FCC PART 15 SUBPART B & C
TEST REPORT

for

SONGSTREAM BT

Model: F8Z492V2

Prepared for

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

Prepared by:_____

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DATE: JUNE 3, 2014

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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 in any form unless done so in full with the written permission of Compatible Electronics.

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:	SongStream BT Model: F8Z492V2 S/N: N/A
Product Description:	The EUT is a Bluetooth to Audio Output music adapter.
Modifications:	The EUT was not modified during testing.
Manufacturer:	Belkin International, Inc. 12045 East Waterfront Dr Playa Vista, CA 90094
Test Dates:	May 8, 27, June 8, August 7, & November 13, 2014
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, & Subpart C Sections 15.205, 15.207, 15.209 & 15.247.
Test Procedure:	ANSI C63.4 & C63.10, and DA 00-705.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B, Section 15.107 and Subpart C Sections 15.207
2	Radiated RF Emissions & Harmonics, 9 kHz – 25,000 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B, Section 15.109 and Subpart C Sections 15.205, 15.209
3	20dB Bandwidth	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
4	Maximum Peak Conducted Output Power	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
5	Spurious Emissions Conducted	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
6	Emissions in the Restricted Bands	Complies with CFR Title 47 Part 15 Subpart C Section 15.205
7	Carrier Frequency Separation	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
8	Time Of Occupancy	Complies with CFR Title 47 Part 15 Subpart C Section 15.247

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the SongStream BT Model: F8Z492V2. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10 & C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109, & Subpart C sections 15.205, 15.207, 15.209 and 15.247.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The 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	Regulatory Compliance Engineer

Compatible Electronics Inc.

Matt Harrison	Test Technician
Jeff Klinger	Director of Engineering

2.4 Date Test Sample was Received

The test sample was received on May 8, 2014.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics 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
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
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this 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 Testing Unlicensed Wireless Devices
DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The SongStream BT Model: F8Z492V2 (EUT) was setup in a tabletop configuration. The EUT was connected to the iPhone, Power Supply, and speakers via Bluetooth, 3.5mm Phone Jack cable and barrel connection respectively. The EUT was checked in all 3-Axes. The worst case was found to be X-Axis. The EUT was continuously transmitting a data stream during testing.

The voltage was varied ±15%; the transmitting signal amplitude and frequency did not vary.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

4.1.1 Photograph Test Configuration

4.1.2 Cable Construction and Termination

Cable 1

This is a 2-meter, unshielded round cable. The cable connects the EUT to the Output Speakers. It is hardwired at the speaker end and has a 3.5mm Phone Jack at the EUT end. The cable was bundled to a length of 1 meter.

Cable 2

This is a 2-meter, unshielded round cable. The cable connects the EUT to the Power Supply. It is hardwired at the Power Supply end and has a barrel connector at the EUT end. The cable was bundled to a length of 1 meter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	SONGSTREAM BT(EUT)	BELKIN INTERNATIONAL, INC.	F8Z492V2	N/A
2	POWER SUPPLY	BELKIN INTERNATIONAL, INC.	DSC-3PFB-05 FUS 050020	NONE
3	OUTPUT SPEAKERS	SUN	CP 55	NONE

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100219	9/19/2013	9/19/2014
Antenna, Loop	Com Power	AL-130	121049	12/6/2013	12/6/2015
Antenna, CombiLog	Com Power	AC-220	25857	4/16/2013	4/16/2015
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	7/3/2012	7/3/2014
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	7/1/2014	7/1/2016
Antenna, Horn 18-26 GHz	Com Power	AH-826	081033	NCR	NCR
Pre-Amp, 1-18GHz	Com Power	PAM-118	443013	4/24/2014	4/24/2015
Pre-Amp, 1-18GHz	Com Power	PAM-118	443011	4/24/2014	4/24/2015
Pre-Amp, 18-40GHz	Com Power	PA-840	181289	6/16/2014	6/16/2015
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	6/4/2014	6/4/2015
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Turntable	Sunol Science Corporation	FM2011VS	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A
LISN	Com-Power	LI-150	191935	3/17/2014	3/17/2015

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 by 0.8 meter high non-conductive table, which was placed on the ground plane.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

The FHSS uses 79 channels using a pseudo random technique with an average time of occupancy of 0.174mS. It uses GFSK modulation. The channels are separated by 1MHz.

1 == 2402 MHz
2 == 2403 MHz
3 == 2404 MHz
4 == 2405 MHz…

7.2 Antenna

The antenna is made up of a PCB Trace which is located on the PCB.

8. TEST PROCEDURES

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

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.107, & Subpart C section 15.207. The Six Highest emissions are listed in table 1.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The Rohde &Schwarz 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. Amplifiers were used to increase the sensitivity of the instrument. There was two Microwave Preamplifier used for frequencies above 1 GHz.

For emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz
1000 to 25000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4 and 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. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109, & Subpart C sections 15.205, 15.209 and 15.247. The Six Highest emissions are listed in table 2.

8.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED AC EMISSION RESULTS
SongStream BT Model: F8Z492V2

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.33 L	45.90 A	49.55	-3.65
0.34 L	44.75 A	49.15	-4.41
0.33 N	38.08 A	49.35	-11.27
0.36 L	35.58 A	48.77	-13.19
0.67 L	31.67 A	46.00	-14.33
0.91 L	31.49 A	46.00	-14.51

Table 2.0 RADIATED EMISSION RESULTS
SongStream BT Model: F8Z492V2

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
192.10 V	29.79 #	43.52	-13.73
184.00 V	29.47 #	43.52	-14.05
188.00 V	27.30 #	43.52	-16.22
40.30 V	22.94 #	40.00	-17.06
40.10 H	22.90 #	40.00	-17.10
37.70 V	22.41 #	40.00	-17.59

Notes:

* The complete emissions data is given in Appendix E of this report.

** The factors for the antenna and preamplifier gain are attached in Appendix D of this report.

\# Quasi-Peak Reading

A Average Reading

8.1.4 20dB Bandwidth

The 20dB Bandwidth was measured directly connected to the EMI Receiver using a RBW set to 1% of the 20dB Bandwidth and a VBW of 3 times greater than RBW. A peak detector and a max hold trace were used with auto sweep time. The trace was allowed to fully maximize. We measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission. The automatic bandwidth measurement capability of the EMI Receiver was employed using the n dB bandwidth mode with n set to 20 dB. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247.

8.1.5 Maximum Peak Conducted Output Power

The maximum peak conducted output power was measured using an EMI Receiver. The Receiver used a resolution bandwidth that is greater than the 20dB bandwidth and a video bandwidth greater than 3 x RBW. Sweep time was set to auto with a peak detector using the max hold function of the EMI Receiver. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.247.

8.1.6 Spurious RF Conducted Emissions

The Spurious RF Conducted Emissions measurements were performed using the EMI Receiver directly connected to the EUT. A reference level was established by setting the instrument center frequency to the channel center frequency. The RBW was 100 kHz and VBW 300 kHz. A peak detector was used with a sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20dB below that was the reference level. For Emission Level Measurement the center frequency and span were set to encompass the frequency range to be measured. The number of measurement points were greater than span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247.

8.1.7 Emissions in the Restricted Bands (Radiated)

The Emissions in the Restricted Bands measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4 and 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. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205.

8.1.8 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was performed using the EMI Receiver with a direct connection to the EUT to obtain the final test data. The low and high channels were tuned to during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.247.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The SongStream BT Model: F8Z492V2 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B section 15.109 & 15.107, & Subpart C sections 15.205, 15.207, 15.209 and 15.247.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

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.

NVLAP listing links
Agoura Division - http://ts.nist.gov/Standards/scopes/2000630.htm
Brea Division - http://ts.nist.gov/Standards/scopes/2005280.htm
Silverado/Lake Forest Division - http://ts.nist.gov/Standards/scopes/2005270.htm

ANSI listing
CETCB
https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

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).

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

VCCI Listing, from VCCI site
Enter "Compatible" in search form http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html

FCC Listing, from FCC OET site
FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Industry Canada Industrie Canada
Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	SONGSTREAM BT Model: F8Z492V2 S/N: N/A

No additional models were tested.

