849 NW STATE ROAD 45
NEWBERRY, FL 32669 USA
PH: 888.472.2424 OR 352.472.5500
FAX: 352.472.2030
EMAIL: TEI@TIMCOENGR.COM
HTTP://WWW.TIMCOENGR.COM

FCC AND IC TEST REPORT
PART 90, PART 24 E & RSS-131

Applicant	Wilson Electronics, Inc.
Address	3301 E. Deseret Drive
	St. George, Utah 84790 USA
FCC ID	PWO2B4310SM
IC Label	IC: 4726A-2B4310SM
Model Number	2B4310
Product Description	Wireless PCS and iDEN Smart Technology Amplifier
Date Sample Received	March 16, 2007
Date Tested	April 5, 2007
Tested By	Nam Nguyen
Approved By	Mario de Aranzeta
Report No.	623UT7TestReport.pdf
Test Results	☒ PASS ☐ FAIL

ACCREDITED
Certificate # 0955-01

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ATTESTATION

Certificate # 0955-01

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made, under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669.

Authorized Signatory Name: Mario de Aranzeta

Signature: On File

Function: Lab Supervisor / Engineer

Date: 1/23/2008

REPORT SUMMARY

Disclaimer	The test results relate only to the items tested.
Report Purpose	To demonstrate the modified unit continues to comply with FCC Pt 90 and Pt 24 and Industry Canada RS-131 requirements for a PCS and IDEN amplifier.
Applicable Rule Part(s)	Pt 90, Pt 24, Pt 15.209, RSS-119, RSS-131, ICES-003, ANSI C63.4: 2003, ANSI/TIA-603-C: 2004
Related Test Report	No related report

TEST ENVIRONMENT

Test Facilities	All required tests were performed by Timco Engineering Inc. that is located at 849 NW State Road 45 Newberry, FL 32669 Timco test facilities accreditation is on file with regulatory agencies.
Test Conditions	Temperature: 26ºC Relative Humidity: 50%

TEST SETUP

Deviation to the rules	There was no deviation from the test standards.
Modification to the DUT	No modification was made to the DUT.
Test Exercise (e.g. software description, test signal, etc.)	The DUT was placed in continuous transmit mode of operation.
Supporting Test Equipment	Manufacturer: Agilent Description: Dual-mode baseband generator (arbitrary waveform and real time I/Q) 250 kHz to 6 GHz Model Number: E4438C Cal Date: 01/31/06 Cal Due Date: 01/31/08

DEVICE UNDER TEST INFORMATION

Manufactured by	Willson Electronics
DUT Description	PCS IDEN Smart Amplifier
FCC ID	PWO2B4310SM
Canadian Label	IC: 4726A-2B4310SM
Model Name	2B4310
Operating Frequency	Uplink 896 – 901 MHz Downlink 935 – 940 MHz Uplink 1850 – 1910 MHz Downlink 1930 – 1990 MHz
Maximum Output and Input Power Rating per manufacturer spec	Uplink: 1 Watt Downlink 0.006
Emission Designators	F9W (CDMA), GXW (GSM), G7W (EDGE)
Modulation(s)	CDMA, GSM, EDGE
User Power Range & Control	There are NO user power controls
Test Item	Pre-Production
DC Voltage and Current into final amplifier	Power Input Final Amplifier Vcc = 5 VDC, 1.5 A
Type of Equipment	Fixed and Mobile
Antenna Connector	FME

EQUIPMENT LIST

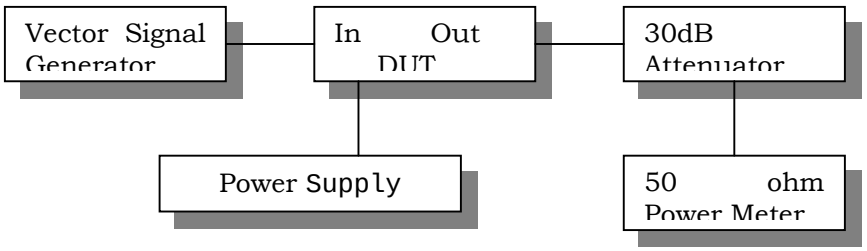
Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/07	3/26/10
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Biconnical Antenna	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/06	8/17/08
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/06	8/27/08
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 12/14/05	12/14/07
Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/06	7/10/08

TEST PROCEDURE

RF Power Output

RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector. With a nominal voltage and the amplifier properly adjusted the RF output measures.

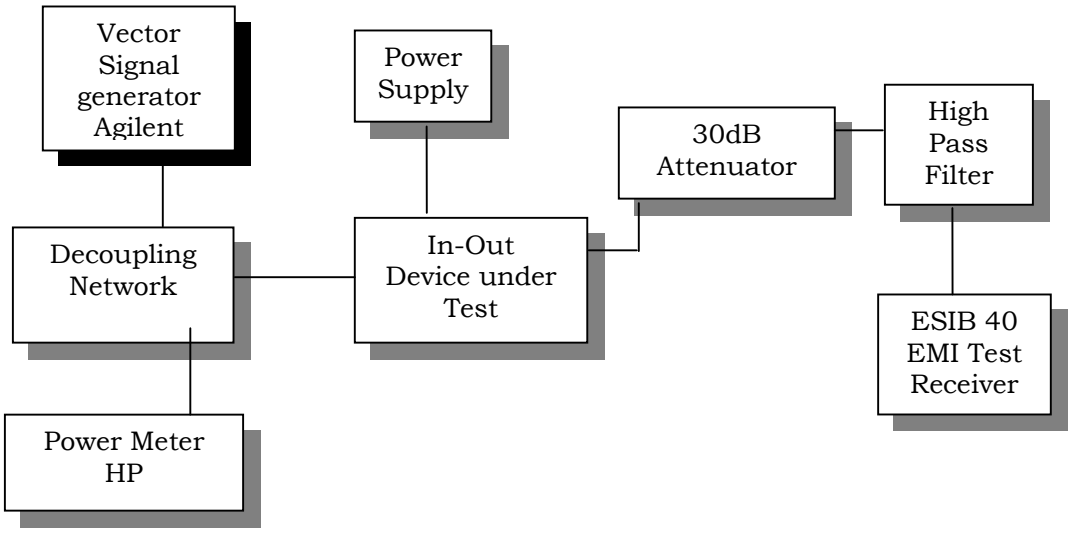
RF Output Power Test Setup Diagram



Input/Output Modulated Amplitude Comparison And Band-Edges Compliance

On the following plot, the reference level was calibrated using a resolution bandwidth wider than the emission bandwidth. First the gain was measured for the maximum output power. Then for each frequency and type of modulation, an attenuation equals to the gain of the amplifier was added on the measurement side of the amplifier, as to overlay the input versus output modulated envelope.

Test Setup Diagram

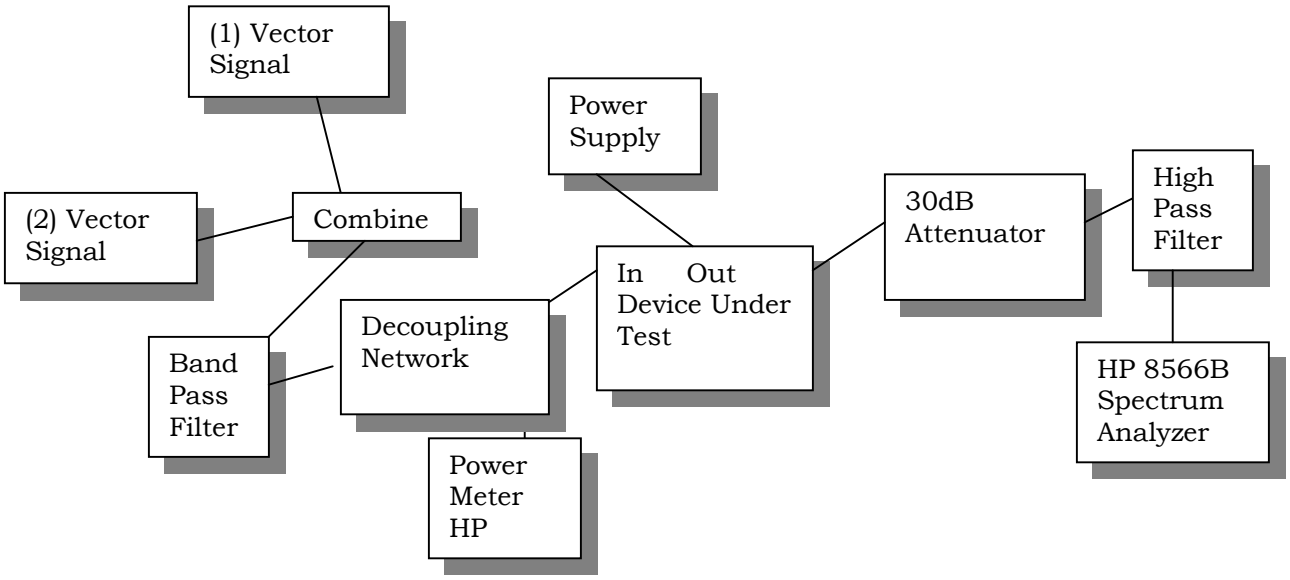


[Continued]

Intermodulation Product Spurious Emissions
The procedure used was ANSI/TIA-603-C: 2004. The spectrum was scanned from 9kHz to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer.

The modulation type (iDEN) was tested using the two-tone test method. The input power to the amplifier was set at maximum drive level by combining the two tones. The two tones were chosen in such a way (1) the third order intermodulation product frequencies are located within the pass band of the DUT and (2) they produce the worst-case emissions out of band.

Setup Diagram

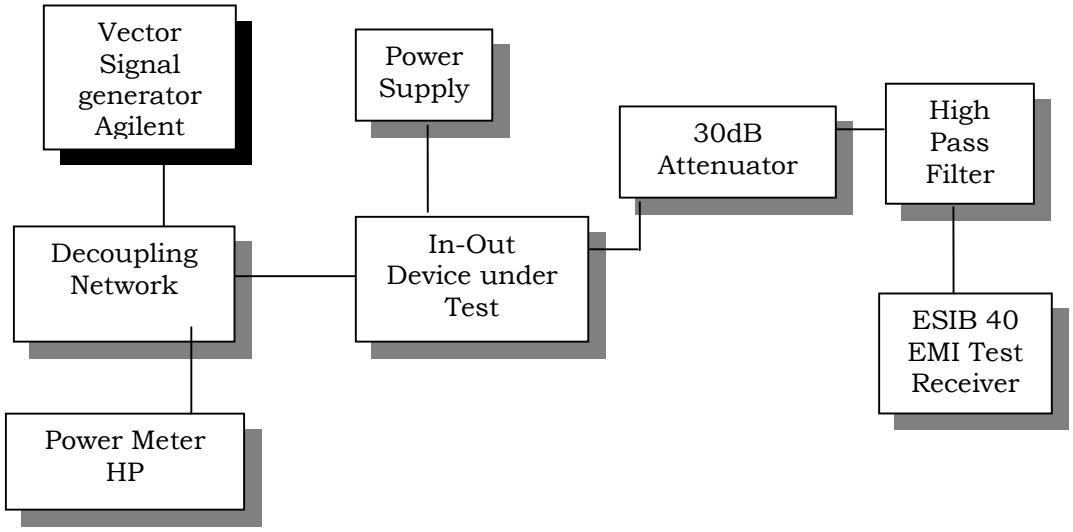


Spurious Emissions at Antenna Terminals
The procedure used was ANSI/TIA-603-C: 2004. The spectrum was scanned from 9kHz to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer.

Data on the following page shows the level of conducted spurious responses. For analog modulation, the carrier was modulated 100% using a 2500 Hz tone. For digital modulation, the carrier is modulated to its maximum extent. The spectrum was scanned from 9kHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard ANSI/TIA-603-C: 2004. The maximum input power was set for each test.

[Continued]

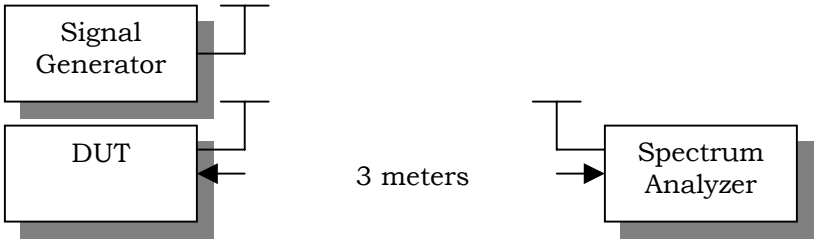
Test Setup Diagram



Radiated Spurious Emissions

The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. The CW signal was used to perform this test. This test was conducted per ANSI/TIA-603-C: 2004 using the substitution method.

Radiated Spurious Emissions Test Setup Diagram



. Equipment placed 80 cm above ground on a rotating table platform.

RF POWER OUTPUT

Rule Part(s) No.: Pt 2.1046(a)

Requirements: Pt 2.1046(a)

Test Result: As the following table indicates. Notes: the maximum power output value was obtained with iDEN modulation at 1880MHz and 1960MHz.

Test Data Table 1 – Output Power - CDMA

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)	Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
1850.00	3.5	28.5	0.708	1930.00	-12.1	6.4	0.004
1880.00	7.5	29	0.794	1960.00	-13.7	8	0.006
1910.00	5.8	26.5	0.447	1990.00	-12.7	8	0.006

Test Data Table 2 – Output Power - EDGE

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)	Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
1850.00	10.7	28.2	0.661	1930.00	-7.3	6.4	0.004
1880.00	13.8	29	0.794	1960.00	-7.7	8	0.006
1910.00	13	26.3	0.427	1990.00	-8.6	8	0.006

Test Data Table 3 – Output Power - GSM

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)	Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
1850.00	15.6	28.6	0.724	1930.00	-6.1	6.2	0.004
1880.00	18.5	29.2	0.832	1960.00	-5.1	8	0.006
1910.00	16.8	26.6	0.457	1990.00	-5.4	8	0.006

[Continued]

Test Data Table 4 – Output Power - CW

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
1850.00	15.1	28	0.631
1880.00	17.8	28.6	0.724
1910.00	17.5	26	0.398

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
1930.00	-5.3	6	0.004
1960.00	-5.2	8	0.006
1990.00	-5.6	8	0.006

Test Data Table 5 – Output Power – iDEN

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
896.00	0.2	29	0.794
898.50	0.8	29.5	0.891
901.00	0.9	28.5	0.708

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
935.00	-11.8	1	0.001
937.50	-12.4	1	0.001
940.00	-13.3	1	0.001

Test Data Table 6 – Output Power – CW

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
896.00	10.5	29.5	0.891
898.50	11	29.5	0.891
901.00	12	29.5	0.891

Tuned Frequency (MHz)	Power Input (dBm)	Power Output (dBm)	Power Output (W)
935.00	-3.6	1	0.001
937.50	-3.7	1	0.001
940.00	-5	1	0.001

INPUT/OUTPUT MODULATED AMPLITUDE COMPARISON AND BAND-EDGES COMPLIANCE

Rule Parts No.: Pt 2.1049, Pt 2.1051, 90.210, Pt

Requirements: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test Data: The DUT appears to meet the requirements.

Band-edges compliance: Measurements were performed in accordance with Part 24.238

Test Data Table 7 – Band-Edge: CDMA

Channel (MHz)	Bandedge Frequency (MHz)	Amplitude level at the band-edge (dBm)	Limit (dBm)	Margin (dB)
1851.25	1849.78	-23.66	-13	10.66
1908.75	1910.31	-24.58	-13	11.58
1931.25	1929.51	-45.75	-13	32.75
1988.75	1990.02	-46.17	-13	33.17

The Reference level on the following plots was calibrated using a 3MHz RBW=VBW.

