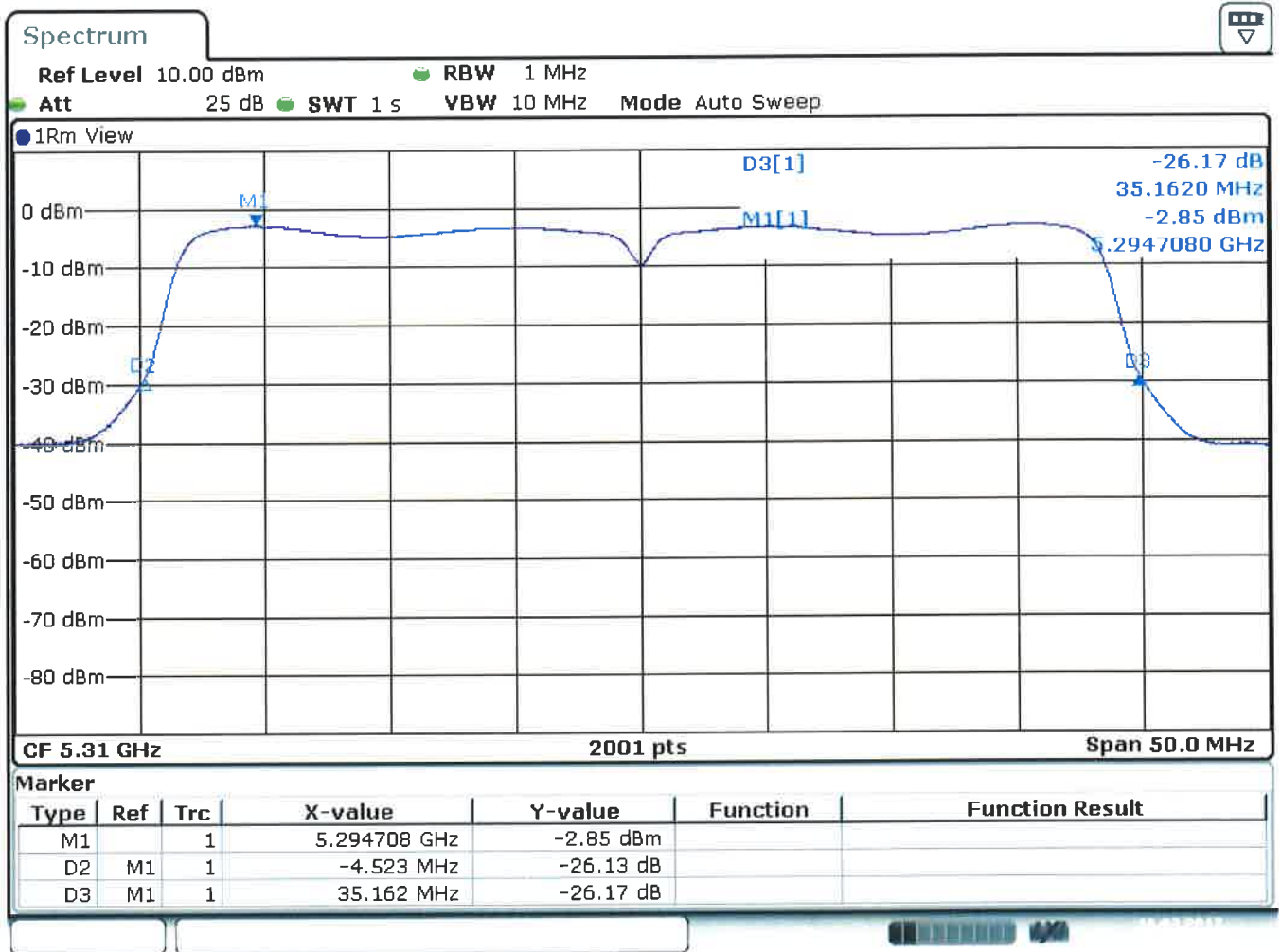
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 60-64 (5310 MHz center frequency)



Date: 16.MAR.2017 15:48:22

26dB Bandwidth: 39,685 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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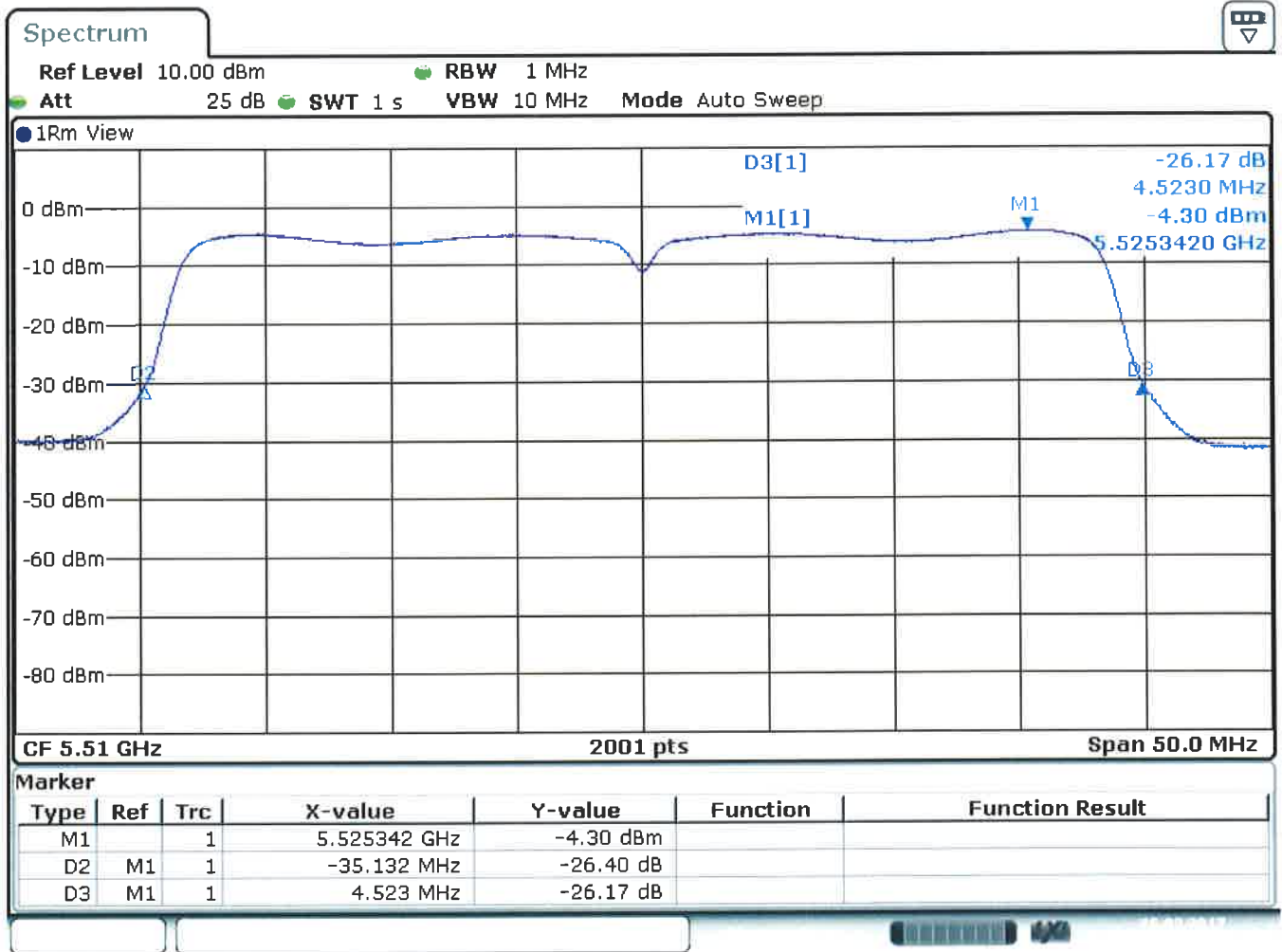
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 100-104 (5510 MHz center frequency)