APPENDIX D

DIAGRAMS, FACTORS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

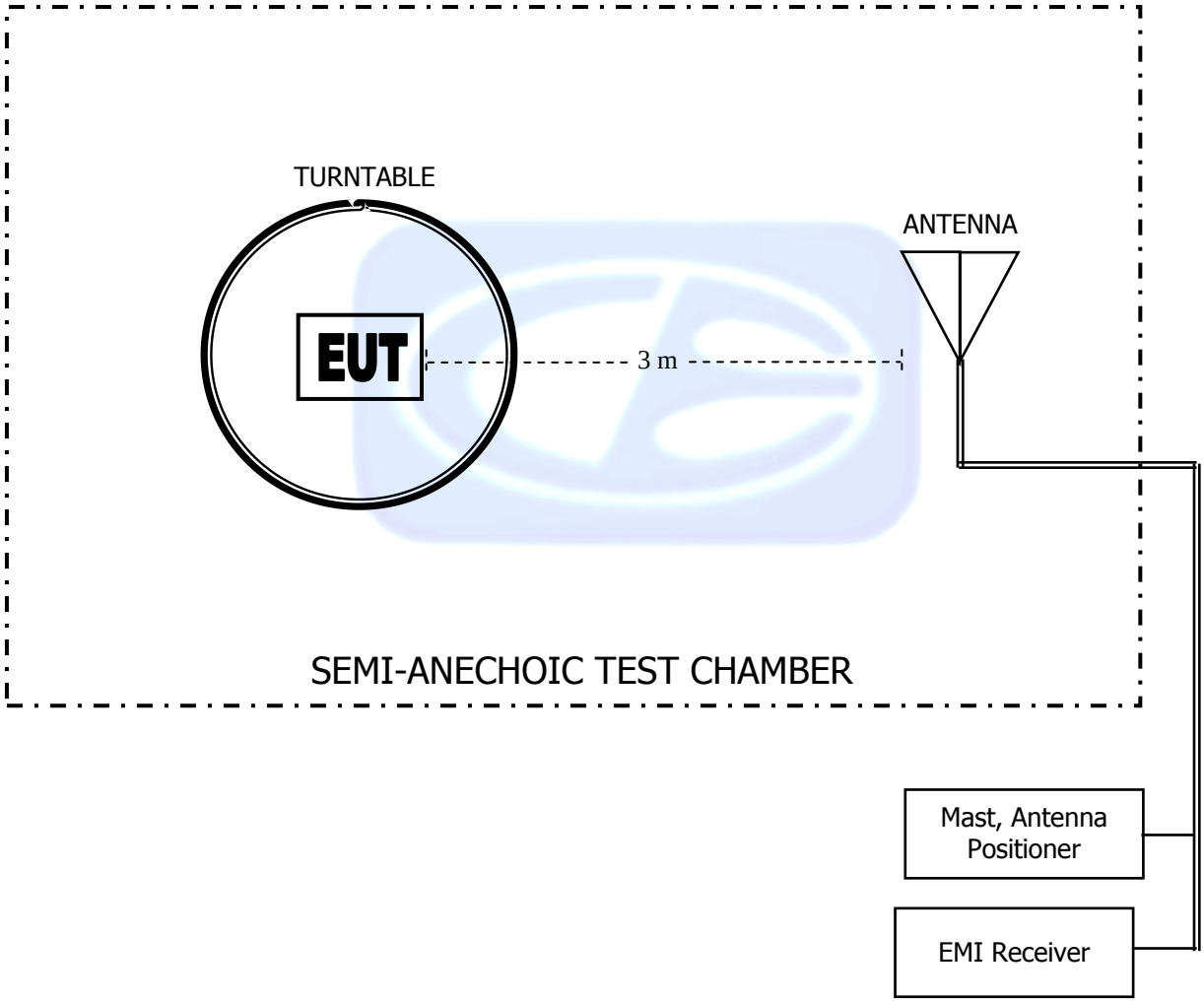


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ

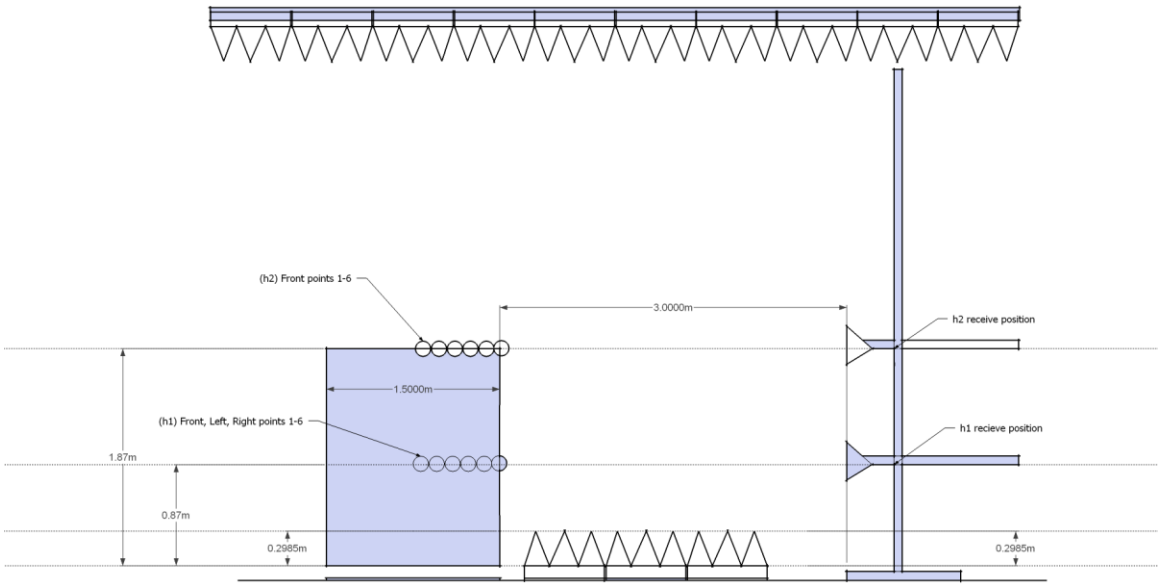
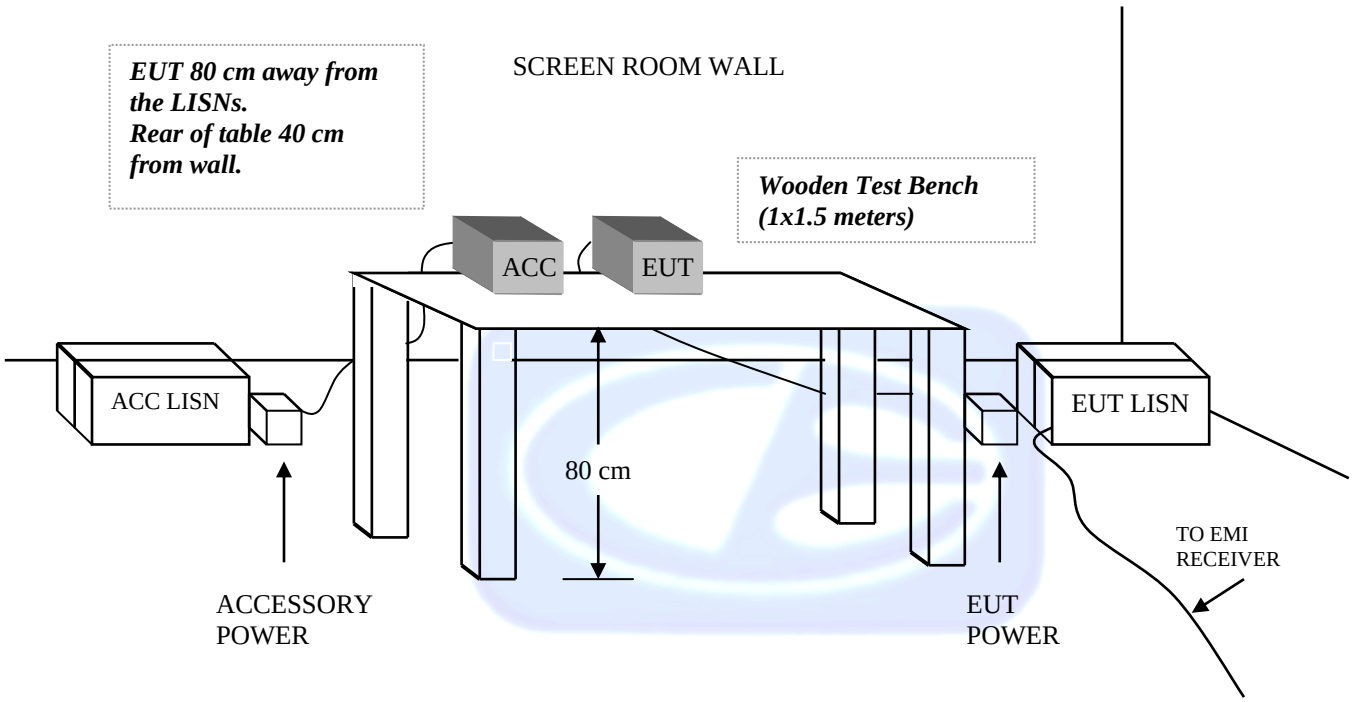


FIGURE 3: CONDUCTED EMISSIONS TEST SETUP



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: APRIL 16, 2015

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	17.8	**160**	8.3
35	18.4	**180**	9.4
40	19.2	**200**	9.0
45	17.2	**250**	12.0
50	17.2	**300**	13.4
60	13.5	**400**	15.0
70	8.9	**500**	17.3
80	6.0	**600**	17.8
90	7.1	**700**	20.0
100	8.0	**800**	20.5
120	9.2	**900**	20.8
140	7.5	**1000**	22.4

COM-POWER AH-118

HORN ANTENNA

S/N: 071250

CALIBRATION DUE: JULY 3, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	26.5	**9500**	40.4
1500	27.2	**10000**	40.3
2000	31.5	**10500**	41.7
2500	31.9	**11000**	42.1
3000	32.7	**11500**	42.3
3500	34.0	**12000**	42.6
4000	33.5	**12500**	41.4
4500	34.9	**13000**	42.7
5000	36.2	**13500**	43.6
5500	36.6	**14000**	42.4
6000	36.8	**14500**	42.7
6500	37.4	**15000**	45.4
7000	39.4	**15500**	45.1
7500	39.6	**16000**	42.9
8000	42.4	**16500**	44.0
8500	40.3	**17000**	46.8
9000	39.6	**17500**	47.5
		18000	46.6

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**	44.2
1500	29.2	**10000**	43.4
2000	31.6	**10500**	44.6
2500	35.5	**11000**	45.1
3000	33.7	**11500**	45.7
3500	36.0	**12000**	46.2
4000	35.4	**12500**	45.4
4500	35.5	**13000**	44.8
5000	40.1	**13500**	46.7
5500	37.8	**14000**	47.8
6000	39.0	**14500**	46.4
6500	39.9	**15000**	47.2
7000	40.4	**15500**	45.5
7500	44.4	**16000**	45.0
8000	44.1	**16500**	44.5
8500	43.1	**17000**	47.0
9000	43.0	**17500**	47.8
		18000	44.2

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443013

CALIBRATION DUE: APRIL 24, 2015

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	26.32	**5500**	25.55
1000	24.72	**6000**	25.54
1100	25.89	**6500**	24.57
1200	25.41	**7000**	23.51
1300	26.28	**7500**	23.59
1400	25.94	**8000**	23.32
1500	25.59	**8500**	22.76
1600	26.95	**9000**	23.15
1700	25.52	**9500**	24.41
1800	25.75	**10000**	25.71
1900	26.00	**11000**	26.07
2000	25.38	**12000**	26.17
2500	26.06	**13000**	24.72
3000	26.24	**14000**	23.19
3500	25.82	**15000**	25.42
4000	26.04	**16000**	25.07
4500	25.96	**17000**	24.24
5000	26.02	**18000**	24.92

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443011

CALIBRATION DUE: April 24, 2015

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
0.500	27.01	**7.000**	23.96
1.000	25.68	**7.500**	24.28
1.500	26.55	**8.000**	24.33
2.000	26.16	**8.500**	24.42
2.500	27.21	**9.500**	25.89
3.000	26.46	**10.000**	27.73
3.500	26.52	**11.000**	28.36
4.000	27.67	**12.000**	27.21
4.500	26.32	**13.000**	27.69
5.000	26.90	**14.000**	25.94
5.500	26.72	**15.000**	24.27
6.000	26.48	**16.000**	27.22
6.500	27.12	**17.000**	26.12
		18.000	25.96

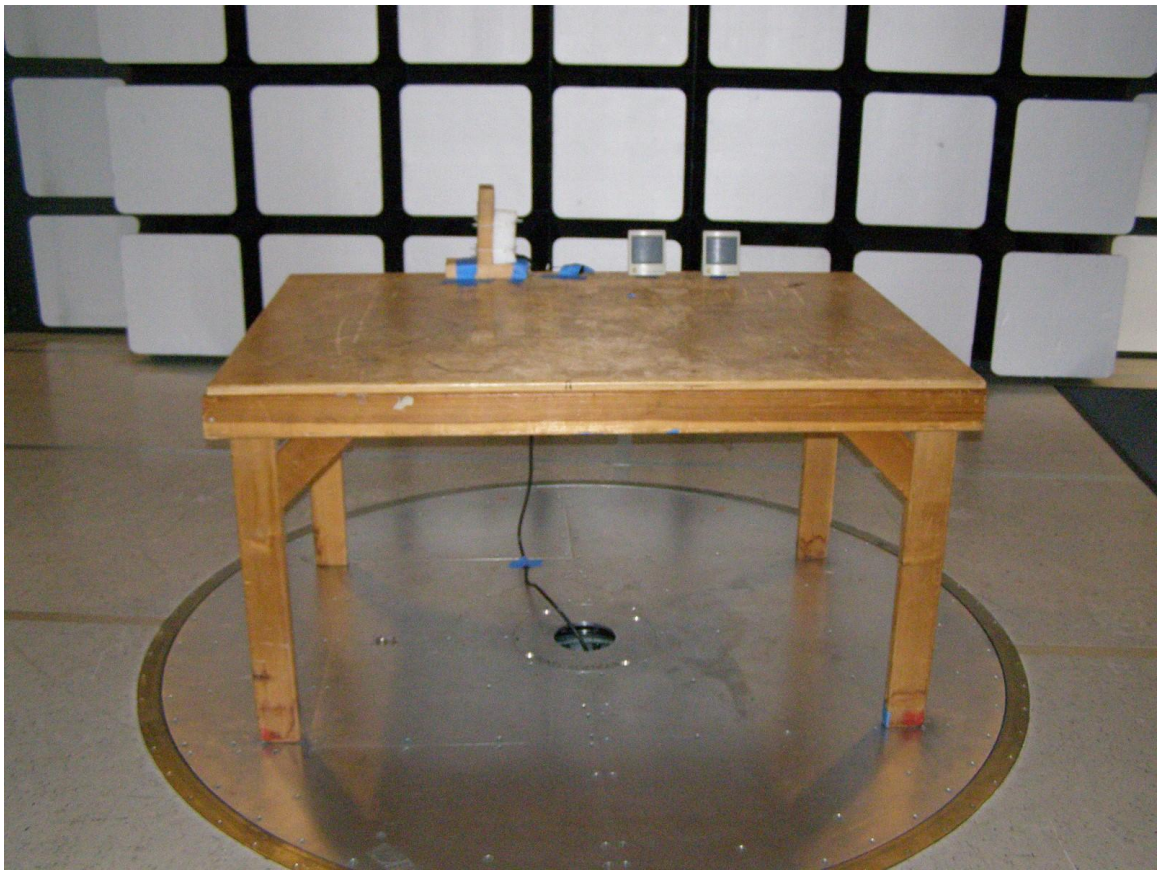
COM-POWER PA-840

18-40 GHz PREAMPLIFIER

S/N: 181289

CALIBRATION DUE: JUNE 16, 2015

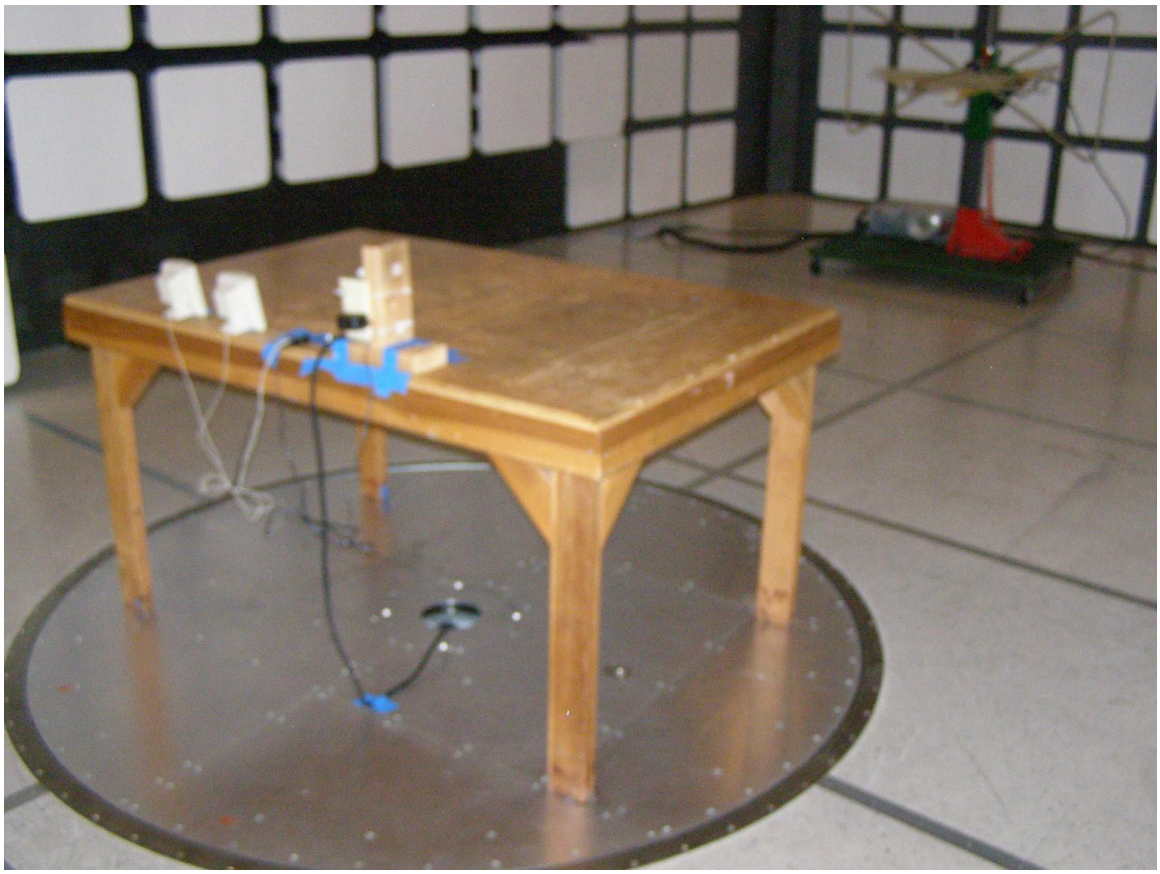
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
18000	29.4	**31500**	28.2
19000	28.8	**32000**	28.6
20000	30.5	**32500**	28.8
21000	31.4	**33000**	28.2
22000	31.2	**33500**	27.7
23000	30.1	**34000**	27.2
24000	30.3	**34500**	28.2
25000	29.8	**35000**	27.3
26000	30.5	**35500**	27.2
26500	30.7	**36000**	27.2
27000	30.8	**36500**	27.5
27500	30.2	**37000**	27.0
28000	30.1	**37500**	26.7
28500	30.2	**38000**	26.2
29000	30.1	**38500**	26.5
29500	29.8	**39000**	26.3
30000	29.2	**39500**	26.9
30500	28.4	**40000**	27.6
31000	29.8		