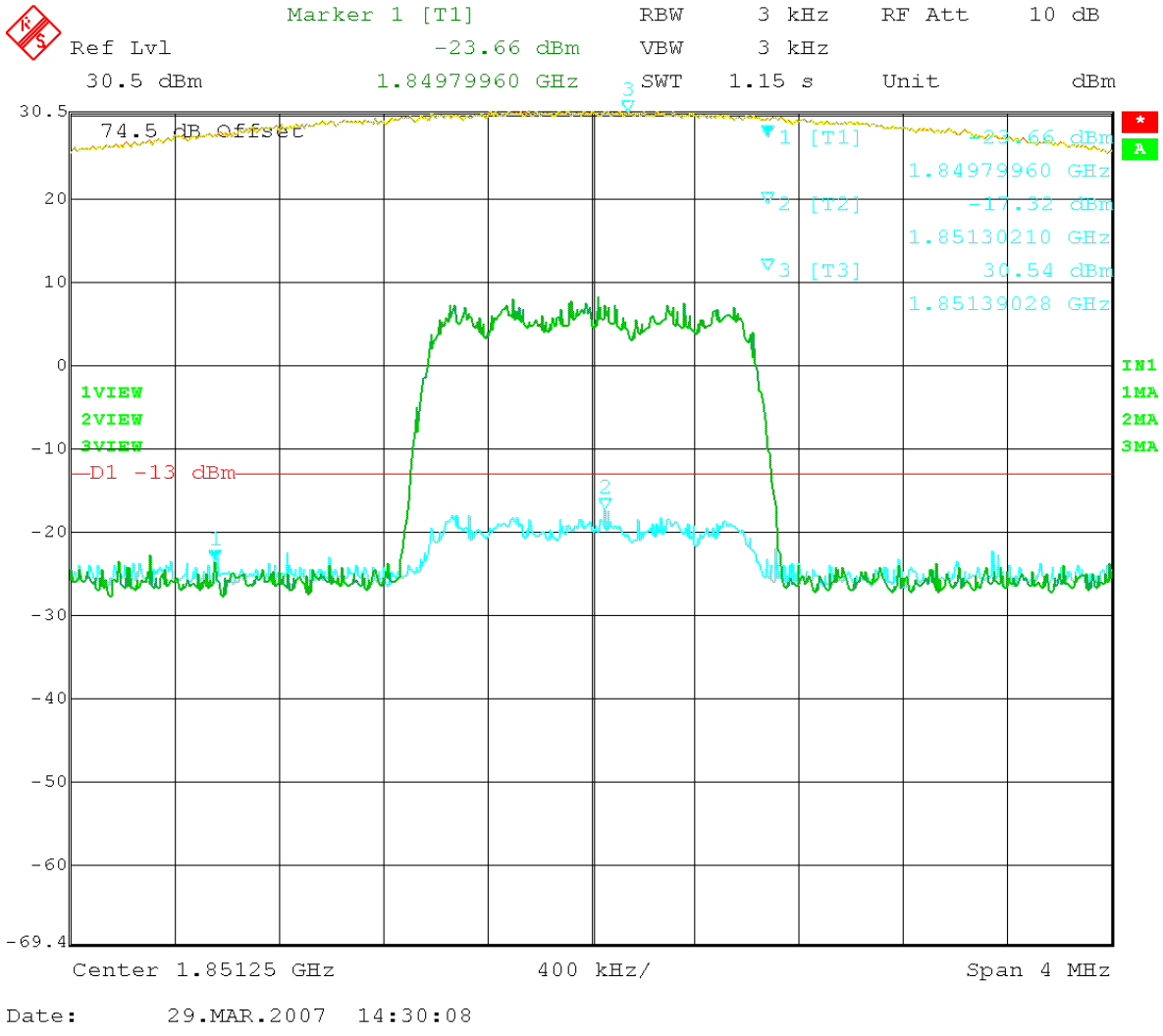


Figure 1: CDMA modulation – In vs. Out 1851.25MHz

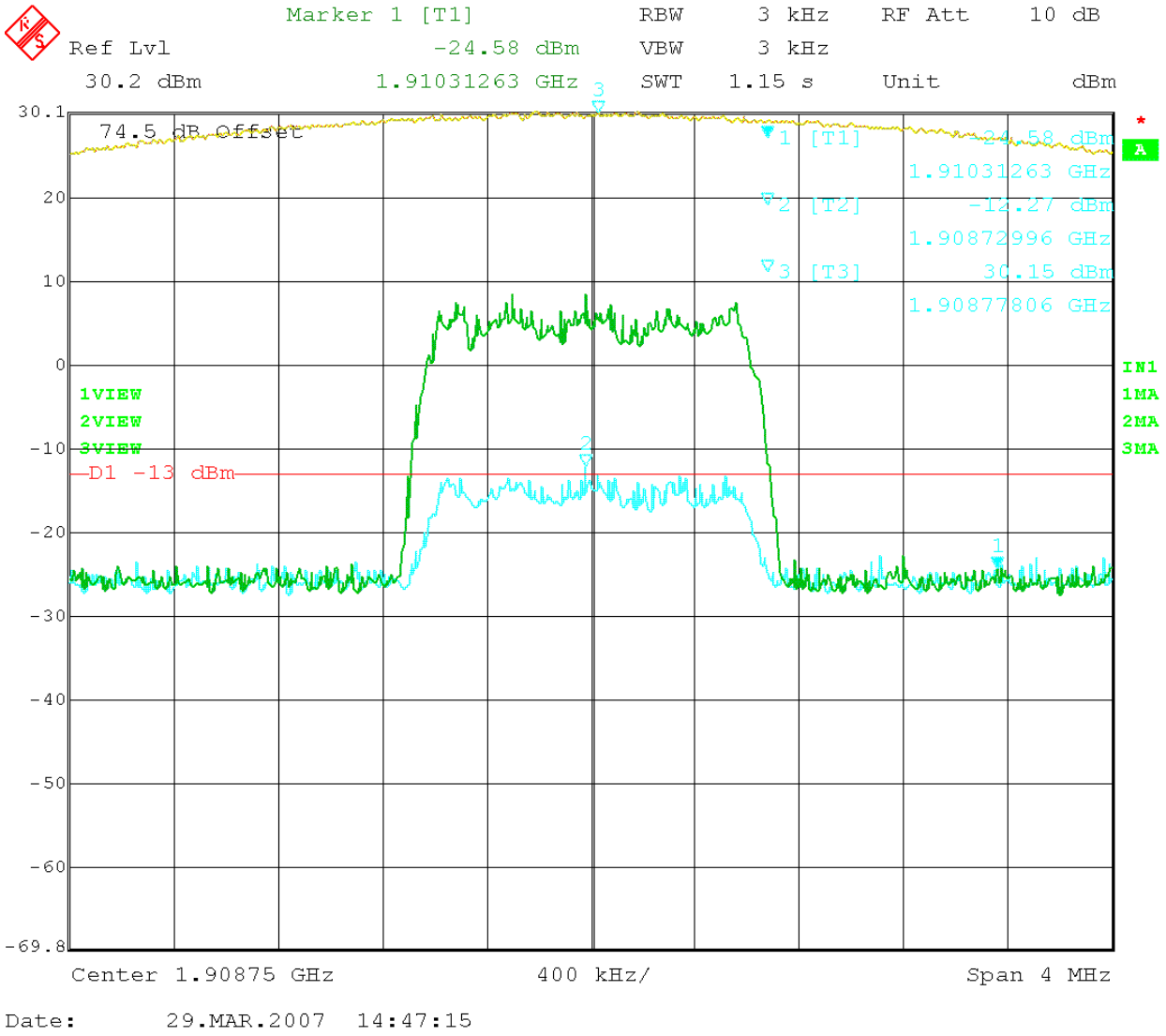


Figure 2: CDMA modulation – In vs. Out 1908.75MHz

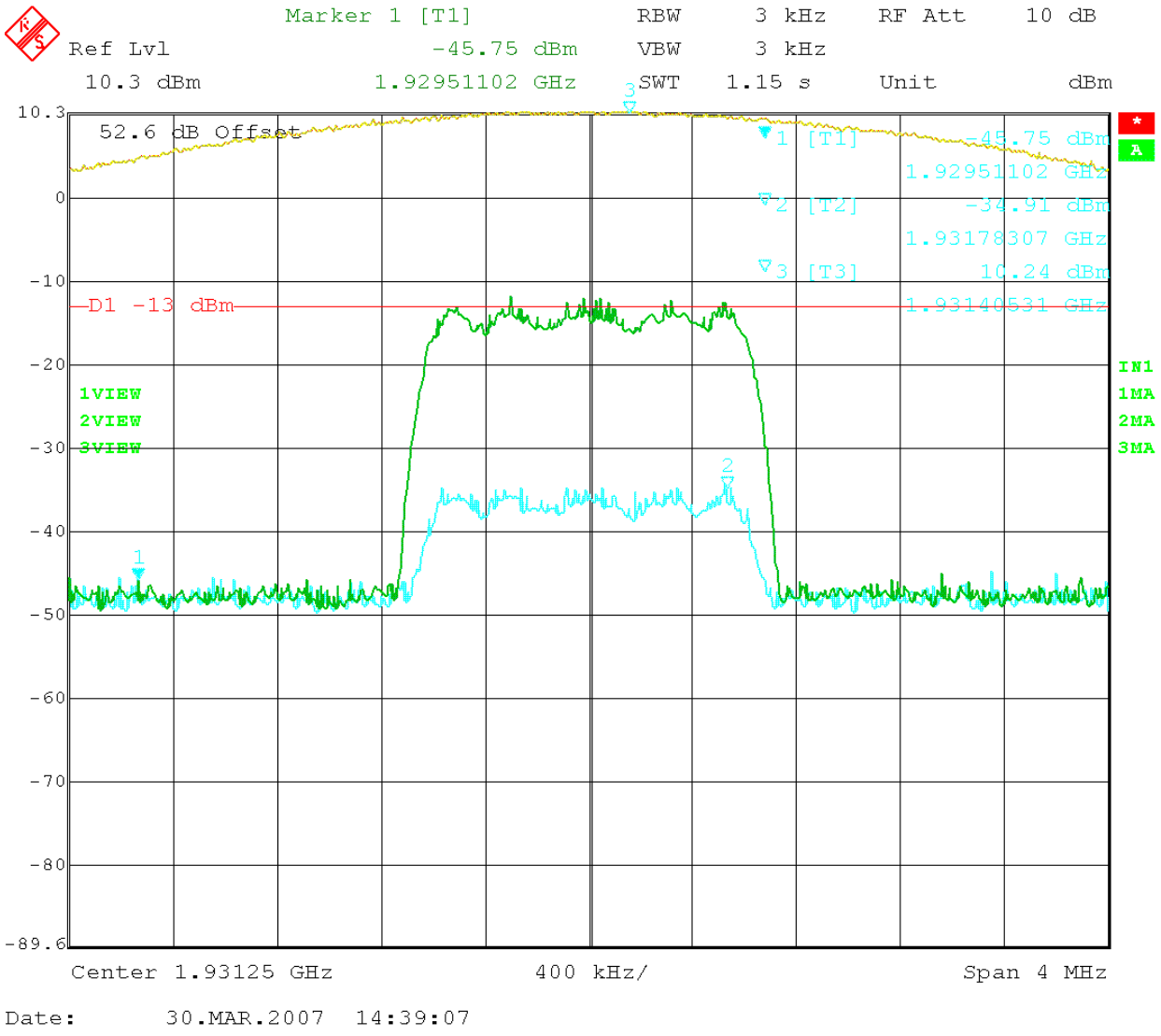


Figure 3: CDMA modulation – In vs. Out 1931.25MHz

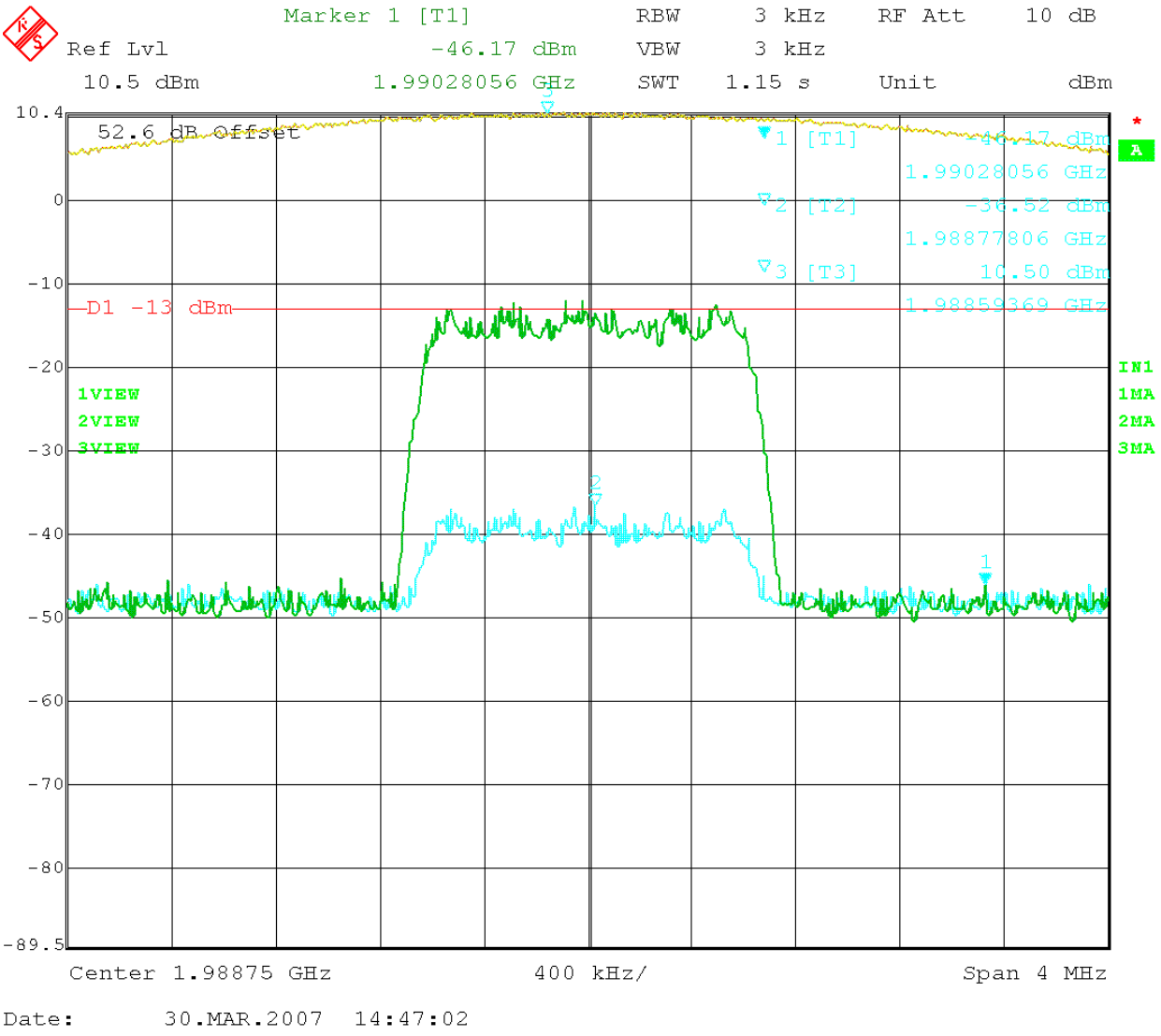


Figure 4: CDMA modulation – In vs. Out 1988.75MHz

Test Data Table 8 – Modulation - EDGE

Channel (MHz)	Band-edge Frequency (MHz)	Amplitude level at the band-edge (dBm)	Limit (dBm)	Margin (dB)
1850.2	1849.98	-19.57	-13	6.57
1909.8	1910.03	-19.33	-13	6.33
1930.2	1929.97	-41.38	-13	28.38
1989.8	1990.01	-41.49	-13	28.49

The Reference level on the following plots was calibrated using a 3MHz RBW=VBW.