Date: 16.MAR.2017 15:51:49

26dB Bandwidth: 39,655 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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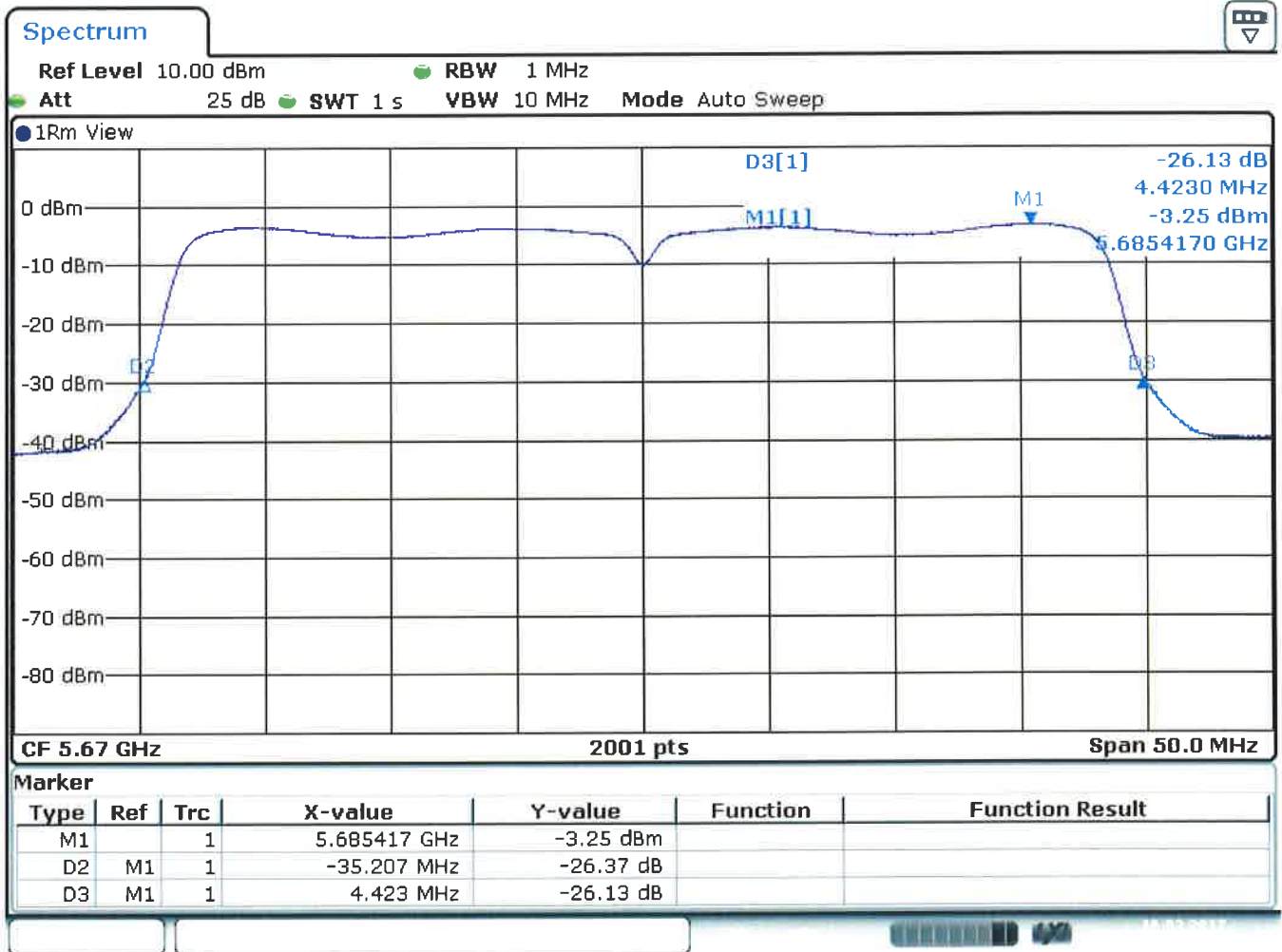
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 132-136 (5670 MHz center frequency)