FRONT VIEW

BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

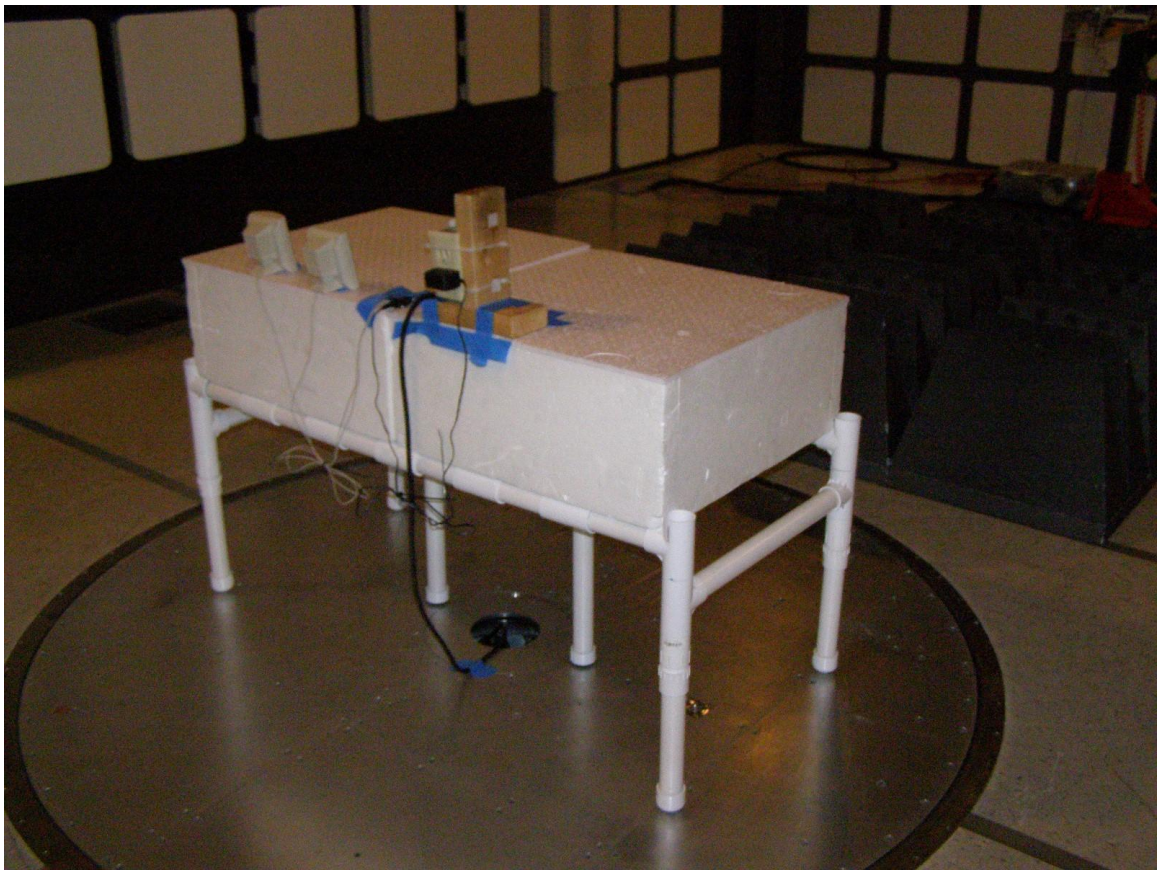
BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

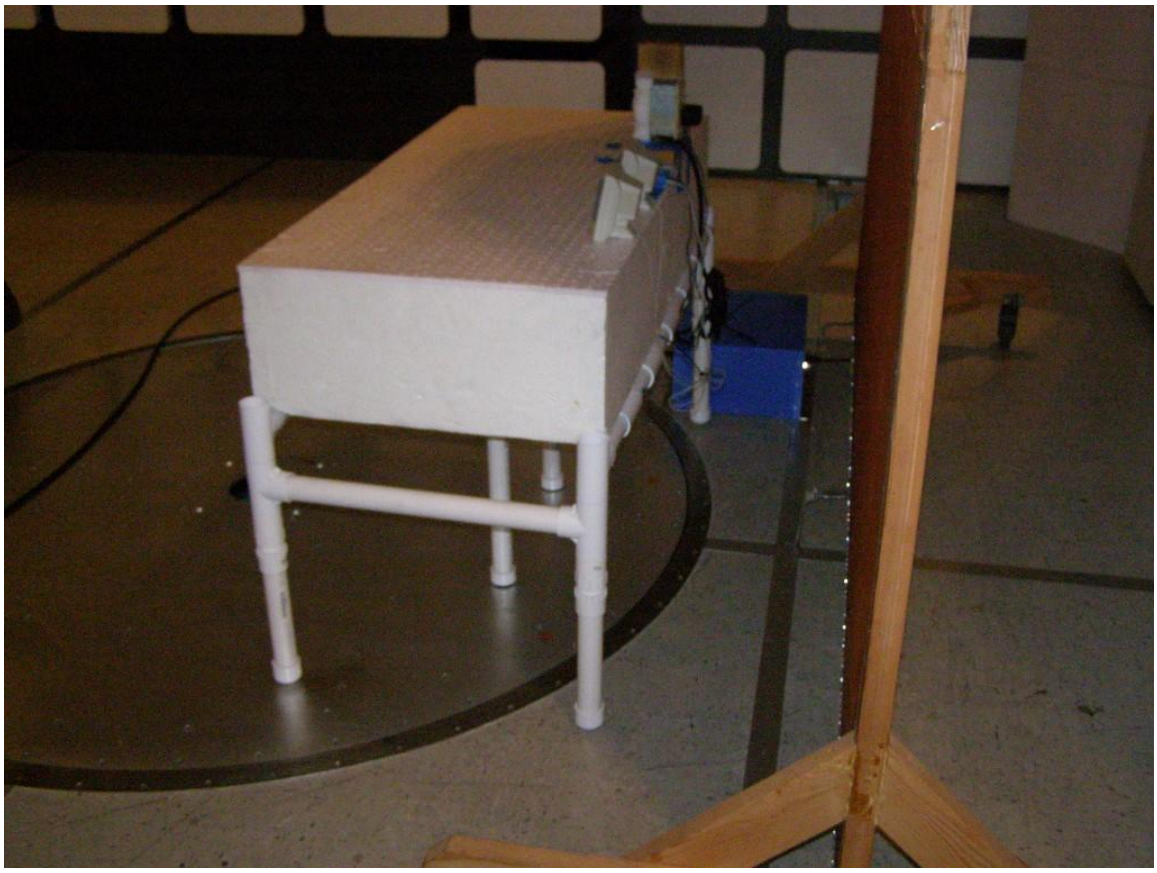
BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

BELKIN INTERNATIONAL, INC.
SONGSTREAM BT
Model: F8Z492V2
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

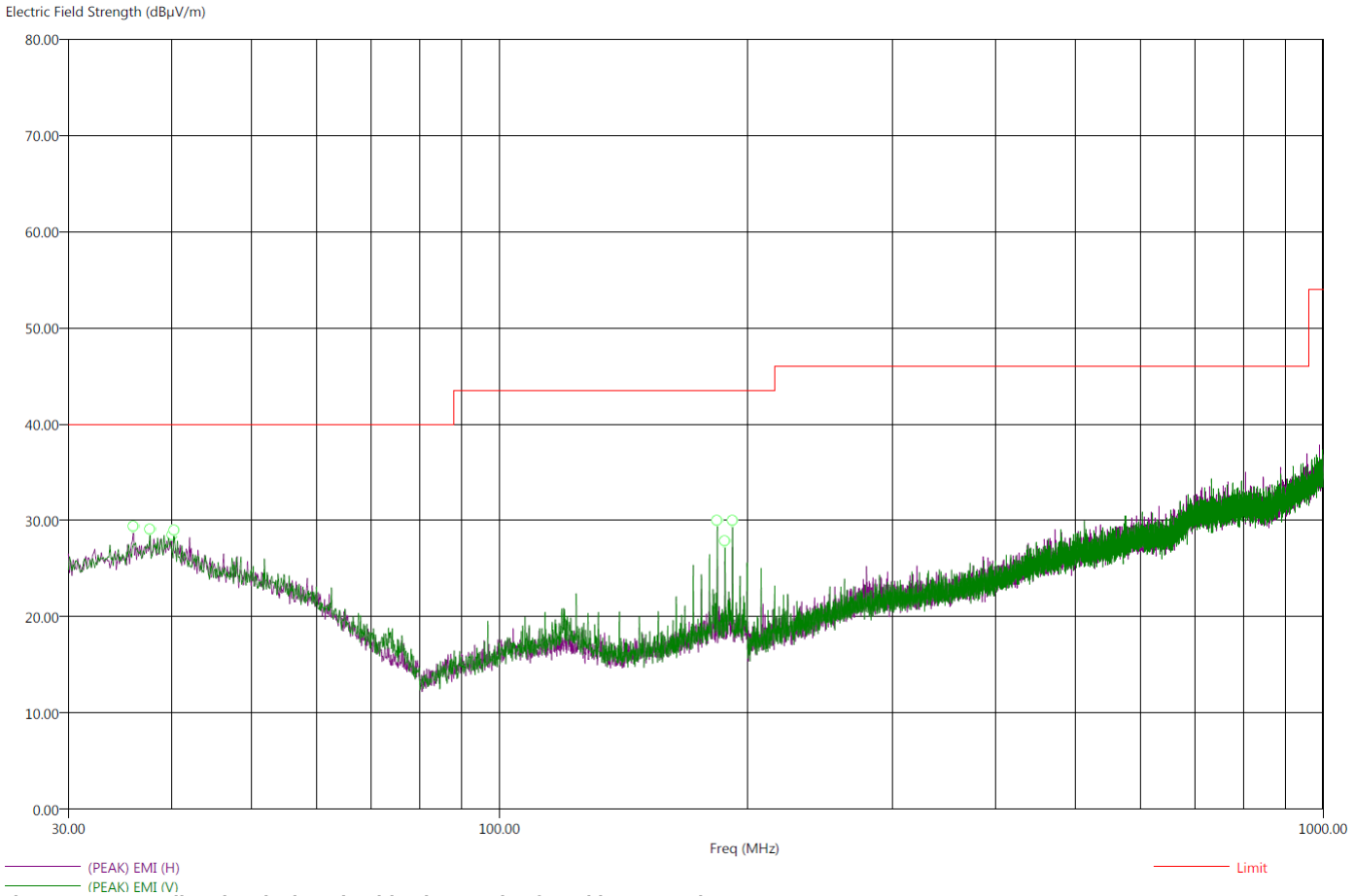
APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

5/8/2014 11:43:12 AM
Sequence: Preliminary Scan

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



There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1-25GHz.-
There were no additional emissions in Receive Mode.

Title: FCC 15.209
File: Radiated Final 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

5/8/2014 1:20:52 PM
Sequence: Final Measurements

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

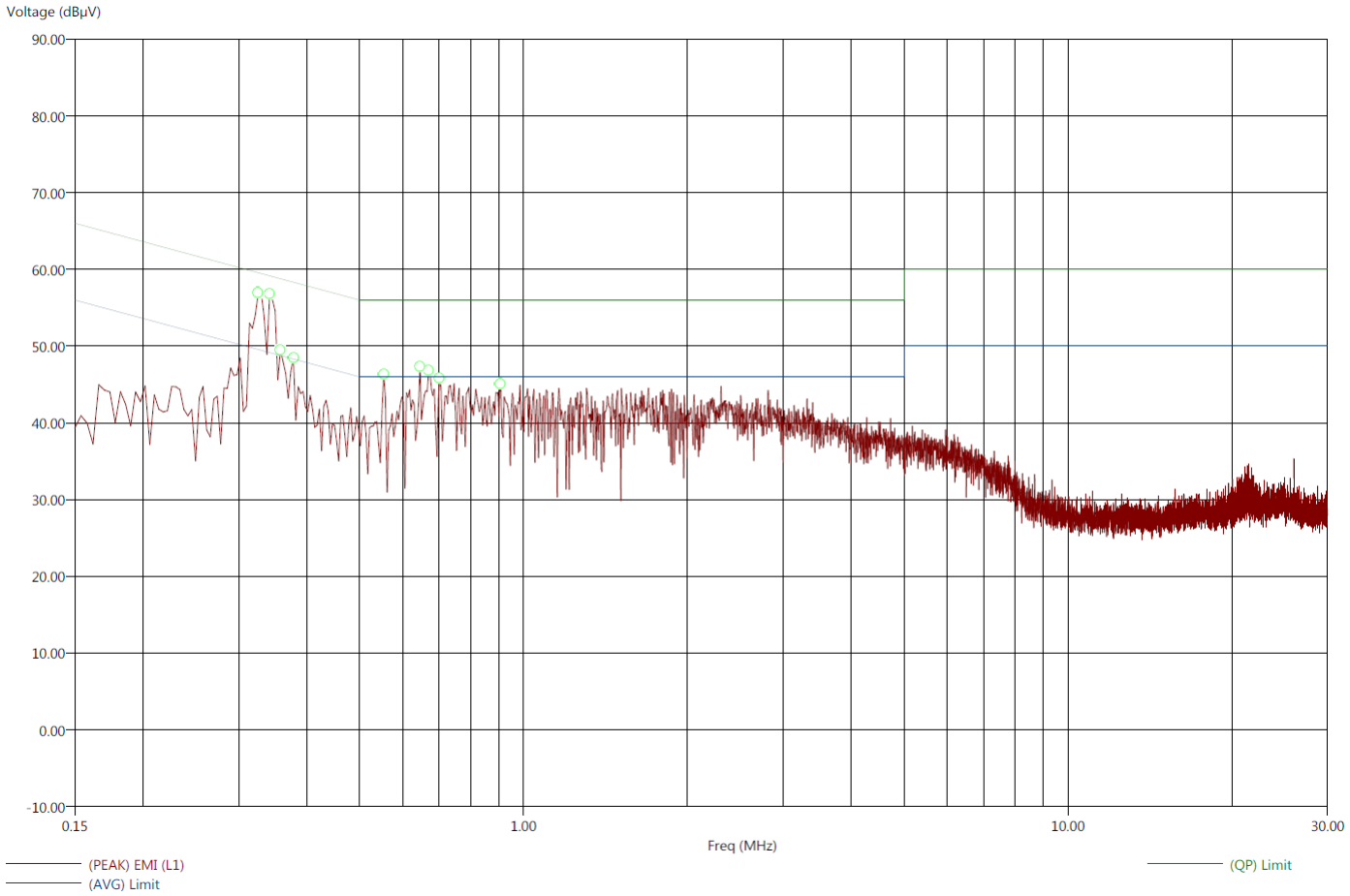
Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable(dB)
36.00	-17.72	22.28	27.03	40.00	H	169.50	213.61	18.56	1.08
37.70	-17.59	22.41	28.69	40.00	V	332.50	390.08	18.86	1.18
40.10	-17.10	22.90	28.32	40.00	H	13.25	135.64	19.11	1.27
40.30	-17.06	22.94	29.01	40.00	V	229.25	312.77	19.09	1.27
184.00	-14.05	29.47	32.07	43.52	V	94.25	105.97	9.32	1.31
188.00	-16.22	27.30	30.39	43.52	V	118.50	125.85	9.24	1.36
192.10	-13.73	29.79	31.73	43.52	V	107.50	105.85	9.16	1.41

There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.
There were no additional emissions in Receive Mode.