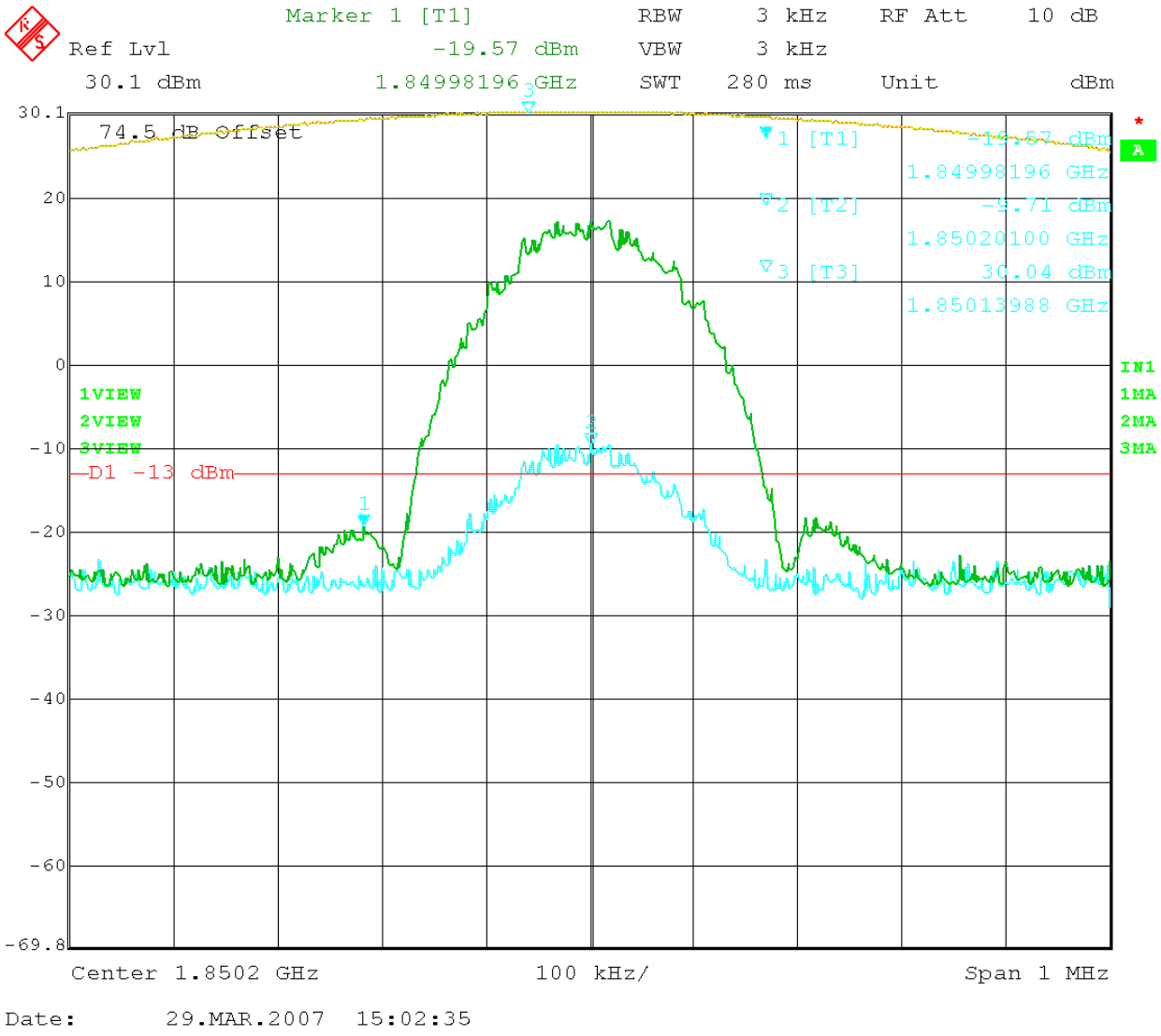


Figure 5: EDGE modulation – In vs. Out 1850.20MHz

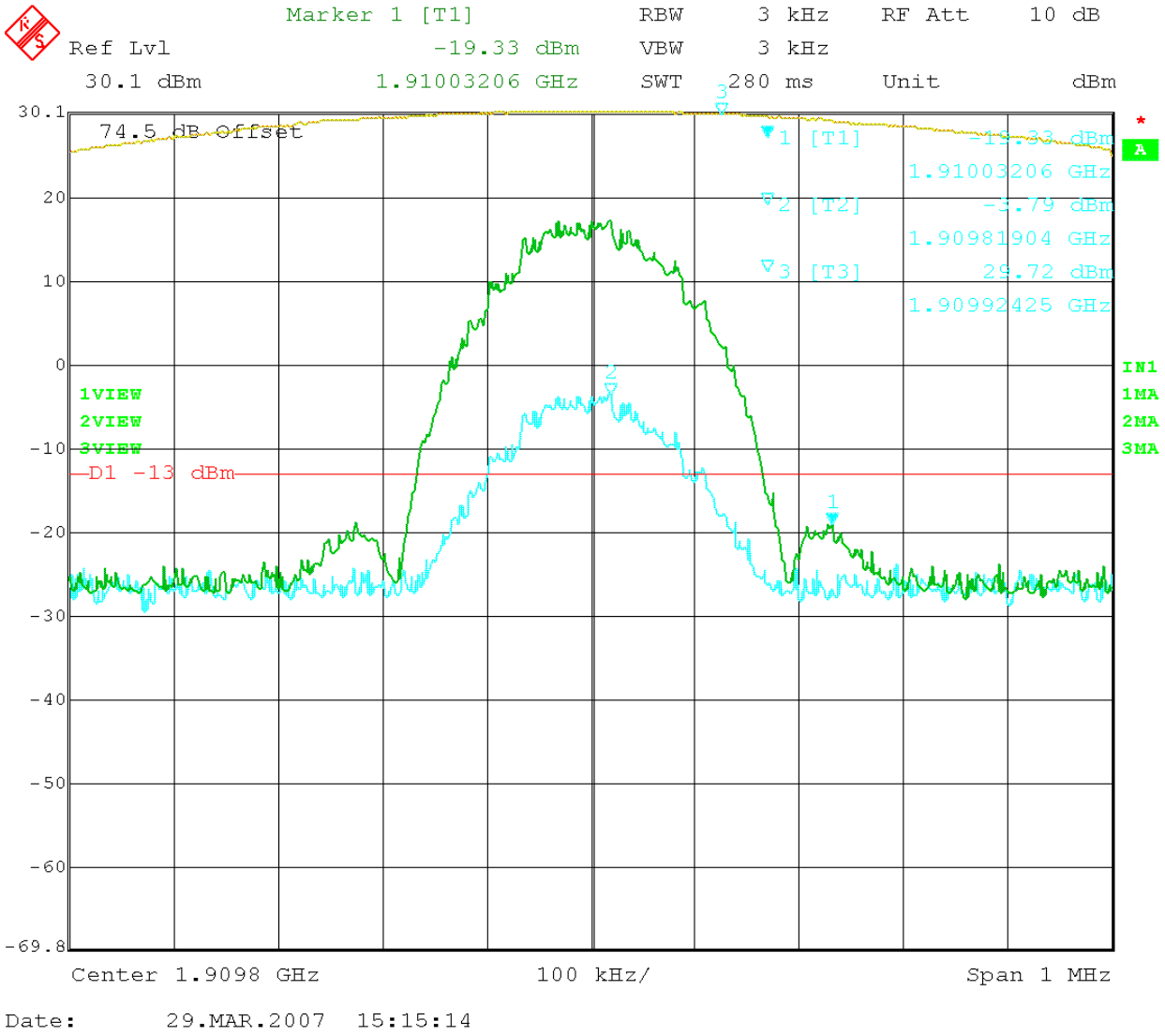


Figure 6: EDGE modulation – In vs. Out 1909.80MHz

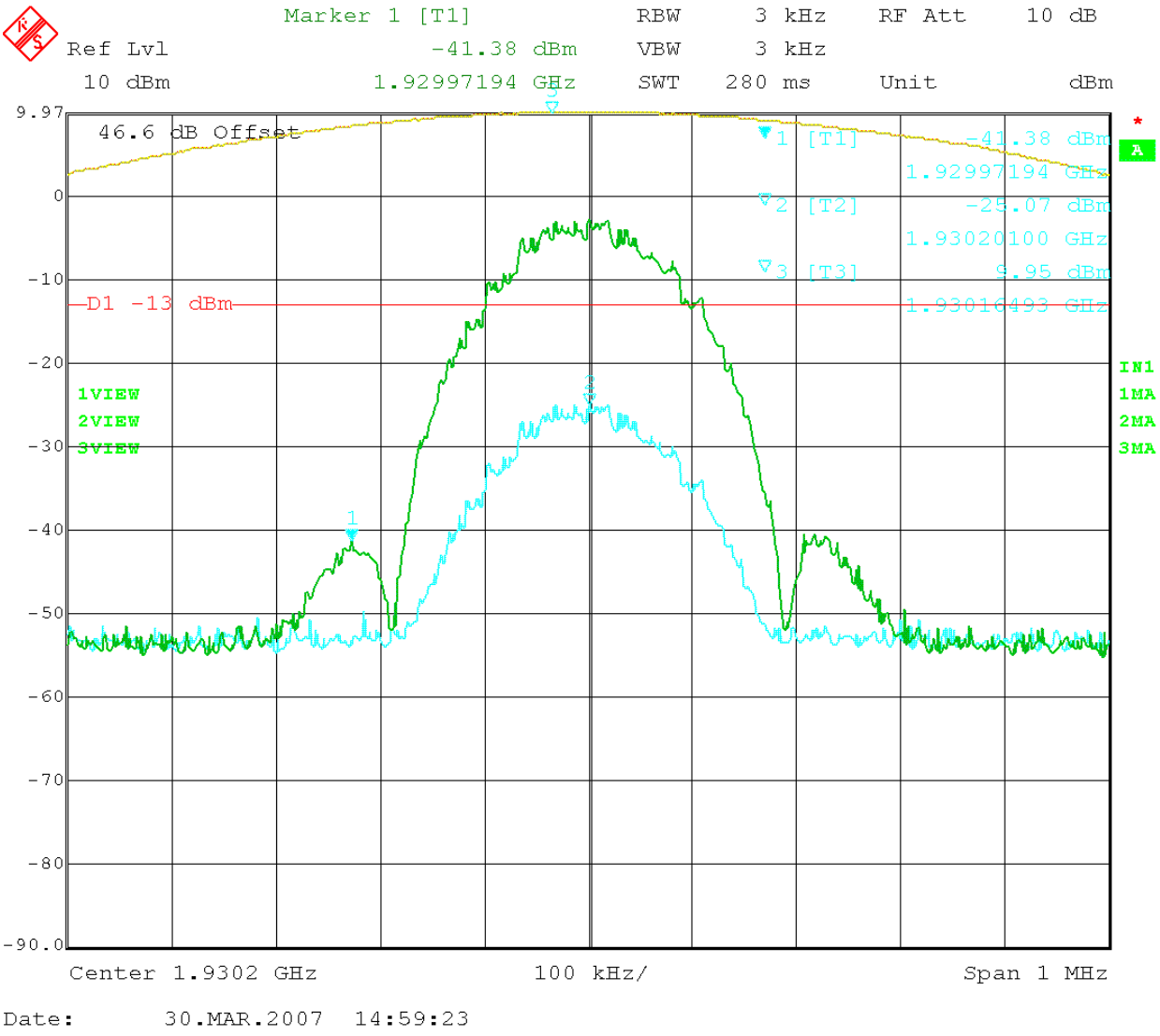


Figure 7: EDGE modulation – In vs. Out 1930.20MHz

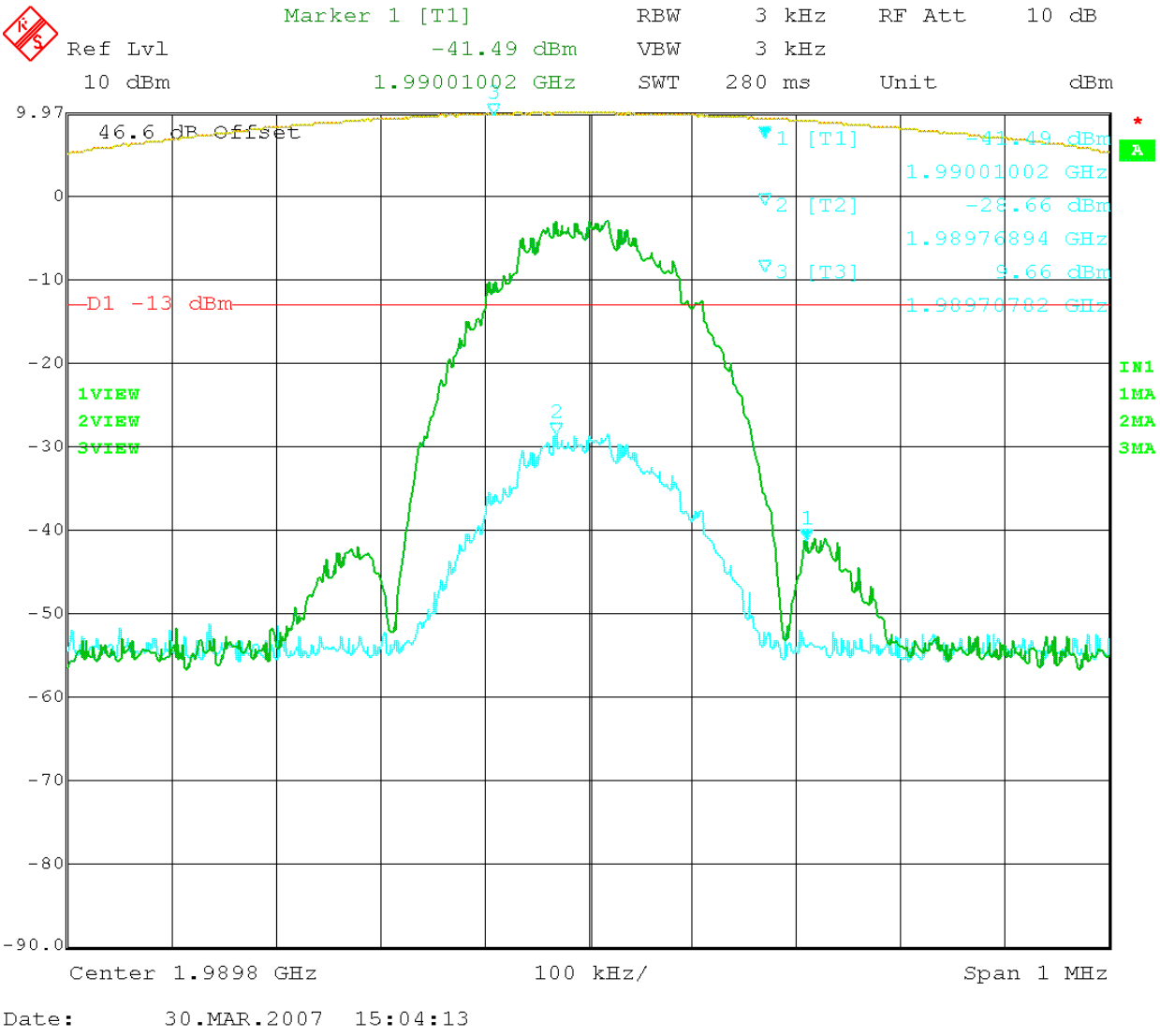


Figure 8: EDGE modulation – In vs. Out 1989.80MHz

Test Data Table 9 – Modulation - GSM

Channel (MHz)	Band-edge Frequency (MHz)	Amplitude level at the band-edge (dBm)	Limit (dBm)	Margin (dB)
1850.2	1849.99	-15.22	-13	2.22
1909.8	1910.00	-13.49	-13	0.49
1930.2	1929.97	-33.41	-13	20.41
1989.8	1990.01	-35.01	-13	22.01

The Reference level on the following plots was calibrated using a 3MHz RBW=VBW.

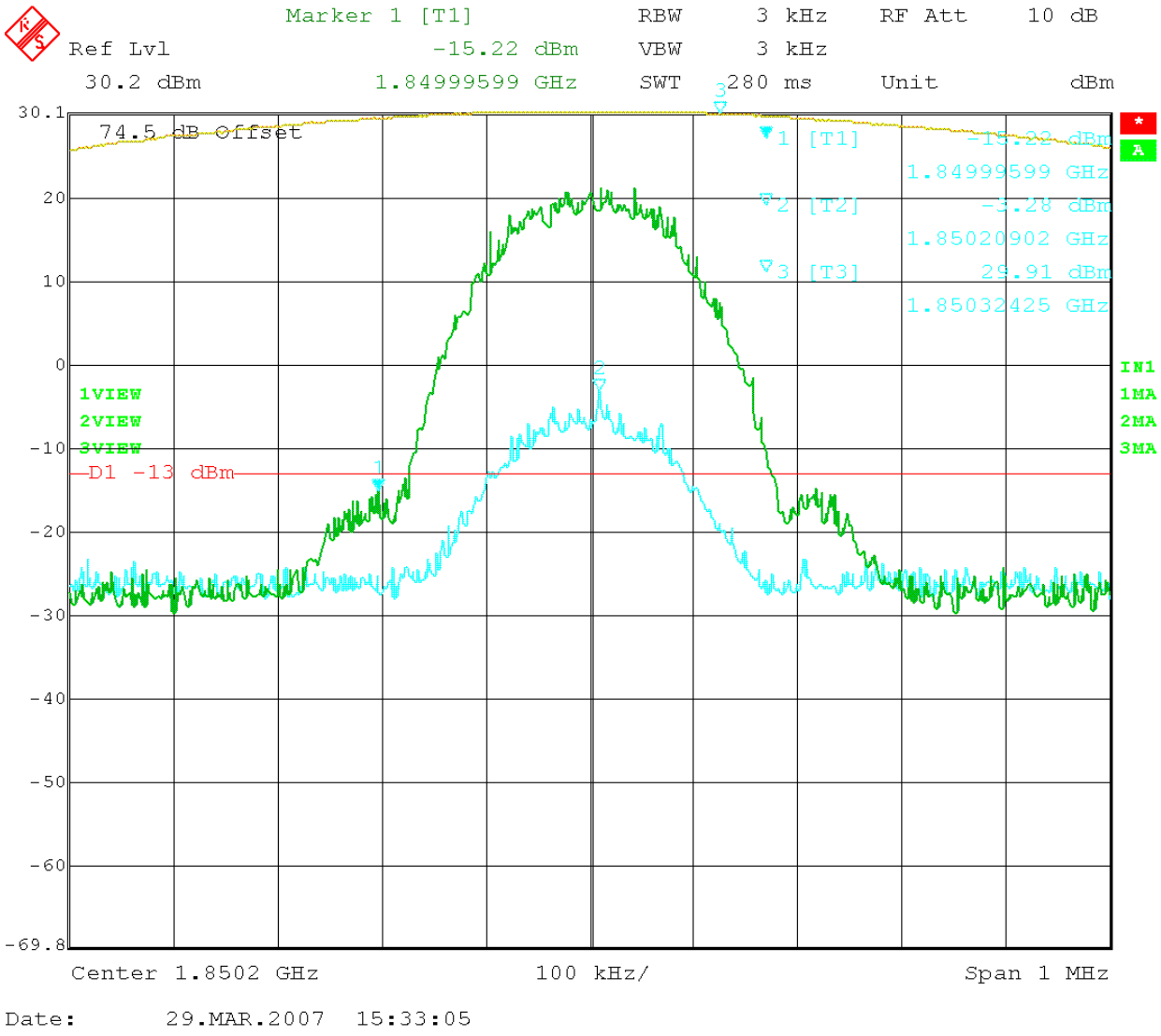


Figure 9: GSM modulation – In vs. Out 1850.20MHz

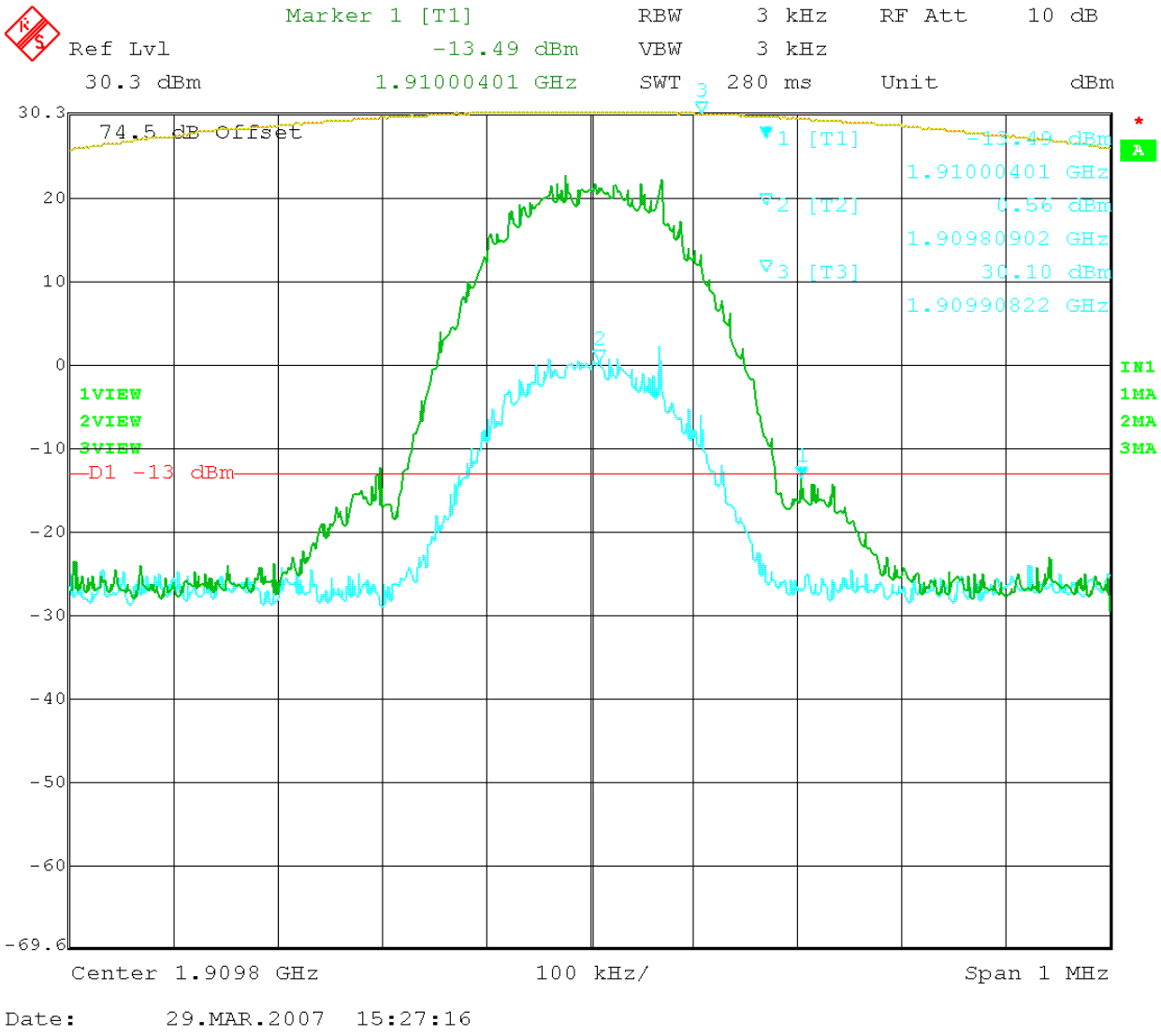


Figure 10: GSM modulation – In vs. Out 1909.80MHz

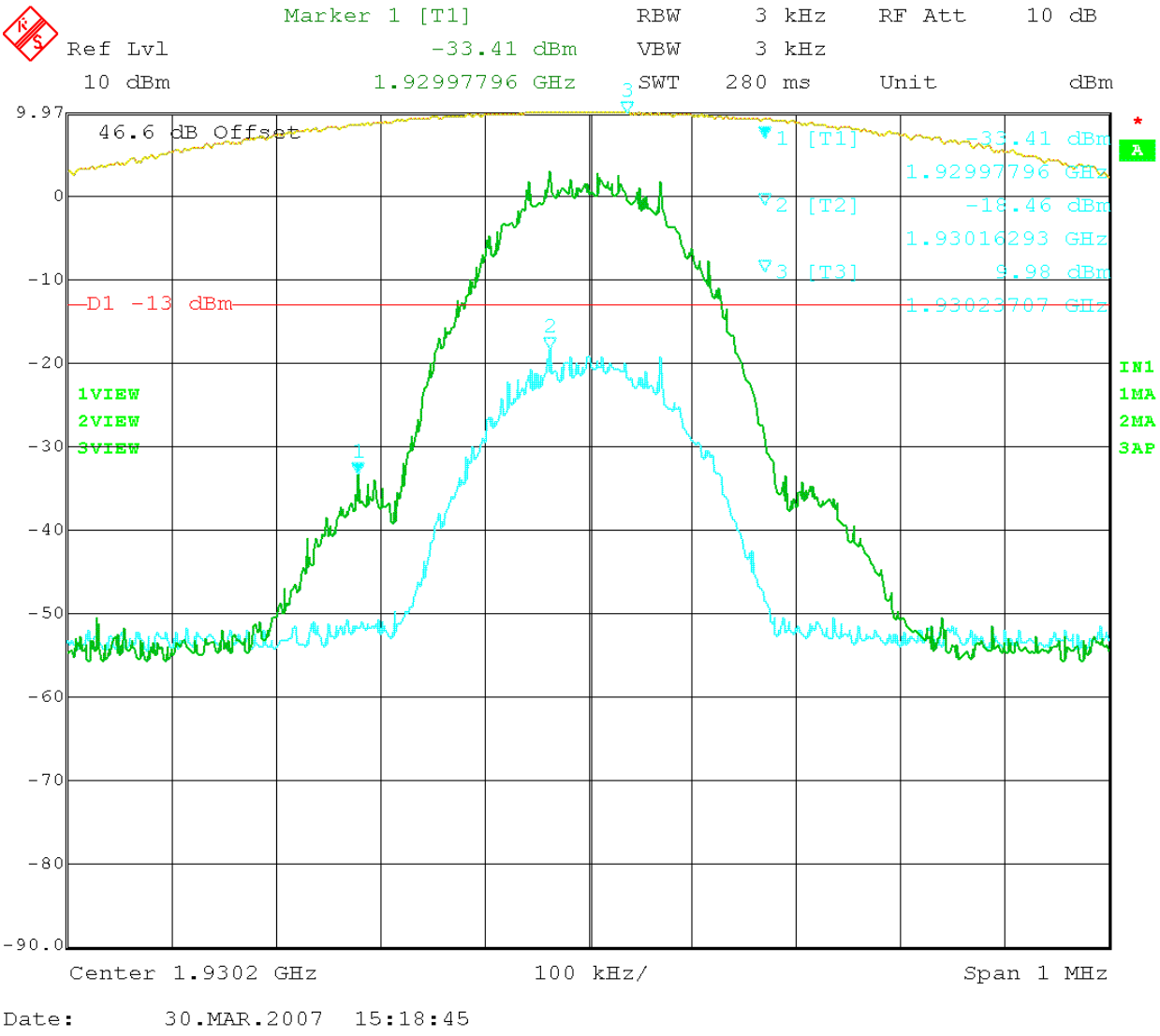


Figure 11: GSM modulation – In vs. Out 1930.20MHz

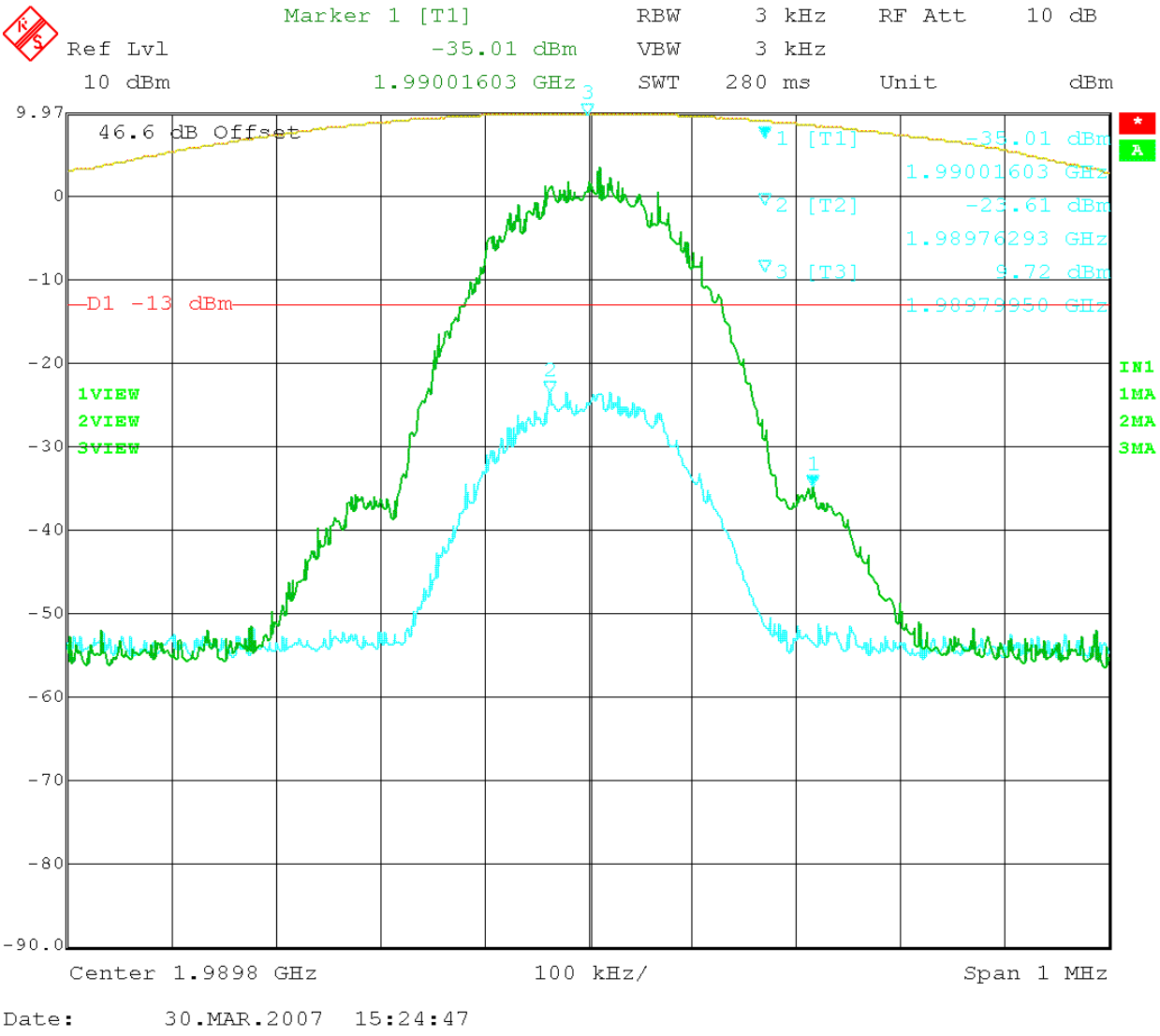


Figure 12: GSM modulation – In vs. Out 1989.80MHz

Test Data Table 10 – Modulation - iDEN

Channel (MHz)	Band-edge Frequency (MHz)	Amplitude level at the band-edge (dBm)	Limit (dBm)	Margin (dB)
896.0125	895.9986	-33.21	-13	20.21
900.9875	901.0004	-30.21	-13	17.21
935.0125	934.9996	-33.01	-13	20.01
939.9875	940.0010	-34.64	-13	21.64

The Reference level on the following plots was calibrated using a 3MHz RBW=VBW.

