

*FCC PART 15, SUBPART B & SUBPART C SECTION 15.239
TEST REPORT*

for

TUNECAST AUTO UNIVERSAL

MODEL: F8M066V2

Prepared for

BELKIN INTERNATIONAL, INC.
12045 EAST WATERFRONT DRIVE
PLAYA VISTA, CA 90094

Prepared by: _____

TOREY OLIVER

Approved by: _____

JEFF KLINGER

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CA 92630
(949) 587-0400

DATE: JULY 28, 2014

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
PAGES	16	2	2	2	8	23	53

This report shall not be reproduced except in full, without the written approval of Compatible Electronics.

TABLE OF CONTENTS

Section / Title	PAGE
GENERAL REPORT SUMMARY	4
SUMMARY OF TEST RESULTS	5
1. PURPOSE	6
2. ADMINISTRATIVE DATA	7
2.1 Location of Testing	7
2.2 Traceability Statement	7
2.3 Cognizant Personnel	7
2.4 Date Test Sample was Received	7
2.5 Disposition of the Test Sample	7
2.6 Abbreviations and Acronyms	7
3. APPLICABLE DOCUMENTS	8
4. Description of Test Configuration	9
4.1 Description Of Test Configuration - EMI	9
4.1.1 Cable Construction and Termination	10
5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT	11
5.1 EUT and Accessory List	11
5.2 EMI Test Equipment	12
6. TEST SITE DESCRIPTION	13
6.1 Test Facility Description	13
6.2 EUT Mounting, Bonding and Grounding	13
7. Test Procedures	14
7.1 RF Emissions	14
7.1.1 Conducted Emissions Test	14
7.1.2 Radiated Emissions (Spurious and Harmonics) Test	14
7.1.3 Radiated Emissions (Spurious and Harmonics) Test (Continued)	15
7.1.4 Peak Radiated EMI	15
7.2 20dB Bandwidth of the Fundamental	16
7.3 Restricted Bands and Band Edges	16
8. CONCLUSIONS	16

LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos <ul style="list-style-type: none">• Test Setup Diagrams• Radiated Emissions Photos• Antenna Factors
E	Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Plot Map And Layout of 3 Meter Radiated Site
2	High Frequency Test Volume

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Device Tested: TuneCast Auto Universal
Model: F8M066V2
SN: 17

Product Description: See Expository Statement

Modifications: The EUT was not modified.

Manufacturer: Belkin International, Inc.
12045 East Waterfront Drive
Playa Vista, CA 90094

Test Date: September 5, 2014

Test Specifications: CFR Title 47, Part 15, Subpart B Section 15.109, Subpart C, Sections 15.205, 15.209 and 15.239

Test Procedure: ANSI C63.10 & ANSI C63.4

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Intentional Radiated RF Emissions, 9 kHz - 1080 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.239.
2	Radiated Emissions (Digital Portion), 30 - 1000 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart B, section 15.109
3	Conducted Emissions 150kHz-30MHz	The EUT does not connect to AC mains; Therefore this test was not performed.
4	-20 dB Bandwidth of the Fundamental	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.239.
5	Peak Radiated EMI	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.239.
6	Restricted Bands and Band Edges	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.205, and 15.239.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the TuneCast Auto Universal Model: F8M066V2. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by CFR Title 47, Part 15, Subpart B Section 15.109, Subpart C, Sections 15.205, 15.209, and 15.239.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way, Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Belkin International, Inc.

Daniel Wesey Compliance Engineer

Compatible Electronics, Inc.

Matt Harrison Test Technician
Torey Oliver Test Technician
Jeff Klinger Director of EMC

2.4 Date Test Sample was Received

The test sample was received on September 5, 2014.

2.5 Disposition of the Test Sample

The sample has not yet been returned to Belkin International, Inc. as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
CLA	Cigar Lighter Adaptor
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10 2009	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description Of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The TuneCast Auto Universal, Model: F8M066V2 (EUT) was set up in a tabletop configuration. The EUT was connected to the cell phone via auxillary connector. The EUT was powered by a CLA receptacle connected to a 12VDC battery. The EUT was continuously transmitting during the tests and being modulated by an audio source via iPhone. The EUT antenna is a wire soldered to the PCB.

The low, middle, and high channels were investigated in each mode of operation and the X, Y, and Z axis were investigated and the worst case orientation is the X-Axis.

The cables were moved to maximize the emissions. The final radiated data was taken in the above mode of operation. All initial investigations were performed with the EMI Receiver scanning the frequency range continuously.

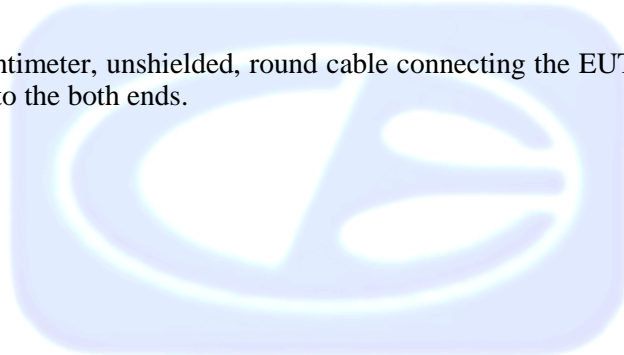
4.1.1 Cable Construction and Termination

Cable 1

This is a 50 centimeter, unshielded, round cable connecting the EUT to the mobile phone. It is hardwired into the EUT and the other has a 3.5mm phone jack connector at the cell phone end.

Cable 2

This is a 50 centimeter, unshielded, round cable connecting the EUT to the EUT CLA Connector. It is hardwired into the both ends.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT
5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
TUNECAST AUTO UNIVERSAL (EUT)	BELKIN INTERNATIONAL, INC.	F8M066V2	N/A	K7SF8M066V2
MOBILE PHONE (IPHONE5)	APPLE	A1429	F2LJ989QF8H2	BCG-E2599A
12VDC BATTERY	N/A	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Compatible Electronics	N/A	N/A	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	11/19/2012	11/19/2014
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	25857	5/21/2014	5/21/2015
Horn Antenna	Com-Power	AH118	071250	7/1/2014	7/1/2016
Loop Antenna	Com-Power	AL-130	121049	12/6/2013	12/6/2015
Antenna Mast	Sunol Sciences Corporation	TWR 95-4	081309-3	N/A	N/A
Turntable	Sunol Sciences Corporation	FM2011VS	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Sciences Corporation	SC104V	081309-1	N/A	N/A

6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT, cell phone, and Cigar Lighter Adapter receptacle were mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was placed in the center, and on the back edge of the table, in accordance with ANSI C63.10 and ANSI C63.4. The test site receive antenna distance was measured from the closest periphery of the EUT setup. Each accessory was placed 10 cm to either side of the EUT. The battery was placed on the ground, using an 80 cm length of wire to connect to a cigarette lighter adapter receptacle, which was mounted on the table.

The EUT and accessories were investigated for worst case placement; the above yielded the worst case configuration.

The EUT was not grounded.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

(This test was not performed)

The EUT is a DC powered device; therefore this test was not performed.

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps.

The frequencies above 1 GHz and the fundamental for the low, middle, and high channels were investigated with the built in average detector.

The measurement bandwidths and transducers used for the radiated emissions (Spurious) tests were:

No radiated emissions were found below 30MHz or above 1 GHz.

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	100 kHz	CombiLog Antenna
1 GHz to 1.08 GHz	1 MHz	Horn Antenna

The Semi-Anechoic test site of Compatible Electronics, Inc, Lab R (Lake Forest), was used for all tests. This test sites are set up according to ANSI C63.10. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Final data was collected in the worst case configuration of the EUT (low, mid, and high channels). At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

7.1.3 Radiated Emissions (Spurious and Harmonics) Test (Continued)

The emissions from the EUT were investigated with the EUT while operated on each of three channels, 88.1MHz, 98.1MHz and 107.9MHz. The EUT was receiving a 0 dB encoded file from the audio source. This file represents maximum audio input level. The EUT was tested at a 3-meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B Section 15.109; and CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.239. There were no emissions found below 30MHz or above 1 GHz.

7.1.4 Peak Radiated EMI

The EUT was tested at a 3-meter test distance to obtain the final test data. The EUT was maximized to determine worst case. The EUT was receiving a 0 dB encoded file from the audio source. This file represents maximum audio input level. The resolution bandwidth was 100 kHz and video bandwidth 300 kHz. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with CFR Title 47 Part 15, Subpart C, Section 15.239.

7.2 20dB Bandwidth of the Fundamental

The -20 dB bandwidth was checked using the EMI Receiver to see that the emissions were wholly within the 200 kHz band centered on the operating frequency. The RBW was set to 10 kHz and the VBW was set to 30 kHz. The low, mid, and high channels were investigated. Plots of the -20 dB bandwidth are located in Appendix E.

Test Results:

The EUT complies with the requirements of CFR Title 47, Part 15, Subpart C, section 15.239 (a) for the -20 dB bandwidth of the fundamental. The EUT has a -20 dB bandwidth that is wholly within the 200 kHz band centered on the operating frequency.

7.3 Restricted Bands and Band Edges

The band edges were checked using the EMI Receiver to see that the emissions was wholly within the permitted operating frequency range. The RBW was set to 100 kHz and the VBW was set to 300 kHz. The low and high band edges were investigated with the transmitter tuned to the lowest and highest channels respectively. Data of the band edges are located in Appendix E.

Test Results:

The EUT band edges comply with the requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.239 (c). The EUT emissions are wholly within the permitted operating frequency range.

8. CONCLUSIONS

The TuneCast Auto Universal Model: F8M066V2 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart B Section 15.109 for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.239 for the transmitter portion.