Date: 16.MAR.2017 15:53:32

26dB Bandwidth: 39,630 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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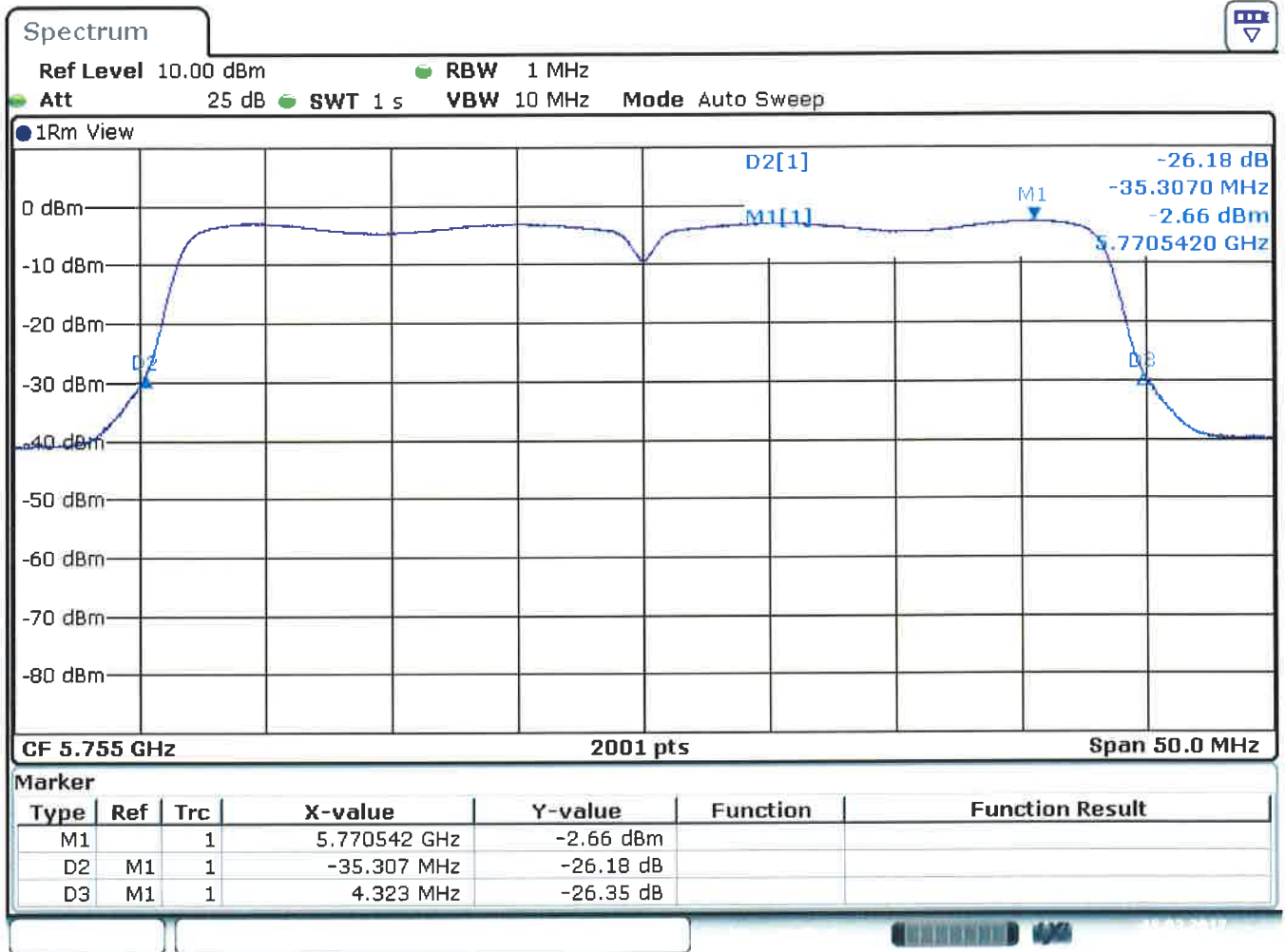
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 149-153 (5755 MHz center frequency)



Date: 16.MAR.2017 14:00:19

26dB Bandwidth: 39,630 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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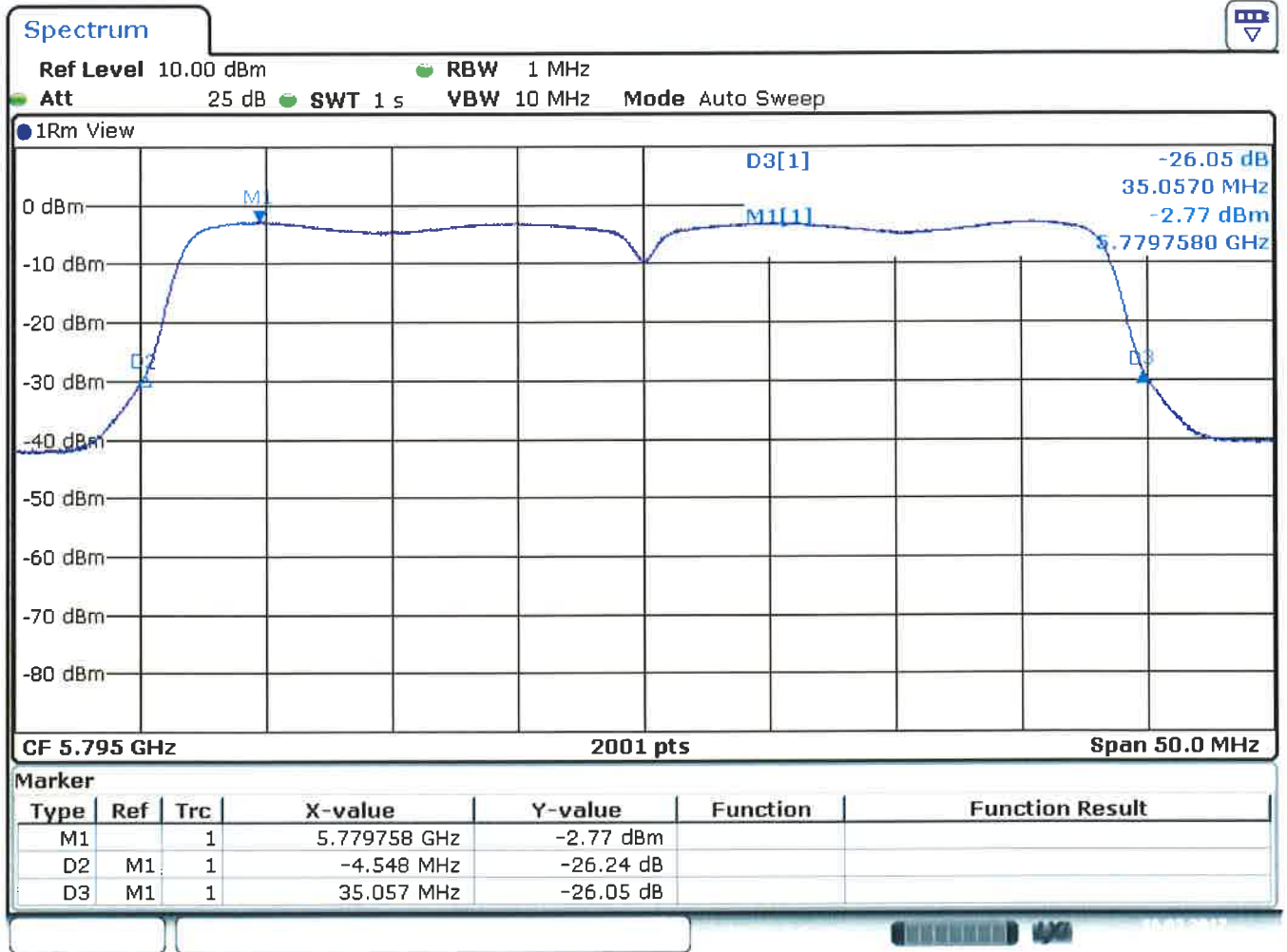
Test Equipment used: EMV-205