Title: FCC 15.207
File: Conducted Pre-Line.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

7/8/2014 3:01:33 PM
Sequence: Preliminary Scan

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



Title: FCC 15.207
File: Conducted Final-Line.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

7/8/2014 3:04:21 PM
Sequence: Final Measurements

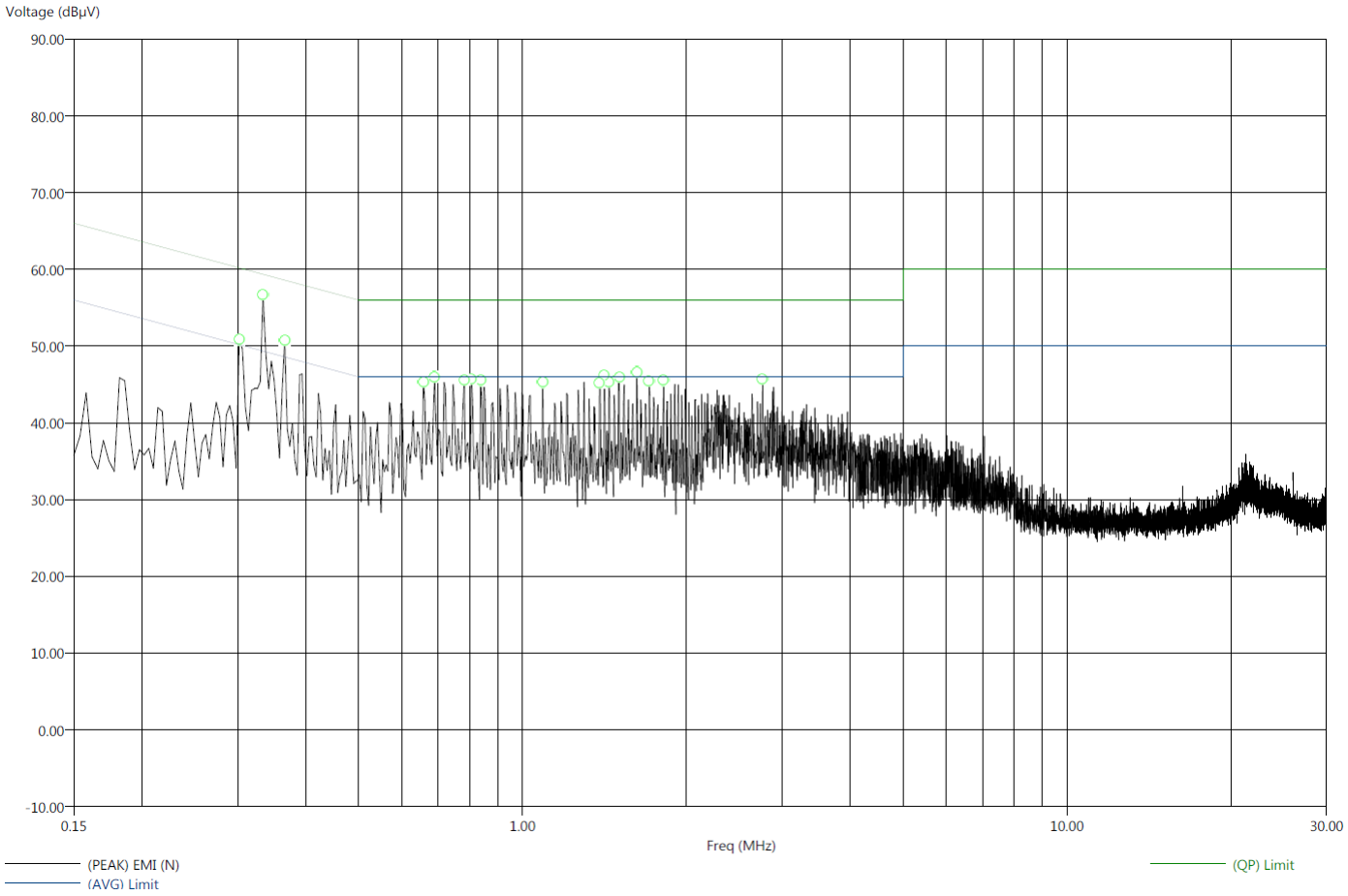
Compatible Electronics, Inc. FAC-3 (LAB R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dB V)	(QP) EMI (dB V)	(PEAK) EMI (dB V)	(AVG) Limit (dB V)	(QP) Limit (dB V	Transducer (dB)	Cable (dB)
0.33	-3.65	-4.54	45.90	55.01	57.52	49.55	59.55	0.07	0.14
0.34	-4.41	-4.62	44.75	54.53	57.73	49.15	59.15	0.05	0.12
0.36	-13.19	-13.33	35.58	45.44	51.08	48.77	58.77	0.04	0.11
0.38	-15.84	-16.31	32.48	42.02	47.49	48.32	58.32	0.03	0.09
0.55	-17.34	-16.72	28.66	39.28	44.26	46.00	56.00	0.04	0.00
0.65	-14.60	-14.66	31.40	41.34	47.40	46.00	56.00	0.03	0.00
0.67	-14.33	-12.96	31.67	43.04	48.18	46.00	56.00	0.03	0.00
0.70	-15.27	-13.94	30.73	42.06	45.47	46.00	56.00	0.03	0.00
0.91	-14.51	-15.44	31.49	40.56	46.73	46.00	56.00	0.04	0.00

Title: FCC 15.207
File: Conducted Pre-Neutral.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

7/8/2014 3:09:58 PM
Sequence: Preliminary Scan

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



Title: FCC 15.207
File: Conducted Final-Neutral.set
Operator: Matt Harrison
EUT Type: F8Z492V2.
EUT Condition: Transmitting 2480MHz.
Comments: Connected to Speakers and PSU.
Temp: 70f
Hum: 40%
120V 60Hz

7/8/2014 3:13:04 PM
Sequence: Final Measurements

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

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dB V)	(QP) EMI (dB V)	(PEAK) EMI (dB V)	(AVG) Limit (dB V)	(QP) Limit (dB V	Transducer (dB)	Cable (dB)
0.30	-19.63	-17.74	30.56	42.45	51.49	50.19	60.19	0.12	0.17
0.33	-11.27	-8.77	38.08	50.58	59.71	49.35	59.35	0.07	0.13
0.37	-15.09	-15.46	33.50	43.13	51.79	48.59	58.59	0.05	0.10
0.66	-20.38	-18.00	25.62	38.00	47.87	46.00	56.00	0.05	0.00
0.69	-20.08	-16.69	25.92	39.31	48.00	46.00	56.00	0.05	0.00
0.78	-19.68	-17.11	26.32	38.89	46.57	46.00	56.00	0.05	0.00
0.81	-19.39	-17.89	26.61	38.11	46.51	46.00	56.00	0.05	0.00
0.84	-19.09	-17.16	26.91	38.84	46.36	46.00	56.00	0.05	0.00
1.09	-20.61	-17.80	25.39	38.20	47.28	46.00	56.00	0.05	0.04
1.39	-21.85	-19.55	24.15	36.45	45.92	46.00	56.00	0.05	0.14
1.41	-22.44	-19.04	23.56	36.96	44.40	46.00	56.00	0.05	0.15
1.44	-21.06	-18.44	24.94	37.56	45.91	46.00	56.00	0.06	0.16
1.51	-21.99	-19.36	24.01	36.64	45.38	46.00	56.00	0.06	0.18
1.62	-20.27	-18.35	25.73	37.65	46.01	46.00	56.00	0.06	0.21
1.71	-20.24	-18.39	25.76	37.61	47.06	46.00	56.00	0.06	0.23
1.82	-21.16	-19.23	24.84	36.77	45.42	46.00	56.00	0.06	0.26
2.76	-26.87	-23.08	19.13	32.92	43.95	46.00	56.00	0.06	0.26

20DB BANDWIDTH

DATA SHEETS

20dB BANDWIDTH

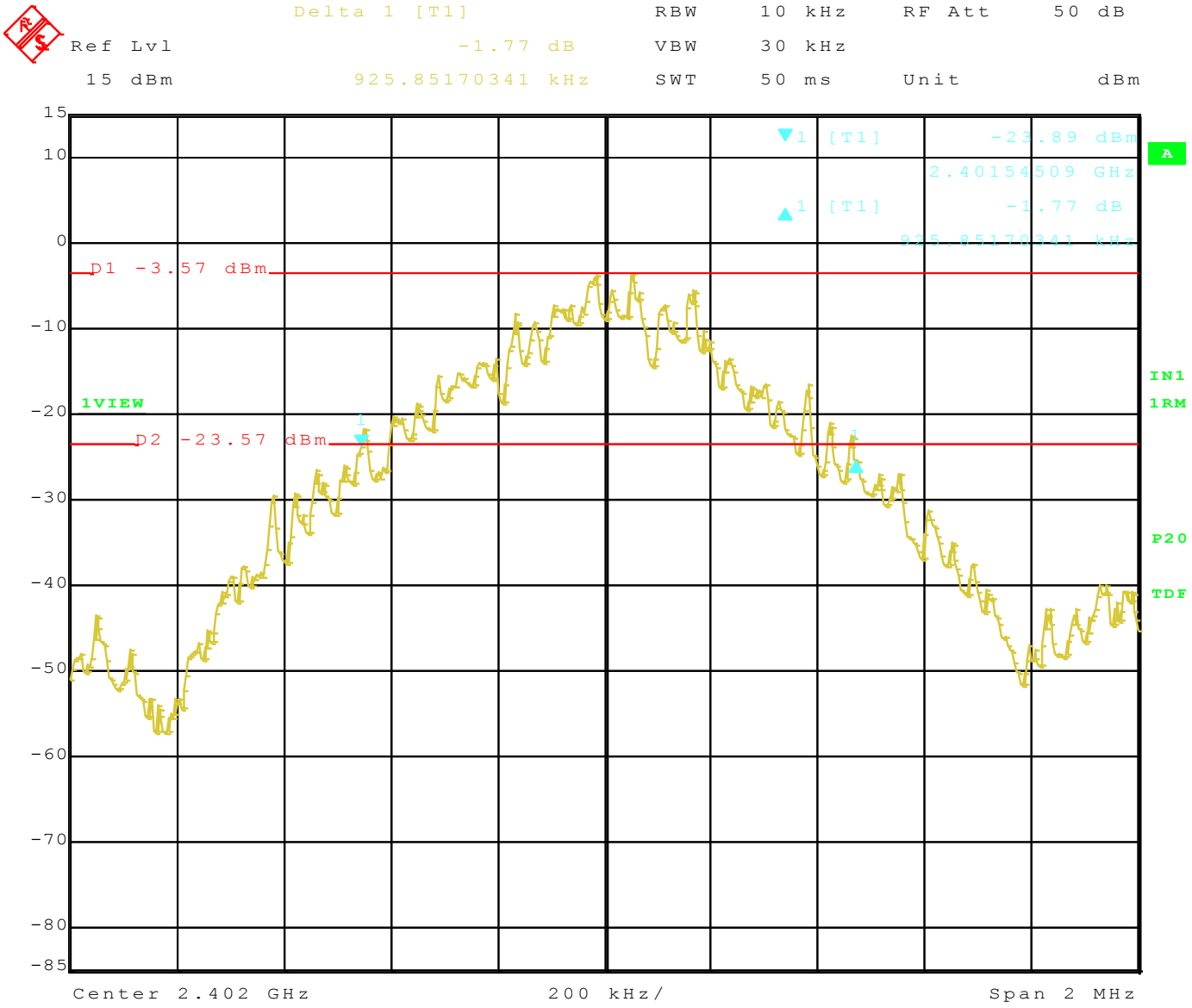
FCC 15.247

Belkin International, Inc.
SongStream BT
Model: F8Z492V2

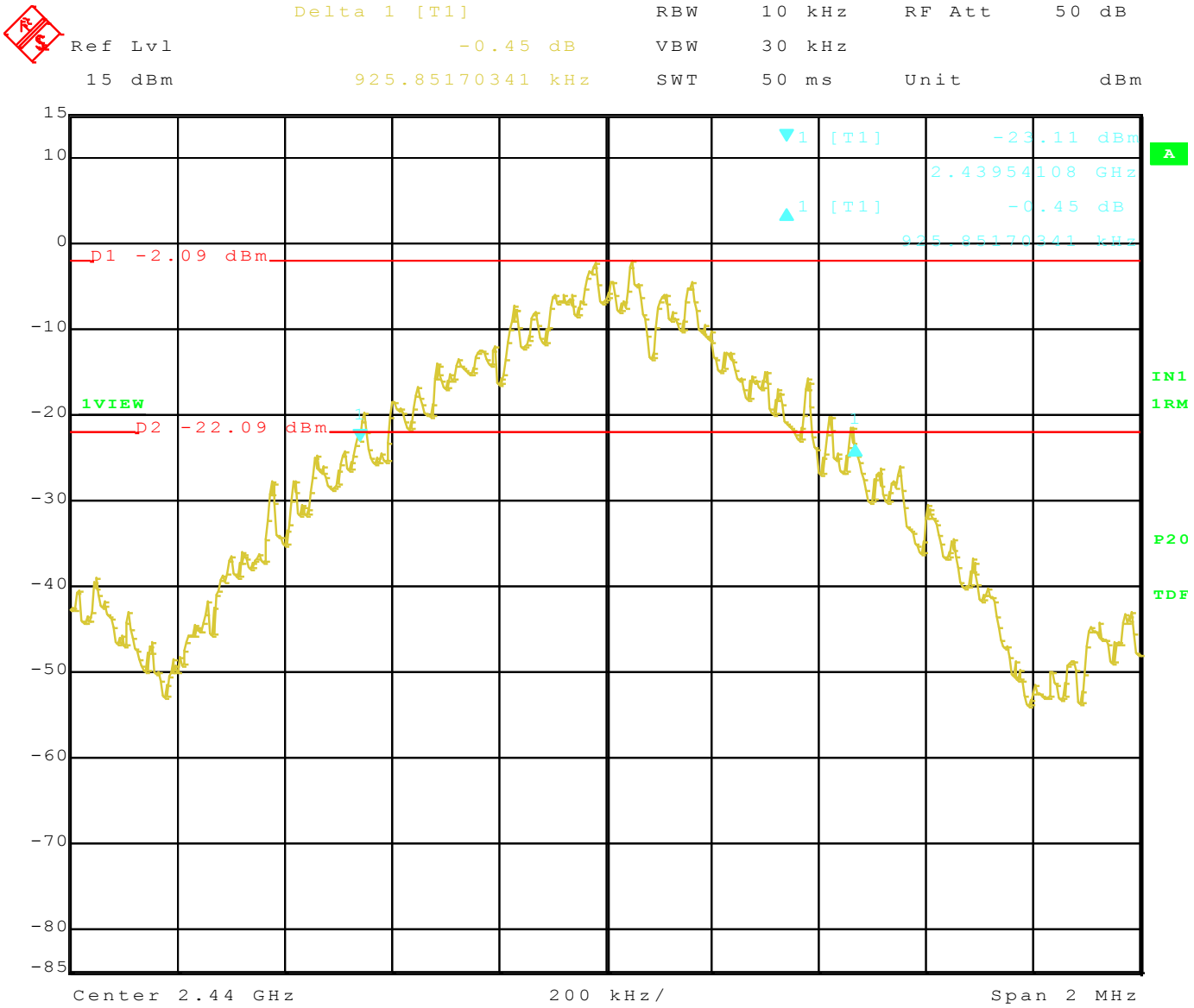
Date: 8/7/2014
Lab: R
Tested By: M. Harrison