APPENDIX A

LABORATORY RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

Silverado/Lake Forest Division: <http://ts.nist.gov/ts/htdocs/210/214/scopes/2005270.htm>

Brea Division: <http://ts.nist.gov/ts/htdocs/210/214/scopes/2005280.htm>

Agoura Division: <http://ts.nist.gov/ts/htdocs/210/214/scopes/2000630.htm>



Compatible Electronics has been accredited by ANSI and appointed by the FCC to serve as a Telecommunications Certification Body (TCB). Compatible Electronics ANSI TCB listing can be found at: http://www.ansi.org/public/ca/ansi_cp.html



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/EU CAB listing can be found at: <http://ts.nist.gov/ts/htdocs/210/gsig/emc-cabs-mar02.pdf>



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/APEC CAB listing can be found at: <http://ts.nist.gov/ts/htdocs/210/gsig/apec/bsmi-cabs-may02.pdf>



World Wide Market Access with
Compatible Electronics has been validated by NEMKO against ISO/IEC 17025 under the NEMKO EMC Laboratory Authorization (ELA) program to all EN standards required by the European Union (EU) EMC Directive 89/336/EEC. Please follow the link to the Compatible Electronics' web site for each of our facilities NEMKO ELA certificate and scope of accreditation. <http://www.celectronics.com/certs.htm>

We are also certified/listed for IT products by the following country/agency:



Compatible Electronics VCCI listing can be found at:
http://www.vcci.or.jp/vcci_e/member/tekigo/setsubi_index_id.html

Just type "Compatible Electronics" into the Keyword search box.



Compatible Electronics FCC listing can be found at:
https://gullfoss2.fcc.gov/prod/oet/index_ie.html

Just type "Compatible Electronics" into the Test Firms search box.



Compatible Electronics IC listing can be found at:
http://spectrum.ic.gc.ca/~cert/labs/oats_lab_c_e.html

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

No modifications were made to the EUT.





APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

TUNECAST AUTO UNIVERSAL

Model: F8M066V2

S/N: 17

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

**FIGURE 1: PLOT MAP & LAYOUT OF TEST SITE
BELOW 1GHz**

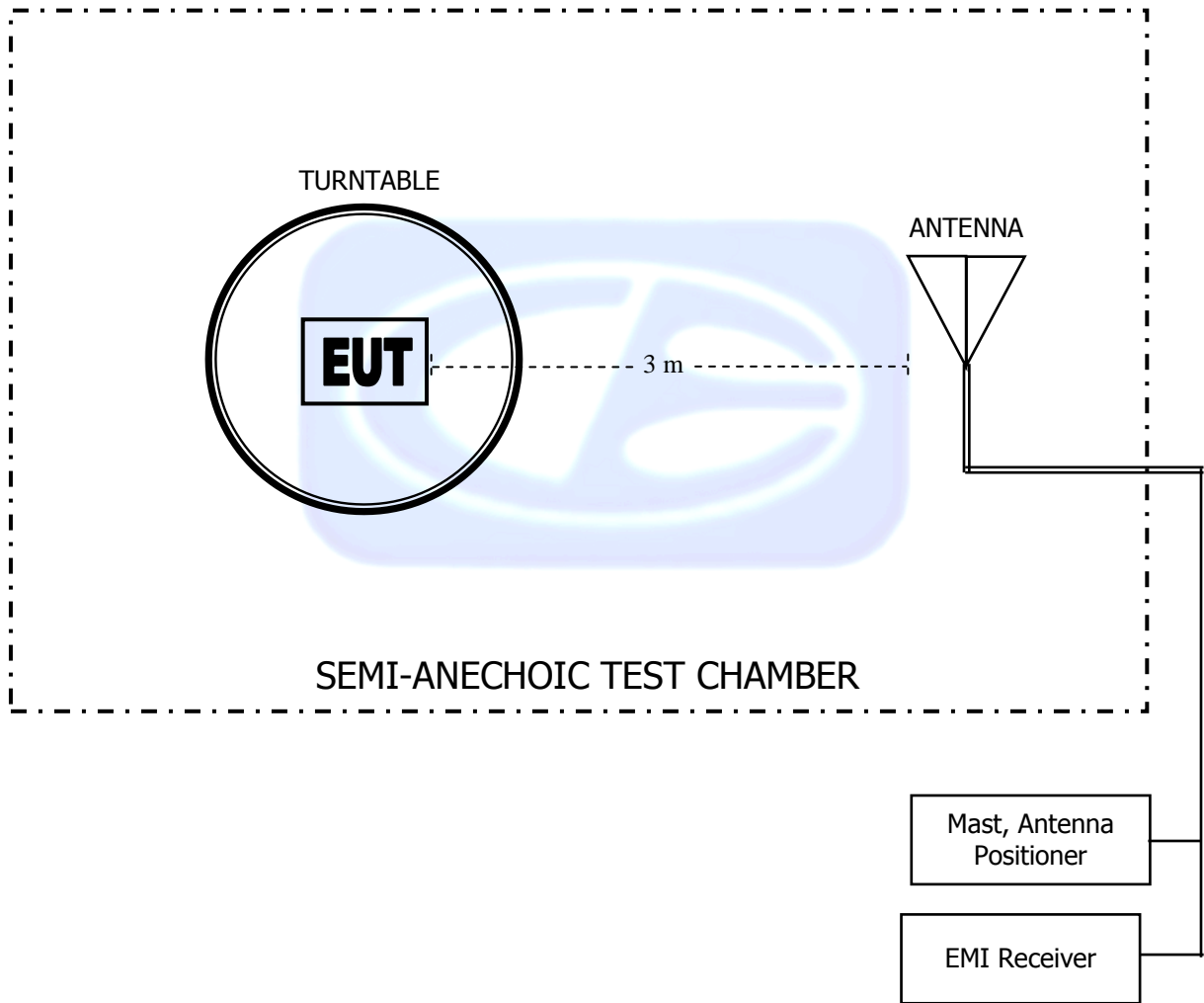
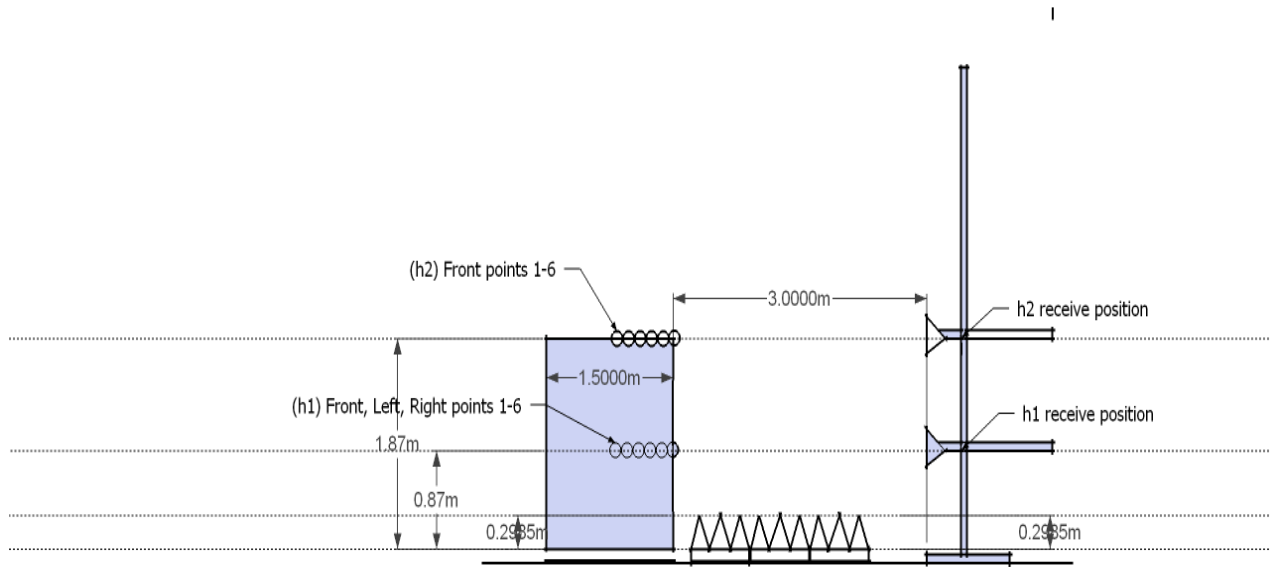


FIGURE 2: HIGH FREQUENCY TEST VOLUME



COM-POWER AL-130**LOOP ANTENNA**

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2015

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.64	16.86	0.8	-36.32	15.18
0.01	-34.78	16.72	0.9	-36.22	15.28
0.02	-35.91	15.59	1.0	-36.22	15.28
0.03	-35.48	16.02	2.0	-35.91	15.59
0.04	-35.82	15.68	3.0	-35.91	15.59
0.05	-36.49	15.01	4.0	-36.01	15.49
0.06	-36.30	15.20	5.0	-35.80	15.70
0.07	-36.43	15.07	6.0	-36.00	15.50
0.08	-36.30	15.20	7.0	-35.90	15.60
0.09	-36.39	15.11	8.0	-35.70	15.80
0.1	-36.41	15.09	9.0	-35.70	15.80
0.2	-36.61	14.89	10.0	-35.60	15.90
0.3	-36.63	14.87	15.0	-36.52	14.98
0.4	-36.52	14.99	20.0	-35.75	15.75
0.5	-36.63	14.87	25.0	-37.78	13.72
0.6	-36.62	14.88	30.0	-38.62	12.88
0.7	-36.53	14.97			

COM-POWER AC-220**LAB R - COMBILOG ANTENNA**

S/N: 25857

CALIBRATION DUE: MAY 21, 2015

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.5	160	13.8
35	22.5	180	14.5
40	22.5	200	15.0
45	23.0	250	14.6
50	21.5	300	18.1
60	21.3	400	15.6
70	18.2	500	21.4
80	13.2	600	21.6
90	11.6	700	23.7
100	11.9	800	26.0
120	12.6	900	26.6
140	15.2	1000	28.5