26dB Bandwidth

§ 15.407

Conducted Measurement

Rated output power: 15,49 mW Channel 157-161 (5795 MHz center frequency)



Date: 16.MAR.2017 13:55:18

26dB Bandwidth: 39,605 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	26 dB Bandwidth fully inside permitted frequency ranges
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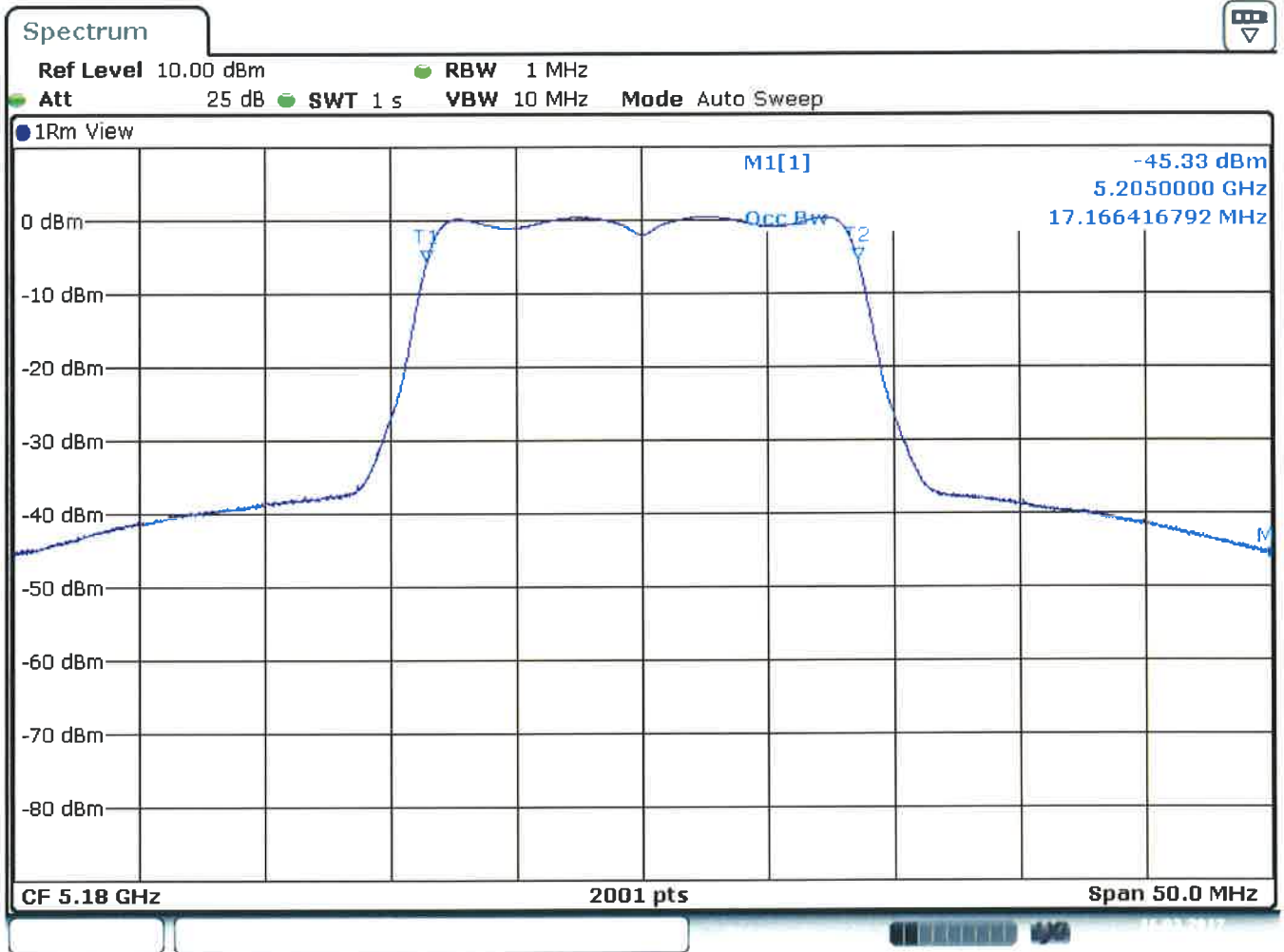
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.1 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 36 (5180 MHz center frequency)



Date: 16.MAR.2017 14:15:34

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	99% Bandwidth fully inside permitted frequency ranges
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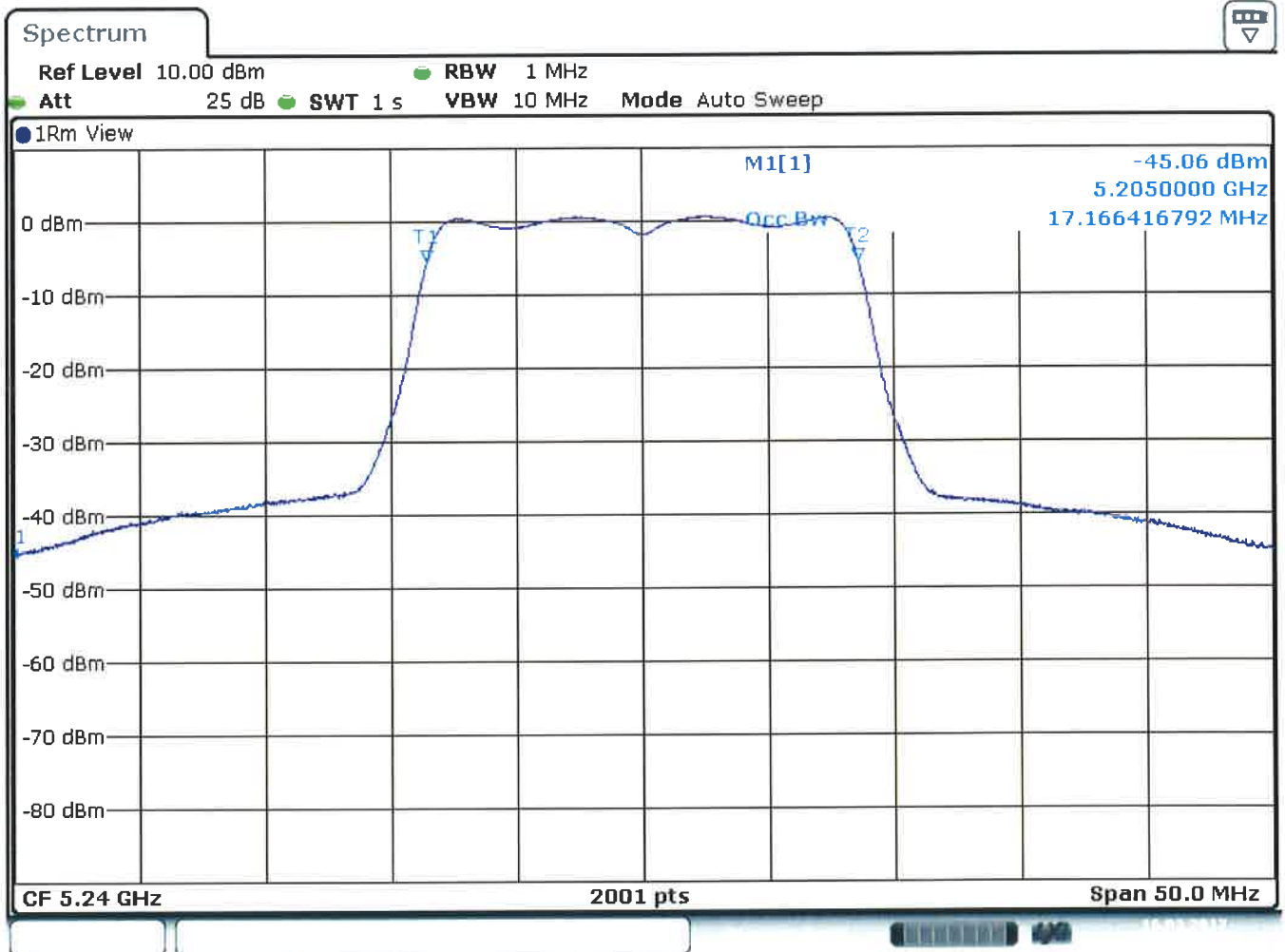
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.1 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 48 (5240 MHz center frequency)