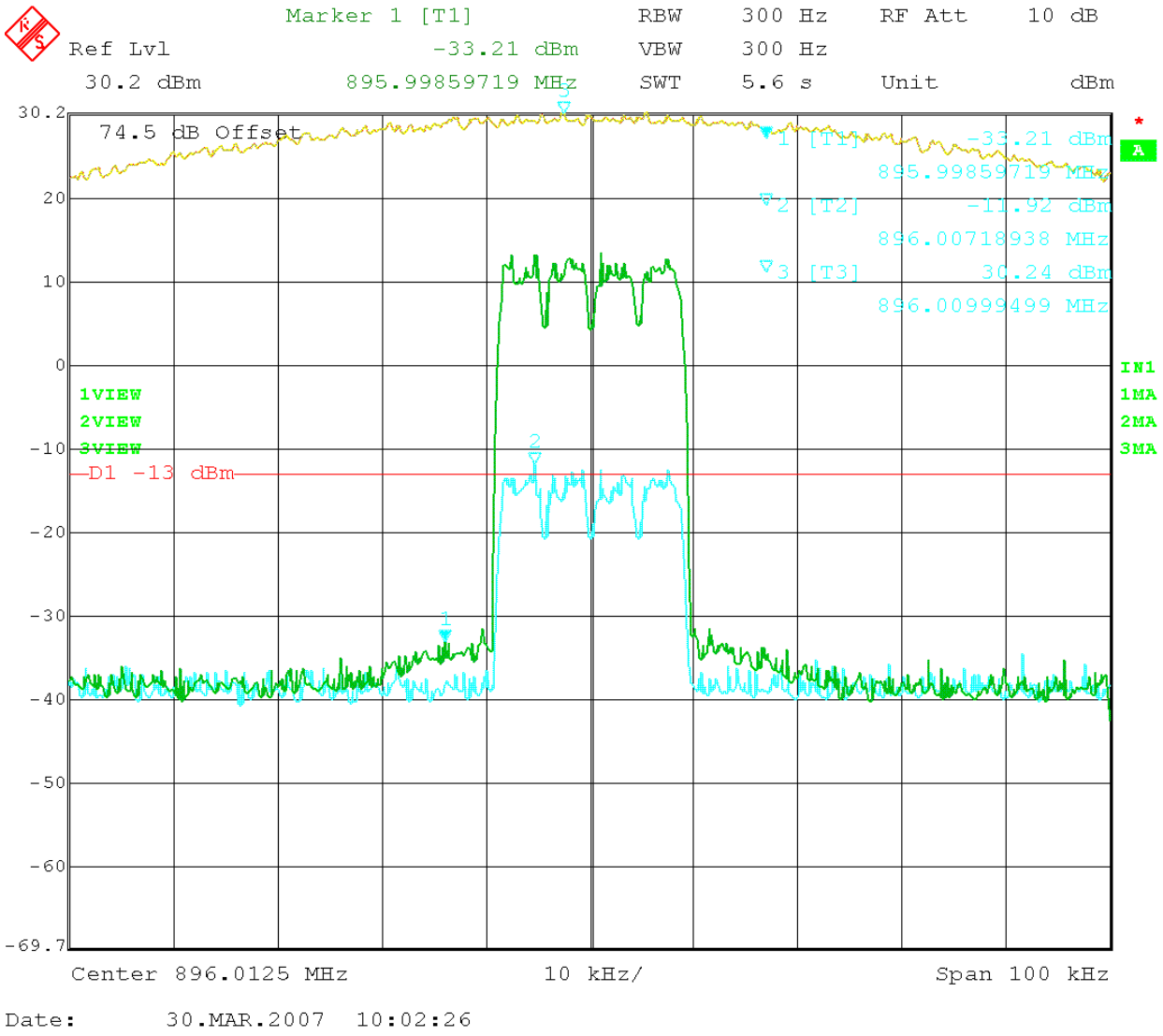


Figure 13: IDEN modulation – In vs. Out 896MHz

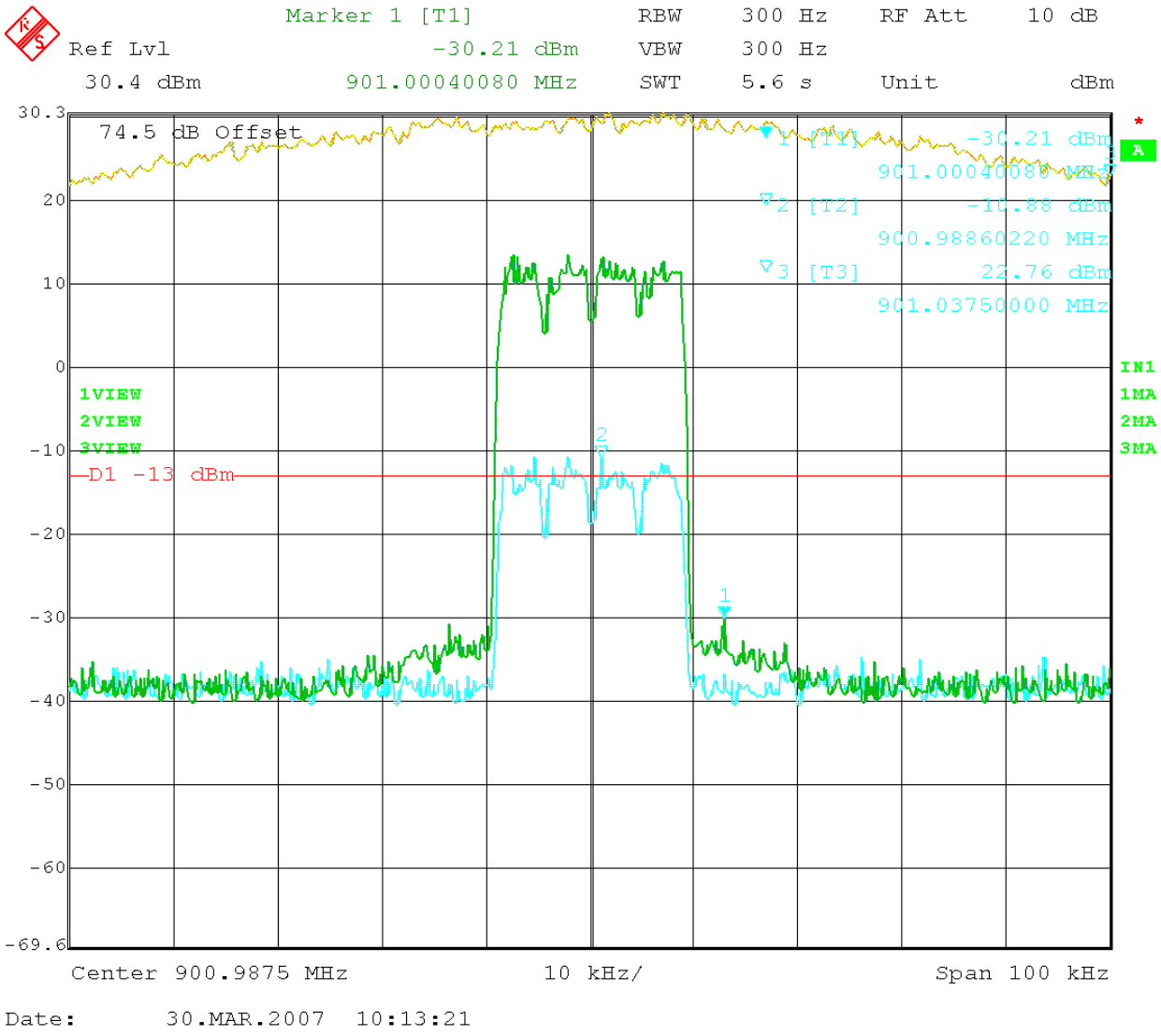


Figure 14: IDEN modulation – In vs. Out 901MHz

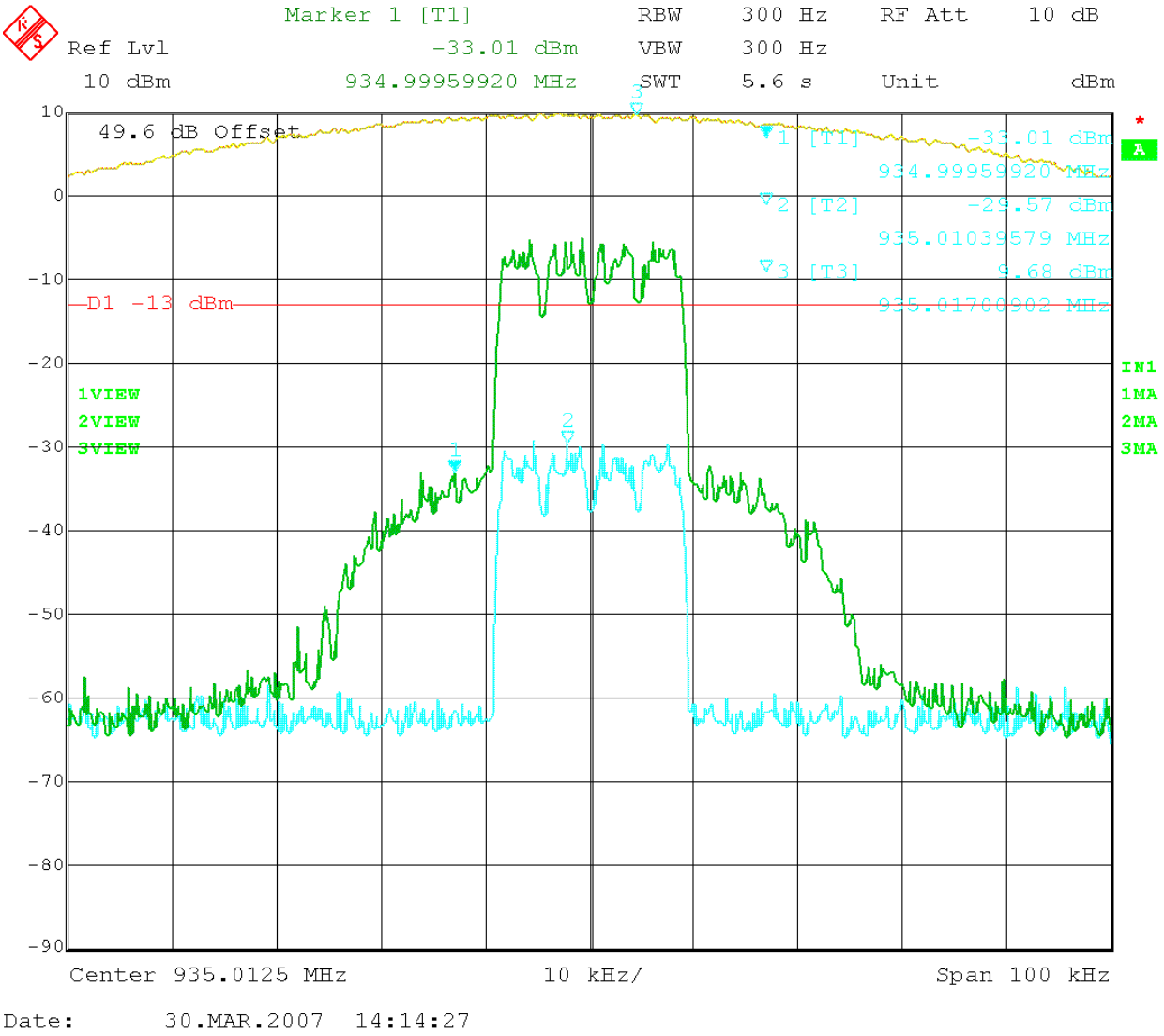


Figure 15: IDEN modulation – In vs. Out 935MHz

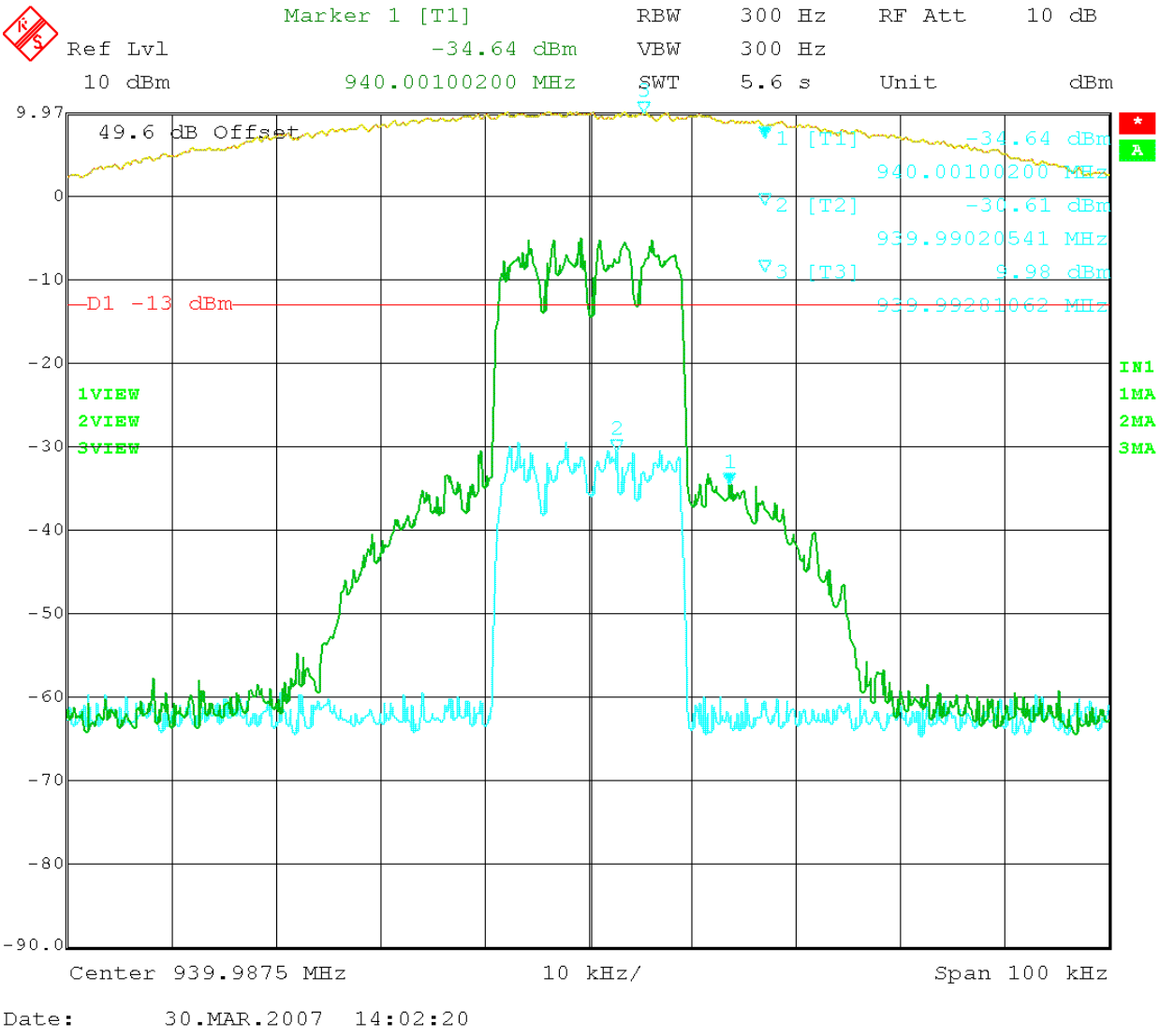


Figure 16: IDEN modulation – In vs. Out 940MHz

INTERMODULATION PRODUCT SPURIOUS EMISSIONS

Rule Parts No.: Pt 2.1051

Requirements: Emissions must be 43 + 10 log (Po) dB below the mean power output of the transmitter or below the –13dBm

All the modulation type (CDMA, GSM, EDGE) were tested using the three tones test method. A CW signal was use instead of GSM, EDGE modulations. EDGE and GSM provided the same test results and only GSM data are presented in this report. The input power to the amplifier was set at maximum drive level by combining the three tones. The three tones were chosen in such a way (1)the third order intermodulation product frequencies are located within the pass band of the EUT and (2) they produce the worst-case emissions out of band.

Test Data: The DUT appears to meet the requirements.

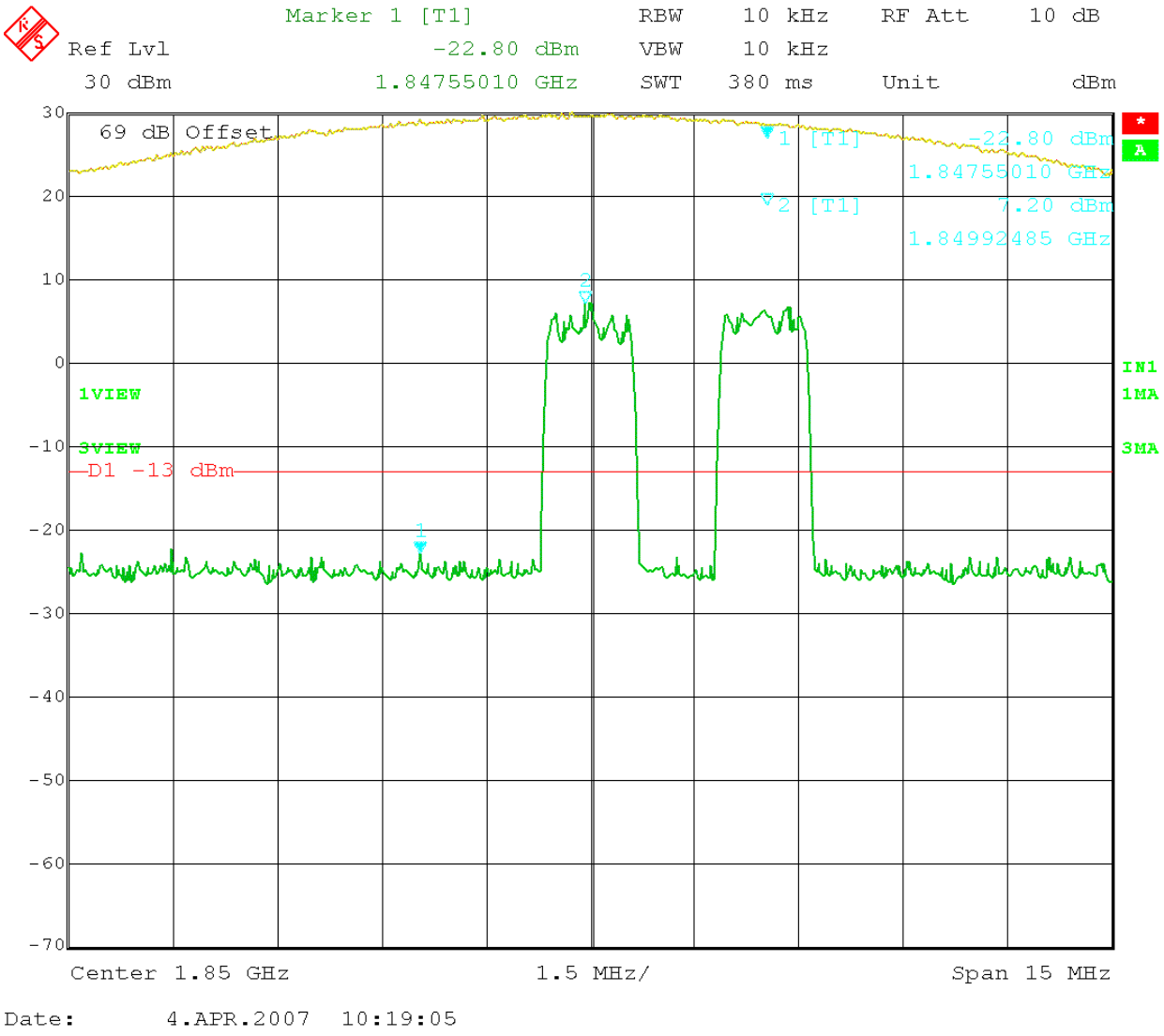


Figure 17: CDMA 2 tones intermodulation - up link – low end.

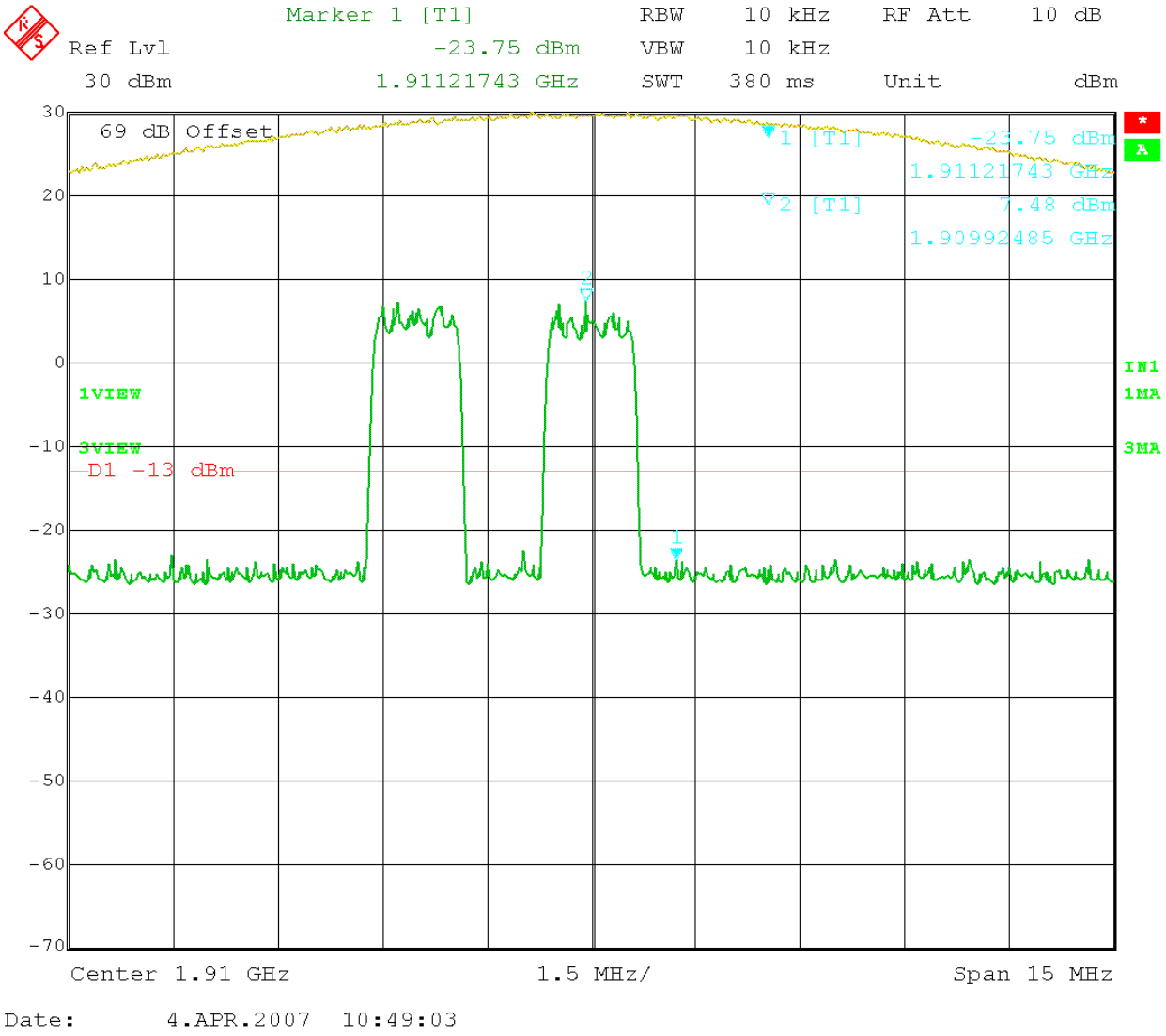


Figure 18: CDMA 2 tones intermodulation - up link – high end.