COM-POWER AH-118**HORN ANTENNA**

S/N: 071250

CALIBRATION DUE: JULY 1, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	30.1	9500	44.4
1500	29.5	10000	43.5
2000	31.9	10500	43.2
2500	35.8	11000	45.5
3000	33.6	11500	45.6
3500	36.4	12000	44.9
4000	35.8	12500	44.5
4500	36.2	13000	46.1
5000	40.2	13500	47.3
5500	38.7	14000	46.9
6000	39.5	14500	45.7
6500	39.9	15000	49.7
7000	41.1	15500	47.4
7500	43.8	16000	45.5
8000	41.3	16500	44.8
8500	43.1	17000	49.1
9000	43.4	17500	50.6
		18000	50.4



BACK VIEW

BELKIN INTERNATIONAL, INC.
TUNECAST AUTO UNIVERSAL
MODEL: F8M066V2
FCC SUBPART B AND C – RADIATED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



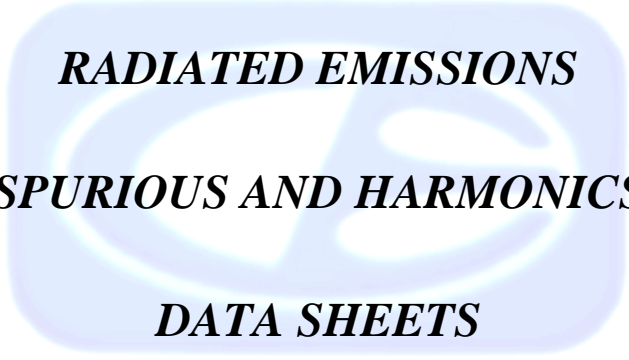
FRONT VIEW

BELKIN INTERNATIONAL, INC.
TUNECAST AUTO UNIVERSAL
MODEL: F8M066V2
FCC SUBPART B AND C – RADIATED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

DATA SHEETS

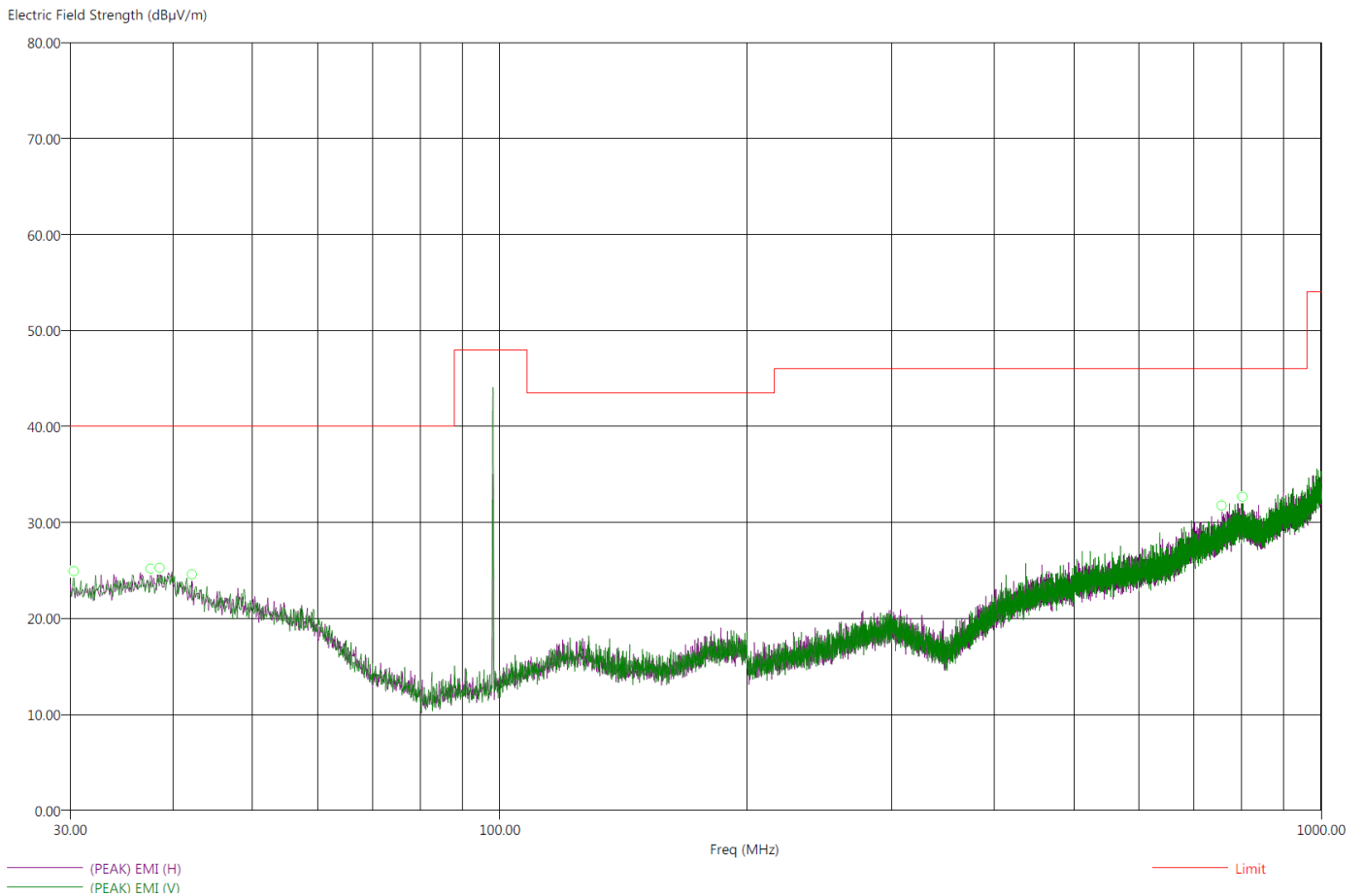


RADIATED EMISSIONS
SPURIOUS AND HARMONICS
DATA SHEETS

Title: FCC 15.239
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Torey Oliver
EUT Type: F8M066V2.
EUT Condition: Transmitting 98.1MHz.
Comments: Playing music from iPhone 5.
Temp: 73f
Hum: 46%
12VDC

9/5/2014 10:43:07 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB-R)



Note: No radiated emissions found between 9kHz & 30MHz or between 1000 and 1080MHz.

Title: FCC 15.239
 File: Radiated Final 30-1000Mhz.set
 Operator: Torey Oliver
 EUT Type: F8M066V2.
 EUT Condition: Transmitting 98.1MHz.
 Comments: Playing music from iPhone 5.
 Temp: 73f
 Hum: 46%
 12VDC

9/5/2014 11:08:03 AM
 Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (LAB-R)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBμV/m)	(PEAK) EMI (dBμV/m)	Limit (dBμV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable (dB)
30.30	-21.13	18.87	24.26	40.00	V	248.25	243.76	22.50	0.72
37.60	-20.01	19.99	25.4	40.00	H	311.00	291.40	22.50	1.17
38.50	-20.03	19.97	24.78	40.00	V	298.25	204.59	22.85	1.22
42.20	-21.69	18.31	22.90	40.00	H	223.25	353.73	23.22	1.00
757.50	-20.05	25.95	31.72	46.00	H	150.25	184.65	25.07	3.05
802.00	-19.01	26.99	31.89	46.00	V	0.00	132.35	26.00	3.27

Note: No radiated emissions found between 9kHz & 30MHz or between 1000 and 1080MHz.

-20 dB BANDWIDTH

DATA SHEETS

FCC 15.239

Company: Belkin Date: 9/5/2014
EUT: TuneCast Auto Lab: R
Model: F8M066V2, SN17 Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC- 3 (LAB R)

Freq (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
88.1	172.34	200	-27.66
98.1	161.32	200	-38.68
107.9	173.34	200	-26.66



Low Channel -20 dB Bandwidth Plot



	Delta 1 [T3]	RBW	10 kHz	RF Att	0 dB
Ref Lvl	7.53 dB	VBW	30 kHz		
72 dBV	172.34468938 kHz	SWT	15 ms	Unit	dBV