Date: 16.MAR.2017 14:20:43

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	99% Bandwidth fully inside permitted frequency ranges
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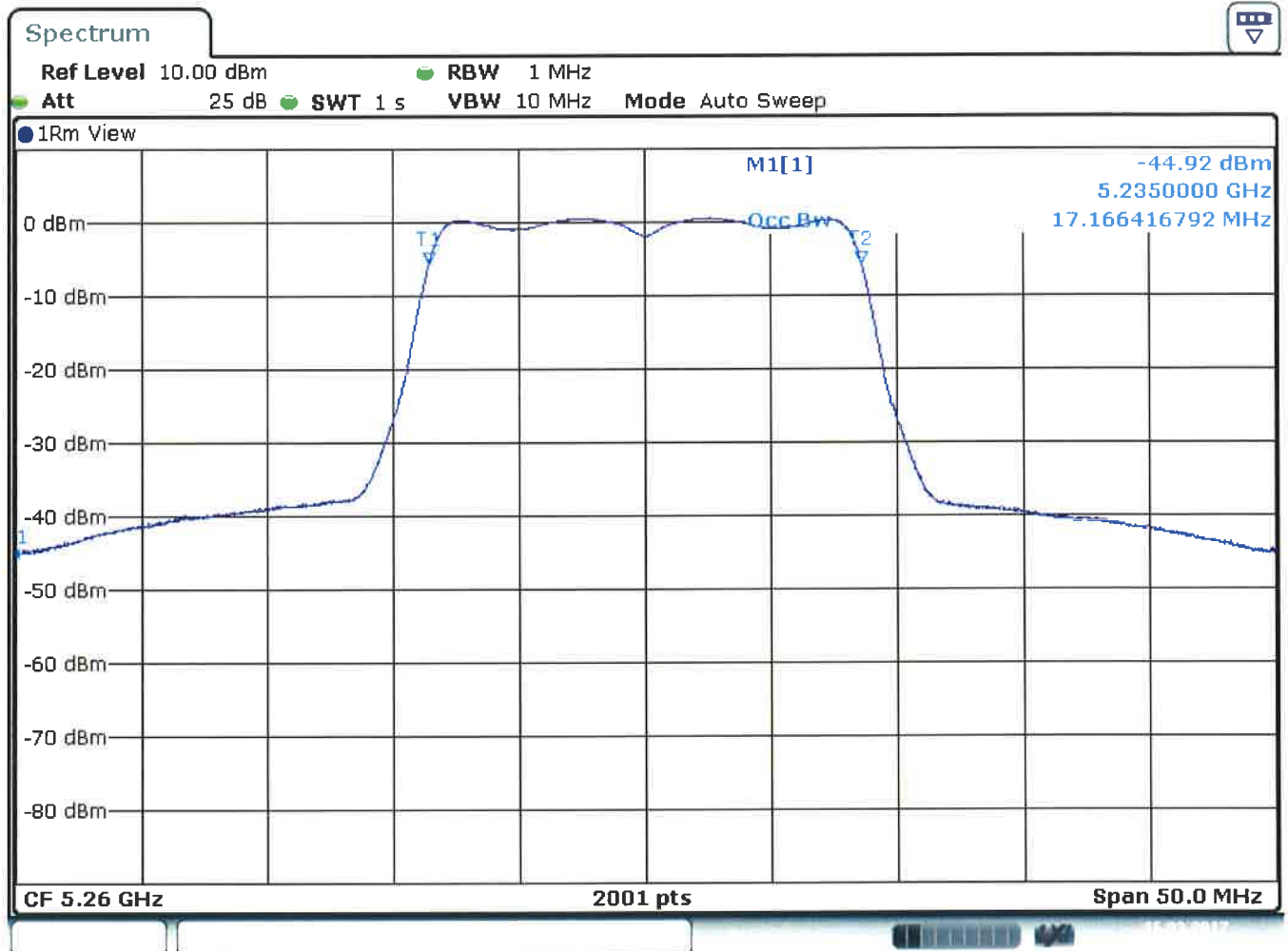
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.2 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 52 (5260 MHz center frequency)