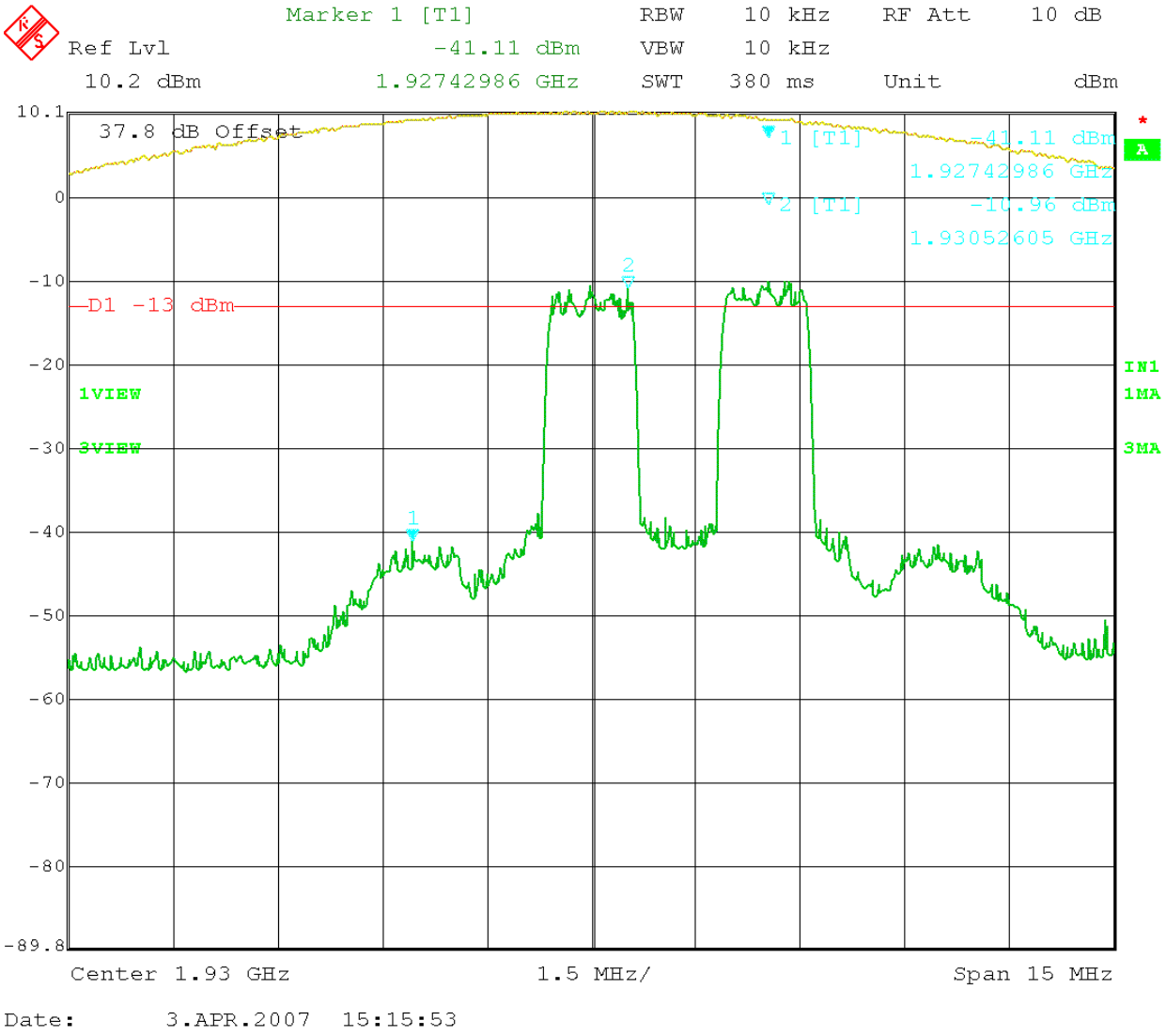


Figure 19: CDMA 2 tones intermodulation – down link – low end.

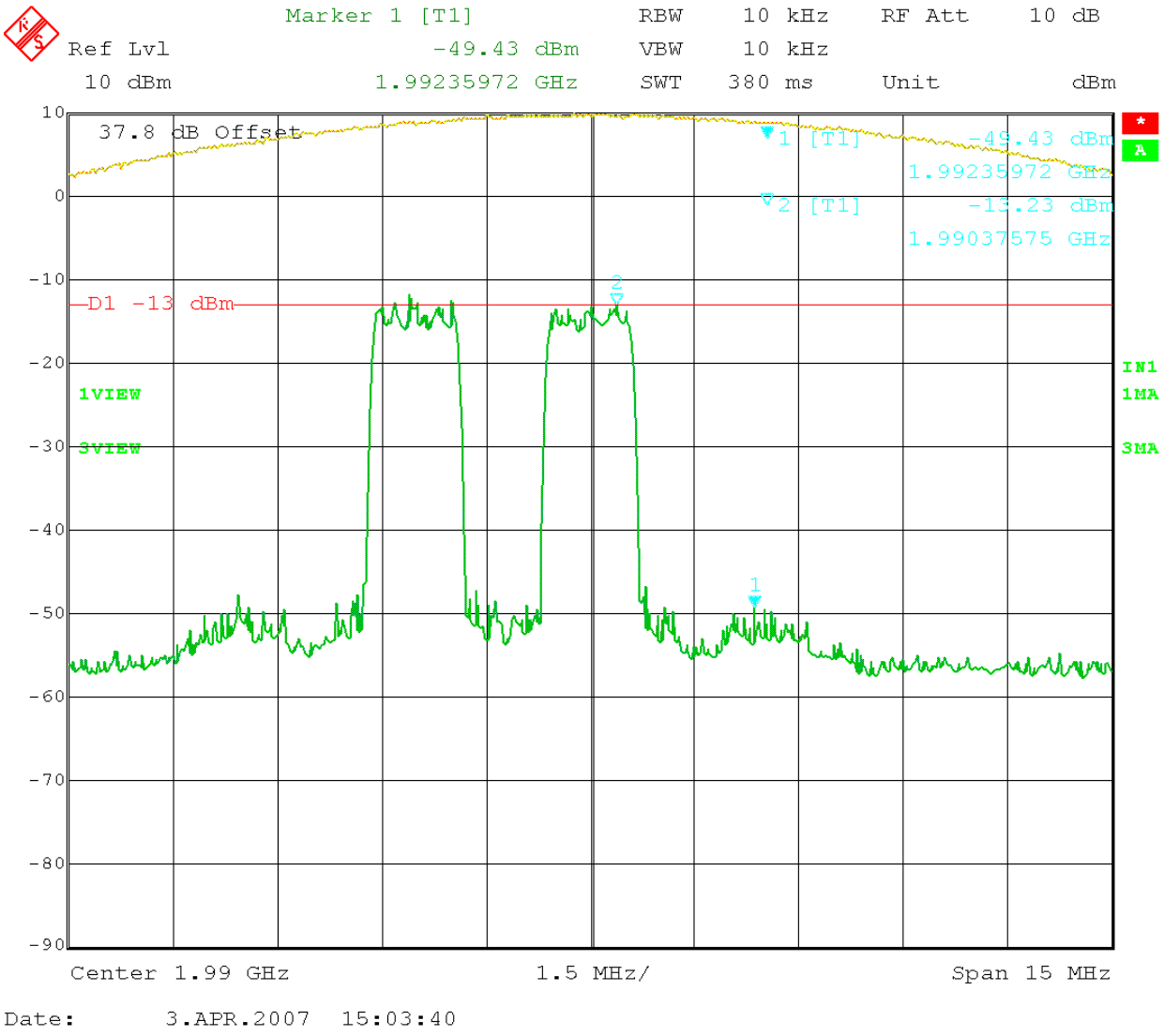


Figure 20: CDMA 2 tones intermodulation - down link – high end.

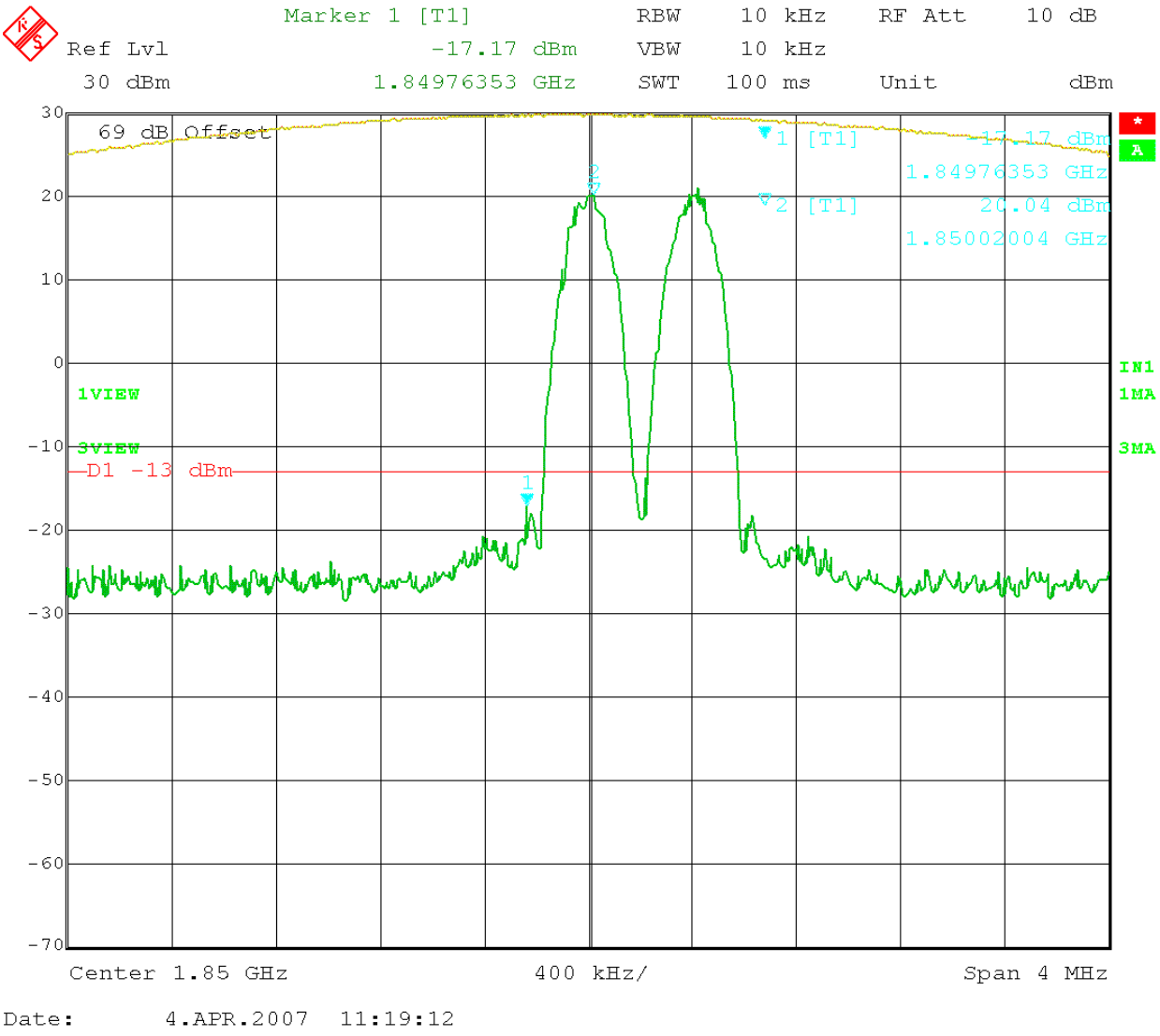


Figure 21: EDGE 2 tones intermodulation - up link – low end.

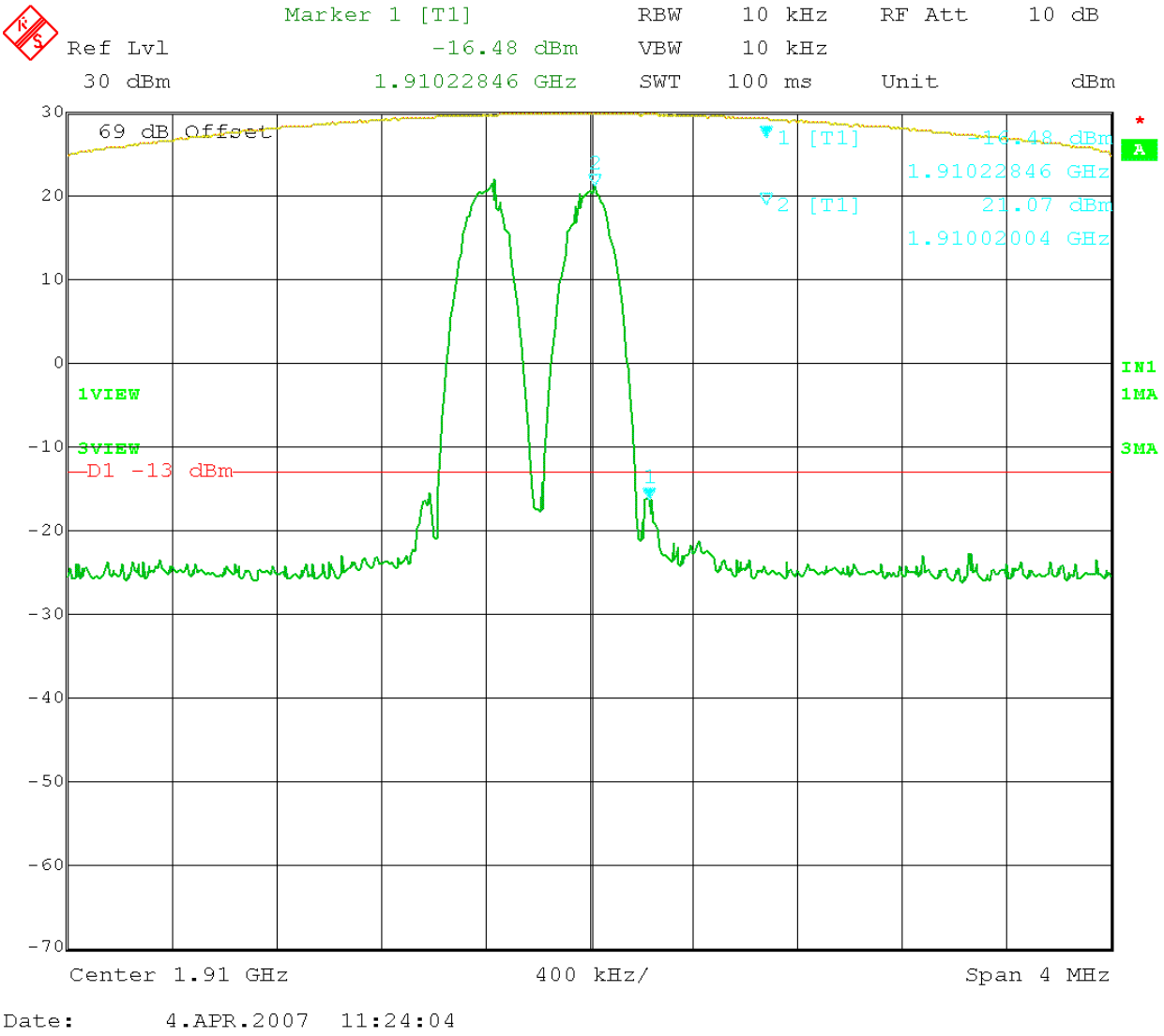


Figure 22: EDGE 2 tones intermodulation - up link – high end.

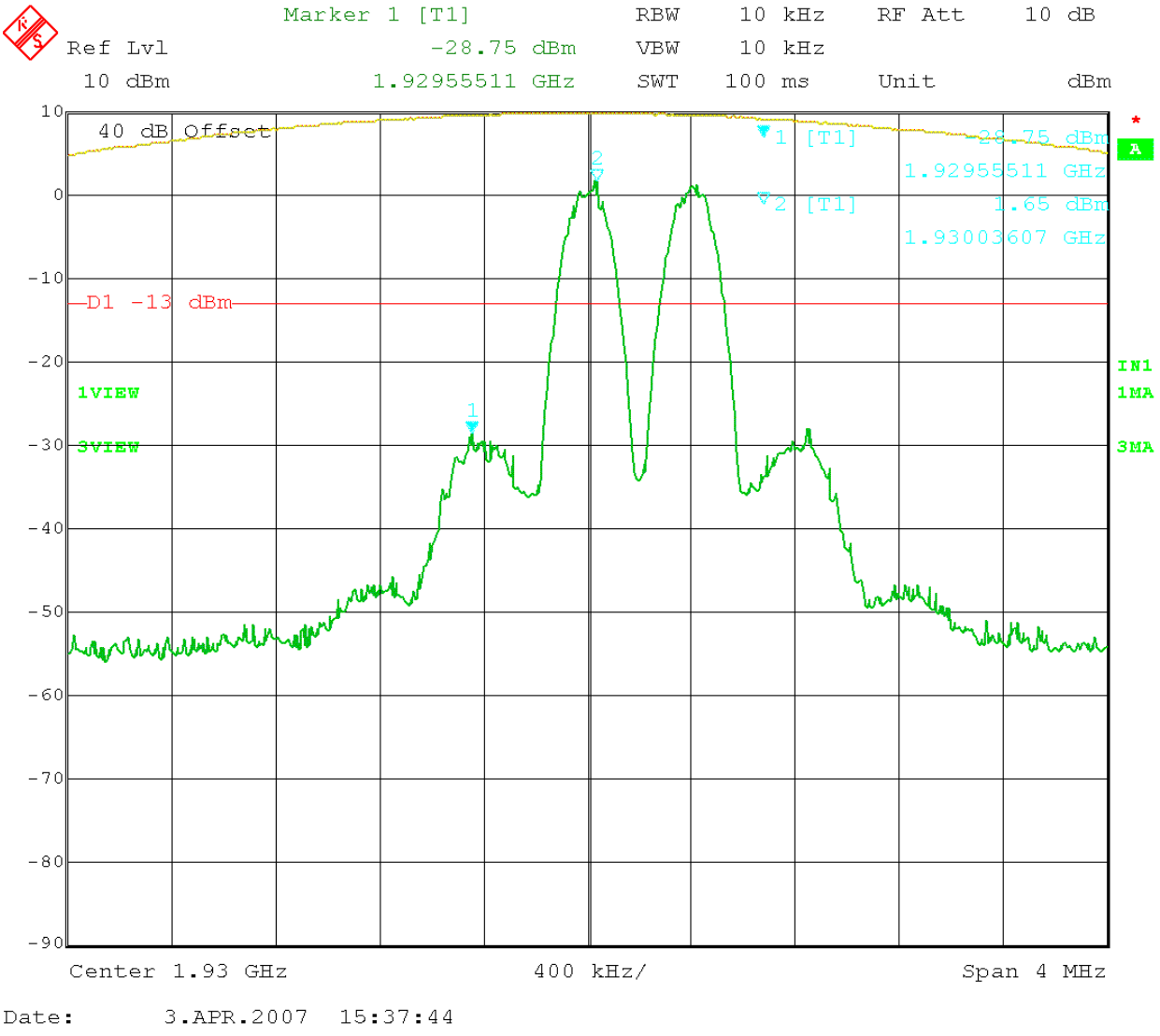


Figure 23: EDGE 2 tones intermodulation - down link – low end.