20dB Bandwidth

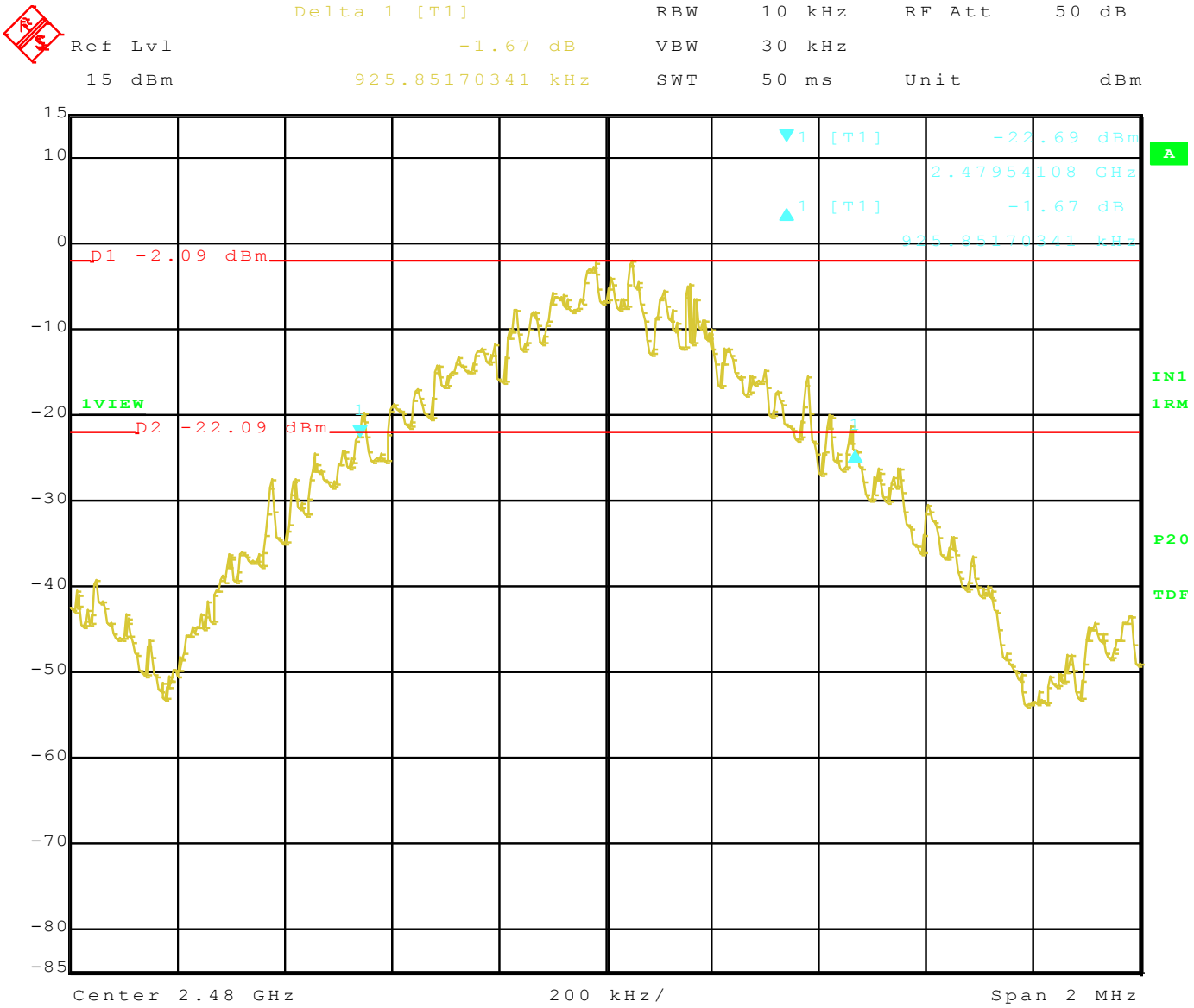
Freq. (MHz)	Measured BW (kHz)	Comments
2402	925.85	
2440	925.85	
2480	925.85	



Title: SongStream BT, F8Z489V2.
Comment A: 20dB Bandwidth, 2402MHz.
Date: 7.AUG.2014 14:29:59



Title: SongStream BT, F8Z489V2.
Comment A: 20dB Bandwidth, 2440MHz.
Date: 7.AUG.2014 14:32:37



Title: SongStream BT, F8Z489V2.
Comment A: 20dB Bandwidth, 2480MHz.
Date: 7.AUG.2014 14:34:23

MAXIMUM PEAK CONDUCTED OUTPUT POWER

DATA SHEETS

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

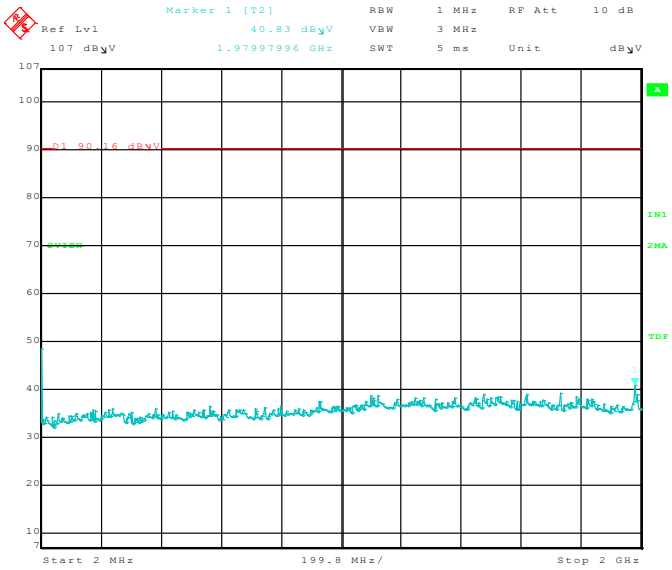
Belkin International, Inc. Date: 5/8/2014
SongStream BT Lab: R
Model: F8Z492V2 Tested By: M. Harrison

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2402	3.81	30.00	-26.19	Peak	
2440	4.99	30.00	-25.01	Peak	
2480	5.25	30.00	-24.75	Peak	

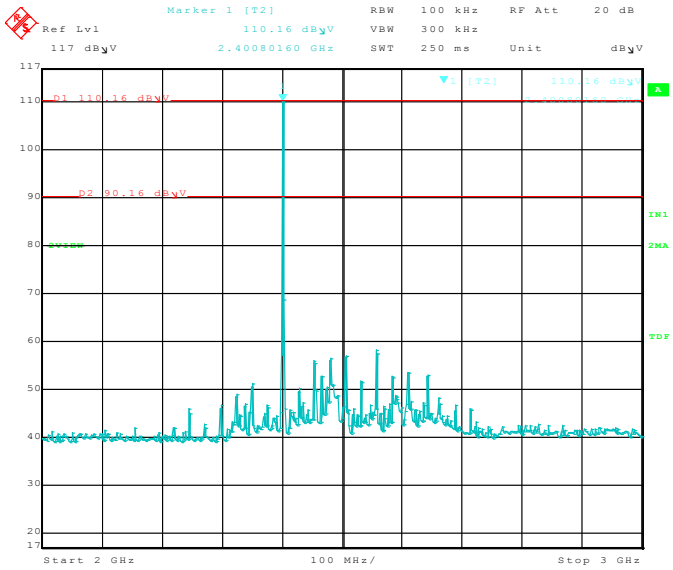
SPURIOUS RF CONDUCTED

DATA SHEETS

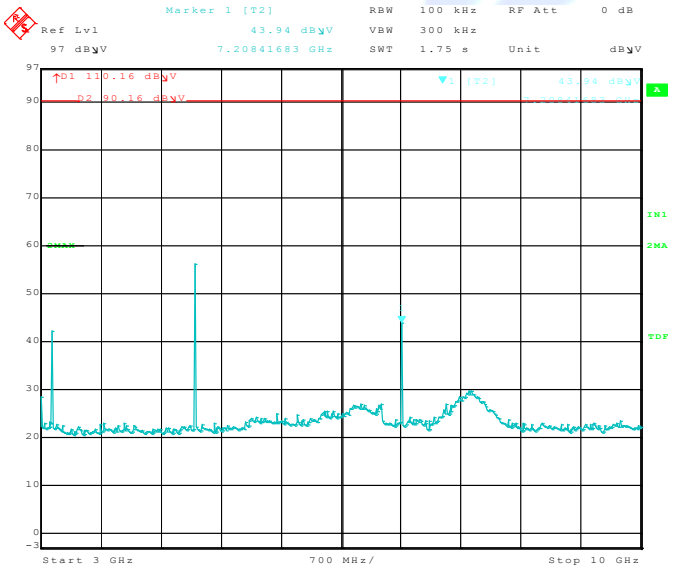
LOW CHANNEL



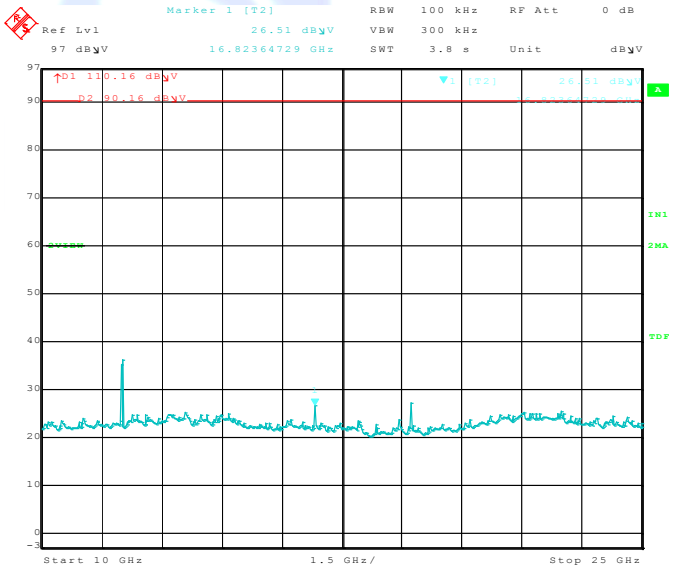
Title: F8Z492V2.
Comment A: Spurious Conducted, Low Channel.
Date: 13.NOV.2014 14:59:37



Title: F8Z492.
Comment A: Spurious Conducted, Low Channel.
Date: 8.MAY.2014 10:31:12

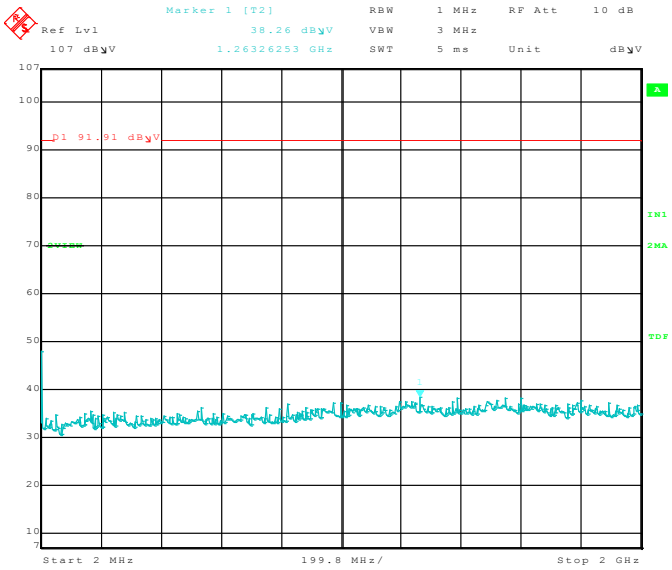


Title: F8Z492.
Comment A: Spurious Conducted, Low Channel.
Date: 8.MAY.2014 10:32:41

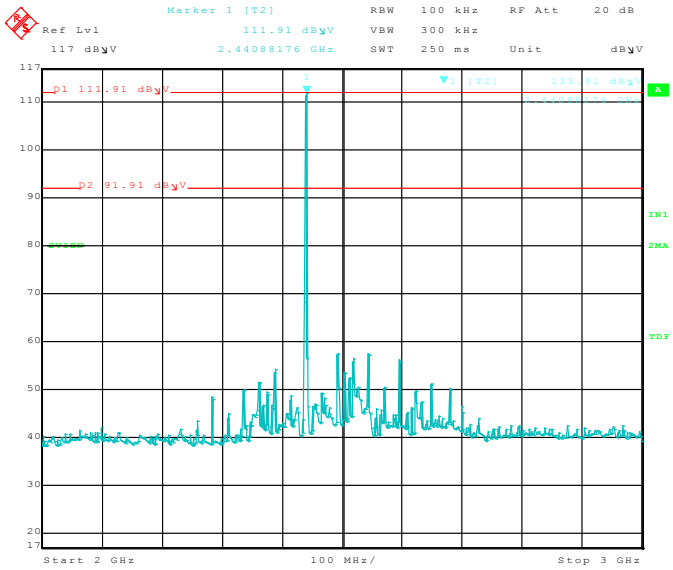


Title: F8Z492.
Comment A: Spurious Conducted, Low Channel.
Date: 8.MAY.2014 10:34:49