Date: 16.MAR.2017 14:25:17

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	99% Bandwidth fully inside permitted frequency ranges
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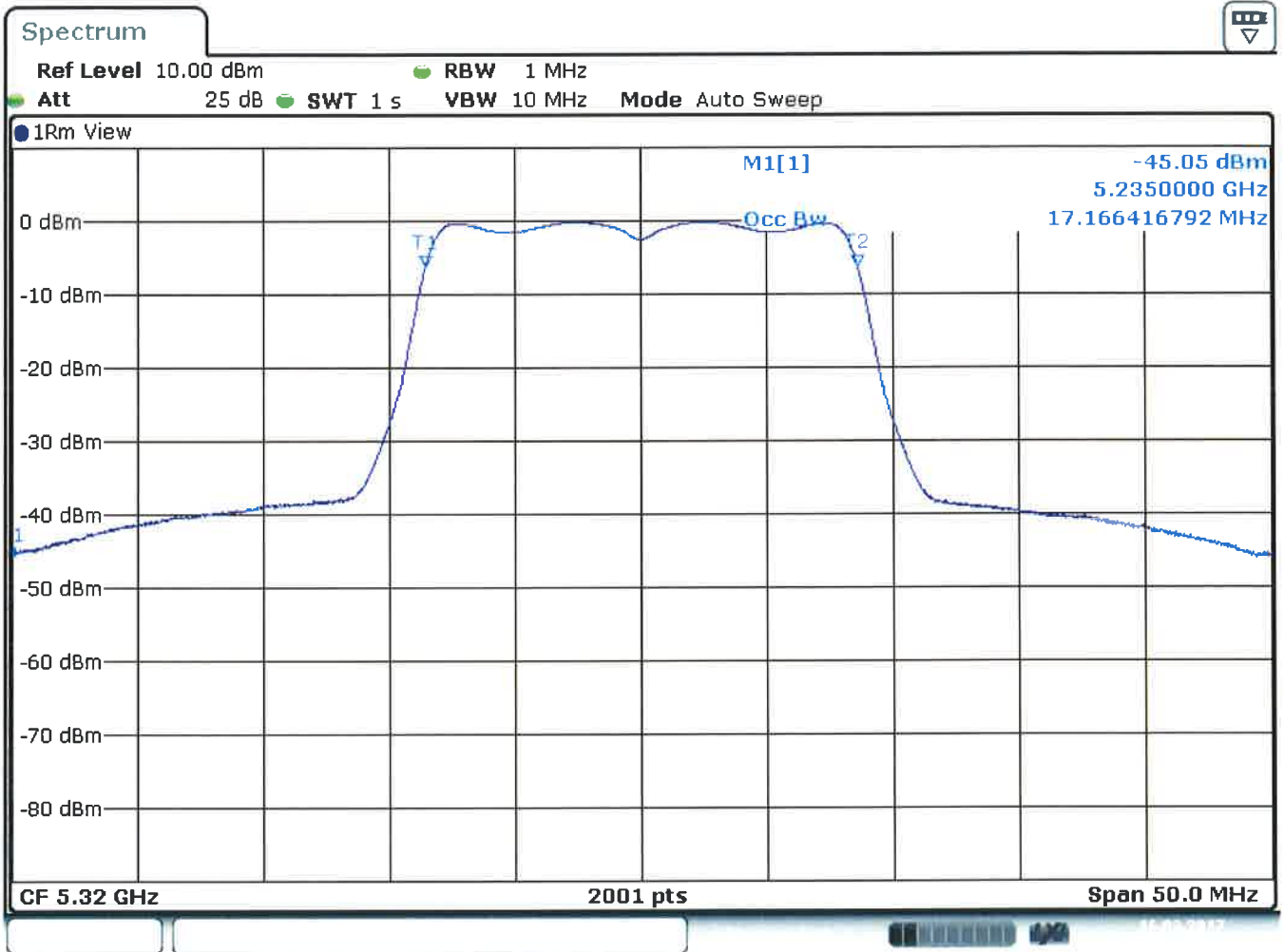
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.2 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 64 (5320 MHz center frequency)



Date: 16.MAR.2017 14:30:48

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350;
5470 – 5650; 5725 – 5850 MHz

99% Bandwidth fully inside permitted frequency ranges

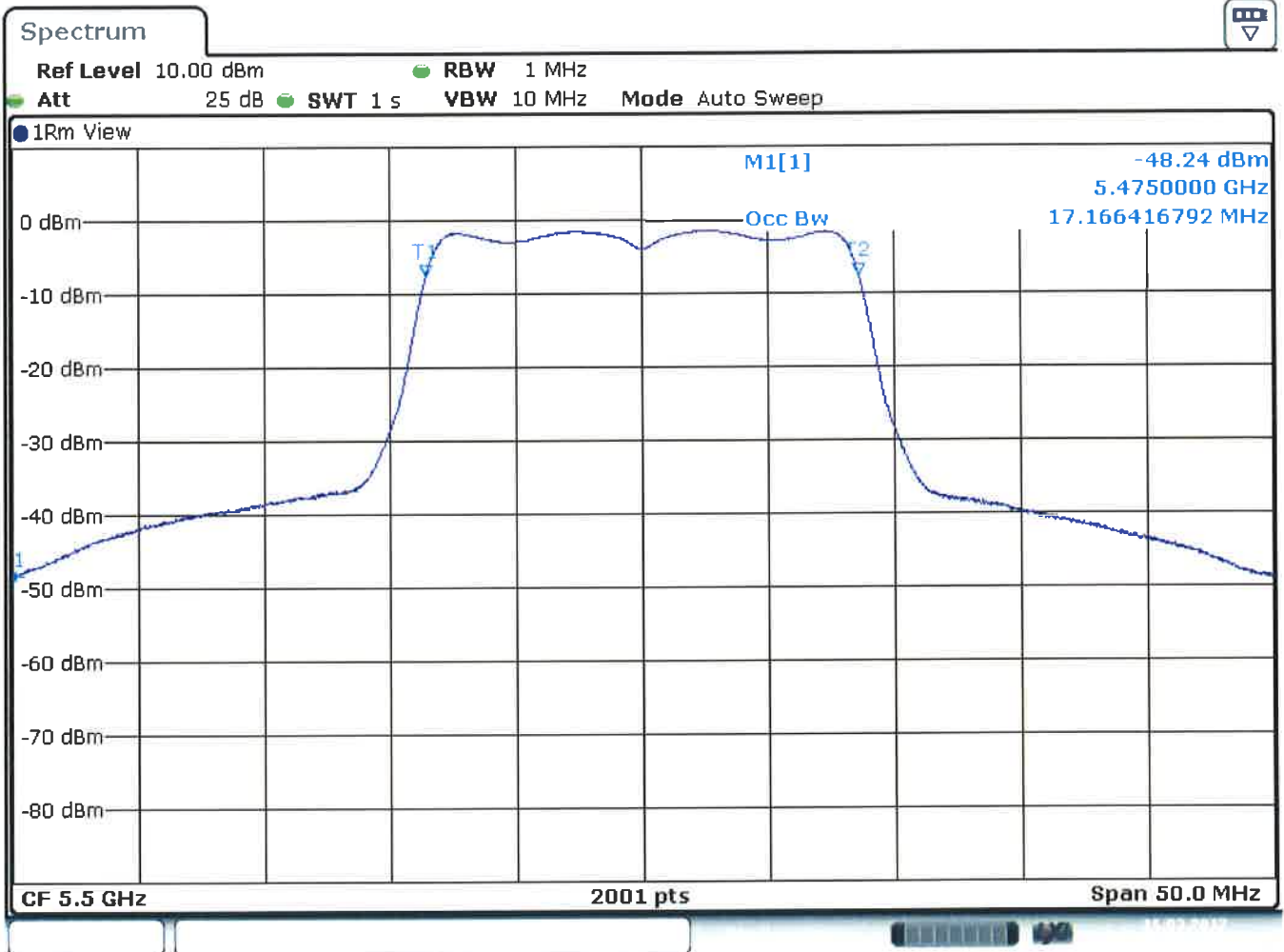
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.3 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 100 (5500 MHz center frequency)