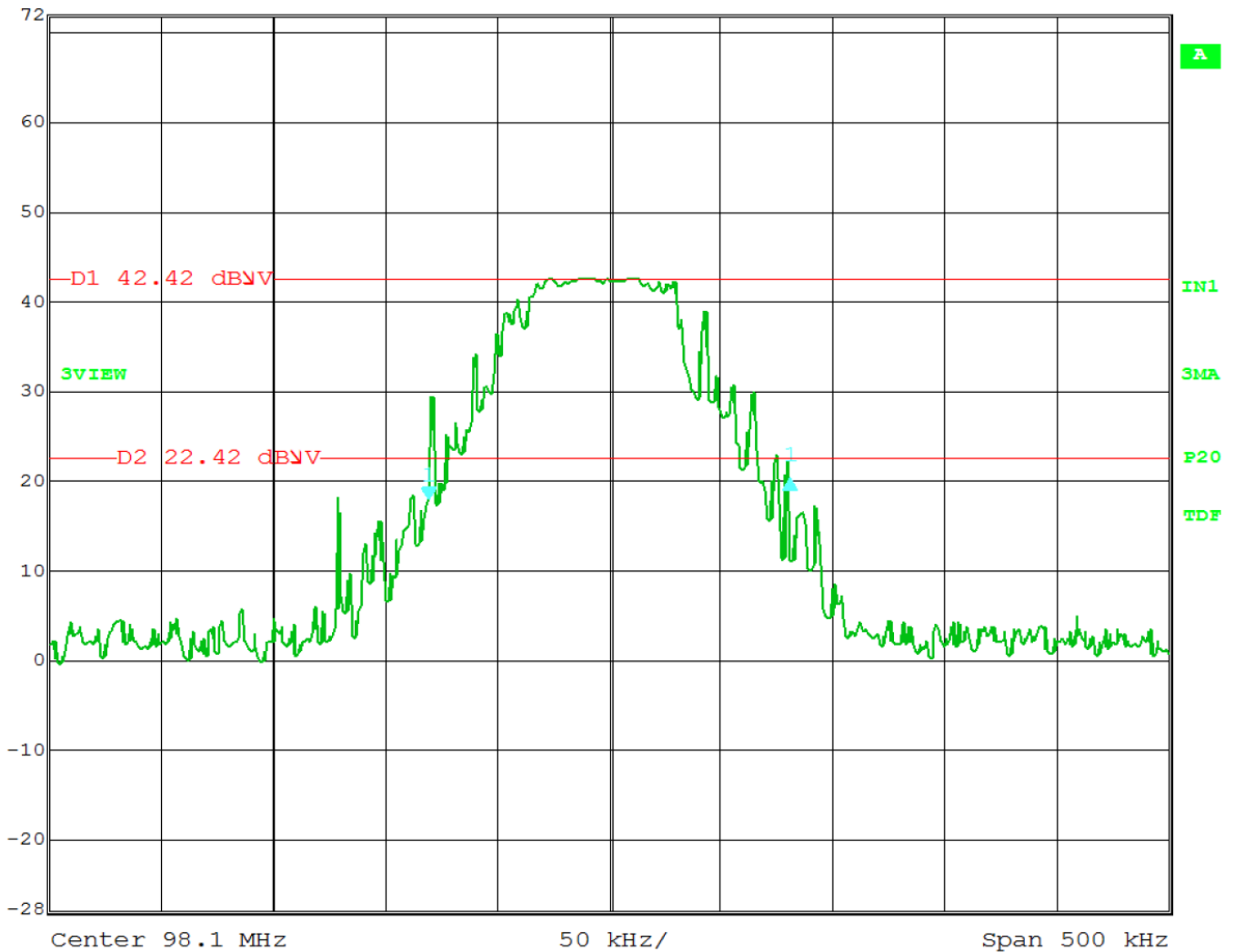


Title: F8M066V2.
 Comment A: OBW, 88.1MHz.
 Date: 5.SEP.2014 11:11:35

Mid Channel -20 dB Bandwidth Plot



Ref Lvl	Delta 1 [T3]	RBW	10 kHz	RF Att	0 dB
72 dBμV	2.28 dB	VBW	30 kHz	Unit	dBμV
	161.32264529 kHz	SWT	15 ms		

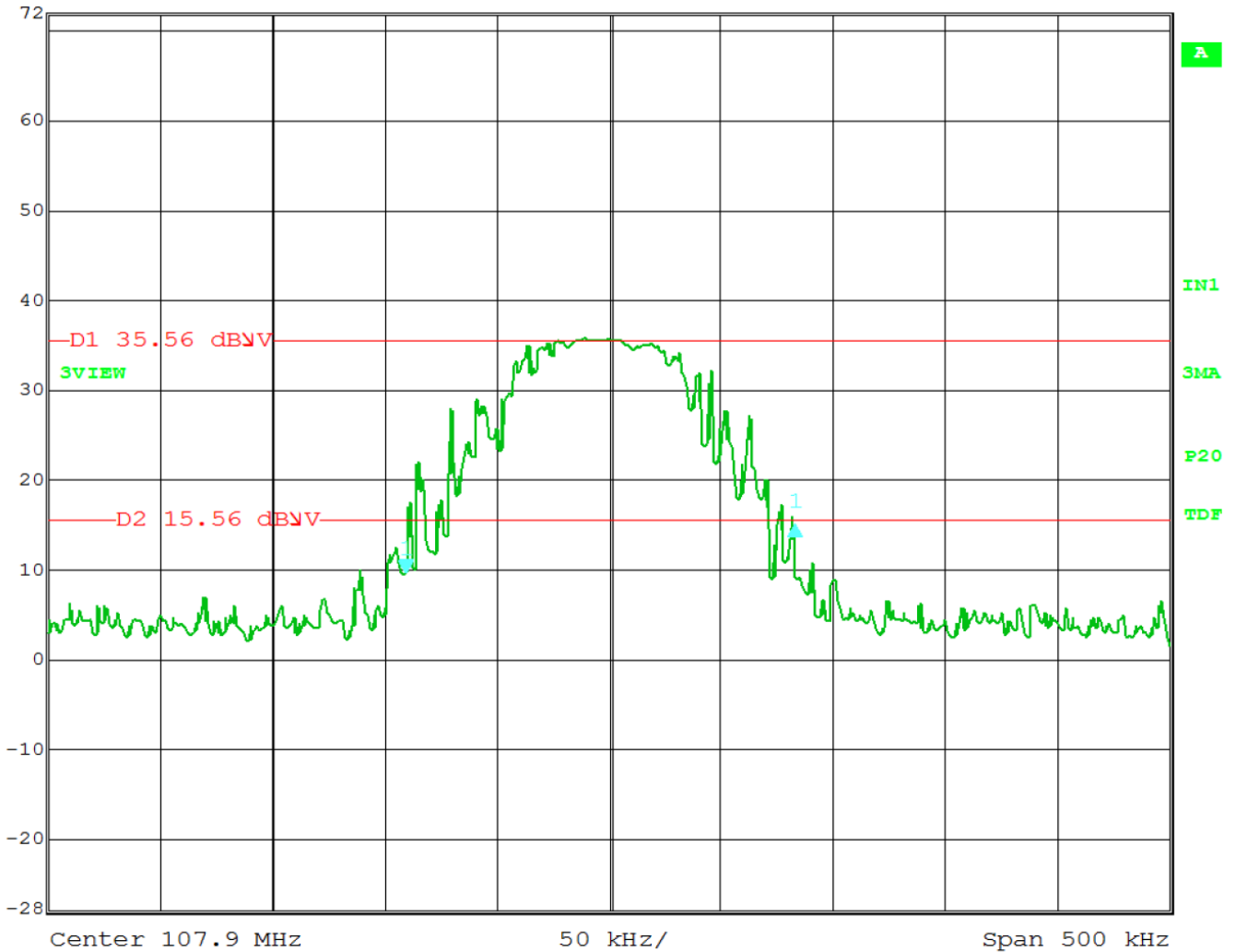


Title: F8M066V2
 Comment A: OBW98.1Mhz
 Date: 5.SEP.2014 09:43:30

High Channel -20 dB Bandwidth Plot



	Delta 1 [T3]	RBW	10 kHz	RF Att	0 dB
Ref Lvl	5.09 dB	VBW	30 kHz		
72 dBμV	173.34669339 kHz	SWT	15 ms	Unit	dBμV



Title: F8M066V2
 Comment A: OBW107.9Mhz
 Date: 5.SEP.2014 09:37:23

PEAK TRANSMIT EMI

DATA SHEETS

FCC 15.239

Company: Belkin
EUT: TuneCast Auto
Model: F8M066, SN17

Date: 9/5/2014
Lab: R
Test ENG: Torey Oliver

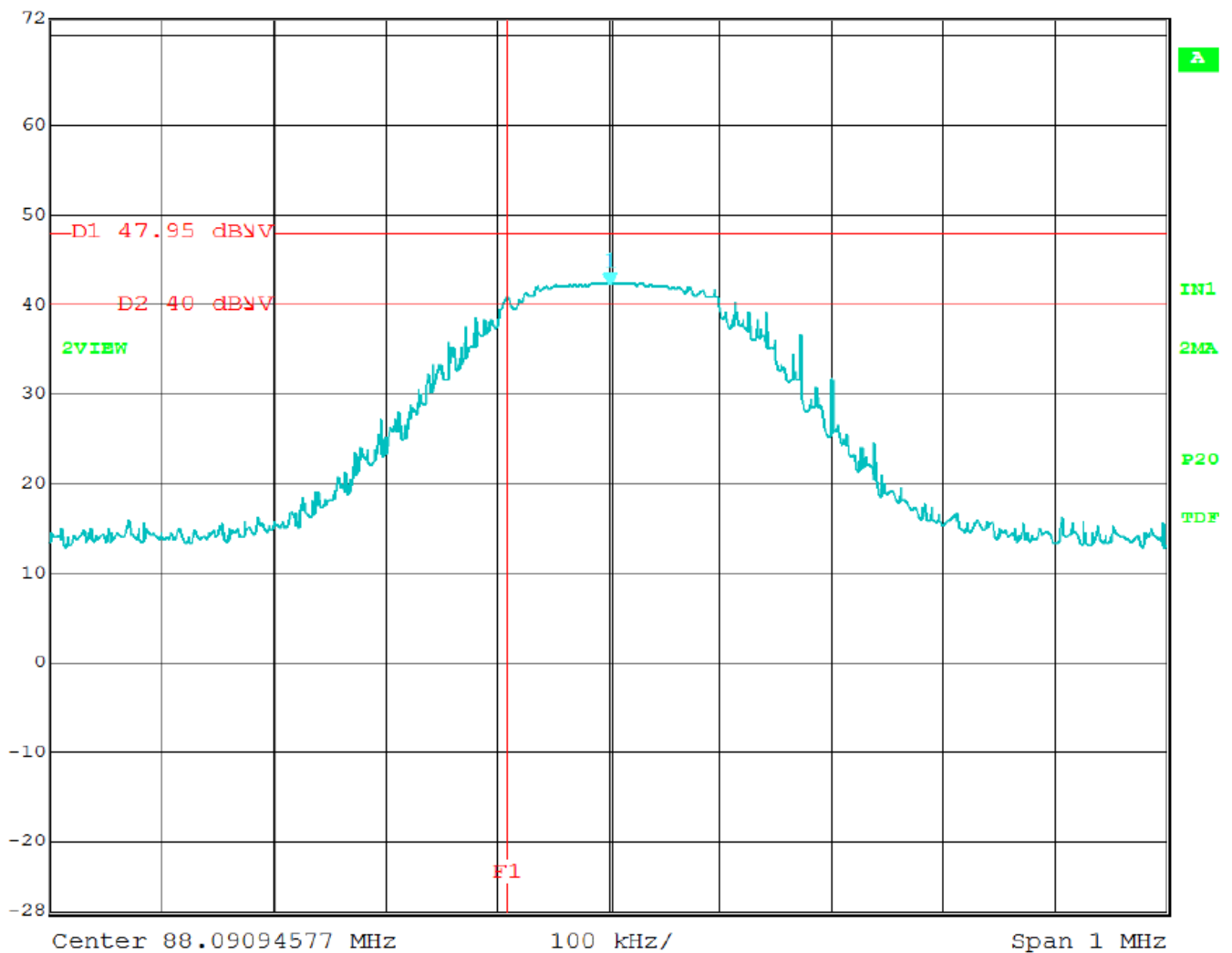
Compatible Electronics, Inc. FAC- 3 (LAB R)