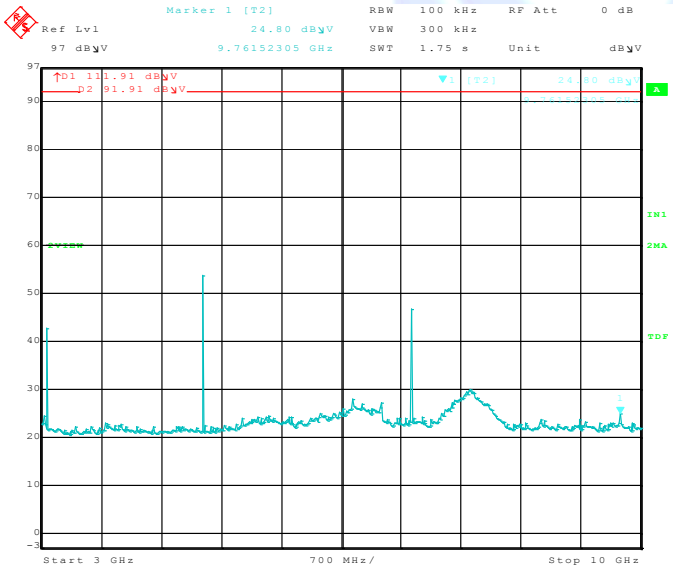
MID CHANNEL



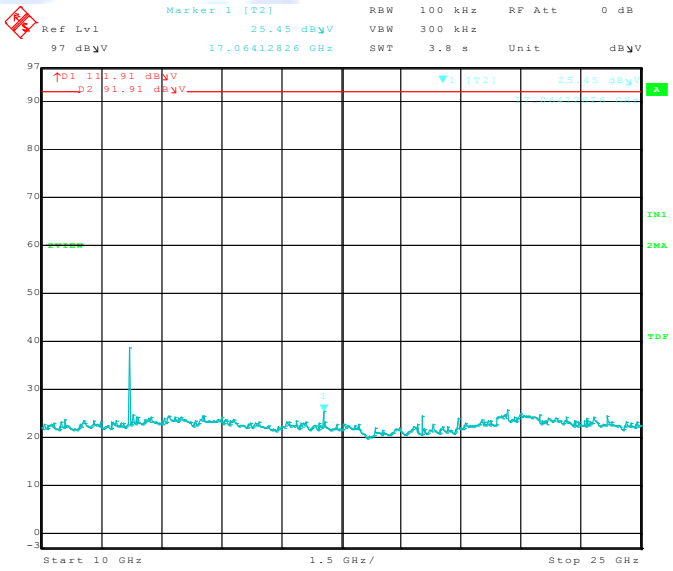
Title: F8Z492V2.
Comment A: Spurious Conducted, Mid Channel.
Date: 13.NOV.2014 15:09:05



Title: F8Z492.
Comment A: Spurious Conducted, Mid Channel.
Date: 8.MAY.2014 10:38:14

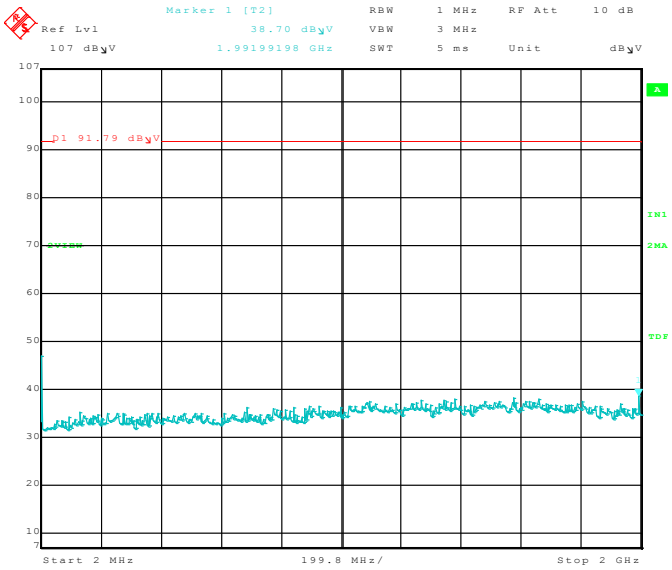


Title: F8Z492.
Comment A: Spurious Conducted, Mid Channel.
Date: 8.MAY.2014 10:39:36

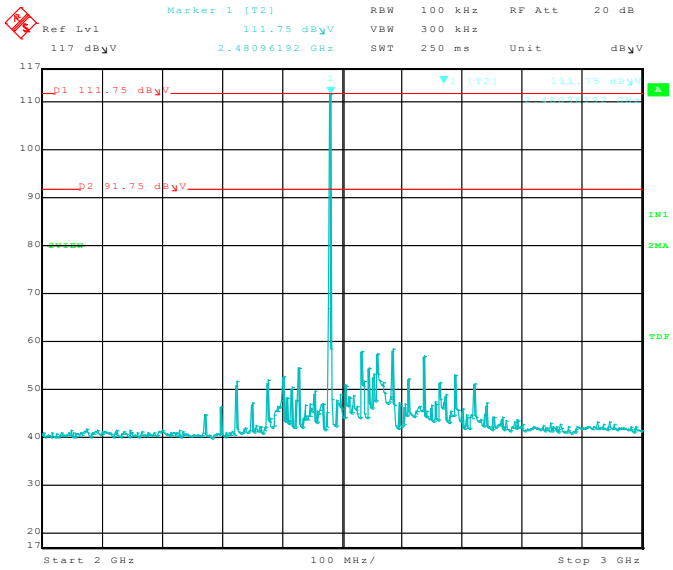


Title: F8Z492.
Comment A: Spurious Conducted, Mid Channel.
Date: 8.MAY.2014 10:41:46

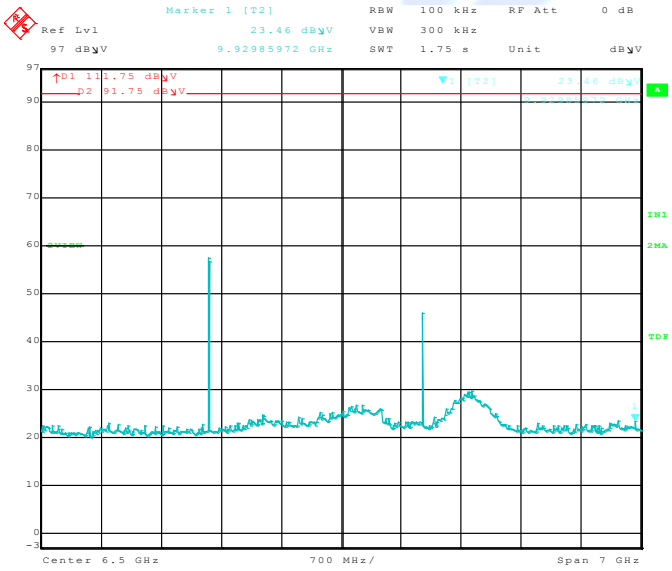
HIGH CHANNEL



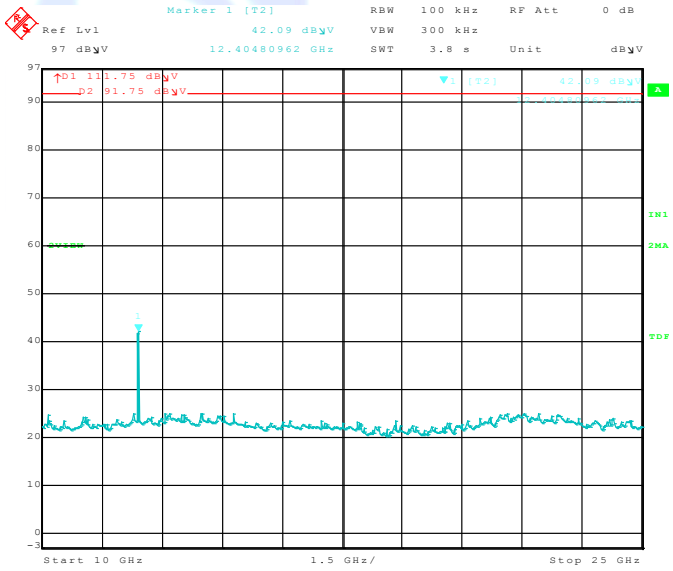
Title: F8Z492V2.
Comment A: Spurious Conducted, High Channel.
Date: 13.NOV.2014 15:12:31



Title: F8Z492.
Comment A: Spurious Conducted, High Channel.
Date: 8.MAY.2014 10:44:56



Title: F8Z492.
Comment A: Spurious Conducted, High Channel.
Date: 8.MAY.2014 10:45:51



Title: F8Z492.
Comment A: Spurious Conducted, High Channel.
Date: 8.MAY.2014 10:47:36

EMISSIONS IN RESTRICTED FREQUENCY BANDS (RADIATED)

DATA SHEETS

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS (Low Channel)

FCC 15.247

Company: Belkin
EUT: SongStream BT
Model: F8Z492V2

Date: 5/8/2014
Lab: R
Test ENG: M. Harrison

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

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4804.00	57.61	H	73.98	-16.37	Peak	1.07	68	Restricted Band
4804.00	51.25	H	53.98	-2.73	Avg	1.07	68	
12010.00	--	H	73.98	--	Peak	--	--	Restricted Band
12010.00	--	H	53.98	--	Avg	--	--	No Emissions Found
19216.00	--	H	73.98	--	Peak	--	--	Restricted Band
19216.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4804.00	51.35	V	73.98	-22.63	Peak	1.07	360	Restricted Band
4804.00	42.97	V	53.98	-11.01	Avg	1.07	360	
12010.00	--	V	73.98	--	Peak	--	--	Restricted Band
12010.00	--	V	53.98	--	Avg	--	--	No Emissions Found
19216.00	--	V	73.98	--	Peak	--	--	Restricted Band
19216.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS (Mid Channel)

FCC 15.247

Company: Belkin
EUT: SongStream BT
Model: F8Z492V2

Date: 9/10/2014
Lab: R
Test ENG: M. Harrison

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

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4880.00	59.40	H	73.98	-14.58	Peak	1.02	200	Restricted Band
4880.00	51.82	H	53.98	-2.16	Avg	1.02	200	
7320.00	61.93	H	73.98	-12.05	Peak	1.25	192	Restricted Band
7320.00	52.57	H	53.98	-1.41	Avg	1.25	192	
12200.00	--	H	73.98	--	Peak	--	--	Restricted Band
12200.00	--	H	53.98	--	Avg	--	--	No Emissions Found
19520.00	--	H	73.98	--	Peak	--	--	Restricted Band
19520.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4880.00	47.49	V	73.98	-26.49	Peak	1.24	360	Restricted Band
4880.00	37.04	V	53.98	-16.94	Avg	1.24	360	
7320.00	56.92	V	73.98	-17.06	Peak	1.61	45	Restricted Band
7320.00	46.99	V	53.98	-6.99	Avg	1.61	45	
12200.00	--	V	73.98	--	Peak	--	--	Restricted Band
12200.00	--	V	53.98	--	Avg	--	--	No Emissions Found
19520.00	--	V	73.98	--	Peak	--	--	Restricted Band
19520.00	--	V	53.98	--	Avg	--	--	No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS (High Channel)

FCC 15.247

Company: Belkin
EUT: SongStream BT
Model: F8Z492V2

Date: 10/7/2014
Lab: R
Test ENG: M. Harrison

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

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4960.00	56.74	H	73.98	-17.24	Peak	1.33	205	Restricted Band
4960.00	50.53	H	53.98	-3.45	Avg	1.33	205	
7440.00	62.18	H	73.98	-11.80	Peak	1.21	128	Restricted Band
7440.00	53.40	H	53.98	-0.58	Avg	1.21	128	
12400.00	--	H	73.98	--	Peak	--	--	Restricted Band
12400.00	--	H	53.98	--	Avg	--	--	No Emissions Found
19840.00	--	H	73.98	--	Peak	--	--	Restricted Band
19840.00	--	H	53.98	--	Avg	--	--	No Emissions Found
22320.00	--	H	73.98	--	Peak	--	--	Restricted Band
22320.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4960.00	52.64	V	73.98	-21.34	Peak	1.05	244	Restricted Band
4960.00	44.79	V	53.98	-9.19	Avg	1.05	244	
7440.00	58.98	V	73.98	-15.00	Peak	1.87	43	Restricted Band
7440.00	50.53	V	53.98	-3.45	Avg	1.87	43	
12400.00	--	V	73.98	--	Peak	--	--	Restricted Band
12400.00	--	V	53.98	--	Avg	--	--	No Emission Found
19840.00	--	V	73.98	--	Peak	--	--	Restricted Band
19840.00	--	V	53.98	--	Avg	--	--	No Emission Found
22320.00	--	V	73.98	--	Peak	--	--	Restricted Band
22320.00	--	V	53.98	--	Avg	--	--	No Emission Found

Test distance
3 meter

EMISSIONS OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND AT BAND EDGES

DATA SHEETS

BAND EDGES- HORIZONTAL

FCC 15.247

Company: Belkin
EUT: Song Stream BT
Model: F8Z492V2

Date: 11/13/2014
Lab: R
Test ENG: Matt Harrison

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

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	105.81	H	--	--	Peak	1	240	Fundamental of High Channel
2400.00	83.22	H	85.81	-2.59	Delta	1	240	From Peak
2387.60	53.07	H	73.98	-20.91	Peak	1	240	**No** Marker Delta Method Used
2387.60	38.69	H	53.98	-15.29	Avg	1	240	
2480.00	108.10	H	--	--	Peak	1	240	Fundamental of High Channel
2483.50	63.51	H	73.98	-10.47	Peak	1	240	**No** Marker Delta Method Used
2483.50	49.33	H	53.98	-4.65	Avg	1	240	