Date: 16.MAR.2017 14:34:02

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350;
5470 – 5650; 5725 – 5850 MHz

99% Bandwidth fully inside permitted frequency ranges

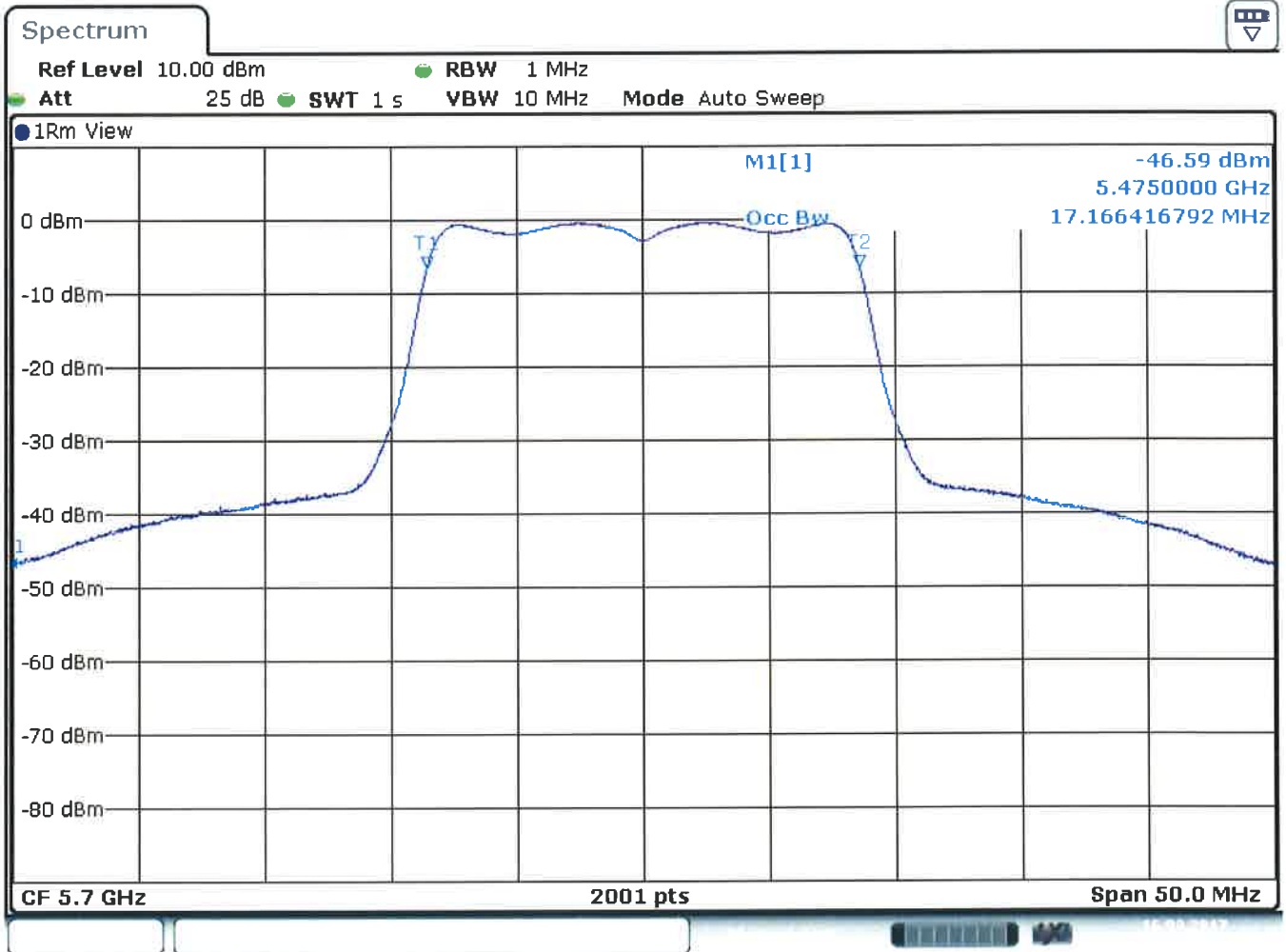
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.3 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 140 (5700 MHz center frequency)