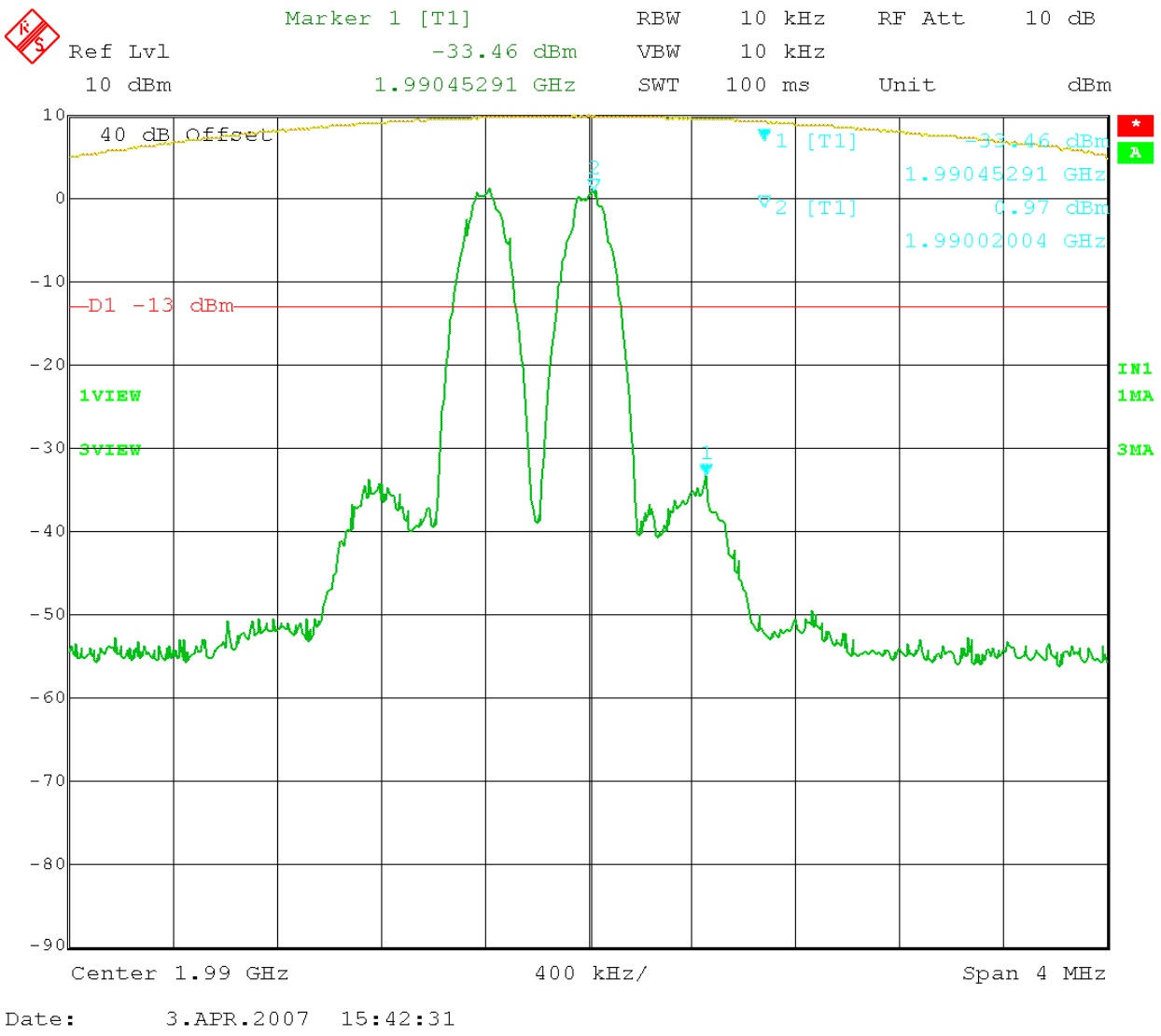


Figure 24: EDGE 2 tones intermodulation - down link – high end

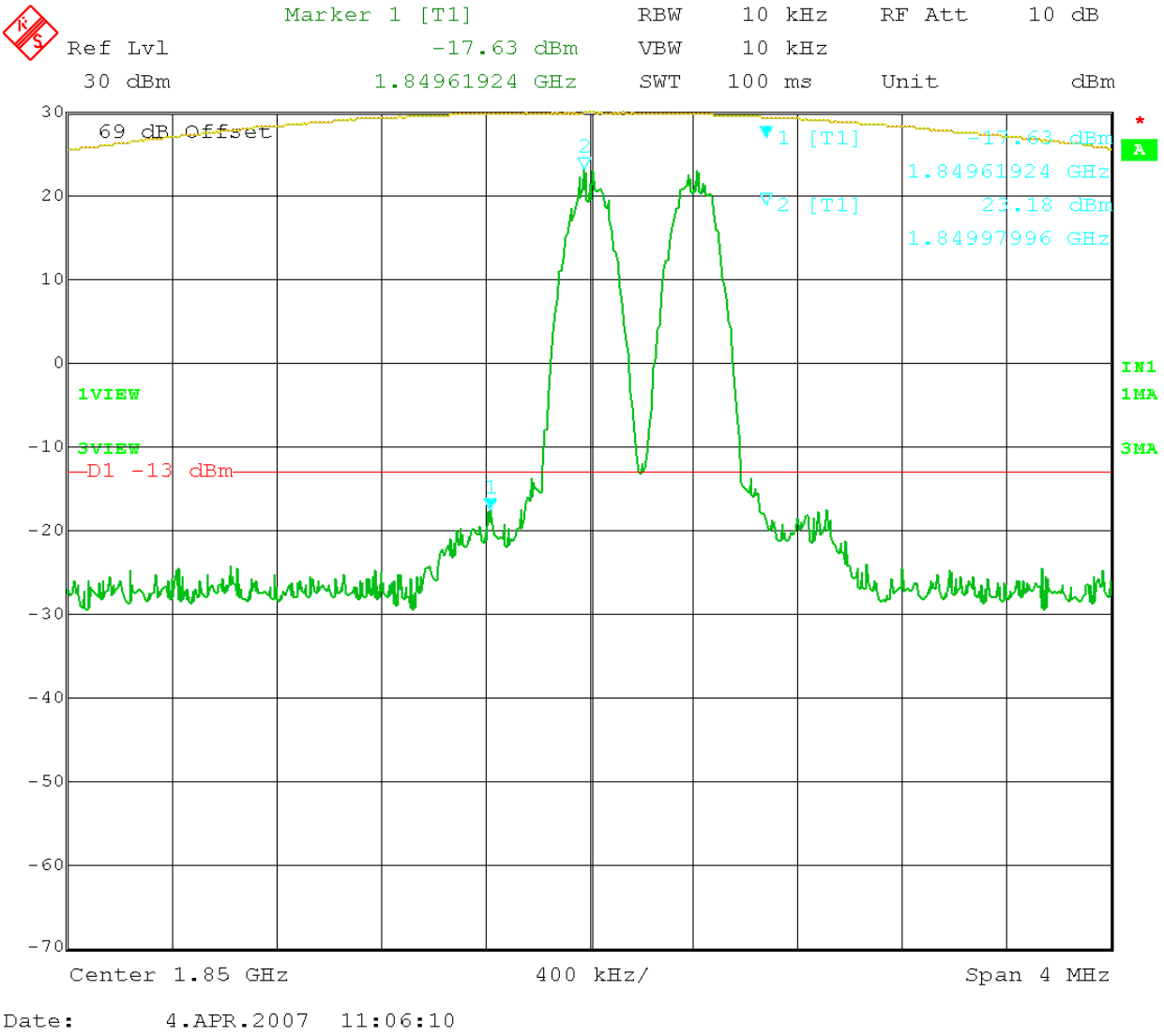


Figure 25: GSM 2 tones intermodulation - up link – low end

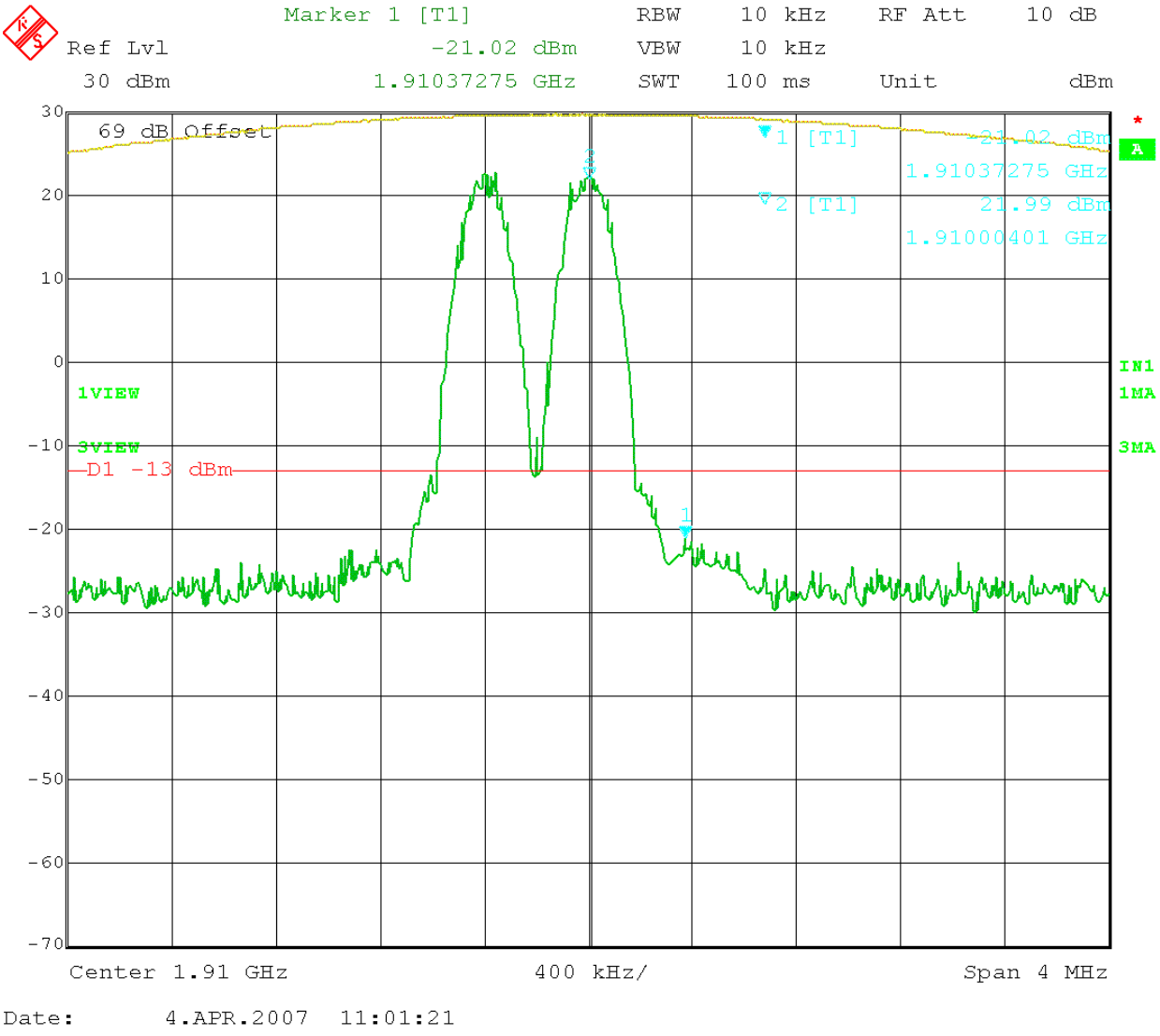


Figure 26: GSM 2 tones intermodulation - up link – high end

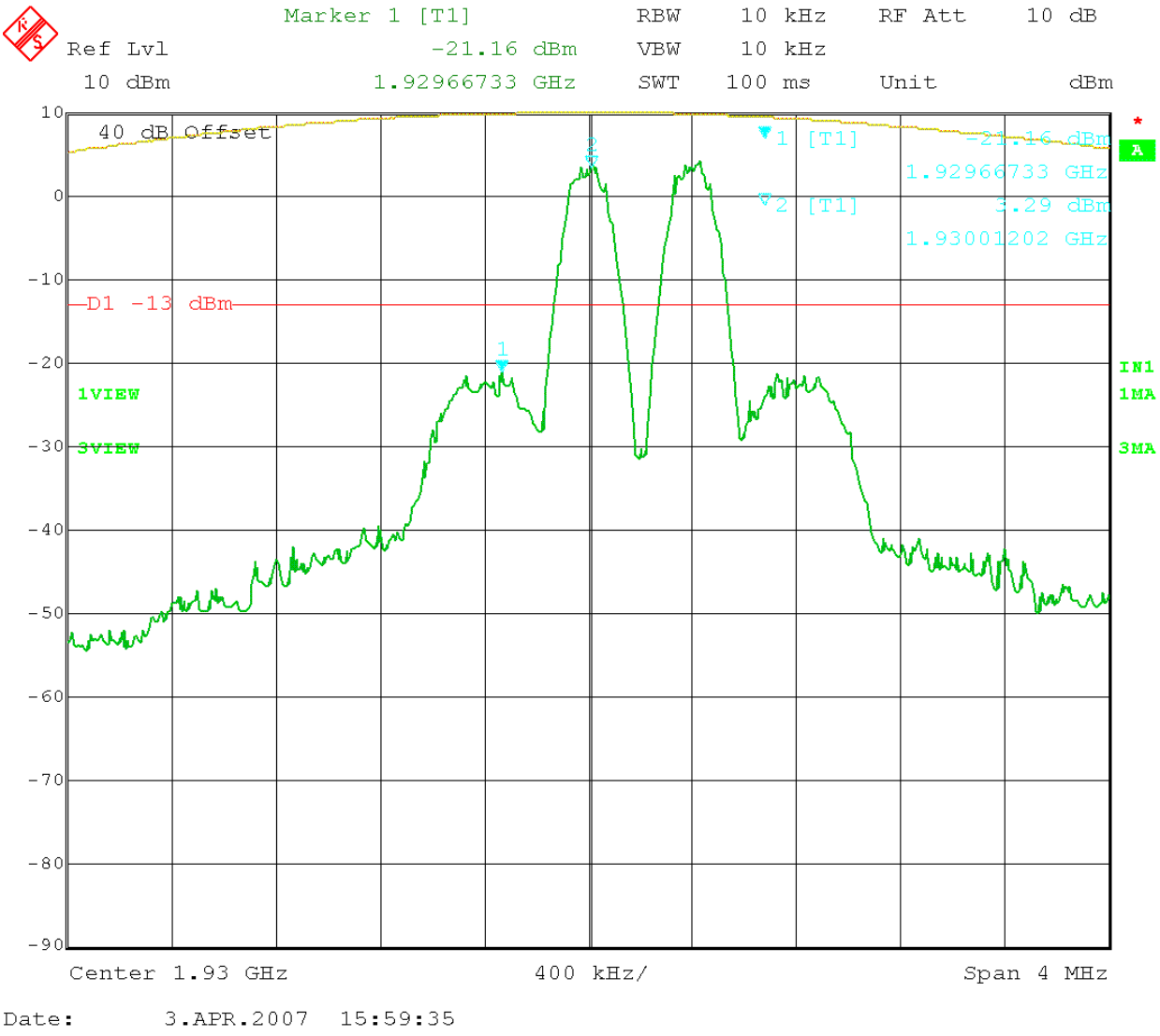


Figure 27: GSM 2 tones intermodulation - down link – low end

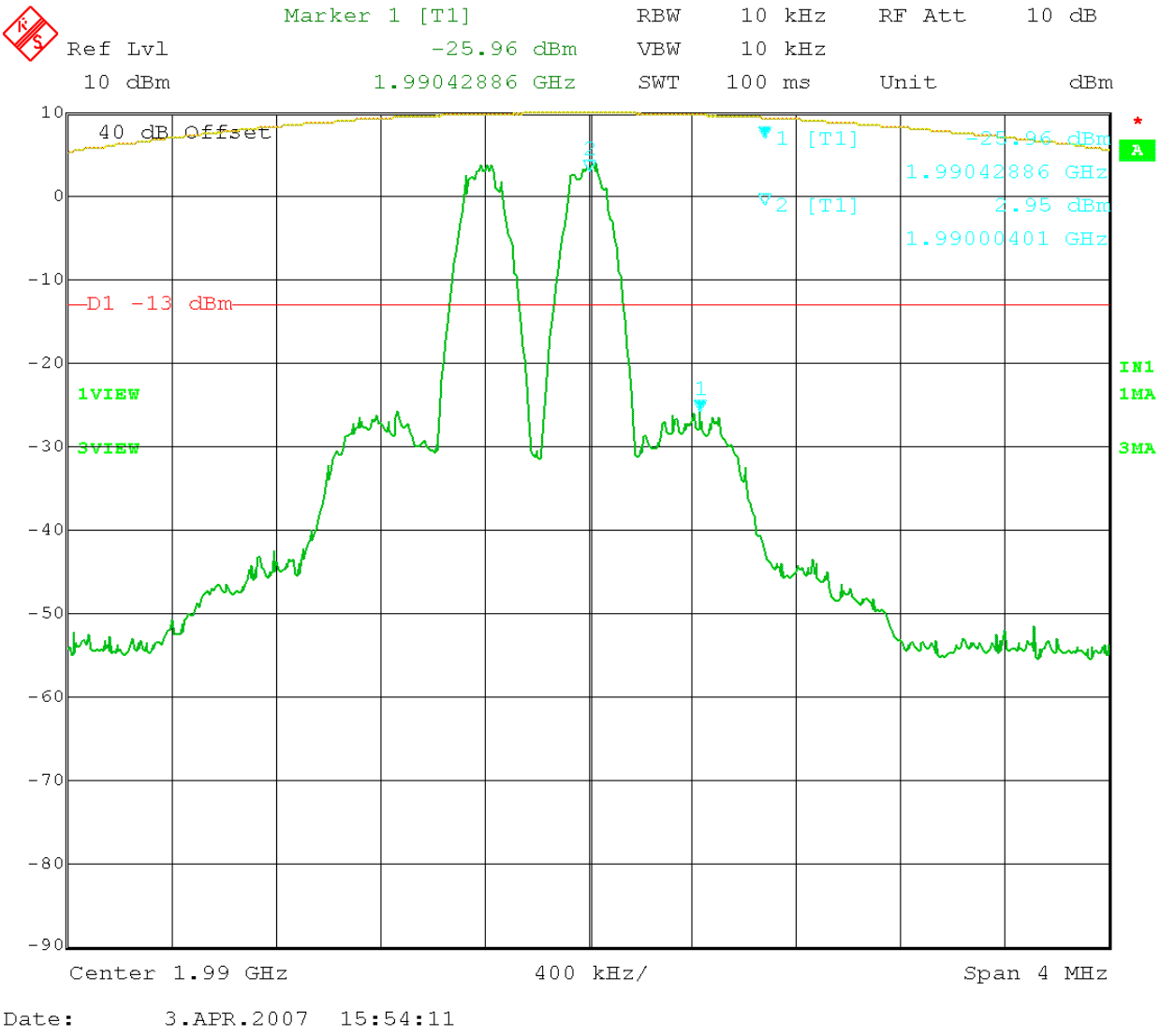


Figure 28: GSM 2 tones intermodulation - down link – high end

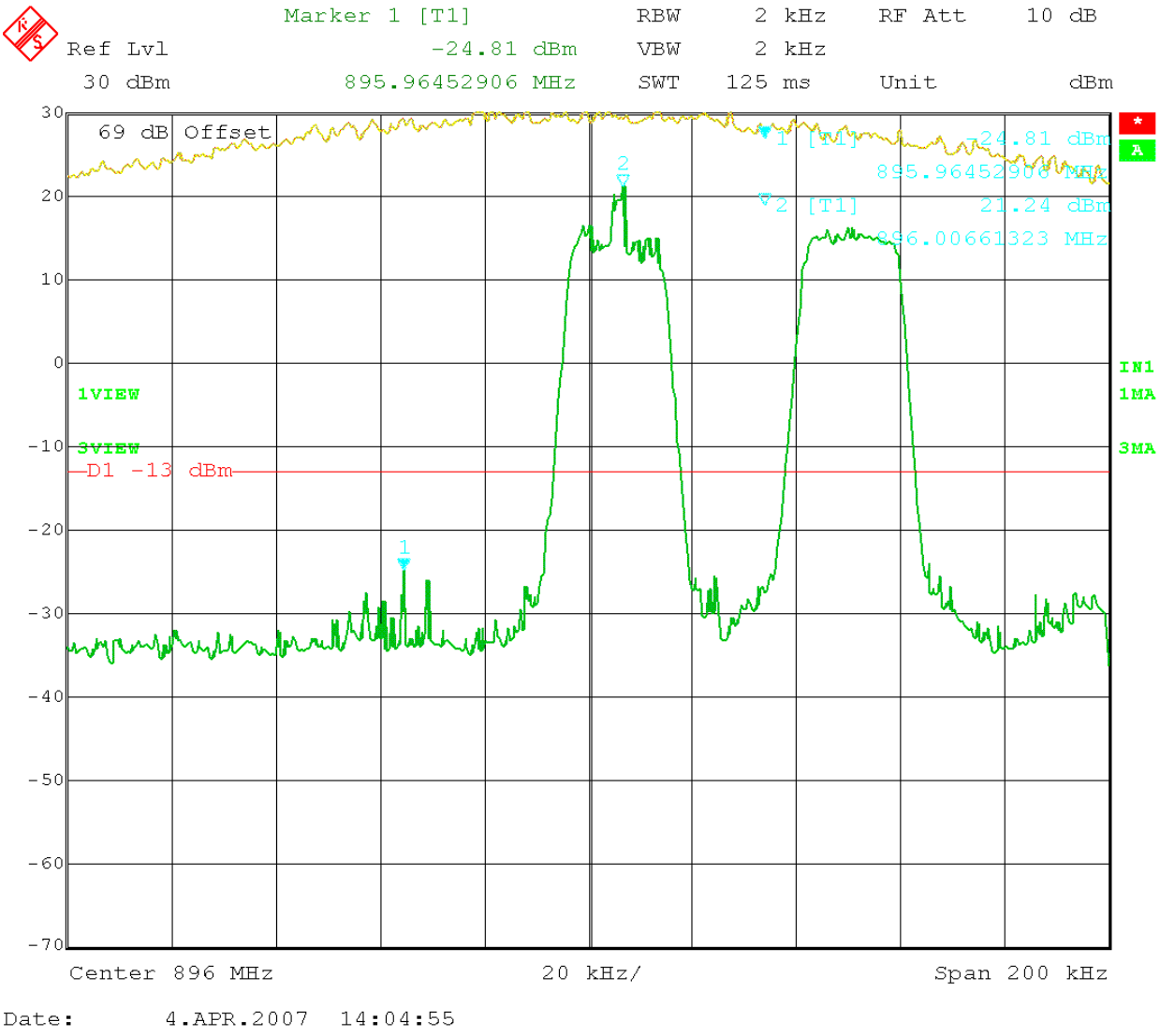


Figure 29: iDEN 2 tones intermodulation - up link – low end

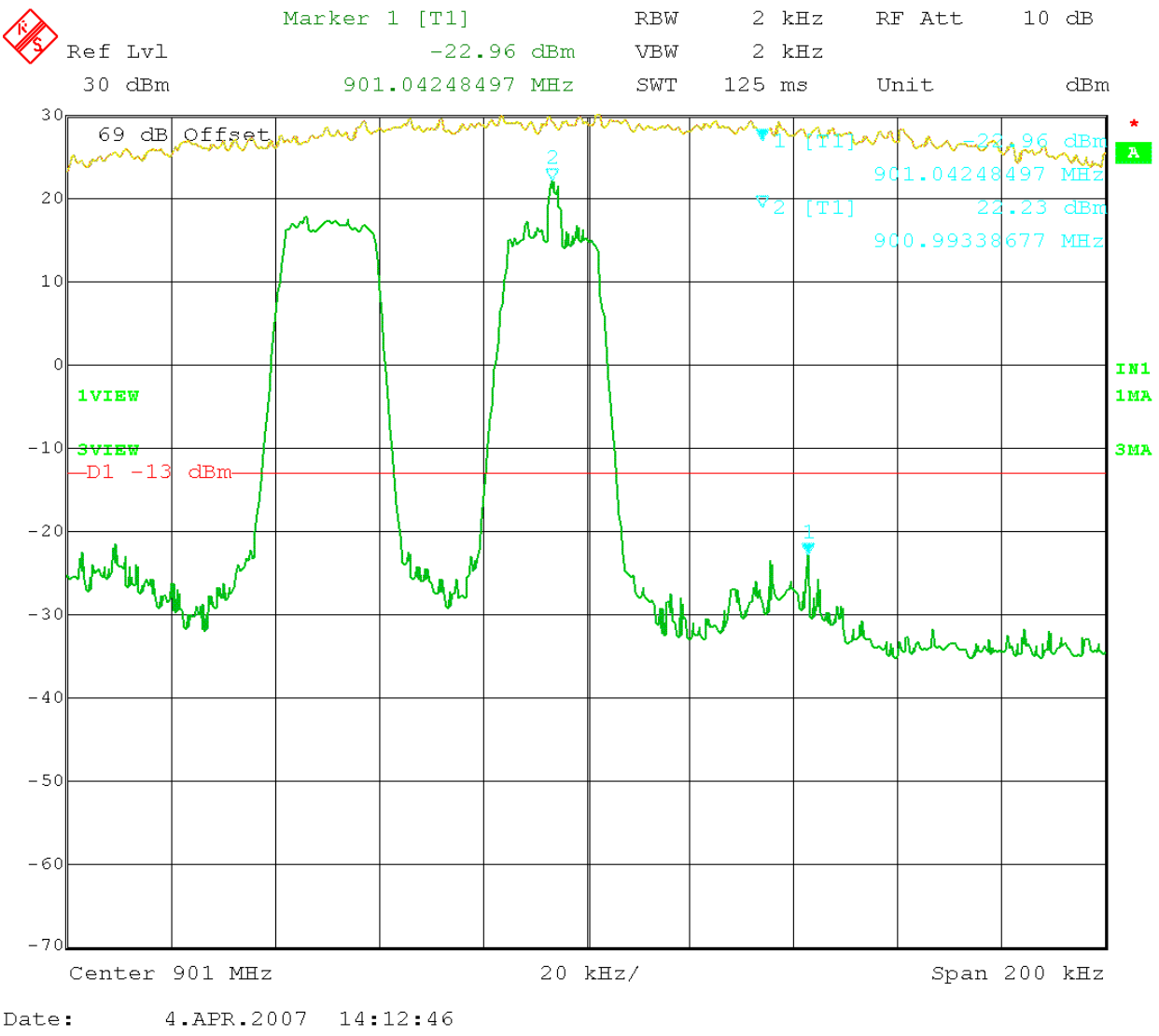


Figure 30: iDEN 2 tones intermodulation - up link – high end

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Rule Parts No.: Pt 2.1051

Requirements: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter:

1850 – 1910 MHz: 43 + 10log(1.00) = 43 dBc
1930 – 1990: 43 + 10log(0.01) = 23 dBc

Test Result: The DUT appears to meet the requirements.