Test distance
3 meter

BAND EDGES- VERTICAL

FCC 15.247

Company: Belkin
EUT: SongStream BT
Model: F8Z492V2

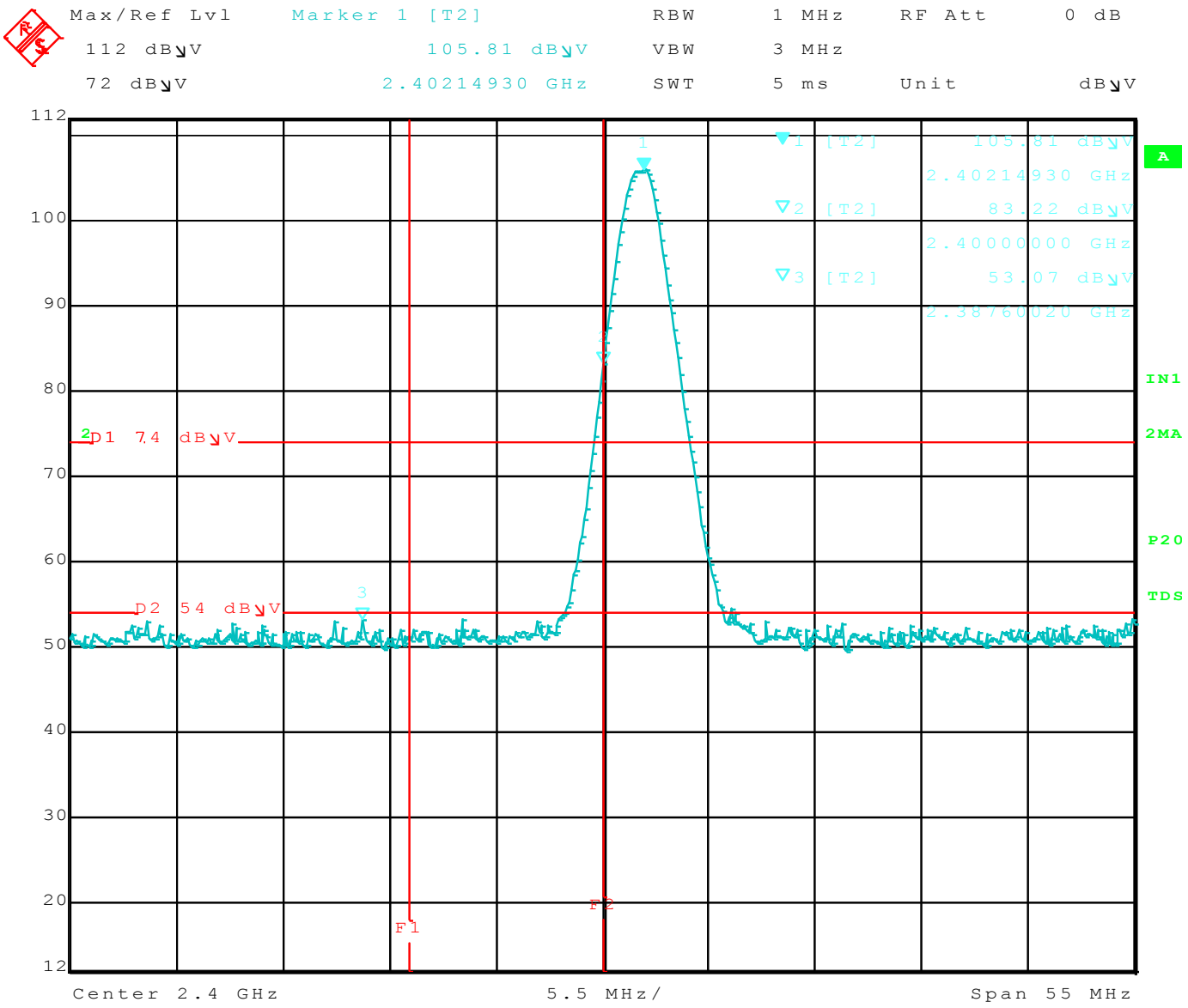
Date: 11/13/2014
Lab: R
Test ENG: Matt Harrison

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

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402.00	101.75	V	--	--	Peak	1.05	250	Fundamental of High Channel
2400.00	79.57	V	81.75	-2.18	Delta	1.05	250	From Peak
2377.79	52.66	V	73.98	-21.32	Peak	1.05	250	**No** Marker Delta Method Used
2377.79	48.50	V	53.98	-5.48	Avg	1.05	250	
2462.00	104.74	V	--	--	Peak	1.05	170	Fundamental of High Channel
2483.50	59.96	V	73.98	-14.02	Peak	1.05	170	**No** Marker Delta Method Used
2483.50	49.15	V	53.98	-4.83	Avg	1.05	170	

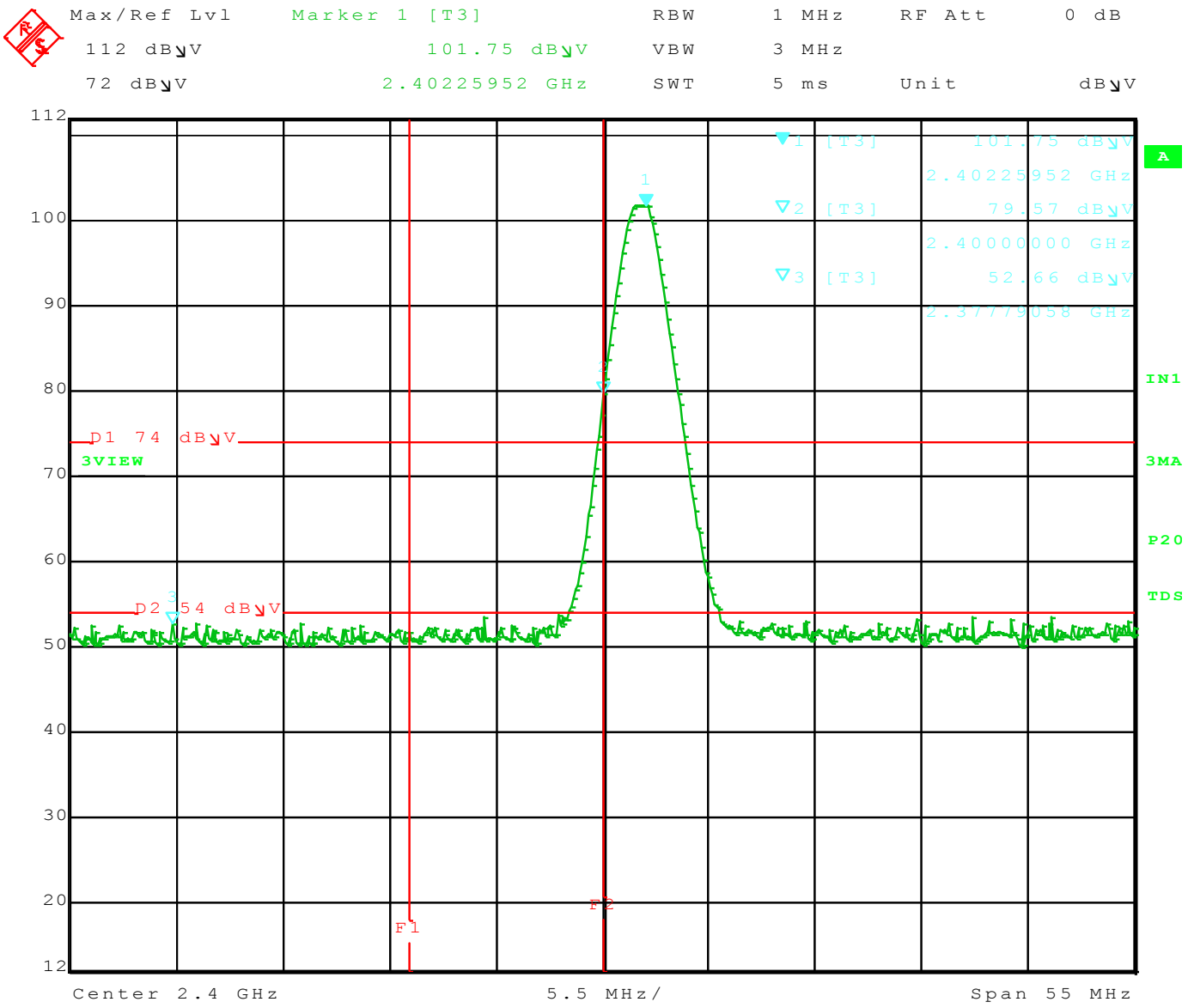
Test distance
3 meter

LOWER BAND EDGE
HORIZONTAL



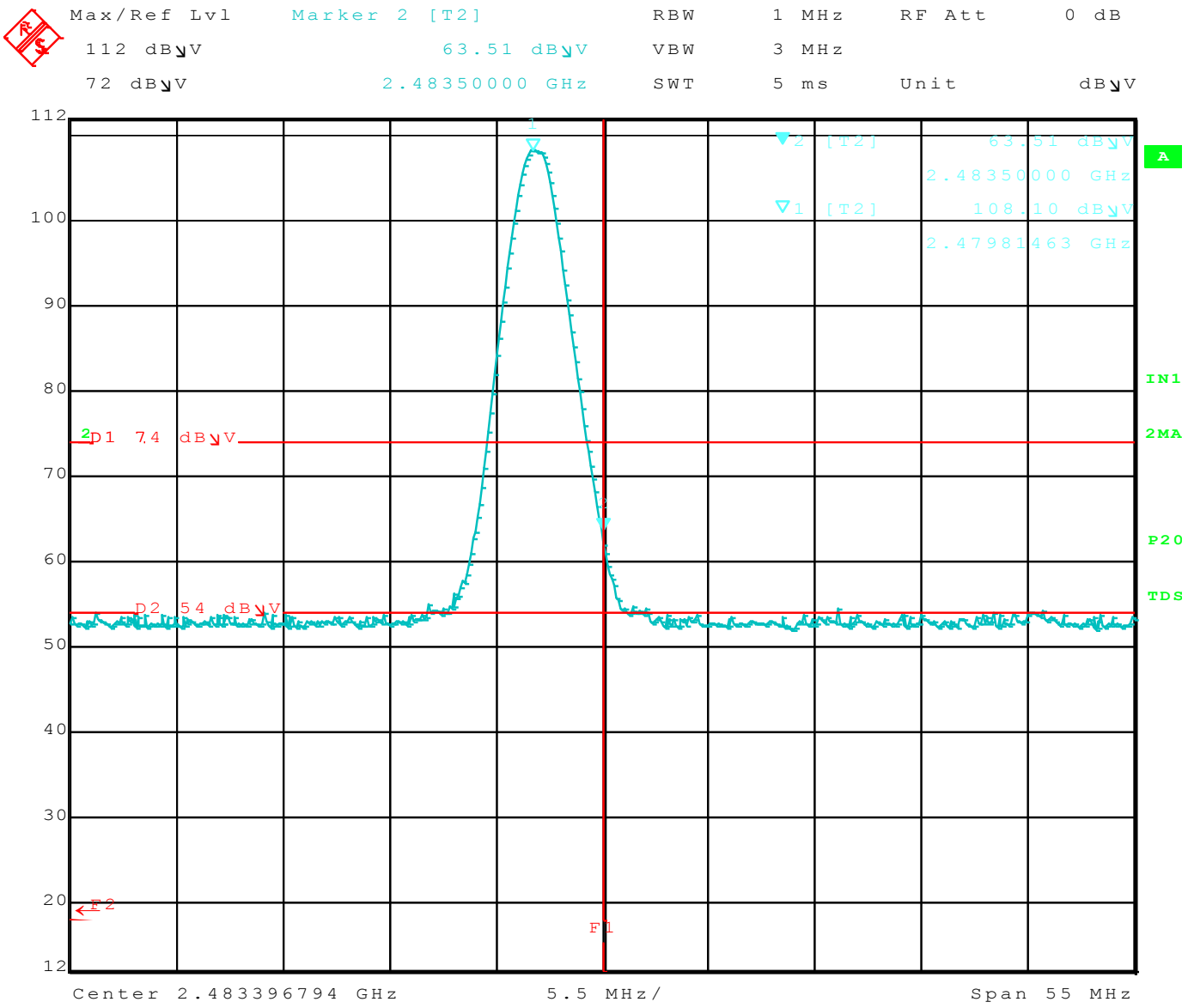
Title: F8Z492V2.
Comment A: Lower Band Edge Horizontal.
Date: 13.NOV.2014 13:52:16