Date: 16.MAR.2017 14:37:34

99% Bandwidth: 17,166 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	99% Bandwidth fully inside permitted frequency ranges
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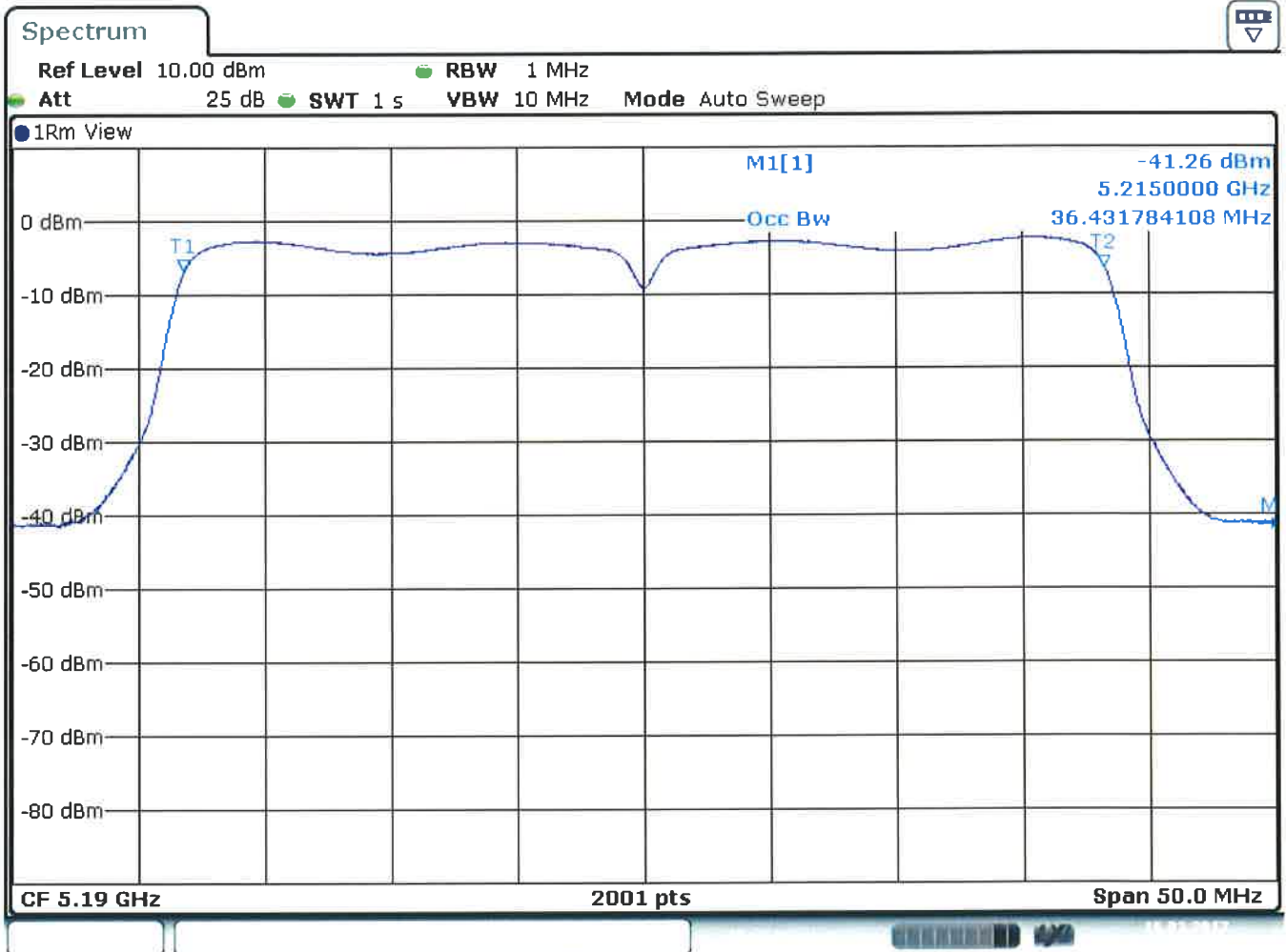
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.1 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 36-40 (5190 MHz center frequency)



Date: 16.MAR.2017 14:41:25

99% Bandwidth: 36,432 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz	99% Bandwidth fully inside permitted frequency ranges
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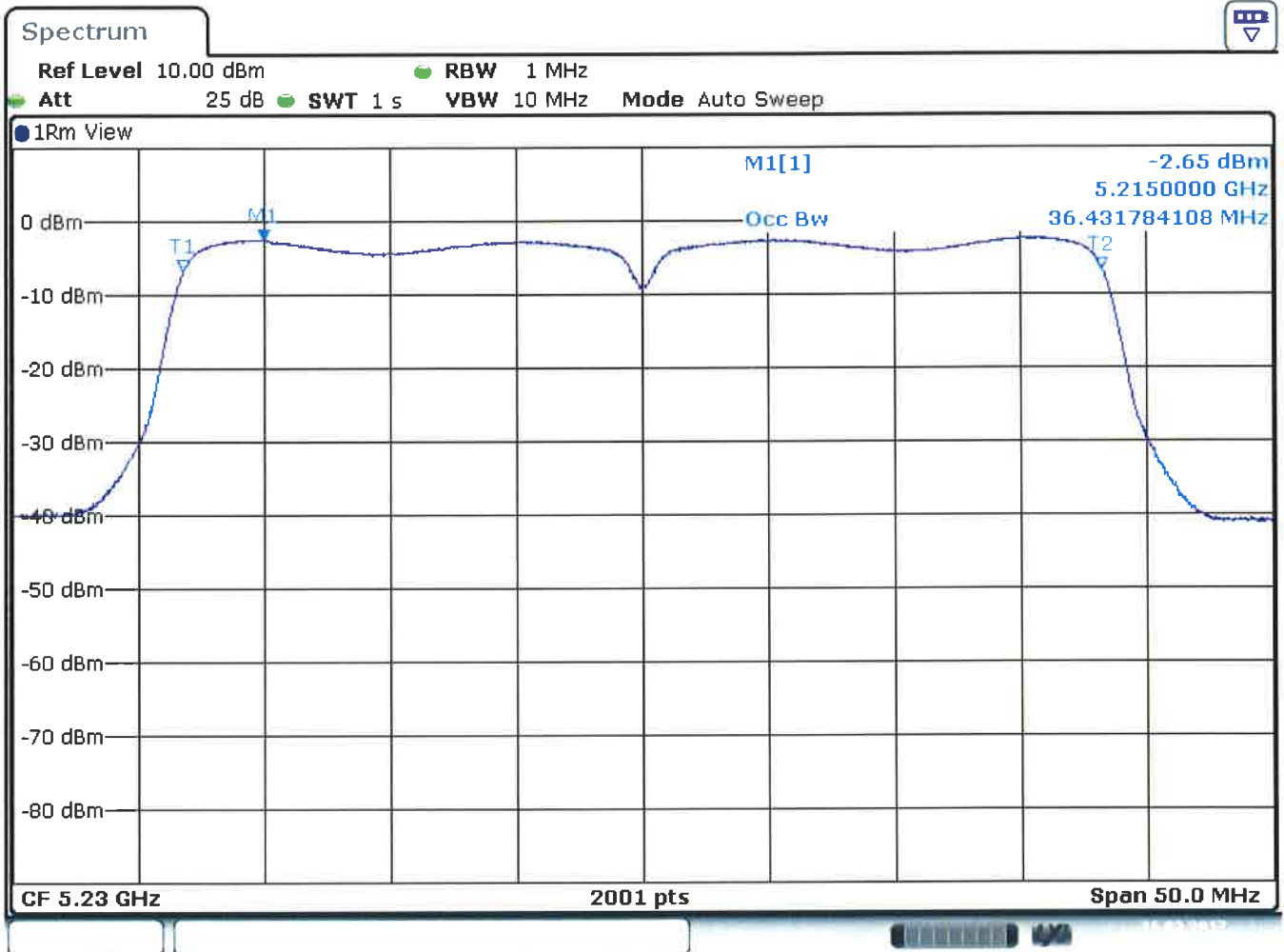
Test Equipment used: EMV-205

99% Bandwidth

§ 6.2.1 (1)

Conducted Measurement

Rated output power: 15,49 mW Channel 44-48 (5230 MHz center frequency)



Date: 16.MAR.2017 14:47:01

99% Bandwidth: 36,432 MHz

LIMIT SUBCLAUSE 15.407 – 6.2.1 (2)

<p>Frequency ranges: 5150 – 5250; 5250 – 5350; 5470 – 5650; 5725 – 5850 MHz</p>	<p>99% Bandwidth fully inside permitted frequency ranges</p>
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Test Equipment used: EMV-205