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)
88.1	42.02	H	67.95	-25.93	Peak	3.6	180
88.1	41.14	H	47.95	-6.81	Avg	3.6	180
88.1	41.84	V	67.95	-26.11	Peak	1	140
88.1	40.89	V	47.95	-7.06	Avg	1	140
98.1	35.16	H	67.95	-32.79	Peak	1.66	360
98.1	33.96	H	47.95	-13.99	Avg	1.66	360
98.1	44.73	V	67.95	-23.22	Peak	1	140
98.1	44.03	V	47.95	-3.92	Avg	1	140
107.9	32.93	H	67.95	-35.02	Peak	3.76	360
107.9	31.25	H	47.95	-16.70	Avg	3.76	360
107.9	36.43	V	67.95	-31.52	Peak	1	210
107.9	35.09	V	47.95	-12.86	Avg	1	210

Low Channel Horizontal - Field Strength

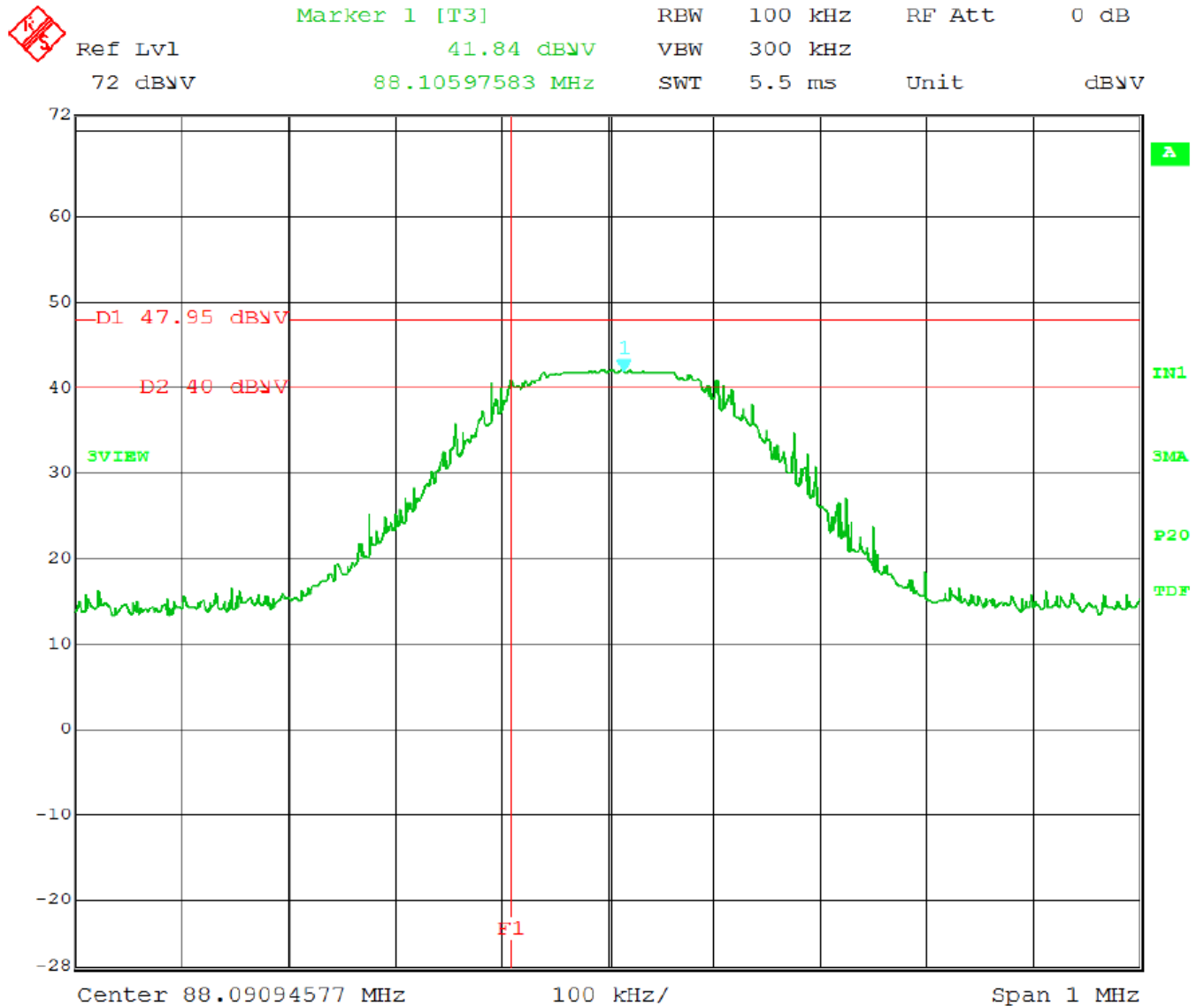


	Marker 1 [T2]	RBW	100 kHz	RF Att	0 dB
Ref Lvl	42.02 dBμV	VBW	300 kHz		
72 dBμV	88.09094577 MHz	SWT	5.5 ms	Unit	dBμV



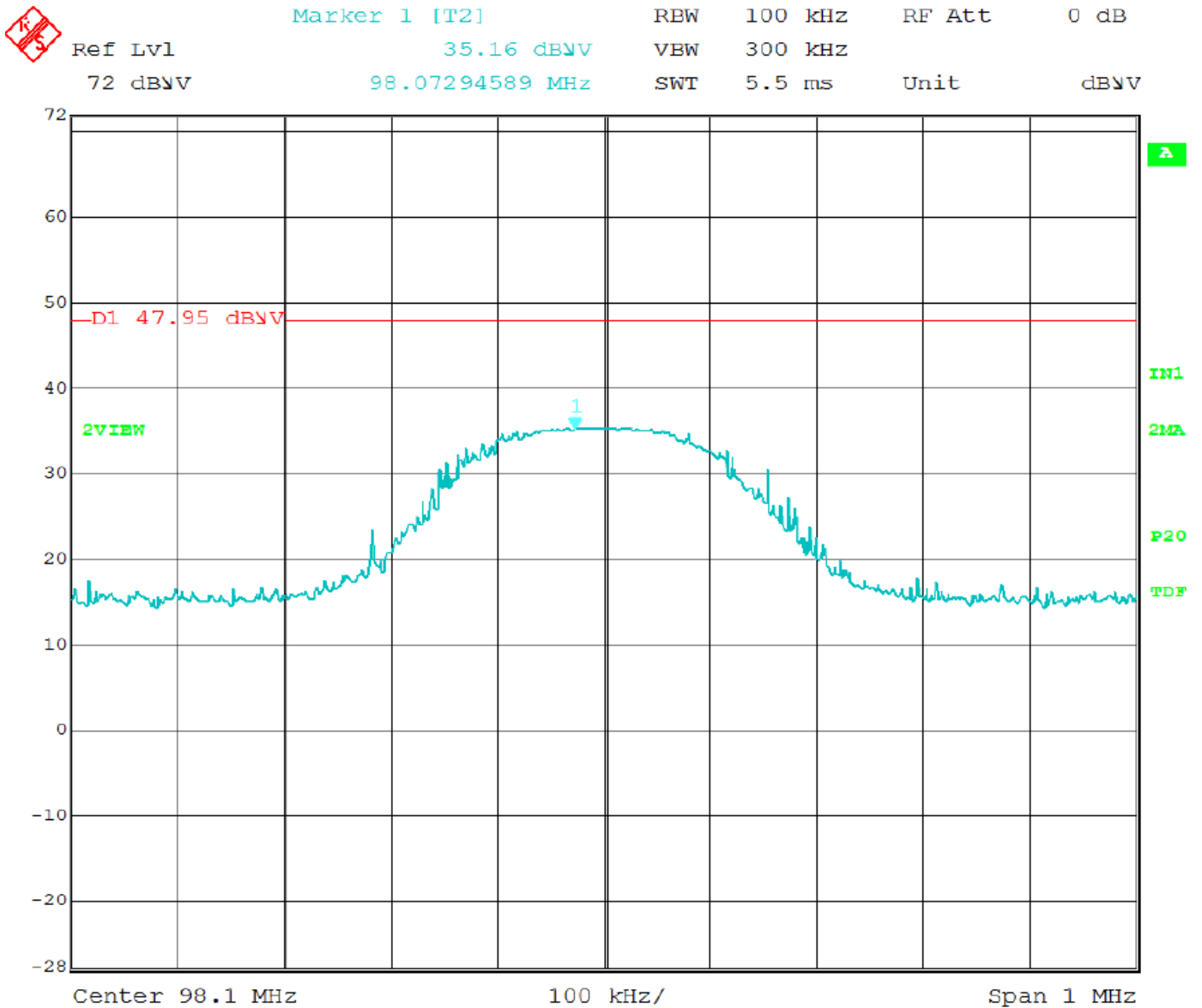
Title: F8M066V2
 Comment A: Field strength 88.1Mhz
 Date: 5.SEP.2014 08:34:18