Test Data Table 11 – Conducted Emissions - CDMA

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1851.25	0	1880.00	0	1908.75	0
3702.50	49.33	3760.00	44.96	3817.50	44.07
5553.75	49.57	5640.00	49.49	5726.25	49.12
7405.00	>62.0	7520.00	>62.0	7635.00	>62.0
9256.25	>62.0	9400.00	>62.0	9543.75	>62.0
11107.50	>62.0	11280.00	>62.0	11452.50	>62.0
12958.75	>62.0	13160.00	>62.0	13361.25	>62.0
14810.00	>62.0	15040.00	>62.0	15270.00	>62.0
16661.25	>62.0	16920.00	>62.0	17178.75	>62.0
18512.50	>62.0	18800.00	>62.0	19087.50	>62.0

Test Data Table 12 – Conducted Emissions - CDMA

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1931.25	0	1960.00	0	1988.75	0
3862.50	30.31	3920.00	32.85	3977.50	31.11
5793.75	>60.0	5880.00	>60.0	5966.25	>60.0
7725.00	>60.0	7840.00	>60.0	7955.00	>60.0
9656.25	>60.0	9800.00	>60.0	9943.75	>60.0
11587.50	>60.0	11760.00	>60.0	11932.50	>60.0
13518.75	>60.0	13720.00	>60.0	13921.25	>60.0
15450.00	>60.0	15680.00	>60.0	15910.00	>60.0
17381.25	>60.0	17640.00	>60.0	17898.75	>60.0
19312.50	>60.0	19600.00	>60.0	19887.50	>60.0

Test Data Table 13 – Conducted Emissions - EDGE

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1850.20	0	1880.00	0	1909.80	0
3700.40	62.42	3760.00	59.06	3819.60	52.47
5550.60	63.59	5640.00	63.45	5729.40	>58.0
7400.80	64.86	7520.00	>58.0	7639.20	>58.0
9251.00	65.56	9400.00	>58.0	9549.00	>58.0
11101.20	66.06	11280.00	>58.0	11458.80	>58.0
12951.40	>58.0	13160.00	>58.0	13368.60	>58.0
14801.60	>58.0	15040.00	>58.0	15278.40	>58.0
16651.80	>58.0	16920.00	>58.0	17188.20	>58.0
18502.00	>58.0	18800.00	>58.0	19098.00	>58.0

Test Data Table 14 – Conducted Emissions - EDGE

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1930.20	0	1960.00	0	1989.80	0
3860.40	35.96	3920.00	36.15	3979.60	35.11
5790.60	>56.0	5880.00	>56.0	5969.40	>56.0
7720.80	>56.0	7840.00	>56.0	7959.20	>56.0
9651.00	>56.0	9800.00	>56.0	9949.00	>56.0
11581.20	>56.0	11760.00	>56.0	11938.80	>56.0
13511.40	>56.0	13720.00	>56.0	13928.60	>56.0
15441.60	>56.0	15680.00	>56.0	15918.40	>56.0
17371.80	>56.0	17640.00	>56.0	17908.20	>56.0
19302.00	>56.0	19600.00	>56.0	19898.00	>56.0

Test Data Table 15 – Conducted Emissions – GSM

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1850.20	28.75	1880.00	28.94	1909.80	25.44
3700.40	62.42	3760.00	59.06	3819.60	52.47
5550.60	63.59	5640.00	63.45	5729.40	ne
7400.80	64.86	7520.00	ne	7639.20	ne
9251.00	65.56	9400.00	ne	9549.00	ne
11101.20	66.06	11280.00	ne	11458.80	ne
12951.40	ne	13160.00	ne	13368.60	ne
14801.60	ne	15040.00	ne	15278.40	ne
16651.80	ne	16920.00	ne	17188.20	ne
18502.00	ne	18800.00	ne	19098.00	ne

Test Data Table 16 – Conducted Emissions – GSM

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1930.20	10.27	1960.00	12.4	1989.80	12.04
3860.40	35.96	3920.00	36.15	3979.60	35.11
5790.60	ne	5880.00	ne	5969.40	ne
7720.80	ne	7840.00	ne	7959.20	ne
9651.00	ne	9800.00	ne	9949.00	ne
11581.20	ne	11760.00	ne	11938.80	ne
13511.40	ne	13720.00	ne	13928.60	ne
15441.60	ne	15680.00	ne	15918.40	ne
17371.80	ne	17640.00	ne	17908.20	ne
19302.00	ne	19600.00	ne	19898.00	ne

Test Data Table 17 – Conducted Emissions - IDEN

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
896.01	0	898.50	0	900.99	0
1792.03	58.68	1797.00	52.87	1801.98	48.8
2688.04	58.27	2695.50	61.47	2702.96	59.56
3584.05	61.36	3594.00	61.43	3603.95	61.81
4480.06	>58.0	4492.50	>58.0	4504.94	>58.0
5376.08	>58.0	5391.00	>58.0	5405.93	>58.0
6272.09	>58.0	6289.50	>58.0	6306.91	>58.0
7168.10	>58.0	7188.00	>58.0	7207.90	>58.0
8064.11	>58.0	8086.50	>58.0	8108.89	>58.0
8960.13	>58.0	8985.00	>58.0	9009.88	>58.0

Test Data Table 18 – Conducted Emissions - IDEN

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
935.01	0	937.50	0	939.99	0
1870.03	43.15	1875.00	46.06	1879.98	46.99
2805.04	51.44	2812.50	50.24	2819.96	46.81
3740.05	40.62	3750.00	41.94	3759.95	40.78
4675.06	41.35	4687.50	41.22	4699.94	39.8
5610.08	>56.0	5625.00	>56.0	5639.93	>56.0
6545.09	>56.0	6562.50	>56.0	6579.91	>56.0
7480.10	>56.0	7500.00	>56.0	7519.90	>56.0
8415.11	>56.0	8437.50	>56.0	8459.89	>56.0
9350.13	>56.0	9375.00	>56.0	9399.88	>56.0

OUT OF BAND REJECTION: FREQUENCY RESPONSE PLOTS

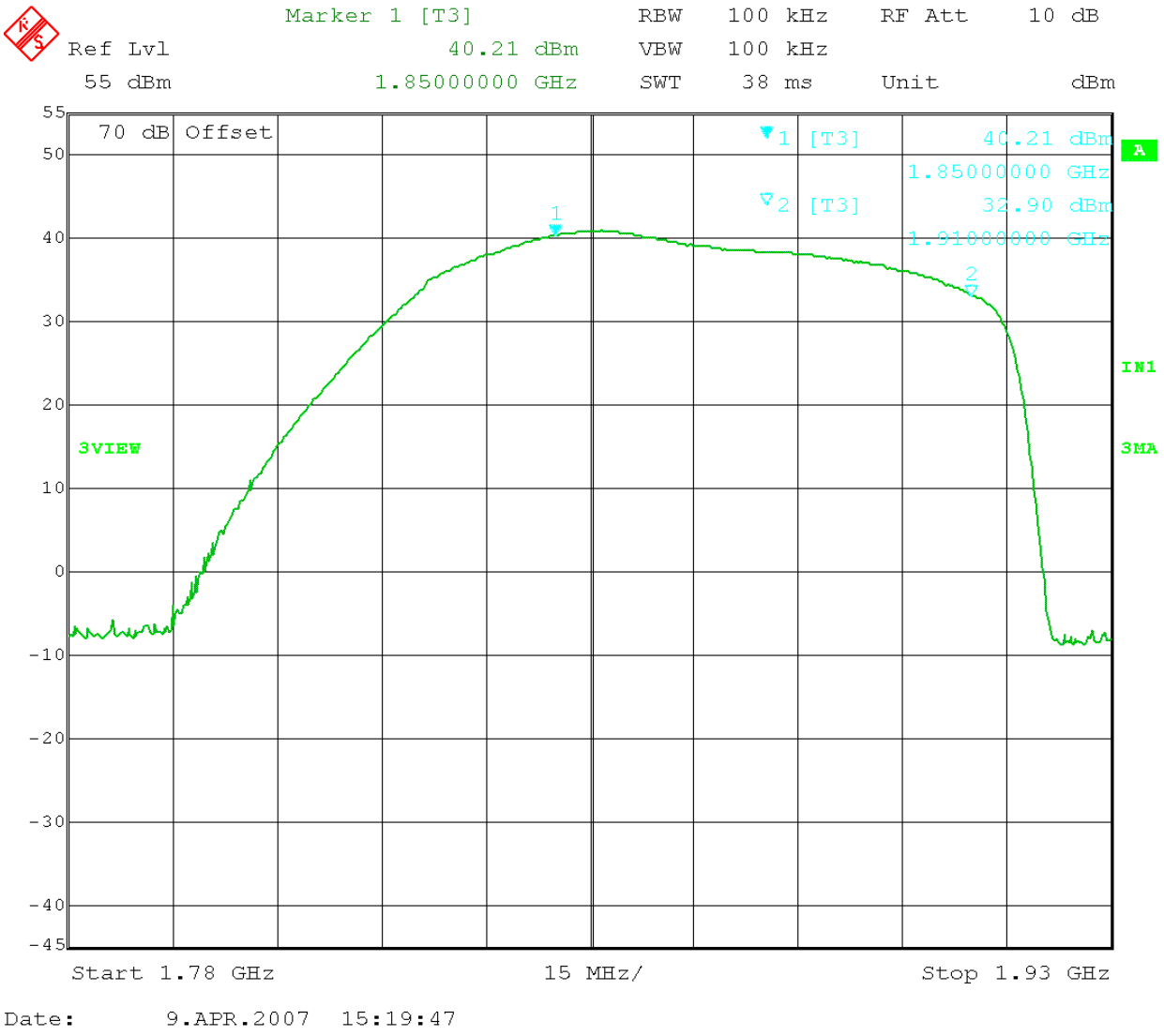


Figure 31. Filer frequency response 1850MHz band

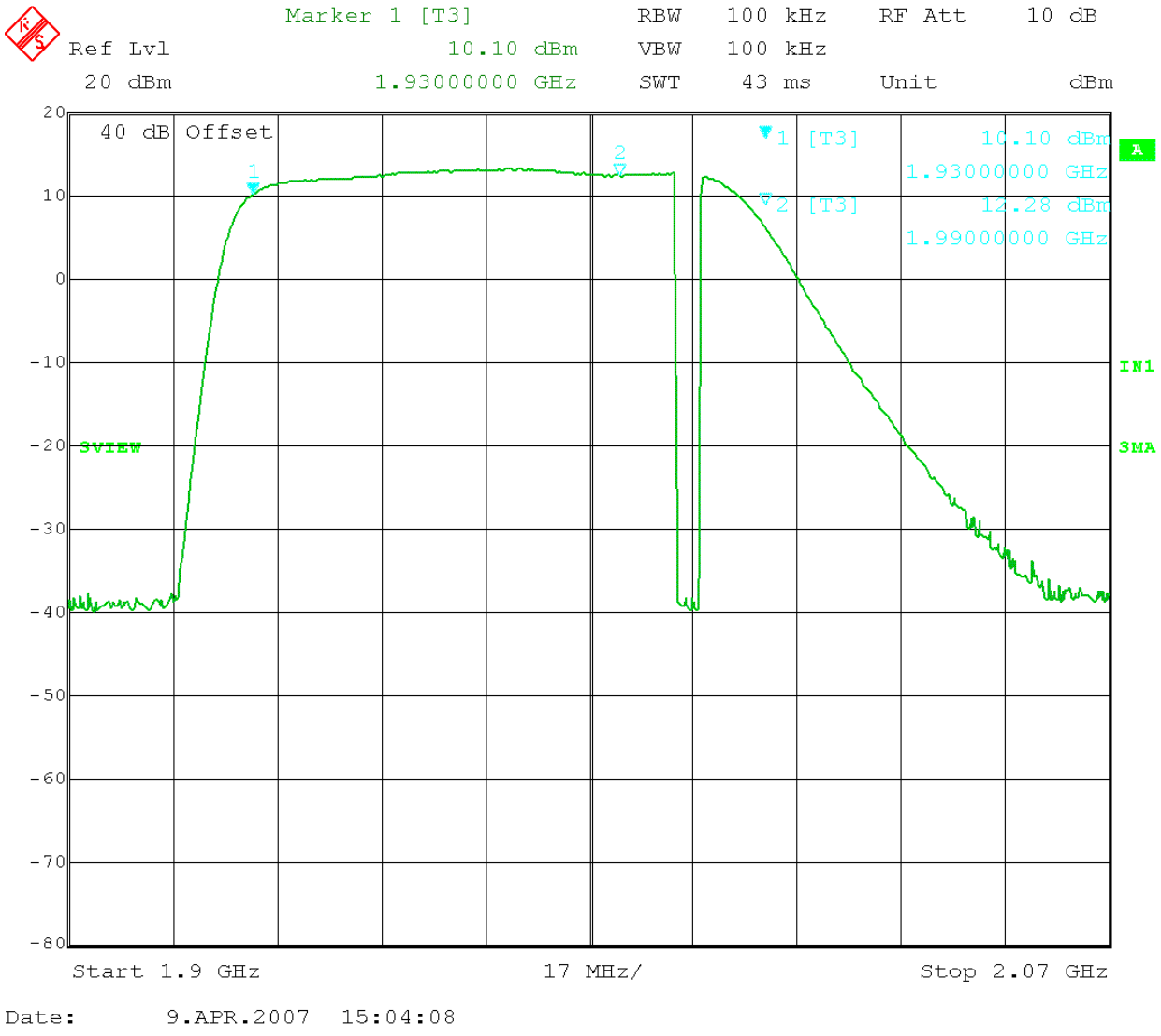


Figure 32. Filer frequency response 1930MHz band

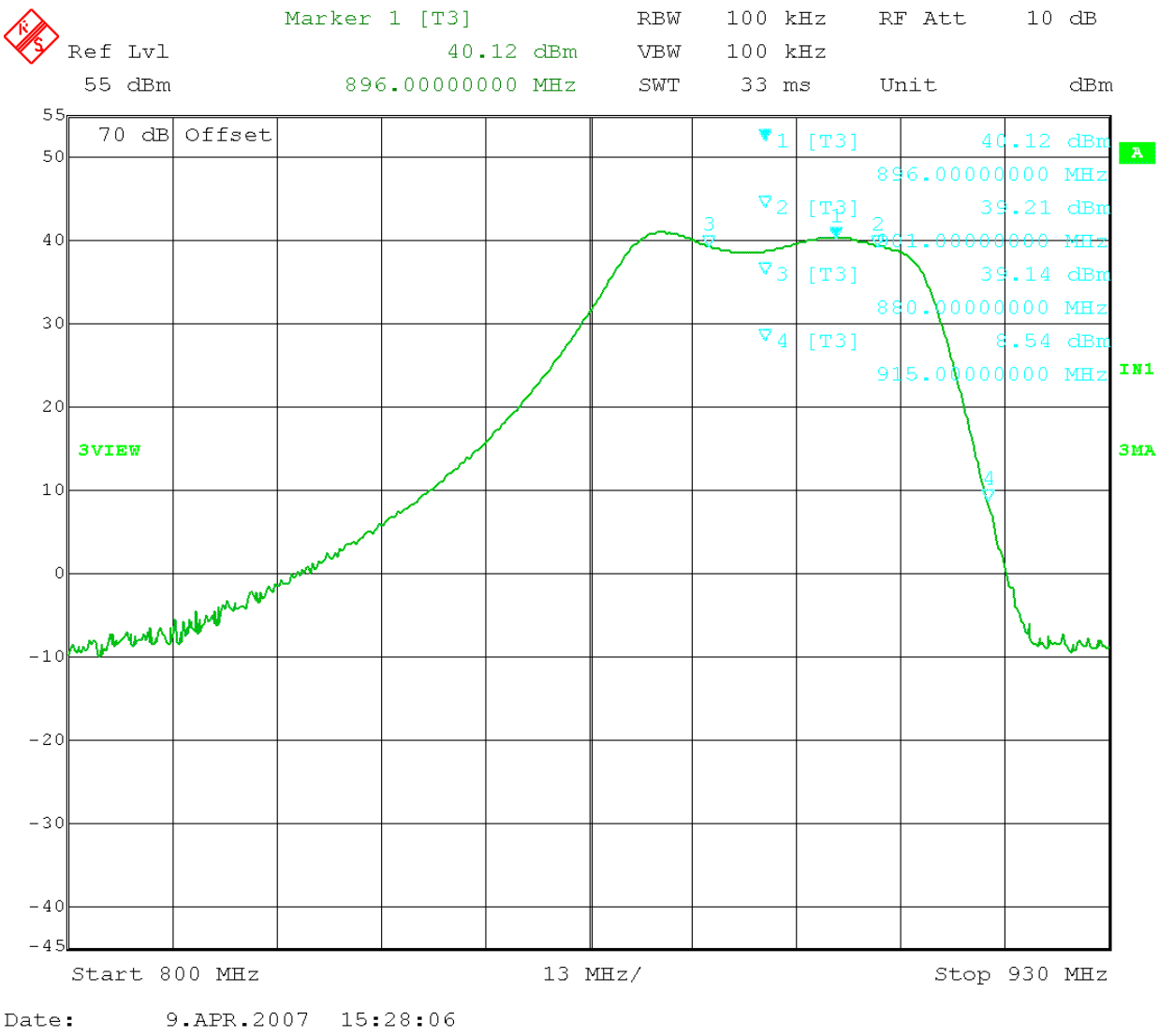


Figure 33. Filer frequency response 896 MHz band

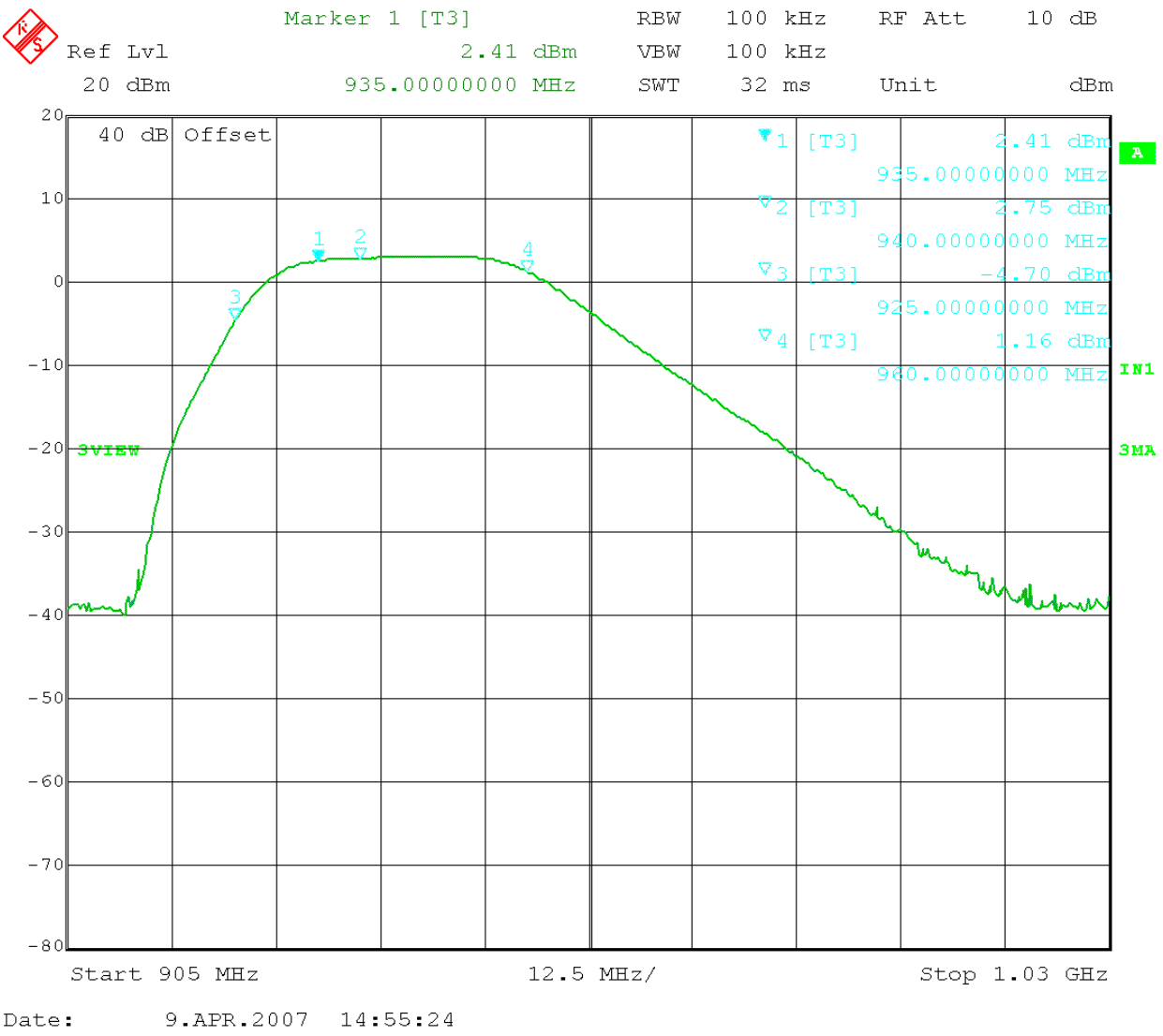


Figure 34. Filer frequency response 935 MHz band

FIELD STRENGTH OF SPURIOUS EMISSIONS

Rule Parts No.: Pt 2.1053

Requirements: Emissions must be 43+10log(Po) dB below the mean power output of the amplifier:

43 + 10log(1.00) = 43 dB
43 + 10log(0.01) = 23 dB

Test Result: The test data indicates the DUT meets the requirements

Test Data Table 19 – Radiated Emissions – PCS

Emission Frequency (MHz)	Ant. Polarity (V/H)	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
1880.00	V	30.00	0	0	0
3760.00	H	-34.10	1.42	7.55	57.97
5640.00	H	-50.10	1.73	8.42	73.41
7520.00	V	-51.50	2.04	8.47	75.07
9400.00	H	-38.40	2.36	9.20	61.56
11280.00	H	-48.90	2.67	8.93	72.64
13160.00	V/H	*	*	*	*
15040.00	V/H	*	*	*	*
16920.00	V/H	*	*	*	*
18800.00	V/H	*	*	*	*

[Continued]

Test Data Table 20 – Radiated Emissions - PCS

Emission Frequency (MHz)	Ant. Polarity (V/H)	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
1960.00	V	10.00	0	0	0
3920.00	V	-38.30	1.46	7.55	42.21
5880.00	H	-56.40	1.79	8.88	59.31
7840.00	H	-54.70	2.12	7.80	59.02
9800.00	V	-47.10	2.45	9.33	50.22
11760.00	V/H	*	*	*	*
13720.00	V/H	*	*	*	*
15680.00	V/H	*	*	*	*
17640.00	V/H	*	*	*	*
19600.00	V/H	*	*	*	*

Test Data Table 21 – Radiated Emissions – iDEN - Uplink

Emission Frequency (MHz)	Ant. Polarity (V/H)	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
899.40	V	30.00	0	0	0
1798.80	H	-28.70	1.10	5.13	54.67
2698.20	V	-35.80	1.25	7.00	60.05
3597.60	H	-45.70	1.40	7.55	69.55
4497.00	H	-40.40	1.55	8.32	63.63
5396.40	H	-53.30	1.70	8.20	76.80
6295.80	H	-42.40	1.85	8.89	65.37
7195.20	H	-54.70	2.00	7.82	78.88
8094.60	H	-52.50	2.16	7.52	77.14
8994.00	V/H	*	*	*	*

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

[Continued]

Test Data Table 22 – Radiated Emissions – iDEN - Downlink

Emission Frequency (MHz)	Ant. Polarity (V/H)	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
936.50	0	10.00	0	0	0
1873.00	H	-53.70	1.12	5.19	59.63
2809.50	H	-44.20	1.28	7.07	48.41
3746.00	V	-33.80	1.44	7.47	37.77
4682.50	V/H	*	*	*	*
5619.00	V/H	*	*	*	*
6555.50	H	-55.20	1.92	8.57	58.55
7492.00	H	-51.10	2.08	8.58	54.60
8428.50	V	-54.10	2.24	8.43	57.91
9365.00	H	-49.90	2.40	9.59	52.71

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

RF EXPOSURE COMPLIANCE

See Appendix with the filing

2B4310 MPE Building 1900 Outside 15 dB.xls
2B4310 MPE Building 900 Outside 15 dB.xls
2B4310 MPE Mobile 1900 Outside 6.12 dB.xls
2B4310 MPE Mobile 900 Outside 6.12 dB.xls
2B4310 MPE SUMMARY.doc

MEAN OUTPUT POWER FOR MULTI-CHANNEL ENHANCER

Rule Part(s) No.: RSS-131 Issue 2 Para.4.3.1

Requirements: For enhancers rated 500 watts or less: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, equals -43 dBW.

For enhancers rated over 500 watts: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, is 67 dB below the level of either output tone level, Po1 or Po2.

Record all signal levels and their frequencies. Calculate the mean output power (Pmean) under this testing condition using Pmean = Po1 + 3 dB.

Test Result: As the following table indicates.

Test Data Table 23 – iDEN Uplink		
Mean output power		24.38
	Freq (MHz)	dBm
F1	897.907	20.91
F2	899.111	21.38
F3	896.703	-13.31
F4	900.315	-13.01

Test Data Table 24 – iDEN Downlink		
Mean output power		5.77
	Freq (MHz)	dBm
F1	936.928	2.46
F2	938.111	2.77
F3	935.686	-12.51
F4	939.353	-13.49

[Continued]

Test Data Table 25 – PCS Uplink		
Mean output power		31.3
	Freq (MHz)	dBm
F1	1877.324	27.90
F2	1882.735	28.30
F3	1871.913	-13.65
F4	1888.146	-13.15

Test Data Table 26 – PCS Downlink		
Mean output power		13.3
	Freq (MHz)	dBm
F1	1958.917	10.04
F2	1961.322	10.3
F3	1956.512	-11.86
F4	1963.727	-12.99

PASSBAND GAIN AND BANDWIDTH

Rule Part No.: RSS-131 Issue 2 Para 4.2

Requirements: RSS-131 Issue 2 Para 4.2

Test Data: See plots

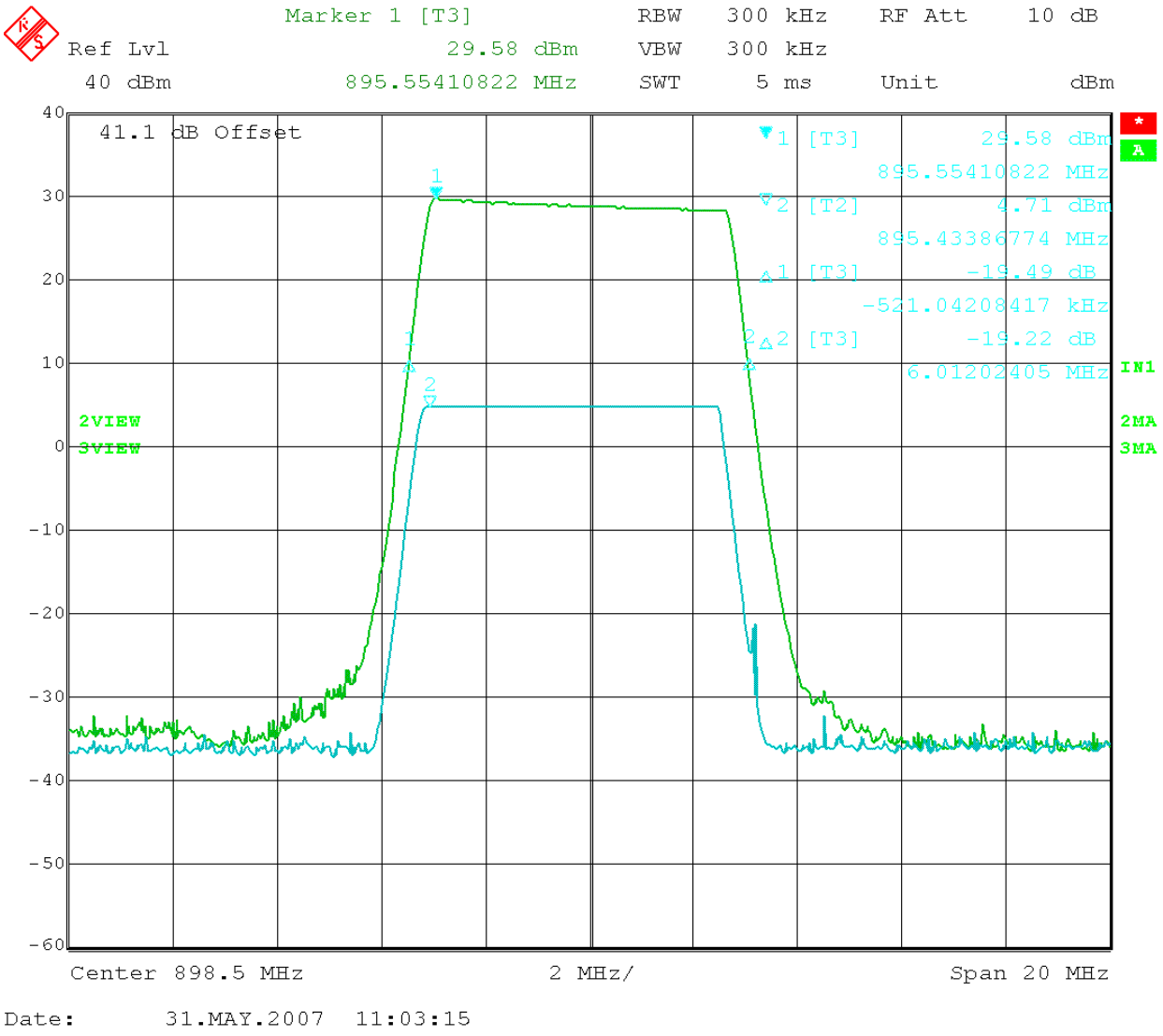


Figure 35: 20 dB Bandwidth – (800 MHz) Uplink

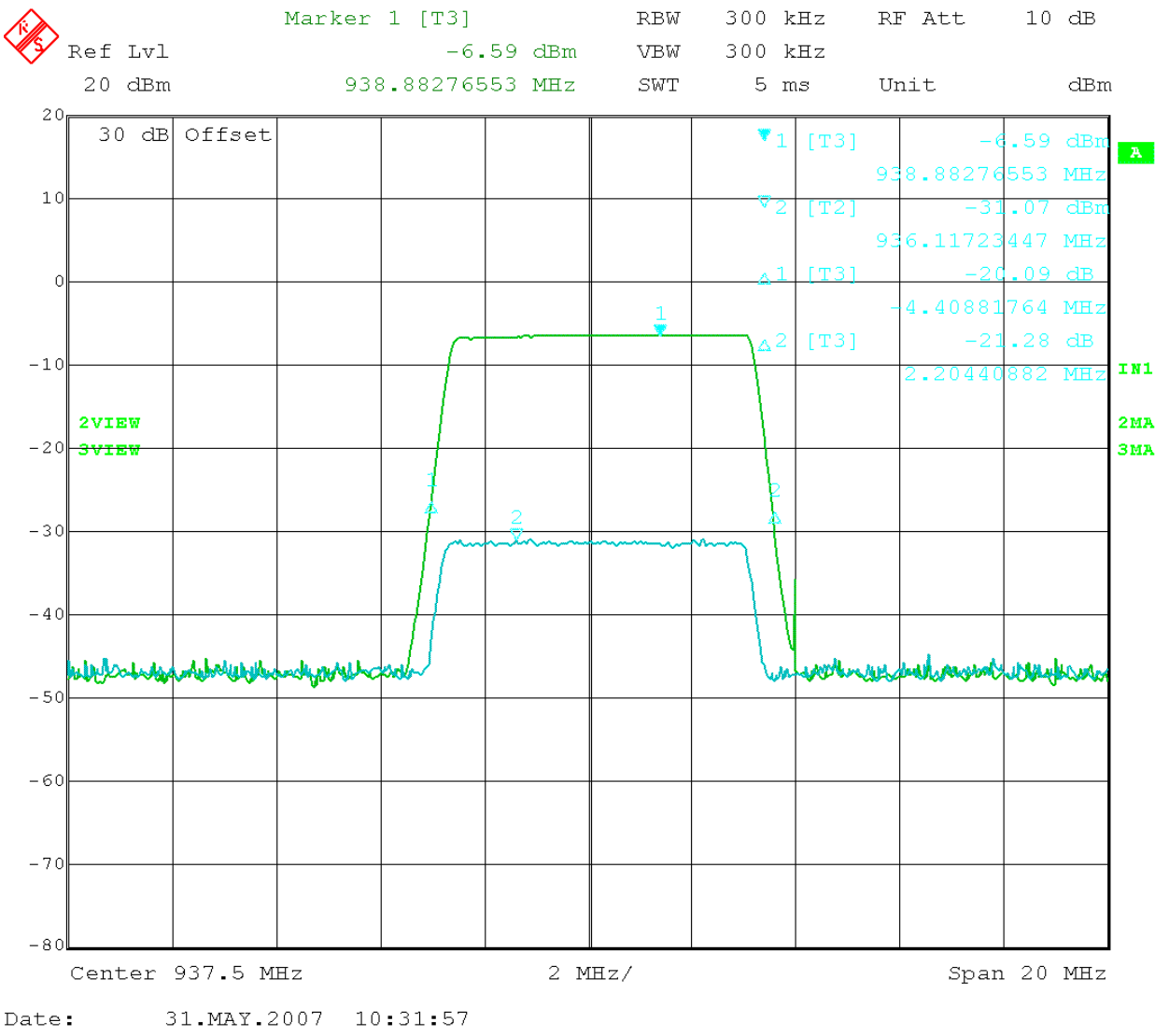


Figure 36: 20 dB Bandwidth – (800 MHz) Downlink

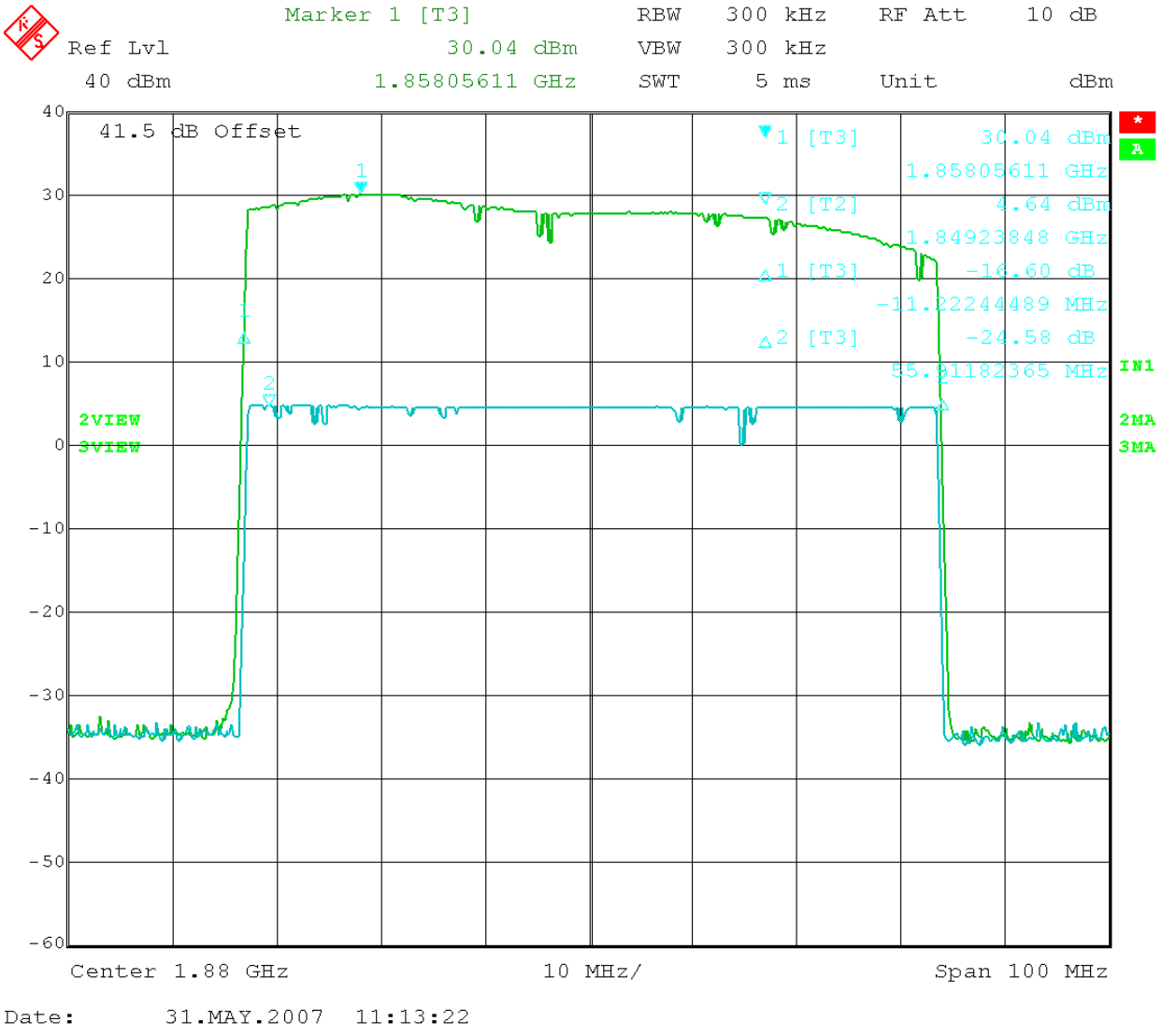


Figure 37: 20 dB Bandwidth – (1900 MHz) Downlink

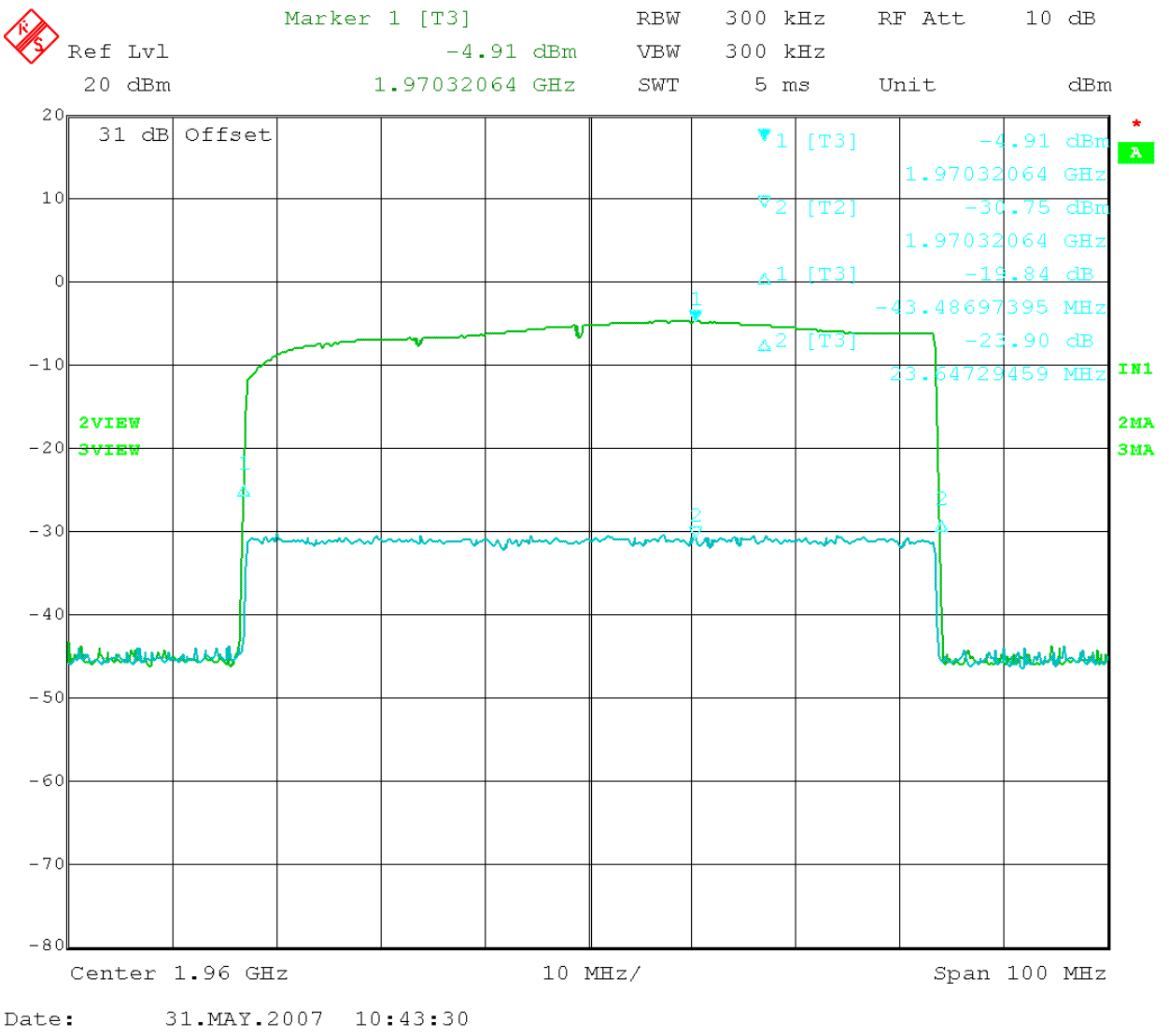


Figure 38: 20 dB Bandwidth – (1900 MHz) Downlink