LOWER BAND EDGE
VERTICAL



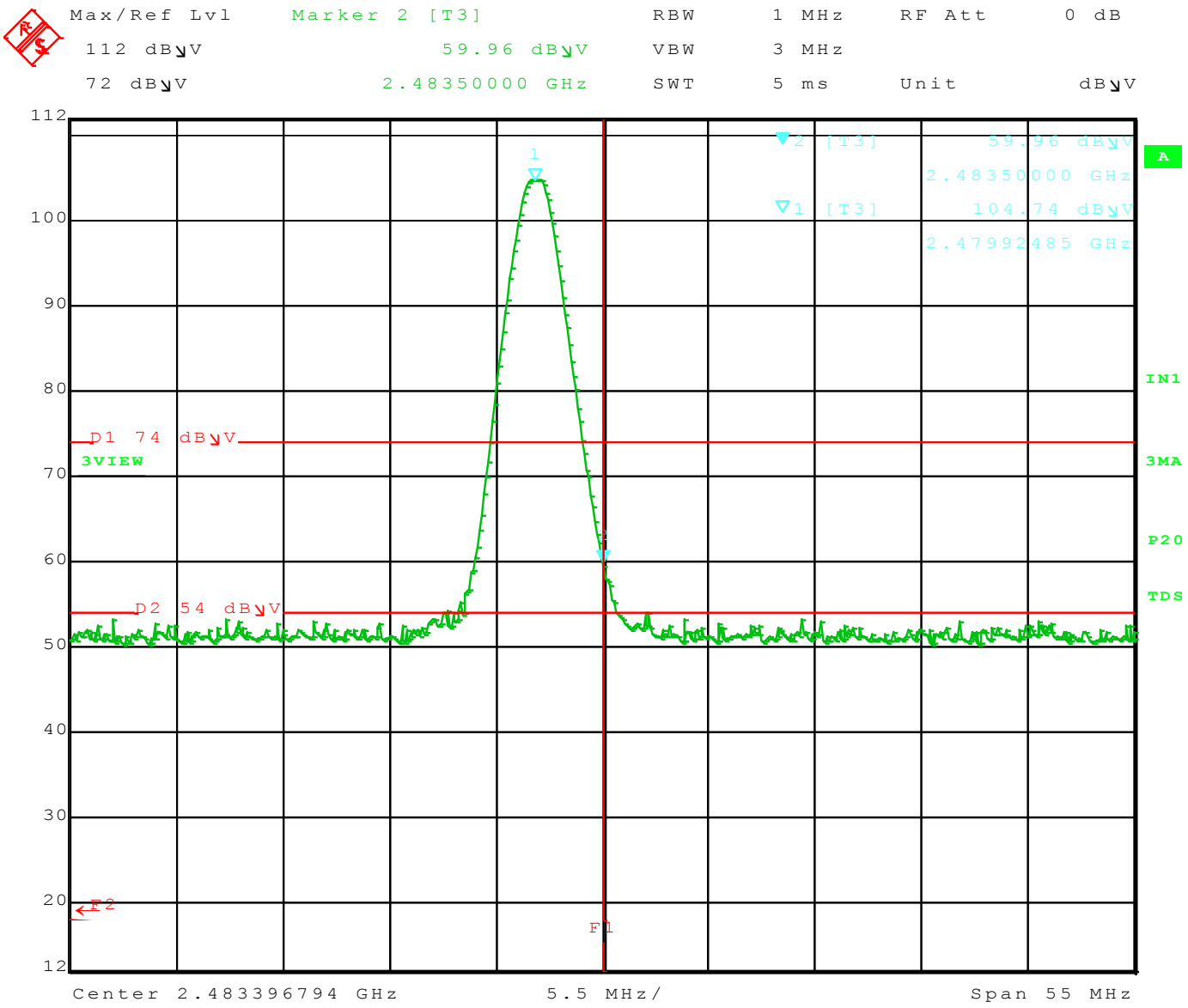
Title: F8Z492V2.
Comment A: Lower Band Edge Vertical.
Date: 13.NOV.2014 13:24:07

UPPER BAND EDGE
HORIZONTAL



Title: F8Z492V2.
Comment A: Upper Band Edge Horizontal.
Date: 13.NOV.2014 13:06:09

UPPER BAND EDGE
HORIZONTAL



Title: F8Z492V2.
Comment A: Upper Band Edge Vertical.
Date: 13.NOV.2014 13:11:35

TIME OF OCCUPANCY

DATA SHEETS

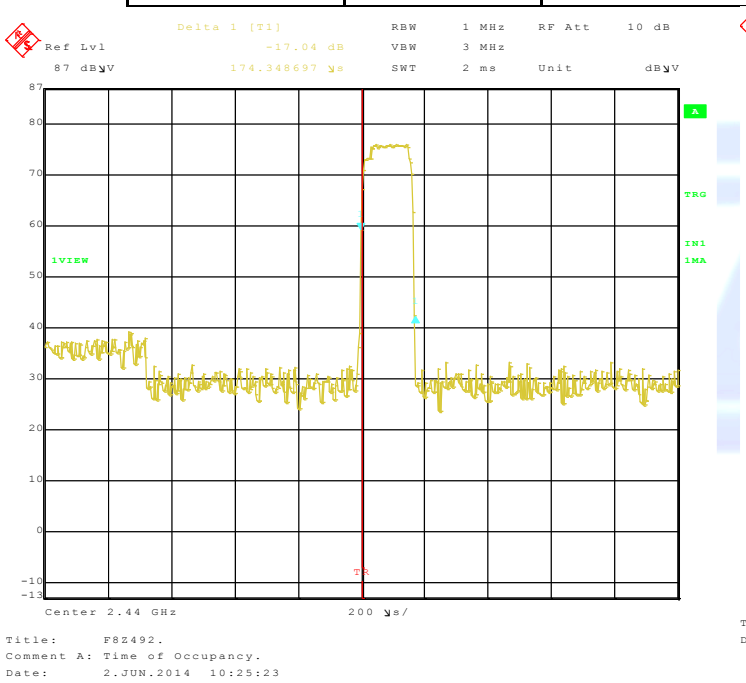
TIME OF OCCUPANCY

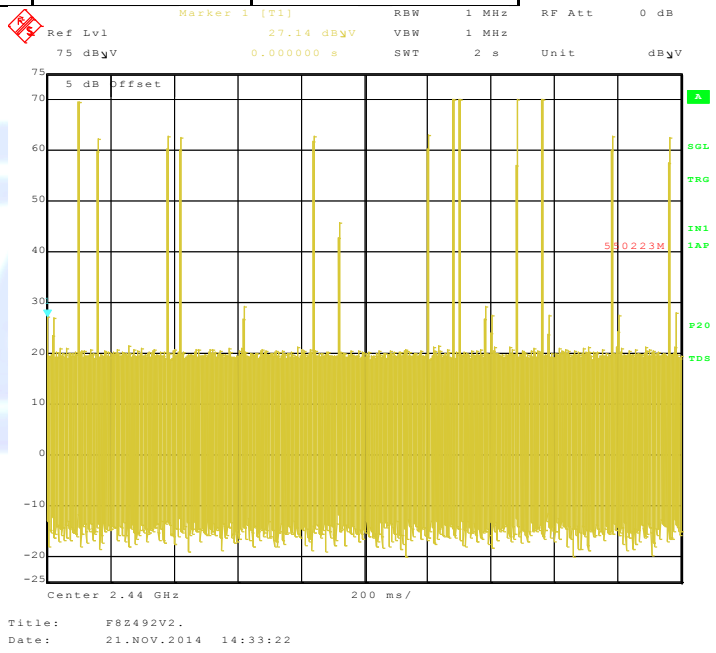
FCC 15.247

Company:	Belkin	Date:	4/10/2014
EUT:	SongStream BT	Lab:	R
Model:	F8Z492V2	Test ENG:	Matt Harrison

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

Freq. (MHz)	Time (mS)	Limit (mS)	Margin (mS)	Comments
2440	35.81	400.00	-364.19	





Number of Pulses in 2 Seconds = 13
Number of Pulses in 31.6 Seconds = 13*15.8 = 205.4 Pulses in a 31.6 Second Period
Time Of Occupancy = 205.4 * 174.348697µS = 35.81mS per 31.6 Second Period

CARRIER FREQUENCY SEPARATION

DATA SHEETS

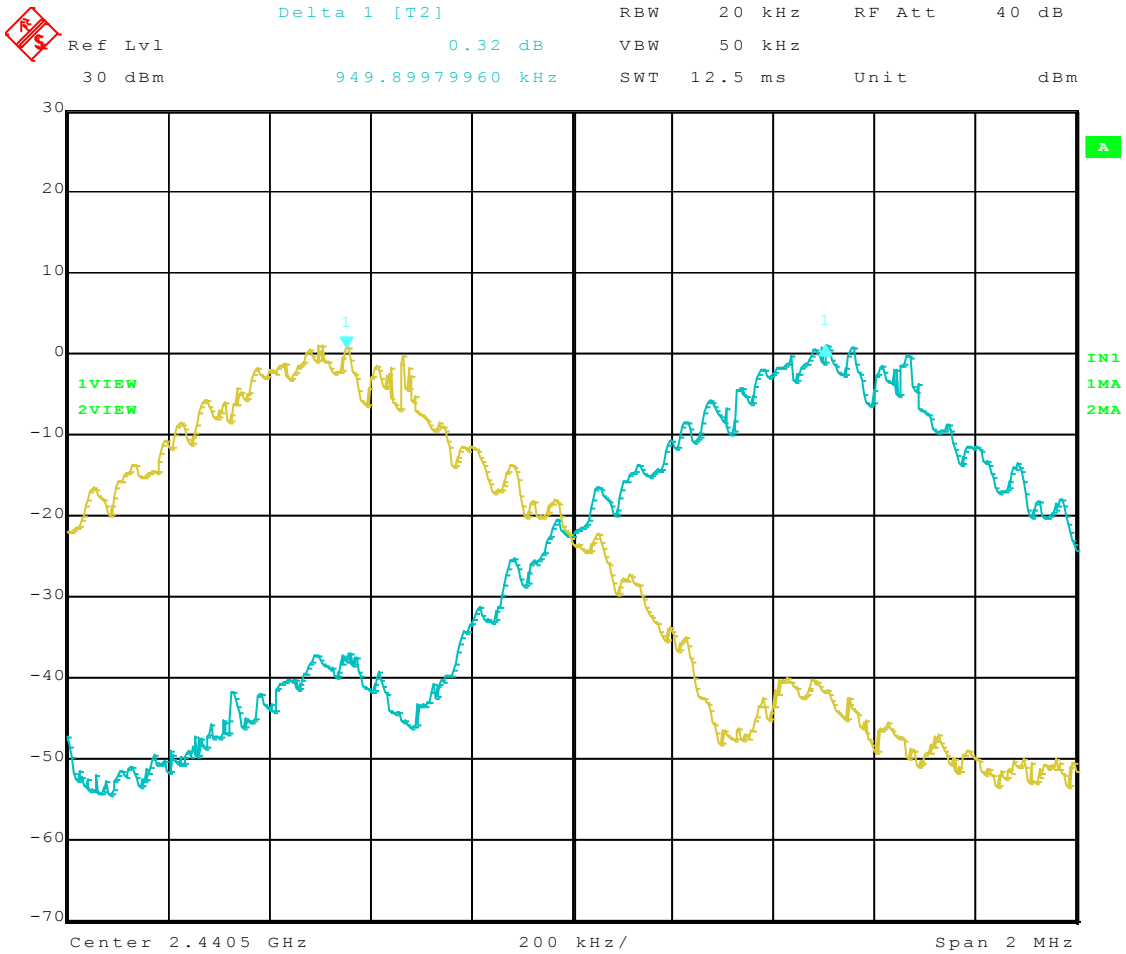
CHANNEL SEPARATION

FCC 15.247

Company:	Belkin	Date:	11/17/2014
EUT:	BT Music	Lab:	R
Model:	F8Z492V2	Test ENG:	Matt Harrison

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

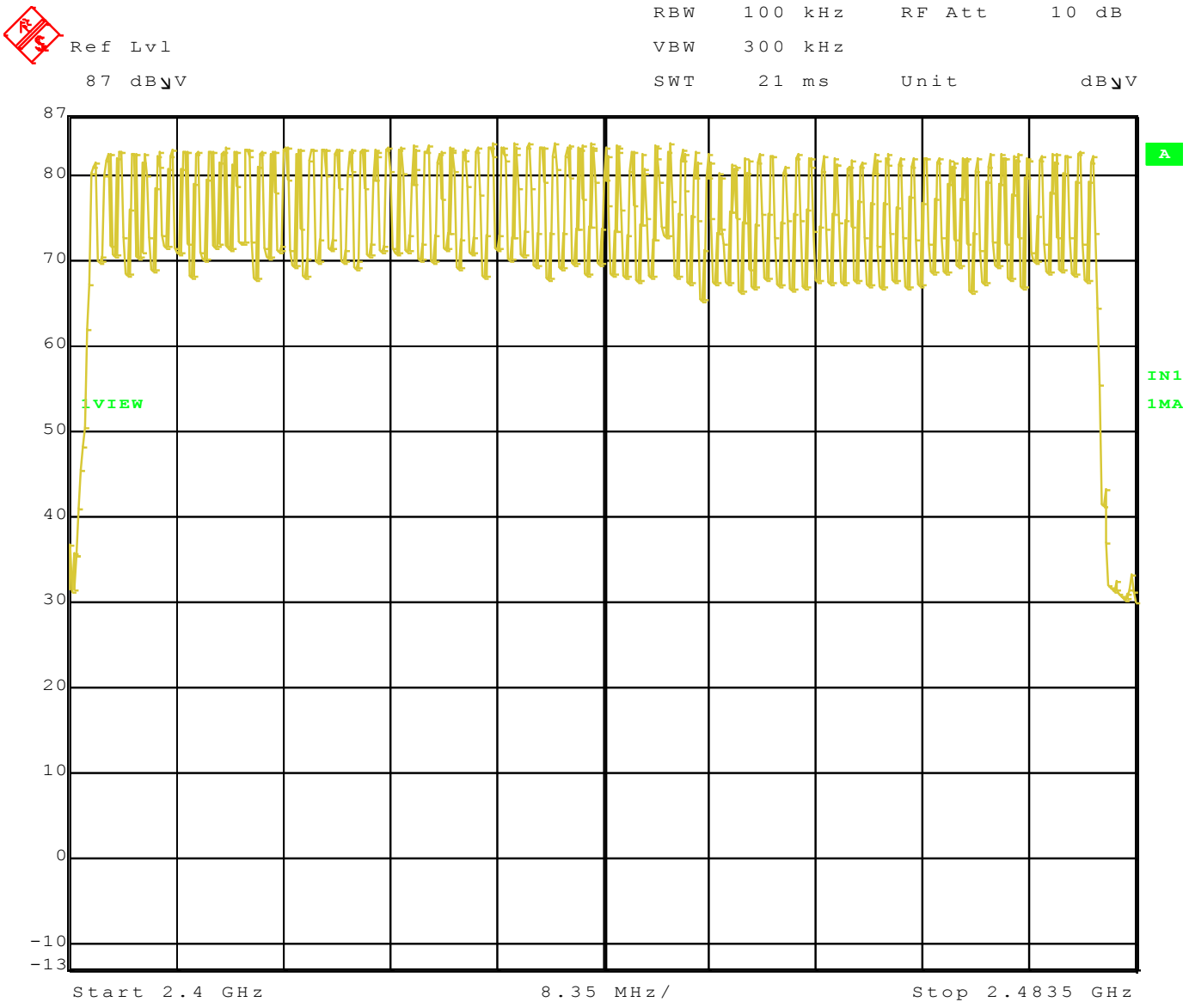
Freq. (MHz)	Delta (kHz)	Limit (Min) (kHz)	Margin (kHz)	Comments
2440 to 2441	949.90	925.85	24.05	



Title: F8Z492V2.
Comment A: Channel Separation.
Date: 17.NOV.2014 09:31:57

HOPPING CHANNELS

DATA SHEETS



Title: F8Z492.
Comment A: Hopping Channels.
Date: 2.JUN.2014 09:09:19