Low Channel Vertical - Field Strength



Title: F8M066V2
 Comment A: Field strength 88.1Mhz V
 Date: 5.SEP.2014 08:49:04

Mid Channel Horizontal - Field Strength

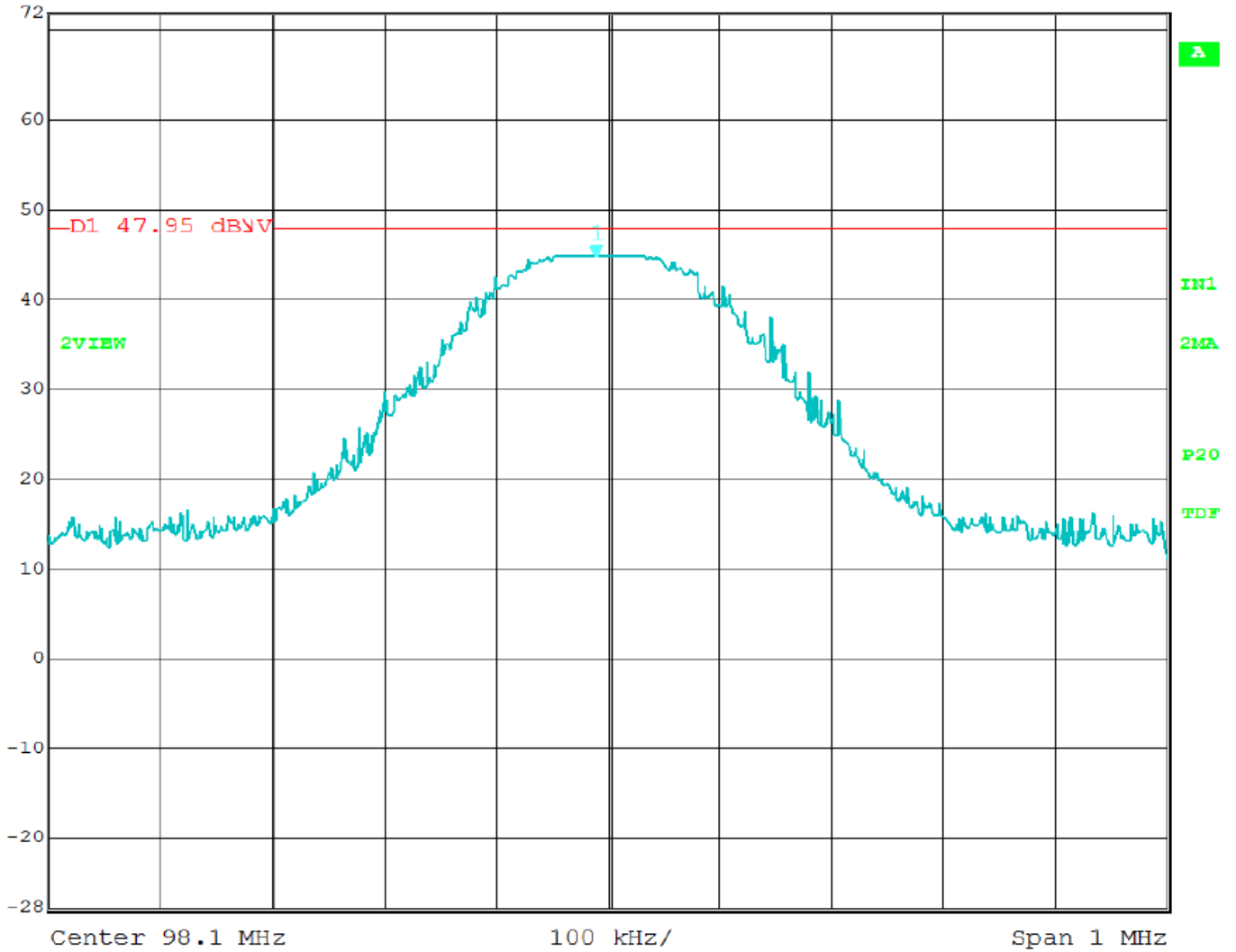


Title: F8M066V2
 Comment A: Field Strength 98.1Mhz H
 Date: 5.SEP.2014 09:07:10

Mid Channel Vertical - Field Strength

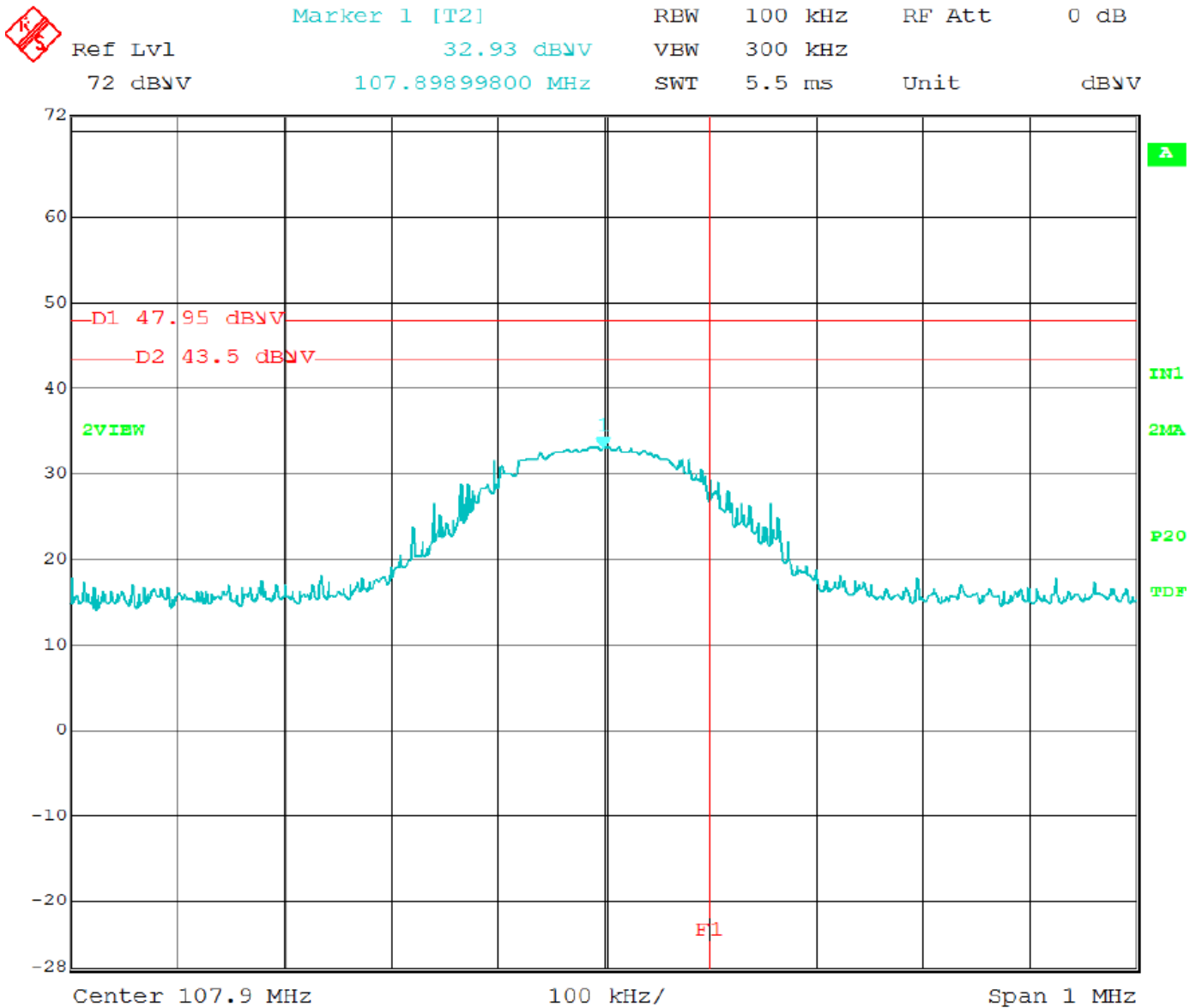


Marker 1 [T2] RBW 100 kHz RF Att 0 dB
Ref Lvl 44.73 dBV VEW 300 kHz
72 dBV 98.08897796 MHz SWT 5.5 ms Unit dBV



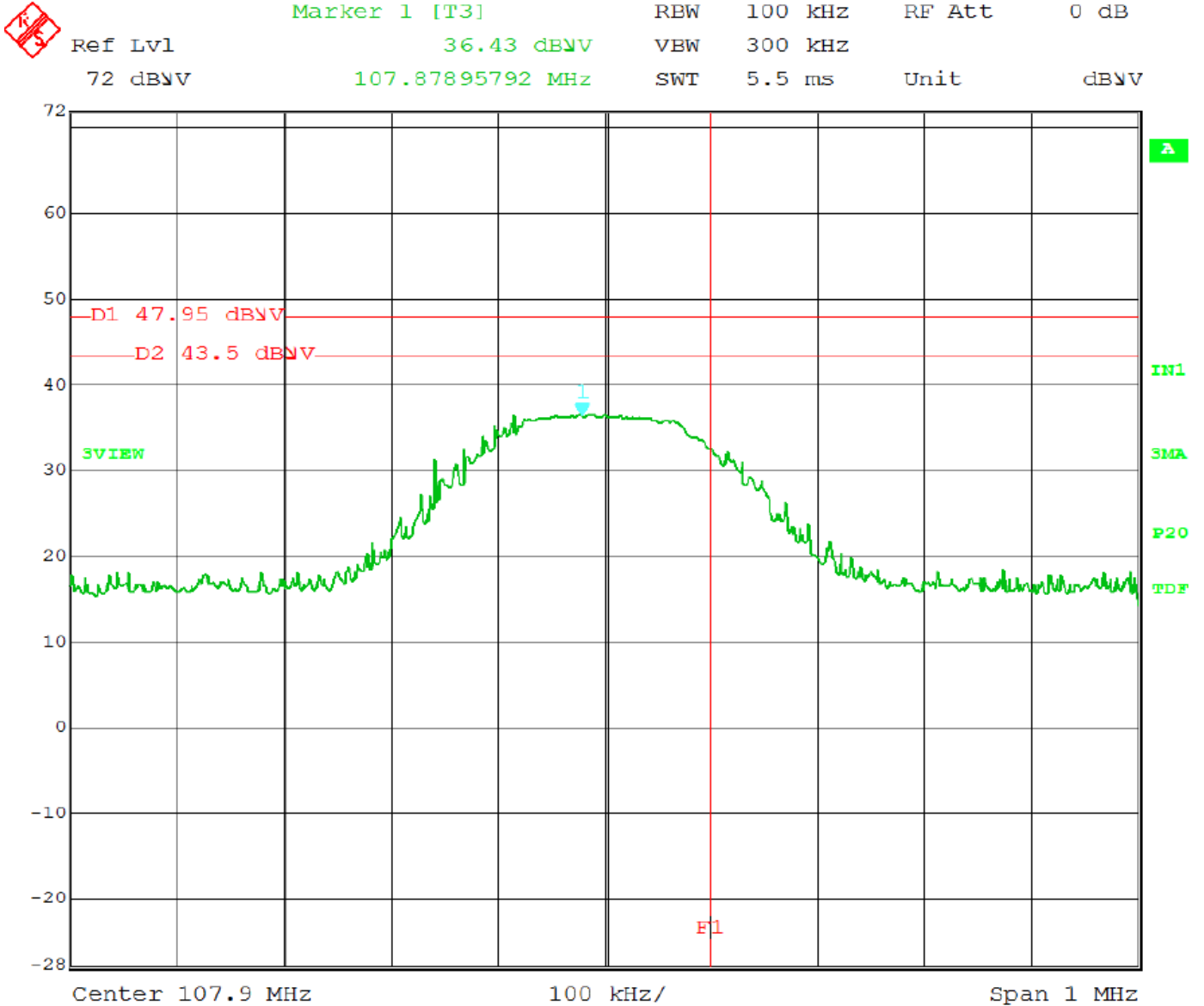
Title: F8M066V2
Comment A: Field Strength 98.1Mhz V
Date: 5.SEP.2014 09:10:48

High Channel Horizontal – Field Strength

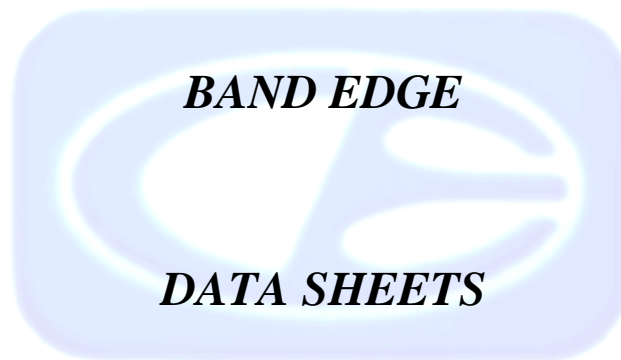


Title: F8M066V2
 Comment A: Field Strength 107.9Mhz H
 Date: 5.SEP.2014 09:19:00

High Channel Vertical – Field Strength



Title: F8M066V2
 Comment A: Field Strength 107.9 V
 Date: 5.SEP.2014 09:26:26

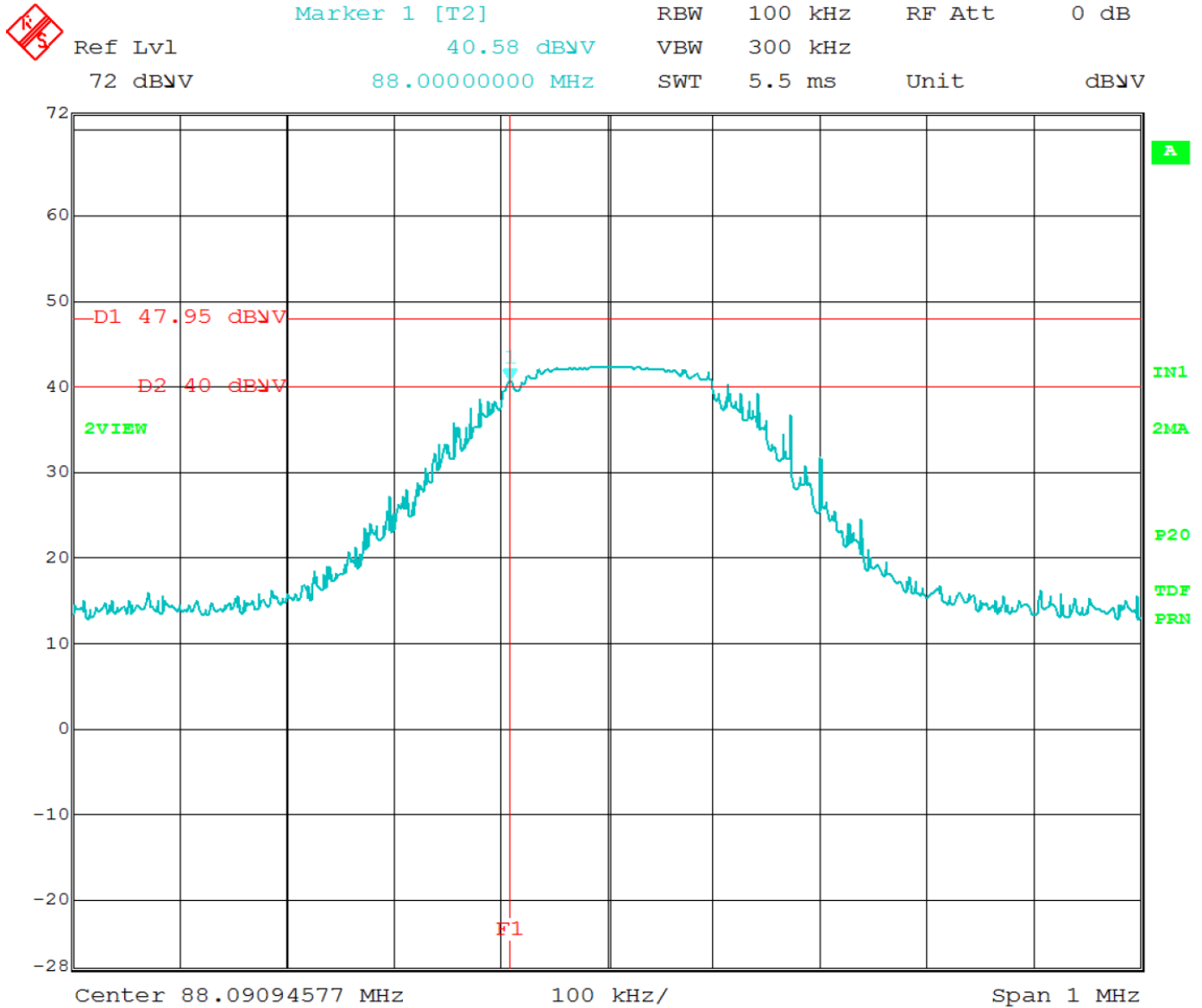


FCC 15.239Company: Belkin
EUT: TuneCast Auto
Model: F8M066V2Date: 9/5/2014
Lab: Lab R
Test ENG: Torey Oliver**Compatible Electronics, Inc. FAC- 3 (LAB R)**

Freq (MHz)	Peak EMI (dBμV/m)	QP EMI (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol (H/V)	Ant. Height (m)	Table Angle (deg)
88.00	40.58	37.13	40.00	-2.87	H	3.6	180
87.99	40.76	35.44	40.00	-4.56	V	1	140
108.00	29.17	26.60	43.50	-16.90	H	3.76	360
108.00	33.94	29.74	43.50	-13.76	V	1	210

Note: The Highest Band Edge Levels Are Represented.

Low Channel Horizontal – Band Edge

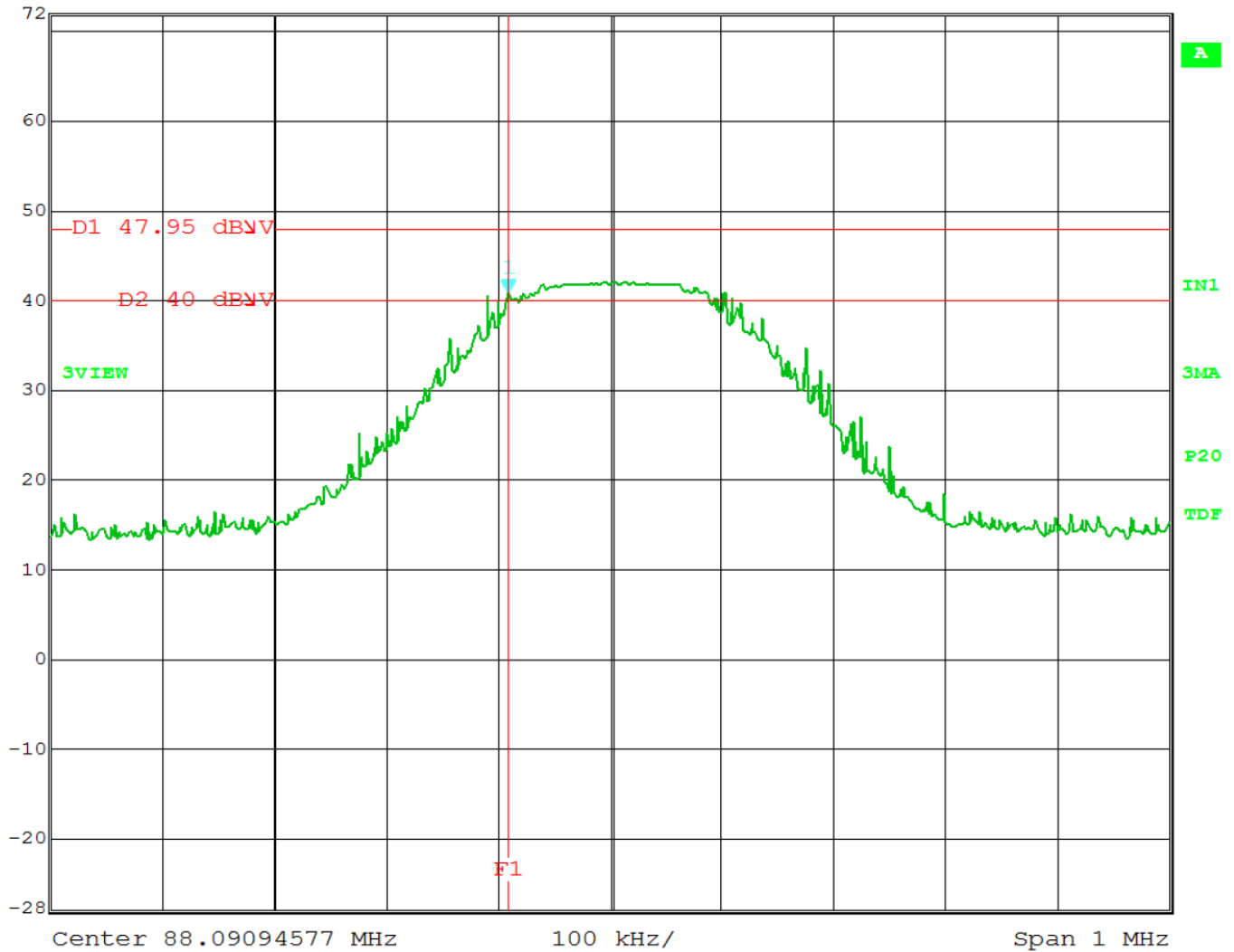


Title: F8M066V2
 Comment A: LBE 88.1Mhz H
 Date: 5.SEP.2014 08:36:03

Low Channel Vertical – Band Edge



Marker 1 [T3] RBW 100 kHz RF Att 0 dB
 Ref Lvl 40.76 dBV VBW 300 kHz
 72 dBV 87.99976340 MHz SWT 5.5 ms Unit dBV

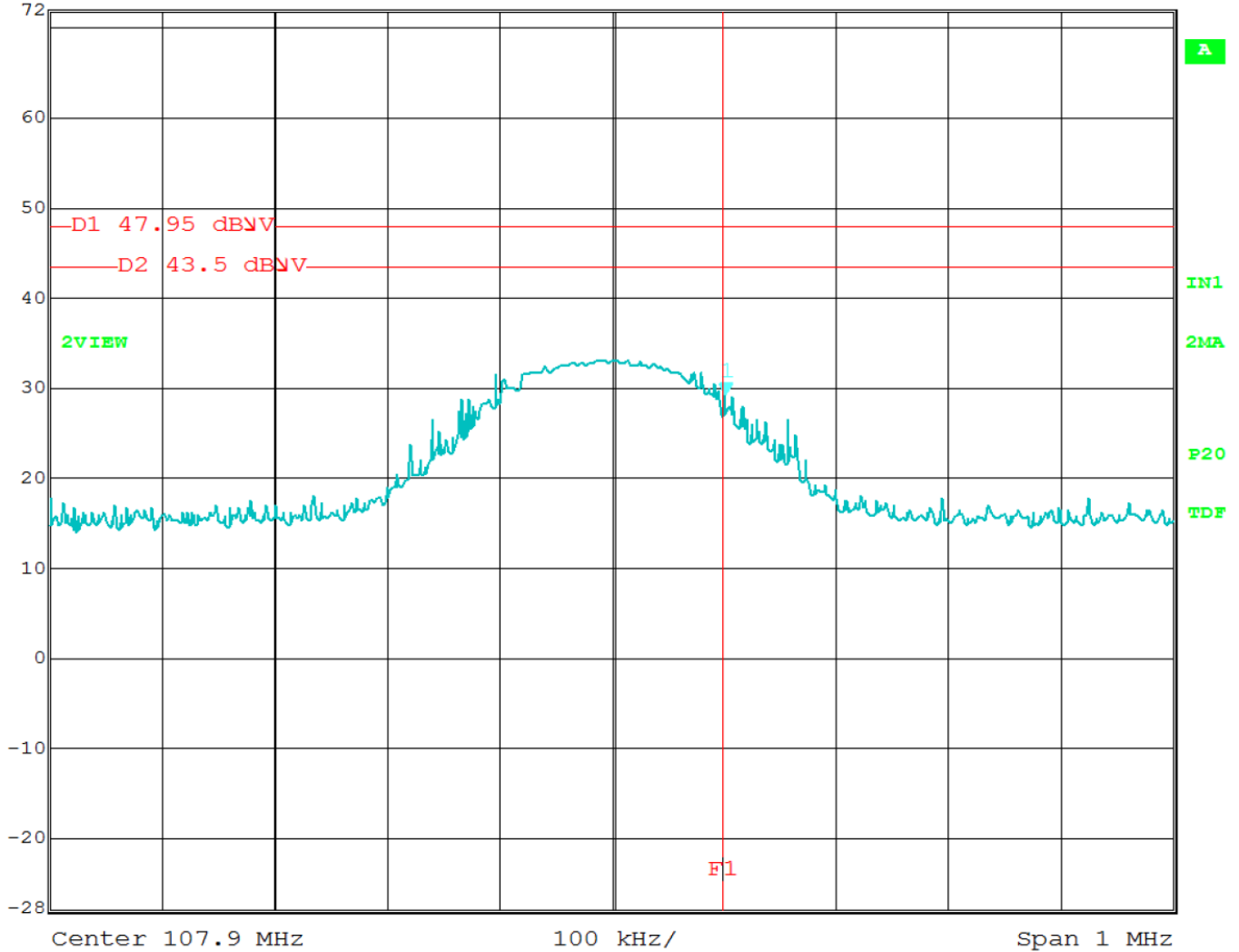


Title: F8M066V2
 Comment A: LBEV
 Date: 5.SEP.2014 08:51:14

High Channel Horizontal – Band Edge

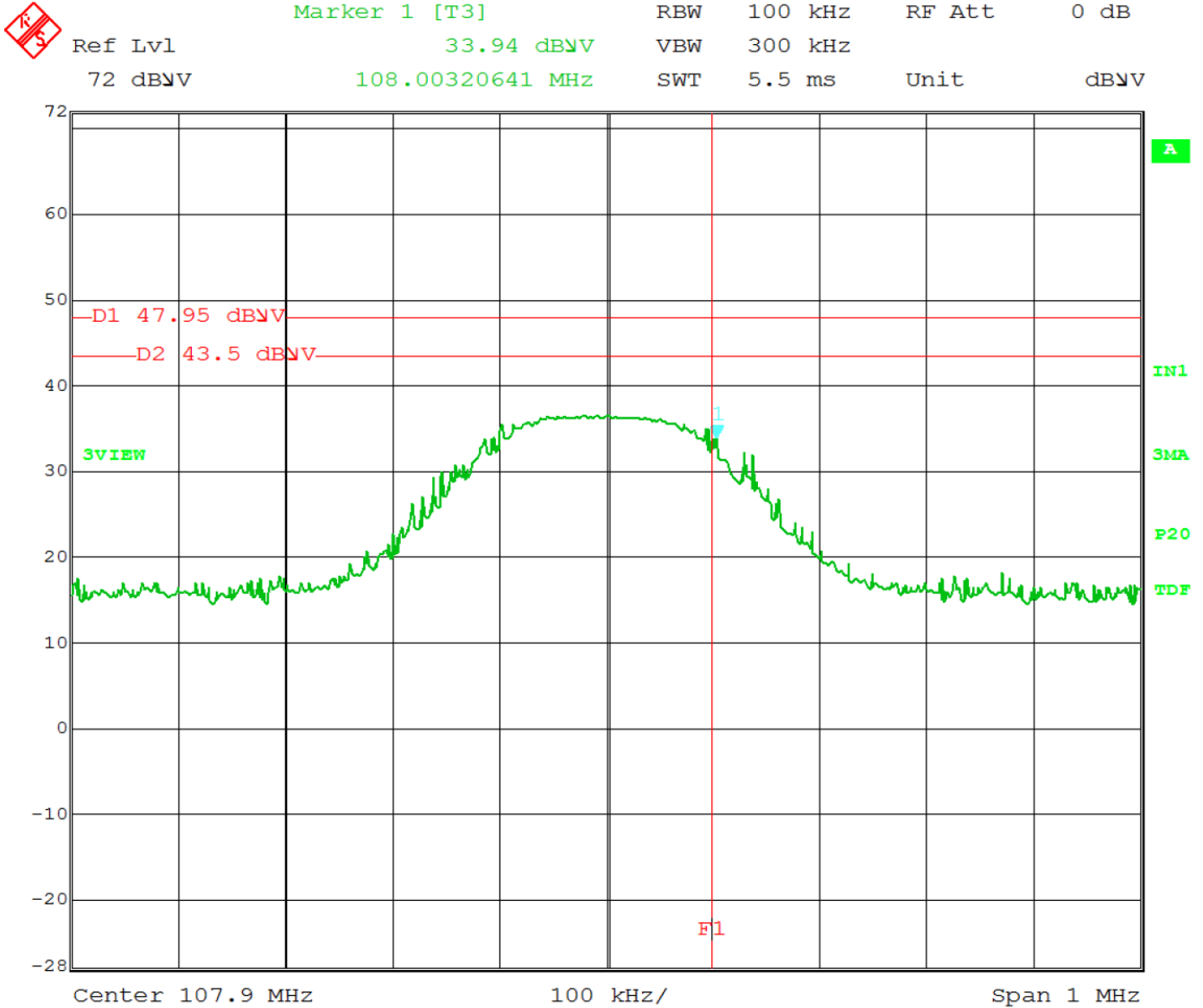


Marker 1 [T2] RBW 100 kHz RF Att 0 dB
 Ref Lvl 29.17 dBV VBW 300 kHz
 72 dBV 108.00120240 MHz SWT 5.5 ms Unit dBV



Title: F8M066V2
 Comment A: UBEH
 Date: 5.SEP.2014 09:20:45

High Channel Vertical – Band Edge



Title: F8M066V2
 Comment A: UBEV
 Date: 5.SEP.2014 09:29:18